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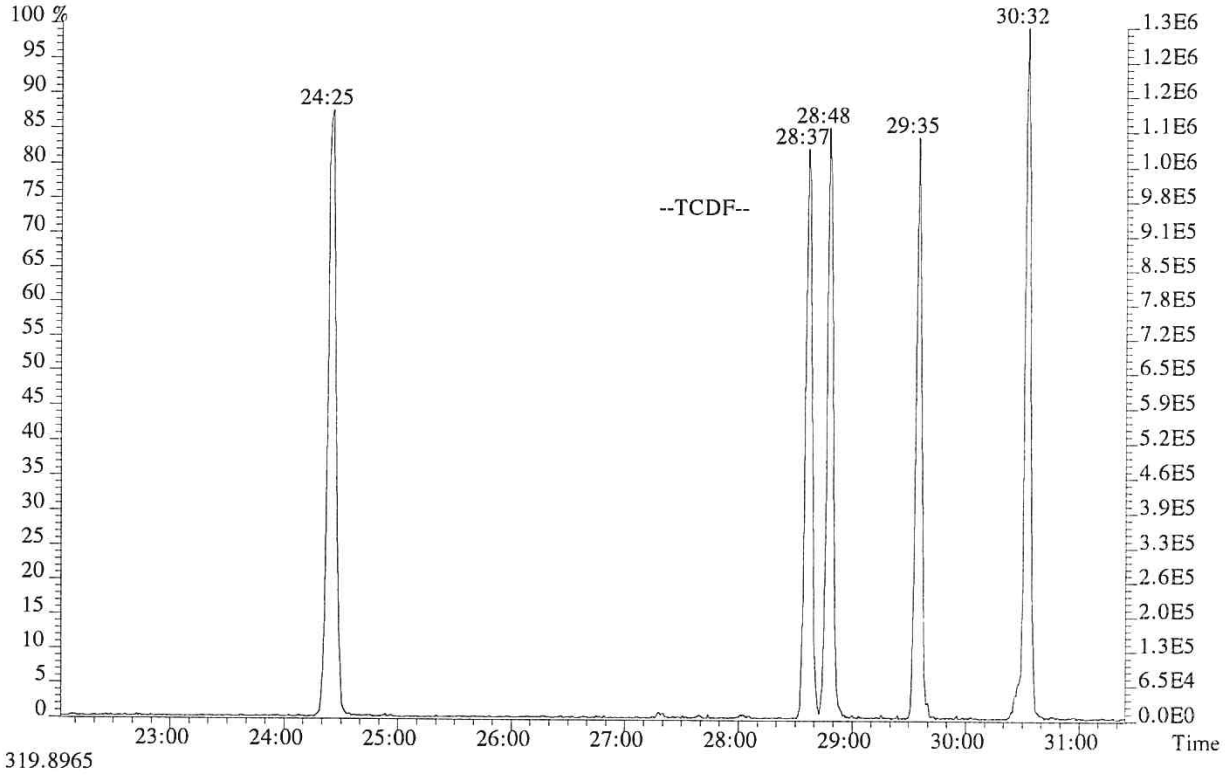
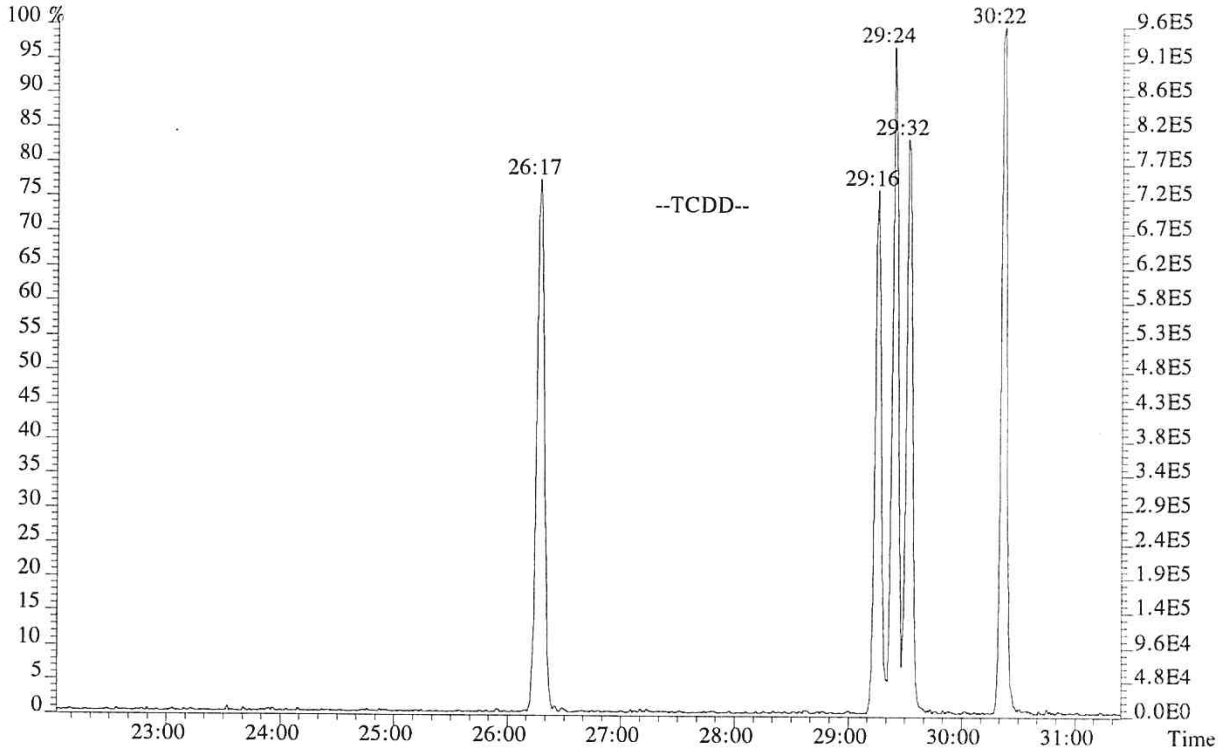
Sample#1 Exp:183360
303.9016



319.8965



90054675

013589

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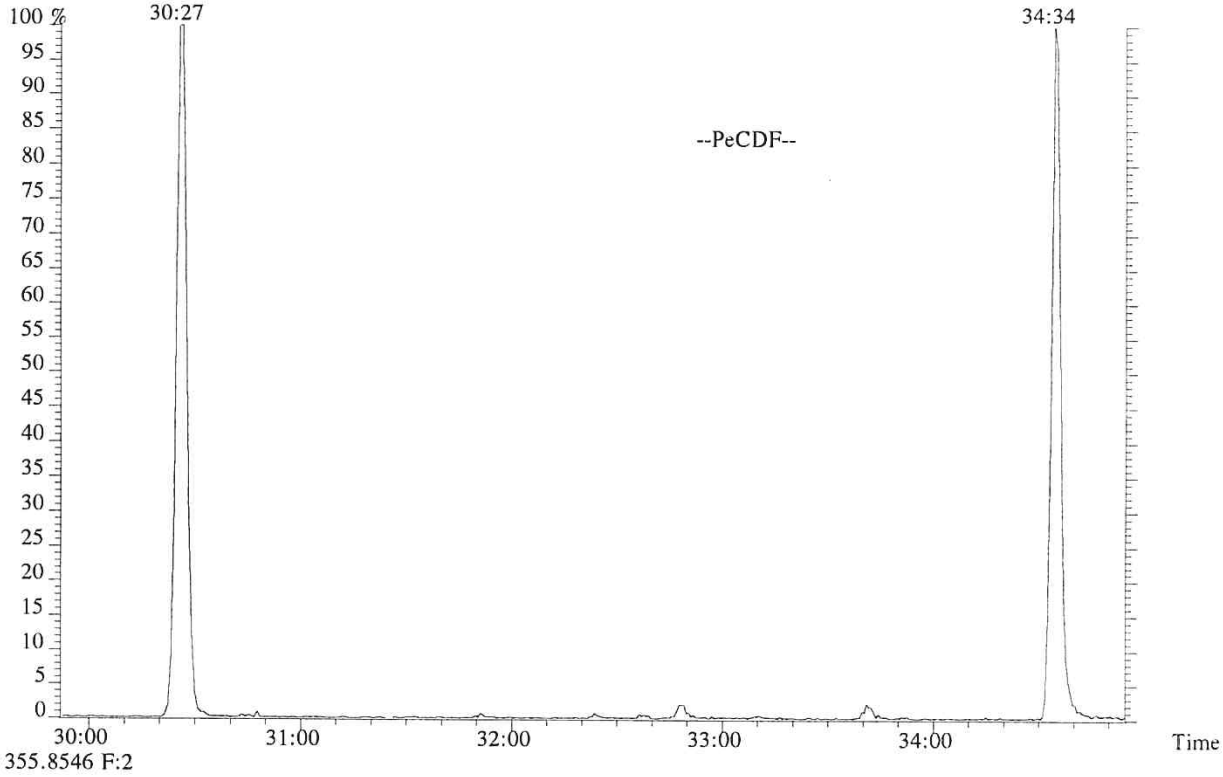
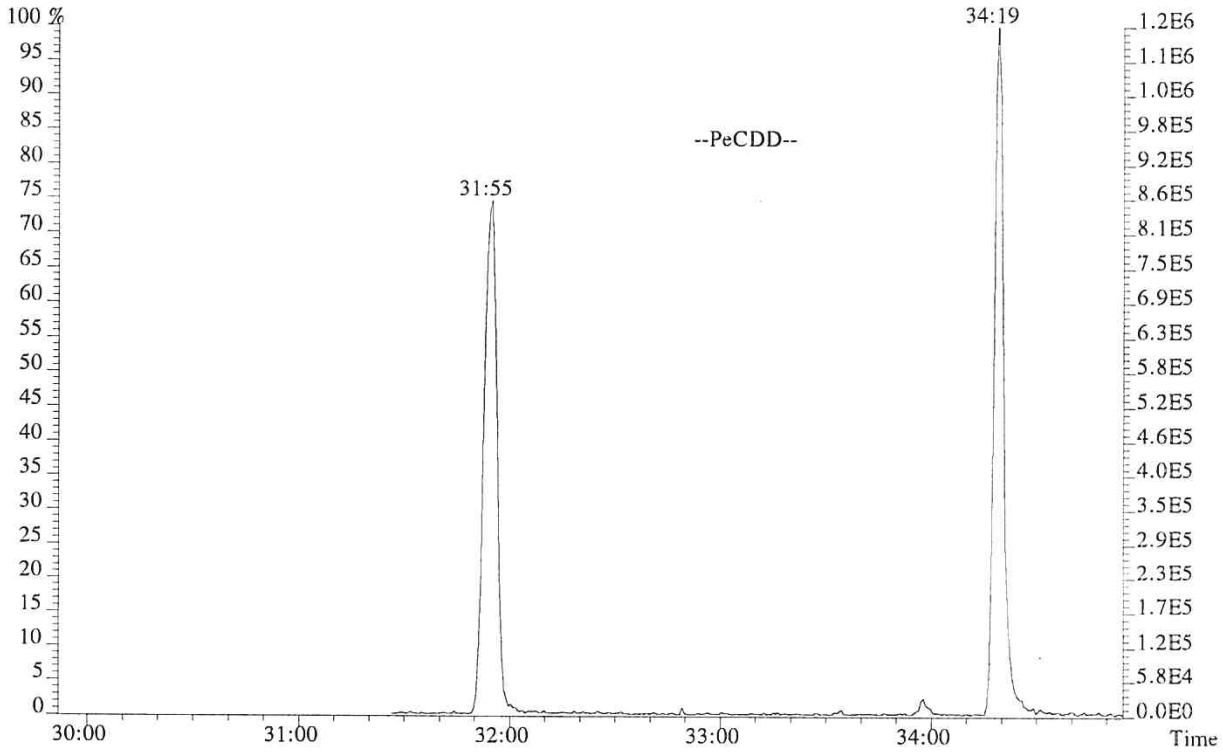
Sample#1 Exp:183360
339.8597,339.8597 F:2



355.8546 F:2



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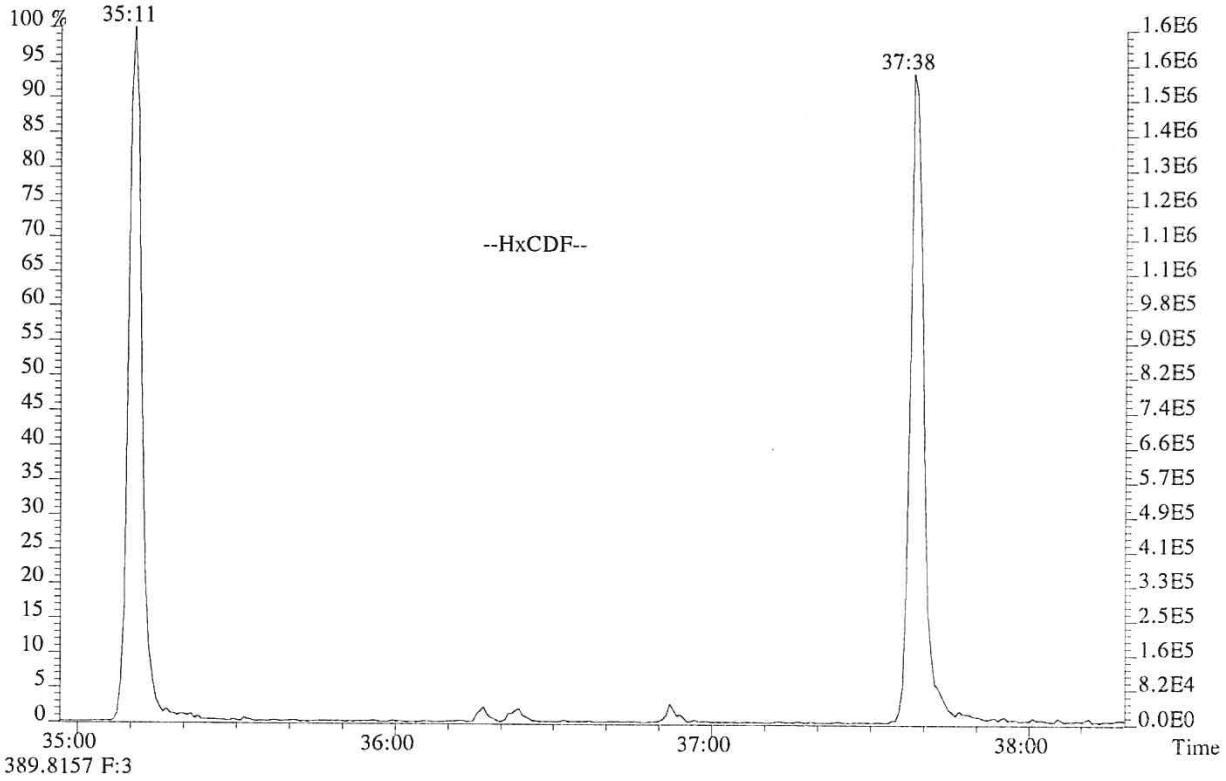
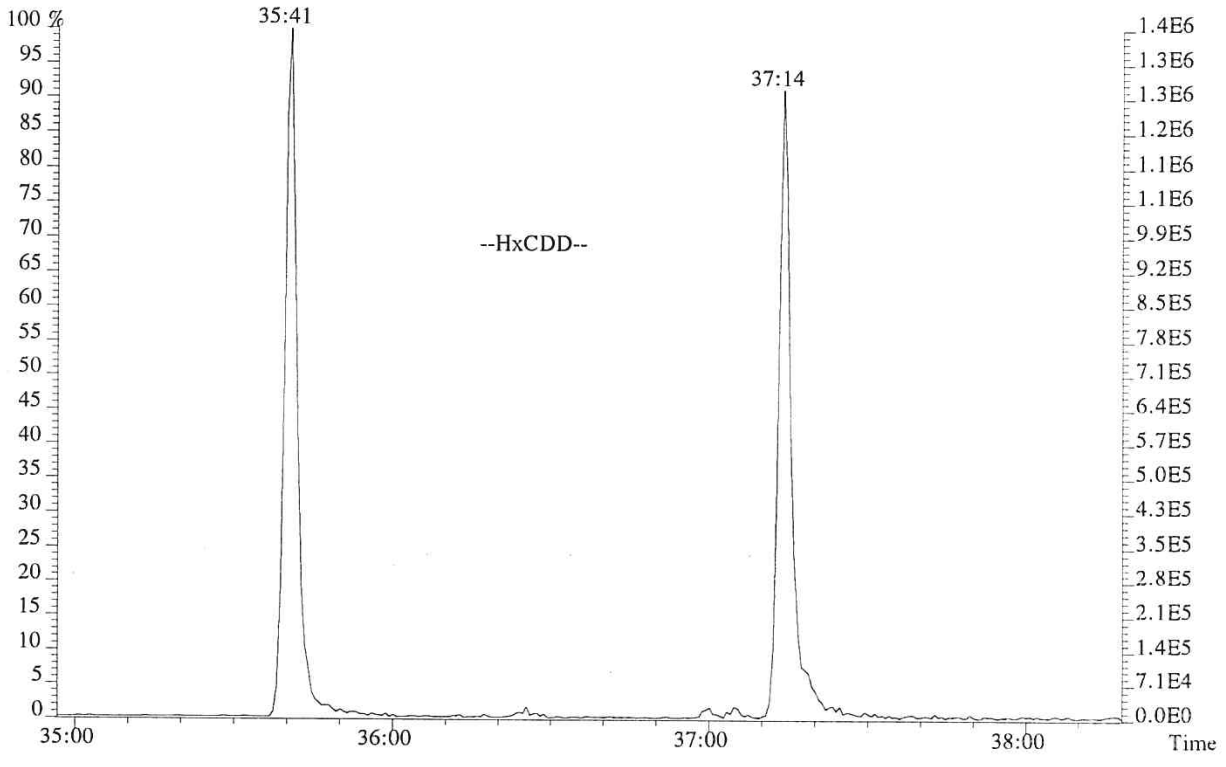
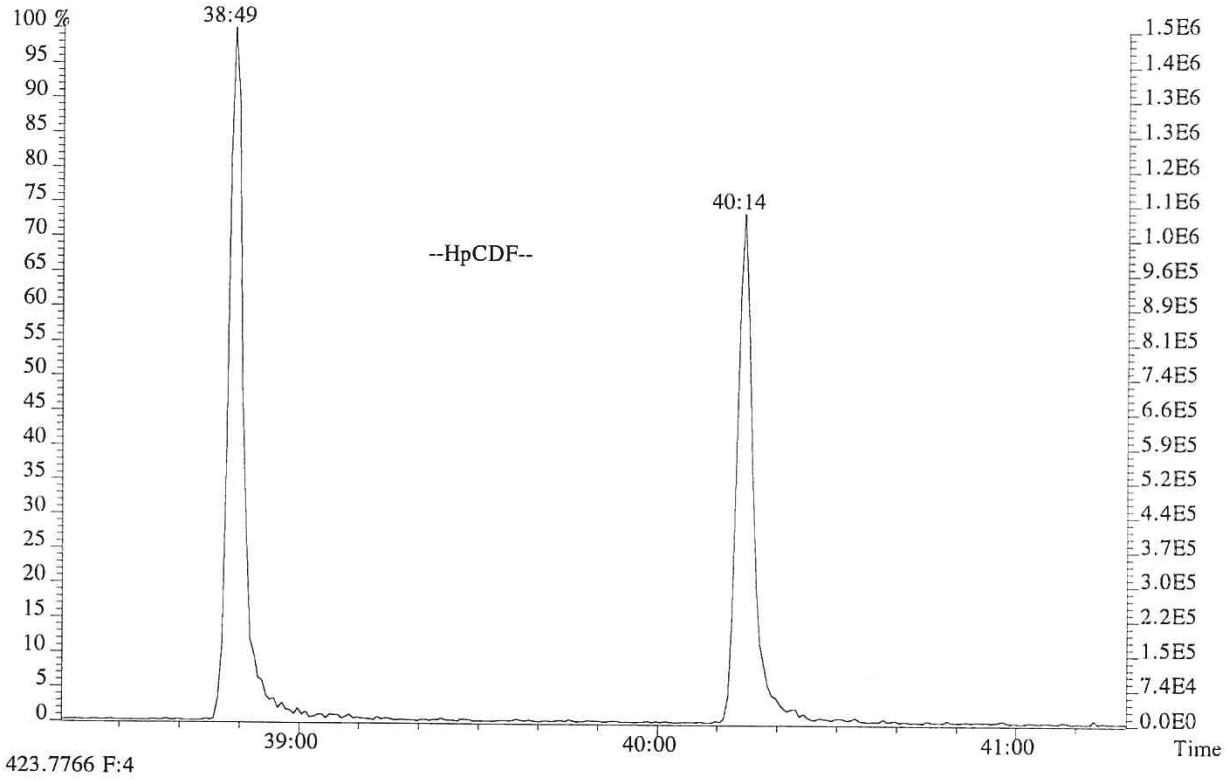
Sample#1 Exp:183360
373.8208 F:3



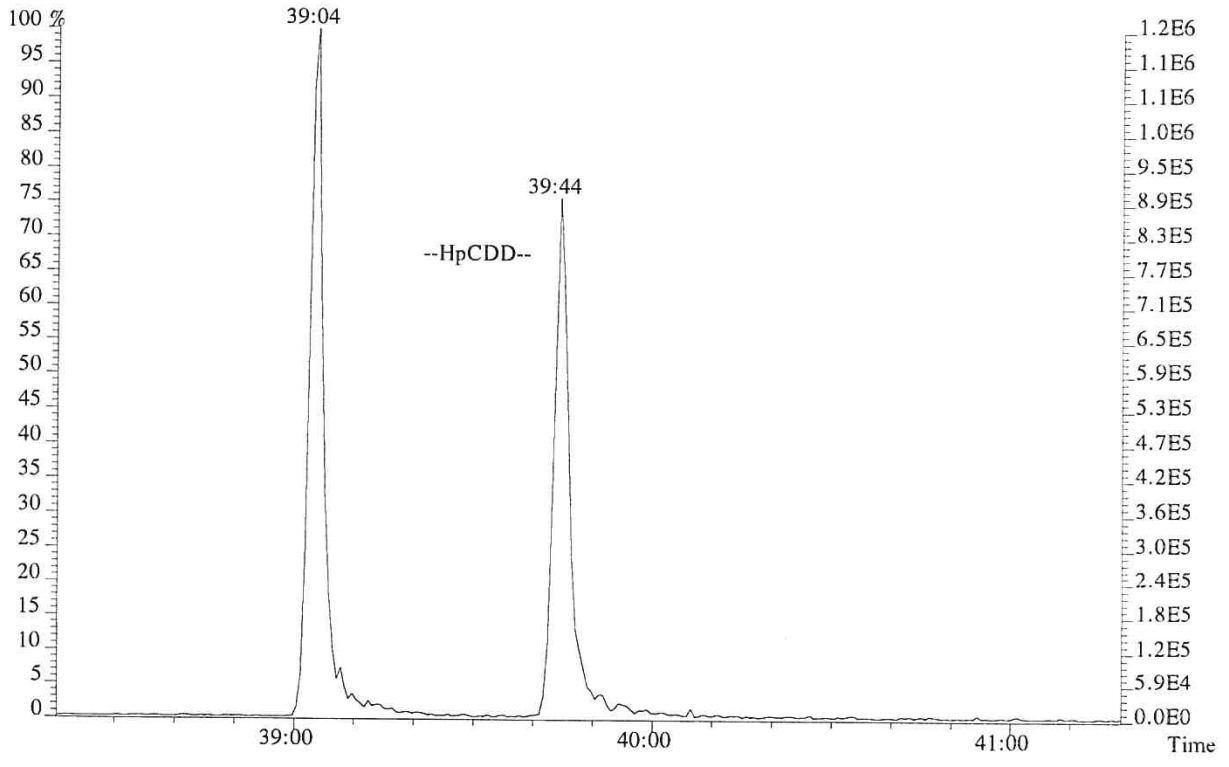
389.8157 F:3



File:P513848 #1-268 Acq:24-JAN-2018 11:44:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:183360
407.7818 F:4



423.7766 F:4



USEPA - CLP
6DFA6
CDD/CDF INITIAL CALIBRATION RESPONSE FACTOR SUMMARY
HIGH RESOLUTION

Lab Name: ALS Environmental
Lab Code: ALSTX Case No.:
GC Column: DB-5MSUI ID: 0.25(mm)
Init. Calib. Date(s).: 01/24/18
Init. Calib. Time.: 11:44

Contract No.:
TO No.: SDG No.:
Instrument ID: E-HRMS-07
Method 1613/8290

RR/RRF

Target Analytes	CS0.5	CS1	CS2	CS3	CS4	CS5	MEAN RR/RRF	%RSD	QC LIMITS
2,3,7,8-TCDD	1.10	1.07	1.06	1.07	1.10	1.11	1.09	1.96	+/-20%
2,3,7,8-TCDF	0.89	0.96	0.91	0.94	0.96	0.99	0.94	4.09	+/-20%
1,2,3,7,8-PeCDF	0.93	0.98	1.02	1.03	1.06	1.06	1.01	5.02	+/-20%
1,2,3,7,8-PeCDD	0.92	0.97	0.96	0.95	0.97	0.97	0.96	2.08	+/-20%
2,3,4,7,8-PeCDF	0.87	0.94	0.98	0.97	0.99	1.00	0.96	4.97	+/-20%
1,2,3,4,7,8-HxCDF	1.07	1.13	1.22	1.21	1.25	1.26	1.19	6.34	+/-20%
1,2,3,6,7,8-HxCDF	1.06	1.07	1.13	1.13	1.17	1.17	1.12	4.28	+/-20%
1,2,3,4,7,8-HxCDD	0.96	1.04	1.03	1.06	1.06	1.07	1.04	3.78	+/-20%
1,2,3,6,7,8-HxCDD	1.00	1.06	1.03	1.03	1.05	1.06	1.04	2.33	+/-20%
1,2,3,7,8,9-HxCDD	0.98	1.06	1.10	1.06	1.07	1.10	1.06	4.09	+/-20%
2,3,4,6,7,8-HxCDF	1.01	1.09	1.12	1.13	1.15	1.17	1.11	5.18	+/-20%
1,2,3,7,8,9-HxCDF	1.08	1.10	1.15	1.17	1.18	1.18	1.14	3.94	+/-20%
1,2,3,4,6,7,8-HpCDF	1.31	1.32	1.36	1.37	1.37	1.38	1.35	2.22	+/-20%
1,2,3,4,6,7,8-HpCDD	1.00	0.98	1.05	1.03	1.05	1.04	1.02	2.88	+/-20%
1,2,3,4,7,8,9-HpCDF	1.18	1.23	1.29	1.30	1.28	1.27	1.26	3.68	+/-20%
OCDD	1.05	1.14	1.14	1.13	1.12	1.12	1.12	2.97	+/-20%
OCDF	1.26	1.39	1.35	1.33	1.39	1.43	1.36	4.36	+/-20%
Labeled Compounds									
13C-2,3,7,8-TCDD	0.91	0.87	0.93	0.90	0.94	0.98	0.92	4.14	+/-35%
13C-1,2,3,7,8-PeCDD	0.91	0.83	1.03	0.99	1.01	1.08	0.98	9.21	+/-35%
13C-1,2,3,4,7,8-HxCDD	0.94	0.90	0.90	0.95	0.93	0.92	0.92	2.06	+/-35%
13C-1,2,3,6,7,8-HxCDD	0.96	0.96	0.94	0.97	0.97	0.91	0.95	2.50	+/-35%
13C-1,2,3,4,6,7,8-HpCDD	0.81	0.92	0.79	0.88	0.90	0.85	0.86	5.83	+/-35%
13C-OCDD	0.52	0.63	0.58	0.58	0.62	0.57	0.58	6.90	+/-35%
13C-2,3,7,8-TCDF	1.45	1.48	1.53	1.60	1.53	1.49	1.51	3.54	+/-35%
13C-1,2,3,7,8-PeCDF	1.37	1.32	1.50	1.50	1.52	1.62	1.47	7.34	+/-35%
13C-2,3,4,7,8-PeCDF	1.36	1.29	1.50	1.46	1.52	1.61	1.46	7.94	+/-35%
13C-1,2,3,4,7,8-HxCDF	1.22	1.27	1.18	1.29	1.25	1.19	1.23	3.63	+/-35%
13C-1,2,3,6,7,8-HxCDF	1.40	1.48	1.34	1.42	1.41	1.34	1.40	3.84	+/-35%
13C-2,3,4,6,7,8-HxCDF	1.26	1.26	1.23	1.27	1.28	1.23	1.26	1.87	+/-35%
13C-1,2,3,7,8,9-HxCDF	1.03	1.17	1.06	1.00	1.17	1.08	1.09	6.47	+/-35%
13C-1,2,3,4,6,7,8-HpCDF	0.96	1.02	0.92	0.99	0.98	0.93	0.97	3.83	+/-35%
13C-1,2,3,4,7,8,9-HpCDF	0.76	0.95	0.79	0.74	0.86	0.82	0.82	9.19	+/-35%
37Cl-2,3,7,8-TCDD	0.93	0.96	1.03	1.00	1.05	1.11	1.01	6.21	+/-35%

1.123789-HxCDD Relative Response (RR) is calculated based on the labeled analog of the other two HxCDDs.
2. OCDF RR is calculated based on the labeled analog of OCDD

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-07
Init. Calib. Date(s).: 01/24/18 Method 1613/8290
Init. Calib. Time.: 11:44

Target Analytes	SELECTED IONS	ION ABUNDANCE RATIO CS0.5	CS1	CS2	CS3	CS4	CS5	FLAG	ION RATIO QC LIMITS
2,3,7,8-TCDF	304/306	0.76	0.72	0.74	0.75	0.77	0.77		0.65-0.89
2,3,7,8-TCDD	320/322	0.73	0.88	0.76	0.79	0.78	0.78		0.65-0.89
1,2,3,7,8-PeCDF	340/342	1.42	1.54	1.48	1.53	1.54	1.55		1.32-1.78
2,3,4,7,8-PeCDF	340/342	1.48	1.46	1.50	1.52	1.53	1.54		1.32-1.78
1,2,3,7,8-PeCDD	356/358	1.64	1.66	1.58	1.56	1.56	1.57		1.32-1.78
1,2,3,4,7,8-HxCDF	374/376	1.18	1.20	1.20	1.22	1.22	1.23		1.05-1.43
1,2,3,6,7,8-HxCDF	374/376	1.28	1.17	1.21	1.21	1.22	1.24		1.05-1.43
2,3,4,6,7,8-HxCDF	374/376	1.12	1.24	1.22	1.22	1.21	1.22		1.05-1.43
1,2,3,7,8,9-HxCDF	374/376	1.19	1.33	1.22	1.21	1.24	1.23		1.05-1.43
1,2,3,4,7,8-HxCDD	390/392	1.32	1.26	1.25	1.25	1.25	1.26		1.05-1.43
1,2,3,6,7,8-HxCDD	390/392	1.09	1.35	1.26	1.26	1.26	1.26		1.05-1.43
1,2,3,7,8,9-HxCDD	390/392	1.23	1.21	1.24	1.28	1.26	1.25		1.05-1.43
1,2,3,4,6,7,8-HpCDF	408/410	0.98	1.03	1.02	1.02	1.03	1.04		0.88-1.20
1,2,3,4,7,8,9-HpCDF	408/410	1.03	0.96	1.01	1.03	1.03	1.04		0.88-1.20
1,2,3,4,6,7,8-HpCDD	424/426	0.99	1.11	1.04	1.05	1.05	1.05		0.88-1.20
OCDF	442/444	0.88	0.95	0.89	0.90	0.91	0.91		0.76-1.02
OCDD	458/460	0.86	0.88	0.89	0.89	0.89	0.89		0.76-1.02
13C-2,3,7,8-TCDD	332/334	0.81	0.80	0.80	0.80	0.81	0.80		0.65-0.89
13C-1,2,3,7,8-PeCDD	368/370	1.60	1.59	1.59	1.58	1.59	1.59		1.32-1.78
13C-1,2,3,4,7,8-HxCDD	402/404	1.29	1.27	1.26	1.33	1.27	1.28		1.05-1.43
13C-1,2,3,6,7,8-HxCDD	402/404	1.26	1.28	1.27	1.20	1.26	1.26		1.05-1.43
13C-1,2,3,4,6,7,8-HpCDD	436/438	1.06	1.04	1.06	1.06	1.08	1.06		0.88-1.20
13C-OCDD	470/472	0.90	0.91	0.90	0.89	0.90	0.89		0.76-1.02
13C-2,3,7,8-TCDF	316/318	0.79	0.79	0.80	0.79	0.79	0.79		0.65-0.89
13C-1,2,3,7,8-PeCDF	352/354	1.58	1.60	1.59	1.58	1.58	1.59		1.32-1.78
13C-2,3,4,7,8-PeCDF	352/354	1.58	1.58	1.58	1.58	1.58	1.58		1.32-1.78
13C-1,2,3,4,7,8-HxCDF	384/386	0.53	0.52	0.52	0.53	0.53	0.53		0.43-0.59
13C-1,2,3,6,7,8-HxCDF	384/386	0.53	0.53	0.53	0.53	0.53	0.53		0.43-0.59
13C-2,3,4,6,7,8-HxCDF	384/386	0.52	0.52	0.52	0.52	0.53	0.52		0.43-0.59
13C-1,2,3,7,8,9-HxCDF	384/386	0.52	0.52	0.53	0.53	0.52	0.52		0.43-0.59
13C-1,2,3,4,6,7,8-HpCDF	418/420	0.45	0.45	0.45	0.45	0.45	0.45		0.37-0.51
13C-1,2,3,4,7,8,9-HpCDF	418/420	0.45	0.44	0.45	0.45	0.45	0.45		0.37-0.51
13C-1,2,3,4-TCDD	332/334	0.81	0.82	0.81	0.81	0.82	0.82		0.65-0.89
13C-1,2,3,7,8,9-HxCDD	402/404	1.26	1.25	1.27	1.23	1.25	1.25		1.05-1.43

Quality Control (QC) limits represent +/- 15% window around the theoretical ion abundance ratio. The laboratory must flag any analyte in any calibration solution which does not meet the ion abundance ratio QC limit by placing an asterisk in the flag column.

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76554

Run #1 Filename P513850 Samp: 1 Inj: 1 Acquired: 24-JAN-18 13:32:06
Processed: 24-JAN-18 15:49:37 Sample ID: CS0.5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	3.276e+02	4.332e+02	0.76	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	2.212e+03	1.557e+03	1.42	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:42	2.093e+03	1.410e+03	1.48	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:17	1.728e+03	1.459e+03	1.18	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	2.025e+03	1.584e+03	1.28	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:53	1.636e+03	1.459e+03	1.12	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	1.473e+03	1.234e+03	1.19	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	1.513e+03	1.543e+03	0.98	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	1.104e+03	1.067e+03	1.03	yes	no	1.258
10	Unk	OCDF	42:45	1.481e+03	1.680e+03	0.88	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	2.508e+02	3.419e+02	0.73	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:58	1.543e+03	9.381e+02	1.64	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	37:00	1.247e+03	9.443e+02	1.32	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	1.208e+03	1.105e+03	1.09	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	1.245e+03	1.015e+03	1.23	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	9.700e+02	9.817e+02	0.99	yes	no	1.025
17	Unk	OCDD	42:31	1.223e+03	1.416e+03	0.86	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:47	1.518e+05	1.920e+05	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:48	1.987e+05	1.259e+05	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:41	1.969e+05	1.249e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:16	8.196e+04	1.558e+05	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	9.429e+04	1.782e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:52	8.377e+04	1.622e+05	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:37	6.829e+04	1.322e+05	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	5.778e+04	1.288e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	4.552e+04	1.019e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:31	9.630e+04	1.195e+05	0.81	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	1.330e+05	8.317e+04	1.60	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	1.026e+05	7.962e+04	1.29	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	1.036e+05	8.231e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	8.056e+04	7.625e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	9.520e+04	1.052e+05	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:58	1.055e+05	1.310e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	1.085e+05	8.606e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	5.518e+02				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76554

Run #1 Filename P513850 Samp: 1 Inj: 1 Acquired: 24-JAN-18 13:32:06
Processed: 24-JAN-18 15:49:37 LAB. ID: CS0.5

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.43e+04	7.40e+02	8.7e+01	8.19e+04	1.58e+03	5.2e+01
2	1,2,3,7,8-PeCDF	4.30e+05	1.01e+03	4.3e+02	3.00e+05	2.96e+03	1.0e+02
3	2,3,4,7,8-PeCDF	4.25e+05	1.01e+03	4.2e+02	2.98e+05	2.96e+03	1.0e+02
4	1,2,3,4,7,8-HxCDF	3.96e+05	8.76e+02	4.5e+02	3.10e+05	2.44e+02	1.3e+03
5	1,2,3,6,7,8-HxCDF	4.08e+05	8.76e+02	4.7e+02	3.20e+05	2.44e+02	1.3e+03
6	2,3,4,6,7,8-HxCDF	3.56e+05	8.76e+02	4.1e+02	3.17e+05	2.44e+02	1.3e+03
7	1,2,3,7,8,9-HxCDF	3.08e+05	8.76e+02	3.5e+02	2.40e+05	2.44e+02	9.9e+02
8	1,2,3,4,6,7,8-HpCDF	3.07e+05	8.60e+02	3.6e+02	3.29e+05	5.36e+02	6.1e+02
9	1,2,3,4,7,8,9-HpCDF	2.09e+05	8.60e+02	2.4e+02	1.94e+05	5.36e+02	3.6e+02
10	OCDF	2.59e+05	6.40e+02	4.0e+02	2.85e+05	1.05e+03	2.7e+02
11	2,3,7,8-TCDD	4.96e+04	1.22e+03	4.1e+01	7.37e+04	7.32e+02	1.0e+02
12	1,2,3,7,8-PeCDD	3.05e+05	1.17e+03	2.6e+02	1.78e+05	1.88e+02	9.5e+02
13	1,2,3,4,7,8-HxCDD	2.70e+05	5.20e+02	5.2e+02	2.09e+05	4.64e+02	4.5e+02
14	1,2,3,6,7,8-HxCDD	2.52e+05	5.20e+02	4.8e+02	2.26e+05	4.64e+02	4.9e+02
15	1,2,3,7,8,9-HxCDD	2.55e+05	5.20e+02	4.9e+02	2.09e+05	4.64e+02	4.5e+02
16	1,2,3,4,6,7,8-HpCDD	1.84e+05	1.72e+02	1.1e+03	2.04e+05	1.92e+02	1.1e+03
17	OCDD	1.95e+05	1.24e+02	1.6e+03	2.29e+05	1.76e+03	1.3e+02
18	13C-2,3,7,8-TCDF	2.97e+07	7.00e+03	4.2e+03	3.74e+07	3.24e+03	1.2e+04
19	13C-1,2,3,7,8-PeCDF	3.75e+07	6.04e+02	6.2e+04	2.38e+07	1.03e+03	2.3e+04
20	13C-2,3,4,7,8-PeCDF	3.92e+07	6.04e+02	6.5e+04	2.45e+07	1.03e+03	2.4e+04
21	13C-1,2,3,4,7,8-HxCDF	1.77e+07	4.00e+02	4.4e+04	3.34e+07	1.14e+03	2.9e+04
22	13C-1,2,3,6,7,8-HxCDF	1.91e+07	4.00e+02	4.8e+04	3.65e+07	1.14e+03	3.2e+04
23	13C-2,3,4,6,7,8-HxCDF	1.78e+07	4.00e+02	4.5e+04	3.38e+07	1.14e+03	3.0e+04
24	13C-1,2,3,7,8,9-HxCDF	1.38e+07	4.00e+02	3.5e+04	2.65e+07	1.14e+03	2.3e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.16e+07	1.44e+03	8.1e+03	2.60e+07	5.60e+03	4.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	8.60e+06	1.44e+03	6.0e+03	1.92e+07	5.60e+03	3.4e+03
27	13C-2,3,7,8-TCDD	1.97e+07	6.10e+03	3.2e+03	2.45e+07	2.10e+03	1.2e+04
28	13C-1,2,3,7,8-PeCDD	2.62e+07	9.88e+02	2.7e+04	1.65e+07	6.72e+02	2.4e+04
29	13C-1,2,3,4,7,8-HxCDD	2.25e+07	4.24e+03	5.3e+03	1.74e+07	9.28e+02	1.9e+04
30	13C-1,2,3,6,7,8-HxCDD	2.12e+07	4.24e+03	5.0e+03	1.71e+07	9.28e+02	1.8e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.57e+07	9.20e+02	1.7e+04	1.49e+07	8.32e+02	1.8e+04
32	13C-OCDD	1.56e+07	1.68e+02	9.3e+04	1.71e+07	3.40e+02	5.0e+04
33	13C-1,2,3,4-TCDD	2.11e+07	6.10e+03	3.5e+03	2.60e+07	2.10e+03	1.2e+04
34	13C-1,2,3,7,8,9-HxCDD	2.13e+07	4.24e+03	5.0e+03	1.71e+07	9.28e+02	1.8e+04
35	37Cl-2,3,7,8-TCDD	1.10e+05	1.04e+03	1.1e+02			

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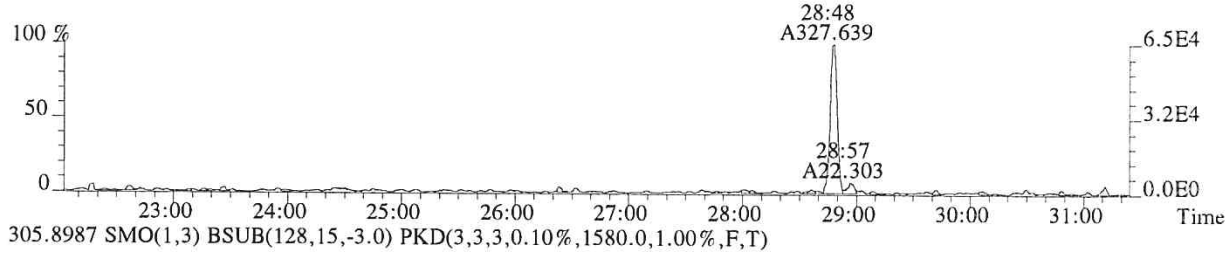
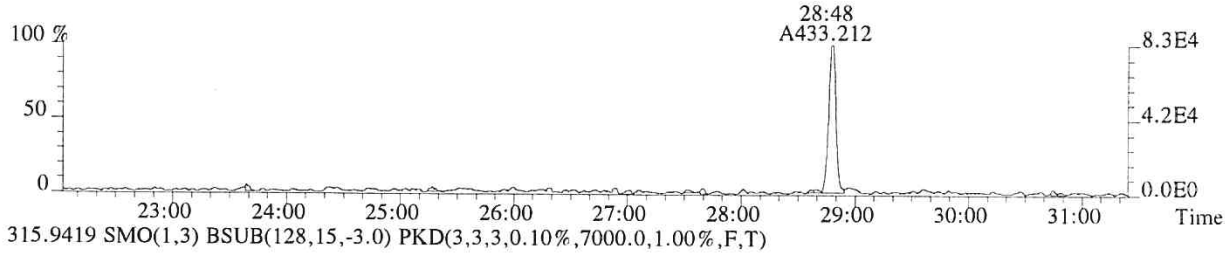
File:P513850 #1-665 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554

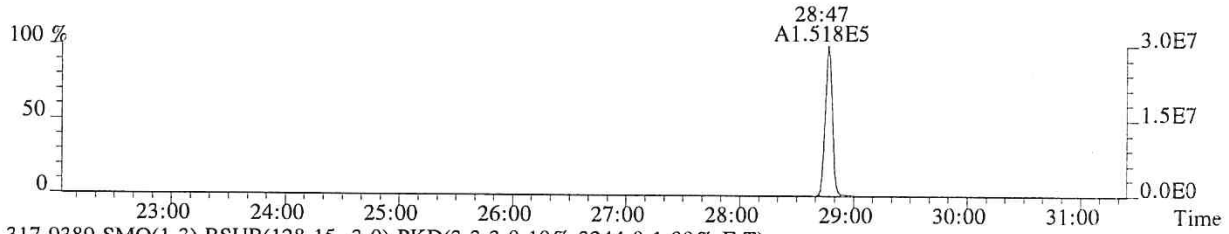
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,740.0,1.00%,F,T)



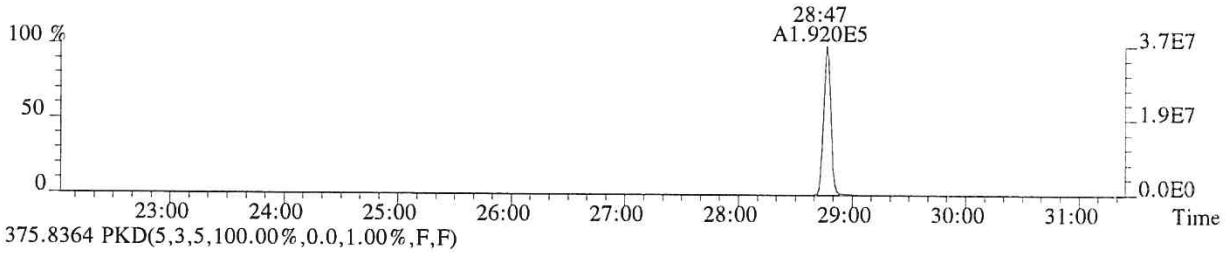
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1580.0,1.00%,F,T)



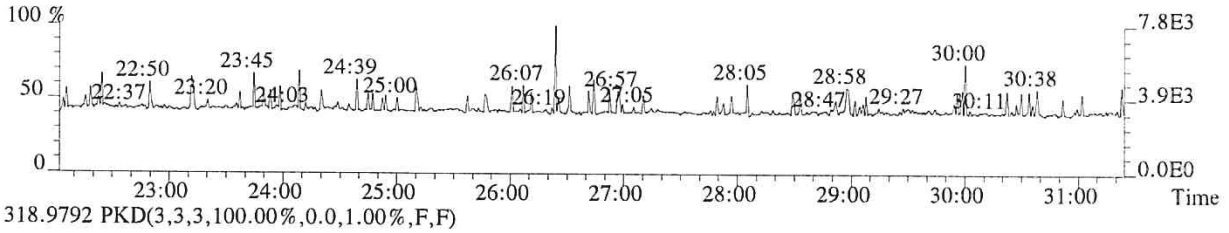
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7000.0,1.00%,F,T)



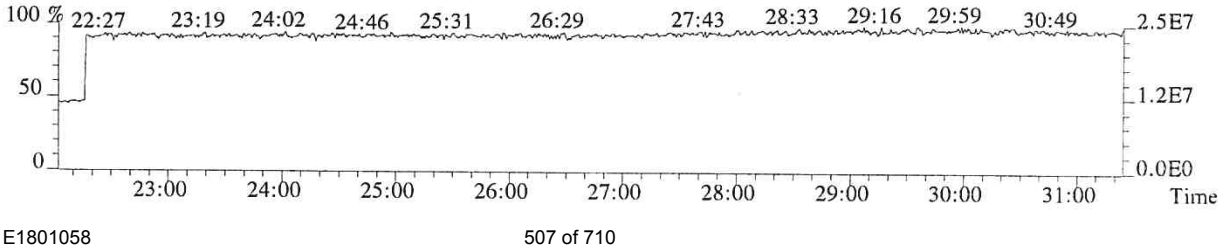
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3244.0,1.00%,F,T)



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

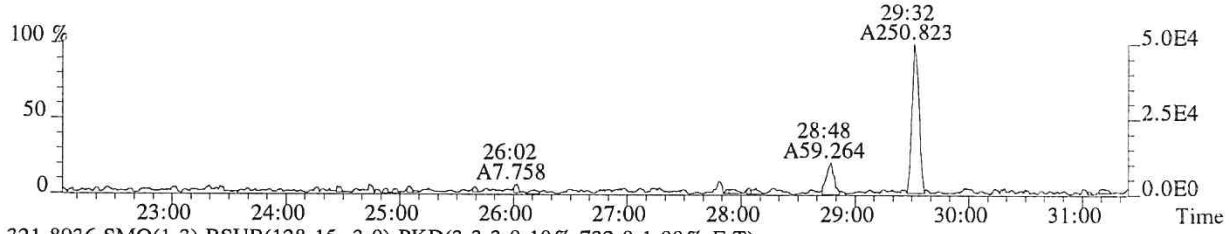


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

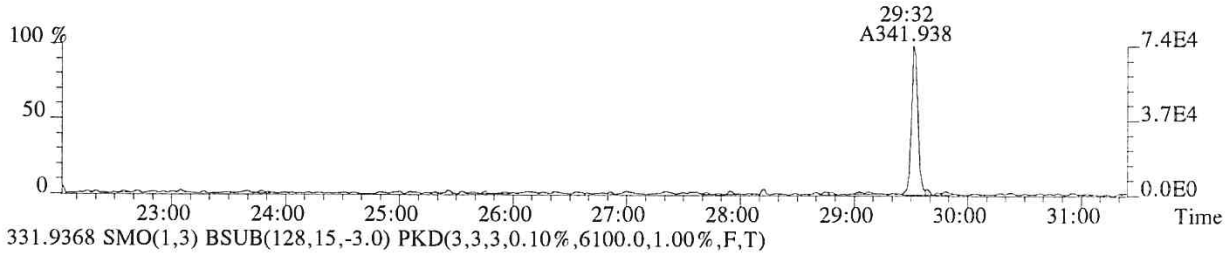


013597

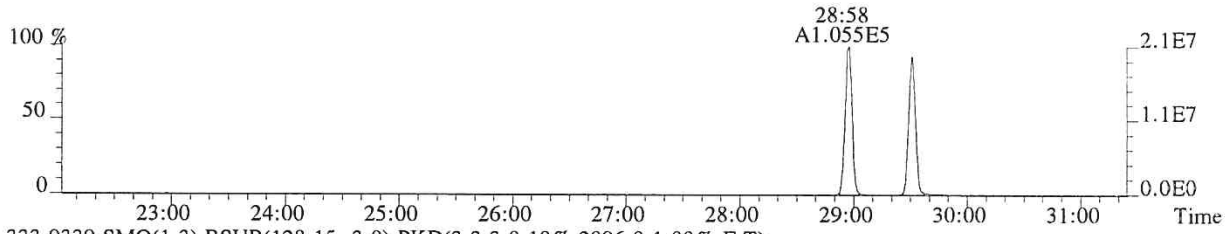
File:P513850 #1-665 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1220.0,1.00%,F,T)



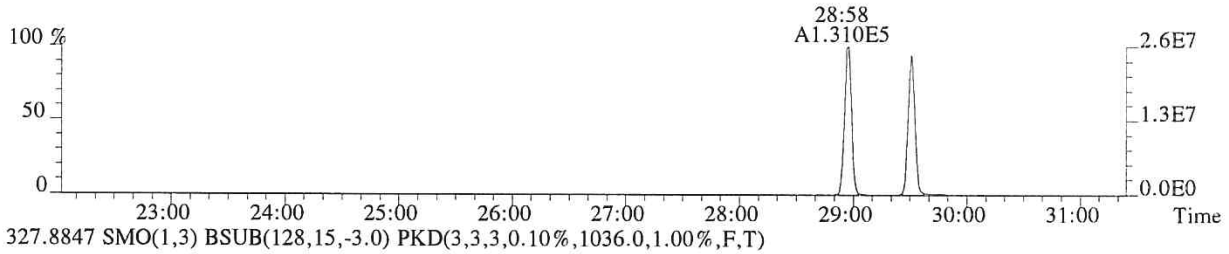
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,732.0,1.00%,F,T)



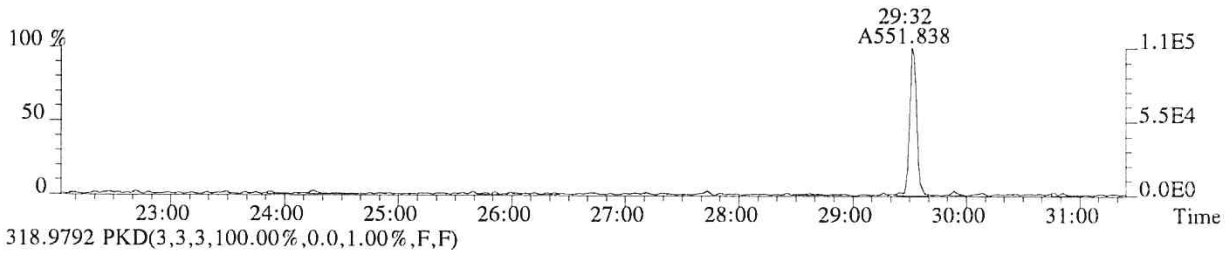
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6100.0,1.00%,F,T)



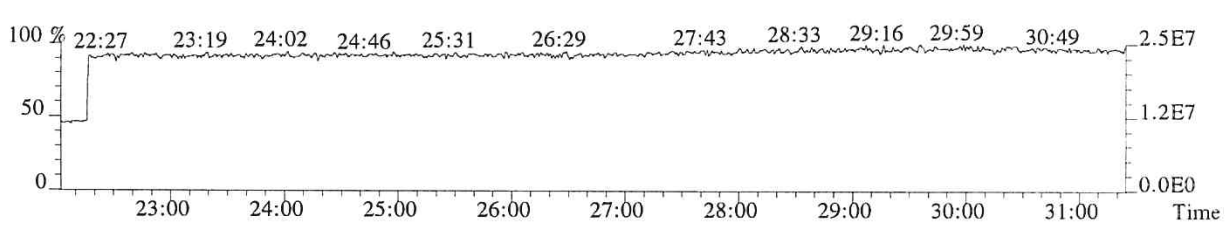
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2096.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1036.0,1.00%,F,T)

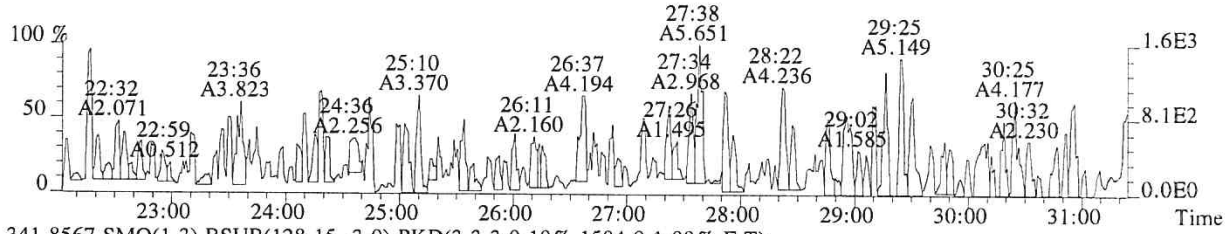


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

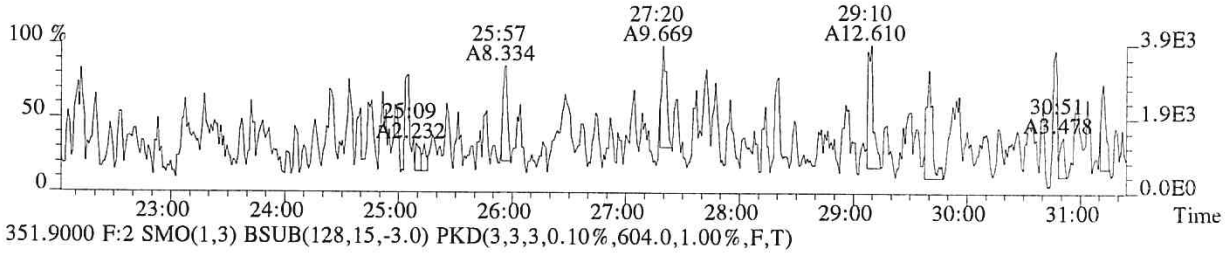


013598

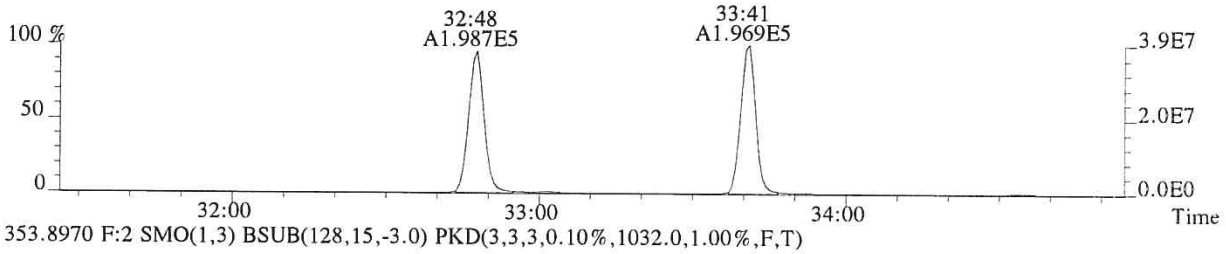
File:P513850 #1-665 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,244.0,1.00%,F,T)



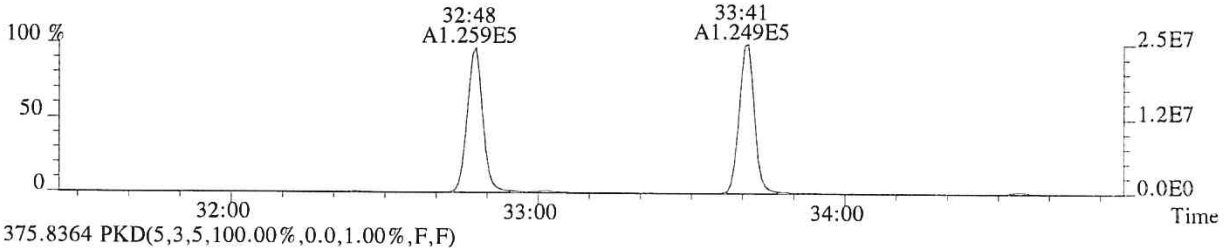
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1504.0,1.00%,F,T)



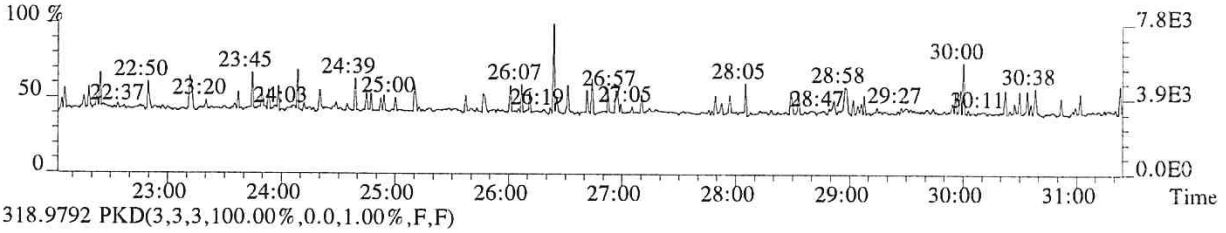
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



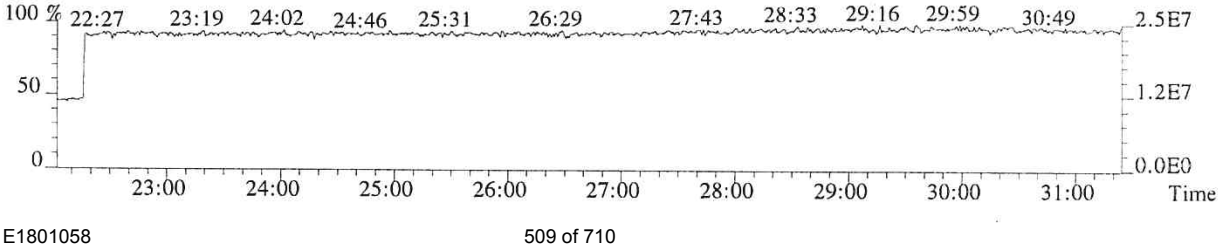
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



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

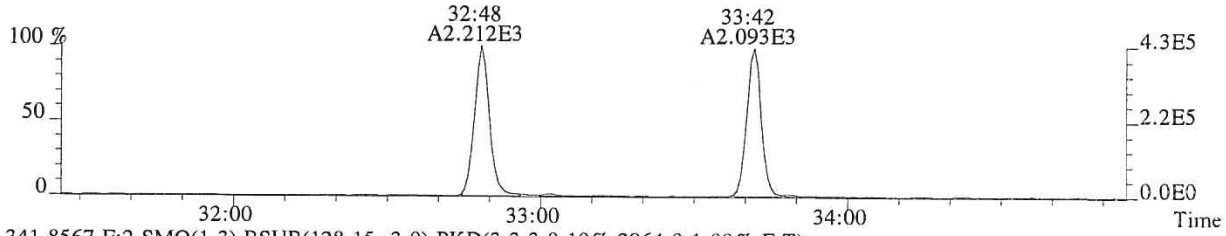


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

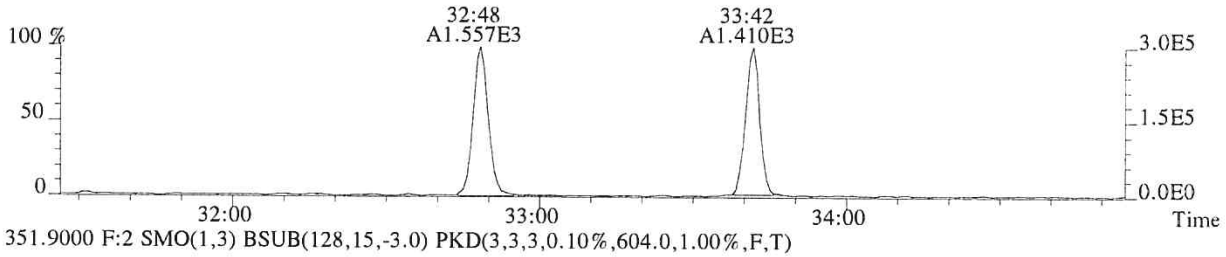


013599

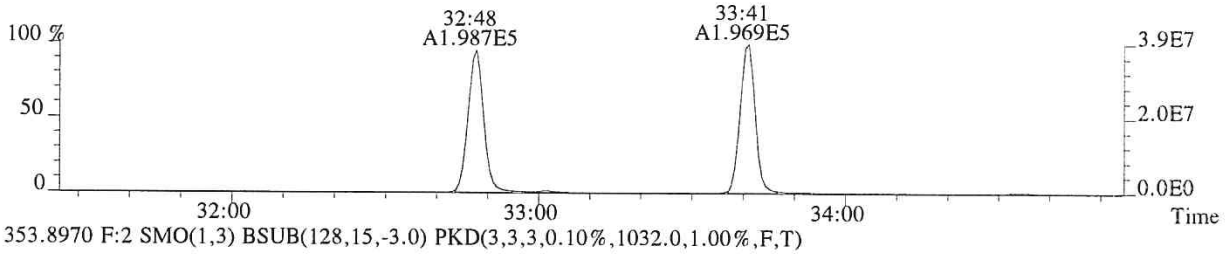
File:P513850 #1-313 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1008.0,1.00%,F,T)



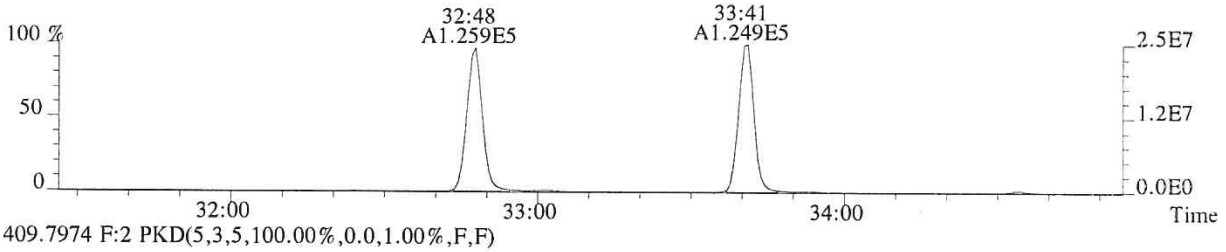
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2964.0,1.00%,F,T)



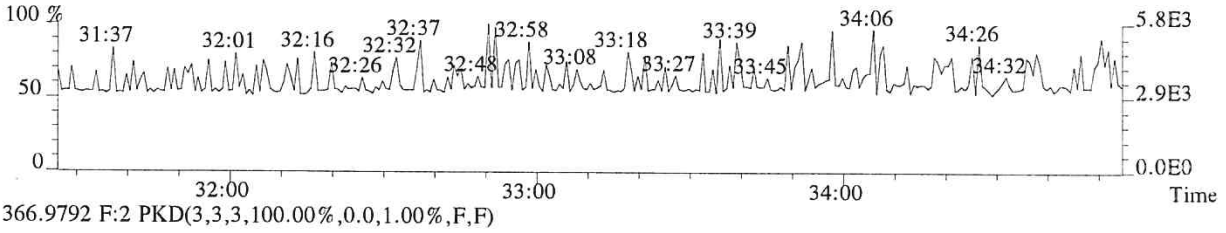
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



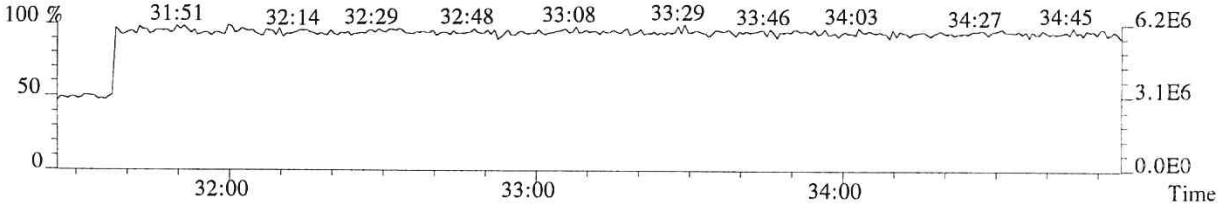
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



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

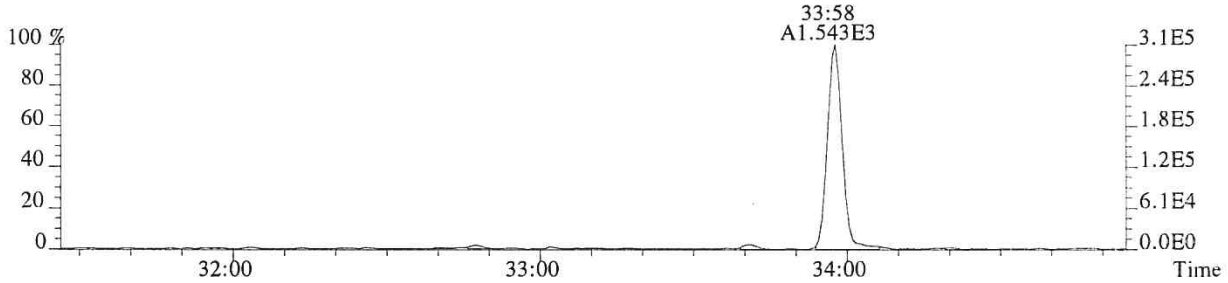


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

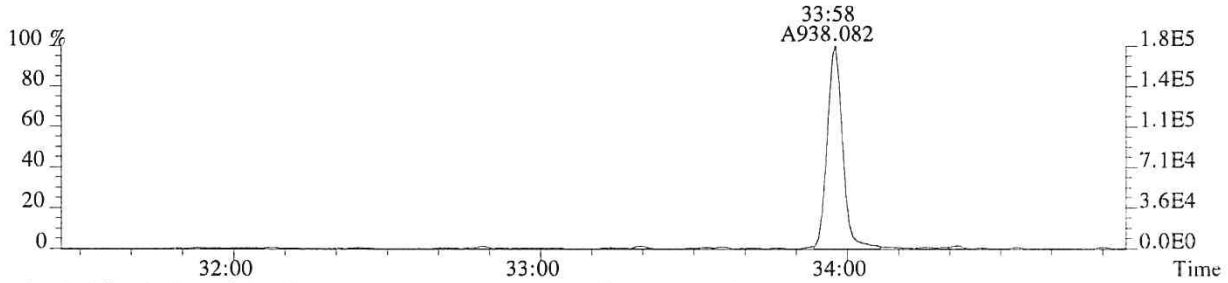


013600

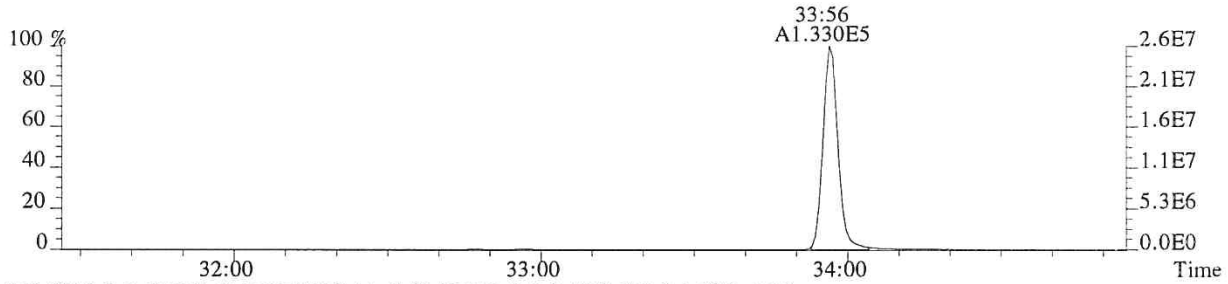
File:P513850 #1-313 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1172.0,1.00%,F,T)



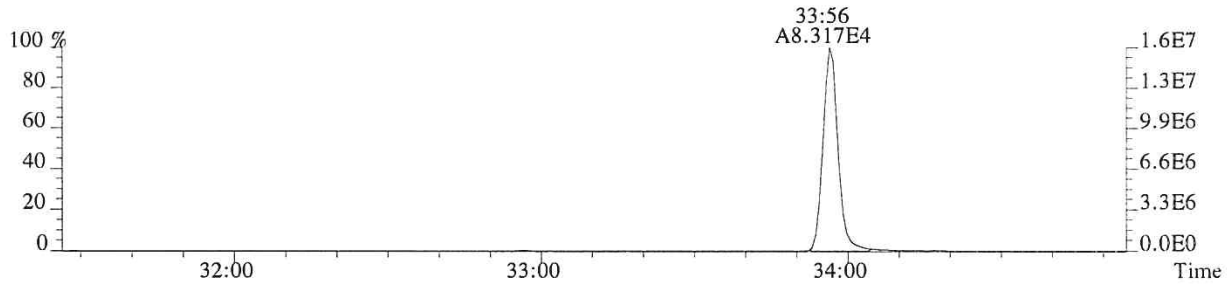
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,188.0,1.00%,F,T)



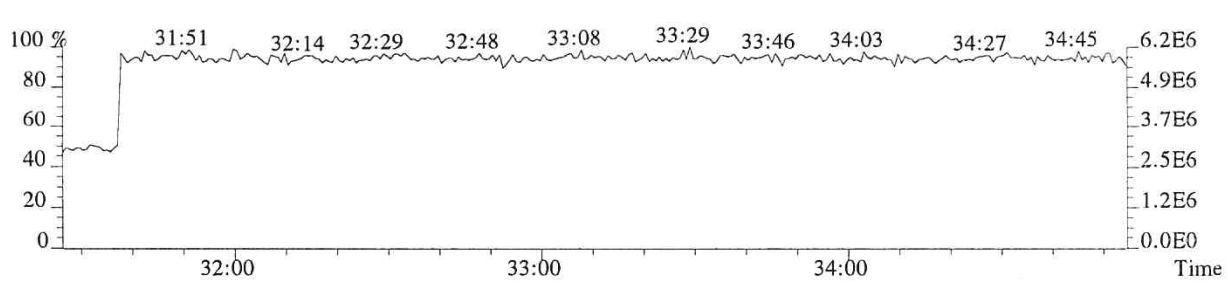
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,988.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,672.0,1.00%,F,T)

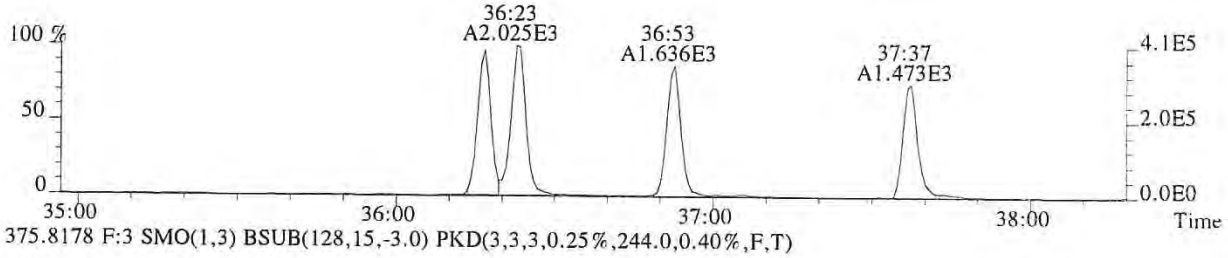


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

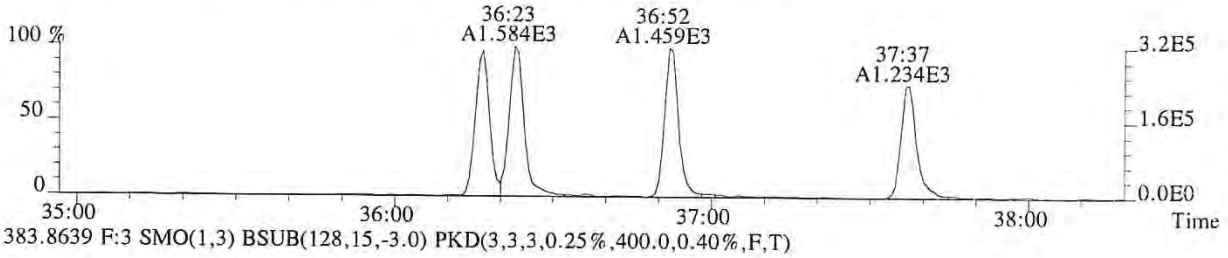


013601

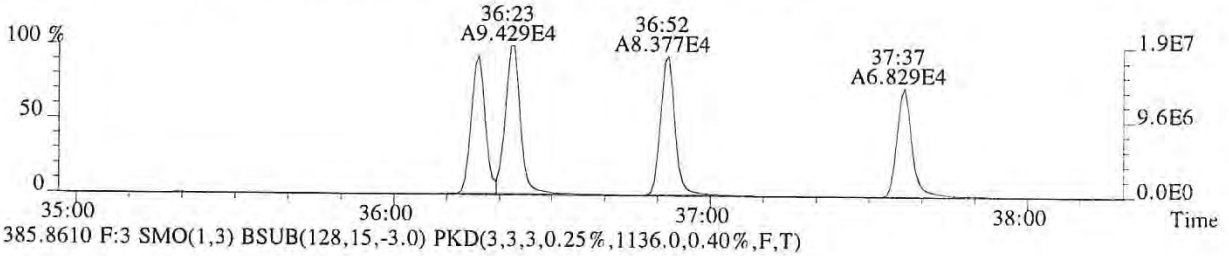
File:P513850 #1-303 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,876.0,0.40%,F,T)



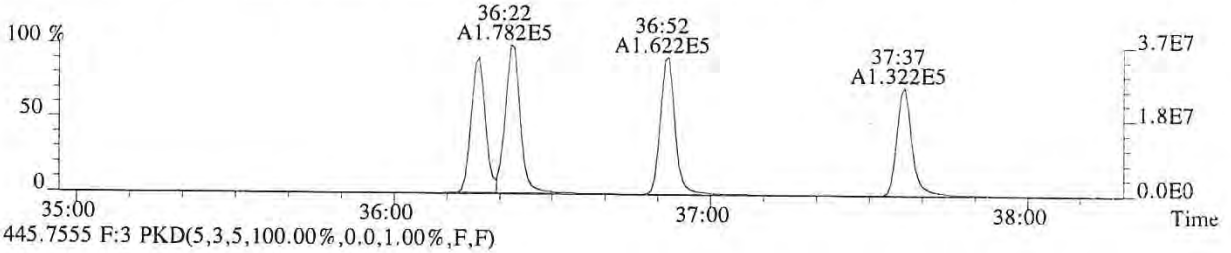
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,244.0,0.40%,F,T)



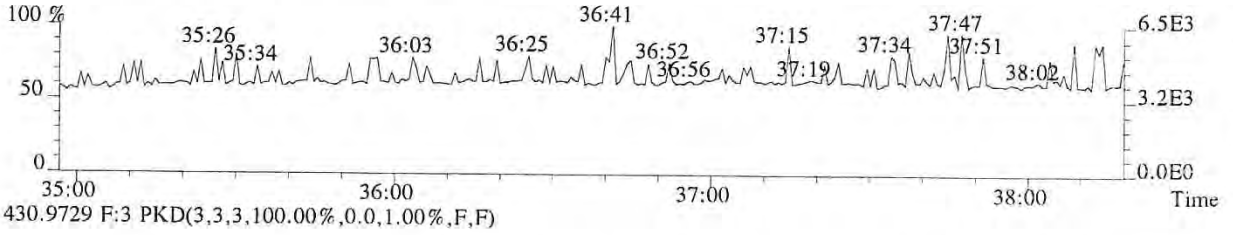
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,400.0,0.40%,F,T)



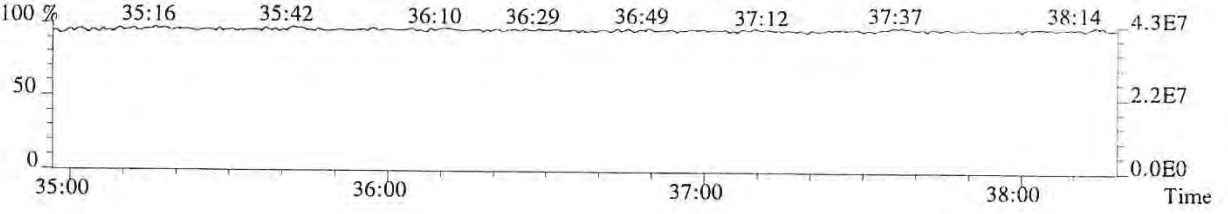
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1136.0,0.40%,F,T)



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

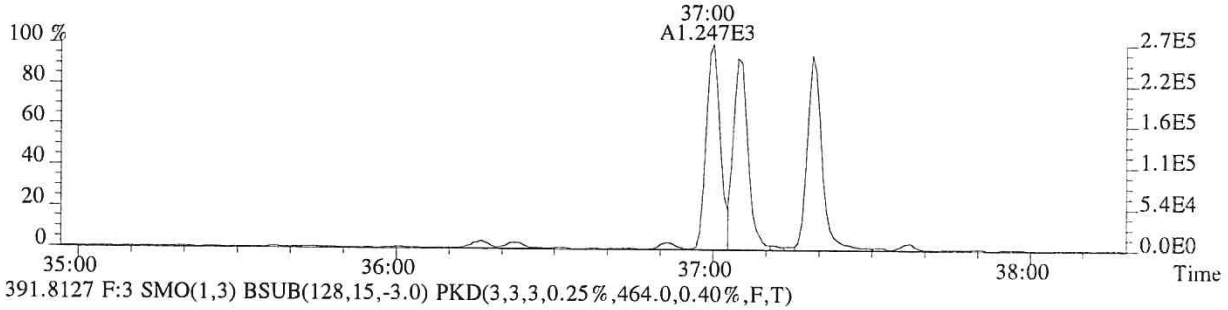


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

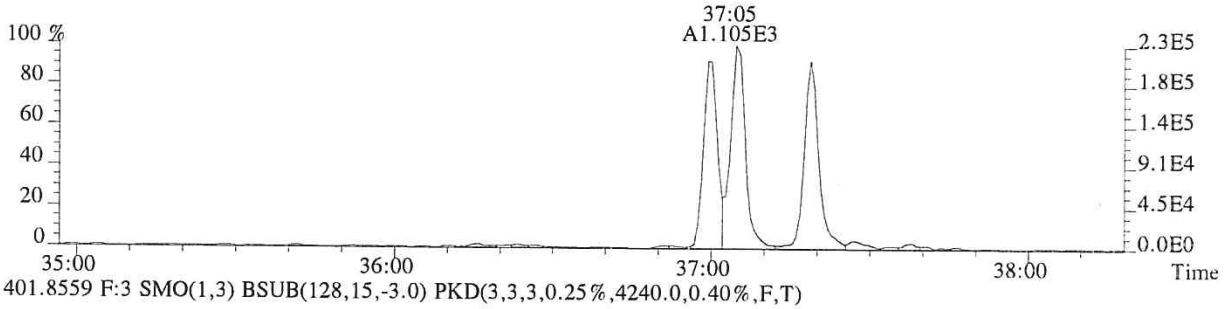


013602

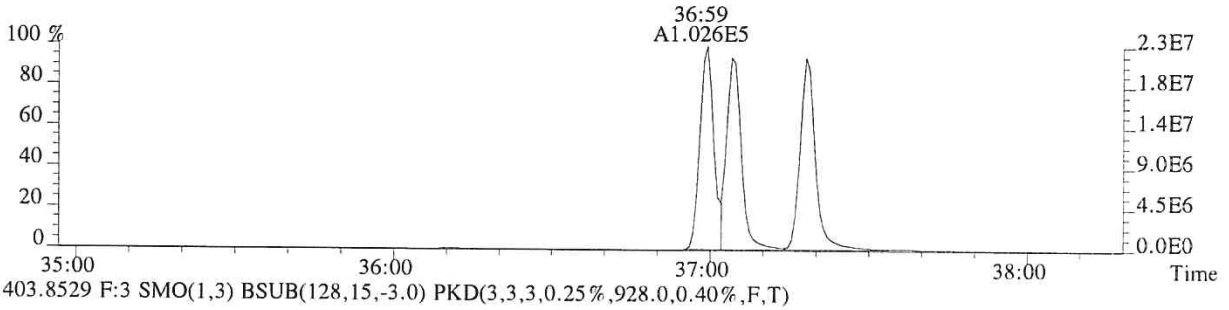
File:P513850 #1-303 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,520.0,0.40%,F,T)



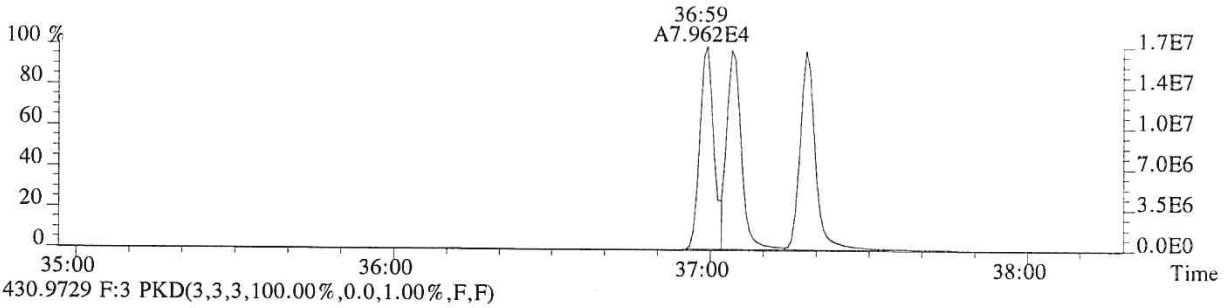
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,464.0,0.40%,F,T)



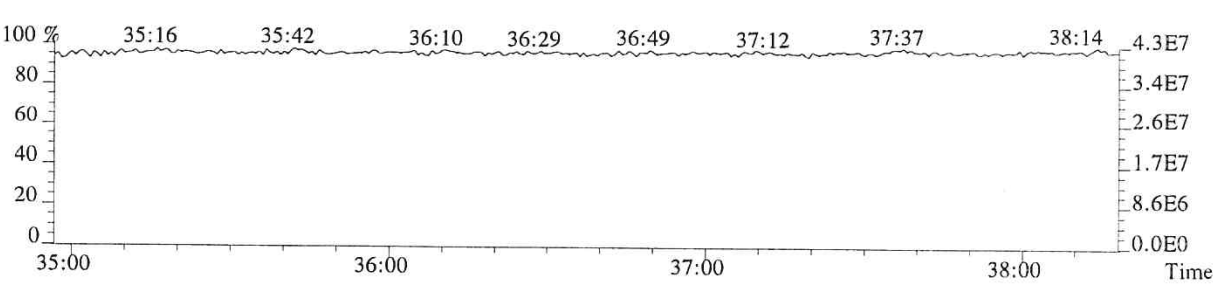
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4240.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,928.0,0.40%,F,T)

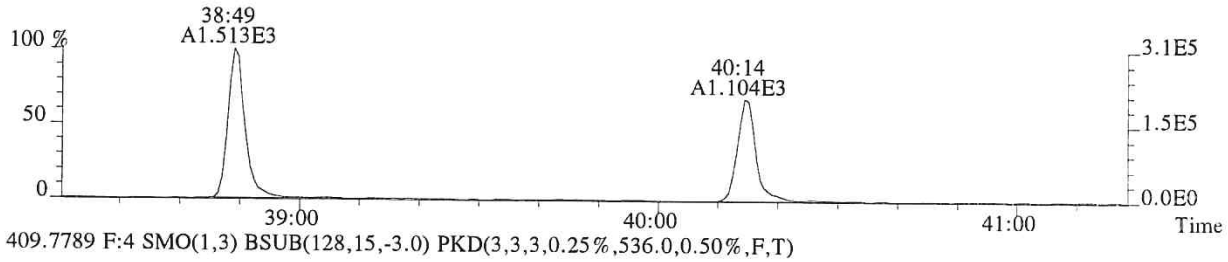


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

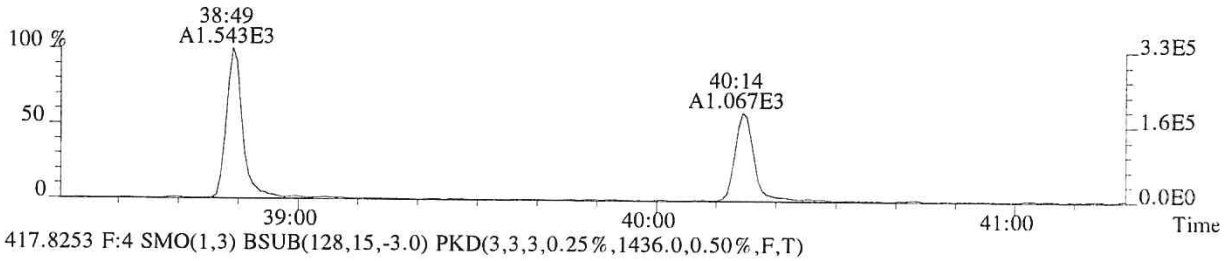


013603

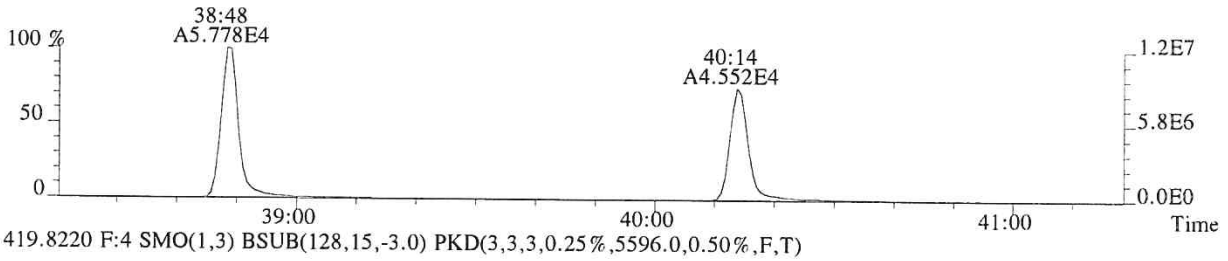
File:P513850 #1-268 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,860.0,0.50%,F,T)



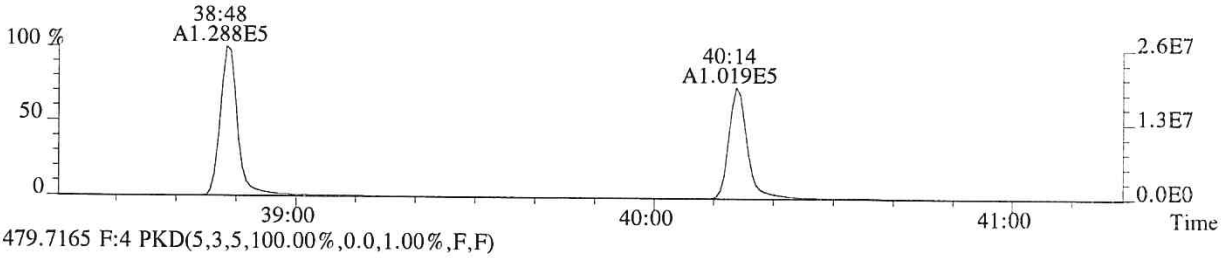
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,536.0,0.50%,F,T)



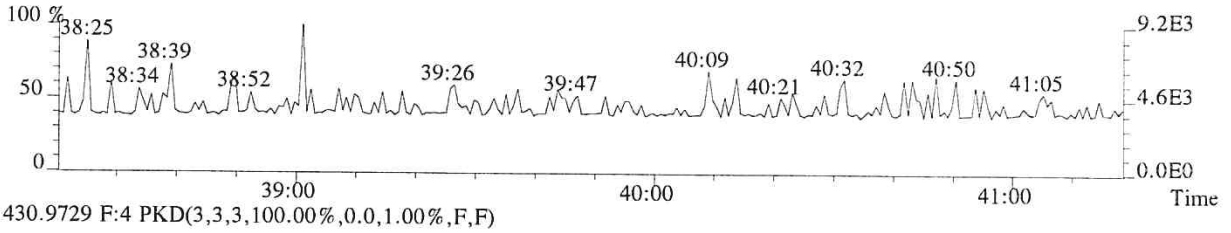
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1436.0,0.50%,F,T)



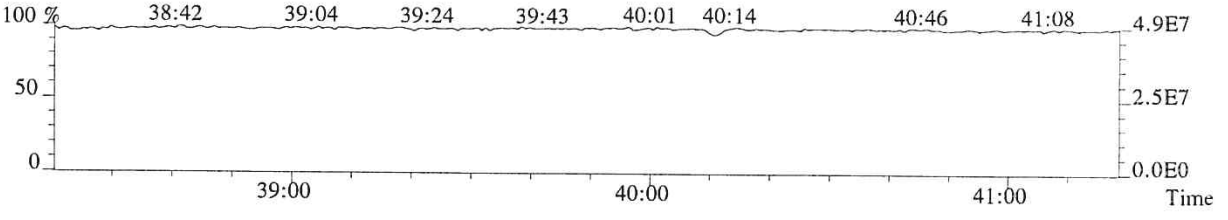
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5596.0,0.50%,F,T)



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

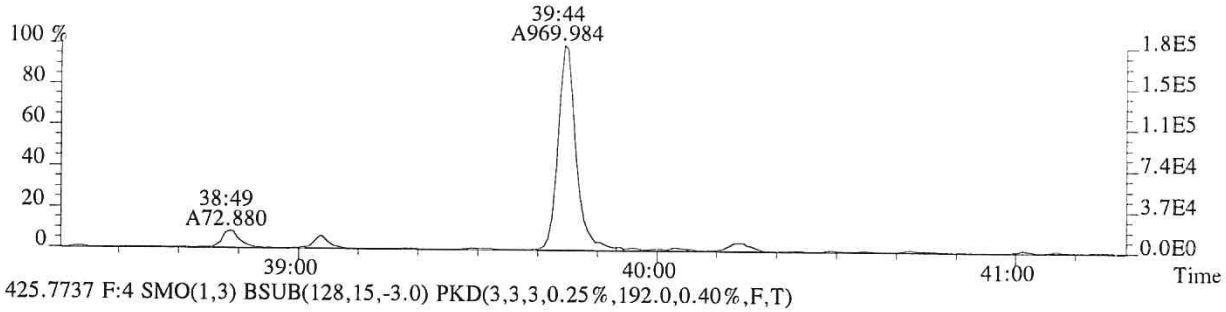


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

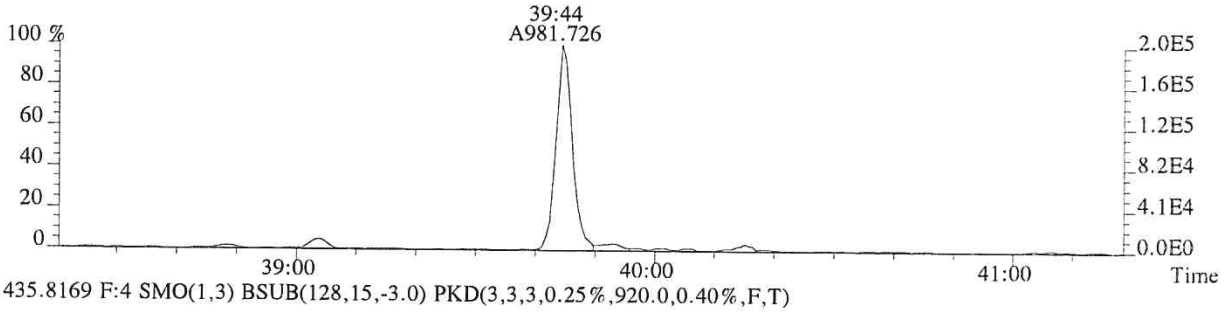


013604

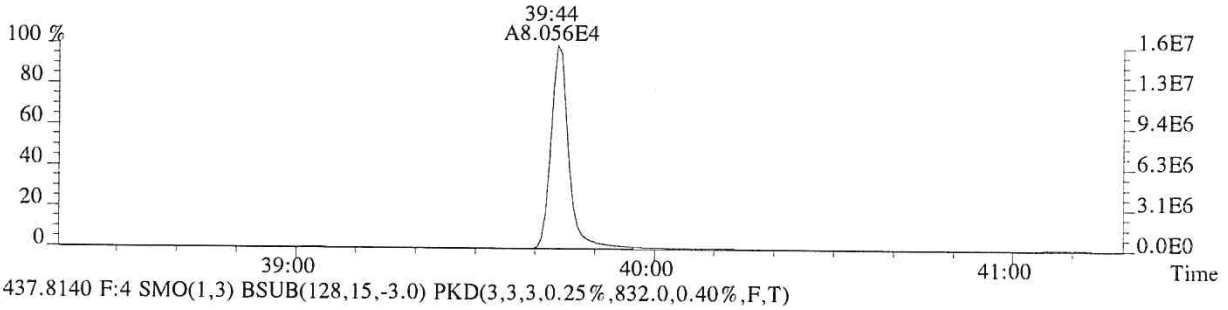
File:P513850 #1-268 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,172.0,0.40%,F,T)



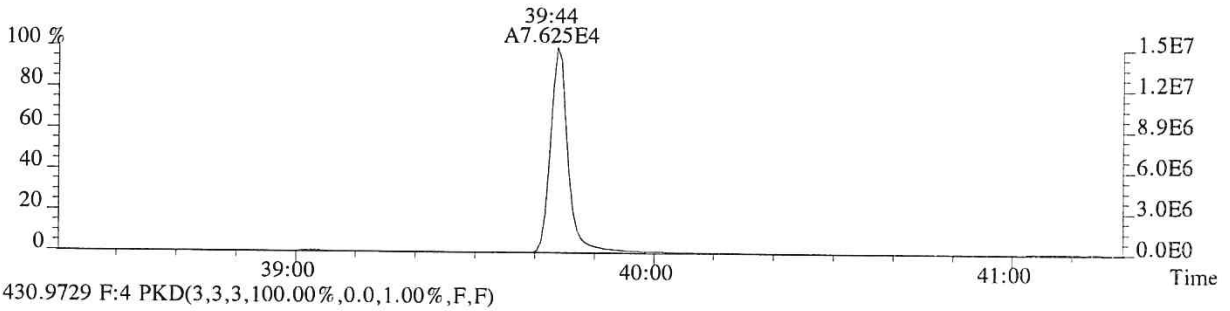
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,192.0,0.40%,F,T)



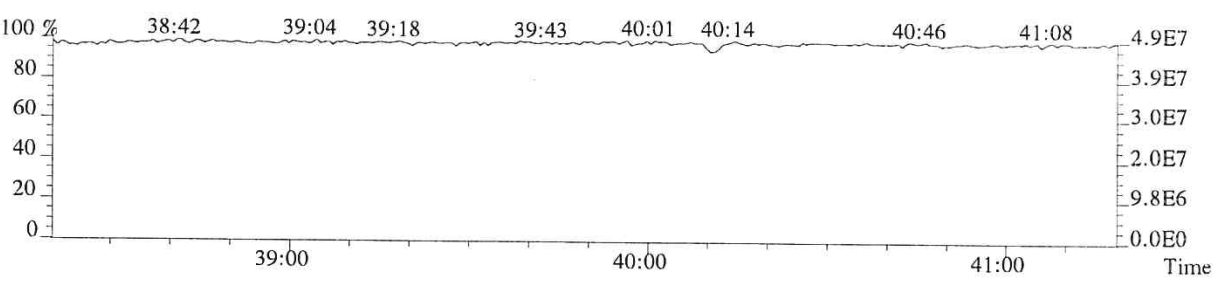
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,920.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,832.0,0.40%,F,T)

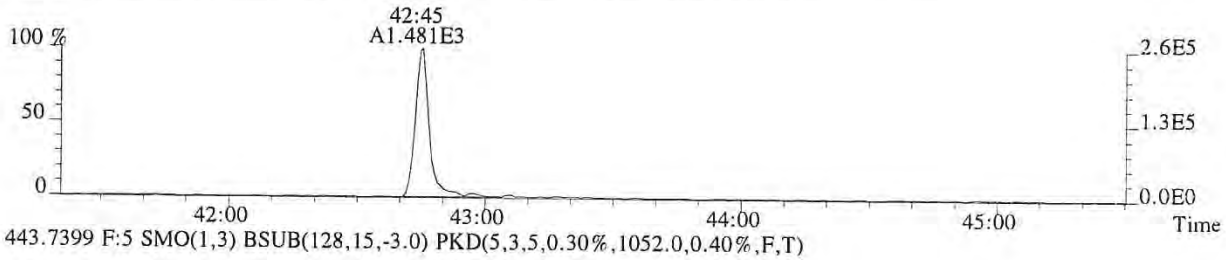


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

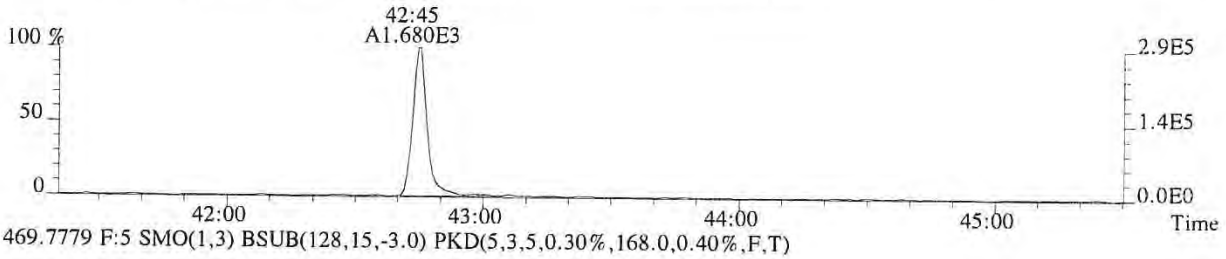


013605

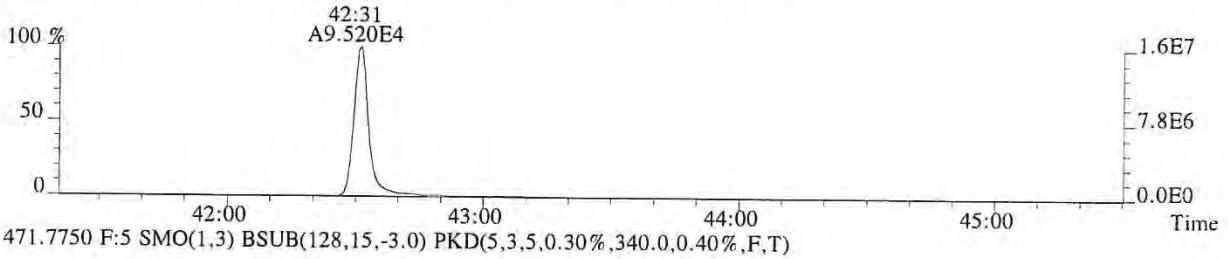
File:P513850 #1-375 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,640.0,0.40%,F,T)



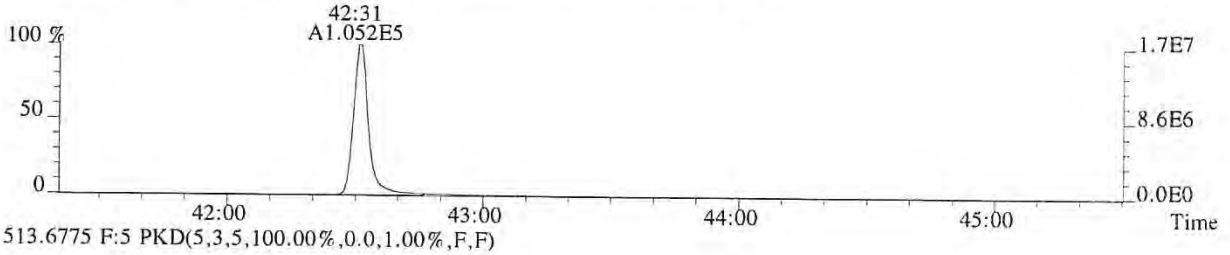
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1052.0,0.40%,F,T)



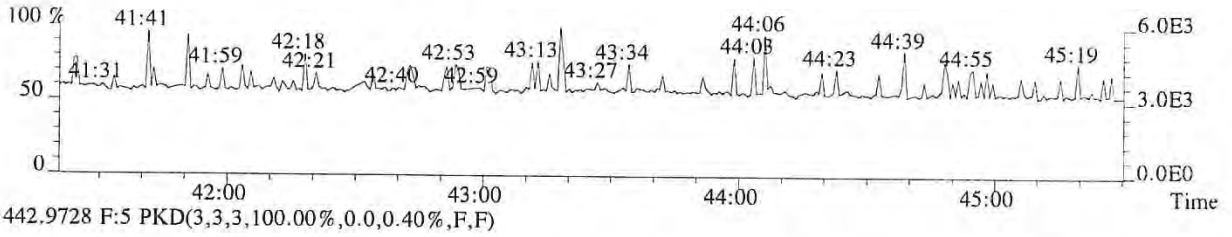
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,168.0,0.40%,F,T)



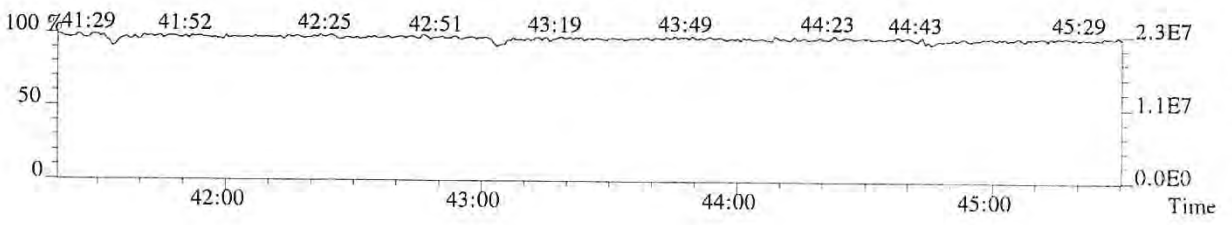
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,340.0,0.40%,F,T)



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

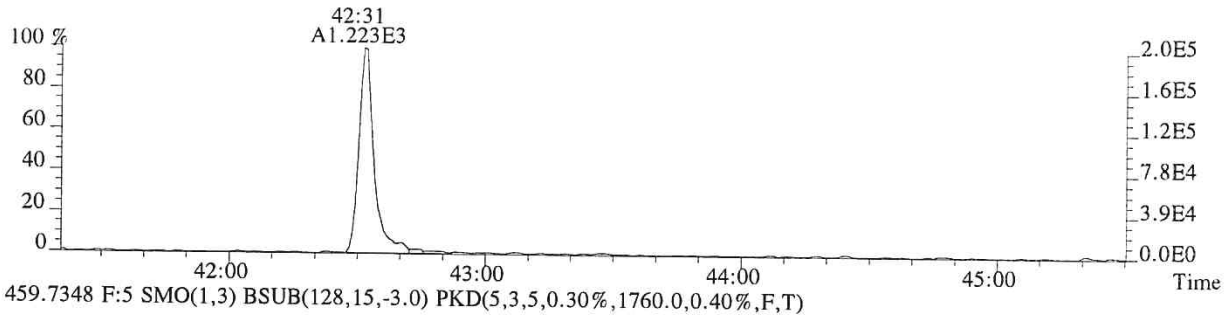


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

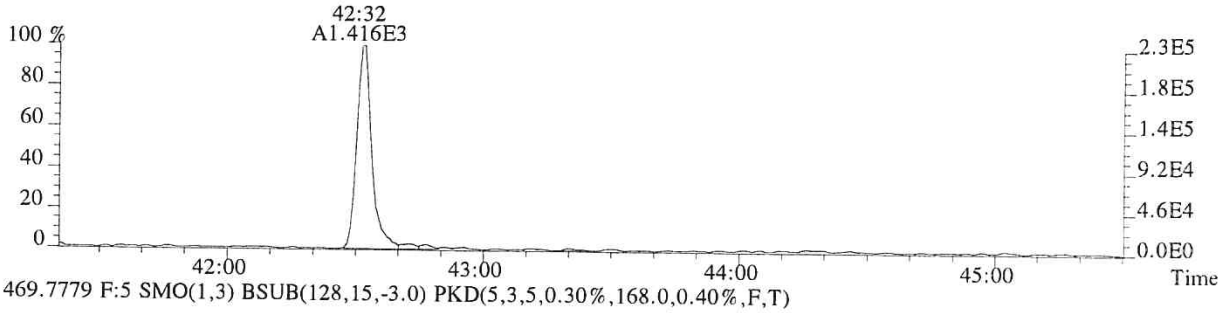


013606

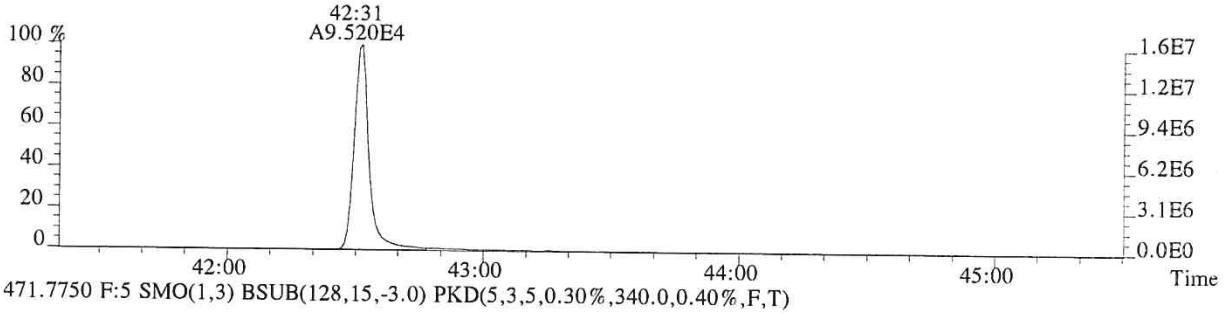
File:P513850 #1-375 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,124.0,0.40%,F,T)



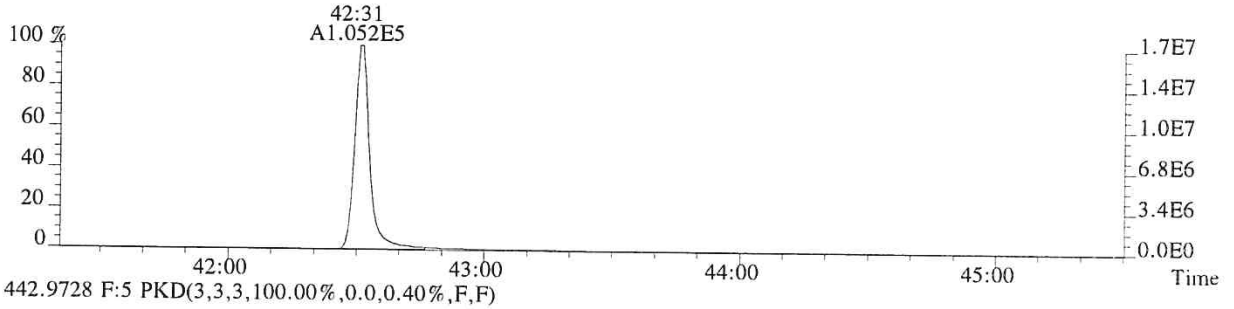
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1760.0,0.40%,F,T)



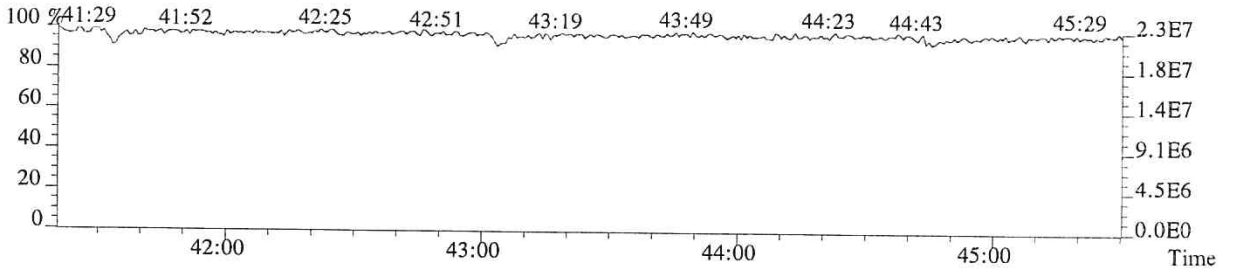
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,168.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,340.0,0.40%,F,T)



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



013607

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76555

Run #2 Filename P513851 Samp: 1 Inj: 1 Acquired: 24-JAN-18 14:23:56
Processed: 24-JAN-18 15:49:38 Sample ID: CS1

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	3.265e+02	4.510e+02	0.72	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	2.143e+03	1.390e+03	1.54	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:41	1.966e+03	1.345e+03	1.46	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:16	1.692e+03	1.406e+03	1.20	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	1.851e+03	1.586e+03	1.17	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:52	1.642e+03	1.320e+03	1.24	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	1.587e+03	1.193e+03	1.33	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	1.464e+03	1.425e+03	1.03	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	1.230e+03	1.277e+03	0.96	yes	no	1.258
10	Unk	OCDF	42:45	1.832e+03	1.936e+03	0.95	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	2.385e+02	2.700e+02	0.88	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:57	1.365e+03	8.234e+02	1.66	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:59	1.134e+03	9.001e+02	1.26	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	1.250e+03	9.288e+02	1.35	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	1.168e+03	9.616e+02	1.21	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	1.020e+03	9.210e+02	1.11	yes	no	1.025
17	Unk	OCDD	42:31	1.446e+03	1.652e+03	0.88	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:47	7.137e+04	9.000e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:47	8.867e+04	5.547e+04	1.60	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	8.638e+04	5.480e+04	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	3.777e+04	7.232e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:22	4.414e+04	8.392e+04	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:51	3.753e+04	7.150e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:36	3.488e+04	6.647e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	2.710e+04	6.070e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	2.509e+04	5.658e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:31	4.231e+04	5.302e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	5.560e+04	3.503e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	4.358e+04	3.432e+04	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	4.635e+04	3.621e+04	1.28	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	4.039e+04	3.882e+04	1.04	yes	no	0.858
32	IS	13C-OCDD	42:31	5.166e+04	5.687e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:57	4.919e+04	6.018e+04	0.82	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	4.800e+04	3.836e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	5.257e+02				no	1.014

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www.alsglobal.com

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76555

Run #2 Filename P513851 Samp: 1 Inj: 1 Acquired: 24-JAN-18 14:23:56
Processed: 24-JAN-18 15:49:38 LAB. ID: CS1

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.11e+04	5.52e+02	1.1e+02	8.10e+04	1.82e+03	4.5e+01
2	1,2,3,7,8-PeCDF	4.20e+05	1.32e+03	3.2e+02	2.59e+05	1.41e+03	1.8e+02
3	2,3,4,7,8-PeCDF	4.04e+05	1.32e+03	3.1e+02	2.67e+05	1.41e+03	1.9e+02
4	1,2,3,4,7,8-HxCDF	3.58e+05	5.32e+02	6.7e+02	3.14e+05	1.28e+02	2.5e+03
5	1,2,3,6,7,8-HxCDF	3.97e+05	5.32e+02	7.5e+02	3.35e+05	1.28e+02	2.6e+03
6	2,3,4,6,7,8-HxCDF	3.52e+05	5.32e+02	6.6e+02	2.91e+05	1.28e+02	2.3e+03
7	1,2,3,7,8,9-HxCDF	3.28e+05	5.32e+02	6.2e+02	2.40e+05	1.28e+02	1.9e+03
8	1,2,3,4,6,7,8-HpCDF	3.00e+05	3.04e+02	9.9e+02	3.07e+05	7.12e+02	4.3e+02
9	1,2,3,4,7,8,9-HpCDF	2.35e+05	3.04e+02	7.7e+02	2.45e+05	7.12e+02	3.4e+02
10	OCDF	3.05e+05	4.12e+02	7.4e+02	3.13e+05	8.20e+02	3.8e+02
11	2,3,7,8-TCDD	5.05e+04	1.50e+03	3.4e+01	5.68e+04	1.02e+03	5.5e+01
12	1,2,3,7,8-PeCDD	2.75e+05	9.88e+02	2.8e+02	1.65e+05	1.80e+02	9.2e+02
13	1,2,3,4,7,8-HxCDD	2.60e+05	5.96e+02	4.4e+02	2.09e+05	7.60e+02	2.7e+02
14	1,2,3,6,7,8-HxCDD	2.55e+05	5.96e+02	4.3e+02	1.96e+05	7.60e+02	2.6e+02
15	1,2,3,7,8,9-HxCDD	2.36e+05	5.96e+02	4.0e+02	1.94e+05	7.60e+02	2.6e+02
16	1,2,3,4,6,7,8-HpCDD	1.99e+05	6.88e+02	2.9e+02	1.95e+05	5.68e+02	3.4e+02
17	OCDD	2.63e+05	1.92e+02	1.4e+03	2.88e+05	1.59e+03	1.8e+02
18	13C-2,3,7,8-TCDF	1.42e+07	6.97e+03	2.0e+03	1.79e+07	2.86e+03	6.3e+03
19	13C-1,2,3,7,8-PeCDF	1.70e+07	6.48e+02	2.6e+04	1.08e+07	1.59e+03	6.8e+03
20	13C-2,3,4,7,8-PeCDF	1.78e+07	6.48e+02	2.7e+04	1.13e+07	1.59e+03	7.1e+03
21	13C-1,2,3,4,7,8-HxCDF	8.20e+06	9.16e+02	9.0e+03	1.58e+07	1.42e+03	1.1e+04
22	13C-1,2,3,6,7,8-HxCDF	9.34e+06	9.16e+02	1.0e+04	1.79e+07	1.42e+03	1.3e+04
23	13C-2,3,4,6,7,8-HxCDF	8.09e+06	9.16e+02	8.8e+03	1.56e+07	1.42e+03	1.1e+04
24	13C-1,2,3,7,8,9-HxCDF	7.17e+06	9.16e+02	7.8e+03	1.36e+07	1.42e+03	9.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	5.66e+06	2.69e+03	2.1e+03	1.28e+07	9.09e+03	1.4e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.79e+06	2.69e+03	1.8e+03	1.07e+07	9.09e+03	1.2e+03
27	13C-2,3,7,8-TCDD	8.84e+06	4.39e+03	2.0e+03	1.11e+07	2.59e+03	4.3e+03
28	13C-1,2,3,7,8-PeCDD	1.13e+07	1.11e+03	1.0e+04	7.15e+06	7.88e+02	9.1e+03
29	13C-1,2,3,4,7,8-HxCDD	9.90e+06	2.00e+03	4.9e+03	7.79e+06	1.42e+03	5.5e+03
30	13C-1,2,3,6,7,8-HxCDD	9.60e+06	2.00e+03	4.8e+03	7.47e+06	1.42e+03	5.2e+03
31	13C-1,2,3,4,6,7,8-HpCDD	7.95e+06	1.15e+03	6.9e+03	7.67e+06	8.88e+02	8.6e+03
32	13C-OCDD	8.56e+06	6.00e+01	1.4e+05	9.50e+06	8.00e+02	1.2e+04
33	13C-1,2,3,4-TCDD	9.96e+06	4.39e+03	2.3e+03	1.22e+07	2.59e+03	4.7e+03
34	13C-1,2,3,7,8,9-HxCDD	9.63e+06	2.00e+03	4.8e+03	7.67e+06	1.42e+03	5.4e+03
35	37Cl-2,3,7,8-TCDD	1.07e+05	1.30e+03	8.2e+01			

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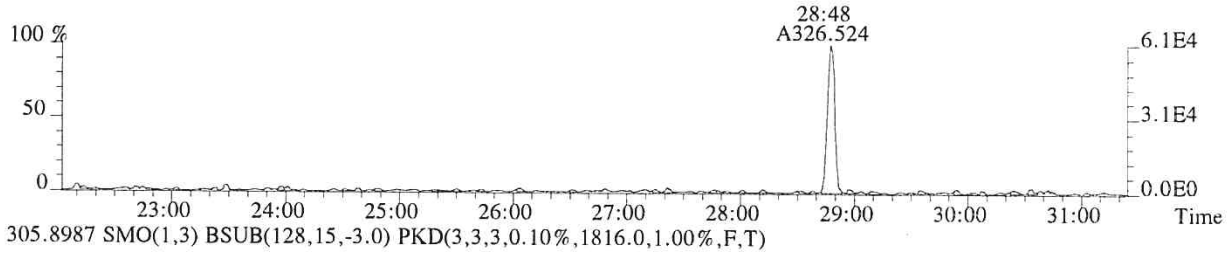
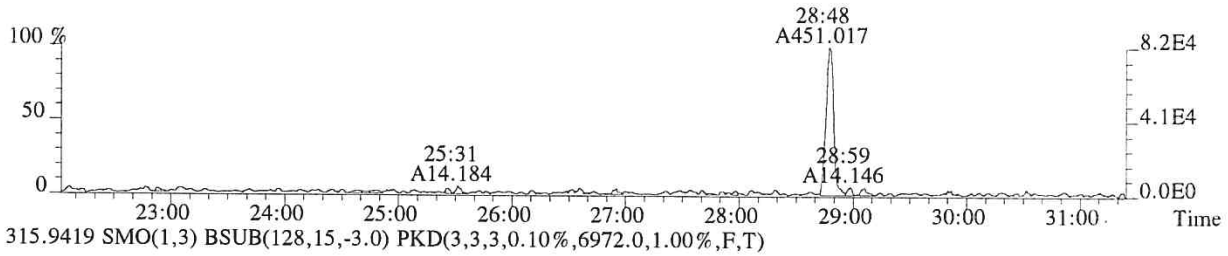
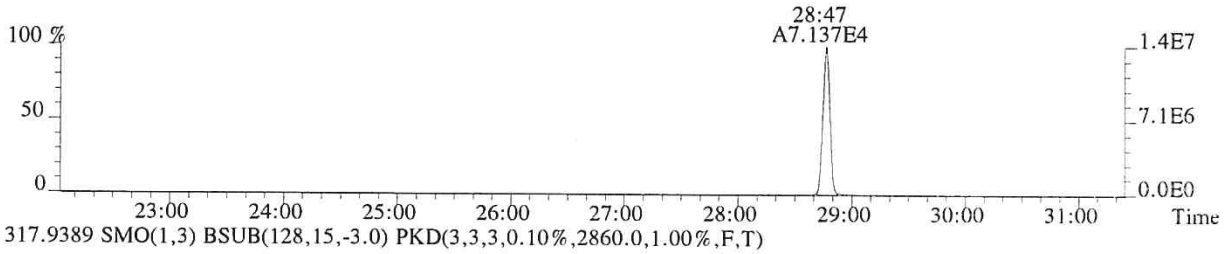
File:P513851 #1-665 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,552.0,1.00%,F,T)



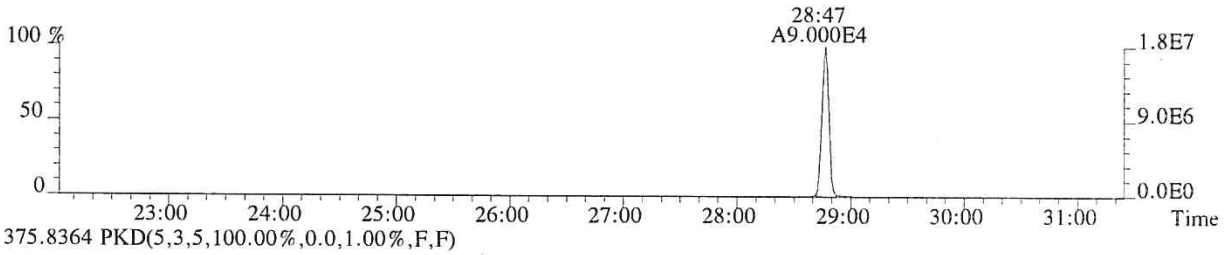
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1816.0,1.00%,F,T)



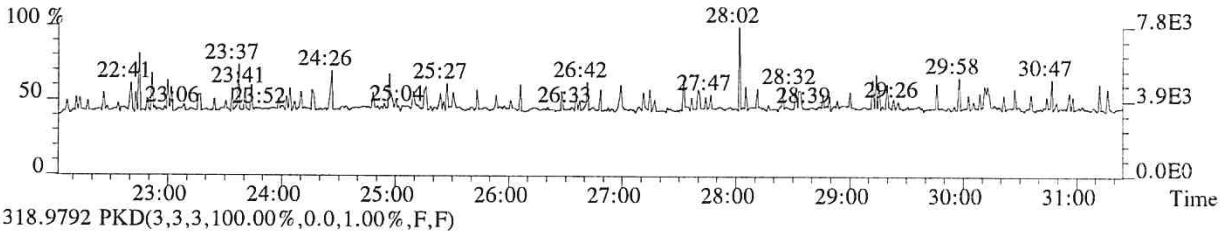
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6972.0,1.00%,F,T)



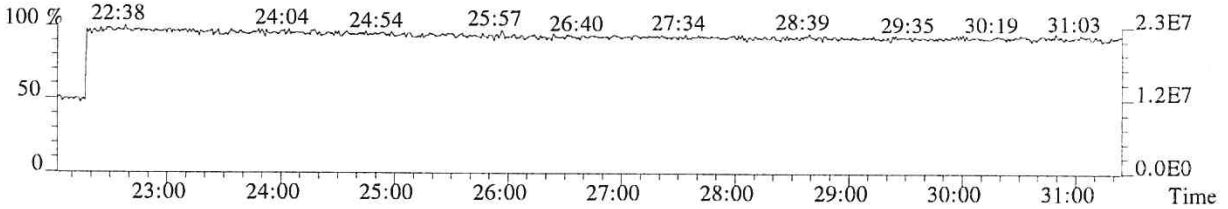
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2860.0,1.00%,F,T)



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

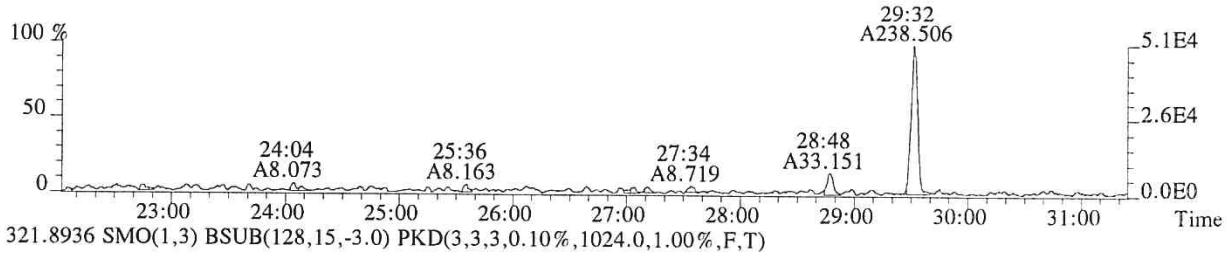


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

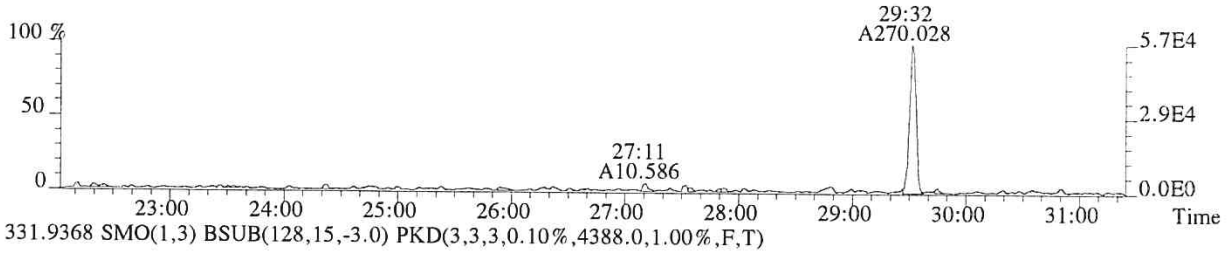


013610

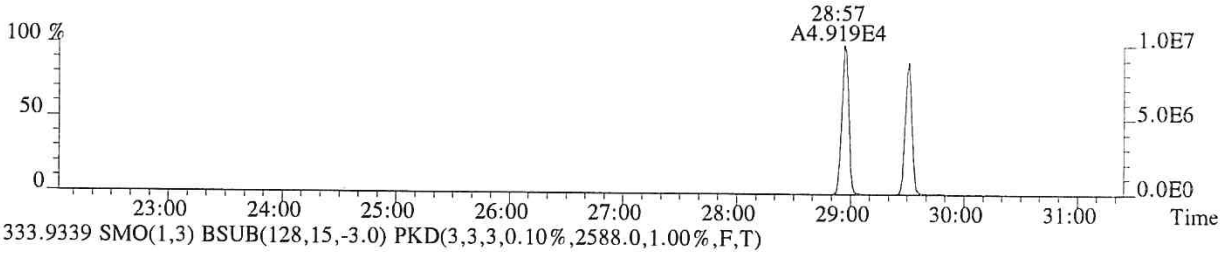
File:P513851 #1-665 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:76555
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1496.0,1.00%,F,T)



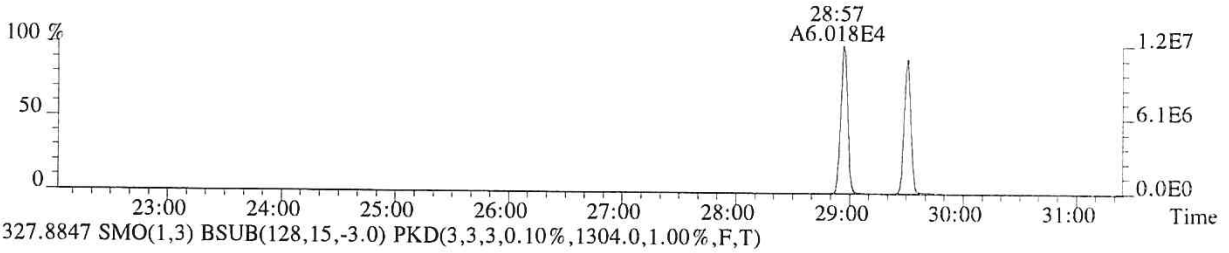
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1024.0,1.00%,F,T)



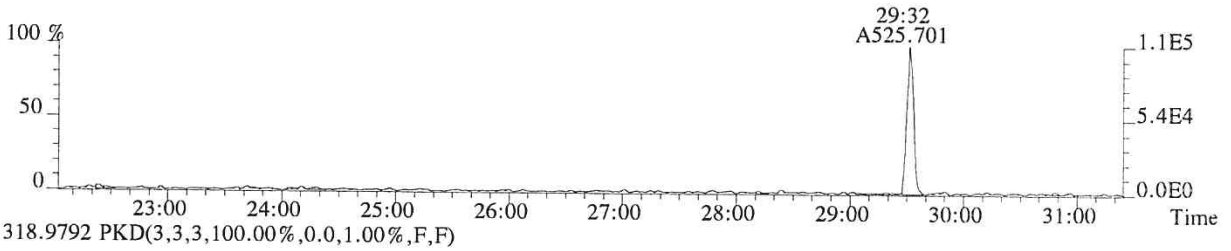
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4388.0,1.00%,F,T)



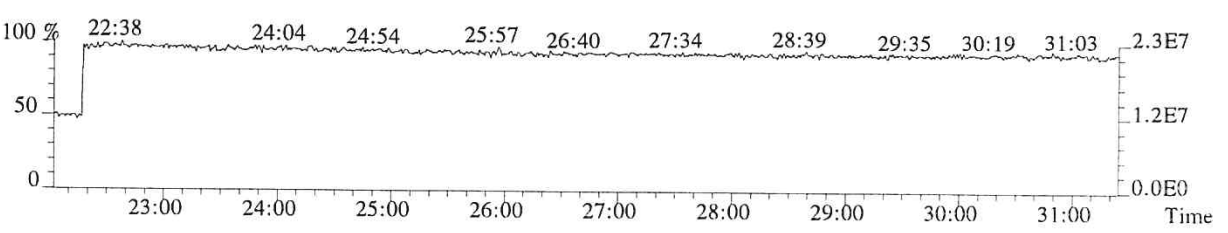
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2588.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1304.0,1.00%,F,T)

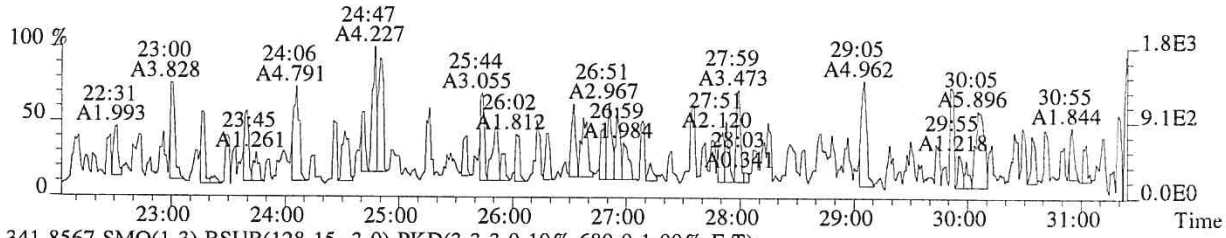


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

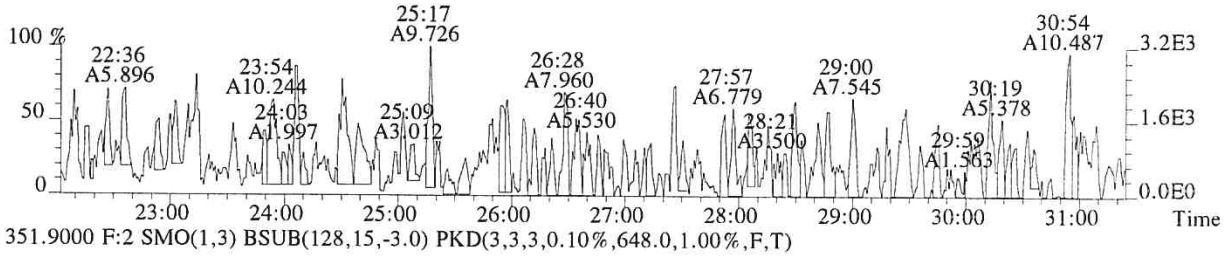


013611

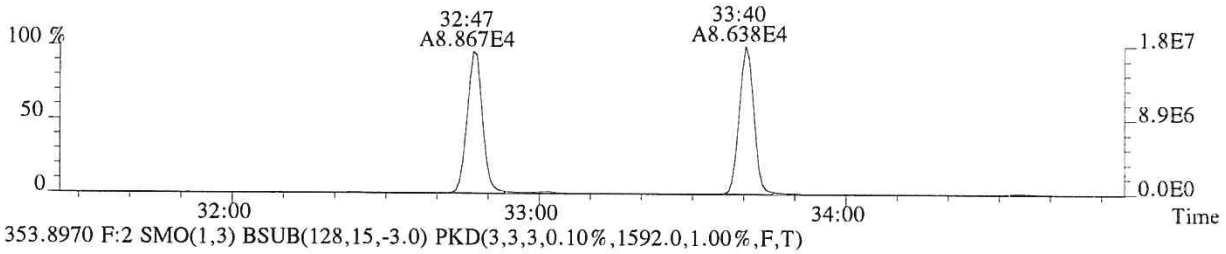
File:P513851 #1-665 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:76555
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,388.0,1.00%,F,T)



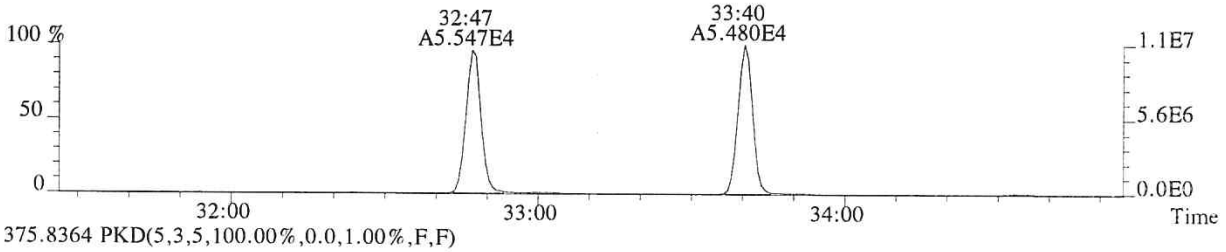
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,680.0,1.00%,F,T)



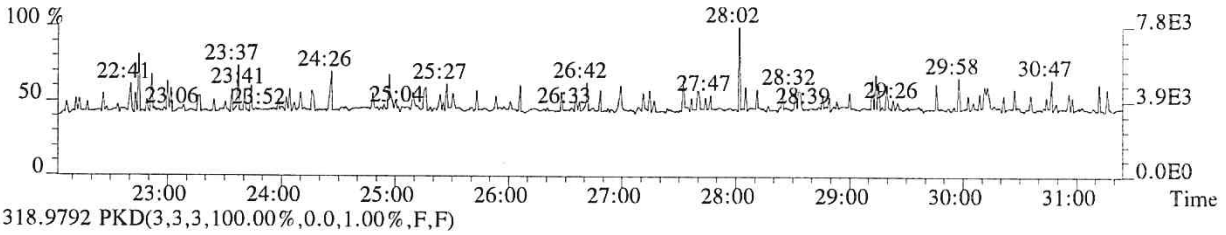
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



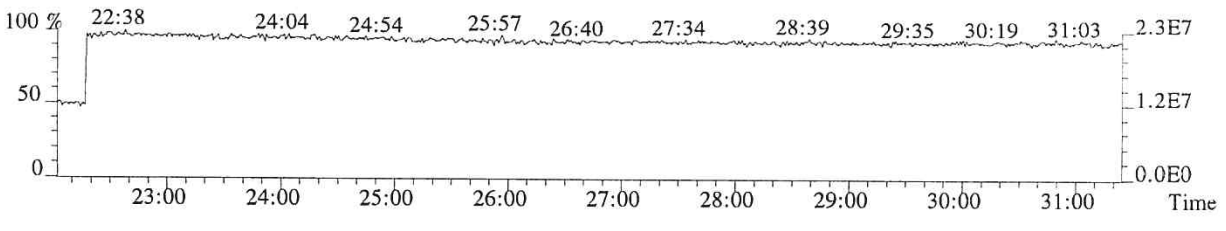
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1592.0,1.00%,F,T)



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

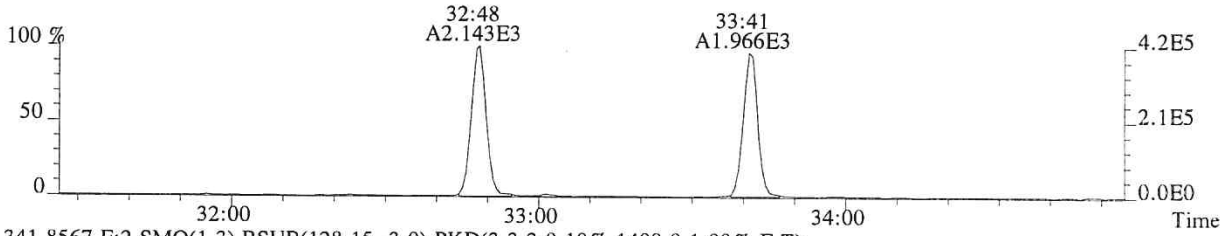


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

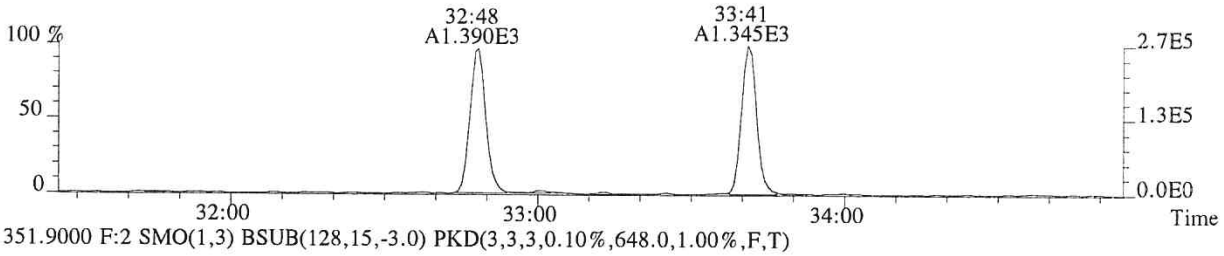


013612

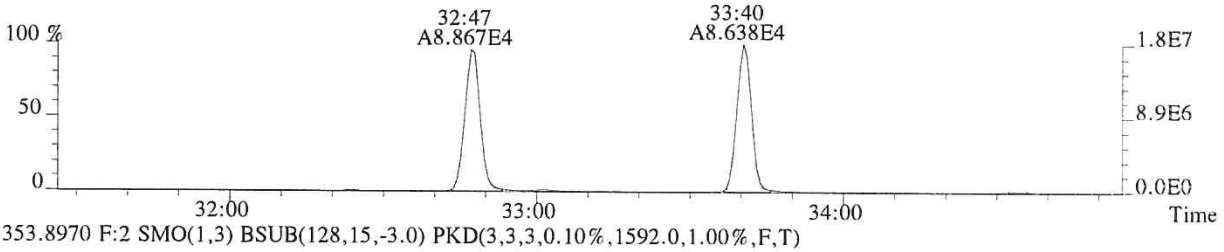
File:P513851 #1-313 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1316.0,1.00%,F,T)



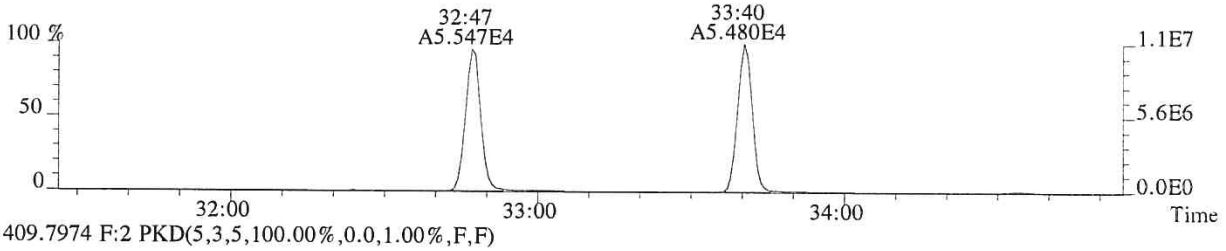
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1408.0,1.00%,F,T)



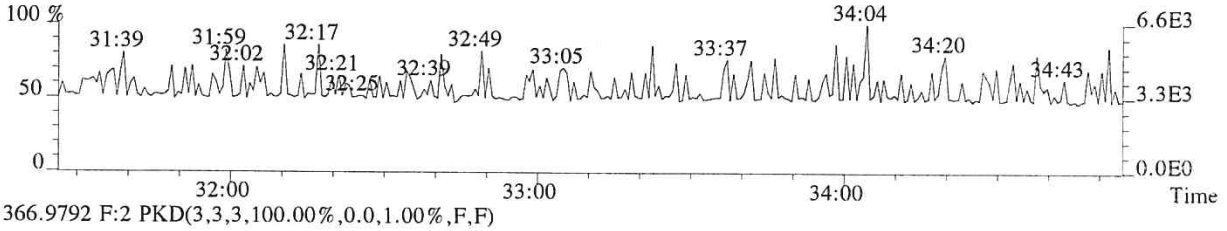
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



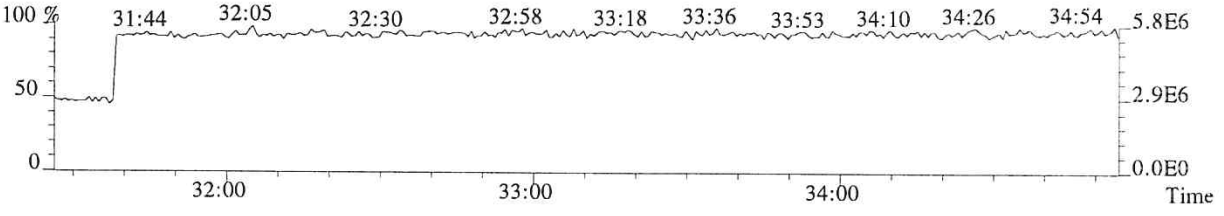
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1592.0,1.00%,F,T)



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

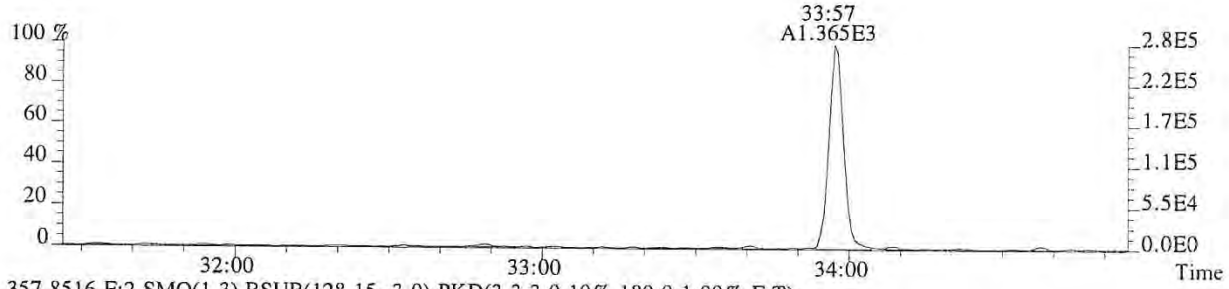


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

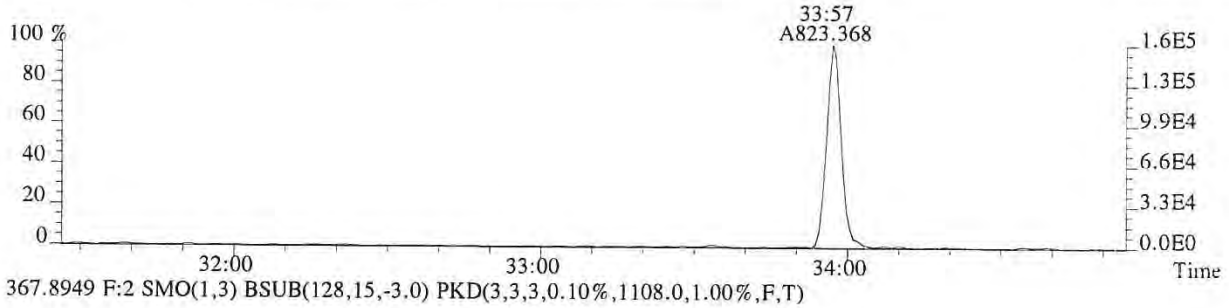


013613

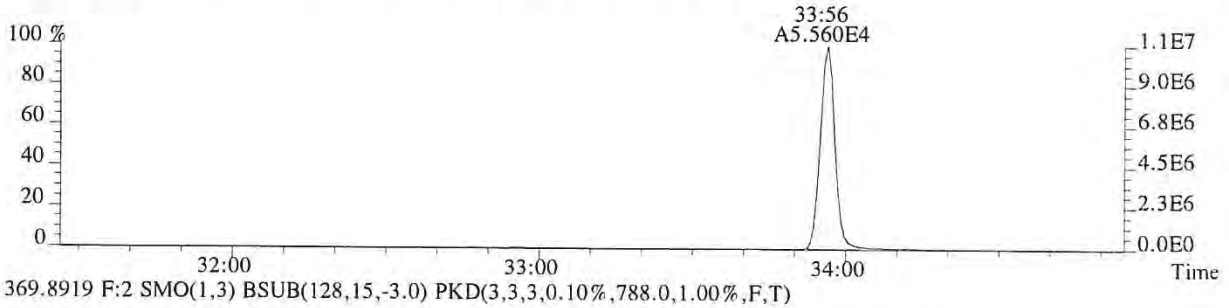
File:P513851 #1-313 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,988.0,1.00%,F,T)



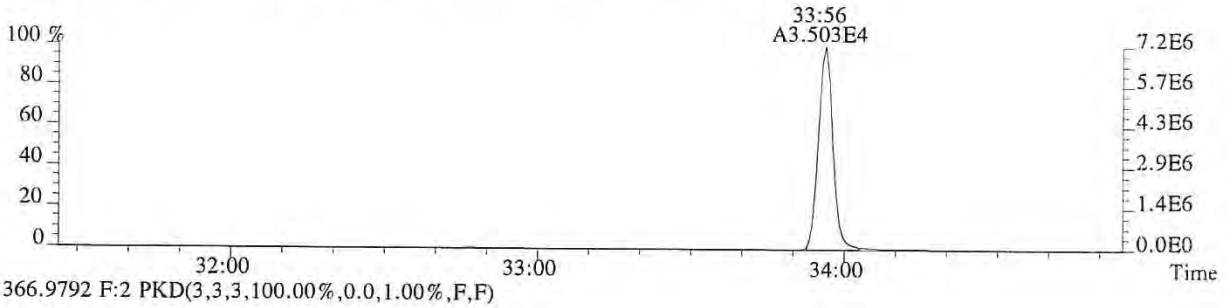
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,180.0,1.00%,F,T)



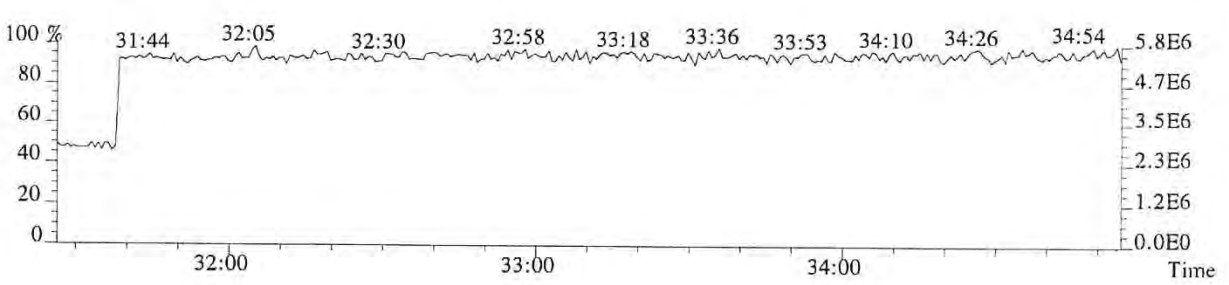
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1108.0,1.00%,F,T)



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

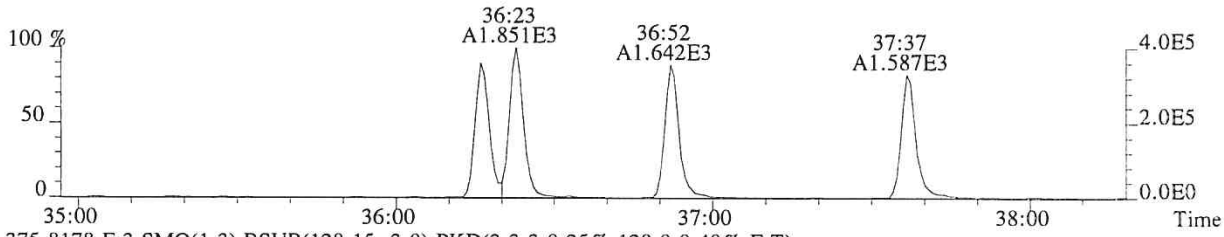


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

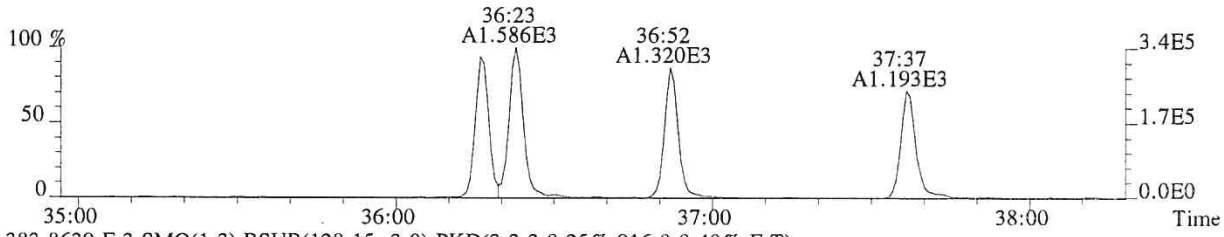


File:P513851 #1-303 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555

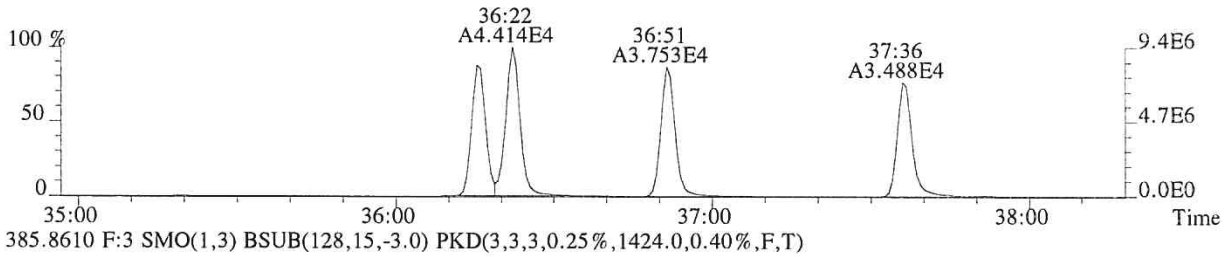
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,532.0,0.40%,F,T)



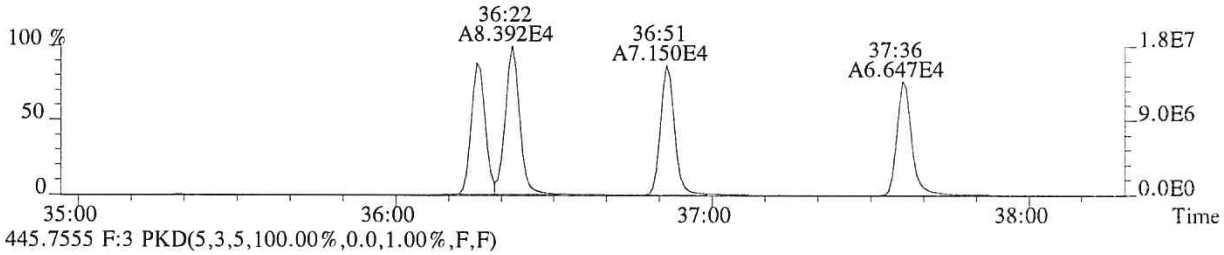
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,128.0,0.40%,F,T)



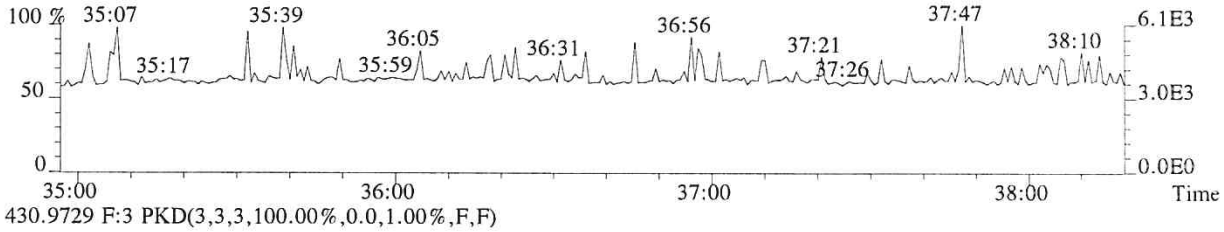
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,916.0,0.40%,F,T)



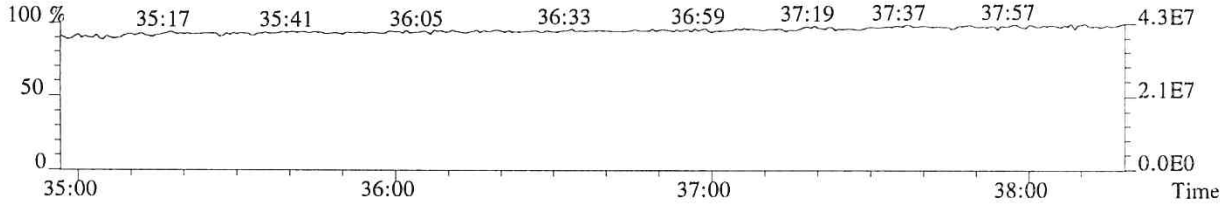
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1424.0,0.40%,F,T)



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

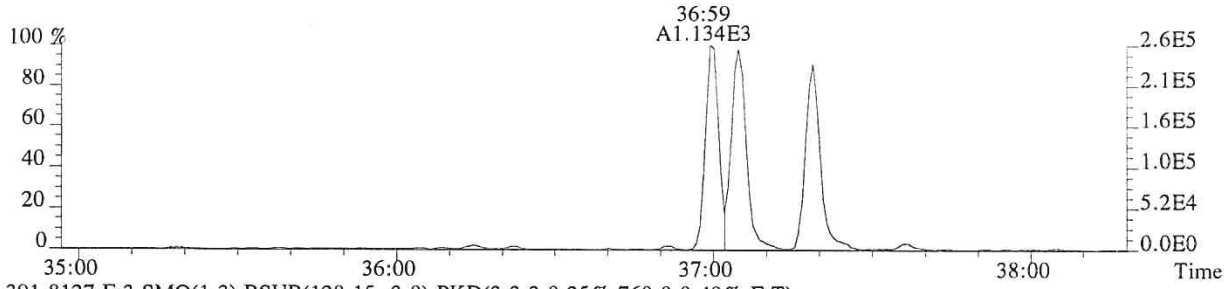


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

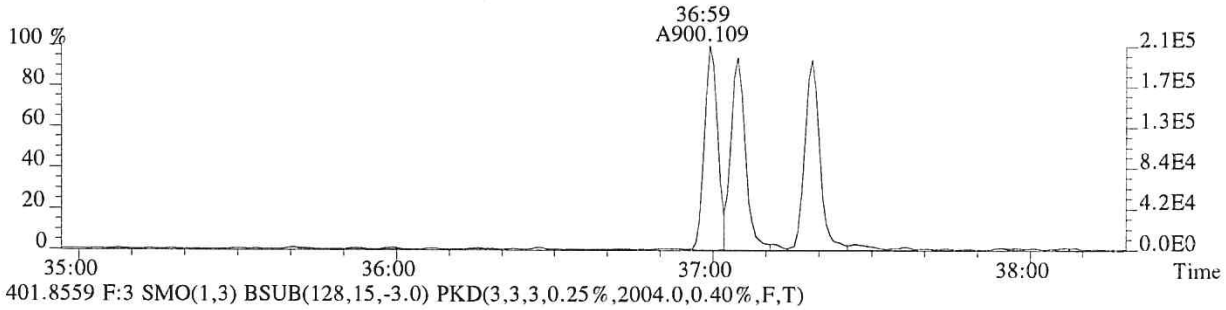


013615

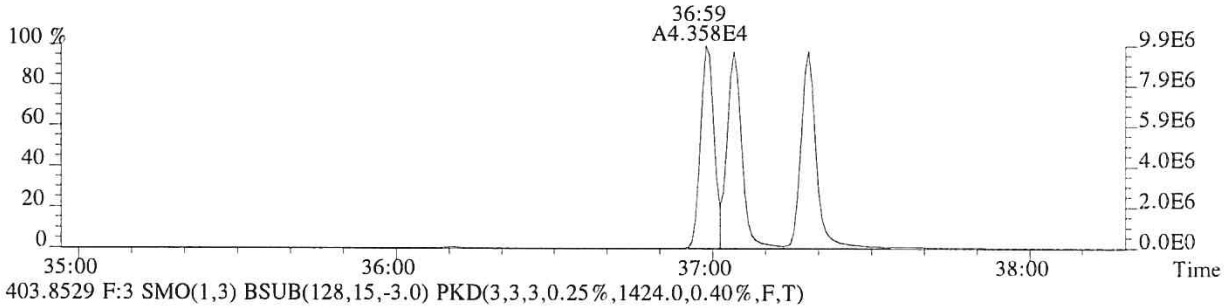
File:P513851 #1-303 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,596.0,0.40%,F,T)



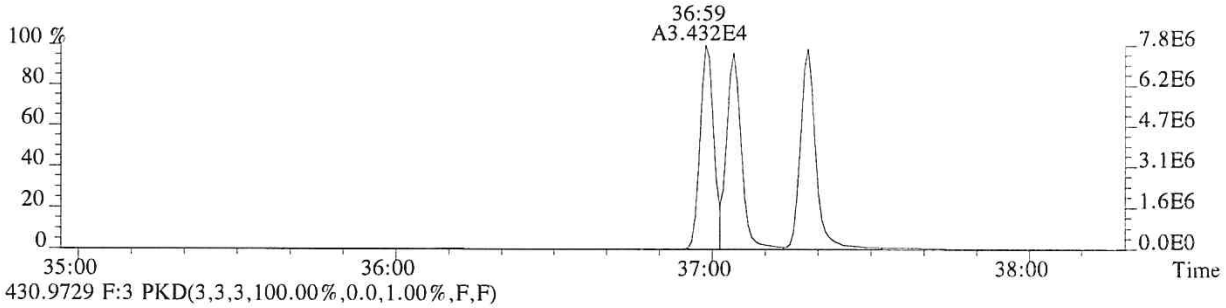
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,760.0,0.40%,F,T)



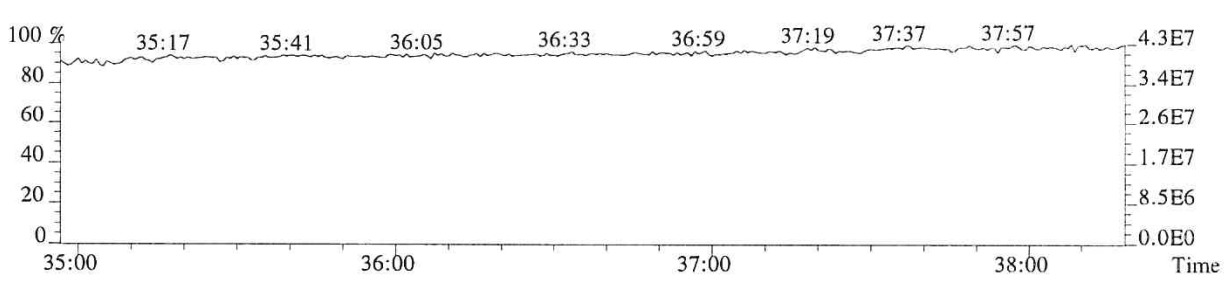
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2004.0,0.40%,F,T)



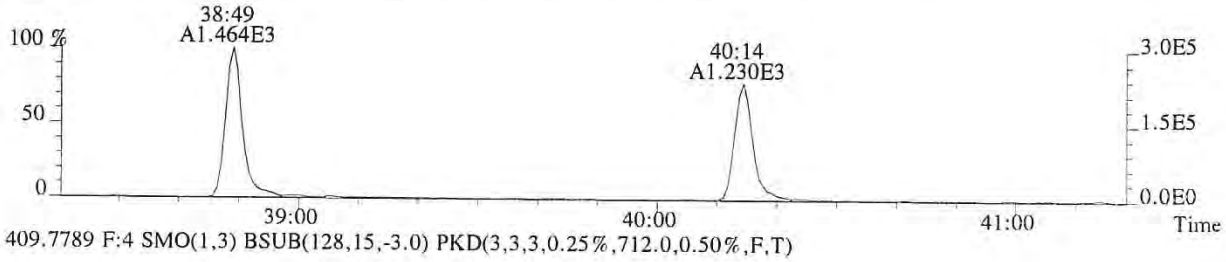
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1424.0,0.40%,F,T)



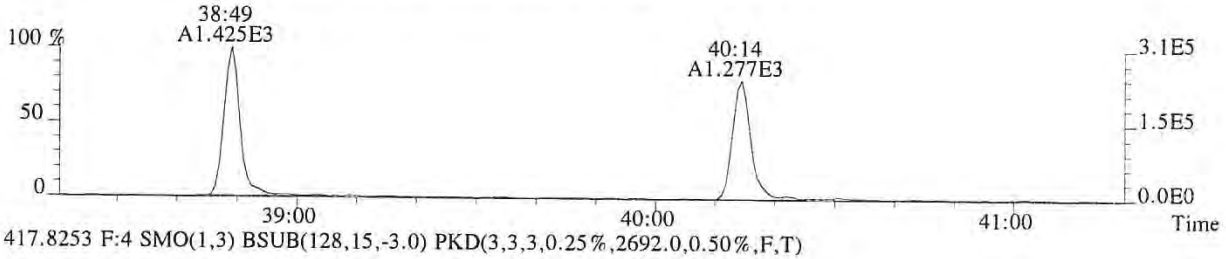
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



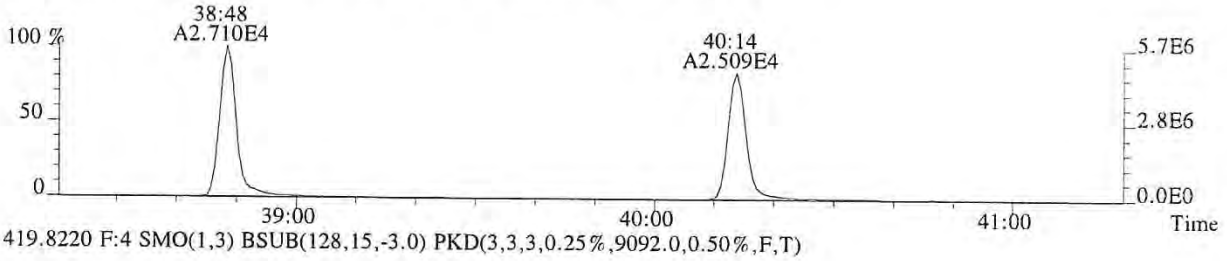
File:P513851 #1-268 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,304.0,0.50%,F,T)



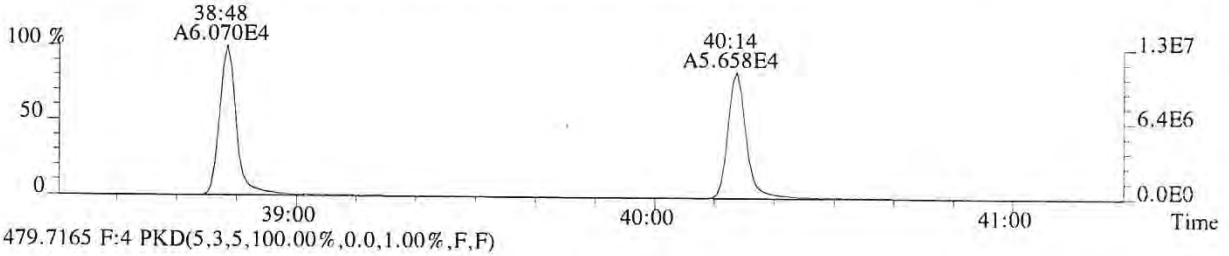
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,712.0,0.50%,F,T)



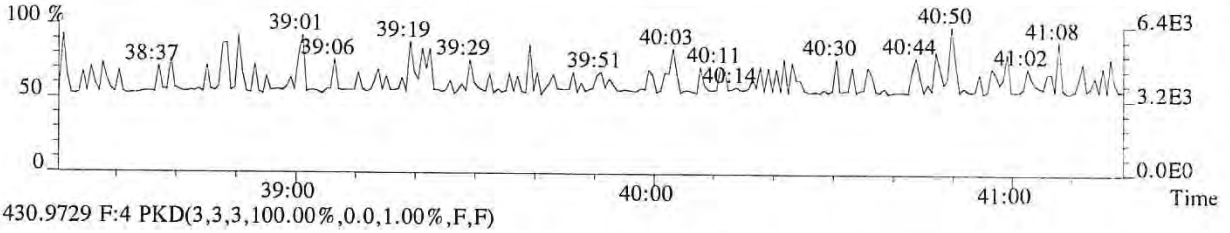
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2692.0,0.50%,F,T)



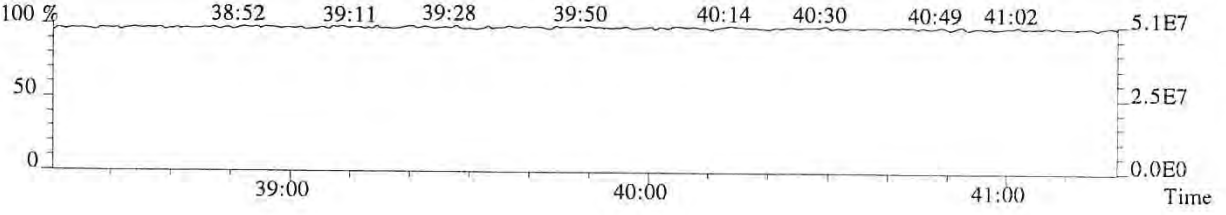
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,9092.0,0.50%,F,T)



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

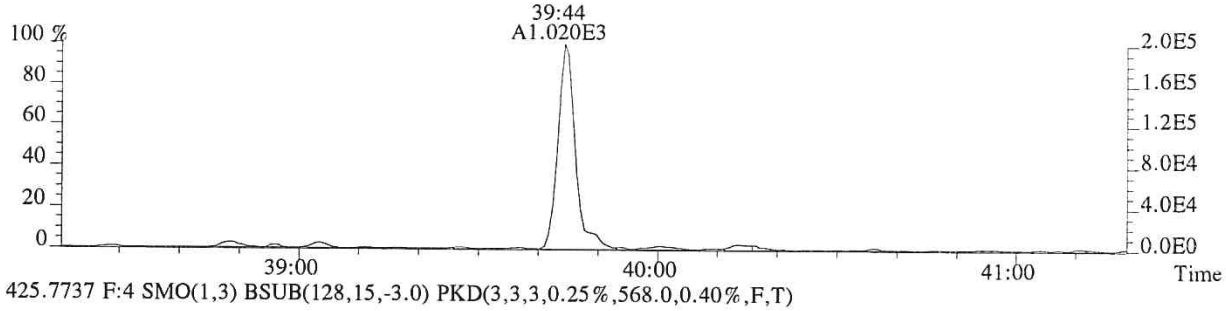


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

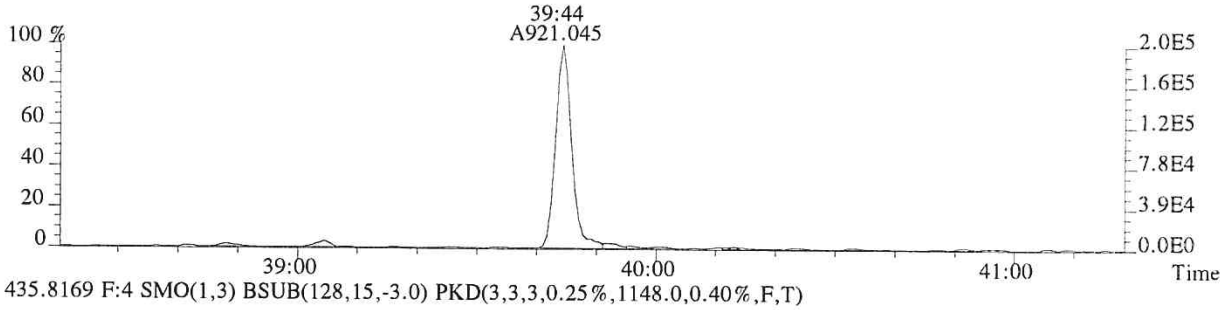


013617

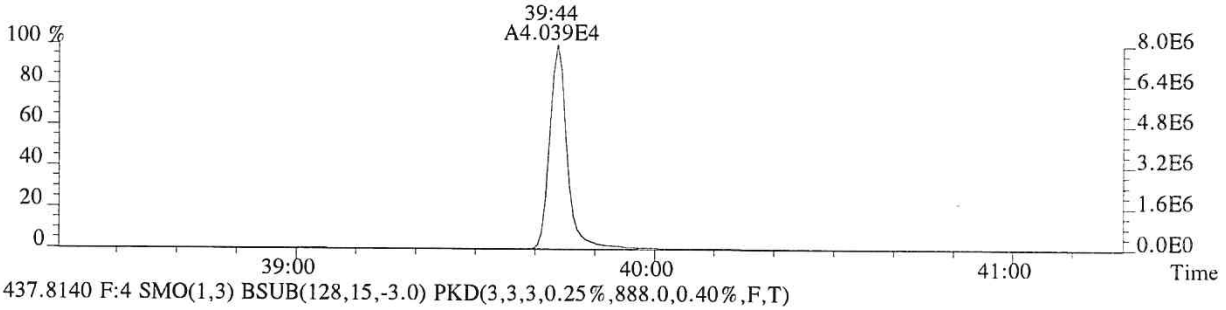
File:P513851 #1-268 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,688.0,0.40%,F,T)



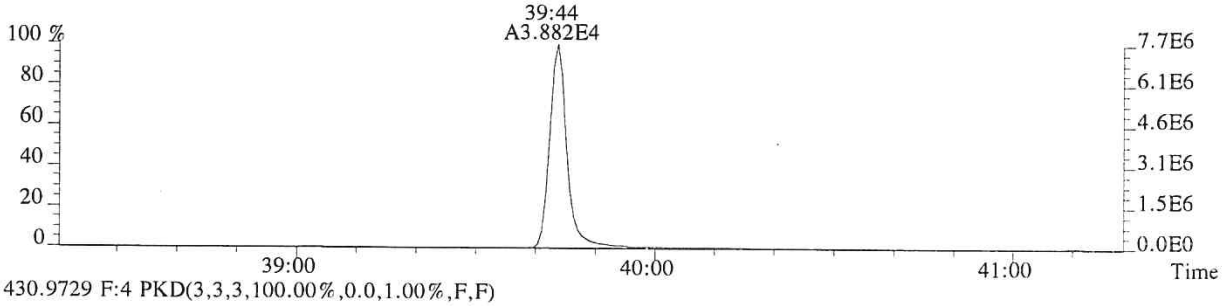
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,568.0,0.40%,F,T)



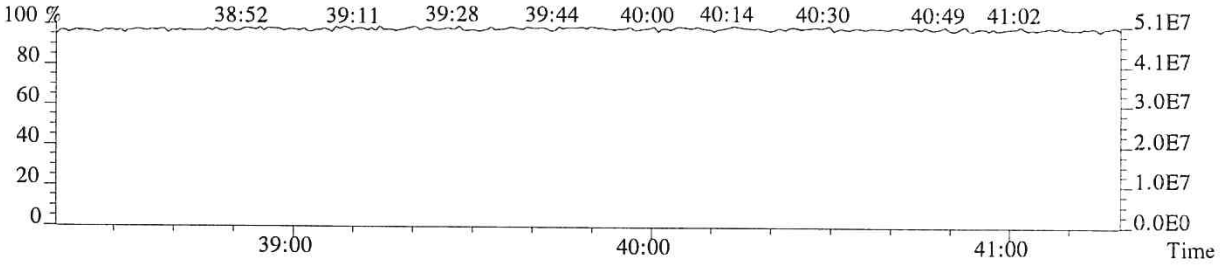
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1148.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,888.0,0.40%,F,T)

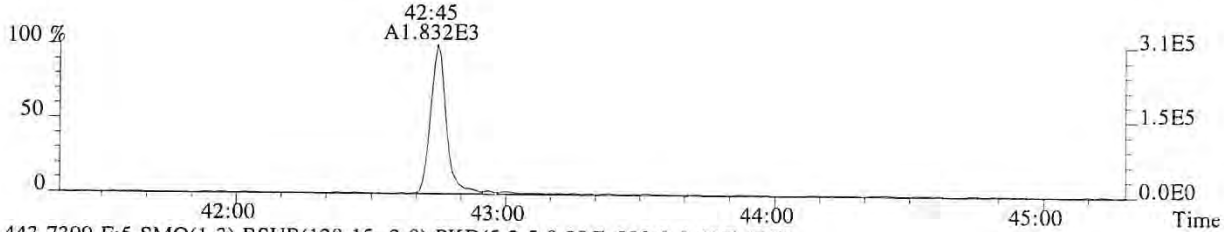


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

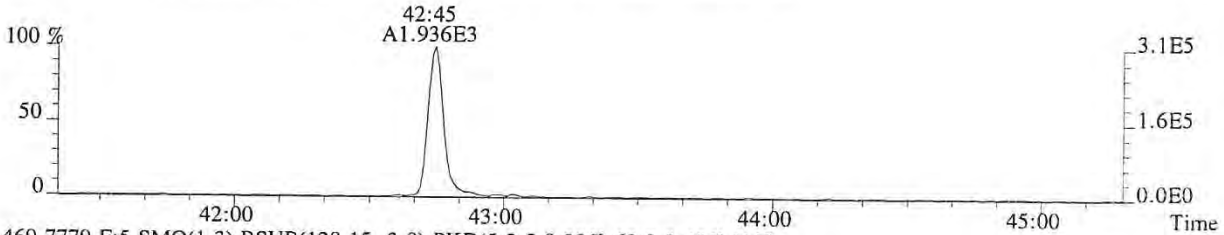


013618

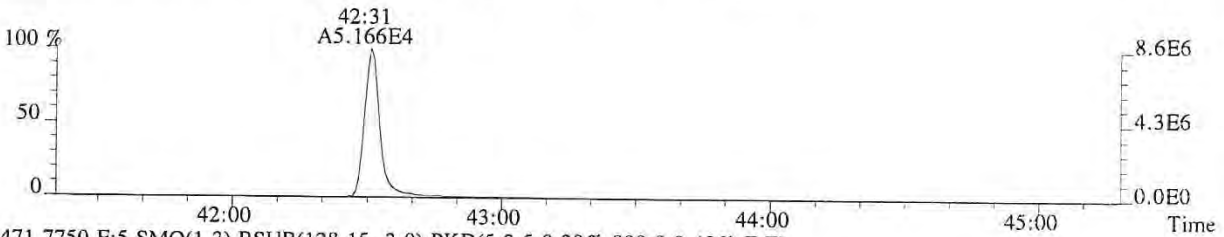
File:P513851 #1-357 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,412.0,0.40%,F,T)



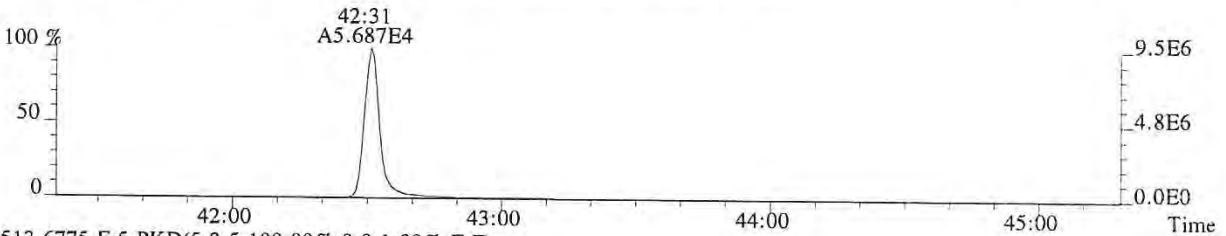
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,820.0,0.40%,F,T)



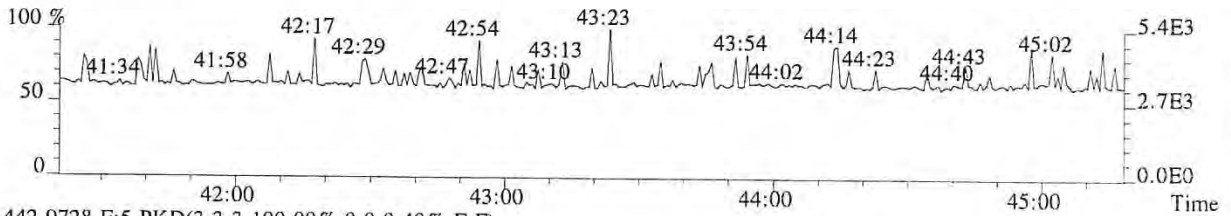
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,60.0,0.40%,F,T)



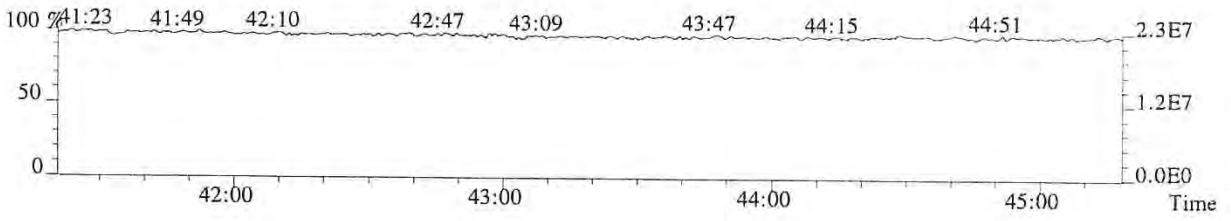
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,800.0,0.40%,F,T)



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

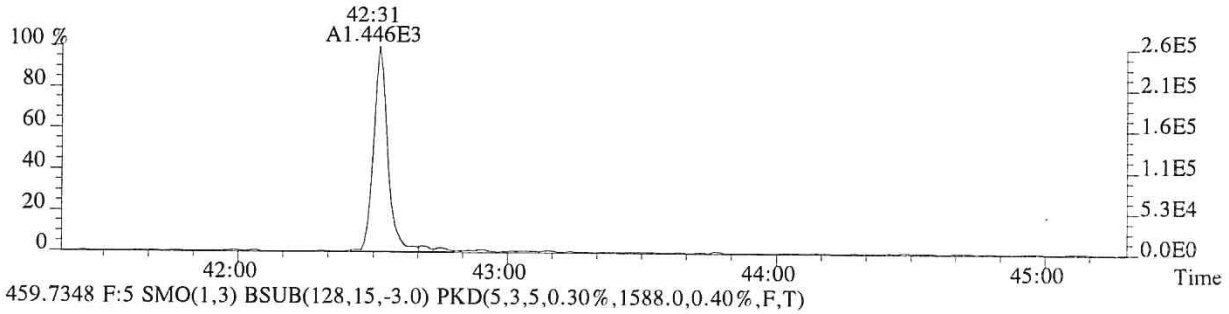


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

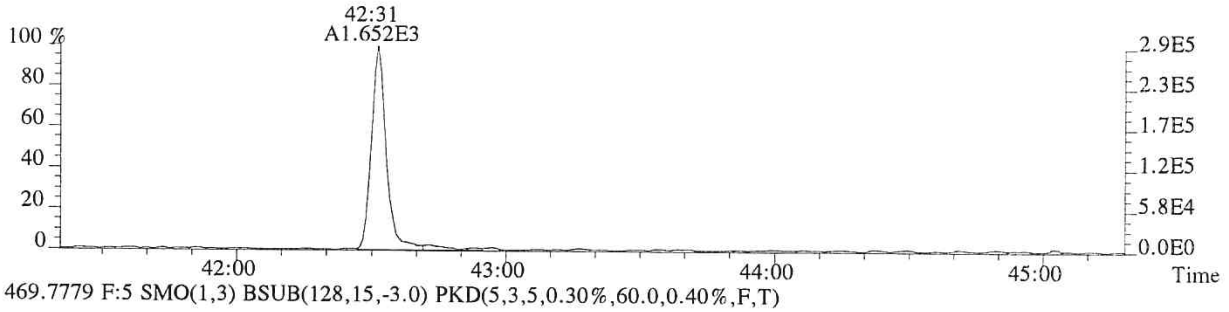


013619

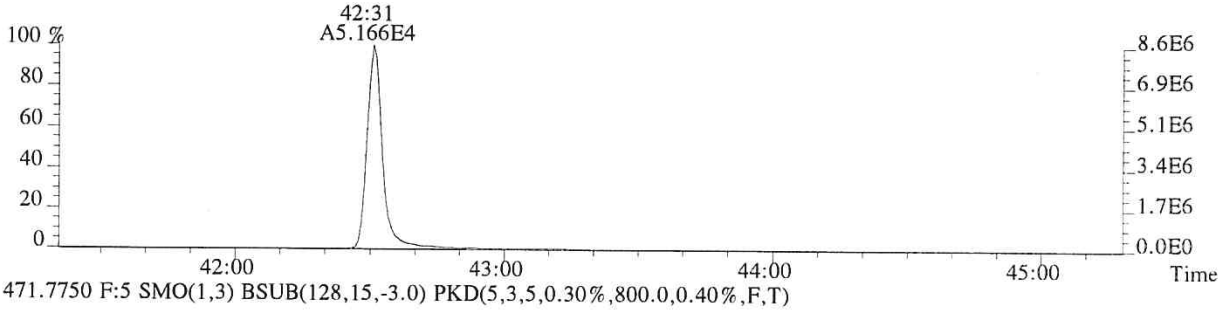
File:P513851 #1-357 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,192.0,0.40%,F,T)



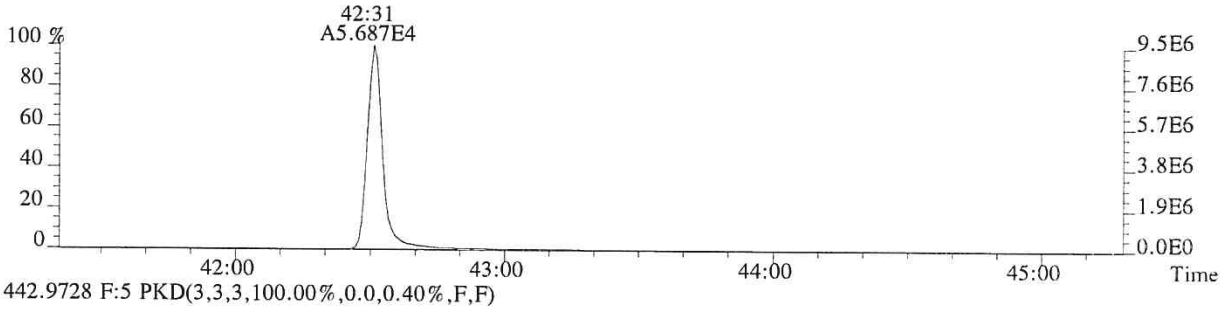
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1588.0,0.40%,F,T)



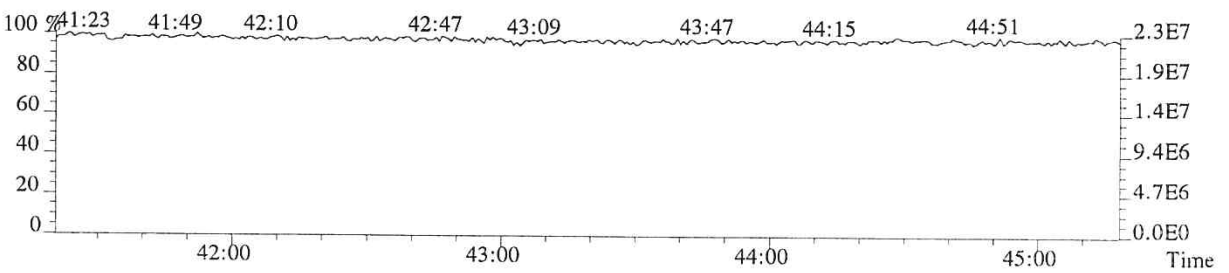
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,60.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,800.0,0.40%,F,T)



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



013620

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76556

Run #3 Filename P513852 Samp: 1 Inj: 1 Acquired: 24-JAN-18 15:18:44
Processed: 24-JAN-18 16:27:06 Sample ID: CS2

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	5.859e+03	7.932e+03	0.74	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	4.499e+04	3.047e+04	1.48	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:42	4.356e+04	2.901e+04	1.50	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:17	4.061e+04	3.382e+04	1.20	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	4.295e+04	3.562e+04	1.21	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:53	3.905e+04	3.212e+04	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	3.479e+04	2.862e+04	1.22	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	3.262e+04	3.207e+04	1.02	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	2.654e+04	2.632e+04	1.01	yes	no	1.258
10	Unk	OCDF	42:45	3.789e+04	4.247e+04	0.89	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	4.192e+03	5.525e+03	0.76	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:58	2.973e+04	1.886e+04	1.58	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	37:00	2.687e+04	2.156e+04	1.25	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	2.801e+04	2.223e+04	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	2.898e+04	2.343e+04	1.24	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:45	2.194e+04	2.114e+04	1.04	yes	no	1.025
17	Unk	OCDD	42:32	3.213e+04	3.615e+04	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:47	3.357e+05	4.220e+05	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:48	4.551e+05	2.871e+05	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	4.534e+05	2.868e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:16	2.091e+05	4.014e+05	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	2.405e+05	4.554e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:52	2.176e+05	4.192e+05	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:37	1.900e+05	3.615e+05	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:49	1.476e+05	3.275e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	1.279e+05	2.823e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:31	2.035e+05	2.546e+05	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	3.112e+05	1.963e+05	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	2.611e+05	2.071e+05	1.26	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:05	2.721e+05	2.137e+05	1.27	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	2.118e+05	1.999e+05	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	2.824e+05	3.150e+05	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:57	2.212e+05	2.732e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:19	2.902e+05	2.282e+05	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	1.018e+04				no	1.014

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www.alsglobal.com

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76556

Run #3 Filename P513852 Samp: 1 Inj: 1 Acquired: 24-JAN-18 15:18:44
Processed: 24-JAN-18 16:27:06 LAB. ID: CS2

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.20e+06	7.00e+02	1.7e+03	1.59e+06	1.72e+03	9.3e+02
2	1,2,3,7,8-PeCDF	9.02e+06	1.92e+02	4.7e+04	6.06e+06	3.56e+03	1.7e+03
3	2,3,4,7,8-PeCDF	8.94e+06	1.92e+02	4.7e+04	5.88e+06	3.56e+03	1.7e+03
4	1,2,3,4,7,8-HxCDF	9.11e+06	1.02e+03	9.0e+03	7.52e+06	1.04e+03	7.2e+03
5	1,2,3,6,7,8-HxCDF	8.86e+06	1.02e+03	8.7e+03	7.32e+06	1.04e+03	7.0e+03
6	2,3,4,6,7,8-HxCDF	8.62e+06	1.02e+03	8.5e+03	6.97e+06	1.04e+03	6.7e+03
7	1,2,3,7,8,9-HxCDF	7.31e+06	1.02e+03	7.2e+03	6.00e+06	1.04e+03	5.7e+03
8	1,2,3,4,6,7,8-HpCDF	6.83e+06	3.67e+03	1.9e+03	6.77e+06	3.04e+03	2.2e+03
9	1,2,3,4,7,8,9-HpCDF	5.23e+06	3.67e+03	1.4e+03	5.30e+06	3.04e+03	1.7e+03
10	OCDF	6.47e+06	1.08e+03	6.0e+03	7.24e+06	1.74e+03	4.2e+03
11	2,3,7,8-TCDD	8.47e+05	1.35e+03	6.3e+02	1.14e+06	7.40e+02	1.5e+03
12	1,2,3,7,8-PeCDD	6.05e+06	5.16e+02	1.2e+04	3.80e+06	5.04e+02	7.5e+03
13	1,2,3,4,7,8-HxCDD	6.06e+06	7.48e+02	8.1e+03	4.85e+06	1.29e+03	3.8e+03
14	1,2,3,6,7,8-HxCDD	5.88e+06	7.48e+02	7.9e+03	4.64e+06	1.29e+03	3.6e+03
15	1,2,3,7,8,9-HxCDD	5.73e+06	7.48e+02	7.7e+03	4.69e+06	1.29e+03	3.6e+03
16	1,2,3,4,6,7,8-HpCDD	4.40e+06	1.68e+03	2.6e+03	4.18e+06	7.28e+02	5.7e+03
17	OCDD	5.55e+06	1.60e+02	3.5e+04	6.20e+06	1.07e+03	5.8e+03
18	13C-2,3,7,8-TCDF	6.63e+07	8.64e+03	7.7e+03	8.31e+07	4.36e+03	1.9e+04
19	13C-1,2,3,7,8-PeCDF	8.82e+07	9.44e+02	9.3e+04	5.54e+07	2.55e+03	2.2e+04
20	13C-2,3,4,7,8-PeCDF	9.11e+07	9.44e+02	9.6e+04	5.80e+07	2.55e+03	2.3e+04
21	13C-1,2,3,4,7,8-HxCDF	4.63e+07	1.33e+03	3.5e+04	8.84e+07	3.58e+03	2.5e+04
22	13C-1,2,3,6,7,8-HxCDF	4.97e+07	1.33e+03	3.7e+04	9.31e+07	3.58e+03	2.6e+04
23	13C-2,3,4,6,7,8-HxCDF	4.74e+07	1.33e+03	3.6e+04	9.03e+07	3.58e+03	2.5e+04
24	13C-1,2,3,7,8,9-HxCDF	3.91e+07	1.33e+03	2.9e+04	7.44e+07	3.58e+03	2.1e+04
25	13C-1,2,3,4,6,7,8-HpCDF	3.05e+07	5.18e+03	5.9e+03	6.68e+07	7.38e+03	9.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.48e+07	5.18e+03	4.8e+03	5.51e+07	7.38e+03	7.5e+03
27	13C-2,3,7,8-TCDD	4.21e+07	6.43e+03	6.5e+03	5.22e+07	3.34e+03	1.6e+04
28	13C-1,2,3,7,8-PeCDD	6.30e+07	1.05e+03	6.0e+04	3.99e+07	1.24e+03	3.2e+04
29	13C-1,2,3,4,7,8-HxCDD	5.84e+07	4.36e+03	1.3e+04	4.60e+07	2.04e+03	2.3e+04
30	13C-1,2,3,6,7,8-HxCDD	5.57e+07	4.36e+03	1.3e+04	4.34e+07	2.04e+03	2.1e+04
31	13C-1,2,3,4,6,7,8-HpCDD	4.12e+07	2.07e+03	2.0e+04	3.91e+07	2.18e+03	1.8e+04
32	13C-OCDD	4.87e+07	6.80e+01	7.2e+05	5.40e+07	9.12e+02	5.9e+04
33	13C-1,2,3,4-TCDD	4.48e+07	6.43e+03	7.0e+03	5.57e+07	3.34e+03	1.7e+04
34	13C-1,2,3,7,8,9-HxCDD	5.61e+07	4.36e+03	1.3e+04	4.47e+07	2.04e+03	2.2e+04
35	37Cl-2,3,7,8-TCDD	2.10e+06	1.00e+03	2.1e+03			

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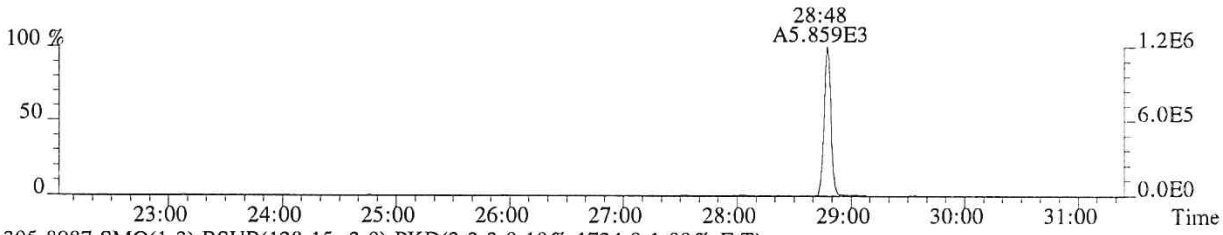
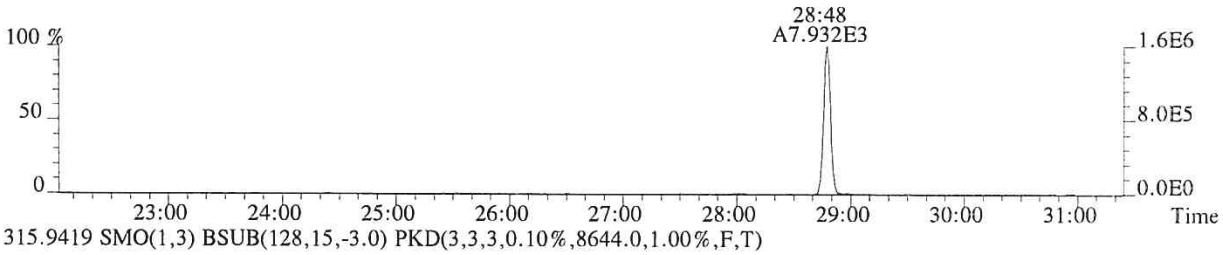
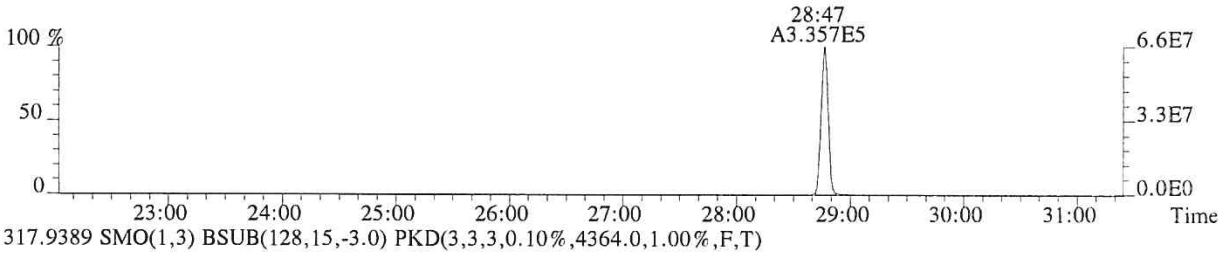
File:P513852 #1-665 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,700.0,1.00%,F,T)



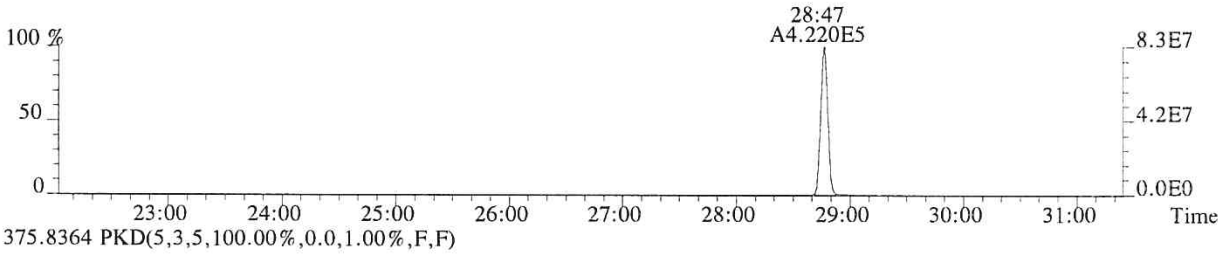
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1724.0,1.00%,F,T)



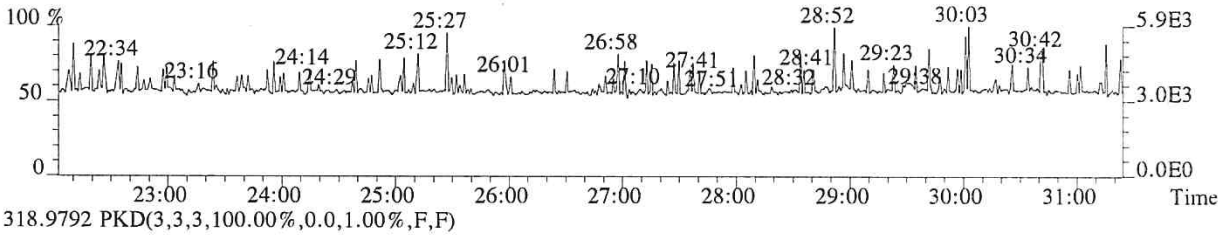
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8644.0,1.00%,F,T)



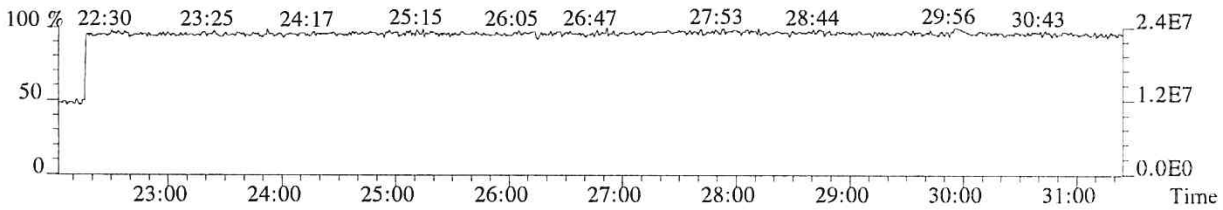
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4364.0,1.00%,F,T)



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

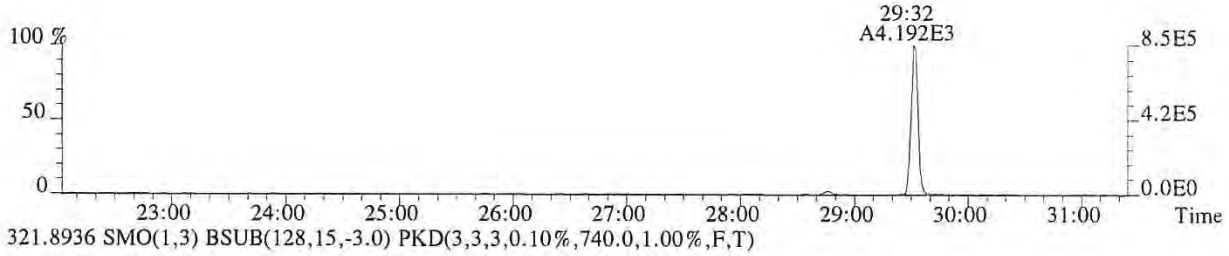


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

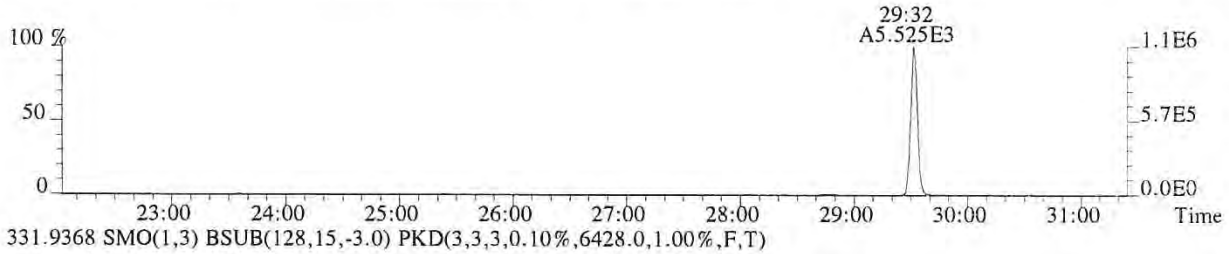


013623

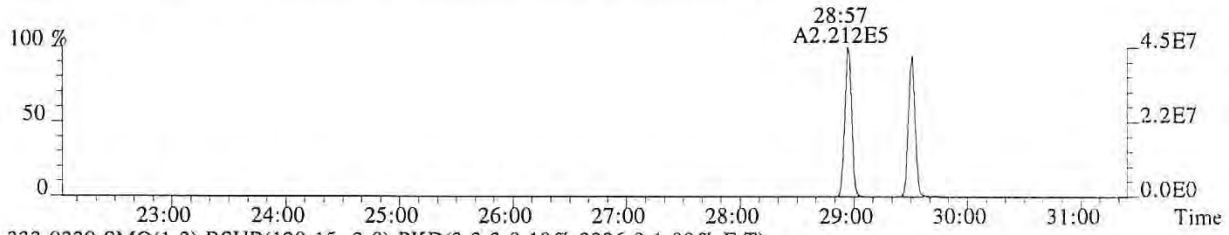
File:P513852 #1-665 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1348.0,1.00%,F,T)



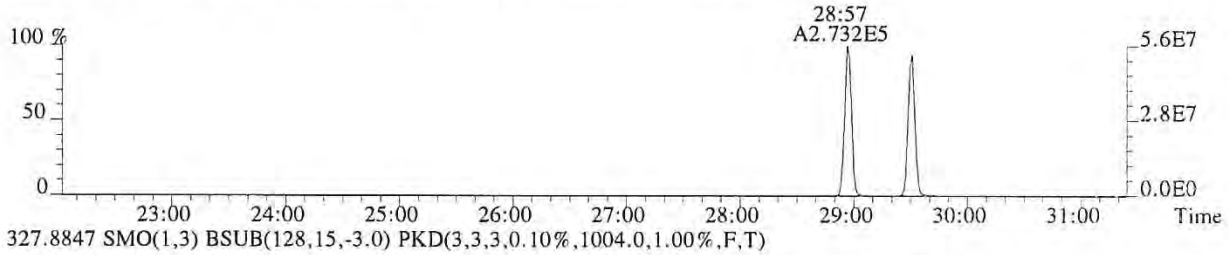
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,740.0,1.00%,F,T)



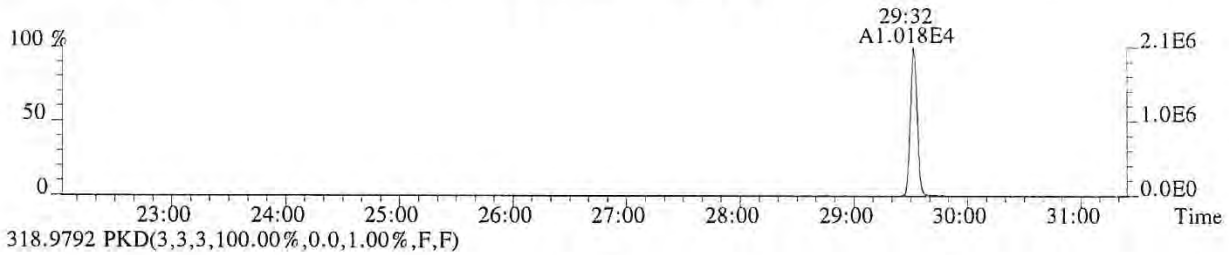
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6428.0,1.00%,F,T)



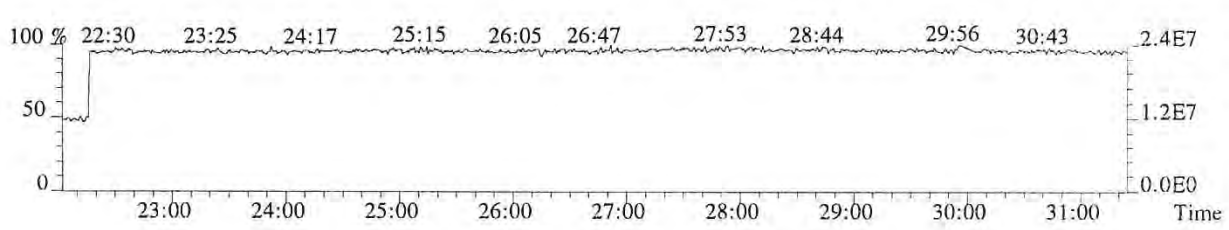
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3336.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)

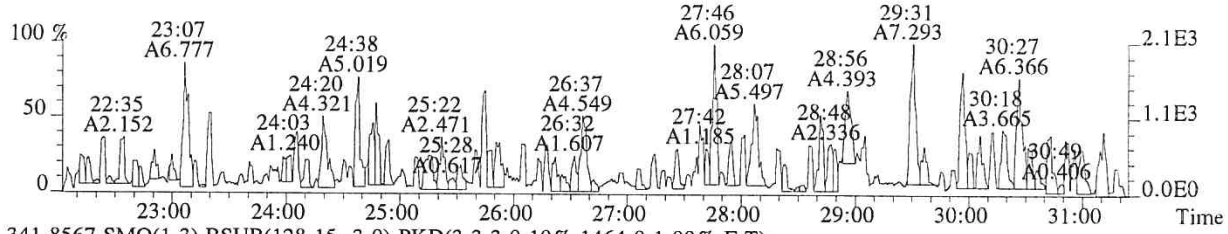


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

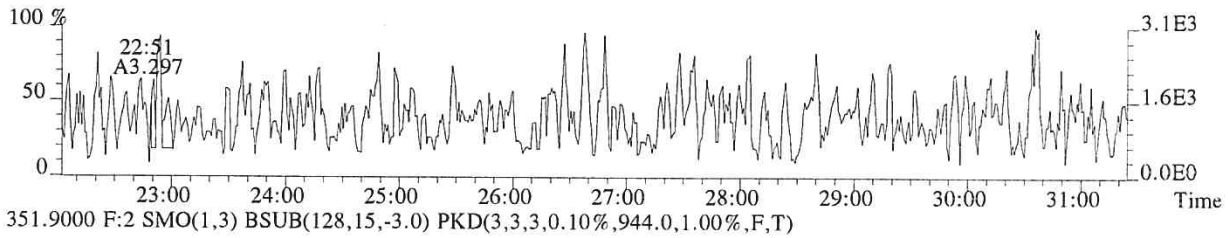


013624

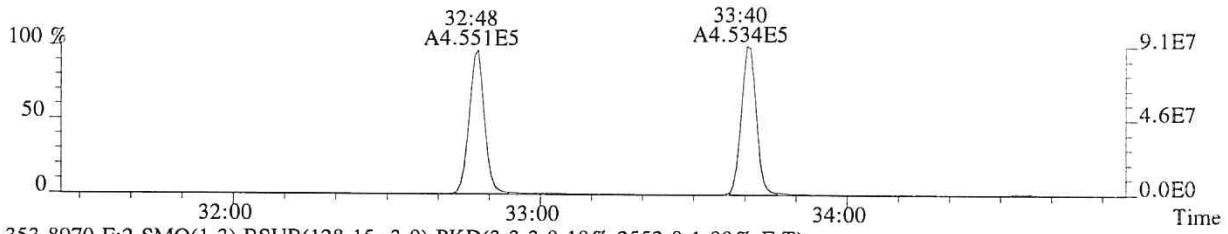
File:P513852 #1-665 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,196.0,1.00%,F,T)



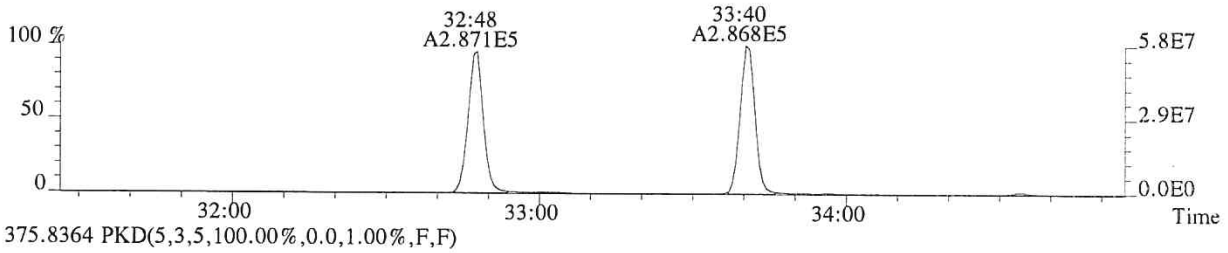
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1464.0,1.00%,F,T)



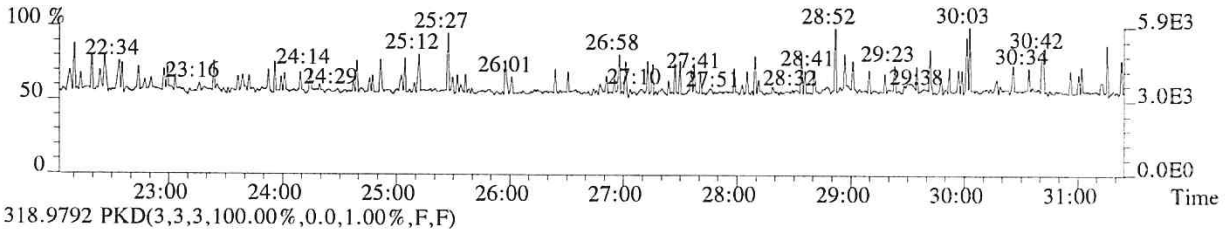
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,944.0,1.00%,F,T)



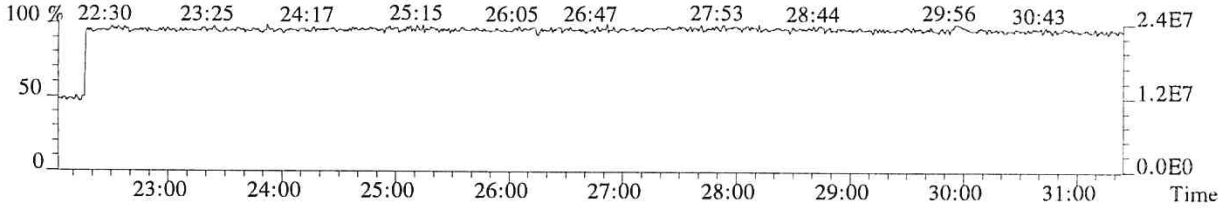
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2552.0,1.00%,F,T)



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

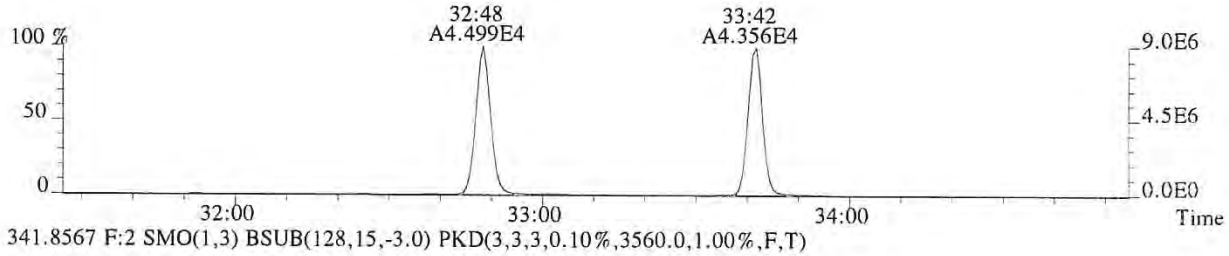


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

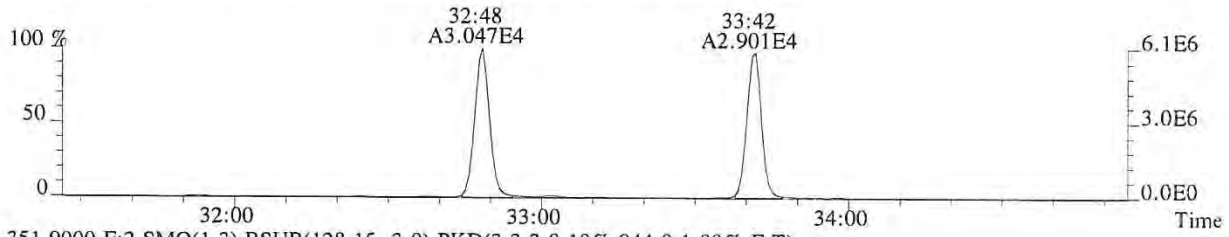


013625

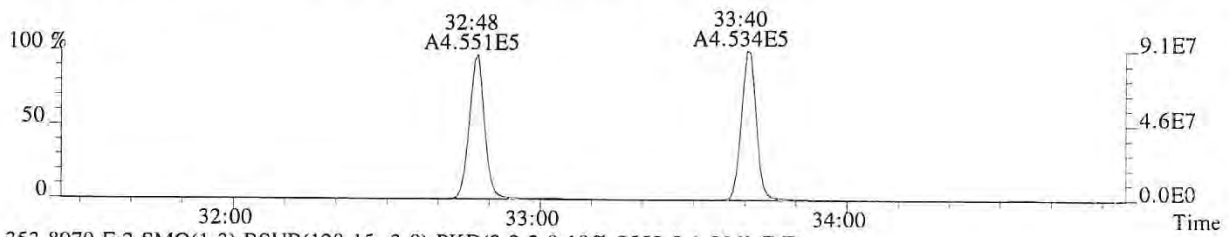
File:P513852 #1-313 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,192.0,1.00%,F,T)



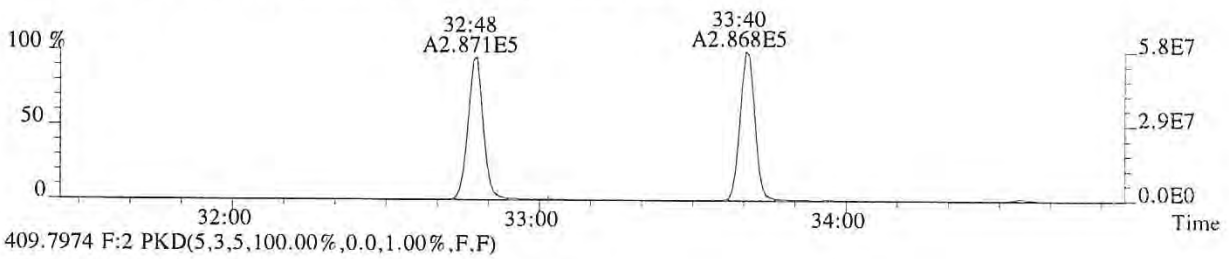
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3560.0,1.00%,F,T)



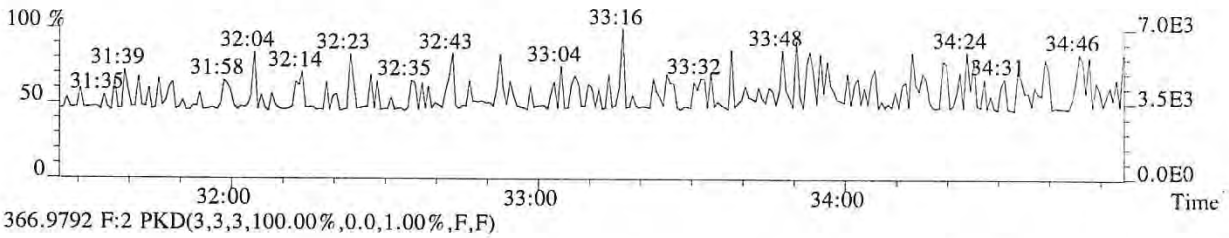
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,944.0,1.00%,F,T)



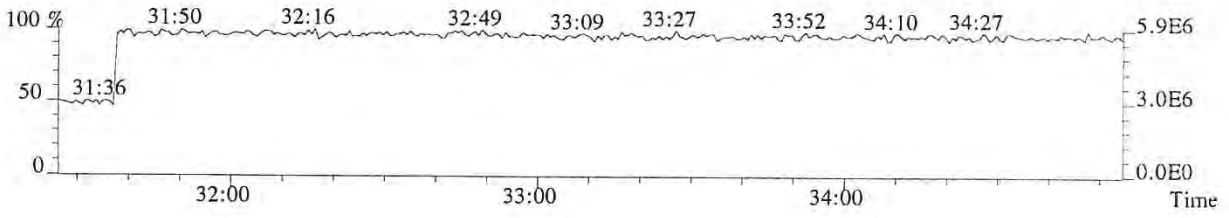
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2552.0,1.00%,F,T)



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

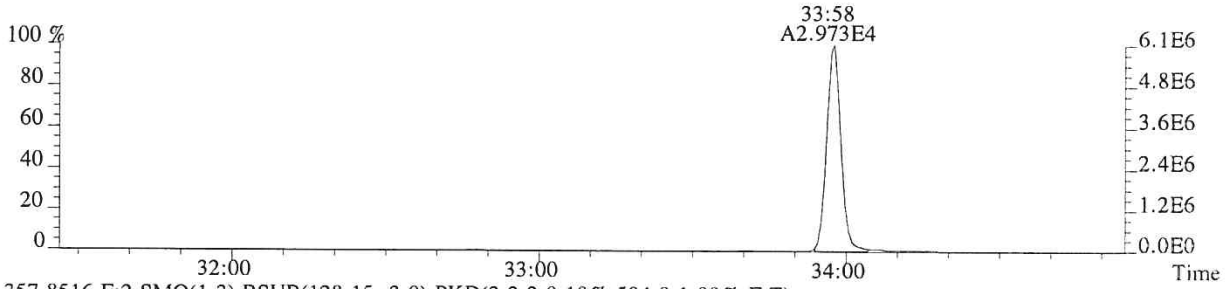


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

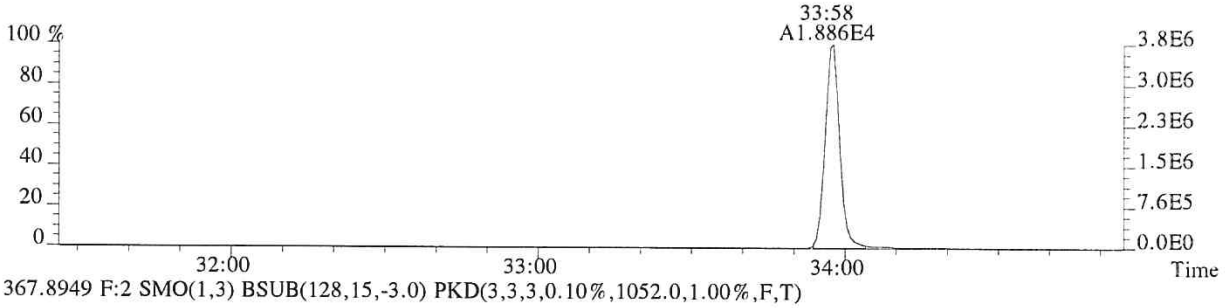


013626

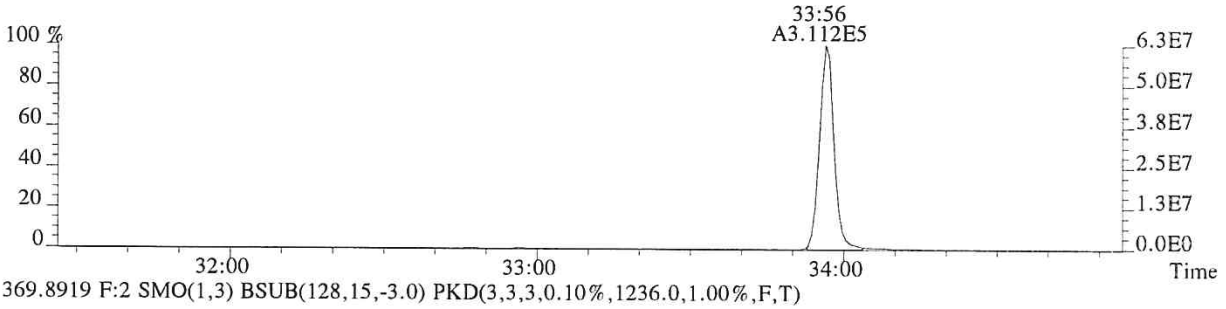
File:P513852 #1-313 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,516.0,1.00%,F,T)



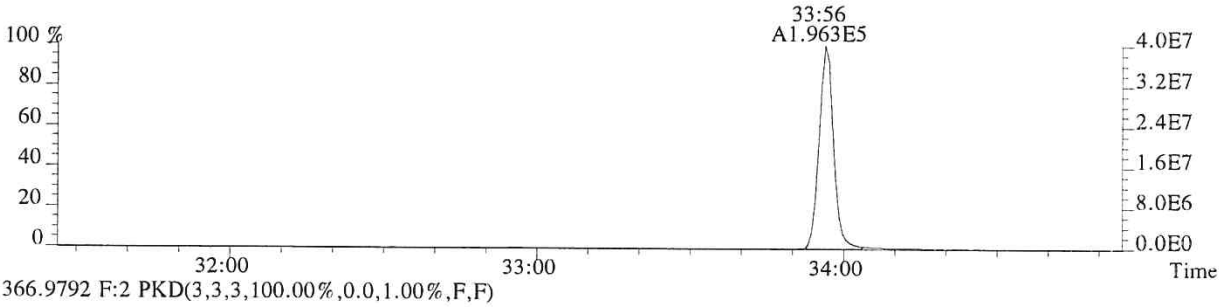
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,504.0,1.00%,F,T)



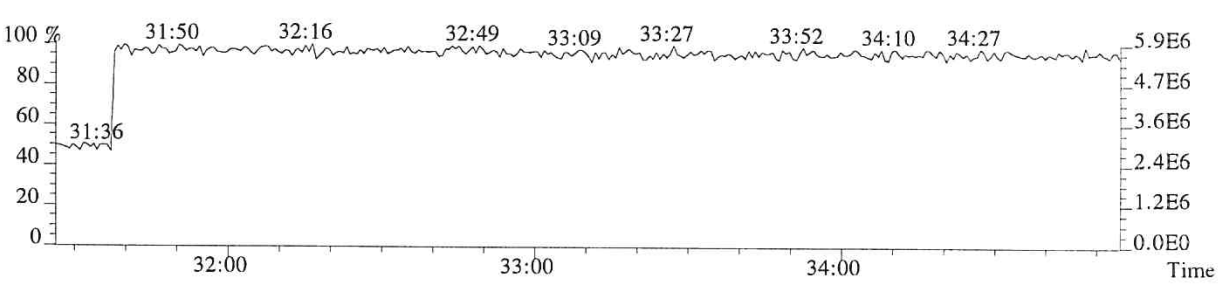
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1052.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1236.0,1.00%,F,T)

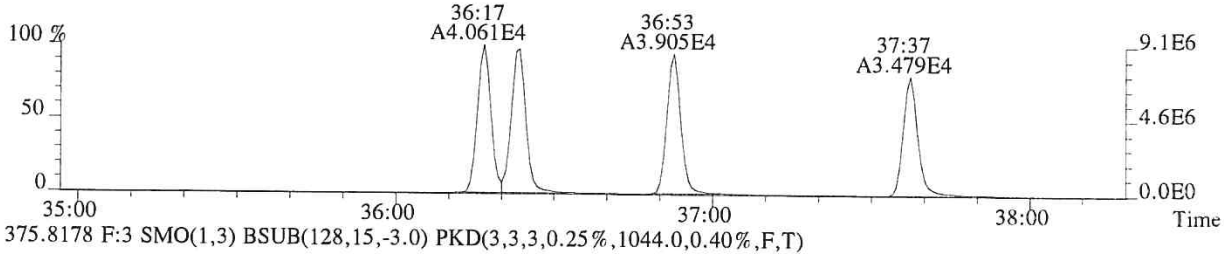


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

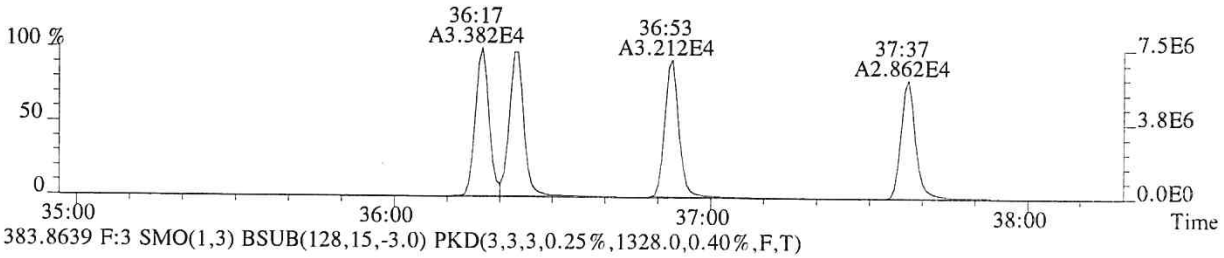


013627

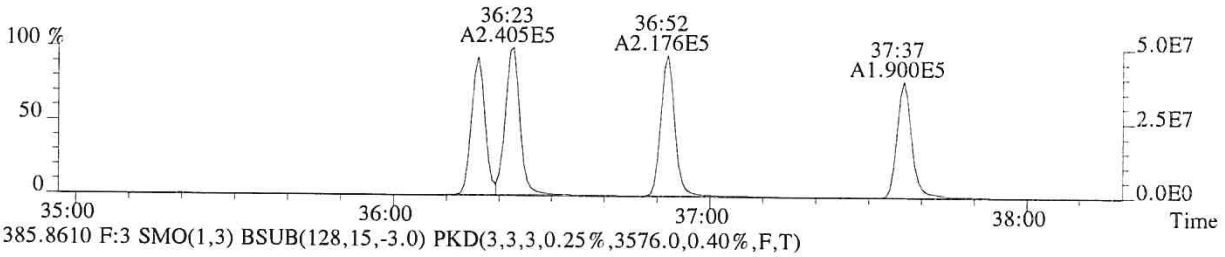
File:P513852 #1-303 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:76556
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1016.0,0.40%,F,T)



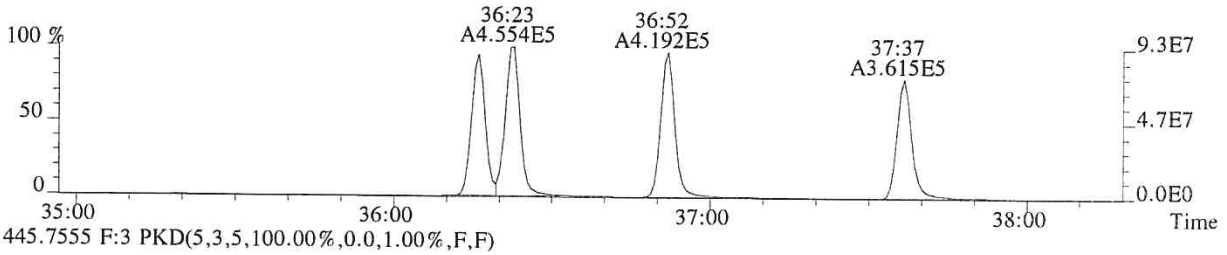
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1044.0,0.40%,F,T)



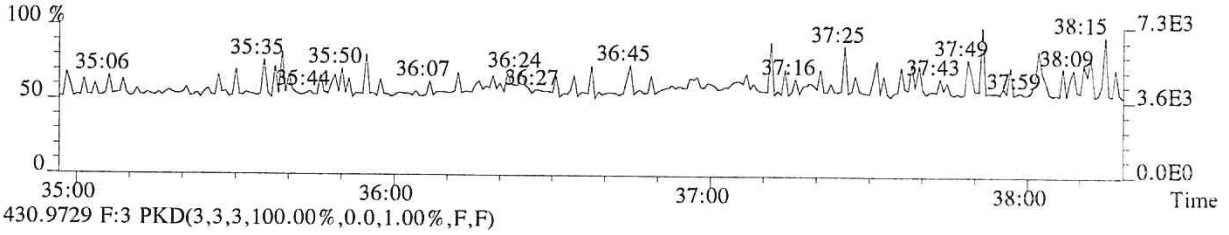
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1328.0,0.40%,F,T)



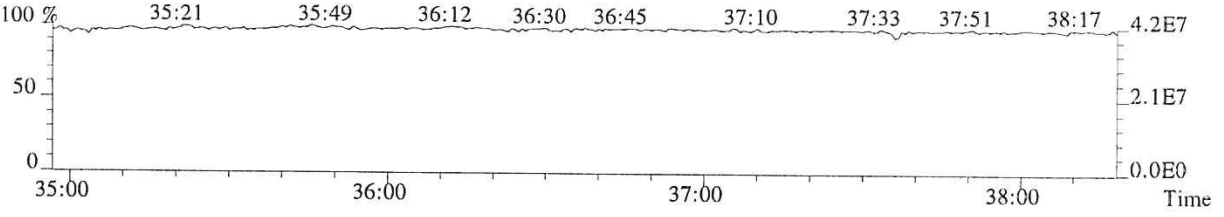
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3576.0,0.40%,F,T)



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

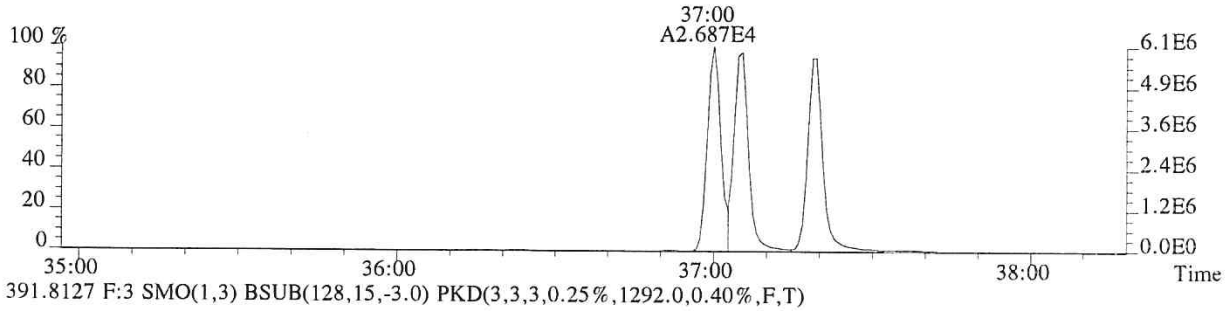


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

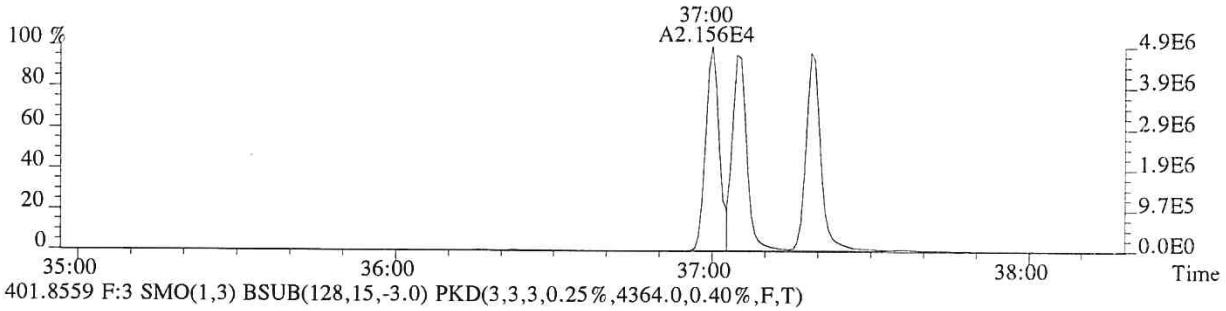


013628

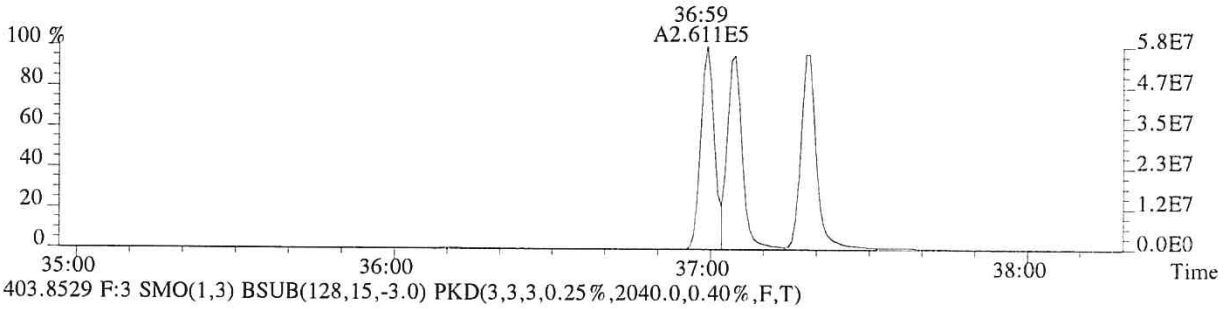
File:P513852 #1-303 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,748.0,0.40%,F,T)



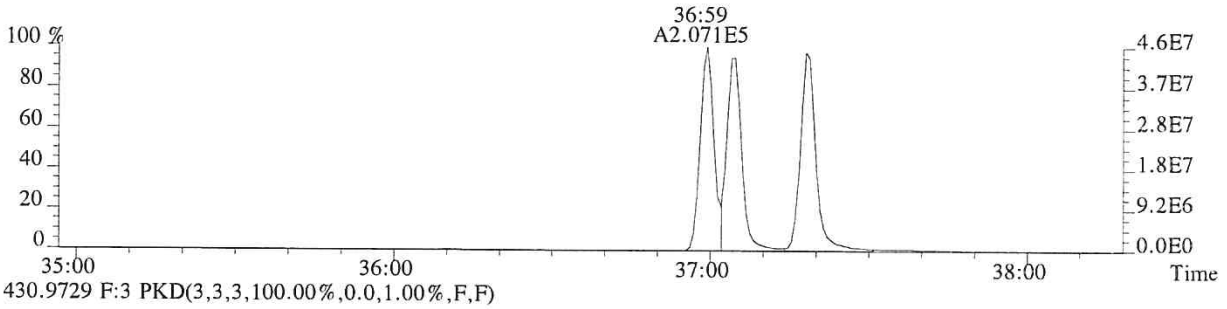
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1292.0,0.40%,F,T)



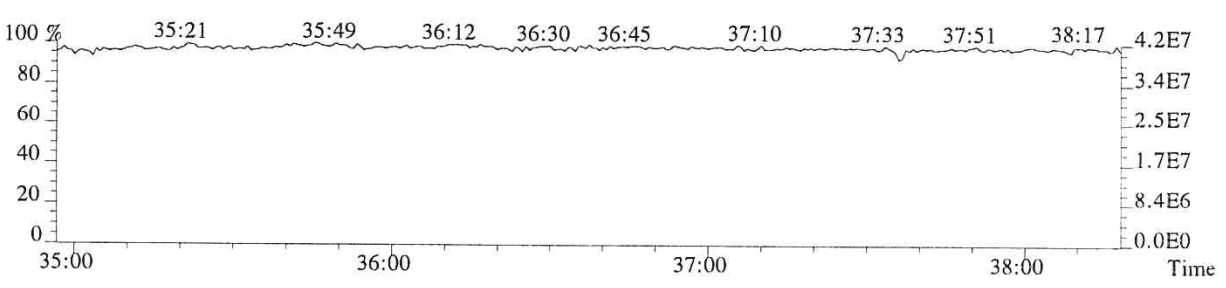
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4364.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2040.0,0.40%,F,T)

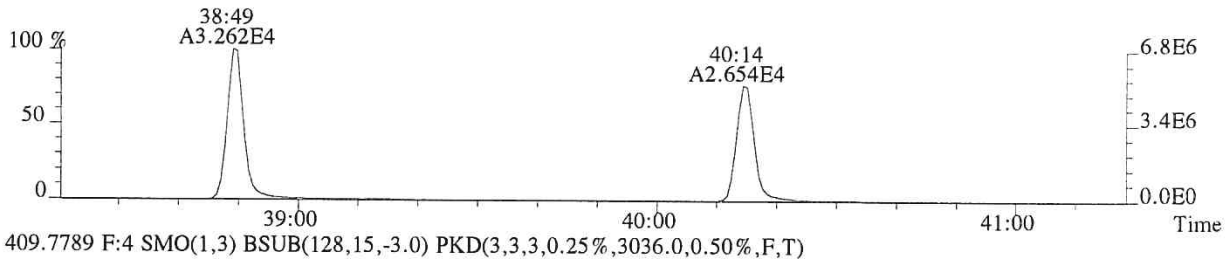


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

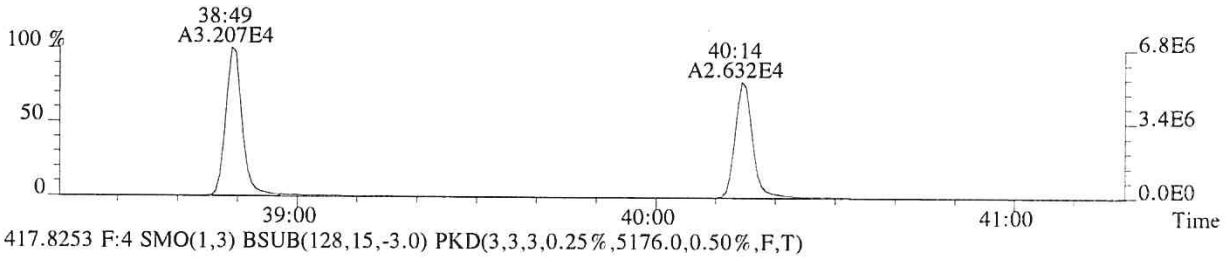


013629

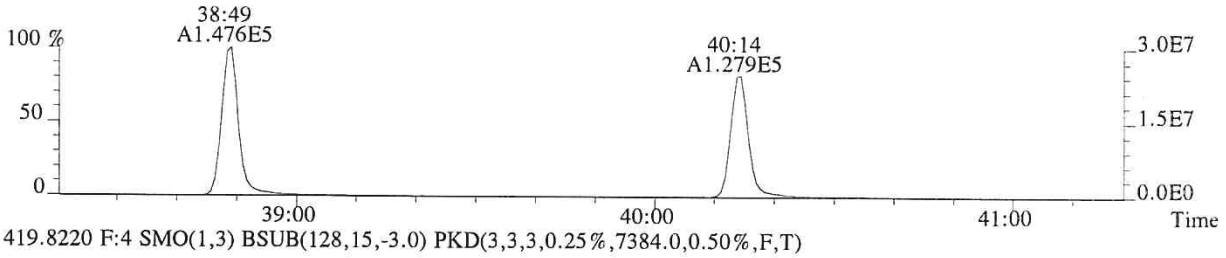
File:P513852 #1-268 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3668.0,0.50%,F,T)



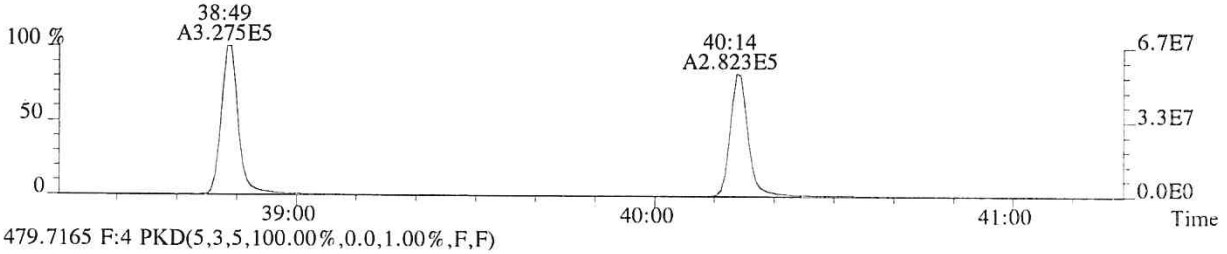
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3036.0,0.50%,F,T)



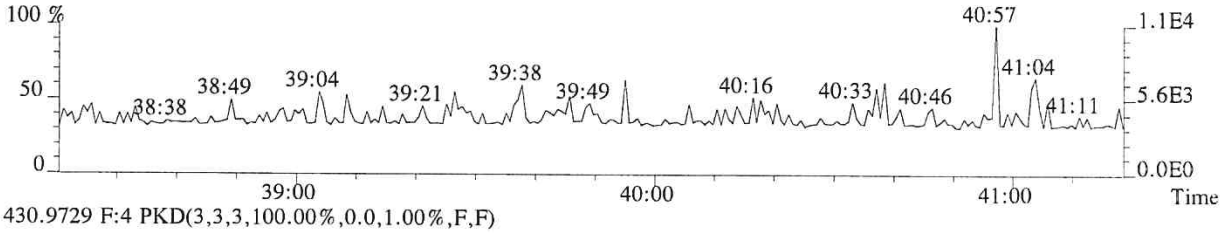
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5176.0,0.50%,F,T)



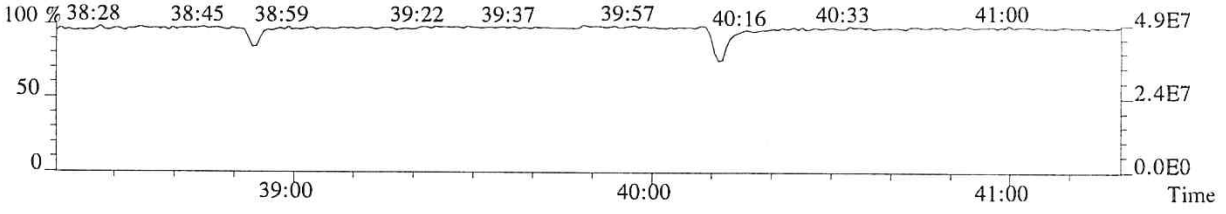
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7384.0,0.50%,F,T)



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

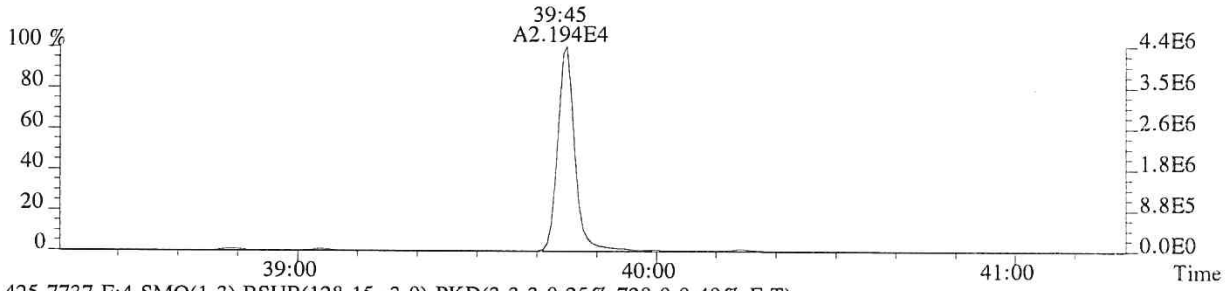


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

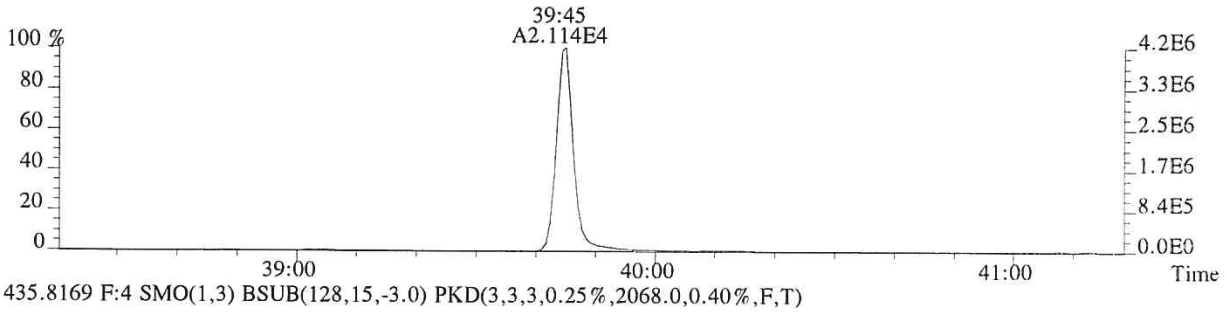


013630

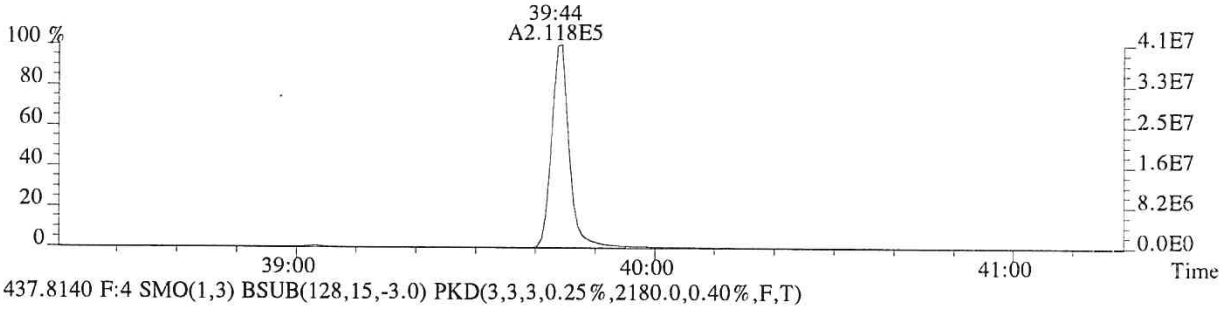
File:P513852 #1-268 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1676.0,0.40%,F,T)



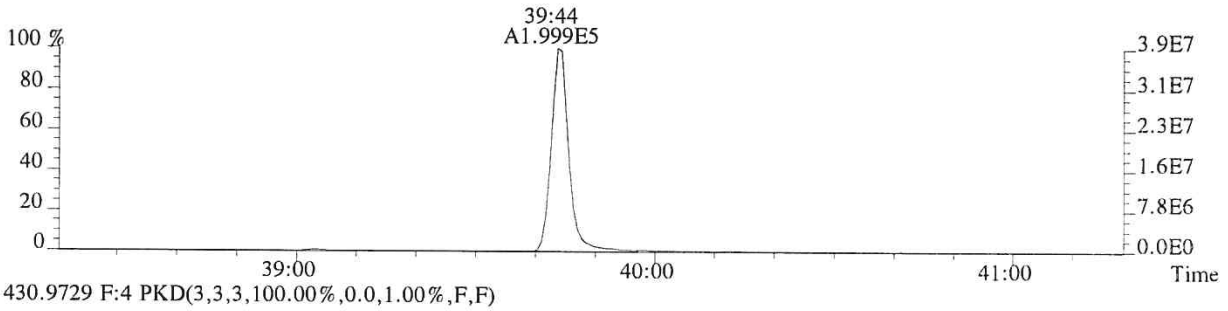
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,728.0,0.40%,F,T)



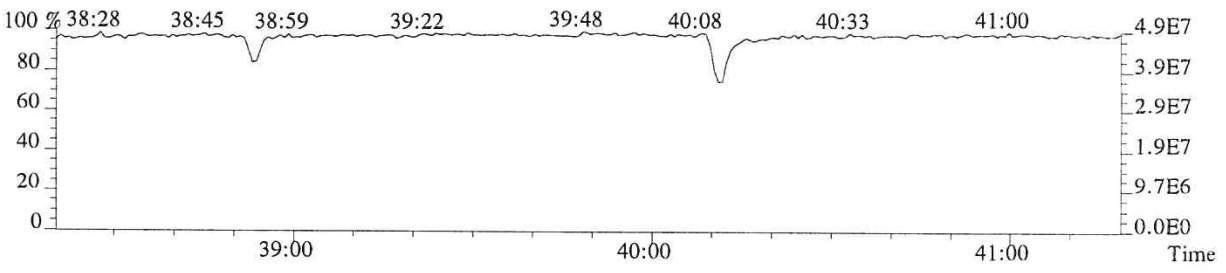
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2068.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2180.0,0.40%,F,T)

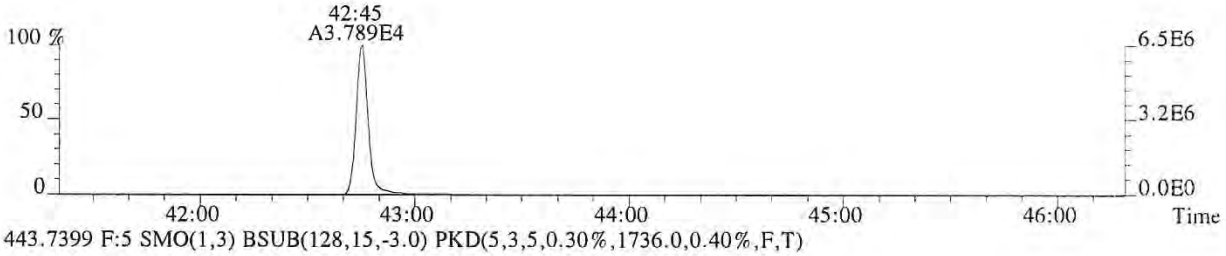


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

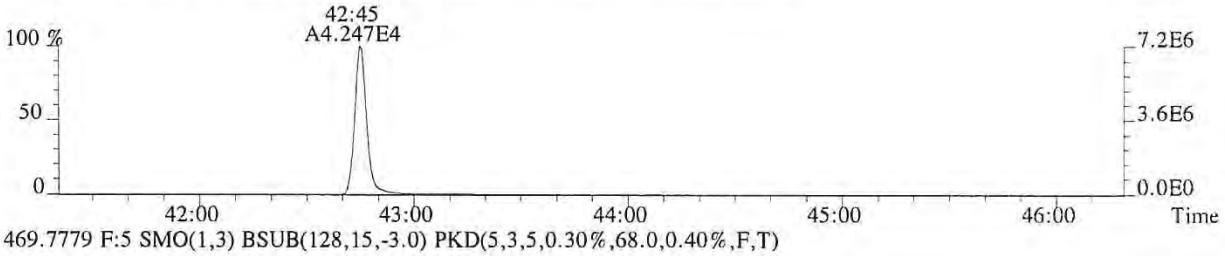


013631

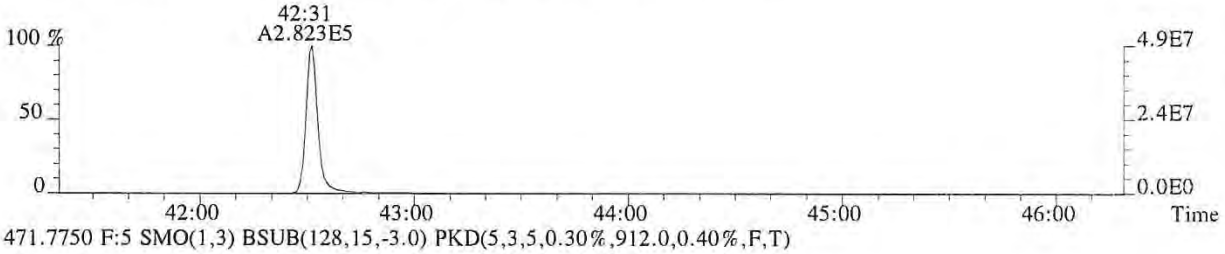
File:P513852 #1-448 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1076.0,0.40%,F,T)



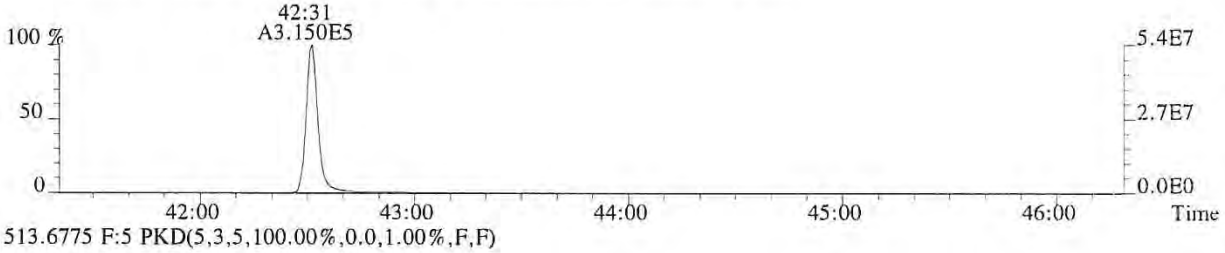
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1736.0,0.40%,F,T)



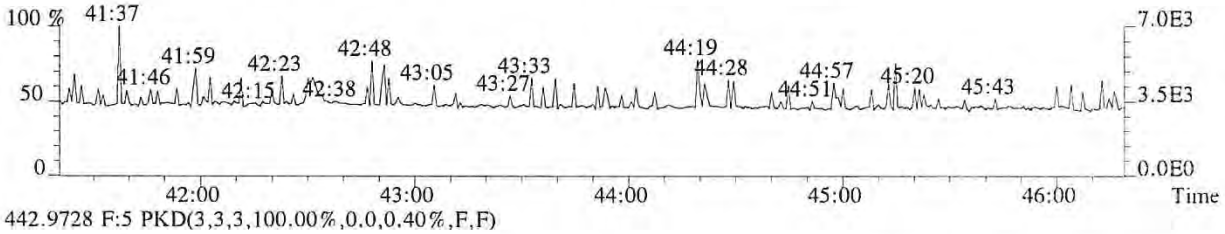
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,68.0,0.40%,F,T)



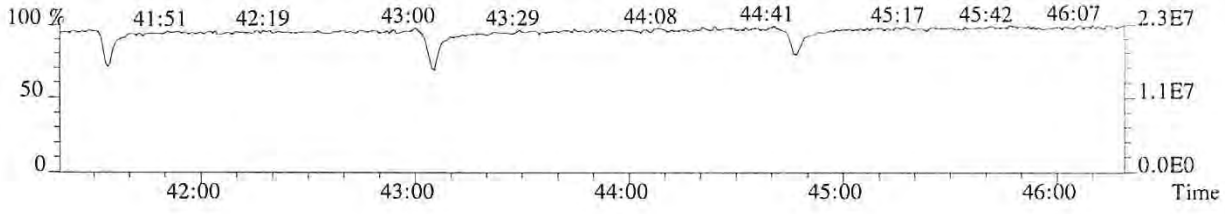
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,912.0,0.40%,F,T)



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

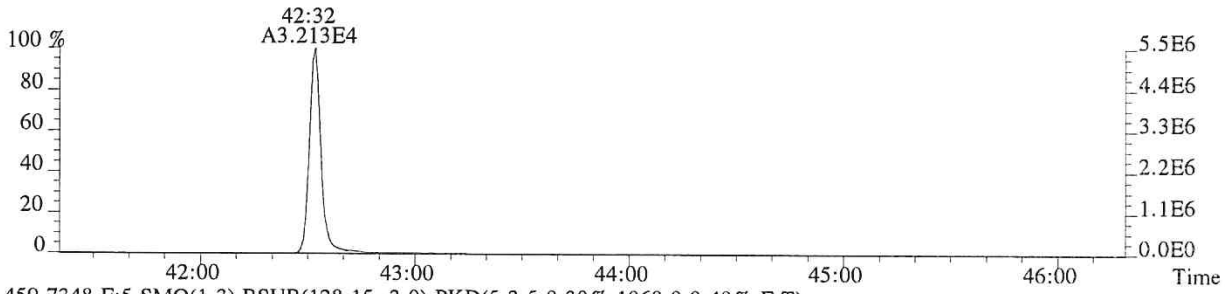


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

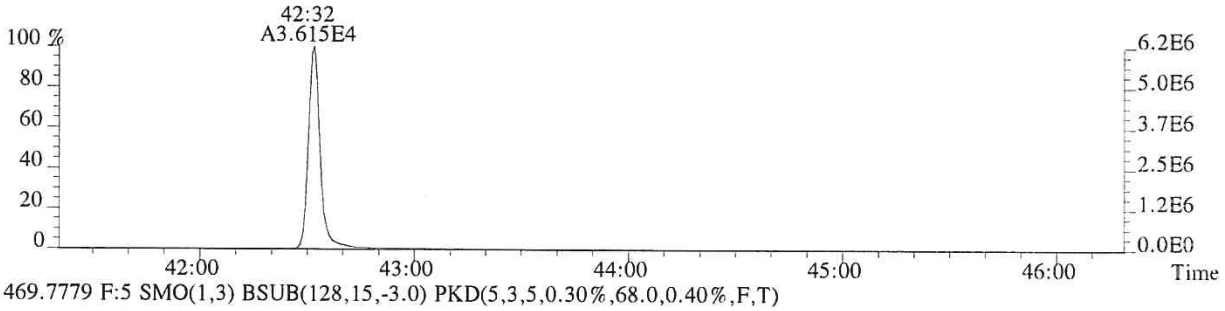


013632

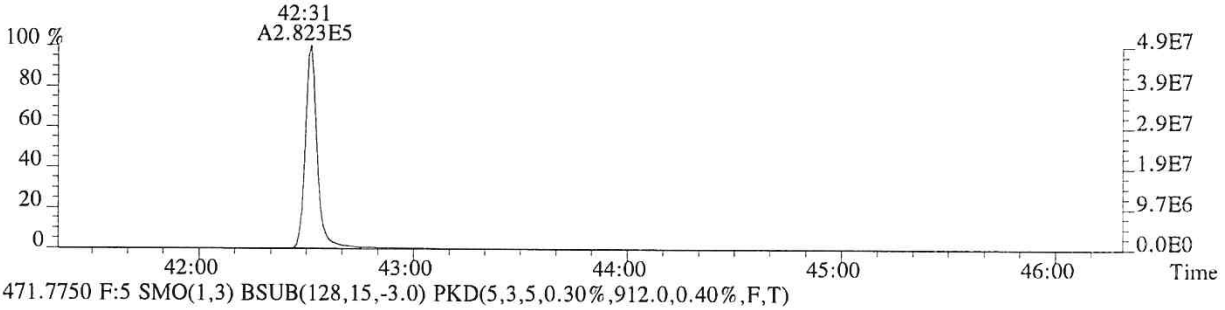
File:P513852 #1-448 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,160.0,0.40%,F,T)



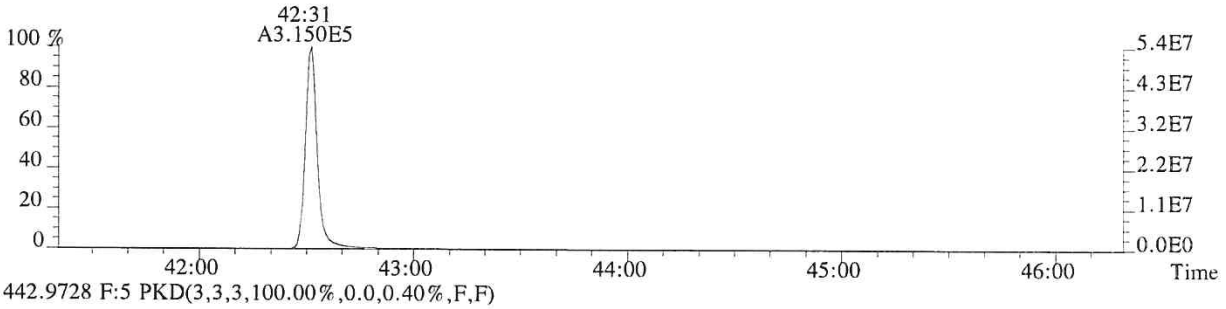
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1068.0,0.40%,F,T)



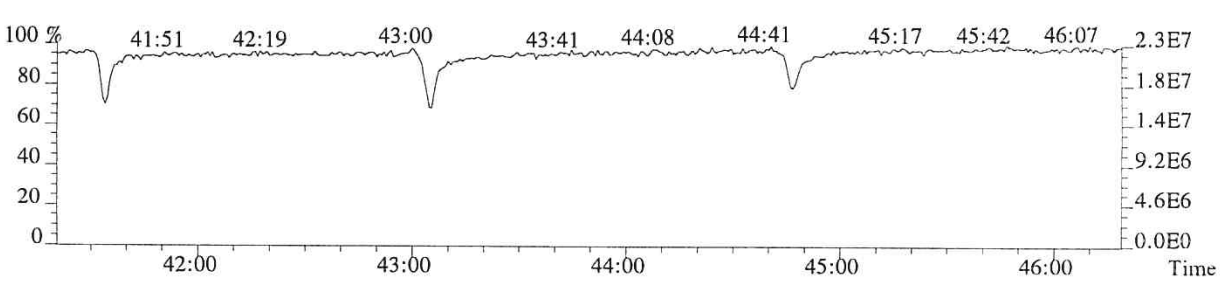
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,68.0,0.40%,F,T)



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)



013633

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76557

Run #4 Filename P513853 Samp: 1 Inj: 1 Acquired: 24-JAN-18 16:06:29
Processed: 24-JAN-18 17:13:42 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:47	4.270e+04	5.692e+04	0.75	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	3.077e+05	2.016e+05	1.53	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:41	2.833e+05	1.864e+05	1.52	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:16	2.625e+05	2.158e+05	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:22	2.702e+05	2.228e+05	1.21	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:52	2.439e+05	2.001e+05	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	1.977e+05	1.631e+05	1.21	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:48	2.099e+05	2.057e+05	1.02	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	1.509e+05	1.470e+05	1.03	yes	no	1.258
10	Unk	OCDF	42:45	2.260e+05	2.525e+05	0.90	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:31	2.824e+04	3.588e+04	0.79	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:57	1.903e+05	1.221e+05	1.56	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:59	1.727e+05	1.384e+05	1.25	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:04	1.705e+05	1.356e+05	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:18	1.758e+05	1.371e+05	1.28	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	1.431e+05	1.365e+05	1.05	yes	no	1.025
17	Unk	OCDD	42:31	1.906e+05	2.140e+05	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:46	4.689e+05	5.926e+05	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:47	6.073e+05	3.832e+05	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	5.900e+05	3.740e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	2.738e+05	5.189e+05	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:21	3.023e+05	5.708e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:51	2.671e+05	5.167e+05	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:36	2.133e+05	4.042e+05	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	1.882e+05	4.188e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	1.419e+05	3.155e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:30	2.668e+05	3.316e+05	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	4.009e+05	2.534e+05	1.58	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	3.335e+05	2.508e+05	1.33	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:03	3.244e+05	2.699e+05	1.20	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:43	2.779e+05	2.632e+05	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	3.375e+05	3.799e+05	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:56	2.956e+05	3.663e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:17	3.390e+05	2.761e+05	1.23	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:31	6.612e+04				no	1.014

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Signal/Noise Height Ratio Summary

CLIENT ID.
76557

Run #4 Filename P513853 Samp: 1 Inj: 1 Acquired: 24-JAN-18 16:06:29
Processed: 24-JAN-18 17:13:42 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	8.50e+06	6.40e+02	1.3e+04	1.14e+07	2.11e+03	5.4e+03
2	1,2,3,7,8-PeCDF	6.16e+07	1.61e+03	3.8e+04	4.01e+07	2.10e+03	1.9e+04
3	2,3,4,7,8-PeCDF	5.79e+07	1.61e+03	3.6e+04	3.78e+07	2.10e+03	1.8e+04
4	1,2,3,4,7,8-HxCDF	5.83e+07	1.86e+03	3.1e+04	4.74e+07	2.55e+03	1.9e+04
5	1,2,3,6,7,8-HxCDF	5.80e+07	1.86e+03	3.1e+04	4.80e+07	2.55e+03	1.9e+04
6	2,3,4,6,7,8-HxCDF	5.37e+07	1.86e+03	2.9e+04	4.34e+07	2.55e+03	1.7e+04
7	1,2,3,7,8,9-HxCDF	4.12e+07	1.86e+03	2.2e+04	3.39e+07	2.55e+03	1.3e+04
8	1,2,3,4,6,7,8-HpCDF	4.57e+07	4.44e+03	1.0e+04	4.52e+07	1.05e+04	4.3e+03
9	1,2,3,4,7,8,9-HpCDF	3.06e+07	4.44e+03	6.9e+03	2.99e+07	1.05e+04	2.8e+03
10	OCDF	3.93e+07	1.44e+02	2.7e+05	4.34e+07	1.38e+03	3.1e+04
11	2,3,7,8-TCDD	5.83e+06	1.92e+03	3.0e+03	7.39e+06	1.30e+03	5.7e+03
12	1,2,3,7,8-PeCDD	3.83e+07	1.45e+03	2.6e+04	2.46e+07	7.04e+02	3.5e+04
13	1,2,3,4,7,8-HxCDD	3.89e+07	5.12e+02	7.6e+04	3.08e+07	1.23e+03	2.5e+04
14	1,2,3,6,7,8-HxCDD	3.74e+07	5.12e+02	7.3e+04	3.02e+07	1.23e+03	2.5e+04
15	1,2,3,7,8,9-HxCDD	3.75e+07	5.12e+02	7.3e+04	3.01e+07	1.23e+03	2.5e+04
16	1,2,3,4,6,7,8-HpCDD	2.89e+07	1.84e+03	1.6e+04	2.78e+07	1.41e+03	2.0e+04
17	OCDD	3.41e+07	6.32e+02	5.4e+04	3.81e+07	1.31e+03	2.9e+04
18	13C-2,3,7,8-TCDF	9.47e+07	6.52e+03	1.5e+04	1.19e+08	4.12e+03	2.9e+04
19	13C-1,2,3,7,8-PeCDF	1.17e+08	1.28e+03	9.1e+04	7.33e+07	8.08e+02	9.1e+04
20	13C-2,3,4,7,8-PeCDF	1.21e+08	1.28e+03	9.4e+04	7.72e+07	8.08e+02	9.6e+04
21	13C-1,2,3,4,7,8-HxCDF	6.01e+07	1.97e+03	3.1e+04	1.13e+08	1.75e+03	6.5e+04
22	13C-1,2,3,6,7,8-HxCDF	6.52e+07	1.97e+03	3.3e+04	1.24e+08	1.75e+03	7.1e+04
23	13C-2,3,4,6,7,8-HxCDF	5.86e+07	1.97e+03	3.0e+04	1.11e+08	1.75e+03	6.4e+04
24	13C-1,2,3,7,8,9-HxCDF	4.44e+07	1.97e+03	2.3e+04	8.35e+07	1.75e+03	4.8e+04
25	13C-1,2,3,4,6,7,8-HpCDF	4.03e+07	8.48e+03	4.8e+03	9.01e+07	6.21e+03	1.5e+04
26	13C-1,2,3,4,7,8,9-HpCDF	2.83e+07	8.48e+03	3.3e+03	6.33e+07	6.21e+03	1.0e+04
27	13C-2,3,7,8-TCDD	5.56e+07	5.87e+03	9.5e+03	6.88e+07	2.90e+03	2.4e+04
28	13C-1,2,3,7,8-PeCDD	8.27e+07	1.46e+03	5.7e+04	5.24e+07	1.17e+03	4.5e+04
29	13C-1,2,3,4,7,8-HxCDD	7.51e+07	3.07e+03	2.4e+04	5.90e+07	2.67e+03	2.2e+04
30	13C-1,2,3,6,7,8-HxCDD	7.07e+07	3.07e+03	2.3e+04	5.69e+07	2.67e+03	2.1e+04
31	13C-1,2,3,4,6,7,8-HpCDD	5.63e+07	2.93e+03	1.9e+04	5.39e+07	1.32e+03	4.1e+04
32	13C-OCDD	5.98e+07	1.07e+03	5.6e+04	6.69e+07	9.36e+02	7.1e+04
33	13C-1,2,3,4-TCDD	5.97e+07	5.87e+03	1.0e+04	7.42e+07	2.90e+03	2.6e+04
34	13C-1,2,3,7,8,9-HxCDD	7.31e+07	3.07e+03	2.4e+04	5.89e+07	2.67e+03	2.2e+04
35	37Cl-2,3,7,8-TCDD	1.36e+07	1.25e+03	1.1e+04			

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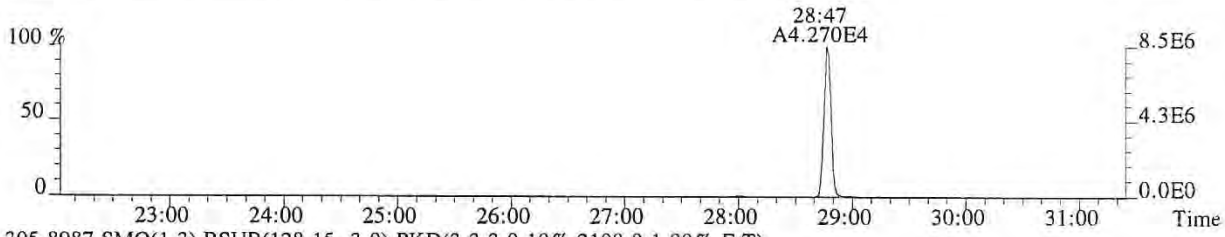
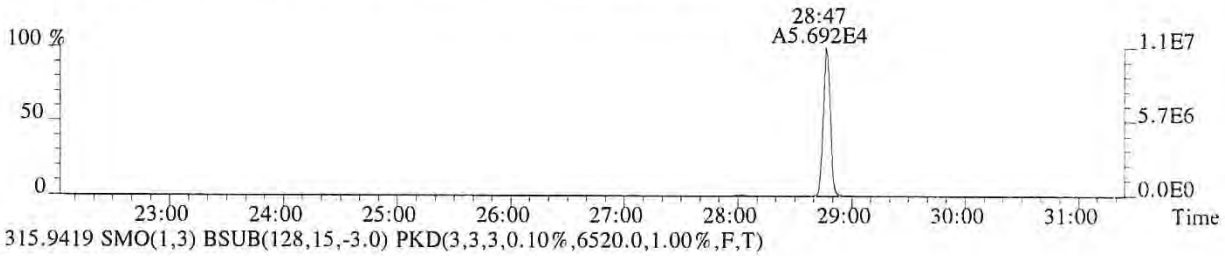
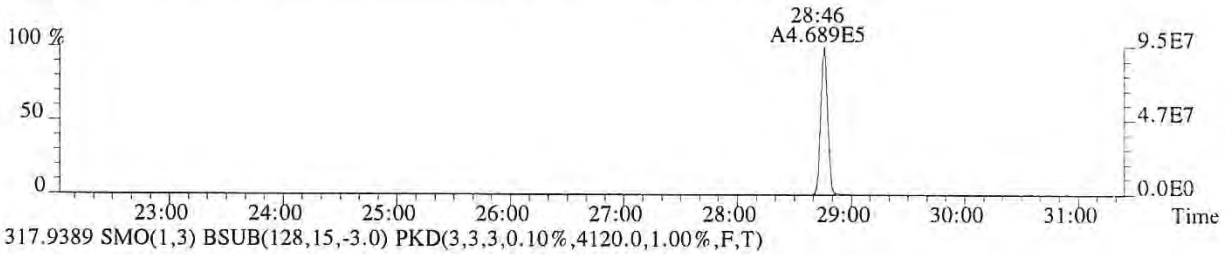
File:P513853 #1-665 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,640.0,1.00%,F,T)



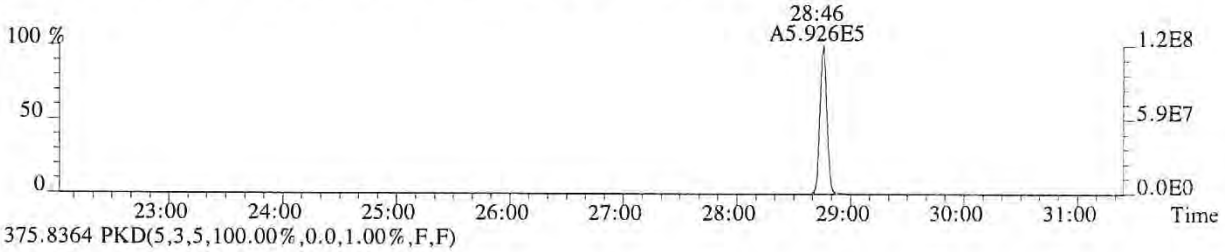
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2108.0,1.00%,F,T)



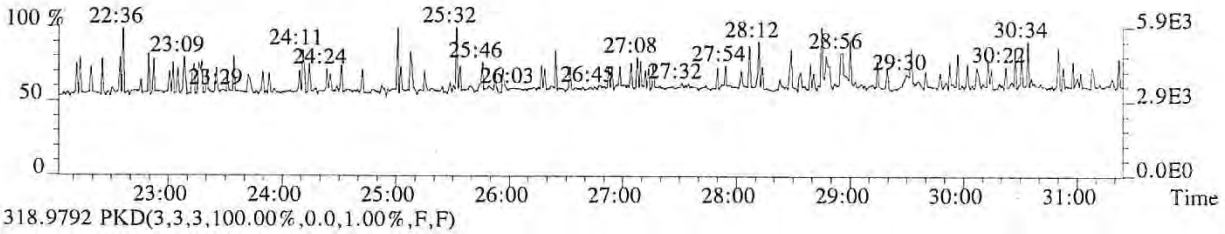
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6520.0,1.00%,F,T)



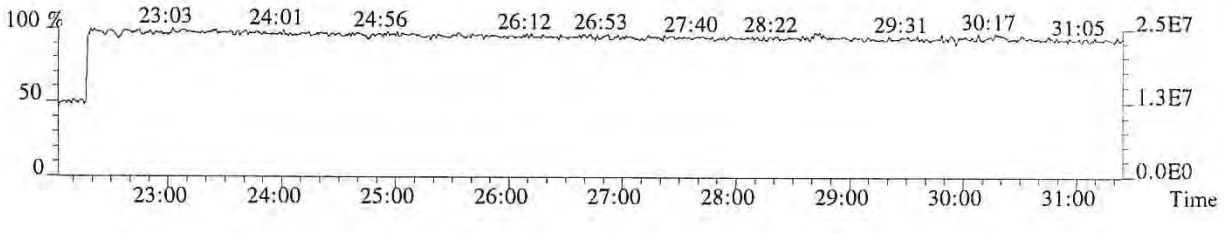
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4120.0,1.00%,F,T)



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

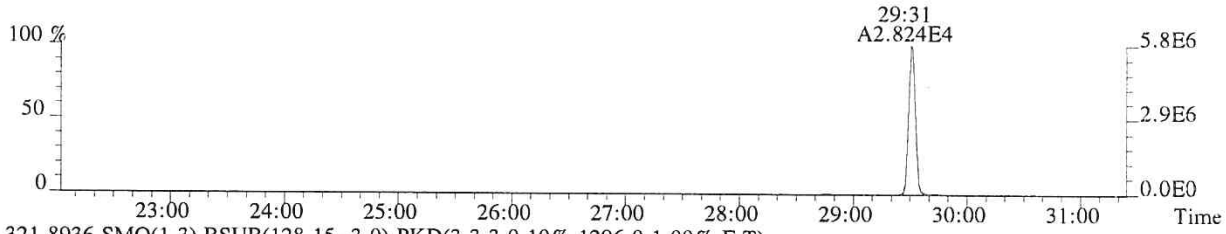


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

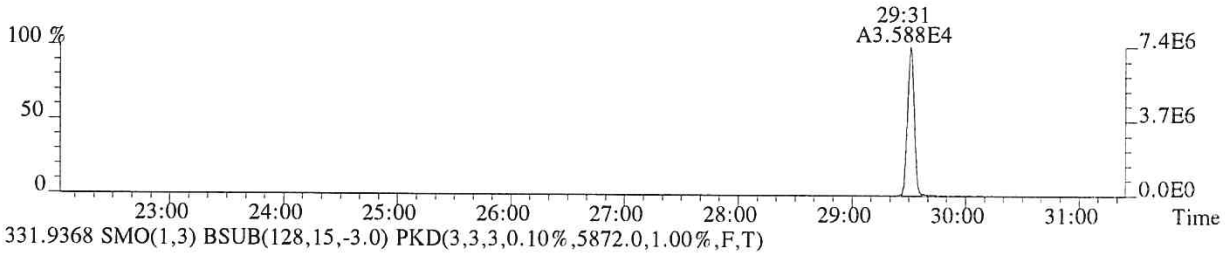


013636

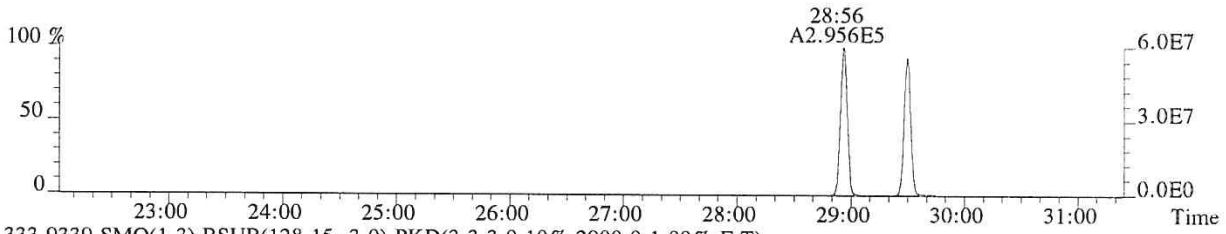
File:P513853 #1-665 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1924.0,1.00%,F,T)



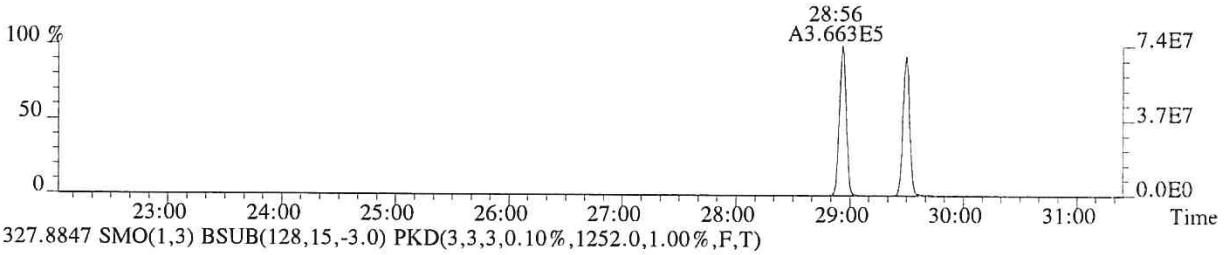
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1296.0,1.00%,F,T)



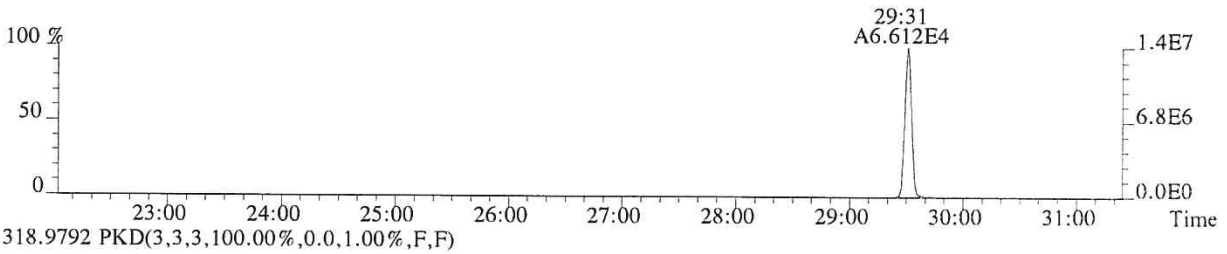
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5872.0,1.00%,F,T)



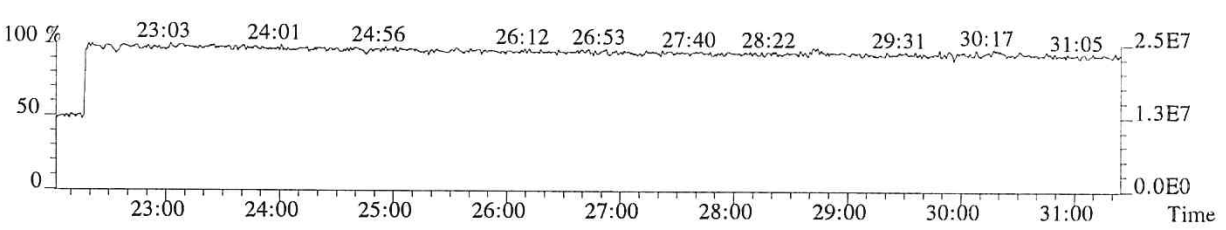
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2900.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1252.0,1.00%,F,T)

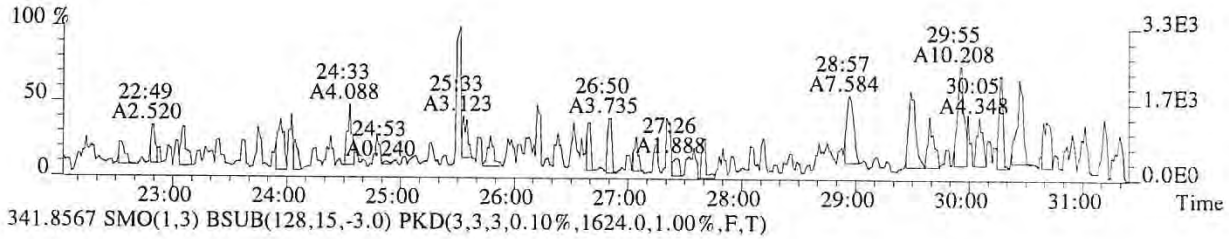


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

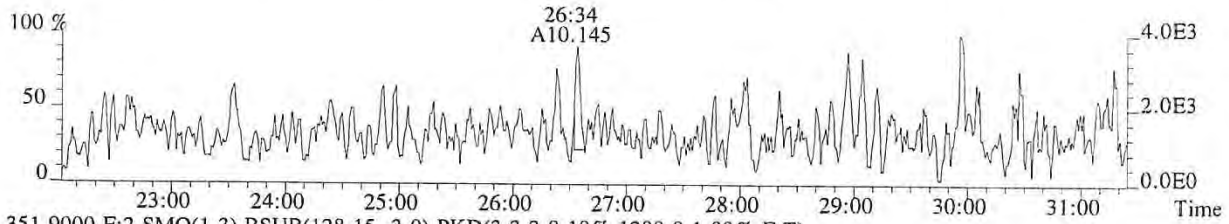


013637

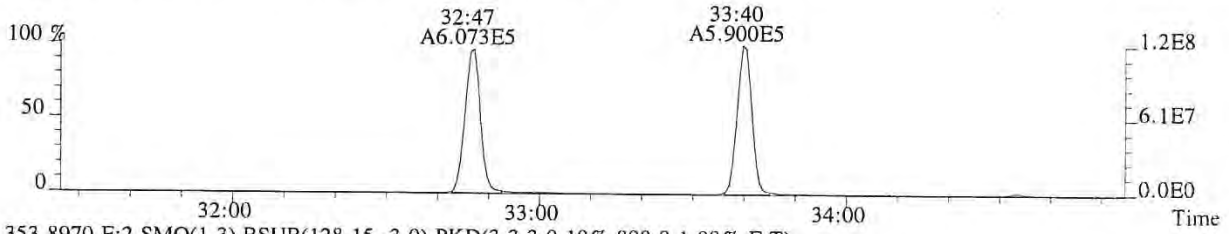
File:P513853 #1-665 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,452.0,1.00%,F,T)



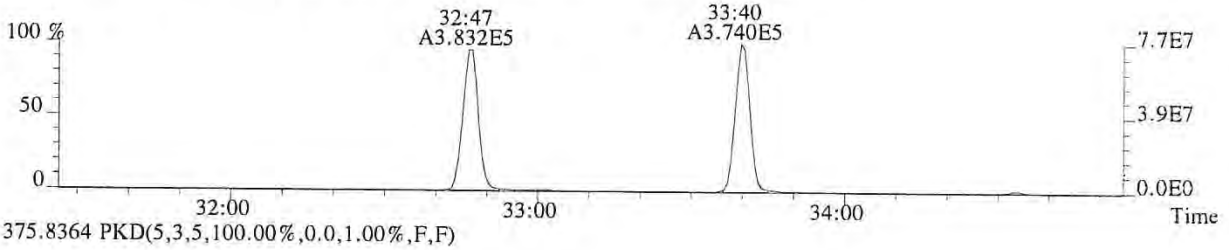
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1624.0,1.00%,F,T)



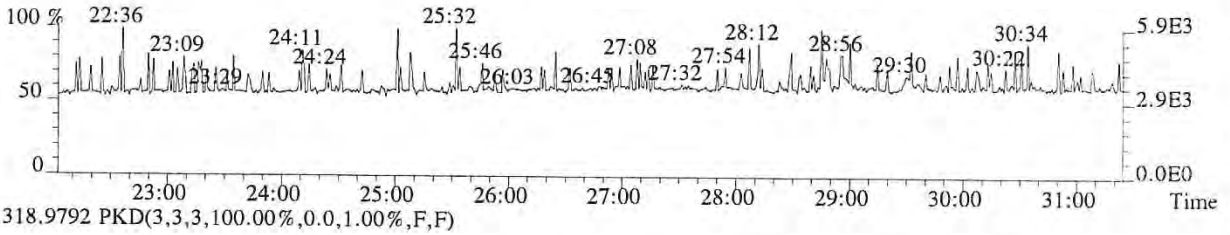
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1280.0,1.00%,F,T)



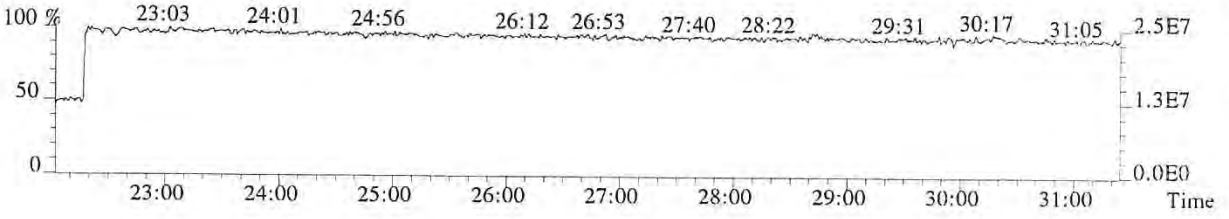
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,808.0,1.00%,F,T)



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

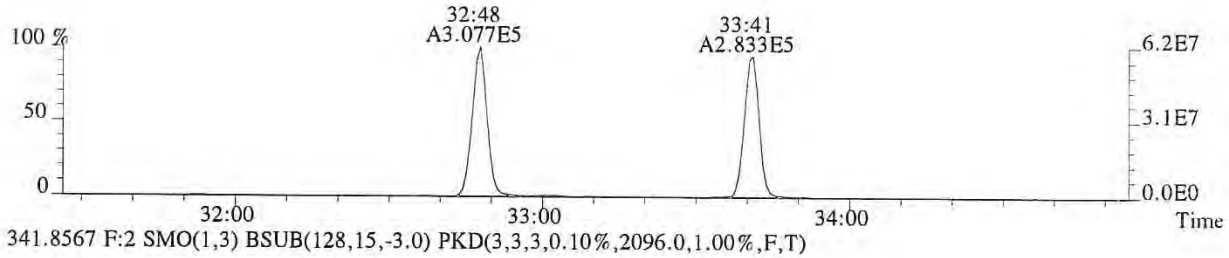


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

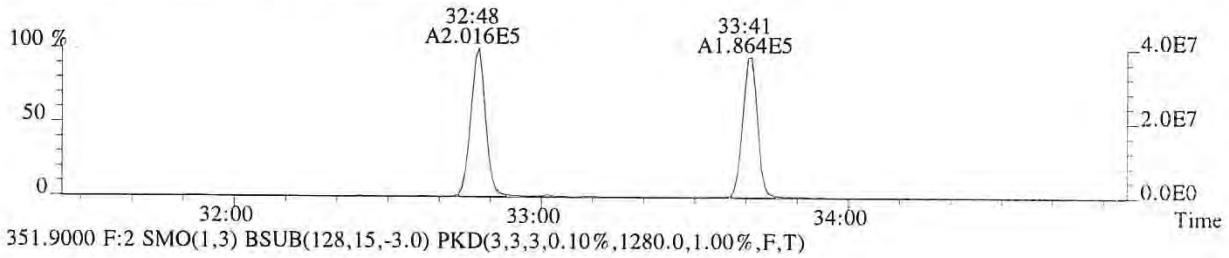


013638

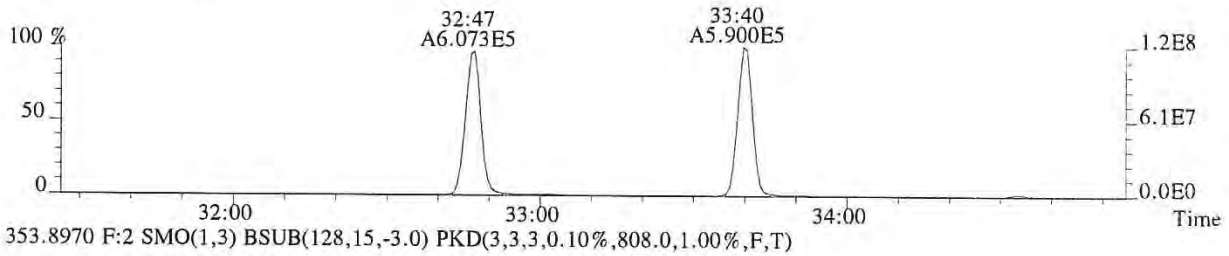
File:P513853 #1-313 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1612.0,1.00%,F,T)



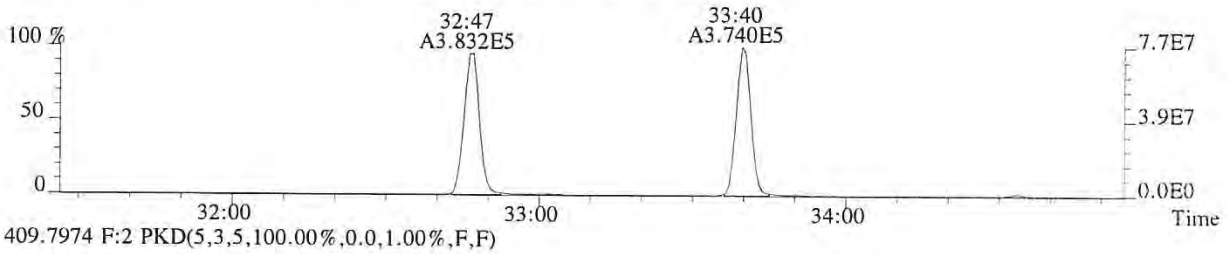
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2096.0,1.00%,F,T)



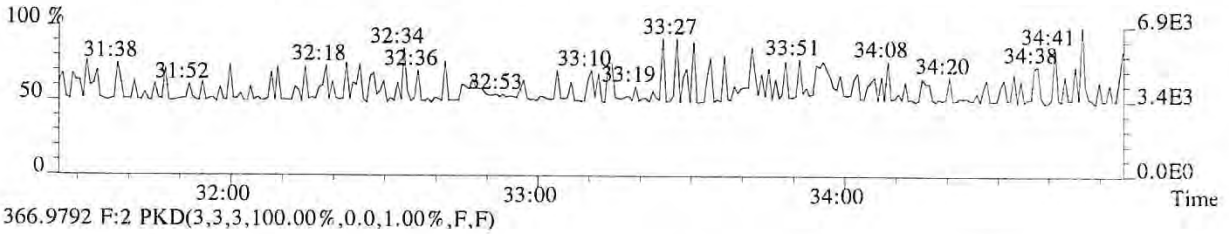
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1280.0,1.00%,F,T)



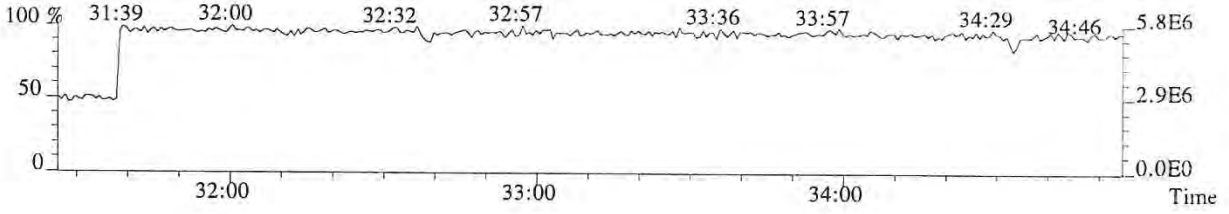
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,808.0,1.00%,F,T)



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

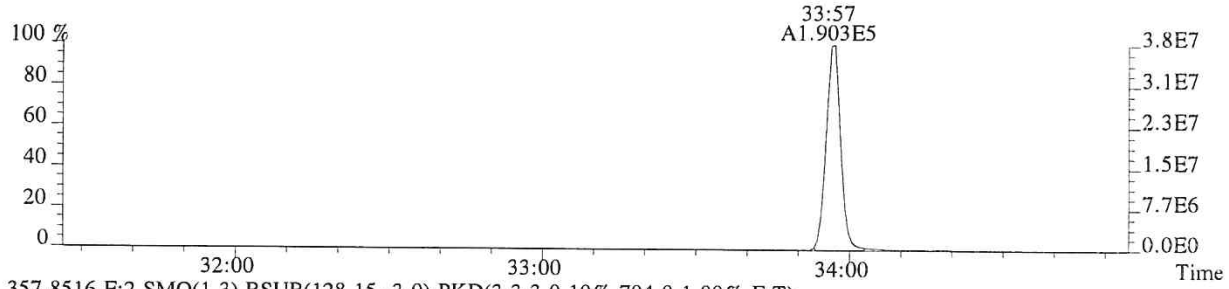


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

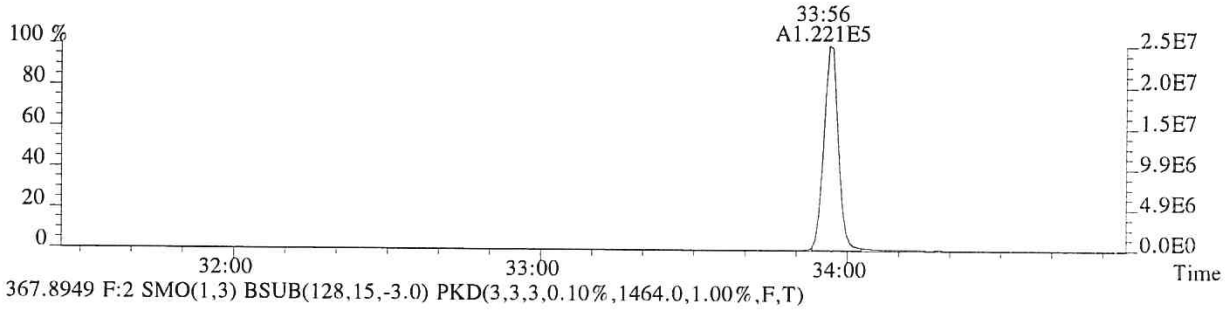


013639

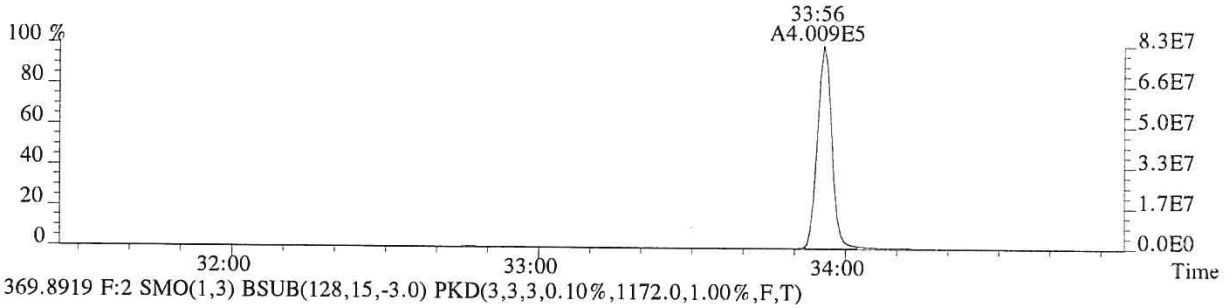
File:P513853 #1-313 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1452.0,1.00%,F,T)



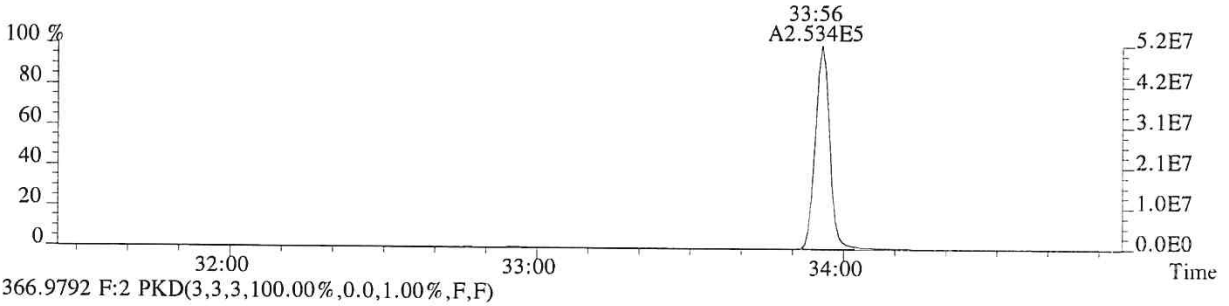
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,704.0,1.00%,F,T)



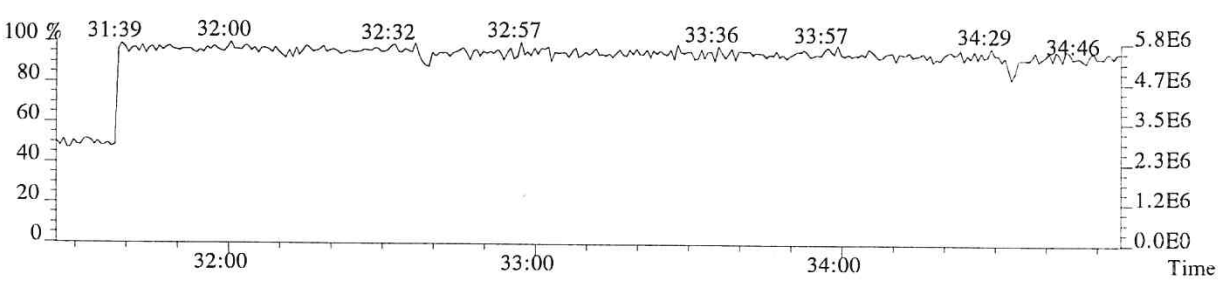
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1464.0,1.00%,F,T)



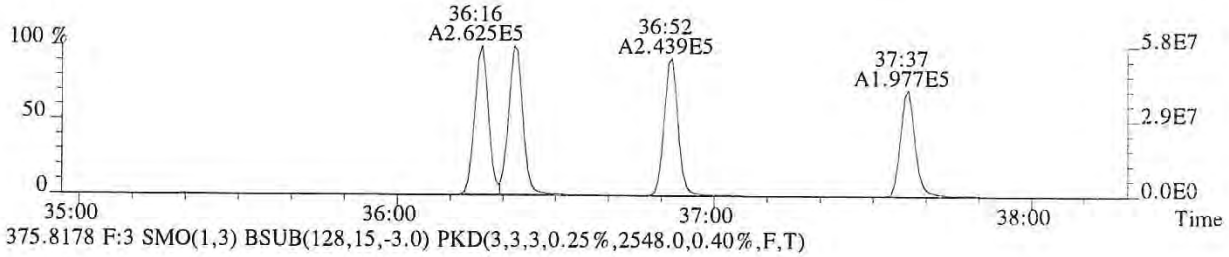
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1172.0,1.00%,F,T)



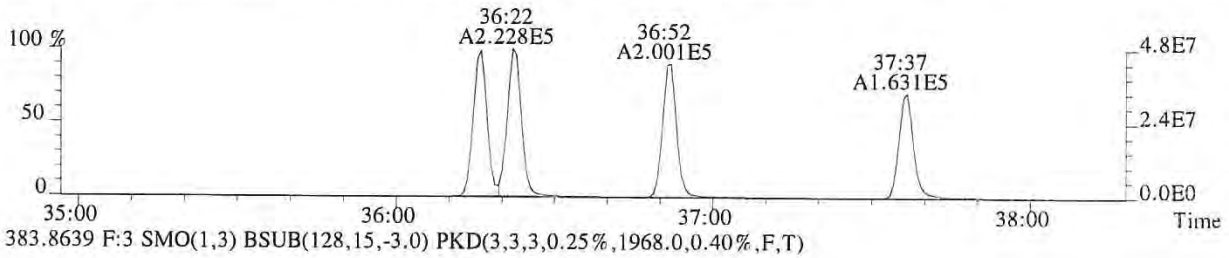
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



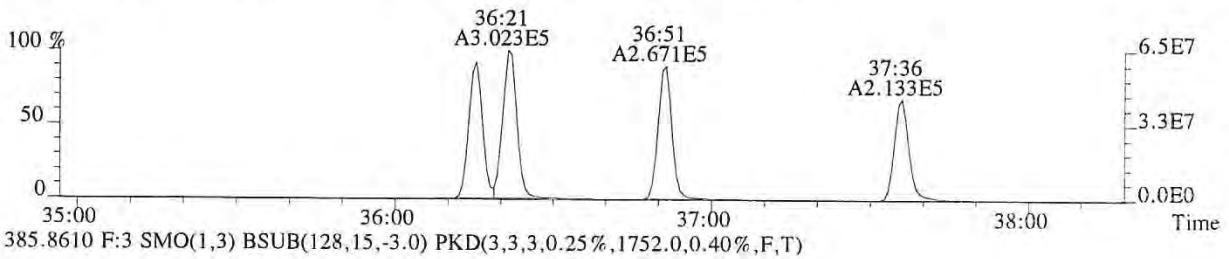
File:P513853 #1-303 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1856.0,0.40%,F,T)



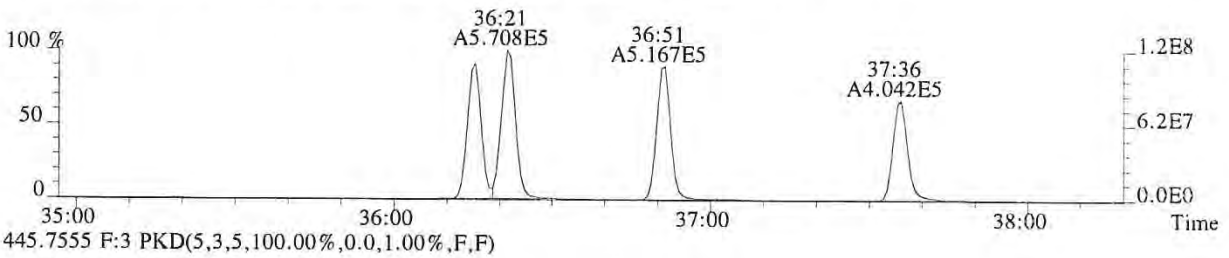
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2548.0,0.40%,F,T)



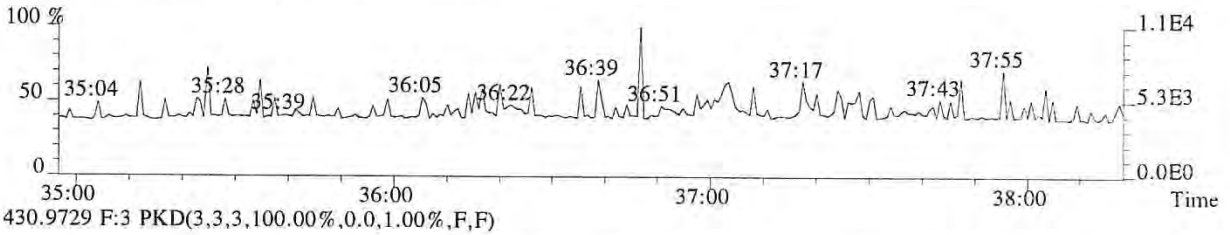
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1968.0,0.40%,F,T)



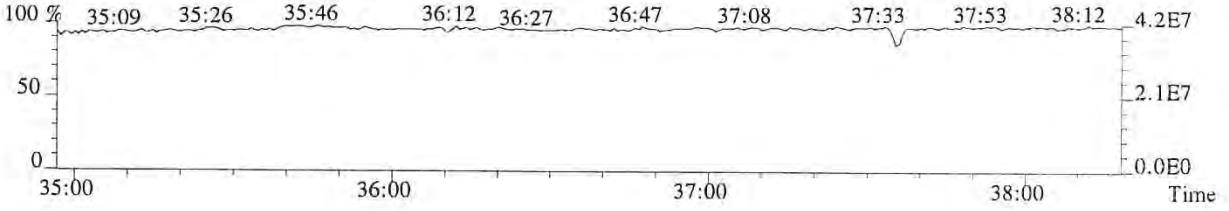
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1752.0,0.40%,F,T)



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

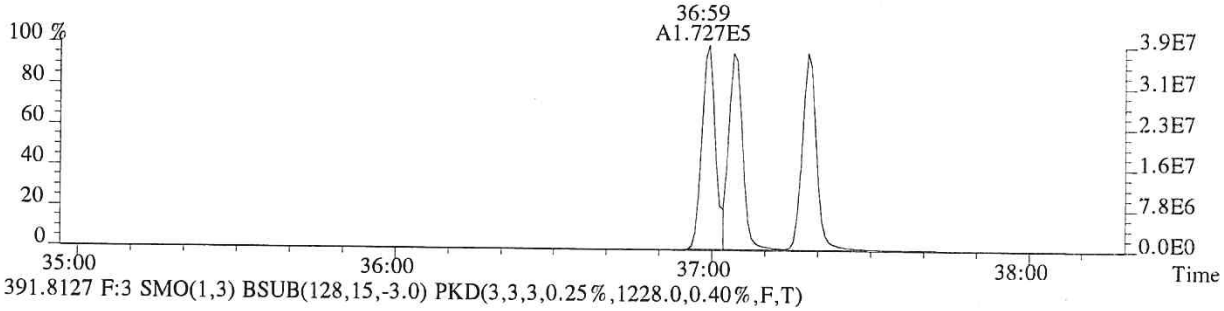


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

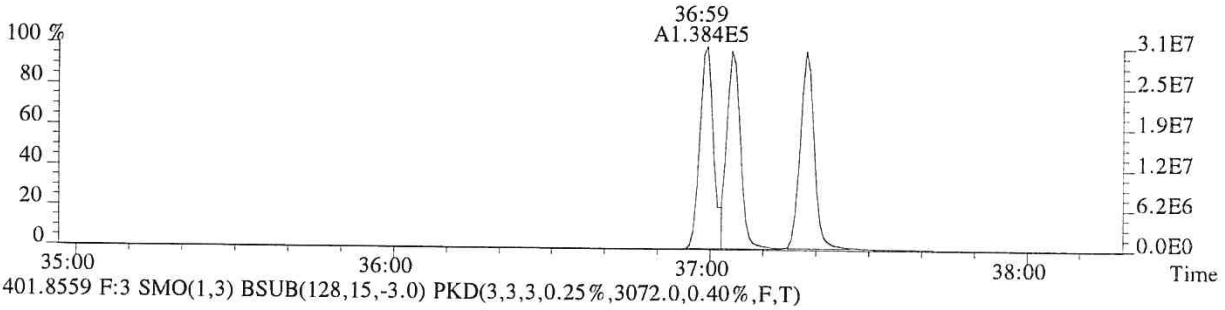


013641

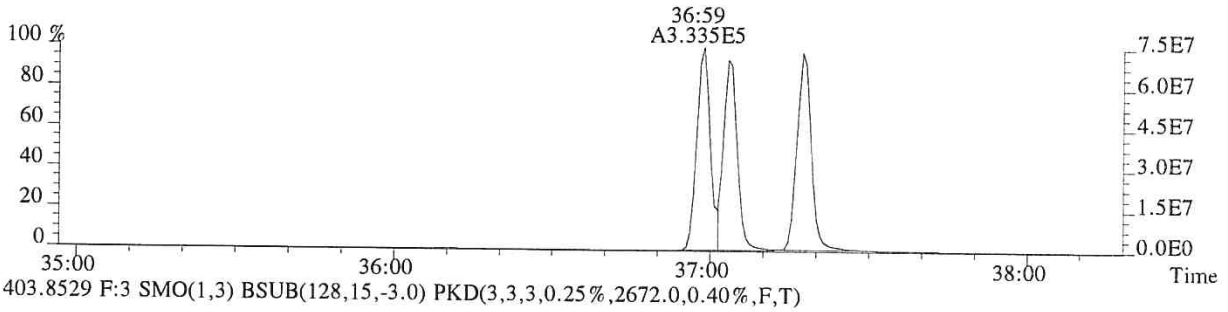
File:P513853 #1-303 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,512.0,0.40%,F,T)



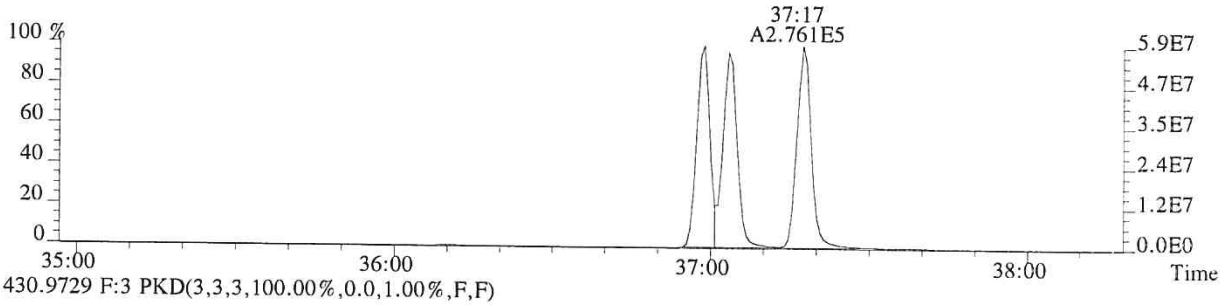
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1228.0,0.40%,F,T)



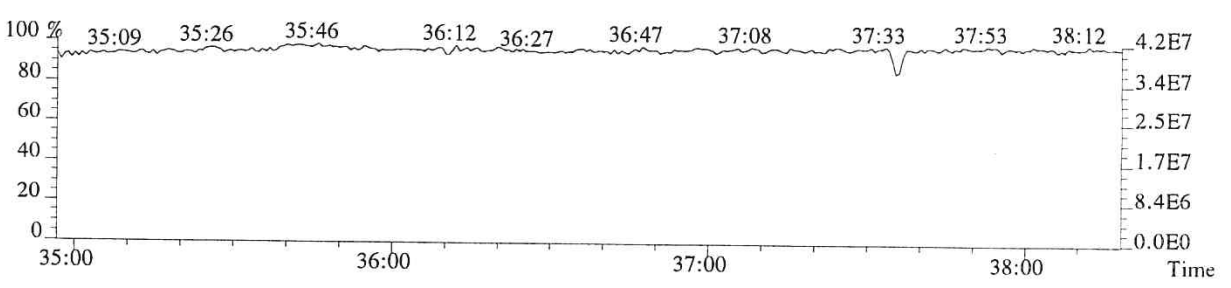
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3072.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2672.0,0.40%,F,T)

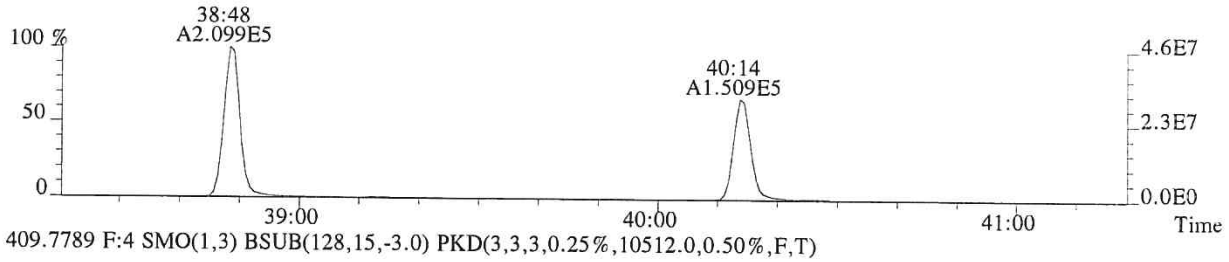


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

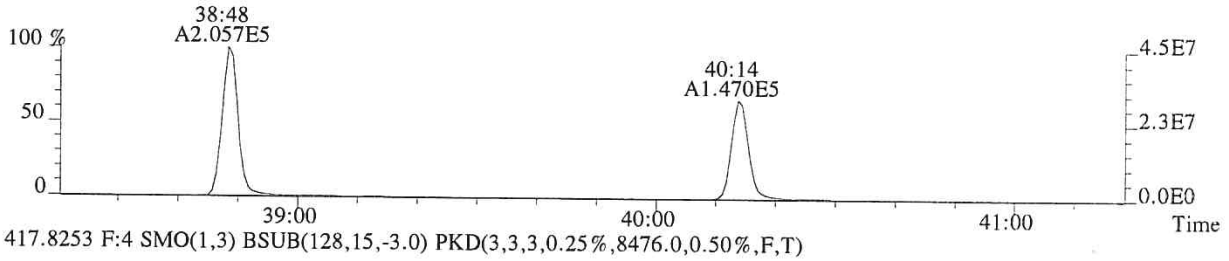


013642

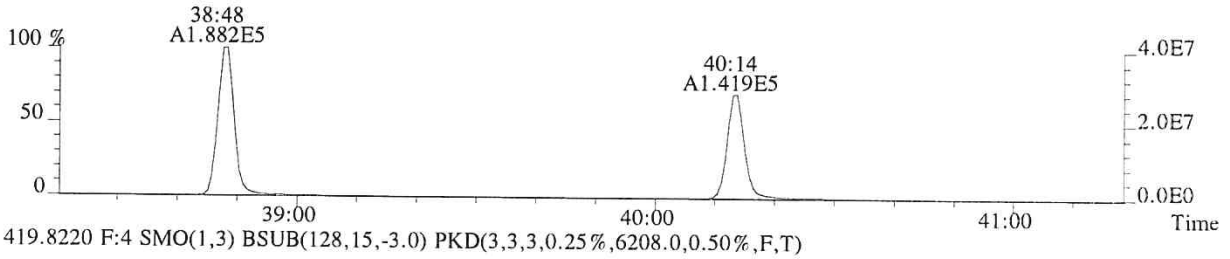
File:P513853 #1-268 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4436.0,0.50%,F,T)



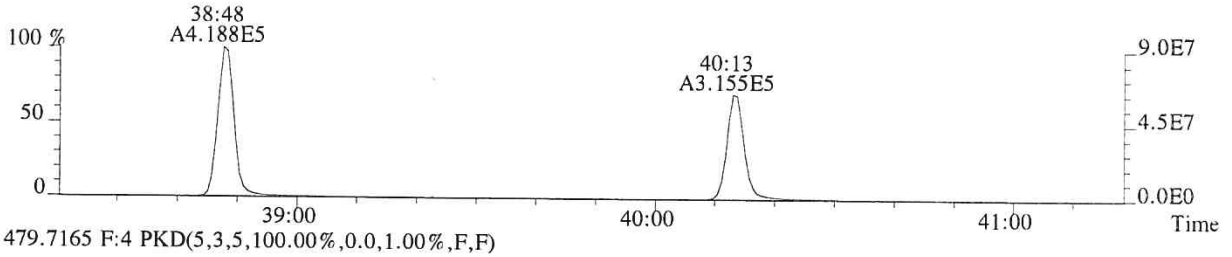
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,10512.0,0.50%,F,T)



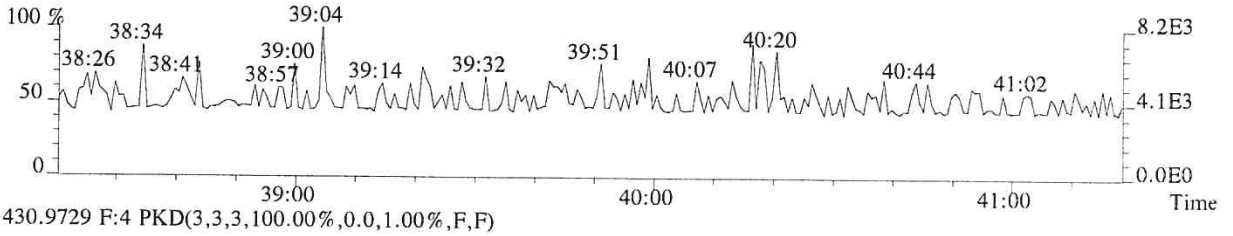
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8476.0,0.50%,F,T)



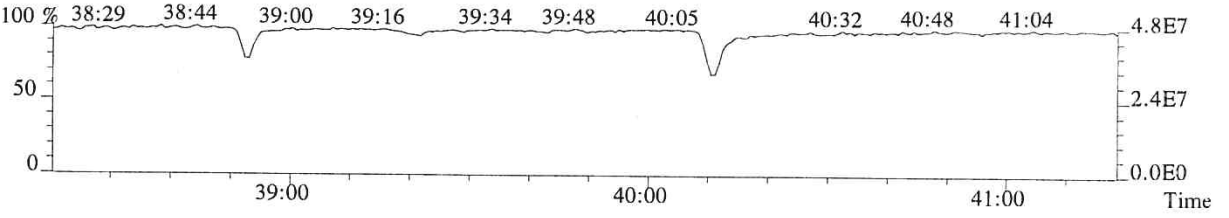
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6208.0,0.50%,F,T)



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

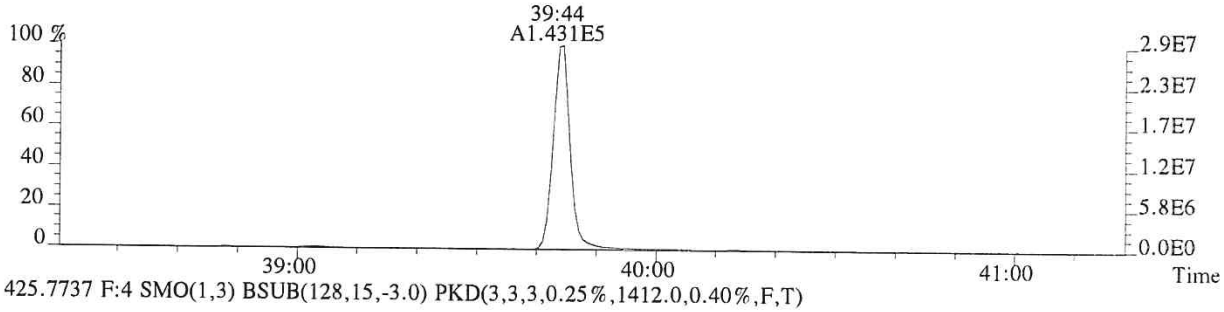


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

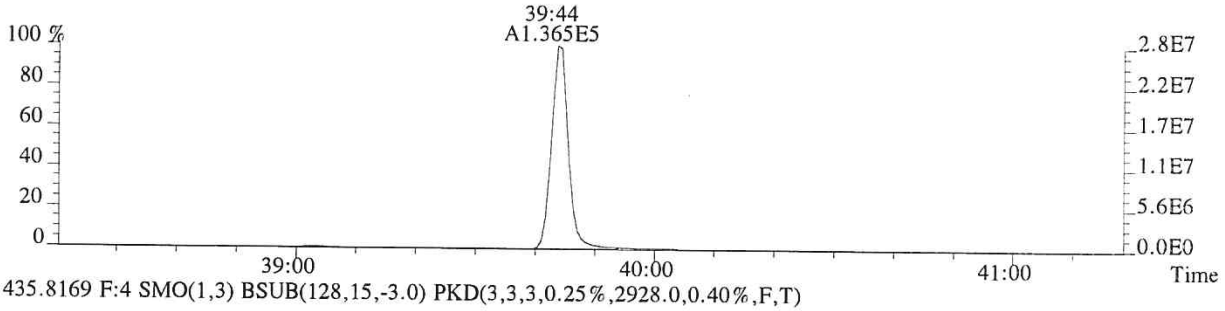


013643

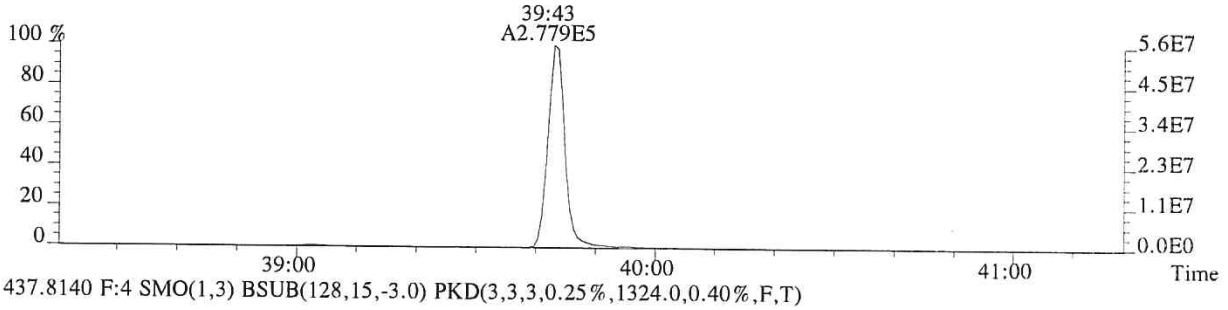
File:P513853 #1-268 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1840.0,0.40%,F,T)



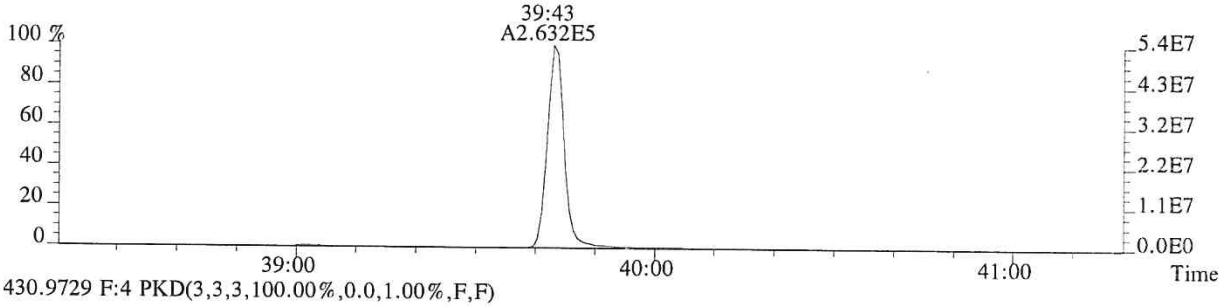
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1412.0,0.40%,F,T)



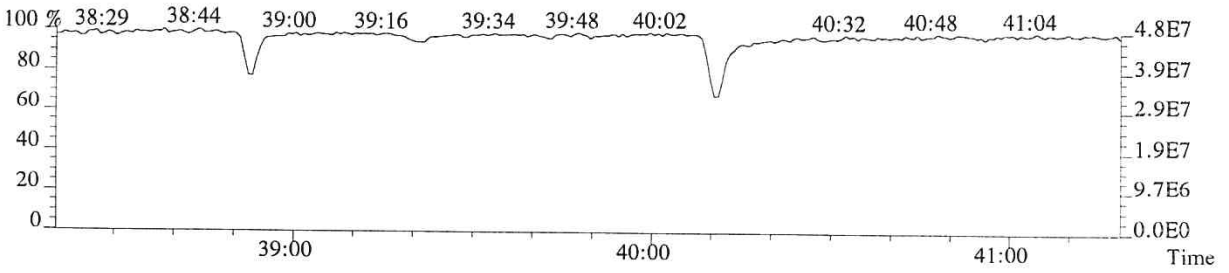
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2928.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1324.0,0.40%,F,T)

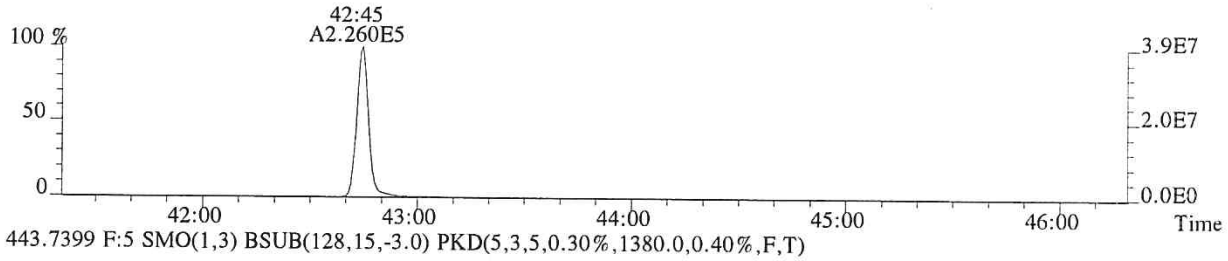


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

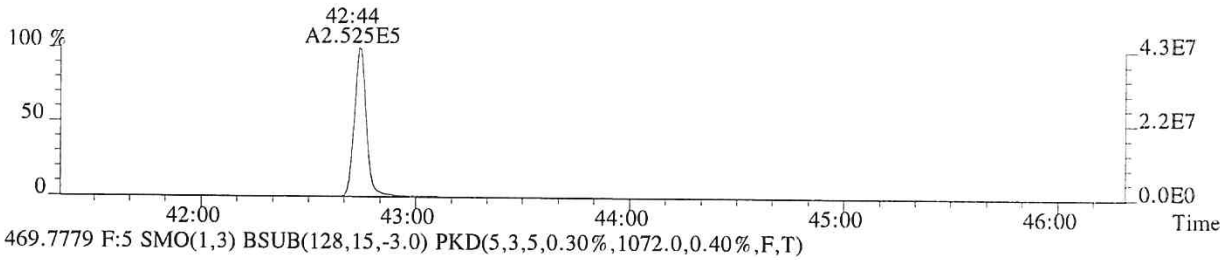


013644

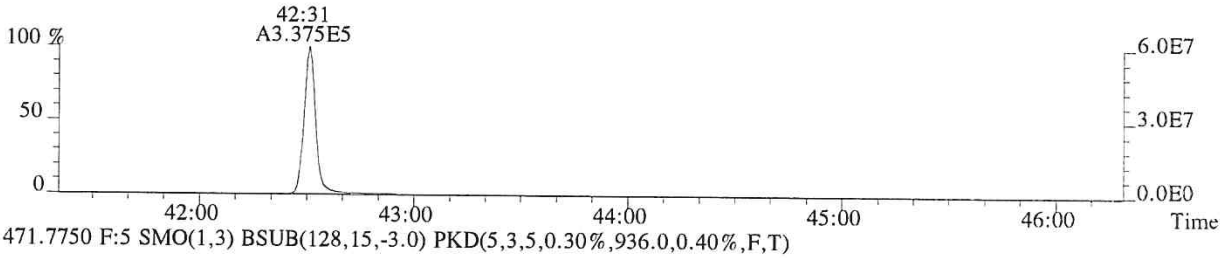
File:P513853 #1-448 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,144.0,0.40%,F,T)



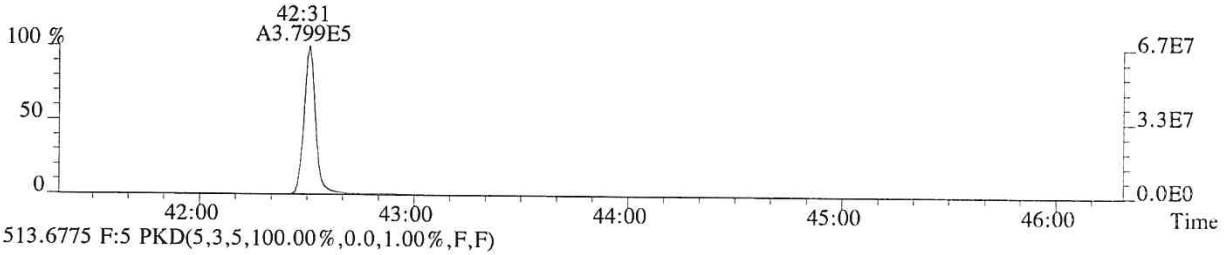
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1380.0,0.40%,F,T)



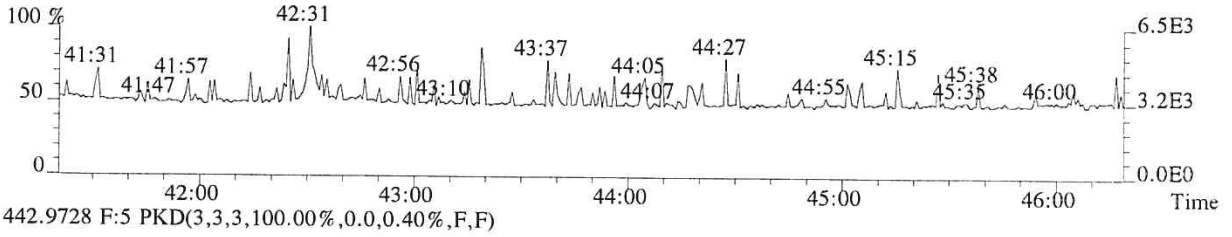
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1072.0,0.40%,F,T)



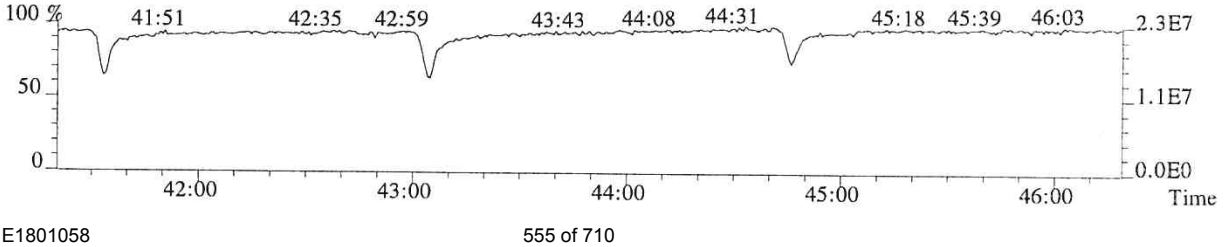
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,936.0,0.40%,F,T)



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

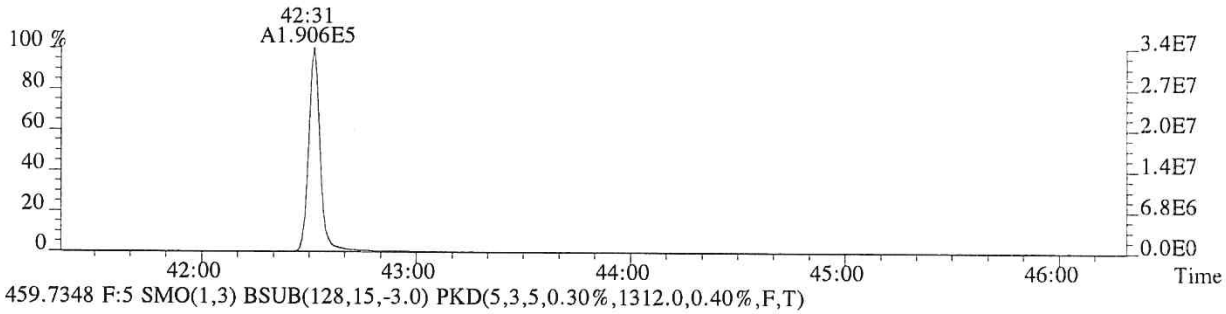


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

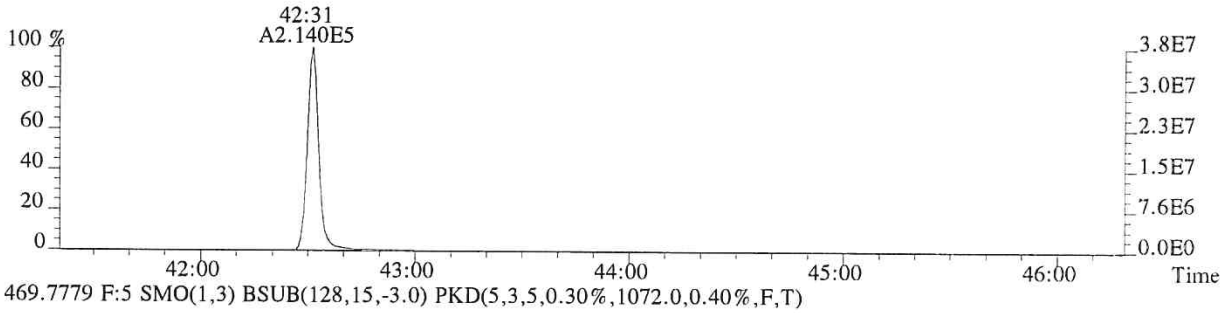


013645

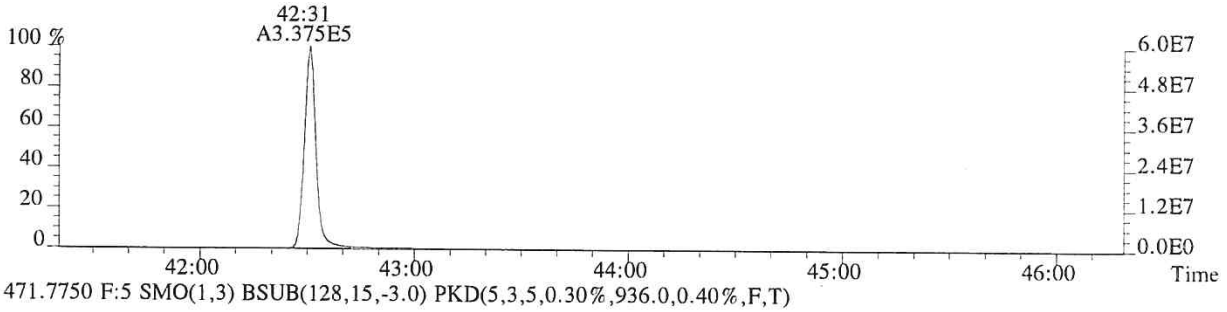
File:P513853 #1-448 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,632.0,0.40%,F,T)



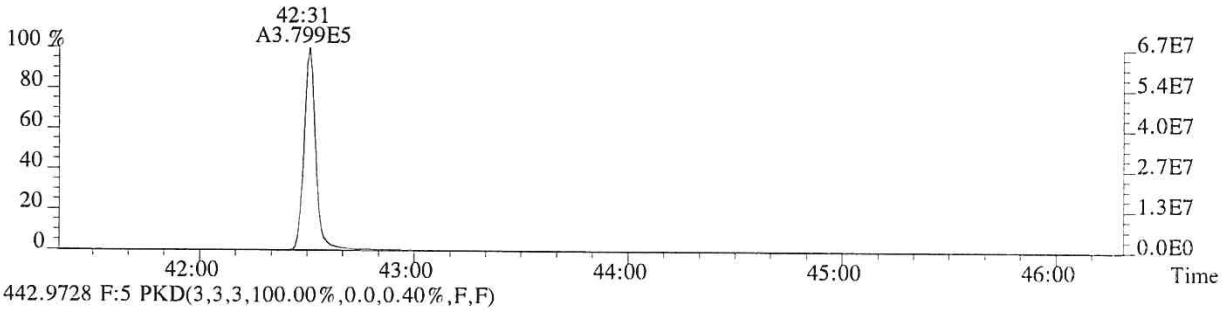
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1312.0,0.40%,F,T)



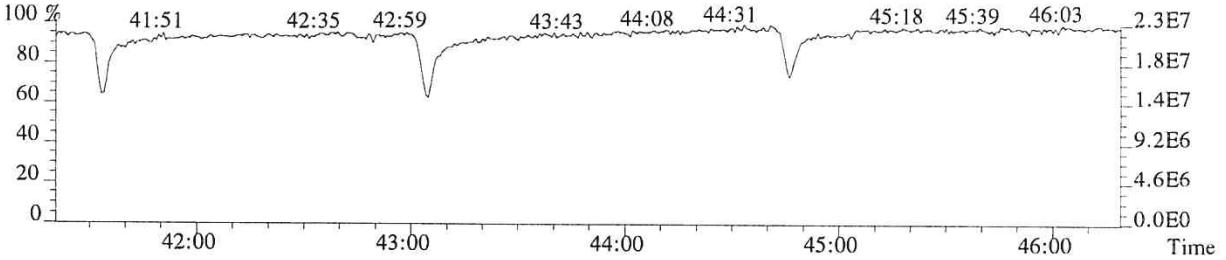
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1072.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,936.0,0.40%,F,T)



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



013646

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76558

Run #5 Filename P513854 Samp: 1 Inj: 1 Acquired: 24-JAN-18 16:55:09
Processed: 24-JAN-18 17:50:33 Sample ID: CS4

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:47	9.367e+04	1.218e+05	0.77	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:47	7.158e+05	4.652e+05	1.54	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:40	6.668e+05	4.362e+05	1.53	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:15	6.097e+05	4.979e+05	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:22	6.415e+05	5.246e+05	1.22	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:51	5.685e+05	4.706e+05	1.21	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:36	5.397e+05	4.367e+05	1.24	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:48	4.833e+05	4.698e+05	1.03	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	3.955e+05	3.845e+05	1.03	yes	no	1.258
10	Unk	OCDF	42:44	5.770e+05	6.374e+05	0.91	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:31	6.699e+04	8.569e+04	0.78	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:56	4.394e+05	2.817e+05	1.56	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:59	3.869e+05	3.085e+05	1.25	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:04	4.031e+05	3.210e+05	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:18	4.024e+05	3.196e+05	1.26	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	3.425e+05	3.252e+05	1.05	yes	no	1.025
17	Unk	OCDD	42:31	4.623e+05	5.191e+05	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:46	2.467e+05	3.121e+05	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:46	3.414e+05	2.167e+05	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	3.412e+05	2.161e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	1.522e+05	2.895e+05	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:21	1.720e+05	3.253e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:51	1.562e+05	2.969e+05	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:36	1.406e+05	2.715e+05	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	1.081e+05	2.395e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:13	9.438e+04	2.110e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:30	1.544e+05	1.910e+05	0.81	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	2.282e+05	1.431e+05	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	1.841e+05	1.451e+05	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:03	1.915e+05	1.516e+05	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:43	1.646e+05	1.528e+05	1.08	yes	no	0.858
32	IS	13C-OCDD	42:31	2.072e+05	2.298e+05	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:56	1.645e+05	2.018e+05	0.82	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:17	1.964e+05	1.566e+05	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:31	1.545e+05				no	1.014

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Signal/Noise Height Ratio Summary

CLIENT ID.
76558

Run #5 Filename P513854 Samp: 1 Inj: 1 Acquired: 24-JAN-18 16:55:09
Processed: 24-JAN-18 17:50:33 LAB. ID: CS4

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.89e+07	1.00e+03	1.9e+04	2.44e+07	1.90e+03	1.3e+04
2	1,2,3,7,8-PeCDF	1.40e+08	2.03e+03	6.9e+04	9.16e+07	1.47e+03	6.2e+04
3	2,3,4,7,8-PeCDF	1.39e+08	2.03e+03	6.9e+04	9.17e+07	1.47e+03	6.2e+04
4	1,2,3,4,7,8-HxCDF	1.35e+08	1.80e+03	7.5e+04	1.11e+08	2.10e+03	5.3e+04
5	1,2,3,6,7,8-HxCDF	1.41e+08	1.80e+03	7.8e+04	1.16e+08	2.10e+03	5.5e+04
6	2,3,4,6,7,8-HxCDF	1.27e+08	1.80e+03	7.0e+04	1.06e+08	2.10e+03	5.0e+04
7	1,2,3,7,8,9-HxCDF	1.14e+08	1.80e+03	6.3e+04	9.30e+07	2.10e+03	4.4e+04
8	1,2,3,4,6,7,8-HpCDF	1.07e+08	1.75e+04	6.1e+03	1.05e+08	2.93e+04	3.6e+03
9	1,2,3,4,7,8,9-HpCDF	8.10e+07	1.75e+04	4.6e+03	7.89e+07	2.93e+04	2.7e+03
10	OCDF	1.02e+08	5.04e+02	2.0e+05	1.14e+08	1.72e+03	6.6e+04
11	2,3,7,8-TCDD	1.41e+07	2.20e+03	6.4e+03	1.80e+07	1.38e+03	1.3e+04
12	1,2,3,7,8-PeCDD	9.08e+07	1.42e+03	6.4e+04	5.86e+07	1.44e+02	4.1e+05
13	1,2,3,4,7,8-HxCDD	8.77e+07	1.20e+03	7.3e+04	7.06e+07	1.58e+03	4.5e+04
14	1,2,3,6,7,8-HxCDD	8.80e+07	1.20e+03	7.3e+04	7.05e+07	1.58e+03	4.5e+04
15	1,2,3,7,8,9-HxCDD	8.97e+07	1.20e+03	7.5e+04	7.13e+07	1.58e+03	4.5e+04
16	1,2,3,4,6,7,8-HpCDD	7.19e+07	1.52e+03	4.7e+04	6.86e+07	1.50e+03	4.6e+04
17	OCDD	8.05e+07	7.36e+02	1.1e+05	9.09e+07	1.16e+03	7.8e+04
18	13C-2,3,7,8-TCDF	4.92e+07	8.28e+03	5.9e+03	6.18e+07	3.78e+03	1.6e+04
19	13C-1,2,3,7,8-PeCDF	6.78e+07	1.09e+03	6.2e+04	4.35e+07	7.12e+02	6.1e+04
20	13C-2,3,4,7,8-PeCDF	7.11e+07	1.09e+03	6.5e+04	4.54e+07	7.12e+02	6.4e+04
21	13C-1,2,3,4,7,8-HxCDF	3.32e+07	1.94e+03	1.7e+04	6.39e+07	1.54e+03	4.2e+04
22	13C-1,2,3,6,7,8-HxCDF	3.76e+07	1.94e+03	1.9e+04	7.17e+07	1.54e+03	4.7e+04
23	13C-2,3,4,6,7,8-HxCDF	3.46e+07	1.94e+03	1.8e+04	6.63e+07	1.54e+03	4.3e+04
24	13C-1,2,3,7,8,9-HxCDF	2.97e+07	1.94e+03	1.5e+04	5.66e+07	1.54e+03	3.7e+04
25	13C-1,2,3,4,6,7,8-HpCDF	2.37e+07	7.11e+03	3.3e+03	5.25e+07	1.03e+04	5.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.95e+07	7.11e+03	2.7e+03	4.34e+07	1.03e+04	4.2e+03
27	13C-2,3,7,8-TCDD	3.25e+07	6.40e+03	5.1e+03	3.99e+07	2.77e+03	1.4e+04
28	13C-1,2,3,7,8-PeCDD	4.73e+07	1.13e+03	4.2e+04	2.97e+07	8.40e+02	3.5e+04
29	13C-1,2,3,4,7,8-HxCDD	4.15e+07	3.03e+03	1.4e+04	3.28e+07	2.40e+03	1.4e+04
30	13C-1,2,3,6,7,8-HxCDD	4.14e+07	3.03e+03	1.4e+04	3.31e+07	2.40e+03	1.4e+04
31	13C-1,2,3,4,6,7,8-HpCDD	3.45e+07	1.55e+03	2.2e+04	3.21e+07	1.32e+03	2.4e+04
32	13C-OCDD	3.61e+07	1.25e+03	2.9e+04	4.00e+07	1.19e+03	3.4e+04
33	13C-1,2,3,4-TCDD	3.34e+07	6.40e+03	5.2e+03	4.12e+07	2.77e+03	1.5e+04
34	13C-1,2,3,7,8,9-HxCDD	4.34e+07	3.03e+03	1.4e+04	3.46e+07	2.40e+03	1.4e+04
35	37Cl-2,3,7,8-TCDD	3.25e+07	1.28e+03	2.5e+04			

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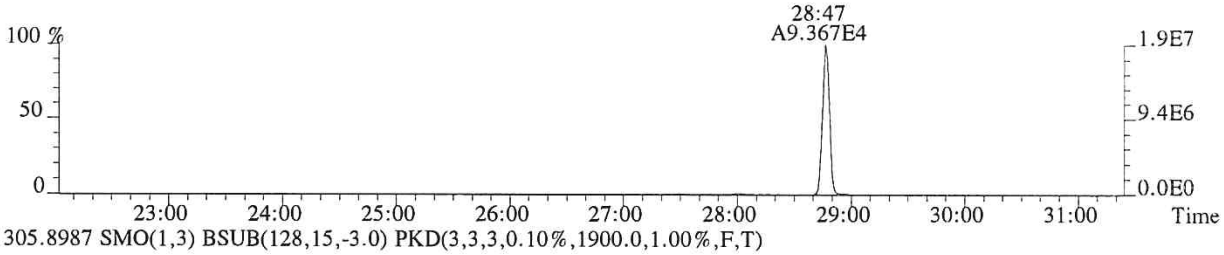
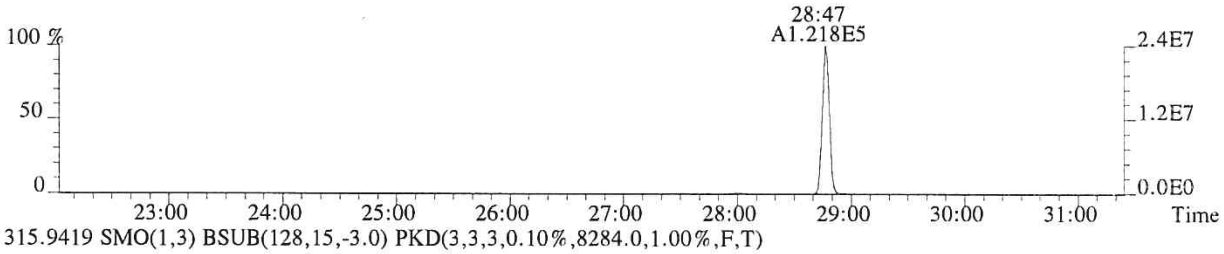
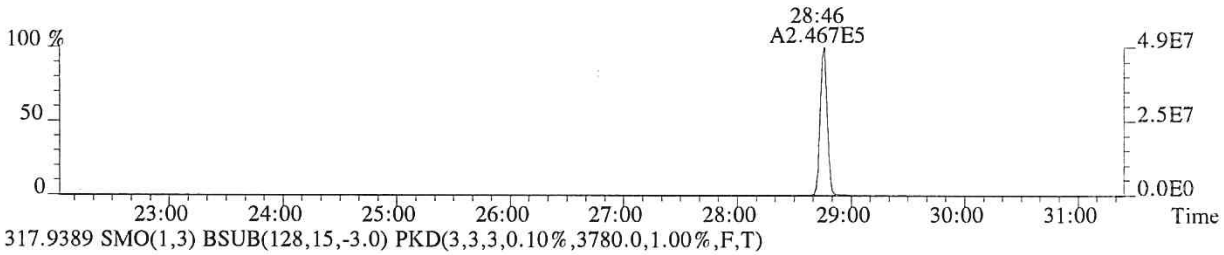
File:P513854 #1-665 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)



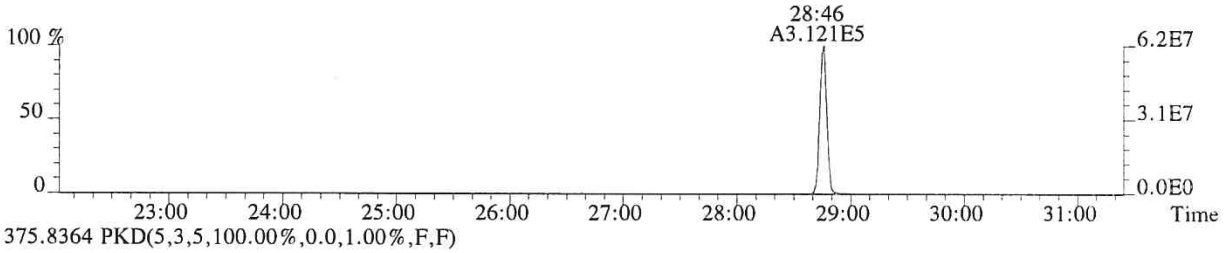
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1900.0,1.00%,F,T)



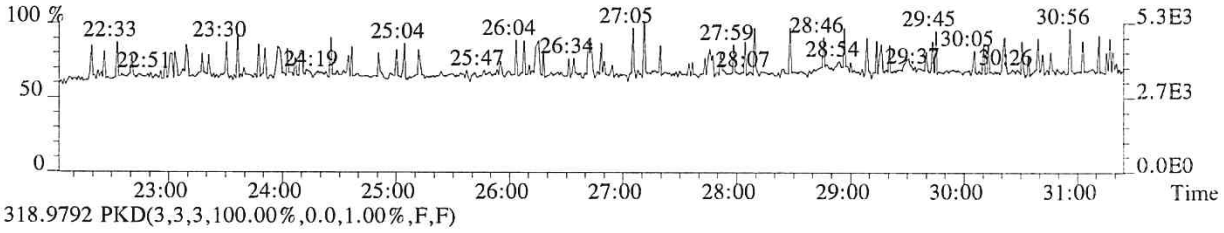
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8284.0,1.00%,F,T)



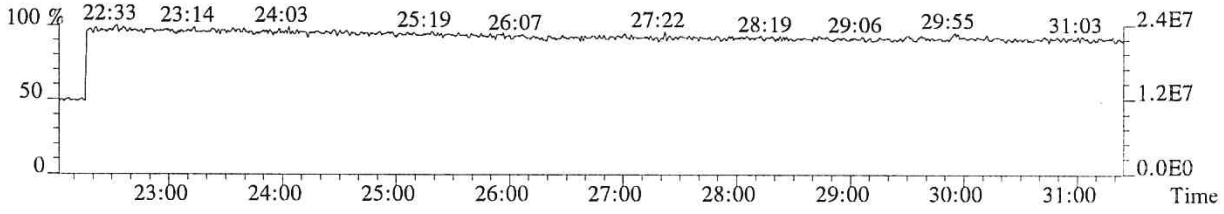
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3780.0,1.00%,F,T)



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

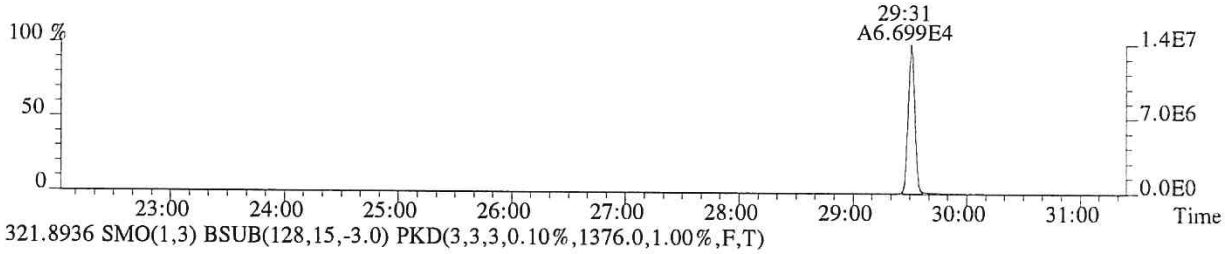


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

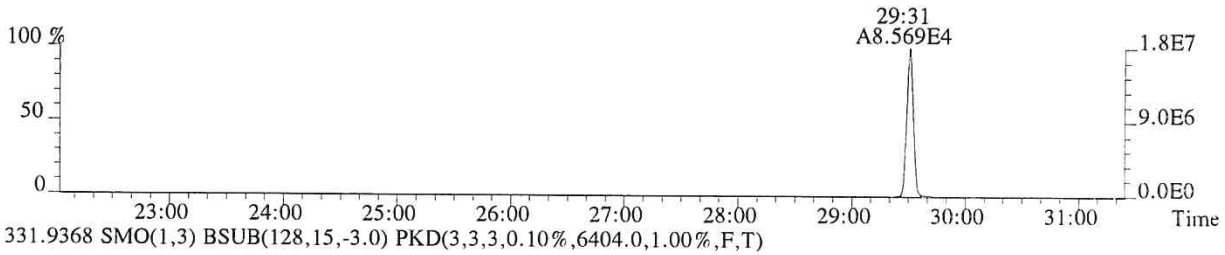


013649

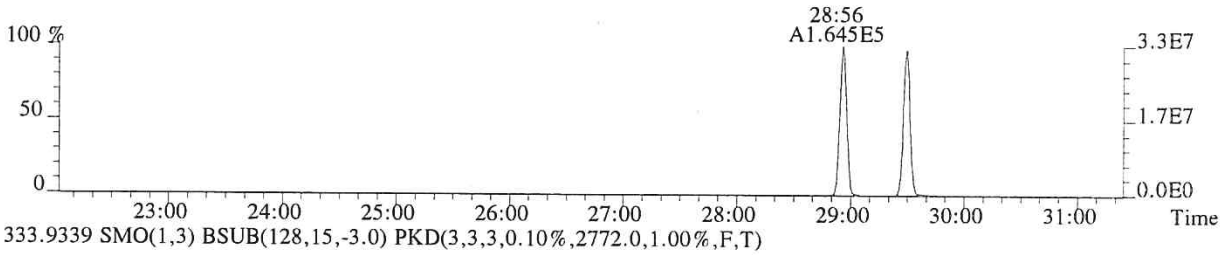
File:P513854 #1-665 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2200.0,1.00%,F,T)



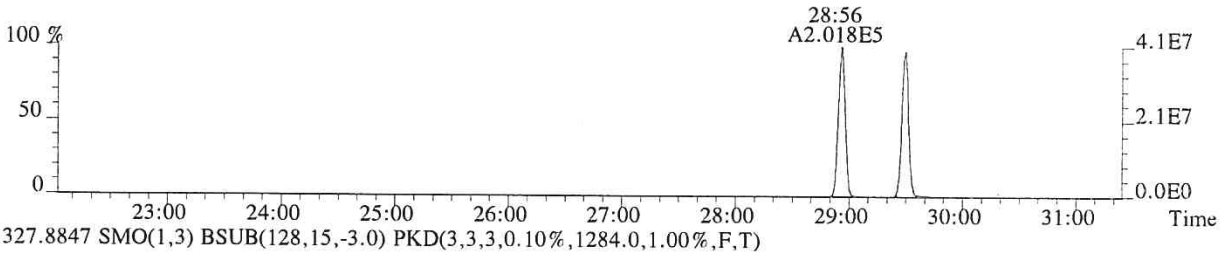
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1376.0,1.00%,F,T)



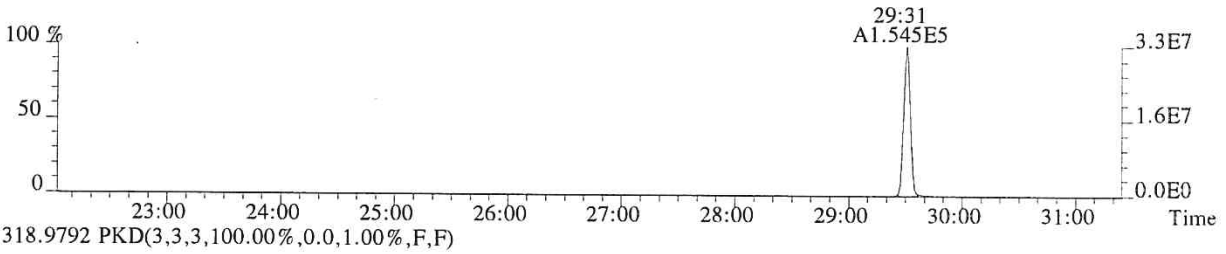
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6404.0,1.00%,F,T)



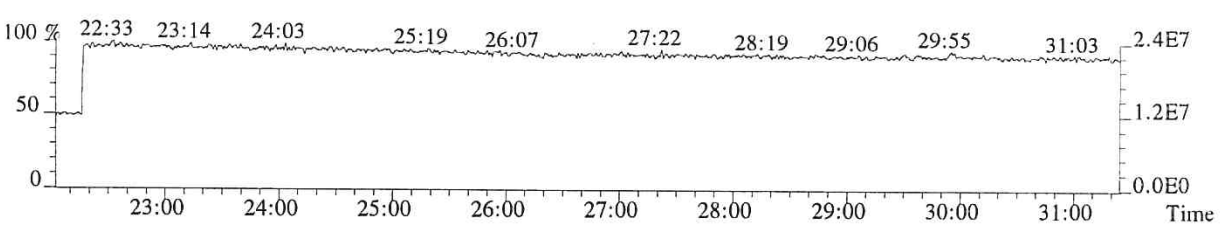
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2772.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1284.0,1.00%,F,T)

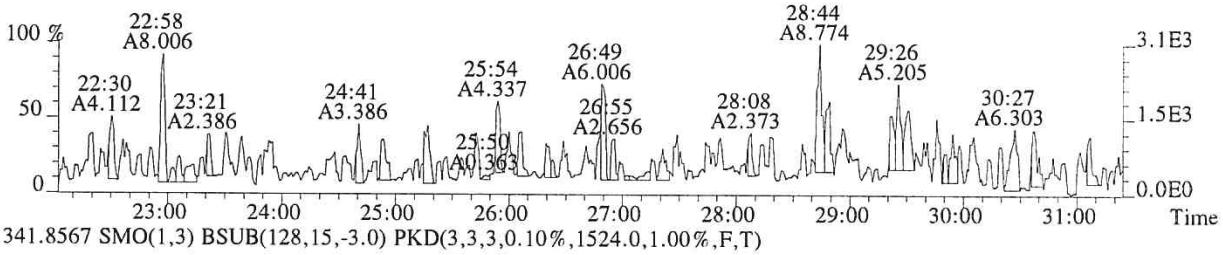


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

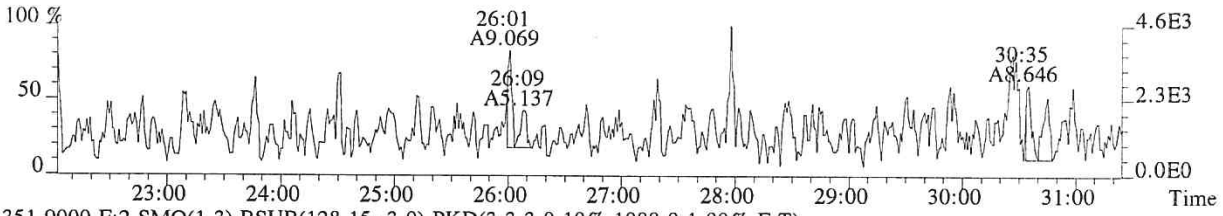


013650

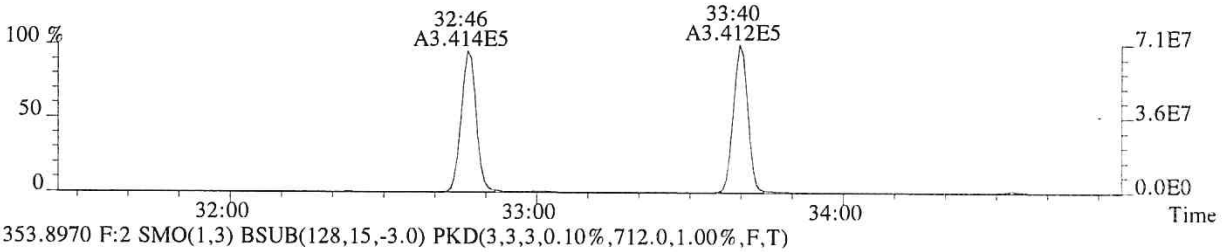
File:P513854 #1-665 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,600.0,1.00%,F,T)



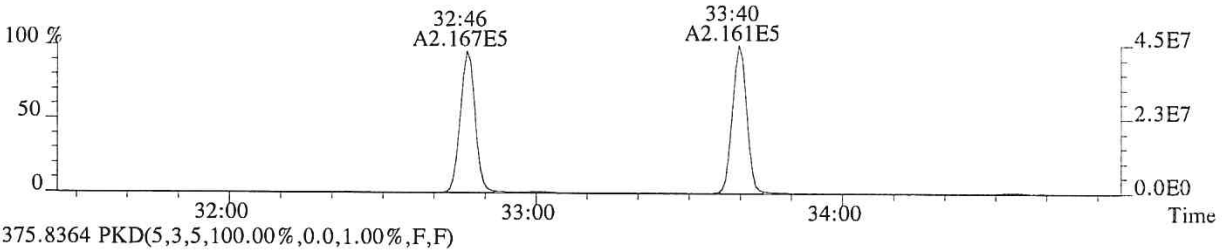
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1524.0,1.00%,F,T)



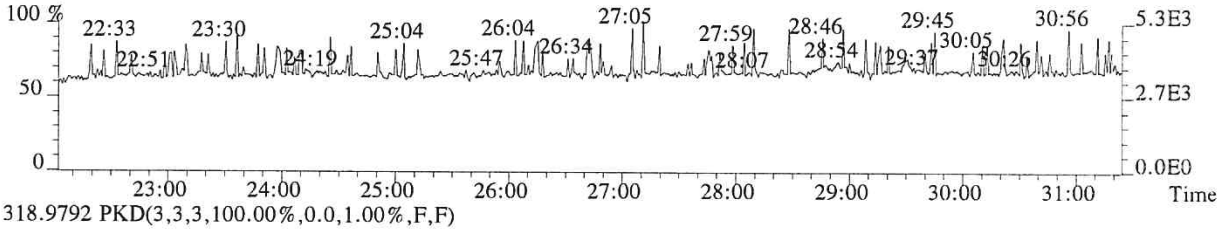
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1088.0,1.00%,F,T)



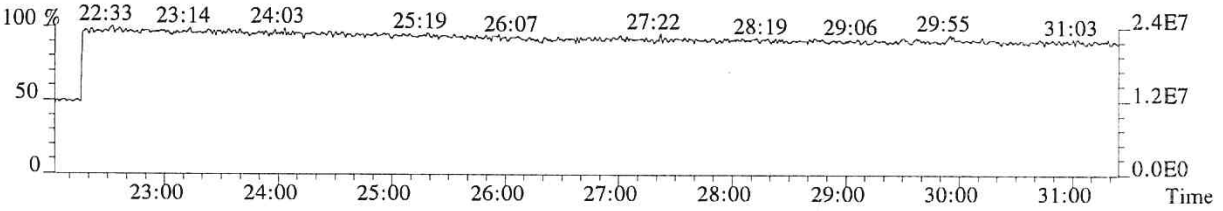
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



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

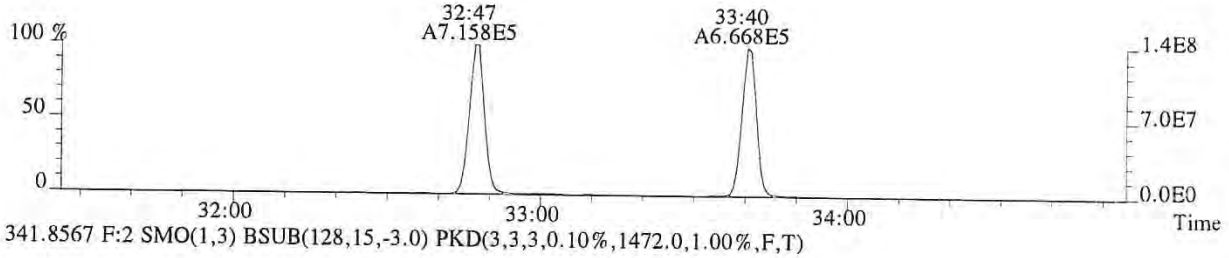


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

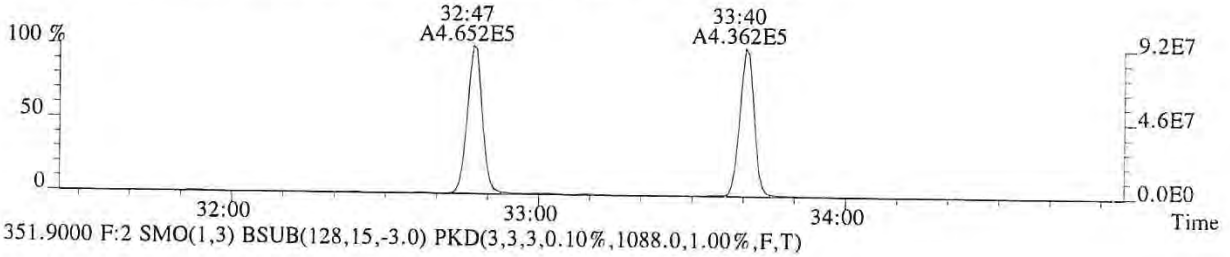


013651

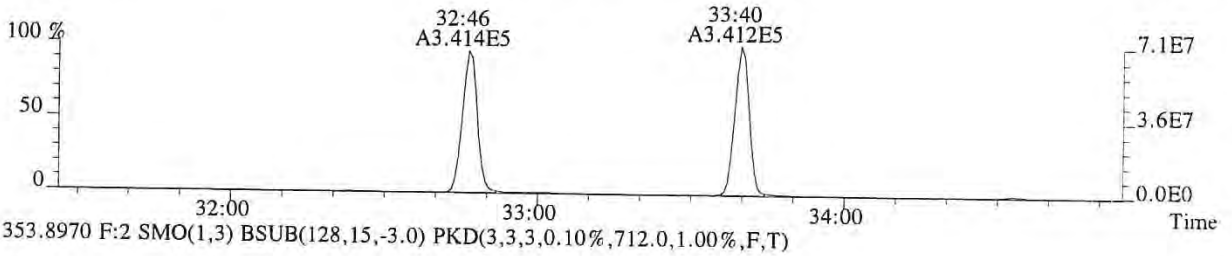
File:P513854 #1-313 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2028.0,1.00%,F,T)



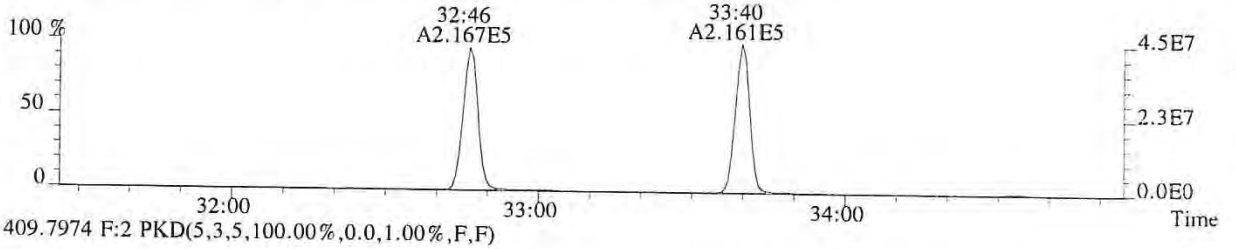
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1472.0,1.00%,F,T)



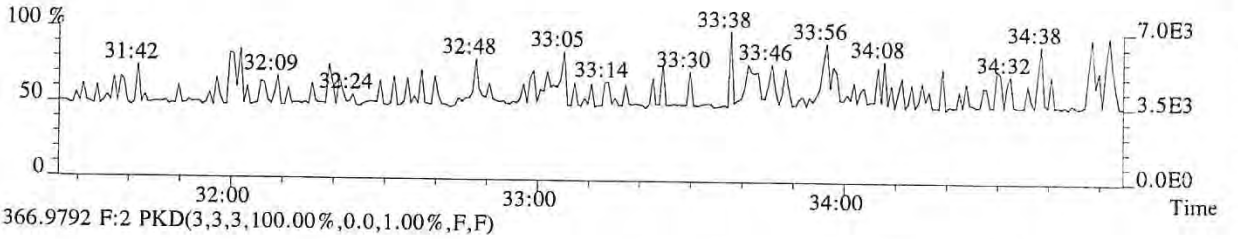
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1088.0,1.00%,F,T)



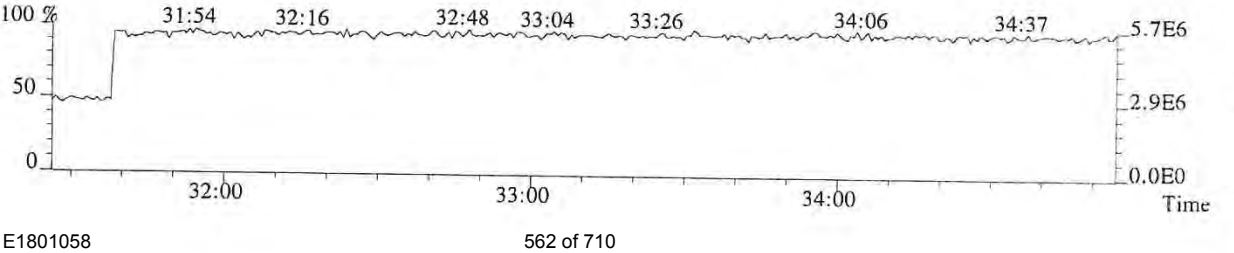
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



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

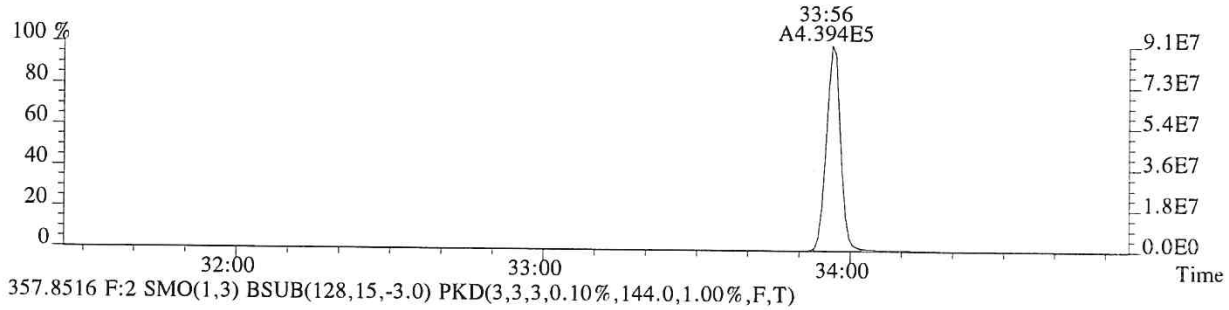


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

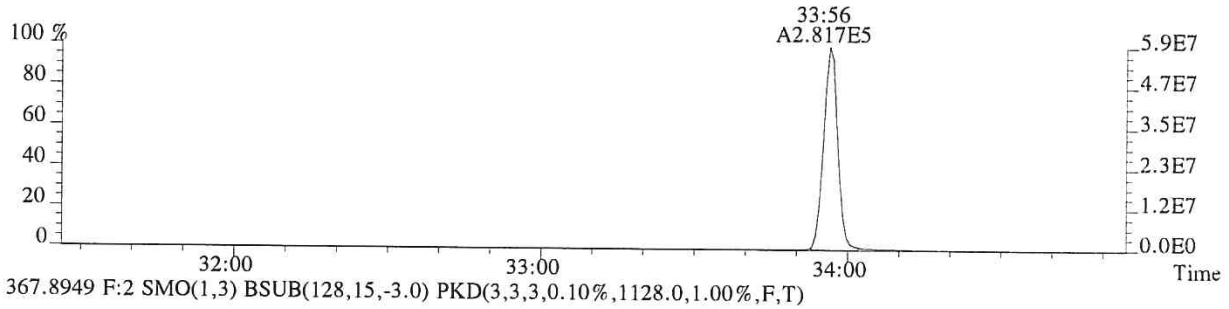


013652

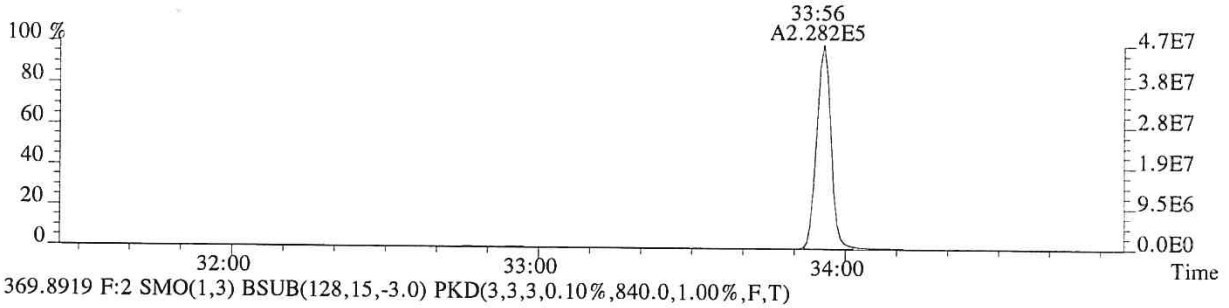
File:P513854 #1-313 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1420.0,1.00%,F,T)



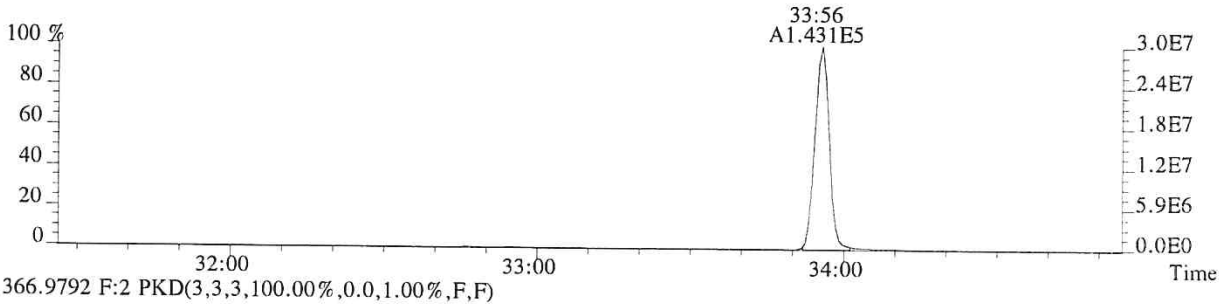
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,144.0,1.00%,F,T)



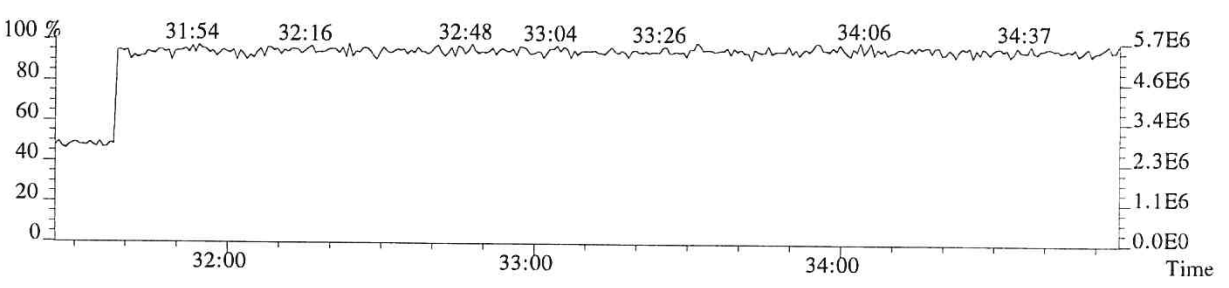
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1128.0,1.00%,F,T)



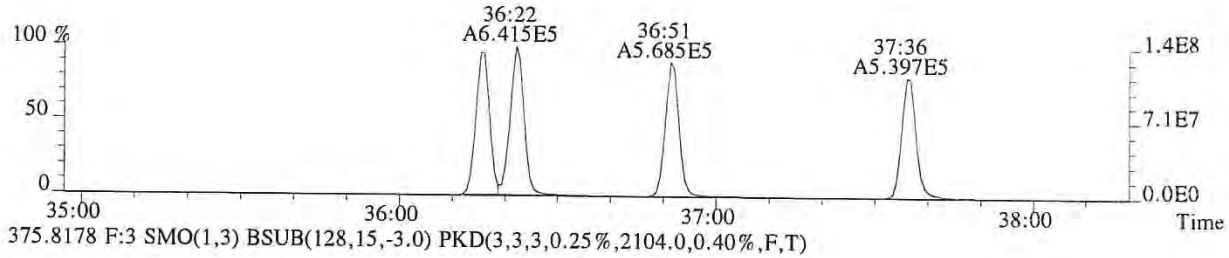
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,840.0,1.00%,F,T)



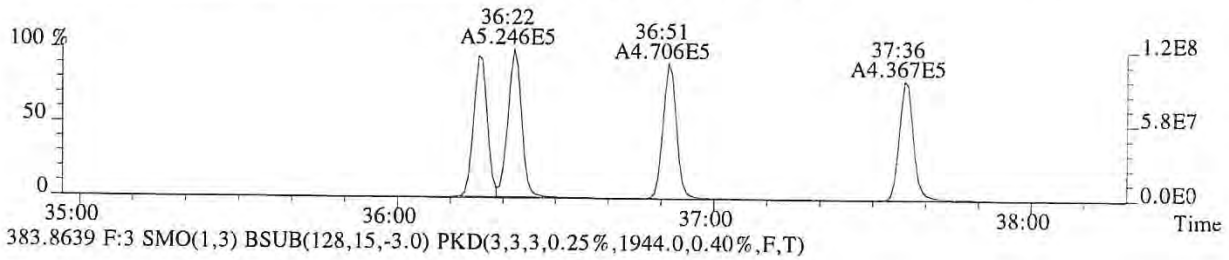
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



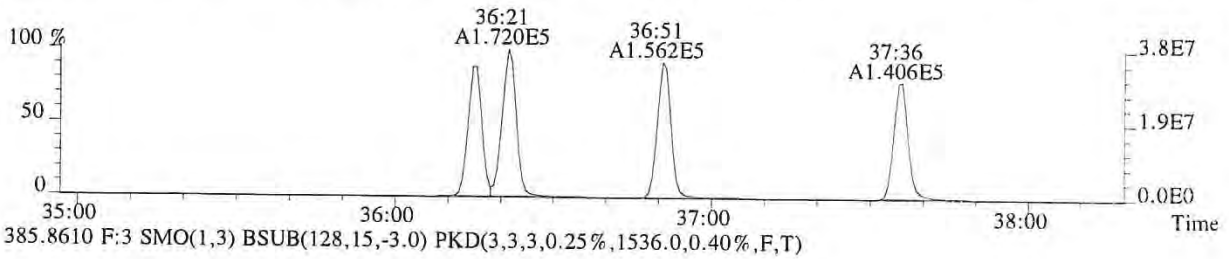
File:P513854 #1-303 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1804.0,0.40%,F,T)



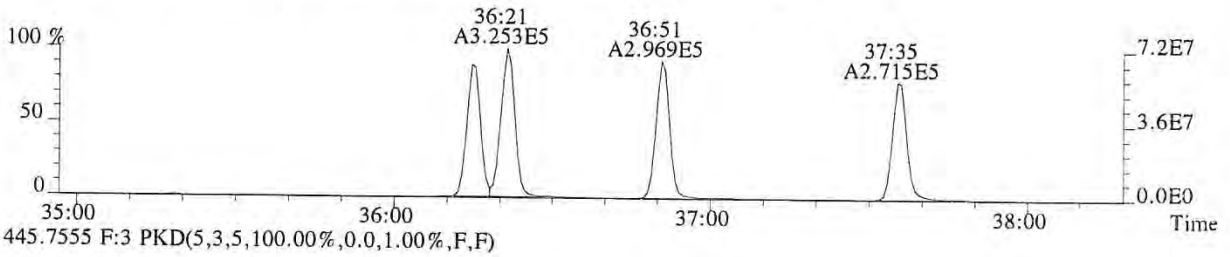
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2104.0,0.40%,F,T)



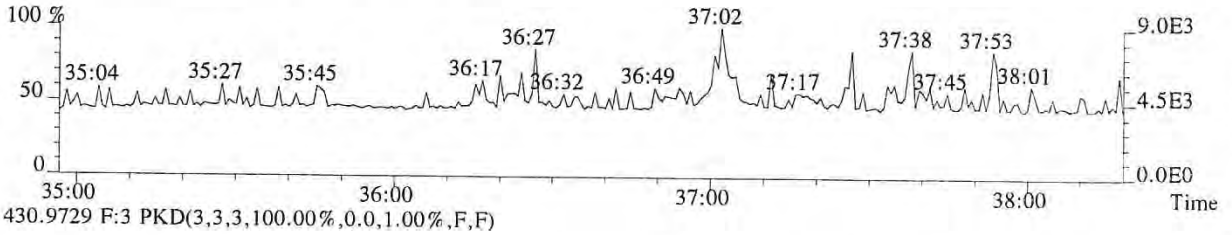
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1944.0,0.40%,F,T)



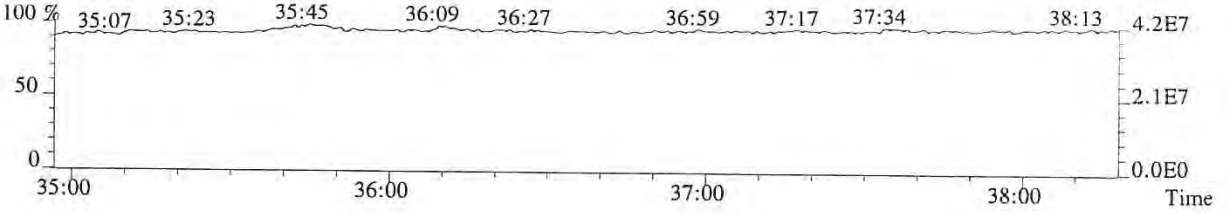
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1536.0,0.40%,F,T)



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

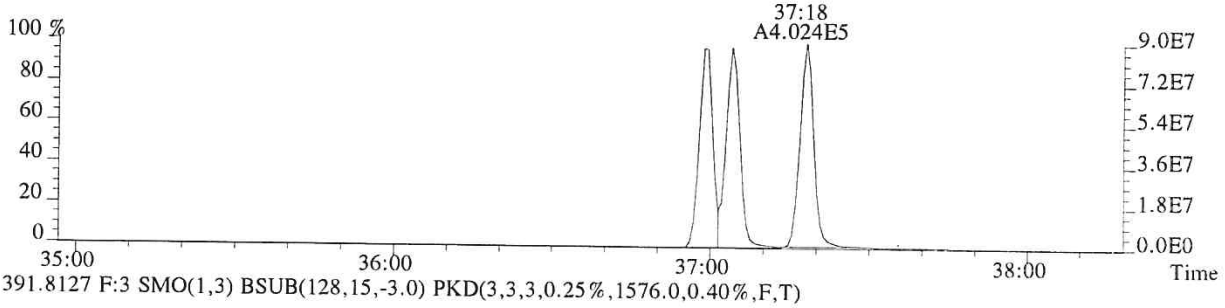


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

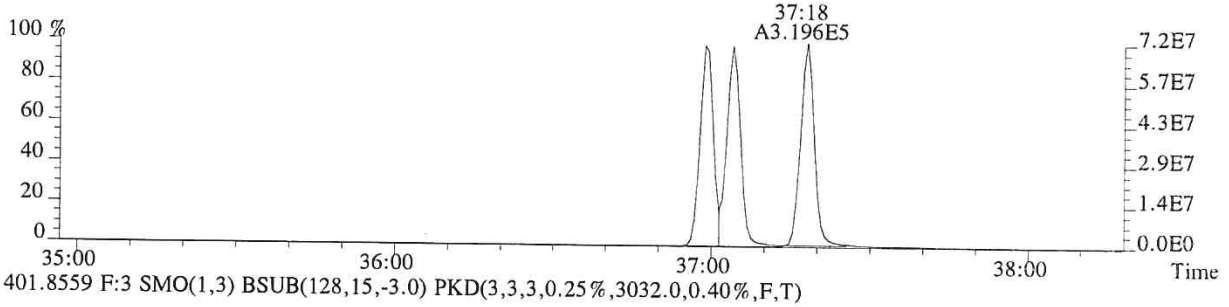


013654

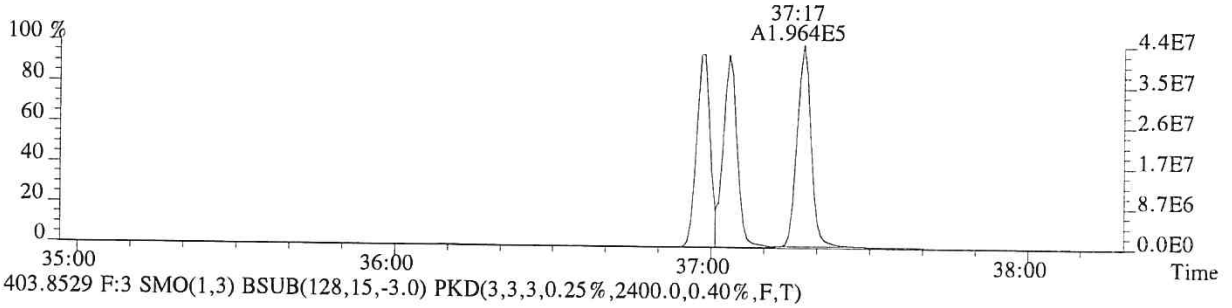
File:P513854 #1-303 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1200.0,0.40%,F,T)



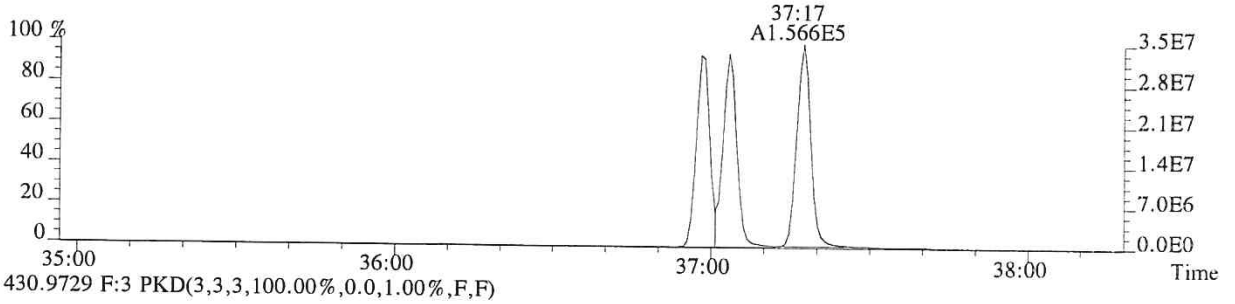
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1576.0,0.40%,F,T)



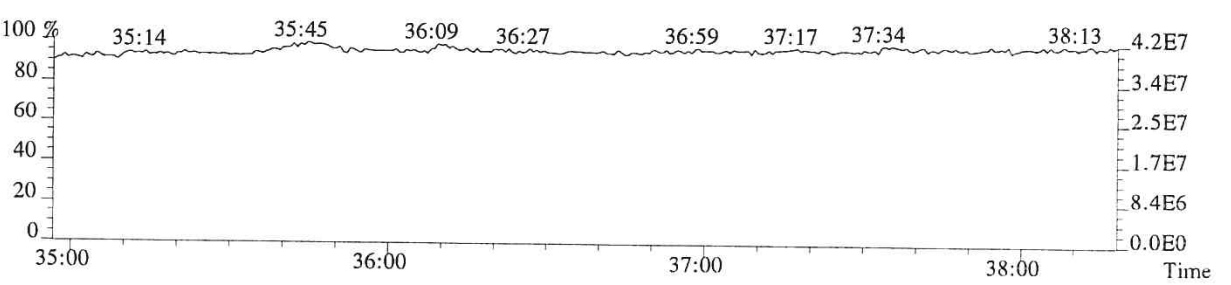
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3032.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2400.0,0.40%,F,T)

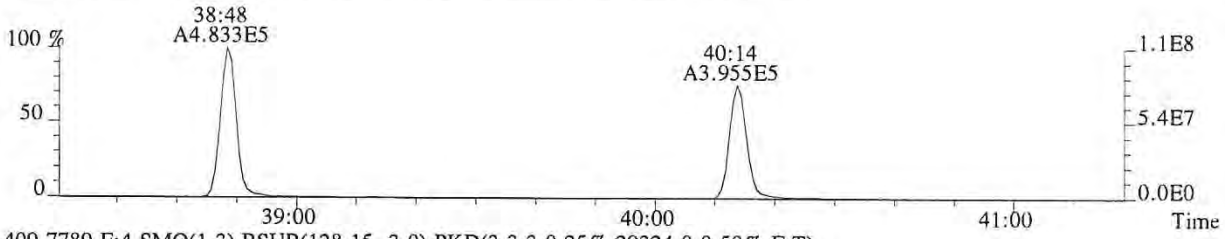


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

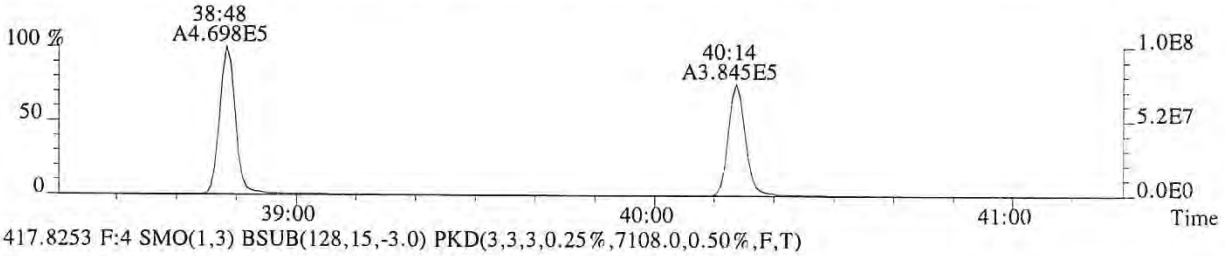


013655

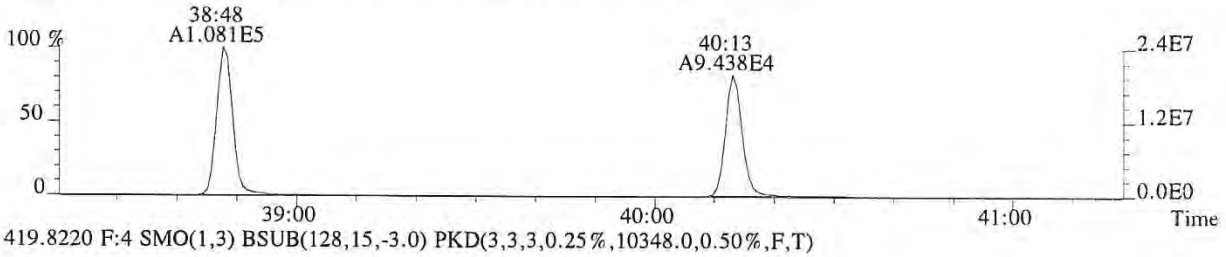
File:P513854 #1-268 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,17516.0,0.50%,F,T)



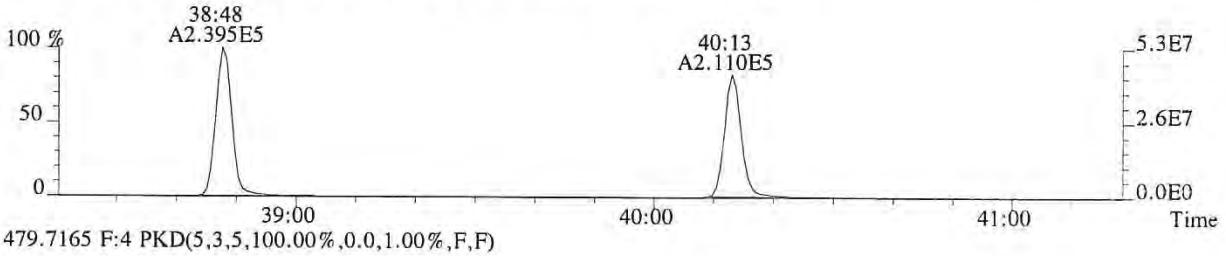
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,29324.0,0.50%,F,T)



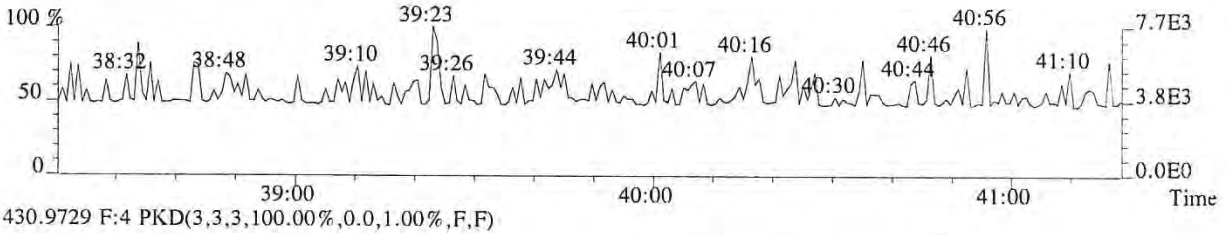
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7108.0,0.50%,F,T)



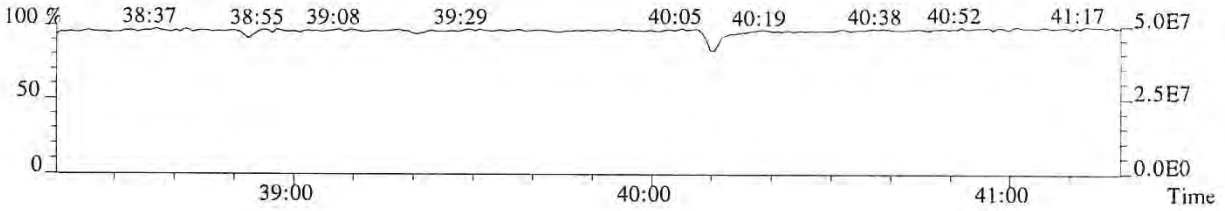
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,10348.0,0.50%,F,T)



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

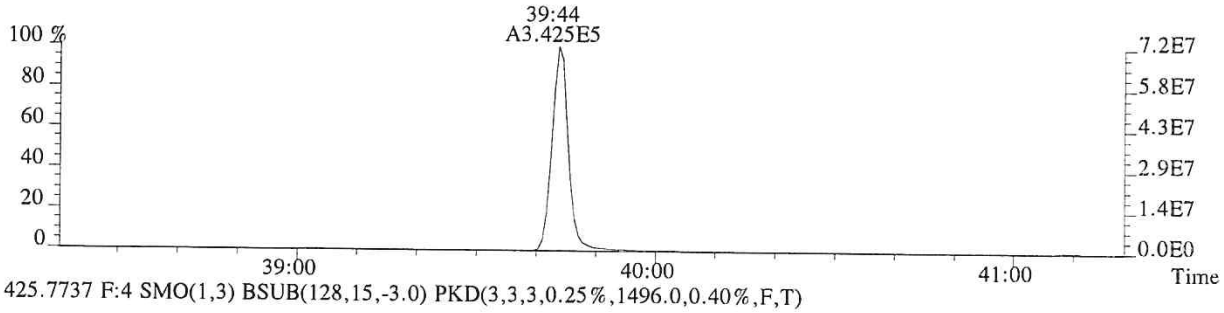


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

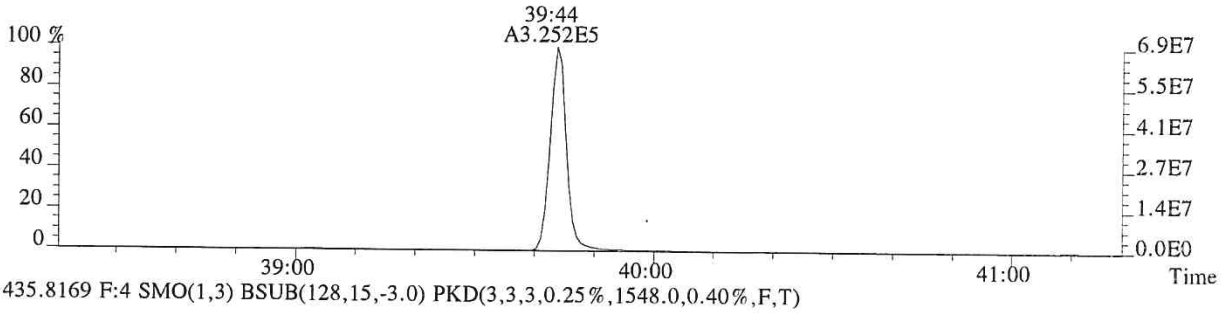


013656

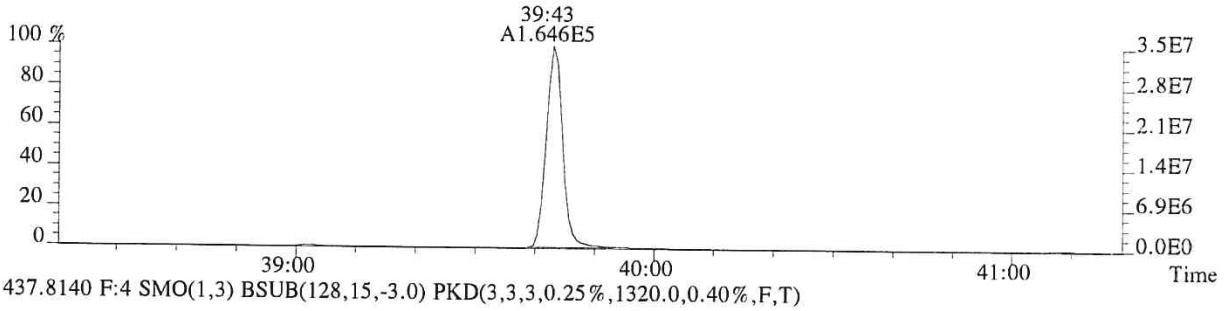
File:P513854 #1-268 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1516.0,0.40%,F,T)



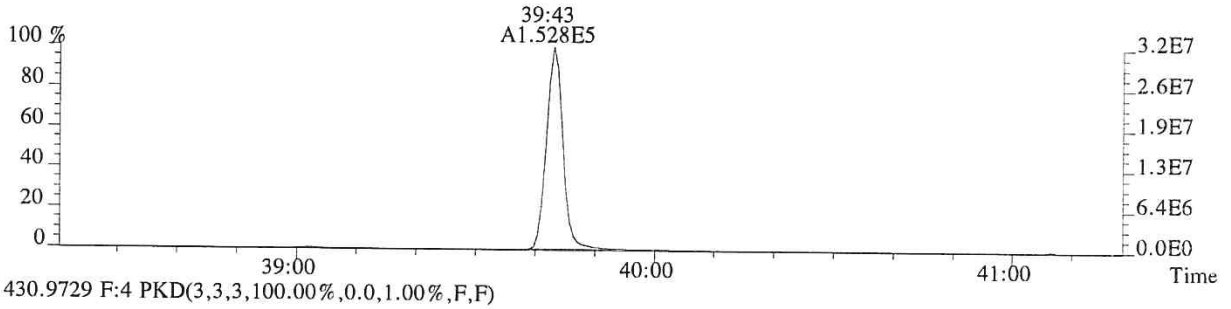
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1496.0,0.40%,F,T)



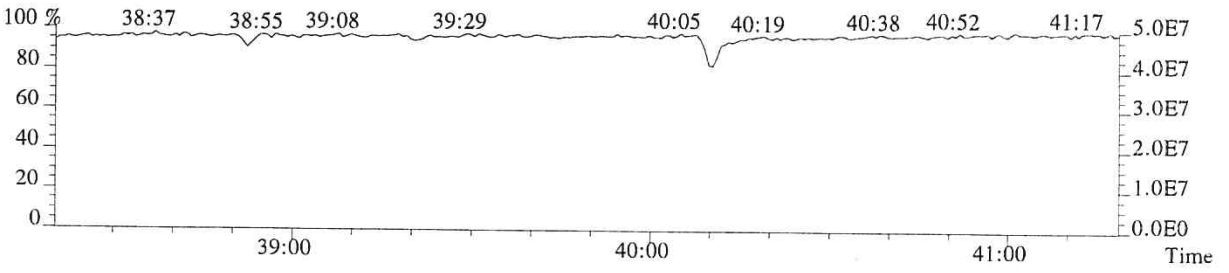
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1548.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1320.0,0.40%,F,T)

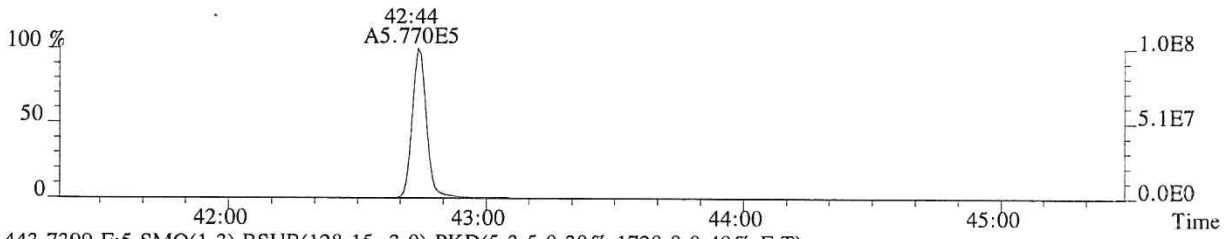


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

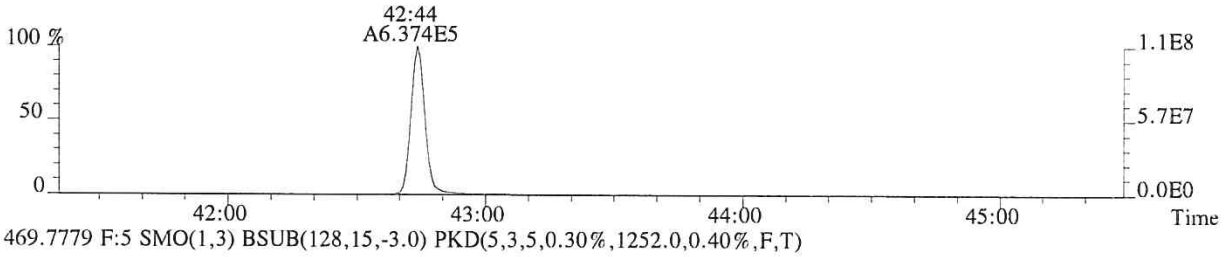


013657

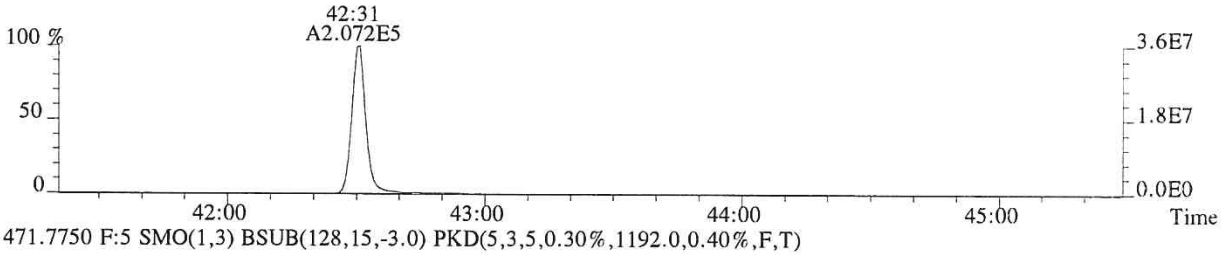
File:P513854 #1-373 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,504.0,0.40%,F,T)



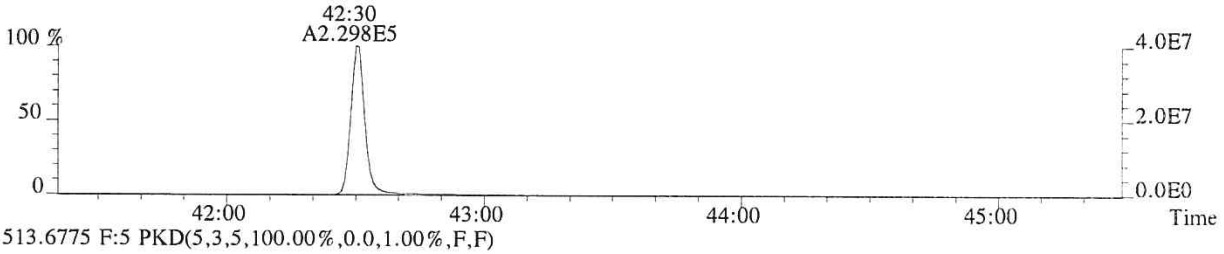
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1720.0,0.40%,F,T)



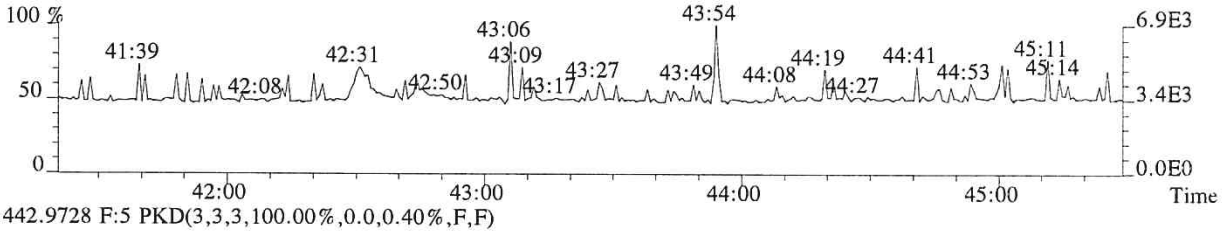
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1252.0,0.40%,F,T)



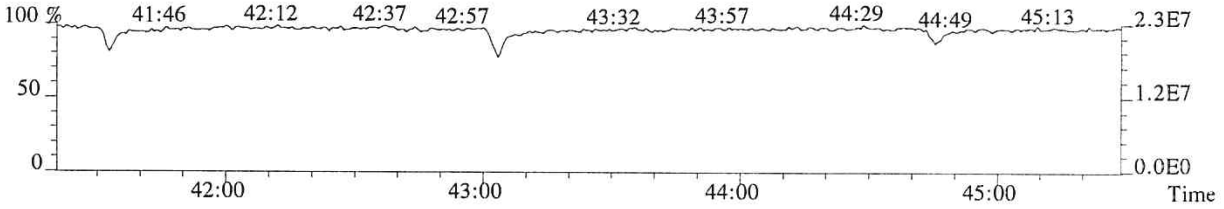
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1192.0,0.40%,F,T)



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

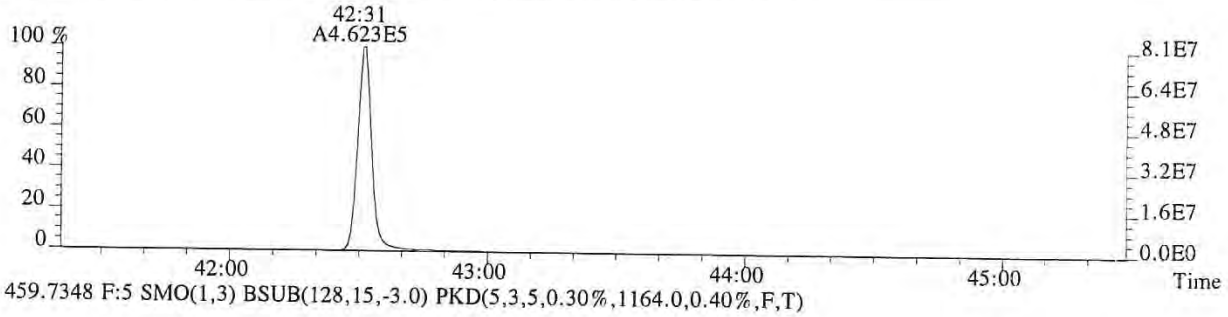


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

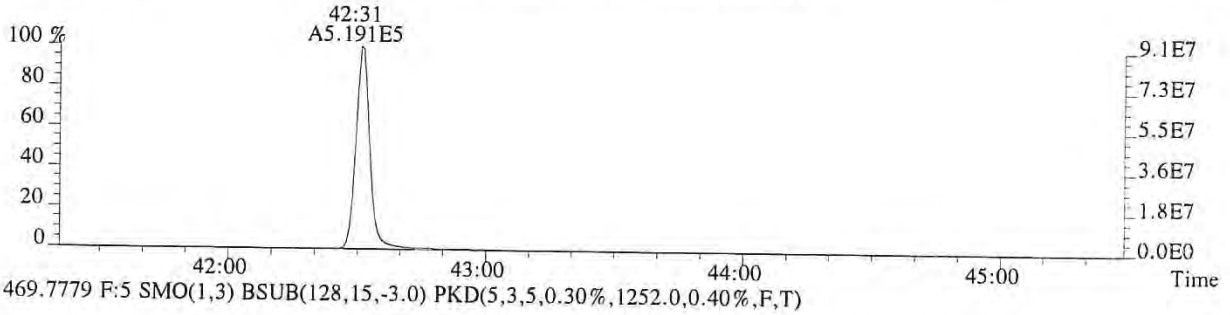


013658

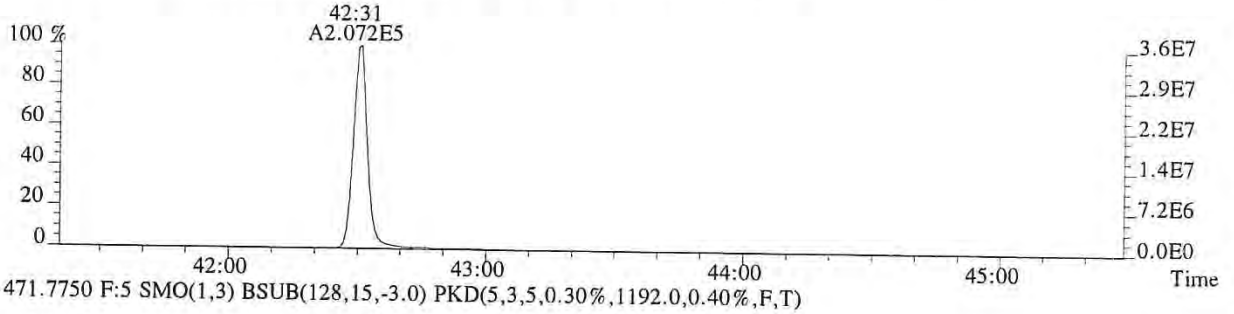
File:P513854 #1-373 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,736.0,0.40%,F,T)



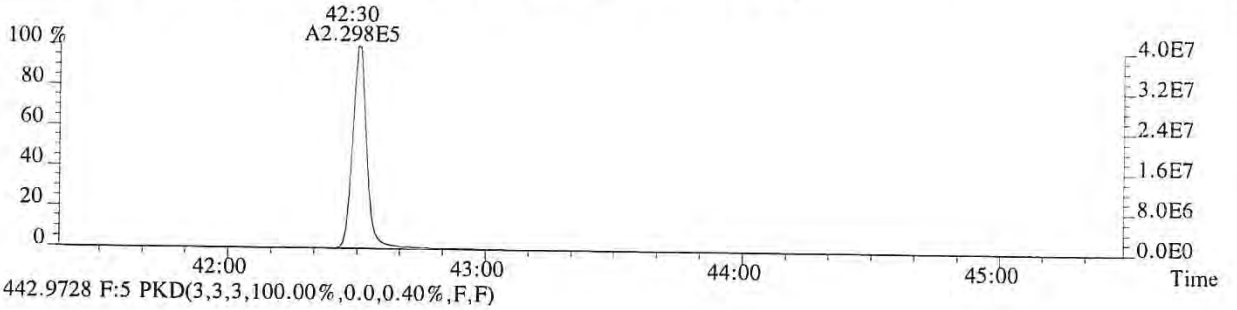
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1164.0,0.40%,F,T)



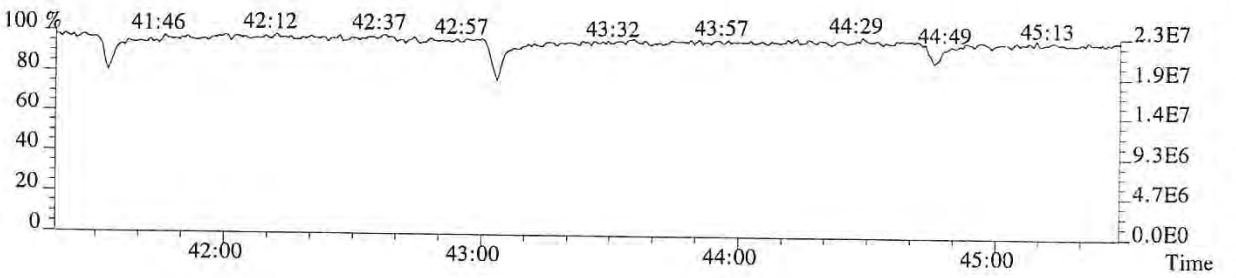
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1252.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1192.0,0.40%,F,T)



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



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
185657

Run #6 Filename P513855 Samp: 1 Inj: 1 Acquired: 24-JAN-18 17:43:48
Processed: 25-JAN-18 08:12:42 Sample ID: CS5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	2.519e+05	3.290e+05	0.77	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	2.059e+06	1.330e+06	1.55	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:42	1.928e+06	1.251e+06	1.54	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:17	1.692e+06	1.377e+06	1.23	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	1.772e+06	1.434e+06	1.24	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:53	1.608e+06	1.317e+06	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	1.433e+06	1.167e+06	1.23	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	1.339e+06	1.290e+06	1.04	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	1.080e+06	1.042e+06	1.04	yes	no	1.258
10	Unk	OCDF	42:45	1.595e+06	1.756e+06	0.91	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	1.888e+05	2.423e+05	0.78	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:58	1.263e+06	8.057e+05	1.57	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	37:00	1.121e+06	8.925e+05	1.26	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	1.092e+06	8.671e+05	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	1.145e+06	9.139e+05	1.25	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:45	9.236e+05	8.810e+05	1.05	yes	no	1.025
17	Unk	OCDD	42:32	1.236e+06	1.384e+06	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:47	1.298e+05	1.639e+05	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:48	1.958e+05	1.231e+05	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	1.948e+05	1.236e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:16	8.374e+04	1.594e+05	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	9.521e+04	1.780e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:52	8.554e+04	1.650e+05	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:37	7.556e+04	1.441e+05	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:49	5.927e+04	1.314e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	5.166e+04	1.153e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:31	8.633e+04	1.080e+05	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	1.308e+05	8.218e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	1.058e+05	8.279e+04	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	1.031e+05	8.205e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	8.934e+04	8.409e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	1.103e+05	1.236e+05	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:57	8.893e+04	1.085e+05	0.82	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	1.136e+05	9.051e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	4.366e+05				no	1.014

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Signal/Noise Height Ratio Summary

CLIENT ID.
185657

Run #6 Filename P513855 Samp: 1 Inj: 1 Acquired: 24-JAN-18 17:43:48
Processed: 25-JAN-18 08:12:42 LAB. ID: CS5

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.13e+07	1.02e+03	5.0e+04	6.69e+07	2.00e+03	3.3e+04
2	1,2,3,7,8-PeCDF	4.18e+08	1.72e+03	2.4e+05	2.69e+08	4.25e+03	6.3e+04
3	2,3,4,7,8-PeCDF	4.06e+08	1.72e+03	2.4e+05	2.60e+08	4.25e+03	6.1e+04
4	1,2,3,4,7,8-HxCDF	3.87e+08	3.18e+03	1.2e+05	3.12e+08	2.28e+03	1.4e+05
5	1,2,3,6,7,8-HxCDF	3.87e+08	3.18e+03	1.2e+05	3.14e+08	2.28e+03	1.4e+05
6	2,3,4,6,7,8-HxCDF	3.59e+08	3.18e+03	1.1e+05	2.88e+08	2.28e+03	1.3e+05
7	1,2,3,7,8,9-HxCDF	3.14e+08	3.18e+03	9.9e+04	2.53e+08	2.28e+03	1.1e+05
8	1,2,3,4,6,7,8-HpCDF	2.94e+08	4.87e+04	6.0e+03	2.86e+08	4.51e+04	6.3e+03
9	1,2,3,4,7,8,9-HpCDF	2.17e+08	4.87e+04	4.5e+03	2.12e+08	4.51e+04	4.7e+03
10	OCDF	2.95e+08	6.68e+02	4.4e+05	3.20e+08	1.53e+03	2.1e+05
11	2,3,7,8-TCDD	4.01e+07	1.56e+03	2.6e+04	5.16e+07	1.78e+03	2.9e+04
12	1,2,3,7,8-PeCDD	2.63e+08	1.48e+03	1.8e+05	1.68e+08	6.04e+02	2.8e+05
13	1,2,3,4,7,8-HxCDD	2.57e+08	1.76e+03	1.5e+05	2.02e+08	1.10e+03	1.8e+05
14	1,2,3,6,7,8-HxCDD	2.40e+08	1.76e+03	1.4e+05	1.94e+08	1.10e+03	1.8e+05
15	1,2,3,7,8,9-HxCDD	2.55e+08	1.76e+03	1.5e+05	2.05e+08	1.10e+03	1.9e+05
16	1,2,3,4,6,7,8-HpCDD	1.92e+08	4.16e+03	4.6e+04	1.82e+08	2.40e+03	7.6e+04
17	OCDD	2.24e+08	1.92e+02	1.2e+06	2.52e+08	1.77e+03	1.4e+05
18	13C-2,3,7,8-TCDF	2.56e+07	8.72e+03	2.9e+03	3.23e+07	4.65e+03	7.0e+03
19	13C-1,2,3,7,8-PeCDF	3.90e+07	1.47e+03	2.7e+04	2.42e+07	1.14e+03	2.1e+04
20	13C-2,3,4,7,8-PeCDF	3.95e+07	1.47e+03	2.7e+04	2.53e+07	1.14e+03	2.2e+04
21	13C-1,2,3,4,7,8-HxCDF	1.87e+07	1.28e+03	1.5e+04	3.55e+07	3.08e+03	1.2e+04
22	13C-1,2,3,6,7,8-HxCDF	2.06e+07	1.28e+03	1.6e+04	3.85e+07	3.08e+03	1.3e+04
23	13C-2,3,4,6,7,8-HxCDF	1.90e+07	1.28e+03	1.5e+04	3.60e+07	3.08e+03	1.2e+04
24	13C-1,2,3,7,8,9-HxCDF	1.65e+07	1.28e+03	1.3e+04	3.12e+07	3.08e+03	1.0e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.32e+07	1.18e+04	1.1e+03	2.87e+07	5.77e+03	5.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.03e+07	1.18e+04	8.7e+02	2.29e+07	5.77e+03	4.0e+03
27	13C-2,3,7,8-TCDD	1.81e+07	7.00e+03	2.6e+03	2.26e+07	3.08e+03	7.3e+03
28	13C-1,2,3,7,8-PeCDD	2.76e+07	1.47e+03	1.9e+04	1.74e+07	7.76e+02	2.2e+04
29	13C-1,2,3,4,7,8-HxCDD	2.40e+07	2.43e+03	9.9e+03	1.87e+07	1.70e+03	1.1e+04
30	13C-1,2,3,6,7,8-HxCDD	2.24e+07	2.43e+03	9.2e+03	1.82e+07	1.70e+03	1.1e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.84e+07	1.79e+03	1.0e+04	1.72e+07	1.40e+03	1.2e+04
32	13C-OCDD	1.97e+07	1.62e+03	1.2e+04	2.22e+07	1.42e+03	1.6e+04
33	13C-1,2,3,4-TCDD	1.83e+07	7.00e+03	2.6e+03	2.22e+07	3.08e+03	7.2e+03
34	13C-1,2,3,7,8,9-HxCDD	2.50e+07	2.43e+03	1.0e+04	1.99e+07	1.70e+03	1.2e+04
35	37Cl-2,3,7,8-TCDD	9.29e+07	1.57e+03	5.9e+04			

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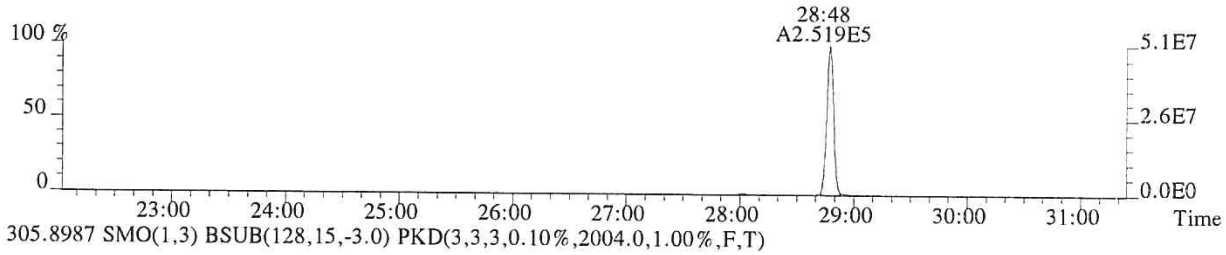
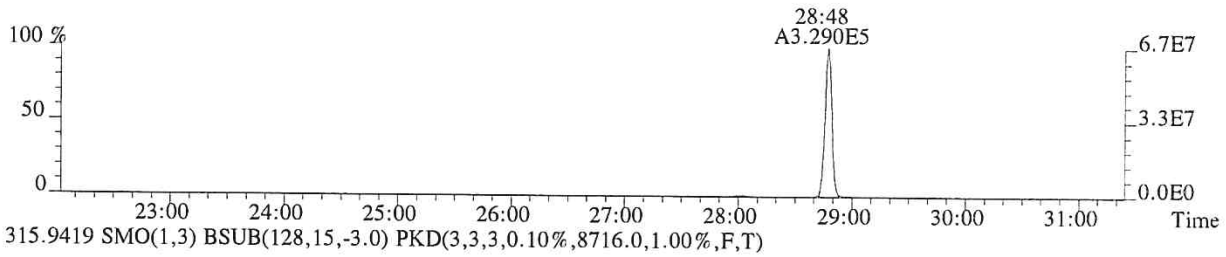
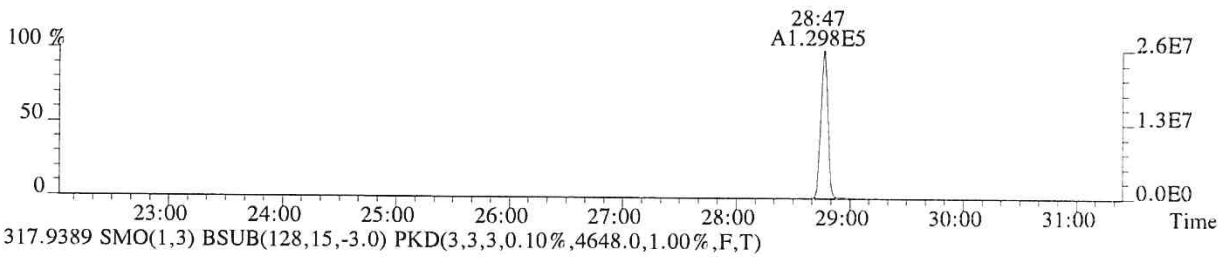
File:P513855 #1-665 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1024.0,1.00%,F,T)



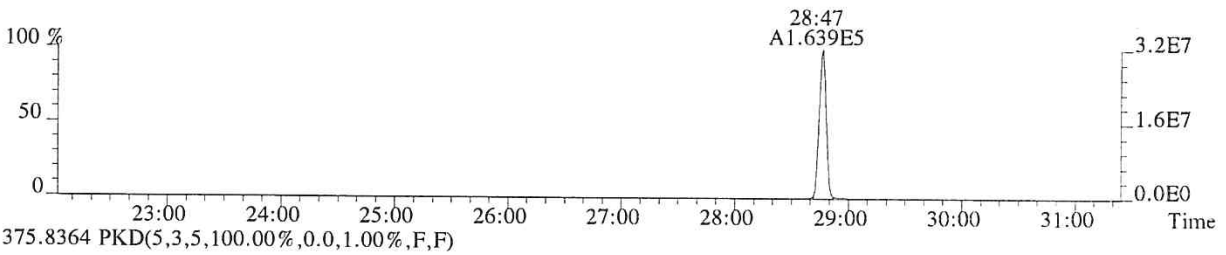
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2004.0,1.00%,F,T)



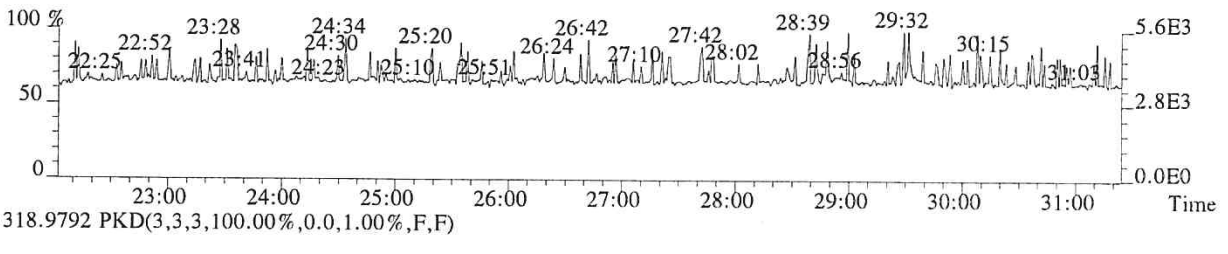
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8716.0,1.00%,F,T)



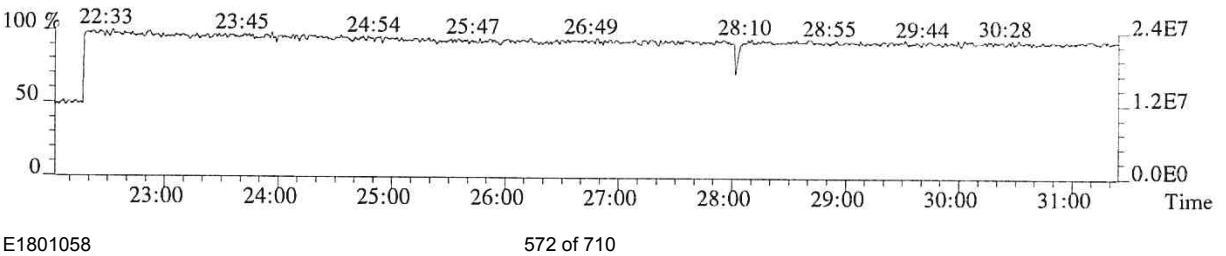
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4648.0,1.00%,F,T)



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

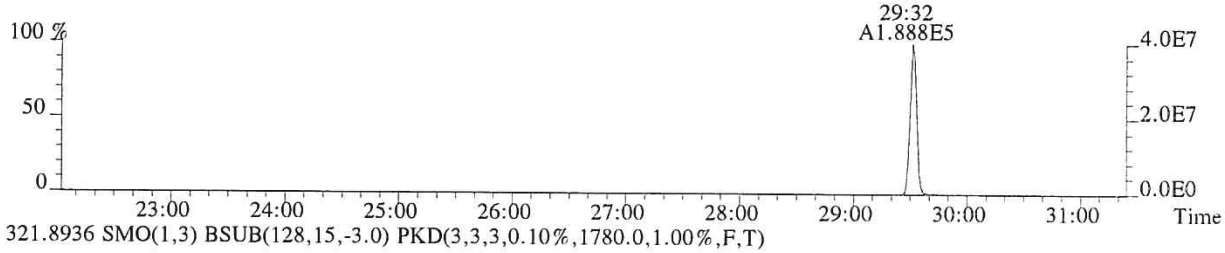


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

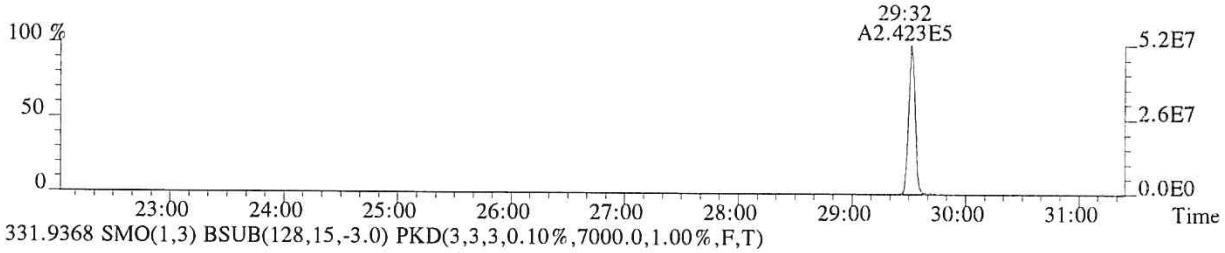


013662

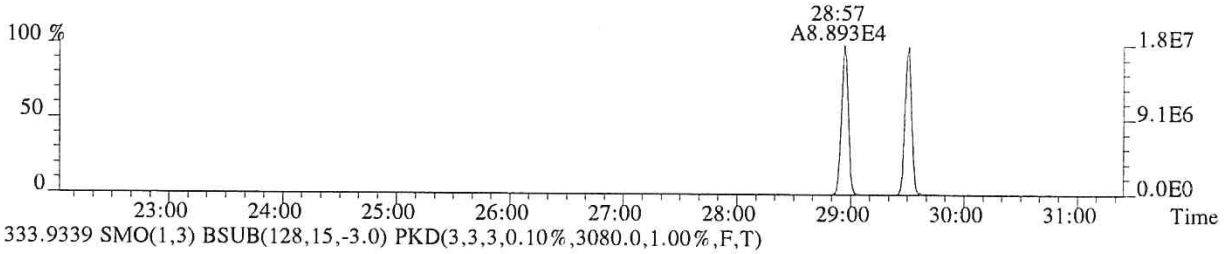
File:P513855 #1-665 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1556.0,1.00%,F,T)



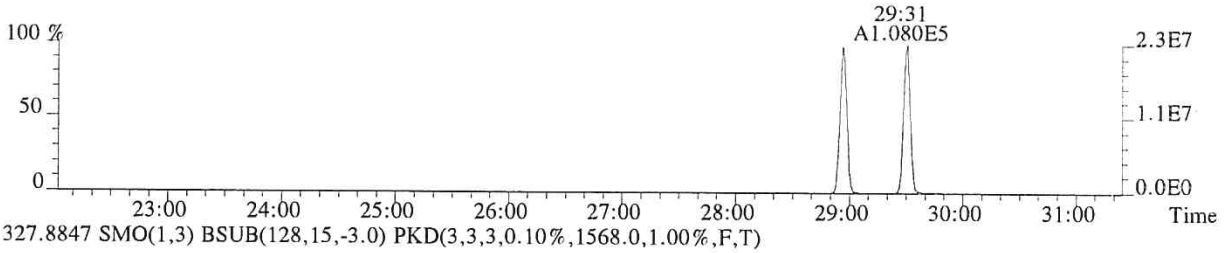
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1780.0,1.00%,F,T)



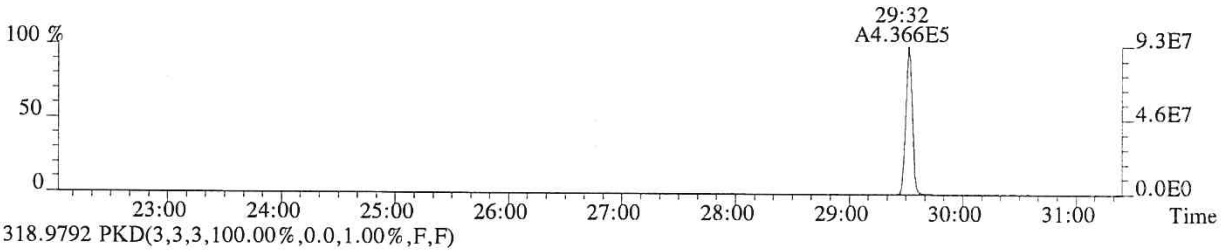
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7000.0,1.00%,F,T)



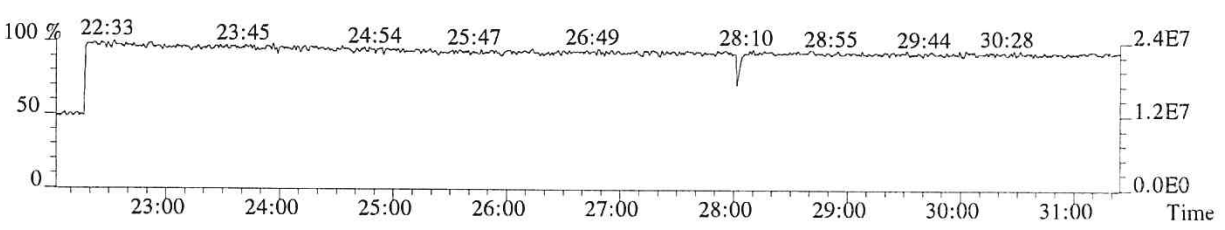
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3080.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1568.0,1.00%,F,T)

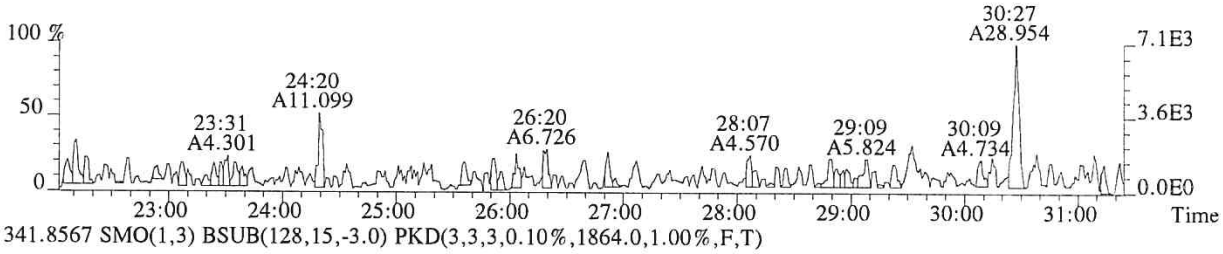


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

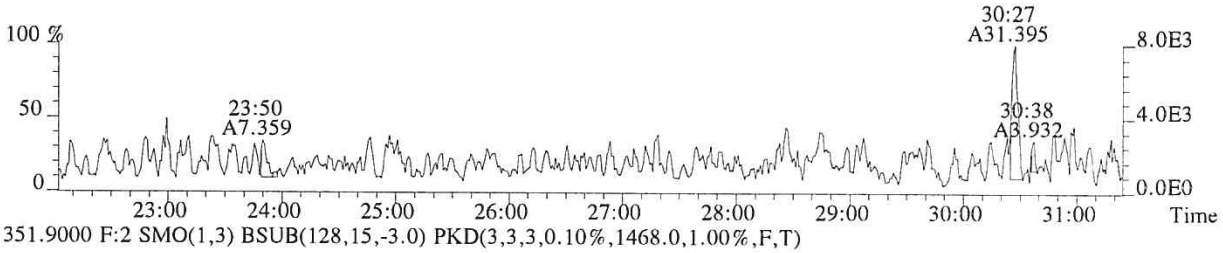


013663

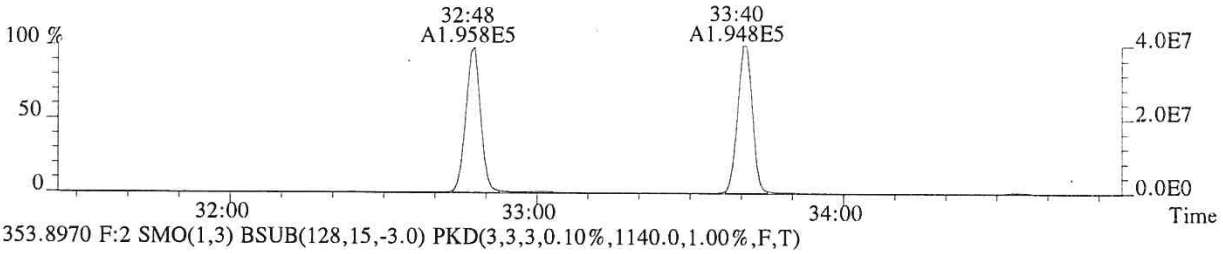
File:P513855 #1-665 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



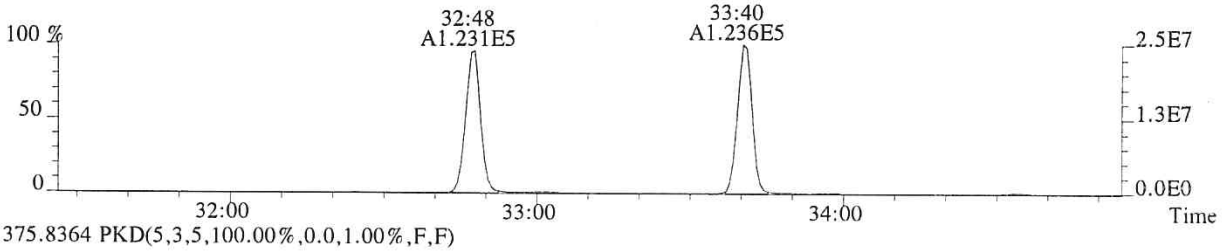
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1864.0,1.00%,F,T)



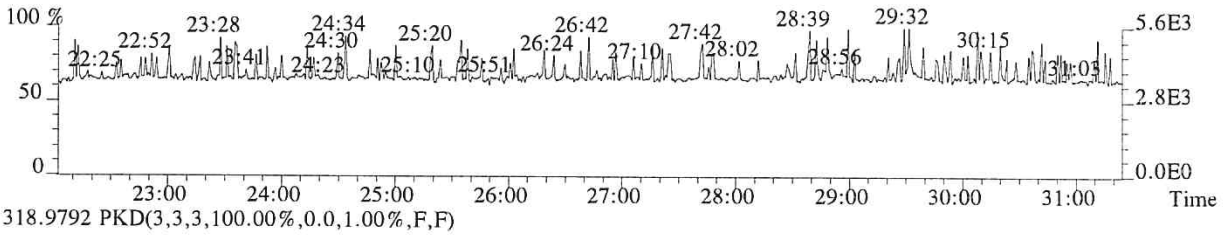
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1468.0,1.00%,F,T)



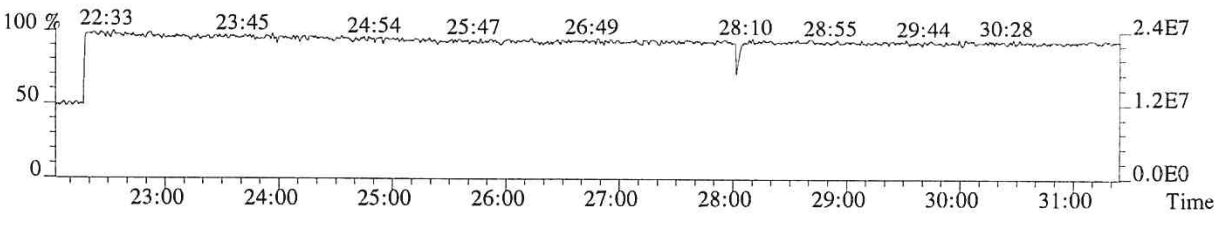
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1140.0,1.00%,F,T)



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

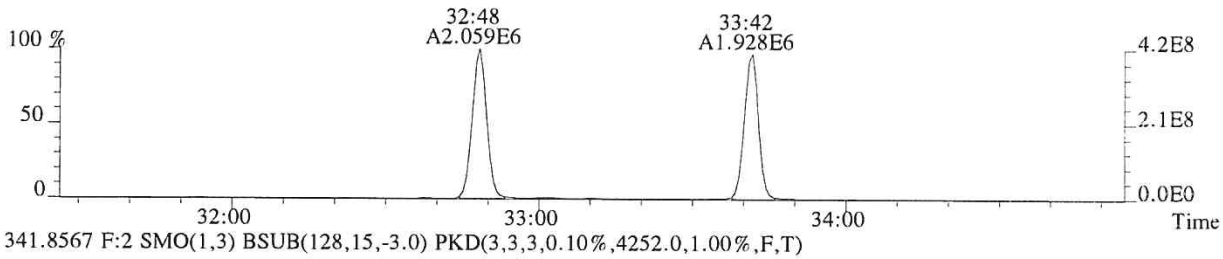


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

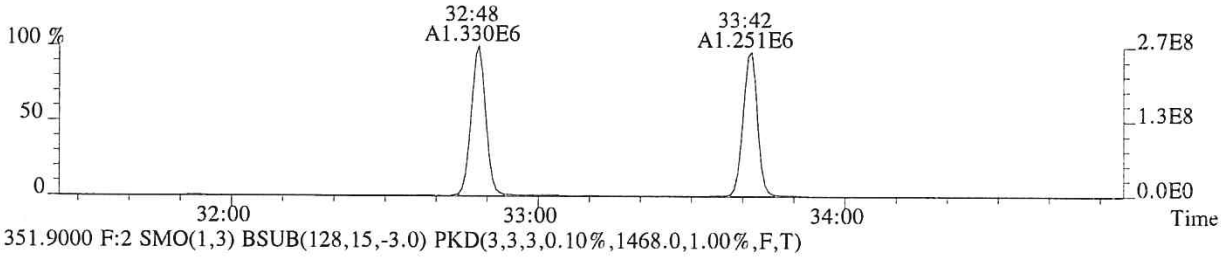


013664

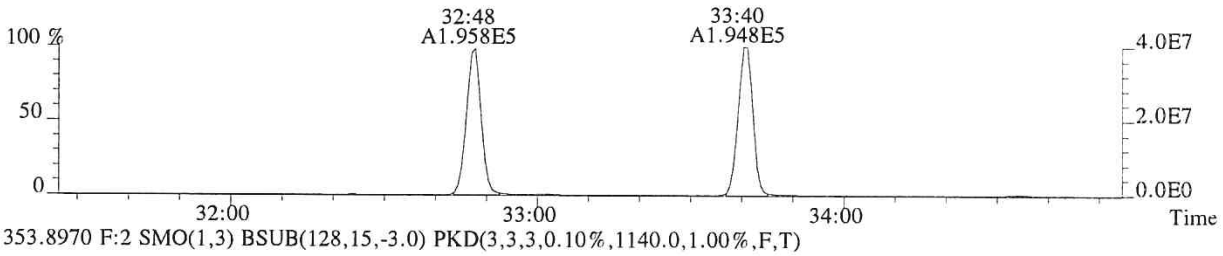
File:P513855 #1-313 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1724.0,1.00%,F,T)



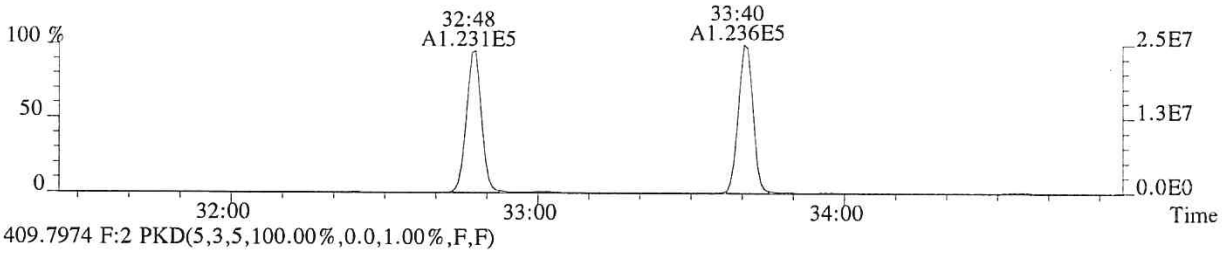
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4252.0,1.00%,F,T)



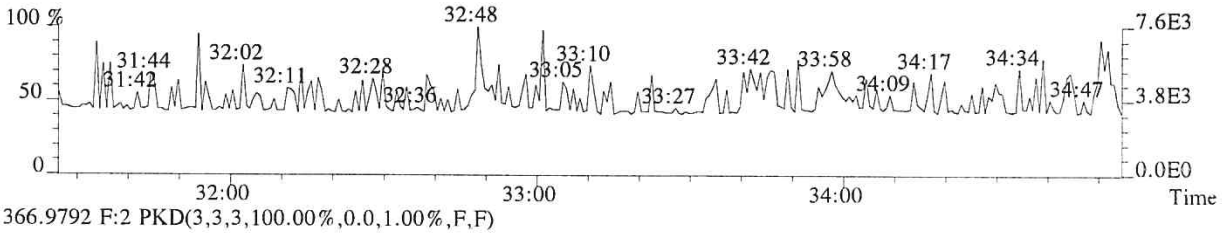
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1468.0,1.00%,F,T)



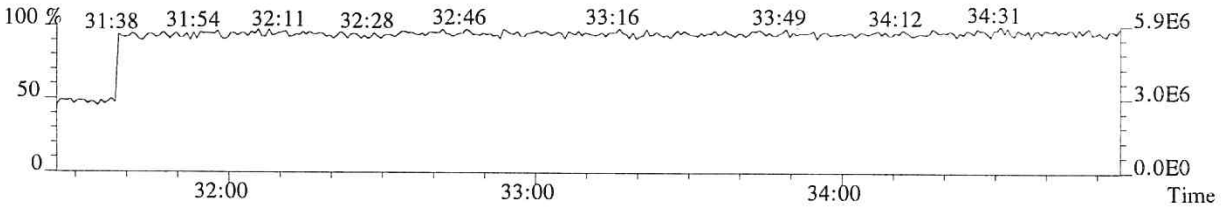
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1140.0,1.00%,F,T)



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

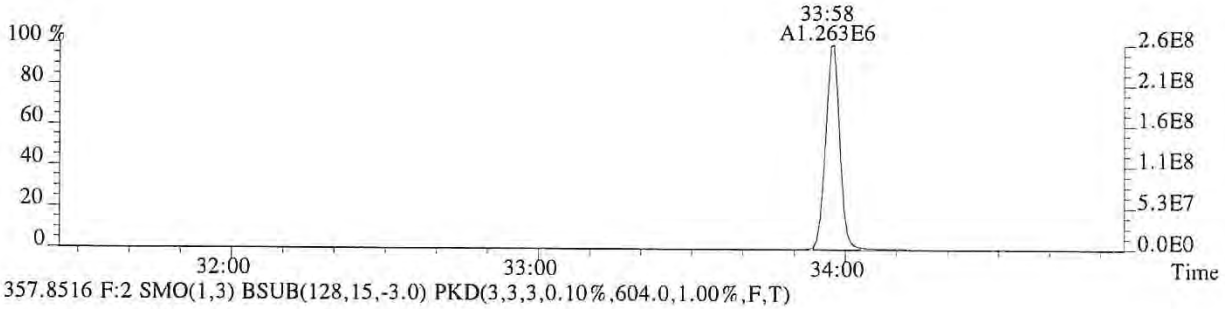


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

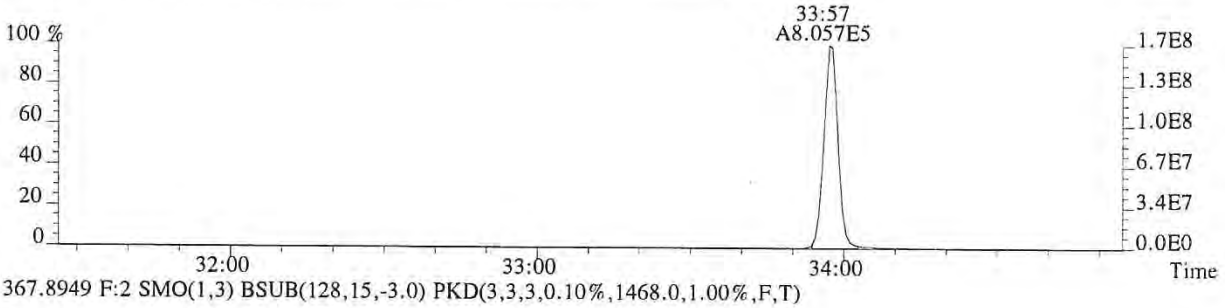


013665

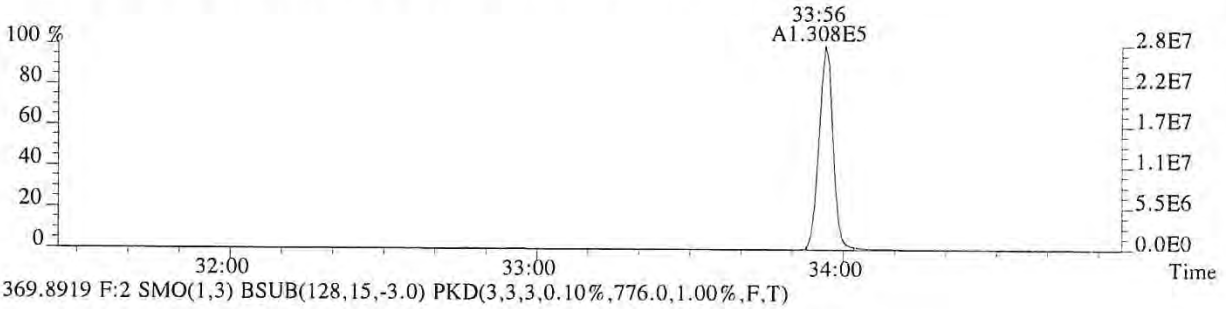
File:P513855 #1-313 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1476.0,1.00%,F,T)



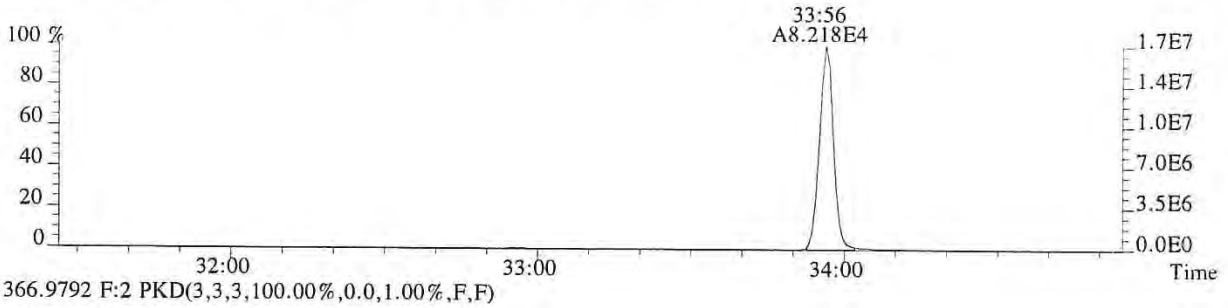
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



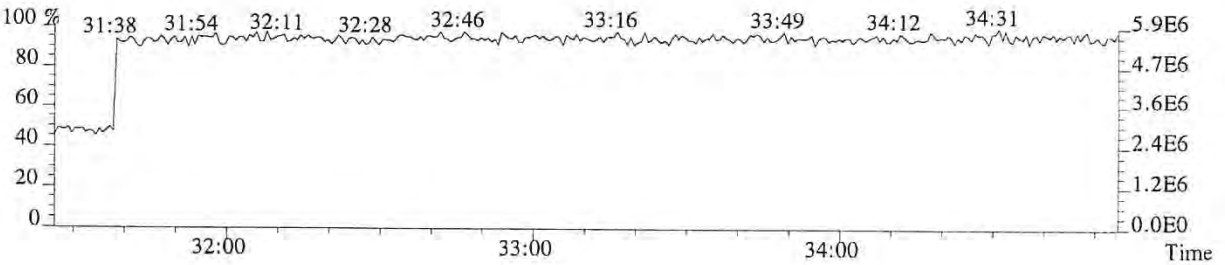
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1468.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)

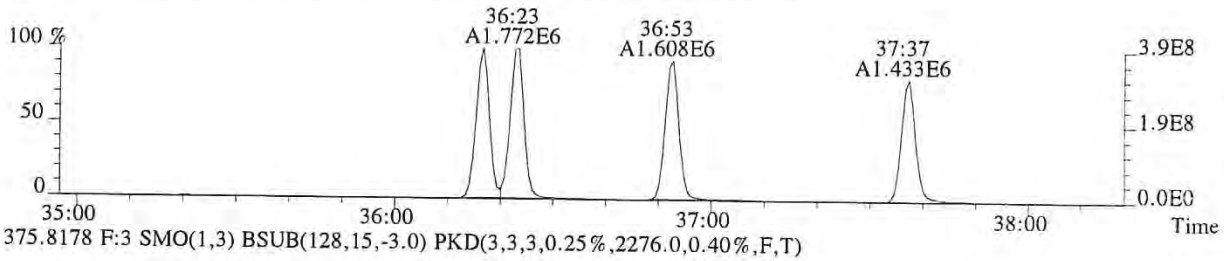


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

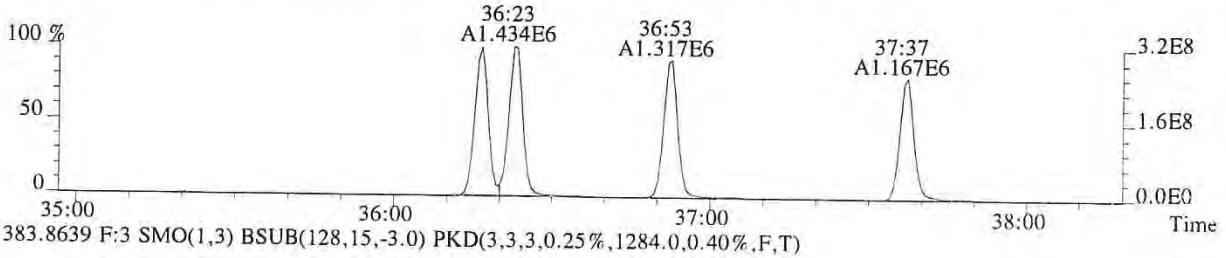


013666

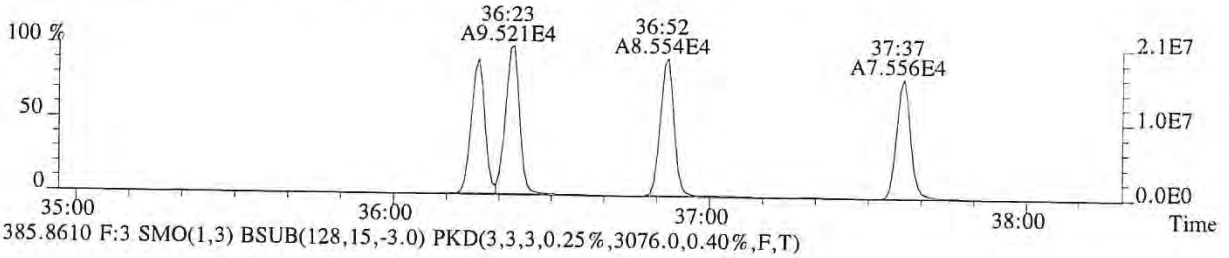
File:P513855 #1-303 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:185657
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3180.0,0.40%,F,T)



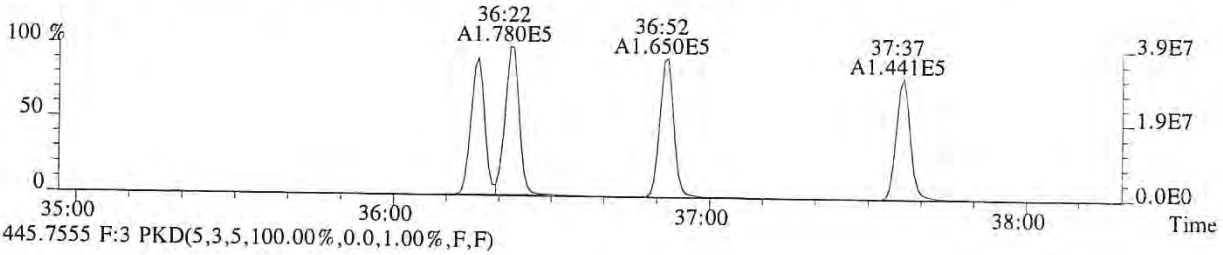
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2276.0,0.40%,F,T)



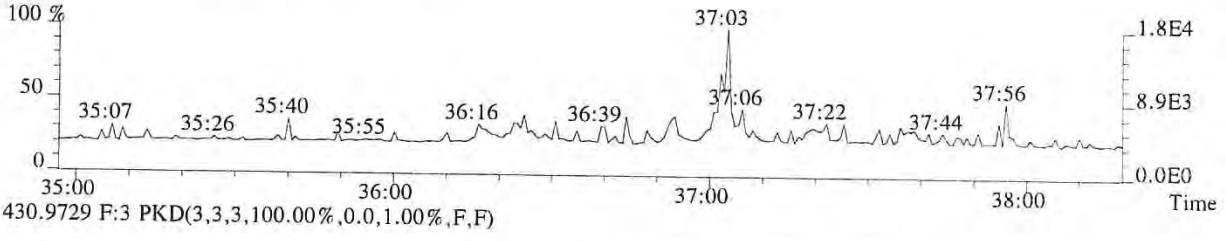
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1284.0,0.40%,F,T)



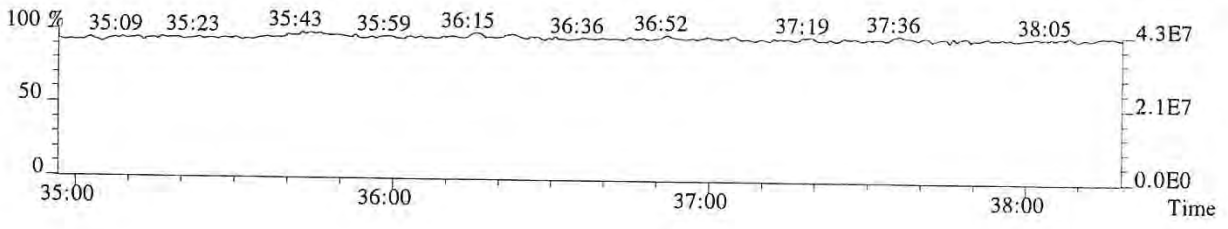
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3076.0,0.40%,F,T)



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

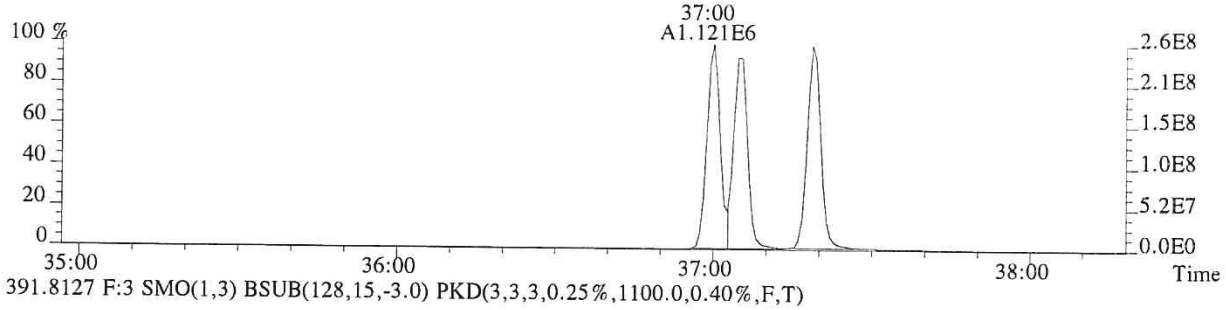


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

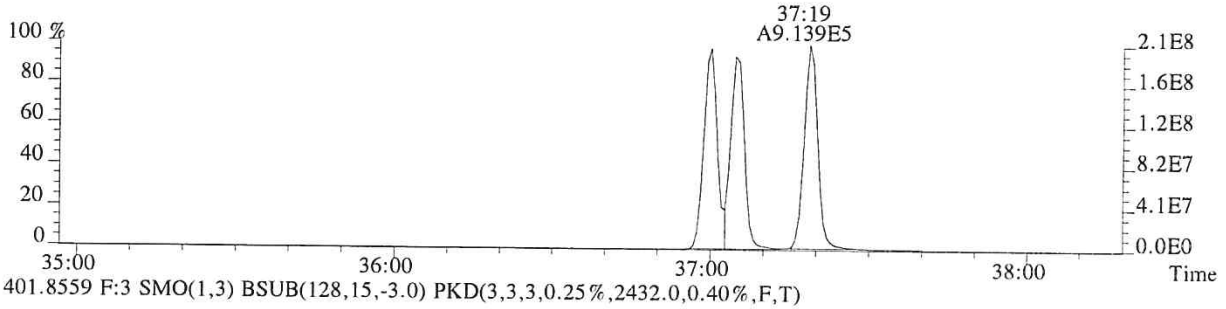


013667

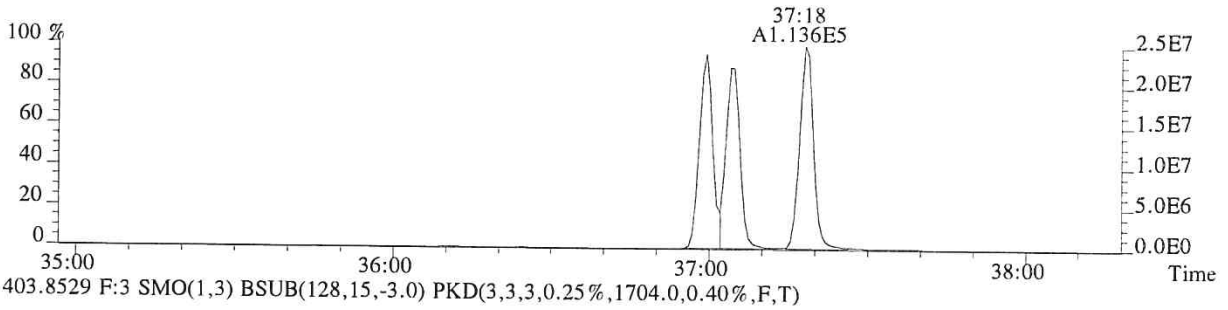
File:P513855 #1-303 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1760.0,0.40%,F,T)



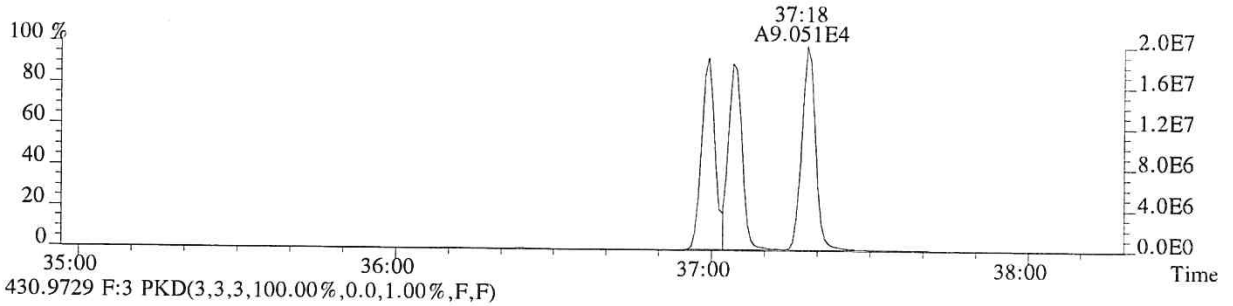
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1100.0,0.40%,F,T)



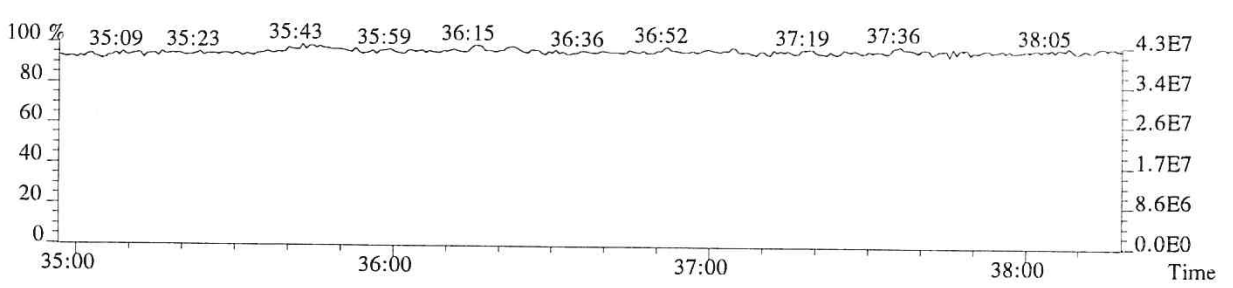
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2432.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1704.0,0.40%,F,T)

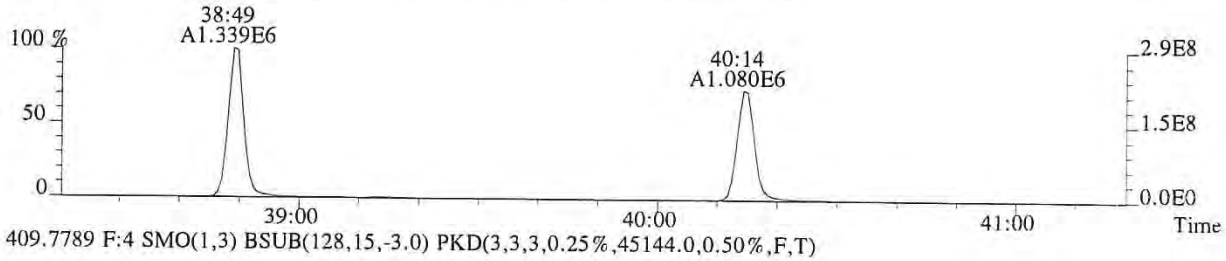


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

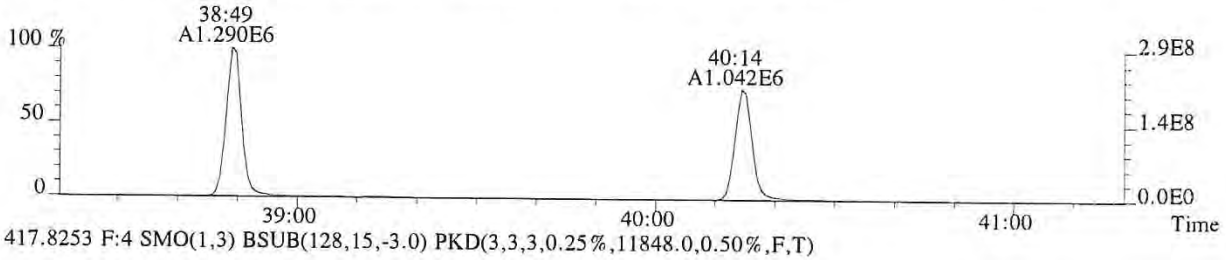


013668

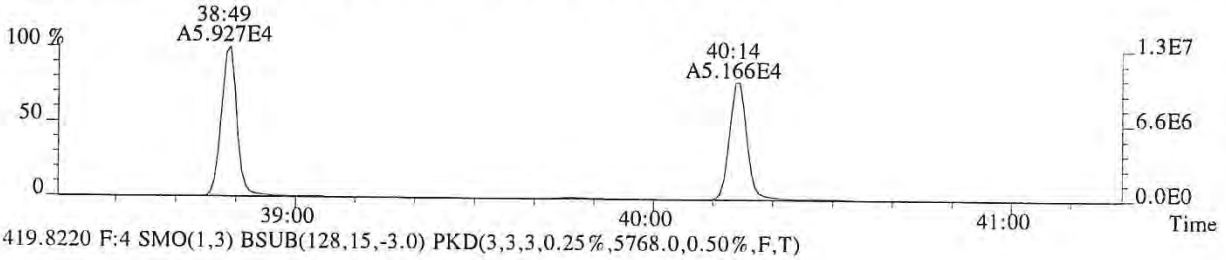
File:P513855 #1-268 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:185657
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,48736.0,0.50%,F,T)



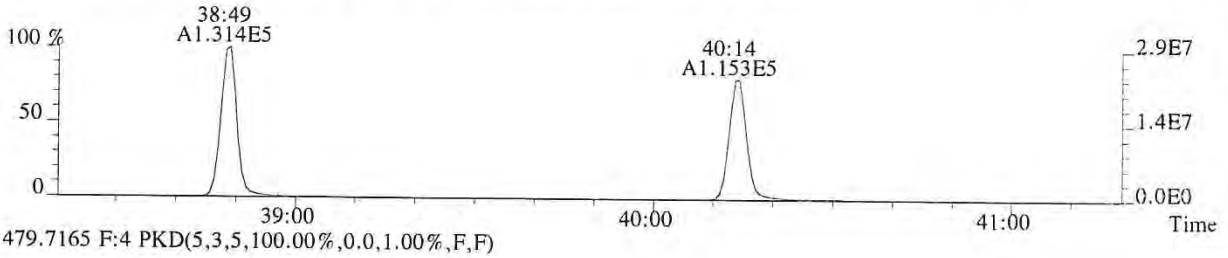
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,45144.0,0.50%,F,T)



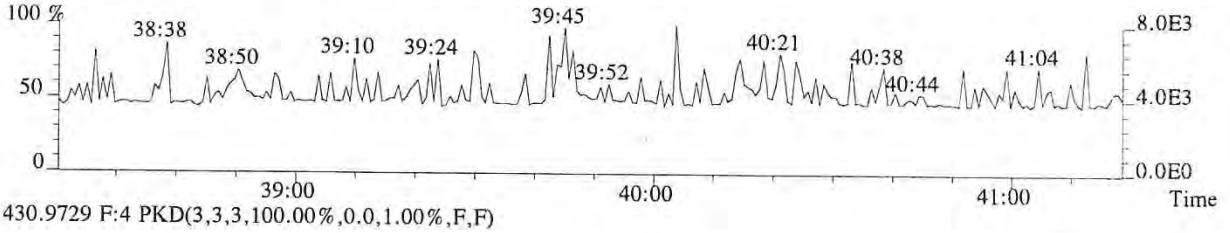
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11848.0,0.50%,F,T)



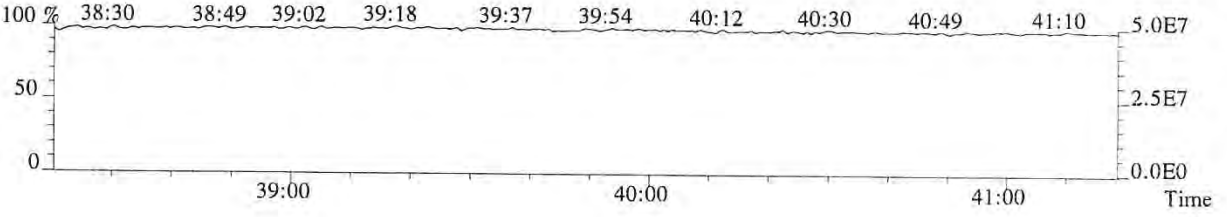
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5768.0,0.50%,F,T)



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

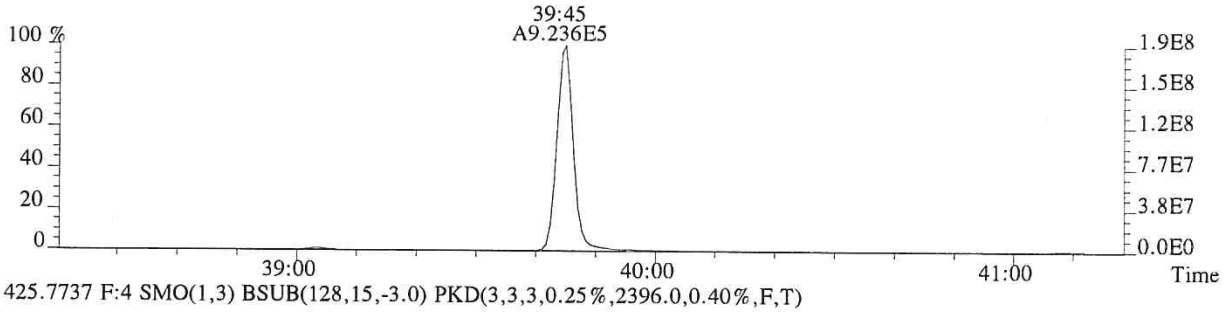


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

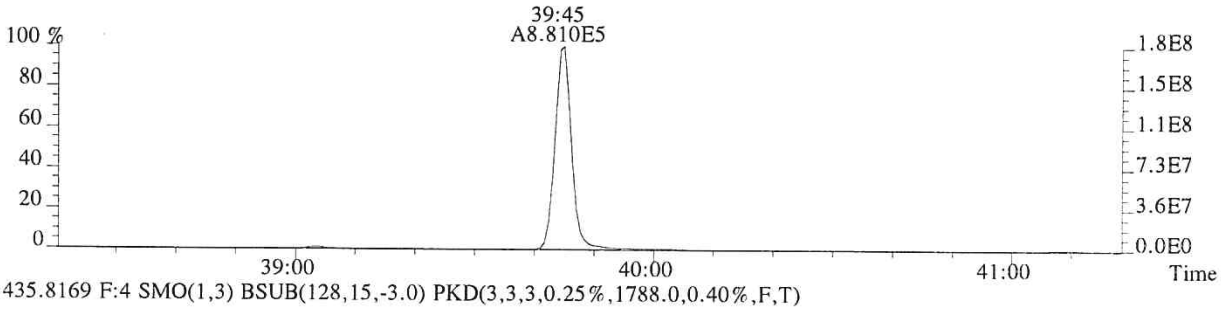


013669

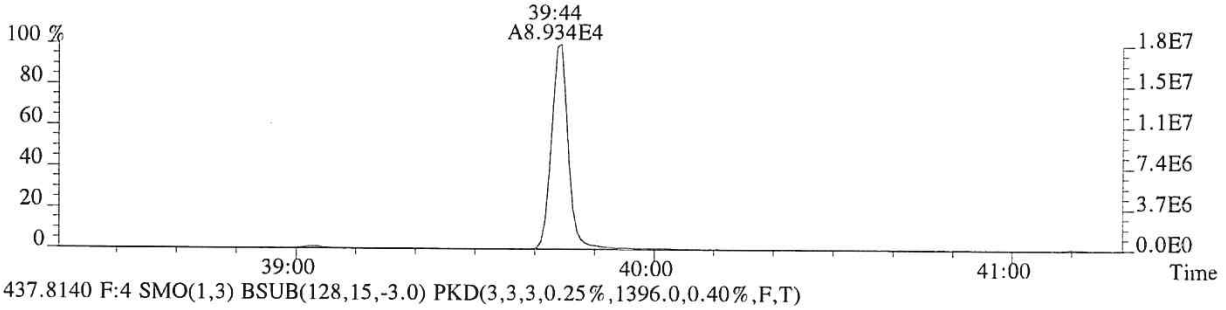
File:P513855 #1-268 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4156.0,0.40%,F,T)



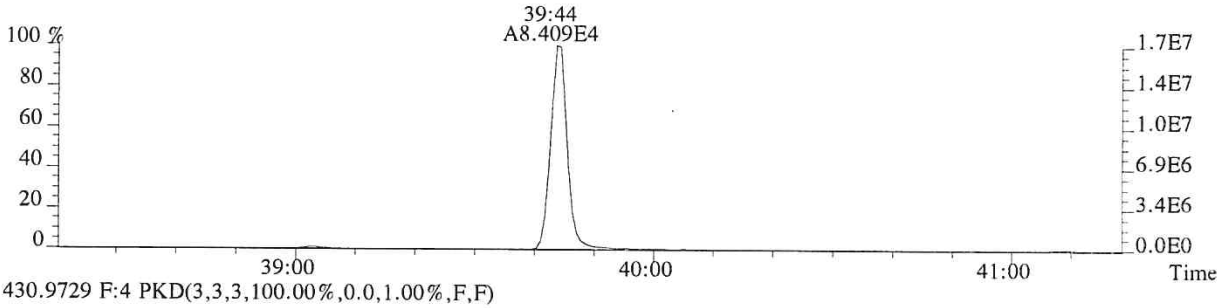
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2396.0,0.40%,F,T)



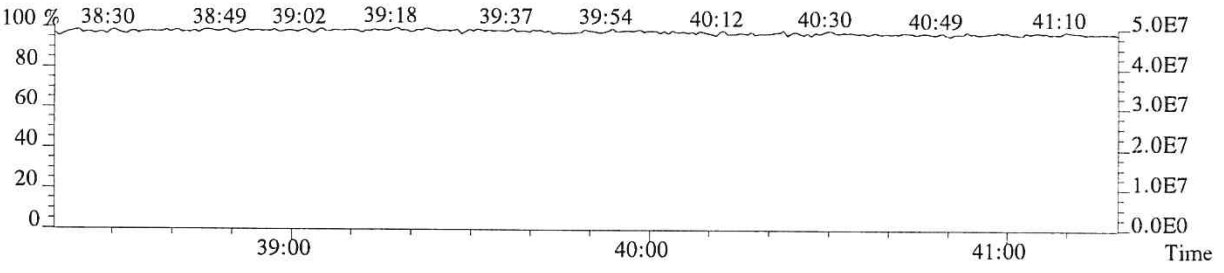
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1788.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1396.0,0.40%,F,T)

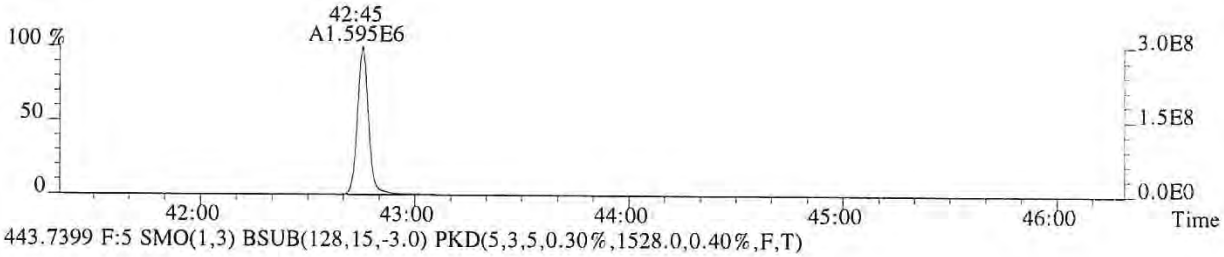


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

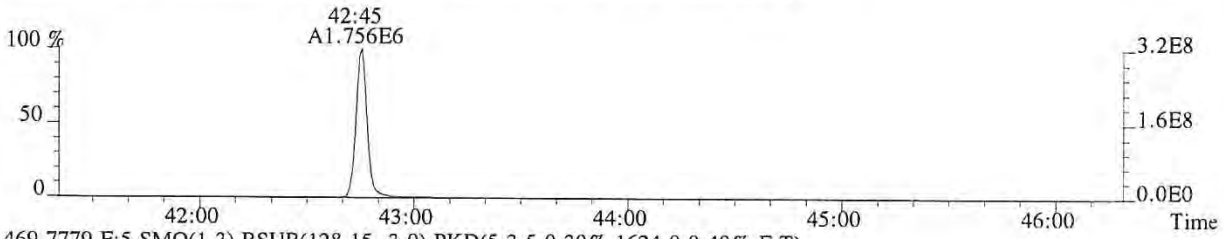


013670

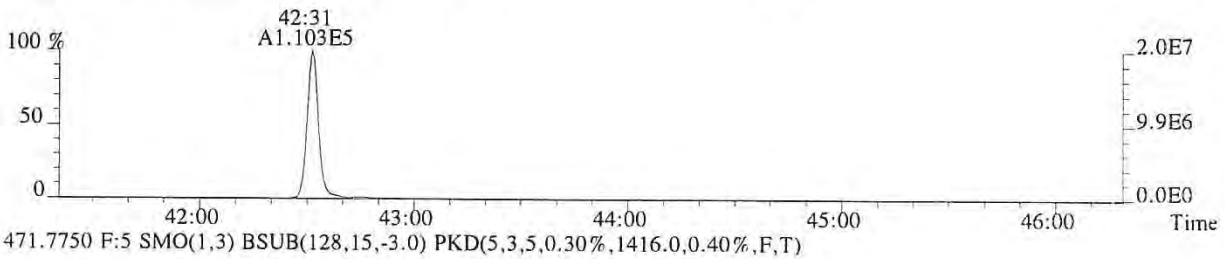
File:P513855 #1-448 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,668.0,0.40%,F,T)



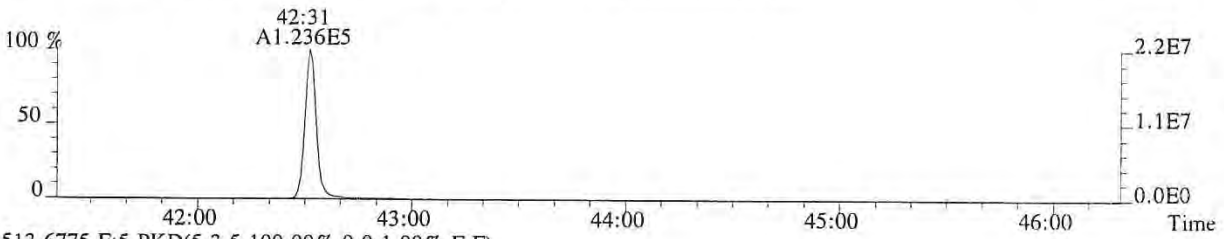
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1528.0,0.40%,F,T)



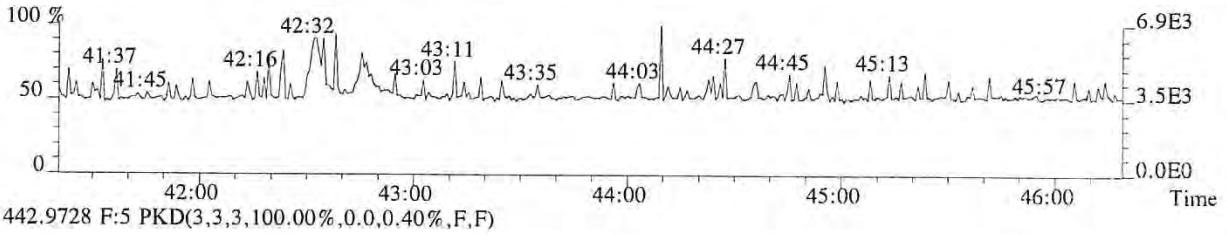
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1624.0,0.40%,F,T)



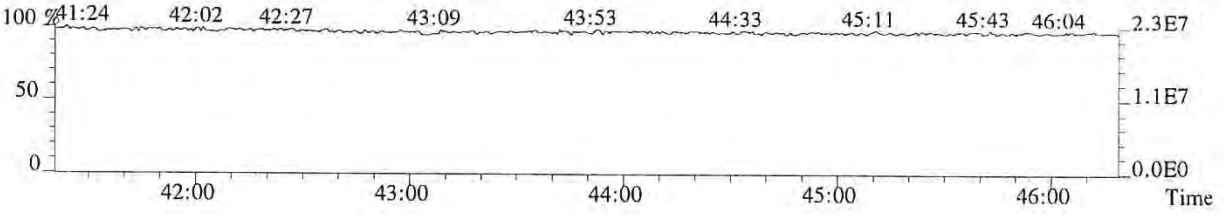
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1416.0,0.40%,F,T)



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

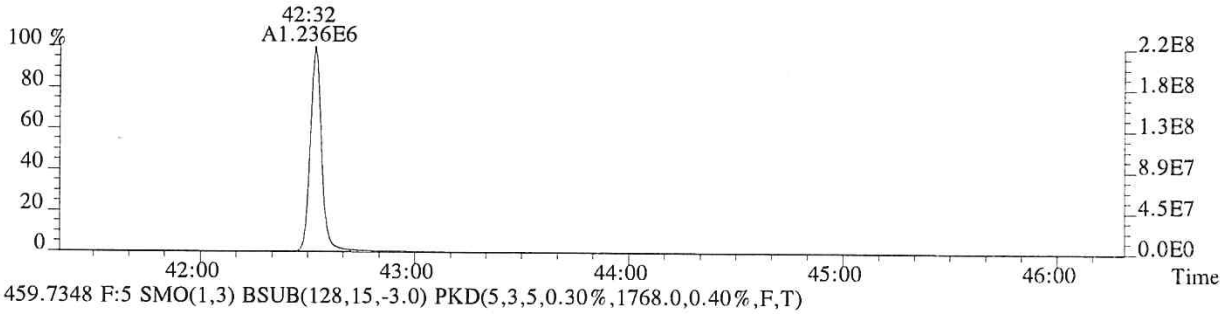


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

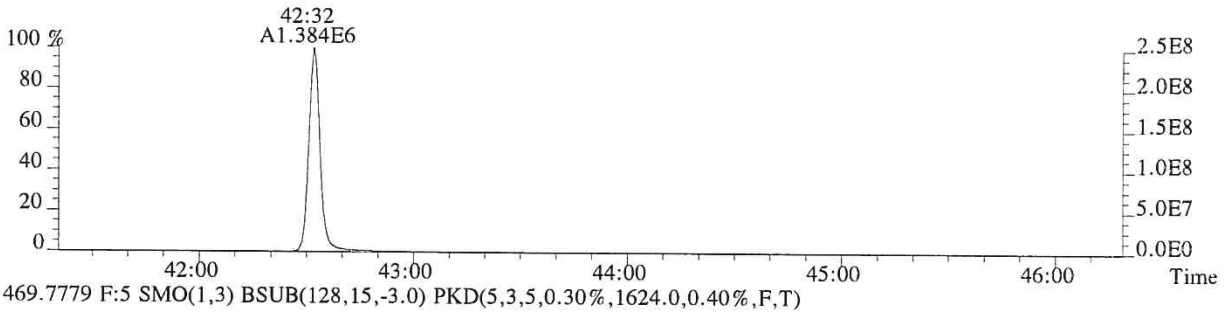


013671

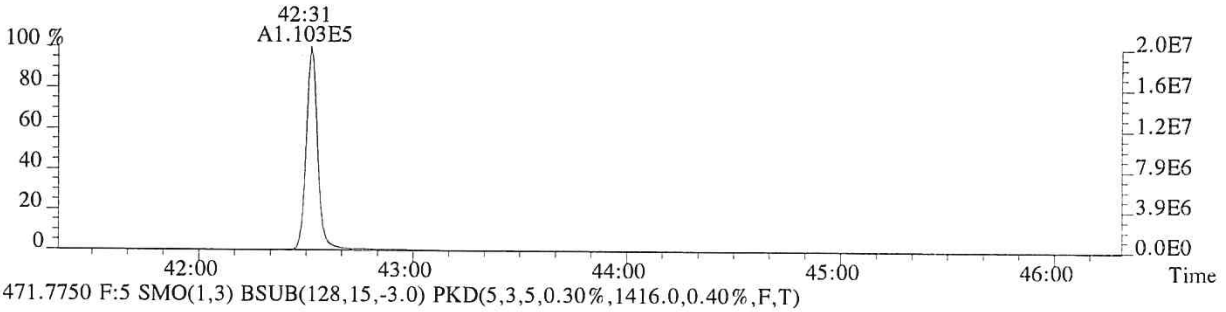
File:P513855 #1-448 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,192.0,0.40%,F,T)



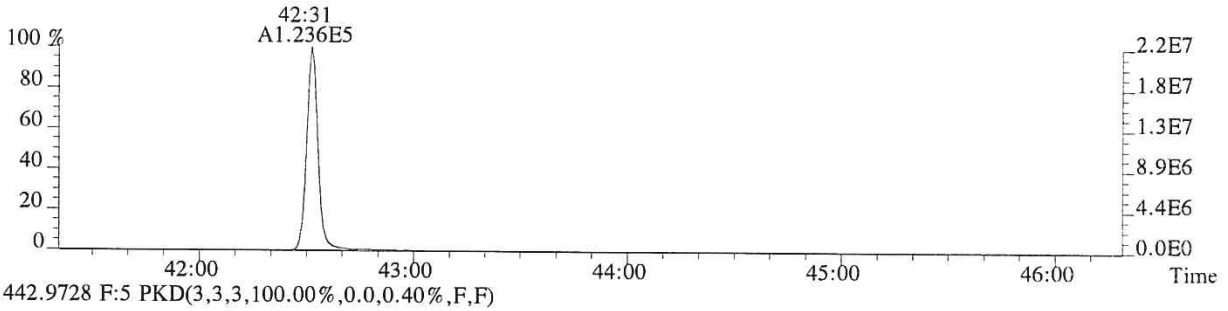
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1768.0,0.40%,F,T)



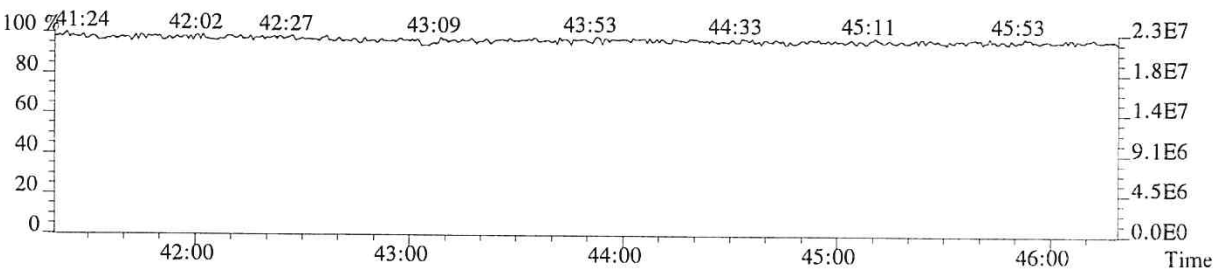
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1624.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1416.0,0.40%,F,T)



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



013672

USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P513857 Analysis Date: 24-JAN-18 Time: 19:21:06

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.76	0.65-0.89	9.9	7.8 - 12.9	-0.8
1,2,3,7,8-PeCDD	M+2/M+4	1.55	1.32-1.78	50	39 - 65	0.9
1,2,3,4,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	50	39 - 64	0.2
1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	50	39 - 64	0.8
1,2,3,7,8,9-HxCDD	M+2/M+4	1.27	1.05-1.43	50	41 - 61	-0.7
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	51	43 - 58	1.6
OCDD	M+2/M+4	0.89	0.76-1.02	101	79 - 126	1.5
2,3,7,8-TCDF	M/M+2	0.71	0.65-0.89	10.2	8.4 - 12.0	2.1
1,2,3,7,8-PeCDF	M+2/M+4	1.51	1.32-1.78	51	41 - 60	2.7
2,3,4,7,8-PeCDF	M+2/M+4	1.52	1.32-1.78	50	41 - 61	0.8
1,2,3,4,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	52	45 - 56	4.0
1,2,3,6,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	50	44 - 57	-0.1
1,2,3,7,8,9-HxCDF	M+2/M+4	1.23	1.05-1.43	51	45 - 56	2.0
2,3,4,6,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	50	44 - 57	0.8
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.00	0.88-1.20	50	45 - 55	0.3
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.00	0.88-1.20	50	43 - 58	0.1
OCDF	M+2/M+4	0.89	0.76-1.02	100	63 - 159	0.0

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

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

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

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

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P513857 Analysis Date: 24-JAN-18 Time: 19:21:06

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	98	82 - 121	-1.7
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	92	62 - 160	-8.5
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	101	85 - 117	1.4
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	103	85 - 118	2.7
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	113	72 - 138	13.3
13C-OCDD	M+2/M+4	0.89	0.76-1.02	253	96 - 415	26.3
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	94	71 - 140	-6.2
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	94	76 - 130	-6.3
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	94	77 - 130	-6.4
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	97	76 - 131	-2.6
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	102	70 - 143	1.7
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	104	74 - 135	3.6
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	105	73 - 137	4.9
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	112	78 - 129	11.6
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.44	0.37-0.51	116	77 - 129	16.1
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				10.1	7.8 - 12.7	0.9

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

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
75080

Run #7 Filename P513857 Samp: 1 Inj: 1 Acquired: 24-JAN-18 19:21:06
Processed: 25-JAN-18 08:41:26 Sample ID: 2ND SOURCE

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	5.152e+03	7.223e+03	0.71	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	3.916e+04	2.586e+04	1.51	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:41	3.607e+04	2.366e+04	1.52	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:16	3.202e+04	2.632e+04	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	3.416e+04	2.839e+04	1.20	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:52	3.150e+04	2.633e+04	1.20	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	2.836e+04	2.314e+04	1.23	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	2.874e+04	2.862e+04	1.00	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	2.352e+04	2.346e+04	1.00	yes	no	1.258
10	Unk	OCDF	42:45	3.688e+04	4.148e+04	0.89	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	3.845e+03	5.032e+03	0.76	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:57	2.377e+04	1.531e+04	1.55	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:59	2.145e+04	1.680e+04	1.28	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	2.240e+04	1.756e+04	1.28	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	2.219e+04	1.741e+04	1.27	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	2.034e+04	1.933e+04	1.05	yes	no	1.025
17	Unk	OCDD	42:31	3.083e+04	3.462e+04	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:46	5.681e+04	7.189e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:47	7.678e+04	4.833e+04	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	7.550e+04	4.814e+04	1.57	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	3.216e+04	6.216e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:22	3.808e+04	7.348e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:51	3.589e+04	6.747e+04	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:36	3.054e+04	5.771e+04	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	2.616e+04	5.845e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	2.287e+04	5.181e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:30	3.654e+04	4.587e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	4.972e+04	3.125e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	4.147e+04	3.207e+04	1.29	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	4.264e+04	3.379e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	3.921e+04	3.703e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	5.445e+04	6.090e+04	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:57	4.052e+04	5.019e+04	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	4.325e+04	3.518e+04	1.23	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	9.276e+03				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
75080

Run #7 Filename P513857 Samp: 1 Inj: 1 Acquired: 24-JAN-18 19:21:06
Processed: 25-JAN-18 08:41:26 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	1.04e+06	1.03e+03	1.0e+03	1.42e+06	2.00e+03	7.1e+02
2	1,2,3,7,8-PeCDF	7.88e+06	8.44e+02	9.3e+03	5.19e+06	1.52e+03	3.4e+03
3	2,3,4,7,8-PeCDF	7.53e+06	8.44e+02	8.9e+03	4.93e+06	1.52e+03	3.2e+03
4	1,2,3,4,7,8-HxCDF	7.21e+06	1.53e+03	4.7e+03	5.89e+06	1.36e+03	4.3e+03
5	1,2,3,6,7,8-HxCDF	7.34e+06	1.53e+03	4.8e+03	6.08e+06	1.36e+03	4.5e+03
6	2,3,4,6,7,8-HxCDF	7.02e+06	1.53e+03	4.6e+03	5.88e+06	1.36e+03	4.3e+03
7	1,2,3,7,8,9-HxCDF	6.10e+06	1.53e+03	4.0e+03	4.95e+06	1.36e+03	3.6e+03
8	1,2,3,4,6,7,8-HpCDF	6.16e+06	5.00e+03	1.2e+03	6.13e+06	6.59e+03	9.3e+02
9	1,2,3,4,7,8,9-HpCDF	4.58e+06	5.00e+03	9.1e+02	4.45e+06	6.59e+03	6.7e+02
10	OCDF	6.54e+06	1.44e+02	4.5e+04	7.12e+06	8.36e+02	8.5e+03
11	2,3,7,8-TCDD	8.13e+05	1.92e+03	4.2e+02	1.05e+06	1.26e+03	8.3e+02
12	1,2,3,7,8-PeCDD	4.95e+06	8.52e+02	5.8e+03	3.18e+06	2.84e+02	1.1e+04
13	1,2,3,4,7,8-HxCDD	4.98e+06	7.64e+02	6.5e+03	3.93e+06	4.12e+02	9.5e+03
14	1,2,3,6,7,8-HxCDD	4.78e+06	7.64e+02	6.3e+03	3.77e+06	4.12e+02	9.2e+03
15	1,2,3,7,8,9-HxCDD	4.67e+06	7.64e+02	6.1e+03	3.64e+06	4.12e+02	8.8e+03
16	1,2,3,4,6,7,8-HpCDD	4.20e+06	1.17e+03	3.6e+03	3.99e+06	7.20e+01	5.5e+04
17	OCDD	5.25e+06	1.60e+02	3.3e+04	5.90e+06	1.22e+03	4.8e+03
18	13C-2,3,7,8-TCDF	1.11e+07	9.00e+03	1.2e+03	1.40e+07	3.76e+03	3.7e+03
19	13C-1,2,3,7,8-PeCDF	1.52e+07	6.36e+02	2.4e+04	9.62e+06	1.34e+03	7.2e+03
20	13C-2,3,4,7,8-PeCDF	1.56e+07	6.36e+02	2.5e+04	9.99e+06	1.34e+03	7.5e+03
21	13C-1,2,3,4,7,8-HxCDF	7.22e+06	7.60e+02	9.5e+03	1.40e+07	1.60e+03	8.8e+03
22	13C-1,2,3,6,7,8-HxCDF	8.16e+06	7.60e+02	1.1e+04	1.57e+07	1.60e+03	9.8e+03
23	13C-2,3,4,6,7,8-HxCDF	7.92e+06	7.60e+02	1.0e+04	1.49e+07	1.60e+03	9.3e+03
24	13C-1,2,3,7,8,9-HxCDF	6.41e+06	7.60e+02	8.4e+03	1.22e+07	1.60e+03	7.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	5.67e+06	2.84e+03	2.0e+03	1.26e+07	6.70e+03	1.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.44e+06	2.84e+03	1.6e+03	1.00e+07	6.70e+03	1.5e+03
27	13C-2,3,7,8-TCDD	7.51e+06	5.77e+03	1.3e+03	9.42e+06	2.25e+03	4.2e+03
28	13C-1,2,3,7,8-PeCDD	1.01e+07	1.06e+03	9.5e+03	6.31e+06	5.88e+02	1.1e+04
29	13C-1,2,3,4,7,8-HxCDD	9.57e+06	2.66e+03	3.6e+03	7.40e+06	1.57e+03	4.7e+03
30	13C-1,2,3,6,7,8-HxCDD	9.03e+06	2.66e+03	3.4e+03	7.14e+06	1.57e+03	4.6e+03
31	13C-1,2,3,4,6,7,8-HpCDD	7.97e+06	1.17e+03	6.8e+03	7.51e+06	7.00e+02	1.1e+04
32	13C-OCDD	9.30e+06	2.60e+02	3.6e+04	1.03e+07	4.00e+02	2.6e+04
33	13C-1,2,3,4-TCDD	8.25e+06	5.77e+03	1.4e+03	1.02e+07	2.25e+03	4.5e+03
34	13C-1,2,3,7,8,9-HxCDD	9.23e+06	2.66e+03	3.5e+03	7.29e+06	1.57e+03	4.6e+03
35	37Cl-2,3,7,8-TCDD	1.94e+06	1.18e+03	1.6e+03			

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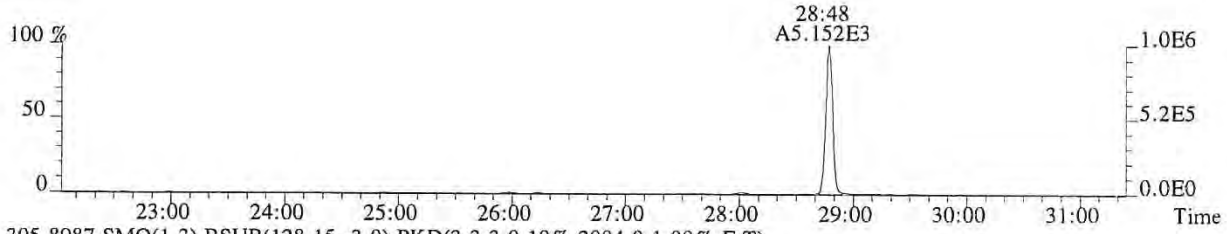
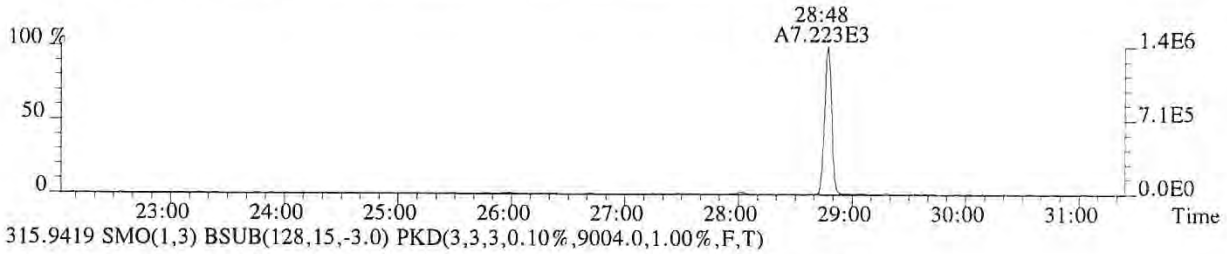
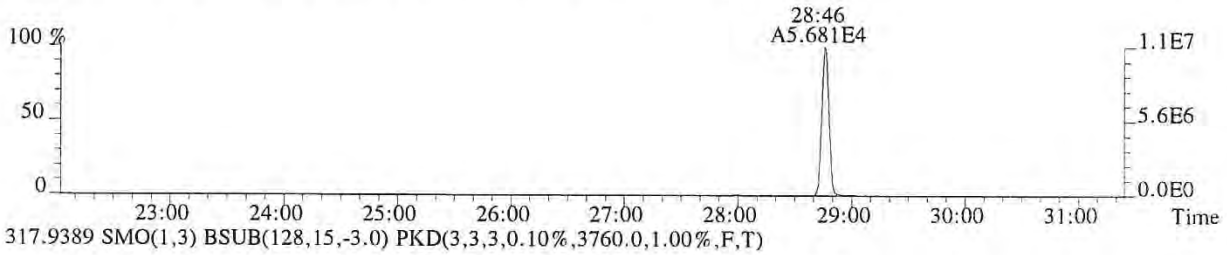
File:P513857 #1-665 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



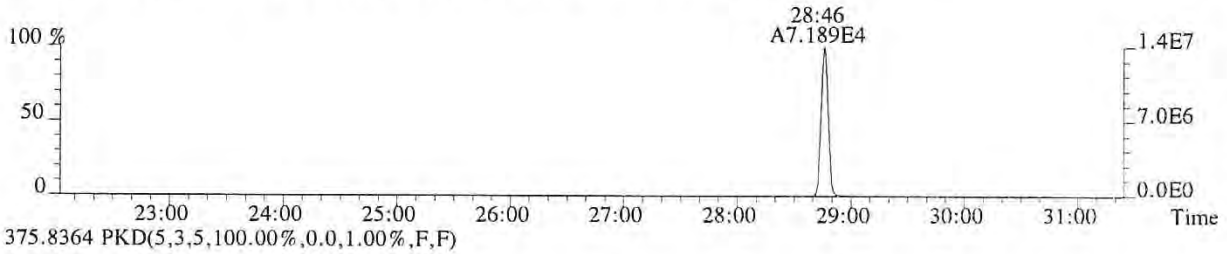
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2004.0,1.00%,F,T)



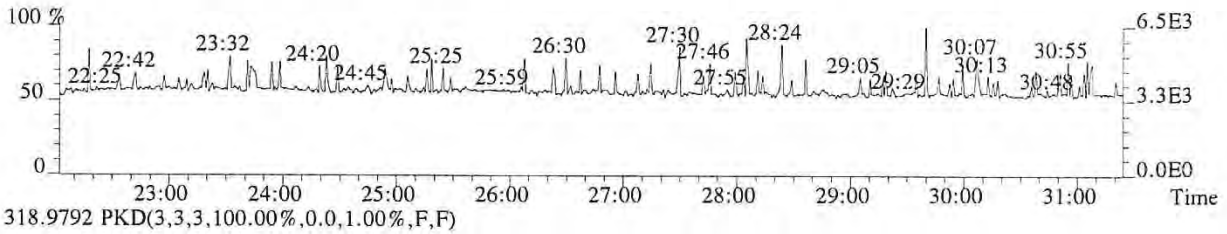
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9004.0,1.00%,F,T)



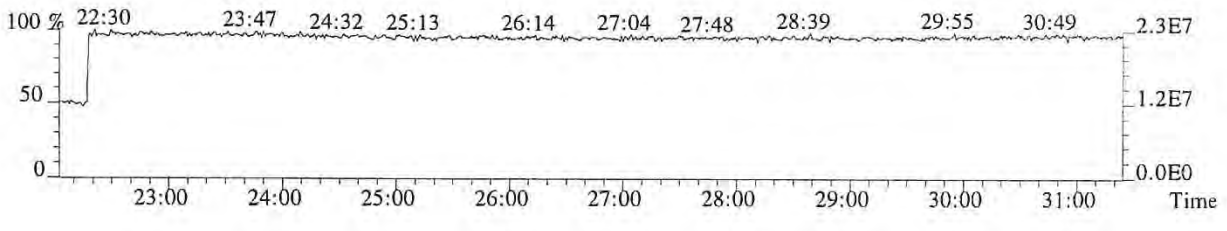
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3760.0,1.00%,F,T)



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

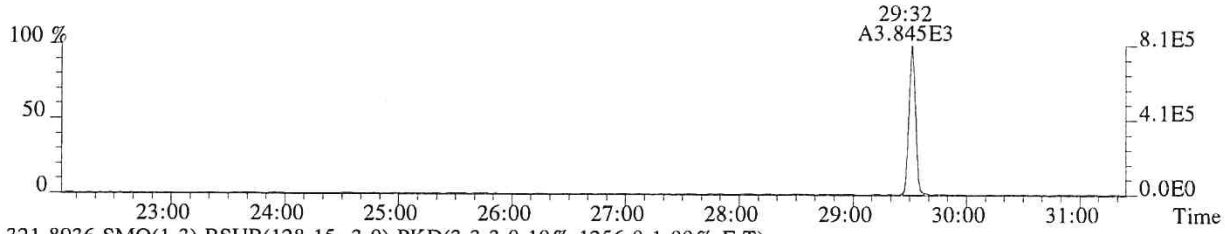


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

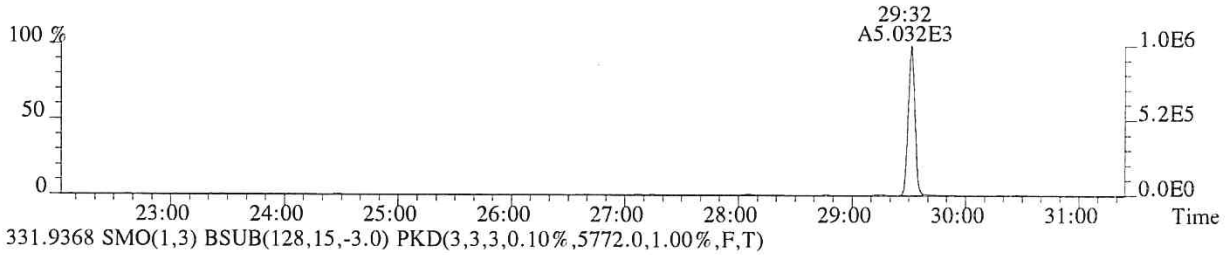


013677

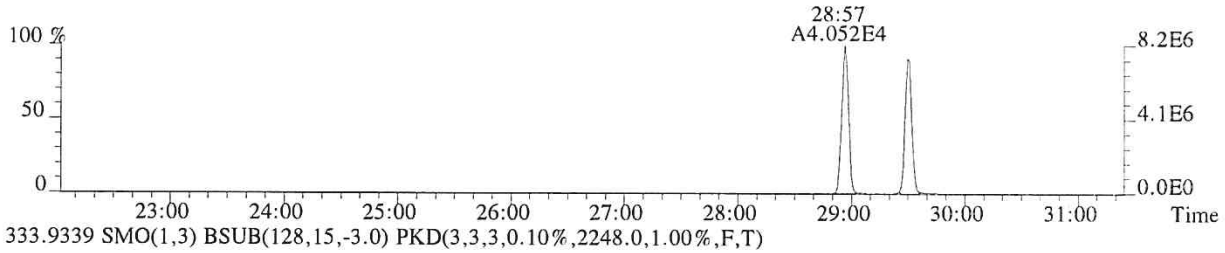
File:P513857 #1-665 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1924.0,1.00%,F,T)



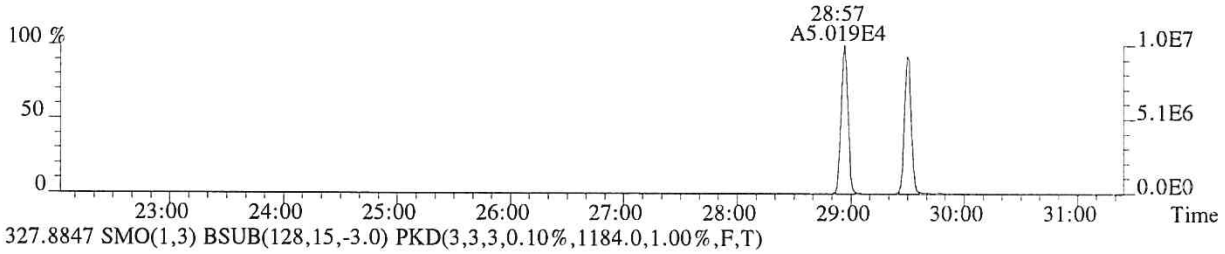
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1256.0,1.00%,F,T)



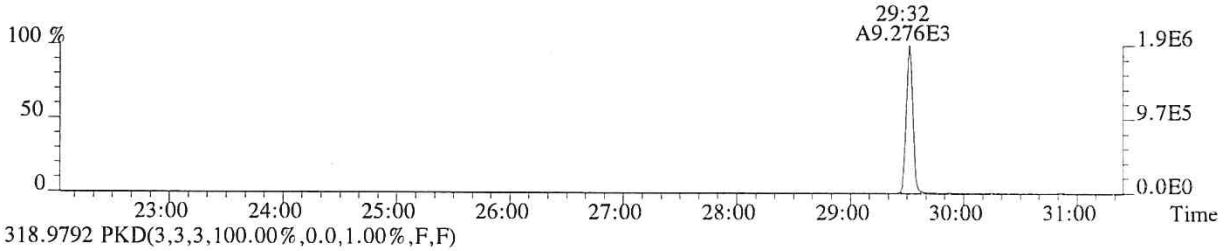
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5772.0,1.00%,F,T)



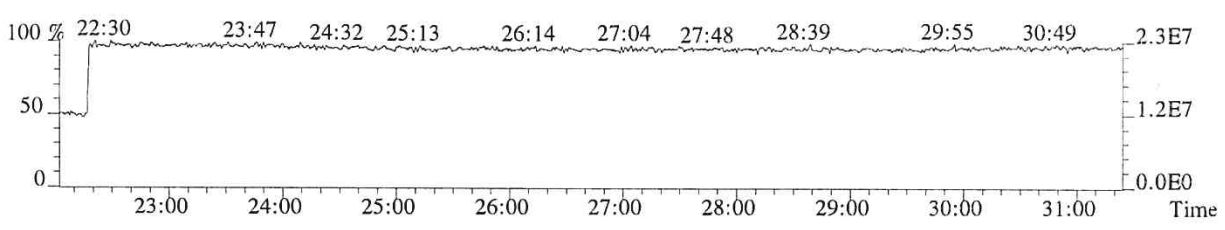
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2248.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1184.0,1.00%,F,T)

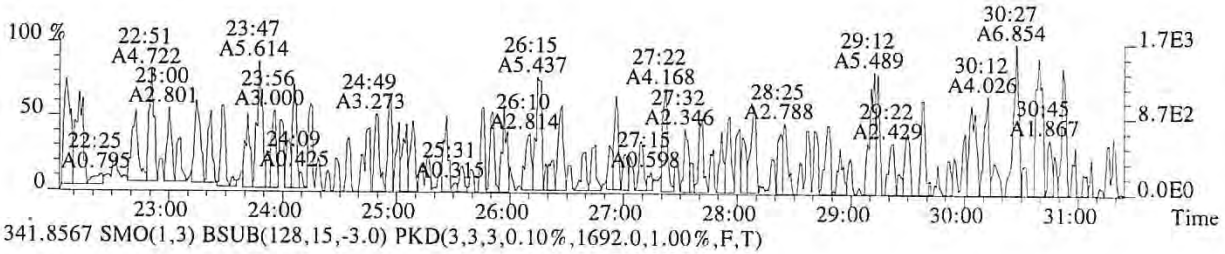


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

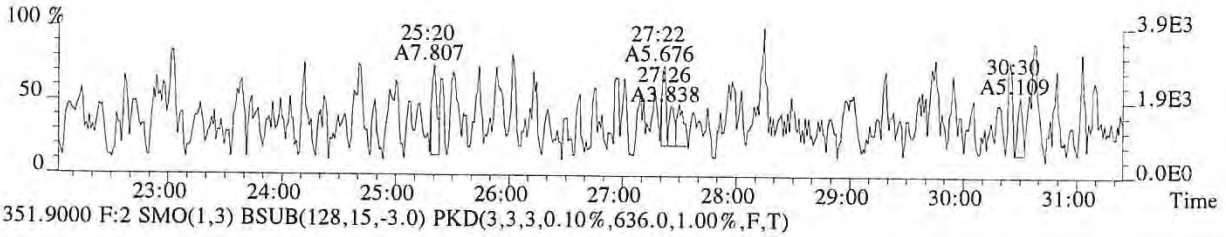


013678

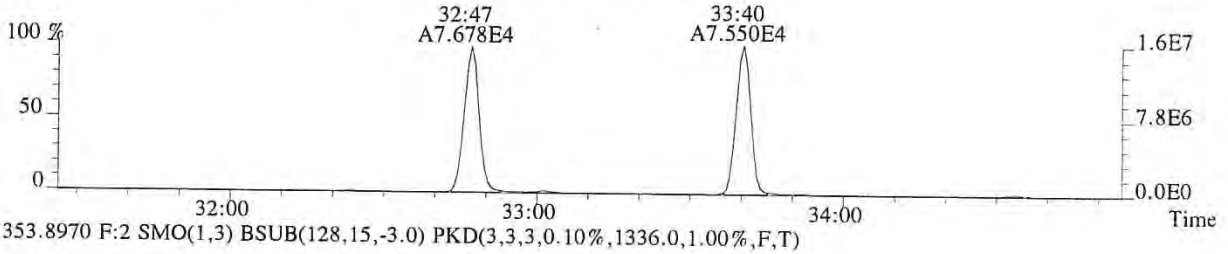
File:P513857 #1-665 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,188.0,1.00%,F,T)



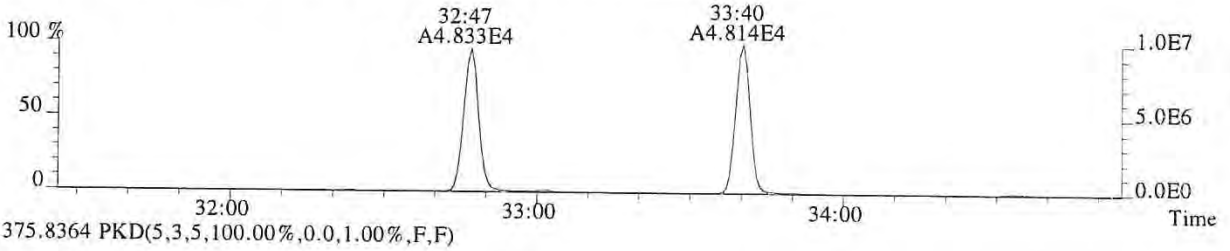
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1692.0,1.00%,F,T)



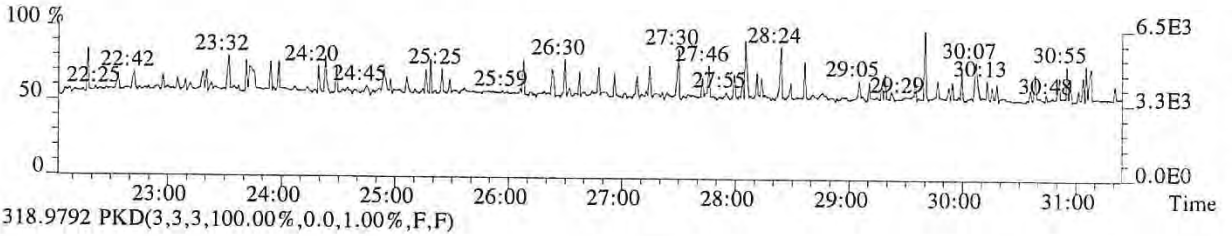
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)



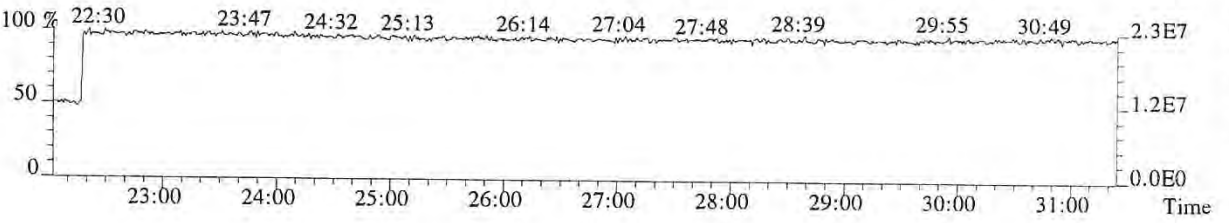
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1336.0,1.00%,F,T)



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

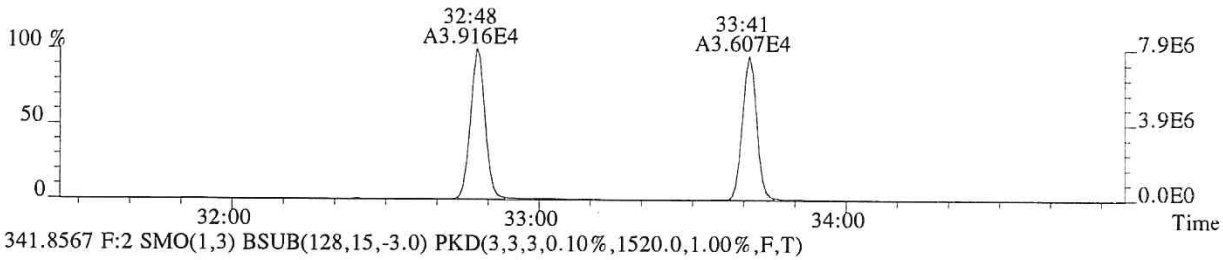


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

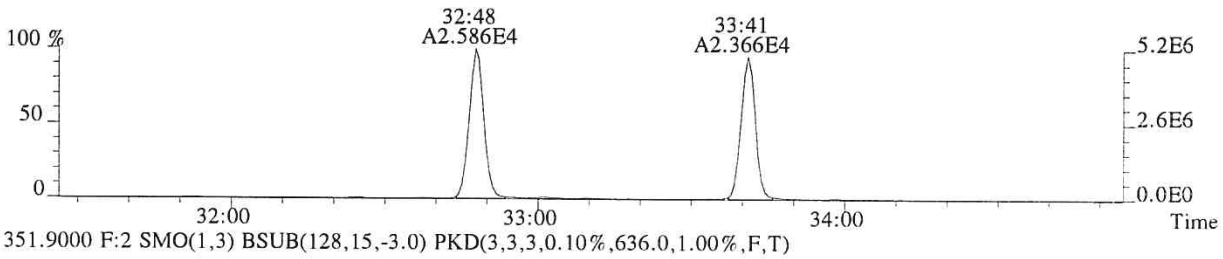


013679

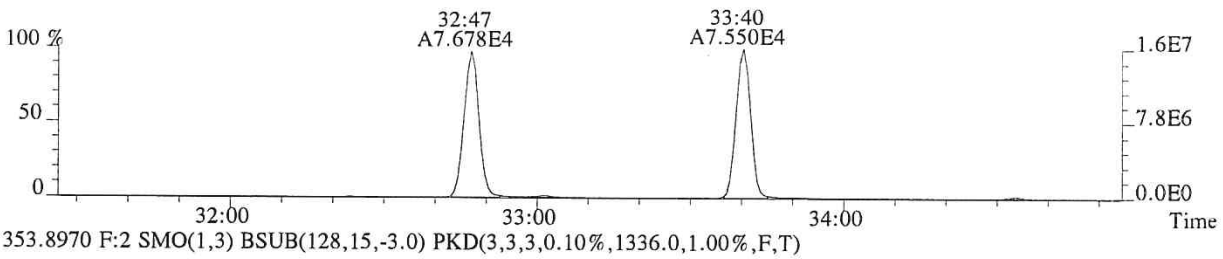
File:P513857 #1-313 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,844.0,1.00%,F,T)



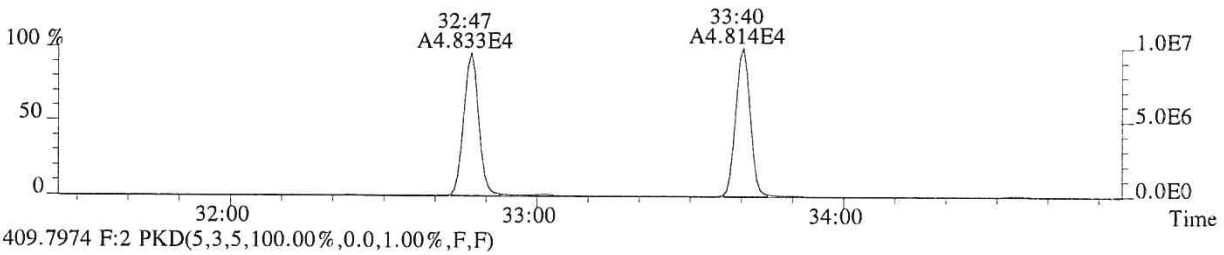
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1520.0,1.00%,F,T)



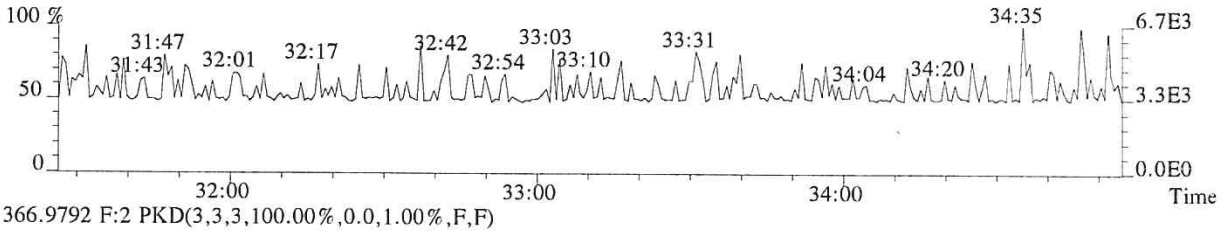
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)



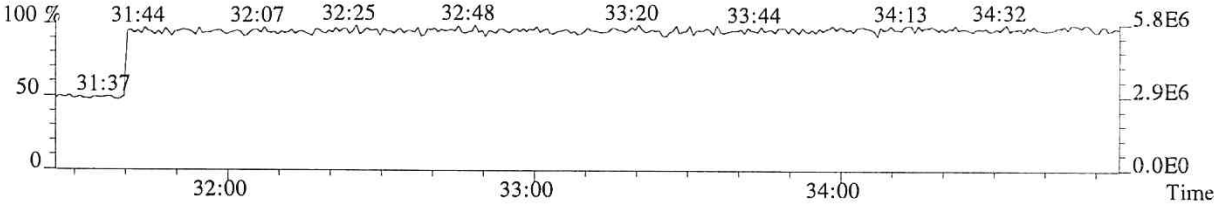
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1336.0,1.00%,F,T)



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

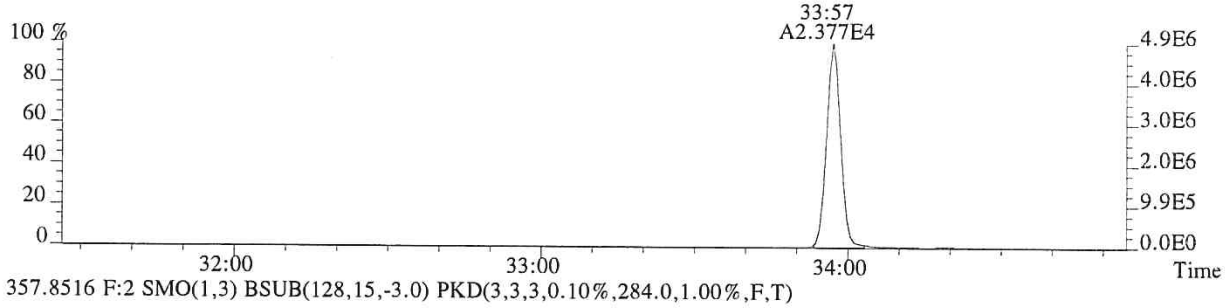


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

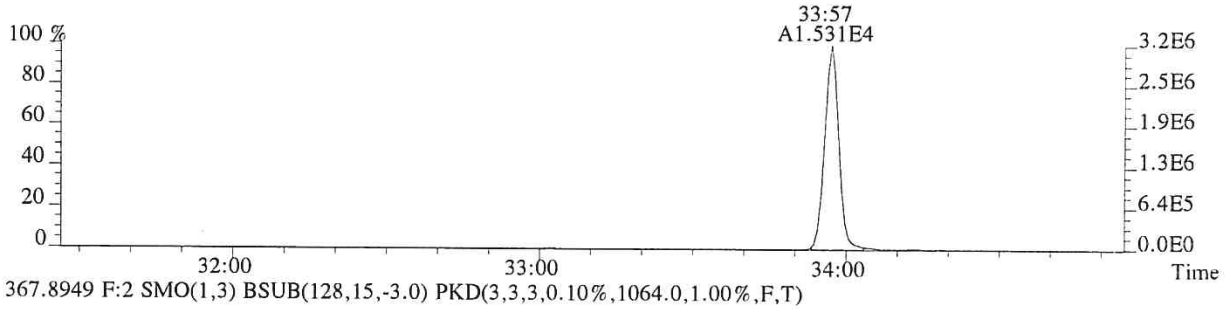


013680

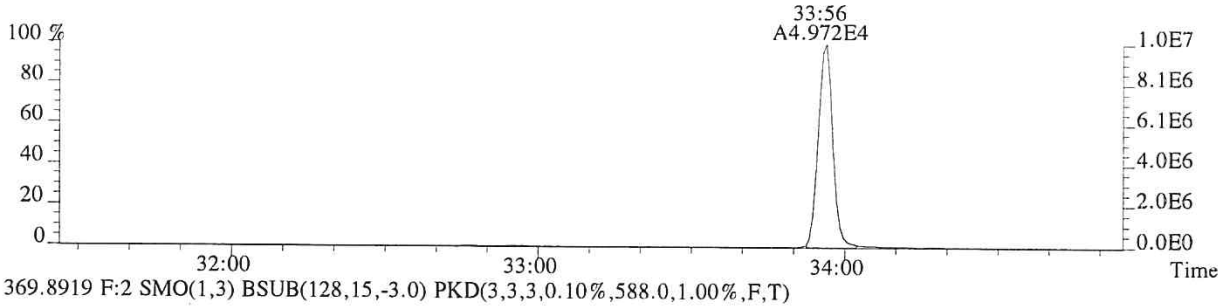
File:P513857 #1-313 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,852.0,1.00%,F,T)



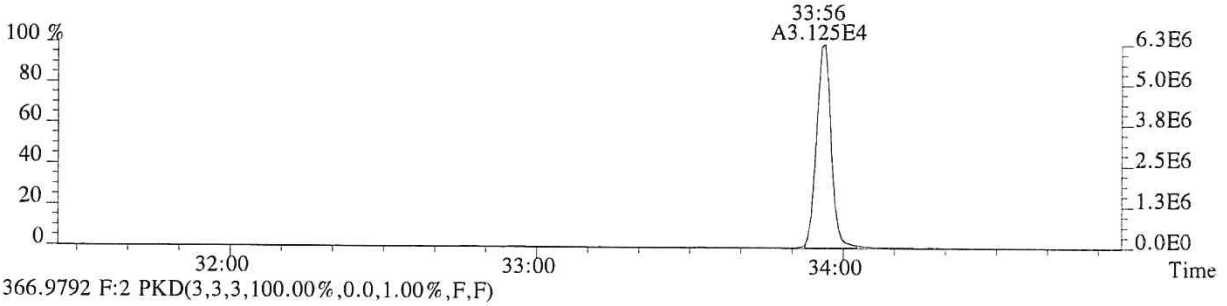
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,284.0,1.00%,F,T)



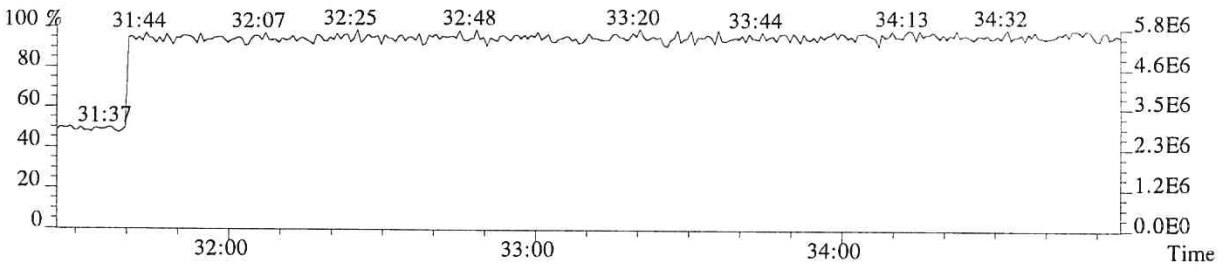
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1064.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,588.0,1.00%,F,T)

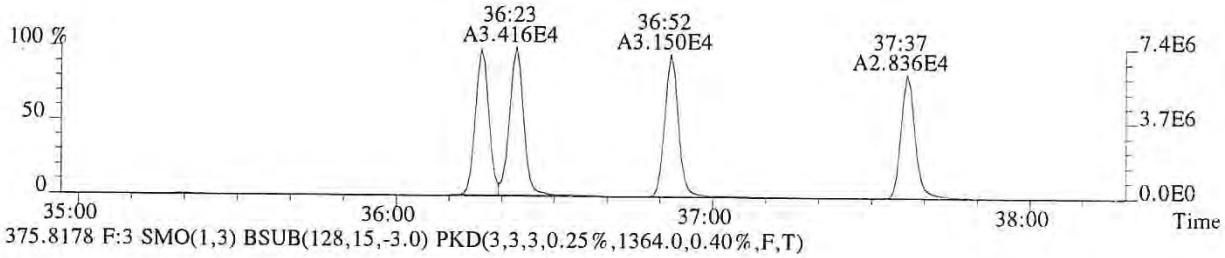


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

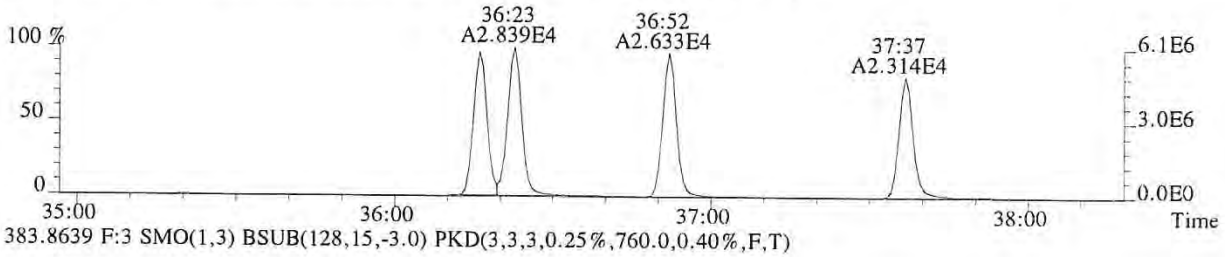


013681

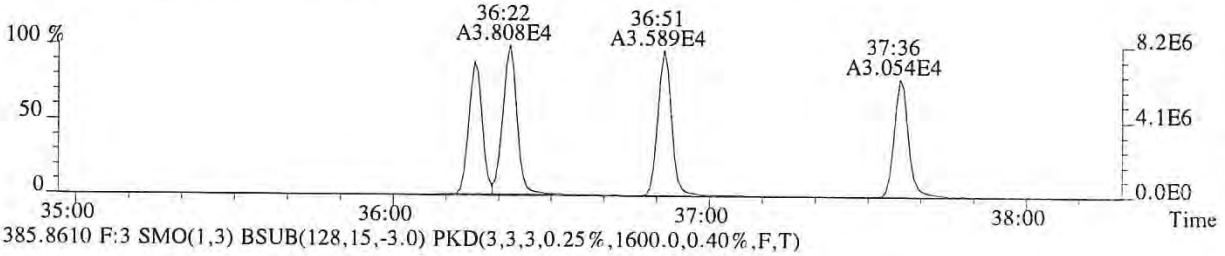
File:P513857 #1-303 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1528.0,0.40%,F,T)



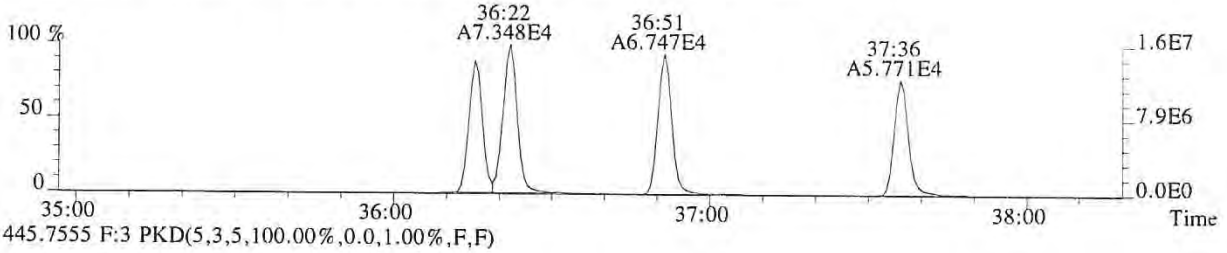
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1364.0,0.40%,F,T)



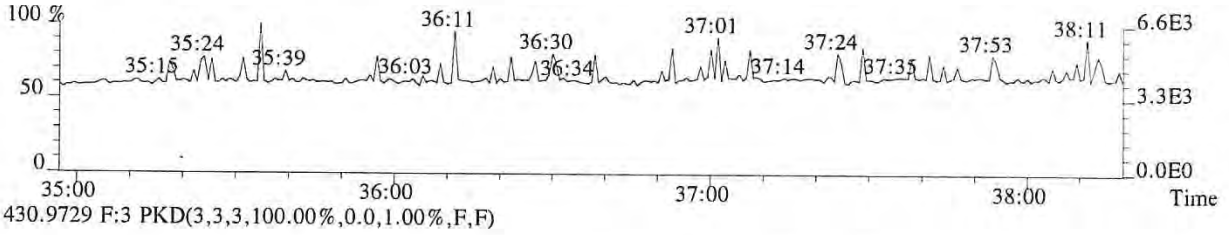
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,760.0,0.40%,F,T)



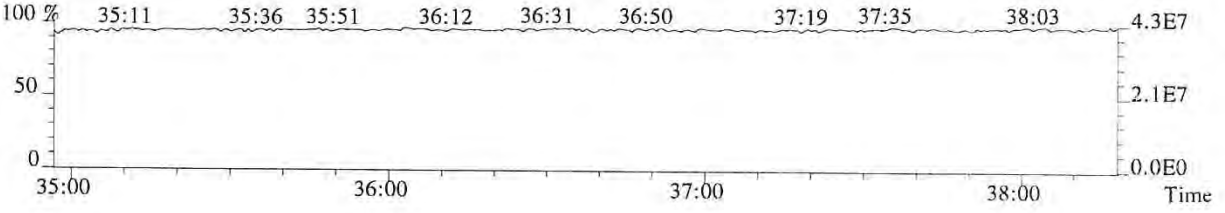
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1600.0,0.40%,F,T)



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

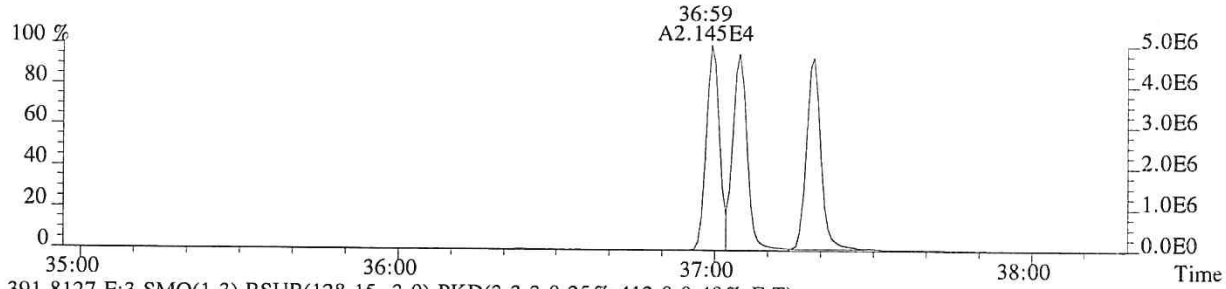


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

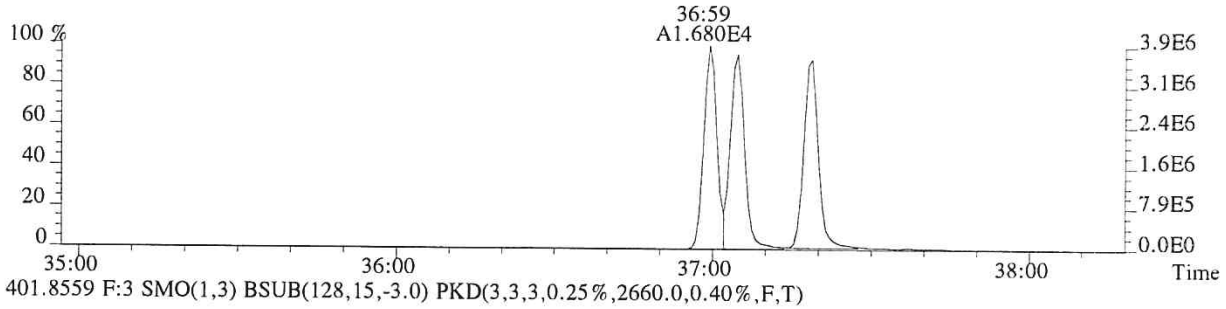


013682

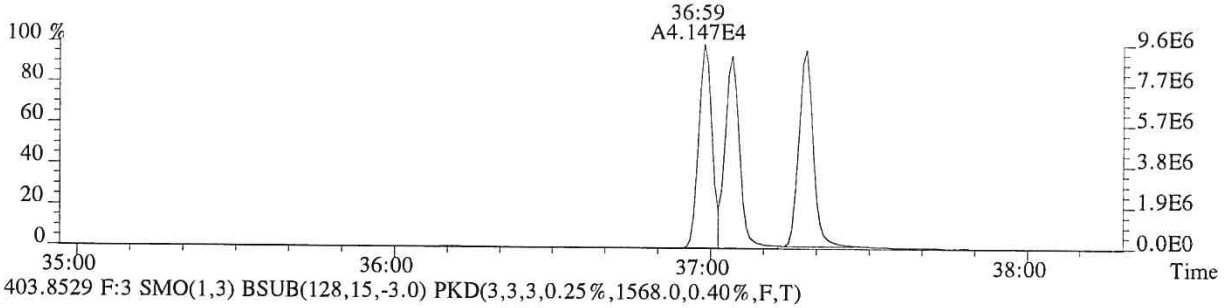
File:P513857 #1-303 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,764.0,0.40%,F,T)



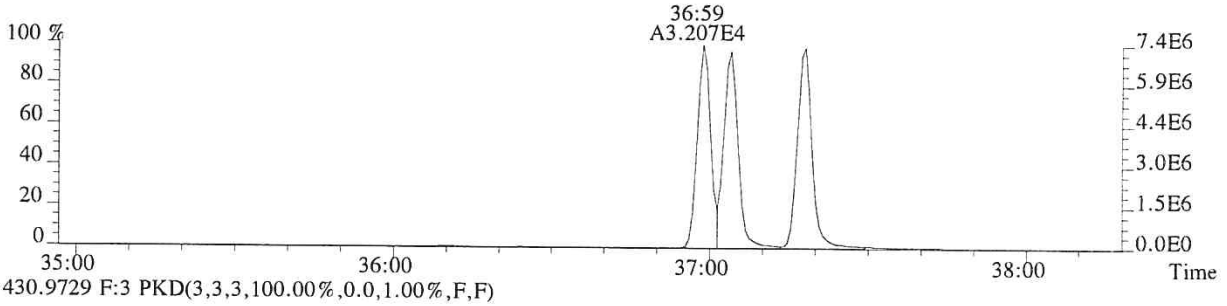
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,412.0,0.40%,F,T)



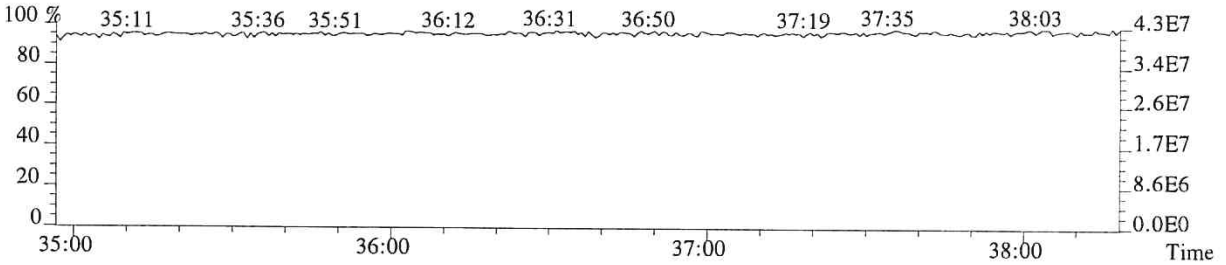
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2660.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1568.0,0.40%,F,T)

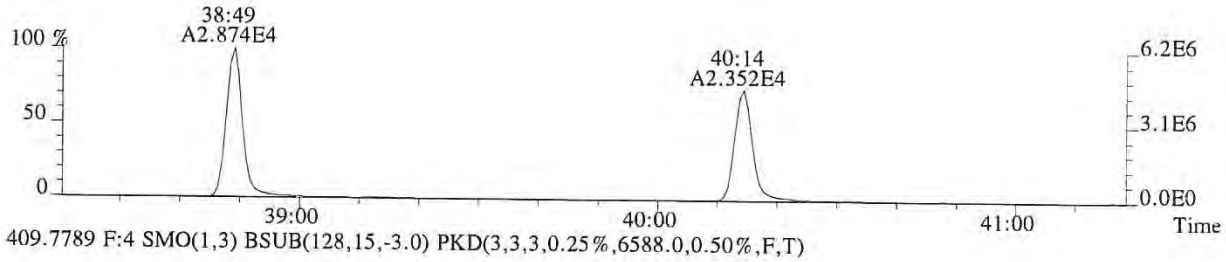


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

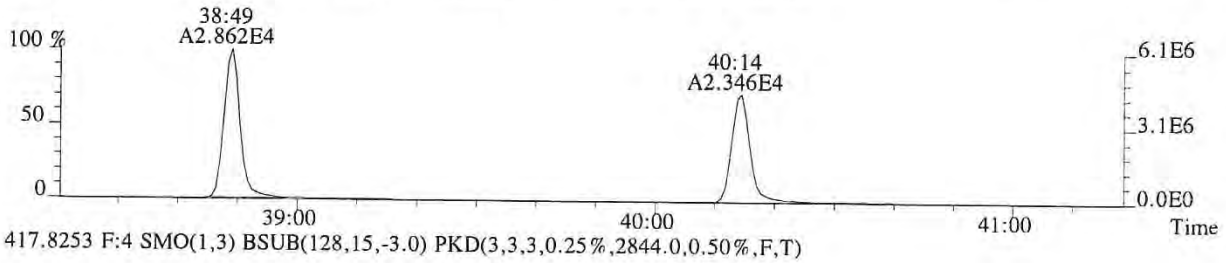


013683

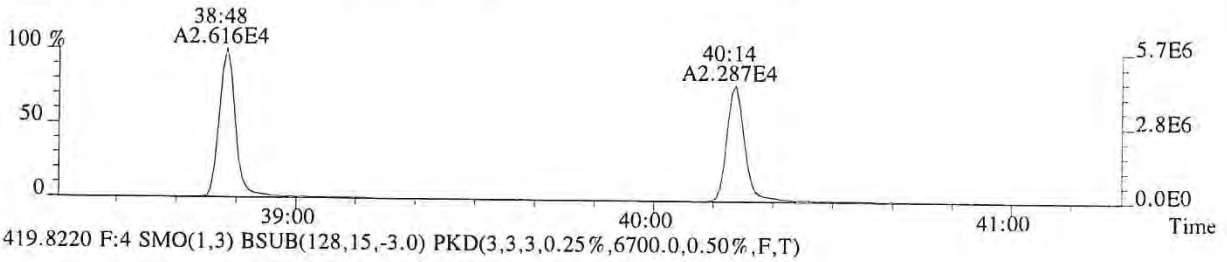
File:P513857 #1-268 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:75080
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5004.0,0.50%,F,T)



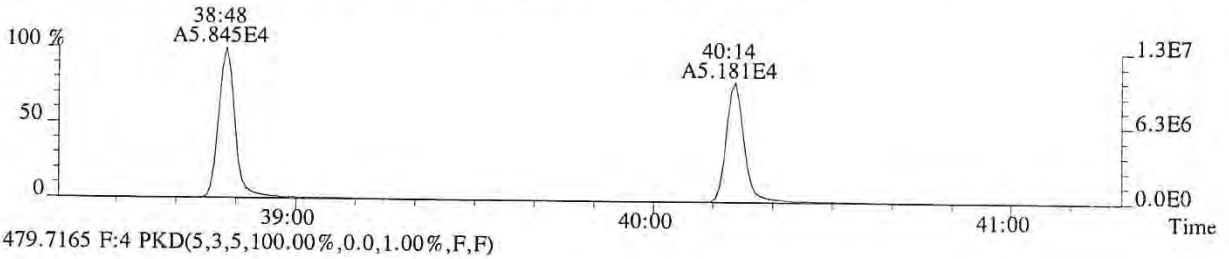
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6588.0,0.50%,F,T)



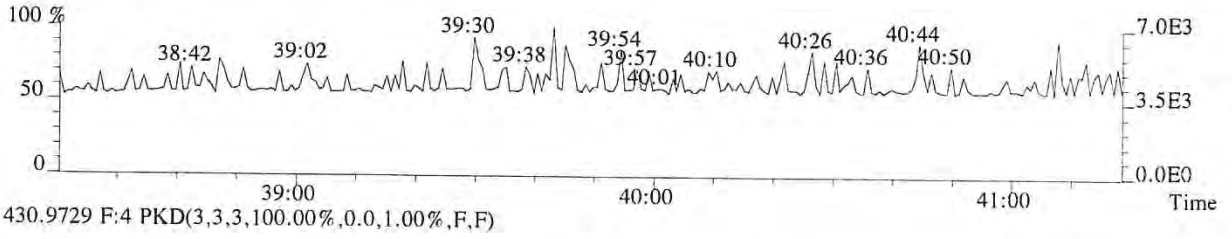
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2844.0,0.50%,F,T)



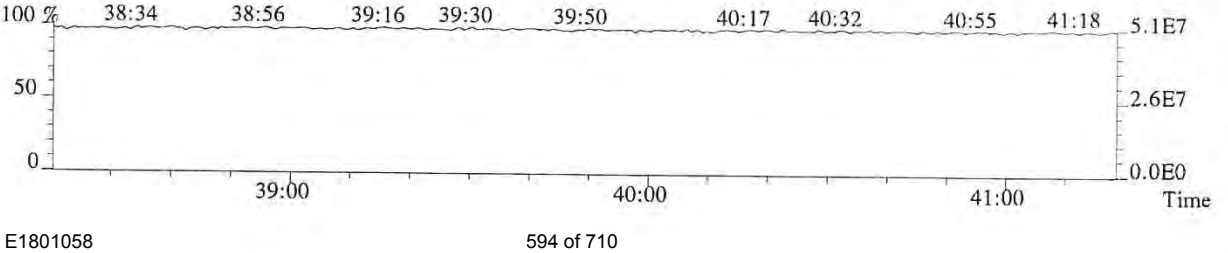
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6700.0,0.50%,F,T)



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

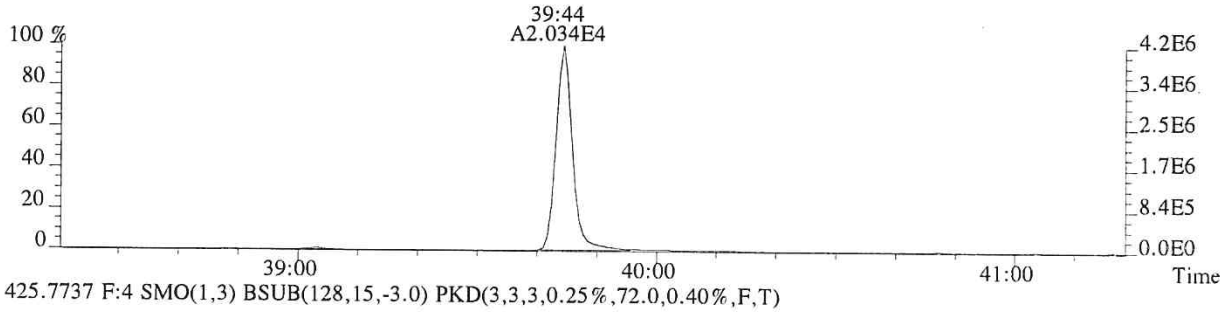


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

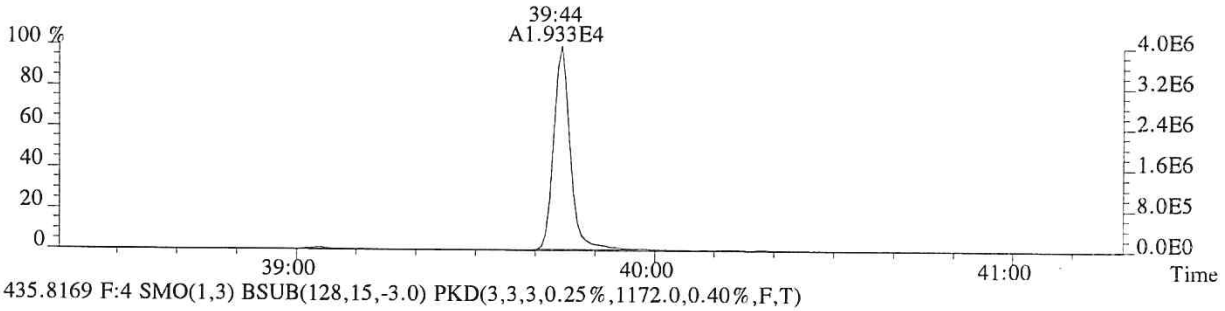


013684

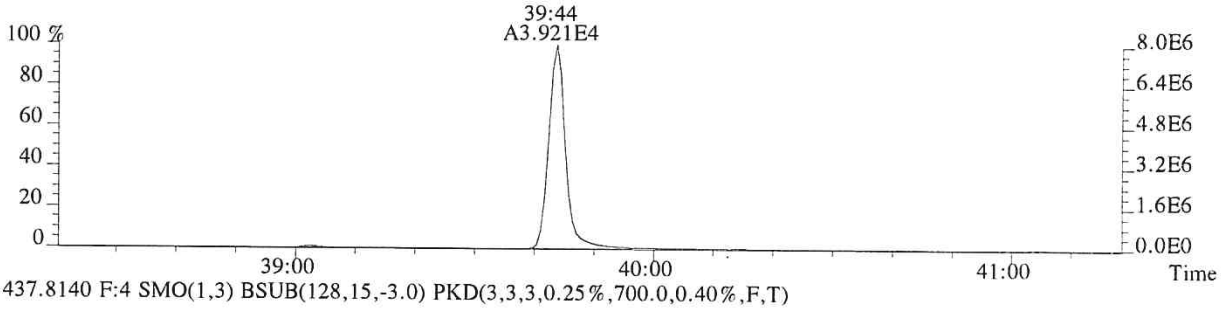
File:P513857 #1-268 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1168.0,0.40%,F,T)



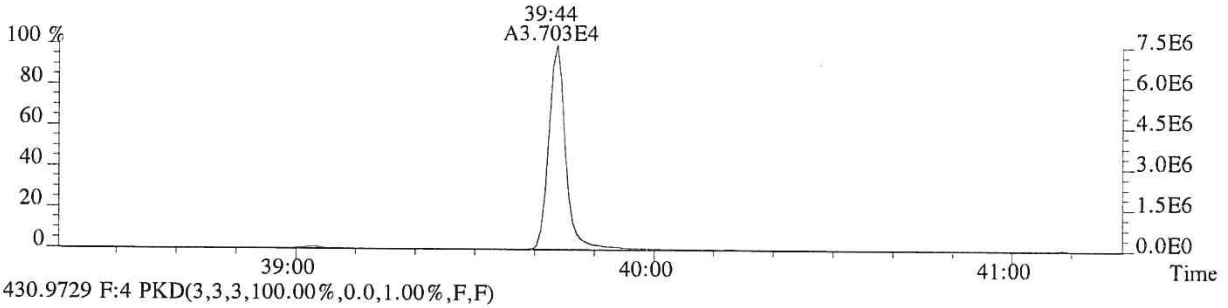
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,72.0,0.40%,F,T)



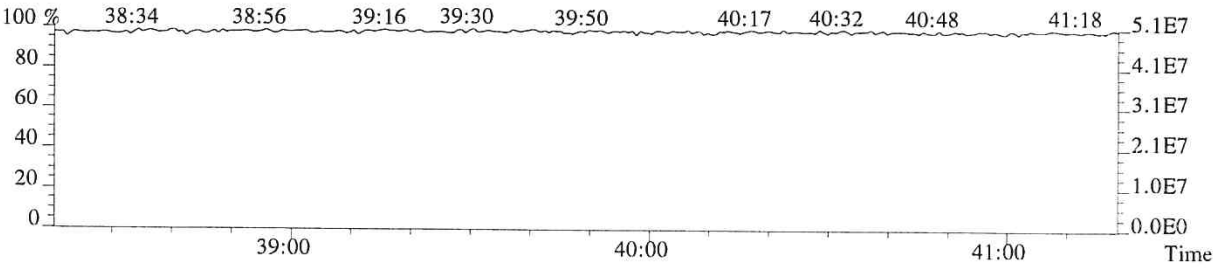
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1172.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,700.0,0.40%,F,T)

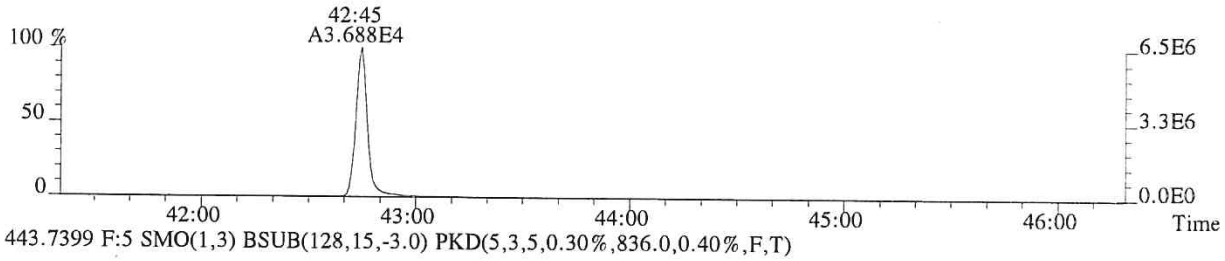


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

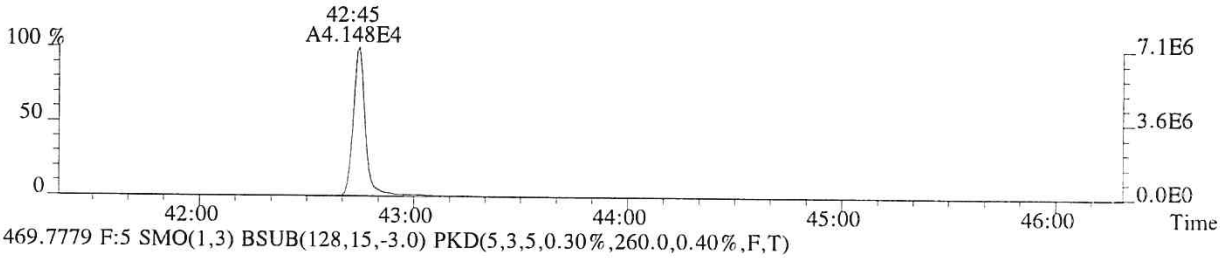


013685

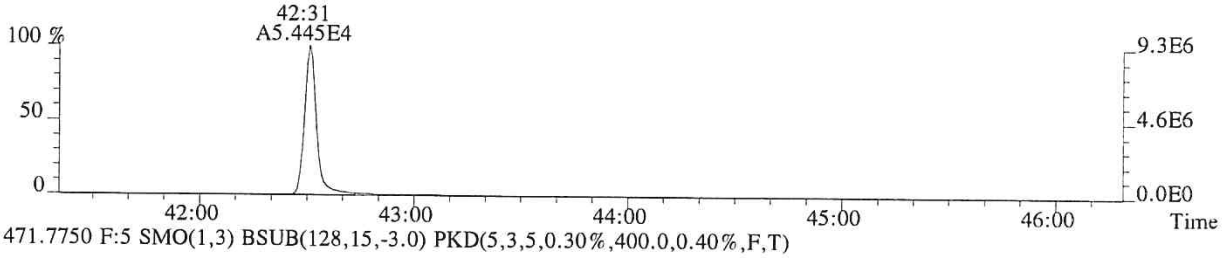
File:P513857 #1-448 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,144.0,0.40%,F,T)



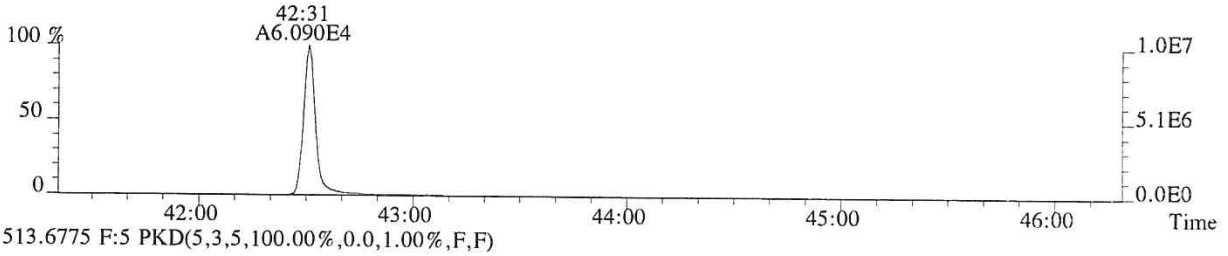
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,836.0,0.40%,F,T)



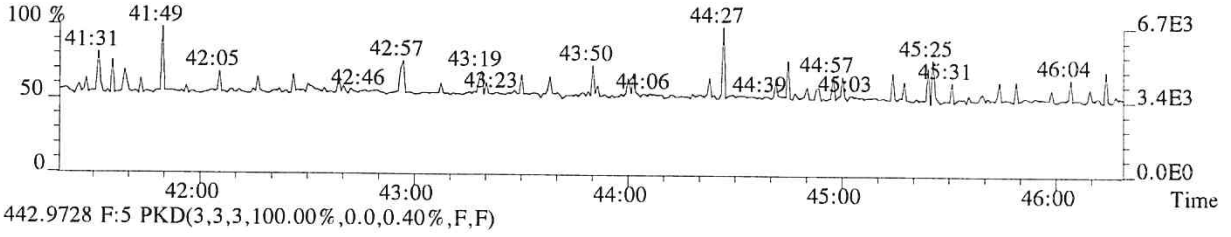
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,260.0,0.40%,F,T)



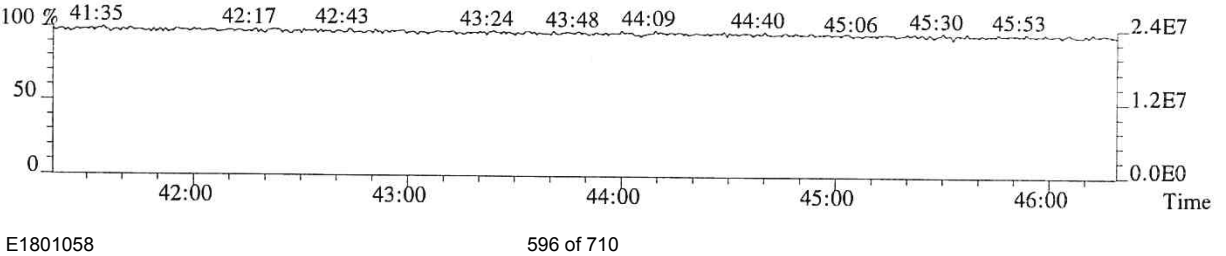
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,400.0,0.40%,F,T)



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

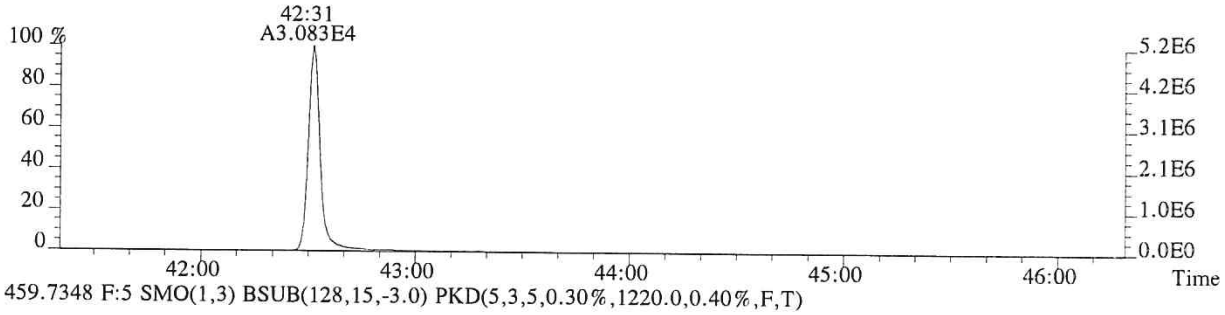


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

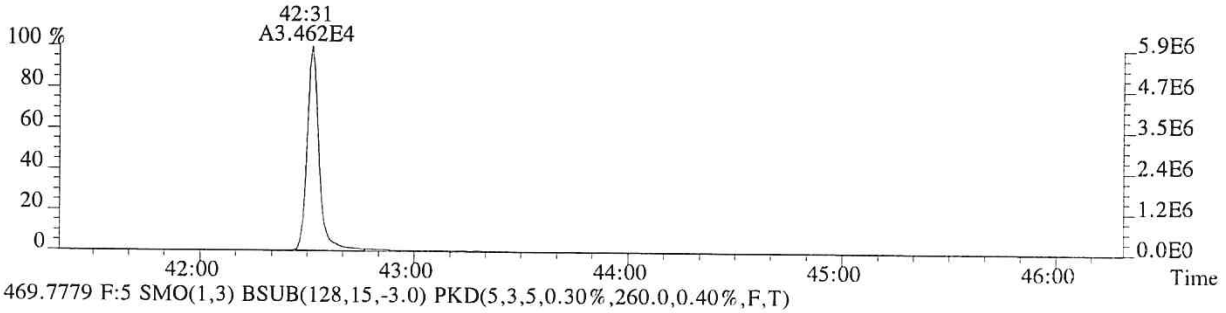


013686

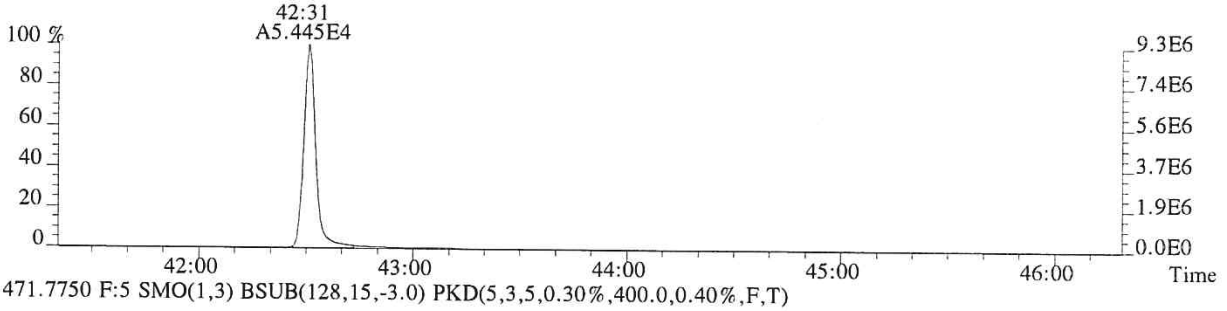
File:P513857 #1-448 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,160.0,0.40%,F,T)



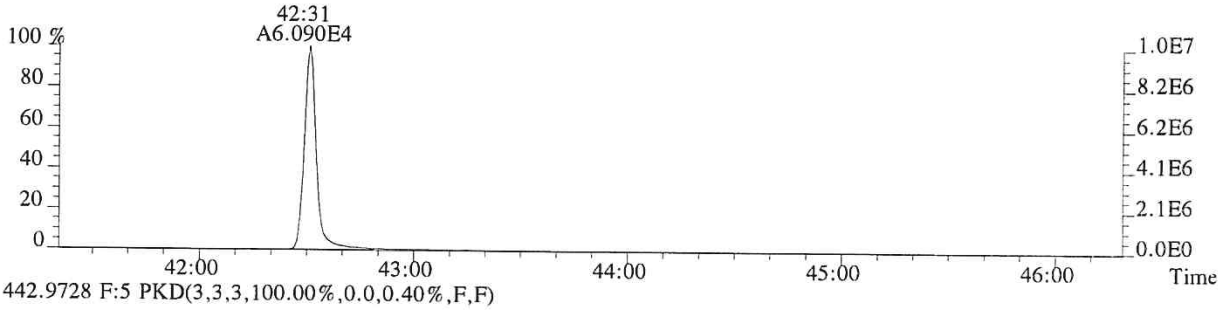
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1220.0,0.40%,F,T)



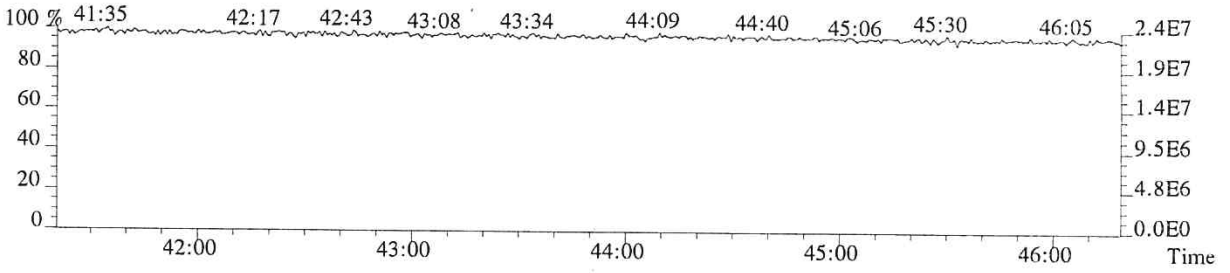
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,260.0,0.40%,F,T)



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



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



Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290		Process Date: 09/26/2018				
Instrument Name: E-HRMS-08		Calibration File Name: P6-18092516131				
Processor Name: Gisela Cruz		Reviewer Name: Loan Luong				
Supervisor Signature: Kristin Neir						
Description		**Yes**	**No**	**NA**	**NR**	**ER#**
Analytical Sequence						
Does the analytical sequence summary accurately reflect the instrument run log, including ICV?		√				
Was a Mass Resolution Check performed at the beginning and end of the 12-hour sequence?		√				
Were all calibration standards and the ICV analyzed within the same 12-hour sequence?		√				
Were all calibration standards analyzed only once?		√				
Was the ICV analyzed after the ICAL, before analyzing samples?		√				
Mass Resolution Check						
Are beginning and ending resolution checks provided and legible?		√				
Were all target masses >10,000 resolving power at the beginning of the sequence?		√				
Were all target masses >10,000 resolving power at the end of the sequence?		√				
For PCB analysis, were masses at the low and high end of each function mass range >8,000?				√		
Where automatic printout of the mass resolution were not >10,000, was the resolution inspected by a trained analyst, including manual calculation of the resolution, if warranted?				√		
Window Define/209						
Is the window defining mix summary present, and accompanied by SICPs/Chromatograms for the WDM?		√				
Was the WDM/Column Performance/209 solution analyzed prior to the analysis of the calibration standards?		√				
Was 2,3,7,8-TCDD peak valley <25% to any other TCDD?		√				
Were all first and last eluters adequately resolved in each function?		√				
If first and last eluters were not resolved, was corrective action performed and documented, followed by a reanalysis of the WDM?				√		
Was the retention time of PCB 209 >55 min?				√		
Were the following congeners uniquely resolved (valley height <40% of the shortest peak)? PCB-34 and PCB-23 PCB-187 and PCB-182				√		
Did PCB 156/157 co-elute within 2 seconds at peak maximum?				√		
Calibration Standards						
Were there at least 5 calibration standards analyzed?		√				
If not all calibration standards were used, were the omitted standards either the lowest or highest calibration standard?				√		
Are all sample response summaries, S/N height summaries, and SICPs included (and legible) for the entire sequence?		√				

Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290		Process Date: 09/26/2018				
Instrument Name: E-HRMS-08		Calibration File Name: P6-180925161 3I				
Processor Name: Gisela Cruz		Reviewer Name: Loan Luong				
Supervisor Signature: Kristin Neir		Yes	No	NA	NR	ER#
Description						
Did each calibration point meet method criteria for Ion Abundance Ratio for all analytes and labeled standards?		√				
Did each calibration point meet method criteria for signal-to-noise ratios (S/N)?		√				
Were area counts for the highest calibration standard below levels of saturation?		√				
Were manual integrations technically justified to correct for poor software integration?				√		
Response Factors						
Is the ICAL Response Factor Summary present, including RR/RF values for each native/labeled analyte at each level of calibration?		√				
Were all calibration standards used in determining response factors?		√				
Were relative response factors (RR) for each native analyte calculated at each calibration point?		√				
Did the RSD for RRFs for each native analyte meet method criteria?		√				
Were response factors (RF) for each native analyte not having a corresponding labeled compound calculated at each calibration point?		√				
Were RFs for each labeled compound calculated for each calibration point?		√				
Did the RSD for RF for each labeled compound meet method criteria?		√				
Initial Calibration Verification						
Is the calibration verification present, including form 4A/B reflecting results for the ICV (Conc. or %D)		√				
Did all analytes meet method criteria for the ICV.		√				

Laboratory Review Checklist: Initial Calibration			
Method: 1613/8290		Process Date: 09/26/2018	
Instrument Name: E-HRMS-08		Calibration File Name: P6-180925161 3I	
Processor Name: Gisela Cruz		Reviewer Name: Loan Luong	
ER#[5]	**Description**		

NA = Not Applicable;
NR = Not Reviewed;
R# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: TX01411 Episode No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm) Instrument ID: E-HRMS-08

Init. Calib. Date: 09/25/18

Init. Calib.Times: 12:13

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, SPIKES AND DUPLICATES IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
192977	WINDOW DEFINE	P614680	25-SEP-18	12:13:01
76554	CS0.5	P614682	25-SEP-18	14:18:27
82614	CS1	P614683	25-SEP-18	15:08:49
193434	CS2	P614684	25-SEP-18	15:59:37
76557	CS3	P614685	25-SEP-18	16:52:47
82167	CS4	P614686	25-SEP-18	17:41:03
185657	CS5	P614687	25-SEP-18	18:30:08
188969	2ND SOURCE	P614690	25-SEP-18	20:57:19

Sample List Report **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS08.PRO\SampleDB\20180925A.SPL
Last Modified: Wednesday, September 26, 2018 06:14:12 Central Daylight Time
Printed: Wednesday, September 26, 2018 06:14:14 Central Daylight Time

Page Position (1, 1)

OPUS4: P6-180925161 3I
P614690res

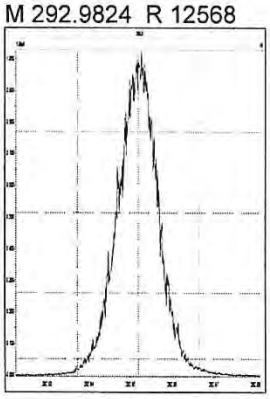
	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	9/25/18	12:13	P614680	192977	WINDOW DEFINE	EPA1613_ALS	Dioxin_ALS	Tray1:1	LG	HRMScheck 12:08
2		13:01	P614681	192807	CS3	EPA1613_ALS	Dioxin_ALS	Tray1:2		
3		14:18	P614682	76554	CS0.5	EPA1613_ALS	Dioxin_ALS	Tray1:3		
4		15:08	P614683	82614	CS1	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		15:59	P614684	193434	CS2	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		16:52	P614685	76557	CS3	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		17:41	P614686	82167	CS4	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		18:30	P614687	185657	CS5	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		19:19	P614688	NONANE	NONANE	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		20:08	P614689	188969	2ND SOURCE	EPA1613_ALS	Dioxin_ALS	Tray1:10		Do not use
11		20:57	P614690	188969	2ND SOURCE	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		21:52	P614691	NONANE	NONANE	EPA1613_ALS	Dioxin_ALS	Tray1:12		HRMScheck 22:51
13	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:13	---	---
14	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:14	---	---
15	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:15	---	---
16	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:16	---	---
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:17	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:18	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

LG 09/26/18

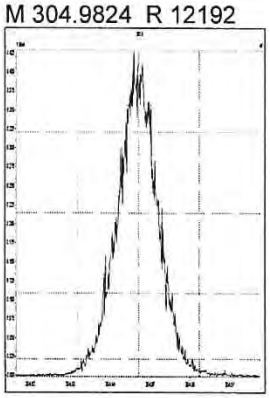
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Tuesday, September 25, 2018 12:08:26 Central Daylight Time

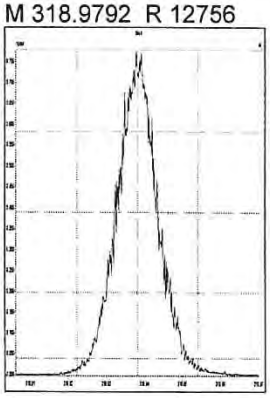
M 292.9824 R 12568



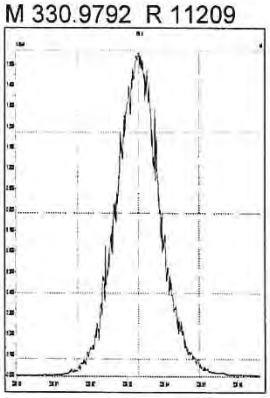
M 304.9824 R 12192



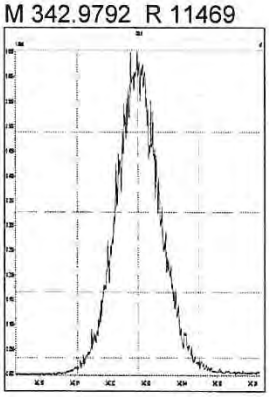
M 318.9792 R 12756



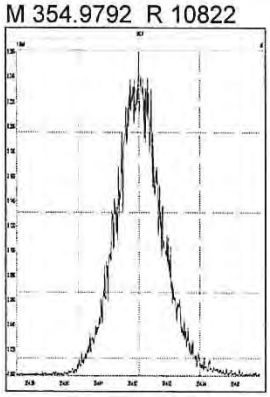
M 330.9792 R 11209



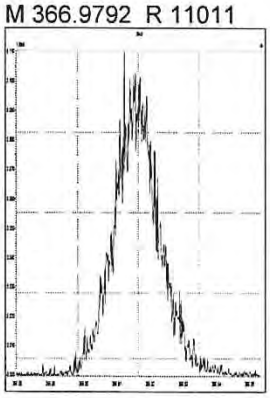
M 342.9792 R 11469



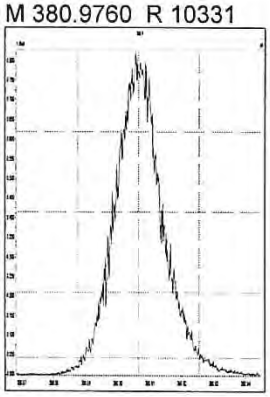
M 354.9792 R 10822



M 366.9792 R 11011



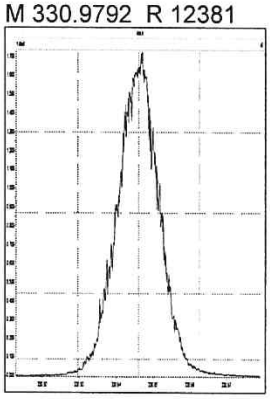
M 380.9760 R 10331



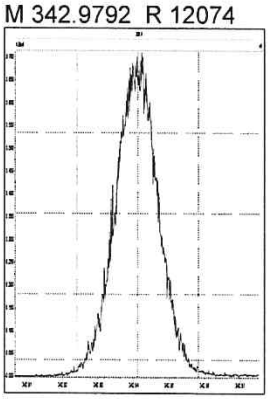
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Tuesday, September 25, 2018 12:09:22 Central Daylight Time

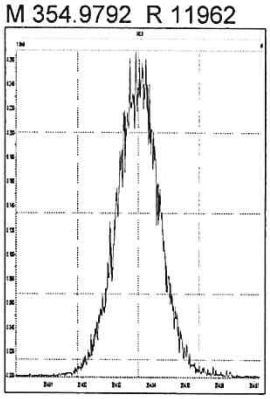
M 330.9792 R 12381



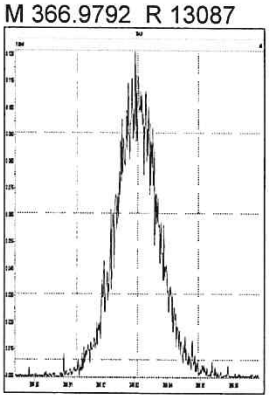
M 342.9792 R 12074



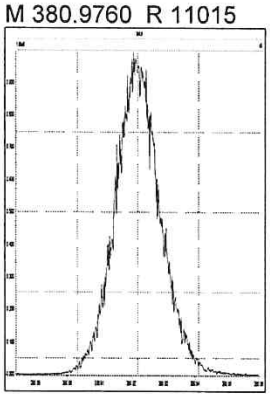
M 354.9792 R 11962



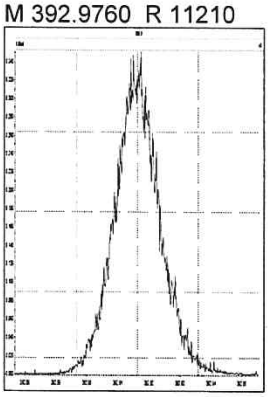
M 366.9792 R 13087



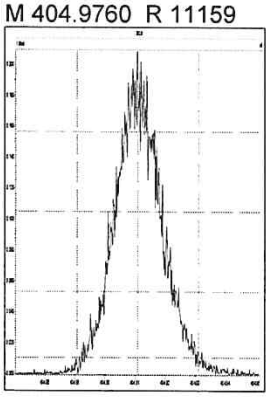
M 380.9760 R 11015



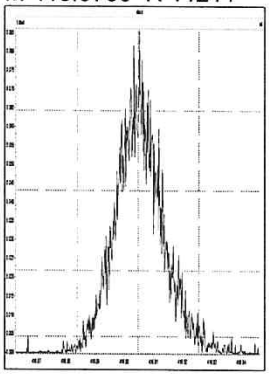
M 392.9760 R 11210



M 404.9760 R 11159



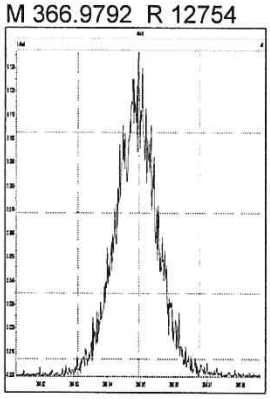
M 416.9760 R 11211



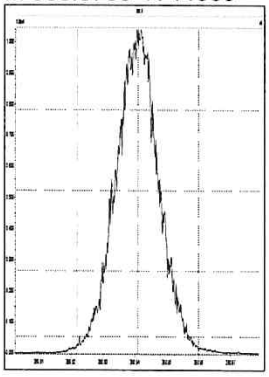
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Tuesday, September 25, 2018 12:10:10 Central Daylight Time

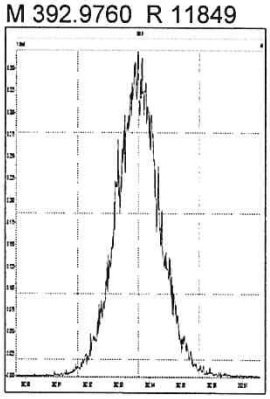
M 366.9792 R 12754



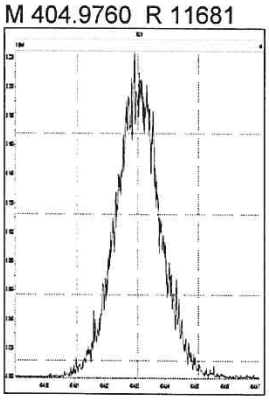
M 380.9760 R 11959



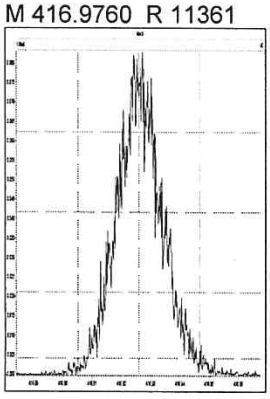
M 392.9760 R 11849



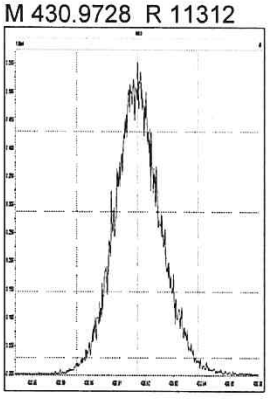
M 404.9760 R 11681



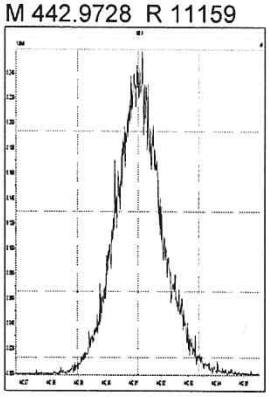
M 416.9760 R 11361



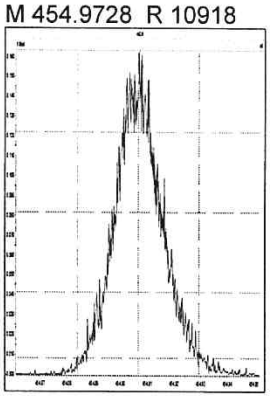
M 430.9728 R 11312



M 442.9728 R 11159



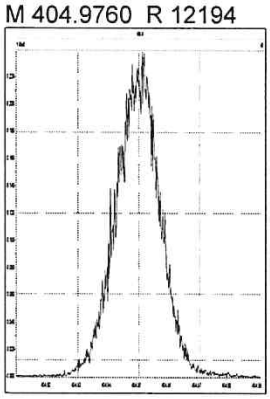
M 454.9728 R 10918



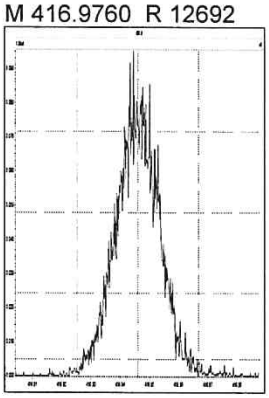
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Tuesday, September 25, 2018 12:10:51 Central Daylight Time

M 404.9760 R 12194



M 416.9760 R 12692



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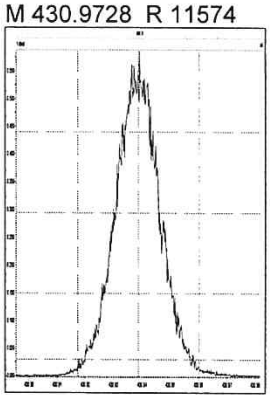

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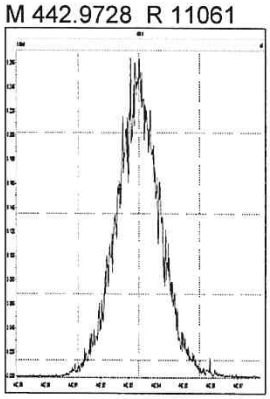

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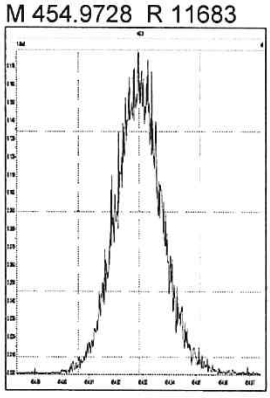

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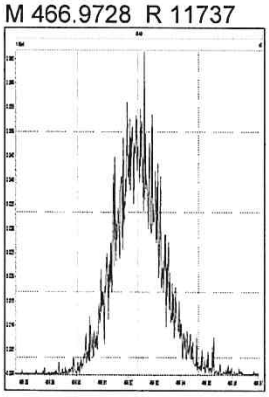

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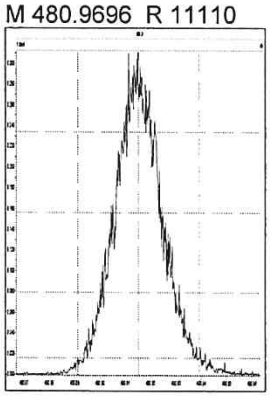

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Printed: Tuesday, September 25, 2018 12:11:41 Central Daylight Time

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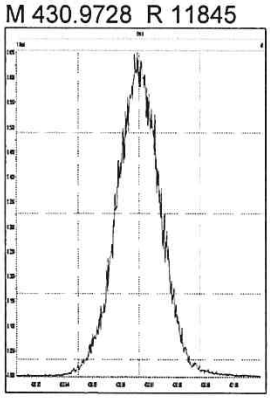

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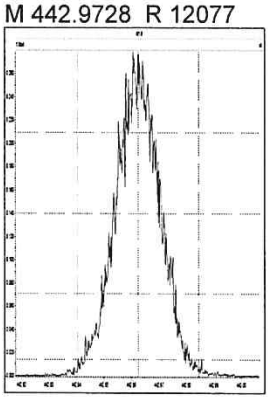

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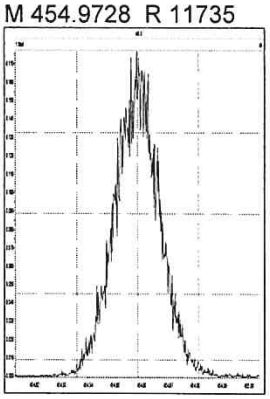

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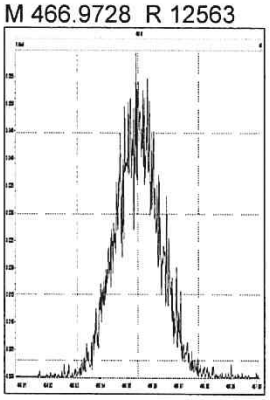

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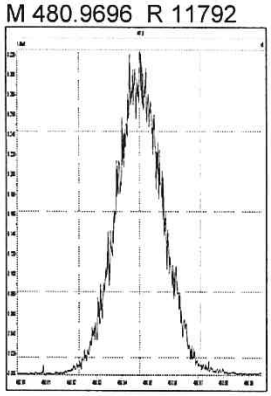

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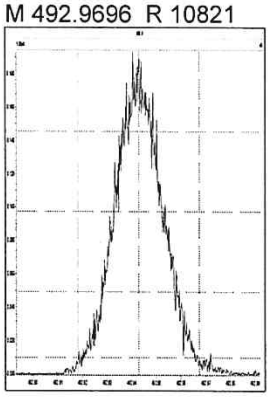

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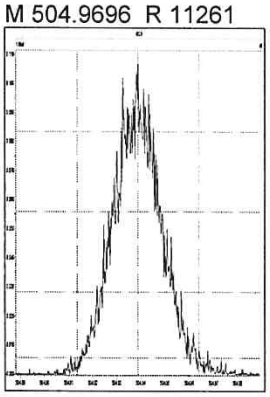

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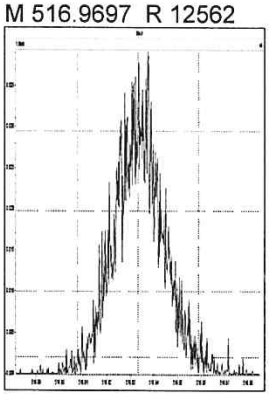

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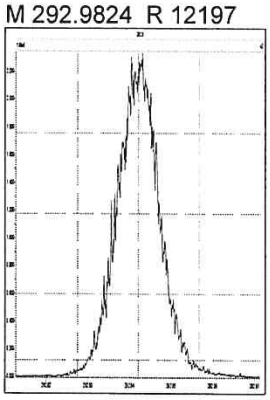

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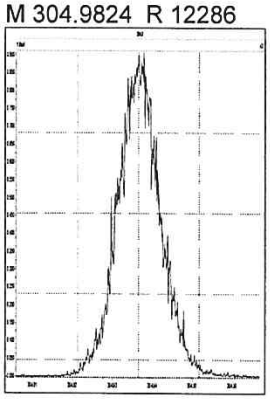

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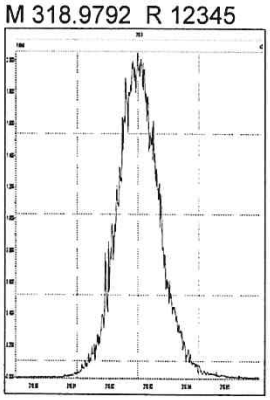

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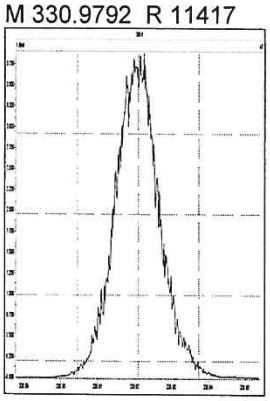

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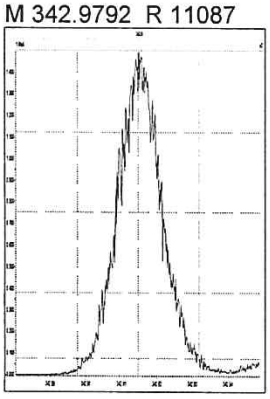

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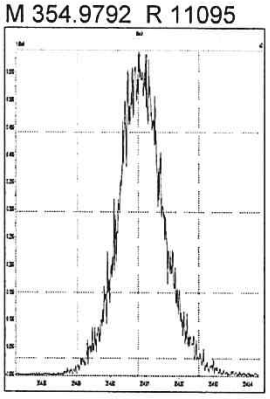

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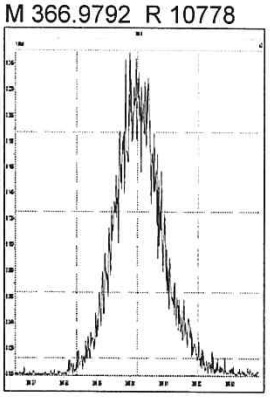

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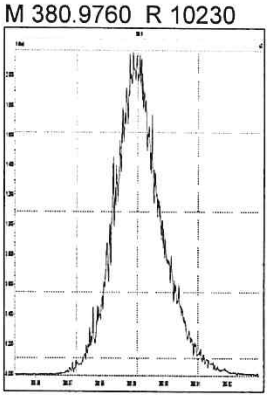

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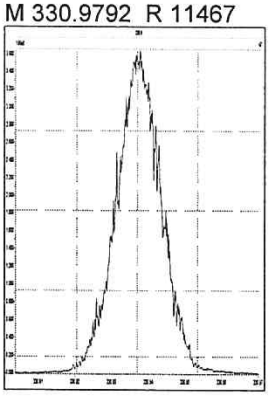

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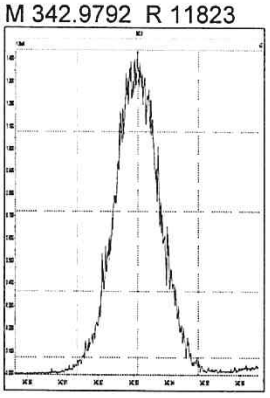

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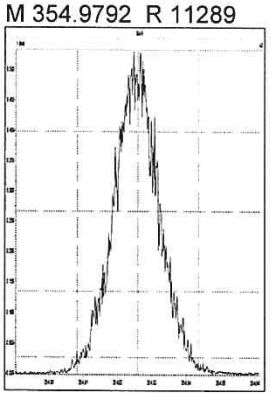

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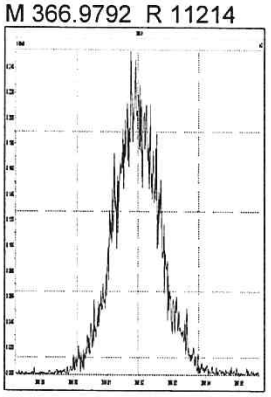

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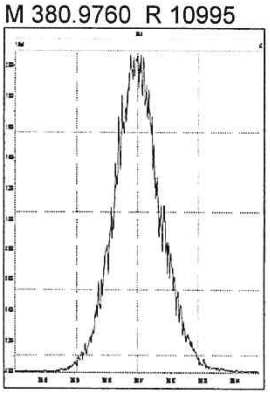

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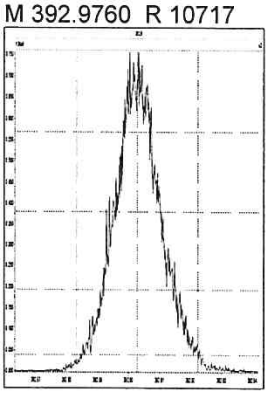

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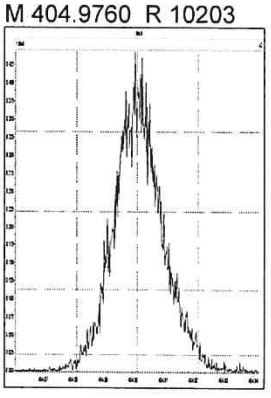

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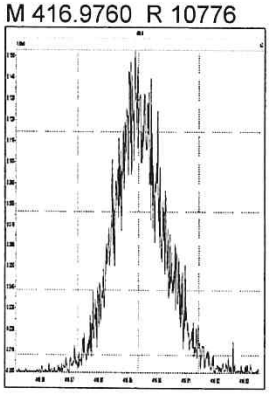

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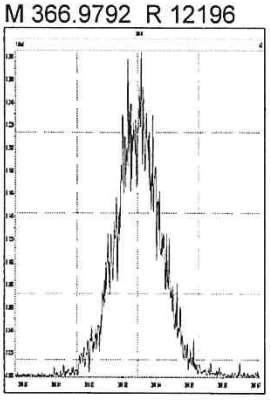

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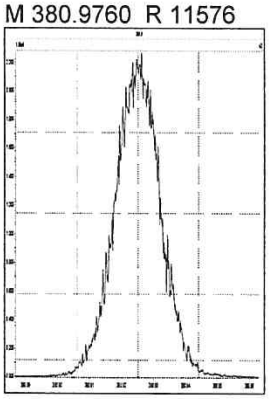

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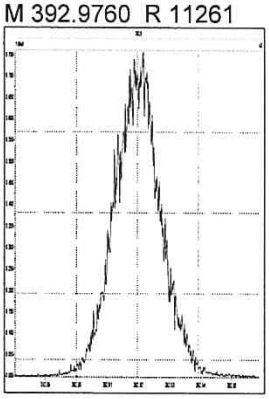

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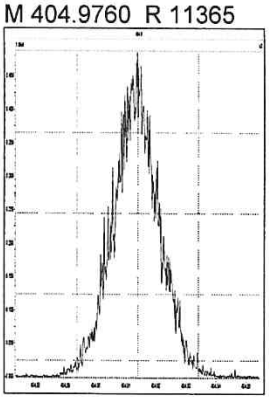

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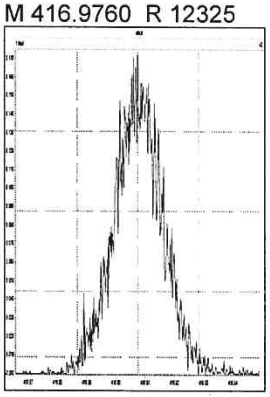

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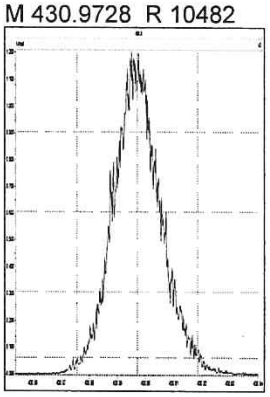

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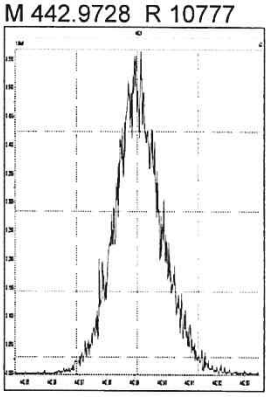

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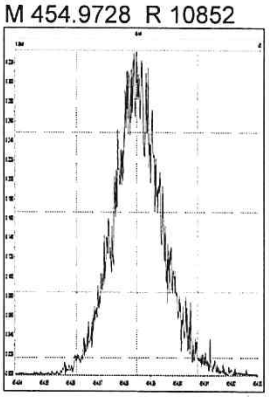

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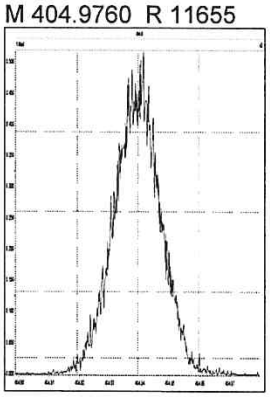

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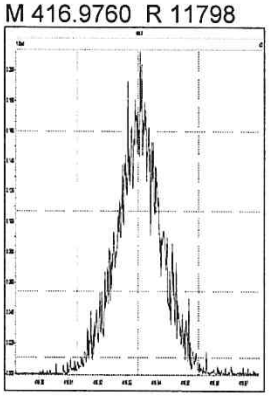

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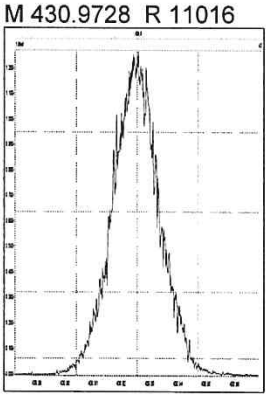

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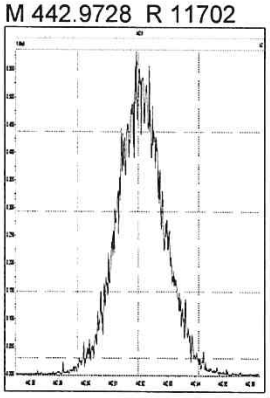

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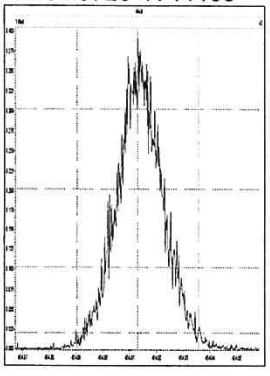

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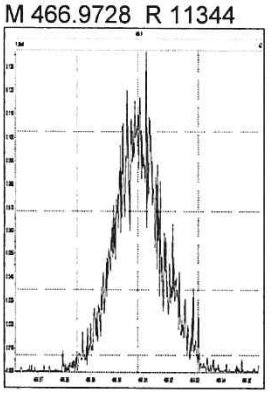

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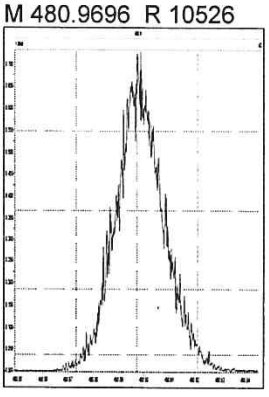

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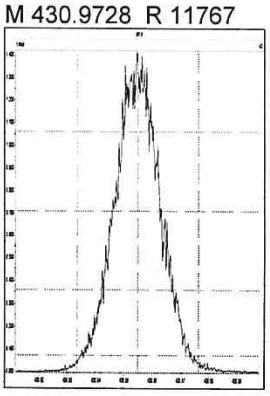

013698

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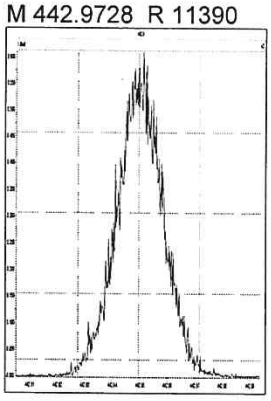

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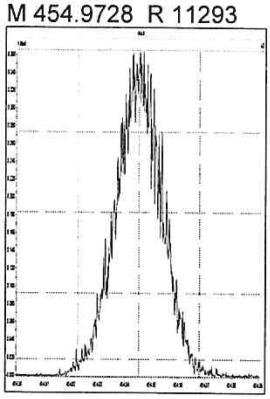

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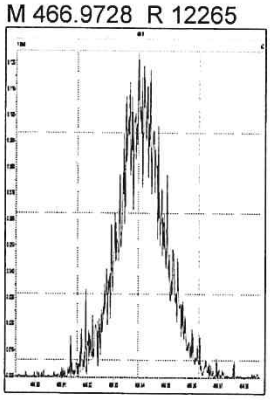

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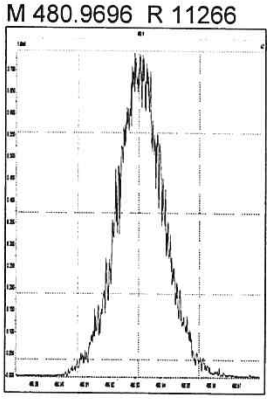

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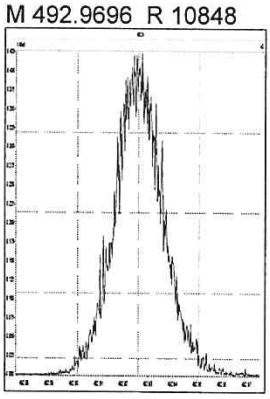

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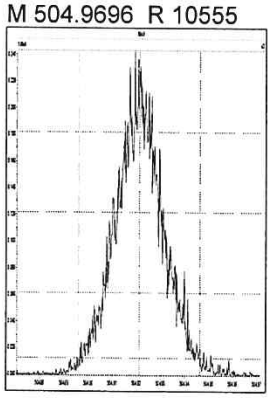

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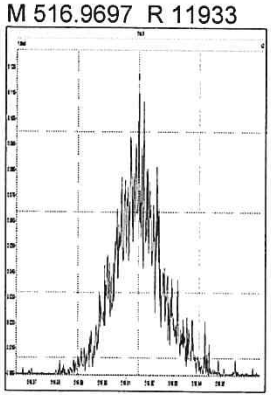


5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

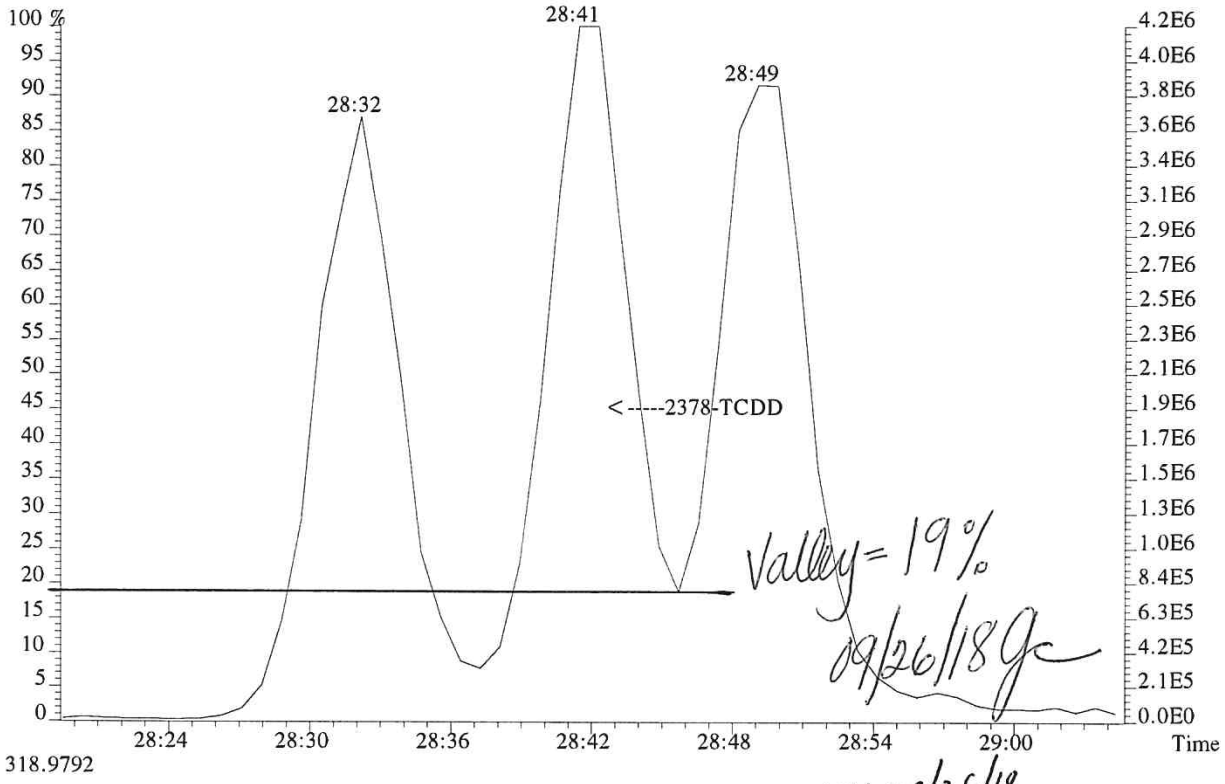
WDM

Lab Name: ALS Environmental
Lab Code: ALSTX Case No.: _____ SDG No.:
GC Column: DB-5MSUI ID: 0.25 (mm) Lab File ID: P614680
Date Analyzed: 25-SEP-18
Time Analyzed: 12:13:01

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	23:28	29:52
TCDD	25:18	29:42
PeCDF	29:48	34:04
PeCDD	31:21	33:49
HxCDF	34:43	37:12
HxCDD	35:14	36:49
HpCDF	38:24	39:46
HpCDD	38:39	39:18

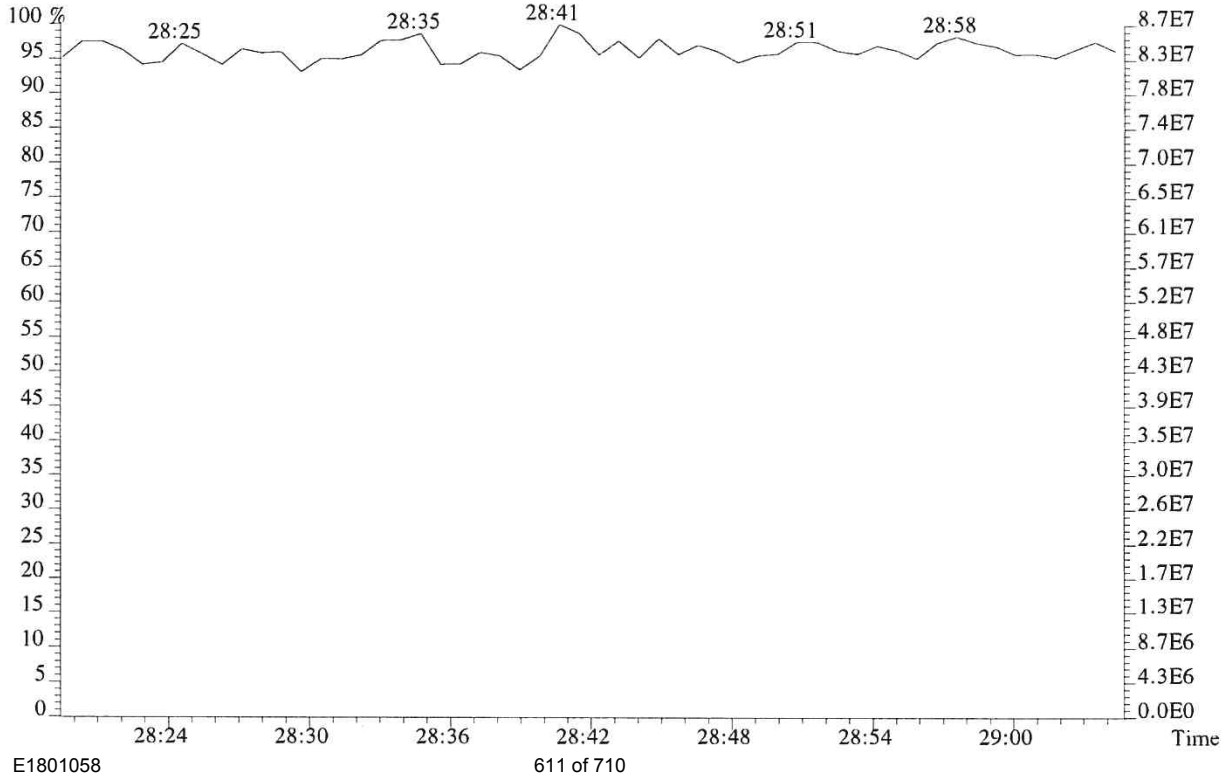
% Valley 2378-TCDD: 19 %

File:P614680 #1-552 Acq:25-SEP-2018 12:13:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
319.8965



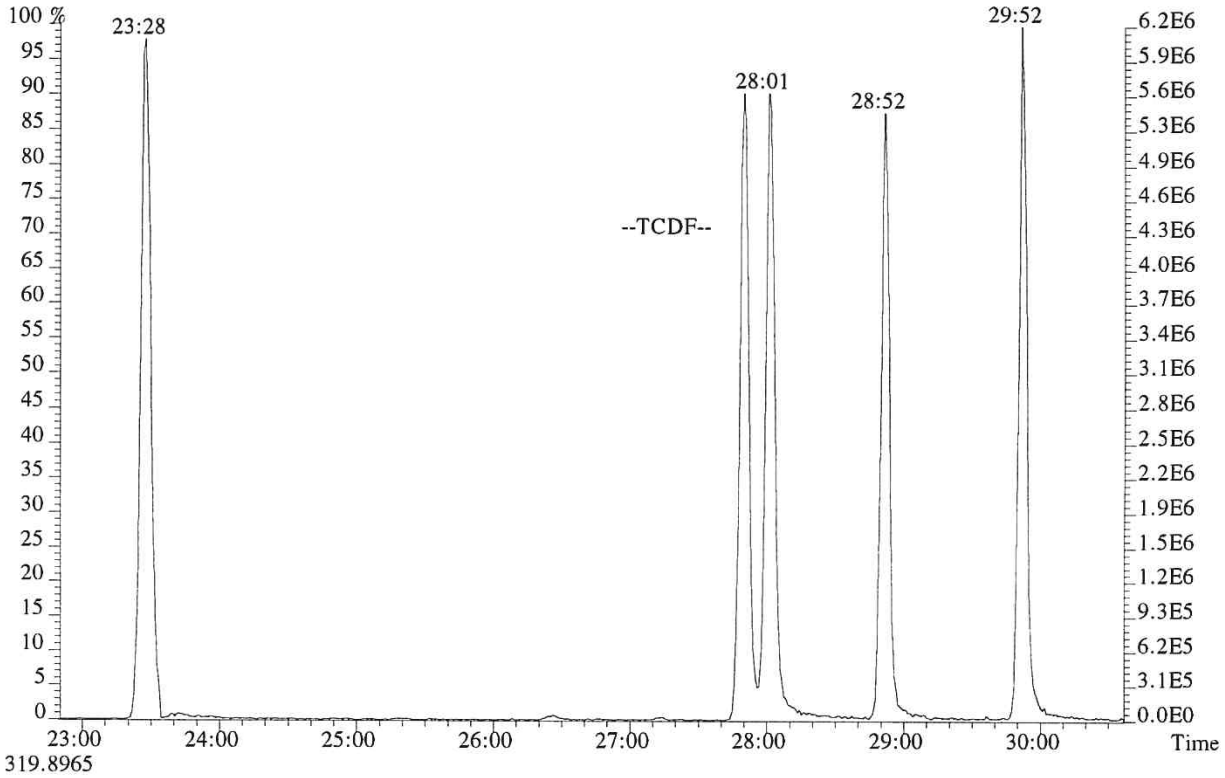
318.9792

LKL 09/26/18

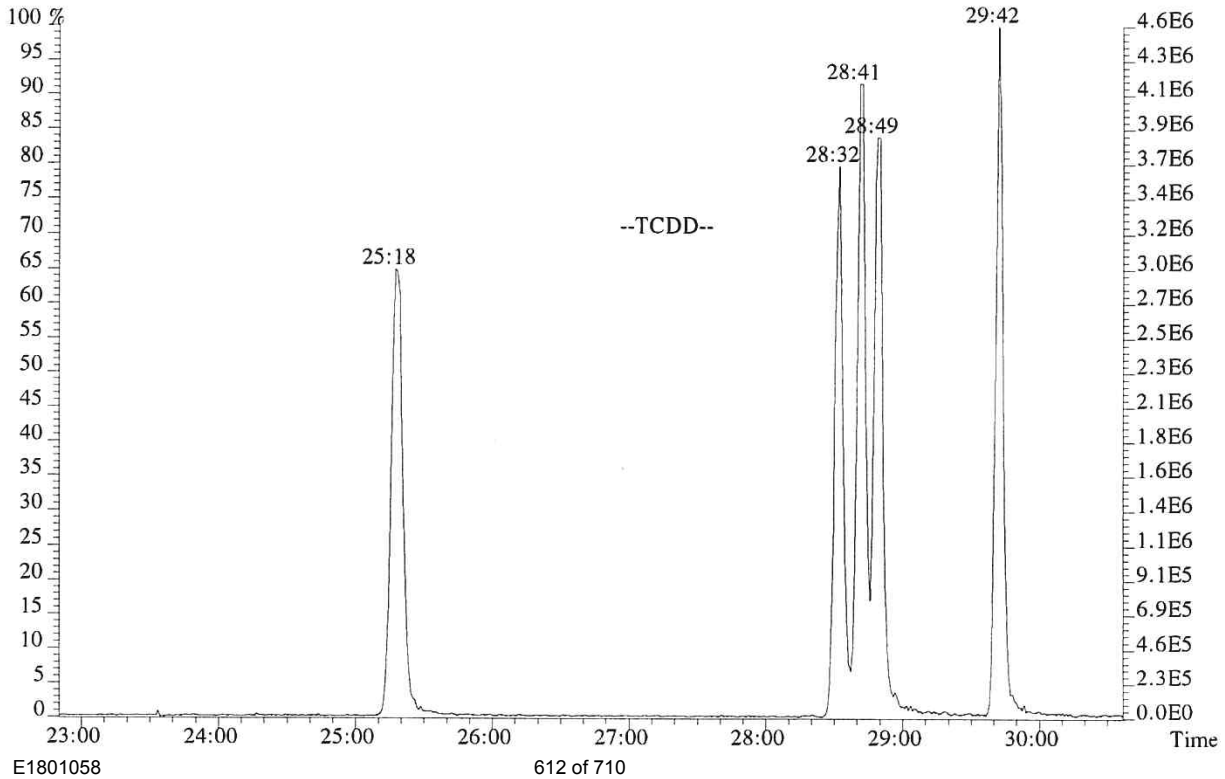


013701

File:P614680 #1-552 Acq:25-SEP-2018 12:13:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
303.9016

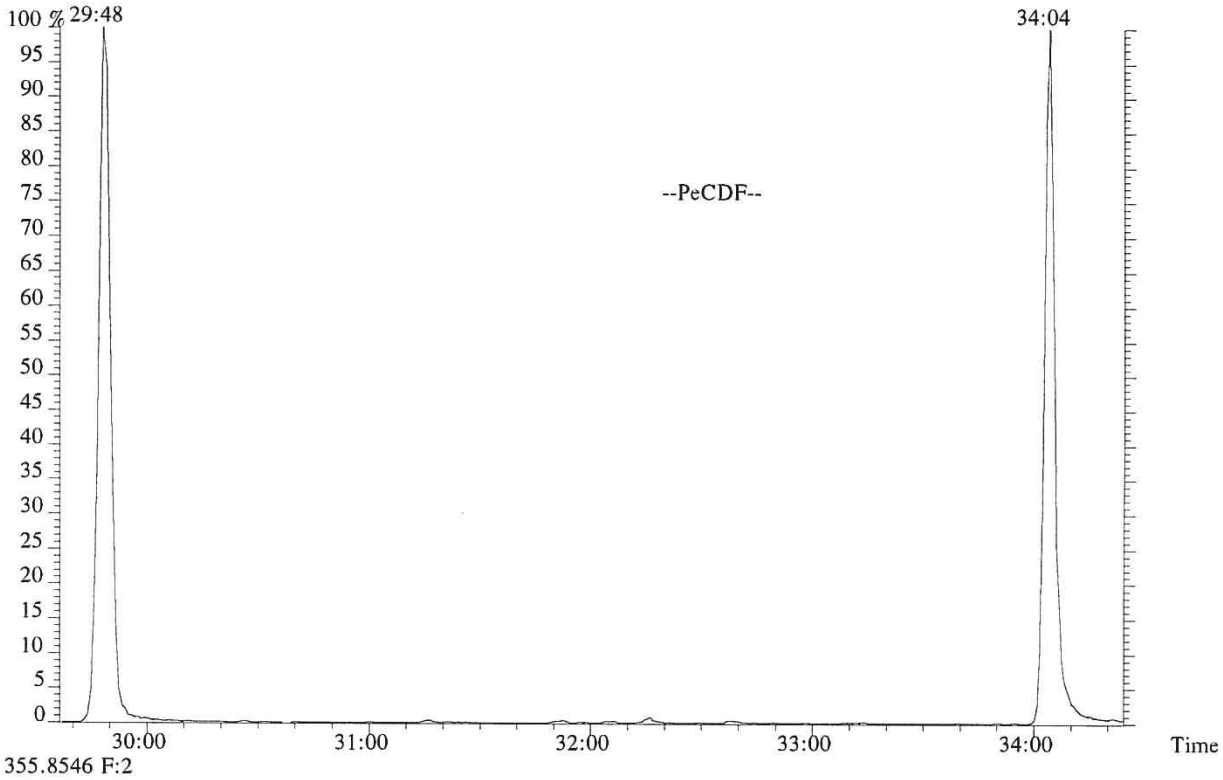


319.8965

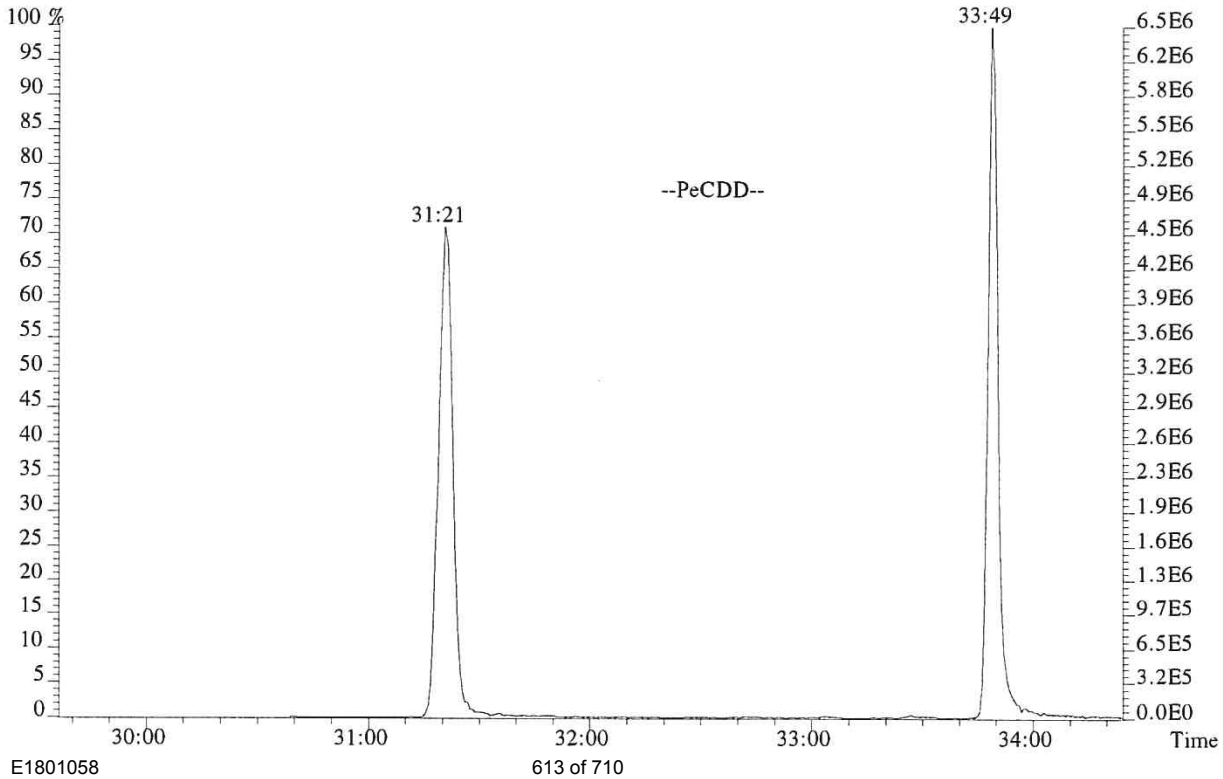


013702

File:P614680 #1-552 Acq:25-SEP-2018 12:13:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
339.8597,339.8597 F:2

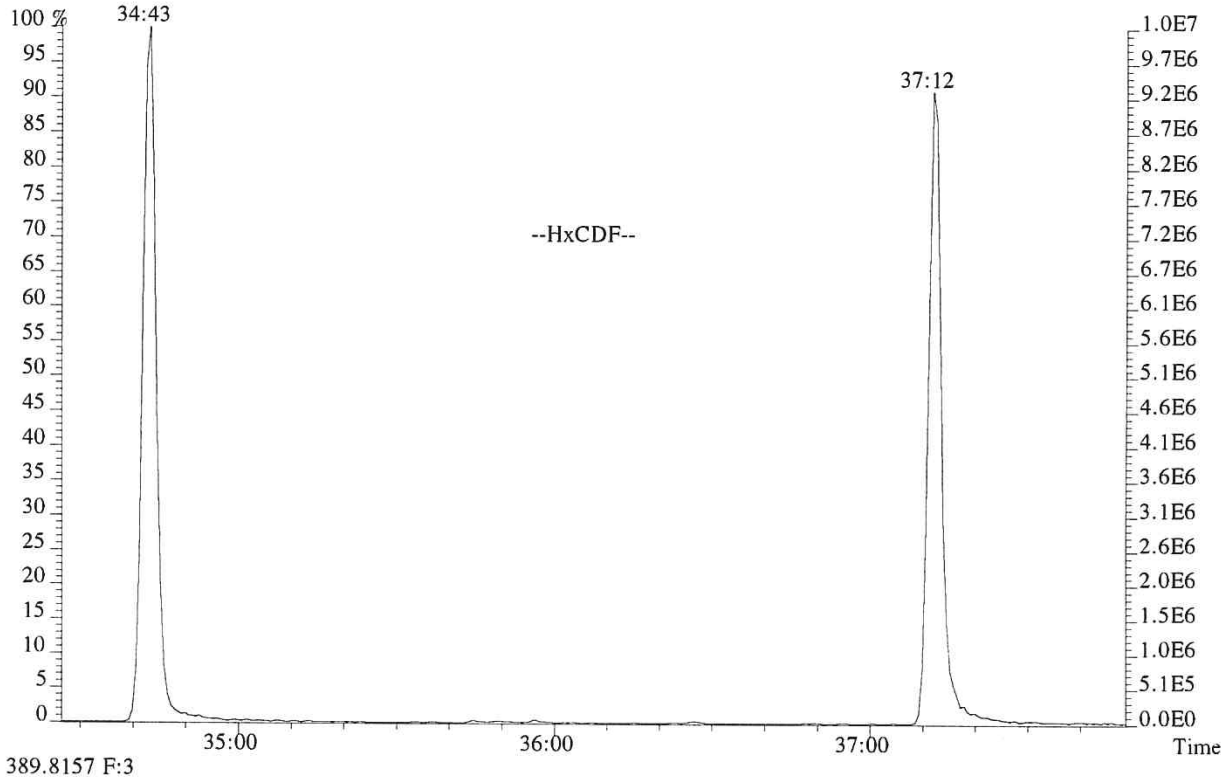


355.8546 F:2

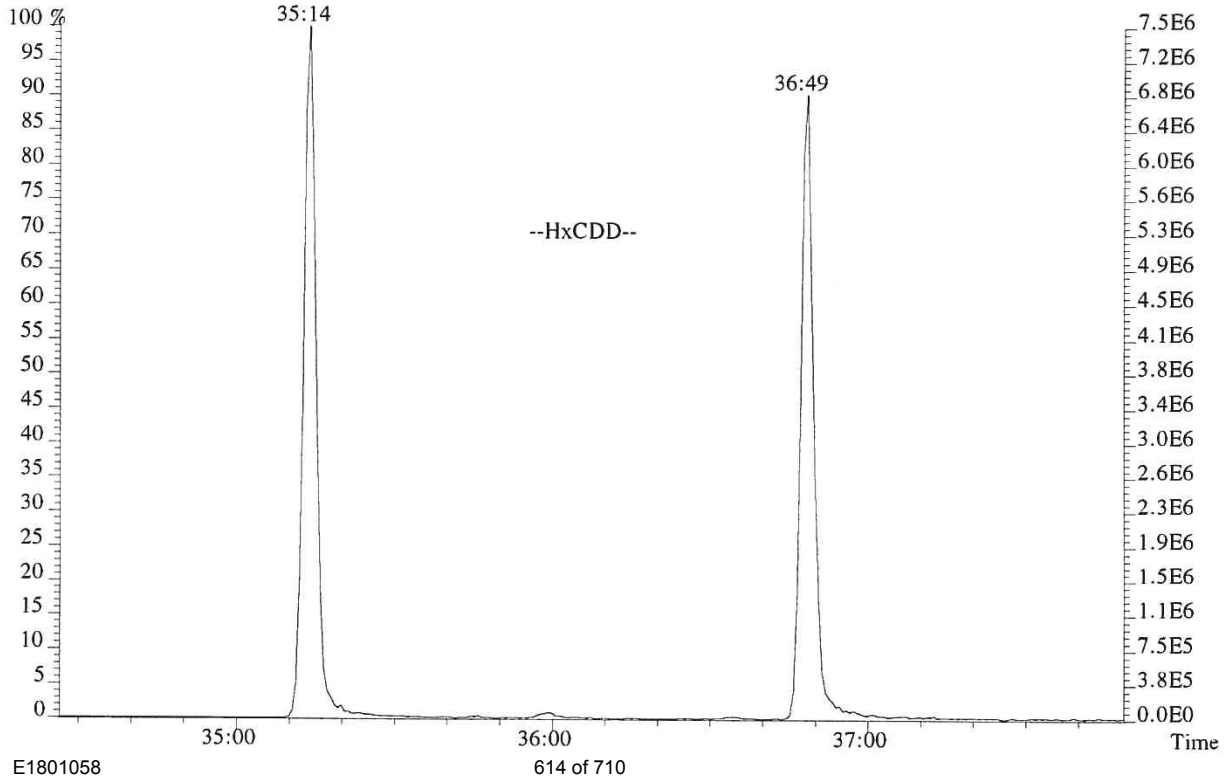


013703

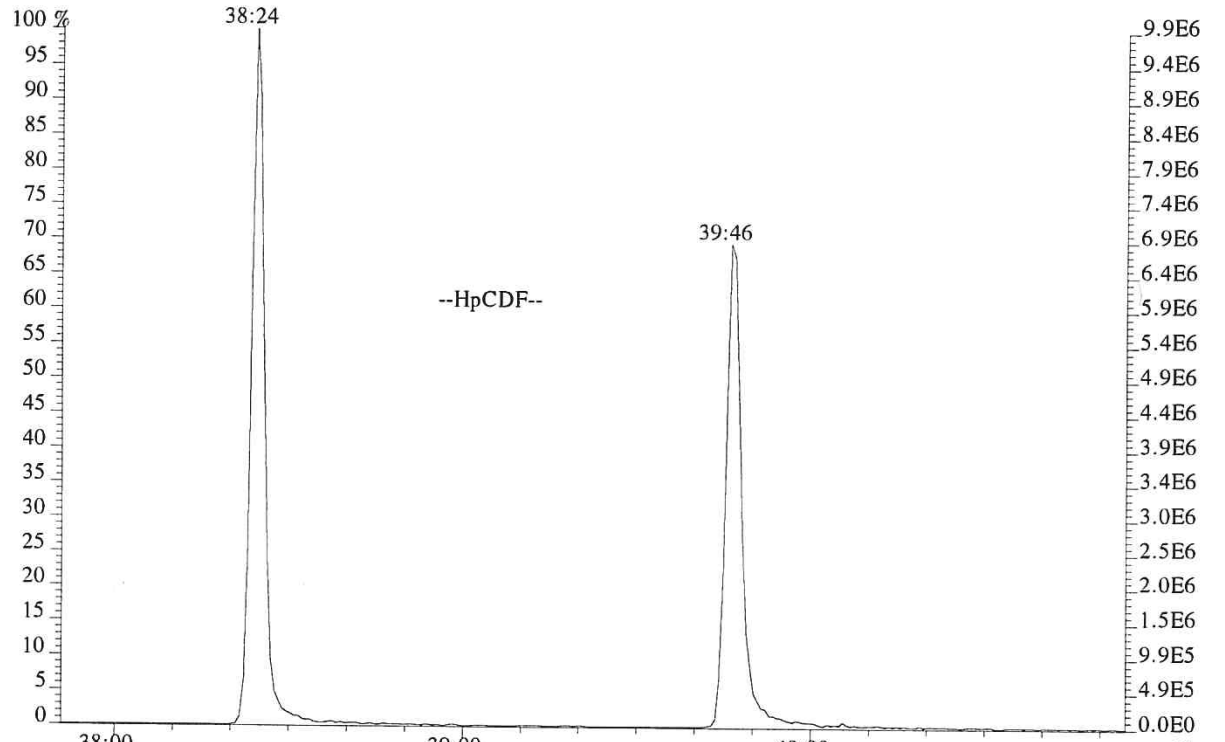
File:P614680 #1-304 Acq:25-SEP-2018 12:13:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
373.8208 F:3



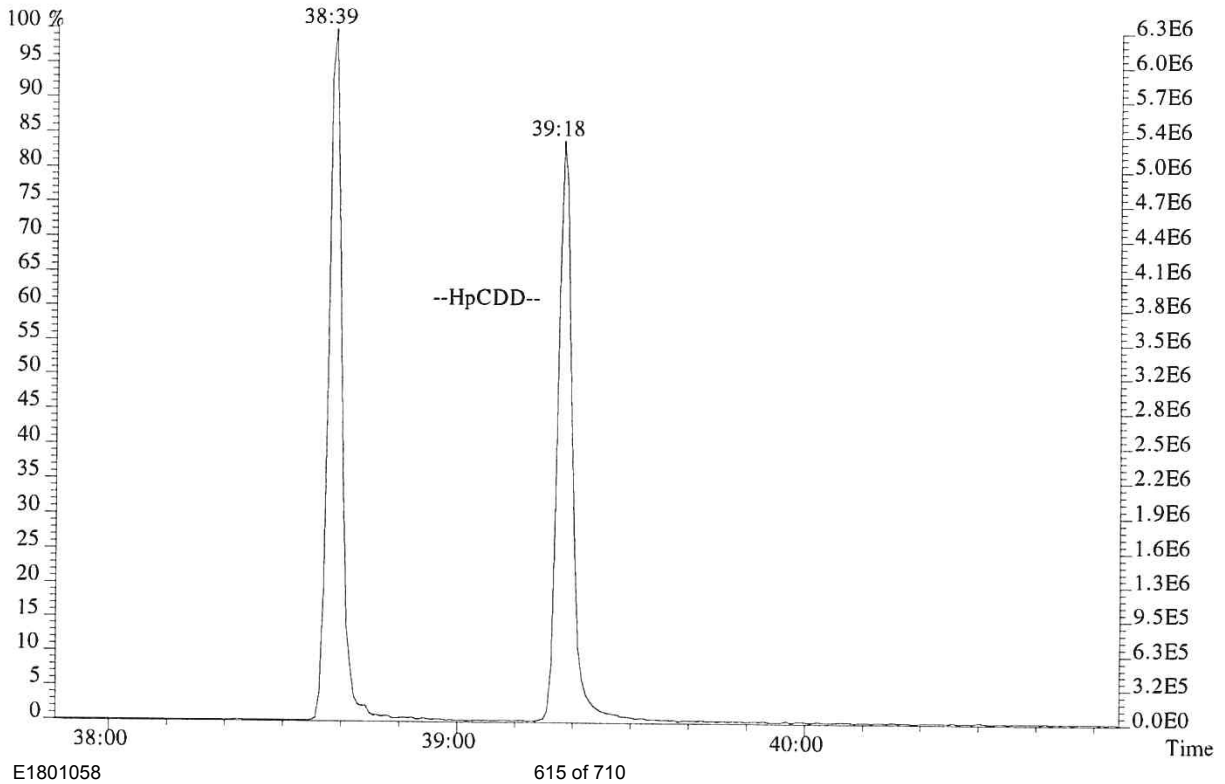
389.8157 F:3



File:P614680 #1-276 Acq:25-SEP-2018 12:13:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
407.7818 F:4



423.7766 F:4



USEPA - CLP
6DFA6
CDD/CDF INITIAL CALIBRATION RESPONSE FACTOR SUMMARY
HIGH RESOLUTION

Lab Name: ALS Environmental Contract No.:
Lab Code: ALSTX Case No.: TO No.: SDG No.:
GC Column: DB-5MSUI ID: 0.25(mm) Instrument ID: E-HRMS-08
Init. Calib. Date(s).: 09/25/18 Method 1613/8290
Init. Calib. Time.: 12:13

	RR/RRF						MEAN		
Target Analytes	CS0.5	CS1	CS2	CS3	CS4	CS5	RR/RRF	%RSD	QC LIMITS
2,3,7,8-TCDD	1.15	1.00	1.00	1.03	1.05	1.06	1.05	5.38	+/-20%
2,3,7,8-TCDF	1.13	1.08	1.12	1.05	1.06	1.05	1.08	3.07	+/-20%
1,2,3,7,8-PeCDF	1.16	1.17	1.12	1.15	1.16	1.18	1.16	1.72	+/-20%
1,2,3,7,8-PeCDD	0.89	0.95	0.95	0.91	0.93	0.93	0.93	2.61	+/-20%
2,3,4,7,8-PeCDF	1.10	1.13	1.10	1.08	1.10	1.11	1.10	1.49	+/-20%
1,2,3,4,7,8-HxCDF	1.47	1.46	1.39	1.36	1.38	1.42	1.42	3.10	+/-20%
1,2,3,6,7,8-HxCDF	1.27	1.36	1.30	1.28	1.28	1.28	1.29	2.52	+/-20%
1,2,3,4,7,8-HxCDD	1.11	1.11	1.04	1.06	1.05	1.06	1.07	3.00	+/-20%
1,2,3,6,7,8-HxCDD	1.06	1.07	1.06	1.06	1.06	1.05	1.06	0.70	+/-20%
1,2,3,7,8,9-HxCDD	1.17	1.18	1.12	1.13	1.14	1.12	1.15	2.24	+/-20%
2,3,4,6,7,8-HxCDF	1.27	1.32	1.29	1.28	1.27	1.27	1.28	1.52	+/-20%
1,2,3,7,8,9-HxCDF	1.34	1.34	1.29	1.30	1.30	1.30	1.31	1.68	+/-20%
1,2,3,4,6,7,8-HpCDF	1.56	1.60	1.46	1.50	1.51	1.51	1.52	3.15	+/-20%
1,2,3,4,6,7,8-HpCDD	1.14	1.13	1.09	1.10	1.10	1.11	1.11	1.85	+/-20%
1,2,3,4,7,8,9-HpCDF	1.47	1.54	1.46	1.45	1.43	1.43	1.46	2.80	+/-20%
OCDD	1.22	1.21	1.10	1.14	1.14	1.14	1.16	4.23	+/-20%
OCDF	1.60	1.61	1.49	1.57	1.57	1.59	1.57	2.60	+/-20%
Labeled Compounds									
13C-2,3,7,8-TCDD	0.96	0.98	0.97	0.97	1.00	1.01	0.98	2.13	+/-35%
13C-1,2,3,7,8-PeCDD	1.09	1.05	1.16	1.13	1.16	1.15	1.12	3.77	+/-35%
13C-1,2,3,4,7,8-HxCDD	0.91	0.90	0.91	0.90	0.90	0.89	0.90	0.67	+/-35%
13C-1,2,3,6,7,8-HxCDD	0.92	0.92	0.89	0.89	0.91	0.90	0.90	1.52	+/-35%
13C-1,2,3,4,6,7,8-HpCDD	0.86	0.88	0.85	0.86	0.84	0.84	0.86	1.91	+/-35%
13C-OCDD	0.65	0.69	0.65	0.67	0.65	0.65	0.66	2.45	+/-35%
13C-2,3,7,8-TCDF	1.40	1.41	1.42	1.44	1.40	1.43	1.42	1.24	+/-35%
13C-1,2,3,7,8-PeCDF	1.52	1.54	1.61	1.61	1.65	1.63	1.60	3.24	+/-35%
13C-2,3,4,7,8-PeCDF	1.52	1.49	1.60	1.57	1.63	1.61	1.57	3.42	+/-35%
13C-1,2,3,4,7,8-HxCDF	1.18	1.19	1.14	1.21	1.18	1.06	1.16	4.58	+/-35%
13C-1,2,3,6,7,8-HxCDF	1.39	1.34	1.33	1.35	1.31	1.29	1.34	2.46	+/-35%
13C-2,3,4,6,7,8-HxCDF	1.27	1.25	1.24	1.24	1.25	1.24	1.25	1.06	+/-35%
13C-1,2,3,7,8,9-HxCDF	1.13	1.13	1.12	1.15	1.15	1.10	1.13	1.66	+/-35%
13C-1,2,3,4,6,7,8-HpCDF	1.04	1.06	1.02	1.04	1.01	1.01	1.03	1.93	+/-35%
13C-1,2,3,4,7,8,9-HpCDF	0.94	0.95	0.90	0.86	0.90	0.88	0.91	3.64	+/-35%
37Cl-2,3,7,8-TCDD	1.06	1.11	1.07	1.05	1.11	1.13	1.09	3.15	+/-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-08
Init. Calib. Date(s).: 09/25/18 Method 1613/8290
Init. Calib. Time.: 12:13

Target Analytes	SELECTED IONS	ION ABUNDANCE RATIO CS0.5	CS1	CS2	CS3	CS4	CS5	FLAG	ION RATIO QC lIMITS
2,3,7,8-TCDF	304/306	0.75	0.75	0.83	0.80	0.79	0.80		0.65-0.89
2,3,7,8-TCDD	320/322	0.78	0.83	0.80	0.78	0.79	0.77		0.65-0.89
1,2,3,7,8-PeCDF	340/342	1.65	1.58	1.57	1.58	1.60	1.60		1.32-1.78
2,3,4,7,8-PeCDF	340/342	1.57	1.61	1.57	1.58	1.59	1.59		1.32-1.78
1,2,3,7,8-PeCDD	356/358	1.56	1.52	1.53	1.55	1.55	1.57		1.32-1.78
1,2,3,4,7,8-HxCDF	374/376	1.26	1.29	1.25	1.26	1.28	1.29		1.05-1.43
1,2,3,6,7,8-HxCDF	374/376	1.29	1.24	1.25	1.27	1.27	1.27		1.05-1.43
2,3,4,6,7,8-HxCDF	374/376	1.29	1.25	1.28	1.28	1.26	1.26		1.05-1.43
1,2,3,7,8,9-HxCDF	374/376	1.22	1.29	1.23	1.28	1.28	1.27		1.05-1.43
1,2,3,4,7,8-HxCDD	390/392	1.21	1.20	1.26	1.33	1.26	1.27		1.05-1.43
1,2,3,6,7,8-HxCDD	390/392	1.41	1.27	1.25	1.23	1.27	1.26		1.05-1.43
1,2,3,7,8,9-HxCDD	390/392	1.20	1.22	1.25	1.24	1.27	1.26		1.05-1.43
1,2,3,4,6,7,8-HpCDF	408/410	1.04	1.02	1.06	1.05	1.04	1.05		0.88-1.20
1,2,3,4,7,8,9-HpCDF	408/410	0.89	1.07	1.05	1.04	1.05	1.05		0.88-1.20
1,2,3,4,6,7,8-HpCDD	424/426	1.10	1.07	1.07	1.06	1.06	1.06		0.88-1.20
OCDF	442/444	0.90	0.87	0.91	0.92	0.93	0.92		0.76-1.02
OCDD	458/460	0.93	0.89	0.88	0.90	0.90	0.90		0.76-1.02
13C-2,3,7,8-TCDD	332/334	0.79	0.80	0.80	0.80	0.80	0.79		0.65-0.89
13C-1,2,3,7,8-PeCDD	368/370	1.58	1.58	1.57	1.58	1.56	1.57		1.32-1.78
13C-1,2,3,4,7,8-HxCDD	402/404	1.27	1.26	1.26	1.32	1.25	1.26		1.05-1.43
13C-1,2,3,6,7,8-HxCDD	402/404	1.27	1.26	1.26	1.20	1.25	1.26		1.05-1.43
13C-1,2,3,4,6,7,8-HpCDD	436/438	1.06	1.06	1.04	1.06	1.05	1.05		0.88-1.20
13C-OCDD	470/472	0.90	0.90	0.90	0.91	0.90	0.89		0.76-1.02
13C-2,3,7,8-TCDF	316/318	0.78	0.80	0.79	0.79	0.79	0.79		0.65-0.89
13C-1,2,3,7,8-PeCDF	352/354	1.61	1.62	1.60	1.60	1.60	1.60		1.32-1.78
13C-2,3,4,7,8-PeCDF	352/354	1.59	1.59	1.62	1.61	1.59	1.61		1.32-1.78
13C-1,2,3,4,7,8-HxCDF	384/386	0.54	0.53	0.53	0.53	0.53	0.54		0.43-0.59
13C-1,2,3,6,7,8-HxCDF	384/386	0.53	0.54	0.53	0.54	0.54	0.54		0.43-0.59
13C-2,3,4,6,7,8-HxCDF	384/386	0.54	0.54	0.53	0.54	0.54	0.53		0.43-0.59
13C-1,2,3,7,8,9-HxCDF	384/386	0.52	0.53	0.53	0.54	0.53	0.53		0.43-0.59
13C-1,2,3,4,6,7,8-HpCDF	418/420	0.46	0.46	0.46	0.46	0.46	0.46		0.37-0.51
13C-1,2,3,4,7,8,9-HpCDF	418/420	0.46	0.46	0.45	0.46	0.45	0.46		0.37-0.51
13C-1,2,3,4-TCDD	332/334	0.81	0.81	0.81	0.80	0.79	0.81		0.65-0.89
13C-1,2,3,7,8,9-HxCDD	402/404	1.24	1.26	1.26	1.24	1.25	1.25		1.05-1.43

Quality Control (QC) limits represent +/- 15% window around the theoretical ion abundance ratio. The laboratory must flag any analyte in any calibration solution which does not meet the ion abundance ratio QC limit by placing an asterisk in the flag column.

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76554

Run #1 Filename P614682 Samp: 1 Inj: 1 Acquired: 25-SEP-18 14:18:27
Processed: 26-SEP-18 07:39:04 Sample ID: CS0.5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:01	3.991e+02	5.332e+02	0.75	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:15	3.245e+03	1.970e+03	1.65	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:10	3.017e+03	1.917e+03	1.57	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	2.964e+03	2.360e+03	1.26	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	3.032e+03	2.349e+03	1.29	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	2.788e+03	2.154e+03	1.29	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:10	2.544e+03	2.080e+03	1.22	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	2.520e+03	2.421e+03	1.04	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	1.988e+03	2.226e+03	0.89	yes	no	1.463
10	Unk	OCDF	42:13	3.006e+03	3.322e+03	0.90	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:49	2.873e+02	3.690e+02	0.78	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	1.757e+03	1.126e+03	1.56	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	1.695e+03	1.402e+03	1.21	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:39	1.736e+03	1.234e+03	1.41	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:53	1.790e+03	1.494e+03	1.20	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	1.575e+03	1.438e+03	1.10	yes	no	1.112
17	Unk	OCDD	42:01	2.333e+03	2.510e+03	0.93	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	28:00	1.453e+05	1.860e+05	0.78	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	2.225e+05	1.378e+05	1.61	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	2.208e+05	1.389e+05	1.59	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:49	1.017e+05	1.873e+05	0.54	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	1.172e+05	2.227e+05	0.53	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	1.097e+05	2.020e+05	0.54	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	9.463e+04	1.814e+05	0.52	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:24	7.990e+04	1.736e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:46	7.243e+04	1.569e+05	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	1.005e+05	1.270e+05	0.79	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:26	1.588e+05	1.004e+05	1.58	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:33	1.251e+05	9.838e+04	1.27	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:38	1.252e+05	9.893e+04	1.27	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:18	1.083e+05	1.026e+05	1.06	yes	no	0.857
32	IS	13C-OCDD	42:01	1.503e+05	1.668e+05	0.90	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:14	1.058e+05	1.311e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:52	1.355e+05	1.094e+05	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:49	6.272e+02				no	1.086

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76554

Run #1 Filename P614682 Samp: 1 Inj: 1 Acquired: 25-SEP-18 14:18:27
Processed: 26-SEP-18 07:39:04 LAB. ID: CS0.5

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.55e+04	1.79e+03	3.7e+01	1.00e+05	4.41e+03	2.3e+01
2	1,2,3,7,8-PeCDF	5.99e+05	1.18e+03	5.1e+02	3.57e+05	4.28e+03	8.3e+01
3	2,3,4,7,8-PeCDF	5.69e+05	1.18e+03	4.8e+02	3.70e+05	4.28e+03	8.7e+01
4	1,2,3,4,7,8-HxCDF	6.38e+05	3.25e+03	2.0e+02	4.85e+05	1.42e+03	3.4e+02
5	1,2,3,6,7,8-HxCDF	6.38e+05	3.25e+03	2.0e+02	4.95e+05	1.42e+03	3.5e+02
6	2,3,4,6,7,8-HxCDF	6.03e+05	3.25e+03	1.9e+02	4.83e+05	1.42e+03	3.4e+02
7	1,2,3,7,8,9-HxCDF	4.97e+05	3.25e+03	1.5e+02	4.13e+05	1.42e+03	2.9e+02
8	1,2,3,4,6,7,8-HpCDF	5.62e+05	1.66e+03	3.4e+02	5.47e+05	1.04e+03	5.3e+02
9	1,2,3,4,7,8,9-HpCDF	4.02e+05	1.66e+03	2.4e+02	4.51e+05	1.04e+03	4.3e+02
10	OCDF	5.23e+05	1.34e+03	3.9e+02	5.81e+05	4.02e+03	1.4e+02
11	2,3,7,8-TCDD	6.18e+04	5.07e+03	1.2e+01	6.68e+04	2.40e+03	2.8e+01
12	1,2,3,7,8-PeCDD	3.47e+05	2.36e+03	1.5e+02	2.20e+05	2.64e+02	8.3e+02
13	1,2,3,4,7,8-HxCDD	3.95e+05	1.84e+03	2.1e+02	3.18e+05	1.66e+03	1.9e+02
14	1,2,3,6,7,8-HxCDD	3.64e+05	1.84e+03	2.0e+02	2.60e+05	1.66e+03	1.6e+02
15	1,2,3,7,8,9-HxCDD	4.06e+05	1.84e+03	2.2e+02	3.23e+05	1.66e+03	1.9e+02
16	1,2,3,4,6,7,8-HpCDD	3.19e+05	2.32e+03	1.4e+02	3.31e+05	1.19e+03	2.8e+02
17	OCDD	4.28e+05	8.48e+02	5.0e+02	4.37e+05	1.30e+03	3.4e+02
18	13C-2,3,7,8-TCDF	2.54e+07	1.52e+04	1.7e+03	3.22e+07	1.06e+04	3.1e+03
19	13C-1,2,3,7,8-PeCDF	4.04e+07	2.12e+03	1.9e+04	2.49e+07	3.13e+03	8.0e+03
20	13C-2,3,4,7,8-PeCDF	4.23e+07	2.12e+03	2.0e+04	2.67e+07	3.13e+03	8.5e+03
21	13C-1,2,3,4,7,8-HxCDF	2.18e+07	3.28e+03	6.7e+03	4.05e+07	3.71e+03	1.1e+04
22	13C-1,2,3,6,7,8-HxCDF	2.40e+07	3.28e+03	7.3e+03	4.55e+07	3.71e+03	1.2e+04
23	13C-2,3,4,6,7,8-HxCDF	2.42e+07	3.28e+03	7.4e+03	4.44e+07	3.71e+03	1.2e+04
24	13C-1,2,3,7,8,9-HxCDF	1.91e+07	3.28e+03	5.8e+03	3.68e+07	3.71e+03	9.9e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.81e+07	5.66e+03	3.2e+03	3.90e+07	2.05e+04	1.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.45e+07	5.66e+03	2.6e+03	3.15e+07	2.05e+04	1.5e+03
27	13C-2,3,7,8-TCDD	1.84e+07	1.55e+04	1.2e+03	2.34e+07	5.32e+03	4.4e+03
28	13C-1,2,3,7,8-PeCDD	3.10e+07	3.24e+03	9.6e+03	1.95e+07	2.82e+03	6.9e+03
29	13C-1,2,3,4,7,8-HxCDD	2.85e+07	5.20e+03	5.5e+03	2.24e+07	3.08e+03	7.3e+03
30	13C-1,2,3,6,7,8-HxCDD	2.65e+07	5.20e+03	5.1e+03	2.10e+07	3.08e+03	6.8e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.26e+07	2.60e+03	8.7e+03	2.13e+07	2.03e+03	1.1e+04
32	13C-OCDD	2.73e+07	1.56e+03	1.8e+04	2.99e+07	4.32e+02	6.9e+04
33	13C-1,2,3,4-TCDD	1.96e+07	1.55e+04	1.3e+03	2.41e+07	5.32e+03	4.5e+03
34	13C-1,2,3,7,8,9-HxCDD	3.00e+07	5.20e+03	5.8e+03	2.40e+07	3.08e+03	7.8e+03
35	37Cl-2,3,7,8-TCDD	1.12e+05	4.66e+03	2.4e+01			

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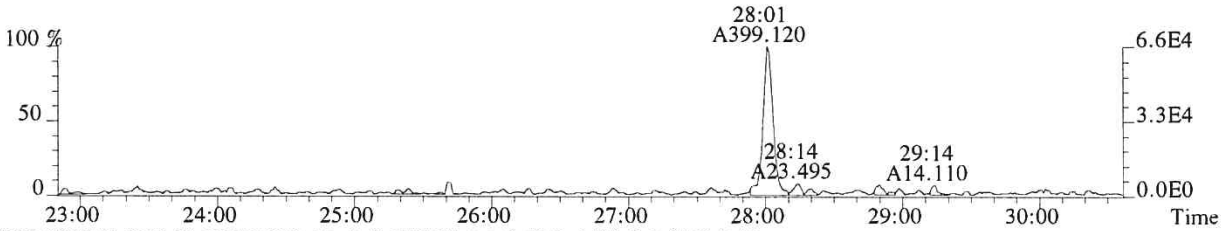
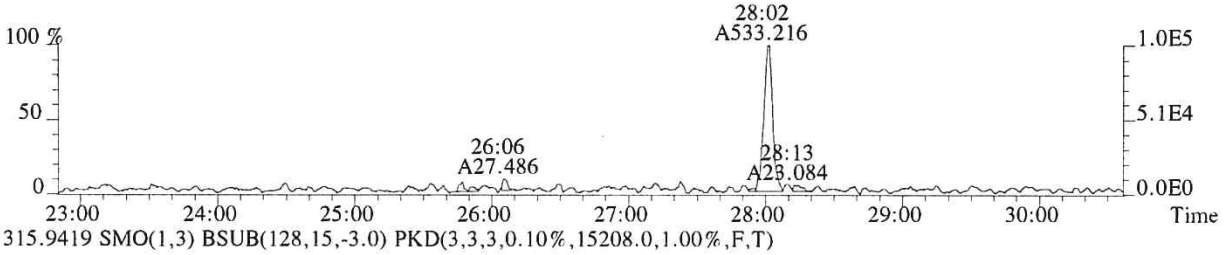
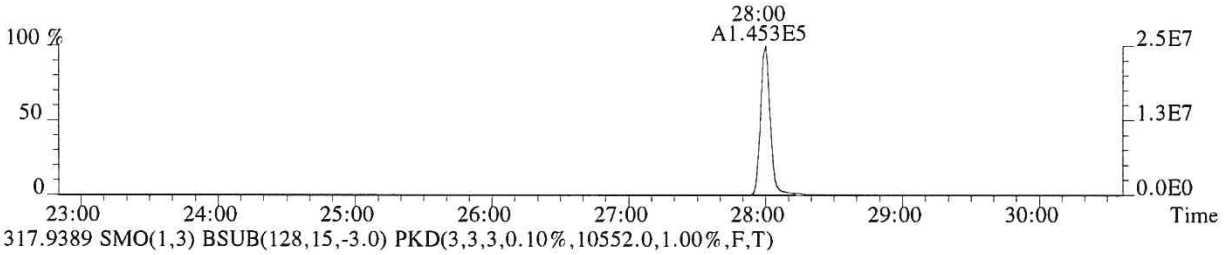
File:P614682 #1-552 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1788.0,1.00%,F,T)



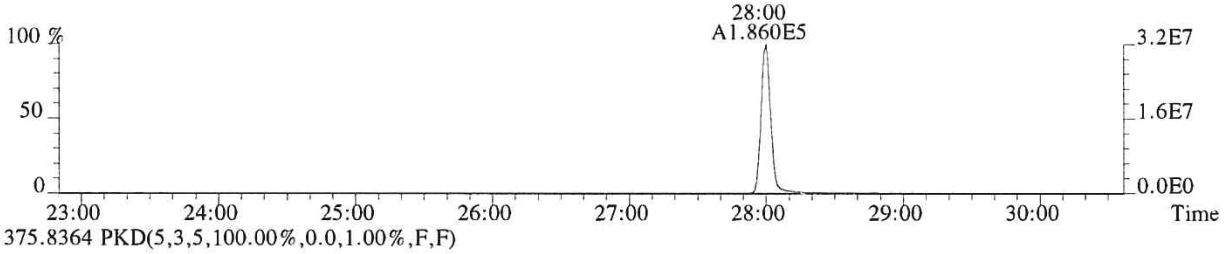
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4408.0,1.00%,F,T)



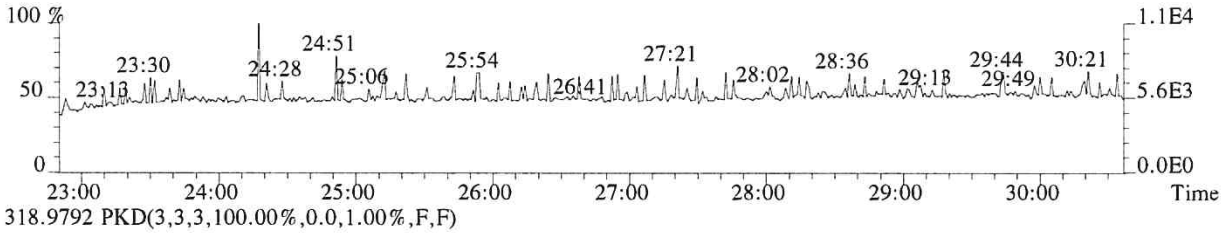
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15208.0,1.00%,F,T)



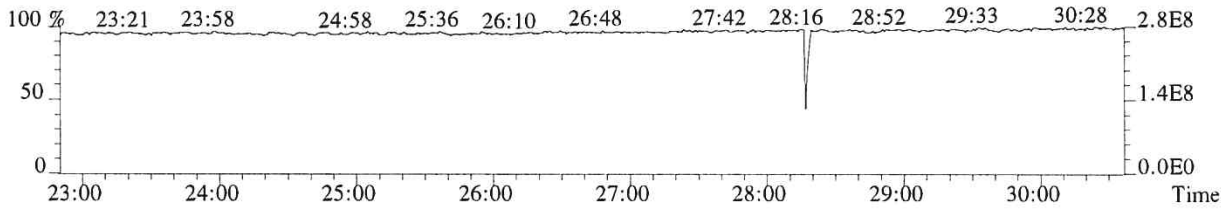
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10552.0,1.00%,F,T)



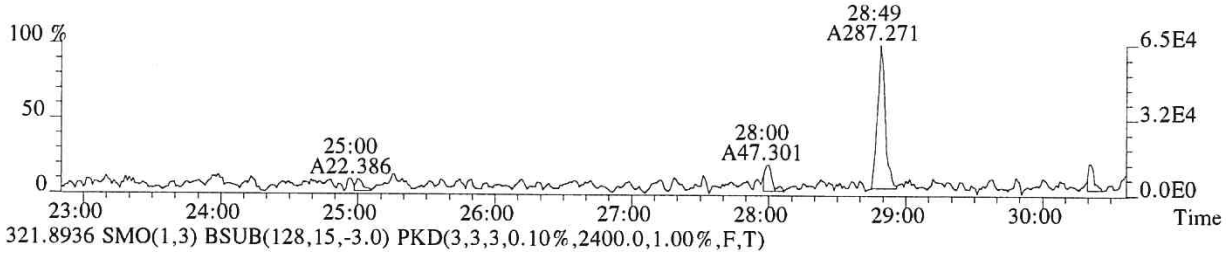
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



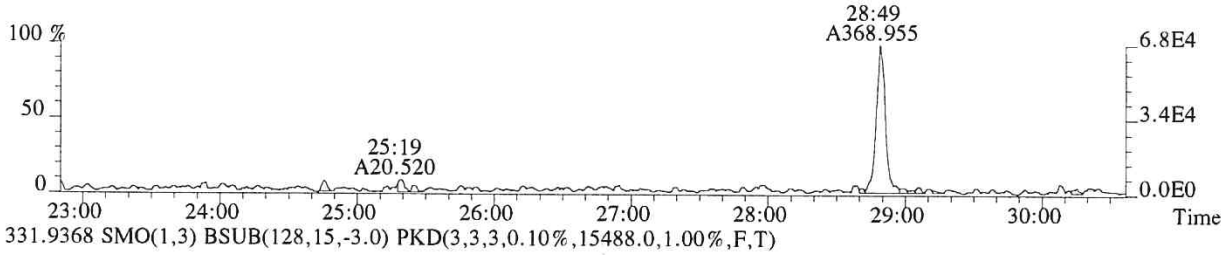
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



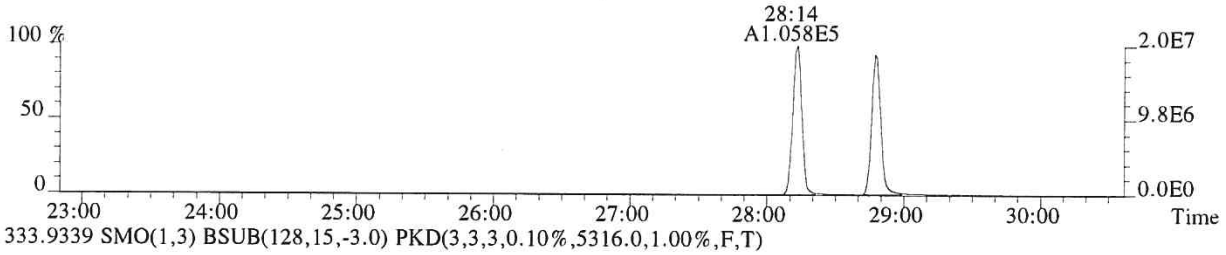
File:P614682 #1-552 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5072.0,1.00%,F,T)



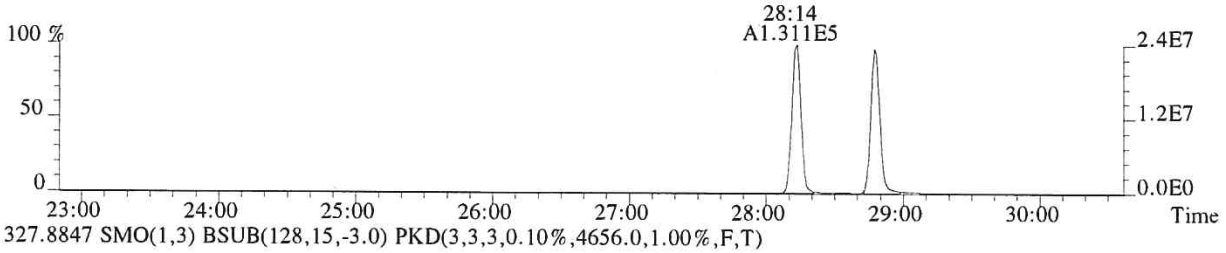
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2400.0,1.00%,F,T)



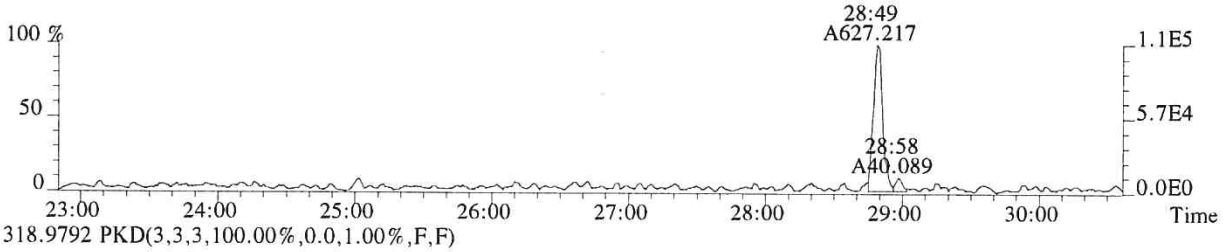
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15488.0,1.00%,F,T)



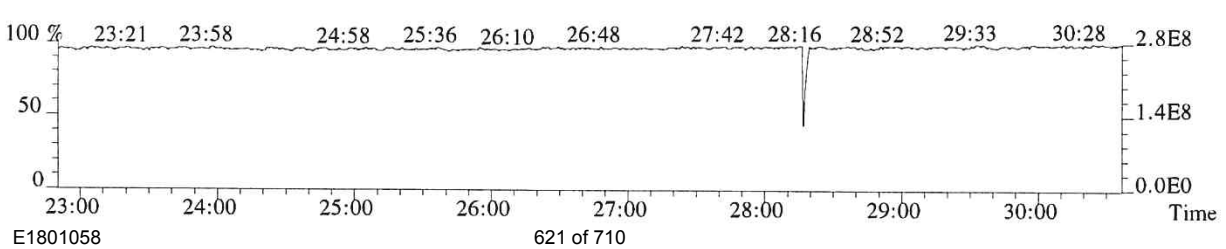
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5316.0,1.00%,F,T)



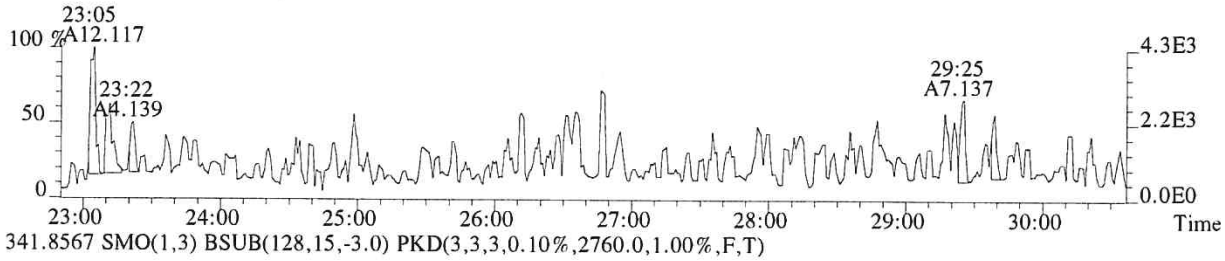
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4656.0,1.00%,F,T)



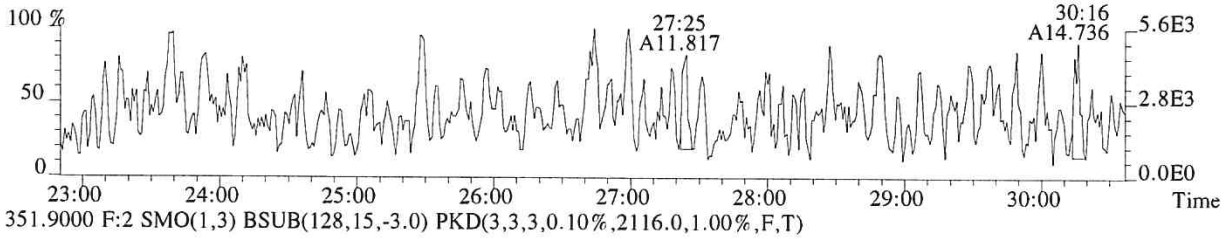
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



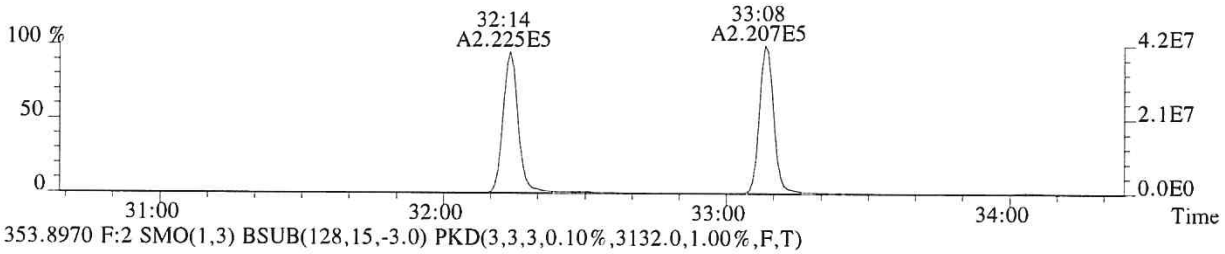
File:P614682 #1-552 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1072.0,1.00%,F,T)



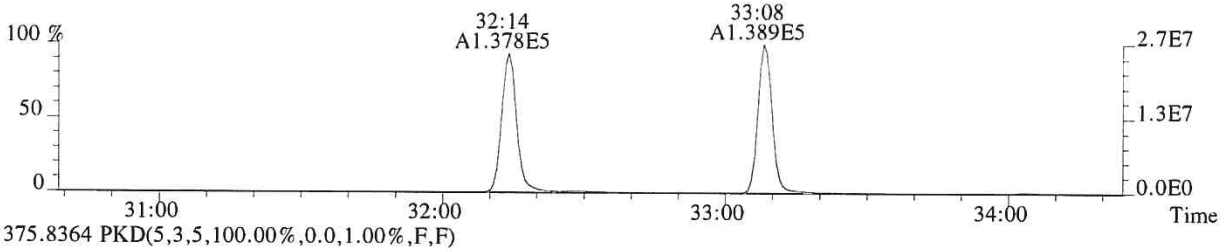
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2760.0,1.00%,F,T)



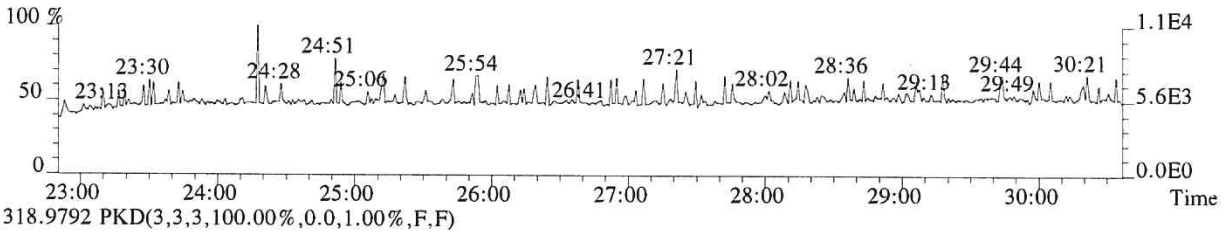
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2116.0,1.00%,F,T)



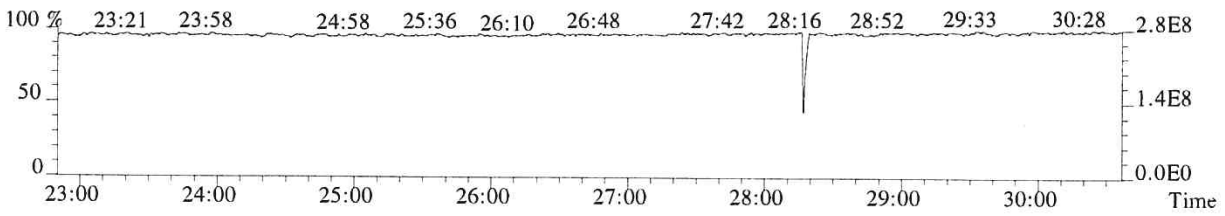
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3132.0,1.00%,F,T)



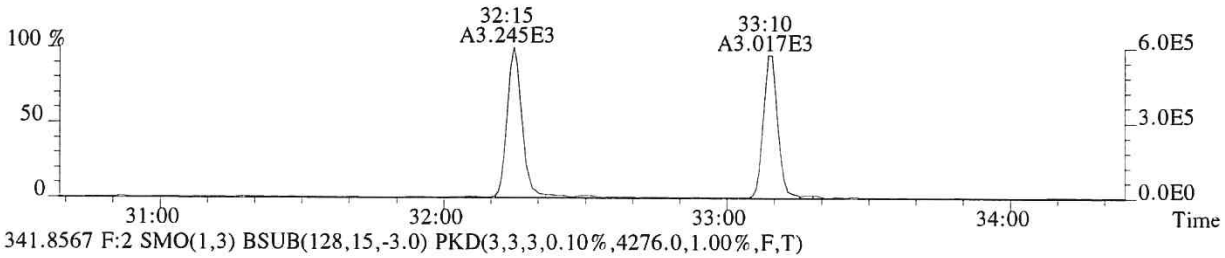
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



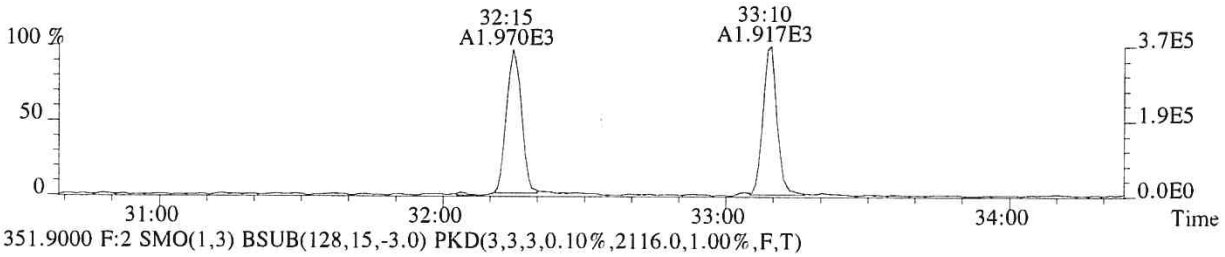
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



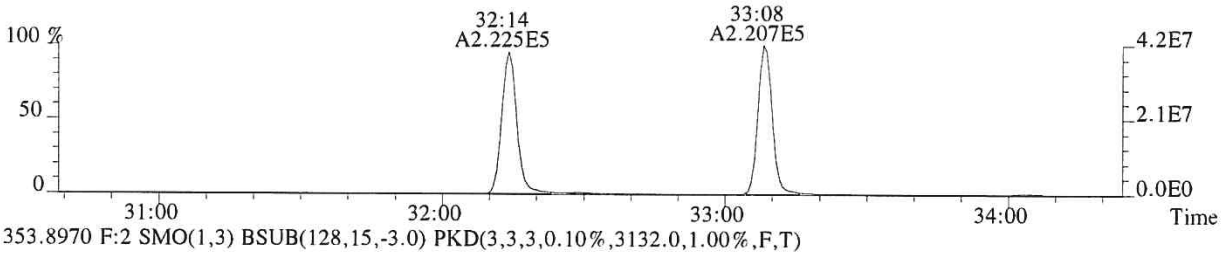
File:P614682 #1-339 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1180.0,1.00%,F,T)



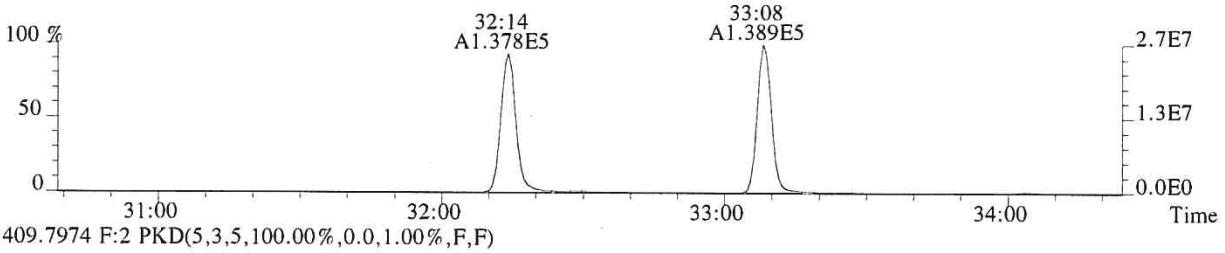
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4276.0,1.00%,F,T)



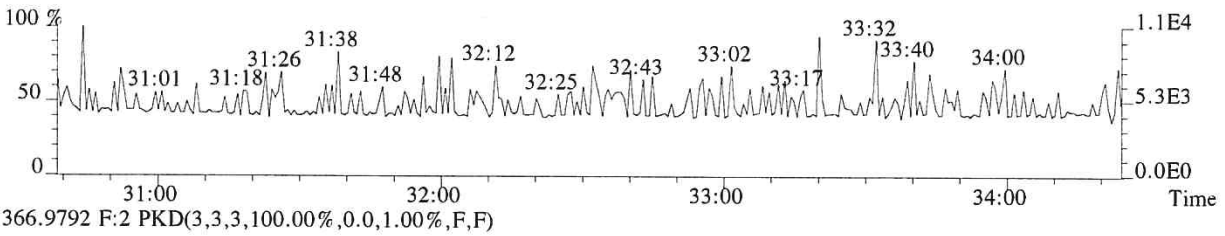
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2116.0,1.00%,F,T)



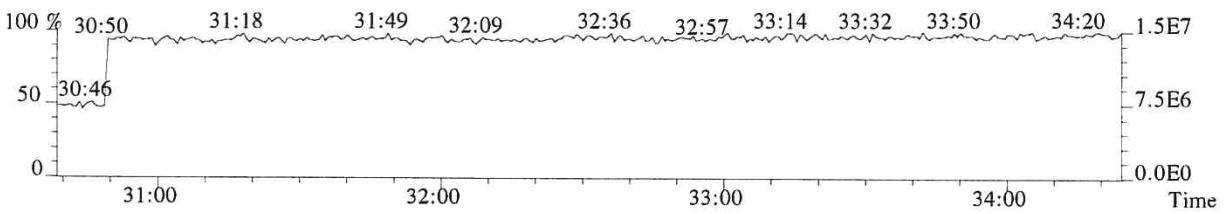
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3132.0,1.00%,F,T)



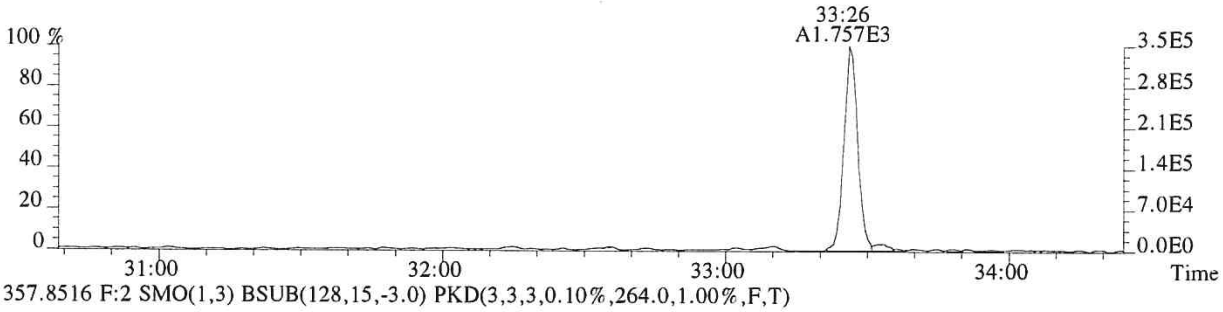
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



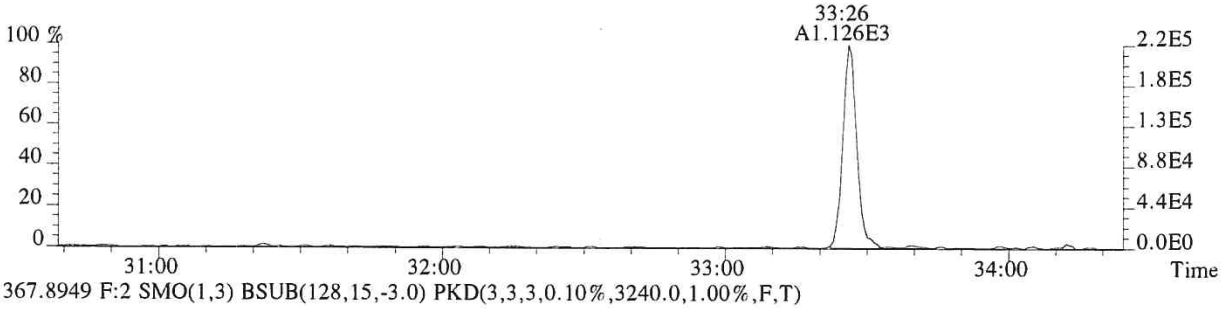
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



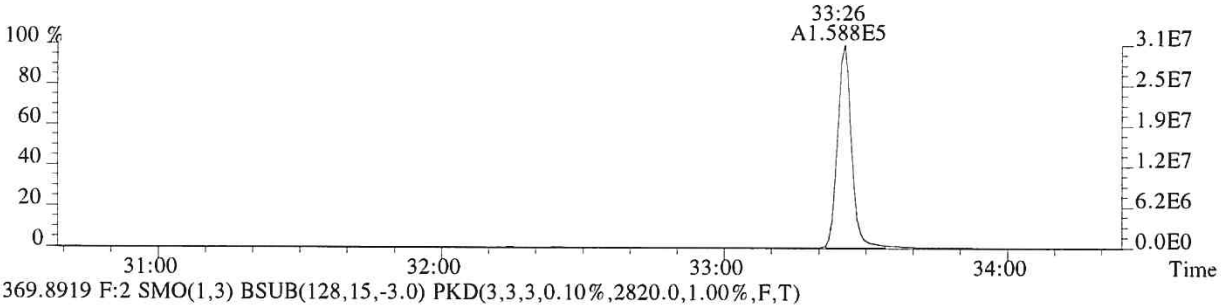
File:P614682 #1-339 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2356.0,1.00%,F,T)



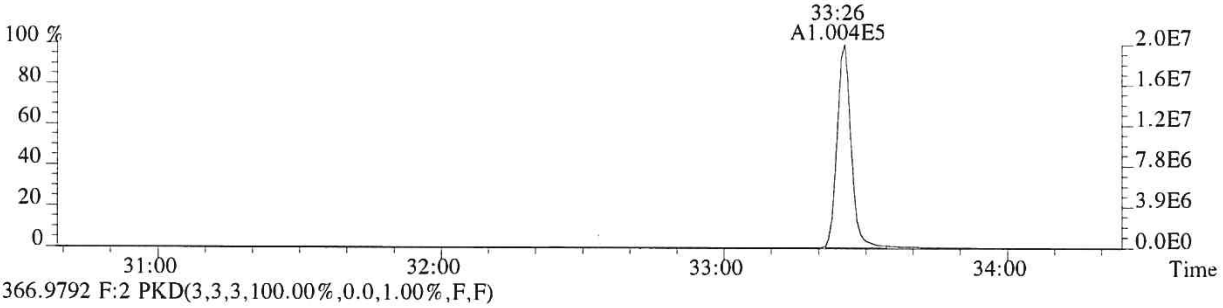
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,264.0,1.00%,F,T)



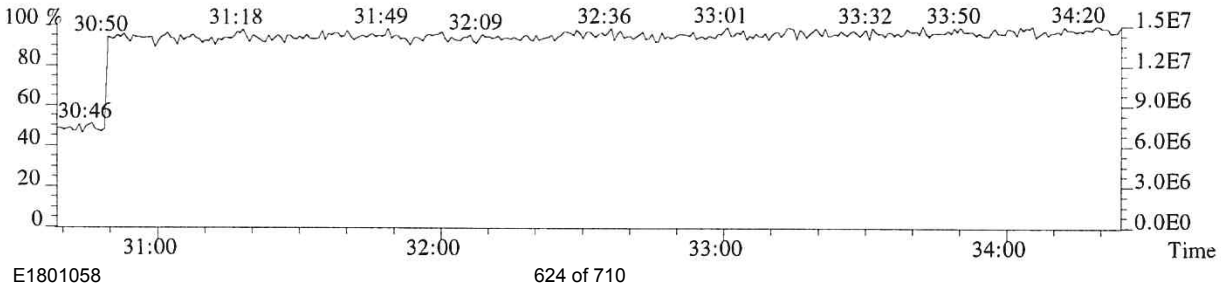
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3240.0,1.00%,F,T)



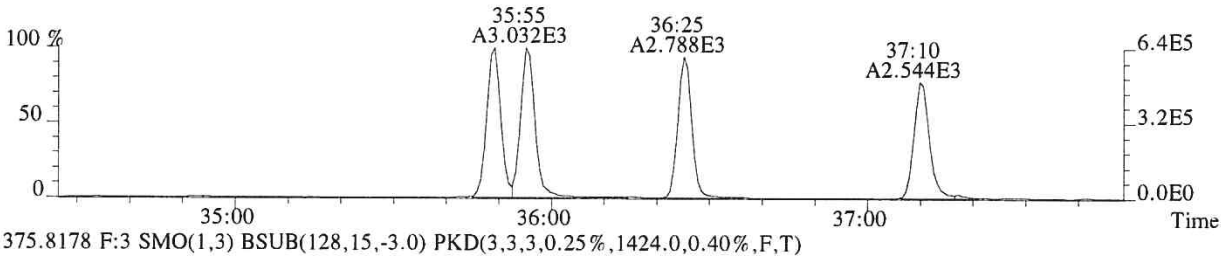
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2820.0,1.00%,F,T)



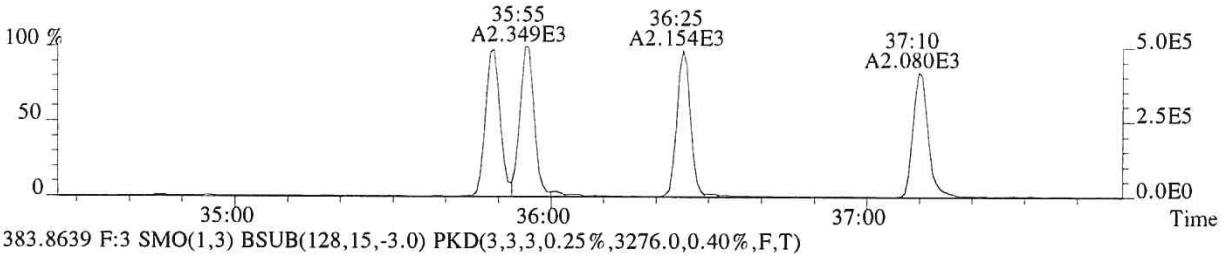
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



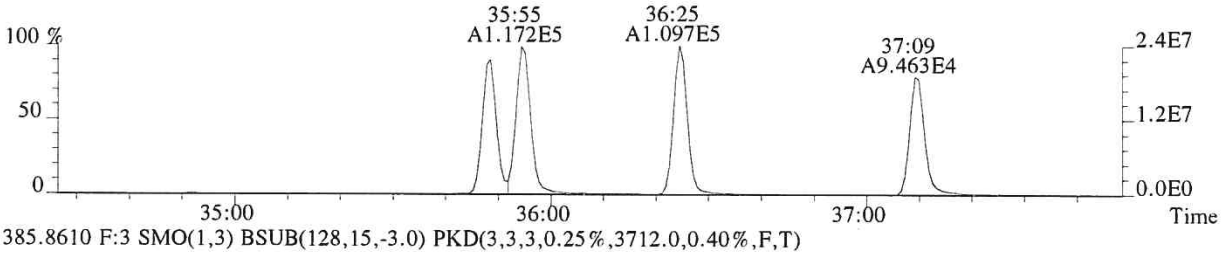
File:P614682 #1-304 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3252.0,0.40%,F,T)



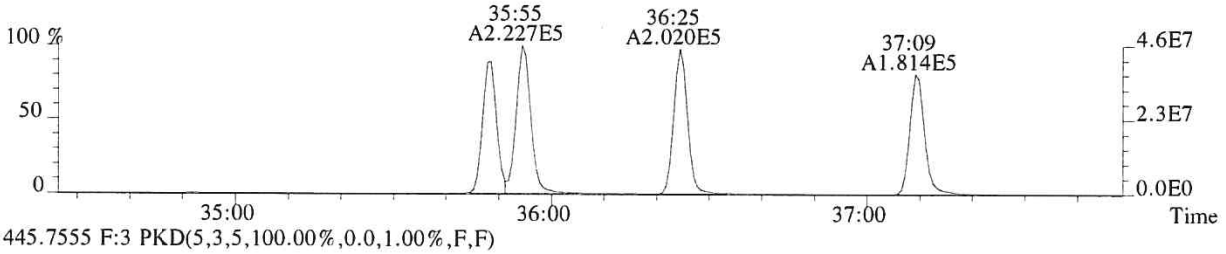
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1424.0,0.40%,F,T)



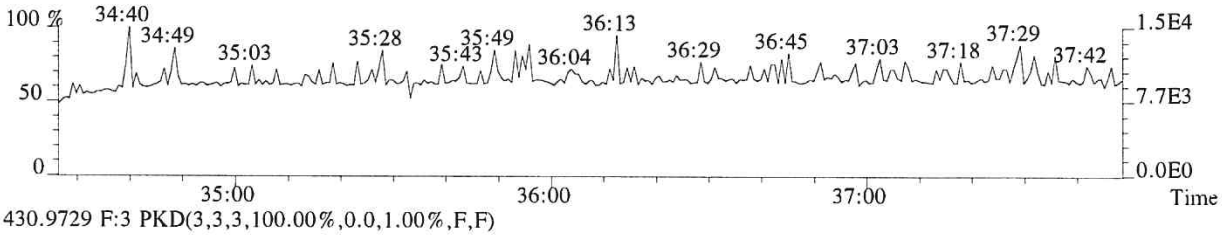
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3276.0,0.40%,F,T)



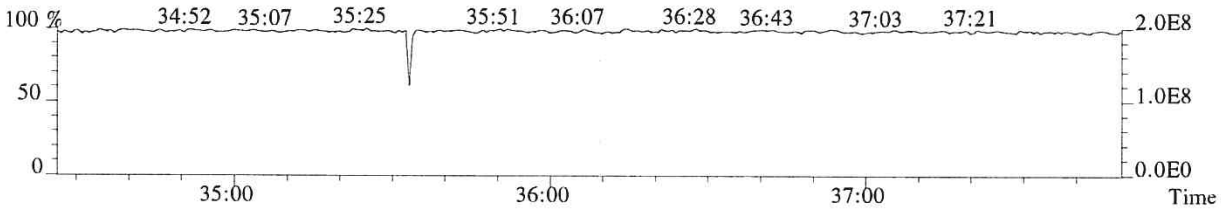
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3712.0,0.40%,F,T)



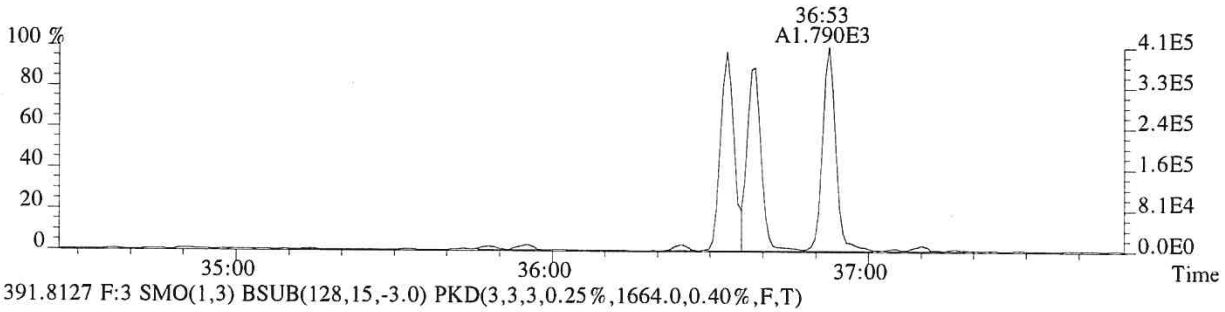
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



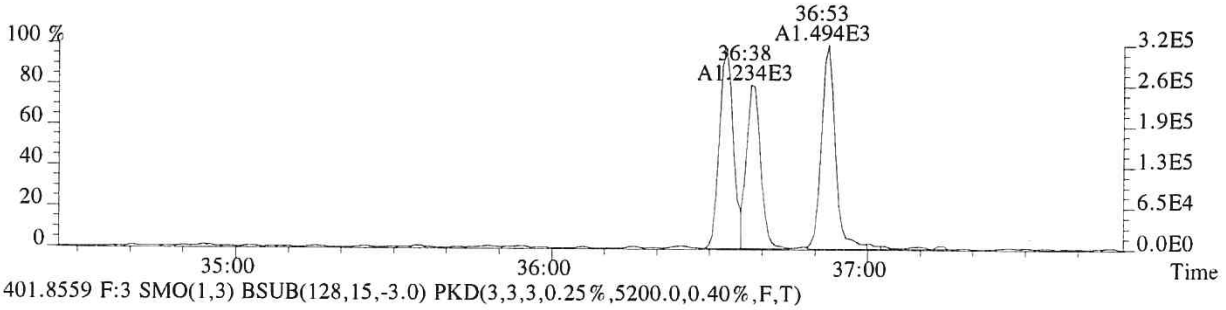
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



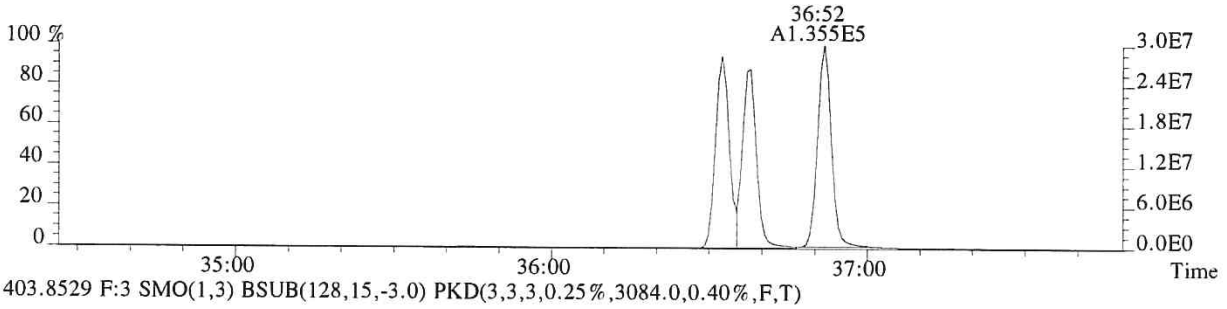
File:P614682 #1-304 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1840.0,0.40%,F,T)



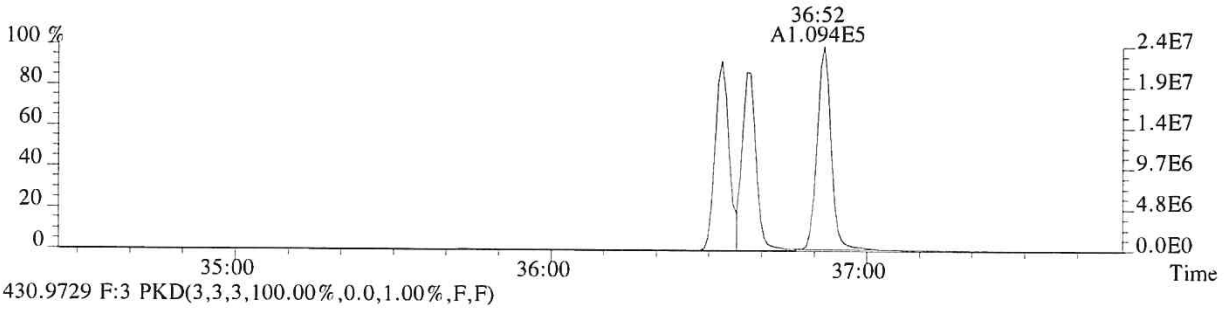
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1664.0,0.40%,F,T)



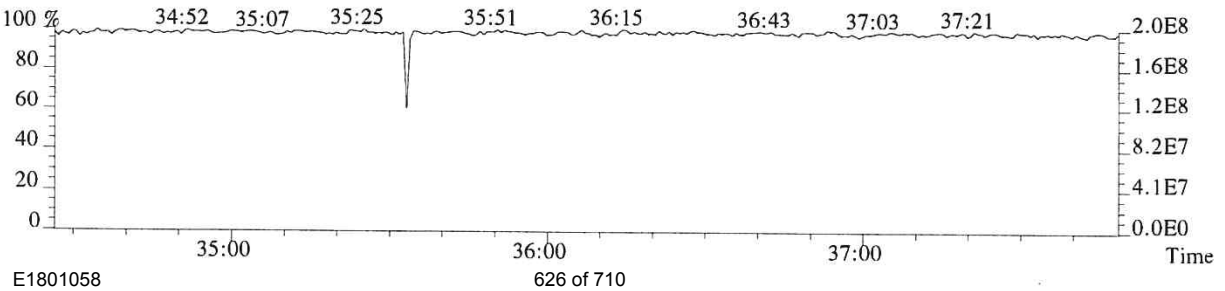
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5200.0,0.40%,F,T)



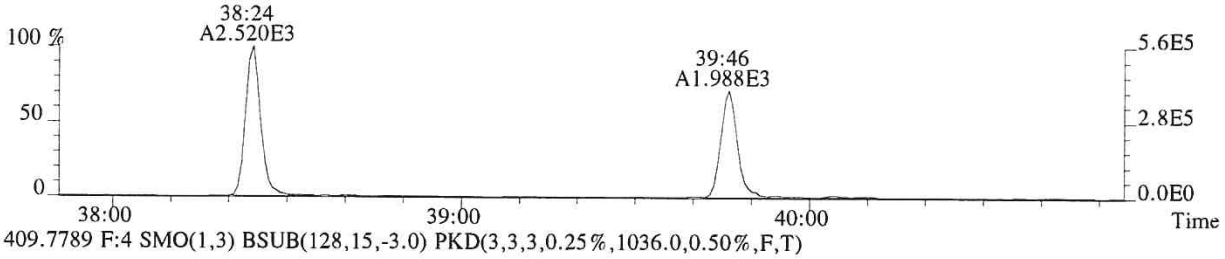
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3084.0,0.40%,F,T)



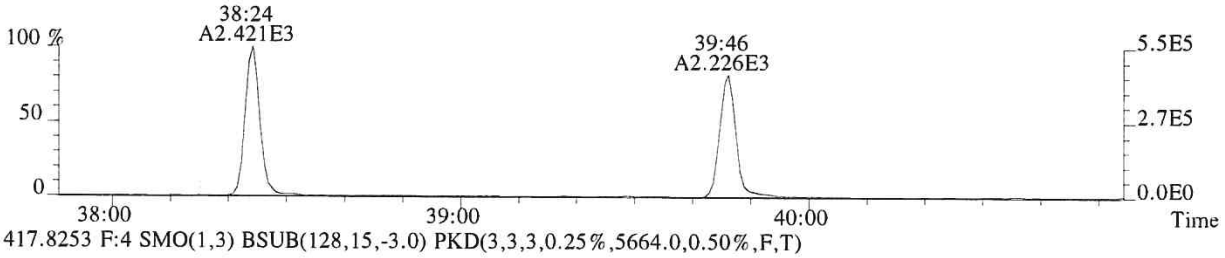
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



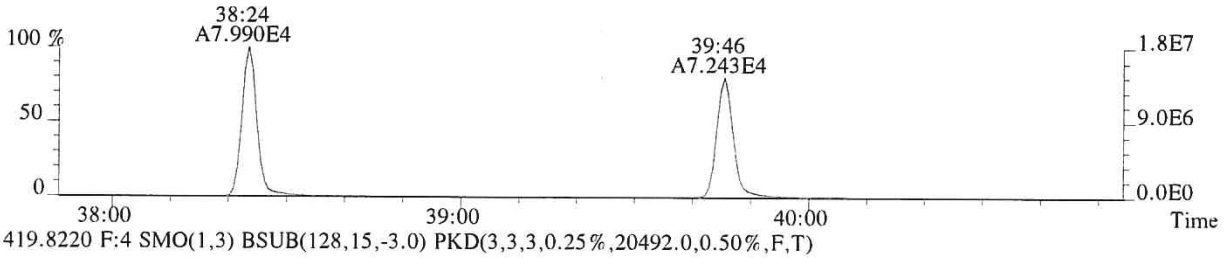
File:P614682 #1-276 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1664.0,0.50%,F,T)



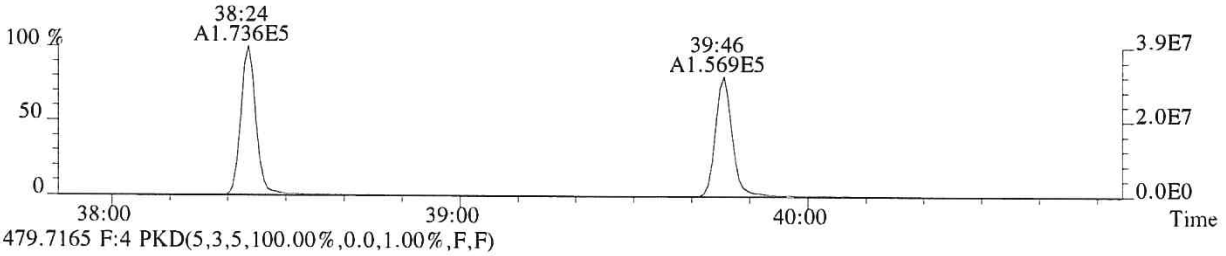
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1036.0,0.50%,F,T)



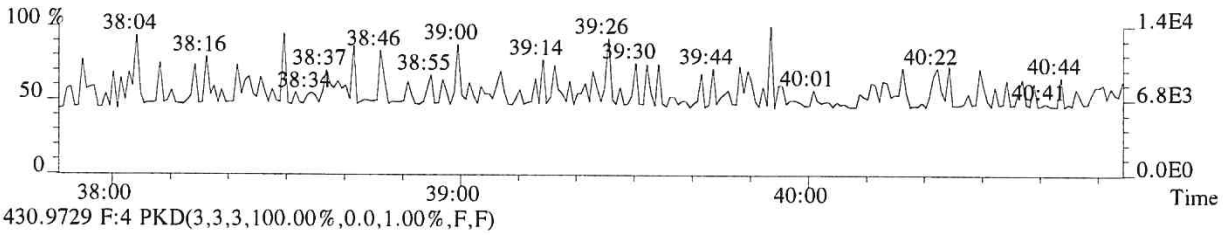
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5664.0,0.50%,F,T)



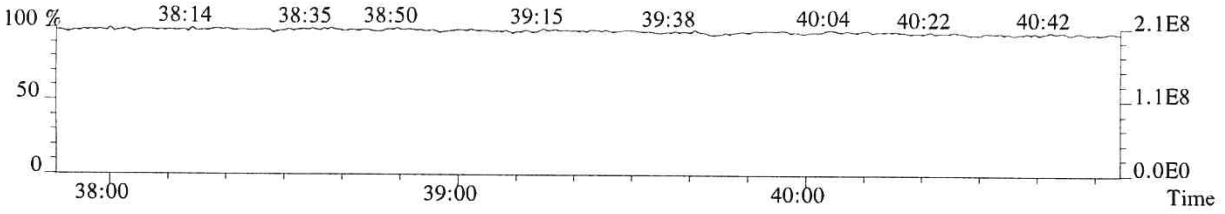
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,20492.0,0.50%,F,T)



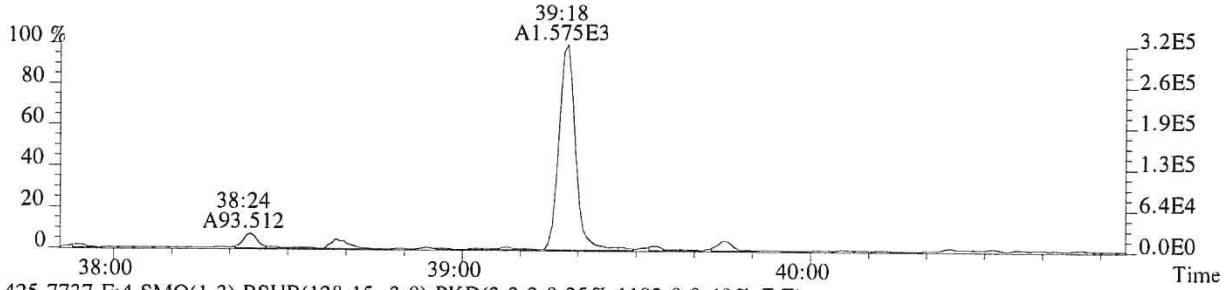
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



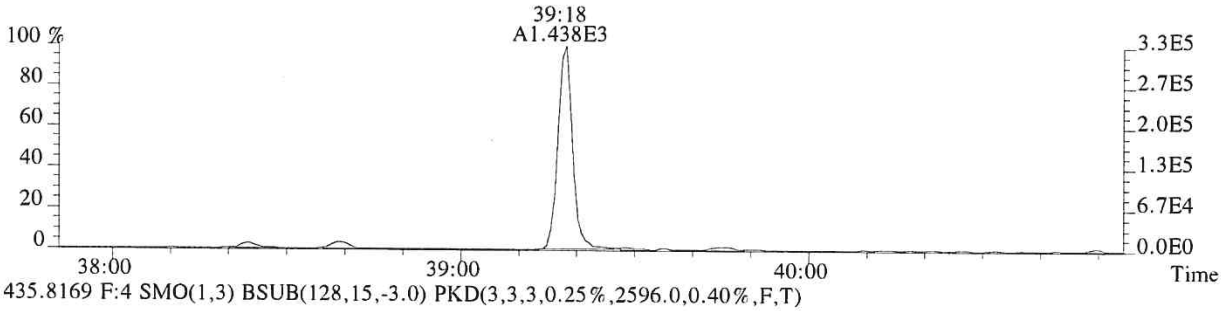
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



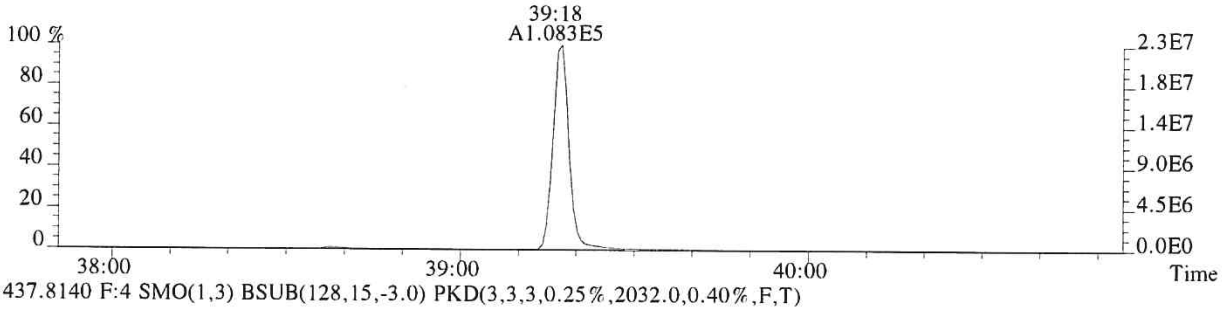
File:P614682 #1-276 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2320.0,0.40%,F,T)



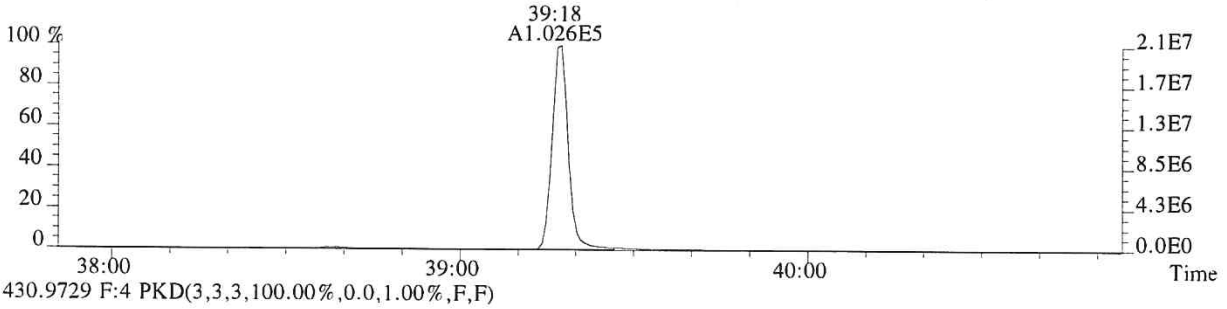
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1192.0,0.40%,F,T)



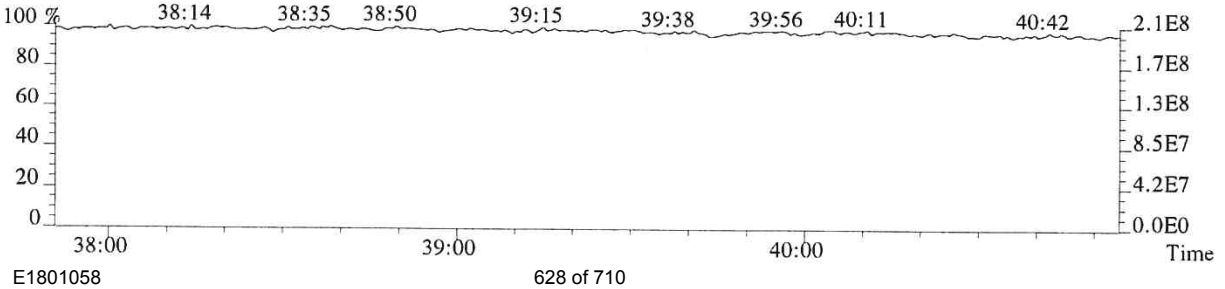
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2596.0,0.40%,F,T)



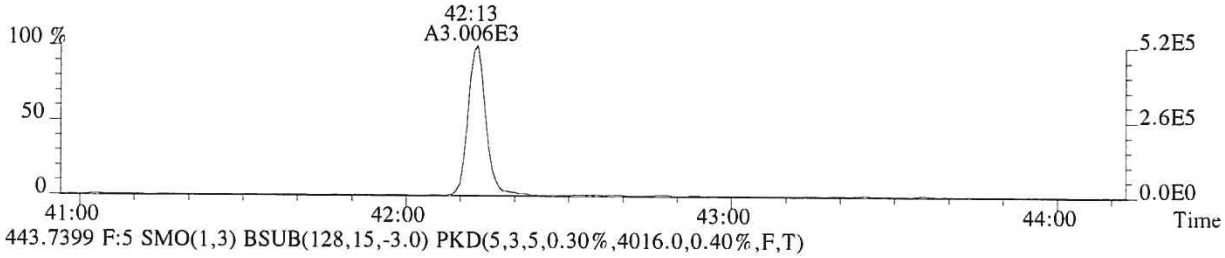
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2032.0,0.40%,F,T)



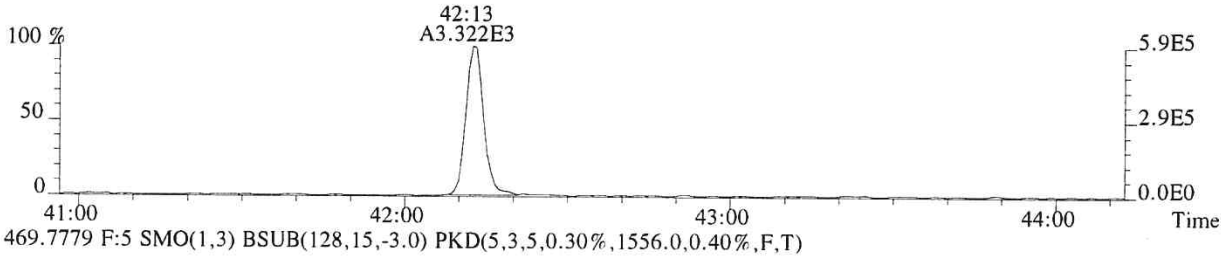
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



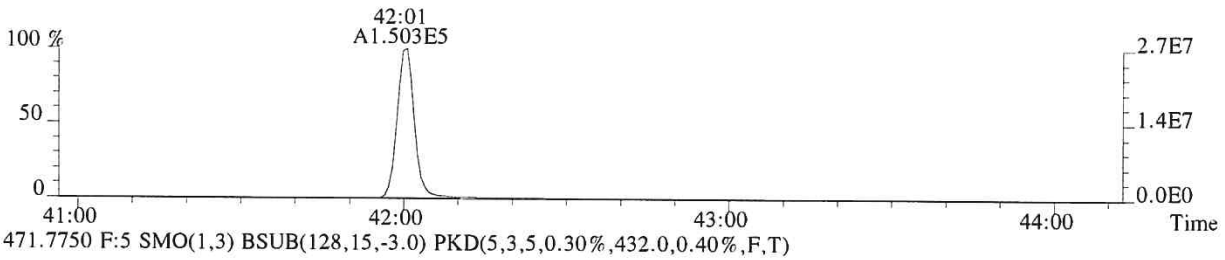
File:P614682 #1-295 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1340.0,0.40%,F,T)



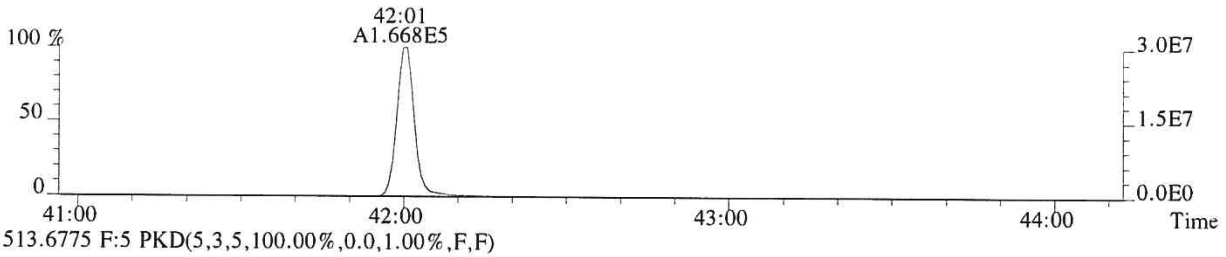
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,4016.0,0.40%,F,T)



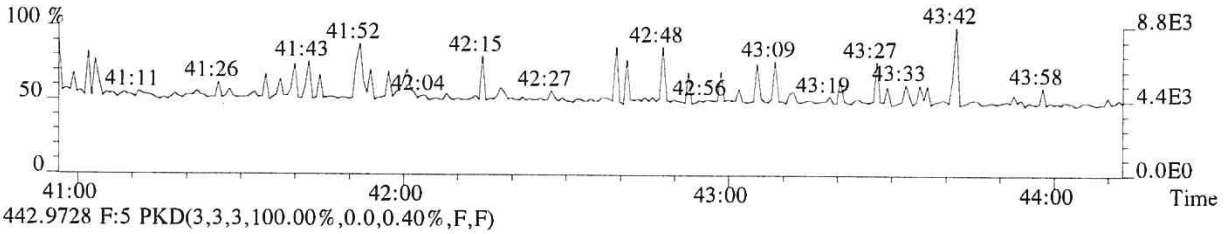
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1556.0,0.40%,F,T)



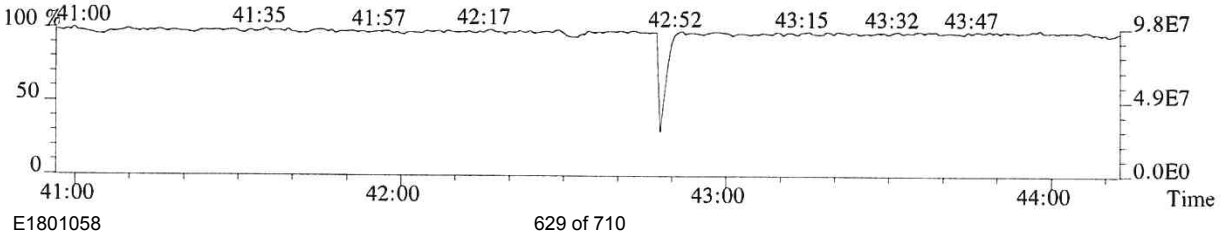
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,432.0,0.40%,F,T)



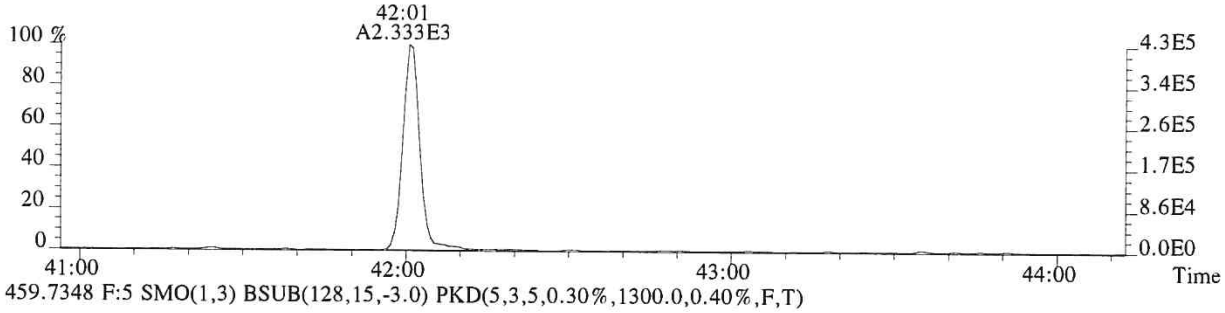
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



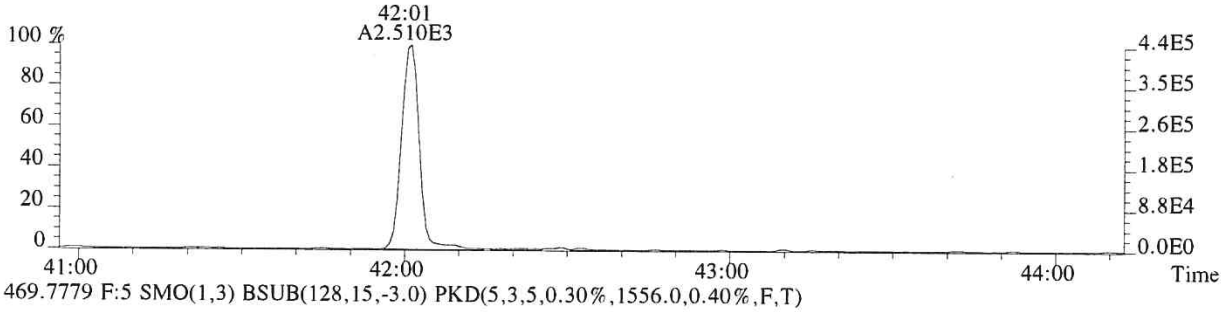
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



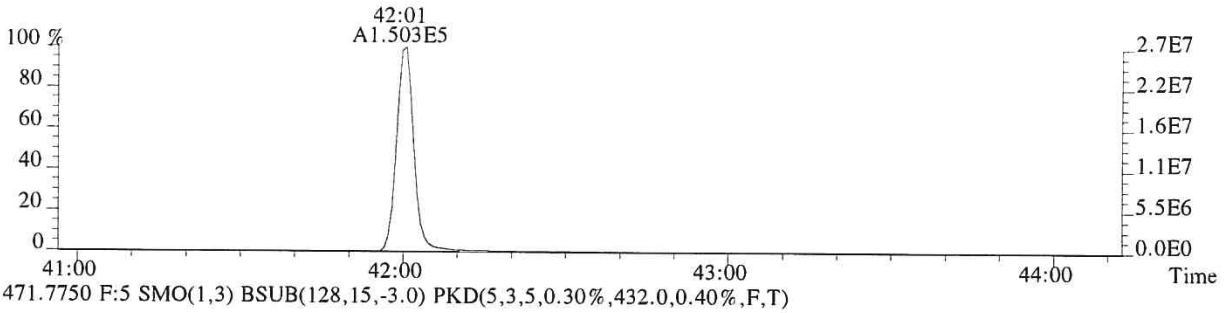
File:P614682 #1-295 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,848.0,0.40%,F,T)



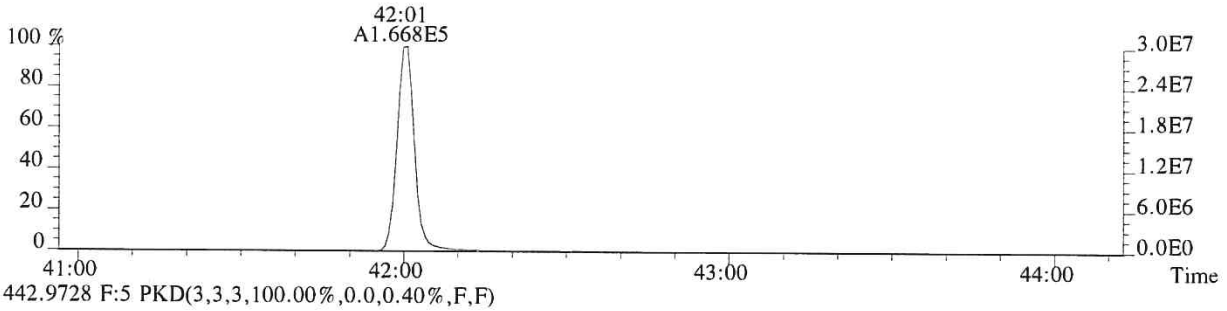
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1300.0,0.40%,F,T)



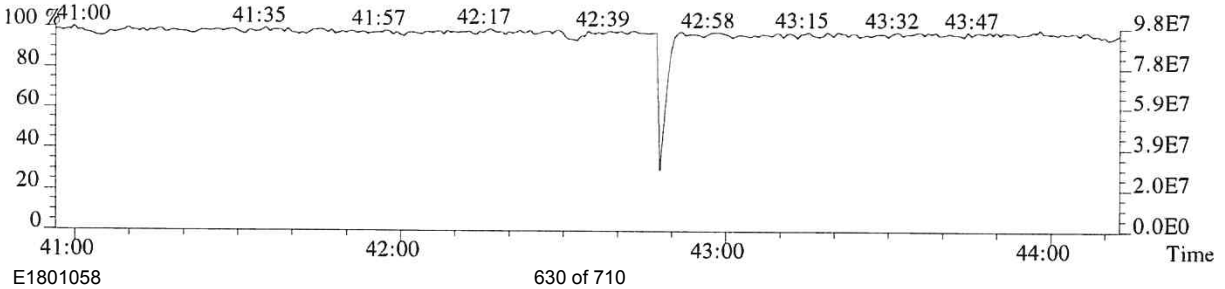
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1556.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,432.0,0.40%,F,T)



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



013720

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
82614

Run #2 Filename P614683 Samp: 1 Inj: 1 Acquired: 25-SEP-18 15:08:49
Processed: 26-SEP-18 07:39:06 Sample ID: CS1

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:00	9.696e+02	1.301e+03	0.75	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:14	8.209e+03	5.211e+03	1.58	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:09	7.782e+03	4.847e+03	1.61	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	7.580e+03	5.860e+03	1.29	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	7.826e+03	6.295e+03	1.24	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	7.149e+03	5.707e+03	1.25	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:10	6.633e+03	5.137e+03	1.29	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	6.668e+03	6.509e+03	1.02	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	5.874e+03	5.515e+03	1.07	yes	no	1.463
10	Unk	OCDF	42:13	7.957e+03	9.190e+03	0.87	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:48	6.591e+02	7.969e+02	0.83	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	4.521e+03	2.979e+03	1.52	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	4.250e+03	3.535e+03	1.20	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:38	4.303e+03	3.394e+03	1.27	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:52	4.586e+03	3.767e+03	1.22	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	4.011e+03	3.764e+03	1.07	yes	no	1.112
17	Unk	OCDD	42:01	6.097e+03	6.815e+03	0.89	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:59	1.863e+05	2.330e+05	0.80	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	2.845e+05	1.757e+05	1.62	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	2.739e+05	1.718e+05	1.59	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	1.281e+05	2.407e+05	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	1.461e+05	2.703e+05	0.54	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	1.362e+05	2.538e+05	0.54	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	1.215e+05	2.294e+05	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:23	1.041e+05	2.259e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:45	9.345e+04	2.024e+05	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	1.293e+05	1.616e+05	0.80	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:25	1.924e+05	1.218e+05	1.58	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:32	1.556e+05	1.239e+05	1.26	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:37	1.601e+05	1.267e+05	1.26	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	1.414e+05	1.336e+05	1.06	yes	no	0.857
32	IS	13C-OCDD	42:00	2.022e+05	2.237e+05	0.90	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:13	1.337e+05	1.646e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:51	1.731e+05	1.377e+05	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	1.653e+03				no	1.086

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
82614

Run #2 Filename P614683 Samp: 1 Inj: 1 Acquired: 25-SEP-18 15:08:49
Processed: 26-SEP-18 07:39:06 LAB. ID: CS1

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.73e+05	2.52e+03	6.9e+01	2.26e+05	4.68e+03	4.8e+01
2	1,2,3,7,8-PeCDF	1.49e+06	1.07e+03	1.4e+03	9.88e+05	5.47e+03	1.8e+02
3	2,3,4,7,8-PeCDF	1.55e+06	1.07e+03	1.5e+03	9.81e+05	5.47e+03	1.8e+02
4	1,2,3,4,7,8-HxCDF	1.64e+06	3.19e+03	5.1e+02	1.29e+06	1.24e+03	1.0e+03
5	1,2,3,6,7,8-HxCDF	1.65e+06	3.19e+03	5.2e+02	1.30e+06	1.24e+03	1.0e+03
6	2,3,4,6,7,8-HxCDF	1.53e+06	3.19e+03	4.8e+02	1.19e+06	1.24e+03	9.6e+02
7	1,2,3,7,8,9-HxCDF	1.37e+06	3.19e+03	4.3e+02	1.06e+06	1.24e+03	8.5e+02
8	1,2,3,4,6,7,8-HpCDF	1.48e+06	1.97e+03	7.5e+02	1.45e+06	1.25e+03	1.2e+03
9	1,2,3,4,7,8,9-HpCDF	1.19e+06	1.97e+03	6.0e+02	1.11e+06	1.25e+03	8.9e+02
10	OCDF	1.45e+06	1.15e+03	1.3e+03	1.64e+06	2.28e+03	7.2e+02
11	2,3,7,8-TCDD	1.20e+05	6.88e+03	1.7e+01	1.48e+05	2.99e+03	5.0e+01
12	1,2,3,7,8-PeCDD	8.64e+05	2.37e+03	3.6e+02	5.83e+05	1.39e+03	4.2e+02
13	1,2,3,4,7,8-HxCDD	9.60e+05	1.02e+03	9.4e+02	8.07e+05	1.68e+03	4.8e+02
14	1,2,3,6,7,8-HxCDD	9.46e+05	1.02e+03	9.3e+02	7.52e+05	1.68e+03	4.5e+02
15	1,2,3,7,8,9-HxCDD	1.01e+06	1.02e+03	9.9e+02	8.34e+05	1.68e+03	5.0e+02
16	1,2,3,4,6,7,8-HpCDD	8.38e+05	1.17e+03	7.2e+02	8.29e+05	4.84e+02	1.7e+03
17	OCDD	1.16e+06	3.14e+03	3.7e+02	1.30e+06	1.96e+03	6.6e+02
18	13C-2,3,7,8-TCDF	3.28e+07	1.64e+04	2.0e+03	4.11e+07	1.27e+04	3.2e+03
19	13C-1,2,3,7,8-PeCDF	5.29e+07	3.44e+03	1.5e+04	3.26e+07	2.57e+03	1.3e+04
20	13C-2,3,4,7,8-PeCDF	5.43e+07	3.44e+03	1.6e+04	3.38e+07	2.57e+03	1.3e+04
21	13C-1,2,3,4,7,8-HxCDF	2.86e+07	3.47e+03	8.3e+03	5.39e+07	4.48e+03	1.2e+04
22	13C-1,2,3,6,7,8-HxCDF	3.07e+07	3.47e+03	8.8e+03	5.68e+07	4.48e+03	1.3e+04
23	13C-2,3,4,6,7,8-HxCDF	2.95e+07	3.47e+03	8.5e+03	5.46e+07	4.48e+03	1.2e+04
24	13C-1,2,3,7,8,9-HxCDF	2.51e+07	3.47e+03	7.2e+03	4.72e+07	4.48e+03	1.1e+04
25	13C-1,2,3,4,6,7,8-HpCDF	2.28e+07	1.29e+04	1.8e+03	4.99e+07	2.56e+04	2.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.87e+07	1.29e+04	1.5e+03	4.06e+07	2.56e+04	1.6e+03
27	13C-2,3,7,8-TCDD	2.37e+07	1.79e+04	1.3e+03	2.98e+07	7.48e+03	4.0e+03
28	13C-1,2,3,7,8-PeCDD	3.81e+07	3.05e+03	1.3e+04	2.43e+07	1.79e+03	1.4e+04
29	13C-1,2,3,4,7,8-HxCDD	3.53e+07	4.99e+03	7.1e+03	2.84e+07	2.28e+03	1.2e+04
30	13C-1,2,3,6,7,8-HxCDD	3.46e+07	4.99e+03	6.9e+03	2.73e+07	2.28e+03	1.2e+04
31	13C-1,2,3,4,6,7,8-HpCDD	3.08e+07	3.94e+03	7.8e+03	2.93e+07	1.60e+03	1.8e+04
32	13C-OCDD	3.85e+07	1.12e+03	3.4e+04	4.22e+07	1.86e+03	2.3e+04
33	13C-1,2,3,4-TCDD	2.49e+07	1.79e+04	1.4e+03	3.07e+07	7.48e+03	4.1e+03
34	13C-1,2,3,7,8,9-HxCDD	3.76e+07	4.99e+03	7.5e+03	3.01e+07	2.28e+03	1.3e+04
35	37Cl-2,3,7,8-TCDD	3.03e+05	3.87e+03	7.8e+01			

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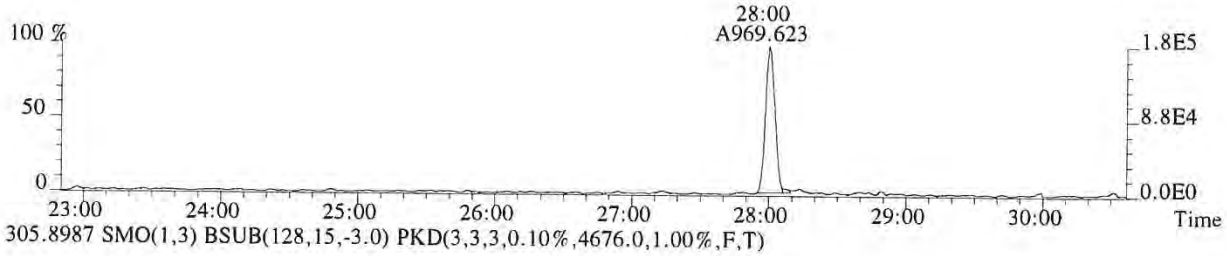
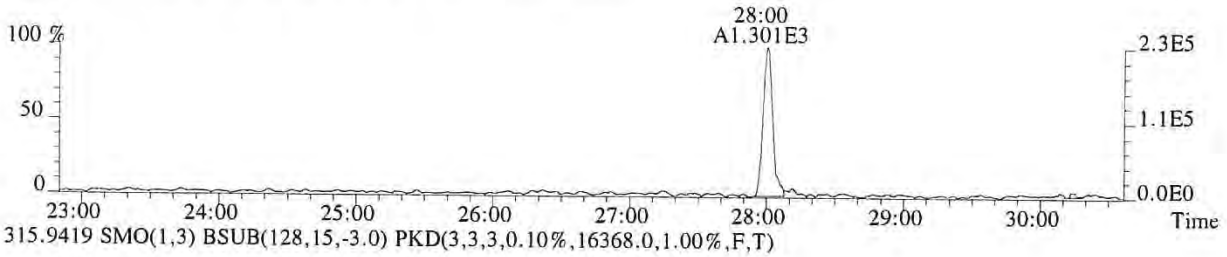
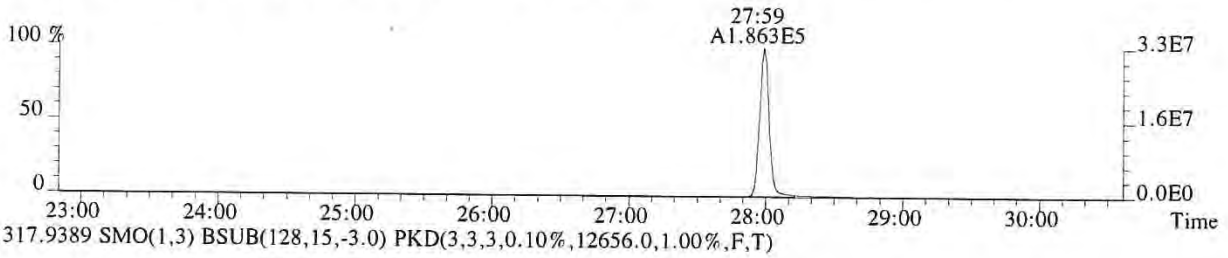
File:P614683 #1-552 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:CS1
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2516.0,1.00%,F,T)



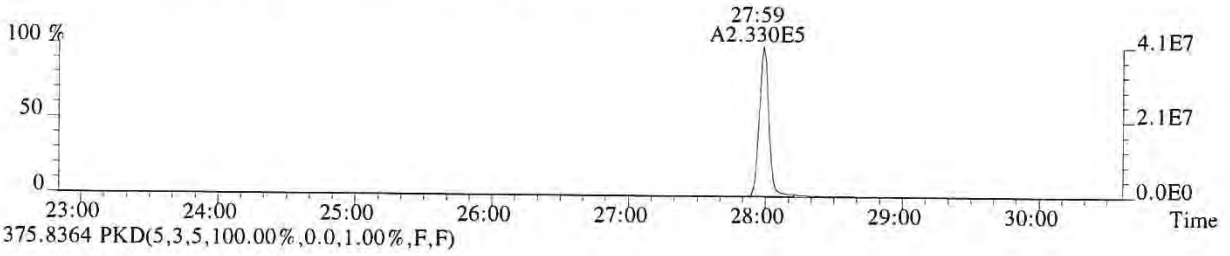
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4676.0,1.00%,F,T)



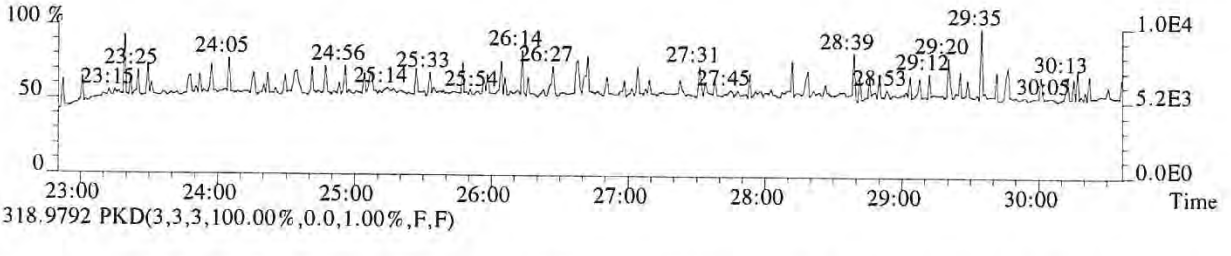
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,16368.0,1.00%,F,T)



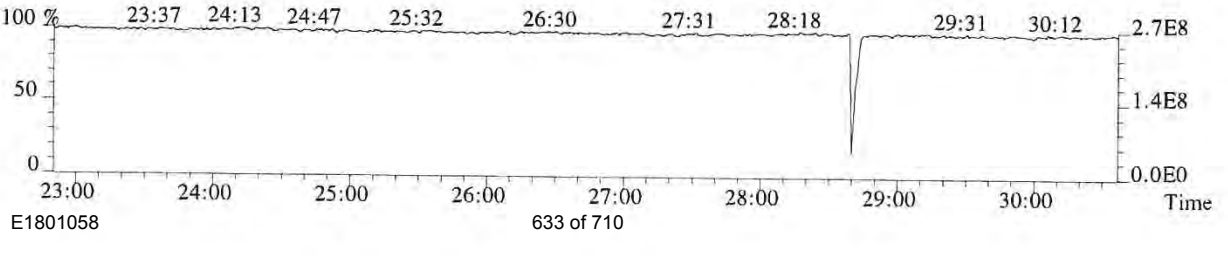
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,12656.0,1.00%,F,T)



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

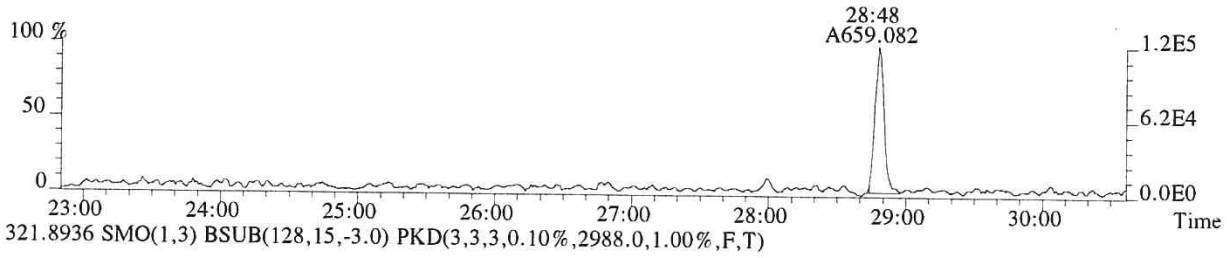


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

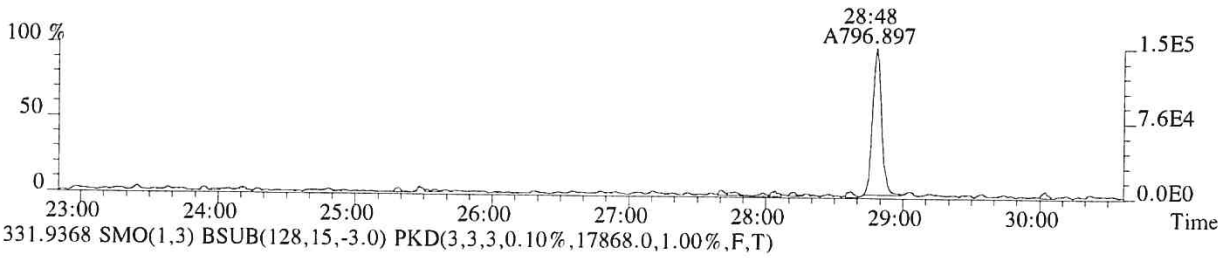


013723

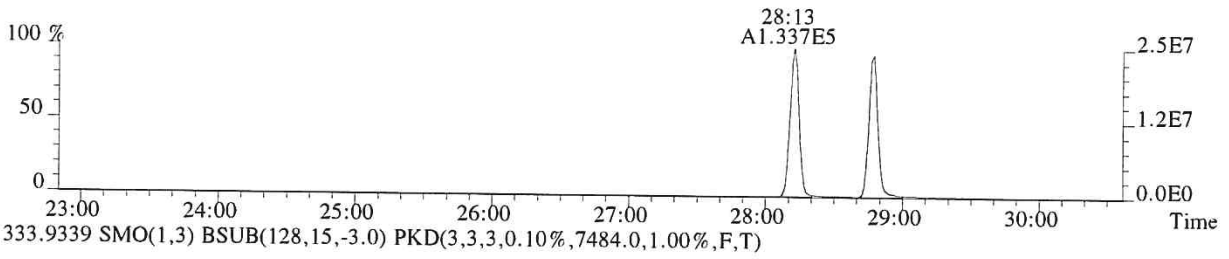
File:P614683 #1-552 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6880.0,1.00%,F,T)



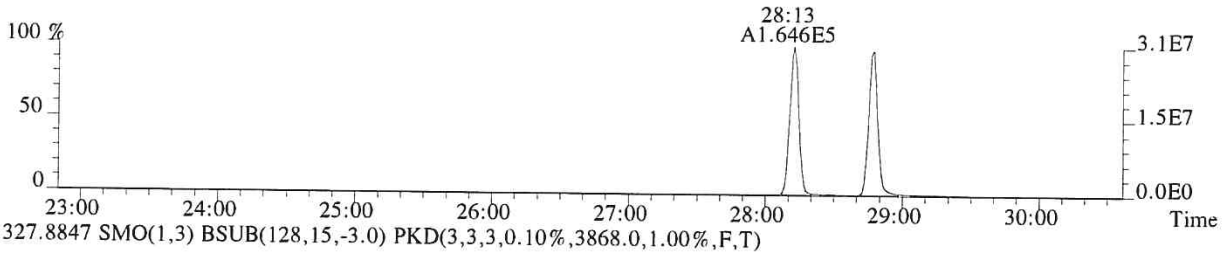
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2988.0,1.00%,F,T)



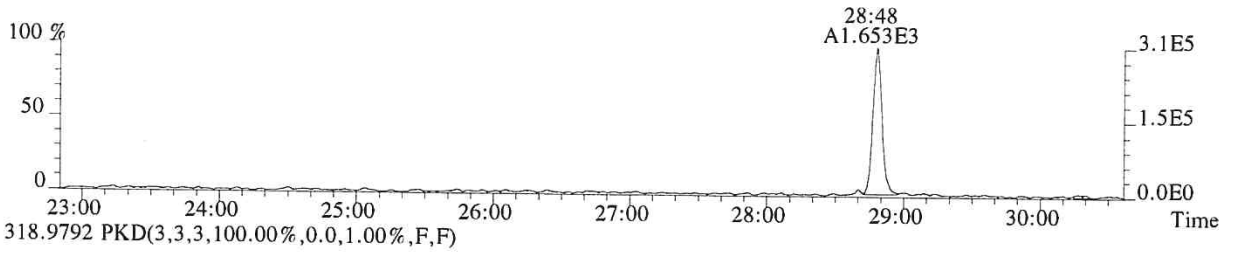
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,17868.0,1.00%,F,T)



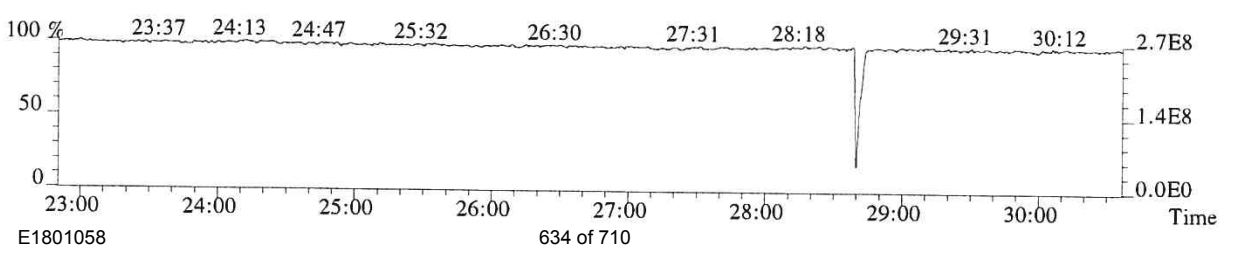
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7484.0,1.00%,F,T)



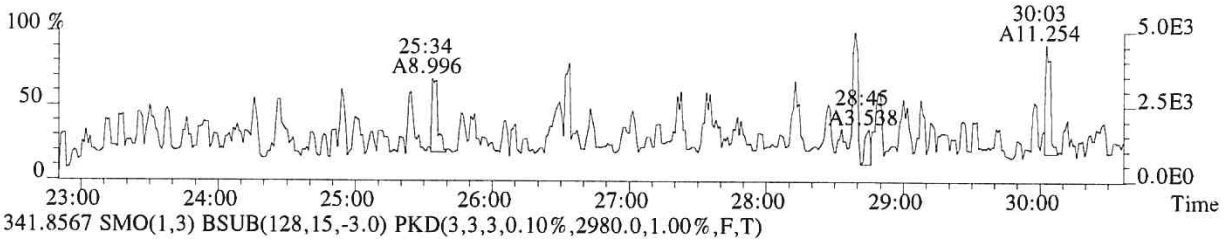
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3868.0,1.00%,F,T)



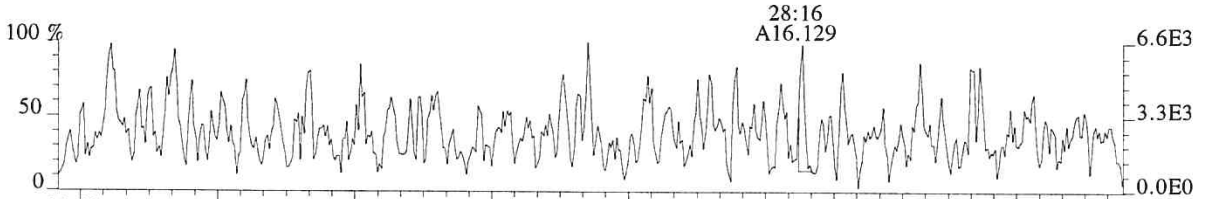
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



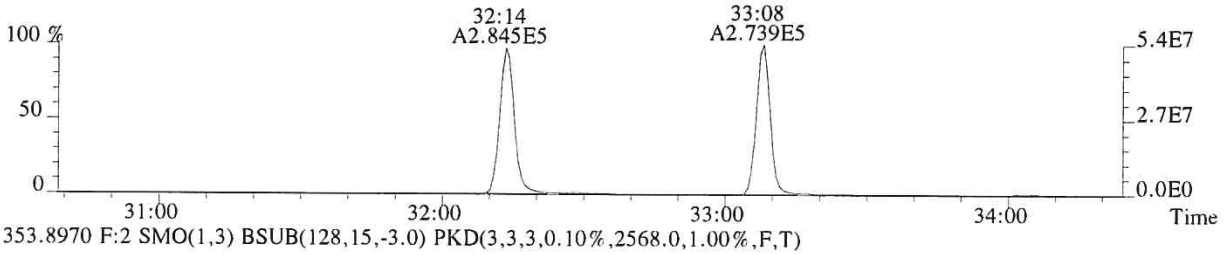
File:P614683 #1-552 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1796.0,1.00%,F,T)



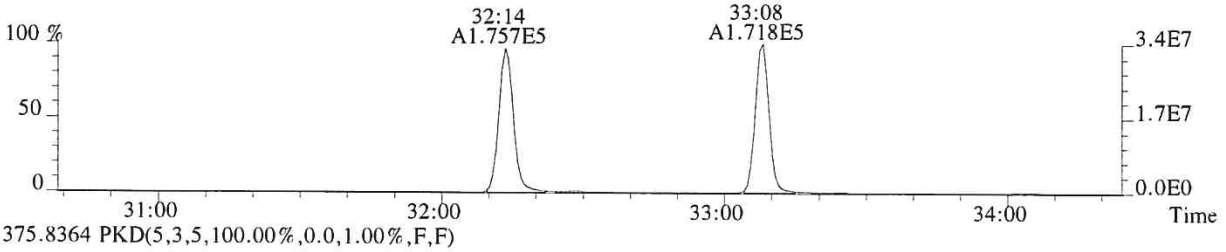
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2980.0,1.00%,F,T)



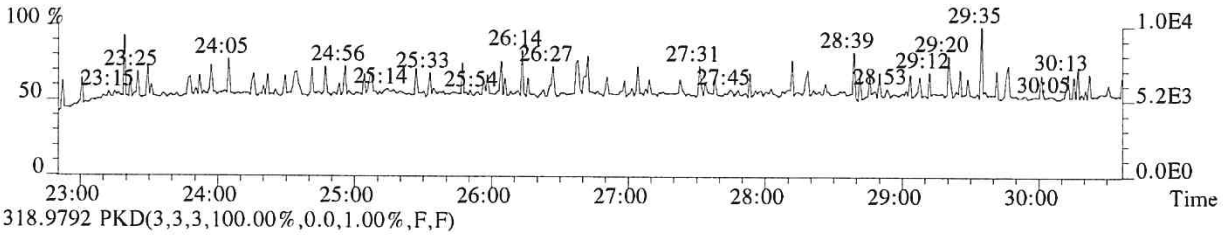
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3436.0,1.00%,F,T)



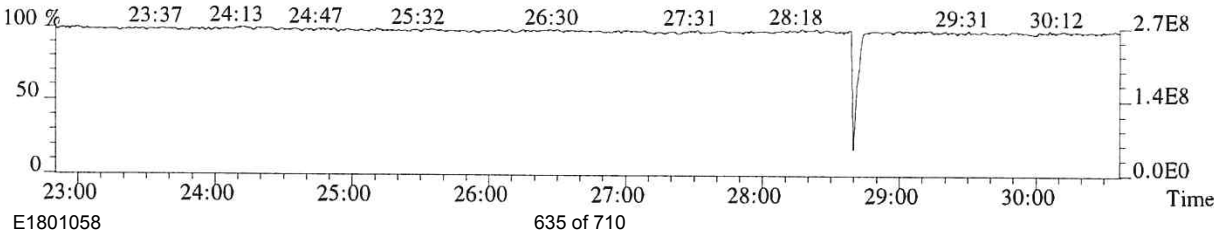
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2568.0,1.00%,F,T)



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



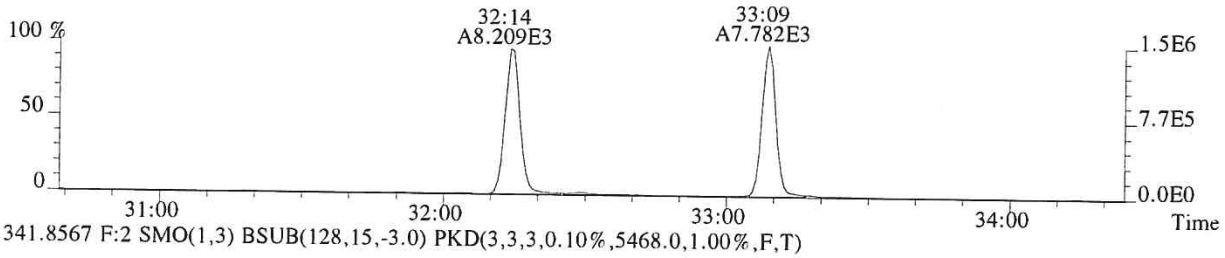
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



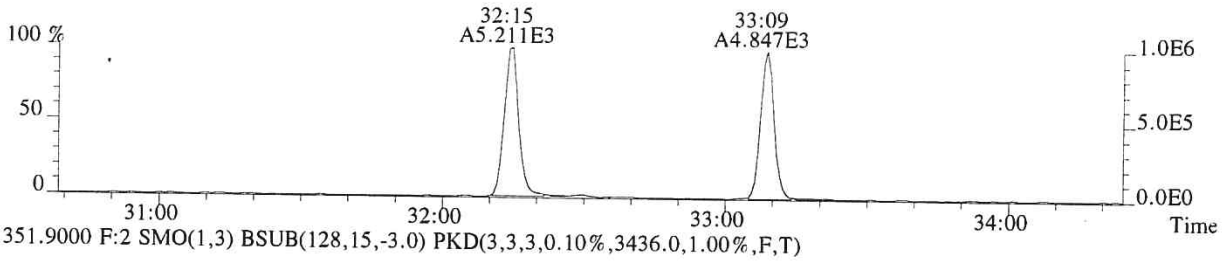
013725

File:P614683 #1-339 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1

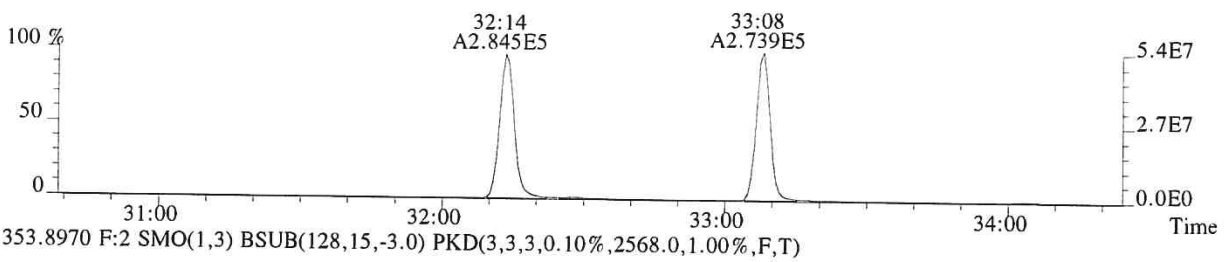
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1068.0,1.00%,F,T)



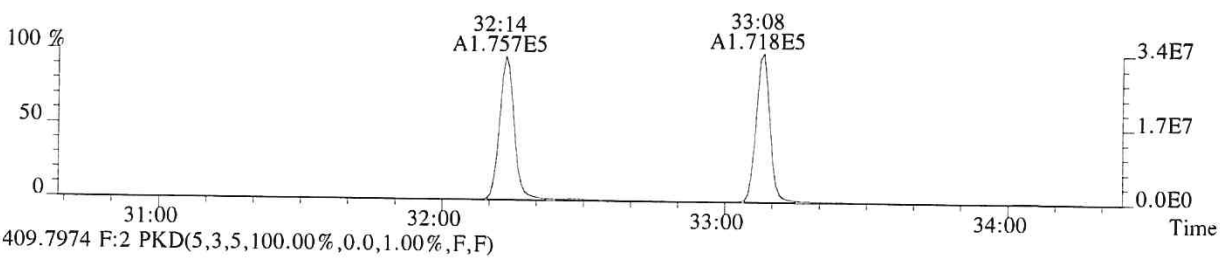
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5468.0,1.00%,F,T)



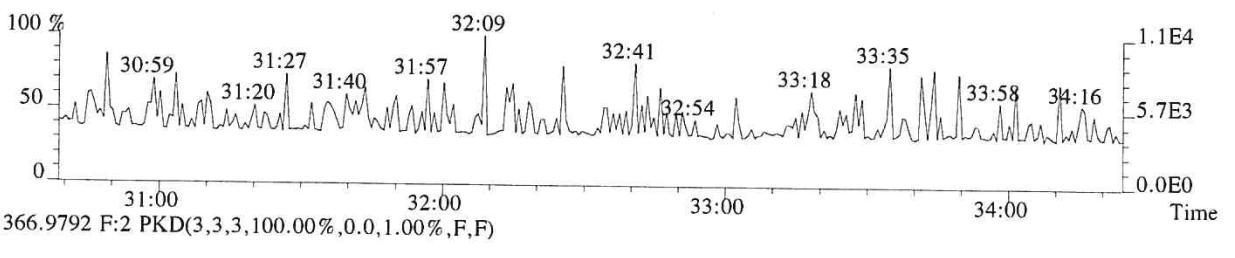
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3436.0,1.00%,F,T)



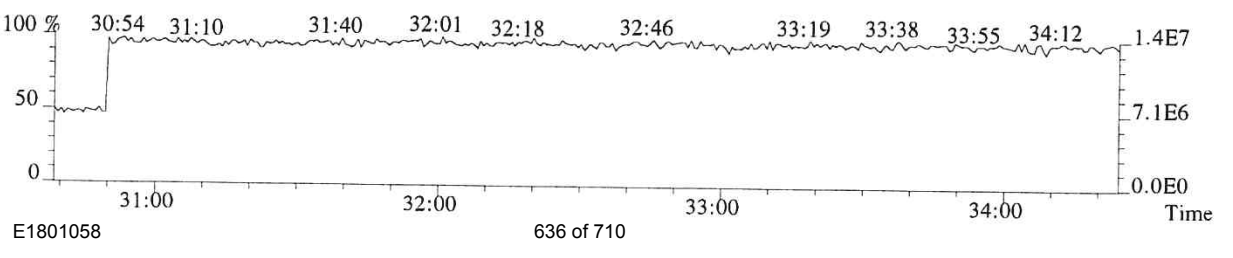
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2568.0,1.00%,F,T)



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

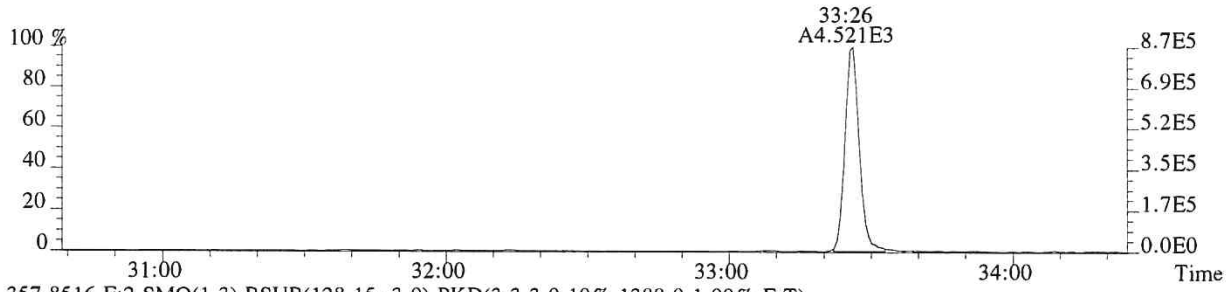


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

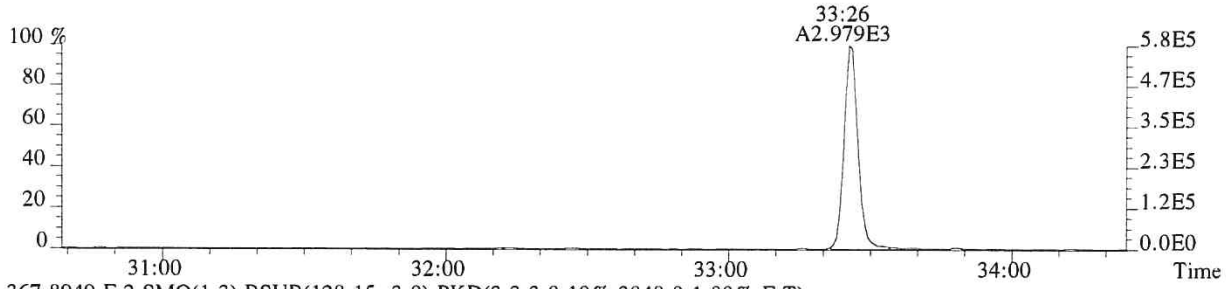


013726

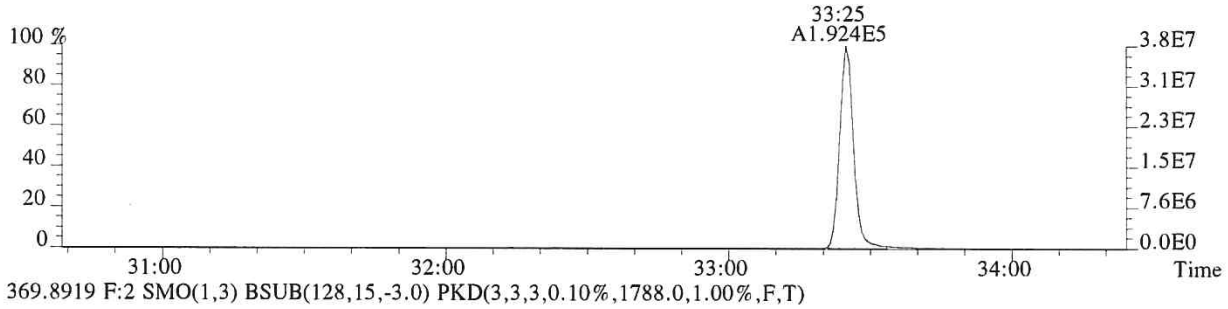
File:P614683 #1-339 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2368.0,1.00%,F,T)



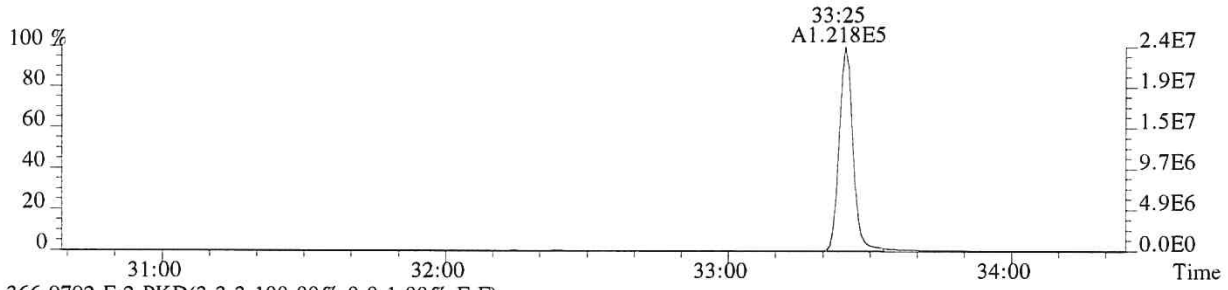
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1388.0,1.00%,F,T)



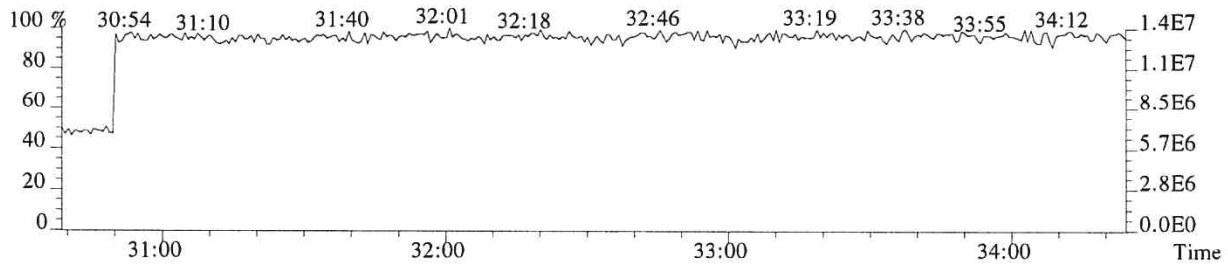
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3048.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1788.0,1.00%,F,T)

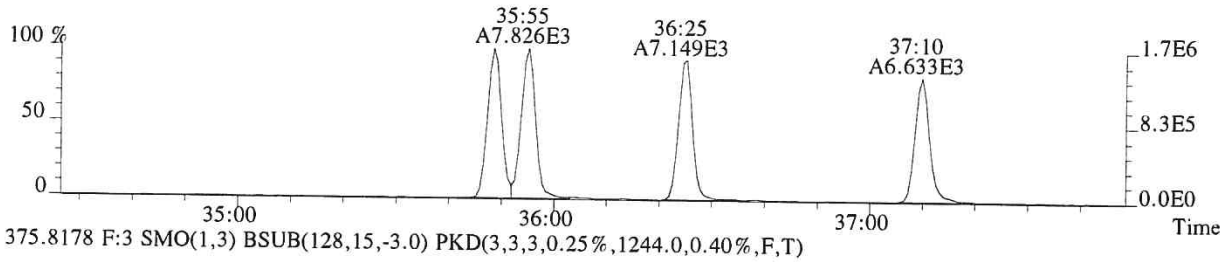


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

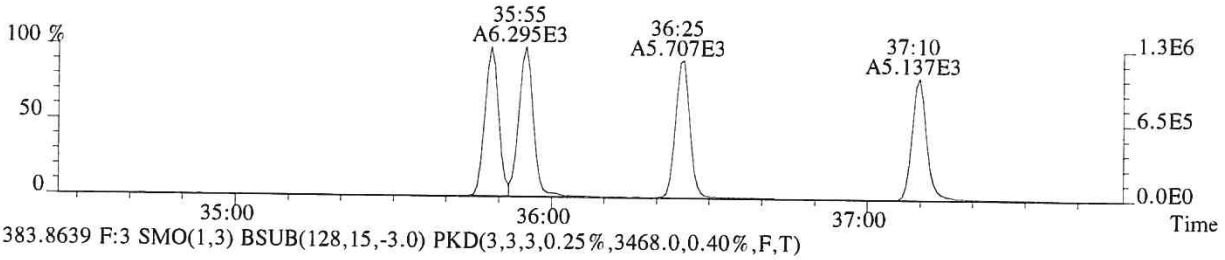


013727

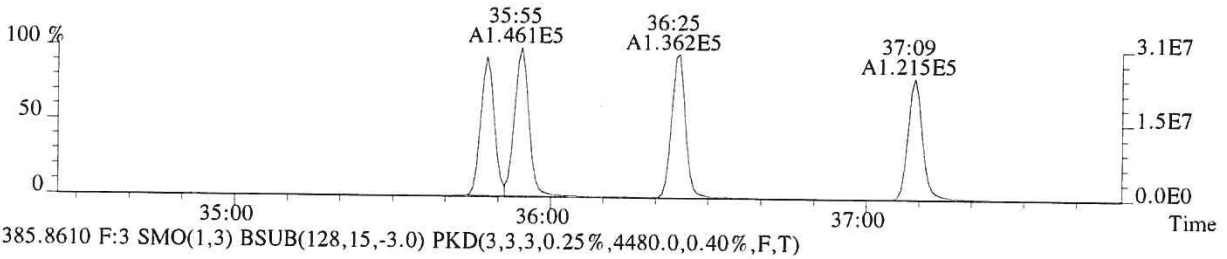
File:P614683 #1-304 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3192.0,0.40%,F,T)



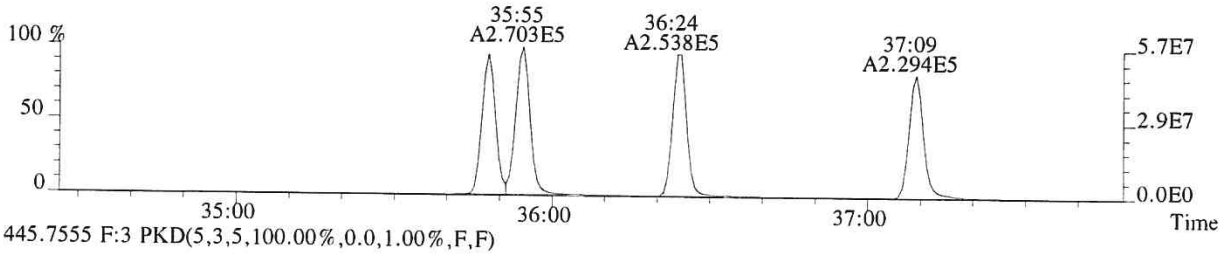
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1244.0,0.40%,F,T)



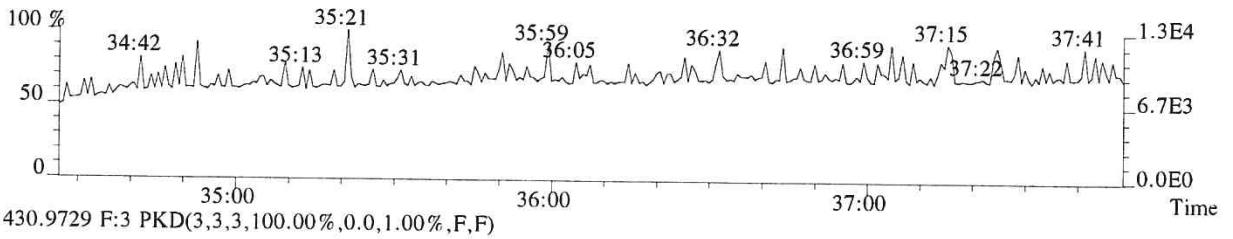
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3468.0,0.40%,F,T)



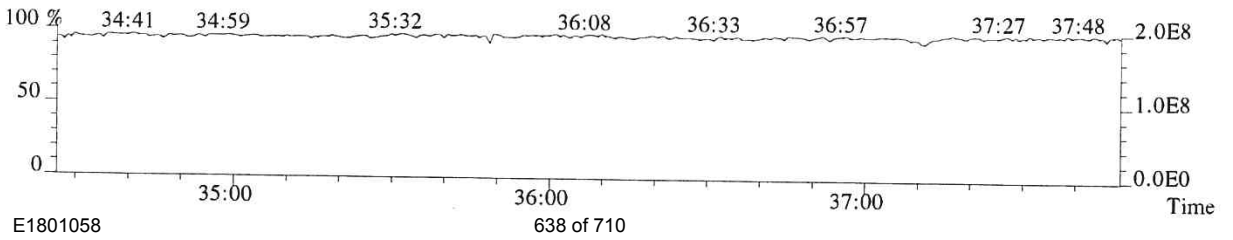
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4480.0,0.40%,F,T)



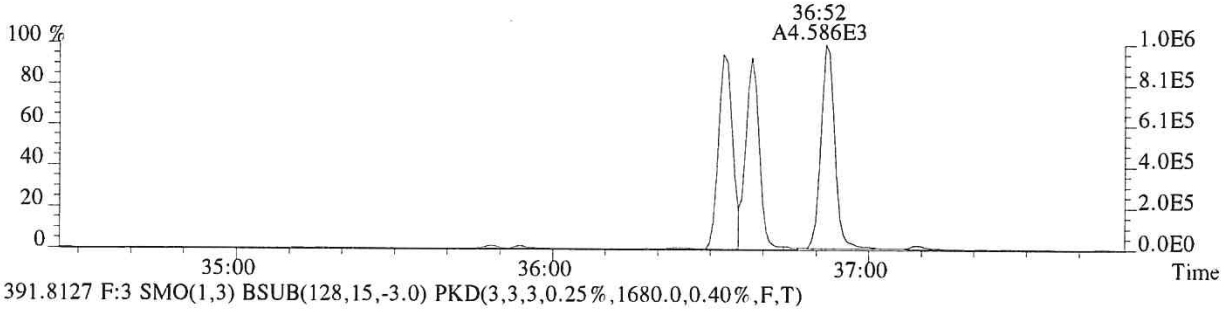
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



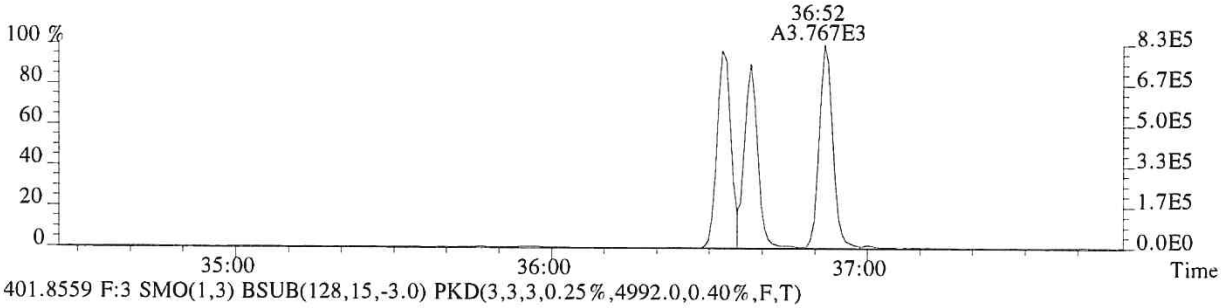
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



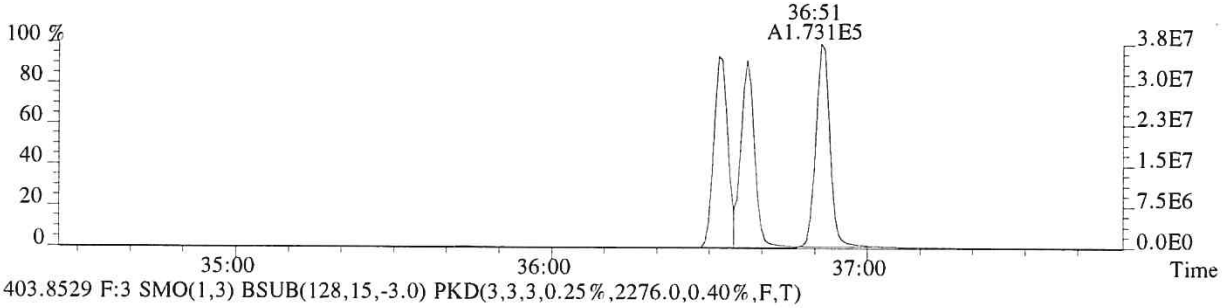
File:P614683 #1-304 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:CS1
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1020.0,0.40%,F,T)



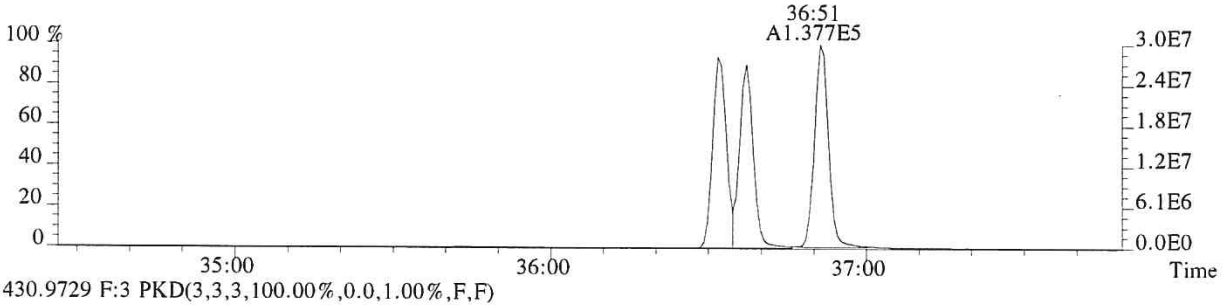
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1680.0,0.40%,F,T)



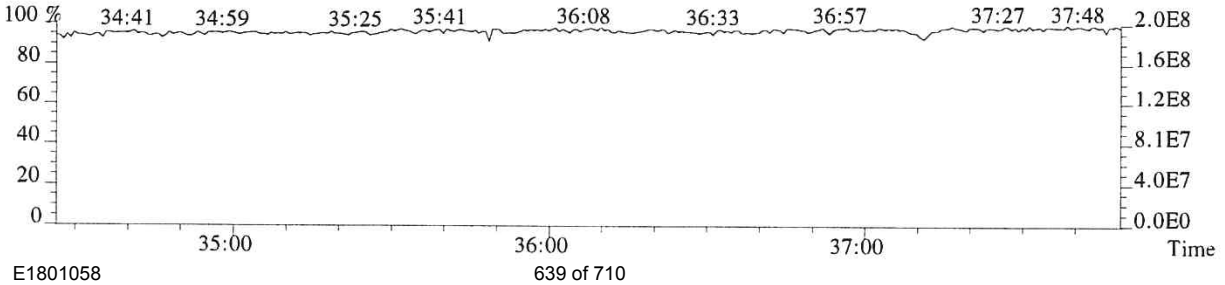
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4992.0,0.40%,F,T)



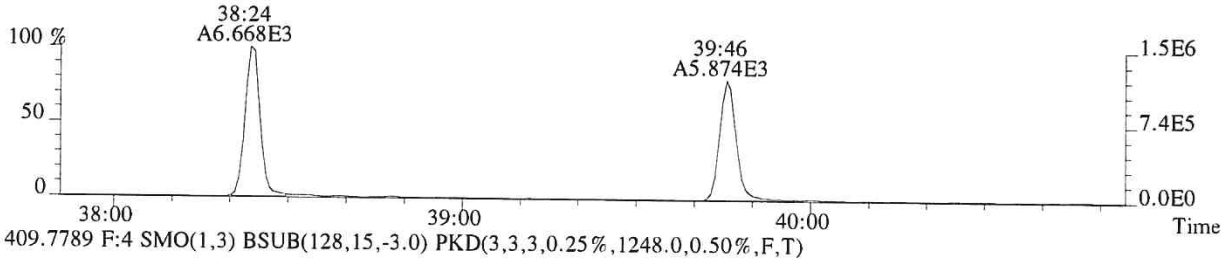
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2276.0,0.40%,F,T)



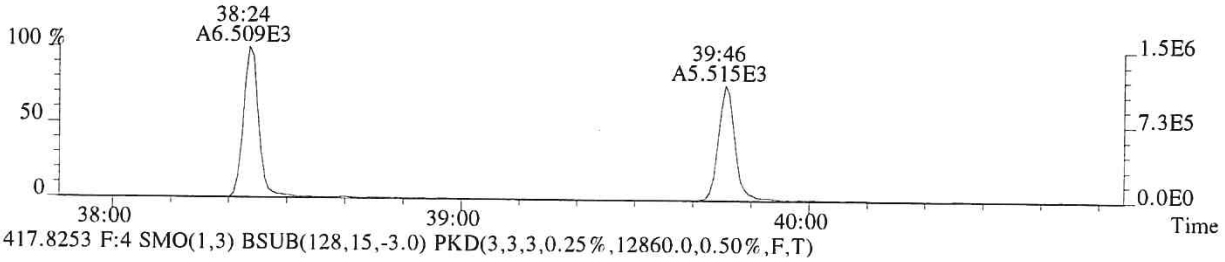
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



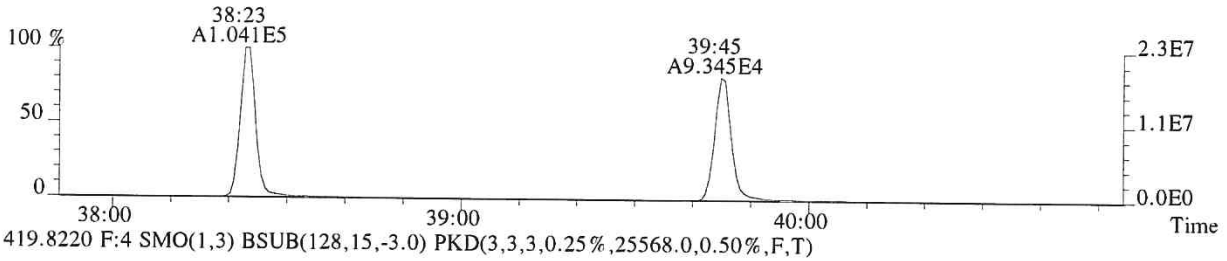
File:P614683 #1-276 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1968.0,0.50%,F,T)



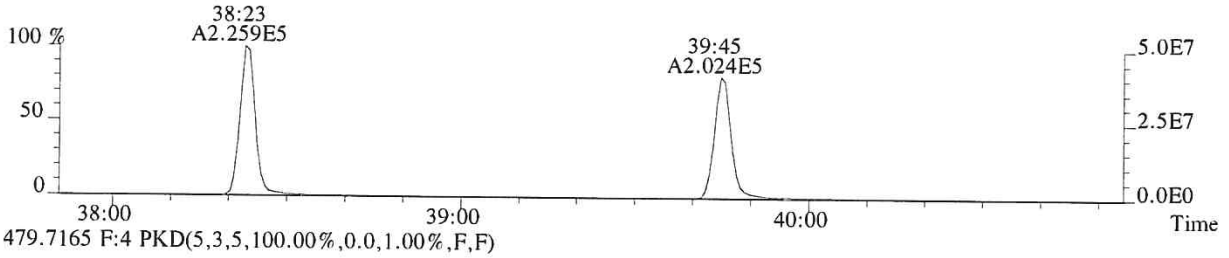
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1248.0,0.50%,F,T)



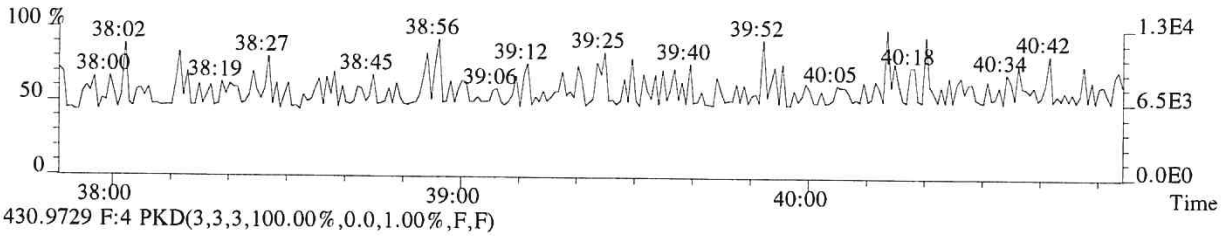
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,12860.0,0.50%,F,T)



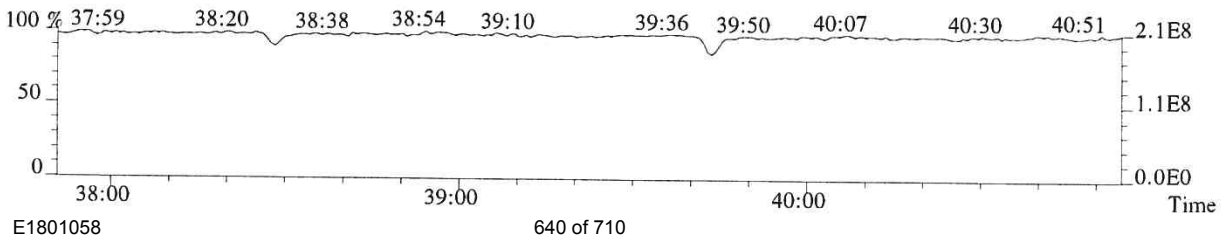
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,25568.0,0.50%,F,T)



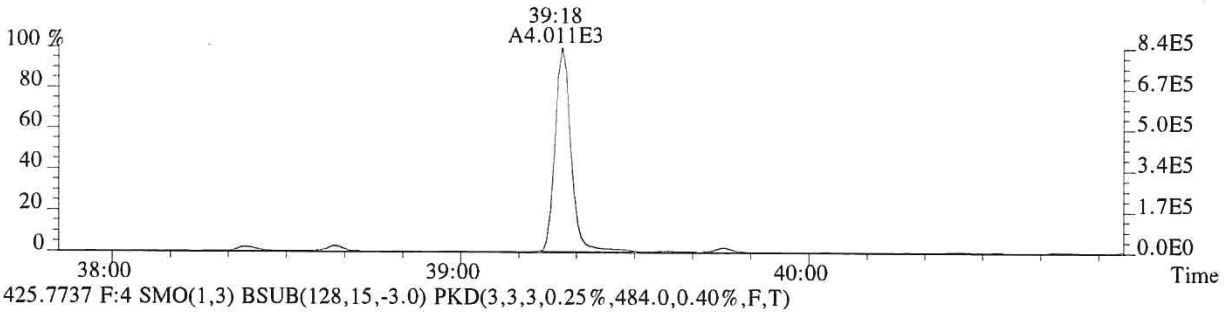
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



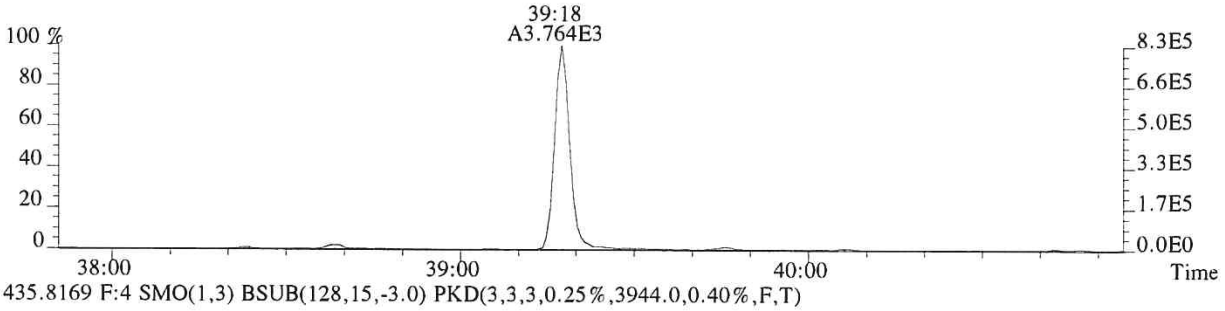
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



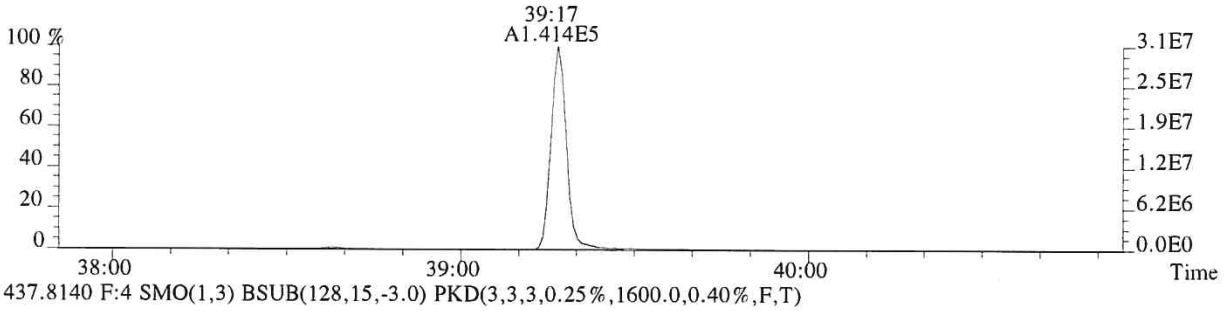
File:P614683 #1-276 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1168.0,0.40%,F,T)



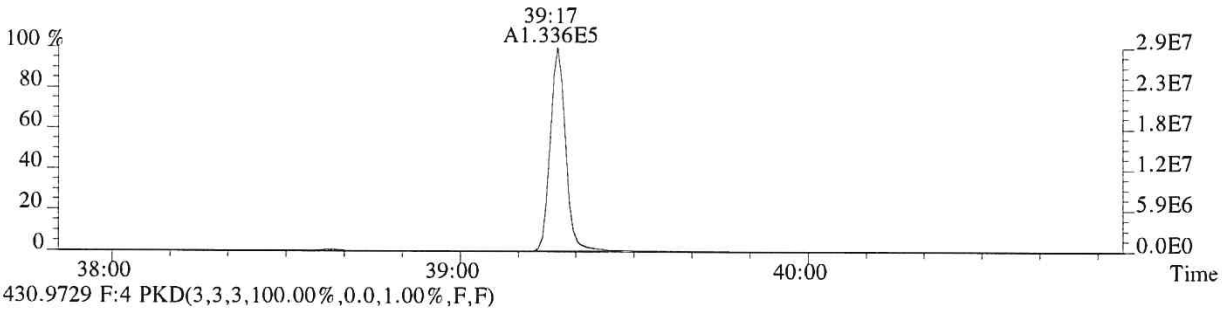
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,484.0,0.40%,F,T)



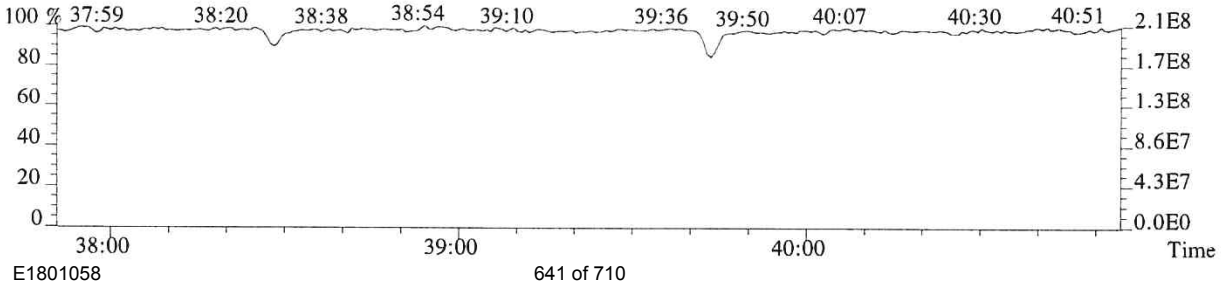
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3944.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1600.0,0.40%,F,T)

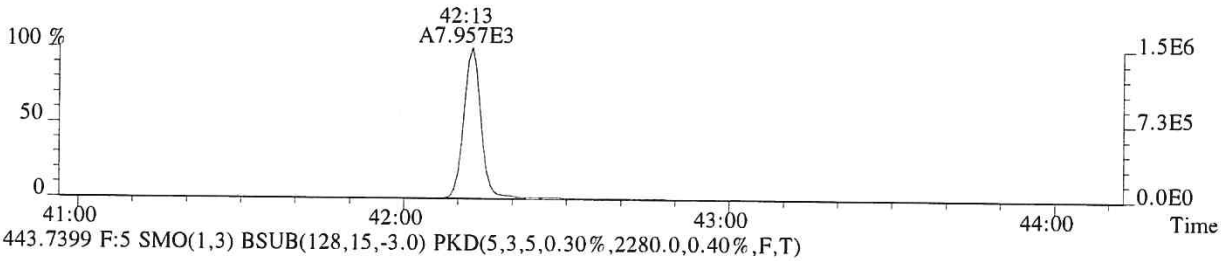


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

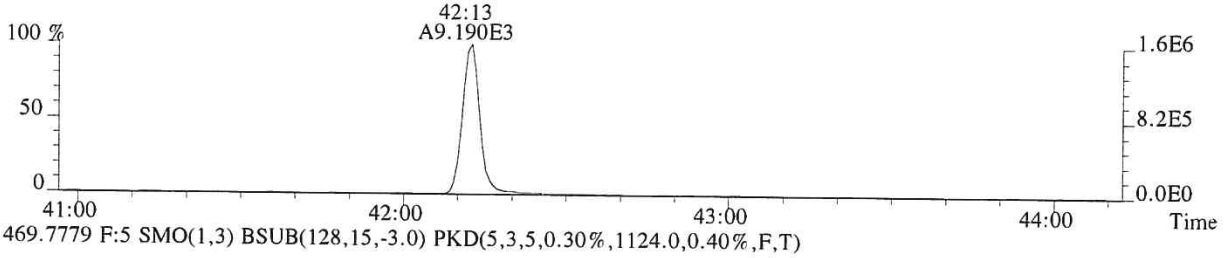


File:P614683 #1-295 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1

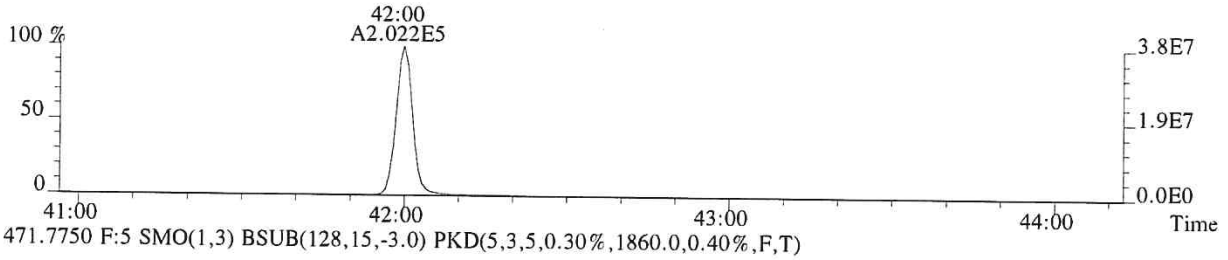
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1152.0,0.40%,F,T)



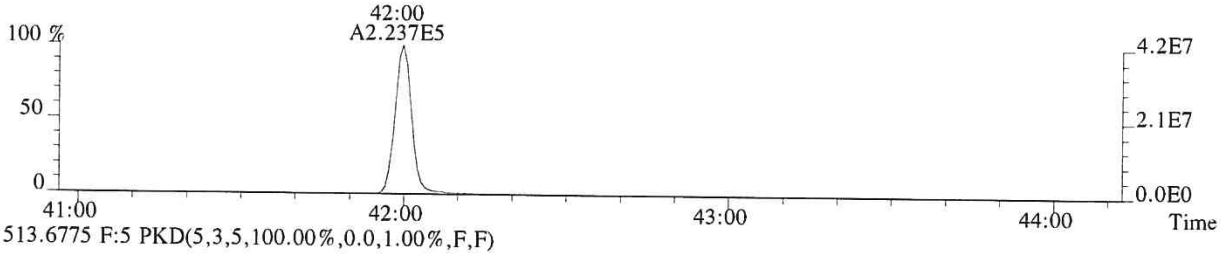
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2280.0,0.40%,F,T)



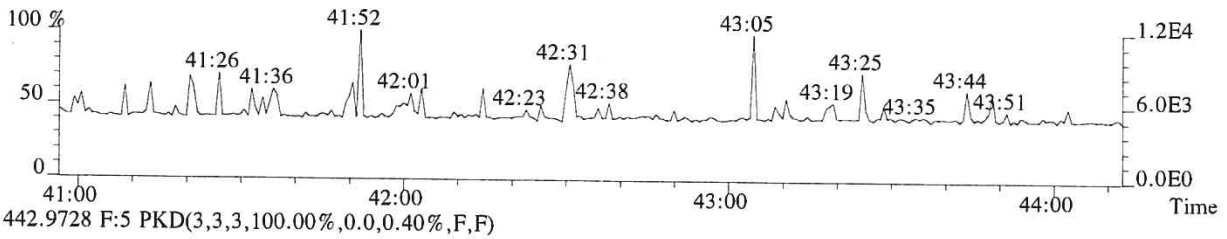
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1124.0,0.40%,F,T)



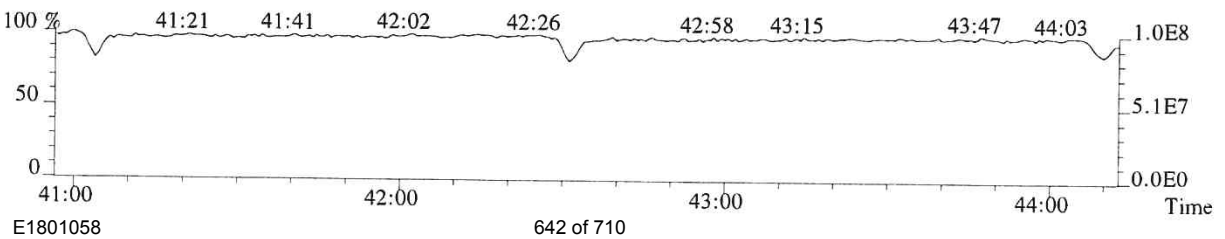
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1860.0,0.40%,F,T)



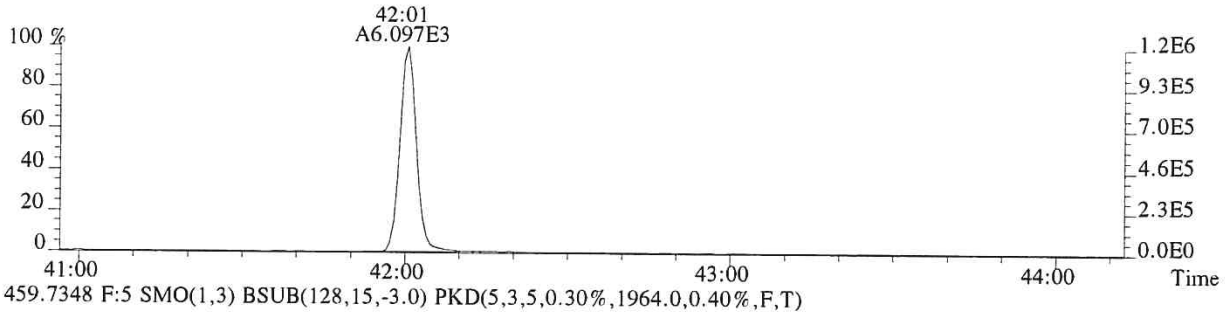
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



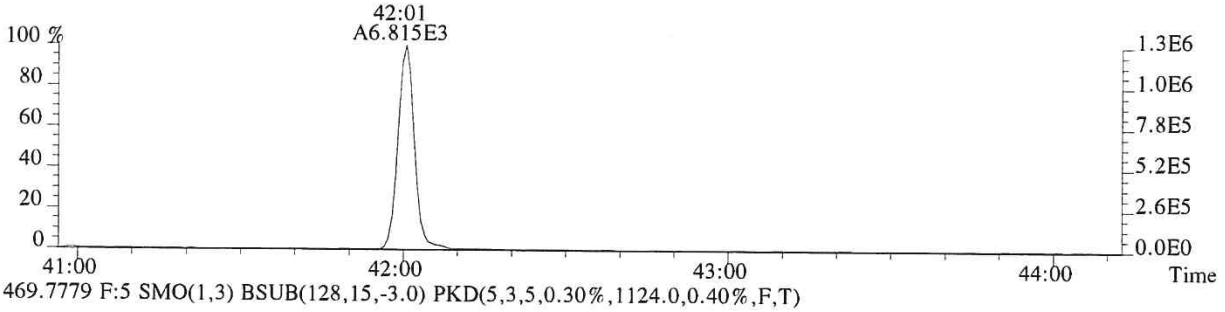
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



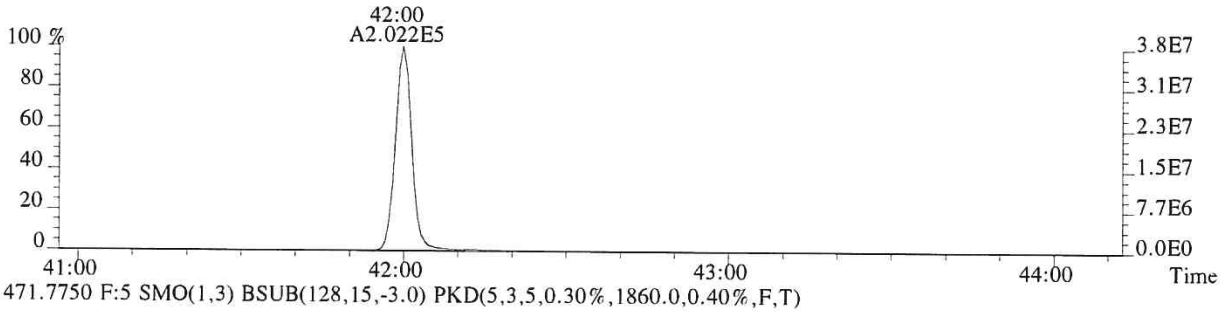
File:P614683 #1-295 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3136.0,0.40%,F,T)



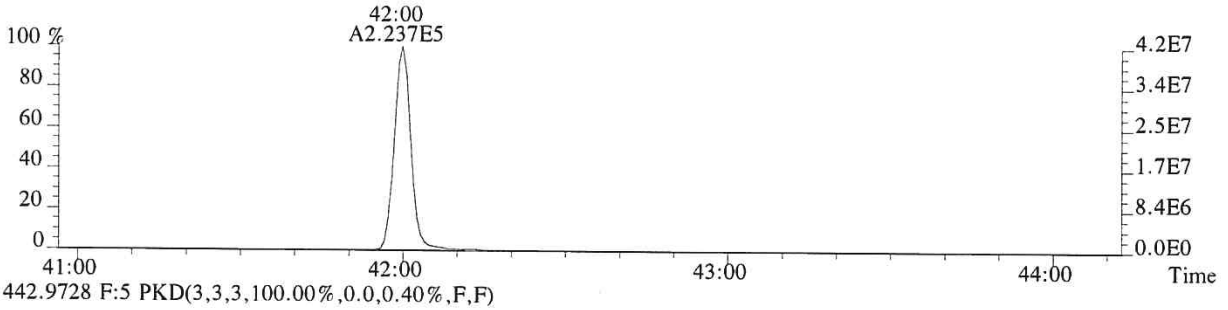
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1964.0,0.40%,F,T)



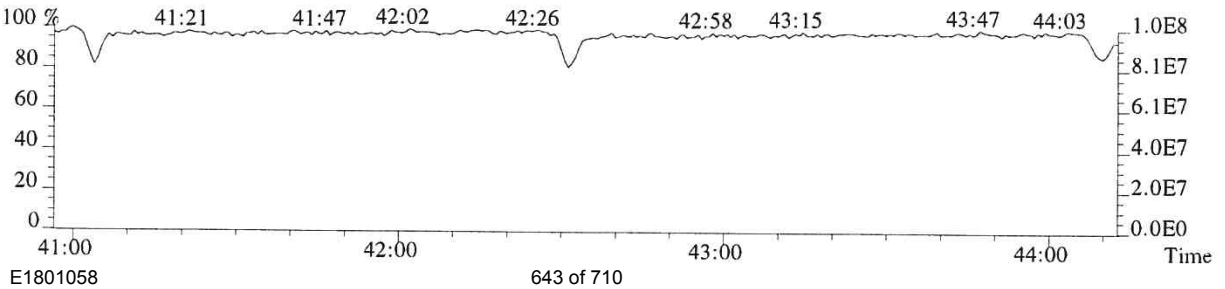
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1124.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1860.0,0.40%,F,T)



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



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
193434

Run #3 Filename P614684 Samp: 1 Inj: 1 Acquired: 25-SEP-18 15:59:37
Processed: 26-SEP-18 07:39:08 Sample ID: CS2

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:00	3.102e+03	3.732e+03	0.83	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:14	2.387e+04	1.519e+04	1.57	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:08	2.329e+04	1.484e+04	1.57	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	2.143e+04	1.713e+04	1.25	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	2.340e+04	1.874e+04	1.25	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	2.188e+04	1.713e+04	1.28	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:09	1.950e+04	1.588e+04	1.23	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	1.863e+04	1.764e+04	1.06	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	1.650e+04	1.567e+04	1.05	yes	no	1.463
10	Unk	OCDF	42:12	2.250e+04	2.478e+04	0.91	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:48	1.874e+03	2.328e+03	0.80	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	1.440e+04	9.416e+03	1.53	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	1.279e+04	1.013e+04	1.26	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:38	1.275e+04	1.020e+04	1.25	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:52	1.359e+04	1.091e+04	1.25	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	1.169e+04	1.088e+04	1.07	yes	no	1.112
17	Unk	OCDD	42:01	1.626e+04	1.848e+04	0.88	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:59	1.350e+05	1.713e+05	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	2.144e+05	1.340e+05	1.60	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	2.142e+05	1.318e+05	1.62	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:47	9.603e+04	1.811e+05	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:54	1.132e+05	2.120e+05	0.53	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:24	1.055e+05	1.978e+05	0.53	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	9.513e+04	1.787e+05	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:23	7.767e+04	1.706e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:45	6.849e+04	1.521e+05	0.45	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	9.327e+04	1.167e+05	0.80	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:25	1.531e+05	9.729e+04	1.57	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:32	1.232e+05	9.748e+04	1.26	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:37	1.208e+05	9.608e+04	1.26	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	1.060e+05	1.018e+05	1.04	yes	no	0.857
32	IS	13C-OCDD	42:00	1.501e+05	1.663e+05	0.90	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:12	9.647e+04	1.194e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:51	1.360e+05	1.078e+05	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	4.600e+03				no	1.086

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Signal/Noise Height Ratio Summary

CLIENT ID.
193434

Run #3 Filename P614684 Samp: 1 Inj: 1 Acquired: 25-SEP-18 15:59:37
Processed: 26-SEP-18 07:39:08 LAB. ID: CS2

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.46e+05	1.35e+03	4.0e+02	6.81e+05	4.17e+03	1.6e+02
2	1,2,3,7,8-PeCDF	4.40e+06	1.19e+03	3.7e+03	2.83e+06	5.62e+03	5.0e+02
3	2,3,4,7,8-PeCDF	4.45e+06	1.19e+03	3.7e+03	2.83e+06	5.62e+03	5.0e+02
4	1,2,3,4,7,8-HxCDF	4.64e+06	2.66e+03	1.7e+03	3.65e+06	1.33e+03	2.7e+03
5	1,2,3,6,7,8-HxCDF	4.85e+06	2.66e+03	1.8e+03	3.88e+06	1.33e+03	2.9e+03
6	2,3,4,6,7,8-HxCDF	4.77e+06	2.66e+03	1.8e+03	3.75e+06	1.33e+03	2.8e+03
7	1,2,3,7,8,9-HxCDF	3.92e+06	2.66e+03	1.5e+03	3.16e+06	1.33e+03	2.4e+03
8	1,2,3,4,6,7,8-HpCDF	4.16e+06	4.06e+03	1.0e+03	3.98e+06	5.19e+03	7.7e+02
9	1,2,3,4,7,8,9-HpCDF	3.43e+06	4.06e+03	8.5e+02	3.23e+06	5.19e+03	6.2e+02
10	OCDF	4.02e+06	1.02e+03	3.9e+03	4.45e+06	3.18e+03	1.4e+03
11	2,3,7,8-TCDD	3.59e+05	5.08e+03	7.1e+01	4.49e+05	2.84e+03	1.6e+02
12	1,2,3,7,8-PeCDD	2.79e+06	2.23e+03	1.3e+03	1.83e+06	1.03e+03	1.8e+03
13	1,2,3,4,7,8-HxCDD	2.90e+06	1.16e+03	2.5e+03	2.30e+06	2.22e+03	1.0e+03
14	1,2,3,6,7,8-HxCDD	2.75e+06	1.16e+03	2.4e+03	2.20e+06	2.22e+03	9.9e+02
15	1,2,3,7,8,9-HxCDD	2.97e+06	1.16e+03	2.6e+03	2.38e+06	2.22e+03	1.1e+03
16	1,2,3,4,6,7,8-HpCDD	2.45e+06	1.22e+03	2.0e+03	2.30e+06	1.43e+03	1.6e+03
17	OCDD	3.03e+06	8.24e+02	3.7e+03	3.48e+06	2.34e+03	1.5e+03
18	13C-2,3,7,8-TCDF	2.30e+07	1.44e+04	1.6e+03	2.91e+07	8.40e+03	3.5e+03
19	13C-1,2,3,7,8-PeCDF	3.88e+07	2.39e+03	1.6e+04	2.43e+07	1.71e+03	1.4e+04
20	13C-2,3,4,7,8-PeCDF	4.22e+07	2.39e+03	1.8e+04	2.60e+07	1.71e+03	1.5e+04
21	13C-1,2,3,4,7,8-HxCDF	2.07e+07	2.16e+03	9.6e+03	3.93e+07	5.29e+03	7.4e+03
22	13C-1,2,3,6,7,8-HxCDF	2.36e+07	2.16e+03	1.1e+04	4.45e+07	5.29e+03	8.4e+03
23	13C-2,3,4,6,7,8-HxCDF	2.32e+07	2.16e+03	1.1e+04	4.39e+07	5.29e+03	8.3e+03
24	13C-1,2,3,7,8,9-HxCDF	1.94e+07	2.16e+03	8.9e+03	3.69e+07	5.29e+03	7.0e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.76e+07	7.69e+03	2.3e+03	3.85e+07	2.07e+04	1.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.41e+07	7.69e+03	1.8e+03	3.12e+07	2.07e+04	1.5e+03
27	13C-2,3,7,8-TCDD	1.74e+07	1.66e+04	1.0e+03	2.17e+07	7.77e+03	2.8e+03
28	13C-1,2,3,7,8-PeCDD	2.92e+07	3.94e+03	7.4e+03	1.87e+07	3.45e+03	5.4e+03
29	13C-1,2,3,4,7,8-HxCDD	2.82e+07	5.37e+03	5.3e+03	2.21e+07	2.98e+03	7.4e+03
30	13C-1,2,3,6,7,8-HxCDD	2.61e+07	5.37e+03	4.9e+03	2.11e+07	2.98e+03	7.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.24e+07	3.06e+03	7.3e+03	2.12e+07	2.68e+03	7.9e+03
32	13C-OCDD	2.74e+07	2.09e+03	1.3e+04	3.02e+07	1.61e+03	1.9e+04
33	13C-1,2,3,4-TCDD	1.78e+07	1.66e+04	1.1e+03	2.20e+07	7.77e+03	2.8e+03
34	13C-1,2,3,7,8,9-HxCDD	2.99e+07	5.37e+03	5.6e+03	2.35e+07	2.98e+03	7.9e+03
35	37Cl-2,3,7,8-TCDD	8.73e+05	3.54e+03	2.5e+02			

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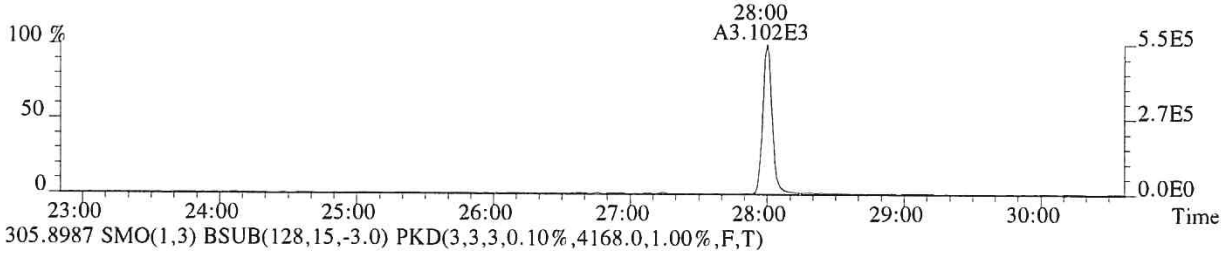
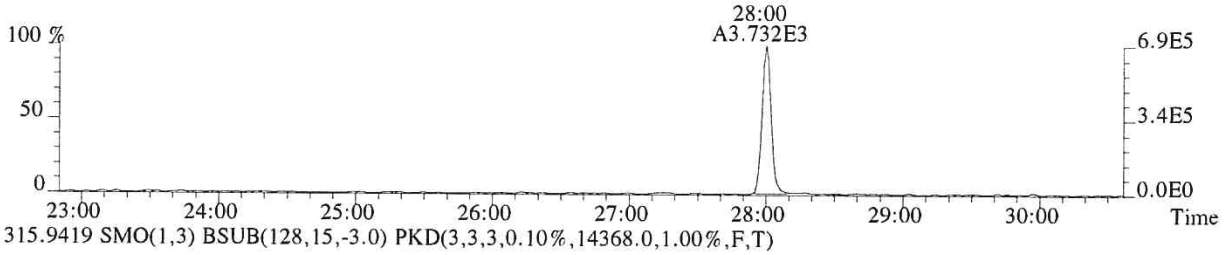
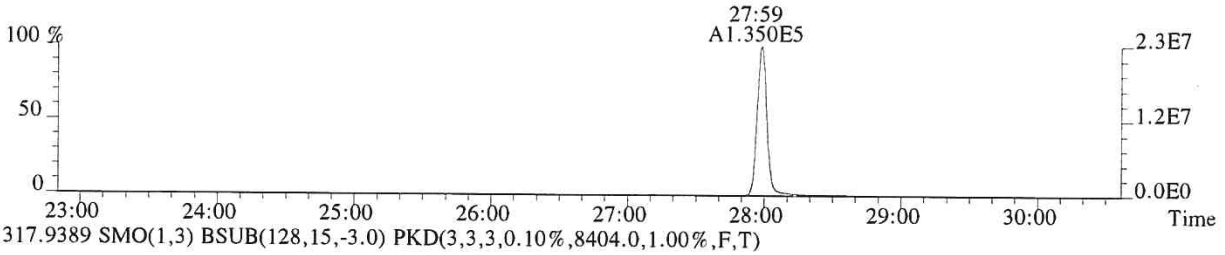
File:P614684 #1-552 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1352.0,1.00%,F,T)



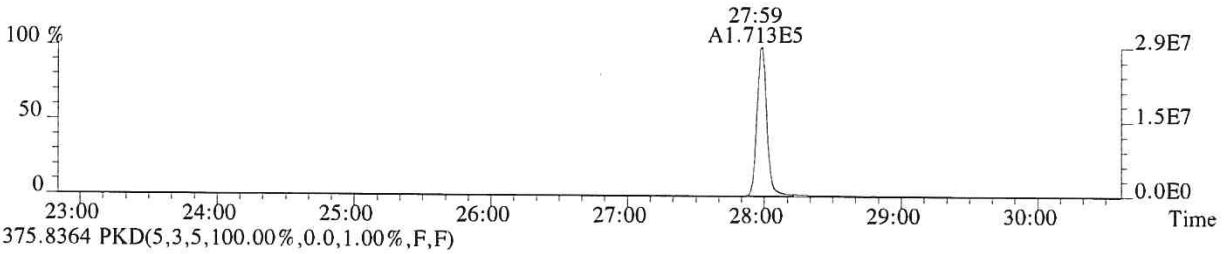
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4168.0,1.00%,F,T)



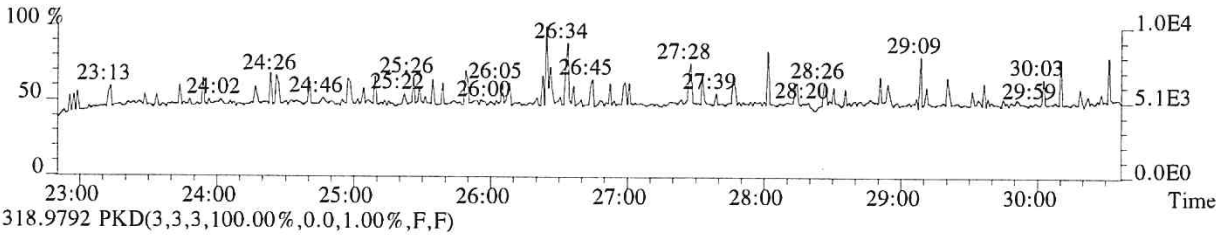
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,14368.0,1.00%,F,T)



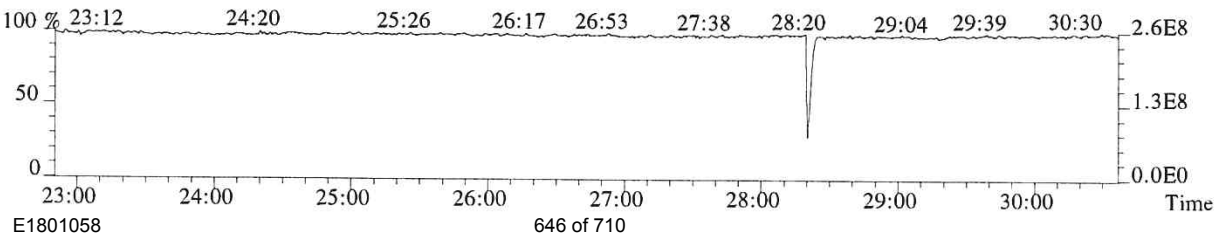
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8404.0,1.00%,F,T)



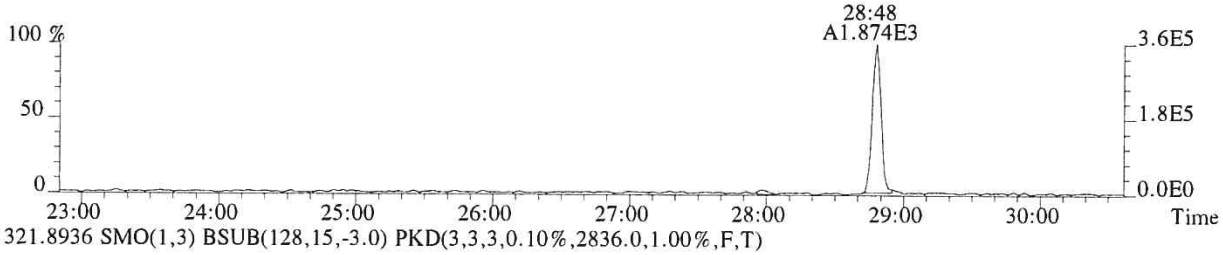
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



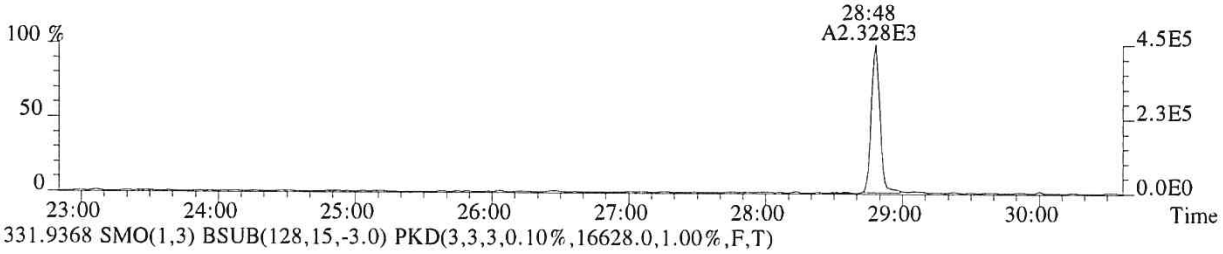
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



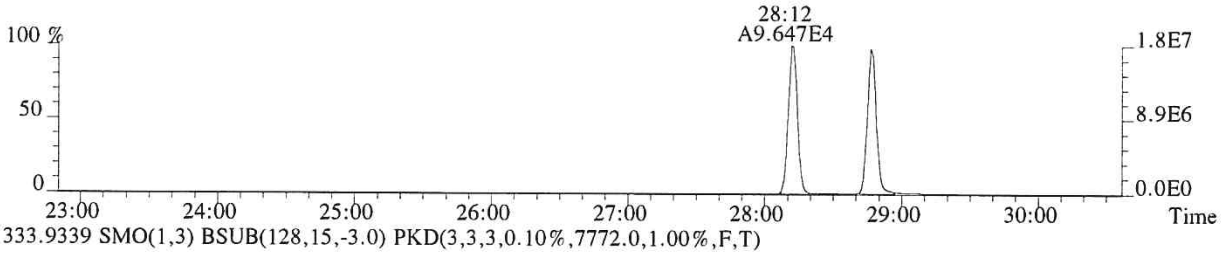
File:P614684 #1-552 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5080.0,1.00%,F,T)



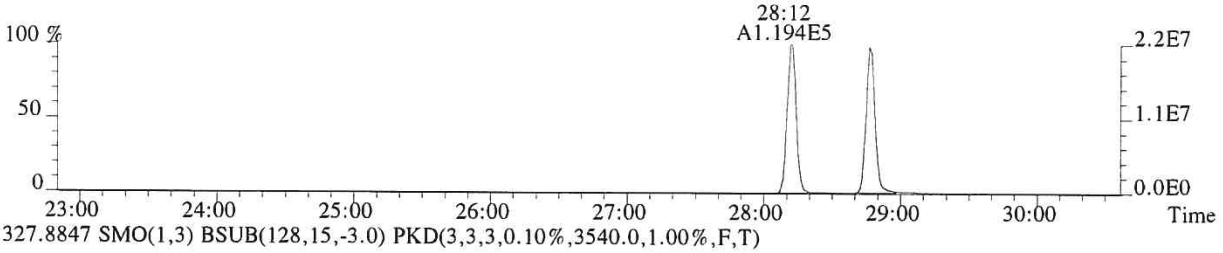
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2836.0,1.00%,F,T)



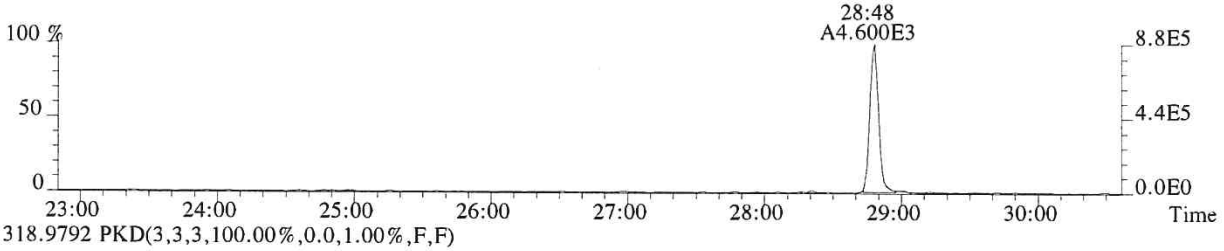
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,16628.0,1.00%,F,T)



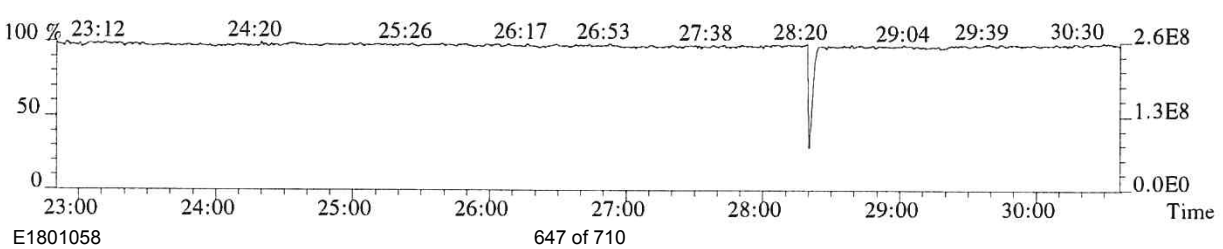
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7772.0,1.00%,F,T)



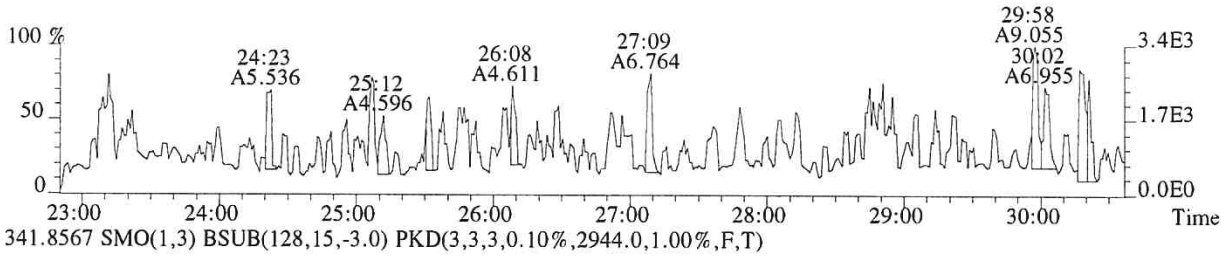
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3540.0,1.00%,F,T)



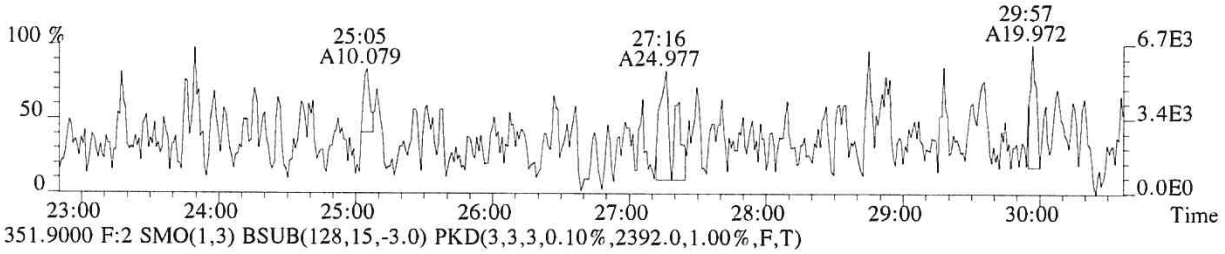
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



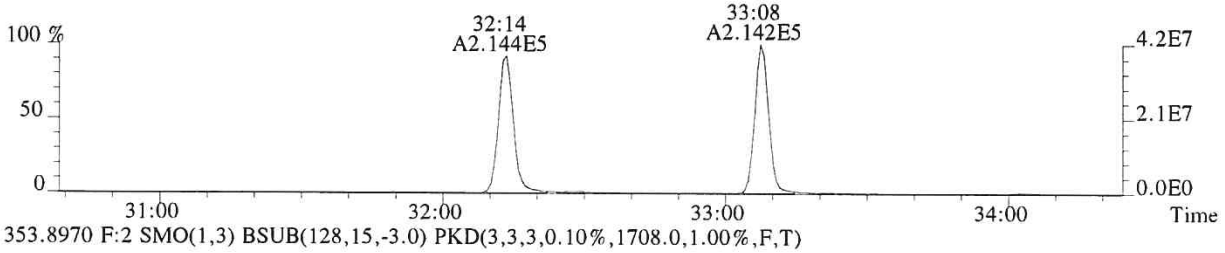
File:P614684 #1-552 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1084.0,1.00%,F,T)



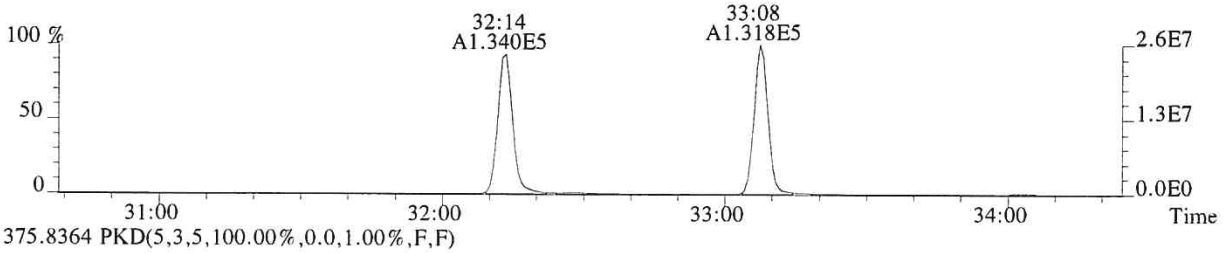
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2944.0,1.00%,F,T)



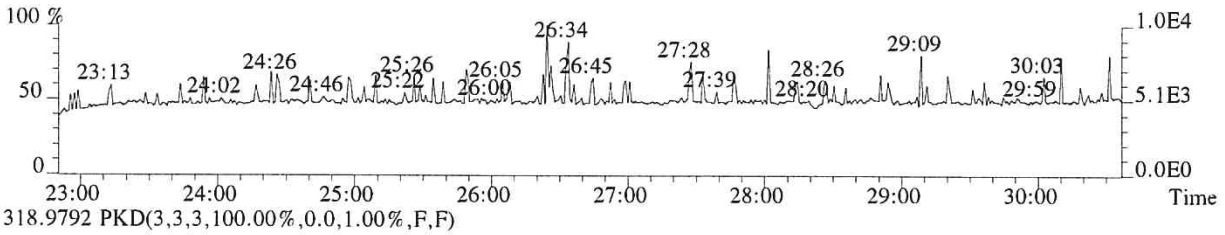
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2392.0,1.00%,F,T)



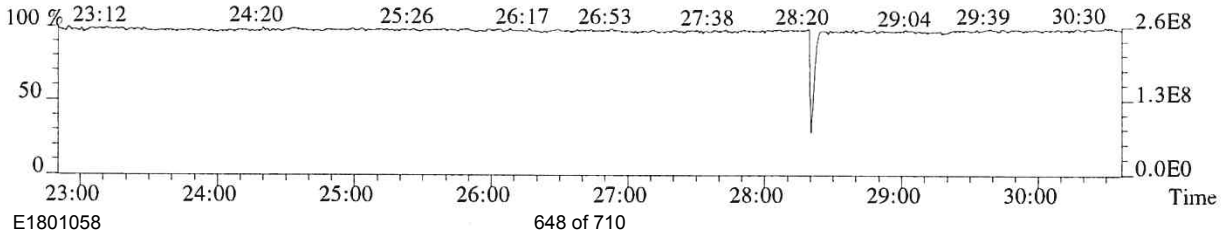
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1708.0,1.00%,F,T)



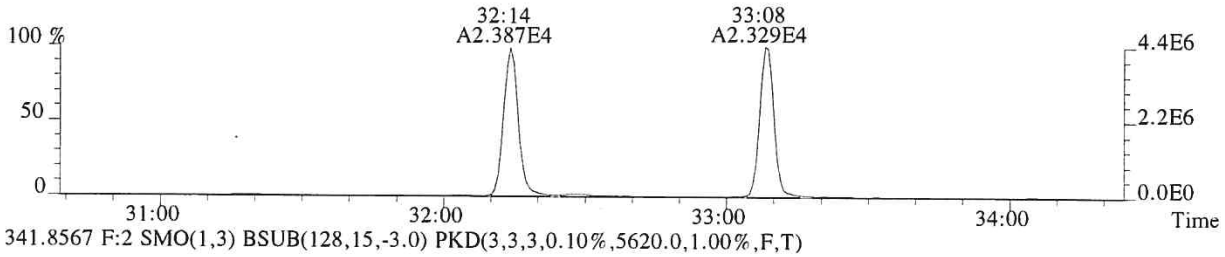
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



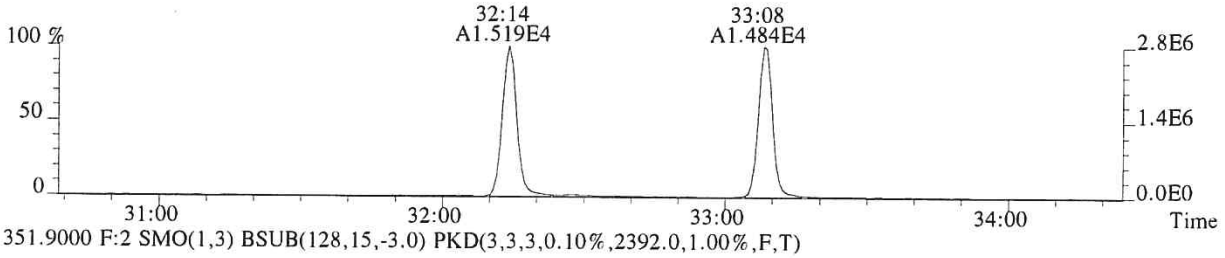
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



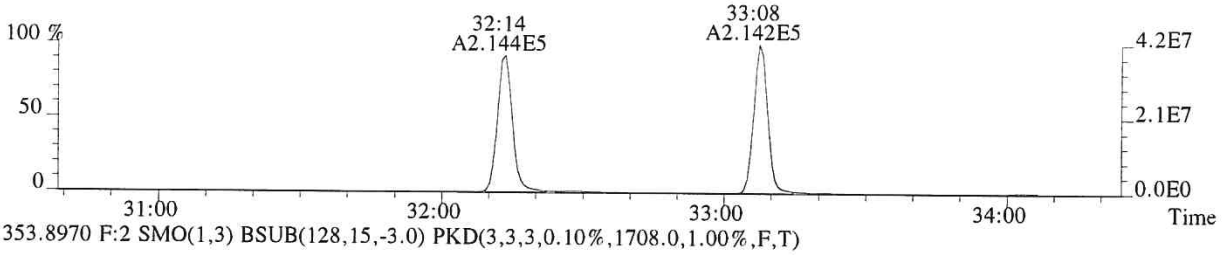
File:P614684 #1-339 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1188.0,1.00%,F,T)



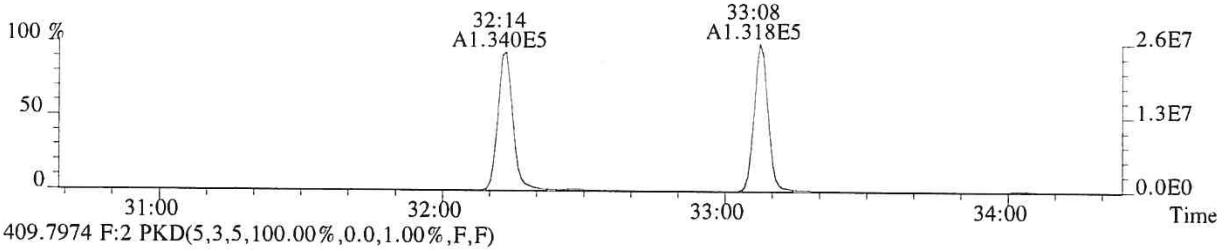
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5620.0,1.00%,F,T)



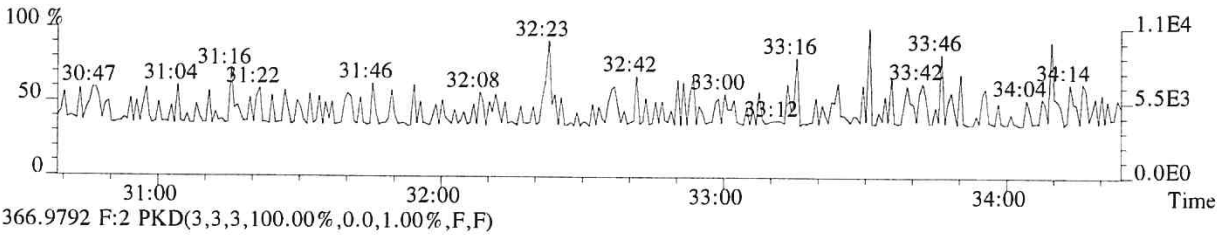
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2392.0,1.00%,F,T)



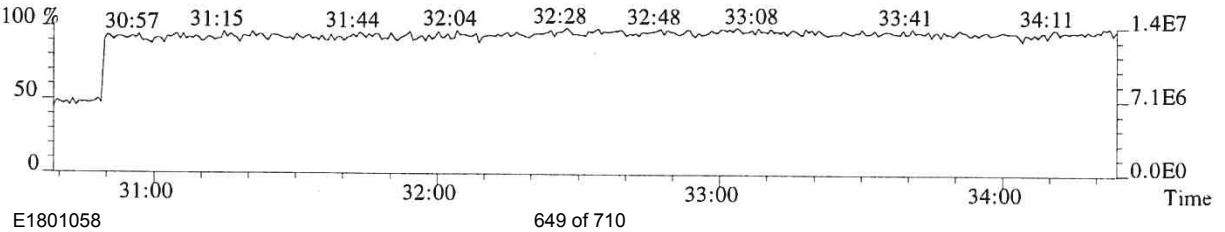
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1708.0,1.00%,F,T)



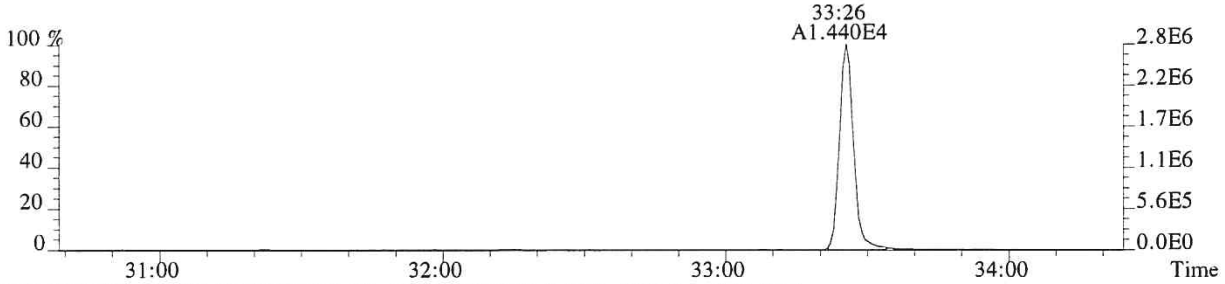
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



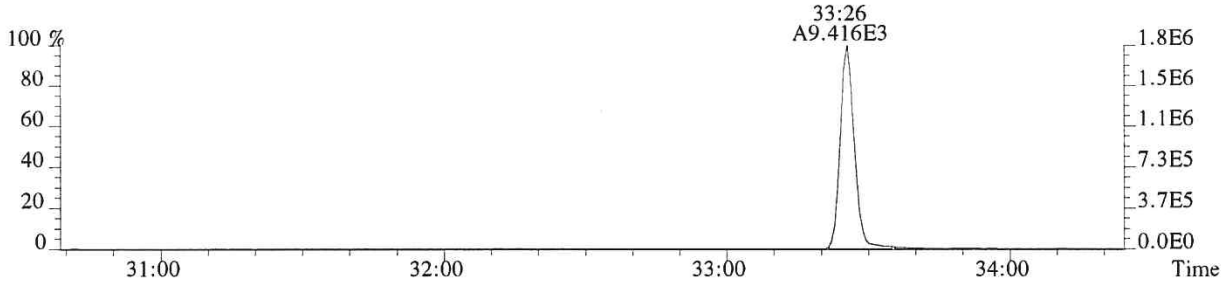
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



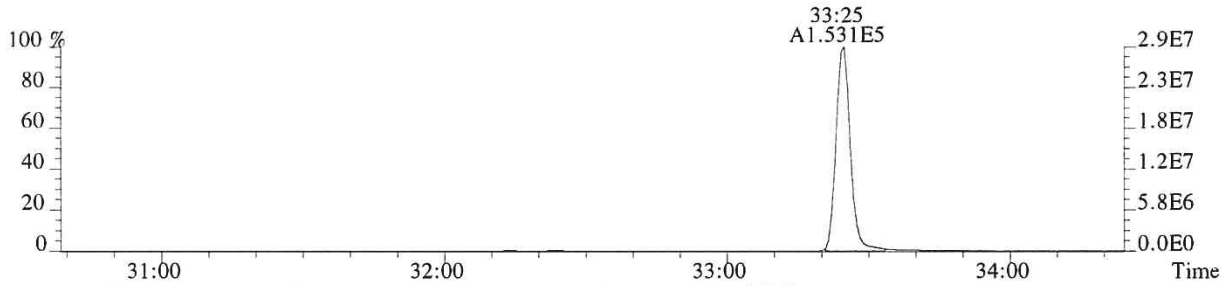
File:P614684 #1-339 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2228.0,1.00%,F,T)



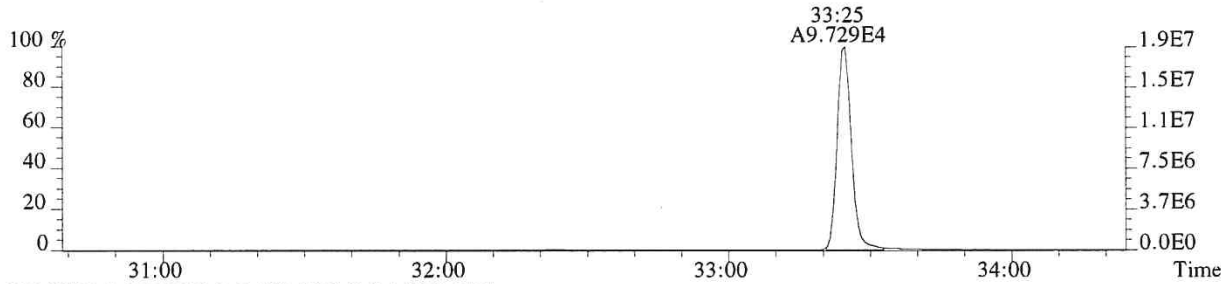
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



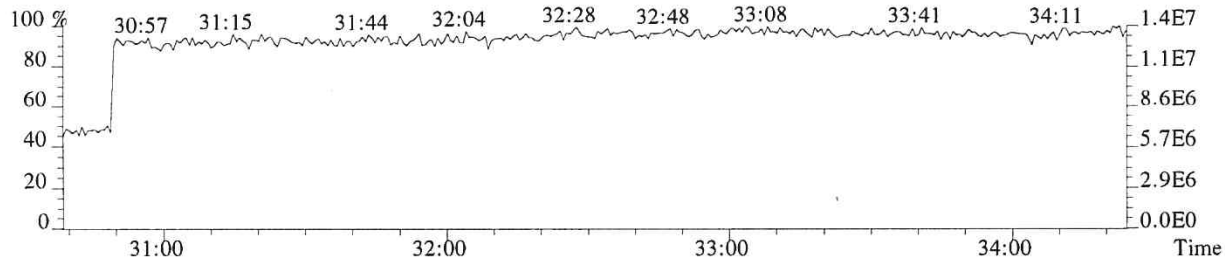
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3936.0,1.00%,F,T)



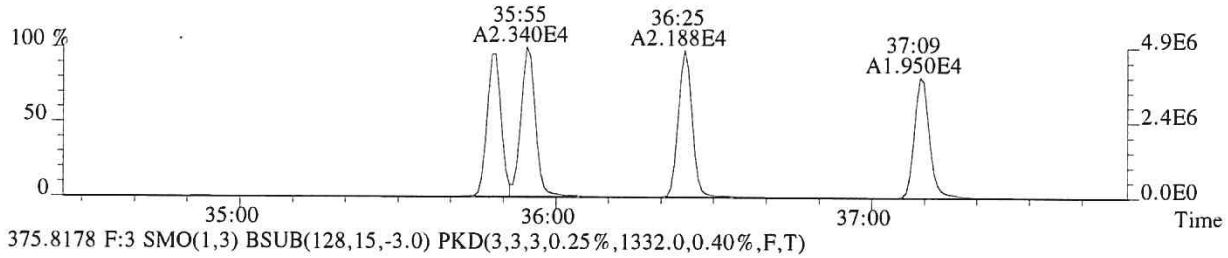
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3448.0,1.00%,F,T)



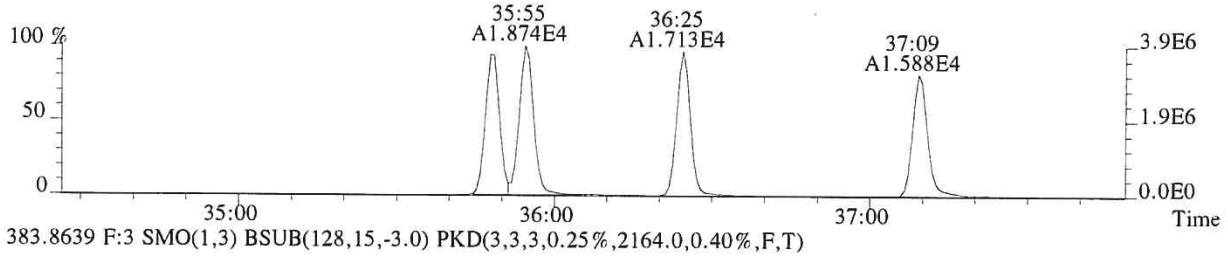
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



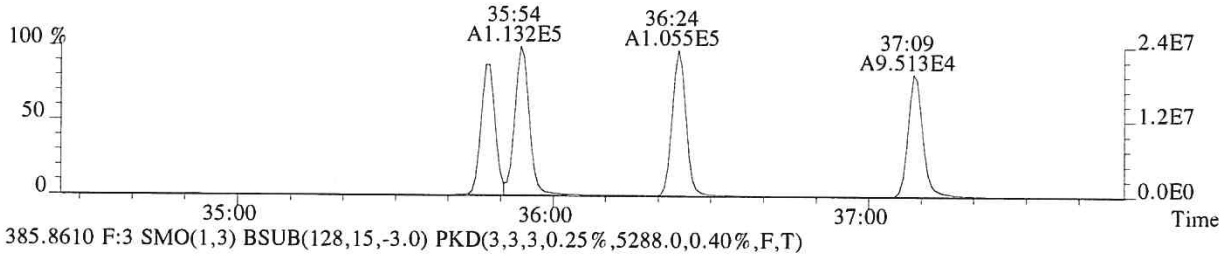
File:P614684 #1-304 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2656.0,0.40%,F,T)



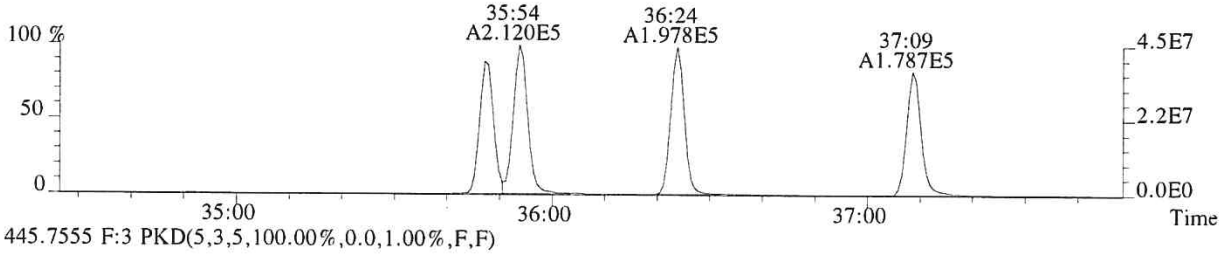
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1332.0,0.40%,F,T)



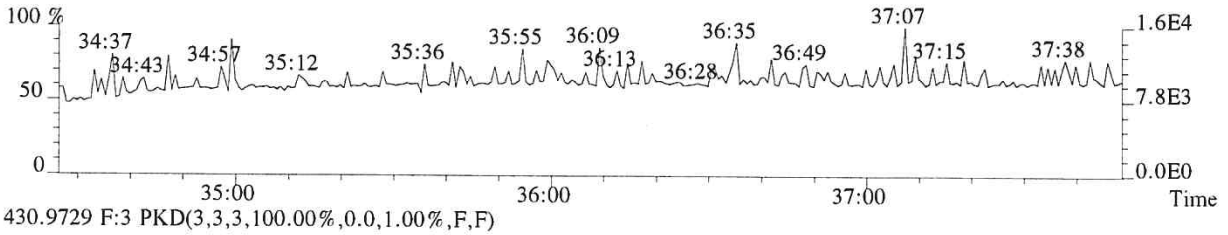
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2164.0,0.40%,F,T)



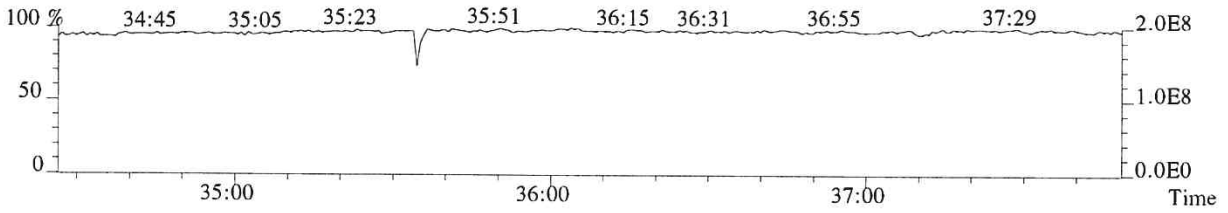
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5288.0,0.40%,F,T)



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

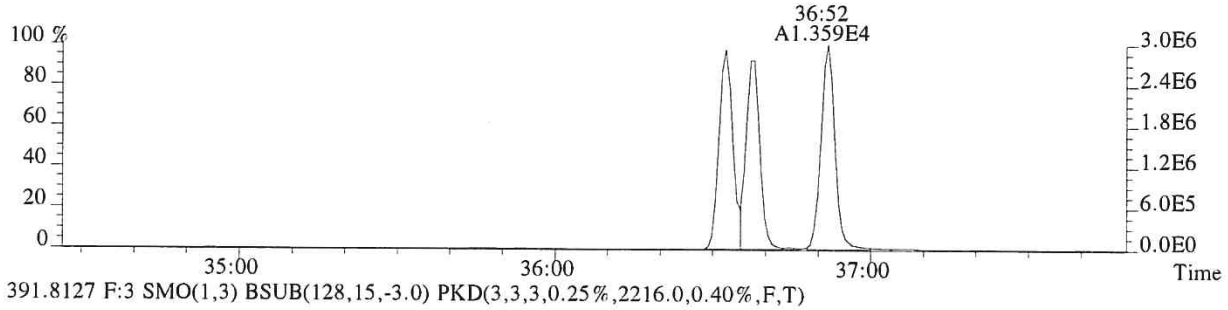


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

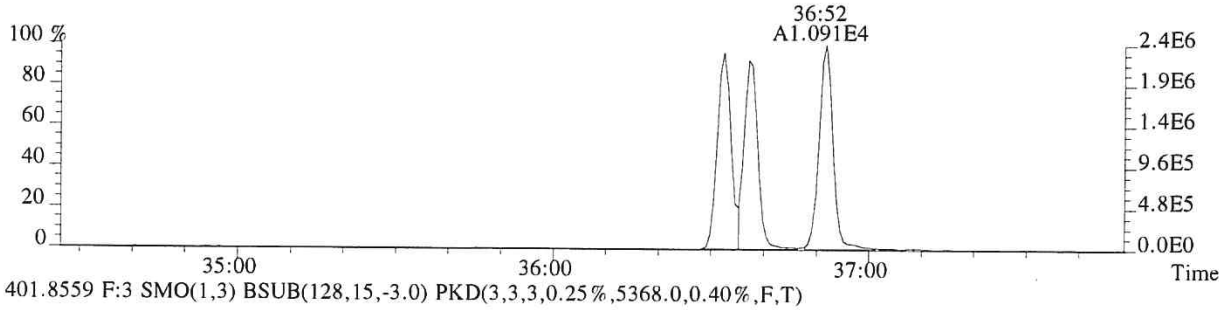


013741

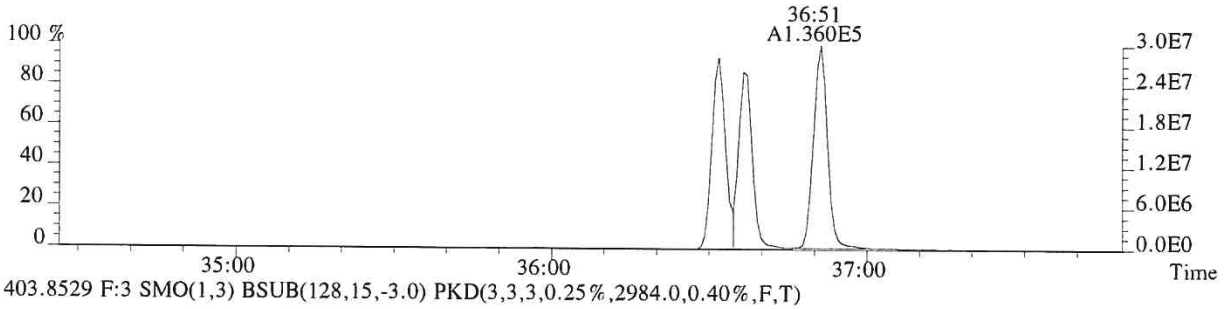
File:P614684 #1-304 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1156.0,0.40%,F,T)



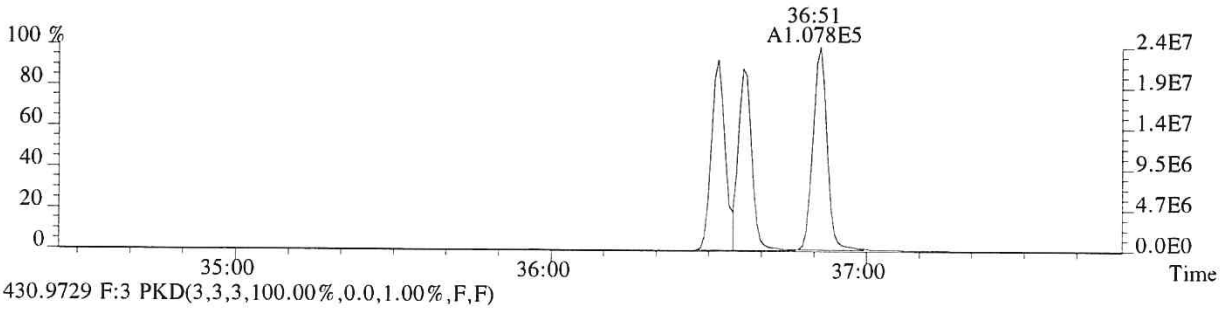
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2216.0,0.40%,F,T)



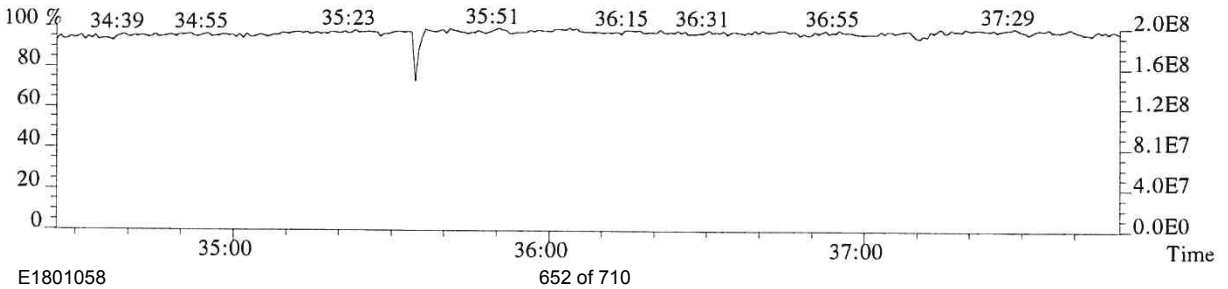
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5368.0,0.40%,F,T)



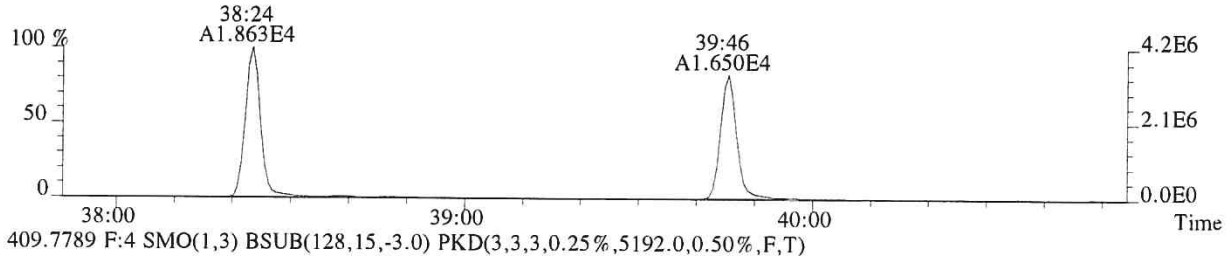
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2984.0,0.40%,F,T)



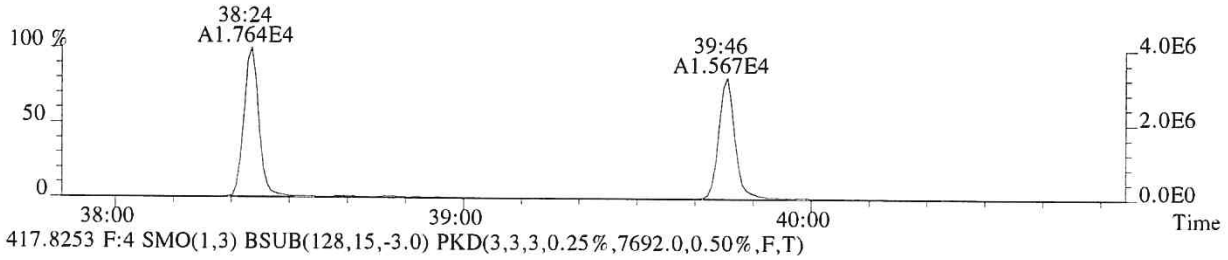
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



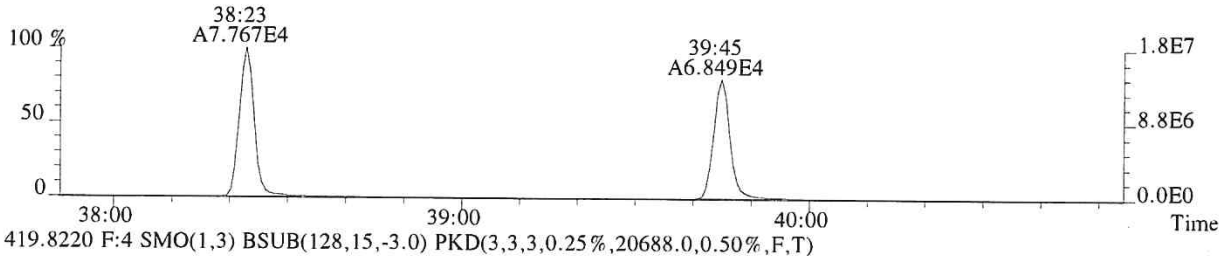
File:P614684 #1-276 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4060.0,0.50%,F,T)



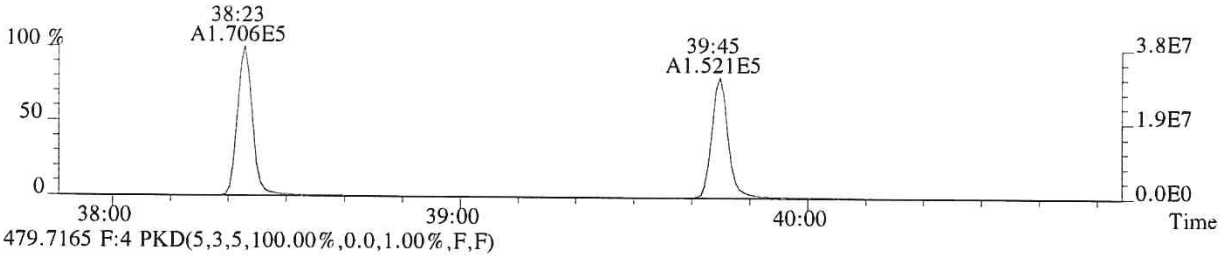
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5192.0,0.50%,F,T)



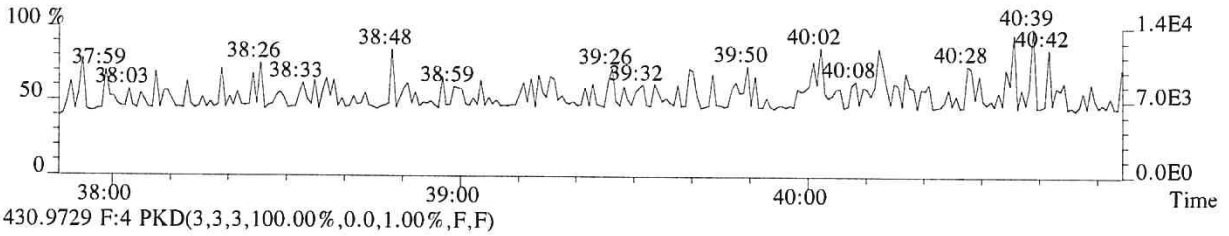
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7692.0,0.50%,F,T)



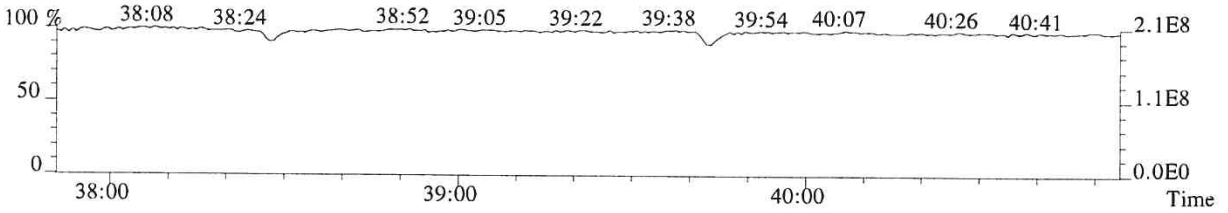
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,20688.0,0.50%,F,T)



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

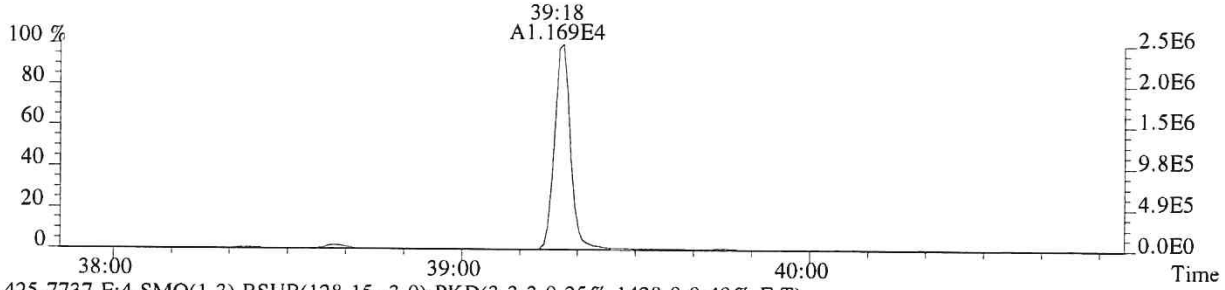


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

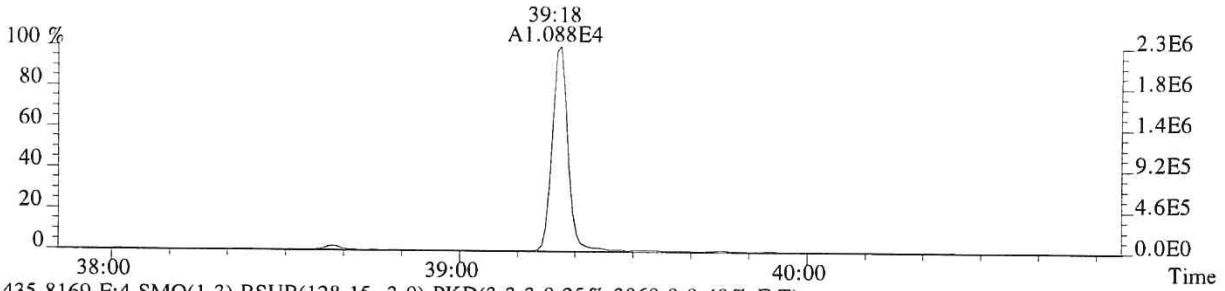


013743

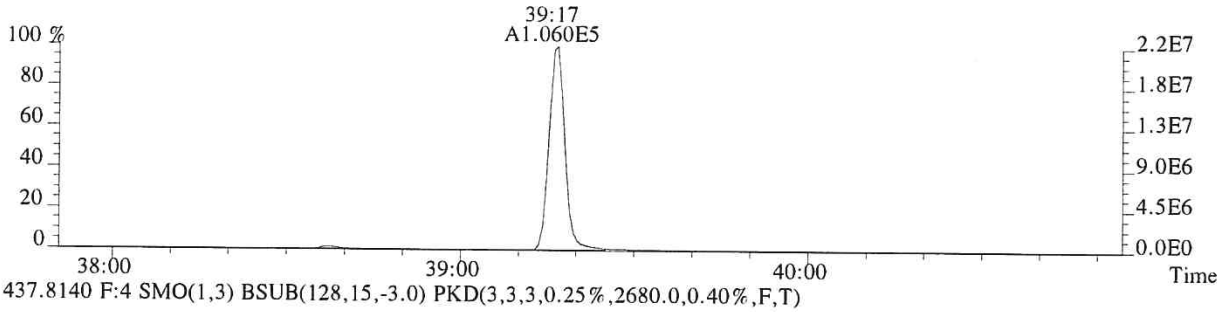
File:P614684 #1-276 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1224.0,0.40%,F,T)



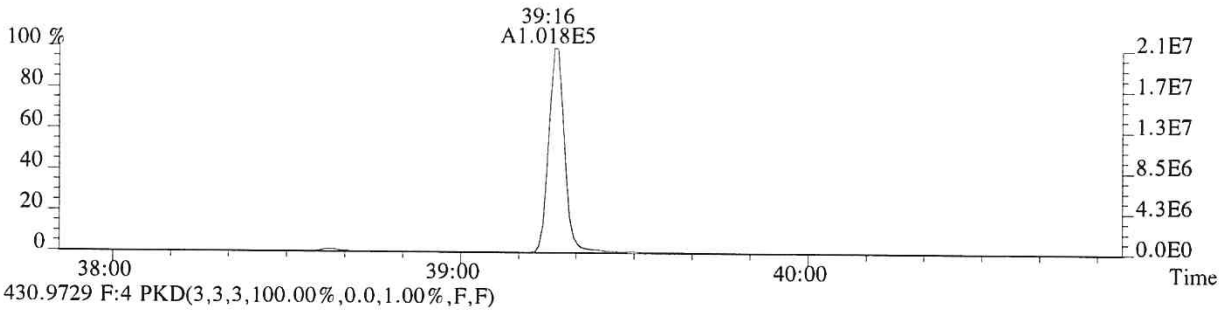
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1428.0,0.40%,F,T)



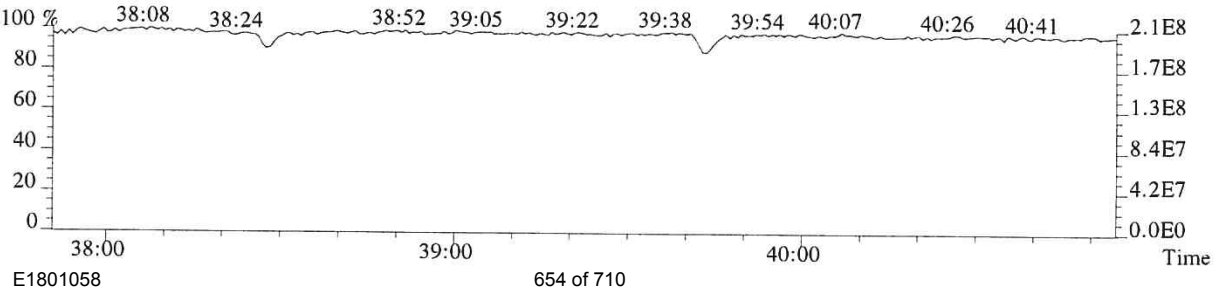
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3060.0,0.40%,F,T)



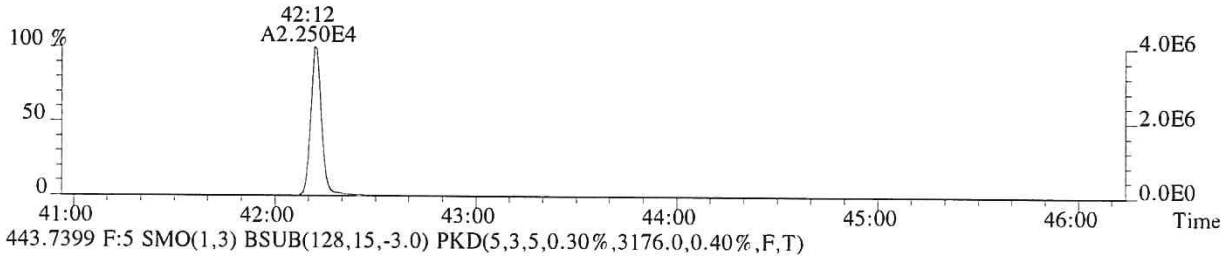
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2680.0,0.40%,F,T)



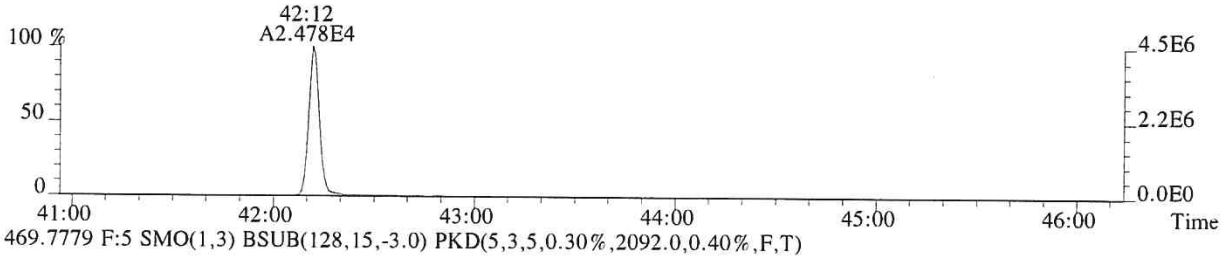
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



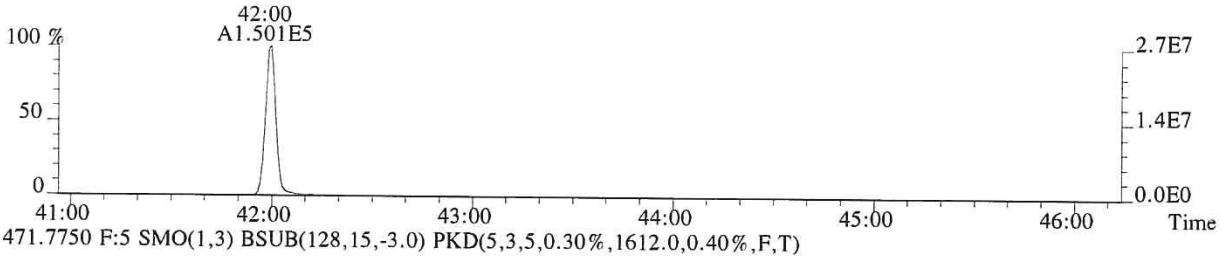
File:P614684 #1-477 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:CS2
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1020.0,0.40%,F,T)



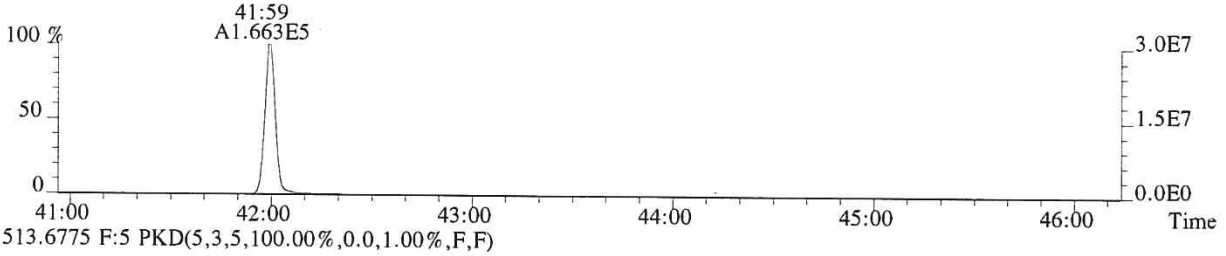
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3176.0,0.40%,F,T)



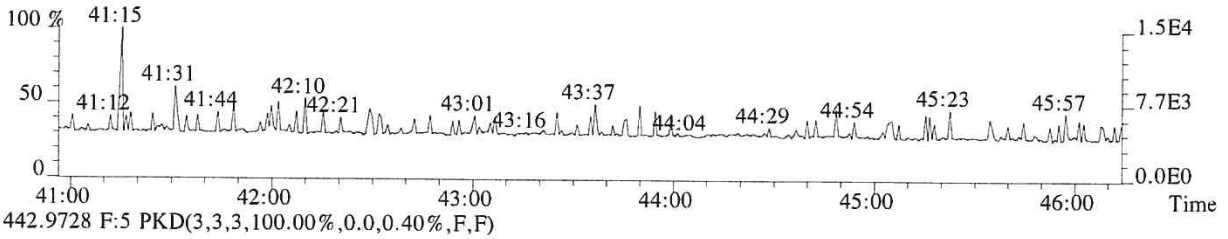
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2092.0,0.40%,F,T)



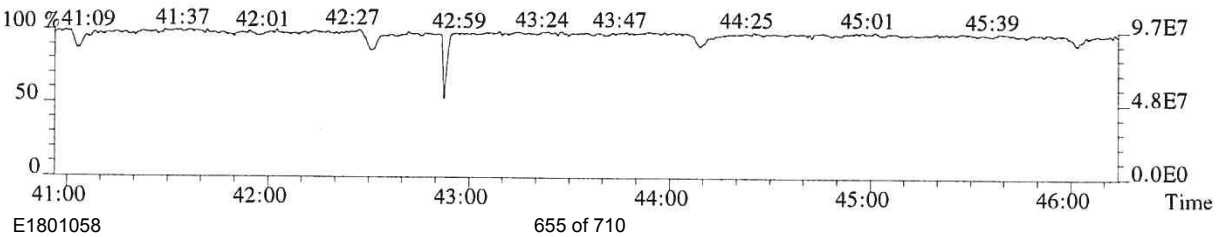
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1612.0,0.40%,F,T)



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

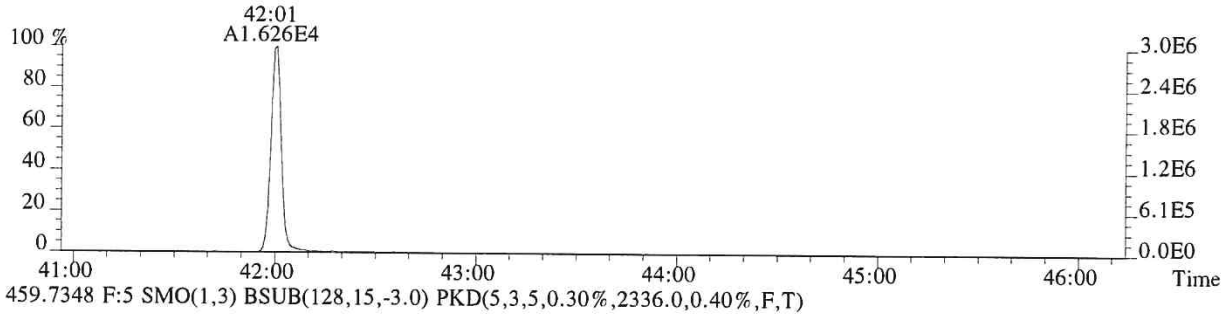


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

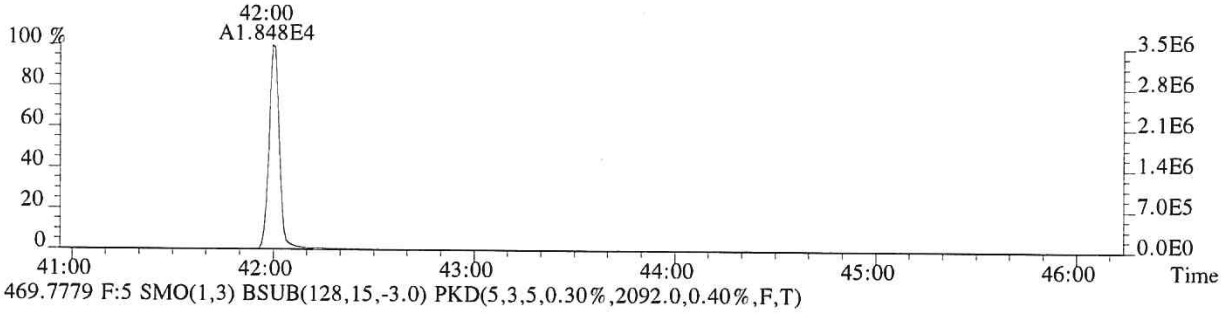


013745

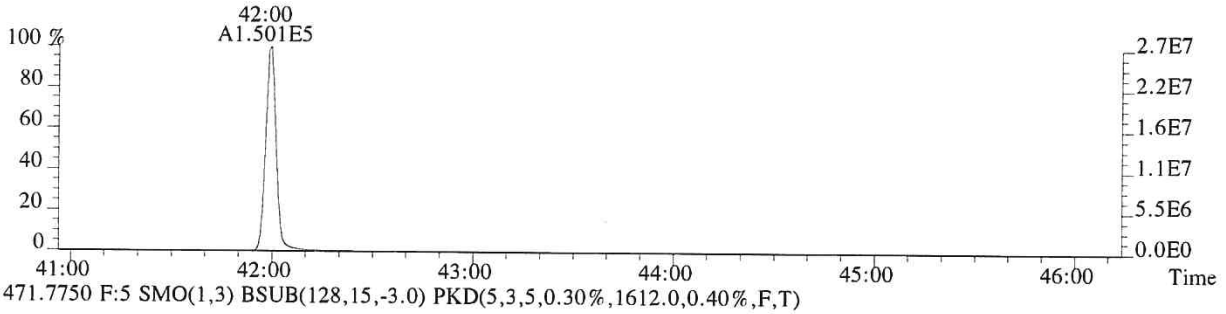
File:P614684 #1-477 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,824.0,0.40%,F,T)



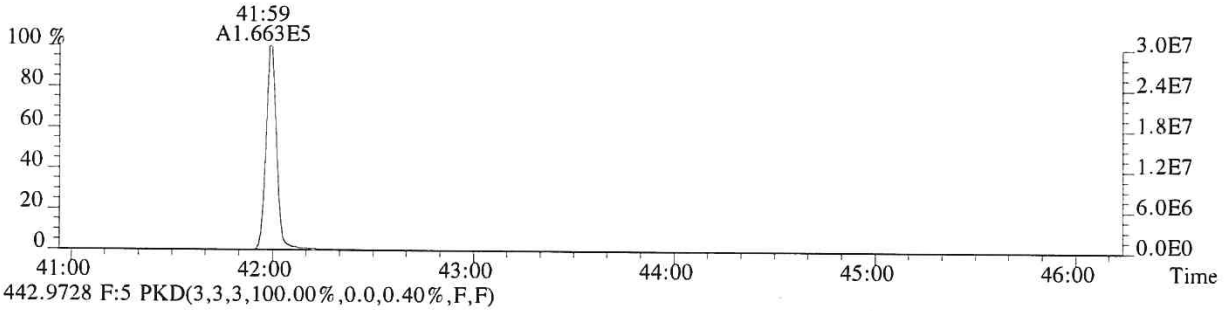
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2336.0,0.40%,F,T)



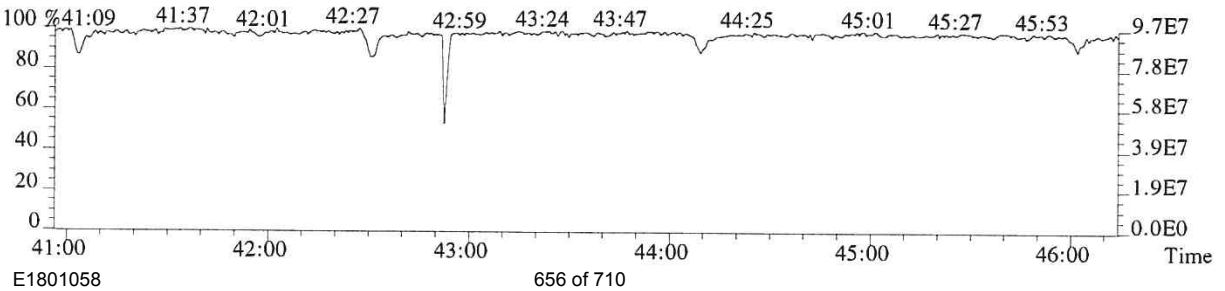
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2092.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1612.0,0.40%,F,T)



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



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76557

Run #4 Filename P614685 Samp: 1 Inj: 1 Acquired: 25-SEP-18 16:52:47
Processed: 26-SEP-18 07:39:09 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:01	3.637e+04	4.546e+04	0.80	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:15	3.073e+05	1.939e+05	1.58	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:09	2.818e+05	1.782e+05	1.58	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	2.774e+05	2.200e+05	1.26	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	2.905e+05	2.295e+05	1.27	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	2.685e+05	2.105e+05	1.28	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:10	2.537e+05	1.982e+05	1.28	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	2.407e+05	2.292e+05	1.05	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	1.925e+05	1.847e+05	1.04	yes	no	1.463
10	Unk	OCDF	42:13	3.041e+05	3.309e+05	0.92	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:48	2.365e+04	3.051e+04	0.78	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	1.706e+05	1.098e+05	1.55	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	1.645e+05	1.238e+05	1.33	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:38	1.567e+05	1.272e+05	1.23	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:53	1.702e+05	1.368e+05	1.24	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	1.477e+05	1.392e+05	1.06	yes	no	1.112
17	Unk	OCDD	42:01	2.180e+05	2.422e+05	0.90	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:59	3.444e+05	4.352e+05	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	5.358e+05	3.352e+05	1.60	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	5.234e+05	3.254e+05	1.61	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	2.524e+05	4.773e+05	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	2.834e+05	5.294e+05	0.54	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	2.621e+05	4.867e+05	0.54	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	2.431e+05	4.520e+05	0.54	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:24	1.967e+05	4.289e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:46	1.638e+05	3.571e+05	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	2.330e+05	2.909e+05	0.80	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:25	3.758e+05	2.372e+05	1.58	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:33	3.106e+05	2.345e+05	1.32	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:37	2.932e+05	2.439e+05	1.20	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	2.673e+05	2.524e+05	1.06	yes	no	0.857
32	IS	13C-OCDD	42:00	3.863e+05	4.247e+05	0.91	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:13	2.395e+05	3.006e+05	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:52	3.335e+05	2.694e+05	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	5.645e+04				no	1.086

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Signal/Noise Height Ratio Summary

CLIENT ID.
76557

Run #4 Filename P614685 Samp: 1 Inj: 1 Acquired: 25-SEP-18 16:52:47
Processed: 26-SEP-18 07:39:09 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	6.55e+06	2.18e+03	3.0e+03	8.17e+06	4.39e+03	1.9e+03
2	1,2,3,7,8-PeCDF	5.78e+07	2.87e+03	2.0e+04	3.64e+07	4.35e+03	8.4e+03
3	2,3,4,7,8-PeCDF	5.79e+07	2.87e+03	2.0e+04	3.65e+07	4.35e+03	8.4e+03
4	1,2,3,4,7,8-HxCDF	6.15e+07	2.89e+03	2.1e+04	4.93e+07	2.08e+03	2.4e+04
5	1,2,3,6,7,8-HxCDF	6.26e+07	2.89e+03	2.2e+04	4.97e+07	2.08e+03	2.4e+04
6	2,3,4,6,7,8-HxCDF	6.14e+07	2.89e+03	2.1e+04	4.79e+07	2.08e+03	2.3e+04
7	1,2,3,7,8,9-HxCDF	5.42e+07	2.89e+03	1.9e+04	4.26e+07	2.08e+03	2.0e+04
8	1,2,3,4,6,7,8-HpCDF	5.56e+07	1.47e+04	3.8e+03	5.23e+07	1.66e+04	3.1e+03
9	1,2,3,4,7,8,9-HpCDF	3.99e+07	1.47e+04	2.7e+03	3.80e+07	1.66e+04	2.3e+03
10	OCDF	5.72e+07	1.23e+03	4.7e+04	6.22e+07	3.01e+03	2.1e+04
11	2,3,7,8-TCDD	4.49e+06	5.36e+03	8.4e+02	5.78e+06	2.64e+03	2.2e+03
12	1,2,3,7,8-PeCDD	3.45e+07	2.46e+03	1.4e+04	2.21e+07	1.02e+03	2.2e+04
13	1,2,3,4,7,8-HxCDD	3.72e+07	9.04e+02	4.1e+04	2.90e+07	1.56e+03	1.9e+04
14	1,2,3,6,7,8-HxCDD	3.60e+07	9.04e+02	4.0e+04	2.81e+07	1.56e+03	1.8e+04
15	1,2,3,7,8,9-HxCDD	3.80e+07	9.04e+02	4.2e+04	3.00e+07	1.56e+03	1.9e+04
16	1,2,3,4,6,7,8-HpCDD	3.19e+07	1.58e+03	2.0e+04	3.06e+07	1.63e+03	1.9e+04
17	OCDD	4.21e+07	1.71e+03	2.5e+04	4.66e+07	1.53e+03	3.0e+04
18	13C-2,3,7,8-TCDF	6.23e+07	1.55e+04	4.0e+03	7.90e+07	1.02e+04	7.8e+03
19	13C-1,2,3,7,8-PeCDF	1.00e+08	2.14e+03	4.7e+04	6.28e+07	2.18e+03	2.9e+04
20	13C-2,3,4,7,8-PeCDF	1.07e+08	2.14e+03	5.0e+04	6.66e+07	2.18e+03	3.1e+04
21	13C-1,2,3,4,7,8-HxCDF	5.63e+07	2.92e+03	1.9e+04	1.07e+08	4.60e+03	2.3e+04
22	13C-1,2,3,6,7,8-HxCDF	6.12e+07	2.92e+03	2.1e+04	1.15e+08	4.60e+03	2.5e+04
23	13C-2,3,4,6,7,8-HxCDF	5.95e+07	2.92e+03	2.0e+04	1.10e+08	4.60e+03	2.4e+04
24	13C-1,2,3,7,8,9-HxCDF	5.22e+07	2.92e+03	1.8e+04	9.74e+07	4.60e+03	2.1e+04
25	13C-1,2,3,4,6,7,8-HpCDF	4.59e+07	1.18e+04	3.9e+03	9.95e+07	3.82e+04	2.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.37e+07	1.18e+04	2.9e+03	7.29e+07	3.82e+04	1.9e+03
27	13C-2,3,7,8-TCDD	4.45e+07	1.91e+04	2.3e+03	5.53e+07	7.70e+03	7.2e+03
28	13C-1,2,3,7,8-PeCDD	7.50e+07	3.59e+03	2.1e+04	4.74e+07	2.50e+03	1.9e+04
29	13C-1,2,3,4,7,8-HxCDD	6.95e+07	5.55e+03	1.3e+04	5.43e+07	3.18e+03	1.7e+04
30	13C-1,2,3,6,7,8-HxCDD	6.70e+07	5.55e+03	1.2e+04	5.36e+07	3.18e+03	1.7e+04
31	13C-1,2,3,4,6,7,8-HpCDD	5.80e+07	4.72e+03	1.2e+04	5.53e+07	2.63e+03	2.1e+04
32	13C-OCDD	7.33e+07	1.86e+03	4.0e+04	8.10e+07	5.92e+02	1.4e+05
33	13C-1,2,3,4-TCDD	4.48e+07	1.91e+04	2.3e+03	5.67e+07	7.70e+03	7.4e+03
34	13C-1,2,3,7,8,9-HxCDD	7.38e+07	5.55e+03	1.3e+04	5.89e+07	3.18e+03	1.9e+04
35	37Cl-2,3,7,8-TCDD	1.08e+07	3.52e+03	3.1e+03			

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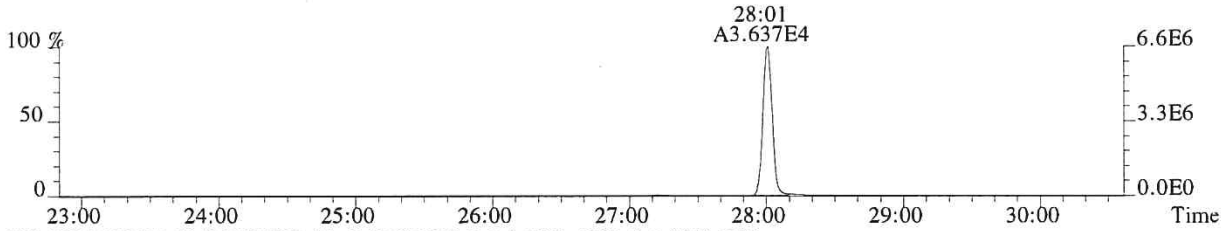
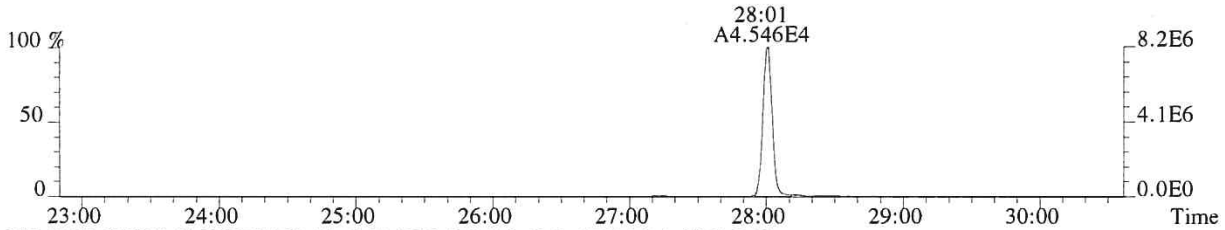
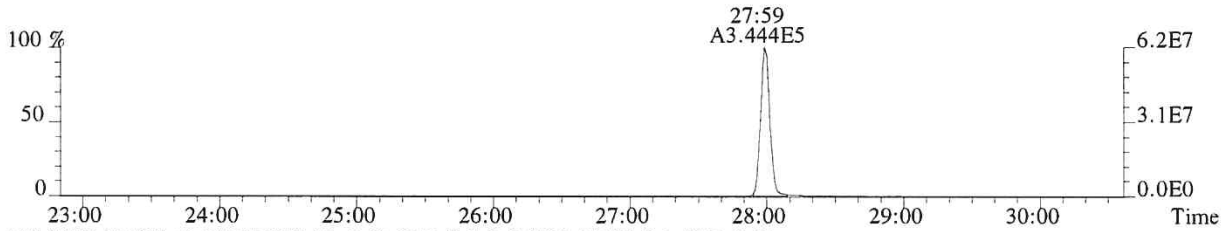
File:P614685 #1-552 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2176.0,1.00%,F,T)



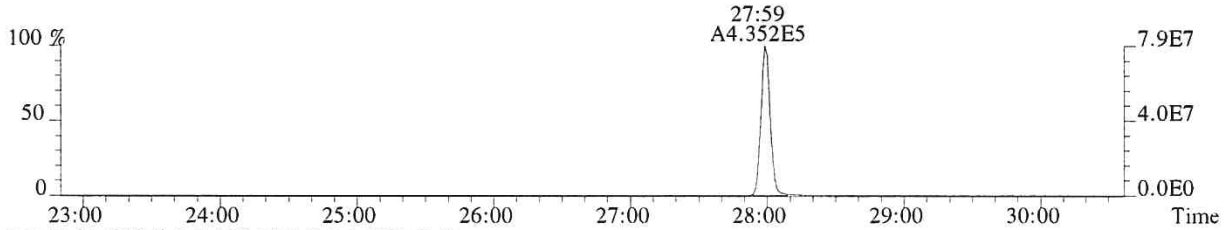
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4392.0,1.00%,F,T)



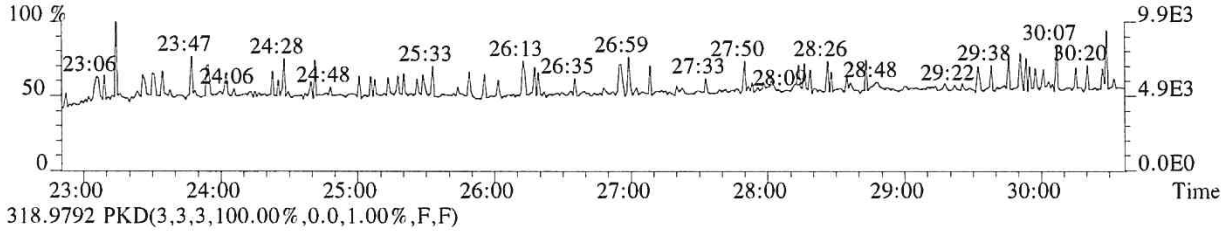
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15516.0,1.00%,F,T)



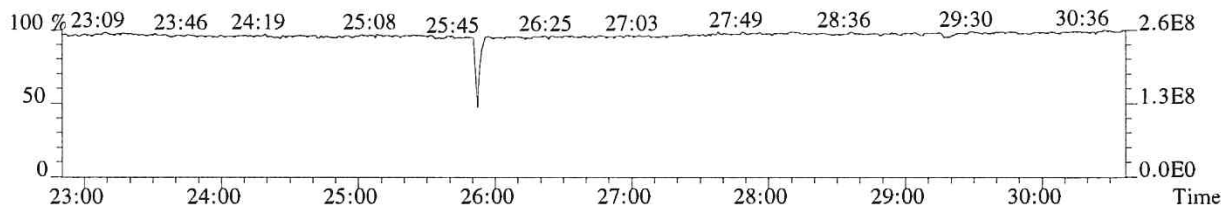
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10180.0,1.00%,F,T)



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

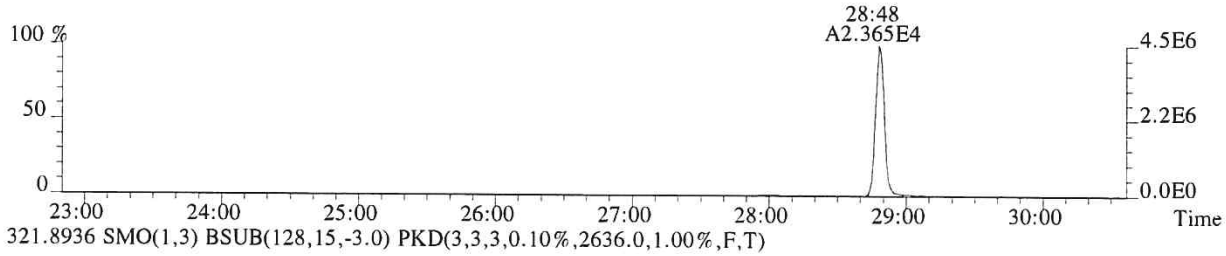


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

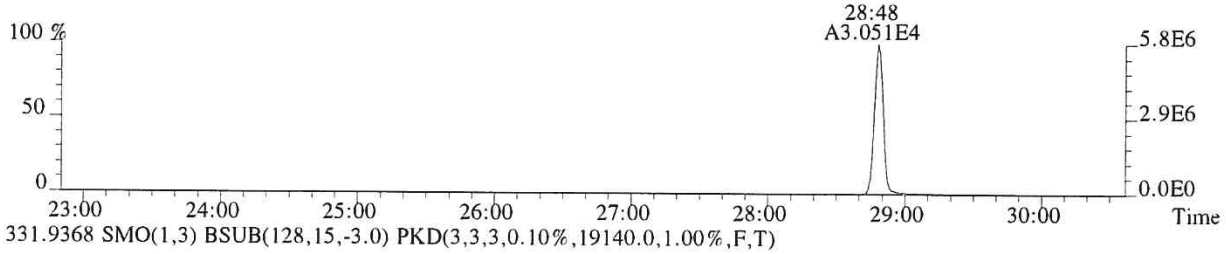


013749

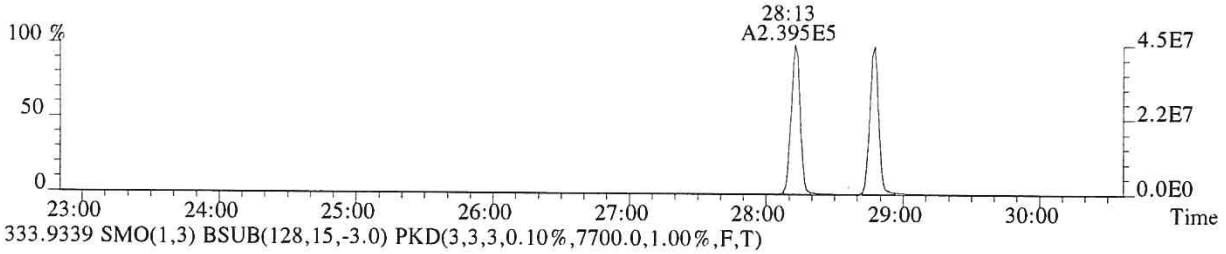
File:P614685 #1-552 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5364.0,1.00%,F,T)



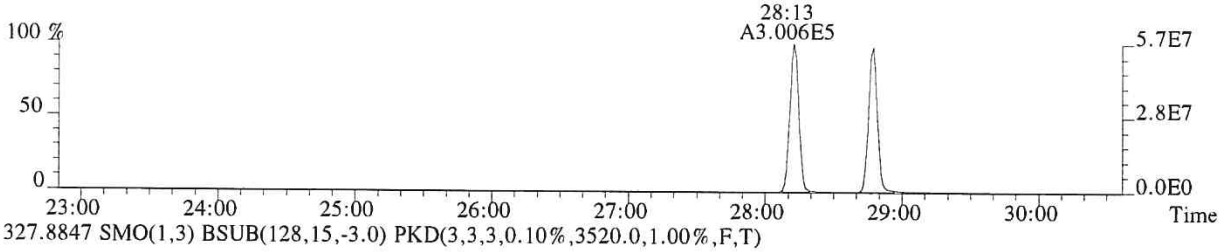
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2636.0,1.00%,F,T)



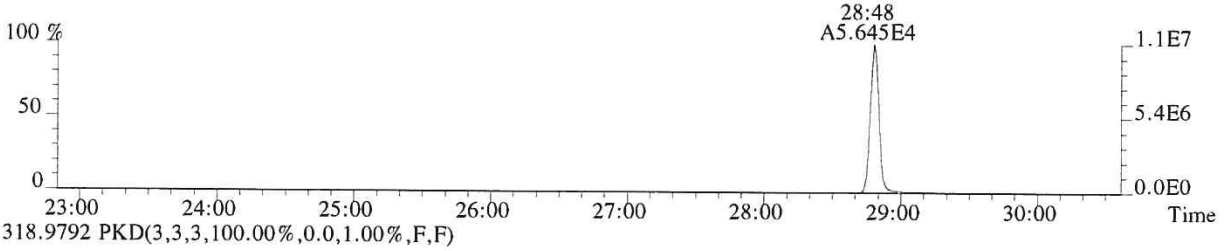
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,19140.0,1.00%,F,T)



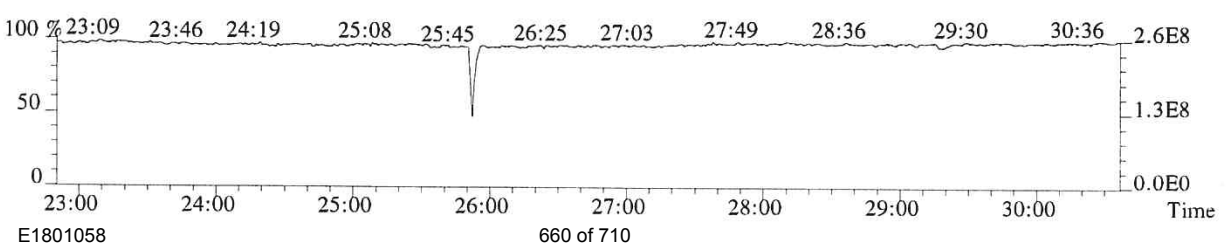
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7700.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3520.0,1.00%,F,T)

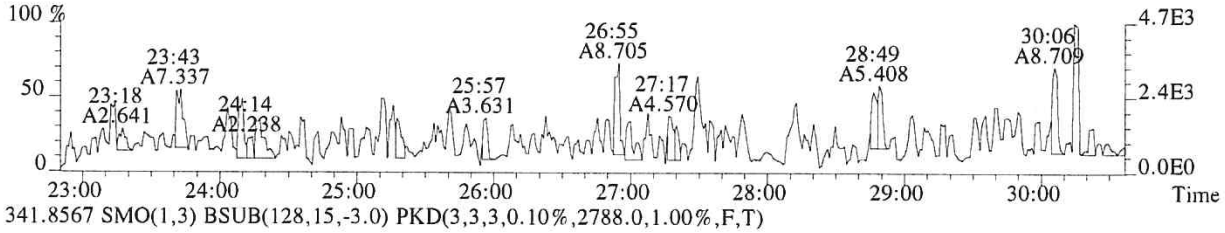


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

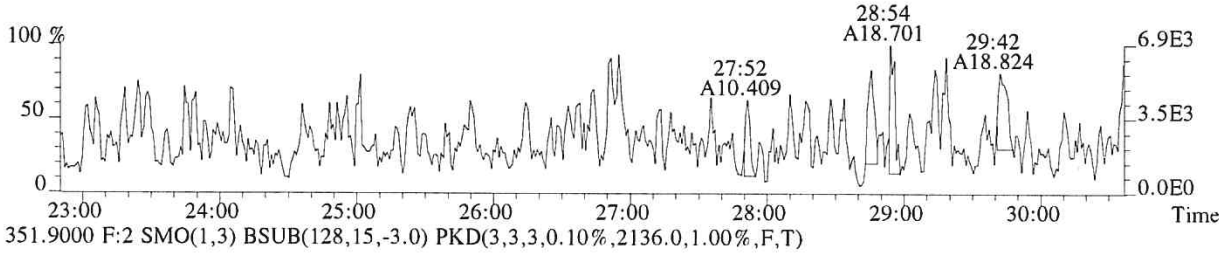


013750

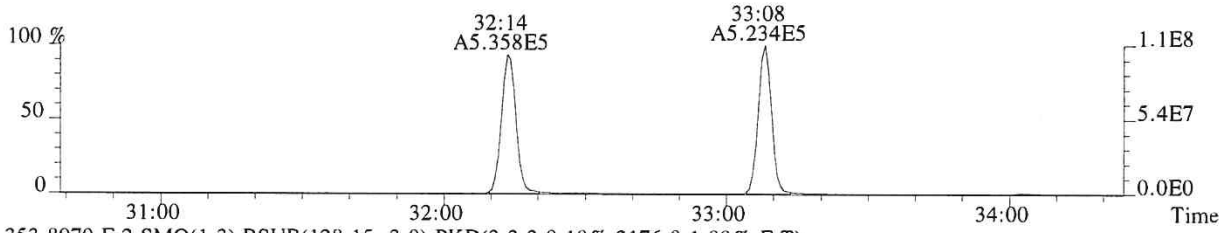
File:P614685 #1-552 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1116.0,1.00%,F,T)



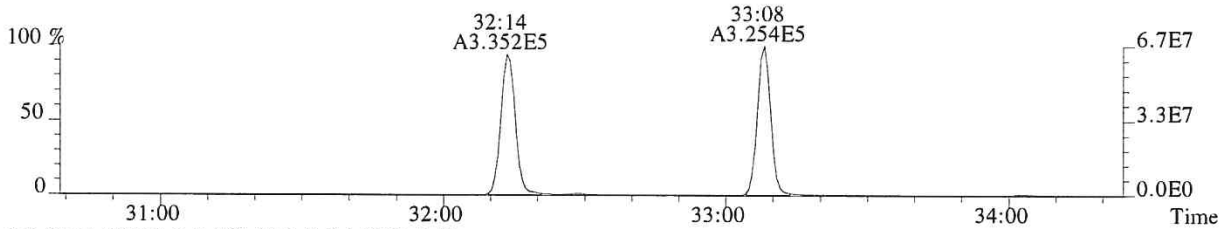
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2788.0,1.00%,F,T)



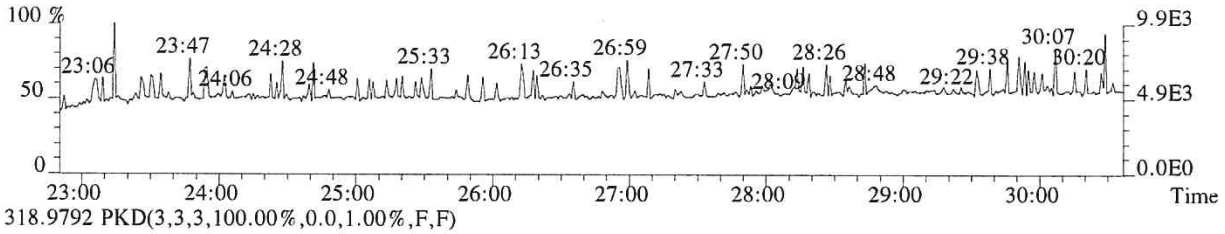
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2136.0,1.00%,F,T)



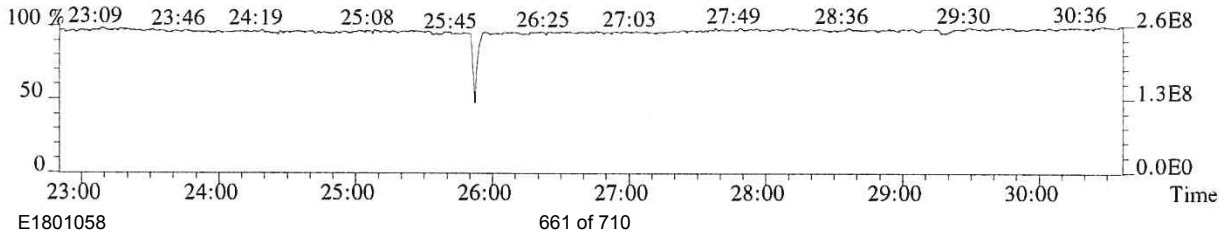
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2176.0,1.00%,F,T)



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



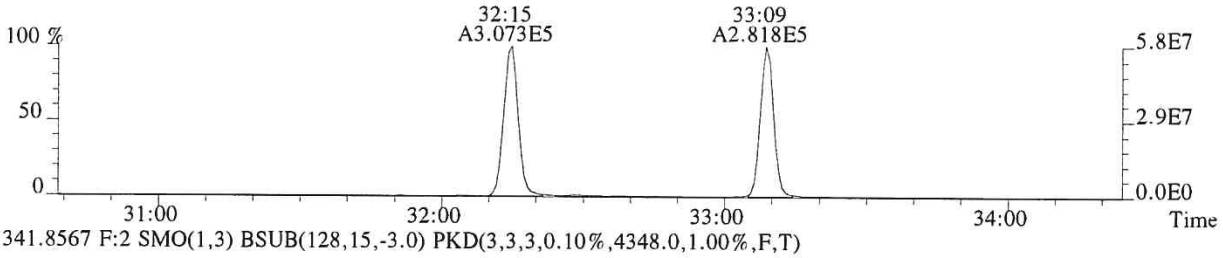
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



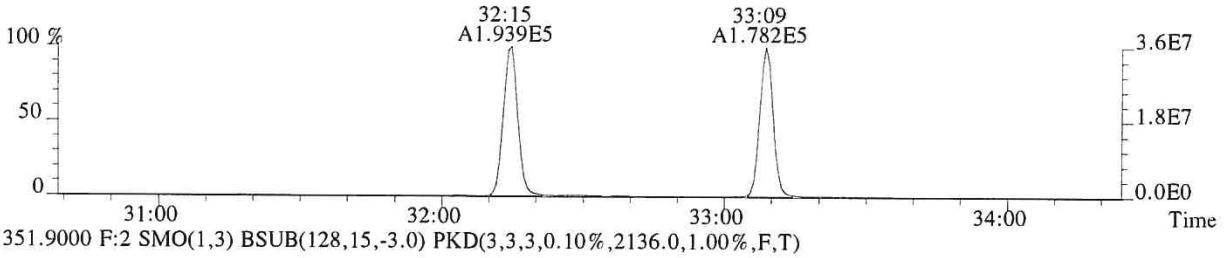
013751

File:P614685 #1-339 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

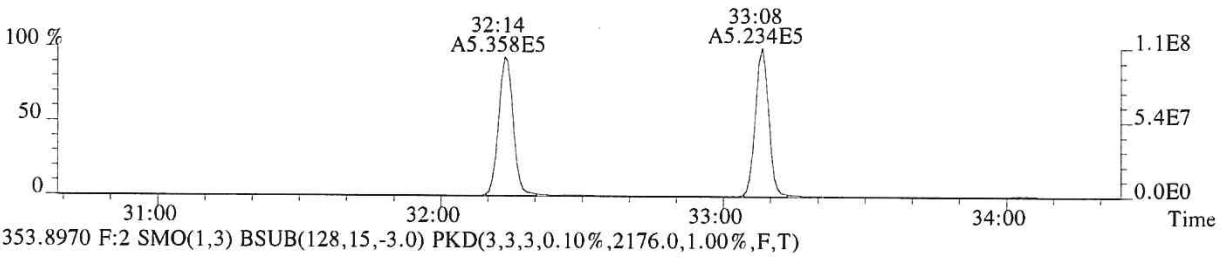
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2872.0,1.00%,F,T)



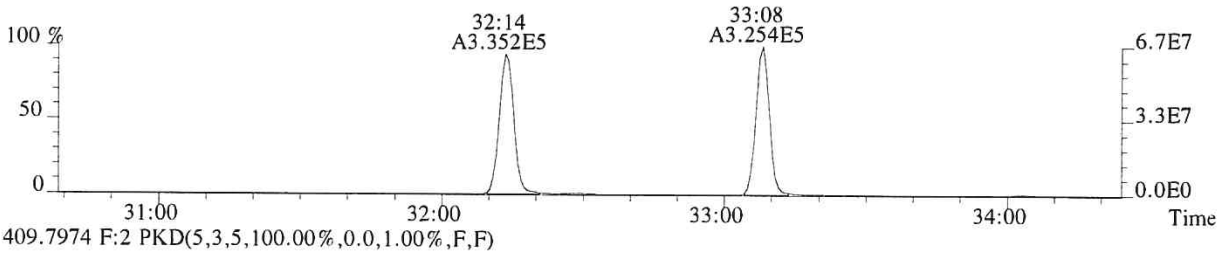
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4348.0,1.00%,F,T)



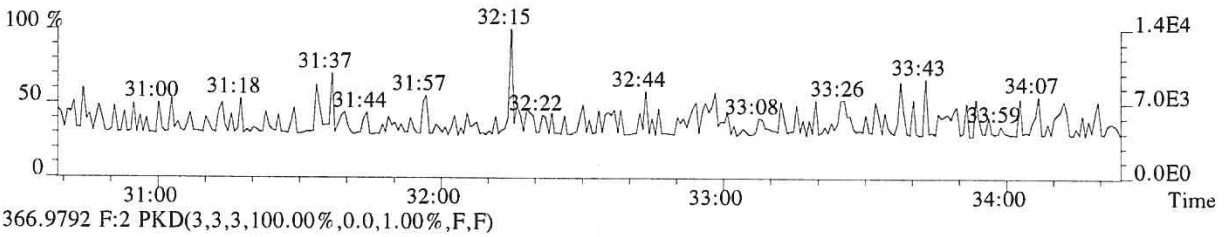
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2136.0,1.00%,F,T)



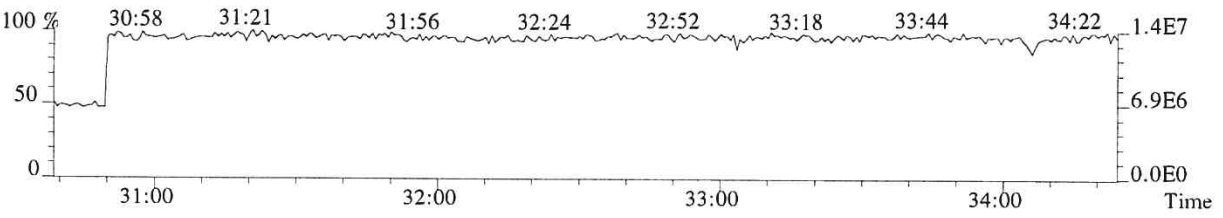
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2176.0,1.00%,F,T)



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

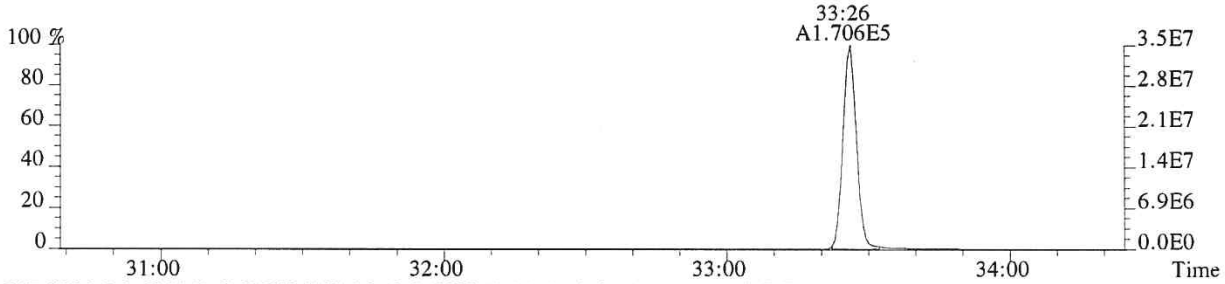


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

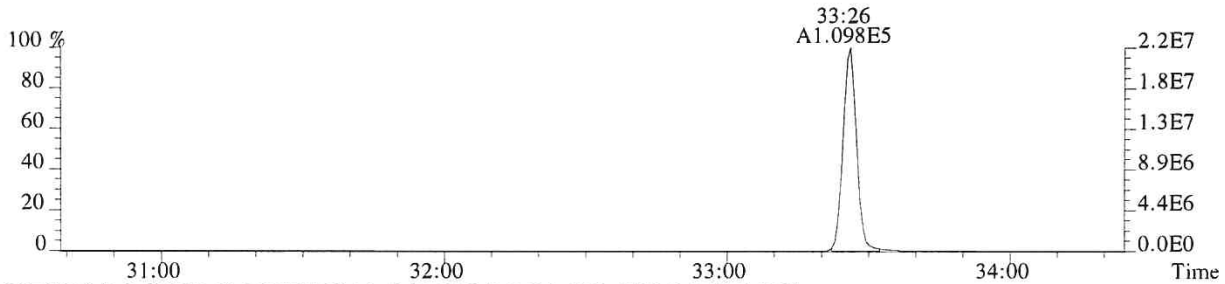


013752

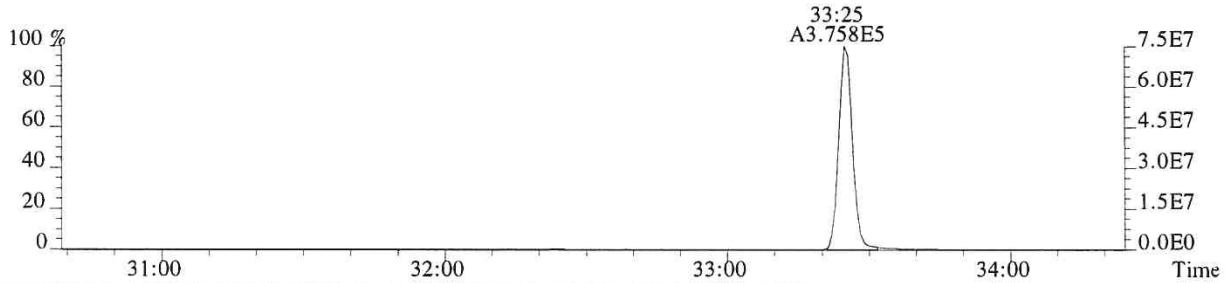
File:P614685 #1-339 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2460.0,1.00%,F,T)



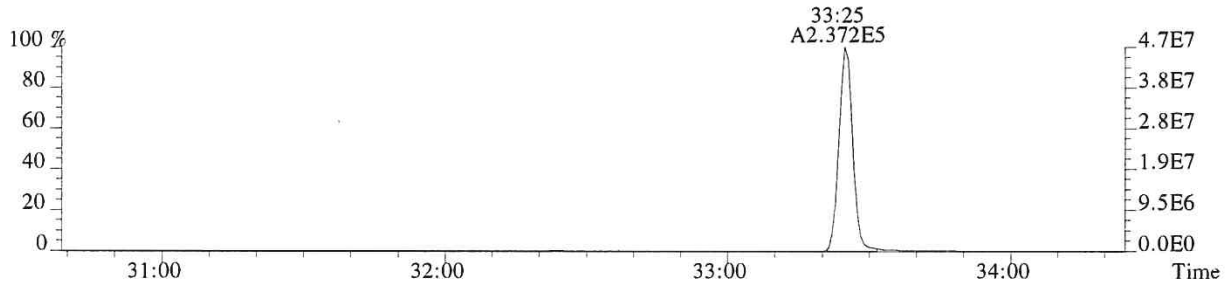
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1020.0,1.00%,F,T)



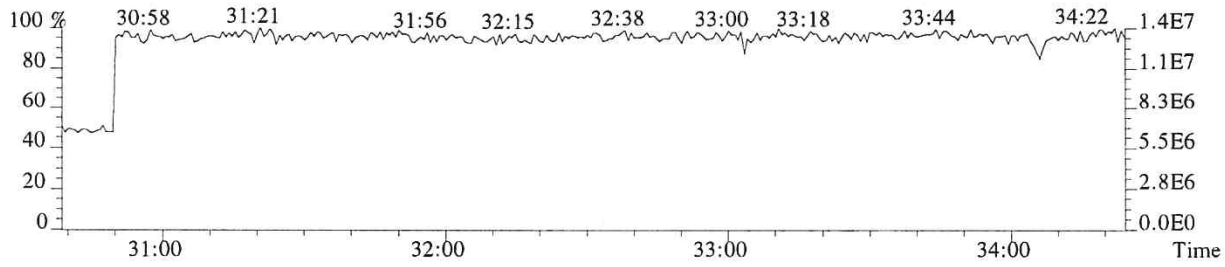
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3592.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2496.0,1.00%,F,T)

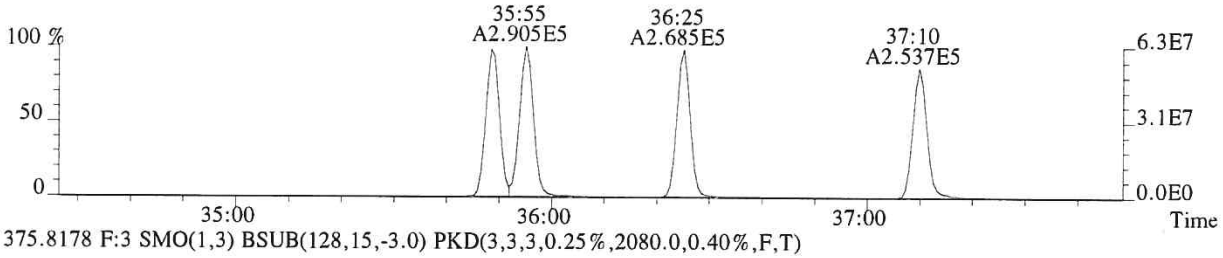


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

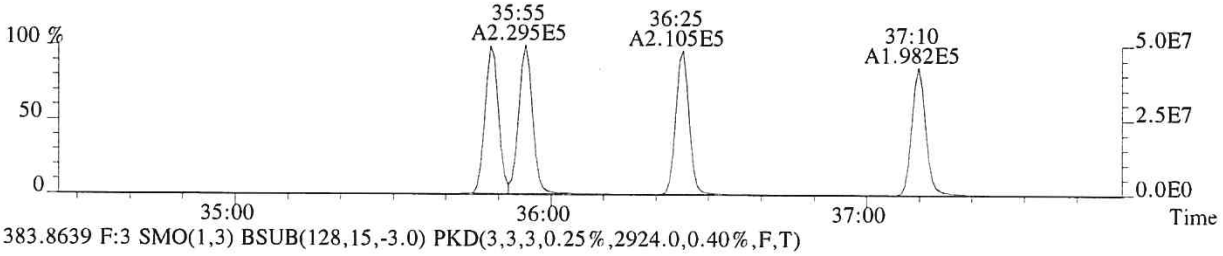


013753

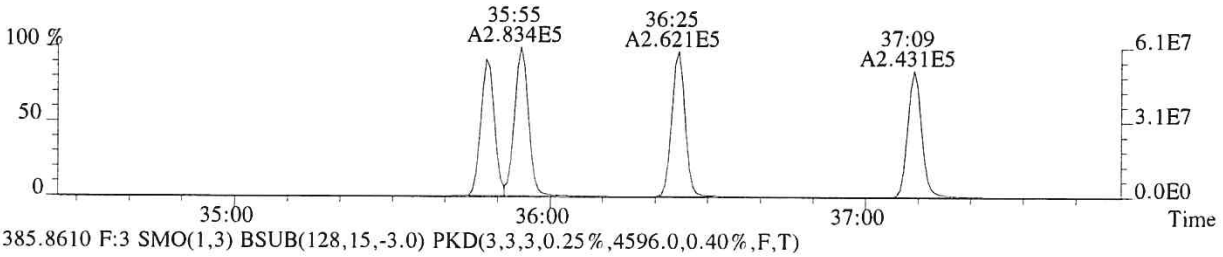
File:P614685 #1-304 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2888.0,0.40%,F,T)



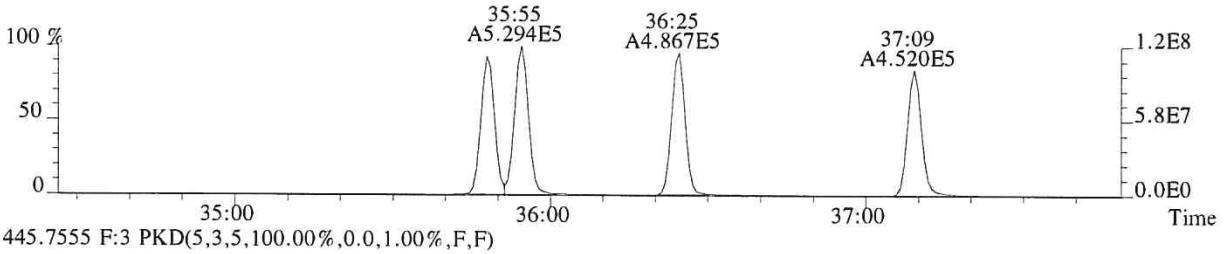
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2080.0,0.40%,F,T)



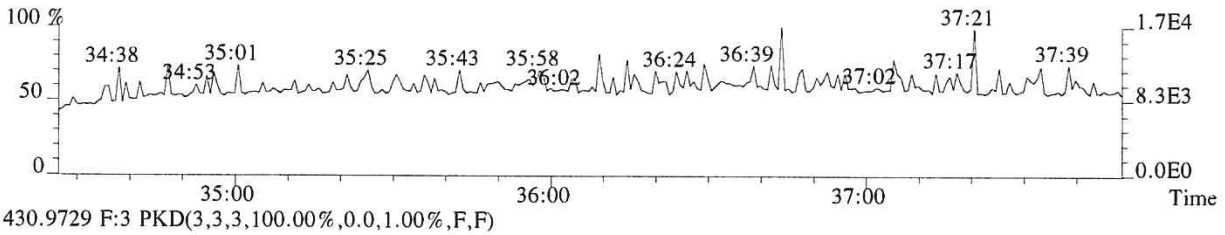
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2924.0,0.40%,F,T)



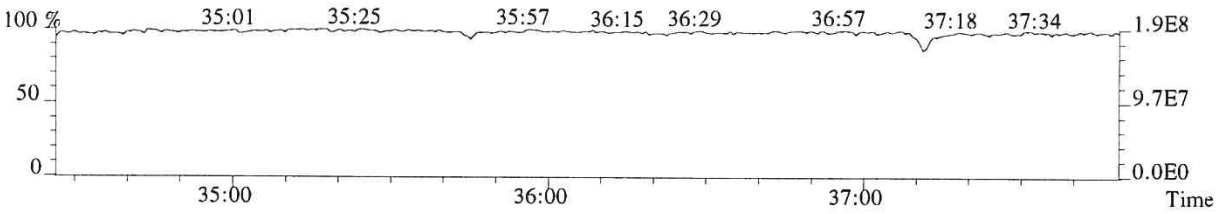
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4596.0,0.40%,F,T)



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

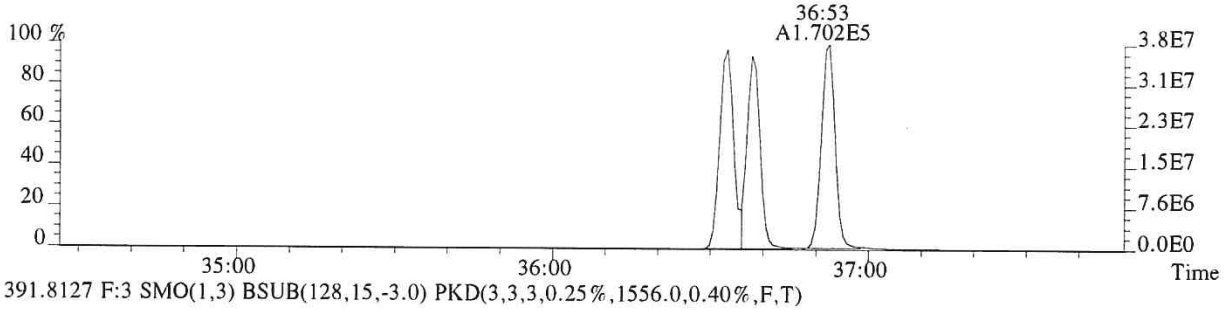


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

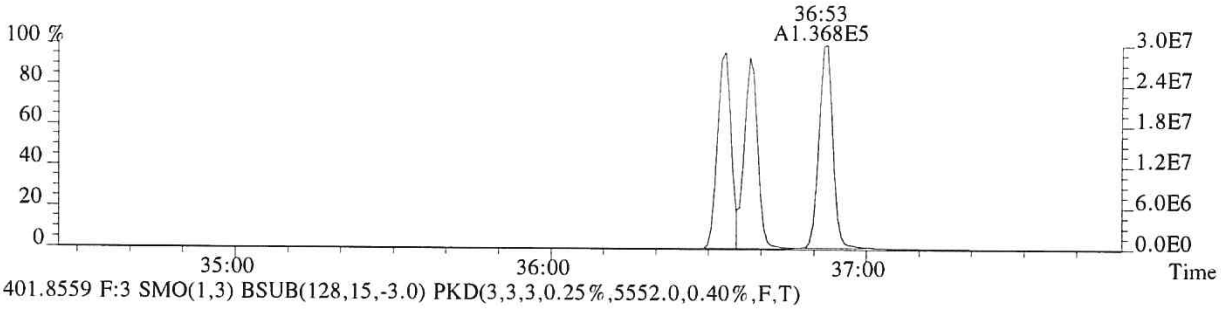


013754

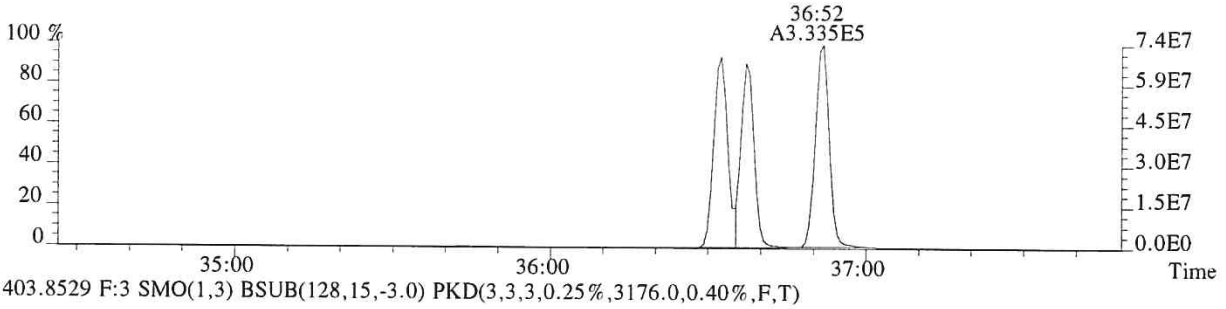
File:P614685 #1-304 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,904.0,0.40%,F,T)



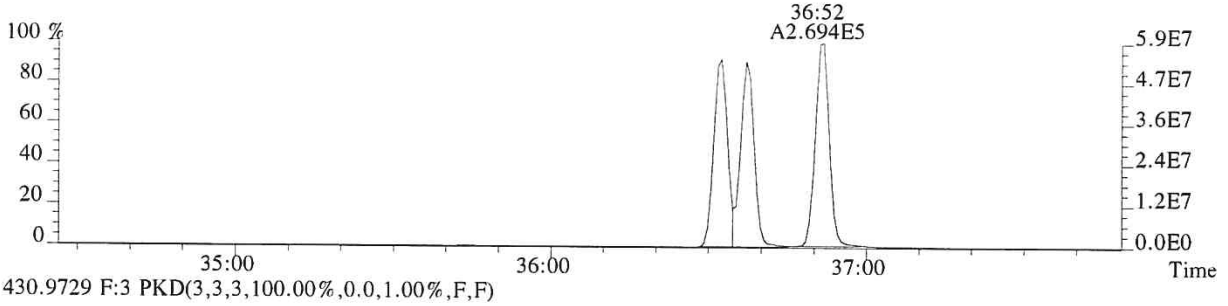
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1556.0,0.40%,F,T)



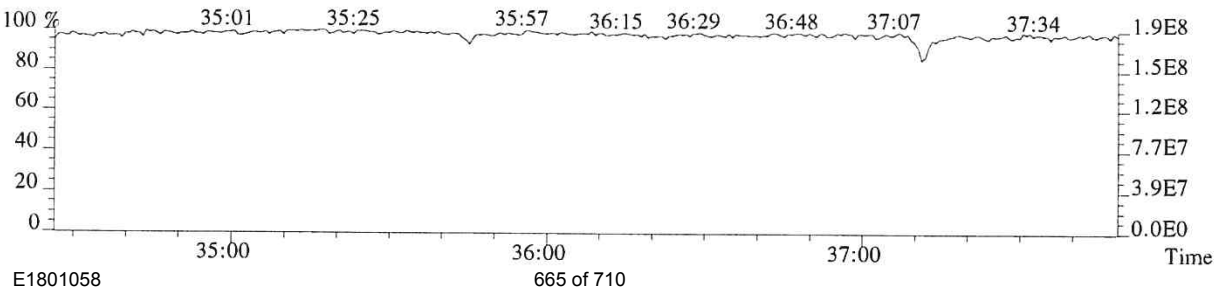
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5552.0,0.40%,F,T)



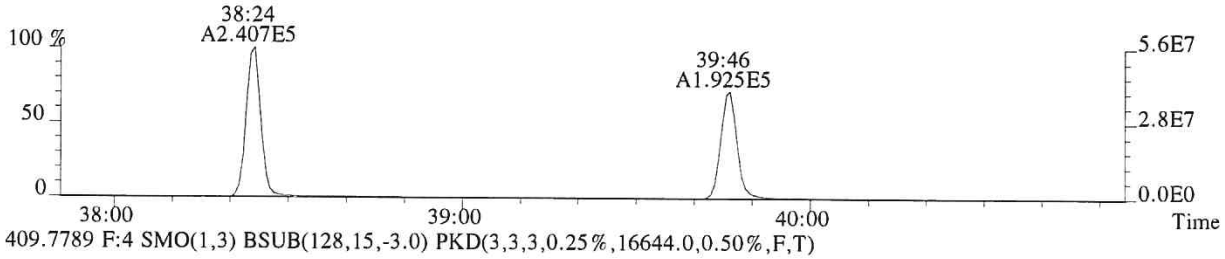
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3176.0,0.40%,F,T)



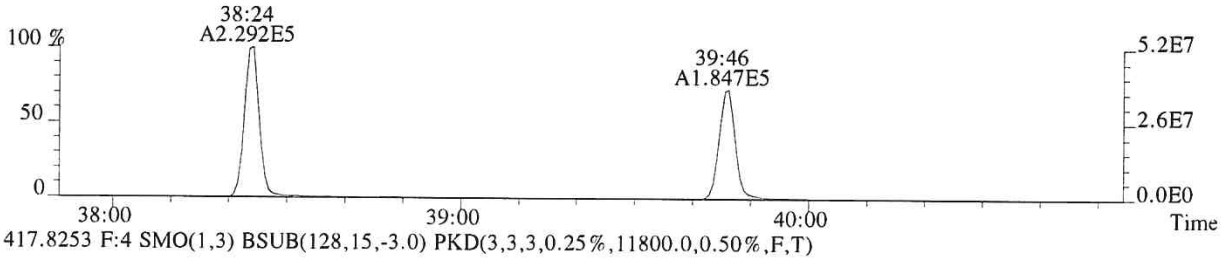
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



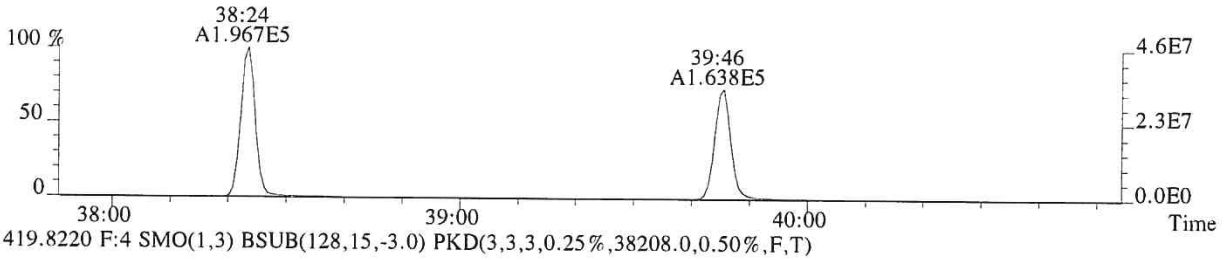
File:P614685 #1-276 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,14728.0,0.50%,F,T)



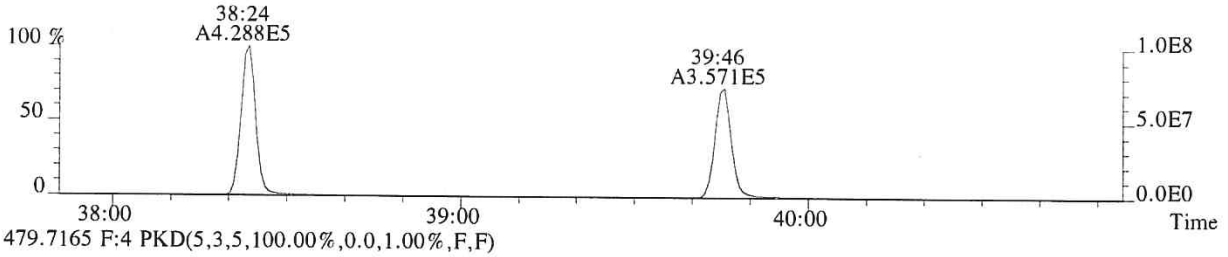
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,16644.0,0.50%,F,T)



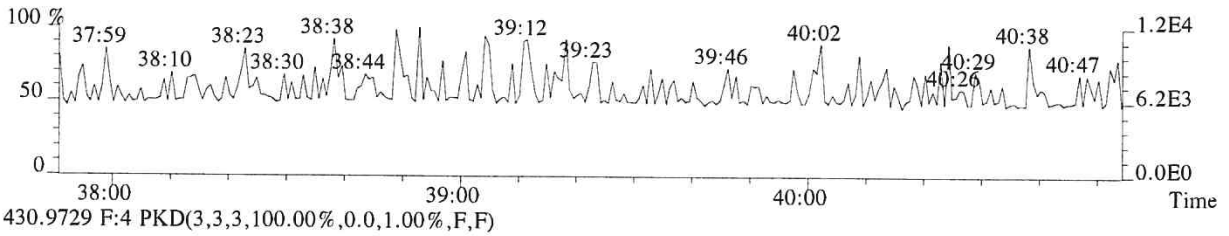
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11800.0,0.50%,F,T)



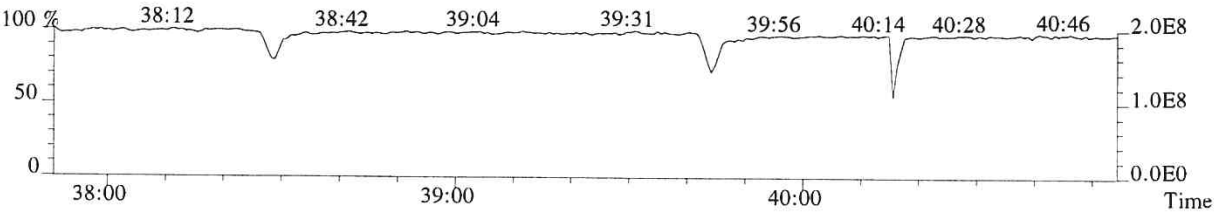
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,38208.0,0.50%,F,T)



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

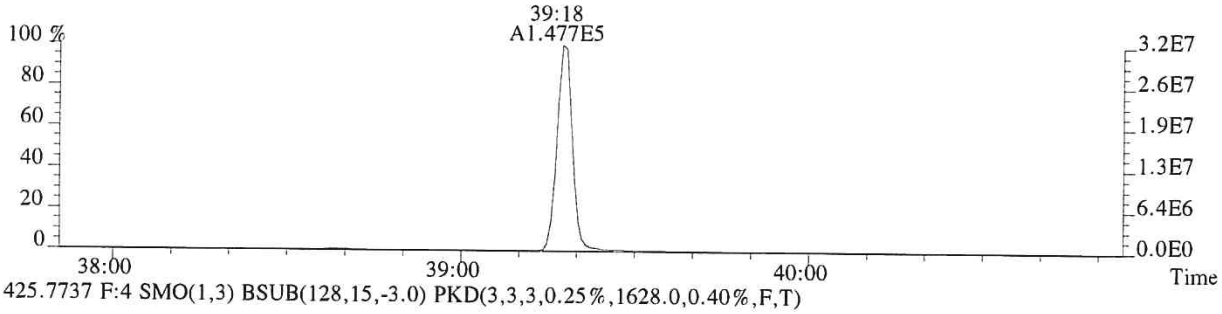


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

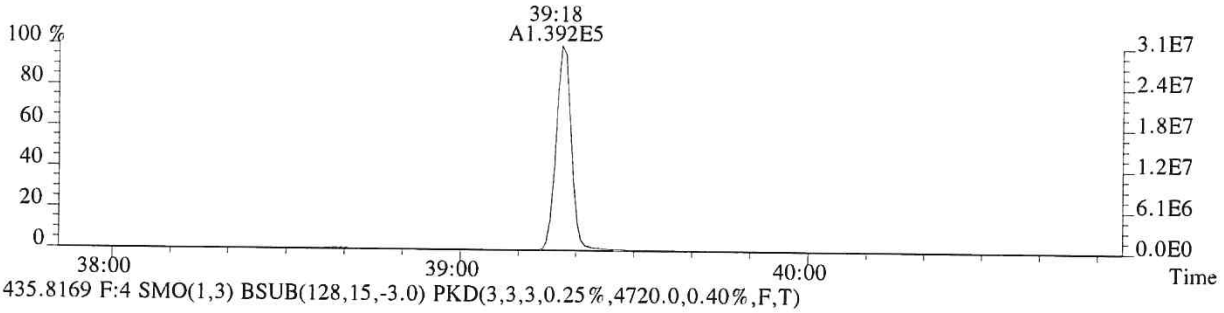


013756

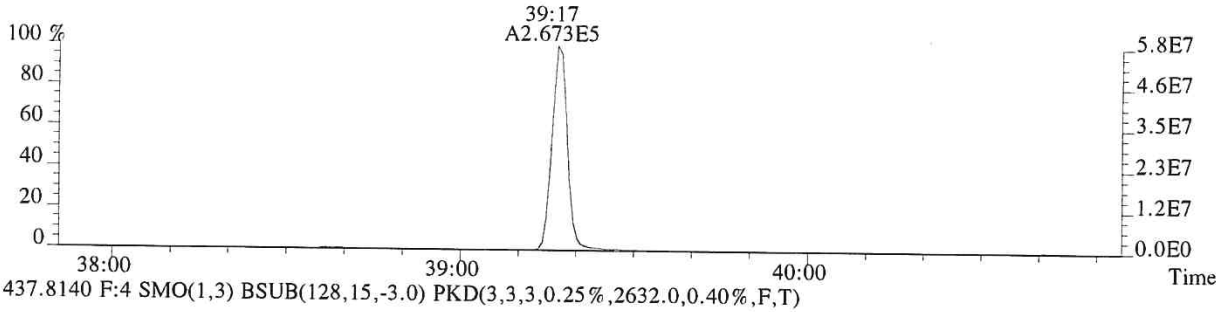
File:P614685 #1-276 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1576.0,0.40%,F,T)



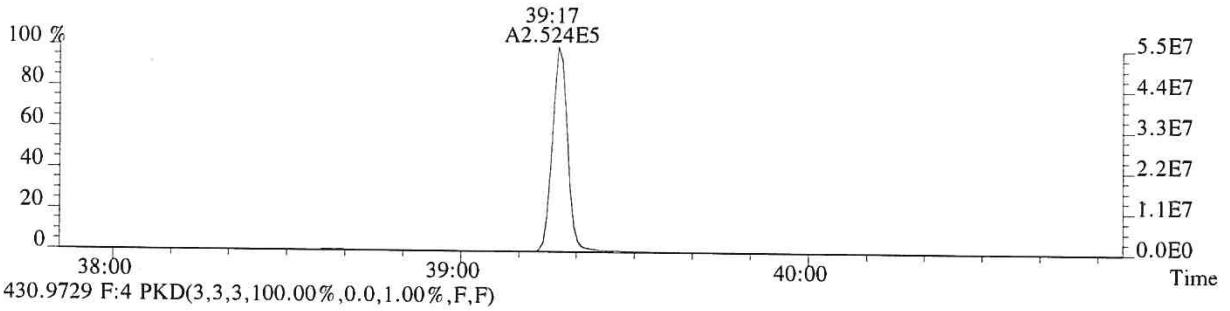
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1628.0,0.40%,F,T)



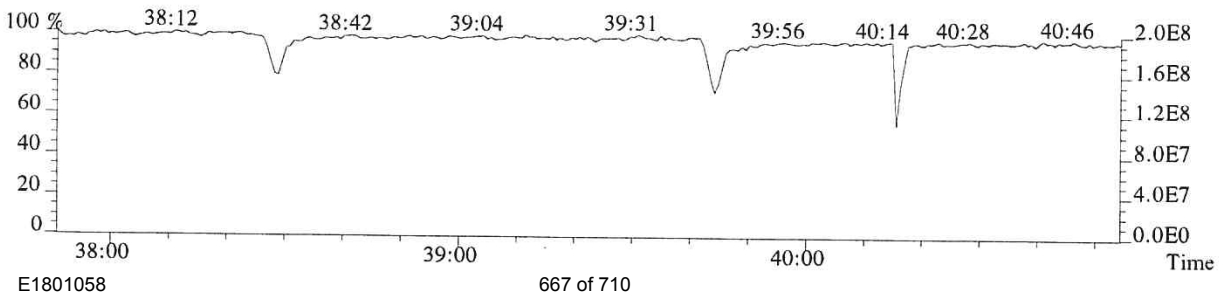
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4720.0,0.40%,F,T)



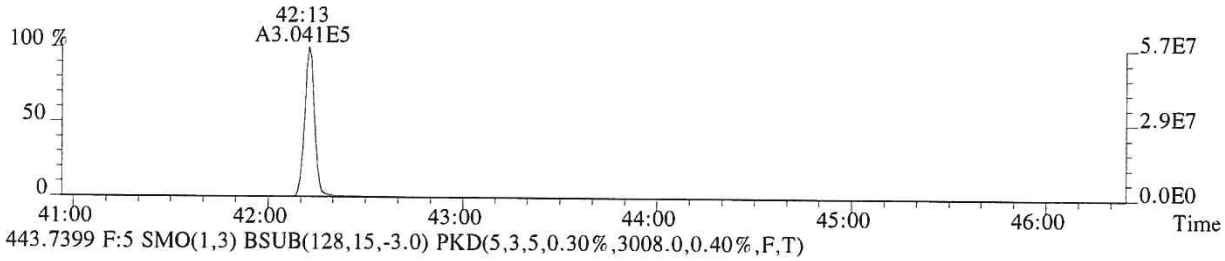
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2632.0,0.40%,F,T)



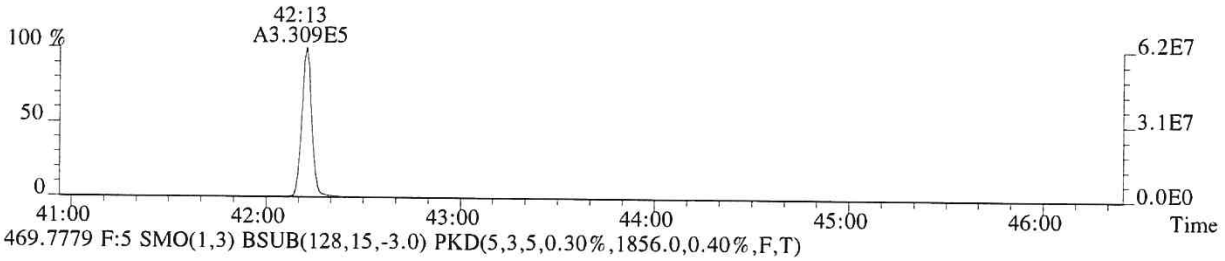
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



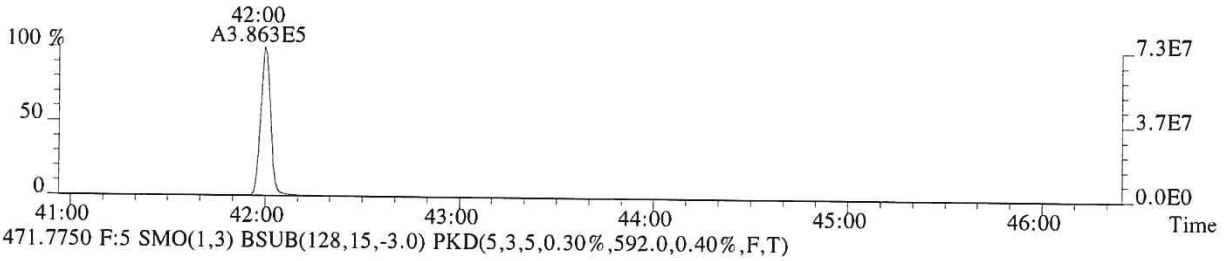
File:P614685 #1-493 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:CS3
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1228.0,0.40%,F,T)



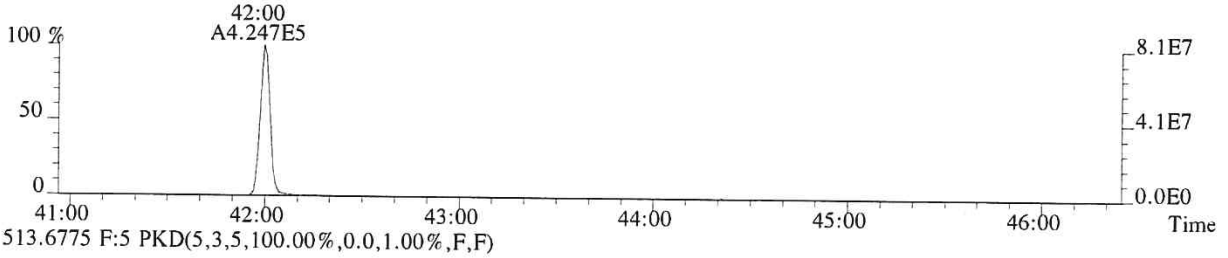
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3008.0,0.40%,F,T)



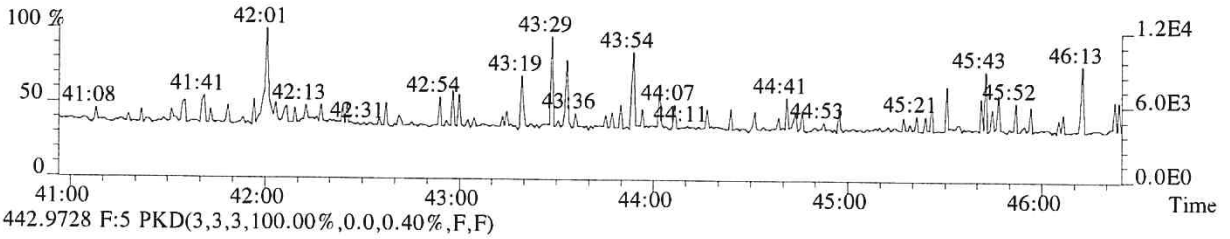
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1856.0,0.40%,F,T)



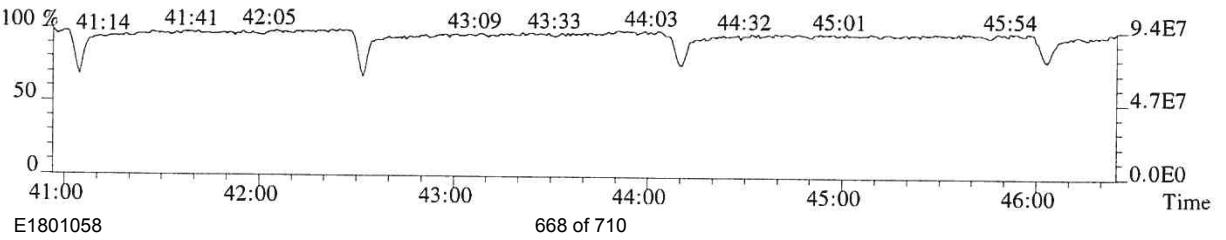
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,592.0,0.40%,F,T)



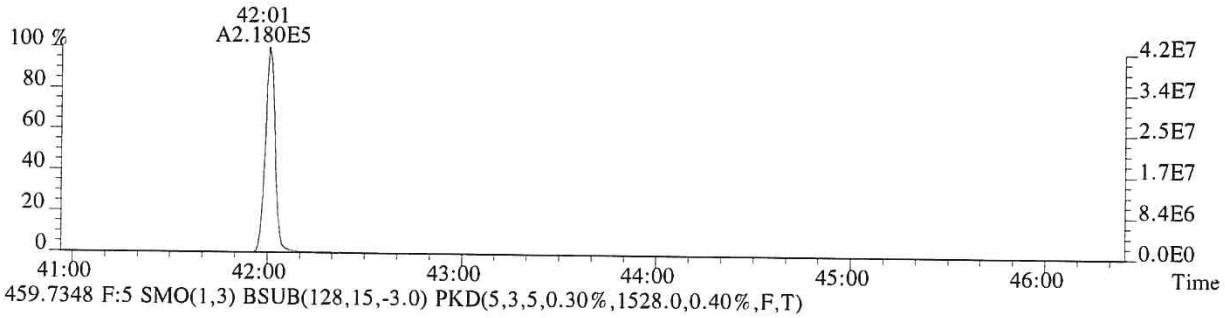
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



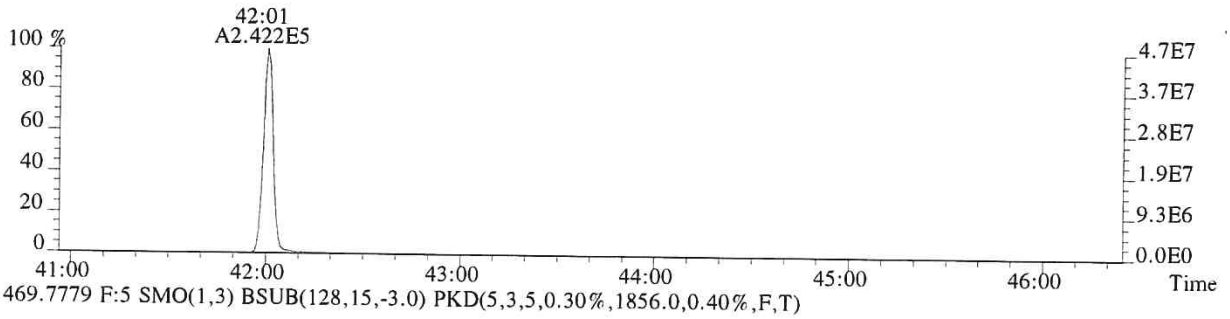
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



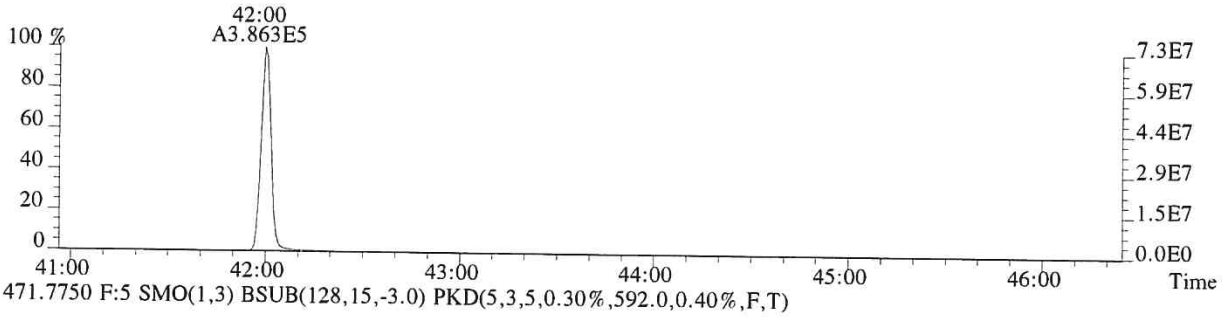
File:P614685 #1-493 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1708.0,0.40%,F,T)



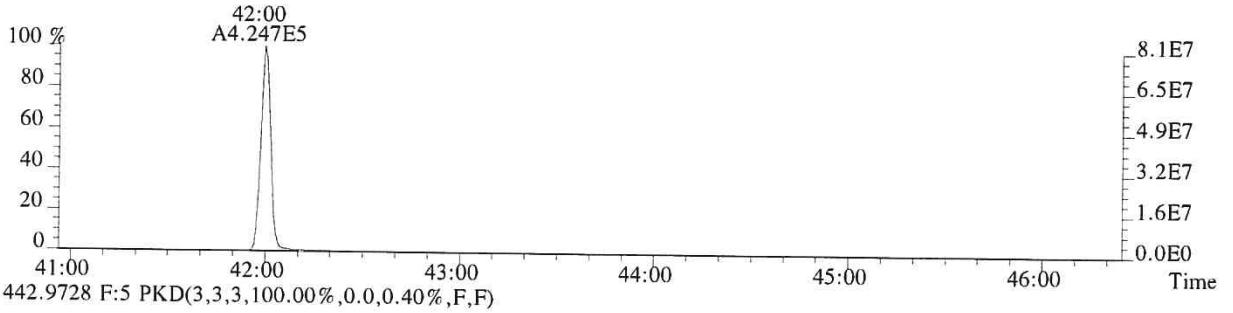
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1528.0,0.40%,F,T)



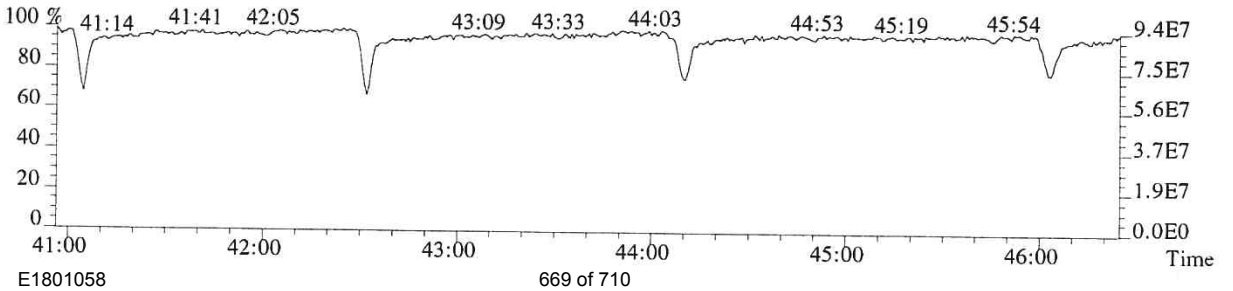
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1856.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,592.0,0.40%,F,T)



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



013759

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
82167

Run #5 Filename P614686 Samp: 1 Inj: 1 Acquired: 25-SEP-18 17:41:03
Processed: 26-SEP-18 07:39:11 Sample ID: CS4

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:00	1.186e+05	1.498e+05	0.79	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:14	1.070e+06	6.680e+05	1.60	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:09	9.931e+05	6.255e+05	1.59	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	9.336e+05	7.318e+05	1.28	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	9.546e+05	7.530e+05	1.27	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	9.004e+05	7.134e+05	1.26	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:10	8.574e+05	6.711e+05	1.28	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	7.924e+05	7.640e+05	1.04	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	6.712e+05	6.389e+05	1.05	yes	no	1.463
10	Unk	OCDF	42:13	9.999e+05	1.075e+06	0.93	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:48	8.371e+04	1.065e+05	0.79	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	5.908e+05	3.807e+05	1.55	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	5.387e+05	4.268e+05	1.26	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:38	5.444e+05	4.299e+05	1.27	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:52	5.850e+05	4.610e+05	1.27	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	4.859e+05	4.568e+05	1.06	yes	no	1.112
17	Unk	OCDD	42:01	7.127e+05	7.901e+05	0.90	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:59	2.799e+05	3.543e+05	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	4.595e+05	2.875e+05	1.60	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	4.523e+05	2.842e+05	1.59	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	2.092e+05	3.928e+05	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	2.332e+05	4.327e+05	0.54	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	2.224e+05	4.139e+05	0.54	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	2.041e+05	3.825e+05	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:24	1.626e+05	3.528e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:46	1.431e+05	3.159e+05	0.45	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	2.012e+05	2.528e+05	0.80	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:25	3.193e+05	2.044e+05	1.56	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:33	2.552e+05	2.035e+05	1.25	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:37	2.565e+05	2.045e+05	1.25	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	2.187e+05	2.081e+05	1.05	yes	no	0.857
32	IS	13C-OCDD	42:00	3.133e+05	3.464e+05	0.90	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:13	2.000e+05	2.518e+05	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:51	2.828e+05	2.264e+05	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	2.003e+05				no	1.086

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Signal/Noise Height Ratio Summary

CLIENT ID.
82167

Run #5 Filename P614686 Samp: 1 Inj: 1 Acquired: 25-SEP-18 17:41:03
Processed: 26-SEP-18 07:39:11 LAB. ID: CS4

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.13e+07	2.15e+03	9.9e+03	2.70e+07	4.22e+03	6.4e+03
2	1,2,3,7,8-PeCDF	2.03e+08	3.06e+03	6.6e+04	1.29e+08	4.95e+03	2.6e+04
3	2,3,4,7,8-PeCDF	2.04e+08	3.06e+03	6.7e+04	1.28e+08	4.95e+03	2.6e+04
4	1,2,3,4,7,8-HxCDF	2.14e+08	1.85e+03	1.2e+05	1.68e+08	4.92e+03	3.4e+04
5	1,2,3,6,7,8-HxCDF	2.12e+08	1.85e+03	1.1e+05	1.67e+08	4.92e+03	3.4e+04
6	2,3,4,6,7,8-HxCDF	2.02e+08	1.85e+03	1.1e+05	1.59e+08	4.92e+03	3.2e+04
7	1,2,3,7,8,9-HxCDF	1.88e+08	1.85e+03	1.0e+05	1.47e+08	4.92e+03	3.0e+04
8	1,2,3,4,6,7,8-HpCDF	1.78e+08	2.61e+04	6.8e+03	1.72e+08	1.83e+04	9.4e+03
9	1,2,3,4,7,8,9-HpCDF	1.41e+08	2.61e+04	5.4e+03	1.35e+08	1.83e+04	7.4e+03
10	OCDF	1.94e+08	1.46e+03	1.3e+05	2.08e+08	3.00e+03	6.9e+04
11	2,3,7,8-TCDD	1.62e+07	6.38e+03	2.5e+03	2.06e+07	2.42e+03	8.5e+03
12	1,2,3,7,8-PeCDD	1.19e+08	3.22e+03	3.7e+04	7.64e+07	1.02e+03	7.5e+04
13	1,2,3,4,7,8-HxCDD	1.25e+08	9.48e+02	1.3e+05	9.78e+07	1.64e+03	5.9e+04
14	1,2,3,6,7,8-HxCDD	1.22e+08	9.48e+02	1.3e+05	9.73e+07	1.64e+03	5.9e+04
15	1,2,3,7,8,9-HxCDD	1.31e+08	9.48e+02	1.4e+05	1.04e+08	1.64e+03	6.3e+04
16	1,2,3,4,6,7,8-HpCDD	1.10e+08	2.46e+03	4.5e+04	1.04e+08	2.38e+03	4.4e+04
17	OCDD	1.42e+08	1.24e+03	1.1e+05	1.57e+08	1.46e+03	1.1e+05
18	13C-2,3,7,8-TCDF	5.06e+07	1.14e+04	4.4e+03	6.41e+07	7.28e+03	8.8e+03
19	13C-1,2,3,7,8-PeCDF	8.88e+07	3.08e+03	2.9e+04	5.58e+07	3.54e+03	1.6e+04
20	13C-2,3,4,7,8-PeCDF	9.15e+07	3.08e+03	3.0e+04	5.70e+07	3.54e+03	1.6e+04
21	13C-1,2,3,4,7,8-HxCDF	4.76e+07	3.01e+03	1.6e+04	8.96e+07	4.64e+03	1.9e+04
22	13C-1,2,3,6,7,8-HxCDF	5.17e+07	3.01e+03	1.7e+04	9.54e+07	4.64e+03	2.1e+04
23	13C-2,3,4,6,7,8-HxCDF	4.99e+07	3.01e+03	1.7e+04	9.21e+07	4.64e+03	2.0e+04
24	13C-1,2,3,7,8,9-HxCDF	4.48e+07	3.01e+03	1.5e+04	8.44e+07	4.64e+03	1.8e+04
25	13C-1,2,3,4,6,7,8-HpCDF	3.73e+07	8.80e+03	4.2e+03	8.02e+07	1.92e+04	4.2e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.97e+07	8.80e+03	3.4e+03	6.54e+07	1.92e+04	3.4e+03
27	13C-2,3,7,8-TCDD	3.77e+07	1.85e+04	2.0e+03	4.78e+07	7.81e+03	6.1e+03
28	13C-1,2,3,7,8-PeCDD	6.47e+07	3.56e+03	1.8e+04	4.18e+07	3.26e+03	1.3e+04
29	13C-1,2,3,4,7,8-HxCDD	5.86e+07	4.66e+03	1.3e+04	4.67e+07	3.04e+03	1.5e+04
30	13C-1,2,3,6,7,8-HxCDD	5.76e+07	4.66e+03	1.2e+04	4.61e+07	3.04e+03	1.5e+04
31	13C-1,2,3,4,6,7,8-HpCDD	4.94e+07	3.14e+03	1.6e+04	4.74e+07	1.71e+03	2.8e+04
32	13C-OCDD	6.18e+07	1.83e+03	3.4e+04	6.87e+07	9.56e+02	7.2e+04
33	13C-1,2,3,4-TCDD	3.76e+07	1.85e+04	2.0e+03	4.73e+07	7.81e+03	6.1e+03
34	13C-1,2,3,7,8,9-HxCDD	6.25e+07	4.66e+03	1.3e+04	5.04e+07	3.04e+03	1.7e+04
35	37Cl-2,3,7,8-TCDD	3.86e+07	4.32e+03	9.0e+03			

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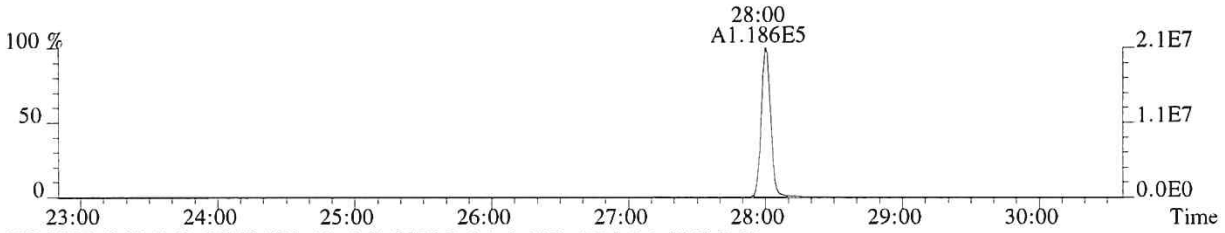
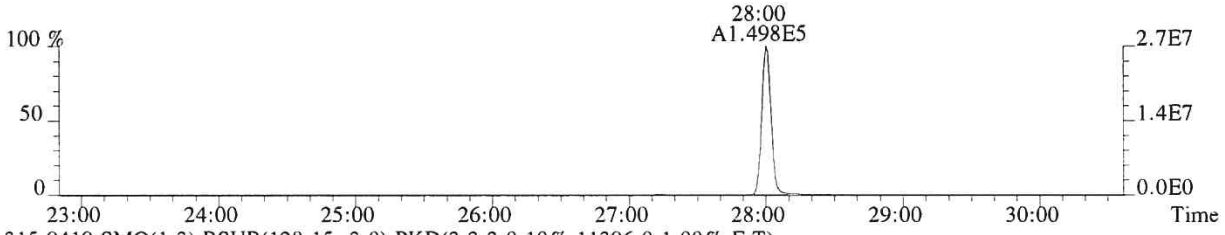
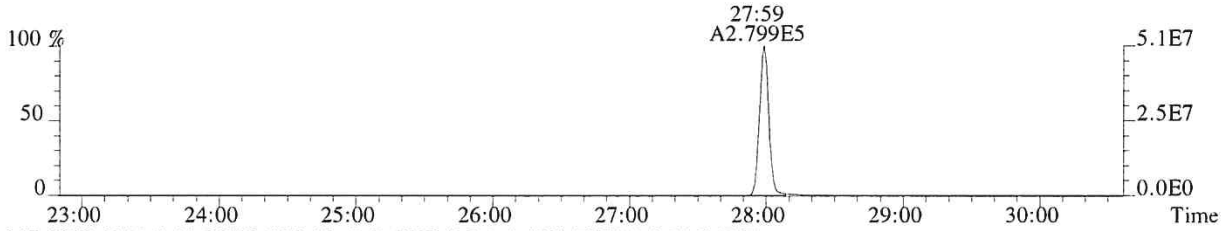
File:P614686 #1-552 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2148.0,1.00%,F,T)



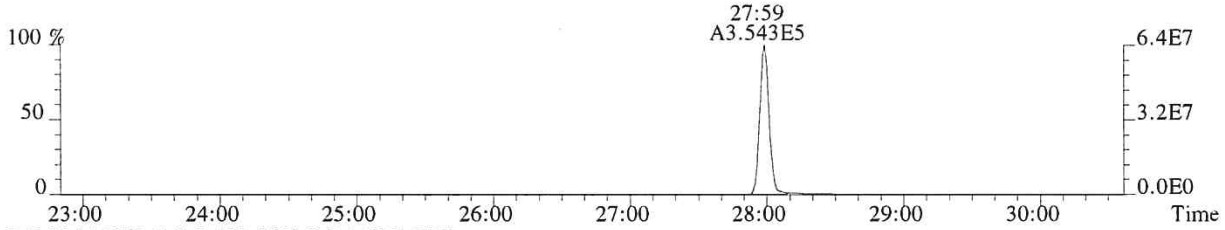
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4220.0,1.00%,F,T)



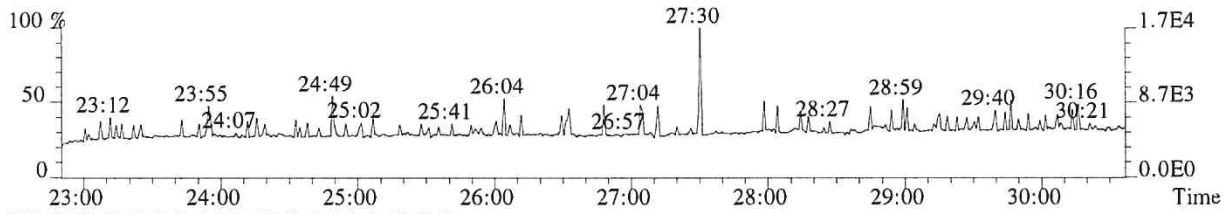
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,11396.0,1.00%,F,T)



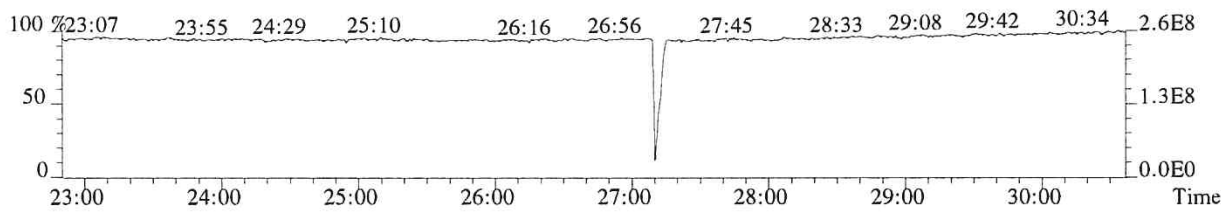
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7276.0,1.00%,F,T)



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

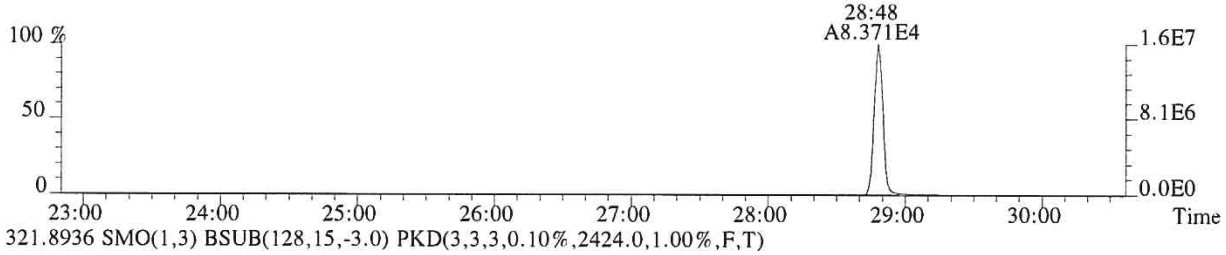


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

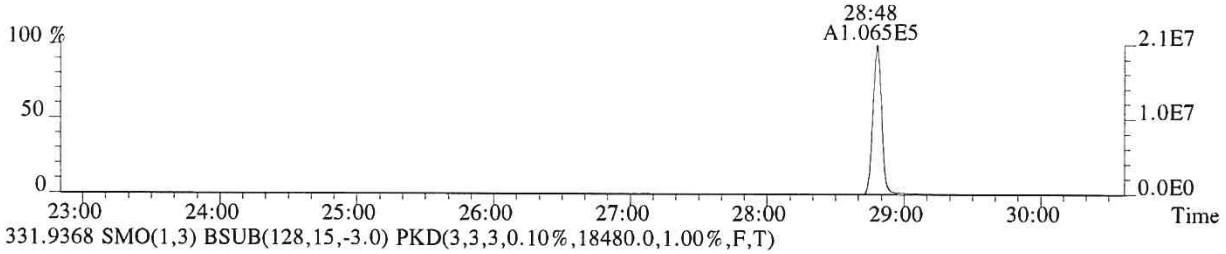


013762

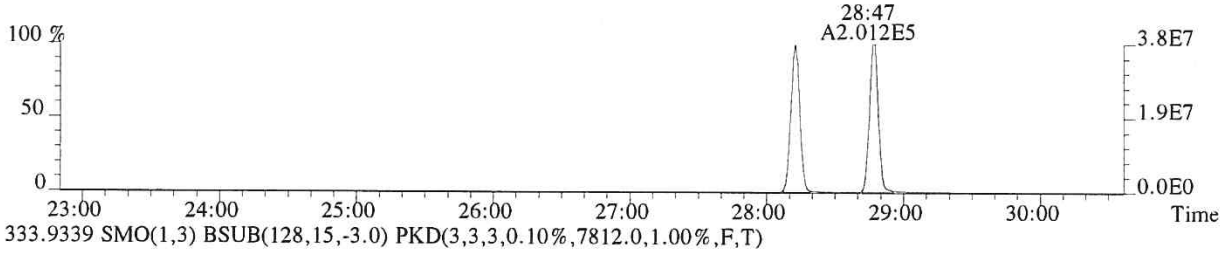
File:P614686 #1-552 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6384.0,1.00%,F,T)



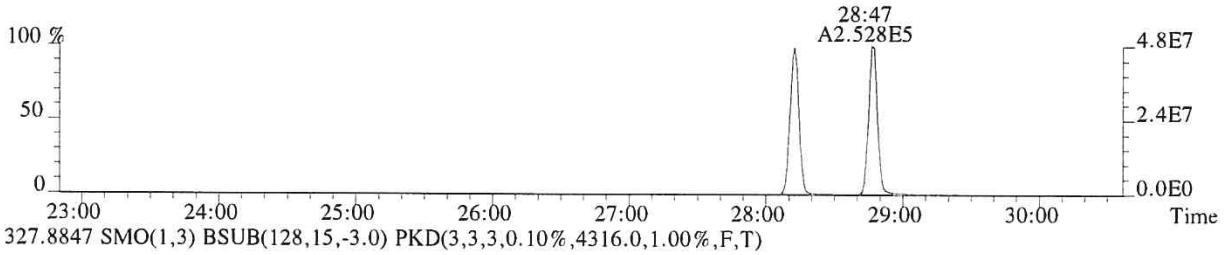
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2424.0,1.00%,F,T)



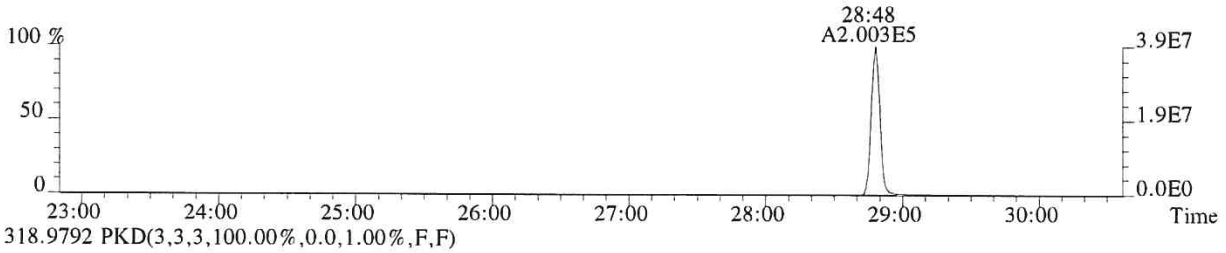
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,18480.0,1.00%,F,T)



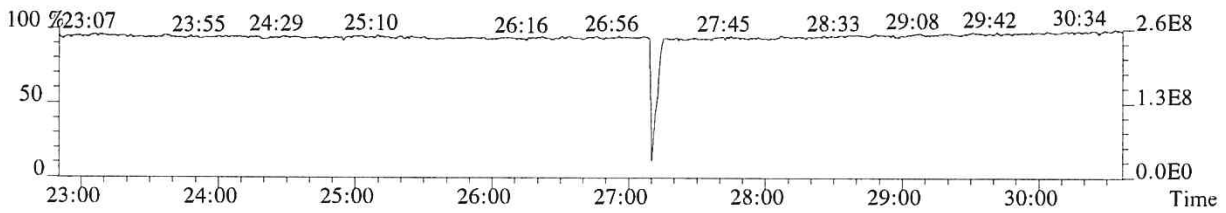
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7812.0,1.00%,F,T)



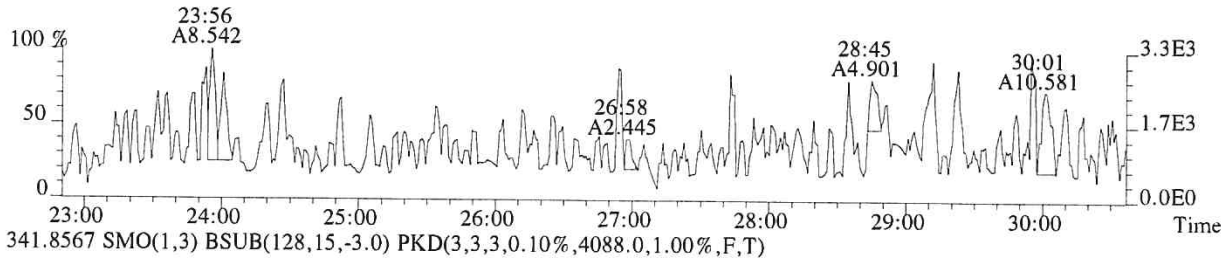
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4316.0,1.00%,F,T)



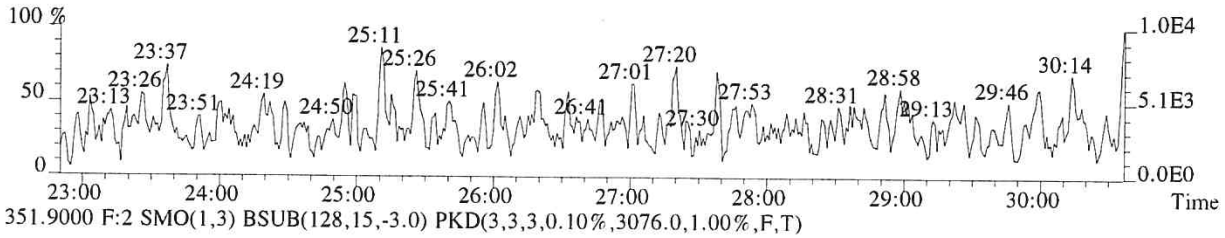
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



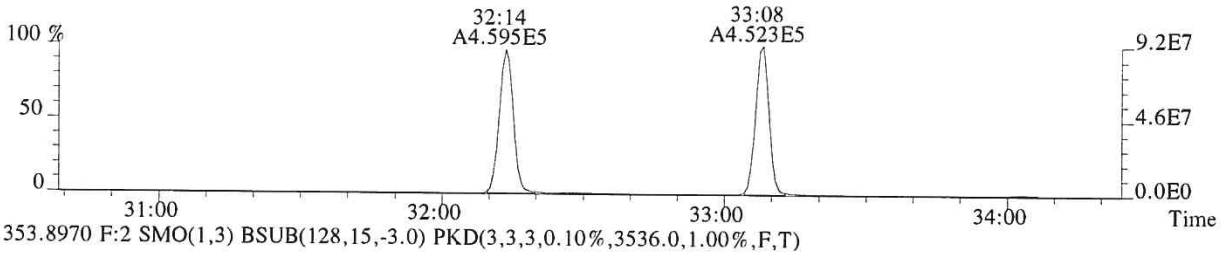
File:P614686 #1-552 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1356.0,1.00%,F,T)



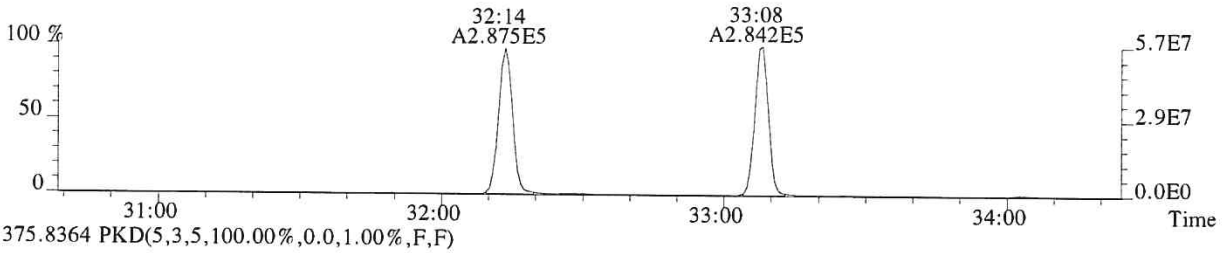
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4088.0,1.00%,F,T)



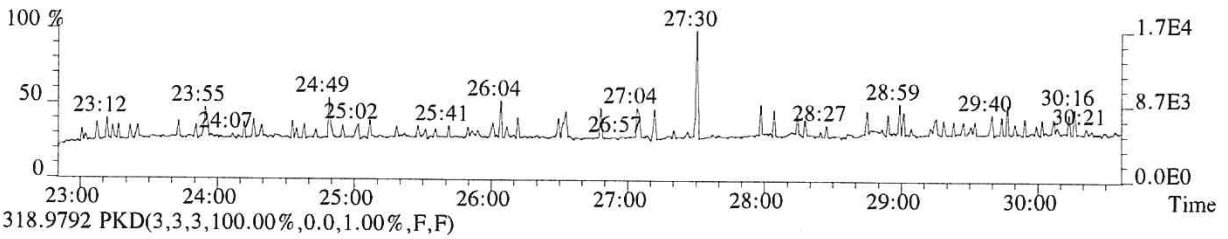
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3076.0,1.00%,F,T)



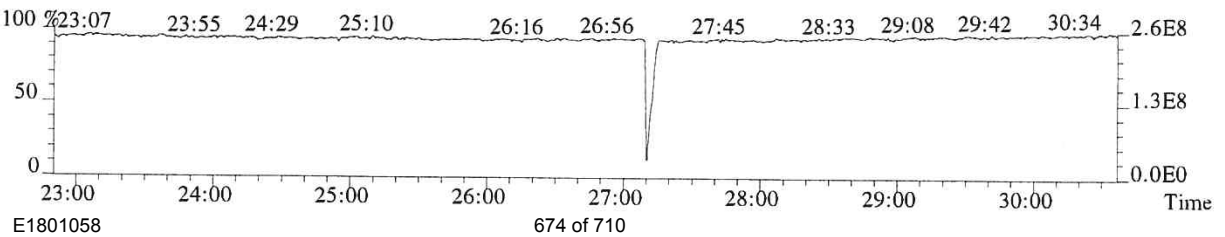
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3536.0,1.00%,F,T)



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

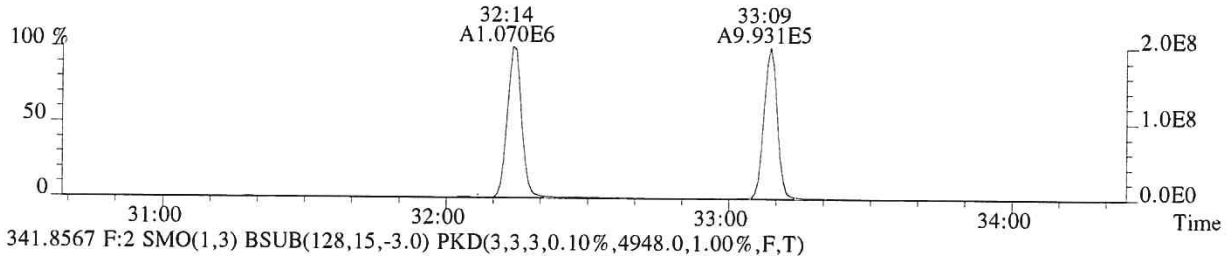


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

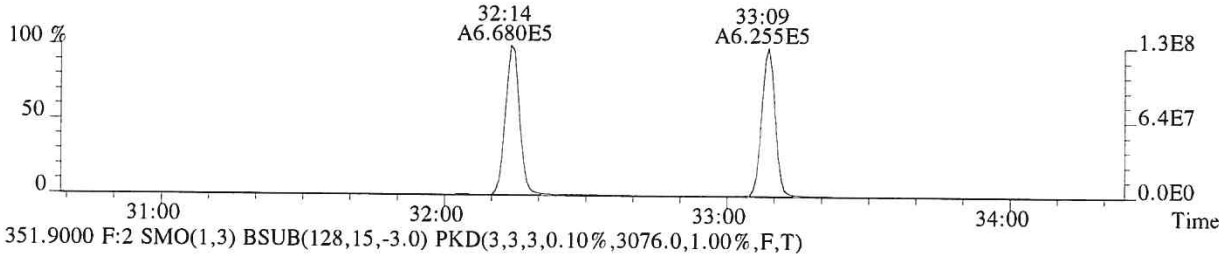


013764

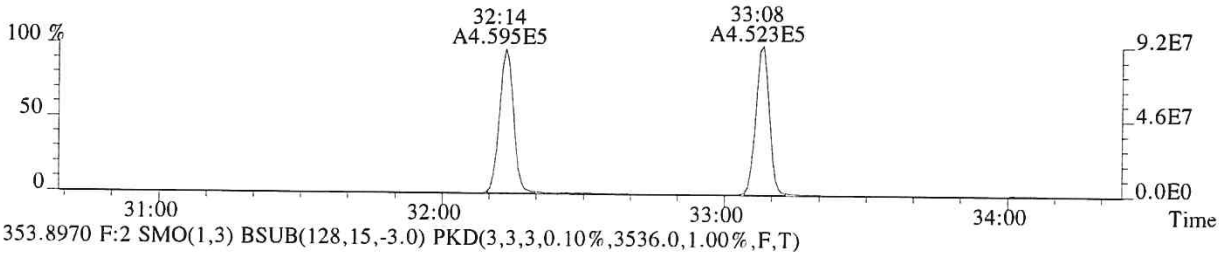
File:P614686 #1-339 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3064.0,1.00%,F,T)



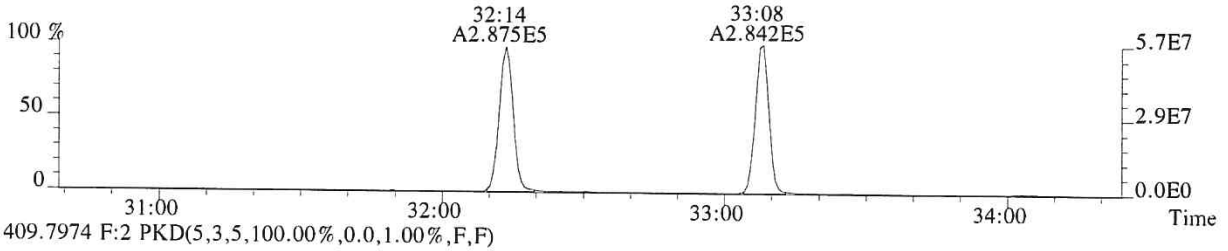
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4948.0,1.00%,F,T)



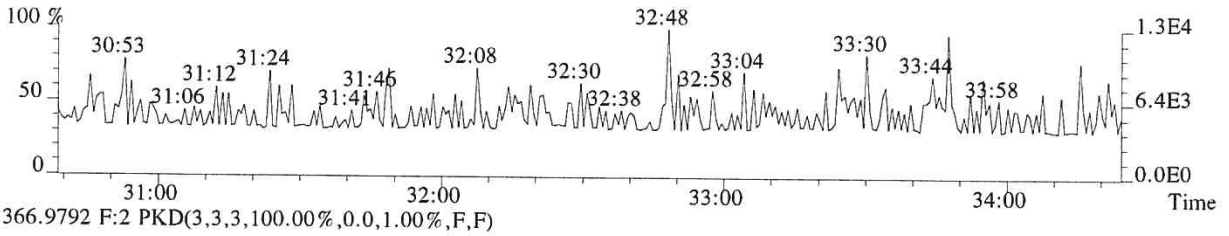
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3076.0,1.00%,F,T)



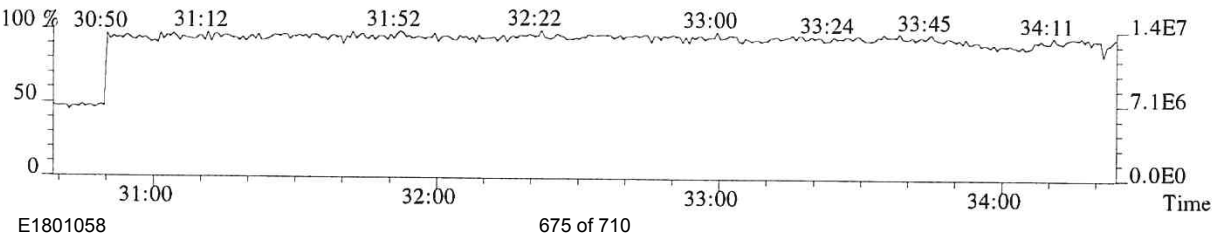
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3536.0,1.00%,F,T)



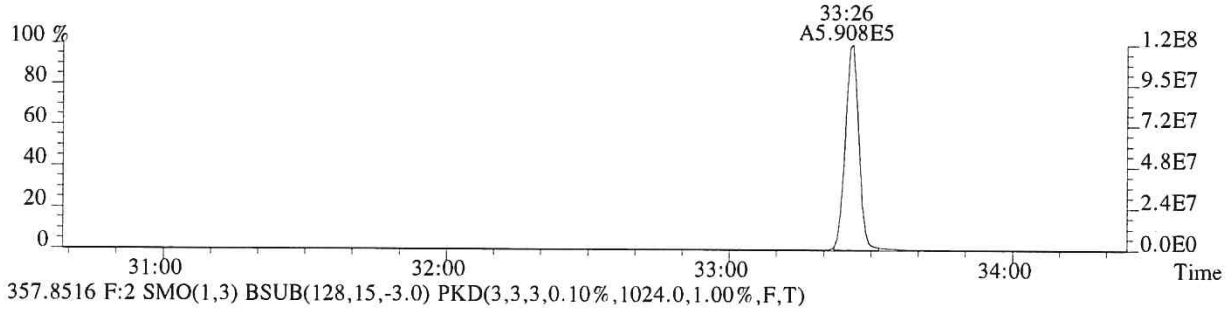
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



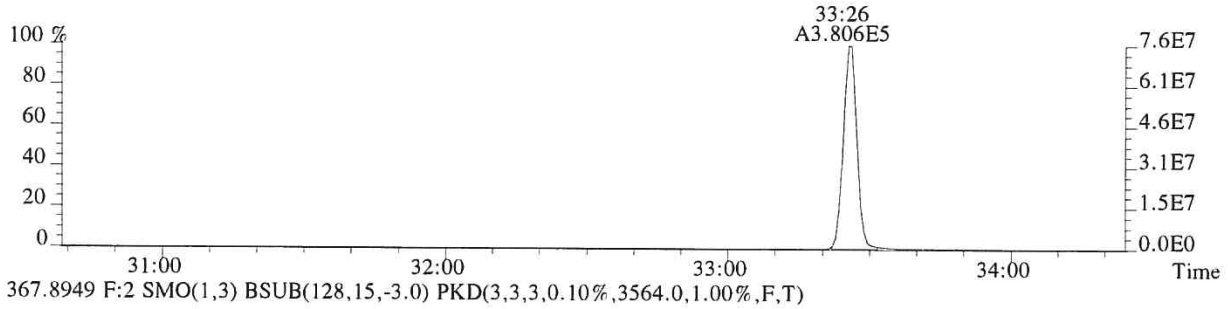
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



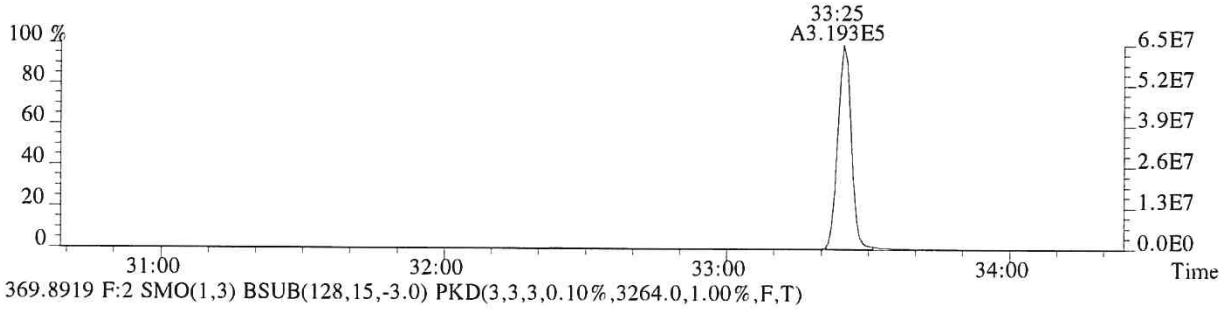
File:P614686 #1-339 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3220.0,1.00%,F,T)



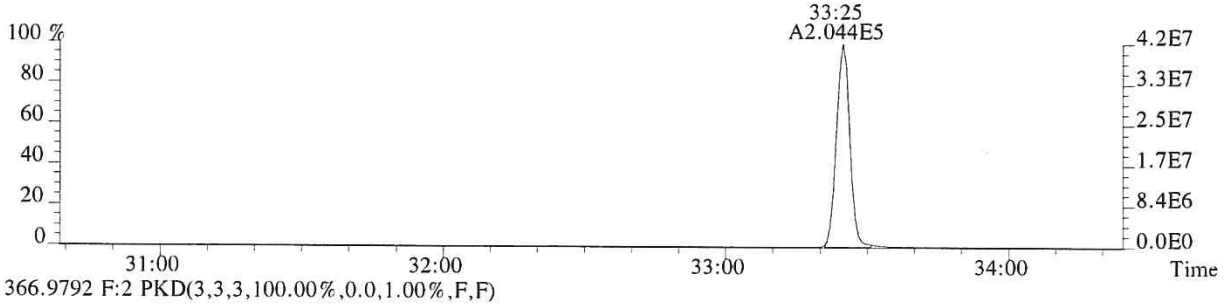
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1024.0,1.00%,F,T)



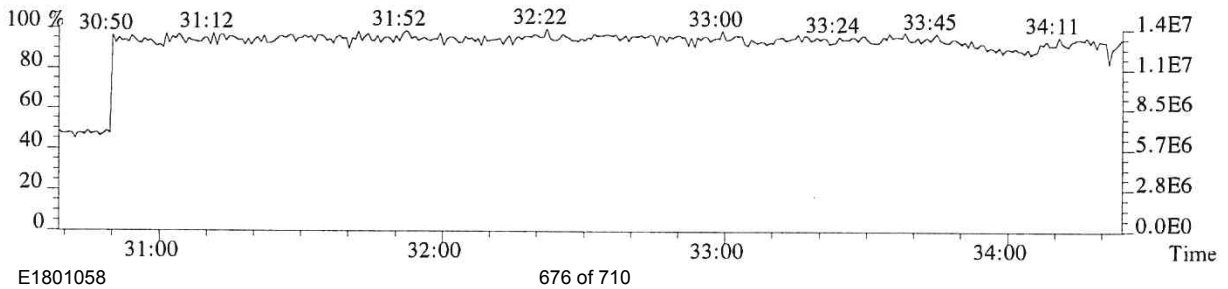
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3564.0,1.00%,F,T)



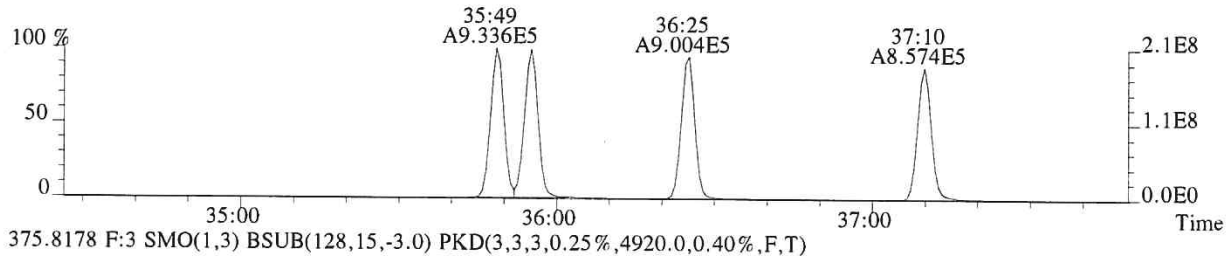
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3264.0,1.00%,F,T)



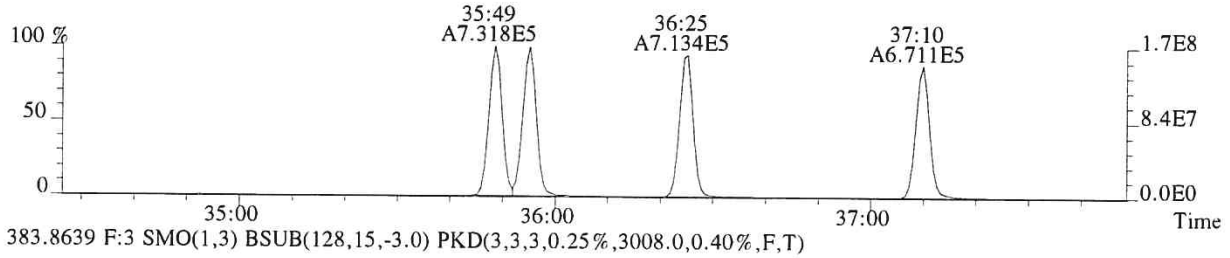
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



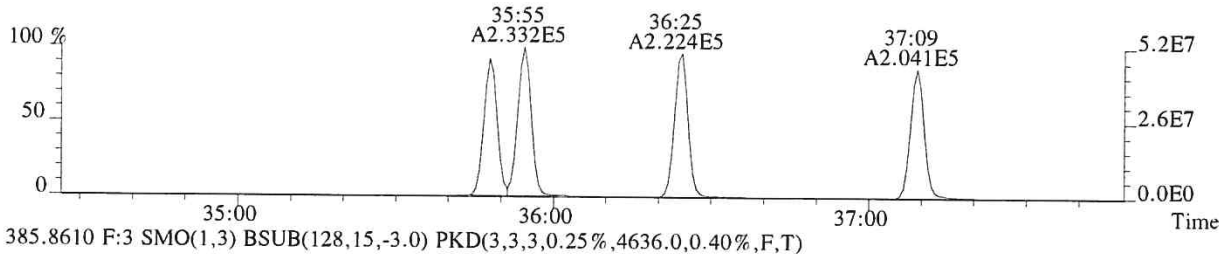
File:P614686 #1-304 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1848.0,0.40%,F,T)



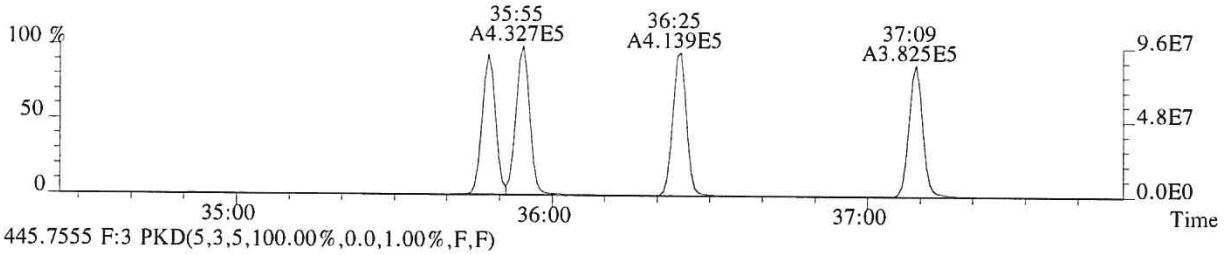
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4920.0,0.40%,F,T)



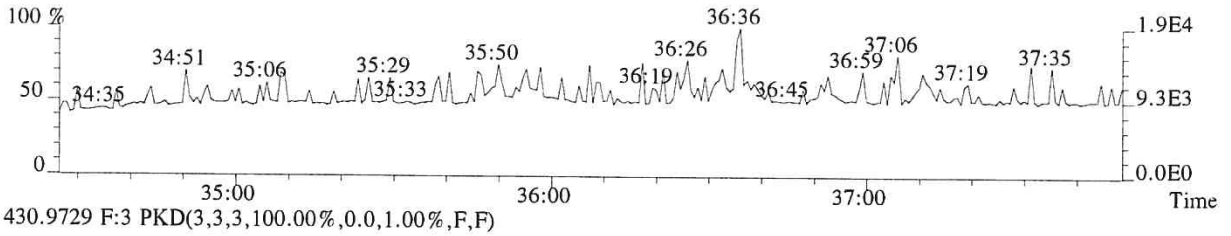
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3008.0,0.40%,F,T)



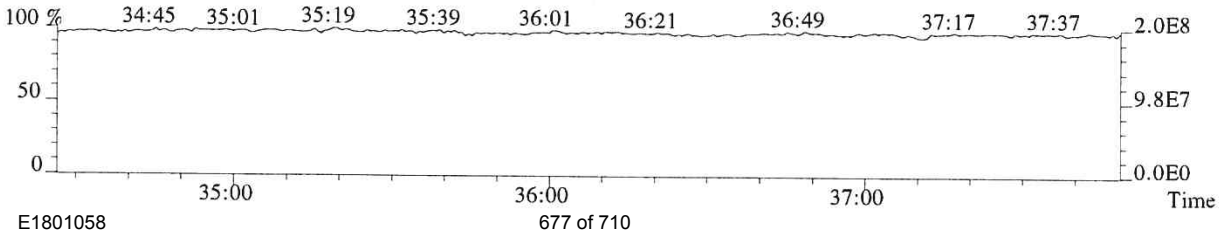
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4636.0,0.40%,F,T)



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

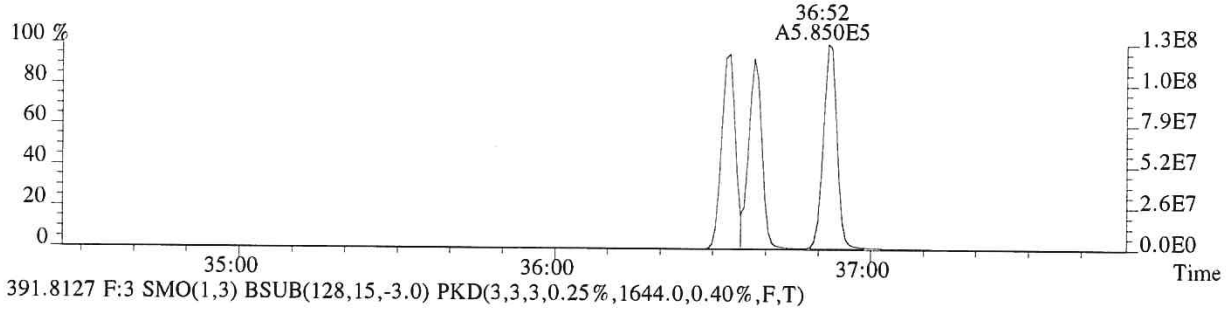


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

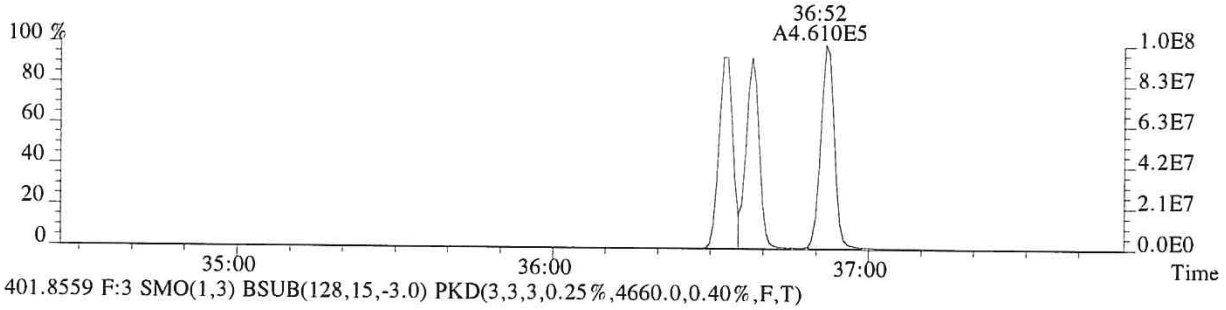


013767

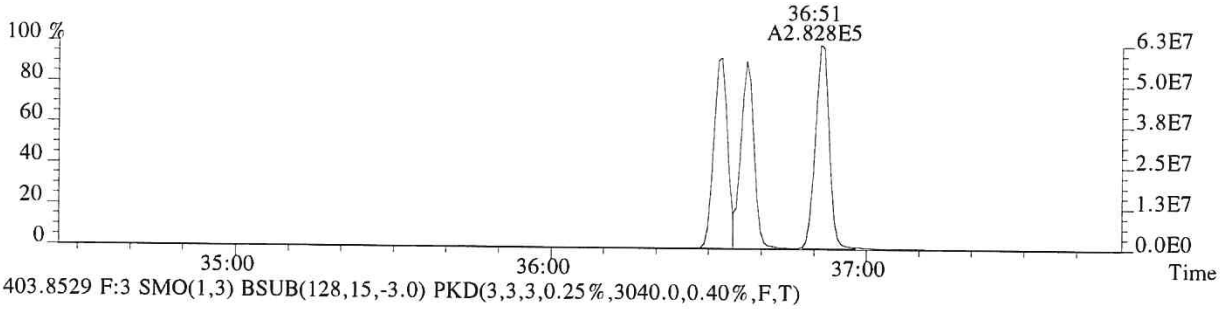
File:P614686 #1-304 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,948.0,0.40%,F,T)



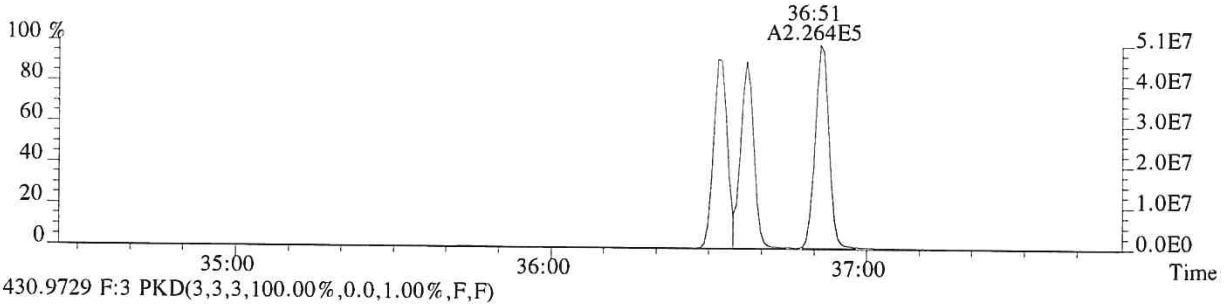
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1644.0,0.40%,F,T)



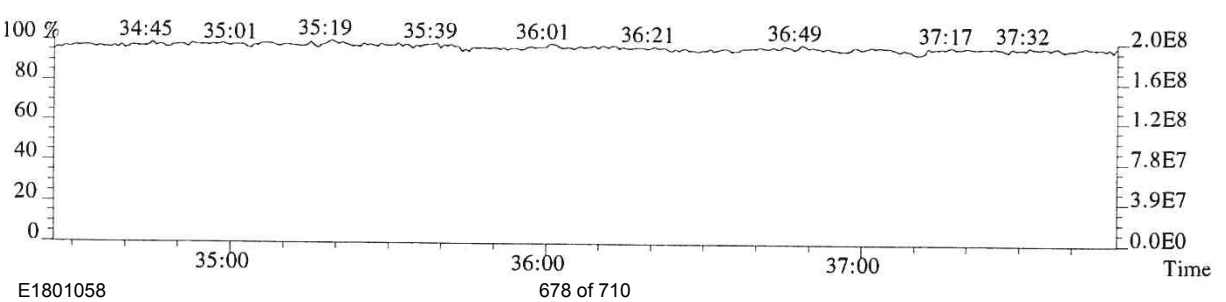
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4660.0,0.40%,F,T)



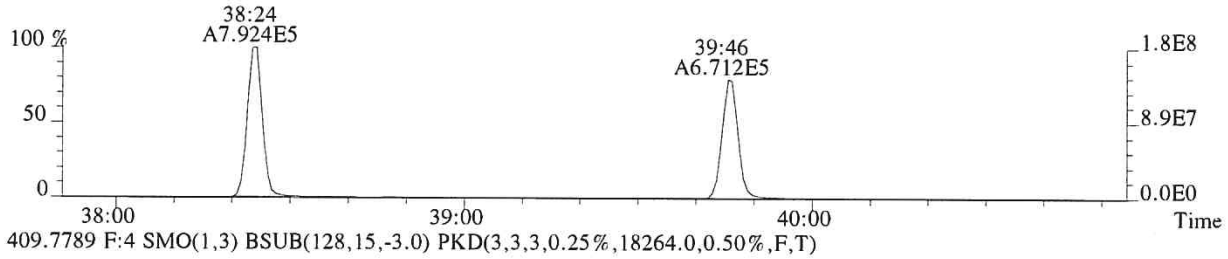
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3040.0,0.40%,F,T)



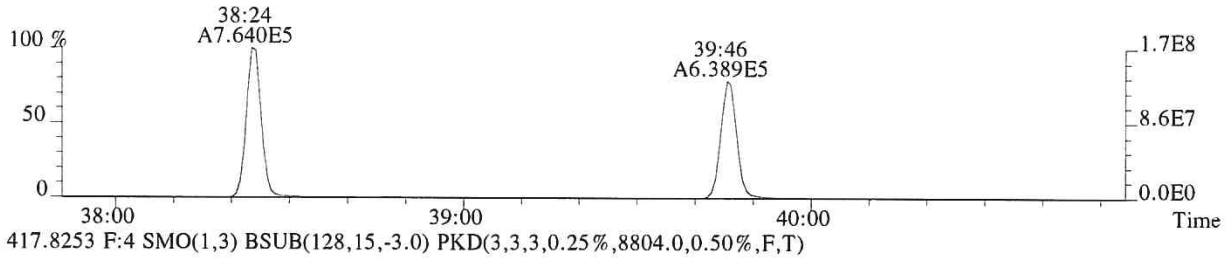
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



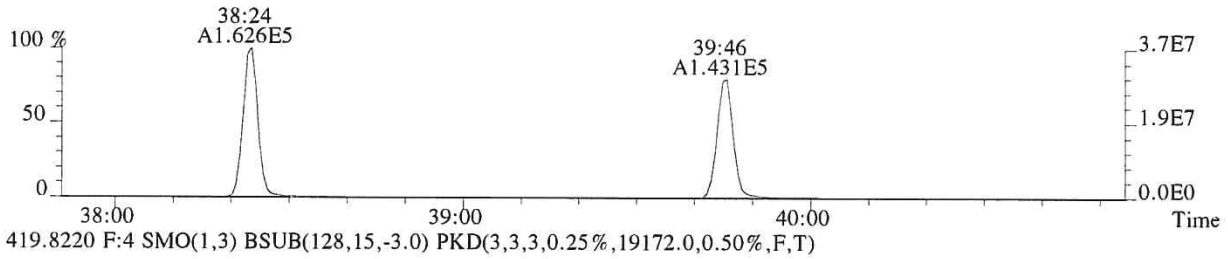
File:P614686 #1-276 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,26056.0,0.50%,F,T)



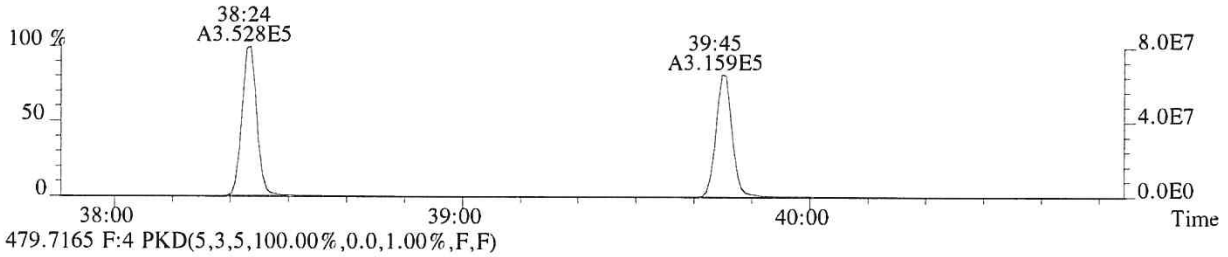
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,18264.0,0.50%,F,T)



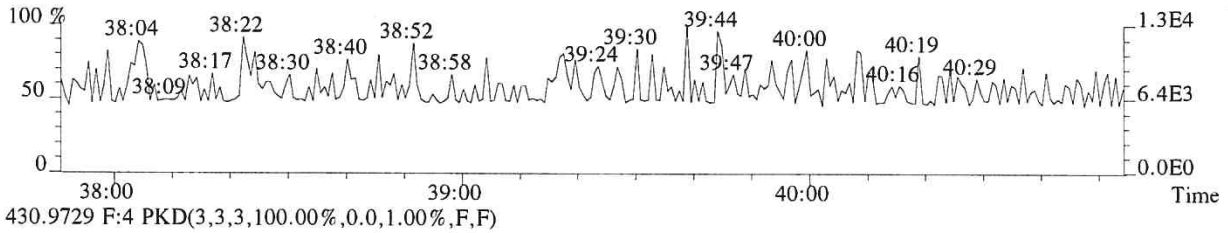
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8804.0,0.50%,F,T)



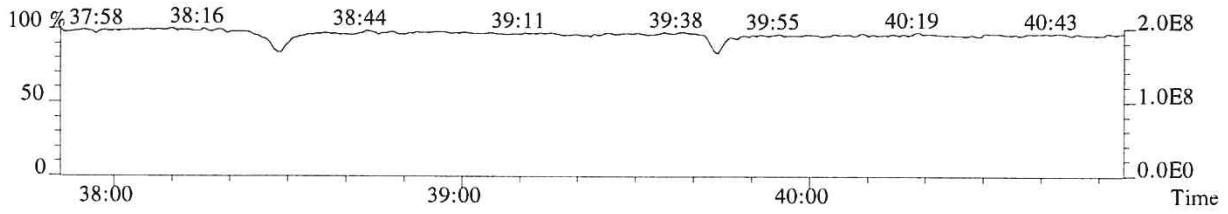
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,19172.0,0.50%,F,T)



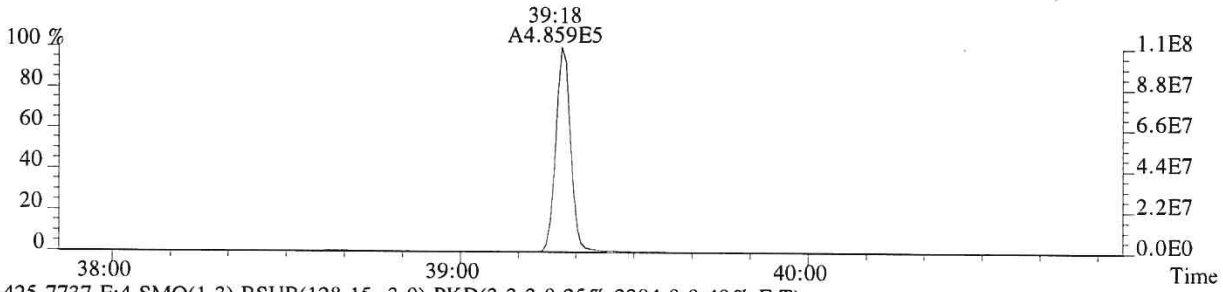
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



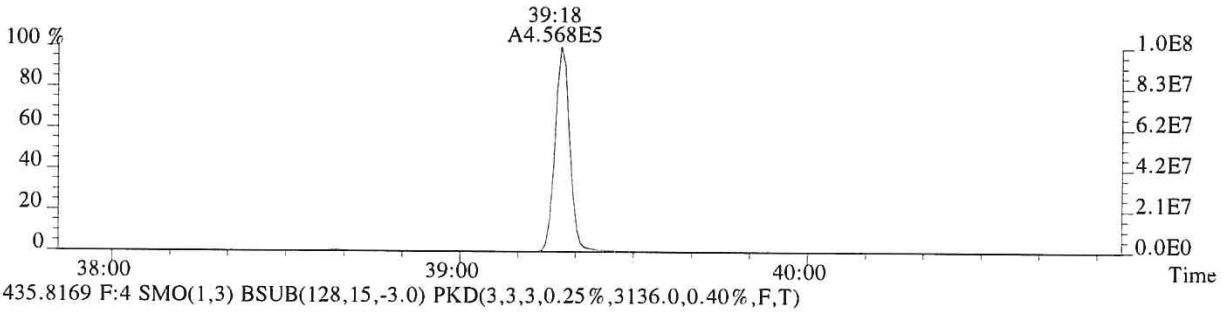
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



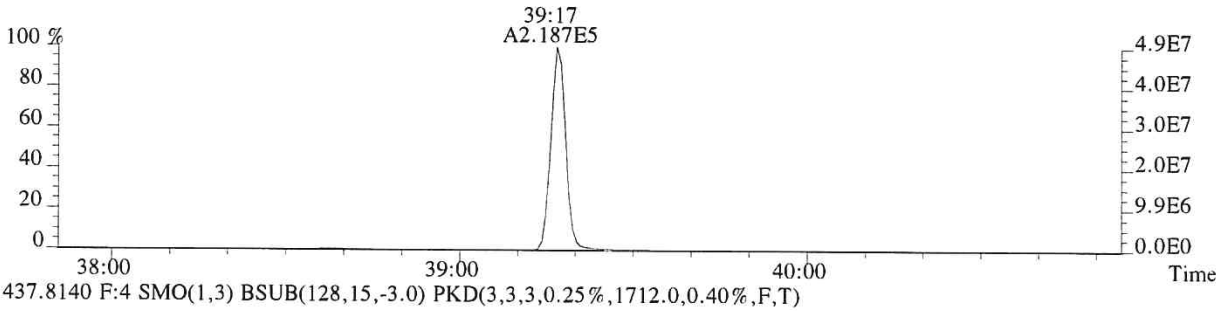
File:P614686 #1-276 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2456.0,0.40%,F,T)



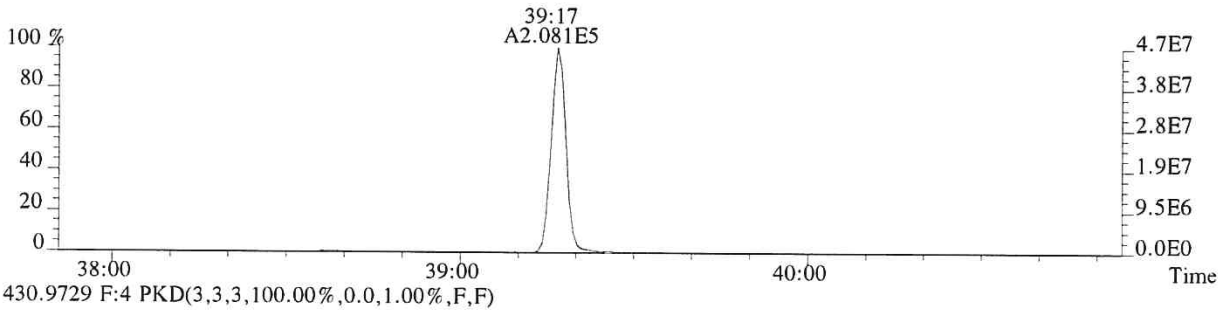
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2384.0,0.40%,F,T)



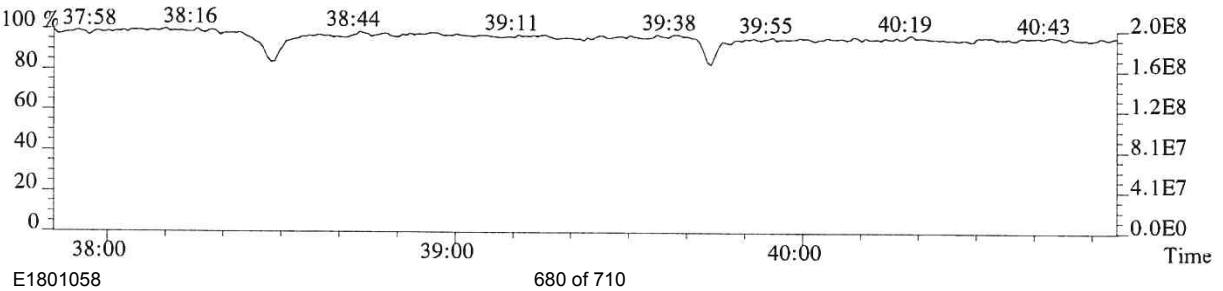
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3136.0,0.40%,F,T)



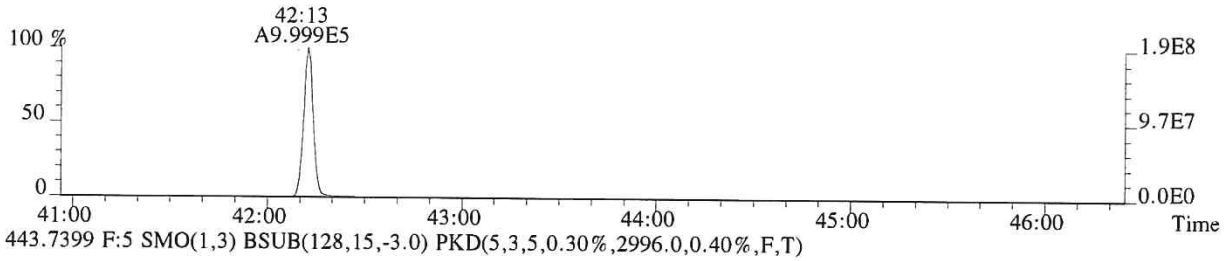
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1712.0,0.40%,F,T)



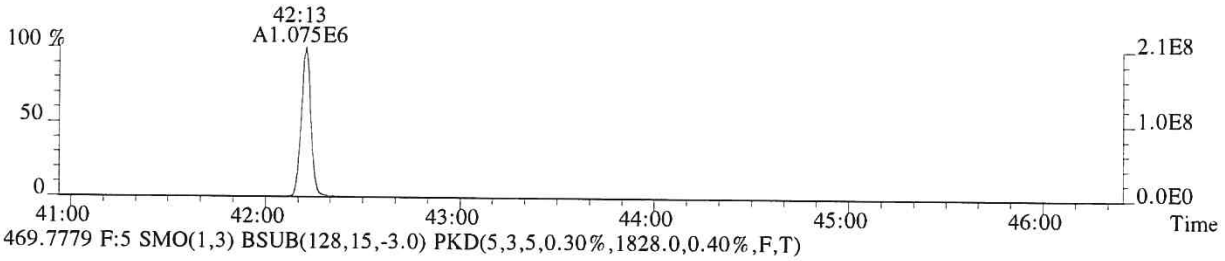
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



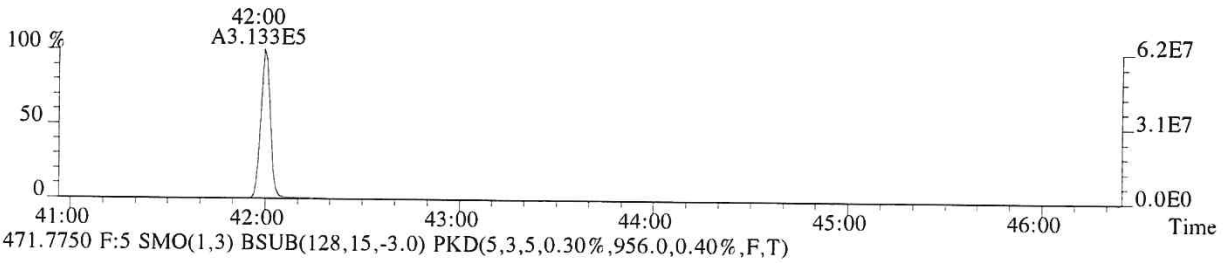
File:P614686 #1-493 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1464.0,0.40%,F,T)



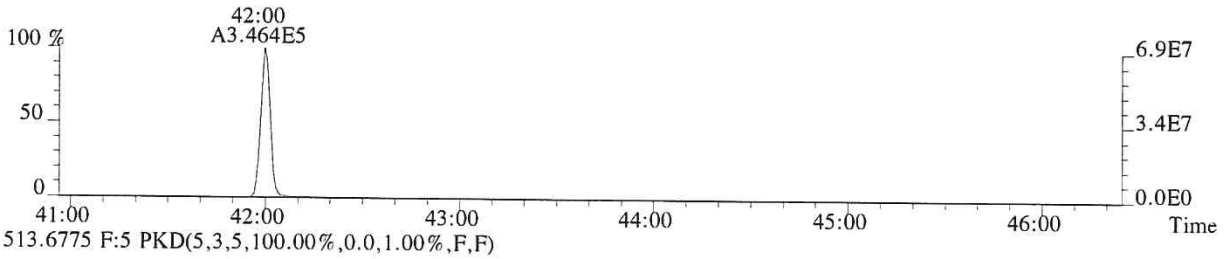
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2996.0,0.40%,F,T)



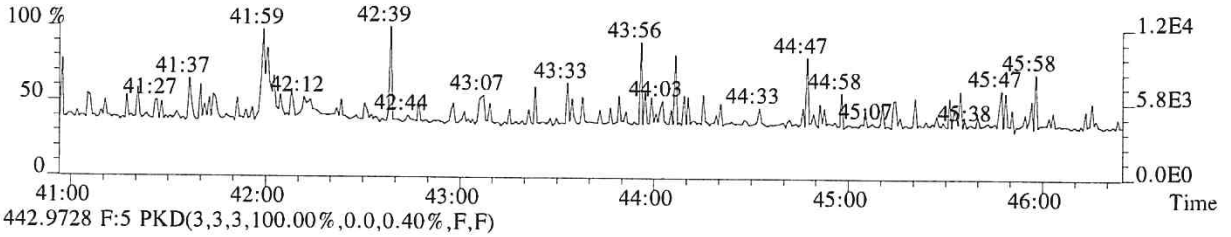
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1828.0,0.40%,F,T)



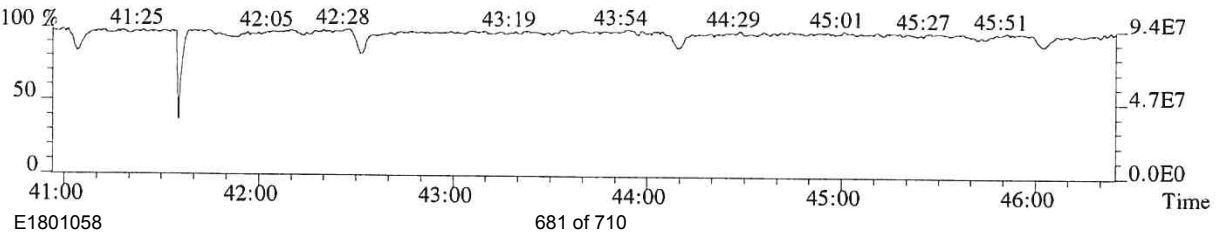
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,956.0,0.40%,F,T)



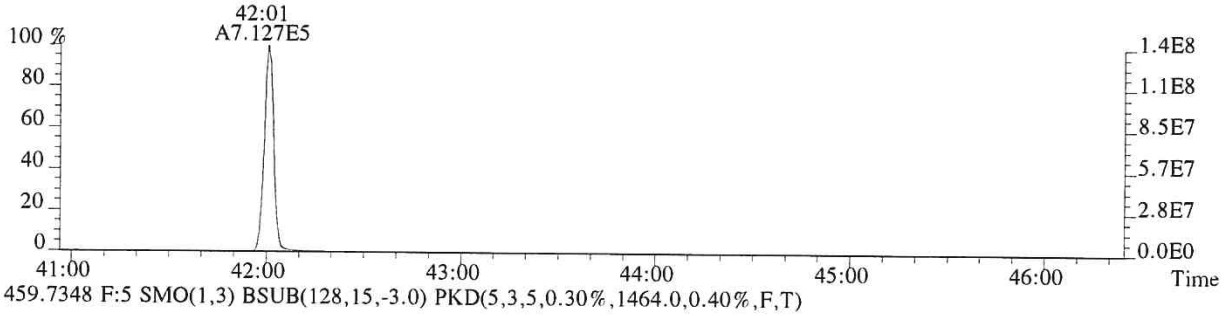
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



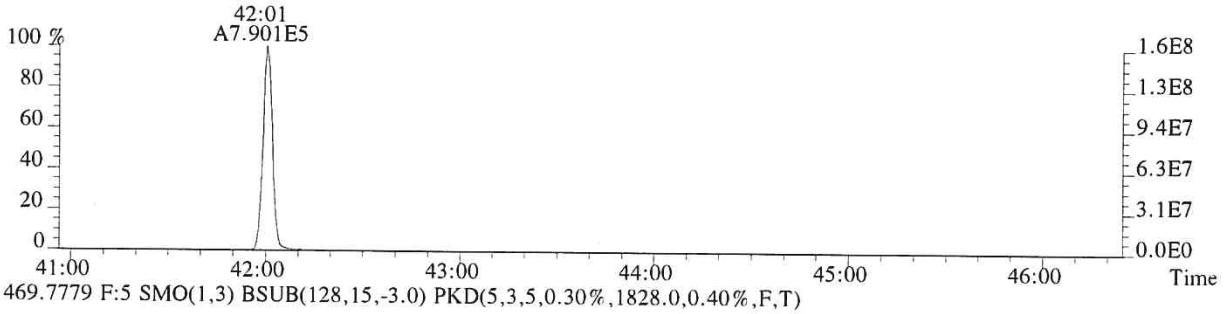
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



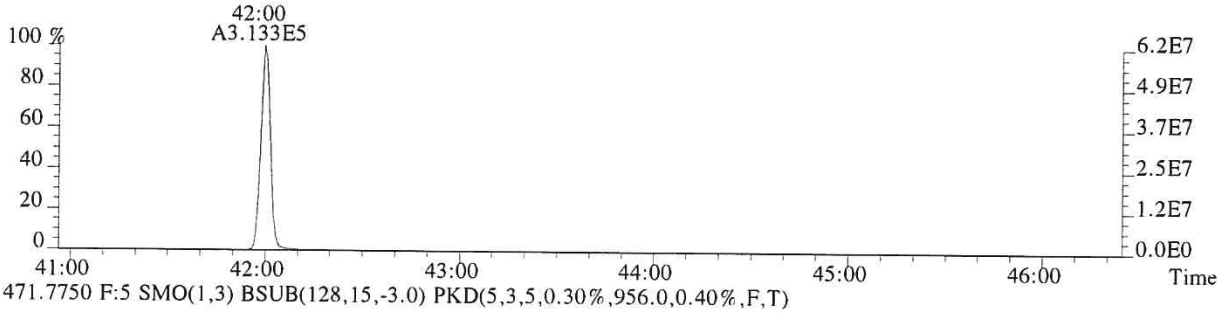
File:P614686 #1-493 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1244.0,0.40%,F,T)



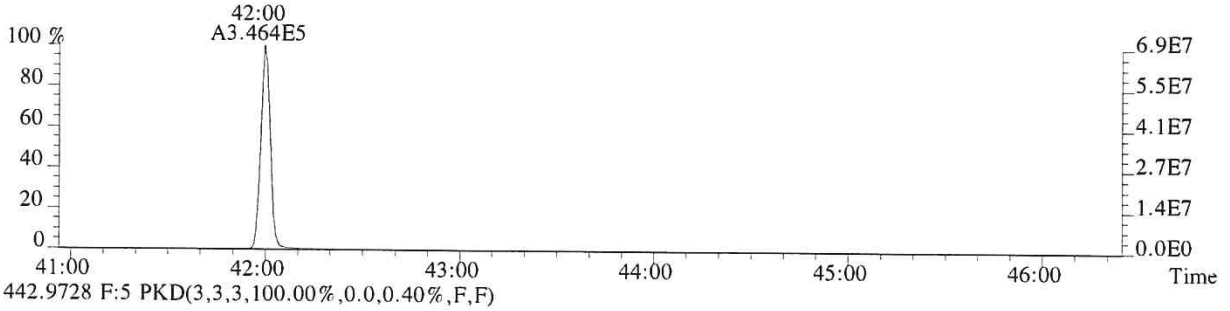
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1464.0,0.40%,F,T)



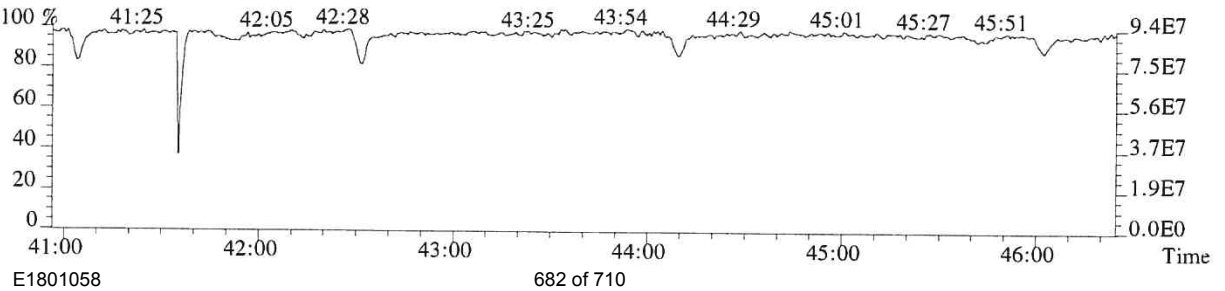
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1828.0,0.40%,F,T)



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)



013772

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
185657

Run #6 Filename P614687 Samp: 1 Inj: 1 Acquired: 25-SEP-18 18:30:08
Processed: 26-SEP-18 07:39:13 Sample ID: CS5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:00	4.651e+05	5.844e+05	0.80	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:14	4.117e+06	2.575e+06	1.60	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:09	3.795e+06	2.391e+06	1.59	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	3.313e+06	2.571e+06	1.29	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	3.588e+06	2.836e+06	1.27	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	3.399e+06	2.690e+06	1.26	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:10	3.119e+06	2.463e+06	1.27	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	3.035e+06	2.883e+06	1.05	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	2.518e+06	2.388e+06	1.05	yes	no	1.463
10	Unk	OCDF	42:13	3.855e+06	4.175e+06	0.92	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:48	3.257e+05	4.207e+05	0.77	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	2.277e+06	1.455e+06	1.57	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	2.053e+06	1.616e+06	1.27	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:38	2.042e+06	1.617e+06	1.26	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:52	2.180e+06	1.732e+06	1.26	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	1.868e+06	1.765e+06	1.06	yes	no	1.112
17	Unk	OCDD	42:01	2.725e+06	3.028e+06	0.90	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:59	2.197e+05	2.785e+05	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	3.496e+05	2.178e+05	1.60	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	3.453e+05	2.138e+05	1.61	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	1.447e+05	2.684e+05	0.54	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	1.758e+05	3.274e+05	0.54	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	1.668e+05	3.132e+05	0.53	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	1.489e+05	2.799e+05	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:23	1.241e+05	2.682e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:45	1.078e+05	2.346e+05	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	1.558e+05	1.966e+05	0.79	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:25	2.439e+05	1.553e+05	1.57	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:32	1.940e+05	1.538e+05	1.26	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:37	1.938e+05	1.542e+05	1.26	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	1.682e+05	1.601e+05	1.05	yes	no	0.857
32	IS	13C-OCDD	42:00	2.375e+05	2.681e+05	0.89	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:13	1.555e+05	1.925e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:51	2.160e+05	1.725e+05	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	7.877e+05				no	1.086

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Signal/Noise Height Ratio Summary

CLIENT ID.
185657

Run #6 Filename P614687 Samp: 1 Inj: 1 Acquired: 25-SEP-18 18:30:08
Processed: 26-SEP-18 07:39:13 LAB. ID: CS5

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	8.41e+07	1.94e+03	4.3e+04	1.06e+08	4.26e+03	2.5e+04
2	1,2,3,7,8-PeCDF	8.11e+08	8.46e+03	9.6e+04	5.11e+08	9.13e+03	5.6e+04
3	2,3,4,7,8-PeCDF	7.87e+08	8.46e+03	9.3e+04	4.93e+08	9.13e+03	5.4e+04
4	1,2,3,4,7,8-HxCDF	7.76e+08	1.23e+04	6.3e+04	6.07e+08	9.42e+03	6.4e+04
5	1,2,3,6,7,8-HxCDF	8.10e+08	1.23e+04	6.6e+04	6.40e+08	9.42e+03	6.8e+04
6	2,3,4,6,7,8-HxCDF	7.65e+08	1.23e+04	6.2e+04	6.05e+08	9.42e+03	6.4e+04
7	1,2,3,7,8,9-HxCDF	6.96e+08	1.23e+04	5.6e+04	5.46e+08	9.42e+03	5.8e+04
8	1,2,3,4,6,7,8-HpCDF	7.09e+08	9.68e+04	7.3e+03	6.78e+08	6.15e+04	1.1e+04
9	1,2,3,4,7,8,9-HpCDF	5.55e+08	9.68e+04	5.7e+03	5.29e+08	6.15e+04	8.6e+03
10	OCDF	7.55e+08	1.43e+03	5.3e+05	8.22e+08	2.80e+03	2.9e+05
11	2,3,7,8-TCDD	6.32e+07	4.52e+03	1.4e+04	8.21e+07	2.67e+03	3.1e+04
12	1,2,3,7,8-PeCDD	4.67e+08	3.26e+03	1.4e+05	2.98e+08	1.54e+03	1.9e+05
13	1,2,3,4,7,8-HxCDD	4.65e+08	2.34e+03	2.0e+05	3.68e+08	1.99e+03	1.8e+05
14	1,2,3,6,7,8-HxCDD	4.59e+08	2.34e+03	2.0e+05	3.67e+08	1.99e+03	1.8e+05
15	1,2,3,7,8,9-HxCDD	4.96e+08	2.34e+03	2.1e+05	3.98e+08	1.99e+03	2.0e+05
16	1,2,3,4,6,7,8-HpCDD	4.28e+08	1.10e+04	3.9e+04	4.06e+08	8.82e+03	4.6e+04
17	OCDD	5.24e+08	9.60e+02	5.5e+05	5.87e+08	1.87e+03	3.1e+05
18	13C-2,3,7,8-TCDF	3.91e+07	1.53e+04	2.6e+03	4.94e+07	1.22e+04	4.0e+03
19	13C-1,2,3,7,8-PeCDF	6.89e+07	2.06e+03	3.3e+04	4.27e+07	4.55e+03	9.4e+03
20	13C-2,3,4,7,8-PeCDF	6.95e+07	2.06e+03	3.4e+04	4.34e+07	4.55e+03	9.5e+03
21	13C-1,2,3,4,7,8-HxCDF	3.33e+07	2.62e+03	1.3e+04	6.22e+07	4.07e+03	1.5e+04
22	13C-1,2,3,6,7,8-HxCDF	3.91e+07	2.62e+03	1.5e+04	7.31e+07	4.07e+03	1.8e+04
23	13C-2,3,4,6,7,8-HxCDF	3.74e+07	2.62e+03	1.4e+04	6.98e+07	4.07e+03	1.7e+04
24	13C-1,2,3,7,8,9-HxCDF	3.36e+07	2.62e+03	1.3e+04	6.29e+07	4.07e+03	1.5e+04
25	13C-1,2,3,4,6,7,8-HpCDF	2.82e+07	6.76e+03	4.2e+03	6.20e+07	1.14e+04	5.5e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.34e+07	6.76e+03	3.5e+03	5.11e+07	1.14e+04	4.5e+03
27	13C-2,3,7,8-TCDD	3.04e+07	1.91e+04	1.6e+03	3.86e+07	8.85e+03	4.4e+03
28	13C-1,2,3,7,8-PeCDD	5.04e+07	1.98e+03	2.5e+04	3.21e+07	2.85e+03	1.1e+04
29	13C-1,2,3,4,7,8-HxCDD	4.39e+07	4.70e+03	9.3e+03	3.50e+07	2.24e+03	1.6e+04
30	13C-1,2,3,6,7,8-HxCDD	4.37e+07	4.70e+03	9.3e+03	3.49e+07	2.24e+03	1.6e+04
31	13C-1,2,3,4,6,7,8-HpCDD	3.82e+07	2.97e+03	1.3e+04	3.65e+07	2.54e+03	1.4e+04
32	13C-OCDD	4.50e+07	3.46e+03	1.3e+04	5.10e+07	1.82e+03	2.8e+04
33	13C-1,2,3,4-TCDD	2.93e+07	1.91e+04	1.5e+03	3.60e+07	8.85e+03	4.1e+03
34	13C-1,2,3,7,8,9-HxCDD	4.90e+07	4.70e+03	1.0e+04	3.94e+07	2.24e+03	1.8e+04
35	37Cl-2,3,7,8-TCDD	1.54e+08	4.95e+03	3.1e+04			

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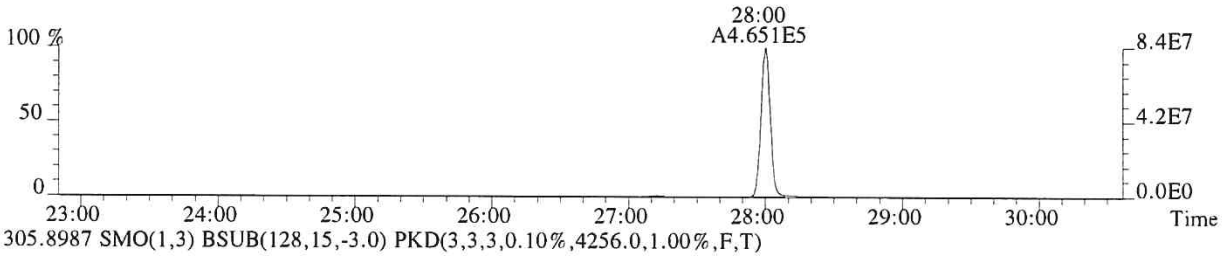
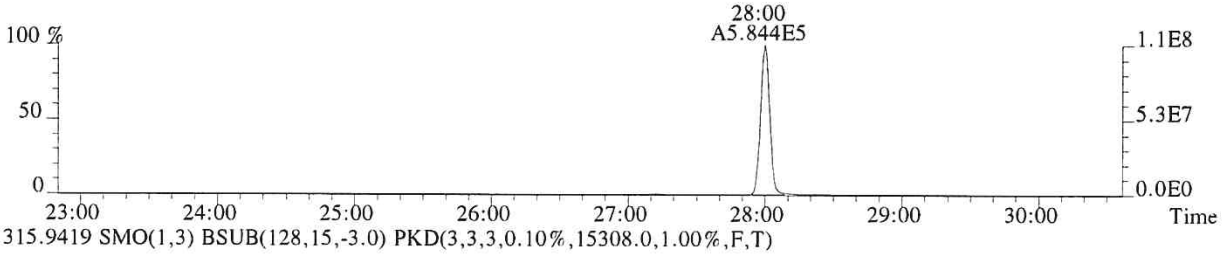
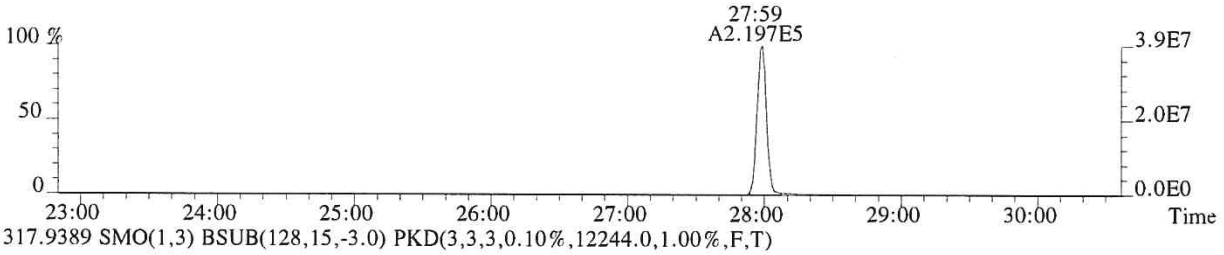
File:P614687 #1-552 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1940.0,1.00%,F,T)



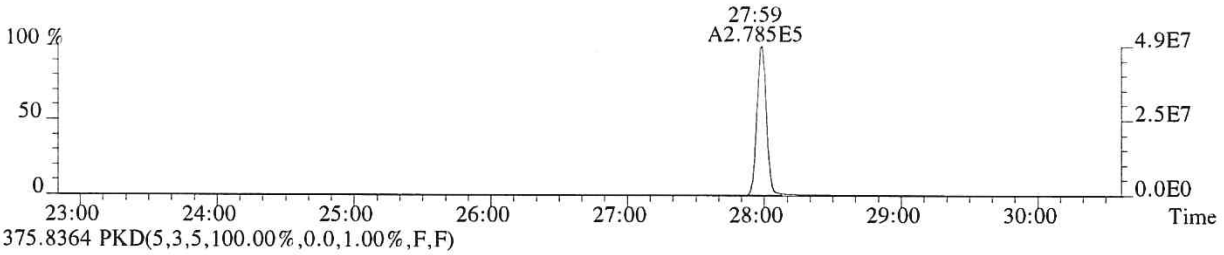
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4256.0,1.00%,F,T)



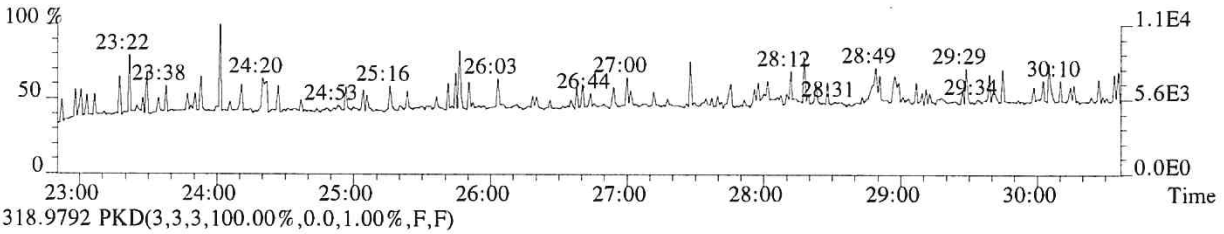
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15308.0,1.00%,F,T)



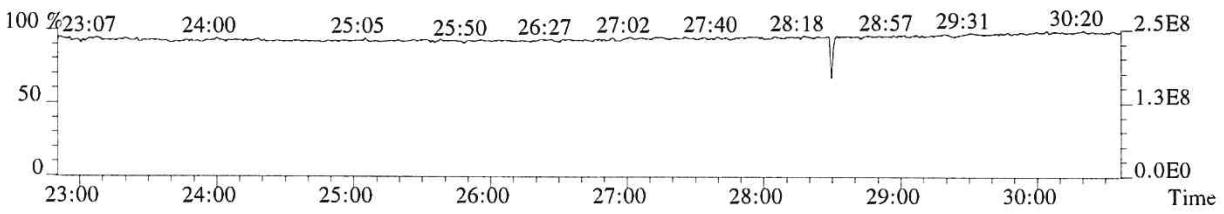
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,12244.0,1.00%,F,T)



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

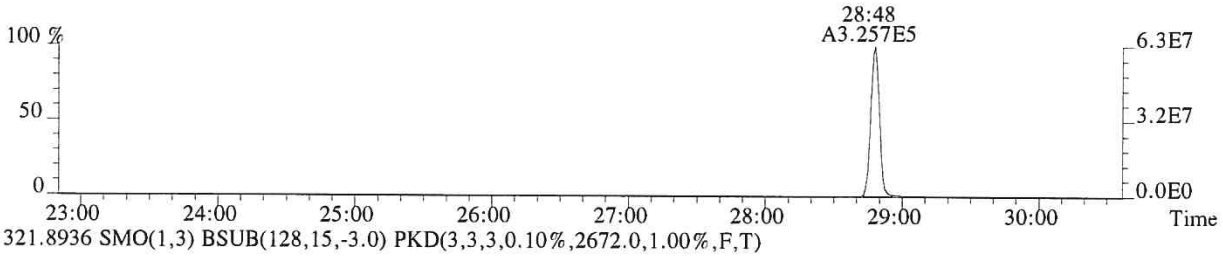


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

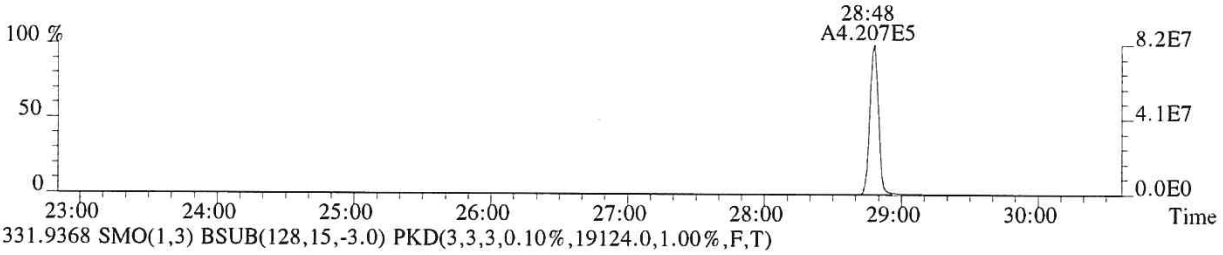


013775

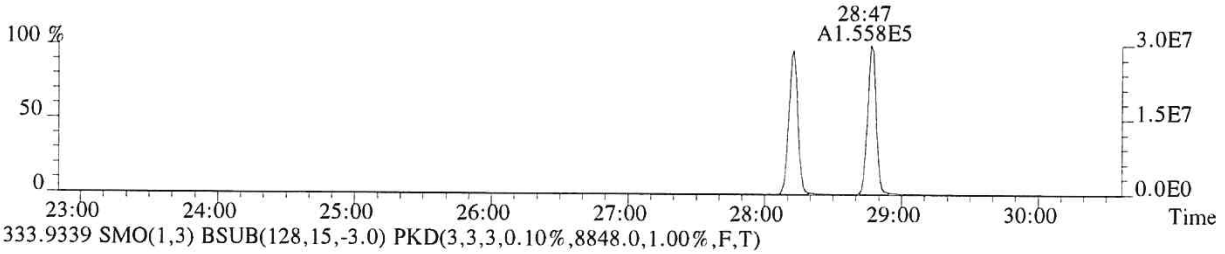
File:P614687 #1-552 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4516.0,1.00%,F,T)



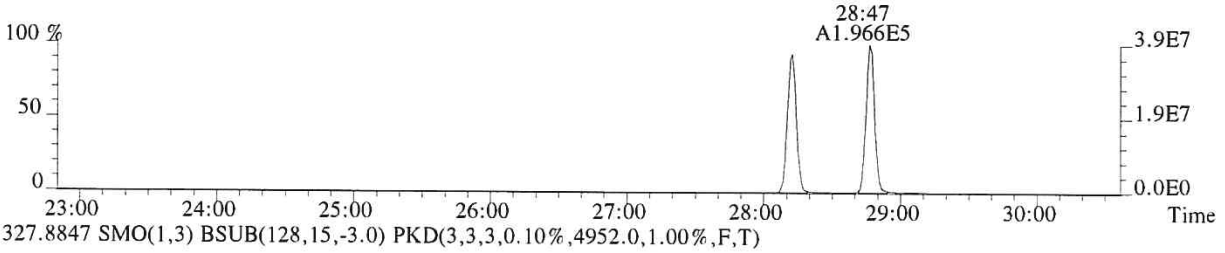
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2672.0,1.00%,F,T)



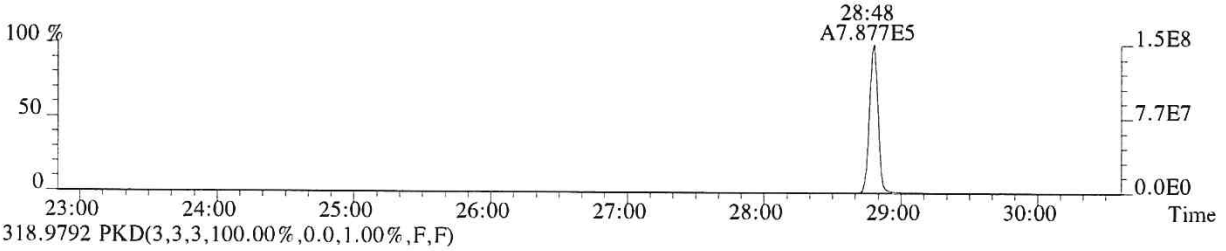
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,19124.0,1.00%,F,T)



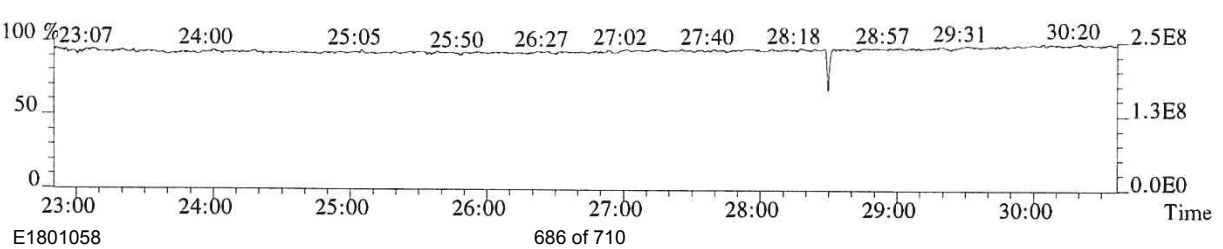
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8848.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4952.0,1.00%,F,T)

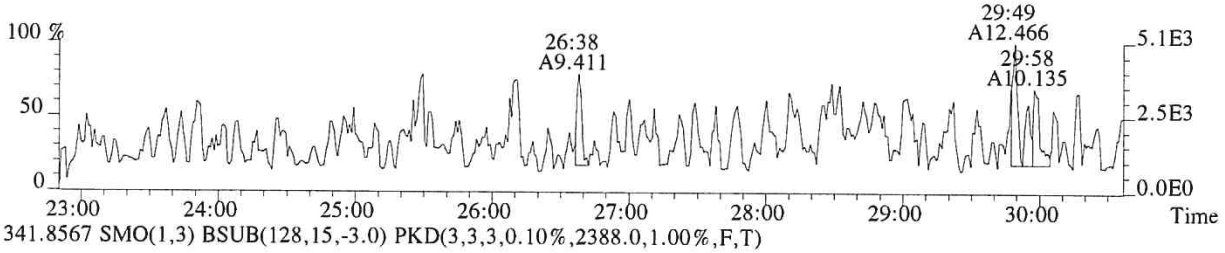


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

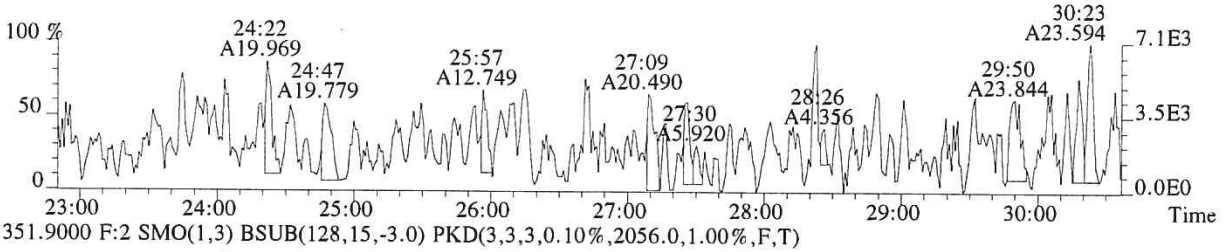


013776

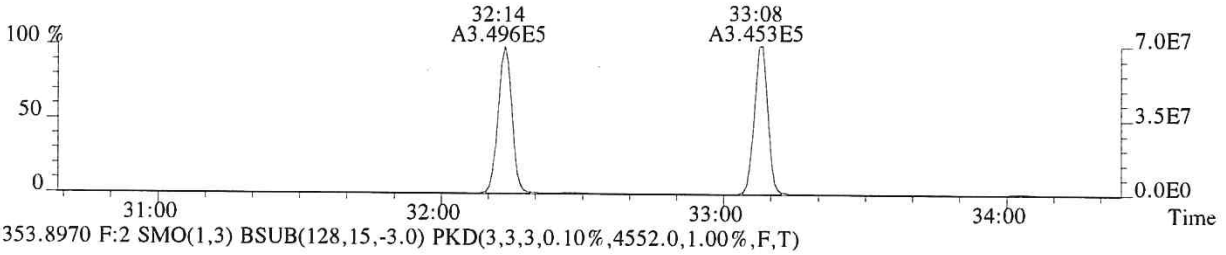
File:P614687 #1-552 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1884.0,1.00%,F,T)



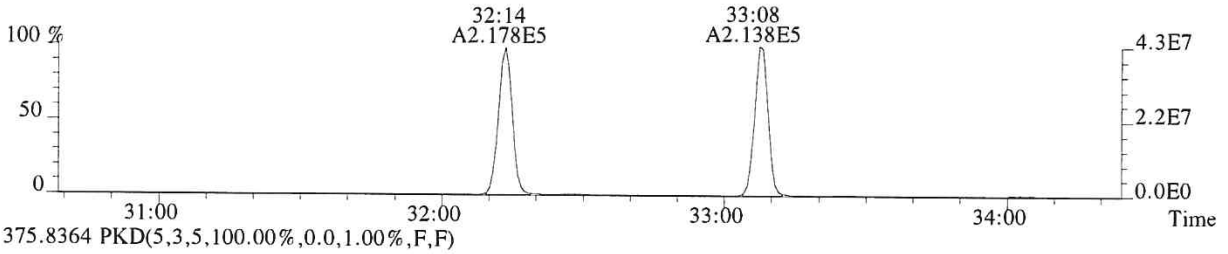
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2388.0,1.00%,F,T)



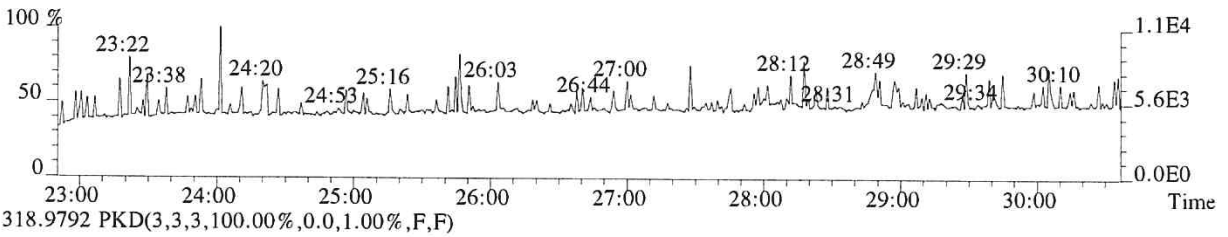
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2056.0,1.00%,F,T)



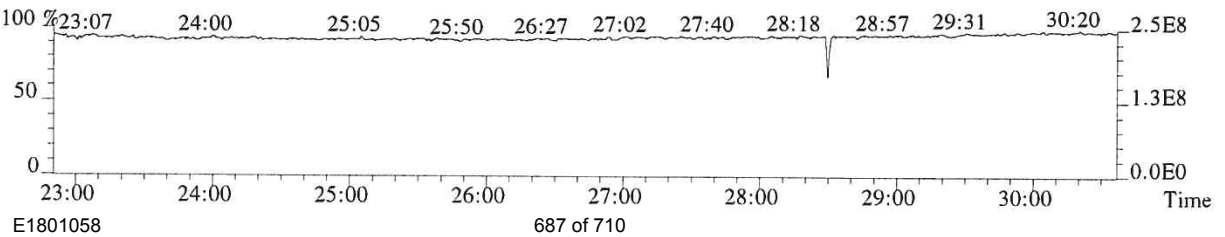
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4552.0,1.00%,F,T)



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



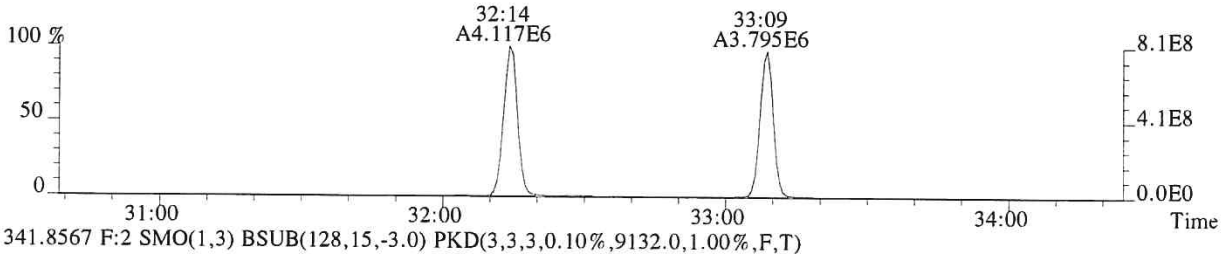
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



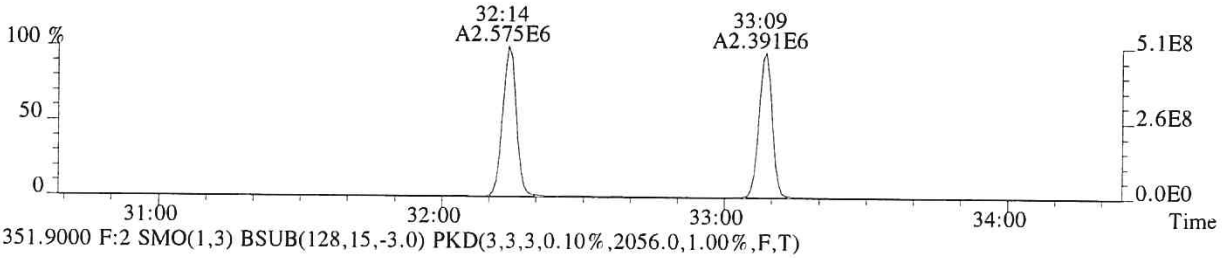
013777

File:P614687 #1-339 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5

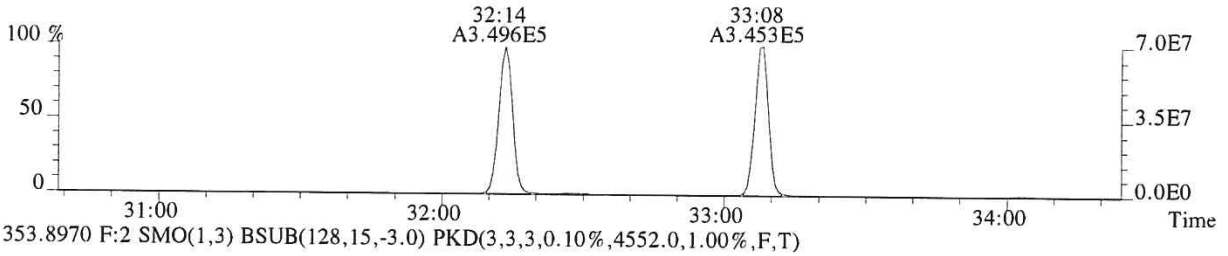
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8456.0,1.00%,F,T)



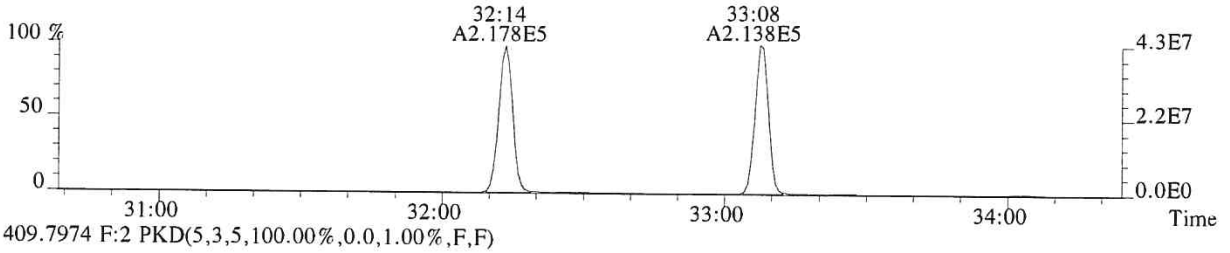
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9132.0,1.00%,F,T)



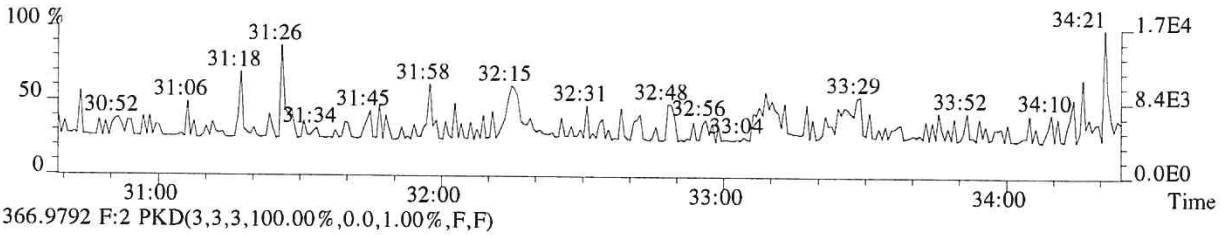
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2056.0,1.00%,F,T)



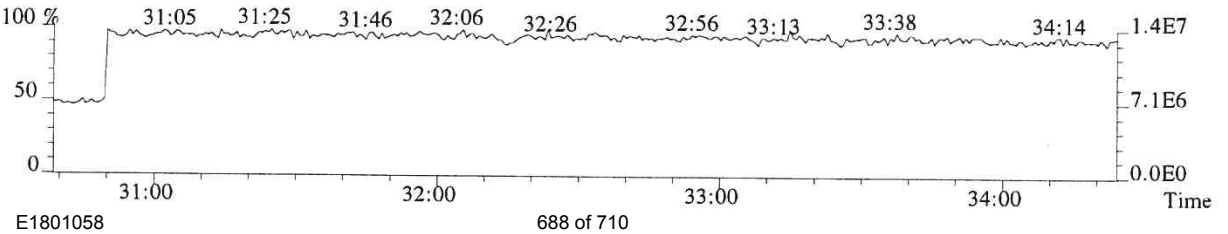
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4552.0,1.00%,F,T)



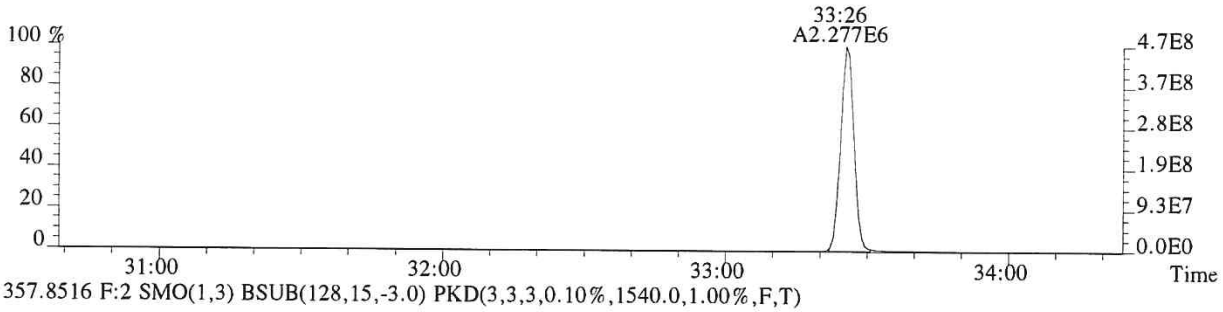
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



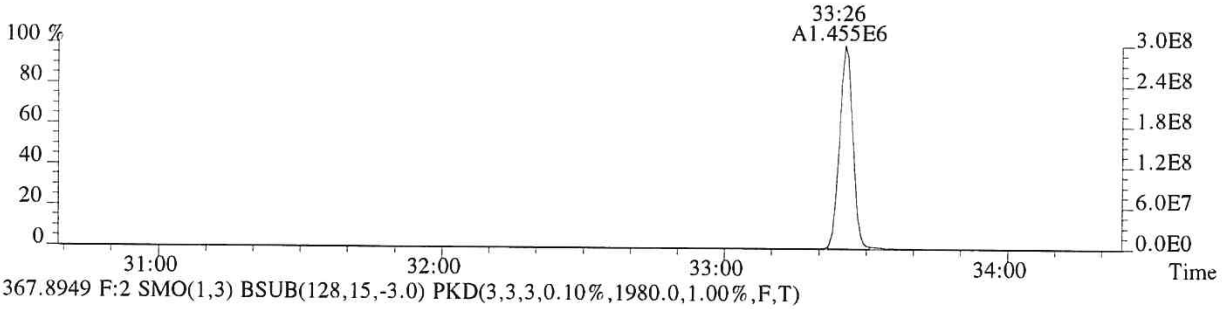
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



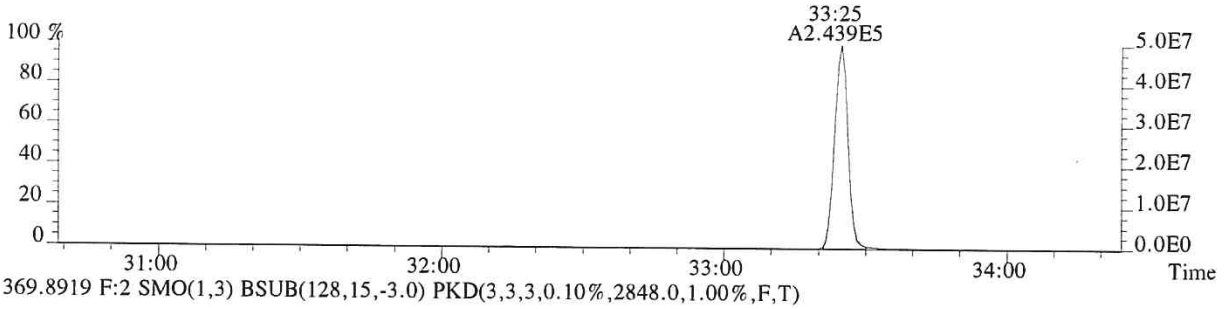
File:P614687 #1-339 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3264.0,1.00%,F,T)



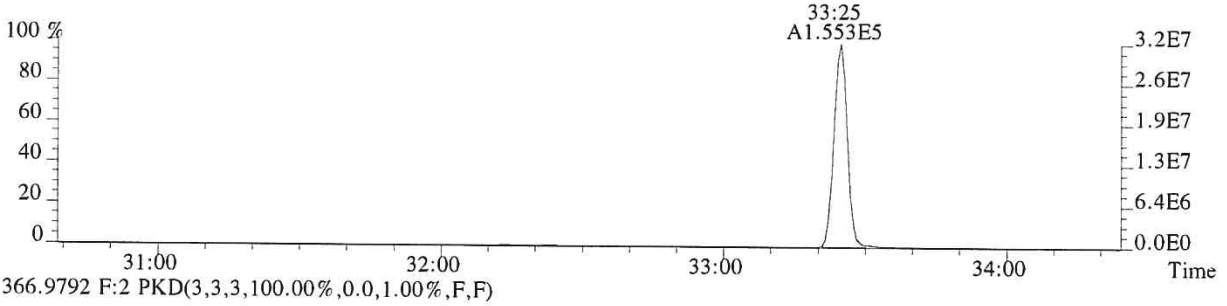
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1540.0,1.00%,F,T)



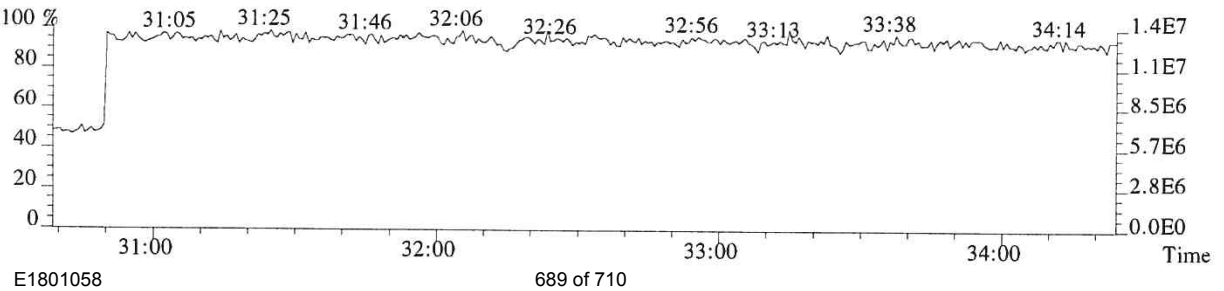
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1980.0,1.00%,F,T)



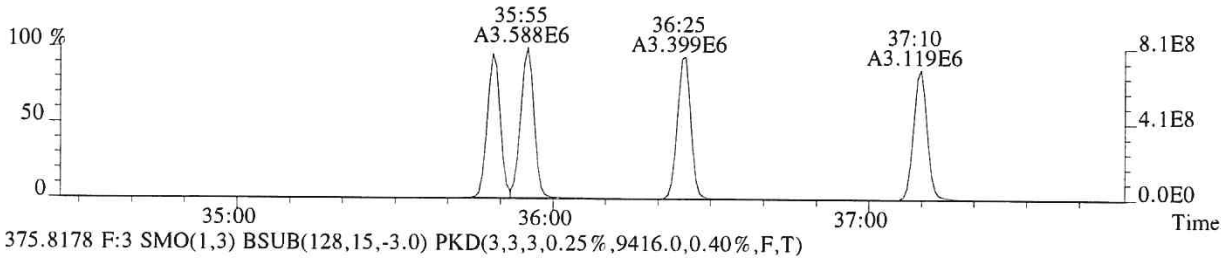
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2848.0,1.00%,F,T)



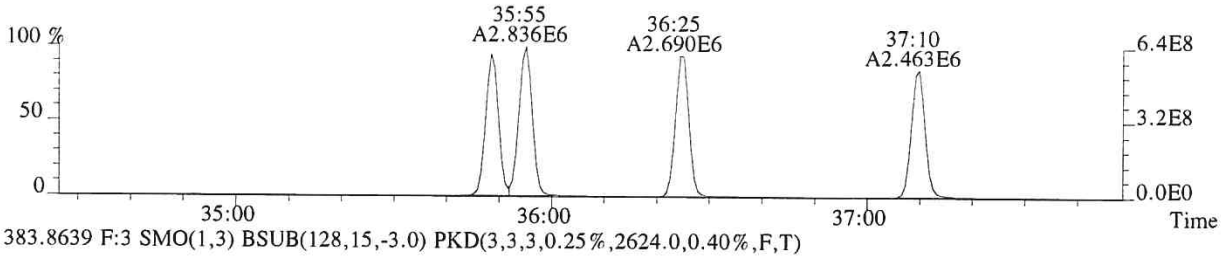
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



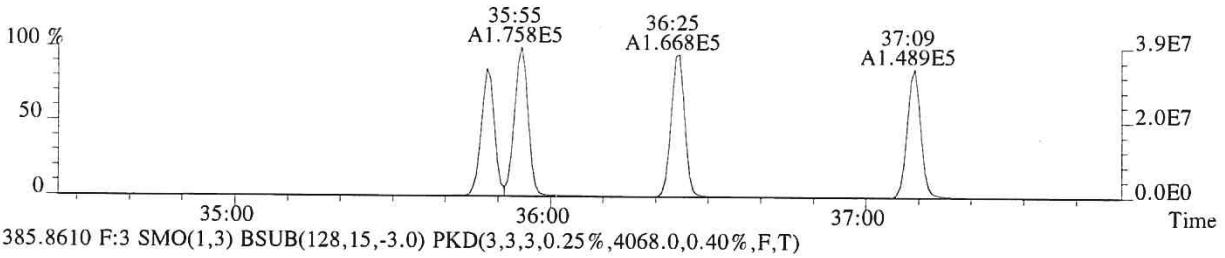
File:P614687 #1-304 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,12332.0,0.40%,F,T)



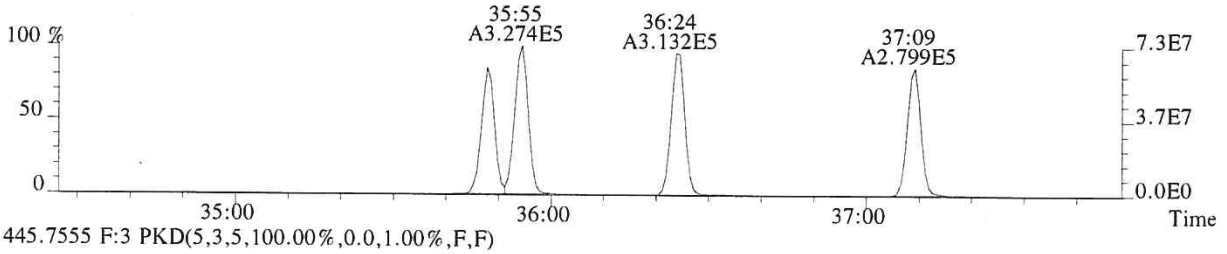
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,9416.0,0.40%,F,T)



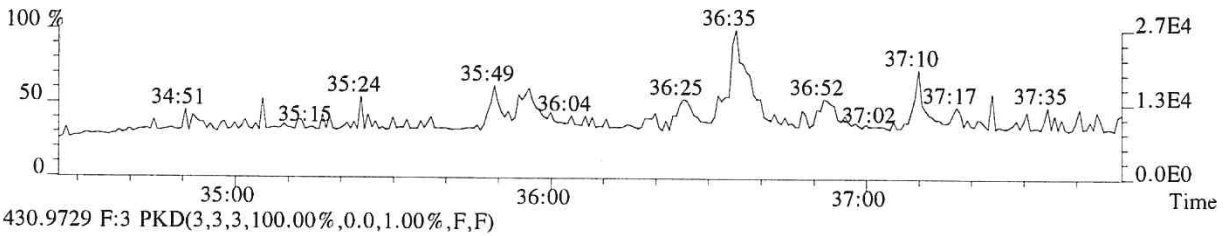
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2624.0,0.40%,F,T)



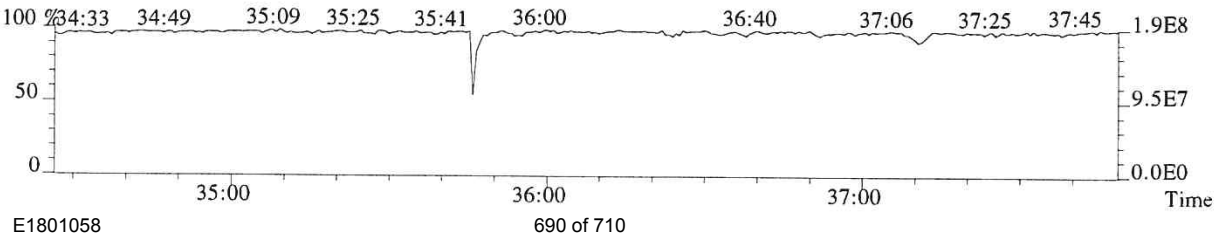
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4068.0,0.40%,F,T)



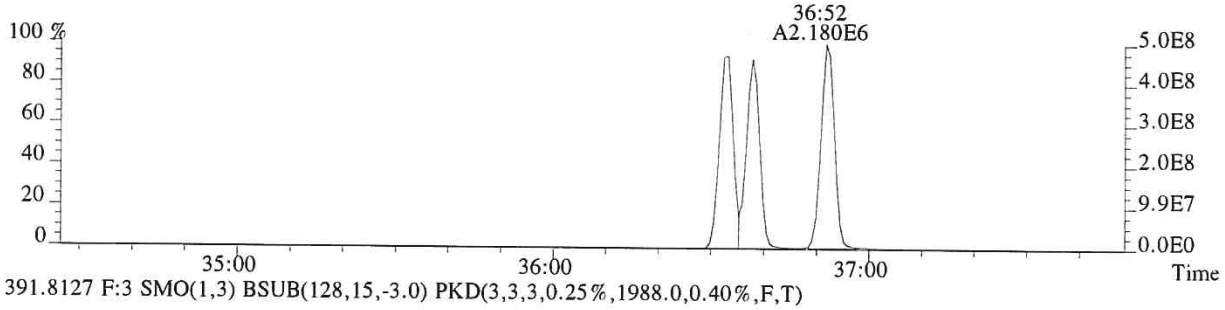
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



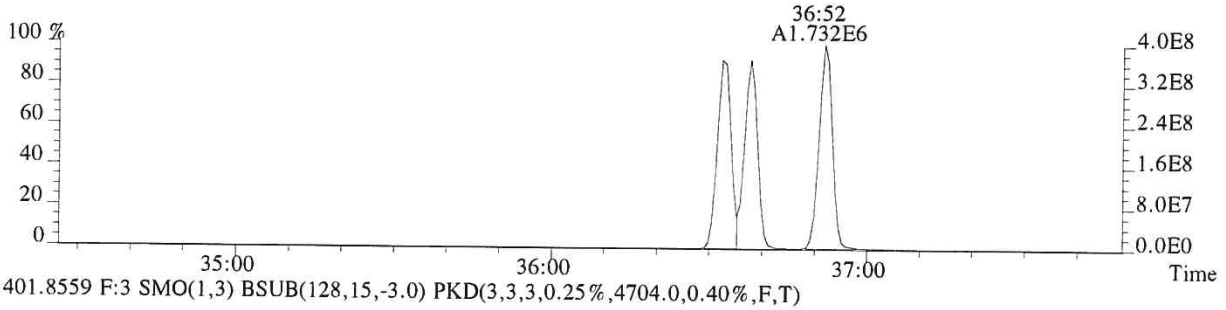
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



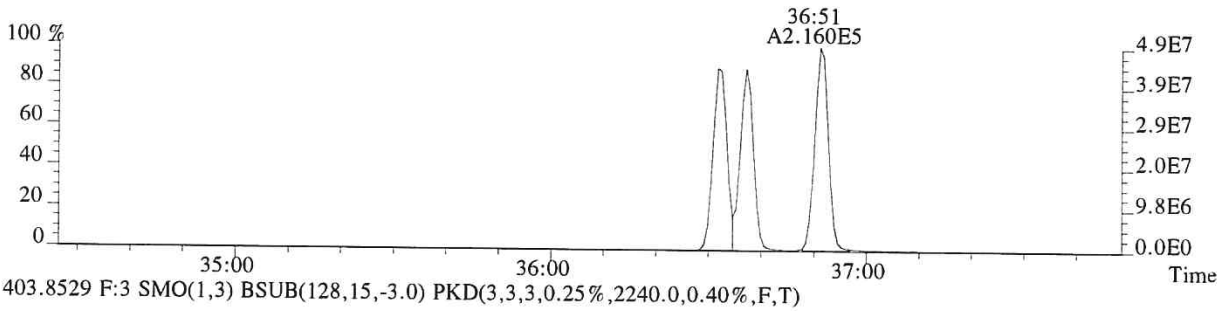
File:P614687 #1-304 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2336.0,0.40%,F,T)



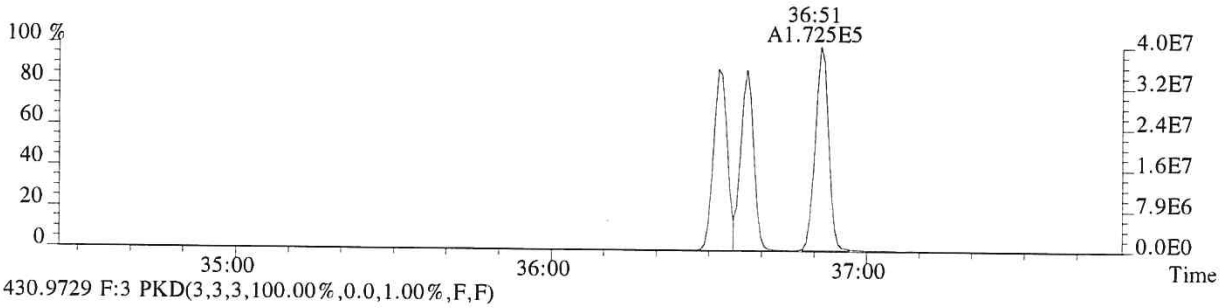
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1988.0,0.40%,F,T)



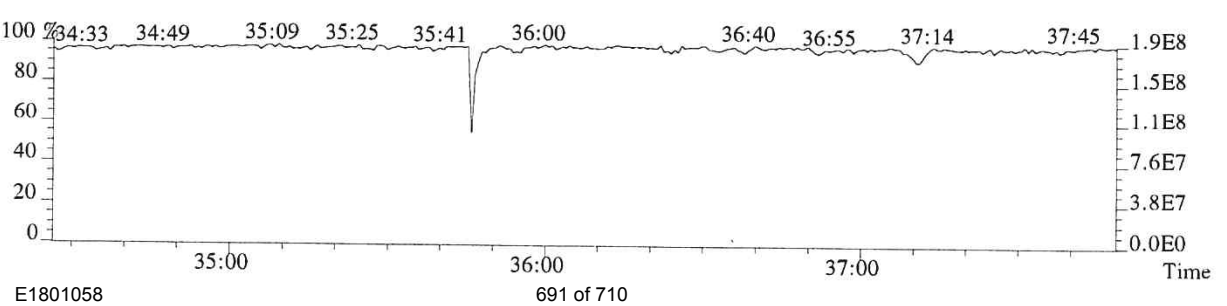
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4704.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2240.0,0.40%,F,T)

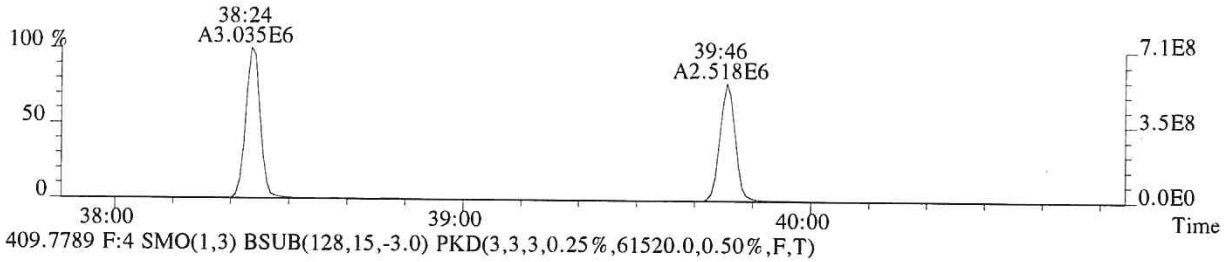


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

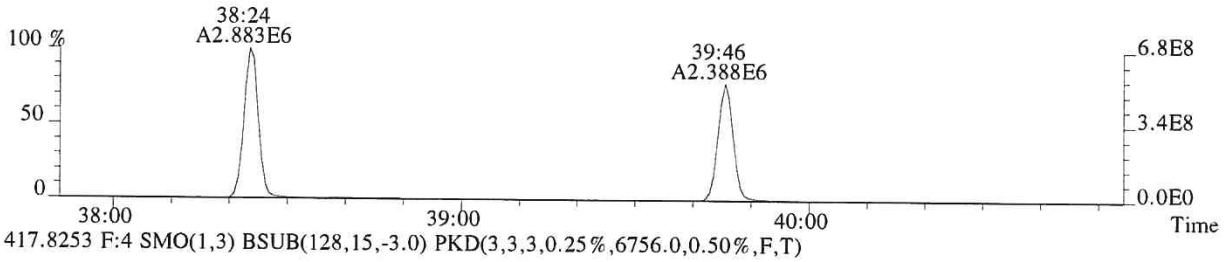


013781

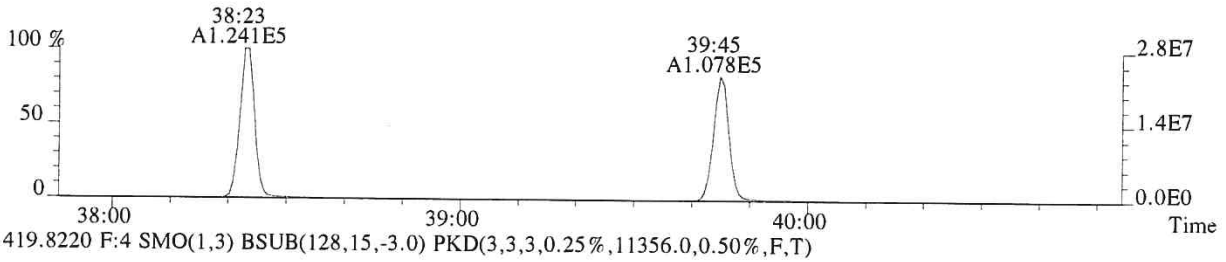
File:P614687 #1-276 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,96804.0,0.50%,F,T)



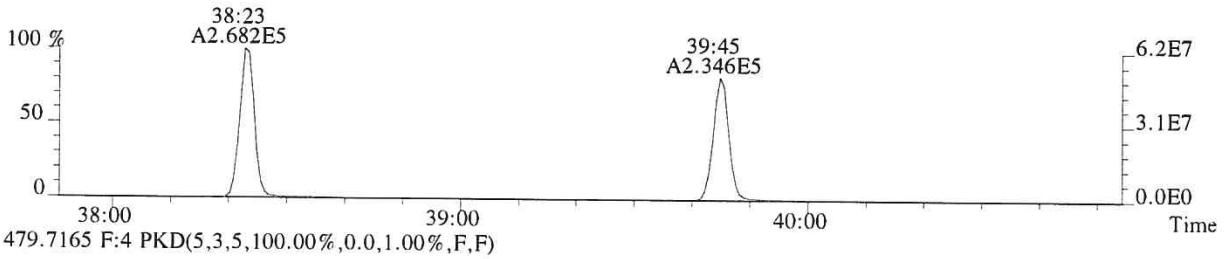
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,61520.0,0.50%,F,T)



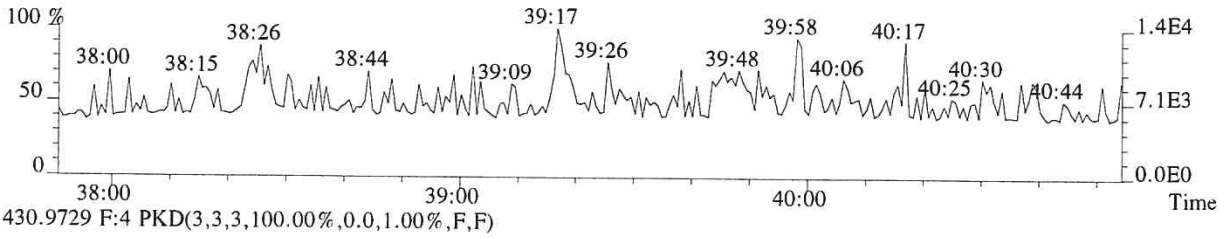
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6756.0,0.50%,F,T)



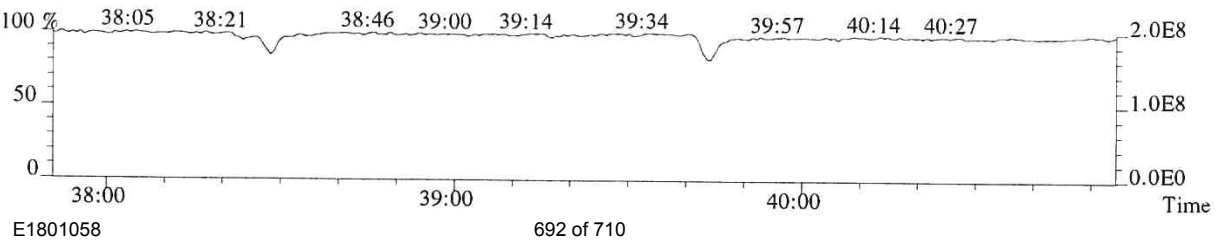
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11356.0,0.50%,F,T)



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

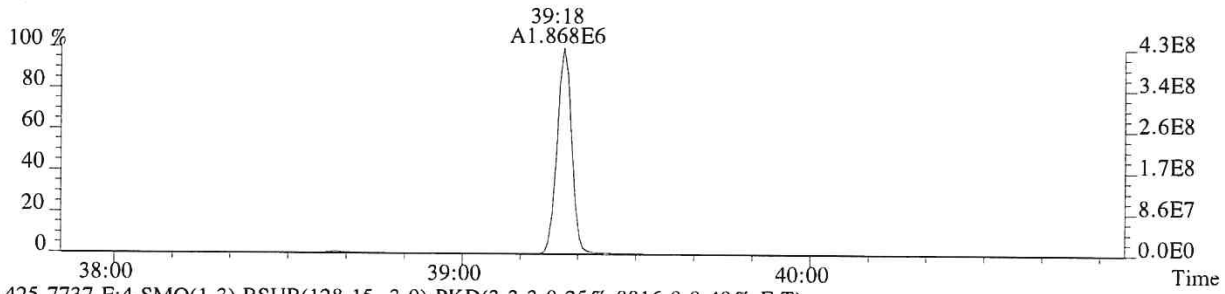


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

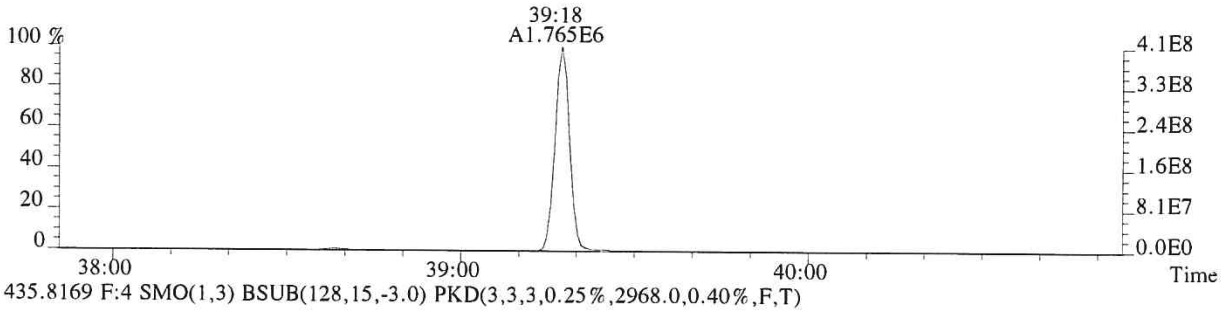


013782

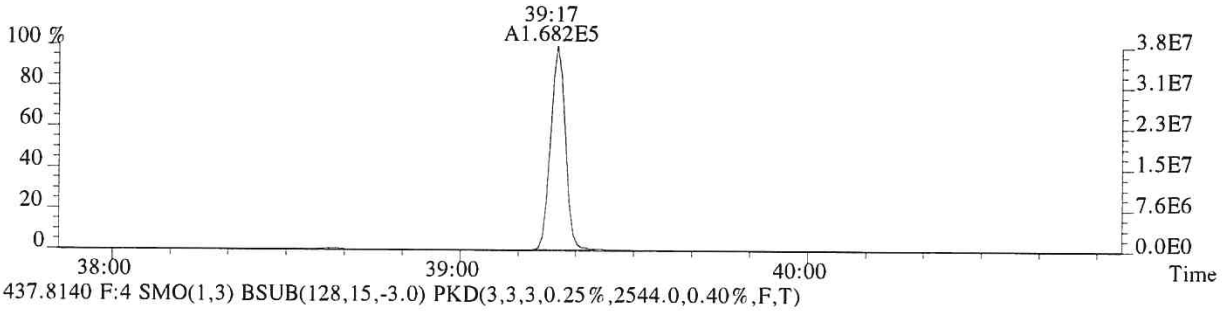
File:P614687 #1-276 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11044.0,0.40%,F,T)



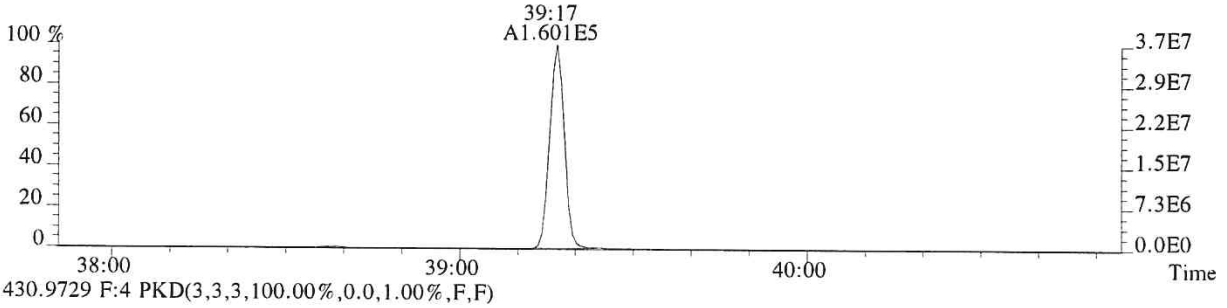
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8816.0,0.40%,F,T)



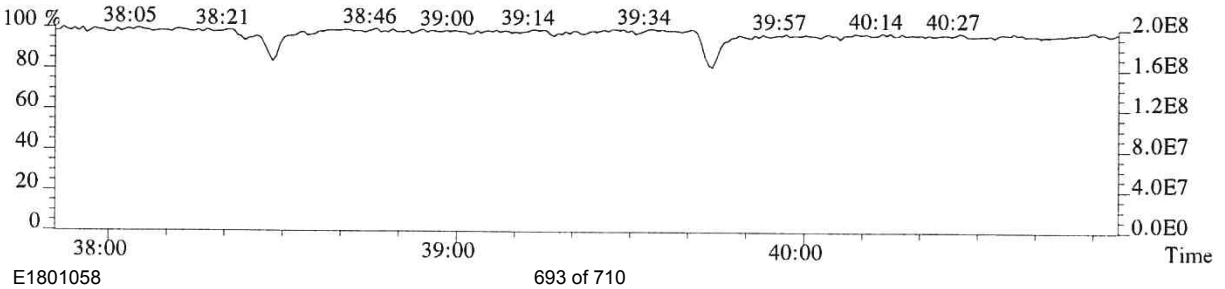
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2968.0,0.40%,F,T)



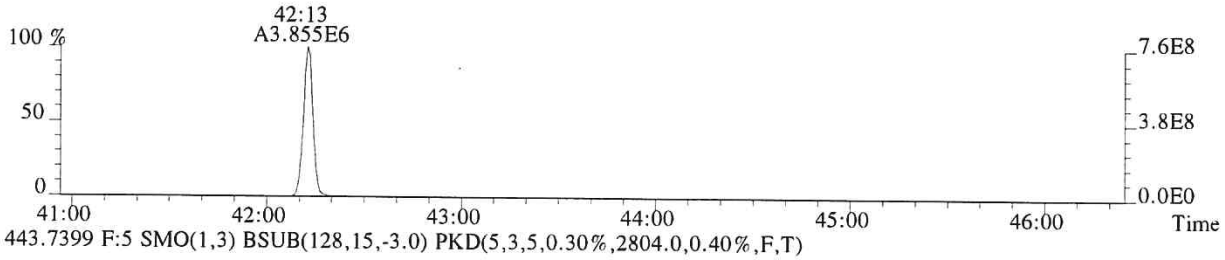
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2544.0,0.40%,F,T)



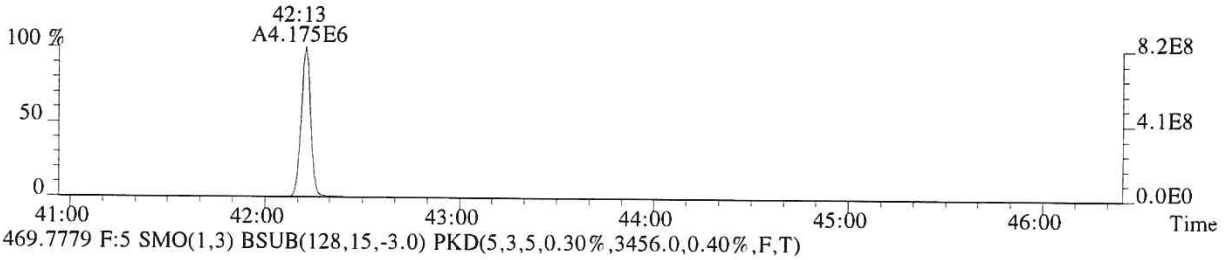
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



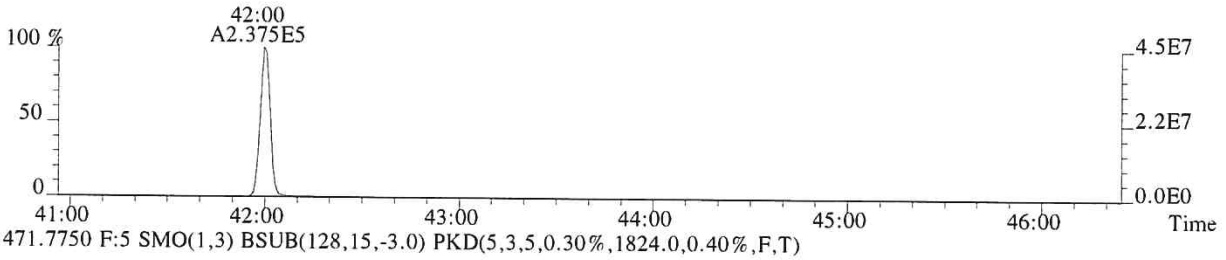
File:P614687 #1-493 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1428.0,0.40%,F,T)



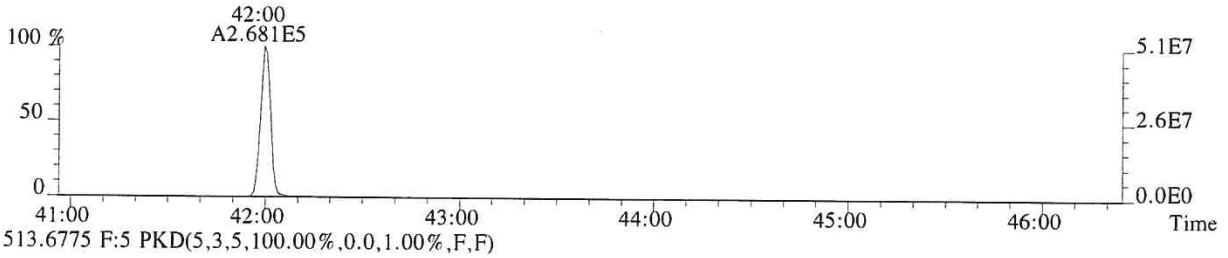
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2804.0,0.40%,F,T)



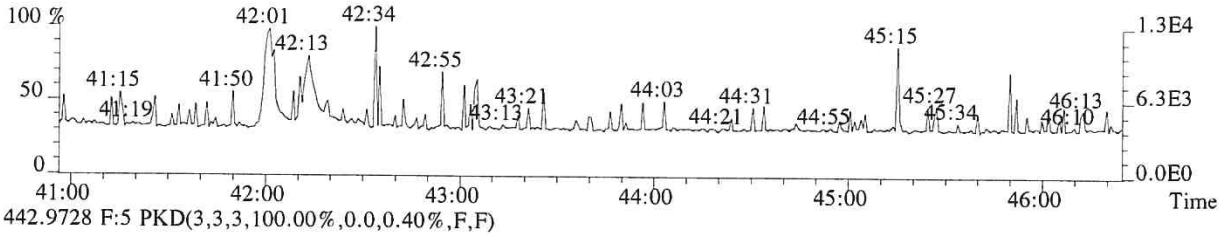
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3456.0,0.40%,F,T)



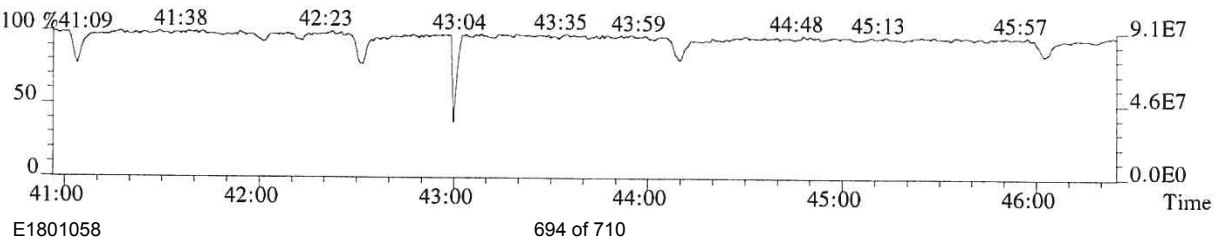
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1824.0,0.40%,F,T)



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

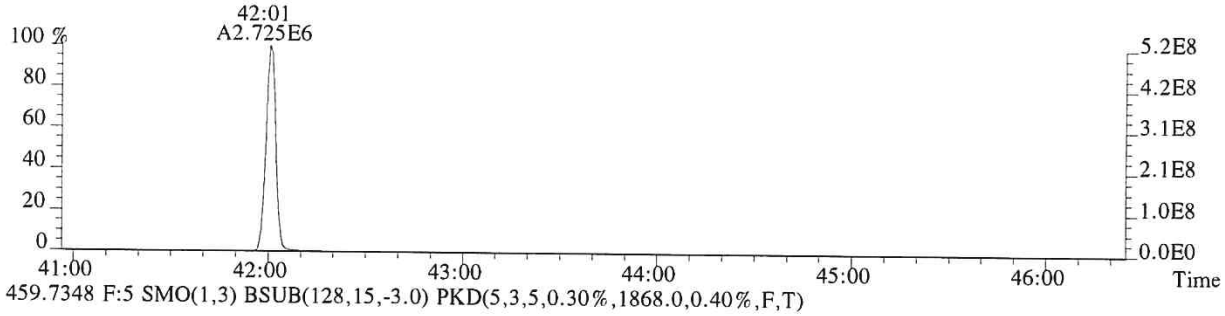


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

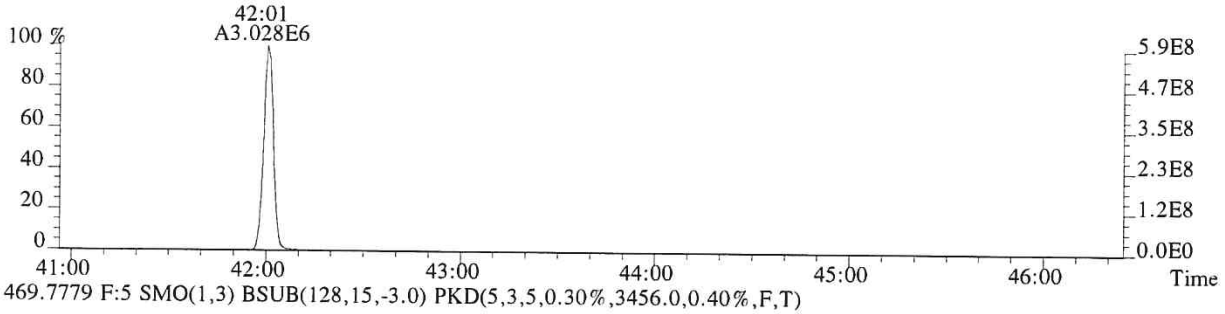


013784

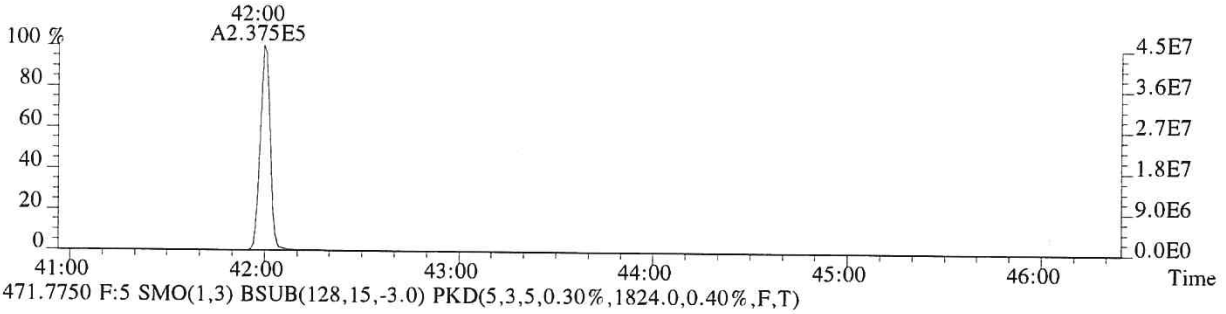
File:P614687 #1-493 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,960.0,0.40%,F,T)



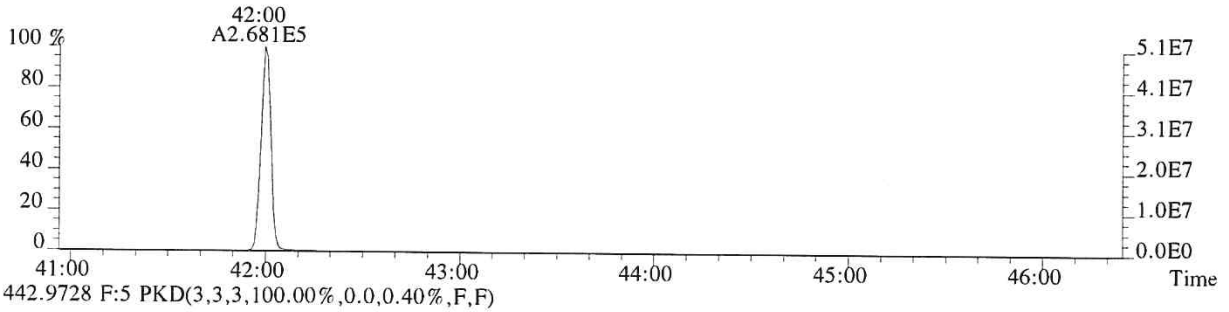
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1868.0,0.40%,F,T)



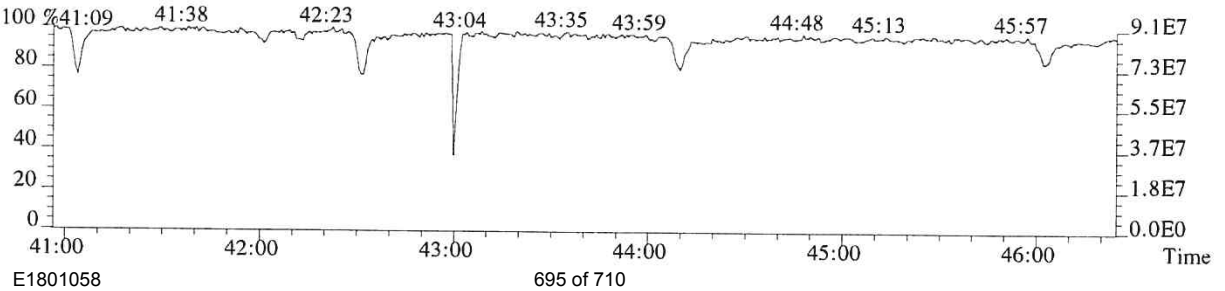
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3456.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1824.0,0.40%,F,T)



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



013785

USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 09/25/18

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

VER Data Filename: P614690 Analysis Date: 25-SEP-18 Time: 20:57:19

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	9.7	7.8 - 12.9	-2.5
1,2,3,7,8-PeCDD	M+2/M+4	1.57	1.32-1.78	49	39 - 65	-2.2
1,2,3,4,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	49	39 - 64	-2.2
1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	50	39 - 64	-0.1
1,2,3,7,8,9-HxCDD	M+2/M+4	1.26	1.05-1.43	49	41 - 61	-1.9
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	50	43 - 58	-0.9
OCDD	M+2/M+4	0.91	0.76-1.02	98	79 - 126	-2.1
2,3,7,8-TCDF	M/M+2	0.78	0.65-0.89	9.7	8.4 - 12.0	-2.7
1,2,3,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	49	41 - 60	-1.1
2,3,4,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	49	41 - 61	-1.4
1,2,3,4,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	49	45 - 56	-2.6
1,2,3,6,7,8-HxCDF	M+2/M+4	1.28	1.05-1.43	49	44 - 57	-2.3
1,2,3,7,8,9-HxCDF	M+2/M+4	1.28	1.05-1.43	50	45 - 56	0.3
2,3,4,6,7,8-HxCDF	M+2/M+4	1.26	1.05-1.43	50	44 - 57	-0.4
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.05	0.88-1.20	50	45 - 55	-0.6
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.02	0.88-1.20	48	43 - 58	-3.5
OCDF	M+2/M+4	0.93	0.76-1.02	100	63 - 159	-0.4

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

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

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

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

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 09/25/18

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

VER Data Filename: P614690 Analysis Date: 25-SEP-18 Time: 20:57:19

LABELED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
13C-2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	99	82 - 121	-0.7
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.56	1.32-1.78	97	62 - 160	-2.6
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	102	85 - 117	1.5
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	100	85 - 118	-0.2
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	105	72 - 138	5.2
13C-OCDD	M+2/M+4	0.89	0.76-1.02	224	96 - 415	11.9
13C-2,3,7,8-TCDF	M/M+2	0.80	0.65-0.89	99	71 - 140	-0.7
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.61	1.32-1.78	98	76 - 130	-2.1
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	96	77 - 130	-3.8
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.54	0.43-0.59	102	76 - 131	2.1
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	101	70 - 143	0.6
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	100	74 - 135	0.4
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.54	0.43-0.59	100	73 - 137	0.2
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.46	0.37-0.51	103	78 - 129	2.7
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.46	0.37-0.51	109	77 - 129	9.0
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.9	7.8 - 12.7	-1.0

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

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
188969

Run #7 Filename P614690 Samp: 1 Inj: 1 Acquired: 25-SEP-18 20:57:19
Processed: 26-SEP-18 08:08:37 Sample ID: 2ND SOURCE

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:00	1.742e+04	2.239e+04	0.78	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:14	1.470e+05	9.342e+04	1.57	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:09	1.362e+05	8.490e+04	1.60	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	1.308e+05	1.044e+05	1.25	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	1.371e+05	1.074e+05	1.28	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	1.285e+05	1.018e+05	1.26	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:09	1.211e+05	9.459e+04	1.28	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	1.180e+05	1.126e+05	1.05	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	1.018e+05	9.931e+04	1.02	yes	no	1.463
10	Unk	OCDF	42:12	1.605e+05	1.721e+05	0.93	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:48	1.193e+04	1.490e+04	0.80	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	8.164e+04	5.215e+04	1.57	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	7.752e+04	6.082e+04	1.27	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:38	7.678e+04	6.066e+04	1.27	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:52	8.213e+04	6.494e+04	1.26	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	7.382e+04	6.944e+04	1.06	yes	no	1.112
17	Unk	OCDD	42:01	1.146e+05	1.261e+05	0.91	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:59	1.682e+05	2.104e+05	0.80	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	2.590e+05	1.613e+05	1.61	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	2.497e+05	1.565e+05	1.60	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	1.202e+05	2.212e+05	0.54	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:54	1.342e+05	2.529e+05	0.53	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:24	1.258e+05	2.350e+05	0.54	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	1.132e+05	2.142e+05	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:23	9.579e+04	2.089e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:45	8.964e+04	1.952e+05	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	1.166e+05	1.457e+05	0.80	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:25	1.797e+05	1.149e+05	1.56	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:32	1.476e+05	1.165e+05	1.27	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:37	1.453e+05	1.145e+05	1.27	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	1.336e+05	1.263e+05	1.06	yes	no	0.857
32	IS	13C-OCDD	42:00	2.007e+05	2.242e+05	0.89	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:13	1.202e+05	1.487e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:51	1.598e+05	1.284e+05	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	2.893e+04				no	1.086

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
188969

Run #7 Filename P614690 Samp: 1 Inj: 1 Acquired: 25-SEP-18 20:57:19
Processed: 26-SEP-18 08:08:37 LAB. ID: 2ND SOURCE

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	3.08e+06	2.16e+03	1.4e+03	3.95e+06	5.67e+03	7.0e+02
2	1,2,3,7,8-PeCDF	2.75e+07	1.50e+03	1.8e+04	1.74e+07	8.24e+03	2.1e+03
3	2,3,4,7,8-PeCDF	2.67e+07	1.50e+03	1.8e+04	1.67e+07	8.24e+03	2.0e+03
4	1,2,3,4,7,8-HxCDF	2.88e+07	2.35e+03	1.2e+04	2.29e+07	2.48e+03	9.3e+03
5	1,2,3,6,7,8-HxCDF	2.88e+07	2.35e+03	1.2e+04	2.30e+07	2.48e+03	9.3e+03
6	2,3,4,6,7,8-HxCDF	2.86e+07	2.35e+03	1.2e+04	2.28e+07	2.48e+03	9.2e+03
7	1,2,3,7,8,9-HxCDF	2.47e+07	2.35e+03	1.1e+04	1.95e+07	2.48e+03	7.9e+03
8	1,2,3,4,6,7,8-HpCDF	2.70e+07	4.46e+03	6.0e+03	2.58e+07	1.29e+04	2.0e+03
9	1,2,3,4,7,8,9-HpCDF	2.12e+07	4.46e+03	4.8e+03	2.03e+07	1.29e+04	1.6e+03
10	OCDF	3.01e+07	1.50e+03	2.0e+04	3.28e+07	3.09e+03	1.1e+04
11	2,3,7,8-TCDD	2.20e+06	4.04e+03	5.4e+02	2.73e+06	2.27e+03	1.2e+03
12	1,2,3,7,8-PeCDD	1.64e+07	3.14e+03	5.2e+03	1.06e+07	2.92e+02	3.6e+04
13	1,2,3,4,7,8-HxCDD	1.79e+07	1.59e+03	1.1e+04	1.41e+07	2.43e+03	5.8e+03
14	1,2,3,6,7,8-HxCDD	1.70e+07	1.59e+03	1.1e+04	1.34e+07	2.43e+03	5.5e+03
15	1,2,3,7,8,9-HxCDD	1.85e+07	1.59e+03	1.2e+04	1.48e+07	2.43e+03	6.1e+03
16	1,2,3,4,6,7,8-HpCDD	1.59e+07	2.28e+03	7.0e+03	1.49e+07	8.84e+02	1.7e+04
17	OCDD	2.16e+07	1.17e+03	1.8e+04	2.38e+07	1.31e+03	1.8e+04
18	13C-2,3,7,8-TCDF	2.88e+07	1.57e+04	1.8e+03	3.60e+07	9.18e+03	3.9e+03
19	13C-1,2,3,7,8-PeCDF	4.79e+07	4.01e+03	1.2e+04	3.00e+07	3.41e+03	8.8e+03
20	13C-2,3,4,7,8-PeCDF	4.95e+07	4.01e+03	1.2e+04	3.12e+07	3.41e+03	9.1e+03
21	13C-1,2,3,4,7,8-HxCDF	2.65e+07	2.99e+03	8.9e+03	4.93e+07	3.83e+03	1.3e+04
22	13C-1,2,3,6,7,8-HxCDF	2.83e+07	2.99e+03	9.5e+03	5.32e+07	3.83e+03	1.4e+04
23	13C-2,3,4,6,7,8-HxCDF	2.80e+07	2.99e+03	9.4e+03	5.25e+07	3.83e+03	1.4e+04
24	13C-1,2,3,7,8,9-HxCDF	2.35e+07	2.99e+03	7.9e+03	4.43e+07	3.83e+03	1.2e+04
25	13C-1,2,3,4,6,7,8-HpCDF	2.19e+07	7.32e+03	3.0e+03	4.77e+07	1.38e+04	3.5e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.88e+07	7.32e+03	2.6e+03	4.06e+07	1.38e+04	2.9e+03
27	13C-2,3,7,8-TCDD	2.17e+07	2.56e+04	8.4e+02	2.71e+07	6.97e+03	3.9e+03
28	13C-1,2,3,7,8-PeCDD	3.57e+07	3.26e+03	1.1e+04	2.28e+07	2.28e+03	1.0e+04
29	13C-1,2,3,4,7,8-HxCDD	3.37e+07	5.66e+03	6.0e+03	2.64e+07	3.42e+03	7.7e+03
30	13C-1,2,3,6,7,8-HxCDD	3.18e+07	5.66e+03	5.6e+03	2.51e+07	3.42e+03	7.3e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.85e+07	3.13e+03	9.1e+03	2.68e+07	1.88e+03	1.4e+04
32	13C-OCDD	3.77e+07	2.72e+03	1.4e+04	4.17e+07	9.60e+02	4.3e+04
33	13C-1,2,3,4-TCDD	2.21e+07	2.56e+04	8.6e+02	2.72e+07	6.97e+03	3.9e+03
34	13C-1,2,3,7,8,9-HxCDD	3.62e+07	5.66e+03	6.4e+03	2.92e+07	3.42e+03	8.5e+03
35	37Cl-2,3,7,8-TCDD	5.28e+06	4.24e+03	1.2e+03			

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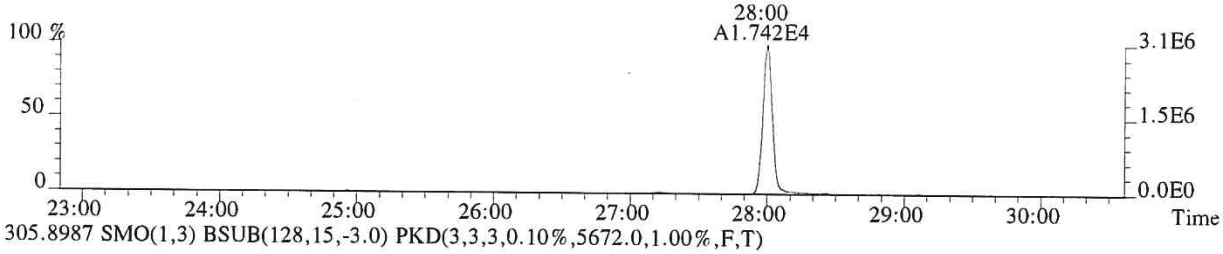
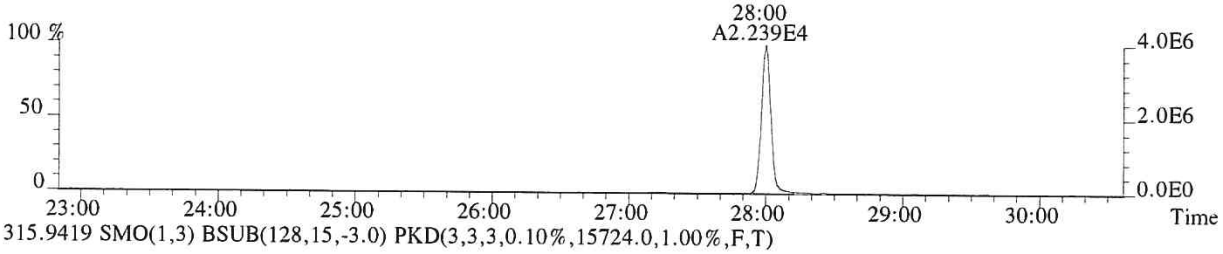
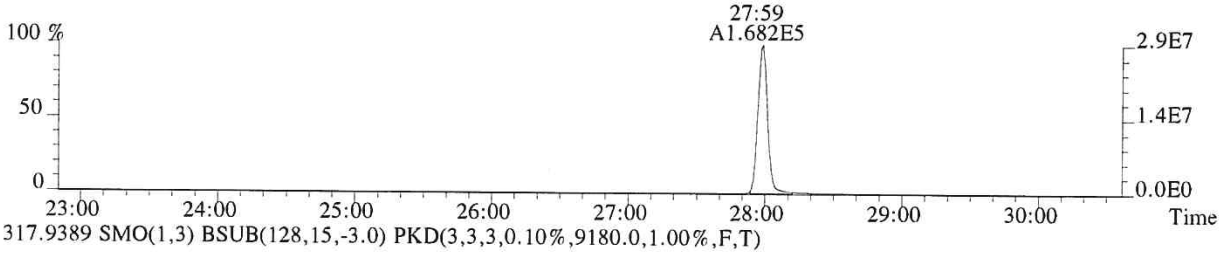
File:P614690 #1-552 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2160.0,1.00%,F,T)



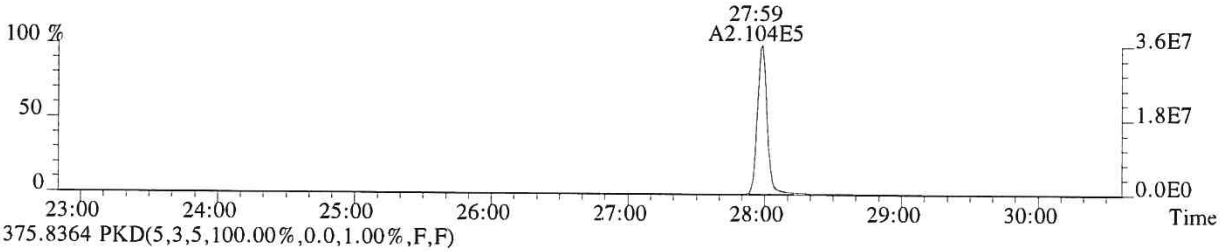
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5672.0,1.00%,F,T)



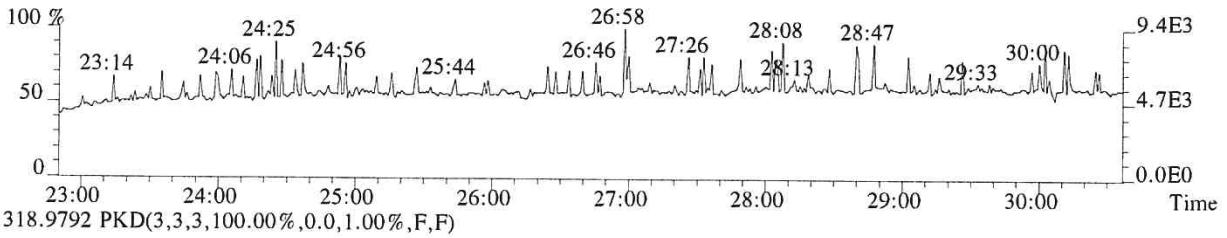
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15724.0,1.00%,F,T)



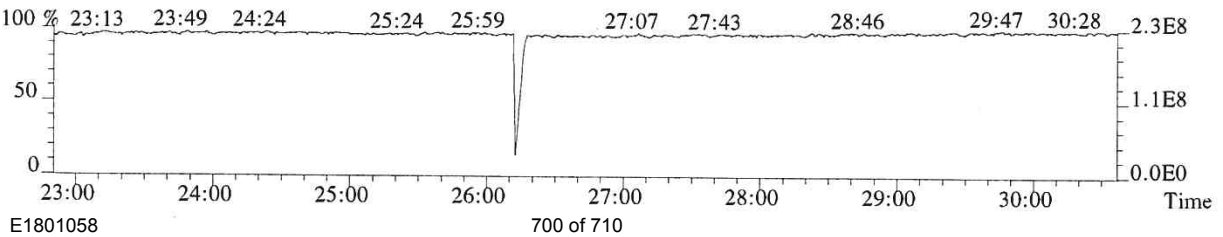
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9180.0,1.00%,F,T)



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

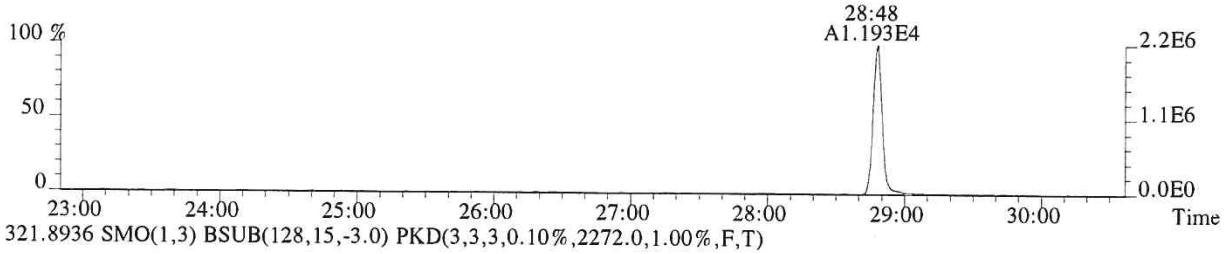


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

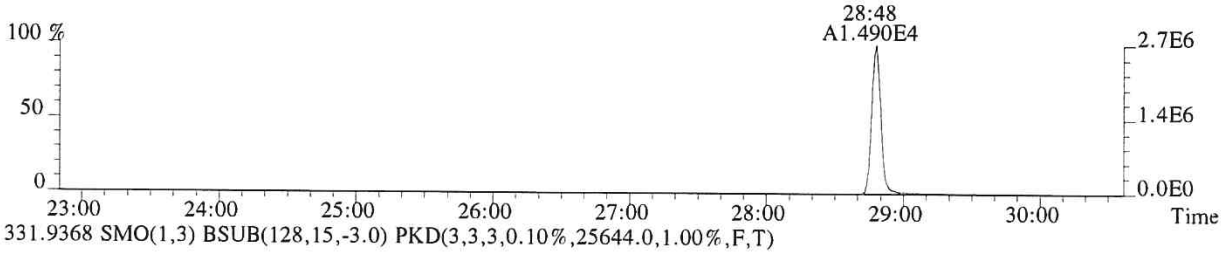


013790

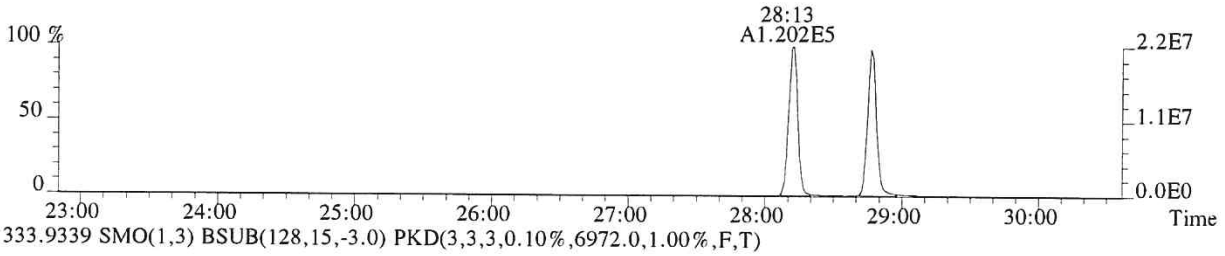
File:P614690 #1-552 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4040.0,1.00%,F,T)



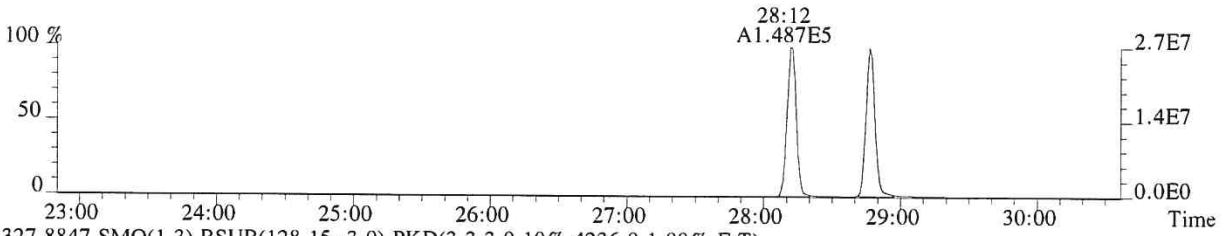
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2272.0,1.00%,F,T)



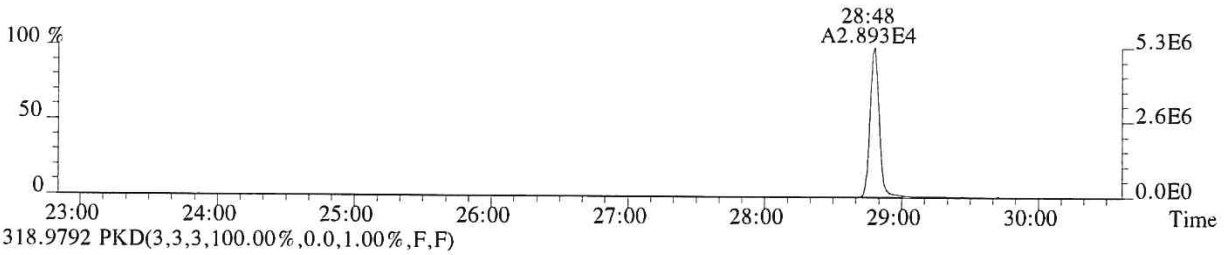
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,25644.0,1.00%,F,T)



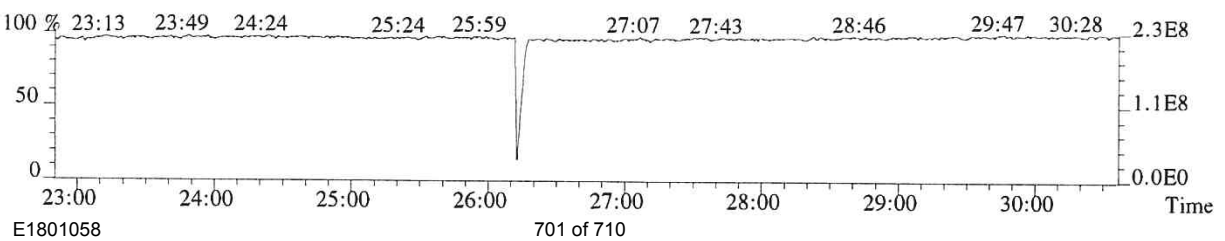
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6972.0,1.00%,F,T)



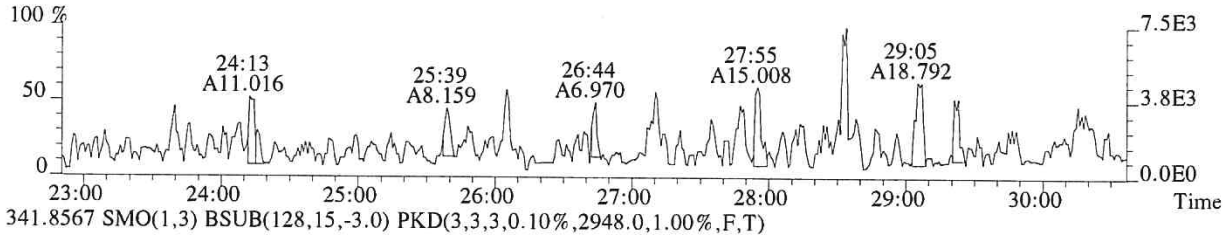
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4236.0,1.00%,F,T)



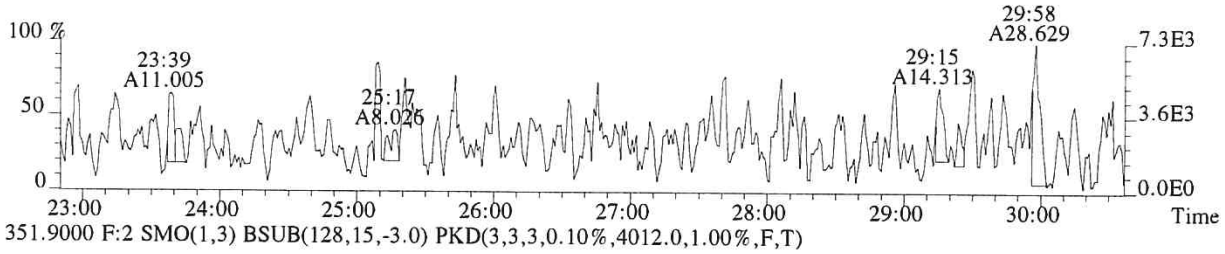
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



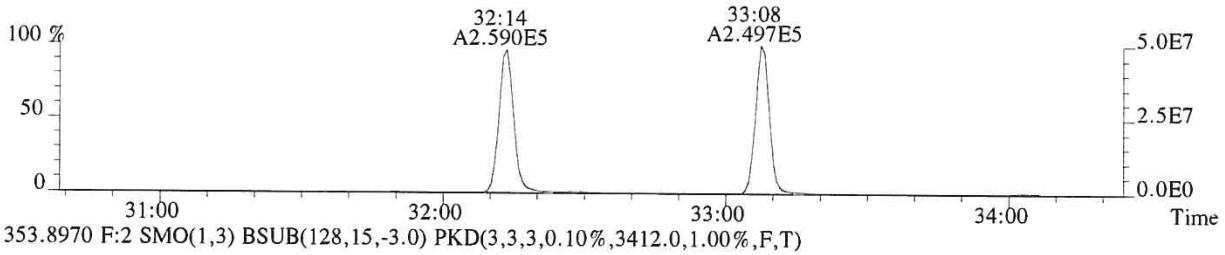
File:P614690 #1-552 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spectℓ
Sample#1 Exp:2ND SOURCE
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1588.0,1.00%,F,T)



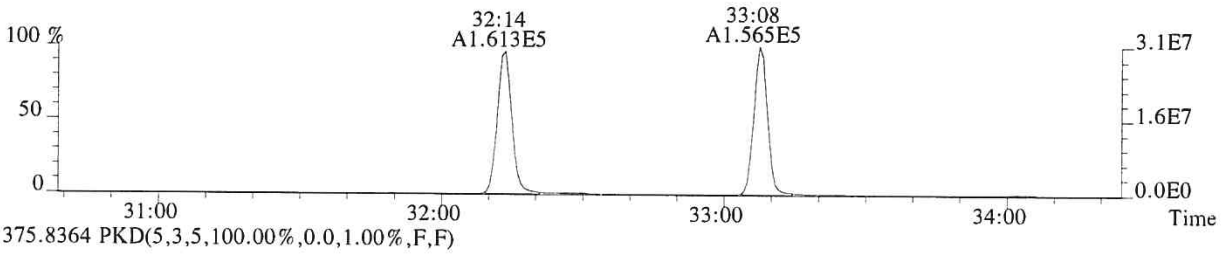
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2948.0,1.00%,F,T)



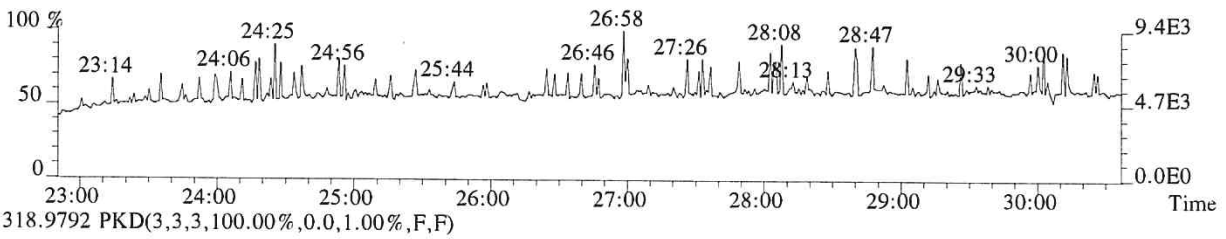
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4012.0,1.00%,F,T)



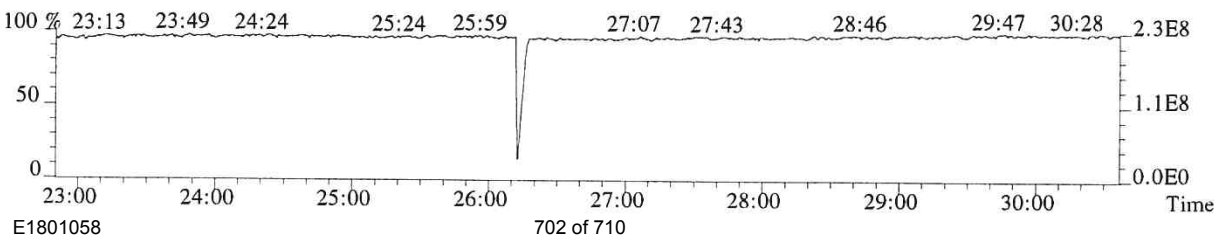
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3412.0,1.00%,F,T)



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

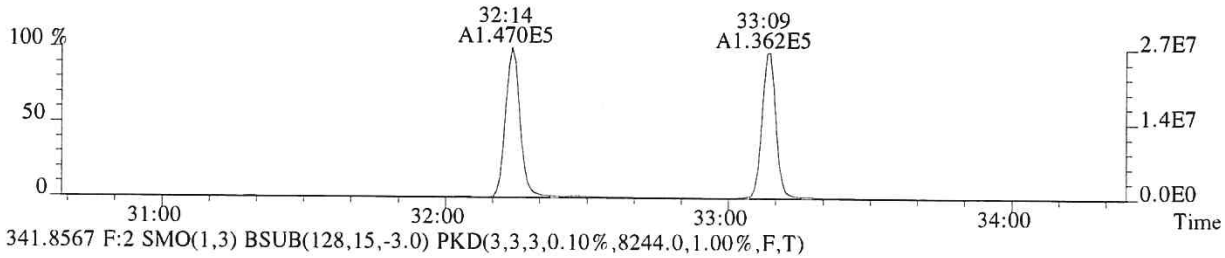


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

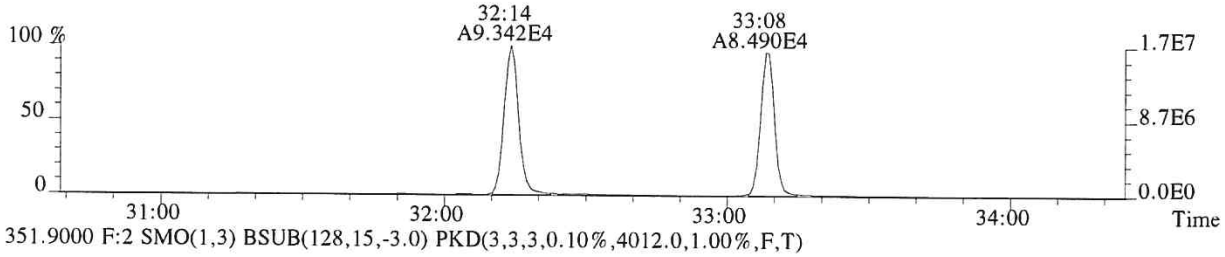


013792

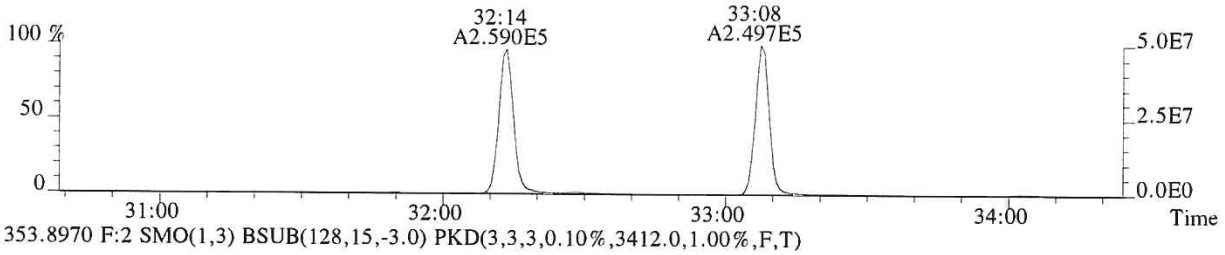
File:P614690 #1-339 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1504.0,1.00%,F,T)



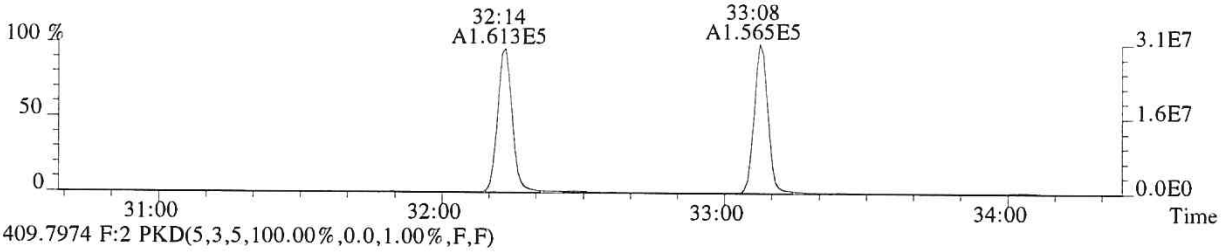
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8244.0,1.00%,F,T)



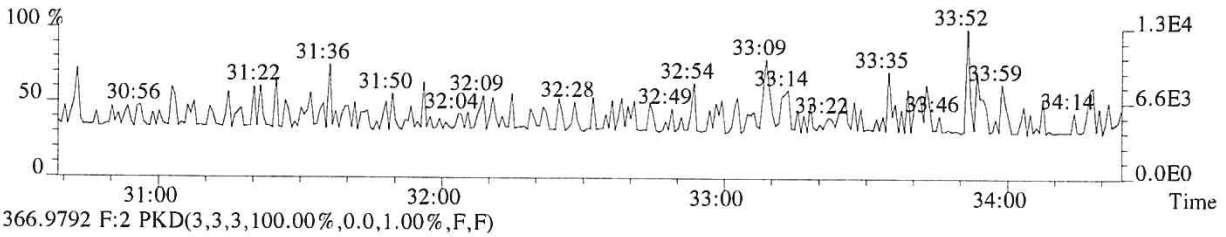
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4012.0,1.00%,F,T)



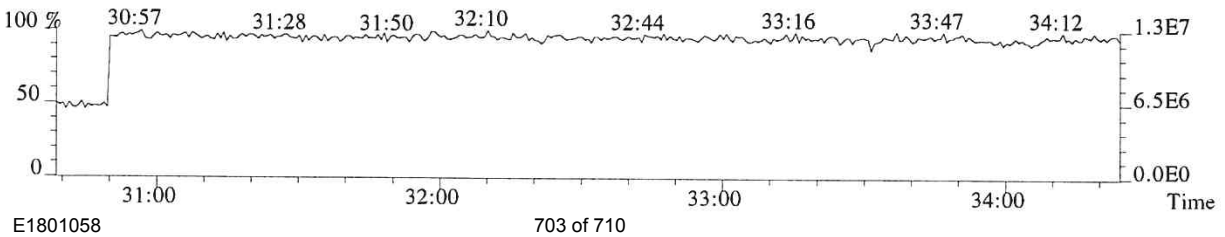
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3412.0,1.00%,F,T)



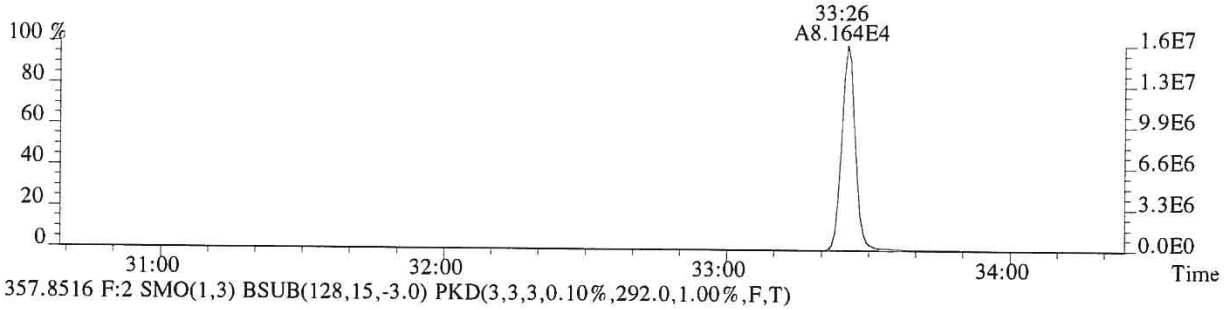
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



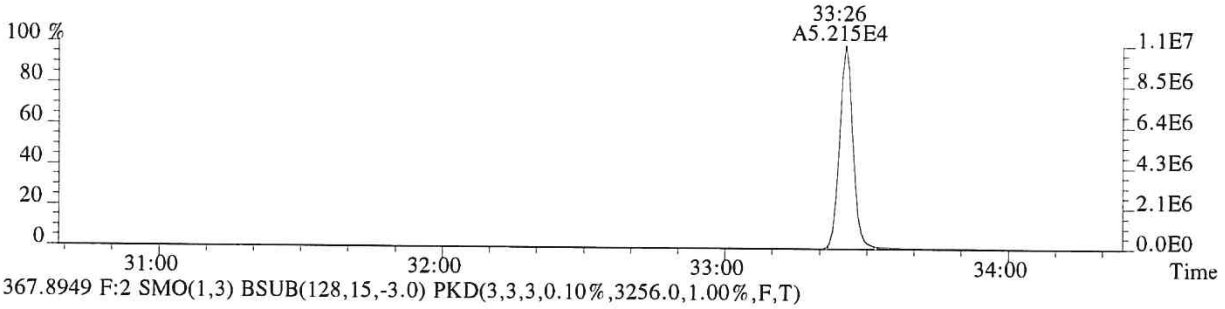
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



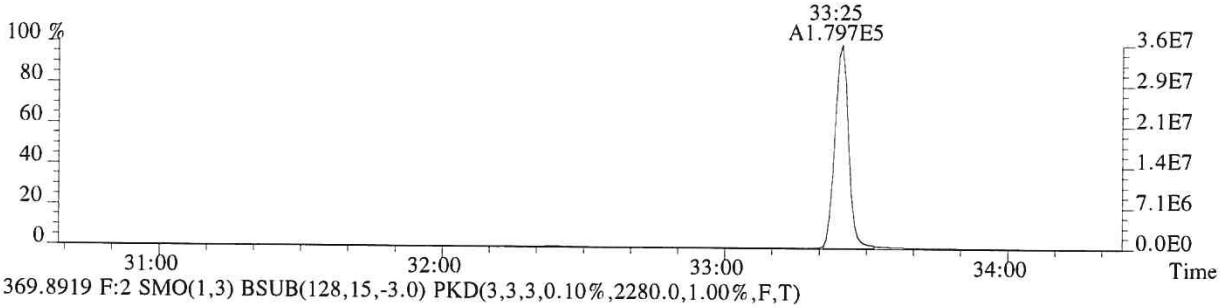
File:P614690 #1-339 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3144.0,1.00%,F,T)



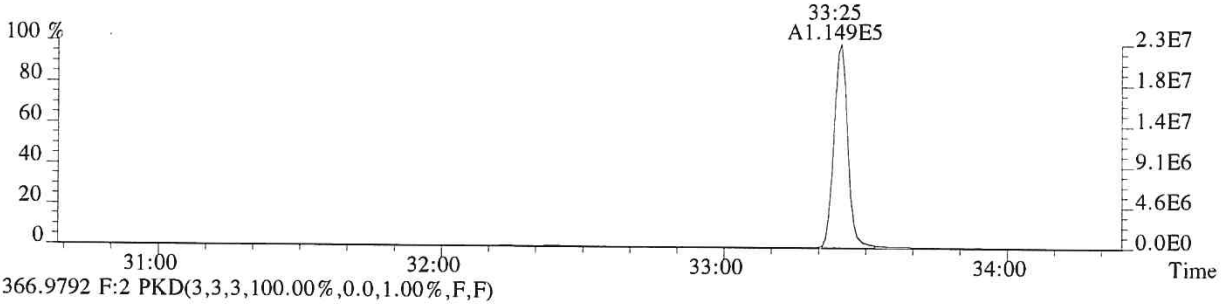
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,292.0,1.00%,F,T)



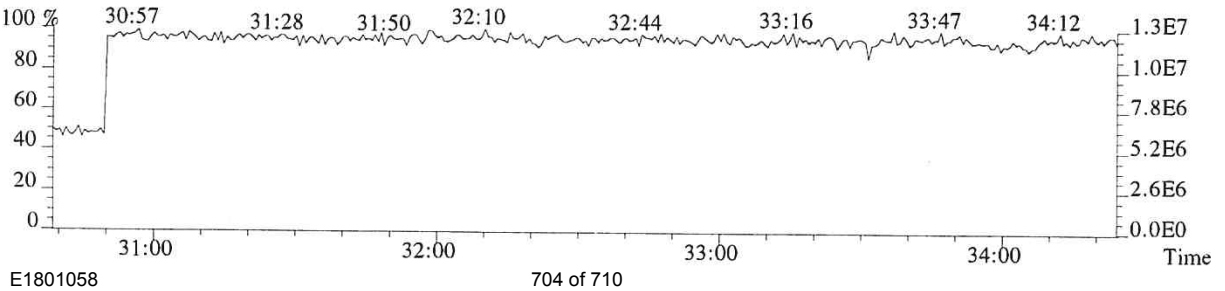
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3256.0,1.00%,F,T)



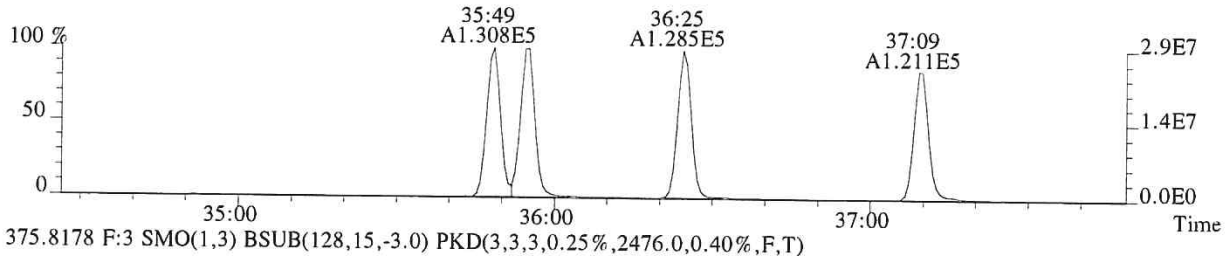
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2280.0,1.00%,F,T)



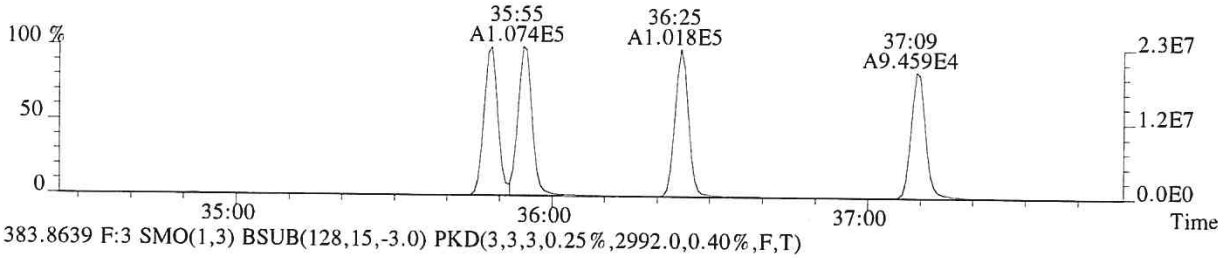
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



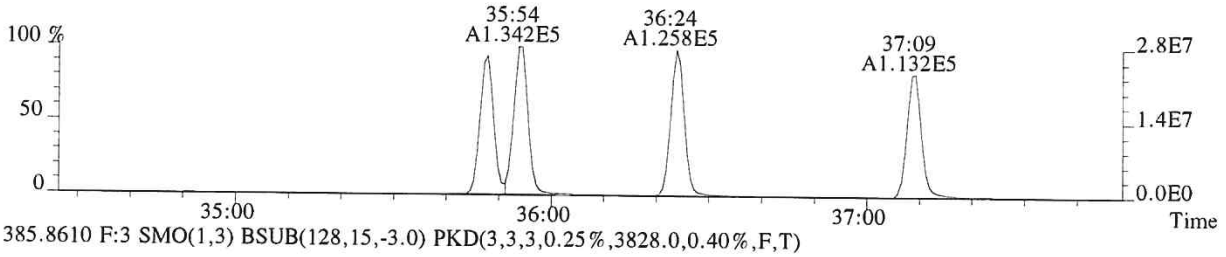
File:P614690 #1-304 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2352.0,0.40%,F,T)



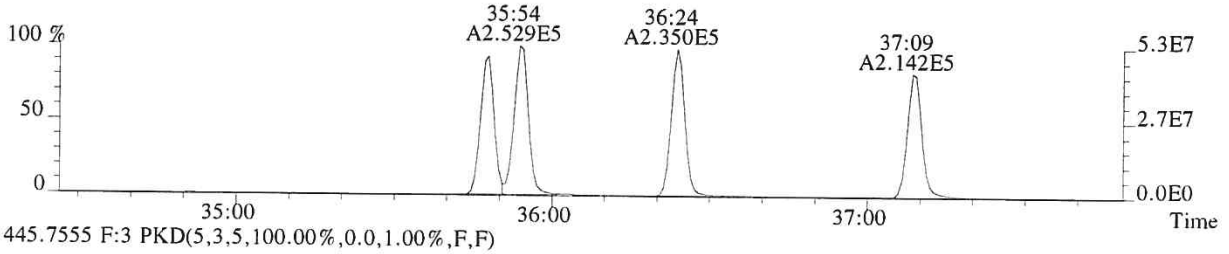
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2476.0,0.40%,F,T)



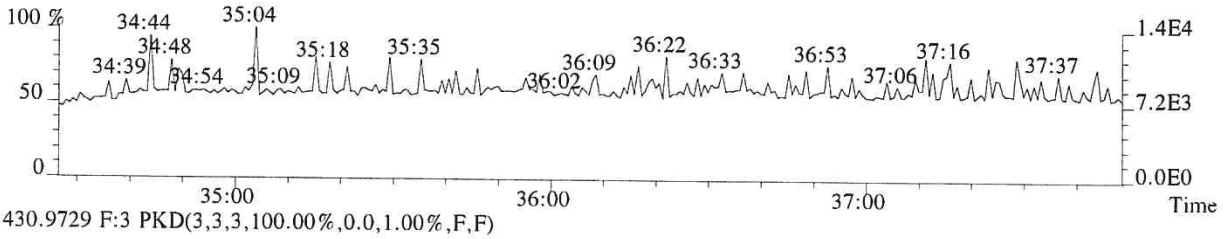
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2992.0,0.40%,F,T)



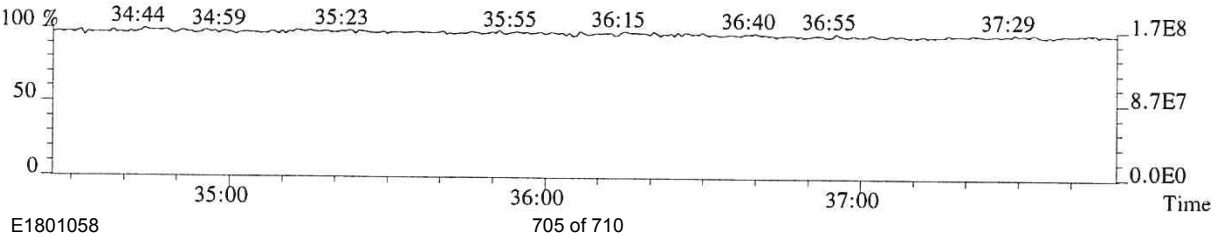
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3828.0,0.40%,F,T)



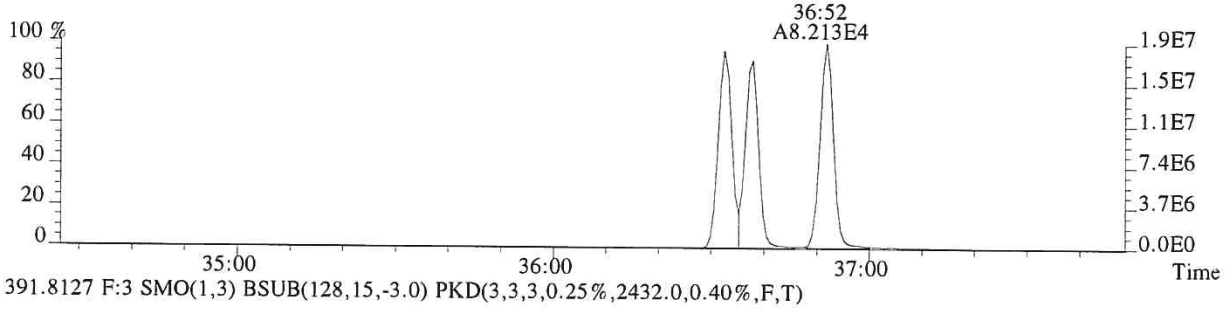
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



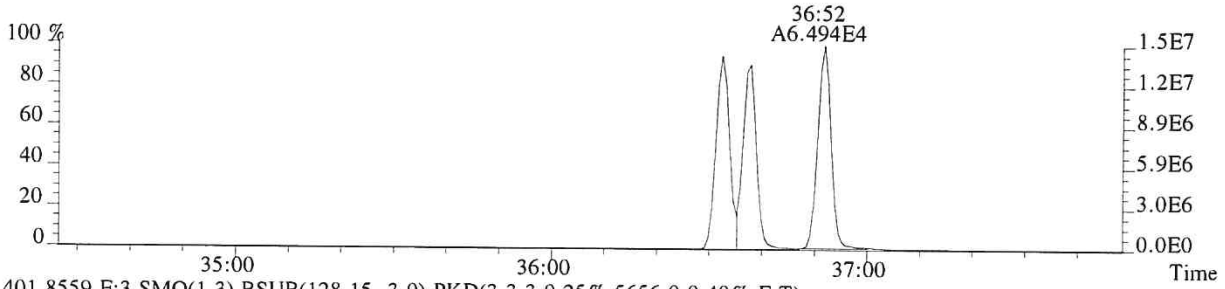
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



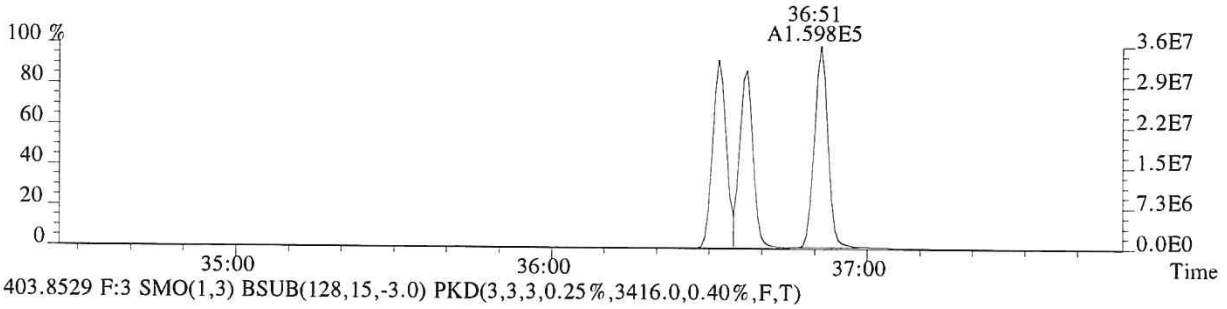
File:P614690 #1-304 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1588.0,0.40%,F,T)



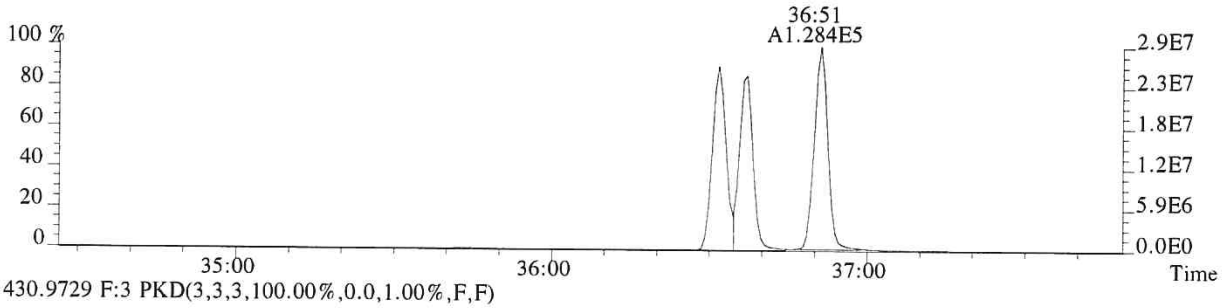
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2432.0,0.40%,F,T)



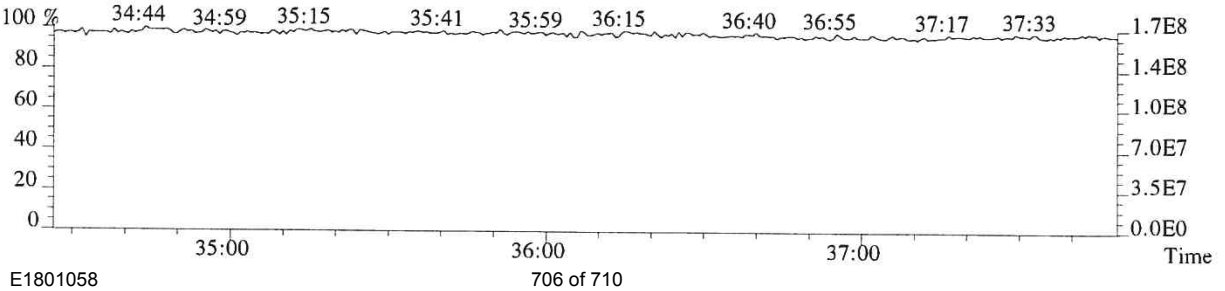
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5656.0,0.40%,F,T)



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

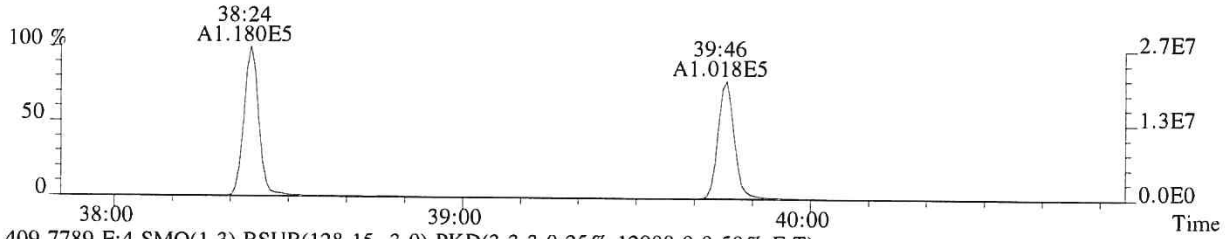


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

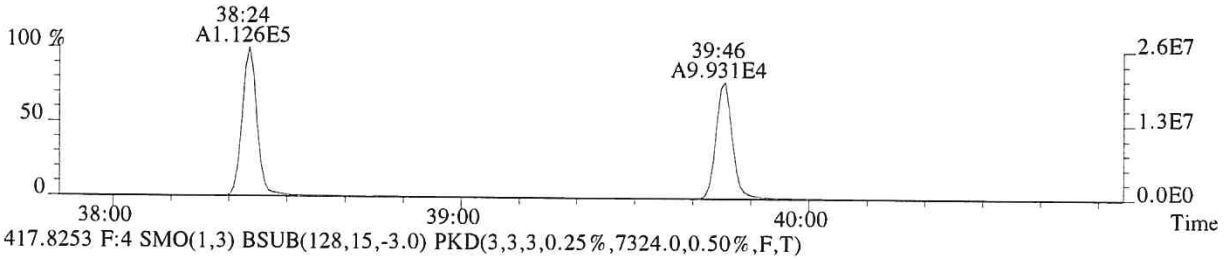


013796

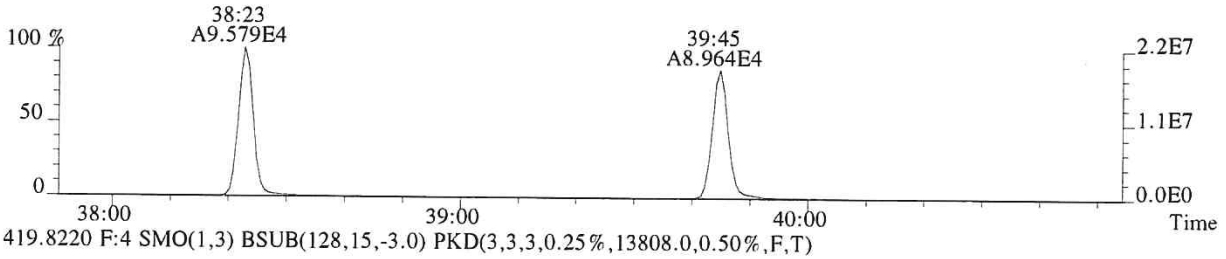
File:P614690 #1-276 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4460.0,0.50%,F,T)



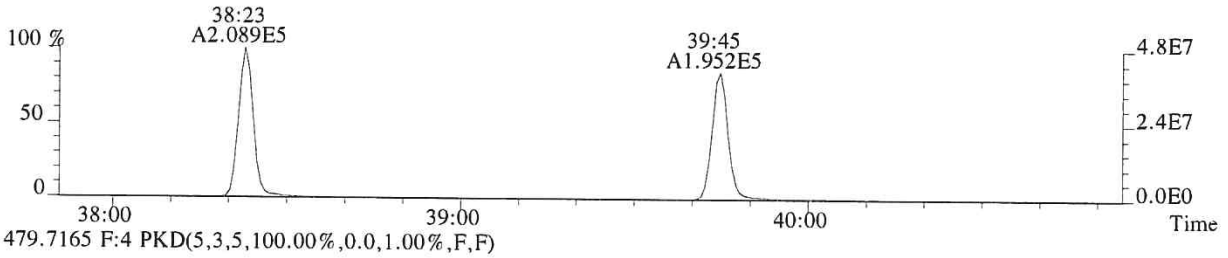
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,12908.0,0.50%,F,T)



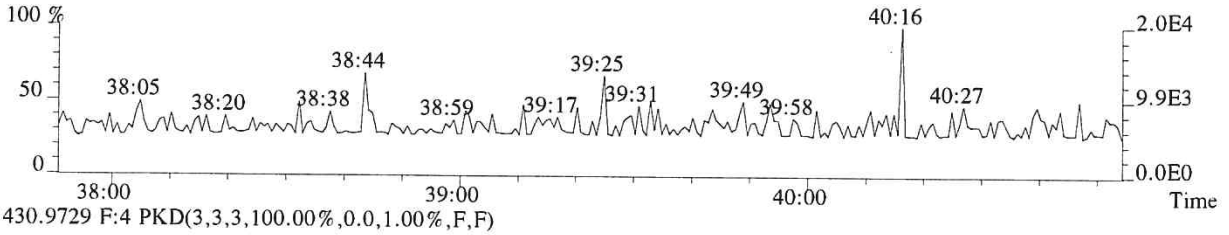
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7324.0,0.50%,F,T)



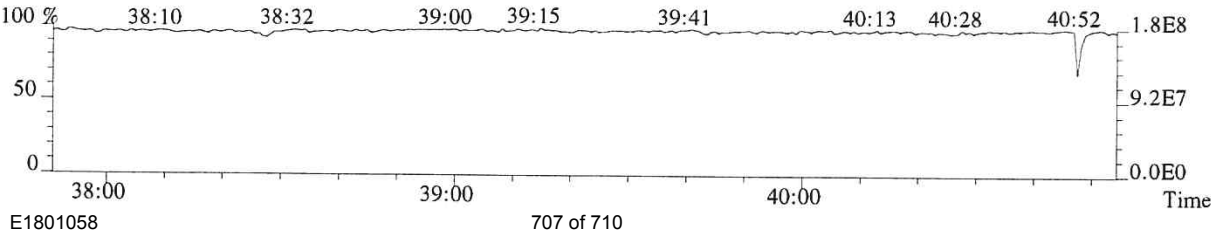
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,13808.0,0.50%,F,T)



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

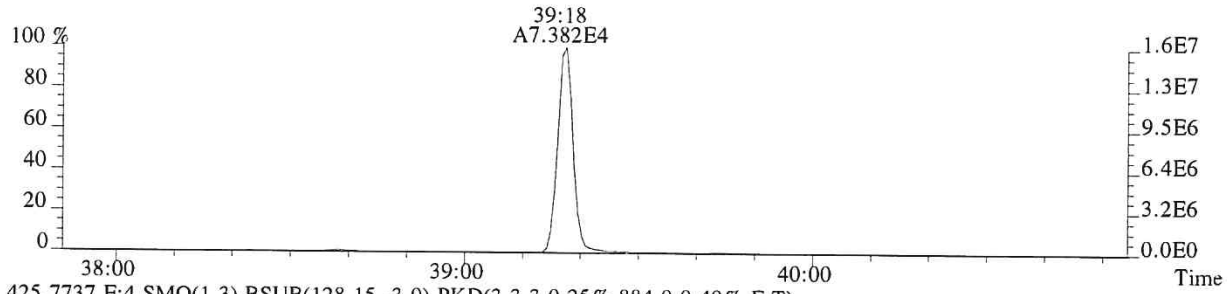


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

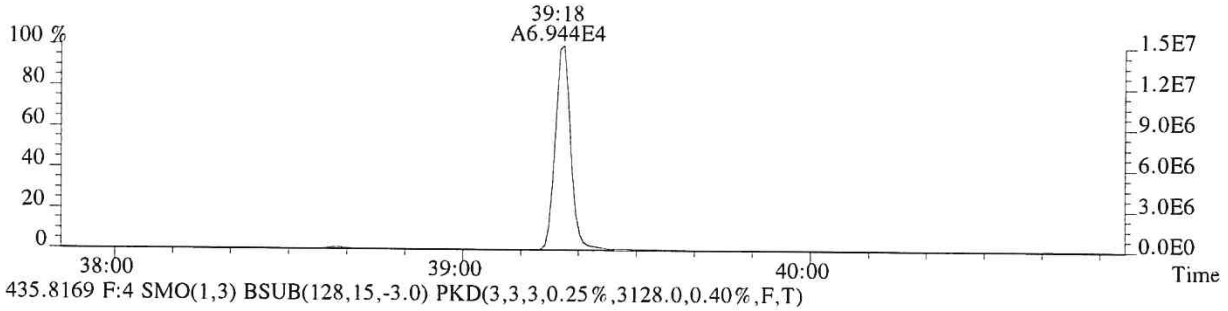


013797

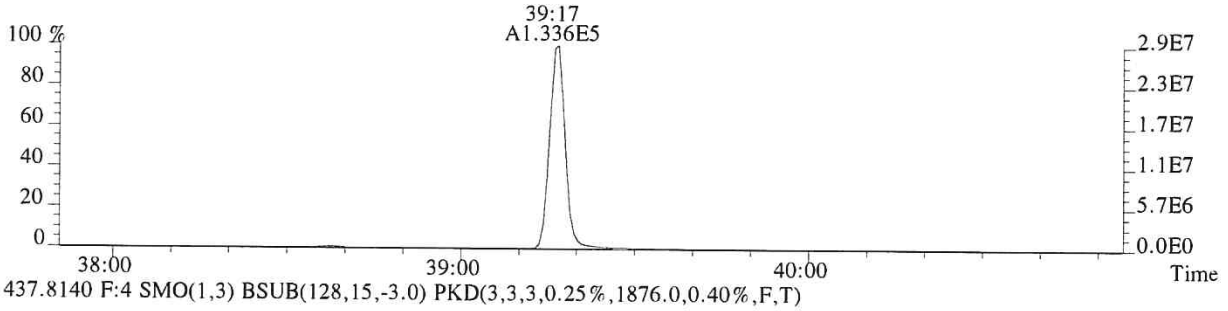
File:P614690 #1-276 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2280.0,0.40%,F,T)



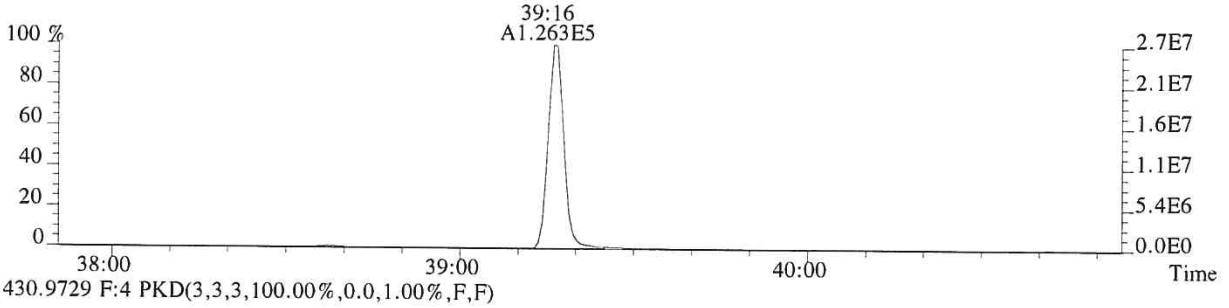
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,884.0,0.40%,F,T)



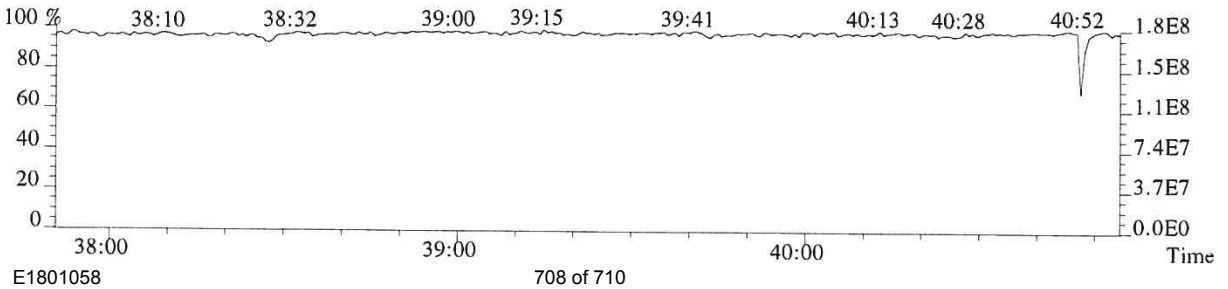
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3128.0,0.40%,F,T)



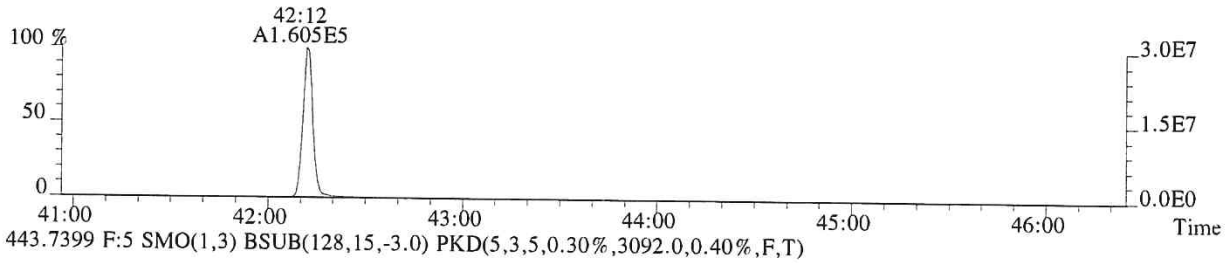
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1876.0,0.40%,F,T)



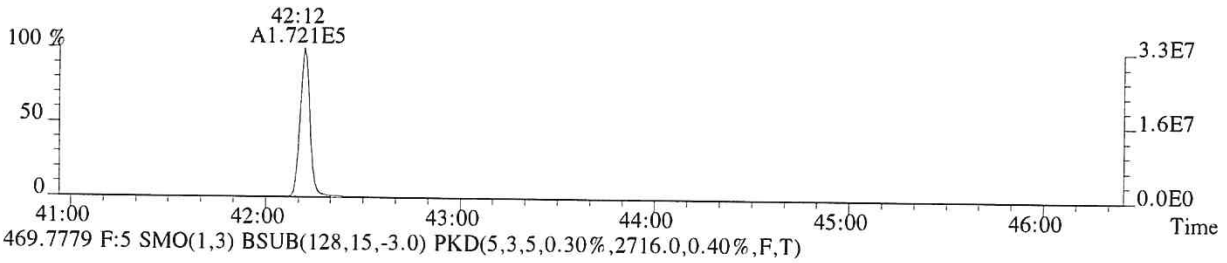
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



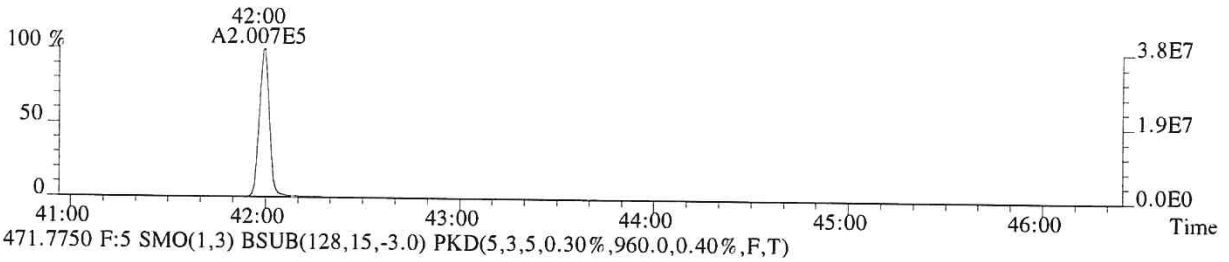
File:P614690 #1-493 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1500.0,0.40%,F,T)



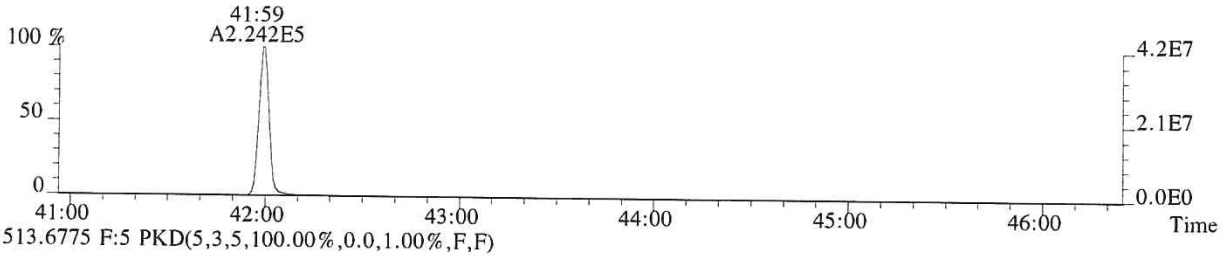
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3092.0,0.40%,F,T)



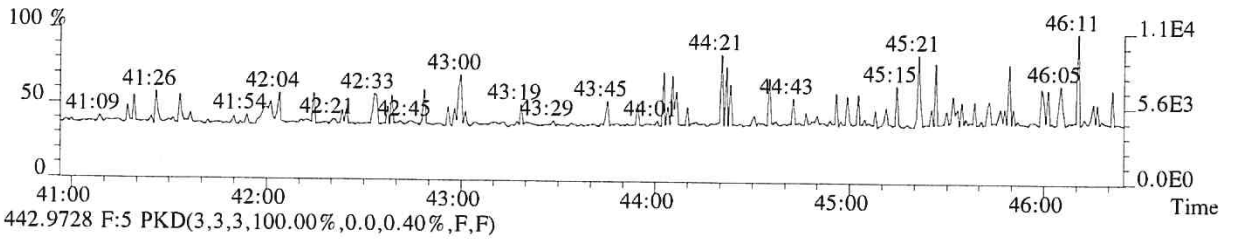
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2716.0,0.40%,F,T)



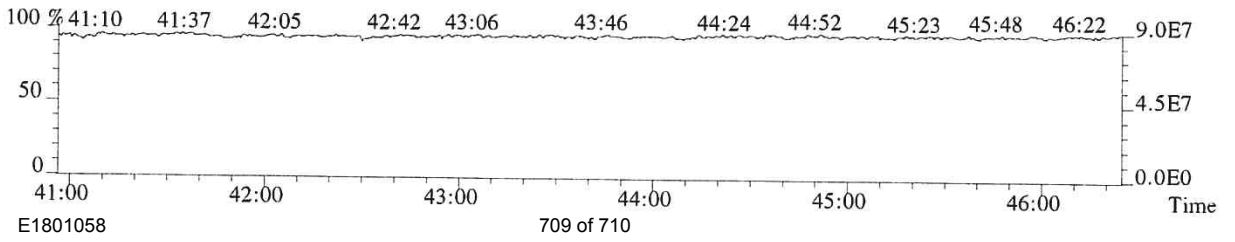
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,960.0,0.40%,F,T)



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

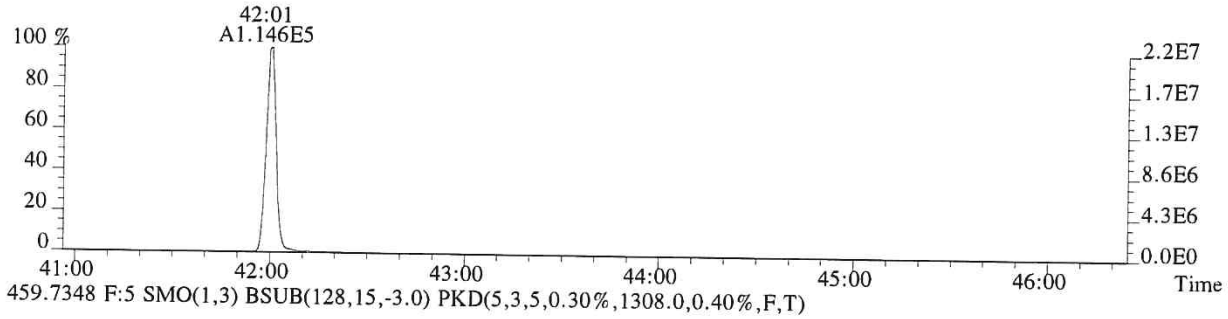


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

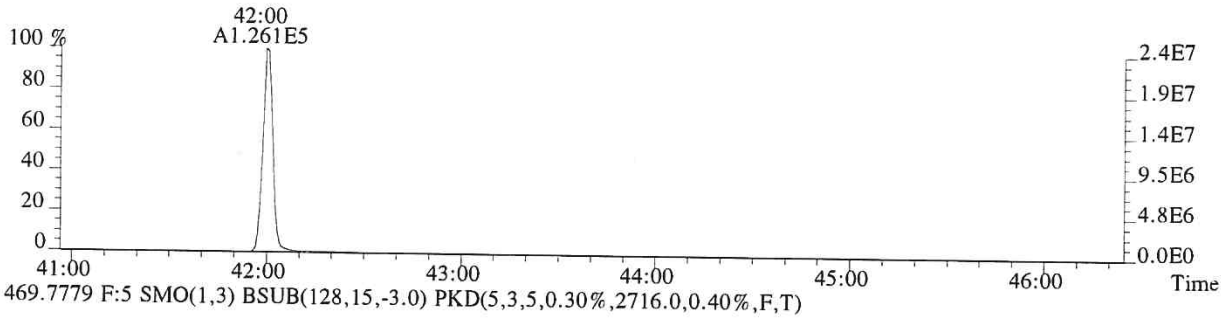


013799

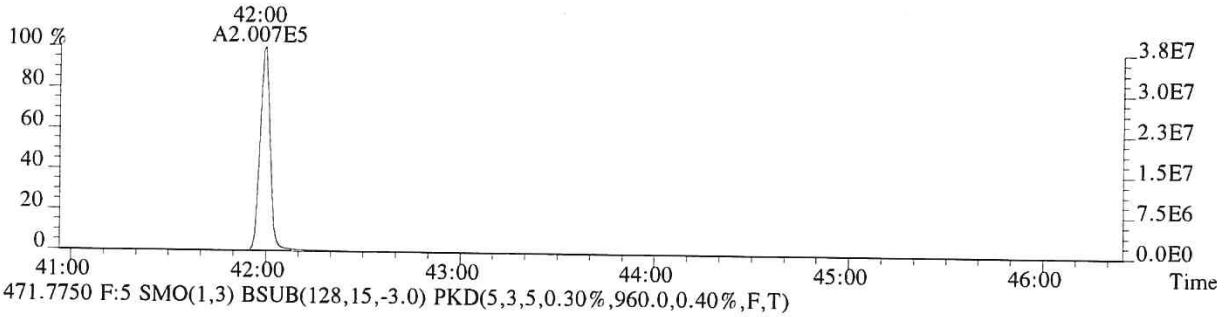
File:P614690 #1-493 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1172.0,0.40%,F,T)



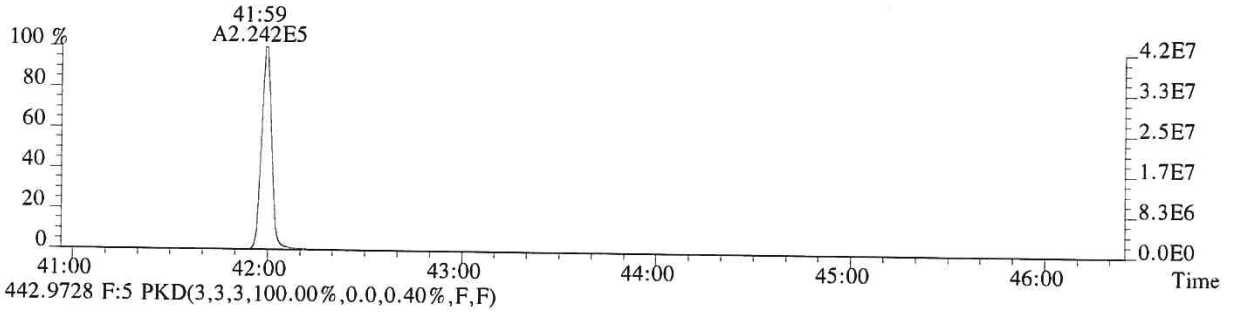
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1308.0,0.40%,F,T)



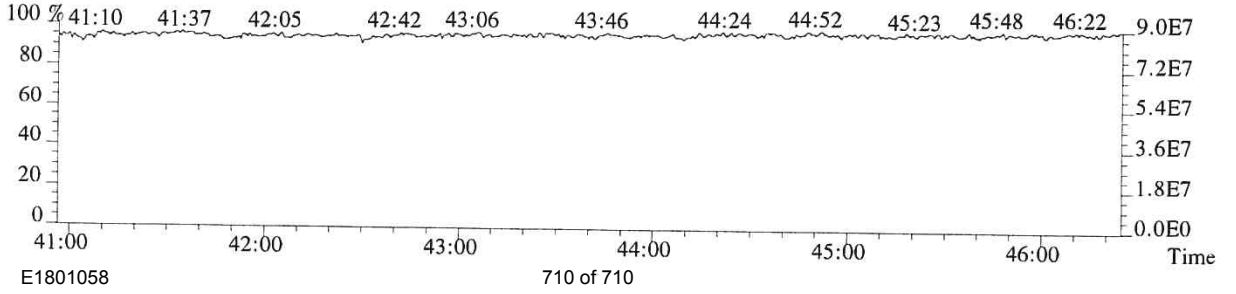
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2716.0,0.40%,F,T)



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



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



December 24, 2018 Service Request No:E1801093

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

Laboratory Results for: C1887-0501

Dear Craig,

Enclosed are the results of the sample(s) submitted to our laboratory December 07, 2018
For your reference, these analyses have been assigned our service request number **E1801093.**

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

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Kristin Brown

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

Certificate of Analysis

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

ALS Environmental

Client:	Integral	**Service Request No.:**	E1801093
Project:	SJWP		
Sample Matrix:	Sediment		

CASE NARRATIVE

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

Sample Receipt

Sample on hold originally reported on a separate ALS service request number; samples were activated and reported under E1801093.

Data Validation Notes and Discussion

Precision and Accuracy:

EQ1800507: Laboratory Control Spike/Duplicate Laboratory Control Spike (LCS/DLCS) samples were analyzed and reported in lieu of a MS/MSD for this extraction batch. The LCS and DLCS recoveries are within control limits.

B flags – Method Blanks

The Method Blank EQ1800507-01 contained low levels of target compounds above the EDL however below the Method Reporting Limit (MRL).

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

Y flag – Cleanup Standard

The recovery for the cleanup standard, 37Cl-2,3,7,8-TCDD is below control limits in sample E1801093-008. The sample results are not affected since this labeled standard is provided as a means of demonstrating that both the sample extraction and subsequent cleanup steps performed as expected, and is not used in quantitation of target analytes.

Y flags – Labeled Standards

13C-OCDD, 13C-1,2,3,4,6,7,8-HpCDF, and 13C-1,2,3,4,7,8,9-HpCDF labeled standard recoveries are below control limits in sample E1801093-016.

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.

P flags

Chlorodiphenyl ether interference was present at the retention time of the target analytes 1,2,3,7,8-PeCDF and 1,2,3,6,7,8-HxCDF in sample E1801093-007. Reported results should be considered an estimate.

E flags

When OCDD exceeds the upper method calibration limit (MCL), we use an 'E' flag on the Sample Analytical Report results page when the detector is not saturated. Samples E1801093-001, E1801093-002, and E1801093-007 are reported with an 'E' flag to denote that they had concentration greater than the highest calibration point. The process of dilution is counter to the isotopic dilution technique that the laboratory uses to determine recovery and produces variability in the final value. The laboratory only dilutes when detector saturation occurs.

2378-TCDF

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

Dilutions

Samples E1801093-003, E1801093-004, E1801093-008, E1801093-009, E1801093-013, E1801093-014, E1801093-015, and E1801093-016 had elevated levels of target analytes and required a dilution. The undiluted and diluted results were combined into one Total TEQ summary report for each sample. This reports a 'Total' result that includes the most appropriate concentration found for the associated target analyte.

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.

Manual Integrations

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

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

- WHO-2005 TEFs, The 2005 World Health Organization Reevaluation of Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-Like Compounds (M. Van den Berg et al., Toxicological Sciences 93(2):223-241, 2006)
- 2378-TCDF from the DB-225 column, when confirmation required
- Non-detected compounds are not included in the 'Total'
- The 1:1 and associated dilution have been combined into one TEQ Summary report

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

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

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E1801093-001	SL0017	11/3/2018	1515
E1801093-002	SL0018	11/3/2018	1520
E1801093-003	SL0019	11/3/2018	1525
E1801093-004	SL0020	11/3/2018	1530
E1801093-005	SL0021	11/3/2018	1535
E1801093-006	SL0023	11/3/2018	1640
E1801093-007	SL0024	11/3/2018	1645
E1801093-008	SL0025	11/3/2018	1650
E1801093-009	SL0026	11/3/2018	1700
E1801093-010	SL0027	11/3/2018	1710
E1801093-011	SL0006	11/3/2018	1120
E1801093-012	SL0007	11/3/2018	1125
E1801093-013	SL0008	11/3/2018	1130
E1801093-014	SL0009	11/3/2018	1135
E1801093-015	SL0010	11/3/2018	1140
E1801093-016	SL0001	11/3/2018	0915
E1801093-017	SL0002	11/3/2018	0920
E1801093-018	SL0003	11/3/2018	0925
E1801093-019	SL0004	11/3/2018	0930
E1801093-020	SL0005	11/3/2018	0940

Service Request Summary

Folder #: **E1801093**
Client Name: Integral Consulting, Incorporated
Project Name: C1887-0501
Project Number:

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

Project Chemist: Kristin Brown
Originating Lab: HOUSTON
Logged By: ALOPEZ
Date Received: 12/07/18
Internal Due Date: 12/21/2018
QAP: LAB QAP
Qualifier Set: HRMS Qualifier Set
Formset: Lab Standard
Merged?: N
Report to MDL?: N, Y
P.O. Number:
EDD: Integral-UCR

20 8 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved
20 4 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved
Location: EHRMS-WIC 2B
Pressure Gas:

				HOUSTON	
				Dioxins Furans/1613B	Total Solids/ALS SOP
Lab Samp No.	**Client Samp No**	**Matrix**	**Collected**		
E1801093-001	SL0017	Sediment	11/03/18 1515	**IV**	**IV**
E1801093-002	SL0018	Sediment	11/03/18 1520	**IV**	**IV**
E1801093-003	SL0019	Sediment	11/03/18 1525	**IV**	**IV**
E1801093-004	SL0020	Sediment	11/03/18 1530	**IV**	**IV**
E1801093-005	SL0021	Sediment	11/03/18 1535	**IV**	**IV**
E1801093-006	SL0023	Sediment	11/03/18 1640	**IV**	**IV**
E1801093-007	SL0024	Sediment	11/03/18 1645	**IV**	**IV**
E1801093-008	SL0025	Sediment	11/03/18 1650	**IV**	**IV**
E1801093-009	SL0026	Sediment	11/03/18 1700	**IV**	**IV**
E1801093-010	SL0027	Sediment	11/03/18 1710	**IV**	**IV**
E1801093-011	SL0006	Sediment	11/03/18 1120	**IV**	**IV**
E1801093-012	SL0007	Sediment	11/03/18 1125	**IV**	**IV**
E1801093-013	SL0008	Sediment	11/03/18 1130	**IV**	**IV**
E1801093-014	SL0009	Sediment	11/03/18 1135	**IV**	**IV**
E1801093-015	SL0010	Sediment	11/03/18 1140	**IV**	**IV**
E1801093-016	SL0001	Sediment	11/03/18 0915	**IV**	**IV**

Service Request Summary

Folder #: **E1801093**
Client Name: Integral Consulting, Incorporated
Project Name: C1887-0501
Project Number:

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

Project Chemist: Kristin Brown
Originating Lab: HOUSTON
Logged By: ALOPEZ
Date Received: 12/07/18
Internal Due Date: 12/21/2018
QAP: LAB QAP
Qualifier Set: HRMS Qualifier Set
Formset: Lab Standard
Merged?: N
Report to MDL?: N, Y
P.O. Number:
EDD: Integral-UCR

20 8 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved
20 4 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved
Location: EHRMS-WIC 2B
Pressure Gas:

				HOUSTON	
Lab Samp No.	**Client Samp No**	**Matrix**	**Collected**	Dioxins Furans/1613B	Total Solids/ALS SOP
E1801093-017	SL0002	Sediment	11/03/18 0920	**IV**	**IV**
E1801093-018	SL0003	Sediment	11/03/18 0925	**IV**	**IV**
E1801093-019	SL0004	Sediment	11/03/18 0930	**IV**	**IV**
E1801093-020	SL0005	Sediment	11/03/18 0940	**IV**	**IV**

Service Request Summary

Folder #:	**E1801093**
Client Name:	Integral Consulting, Incorporated
Project Name:	C1887-0501
Project Number:	

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

Project Chemist:	Kristin Brown
Originating Lab:	HOUSTON
Logged By:	ALOPEZ
Date Received:	12/07/18
Internal Due Date:	12/21/2018
QAP:	LAB QAP
Qualifier Set:	HRMS Qualifier Set
Formset:	Lab Standard
Merged?:	N
Report to MDL?:	N, Y
P.O. Number:	
EDD:	Integral-UCR

20 8 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved
20 4 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved

Location: EHRMS-WIC 2B

Pressure Gas:

Superset Summary

Service Request: E1801093 **SuperSet Reference:** 18-0000491610 rev 00

Analytical Method: **1613B**

Calibrations: 01/24/18

Data Files:

Raw Data	Begin CCAL	Method Blank	Lab ID
P519423	P519419	P616103	E1801093-001
P519424	P519419	P616103	E1801093-002
P519425	P519419	P616103	E1801093-003.R01
P519527	P519519	P616103	E1801093-003
P519426	P519419	P616103	E1801093-004.R01
P519528	P519519	P616103	E1801093-004
P519427	P519419	P616103	E1801093-005
P519498	P519494	P616103	E1801093-006
P519429	P519419	P616103	E1801093-007
P519430	P519419	P616103	E1801093-008.R01
P519529	P519519	P616103	E1801093-008
P519431	P519419	P616103	E1801093-009.R01
P519530	P519519	P616103	E1801093-009
P519438	P519435	P616103	E1801093-010
P519439	P519435	P616103	E1801093-011
P519440	P519435	P616103	E1801093-012
P519441	P519435	P616103	E1801093-013.R01
P519535	P519532	P616103	E1801093-013
P519442	P519435	P616103	E1801093-014.R01
P519536	P519532	P616103	E1801093-014
P519443	P519435	P616103	E1801093-015.R01
P519537	P519532	P616103	E1801093-015
P519499	P519494	P616103	E1801093-016.R01
P519538	P519532	P616103	E1801093-016
P519445	P519435	P616103	E1801093-017
P519446	P519435	P616103	E1801093-018
P519447	P519435	P616103	E1801093-019
P519448	P519435	P616103	E1801093-020
P519432	P519419	P616103	EQ1800507-02
P519433	P519419	P616103	EQ1800507-03

Calibrations: 09/25/18

Data Files:

Raw Data	Begin CCAL	Method Blank	Lab ID
P616103	P616100	P616103	EQ1800507-01

Data Qualifiers

HRMS Qualifier Set

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

Acronyms

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

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

SR# Unique ID: E1801093 | DB-5MSUI | SPB-Octyl

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

Date:	Analyst:	Samples:
12/18/18	[signature]	001-005, 007-009

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

Date:	Analyst:	Samples:
12/20/18	[signature]	001-005, 007-009

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

SR# Unique ID: E1801093 (DB-5MSUI) SPB-Octyl

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

Date:	Analyst:	Samples:
12/20/18	LKL	006, 016

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

Date:	Analyst:	Samples:
12/20/18	KW	006, 016

HS-HRMSREVIEW R1.0

PEER REVIEW PAGE2015

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

SR# Unique ID: E1801093 (DB-5MSUI) SPB-Octyl

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

Date:	Analyst:	Samples:
12/19/18	LKL	010_015, 017_020

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

Date:	Analyst:	Samples:
12/19/18	KW	010-015, 017-020

HS-HRMSREVIEW R1.0

PEER REVIEW PAGE2015

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

SR# Unique ID: E1801093 | DB-5MSUI | SPB-Octyl

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

Date:	Analyst:	Samples:
12/21/18	LKL	003DL, 004DL, 008DL, 009DL

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

Date:	Analyst:	Samples:
12/21/18	WJ	003DL, 004DL, 008DL, 009DL

HS-HRMSREVIEW R1.0

PEER REVIEW PAGE2015

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

SR# Unique ID: E1801093 (DB-5MSUI) SPB-Octyl

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

Date:	Analyst:	Samples:
12/24/18	LKL	013DL - 016DL

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

Date:	Analyst:	Samples:
12/24/18	LG	013D - 016DL

HS-HRMSREVIEW R1.0

PEER REVIEW PAGE2015

Chain of Custody

ALS Environmental - Houston HRMS
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SAMPLE ACCEPTANCE POLICY

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

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

- ✓ Intact on outside of cooler, signed and dated

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

The following is required on each COC:

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

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

Sample Integrity (mandatory):

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

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

Temperature Requirement (varies by sample matrix):

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

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

Preparation Information Benchsheets

ALS Environmental - Houston HRMS
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Preparation Information Benchsheet

Prep Run#: 328037 **Prep WorkFlow:** OrgExtS(365) **Status:** Prepped
Team: Semivoa GCMS/ALOPEZ **Prep Method:** Method Soxhlet **Prep Date/Time:** 12/11/18 10:30 AM

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E1801093-001	SL0017	.01	1613B/Dioxins Furans			Sediment	10.357g	Brown Dirt + Rocks
2	E1801093-002	SL0018	.01	1613B/Dioxins Furans			Sediment	10.441g	Brown Mud
3	E1801093-003	SL0019	.01	1613B/Dioxins Furans			Sediment	10.793g	Brown Mud
4	E1801093-004	SL0020	.01	1613B/Dioxins Furans			Sediment	10.332g	Brown Mud
5	E1801093-005	SL0021	.01	1613B/Dioxins Furans			Sediment	10.535g	Brown Mud
6	E1801093-006	SL0023	.01	1613B/Dioxins Furans			Sediment	10.729g	Brown Mud + Rocks
7	E1801093-007	SL0024	.01	1613B/Dioxins Furans			Sediment	10.300g	Brown Mud
8	E1801093-008	SL0025	.01	1613B/Dioxins Furans			Sediment	10.758g	Brown Mud
9	E1801093-009	SL0026	.01	1613B/Dioxins Furans			Sediment	10.779g	Brown Mud
10	E1801093-010	SL0027	.01	1613B/Dioxins Furans			Sediment	10.141g	Brown Mud
11	E1801093-011	SL0006	.01	1613B/Dioxins Furans			Sediment	10.566g	Brown Dirt + Grass
12	E1801093-012	SL0007	.01	1613B/Dioxins Furans			Sediment	10.237g	Black Mud + Mulch
13	E1801093-013	SL0008	.01	1613B/Dioxins Furans			Sediment	10.229g	Brown Mud
14	E1801093-014	SL0009	.01	1613B/Dioxins Furans			Sediment	10.399g	Brown Mud
15	E1801093-015	SL0010	.01	1613B/Dioxins Furans			Sediment	10.610g	Brown Mud
16	E1801093-016	SL0001	.01	1613B/Dioxins Furans			Sediment	10.064g	Brown Dirt + Grass
17	E1801093-017	SL0002	.01	1613B/Dioxins Furans			Sediment	10.603g	Brown Mud
18	E1801093-018	SL0003	.01	1613B/Dioxins Furans			Sediment	10.705g	Brown Mud
19	E1801093-019	SL0004	.01	1613B/Dioxins Furans			Sediment	10.072g	Brown Mud
20	E1801093-020	SL0005	.01	1613B/Dioxins Furans			Sediment	10.803g	Brown Mud
21	EQ1800507-01	MB		1613B/Dioxins Furans			Solid	10.249g	
22	EQ1800507-02	LCS		1613B/Dioxins Furans			Solid	10.203g	
23	EQ1800507-03	DLCS		1613B/Dioxins Furans			Solid	10.185g	

Spiking Solutions

Name: 1613B Labeled Working Standard Inventory ID 195562 Logbook Ref: 195562 AL 12/11/18 2-4 ng/mL Expires On: 01/31/2019

E1801093-001	1,000.00µL	E1801093-002	1,000.00µL	E1801093-003	1,000.00µL	E1801093-004	1,000.00µL	E1801093-005	1,000.00µL	E1801093-006	1,000.00µL
E1801093-007	1,000.00µL	E1801093-008	1,000.00µL	E1801093-009	1,000.00µL	E1801093-010	1,000.00µL	E1801093-011	1,000.00µL	E1801093-012	1,000.00µL
E1801093-013	1,000.00µL	E1801093-014	1,000.00µL	E1801093-015	1,000.00µL	E1801093-016	1,000.00µL	E1801093-017	1,000.00µL	E1801093-018	1,000.00µL
E1801093-019	1,000.00µL	E1801093-020	1,000.00µL	EQ1800507-01	1,000.00µL	EQ1800507-02	1,000.00µL	EQ1800507-03	1,000.00µL		

Name: 1613B Matrix Working Standard Inventory ID 195564 Logbook Ref: 195564 AL 12/11/18 2-20 ng/mL Expires On: 06/09/2019

EQ1800507-02	100.00µL	EQ1800507-03	100.00µL

Preparation Information Benchsheet

Prep Run#: 328037 **Prep WorkFlow:** OrgExtS(365) **Status:** Prepped
Team: Semivoa GCMS/ALOPEZ **Prep Method:** Method Soxhlet **Prep Date/Time:** 12/11/18 10:30 AM

Name:	8290/1613B Cleanup Working Standard	Inventory ID	195630	Logbook Ref:	195630 tw012/14/18 8ng/ml	Expires On:	04/27/2019

E1801093-001	100.00µL	E1801093-002	100.00µL	E1801093-003	100.00µL	E1801093-004	100.00µL	E1801093-005	100.00µL	E1801093-006	100.00µL
E1801093-007	100.00µL	E1801093-008	100.00µL	E1801093-009	100.00µL	E1801093-010	100.00µL	E1801093-011	100.00µL	E1801093-012	100.00µL
E1801093-013	100.00µL	E1801093-014	100.00µL	E1801093-015	100.00µL	E1801093-016	100.00µL	E1801093-017	100.00µL	E1801093-018	100.00µL
E1801093-019	100.00µL	E1801093-020	100.00µL	EQ1800507-01	100.00µL	EQ1800507-02	100.00µL	EQ1800507-03	100.00µL		

Preparation Materials

Carbon, High Purity	12/7/18 carbon tw (195519)	Ethyl Acetate 99.9% Minimum EtOAc	tw ethyl acet 080218 (192158)	Glass Wool	112018 tw glasswool (195079)
Hexanes 95%	AL 11/16/18 (195004)	Dichloromethane (Methylene Chloride) 99.9% MeCl2	AL (195005)	Sodium Hydroxide 1N NaOH	TW 6/14/18 (191093)
Sodium Sulfate Anhydrous Reagent Grade Na2SO4	AL 10/12/18 (194060)	Tridecane (n-Tridecane)	AL 10/23/18 (194374)	Silica Gel	AL 10/11/18 (194005)
sulfuric acid	AL 10/11/18 (194007)	Toluene 99.9% Minimum	AL 11/16/18 (195003)		

Preparation Steps

Step:	Extraction	Step:	Acid Clean	Step:	Silica Gel Clean	Step:	Final Volume
Started:	12/11/18 10:30	Started:	12/14/18 12:00	Started:	12/14/18 14:00	Started:	12/17/18 09:00
Finished:	12/12/18 07:30	Finished:	12/14/18 13:00	Finished:	12/14/18 17:00	Finished:	12/17/18 12:00
By:	ALOPEZ	By:	ALOPEZ	By:	ALOPEZ	By:	ALOPEZ
Comments		Comments		Comments		Comments	

Comments: _____

Reviewed By: AL Date: _____

Chain of Custody

Relinquished By: _____ Date: _____ Extracts Examined

Received By: _____ Date: _____ Yes No

Analytical Results

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Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 15:15
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0017	**Units:**	ng/Kg
Lab Code:	E1801093-001	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/14/18 18:18
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.357g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519423	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519419

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	5.15		0.645	0.645	0.71	1.001	1
1,2,3,7,8-PeCDD	1.47**J**		0.180	2.85	1.60	1.001	1
1,2,3,4,7,8-HxCDD	2.28**J**		0.254	2.85	1.20	1.000	1
1,2,3,6,7,8-HxCDD	8.73		0.283	2.85	1.22	1.000	1
1,2,3,7,8,9-HxCDD	5.04		0.262	2.85	1.19	1.007	1
1,2,3,4,6,7,8-HpCDD	255		1.21	2.85	1.04	1.000	1
OCDD	4840**E**		0.238	5.71	0.90	1.000	1
2,3,7,8-TCDF	10.8		0.221	0.571	0.68	1.001	1
1,2,3,7,8-PeCDF	1.04**J**		0.494	2.85	1.65	1.001	1
2,3,4,7,8-PeCDF	0.733**JK**		0.530	2.85	1.90	0.997	1
1,2,3,4,7,8-HxCDF	3.10		0.238	2.85	1.25	1.000	1
1,2,3,6,7,8-HxCDF	2.04**JK**		0.223	2.85	1.01	1.000	1
1,2,3,7,8,9-HxCDF	0.780**JK**		0.234	2.85	1.01	1.001	1
2,3,4,6,7,8-HxCDF	2.96		0.249	2.85	1.30	1.000	1
1,2,3,4,6,7,8-HpCDF	34.6		0.280	2.85	1.03	1.000	1
1,2,3,4,7,8,9-HpCDF	1.83**JK**		0.367	2.85	1.23	1.000	1
OCDF	118		0.387	5.71	0.84	1.004	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 15:15
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0017	**Units:**	ng/Kg
Lab Code:	E1801093-001	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/14/18 18:18
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.357g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519423	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519419

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	5.15		0.645	0.645	0.71		1
Total Penta-Dioxins	9.16		0.180	2.85	1.57		1
Total Hexa-Dioxins	106		0.266	2.85	1.30		1
Total Hepta-Dioxins	800		1.21	2.85	1.04		1
Total Tetra-Furans	14.1		0.221	0.571	0.79		1
Total Penta-Furans	25.9		0.0715	2.85	1.58		1
Total Hexa-Furans	30.0		0.235	2.85	1.07		1
Total Hepta-Furans	106		0.320	2.85	1.03		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 15:15
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0017	**Units:**	Percent
Lab Code:	E1801093-001	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/14/18 18:18
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.357g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519423	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519419

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	885.469	44		25-164	0.76	1.023
13C-1,2,3,7,8-PeCDD	2000	1486.147	74		25-181	1.56	1.206
13C-1,2,3,4,7,8-HxCDD	2000	1307.467	65		32-141	1.24	0.990
13C-1,2,3,6,7,8-HxCDD	2000	1237.093	62		28-130	1.25	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1614.470	81		23-140	1.06	1.070
13C-OCDD	4000	2320.542	58		17-157	0.90	1.149
13C-2,3,7,8-TCDF	2000	1210.840	61		24-169	0.80	0.990
13C-1,2,3,7,8-PeCDF	2000	1385.912	69		24-185	1.56	1.160
13C-2,3,4,7,8-PeCDF	2000	1327.705	66		21-178	1.61	1.195
13C-1,2,3,4,7,8-HxCDF	2000	1057.635	53		26-152	0.51	0.968
13C-1,2,3,6,7,8-HxCDF	2000	1154.245	58		26-123	0.52	0.972
13C-1,2,3,7,8,9-HxCDF	2000	1257.807	63		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1106.830	55		28-136	0.52	0.986
13C-1,2,3,4,6,7,8-HpCDF	2000	1143.212	57		28-143	0.44	1.044
13C-1,2,3,4,7,8,9-HpCDF	2000	1295.575	65		26-138	0.43	1.083
37Cl-2,3,7,8-TCDD	800	519.016	65		35-197	NA	1.023

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 15:15
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0017	**Units:**	ng/Kg
Lab Code:	E1801093-001	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**5.15**	0.645	0.645	1	1	5.15
1,2,3,7,8-PeCDD	**1.47**	0.180	2.85	1	1	1.47
1,2,3,4,7,8-HxCDD	**2.28**	0.254	2.85	1	0.1	0.228
1,2,3,6,7,8-HxCDD	**8.73**	0.283	2.85	1	0.1	0.873
1,2,3,7,8,9-HxCDD	**5.04**	0.262	2.85	1	0.1	0.504
1,2,3,4,6,7,8-HpCDD	**255**	1.21	2.85	1	0.01	2.55
OCDD	**4840**	0.238	5.71	1	0.0003	1.45
2,3,7,8-TCDF	**10.8**	0.221	0.571	1	0.1	1.08
1,2,3,7,8-PeCDF	**1.04**	0.494	2.85	1	0.03	0.0312
2,3,4,7,8-PeCDF	**0.733**	0.530	2.85	1	0.3	0.220
1,2,3,4,7,8-HxCDF	**3.10**	0.238	2.85	1	0.1	0.310
1,2,3,6,7,8-HxCDF	**2.04**	0.223	2.85	1	0.1	0.204
1,2,3,7,8,9-HxCDF	**0.780**	0.234	2.85	1	0.1	0.0780
2,3,4,6,7,8-HxCDF	**2.96**	0.249	2.85	1	0.1	0.296
1,2,3,4,6,7,8-HpCDF	**34.6**	0.280	2.85	1	0.01	0.346
1,2,3,4,7,8,9-HpCDF	**1.83**	0.367	2.85	1	0.01	0.0183
OCDF	**118**	0.387	5.71	1	0.0003	0.0354
		Total TEQ				14.8

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 15:15
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0017	**Units:**	Percent
Lab Code:	E1801093-001	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/14/18 15:21
	7.918g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	84.6		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 15:20
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0018	**Units:**	ng/Kg
Lab Code:	E1801093-002	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/14/18 19:06
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.441g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519424	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519419

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	3.35	**K**	0.544	0.671	0.91	1.001	1
1,2,3,7,8-PeCDD	5.18		0.880	3.35	1.53	1.001	1
1,2,3,4,7,8-HxCDD	7.93		1.42	3.35	1.13	1.001	1
1,2,3,6,7,8-HxCDD	47.1		1.53	3.35	1.16	1.000	1
1,2,3,7,8,9-HxCDD	19.6		1.44	3.35	1.16	1.007	1
1,2,3,4,6,7,8-HpCDD	1250		0.194	3.35	1.06	1.000	1
OCDD	25500	**E**	0.355	6.71	0.89	1.000	1
2,3,7,8-TCDF	14.2		0.329	0.671	0.83	1.001	1
1,2,3,7,8-PeCDF	3.07	**JK**	1.92	3.35	2.05	1.001	1
2,3,4,7,8-PeCDF	17.8		2.00	3.35	1.42	1.001	1
1,2,3,4,7,8-HxCDF	17.1		0.686	3.35	1.22	1.000	1
1,2,3,6,7,8-HxCDF	11.5		0.673	3.35	1.20	1.000	1
1,2,3,7,8,9-HxCDF	2.03	**JK**	0.753	3.35	1.56	1.001	1
2,3,4,6,7,8-HxCDF	20.7		0.691	3.35	1.05	1.000	1
1,2,3,4,6,7,8-HpCDF	216		1.92	3.35	1.00	1.000	1
1,2,3,4,7,8,9-HpCDF	13.4		2.42	3.35	1.09	1.000	1
OCDF	338		0.332	6.71	0.89	1.004	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 15:20
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0018	**Units:**	ng/Kg
Lab Code:	E1801093-002	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/14/18 19:06
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.441g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519424	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519419

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	15.8		0.544	0.671	0.82		1
Total Penta-Dioxins	46.9		0.880	3.35	1.65		1
Total Hexa-Dioxins	424		1.46	3.35	1.25		1
Total Hepta-Dioxins	2990		0.194	3.35	1.05		1
Total Tetra-Furans	93.2		0.329	0.671	0.75		1
Total Penta-Furans	168		0.0840	3.35	1.46		1
Total Hexa-Furans	335		0.700	3.35	1.39		1
Total Hepta-Furans	663		2.15	3.35	1.00		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 15:20
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0018	**Units:**	Percent
Lab Code:	E1801093-002	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/14/18 19:06
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.441g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519424	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519419

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	905.070	45		25-164	0.80	1.023
13C-1,2,3,7,8-PeCDD	2000	1503.752	75		25-181	1.60	1.207
13C-1,2,3,4,7,8-HxCDD	2000	1277.886	64		32-141	1.24	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1265.916	63		28-130	1.28	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1574.858	79		23-140	1.04	1.071
13C-OCDD	4000	2327.718	58		17-157	0.93	1.149
13C-2,3,7,8-TCDF	2000	1219.562	61		24-169	0.80	0.990
13C-1,2,3,7,8-PeCDF	2000	1399.919	70		24-185	1.61	1.160
13C-2,3,4,7,8-PeCDF	2000	1365.192	68		21-178	1.58	1.195
13C-1,2,3,4,7,8-HxCDF	2000	1059.233	53		26-152	0.52	0.969
13C-1,2,3,6,7,8-HxCDF	2000	1092.199	55		26-123	0.51	0.973
13C-1,2,3,7,8,9-HxCDF	2000	1228.615	61		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1131.373	57		28-136	0.51	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1140.479	57		28-143	0.44	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	1274.522	64		26-138	0.43	1.083
37Cl-2,3,7,8-TCDD	800	533.731	67		35-197	NA	1.024

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 15:20
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0018	**Units:**	ng/Kg
Lab Code:	E1801093-002	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**3.35**	0.544	0.671	1	1	3.35
1,2,3,7,8-PeCDD	**5.18**	0.880	3.35	1	1	5.18
1,2,3,4,7,8-HxCDD	**7.93**	1.42	3.35	1	0.1	0.793
1,2,3,6,7,8-HxCDD	**47.1**	1.53	3.35	1	0.1	4.71
1,2,3,7,8,9-HxCDD	**19.6**	1.44	3.35	1	0.1	1.96
1,2,3,4,6,7,8-HpCDD	**1250**	0.194	3.35	1	0.01	12.5
OCDD	**25500**	0.355	6.71	1	0.0003	7.65
2,3,7,8-TCDF	**14.2**	0.329	0.671	1	0.1	1.42
1,2,3,7,8-PeCDF	**3.07**	1.92	3.35	1	0.03	0.0921
2,3,4,7,8-PeCDF	**17.8**	2.00	3.35	1	0.3	5.34
1,2,3,4,7,8-HxCDF	**17.1**	0.686	3.35	1	0.1	1.71
1,2,3,6,7,8-HxCDF	**11.5**	0.673	3.35	1	0.1	1.15
1,2,3,7,8,9-HxCDF	**2.03**	0.753	3.35	1	0.1	0.203
2,3,4,6,7,8-HxCDF	**20.7**	0.691	3.35	1	0.1	2.07
1,2,3,4,6,7,8-HpCDF	**216**	1.92	3.35	1	0.01	2.16
1,2,3,4,7,8,9-HpCDF	**13.4**	2.42	3.35	1	0.01	0.134
OCDF	**338**	0.332	6.71	1	0.0003	0.101
		Total TEQ				50.5

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 15:20
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0018	**Units:**	Percent
Lab Code:	E1801093-002	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/14/18 15:21
	6.747g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	71.4		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 15:25
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0019	**Units:**	ng/Kg
Lab Code:	E1801093-003	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/20/18 22:13
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.793g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519527	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519519

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	4820		39.1	39.1	0.77	1.001	20
1,2,3,7,8-PeCDD	33.3**JK**		6.38	65.4	1.89	1.001	20
1,2,3,4,7,8-HxCDD	ND	U	12.3	65.4			20
1,2,3,6,7,8-HxCDD	14.1**JK**		8.08	65.4	0.66	1.000	20
1,2,3,7,8,9-HxCDD	11.9**JK**		9.13	65.4	2.59	1.007	20
1,2,3,4,6,7,8-HpCDD	219		4.60	65.4	1.17	1.000	20
OCDD	4560		15.5	131	0.87	1.000	20
2,3,7,8-TCDF	8080		13.8	13.8	0.73	1.001	20
1,2,3,7,8-PeCDF	228		6.42	65.4	1.49	1.000	20
2,3,4,7,8-PeCDF	195		7.06	65.4	1.44	1.001	20
1,2,3,4,7,8-HxCDF	499		5.83	65.4	1.15	1.000	20
1,2,3,6,7,8-HxCDF	124		5.99	65.4	1.30	1.000	20
1,2,3,7,8,9-HxCDF	59.9**J**		7.64	65.4	1.07	1.001	20
2,3,4,6,7,8-HxCDF	52.3**J**		6.33	65.4	1.30	1.000	20
1,2,3,4,6,7,8-HpCDF	140		6.05	65.4	1.06	1.000	20
1,2,3,4,7,8,9-HpCDF	59.3**JK**		8.92	65.4	0.84	1.000	20
OCDF	278		21.2	131	1.01	1.004	20

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 15:25
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0019	**Units:**	ng/Kg
Lab Code:	E1801093-003	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/20/18 22:13
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.793g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519527	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519519

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	5310		39.1	39.1	0.77		20
Total Penta-Dioxins	20.6	**J**	6.38	65.4	1.58		20
Total Hexa-Dioxins	152		9.00	65.4	1.33		20
Total Hepta-Dioxins	219		4.60	65.4	1.17		20
Total Tetra-Furans	14500		13.8	13.8	0.69		20
Total Penta-Furans	560		6.82	65.4	1.54		20
Total Hexa-Furans	732		5.99	65.4	1.42		20
Total Hepta-Furans	214		6.98	65.4	1.06		20

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 15:25
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0019	**Units:**	ng/Kg
Lab Code:	E1801093-003	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/14/18 19:54
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.793g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519425	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519419

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	2240	**E**	0.916	0.916	0.79	1.001	1
1,2,3,7,8-PeCDD	15.7		0.345	3.27	1.60	1.001	1
1,2,3,4,7,8-HxCDD	0.941	**JK**	0.347	3.27	1.49	1.000	1
1,2,3,6,7,8-HxCDD	4.77	**K**	0.385	3.27	1.46	1.000	1
1,2,3,7,8,9-HxCDD	2.36	**JK**	0.357	3.27	1.57	1.007	1
1,2,3,4,6,7,8-HpCDD	145		1.03	3.27	1.04	1.000	1
OCDD	3300		0.574	6.54	0.89	1.000	1
2,3,7,8-TCDF	4480	**E**	0.283	0.654	0.77	1.001	1
1,2,3,7,8-PeCDF	139		0.482	3.27	1.54	1.000	1
2,3,4,7,8-PeCDF	115		0.501	3.27	1.50	1.000	1
1,2,3,4,7,8-HxCDF	241		0.436	3.27	1.23	1.000	1
1,2,3,6,7,8-HxCDF	57.6		0.439	3.27	1.18	1.000	1
1,2,3,7,8,9-HxCDF	16.6		0.493	3.27	1.25	1.001	1
2,3,4,6,7,8-HxCDF	12.1		0.457	3.27	1.29	1.000	1
1,2,3,4,6,7,8-HpCDF	77.6		0.472	3.27	1.01	1.000	1
1,2,3,4,7,8,9-HpCDF	24.4		0.636	3.27	0.98	1.000	1
OCDF	142		0.267	6.54	0.83	1.004	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 15:25
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0019	**Units:**	ng/Kg
Lab Code:	E1801093-003	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/14/18 19:54
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.793g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519425	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519419

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	2500		0.916	0.916	0.80		1
Total Penta-Dioxins	28.3		0.345	3.27	1.68		1
Total Hexa-Dioxins	84.3		0.363	3.27	1.30		1
Total Hepta-Dioxins	357		1.03	3.27	1.04		1
Total Tetra-Furans	8550		0.283	0.654	0.72		1
Total Penta-Furans	390		0.0820	3.27	1.48		1
Total Hexa-Furans	368		0.455	3.27	1.18		1
Total Hepta-Furans	157		0.547	3.27	1.01		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 15:25
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0019	**Units:**	Percent
Lab Code:	E1801093-003	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/14/18 19:54
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.793g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519425	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519419

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	1006.333	50		25-164	0.77	1.023
13C-1,2,3,7,8-PeCDD	2000	1645.898	82		25-181	1.60	1.206
13C-1,2,3,4,7,8-HxCDD	2000	1411.293	71		32-141	1.36	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1347.555	67		28-130	1.21	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1685.150	84		23-140	1.08	1.071
13C-OCDD	4000	2457.987	61		17-157	0.88	1.148
13C-2,3,7,8-TCDF	2000	1359.746	68		24-169	0.80	0.990
13C-1,2,3,7,8-PeCDF	2000	1550.518	78		24-185	1.57	1.159
13C-2,3,4,7,8-PeCDF	2000	1513.786	76		21-178	1.58	1.195
13C-1,2,3,4,7,8-HxCDF	2000	1140.288	57		26-152	0.50	0.969
13C-1,2,3,6,7,8-HxCDF	2000	1193.610	60		26-123	0.51	0.973
13C-1,2,3,7,8,9-HxCDF	2000	1313.595	66		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1206.668	60		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1232.139	62		28-143	0.44	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	1354.148	68		26-138	0.45	1.083
37Cl-2,3,7,8-TCDD	800	619.631	77		35-197	NA	1.024

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 15:25
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0019	**Units:**	Percent
Lab Code:	E1801093-003	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/20/18 22:13
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.793g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519527	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519519

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	4000	1401.494	35		25-164	0.80	1.024
13C-1,2,3,7,8-PeCDD	2440	2152.193	88		25-181	1.57	1.209
13C-1,2,3,4,7,8-HxCDD	2820	873.944	31	Y	32-141	1.10	0.990
13C-1,2,3,6,7,8-HxCDD	2990	1962.551	66		28-130	1.36	0.993
13C-1,2,3,4,6,7,8-HpCDD	2380	2511.023	105		23-140	1.05	1.073
13C-OCDD	6560	4580.677	70		17-157	0.90	1.156
13C-2,3,7,8-TCDF	2940	1780.810	61		24-169	0.77	0.990
13C-1,2,3,7,8-PeCDF	2560	2052.243	80		24-185	1.61	1.163
13C-2,3,4,7,8-PeCDF	2630	1951.333	74		21-178	1.62	1.198
13C-1,2,3,4,7,8-HxCDF	3510	1729.403	49		26-152	0.52	0.968
13C-1,2,3,6,7,8-HxCDF	3330	1775.162	53		26-123	0.51	0.971
13C-1,2,3,7,8,9-HxCDF	3030	1843.503	61		29-147	0.50	1.008
13C-2,3,4,6,7,8-HxCDF	3330	1877.377	56		28-136	0.51	0.986
13C-1,2,3,4,6,7,8-HpCDF	3230	2064.927	64		28-143	0.43	1.046
13C-1,2,3,4,7,8,9-HpCDF	2940	2069.787	70		26-138	0.47	1.086
37Cl-2,3,7,8-TCDD	40.0	53.369	133		35-197	NA	1.025

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 15:25
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0019	**Units:**	ng/Kg
Lab Code:	E1801093-003	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**2240**	0.916	0.916	1	1	2240
2,3,7,8-TCDD	**4820**	39.1	39.1	20	1	4820
1,2,3,7,8-PeCDD	**15.7**	0.345	3.27	1	1	15.7
1,2,3,4,7,8-HxCDD	**0.941**	0.347	3.27	1	0.1	0.0941
1,2,3,6,7,8-HxCDD	**4.77**	0.385	3.27	1	0.1	0.477
1,2,3,7,8,9-HxCDD	**2.36**	0.357	3.27	1	0.1	0.236
1,2,3,4,6,7,8-HpCDD	**145**	1.03	3.27	1	0.01	1.45
OCDD	**3300**	0.574	6.54	1	0.0003	0.990
2,3,7,8-TCDF	**4480**	0.283	0.654	1	0.1	448
2,3,7,8-TCDF	**8080**	13.8	13.8	20	0.1	808
1,2,3,7,8-PeCDF	**139**	0.482	3.27	1	0.03	4.17
2,3,4,7,8-PeCDF	**115**	0.501	3.27	1	0.3	34.5
1,2,3,4,7,8-HxCDF	**241**	0.436	3.27	1	0.1	24.1
1,2,3,6,7,8-HxCDF	**57.6**	0.439	3.27	1	0.1	5.76
1,2,3,7,8,9-HxCDF	**16.6**	0.493	3.27	1	0.1	1.66
2,3,4,6,7,8-HxCDF	**12.1**	0.457	3.27	1	0.1	1.21
1,2,3,4,6,7,8-HpCDF	**77.6**	0.472	3.27	1	0.01	0.776
1,2,3,4,7,8,9-HpCDF	**24.4**	0.636	3.27	1	0.01	0.244
OCDF	**142**	0.267	6.54	1	0.0003	0.0426
		Total TEQ				5720
		Total TEQ				5720

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 15:25
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0019	**Units:**	Percent
Lab Code:	E1801093-003	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/14/18 15:21
	5.605g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	70.8		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 15:30
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0020	**Units:**	ng/Kg
Lab Code:	E1801093-004	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/20/18 23:02
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.332g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519528	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519519

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	36200		721	721	0.79	1.001	200
1,2,3,7,8-PeCDD	254**JK**		91.0	755	1.84	1.000	200
1,2,3,4,7,8-HxCDD	ND	U	124	755			200
1,2,3,6,7,8-HxCDD	ND	U	133	755			200
1,2,3,7,8,9-HxCDD	ND	U	125	755			200
1,2,3,4,6,7,8-HpCDD	1080		67.3	755	1.02	1.000	200
OCDD	22200		253	1510	0.87	1.000	200
2,3,7,8-TCDF	63000		200	200	0.75	1.001	200
1,2,3,7,8-PeCDF	1770		68.3	755	1.45	1.001	200
2,3,4,7,8-PeCDF	1780		72.3	755	1.69	1.001	200
1,2,3,4,7,8-HxCDF	3360		94.8	755	1.28	1.000	200
1,2,3,6,7,8-HxCDF	687**JK**		90.5	755	0.79	1.000	200
1,2,3,7,8,9-HxCDF	426**J**		124	755	1.16	1.000	200
2,3,4,6,7,8-HxCDF	137**JK**		95.1	755	2.19	1.001	200
1,2,3,4,6,7,8-HpCDF	788**K**		116	755	0.86	1.000	200
1,2,3,4,7,8,9-HpCDF	439**J**		174	755	0.95	1.000	200
OCDF	8190		369	1510	0.77	1.005	200

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 15:30
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0020	**Units:**	ng/Kg
Lab Code:	E1801093-004	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/20/18 23:02
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.332g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519528	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519519

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	39600		721	721	0.79		200
Total Penta-Dioxins	ND	U	91.0	755			200
Total Hexa-Dioxins	ND	U	125	755			200
Total Hepta-Dioxins	1080		67.3	755	1.02		200
Total Tetra-Furans	106000		200	200	0.79		200
Total Penta-Furans	4750		71.4	755	1.38		200
Total Hexa-Furans	4000		96.0	755	1.28		200
Total Hepta-Furans	979		133	755	0.89		200

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 15:30
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0020	**Units:**	ng/Kg
Lab Code:	E1801093-004	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/14/18 20:43
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.332g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519426	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519419

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	24900	**E**	1.31	1.31	0.79	1.001	1
1,2,3,7,8-PeCDD	158		0.839	3.77	1.64	1.001	1
1,2,3,4,7,8-HxCDD	4.54		0.910	3.77	1.38	1.000	1
1,2,3,6,7,8-HxCDD	31.7		1.04	3.77	1.31	1.000	1
1,2,3,7,8,9-HxCDD	10.8		0.951	3.77	1.42	1.007	1
1,2,3,4,6,7,8-HpCDD	1010		0.208	3.77	1.03	1.000	1
OCDD	20600	**E**	0.774	7.55	0.90	1.000	1
2,3,7,8-TCDF	52900	**E**	1.69	1.69	0.79	1.000	1
1,2,3,7,8-PeCDF	1710		6.18	6.18	1.51	1.001	1
2,3,4,7,8-PeCDF	1660		6.15	6.15	1.51	1.001	1
1,2,3,4,7,8-HxCDF	2960		2.25	3.77	1.19	1.000	1
1,2,3,6,7,8-HxCDF	721		2.25	3.77	1.18	1.000	1
1,2,3,7,8,9-HxCDF	224		2.42	3.77	1.16	1.001	1
2,3,4,6,7,8-HxCDF	125		2.35	3.77	1.12	1.000	1
1,2,3,4,6,7,8-HpCDF	906		1.33	3.77	0.99	1.000	1
1,2,3,4,7,8,9-HpCDF	293		1.72	3.77	1.01	1.000	1
OCDF	7530	**E**	0.538	7.55	0.89	1.004	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 15:30
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0020	**Units:**	ng/Kg
Lab Code:	E1801093-004	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/14/18 20:43
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.332g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519426	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519419

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	27800		1.31	1.31	0.83		1
Total Penta-Dioxins	219		0.839	3.77	1.56		1
Total Hexa-Dioxins	273		0.966	3.77	1.22		1
Total Hepta-Dioxins	2040		0.208	3.77	1.05		1
Total Tetra-Furans	96000		1.69	1.69	0.75		1
Total Penta-Furans	5310		0.0946	3.77	1.62		1
Total Hexa-Furans	4440		2.32	3.77	1.11		1
Total Hepta-Furans	1720		1.51	3.77	0.99		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 15:30
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0020	**Units:**	Percent
Lab Code:	E1801093-004	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/14/18 20:43
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.332g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519426	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519419

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	833.805	42		25-164	0.80	1.021
13C-1,2,3,7,8-PeCDD	2000	1376.705	69		25-181	1.64	1.201
13C-1,2,3,4,7,8-HxCDD	2000	1179.664	59		32-141	1.27	0.990
13C-1,2,3,6,7,8-HxCDD	2000	1155.467	58		28-130	1.25	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1370.840	69		23-140	1.06	1.070
13C-OCDD	4000	1683.718	42		17-157	0.89	1.148
13C-2,3,7,8-TCDF	2000	1146.478	57		24-169	0.83	0.990
13C-1,2,3,7,8-PeCDF	2000	1257.750	63		24-185	1.60	1.155
13C-2,3,4,7,8-PeCDF	2000	1191.536	60		21-178	1.57	1.190
13C-1,2,3,4,7,8-HxCDF	2000	991.009	50		26-152	0.51	0.969
13C-1,2,3,6,7,8-HxCDF	2000	963.384	48		26-123	0.50	0.972
13C-1,2,3,7,8,9-HxCDF	2000	1108.618	55		29-147	0.50	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1060.395	53		28-136	0.53	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	995.778	50		28-143	0.43	1.044
13C-1,2,3,4,7,8,9-HpCDF	2000	1094.355	55		26-138	0.43	1.082
37Cl-2,3,7,8-TCDD	800	805.696	101		35-197	NA	1.021

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 15:30
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0020	**Units:**	Percent
Lab Code:	E1801093-004	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/20/18 23:02
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.332g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519528	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519519

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	4760	1394.518	29		25-164	0.81	1.023
13C-1,2,3,7,8-PeCDD	2900	2187.303	75		25-181	1.61	1.210
13C-1,2,3,4,7,8-HxCDD	3390	1952.660	58		32-141	1.26	0.991
13C-1,2,3,6,7,8-HxCDD	3450	1933.011	56		28-130	1.30	0.994
13C-1,2,3,4,6,7,8-HpCDD	2900	2496.177	86		23-140	1.05	1.074
13C-OCDD	9520	4532.364	48		17-157	0.89	1.156
13C-2,3,7,8-TCDF	3510	1758.666	50		24-169	0.80	0.990
13C-1,2,3,7,8-PeCDF	3170	2069.102	65		24-185	1.61	1.162
13C-2,3,4,7,8-PeCDF	3330	1990.019	60		21-178	1.61	1.198
13C-1,2,3,4,7,8-HxCDF	4000	1684.764	42		26-152	0.50	0.969
13C-1,2,3,6,7,8-HxCDF	4170	1773.500	43		26-123	0.51	0.972
13C-1,2,3,7,8,9-HxCDF	3640	1791.024	49		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	3770	1868.620	50		28-136	0.50	0.986
13C-1,2,3,4,6,7,8-HpCDF	4000	2094.651	52		28-143	0.45	1.046
13C-1,2,3,4,7,8,9-HpCDF	3640	2075.505	57		26-138	0.44	1.086
37Cl-2,3,7,8-TCDD	4.00	3.708	93		35-197	NA	1.024

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 15:30
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0020	**Units:**	ng/Kg
Lab Code:	E1801093-004	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**24900**	1.31	1.31	1	1	24900
2,3,7,8-TCDD	**36200**	721	721	200	1	36200
1,2,3,7,8-PeCDD	**158**	0.839	3.77	1	1	158
1,2,3,4,7,8-HxCDD	**4.54**	0.910	3.77	1	0.1	0.454
1,2,3,6,7,8-HxCDD	**31.7**	1.04	3.77	1	0.1	3.17
1,2,3,7,8,9-HxCDD	**10.8**	0.951	3.77	1	0.1	1.08
1,2,3,4,6,7,8-HpCDD	**1010**	0.208	3.77	1	0.01	10.1
OCDD	**20600**	0.774	7.55	1	0.0003	6.18
OCDD	**22200**	253	1510	200	0.0003	6.66
2,3,7,8-TCDF	**52900**	1.69	1.69	1	0.1	5290
2,3,7,8-TCDF	**63000**	200	200	200	0.1	6300
1,2,3,7,8-PeCDF	**1710**	6.18	6.18	1	0.03	51.3
2,3,4,7,8-PeCDF	**1660**	6.15	6.15	1	0.3	498
1,2,3,4,7,8-HxCDF	**2960**	2.25	3.77	1	0.1	296
1,2,3,6,7,8-HxCDF	**721**	2.25	3.77	1	0.1	72.1
1,2,3,7,8,9-HxCDF	**224**	2.42	3.77	1	0.1	22.4
2,3,4,6,7,8-HxCDF	**125**	2.35	3.77	1	0.1	12.5
1,2,3,4,6,7,8-HpCDF	**906**	1.33	3.77	1	0.01	9.06
1,2,3,4,7,8,9-HpCDF	**293**	1.72	3.77	1	0.01	2.93
OCDF	**7530**	0.538	7.55	1	0.0003	2.26
OCDF	**8190**	369	1510	200	0.0003	2.46
		Total TEQ				43600
		Total TEQ				43600

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 15:30
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0020	**Units:**	Percent
Lab Code:	E1801093-004	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/14/18 15:21
	7.383g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	64.1		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 15:35
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0021	**Units:**	ng/Kg
Lab Code:	E1801093-005	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/14/18 21:32
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.535g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519427	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519419

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	30.1		0.907	0.907	0.73	1.001	1
1,2,3,7,8-PeCDD	0.606	**J**	0.147	2.87	1.48	1.001	1
1,2,3,4,7,8-HxCDD	0.218	**JK**	0.205	2.87	2.34	1.000	1
1,2,3,6,7,8-HxCDD	0.501	**BJK**	0.227	2.87	0.93	1.000	1
1,2,3,7,8,9-HxCDD	0.634	**JK**	0.211	2.87	1.82	1.007	1
1,2,3,4,6,7,8-HpCDD	13.5		0.325	2.87	0.94	1.000	1
OCDD	410		0.289	5.74	0.89	1.000	1
2,3,7,8-TCDF	65.1		0.546	0.574	0.74	1.001	1
1,2,3,7,8-PeCDF	2.05	**J**	0.183	2.87	1.69	1.001	1
2,3,4,7,8-PeCDF	1.68	**J**	0.193	2.87	1.32	1.001	1
1,2,3,4,7,8-HxCDF	3.36		0.148	2.87	1.37	1.000	1
1,2,3,6,7,8-HxCDF	0.822	**JK**	0.138	2.87	1.44	1.000	1
1,2,3,7,8,9-HxCDF	0.328	**BJK**	0.177	2.87	0.68	1.001	1
2,3,4,6,7,8-HxCDF	0.234	**JK**	0.147	2.87	0.73	1.000	1
1,2,3,4,6,7,8-HpCDF	2.65	**J**	0.153	2.87	1.04	1.000	1
1,2,3,4,7,8,9-HpCDF	0.309	**J**	0.194	2.87	0.90	1.000	1
OCDF	22.5		0.317	5.74	0.87	1.004	1

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 15:35
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0021	**Units:**	ng/Kg
Lab Code:	E1801093-005	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/14/18 21:32
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.535g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519427	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519419

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	46.6		0.907	0.907	0.83		1
Total Penta-Dioxins	5.19		0.147	2.87	1.40		1
Total Hexa-Dioxins	36.1		0.214	2.87	1.29		1
Total Hepta-Dioxins	60.9		0.325	2.87	1.04		1
Total Tetra-Furans	100		0.546	0.574	0.77		1
Total Penta-Furans	5.00		0.0719	2.87	1.77		1
Total Hexa-Furans	3.74		0.151	2.87	1.23		1
Total Hepta-Furans	2.96		0.172	2.87	1.04		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 15:35
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0021	**Units:**	Percent
Lab Code:	E1801093-005	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/14/18 21:32
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.535g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519427	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519419

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	886.219	44		25-164	0.81	1.023
13C-1,2,3,7,8-PeCDD	2000	1533.473	77		25-181	1.58	1.206
13C-1,2,3,4,7,8-HxCDD	2000	1390.760	70		32-141	1.31	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1289.537	64		28-130	1.27	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1791.216	90		23-140	1.07	1.071
13C-OCDD	4000	2637.850	66		17-157	0.87	1.148
13C-2,3,7,8-TCDF	2000	1180.802	59		24-169	0.80	0.991
13C-1,2,3,7,8-PeCDF	2000	1437.089	72		24-185	1.64	1.160
13C-2,3,4,7,8-PeCDF	2000	1352.111	68		21-178	1.61	1.195
13C-1,2,3,4,7,8-HxCDF	2000	1076.053	54		26-152	0.51	0.969
13C-1,2,3,6,7,8-HxCDF	2000	1174.294	59		26-123	0.53	0.972
13C-1,2,3,7,8,9-HxCDF	2000	1151.899	58		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1159.957	58		28-136	0.51	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1206.645	60		28-143	0.43	1.044
13C-1,2,3,4,7,8,9-HpCDF	2000	1346.520	67		26-138	0.43	1.083
37Cl-2,3,7,8-TCDD	800	508.850	64		35-197	NA	1.024

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 15:35
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0021	**Units:**	ng/Kg
Lab Code:	E1801093-005	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**30.1**	0.907	0.907	1	1	30.1
1,2,3,7,8-PeCDD	**0.606**	0.147	2.87	1	1	0.606
1,2,3,4,7,8-HxCDD	**0.218**	0.205	2.87	1	0.1	0.0218
1,2,3,6,7,8-HxCDD	**0.501**	0.227	2.87	1	0.1	0.0501
1,2,3,7,8,9-HxCDD	**0.634**	0.211	2.87	1	0.1	0.0634
1,2,3,4,6,7,8-HpCDD	**13.5**	0.325	2.87	1	0.01	0.135
OCDD	**410**	0.289	5.74	1	0.0003	0.123
2,3,7,8-TCDF	**65.1**	0.546	0.574	1	0.1	6.51
1,2,3,7,8-PeCDF	**2.05**	0.183	2.87	1	0.03	0.0615
2,3,4,7,8-PeCDF	**1.68**	0.193	2.87	1	0.3	0.504
1,2,3,4,7,8-HxCDF	**3.36**	0.148	2.87	1	0.1	0.336
1,2,3,6,7,8-HxCDF	**0.822**	0.138	2.87	1	0.1	0.0822
1,2,3,7,8,9-HxCDF	**0.328**	0.177	2.87	1	0.1	0.0328
2,3,4,6,7,8-HxCDF	**0.234**	0.147	2.87	1	0.1	0.0234
1,2,3,4,6,7,8-HpCDF	**2.65**	0.153	2.87	1	0.01	0.0265
1,2,3,4,7,8,9-HpCDF	**0.309**	0.194	2.87	1	0.01	0.00309
OCDF	**22.5**	0.317	5.74	1	0.0003	0.00675
		Total TEQ				38.7

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 15:35
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0021	**Units:**	Percent
Lab Code:	E1801093-005	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/14/18 15:21
	6.928g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	82.7		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 16:40
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0023	**Units:**	ng/Kg
Lab Code:	E1801093-006	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/19/18 18:51
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.729g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519498	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519494

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	5.45		0.454	0.580	0.75	1.001	1
1,2,3,7,8-PeCDD	0.555**JK**		0.142	2.90	2.72	1.001	1
1,2,3,4,7,8-HxCDD	0.970**JK**		0.207	2.90	0.83	1.000	1
1,2,3,6,7,8-HxCDD	3.97		0.238	2.90	1.05	1.000	1
1,2,3,7,8,9-HxCDD	2.57**J**		0.217	2.90	1.05	1.007	1
1,2,3,4,6,7,8-HpCDD	108		0.397	2.90	1.11	1.000	1
OCDD	2580		1.44	5.80	0.90	1.000	1
2,3,7,8-TCDF	12.5		0.189	0.580	0.81	1.001	1
1,2,3,7,8-PeCDF	0.915**JK**		0.152	2.90	1.12	1.001	1
2,3,4,7,8-PeCDF	1.12**J**		0.175	2.90	1.38	1.000	1
1,2,3,4,7,8-HxCDF	2.67**J**		0.292	2.90	1.11	1.000	1
1,2,3,6,7,8-HxCDF	1.14**JK**		0.278	2.90	0.98	1.000	1
1,2,3,7,8,9-HxCDF	0.436**JK**		0.381	2.90	0.68	1.000	1
2,3,4,6,7,8-HxCDF	1.53**J**		0.319	2.90	1.42	1.000	1
1,2,3,4,6,7,8-HpCDF	17.2		0.446	2.90	0.89	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.754	2.90			1
OCDF	38.9		2.73	5.80	0.90	1.004	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 16:40
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0023	**Units:**	ng/Kg
Lab Code:	E1801093-006	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/19/18 18:51
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.729g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519498	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519494

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	5.78		0.454	0.580	0.70		1
Total Penta-Dioxins	3.00		0.142	2.90	1.72		1
Total Hexa-Dioxins	41.7		0.220	2.90	1.37		1
Total Hepta-Dioxins	316		0.397	2.90	1.06		1
Total Tetra-Furans	20.3		0.189	0.580	0.67		1
Total Penta-Furans	10.9		0.0727	2.90	1.67		1
Total Hexa-Furans	27.4		0.313	2.90	1.30		1
Total Hepta-Furans	48.8		0.572	2.90	0.89		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 16:40
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0023	**Units:**	Percent
Lab Code:	E1801093-006	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/19/18 18:51
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.729g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519498	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519494

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	964.904	48		25-164	0.78	1.023
13C-1,2,3,7,8-PeCDD	2000	1403.662	70		25-181	1.59	1.209
13C-1,2,3,4,7,8-HxCDD	2000	1421.021	71		32-141	1.37	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1333.438	67		28-130	1.24	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1026.407	51		23-140	1.10	1.072
13C-OCDD	4000	1031.308	26		17-157	0.90	1.153
13C-2,3,7,8-TCDF	2000	1302.577	65		24-169	0.80	0.990
13C-1,2,3,7,8-PeCDF	2000	1412.054	71		24-185	1.58	1.162
13C-2,3,4,7,8-PeCDF	2000	1270.718	64		21-178	1.62	1.198
13C-1,2,3,4,7,8-HxCDF	2000	1282.496	64		26-152	0.53	0.968
13C-1,2,3,6,7,8-HxCDF	2000	1347.278	67		26-123	0.52	0.972
13C-1,2,3,7,8,9-HxCDF	2000	1228.332	61		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1306.697	65		28-136	0.52	0.986
13C-1,2,3,4,6,7,8-HpCDF	2000	839.084	42		28-143	0.45	1.046
13C-1,2,3,4,7,8,9-HpCDF	2000	718.620	36		26-138	0.43	1.085
37Cl-2,3,7,8-TCDD	800	586.501	73		35-197	NA	1.025

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 16:40
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0023	**Units:**	ng/Kg
Lab Code:	E1801093-006	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**5.45**	0.454	0.580	1	1	5.45
1,2,3,7,8-PeCDD	**0.555**	0.142	2.90	1	1	0.555
1,2,3,4,7,8-HxCDD	**0.970**	0.207	2.90	1	0.1	0.0970
1,2,3,6,7,8-HxCDD	**3.97**	0.238	2.90	1	0.1	0.397
1,2,3,7,8,9-HxCDD	**2.57**	0.217	2.90	1	0.1	0.257
1,2,3,4,6,7,8-HpCDD	**108**	0.397	2.90	1	0.01	1.08
OCDD	**2580**	1.44	5.80	1	0.0003	0.774
2,3,7,8-TCDF	**12.5**	0.189	0.580	1	0.1	1.25
1,2,3,7,8-PeCDF	**0.915**	0.152	2.90	1	0.03	0.0275
2,3,4,7,8-PeCDF	**1.12**	0.175	2.90	1	0.3	0.336
1,2,3,4,7,8-HxCDF	**2.67**	0.292	2.90	1	0.1	0.267
1,2,3,6,7,8-HxCDF	**1.14**	0.278	2.90	1	0.1	0.114
1,2,3,7,8,9-HxCDF	**0.436**	0.381	2.90	1	0.1	0.0436
2,3,4,6,7,8-HxCDF	**1.53**	0.319	2.90	1	0.1	0.153
1,2,3,4,6,7,8-HpCDF	**17.2**	0.446	2.90	1	0.01	0.172
1,2,3,4,7,8,9-HpCDF	ND	0.754	2.90	1	0.01	
OCDF	**38.9**	2.73	5.80	1	0.0003	0.0117
		Total TEQ				11.0

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 16:40
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0023	**Units:**	Percent
Lab Code:	E1801093-006	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/14/18 15:21
	5.788g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	80.3		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 16:45
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0024	**Units:**	ng/Kg
Lab Code:	E1801093-007	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/14/18 23:09
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.300g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519429	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519419

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	126		0.630	0.658	0.82	1.001	1
1,2,3,7,8-PeCDD	6.79	**K**	1.02	3.29	2.33	1.001	1
1,2,3,4,7,8-HxCDD	11.0		1.67	3.29	1.40	1.000	1
1,2,3,6,7,8-HxCDD	70.0		1.91	3.29	1.31	1.000	1
1,2,3,7,8,9-HxCDD	28.0		1.75	3.29	1.41	1.007	1
1,2,3,4,6,7,8-HpCDD	1500		0.257	3.29	1.03	1.000	1
OCDD	29900	**E**	0.867	6.58	0.90	1.000	1
2,3,7,8-TCDF	280		0.495	0.658	0.75	1.001	1
1,2,3,7,8-PeCDF	11.8	**P**	0.684	3.29	1.39	1.001	1
2,3,4,7,8-PeCDF	41.8		0.723	3.29	1.48	1.002	1
1,2,3,4,7,8-HxCDF	43.3		0.850	3.29	1.20	1.000	1
1,2,3,6,7,8-HxCDF	26.9	**P**	0.856	3.29	1.15	1.000	1
1,2,3,7,8,9-HxCDF	7.77		0.953	3.29	1.15	1.001	1
2,3,4,6,7,8-HxCDF	35.4		0.878	3.29	1.25	1.000	1
1,2,3,4,6,7,8-HpCDF	342		2.20	3.29	1.01	1.000	1
1,2,3,4,7,8,9-HpCDF	20.4	**K**	2.92	3.29	0.85	1.000	1
OCDF	446		0.453	6.58	0.88	1.004	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 16:45
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0024	**Units:**	ng/Kg
Lab Code:	E1801093-007	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/14/18 23:09
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.300g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519429	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519419

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	182		0.630	0.658	0.75		1
Total Penta-Dioxins	48.0		1.02	3.29	1.40		1
Total Hexa-Dioxins	553		1.78	3.29	1.25		1
Total Hepta-Dioxins	3420		0.257	3.29	1.02		1
Total Tetra-Furans	657		0.495	0.658	0.71		1
Total Penta-Furans	396		0.0824	3.29	1.68		1
Total Hexa-Furans	631		0.882	3.29	1.14		1
Total Hepta-Furans	969		2.52	3.29	1.01		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 16:45
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0024	**Units:**	Percent
Lab Code:	E1801093-007	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/14/18 23:09
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.300g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519429	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519419

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	1004.718	50		25-164	0.78	1.023
13C-1,2,3,7,8-PeCDD	2000	1609.107	80		25-181	1.60	1.206
13C-1,2,3,4,7,8-HxCDD	2000	1403.195	70		32-141	1.29	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1331.009	67		28-130	1.28	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1482.444	74		23-140	1.08	1.070
13C-OCDD	4000	1749.255	44		17-157	0.88	1.148
13C-2,3,7,8-TCDF	2000	1330.752	67		24-169	0.79	0.990
13C-1,2,3,7,8-PeCDF	2000	1525.799	76		24-185	1.60	1.159
13C-2,3,4,7,8-PeCDF	2000	1456.118	73		21-178	1.63	1.194
13C-1,2,3,4,7,8-HxCDF	2000	1169.987	58		26-152	0.52	0.969
13C-1,2,3,6,7,8-HxCDF	2000	1192.559	60		26-123	0.52	0.972
13C-1,2,3,7,8,9-HxCDF	2000	1298.294	65		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1218.521	61		28-136	0.50	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1085.762	54		28-143	0.44	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	1136.423	57		26-138	0.43	1.083
37Cl-2,3,7,8-TCDD	800	568.434	71		35-197	NA	1.024

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 16:45
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0024	**Units:**	ng/Kg
Lab Code:	E1801093-007	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**126**	0.630	0.658	1	1	126
1,2,3,7,8-PeCDD	**6.79**	1.02	3.29	1	1	6.79
1,2,3,4,7,8-HxCDD	**11.0**	1.67	3.29	1	0.1	1.10
1,2,3,6,7,8-HxCDD	**70.0**	1.91	3.29	1	0.1	7.00
1,2,3,7,8,9-HxCDD	**28.0**	1.75	3.29	1	0.1	2.80
1,2,3,4,6,7,8-HpCDD	**1500**	0.257	3.29	1	0.01	15.0
OCDD	**29900**	0.867	6.58	1	0.0003	8.97
2,3,7,8-TCDF	**280**	0.495	0.658	1	0.1	28.0
1,2,3,7,8-PeCDF	**11.8**	0.684	3.29	1	0.03	0.354
2,3,4,7,8-PeCDF	**41.8**	0.723	3.29	1	0.3	12.5
1,2,3,4,7,8-HxCDF	**43.3**	0.850	3.29	1	0.1	4.33
1,2,3,6,7,8-HxCDF	**26.9**	0.856	3.29	1	0.1	2.69
1,2,3,7,8,9-HxCDF	**7.77**	0.953	3.29	1	0.1	0.777
2,3,4,6,7,8-HxCDF	**35.4**	0.878	3.29	1	0.1	3.54
1,2,3,4,6,7,8-HpCDF	**342**	2.20	3.29	1	0.01	3.42
1,2,3,4,7,8,9-HpCDF	**20.4**	2.92	3.29	1	0.01	0.204
OCDF	**446**	0.453	6.58	1	0.0003	0.134
		Total TEQ				224

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 16:45
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0024	**Units:**	Percent
Lab Code:	E1801093-007	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/14/18 15:21
	6.541g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	73.8		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 16:50
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0025	**Units:**	ng/Kg
Lab Code:	E1801093-008	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/20/18 23:51
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.758g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519529	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519519

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	165000		1120	1120	0.76	1.001	400
1,2,3,7,8-PeCDD	981**J**		184	1740	1.42	1.001	400
1,2,3,4,7,8-HxCDD	ND	U	213	1740			400
1,2,3,6,7,8-HxCDD	ND	U	240	1740			400
1,2,3,7,8,9-HxCDD	ND	U	222	1740			400
1,2,3,4,6,7,8-HpCDD	3720		239	1740	1.06	1.000	400
OCDD	102000		607	3480	0.88	1.000	400
2,3,7,8-TCDF	279000		349	349	0.74	1.001	400
1,2,3,7,8-PeCDF	11700		199	1740	1.50	1.000	400
2,3,4,7,8-PeCDF	8790		217	1740	1.37	1.001	400
1,2,3,4,7,8-HxCDF	24500		148	1740	1.16	1.000	400
1,2,3,6,7,8-HxCDF	5570**K**		141	1740	1.01	1.000	400
1,2,3,7,8,9-HxCDF	1630**JK**		197	1740	2.09	1.001	400
2,3,4,6,7,8-HxCDF	1130**JK**		145	1740	1.51	1.000	400
1,2,3,4,6,7,8-HpCDF	6150		213	1740	0.93	1.000	400
1,2,3,4,7,8,9-HpCDF	1530**JK**		325	1740	0.86	1.000	400
OCDF	13000		720	3480	0.80	1.005	400

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 16:50
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0025	**Units:**	ng/Kg
Lab Code:	E1801093-008	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/20/18 23:51
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.758g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519529	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519519

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	183000		1120	1120	0.76		400
Total Penta-Dioxins	1110**J**		184	1740	1.40		400
Total Hexa-Dioxins	ND	U	222	1740			400
Total Hepta-Dioxins	7480		239	1740	1.10		400
Total Tetra-Furans	493000		349	349	0.69		400
Total Penta-Furans	28400		211	1740	1.62		400
Total Hexa-Furans	27000		150	1740	1.33		400
Total Hepta-Furans	6280		268	1740	0.93		400

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 16:50
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0025	**Units:**	ng/Kg
Lab Code:	E1801093-008	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/14/18 23:57
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.758g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519430	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519419

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	50300	**E**	1.29	1.29	0.79	1.001	1
1,2,3,7,8-PeCDD	343		1.03	4.35	1.66	1.000	1
1,2,3,4,7,8-HxCDD	7.49		1.27	4.35	1.12	1.000	1
1,2,3,6,7,8-HxCDD	53.5		1.43	4.35	1.36	1.000	1
1,2,3,7,8,9-HxCDD	17.6		1.32	4.35	1.26	1.007	1
1,2,3,4,6,7,8-HpCDD	1730		0.806	4.35	1.05	1.000	1
OCDD	31700	**E**	1.80	8.70	0.90	1.000	1
2,3,7,8-TCDF	104000	**E**	2.15	2.15	0.79	1.001	1
1,2,3,7,8-PeCDF	5250	**E**	1.98	4.35	1.52	1.001	1
2,3,4,7,8-PeCDF	3610	**E**	1.87	4.35	1.52	1.001	1
1,2,3,4,7,8-HxCDF	9600	**E**	2.58	4.35	1.18	1.000	1
1,2,3,6,7,8-HxCDF	2330		2.47	4.35	1.16	1.000	1
1,2,3,7,8,9-HxCDF	763		2.89	4.35	1.21	1.001	1
2,3,4,6,7,8-HxCDF	438		2.70	4.35	1.17	1.000	1
1,2,3,4,6,7,8-HpCDF	2370		5.91	5.91	1.00	1.000	1
1,2,3,4,7,8,9-HpCDF	902		8.84	8.84	1.02	1.000	1
OCDF	3540		0.761	8.70	0.88	1.004	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 16:50
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0025	**Units:**	ng/Kg
Lab Code:	E1801093-008	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/14/18 23:57
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.758g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519430	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519419

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	56200		1.29	1.29	0.82		1
Total Penta-Dioxins	439		1.03	4.35	1.66		1
Total Hexa-Dioxins	426		1.34	4.35	1.29		1
Total Hepta-Dioxins	3510		0.806	4.35	1.04		1
Total Tetra-Furans	182000		2.15	2.15	0.78		1
Total Penta-Furans	13700		0.109	4.35	1.45		1
Total Hexa-Furans	14300		2.65	4.35	1.19		1
Total Hepta-Furans	4310		7.17	7.17	1.00		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 16:50
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0025	**Units:**	Percent
Lab Code:	E1801093-008	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/14/18 23:57
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.758g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519430	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519419

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	894.077	45		25-164	0.80	1.019
13C-1,2,3,7,8-PeCDD	2000	1367.522	68		25-181	1.62	1.196
13C-1,2,3,4,7,8-HxCDD	2000	1267.781	63		32-141	1.30	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1229.298	61		28-130	1.28	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1275.556	64		23-140	1.10	1.070
13C-OCDD	4000	1360.866	34		17-157	0.87	1.148
13C-2,3,7,8-TCDF	2000	1231.127	62		24-169	0.81	0.988
13C-1,2,3,7,8-PeCDF	2000	1290.449	65		24-185	1.59	1.152
13C-2,3,4,7,8-PeCDF	2000	1232.095	62		21-178	1.57	1.186
13C-1,2,3,4,7,8-HxCDF	2000	1083.652	54		26-152	0.50	0.970
13C-1,2,3,6,7,8-HxCDF	2000	1098.444	55		26-123	0.54	0.973
13C-1,2,3,7,8,9-HxCDF	2000	1158.622	58		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1102.678	55		28-136	0.55	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	985.212	49		28-143	0.45	1.044
13C-1,2,3,4,7,8,9-HpCDF	2000	932.996	47		26-138	0.45	1.082
37Cl-2,3,7,8-TCDD	800	26.711	3	**Y**	35-197	NA	1.011

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 16:50
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0025	**Units:**	Percent
Lab Code:	E1801093-008	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/20/18 23:51
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.758g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519529	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519519

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	4440	1649.369	37		25-164	0.80	1.024
13C-1,2,3,7,8-PeCDD	2940	2510.529	85		25-181	1.55	1.211
13C-1,2,3,4,7,8-HxCDD	3170	2176.724	69		32-141	1.32	0.991
13C-1,2,3,6,7,8-HxCDD	3280	2339.855	71		28-130	1.30	0.994
13C-1,2,3,4,6,7,8-HpCDD	3130	2891.828	93		23-140	1.09	1.074
13C-OCDD	11800	5390.142	46		17-157	0.89	1.156
13C-2,3,7,8-TCDF	3230	2098.402	65		24-169	0.82	0.991
13C-1,2,3,7,8-PeCDF	3080	2408.050	78		24-185	1.57	1.163
13C-2,3,4,7,8-PeCDF	3230	2289.713	71		21-178	1.61	1.198
13C-1,2,3,4,7,8-HxCDF	3700	2039.404	55		26-152	0.51	0.969
13C-1,2,3,6,7,8-HxCDF	3640	2119.203	58		26-123	0.51	0.972
13C-1,2,3,7,8,9-HxCDF	3450	2055.476	60		29-147	0.54	1.008
13C-2,3,4,6,7,8-HxCDF	3640	2217.856	61		28-136	0.52	0.986
13C-1,2,3,4,6,7,8-HpCDF	4080	2400.327	59		28-143	0.45	1.046
13C-1,2,3,4,7,8,9-HpCDF	4260	2430.080	57		26-138	0.43	1.086
37Cl-2,3,7,8-TCDD	2.00	8.330	417	**Y**	35-197	NA	1.025

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 16:50
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0025	**Units:**	ng/Kg
Lab Code:	E1801093-008	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**50300**	1.29	1.29	1	1	50300
2,3,7,8-TCDD	**165000**	1120	1120	400	1	165000
1,2,3,7,8-PeCDD	**343**	1.03	4.35	1	1	343
1,2,3,4,7,8-HxCDD	**7.49**	1.27	4.35	1	0.1	0.749
1,2,3,6,7,8-HxCDD	**53.5**	1.43	4.35	1	0.1	5.35
1,2,3,7,8,9-HxCDD	**17.6**	1.32	4.35	1	0.1	1.76
1,2,3,4,6,7,8-HpCDD	**1730**	0.806	4.35	1	0.01	17.3
OCDD	**31700**	1.80	8.70	1	0.0003	9.51
2,3,7,8-TCDF	**104000**	2.15	2.15	1	0.1	10400
2,3,7,8-TCDF	**279000**	349	349	400	0.1	27900
1,2,3,7,8-PeCDF	**5250**	1.98	4.35	1	0.03	158
1,2,3,7,8-PeCDF	**11700**	199	1740	400	0.03	351
2,3,4,7,8-PeCDF	**3610**	1.87	4.35	1	0.3	1080
2,3,4,7,8-PeCDF	**8790**	217	1740	400	0.3	2640
1,2,3,4,7,8-HxCDF	**9600**	2.58	4.35	1	0.1	960
1,2,3,4,7,8-HxCDF	**24500**	148	1740	400	0.1	2450
1,2,3,6,7,8-HxCDF	**2330**	2.47	4.35	1	0.1	233
1,2,3,7,8,9-HxCDF	**763**	2.89	4.35	1	0.1	76.3
2,3,4,6,7,8-HxCDF	**438**	2.70	4.35	1	0.1	43.8
1,2,3,4,6,7,8-HpCDF	**2370**	5.91	5.91	1	0.01	23.7
1,2,3,4,7,8,9-HpCDF	**902**	8.84	8.84	1	0.01	9.02
OCDF	**3540**	0.761	8.70	1	0.0003	1.06
		Total TEQ				199000
		Total TEQ				199000

2005 WHO TEFs, ND = 0

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 16:50
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0025	**Units:**	Percent
Lab Code:	E1801093-008	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/14/18 15:21
	6.436g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	53.4		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 17:00
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0026	**Units:**	ng/Kg
Lab Code:	E1801093-009	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/21/18 00:39
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.779g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519530	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519519

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	9990		179	179	0.79	1.001	50
1,2,3,7,8-PeCDD	28.0**JK**		27.8	211	1.86	1.001	50
1,2,3,4,7,8-HxCDD	ND	U	47.8	211			50
1,2,3,6,7,8-HxCDD	ND	U	53.5	211			50
1,2,3,7,8,9-HxCDD	ND	U	49.5	211			50
1,2,3,4,6,7,8-HpCDD	859		31.0	211	1.12	1.000	50
OCDD	26900		78.4	422	0.89	1.000	50
2,3,7,8-TCDF	17200		37.9	42.2	0.77	1.001	50
1,2,3,7,8-PeCDF	684		34.0	211	1.48	1.000	50
2,3,4,7,8-PeCDF	520**K**		36.9	211	1.85	1.001	50
1,2,3,4,7,8-HxCDF	1200		25.9	211	1.31	1.000	50
1,2,3,6,7,8-HxCDF	298**K**		25.2	211	0.92	1.000	50
1,2,3,7,8,9-HxCDF	81.3**JK**		31.4	211	0.64	1.001	50
2,3,4,6,7,8-HxCDF	49.1**JK**		25.8	211	0.54	1.000	50
1,2,3,4,6,7,8-HpCDF	670**K**		42.1	211	0.86	1.000	50
1,2,3,4,7,8,9-HpCDF	123**J**		61.1	211	0.95	1.000	50
OCDF	32000		164	422	0.85	1.004	50

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 17:00
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0026	**Units:**	ng/Kg
Lab Code:	E1801093-009	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/21/18 00:39
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.779g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519530	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519519

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	11200		179	179	0.79		50
Total Penta-Dioxins	42.5	**J**	27.8	211	1.36		50
Total Hexa-Dioxins	230		48.5	211	1.42		50
Total Hepta-Dioxins	2000		31.0	211	1.00		50
Total Tetra-Furans	29100		37.9	42.2	0.83		50
Total Penta-Furans	926		36.0	211	1.48		50
Total Hexa-Furans	1220		26.9	211	1.26		50
Total Hepta-Furans	804		51.7	211	1.07		50

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 17:00
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0026	**Units:**	ng/Kg
Lab Code:	E1801093-009	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/15/18 00:46
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.779g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519431	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519419

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	4810**E**		2.13	2.13	0.79	1.001	1
1,2,3,7,8-PeCDD	36.7		1.13	4.22	1.78	1.001	1
1,2,3,4,7,8-HxCDD	4.99		1.57	4.22	1.22	1.000	1
1,2,3,6,7,8-HxCDD	28.8		1.75	4.22	1.19	1.000	1
1,2,3,7,8,9-HxCDD	14.0		1.62	4.22	1.31	1.007	1
1,2,3,4,6,7,8-HpCDD	562		1.02	4.22	1.07	1.000	1
OCDD	10800**E**		3.75	8.45	0.89	1.000	1
2,3,7,8-TCDF	10600**E**		1.76	1.76	0.77	1.001	1
1,2,3,7,8-PeCDF	393		1.56	4.22	1.54	1.001	1
2,3,4,7,8-PeCDF	327		1.61	4.22	1.50	1.001	1
1,2,3,4,7,8-HxCDF	664**P**		1.43	4.22	1.18	1.000	1
1,2,3,6,7,8-HxCDF	164		1.47	4.22	1.17	1.000	1
1,2,3,7,8,9-HxCDF	50.5		1.70	4.22	1.18	1.001	1
2,3,4,6,7,8-HxCDF	37.5		1.52	4.22	1.18	1.000	1
1,2,3,4,6,7,8-HpCDF	433		0.937	4.22	1.01	1.000	1
1,2,3,4,7,8,9-HpCDF	80.9		1.37	4.22	0.96	1.000	1
OCDF	13800**E**		1.18	8.45	0.89	1.004	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 17:00
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0026	**Units:**	ng/Kg
Lab Code:	E1801093-009	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/15/18 00:46
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.779g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519431	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519419

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	5360		2.13	2.13	0.84		1
Total Penta-Dioxins	66.2		1.13	4.22	1.62		1
Total Hexa-Dioxins	276		1.65	4.22	1.23		1
Total Hepta-Dioxins	1320		1.02	4.22	1.04		1
Total Tetra-Furans	18100		1.76	1.76	0.76		1
Total Penta-Furans	1200		0.106	4.22	1.52		1
Total Hexa-Furans	1170		1.53	4.22	1.09		1
Total Hepta-Furans	888		1.13	4.22	1.01		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 17:00
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0026	**Units:**	Percent
Lab Code:	E1801093-009	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/15/18 00:46
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.779g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519431	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519419

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	808.803	40		25-164	0.85	1.023
13C-1,2,3,7,8-PeCDD	2000	1190.271	60		25-181	1.57	1.204
13C-1,2,3,4,7,8-HxCDD	2000	1144.830	57		32-141	1.27	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1063.277	53		28-130	1.29	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1068.560	53		23-140	1.07	1.070
13C-OCDD	4000	1089.097	27		17-157	0.93	1.148
13C-2,3,7,8-TCDF	2000	1053.218	53		24-169	0.78	0.991
13C-1,2,3,7,8-PeCDF	2000	1128.182	56		24-185	1.57	1.158
13C-2,3,4,7,8-PeCDF	2000	1054.425	53		21-178	1.63	1.193
13C-1,2,3,4,7,8-HxCDF	2000	976.836	49		26-152	0.53	0.969
13C-1,2,3,6,7,8-HxCDF	2000	953.809	48		26-123	0.53	0.973
13C-1,2,3,7,8,9-HxCDF	2000	1012.427	51		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	975.480	49		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	840.779	42		28-143	0.43	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	806.964	40		26-138	0.45	1.083
37Cl-2,3,7,8-TCDD	800	507.864	63		35-197	NA	1.024

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 17:00
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0026	**Units:**	Percent
Lab Code:	E1801093-009	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/21/18 00:39
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.779g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519530	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519519

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	5000	1320.926	26		25-164	0.80	1.024
13C-1,2,3,7,8-PeCDD	3330	2089.341	63		25-181	1.61	1.210
13C-1,2,3,4,7,8-HxCDD	3510	1832.991	52		32-141	1.31	0.991
13C-1,2,3,6,7,8-HxCDD	3770	1869.829	50		28-130	1.24	0.993
13C-1,2,3,4,6,7,8-HpCDD	3770	2396.986	64		23-140	1.08	1.073
13C-OCDD	14800	4545.941	31		17-157	0.91	1.156
13C-2,3,7,8-TCDF	3770	1710.422	45		24-169	0.80	0.991
13C-1,2,3,7,8-PeCDF	3570	2004.478	56		24-185	1.58	1.163
13C-2,3,4,7,8-PeCDF	3770	1889.135	50		21-178	1.63	1.198
13C-1,2,3,4,7,8-HxCDF	4080	1568.923	38		26-152	0.50	0.968
13C-1,2,3,6,7,8-HxCDF	4170	1705.007	41		26-123	0.53	0.972
13C-1,2,3,7,8,9-HxCDF	3920	1737.789	44		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	4080	1727.058	42		28-136	0.51	0.986
13C-1,2,3,4,6,7,8-HpCDF	4760	2004.230	42		28-143	0.44	1.046
13C-1,2,3,4,7,8,9-HpCDF	5000	1993.603	40		26-138	0.46	1.086
37Cl-2,3,7,8-TCDD	16.0	14.548	91		35-197	NA	1.025

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 17:00
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0026	**Units:**	ng/Kg
Lab Code:	E1801093-009	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**4810**	2.13	2.13	1	1	4810
2,3,7,8-TCDD	**9990**	179	179	50	1	9990
1,2,3,7,8-PeCDD	**36.7**	1.13	4.22	1	1	36.7
1,2,3,4,7,8-HxCDD	**4.99**	1.57	4.22	1	0.1	0.499
1,2,3,6,7,8-HxCDD	**28.8**	1.75	4.22	1	0.1	2.88
1,2,3,7,8,9-HxCDD	**14.0**	1.62	4.22	1	0.1	1.40
1,2,3,4,6,7,8-HpCDD	**562**	1.02	4.22	1	0.01	5.62
OCDD	**10800**	3.75	8.45	1	0.0003	3.24
OCDD	**26900**	78.4	422	50	0.0003	8.07
2,3,7,8-TCDF	**10600**	1.76	1.76	1	0.1	1060
2,3,7,8-TCDF	**17200**	37.9	42.2	50	0.1	1720
1,2,3,7,8-PeCDF	**393**	1.56	4.22	1	0.03	11.8
2,3,4,7,8-PeCDF	**327**	1.61	4.22	1	0.3	98.1
1,2,3,4,7,8-HxCDF	**664**	1.43	4.22	1	0.1	66.4
1,2,3,6,7,8-HxCDF	**164**	1.47	4.22	1	0.1	16.4
1,2,3,7,8,9-HxCDF	**50.5**	1.70	4.22	1	0.1	5.05
2,3,4,6,7,8-HxCDF	**37.5**	1.52	4.22	1	0.1	3.75
1,2,3,4,6,7,8-HpCDF	**433**	0.937	4.22	1	0.01	4.33
1,2,3,4,7,8,9-HpCDF	**80.9**	1.37	4.22	1	0.01	0.809
OCDF	**13800**	1.18	8.45	1	0.0003	4.14
OCDF	**32000**	164	422	50	0.0003	9.60
		Total TEQ				12000
		Total TEQ				12000

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 17:00
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0026	**Units:**	Percent
Lab Code:	E1801093-009	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/14/18 15:21
	6.14g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	54.9		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 17:10
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0027	**Units:**	ng/Kg
Lab Code:	E1801093-010	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/17/18 16:11
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.141g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519438	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519435

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	48.4		0.965	0.965	0.75	1.001	1
1,2,3,7,8-PeCDD	0.866	**J**	0.215	3.23	1.62	1.001	1
1,2,3,4,7,8-HxCDD	0.348	**JK**	0.280	3.23	2.05	1.000	1
1,2,3,6,7,8-HxCDD	0.846	**J**	0.305	3.23	1.05	1.000	1
1,2,3,7,8,9-HxCDD	1.33	**J**	0.285	3.23	1.14	1.006	1
1,2,3,4,6,7,8-HpCDD	17.6		0.280	3.23	1.05	1.000	1
OCDD	595		0.254	6.46	0.91	1.000	1
2,3,7,8-TCDF	108		0.401	0.646	0.75	1.001	1
1,2,3,7,8-PeCDF	5.27		0.224	3.23	1.73	1.001	1
2,3,4,7,8-PeCDF	3.46		0.237	3.23	1.39	1.001	1
1,2,3,4,7,8-HxCDF	7.60		0.192	3.23	1.27	1.000	1
1,2,3,6,7,8-HxCDF	1.63	**JK**	0.188	3.23	1.00	1.000	1
1,2,3,7,8,9-HxCDF	1.01	**J**	0.233	3.23	1.12	1.001	1
2,3,4,6,7,8-HxCDF	0.536	**J**	0.211	3.23	1.27	1.001	1
1,2,3,4,6,7,8-HpCDF	5.71		0.119	3.23	0.94	1.000	1
1,2,3,4,7,8,9-HpCDF	1.02	**J**	0.145	3.23	0.96	1.000	1
OCDF	92.1		0.436	6.46	0.88	1.004	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 17:10
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0027	**Units:**	ng/Kg
Lab Code:	E1801093-010	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/17/18 16:11
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.141g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519438	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519435

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	53.3		0.965	0.965	0.75		1
Total Penta-Dioxins	4.39		0.215	3.23	1.75		1
Total Hexa-Dioxins	42.0		0.290	3.23	1.25		1
Total Hepta-Dioxins	62.7		0.280	3.23	1.03		1
Total Tetra-Furans	170		0.401	0.646	0.85		1
Total Penta-Furans	12.4		0.231	3.23	1.61		1
Total Hexa-Furans	10.9		0.205	3.23	1.14		1
Total Hepta-Furans	9.62		0.131	3.23	0.94		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 17:10
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0027	**Units:**	Percent
Lab Code:	E1801093-010	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/17/18 16:11
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.141g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519438	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519435

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	721.709	36		25-164	0.82	1.023
13C-1,2,3,7,8-PeCDD	2000	1382.153	69		25-181	1.58	1.209
13C-1,2,3,4,7,8-HxCDD	2000	1275.235	64		32-141	1.29	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1179.923	59		28-130	1.25	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1517.800	76		23-140	1.06	1.071
13C-OCDD	4000	2025.943	51		17-157	0.91	1.149
13C-2,3,7,8-TCDF	2000	945.759	47		24-169	0.79	0.990
13C-1,2,3,7,8-PeCDF	2000	1264.202	63		24-185	1.60	1.162
13C-2,3,4,7,8-PeCDF	2000	1234.532	62		21-178	1.54	1.197
13C-1,2,3,4,7,8-HxCDF	2000	1050.435	53		26-152	0.52	0.969
13C-1,2,3,6,7,8-HxCDF	2000	1110.083	56		26-123	0.50	0.972
13C-1,2,3,7,8,9-HxCDF	2000	1143.727	57		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1096.546	55		28-136	0.51	0.986
13C-1,2,3,4,6,7,8-HpCDF	2000	1049.977	52		28-143	0.44	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	1187.803	59		26-138	0.44	1.084
37Cl-2,3,7,8-TCDD	800	406.993	51		35-197	NA	1.024

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 17:10
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0027	**Units:**	ng/Kg
Lab Code:	E1801093-010	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**48.4**	0.965	0.965	1	1	48.4
1,2,3,7,8-PeCDD	**0.866**	0.215	3.23	1	1	0.866
1,2,3,4,7,8-HxCDD	**0.348**	0.280	3.23	1	0.1	0.0348
1,2,3,6,7,8-HxCDD	**0.846**	0.305	3.23	1	0.1	0.0846
1,2,3,7,8,9-HxCDD	**1.33**	0.285	3.23	1	0.1	0.133
1,2,3,4,6,7,8-HpCDD	**17.6**	0.280	3.23	1	0.01	0.176
OCDD	**595**	0.254	6.46	1	0.0003	0.179
2,3,7,8-TCDF	**108**	0.401	0.646	1	0.1	10.8
1,2,3,7,8-PeCDF	**5.27**	0.224	3.23	1	0.03	0.158
2,3,4,7,8-PeCDF	**3.46**	0.237	3.23	1	0.3	1.04
1,2,3,4,7,8-HxCDF	**7.60**	0.192	3.23	1	0.1	0.760
1,2,3,6,7,8-HxCDF	**1.63**	0.188	3.23	1	0.1	0.163
1,2,3,7,8,9-HxCDF	**1.01**	0.233	3.23	1	0.1	0.101
2,3,4,6,7,8-HxCDF	**0.536**	0.211	3.23	1	0.1	0.0536
1,2,3,4,6,7,8-HpCDF	**5.71**	0.119	3.23	1	0.01	0.0571
1,2,3,4,7,8,9-HpCDF	**1.02**	0.145	3.23	1	0.01	0.0102
OCDF	**92.1**	0.436	6.46	1	0.0003	0.0276
		Total TEQ				63.0

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 17:10
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0027	**Units:**	Percent
Lab Code:	E1801093-010	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/14/18 15:21
	6.696g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	76.3		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 11:20
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0006	**Units:**	ng/Kg
Lab Code:	E1801093-011	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/17/18 16:58
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.566g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519439	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519435

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	8.43		0.592	0.592	0.77	1.001	1
1,2,3,7,8-PeCDD	0.466	**J**	0.0913	2.66	1.70	1.001	1
1,2,3,4,7,8-HxCDD	1.11	**J**	0.190	2.66	1.25	1.000	1
1,2,3,6,7,8-HxCDD	5.49		0.201	2.66	1.23	1.000	1
1,2,3,7,8,9-HxCDD	3.06		0.191	2.66	1.36	1.006	1
1,2,3,4,6,7,8-HpCDD	124		0.106	2.66	1.06	1.000	1
OCDD	1990		0.156	5.31	0.90	1.000	1
2,3,7,8-TCDF	31.5		0.260	0.531	0.73	1.000	1
1,2,3,7,8-PeCDF	0.919	**J**	0.290	2.66	1.37	1.001	1
2,3,4,7,8-PeCDF	1.84	**J**	0.308	2.66	1.52	1.001	1
1,2,3,4,7,8-HxCDF	1.86	**J**	0.180	2.66	1.14	1.000	1
1,2,3,6,7,8-HxCDF	1.11	**J**	0.172	2.66	1.40	1.000	1
1,2,3,7,8,9-HxCDF	0.310	**BJK**	0.206	2.66	2.19	1.001	1
2,3,4,6,7,8-HxCDF	1.64	**J**	0.194	2.66	1.15	1.000	1
1,2,3,4,6,7,8-HpCDF	18.5		0.263	2.66	1.02	1.000	1
1,2,3,4,7,8,9-HpCDF	1.19	**JK**	0.358	2.66	1.26	1.000	1
OCDF	45.9		0.256	5.31	0.88	1.004	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 11:20
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0006	**Units:**	ng/Kg
Lab Code:	E1801093-011	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/17/18 16:58
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.566g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519439	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519435

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	8.43		0.592	0.592	0.77		1
Total Penta-Dioxins	3.90		0.0913	2.66	1.61		1
Total Hexa-Dioxins	43.8		0.194	2.66	1.41		1
Total Hepta-Dioxins	275		0.106	2.66	1.04		1
Total Tetra-Furans	63.3		0.260	0.531	0.69		1
Total Penta-Furans	10.7		0.0665	2.66	1.58		1
Total Hexa-Furans	26.1		0.187	2.66	1.17		1
Total Hepta-Furans	51.0		0.306	2.66	1.02		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 11:20
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0006	**Units:**	Percent
Lab Code:	E1801093-011	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/17/18 16:58
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.566g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519439	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519435

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	937.247	47		25-164	0.79	1.023
13C-1,2,3,7,8-PeCDD	2000	1511.526	76		25-181	1.60	1.209
13C-1,2,3,4,7,8-HxCDD	2000	1377.558	69		32-141	1.29	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1309.850	65		28-130	1.30	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1816.272	91		23-140	1.08	1.071
13C-OCDD	4000	2900.891	73		17-157	0.89	1.149
13C-2,3,7,8-TCDF	2000	1201.570	60		24-169	0.78	0.990
13C-1,2,3,7,8-PeCDF	2000	1481.171	74		24-185	1.60	1.162
13C-2,3,4,7,8-PeCDF	2000	1365.344	68		21-178	1.58	1.197
13C-1,2,3,4,7,8-HxCDF	2000	1190.508	60		26-152	0.52	0.969
13C-1,2,3,6,7,8-HxCDF	2000	1232.495	62		26-123	0.52	0.972
13C-1,2,3,7,8,9-HxCDF	2000	1328.428	66		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1186.660	59		28-136	0.53	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1306.536	65		28-143	0.45	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	1384.556	69		26-138	0.45	1.084
37Cl-2,3,7,8-TCDD	800	533.626	67		35-197	NA	1.024

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 11:20
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0006	**Units:**	ng/Kg
Lab Code:	E1801093-011	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**8.43**	0.592	0.592	1	1	8.43
1,2,3,7,8-PeCDD	**0.466**	0.0913	2.66	1	1	0.466
1,2,3,4,7,8-HxCDD	**1.11**	0.190	2.66	1	0.1	0.111
1,2,3,6,7,8-HxCDD	**5.49**	0.201	2.66	1	0.1	0.549
1,2,3,7,8,9-HxCDD	**3.06**	0.191	2.66	1	0.1	0.306
1,2,3,4,6,7,8-HpCDD	**124**	0.106	2.66	1	0.01	1.24
OCDD	**1990**	0.156	5.31	1	0.0003	0.597
2,3,7,8-TCDF	**31.5**	0.260	0.531	1	0.1	3.15
1,2,3,7,8-PeCDF	**0.919**	0.290	2.66	1	0.03	0.0276
2,3,4,7,8-PeCDF	**1.84**	0.308	2.66	1	0.3	0.552
1,2,3,4,7,8-HxCDF	**1.86**	0.180	2.66	1	0.1	0.186
1,2,3,6,7,8-HxCDF	**1.11**	0.172	2.66	1	0.1	0.111
1,2,3,7,8,9-HxCDF	**0.310**	0.206	2.66	1	0.1	0.0310
2,3,4,6,7,8-HxCDF	**1.64**	0.194	2.66	1	0.1	0.164
1,2,3,4,6,7,8-HpCDF	**18.5**	0.263	2.66	1	0.01	0.185
1,2,3,4,7,8,9-HpCDF	**1.19**	0.358	2.66	1	0.01	0.0119
OCDF	**45.9**	0.256	5.31	1	0.0003	0.0138
		Total TEQ				16.1

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 11:20
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0006	**Units:**	Percent
Lab Code:	E1801093-011	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/14/18 15:21
	7.22g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	89.1		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 11:25
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0007	**Units:**	ng/Kg
Lab Code:	E1801093-012	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/17/18 17:47
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.237g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519440	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519435

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	350		1.68	1.68	0.79	1.001	1
1,2,3,7,8-PeCDD	7.93		0.507	6.69	1.36	1.001	1
1,2,3,4,7,8-HxCDD	5.68	**J**	0.701	6.69	1.41	1.000	1
1,2,3,6,7,8-HxCDD	42.2		0.758	6.69	1.21	1.000	1
1,2,3,7,8,9-HxCDD	25.3		0.711	6.69	1.29	1.007	1
1,2,3,4,6,7,8-HpCDD	672		1.58	6.69	1.04	1.000	1
OCDD	8620		0.566	13.4	0.89	1.000	1
2,3,7,8-TCDF	757		0.851	1.34	0.77	1.001	1
1,2,3,7,8-PeCDF	24.8		1.42	6.69	1.46	1.001	1
2,3,4,7,8-PeCDF	27.2		1.50	6.69	1.53	1.001	1
1,2,3,4,7,8-HxCDF	49.0		0.881	6.69	1.20	1.000	1
1,2,3,6,7,8-HxCDF	24.8		0.895	6.69	1.26	1.000	1
1,2,3,7,8,9-HxCDF	6.60	**JK**	0.956	6.69	0.95	1.001	1
2,3,4,6,7,8-HxCDF	17.4		0.960	6.69	1.25	1.000	1
1,2,3,4,6,7,8-HpCDF	246		1.83	6.69	1.04	1.000	1
1,2,3,4,7,8,9-HpCDF	16.0		2.52	6.69	0.94	1.000	1
OCDF	317		0.991	13.4	0.87	1.004	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 11:25
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0007	**Units:**	ng/Kg
Lab Code:	E1801093-012	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/17/18 17:47
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.237g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519440	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519435

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	390		1.68	1.68	0.79		1
Total Penta-Dioxins	38.9		0.507	6.69	1.61		1
Total Hexa-Dioxins	312		0.723	6.69	1.26		1
Total Hepta-Dioxins	1340		1.58	6.69	1.04		1
Total Tetra-Furans	1400		0.851	1.34	0.85		1
Total Penta-Furans	143		0.168	6.69	1.46		1
Total Hexa-Furans	324		0.921	6.69	1.23		1
Total Hepta-Furans	610		2.14	6.69	1.04		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 11:25
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0007	**Units:**	Percent
Lab Code:	E1801093-012	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/17/18 17:47
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.237g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519440	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519435

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	600.867	30		25-164	0.80	1.023
13C-1,2,3,7,8-PeCDD	2000	988.866	49		25-181	1.63	1.209
13C-1,2,3,4,7,8-HxCDD	2000	902.764	45		32-141	1.32	0.991
13C-1,2,3,6,7,8-HxCDD	2000	813.178	41		28-130	1.33	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1067.251	53		23-140	1.05	1.071
13C-OCDD	4000	1484.758	37		17-157	0.91	1.149
13C-2,3,7,8-TCDF	2000	790.233	40		24-169	0.80	0.990
13C-1,2,3,7,8-PeCDF	2000	942.105	47		24-185	1.57	1.162
13C-2,3,4,7,8-PeCDF	2000	890.616	45		21-178	1.60	1.197
13C-1,2,3,4,7,8-HxCDF	2000	746.788	37		26-152	0.51	0.968
13C-1,2,3,6,7,8-HxCDF	2000	762.672	38		26-123	0.51	0.972
13C-1,2,3,7,8,9-HxCDF	2000	838.437	42		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	760.841	38		28-136	0.53	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	778.393	39		28-143	0.45	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	826.771	41		26-138	0.45	1.083
37Cl-2,3,7,8-TCDD	800	357.053	45		35-197	NA	1.024

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 11:25
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0007	**Units:**	ng/Kg
Lab Code:	E1801093-012	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**350**	1.68	1.68	1	1	350
1,2,3,7,8-PeCDD	**7.93**	0.507	6.69	1	1	7.93
1,2,3,4,7,8-HxCDD	**5.68**	0.701	6.69	1	0.1	0.568
1,2,3,6,7,8-HxCDD	**42.2**	0.758	6.69	1	0.1	4.22
1,2,3,7,8,9-HxCDD	**25.3**	0.711	6.69	1	0.1	2.53
1,2,3,4,6,7,8-HpCDD	**672**	1.58	6.69	1	0.01	6.72
OCDD	**8620**	0.566	13.4	1	0.0003	2.59
2,3,7,8-TCDF	**757**	0.851	1.34	1	0.1	75.7
1,2,3,7,8-PeCDF	**24.8**	1.42	6.69	1	0.03	0.744
2,3,4,7,8-PeCDF	**27.2**	1.50	6.69	1	0.3	8.16
1,2,3,4,7,8-HxCDF	**49.0**	0.881	6.69	1	0.1	4.90
1,2,3,6,7,8-HxCDF	**24.8**	0.895	6.69	1	0.1	2.48
1,2,3,7,8,9-HxCDF	**6.60**	0.956	6.69	1	0.1	0.660
2,3,4,6,7,8-HxCDF	**17.4**	0.960	6.69	1	0.1	1.74
1,2,3,4,6,7,8-HpCDF	**246**	1.83	6.69	1	0.01	2.46
1,2,3,4,7,8,9-HpCDF	**16.0**	2.52	6.69	1	0.01	0.160
OCDF	**317**	0.991	13.4	1	0.0003	0.0951
		Total TEQ				472

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 11:25
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0007	**Units:**	Percent
Lab Code:	E1801093-012	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/14/18 15:21
	5.492g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	36.5		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 11:30
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0008	**Units:**	ng/Kg
Lab Code:	E1801093-013	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/21/18 04:57
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.229g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519535	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519532

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	157000		1650	1650	0.79	1.001	500
1,2,3,7,8-PeCDD	387**JK**		195	2630	2.52	1.001	500
1,2,3,4,7,8-HxCDD	ND	U	263	2630			500
1,2,3,6,7,8-HxCDD	ND	U	273	2630			500
1,2,3,7,8,9-HxCDD	ND	U	262	2630			500
1,2,3,4,6,7,8-HpCDD	1020**JK**		231	2630	0.81	1.000	500
OCDD	29100		998	5260	0.99	1.000	500
2,3,7,8-TCDF	260000		454	526	0.75	1.001	500
1,2,3,7,8-PeCDF	6660		218	2630	1.34	1.000	500
2,3,4,7,8-PeCDF	4960**K**		248	2630	1.25	1.001	500
1,2,3,4,7,8-HxCDF	16100		187	2630	1.30	1.000	500
1,2,3,6,7,8-HxCDF	4130		177	2630	1.13	1.000	500
1,2,3,7,8,9-HxCDF	1920**JK**		260	2630	0.92	1.001	500
2,3,4,6,7,8-HxCDF	949**JK**		194	2630	1.48	1.001	500
1,2,3,4,6,7,8-HpCDF	2980**K**		270	2630	0.86	1.000	500
1,2,3,4,7,8,9-HpCDF	1110**JK**		423	2630	1.55	1.000	500
OCDF	1010**JK**		900	5260	2.21	1.005	500

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 11:30
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0008	**Units:**	ng/Kg
Lab Code:	E1801093-013	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/21/18 04:57
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.229g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519535	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519532

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	173000		1650	1650	0.79		500
Total Penta-Dioxins	ND	U	195	2630			500
Total Hexa-Dioxins	ND	U	255	2630			500
Total Hepta-Dioxins	ND	U	231	2630			500
Total Tetra-Furans	404000		454	526	0.71		500
Total Penta-Furans	9720		249	2630	1.34		500
Total Hexa-Furans	19600		195	2630	1.30		500
Total Hepta-Furans	ND	U	331	2630			500

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 11:30
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0008	**Units:**	ng/Kg
Lab Code:	E1801093-013	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/17/18 18:36
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.229g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519441	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519435

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	90100	**E**	2.64	2.64	0.79	1.001	1
1,2,3,7,8-PeCDD	602		0.512	5.26	1.62	1.001	1
1,2,3,4,7,8-HxCDD	5.61	**K**	0.707	5.26	1.52	1.000	1
1,2,3,6,7,8-HxCDD	35.8		0.802	5.26	1.35	1.000	1
1,2,3,7,8,9-HxCDD	10.2		0.735	5.26	1.32	1.007	1
1,2,3,4,6,7,8-HpCDD	872		0.285	5.26	1.03	1.000	1
OCDD	17800	**E**	0.634	10.5	0.89	1.000	1
2,3,7,8-TCDF	169000	**E**	2.45	2.45	0.83	1.001	1
1,2,3,7,8-PeCDF	6000	**E**	1.36	5.26	1.54	1.001	1
2,3,4,7,8-PeCDF	4710	**E**	1.30	5.26	1.54	1.001	1
1,2,3,4,7,8-HxCDF	10900	**E**	5.05	5.26	1.23	1.000	1
1,2,3,6,7,8-HxCDF	2600		4.59	5.26	1.22	1.000	1
1,2,3,7,8,9-HxCDF	860		5.30	5.30	1.23	1.001	1
2,3,4,6,7,8-HxCDF	476		4.70	5.26	1.22	1.000	1
1,2,3,4,6,7,8-HpCDF	2510		5.16	5.26	1.03	1.000	1
1,2,3,4,7,8,9-HpCDF	1060		6.99	6.99	1.00	1.000	1
OCDF	1460		0.619	10.5	0.89	1.004	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 11:30
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0008	**Units:**	ng/Kg
Lab Code:	E1801093-013	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/17/18 18:36
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.229g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519441	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519435

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	100000		2.64	2.64	0.67		1
Total Penta-Dioxins	671		0.512	5.26	1.52		1
Total Hexa-Dioxins	226		0.747	5.26	1.26		1
Total Hepta-Dioxins	1750		0.285	5.26	1.03		1
Total Tetra-Furans	314000		2.45	2.45	0.77		1
Total Penta-Furans	16100		0.132	5.26	1.55		1
Total Hexa-Furans	16000		4.90	5.26	1.21		1
Total Hepta-Furans	4440		5.97	5.97	1.03		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 11:30
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0008	**Units:**	Percent
Lab Code:	E1801093-013	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/17/18 18:36
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.229g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519441	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519435

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	1085.136	54		25-164	0.82	1.019
13C-1,2,3,7,8-PeCDD	2000	1864.928	93		25-181	1.62	1.197
13C-1,2,3,4,7,8-HxCDD	2000	1508.294	75		32-141	1.29	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1374.015	69		28-130	1.25	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1637.066	82		23-140	1.05	1.070
13C-OCDD	4000	1974.375	49		17-157	0.91	1.149
13C-2,3,7,8-TCDF	2000	1486.255	74		24-169	0.83	0.988
13C-1,2,3,7,8-PeCDF	2000	1772.581	89		24-185	1.61	1.153
13C-2,3,4,7,8-PeCDF	2000	1520.607	76		21-178	1.57	1.187
13C-1,2,3,4,7,8-HxCDF	2000	1291.923	65		26-152	0.51	0.970
13C-1,2,3,6,7,8-HxCDF	2000	1280.323	64		26-123	0.51	0.973
13C-1,2,3,7,8,9-HxCDF	2000	1406.928	70		29-147	0.49	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1350.930	68		28-136	0.51	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1242.495	62		28-143	0.45	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	1253.239	63		26-138	0.43	1.083
37Cl-2,3,7,8-TCDD	1600	1737.797	109		35-197	NA	1.019

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 11:30
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0008	**Units:**	Percent
Lab Code:	E1801093-013	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/21/18 04:57
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.229g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519535	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519532

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	3700	1336.904	36		25-164	0.78	1.024
13C-1,2,3,7,8-PeCDD	2150	2017.764	94		25-181	1.61	1.211
13C-1,2,3,4,7,8-HxCDD	2670	1794.403	67		32-141	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2900	1887.211	65		28-130	1.25	0.994
13C-1,2,3,4,6,7,8-HpCDD	2440	2349.522	96		23-140	1.02	1.074
13C-OCDD	8160	4466.373	55		17-157	0.89	1.156
13C-2,3,7,8-TCDF	2700	1669.573	62		24-169	0.82	0.991
13C-1,2,3,7,8-PeCDF	2250	1977.479	88		24-185	1.60	1.163
13C-2,3,4,7,8-PeCDF	2630	1860.177	71		21-178	1.57	1.198
13C-1,2,3,4,7,8-HxCDF	3080	1662.290	54		26-152	0.51	0.968
13C-1,2,3,6,7,8-HxCDF	3130	1791.576	57		26-123	0.53	0.972
13C-1,2,3,7,8,9-HxCDF	2860	1677.269	59		29-147	0.49	1.008
13C-2,3,4,6,7,8-HxCDF	2940	1778.024	60		28-136	0.52	0.986
13C-1,2,3,4,6,7,8-HpCDF	3230	1972.783	61		28-143	0.42	1.046
13C-1,2,3,4,7,8,9-HpCDF	3170	1931.146	61		26-138	0.47	1.086
37Cl-2,3,7,8-TCDD	3.20	7.616	238	**Y**	35-197	NA	1.025

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 11:30
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0008	**Units:**	ng/Kg
Lab Code:	E1801093-013	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**90100**	2.64	2.64	1	1	90100
2,3,7,8-TCDD	**157000**	1650	1650	500	1	157000
1,2,3,7,8-PeCDD	**602**	0.512	5.26	1	1	602
1,2,3,4,7,8-HxCDD	**5.61**	0.707	5.26	1	0.1	0.561
1,2,3,6,7,8-HxCDD	**35.8**	0.802	5.26	1	0.1	3.58
1,2,3,7,8,9-HxCDD	**10.2**	0.735	5.26	1	0.1	1.02
1,2,3,4,6,7,8-HpCDD	**872**	0.285	5.26	1	0.01	8.72
OCDD	**17800**	0.634	10.5	1	0.0003	5.34
OCDD	**29100**	998	5260	500	0.0003	8.73
2,3,7,8-TCDF	**169000**	2.45	2.45	1	0.1	16900
2,3,7,8-TCDF	**260000**	454	526	500	0.1	26000
1,2,3,7,8-PeCDF	**6000**	1.36	5.26	1	0.03	180
1,2,3,7,8-PeCDF	**6660**	218	2630	500	0.03	200
2,3,4,7,8-PeCDF	**4710**	1.30	5.26	1	0.3	1410
2,3,4,7,8-PeCDF	**4960**	248	2630	500	0.3	1490
1,2,3,4,7,8-HxCDF	**10900**	5.05	5.26	1	0.1	1090
1,2,3,4,7,8-HxCDF	**16100**	187	2630	500	0.1	1610
1,2,3,6,7,8-HxCDF	**2600**	4.59	5.26	1	0.1	260
1,2,3,7,8,9-HxCDF	**860**	5.30	5.30	1	0.1	86.0
2,3,4,6,7,8-HxCDF	**476**	4.70	5.26	1	0.1	47.6
1,2,3,4,6,7,8-HpCDF	**2510**	5.16	5.26	1	0.01	25.1
1,2,3,4,7,8,9-HpCDF	**1060**	6.99	6.99	1	0.01	10.6
OCDF	**1460**	0.619	10.5	1	0.0003	0.438
		Total TEQ				187000
		Total TEQ				187000

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 11:30
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0008	**Units:**	Percent
Lab Code:	E1801093-013	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/14/18 15:21
	5.592g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	46.5		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 11:35
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0009	**Units:**	ng/Kg
Lab Code:	E1801093-014	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/21/18 05:46
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.399g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519536	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519532

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	821		16.8	16.8	0.76	1.001	10
1,2,3,7,8-PeCDD	11.2	**J**	3.54	35.0	1.46	1.001	10
1,2,3,4,7,8-HxCDD	4.59	**JK**	3.80	35.0	2.14	1.000	10
1,2,3,6,7,8-HxCDD	25.6	**J**	4.10	35.0	1.34	1.001	10
1,2,3,7,8,9-HxCDD	13.0	**JK**	3.86	35.0	0.88	1.007	10
1,2,3,4,6,7,8-HpCDD	396		2.86	35.0	1.04	1.000	10
OCDD	12600		12.0	70.0	0.92	1.001	10
2,3,7,8-TCDF	1590		5.87	7.00	0.78	1.001	10
1,2,3,7,8-PeCDF	23.4	**JK**	5.72	35.0	1.17	1.001	10
2,3,4,7,8-PeCDF	16.8	**JK**	6.05	35.0	3.65	1.001	10
1,2,3,4,7,8-HxCDF	63.9		3.21	35.0	1.31	1.001	10
1,2,3,6,7,8-HxCDF	18.9	**J**	3.06	35.0	1.17	1.000	10
1,2,3,7,8,9-HxCDF	12.5	**J**	4.20	35.0	1.29	1.001	10
2,3,4,6,7,8-HxCDF	16.5	**J**	3.20	35.0	1.08	1.000	10
1,2,3,4,6,7,8-HpCDF	290		5.44	35.0	1.03	1.000	10
1,2,3,4,7,8,9-HpCDF	34.5	**JK**	8.44	35.0	1.49	1.000	10
OCDF	16100		11.3	70.0	0.84	1.005	10

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 11:35
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0009	**Units:**	ng/Kg
Lab Code:	E1801093-014	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/21/18 05:46
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.399g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519536	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519532

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	821		16.8	16.8	0.76		10
Total Penta-Dioxins	37.4		3.54	35.0	1.76		10
Total Hexa-Dioxins	235		3.77	35.0	1.25		10
Total Hepta-Dioxins	1030		2.86	35.0	0.93		10
Total Tetra-Furans	2770		5.87	7.00	0.70		10
Total Penta-Furans	ND	U	6.02	35.0			10
Total Hexa-Furans	283		3.32	35.0	1.39		10
Total Hepta-Furans	635		6.86	35.0	1.03		10

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 11:35
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0009	**Units:**	ng/Kg
Lab Code:	E1801093-014	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/17/18 19:24
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.399g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519442	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519435

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	484		0.978	0.978	0.77	1.001	1
1,2,3,7,8-PeCDD	5.37	**K**	0.659	3.50	1.23	1.001	1
1,2,3,4,7,8-HxCDD	3.73		0.339	3.50	1.14	1.000	1
1,2,3,6,7,8-HxCDD	18.0		0.379	3.50	1.30	1.000	1
1,2,3,7,8,9-HxCDD	8.03		0.350	3.50	1.22	1.007	1
1,2,3,4,6,7,8-HpCDD	330		1.44	3.50	1.06	1.000	1
OCDD	6950	**E**	0.615	7.00	0.89	1.000	1
2,3,7,8-TCDF	1160	**E**	0.896	0.896	0.76	1.001	1
1,2,3,7,8-PeCDF	19.9		0.572	3.50	1.66	1.000	1
2,3,4,7,8-PeCDF	28.3		0.611	3.50	1.58	1.001	1
1,2,3,4,7,8-HxCDF	35.2		1.31	3.50	1.21	1.000	1
1,2,3,6,7,8-HxCDF	11.0		1.31	3.50	1.13	1.000	1
1,2,3,7,8,9-HxCDF	4.91		1.50	3.50	1.18	1.001	1
2,3,4,6,7,8-HxCDF	9.45		1.39	3.50	1.30	1.000	1
1,2,3,4,6,7,8-HpCDF	207		1.48	3.50	1.01	1.000	1
1,2,3,4,7,8,9-HpCDF	16.9		2.11	3.50	1.05	1.000	1
OCDF	8660	**E**	0.403	7.00	0.89	1.004	1

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 11:35
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0009	**Units:**	ng/Kg
Lab Code:	E1801093-014	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/17/18 19:24
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.399g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519442	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519435

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	538		0.978	0.978	0.71		1
Total Penta-Dioxins	21.3		0.659	3.50	1.73		1
Total Hexa-Dioxins	186		0.355	3.50	1.25		1
Total Hepta-Dioxins	843		1.44	3.50	1.04		1
Total Tetra-Furans	2020		0.896	0.896	0.74		1
Total Penta-Furans	157		0.0877	3.50	1.72		1
Total Hexa-Furans	191		1.37	3.50	1.29		1
Total Hepta-Furans	467		1.76	3.50	1.01		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 11:35
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0009	**Units:**	Percent
Lab Code:	E1801093-014	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/17/18 19:24
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.399g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519442	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519435

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	1119.121	56		25-164	0.80	1.023
13C-1,2,3,7,8-PeCDD	2000	1798.728	90		25-181	1.59	1.208
13C-1,2,3,4,7,8-HxCDD	2000	1618.669	81		32-141	1.27	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1501.538	75		28-130	1.28	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1599.976	80		23-140	1.10	1.071
13C-OCDD	4000	1742.442	44		17-157	0.91	1.150
13C-2,3,7,8-TCDF	2000	1468.780	73		24-169	0.80	0.990
13C-1,2,3,7,8-PeCDF	2000	1682.883	84		24-185	1.58	1.161
13C-2,3,4,7,8-PeCDF	2000	1599.888	80		21-178	1.59	1.197
13C-1,2,3,4,7,8-HxCDF	2000	1376.217	69		26-152	0.52	0.969
13C-1,2,3,6,7,8-HxCDF	2000	1384.506	69		26-123	0.51	0.973
13C-1,2,3,7,8,9-HxCDF	2000	1456.732	73		29-147	0.53	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1395.289	70		28-136	0.51	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1230.102	62		28-143	0.44	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	1193.286	60		26-138	0.43	1.084
37Cl-2,3,7,8-TCDD	800	655.302	82		35-197	NA	1.025

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 11:35
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0009	**Units:**	Percent
Lab Code:	E1801093-014	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/21/18 05:46
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.399g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519536	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519532

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	3570	1284.523	36		25-164	0.79	1.023
13C-1,2,3,7,8-PeCDD	2220	2008.524	90		25-181	1.62	1.209
13C-1,2,3,4,7,8-HxCDD	2470	1915.305	78		32-141	1.27	0.991
13C-1,2,3,6,7,8-HxCDD	2670	1896.353	71		28-130	1.24	0.993
13C-1,2,3,4,6,7,8-HpCDD	2500	2424.236	97		23-140	1.09	1.074
13C-OCDD	9090	4275.516	47		17-157	0.85	1.156
13C-2,3,7,8-TCDF	2740	1629.840	59		24-169	0.80	0.990
13C-1,2,3,7,8-PeCDF	2380	1968.185	83		24-185	1.64	1.162
13C-2,3,4,7,8-PeCDF	2500	1838.065	74		21-178	1.61	1.198
13C-1,2,3,4,7,8-HxCDF	2900	1682.849	58		26-152	0.52	0.968
13C-1,2,3,6,7,8-HxCDF	2900	1784.963	62		26-123	0.51	0.972
13C-1,2,3,7,8,9-HxCDF	2740	1705.137	62		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2860	1809.156	63		28-136	0.51	0.986
13C-1,2,3,4,6,7,8-HpCDF	3230	2002.498	62		28-143	0.44	1.046
13C-1,2,3,4,7,8,9-HpCDF	3330	1961.332	59		26-138	0.45	1.086
37Cl-2,3,7,8-TCDD	80.0	74.412	93		35-197	NA	1.024

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 11:35
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0009	**Units:**	ng/Kg
Lab Code:	E1801093-014	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**484**	0.978	0.978	1	1	484
1,2,3,7,8-PeCDD	**5.37**	0.659	3.50	1	1	5.37
1,2,3,4,7,8-HxCDD	**3.73**	0.339	3.50	1	0.1	0.373
1,2,3,6,7,8-HxCDD	**18.0**	0.379	3.50	1	0.1	1.80
1,2,3,7,8,9-HxCDD	**8.03**	0.350	3.50	1	0.1	0.803
1,2,3,4,6,7,8-HpCDD	**330**	1.44	3.50	1	0.01	3.30
OCDD	**6950**	0.615	7.00	1	0.0003	2.09
OCDD	**12600**	12.0	70.0	10	0.0003	3.78
2,3,7,8-TCDF	**1160**	0.896	0.896	1	0.1	116
2,3,7,8-TCDF	**1590**	5.87	7.00	10	0.1	159
1,2,3,7,8-PeCDF	**19.9**	0.572	3.50	1	0.03	0.597
2,3,4,7,8-PeCDF	**28.3**	0.611	3.50	1	0.3	8.49
1,2,3,4,7,8-HxCDF	**35.2**	1.31	3.50	1	0.1	3.52
1,2,3,6,7,8-HxCDF	**11.0**	1.31	3.50	1	0.1	1.10
1,2,3,7,8,9-HxCDF	**4.91**	1.50	3.50	1	0.1	0.491
2,3,4,6,7,8-HxCDF	**9.45**	1.39	3.50	1	0.1	0.945
1,2,3,4,6,7,8-HpCDF	**207**	1.48	3.50	1	0.01	2.07
1,2,3,4,7,8,9-HpCDF	**16.9**	2.11	3.50	1	0.01	0.169
OCDF	**8660**	0.403	7.00	1	0.0003	2.60
OCDF	**16100**	11.3	70.0	10	0.0003	4.83
		Total TEQ				681
		Total TEQ				681

2005 WHO TEFs, ND = 0

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 11:35
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0009	**Units:**	Percent
Lab Code:	E1801093-014	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/14/18 15:21
	6.166g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	68.7		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 11:40
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0010	**Units:**	ng/Kg
Lab Code:	E1801093-015	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/21/18 06:35
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.610g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519537	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519532

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	419		5.93	5.93	0.85	1.001	5
1,2,3,7,8-PeCDD	3.69	**JK**	2.21	16.4	1.05	1.001	5
1,2,3,4,7,8-HxCDD	5.89	**JK**	1.65	16.4	1.52	1.000	5
1,2,3,6,7,8-HxCDD	17.6		1.78	16.4	1.25	1.000	5
1,2,3,7,8,9-HxCDD	6.14	**JK**	1.68	16.4	0.77	1.007	5
1,2,3,4,6,7,8-HpCDD	279		1.23	16.4	1.06	1.000	5
OCDD	8220		6.06	32.8	0.87	1.000	5
2,3,7,8-TCDF	828		3.32	3.32	0.75	1.001	5
1,2,3,7,8-PeCDF	10.9	**JK**	1.66	16.4	1.83	1.001	5
2,3,4,7,8-PeCDF	14.9	**JK**	1.76	16.4	1.25	1.001	5
1,2,3,4,7,8-HxCDF	26.9		1.79	16.4	1.27	1.000	5
1,2,3,6,7,8-HxCDF	10.4	**J**	1.64	16.4	1.20	1.000	5
1,2,3,7,8,9-HxCDF	5.25	**JK**	1.99	16.4	0.96	1.001	5
2,3,4,6,7,8-HxCDF	7.23	**JK**	1.71	16.4	1.48	1.000	5
1,2,3,4,6,7,8-HpCDF	170		1.42	16.4	0.99	1.000	5
1,2,3,4,7,8,9-HpCDF	13.5	**J**	2.02	16.4	0.92	1.000	5
OCDF	9930		6.05	32.8	0.88	1.005	5

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 11:40
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0010	**Units:**	ng/Kg
Lab Code:	E1801093-015	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/21/18 06:35
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.610g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519537	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519532

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	452		5.93	5.93	0.85		5
Total Penta-Dioxins	4.88	**J**	2.21	16.4	1.40		5
Total Hexa-Dioxins	135		1.65	16.4	1.41		5
Total Hepta-Dioxins	716		1.23	16.4	1.09		5
Total Tetra-Furans	1310		3.32	3.32	0.85		5
Total Penta-Furans	62.9		1.78	16.4	1.54		5
Total Hexa-Furans	142		1.75	16.4	1.36		5
Total Hepta-Furans	463		1.69	16.4	0.99		5

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 11:40
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0010	**Units:**	ng/Kg
Lab Code:	E1801093-015	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/17/18 20:13
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.610g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519443	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519435

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	285		0.772	0.772	0.78	1.001	1
1,2,3,7,8-PeCDD	4.05		0.601	3.28	1.52	1.001	1
1,2,3,4,7,8-HxCDD	2.54	**JK**	0.524	3.28	1.49	1.000	1
1,2,3,6,7,8-HxCDD	13.6		0.608	3.28	1.25	1.000	1
1,2,3,7,8,9-HxCDD	5.94		0.552	3.28	1.21	1.007	1
1,2,3,4,6,7,8-HpCDD	254		0.336	3.28	1.03	1.000	1
OCDD	5350	**E**	0.802	6.55	0.89	1.000	1
2,3,7,8-TCDF	688	**E**	0.681	0.681	0.76	1.001	1
1,2,3,7,8-PeCDF	10.5		0.443	3.28	1.60	1.000	1
2,3,4,7,8-PeCDF	17.2		0.513	3.28	1.66	1.001	1
1,2,3,4,7,8-HxCDF	19.2		0.845	3.28	1.22	1.000	1
1,2,3,6,7,8-HxCDF	6.32		0.877	3.28	1.25	1.000	1
1,2,3,7,8,9-HxCDF	3.22	**J**	0.973	3.28	1.30	1.001	1
2,3,4,6,7,8-HxCDF	6.51		0.902	3.28	1.26	1.000	1
1,2,3,4,6,7,8-HpCDF	142		0.424	3.28	1.00	1.000	1
1,2,3,4,7,8,9-HpCDF	12.8		0.594	3.28	1.07	1.000	1
OCDF	6210	**E**	0.529	6.55	0.88	1.004	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 11:40
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0010	**Units:**	ng/Kg
Lab Code:	E1801093-015	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/17/18 20:13
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.610g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519443	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519435

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	313		0.772	0.772	0.71		1
Total Penta-Dioxins	25.1		0.601	3.28	1.52		1
Total Hexa-Dioxins	145		0.560	3.28	1.23		1
Total Hepta-Dioxins	684		0.336	3.28	1.05		1
Total Tetra-Furans	1190		0.681	0.681	0.78		1
Total Penta-Furans	103		0.0821	3.28	1.47		1
Total Hexa-Furans	140		0.897	3.28	1.17		1
Total Hepta-Furans	354		0.499	3.28	1.00		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 11:40
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0010	**Units:**	Percent
Lab Code:	E1801093-015	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/17/18 20:13
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.610g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519443	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519435

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	1043.399	52		25-164	0.80	1.023
13C-1,2,3,7,8-PeCDD	2000	1685.502	84		25-181	1.56	1.208
13C-1,2,3,4,7,8-HxCDD	2000	1461.979	73		32-141	1.28	0.990
13C-1,2,3,6,7,8-HxCDD	2000	1374.397	69		28-130	1.27	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1484.958	74		23-140	1.05	1.071
13C-OCDD	4000	1614.590	40		17-157	0.89	1.150
13C-2,3,7,8-TCDF	2000	1304.282	65		24-169	0.81	0.990
13C-1,2,3,7,8-PeCDF	2000	1599.413	80		24-185	1.61	1.161
13C-2,3,4,7,8-PeCDF	2000	1451.301	73		21-178	1.58	1.197
13C-1,2,3,4,7,8-HxCDF	2000	1289.540	64		26-152	0.53	0.969
13C-1,2,3,6,7,8-HxCDF	2000	1254.961	63		26-123	0.52	0.972
13C-1,2,3,7,8,9-HxCDF	2000	1366.735	68		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1291.945	65		28-136	0.51	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1123.782	56		28-143	0.44	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	1122.226	56		26-138	0.44	1.083
37Cl-2,3,7,8-TCDD	800	622.890	78		35-197	NA	1.024

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 11:40
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0010	**Units:**	Percent
Lab Code:	E1801093-015	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/21/18 06:35
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.610g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519537	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519532

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	3850	1153.735	30		25-164	0.83	1.023
13C-1,2,3,7,8-PeCDD	2380	1875.613	79		25-181	1.57	1.209
13C-1,2,3,4,7,8-HxCDD	2740	1595.496	58		32-141	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2900	1560.786	54		28-130	1.25	0.993
13C-1,2,3,4,6,7,8-HpCDD	2700	2051.803	76		23-140	1.06	1.074
13C-OCDD	10000	3772.376	38		17-157	0.93	1.156
13C-2,3,7,8-TCDF	3080	1463.605	48		24-169	0.80	0.990
13C-1,2,3,7,8-PeCDF	2500	1818.996	73		24-185	1.63	1.162
13C-2,3,4,7,8-PeCDF	2740	1707.324	62		21-178	1.61	1.198
13C-1,2,3,4,7,8-HxCDF	3130	1358.069	43		26-152	0.53	0.968
13C-1,2,3,6,7,8-HxCDF	3170	1450.055	46		26-123	0.52	0.972
13C-1,2,3,7,8,9-HxCDF	2940	1559.036	53		29-147	0.53	1.008
13C-2,3,4,6,7,8-HxCDF	3080	1528.130	50		28-136	0.52	0.986
13C-1,2,3,4,6,7,8-HpCDF	3570	1634.406	46		28-143	0.45	1.046
13C-1,2,3,4,7,8,9-HpCDF	3570	1727.005	48		26-138	0.46	1.086
37Cl-2,3,7,8-TCDD	160	107.293	67		35-197	NA	1.024

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 11:40
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0010	**Units:**	ng/Kg
Lab Code:	E1801093-015	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**285**	0.772	0.772	1	1	285
1,2,3,7,8-PeCDD	**4.05**	0.601	3.28	1	1	4.05
1,2,3,4,7,8-HxCDD	**2.54**	0.524	3.28	1	0.1	0.254
1,2,3,6,7,8-HxCDD	**13.6**	0.608	3.28	1	0.1	1.36
1,2,3,7,8,9-HxCDD	**5.94**	0.552	3.28	1	0.1	0.594
1,2,3,4,6,7,8-HpCDD	**254**	0.336	3.28	1	0.01	2.54
OCDD	**5350**	0.802	6.55	1	0.0003	1.61
OCDD	**8220**	6.06	32.8	5	0.0003	2.47
2,3,7,8-TCDF	**688**	0.681	0.681	1	0.1	68.8
2,3,7,8-TCDF	**828**	3.32	3.32	5	0.1	82.8
1,2,3,7,8-PeCDF	**10.5**	0.443	3.28	1	0.03	0.315
2,3,4,7,8-PeCDF	**17.2**	0.513	3.28	1	0.3	5.16
1,2,3,4,7,8-HxCDF	**19.2**	0.845	3.28	1	0.1	1.92
1,2,3,6,7,8-HxCDF	**6.32**	0.877	3.28	1	0.1	0.632
1,2,3,7,8,9-HxCDF	**3.22**	0.973	3.28	1	0.1	0.322
2,3,4,6,7,8-HxCDF	**6.51**	0.902	3.28	1	0.1	0.651
1,2,3,4,6,7,8-HpCDF	**142**	0.424	3.28	1	0.01	1.42
1,2,3,4,7,8,9-HpCDF	**12.8**	0.594	3.28	1	0.01	0.128
OCDF	**6210**	0.529	6.55	1	0.0003	1.86
OCDF	**9930**	6.05	32.8	5	0.0003	2.98
		Total TEQ				393
		Total TEQ				393

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 11:40
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0010	**Units:**	Percent
Lab Code:	E1801093-015	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/14/18 15:21
	7.881g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	71.9		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 09:15
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0001	**Units:**	ng/Kg
Lab Code:	E1801093-016	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/21/18 07:23
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.064g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519538	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519532

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	283**K**		23.6	23.6	0.90	1.001	10
1,2,3,7,8-PeCDD	14.6**JK**		5.90	28.2	2.11	1.001	10
1,2,3,4,7,8-HxCDD	ND	U	8.45	28.2			10
1,2,3,6,7,8-HxCDD	96.9		9.14	28.2	1.18	1.001	10
1,2,3,7,8,9-HxCDD	74.8		8.59	28.2	1.31	1.007	10
1,2,3,4,6,7,8-HpCDD	5950		5.59	28.2	1.04	1.000	10
OCDD	111000		26.8	56.4	0.90	1.000	10
2,3,7,8-TCDF	421		6.12	6.12	0.74	1.001	10
1,2,3,7,8-PeCDF	26.9**J**		7.45	28.2	1.47	1.001	10
2,3,4,7,8-PeCDF	64.1**K**		8.02	28.2	1.31	1.001	10
1,2,3,4,7,8-HxCDF	85.5		8.56	28.2	1.24	1.000	10
1,2,3,6,7,8-HxCDF	34.0		7.82	28.2	1.09	1.000	10
1,2,3,7,8,9-HxCDF	13.1**JK**		10.4	28.2	1.54	1.001	10
2,3,4,6,7,8-HxCDF	30.7		8.69	28.2	1.14	1.000	10
1,2,3,4,6,7,8-HpCDF	336		6.71	28.2	0.97	1.000	10
1,2,3,4,7,8,9-HpCDF	46.2**K**		9.93	28.2	2.06	1.001	10
OCDF	1600		25.3	56.4	0.93	1.005	10

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 09:15
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0001	**Units:**	ng/Kg
Lab Code:	E1801093-016	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/21/18 07:23
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.064g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519538	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519532

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	23.6	23.6			10
Total Penta-Dioxins	64.3		5.90	28.2	1.51		10
Total Hexa-Dioxins	1150		8.55	28.2	1.23		10
Total Hepta-Dioxins	11600		5.59	28.2	1.06		10
Total Tetra-Furans	681		6.12	6.12	0.70		10
Total Penta-Furans	206		8.51	28.2	1.65		10
Total Hexa-Furans	377		9.30	28.2	1.16		10
Total Hepta-Furans	1160		8.82	28.2	0.97		10

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 09:15
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0001	**Units:**	ng/Kg
Lab Code:	E1801093-016	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/19/18 19:40
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.064g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519499	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519494

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	186		1.22	1.22	0.75	1.001	1
1,2,3,7,8-PeCDD	13.6		1.53	2.82	1.37	1.001	1
1,2,3,4,7,8-HxCDD	10.3		1.64	2.82	1.07	1.000	1
1,2,3,6,7,8-HxCDD	107		1.90	2.82	1.15	1.000	1
1,2,3,7,8,9-HxCDD	79.4		1.72	2.82	1.15	1.007	1
1,2,3,4,6,7,8-HpCDD	4450	**E**	1.67	2.82	1.03	1.000	1
OCDD	50200	**E**	4.64	5.64	0.89	1.001	1
2,3,7,8-TCDF	400		0.375	0.564	0.77	1.001	1
1,2,3,7,8-PeCDF	28.9		0.672	2.82	1.53	1.001	1
2,3,4,7,8-PeCDF	61.8		0.900	2.82	1.49	1.001	1
1,2,3,4,7,8-HxCDF	95.5		2.51	2.82	1.26	1.000	1
1,2,3,6,7,8-HxCDF	40.0		2.40	2.82	1.31	1.000	1
1,2,3,7,8,9-HxCDF	17.5	**K**	4.03	4.03	1.50	1.001	1
2,3,4,6,7,8-HxCDF	38.6		3.07	3.07	1.26	1.000	1
1,2,3,4,6,7,8-HpCDF	257		1.17	2.82	1.02	1.000	1
1,2,3,4,7,8,9-HpCDF	38.1		2.06	2.82	1.12	1.000	1
OCDF	680		3.99	5.64	0.86	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 09:15
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0001	**Units:**	ng/Kg
Lab Code:	E1801093-016	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/19/18 19:40
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.064g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519499	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519494

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	249		1.22	1.22	0.72		1
Total Penta-Dioxins	141		1.53	2.82	1.58		1
Total Hexa-Dioxins	1670		1.75	2.82	1.21		1
Total Hepta-Dioxins	9560		1.67	2.82	1.03		1
Total Tetra-Furans	861		0.375	0.564	0.73		1
Total Penta-Furans	400		0.0707	2.82	1.59		1
Total Hexa-Furans	570		2.89	2.89	1.17		1
Total Hepta-Furans	870		1.52	2.82	1.02		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 09:15
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0001	**Units:**	Percent
Lab Code:	E1801093-016	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/19/18 19:40
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.064g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519499	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519494

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	730.673	37		25-164	0.80	1.023
13C-1,2,3,7,8-PeCDD	2000	763.171	38		25-181	1.57	1.209
13C-1,2,3,4,7,8-HxCDD	2000	997.921	50		32-141	1.27	0.991
13C-1,2,3,6,7,8-HxCDD	2000	961.806	48		28-130	1.26	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	597.427	30		23-140	1.01	1.073
13C-OCDD	4000	594.390	15	**Y**	17-157	0.92	1.153
13C-2,3,7,8-TCDF	2000	962.450	48		24-169	0.81	0.990
13C-1,2,3,7,8-PeCDF	2000	866.084	43		24-185	1.62	1.161
13C-2,3,4,7,8-PeCDF	2000	678.109	34		21-178	1.60	1.198
13C-1,2,3,4,7,8-HxCDF	2000	1039.432	52		26-152	0.53	0.969
13C-1,2,3,6,7,8-HxCDF	2000	1109.117	55		26-123	0.54	0.972
13C-1,2,3,7,8,9-HxCDF	2000	831.595	42		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	921.163	46		28-136	0.51	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	513.722	26	**Y**	28-143	0.44	1.046
13C-1,2,3,4,7,8,9-HpCDF	2000	417.167	21	**Y**	26-138	0.45	1.086
37Cl-2,3,7,8-TCDD	800	423.474	53		35-197	NA	1.025

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 09:15
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0001	**Units:**	Percent
Lab Code:	E1801093-016	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/21/18 07:23
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.064g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519538	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519532

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	5410	1385.426	26		25-164	0.76	1.023
13C-1,2,3,7,8-PeCDD	5260	2276.533	43		25-181	1.62	1.209
13C-1,2,3,4,7,8-HxCDD	4000	1856.880	46		32-141	1.26	0.991
13C-1,2,3,6,7,8-HxCDD	4170	1895.125	45		28-130	1.30	0.993
13C-1,2,3,4,6,7,8-HpCDD	6670	2574.435	39		23-140	1.03	1.073
13C-OCDD	26700	4763.651	18		17-157	0.91	1.156
13C-2,3,7,8-TCDF	4170	1780.114	43		24-169	0.82	0.990
13C-1,2,3,7,8-PeCDF	4650	2151.495	46		24-185	1.63	1.162
13C-2,3,4,7,8-PeCDF	5880	2044.986	35		21-178	1.60	1.198
13C-1,2,3,4,7,8-HxCDF	3850	1627.368	42		26-152	0.50	0.968
13C-1,2,3,6,7,8-HxCDF	3640	1812.940	50		26-123	0.51	0.972
13C-1,2,3,7,8,9-HxCDF	4760	1795.098	38		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	4350	1824.189	42		28-136	0.53	0.987
13C-1,2,3,4,6,7,8-HpCDF	7690	2045.245	27	**Y**	28-143	0.44	1.046
13C-1,2,3,4,7,8,9-HpCDF	9520	2093.762	22	**Y**	26-138	0.42	1.086
37Cl-2,3,7,8-TCDD	80.0	35.180	44		35-197	NA	1.025

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 09:15
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0001	**Units:**	ng/Kg
Lab Code:	E1801093-016	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**186**	1.22	1.22	1	1	186
1,2,3,7,8-PeCDD	**13.6**	1.53	2.82	1	1	13.6
1,2,3,4,7,8-HxCDD	**10.3**	1.64	2.82	1	0.1	1.03
1,2,3,6,7,8-HxCDD	**107**	1.90	2.82	1	0.1	10.7
1,2,3,7,8,9-HxCDD	**79.4**	1.72	2.82	1	0.1	7.94
1,2,3,4,6,7,8-HpCDD	**4450**	1.67	2.82	1	0.01	44.5
1,2,3,4,6,7,8-HpCDD	**5950**	5.59	28.2	10	0.01	59.5
OCDD	**50200**	4.64	5.64	1	0.0003	15.1
OCDD	**111000**	26.8	56.4	10	0.0003	33.3
2,3,7,8-TCDF	**400**	0.375	0.564	1	0.1	40.0
1,2,3,7,8-PeCDF	**28.9**	0.672	2.82	1	0.03	0.867
2,3,4,7,8-PeCDF	**61.8**	0.900	2.82	1	0.3	18.5
1,2,3,4,7,8-HxCDF	**95.5**	2.51	2.82	1	0.1	9.55
1,2,3,6,7,8-HxCDF	**40.0**	2.40	2.82	1	0.1	4.00
1,2,3,7,8,9-HxCDF	**17.5**	4.03	4.03	1	0.1	1.75
2,3,4,6,7,8-HxCDF	**38.6**	3.07	3.07	1	0.1	3.86
1,2,3,4,6,7,8-HpCDF	**257**	1.17	2.82	1	0.01	2.57
1,2,3,4,7,8,9-HpCDF	**38.1**	2.06	2.82	1	0.01	0.381
OCDF	**680**	3.99	5.64	1	0.0003	0.204
		Total TEQ				394
		Total TEQ				394

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 09:15
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0001	**Units:**	Percent
Lab Code:	E1801093-016	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/14/18 15:21
	10.163g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	88.1		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 09:20
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0002	**Units:**	ng/Kg
Lab Code:	E1801093-017	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/17/18 21:50
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.603g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519445	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519435

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	17.9	**K**	0.990	0.990	0.64	1.000	1
1,2,3,7,8-PeCDD	0.670	**J**	0.261	3.01	1.61	1.001	1
1,2,3,4,7,8-HxCDD	0.731	**JK**	0.244	3.01	2.08	1.000	1
1,2,3,6,7,8-HxCDD	1.51	**J**	0.282	3.01	1.24	1.000	1
1,2,3,7,8,9-HxCDD	2.41	**J**	0.257	3.01	1.25	1.007	1
1,2,3,4,6,7,8-HpCDD	31.0		0.190	3.01	0.99	1.000	1
OCDD	713		0.306	6.02	0.88	1.001	1
2,3,7,8-TCDF	33.8		0.468	0.602	0.79	1.001	1
1,2,3,7,8-PeCDF	1.55	**J**	0.160	3.01	1.49	1.001	1
2,3,4,7,8-PeCDF	1.17	**J**	0.168	3.01	1.62	1.000	1
1,2,3,4,7,8-HxCDF	1.54	**JK**	0.175	3.01	1.48	1.000	1
1,2,3,6,7,8-HxCDF	0.816	**J**	0.159	3.01	1.22	1.000	1
1,2,3,7,8,9-HxCDF	0.446	**J**	0.205	3.01	1.41	1.001	1
2,3,4,6,7,8-HxCDF	0.361	**JK**	0.178	3.01	0.78	1.000	1
1,2,3,4,6,7,8-HpCDF	1.23	**J**	0.150	3.01	1.00	1.000	1
1,2,3,4,7,8,9-HpCDF	0.367	**JK**	0.200	3.01	2.03	1.000	1
OCDF	2.73	**JK**	0.458	6.02	1.31	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 09:20
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0002	**Units:**	ng/Kg
Lab Code:	E1801093-017	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/17/18 21:50
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.603g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519445	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519435

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	4.82		0.990	0.990	0.74		1
Total Penta-Dioxins	3.61		0.261	3.01	1.70		1
Total Hexa-Dioxins	30.2		0.261	3.01	1.22		1
Total Hepta-Dioxins	88.1		0.190	3.01	1.09		1
Total Tetra-Furans	53.7		0.468	0.602	0.78		1
Total Penta-Furans	2.73	**J**	0.164	3.01	1.49		1
Total Hexa-Furans	1.26	**J**	0.178	3.01	1.22		1
Total Hepta-Furans	1.23	**J**	0.172	3.01	1.00		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 09:20
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0002	**Units:**	Percent
Lab Code:	E1801093-017	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/17/18 21:50
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.603g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519445	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519435

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	646.395	32		25-164	0.77	1.023
13C-1,2,3,7,8-PeCDD	2000	1197.653	60		25-181	1.60	1.208
13C-1,2,3,4,7,8-HxCDD	2000	1155.617	58		32-141	1.32	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1065.684	53		28-130	1.20	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1332.838	67		23-140	1.07	1.072
13C-OCDD	4000	1871.912	47		17-157	0.89	1.150
13C-2,3,7,8-TCDF	2000	813.756	41		24-169	0.80	0.990
13C-1,2,3,7,8-PeCDF	2000	1111.811	56		24-185	1.61	1.161
13C-2,3,4,7,8-PeCDF	2000	1065.022	53		21-178	1.60	1.197
13C-1,2,3,4,7,8-HxCDF	2000	934.295	47		26-152	0.52	0.969
13C-1,2,3,6,7,8-HxCDF	2000	987.765	49		26-123	0.51	0.972
13C-1,2,3,7,8,9-HxCDF	2000	986.185	49		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	977.385	49		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	934.980	47		28-143	0.45	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	972.204	49		26-138	0.46	1.084
37Cl-2,3,7,8-TCDD	800	373.855	47		35-197	NA	1.023

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 09:20
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0002	**Units:**	ng/Kg
Lab Code:	E1801093-017	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**17.9**	0.990	0.990	1	1	17.9
1,2,3,7,8-PeCDD	**0.670**	0.261	3.01	1	1	0.670
1,2,3,4,7,8-HxCDD	**0.731**	0.244	3.01	1	0.1	0.0731
1,2,3,6,7,8-HxCDD	**1.51**	0.282	3.01	1	0.1	0.151
1,2,3,7,8,9-HxCDD	**2.41**	0.257	3.01	1	0.1	0.241
1,2,3,4,6,7,8-HpCDD	**31.0**	0.190	3.01	1	0.01	0.310
OCDD	**713**	0.306	6.02	1	0.0003	0.214
2,3,7,8-TCDF	**33.8**	0.468	0.602	1	0.1	3.38
1,2,3,7,8-PeCDF	**1.55**	0.160	3.01	1	0.03	0.0465
2,3,4,7,8-PeCDF	**1.17**	0.168	3.01	1	0.3	0.351
1,2,3,4,7,8-HxCDF	**1.54**	0.175	3.01	1	0.1	0.154
1,2,3,6,7,8-HxCDF	**0.816**	0.159	3.01	1	0.1	0.0816
1,2,3,7,8,9-HxCDF	**0.446**	0.205	3.01	1	0.1	0.0446
2,3,4,6,7,8-HxCDF	**0.361**	0.178	3.01	1	0.1	0.0361
1,2,3,4,6,7,8-HpCDF	**1.23**	0.150	3.01	1	0.01	0.0123
1,2,3,4,7,8,9-HpCDF	**0.367**	0.200	3.01	1	0.01	0.00367
OCDF	**2.73**	0.458	6.02	1	0.0003	0.000819
		Total TEQ				23.7

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 09:20
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0002	**Units:**	Percent
Lab Code:	E1801093-017	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/14/18 15:21
	6.223g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	78.3		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 09:25
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0003	**Units:**	ng/Kg
Lab Code:	E1801093-018	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/17/18 22:39
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.705g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519446	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519435

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	7.25		1.11	1.11	0.79	1.001	1
1,2,3,7,8-PeCDD	0.464**JK**		0.208	2.96	2.17	1.001	1
1,2,3,4,7,8-HxCDD	0.483**JK**		0.114	2.96	0.85	1.000	1
1,2,3,6,7,8-HxCDD	0.660**JK**		0.125	2.96	1.03	1.000	1
1,2,3,7,8,9-HxCDD	0.753**J**		0.116	2.96	1.28	1.006	1
1,2,3,4,6,7,8-HpCDD	11.0		0.236	2.96	1.00	1.000	1
OCDD	367		0.263	5.93	0.88	1.000	1
2,3,7,8-TCDF	14.2		0.547	0.593	0.86	1.001	1
1,2,3,7,8-PeCDF	0.317**JK**		0.172	2.96	0.96	1.000	1
2,3,4,7,8-PeCDF	0.374**J**		0.176	2.96	1.62	1.001	1
1,2,3,4,7,8-HxCDF	0.766**J**		0.0747	2.96	1.07	1.000	1
1,2,3,6,7,8-HxCDF	0.246**BJK**		0.0706	2.96	1.75	1.000	1
1,2,3,7,8,9-HxCDF	0.152**BJK**		0.0907	2.96	0.87	1.000	1
2,3,4,6,7,8-HxCDF	ND	U	0.0784	2.96			1
1,2,3,4,6,7,8-HpCDF	0.985**J**		0.0935	2.96	1.12	1.000	1
1,2,3,4,7,8,9-HpCDF	0.258**JK**		0.125	2.96	0.82	1.000	1
OCDF	1.29**BJK**		0.183	5.93	0.53	1.004	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 09:25
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0003	**Units:**	ng/Kg
Lab Code:	E1801093-018	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/17/18 22:39
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.705g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519446	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519435

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	16.2		1.11	1.11	0.81		1
Total Penta-Dioxins	3.73		0.208	2.96	1.38		1
Total Hexa-Dioxins	23.3		0.118	2.96	1.33		1
Total Hepta-Dioxins	44.4		0.236	2.96	1.04		1
Total Tetra-Furans	14.2		0.547	0.593	0.86		1
Total Penta-Furans	0.374	**J**	0.174	2.96	1.62		1
Total Hexa-Furans	0.766	**J**	0.0781	2.96	1.07		1
Total Hepta-Furans	0.985	**J**	0.108	2.96	1.12		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 09:25
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0003	**Units:**	Percent
Lab Code:	E1801093-018	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/17/18 22:39
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.705g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519446	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519435

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	877.671	44		25-164	0.84	1.023
13C-1,2,3,7,8-PeCDD	2000	1714.464	86		25-181	1.56	1.208
13C-1,2,3,4,7,8-HxCDD	2000	1462.742	73		32-141	1.26	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1425.854	71		28-130	1.24	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	2037.653	102		23-140	1.09	1.072
13C-OCDD	4000	3223.217	81		17-157	0.91	1.150
13C-2,3,7,8-TCDF	2000	1098.659	55		24-169	0.79	0.990
13C-1,2,3,7,8-PeCDF	2000	1568.465	78		24-185	1.53	1.161
13C-2,3,4,7,8-PeCDF	2000	1493.960	75		21-178	1.61	1.197
13C-1,2,3,4,7,8-HxCDF	2000	1238.183	62		26-152	0.50	0.969
13C-1,2,3,6,7,8-HxCDF	2000	1290.291	65		26-123	0.52	0.972
13C-1,2,3,7,8,9-HxCDF	2000	1295.871	65		29-147	0.51	1.009
13C-2,3,4,6,7,8-HxCDF	2000	1259.804	63		28-136	0.53	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1388.515	69		28-143	0.43	1.046
13C-1,2,3,4,7,8,9-HpCDF	2000	1452.407	73		26-138	0.42	1.084
37Cl-2,3,7,8-TCDD	800	519.407	65		35-197	NA	1.024

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 09:25
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0003	**Units:**	ng/Kg
Lab Code:	E1801093-018	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**7.25**	1.11	1.11	1	1	7.25
1,2,3,7,8-PeCDD	**0.464**	0.208	2.96	1	1	0.464
1,2,3,4,7,8-HxCDD	**0.483**	0.114	2.96	1	0.1	0.0483
1,2,3,6,7,8-HxCDD	**0.660**	0.125	2.96	1	0.1	0.0660
1,2,3,7,8,9-HxCDD	**0.753**	0.116	2.96	1	0.1	0.0753
1,2,3,4,6,7,8-HpCDD	**11.0**	0.236	2.96	1	0.01	0.110
OCDD	**367**	0.263	5.93	1	0.0003	0.110
2,3,7,8-TCDF	**14.2**	0.547	0.593	1	0.1	1.42
1,2,3,7,8-PeCDF	**0.317**	0.172	2.96	1	0.03	0.00951
2,3,4,7,8-PeCDF	**0.374**	0.176	2.96	1	0.3	0.112
1,2,3,4,7,8-HxCDF	**0.766**	0.0747	2.96	1	0.1	0.0766
1,2,3,6,7,8-HxCDF	**0.246**	0.0706	2.96	1	0.1	0.0246
1,2,3,7,8,9-HxCDF	**0.152**	0.0907	2.96	1	0.1	0.0152
2,3,4,6,7,8-HxCDF	ND	0.0784	2.96	1	0.1	
1,2,3,4,6,7,8-HpCDF	**0.985**	0.0935	2.96	1	0.01	0.00985
1,2,3,4,7,8,9-HpCDF	**0.258**	0.125	2.96	1	0.01	0.00258
OCDF	**1.29**	0.183	5.93	1	0.0003	0.000387
		Total TEQ				9.79

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 09:25
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0003	**Units:**	Percent
Lab Code:	E1801093-018	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/14/18 15:21
	5.797g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	78.8		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 09:30
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0004	**Units:**	ng/Kg
Lab Code:	E1801093-019	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/17/18 23:27
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.072g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519447	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519435

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	154		0.528	0.633	0.77	1.001	1
1,2,3,7,8-PeCDD	1.51	**JK**	0.127	3.17	1.99	1.001	1
1,2,3,4,7,8-HxCDD	0.687	**J**	0.297	3.17	1.16	1.000	1
1,2,3,6,7,8-HxCDD	1.29	**JK**	0.337	3.17	1.58	1.001	1
1,2,3,7,8,9-HxCDD	1.66	**J**	0.309	3.17	1.42	1.007	1
1,2,3,4,6,7,8-HpCDD	46.4		0.105	3.17	1.07	1.000	1
OCDD	930		0.206	6.33	0.88	1.000	1
2,3,7,8-TCDF	328		0.229	0.633	0.76	1.001	1
1,2,3,7,8-PeCDF	15.7		0.207	3.17	1.43	1.001	1
2,3,4,7,8-PeCDF	10.8		0.217	3.17	1.42	1.001	1
1,2,3,4,7,8-HxCDF	37.7		0.159	3.17	1.22	1.000	1
1,2,3,6,7,8-HxCDF	8.93		0.147	3.17	1.14	1.000	1
1,2,3,7,8,9-HxCDF	3.49		0.198	3.17	1.14	1.001	1
2,3,4,6,7,8-HxCDF	1.72	**JK**	0.168	3.17	1.44	1.000	1
1,2,3,4,6,7,8-HpCDF	12.0		0.215	3.17	1.08	1.000	1
1,2,3,4,7,8,9-HpCDF	4.32		0.289	3.17	1.09	1.000	1
OCDF	41.4		0.247	6.33	0.81	1.004	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 09:30
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0004	**Units:**	ng/Kg
Lab Code:	E1801093-019	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/17/18 23:27
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.072g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519447	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519435

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	170		0.528	0.633	0.85		1
Total Penta-Dioxins	4.95		0.127	3.17	1.71		1
Total Hexa-Dioxins	40.8		0.314	3.17	1.33		1
Total Hepta-Dioxins	138		0.105	3.17	1.06		1
Total Tetra-Furans	585		0.229	0.633	0.73		1
Total Penta-Furans	41.8		0.0793	3.17	1.41		1
Total Hexa-Furans	53.9		0.166	3.17	1.38		1
Total Hepta-Furans	23.6		0.248	3.17	1.08		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 09:30
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0004	**Units:**	Percent
Lab Code:	E1801093-019	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/17/18 23:27
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.072g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519447	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519435

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	1195.544	60		25-164	0.79	1.023
13C-1,2,3,7,8-PeCDD	2000	2017.962	101		25-181	1.60	1.208
13C-1,2,3,4,7,8-HxCDD	2000	1768.139	88		32-141	1.35	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1675.493	84		28-130	1.23	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	2022.491	101		23-140	1.04	1.072
13C-OCDD	4000	2575.539	64		17-157	0.92	1.150
13C-2,3,7,8-TCDF	2000	1589.006	79		24-169	0.79	0.990
13C-1,2,3,7,8-PeCDF	2000	1911.372	96		24-185	1.59	1.161
13C-2,3,4,7,8-PeCDF	2000	1766.960	88		21-178	1.59	1.197
13C-1,2,3,4,7,8-HxCDF	2000	1507.665	75		26-152	0.51	0.969
13C-1,2,3,6,7,8-HxCDF	2000	1549.819	77		26-123	0.51	0.972
13C-1,2,3,7,8,9-HxCDF	2000	1543.655	77		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1530.771	77		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1439.901	72		28-143	0.43	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	1529.774	76		26-138	0.44	1.084
37Cl-2,3,7,8-TCDD	800	649.857	81		35-197	NA	1.024

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 09:30
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0004	**Units:**	ng/Kg
Lab Code:	E1801093-019	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**154**	0.528	0.633	1	1	154
1,2,3,7,8-PeCDD	**1.51**	0.127	3.17	1	1	1.51
1,2,3,4,7,8-HxCDD	**0.687**	0.297	3.17	1	0.1	0.0687
1,2,3,6,7,8-HxCDD	**1.29**	0.337	3.17	1	0.1	0.129
1,2,3,7,8,9-HxCDD	**1.66**	0.309	3.17	1	0.1	0.166
1,2,3,4,6,7,8-HpCDD	**46.4**	0.105	3.17	1	0.01	0.464
OCDD	**930**	0.206	6.33	1	0.0003	0.279
2,3,7,8-TCDF	**328**	0.229	0.633	1	0.1	32.8
1,2,3,7,8-PeCDF	**15.7**	0.207	3.17	1	0.03	0.471
2,3,4,7,8-PeCDF	**10.8**	0.217	3.17	1	0.3	3.24
1,2,3,4,7,8-HxCDF	**37.7**	0.159	3.17	1	0.1	3.77
1,2,3,6,7,8-HxCDF	**8.93**	0.147	3.17	1	0.1	0.893
1,2,3,7,8,9-HxCDF	**3.49**	0.198	3.17	1	0.1	0.349
2,3,4,6,7,8-HxCDF	**1.72**	0.168	3.17	1	0.1	0.172
1,2,3,4,6,7,8-HpCDF	**12.0**	0.215	3.17	1	0.01	0.120
1,2,3,4,7,8,9-HpCDF	**4.32**	0.289	3.17	1	0.01	0.0432
OCDF	**41.4**	0.247	6.33	1	0.0003	0.0124
		Total TEQ				198

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 09:30
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0004	**Units:**	Percent
Lab Code:	E1801093-019	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/14/18 15:21
	5.897g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	78.4		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 09:40
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0005	**Units:**	ng/Kg
Lab Code:	E1801093-020	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/18/18 00:16
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.803g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519448	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519435

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	15.4		0.655	0.655	0.84	1.001	1
1,2,3,7,8-PeCDD	0.391	**J**	0.226	3.02	1.78	1.001	1
1,2,3,4,7,8-HxCDD	0.346	**JK**	0.183	3.02	1.45	1.000	1
1,2,3,6,7,8-HxCDD	0.955	**J**	0.211	3.02	1.36	1.000	1
1,2,3,7,8,9-HxCDD	1.23	**J**	0.192	3.02	1.26	1.007	1
1,2,3,4,6,7,8-HpCDD	20.4		0.153	3.02	1.07	1.000	1
OCDD	542		0.266	6.04	0.89	1.000	1
2,3,7,8-TCDF	29.8		0.333	0.604	0.73	1.001	1
1,2,3,7,8-PeCDF	1.02	**J**	0.0954	3.02	1.42	1.001	1
2,3,4,7,8-PeCDF	0.693	**J**	0.102	3.02	1.65	1.001	1
1,2,3,4,7,8-HxCDF	2.26	**JK**	0.102	3.02	0.98	1.000	1
1,2,3,6,7,8-HxCDF	0.444	**BJK**	0.0920	3.02	0.71	1.000	1
1,2,3,7,8,9-HxCDF	0.204	**BJK**	0.124	3.02	0.88	1.001	1
2,3,4,6,7,8-HxCDF	0.139	**JK**	0.103	3.02	1.03	1.000	1
1,2,3,4,6,7,8-HpCDF	3.85	**K**	0.120	3.02	0.86	1.000	1
1,2,3,4,7,8,9-HpCDF	0.214	**JK**	0.169	3.02	2.50	1.000	1
OCDF	6.90		0.347	6.04	0.84	1.004	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 09:40
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0005	**Units:**	ng/Kg
Lab Code:	E1801093-020	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/18/18 00:16
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.803g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519448	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519435

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	22.1		0.655	0.655	0.68		1
Total Penta-Dioxins	4.61		0.226	3.02	1.74		1
Total Hexa-Dioxins	26.1		0.195	3.02	1.21		1
Total Hepta-Dioxins	72.7		0.153	3.02	1.05		1
Total Tetra-Furans	47.8		0.333	0.604	0.68		1
Total Penta-Furans	1.71	**J**	0.0984	3.02	1.42		1
Total Hexa-Furans	1.33	**J**	0.105	3.02	1.17		1
Total Hepta-Furans	1.41	**J**	0.142	3.02	1.13		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 09:40
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0005	**Units:**	Percent
Lab Code:	E1801093-020	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/18/18 00:16
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.803g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519448	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519435

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	967.117	48		25-164	0.77	1.023
13C-1,2,3,7,8-PeCDD	2000	1744.762	87		25-181	1.62	1.208
13C-1,2,3,4,7,8-HxCDD	2000	1555.131	78		32-141	1.28	0.990
13C-1,2,3,6,7,8-HxCDD	2000	1497.113	75		28-130	1.29	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1875.157	94		23-140	1.07	1.071
13C-OCDD	4000	2628.270	66		17-157	0.91	1.150
13C-2,3,7,8-TCDF	2000	1249.685	62		24-169	0.80	0.990
13C-1,2,3,7,8-PeCDF	2000	1628.078	81		24-185	1.56	1.161
13C-2,3,4,7,8-PeCDF	2000	1526.561	76		21-178	1.55	1.197
13C-1,2,3,4,7,8-HxCDF	2000	1278.553	64		26-152	0.51	0.969
13C-1,2,3,6,7,8-HxCDF	2000	1354.338	68		26-123	0.51	0.972
13C-1,2,3,7,8,9-HxCDF	2000	1346.315	67		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1310.052	66		28-136	0.50	0.986
13C-1,2,3,4,6,7,8-HpCDF	2000	1341.379	67		28-143	0.43	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	1359.814	68		26-138	0.44	1.084
37Cl-2,3,7,8-TCDD	800	560.937	70		35-197	NA	1.024

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 09:40
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0005	**Units:**	ng/Kg
Lab Code:	E1801093-020	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**15.4**	0.655	0.655	1	1	15.4
1,2,3,7,8-PeCDD	**0.391**	0.226	3.02	1	1	0.391
1,2,3,4,7,8-HxCDD	**0.346**	0.183	3.02	1	0.1	0.0346
1,2,3,6,7,8-HxCDD	**0.955**	0.211	3.02	1	0.1	0.0955
1,2,3,7,8,9-HxCDD	**1.23**	0.192	3.02	1	0.1	0.123
1,2,3,4,6,7,8-HpCDD	**20.4**	0.153	3.02	1	0.01	0.204
OCDD	**542**	0.266	6.04	1	0.0003	0.163
2,3,7,8-TCDF	**29.8**	0.333	0.604	1	0.1	2.98
1,2,3,7,8-PeCDF	**1.02**	0.0954	3.02	1	0.03	0.0306
2,3,4,7,8-PeCDF	**0.693**	0.102	3.02	1	0.3	0.208
1,2,3,4,7,8-HxCDF	**2.26**	0.102	3.02	1	0.1	0.226
1,2,3,6,7,8-HxCDF	**0.444**	0.0920	3.02	1	0.1	0.0444
1,2,3,7,8,9-HxCDF	**0.204**	0.124	3.02	1	0.1	0.0204
2,3,4,6,7,8-HxCDF	**0.139**	0.103	3.02	1	0.1	0.0139
1,2,3,4,6,7,8-HpCDF	**3.85**	0.120	3.02	1	0.01	0.0385
1,2,3,4,7,8,9-HpCDF	**0.214**	0.169	3.02	1	0.01	0.00214
OCDF	**6.90**	0.347	6.04	1	0.0003	0.00207
		Total TEQ				20.0

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	11/03/18 09:40
Sample Matrix:	Sediment	**Date Received:**	12/07/18 11:48
Sample Name:	SL0005	**Units:**	Percent
Lab Code:	E1801093-020	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/14/18 15:21
	7.075g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	76.6		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1800507-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/14/18 12:48
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.249g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616103	**Blank File Name:**	P616103
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616100

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.137	0.488			1
1,2,3,7,8-PeCDD	ND	U	0.0481	2.44			1
1,2,3,4,7,8-HxCDD	ND	U	0.0309	2.44			1
1,2,3,6,7,8-HxCDD	0.0642**JK**		0.0343	2.44	0.87	1.000	1
1,2,3,7,8,9-HxCDD	ND	U	0.0303	2.44			1
1,2,3,4,6,7,8-HpCDD	0.116**J**		0.0179	2.44	0.95	1.000	1
OCDD	0.625**J**		0.0975	4.88	0.95	1.000	1
2,3,7,8-TCDF	ND	U	0.0667	0.488			1
1,2,3,7,8-PeCDF	ND	U	0.0568	2.44			1
2,3,4,7,8-PeCDF	ND	U	0.0595	2.44			1
1,2,3,4,7,8-HxCDF	0.0522**JK**		0.0245	2.44	1.59	1.000	1
1,2,3,6,7,8-HxCDF	0.0554**J**		0.0237	2.44	1.19	1.000	1
1,2,3,7,8,9-HxCDF	0.0409**JK**		0.0360	2.44	0.75	1.000	1
2,3,4,6,7,8-HxCDF	ND	U	0.0261	2.44			1
1,2,3,4,6,7,8-HpCDF	0.0740**JK**		0.0381	2.44	0.81	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.0494	2.44			1
OCDF	0.160**JK**		0.0643	4.88	1.34	1.005	1

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1800507-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/14/18 12:48
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.249g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616103	**Blank File Name:**	P616103
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616100

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.137	0.488			1
Total Penta-Dioxins	ND	U	0.0481	2.44			1
Total Hexa-Dioxins	ND	U	0.0318	2.44			1
Total Hepta-Dioxins	0.116**J**		0.0179	2.44	0.95		1
Total Tetra-Furans	ND	U	0.0667	0.488			1
Total Penta-Furans	ND	U	0.0581	2.44			1
Total Hexa-Furans	0.0554**J**		0.0271	2.44	1.19		1
Total Hepta-Furans	ND	U	0.0434	2.44			1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	Percent
Lab Code:	EQ1800507-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/14/18 12:48
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.249g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616103	**Blank File Name:**	P616103
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616100

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	860.003	43		25-164	0.77	1.024
13C-1,2,3,7,8-PeCDD	2000	1301.552	65		25-181	1.57	1.203
13C-1,2,3,4,7,8-HxCDD	2000	1361.701	68		32-141	1.27	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1360.419	68		28-130	1.29	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1582.719	79		23-140	1.06	1.067
13C-OCDD	4000	1929.675	48		17-157	0.91	1.140
13C-2,3,7,8-TCDF	2000	1201.815	60		24-169	0.79	0.993
13C-1,2,3,7,8-PeCDF	2000	1270.674	64		24-185	1.58	1.158
13C-2,3,4,7,8-PeCDF	2000	1187.509	59		21-178	1.57	1.194
13C-1,2,3,4,7,8-HxCDF	2000	1189.859	59		26-152	0.53	0.970
13C-1,2,3,6,7,8-HxCDF	2000	1261.835	63		26-123	0.53	0.973
13C-1,2,3,7,8,9-HxCDF	2000	1068.281	53		29-147	0.54	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1180.349	59		28-136	0.53	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1055.086	53		28-143	0.46	1.043
13C-1,2,3,4,7,8,9-HpCDF	2000	1089.308	54		26-138	0.47	1.080
37Cl-2,3,7,8-TCDD	800	454.197	57		35-197	NA	1.024

Accuracy & Precision

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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Analyzed:**	12/15/18
Sample Matrix:	Sediment	**Date Extracted:**	12/11/18

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

Analysis Method:	1613B	**Units:**	ng/Kg
Prep Method:	Method Soxhlet	**Basis:**	Dry
		Analysis Lot:	619651

	Lab Control Sample EQ1800507-02			Duplicate Lab Control Sample EQ1800507-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
1,2,3,4,6,7,8-HpCDD	73.6	98.0	75	74.3	98.2	76	70-140	<1	50
1,2,3,4,7,8-HxCDD	89.9	98.0	92	87.5	98.2	89	70-164	3	50
1,2,3,6,7,8-HxCDD	99.6	98.0	102	99.8	98.2	102	76-134	<1	50
1,2,3,7,8,9-HxCDD	99.7	98.0	102	97.0	98.2	99	64-162	3	50
1,2,3,7,8-PeCDD	98.7	98.0	101	98.6	98.2	100	70-142	<1	50
2,3,7,8-TCDD	30.4	19.6	155	30.3	19.6	154	67-158	<1	50
OCDD	199	196	102	202	196	103	78-144	1	50
1,2,3,4,6,7,8-HpCDF	98.4	98.0	100	97.5	98.2	99	82-122	<1	50
1,2,3,4,7,8,9-HpCDF	99.9	98.0	102	126	98.2	129	78-138	23	50
1,2,3,4,7,8-HxCDF	96.3	98.0	98	94.2	98.2	96	72-134	2	50
1,2,3,6,7,8-HxCDF	93.0	98.0	95	96.2	98.2	98	84-130	3	50
1,2,3,7,8,9-HxCDF	89.4	98.0	91	92.4	98.2	94	78-130	3	50
1,2,3,7,8-PeCDF	89.8	98.0	92	90.9	98.2	93	80-134	1	50
2,3,4,6,7,8-HxCDF	93.1	98.0	95	95.7	98.2	97	70-156	3	50
2,3,4,7,8-PeCDF	97.3	98.0	99	98.4	98.2	100	68-160	1	50
2,3,7,8-TCDF	26.4	19.6	134	23.5	19.6	120	75-158	11	50
OCDF	198	196	101	197	196	100	63-170	<1	50

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800507-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/15/18 01:35
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.203g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519432	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519419

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	30.4		0.748	0.748	0.78	1.001	1
1,2,3,7,8-PeCDD	98.7		0.114	2.45	1.57	1.000	1
1,2,3,4,7,8-HxCDD	89.9		0.149	2.45	1.30	1.000	1
1,2,3,6,7,8-HxCDD	99.6		0.169	2.45	1.29	1.000	1
1,2,3,7,8,9-HxCDD	99.7		0.155	2.45	1.24	1.007	1
1,2,3,4,6,7,8-HpCDD	73.6		0.214	2.45	1.04	1.000	1
OCDD	199		0.526	4.90	0.86	1.000	1
2,3,7,8-TCDF	26.4		0.786	0.786	0.79	1.001	1
1,2,3,7,8-PeCDF	89.8		0.182	2.45	1.46	1.000	1
2,3,4,7,8-PeCDF	97.3		0.191	2.45	1.47	1.001	1
1,2,3,4,7,8-HxCDF	96.3		0.146	2.45	1.24	1.000	1
1,2,3,6,7,8-HxCDF	93.0		0.138	2.45	1.20	1.000	1
1,2,3,7,8,9-HxCDF	89.4		0.172	2.45	1.16	1.000	1
2,3,4,6,7,8-HxCDF	93.1		0.145	2.45	1.17	1.000	1
1,2,3,4,6,7,8-HpCDF	98.4		0.479	2.45	1.02	1.000	1
1,2,3,4,7,8,9-HpCDF	99.9		0.648	2.45	0.96	1.000	1
OCDF	198		0.344	4.90	0.87	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800507-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/15/18 01:35
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.203g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519432	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519419

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	30.4		0.748	0.748	0.78		1
Total Penta-Dioxins	99.1		0.114	2.45	1.57		1
Total Hexa-Dioxins	289		0.158	2.45	1.30		1
Total Hepta-Dioxins	73.6		0.214	2.45	1.04		1
Total Tetra-Furans	28.7		0.786	0.786	0.78		1
Total Penta-Furans	188		0.187	2.45	1.60		1
Total Hexa-Furans	372		0.149	2.45	1.24		1
Total Hepta-Furans	198		0.556	2.45	1.02		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1800507-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/15/18 01:35
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.203g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519432	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519419

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	815.609	41		25-164	0.81	1.023
13C-1,2,3,7,8-PeCDD	2000	1416.586	71		25-181	1.57	1.207
13C-1,2,3,4,7,8-HxCDD	2000	1297.951	65		32-141	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1241.145	62		28-130	1.27	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1593.725	80		23-140	1.07	1.071
13C-OCDD	4000	2116.098	53		17-157	0.90	1.149
13C-2,3,7,8-TCDF	2000	1000.617	50		24-169	0.79	0.991
13C-1,2,3,7,8-PeCDF	2000	1290.664	65		24-185	1.56	1.160
13C-2,3,4,7,8-PeCDF	2000	1248.743	62		21-178	1.61	1.195
13C-1,2,3,4,7,8-HxCDF	2000	1020.347	51		26-152	0.52	0.969
13C-1,2,3,6,7,8-HxCDF	2000	1064.295	53		26-123	0.52	0.972
13C-1,2,3,7,8,9-HxCDF	2000	1125.654	56		29-147	0.53	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1103.047	55		28-136	0.53	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1106.096	55		28-143	0.45	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	1167.015	58		26-138	0.46	1.083
37Cl-2,3,7,8-TCDD	800	449.655	56		35-197	NA	1.024

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800507-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/15/18 02:23
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.185g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519433	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519419

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	30.3		0.931	0.931	0.71	1.001	1
1,2,3,7,8-PeCDD	98.6		0.117	2.45	1.54	1.001	1
1,2,3,4,7,8-HxCDD	87.5		0.0685	2.45	1.27	1.000	1
1,2,3,6,7,8-HxCDD	99.8		0.0756	2.45	1.28	1.000	1
1,2,3,7,8,9-HxCDD	97.0		0.0703	2.45	1.26	1.007	1
1,2,3,4,6,7,8-HpCDD	74.3		0.143	2.45	1.07	1.000	1
OCDD	202		0.235	4.91	0.90	1.000	1
2,3,7,8-TCDF	23.5		0.522	0.522	0.81	1.001	1
1,2,3,7,8-PeCDF	90.9		0.134	2.45	1.51	1.000	1
2,3,4,7,8-PeCDF	98.4		0.132	2.45	1.51	1.000	1
1,2,3,4,7,8-HxCDF	94.2		0.132	2.45	1.20	1.000	1
1,2,3,6,7,8-HxCDF	96.2		0.126	2.45	1.16	1.000	1
1,2,3,7,8,9-HxCDF	92.4		0.147	2.45	1.15	1.000	1
2,3,4,6,7,8-HxCDF	95.7		0.129	2.45	1.21	1.000	1
1,2,3,4,6,7,8-HpCDF	97.5		0.337	2.45	1.05	1.000	1
1,2,3,4,7,8,9-HpCDF	126		0.734	2.45	1.11	1.000	1
OCDF	197		0.193	4.91	0.92	1.004	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800507-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/15/18 02:23
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.185g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519433	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519419

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	30.3		0.931	0.931	0.71		1
Total Penta-Dioxins	98.6		0.117	2.45	1.54		1
Total Hexa-Dioxins	284		0.0713	2.45	1.27		1
Total Hepta-Dioxins	74.6		0.143	2.45	1.03		1
Total Tetra-Furans	24.3		0.522	0.522	0.81		1
Total Penta-Furans	192		0.133	2.45	1.76		1
Total Hexa-Furans	379		0.133	2.45	1.20		1
Total Hepta-Furans	224		0.480	2.45	1.05		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801093
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1800507-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/15/18 02:23
Prep Method:	Method Soxhlet	**Date Extracted:**	12/11/18
Sample Amount:	10.185g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519433	**Blank File Name:**	P616103
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519419

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	536.882	27		25-164	0.74	1.023
13C-1,2,3,7,8-PeCDD	2000	1166.547	58		25-181	1.60	1.207
13C-1,2,3,4,7,8-HxCDD	2000	1176.710	59		32-141	1.25	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1064.756	53		28-130	1.27	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1514.151	76		23-140	1.07	1.071
13C-OCDD	4000	2227.208	56		17-157	0.91	1.149
13C-2,3,7,8-TCDF	2000	690.872	35		24-169	0.78	0.991
13C-1,2,3,7,8-PeCDF	2000	1003.886	50		24-185	1.62	1.160
13C-2,3,4,7,8-PeCDF	2000	1014.395	51		21-178	1.59	1.196
13C-1,2,3,4,7,8-HxCDF	2000	887.847	44		26-152	0.51	0.969
13C-1,2,3,6,7,8-HxCDF	2000	933.654	47		26-123	0.51	0.972
13C-1,2,3,7,8,9-HxCDF	2000	997.791	50		29-147	0.50	1.008
13C-2,3,4,6,7,8-HxCDF	2000	958.708	48		28-136	0.52	0.986
13C-1,2,3,4,6,7,8-HpCDF	2000	996.077	50		28-143	0.46	1.044
13C-1,2,3,4,7,8,9-HpCDF	2000	685.021	34		26-138	0.48	1.084
37Cl-2,3,7,8-TCDD	800	307.431	38		35-197	NA	1.025

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

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0017

Run #11 Filename P519423 Samp: 1 Inj: 1 Acquired: 14-DEC-18 18:18:16
Processed: 17-DEC-18 15:31:50 Sample ID: E1801093-001

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:54	5.977e+02	8.757e+02	0.68	yes	yes	0.942
2	Unk	1,2,3,7,8-PeCDF	31:30	1.058e+02	6.413e+01	1.65	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	32:22	8.006e+01	4.217e+01	1.90	no	yes	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:17	2.233e+02	1.782e+02	1.25	yes	yes	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:24	1.707e+02	1.683e+02	1.01	no	yes	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:56	2.152e+02	1.656e+02	1.30	yes	yes	1.110
7	Unk	1,2,3,7,8,9-HxCDF	36:44	5.621e+01	5.568e+01	1.01	no	yes	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:03	2.184e+03	2.117e+03	1.03	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:27	1.223e+02	9.983e+01	1.23	no	no	1.258
10	Unk	OCDF	42:00	4.116e+03	4.879e+03	0.84	yes	no	1.359
11	Unk	2,3,7,8-TCDD	27:48	1.497e+02	2.123e+02	0.71	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	32:47	9.933e+01	6.218e+01	1.60	yes	yes	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:05	1.299e+02	1.084e+02	1.20	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:10	4.876e+02	3.994e+02	1.22	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:25	2.891e+02	2.431e+02	1.19	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:59	1.539e+04	1.481e+04	1.04	yes	no	1.025
17	Unk	OCDD	41:50	1.444e+05	1.608e+05	0.90	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	26:53	1.469e+04	1.842e+04	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	31:29	2.246e+04	1.438e+04	1.56	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	32:27	2.157e+04	1.338e+04	1.61	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:16	8.418e+03	1.643e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:24	1.056e+04	2.016e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:55	9.054e+03	1.742e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	36:42	8.734e+03	1.726e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:02	6.418e+03	1.461e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:26	6.108e+03	1.412e+04	0.43	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	27:47	6.404e+03	8.378e+03	0.76	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:45	1.597e+04	1.021e+04	1.56	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:04	1.275e+04	1.026e+04	1.24	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:10	1.243e+04	9.909e+03	1.25	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:59	1.358e+04	1.277e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	41:50	1.222e+04	1.351e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:09	1.619e+04	1.995e+04	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:25	2.089e+04	1.717e+04	1.22	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:47	9.508e+03				no	1.014

$$\text{OCDD} = \frac{(1.444e+05 + 1.608e+05) \times 4000\ \text{pg} \times 1}{(1.222e+04 + 1.351e+04) \times 10.357\ \text{g} \times 0.10 / 100 \times 1.118} = 48.6\ \text{ng/kg}$$

KW 12/20/18

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

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0017

Run #11 Filename P519423 Samp: 1 Inj: 1 Acquired: 14-DEC-18 18:18:16
Processed: 17-DEC-18 15:31:50 LAB. ID: E1801093-001

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	9.86e+04	7.28e+02	1.4e+02	1.47e+05	1.27e+03	1.2e+02
2	1,2,3,7,8-PeCDF	2.10e+04	3.70e+03	5.7e+00	1.27e+04	2.14e+03	5.9e+00
3	2,3,4,7,8-PeCDF	1.50e+04	3.70e+03	4.1e+00	7.73e+03	2.14e+03	3.6e+00
4	1,2,3,4,7,8-HxCDF	4.95e+04	1.52e+03	3.3e+01	3.92e+04	1.09e+03	3.6e+01
5	1,2,3,6,7,8-HxCDF	3.42e+04	1.52e+03	2.3e+01	3.19e+04	1.09e+03	2.9e+01
6	2,3,4,6,7,8-HxCDF	3.98e+04	1.52e+03	2.6e+01	3.23e+04	1.09e+03	3.0e+01
7	1,2,3,7,8,9-HxCDF	1.03e+04	1.52e+03	6.8e+00	9.46e+03	1.09e+03	8.6e+00
8	1,2,3,4,6,7,8-HpCDF	4.42e+05	2.19e+03	2.0e+02	4.37e+05	6.76e+02	6.5e+02
9	1,2,3,4,7,8,9-HpCDF	2.49e+04	2.19e+03	1.1e+01	2.09e+04	6.76e+02	3.1e+01
10	OCDF	5.80e+05	4.36e+02	1.3e+03	7.18e+05	1.28e+03	5.6e+02
11	2,3,7,8-TCDD	2.84e+04	2.28e+03	1.2e+01	3.47e+04	9.44e+02	3.7e+01
12	1,2,3,7,8-PeCDD	1.88e+04	9.44e+02	2.0e+01	1.35e+04	5.64e+02	2.4e+01
13	1,2,3,4,7,8-HxCDD	3.17e+04	7.28e+02	4.4e+01	2.40e+04	1.56e+03	1.5e+01
14	1,2,3,6,7,8-HxCDD	1.03e+05	7.28e+02	1.4e+02	8.69e+04	1.56e+03	5.6e+01
15	1,2,3,7,8,9-HxCDD	6.06e+04	7.28e+02	8.3e+01	4.66e+04	1.56e+03	3.0e+01
16	1,2,3,4,6,7,8-HpCDD	2.99e+06	3.00e+02	1.0e+04	2.87e+06	1.06e+04	2.7e+02
17	OCDD	2.04e+07	4.00e+02	5.1e+04	2.28e+07	4.68e+02	4.9e+04
18	13C-2,3,7,8-TCDF	2.39e+06	3.19e+03	7.5e+02	3.07e+06	3.48e+03	8.8e+02
19	13C-1,2,3,7,8-PeCDF	4.03e+06	8.92e+02	4.5e+03	2.60e+06	6.64e+02	3.9e+03
20	13C-2,3,4,7,8-PeCDF	4.01e+06	8.92e+02	4.5e+03	2.51e+06	6.64e+02	3.8e+03
21	13C-1,2,3,4,7,8-HxCDF	1.77e+06	8.48e+02	2.1e+03	3.48e+06	8.48e+02	4.1e+03
22	13C-1,2,3,6,7,8-HxCDF	2.04e+06	8.48e+02	2.4e+03	3.90e+06	8.48e+02	4.6e+03
23	13C-2,3,4,6,7,8-HxCDF	1.84e+06	8.48e+02	2.2e+03	3.55e+06	8.48e+02	4.2e+03
24	13C-1,2,3,7,8,9-HxCDF	1.87e+06	8.48e+02	2.2e+03	3.67e+06	8.48e+02	4.3e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.32e+06	1.51e+03	8.8e+02	2.99e+06	3.76e+03	7.9e+02
26	13C-1,2,3,4,7,8,9-HpCDF	1.08e+06	1.51e+03	7.1e+02	2.45e+06	3.76e+03	6.5e+02
27	13C-2,3,7,8-TCDD	1.16e+06	6.53e+03	1.8e+02	1.45e+06	1.62e+03	8.9e+02
28	13C-1,2,3,7,8-PeCDD	3.05e+06	7.88e+02	3.9e+03	1.94e+06	7.28e+02	2.7e+03
29	13C-1,2,3,4,7,8-HxCDD	2.77e+06	8.80e+02	3.1e+03	2.19e+06	4.32e+02	5.1e+03
30	13C-1,2,3,6,7,8-HxCDD	2.45e+06	8.80e+02	2.8e+03	1.98e+06	4.32e+02	4.6e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.58e+06	6.76e+02	3.8e+03	2.42e+06	3.56e+02	6.8e+03
32	13C-OCDD	1.81e+06	6.76e+02	2.7e+03	1.91e+06	4.80e+02	4.0e+03
33	13C-1,2,3,4-TCDD	2.79e+06	6.53e+03	4.3e+02	3.44e+06	1.62e+03	2.1e+03
34	13C-1,2,3,7,8,9-HxCDD	4.00e+06	8.80e+02	4.5e+03	3.15e+06	4.32e+02	7.3e+03
35	37Cl-2,3,7,8-TCDD	1.61e+06	1.04e+03	1.6e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0017

Entry: 36 Totals Name: Total Tetra-Furans

Run: 11 File: P519423 Sample:1 Injection:1 Function:1

Acquired: 14-DEC-18 18:18:16 Processed: 17-DEC-18 15:31:50

Mass: 303.9020 305.8990 Tot Response: 1.93e+03 RRF: 0.9417

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	22:45	4.57e+01	5.78e+01	0.79	yes	1.04e+02		n	n
2	23:41	9.46e+01	1.25e+02	0.76	yes	2.20e+02		n	n
3	24:31	1.64e+01	2.26e+01	0.73	yes	3.90e+01		n	n
4	26:48	4.26e+01	5.25e+01	0.81	yes	9.51e+01		y	n
5	26:54	5.98e+02	8.76e+02	0.68	yes	1.47e+03	2,3,7,8-TCDF	y	n

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Peak List Summary

CLIENT ID.
SL0017

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 11 File: P519423 Sample:1 Injection:1 Function:1

Acquired: 14-DEC-18 18:18:16 Processed: 17-DEC-18 15:31:50

Mass: 319.8970 321.8940 Tot Response: 3.62e+02 RRF: 1.085

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	27:48	1.50e+02	2.12e+02	0.71	yes	3.62e+02	2,3,7,8-TCDD	n	n

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Peak List Summary

CLIENT ID.
SL0017

Entry: 38 Totals Name: Total Penta-Furans1

Run: 11 File: P519423 Sample:1 Injection:1 Function:1

Acquired: 14-DEC-18 18:18:16 Processed: 17-DEC-18 15:31:50

Mass: 339.8600 341.8570 Tot Response: 1.73e+03 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	28:55	1.06e+03	6.66e+02	1.59	yes	1.73e+03	n	n

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SL0017

Entry: 39 Totals Name: Total Penta-Furans2

Run: 11 File: P519423 Sample:1 Injection:1 Function:2

Acquired: 14-DEC-18 18:18:16 Processed: 17-DEC-18 15:31:50

Mass: 339.8600 341.8570 Tot Response: 2.29e+03 RRF: 0.9857

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:23	1.20e+02	7.64e+01	1.58	yes	1.97e+02		n	n
2	30:31	6.63e+02	3.99e+02	1.66	yes	1.06e+03		n	n
3	31:05	2.54e+02	1.92e+02	1.32	yes	4.47e+02		n	n
4	31:30	1.06e+02	6.41e+01	1.65	yes	1.70e+02	1,2,3,7,8-PeCDF	n	n
5	31:47	1.38e+02	1.03e+02	1.33	yes	2.41e+02		n	n
6	32:28	1.10e+02	6.56e+01	1.68	yes	1.76e+02		y	n

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Peak List Summary

CLIENT ID.
SL0017

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 11 File: P519423 Sample:1 Injection:1 Function:2

Acquired: 14-DEC-18 18:18:16 Processed: 17-DEC-18 15:31:50

Mass: 355.8550 357.8520 Tot Response: 1.01e+03 RRF: 0.9565

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:35	1.63e+02	1.04e+02	1.57	yes	2.66e+02		n	y
2	31:02	8.70e+01	6.60e+01	1.32	yes	1.53e+02		n	n
3	31:41	9.04e+01	5.30e+01	1.71	yes	1.43e+02		n	n
4	32:01	6.35e+01	4.32e+01	1.47	yes	1.07e+02		y	n
5	32:21	5.28e+01	3.41e+01	1.55	yes	8.68e+01		n	n
6	32:47	9.93e+01	6.22e+01	1.60	yes	1.62e+02	1,2,3,7,8-PeCDD	n	y
7	32:51	2.85e+01	1.94e+01	1.47	yes	4.79e+01		n	n
8	33:09	2.45e+01	1.54e+01	1.59	yes	3.99e+01		y	n

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Peak List Summary

CLIENT ID.
SL0017

Entry: 41 Totals Name: Total Hexa-Furans

Run: 11 File: P519423 Sample:1 Injection:1 Function:3

Acquired: 14-DEC-18 18:18:16 Processed: 17-DEC-18 15:31:50

Mass: 373.8210 375.8180 Tot Response: 4.02e+03 RRF: 1.141

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:08	3.87e+02	3.62e+02	1.07	yes	7.50e+02		n	n
2	34:18	1.31e+03	1.17e+03	1.12	yes	2.49e+03		n	n
3	35:17	2.23e+02	1.78e+02	1.25	yes	4.01e+02	1,2,3,4,7,8-HxCDF	n	n
4	35:56	2.15e+02	1.66e+02	1.30	yes	3.81e+02	2,3,4,6,7,8-HxCDF	n	n

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Peak List Summary

CLIENT ID.
SL0017

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 11 File: P519423 Sample:1 Injection:1 Function:3

Acquired: 14-DEC-18 18:18:16 Processed: 17-DEC-18 15:31:50

Mass: 389.8160 391.8130 Tot Response: 1.10e+04 RRF: 1.047

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:41	2.33e+03	1.79e+03	1.30	yes	4.12e+03		n	n
2	35:13	3.45e+02	2.76e+02	1.25	yes	6.21e+02		n	n
3	35:28	2.09e+03	1.63e+03	1.29	yes	3.72e+03		n	n
4	35:35	3.62e+02	3.26e+02	1.11	yes	6.88e+02		n	n
5	36:05	1.30e+02	1.08e+02	1.20	yes	2.38e+02	1,2,3,4,7,8-HxCDD	n	n
6	36:10	4.88e+02	3.99e+02	1.22	yes	8.87e+02	1,2,3,6,7,8-HxCDD	n	n
7	36:21	1.24e+02	9.25e+01	1.34	yes	2.16e+02		n	n
8	36:25	2.89e+02	2.43e+02	1.19	yes	5.32e+02	1,2,3,7,8,9-HxCDD	n	n

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Peak List Summary

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SL0017

Entry: 43 Totals Name: Total Hepta-Furans

Run: 11 File: P519423 Sample:1 Injection:1 Function:4

Acquired: 14-DEC-18 18:18:16 Processed: 17-DEC-18 15:31:50

Mass: 407.7820 409.7790 Tot Response: 1.28e+04 RRF: 1.308

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:03	2.18e+03	2.12e+03	1.03	yes	4.30e+03	1,2,3,4,6,7,8-HpCDF	n	n
2	38:27	4.21e+03	4.29e+03	0.98	yes	8.49e+03		n	n

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Peak List Summary

CLIENT ID.
SL0017

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 11 File: P519423 Sample:1 Injection:1 Function:4

Acquired: 14-DEC-18 18:18:16 Processed: 17-DEC-18 15:31:50

Mass: 423.7770 425.7740 Tot Response: 9.47e+04 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:19	3.29e+04	1.04	yes	6.45e+04		n	n
2	38:59	1.54e+04	1.04	yes	3.02e+04	1,2,3,4,6,7,8-HpCDD	n	n

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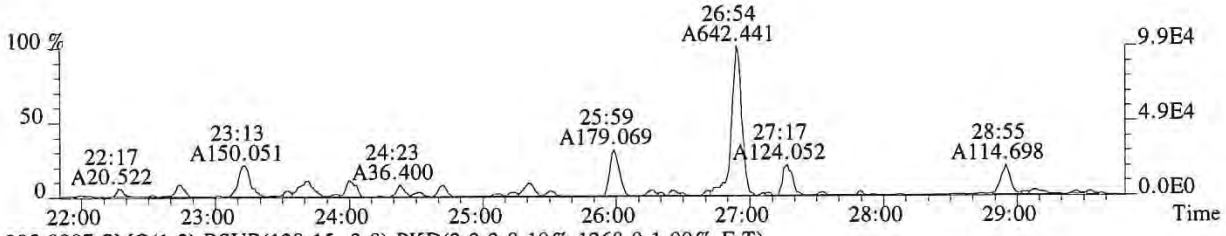
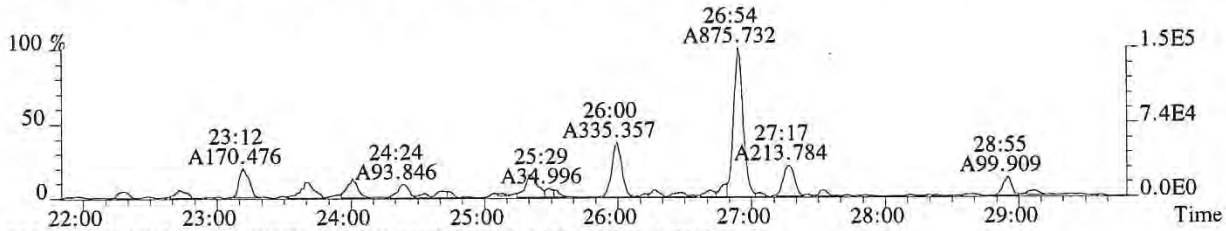
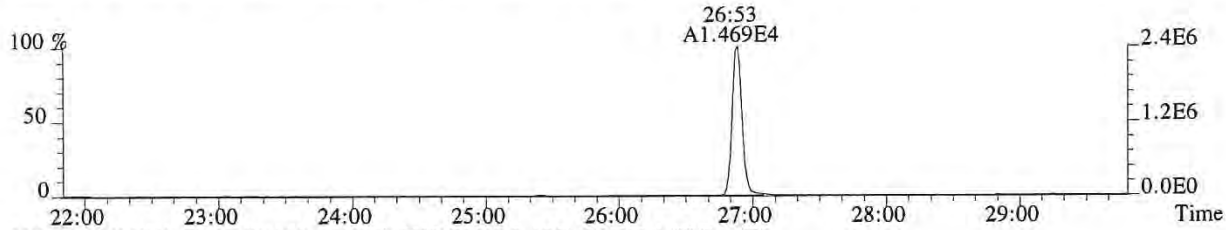
File:P519423 #1-566 Acq:14-DEC-2018 18:18:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-001
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,728.0,1.00%,F,T)



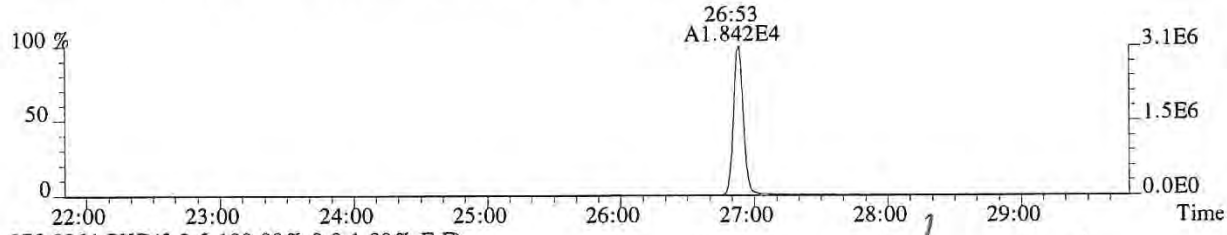
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1268.0,1.00%,F,T)



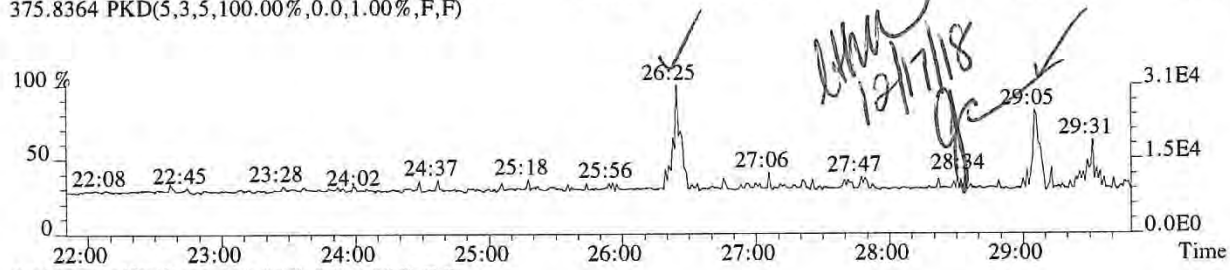
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3188.0,1.00%,F,T)



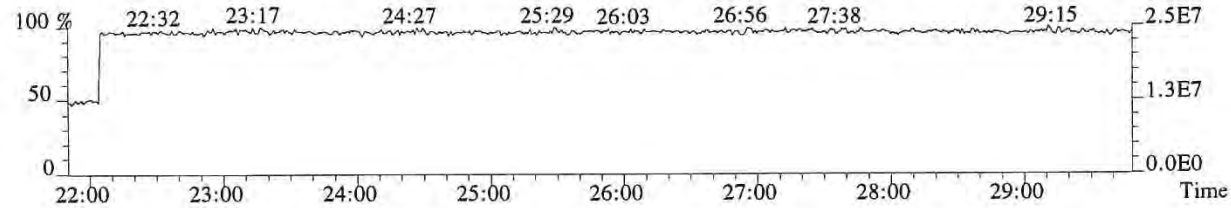
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3484.0,1.00%,F,T)



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

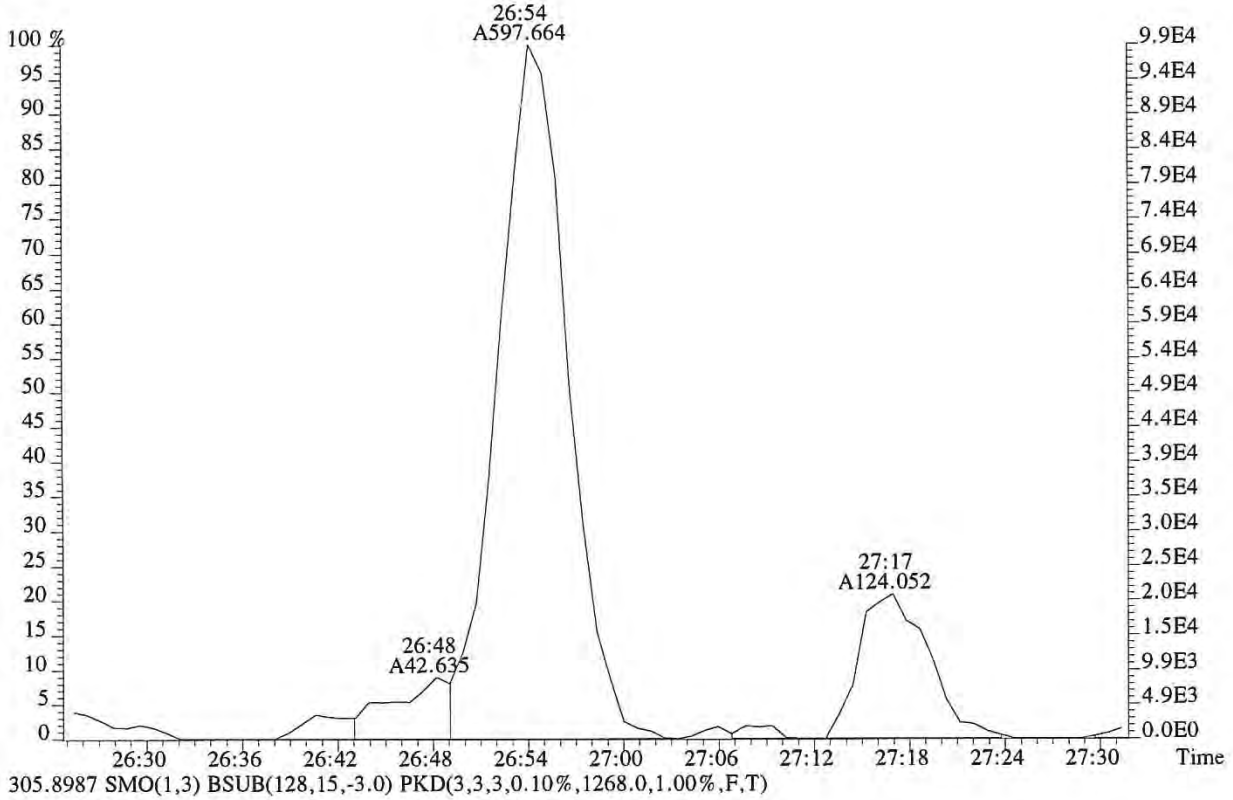


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

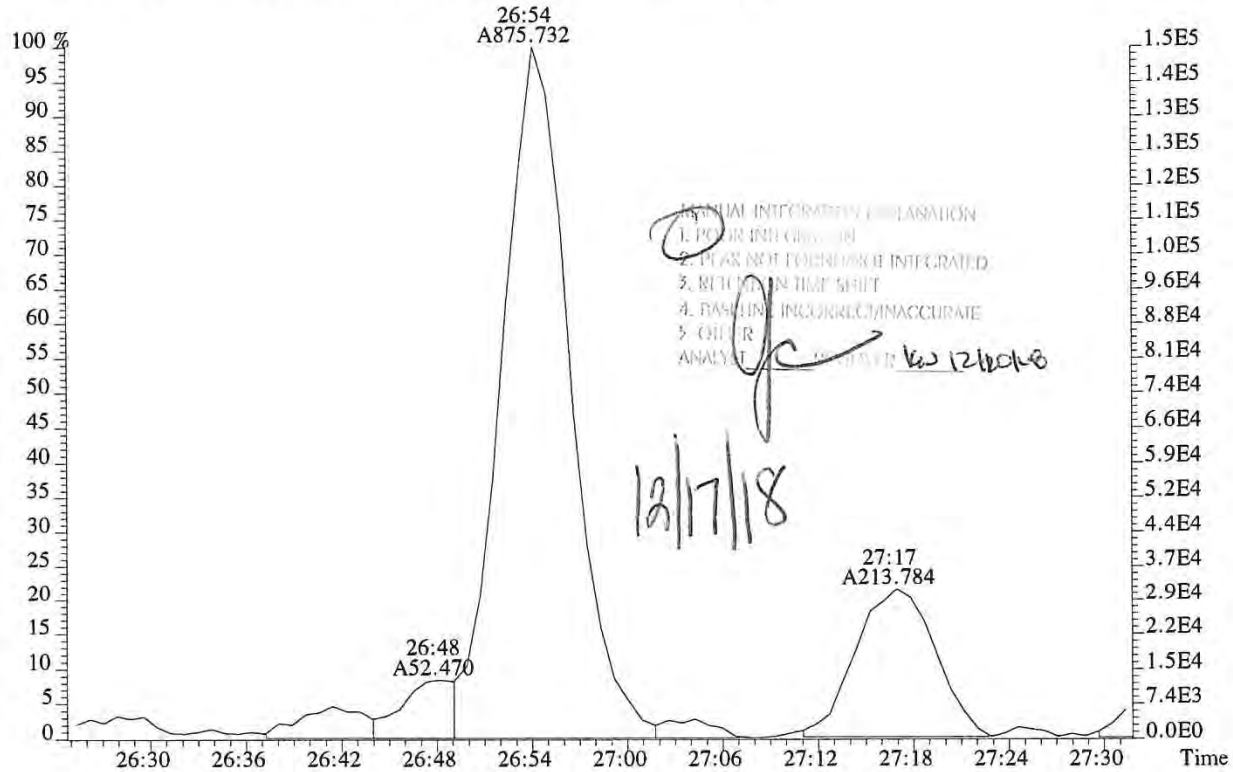


013971

File:P519423 #1-566 Acq:14-DEC-2018 18:18:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-001
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,728.0,1.00%,F,T)

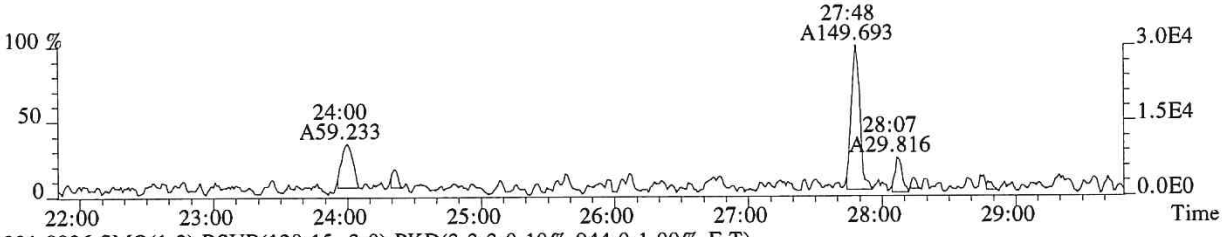


305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1268.0,1.00%,F,T)

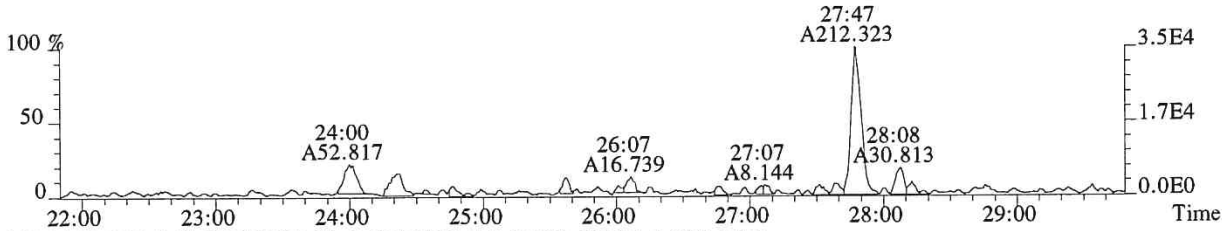


MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST 12/18/18
12/17/18

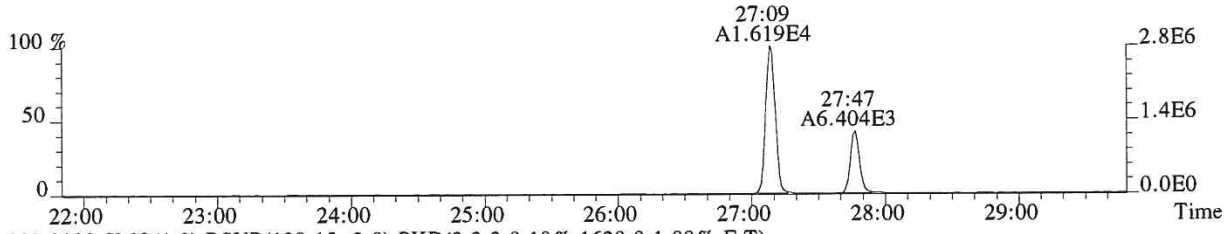
File:P519423 #1-566 Acq:14-DEC-2018 18:18:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-001
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2276.0,1.00%,F,T)



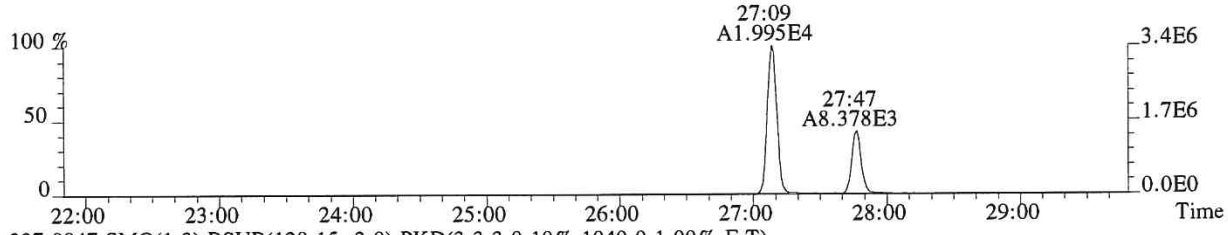
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,944.0,1.00%,F,T)



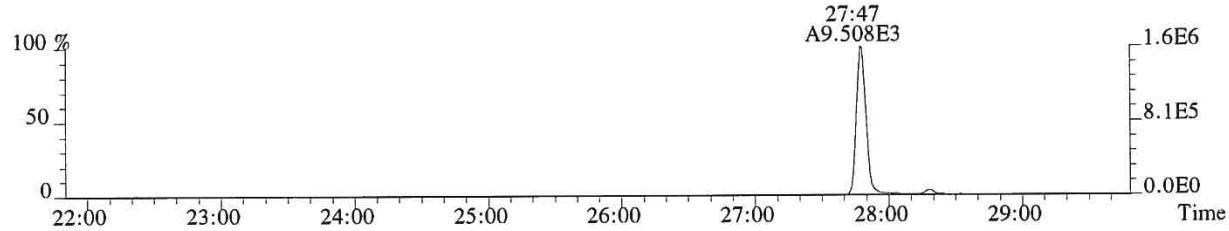
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6528.0,1.00%,F,T)



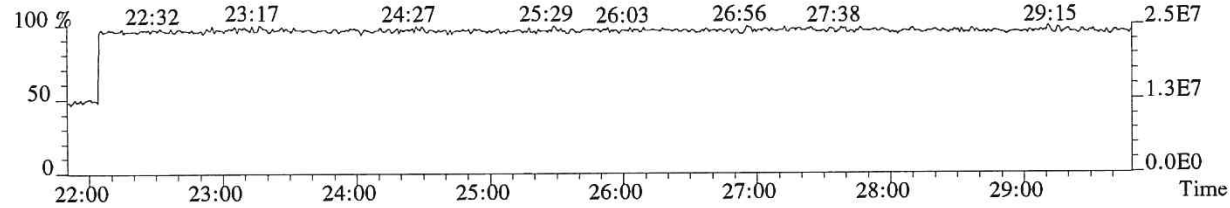
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1620.0,1.00%,F,T)



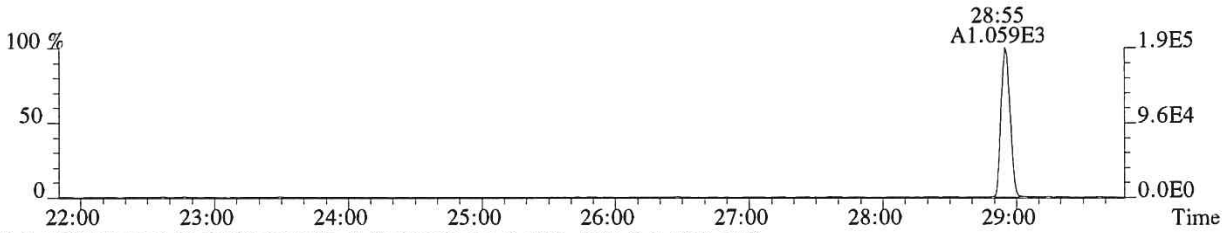
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1040.0,1.00%,F,T)



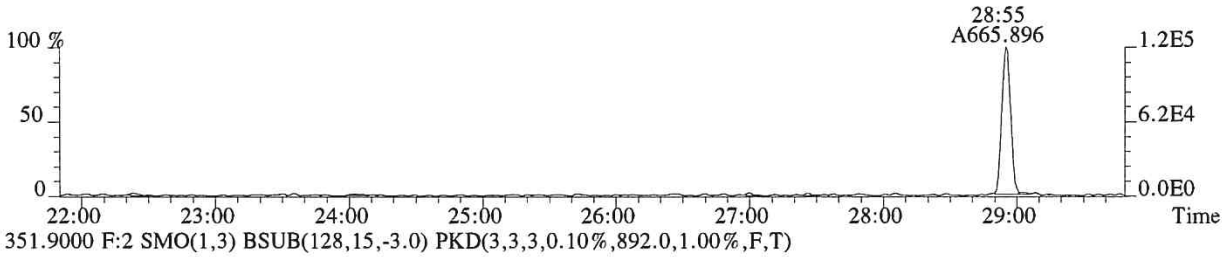
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



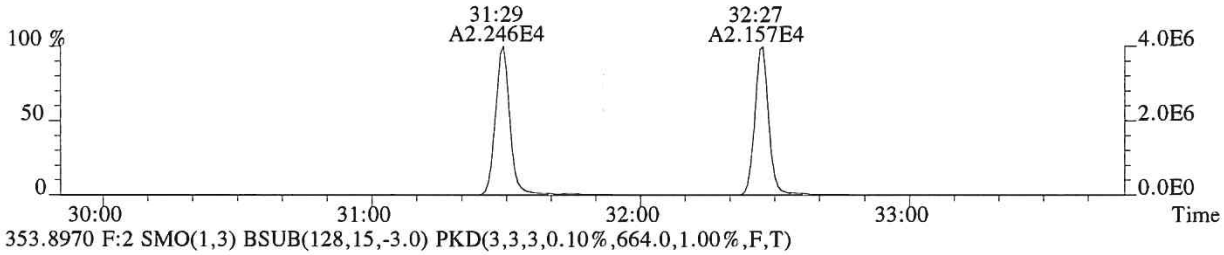
File:P519423 #1-566 Acq:14-DEC-2018 18:18:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-001
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



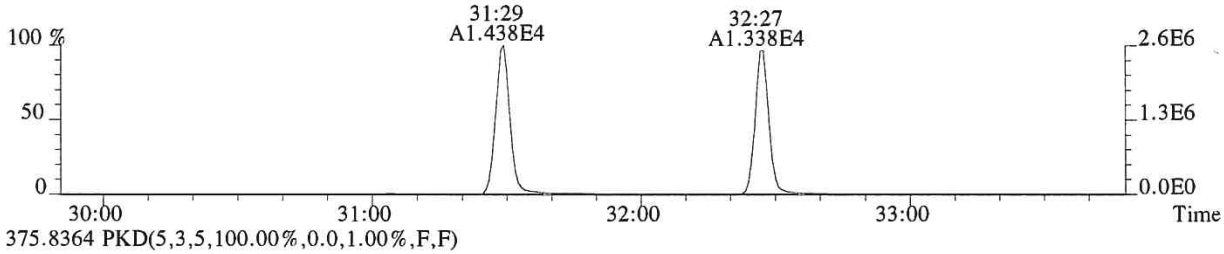
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1200.0,1.00%,F,T)



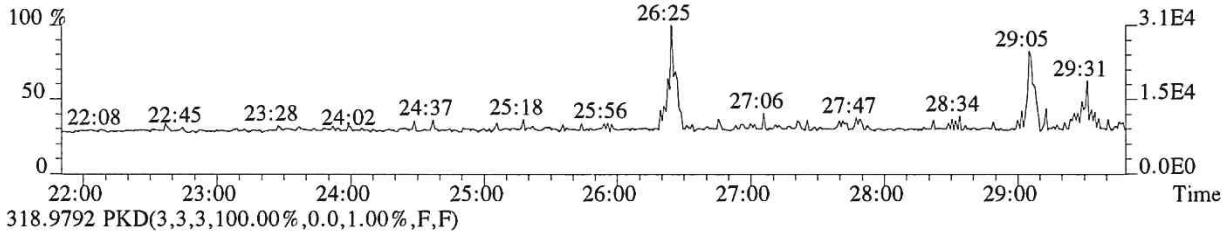
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,892.0,1.00%,F,T)



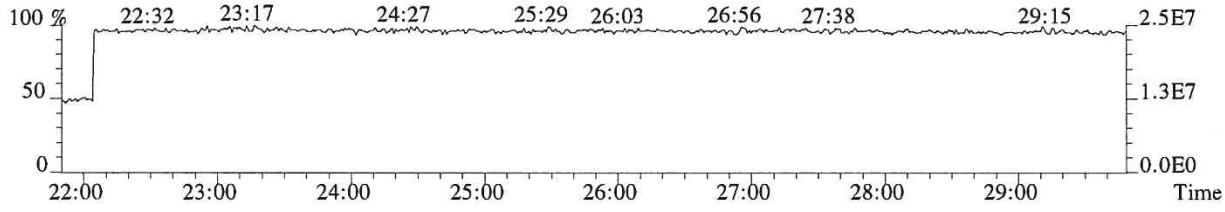
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,664.0,1.00%,F,T)



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

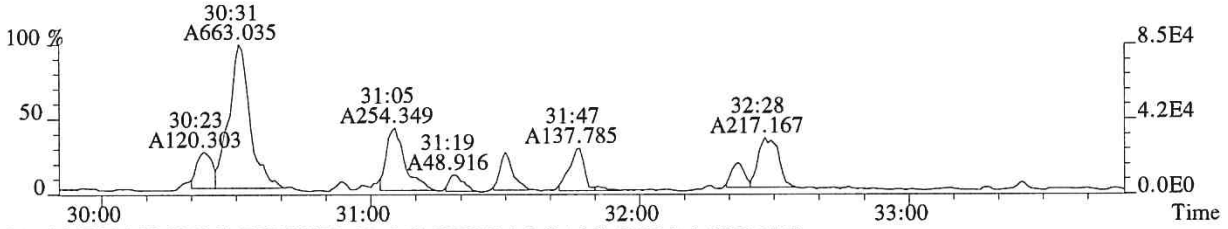


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

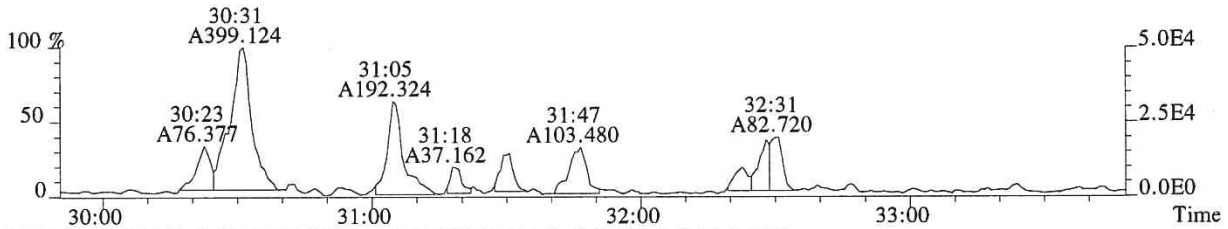


013974

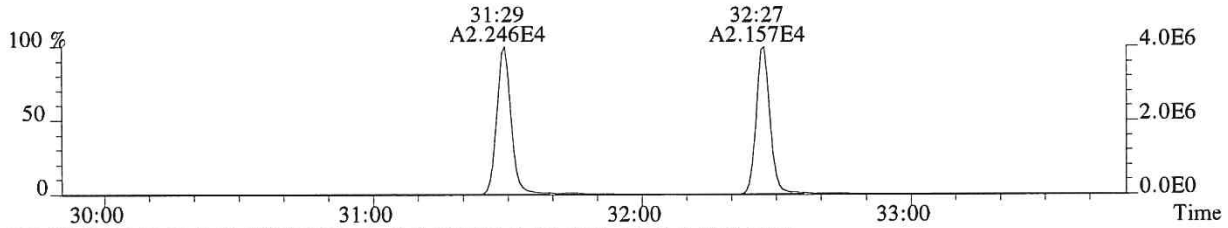
File:P519423 #1-357 Acq:14-DEC-2018 18:18:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-001
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3696.0,1.00%,F,T)



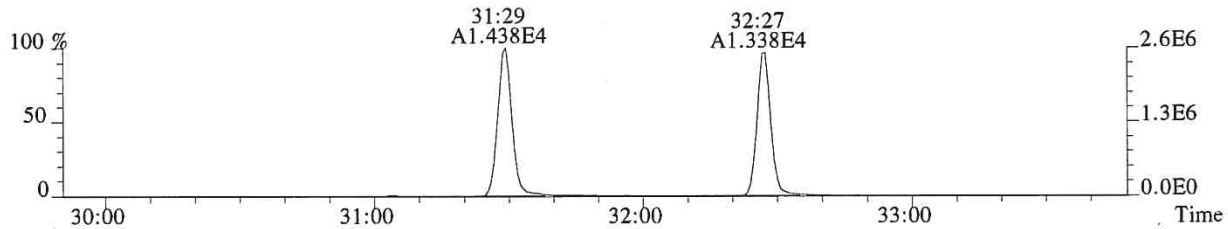
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2136.0,1.00%,F,T)



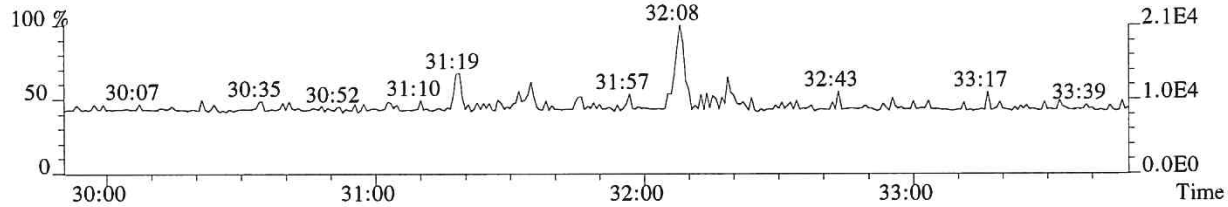
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,892.0,1.00%,F,T)



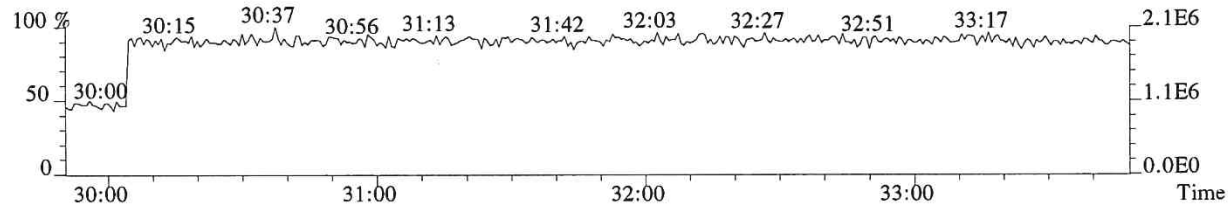
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,664.0,1.00%,F,T)



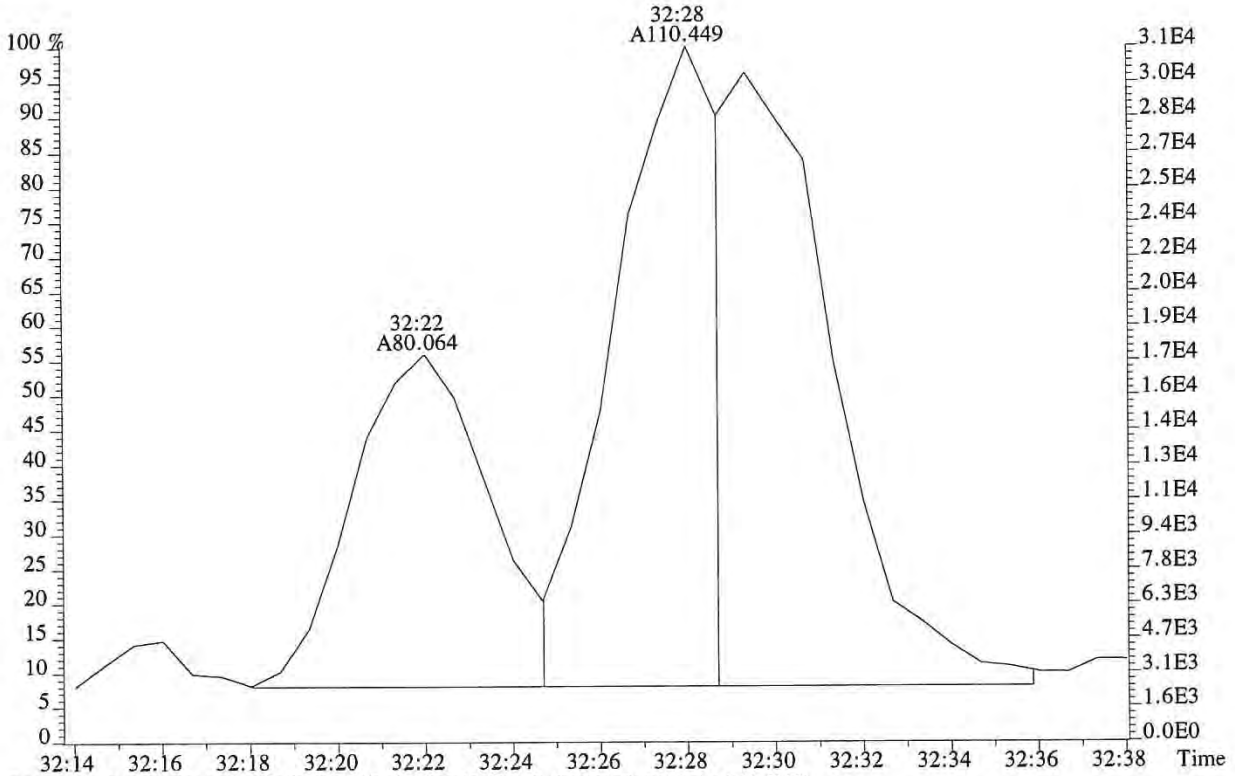
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



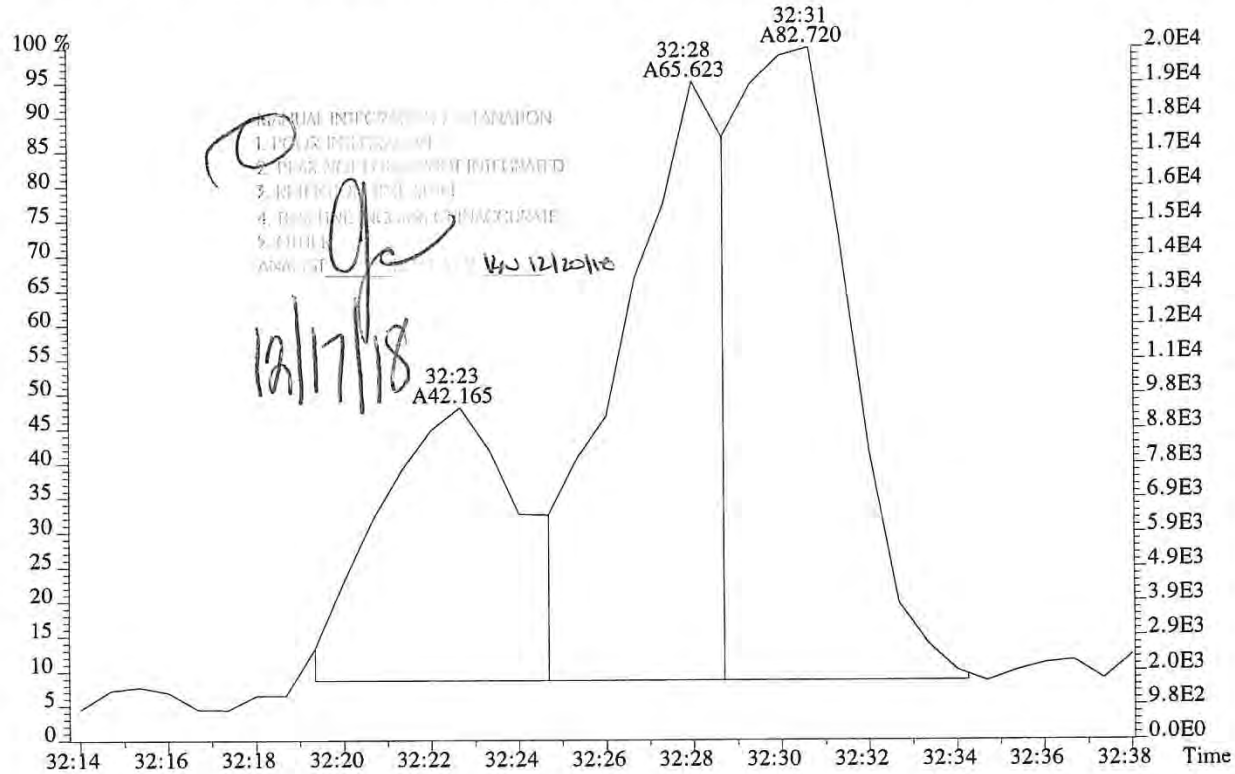
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P519423 #1-357 Acq:14-DEC-2018 18:18:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-001
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3696.0,1.00%,F,T)

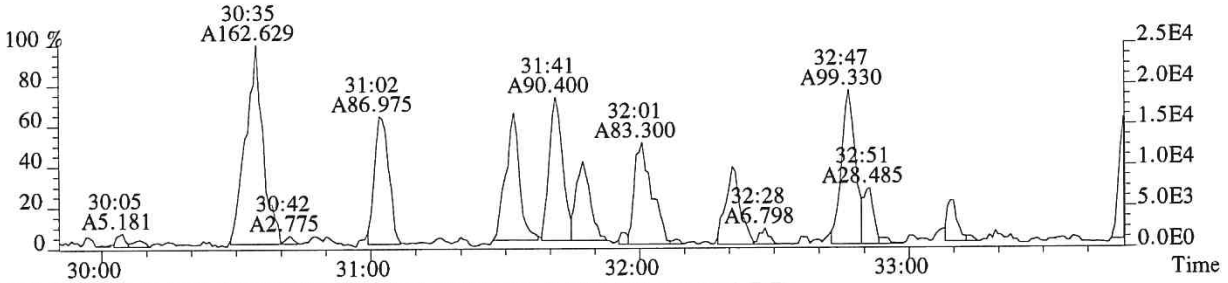


341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2136.0,1.00%,F,T)

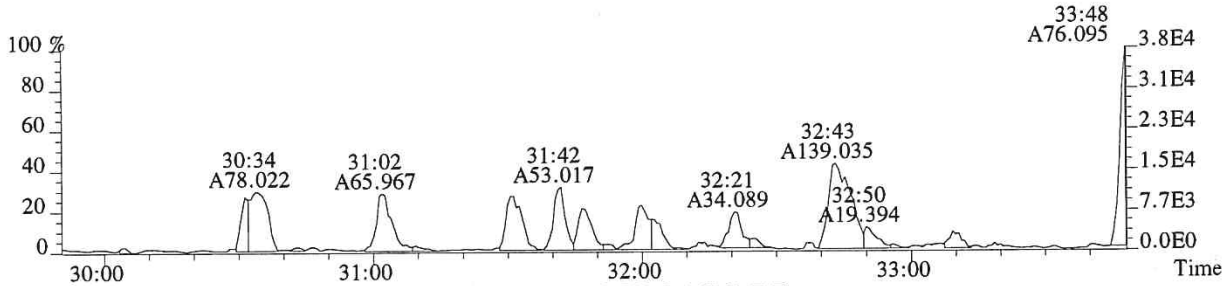


013976

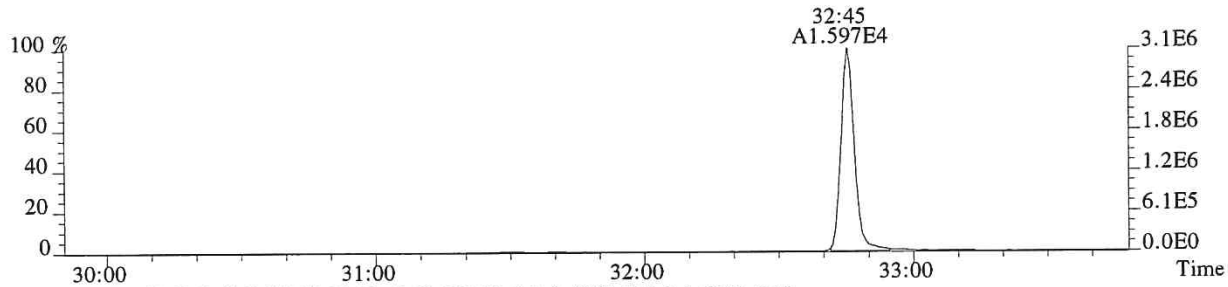
File:P519423 #1-357 Acq:14-DEC-2018 18:18:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-001
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,944.0,1.00%,F,T)



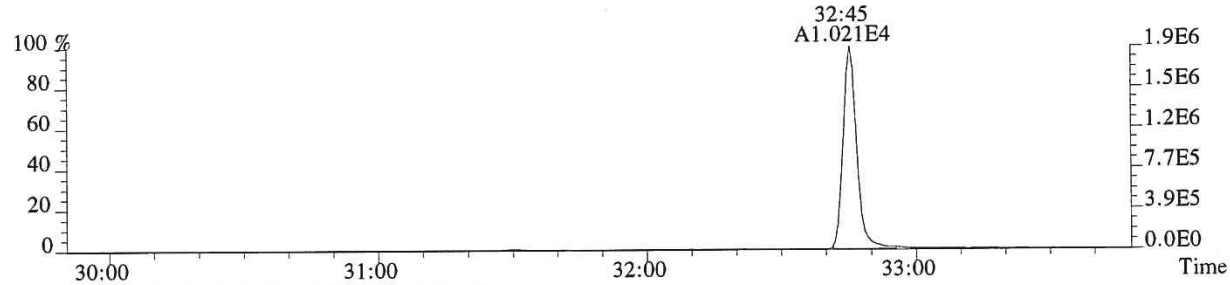
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,564.0,1.00%,F,T)



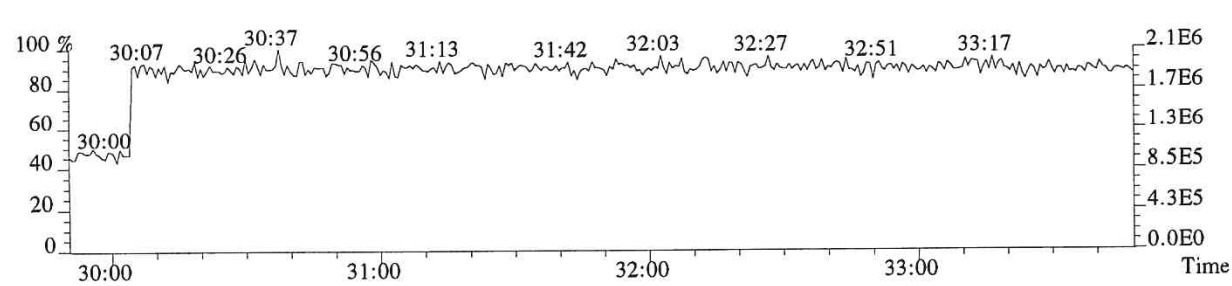
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,788.0,1.00%,F,T)



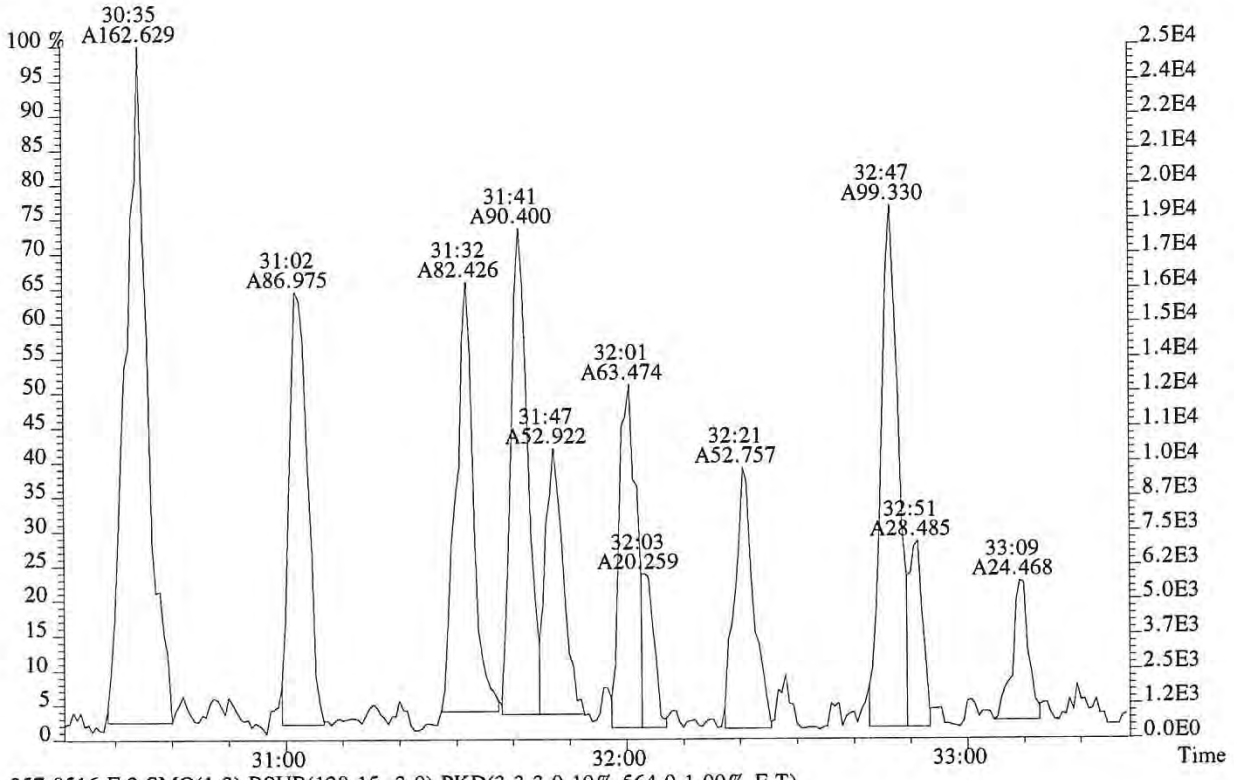
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,728.0,1.00%,F,T)



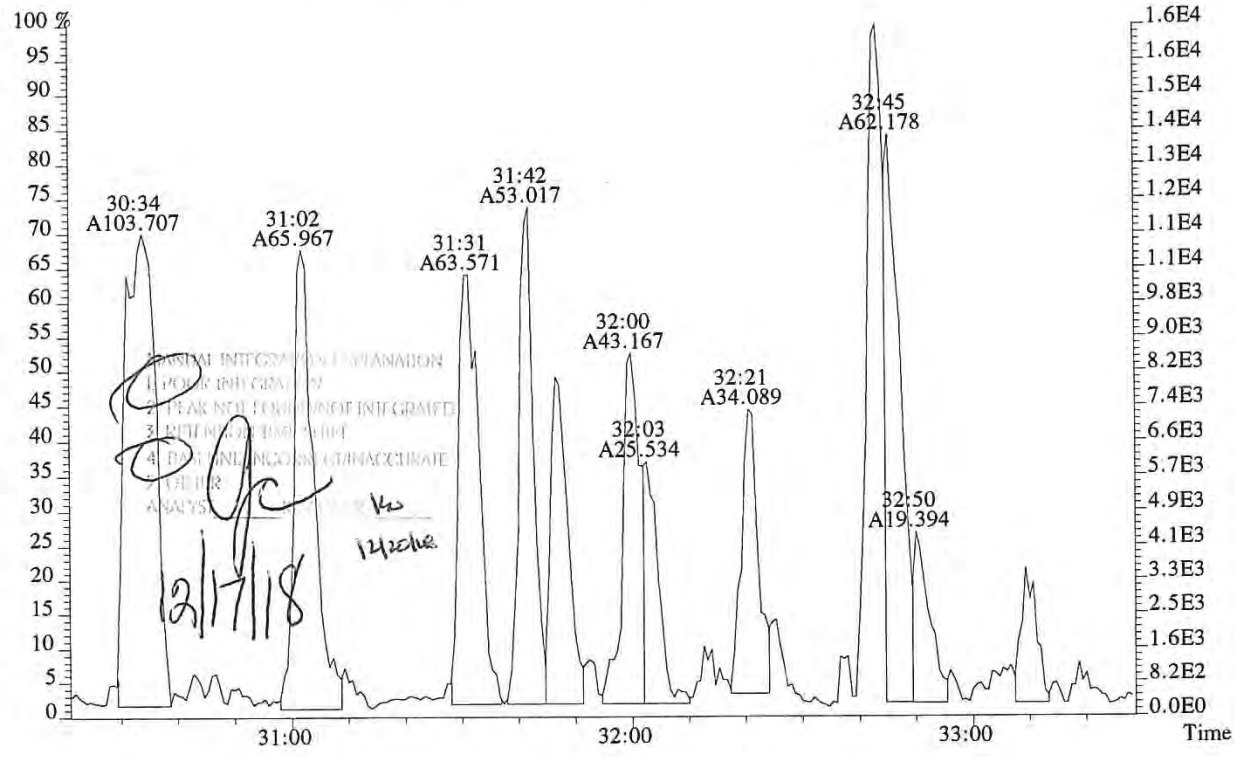
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P519423 #1-357 Acq:14-DEC-2018 18:18:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-001
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,944.0,1.00%,F,T)

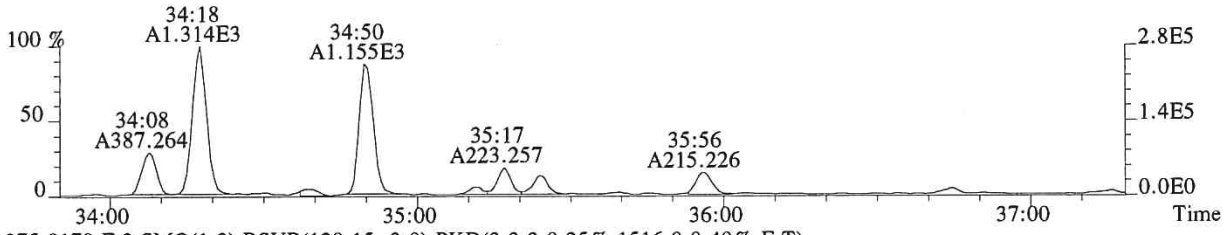


357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,564.0,1.00%,F,T)

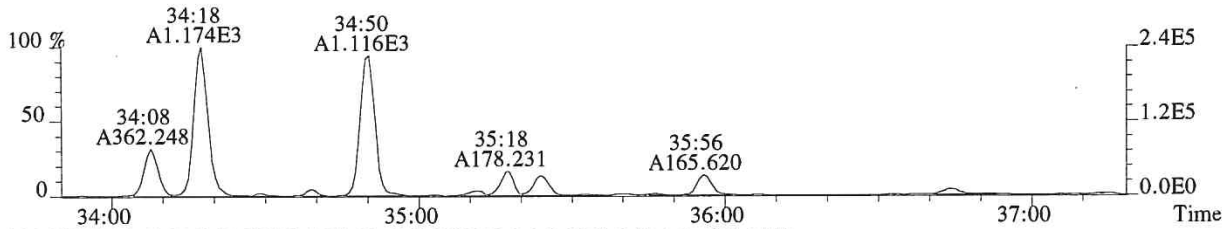


013978

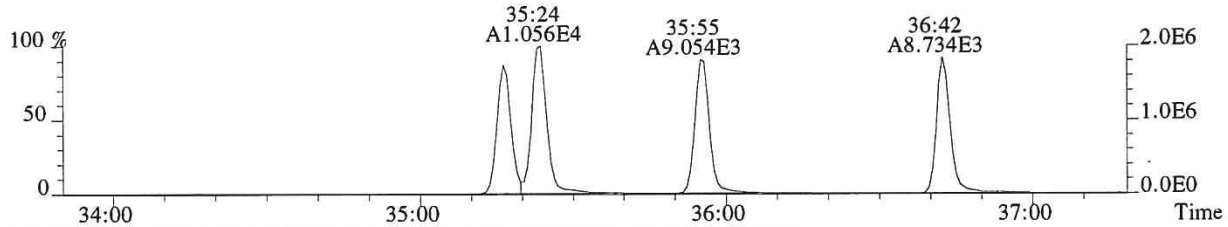
File:P519423 #1-313 Acq:14-DEC-2018 18:18:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-001
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4176.0,0.40%,F,T)



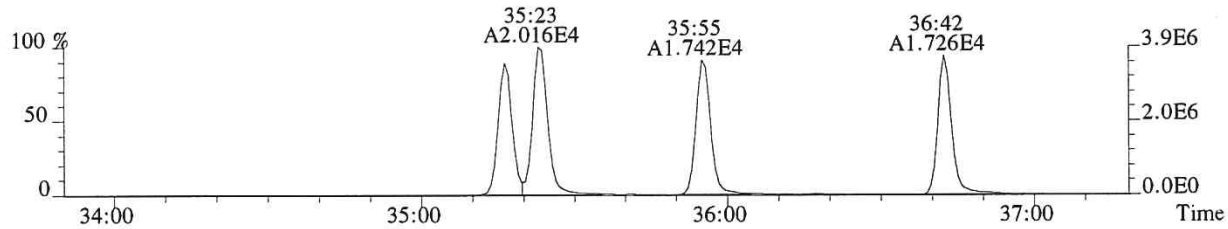
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1516.0,0.40%,F,T)



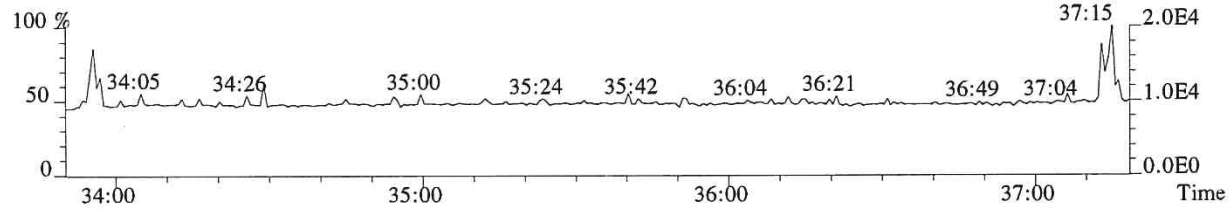
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,848.0,0.40%,F,T)



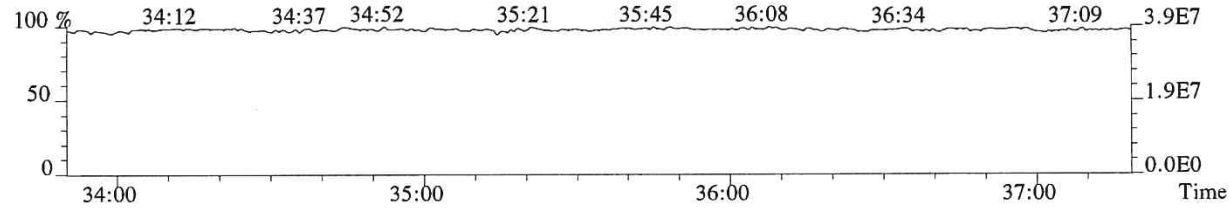
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,848.0,0.40%,F,T)



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

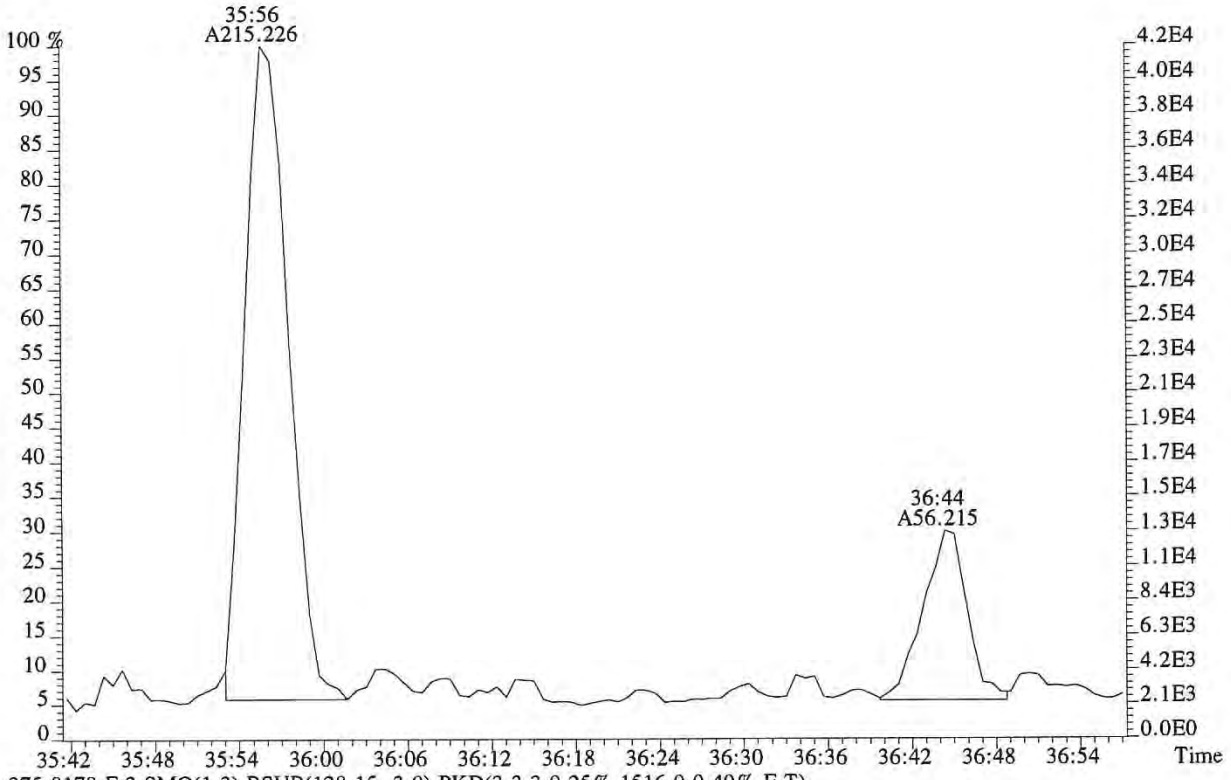


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

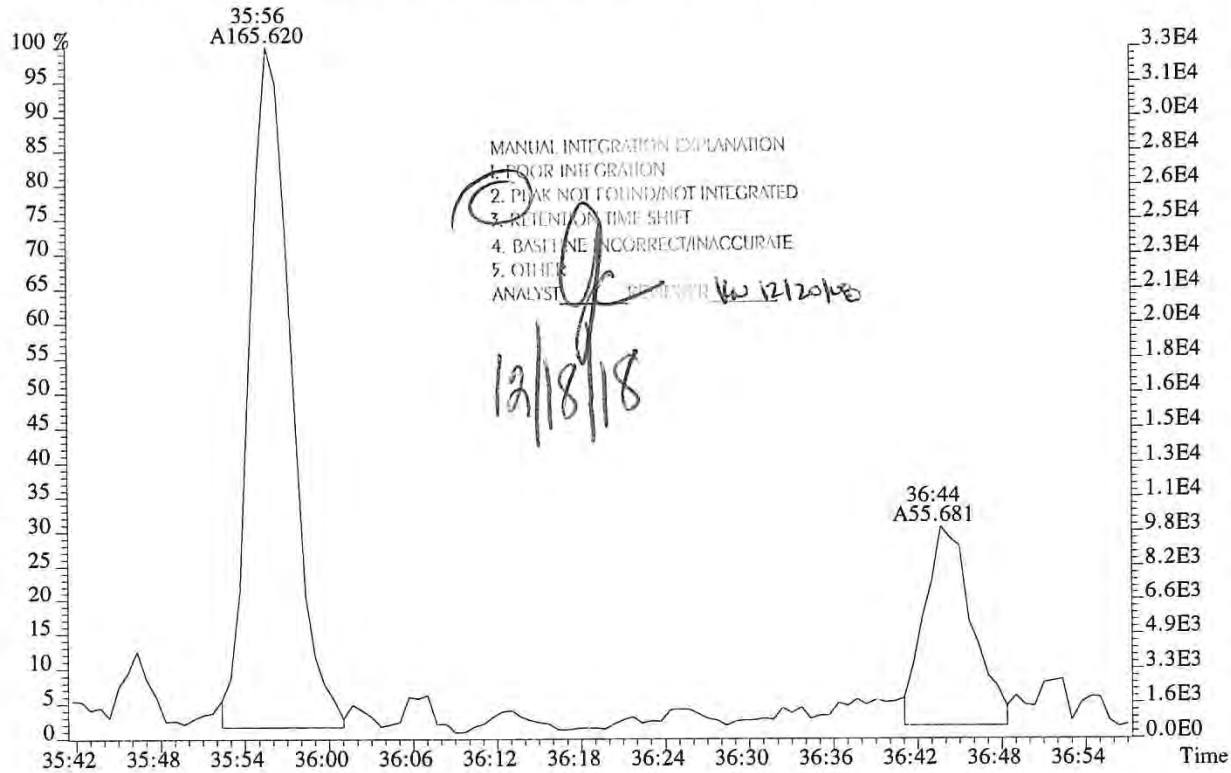


013979

File:P519423 #1-313 Acq:14-DEC-2018 18:18:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-001
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4176.0,0.40%,F,T)

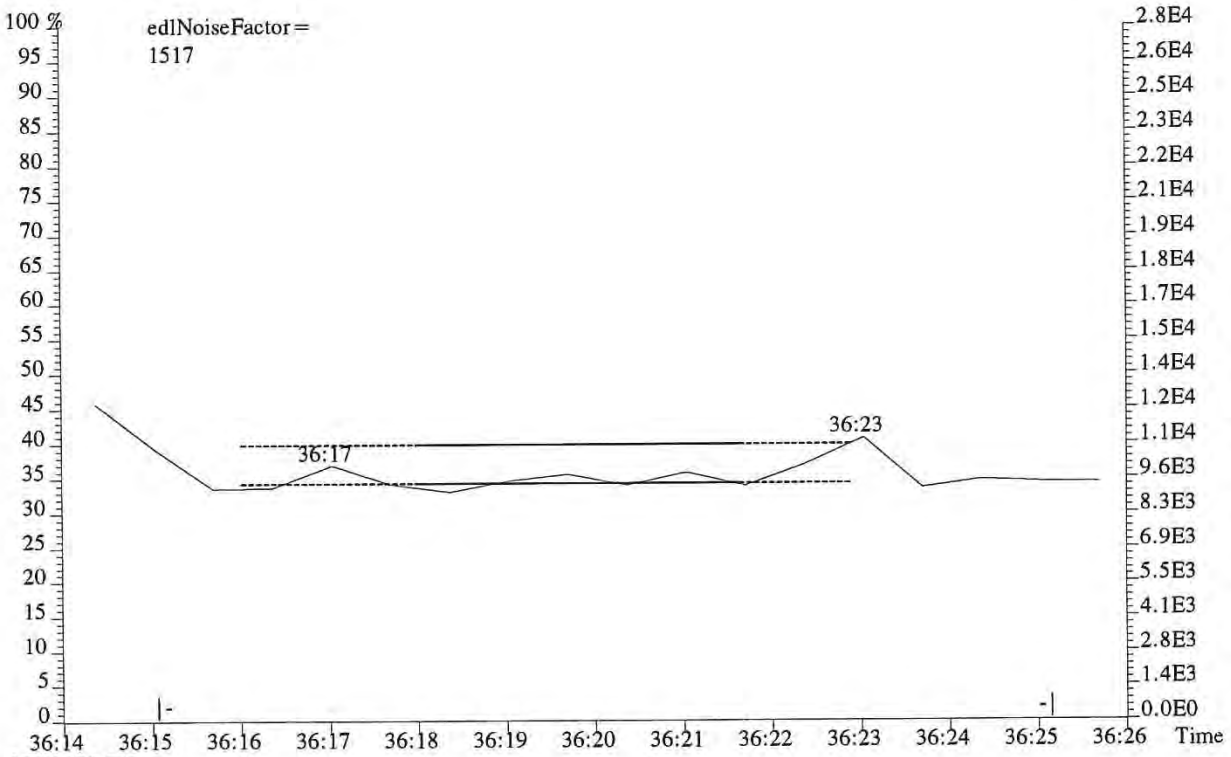


375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1516.0,0.40%,F,T)

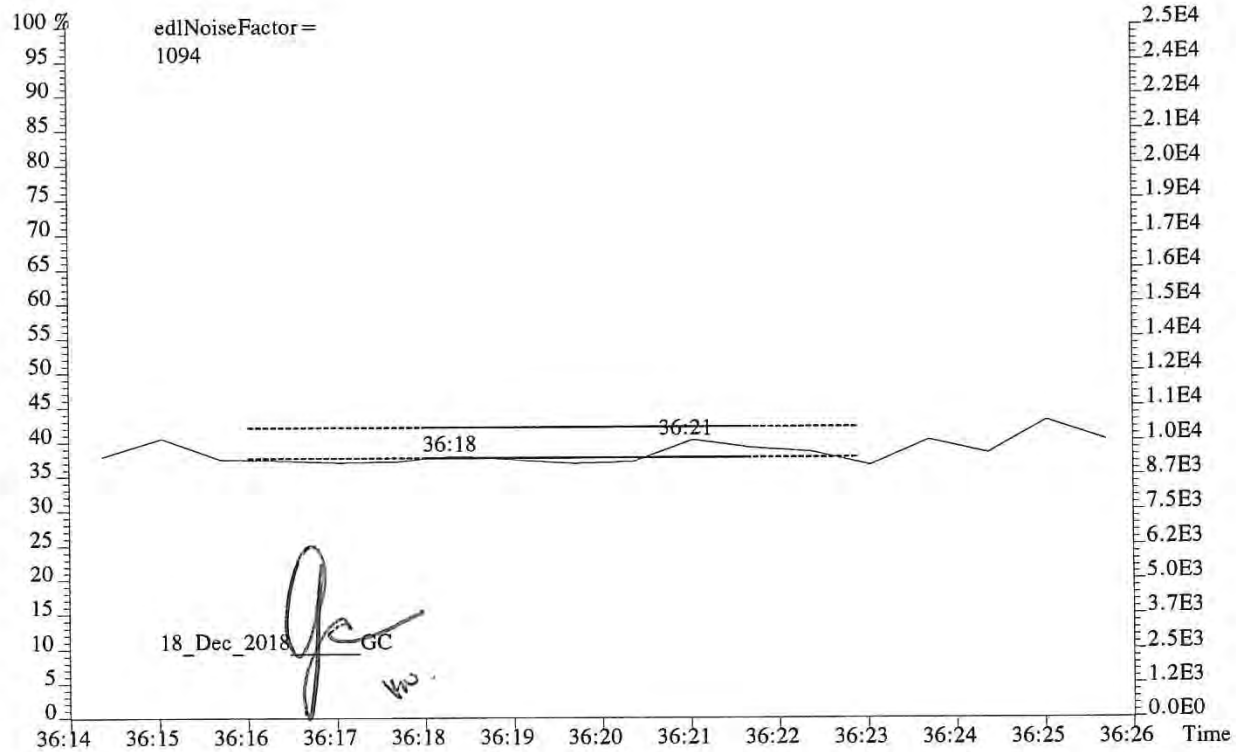


MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST [signature] REVIEWER [signature] 12/20/18
12/18/18

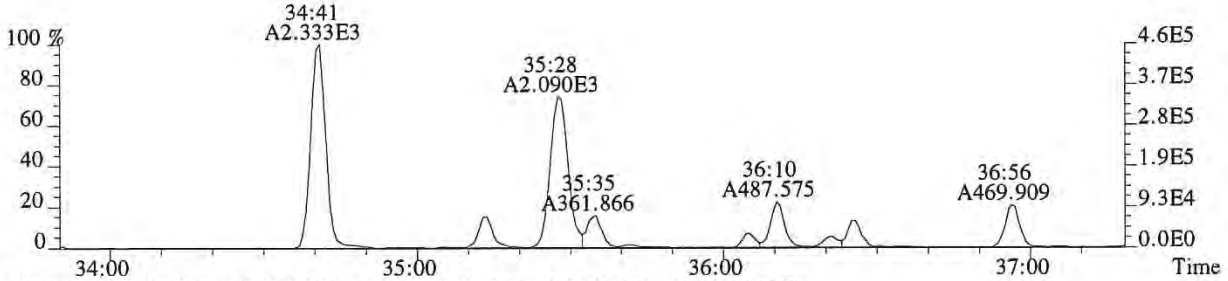
File:P519423 #1-313 Acq:14-DEC-2018 18:18:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-001
373.8208 F:3



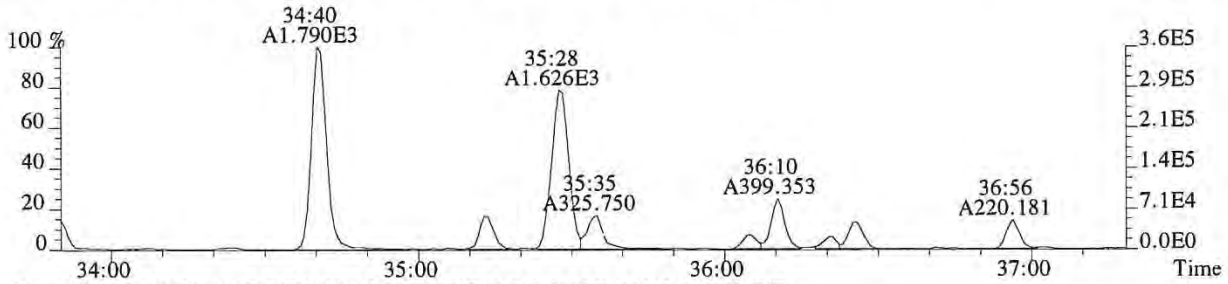
375.8178 F:3



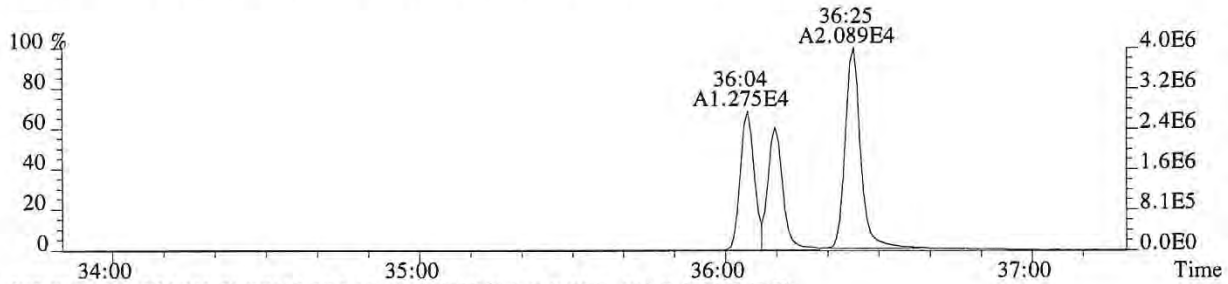
File:P519423 #1-313 Acq:14-DEC-2018 18:18:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-001
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,728.0,0.40%,F,T)



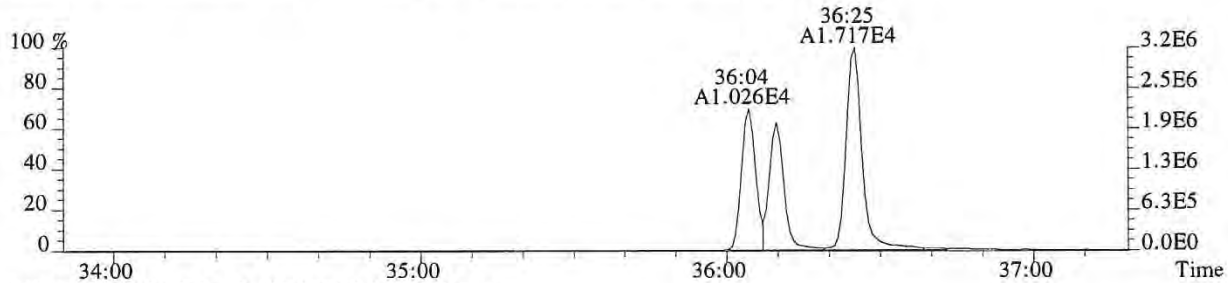
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1564.0,0.40%,F,T)



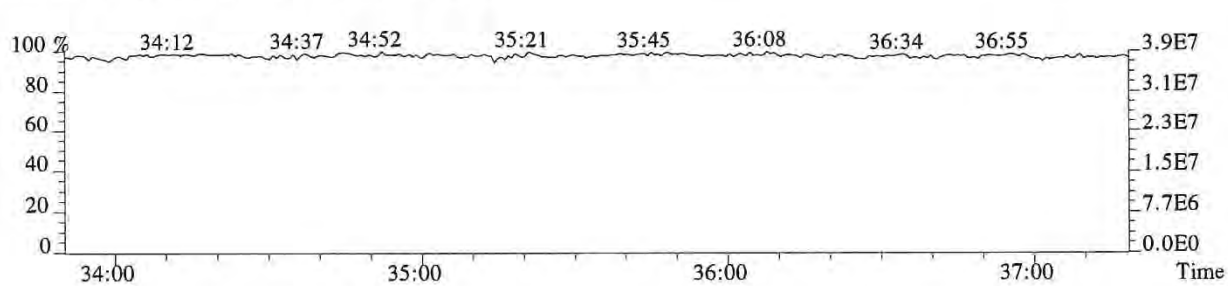
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,880.0,0.40%,F,T)



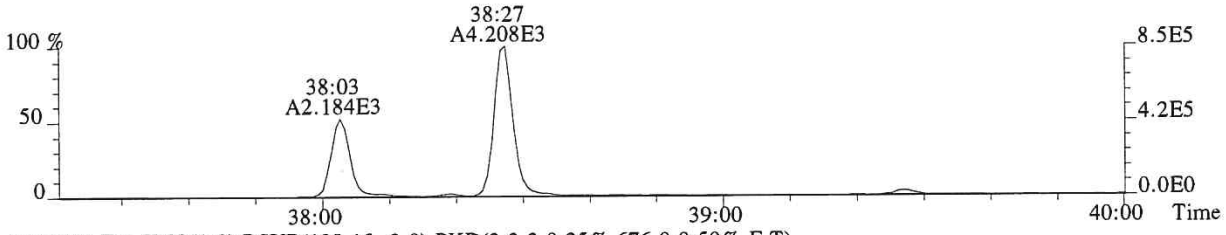
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,432.0,0.40%,F,T)



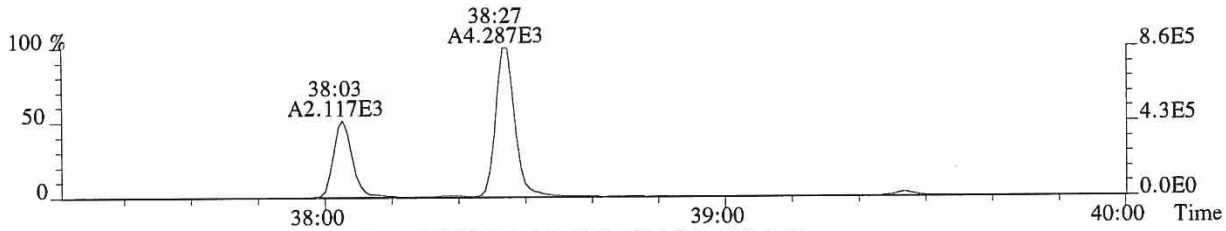
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



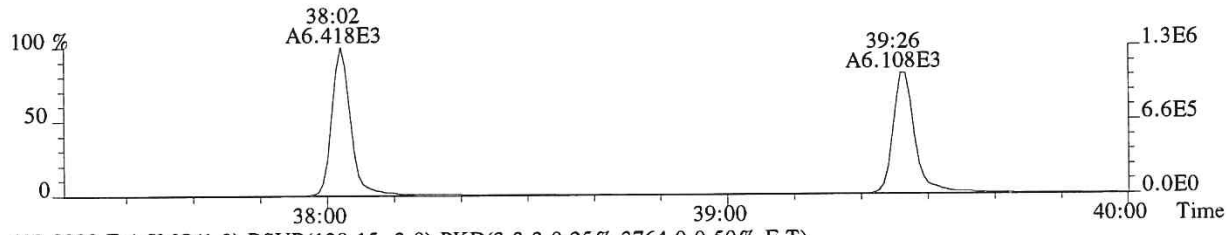
File:P519423 #1-240 Acq:14-DEC-2018 18:18:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-001
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2188.0,0.50%,F,T)



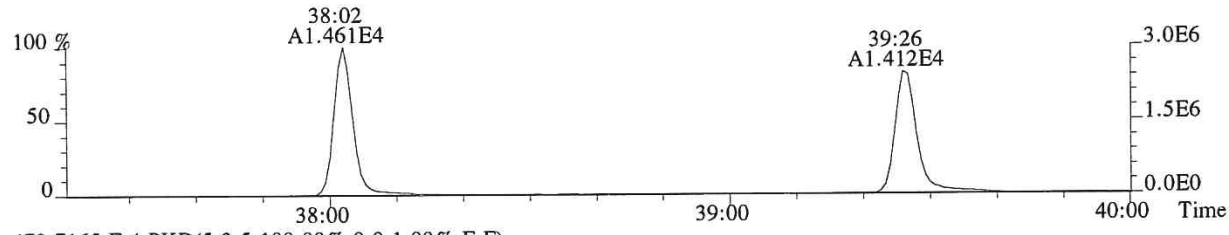
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,676.0,0.50%,F,T)



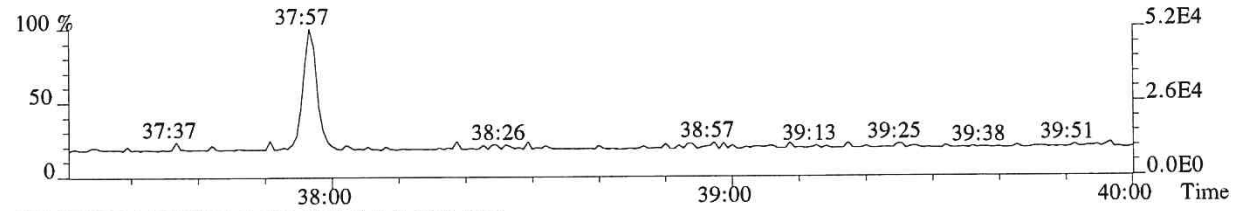
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1508.0,0.50%,F,T)



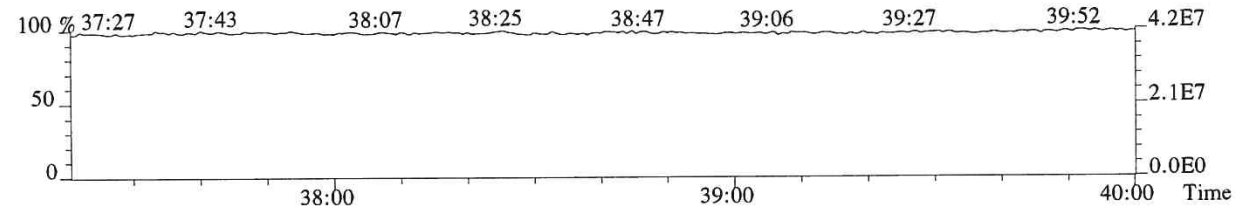
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3764.0,0.50%,F,T)



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

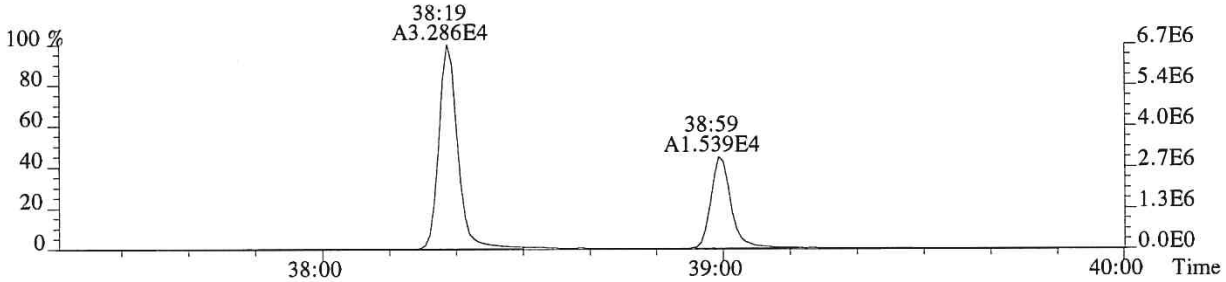


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

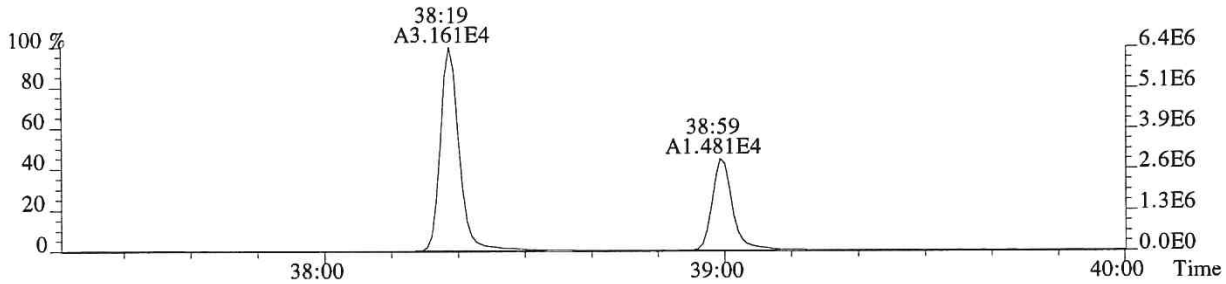


013983

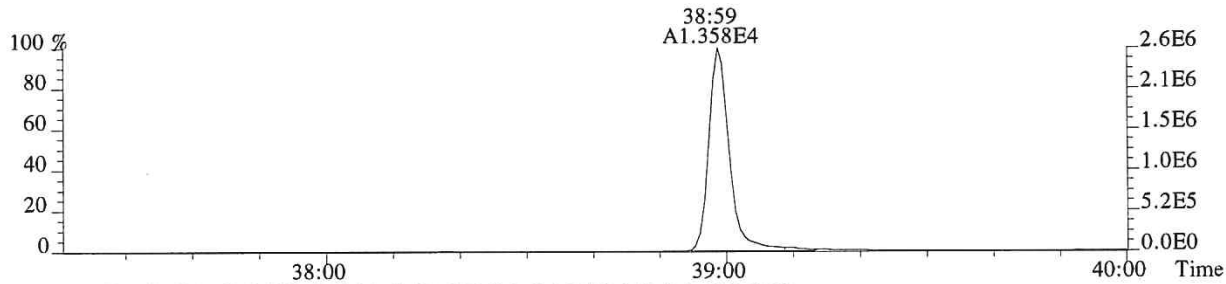
File:P519423 #1-240 Acq:14-DEC-2018 18:18:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-001
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,300.0,0.40%,F,T)



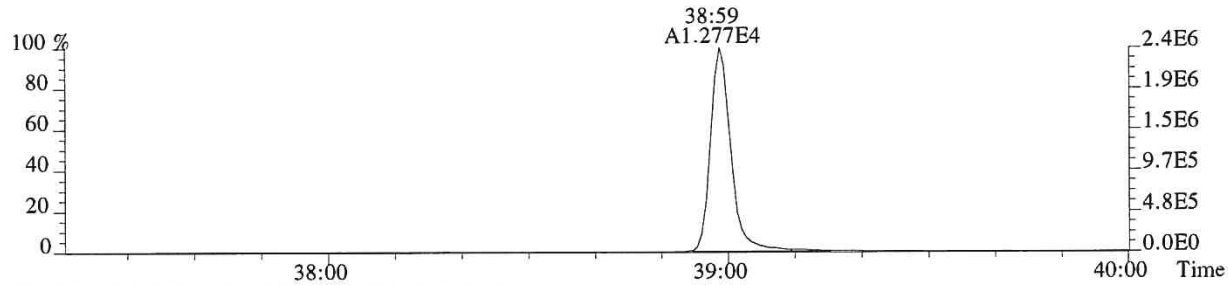
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,10560.0,0.40%,F,T)



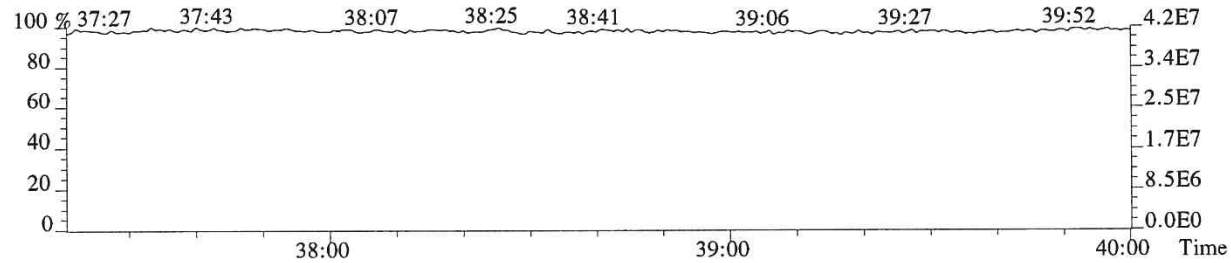
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,676.0,0.40%,F,T)



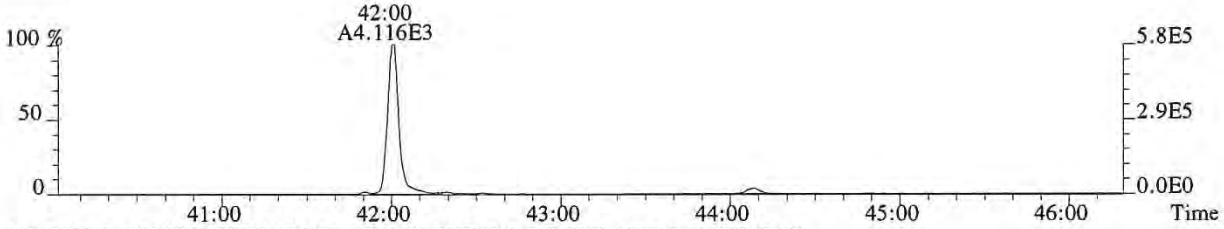
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,356.0,0.40%,F,T)



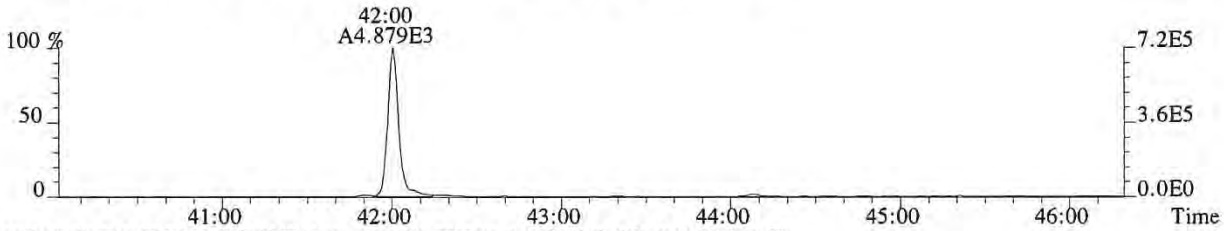
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



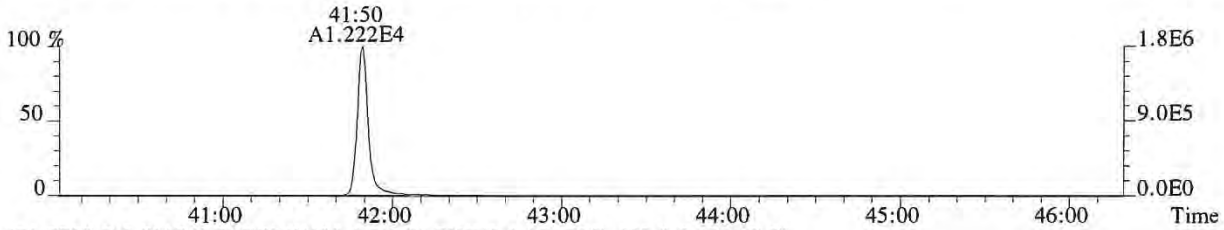
File:P519423 #1-566 Acq:14-DEC-2018 18:18:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-001
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,436.0,0.40%,F,T)



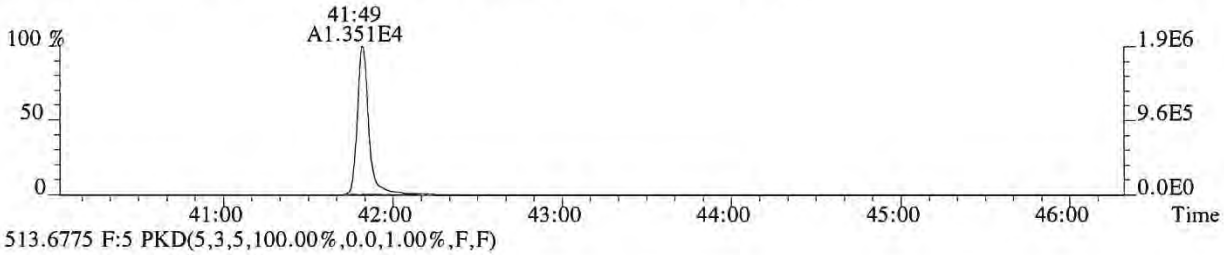
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1280.0,0.40%,F,T)



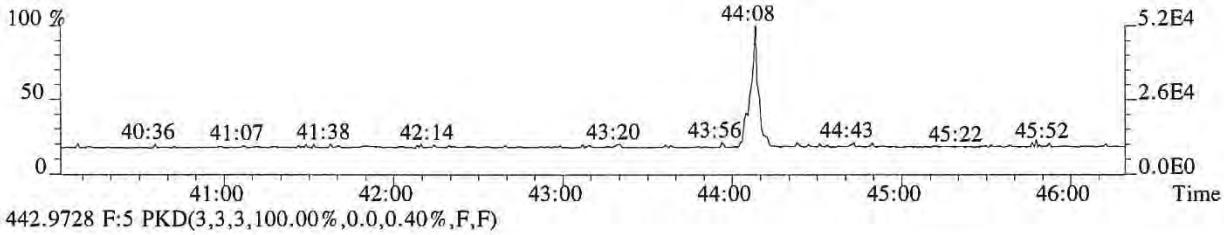
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,676.0,0.40%,F,T)



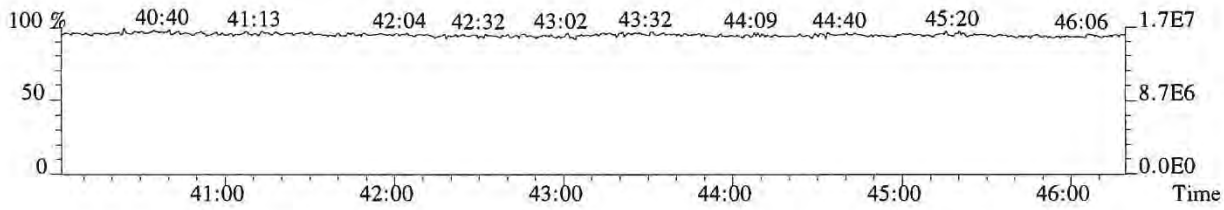
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,480.0,0.40%,F,T)



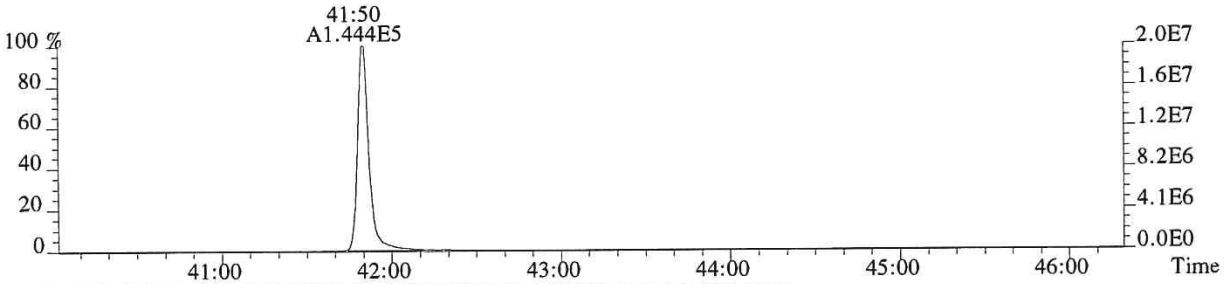
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



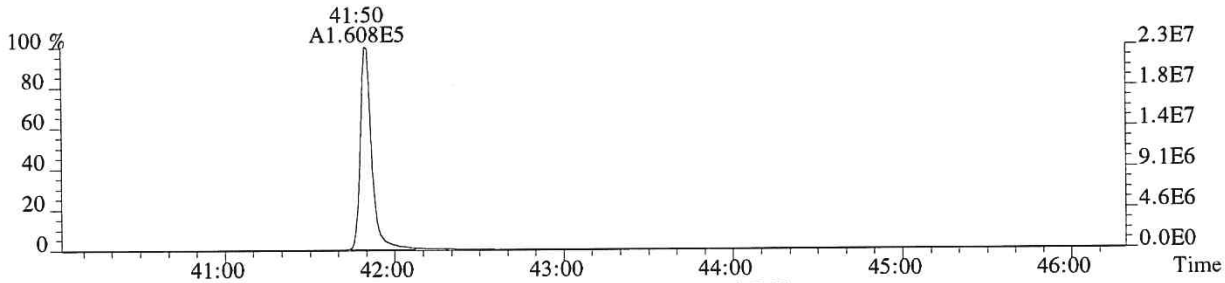
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



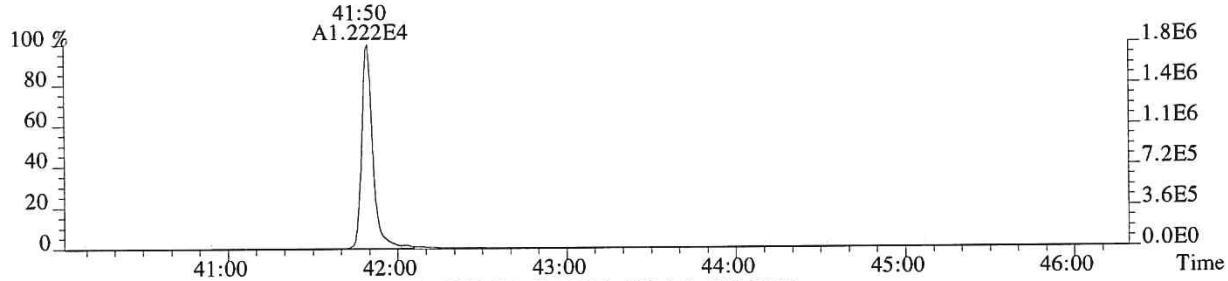
File:P519423 #1-566 Acq:14-DEC-2018 18:18:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-001
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,400.0,0.40%,F,T)



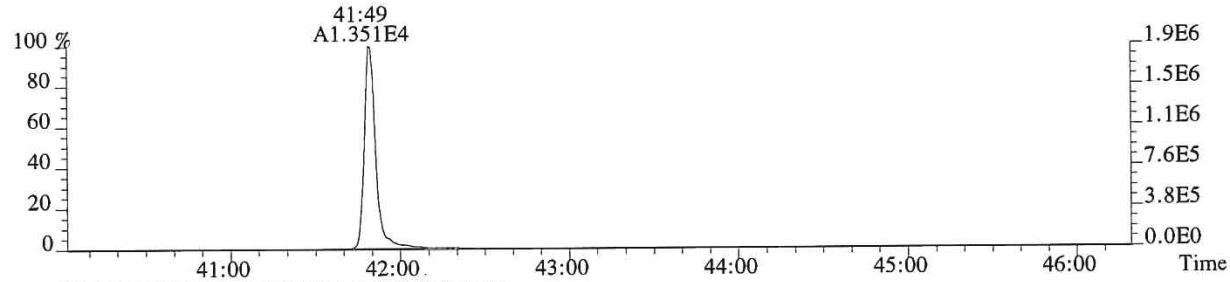
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,468.0,0.40%,F,T)



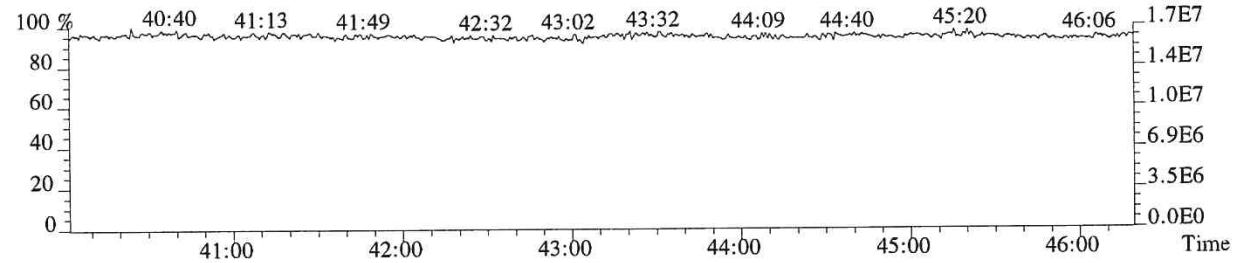
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,676.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,480.0,0.40%,F,T)



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



013986

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0018

Run #12 Filename P519424 Samp: 1 Inj: 1 Acquired: 14-DEC-18 19:06:04
Processed: 17-DEC-18 15:31:51 Sample ID: E1801093-002

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:55	7.699e+02	9.331e+02	0.83	yes	yes	0.942
2	Unk	1,2,3,7,8-PeCDF	31:31	3.549e+02	1.733e+02	2.05	no	no	1.012
3	Unk	2,3,4,7,8-PeCDF	32:29	1.375e+03	9.702e+02	1.42	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:18	1.104e+03	9.068e+02	1.22	yes	yes	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:24	8.157e+02	6.770e+02	1.20	yes	yes	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:56	1.368e+03	1.302e+03	1.05	no	yes	1.110
7	Unk	1,2,3,7,8,9-HxCDF	36:44	1.629e+02	1.043e+02	1.56	no	yes	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:03	1.213e+04	1.213e+04	1.00	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:27	6.934e+02	6.380e+02	1.09	yes	no	1.258
10	Unk	OCDF	42:00	1.106e+04	1.245e+04	0.89	yes	no	1.359
11	Unk	2,3,7,8-TCDD	27:48	1.077e+02	1.186e+02	0.91	no	no	1.085
12	Unk	1,2,3,7,8-PeCDD	32:47	3.032e+02	1.987e+02	1.53	yes	yes	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:06	3.908e+02	3.446e+02	1.13	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:10	2.381e+03	2.058e+03	1.16	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:26	1.005e+03	8.658e+02	1.16	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:59	6.734e+04	6.364e+04	1.06	yes	no	1.025
17	Unk	OCDD	41:50	6.889e+05	7.710e+05	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	26:53	1.525e+04	1.898e+04	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	31:30	2.354e+04	1.466e+04	1.61	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	32:27	2.257e+04	1.431e+04	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:17	9.050e+03	1.744e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:24	1.052e+04	2.044e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:56	9.777e+03	1.904e+04	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	36:42	9.074e+03	1.796e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:03	6.780e+03	1.555e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:26	6.359e+03	1.483e+04	0.43	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	27:47	6.883e+03	8.624e+03	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:46	1.674e+04	1.046e+04	1.60	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:04	1.326e+04	1.068e+04	1.24	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:10	1.369e+04	1.066e+04	1.28	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:59	1.397e+04	1.340e+04	1.04	yes	no	0.858
32	IS	13C-OCDD	41:49	1.324e+04	1.423e+04	0.93	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:09	1.630e+04	2.079e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:24	2.238e+04	1.815e+04	1.23	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:48	1.004e+04				no	1.014

$$\text{OCDD} = \frac{(6.889e+05 + 7.710e+05) \times 4000\ \text{pg} \times 1}{(1.324e+04 + 1.423e+04) \times 10.441\ \text{g} \times 71.4 / 100 \times 1.118} = 25505\ \text{ng/kg}$$

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KO 12/20/18

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0018

Run #12 Filename P519424 Samp: 1 Inj: 1 Acquired: 14-DEC-18 19:06:04
Processed: 17-DEC-18 15:31:51 LAB. ID: E1801093-002

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.10e+05	6.44e+02	1.7e+02	1.49e+05	1.95e+03	7.7e+01
2	1,2,3,7,8-PeCDF	6.03e+04	6.33e+03	9.5e+00	3.74e+04	1.33e+04	2.8e+00
3	2,3,4,7,8-PeCDF	1.68e+05	6.33e+03	2.7e+01	1.22e+05	1.33e+04	9.2e+00
4	1,2,3,4,7,8-HxCDF	2.28e+05	2.71e+03	8.4e+01	1.91e+05	4.25e+03	4.5e+01
5	1,2,3,6,7,8-HxCDF	1.68e+05	2.71e+03	6.2e+01	1.41e+05	4.25e+03	3.3e+01
6	2,3,4,6,7,8-HxCDF	3.02e+05	2.71e+03	1.1e+02	2.73e+05	4.25e+03	6.4e+01
7	1,2,3,7,8,9-HxCDF	3.89e+04	2.71e+03	1.4e+01	2.10e+04	4.25e+03	5.0e+00
8	1,2,3,4,6,7,8-HpCDF	2.46e+06	3.97e+03	6.2e+02	2.45e+06	1.35e+04	1.8e+02
9	1,2,3,4,7,8,9-HpCDF	1.30e+05	3.97e+03	3.3e+01	1.24e+05	1.35e+04	9.2e+00
10	OCDF	1.61e+06	4.16e+02	3.9e+03	1.79e+06	8.92e+02	2.0e+03
11	2,3,7,8-TCDD	1.81e+04	1.46e+03	1.2e+01	2.23e+04	9.64e+02	2.3e+01
12	1,2,3,7,8-PeCDD	5.98e+04	2.77e+03	2.2e+01	4.84e+04	3.62e+03	1.3e+01
13	1,2,3,4,7,8-HxCDD	8.76e+04	5.28e+03	1.7e+01	8.67e+04	6.20e+03	1.4e+01
14	1,2,3,6,7,8-HxCDD	5.08e+05	5.28e+03	9.6e+01	4.27e+05	6.20e+03	6.9e+01
15	1,2,3,7,8,9-HxCDD	2.02e+05	5.28e+03	3.8e+01	1.70e+05	6.20e+03	2.7e+01
16	1,2,3,4,6,7,8-HpCDD	1.27e+07	9.52e+02	1.3e+04	1.22e+07	5.68e+02	2.1e+04
17	OCDD	1.00e+08	4.72e+02	2.1e+05	1.13e+08	6.80e+02	1.7e+05
18	13C-2,3,7,8-TCDF	2.48e+06	5.01e+03	5.0e+02	3.11e+06	2.93e+03	1.1e+03
19	13C-1,2,3,7,8-PeCDF	4.12e+06	2.36e+02	1.7e+04	2.62e+06	4.32e+02	6.1e+03
20	13C-2,3,4,7,8-PeCDF	4.19e+06	2.36e+02	1.8e+04	2.66e+06	4.32e+02	6.2e+03
21	13C-1,2,3,4,7,8-HxCDF	1.96e+06	6.32e+02	3.1e+03	3.73e+06	6.80e+02	5.5e+03
22	13C-1,2,3,6,7,8-HxCDF	2.07e+06	6.32e+02	3.3e+03	4.11e+06	6.80e+02	6.0e+03
23	13C-2,3,4,6,7,8-HxCDF	2.05e+06	6.32e+02	3.2e+03	4.02e+06	6.80e+02	5.9e+03
24	13C-1,2,3,7,8,9-HxCDF	1.82e+06	6.32e+02	2.9e+03	3.57e+06	6.80e+02	5.3e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.37e+06	2.20e+03	6.2e+02	3.14e+06	7.26e+03	4.3e+02
26	13C-1,2,3,4,7,8,9-HpCDF	1.15e+06	2.20e+03	5.2e+02	2.69e+06	7.26e+03	3.7e+02
27	13C-2,3,7,8-TCDD	1.22e+06	3.60e+03	3.4e+02	1.52e+06	1.30e+03	1.2e+03
28	13C-1,2,3,7,8-PeCDD	3.11e+06	2.68e+02	1.2e+04	1.96e+06	1.06e+03	1.9e+03
29	13C-1,2,3,4,7,8-HxCDD	2.90e+06	1.14e+03	2.5e+03	2.34e+06	4.24e+02	5.5e+03
30	13C-1,2,3,6,7,8-HxCDD	2.75e+06	1.14e+03	2.4e+03	2.09e+06	4.24e+02	4.9e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.61e+06	4.96e+02	5.3e+03	2.52e+06	3.80e+02	6.6e+03
32	13C-OCDD	1.86e+06	4.04e+02	4.6e+03	2.02e+06	3.88e+02	5.2e+03
33	13C-1,2,3,4-TCDD	2.87e+06	3.60e+03	8.0e+02	3.61e+06	1.30e+03	2.8e+03
34	13C-1,2,3,7,8,9-HxCDD	4.45e+06	1.14e+03	3.9e+03	3.56e+06	4.24e+02	8.4e+03
35	37Cl-2,3,7,8-TCDD	1.78e+06	1.50e+03	1.2e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0018

Entry: 36 Totals Name: Total Tetra-Furans

Run: 12 File: P519424 Sample:1 Injection:1 Function:1

Acquired: 14-DEC-18 19:06:04 Processed: 17-DEC-18 15:31:51

Mass: 303.9020 305.8990 Tot Response: 1.12e+04 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	22:44	2.40e+02	3.20e+02	0.75	yes	5.61e+02		n	n
2	23:13	9.68e+02	1.26e+03	0.77	yes	2.23e+03		n	n
3	23:42	3.00e+02	3.52e+02	0.85	yes	6.52e+02		n	n
4	24:01	6.73e+02	8.44e+02	0.80	yes	1.52e+03		n	n
5	24:25	4.85e+02	6.10e+02	0.79	yes	1.09e+03		n	n
6	24:42	2.37e+02	3.11e+02	0.76	yes	5.48e+02		n	n
7	25:22	7.41e+02	8.51e+02	0.87	yes	1.59e+03		n	n
8	26:48	8.92e+01	1.27e+02	0.70	yes	2.17e+02		y	n
9	26:55	7.70e+02	9.33e+02	0.83	yes	1.70e+03	2,3,7,8-TCDF	y	n
10	27:18	4.57e+02	6.29e+02	0.73	yes	1.09e+03		n	n

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Peak List Summary

CLIENT ID.
SL0018

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 12 File: P519424 Sample:1 Injection:1 Function:1

Acquired: 14-DEC-18 19:06:04 Processed: 17-DEC-18 15:31:51

Mass: 319.8970 321.8940 Tot Response: 9.91e+02 RRF: 1.085

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:01	4.46e+02	5.45e+02 0.82	yes	9.91e+02		n	n

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Peak List Summary

CLIENT ID.
SL0018

Entry: 38 Totals Name: Total Penta-Furans1

Run: 12 File: P519424 Sample:1 Injection:1 Function:1

Acquired: 14-DEC-18 19:06:04 Processed: 17-DEC-18 15:31:51

Mass: 339.8600 341.8570 Tot Response: 1.14e+04 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	28:56	7.00e+03	4.39e+03 1.59	yes	1.14e+04		n	n

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Peak List Summary

CLIENT ID.
SL0018

Entry: 39 Totals Name: Total Penta-Furans2

Run: 12 File: P519424 Sample:1 Injection:1 Function:2

Acquired: 14-DEC-18 19:06:04 Processed: 17-DEC-18 15:31:51

Mass: 339.8600 341.8570 Tot Response: 1.16e+04 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:23	1.13e+03	7.69e+02	1.46	yes	1.90e+03		n	n
2	30:31	3.91e+03	2.73e+03	1.43	yes	6.64e+03		n	n
3	31:19	2.14e+02	1.20e+02	1.78	yes	3.34e+02		n	n
4	32:23	2.44e+02	1.61e+02	1.52	yes	4.05e+02		n	n
5	32:29	1.37e+03	9.70e+02	1.42	yes	2.35e+03	2,3,4,7,8-PeCDF	n	n

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Peak List Summary

CLIENT ID.
SL0018

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 12 File: P519424 Sample:1 Injection:1 Function:2

Acquired: 14-DEC-18 19:06:04 Processed: 17-DEC-18 15:31:51

Mass: 355.8550 357.8520 Tot Response: 4.55e+03 RRF: 0.9565

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:34	6.62e+02	4.01e+02	1.65	yes	1.06e+03		n	n
2	31:03	6.31e+02	3.88e+02	1.62	yes	1.02e+03		n	n
3	31:32	3.22e+02	1.83e+02	1.76	yes	5.05e+02		n	y
4	31:42	4.26e+02	3.00e+02	1.42	yes	7.26e+02		n	y
5	32:01	4.08e+02	2.38e+02	1.71	yes	6.46e+02		y	n
6	32:47	3.03e+02	1.99e+02	1.53	yes	5.02e+02	1,2,3,7,8-PeCDD	n	y
7	32:51	5.37e+01	3.48e+01	1.54	yes	8.85e+01		n	y

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Peak List Summary

CLIENT ID.
SL0018

Entry: 41 Totals Name: Total Hexa-Furans

Run: 12 File: P519424 Sample:1 Injection:1 Function:3

Acquired: 14-DEC-18 19:06:04 Processed: 17-DEC-18 15:31:51

Mass: 373.8210 375.8180 Tot Response: 4.04e+04 RRF: 1.141

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:08	1.73e+03	1.25e+03	1.39	yes	2.98e+03		n	n
2	34:18	8.43e+03	6.91e+03	1.22	yes	1.53e+04		n	n
3	34:40	2.96e+02	2.61e+02	1.14	yes	5.57e+02		n	n
4	34:50	9.56e+03	7.98e+03	1.20	yes	1.75e+04		n	n
5	35:12	2.53e+02	1.89e+02	1.33	yes	4.42e+02		n	n
6	35:18	1.10e+03	9.07e+02	1.22	yes	2.01e+03	1,2,3,4,7,8-HxCDF	n	n
7	35:24	8.16e+02	6.77e+02	1.20	yes	1.49e+03	1,2,3,6,7,8-HxCDF	n	n

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Peak List Summary

CLIENT ID.
SL0018

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 12 File: P519424 Sample:1 Injection:1 Function:3

Acquired: 14-DEC-18 19:06:04 Processed: 17-DEC-18 15:31:51

Mass: 389.8160 391.8130 Tot Response: 4.00e+04 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:41	7.13e+03	5.69e+03	1.25	yes	1.28e+04		n	n
2	35:14	1.01e+03	9.23e+02	1.09	yes	1.93e+03		n	n
3	35:28	8.82e+03	7.13e+03	1.24	yes	1.60e+04		n	n
4	35:35	1.15e+03	1.07e+03	1.08	yes	2.21e+03		n	n
5	36:06	3.91e+02	3.45e+02	1.13	yes	7.35e+02	1,2,3,4,7,8-HxCDD	n	n
6	36:10	2.38e+03	2.06e+03	1.16	yes	4.44e+03	1,2,3,6,7,8-HxCDD	n	n
7	36:26	1.01e+03	8.66e+02	1.16	yes	1.87e+03	1,2,3,7,8,9-HxCDD	n	n

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Peak List Summary

CLIENT ID.
SL0018

Entry: 43 Totals Name: Total Hepta-Furans

Run: 12 File: P519424 Sample:1 Injection:1 Function:4

Acquired: 14-DEC-18 19:06:04 Processed: 17-DEC-18 15:31:51

Mass: 407.7820 409.7790 Tot Response: 7.16e+04 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:03	1.21e+04	1.00	yes	2.43e+04	1,2,3,4,6,7,8-HpCDF	n	n
2	38:19	1.75e+02	0.92	yes	3.64e+02		n	n
3	38:27	2.30e+04	1.01	yes	4.57e+04		n	n
4	39:27	6.93e+02	1.09	yes	1.33e+03	1,2,3,4,7,8,9-HpCDF	n	n

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Peak List Summary

CLIENT ID.
SL0018

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 12 File: P519424 Sample:1 Injection:1 Function:4

Acquired: 14-DEC-18 19:06:04 Processed: 17-DEC-18 15:31:51

Mass: 423.7770 425.7740 Tot Response: 3.13e+05 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:19	9.34e+04	8.86e+04 1.05	yes	1.82e+05		n	n
2	38:59	6.73e+04	6.36e+04 1.06	yes	1.31e+05	1,2,3,4,6,7,8-HpCDD	n	n

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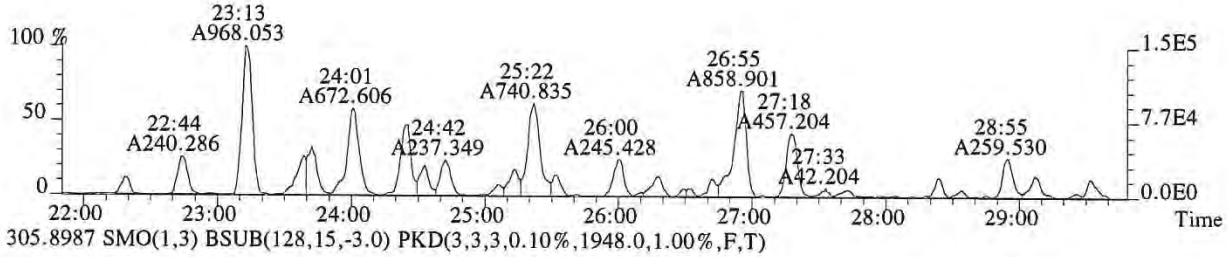
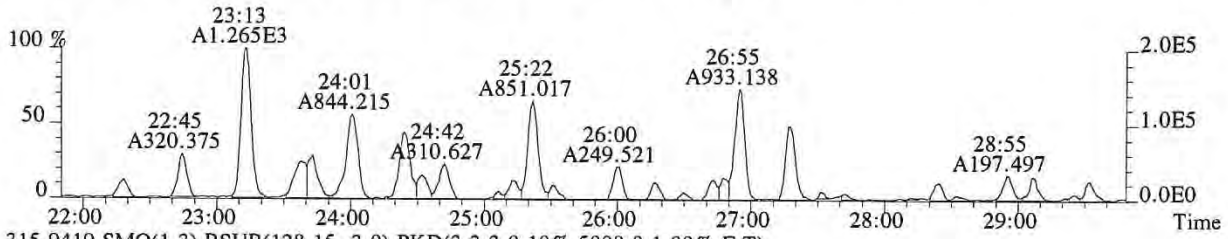
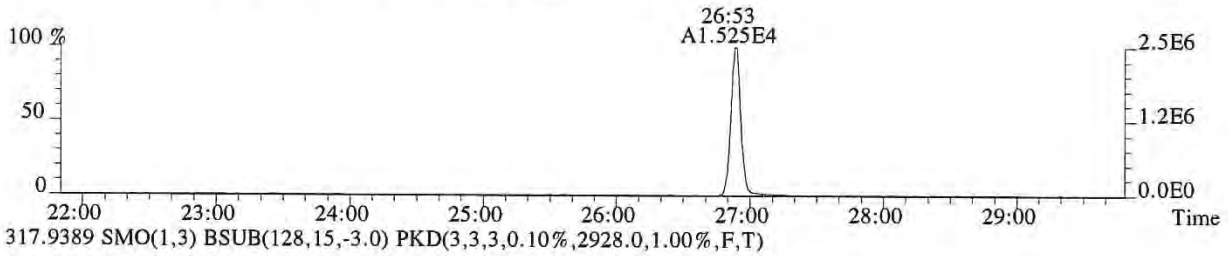
File:P519424 #1-566 Acq:14-DEC-2018 19:06:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-002
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,644.0,1.00%,F,T)



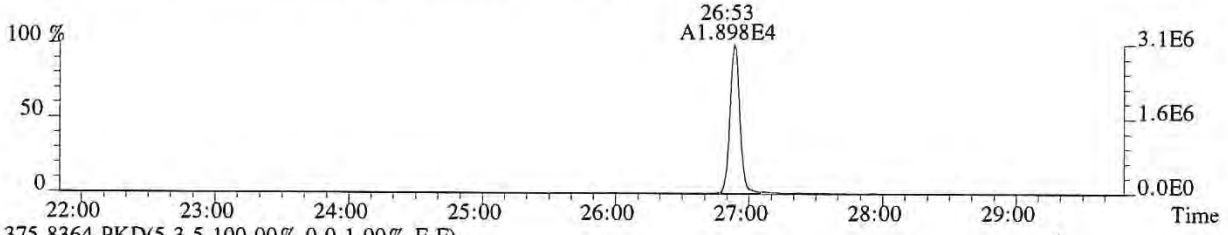
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1948.0,1.00%,F,T)



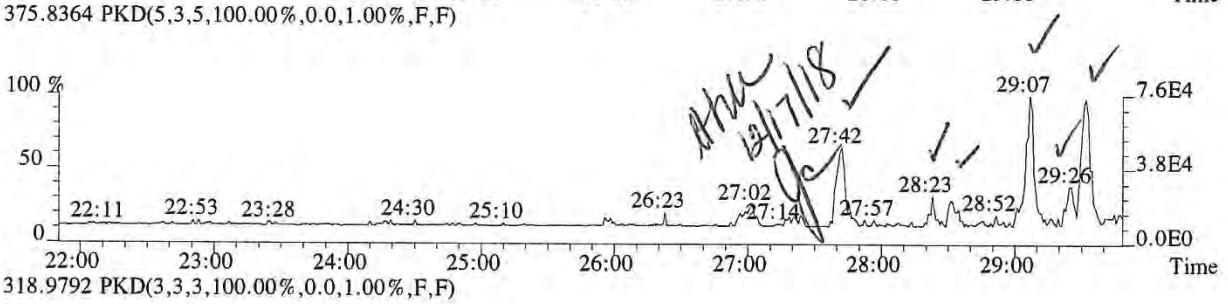
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5008.0,1.00%,F,T)



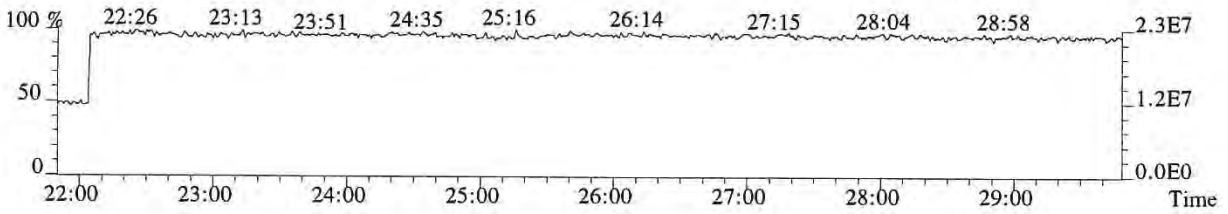
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2928.0,1.00%,F,T)



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

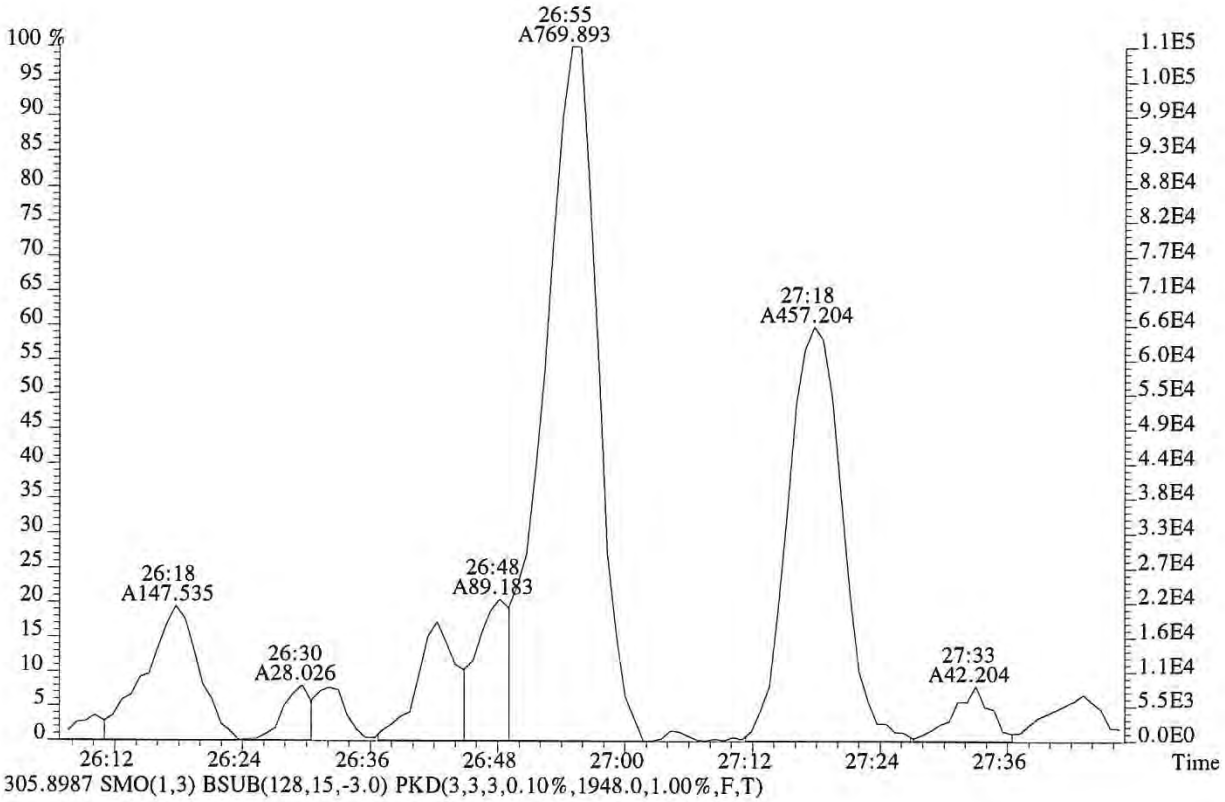


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

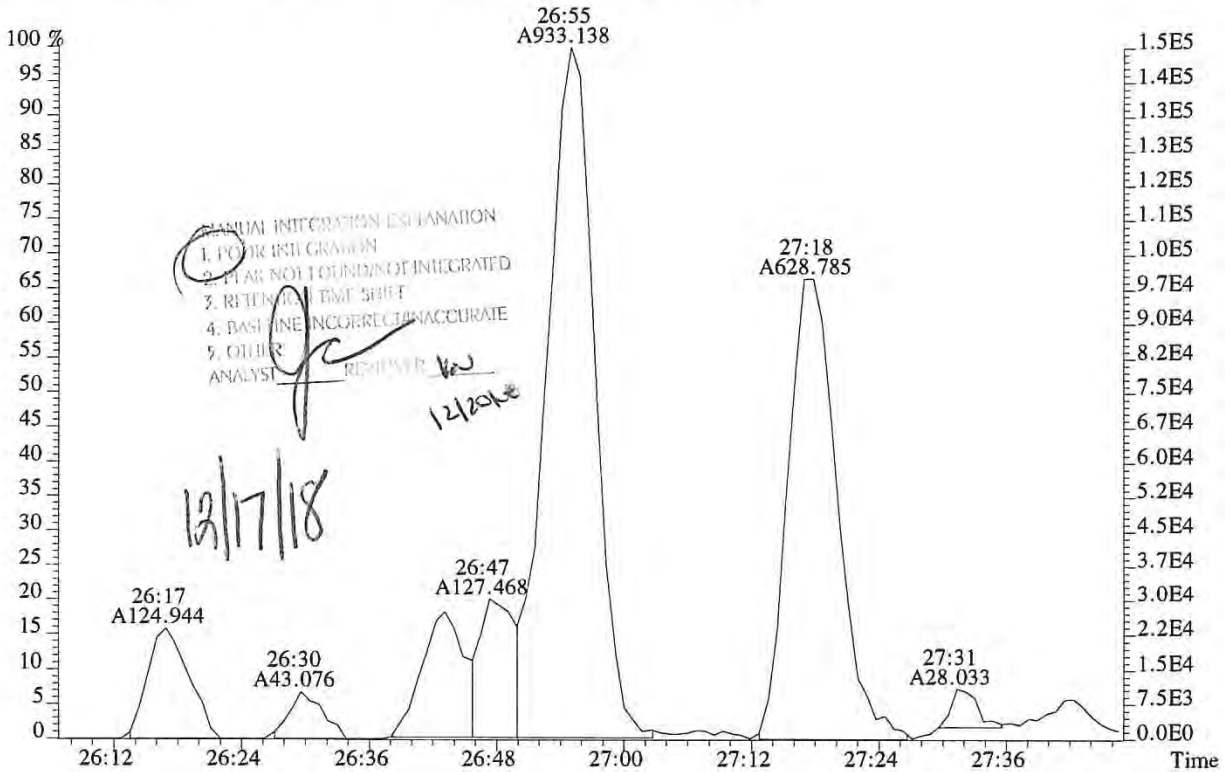


013998

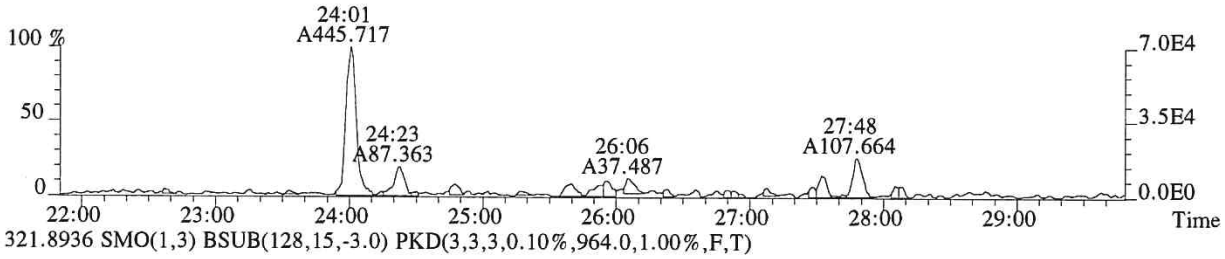
File:P519424 #1-566 Acq:14-DEC-2018 19:06:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-002
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,644.0,1.00%,F,T)



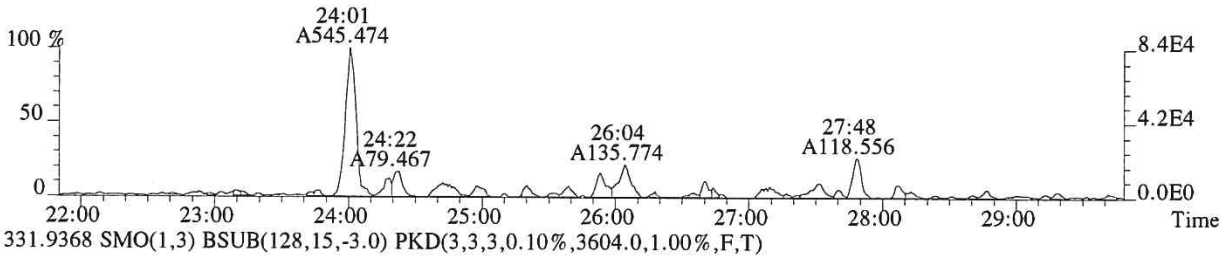
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1948.0,1.00%,F,T)



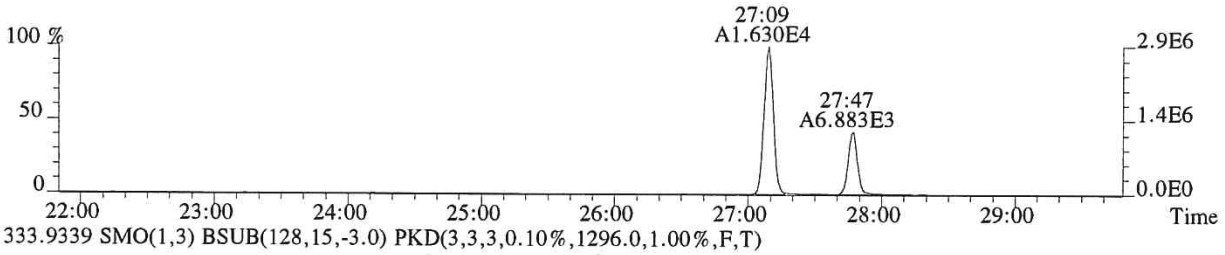
File:P519424 #1-566 Acq:14-DEC-2018 19:06:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-002
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1460.0,1.00%,F,T)



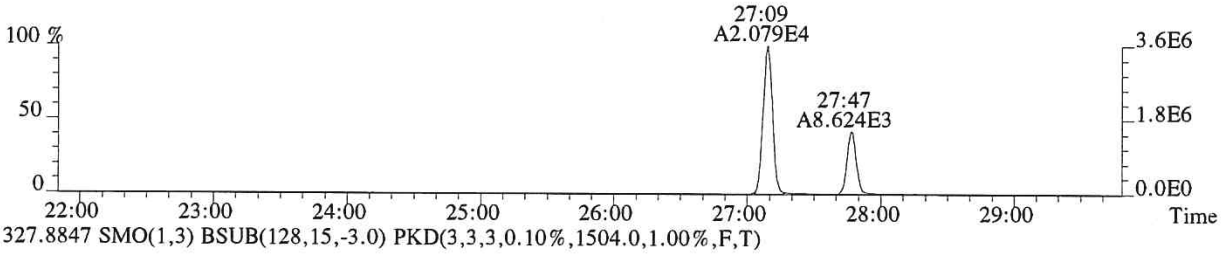
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,964.0,1.00%,F,T)



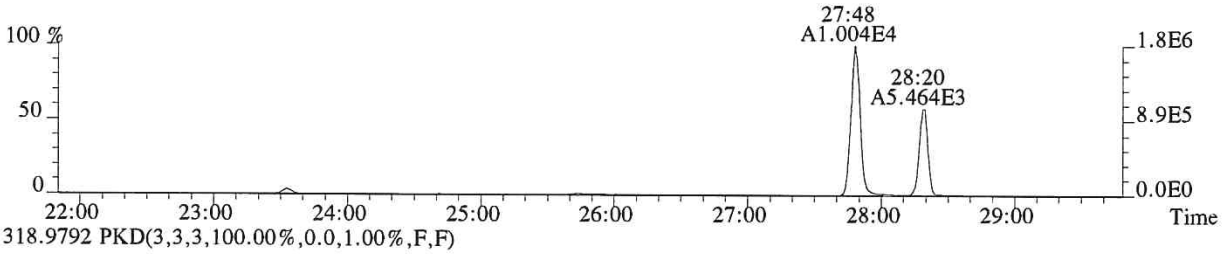
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3604.0,1.00%,F,T)



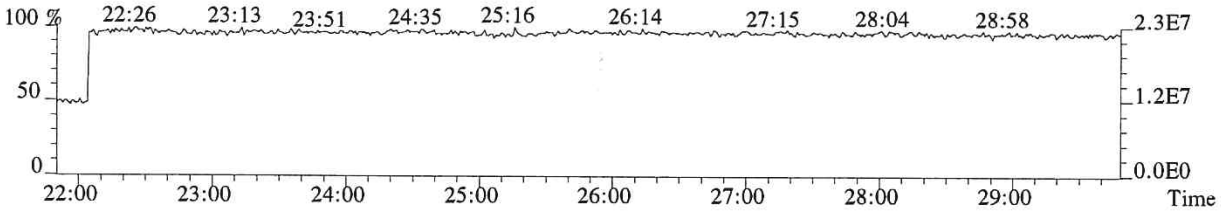
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1296.0,1.00%,F,T)



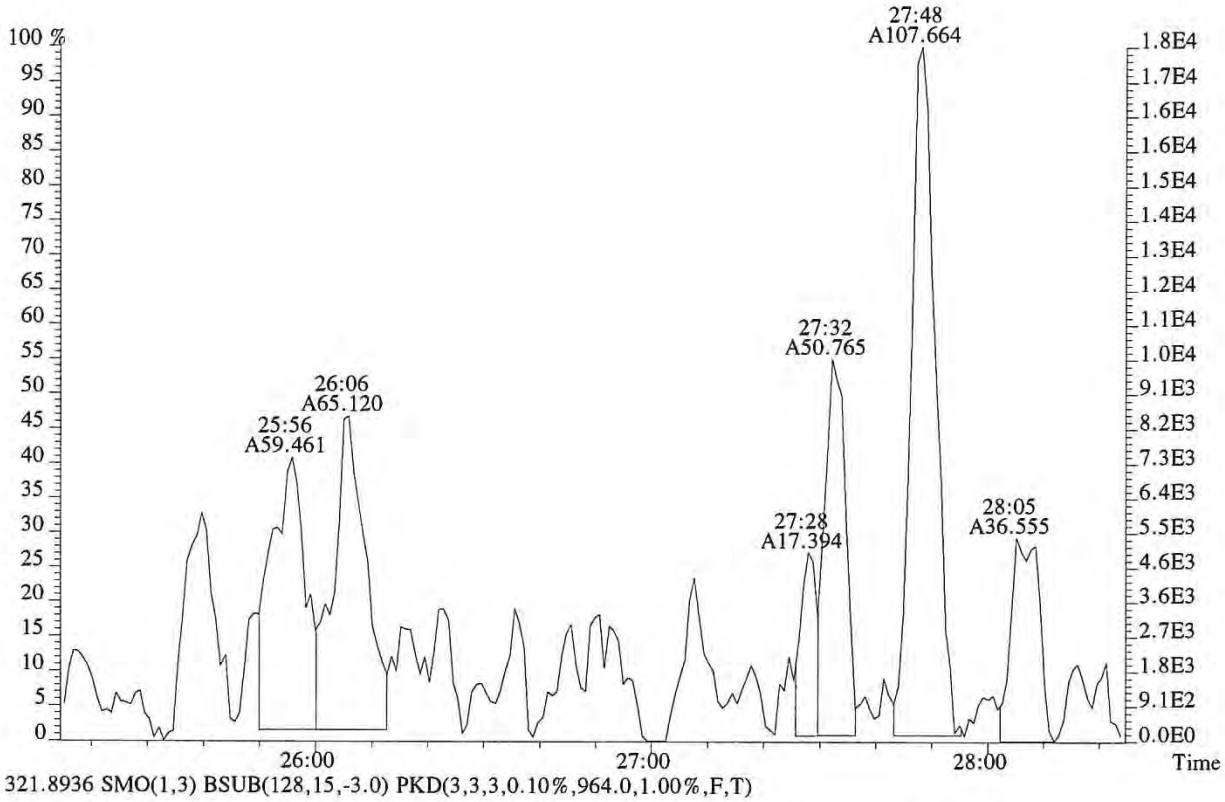
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1504.0,1.00%,F,T)



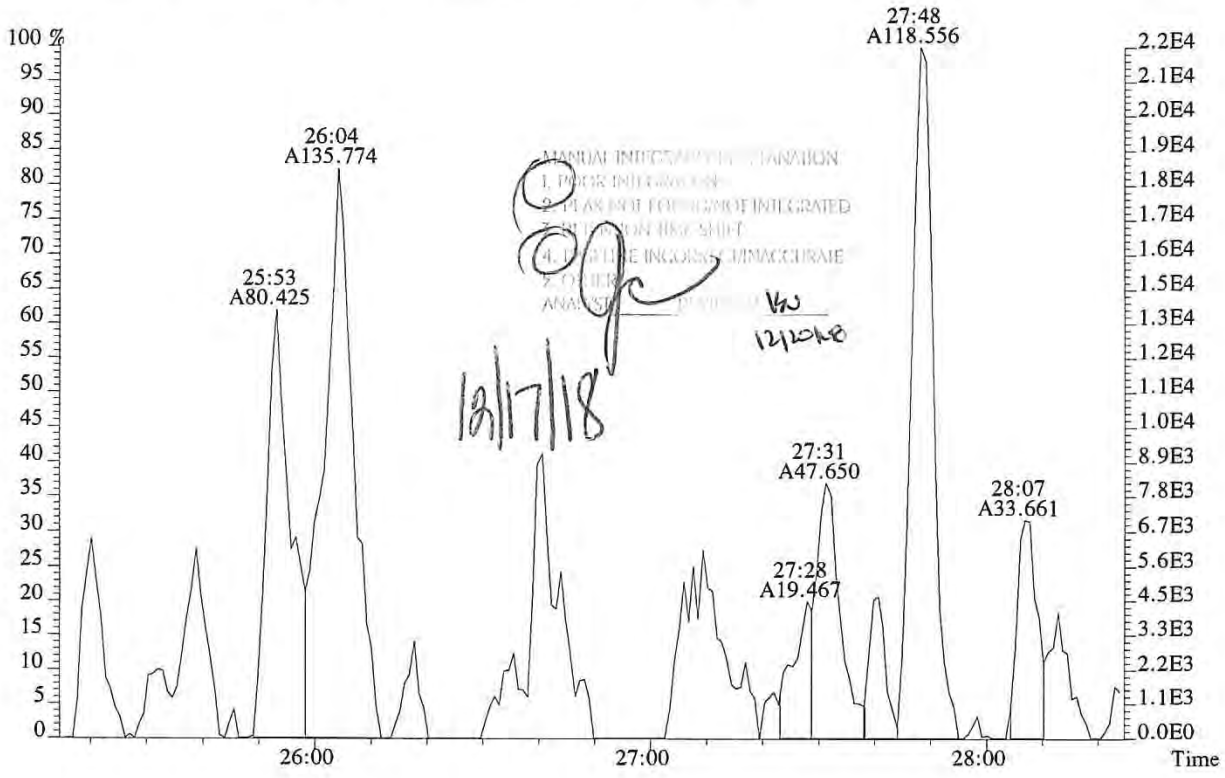
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



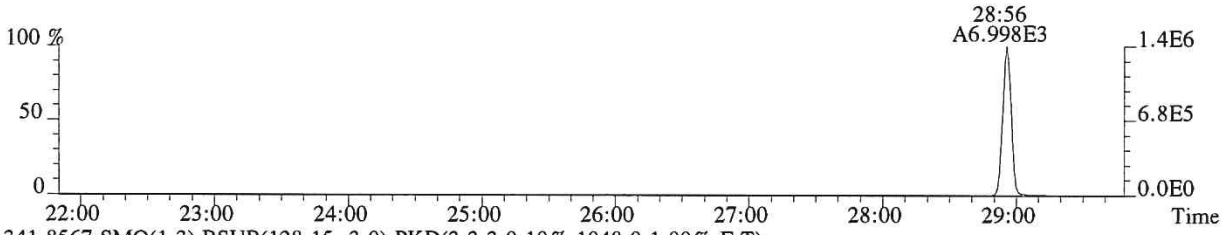
File:P519424 #1-566 Acq:14-DEC-2018 19:06:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-002
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1460.0,1.00%,F,T)



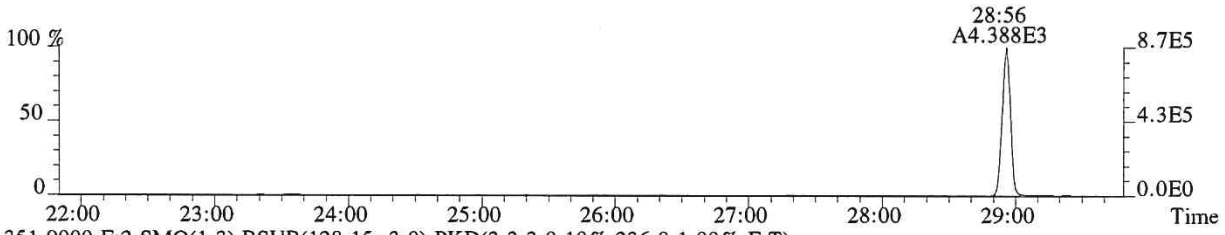
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,964.0,1.00%,F,T)



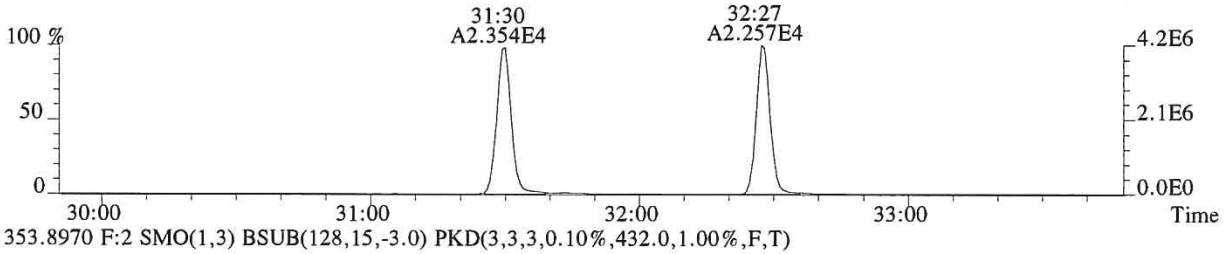
File:P519424 #1-566 Acq:14-DEC-2018 19:06:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-002
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,632.0,1.00%,F,T)



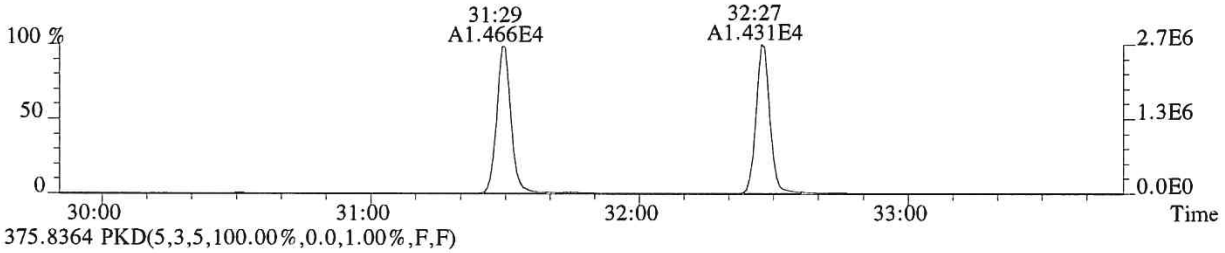
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1048.0,1.00%,F,T)



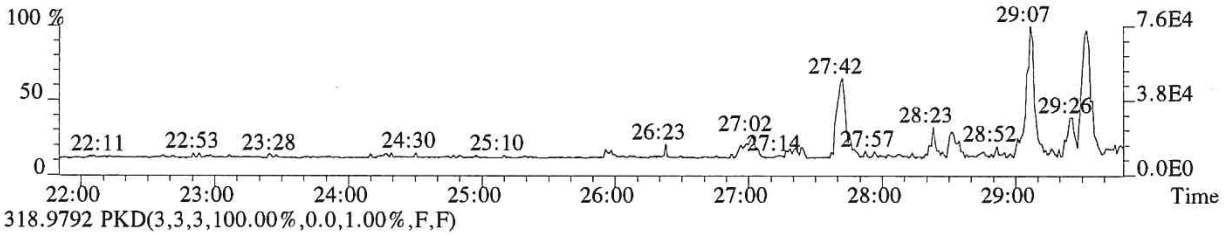
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,236.0,1.00%,F,T)



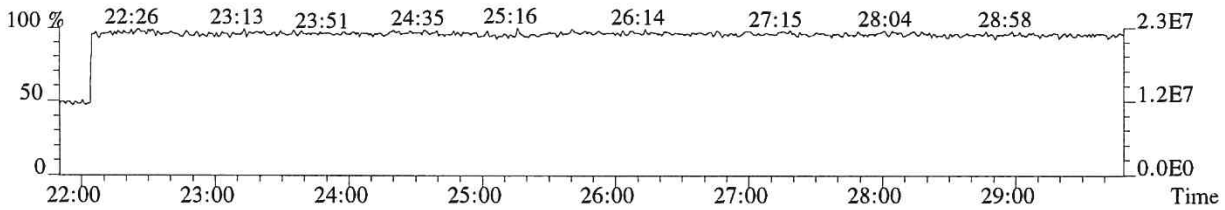
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,432.0,1.00%,F,T)



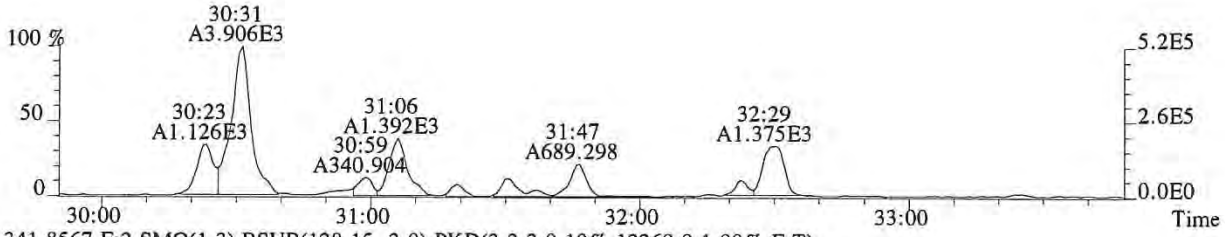
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



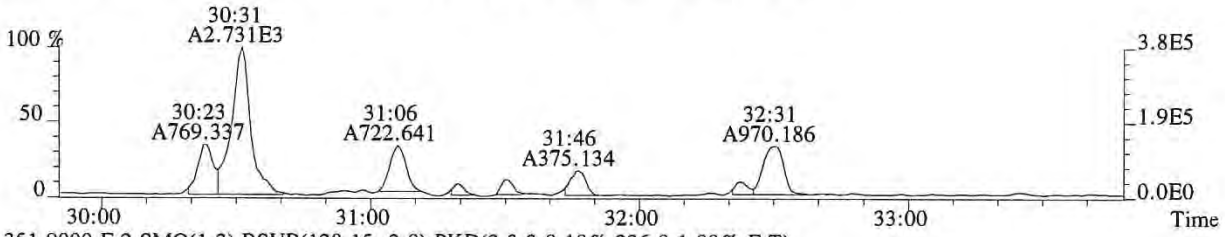
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



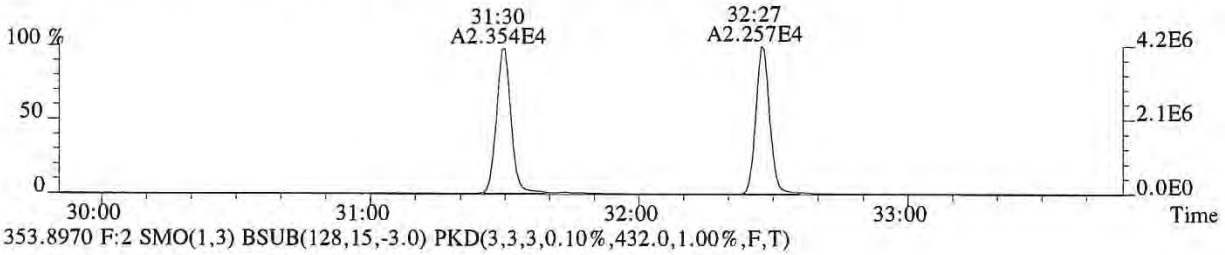
File:P519424 #1-357 Acq:14-DEC-2018 19:06:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-002
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6332.0,1.00%,F,T)



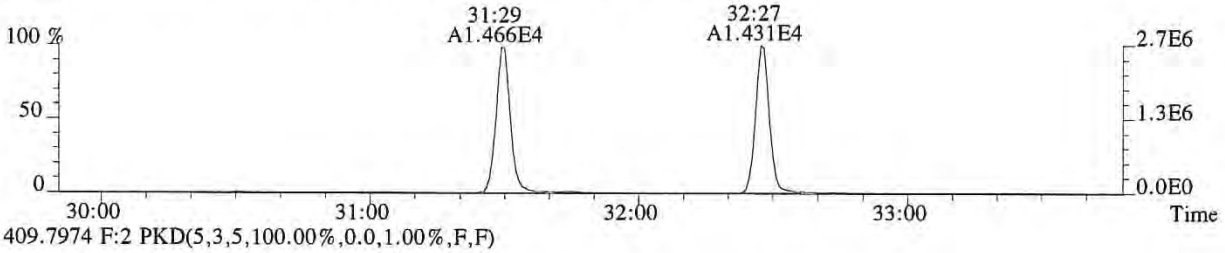
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,13268.0,1.00%,F,T)



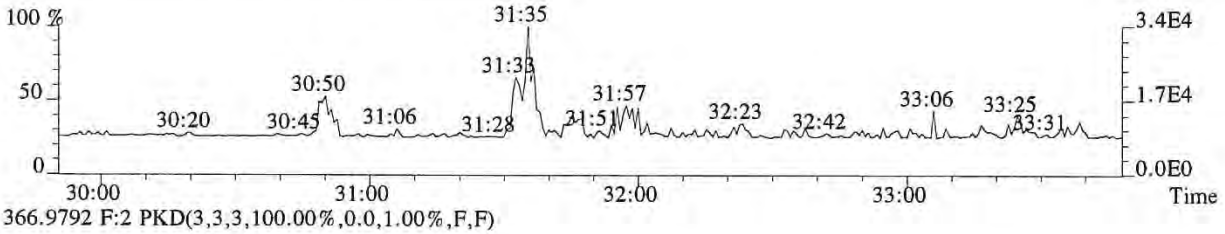
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,236.0,1.00%,F,T)



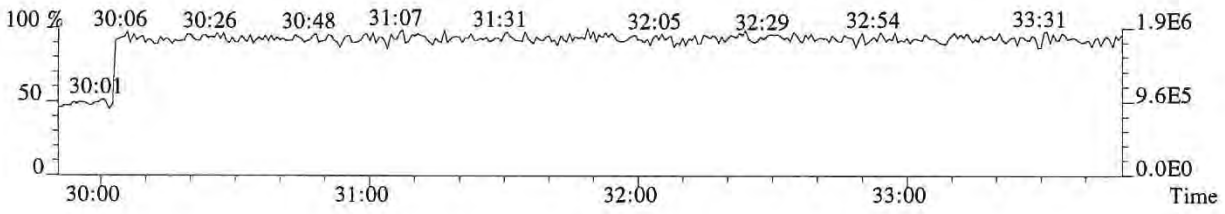
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,432.0,1.00%,F,T)



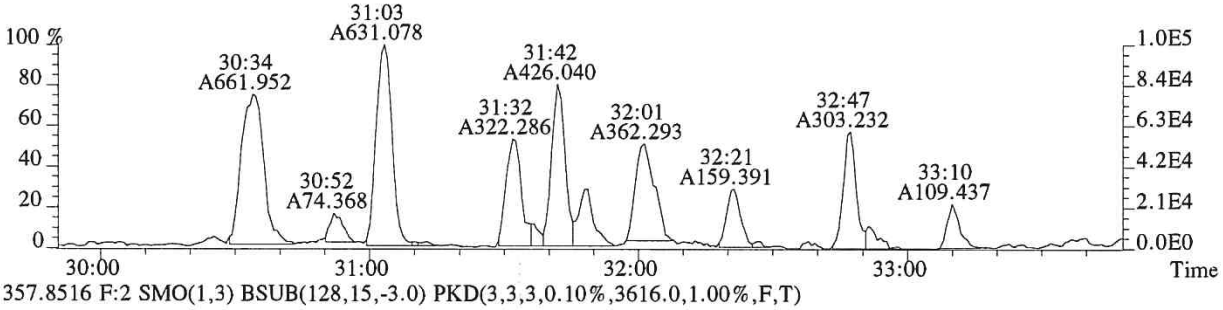
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



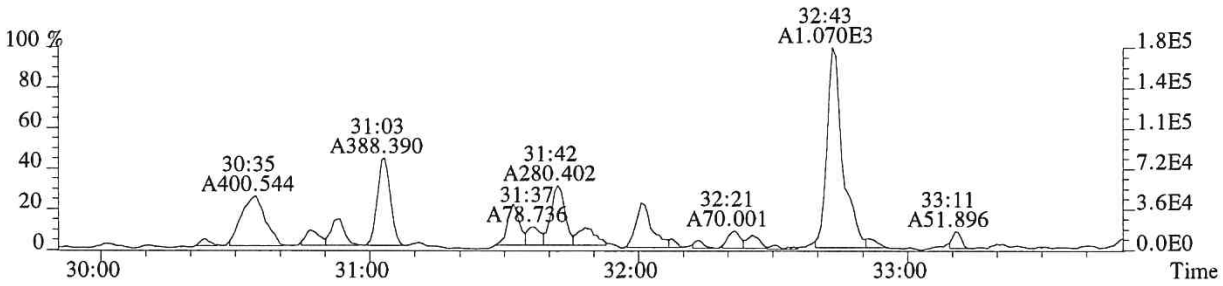
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



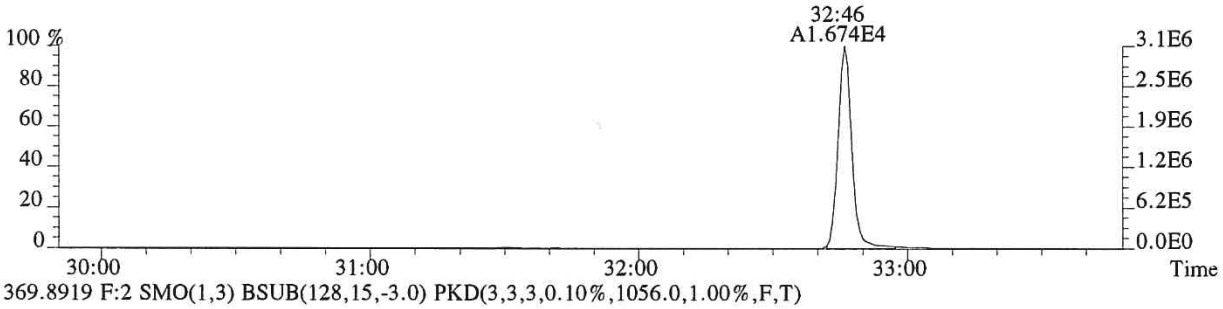
File:P519424 #1-357 Acq:14-DEC-2018 19:06:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-002
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2772.0,1.00%,F,T)



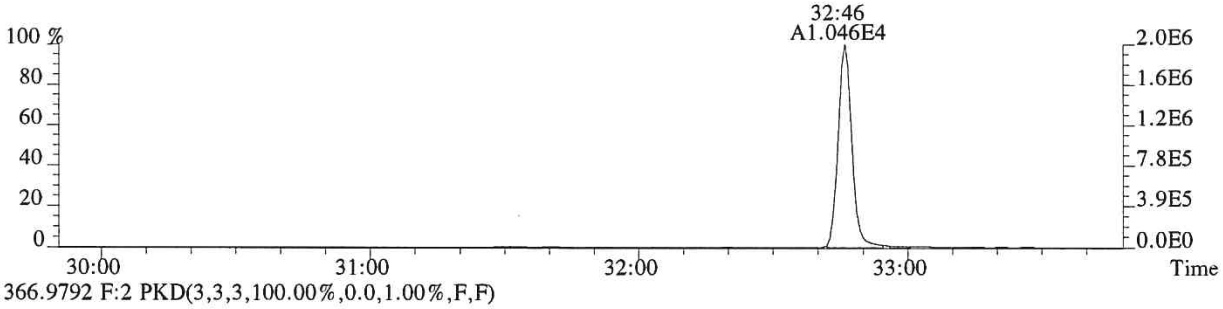
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3616.0,1.00%,F,T)



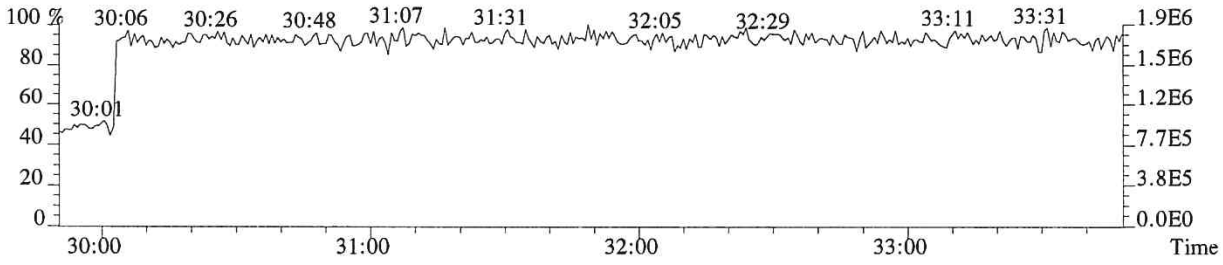
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,268.0,1.00%,F,T)



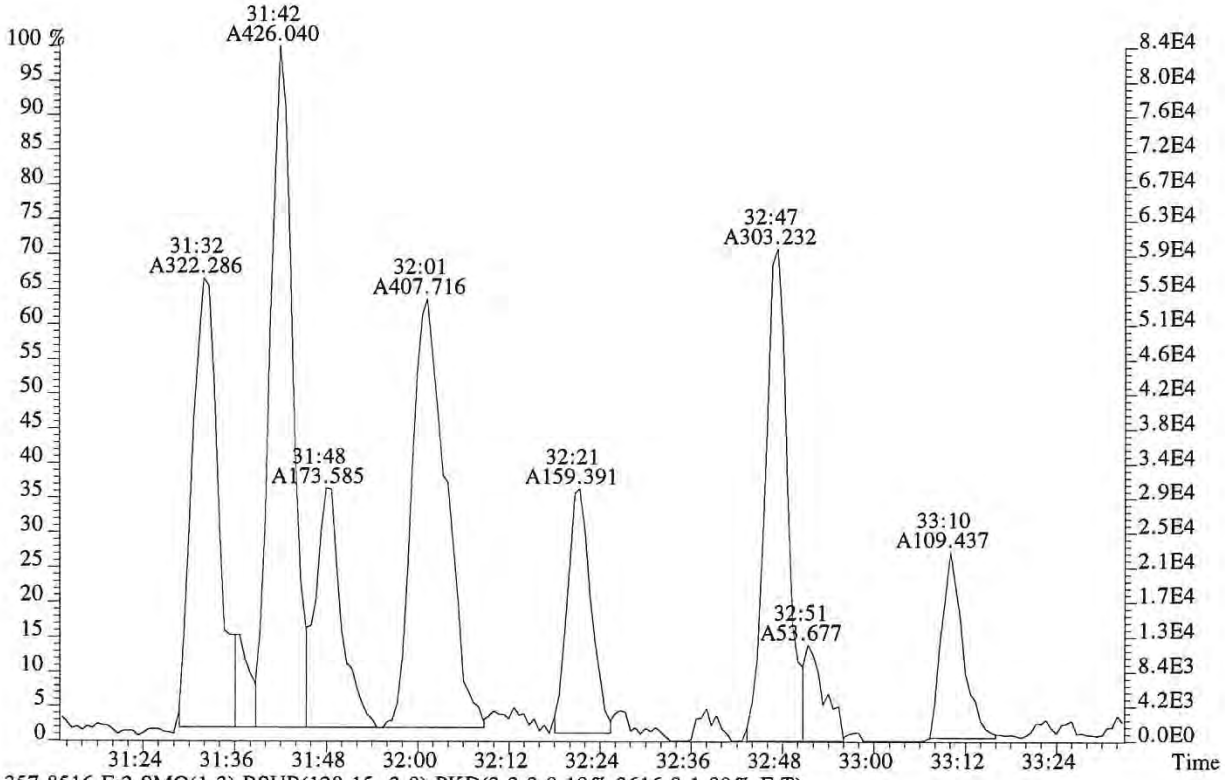
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1056.0,1.00%,F,T)



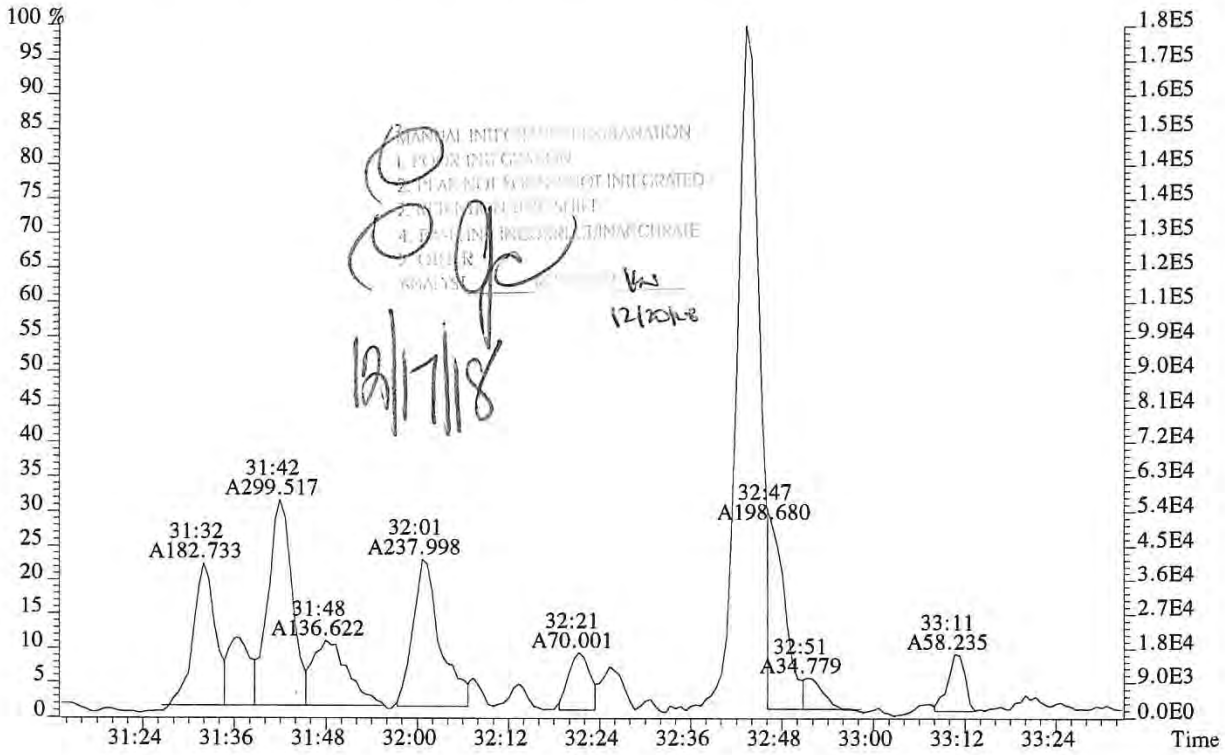
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



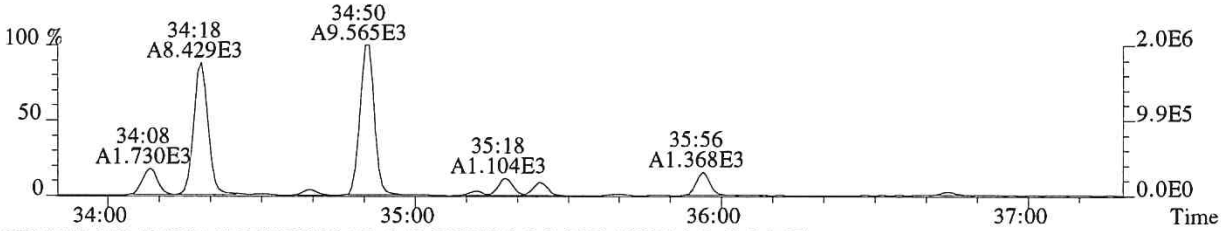
File:P519424 #1-357 Acq:14-DEC-2018 19:06:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-002
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2772.0,1.00%,F,T)



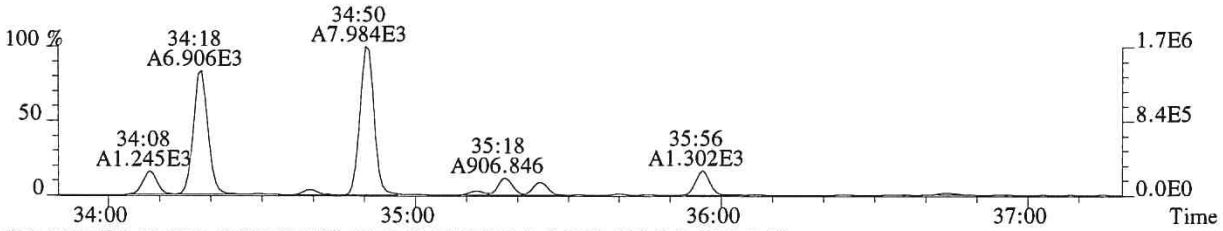
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3616.0,1.00%,F,T)



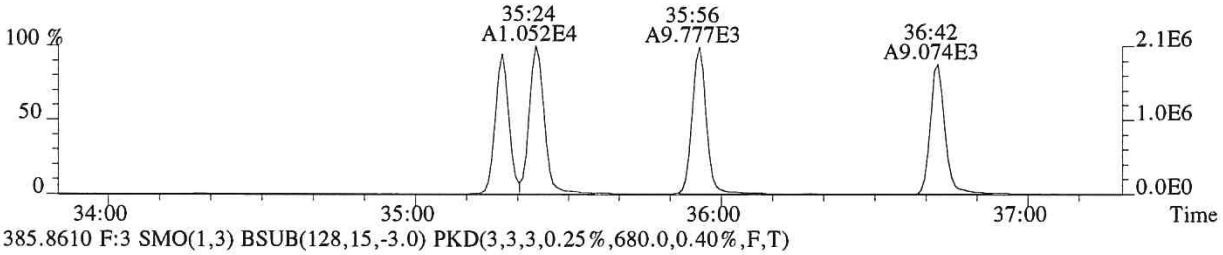
File:P519424 #1-313 Acq:14-DEC-2018 19:06:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-002
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,16172.0,0.40%,F,T)



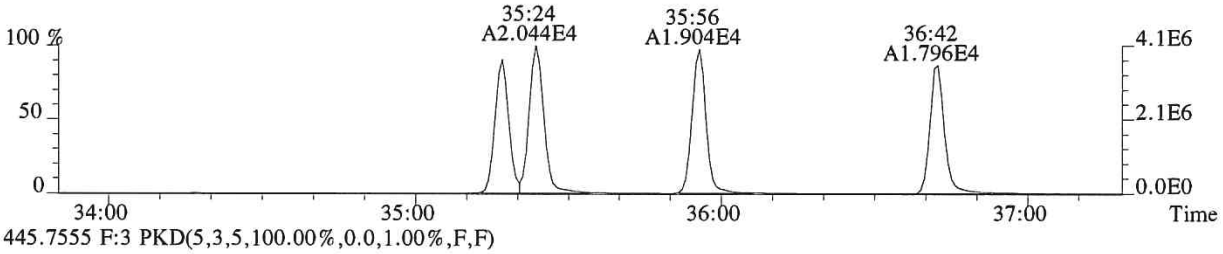
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,12324.0,0.40%,F,T)



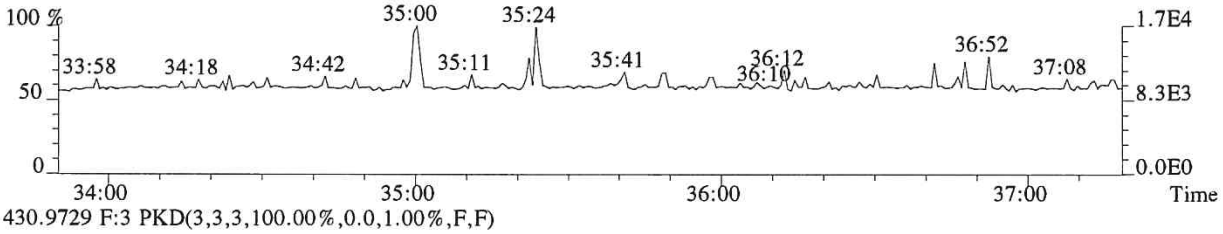
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,632.0,0.40%,F,T)



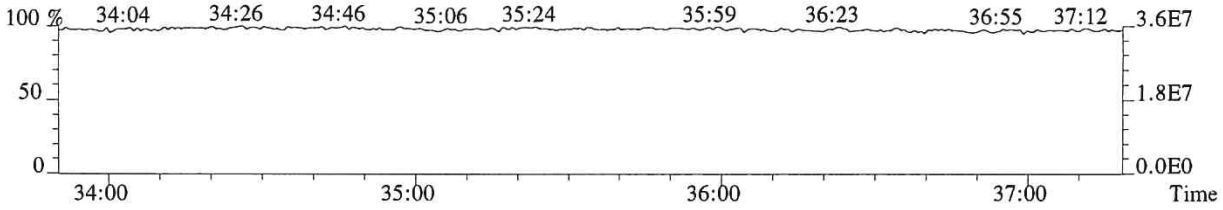
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,680.0,0.40%,F,T)



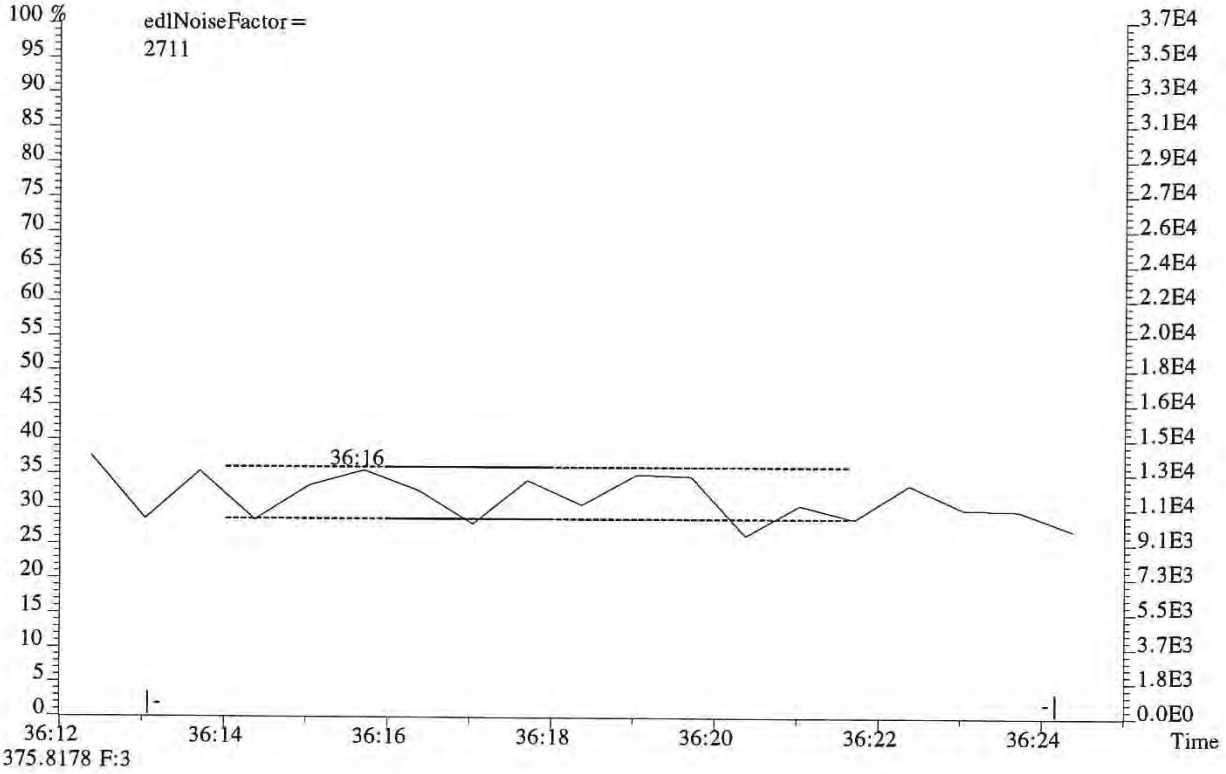
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

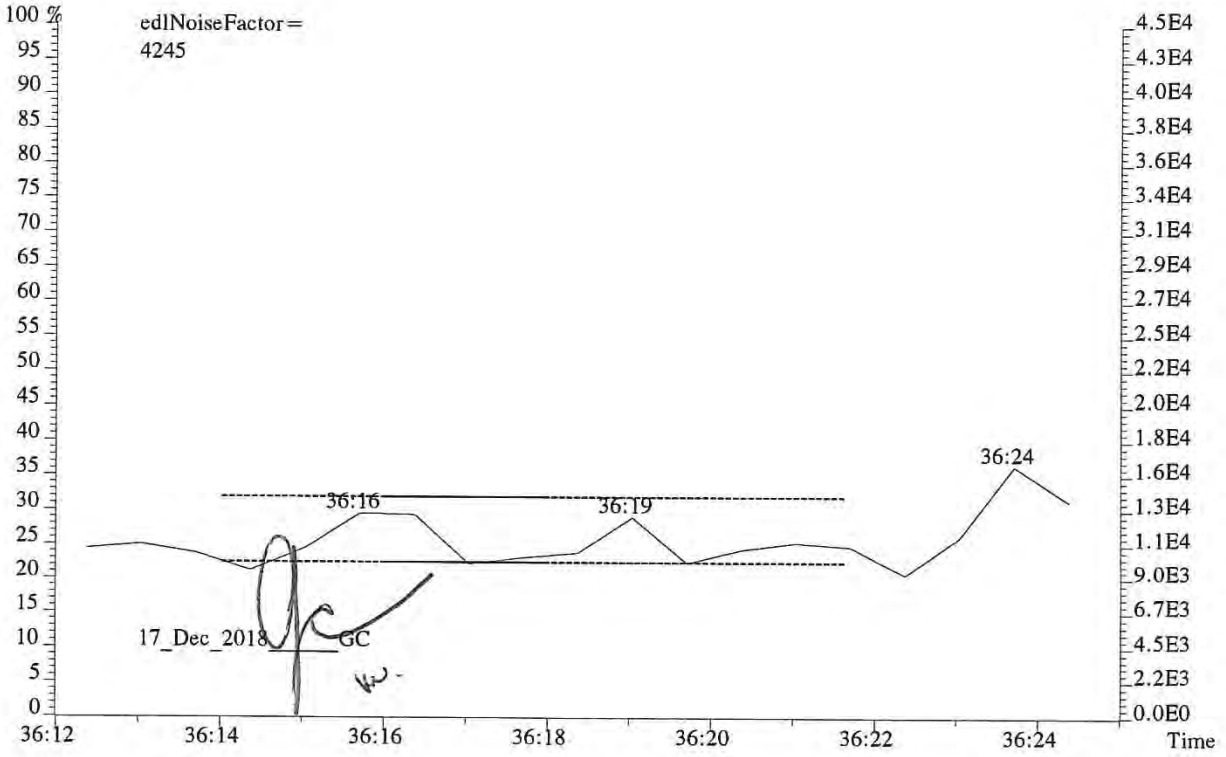


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



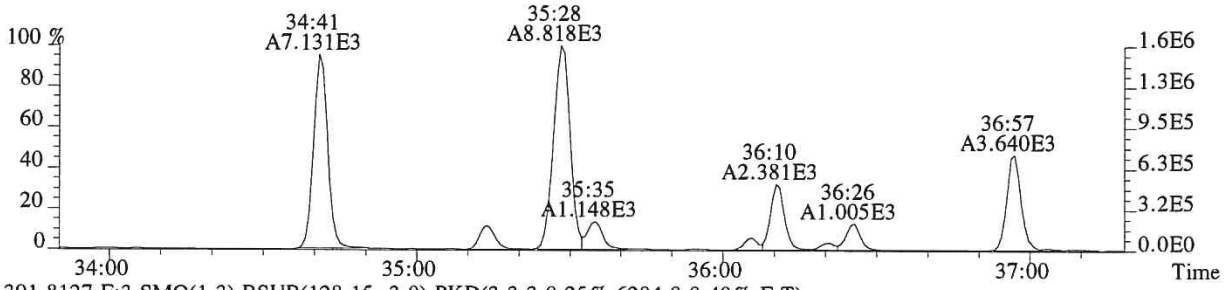
File:P519424 #1-313 Acq:14-DEC-2018 19:06:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-002
373.8208 F:3



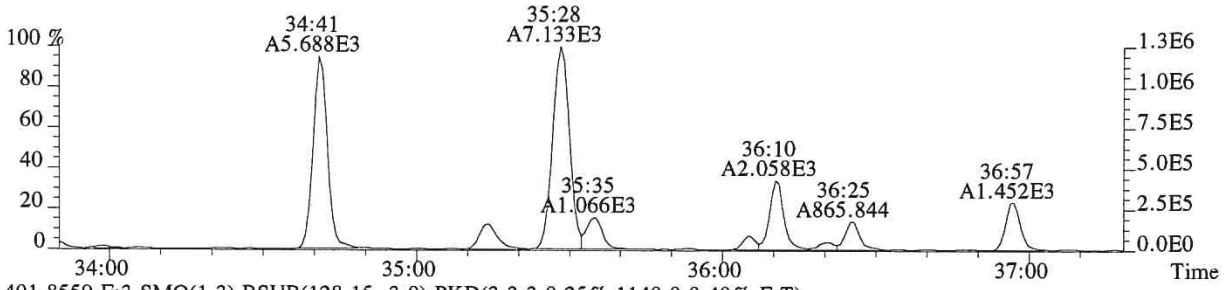


014007

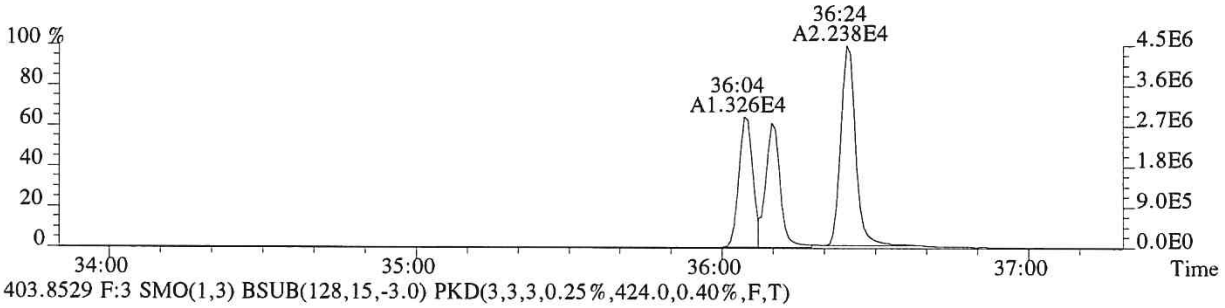
File:P519424 #1-313 Acq:14-DEC-2018 19:06:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-002
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5276.0,0.40%,F,T)



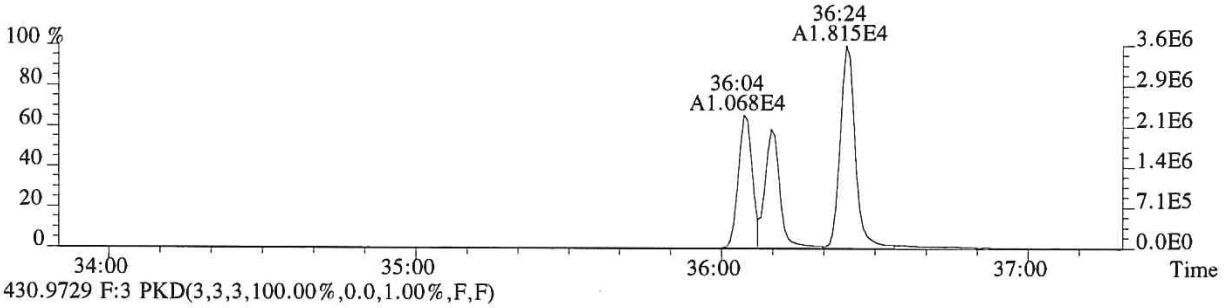
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6204.0,0.40%,F,T)



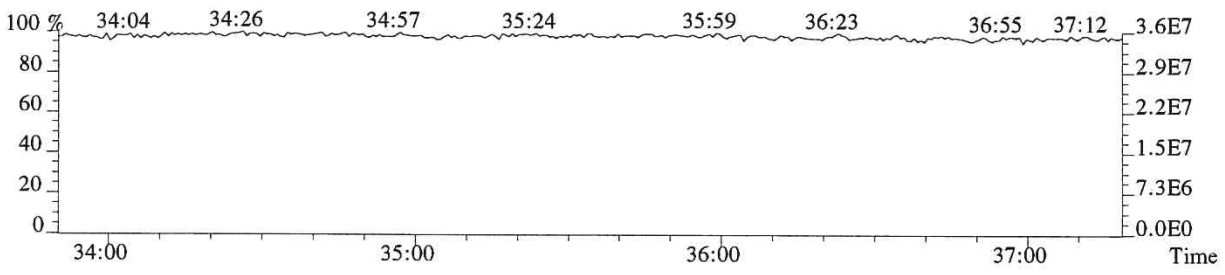
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1140.0,0.40%,F,T)



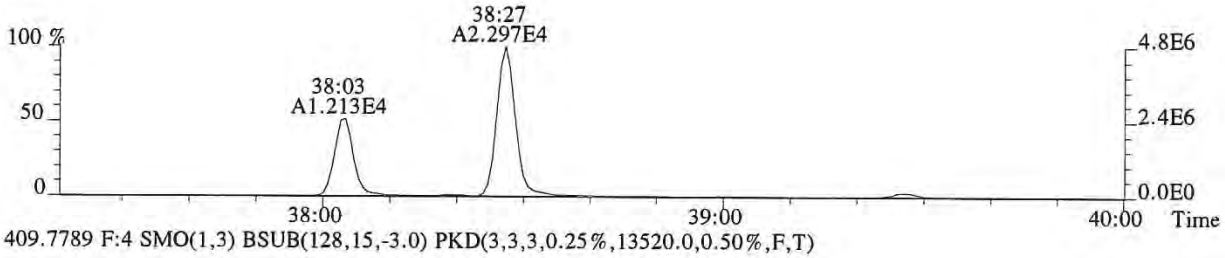
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,424.0,0.40%,F,T)



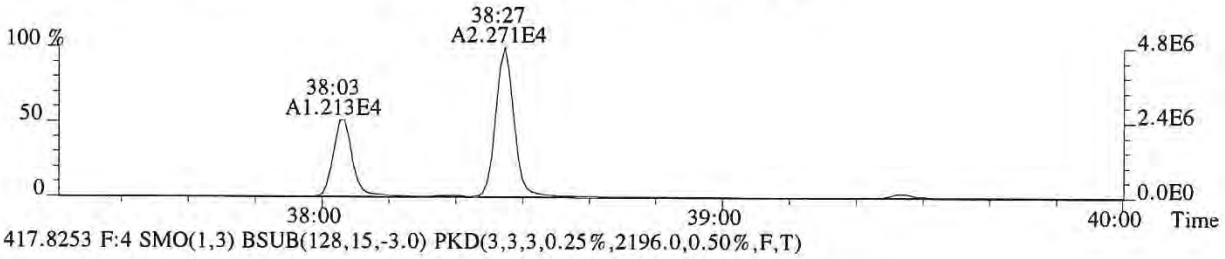
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



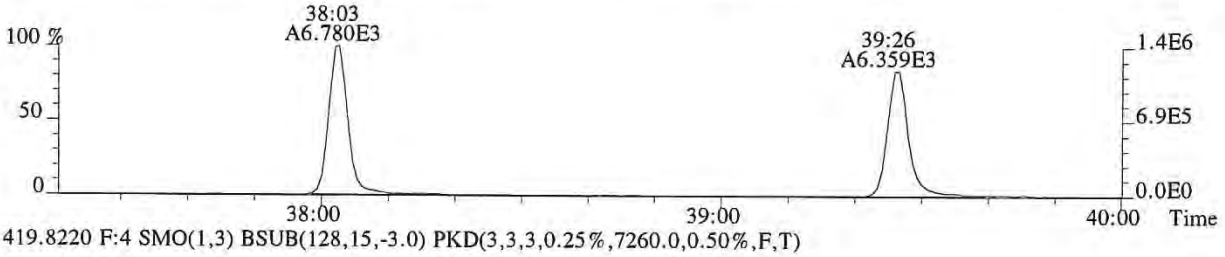
File:P519424 #1-240 Acq:14-DEC-2018 19:06:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-002
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3972.0,0.50%,F,T)



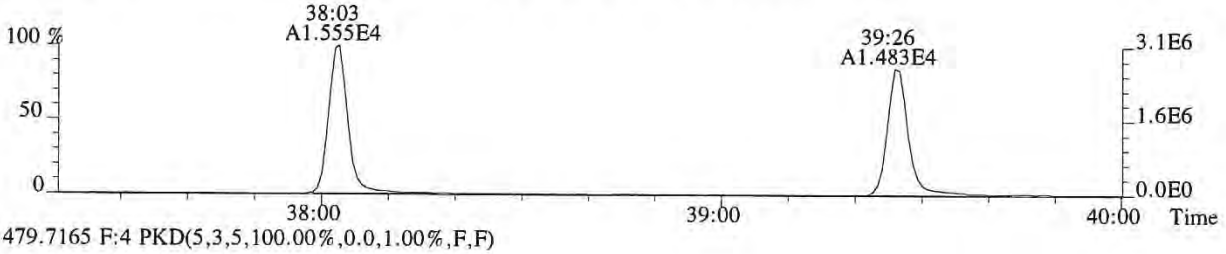
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,13520.0,0.50%,F,T)



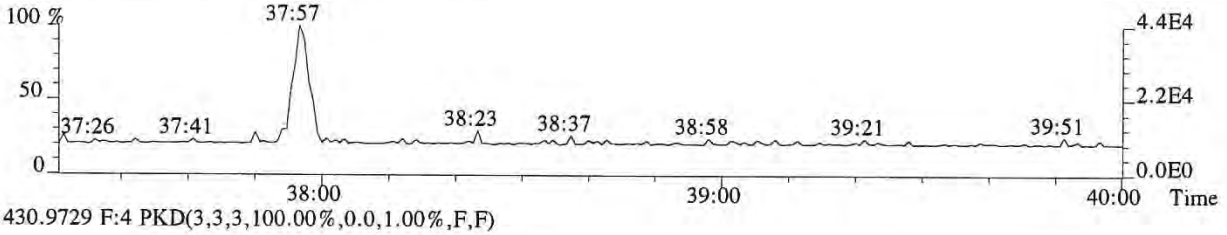
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2196.0,0.50%,F,T)



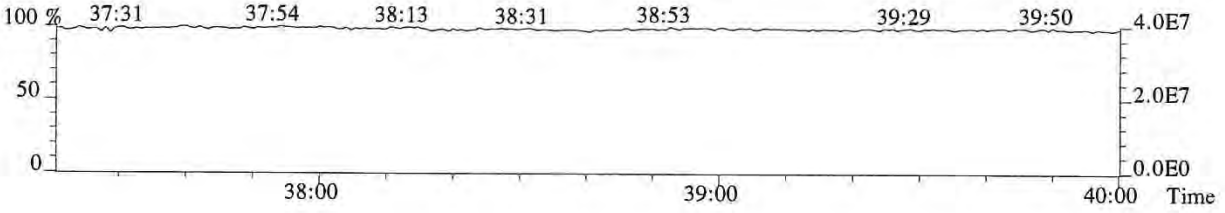
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7260.0,0.50%,F,T)



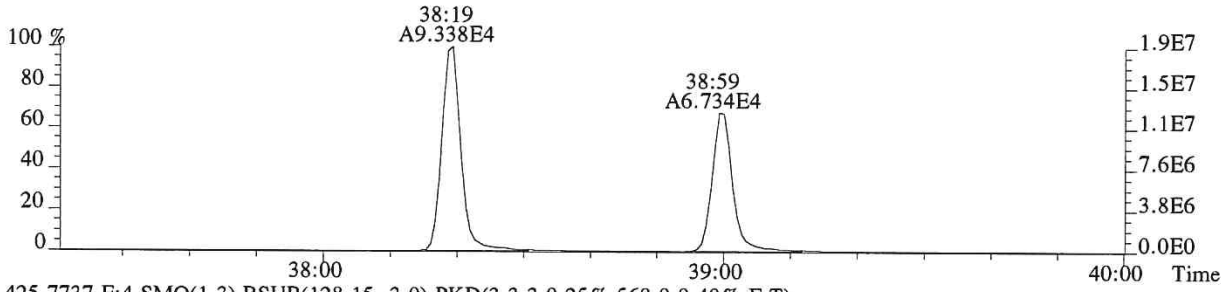
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



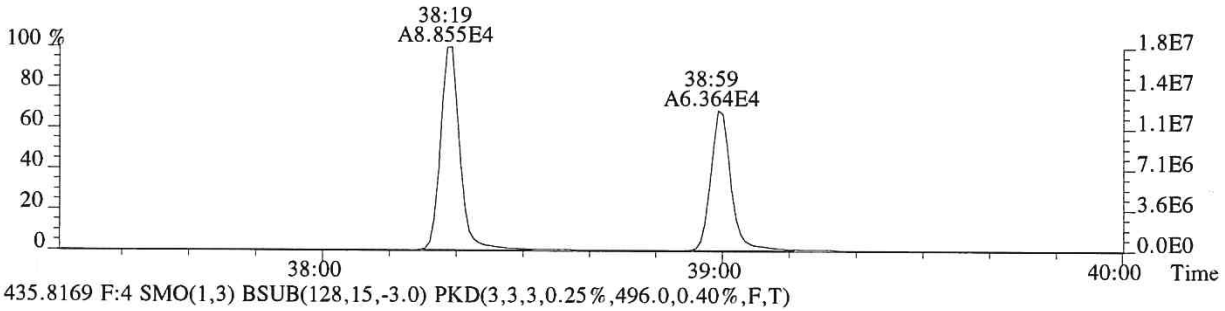
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



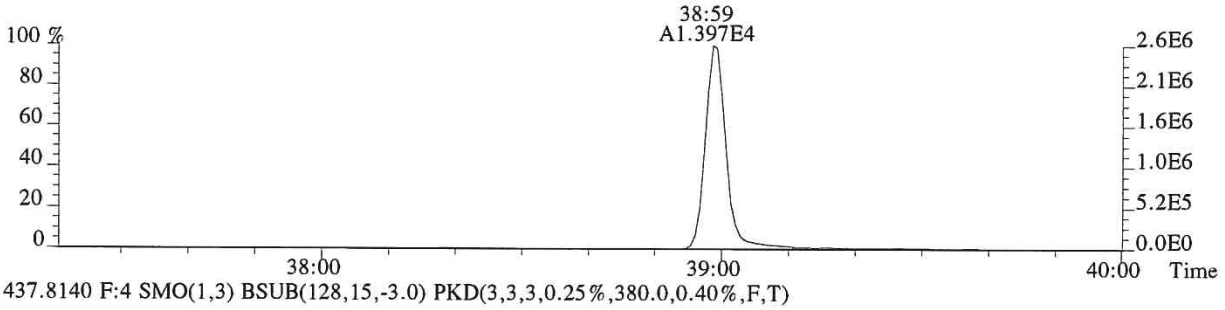
File:P519424 #1-240 Acq:14-DEC-2018 19:06:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-002
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,952.0,0.40%,F,T)



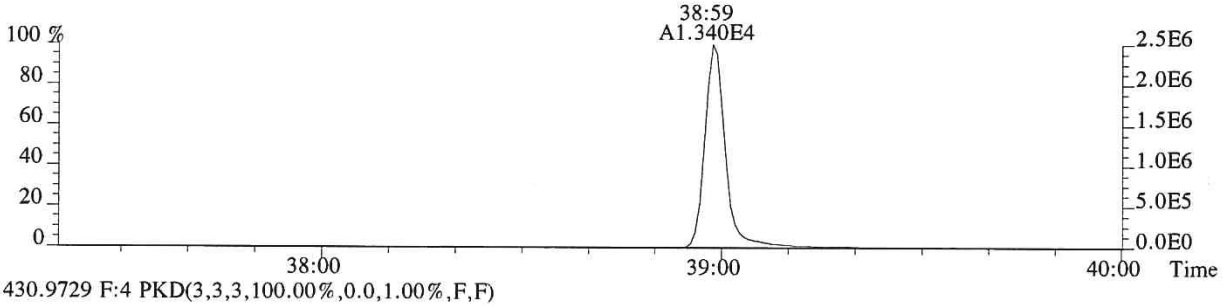
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,568.0,0.40%,F,T)



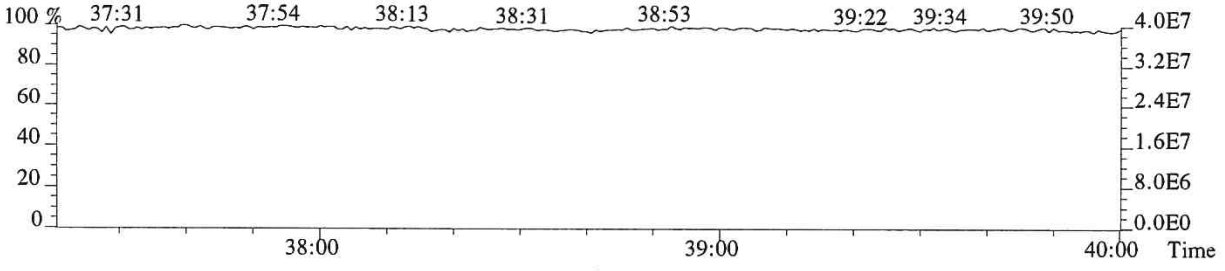
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,496.0,0.40%,F,T)



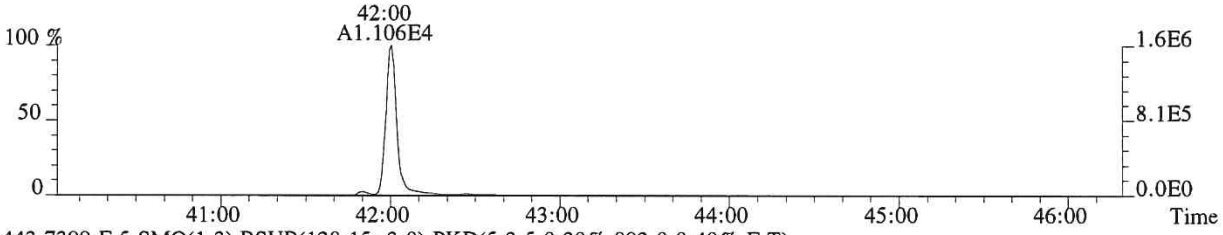
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,380.0,0.40%,F,T)



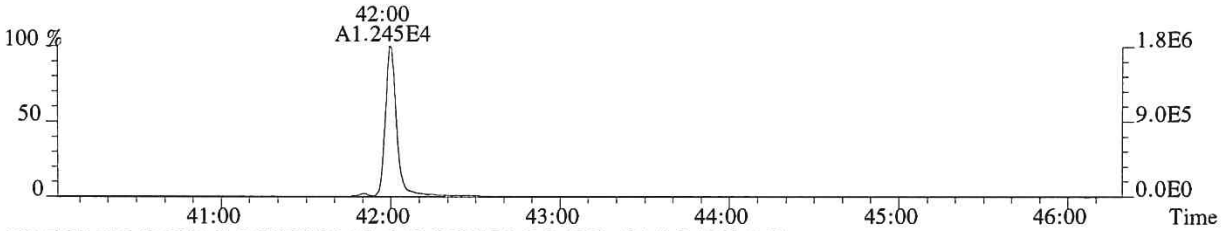
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



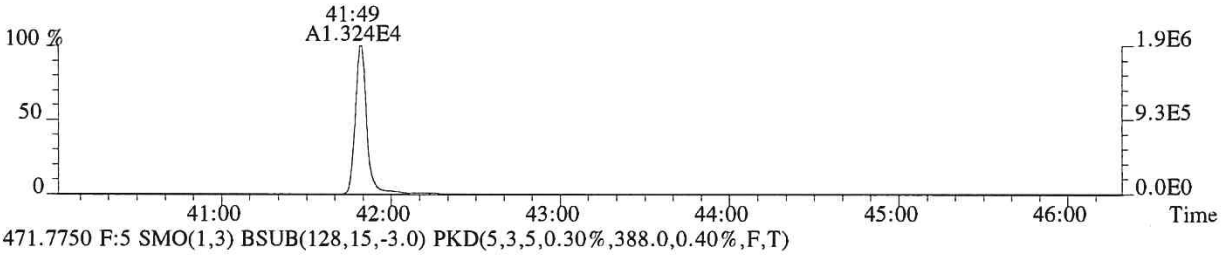
File:P519424 #1-566 Acq:14-DEC-2018 19:06:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-002
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,416.0,0.40%,F,T)



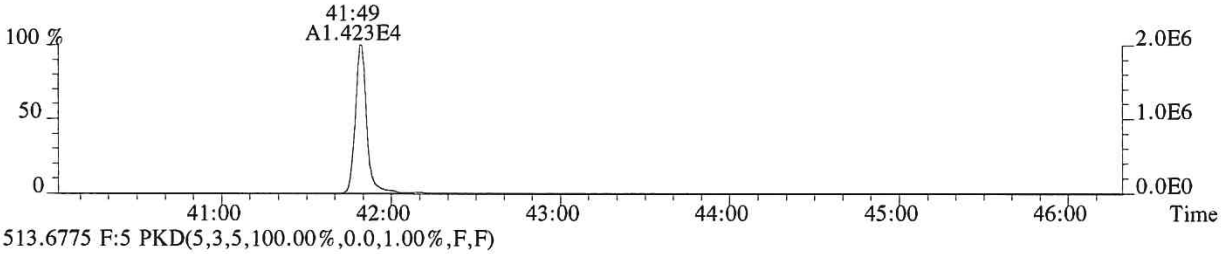
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,892.0,0.40%,F,T)



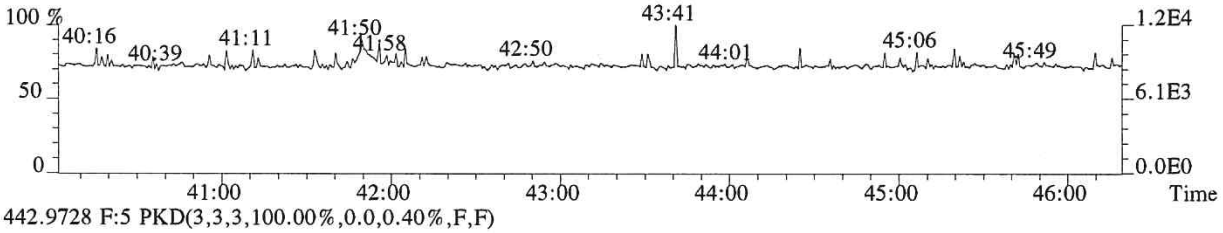
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,404.0,0.40%,F,T)



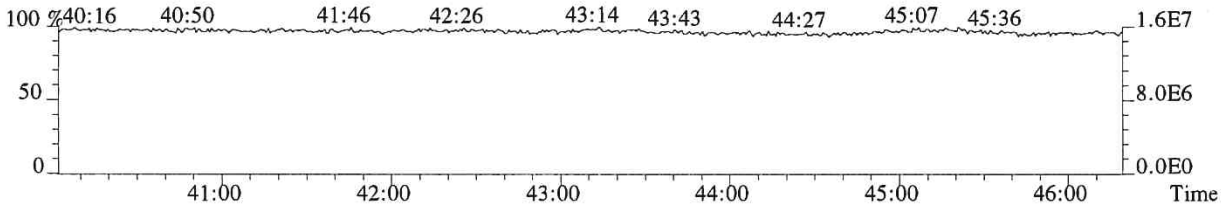
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,388.0,0.40%,F,T)



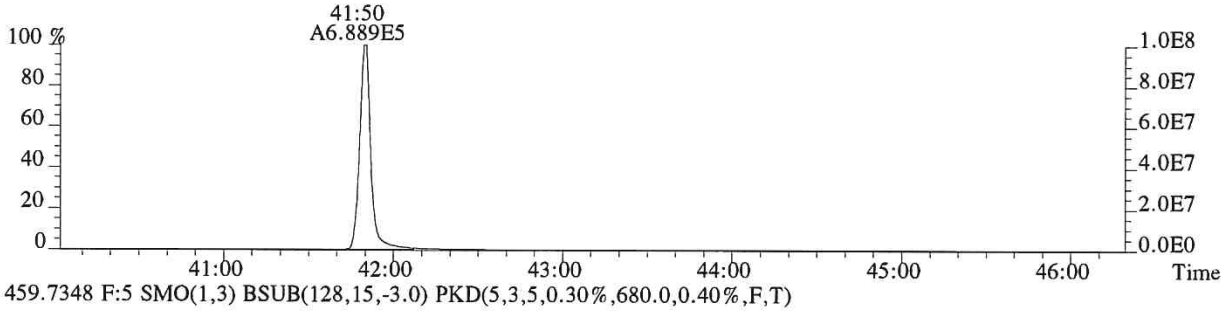
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



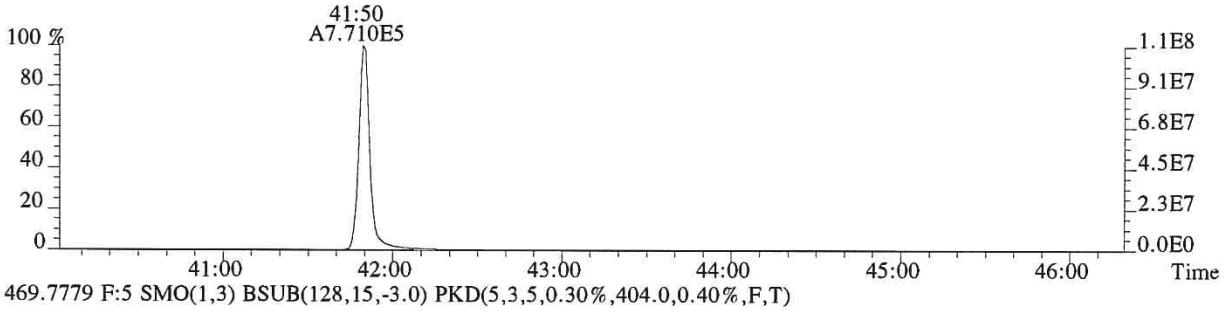
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



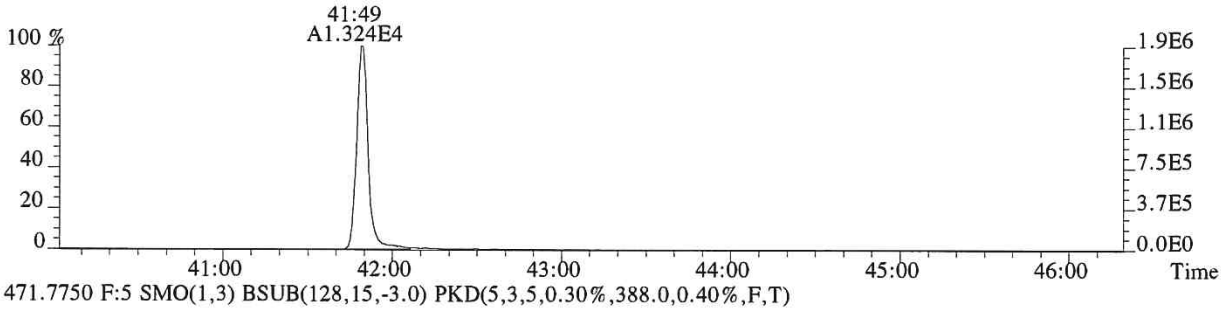
File:P519424 #1-566 Acq:14-DEC-2018 19:06:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-002
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,472.0,0.40%,F,T)



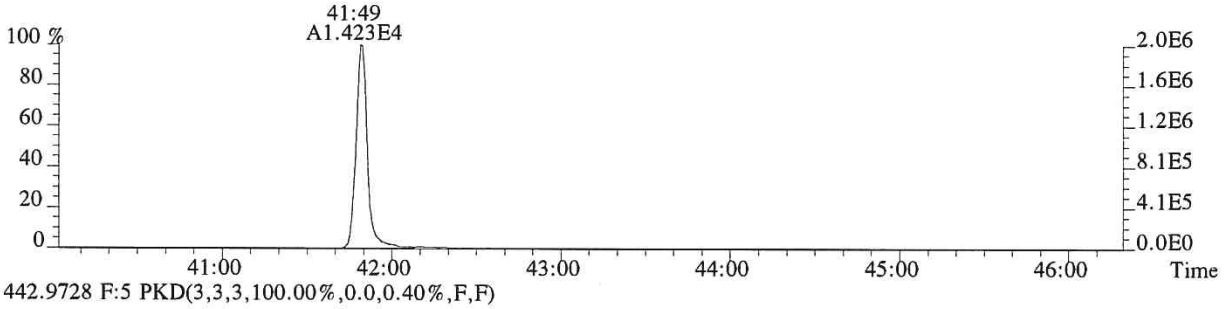
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,680.0,0.40%,F,T)



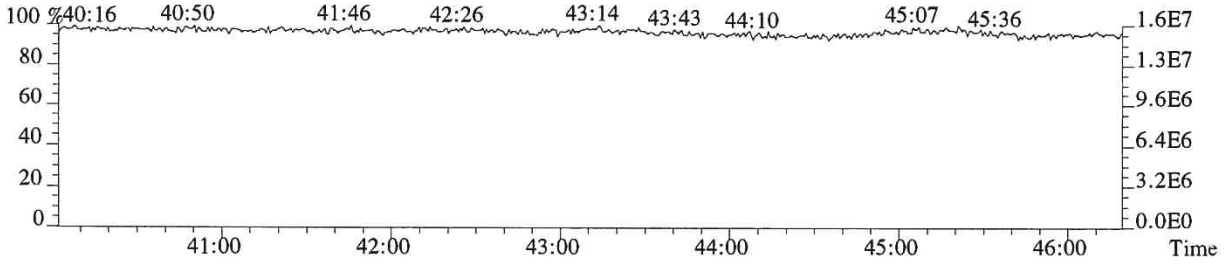
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,404.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,388.0,0.40%,F,T)



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



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0019

Run #13 Filename P519425 Samp: 1 Inj: 1 Acquired: 14-DEC-18 19:54:42
Processed: 17-DEC-18 15:31:52 Sample ID: E1801093-003

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:57	2.595e+05	3.355e+05	0.77	yes	yes	0.942
2	Unk	1,2,3,7,8-PeCDF	31:31	1.332e+04	8.653e+03	1.54	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	32:29	9.981e+03	6.659e+03	1.50	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:18	1.714e+04	1.391e+04	1.23	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:24	4.504e+03	3.804e+03	1.18	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:56	8.843e+02	6.849e+02	1.29	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	36:44	1.161e+03	9.270e+02	1.25	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:03	4.821e+03	4.784e+03	1.01	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:27	1.300e+03	1.328e+03	0.98	yes	no	1.258
10	Unk	OCDF	41:59	4.823e+03	5.779e+03	0.83	yes	no	1.359
11	Unk	2,3,7,8-TCDD	27:50	6.836e+04	8.651e+04	0.79	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	32:48	1.018e+03	6.382e+02	1.60	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:05	6.510e+01	4.379e+01	1.49	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:10	3.184e+02	2.174e+02	1.46	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:25	1.754e+02	1.115e+02	1.57	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:00	8.439e+03	8.135e+03	1.04	yes	no	1.025
17	Unk	OCDD	41:49	9.560e+04	1.075e+05	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	26:55	1.645e+04	2.045e+04	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	31:31	2.499e+04	1.592e+04	1.57	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	32:29	2.419e+04	1.535e+04	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:17	9.491e+03	1.885e+04	0.50	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:24	1.142e+04	2.221e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:56	1.043e+04	2.011e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	36:42	9.669e+03	1.906e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:03	7.352e+03	1.663e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:26	6.978e+03	1.539e+04	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	27:48	7.250e+03	9.421e+03	0.77	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:47	1.770e+04	1.107e+04	1.60	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:04	1.515e+04	1.113e+04	1.36	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:10	1.409e+04	1.166e+04	1.21	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:59	1.512e+04	1.398e+04	1.08	yes	no	0.858
32	IS	13C-OCDD	41:48	1.351e+04	1.532e+04	0.88	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:11	1.587e+04	2.000e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:24	2.224e+04	1.804e+04	1.23	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:50	1.126e+04				no	1.014

$$\text{OCDD} = \frac{(9.560e+04 + 1.075e+05) \times 4000\ \text{pg} \times 1}{(1.351e+04 + 1.532e+04) \times 10.793\ \text{g} \times 70.8 / 100 \times 1.118} = 3298\ \text{ng/kg}$$

KW 12/20/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0019

Run #13 Filename P519425 Samp: 1 Inj: 1 Acquired: 14-DEC-18 19:54:42
Processed: 17-DEC-18 15:31:52 LAB. ID: E1801093-003

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	4.25e+07	7.52e+02	5.6e+04	5.48e+07	1.77e+03	3.1e+04
2	1,2,3,7,8-PeCDF	2.44e+06	3.17e+03	7.7e+02	1.56e+06	2.33e+03	6.7e+02
3	2,3,4,7,8-PeCDF	1.62e+06	3.17e+03	5.1e+02	1.06e+06	2.33e+03	4.6e+02
4	1,2,3,4,7,8-HxCDF	3.56e+06	1.43e+03	2.5e+03	2.97e+06	3.46e+03	8.6e+02
5	1,2,3,6,7,8-HxCDF	8.19e+05	1.43e+03	5.7e+02	7.08e+05	3.46e+03	2.0e+02
6	2,3,4,6,7,8-HxCDF	1.84e+05	1.43e+03	1.3e+02	1.45e+05	3.46e+03	4.2e+01
7	1,2,3,7,8,9-HxCDF	2.18e+05	1.43e+03	1.5e+02	1.79e+05	3.46e+03	5.2e+01
8	1,2,3,4,6,7,8-HpCDF	9.69e+05	3.89e+03	2.5e+02	9.73e+05	9.32e+02	1.0e+03
9	1,2,3,4,7,8,9-HpCDF	2.48e+05	3.89e+03	6.4e+01	2.52e+05	9.32e+02	2.7e+02
10	OCDF	7.19e+05	3.36e+02	2.1e+03	8.68e+05	8.36e+02	1.0e+03
11	2,3,7,8-TCDD	1.23e+07	3.18e+03	3.9e+03	1.53e+07	1.40e+03	1.1e+04
12	1,2,3,7,8-PeCDD	1.79e+05	1.56e+03	1.2e+02	1.01e+05	1.22e+03	8.3e+01
13	1,2,3,4,7,8-HxCDD	1.42e+04	1.33e+03	1.1e+01	9.54e+03	1.78e+03	5.3e+00
14	1,2,3,6,7,8-HxCDD	6.38e+04	1.33e+03	4.8e+01	4.32e+04	1.78e+03	2.4e+01
15	1,2,3,7,8,9-HxCDD	3.56e+04	1.33e+03	2.7e+01	2.50e+04	1.78e+03	1.4e+01
16	1,2,3,4,6,7,8-HpCDD	1.58e+06	4.54e+03	3.5e+02	1.57e+06	4.34e+03	3.6e+02
17	OCDD	1.40e+07	8.84e+02	1.6e+04	1.57e+07	1.20e+03	1.3e+04
18	13C-2,3,7,8-TCDF	2.73e+06	7.46e+03	3.7e+02	3.45e+06	6.80e+03	5.1e+02
19	13C-1,2,3,7,8-PeCDF	4.53e+06	4.88e+02	9.3e+03	2.83e+06	1.66e+03	1.7e+03
20	13C-2,3,4,7,8-PeCDF	4.60e+06	4.88e+02	9.4e+03	2.88e+06	1.66e+03	1.7e+03
21	13C-1,2,3,4,7,8-HxCDF	2.04e+06	1.68e+03	1.2e+03	4.12e+06	8.28e+02	5.0e+03
22	13C-1,2,3,6,7,8-HxCDF	2.19e+06	1.68e+03	1.3e+03	4.30e+06	8.28e+02	5.2e+03
23	13C-2,3,4,6,7,8-HxCDF	2.15e+06	1.68e+03	1.3e+03	4.15e+06	8.28e+02	5.0e+03
24	13C-1,2,3,7,8,9-HxCDF	1.93e+06	1.68e+03	1.1e+03	3.71e+06	8.28e+02	4.5e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.54e+06	2.25e+03	6.8e+02	3.36e+06	2.08e+03	1.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.21e+06	2.25e+03	5.4e+02	2.73e+06	2.08e+03	1.3e+03
27	13C-2,3,7,8-TCDD	1.30e+06	5.00e+03	2.6e+02	1.70e+06	1.95e+03	8.7e+02
28	13C-1,2,3,7,8-PeCDD	3.41e+06	9.88e+02	3.5e+03	2.09e+06	7.60e+02	2.7e+03
29	13C-1,2,3,4,7,8-HxCDD	3.17e+06	8.64e+02	3.7e+03	2.45e+06	7.76e+02	3.2e+03
30	13C-1,2,3,6,7,8-HxCDD	2.78e+06	8.64e+02	3.2e+03	2.30e+06	7.76e+02	3.0e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.83e+06	4.92e+02	5.8e+03	2.66e+06	4.56e+02	5.8e+03
32	13C-OCDD	1.99e+06	3.44e+02	5.8e+03	2.23e+06	2.84e+02	7.9e+03
33	13C-1,2,3,4-TCDD	2.83e+06	5.00e+03	5.7e+02	3.52e+06	1.95e+03	1.8e+03
34	13C-1,2,3,7,8,9-HxCDD	4.21e+06	8.64e+02	4.9e+03	3.41e+06	7.76e+02	4.4e+03
35	37Cl-2,3,7,8-TCDD	2.00e+06	1.02e+03	2.0e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0019

Entry: 36 Totals Name: Total Tetra-Furans

Run: 13 File: P519425 Sample:1 Injection:1 Function:1

Acquired: 14-DEC-18 19:54:42 Processed: 17-DEC-18 15:31:52

Mass: 303.9020 305.8990 Tot Response: 1.13e+06 RRF: 0.9417

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	23:46	2.11e+03	2.92e+03	0.72	yes	5.03e+03		n	n
2	24:03	1.20e+04	1.63e+04	0.74	yes	2.83e+04		n	n
3	24:26	3.51e+03	4.56e+03	0.77	yes	8.07e+03		n	n
4	24:44	1.00e+04	1.36e+04	0.74	yes	2.37e+04		n	n
5	25:08	1.79e+03	2.41e+03	0.74	yes	4.20e+03		n	n
6	25:24	6.68e+03	9.02e+03	0.74	yes	1.57e+04		n	n
7	25:32	1.21e+04	1.64e+04	0.74	yes	2.84e+04		n	n
8	26:02	1.20e+05	1.56e+05	0.77	yes	2.76e+05		n	n
9	26:19	5.44e+03	7.73e+03	0.70	yes	1.32e+04		n	n
10	26:51	1.51e+04	2.09e+04	0.72	yes	3.61e+04		y	y
11	26:57	2.59e+05	3.35e+05	0.77	yes	5.95e+05	2,3,7,8-TCDF	y	y
12	27:20	1.99e+04	2.65e+04	0.75	yes	4.64e+04		n	n
13	27:35	3.25e+03	4.22e+03	0.77	yes	7.47e+03		n	n
14	28:57	2.03e+04	2.66e+04	0.76	yes	4.69e+04		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0019

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 13 File: P519425 Sample:1 Injection:1 Function:1

Acquired: 14-DEC-18 19:54:42 Processed: 17-DEC-18 15:31:52

Mass: 319.8970 321.8940 Tot Response: 1.73e+05 RRF: 1.085

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	25:41	4.20e+02	5.24e+02	0.80	yes	9.44e+02		n	n
2	27:31	9.26e+02	1.16e+03	0.80	yes	2.08e+03		n	n
3	27:50	6.84e+04	8.65e+04	0.79	yes	1.55e+05	2,3,7,8-TCDD	n	n
4	28:09	6.48e+03	8.76e+03	0.74	yes	1.52e+04		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0019

Entry: 38 Totals Name: Total Penta-Furans1

Run: 13 File: P519425 Sample:1 Injection:1 Function:1

Acquired: 14-DEC-18 19:54:42 Processed: 17-DEC-18 15:31:52

Mass: 339.8600 341.8570 Tot Response: 1.03e+03 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	28:58	6.48e+02	3.68e+02 1.76	yes	1.02e+03		n	n
2	29:10	9.50e+00	5.61e+00 1.69	yes	1.51e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0019

Entry: 39 Totals Name: Total Penta-Furans2

Run: 13 File: P519425 Sample:1 Injection:1 Function:2

Acquired: 14-DEC-18 19:54:42 Processed: 17-DEC-18 15:31:52

Mass: 339.8600 341.8570 Tot Response: 5.82e+04 RRF: 0.9857

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:33	5.91e+03	3.99e+03	1.48	yes	9.90e+03		n	n
2	31:12	2.06e+02	1.52e+02	1.35	yes	3.59e+02		n	n
3	31:21	1.22e+03	7.60e+02	1.60	yes	1.98e+03		n	n
4	31:31	1.33e+04	8.65e+03	1.54	yes	2.20e+04	1,2,3,7,8-PeCDF	n	n
5	31:47	3.87e+03	2.58e+03	1.50	yes	6.46e+03		n	n
6	32:15	3.23e+01	2.11e+01	1.53	yes	5.34e+01		n	n
7	32:29	9.98e+03	6.66e+03	1.50	yes	1.66e+04	2,3,4,7,8-PeCDF	n	n
8	33:26	4.76e+02	3.33e+02	1.43	yes	8.09e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0019

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 13 File: P519425 Sample:1 Injection:1 Function:2

Acquired: 14-DEC-18 19:54:42 Processed: 17-DEC-18 15:31:52

Mass: 355.8550 357.8520 Tot Response: 2.97e+03 RRF: 0.9565

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:04	5.66e+02	3.37e+02	1.68	yes	9.03e+02		n	n
2	31:33	1.27e+02	7.65e+01	1.66	yes	2.04e+02		n	n
3	31:43	9.38e+01	5.94e+01	1.58	yes	1.53e+02		n	n
4	32:22	3.49e+01	2.13e+01	1.64	yes	5.61e+01		y	y
5	32:48	1.02e+03	6.38e+02	1.60	yes	1.66e+03	1,2,3,7,8-PeCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0019

Entry: 41 Totals Name: Total Hexa-Furans

Run: 13 File: P519425 Sample:1 Injection:1 Function:3

Acquired: 14-DEC-18 19:54:42 Processed: 17-DEC-18 15:31:52

Mass: 373.8210 375.8180 Tot Response: 4.84e+04 RRF: 1.141

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:18	1.61e+03	1.36e+03 1.18	yes	2.98e+03		n	n
2	34:51	1.27e+03	1.06e+03 1.21	yes	2.33e+03		n	n
3	35:12	5.67e+01	4.58e+01 1.24	yes	1.03e+02		n	n
4	35:18	1.71e+04	1.39e+04 1.23	yes	3.11e+04	1,2,3,4,7,8-HxCDF	n	n
5	35:24	4.50e+03	3.80e+03 1.18	yes	8.31e+03	1,2,3,6,7,8-HxCDF	n	n
6	35:56	8.84e+02	6.85e+02 1.29	yes	1.57e+03	2,3,4,6,7,8-HxCDF	n	n
7	36:44	1.16e+03	9.27e+02 1.25	yes	2.09e+03	1,2,3,7,8,9-HxCDF	n	n

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

ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0019

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 13 File: P519425 Sample:1 Injection:1 Function:3

Acquired: 14-DEC-18 19:54:42 Processed: 17-DEC-18 15:31:52

Mass: 389.8160 391.8130 Tot Response: 8.77e+03 RRF: 1.047

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:42	3.76e+03	2.90e+03	1.30	yes	6.66e+03	n	n
2	35:28	1.15e+03	8.69e+02	1.32	yes	2.02e+03	n	n
3	36:20	4.69e+01	3.98e+01	1.18	yes	8.67e+01	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0019

Entry: 43 Totals Name: Total Hepta-Furans

Run: 13 File: P519425 Sample:1 Injection:1 Function:4

Acquired: 14-DEC-18 19:54:42 Processed: 17-DEC-18 15:31:52

Mass: 407.7820 409.7790 Tot Response: 1.86e+04 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:03	4.82e+03	4.78e+03 1.01	yes	9.61e+03	1,2,3,4,6,7,8-HpCDF	n	n
2	38:27	3.13e+03	3.21e+03 0.98	yes	6.34e+03		n	n
3	39:27	1.30e+03	1.33e+03 0.98	yes	2.63e+03	1,2,3,4,7,8,9-HpCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0019

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 13 File: P519425 Sample:1 Injection:1 Function:4

Acquired: 14-DEC-18 19:54:42 Processed: 17-DEC-18 15:31:52

Mass: 423.7770 425.7740 Tot Response: 4.07e+04 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:19	1.23e+04	1.04	yes	2.41e+04		n	n
2	39:00	8.44e+03	1.04	yes	1.66e+04	1,2,3,4,6,7,8-HpCDD	n	n

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Houston, TX 77099
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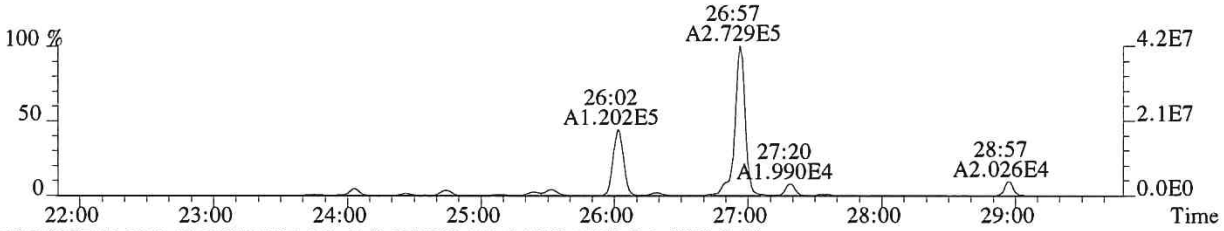
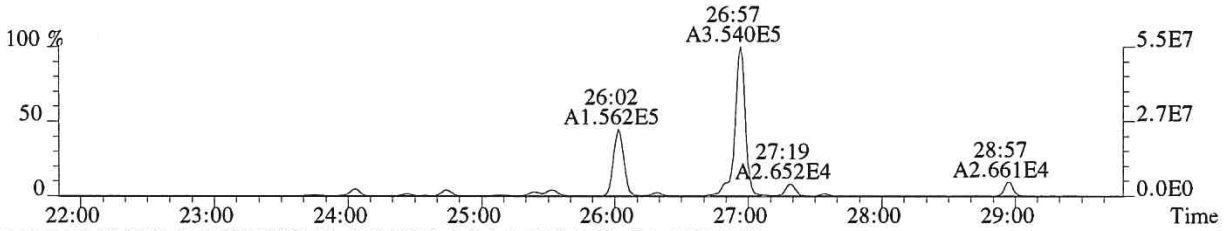
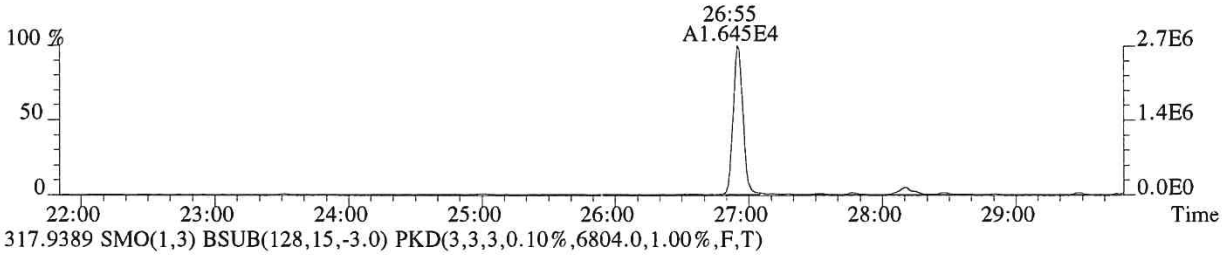
File:P519425 #1-566 Acq:14-DEC-2018 19:54:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-003
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,752.0,1.00%,F,T)



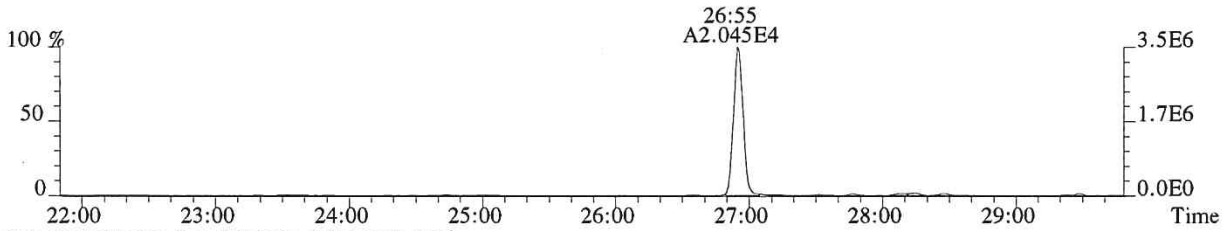
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1772.0,1.00%,F,T)



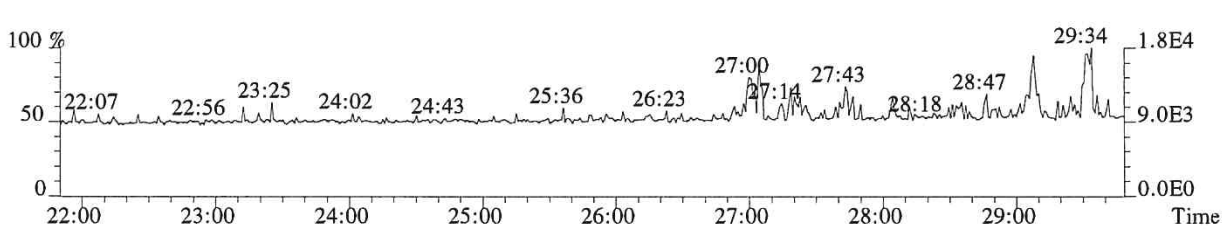
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7460.0,1.00%,F,T)



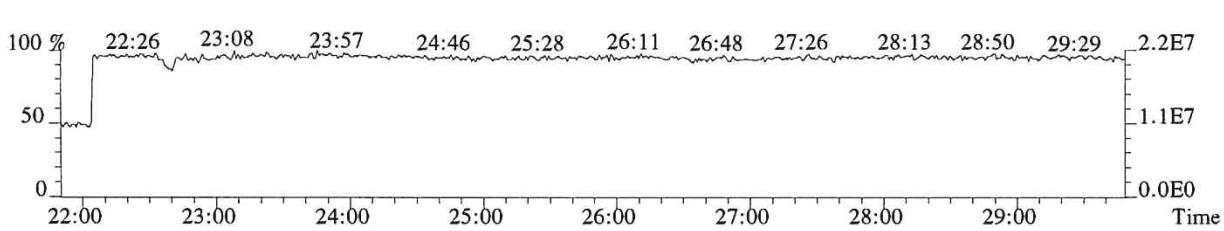
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6804.0,1.00%,F,T)



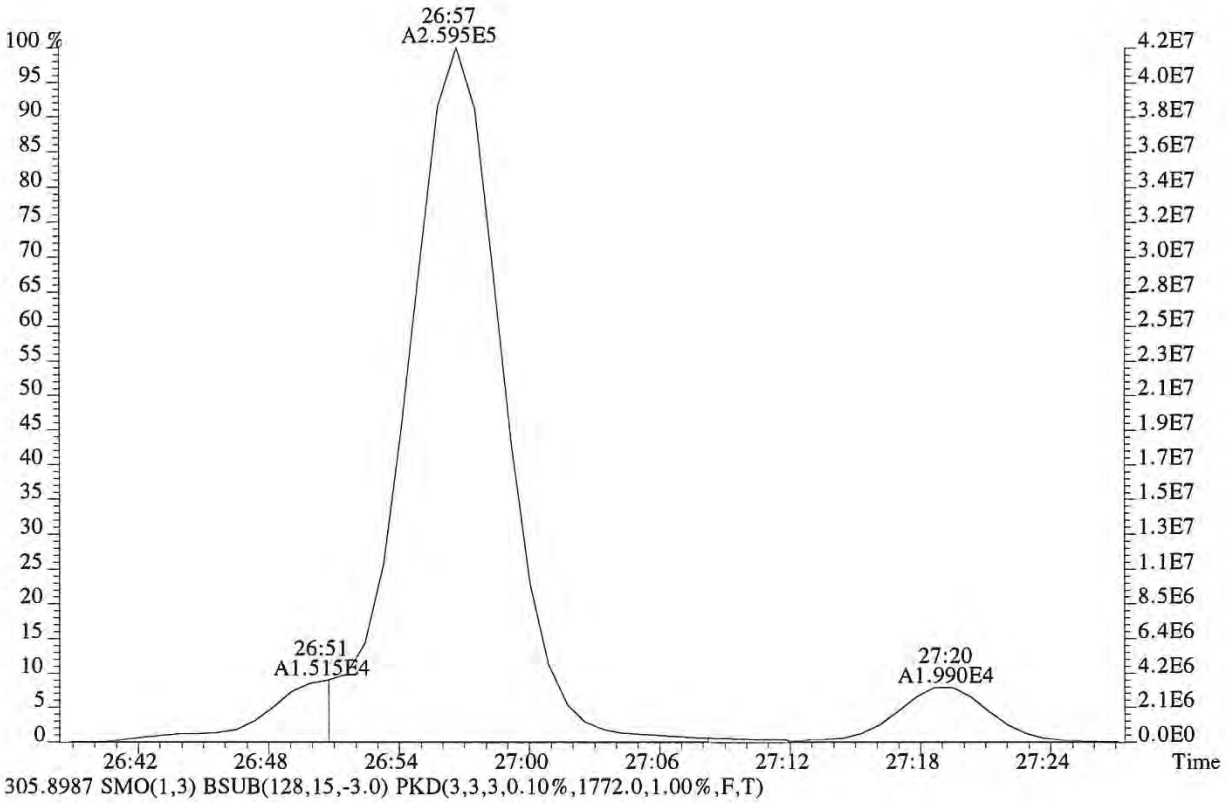
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



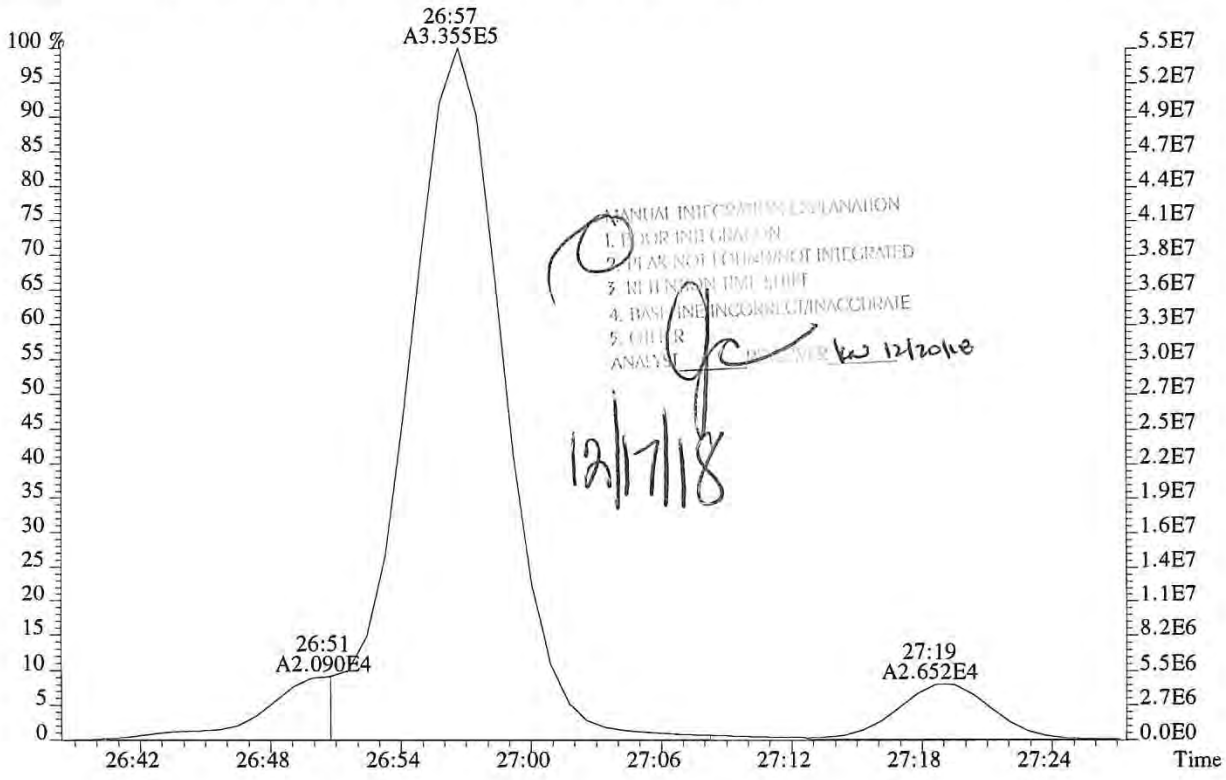
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P519425 #1-566 Acq:14-DEC-2018 19:54:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-003
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,752.0,1.00%,F,T)



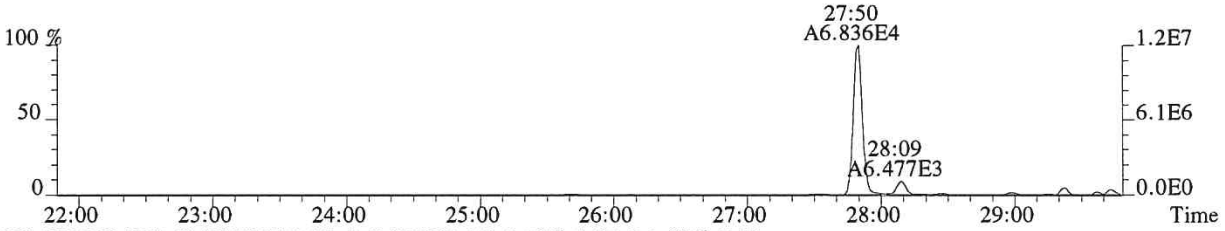
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1772.0,1.00%,F,T)



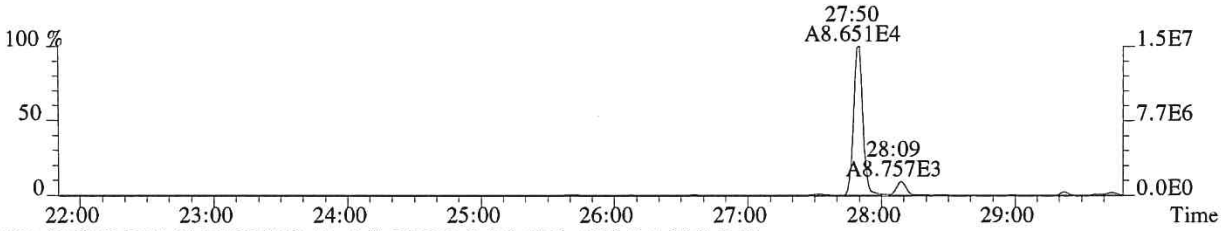
MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST kw 12/20/18
12/17/18

014025

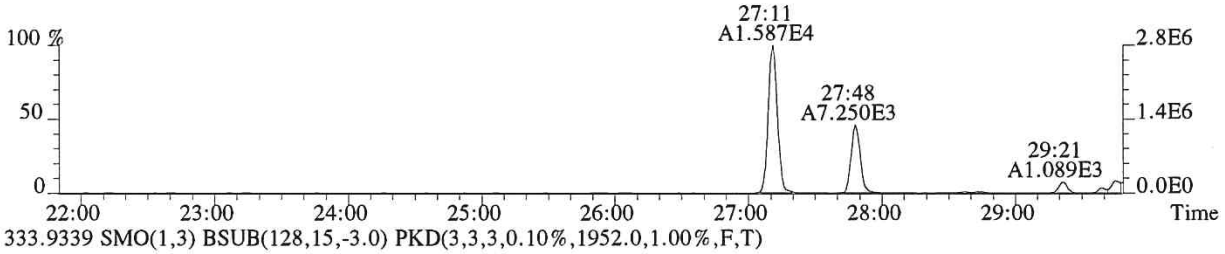
File:P519425 #1-566 Acq:14-DEC-2018 19:54:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-003
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3176.0,1.00%,F,T)



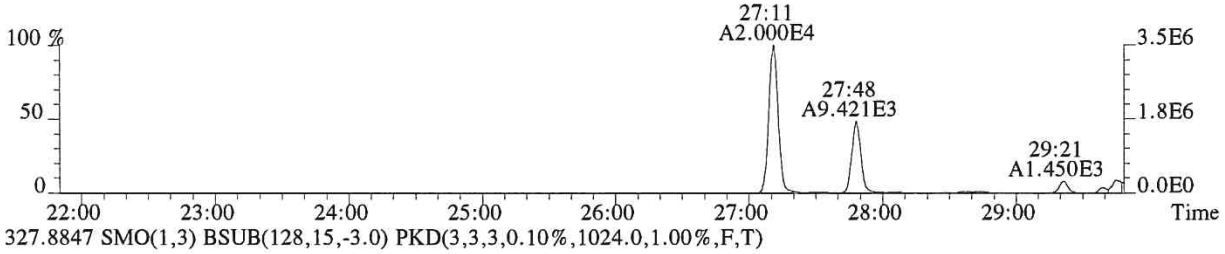
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1400.0,1.00%,F,T)



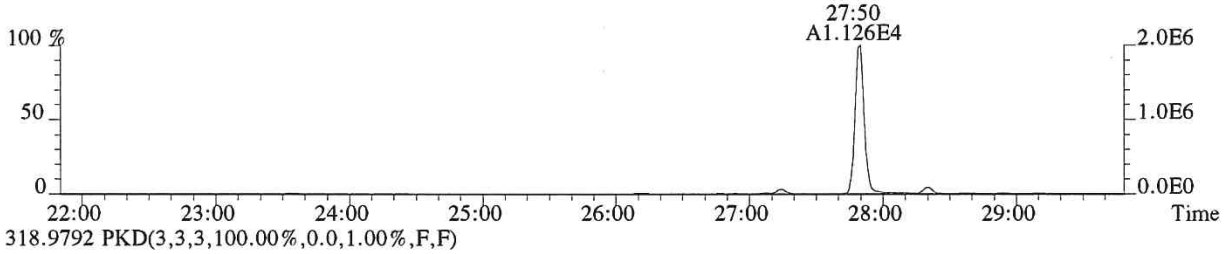
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5000.0,1.00%,F,T)



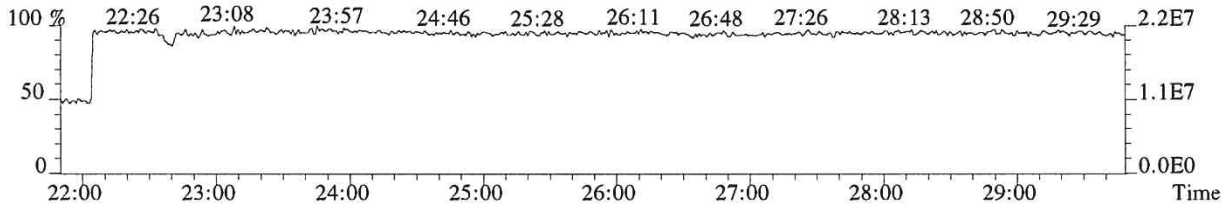
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1952.0,1.00%,F,T)



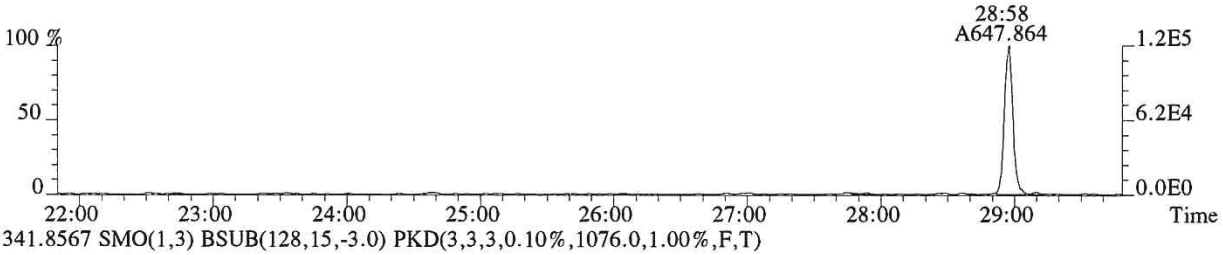
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1024.0,1.00%,F,T)



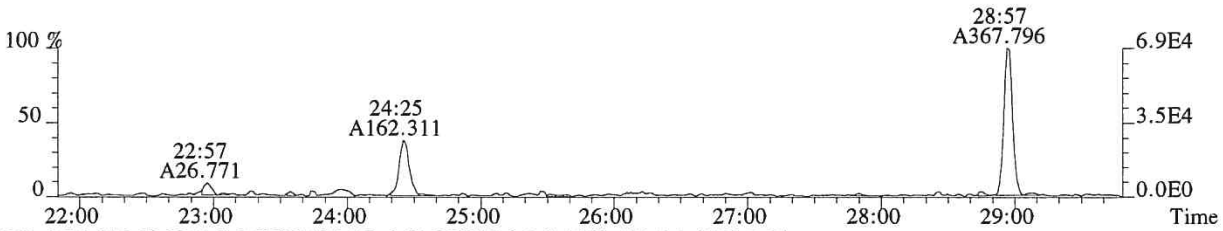
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



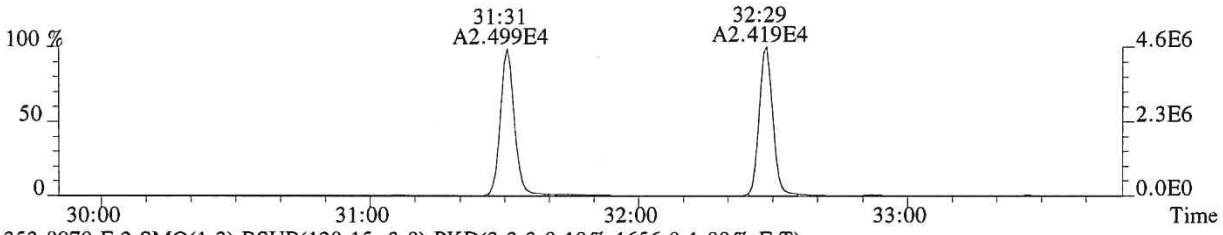
File:P519425 #1-566 Acq:14-DEC-2018 19:54:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-003
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,804.0,1.00%,F,T)



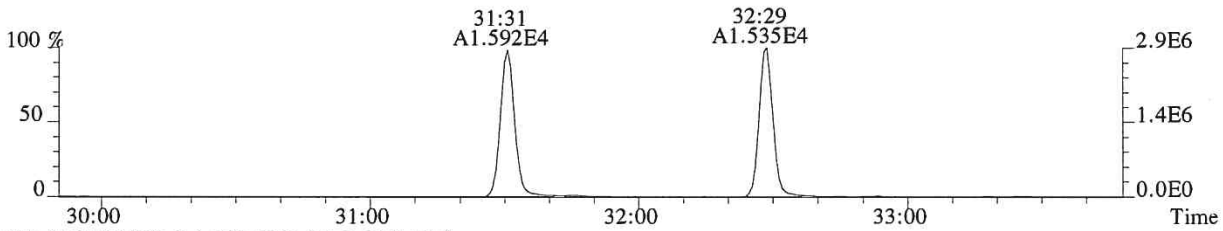
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1076.0,1.00%,F,T)



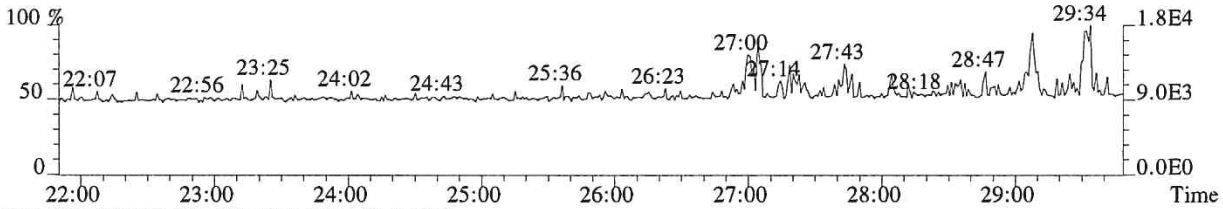
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,488.0,1.00%,F,T)



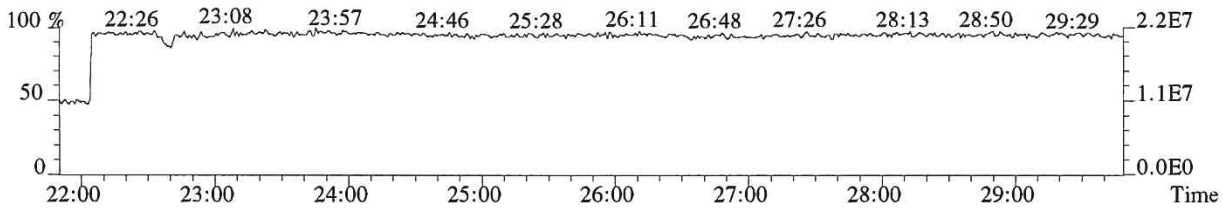
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1656.0,1.00%,F,T)



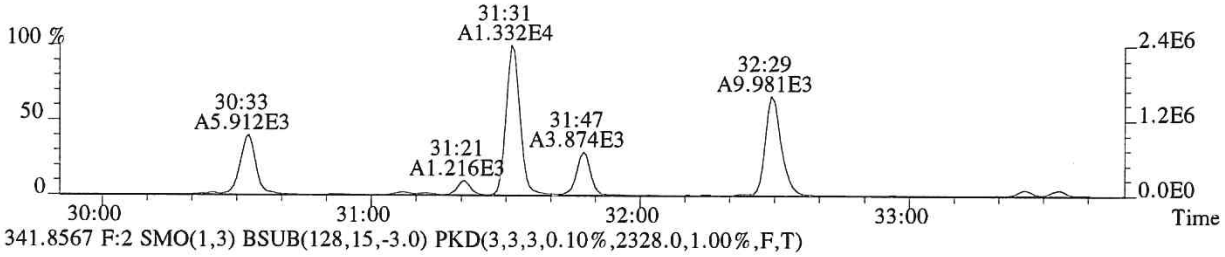
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



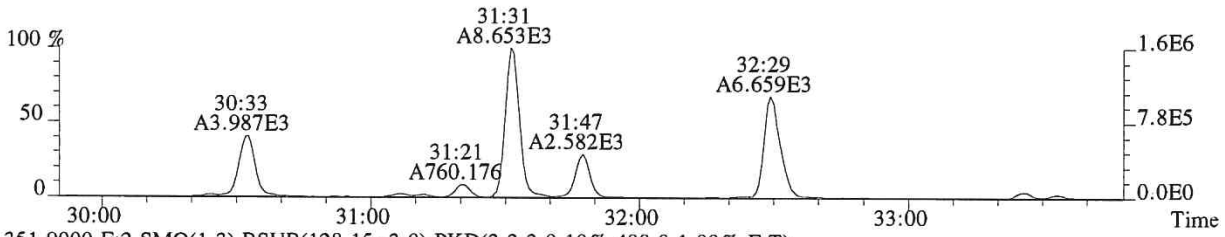
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



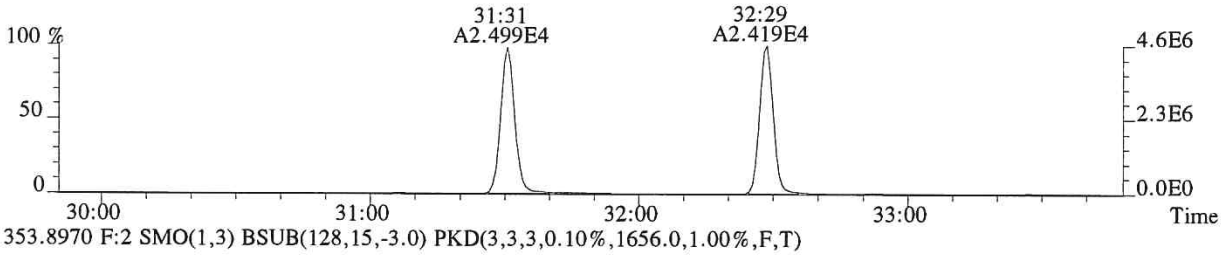
File:P519425 #1-357 Acq:14-DEC-2018 19:54:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-003
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3168.0,1.00%,F,T)



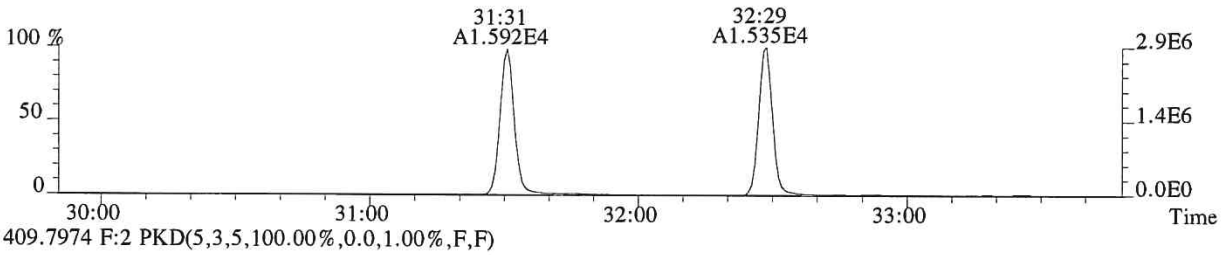
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2328.0,1.00%,F,T)



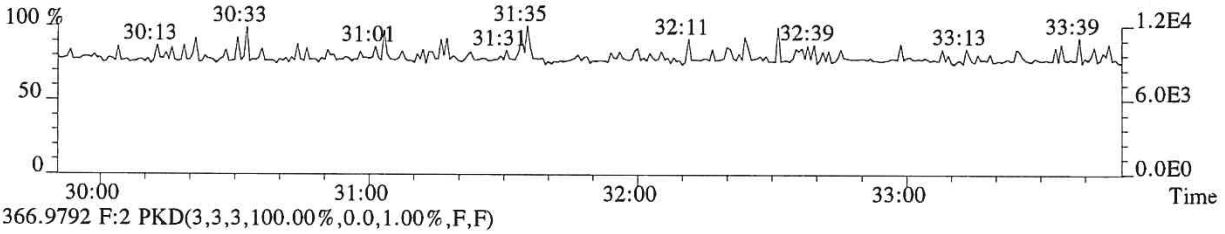
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,488.0,1.00%,F,T)



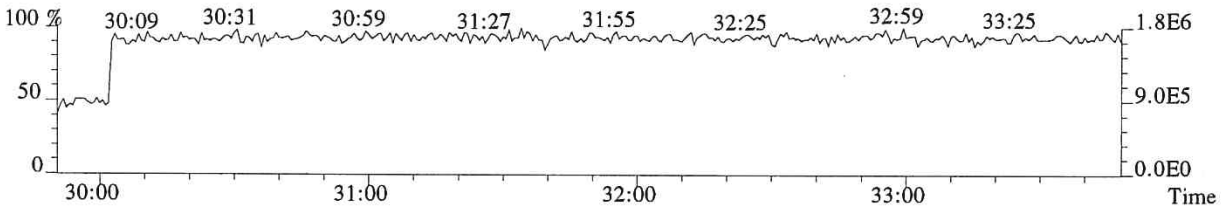
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1656.0,1.00%,F,T)



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

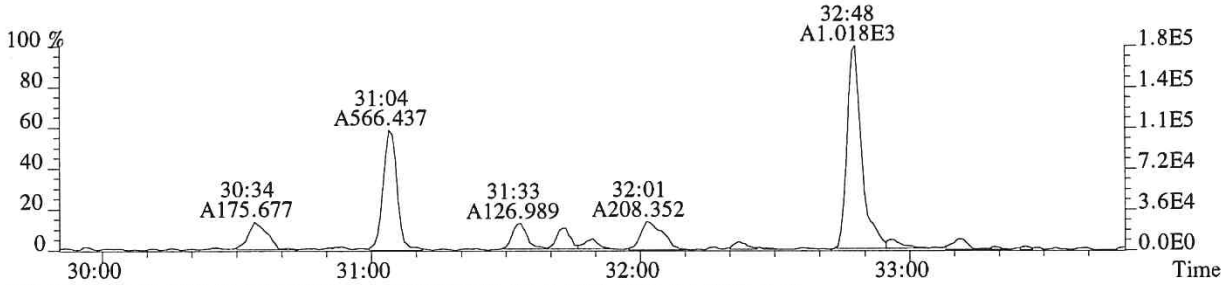


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

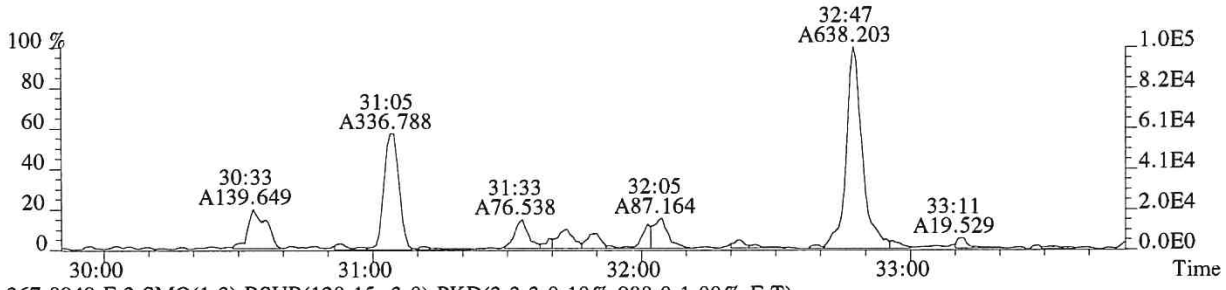


014028

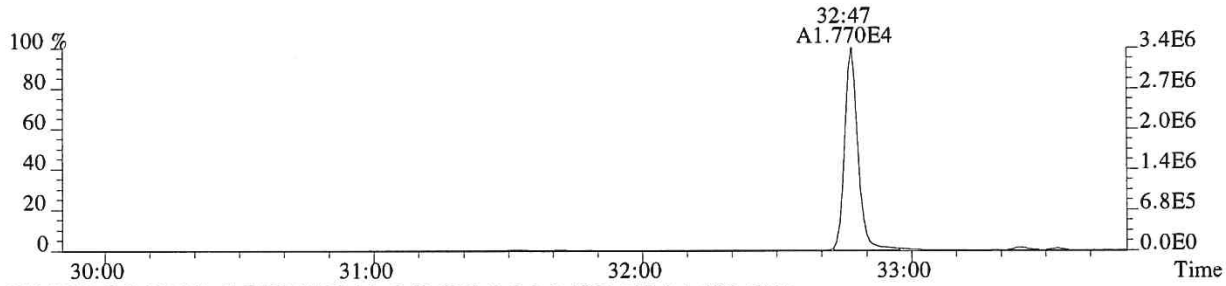
File:P519425 #1-357 Acq:14-DEC-2018 19:54:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-003
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1556.0,1.00%,F,T)



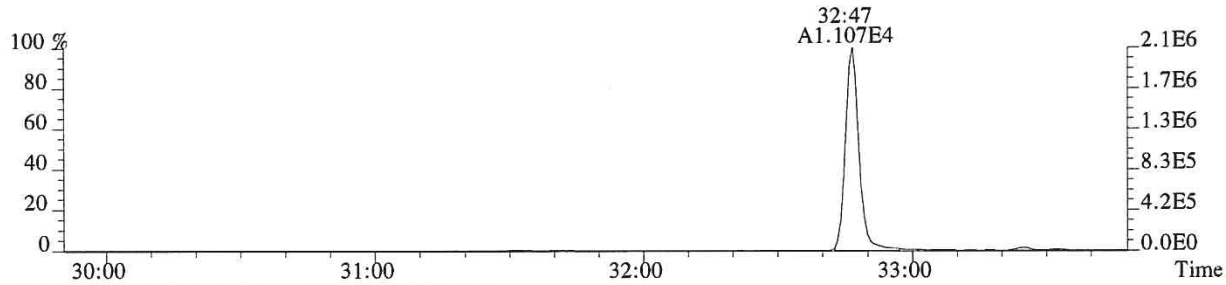
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1220.0,1.00%,F,T)



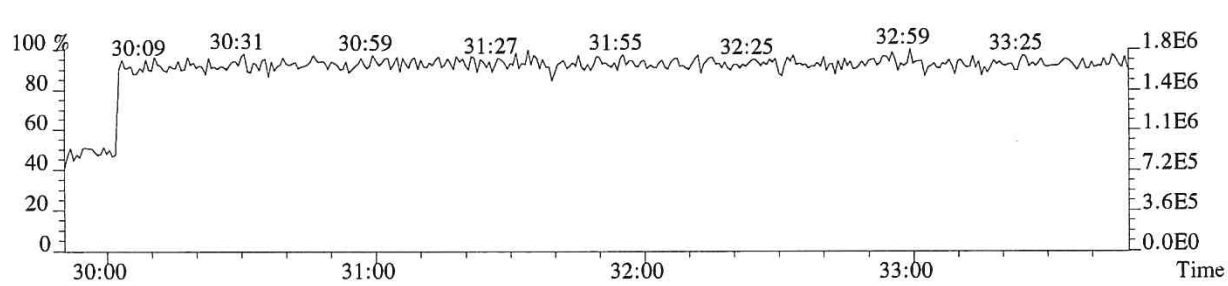
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,988.0,1.00%,F,T)



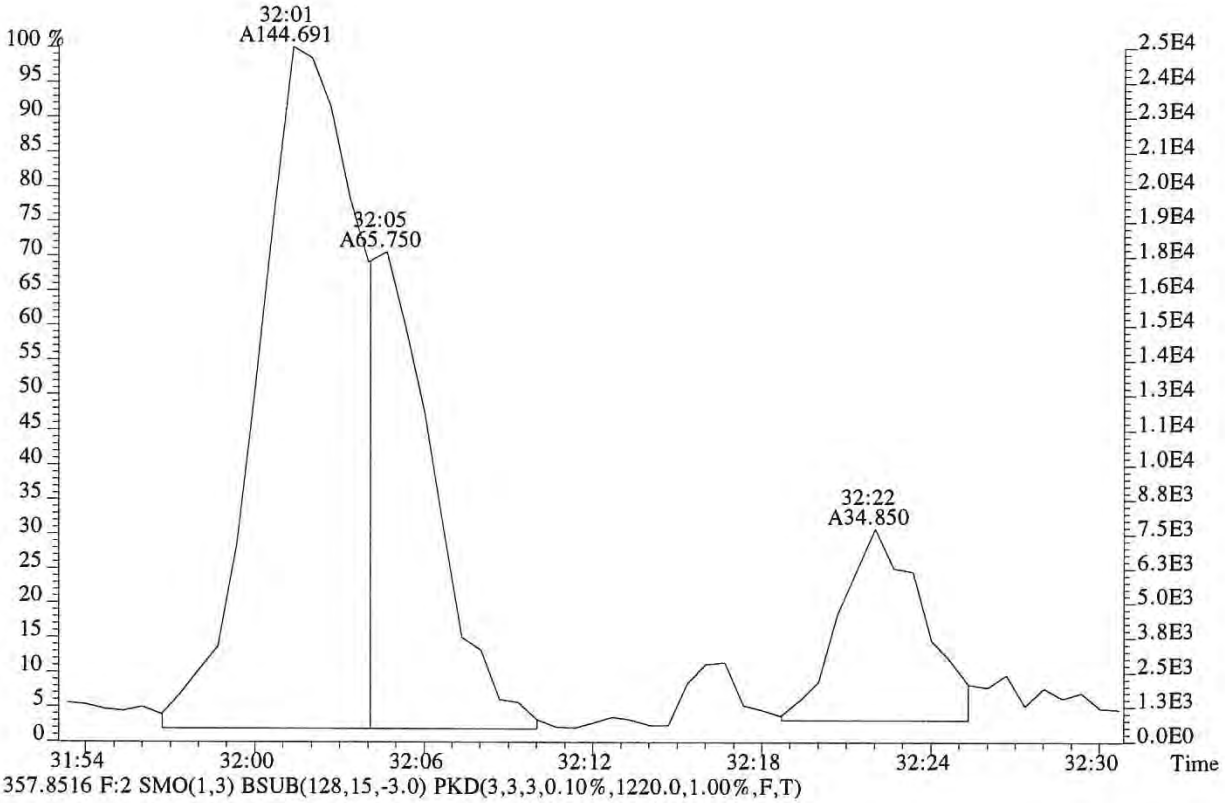
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,760.0,1.00%,F,T)



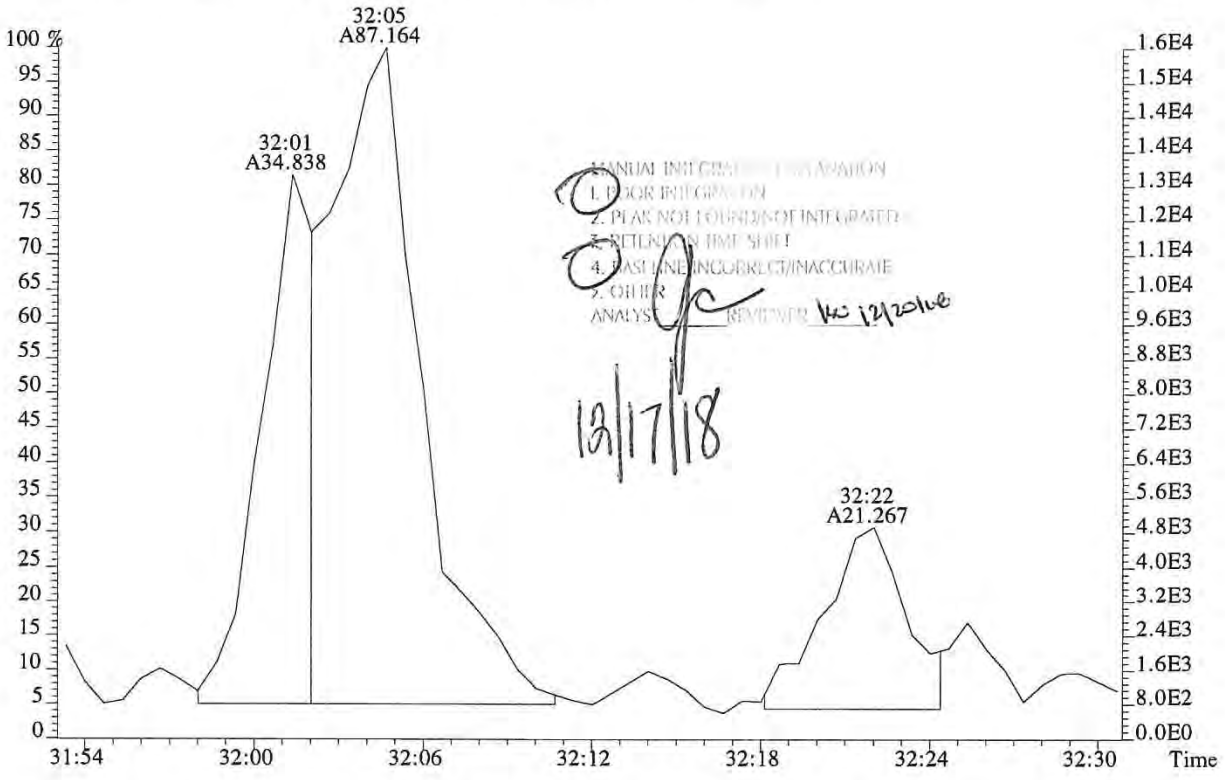
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P519425 #1-357 Acq:14-DEC-2018 19:54:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-003
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1556.0,1.00%,F,T)



357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1220.0,1.00%,F,T)

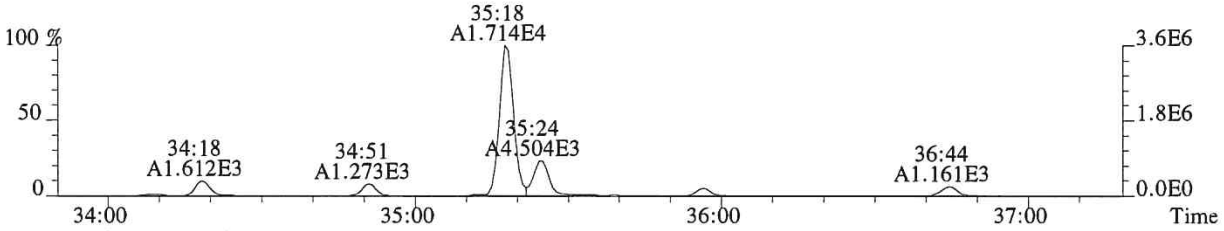


MANUAL INTEGRATION/CALCULATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST REVIEWER 12/20/18

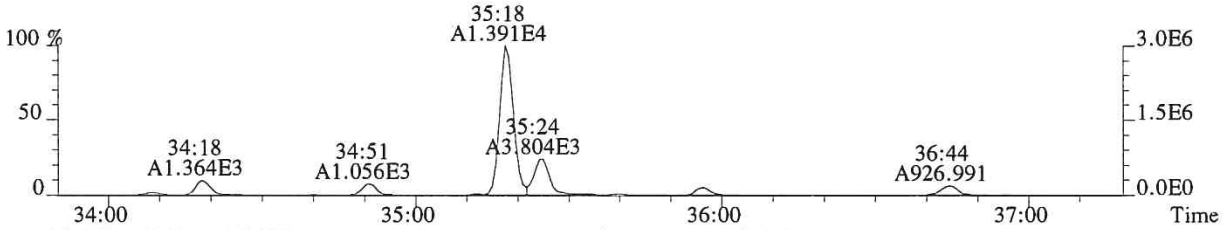
12/17/18

014030

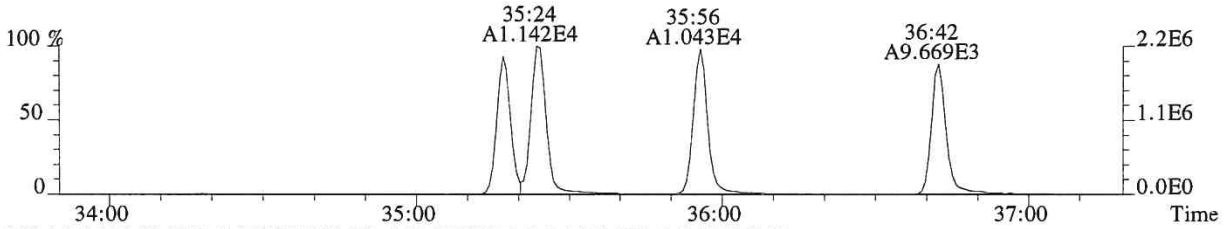
File:P519425 #1-313 Acq:14-DEC-2018 19:54:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-003
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1432.0,0.40%,F,T)



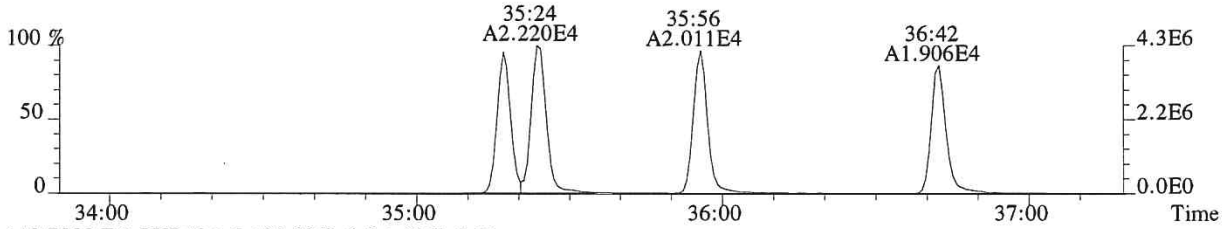
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3460.0,0.40%,F,T)



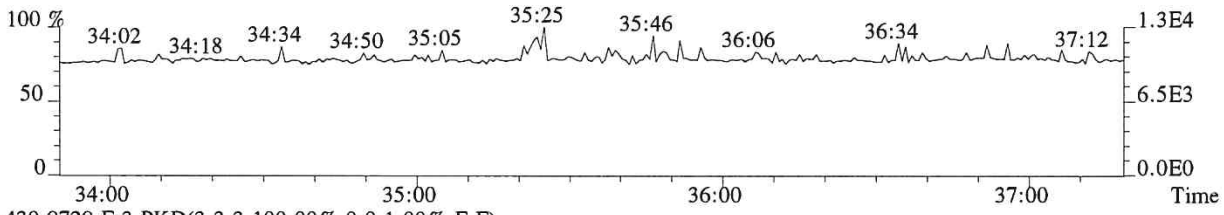
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1684.0,0.40%,F,T)



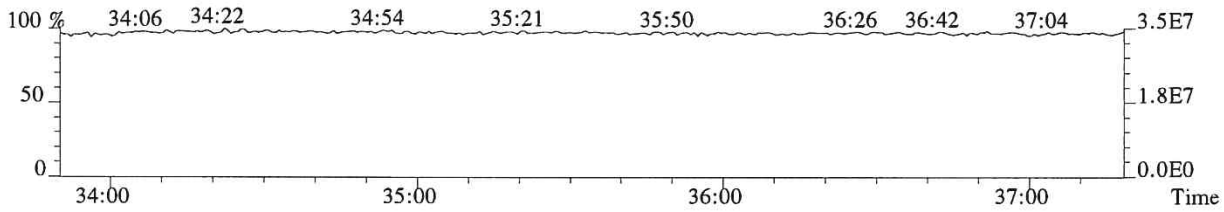
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,828.0,0.40%,F,T)



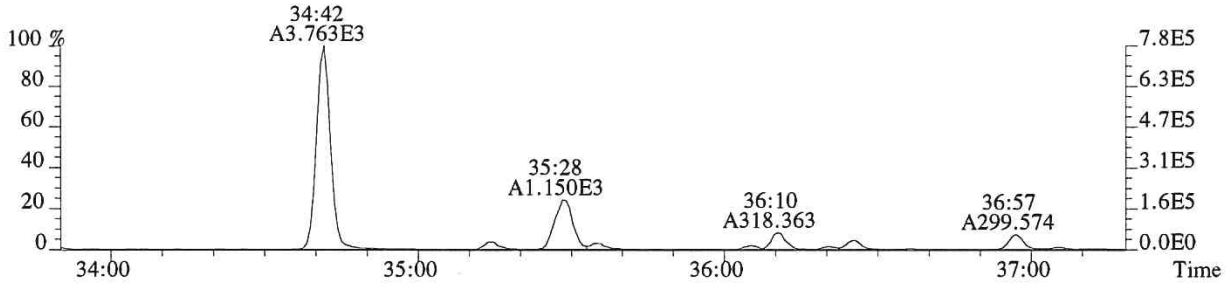
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



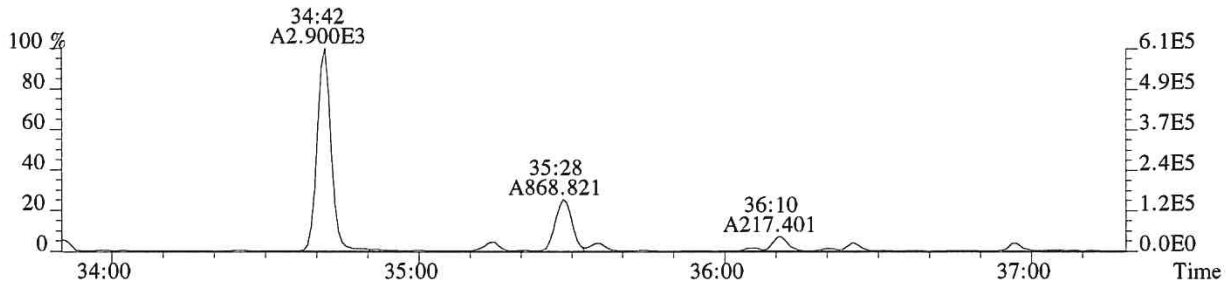
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



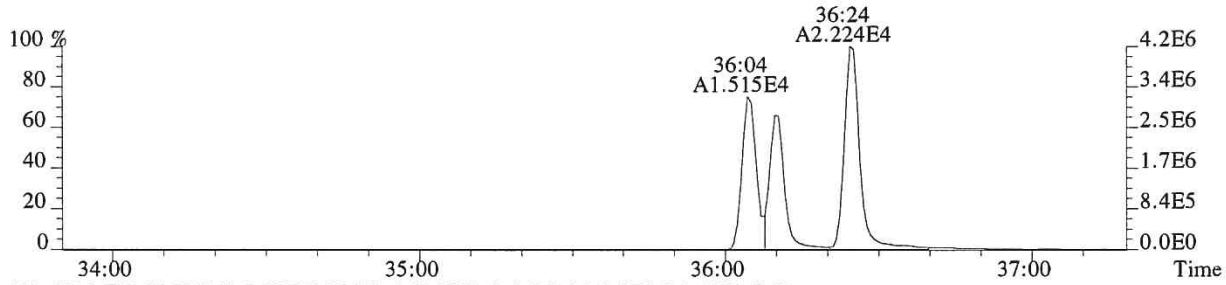
File:P519425 #1-313 Acq:14-DEC-2018 19:54:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-003
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1328.0,0.40%,F,T)



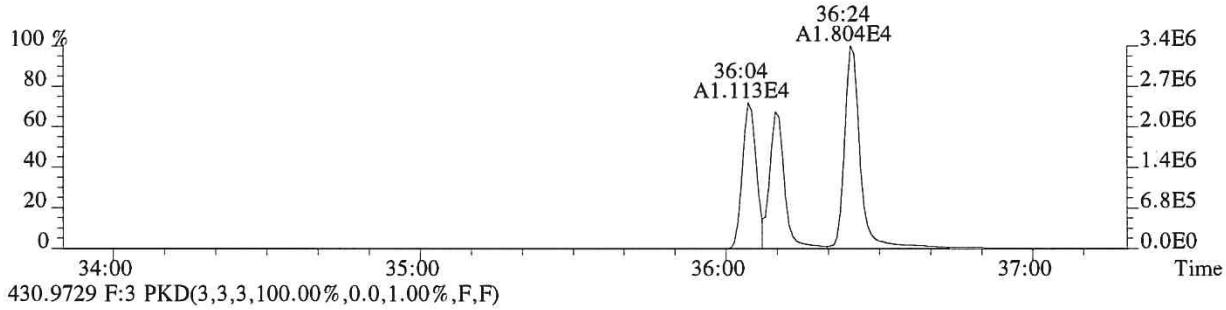
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1784.0,0.40%,F,T)



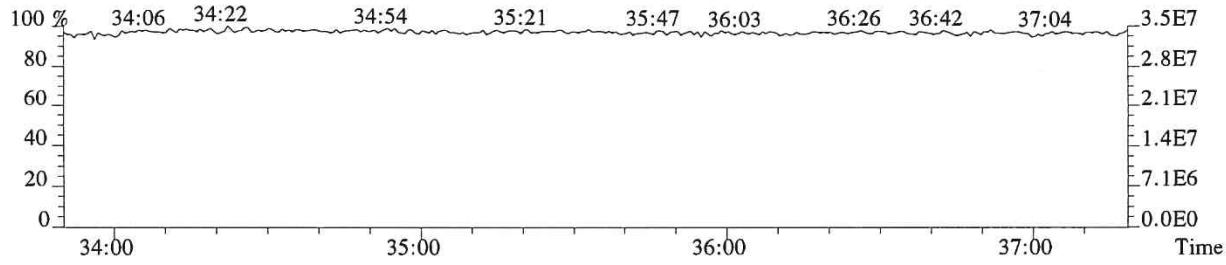
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,864.0,0.40%,F,T)



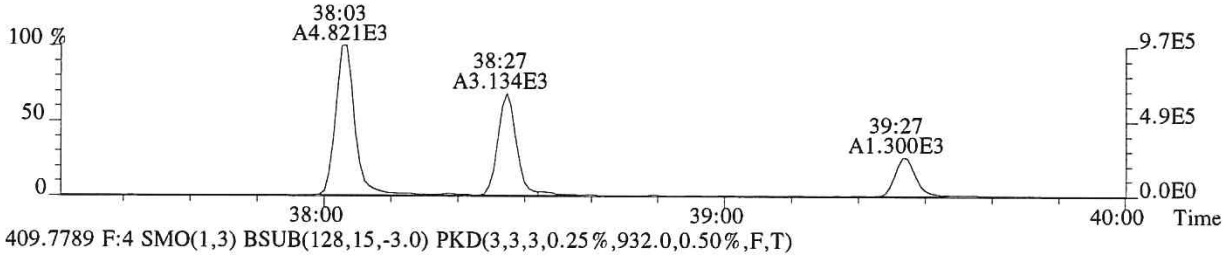
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,776.0,0.40%,F,T)



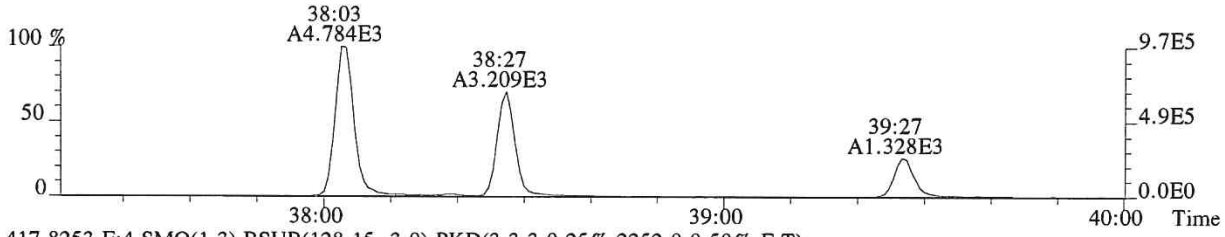
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



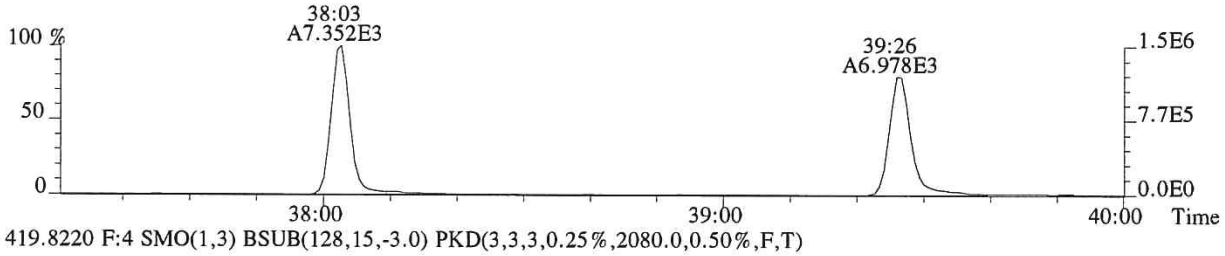
File:P519425 #1-240 Acq:14-DEC-2018 19:54:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-003
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3888.0,0.50%,F,T)



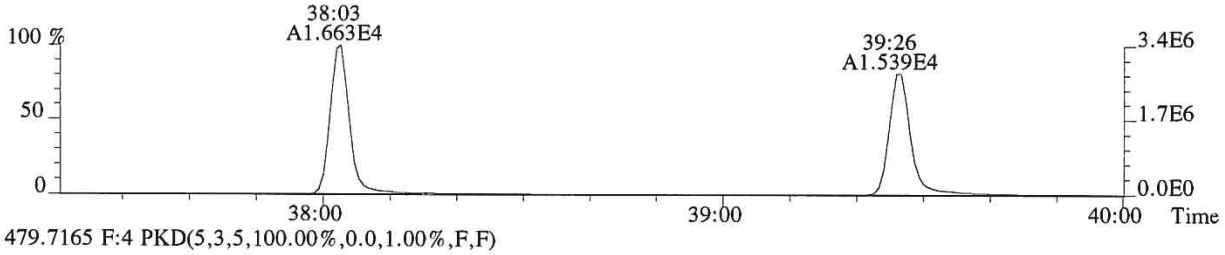
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,932.0,0.50%,F,T)



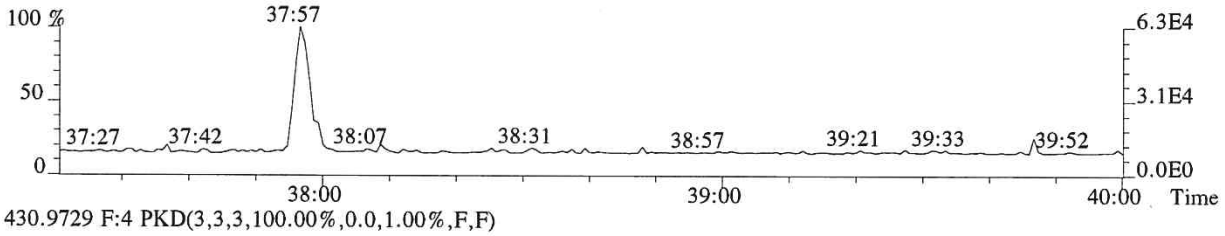
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2252.0,0.50%,F,T)



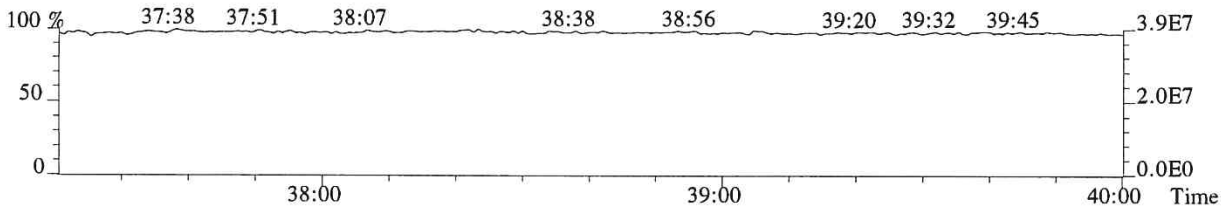
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2080.0,0.50%,F,T)



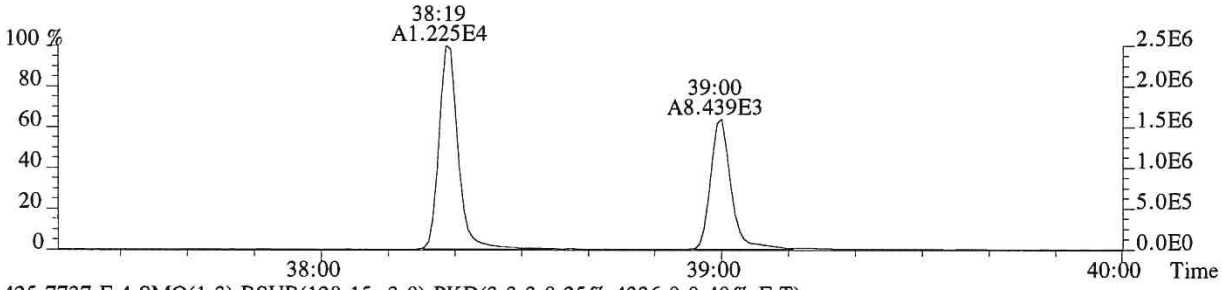
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



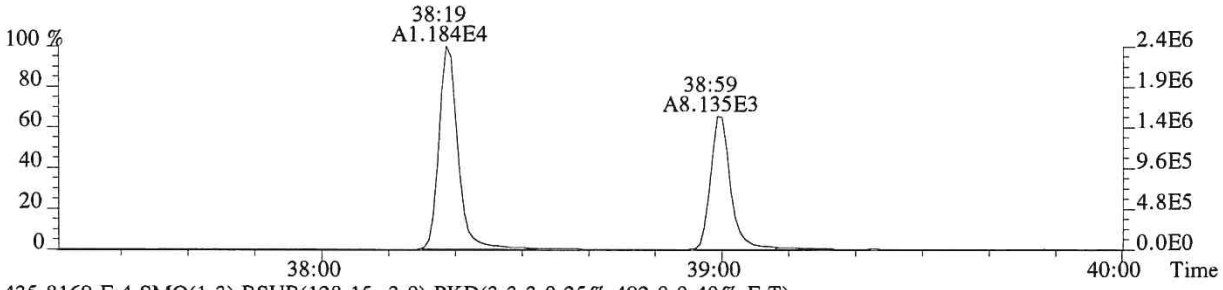
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



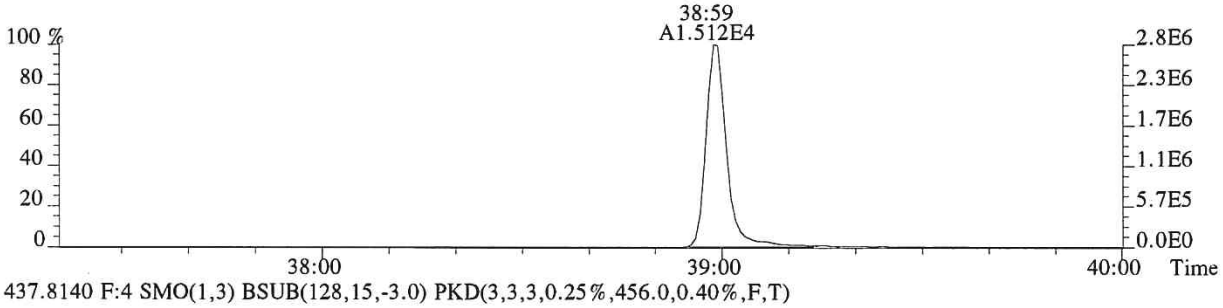
File:P519425 #1-240 Acq:14-DEC-2018 19:54:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-003
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4544.0,0.40%,F,T)



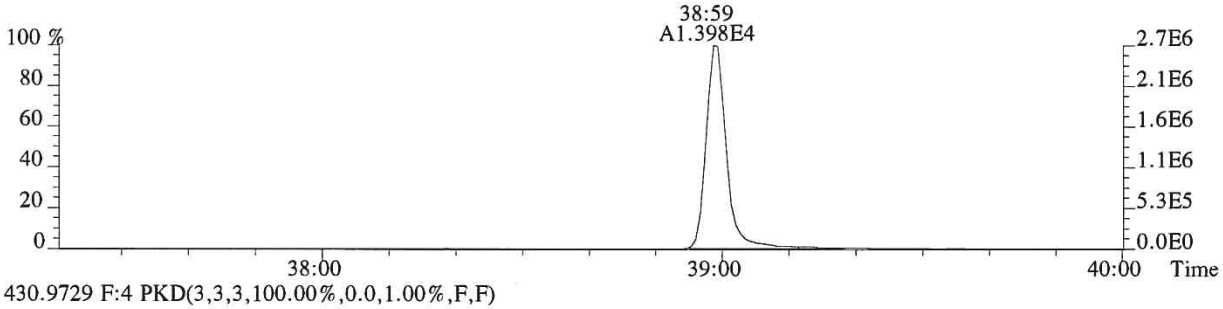
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4336.0,0.40%,F,T)



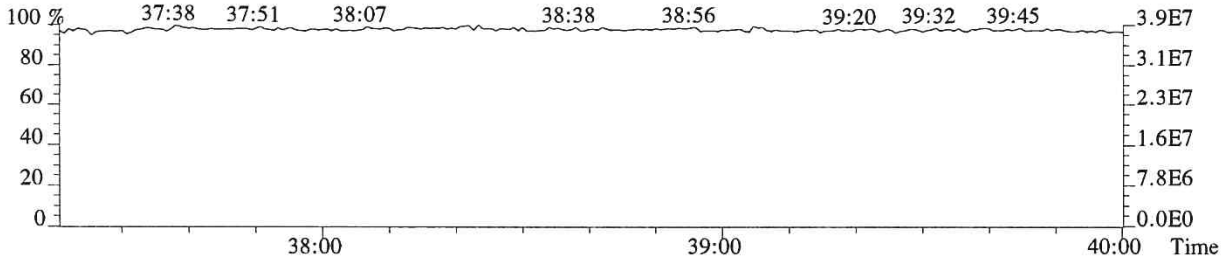
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,492.0,0.40%,F,T)



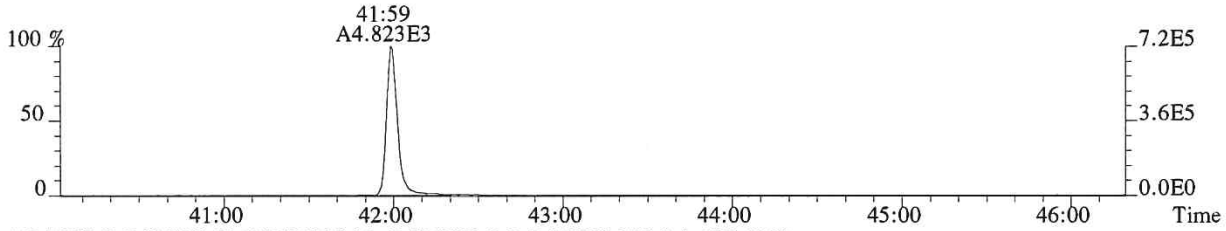
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,456.0,0.40%,F,T)



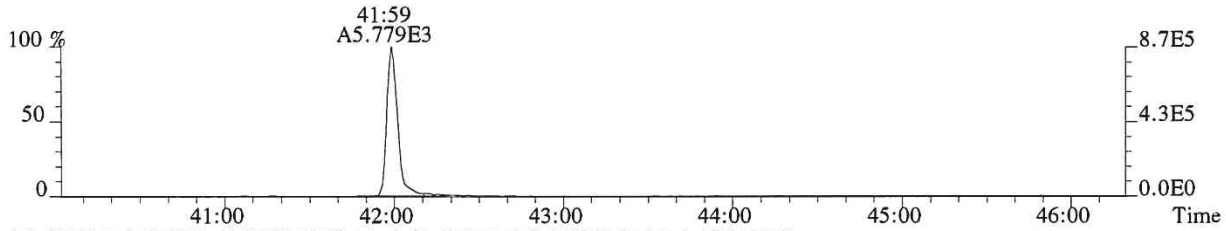
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



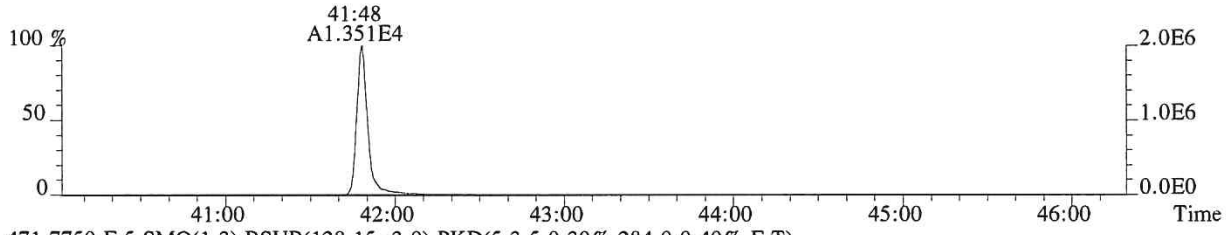
File:P519425 #1-566 Acq:14-DEC-2018 19:54:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-003
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,336.0,0.40%,F,T)



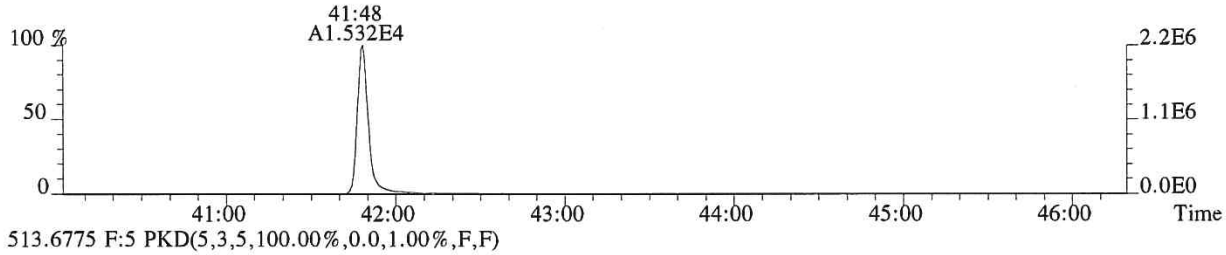
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,836.0,0.40%,F,T)



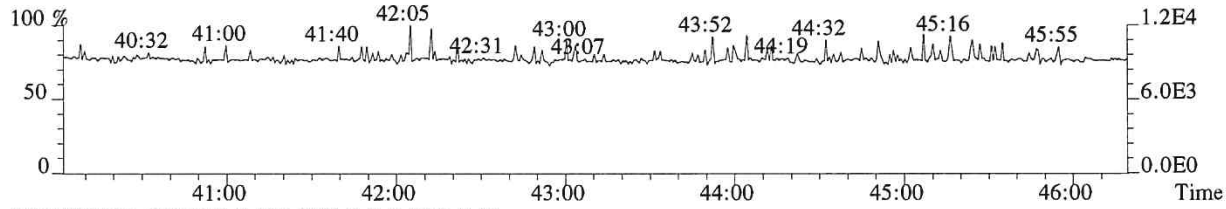
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,344.0,0.40%,F,T)



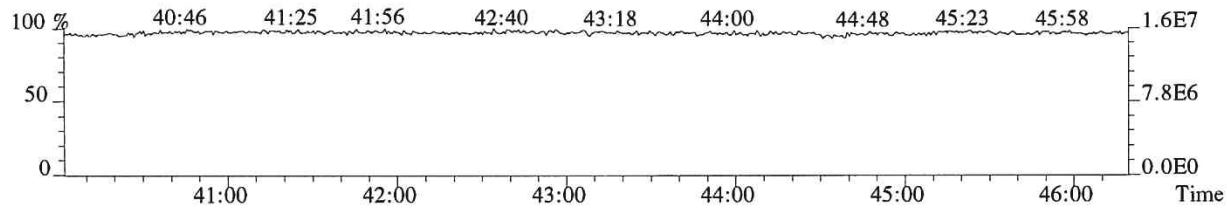
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,284.0,0.40%,F,T)



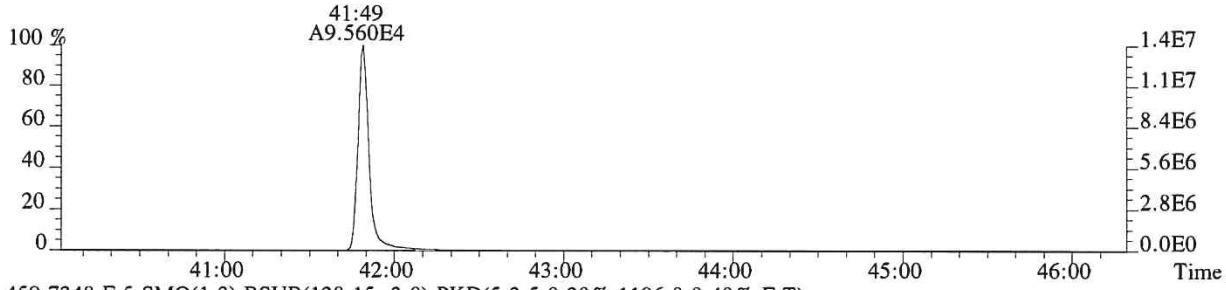
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



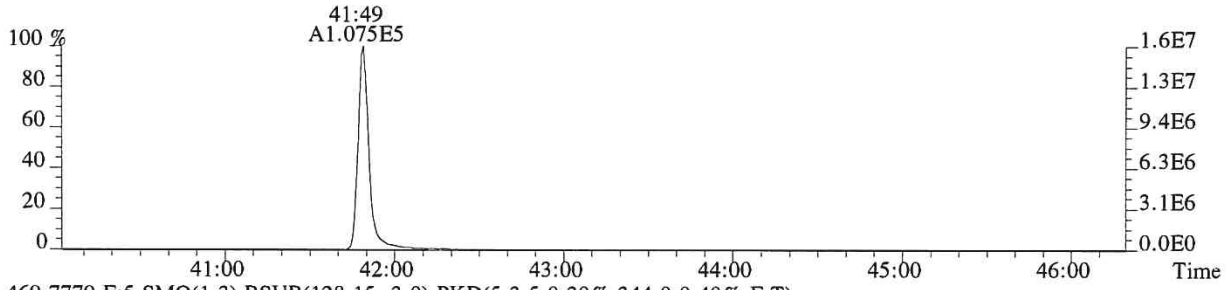
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



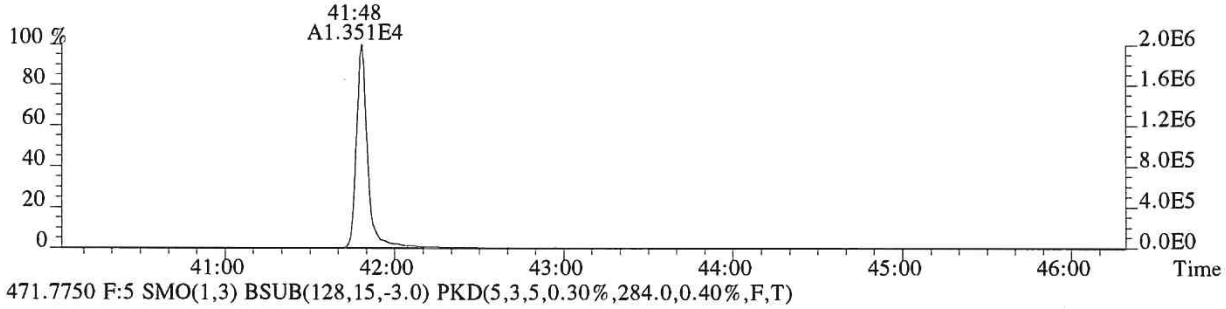
File:P519425 #1-566 Acq:14-DEC-2018 19:54:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-003
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,884.0,0.40%,F,T)



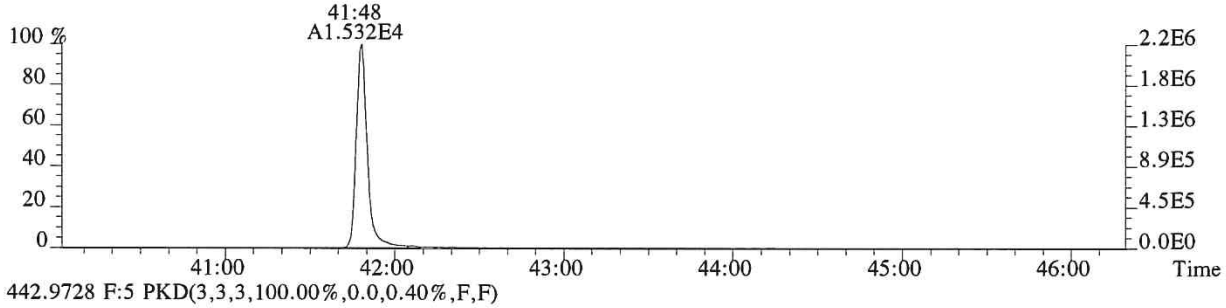
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1196.0,0.40%,F,T)



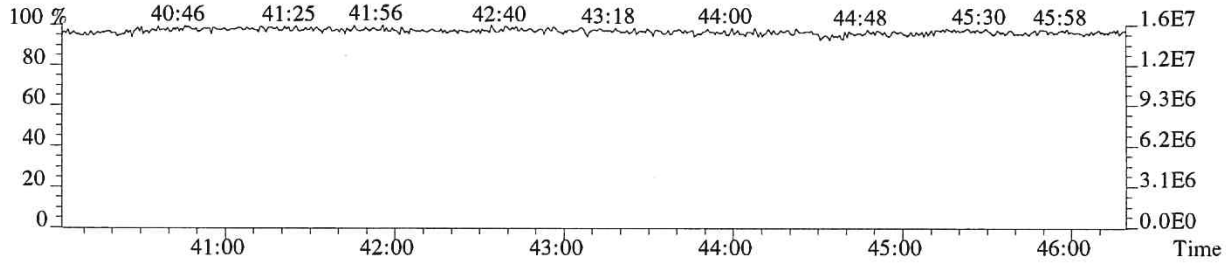
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,344.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,284.0,0.40%,F,T)



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



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0019

Run #15 Filename P519527 Samp: 1 Inj: 1 Acquired: 20-DEC-18 22:13:59
Processed: 21-DEC-18 10:21:30 Sample ID: E1801093-003DL

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:49	7.438e+03	1.014e+04	0.73	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	31:27	4.106e+02	2.758e+02	1.49	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	32:27	3.080e+02	2.135e+02	1.44	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:17	5.044e+02	4.379e+02	1.15	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:24	1.446e+02	1.114e+02	1.30	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:56	5.747e+01	4.428e+01	1.30	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	36:46	5.278e+01	4.917e+01	1.07	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:07	1.566e+02	1.483e+02	1.06	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:34	5.215e+01	6.204e+01	0.84	no	no	1.258
10	Unk	OCDF	42:16	2.015e+02	1.999e+02	1.01	yes	no	1.359
11	Unk	2,3,7,8-TCDD	27:43	1.860e+03	2.409e+03	0.77	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	32:44	5.128e+01	2.708e+01	1.89	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:11	1.320e+01	2.003e+01	0.66	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:26	1.711e+01	6.601e+00	2.59	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:06	2.854e+02	2.431e+02	1.17	yes	no	1.025
17	Unk	OCDD	42:06	2.516e+03	2.895e+03	0.87	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	26:47	7.731e+03	1.006e+04	0.77	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	31:27	1.228e+04	7.650e+03	1.61	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	32:25	1.162e+04	7.150e+03	1.62	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:16	4.983e+03	9.581e+03	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:23	5.703e+03	1.124e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:56	5.434e+03	1.066e+04	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	36:44	4.569e+03	9.089e+03	0.50	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:07	4.126e+03	9.489e+03	0.43	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:34	3.690e+03	7.894e+03	0.47	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	27:42	3.798e+03	4.749e+03	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:43	8.470e+03	5.385e+03	1.57	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:04	2.891e+03	2.623e+03	1.10	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:11	7.324e+03	5.384e+03	1.36	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:06	7.529e+03	7.165e+03	1.05	yes	no	0.858
32	IS	13C-OCDD	42:06	8.616e+03	9.589e+03	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:03	5.936e+03	7.268e+03	0.82	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:26	7.710e+03	5.937e+03	1.30	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:43	3.572e+02				no	1.014

$$\text{OCDD} = \frac{(2.516e+03 + 2.895e+03) \times 4000\ \text{pg} \times 20}{(8.616e+03 + 9.589e+03) \times 10.793\ \text{g} \times 70.8 / 100 \times 1.118} = 4560\ \text{ng/kg}$$

KW 12/21/18

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0019

Run #15 Filename P519527 Samp: 1 Inj: 1 Acquired: 20-DEC-18 22:13:59
Processed: 21-DEC-18 10:21:30 LAB. ID: E1801093-003DL

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.08e+06	6.04e+02	1.8e+03	1.46e+06	1.31e+03	1.1e+03
2	1,2,3,7,8-PeCDF	7.37e+04	6.96e+02	1.1e+02	4.77e+04	7.00e+02	6.8e+01
3	2,3,4,7,8-PeCDF	5.00e+04	6.96e+02	7.2e+01	3.35e+04	7.00e+02	4.8e+01
4	1,2,3,4,7,8-HxCDF	1.05e+05	5.64e+02	1.9e+02	8.62e+04	3.48e+02	2.5e+02
5	1,2,3,6,7,8-HxCDF	2.58e+04	5.64e+02	4.6e+01	1.99e+04	3.48e+02	5.7e+01
6	2,3,4,6,7,8-HxCDF	9.76e+03	5.64e+02	1.7e+01	9.73e+03	3.48e+02	2.8e+01
7	1,2,3,7,8,9-HxCDF	8.00e+03	5.64e+02	1.4e+01	5.92e+03	3.48e+02	1.7e+01
8	1,2,3,4,6,7,8-HpCDF	2.57e+04	6.00e+02	4.3e+01	2.82e+04	2.88e+02	9.8e+01
9	1,2,3,4,7,8,9-HpCDF	1.07e+04	6.00e+02	1.8e+01	1.17e+04	2.88e+02	4.0e+01
10	OCDF	2.45e+04	3.68e+02	6.7e+01	2.02e+04	8.60e+02	2.3e+01
11	2,3,7,8-TCDD	3.27e+05	1.50e+03	2.2e+02	4.19e+05	9.08e+02	4.6e+02
12	1,2,3,7,8-PeCDD	7.35e+03	5.40e+02	1.4e+01	3.40e+03	3.84e+02	8.9e+00
13	1,2,3,4,7,8-HxCDD	*	5.20e+02	*	*	4.68e+02	*
14	1,2,3,6,7,8-HxCDD	2.69e+03	5.20e+02	5.2e+00	4.76e+03	4.68e+02	1.0e+01
15	1,2,3,7,8,9-HxCDD	3.38e+03	5.20e+02	6.5e+00	1.94e+03	4.68e+02	4.1e+00
16	1,2,3,4,6,7,8-HpCDD	4.04e+04	2.44e+02	1.7e+02	3.71e+04	4.40e+02	8.4e+01
17	OCDD	2.43e+05	3.08e+02	7.9e+02	2.84e+05	4.32e+02	6.6e+02
18	13C-2,3,7,8-TCDF	1.25e+06	6.62e+03	1.9e+02	1.57e+06	3.32e+03	4.7e+02
19	13C-1,2,3,7,8-PeCDF	2.24e+06	2.08e+02	1.1e+04	1.36e+06	5.84e+02	2.3e+03
20	13C-2,3,4,7,8-PeCDF	2.13e+06	2.08e+02	1.0e+04	1.32e+06	5.84e+02	2.3e+03
21	13C-1,2,3,4,7,8-HxCDF	1.02e+06	6.12e+02	1.7e+03	1.99e+06	4.04e+02	4.9e+03
22	13C-1,2,3,6,7,8-HxCDF	1.04e+06	6.12e+02	1.7e+03	2.06e+06	4.04e+02	5.1e+03
23	13C-2,3,4,6,7,8-HxCDF	1.01e+06	6.12e+02	1.7e+03	1.95e+06	4.04e+02	4.8e+03
24	13C-1,2,3,7,8,9-HxCDF	7.96e+05	6.12e+02	1.3e+03	1.59e+06	4.04e+02	3.9e+03
25	13C-1,2,3,4,6,7,8-HpCDF	6.94e+05	1.05e+03	6.6e+02	1.59e+06	2.16e+03	7.4e+02
26	13C-1,2,3,4,7,8,9-HpCDF	5.41e+05	1.05e+03	5.2e+02	1.11e+06	2.16e+03	5.2e+02
27	13C-2,3,7,8-TCDD	6.60e+05	4.81e+03	1.4e+02	8.22e+05	1.40e+03	5.9e+02
28	13C-1,2,3,7,8-PeCDD	1.47e+06	4.44e+02	3.3e+03	9.36e+05	1.23e+03	7.6e+02
29	13C-1,2,3,4,7,8-HxCDD	8.47e+05	4.64e+02	1.8e+03	6.72e+05	4.60e+02	1.5e+03
30	13C-1,2,3,6,7,8-HxCDD	1.28e+06	4.64e+02	2.8e+03	1.00e+06	4.60e+02	2.2e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.16e+06	4.12e+02	2.8e+03	1.09e+06	4.16e+02	2.6e+03
32	13C-OCDD	8.78e+05	5.36e+02	1.6e+03	9.49e+05	2.64e+02	3.6e+03
33	13C-1,2,3,4-TCDD	1.03e+06	4.81e+03	2.1e+02	1.25e+06	1.40e+03	8.9e+02
34	13C-1,2,3,7,8,9-HxCDD	1.31e+06	4.64e+02	2.8e+03	1.07e+06	4.60e+02	2.3e+03
35	37Cl-2,3,7,8-TCDD	5.97e+04	5.72e+02	1.0e+02			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.504e{+}03 + 9.080e{+}02) \times 2000}{(6.603e{+}05 + 8.217e{+}05) \times (\quad) \times 1.085} =$$

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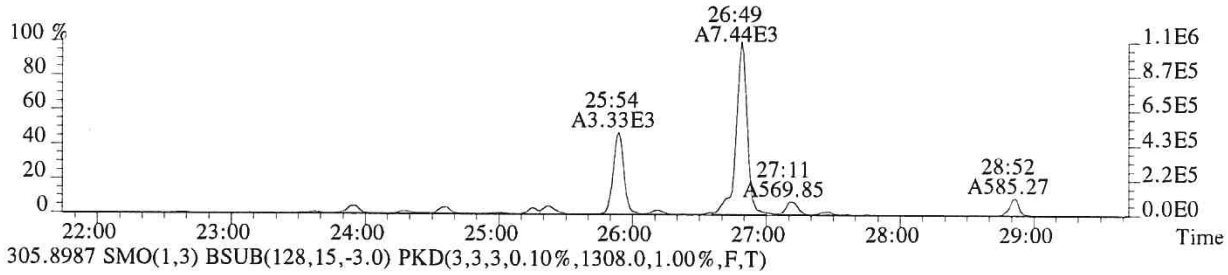
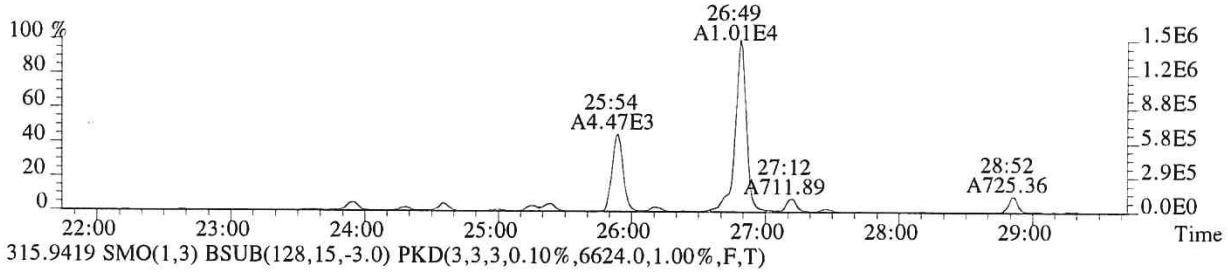
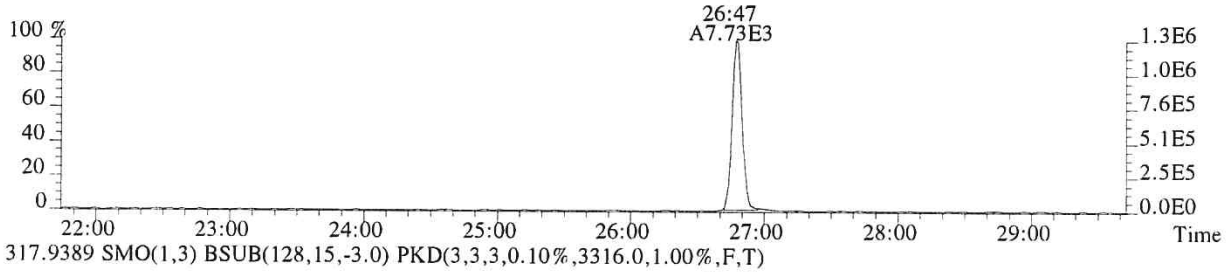
File:P519527 #1-566 Acq:20-DEC-2018 22:13:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-003DL
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



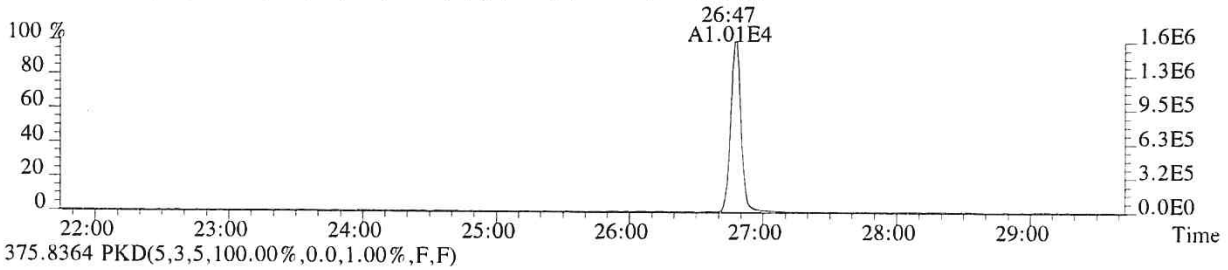
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1308.0,1.00%,F,T)



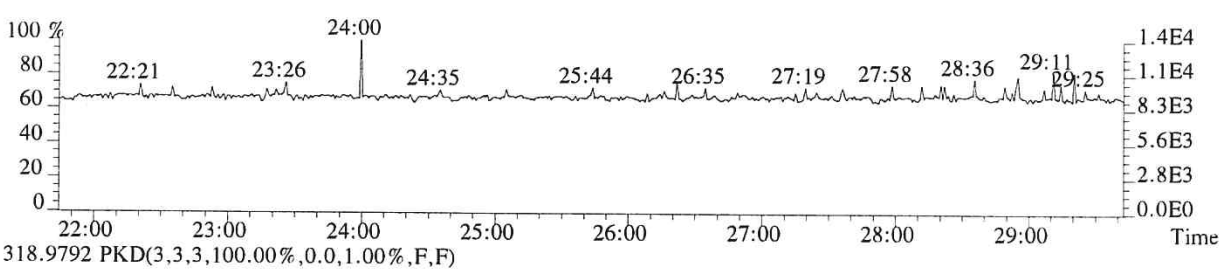
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6624.0,1.00%,F,T)



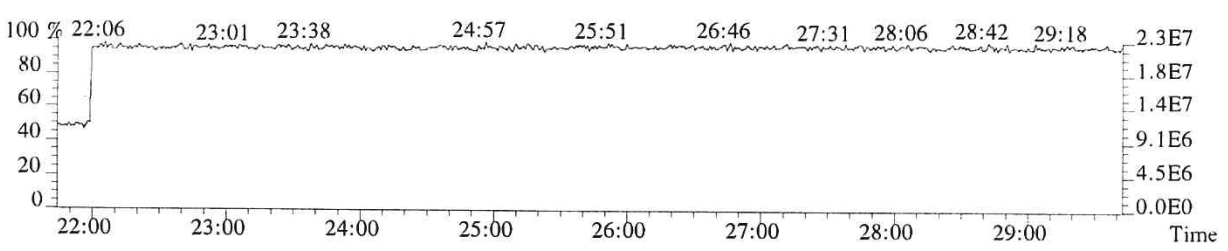
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3316.0,1.00%,F,T)



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

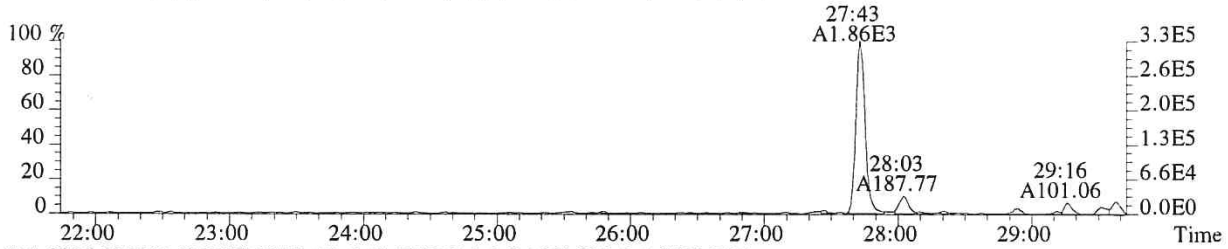


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

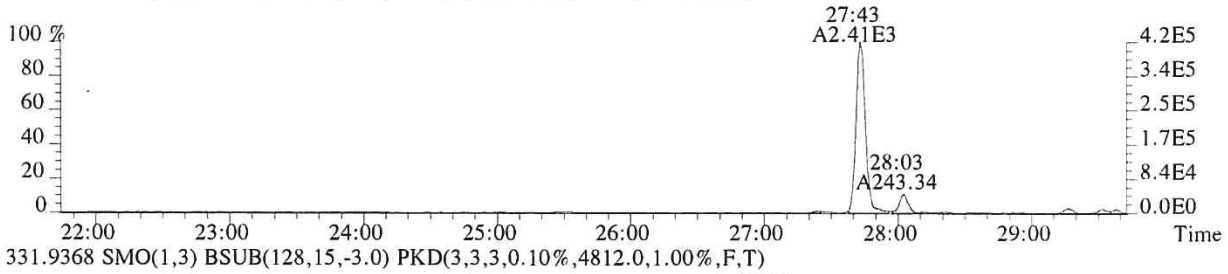


File:P519527 #1-566 Acq:20-DEC-2018 22:13:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-003DL

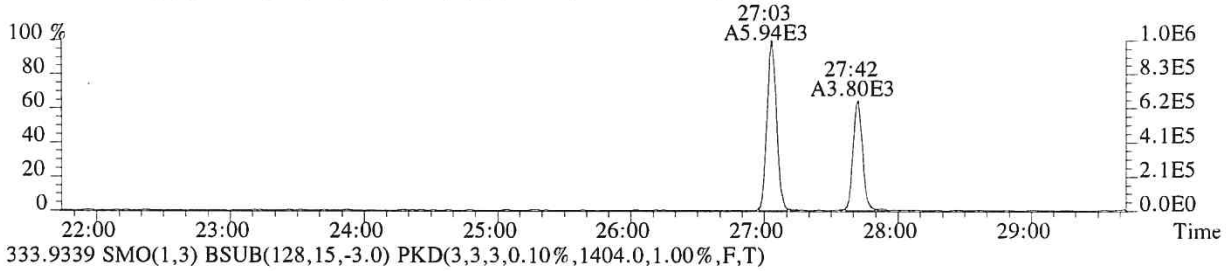
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1504.0,1.00%,F,T)



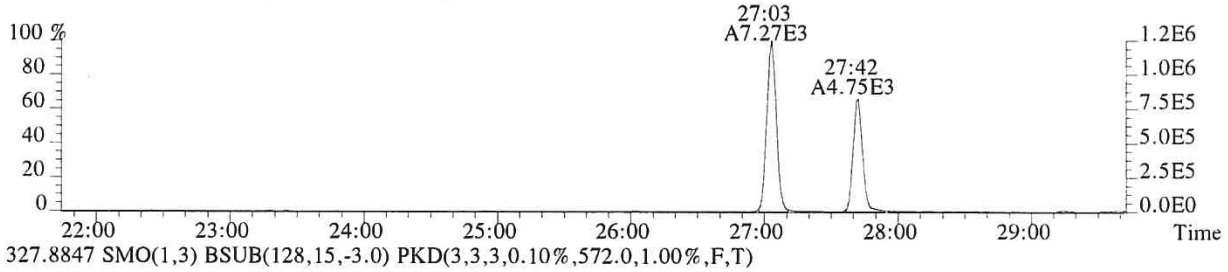
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,908.0,1.00%,F,T)



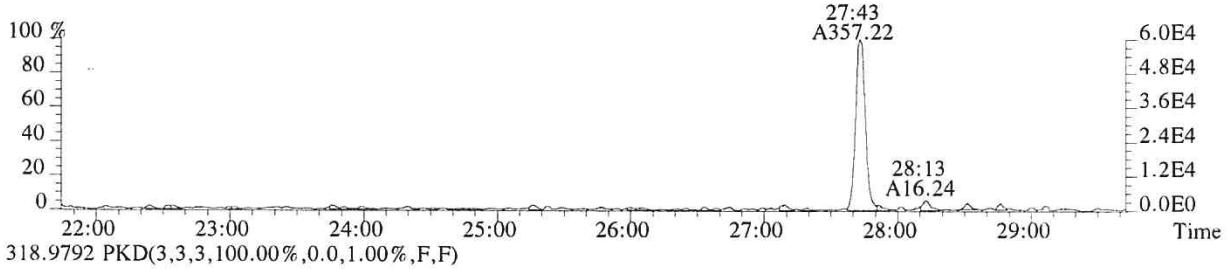
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4812.0,1.00%,F,T)



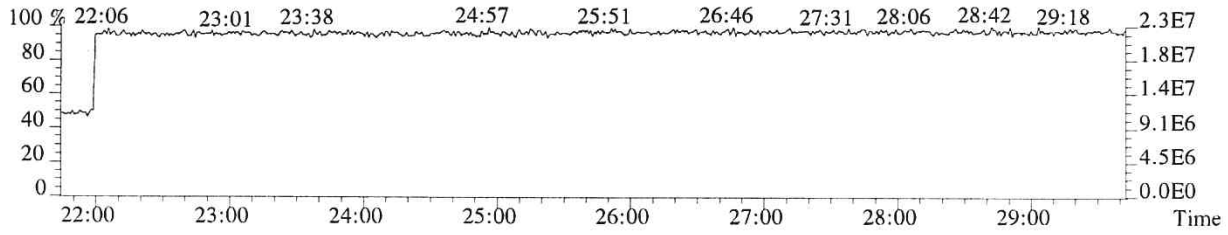
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1404.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,572.0,1.00%,F,T)

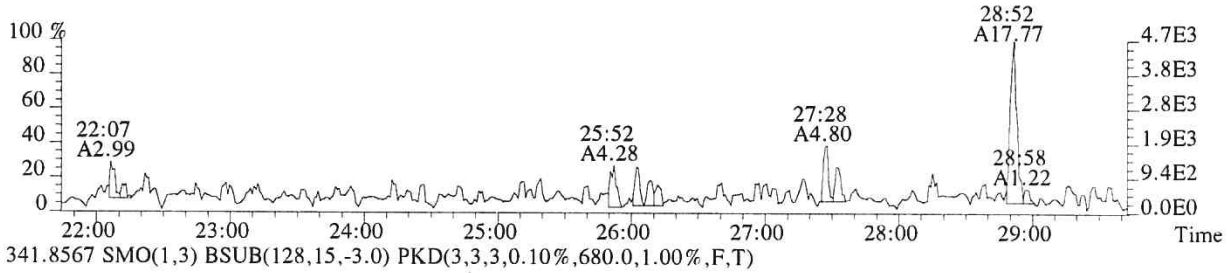


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

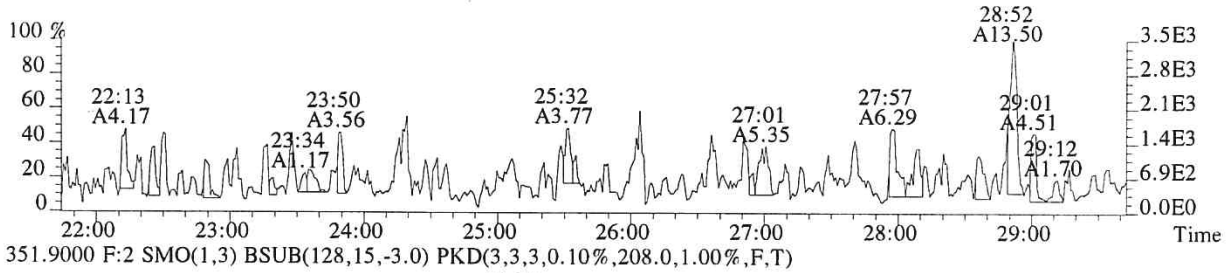


014040

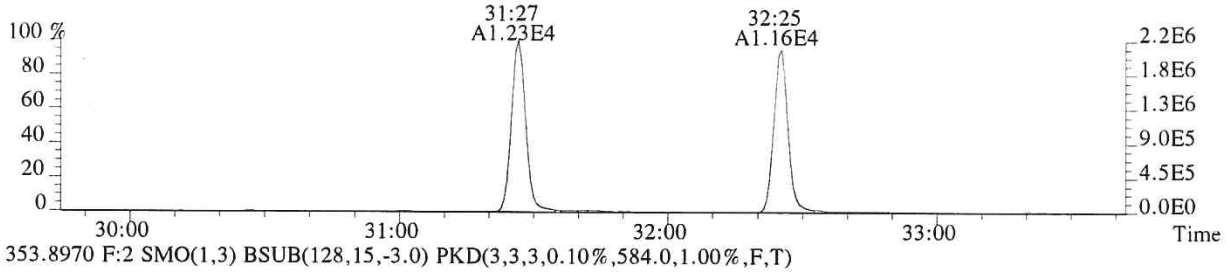
File:P519527 #1-566 Acq:20-DEC-2018 22:13:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-003DL
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,552.0,1.00%,F,T)



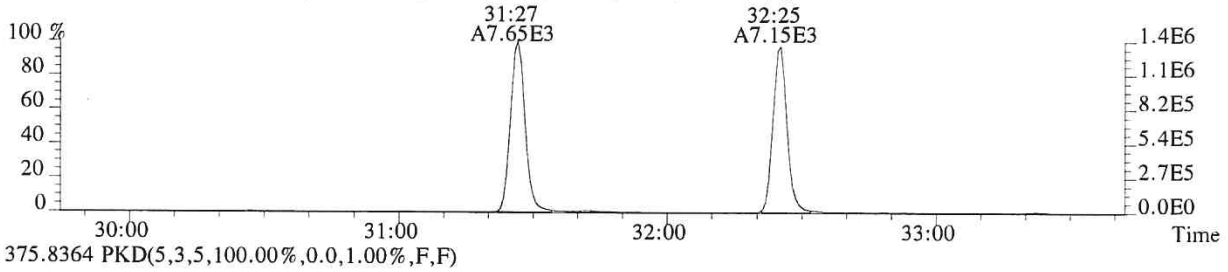
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,680.0,1.00%,F,T)



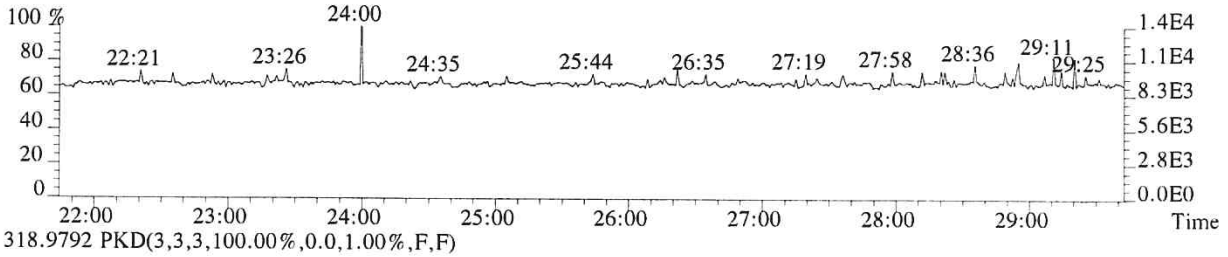
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,208.0,1.00%,F,T)



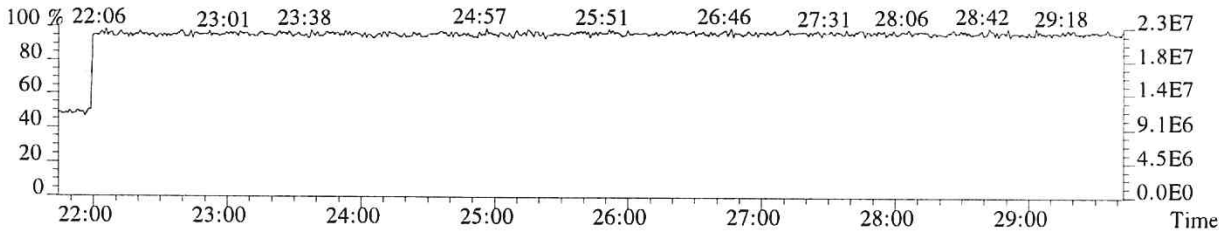
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,584.0,1.00%,F,T)



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

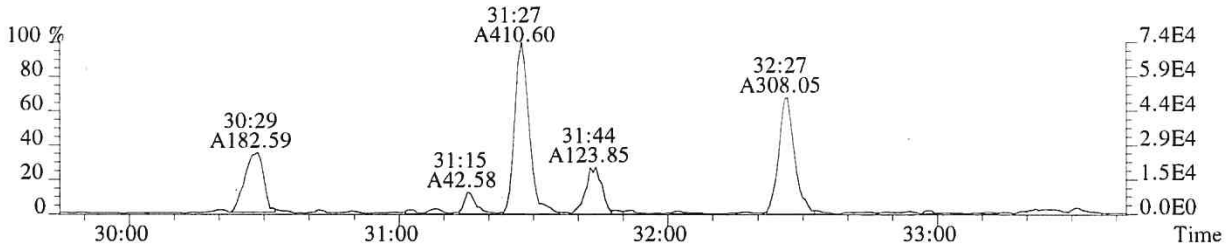


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

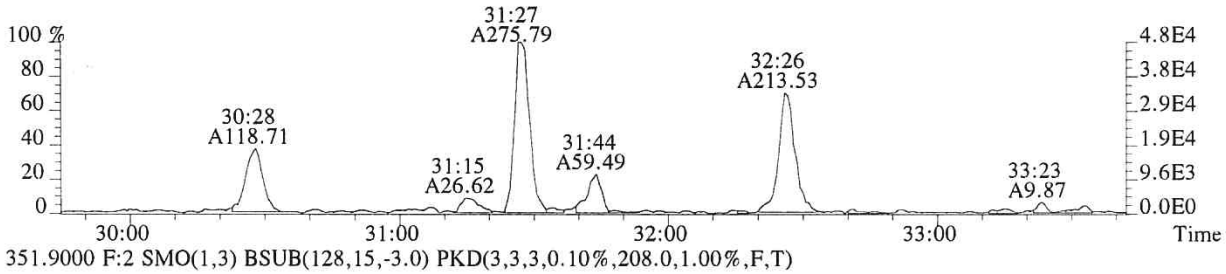


014041

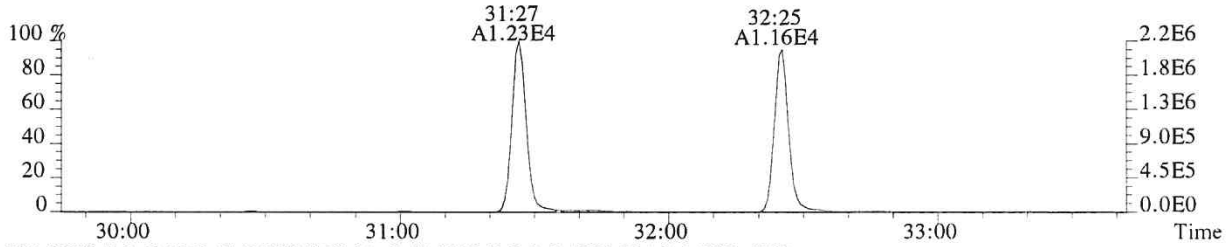
File:P519527 #1-357 Acq:20-DEC-2018 22:13:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-003DL
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



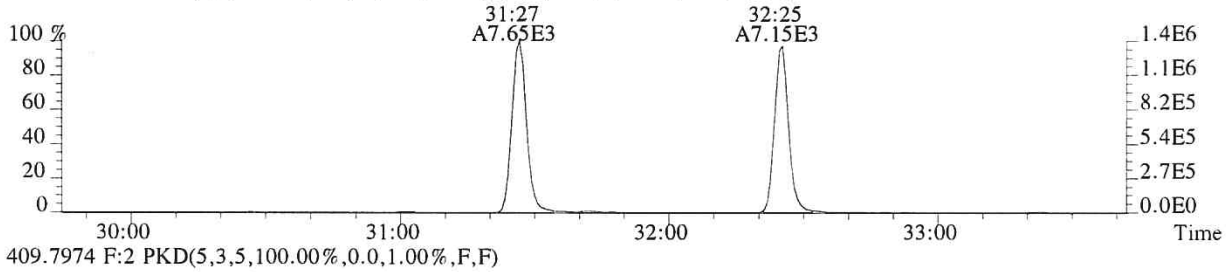
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,700.0,1.00%,F,T)



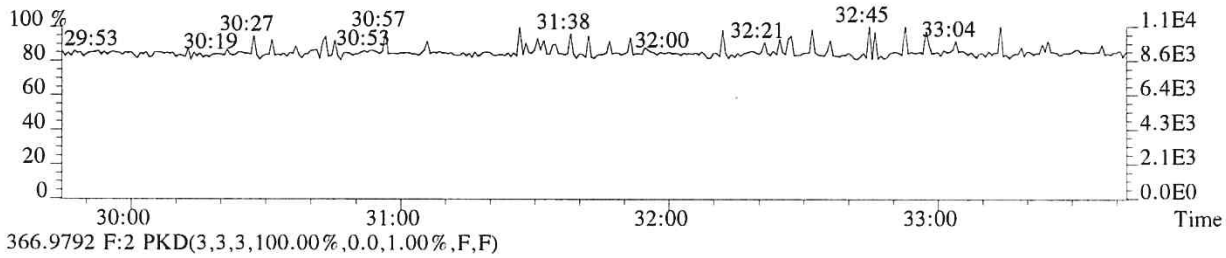
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,208.0,1.00%,F,T)



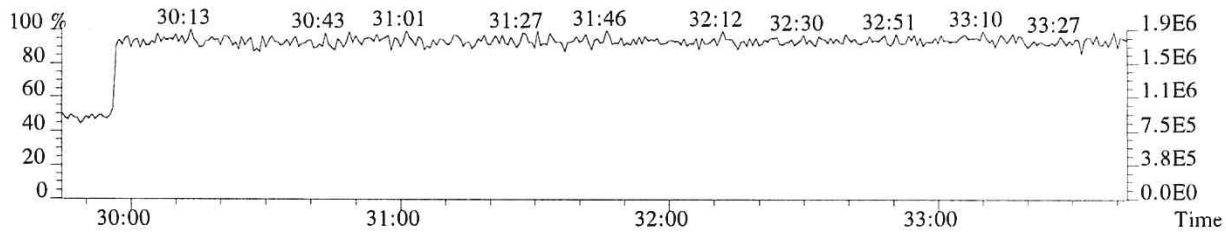
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,584.0,1.00%,F,T)



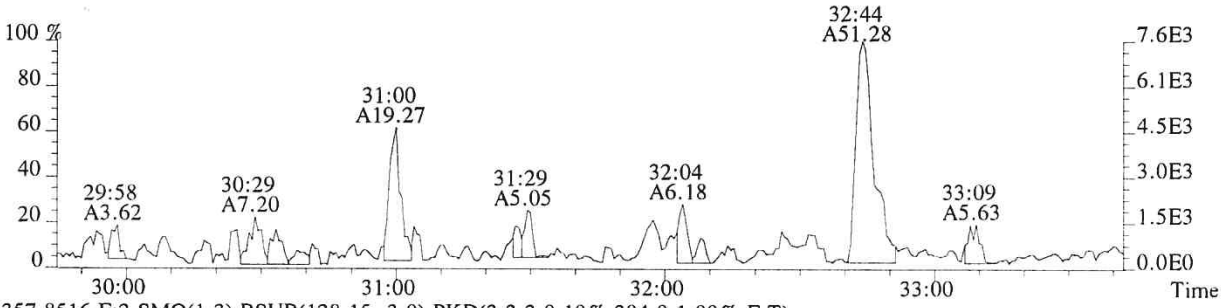
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



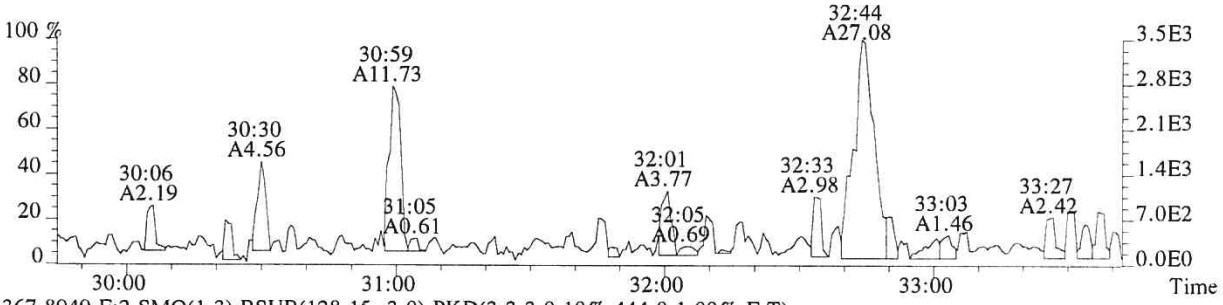
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



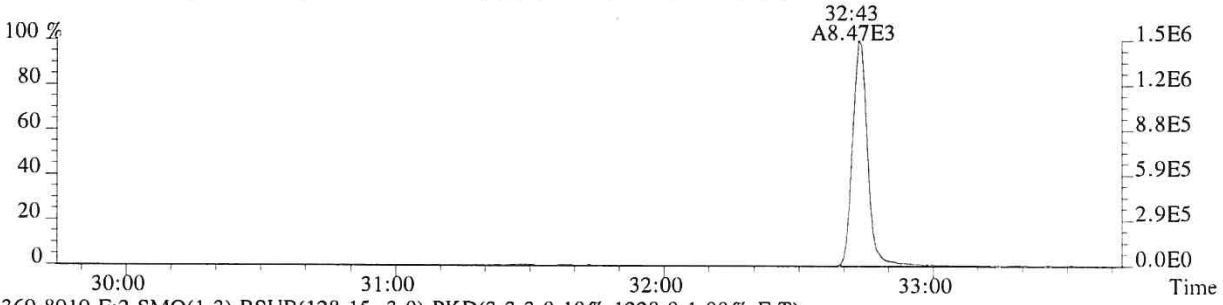
File:P519527 #1-357 Acq:20-DEC-2018 22:13:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-003DL
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,540.0,1.00%,F,T)



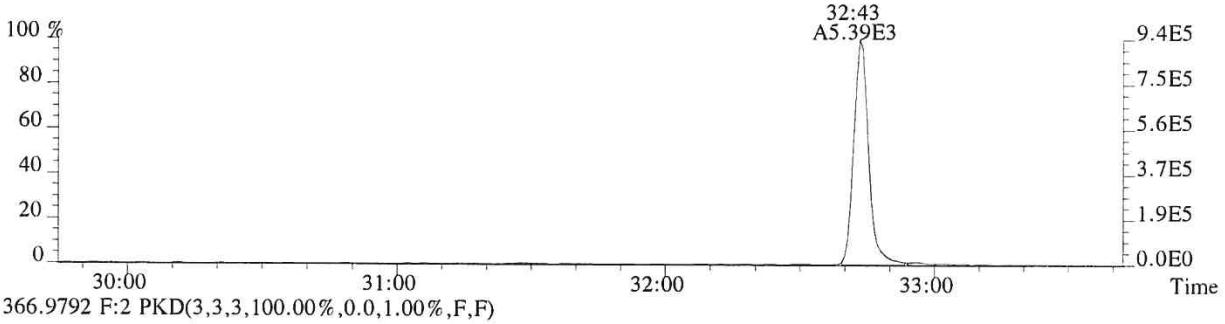
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,384.0,1.00%,F,T)



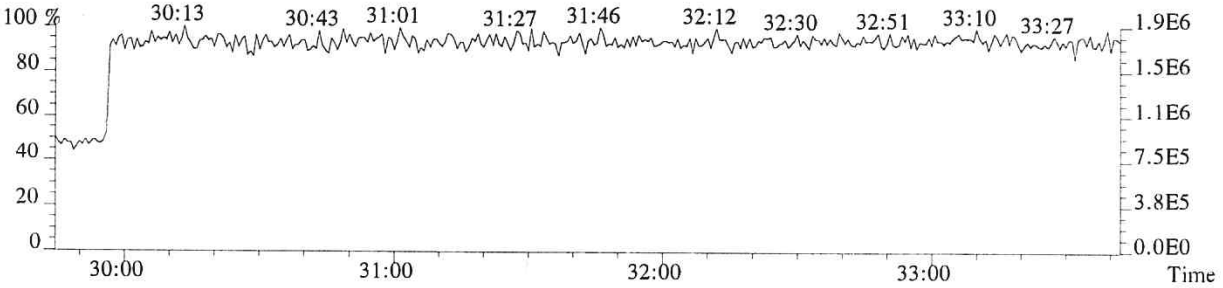
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,444.0,1.00%,F,T)

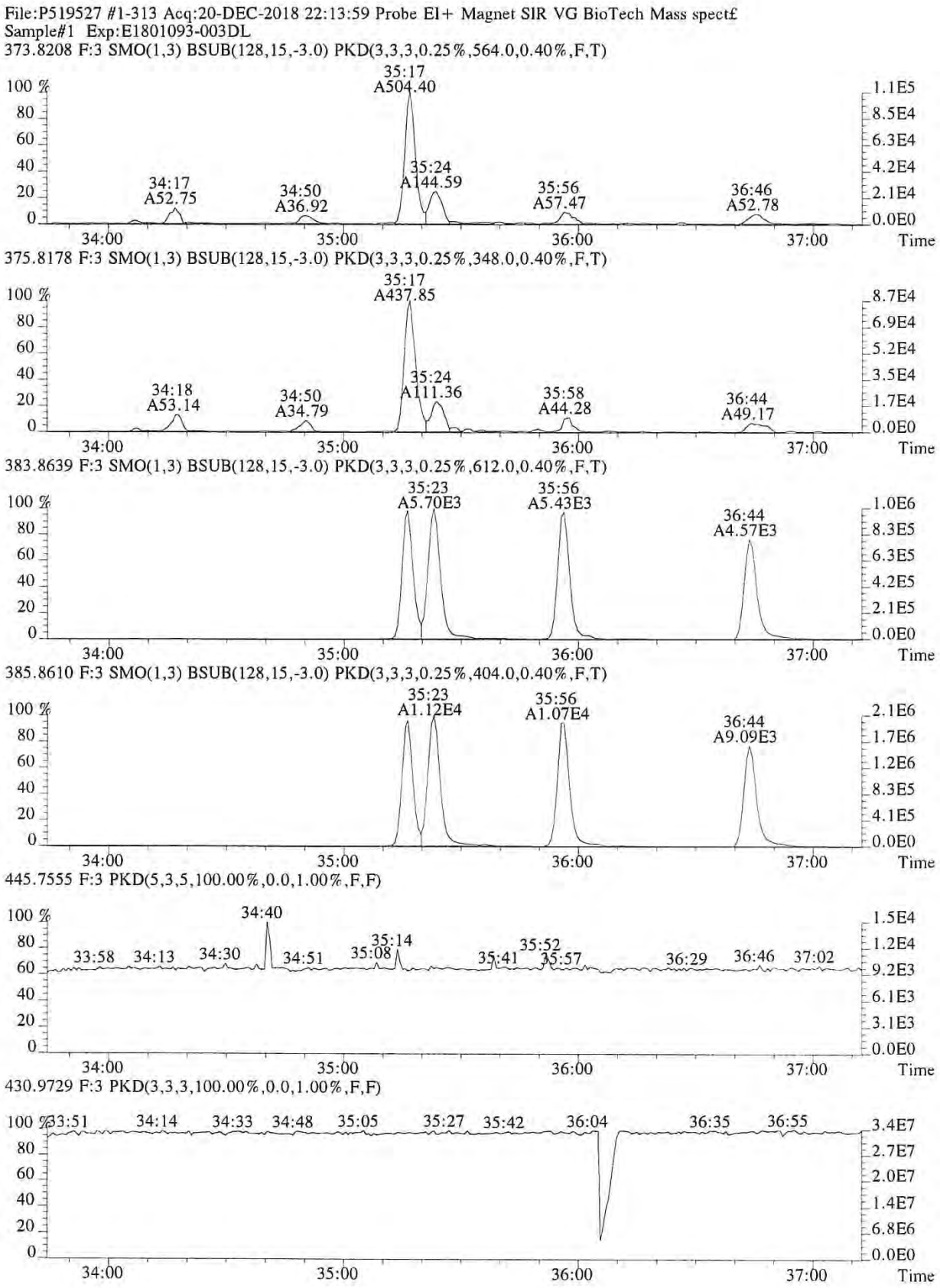


369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1228.0,1.00%,F,T)

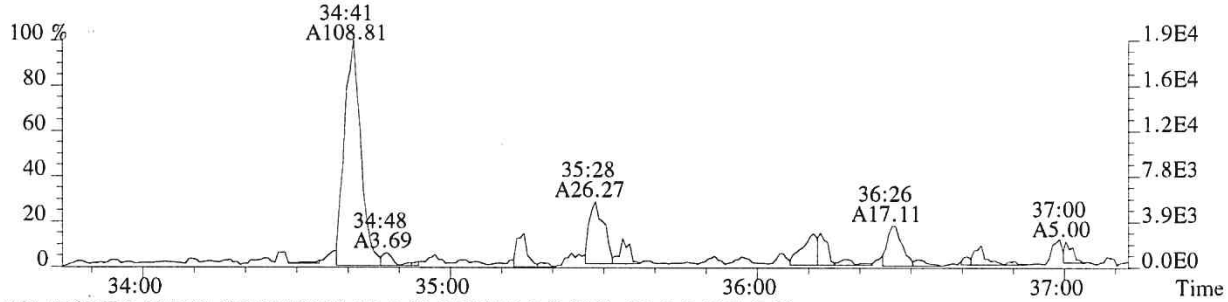


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

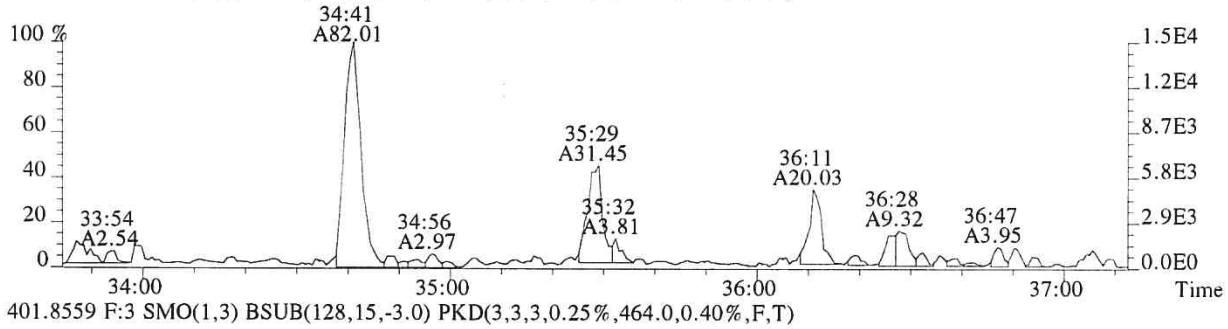



File:P519527 #1-313 Acq:20-DEC-2018 22:13:59 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801093-003DL
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,564.0,0.40%,F,T)
35:17 A504.40
34:17 A52.75
34:50 A36.92
35:24 A144.59
35:56 A57.47
36:46 A52.78
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,348.0,0.40%,F,T)
35:17 A437.85
34:18 A53.14
34:50 A34.79
35:24 A111.36
35:58 A44.28
36:44 A49.17
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,612.0,0.40%,F,T)
35:23 A5.70E3
35:56 A5.43E3
36:44 A4.57E3
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,404.0,0.40%,F,T)
35:23 A1.12E4
35:56 A1.07E4
36:44 A9.09E3
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)
34:40
33:58 34:13 34:30 34:51 35:08 35:14 35:41 35:52 35:57 36:29 36:46 37:02
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)
33:51 34:14 34:33 34:48 35:05 35:27 35:42 36:04 36:35 36:55
100 %
80
60
40
20
0
34:00
35:00
36:00
37:00
Time
1.1E5
8.5E4
6.3E4
4.2E4
2.1E4
0.0E0
8.7E4
6.9E4
5.2E4
3.5E4
1.7E4
1.0E6
8.3E5
6.3E5
4.2E5
2.1E5
2.1E6
1.7E6
1.2E6
8.3E5
4.1E5
1.5E4
1.2E4
9.2E3
6.1E3
3.1E3
3.4E7
2.7E7
2.0E7
1.4E7
6.8E6

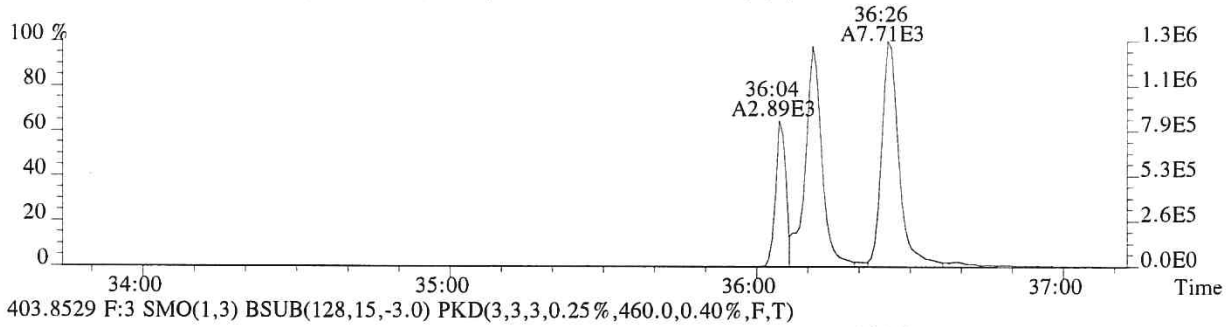
File:P519527 #1-313 Acq:20-DEC-2018 22:13:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-003DL
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,520.0,0.40%,F,T)



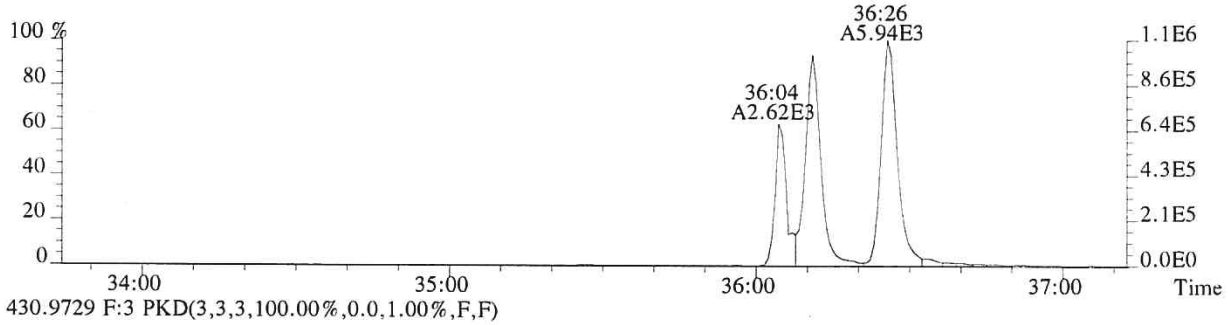
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,468.0,0.40%,F,T)



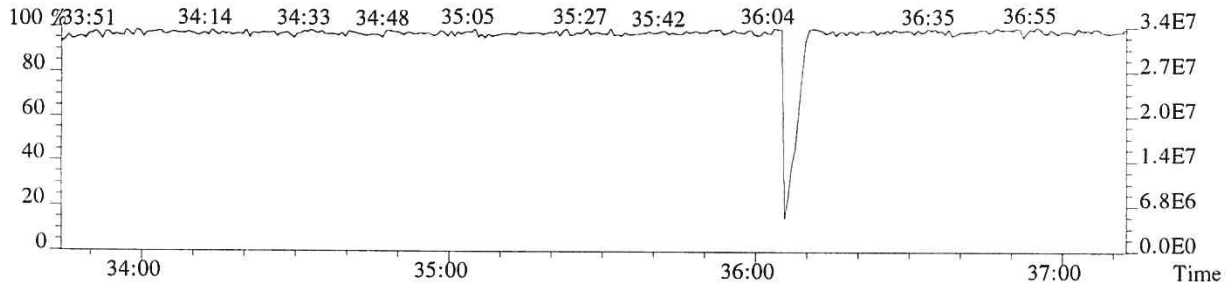
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,464.0,0.40%,F,T)



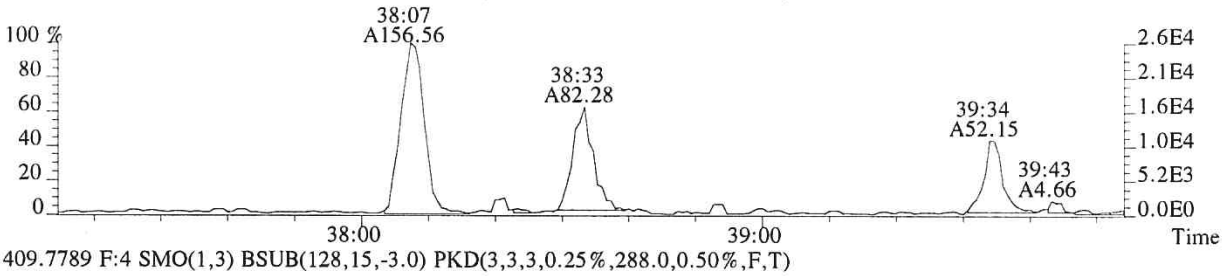
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,460.0,0.40%,F,T)



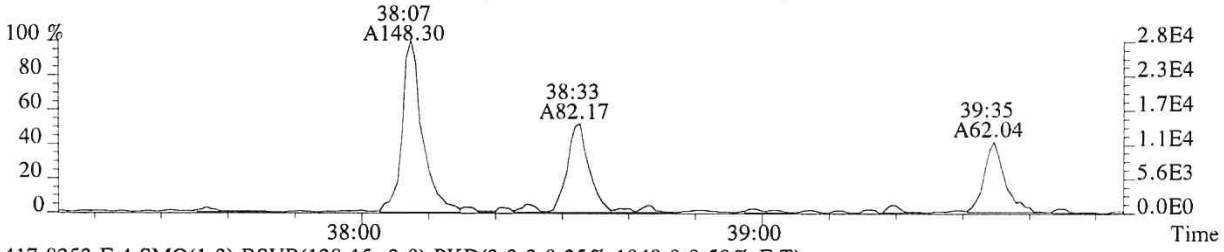
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



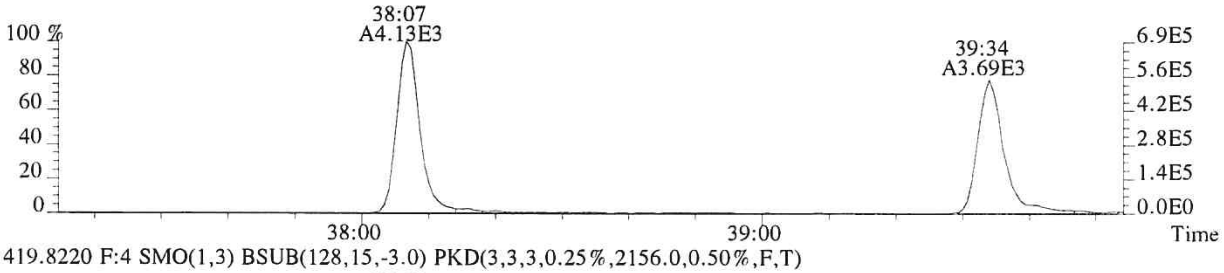
File:P519527 #1-240 Acq:20-DEC-2018 22:13:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-003DL
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,600.0,0.50%,F,T)



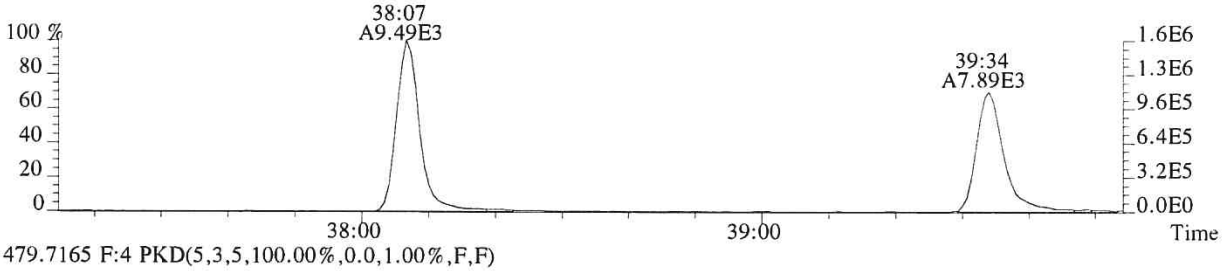
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,288.0,0.50%,F,T)



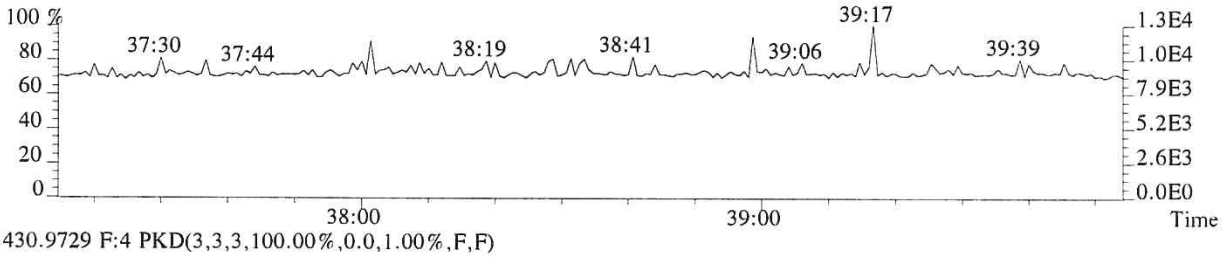
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1048.0,0.50%,F,T)



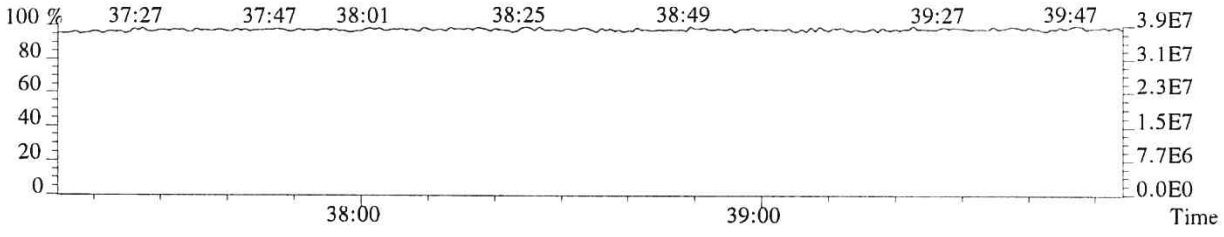
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2156.0,0.50%,F,T)



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

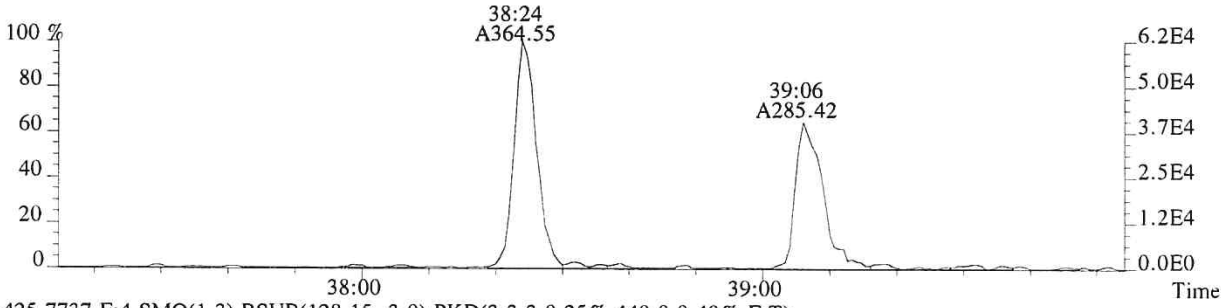


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

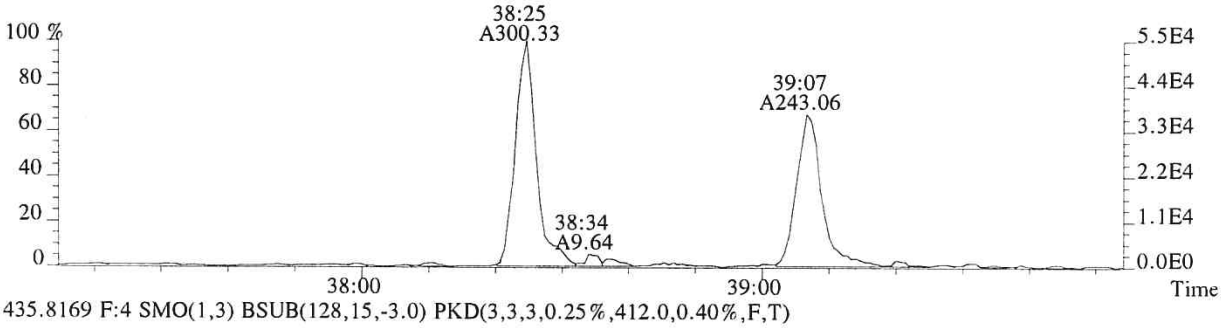


014046

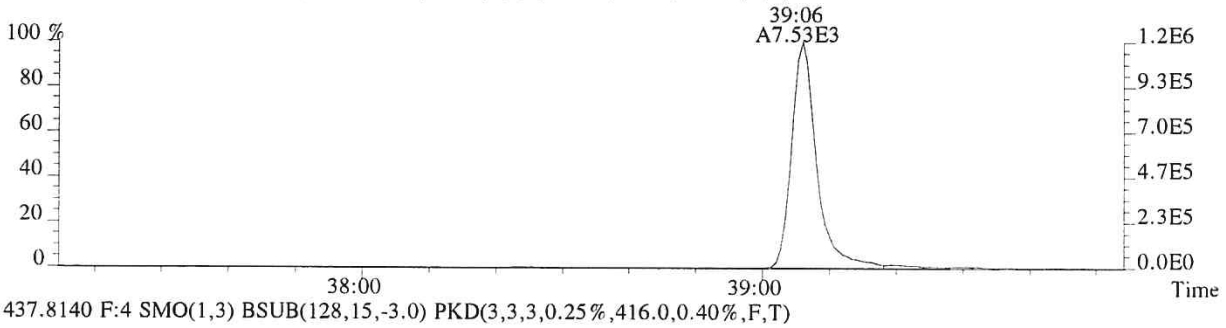
File:P519527 #1-240 Acq:20-DEC-2018 22:13:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-003DL
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,244.0,0.40%,F,T)



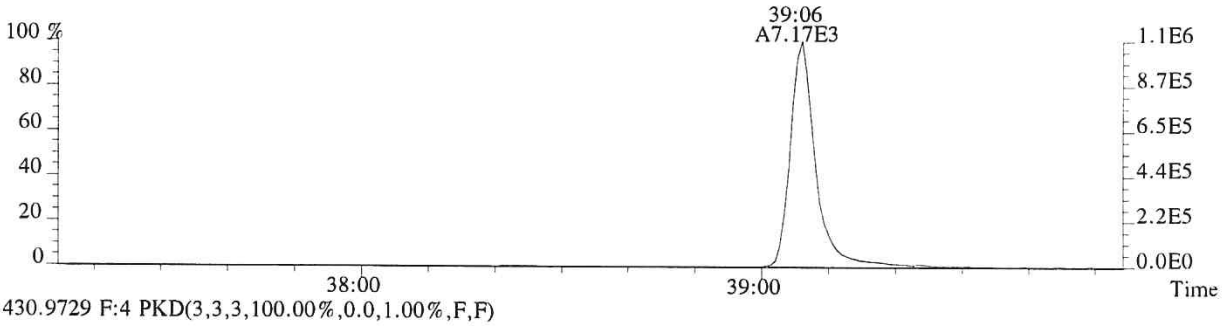
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,440.0,0.40%,F,T)



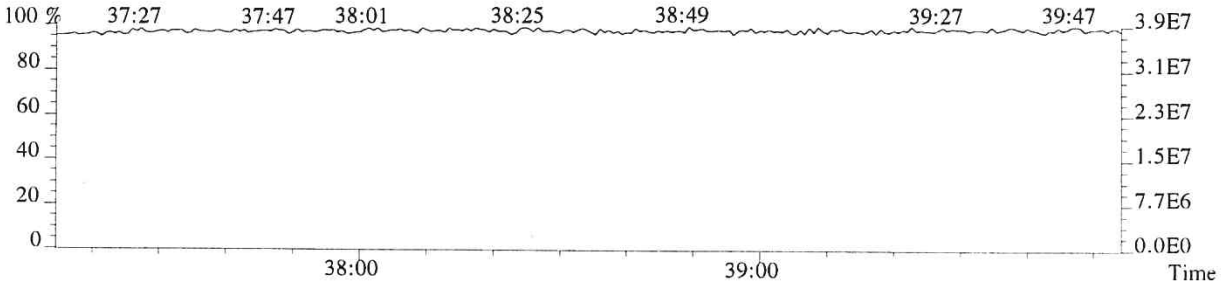
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,412.0,0.40%,F,T)



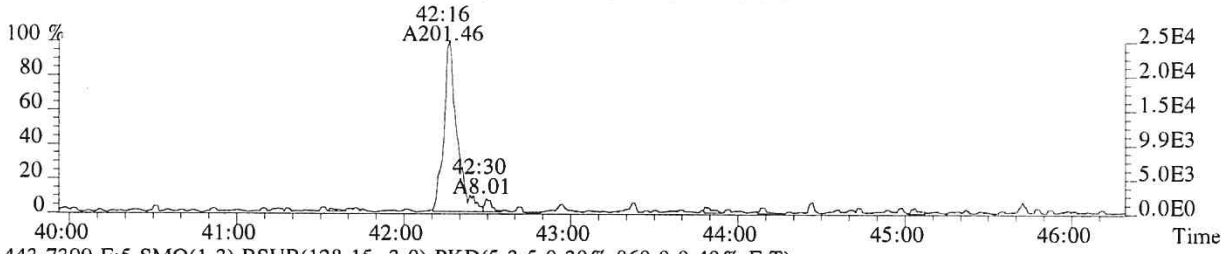
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,416.0,0.40%,F,T)



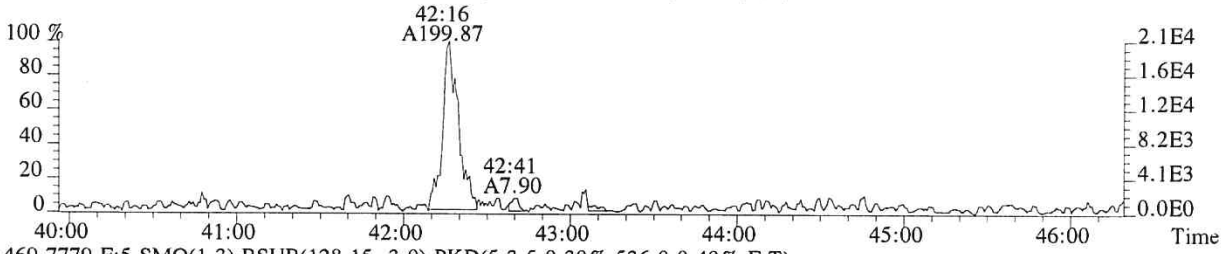
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



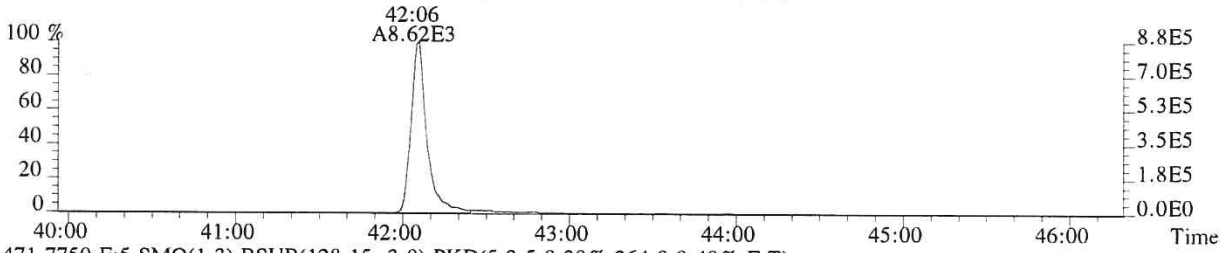
File:P519527 #1-575 Acq:20-DEC-2018 22:13:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-003DL
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,368.0,0.40%,F,T)



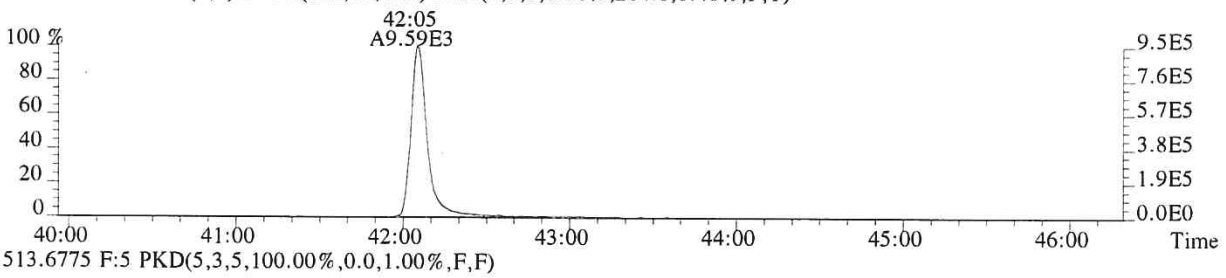
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,860.0,0.40%,F,T)



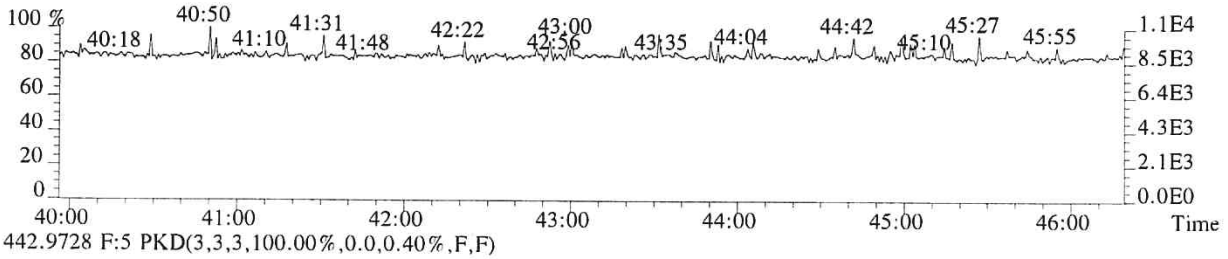
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,536.0,0.40%,F,T)



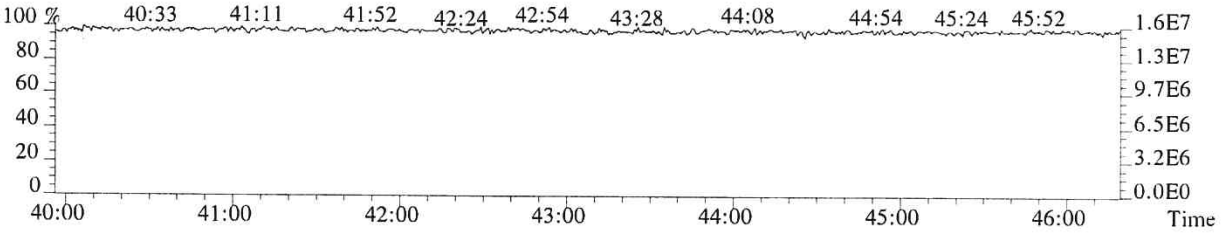
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,264.0,0.40%,F,T)



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

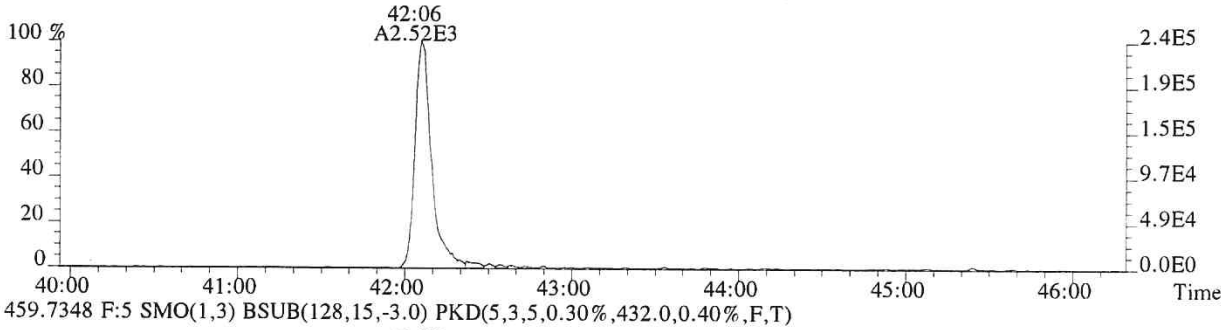


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

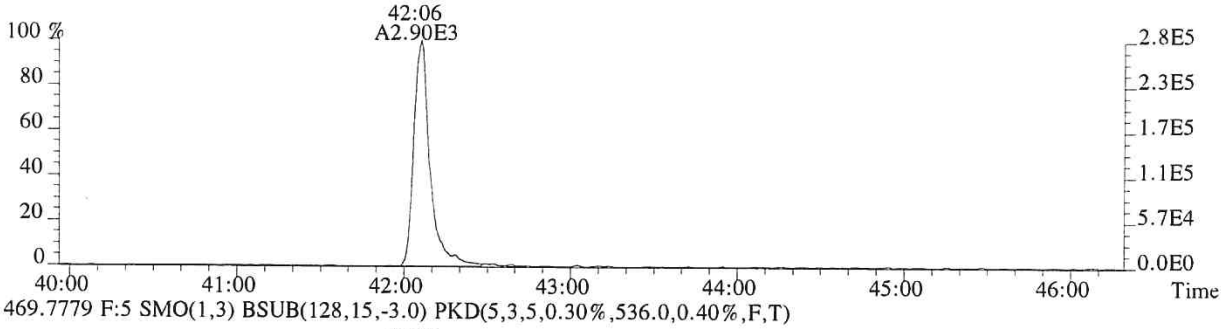


014048

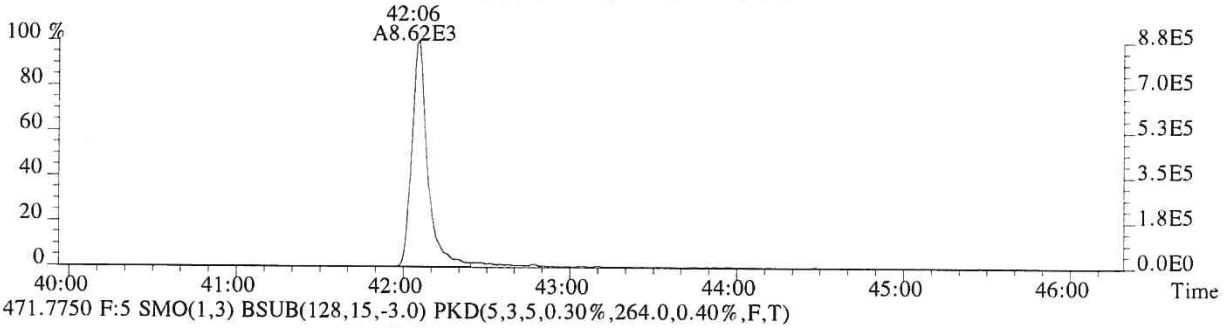
File:P519527 #1-575 Acq:20-DEC-2018 22:13:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-003DL
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,308.0,0.40%,F,T)



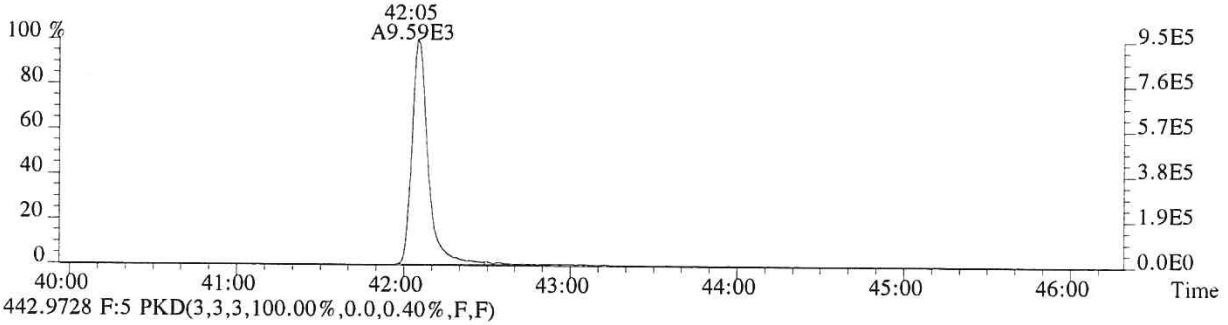
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,432.0,0.40%,F,T)



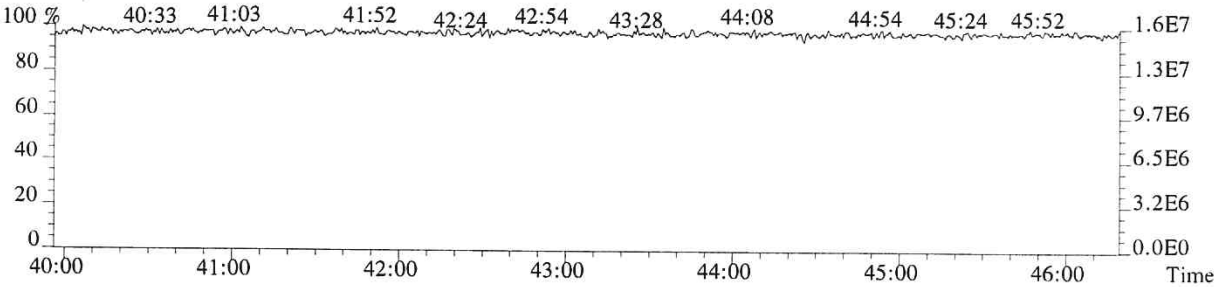
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,536.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,264.0,0.40%,F,T)



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



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0020

Run #14 Filename P519426 Samp: 1 Inj: 1 Acquired: 14-DEC-18 20:43:19
Processed: 17-DEC-18 15:31:52 Sample ID: E1801093-004

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:03	2.609e+06	3.318e+06	0.79	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	31:36	1.319e+05	8.733e+04	1.51	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	32:33	1.138e+05	7.542e+04	1.51	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:20	1.694e+05	1.422e+05	1.19	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:27	4.262e+04	3.617e+04	1.18	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:58	7.084e+03	6.319e+03	1.12	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	36:46	1.200e+04	1.033e+04	1.16	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:05	4.227e+04	4.276e+04	0.99	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:28	1.196e+04	1.189e+04	1.01	yes	no	1.258
10	Unk	OCDF	42:01	1.703e+05	1.919e+05	0.89	yes	no	1.359
11	Unk	2,3,7,8-TCDD	27:55	6.311e+05	7.984e+05	0.79	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	32:51	8.654e+03	5.291e+03	1.64	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:07	2.150e+02	1.563e+02	1.38	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:12	1.475e+03	1.128e+03	1.31	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:28	5.307e+02	3.737e+02	1.42	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:01	4.452e+04	4.308e+04	1.03	yes	no	1.025
17	Unk	OCDD	41:51	3.859e+05	4.311e+05	0.90	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:03	1.628e+04	1.965e+04	0.83	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	31:35	2.360e+04	1.473e+04	1.60	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	32:32	2.195e+04	1.400e+04	1.57	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:20	9.020e+03	1.766e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:26	9.844e+03	1.955e+04	0.50	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:58	1.012e+04	1.895e+04	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	36:44	8.781e+03	1.747e+04	0.50	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:04	6.318e+03	1.467e+04	0.43	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:27	5.859e+03	1.372e+04	0.43	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	27:54	7.072e+03	8.884e+03	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:49	1.727e+04	1.053e+04	1.64	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:06	1.332e+04	1.047e+04	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:12	1.329e+04	1.062e+04	1.25	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:00	1.320e+04	1.244e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	41:50	1.006e+04	1.133e+04	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:20	1.820e+04	2.323e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:27	2.449e+04	1.914e+04	1.28	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:55	1.692e+04				no	1.014

$$\text{OCDD} = \frac{(3.859e+05 + 4.311e+05) \times 4000\ \text{pg} \times 1}{(1.006e+04 + 1.133e+04) \times 10.532\ \text{g} \times 64.1 / 100 \times 1.118} = 20634\ \text{ng/kg}$$

KRJ 12/20/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0020

Run #14 Filename P519426 Samp: 1 Inj: 1 Acquired: 14-DEC-18 20:43:19
Processed: 17-DEC-18 15:31:52 LAB. ID: E1801093-004

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	3.85e+08	5.88e+03	6.5e+04	4.88e+08	5.90e+03	8.3e+04
2	1,2,3,7,8-PeCDF	2.30e+07	3.39e+04	6.8e+02	1.50e+07	2.09e+04	7.2e+02
3	2,3,4,7,8-PeCDF	1.81e+07	3.39e+04	5.3e+02	1.21e+07	2.09e+04	5.8e+02
4	1,2,3,4,7,8-HxCDF	3.51e+07	7.31e+03	4.8e+03	2.93e+07	1.24e+04	2.4e+03
5	1,2,3,6,7,8-HxCDF	8.18e+06	7.31e+03	1.1e+03	6.85e+06	1.24e+04	5.5e+02
6	2,3,4,6,7,8-HxCDF	1.57e+06	7.31e+03	2.1e+02	1.35e+06	1.24e+04	1.1e+02
7	1,2,3,7,8,9-HxCDF	2.49e+06	7.31e+03	3.4e+02	2.07e+06	1.24e+04	1.7e+02
8	1,2,3,4,6,7,8-HpCDF	8.69e+06	8.37e+03	1.0e+03	8.57e+06	1.70e+03	5.0e+03
9	1,2,3,4,7,8,9-HpCDF	2.27e+06	8.37e+03	2.7e+02	2.24e+06	1.70e+03	1.3e+03
10	OCDF	2.48e+07	7.88e+02	3.2e+04	2.82e+07	6.92e+02	4.1e+04
11	2,3,7,8-TCDD	1.13e+08	3.37e+03	3.3e+04	1.43e+08	1.84e+03	7.8e+04
12	1,2,3,7,8-PeCDD	1.45e+06	2.26e+03	6.4e+02	8.95e+05	3.18e+03	2.8e+02
13	1,2,3,4,7,8-HxCDD	5.04e+04	3.04e+03	1.7e+01	4.02e+04	3.51e+03	1.1e+01
14	1,2,3,6,7,8-HxCDD	2.98e+05	3.04e+03	9.8e+01	2.35e+05	3.51e+03	6.7e+01
15	1,2,3,7,8,9-HxCDD	1.09e+05	3.04e+03	3.6e+01	7.61e+04	3.51e+03	2.2e+01
16	1,2,3,4,6,7,8-HpCDD	8.49e+06	2.08e+02	4.1e+04	8.31e+06	1.18e+03	7.1e+03
17	OCDD	5.62e+07	7.12e+02	7.9e+04	6.31e+07	1.04e+03	6.1e+04
18	13C-2,3,7,8-TCDF	2.50e+06	8.28e+03	3.0e+02	3.08e+06	8.94e+03	3.4e+02
19	13C-1,2,3,7,8-PeCDF	4.03e+06	9.28e+03	4.3e+02	2.55e+06	1.26e+04	2.0e+02
20	13C-2,3,4,7,8-PeCDF	4.31e+06	9.28e+03	4.7e+02	2.70e+06	1.26e+04	2.1e+02
21	13C-1,2,3,4,7,8-HxCDF	1.88e+06	3.44e+03	5.5e+02	3.66e+06	4.94e+03	7.4e+02
22	13C-1,2,3,6,7,8-HxCDF	2.00e+06	3.44e+03	5.8e+02	3.83e+06	4.94e+03	7.8e+02
23	13C-2,3,4,6,7,8-HxCDF	1.96e+06	3.44e+03	5.7e+02	3.76e+06	4.94e+03	7.6e+02
24	13C-1,2,3,7,8,9-HxCDF	1.77e+06	3.44e+03	5.1e+02	3.61e+06	4.94e+03	7.3e+02
25	13C-1,2,3,4,6,7,8-HpCDF	1.29e+06	3.59e+03	3.6e+02	2.93e+06	7.24e+03	4.0e+02
26	13C-1,2,3,4,7,8,9-HpCDF	1.06e+06	3.59e+03	3.0e+02	2.44e+06	7.24e+03	3.4e+02
27	13C-2,3,7,8-TCDD	1.24e+06	6.30e+03	2.0e+02	1.54e+06	2.91e+03	5.3e+02
28	13C-1,2,3,7,8-PeCDD	3.17e+06	1.68e+03	1.9e+03	1.93e+06	1.60e+03	1.2e+03
29	13C-1,2,3,4,7,8-HxCDD	2.90e+06	8.36e+02	3.5e+03	2.31e+06	8.88e+02	2.6e+03
30	13C-1,2,3,6,7,8-HxCDD	2.53e+06	8.36e+02	3.0e+03	2.04e+06	8.88e+02	2.3e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.54e+06	1.53e+03	1.7e+03	2.36e+06	1.12e+03	2.1e+03
32	13C-OCDD	1.43e+06	1.02e+03	1.4e+03	1.62e+06	8.56e+02	1.9e+03
33	13C-1,2,3,4-TCDD	2.77e+06	6.30e+03	4.4e+02	3.56e+06	2.91e+03	1.2e+03
34	13C-1,2,3,7,8,9-HxCDD	4.60e+06	8.36e+02	5.5e+03	3.55e+06	8.88e+02	4.0e+03
35	37Cl-2,3,7,8-TCDD	2.99e+06	2.64e+03	1.1e+03			

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Peak List Summary

CLIENT ID.
SL0020

Entry: 36 Totals Name: Total Tetra-Furans

Run: 14 File: P519426 Sample:1 Injection:1 Function:1

Acquired: 14-DEC-18 20:43:19 Processed: 17-DEC-18 15:31:52

Mass: 303.9020 305.8990 Tot Response: 1.08e+07 RRF: 0.9417

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	23:55	2.09e+04	2.77e+04	0.75	yes	4.86e+04		n	n
2	24:13	1.25e+05	1.63e+05	0.77	yes	2.88e+05		n	n
3	24:34	3.67e+04	4.79e+04	0.77	yes	8.46e+04		n	n
4	24:42	2.55e+03	3.34e+03	0.76	yes	5.89e+03		n	n
5	24:53	9.60e+04	1.26e+05	0.76	yes	2.22e+05		n	n
6	25:17	1.91e+04	2.49e+04	0.77	yes	4.39e+04		n	n
7	25:32	6.99e+04	9.09e+04	0.77	yes	1.61e+05		n	n
8	25:41	1.21e+05	1.56e+05	0.78	yes	2.77e+05		n	n
9	26:08	1.15e+06	1.48e+06	0.78	yes	2.63e+06		n	n
10	26:25	5.86e+04	7.50e+04	0.78	yes	1.34e+05		n	n
11	27:03	2.61e+06	3.32e+06	0.79	yes	5.93e+06	2,3,7,8-TCDF	n	n
12	27:28	1.79e+05	2.32e+05	0.77	yes	4.11e+05		n	n
13	27:41	3.35e+04	4.36e+04	0.77	yes	7.72e+04		n	n
14	29:04	1.96e+05	2.52e+05	0.78	yes	4.48e+05		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0020

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 14 File: P519426 Sample:1 Injection:1 Function:1

Acquired: 14-DEC-18 20:43:19 Processed: 17-DEC-18 15:31:52

Mass: 319.8970 321.8940 Tot Response: 1.60e+06 RRF: 1.085

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	27:38	9.16e+03	1.10e+04	0.83	yes	2.02e+04		n	n
2	27:55	6.31e+05	7.98e+05	0.79	yes	1.43e+06	2,3,7,8-TCDD	n	n
3	28:14	6.43e+04	8.17e+04	0.79	yes	1.46e+05		n	n

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Peak List Summary

CLIENT ID.
SL0020

Entry: 38 Totals Name: Total Penta-Furans1

Run: 14 File: P519426 Sample:1 Injection:1 Function:1

Acquired: 14-DEC-18 20:43:19 Processed: 17-DEC-18 15:31:52

Mass: 339.8600 341.8570 Tot Response: 6.30e+03 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:05	3.98e+03	2.30e+03 1.73	yes	6.28e+03		n	n
2	29:25	1.63e+01	1.00e+01 1.63	yes	2.63e+01		n	n

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Peak List Summary

CLIENT ID.
SL0020

Entry: 39 Totals Name: Total Penta-Furans2

Run: 14 File: P519426 Sample:1 Injection:1 Function:2

Acquired: 14-DEC-18 20:43:19 Processed: 17-DEC-18 15:31:52

Mass: 339.8600 341.8570 Tot Response: 6.38e+05 RRF: 0.9857

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:29	1.45e+03	8.95e+02	1.62	yes	2.35e+03		n	n
2	30:38	6.24e+04	4.14e+04	1.51	yes	1.04e+05		n	n
3	31:17	2.98e+03	2.04e+03	1.46	yes	5.02e+03		n	n
4	31:25	1.65e+04	1.10e+04	1.50	yes	2.75e+04		n	n
5	31:36	1.32e+05	8.73e+04	1.51	yes	2.19e+05	1,2,3,7,8-PeCDF	n	n
6	31:52	4.74e+04	3.22e+04	1.47	yes	7.96e+04		n	n
7	32:27	1.56e+03	1.06e+03	1.47	yes	2.62e+03		n	n
8	32:33	1.14e+05	7.54e+04	1.51	yes	1.89e+05	2,3,4,7,8-PeCDF	n	n
9	33:29	5.16e+03	3.54e+03	1.46	yes	8.69e+03		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0020

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 14 File: P519426 Sample:1 Injection:1 Function:2

Acquired: 14-DEC-18 20:43:19 Processed: 17-DEC-18 15:31:52

Mass: 355.8550 357.8520 Tot Response: 1.93e+04 RRF: 0.9565

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:41	9.78e+02	6.28e+02	1.56	yes	1.61e+03		n	n
2	31:38	1.46e+03	8.61e+02	1.70	yes	2.33e+03		n	n
3	31:47	5.44e+02	3.19e+02	1.70	yes	8.64e+02		n	n
4	32:07	3.32e+02	1.96e+02	1.69	yes	5.29e+02		n	n
5	32:51	8.65e+03	5.29e+03	1.64	yes	1.39e+04	1,2,3,7,8-PeCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0020

Entry: 41 Totals Name: Total Hexa-Furans

Run: 14 File: P519426 Sample:1 Injection:1 Function:3

Acquired: 14-DEC-18 20:43:19 Processed: 17-DEC-18 15:31:52

Mass: 373.8210 375.8180 Tot Response: 4.69e+05 RRF: 1.141

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:12	1.60e+03	1.44e+03	1.11	yes	3.04e+03		n	n
2	34:22	1.29e+04	1.08e+04	1.19	yes	2.37e+04		n	n
3	34:54	8.74e+03	7.36e+03	1.19	yes	1.61e+04		n	n
4	35:20	1.69e+05	1.42e+05	1.19	yes	3.12e+05	1,2,3,4,7,8-HxCDF	n	n
5	35:27	4.26e+04	3.62e+04	1.18	yes	7.88e+04	1,2,3,6,7,8-HxCDF	n	n
6	35:58	7.08e+03	6.32e+03	1.12	yes	1.34e+04	2,3,4,6,7,8-HxCDF	n	n
7	36:46	1.20e+04	1.03e+04	1.16	yes	2.23e+04	1,2,3,7,8,9-HxCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0020

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 14 File: P519426 Sample:1 Injection:1 Function:3

Acquired: 14-DEC-18 20:43:19 Processed: 17-DEC-18 15:31:52

Mass: 389.8160 391.8130 Tot Response: 2.26e+04 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:44	5.21e+03	4.27e+03	1.22	yes	9.49e+03		n	n
2	35:16	6.24e+02	5.52e+02	1.13	yes	1.18e+03		n	n
3	35:30	4.31e+03	3.55e+03	1.21	yes	7.85e+03		n	n
4	36:07	2.15e+02	1.56e+02	1.38	yes	3.71e+02	1,2,3,4,7,8-HxCDD	n	n
5	36:12	1.47e+03	1.13e+03	1.31	yes	2.60e+03	1,2,3,6,7,8-HxCDD	n	n
6	36:22	1.19e+02	8.44e+01	1.41	yes	2.03e+02		n	n
7	36:28	5.31e+02	3.74e+02	1.42	yes	9.04e+02	1,2,3,7,8,9-HxCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0020

Entry: 43 Totals Name: Total Hepta-Furans

Run: 14 File: P519426 Sample:1 Injection:1 Function:4

Acquired: 14-DEC-18 20:43:19 Processed: 17-DEC-18 15:31:52

Mass: 407.7820 409.7790 Tot Response: 1.55e+05 RRF: 1.308

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:05	4.23e+04	4.28e+04	0.99	yes	8.50e+04	1,2,3,4,6,7,8-HpCDF	n	n
2	38:20	6.85e+02	6.16e+02	1.11	yes	1.30e+03		n	n
3	38:29	2.26e+04	2.19e+04	1.03	yes	4.45e+04		n	n
4	39:28	1.20e+04	1.19e+04	1.01	yes	2.39e+04	1,2,3,4,7,8,9-HpCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0020

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 14 File: P519426 Sample:1 Injection:1 Function:4

Acquired: 14-DEC-18 20:43:19 Processed: 17-DEC-18 15:31:52

Mass: 423.7770 425.7740 Tot Response: 1.77e+05 RRF: 1.025

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:21	4.60e+04	4.38e+04	1.05	yes	8.98e+04		n	n
2	39:01	4.45e+04	4.31e+04	1.03	yes	8.76e+04	1,2,3,4,6,7,8-HpCDD	n	n

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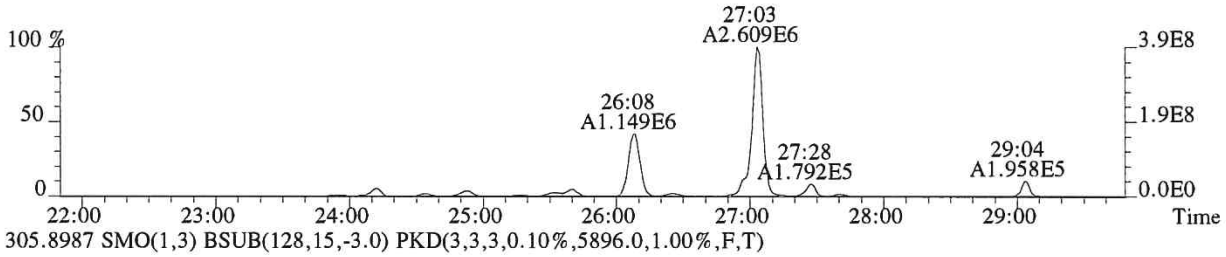
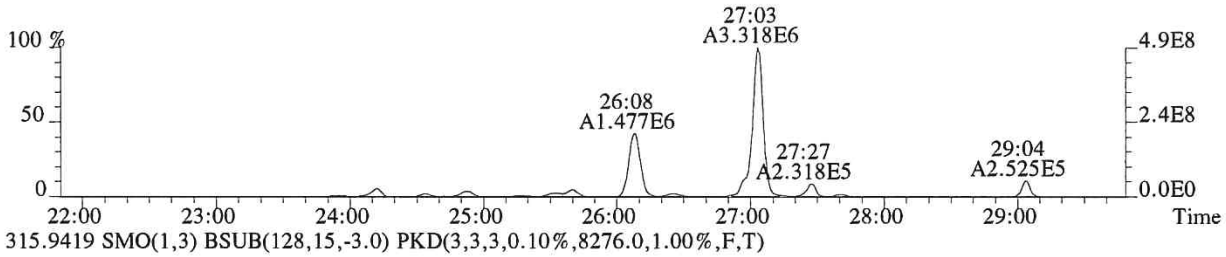
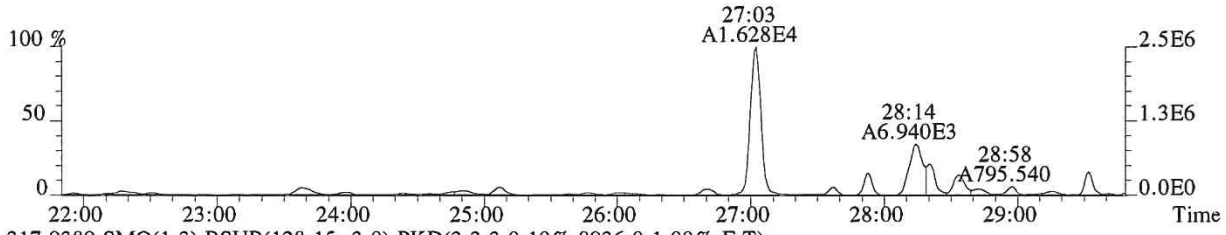
File:P519426 #1-566 Acq:14-DEC-2018 20:43:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-004
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5884.0,1.00%,F,T)



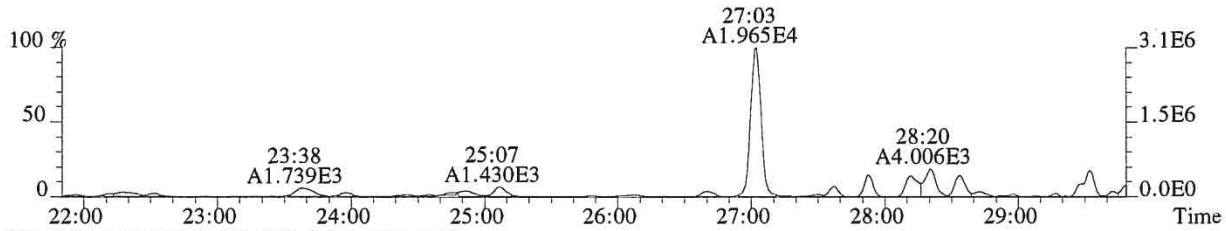
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5896.0,1.00%,F,T)



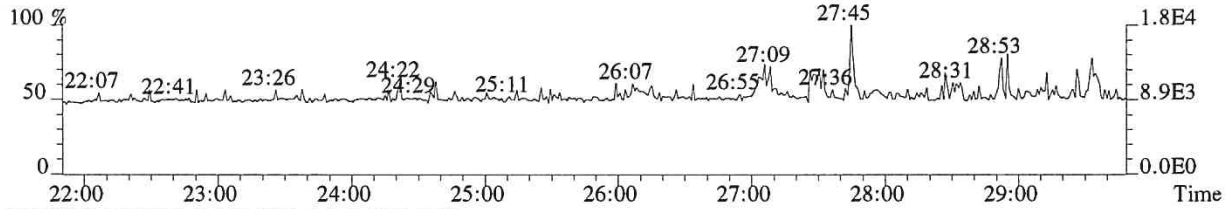
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8276.0,1.00%,F,T)



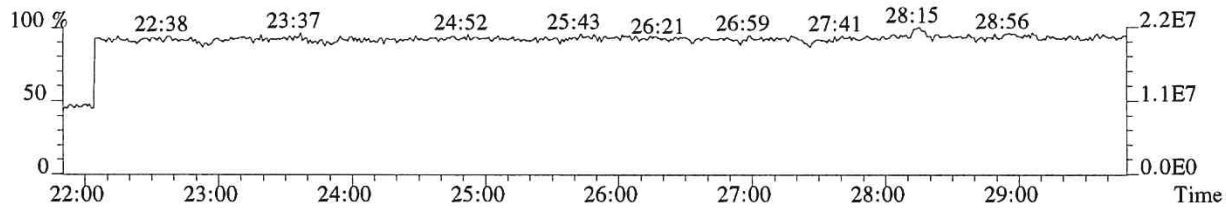
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8936.0,1.00%,F,T)



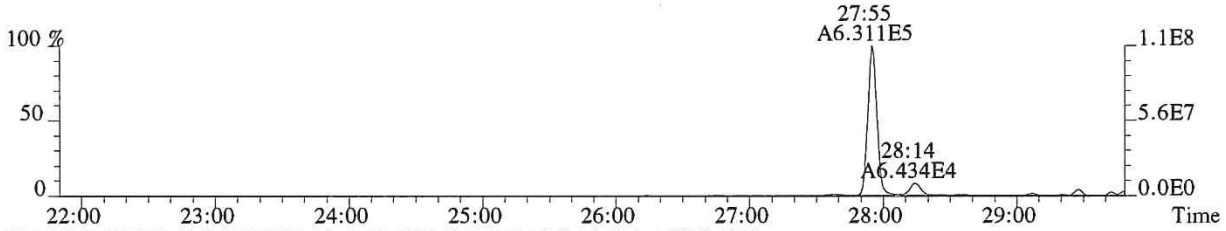
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



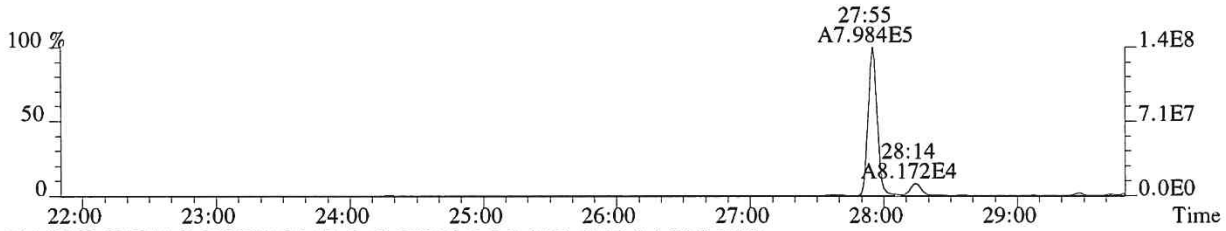
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



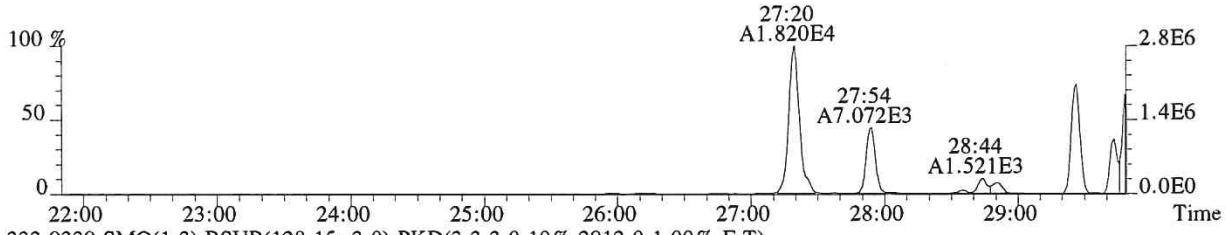
File:P519426 #1-566 Acq:14-DEC-2018 20:43:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-004
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3372.0,1.00%,F,T)



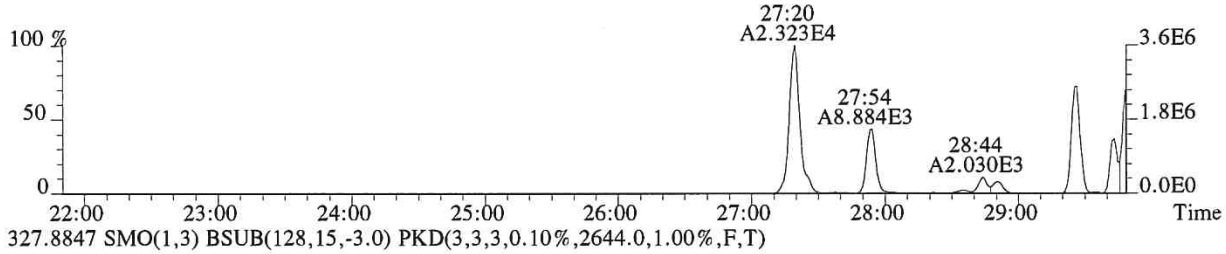
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1840.0,1.00%,F,T)



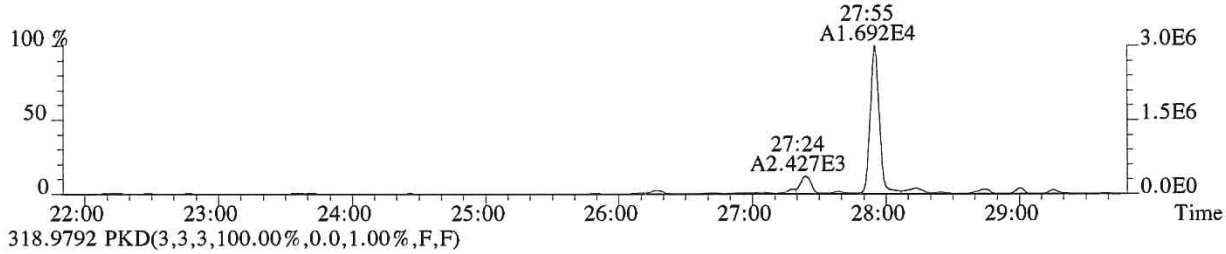
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6296.0,1.00%,F,T)



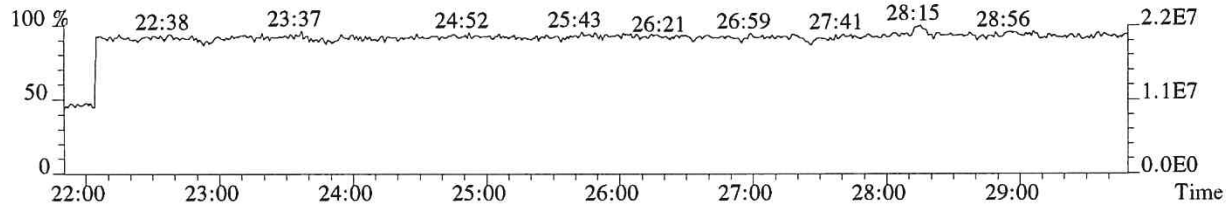
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2912.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2644.0,1.00%,F,T)

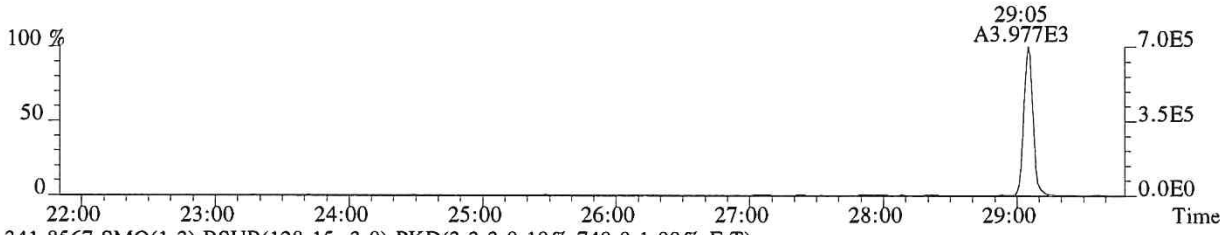


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

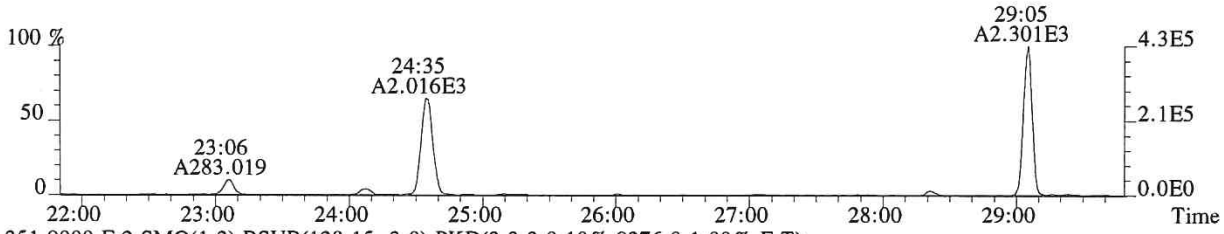


014062

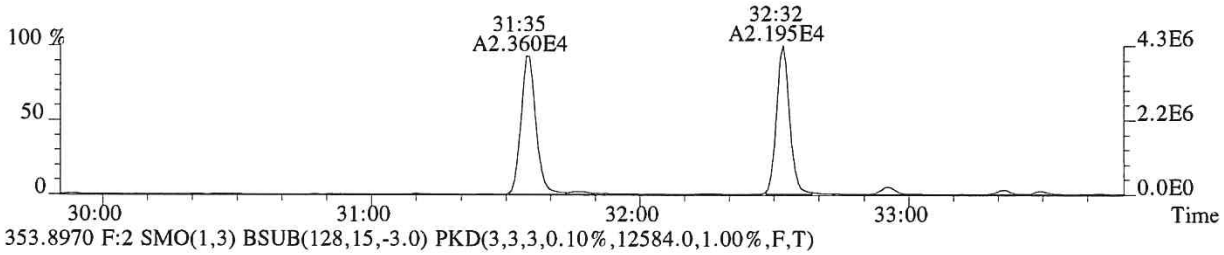
File:P519426 #1-566 Acq:14-DEC-2018 20:43:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-004
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,784.0,1.00%,F,T)



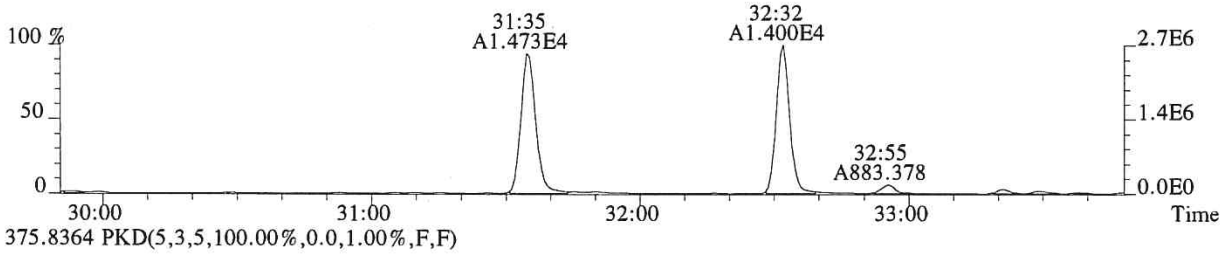
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,740.0,1.00%,F,T)



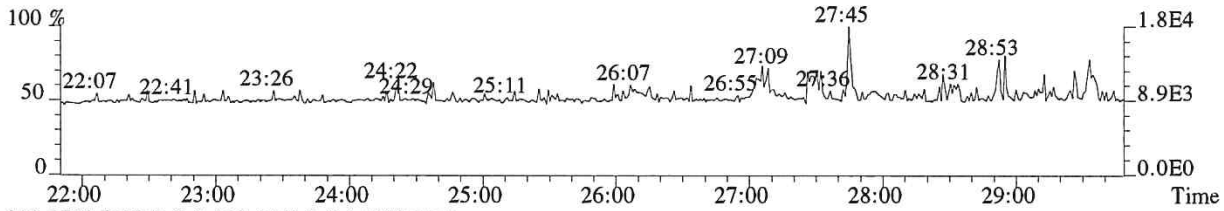
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9276.0,1.00%,F,T)



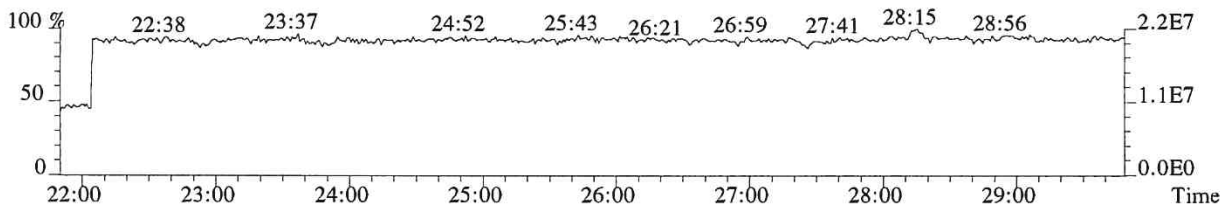
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,12584.0,1.00%,F,T)



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

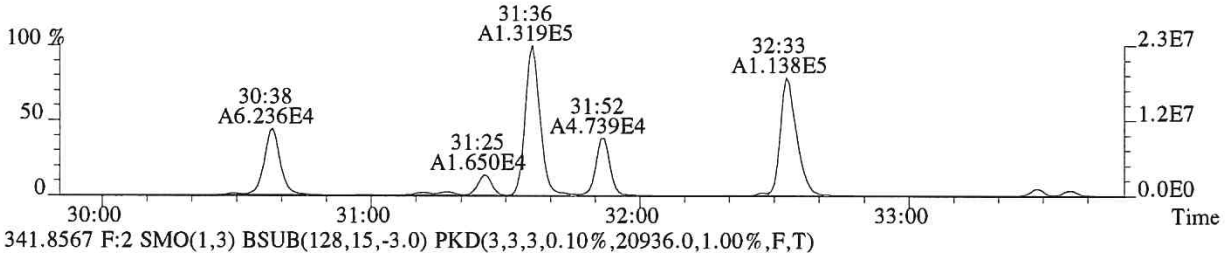


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

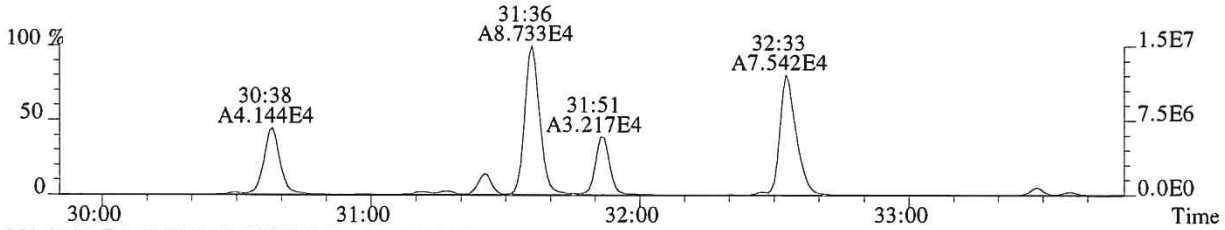


014063

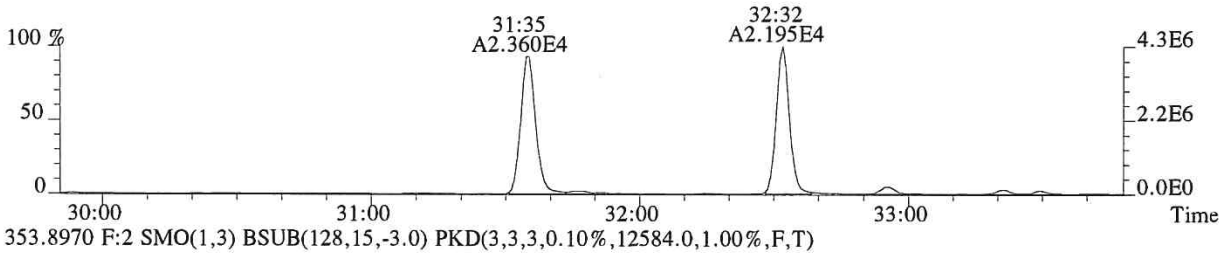
File:P519426 #1-357 Acq:14-DEC-2018 20:43:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-004
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,33920.0,1.00%,F,T)



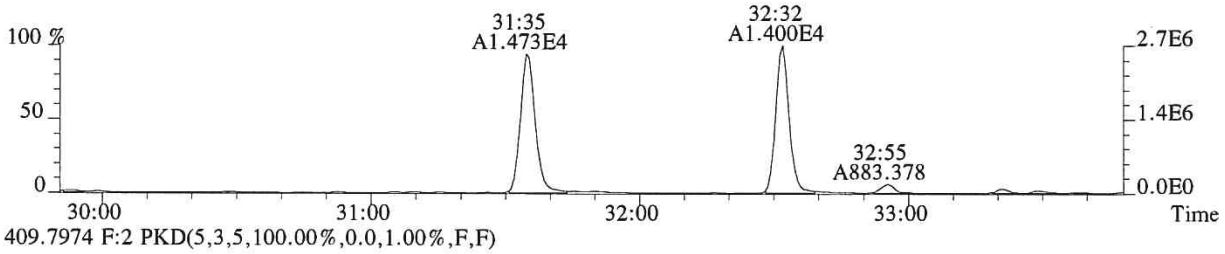
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,20936.0,1.00%,F,T)



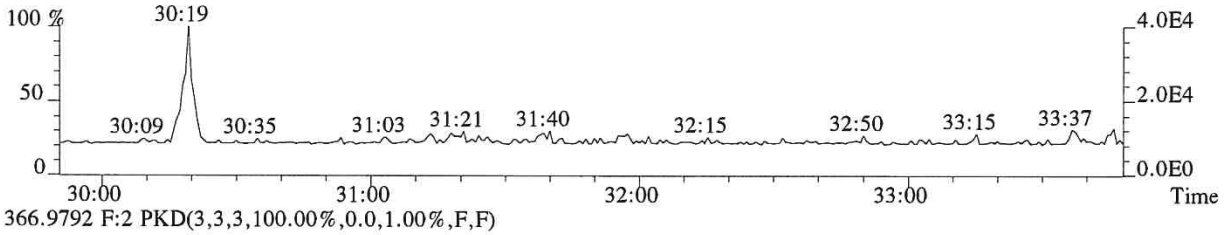
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9276.0,1.00%,F,T)



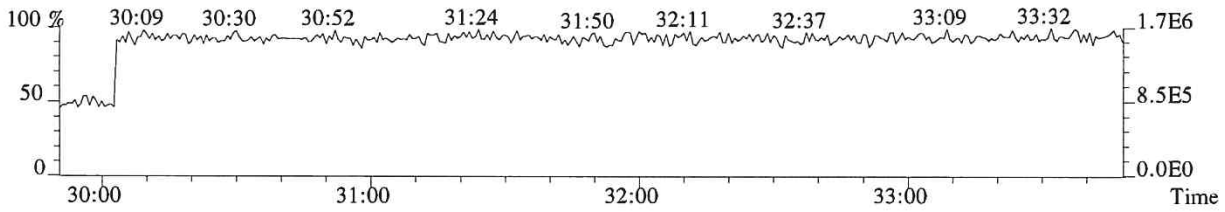
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,12584.0,1.00%,F,T)



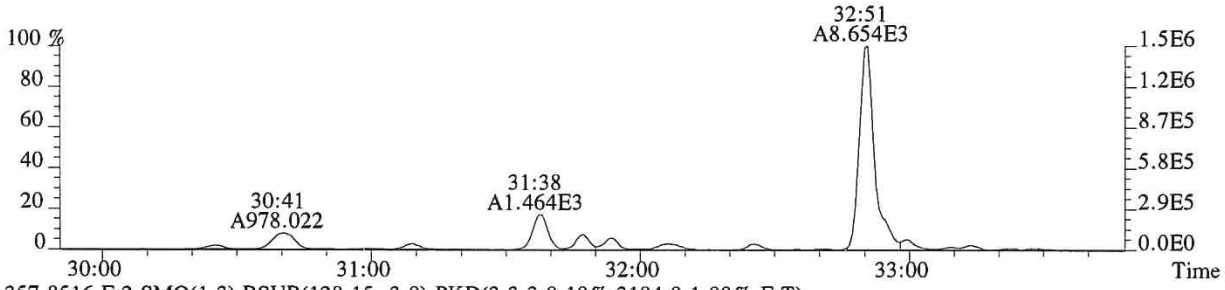
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



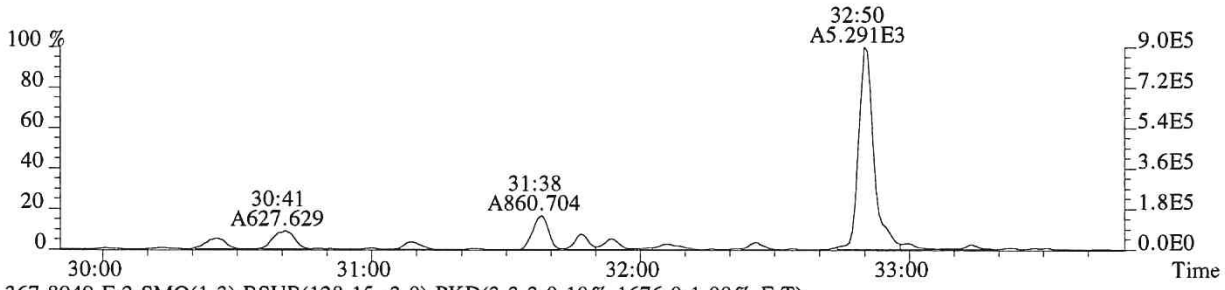
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



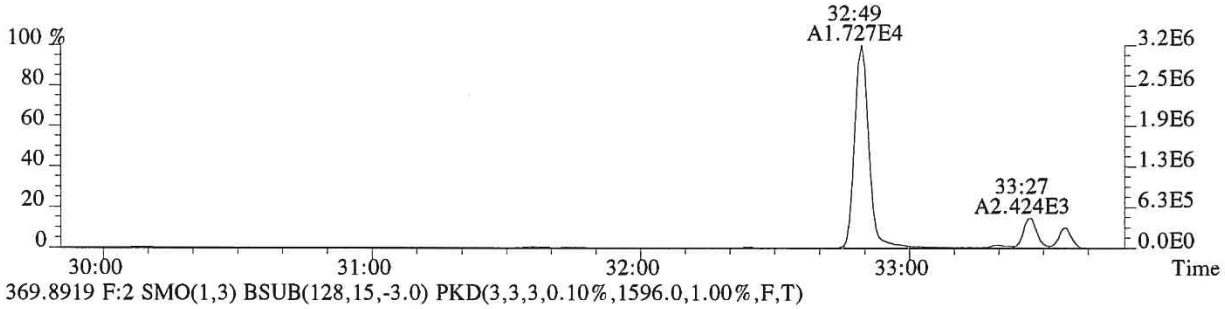
File:P519426 #1-357 Acq:14-DEC-2018 20:43:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-004
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2260.0,1.00%,F,T)



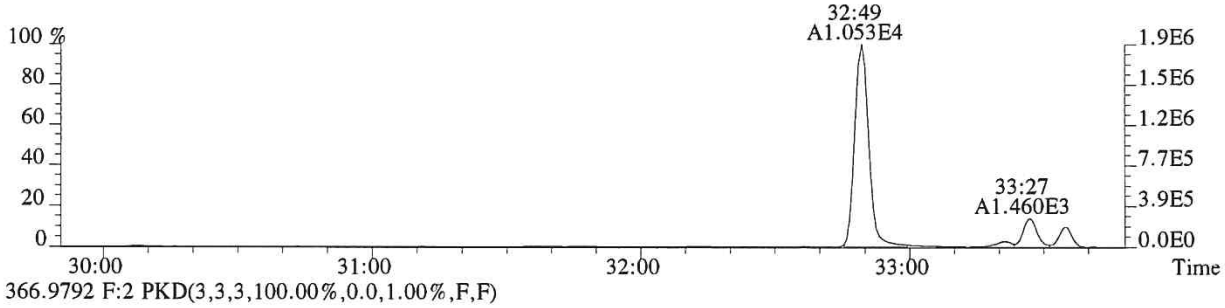
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3184.0,1.00%,F,T)



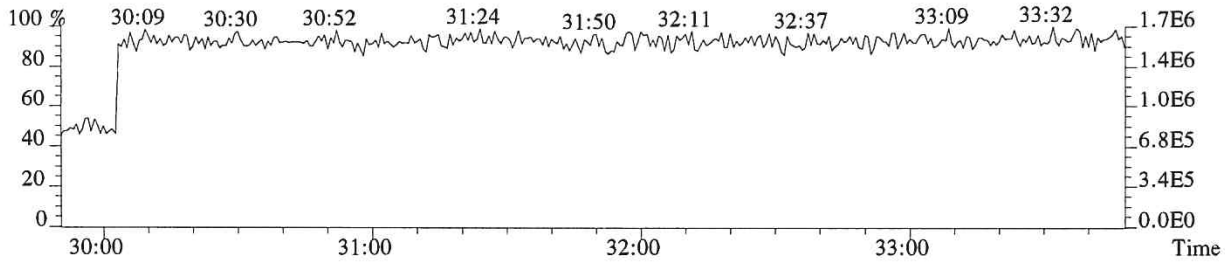
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1676.0,1.00%,F,T)



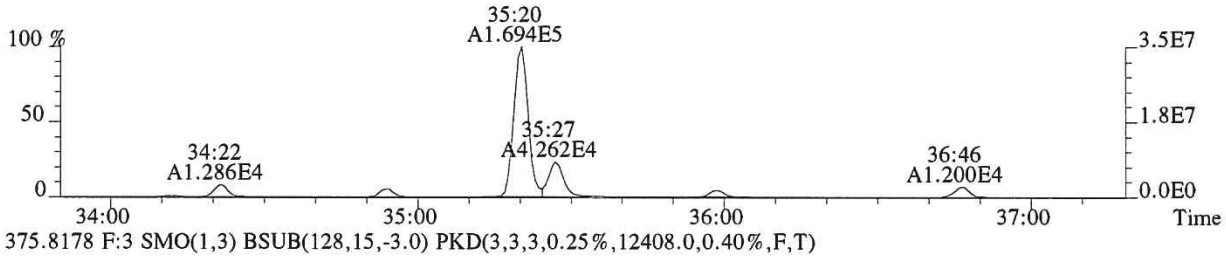
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1596.0,1.00%,F,T)



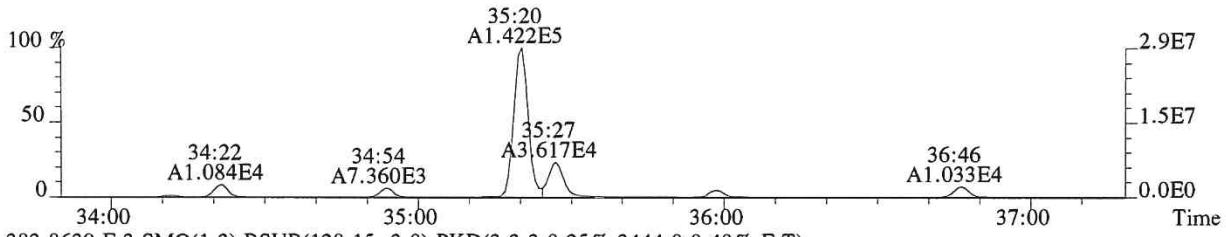
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



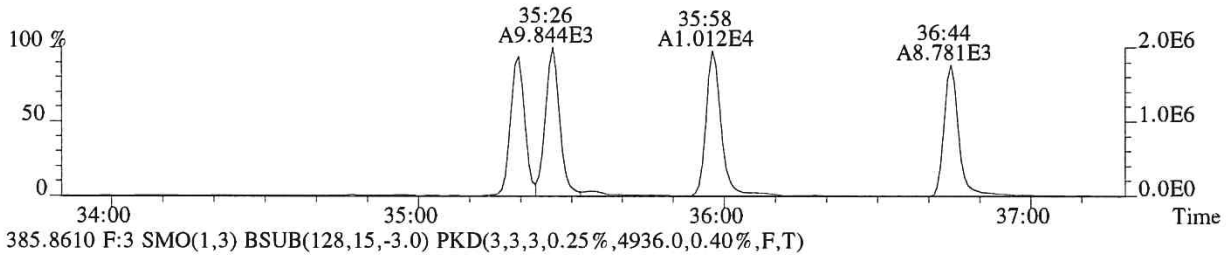
File:P519426 #1-313 Acq:14-DEC-2018 20:43:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-004
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7308.0,0.40%,F,T)



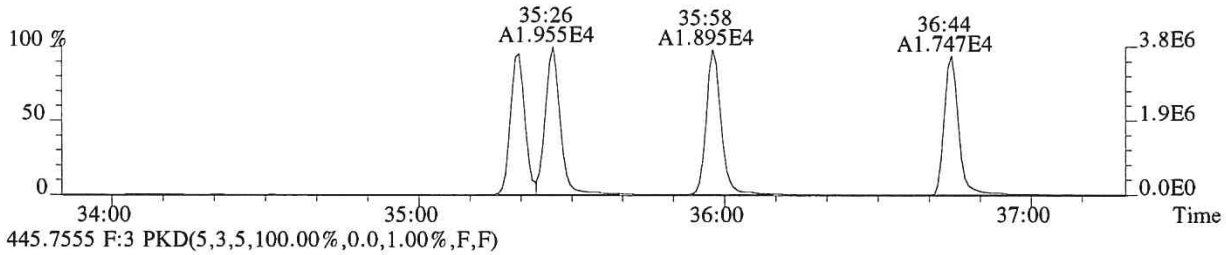
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,12408.0,0.40%,F,T)



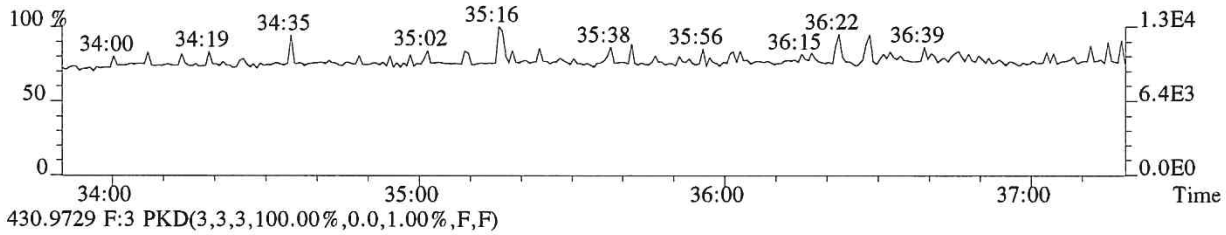
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3444.0,0.40%,F,T)



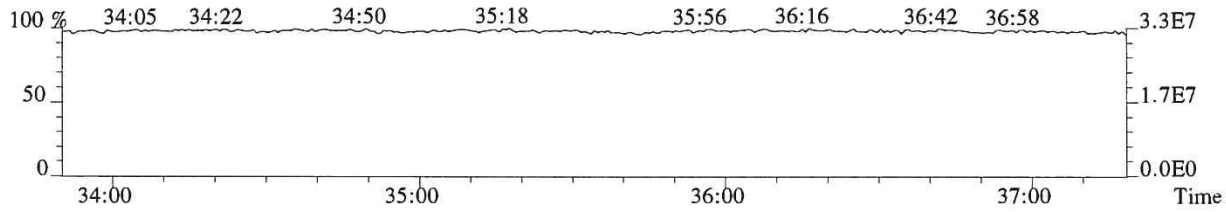
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4936.0,0.40%,F,T)



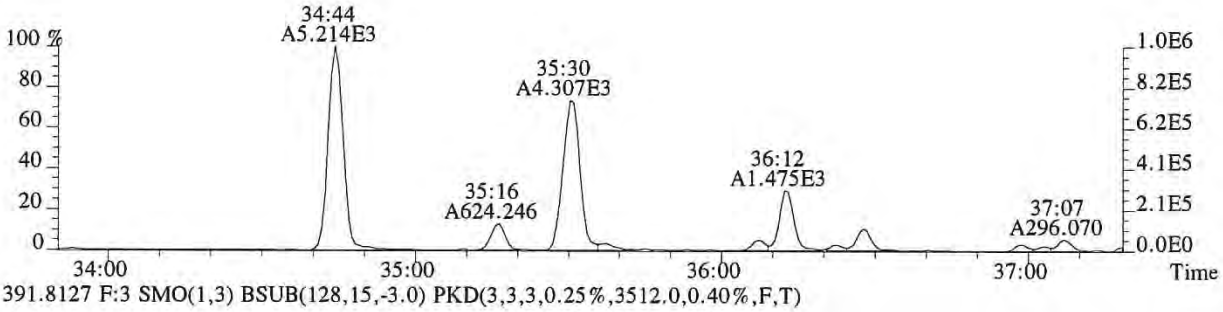
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



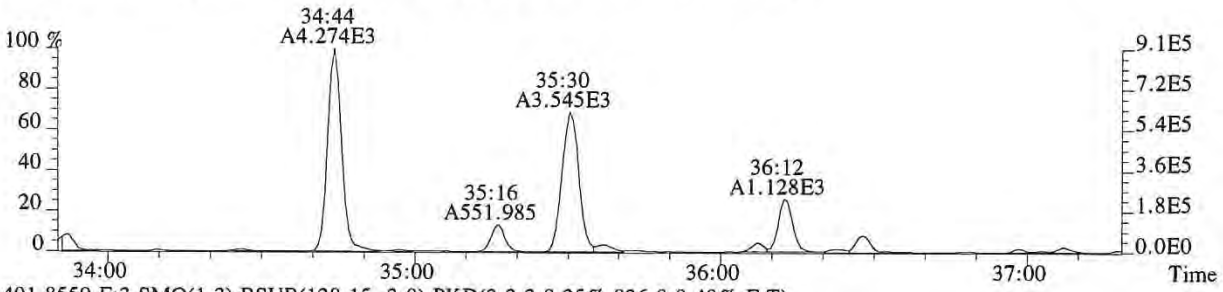
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



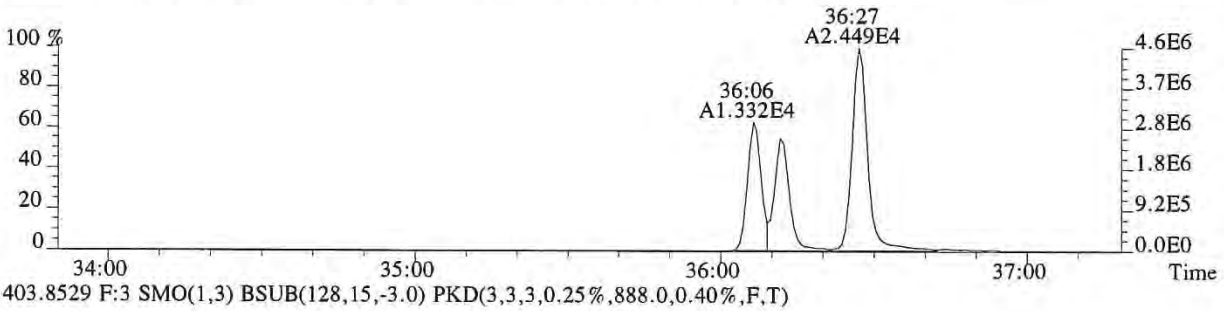
File:P519426 #1-313 Acq:14-DEC-2018 20:43:19 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801093-004
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3044.0,0.40%,F,T)



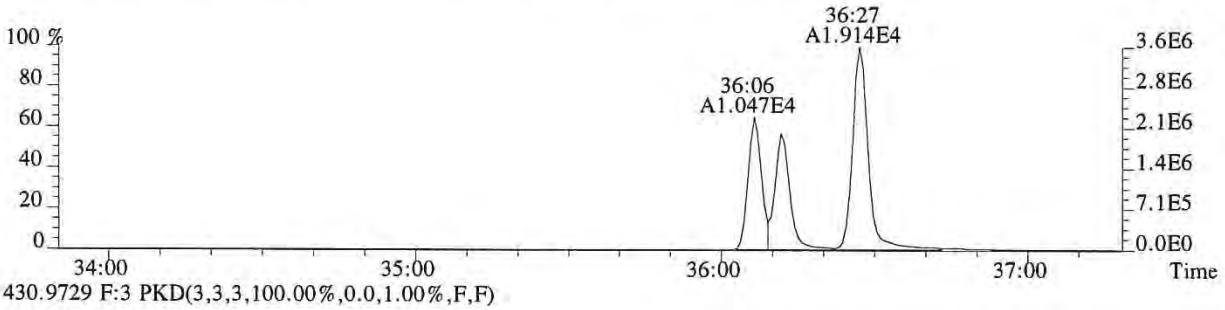
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3512.0,0.40%,F,T)



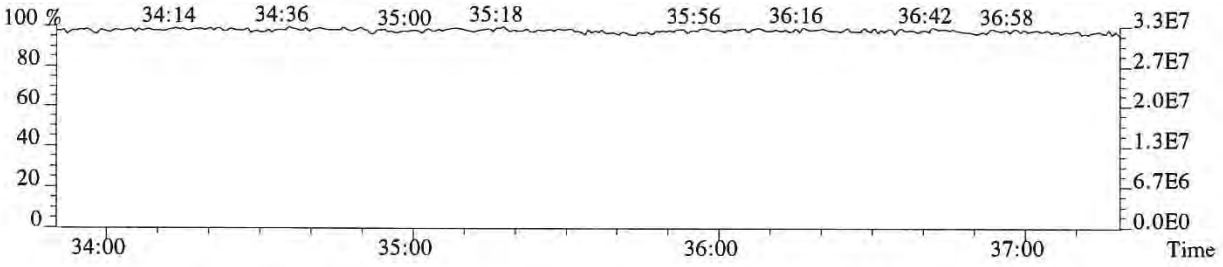
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,836.0,0.40%,F,T)



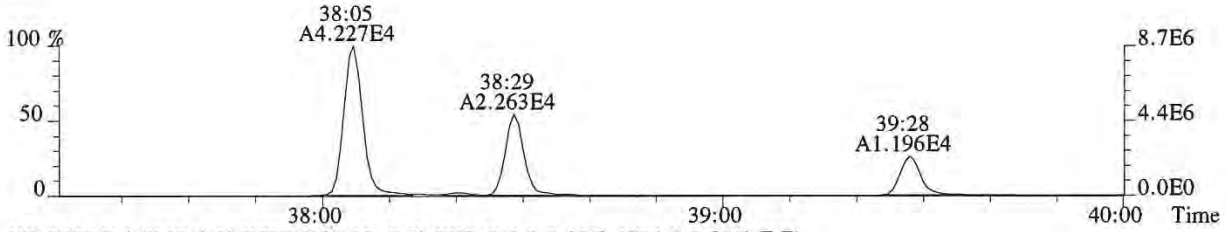
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,888.0,0.40%,F,T)



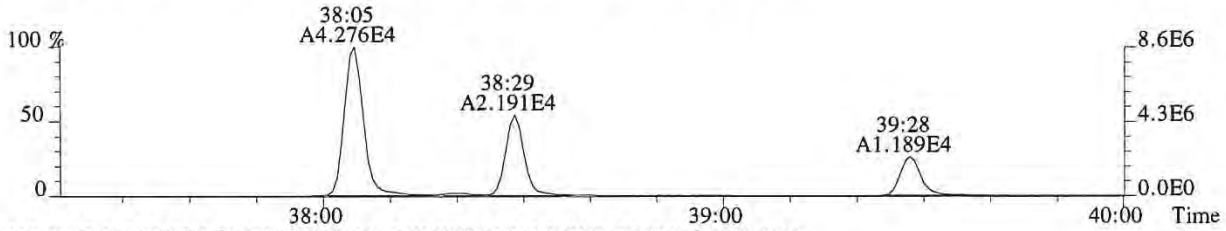
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



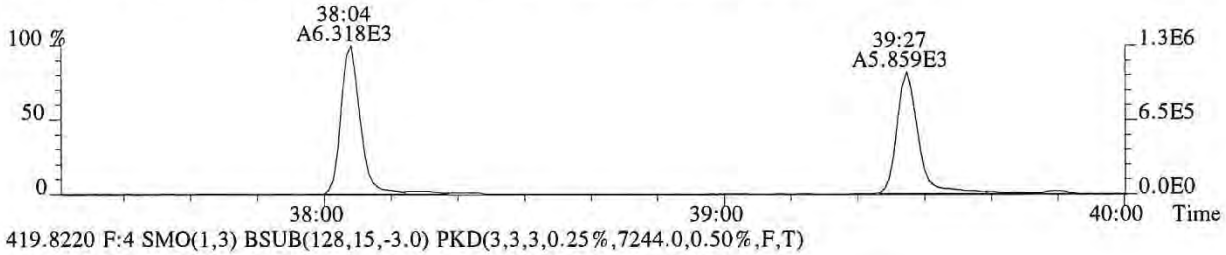
File:P519426 #1-240 Acq:14-DEC-2018 20:43:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-004
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8372.0,0.50%,F,T)



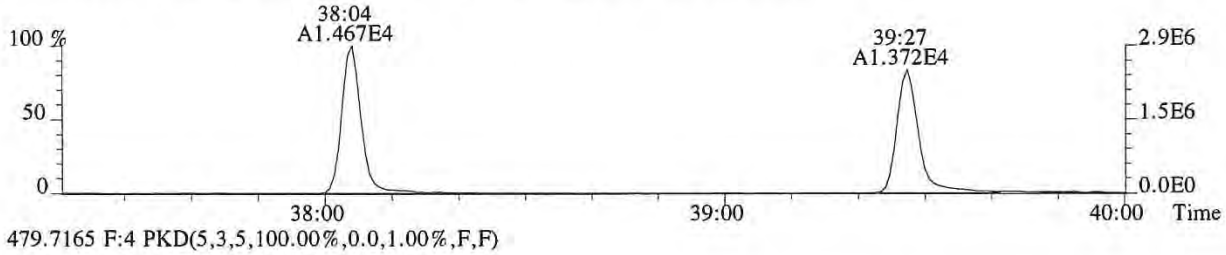
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1704.0,0.50%,F,T)



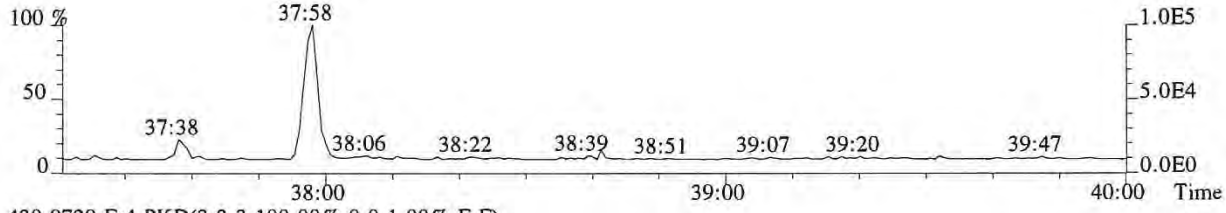
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3592.0,0.50%,F,T)



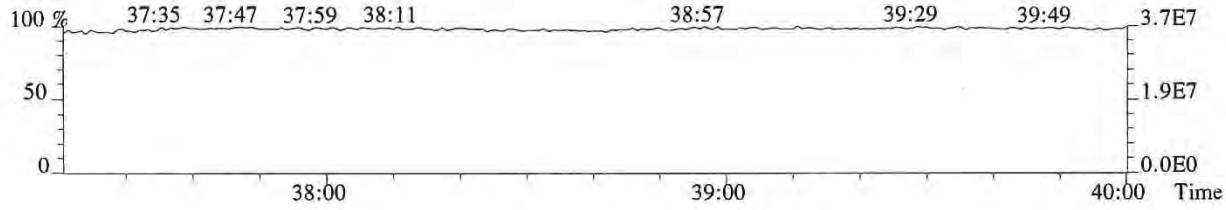
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7244.0,0.50%,F,T)



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

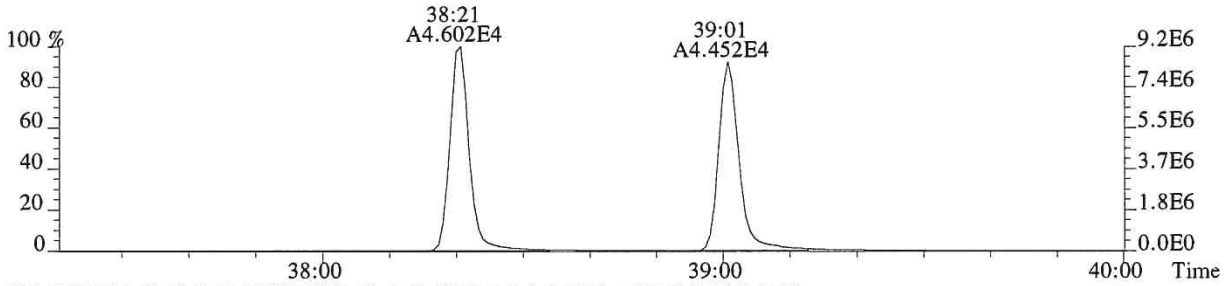


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

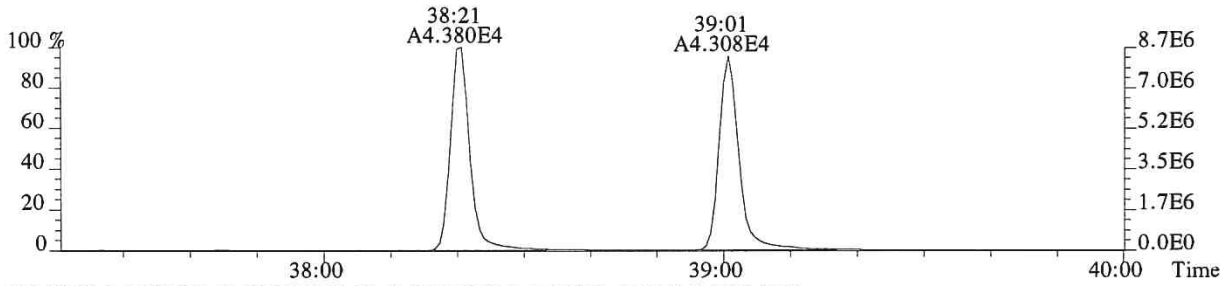


014068

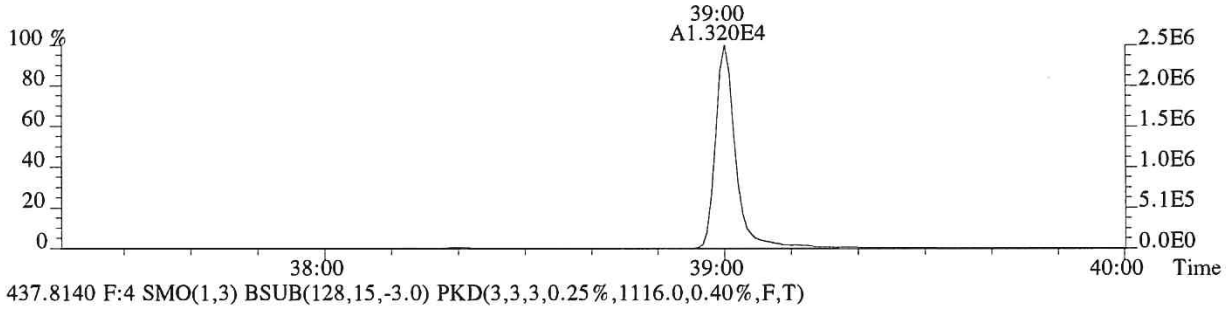
File:P519426 #1-240 Acq:14-DEC-2018 20:43:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-004
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,208.0,0.40%,F,T)



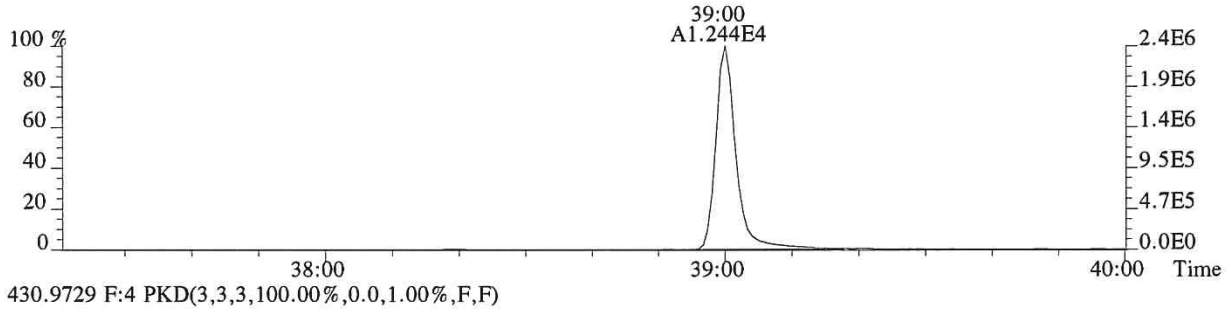
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1176.0,0.40%,F,T)



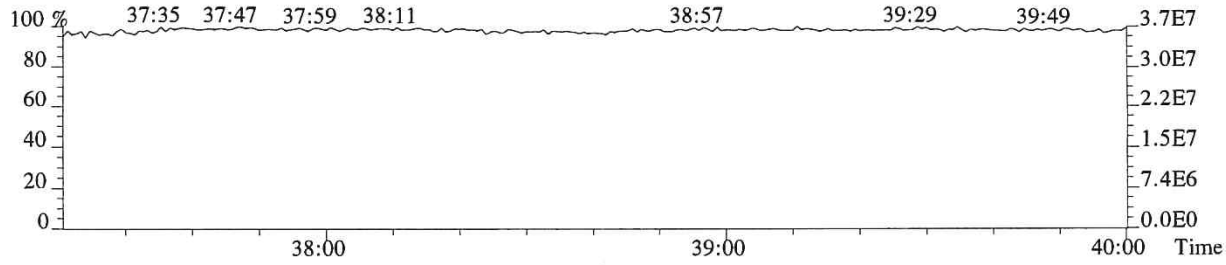
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1528.0,0.40%,F,T)



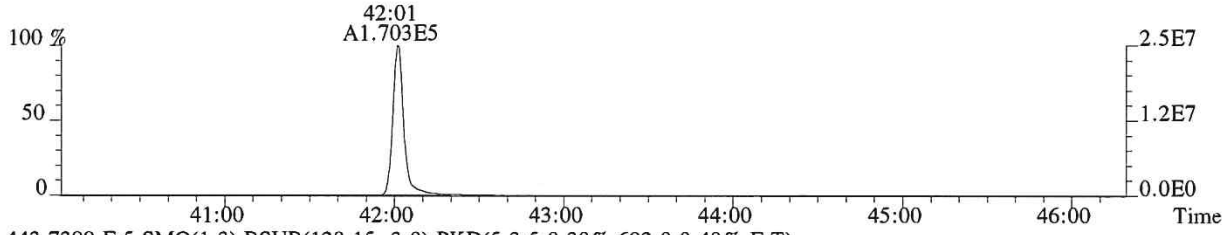
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1116.0,0.40%,F,T)



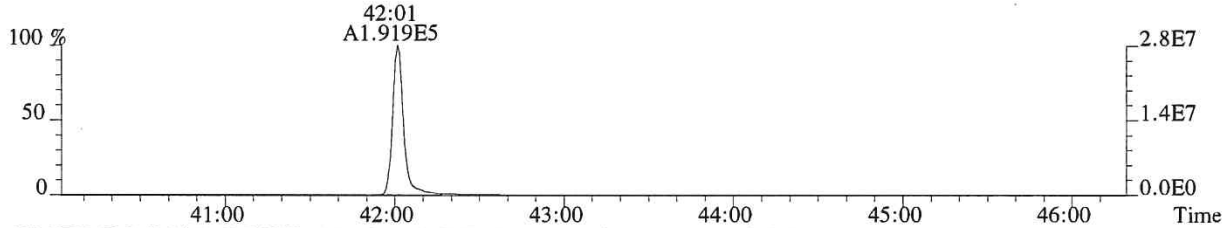
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



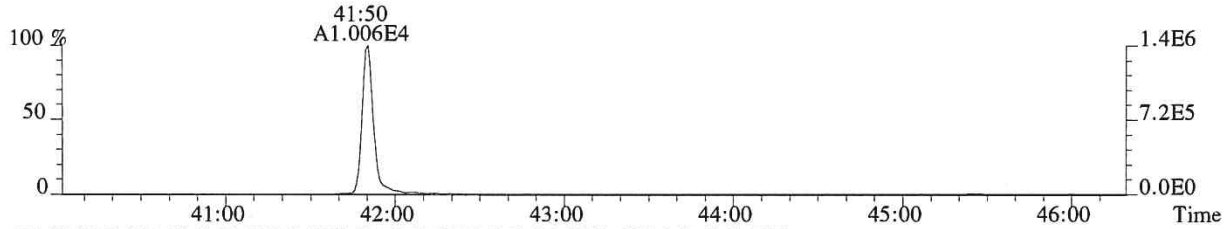
File:P519426 #1-566 Acq:14-DEC-2018 20:43:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-004
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,788.0,0.40%,F,T)



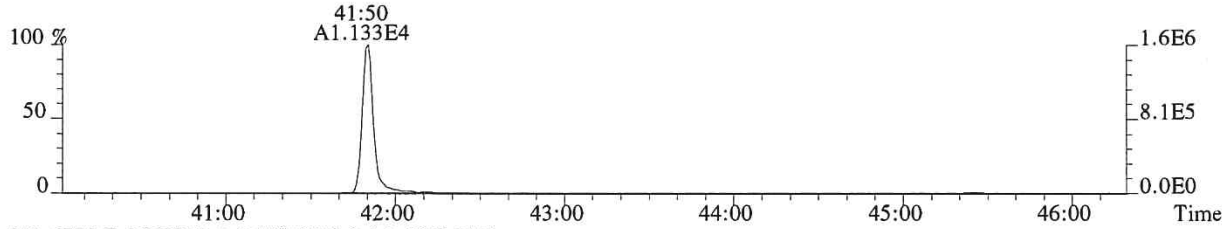
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,692.0,0.40%,F,T)



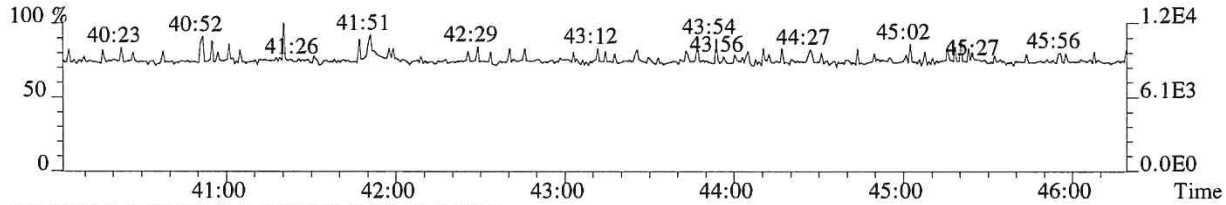
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1020.0,0.40%,F,T)



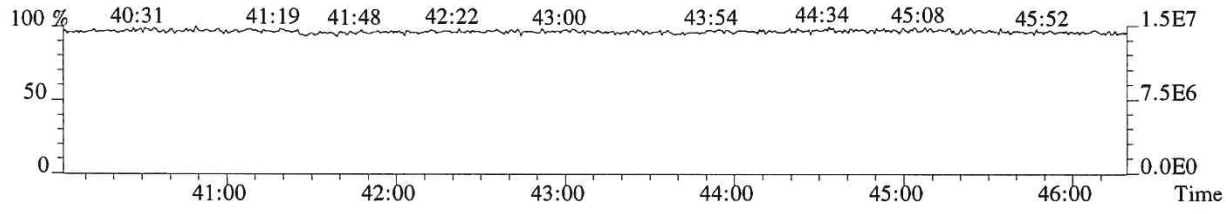
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,856.0,0.40%,F,T)



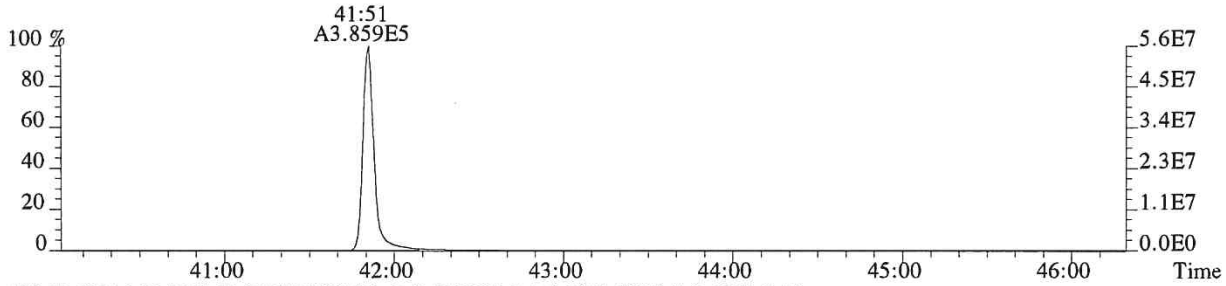
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



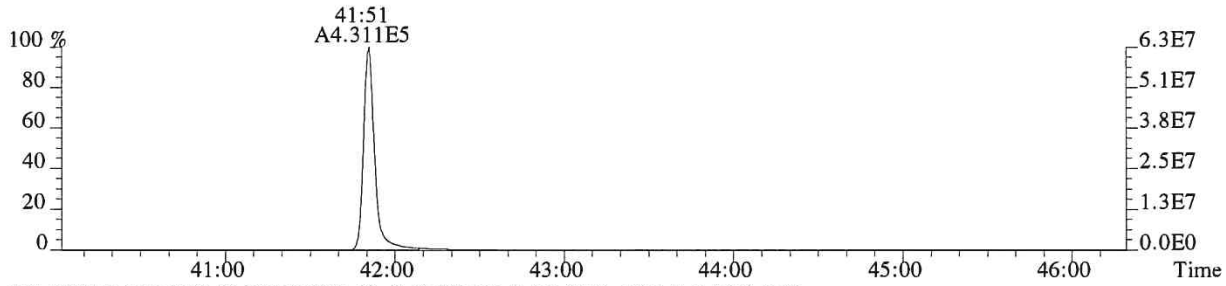
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



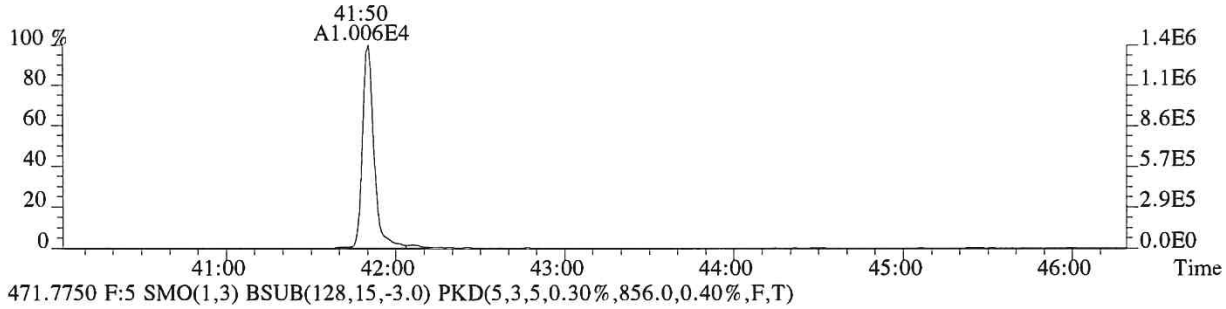
File:P519426 #1-566 Acq:14-DEC-2018 20:43:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-004
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,712.0,0.40%,F,T)



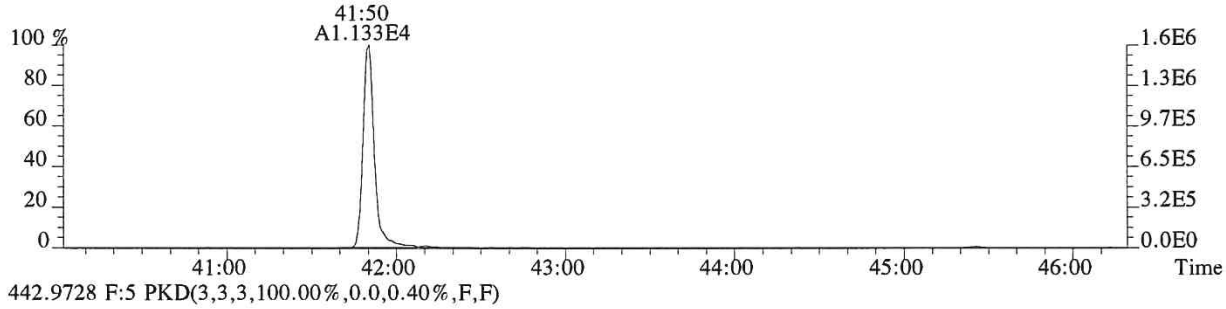
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1040.0,0.40%,F,T)



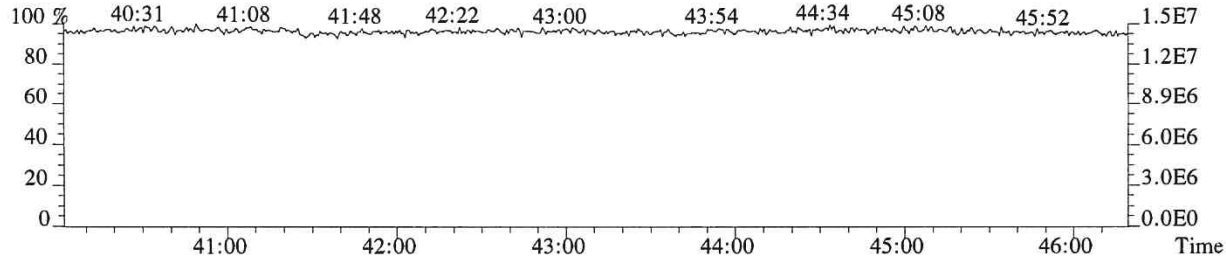
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1020.0,0.40%,F,T)



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



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



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0020

Run #16 Filename P519528 Samp: 1 Inj: 1 Acquired: 20-DEC-18 23:02:36
Processed: 21-DEC-18 10:22:52 Sample ID: E1801093-004DL

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:50	3.774e+03	5.015e+03	0.75	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	31:29	1.989e+02	1.368e+02	1.45	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	32:26	1.915e+02	1.132e+02	1.69	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:18	2.407e+02	1.878e+02	1.28	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:25	5.458e+01	6.893e+01	0.79	no	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:58	1.798e+01	8.211e+00	2.19	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	36:45	2.624e+01	2.255e+01	1.16	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:08	5.659e+01	6.594e+01	0.86	no	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:35	2.354e+01	2.489e+01	0.95	yes	no	1.258
10	Unk	OCDF	42:18	2.758e+02	3.600e+02	0.77	yes	no	1.359
11	Unk	2,3,7,8-TCDD	27:44	9.124e+02	1.161e+03	0.79	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	32:45	2.518e+01	1.368e+01	1.84	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	yes	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:07	8.533e+01	8.329e+01	1.02	yes	no	1.025
17	Unk	OCDD	42:06	6.574e+02	7.571e+02	0.87	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	26:48	6.970e+03	8.717e+03	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	31:27	1.108e+04	6.866e+03	1.61	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	32:25	1.053e+04	6.554e+03	1.61	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:18	4.338e+03	8.599e+03	0.50	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:24	5.189e+03	1.025e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:56	4.860e+03	9.750e+03	0.50	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	36:44	4.153e+03	7.947e+03	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:07	3.931e+03	8.663e+03	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:35	3.227e+03	7.365e+03	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	27:42	3.404e+03	4.190e+03	0.81	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:45	7.746e+03	4.826e+03	1.61	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:06	6.262e+03	4.972e+03	1.26	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:12	6.452e+03	4.962e+03	1.30	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:07	6.836e+03	6.484e+03	1.05	yes	no	0.858
32	IS	13C-OCDD	42:06	7.734e+03	8.691e+03	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:04	5.239e+03	6.551e+03	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:26	7.000e+03	5.444e+03	1.29	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:43	2.216e+01				no	1.014

$$OCDD = \frac{(6.574e+02 + 7.571e+02) \times 4000\ pg \times 200}{(7.734e+03 + 8.691e+03) \times 10.332\ g \times 64.1 / 100 \times 1.118} = 22200\ ng/kg$$

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GW 12/21/18

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0020

Run #16 Filename P519528 Samp: 1 Inj: 1 Acquired: 20-DEC-18 23:02:36
Processed: 21-DEC-18 10:22:52 LAB. ID: E1801093-004DL

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.83e+05	4.80e+02	1.2e+03	7.20e+05	1.29e+03	5.6e+02
2	1,2,3,7,8-PeCDF	2.93e+04	4.24e+02	6.9e+01	2.56e+04	4.52e+02	5.7e+01
3	2,3,4,7,8-PeCDF	3.11e+04	4.24e+02	7.3e+01	1.76e+04	4.52e+02	3.9e+01
4	1,2,3,4,7,8-HxCDF	4.61e+04	4.92e+02	9.4e+01	3.42e+04	4.60e+02	7.4e+01
5	1,2,3,6,7,8-HxCDF	1.13e+04	4.92e+02	2.3e+01	1.21e+04	4.60e+02	2.6e+01
6	2,3,4,6,7,8-HxCDF	2.48e+03	4.92e+02	5.0e+00	2.30e+03	4.60e+02	5.0e+00
7	1,2,3,7,8,9-HxCDF	5.28e+03	4.92e+02	1.1e+01	3.93e+03	4.60e+02	8.5e+00
8	1,2,3,4,6,7,8-HpCDF	1.11e+04	5.88e+02	1.9e+01	1.10e+04	5.04e+02	2.2e+01
9	1,2,3,4,7,8,9-HpCDF	4.17e+03	5.88e+02	7.1e+00	4.59e+03	5.04e+02	9.1e+00
10	OCDF	2.94e+04	4.04e+02	7.3e+01	3.46e+04	7.16e+02	4.8e+01
11	2,3,7,8-TCDD	1.50e+05	1.72e+03	8.7e+01	1.90e+05	1.09e+03	1.7e+02
12	1,2,3,7,8-PeCDD	4.02e+03	5.64e+02	7.1e+00	3.25e+03	2.88e+02	1.1e+01
13	1,2,3,4,7,8-HxCDD	*	4.88e+02	*	*	5.80e+02	*
14	1,2,3,6,7,8-HxCDD	*	4.88e+02	*	*	5.80e+02	*
15	1,2,3,7,8,9-HxCDD	*	4.88e+02	*	*	5.80e+02	*
16	1,2,3,4,6,7,8-HpCDD	1.22e+04	3.60e+02	3.4e+01	1.34e+04	2.56e+02	5.2e+01
17	OCDD	6.77e+04	3.52e+02	1.9e+02	8.50e+04	2.80e+02	3.0e+02
18	13C-2,3,7,8-TCDF	1.11e+06	4.61e+03	2.4e+02	1.38e+06	2.76e+03	5.0e+02
19	13C-1,2,3,7,8-PeCDF	1.87e+06	5.92e+02	3.2e+03	1.16e+06	4.08e+02	2.8e+03
20	13C-2,3,4,7,8-PeCDF	1.87e+06	5.92e+02	3.2e+03	1.16e+06	4.08e+02	2.8e+03
21	13C-1,2,3,4,7,8-HxCDF	8.51e+05	2.72e+02	3.1e+03	1.69e+06	5.72e+02	3.0e+03
22	13C-1,2,3,6,7,8-HxCDF	9.62e+05	2.72e+02	3.5e+03	1.85e+06	5.72e+02	3.2e+03
23	13C-2,3,4,6,7,8-HxCDF	9.07e+05	2.72e+02	3.3e+03	1.80e+06	5.72e+02	3.2e+03
24	13C-1,2,3,7,8,9-HxCDF	7.02e+05	2.72e+02	2.6e+03	1.33e+06	5.72e+02	2.3e+03
25	13C-1,2,3,4,6,7,8-HpCDF	6.59e+05	1.22e+03	5.4e+02	1.45e+06	1.24e+03	1.2e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.59e+05	1.22e+03	3.8e+02	1.05e+06	1.24e+03	8.5e+02
27	13C-2,3,7,8-TCDD	5.83e+05	5.33e+03	1.1e+02	7.03e+05	1.86e+03	3.8e+02
28	13C-1,2,3,7,8-PeCDD	1.32e+06	5.16e+02	2.6e+03	8.13e+05	1.04e+03	7.8e+02
29	13C-1,2,3,4,7,8-HxCDD	1.22e+06	4.28e+02	2.8e+03	9.43e+05	4.12e+02	2.3e+03
30	13C-1,2,3,6,7,8-HxCDD	1.14e+06	4.28e+02	2.7e+03	8.76e+05	4.12e+02	2.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.01e+06	4.84e+02	2.1e+03	9.41e+05	4.52e+02	2.1e+03
32	13C-OCDD	7.70e+05	3.80e+02	2.0e+03	8.33e+05	4.88e+02	1.7e+03
33	13C-1,2,3,4-TCDD	8.88e+05	5.33e+03	1.7e+02	1.09e+06	1.86e+03	5.9e+02
34	13C-1,2,3,7,8,9-HxCDD	1.20e+06	4.28e+02	2.8e+03	9.17e+05	4.12e+02	2.2e+03
35	37Cl-2,3,7,8-TCDD	4.08e+03	1.51e+03	2.7e+00			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.720e{+}03 + 1.092e{+}03) \times 2000}{(5.833e{+}05 + 7.025e{+}05) \times (\qquad\qquad) \times 1.085}$$

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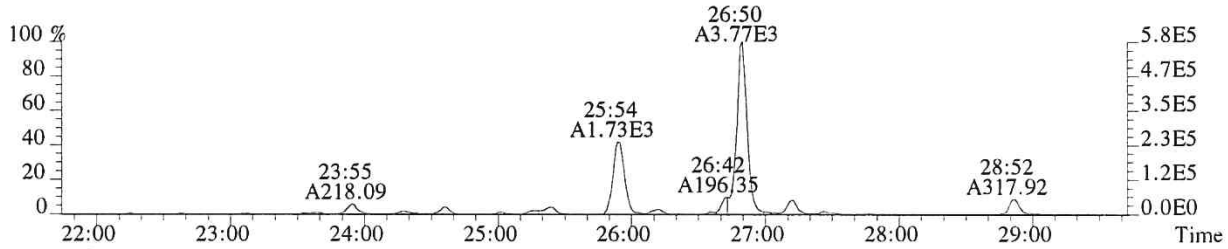
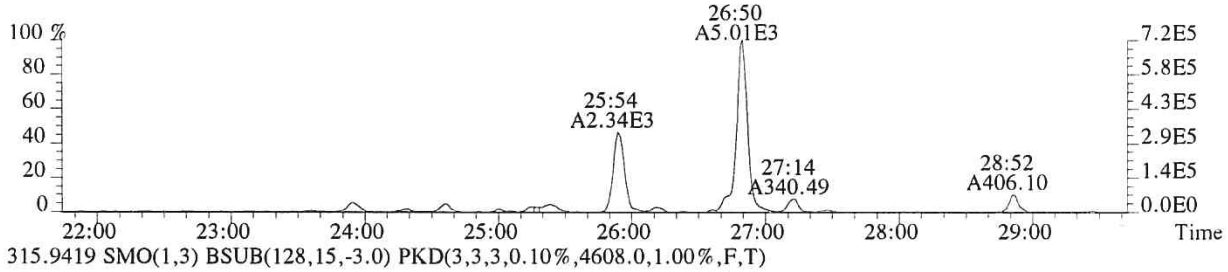
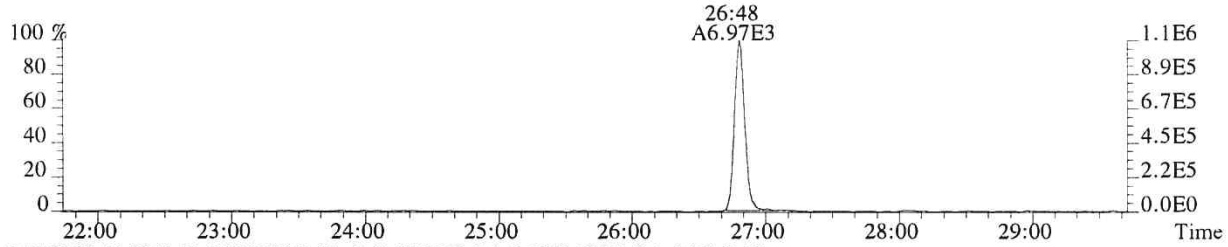
File:P519528 #1-566 Acq:20-DEC-2018 23:02:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-004DL
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,480.0,1.00%,F,T)



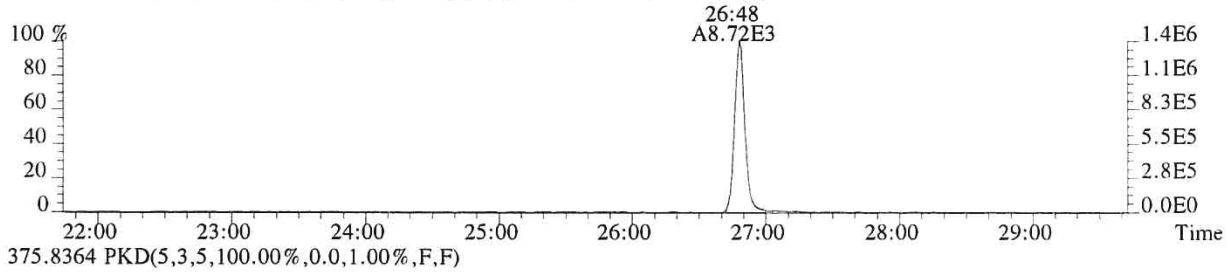
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1292.0,1.00%,F,T)



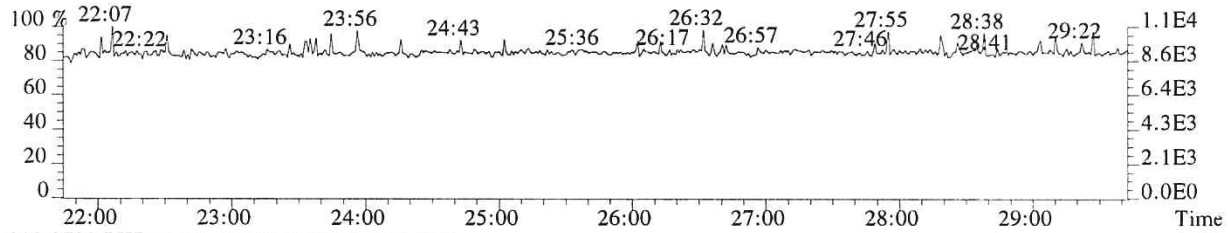
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4608.0,1.00%,F,T)



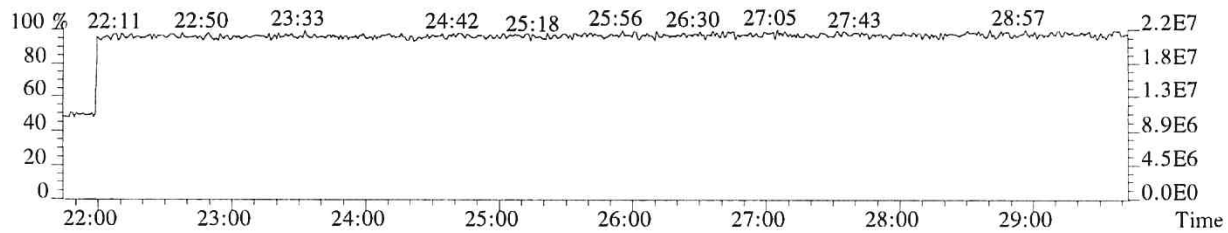
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2756.0,1.00%,F,T)



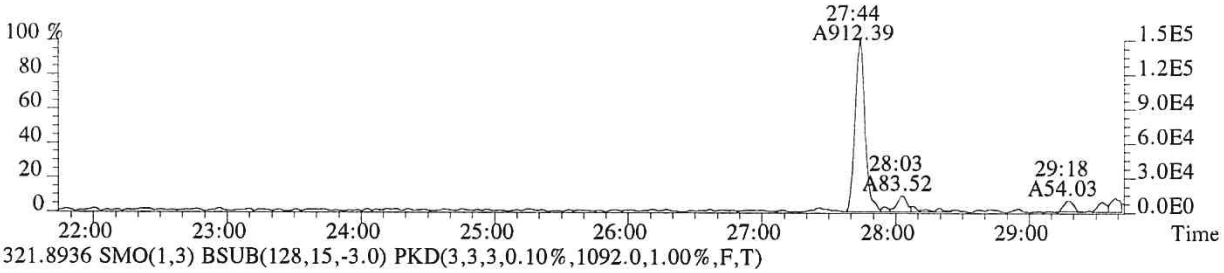
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



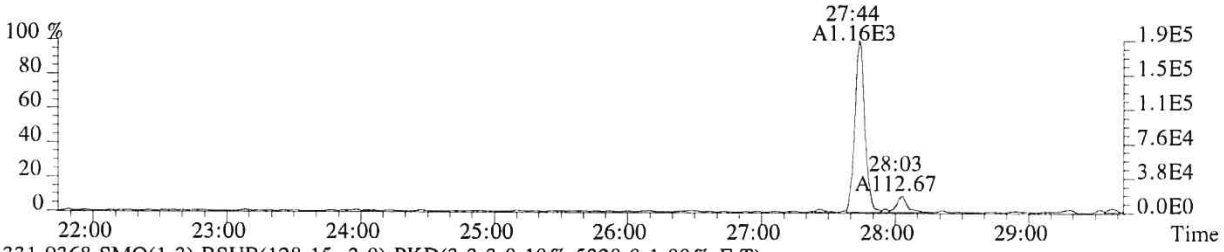
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



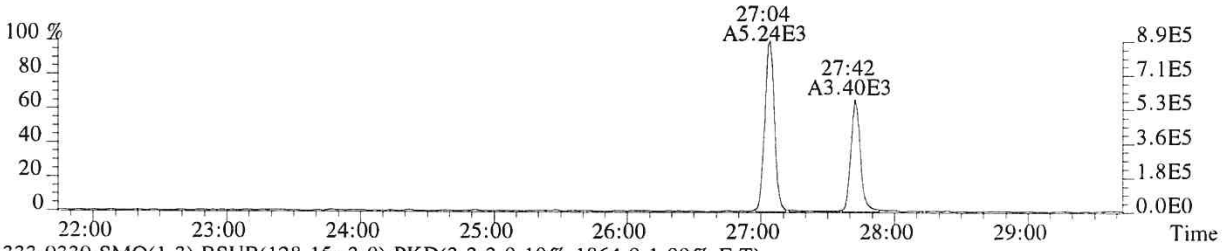
File:P519528 #1-566 Acq:20-DEC-2018 23:02:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-004DL
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1720.0,1.00%,F,T)



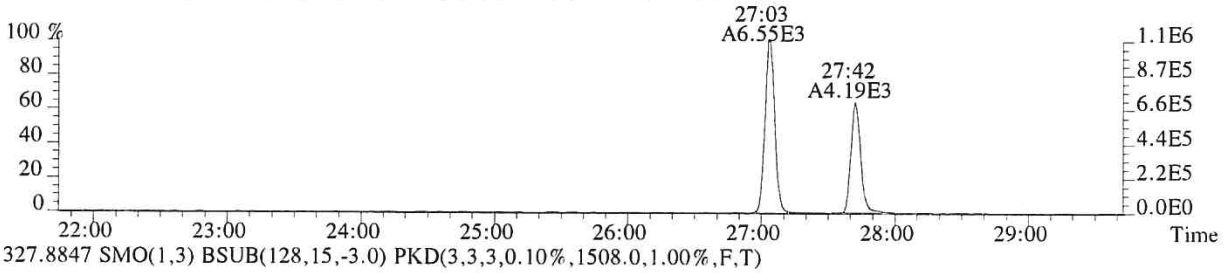
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1092.0,1.00%,F,T)



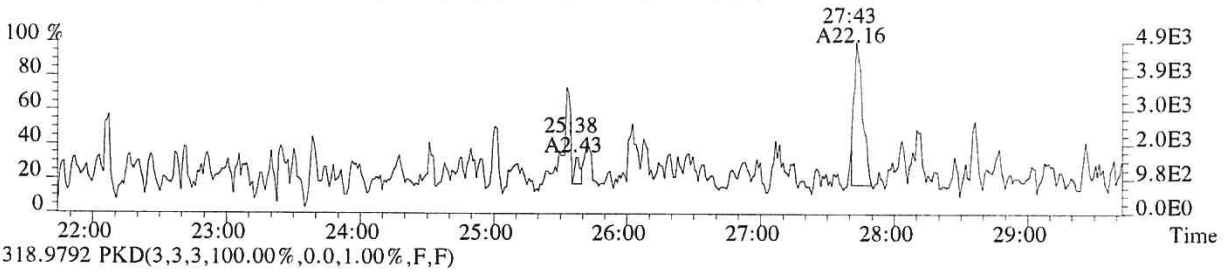
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5328.0,1.00%,F,T)



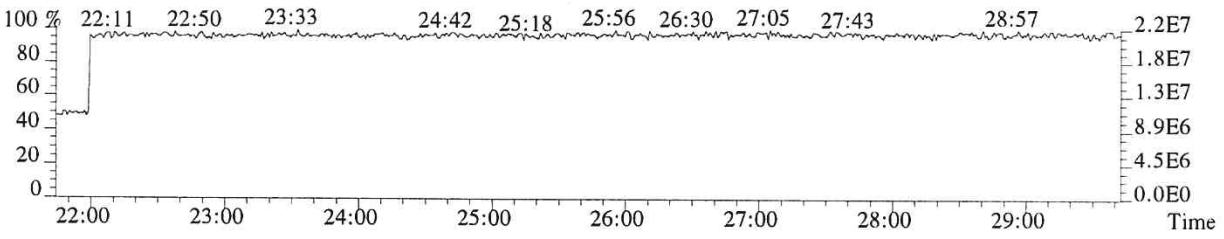
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1864.0,1.00%,F,T)



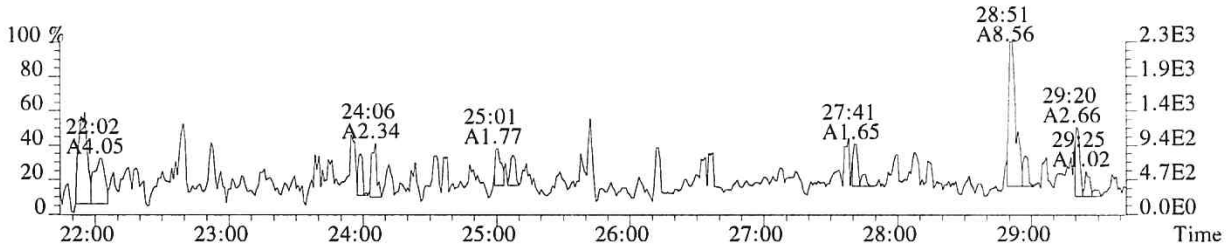
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1508.0,1.00%,F,T)



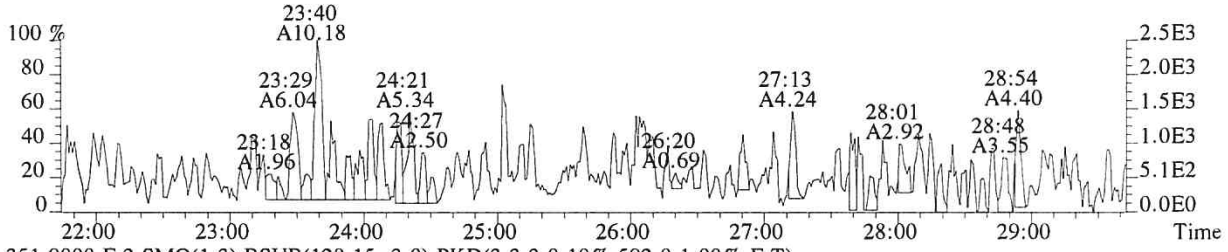
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



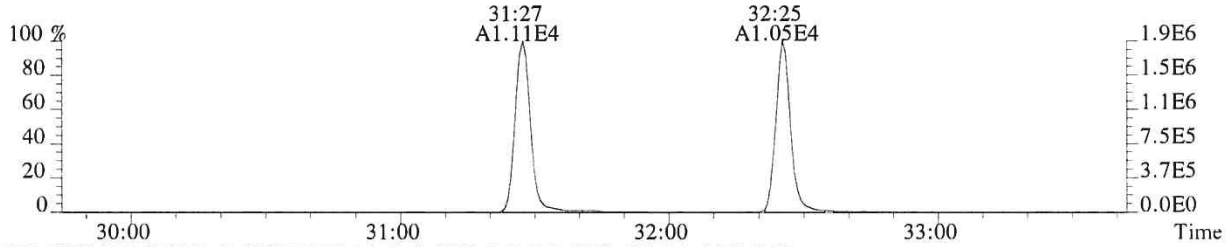
File:P519528 #1-566 Acq:20-DEC-2018 23:02:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-004DL
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,536.0,1.00%,F,T)



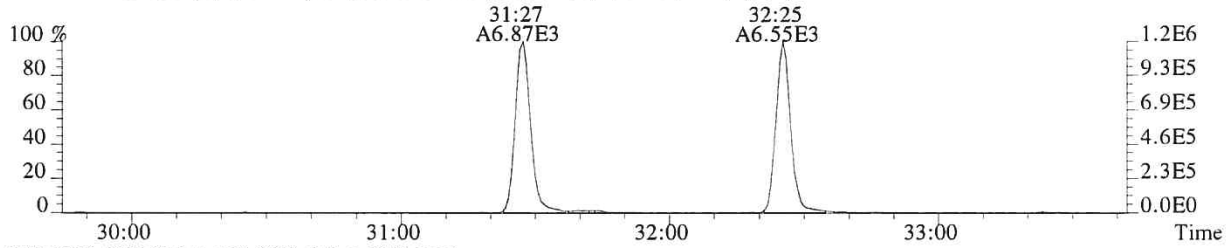
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,576.0,1.00%,F,T)



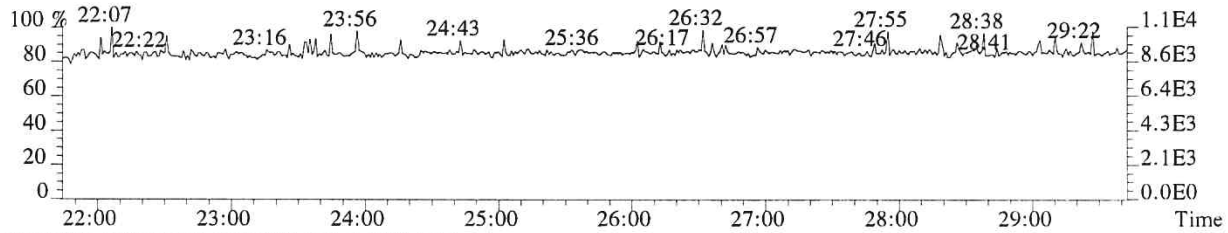
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,592.0,1.00%,F,T)



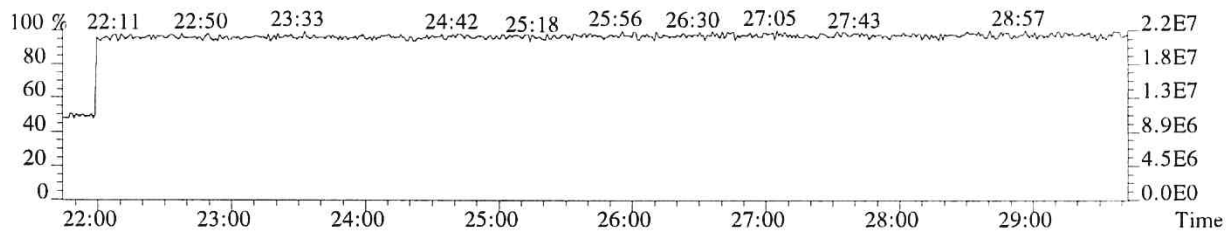
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,408.0,1.00%,F,T)



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

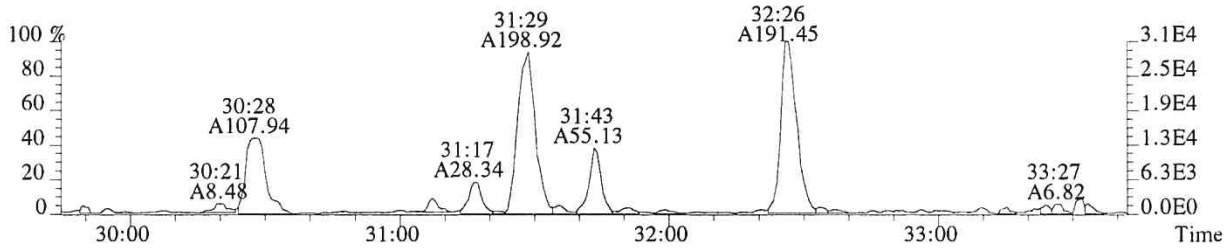


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

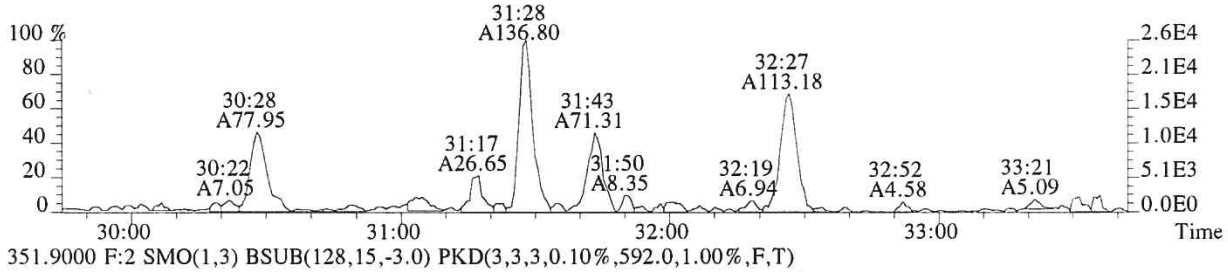


014076

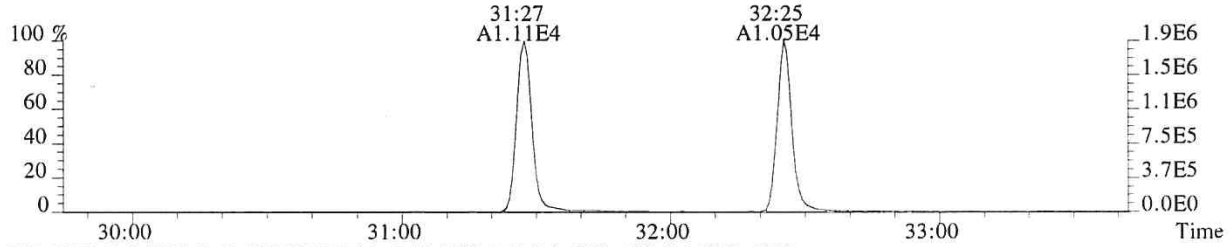
File:P519528 #1-357 Acq:20-DEC-2018 23:02:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-004DL
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,424.0,1.00%,F,T)



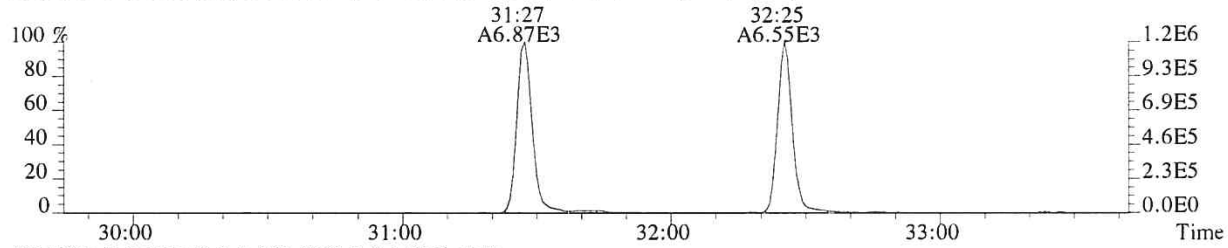
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,452.0,1.00%,F,T)



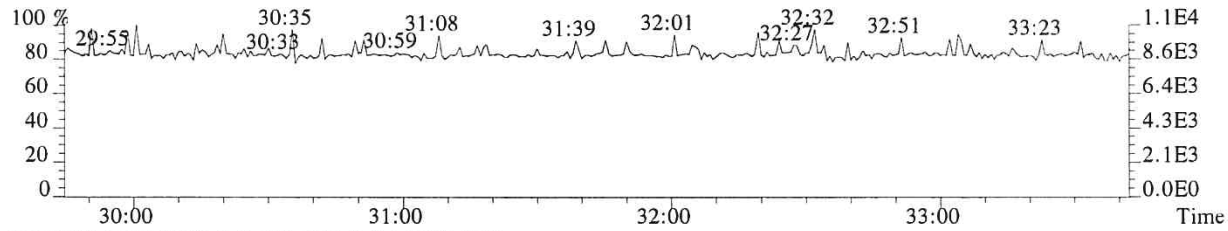
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,592.0,1.00%,F,T)



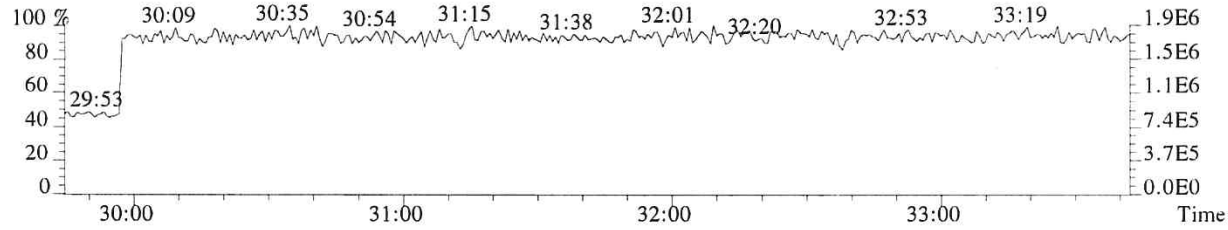
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,408.0,1.00%,F,T)



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

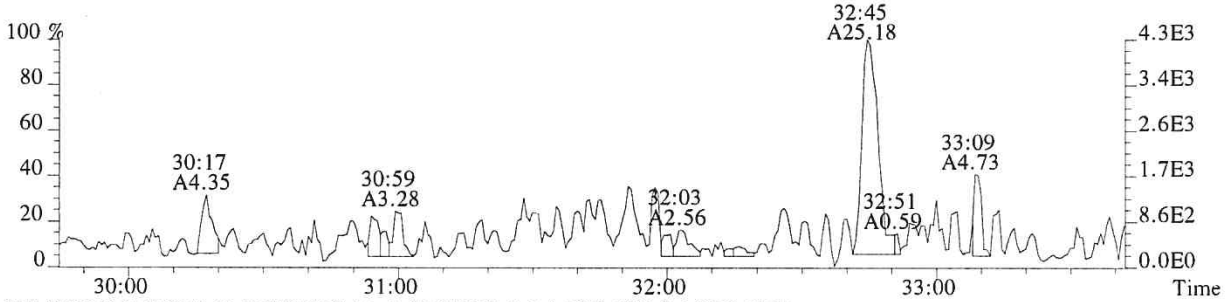


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

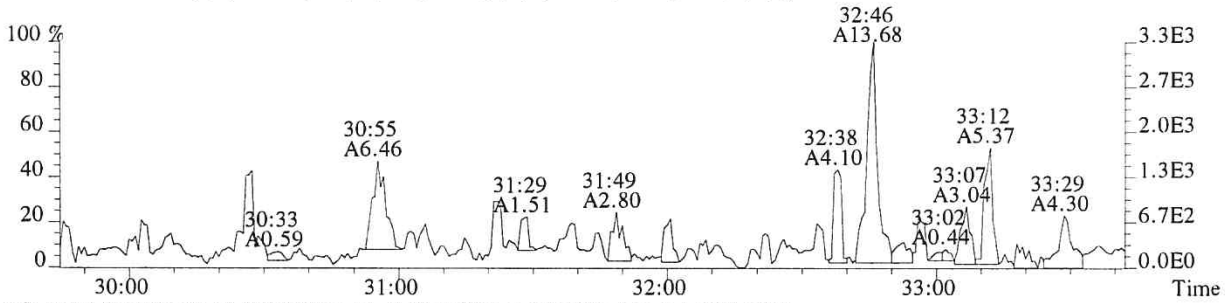


014077

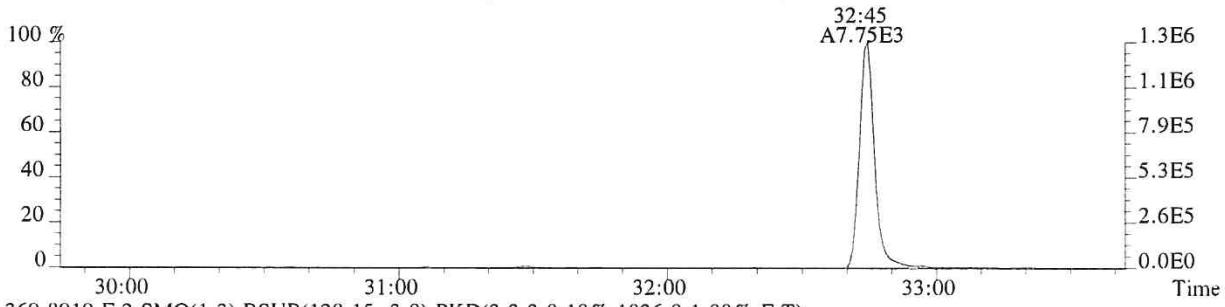
File:P519528 #1-357 Acq:20-DEC-2018 23:02:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-004DL
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,564.0,1.00%,F,T)



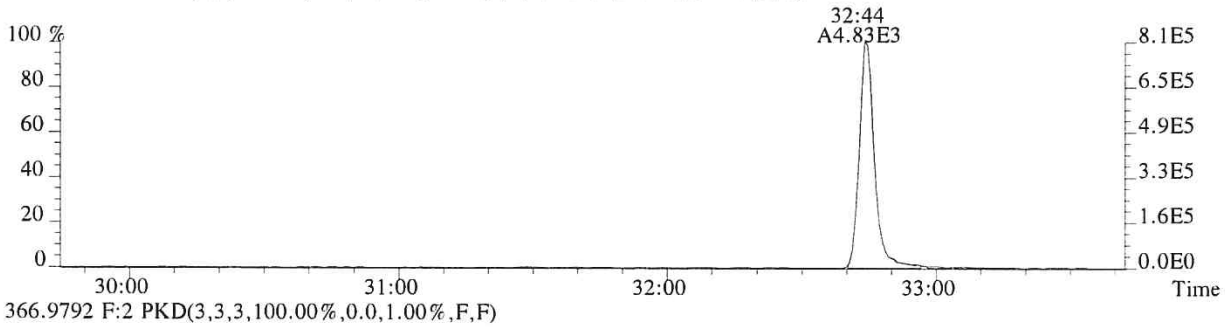
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,288.0,1.00%,F,T)



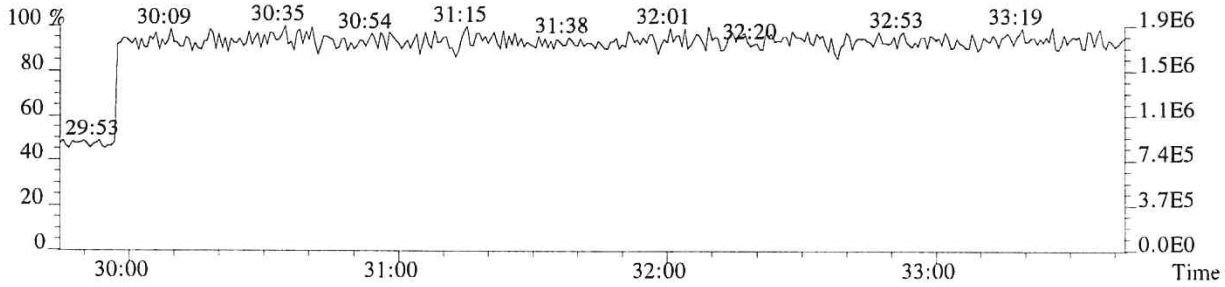
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,516.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1036.0,1.00%,F,T)



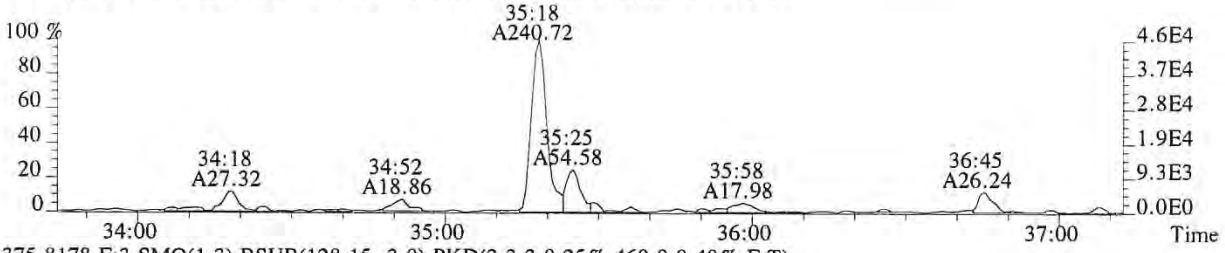
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



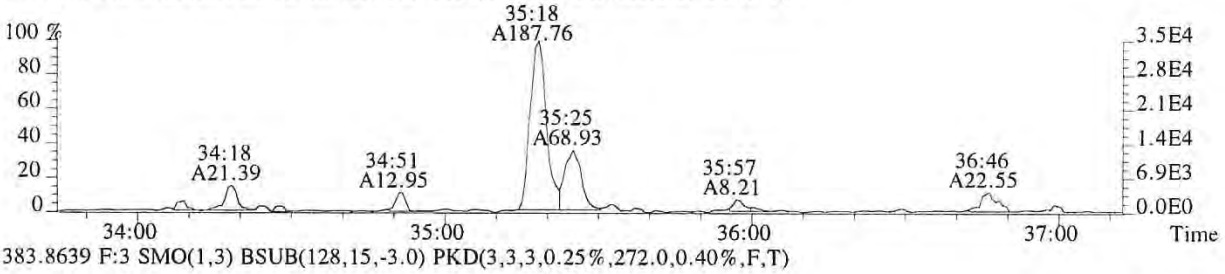
014078

File:P519528 #1-313 Acq:20-DEC-2018 23:02:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-004DL

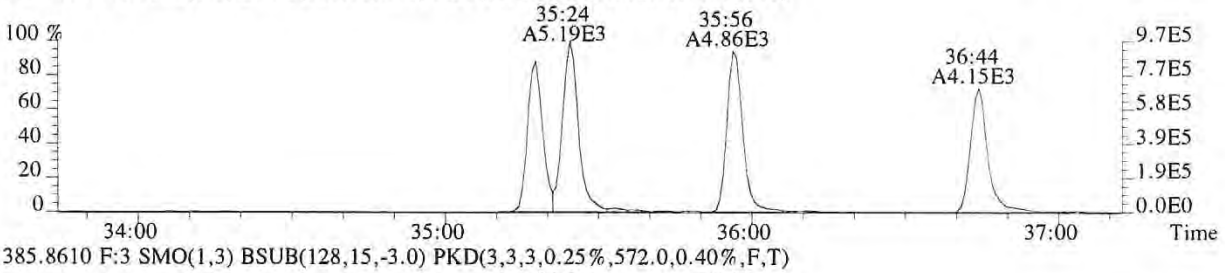
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,492.0,0.40%,F,T)



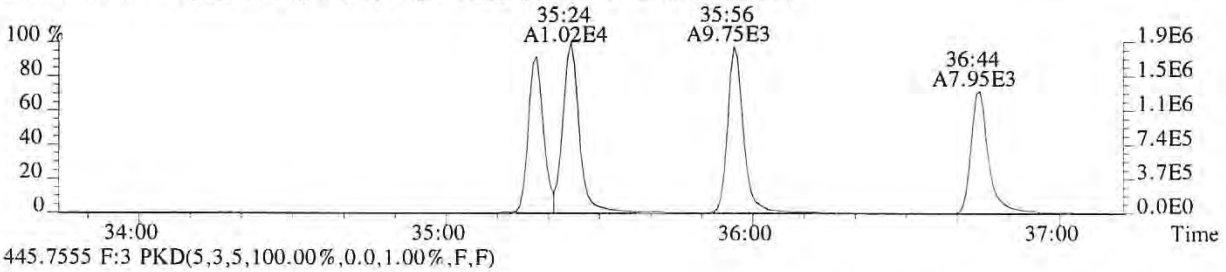
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,460.0,0.40%,F,T)



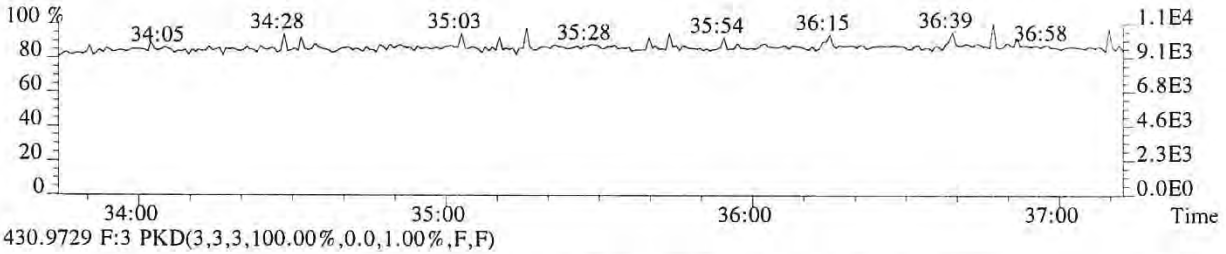
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,272.0,0.40%,F,T)



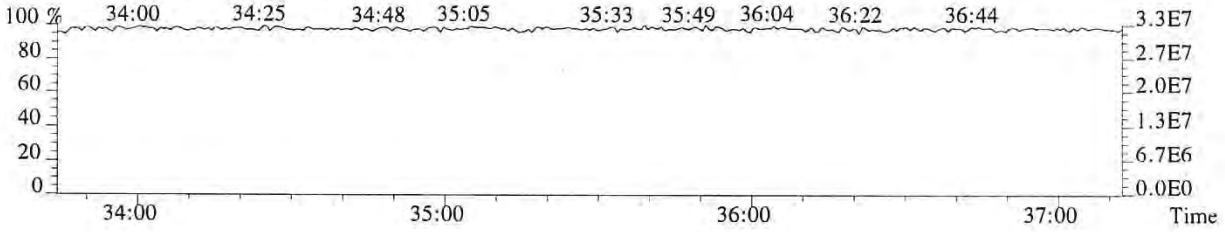
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,572.0,0.40%,F,T)



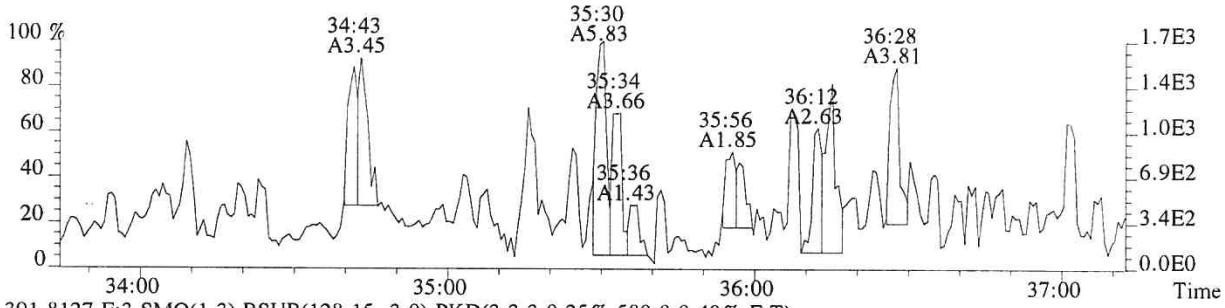
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



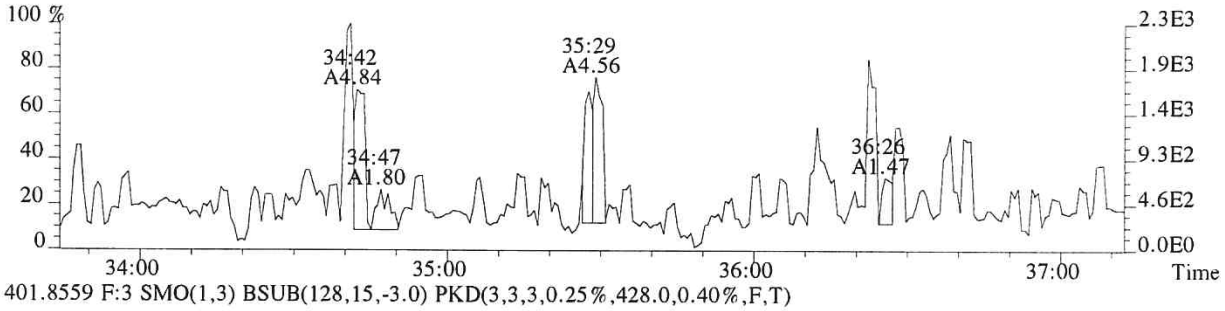
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



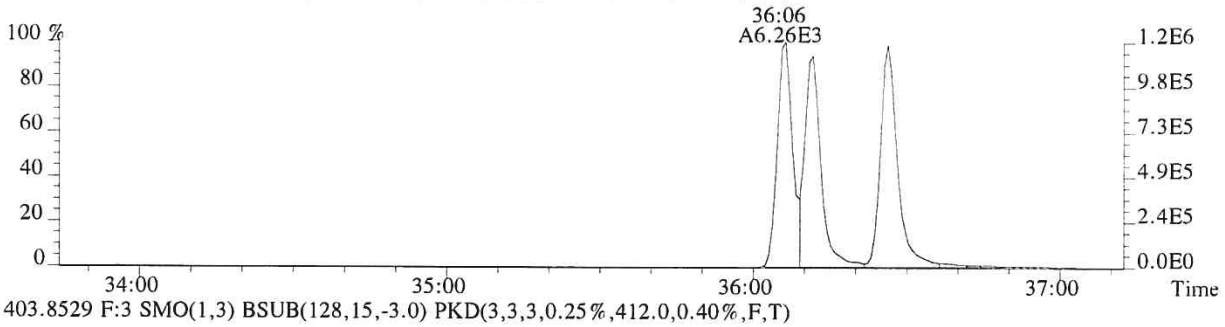
File:P519528 #1-313 Acq:20-DEC-2018 23:02:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-004DL
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,488.0,0.40%,F,T)



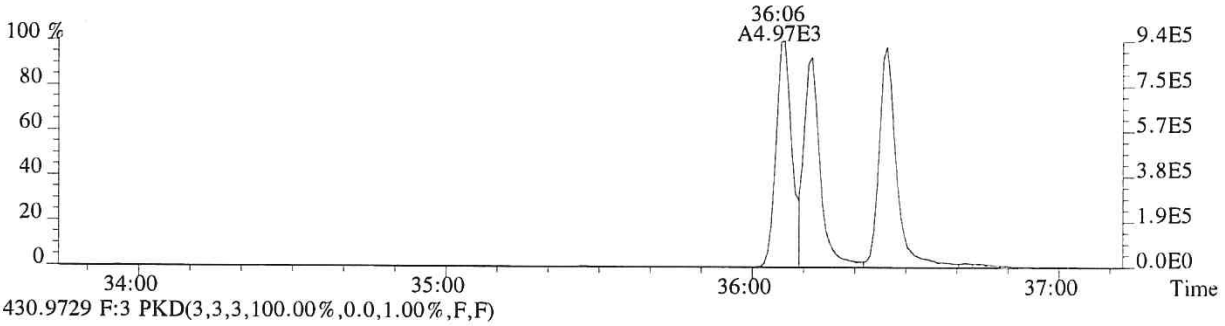
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,580.0,0.40%,F,T)



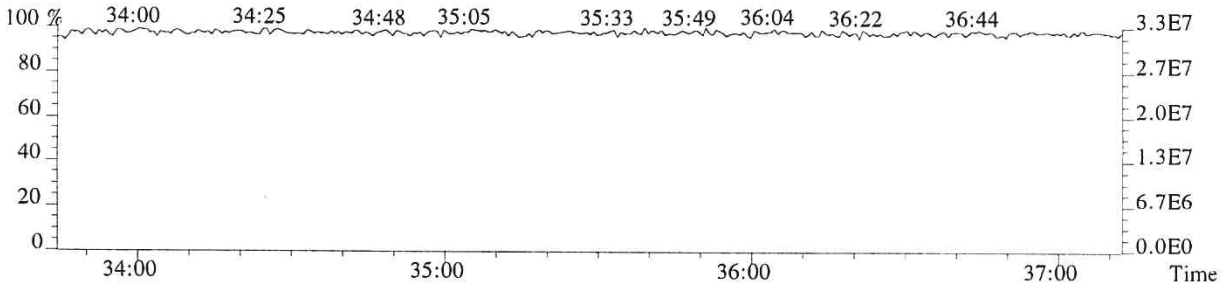
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,428.0,0.40%,F,T)



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

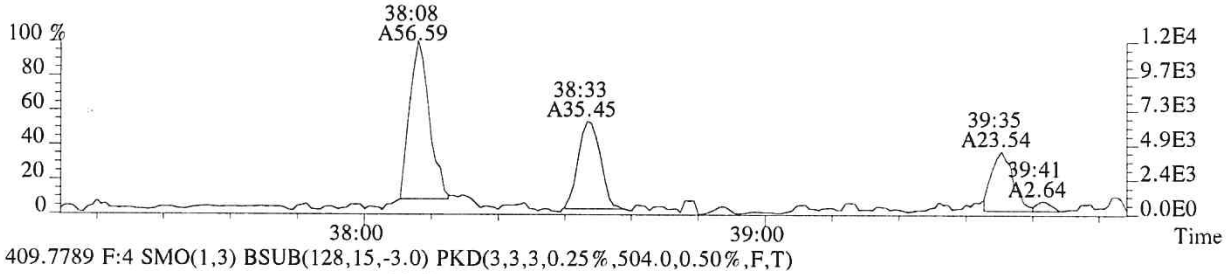


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

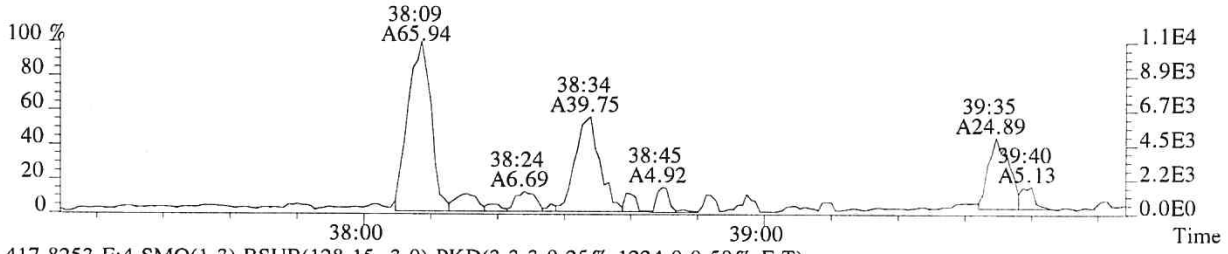


014080

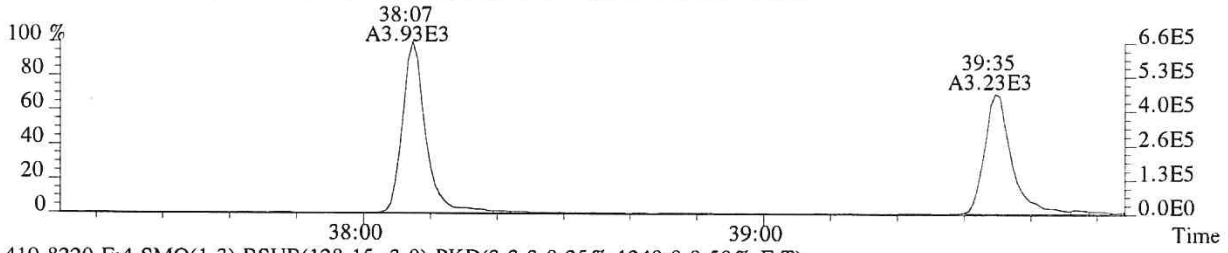
File:P519528 #1-240 Acq:20-DEC-2018 23:02:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-004DL
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,588.0,0.50%,F,T)



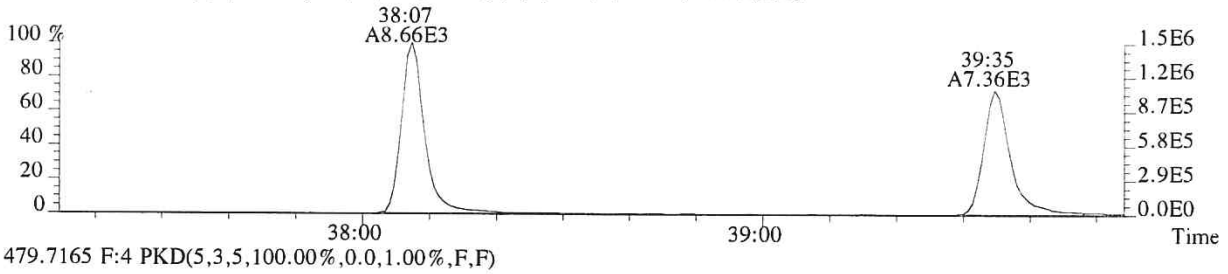
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,504.0,0.50%,F,T)



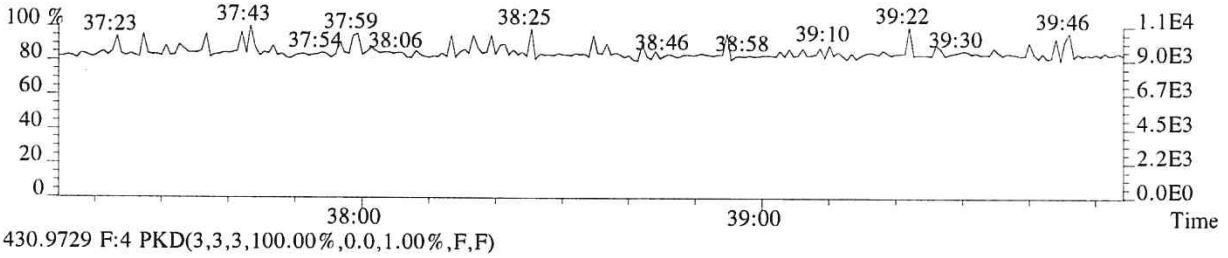
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1224.0,0.50%,F,T)



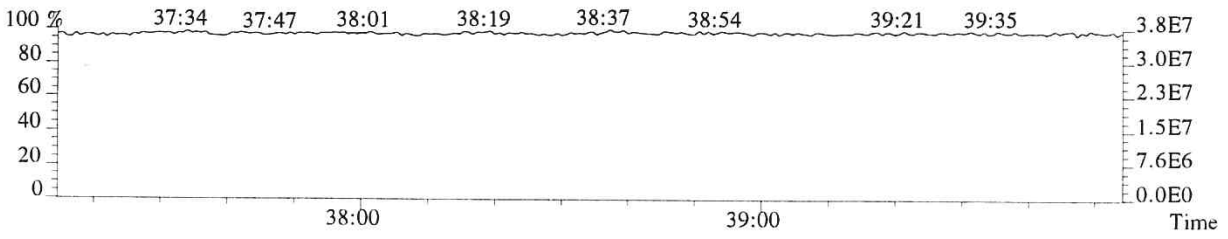
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1240.0,0.50%,F,T)



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

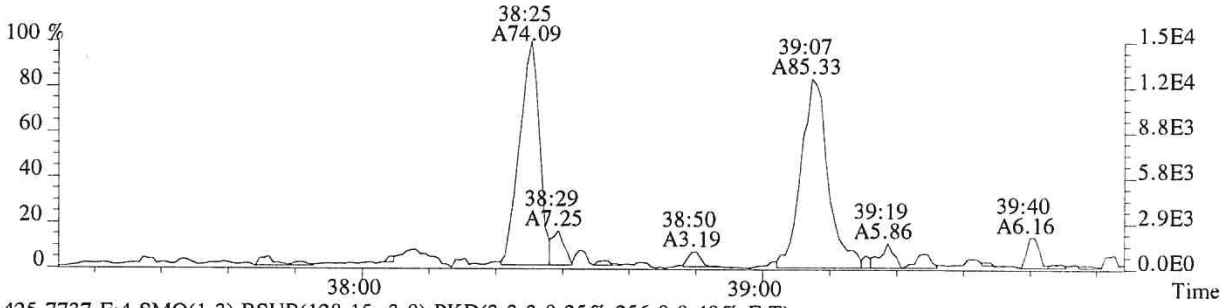


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

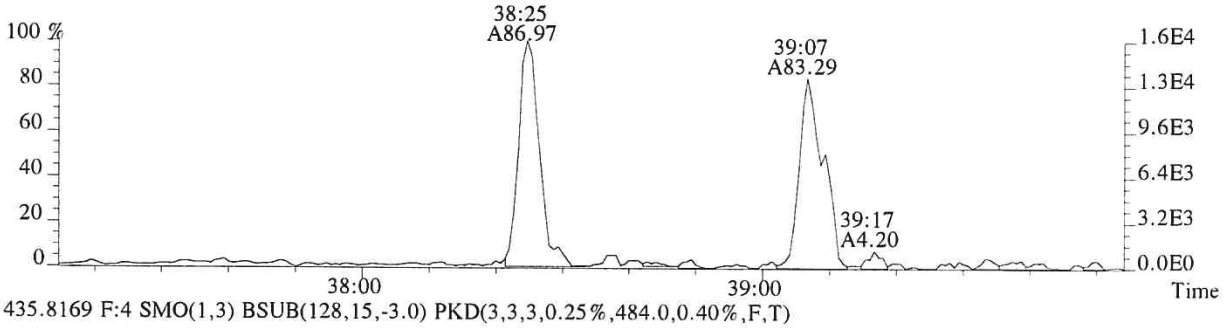


014081

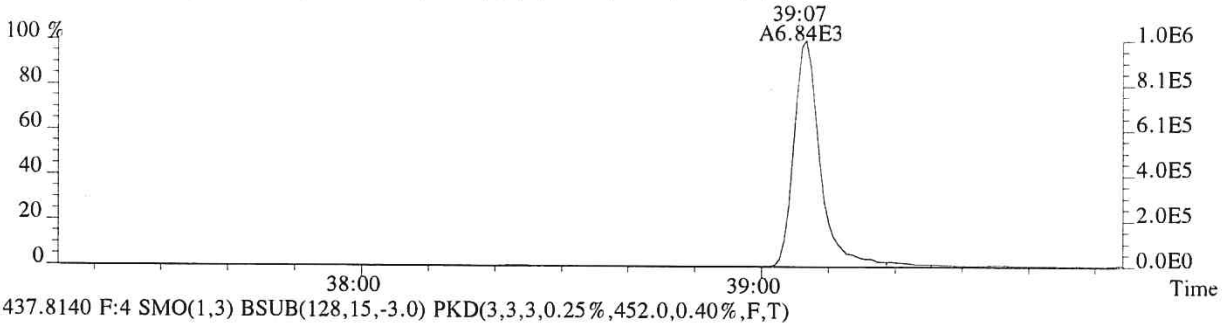
File:P519528 #1-240 Acq:20-DEC-2018 23:02:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-004DL
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,360.0,0.40%,F,T)



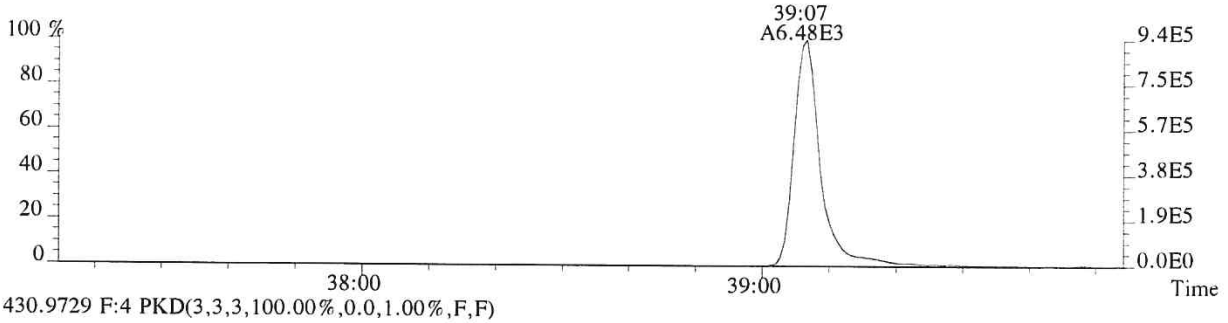
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,256.0,0.40%,F,T)



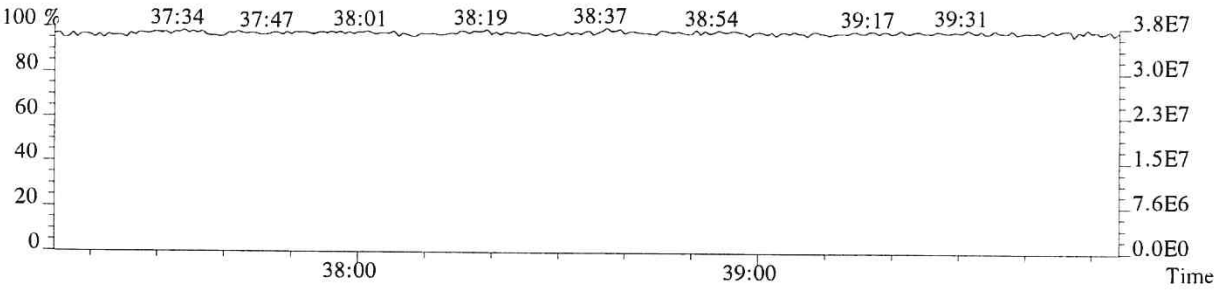
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,484.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,452.0,0.40%,F,T)

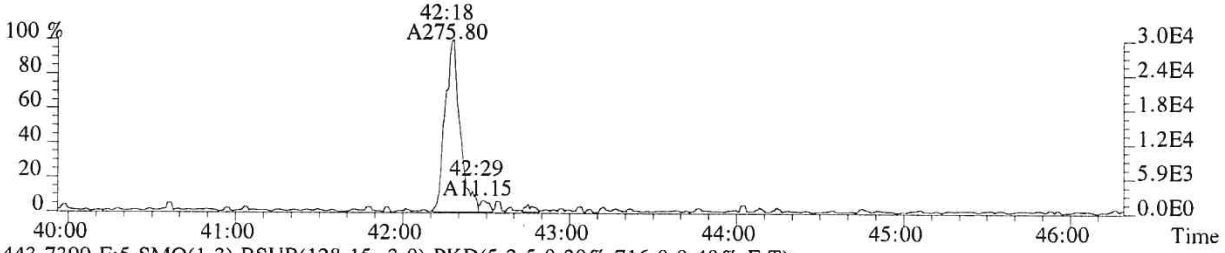


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

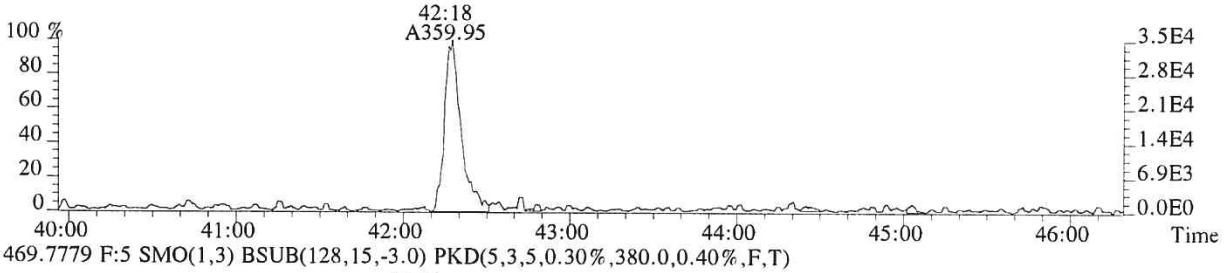


014082

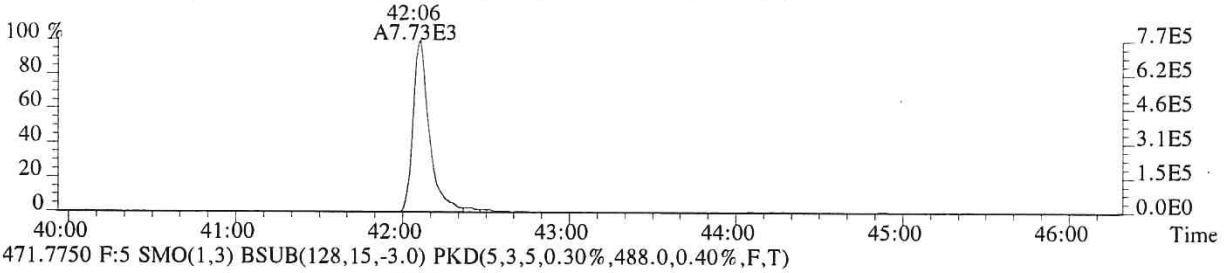
File:P519528 #1-575 Acq:20-DEC-2018 23:02:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-004DL
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,404.0,0.40%,F,T)



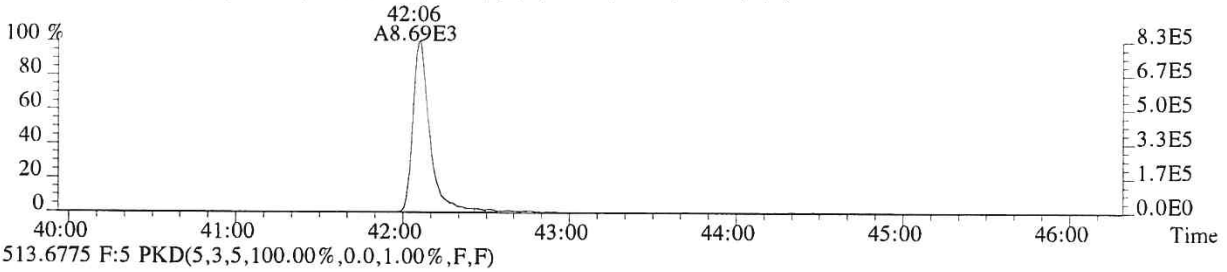
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,716.0,0.40%,F,T)



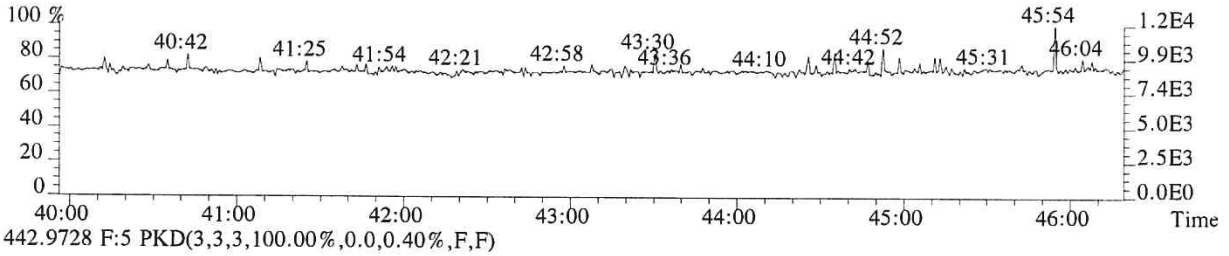
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,380.0,0.40%,F,T)



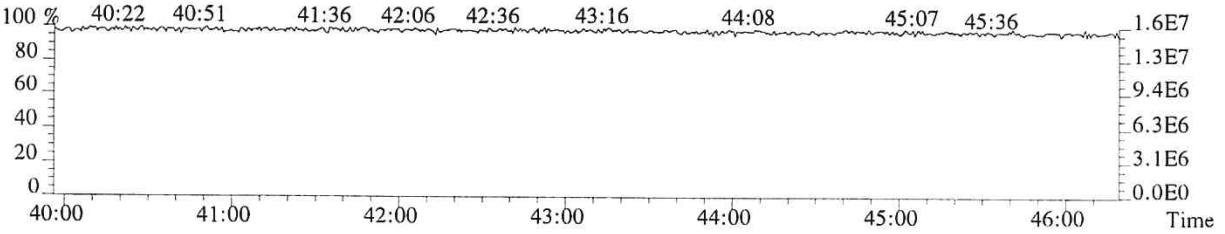
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,488.0,0.40%,F,T)



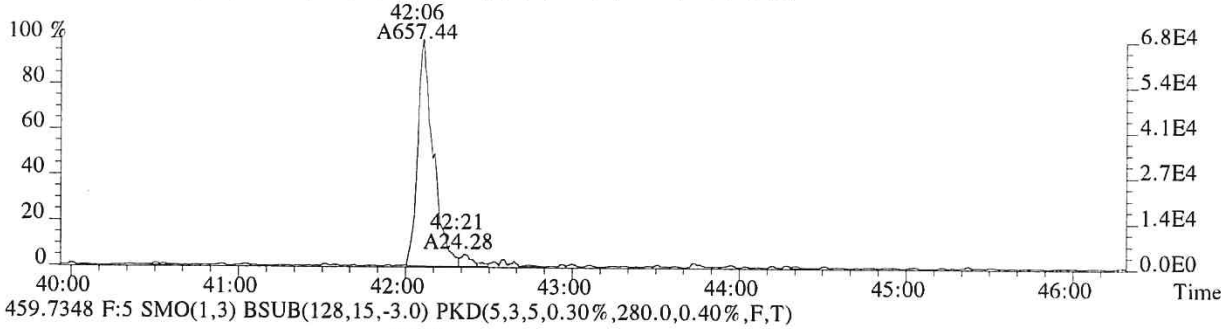
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



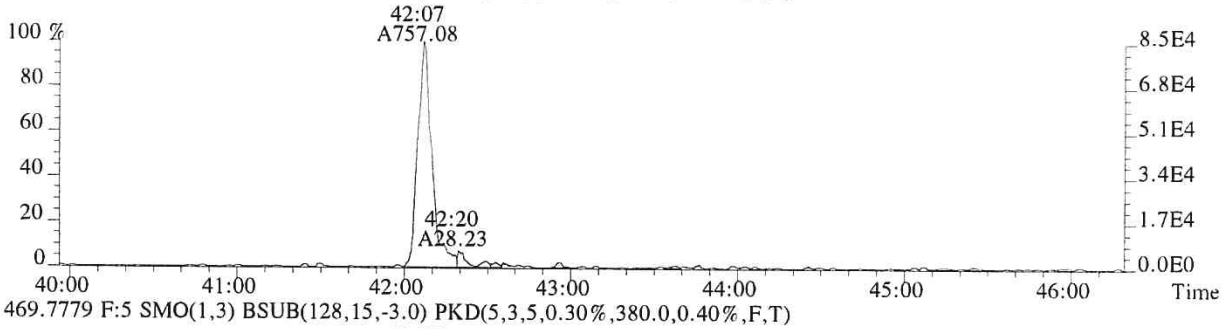
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



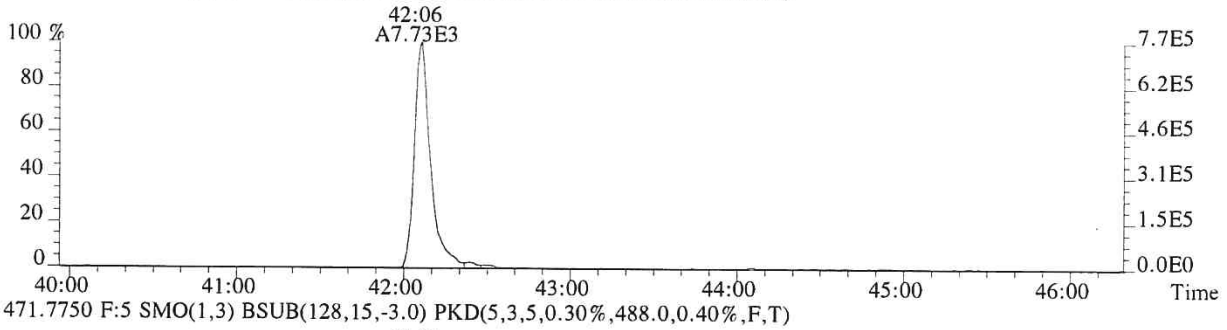
File:P519528 #1-575 Acq:20-DEC-2018 23:02:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-004DL
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,352.0,0.40%,F,T)



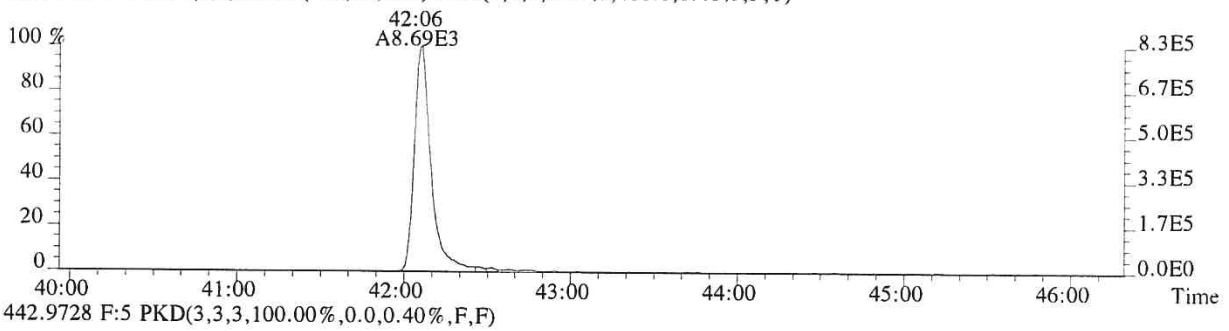
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,280.0,0.40%,F,T)



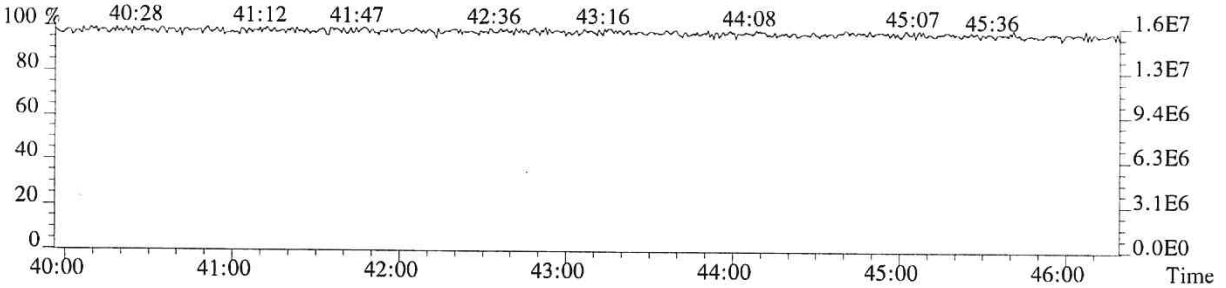
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,380.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,488.0,0.40%,F,T)



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



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0021

Run #15 Filename P519427 Samp: 1 Inj: 1 Acquired: 14-DEC-18 21:32:04
Processed: 17-DEC-18 15:31:53 Sample ID: E1801093-005

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:55	3.335e+03	4.508e+03	0.74	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	31:31	1.974e+02	1.168e+02	1.69	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	32:29	1.292e+02	9.786e+01	1.32	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:17	2.466e+02	1.802e+02	1.37	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:24	7.837e+01	5.446e+01	1.44	no	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:56	1.688e+01	2.310e+01	0.73	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	36:44	2.090e+01	3.057e+01	0.68	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:02	1.711e+02	1.647e+02	1.04	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:26	1.632e+01	1.818e+01	0.90	yes	no	1.258
10	Unk	OCDF	41:58	8.790e+02	1.010e+03	0.87	yes	no	1.359
11	Unk	2,3,7,8-TCDD	27:48	8.090e+02	1.104e+03	0.73	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	32:47	3.698e+01	2.500e+01	1.48	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:04	2.448e+01	1.047e+01	2.34	no	yes	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:10	2.833e+01	3.043e+01	0.93	no	yes	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:24	5.516e+01	3.037e+01	1.82	no	yes	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:59	8.275e+02	8.788e+02	0.94	yes	no	1.025
17	Unk	OCDD	41:48	1.337e+04	1.495e+04	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	26:54	1.305e+04	1.630e+04	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	31:29	2.155e+04	1.318e+04	1.64	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	32:27	1.996e+04	1.240e+04	1.61	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:16	8.272e+03	1.625e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:23	1.049e+04	1.984e+04	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:55	9.054e+03	1.786e+04	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	36:42	7.750e+03	1.535e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:01	6.512e+03	1.502e+04	0.43	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:25	6.156e+03	1.424e+04	0.43	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	27:47	6.007e+03	7.442e+03	0.81	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:45	1.506e+04	9.503e+03	1.58	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:04	1.345e+04	1.029e+04	1.31	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:09	1.264e+04	9.954e+03	1.27	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:58	1.467e+04	1.370e+04	1.07	yes	no	0.858
32	IS	13C-OCDD	41:47	1.319e+04	1.518e+04	0.87	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:09	1.467e+04	1.819e+04	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:24	2.106e+04	1.587e+04	1.33	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:48	8.475e+03				no	1.014

$$\text{OCDD} = \frac{(1.337e+04 + 1.495e+04) \times 4000\ \text{pg} \times 1}{(1.319e+04 + 1.518e+04) \times 10535\ \text{g} \times 82.7 / 100 \times 1.118} = 410\ \text{ng/kg}$$

KW 12/20/18

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

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0021

Run #15 Filename P519427 Samp: 1 Inj: 1 Acquired: 14-DEC-18 21:32:04
Processed: 17-DEC-18 15:31:53 LAB. ID: E1801093-005

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	4.97e+05	2.11e+03	2.4e+02	6.70e+05	2.13e+03	3.1e+02
2	1,2,3,7,8-PeCDF	3.65e+04	9.88e+02	3.7e+01	2.10e+04	1.01e+03	2.1e+01
3	2,3,4,7,8-PeCDF	2.10e+04	9.88e+02	2.1e+01	1.49e+04	1.01e+03	1.5e+01
4	1,2,3,4,7,8-HxCDF	5.44e+04	1.15e+03	4.7e+01	3.58e+04	4.44e+02	8.1e+01
5	1,2,3,6,7,8-HxCDF	1.34e+04	1.15e+03	1.2e+01	9.48e+03	4.44e+02	2.1e+01
6	2,3,4,6,7,8-HxCDF	3.79e+03	1.15e+03	3.3e+00	4.66e+03	4.44e+02	1.0e+01
7	1,2,3,7,8,9-HxCDF	3.19e+03	1.15e+03	2.8e+00	5.48e+03	4.44e+02	1.2e+01
8	1,2,3,4,6,7,8-HpCDF	3.41e+04	1.05e+03	3.2e+01	3.45e+04	5.12e+02	6.7e+01
9	1,2,3,4,7,8,9-HpCDF	4.35e+03	1.05e+03	4.1e+00	5.08e+03	5.12e+02	9.9e+00
10	OCDF	1.30e+05	4.04e+02	3.2e+02	1.47e+05	1.11e+03	1.3e+02
11	2,3,7,8-TCDD	1.46e+05	2.61e+03	5.6e+01	1.97e+05	1.36e+03	1.4e+02
12	1,2,3,7,8-PeCDD	6.27e+03	6.68e+02	9.4e+00	3.64e+03	4.40e+02	8.3e+00
13	1,2,3,4,7,8-HxCDD	4.86e+03	9.16e+02	5.3e+00	2.40e+03	9.16e+02	2.6e+00
14	1,2,3,6,7,8-HxCDD	6.43e+03	9.16e+02	7.0e+00	5.93e+03	9.16e+02	6.5e+00
15	1,2,3,7,8,9-HxCDD	9.69e+03	9.16e+02	1.1e+01	6.94e+03	9.16e+02	7.6e+00
16	1,2,3,4,6,7,8-HpCDD	1.64e+05	2.37e+03	6.9e+01	1.58e+05	7.08e+02	2.2e+02
17	OCDD	1.88e+06	5.04e+02	3.7e+03	2.13e+06	6.32e+02	3.4e+03
18	13C-2,3,7,8-TCDF	2.12e+06	4.56e+03	4.6e+02	2.59e+06	3.07e+03	8.5e+02
19	13C-1,2,3,7,8-PeCDF	3.85e+06	4.92e+02	7.8e+03	2.32e+06	1.16e+03	2.0e+03
20	13C-2,3,4,7,8-PeCDF	3.85e+06	4.92e+02	7.8e+03	2.35e+06	1.16e+03	2.0e+03
21	13C-1,2,3,4,7,8-HxCDF	1.75e+06	8.08e+02	2.2e+03	3.45e+06	1.10e+03	3.1e+03
22	13C-1,2,3,6,7,8-HxCDF	2.03e+06	8.08e+02	2.5e+03	3.87e+06	1.10e+03	3.5e+03
23	13C-2,3,4,6,7,8-HxCDF	1.90e+06	8.08e+02	2.4e+03	3.68e+06	1.10e+03	3.3e+03
24	13C-1,2,3,7,8,9-HxCDF	1.51e+06	8.08e+02	1.9e+03	3.03e+06	1.10e+03	2.8e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.31e+06	2.72e+03	4.8e+02	3.03e+06	7.26e+03	4.2e+02
26	13C-1,2,3,4,7,8,9-HpCDF	1.14e+06	2.72e+03	4.2e+02	2.49e+06	7.26e+03	3.4e+02
27	13C-2,3,7,8-TCDD	1.02e+06	6.98e+03	1.5e+02	1.29e+06	4.98e+03	2.6e+02
28	13C-1,2,3,7,8-PeCDD	2.78e+06	1.18e+03	2.4e+03	1.75e+06	1.45e+03	1.2e+03
29	13C-1,2,3,4,7,8-HxCDD	2.80e+06	8.88e+02	3.1e+03	2.13e+06	9.28e+02	2.3e+03
30	13C-1,2,3,6,7,8-HxCDD	2.48e+06	8.88e+02	2.8e+03	1.98e+06	9.28e+02	2.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.68e+06	5.44e+02	4.9e+03	2.61e+06	9.52e+02	2.7e+03
32	13C-OCDD	1.90e+06	8.20e+02	2.3e+03	2.13e+06	2.56e+02	8.3e+03
33	13C-1,2,3,4-TCDD	2.54e+06	6.98e+03	3.6e+02	3.16e+06	4.98e+03	6.4e+02
34	13C-1,2,3,7,8,9-HxCDD	3.96e+06	8.88e+02	4.5e+03	3.12e+06	9.28e+02	3.4e+03
35	37Cl-2,3,7,8-TCDD	1.53e+06	1.12e+03	1.4e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0021

Entry: 36 Totals Name: Total Tetra-Furans

Run: 15 File: P519427 Sample:1 Injection:1 Function:1

Acquired: 14-DEC-18 21:32:04 Processed: 17-DEC-18 15:31:53

Mass: 303.9020 305.8990 Tot Response: 1.21e+04 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:23	5.70e+01	7.44e+01	0.77	yes	1.31e+02		n	n
2	26:00	1.37e+03	1.86e+03	0.74	yes	3.23e+03		n	n
3	26:19	6.63e+01	1.00e+02	0.66	yes	1.67e+02		n	n
4	26:55	3.34e+03	4.51e+03	0.74	yes	7.84e+03	2,3,7,8-TCDF	n	n
5	27:31	4.10e+01	5.76e+01	0.71	yes	9.86e+01		n	n
6	28:56	2.54e+02	3.56e+02	0.71	yes	6.10e+02		n	n

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Peak List Summary

CLIENT ID.
SL0021

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 15 File: P519427 Sample:1 Injection:1 Function:1

Acquired: 14-DEC-18 21:32:04 Processed: 17-DEC-18 15:31:53

Mass: 319.8970 321.8940 Tot Response: 2.96e+03 RRF: 1.085

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	25:40	4.03e+02	4.85e+02	0.83	yes	8.87e+02		n	n
2	27:48	8.09e+02	1.10e+03	0.73	yes	1.91e+03	2,3,7,8-TCDD	n	n
3	28:08	6.37e+01	9.68e+01	0.66	yes	1.60e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0021

Entry: 39 Totals Name: Total Penta-Furans2

Run: 15 File: P519427 Sample:1 Injection:1 Function:2

Acquired: 14-DEC-18 21:32:04 Processed: 17-DEC-18 15:31:53

Mass: 339.8600 341.8570 Tot Response: 7.24e+02 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:31	1.17e+02	6.59e+01	1.77	yes	1.83e+02		n	n
2	31:31	1.97e+02	1.17e+02	1.69	yes	3.14e+02	1,2,3,7,8-PeCDF	n	n
3	32:29	1.29e+02	9.79e+01	1.32	yes	2.27e+02	2,3,4,7,8-PeCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0021

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 15 File: P519427 Sample:1 Injection:1 Function:2

Acquired: 14-DEC-18 21:32:04 Processed: 17-DEC-18 15:31:53

Mass: 355.8550 357.8520 Tot Response: 5.31e+02 RRF: 0.9565

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:03	2.52e+02	1.81e+02 1.40	yes	4.33e+02		n	n
2	31:42	2.17e+01	1.46e+01 1.49	yes	3.63e+01		n	n
3	32:47	3.70e+01	2.50e+01 1.48	yes	6.20e+01	1,2,3,7,8-PeCDD	n	n

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Peak List Summary

CLIENT ID.
SL0021

Entry: 41 Totals Name: Total Hexa-Furans

Run: 15 File: P519427 Sample:1 Injection:1 Function:3

Acquired: 14-DEC-18 21:32:04 Processed: 17-DEC-18 15:31:53

Mass: 373.8210 375.8180 Tot Response: 4.76e+02 RRF: 1.141

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:50	2.75e+01	2.23e+01 1.23	yes	4.97e+01		n	n
2	35:17	2.47e+02	1.80e+02 1.37	yes	4.27e+02	1,2,3,4,7,8-HxCDF	n	n

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Peak List Summary

CLIENT ID.
SL0021

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 15 File: P519427 Sample:1 Injection:1 Function:3

Acquired: 14-DEC-18 21:32:04 Processed: 17-DEC-18 15:31:53

Mass: 389.8160 391.8130 Tot Response: 3.81e+03 RRF: 1.047

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:41	1.86e+03	1.44e+03 1.29	yes	3.31e+03		n	n
2	35:14	2.86e+01	2.40e+01 1.19	yes	5.26e+01		n	n
3	35:28	2.38e+02	2.12e+02 1.12	yes	4.51e+02		n	n

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Peak List Summary

CLIENT ID.
SL0021

Entry: 43 Totals Name: Total Hepta-Furans

Run: 15 File: P519427 Sample:1 Injection:1 Function:4

Acquired: 14-DEC-18 21:32:04 Processed: 17-DEC-18 15:31:53

Mass: 407.7820 409.7790 Tot Response: 3.70e+02 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:02	1.71e+02	1.65e+02	1.04	yes	3.36e+02	1,2,3,4,6,7,8-HpCDF	n	n
2	39:26	1.63e+01	1.82e+01	0.90	yes	3.45e+01	1,2,3,4,7,8,9-HpCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0021

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 15 File: P519427 Sample:1 Injection:1 Function:4

Acquired: 14-DEC-18 21:32:04 Processed: 17-DEC-18 15:31:53

Mass: 423.7770 425.7740 Tot Response: 7.72e+03 RRF: 1.025

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:18	3.06e+03	2.95e+03	1.04	yes	6.01e+03		n	n
2	38:59	8.28e+02	8.79e+02	0.94	yes	1.71e+03	1,2,3,4,6,7,8-HpCDD	n	n

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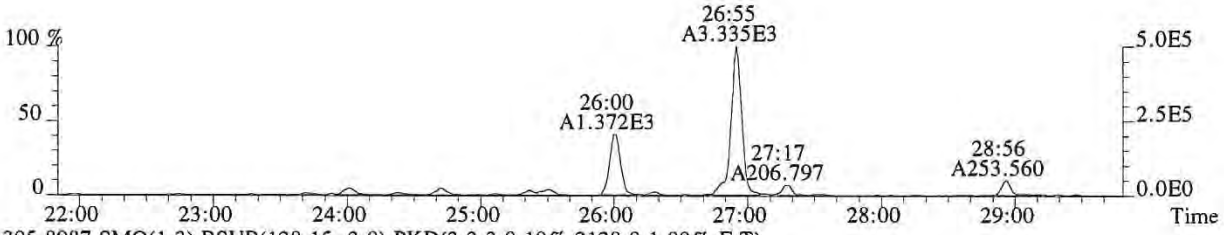
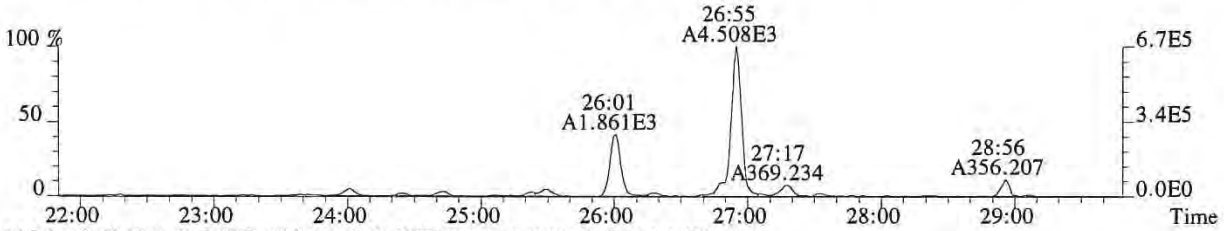
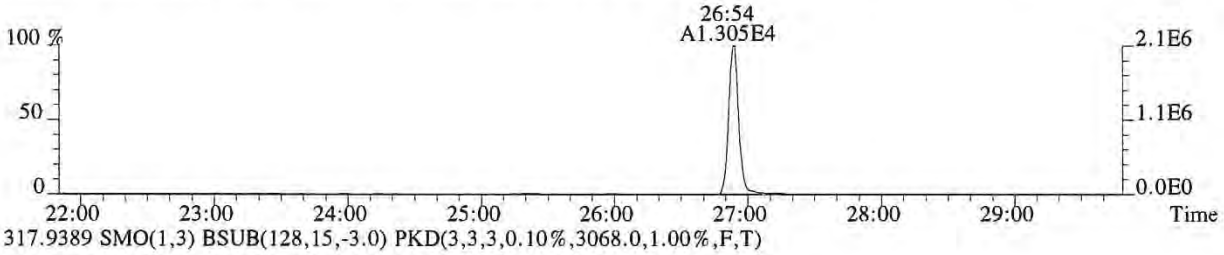
File:P519427 #1-566 Acq:14-DEC-2018 21:32:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-005
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2112.0,1.00%,F,T)



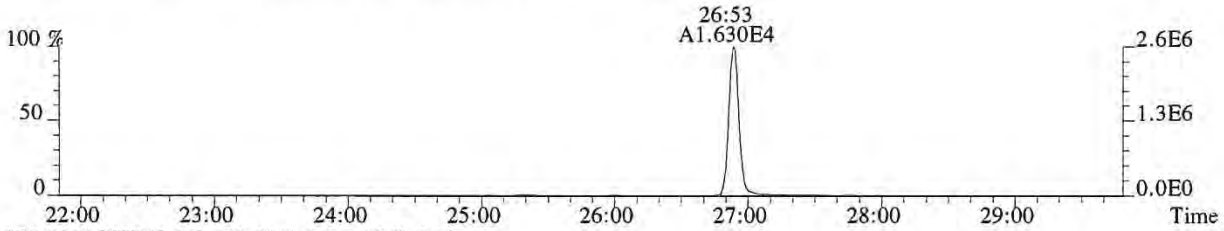
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2128.0,1.00%,F,T)



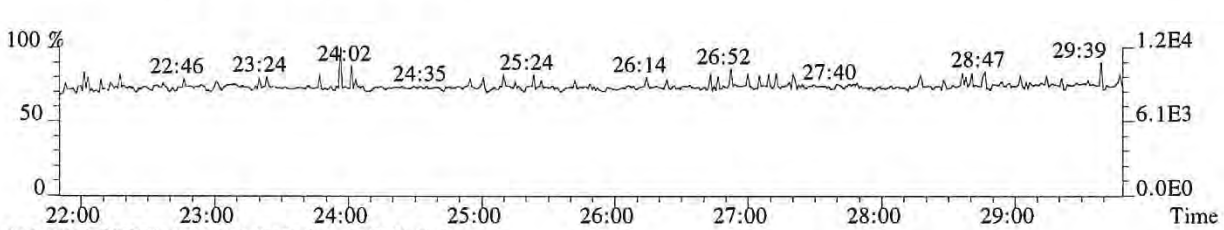
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4556.0,1.00%,F,T)



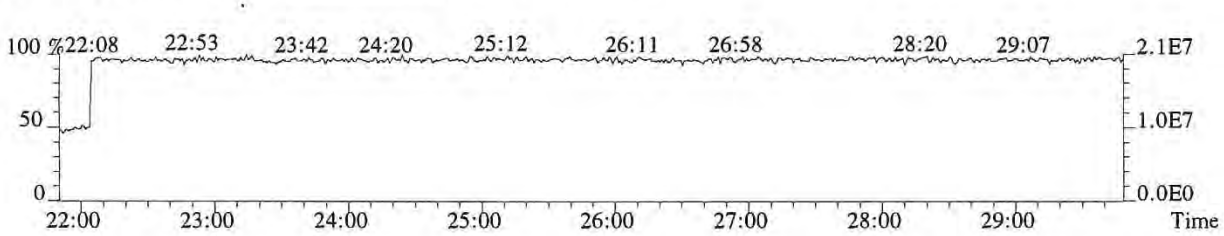
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3068.0,1.00%,F,T)



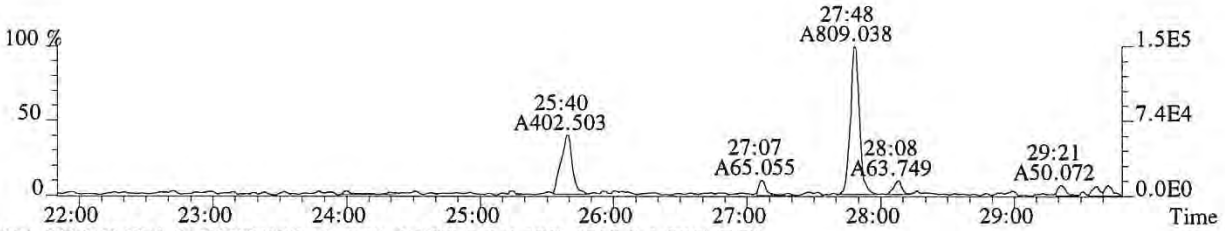
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



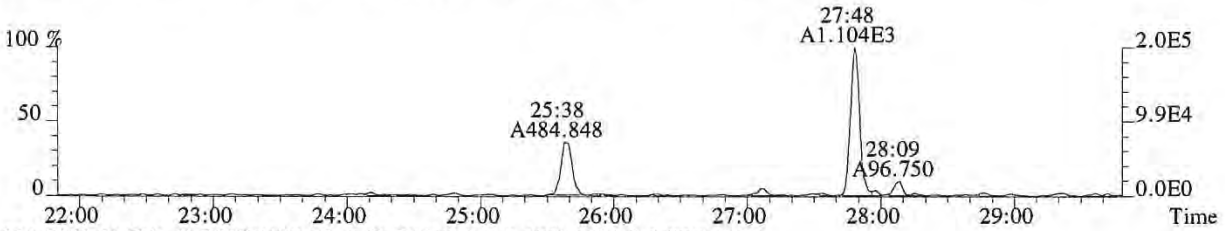
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



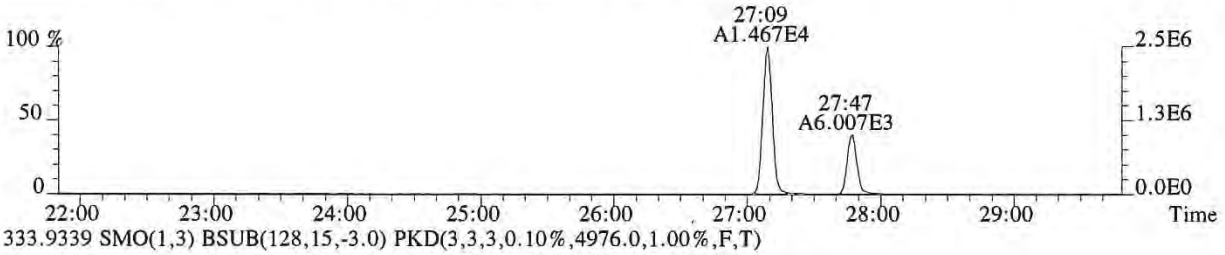
File:P519427 #1-566 Acq:14-DEC-2018 21:32:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-005
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2612.0,1.00%,F,T)



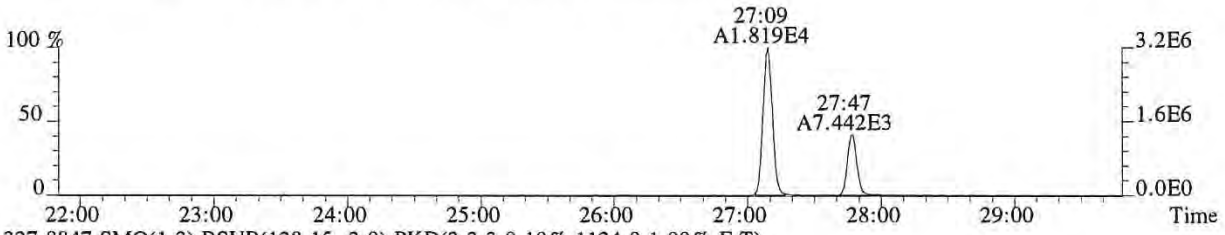
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1360.0,1.00%,F,T)



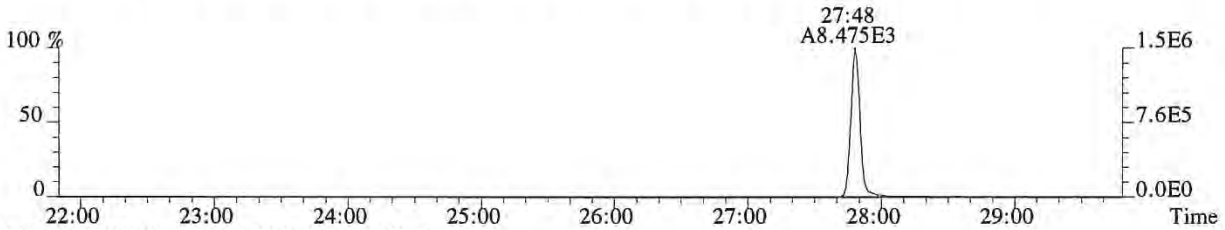
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6984.0,1.00%,F,T)



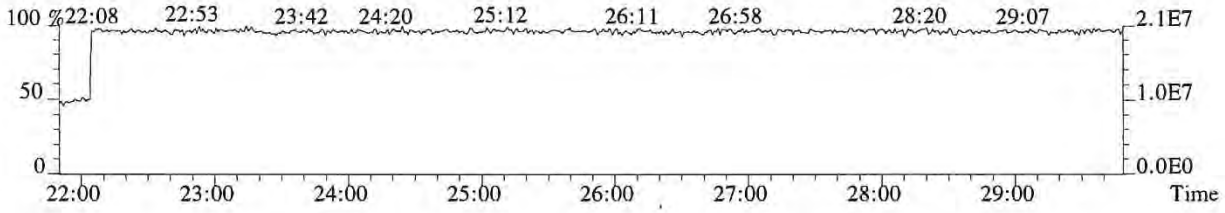
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4976.0,1.00%,F,T)



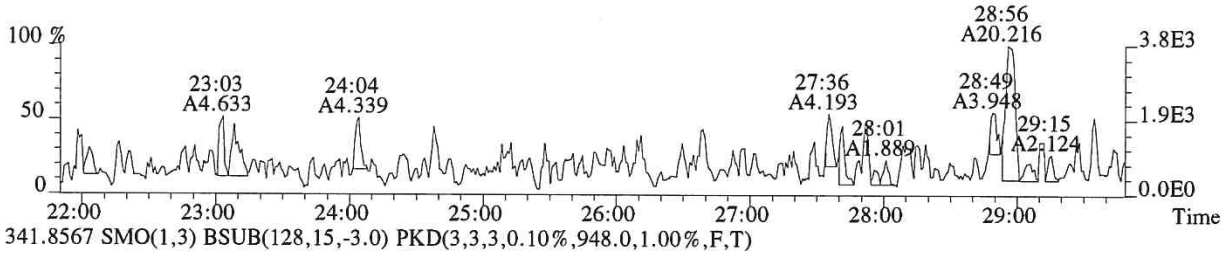
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1124.0,1.00%,F,T)



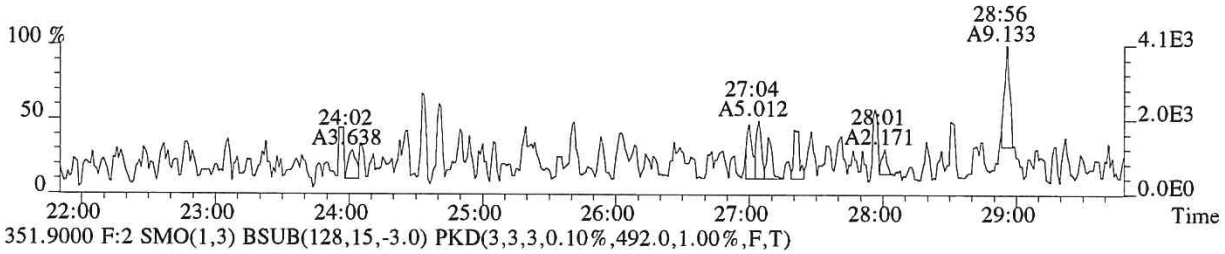
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



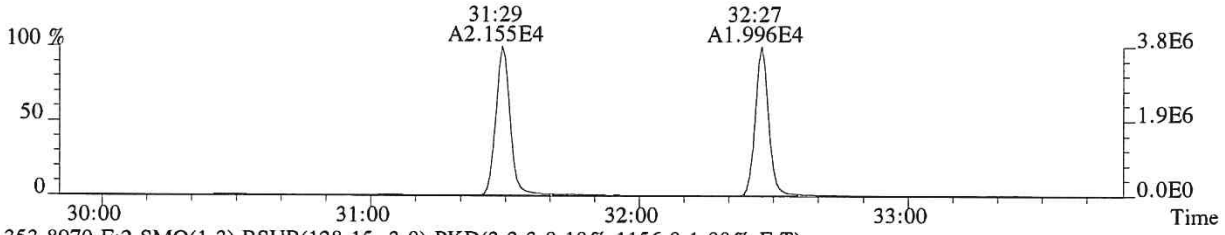
File:P519427 #1-566 Acq:14-DEC-2018 21:32:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-005
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,800.0,1.00%,F,T)



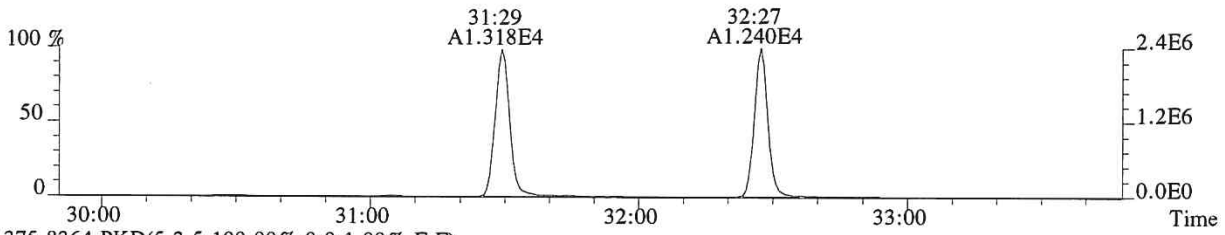
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,948.0,1.00%,F,T)



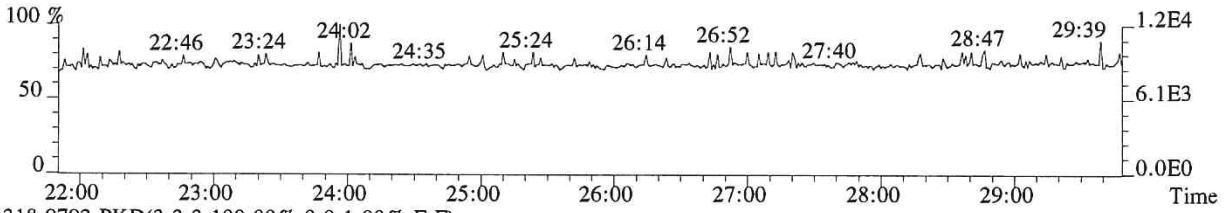
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,492.0,1.00%,F,T)



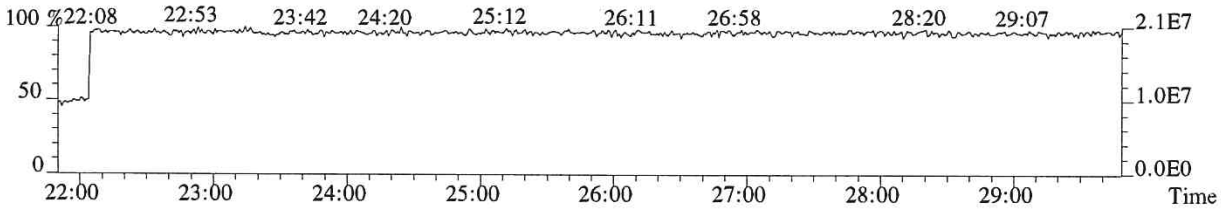
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1156.0,1.00%,F,T)



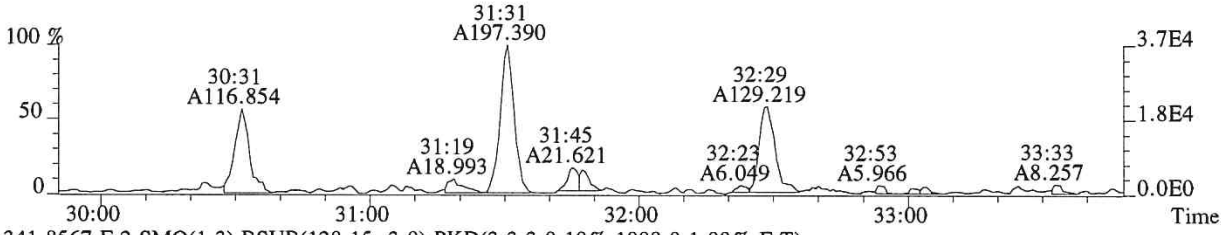
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



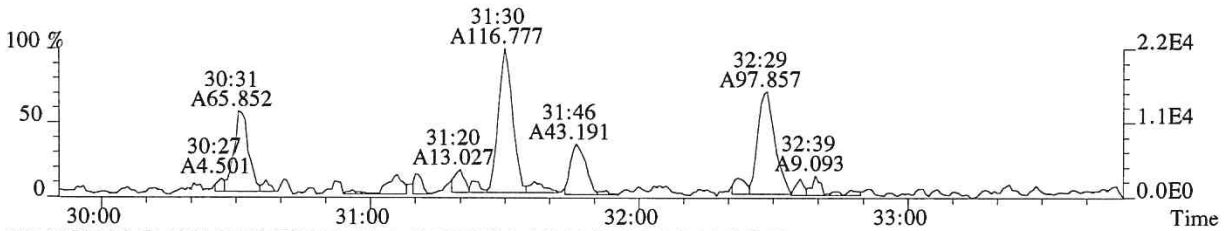
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



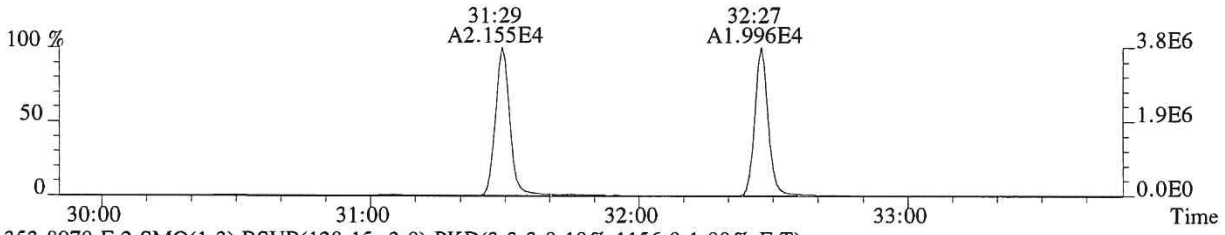
File:P519427 #1-357 Acq:14-DEC-2018 21:32:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-005
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,988.0,1.00%,F,T)



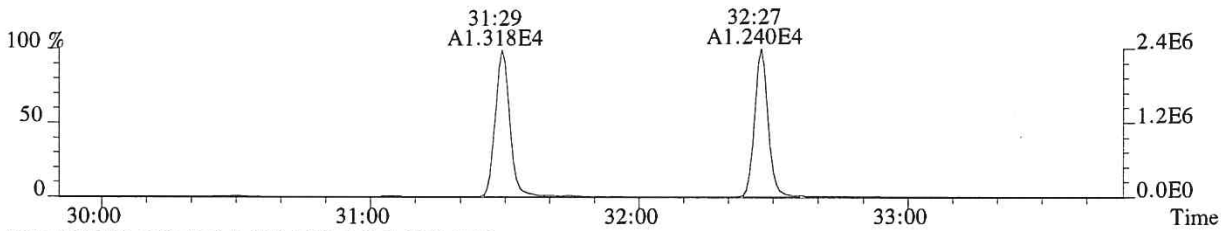
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1008.0,1.00%,F,T)



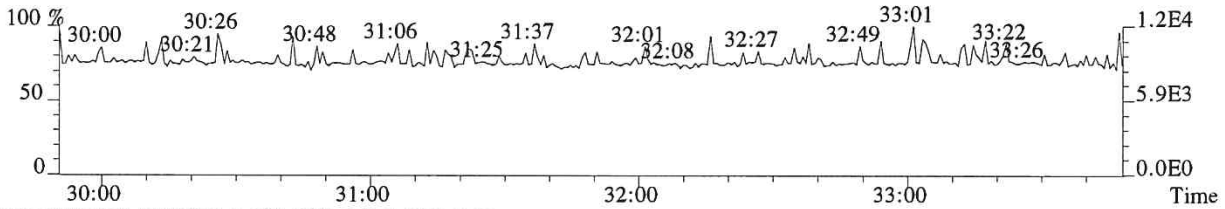
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,492.0,1.00%,F,T)



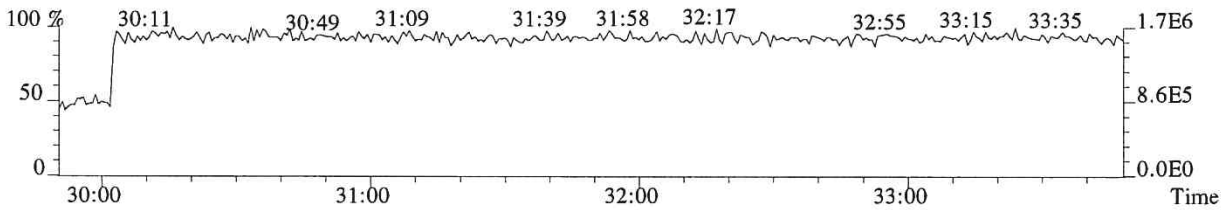
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1156.0,1.00%,F,T)



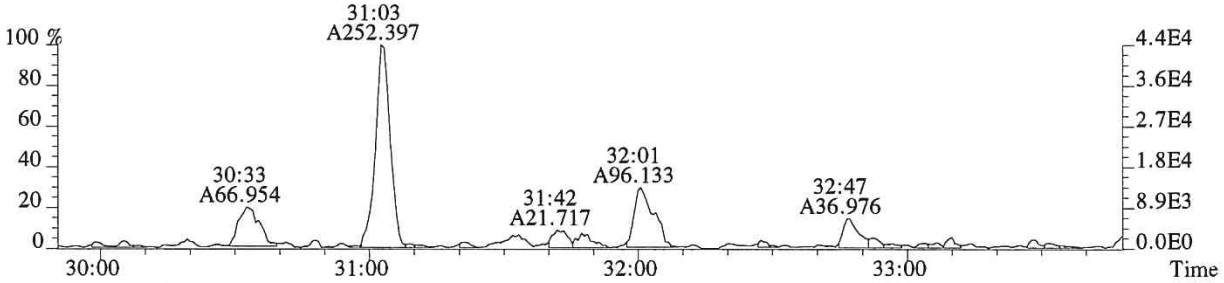
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



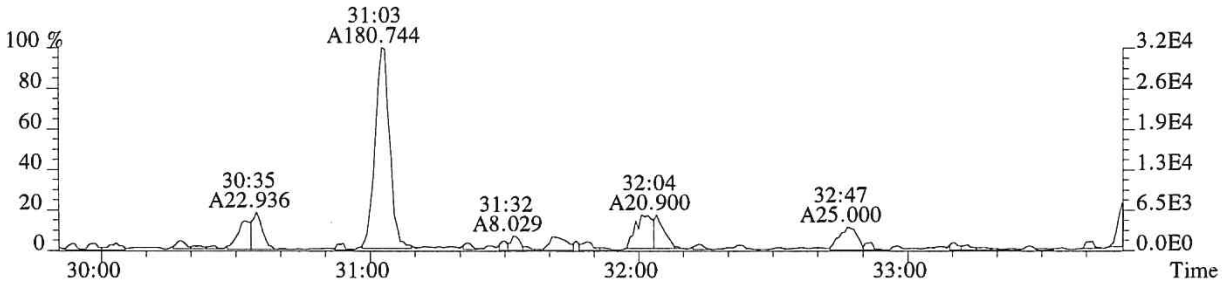
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



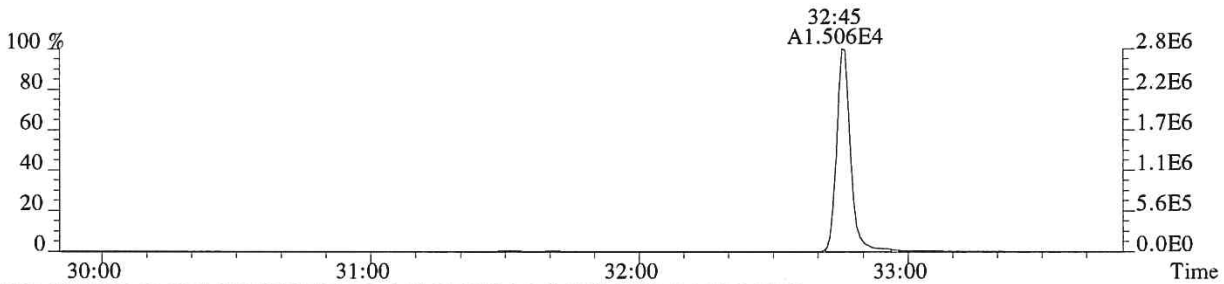
File:P519427 #1-357 Acq:14-DEC-2018 21:32:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-005
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,668.0,1.00%,F,T)



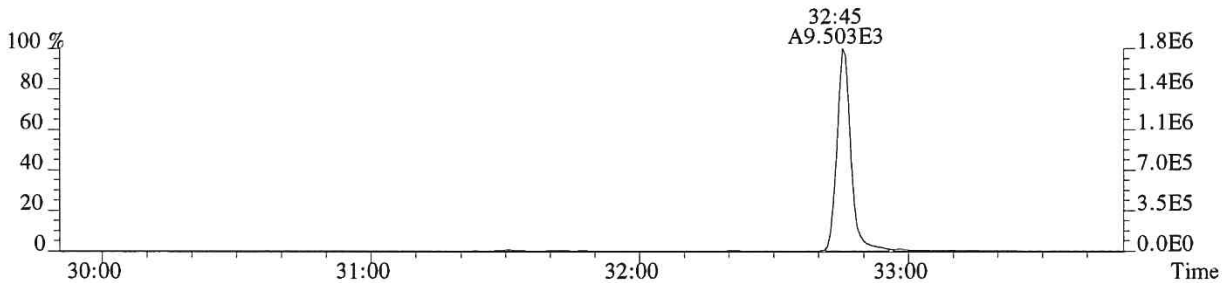
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,440.0,1.00%,F,T)



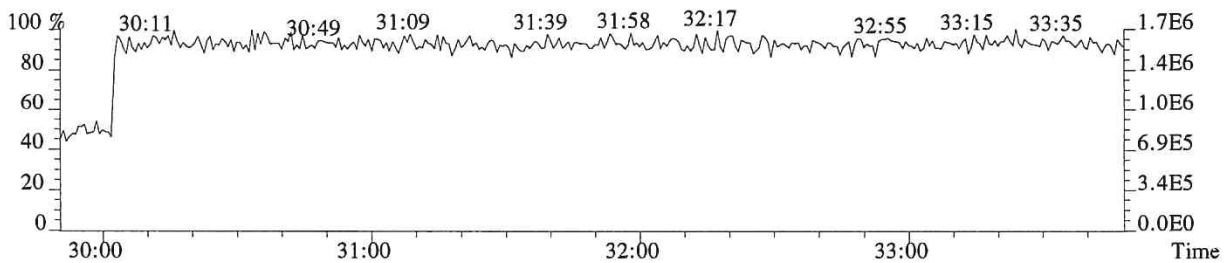
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1176.0,1.00%,F,T)



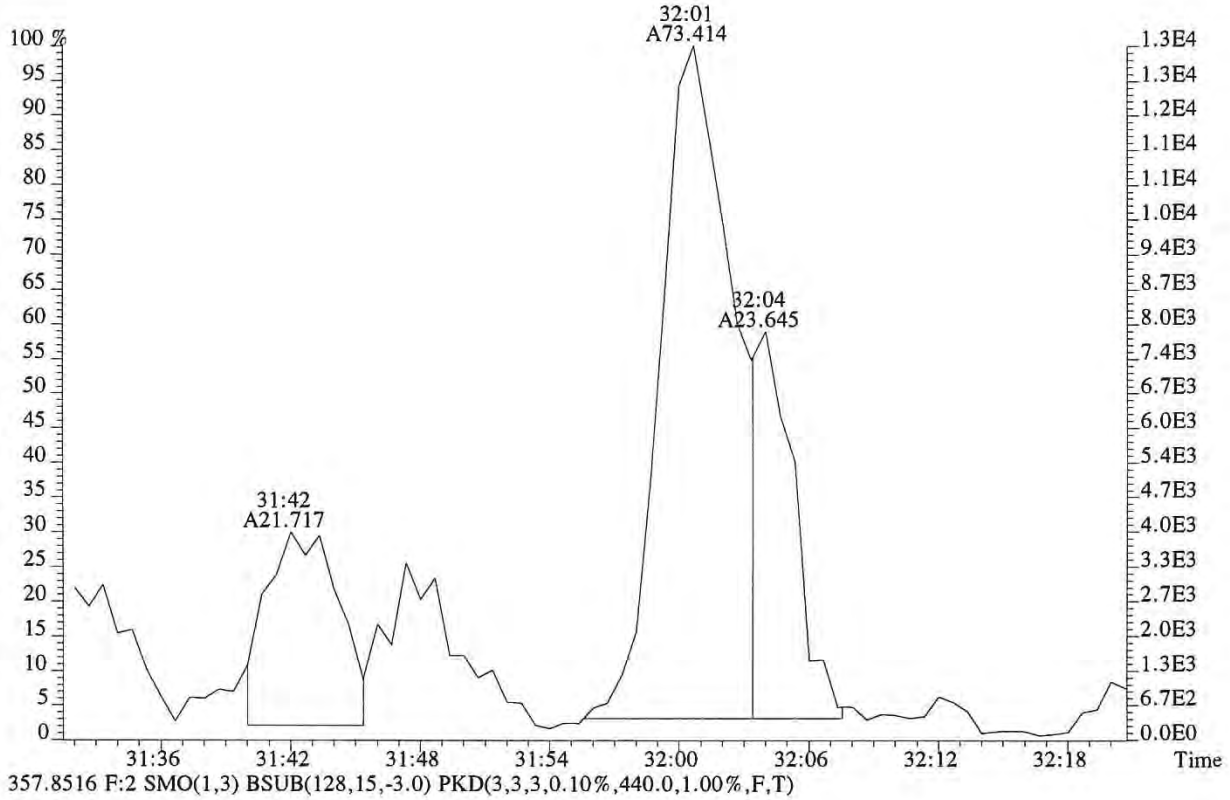
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1452.0,1.00%,F,T)



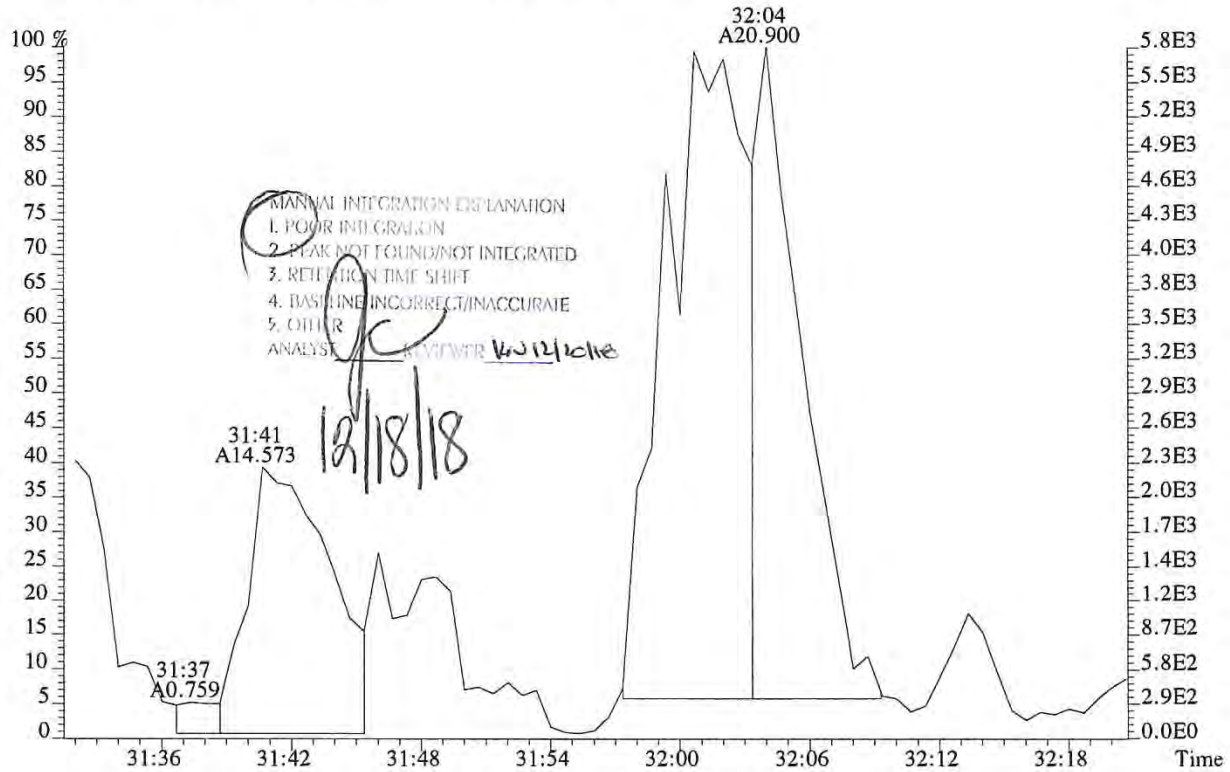
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



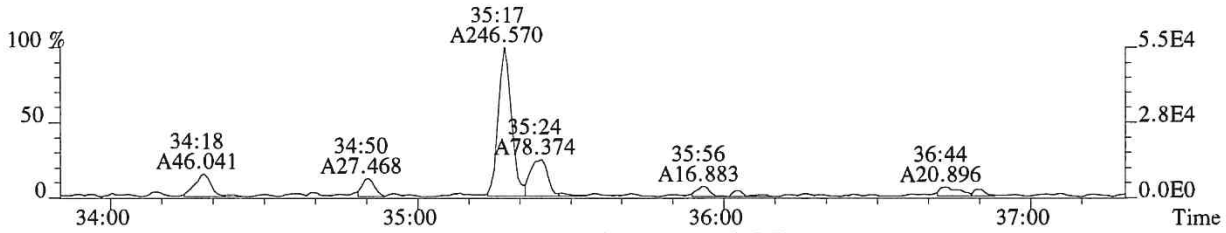
File:P519427 #1-357 Acq:14-DEC-2018 21:32:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-005
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,668.0,1.00%,F,T)



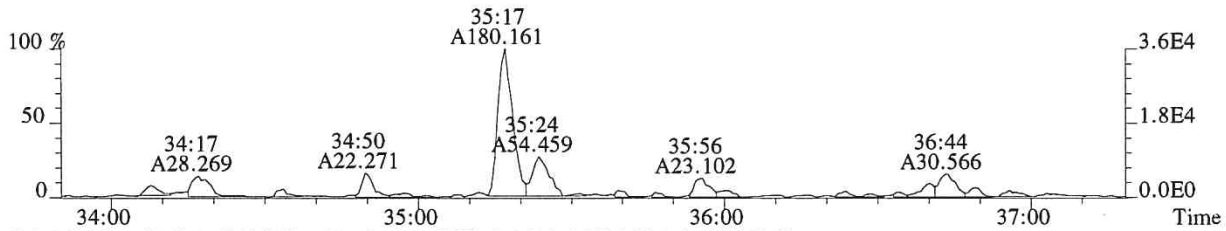
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,440.0,1.00%,F,T)



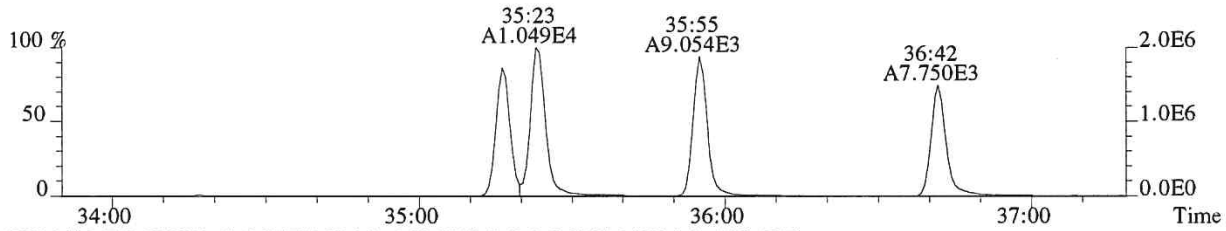
File:P519427 #1-313 Acq:14-DEC-2018 21:32:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-005
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1152.0,0.40%,F,T)



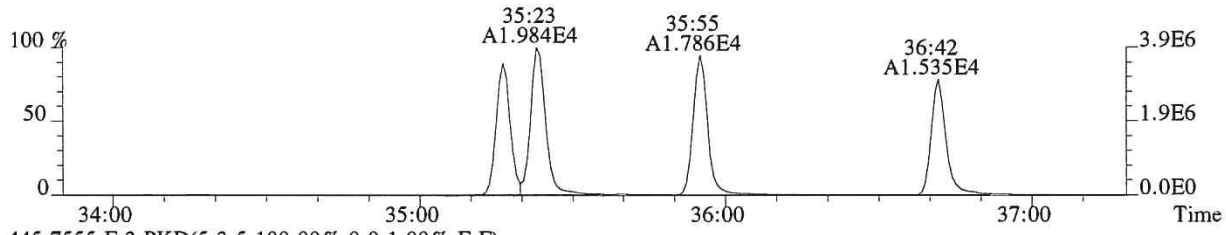
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,444.0,0.40%,F,T)



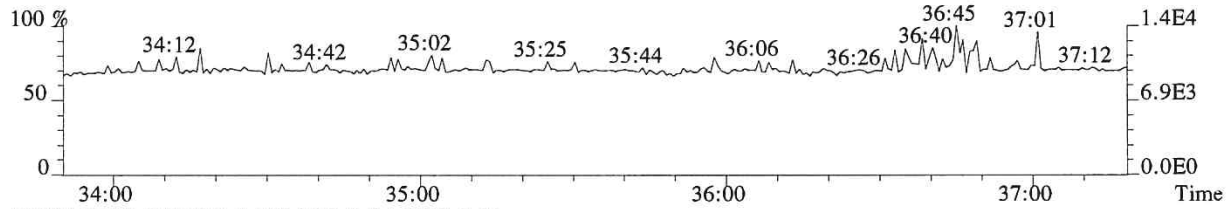
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,808.0,0.40%,F,T)



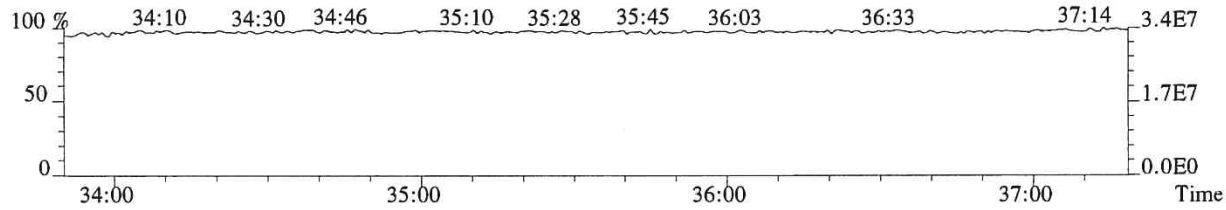
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1100.0,0.40%,F,T)



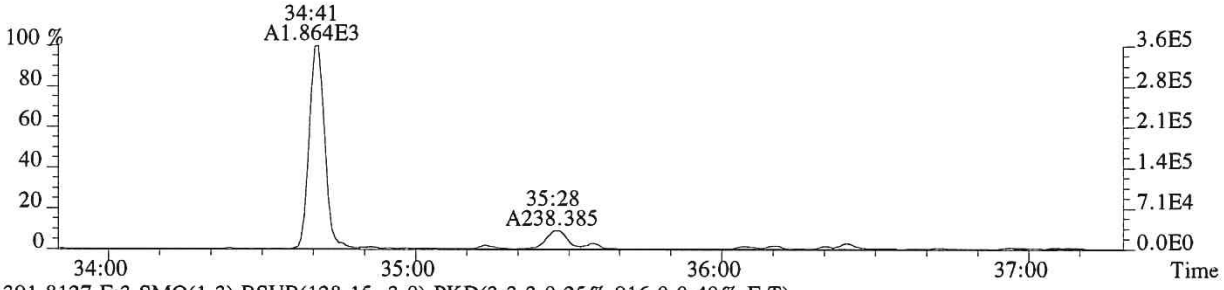
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



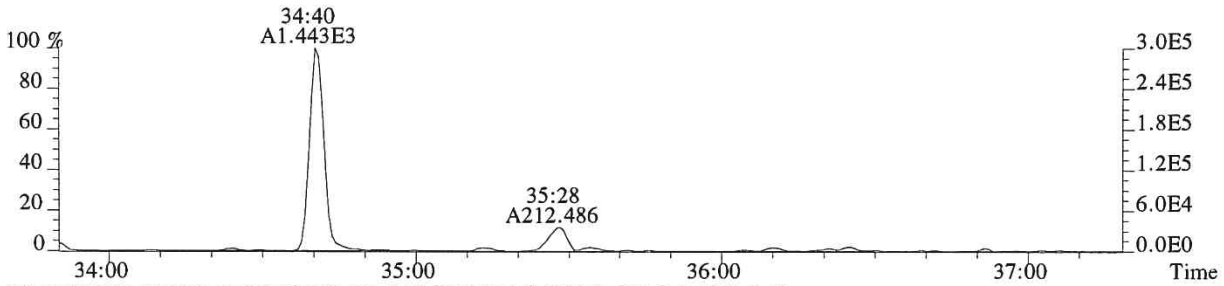
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



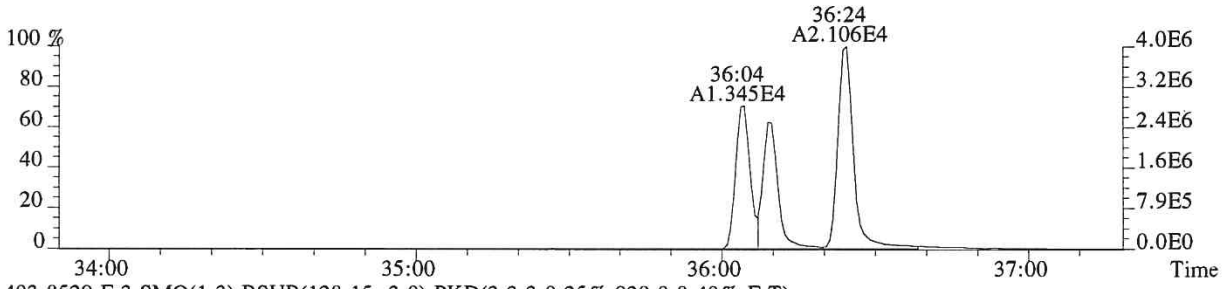
File:P519427 #1-313 Acq:14-DEC-2018 21:32:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-005
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,916.0,0.40%,F,T)



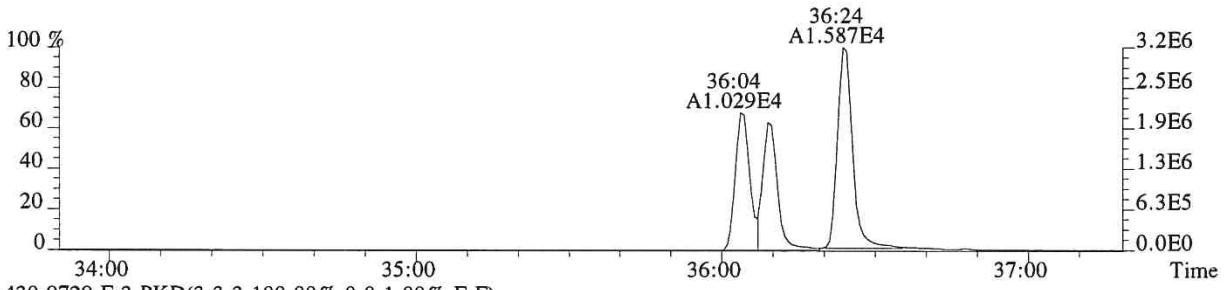
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,916.0,0.40%,F,T)



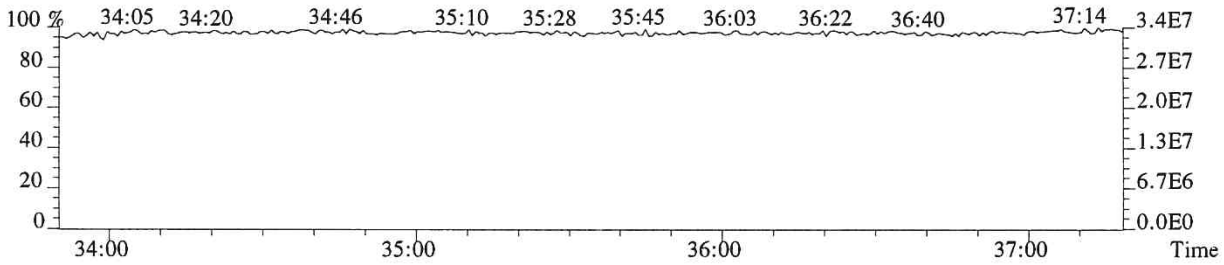
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,888.0,0.40%,F,T)



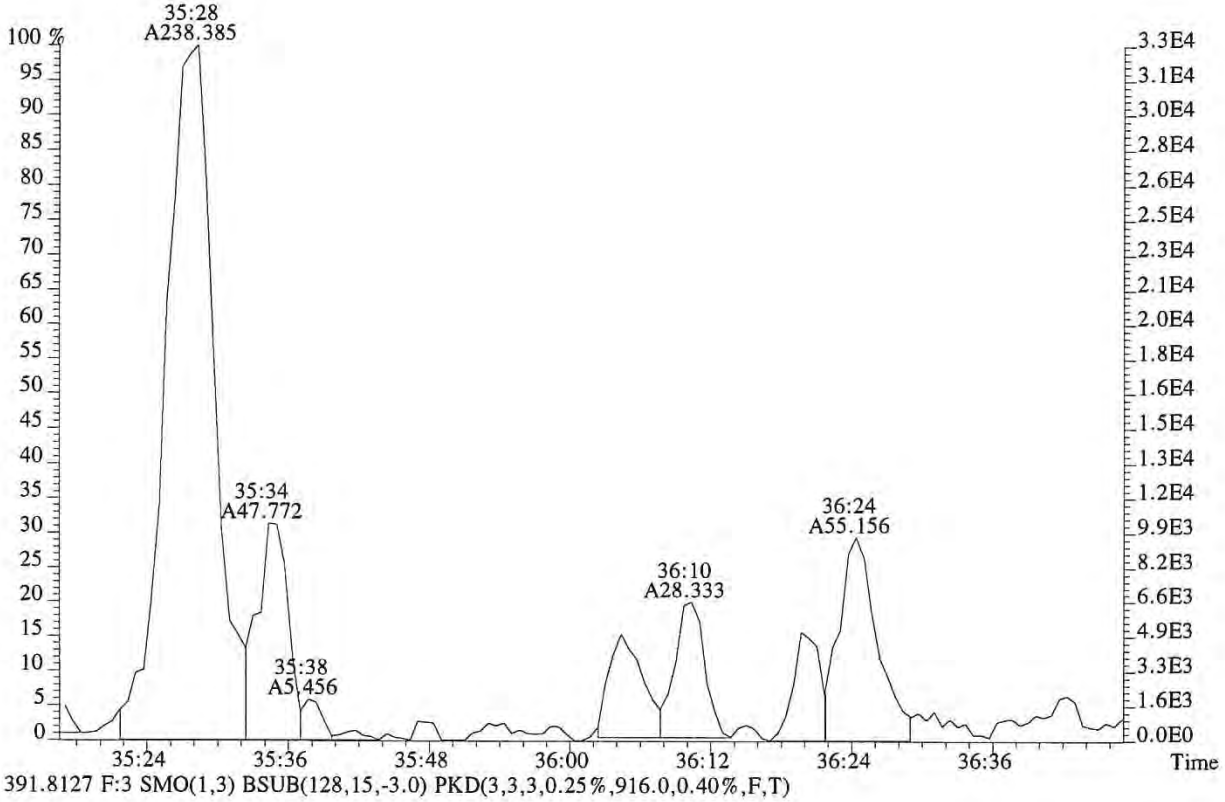
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,928.0,0.40%,F,T)



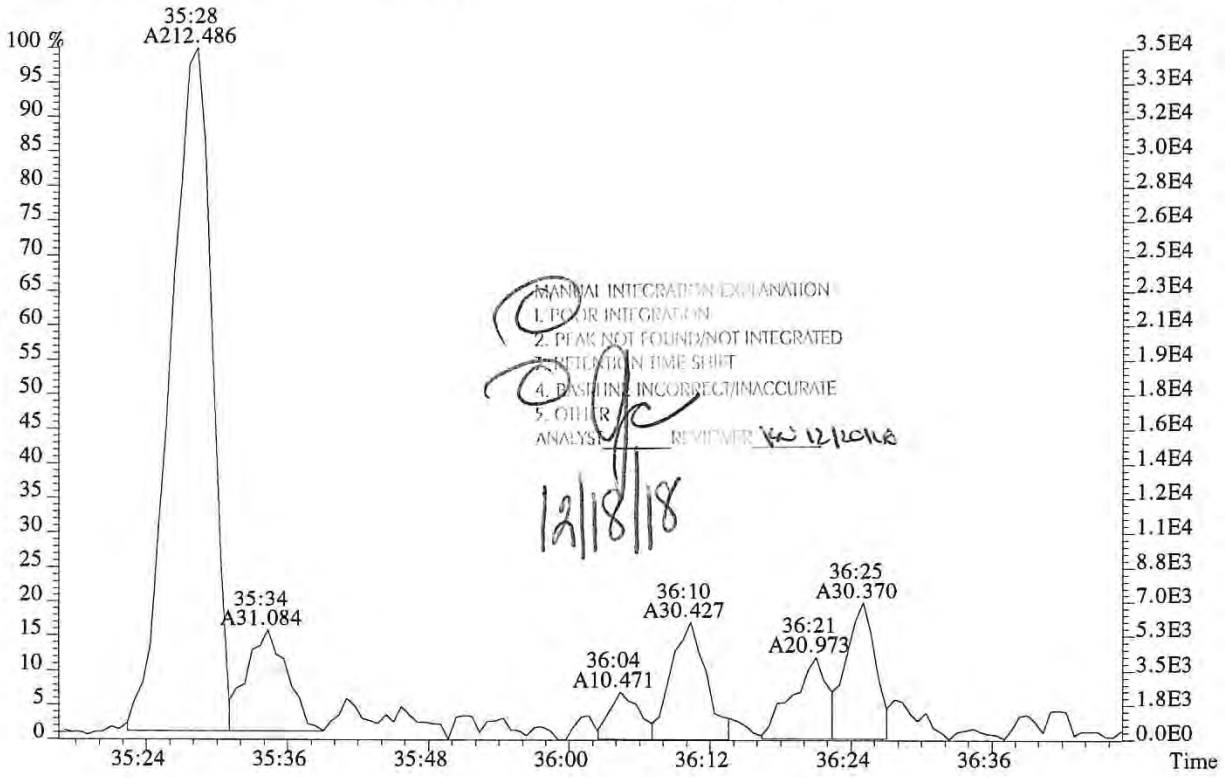
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P519427 #1-313 Acq:14-DEC-2018 21:32:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-005
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,916.0,0.40%,F,T)

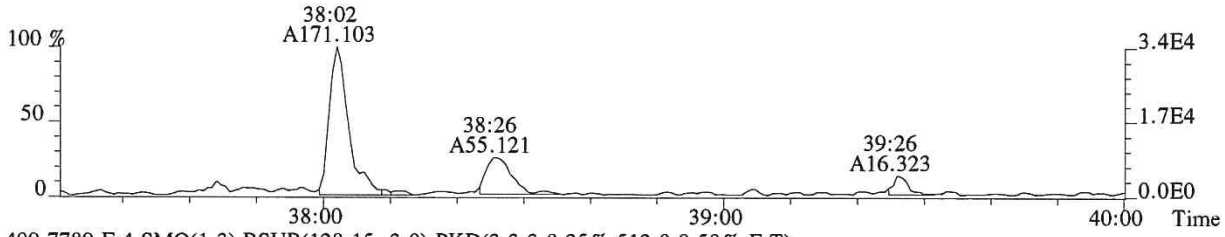


391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,916.0,0.40%,F,T)

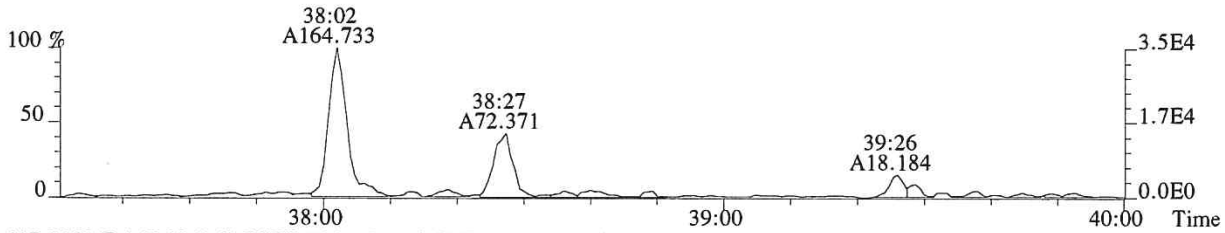


MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. INTEGRATION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST REVIEWER 12/20/18
12/18/18

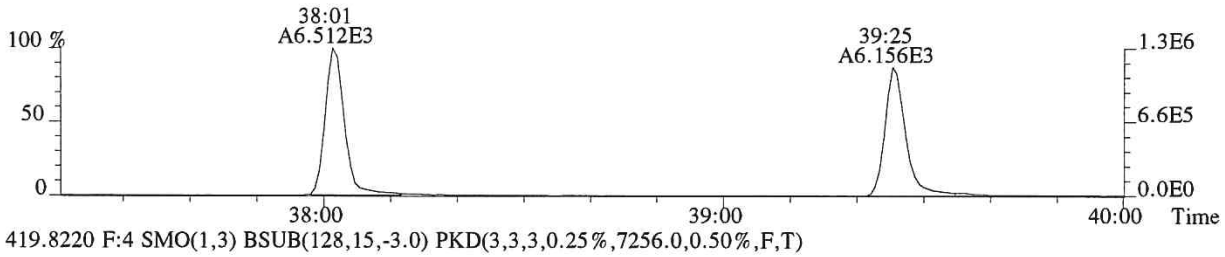
File:P519427 #1-240 Acq:14-DEC-2018 21:32:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-005
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1052.0,0.50%,F,T)



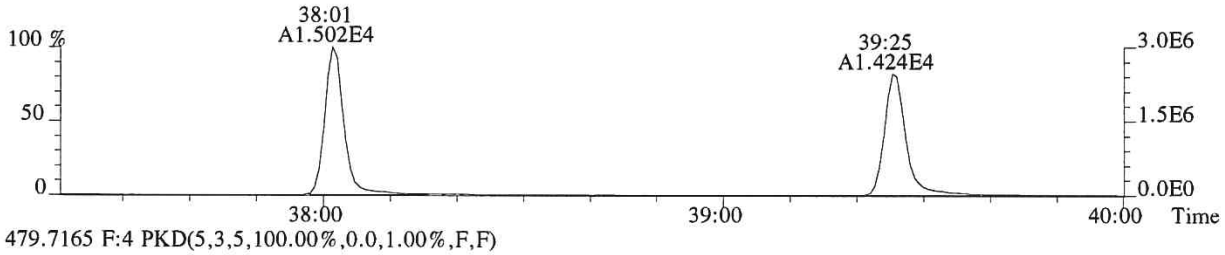
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,512.0,0.50%,F,T)



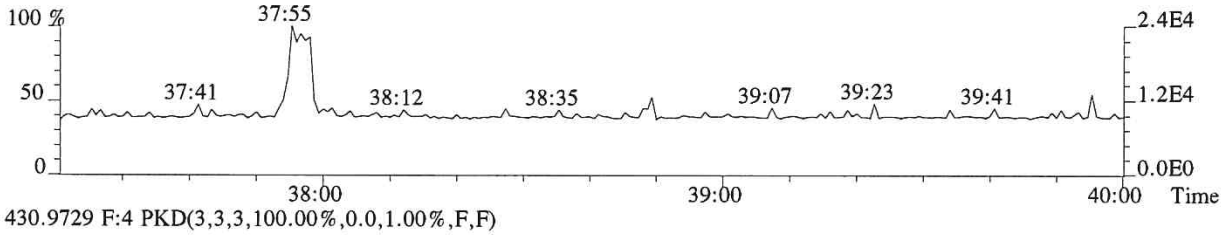
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2724.0,0.50%,F,T)



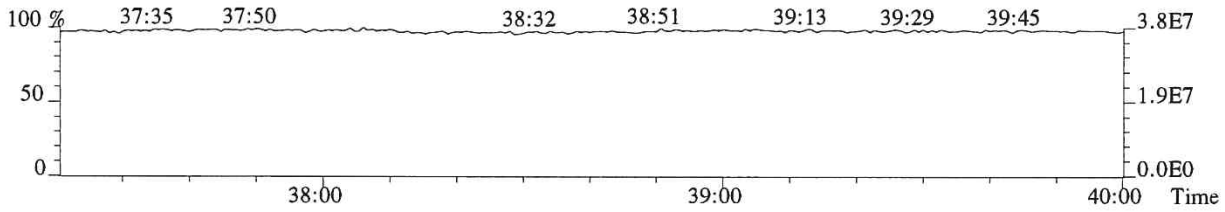
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7256.0,0.50%,F,T)



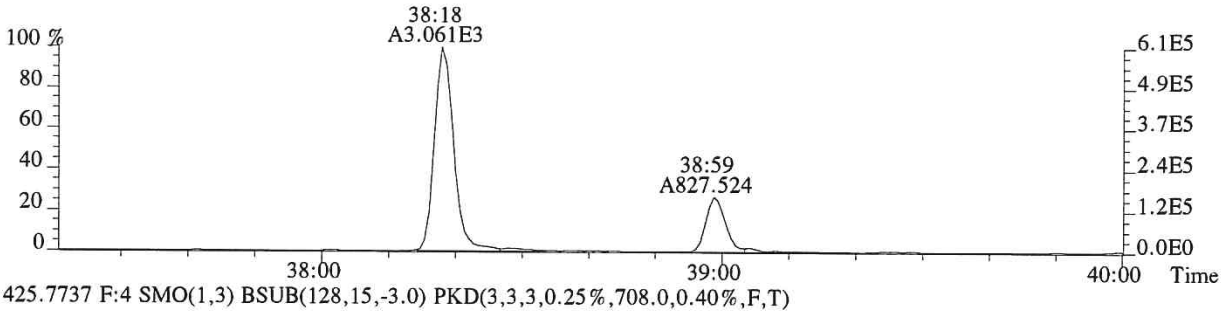
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



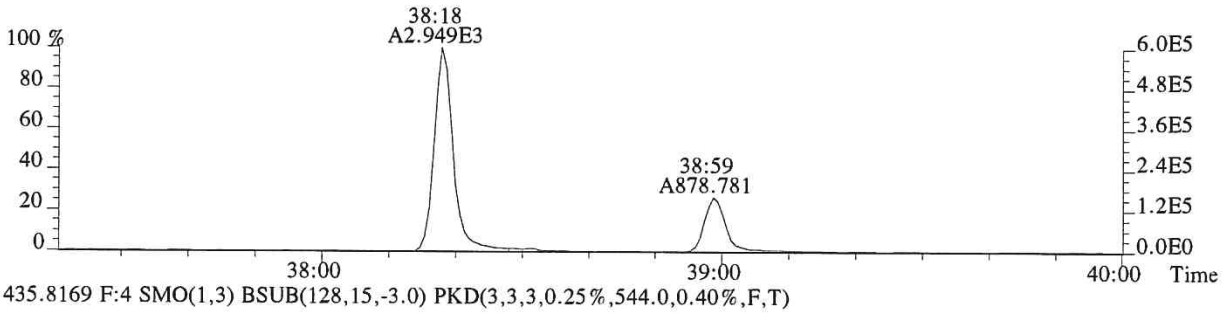
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



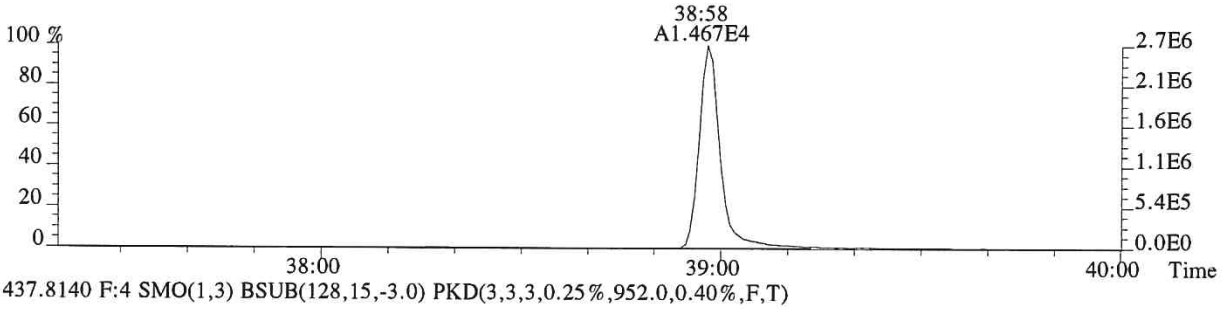
File:P519427 #1-240 Acq:14-DEC-2018 21:32:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-005
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2368.0,0.40%,F,T)



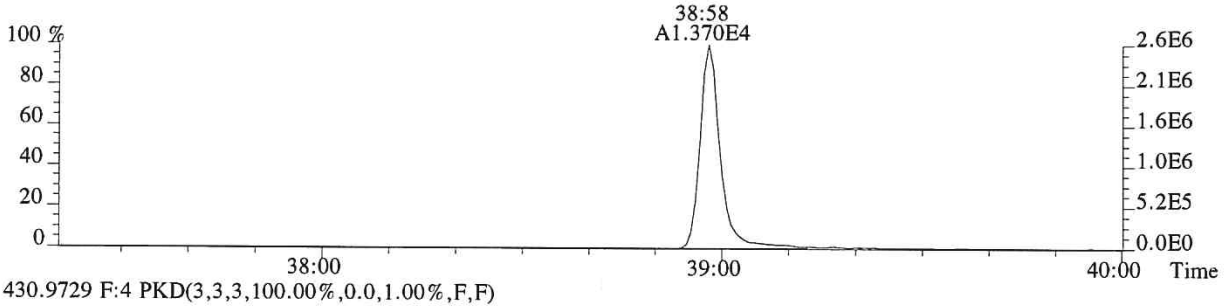
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,708.0,0.40%,F,T)



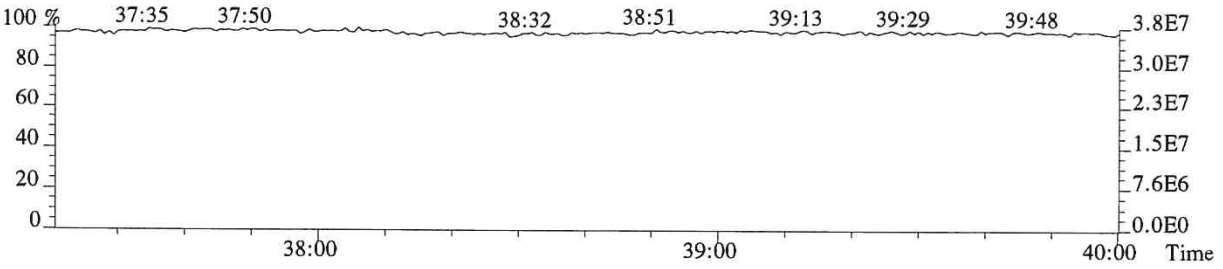
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,544.0,0.40%,F,T)



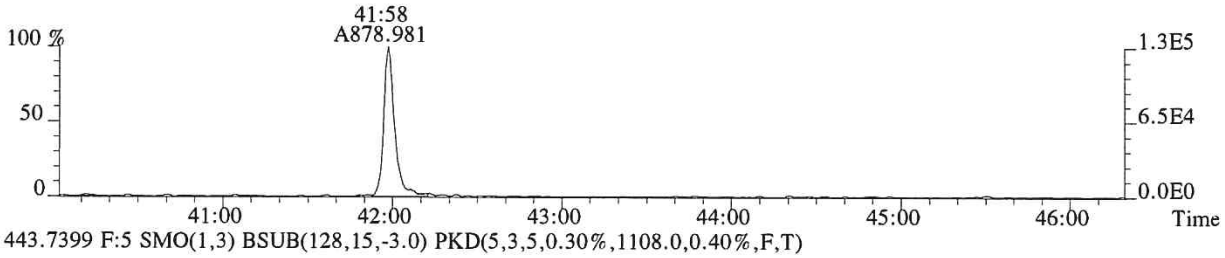
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,952.0,0.40%,F,T)



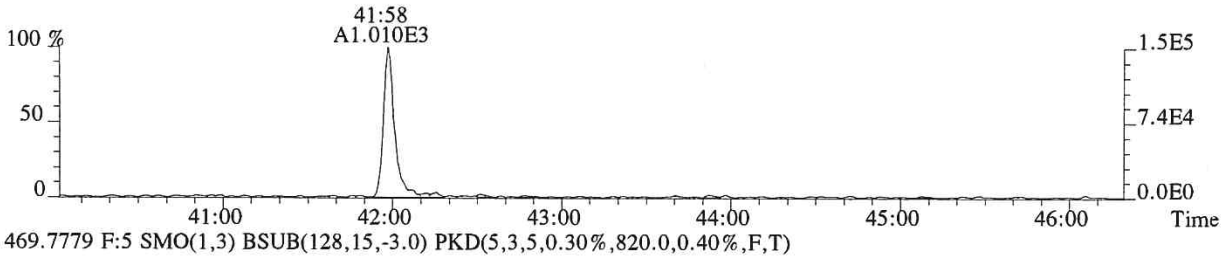
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



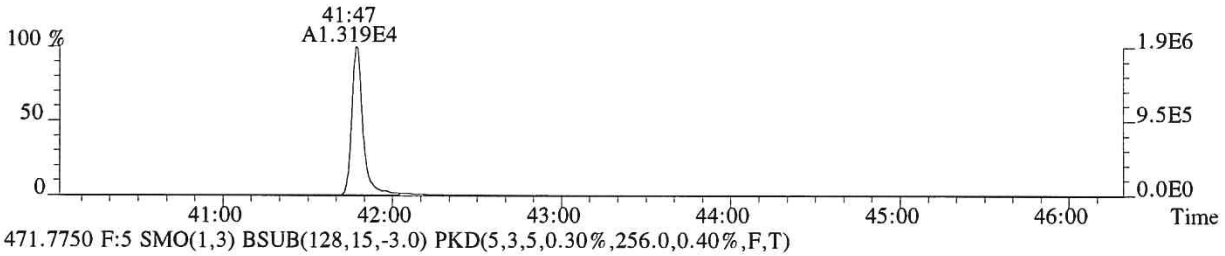
File:P519427 #1-566 Acq:14-DEC-2018 21:32:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-005
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,404.0,0.40%,F,T)



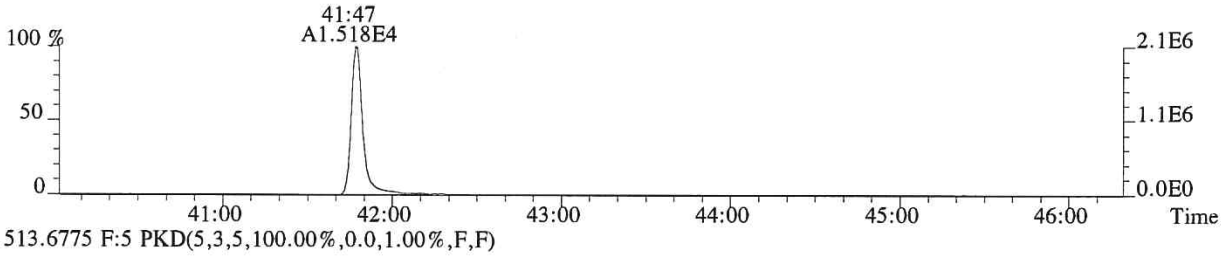
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1108.0,0.40%,F,T)



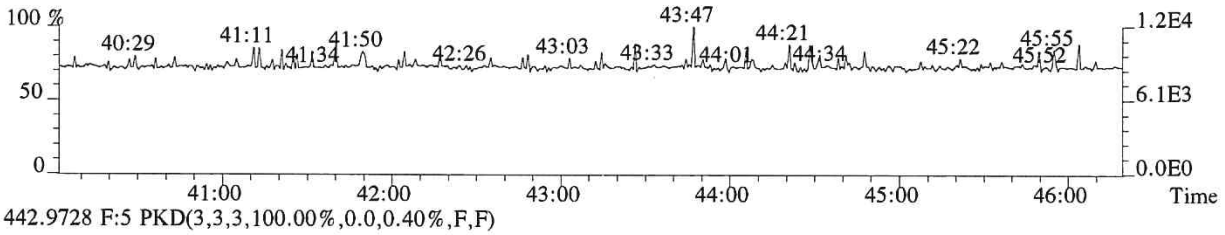
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,820.0,0.40%,F,T)



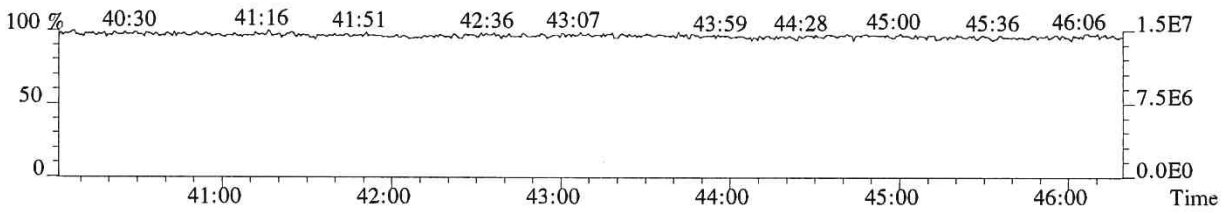
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,256.0,0.40%,F,T)



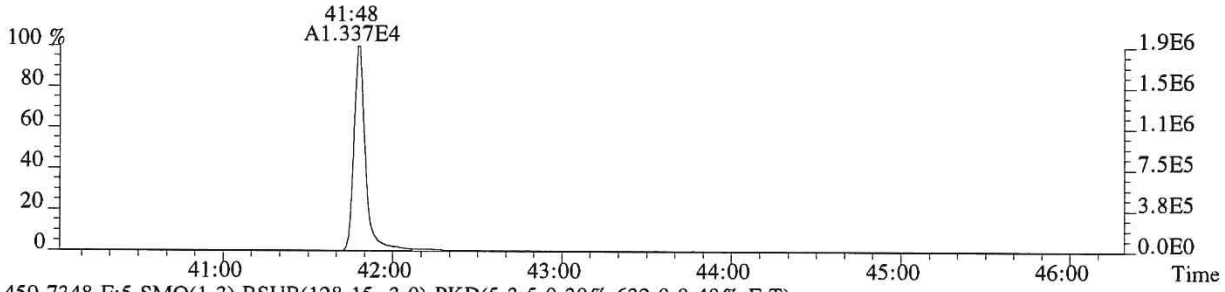
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



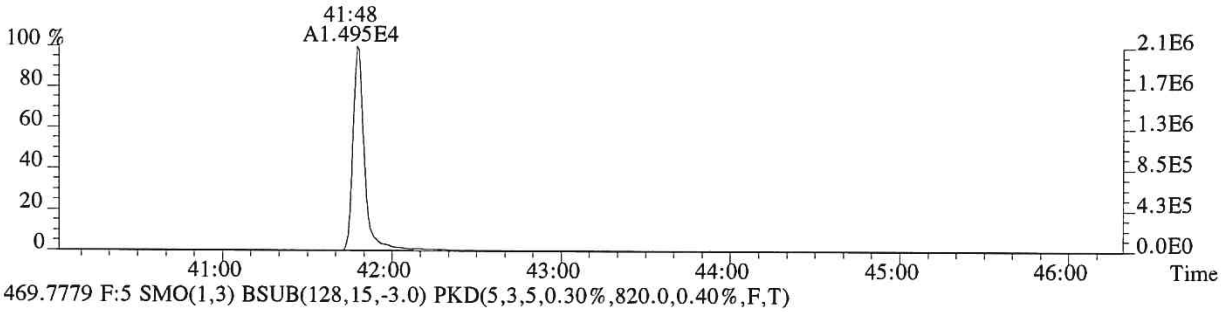
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



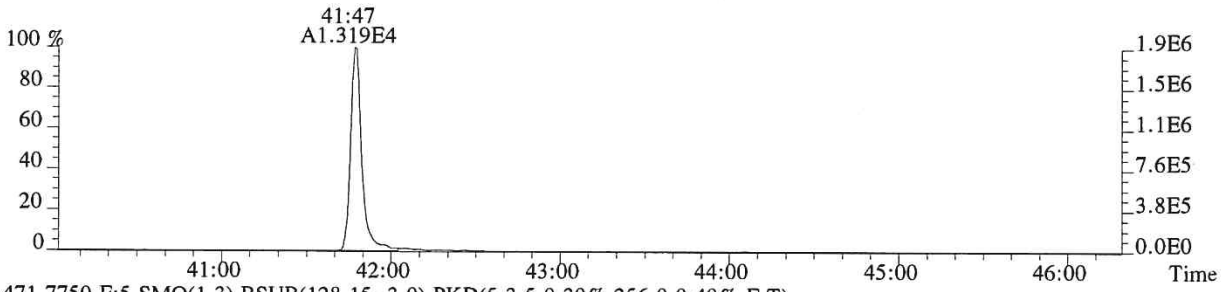
File:P519427 #1-566 Acq:14-DEC-2018 21:32:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-005
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,504.0,0.40%,F,T)



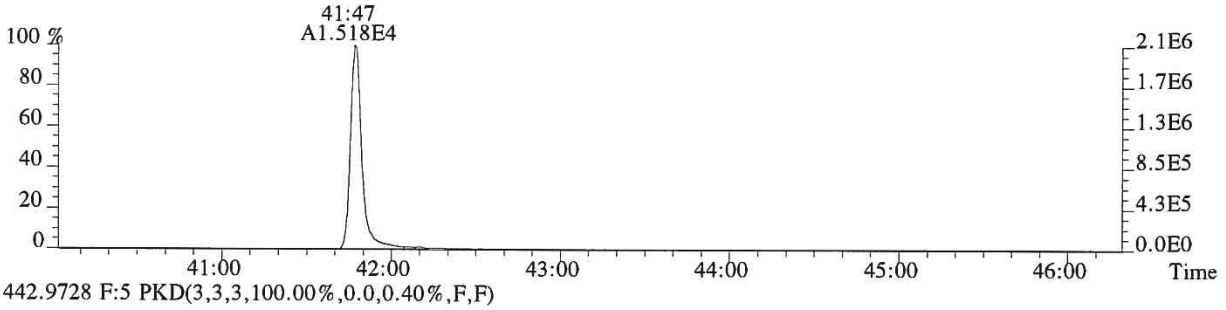
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,632.0,0.40%,F,T)



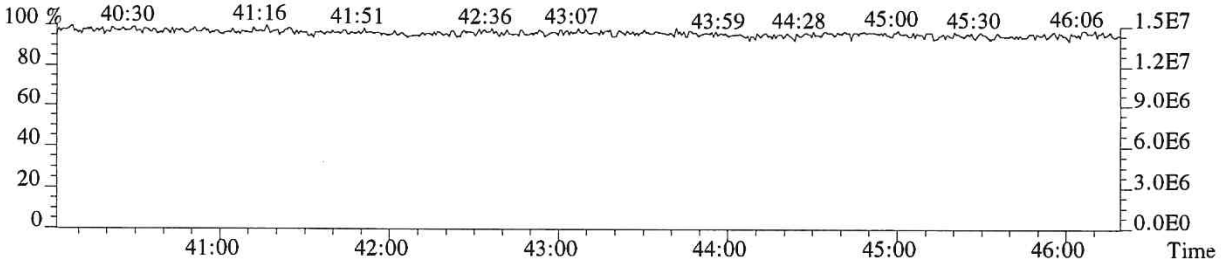
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,820.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,256.0,0.40%,F,T)



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



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0023

Run #10 Filename P519498 Samp: 1 Inj: 1 Acquired: 19-DEC-18 18:51:45
Processed: 20-DEC-18 11:11:51 Sample ID: E1801093-006

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:50	6.554e+02	8.098e+02	0.81	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	31:28	7.389e+01	6.575e+01	1.12	no	no	1.012
3	Unk	2,3,4,7,8-PeCDF	32:25	7.297e+01	5.284e+01	1.38	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:17	1.121e+02	1.014e+02	1.11	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:24	5.645e+01	5.772e+01	0.98	no	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:56	6.941e+01	4.887e+01	1.42	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	36:44	1.560e+01	2.289e+01	0.68	no	yes	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:05	3.774e+02	4.232e+02	0.89	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	yes	1.258
10	Unk	OCDF	42:10	3.189e+02	3.536e+02	0.90	yes	no	1.359
11	Unk	2,3,7,8-TCDD	27:44	1.430e+02	1.902e+02	0.75	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	32:45	4.897e+01	1.801e+01	2.72	no	yes	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:06	3.107e+01	3.761e+01	0.83	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:11	1.225e+02	1.171e+02	1.05	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:26	8.282e+01	7.860e+01	1.05	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:04	2.172e+03	1.962e+03	1.11	yes	no	1.025
17	Unk	OCDD	42:00	1.746e+04	1.935e+04	0.90	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	26:48	1.284e+04	1.607e+04	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	31:27	1.864e+04	1.182e+04	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	32:25	1.677e+04	1.038e+04	1.62	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:16	5.382e+03	1.020e+04	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:23	6.325e+03	1.223e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:55	5.537e+03	1.063e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	36:43	4.492e+03	8.638e+03	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:05	2.478e+03	5.504e+03	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:31	1.753e+03	4.049e+03	0.43	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	27:42	5.743e+03	7.330e+03	0.78	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:43	1.232e+04	7.749e+03	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:05	7.466e+03	5.468e+03	1.37	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:10	6.884e+03	5.573e+03	1.24	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:03	4.540e+03	4.126e+03	1.10	yes	no	0.858
32	IS	13C-OCDD	41:59	2.805e+03	3.108e+03	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:04	1.292e+04	1.641e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:25	1.082e+04	8.864e+03	1.22	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:44	8.720e+03				no	1.014

$$\text{OCDD} = \frac{(1.746e+04 + 1.935e+04) \times 4000\ \text{pg} \times 1}{(2.805e+03 + 3.108e+03) \times 10.729\ \text{g} \times 80.3 / 100 \times 1.118} = 2580\ \text{ng/kg}$$

kw 12/21/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0023

Run #10 Filename P519498 Samp: 1 Inj: 1 Acquired: 19-DEC-18 18:51:45
Processed: 20-DEC-18 11:11:51 LAB. ID: E1801093-006

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.04e+05	5.88e+02	1.8e+02	1.27e+05	8.72e+02	1.5e+02
2	1,2,3,7,8-PeCDF	1.34e+04	7.28e+02	1.8e+01	1.29e+04	7.44e+02	1.7e+01
3	2,3,4,7,8-PeCDF	1.54e+04	7.28e+02	2.1e+01	1.17e+04	7.44e+02	1.6e+01
4	1,2,3,4,7,8-HxCDF	2.01e+04	1.04e+03	1.9e+01	2.13e+04	8.92e+02	2.4e+01
5	1,2,3,6,7,8-HxCDF	1.42e+04	1.04e+03	1.4e+01	9.93e+03	8.92e+02	1.1e+01
6	2,3,4,6,7,8-HxCDF	1.30e+04	1.04e+03	1.3e+01	1.05e+04	8.92e+02	1.2e+01
7	1,2,3,7,8,9-HxCDF	3.07e+03	1.04e+03	3.0e+00	3.85e+03	8.92e+02	4.3e+00
8	1,2,3,4,6,7,8-HpCDF	6.55e+04	7.92e+02	8.3e+01	7.57e+04	7.48e+02	1.0e+02
9	1,2,3,4,7,8,9-HpCDF	*	7.92e+02	*	*	7.48e+02	*
10	OCDF	4.03e+04	1.08e+03	3.7e+01	4.78e+04	1.15e+03	4.2e+01
11	2,3,7,8-TCDD	2.24e+04	1.07e+03	2.1e+01	3.31e+04	8.56e+02	3.9e+01
12	1,2,3,7,8-PeCDD	9.06e+03	5.16e+02	1.8e+01	7.35e+03	3.64e+02	2.0e+01
13	1,2,3,4,7,8-HxCDD	6.35e+03	4.68e+02	1.4e+01	1.01e+04	5.28e+02	1.9e+01
14	1,2,3,6,7,8-HxCDD	2.46e+04	4.68e+02	5.2e+01	2.28e+04	5.28e+02	4.3e+01
15	1,2,3,7,8,9-HxCDD	1.27e+04	4.68e+02	2.7e+01	1.18e+04	5.28e+02	2.2e+01
16	1,2,3,4,6,7,8-HpCDD	3.62e+05	5.52e+02	6.6e+02	3.27e+05	4.68e+02	7.0e+02
17	OCDD	2.02e+06	6.00e+02	3.4e+03	2.17e+06	3.72e+02	5.8e+03
18	13C-2,3,7,8-TCDF	2.11e+06	5.18e+03	4.1e+02	2.64e+06	4.68e+03	5.6e+02
19	13C-1,2,3,7,8-PeCDF	3.38e+06	4.44e+02	7.6e+03	2.15e+06	4.48e+02	4.8e+03
20	13C-2,3,4,7,8-PeCDF	3.15e+06	4.44e+02	7.1e+03	1.94e+06	4.48e+02	4.3e+03
21	13C-1,2,3,4,7,8-HxCDF	1.12e+06	6.36e+02	1.8e+03	2.08e+06	1.05e+03	2.0e+03
22	13C-1,2,3,6,7,8-HxCDF	1.24e+06	6.36e+02	1.9e+03	2.32e+06	1.05e+03	2.2e+03
23	13C-2,3,4,6,7,8-HxCDF	1.07e+06	6.36e+02	1.7e+03	2.09e+06	1.05e+03	2.0e+03
24	13C-1,2,3,7,8,9-HxCDF	8.62e+05	6.36e+02	1.4e+03	1.71e+06	1.05e+03	1.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	4.50e+05	5.76e+02	7.8e+02	1.04e+06	1.29e+03	8.1e+02
26	13C-1,2,3,4,7,8,9-HpCDF	2.76e+05	5.76e+02	4.8e+02	6.74e+05	1.29e+03	5.2e+02
27	13C-2,3,7,8-TCDD	9.97e+05	4.87e+03	2.0e+02	1.27e+06	1.94e+03	6.5e+02
28	13C-1,2,3,7,8-PeCDD	2.29e+06	6.88e+02	3.3e+03	1.46e+06	9.00e+02	1.6e+03
29	13C-1,2,3,4,7,8-HxCDD	1.51e+06	7.24e+02	2.1e+03	1.17e+06	3.04e+02	3.8e+03
30	13C-1,2,3,6,7,8-HxCDD	1.33e+06	7.24e+02	1.8e+03	1.01e+06	3.04e+02	3.3e+03
31	13C-1,2,3,4,6,7,8-HpCDD	7.52e+05	6.20e+02	1.2e+03	6.99e+05	3.96e+02	1.8e+03
32	13C-OCDD	3.26e+05	4.52e+02	7.2e+02	3.74e+05	5.24e+02	7.1e+02
33	13C-1,2,3,4-TCDD	2.21e+06	4.87e+03	4.5e+02	2.82e+06	1.94e+03	1.5e+03
34	13C-1,2,3,7,8,9-HxCDD	2.04e+06	7.24e+02	2.8e+03	1.62e+06	3.04e+02	5.3e+03
35	37Cl-2,3,7,8-TCDD	1.54e+06	3.76e+02	4.1e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.072e+03 + 8.560e+02) \times 2000}{(9.973e+05 + 1.267e+06) \times (\quad) \times 1.085}$$

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0023

Entry: 36 Totals Name: Total Tetra-Furans

Run: 10 File: P519498 Sample:1 Injection:1 Function:1

Acquired: 19-DEC-18 18:51:45 Processed: 20-DEC-18 11:11:51

Mass: 303.9020 305.8990 Tot Response: 2.38e+03 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	25:16	4.03e+01	6.02e+01	0.67	yes	1.00e+02		n	n
2	25:54	2.11e+02	2.79e+02	0.76	yes	4.91e+02		n	n
3	26:50	6.55e+02	8.10e+02	0.81	yes	1.47e+03	2,3,7,8-TCDF	n	n
4	27:12	1.42e+02	1.78e+02	0.80	yes	3.20e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0023

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 10 File: P519498 Sample:1 Injection:1 Function:1

Acquired: 19-DEC-18 18:51:45 Processed: 20-DEC-18 11:11:51

Mass: 319.8970 321.8940 Tot Response: 3.53e+02 RRF: 1.085

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	27:00	8.20e+00	1.17e+01	0.70	yes	1.99e+01		n	n
2	27:44	1.43e+02	1.90e+02	0.75	yes	3.33e+02	2,3,7,8-TCDD	n	n

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Peak List Summary

CLIENT ID.
SL0023

Entry: 38 Totals Name: Total Penta-Furans1

Run: 10 File: P519498 Sample:1 Injection:1 Function:1

Acquired: 19-DEC-18 18:51:45 Processed: 20-DEC-18 11:11:51

Mass: 339.8600 341.8570 Tot Response: 5.58e+02 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	28:52	3.33e+02	2.25e+02 1.48	yes	5.58e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0023

Entry: 39 Totals Name: Total Penta-Furans2

Run: 10 File: P519498 Sample:1 Injection:1 Function:2

Acquired: 19-DEC-18 18:51:45 Processed: 20-DEC-18 11:11:51

Mass: 339.8600 341.8570 Tot Response: 7.66e+02 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:27	2.78e+02	1.66e+02	1.67	yes	4.44e+02		n	n
2	31:44	3.97e+01	2.72e+01	1.46	yes	6.69e+01		n	n
3	32:20	3.17e+01	2.31e+01	1.38	yes	5.48e+01		n	n
4	32:25	7.30e+01	5.28e+01	1.38	yes	1.26e+02	2,3,4,7,8-PeCDF	n	n
5	32:28	4.74e+01	2.68e+01	1.77	yes	7.42e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0023

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 10 File: P519498 Sample:1 Injection:1 Function:2

Acquired: 19-DEC-18 18:51:45 Processed: 20-DEC-18 11:11:51

Mass: 355.8550 357.8520 Tot Response: 2.48e+02 RRF: 0.9565

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:29	5.09e+01	2.97e+01	1.72	yes	8.06e+01	n	y
2	31:57	4.95e+01	3.33e+01	1.49	yes	8.27e+01	n	y
3	32:19	1.97e+01	1.25e+01	1.57	yes	3.23e+01	n	y
4	32:48	1.52e+01	9.99e+00	1.52	yes	2.52e+01	y	y
5	33:08	1.59e+01	1.12e+01	1.42	yes	2.71e+01	n	y

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Peak List Summary

CLIENT ID.
SL0023

Entry: 41 Totals Name: Total Hexa-Furans

Run: 10 File: P519498 Sample:1 Injection:1 Function:3

Acquired: 19-DEC-18 18:51:45 Processed: 20-DEC-18 11:11:51

Mass: 373.8210 375.8180 Tot Response: 2.14e+03 RRF: 1.141

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:06	1.22e+02	9.37e+01	1.30	yes	2.16e+02		n	n
2	34:16	4.60e+02	3.42e+02	1.34	yes	8.02e+02		n	n
3	34:38	1.31e+01	1.18e+01	1.11	yes	2.49e+01		n	n
4	34:50	4.06e+02	3.26e+02	1.24	yes	7.32e+02		n	n
5	35:11	1.93e+01	1.66e+01	1.16	yes	3.58e+01		n	n
6	35:17	1.12e+02	1.01e+02	1.11	yes	2.14e+02	1,2,3,4,7,8-HxCDF	n	n
7	35:56	6.94e+01	4.89e+01	1.42	yes	1.18e+02	2,3,4,6,7,8-HxCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0023

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 10 File: P519498 Sample:1 Injection:1 Function:3

Acquired: 19-DEC-18 18:51:45 Processed: 20-DEC-18 11:11:51

Mass: 389.8160 391.8130 Tot Response: 2.39e+03 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:40	6.09e+02	4.43e+02	1.37	yes	1.05e+03		n	n
2	35:14	1.10e+02	9.73e+01	1.13	yes	2.07e+02		n	n
3	35:28	5.49e+02	4.05e+02	1.36	yes	9.54e+02		n	n
4	35:34	9.04e+01	8.45e+01	1.07	yes	1.75e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0023

Entry: 43 Totals Name: Total Hepta-Furans

Run: 10 File: P519498 Sample:1 Injection:1 Function:4

Acquired: 19-DEC-18 18:51:45 Processed: 20-DEC-18 11:11:51

Mass: 407.7820 409.7790 Tot Response: 2.03e+03 RRF: 1.308

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:05	3.77e+02	4.23e+02	0.89	yes	8.01e+02	1,2,3,4,6,7,8-HpCDF	n	n
2	38:31	6.13e+02	6.14e+02	1.00	yes	1.23e+03		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0023

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 10 File: P519498 Sample:1 Injection:1 Function:4

Acquired: 19-DEC-18 18:51:45 Processed: 20-DEC-18 11:11:51

Mass: 423.7770 425.7740 Tot Response: 1.21e+04 RRF: 1.025

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:22	4.07e+03	3.86e+03	1.06	yes	7.93e+03		n	n
2	39:04	2.17e+03	1.96e+03	1.11	yes	4.13e+03	1,2,3,4,6,7,8-HpCDD	n	n

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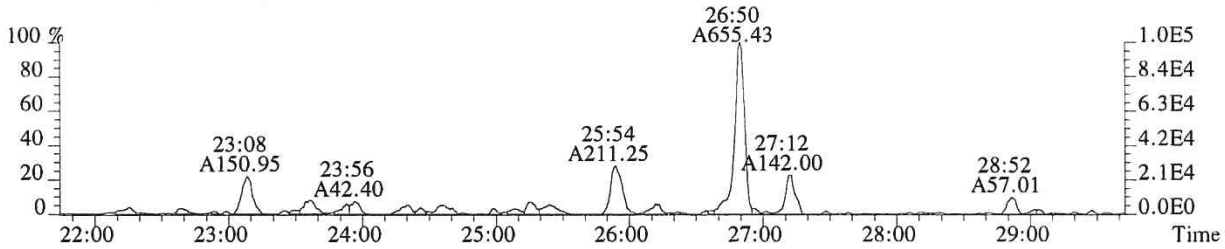
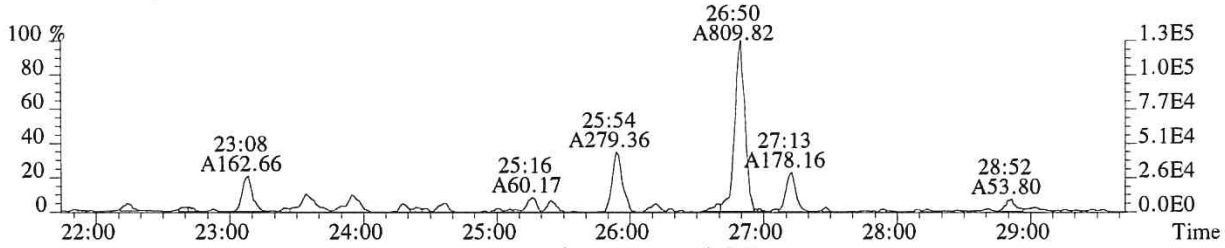
File:P519498 #1-566 Acq:19-DEC-2018 18:51:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-006

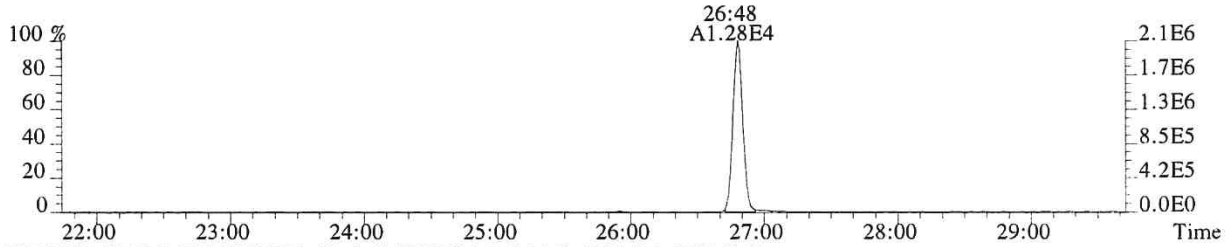
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,588.0,1.00%,F,T)



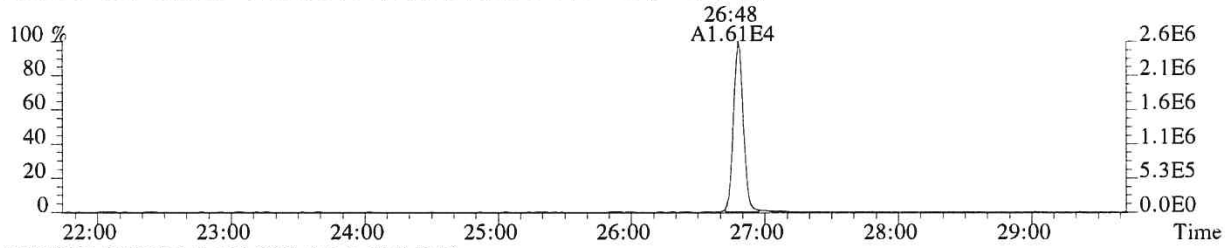
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,872.0,1.00%,F,T)



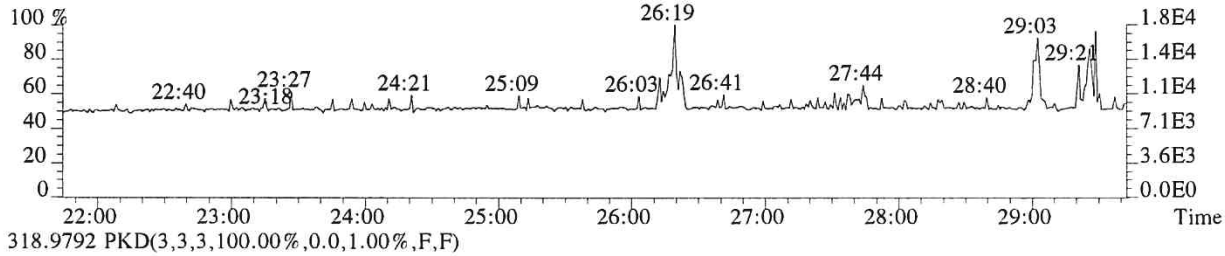
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5176.0,1.00%,F,T)



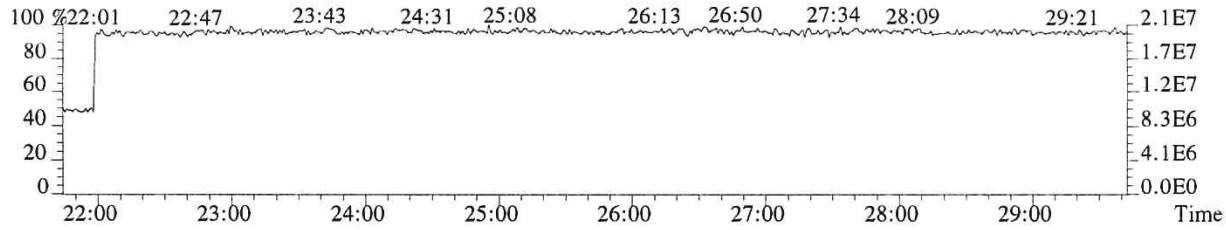
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4680.0,1.00%,F,T)



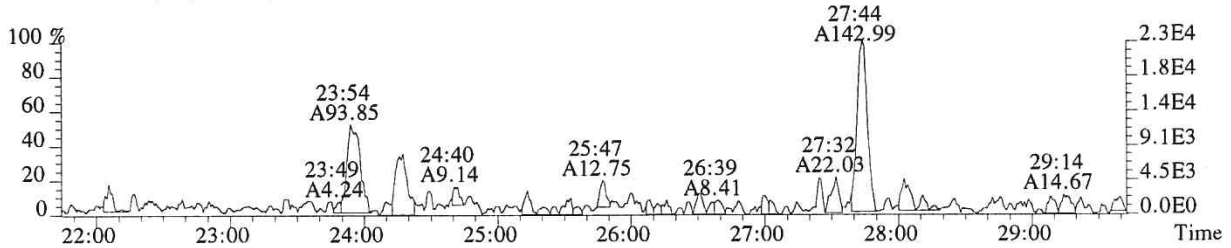
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



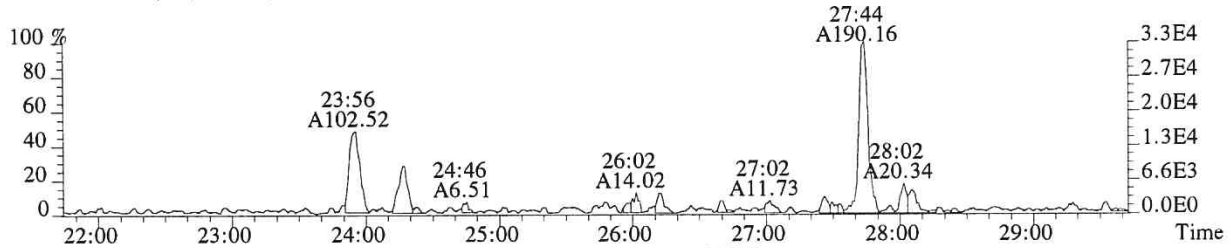
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



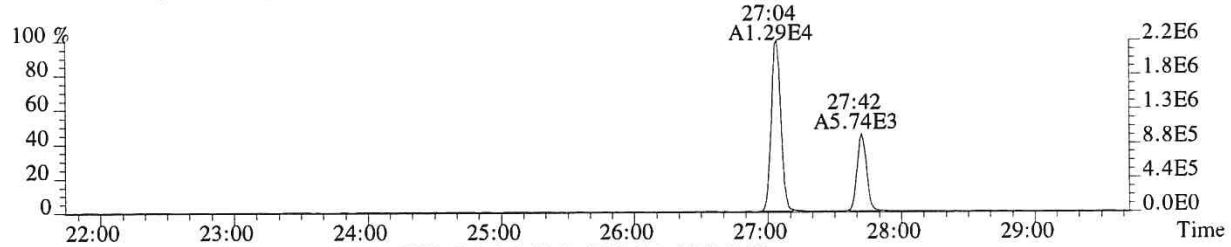
File:P519498 #1-566 Acq:19-DEC-2018 18:51:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-006
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1072.0,1.00%,F,T)



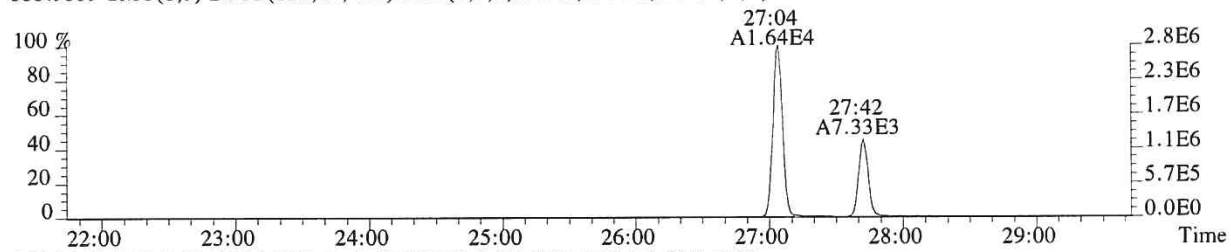
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,856.0,1.00%,F,T)



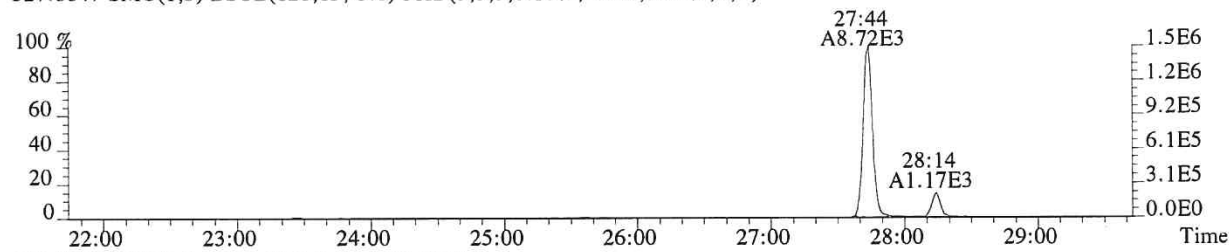
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4868.0,1.00%,F,T)



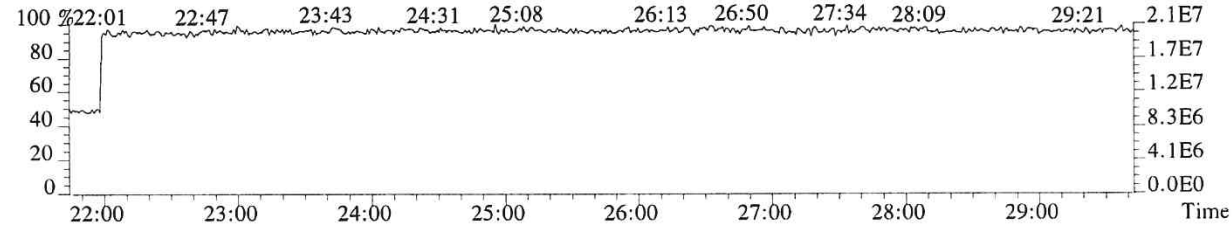
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1940.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,376.0,1.00%,F,T)

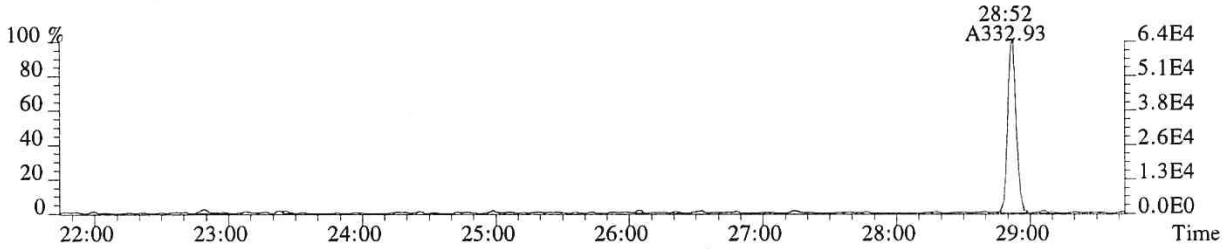


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

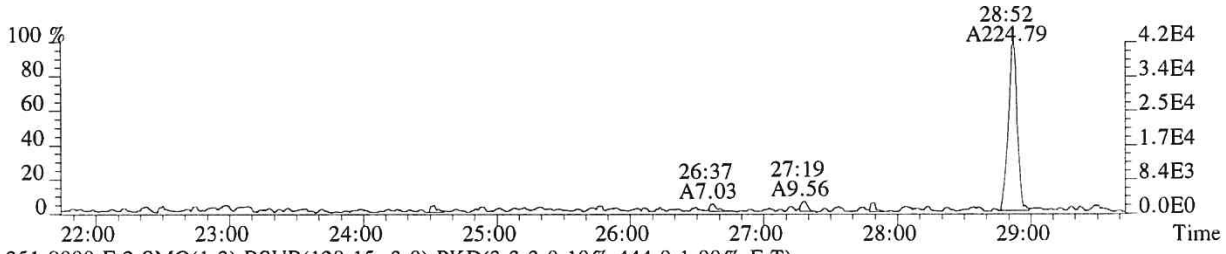


014120

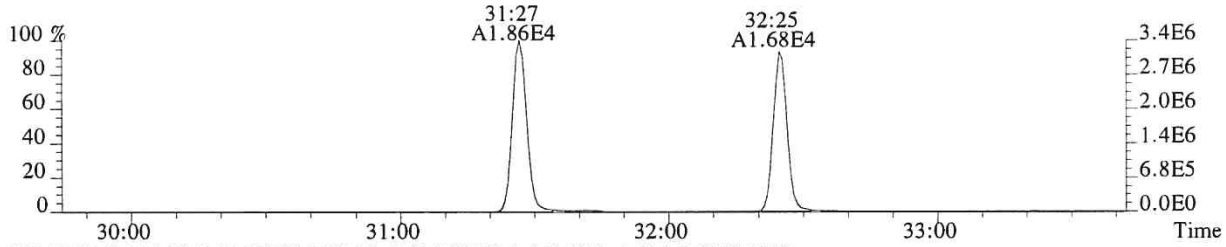
File:P519498 #1-566 Acq:19-DEC-2018 18:51:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-006
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,408.0,1.00%,F,T)



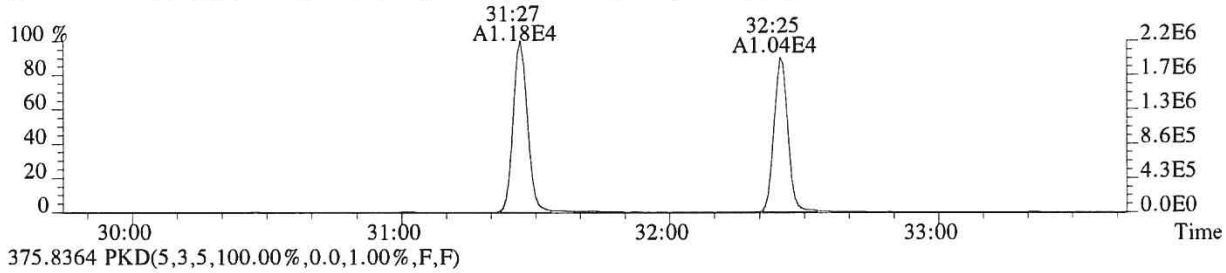
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1152.0,1.00%,F,T)



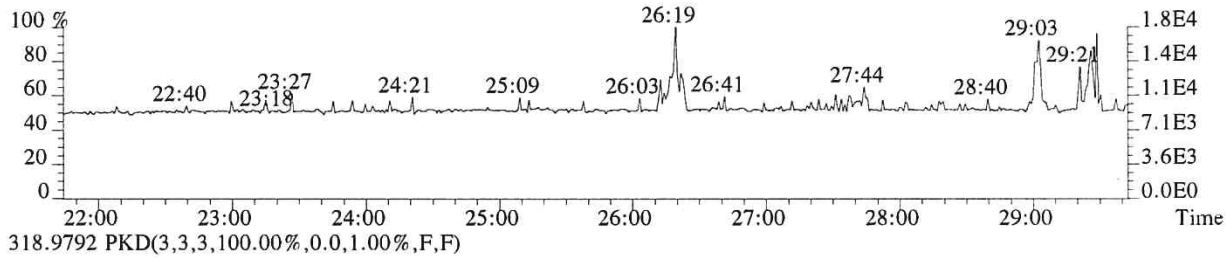
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,444.0,1.00%,F,T)



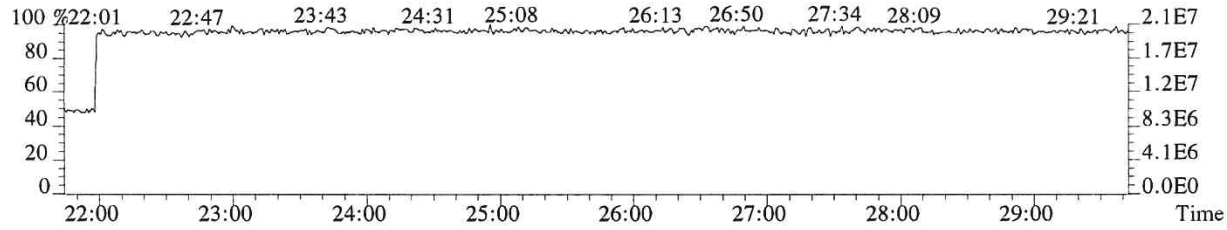
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,448.0,1.00%,F,T)



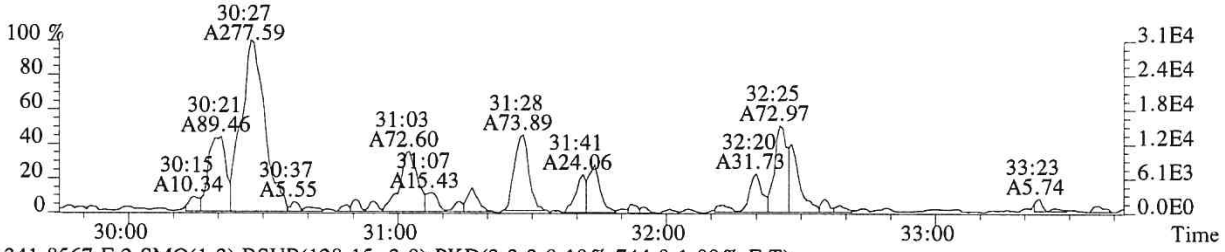
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



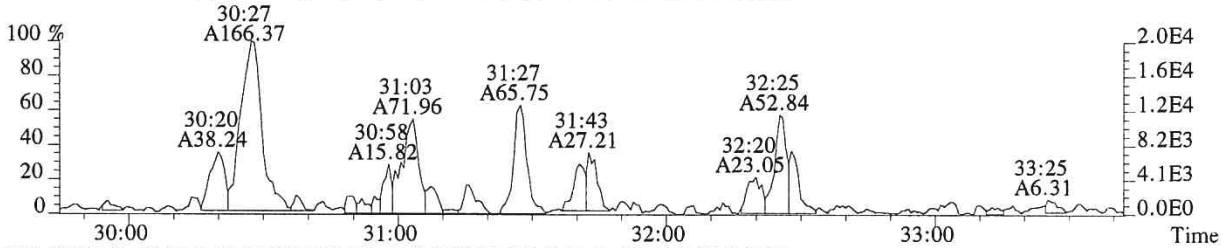
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



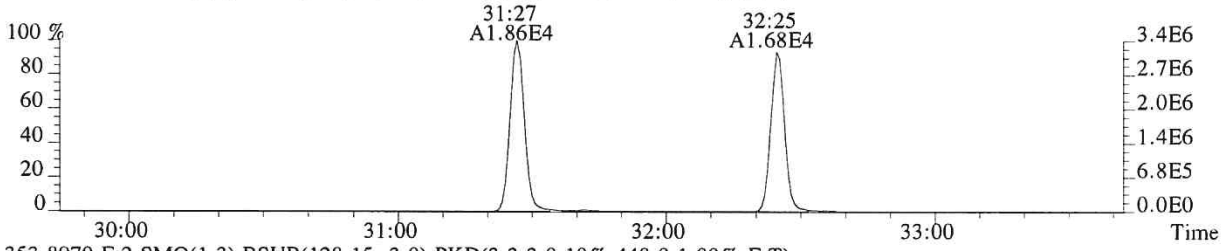
File:P519498 #1-357 Acq:19-DEC-2018 18:51:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-006
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,728.0,1.00%,F,T)



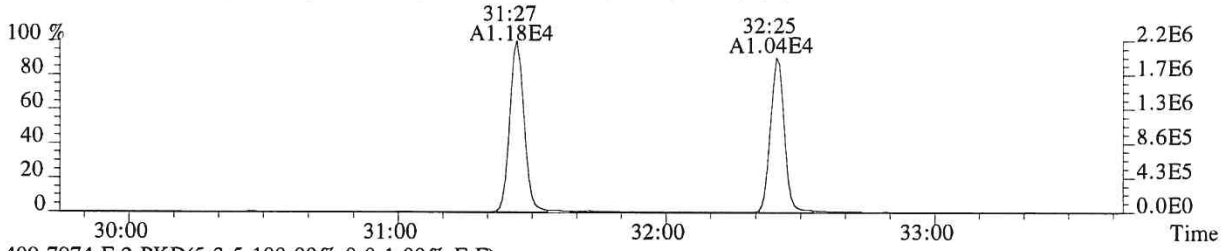
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,744.0,1.00%,F,T)



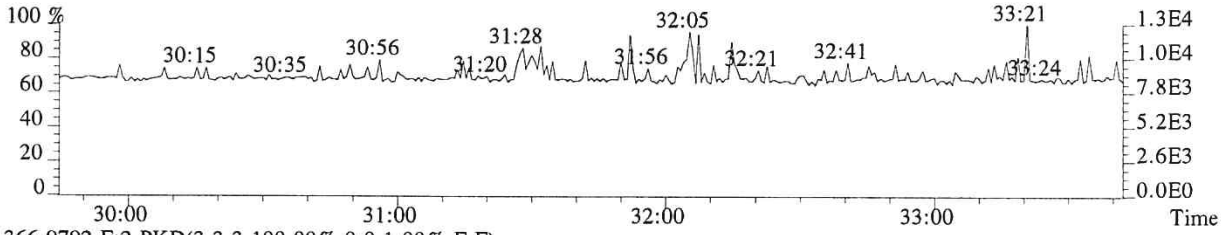
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,444.0,1.00%,F,T)



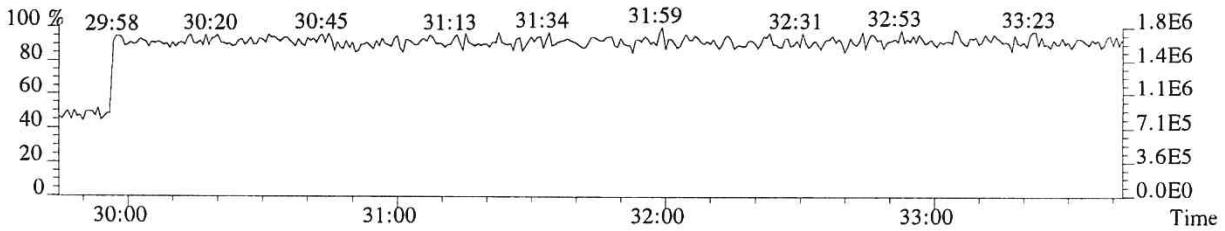
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,448.0,1.00%,F,T)



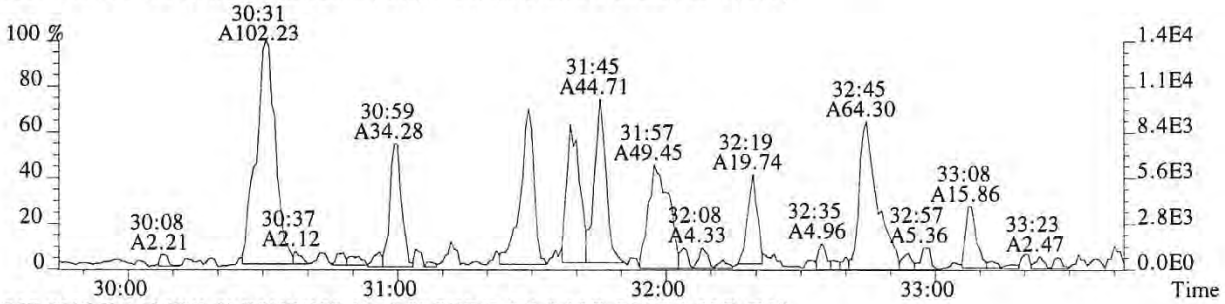
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



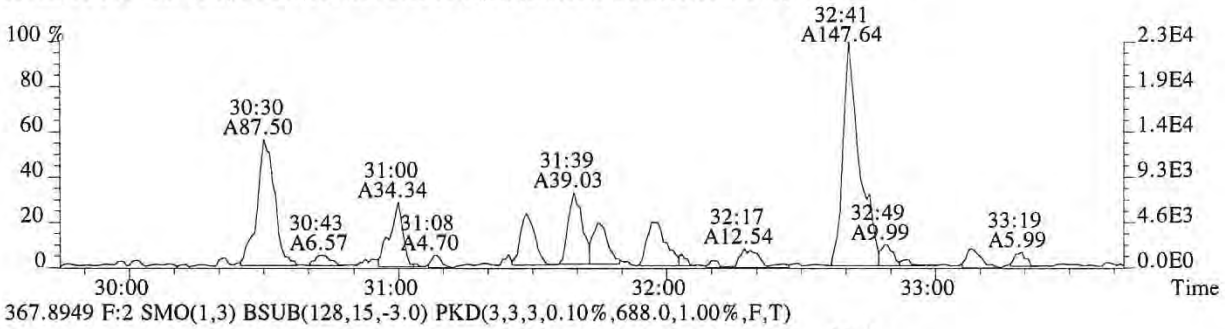
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



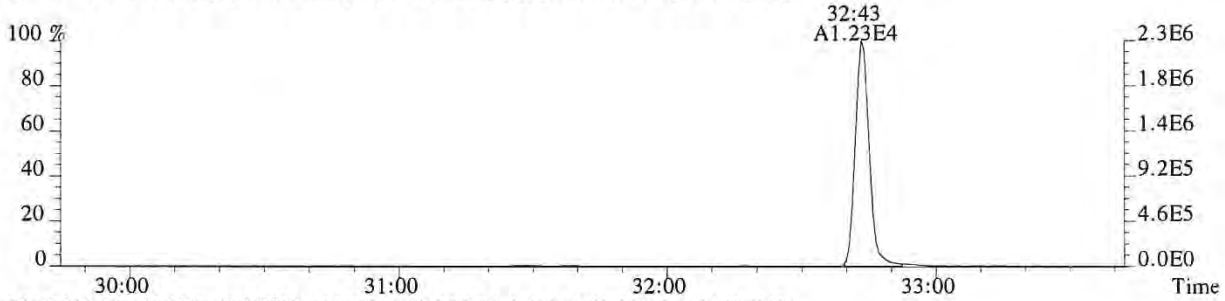
File:P519498 #1-357 Acq:19-DEC-2018 18:51:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-006
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,516.0,1.00%,F,T)



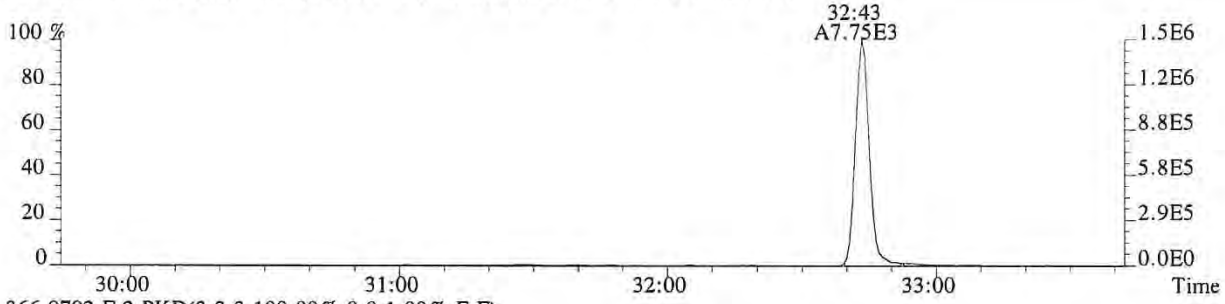
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,364.0,1.00%,F,T)



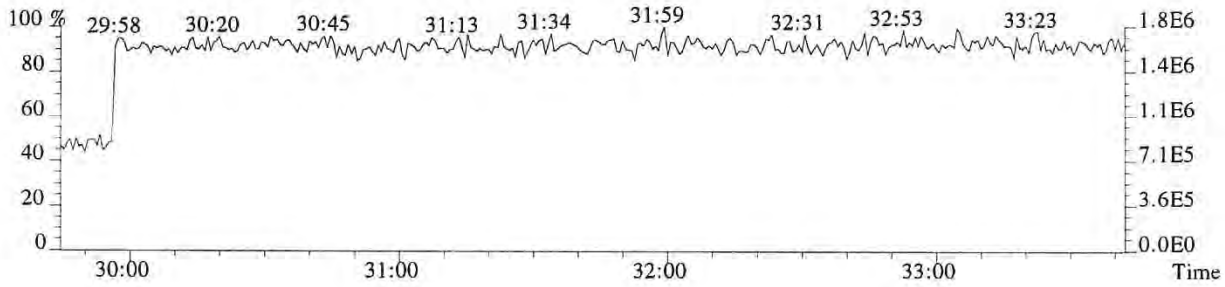
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,688.0,1.00%,F,T)



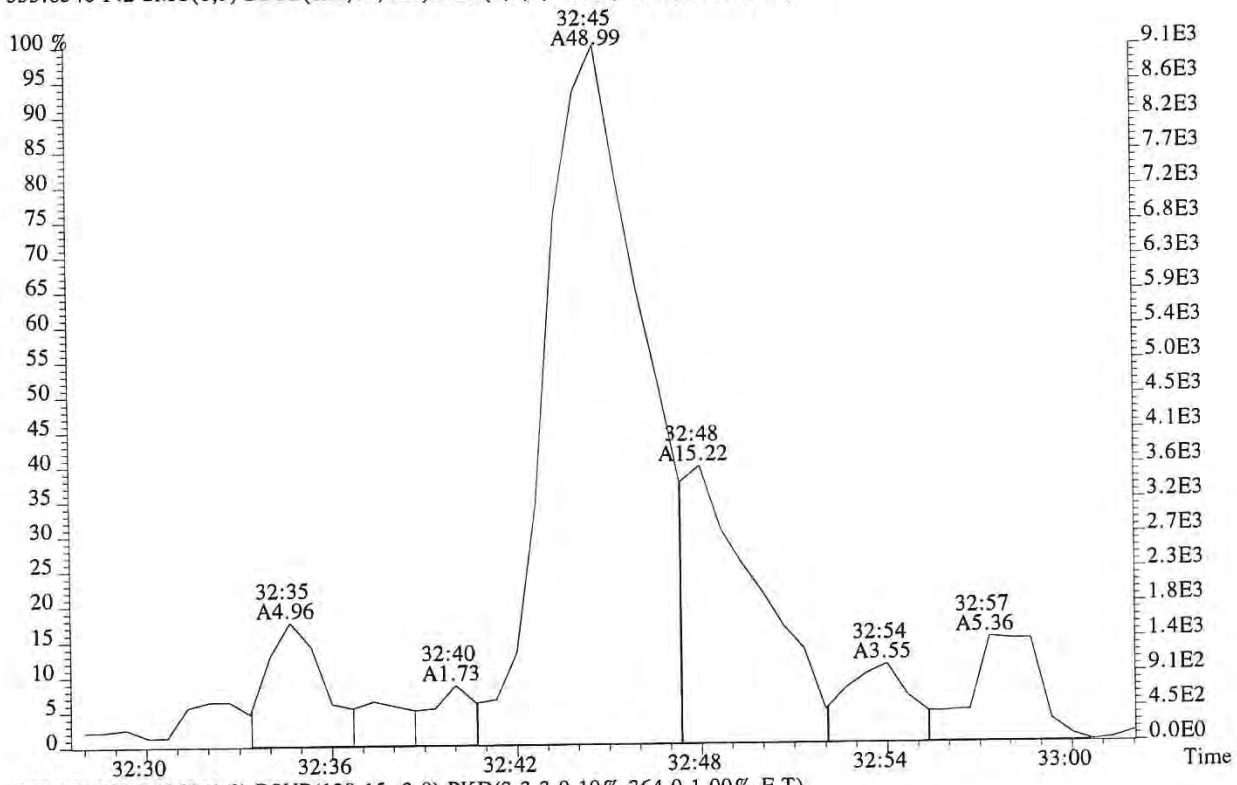
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,900.0,1.00%,F,T)



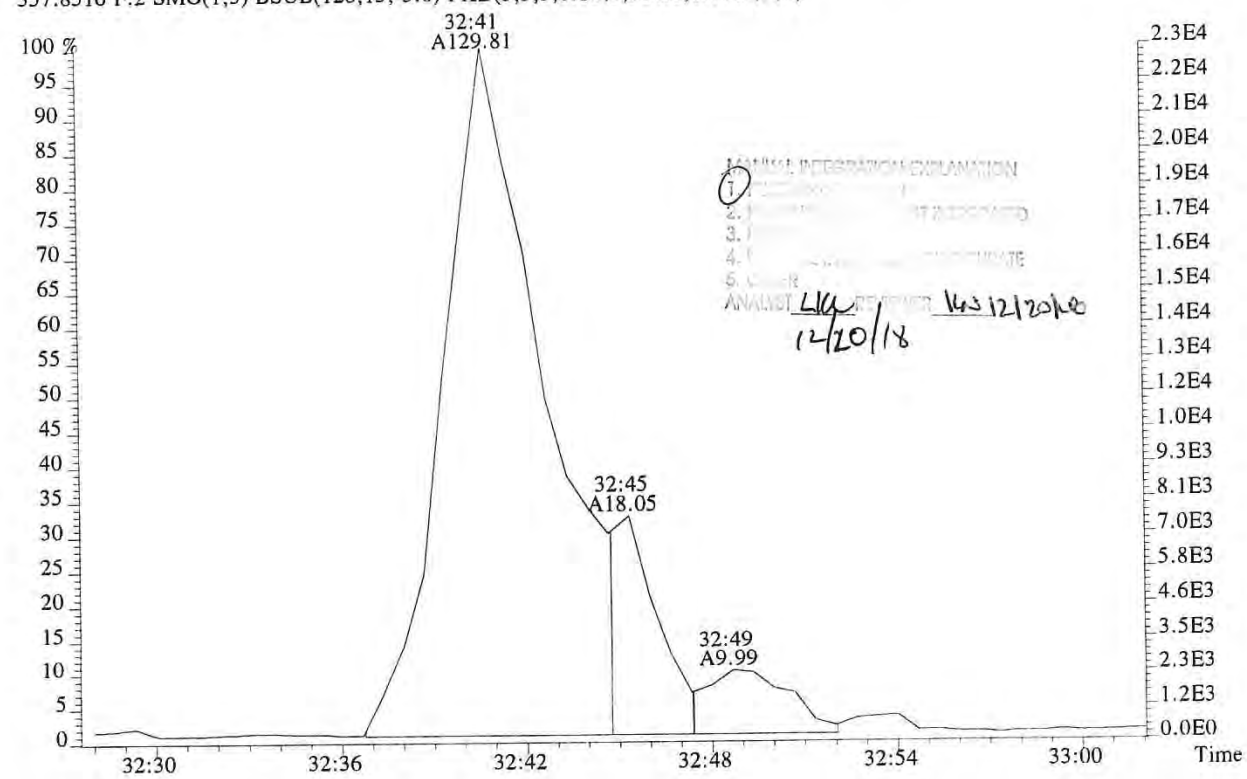
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P519498 #1-357 Acq:19-DEC-2018 18:51:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-006
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,516.0,1.00%,F,T)



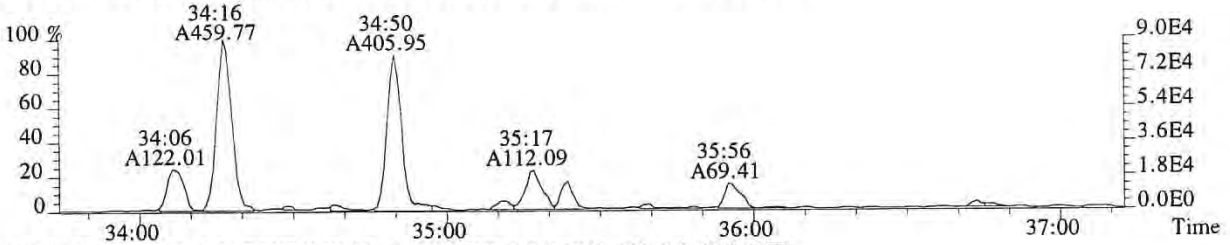
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,364.0,1.00%,F,T)



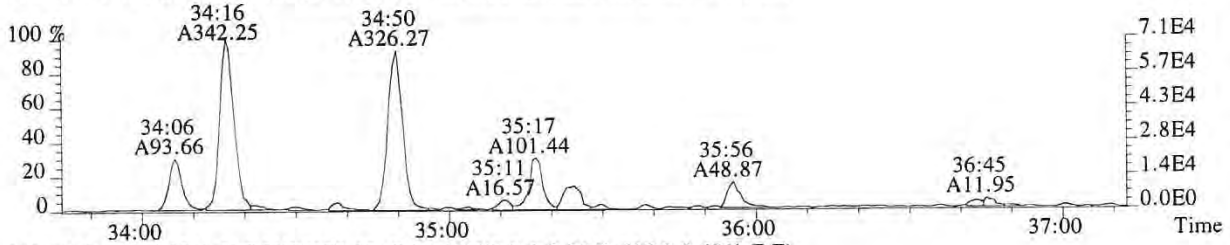
12/20/18

014124

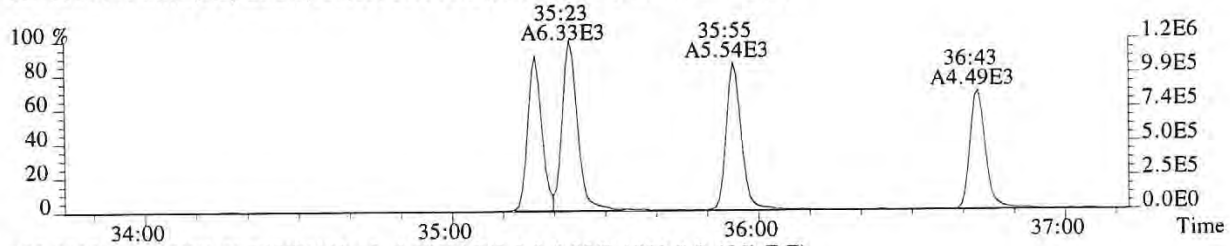
File:P519498 #1-313 Acq:19-DEC-2018 18:51:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-006
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1036.0,0.40%,F,T)



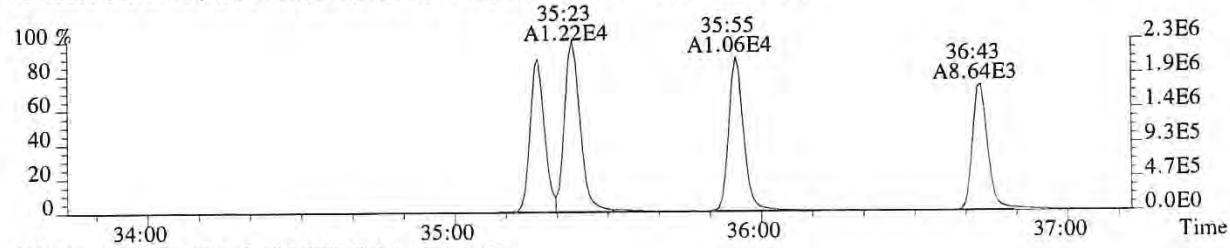
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,892.0,0.40%,F,T)



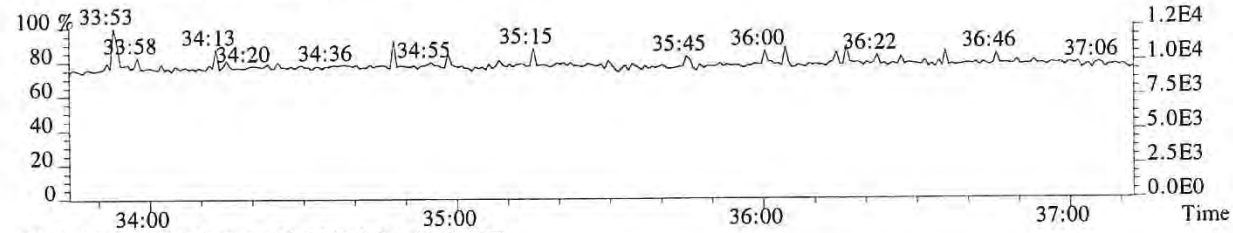
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,636.0,0.40%,F,T)



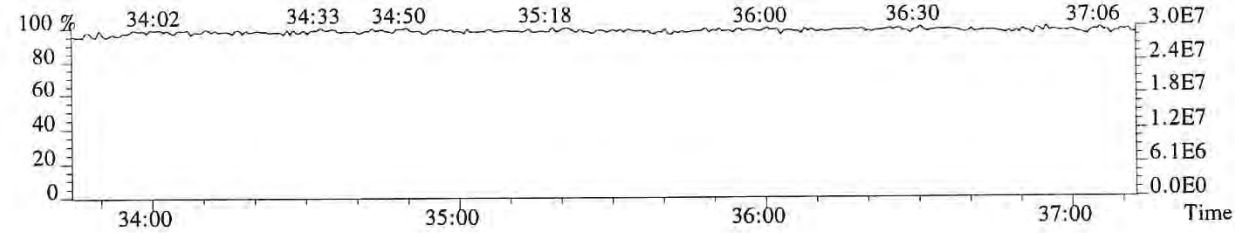
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1052.0,0.40%,F,T)



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

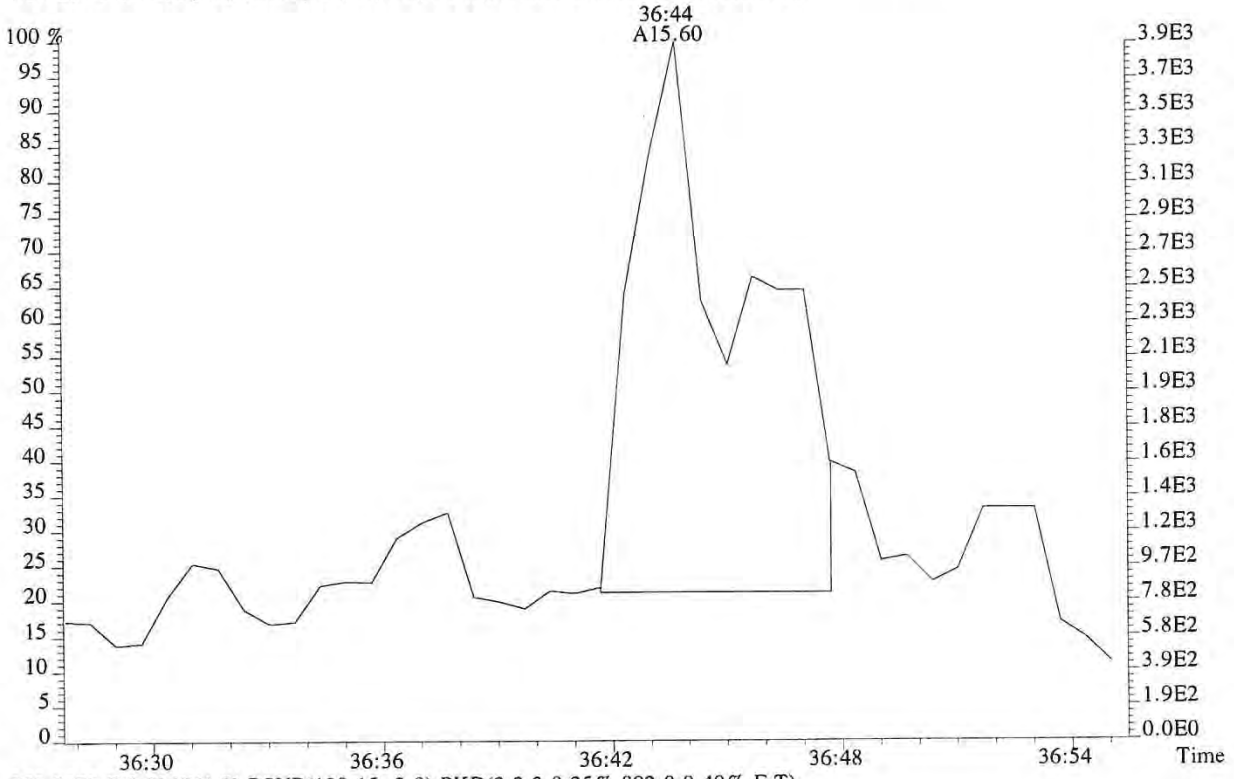


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

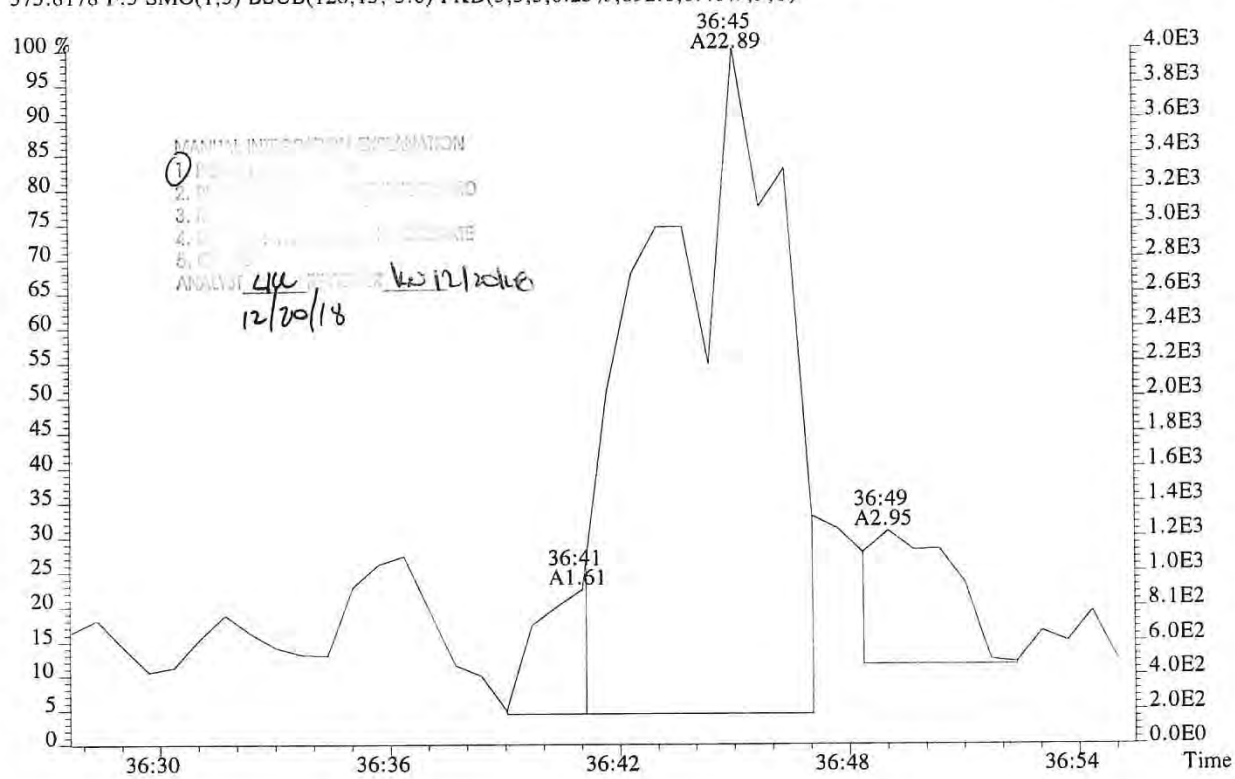


014125

File:P519498 #1-313 Acq:19-DEC-2018 18:51:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-006
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1036.0,0.40%,F,T)

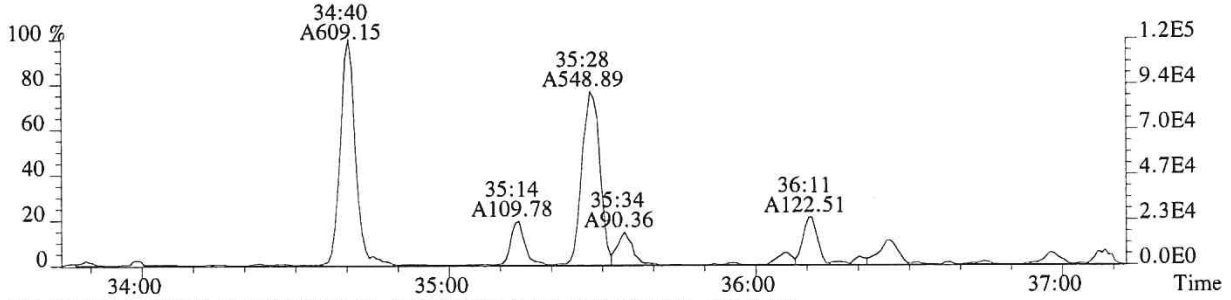


375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,892.0,0.40%,F,T)

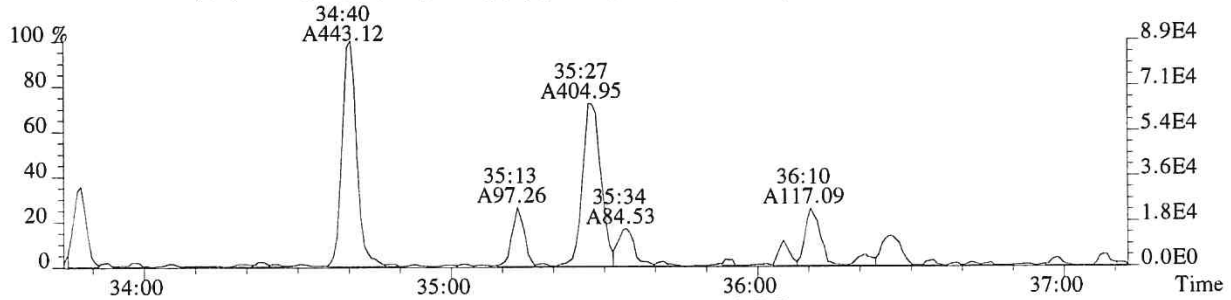


MANUAL INTEGRATION EXPLANATION
1.
2.
3.
4.
5.
ANALYST 12/20/18 12/21/2018

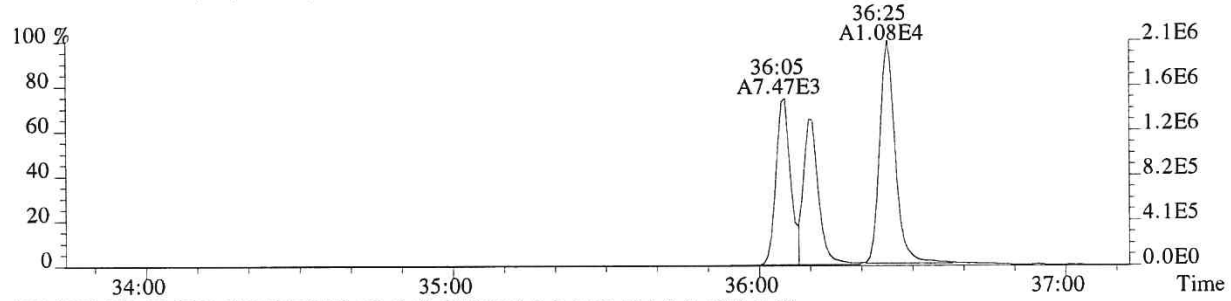
File:P519498 #1-313 Acq:19-DEC-2018 18:51:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-006
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,468.0,0.40%,F,T)



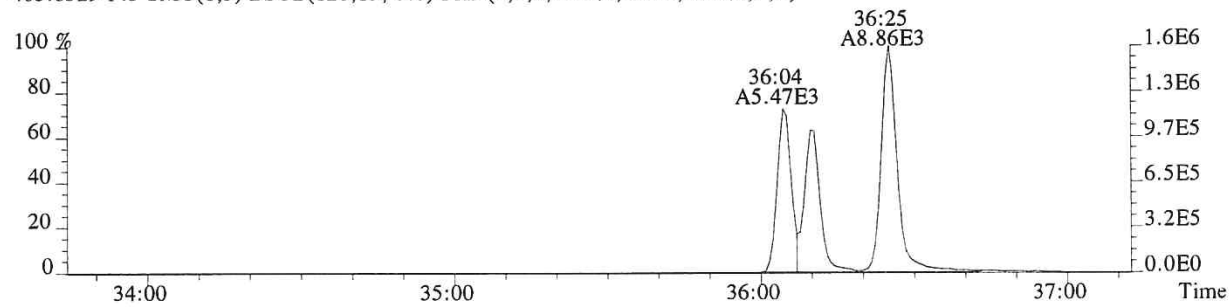
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,528.0,0.40%,F,T)



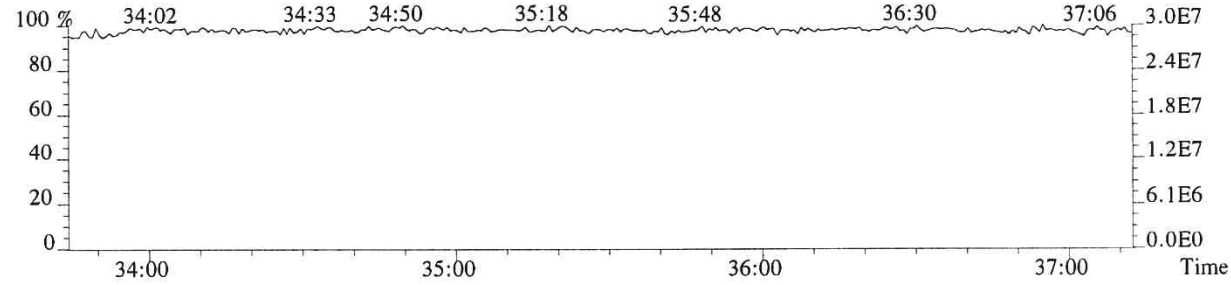
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,724.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,304.0,0.40%,F,T)



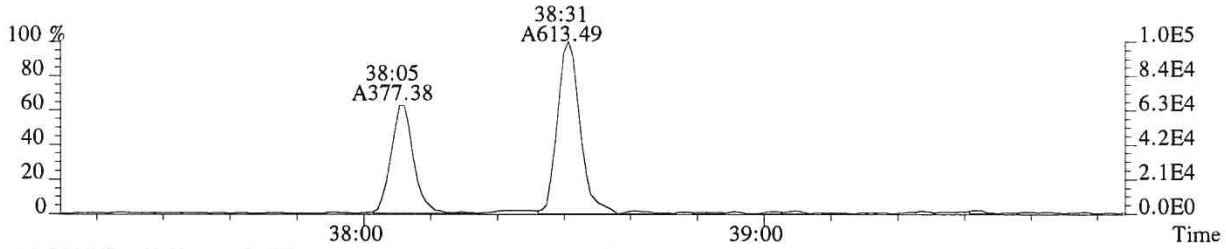
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



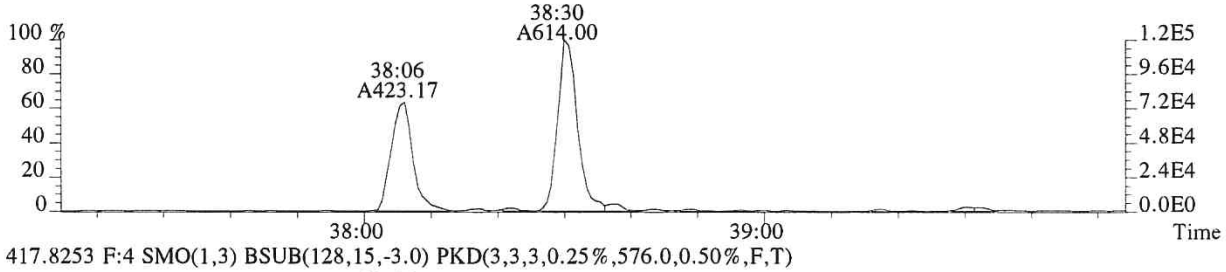
014127

File:P519498 #1-240 Acq:19-DEC-2018 18:51:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-006

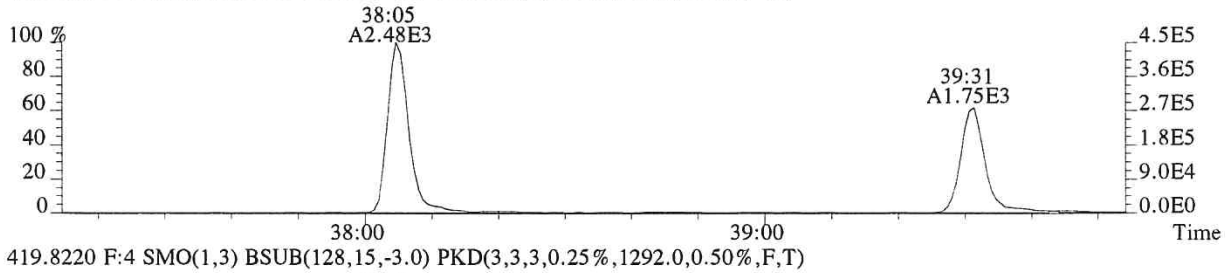
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,792.0,0.50%,F,T)



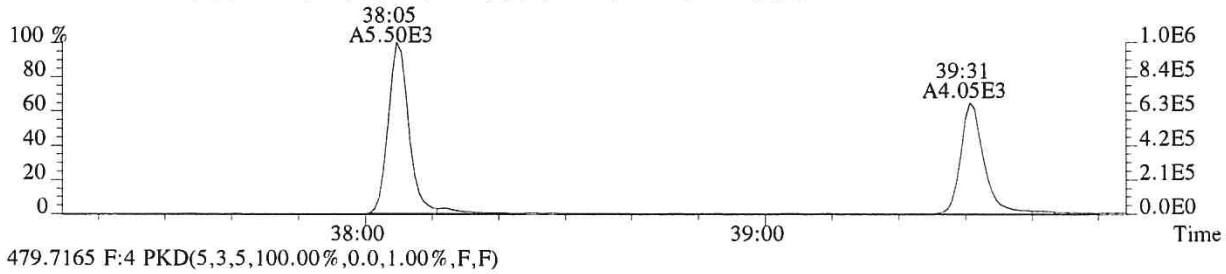
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,748.0,0.50%,F,T)



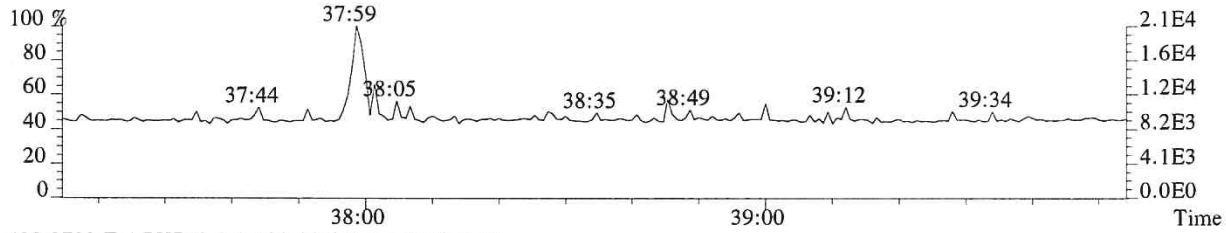
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,576.0,0.50%,F,T)



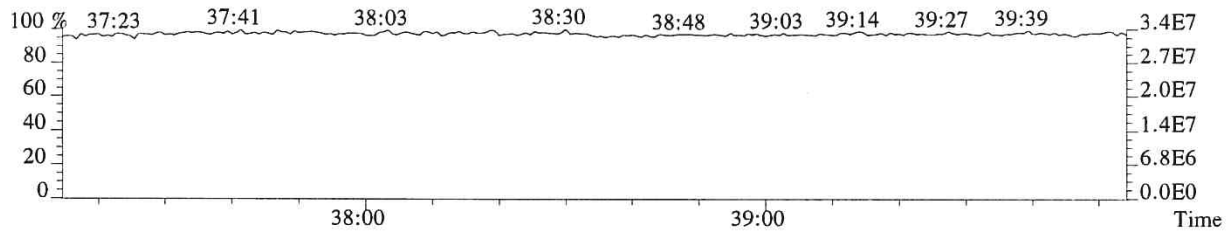
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1292.0,0.50%,F,T)



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

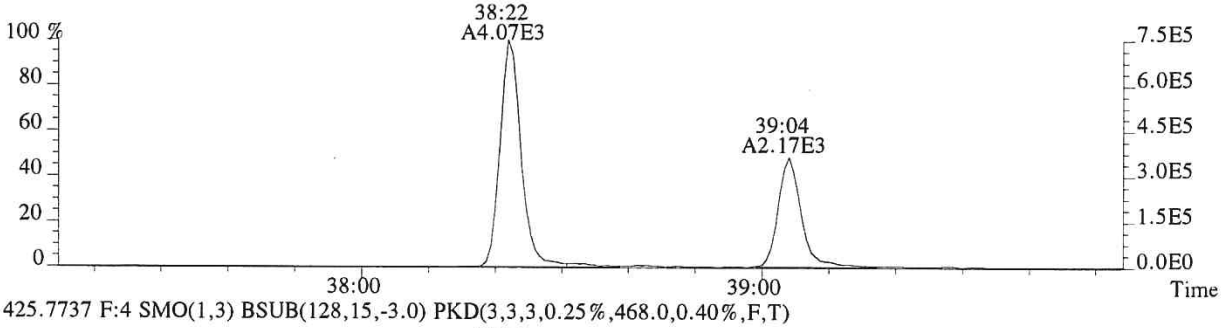


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

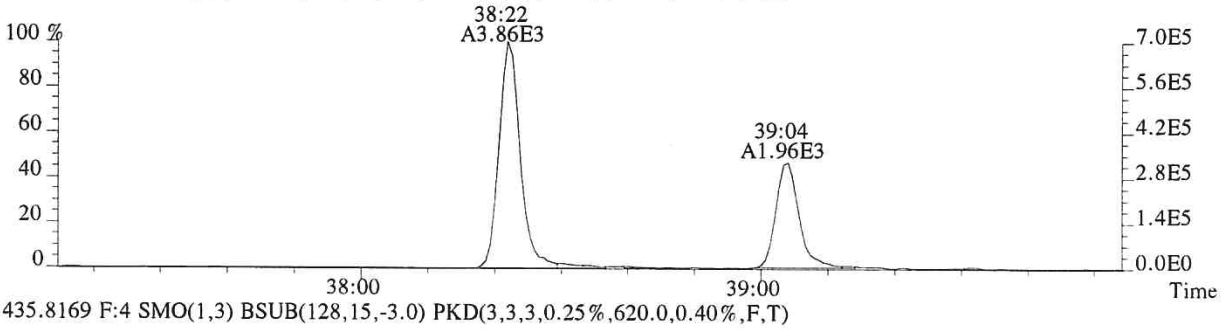


014128

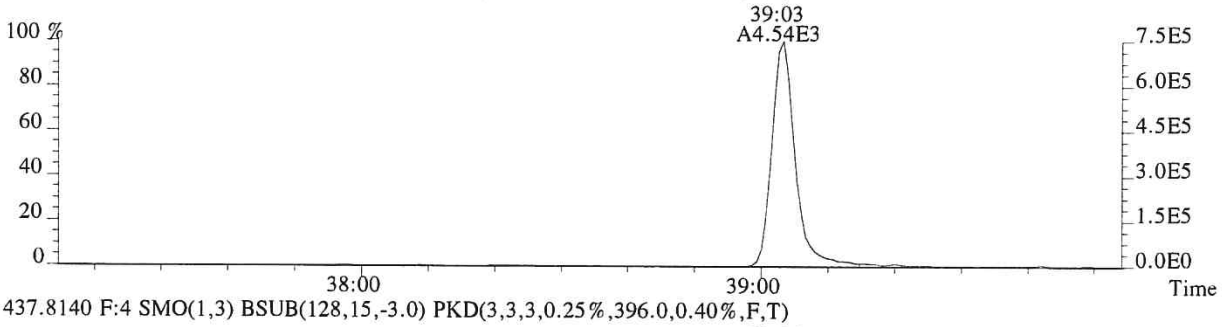
File:P519498 #1-240 Acq:19-DEC-2018 18:51:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-006
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,552.0,0.40%,F,T)



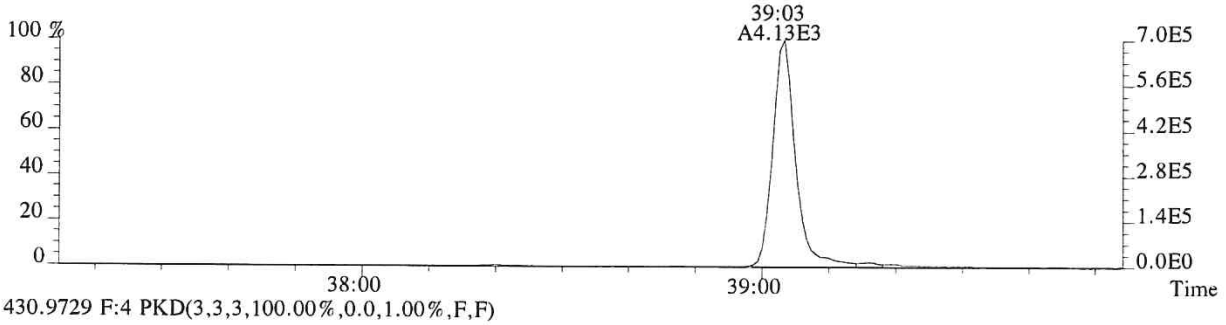
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,468.0,0.40%,F,T)



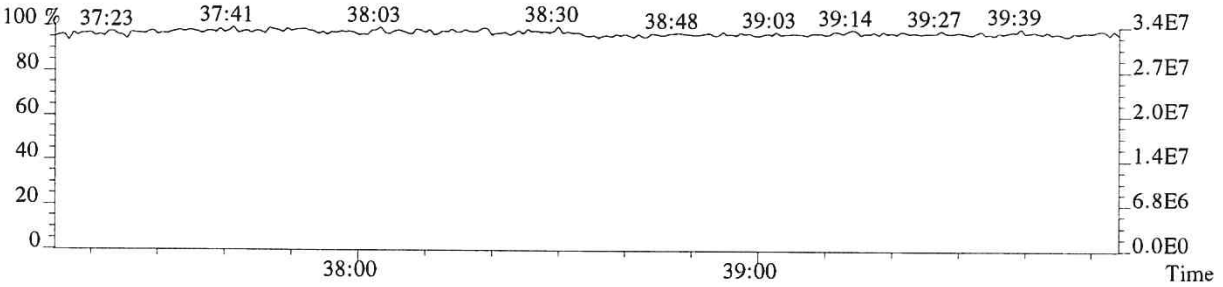
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,620.0,0.40%,F,T)



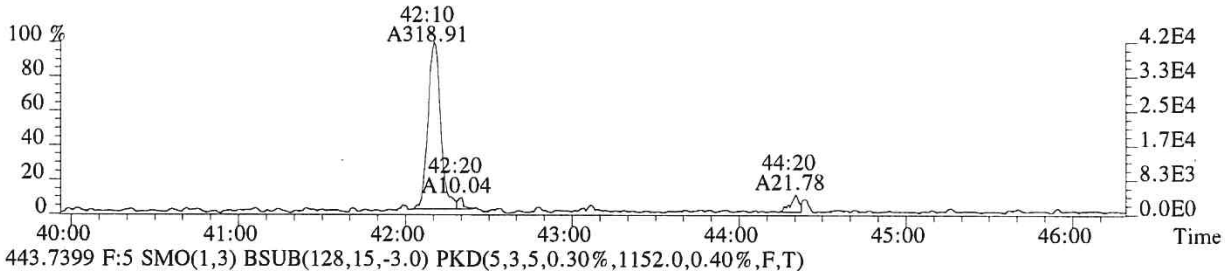
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,396.0,0.40%,F,T)



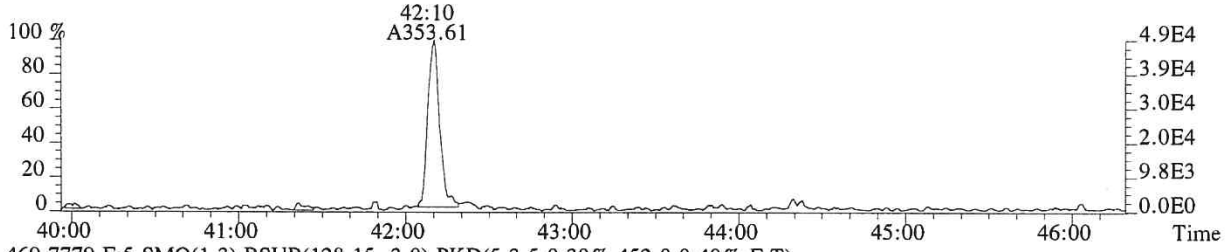
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



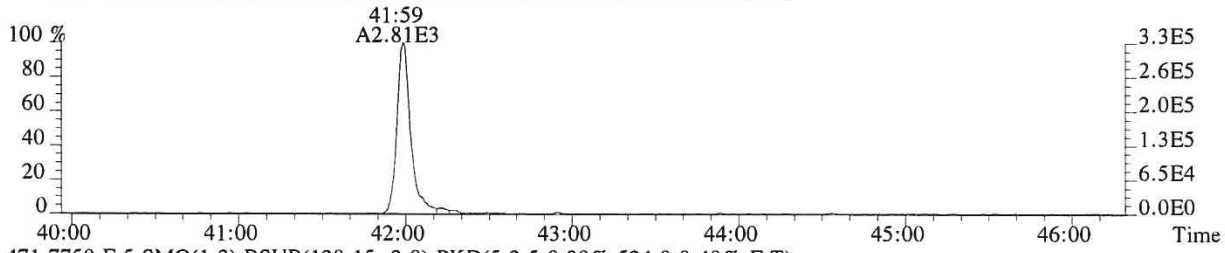
File:P519498 #1-575 Acq:19-DEC-2018 18:51:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-006
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1084.0,0.40%,F,T)



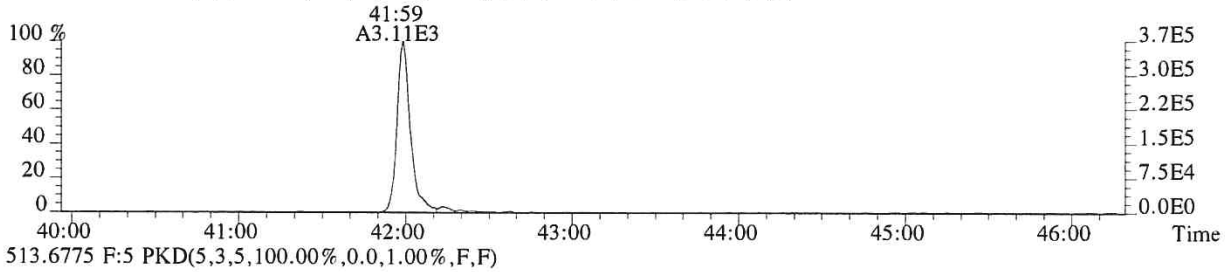
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1152.0,0.40%,F,T)



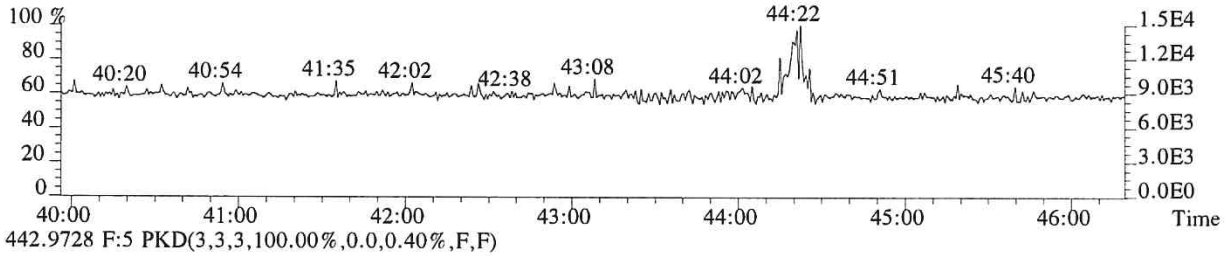
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,452.0,0.40%,F,T)



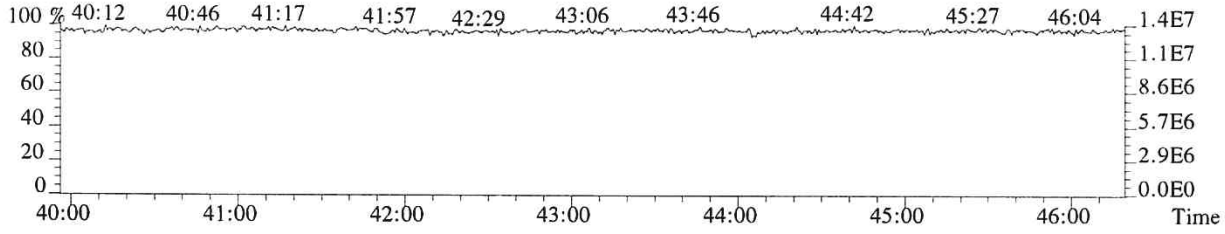
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,524.0,0.40%,F,T)



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

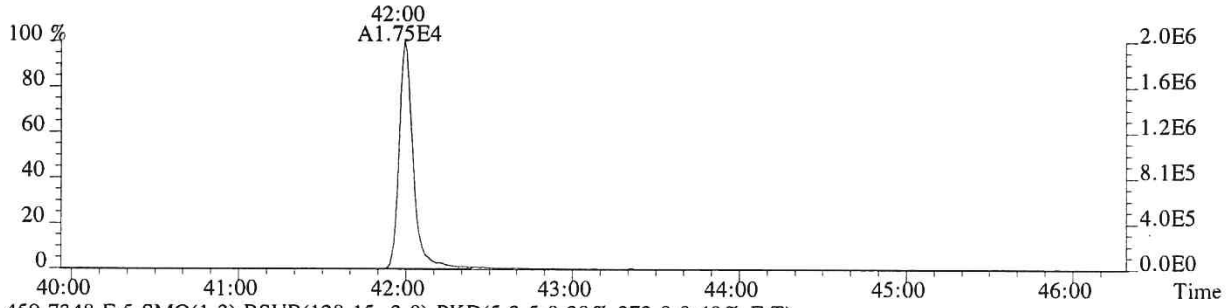


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

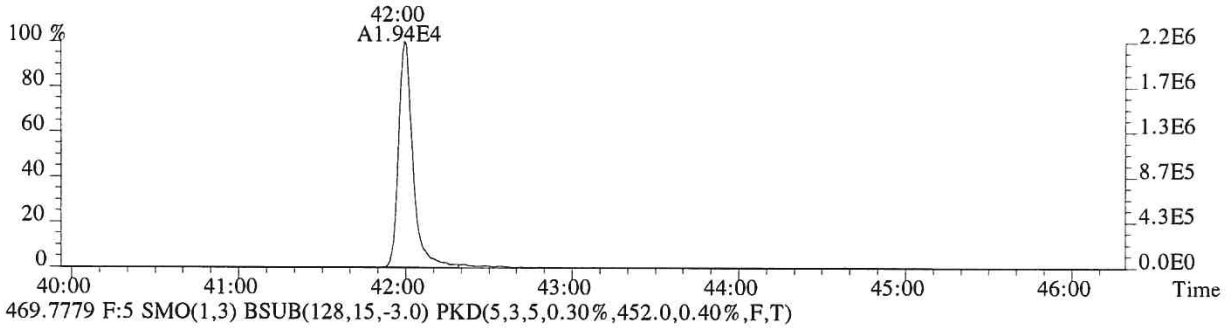


014130

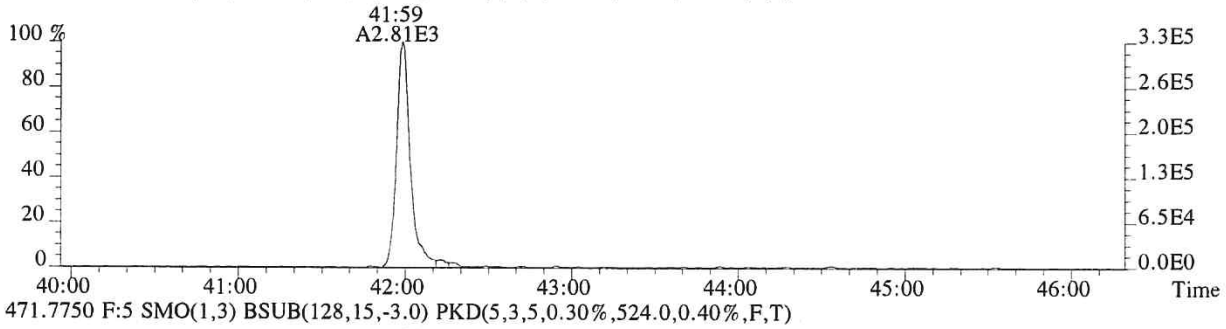
File:P519498 #1-575 Acq:19-DEC-2018 18:51:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-006
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,600.0,0.40%,F,T)



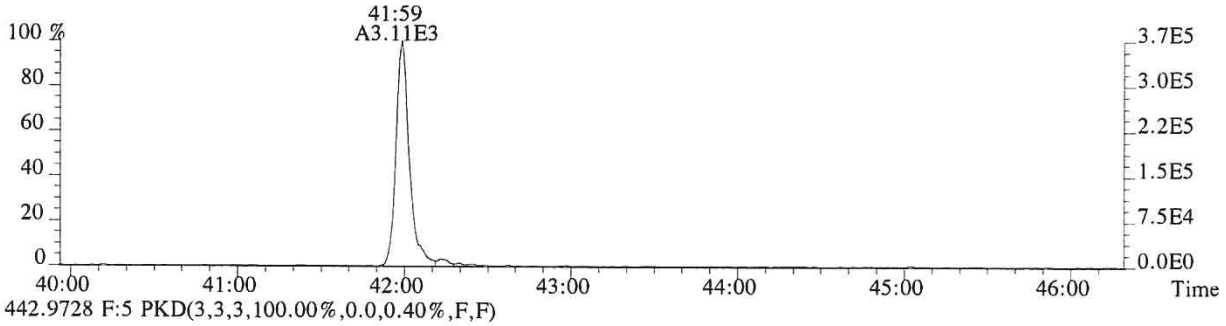
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,372.0,0.40%,F,T)



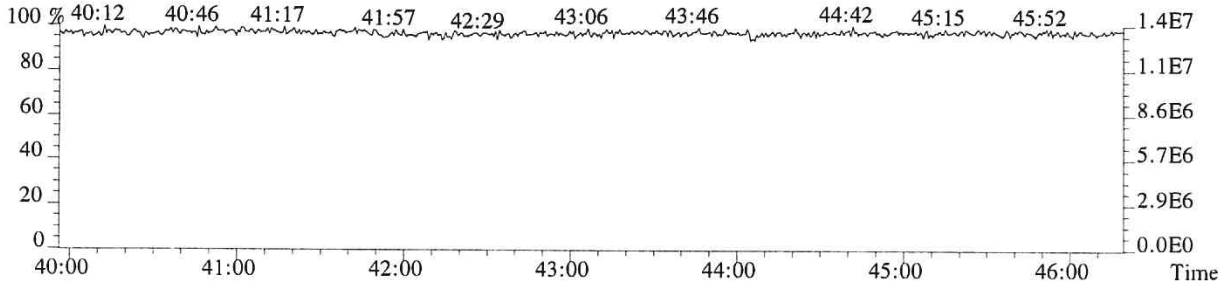
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,452.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,524.0,0.40%,F,T)



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



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0024

Run #17 Filename P519429 Samp: 1 Inj: 1 Acquired: 14-DEC-18 23:09:18
Processed: 17-DEC-18 15:31:55 Sample ID: E1801093-007

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:58	1.626e+04	2.160e+04	0.75	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	31:33	1.113e+03	8.016e+02	1.39	yes	yes	1.012
3	Unk	2,3,4,7,8-PeCDF	32:32	3.621e+03	2.454e+03	1.48	yes	yes	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:19	2.936e+03	2.441e+03	1.20	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:26	1.948e+03	1.692e+03	1.15	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:58	2.417e+03	1.938e+03	1.25	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	36:46	4.855e+02	4.205e+02	1.15	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:05	1.763e+04	1.745e+04	1.01	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:28	8.808e+02	1.032e+03	0.85	no	no	1.258
10	Unk	OCDF	42:01	1.047e+04	1.185e+04	0.88	yes	no	1.359
11	Unk	2,3,7,8-TCDD	27:51	4.066e+03	4.984e+03	0.82	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	32:49	6.657e+02	2.853e+02	2.33	no	yes	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:06	6.266e+02	4.470e+02	1.40	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:12	3.761e+03	2.876e+03	1.31	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:26	1.613e+03	1.147e+03	1.41	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:01	7.189e+04	6.981e+04	1.03	yes	no	1.025
17	Unk	OCDD	41:51	5.819e+05	6.501e+05	0.90	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	26:56	1.673e+04	2.111e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	31:31	2.594e+04	1.623e+04	1.60	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	32:29	2.468e+04	1.517e+04	1.63	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:18	9.392e+03	1.809e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:25	1.082e+04	2.093e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:57	9.774e+03	1.937e+04	0.50	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	36:44	9.028e+03	1.780e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:04	6.147e+03	1.382e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:27	5.366e+03	1.237e+04	0.43	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	27:49	7.651e+03	9.789e+03	0.78	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:48	1.815e+04	1.133e+04	1.60	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:06	1.392e+04	1.077e+04	1.29	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:11	1.347e+04	1.057e+04	1.28	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:00	1.259e+04	1.161e+04	1.08	yes	no	0.858
32	IS	13C-OCDD	41:50	9.091e+03	1.030e+04	0.88	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:12	1.672e+04	2.086e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:26	2.089e+04	1.718e+04	1.22	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:51	1.083e+04				no	1.014

$$\text{OCDD} = \frac{(5.819e+05 + 6.501e+05) \times 4000\ \text{pg} \times 1}{(9.091e+03 + 1.030e+04) \times 10.300\ \text{g} \times 73.8 / 100 \times 1.118} = 29900\ \text{ng/kg}$$

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12/20/18

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0024

Run #17 Filename P519429 Samp: 1 Inj: 1 Acquired: 14-DEC-18 23:09:18
Processed: 17-DEC-18 15:31:55 LAB. ID: E1801093-007

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.49e+06	2.24e+03	1.1e+03	3.15e+06	2.23e+03	1.4e+03
2	1,2,3,7,8-PeCDF	2.25e+05	3.42e+03	6.6e+01	1.72e+05	4.65e+03	3.7e+01
3	2,3,4,7,8-PeCDF	4.66e+05	3.42e+03	1.4e+02	3.16e+05	4.65e+03	6.8e+01
4	1,2,3,4,7,8-HxCDF	6.38e+05	6.12e+03	1.0e+02	5.36e+05	2.94e+03	1.8e+02
5	1,2,3,6,7,8-HxCDF	3.86e+05	6.12e+03	6.3e+01	3.26e+05	2.94e+03	1.1e+02
6	2,3,4,6,7,8-HxCDF	5.21e+05	6.12e+03	8.5e+01	4.41e+05	2.94e+03	1.5e+02
7	1,2,3,7,8,9-HxCDF	9.07e+04	6.12e+03	1.5e+01	7.80e+04	2.94e+03	2.7e+01
8	1,2,3,4,6,7,8-HpCDF	3.58e+06	1.08e+04	3.3e+02	3.54e+06	7.44e+03	4.8e+02
9	1,2,3,4,7,8,9-HpCDF	1.67e+05	1.08e+04	1.6e+01	2.11e+05	7.44e+03	2.8e+01
10	OCDF	1.57e+06	6.52e+02	2.4e+03	1.79e+06	6.56e+02	2.7e+03
11	2,3,7,8-TCDD	7.31e+05	1.79e+03	4.1e+02	8.56e+05	1.40e+03	6.1e+02
12	1,2,3,7,8-PeCDD	1.34e+05	3.40e+03	3.9e+01	8.60e+04	4.60e+03	1.9e+01
13	1,2,3,4,7,8-HxCDD	1.47e+05	6.89e+03	2.1e+01	1.09e+05	7.54e+03	1.4e+01
14	1,2,3,6,7,8-HxCDD	7.62e+05	6.89e+03	1.1e+02	5.93e+05	7.54e+03	7.9e+01
15	1,2,3,7,8,9-HxCDD	3.02e+05	6.89e+03	4.4e+01	2.22e+05	7.54e+03	2.9e+01
16	1,2,3,4,6,7,8-HpCDD	1.38e+07	1.47e+03	9.4e+03	1.36e+07	3.88e+02	3.5e+04
17	OCDD	8.79e+07	9.08e+02	9.7e+04	9.75e+07	1.16e+03	8.4e+04
18	13C-2,3,7,8-TCDF	2.78e+06	6.12e+03	4.6e+02	3.50e+06	2.36e+03	1.5e+03
19	13C-1,2,3,7,8-PeCDF	4.69e+06	7.24e+02	6.5e+03	2.95e+06	1.04e+03	2.8e+03
20	13C-2,3,4,7,8-PeCDF	4.74e+06	7.24e+02	6.5e+03	2.90e+06	1.04e+03	2.8e+03
21	13C-1,2,3,4,7,8-HxCDF	2.00e+06	6.36e+02	3.1e+03	3.87e+06	1.43e+03	2.7e+03
22	13C-1,2,3,6,7,8-HxCDF	2.07e+06	6.36e+02	3.3e+03	4.13e+06	1.43e+03	2.9e+03
23	13C-2,3,4,6,7,8-HxCDF	2.06e+06	6.36e+02	3.2e+03	4.02e+06	1.43e+03	2.8e+03
24	13C-1,2,3,7,8,9-HxCDF	1.83e+06	6.36e+02	2.9e+03	3.63e+06	1.43e+03	2.5e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.24e+06	3.22e+03	3.9e+02	2.78e+06	7.84e+03	3.5e+02
26	13C-1,2,3,4,7,8,9-HpCDF	1.01e+06	3.22e+03	3.1e+02	2.22e+06	7.84e+03	2.8e+02
27	13C-2,3,7,8-TCDD	1.37e+06	5.32e+03	2.6e+02	1.68e+06	2.71e+03	6.2e+02
28	13C-1,2,3,7,8-PeCDD	3.33e+06	6.36e+02	5.2e+03	2.08e+06	7.92e+02	2.6e+03
29	13C-1,2,3,4,7,8-HxCDD	3.09e+06	1.32e+03	2.3e+03	2.36e+06	7.32e+02	3.2e+03
30	13C-1,2,3,6,7,8-HxCDD	2.69e+06	1.32e+03	2.0e+03	2.08e+06	7.32e+02	2.8e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.43e+06	5.32e+02	4.6e+03	2.21e+06	6.92e+02	3.2e+03
32	13C-OCDD	1.30e+06	9.12e+02	1.4e+03	1.49e+06	7.84e+02	1.9e+03
33	13C-1,2,3,4-TCDD	2.87e+06	5.32e+03	5.4e+02	3.53e+06	2.71e+03	1.3e+03
34	13C-1,2,3,7,8,9-HxCDD	4.09e+06	1.32e+03	3.1e+03	3.31e+06	7.32e+02	4.5e+03
35	37Cl-2,3,7,8-TCDD	1.93e+06	1.09e+03	1.8e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0024

Entry: 36 Totals Name: Total Tetra-Furans

Run: 17 File: P519429 Sample:1 Injection:1 Function:1

Acquired: 14-DEC-18 23:09:18 Processed: 17-DEC-18 15:31:55

Mass: 303.9020 305.8990 Tot Response: 8.90e+04 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	22:21	2.00e+02	2.83e+02	0.71	yes	4.83e+02		n	n
2	22:47	6.16e+02	8.75e+02	0.70	yes	1.49e+03		n	n
3	23:16	2.55e+03	3.45e+03	0.74	yes	6.00e+03		n	n
4	23:44	1.26e+03	1.68e+03	0.75	yes	2.94e+03		n	n
5	24:03	2.08e+03	2.64e+03	0.79	yes	4.72e+03		n	n
6	24:27	1.46e+03	1.92e+03	0.76	yes	3.38e+03		n	n
7	24:45	8.89e+02	1.14e+03	0.78	yes	2.03e+03		n	n
8	25:24	2.09e+03	2.72e+03	0.77	yes	4.81e+03		n	n
9	25:32	7.29e+02	9.09e+02	0.80	yes	1.64e+03		n	n
10	26:03	6.83e+03	8.86e+03	0.77	yes	1.57e+04		n	n
11	26:58	1.63e+04	2.16e+04	0.75	yes	3.79e+04	2,3,7,8-TCDF	n	n
12	27:20	1.84e+03	2.50e+03	0.74	yes	4.34e+03		n	n
13	28:58	1.69e+03	1.92e+03	0.88	yes	3.61e+03		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0024

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 17 File: P519429 Sample:1 Injection:1 Function:1

Acquired: 14-DEC-18 23:09:18 Processed: 17-DEC-18 15:31:55

Mass: 319.8970 321.8940 Tot Response: 1.31e+04 RRF: 1.085

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:04	7.84e+02	1.04e+03	0.75	yes	1.82e+03	n	n
2	24:25	1.63e+02	2.15e+02	0.76	yes	3.78e+02	n	n
3	24:51	2.61e+01	3.44e+01	0.76	yes	6.05e+01	y	n
4	25:56	1.26e+02	1.50e+02	0.84	yes	2.77e+02	n	n
5	26:08	1.49e+02	1.89e+02	0.79	yes	3.38e+02	n	n
6	27:09	3.71e+01	4.64e+01	0.80	yes	8.35e+01	n	n
7	27:51	4.07e+03	4.98e+03	0.82	yes	9.05e+03	2,3,7,8-TCDD	n	n
8	28:10	4.39e+02	6.39e+02	0.69	yes	1.08e+03	n	n

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Peak List Summary

CLIENT ID.
SL0024

Entry: 38 Totals Name: Total Penta-Furans1

Run: 17 File: P519429 Sample:1 Injection:1 Function:1

Acquired: 14-DEC-18 23:09:18 Processed: 17-DEC-18 15:31:55

Mass: 339.8600 341.8570 Tot Response: 2.66e+04 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	28:58	1.63e+04	1.03e+04	1.59	yes	2.66e+04	n	n

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Peak List Summary

CLIENT ID.
SL0024

Entry: 39 Totals Name: Total Penta-Furans2

Run: 17 File: P519429 Sample:1 Injection:1 Function:2

Acquired: 14-DEC-18 23:09:18 Processed: 17-DEC-18 15:31:55

Mass: 339.8600 341.8570 Tot Response: 3.41e+04 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:25	2.19e+03	1.68	yes	3.50e+03		n	n
2	30:34	9.61e+03	1.54	yes	1.58e+04		n	n
3	31:08	2.89e+03	1.32	yes	5.09e+03		n	n
4	31:21	5.52e+02	1.59	yes	8.99e+02		n	n
5	31:33	1.11e+03	1.39	yes	1.91e+03	1,2,3,7,8-PeCDF	n	n
6	32:24	4.34e+02	1.45	yes	7.34e+02		n	n
7	32:32	3.62e+03	1.48	yes	6.07e+03	2,3,4,7,8-PeCDF	n	n

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Peak List Summary

CLIENT ID.
SL0024

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 17 File: P519429 Sample:1 Injection:1 Function:2

Acquired: 14-DEC-18 23:09:18 Processed: 17-DEC-18 15:31:55

Mass: 355.8550 357.8520 Tot Response: 5.14e+03 RRF: 0.9565

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:37	1.14e+03	8.15e+02	1.40	yes	1.96e+03	n	n
2	31:33	6.59e+02	3.97e+02	1.66	yes	1.06e+03	n	n
3	31:50	3.84e+02	2.45e+02	1.56	yes	6.29e+02	n	n
4	32:03	4.21e+02	2.55e+02	1.65	yes	6.75e+02	y	n
5	32:23	2.88e+02	1.91e+02	1.51	yes	4.79e+02	y	n
6	33:13	2.10e+02	1.33e+02	1.58	yes	3.42e+02	n	y

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Peak List Summary

CLIENT ID.
SL0024

Entry: 41 Totals Name: Total Hexa-Furans

Run: 17 File: P519429 Sample:1 Injection:1 Function:3

Acquired: 14-DEC-18 23:09:18 Processed: 17-DEC-18 15:31:55

Mass: 373.8210 375.8180 Tot Response: 7.90e+04 RRF: 1.141

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:10	2.64e+03	2.31e+03	1.14	yes	4.96e+03		n	n
2	34:20	1.48e+04	1.24e+04	1.20	yes	2.72e+04		n	n
3	34:41	6.32e+02	5.11e+02	1.24	yes	1.14e+03		n	n
4	34:52	1.64e+04	1.36e+04	1.21	yes	3.00e+04		n	n
5	35:14	5.78e+02	5.28e+02	1.09	yes	1.11e+03		n	n
6	35:19	2.94e+03	2.44e+03	1.20	yes	5.38e+03	1,2,3,4,7,8-HxCDF	n	n
7	35:26	1.95e+03	1.69e+03	1.15	yes	3.64e+03	1,2,3,6,7,8-HxCDF	n	n
8	35:41	1.80e+02	1.51e+02	1.19	yes	3.30e+02		n	n
9	35:58	2.42e+03	1.94e+03	1.25	yes	4.36e+03	2,3,4,6,7,8-HxCDF	n	n
10	36:46	4.85e+02	4.20e+02	1.15	yes	9.06e+02	1,2,3,7,8,9-HxCDF	n	n

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Peak List Summary

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SL0024

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 17 File: P519429 Sample:1 Injection:1 Function:3

Acquired: 14-DEC-18 23:09:18 Processed: 17-DEC-18 15:31:55

Mass: 389.8160 391.8130 Tot Response: 5.35e+04 RRF: 1.047

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:42	9.03e+03	7.21e+03 1.25	yes	1.62e+04		n	n
2	35:15	1.33e+03	1.15e+03 1.16	yes	2.48e+03		n	n
3	35:30	1.31e+04	1.05e+04 1.25	yes	2.36e+04		n	n
4	36:06	6.27e+02	4.47e+02 1.40	yes	1.07e+03	1,2,3,4,7,8-HxCDD	n	n
5	36:12	3.76e+03	2.88e+03 1.31	yes	6.64e+03	1,2,3,6,7,8-HxCDD	n	n
6	36:22	3.75e+02	3.08e+02 1.22	yes	6.83e+02		n	n
7	36:26	1.61e+03	1.15e+03 1.41	yes	2.76e+03	1,2,3,7,8,9-HxCDD	n	n

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SL0024

Entry: 43 Totals Name: Total Hepta-Furans

Run: 17 File: P519429 Sample:1 Injection:1 Function:4

Acquired: 14-DEC-18 23:09:18 Processed: 17-DEC-18 15:31:55

Mass: 407.7820 409.7790 Tot Response: 9.38e+04 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:05	1.76e+04	1.01	yes	3.51e+04	1,2,3,4,6,7,8-HpCDF	n	n
2	38:21	3.93e+02	0.93	yes	8.15e+02		n	n
3	38:29	2.92e+04	1.02	yes	5.79e+04		n	n

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SL0024

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 17 File: P519429 Sample:1 Injection:1 Function:4

Acquired: 14-DEC-18 23:09:18 Processed: 17-DEC-18 15:31:55

Mass: 423.7770 425.7740 Tot Response: 3.22e+05 RRF: 1.025

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:21	9.14e+04	8.92e+04	1.02	yes	1.81e+05		n	n
2	39:01	7.19e+04	6.98e+04	1.03	yes	1.42e+05	1,2,3,4,6,7,8-HpCDD	n	n

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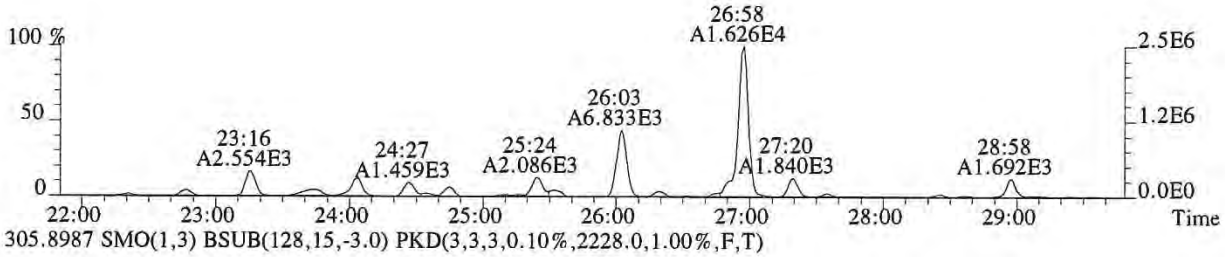
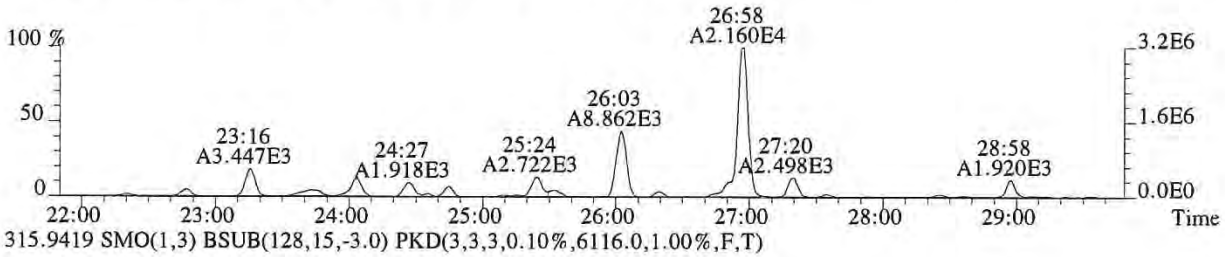
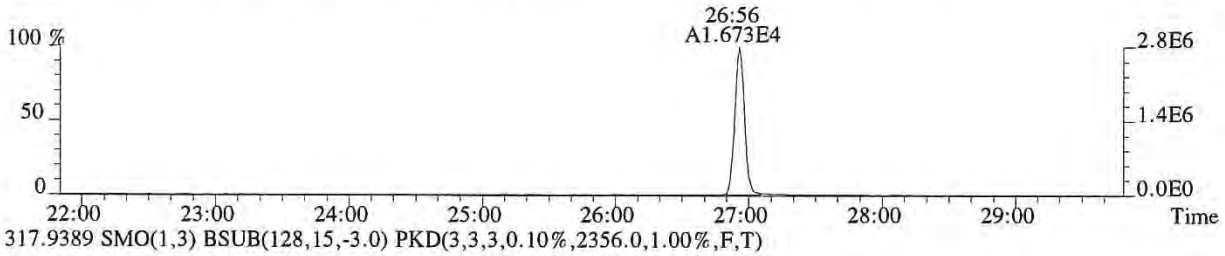
File:P519429 #1-566 Acq:14-DEC-2018 23:09:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-007
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2240.0,1.00%,F,T)



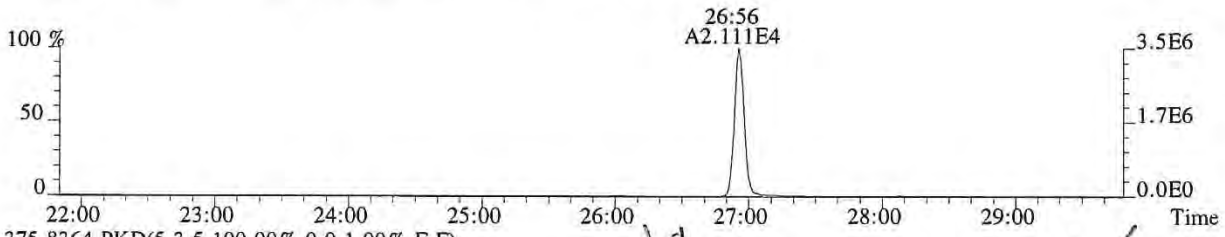
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2228.0,1.00%,F,T)



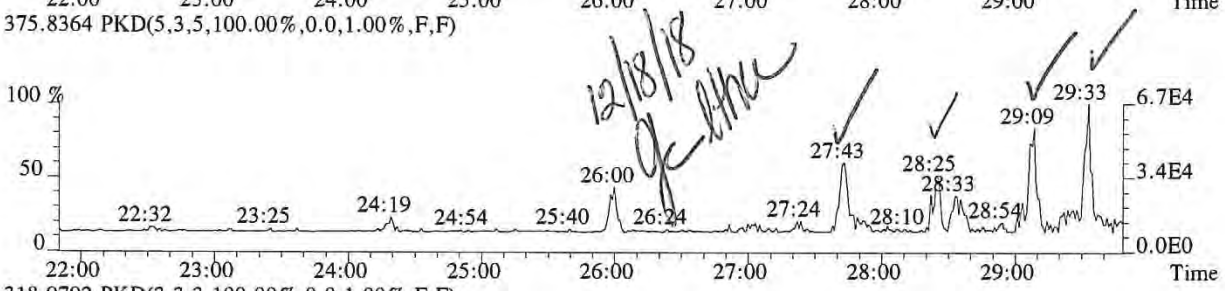
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6116.0,1.00%,F,T)



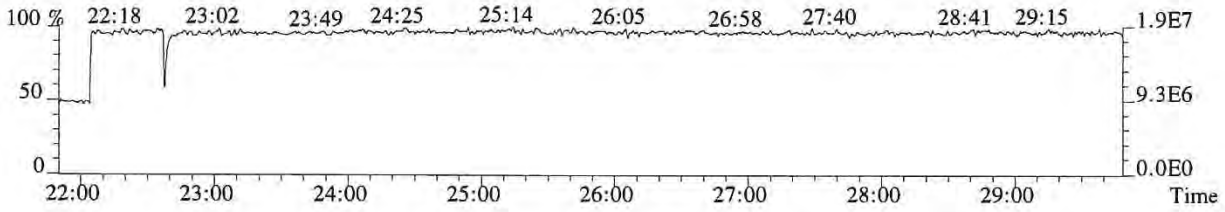
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2356.0,1.00%,F,T)



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

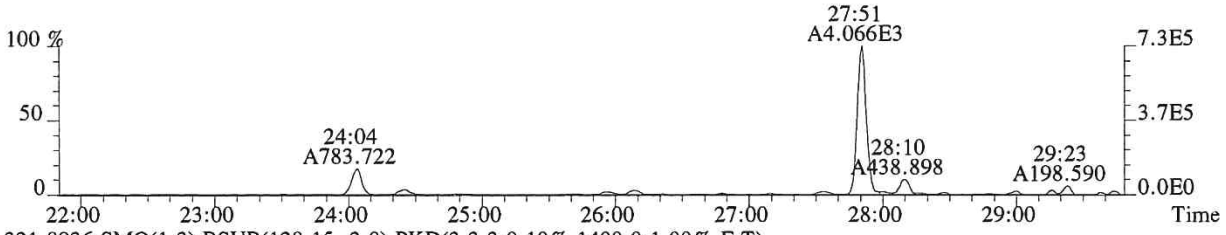


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

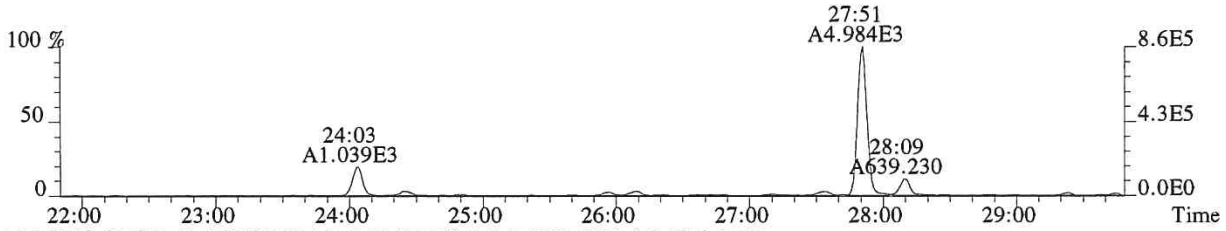


File:P519429 #1-566 Acq:14-DEC-2018 23:09:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-007

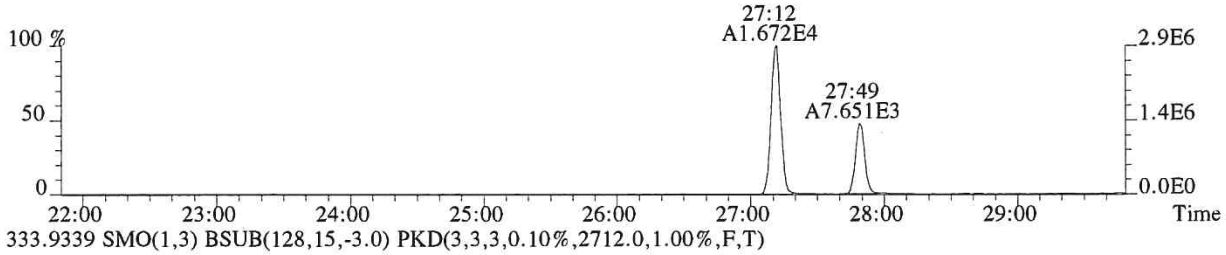
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1792.0,1.00%,F,T)



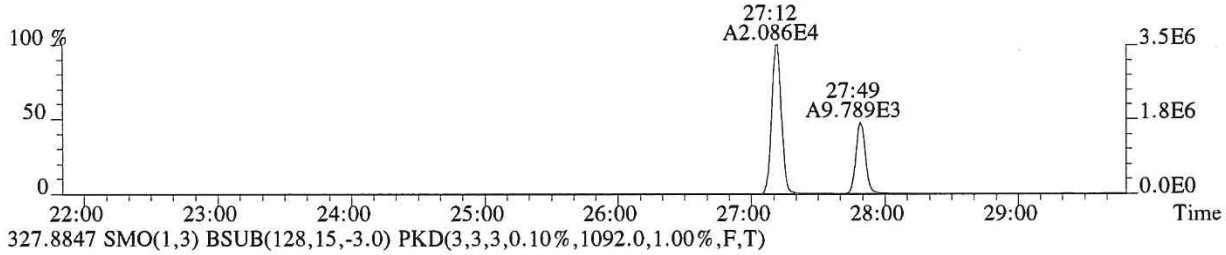
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1400.0,1.00%,F,T)



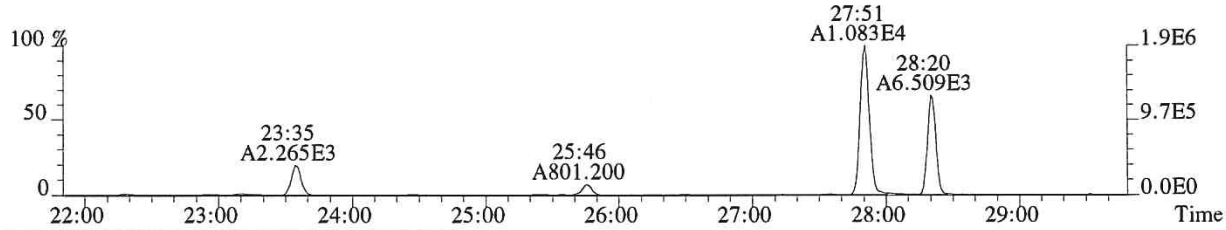
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5320.0,1.00%,F,T)



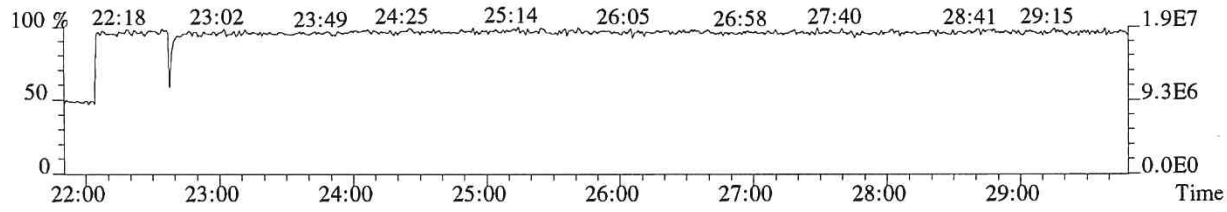
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2712.0,1.00%,F,T)



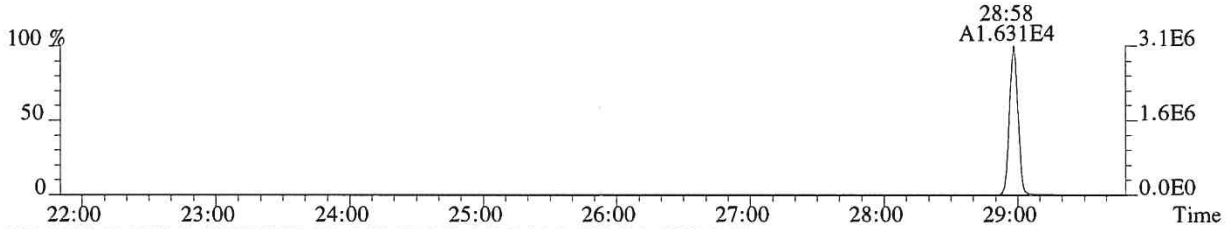
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1092.0,1.00%,F,T)



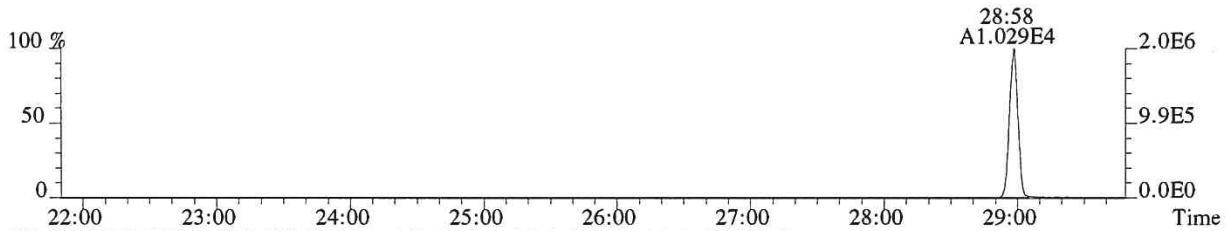
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



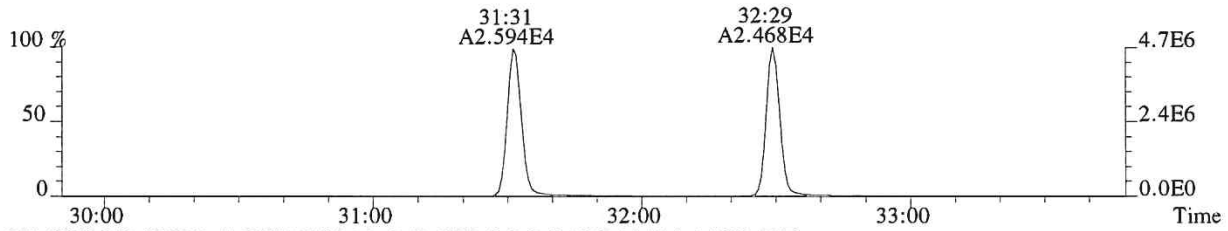
File:P519429 #1-566 Acq:14-DEC-2018 23:09:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-007
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,632.0,1.00%,F,T)



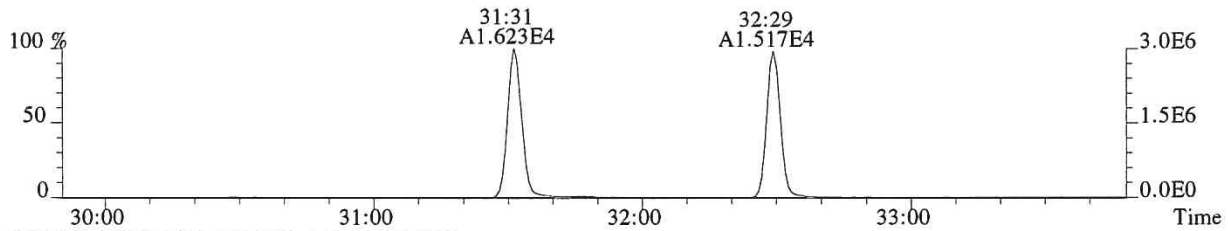
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,744.0,1.00%,F,T)



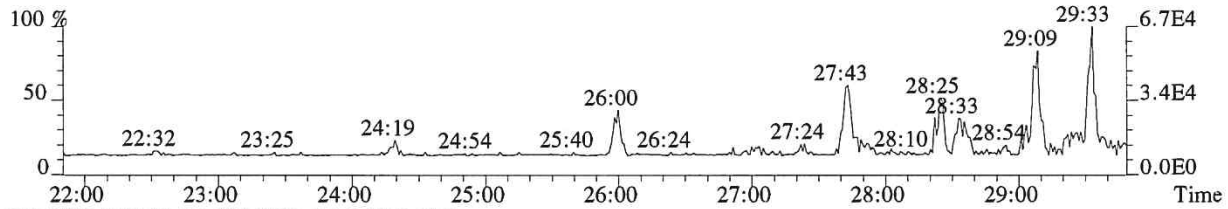
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,724.0,1.00%,F,T)



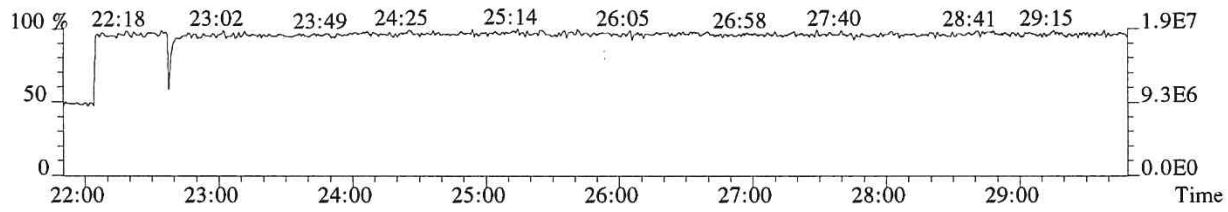
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1044.0,1.00%,F,T)



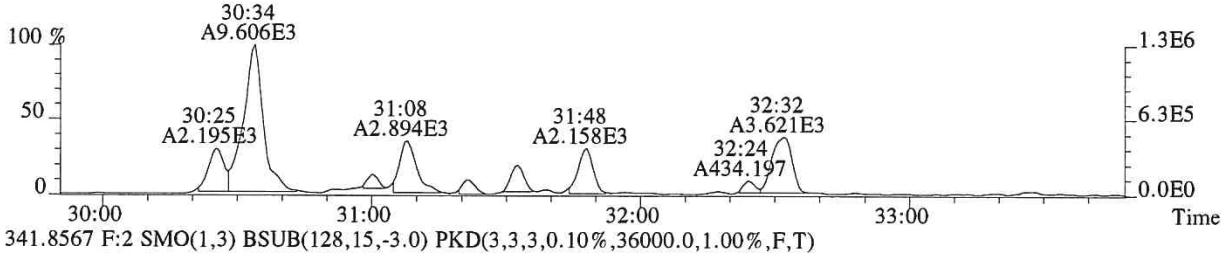
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



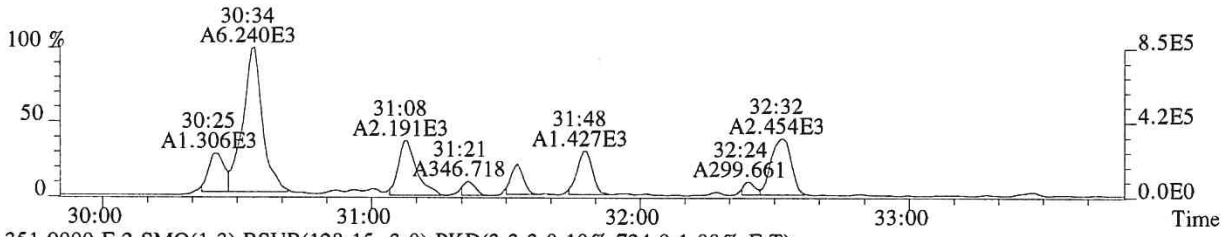
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



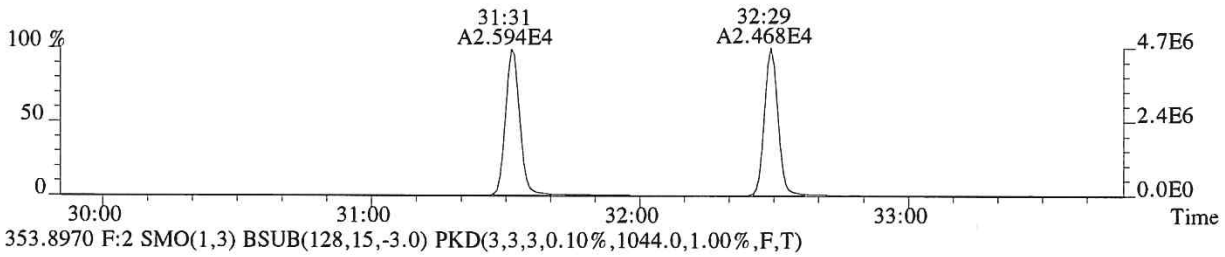
File:P519429 #1-357 Acq:14-DEC-2018 23:09:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-007
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,44820.0,1.00%,F,T)



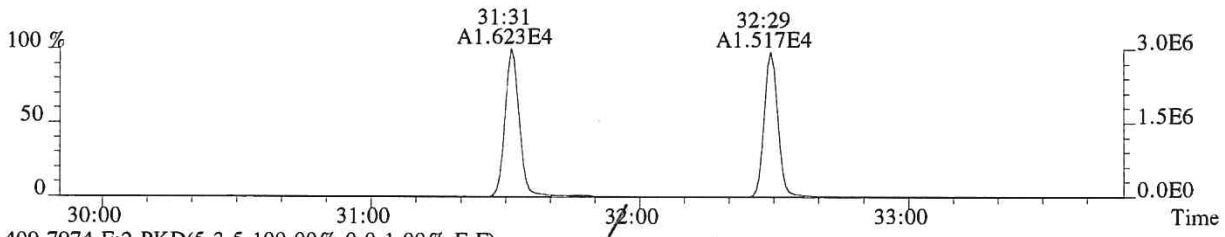
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,36000.0,1.00%,F,T)



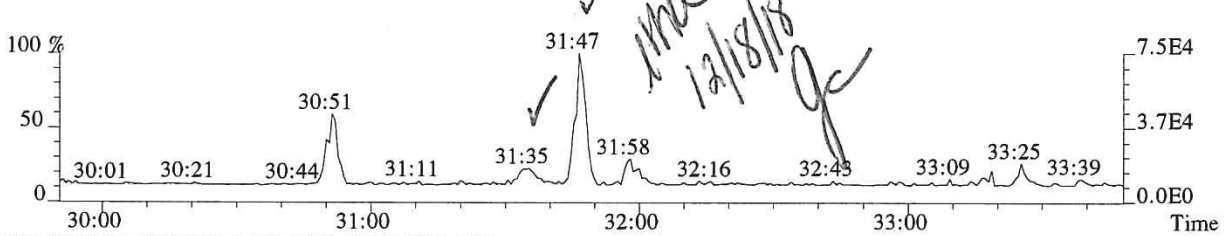
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,724.0,1.00%,F,T)



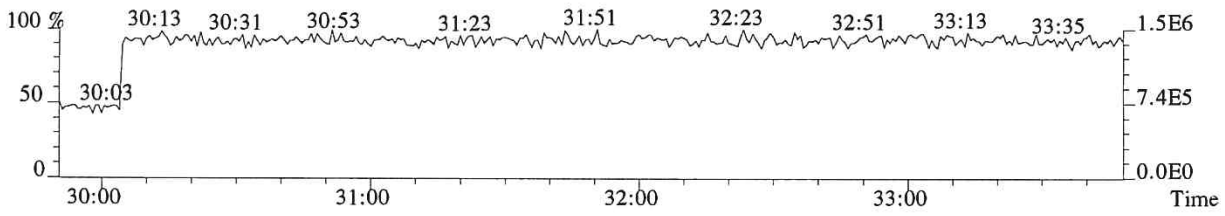
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1044.0,1.00%,F,T)



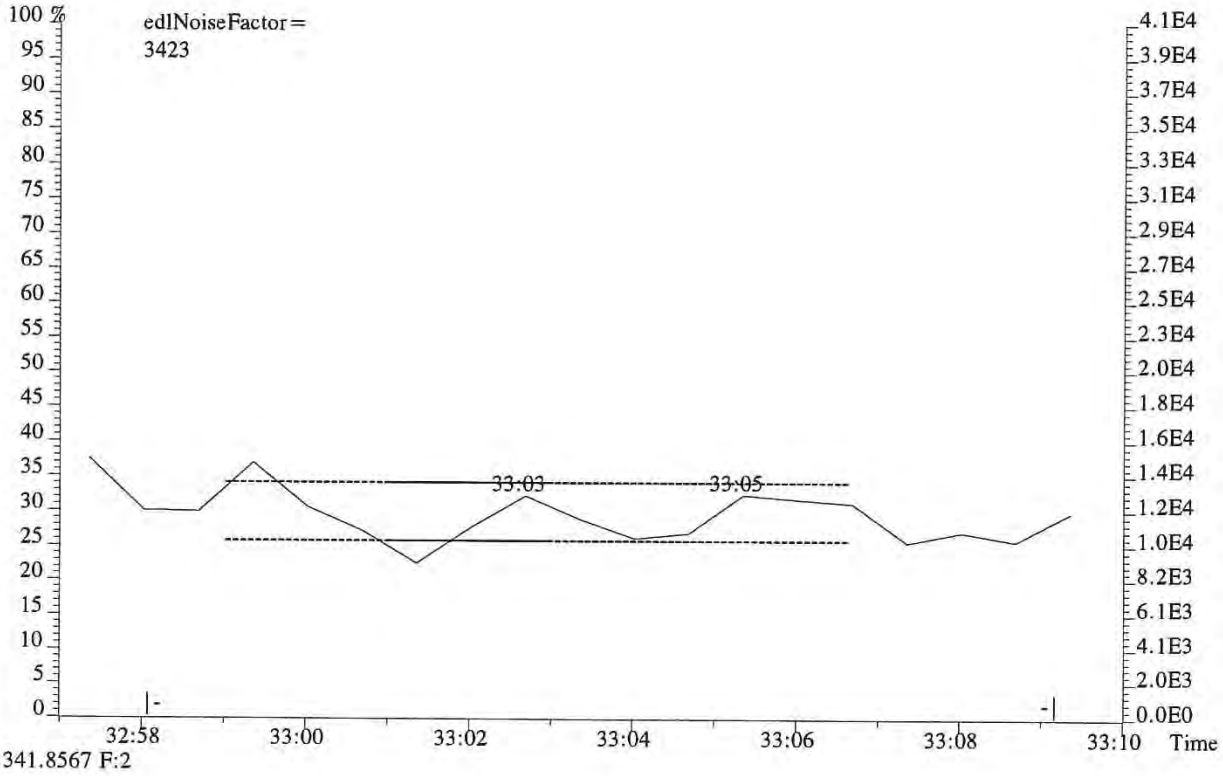
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



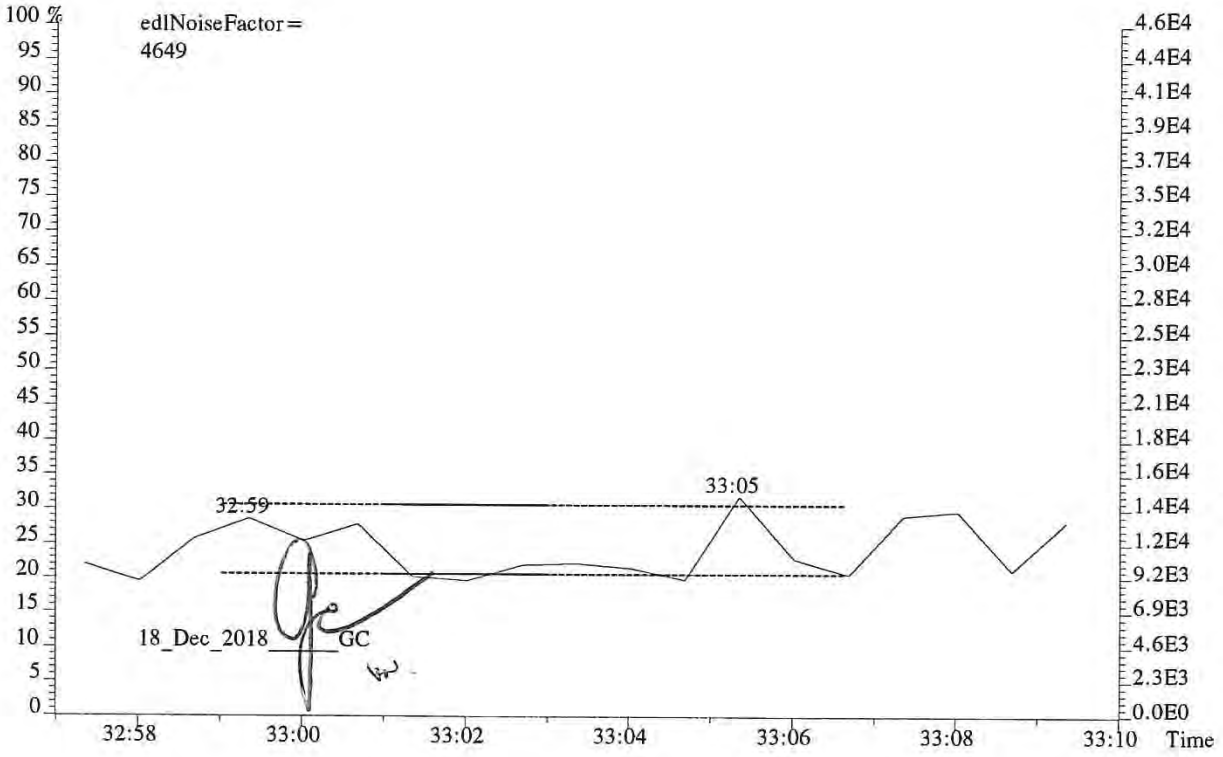
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



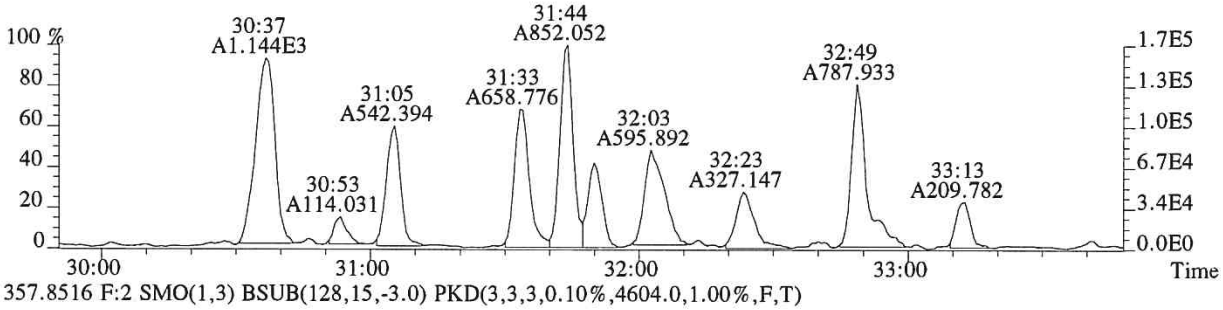
File:P519429 #1-357 Acq:14-DEC-2018 23:09:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-007
339.8597 F:2



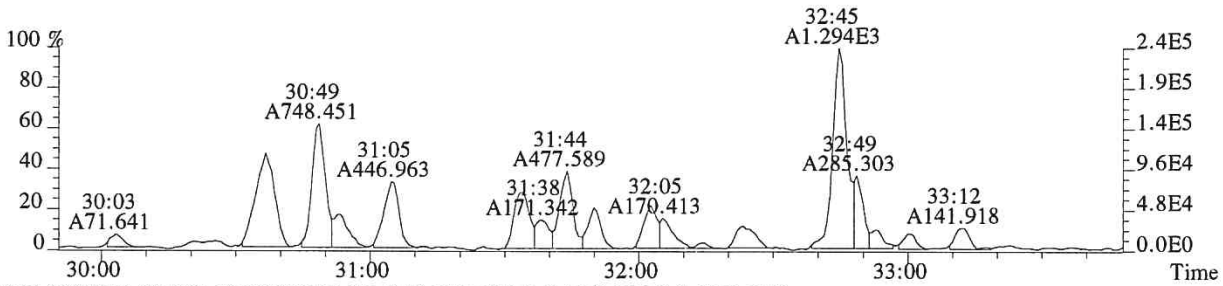
341.8567 F:2



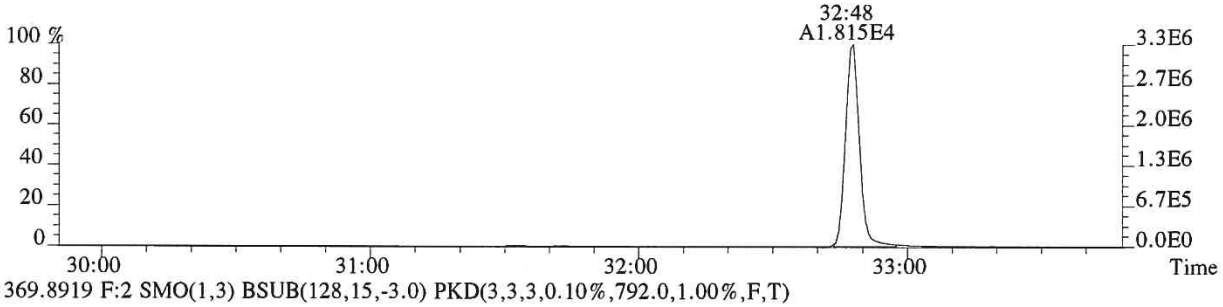
File:P519429 #1-357 Acq:14-DEC-2018 23:09:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-007
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3396.0,1.00%,F,T)



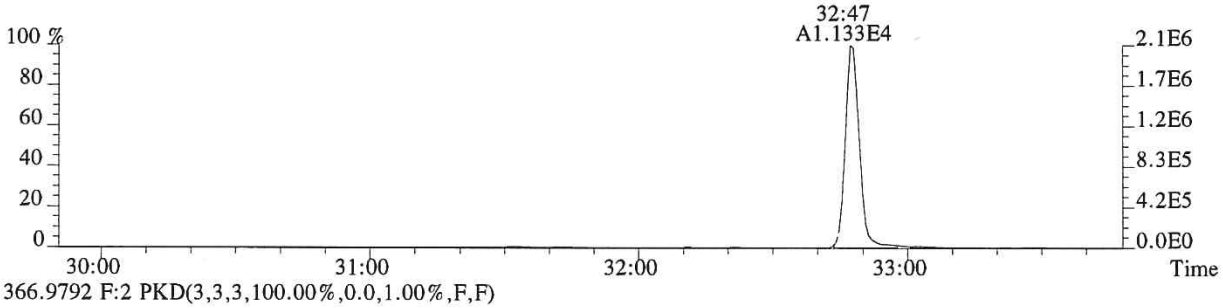
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4604.0,1.00%,F,T)



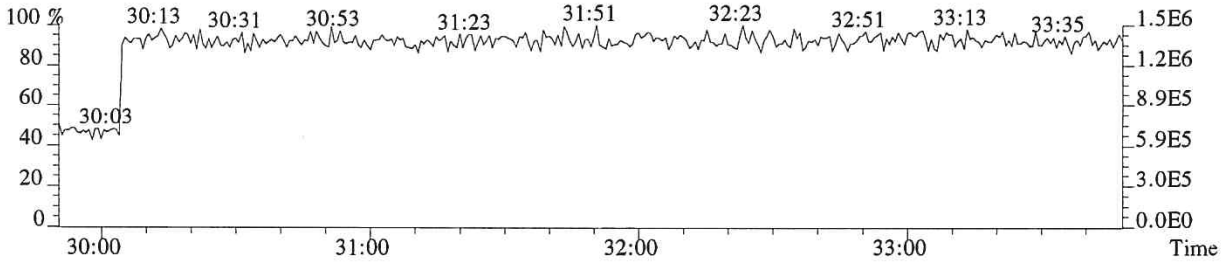
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)



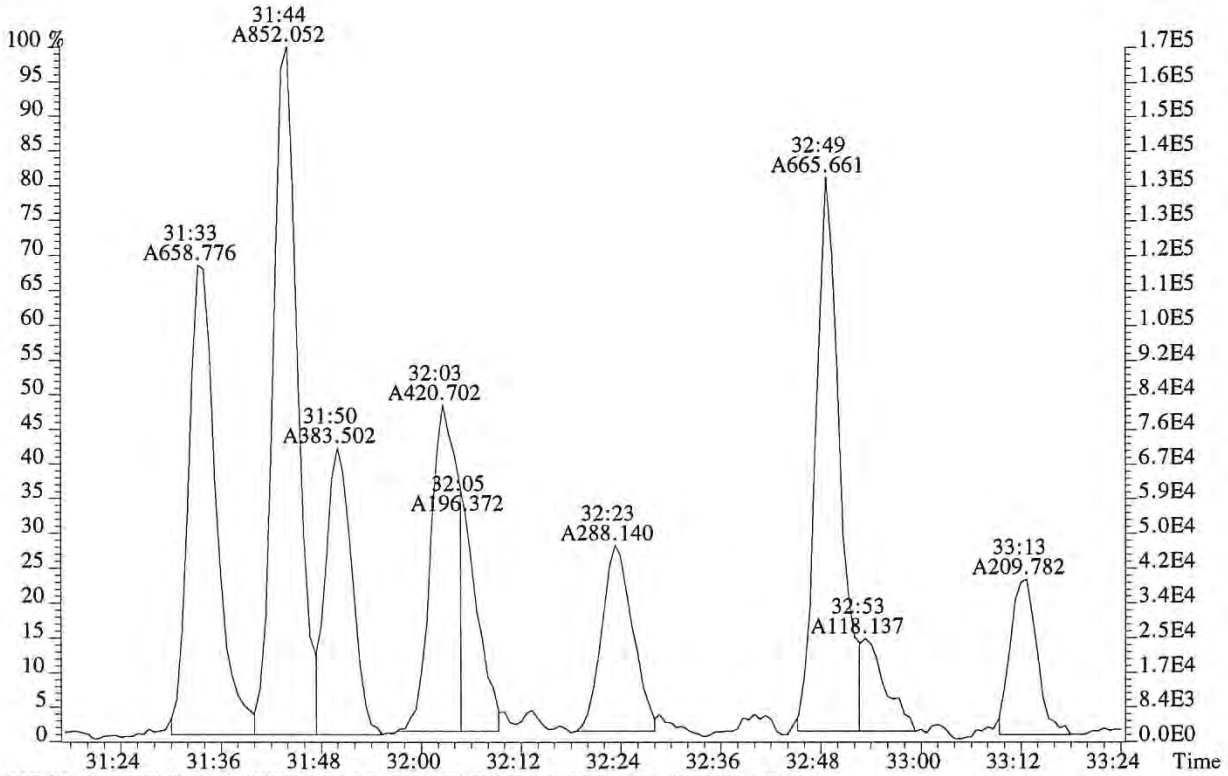
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,792.0,1.00%,F,T)



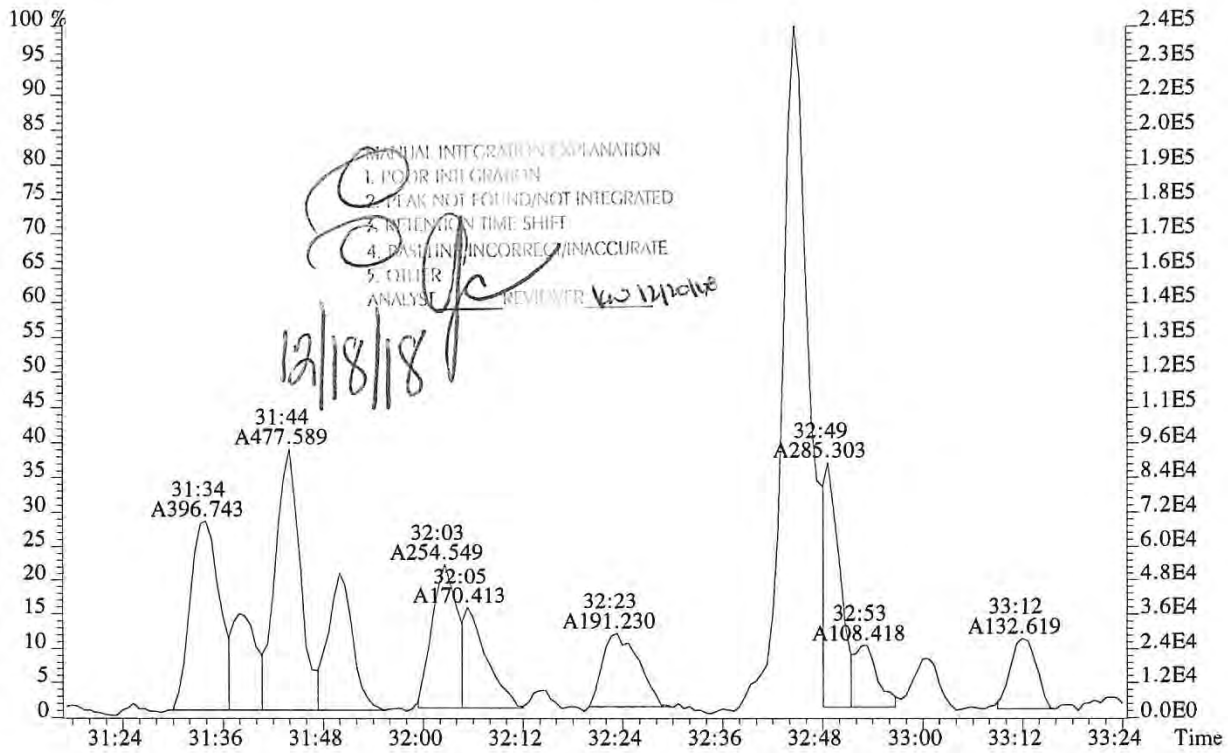
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



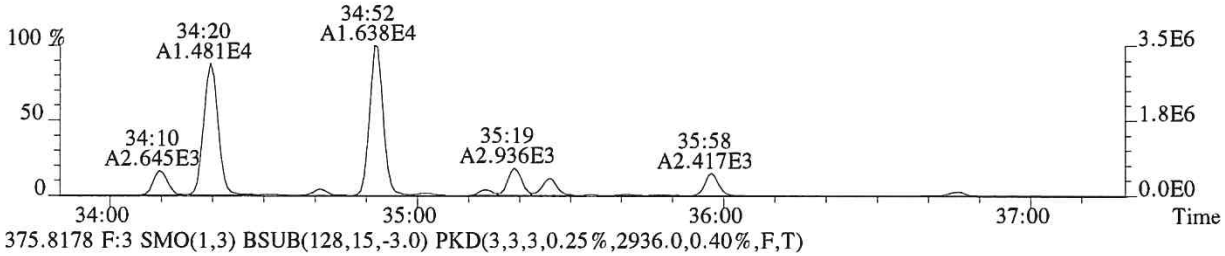
File:P519429 #1-357 Acq:14-DEC-2018 23:09:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-007
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3396.0,1.00%,F,T)



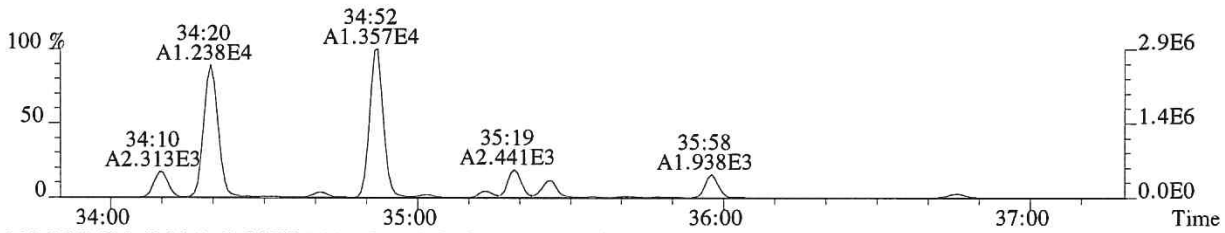
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4604.0,1.00%,F,T)



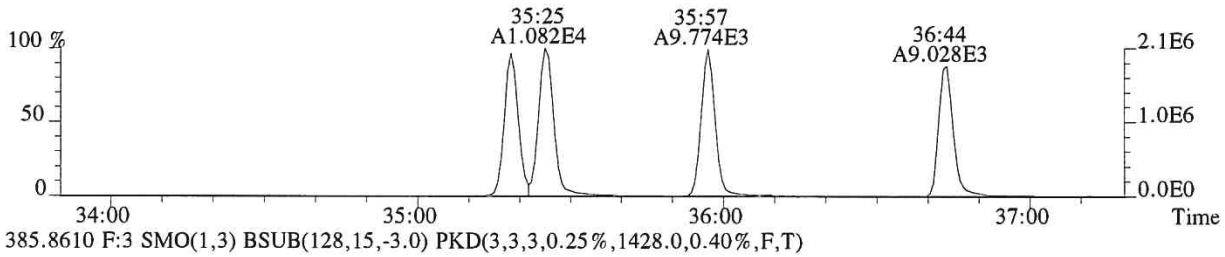
File:P519429 #1-313 Acq:14-DEC-2018 23:09:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-007
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6120.0,0.40%,F,T)



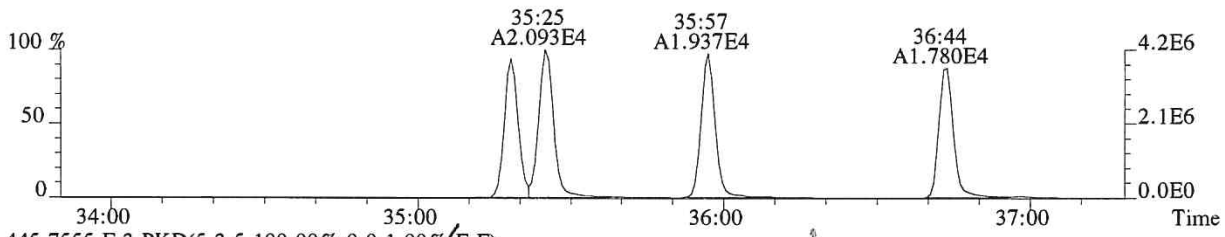
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2936.0,0.40%,F,T)



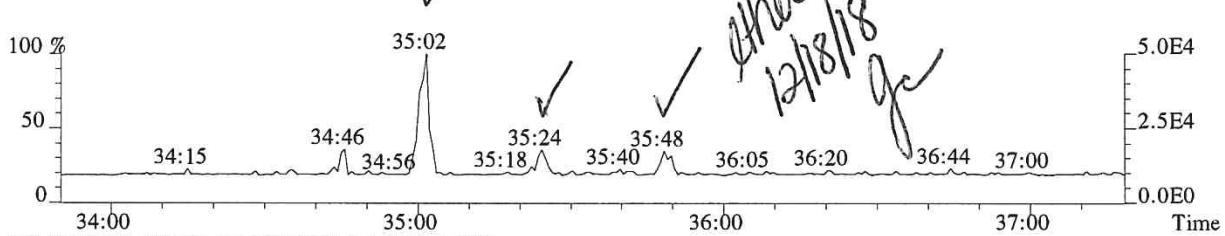
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,636.0,0.40%,F,T)



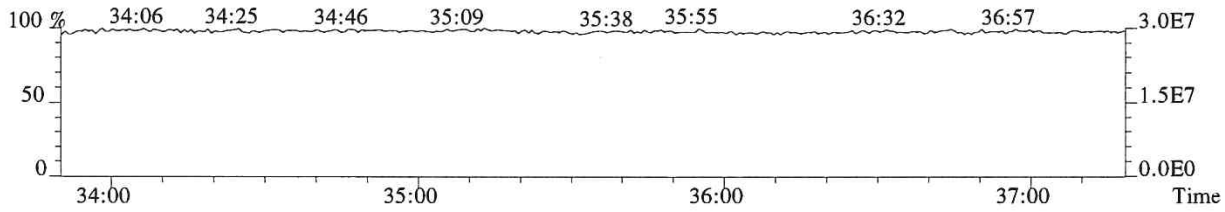
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1428.0,0.40%,F,T)



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



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



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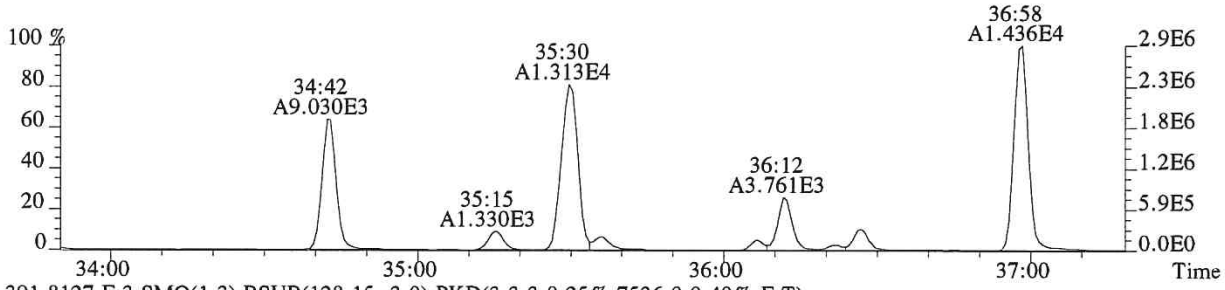
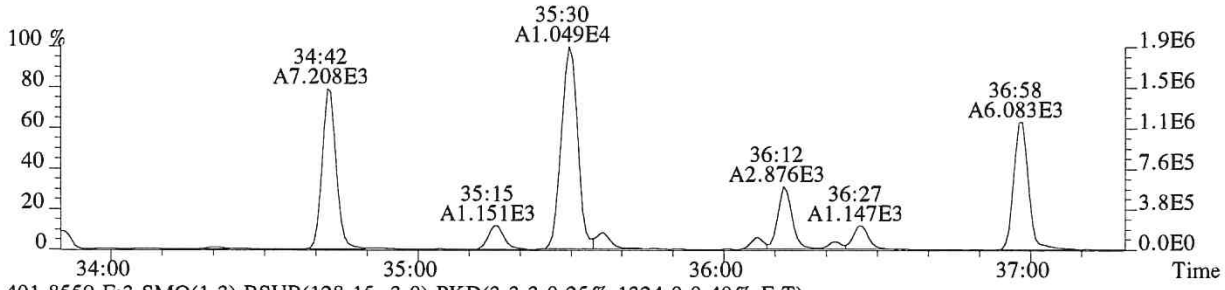
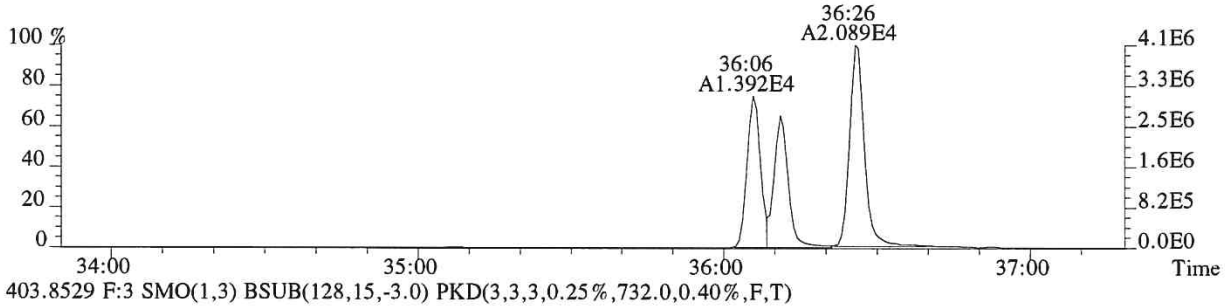
File:P519429 #1-313 Acq:14-DEC-2018 23:09:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-007
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6888.0,0.40%,F,T)



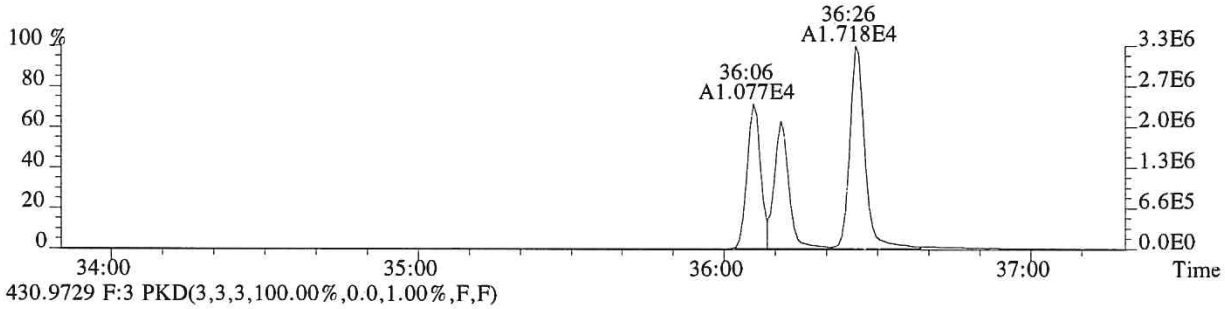
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7536.0,0.40%,F,T)



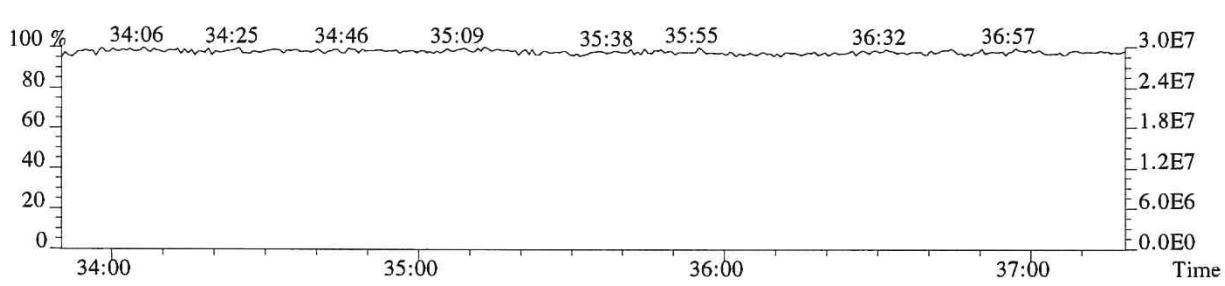
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1324.0,0.40%,F,T)



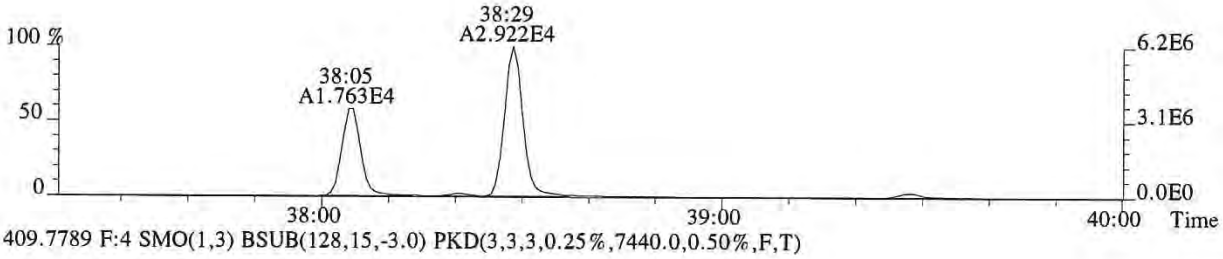
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,732.0,0.40%,F,T)



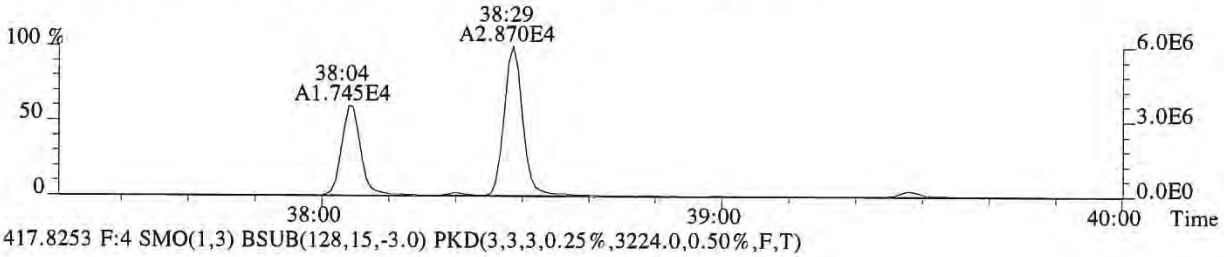
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



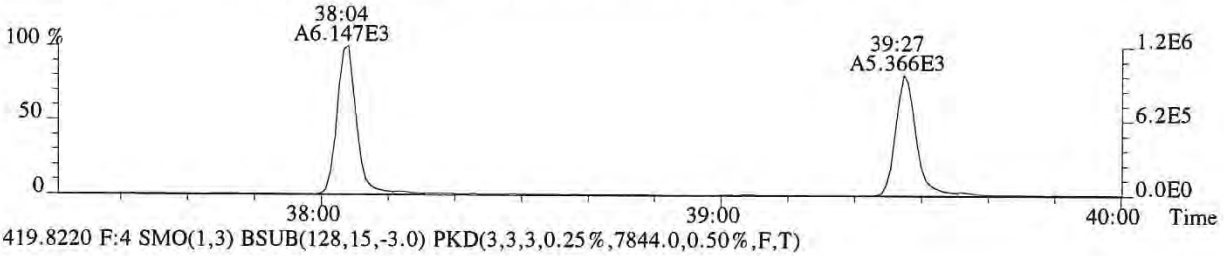
File:P519429 #1-240 Acq:14-DEC-2018 23:09:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-007
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,10780.0,0.50%,F,T)



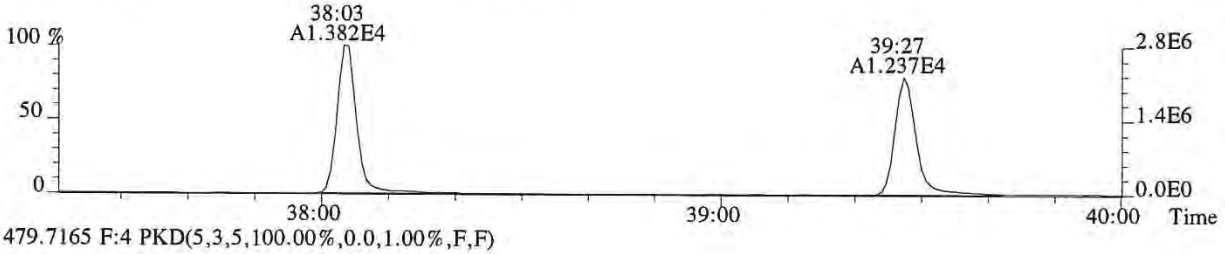
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7440.0,0.50%,F,T)



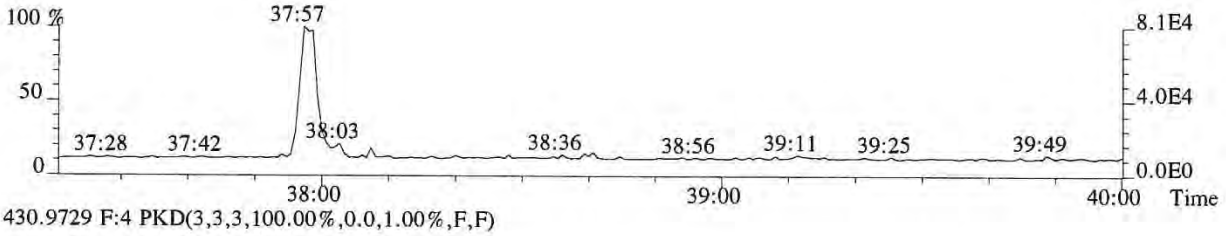
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3224.0,0.50%,F,T)



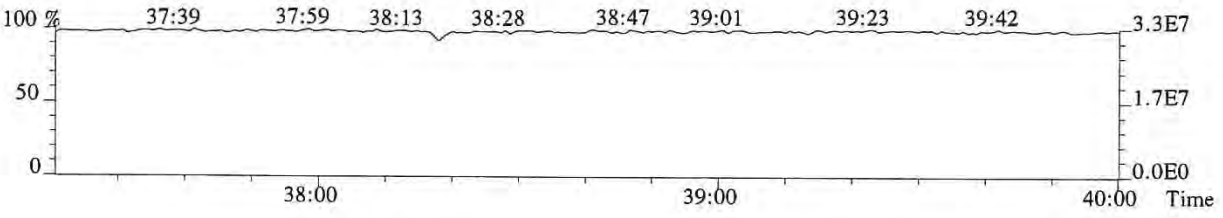
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7844.0,0.50%,F,T)



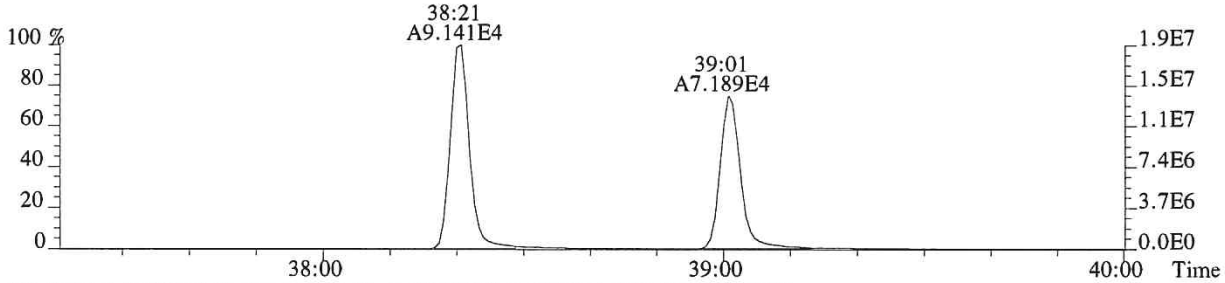
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



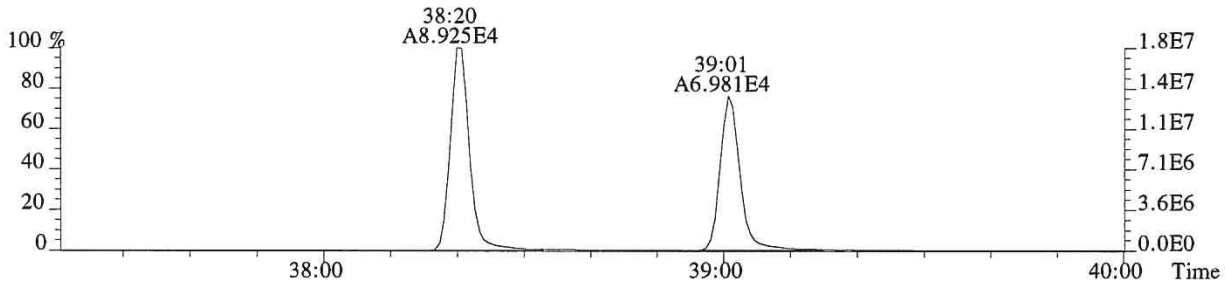
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



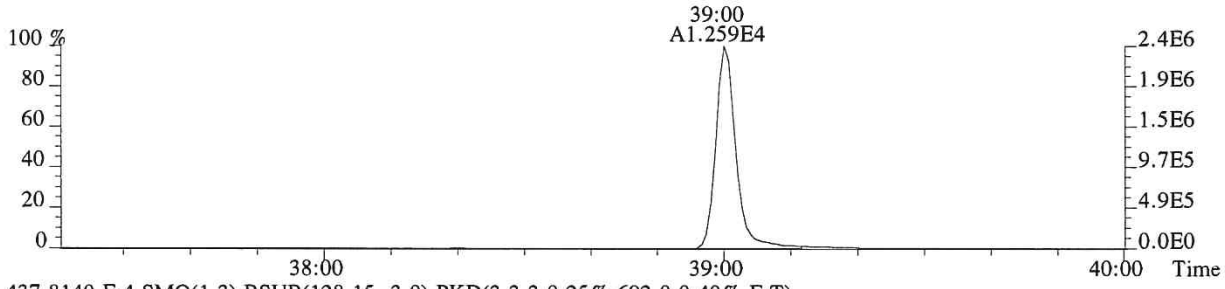
File:P519429 #1-240 Acq:14-DEC-2018 23:09:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-007
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1468.0,0.40%,F,T)



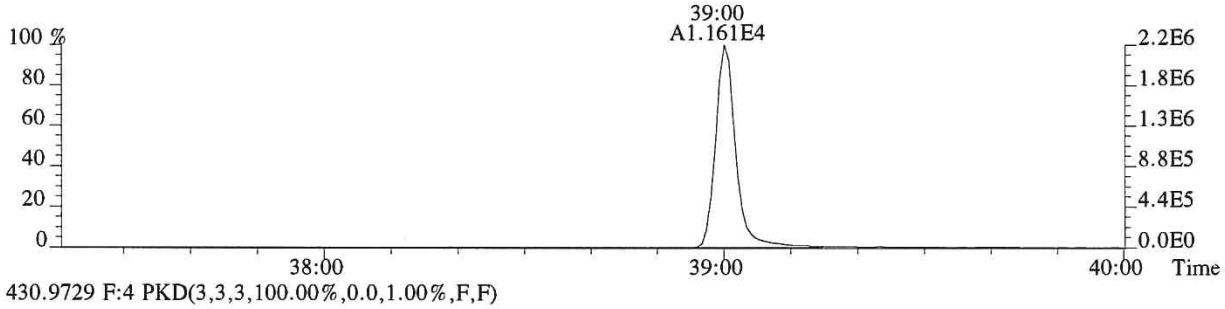
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,388.0,0.40%,F,T)



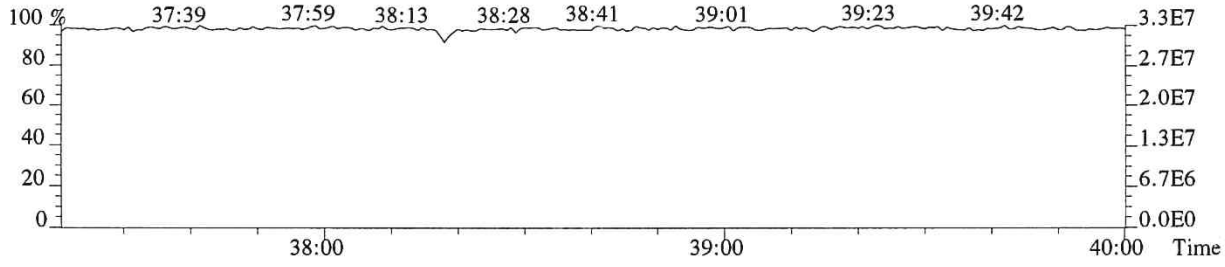
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,532.0,0.40%,F,T)



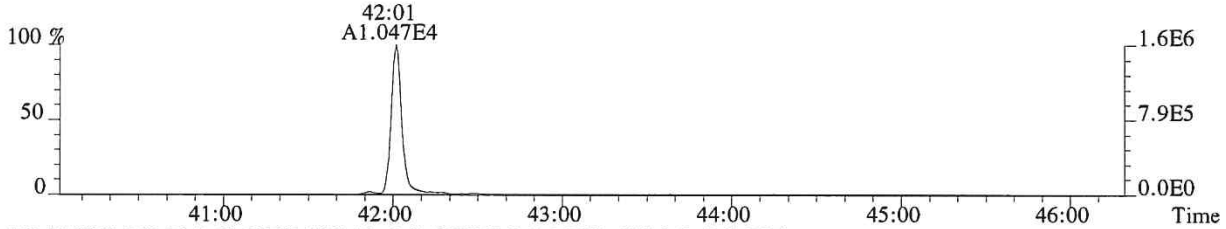
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,692.0,0.40%,F,T)



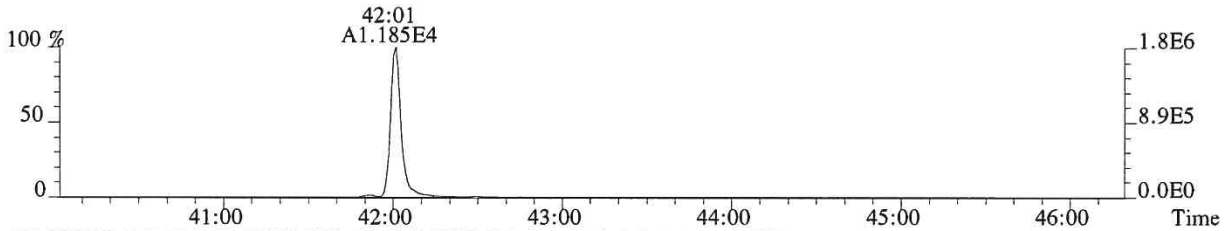
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



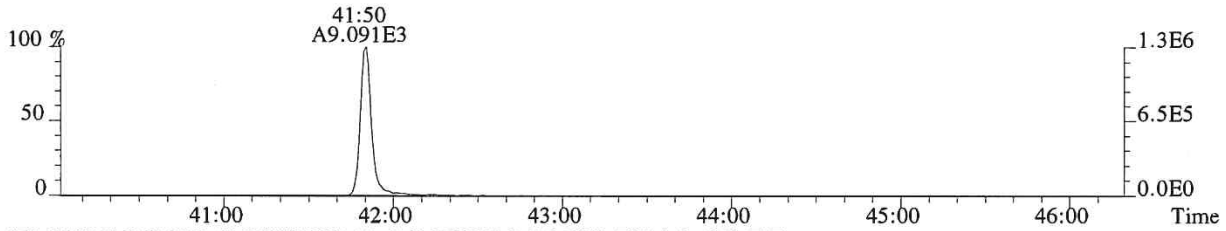
File:P519429 #1-566 Acq:14-DEC-2018 23:09:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-007
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,652.0,0.40%,F,T)



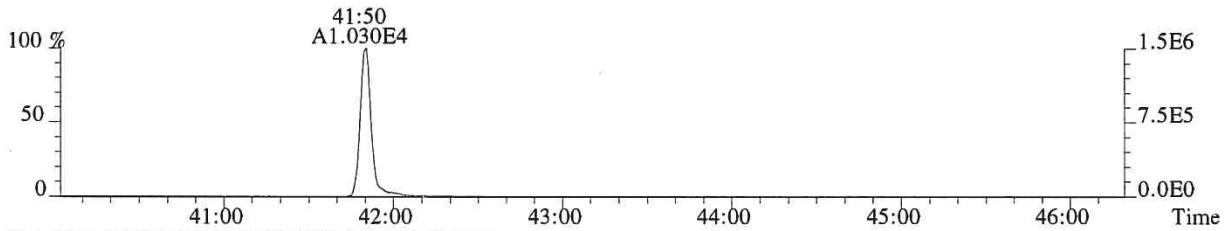
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,656.0,0.40%,F,T)



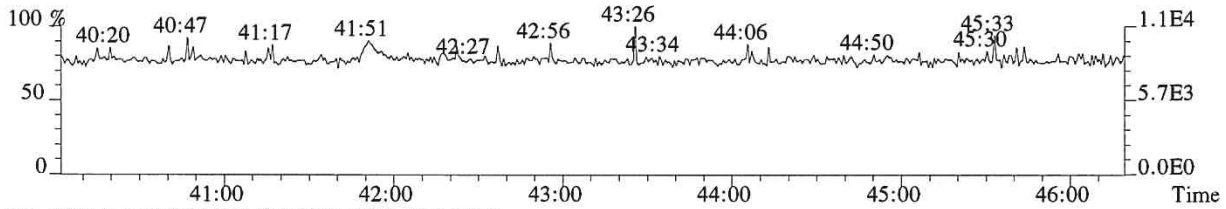
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,912.0,0.40%,F,T)



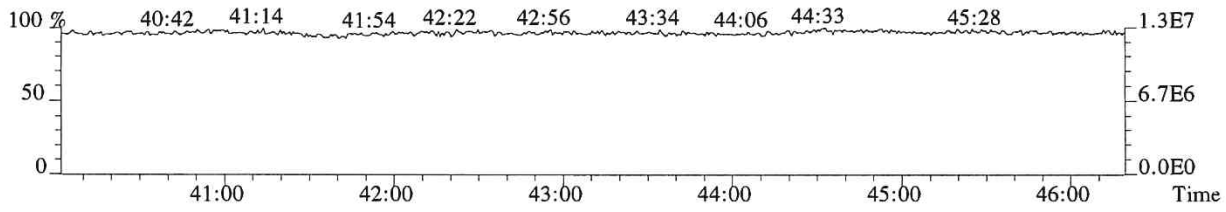
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,784.0,0.40%,F,T)



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)



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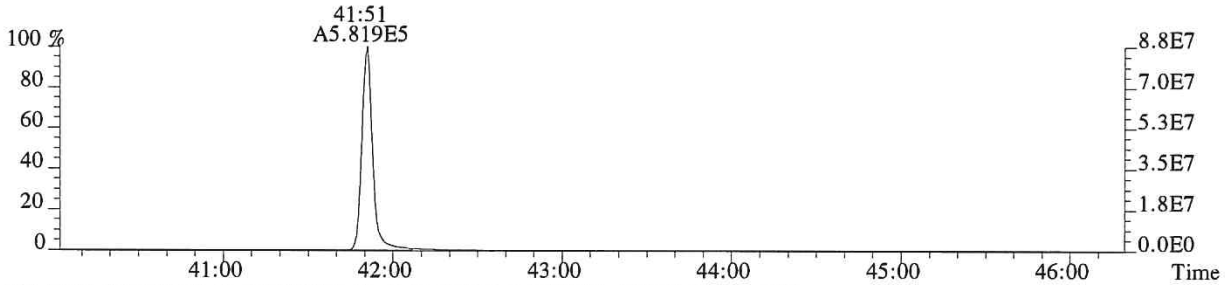
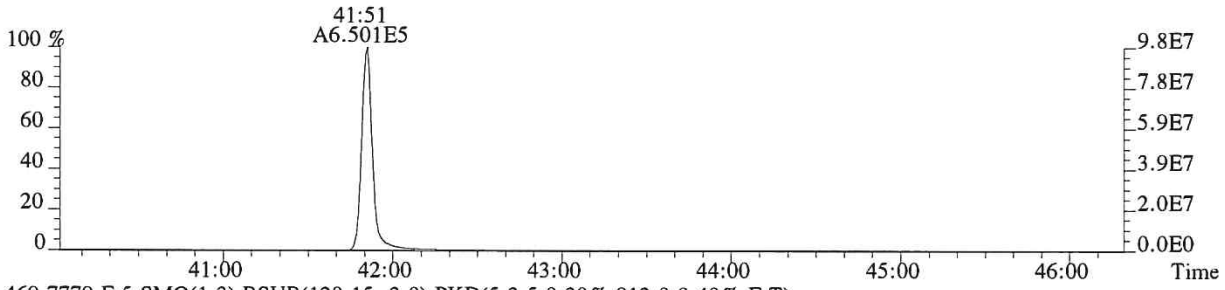
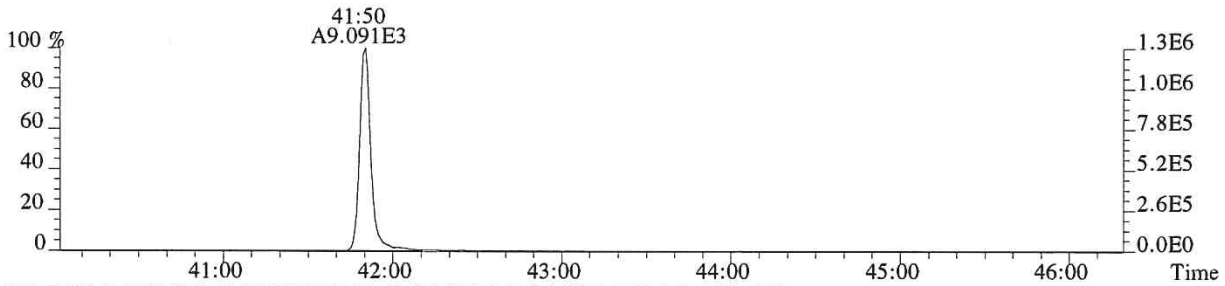
File:P519429 #1-566 Acq:14-DEC-2018 23:09:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-007
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,908.0,0.40%,F,T)



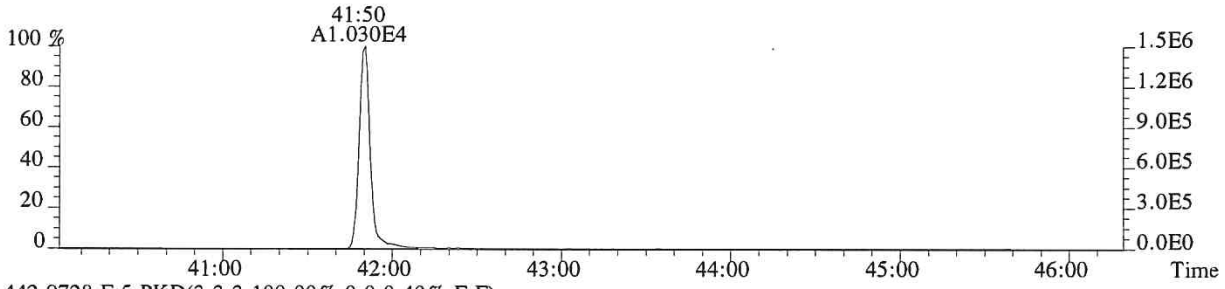
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1156.0,0.40%,F,T)



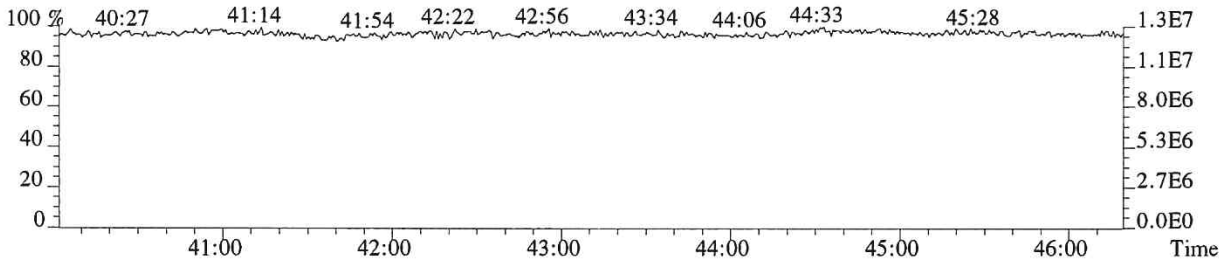
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,912.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,784.0,0.40%,F,T)



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



014155

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0025

Run #18 Filename P519430 Samp: 1 Inj: 1 Acquired: 14-DEC-18 23:57:57
Processed: 17-DEC-18 15:31:56 LAB. ID: E1801093-008

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	7.23e+08	6.84e+03	1.1e+05	9.12e+08	7.64e+03	1.2e+05
2	1,2,3,7,8-PeCDF	6.07e+07	4.72e+03	1.3e+04	3.95e+07	1.13e+04	3.5e+03
3	2,3,4,7,8-PeCDF	3.60e+07	4.72e+03	7.6e+03	2.37e+07	1.13e+04	2.1e+03
4	1,2,3,4,7,8-HxCDF	9.96e+07	7.62e+03	1.3e+04	8.34e+07	1.20e+04	7.0e+03
5	1,2,3,6,7,8-HxCDF	2.40e+07	7.62e+03	3.1e+03	1.99e+07	1.20e+04	1.7e+03
6	2,3,4,6,7,8-HxCDF	4.59e+06	7.62e+03	6.0e+02	3.96e+06	1.20e+04	3.3e+02
7	1,2,3,7,8,9-HxCDF	7.30e+06	7.62e+03	9.6e+02	5.95e+06	1.20e+04	5.0e+02
8	1,2,3,4,6,7,8-HpCDF	1.85e+07	2.54e+04	7.3e+02	1.82e+07	1.10e+04	1.7e+03
9	1,2,3,4,7,8,9-HpCDF	4.70e+06	2.54e+04	1.9e+02	4.66e+06	1.10e+04	4.3e+02
10	OCDF	7.78e+06	5.72e+02	1.4e+04	8.64e+06	8.36e+02	1.0e+04
11	2,3,7,8-TCDD	2.30e+08	2.85e+03	8.1e+04	2.92e+08	2.56e+03	1.1e+05
12	1,2,3,7,8-PeCDD	3.00e+06	2.84e+03	1.1e+03	1.85e+06	3.36e+03	5.5e+02
13	1,2,3,4,7,8-HxCDD	6.41e+04	3.56e+03	1.8e+01	6.01e+04	4.51e+03	1.3e+01
14	1,2,3,6,7,8-HxCDD	4.54e+05	3.56e+03	1.3e+02	3.31e+05	4.51e+03	7.3e+01
15	1,2,3,7,8,9-HxCDD	1.54e+05	3.56e+03	4.3e+01	1.18e+05	4.51e+03	2.6e+01
16	1,2,3,4,6,7,8-HpCDD	1.09e+07	1.54e+03	7.1e+03	1.06e+07	2.48e+03	4.3e+03
17	OCDD	5.72e+07	1.04e+03	5.5e+04	6.32e+07	1.68e+03	3.8e+04
18	13C-2,3,7,8-TCDF	2.78e+06	6.75e+03	4.1e+02	3.43e+06	9.28e+03	3.7e+02
19	13C-1,2,3,7,8-PeCDF	4.24e+06	1.38e+04	3.1e+02	2.70e+06	6.18e+03	4.4e+02
20	13C-2,3,4,7,8-PeCDF	4.78e+06	1.38e+04	3.5e+02	3.02e+06	6.18e+03	4.9e+02
21	13C-1,2,3,4,7,8-HxCDF	1.84e+06	5.27e+03	3.5e+02	3.72e+06	2.59e+03	1.4e+03
22	13C-1,2,3,6,7,8-HxCDF	2.16e+06	5.27e+03	4.1e+02	3.97e+06	2.59e+03	1.5e+03
23	13C-2,3,4,6,7,8-HxCDF	1.98e+06	5.27e+03	3.8e+02	3.73e+06	2.59e+03	1.4e+03
24	13C-1,2,3,7,8,9-HxCDF	1.72e+06	5.27e+03	3.3e+02	3.44e+06	2.59e+03	1.3e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.25e+06	4.84e+03	2.6e+02	2.67e+06	3.16e+03	8.5e+02
26	13C-1,2,3,4,7,8,9-HpCDF	8.72e+05	4.84e+03	1.8e+02	1.97e+06	3.16e+03	6.3e+02
27	13C-2,3,7,8-TCDD	1.48e+06	5.27e+03	2.8e+02	1.89e+06	3.12e+03	6.0e+02
28	13C-1,2,3,7,8-PeCDD	3.42e+06	1.64e+03	2.1e+03	2.09e+06	8.56e+02	2.4e+03
29	13C-1,2,3,4,7,8-HxCDD	2.98e+06	9.36e+02	3.2e+03	2.32e+06	9.16e+02	2.5e+03
30	13C-1,2,3,6,7,8-HxCDD	2.64e+06	9.36e+02	2.8e+03	2.08e+06	9.16e+02	2.3e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.21e+06	1.02e+03	2.2e+03	2.01e+06	8.60e+02	2.3e+03
32	13C-OCDD	1.10e+06	1.35e+03	8.2e+02	1.26e+06	3.76e+02	3.4e+03
33	13C-1,2,3,4-TCDD	2.70e+06	5.27e+03	5.1e+02	3.33e+06	3.12e+03	1.1e+03
34	13C-1,2,3,7,8,9-HxCDD	4.49e+06	9.36e+02	4.8e+03	3.42e+06	9.16e+02	3.7e+03
35	37Cl-2,3,7,8-TCDD	7.18e+04	4.38e+03	1.6e+01			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0025

Entry: 36 Totals Name: Total Tetra-Furans

Run: 18 File: P519430 Sample:1 Injection:1 Function:1

Acquired: 14-DEC-18 23:57:57 Processed: 17-DEC-18 15:31:56

Mass: 303.9020 305.8990 Tot Response: 1.99e+07 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:05	4.05e+04	5.21e+04	0.78	yes	9.26e+04		n	n
2	24:23	2.25e+05	2.91e+05	0.77	yes	5.16e+05		n	n
3	24:44	6.04e+04	8.59e+04	0.70	yes	1.46e+05		n	n
4	25:02	1.90e+05	2.47e+05	0.77	yes	4.37e+05		n	n
5	25:26	4.12e+04	5.24e+04	0.79	yes	9.36e+04		n	n
6	25:42	1.30e+05	1.70e+05	0.76	yes	3.00e+05		n	n
7	25:49	2.32e+05	3.02e+05	0.77	yes	5.35e+05		n	n
8	26:15	2.29e+06	2.91e+06	0.79	yes	5.20e+06		n	n
9	26:33	1.18e+05	1.55e+05	0.76	yes	2.74e+05		n	n
10	27:12	5.03e+06	6.36e+06	0.79	yes	1.14e+07	2,3,7,8-TCDF	n	n
11	27:36	3.42e+05	4.42e+05	0.77	yes	7.85e+05		n	n
12	27:47	6.81e+04	9.03e+04	0.75	yes	1.58e+05		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0025

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 18 File: P519430 Sample:1 Injection:1 Function:1

Acquired: 14-DEC-18 23:57:57 Processed: 17-DEC-18 15:31:56

Mass: 319.8970 321.8940 Tot Response: 3.15e+06 RRF: 1.085

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	27:45	1.78e+04	2.18e+04	0.82	yes	3.97e+04		n	n
2	28:02	1.24e+06	1.58e+06	0.79	yes	2.82e+06	2,3,7,8-TCDD	n	n
3	28:20	1.28e+05	1.63e+05	0.78	yes	2.91e+05		n	n

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Peak List Summary

CLIENT ID.
SL0025

Entry: 38 Totals Name: Total Penta-Furans1

Run: 18 File: P519430 Sample:1 Injection:1 Function:1

Acquired: 14-DEC-18 23:57:57 Processed: 17-DEC-18 15:31:56

Mass: 339.8600 341.8570 Tot Response: 1.18e+04 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:13	7.33e+03	4.48e+03 1.64	yes	1.18e+04		n	n

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Peak List Summary

CLIENT ID.
SL0025

Entry: 39 Totals Name: Total Penta-Furans2

Run: 18 File: P519430 Sample:1 Injection:1 Function:2

Acquired: 14-DEC-18 23:57:57 Processed: 17-DEC-18 15:31:56

Mass: 339.8600 341.8570 Tot Response: 1.55e+06 RRF: 0.9857

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:35	2.37e+03	1.64e+03	1.45	yes	4.01e+03		n	n
2	30:43	1.63e+05	1.06e+05	1.53	yes	2.69e+05		n	n
3	31:16	4.57e+03	2.77e+03	1.65	yes	7.34e+03		n	n
4	31:21	4.63e+03	2.70e+03	1.72	yes	7.33e+03		n	n
5	31:30	2.98e+04	1.88e+04	1.59	yes	4.86e+04		n	n
6	31:41	3.80e+05	2.51e+05	1.52	yes	6.30e+05	1,2,3,7,8-PeCDF	n	n
7	31:56	1.08e+05	7.14e+04	1.52	yes	1.80e+05		n	n
8	32:36	2.34e+05	1.54e+05	1.52	yes	3.88e+05	2,3,4,7,8-PeCDF	n	n
9	33:31	1.11e+04	7.59e+03	1.47	yes	1.87e+04		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0025

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 18 File: P519430 Sample:1 Injection:1 Function:2

Acquired: 14-DEC-18 23:57:57 Processed: 17-DEC-18 15:31:56

Mass: 355.8550 357.8520 Tot Response: 3.49e+04 RRF: 0.9565

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:45	1.21e+03	7.31e+02	1.66	yes	1.94e+03		n	n
2	31:42	1.83e+03	1.23e+03	1.48	yes	3.06e+03		n	n
3	31:51	9.65e+02	6.10e+02	1.58	yes	1.57e+03		n	n
4	32:09	3.34e+02	2.51e+02	1.33	yes	5.85e+02		n	n
5	32:53	1.71e+04	1.03e+04	1.66	yes	2.73e+04	1,2,3,7,8-PeCDD	n	n
6	33:17	2.59e+02	1.80e+02	1.44	yes	4.39e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0025

Entry: 41 Totals Name: Total Hexa-Furans

Run: 18 File: P519430 Sample:1 Injection:1 Function:3

Acquired: 14-DEC-18 23:57:57 Processed: 17-DEC-18 15:31:56

Mass: 373.8210 375.8180 Tot Response: 1.33e+06 RRF: 1.141

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:14	3.21e+03	2.69e+03	1.19	yes	5.91e+03		n	n
2	34:24	3.67e+04	3.05e+04	1.20	yes	6.73e+04		n	n
3	34:56	1.98e+04	1.67e+04	1.19	yes	3.65e+04		n	n
4	35:22	4.79e+05	4.05e+05	1.18	yes	8.85e+05	1,2,3,4,7,8-HxCDF	n	n
5	35:29	1.25e+05	1.08e+05	1.16	yes	2.33e+05	1,2,3,6,7,8-HxCDF	n	n
6	36:00	2.11e+04	1.80e+04	1.17	yes	3.90e+04	2,3,4,6,7,8-HxCDF	n	n
7	36:48	3.48e+04	2.88e+04	1.21	yes	6.36e+04	1,2,3,7,8,9-HxCDF	n	n

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Peak List Summary

CLIENT ID.
SL0025

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 18 File: P519430 Sample:1 Injection:1 Function:3

Acquired: 14-DEC-18 23:57:57 Processed: 17-DEC-18 15:31:56

Mass: 389.8160 391.8130 Tot Response: 3.02e+04 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:47	6.24e+03	4.86e+03	1.29	yes	1.11e+04		n	n
2	35:18	8.19e+02	7.21e+02	1.14	yes	1.54e+03		n	n
3	35:32	6.26e+03	5.10e+03	1.23	yes	1.14e+04		n	n
4	35:38	3.14e+02	2.95e+02	1.06	yes	6.09e+02		n	n
5	36:08	2.79e+02	2.48e+02	1.12	yes	5.28e+02	1,2,3,4,7,8-HxCDD	n	n
6	36:14	2.16e+03	1.59e+03	1.36	yes	3.75e+03	1,2,3,6,7,8-HxCDD	n	n
7	36:29	7.07e+02	5.60e+02	1.26	yes	1.27e+03	1,2,3,7,8,9-HxCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0025

Entry: 43 Totals Name: Total Hepta-Furans

Run: 18 File: P519430 Sample:1 Injection:1 Function:4

Acquired: 14-DEC-18 23:57:57 Processed: 17-DEC-18 15:31:56

Mass: 407.7820 409.7790 Tot Response: 2.94e+05 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:05	8.84e+04	1.00	yes	1.77e+05	1,2,3,4,6,7,8-HpCDF	n	n
2	38:29	3.38e+04	1.01	yes	6.72e+04		n	n
3	39:29	2.54e+04	1.02	yes	5.03e+04	1,2,3,4,7,8,9-HpCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0025

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 18 File: P519430 Sample:1 Injection:1 Function:4

Acquired: 14-DEC-18 23:57:57 Processed: 17-DEC-18 15:31:56

Mass: 423.7770 425.7740 Tot Response: 2.28e+05 RRF: 1.025

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:21	5.90e+04	5.67e+04	1.04	yes	1.16e+05		n	n
2	39:01	5.74e+04	5.49e+04	1.05	yes	1.12e+05	1,2,3,4,6,7,8-HpCDD	n	n

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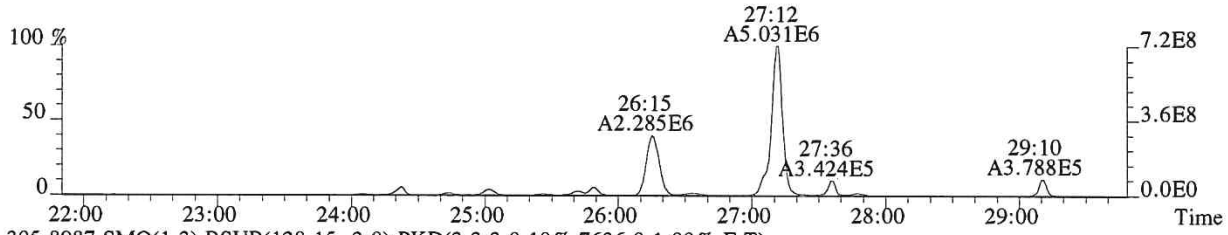
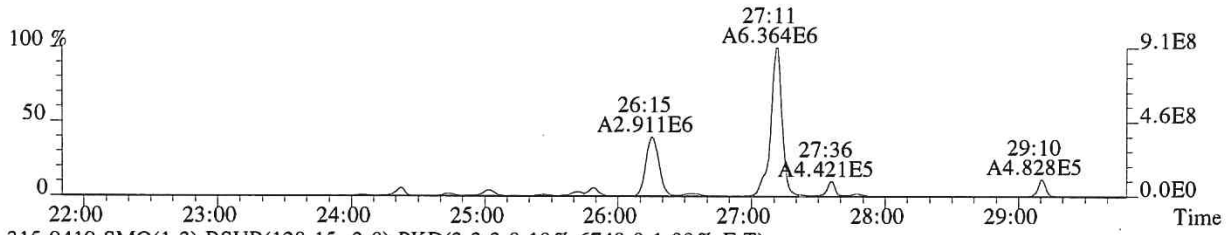
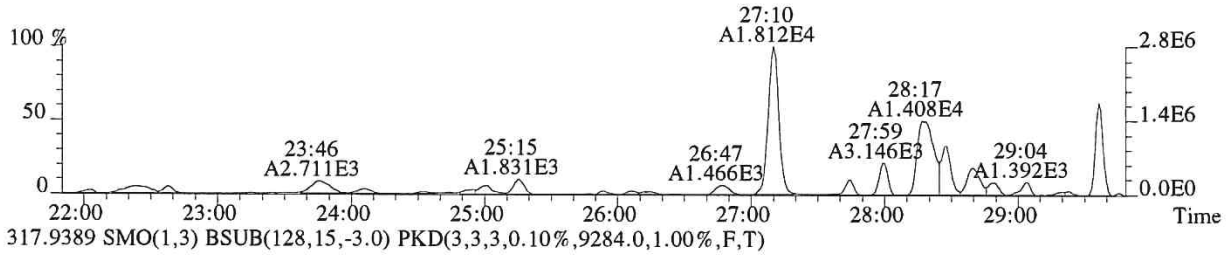
File:P519430 #1-566 Acq:14-DEC-2018 23:57:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-008
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6840.0,1.00%,F,T)



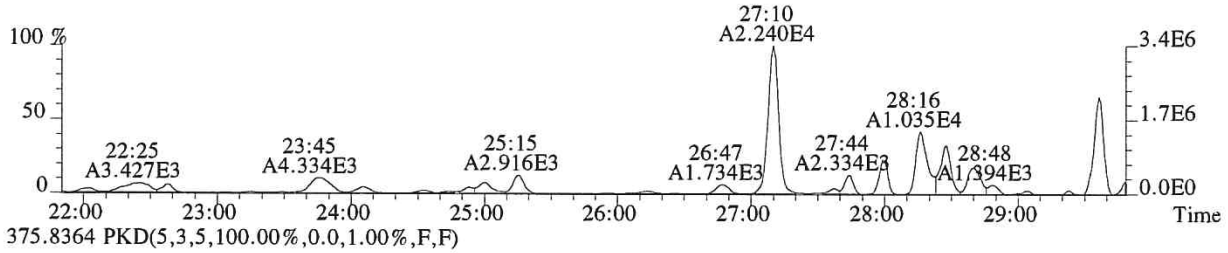
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7636.0,1.00%,F,T)



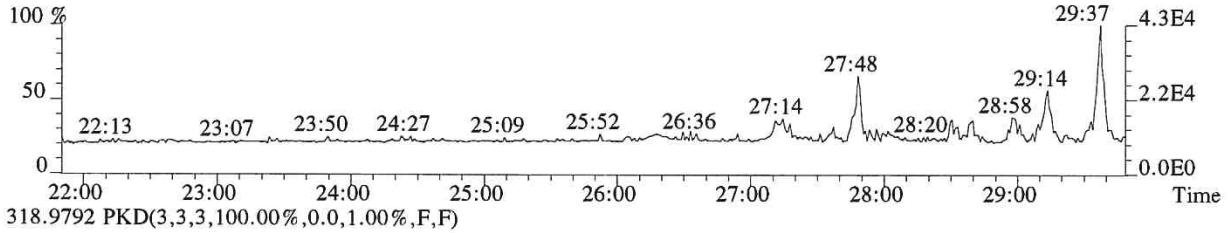
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6748.0,1.00%,F,T)



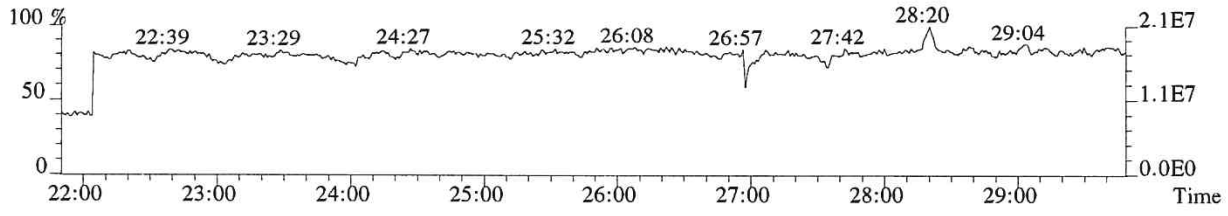
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9284.0,1.00%,F,T)



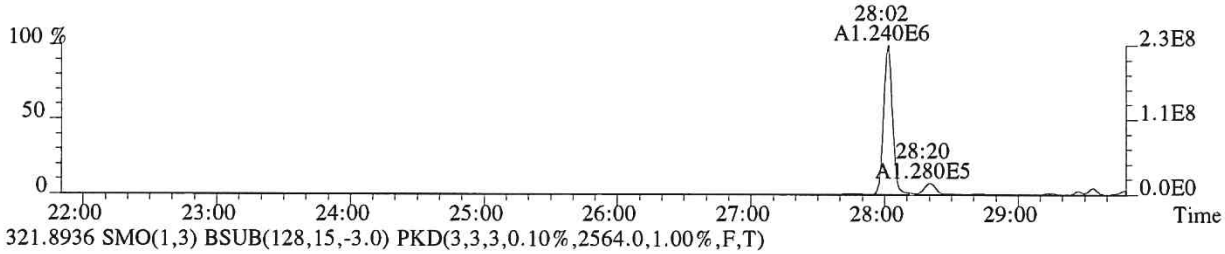
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



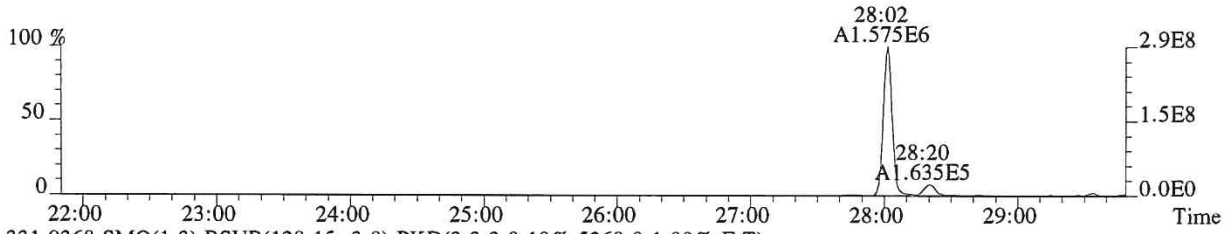
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



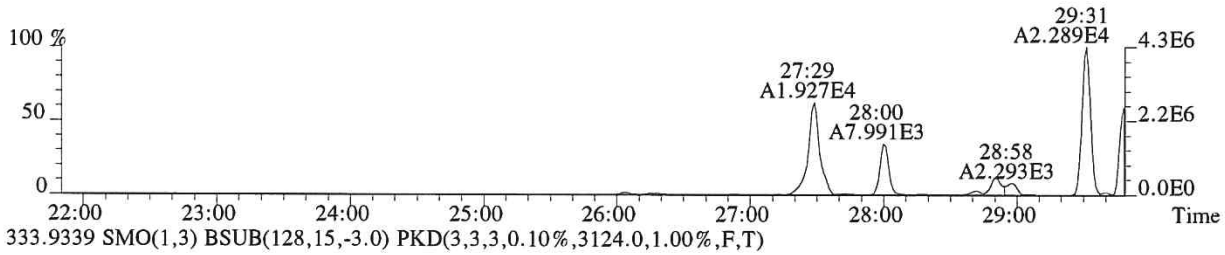
File:P519430 #1-566 Acq:14-DEC-2018 23:57:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-008
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2852.0,1.00%,F,T)



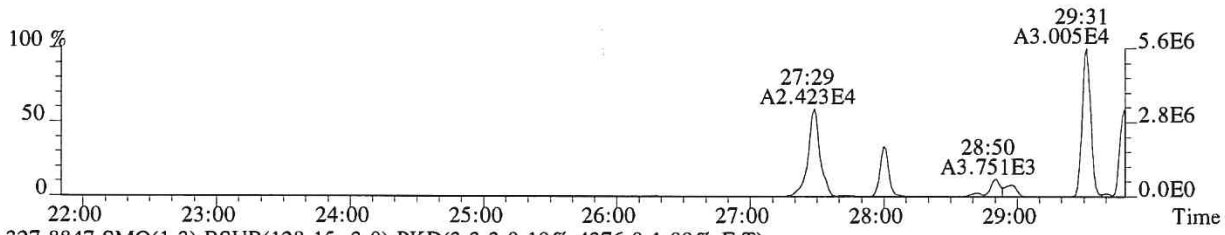
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2564.0,1.00%,F,T)



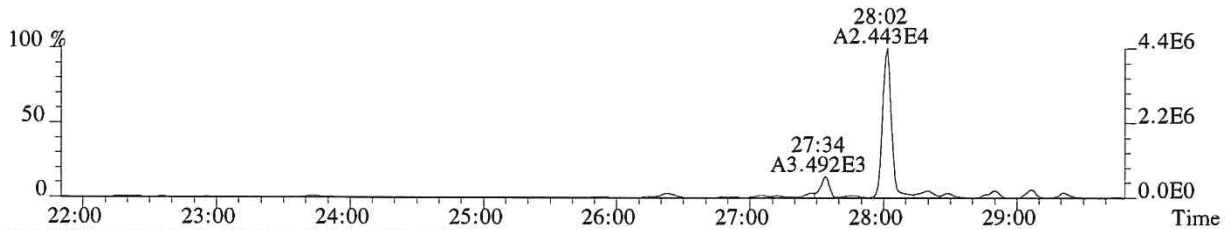
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5268.0,1.00%,F,T)



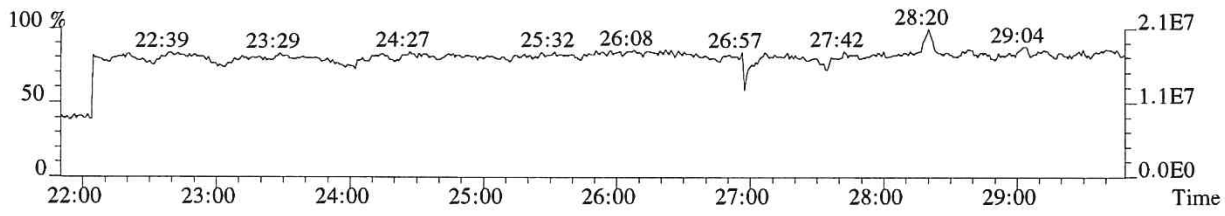
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3124.0,1.00%,F,T)



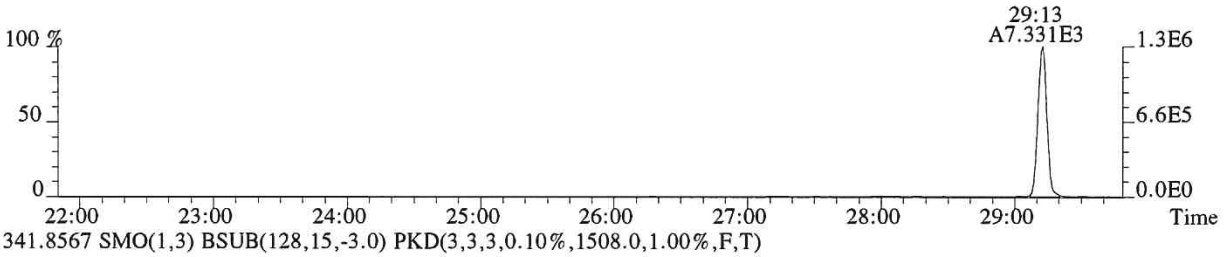
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4376.0,1.00%,F,T)



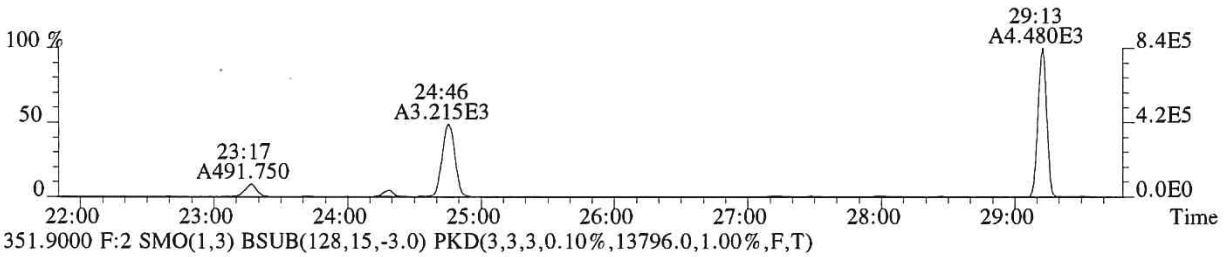
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



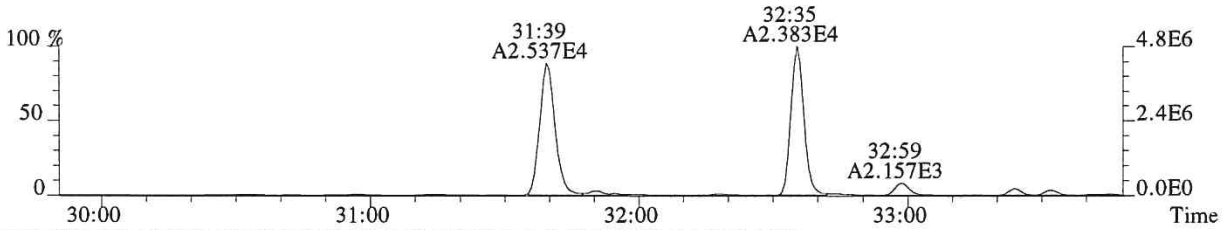
File:P519430 #1-566 Acq:14-DEC-2018 23:57:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-008
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,772.0,1.00%,F,T)



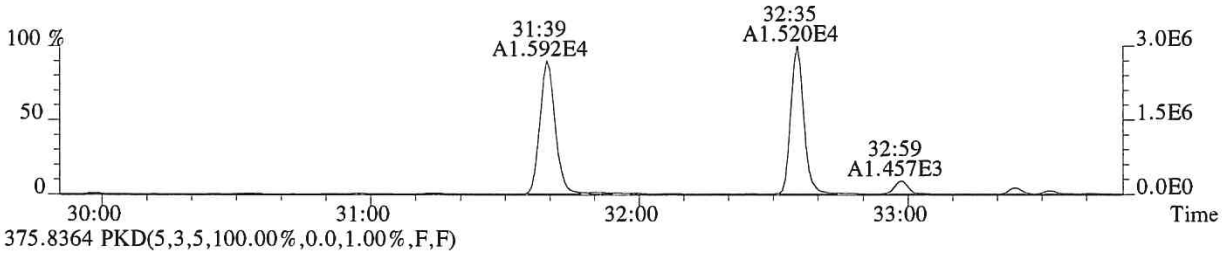
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1508.0,1.00%,F,T)



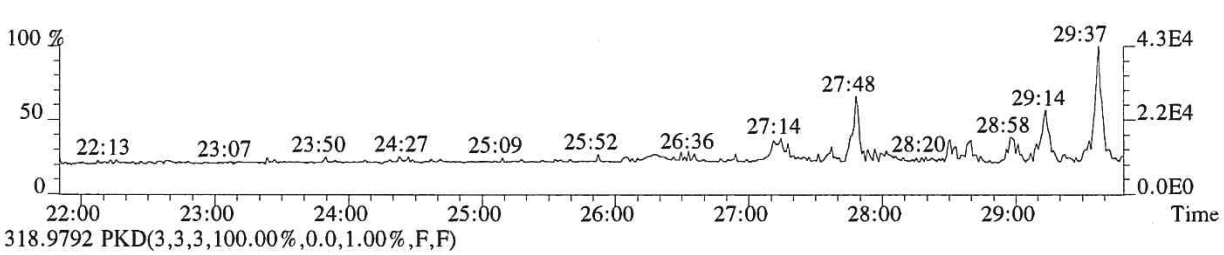
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,13796.0,1.00%,F,T)



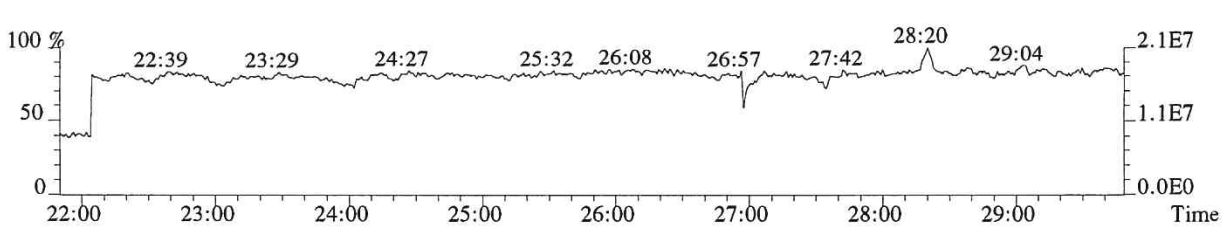
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6180.0,1.00%,F,T)



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

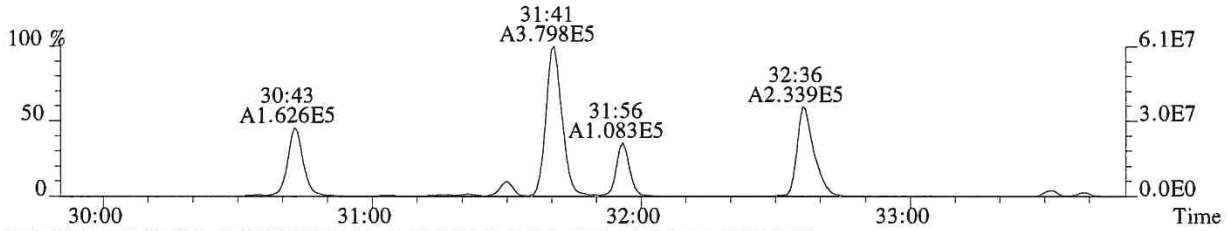


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

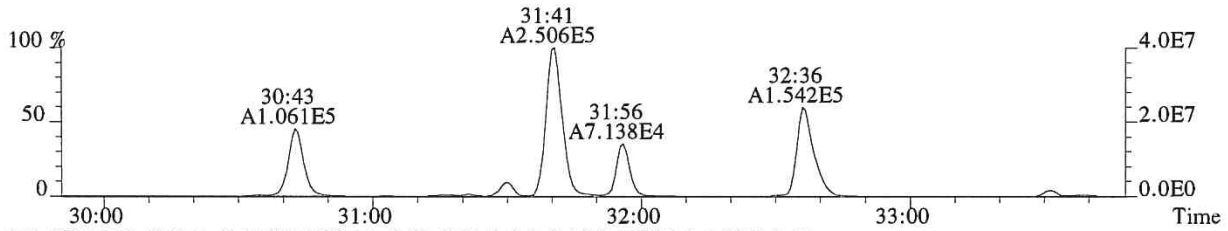


014168

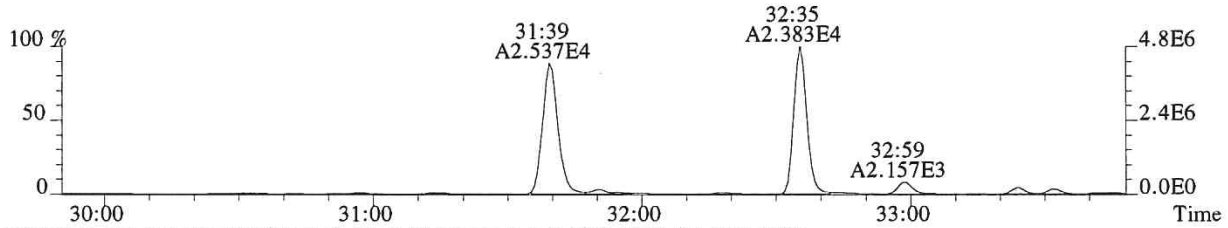
File:P519430 #1-357 Acq:14-DEC-2018 23:57:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-008
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4724.0,1.00%,F,T)



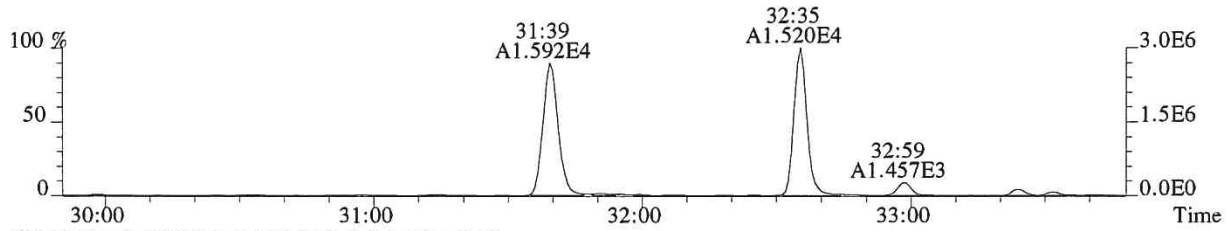
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,11324.0,1.00%,F,T)



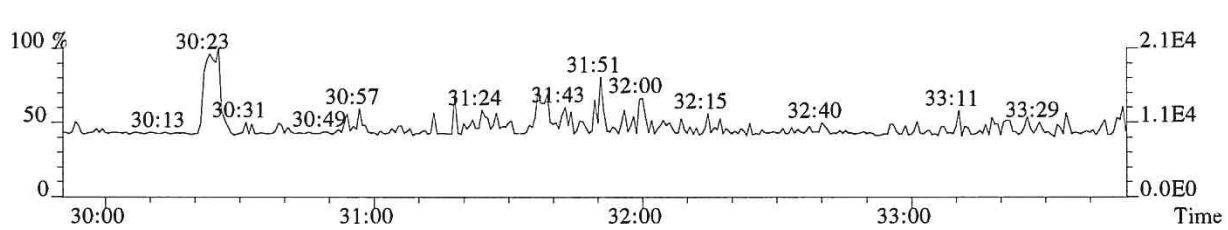
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,13796.0,1.00%,F,T)



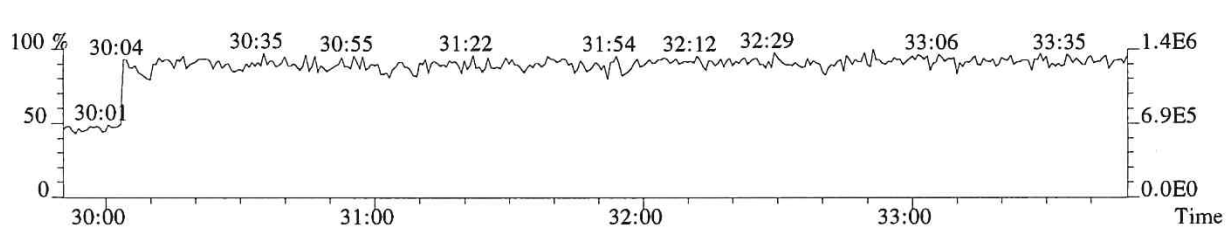
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6180.0,1.00%,F,T)



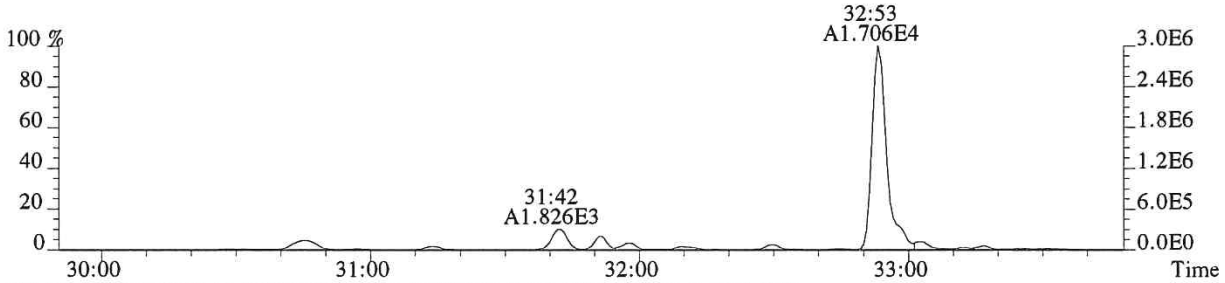
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



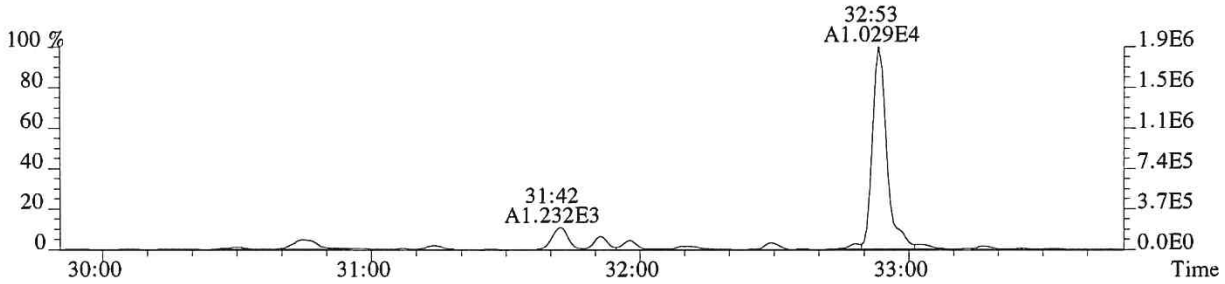
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



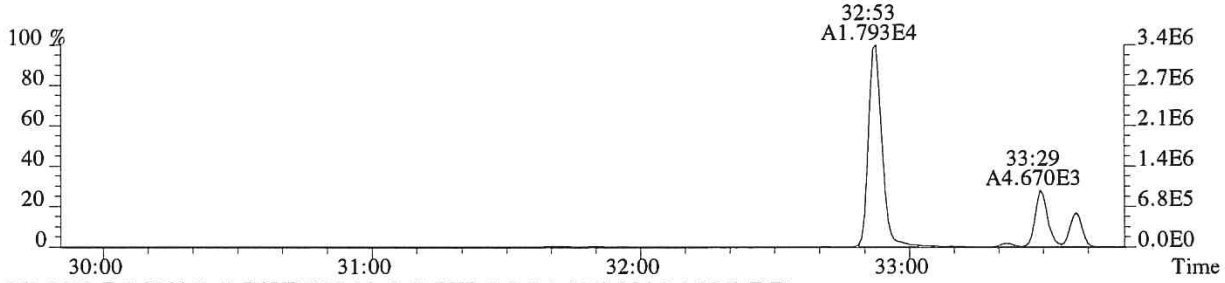
File:P519430 #1-357 Acq:14-DEC-2018 23:57:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-008
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2840.0,1.00%,F,T)



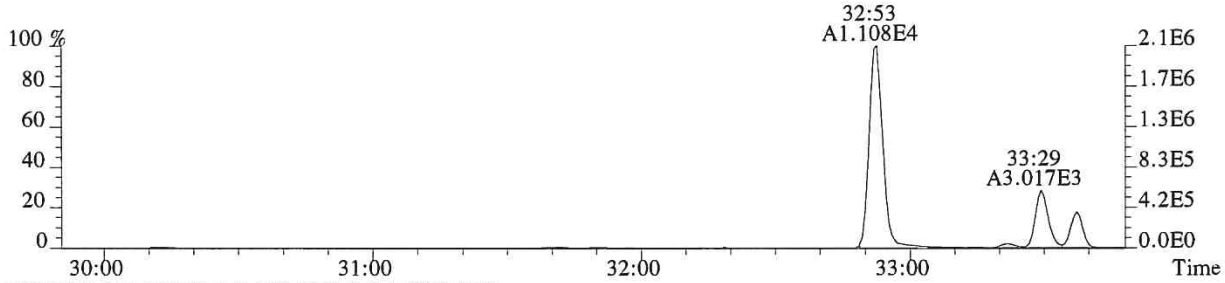
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3356.0,1.00%,F,T)



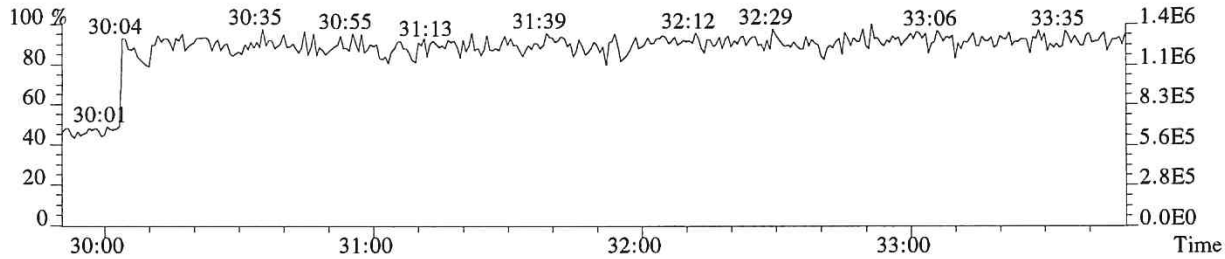
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1636.0,1.00%,F,T)



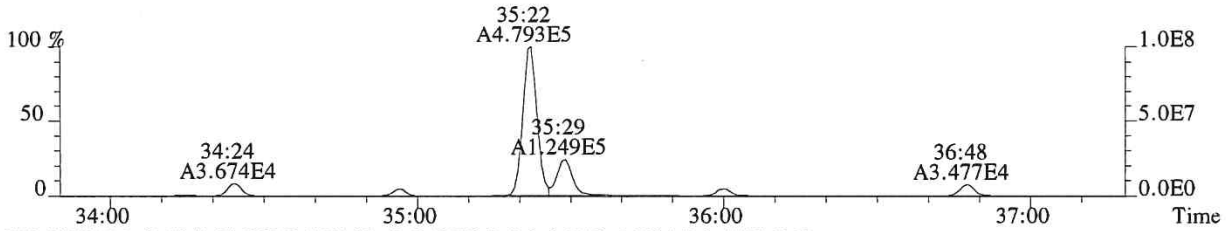
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,856.0,1.00%,F,T)



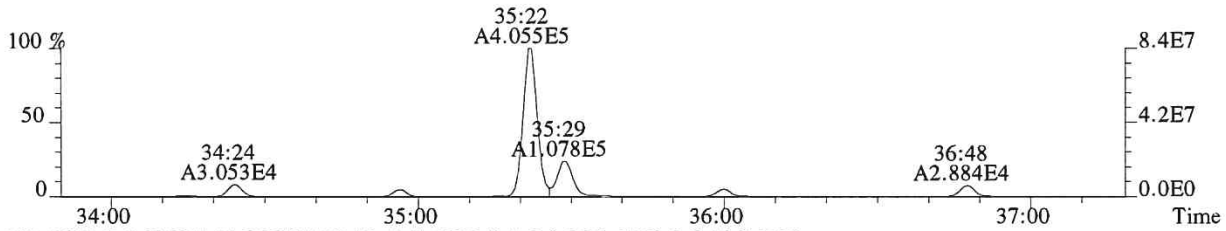
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



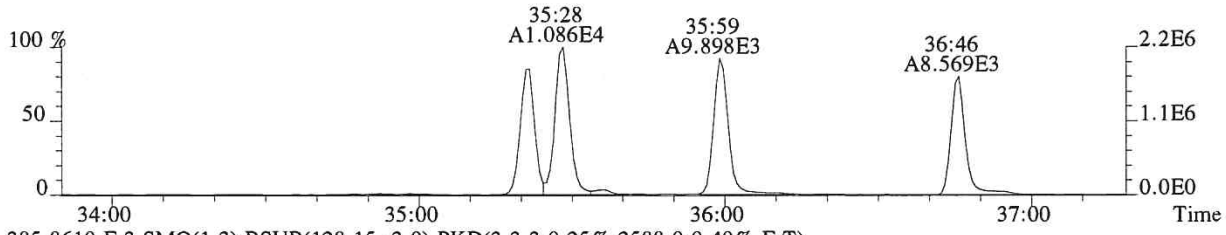
File:P519430 #1-313 Acq:14-DEC-2018 23:57:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-008
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7616.0,0.40%,F,T)



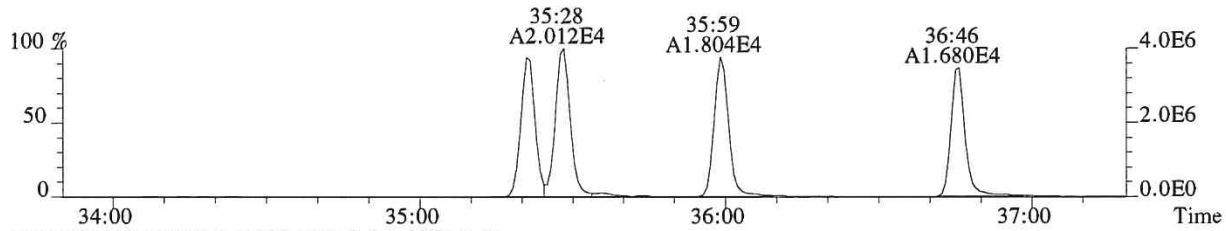
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11984.0,0.40%,F,T)



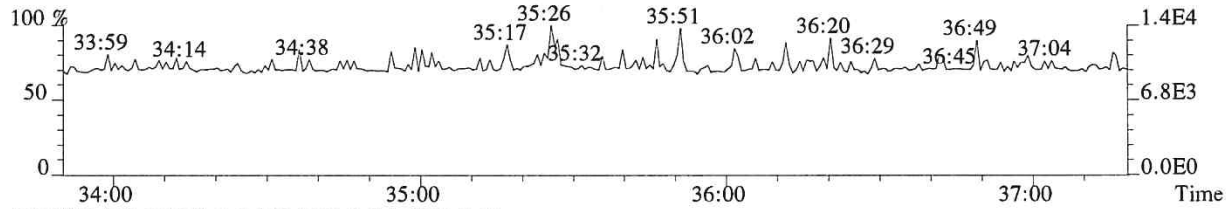
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5268.0,0.40%,F,T)



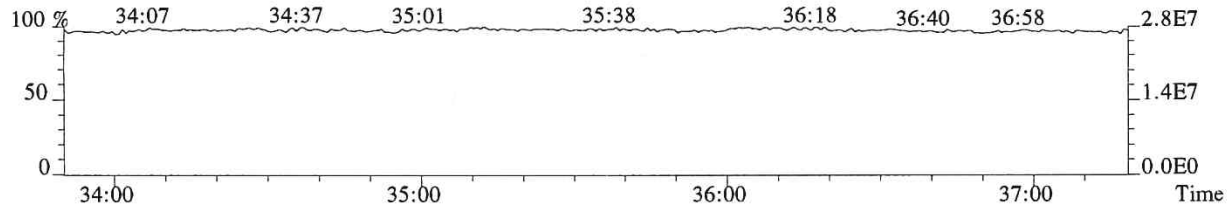
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2588.0,0.40%,F,T)



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

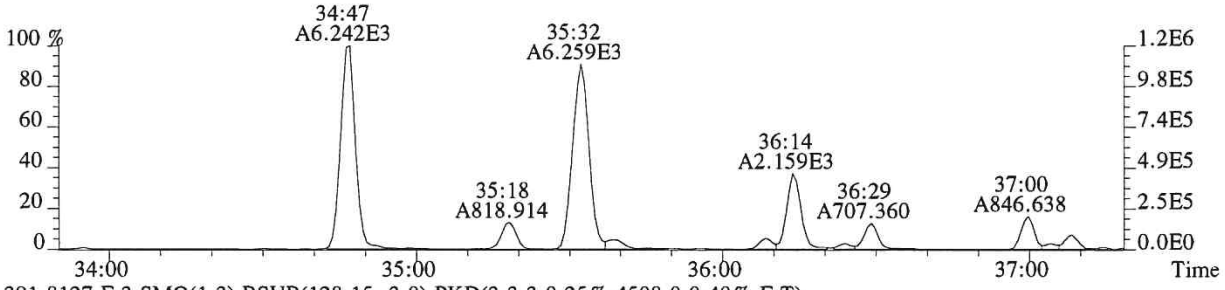


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

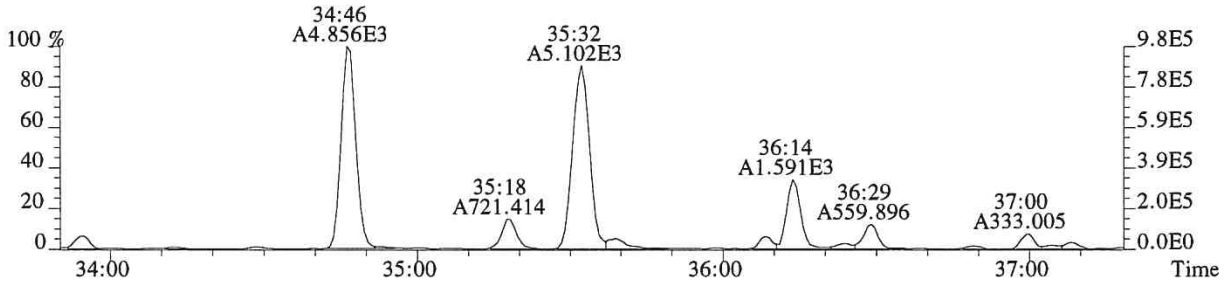


014171

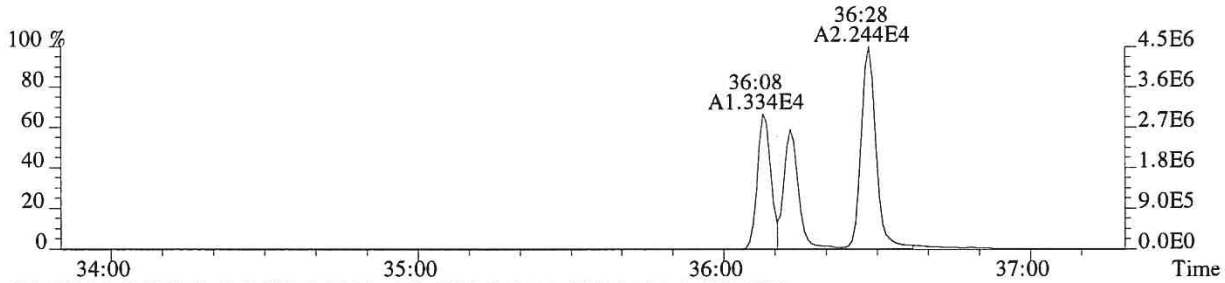
File:P519430 #1-313 Acq:14-DEC-2018 23:57:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-008
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3560.0,0.40%,F,T)



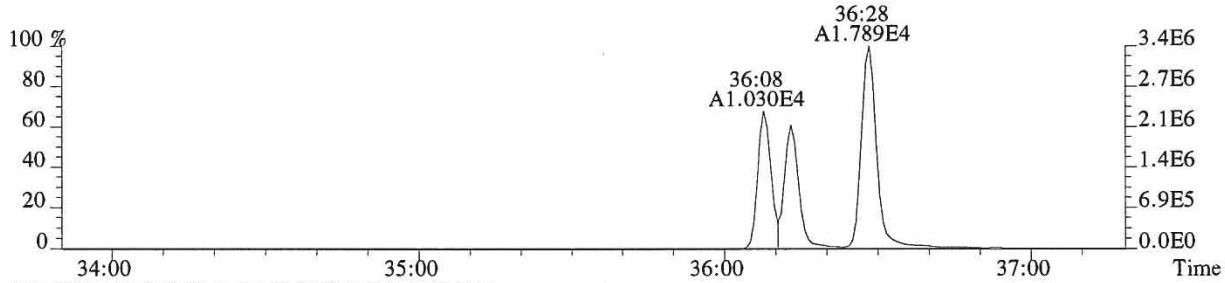
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4508.0,0.40%,F,T)



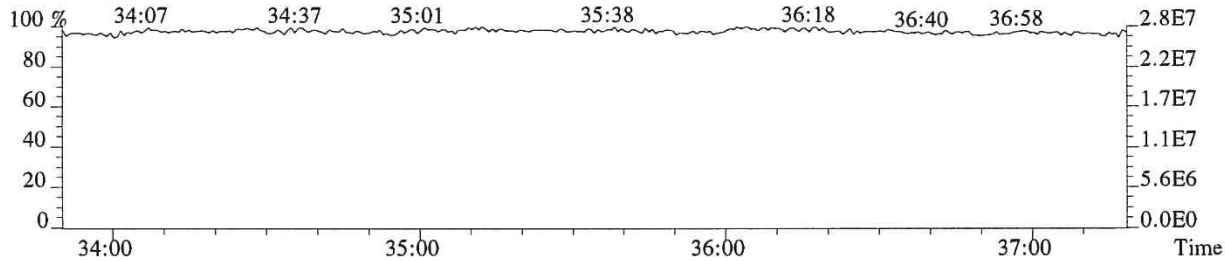
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,936.0,0.40%,F,T)



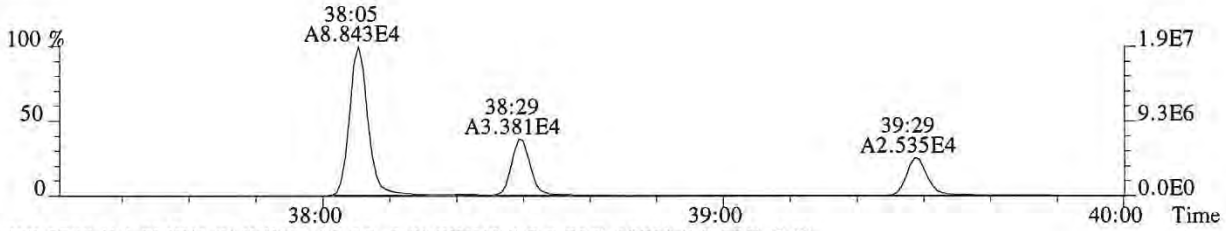
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,916.0,0.40%,F,T)



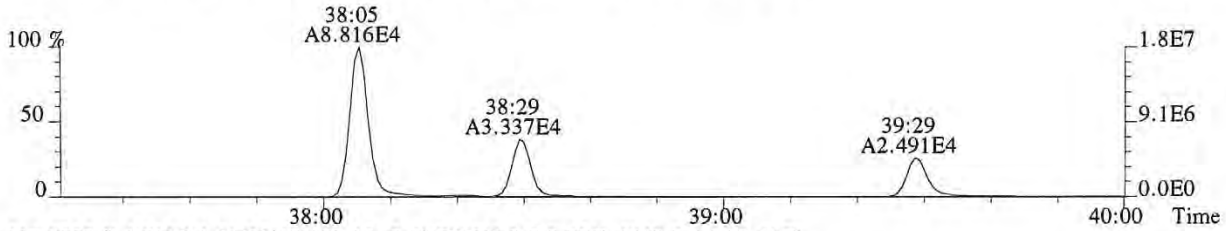
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



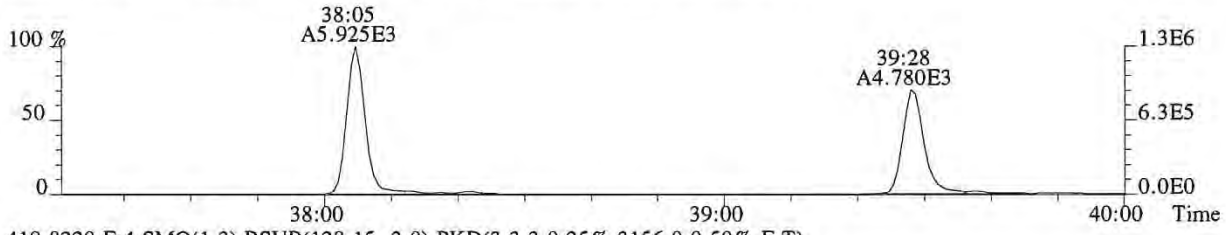
File:P519430 #1-240 Acq:14-DEC-2018 23:57:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-008
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,25416.0,0.50%,F,T)



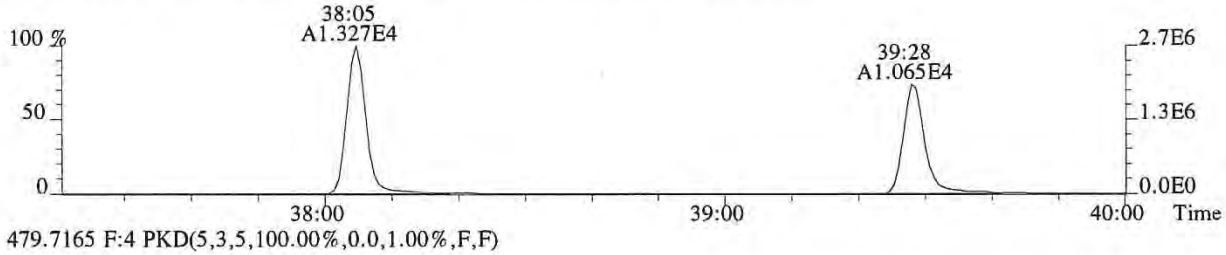
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,10968.0,0.50%,F,T)



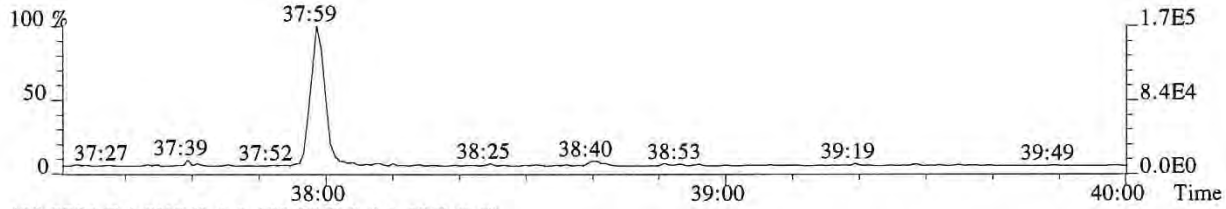
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4840.0,0.50%,F,T)



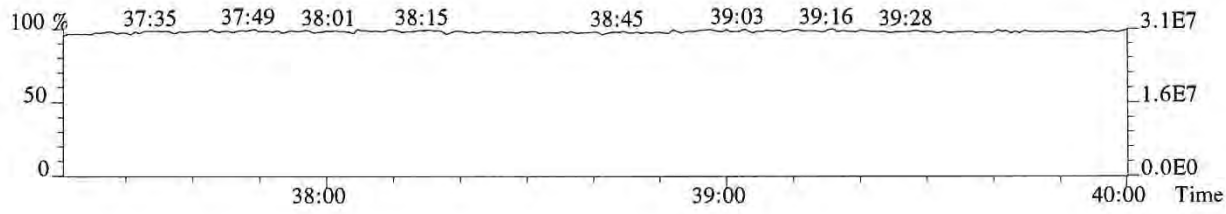
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3156.0,0.50%,F,T)



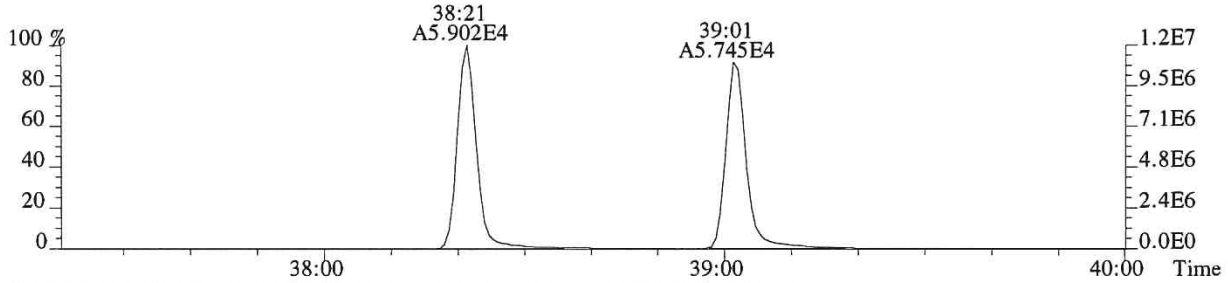
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



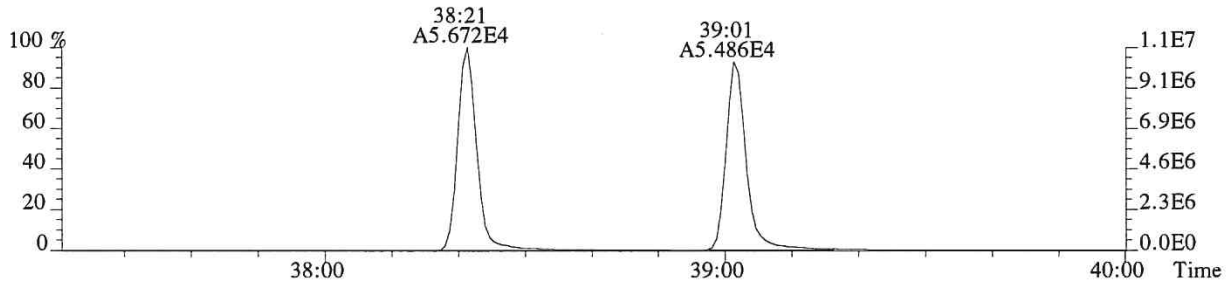
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



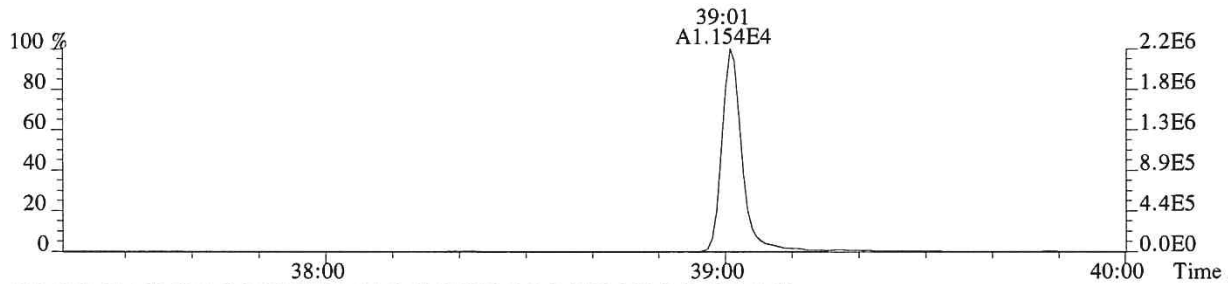
File:P519430 #1-240 Acq:14-DEC-2018 23:57:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-008
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1536.0,0.40%,F,T)



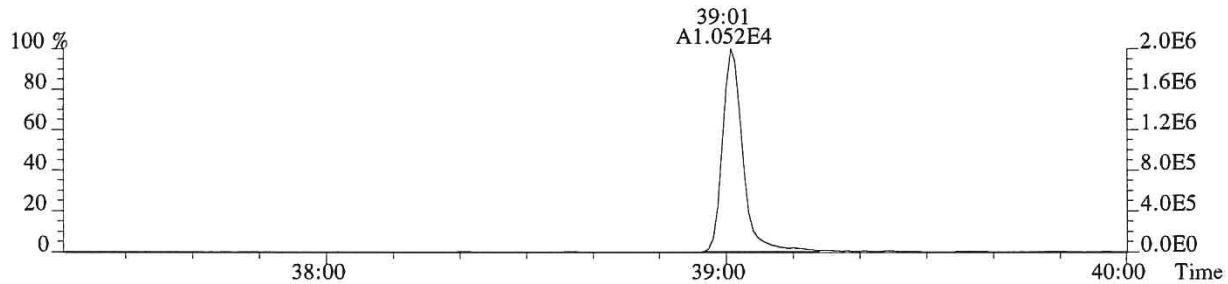
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2484.0,0.40%,F,T)



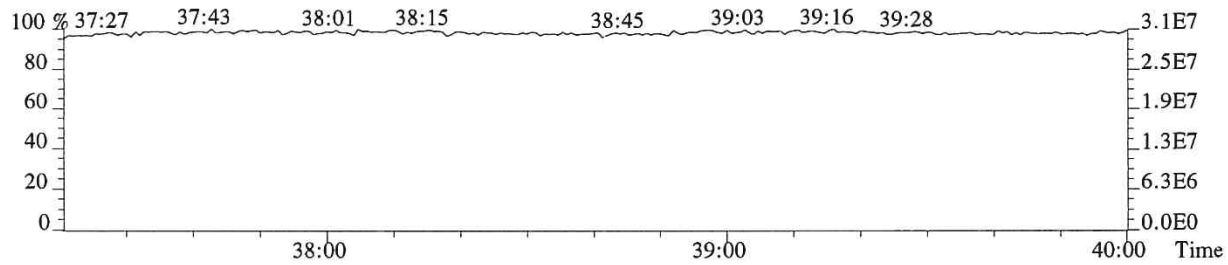
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1020.0,0.40%,F,T)



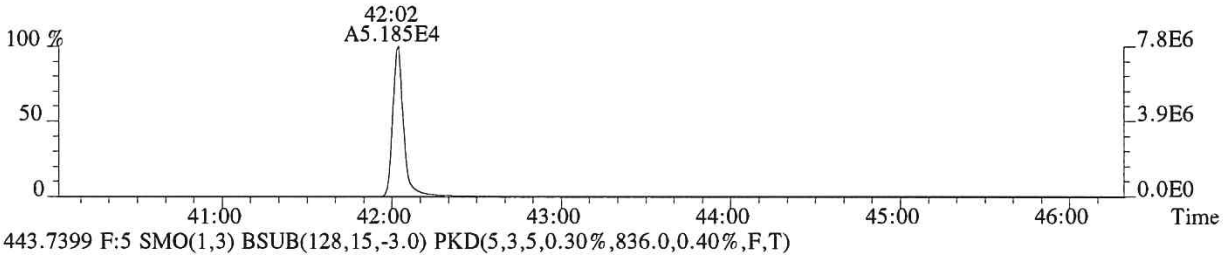
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,860.0,0.40%,F,T)



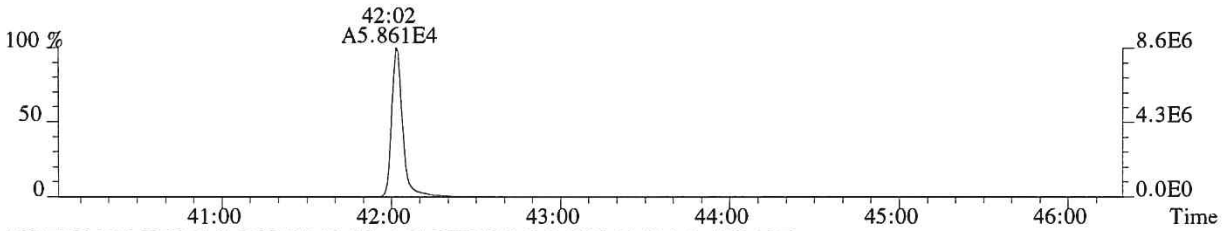
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



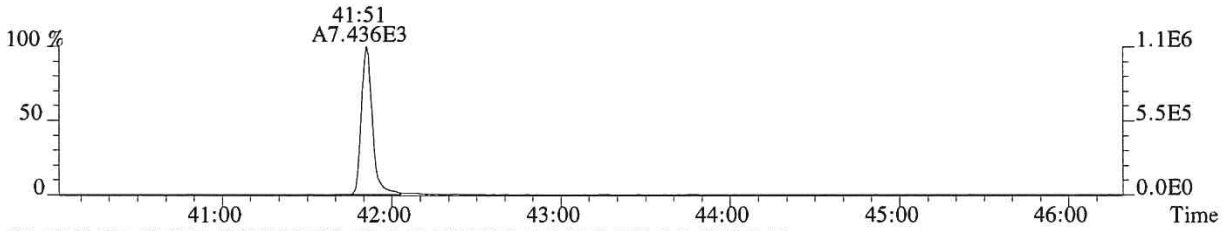
File:P519430 #1-566 Acq:14-DEC-2018 23:57:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-008
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,572.0,0.40%,F,T)



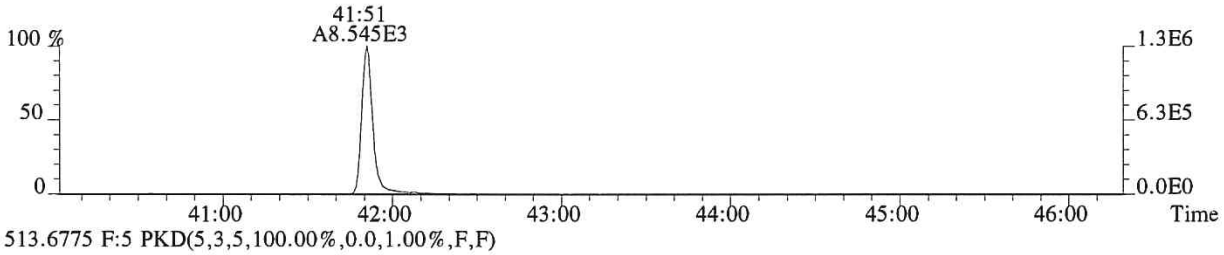
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,836.0,0.40%,F,T)



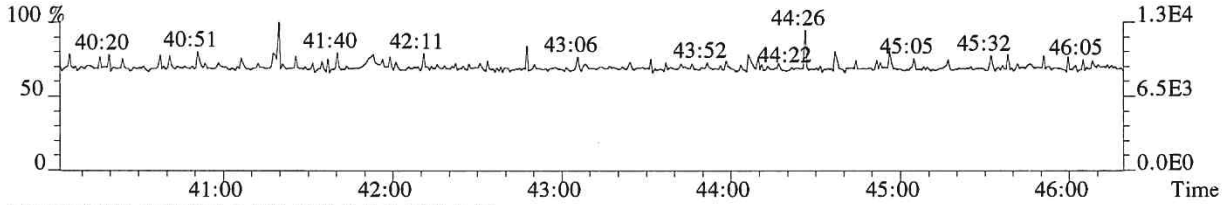
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1348.0,0.40%,F,T)



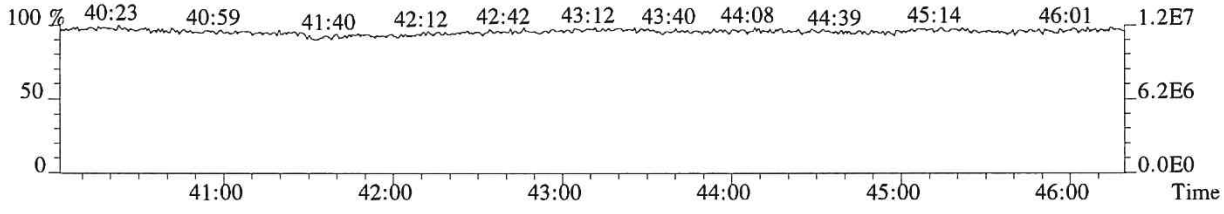
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,376.0,0.40%,F,T)



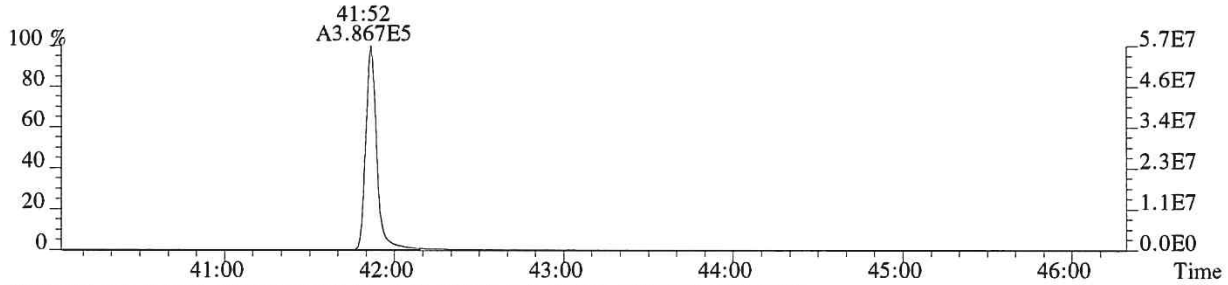
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



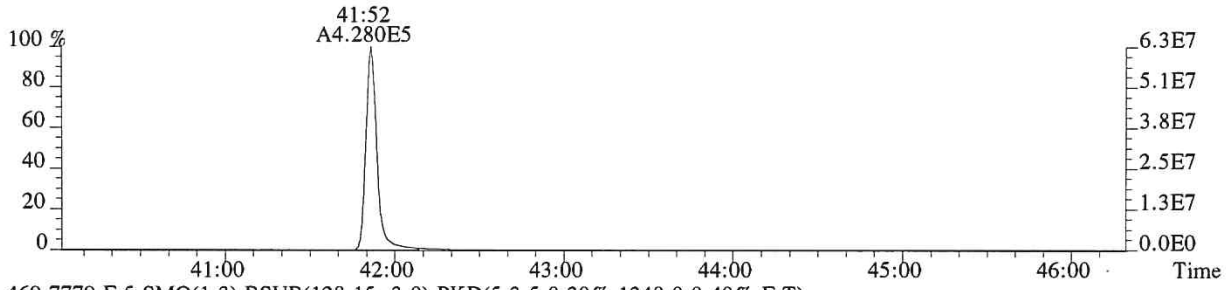
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



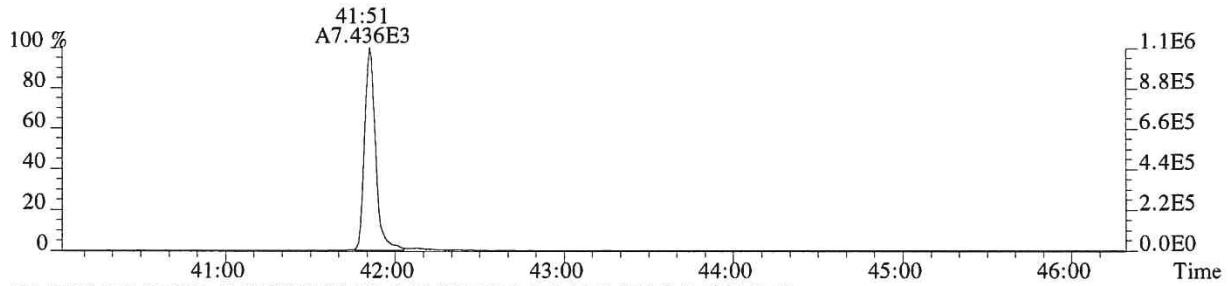
File:P519430 #1-566 Acq:14-DEC-2018 23:57:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-008
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1044.0,0.40%,F,T)



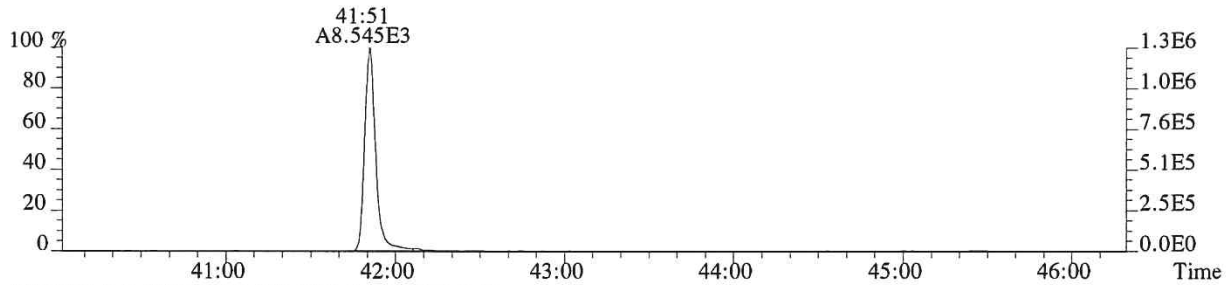
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1684.0,0.40%,F,T)



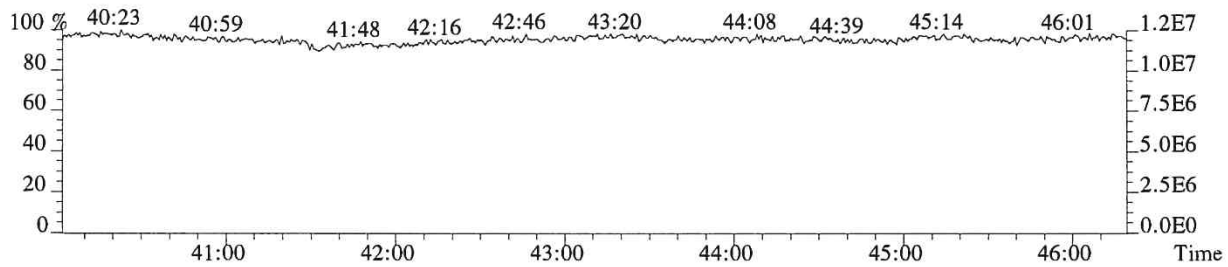
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1348.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,376.0,0.40%,F,T)



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



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0025

Run #17 Filename P519529 Samp: 1 Inj: 1 Acquired: 20-DEC-18 23:51:13
Processed: 21-DEC-18 10:24:18 Sample ID: E1801093-008DL

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:50	8.605e+03	1.157e+04	0.74	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	31:27	6.419e+02	4.276e+02	1.50	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	32:26	4.129e+02	3.007e+02	1.37	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:18	8.688e+02	7.481e+02	1.16	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:25	2.260e+02	2.231e+02	1.01	no	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:56	5.180e+01	3.436e+01	1.51	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	36:47	8.542e+01	4.085e+01	2.09	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:08	1.858e+02	1.994e+02	0.93	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:35	3.909e+01	4.553e+01	0.86	no	no	1.258
10	Unk	OCDF	42:18	1.702e+02	2.135e+02	0.80	yes	no	1.359
11	Unk	2,3,7,8-TCDD	27:44	2.073e+03	2.716e+03	0.76	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	32:47	3.581e+01	2.520e+01	1.42	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:07	1.268e+02	1.198e+02	1.06	yes	no	1.025
17	Unk	OCDD	42:06	1.167e+03	1.327e+03	0.88	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	26:48	7.774e+03	9.503e+03	0.82	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	31:27	1.178e+04	7.497e+03	1.57	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	32:25	1.120e+04	6.951e+03	1.61	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:18	4.852e+03	9.446e+03	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:24	5.721e+03	1.112e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:56	5.426e+03	1.041e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	36:44	4.431e+03	8.247e+03	0.54	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:07	4.089e+03	9.086e+03	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:35	3.425e+03	7.896e+03	0.43	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	27:42	3.679e+03	4.611e+03	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:45	8.094e+03	5.226e+03	1.55	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:06	6.501e+03	4.932e+03	1.32	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:12	7.132e+03	5.481e+03	1.30	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:07	7.359e+03	6.729e+03	1.09	yes	no	0.858
32	IS	13C-OCDD	42:06	8.379e+03	9.454e+03	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:03	4.830e+03	6.052e+03	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:26	6.501e+03	4.860e+03	1.34	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:43	4.595e+01				no	1.014

$$\text{OCDD} = \frac{(1.167e+03 + 1.327e+03) \times 4000\ \text{pg} \times 400}{(8.379e+03 + 9.454e+03) \times 10.858\ \text{g} \times 53.4 / 100 \times 1.118} = 102000\ \text{ng/kg}$$

(w2 12/28/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0025

Run #17 Filename P519529 Samp: 1 Inj: 1 Acquired: 20-DEC-18 23:51:13
Processed: 21-DEC-18 10:24:18 LAB. ID: E1801093-008DL

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.30e+06	3.56e+02	3.6e+03	1.72e+06	1.27e+03	1.4e+03
2	1,2,3,7,8-PeCDF	1.11e+05	4.44e+02	2.5e+02	7.22e+04	8.04e+02	9.0e+01
3	2,3,4,7,8-PeCDF	6.05e+04	4.44e+02	1.4e+02	4.38e+04	8.04e+02	5.5e+01
4	1,2,3,4,7,8-HxCDF	1.71e+05	2.96e+02	5.8e+02	1.38e+05	4.48e+02	3.1e+02
5	1,2,3,6,7,8-HxCDF	3.75e+04	2.96e+02	1.3e+02	3.88e+04	4.48e+02	8.7e+01
6	2,3,4,6,7,8-HxCDF	7.22e+03	2.96e+02	2.4e+01	7.09e+03	4.48e+02	1.6e+01
7	1,2,3,7,8,9-HxCDF	1.39e+04	2.96e+02	4.7e+01	8.55e+03	4.48e+02	1.9e+01
8	1,2,3,4,6,7,8-HpCDF	3.70e+04	4.96e+02	7.5e+01	3.20e+04	4.16e+02	7.7e+01
9	1,2,3,4,7,8,9-HpCDF	7.56e+03	4.96e+02	1.5e+01	8.97e+03	4.16e+02	2.2e+01
10	OCDF	1.73e+04	2.96e+02	5.8e+01	2.07e+04	5.28e+02	3.9e+01
11	2,3,7,8-TCDD	3.53e+05	1.57e+03	2.3e+02	4.50e+05	5.68e+02	7.9e+02
12	1,2,3,7,8-PeCDD	4.30e+03	3.44e+02	1.3e+01	4.61e+03	4.40e+02	1.0e+01
13	1,2,3,4,7,8-HxCDD	*	4.04e+02	*	*	5.20e+02	*
14	1,2,3,6,7,8-HxCDD	*	4.04e+02	*	*	5.20e+02	*
15	1,2,3,7,8,9-HxCDD	*	4.04e+02	*	*	5.20e+02	*
16	1,2,3,4,6,7,8-HpCDD	1.81e+04	6.24e+02	2.9e+01	1.88e+04	3.56e+02	5.3e+01
17	OCDD	1.14e+05	2.12e+02	5.4e+02	1.35e+05	3.60e+02	3.7e+02
18	13C-2,3,7,8-TCDF	1.24e+06	4.55e+03	2.7e+02	1.53e+06	2.48e+03	6.2e+02
19	13C-1,2,3,7,8-PeCDF	2.01e+06	4.00e+02	5.0e+03	1.30e+06	6.08e+02	2.1e+03
20	13C-2,3,4,7,8-PeCDF	1.98e+06	4.00e+02	4.9e+03	1.23e+06	6.08e+02	2.0e+03
21	13C-1,2,3,4,7,8-HxCDF	9.36e+05	2.56e+02	3.7e+03	1.78e+06	5.96e+02	3.0e+03
22	13C-1,2,3,6,7,8-HxCDF	1.04e+06	2.56e+02	4.1e+03	2.00e+06	5.96e+02	3.4e+03
23	13C-2,3,4,6,7,8-HxCDF	1.02e+06	2.56e+02	4.0e+03	1.96e+06	5.96e+02	3.3e+03
24	13C-1,2,3,7,8,9-HxCDF	7.43e+05	2.56e+02	2.9e+03	1.38e+06	5.96e+02	2.3e+03
25	13C-1,2,3,4,6,7,8-HpCDF	6.95e+05	6.08e+02	1.1e+03	1.55e+06	2.59e+03	6.0e+02
26	13C-1,2,3,4,7,8,9-HpCDF	4.67e+05	6.08e+02	7.7e+02	1.13e+06	2.59e+03	4.4e+02
27	13C-2,3,7,8-TCDD	6.08e+05	4.11e+03	1.5e+02	7.58e+05	1.12e+03	6.8e+02
28	13C-1,2,3,7,8-PeCDD	1.41e+06	6.76e+02	2.1e+03	8.78e+05	9.00e+02	9.8e+02
29	13C-1,2,3,4,7,8-HxCDD	1.36e+06	6.24e+02	2.2e+03	1.02e+06	4.36e+02	2.3e+03
30	13C-1,2,3,6,7,8-HxCDD	1.19e+06	6.24e+02	1.9e+03	9.18e+05	4.36e+02	2.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.15e+06	3.72e+02	3.1e+03	1.03e+06	2.16e+02	4.8e+03
32	13C-OCDD	8.15e+05	5.44e+02	1.5e+03	9.04e+05	4.28e+02	2.1e+03
33	13C-1,2,3,4-TCDD	8.23e+05	4.11e+03	2.0e+02	9.98e+05	1.12e+03	8.9e+02
34	13C-1,2,3,7,8,9-HxCDD	1.09e+06	6.24e+02	1.7e+03	8.53e+05	4.36e+02	2.0e+03
35	37Cl-2,3,7,8-TCDD	9.14e+03	6.48e+02	1.4e+01			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.568e{+}03 + 5.680e{+}02) \times 2000}{(6.081e{+}05 + 7.577e{+}05) \times (\quad) \times 1.085}$$

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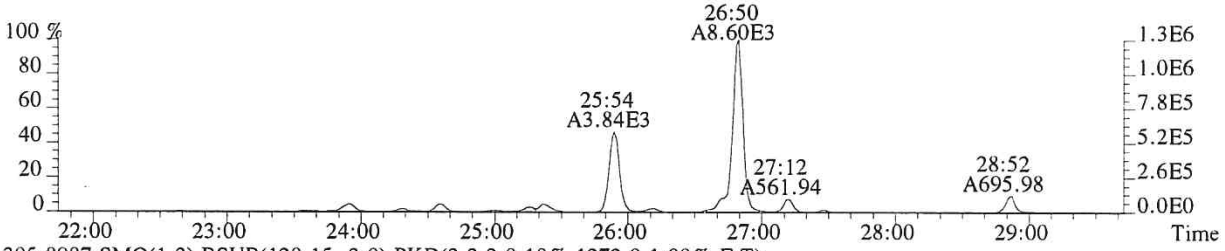
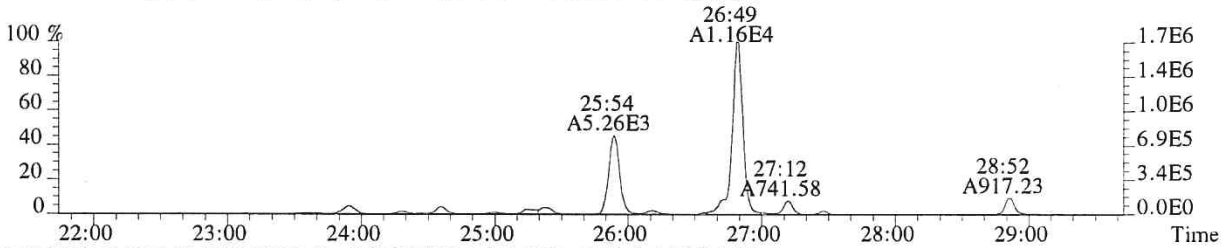
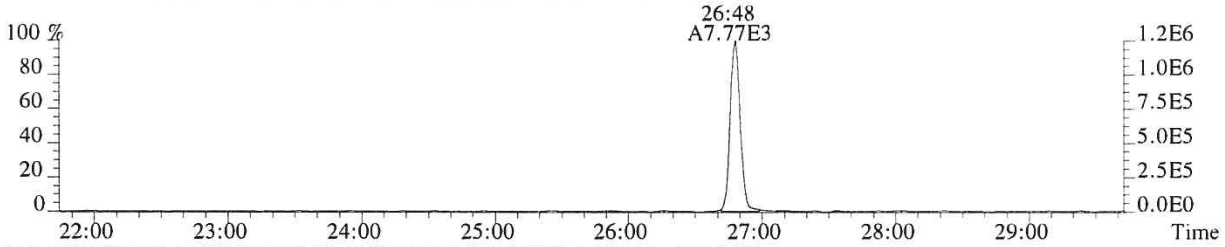
File:P519529 #1-566 Acq:20-DEC-2018 23:51:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-008DL
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,356.0,1.00%,F,T)



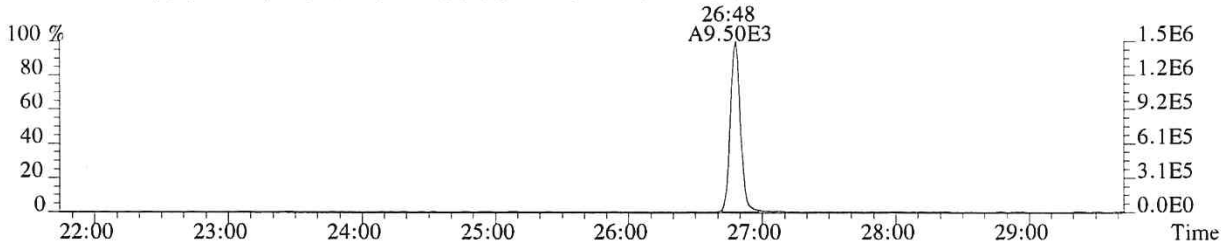
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1272.0,1.00%,F,T)



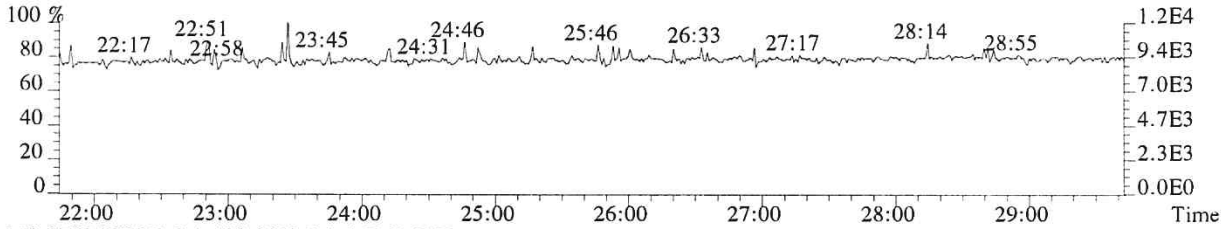
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4552.0,1.00%,F,T)



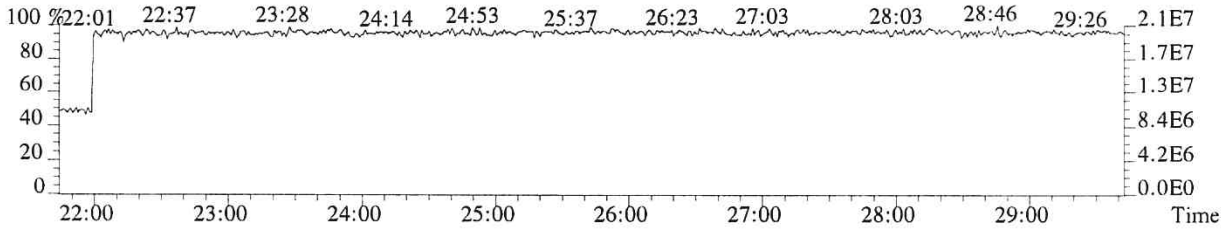
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2476.0,1.00%,F,T)



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

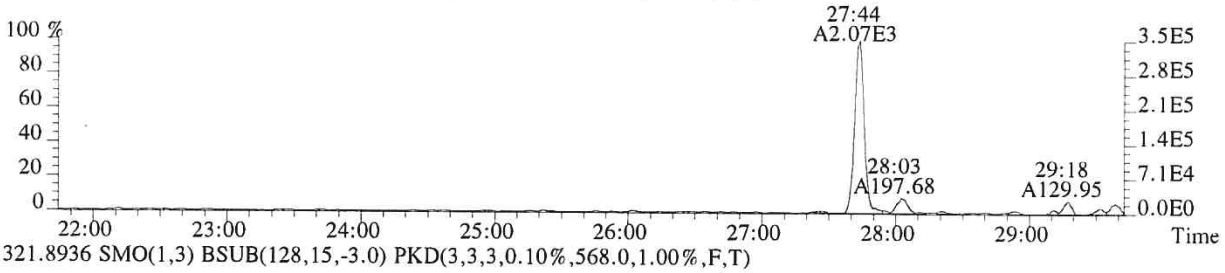


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

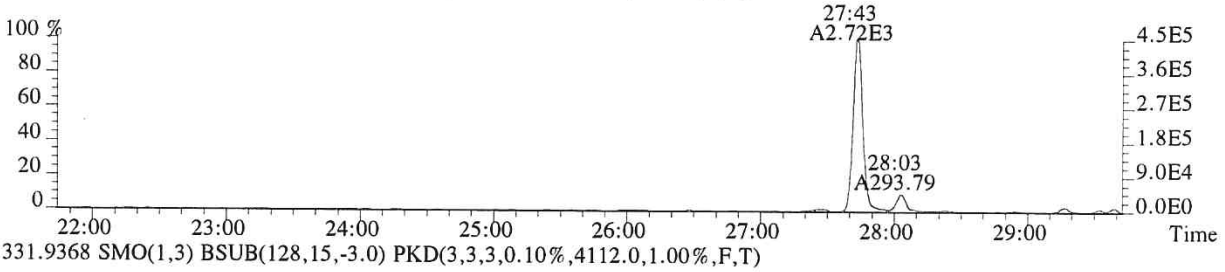


014179

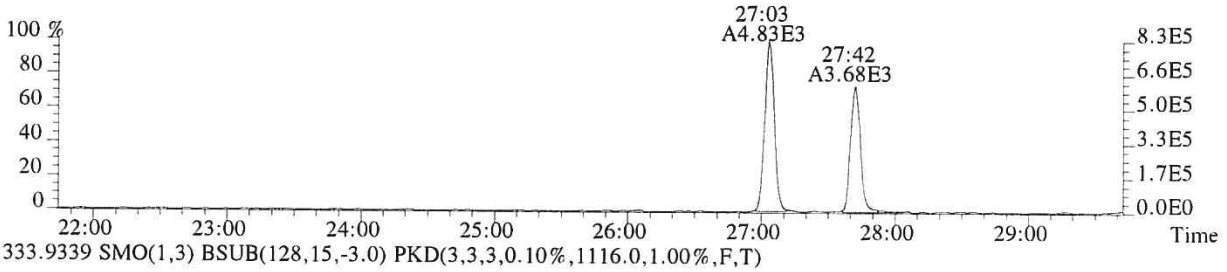
File:P519529 #1-566 Acq:20-DEC-2018 23:51:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-008DL
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1568.0,1.00%,F,T)



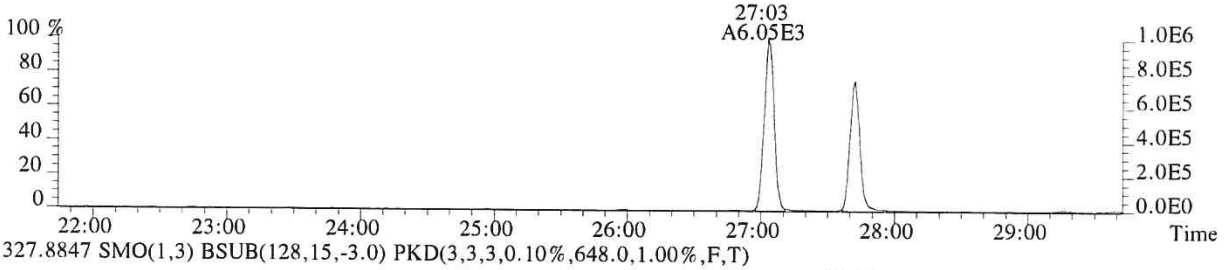
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,568.0,1.00%,F,T)



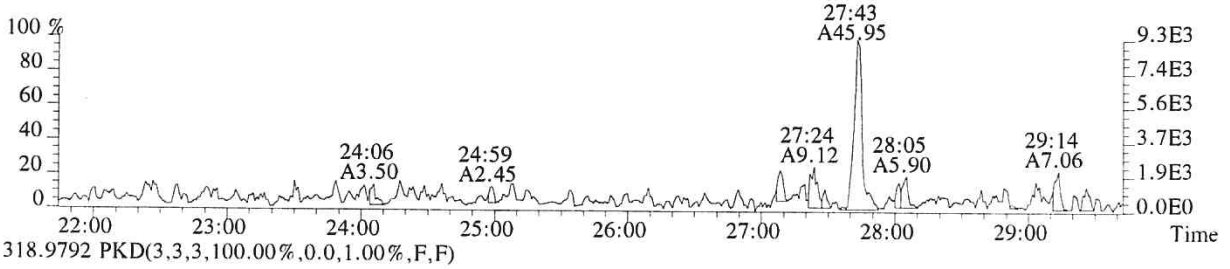
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4112.0,1.00%,F,T)



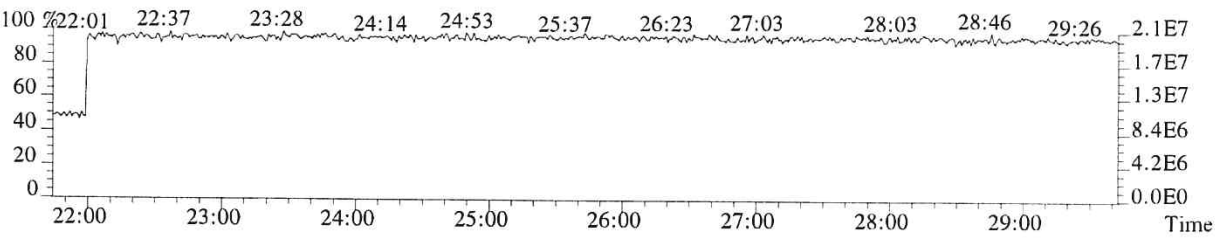
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1116.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)

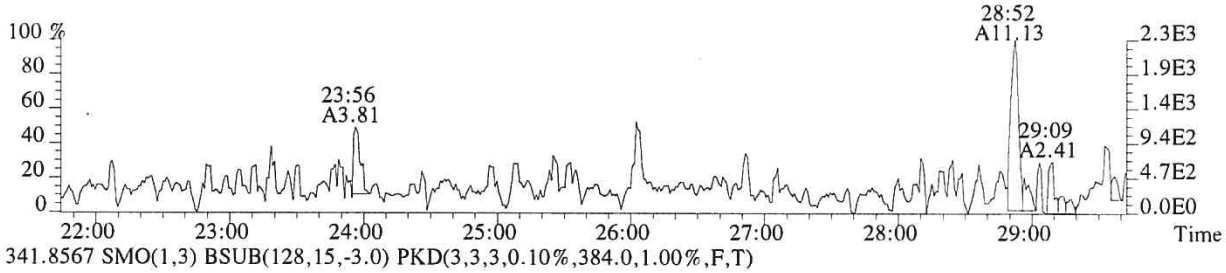


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

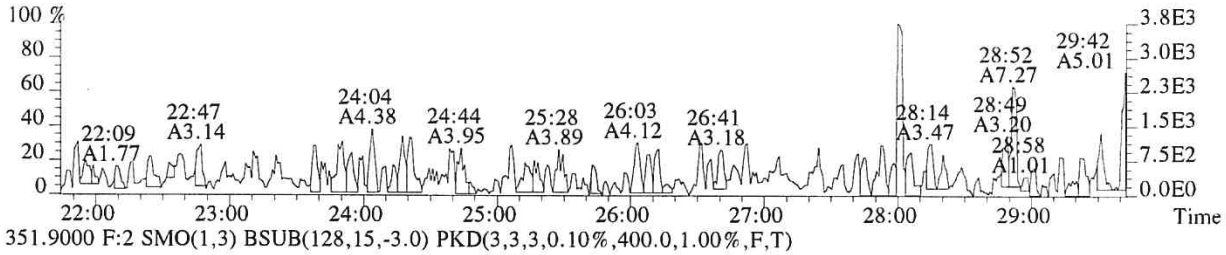


014180

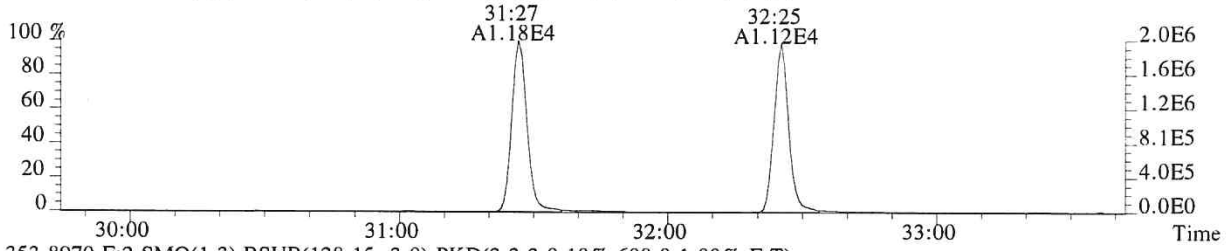
File:P519529 #1-566 Acq:20-DEC-2018 23:51:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-008DL
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,404.0,1.00%,F,T)



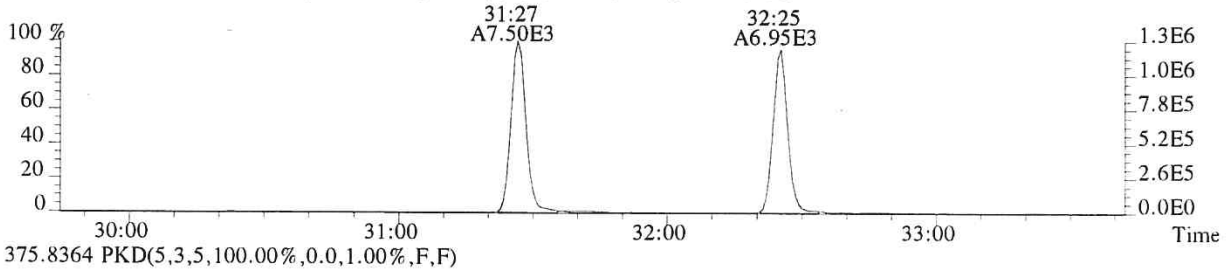
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,384.0,1.00%,F,T)



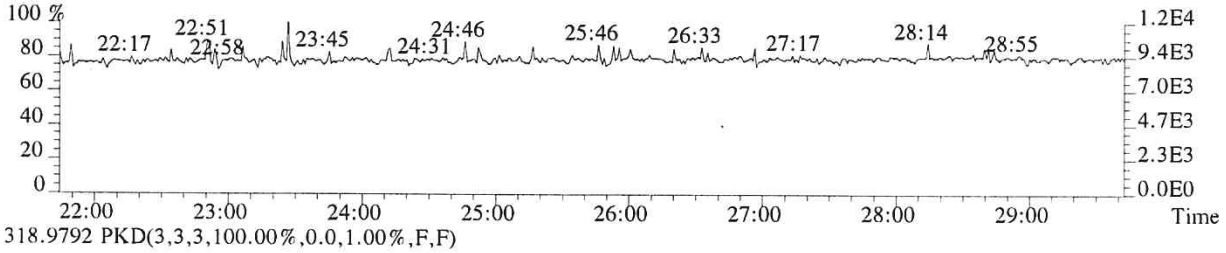
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,400.0,1.00%,F,T)



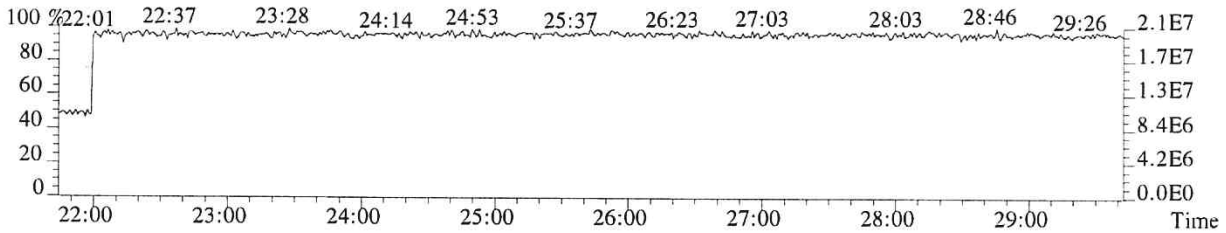
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,608.0,1.00%,F,T)



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

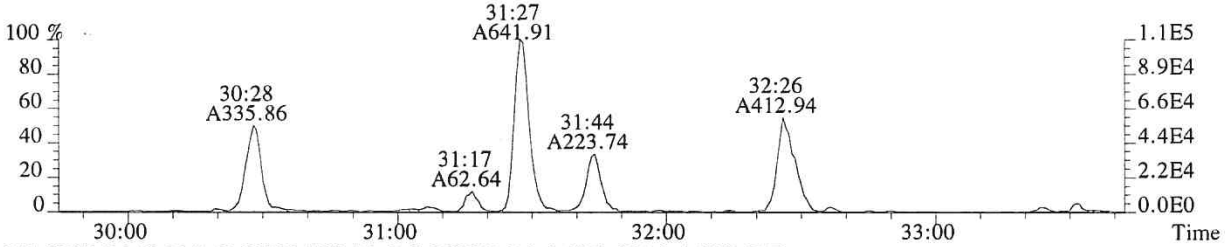


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

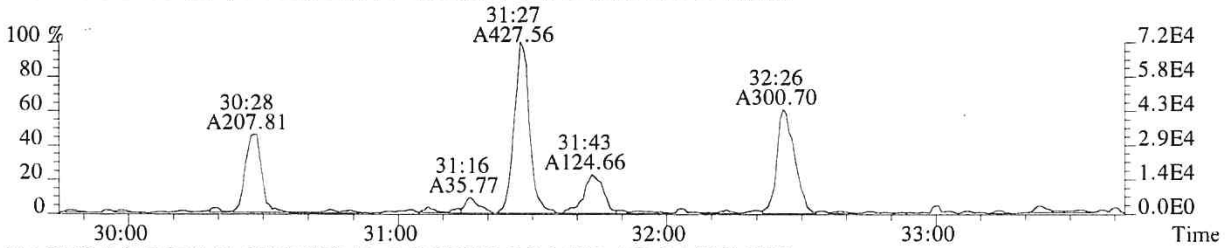


File:P519529 #1-357 Acq:20-DEC-2018 23:51:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-008DL

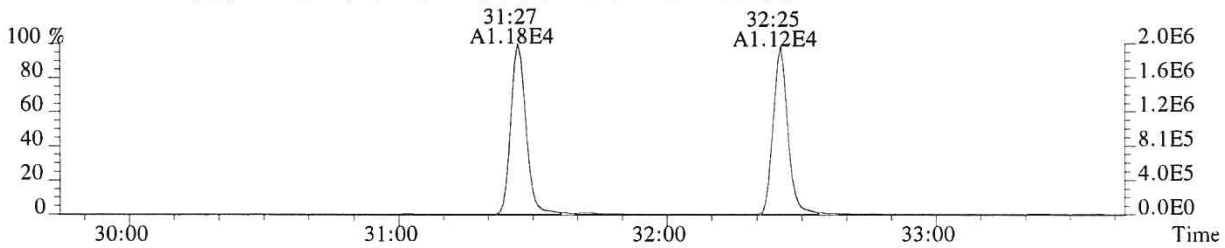
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,444.0,1.00%,F,T)



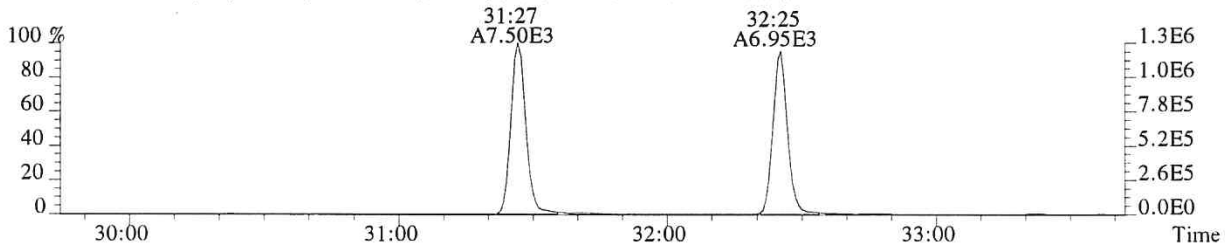
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,804.0,1.00%,F,T)



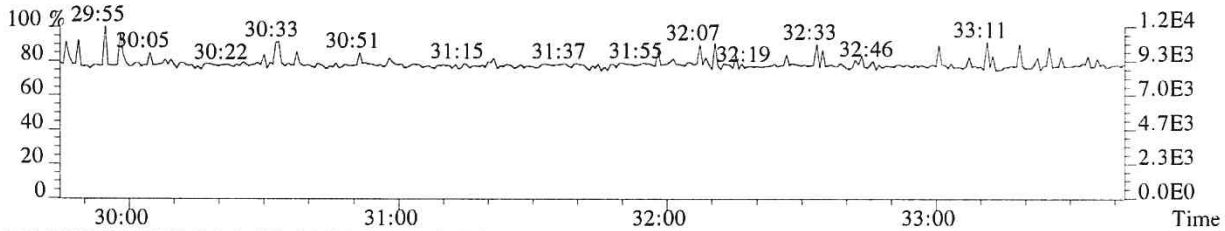
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,400.0,1.00%,F,T)



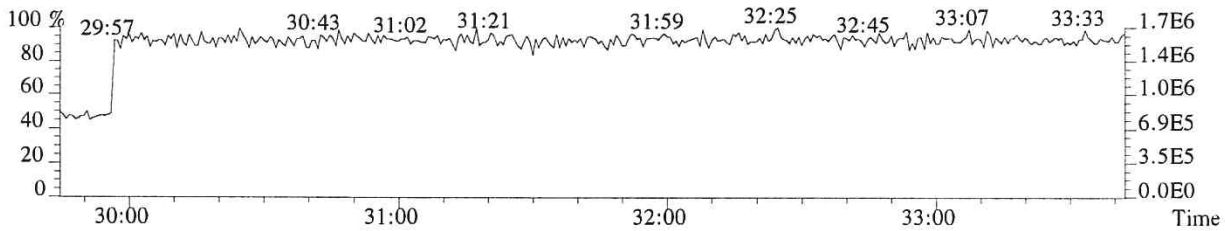
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,608.0,1.00%,F,T)



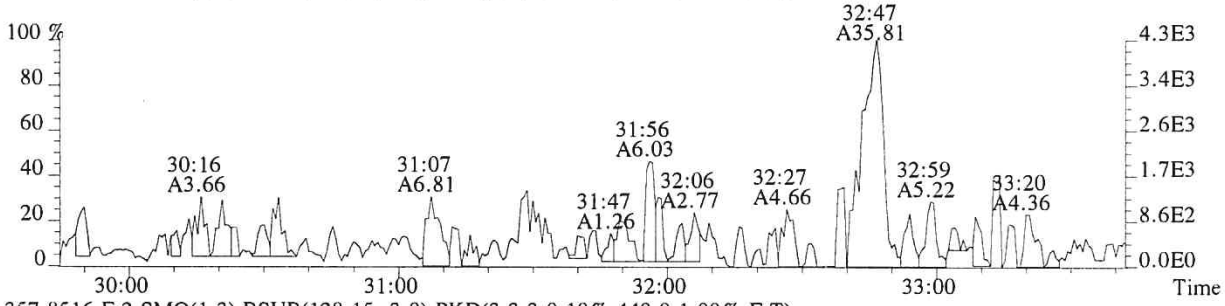
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



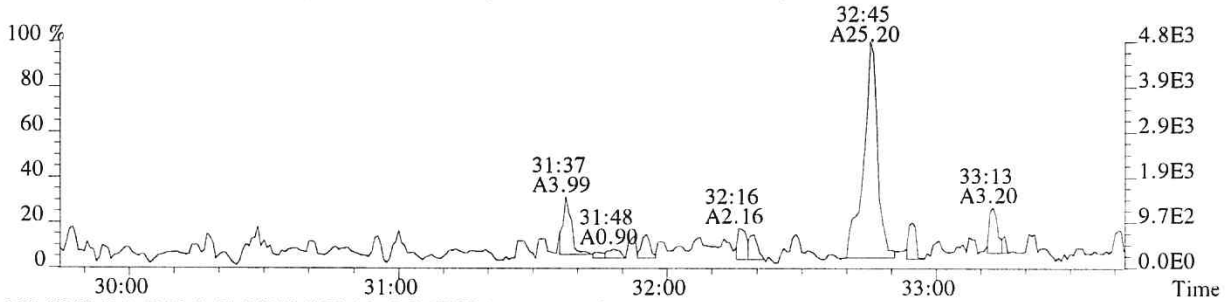
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



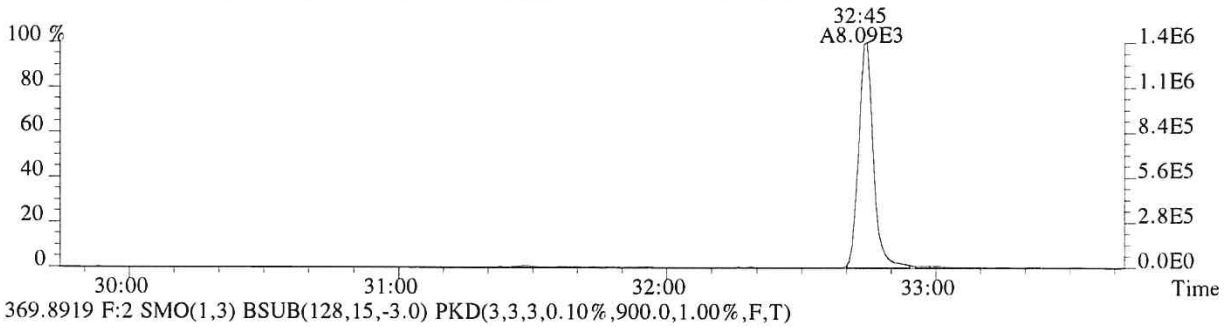
File:P519529 #1-357 Acq:20-DEC-2018 23:51:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-008DL
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,344.0,1.00%,F,T)



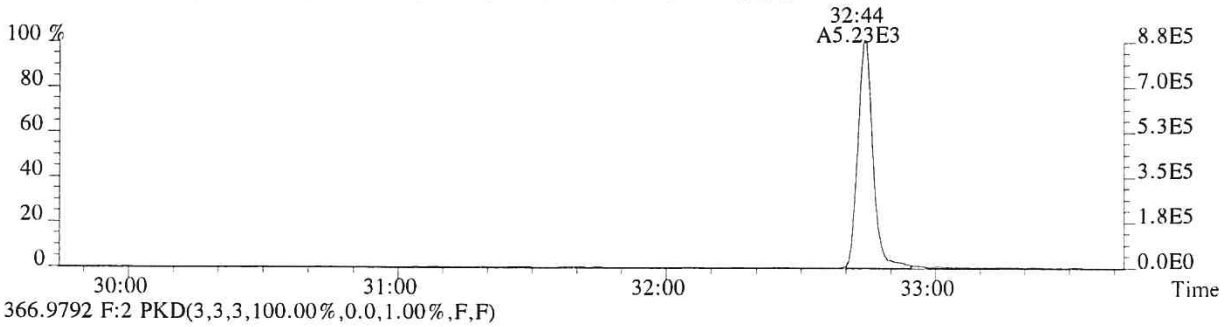
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,440.0,1.00%,F,T)



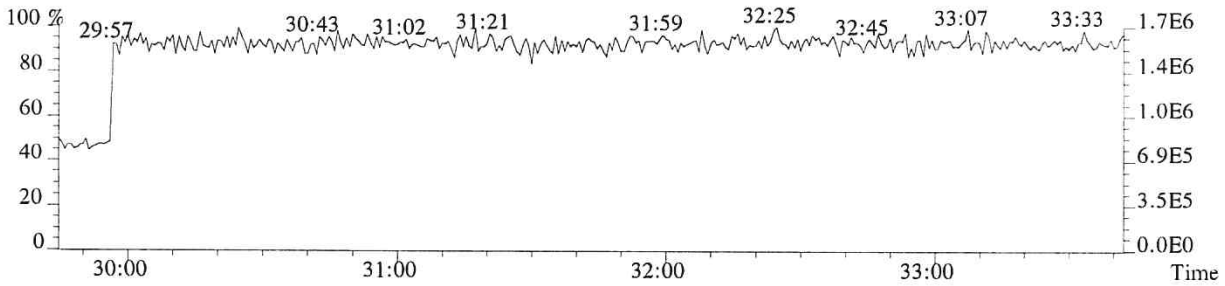
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,676.0,1.00%,F,T)



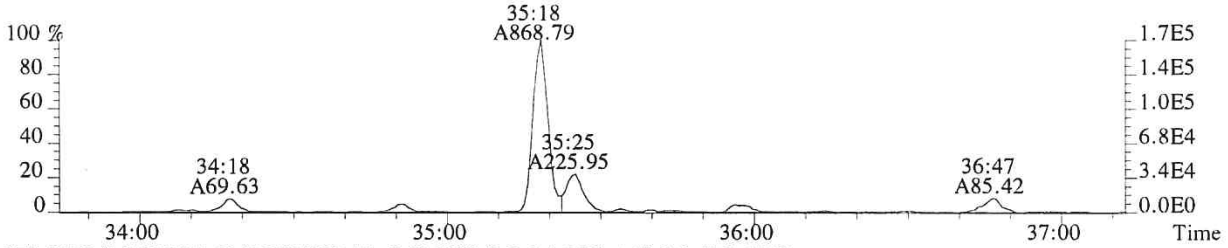
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,900.0,1.00%,F,T)



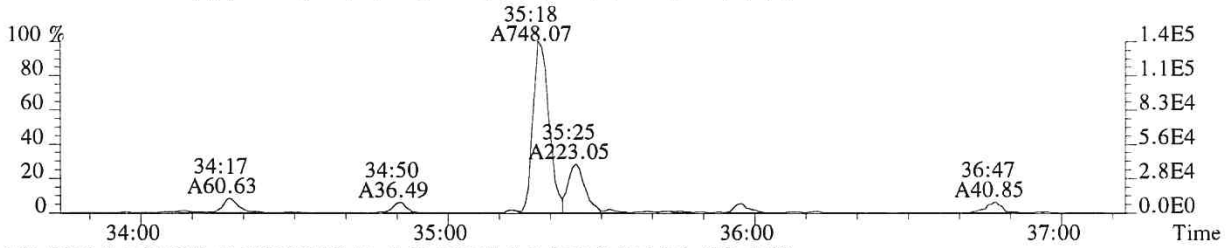
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



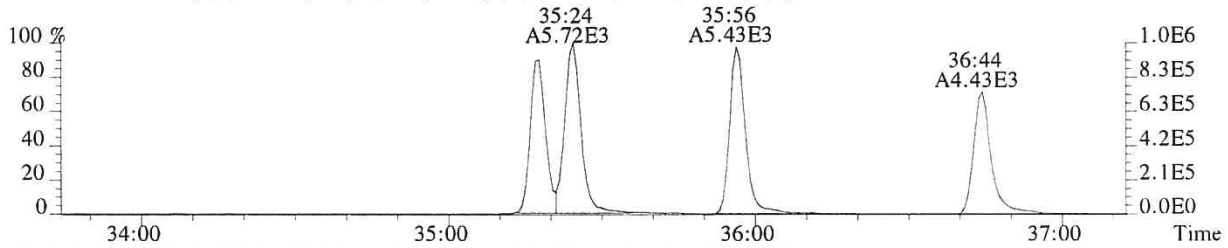
File:P519529 #1-313 Acq:20-DEC-2018 23:51:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-008DL
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,296.0,0.40%,F,T)



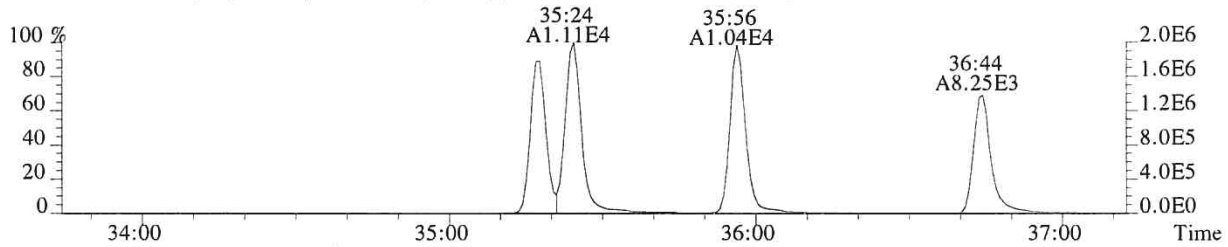
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,448.0,0.40%,F,T)



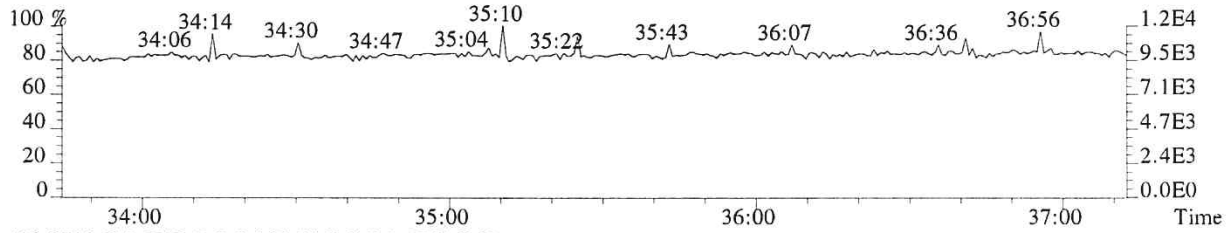
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,256.0,0.40%,F,T)



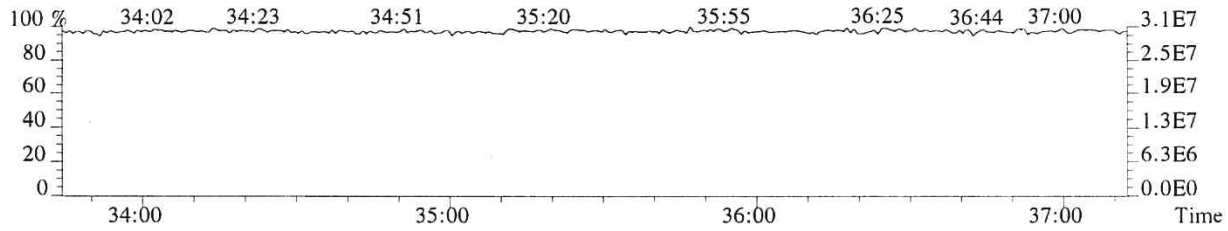
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,596.0,0.40%,F,T)



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

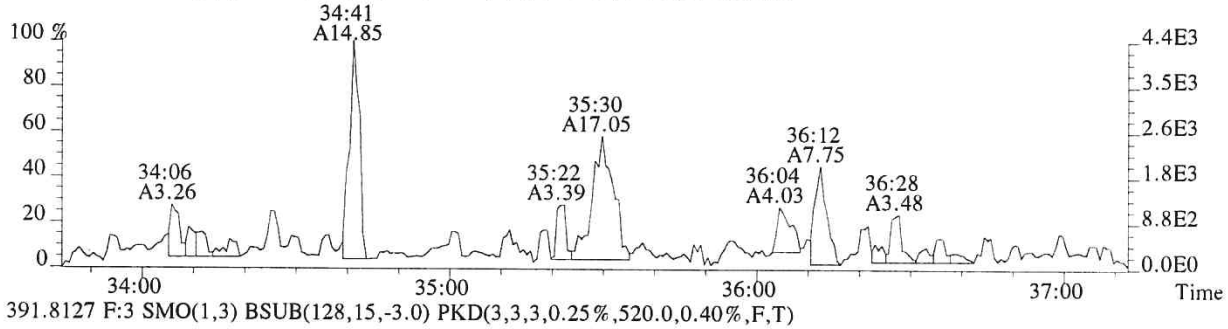


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

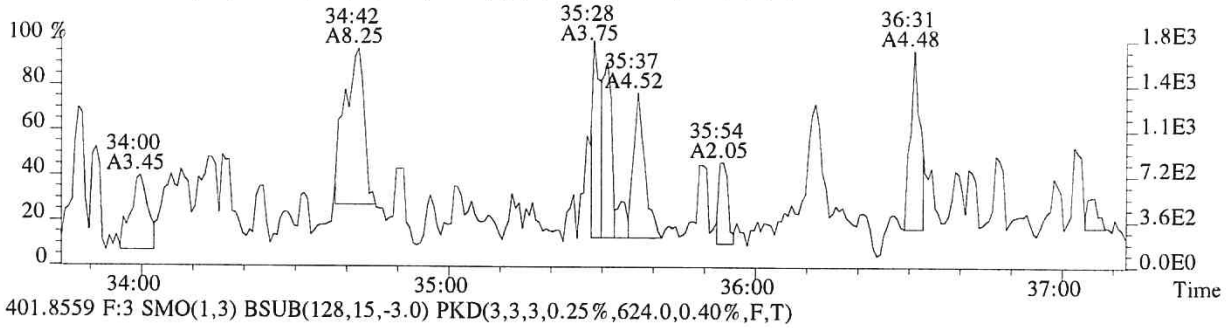


014184

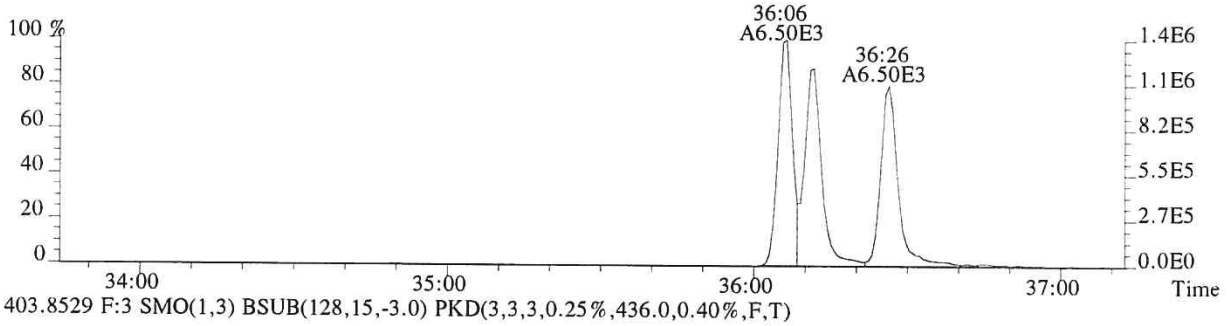
File:P519529 #1-313 Acq:20-DEC-2018 23:51:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-008DL
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,404.0,0.40%,F,T)



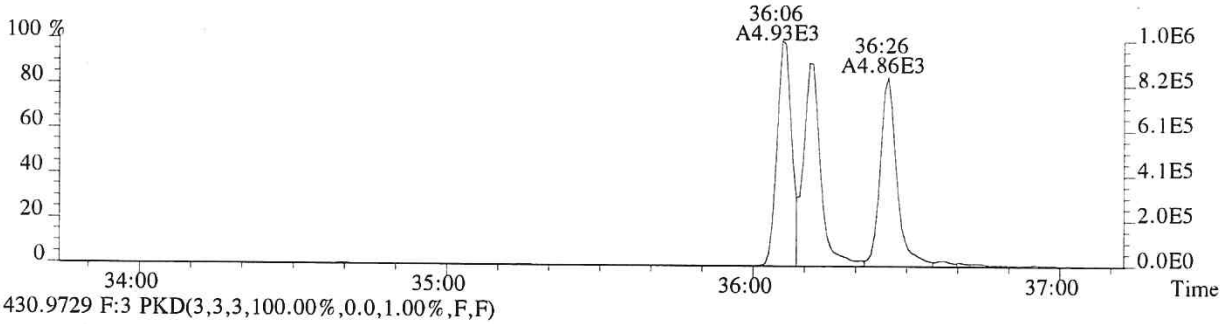
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,520.0,0.40%,F,T)



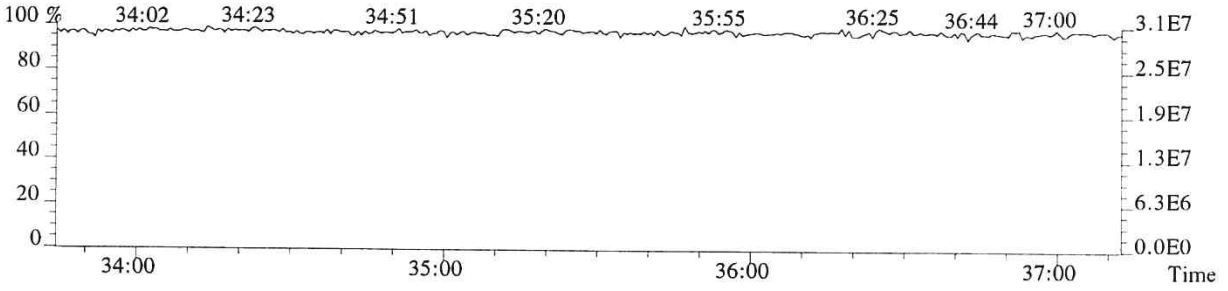
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,624.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,436.0,0.40%,F,T)

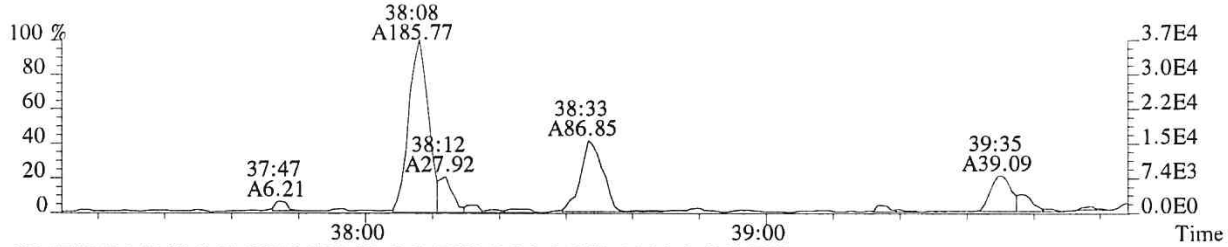


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

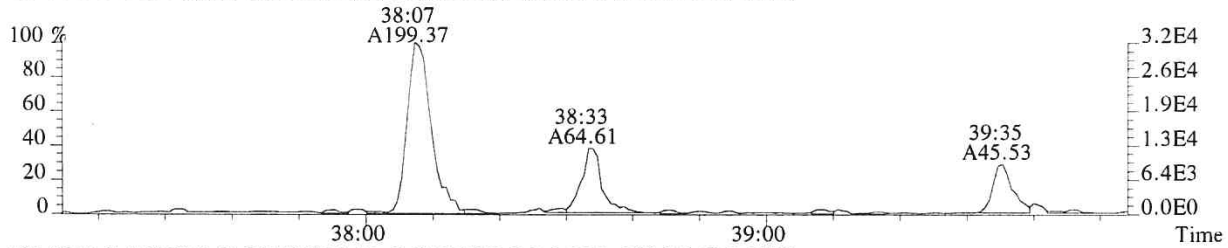


File:P519529 #1-240 Acq:20-DEC-2018 23:51:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-008DL

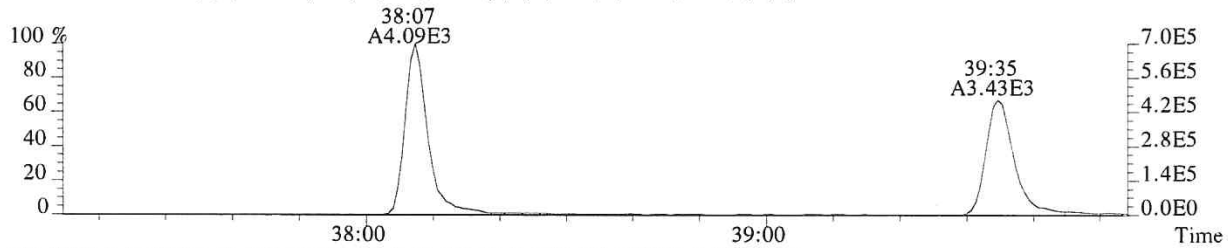
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,496.0,0.50%,F,T)



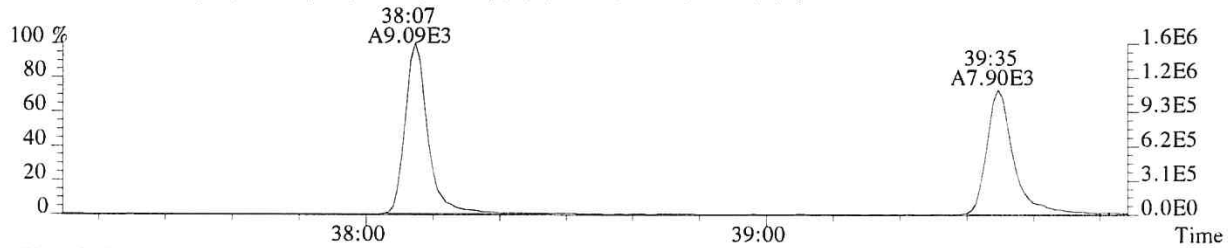
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,416.0,0.50%,F,T)



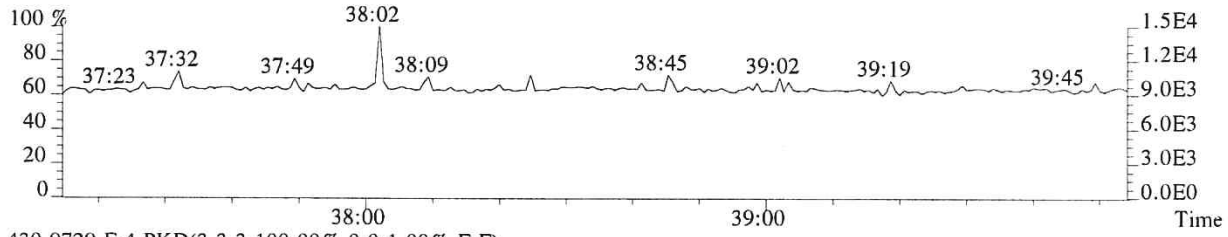
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,608.0,0.50%,F,T)



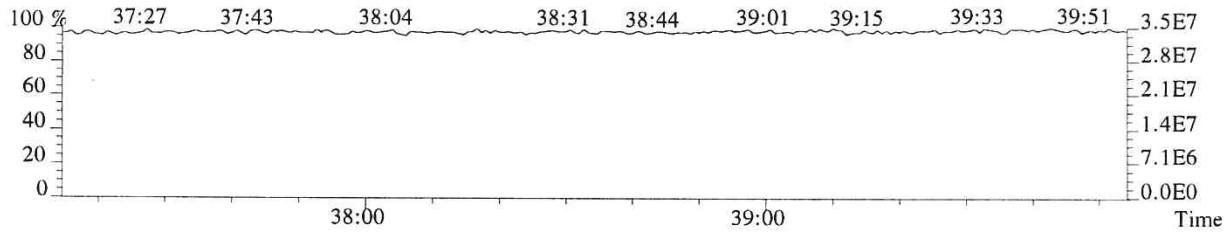
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2588.0,0.50%,F,T)



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

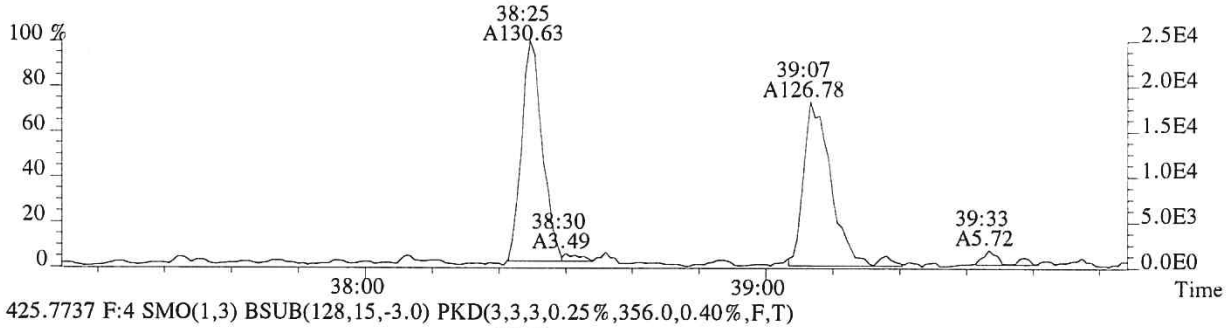


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

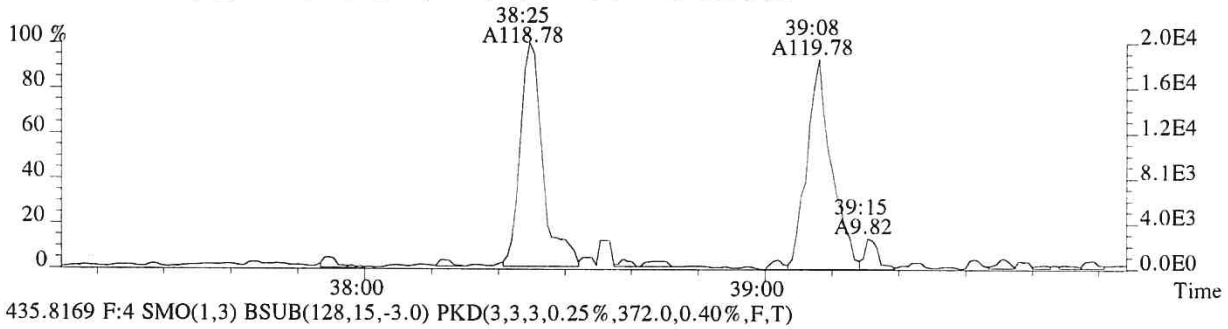


014186

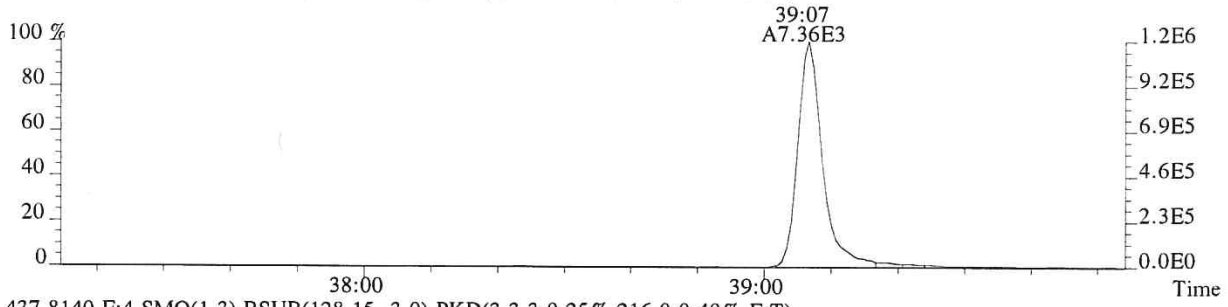
File:P519529 #1-240 Acq:20-DEC-2018 23:51:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-008DL
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,624.0,0.40%,F,T)



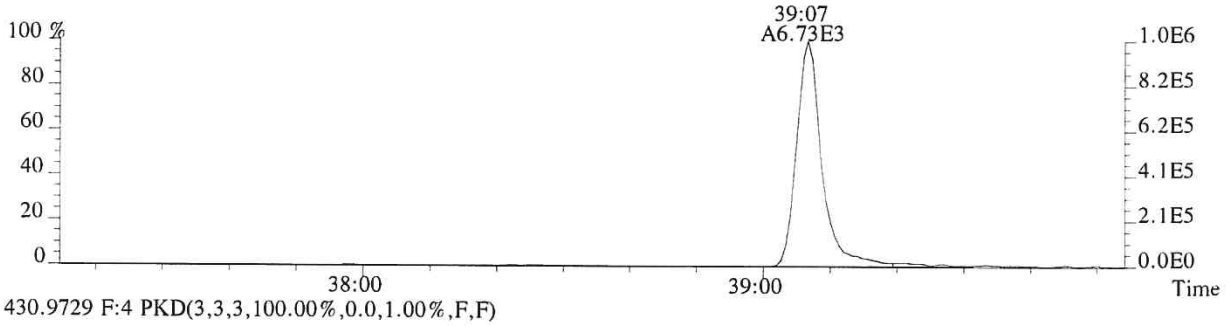
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,356.0,0.40%,F,T)



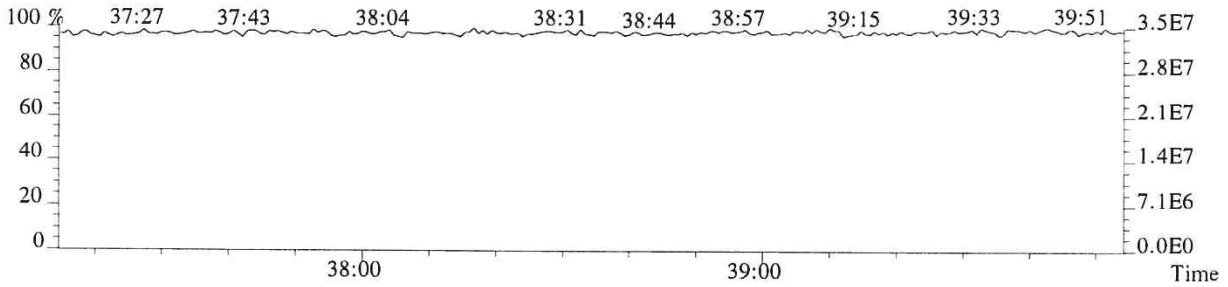
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,372.0,0.40%,F,T)



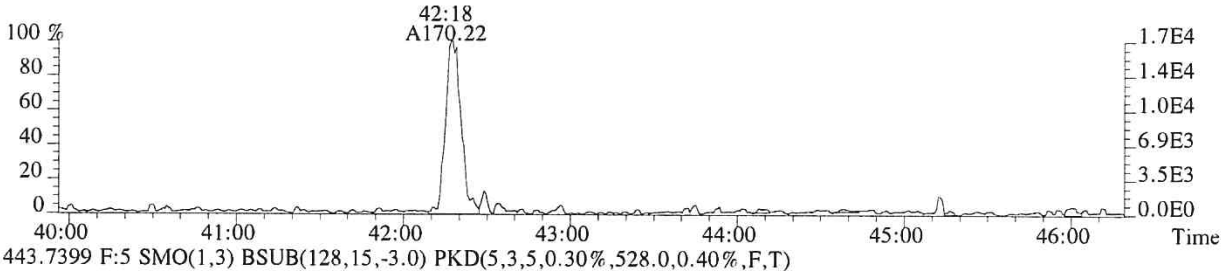
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,216.0,0.40%,F,T)



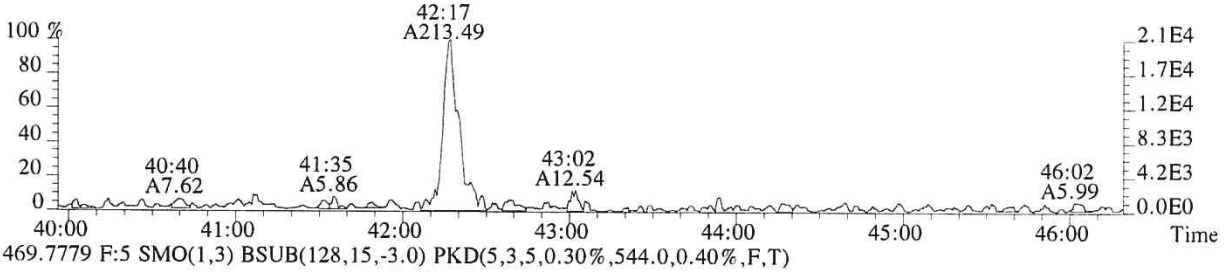
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



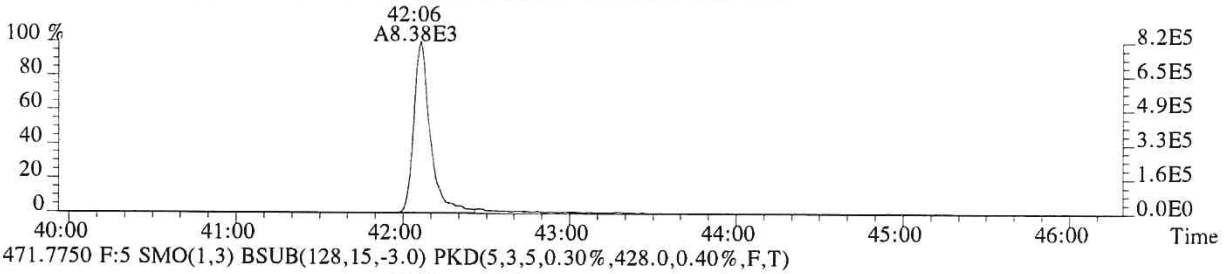
File:P519529 #1-575 Acq:20-DEC-2018 23:51:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-008DL
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,296.0,0.40%,F,T)



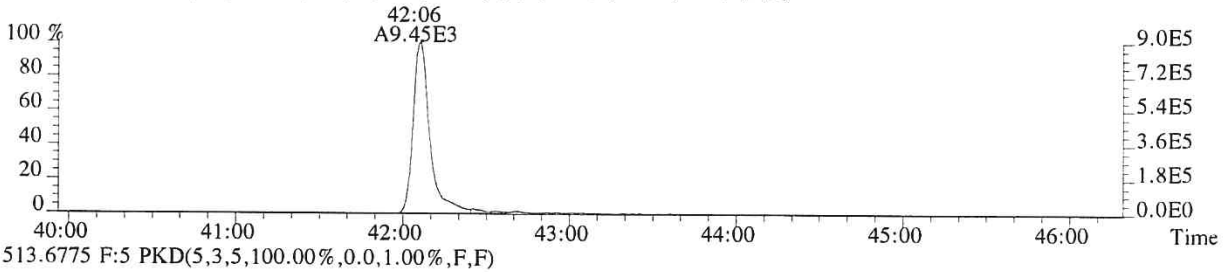
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,528.0,0.40%,F,T)



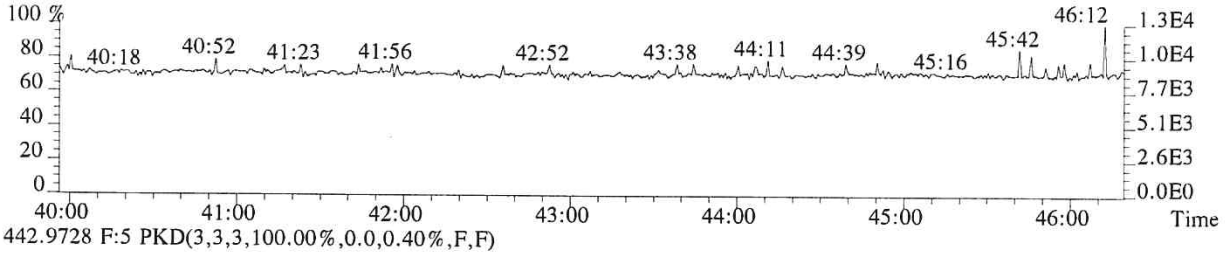
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,544.0,0.40%,F,T)



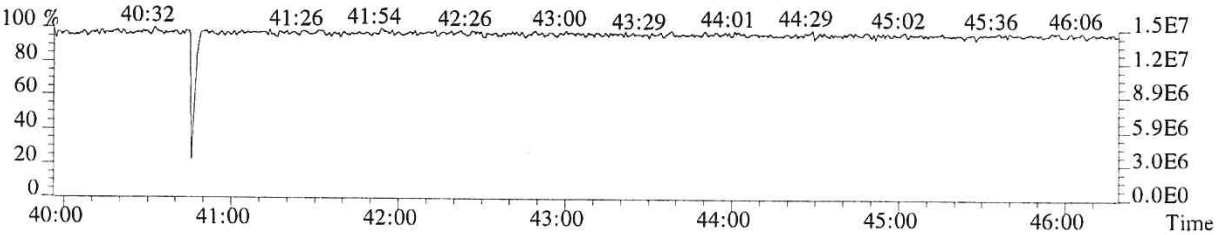
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,428.0,0.40%,F,T)



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

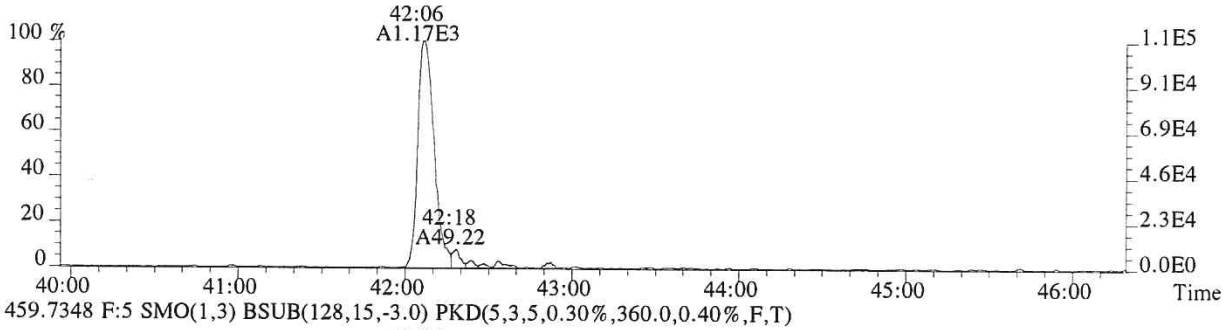


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

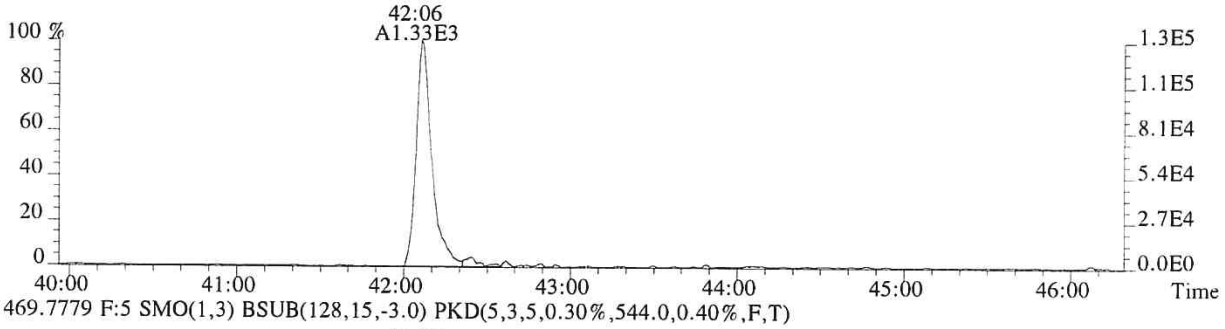


014188

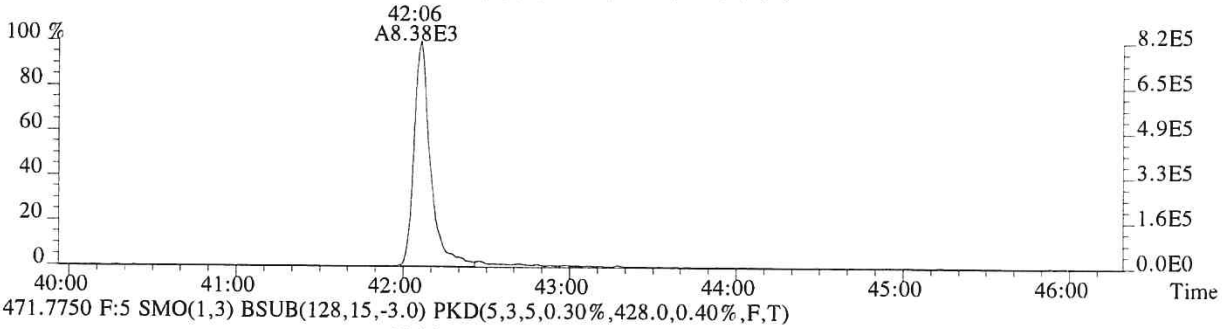
File:P519529 #1-575 Acq:20-DEC-2018 23:51:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-008DL
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,212.0,0.40%,F,T)



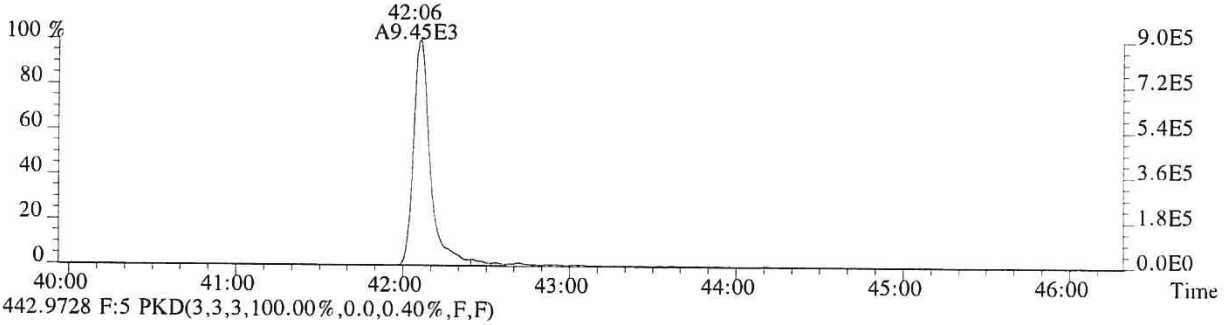
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,360.0,0.40%,F,T)



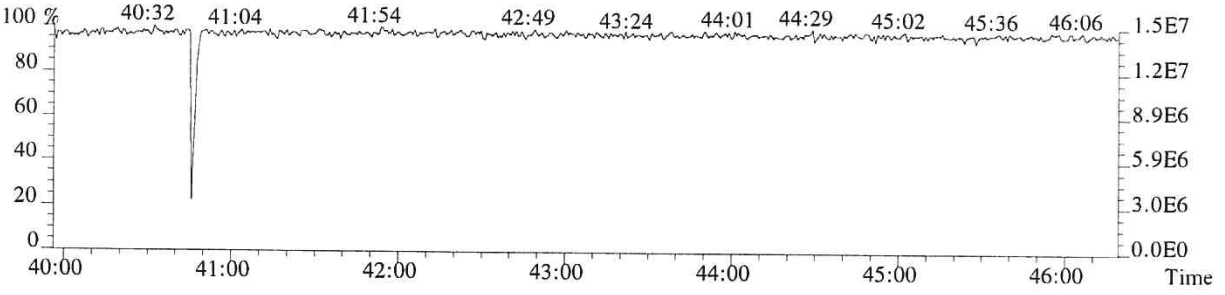
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,544.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,428.0,0.40%,F,T)



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



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0026

Run #19 Filename P519431 Samp: 1 Inj: 1 Acquired: 15-DEC-18 00:46:26
Processed: 17-DEC-18 15:31:57 Sample ID: E1801093-009

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:04	4.100e+05	5.299e+05	0.77	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	31:37	2.362e+04	1.534e+04	1.54	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	32:35	1.701e+04	1.136e+04	1.50	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:24	2.713e+04	2.303e+04	1.18	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:31	6.958e+03	5.965e+03	1.17	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:02	1.455e+03	1.234e+03	1.18	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	36:50	1.809e+03	1.534e+03	1.18	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:09	1.256e+04	1.246e+04	1.01	yes	yes	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:32	1.734e+03	1.811e+03	0.96	yes	no	1.258
10	Unk	OCDF	42:06	1.474e+05	1.653e+05	0.89	yes	no	1.359
11	Unk	2,3,7,8-TCDD	27:57	1.014e+05	1.288e+05	0.79	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	32:53	1.540e+03	8.644e+02	1.78	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:11	1.591e+02	1.301e+02	1.22	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:16	8.644e+02	7.265e+02	1.19	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:31	4.592e+02	3.500e+02	1.31	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:05	1.436e+04	1.345e+04	1.07	yes	no	1.025
17	Unk	OCDD	41:56	9.508e+04	1.063e+05	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:03	1.395e+04	1.780e+04	0.78	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	31:36	2.019e+04	1.288e+04	1.57	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	32:34	1.894e+04	1.166e+04	1.63	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:23	7.473e+03	1.399e+04	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:30	8.217e+03	1.553e+04	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:02	7.473e+03	1.435e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	36:48	6.650e+03	1.292e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:08	4.350e+03	1.011e+04	0.43	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:31	3.672e+03	8.111e+03	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	27:56	6.827e+03	8.060e+03	0.85	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:52	1.412e+04	9.002e+03	1.57	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:10	1.054e+04	8.302e+03	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:16	1.013e+04	7.835e+03	1.29	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:04	8.415e+03	7.900e+03	1.07	yes	no	0.858
32	IS	13C-OCDD	41:55	5.440e+03	5.853e+03	0.93	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:18	1.752e+04	2.233e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:30	1.985e+04	1.576e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:57	1.026e+04				no	1.014

$$OCDD = \frac{(9.508e+04 + 1.063e+05) \times 4000\ pg \times 1}{(5.440e+03 + 5.853e+03) \times 10.779\ g \times 51.9\ /\ 100 \times 1.118} = 10781\ ng/kg$$

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Houston, TX 77099
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kw 12/20/18

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0026

Run #19 Filename P519431 Samp: 1 Inj: 1 Acquired: 15-DEC-18 00:46:26
Processed: 17-DEC-18 15:31:57 LAB. ID: E1801093-009

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.73e+07	4.80e+03	1.2e+04	7.41e+07	4.70e+03	1.6e+04
2	1,2,3,7,8-PeCDF	4.06e+06	7.74e+03	5.2e+02	2.62e+06	2.70e+03	9.7e+02
3	2,3,4,7,8-PeCDF	2.75e+06	7.74e+03	3.6e+02	1.81e+06	2.70e+03	6.7e+02
4	1,2,3,4,7,8-HxCDF	5.53e+06	5.23e+03	1.1e+03	4.73e+06	3.85e+03	1.2e+03
5	1,2,3,6,7,8-HxCDF	1.30e+06	5.23e+03	2.5e+02	1.12e+06	3.85e+03	2.9e+02
6	2,3,4,6,7,8-HxCDF	2.80e+05	5.23e+03	5.4e+01	2.57e+05	3.85e+03	6.7e+01
7	1,2,3,7,8,9-HxCDF	3.83e+05	5.23e+03	7.3e+01	3.37e+05	3.85e+03	8.7e+01
8	1,2,3,4,6,7,8-HpCDF	2.61e+06	2.90e+03	9.0e+02	2.59e+06	1.60e+03	1.6e+03
9	1,2,3,4,7,8,9-HpCDF	3.64e+05	2.90e+03	1.3e+02	3.66e+05	1.60e+03	2.3e+02
10	OCDF	2.19e+07	5.72e+02	3.8e+04	2.46e+07	9.12e+02	2.7e+04
11	2,3,7,8-TCDD	1.77e+07	3.64e+03	4.9e+03	2.25e+07	3.48e+03	6.5e+03
12	1,2,3,7,8-PeCDD	2.46e+05	2.14e+03	1.1e+02	1.56e+05	3.10e+03	5.0e+01
13	1,2,3,4,7,8-HxCDD	3.62e+04	3.52e+03	1.0e+01	2.96e+04	4.12e+03	7.2e+00
14	1,2,3,6,7,8-HxCDD	1.79e+05	3.52e+03	5.1e+01	1.56e+05	4.12e+03	3.8e+01
15	1,2,3,7,8,9-HxCDD	8.42e+04	3.52e+03	2.4e+01	7.04e+04	4.12e+03	1.7e+01
16	1,2,3,4,6,7,8-HpCDD	2.76e+06	1.28e+03	2.2e+03	2.61e+06	2.58e+03	1.0e+03
17	OCDD	1.31e+07	1.70e+03	7.7e+03	1.47e+07	2.18e+03	6.7e+03
18	13C-2,3,7,8-TCDF	2.13e+06	5.56e+03	3.8e+02	2.70e+06	4.76e+03	5.7e+02
19	13C-1,2,3,7,8-PeCDF	3.42e+06	1.63e+04	2.1e+02	2.16e+06	1.39e+04	1.6e+02
20	13C-2,3,4,7,8-PeCDF	3.50e+06	1.63e+04	2.2e+02	2.19e+06	1.39e+04	1.6e+02
21	13C-1,2,3,4,7,8-HxCDF	1.58e+06	2.55e+03	6.2e+02	2.92e+06	1.08e+04	2.7e+02
22	13C-1,2,3,6,7,8-HxCDF	1.57e+06	2.55e+03	6.1e+02	3.10e+06	1.08e+04	2.9e+02
23	13C-2,3,4,6,7,8-HxCDF	1.56e+06	2.55e+03	6.1e+02	2.99e+06	1.08e+04	2.8e+02
24	13C-1,2,3,7,8,9-HxCDF	1.37e+06	2.55e+03	5.4e+02	2.54e+06	1.08e+04	2.4e+02
25	13C-1,2,3,4,6,7,8-HpCDF	9.16e+05	4.77e+03	1.9e+02	2.05e+06	5.56e+03	3.7e+02
26	13C-1,2,3,4,7,8,9-HpCDF	6.80e+05	4.77e+03	1.4e+02	1.52e+06	5.56e+03	2.7e+02
27	13C-2,3,7,8-TCDD	1.18e+06	9.96e+03	1.2e+02	1.42e+06	8.52e+03	1.7e+02
28	13C-1,2,3,7,8-PeCDD	2.53e+06	3.11e+03	8.1e+02	1.59e+06	1.96e+03	8.1e+02
29	13C-1,2,3,4,7,8-HxCDD	2.21e+06	1.20e+03	1.8e+03	1.74e+06	9.32e+02	1.9e+03
30	13C-1,2,3,6,7,8-HxCDD	2.02e+06	1.20e+03	1.7e+03	1.53e+06	9.32e+02	1.6e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.62e+06	1.18e+03	1.4e+03	1.52e+06	7.48e+02	2.0e+03
32	13C-OCDD	7.54e+05	1.31e+03	5.7e+02	8.07e+05	1.11e+03	7.3e+02
33	13C-1,2,3,4-TCDD	2.92e+06	9.96e+03	2.9e+02	3.74e+06	8.52e+03	4.4e+02
34	13C-1,2,3,7,8,9-HxCDD	3.98e+06	1.20e+03	3.3e+03	3.11e+06	9.32e+02	3.3e+03
35	37Cl-2,3,7,8-TCDD	1.81e+06	2.06e+03	8.8e+02			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0026

Entry: 36 Totals Name: Total Tetra-Furans

Run: 19 File: P519431 Sample:1 Injection:1 Function:1

Acquired: 15-DEC-18 00:46:26 Processed: 17-DEC-18 15:31:57

Mass: 303.9020 305.8990 Tot Response: 1.60e+06 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	23:52	3.57e+03	4.67e+03	0.76	yes	8.23e+03		n	n
2	24:11	1.83e+04	2.49e+04	0.74	yes	4.32e+04		n	n
3	24:34	5.88e+03	8.01e+03	0.73	yes	1.39e+04		n	n
4	24:42	5.88e+02	8.23e+02	0.71	yes	1.41e+03		n	n
5	24:52	1.54e+04	2.05e+04	0.75	yes	3.59e+04		n	n
6	25:16	3.00e+03	3.92e+03	0.77	yes	6.92e+03		n	n
7	25:32	1.15e+04	1.33e+04	0.86	yes	2.48e+04		n	n
8	25:39	1.65e+04	2.35e+04	0.70	yes	4.00e+04		n	n
9	26:09	1.76e+05	2.25e+05	0.78	yes	4.02e+05		n	n
10	26:25	8.74e+03	1.03e+04	0.85	yes	1.90e+04		n	n
11	27:04	4.10e+05	5.30e+05	0.77	yes	9.40e+05	2,3,7,8-TCDF	n	n
12	29:03	2.93e+04	3.79e+04	0.77	yes	6.72e+04		n	n

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Peak List Summary

CLIENT ID.
SL0026

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 19 File: P519431 Sample:1 Injection:1 Function:1

Acquired: 15-DEC-18 00:46:26 Processed: 17-DEC-18 15:31:57

Mass: 319.8970 321.8940 Tot Response: 2.56e+05 RRF: 1.085

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	27:39	1.41e+03	1.68e+03	0.84	yes	3.09e+03		n	n
2	27:57	1.01e+05	1.29e+05	0.79	yes	2.30e+05	2,3,7,8-TCDD	n	n
3	28:14	1.03e+04	1.27e+04	0.81	yes	2.30e+04		n	n

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Peak List Summary

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SL0026

Entry: 38 Totals Name: Total Penta-Furans1

Run: 19 File: P519431 Sample:1 Injection:1 Function:1

Acquired: 15-DEC-18 00:46:26 Processed: 17-DEC-18 15:31:57

Mass: 339.8600 341.8570 Tot Response: 5.69e+03 RRF: 0.9857

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:05	3.52e+03	2.14e+03	1.65	yes	5.65e+03		n	n
2	29:15	2.34e+01	1.57e+01	1.49	yes	3.92e+01		n	n

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CLIENT ID.
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Entry: 39 Totals Name: Total Penta-Furans2

Run: 19 File: P519431 Sample:1 Injection:1 Function:2

Acquired: 15-DEC-18 00:46:26 Processed: 17-DEC-18 15:31:57

Mass: 339.8600 341.8570 Tot Response: 1.07e+05 RRF: 0.9857

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:40	1.23e+04	8.08e+03	1.52	yes	2.04e+04		n	n
2	31:13	1.04e+03	7.48e+02	1.40	yes	1.79e+03		n	n
3	31:27	2.07e+03	1.49e+03	1.39	yes	3.57e+03		n	n
4	31:37	2.36e+04	1.53e+04	1.54	yes	3.90e+04	1,2,3,7,8-PeCDF	n	n
5	31:53	7.30e+03	4.80e+03	1.52	yes	1.21e+04		n	n
6	32:35	1.70e+04	1.14e+04	1.50	yes	2.84e+04	2,3,4,7,8-PeCDF	n	n
7	33:21	4.35e+01	3.26e+01	1.34	yes	7.61e+01		n	n
8	33:31	8.33e+02	5.24e+02	1.59	yes	1.36e+03		n	n

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Peak List Summary

CLIENT ID.
SL0026

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 19 File: P519431 Sample:1 Injection:1 Function:2

Acquired: 15-DEC-18 00:46:26 Processed: 17-DEC-18 15:31:57

Mass: 355.8550 357.8520 Tot Response: 4.33e+03 RRF: 0.9565

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:43	8.56e+02	5.28e+02	1.62	yes	1.38e+03		n	n
2	31:49	2.37e+02	1.33e+02	1.78	yes	3.70e+02		n	n
3	32:27	1.08e+02	6.67e+01	1.62	yes	1.75e+02		n	n
4	32:53	1.54e+03	8.64e+02	1.78	yes	2.40e+03	1,2,3,7,8-PeCDD	n	n

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Peak List Summary

CLIENT ID.
SL0026

Entry: 41 Totals Name: Total Hexa-Furans

Run: 19 File: P519431 Sample:1 Injection:1 Function:3

Acquired: 15-DEC-18 00:46:26 Processed: 17-DEC-18 15:31:57

Mass: 373.8210 375.8180 Tot Response: 8.75e+04 RRF: 1.141

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:15	9.48e+02	8.68e+02	1.09	yes	1.82e+03		n	n
2	34:25	4.53e+03	3.85e+03	1.18	yes	8.38e+03		n	n
3	34:46	1.48e+02	1.40e+02	1.06	yes	2.88e+02		n	n
4	34:56	3.99e+03	3.34e+03	1.20	yes	7.33e+03		n	n
5	35:24	2.71e+04	2.30e+04	1.18	yes	5.02e+04	1,2,3,4,7,8-HxCDF	n	n
6	35:31	6.96e+03	5.96e+03	1.17	yes	1.29e+04	1,2,3,6,7,8-HxCDF	n	n
7	35:45	3.19e+02	2.36e+02	1.35	yes	5.55e+02		n	n
8	36:02	1.45e+03	1.23e+03	1.18	yes	2.69e+03	2,3,4,6,7,8-HxCDF	n	n
9	36:50	1.81e+03	1.53e+03	1.18	yes	3.34e+03	1,2,3,7,8,9-HxCDF	n	n

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Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 19 File: P519431 Sample:1 Injection:1 Function:3

Acquired: 15-DEC-18 00:46:26 Processed: 17-DEC-18 15:31:57

Mass: 389.8160 391.8130 Tot Response: 1.57e+04 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:48	3.85e+03	3.12e+03	1.23	yes	6.97e+03		n	n
2	35:20	5.62e+02	4.65e+02	1.21	yes	1.03e+03		n	n
3	35:34	2.97e+03	2.23e+03	1.33	yes	5.20e+03		n	n
4	35:40	2.25e+02	2.03e+02	1.10	yes	4.28e+02		n	n
5	36:11	1.59e+02	1.30e+02	1.22	yes	2.89e+02	1,2,3,4,7,8-HxCDD	n	n
6	36:16	8.64e+02	7.26e+02	1.19	yes	1.59e+03	1,2,3,6,7,8-HxCDD	n	n
7	36:26	1.10e+02	8.08e+01	1.36	yes	1.90e+02		n	n

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Entry: 43 Totals Name: Total Hepta-Furans

Run: 19 File: P519431 Sample:1 Injection:1 Function:4

Acquired: 15-DEC-18 00:46:26 Processed: 17-DEC-18 15:31:57

Mass: 407.7820 409.7790 Tot Response: 4.76e+04 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:09	1.26e+04	1.25e+04	1.01	yes	2.50e+04	1,2,3,4,6,7,8-HpCDF	n	y
2	38:25	5.84e+02	5.73e+02	1.02	yes	1.16e+03		n	n
3	38:33	8.90e+03	8.95e+03	0.99	yes	1.79e+04		n	n
4	39:32	1.73e+03	1.81e+03	0.96	yes	3.55e+03	1,2,3,4,7,8,9-HpCDF	n	n

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SL0026

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 19 File: P519431 Sample:1 Injection:1 Function:4

Acquired: 15-DEC-18 00:46:26 Processed: 17-DEC-18 15:31:57

Mass: 423.7770 425.7740 Tot Response: 6.54e+04 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:25	1.91e+04	1.04	yes	3.76e+04		n	n
2	39:05	1.44e+04	1.07	yes	2.78e+04	1,2,3,4,6,7,8-HpCDD	n	n

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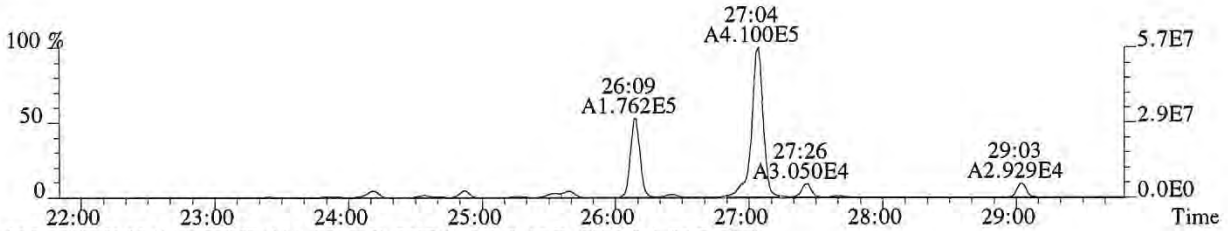
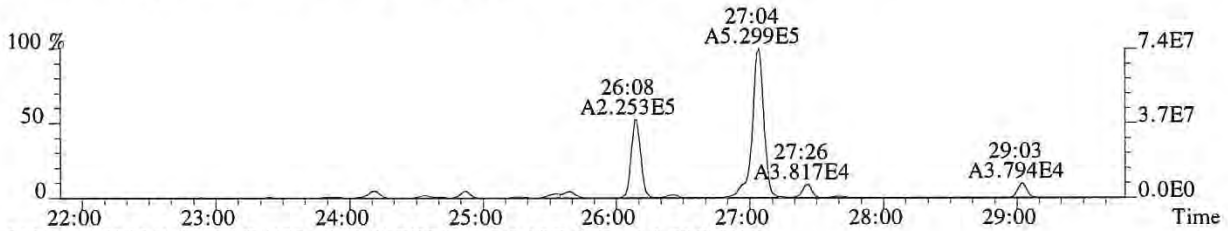
File:P519431 #1-566 Acq:15-DEC-2018 00:46:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-009

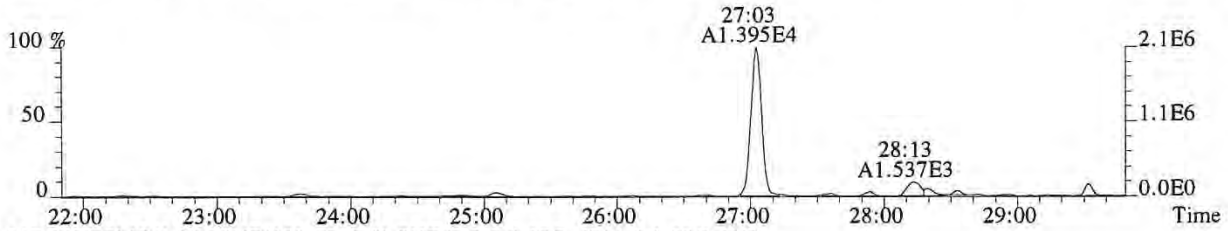
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4804.0,1.00%,F,T)



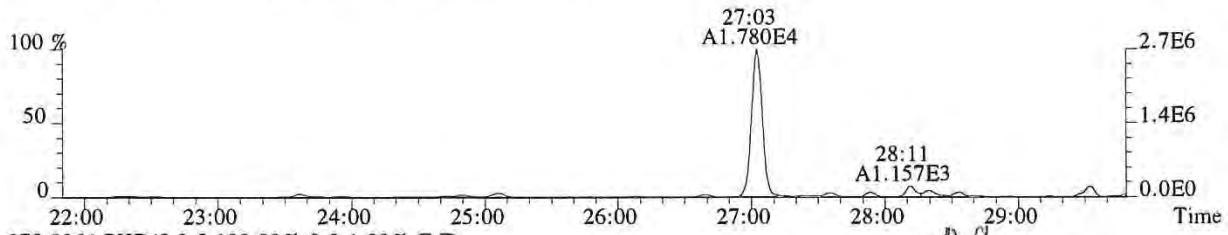
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4696.0,1.00%,F,T)



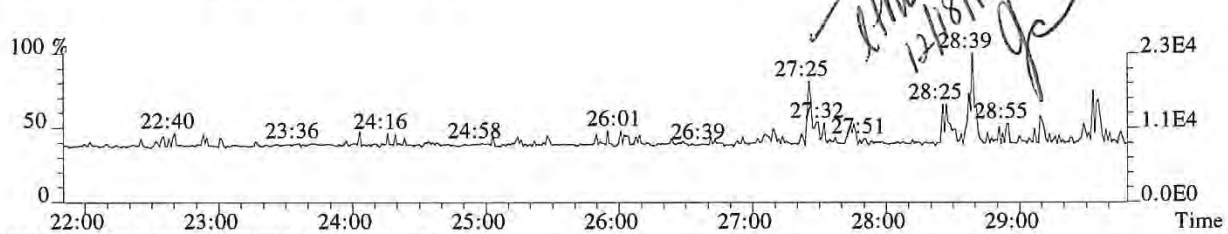
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5556.0,1.00%,F,T)



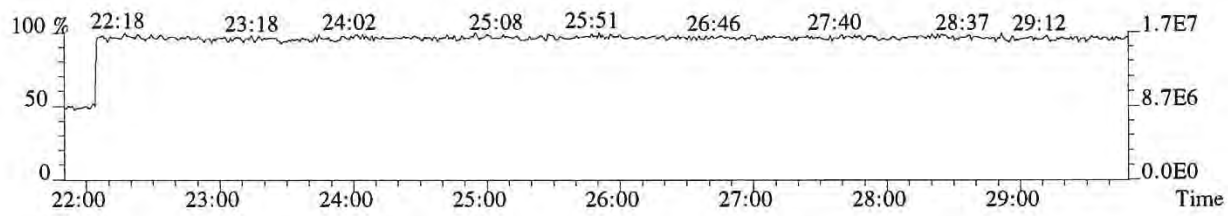
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4764.0,1.00%,F,T)



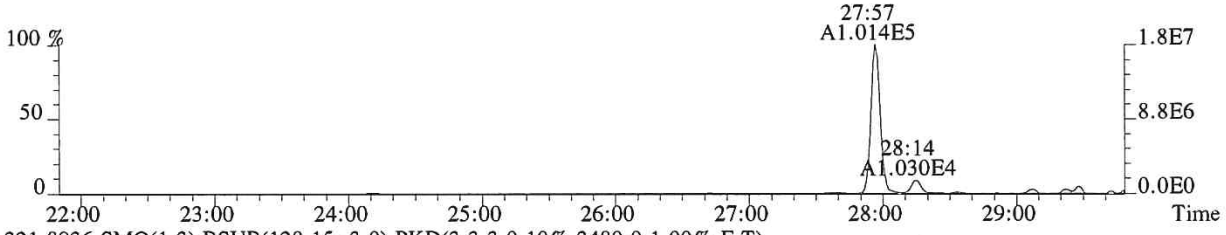
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



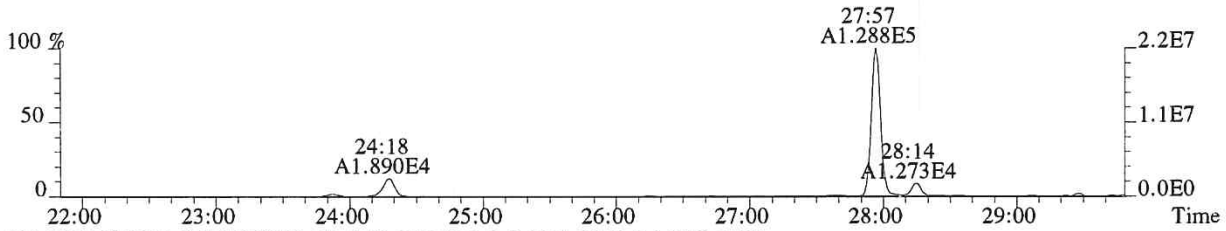
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



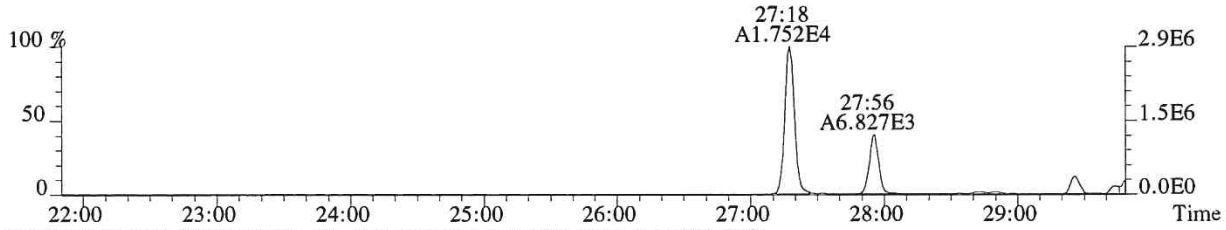
File:P519431 #1-566 Acq:15-DEC-2018 00:46:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-009
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3640.0,1.00%,F,T)



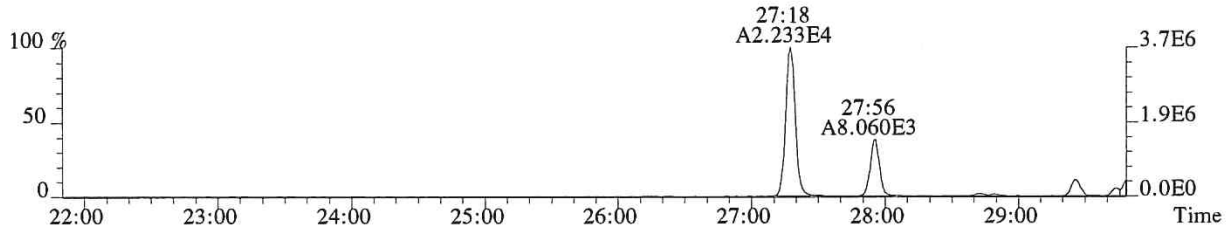
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3480.0,1.00%,F,T)



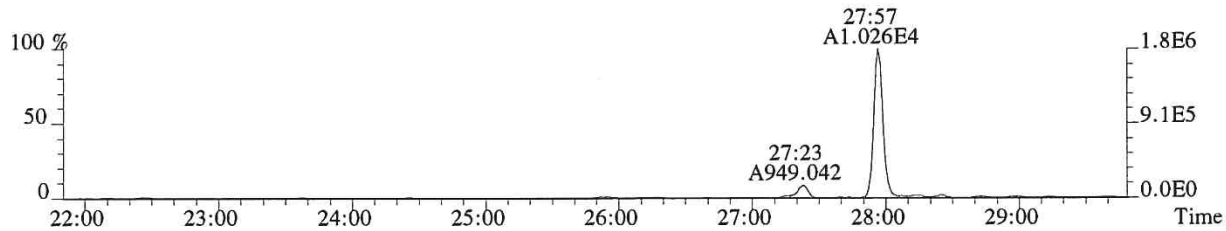
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9956.0,1.00%,F,T)



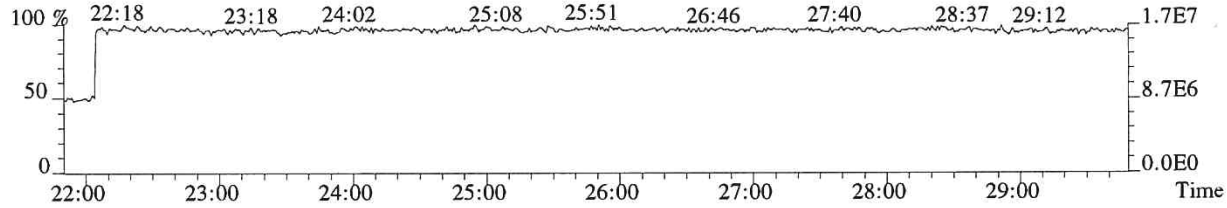
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8516.0,1.00%,F,T)



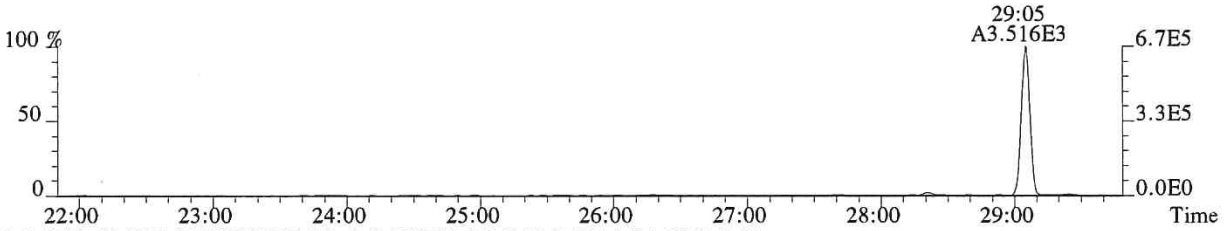
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2060.0,1.00%,F,T)



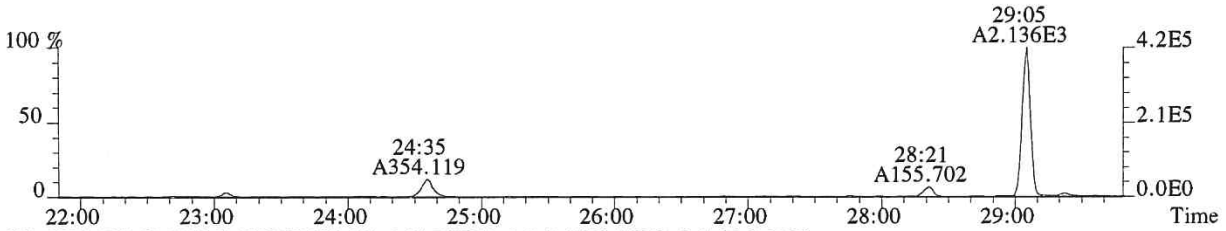
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



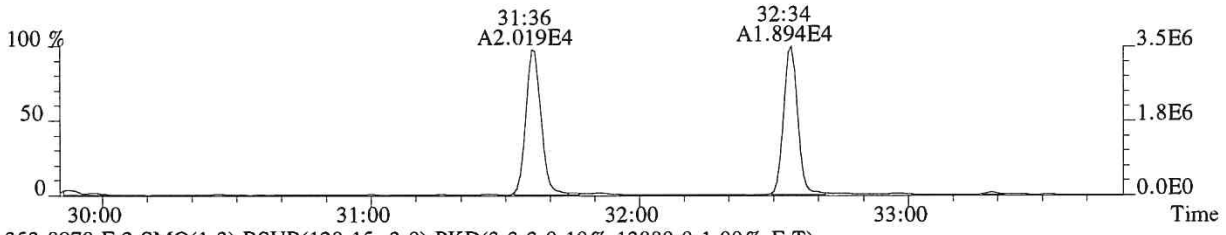
File:P519431 #1-566 Acq:15-DEC-2018 00:46:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-009
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1360.0,1.00%,F,T)



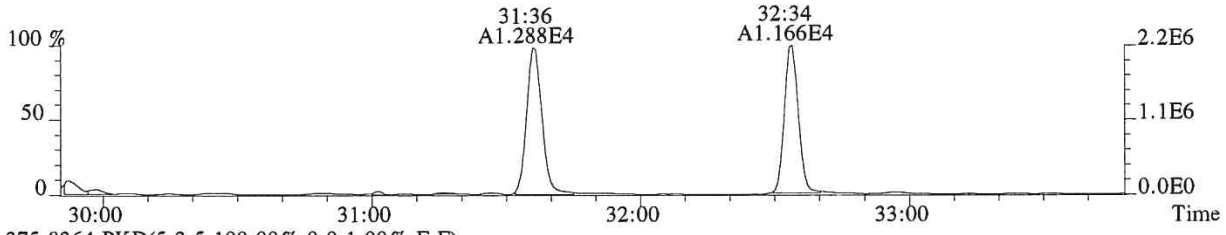
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1244.0,1.00%,F,T)



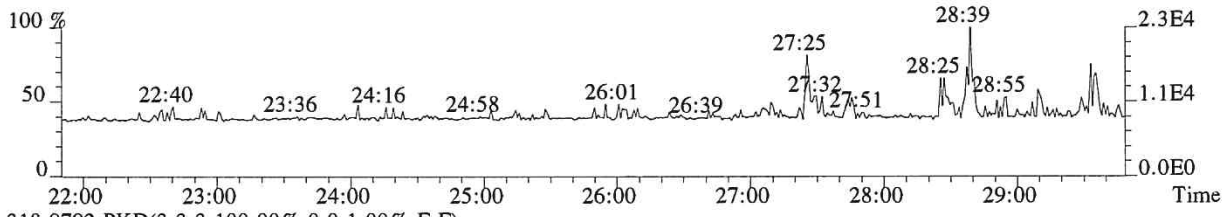
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,16264.0,1.00%,F,T)



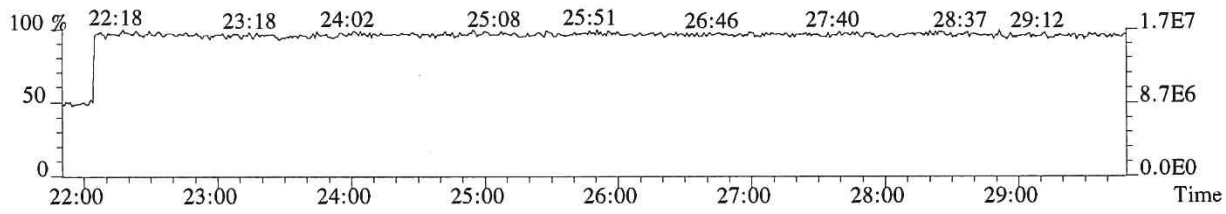
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,13880.0,1.00%,F,T)



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

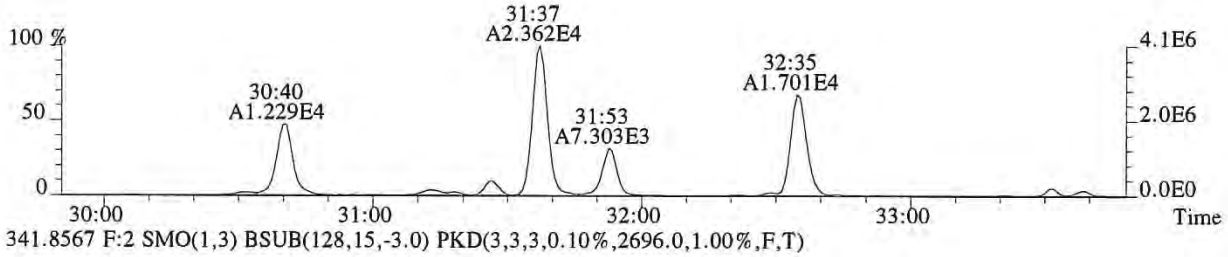


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

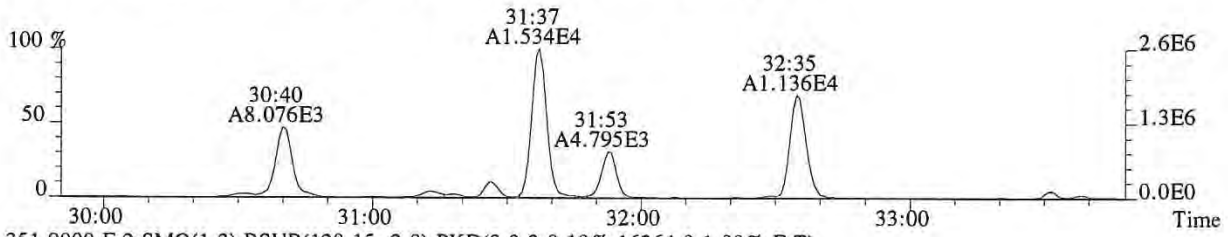


014203

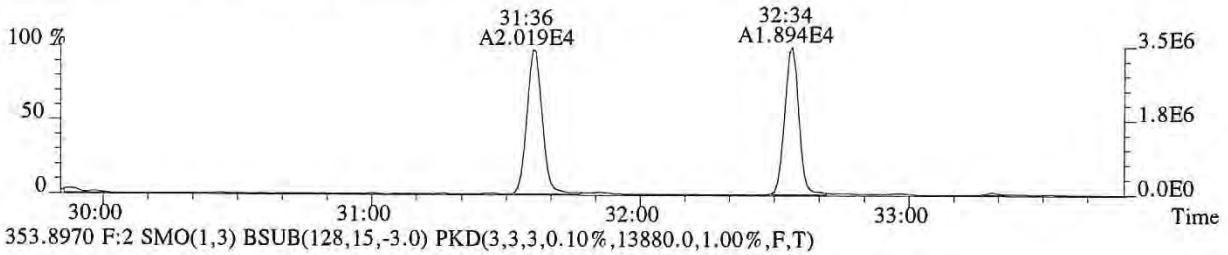
File:P519431 #1-357 Acq:15-DEC-2018 00:46:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-009
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7740.0,1.00%,F,T)



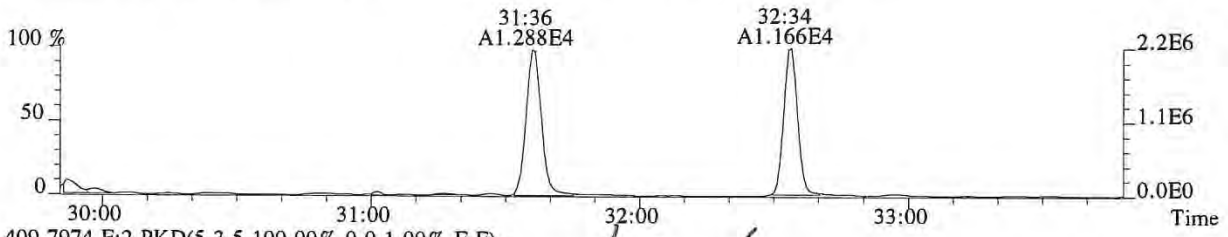
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2696.0,1.00%,F,T)



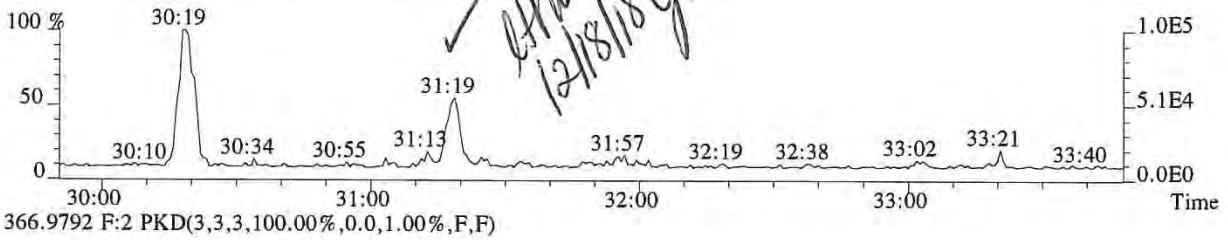
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,16264.0,1.00%,F,T)



353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,13880.0,1.00%,F,T)

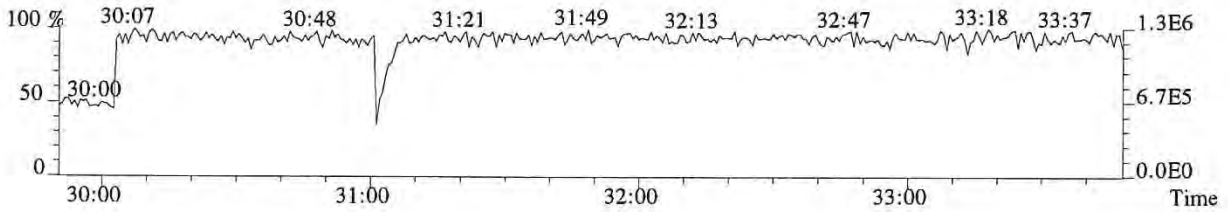


409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

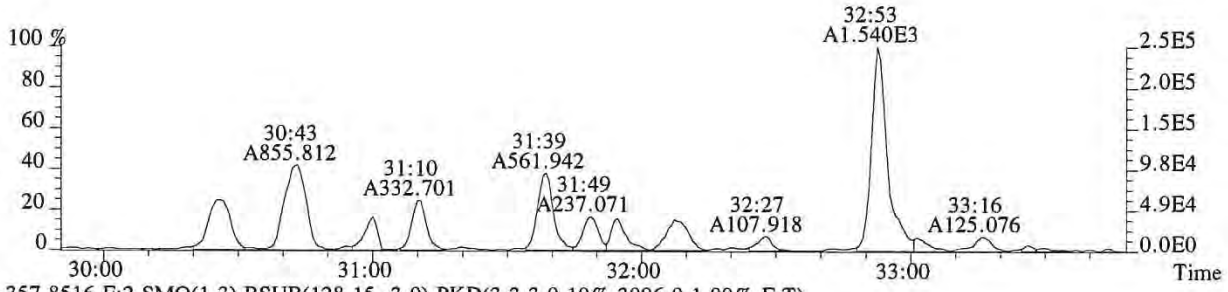


12/18/18 gc

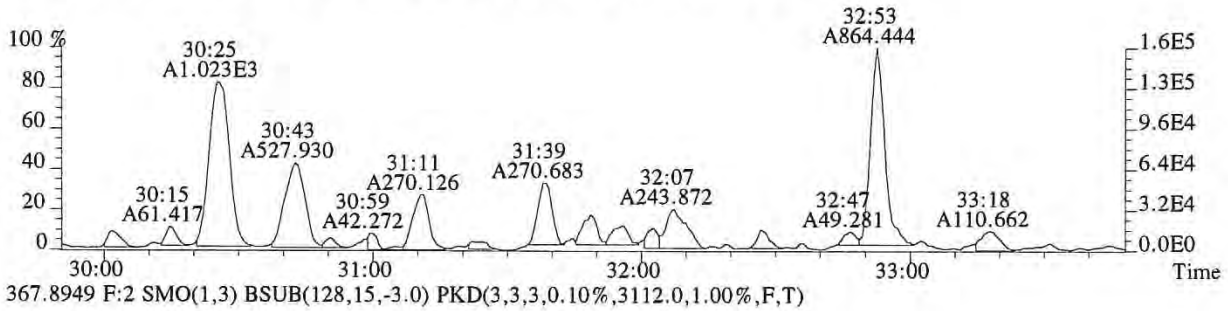
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



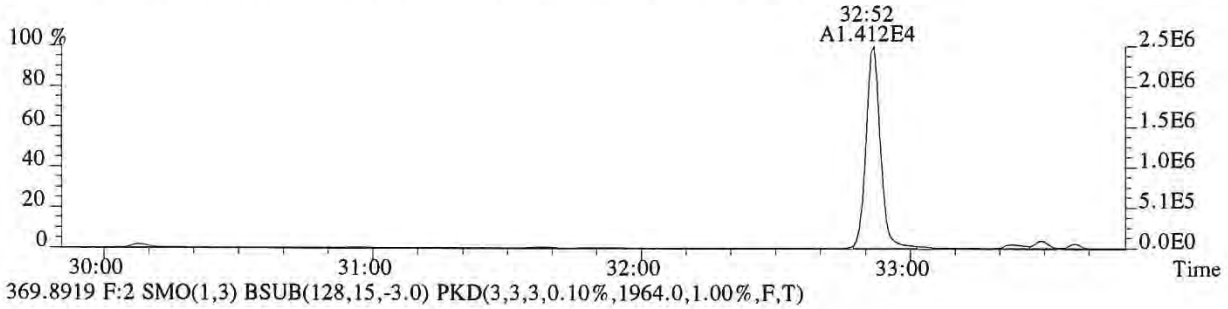
File:P519431 #1-357 Acq:15-DEC-2018 00:46:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-009
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2144.0,1.00%,F,T)



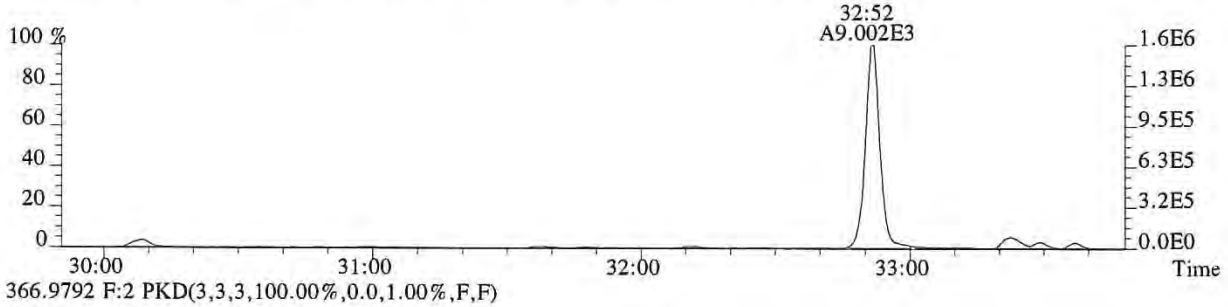
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3096.0,1.00%,F,T)



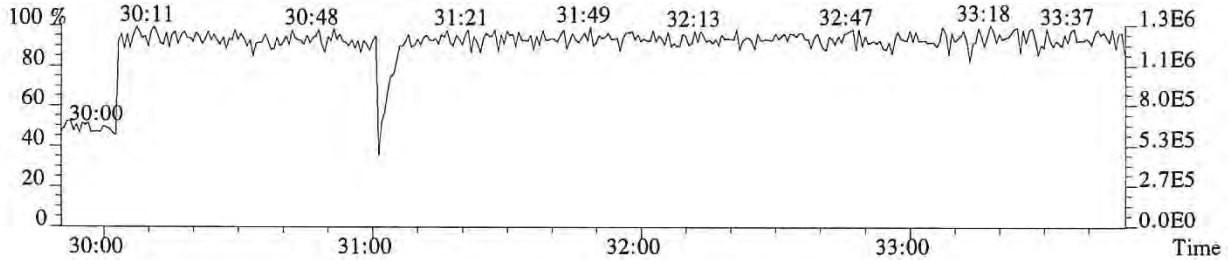
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3112.0,1.00%,F,T)



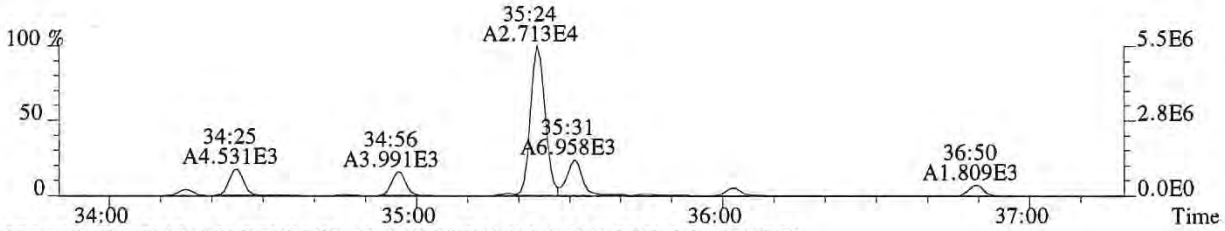
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1964.0,1.00%,F,T)



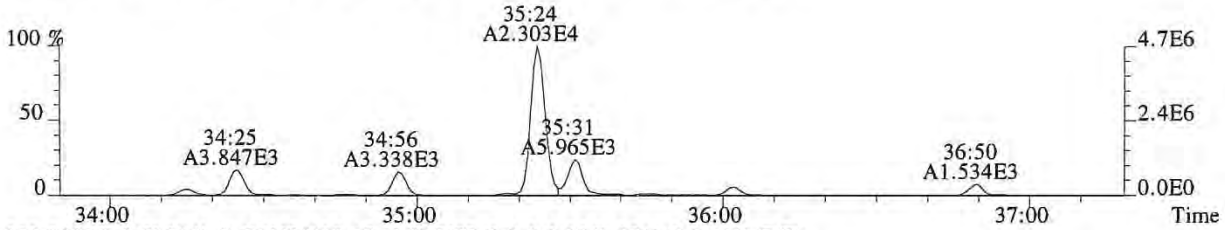
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



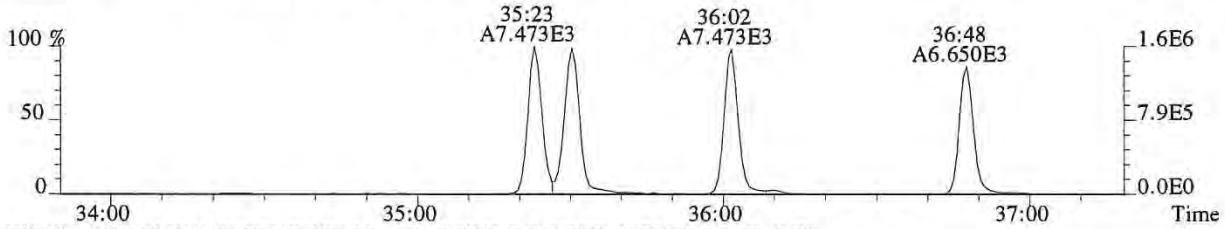
File:P519431 #1-313 Acq:15-DEC-2018 00:46:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-009
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5228.0,0.40%,F,T)



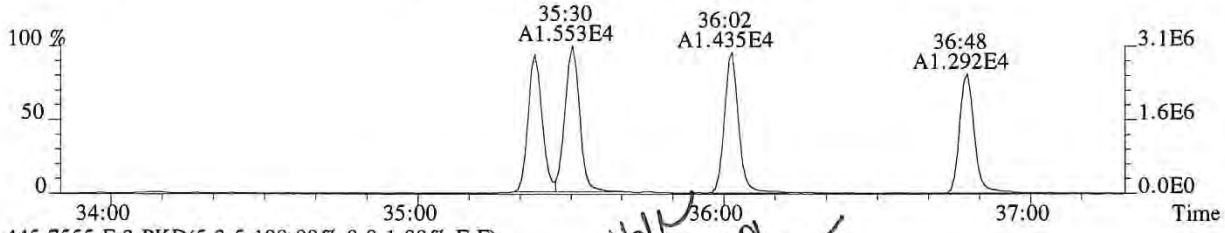
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3852.0,0.40%,F,T)



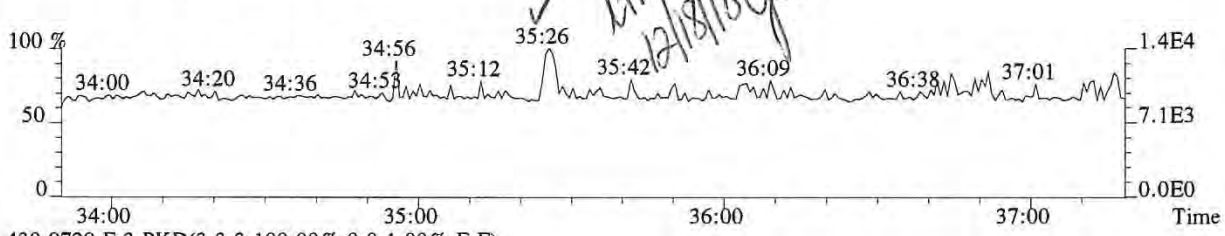
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2548.0,0.40%,F,T)



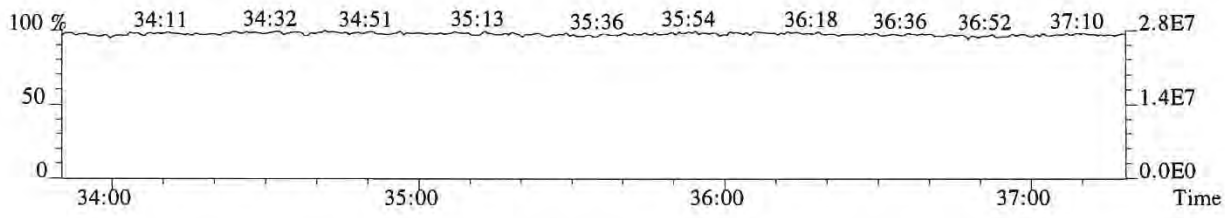
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,10768.0,0.40%,F,T)



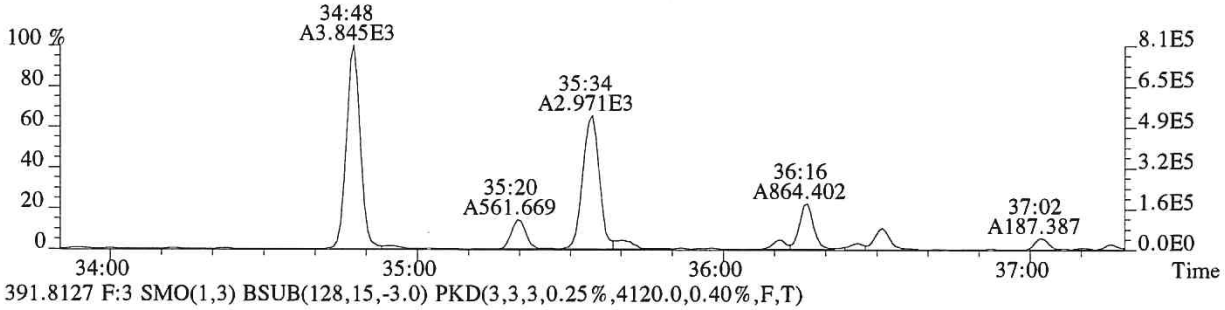
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



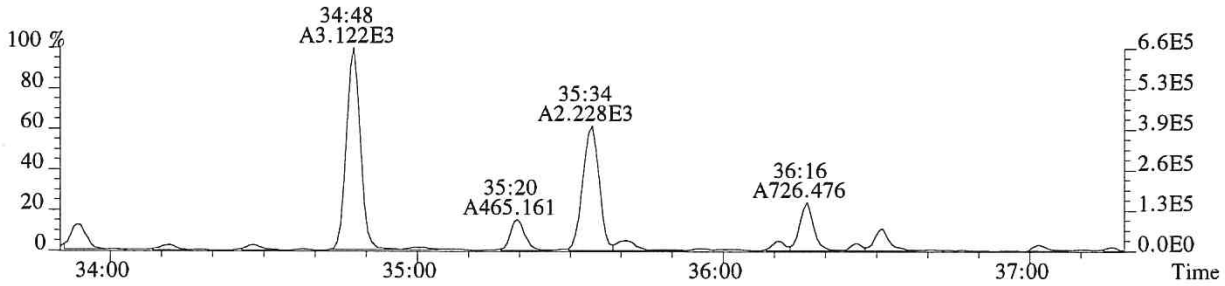
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



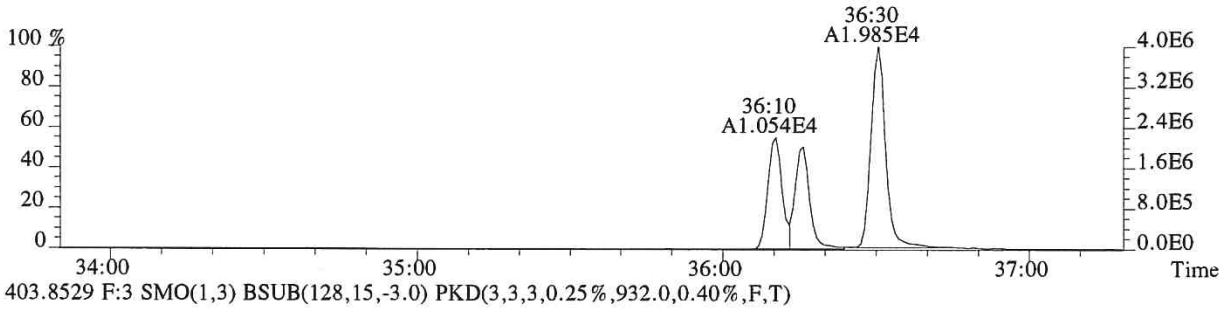
File:P519431 #1-313 Acq:15-DEC-2018 00:46:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-009
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3524.0,0.40%,F,T)



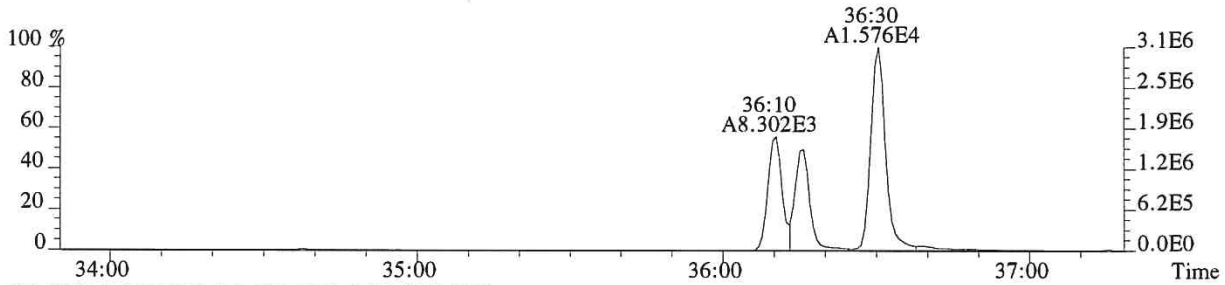
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4120.0,0.40%,F,T)



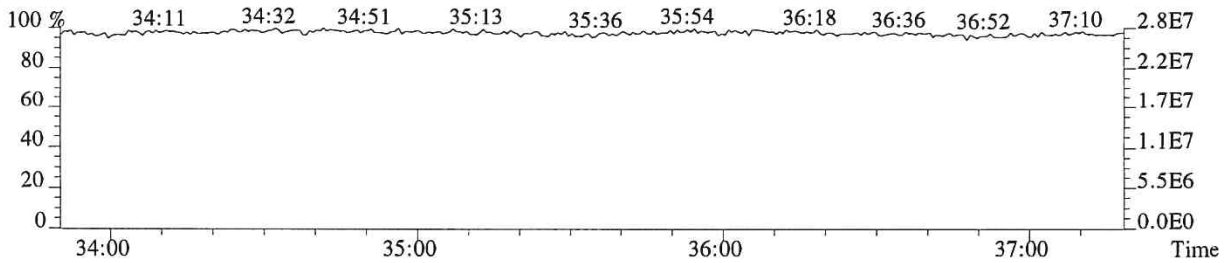
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1196.0,0.40%,F,T)



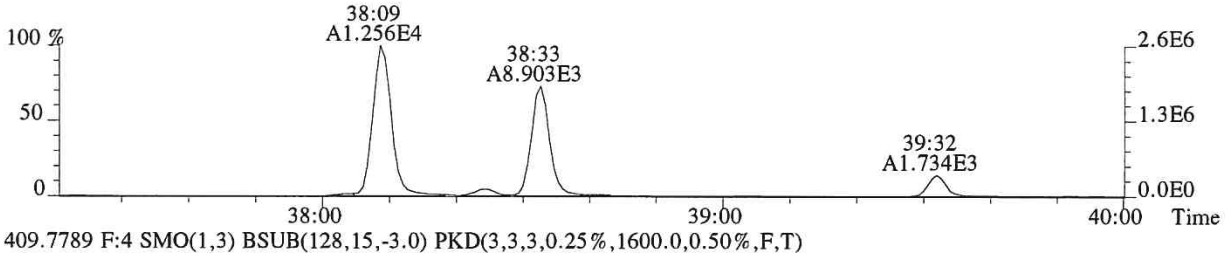
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,932.0,0.40%,F,T)



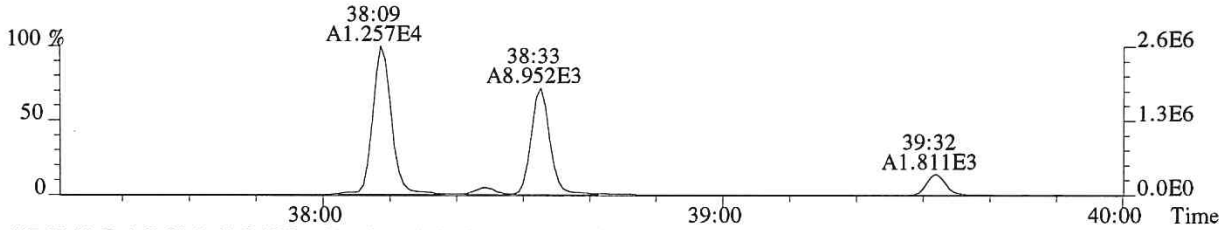
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



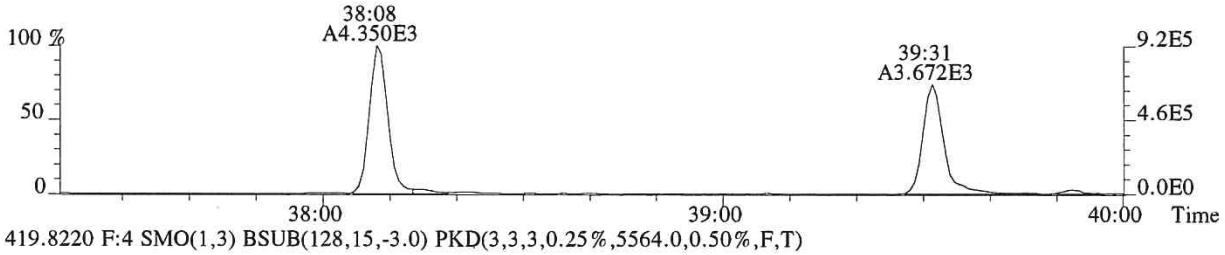
File:P519431 #1-240 Acq:15-DEC-2018 00:46:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-009
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2896.0,0.50%,F,T)



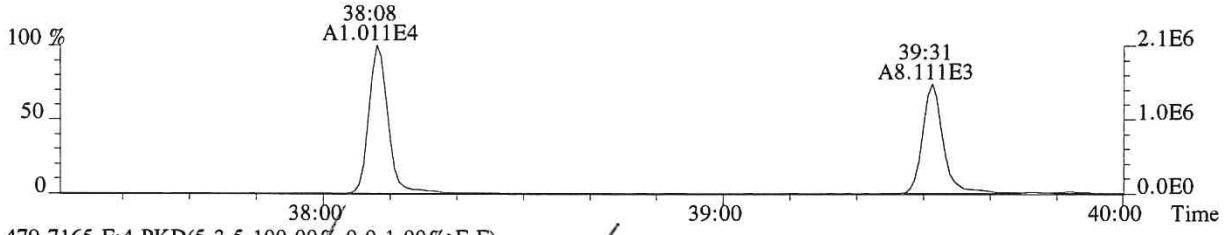
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1600.0,0.50%,F,T)



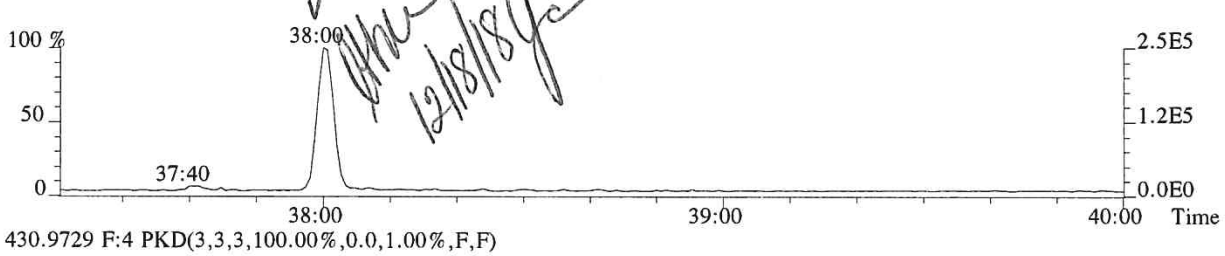
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4768.0,0.50%,F,T)



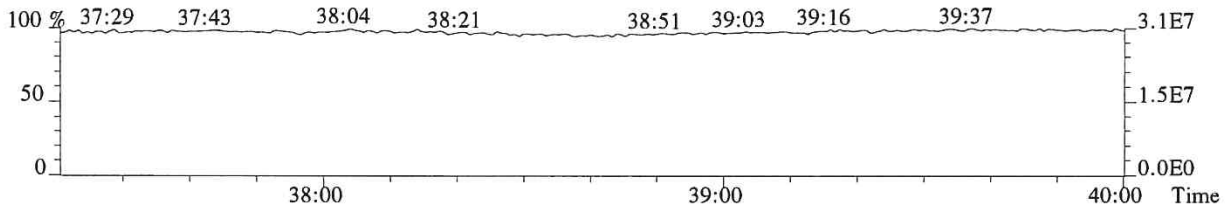
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5564.0,0.50%,F,T)



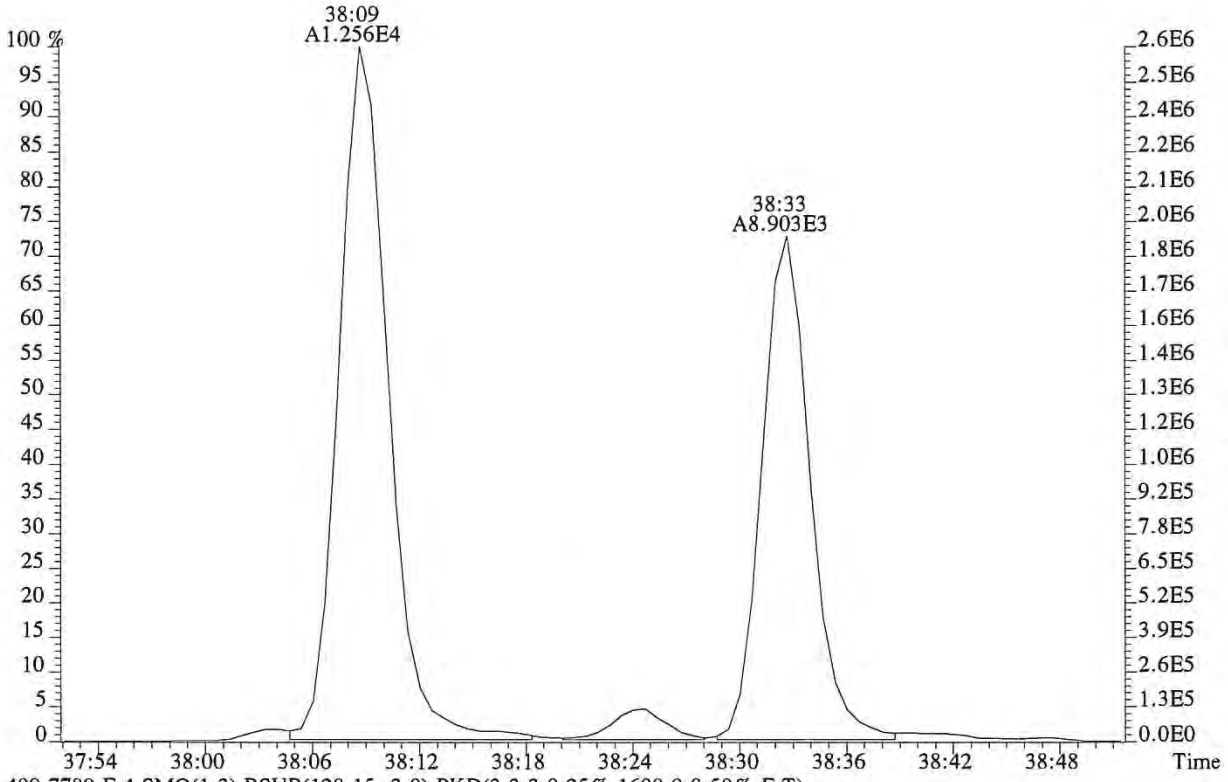
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



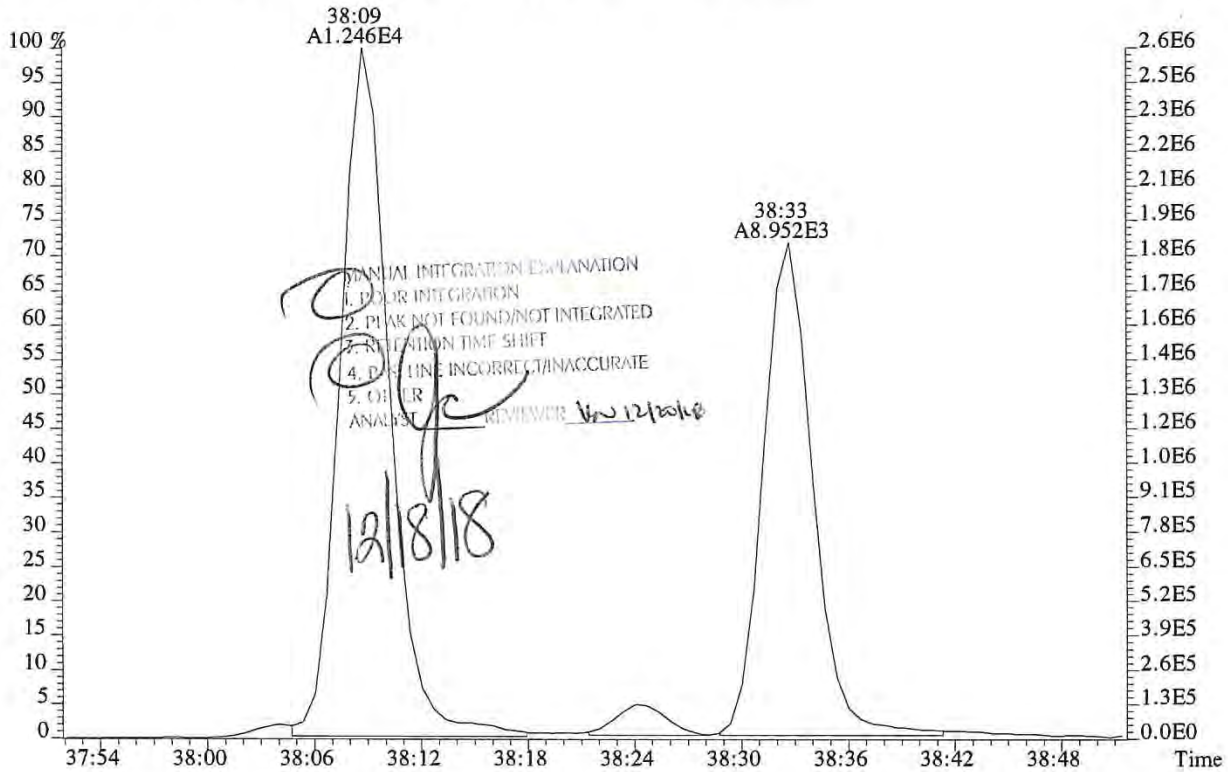
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P519431 #1-240 Acq:15-DEC-2018 00:46:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-009
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2896.0,0.50%,F,T)

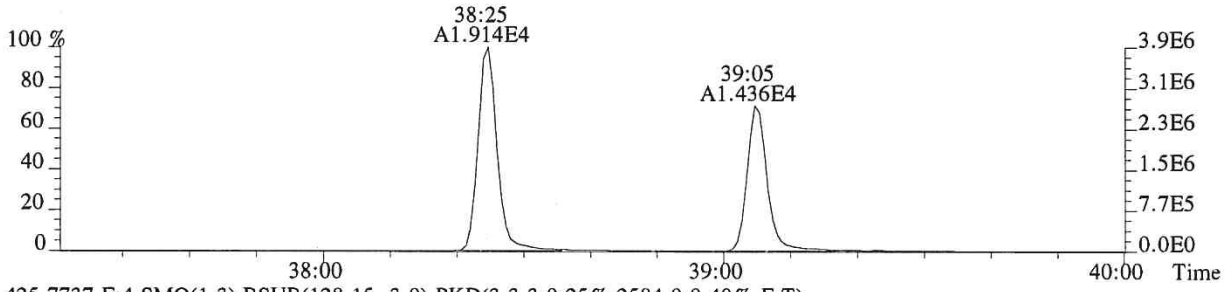


409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1600.0,0.50%,F,T)

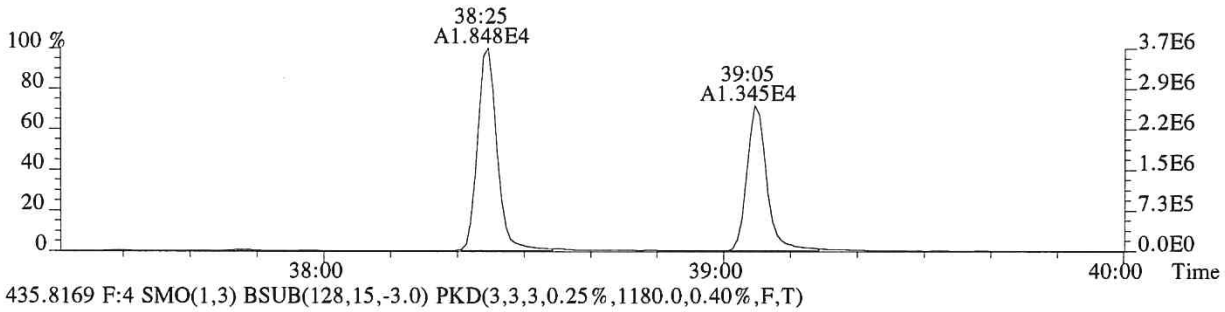


MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST REVIEWER 12/20/18
12/18/18

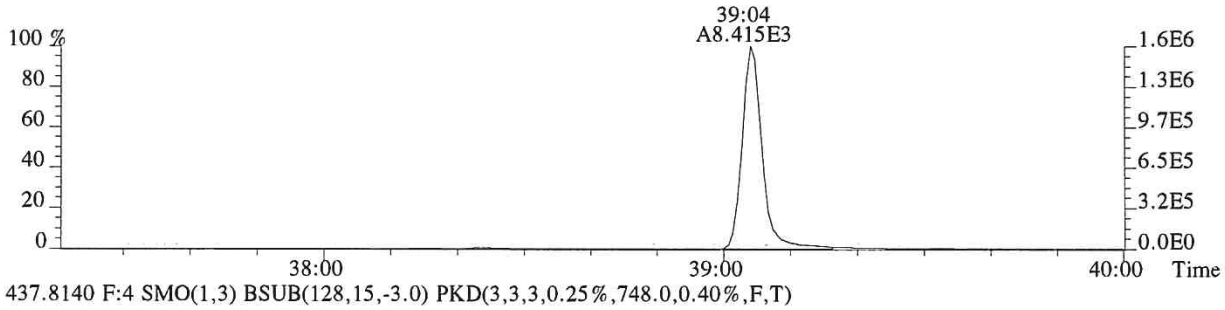
File:P519431 #1-240 Acq:15-DEC-2018 00:46:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-009
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1280.0,0.40%,F,T)



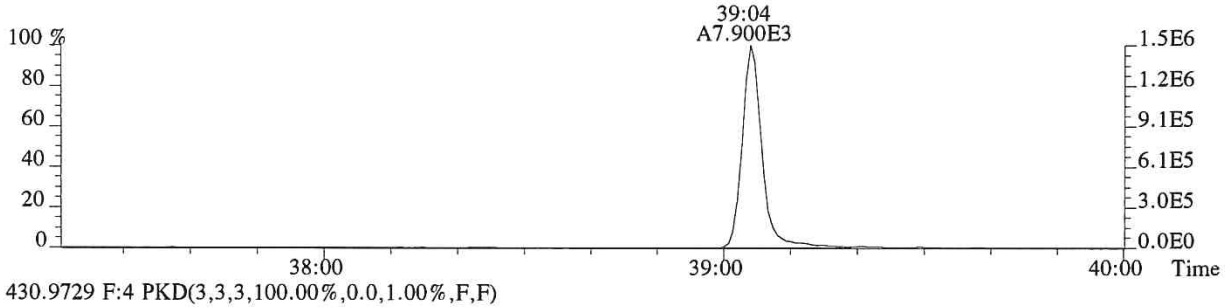
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2584.0,0.40%,F,T)



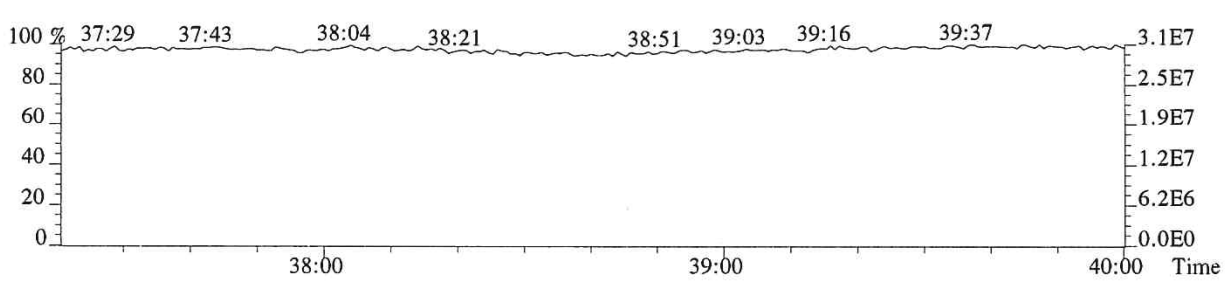
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1180.0,0.40%,F,T)



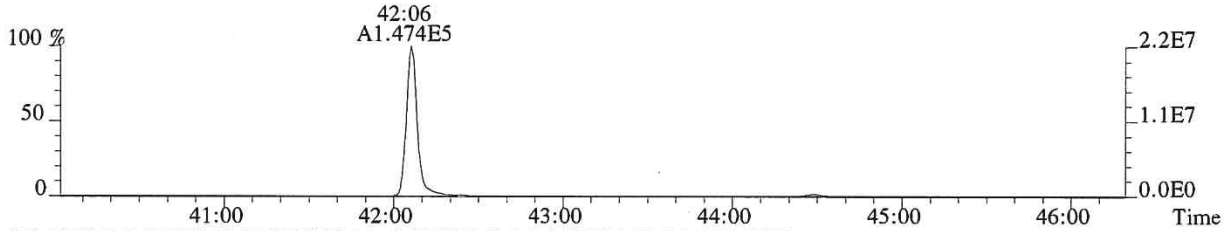
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,748.0,0.40%,F,T)



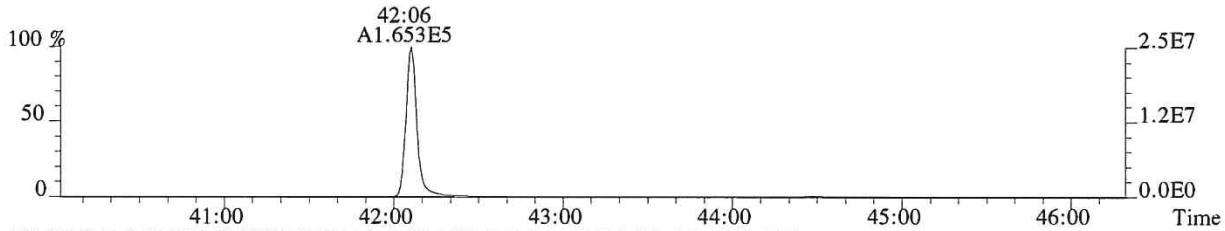
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



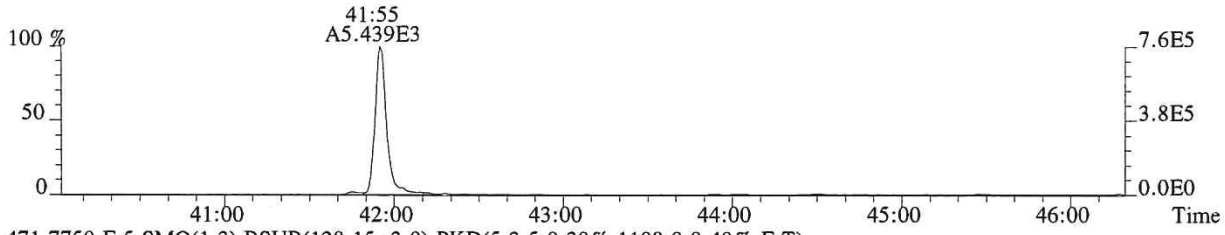
File:P519431 #1-566 Acq:15-DEC-2018 00:46:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-009
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,572.0,0.40%,F,T)



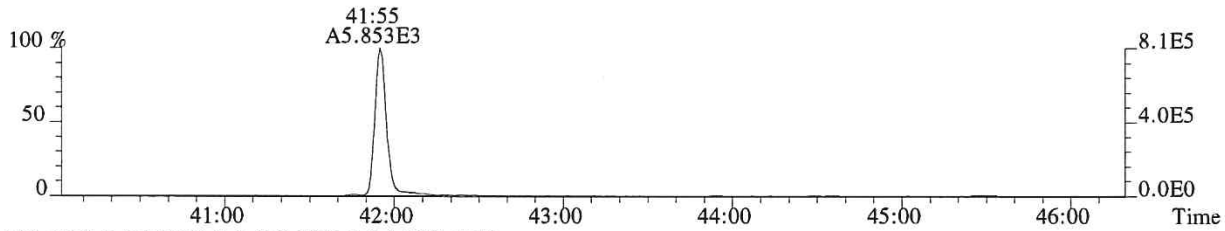
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,912.0,0.40%,F,T)



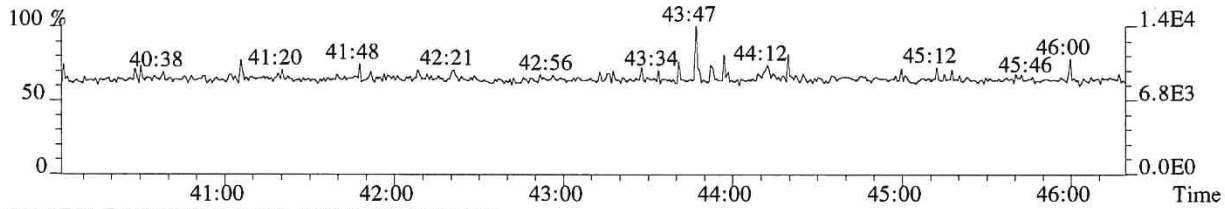
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1312.0,0.40%,F,T)



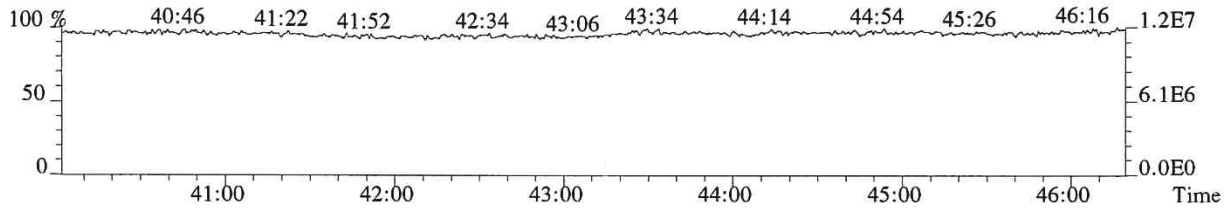
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1108.0,0.40%,F,T)



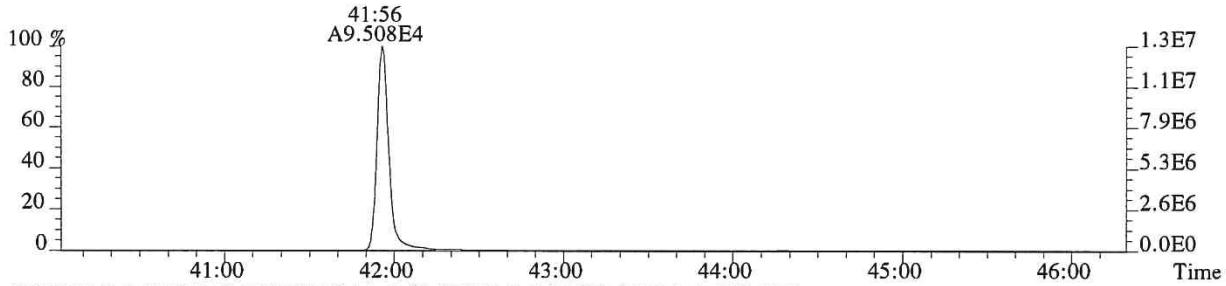
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



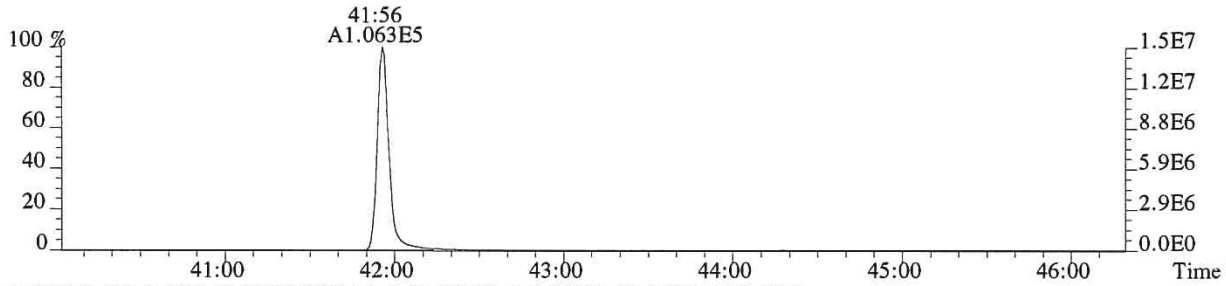
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



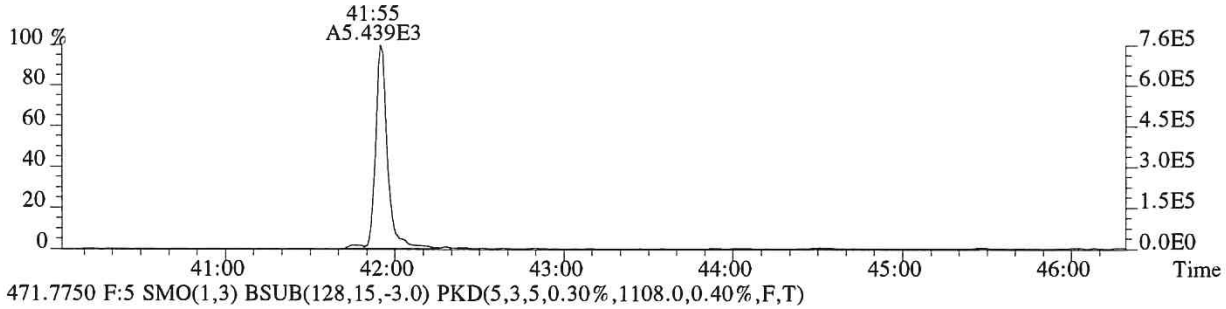
File:P519431 #1-566 Acq:15-DEC-2018 00:46:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-009
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1700.0,0.40%,F,T)



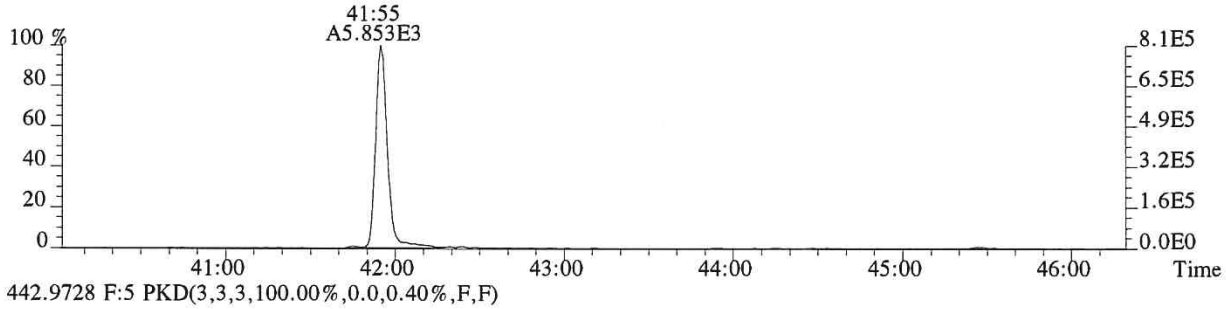
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2180.0,0.40%,F,T)



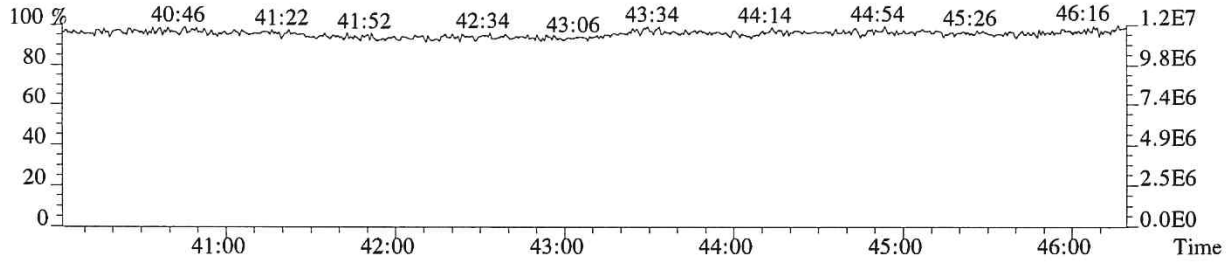
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1312.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1108.0,0.40%,F,T)



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



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Sample Response Summary

CLIENT ID.
SL0026

Run #18 Filename P519530 Samp: 1 Inj: 1 Acquired: 21-DEC-18 00:39:51
Processed: 21-DEC-18 10:25:36 Sample ID: E1801093-009DL

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:49	3.460e+03	4.485e+03	0.77	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	31:27	2.441e+02	1.652e+02	1.48	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	32:27	1.995e+02	1.079e+02	1.85	no	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:18	3.037e+02	2.314e+02	1.31	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:24	8.518e+01	9.259e+01	0.92	no	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:57	1.261e+01	2.321e+01	0.54	no	yes	1.110
7	Unk	1,2,3,7,8,9-HxCDF	36:46	1.871e+01	2.938e+01	0.64	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:07	1.476e+02	1.714e+02	0.86	no	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:35	2.027e+01	2.136e+01	0.95	yes	no	1.258
10	Unk	OCDF	42:17	2.810e+03	3.310e+03	0.85	yes	no	1.359
11	Unk	2,3,7,8-TCDD	27:43	8.376e+02	1.057e+03	0.79	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	32:45	8.545e+00	4.590e+00	1.86	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:07	1.992e+02	1.779e+02	1.12	yes	no	1.025
17	Unk	OCDD	42:06	1.990e+03	2.244e+03	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	26:48	6.951e+03	8.710e+03	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	31:27	1.094e+04	6.908e+03	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	32:25	1.032e+04	6.334e+03	1.63	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:17	4.277e+03	8.593e+03	0.50	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:24	5.500e+03	1.035e+04	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:56	4.889e+03	9.536e+03	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	36:44	4.282e+03	8.260e+03	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:07	3.940e+03	8.933e+03	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:34	3.402e+03	7.467e+03	0.46	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	27:42	3.283e+03	4.101e+03	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:44	7.611e+03	4.716e+03	1.61	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:06	6.380e+03	4.885e+03	1.31	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:11	6.534e+03	5.260e+03	1.24	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:06	7.087e+03	6.577e+03	1.08	yes	no	0.858
32	IS	13C-OCDD	42:06	8.385e+03	9.214e+03	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:03	5.451e+03	6.651e+03	0.82	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:26	7.366e+03	5.927e+03	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:43	8.925e+01				no	1.014

$$OCDD = \frac{(1.990e+03 + 2.244e+03) \times 4000\ pg \times 50}{(8.385e+03 + 9.214e+03) \times 10.779\ g \times 519 / 100 \times 1.118} = 269.0\ ng/kg$$

kw 1/2/2018

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0026

Run #18 Filename P519530 Samp: 1 Inj: 1 Acquired: 21-DEC-18 00:39:51
Processed: 21-DEC-18 10:25:36 LAB. ID: E1801093-009DL

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.01e+05	4.16e+02	1.2e+03	6.49e+05	6.92e+02	9.4e+02
2	1,2,3,7,8-PeCDF	4.29e+04	6.28e+02	6.8e+01	2.66e+04	7.88e+02	3.4e+01
3	2,3,4,7,8-PeCDF	2.82e+04	6.28e+02	4.5e+01	1.41e+04	7.88e+02	1.8e+01
4	1,2,3,4,7,8-HxCDF	5.97e+04	5.40e+02	1.1e+02	4.95e+04	3.84e+02	1.3e+02
5	1,2,3,6,7,8-HxCDF	1.27e+04	5.40e+02	2.3e+01	1.68e+04	3.84e+02	4.4e+01
6	2,3,4,6,7,8-HxCDF	4.33e+03	5.40e+02	8.0e+00	4.86e+03	3.84e+02	1.3e+01
7	1,2,3,7,8,9-HxCDF	3.54e+03	5.40e+02	6.6e+00	5.78e+03	3.84e+02	1.5e+01
8	1,2,3,4,6,7,8-HpCDF	2.31e+04	5.08e+02	4.5e+01	3.11e+04	7.40e+02	4.2e+01
9	1,2,3,4,7,8,9-HpCDF	5.02e+03	5.08e+02	9.9e+00	4.31e+03	7.40e+02	5.8e+00
10	OCDF	2.85e+05	3.28e+02	8.7e+02	3.56e+05	9.28e+02	3.8e+02
11	2,3,7,8-TCDD	1.43e+05	1.61e+03	8.9e+01	1.77e+05	7.24e+02	2.4e+02
12	1,2,3,7,8-PeCDD	2.33e+03	4.20e+02	5.6e+00	1.10e+03	4.24e+02	2.6e+00
13	1,2,3,4,7,8-HxCDD	*	4.36e+02	*	*	1.02e+03	*
14	1,2,3,6,7,8-HxCDD	*	4.36e+02	*	*	1.02e+03	*
15	1,2,3,7,8,9-HxCDD	*	4.36e+02	*	*	1.02e+03	*
16	1,2,3,4,6,7,8-HpCDD	3.19e+04	4.32e+02	7.4e+01	2.71e+04	4.12e+02	6.6e+01
17	OCDD	2.06e+05	2.72e+02	7.6e+02	2.41e+05	2.24e+02	1.1e+03
18	13C-2,3,7,8-TCDF	1.10e+06	5.51e+03	2.0e+02	1.37e+06	2.31e+03	5.9e+02
19	13C-1,2,3,7,8-PeCDF	1.92e+06	5.68e+02	3.4e+03	1.18e+06	6.32e+02	1.9e+03
20	13C-2,3,4,7,8-PeCDF	1.86e+06	5.68e+02	3.3e+03	1.15e+06	6.32e+02	1.8e+03
21	13C-1,2,3,4,7,8-HxCDF	8.66e+05	6.44e+02	1.3e+03	1.71e+06	7.40e+02	2.3e+03
22	13C-1,2,3,6,7,8-HxCDF	9.59e+05	6.44e+02	1.5e+03	1.87e+06	7.40e+02	2.5e+03
23	13C-2,3,4,6,7,8-HxCDF	9.45e+05	6.44e+02	1.5e+03	1.83e+06	7.40e+02	2.5e+03
24	13C-1,2,3,7,8,9-HxCDF	7.60e+05	6.44e+02	1.2e+03	1.45e+06	7.40e+02	2.0e+03
25	13C-1,2,3,4,6,7,8-HpCDF	6.77e+05	1.02e+03	6.7e+02	1.52e+06	1.69e+03	9.0e+02
26	13C-1,2,3,4,7,8,9-HpCDF	5.12e+05	1.02e+03	5.0e+02	1.11e+06	1.69e+03	6.6e+02
27	13C-2,3,7,8-TCDD	5.72e+05	3.99e+03	1.4e+02	6.95e+05	1.27e+03	5.5e+02
28	13C-1,2,3,7,8-PeCDD	1.39e+06	3.12e+02	4.5e+03	8.47e+05	5.80e+02	1.5e+03
29	13C-1,2,3,4,7,8-HxCDD	1.32e+06	4.32e+02	3.1e+03	1.01e+06	4.64e+02	2.2e+03
30	13C-1,2,3,6,7,8-HxCDD	1.13e+06	4.32e+02	2.6e+03	9.46e+05	4.64e+02	2.0e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.10e+06	4.00e+02	2.7e+03	1.01e+06	4.16e+02	2.4e+03
32	13C-OCDD	8.53e+05	6.32e+02	1.3e+03	9.11e+05	4.28e+02	2.1e+03
33	13C-1,2,3,4-TCDD	9.18e+05	3.99e+03	2.3e+02	1.16e+06	1.27e+03	9.1e+02
34	13C-1,2,3,7,8,9-HxCDD	1.27e+06	4.32e+02	2.9e+03	1.05e+06	4.64e+02	2.3e+03
35	37Cl-2,3,7,8-TCDD	1.47e+04	6.64e+02	2.2e+01			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.612e{+}03 + 7.240e{+}02) \times 2000}{(5.716e{+}05 + 6.949e{+}05) \times (\quad) \times 1.085} =$$

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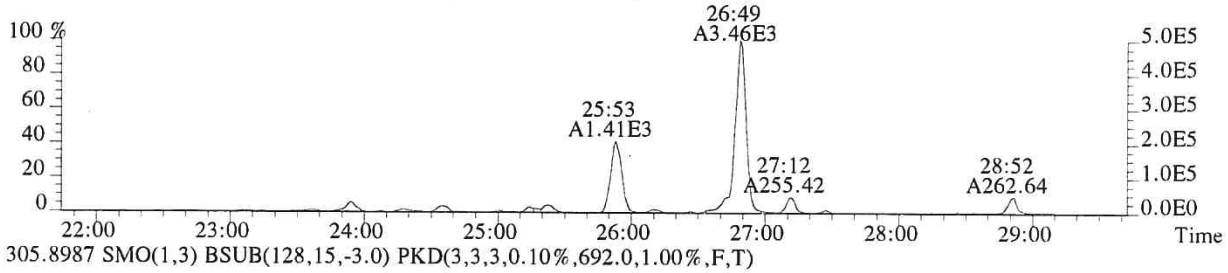
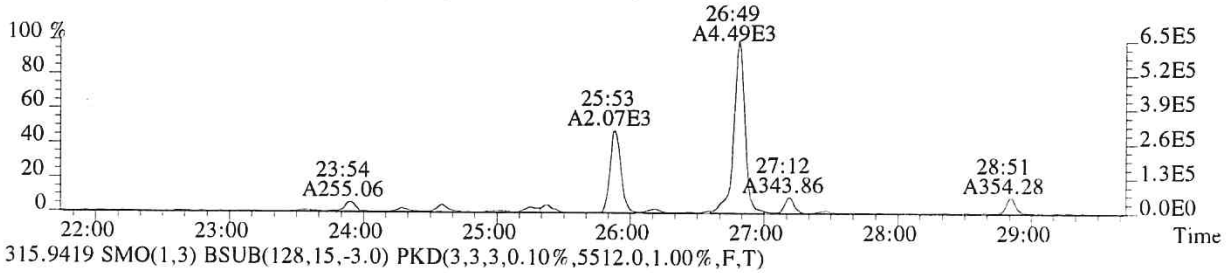
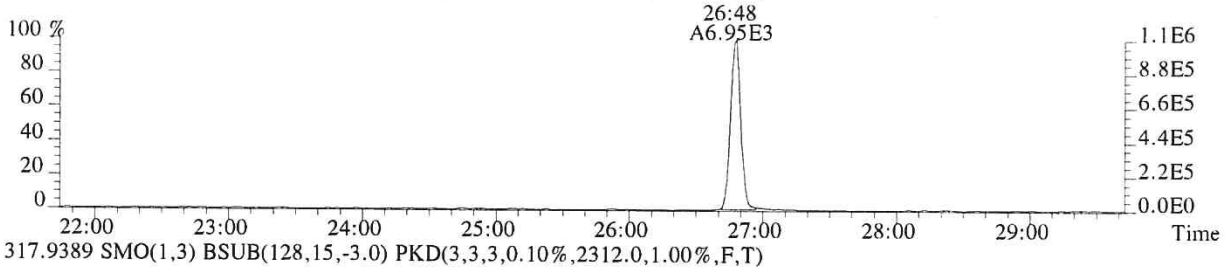
File:P519530 #1-566 Acq:21-DEC-2018 00:39:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-009DL
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,416.0,1.00%,F,T)



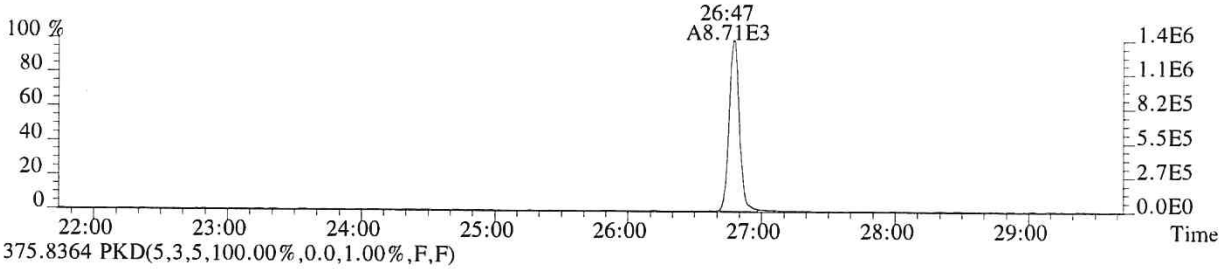
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,692.0,1.00%,F,T)



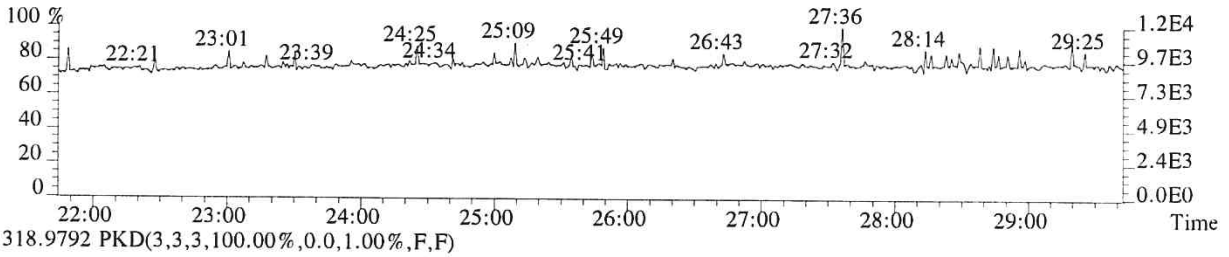
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5512.0,1.00%,F,T)



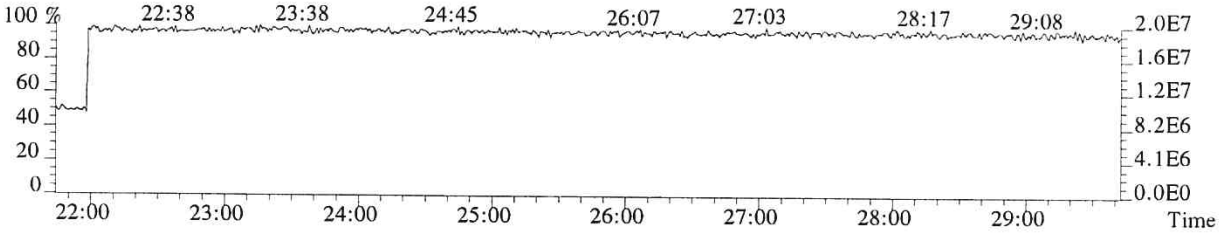
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2312.0,1.00%,F,T)



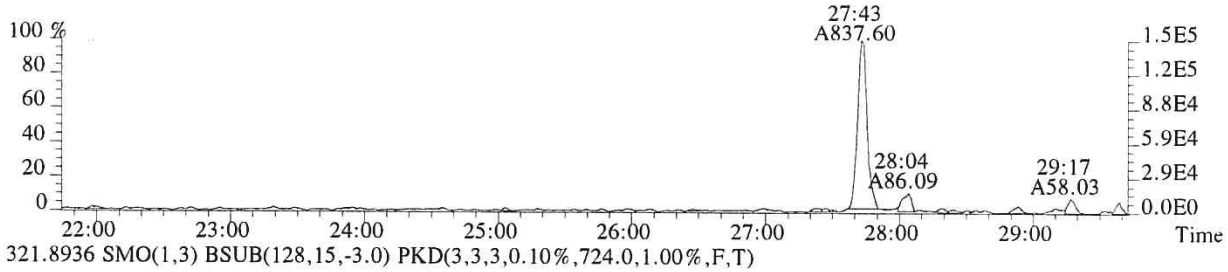
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



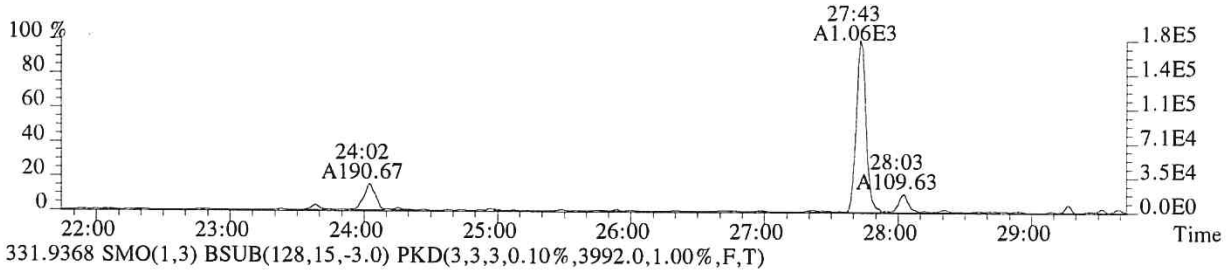
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



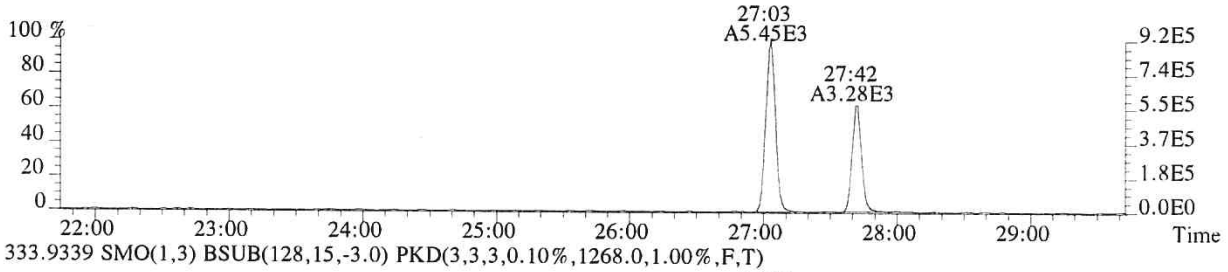
File:P519530 #1-566 Acq:21-DEC-2018 00:39:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-009DL
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1612.0,1.00%,F,T)



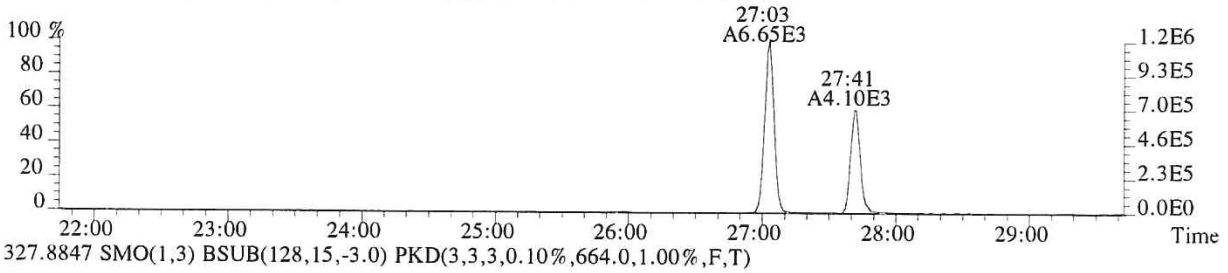
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,724.0,1.00%,F,T)



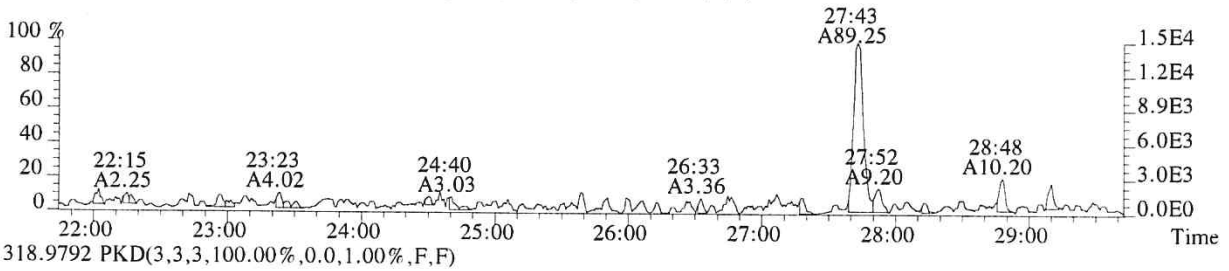
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3992.0,1.00%,F,T)



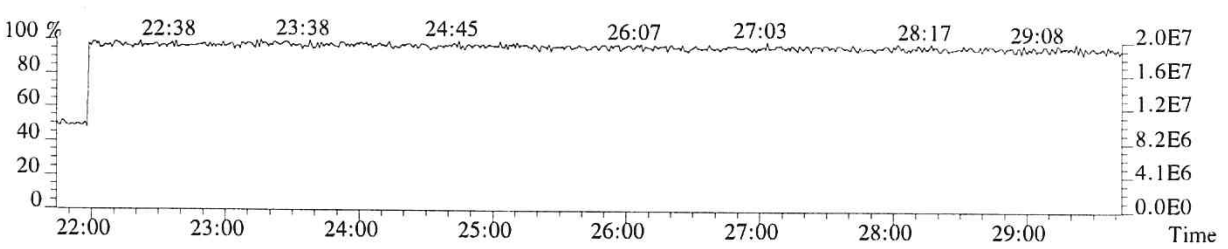
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1268.0,1.00%,F,T)



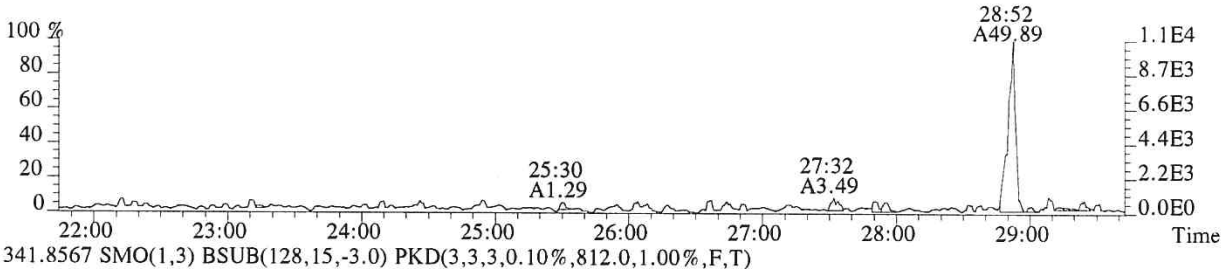
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,664.0,1.00%,F,T)



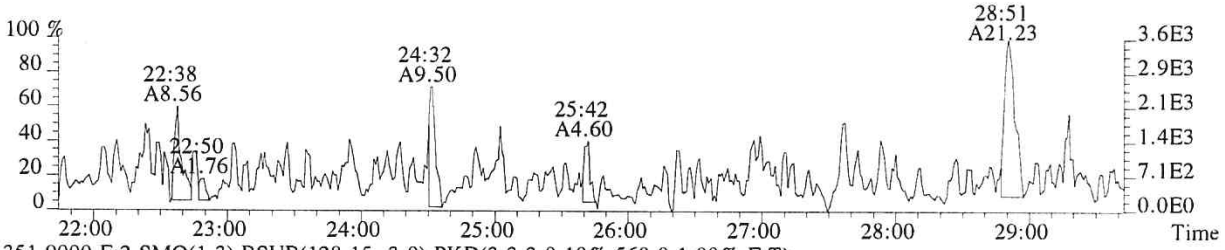
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



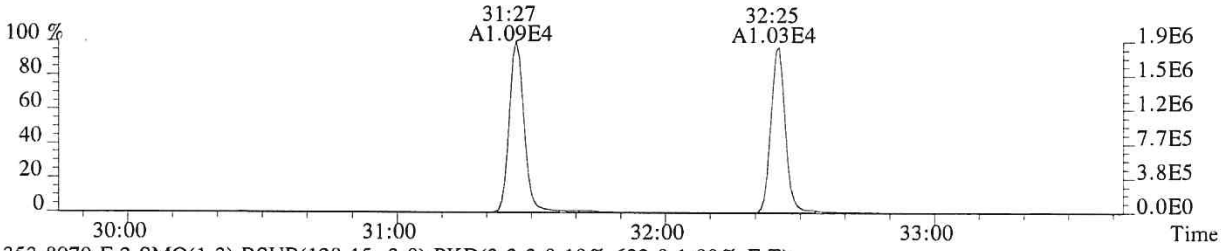
File:P519530 #1-566 Acq:21-DEC-2018 00:39:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-009DL
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,364.0,1.00%,F,T)



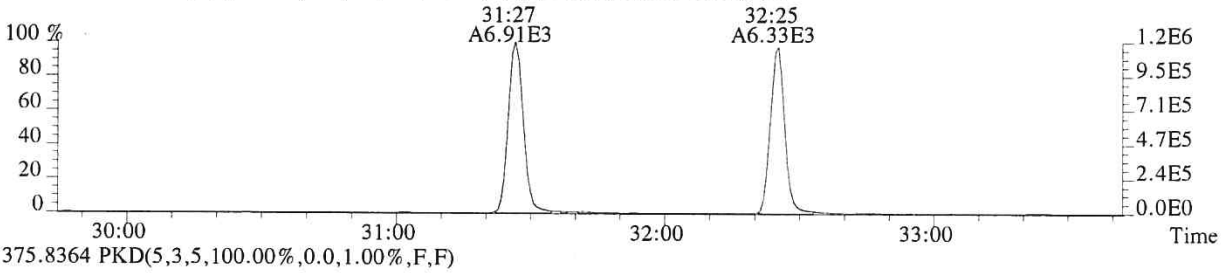
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,812.0,1.00%,F,T)



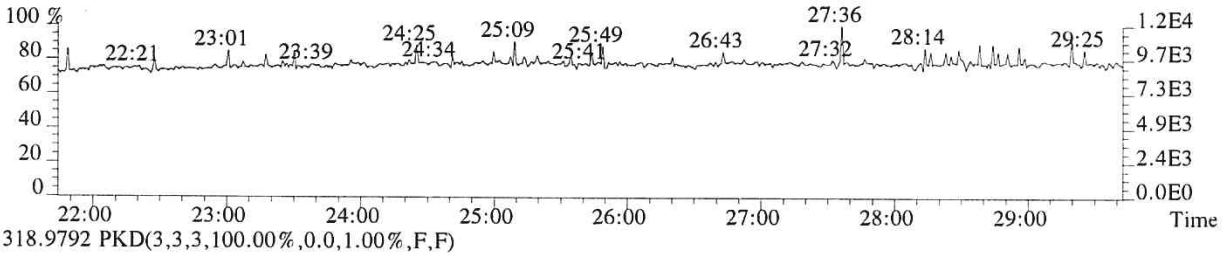
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,568.0,1.00%,F,T)



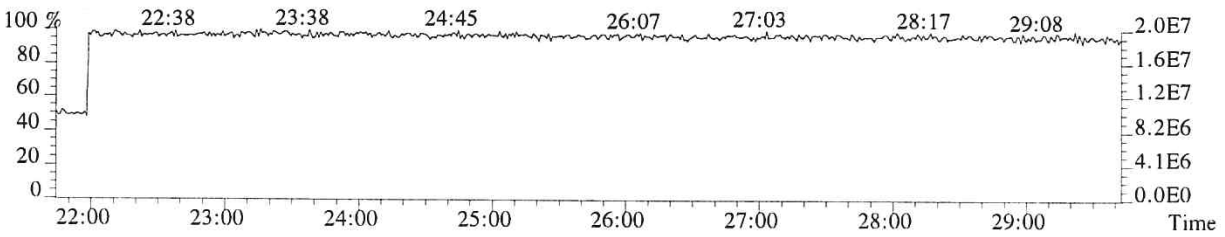
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,632.0,1.00%,F,T)



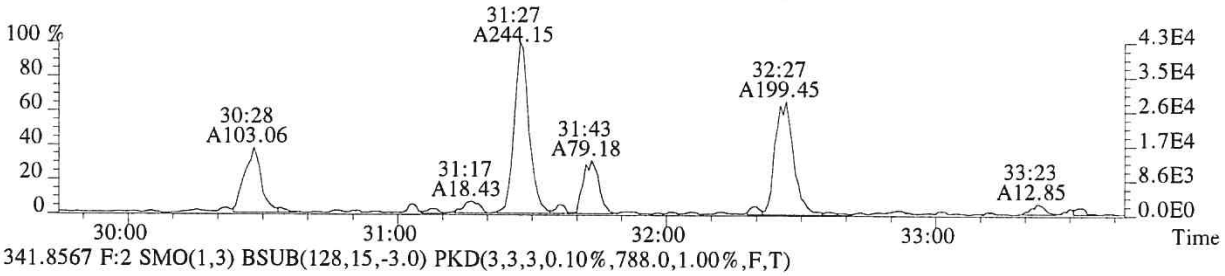
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



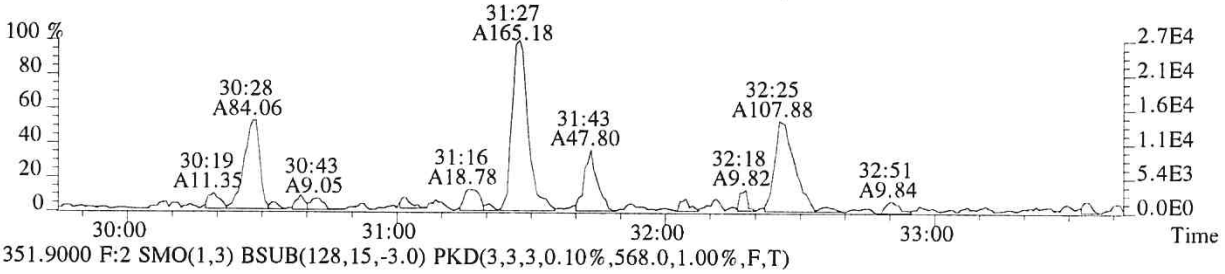
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



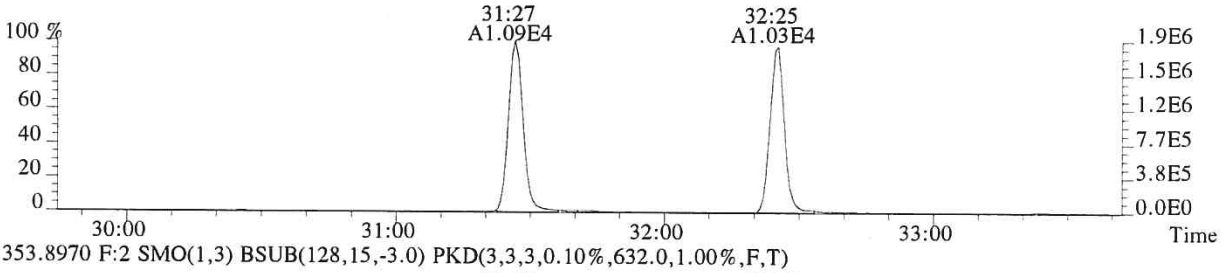
File:P519530 #1-357 Acq:21-DEC-2018 00:39:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-009DL
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,628.0,1.00%,F,T)



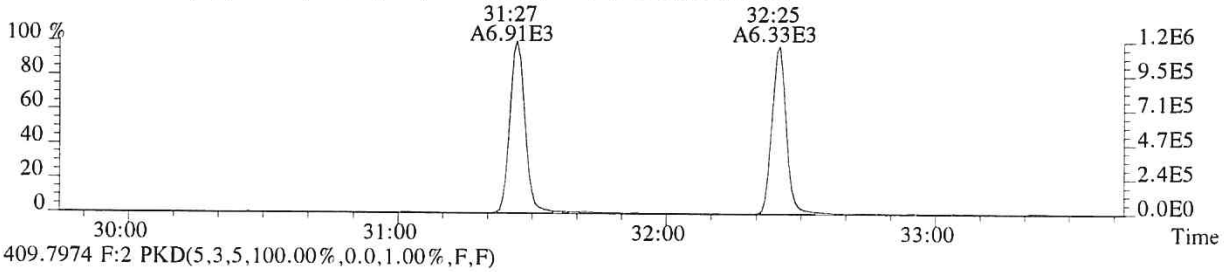
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,788.0,1.00%,F,T)



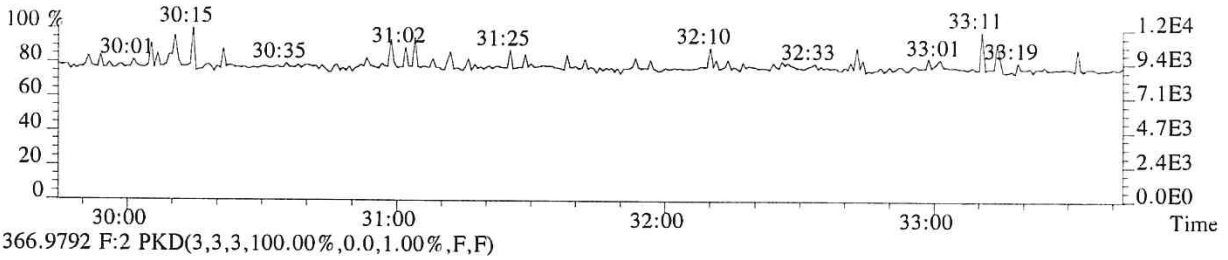
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,568.0,1.00%,F,T)



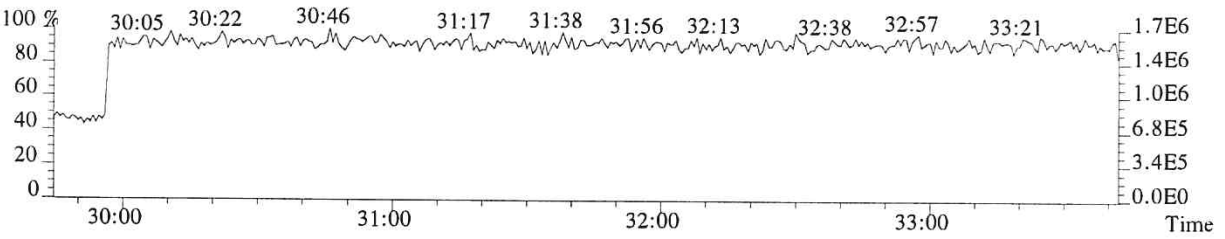
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,632.0,1.00%,F,T)



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

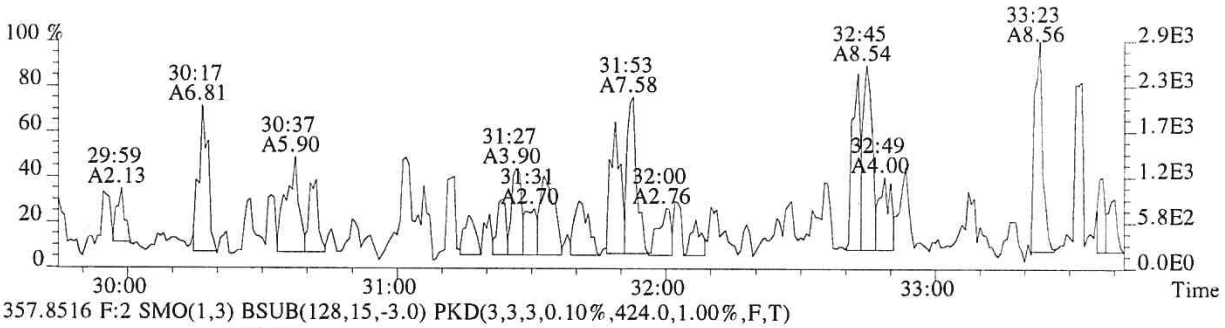


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

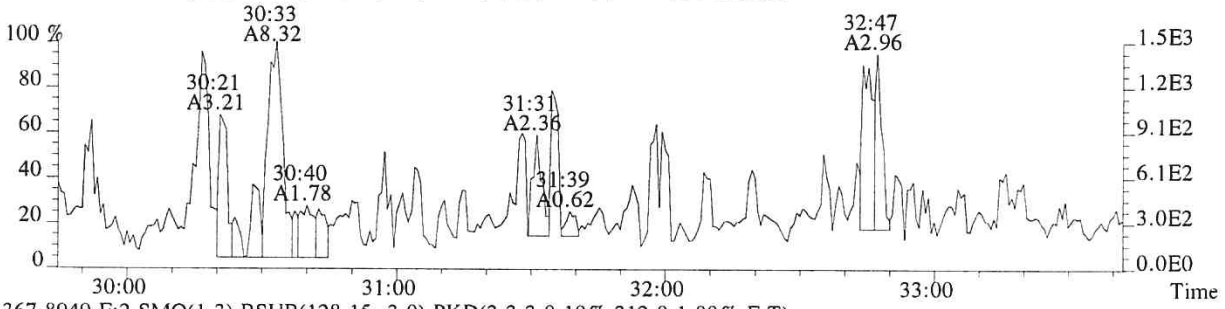


014218

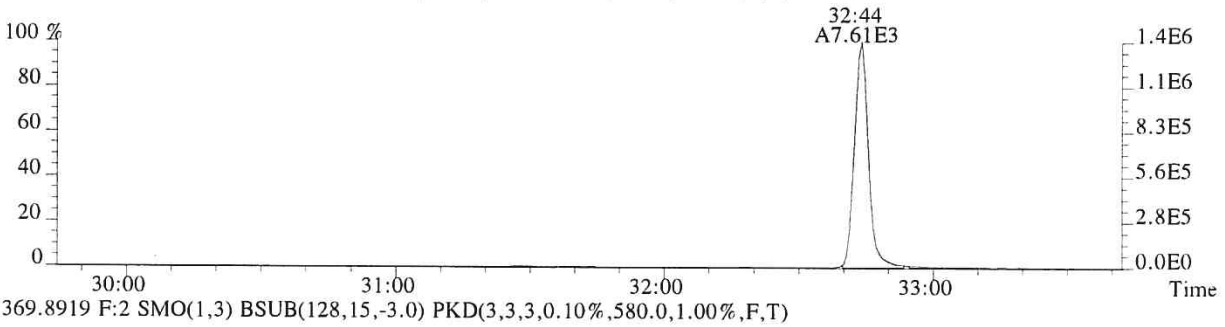
File:P519530 #1-357 Acq:21-DEC-2018 00:39:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-009DL
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,420.0,1.00%,F,T)



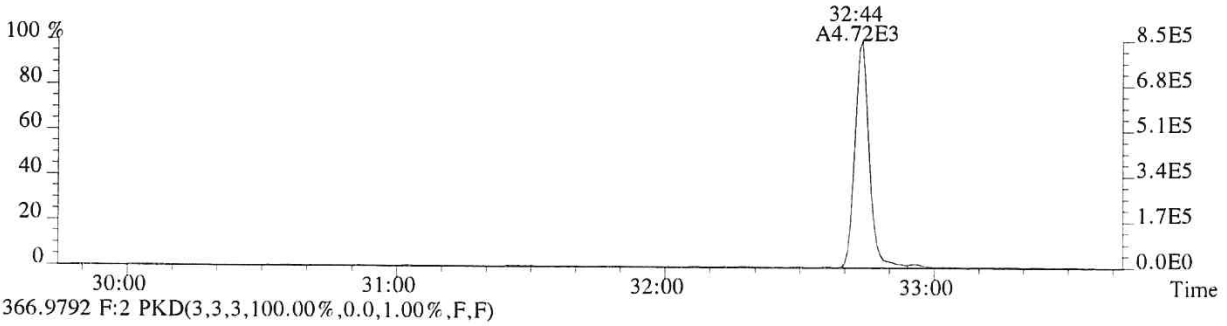
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,424.0,1.00%,F,T)



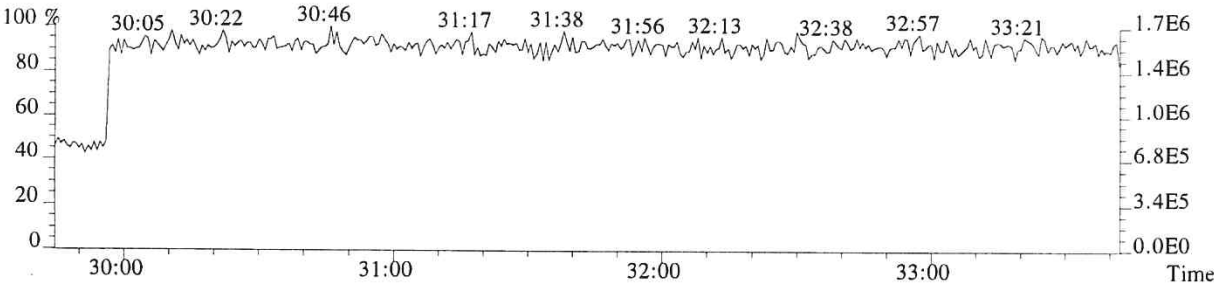
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,312.0,1.00%,F,T)



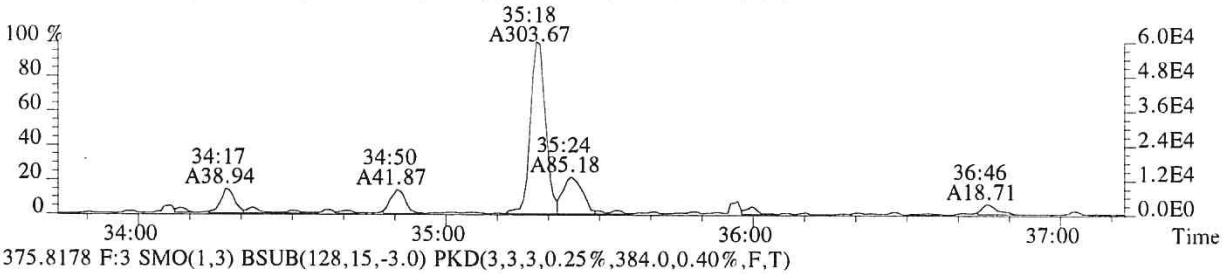
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,580.0,1.00%,F,T)



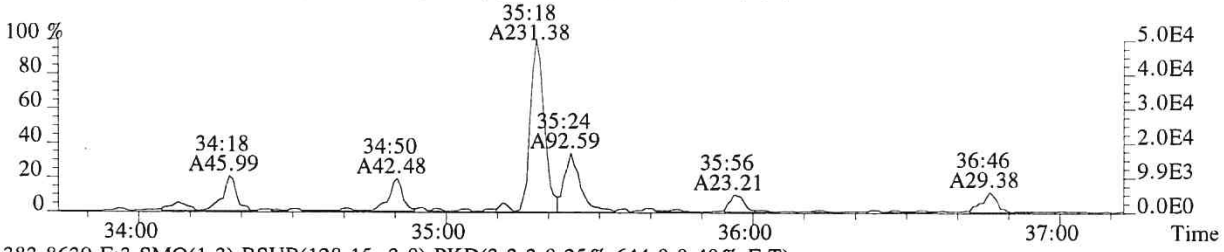
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



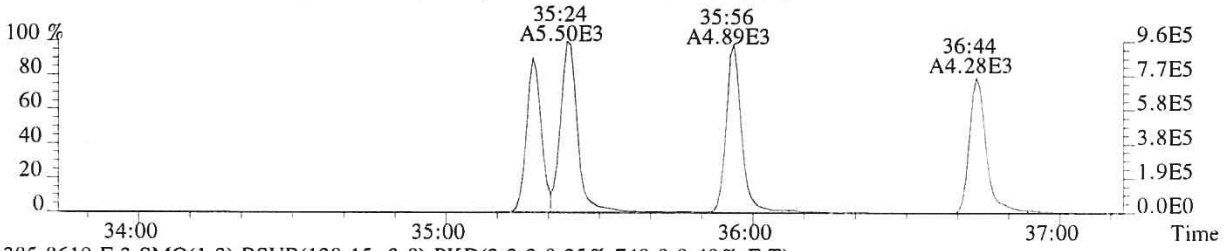
File:P519530 #1-313 Acq:21-DEC-2018 00:39:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-009DL
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,540.0,0.40%,F,T)



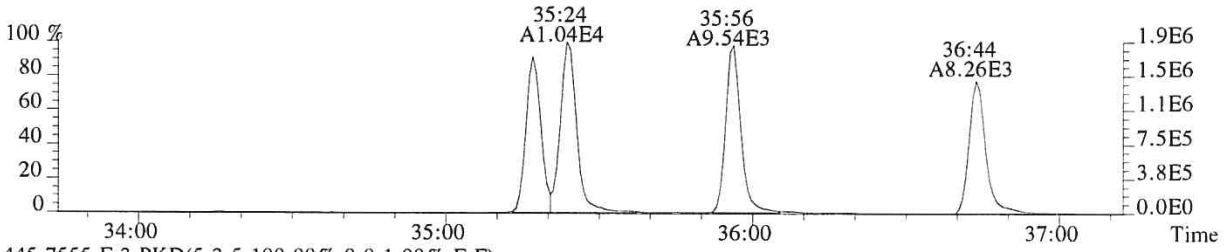
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,384.0,0.40%,F,T)



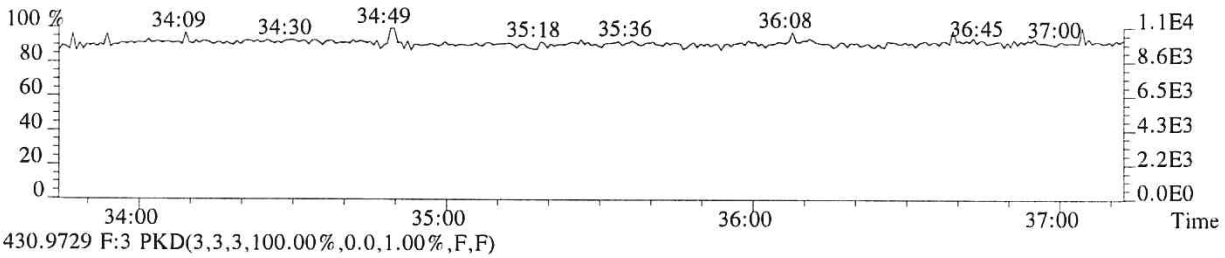
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,644.0,0.40%,F,T)



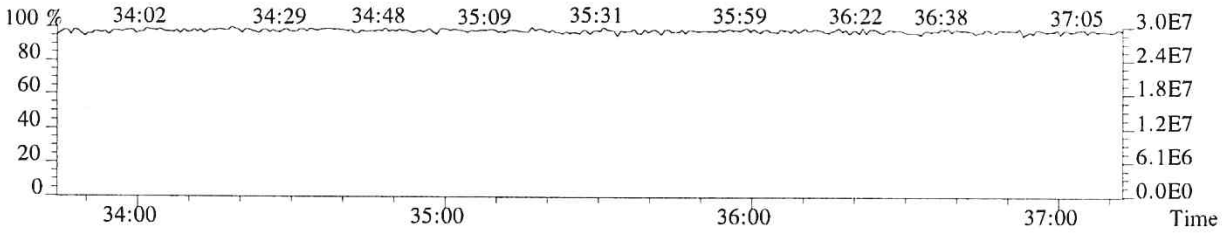
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,740.0,0.40%,F,T)



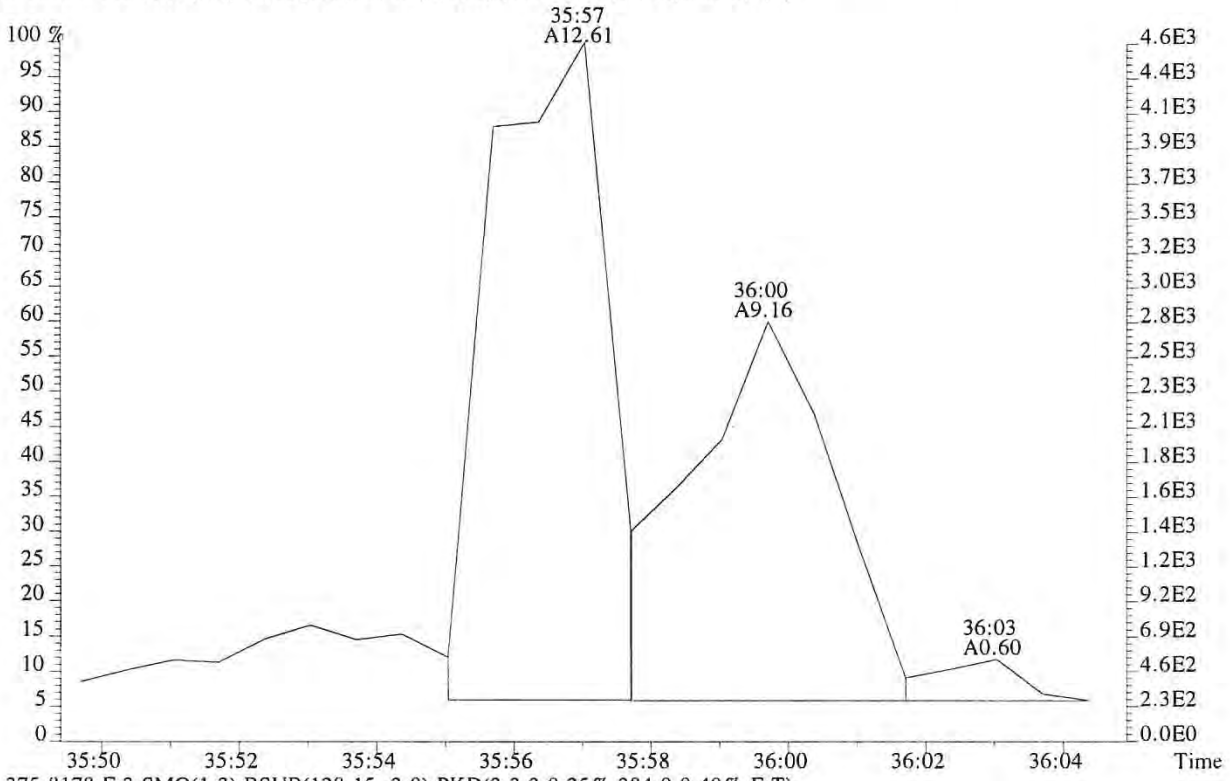
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



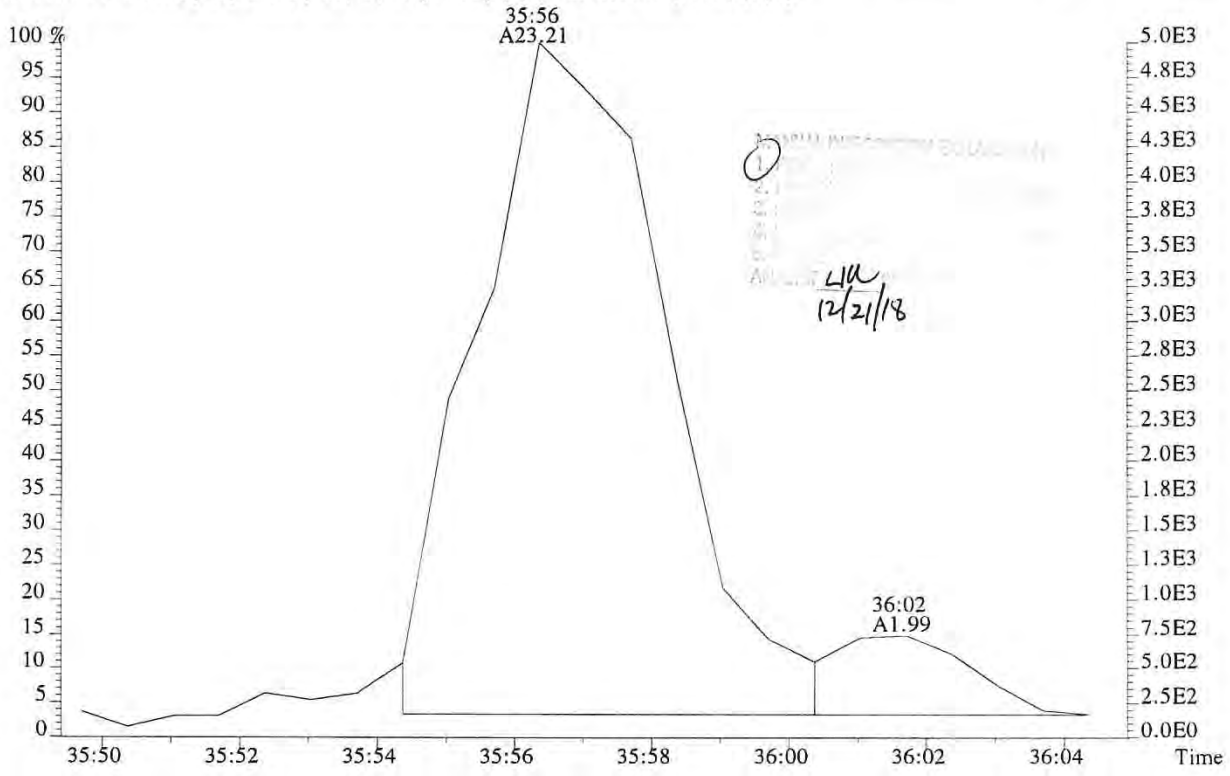
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P519530 #1-313 Acq:21-DEC-2018 00:39:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-009DL
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,540.0,0.40%,F,T)

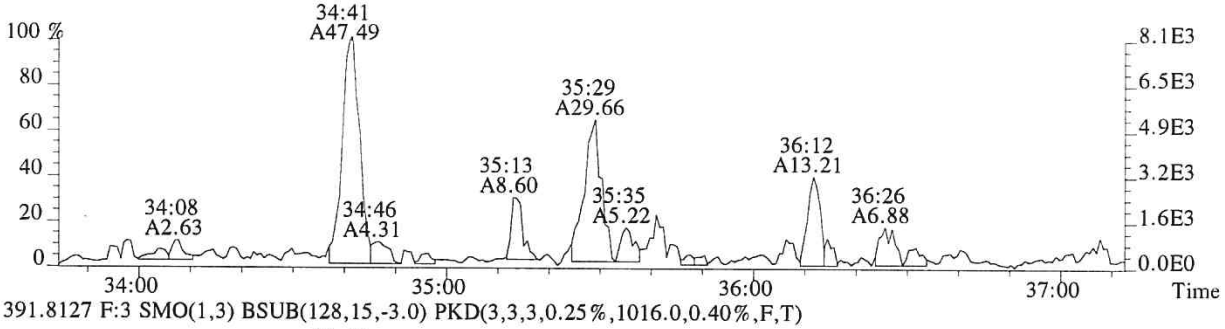


375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,384.0,0.40%,F,T)

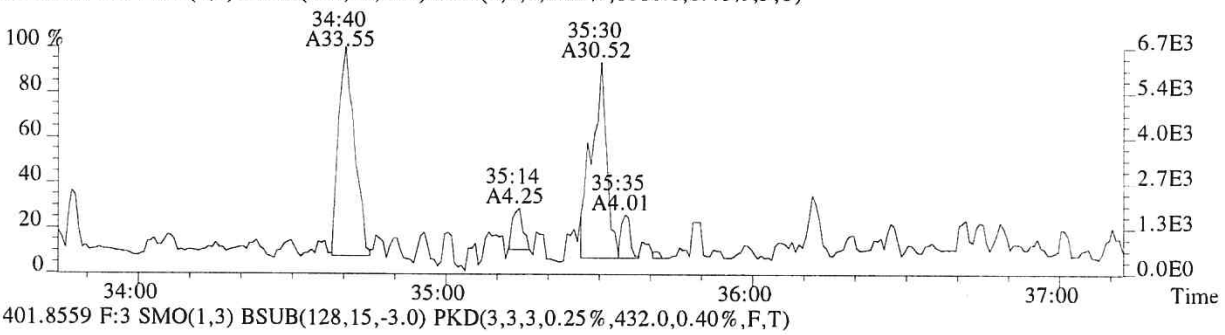


12/21/18

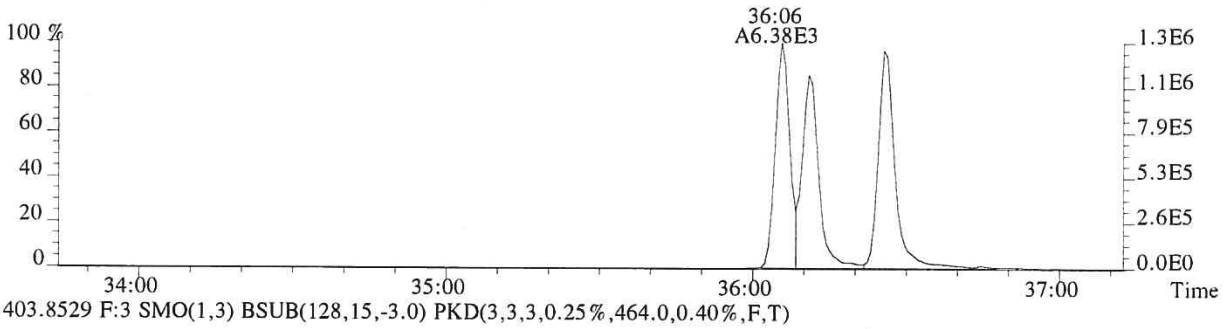
File:P519530 #1-313 Acq:21-DEC-2018 00:39:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-009DL
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,436.0,0.40%,F,T)



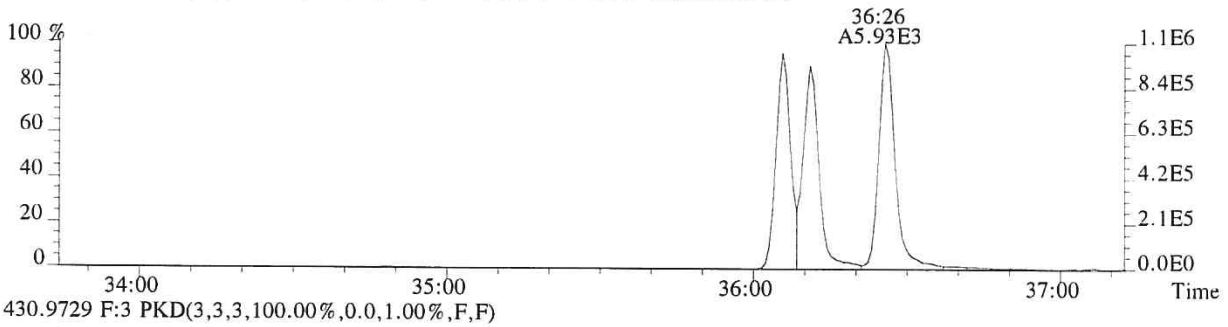
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1016.0,0.40%,F,T)



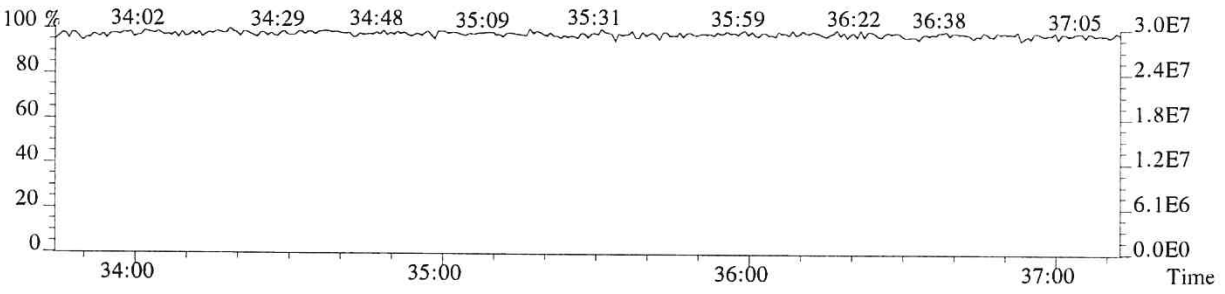
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,432.0,0.40%,F,T)



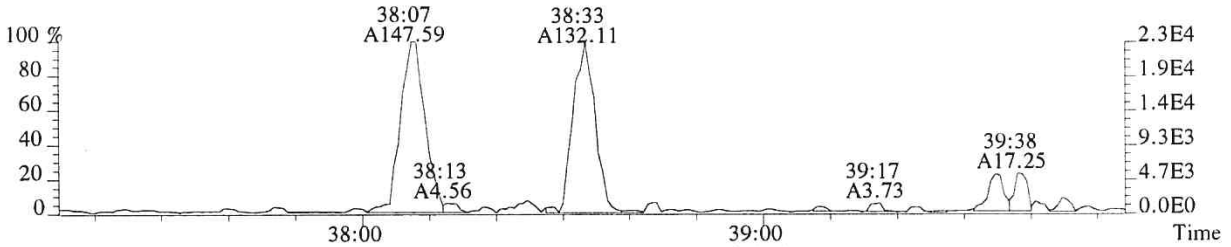
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,464.0,0.40%,F,T)



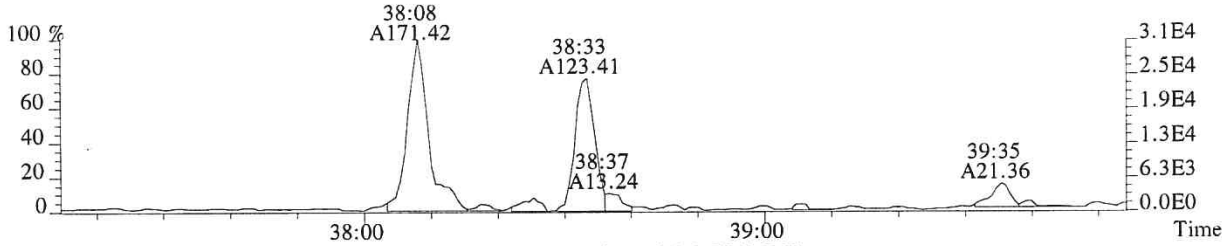
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



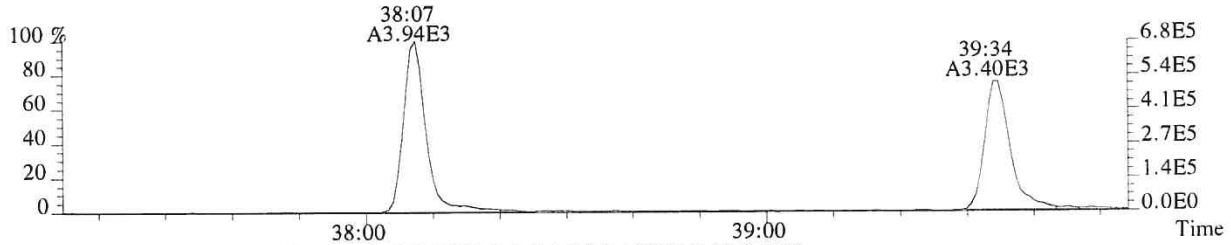
File:P519530 #1-240 Acq:21-DEC-2018 00:39:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-009DL
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,508.0,0.50%,F,T)



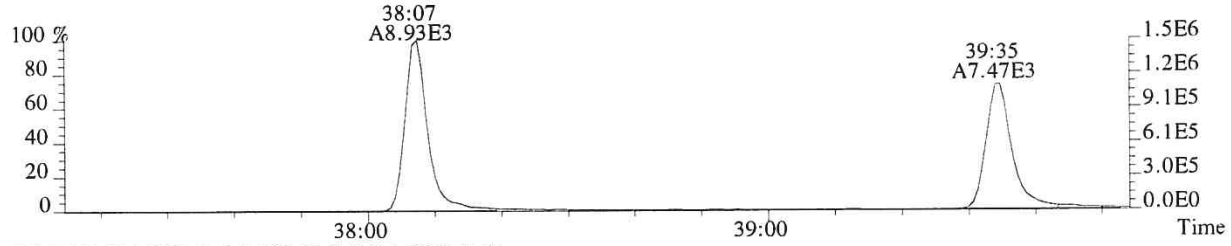
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,740.0,0.50%,F,T)



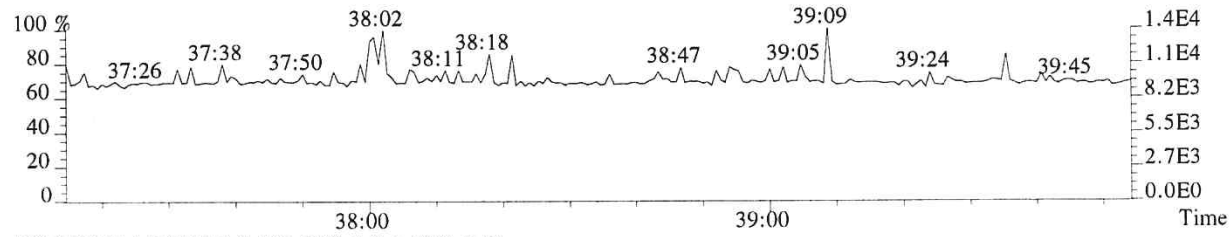
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1016.0,0.50%,F,T)



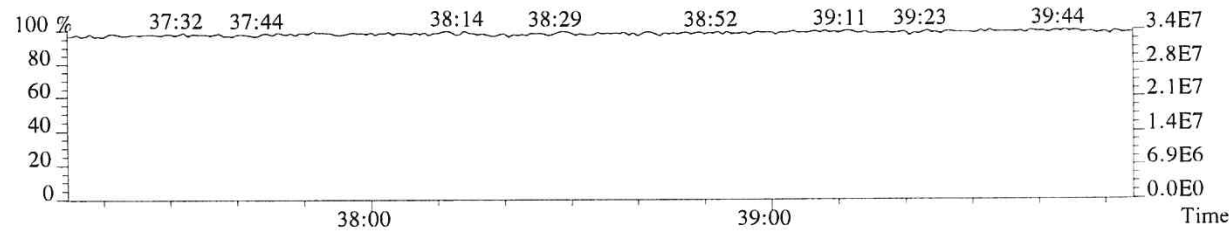
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1688.0,0.50%,F,T)



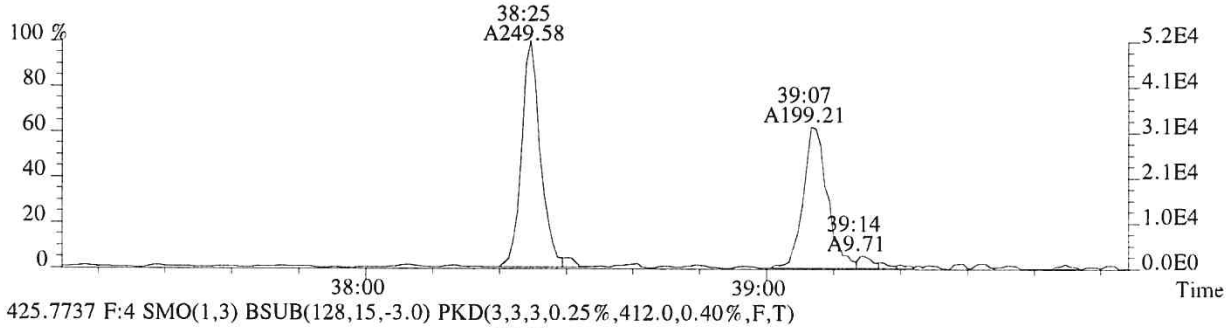
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



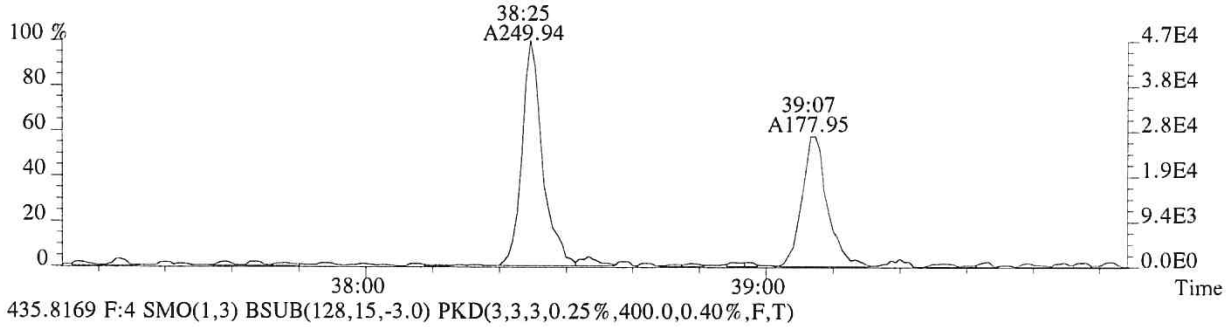
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



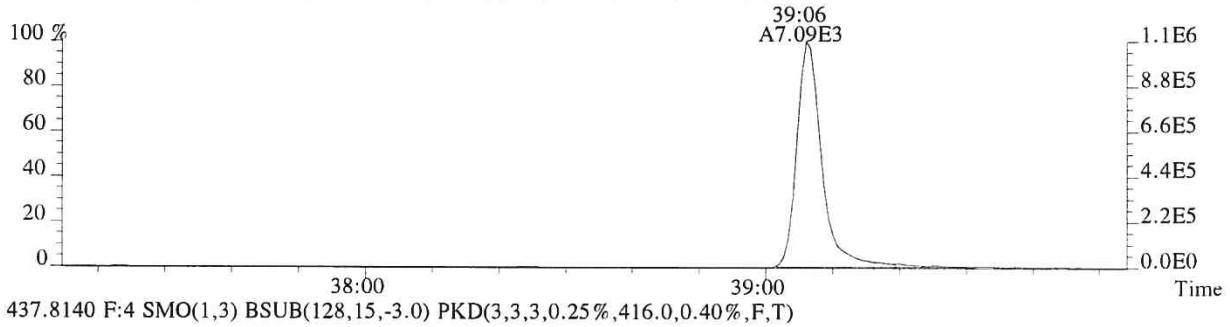
File:P519530 #1-240 Acq:21-DEC-2018 00:39:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-009DL
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,432.0,0.40%,F,T)



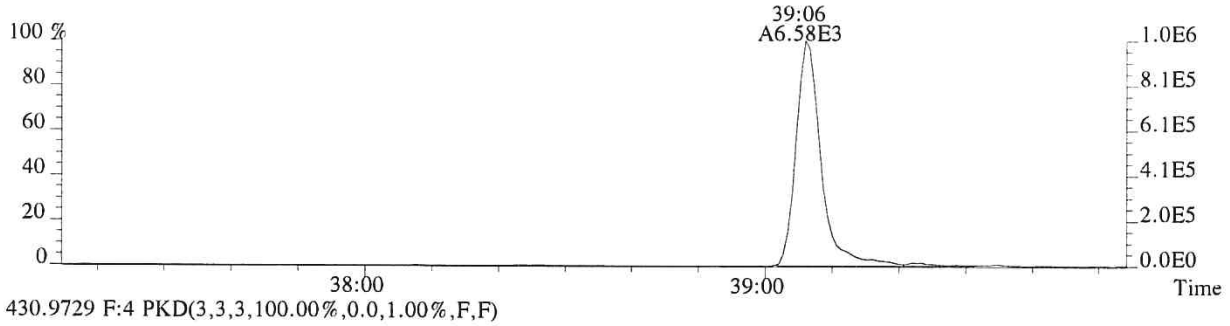
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,412.0,0.40%,F,T)



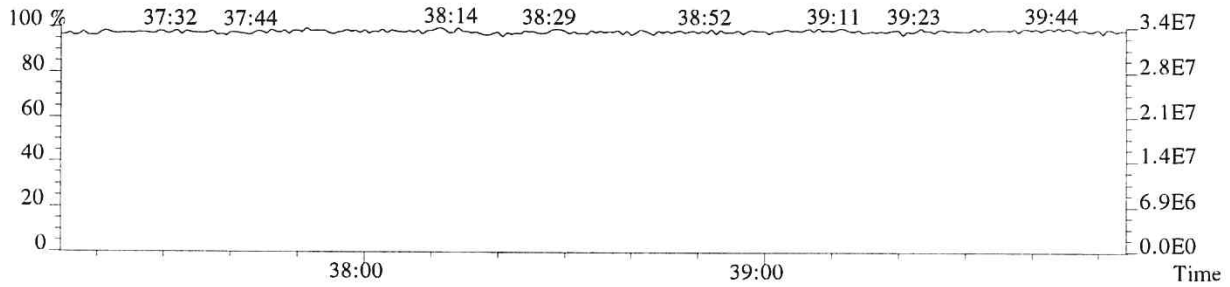
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,400.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,416.0,0.40%,F,T)

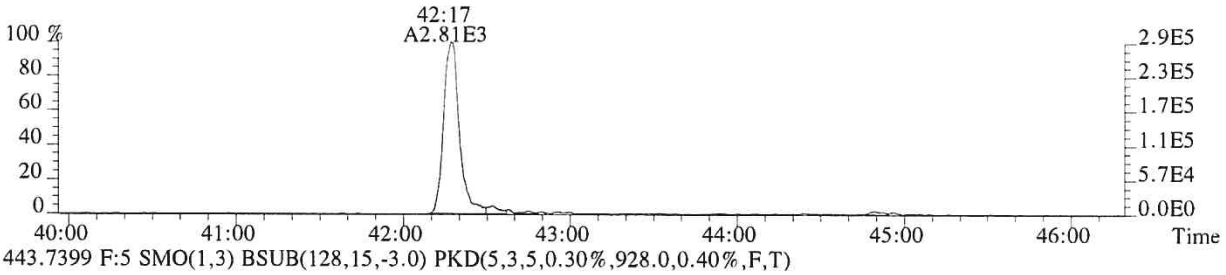


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

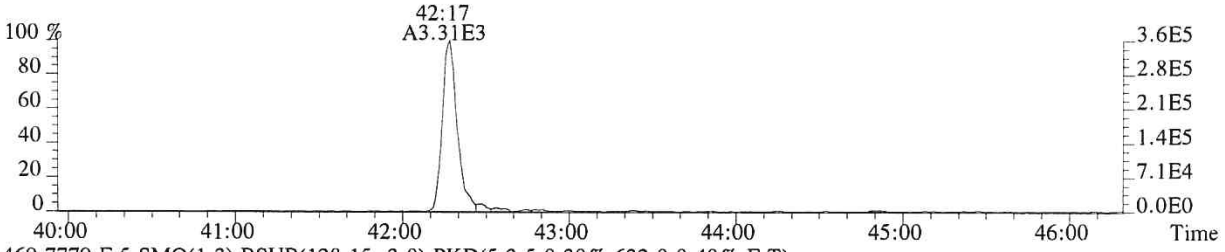


014224

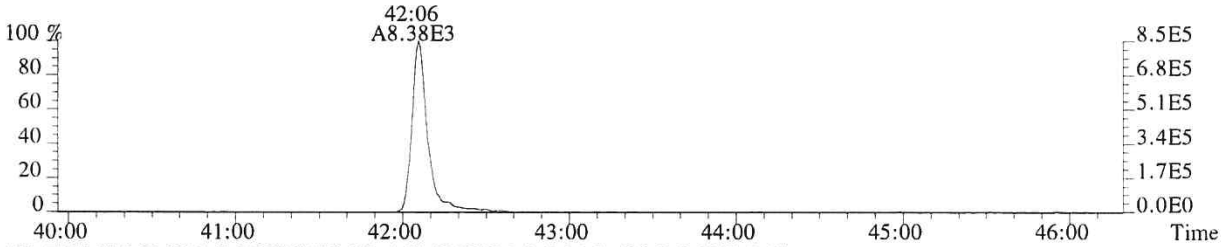
File:P519530 #1-575 Acq:21-DEC-2018 00:39:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-009DL
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,328.0,0.40%,F,T)



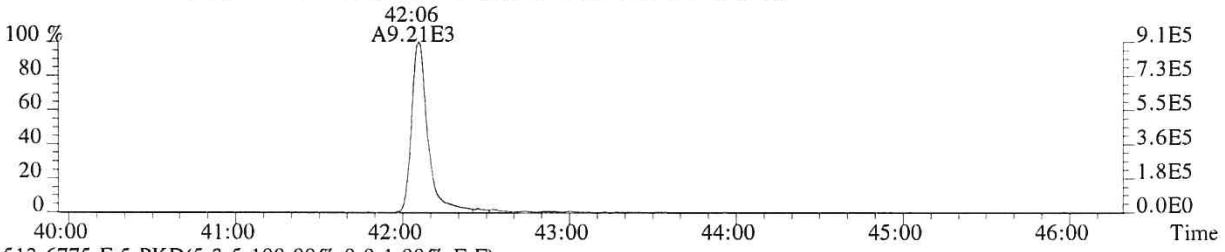
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,928.0,0.40%,F,T)



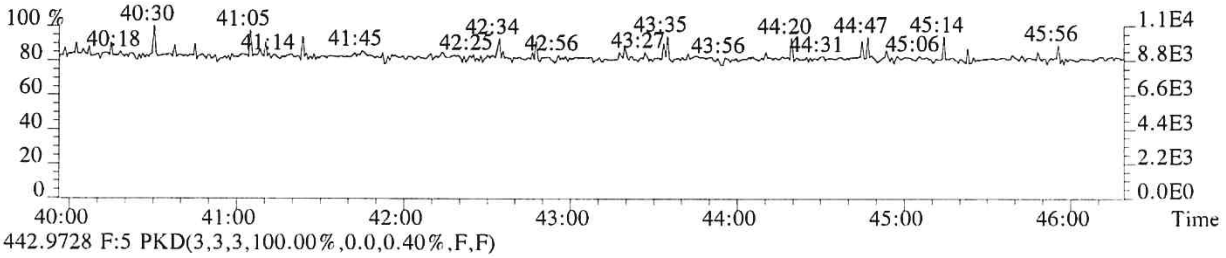
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,632.0,0.40%,F,T)



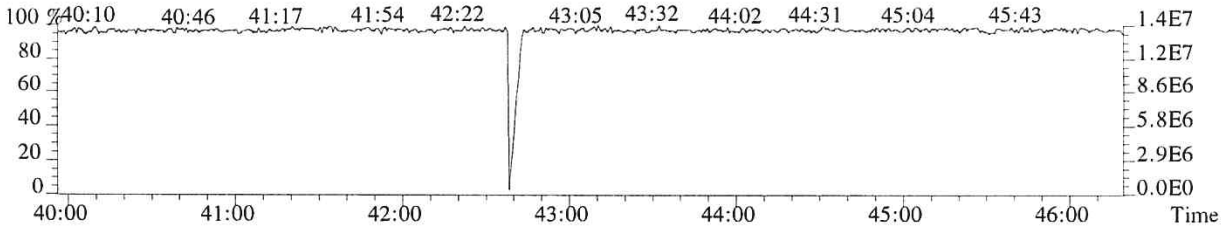
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,428.0,0.40%,F,T)



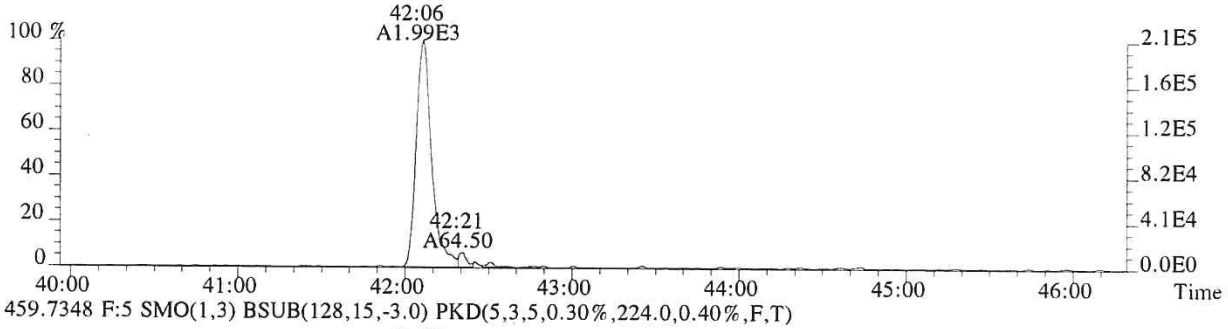
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



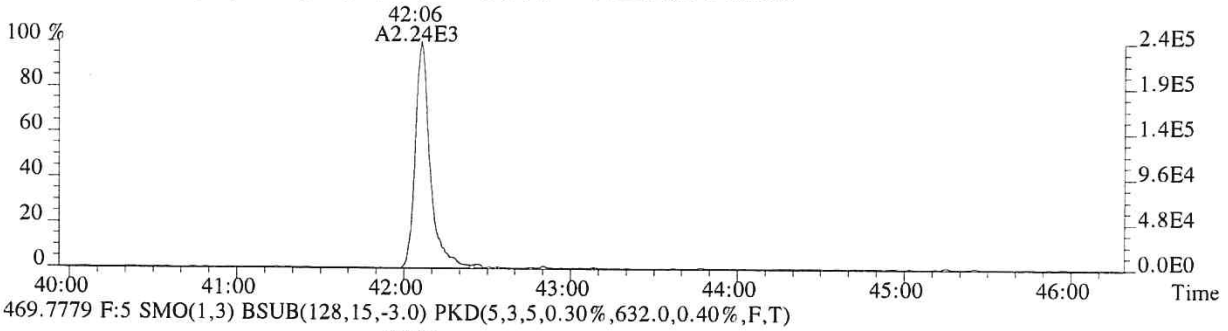
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



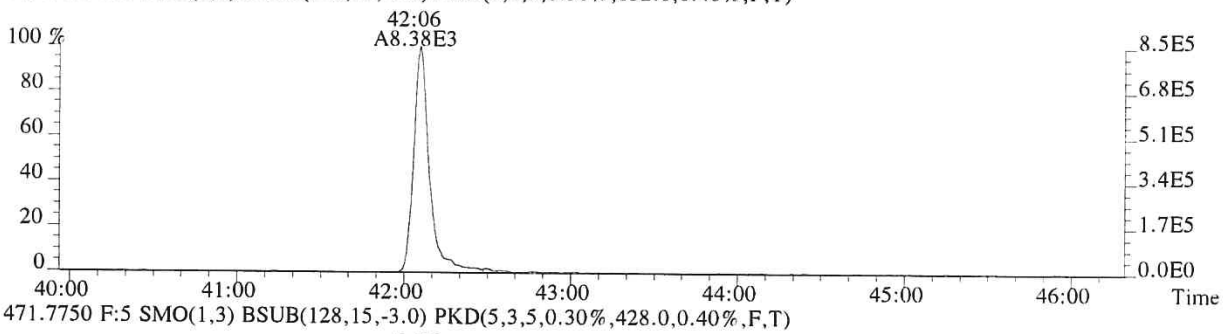
File:P519530 #1-575 Acq:21-DEC-2018 00:39:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-009DL
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,272.0,0.40%,F,T)



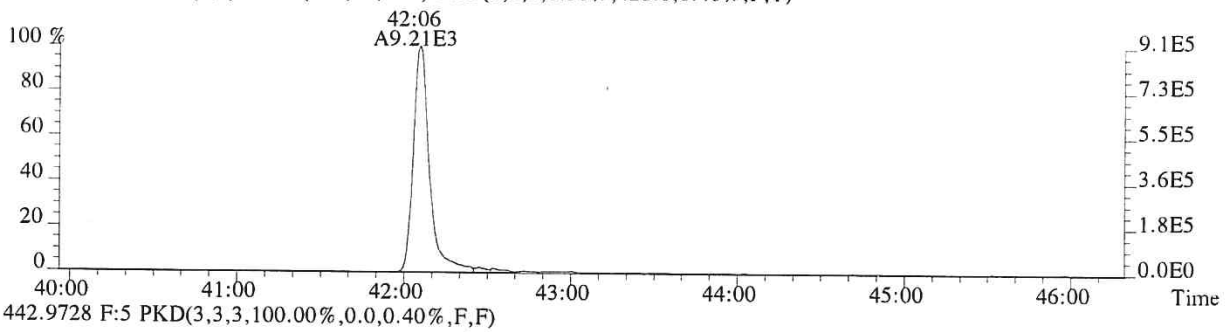
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,224.0,0.40%,F,T)



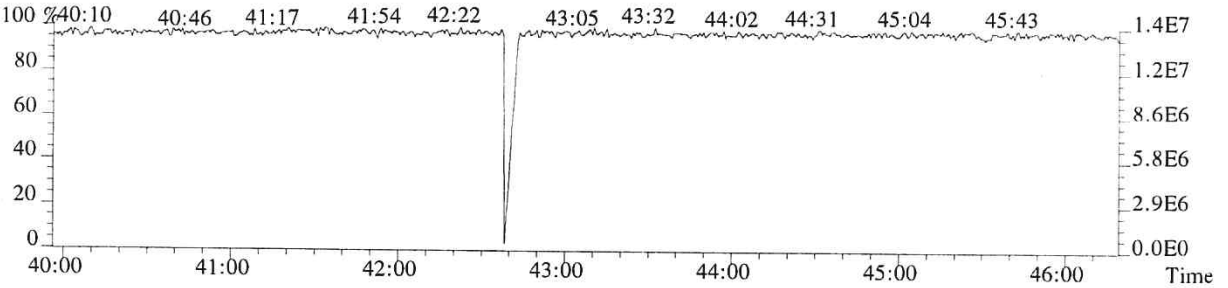
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,632.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,428.0,0.40%,F,T)



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



014226

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0027

Run #9 Filename P519438 Samp: 1 Inj: 1 Acquired: 17-DEC-18 16:11:08
Processed: 19-DEC-18 09:06:41 Sample ID: E1801093-010

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:47	4.380e+03	5.814e+03	0.75	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	31:25	4.404e+02	2.540e+02	1.73	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	32:23	2.429e+02	1.747e+02	1.39	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:12	5.060e+02	3.999e+02	1.27	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:20	1.216e+02	1.220e+02	1.00	no	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:52	3.541e+01	2.788e+01	1.27	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	36:40	5.867e+01	5.253e+01	1.12	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	37:59	2.921e+02	3.119e+02	0.94	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:23	4.729e+01	4.920e+01	0.96	yes	no	1.258
10	Unk	OCDF	41:56	2.663e+03	3.035e+03	0.88	yes	no	1.359
11	Unk	2,3,7,8-TCDD	27:41	1.049e+03	1.404e+03	0.75	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	32:42	4.831e+01	2.983e+01	1.62	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:00	3.016e+01	1.470e+01	2.05	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:06	4.206e+01	3.995e+01	1.05	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:20	6.684e+01	5.857e+01	1.14	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:56	9.278e+02	8.816e+02	1.05	yes	no	1.025
17	Unk	OCDD	41:46	1.444e+04	1.588e+04	0.91	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	26:46	1.140e+04	1.450e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	31:24	2.072e+04	1.294e+04	1.60	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	32:22	1.975e+04	1.279e+04	1.54	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:12	8.838e+03	1.704e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:19	1.040e+04	2.060e+04	0.50	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:50	9.287e+03	1.822e+04	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	36:38	8.360e+03	1.643e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:59	6.172e+03	1.408e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:23	5.937e+03	1.351e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	27:40	5.439e+03	6.627e+03	0.82	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:41	1.495e+04	9.442e+03	1.58	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:00	1.326e+04	1.027e+04	1.29	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:06	1.244e+04	9.913e+03	1.25	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:55	1.335e+04	1.264e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	41:45	1.123e+04	1.233e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:02	1.598e+04	2.021e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:20	2.243e+04	1.750e+04	1.28	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:41	7.467e+03				no	1.014

$$\text{OCDD} = \frac{(1.444e+04 + 1.588e+04) \times 4000\ \text{pg} \times 1}{(1.123e+04 + 1.233e+04) \times 10.141\ \text{g} \times 70.3 / 100 \times 1.118} = 595\ \text{ng/kg}$$

KED 12/20/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0027

Run #9 Filename P519438 Samp: 1 Inj: 1 Acquired: 17-DEC-18 16:11:08
Processed: 19-DEC-18 09:06:41 LAB. ID: E1801093-010

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.73e+05	6.84e+02	9.8e+02	8.83e+05	1.79e+03	4.9e+02
2	1,2,3,7,8-PeCDF	8.29e+04	9.04e+02	9.2e+01	5.35e+04	1.25e+03	4.3e+01
3	2,3,4,7,8-PeCDF	3.97e+04	9.04e+02	4.4e+01	2.91e+04	1.25e+03	2.3e+01
4	1,2,3,4,7,8-HxCDF	1.07e+05	9.40e+02	1.1e+02	8.11e+04	1.05e+03	7.7e+01
5	1,2,3,6,7,8-HxCDF	2.23e+04	9.40e+02	2.4e+01	2.12e+04	1.05e+03	2.0e+01
6	2,3,4,6,7,8-HxCDF	7.62e+03	9.40e+02	8.1e+00	6.34e+03	1.05e+03	6.0e+00
7	1,2,3,7,8,9-HxCDF	8.75e+03	9.40e+02	9.3e+00	1.00e+04	1.05e+03	9.5e+00
8	1,2,3,4,6,7,8-HpCDF	5.99e+04	6.36e+02	9.4e+01	6.02e+04	3.60e+02	1.7e+02
9	1,2,3,4,7,8,9-HpCDF	7.81e+03	6.36e+02	1.2e+01	9.92e+03	3.60e+02	2.8e+01
10	OCDF	3.70e+05	3.24e+02	1.1e+03	4.27e+05	1.25e+03	3.4e+02
11	2,3,7,8-TCDD	1.85e+05	2.43e+03	7.6e+01	2.55e+05	1.03e+03	2.5e+02
12	1,2,3,7,8-PeCDD	9.85e+03	9.12e+02	1.1e+01	6.05e+03	5.40e+02	1.1e+01
13	1,2,3,4,7,8-HxCDD	6.05e+03	9.16e+02	6.6e+00	4.00e+03	1.27e+03	3.2e+00
14	1,2,3,6,7,8-HxCDD	8.56e+03	9.16e+02	9.3e+00	7.81e+03	1.27e+03	6.2e+00
15	1,2,3,7,8,9-HxCDD	1.18e+04	9.16e+02	1.3e+01	1.28e+04	1.27e+03	1.0e+01
16	1,2,3,4,6,7,8-HpCDD	1.75e+05	5.72e+02	3.1e+02	1.72e+05	1.64e+03	1.0e+02
17	OCDD	2.07e+06	3.00e+02	6.9e+03	2.31e+06	4.52e+02	5.1e+03
18	13C-2,3,7,8-TCDF	1.85e+06	6.98e+03	2.6e+02	2.38e+06	6.43e+03	3.7e+02
19	13C-1,2,3,7,8-PeCDF	3.78e+06	1.07e+03	3.5e+03	2.35e+06	1.22e+03	1.9e+03
20	13C-2,3,4,7,8-PeCDF	3.70e+06	1.07e+03	3.5e+03	2.41e+06	1.22e+03	2.0e+03
21	13C-1,2,3,4,7,8-HxCDF	1.94e+06	7.28e+02	2.7e+03	3.67e+06	1.15e+03	3.2e+03
22	13C-1,2,3,6,7,8-HxCDF	2.05e+06	7.28e+02	2.8e+03	4.01e+06	1.15e+03	3.5e+03
23	13C-2,3,4,6,7,8-HxCDF	1.84e+06	7.28e+02	2.5e+03	3.67e+06	1.15e+03	3.2e+03
24	13C-1,2,3,7,8,9-HxCDF	1.62e+06	7.28e+02	2.2e+03	3.20e+06	1.15e+03	2.8e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.23e+06	8.24e+02	1.5e+03	2.75e+06	2.91e+03	9.4e+02
26	13C-1,2,3,4,7,8,9-HpCDF	1.08e+06	8.24e+02	1.3e+03	2.46e+06	2.91e+03	8.5e+02
27	13C-2,3,7,8-TCDD	9.53e+05	5.71e+03	1.7e+02	1.17e+06	2.74e+03	4.3e+02
28	13C-1,2,3,7,8-PeCDD	2.81e+06	1.07e+03	2.6e+03	1.76e+06	1.28e+03	1.4e+03
29	13C-1,2,3,4,7,8-HxCDD	2.71e+06	1.04e+03	2.6e+03	2.13e+06	6.20e+02	3.4e+03
30	13C-1,2,3,6,7,8-HxCDD	2.47e+06	1.04e+03	2.4e+03	1.97e+06	6.20e+02	3.2e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.54e+06	5.24e+02	4.9e+03	2.41e+06	5.60e+02	4.3e+03
32	13C-OCDD	1.63e+06	6.96e+02	2.3e+03	1.79e+06	4.40e+02	4.1e+03
33	13C-1,2,3,4-TCDD	2.81e+06	5.71e+03	4.9e+02	3.54e+06	2.74e+03	1.3e+03
34	13C-1,2,3,7,8,9-HxCDD	4.36e+06	1.04e+03	4.2e+03	3.35e+06	6.20e+02	5.4e+03
35	37Cl-2,3,7,8-TCDD	1.34e+06	7.72e+02	1.7e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (2.428e{+}03 + 1.028e{+}03) \times 2000}{(9.532e{+}05 + 1.174e{+}06) \times (\quad) \times 1.085} =$$

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0027

Entry: 36 Totals Name: Total Tetra-Furans

Run: 9 File: P519438 Sample:1 Injection:1 Function:1

Acquired: 17-DEC-18 16:11:08 Processed: 19-DEC-18 09:06:41

Mass: 303.9020 305.8990 Tot Response: 1.61e+04 RRF: 0.9417

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	23:52	1.89e+02	2.22e+02	0.85	yes	4.12e+02		n n
2	24:17	6.55e+01	8.66e+01	0.76	yes	1.52e+02		n n
3	24:34	1.58e+02	2.10e+02	0.75	yes	3.67e+02		n n
4	25:51	1.69e+03	2.35e+03	0.72	yes	4.03e+03		n n
5	26:09	8.87e+01	1.13e+02	0.78	yes	2.02e+02		n n
6	26:47	4.38e+03	5.81e+03	0.75	yes	1.02e+04	2,3,7,8-TCDF	n n
7	27:10	3.01e+02	3.98e+02	0.76	yes	6.99e+02		n n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0027

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 9 File: P519438 Sample:1 Injection:1 Function:1

Acquired: 17-DEC-18 16:11:08 Processed: 19-DEC-18 09:06:41

Mass: 319.8970 321.8940 Tot Response: 2.70e+03 RRF: 1.085

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	27:41	1.05e+03	1.40e+03 0.75	yes	2.45e+03	2,3,7,8-TCDD	n	n
2	28:01	1.15e+02	1.32e+02 0.86	yes	2.47e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0027

Entry: 39 Totals Name: Total Penta-Furans2

Run: 9 File: P519438 Sample:1 Injection:1 Function:2

Acquired: 17-DEC-18 16:11:08 Processed: 19-DEC-18 09:06:41

Mass: 339.8600 341.8570 Tot Response: 1.58e+03 RRF: 0.9857

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:25	1.74e+02	1.09e+02	1.61	yes	2.83e+02		n	n
2	31:25	4.40e+02	2.54e+02	1.73	yes	6.94e+02	1,2,3,7,8-PeCDF	n	n
3	31:41	1.10e+02	7.39e+01	1.49	yes	1.84e+02		n	n
4	32:23	2.43e+02	1.75e+02	1.39	yes	4.18e+02	2,3,4,7,8-PeCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0027

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 9 File: P519438 Sample:1 Injection:1 Function:2

Acquired: 17-DEC-18 16:11:08 Processed: 19-DEC-18 09:06:41

Mass: 355.8550 357.8520 Tot Response: 3.96e+02 RRF: 0.9565

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:57	2.02e+02	1.16e+02	1.75	yes	3.18e+02		n	n
2	32:42	4.83e+01	2.98e+01	1.62	yes	7.81e+01	1,2,3,7,8-PeCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0027

Entry: 41 Totals Name: Total Hexa-Furans

Run: 9 File: P519438 Sample:1 Injection:1 Function:3

Acquired: 17-DEC-18 16:11:08 Processed: 19-DEC-18 09:06:41

Mass: 373.8210 375.8180 Tot Response: 1.30e+03 RRF: 1.141

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:13	6.93e+01	6.07e+01	1.14	yes	1.30e+02		n	n
2	34:45	4.78e+01	3.72e+01	1.29	yes	8.49e+01		n	n
3	35:12	5.06e+02	4.00e+02	1.27	yes	9.06e+02	1,2,3,4,7,8-HxCDF	n	n
4	35:52	3.54e+01	2.79e+01	1.27	yes	6.33e+01	2,3,4,6,7,8-HxCDF	n	n
5	36:40	5.87e+01	5.25e+01	1.12	yes	1.11e+02	1,2,3,7,8,9-HxCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0027

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 9 File: P519438 Sample:1 Injection:1 Function:3

Acquired: 17-DEC-18 16:11:08 Processed: 19-DEC-18 09:06:41

Mass: 389.8160 391.8130 Tot Response: 3.90e+03 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:36	1.78e+03	1.42e+03	1.25	yes	3.20e+03		n	n
2	35:09	2.93e+01	2.41e+01	1.21	yes	5.34e+01		n	n
3	35:24	2.46e+02	1.88e+02	1.31	yes	4.34e+02		n	n
4	35:31	4.94e+01	4.16e+01	1.19	yes	9.11e+01		n	n
5	36:20	6.68e+01	5.86e+01	1.14	yes	1.25e+02	1,2,3,7,8,9-HxCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0027

Entry: 43 Totals Name: Total Hepta-Furans

Run: 9 File: P519438 Sample:1 Injection:1 Function:4

Acquired: 17-DEC-18 16:11:08 Processed: 19-DEC-18 09:06:41

Mass: 407.7820 409.7790 Tot Response: 9.92e+02 RRF: 1.308

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:59	2.92e+02	3.12e+02	0.94	yes	6.04e+02	1,2,3,4,6,7,8-HpCDF	n	n
2	38:24	1.56e+02	1.35e+02	1.15	yes	2.91e+02		n	n
3	39:23	4.73e+01	4.92e+01	0.96	yes	9.65e+01	1,2,3,4,7,8,9-HpCDF	n	n

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

ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0027

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 9 File: P519438 Sample:1 Injection:1 Function:4

Acquired: 17-DEC-18 16:11:08 Processed: 19-DEC-18 09:06:41

Mass: 423.7770 425.7740 Tot Response: 6.45e+03 RRF: 1.025

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:15	2.36e+03	2.28e+03	1.03	yes	4.64e+03		n	n
2	38:56	9.28e+02	8.82e+02	1.05	yes	1.81e+03	1,2,3,4,6,7,8-HpCDD	n	n

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Houston, TX 77099
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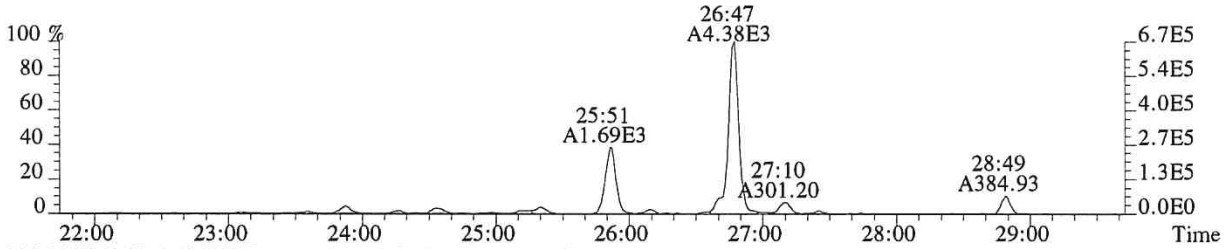
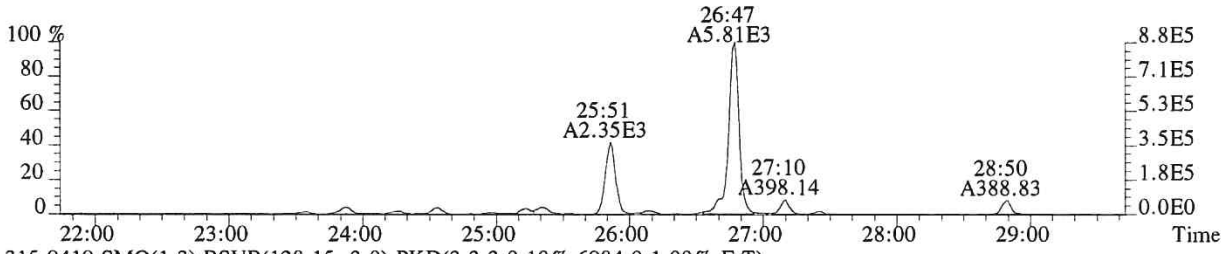
File:P519438 #1-566 Acq:17-DEC-2018 16:11:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-010

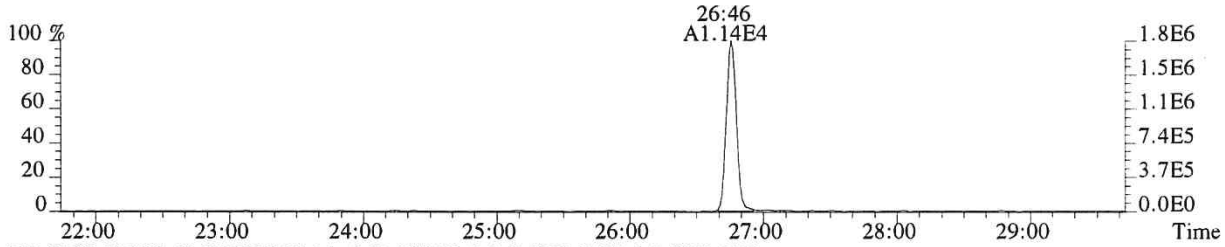
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,684.0,1.00%,F,T)



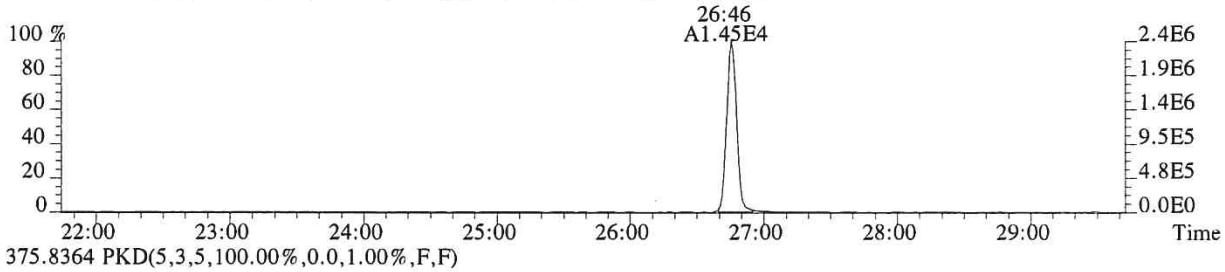
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1792.0,1.00%,F,T)



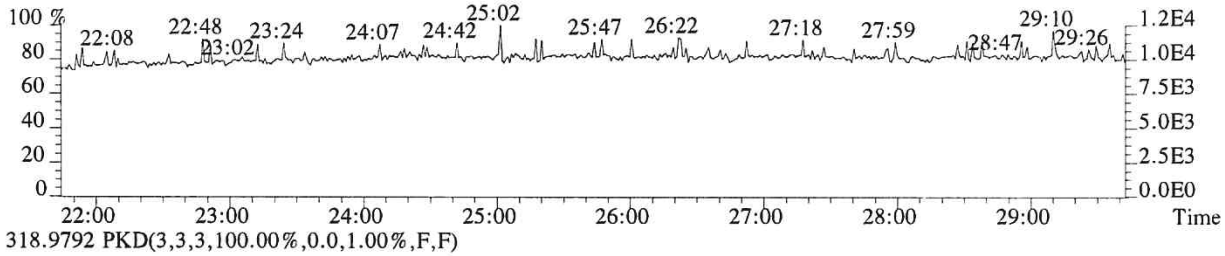
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6984.0,1.00%,F,T)



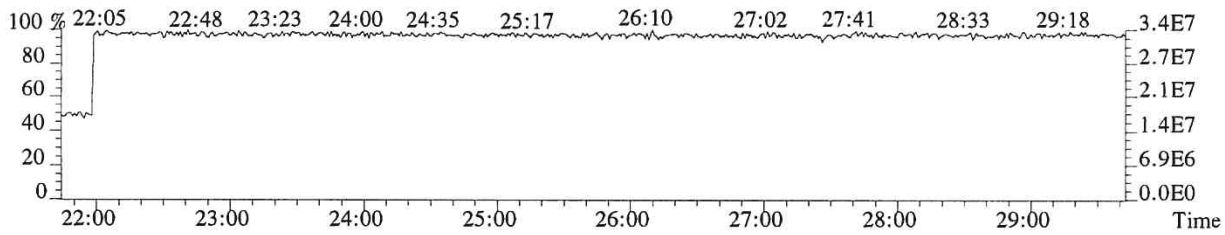
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6428.0,1.00%,F,T)



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

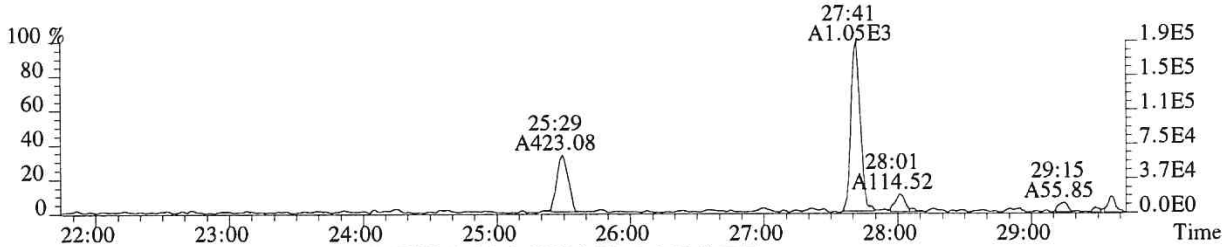


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

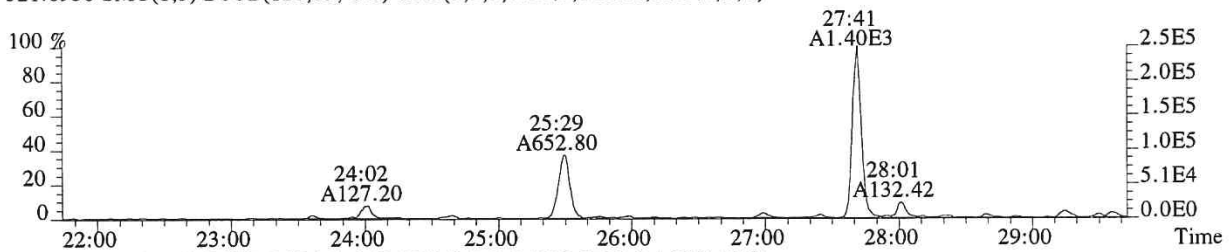


014237

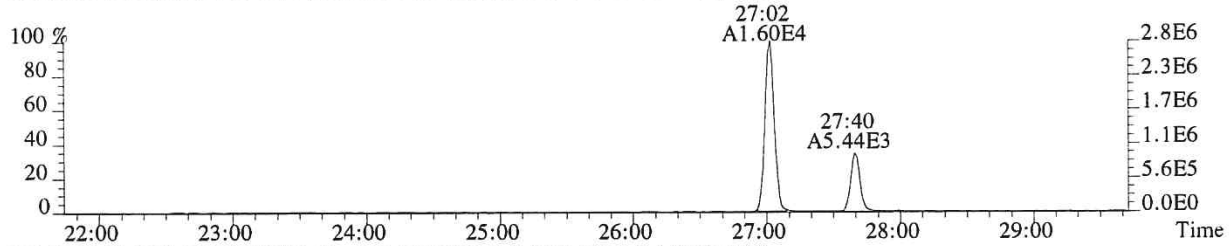
File:P519438 #1-566 Acq:17-DEC-2018 16:11:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-010
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2428.0,1.00%,F,T)



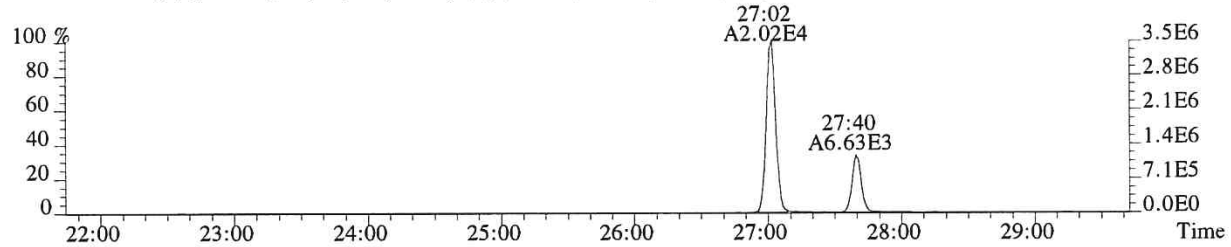
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1028.0,1.00%,F,T)



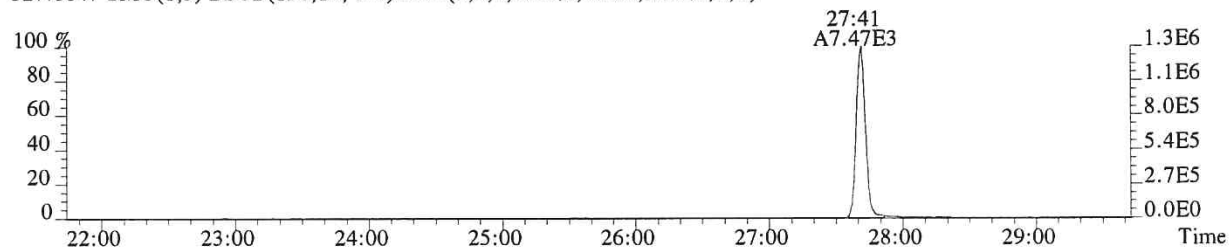
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5712.0,1.00%,F,T)



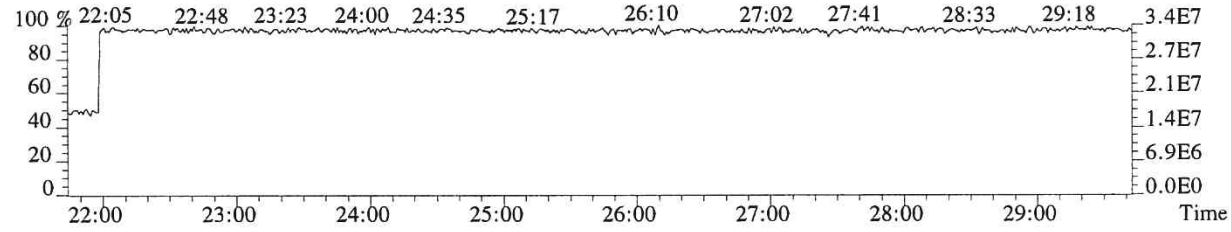
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2736.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,772.0,1.00%,F,T)

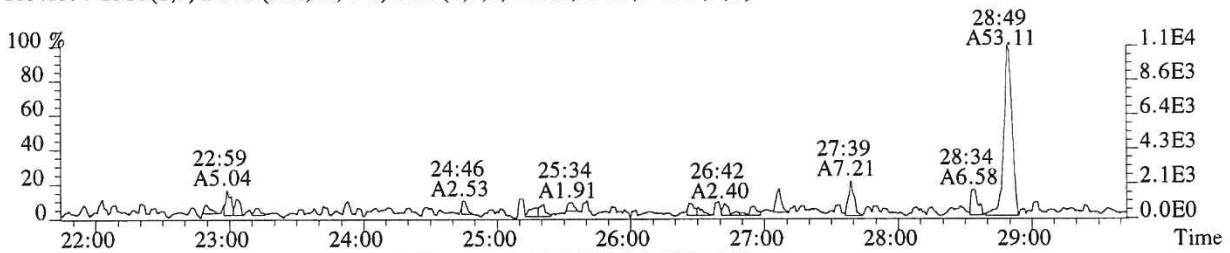


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

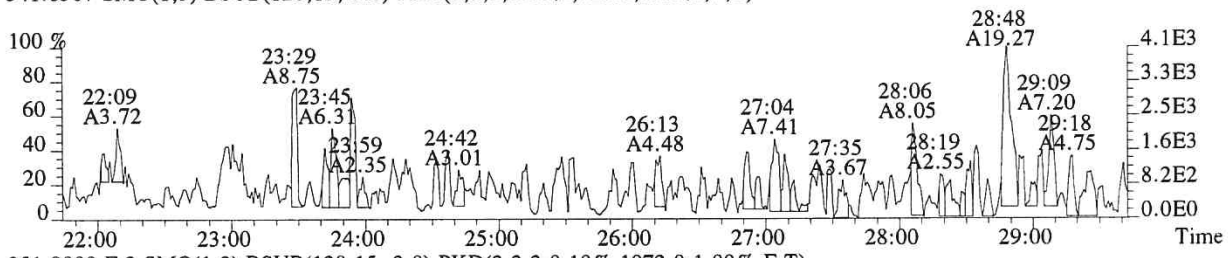


014238

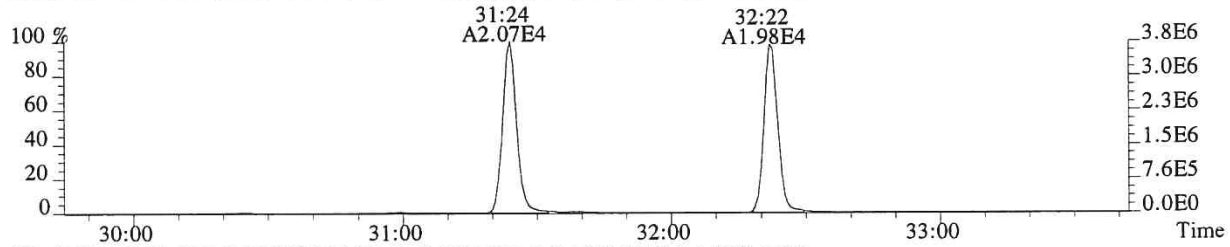
File:P519438 #1-566 Acq:17-DEC-2018 16:11:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-010
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,524.0,1.00%,F,T)



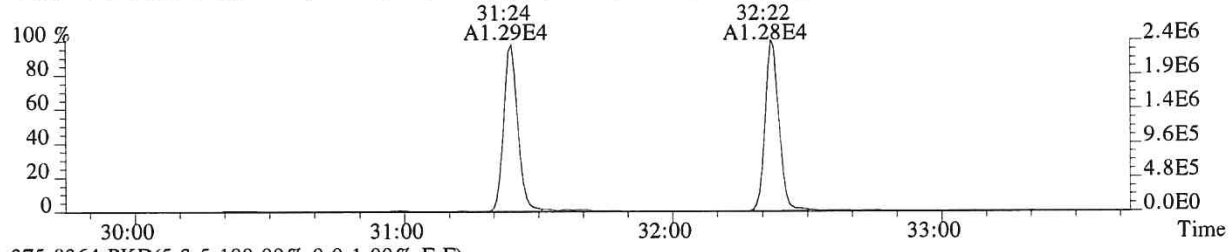
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,720.0,1.00%,F,T)



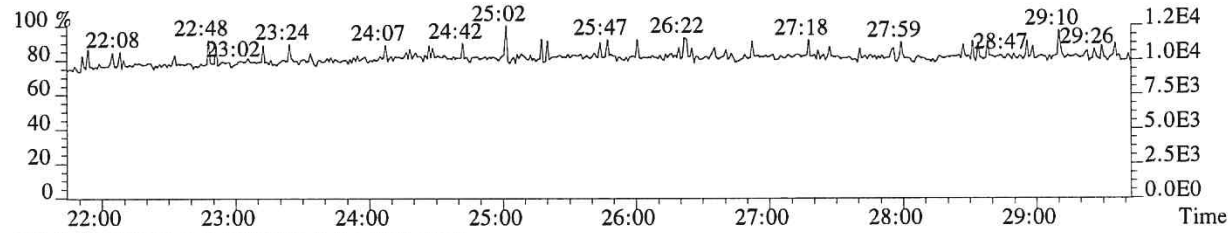
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1072.0,1.00%,F,T)



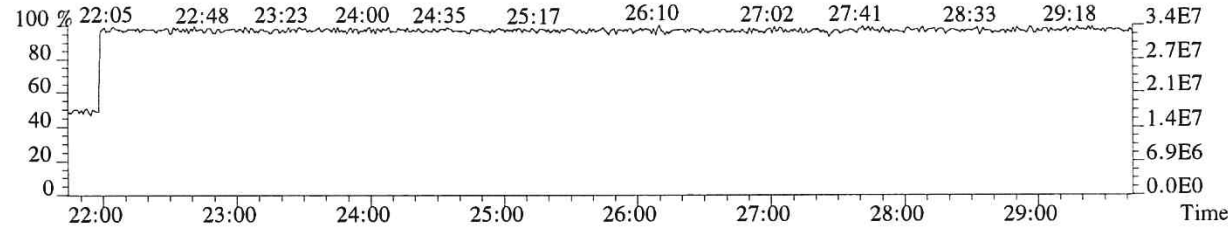
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1216.0,1.00%,F,T)



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

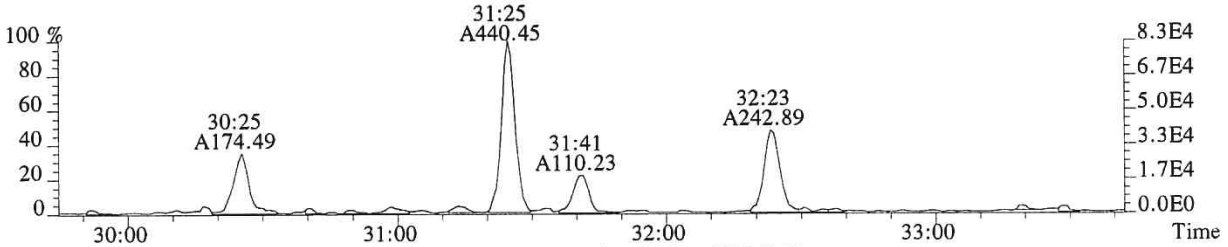


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

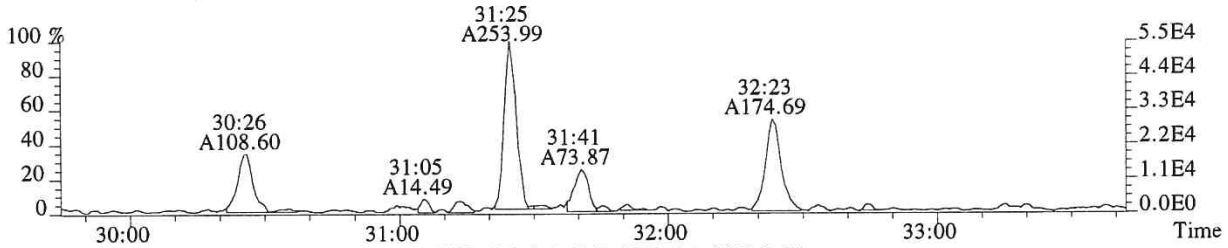


014239

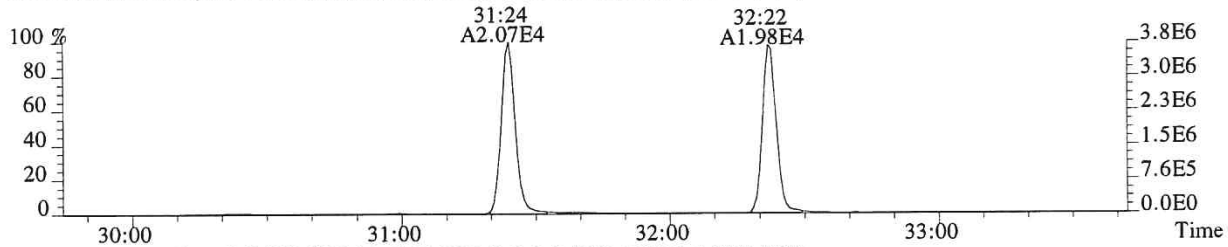
File:P519438 #1-357 Acq:17-DEC-2018 16:11:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-010
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,904.0,1.00%,F,T)



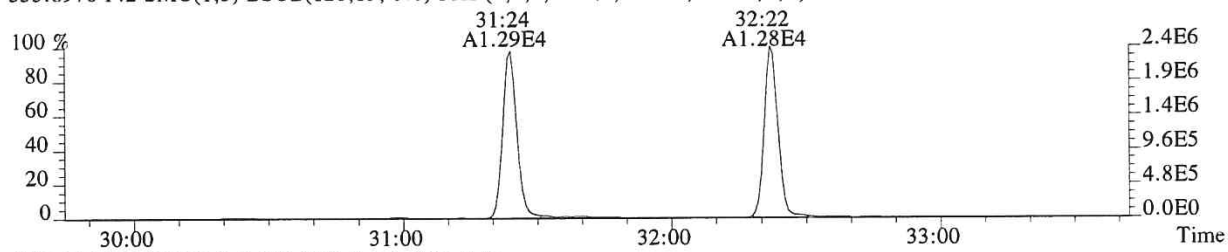
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1252.0,1.00%,F,T)



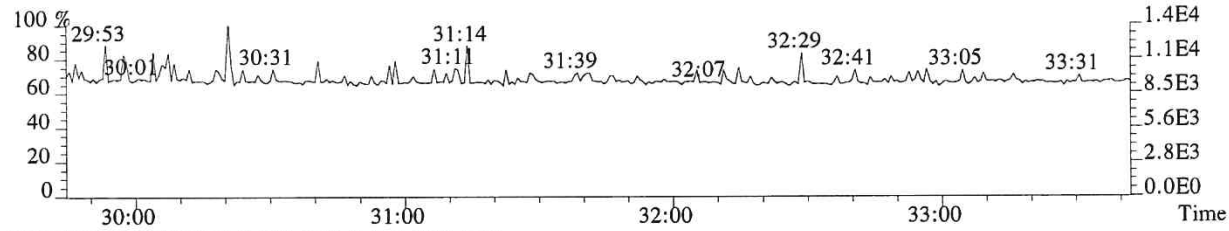
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1072.0,1.00%,F,T)



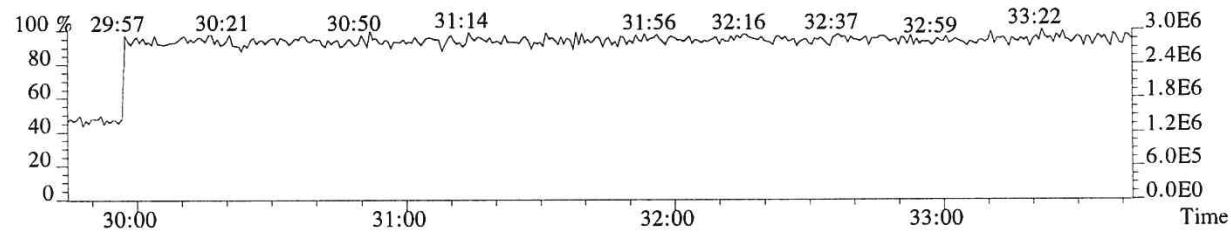
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1216.0,1.00%,F,T)



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

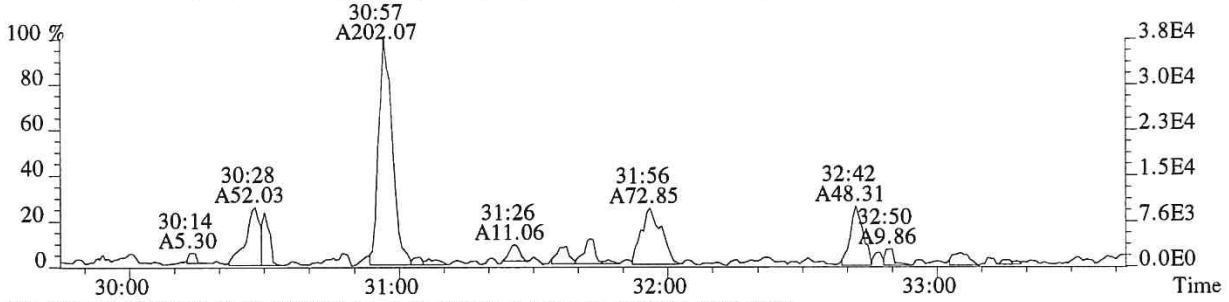


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

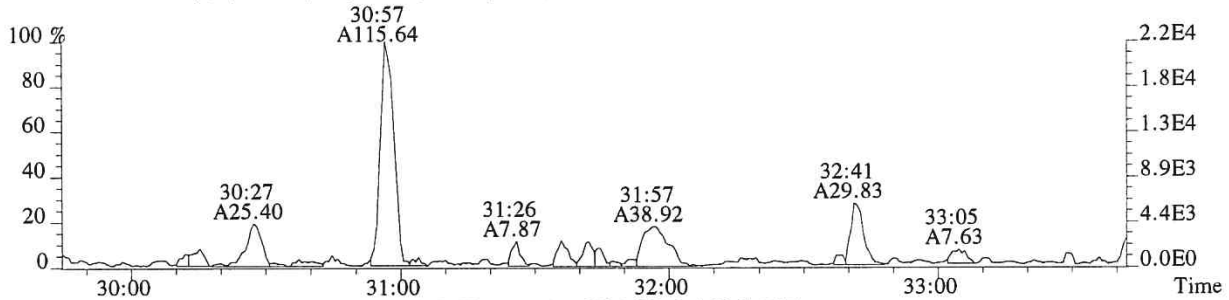


014240

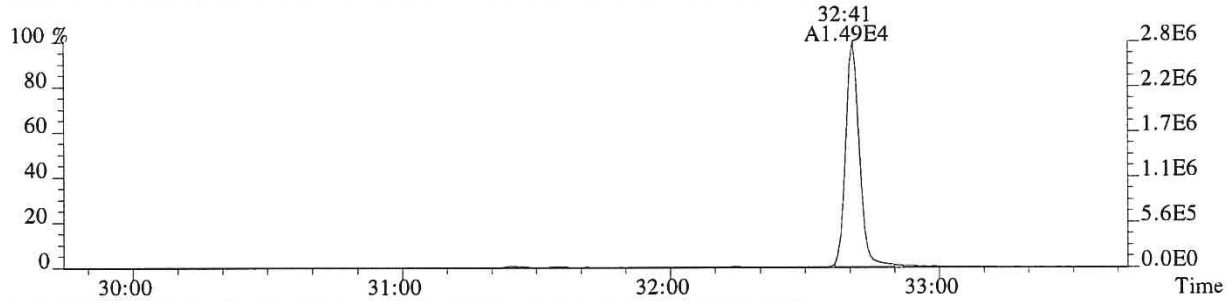
File:P519438 #1-357 Acq:17-DEC-2018 16:11:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-010
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,912.0,1.00%,F,T)



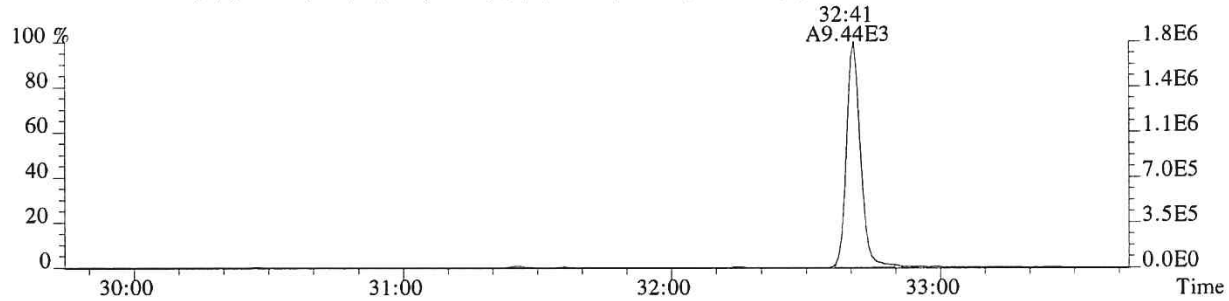
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,540.0,1.00%,F,T)



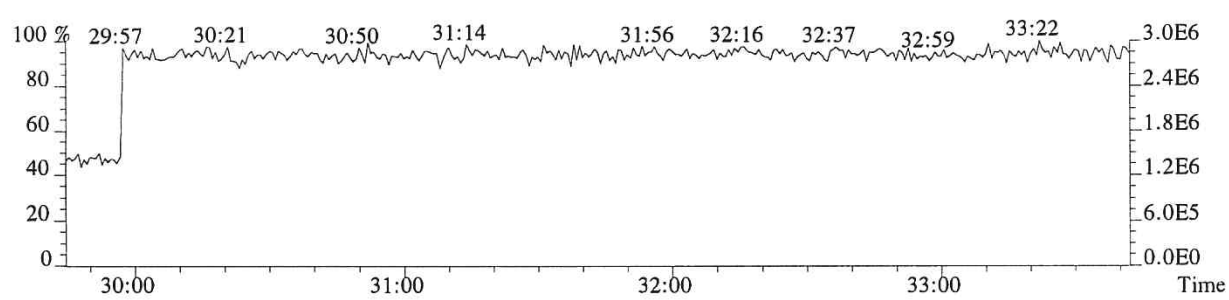
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1072.0,1.00%,F,T)



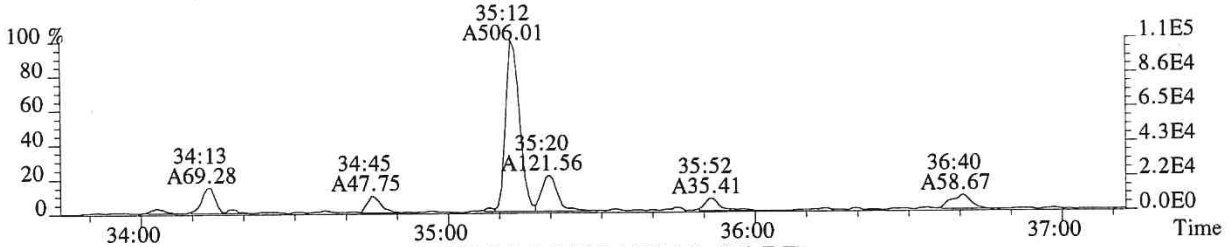
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1284.0,1.00%,F,T)



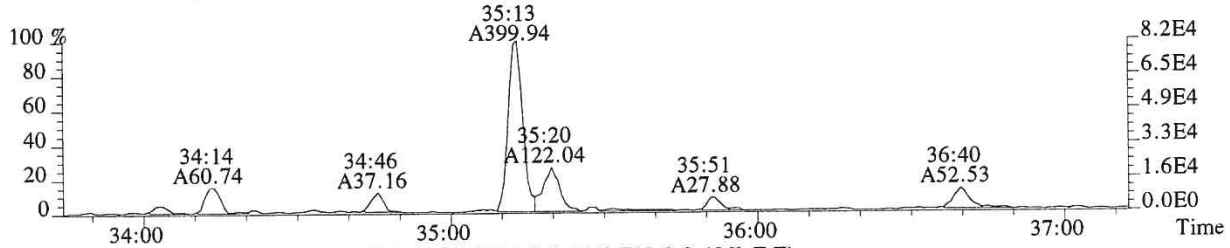
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



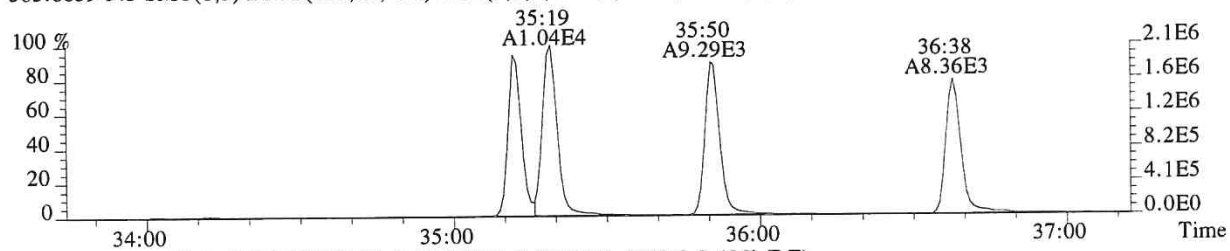
File:P519438 #1-313 Acq:17-DEC-2018 16:11:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-010
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,940.0,0.40%,F,T)



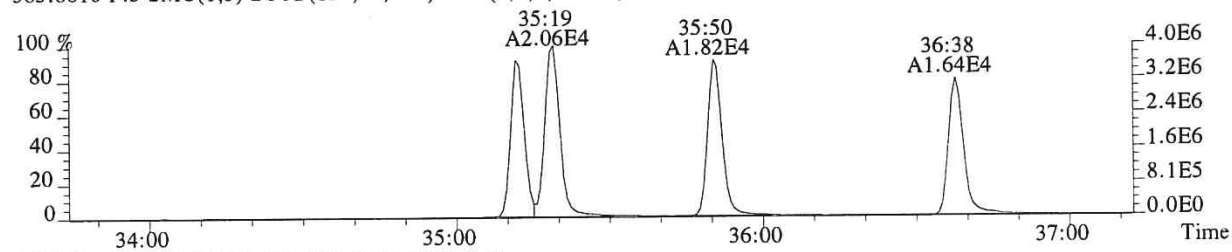
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1052.0,0.40%,F,T)



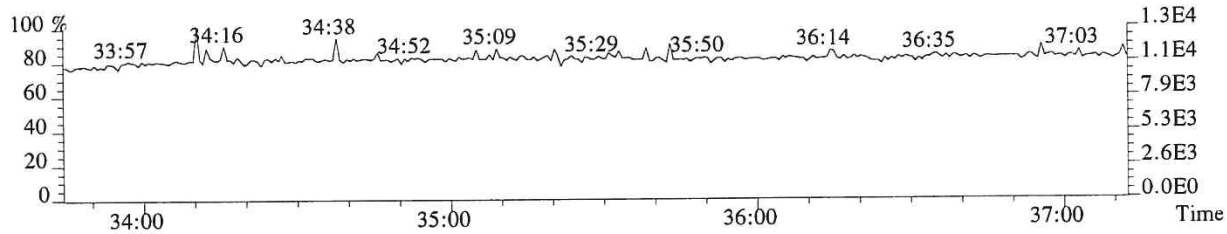
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,728.0,0.40%,F,T)



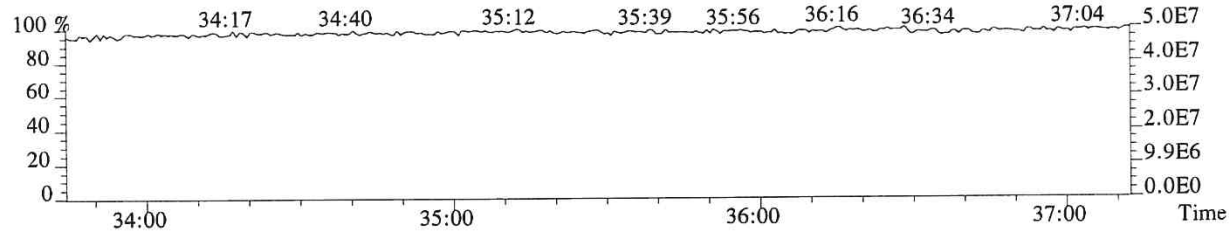
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1148.0,0.40%,F,T)



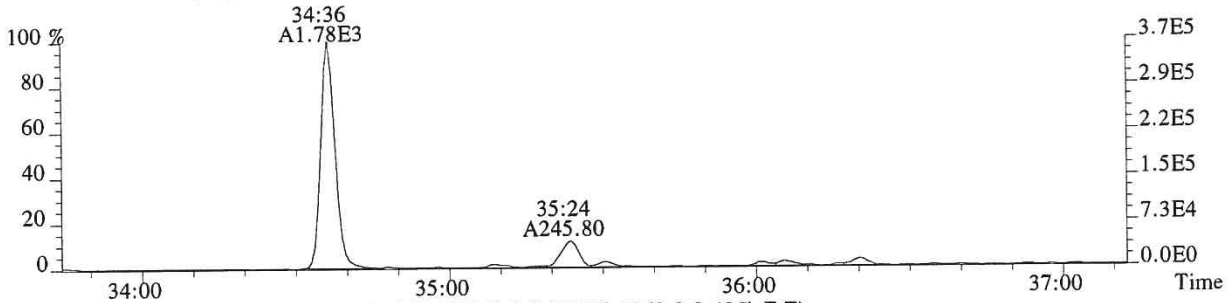
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



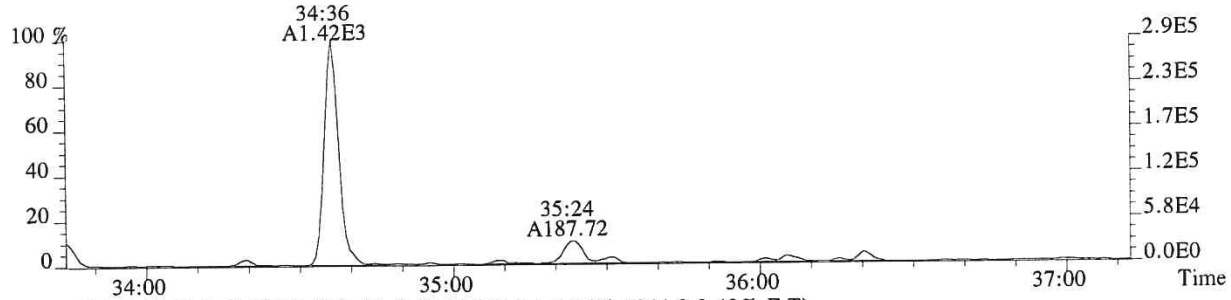
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



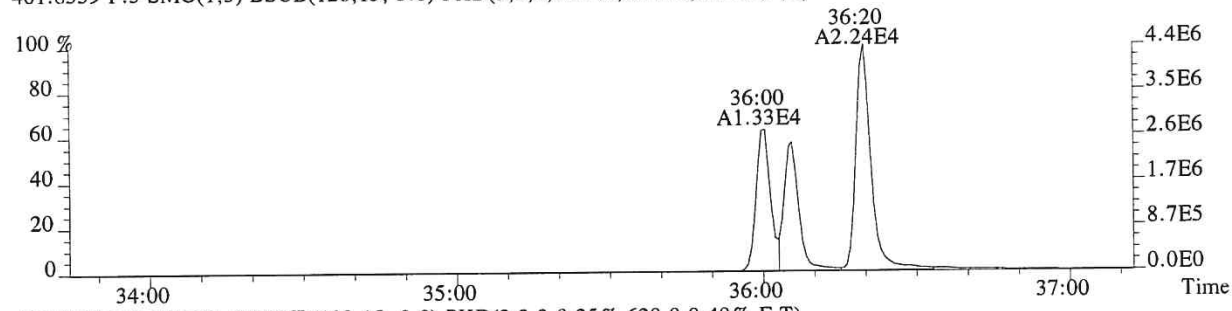
File:P519438 #1-313 Acq:17-DEC-2018 16:11:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-010
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,916.0,0.40%,F,T)



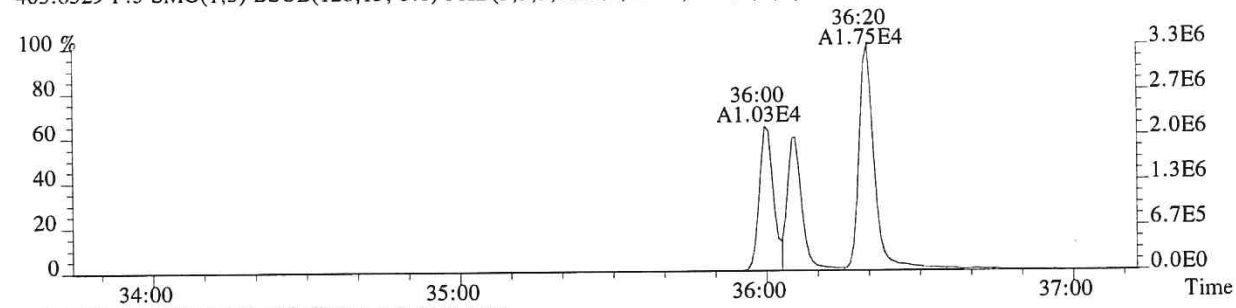
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1268.0,0.40%,F,T)



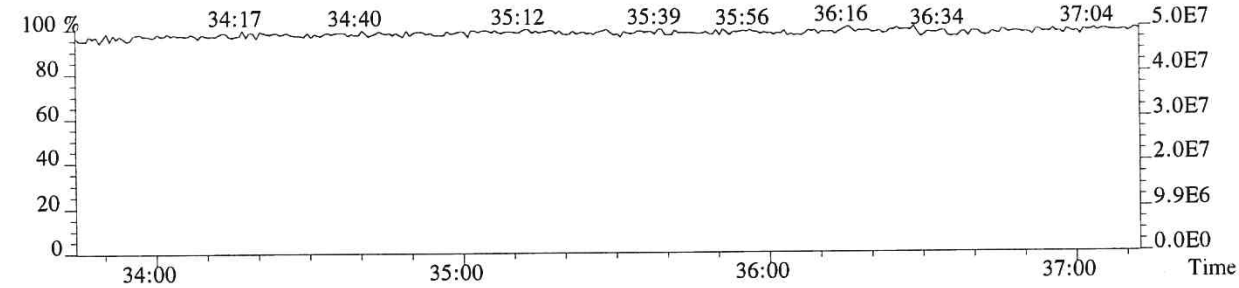
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1044.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,620.0,0.40%,F,T)



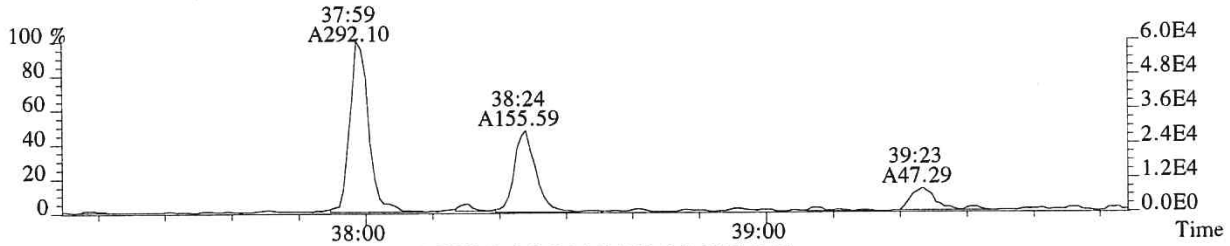
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



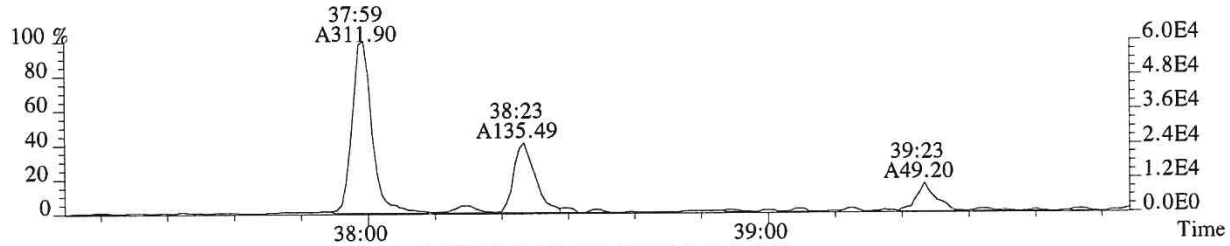
014243

File:P519438 #1-240 Acq:17-DEC-2018 16:11:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-010

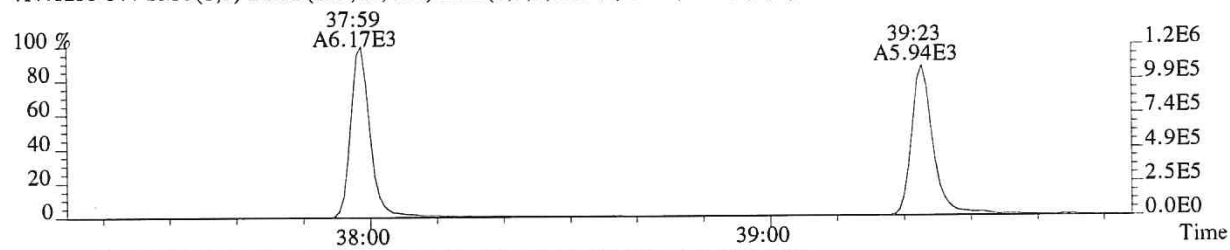
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,636.0,0.50%,F,T)



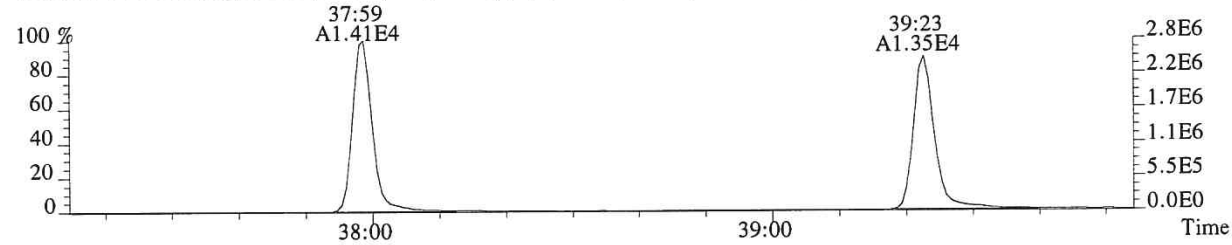
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,360.0,0.50%,F,T)



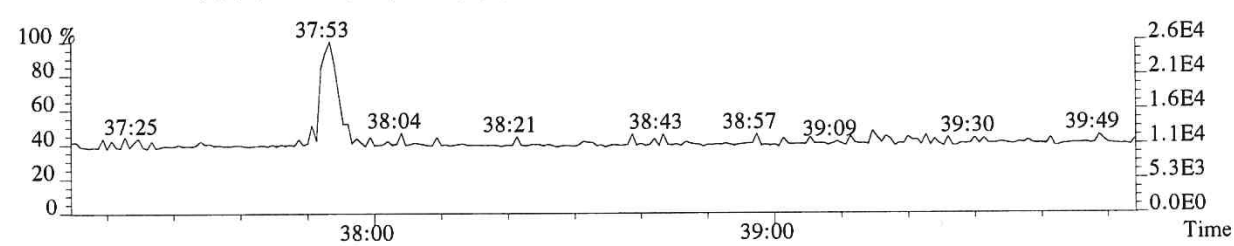
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,824.0,0.50%,F,T)



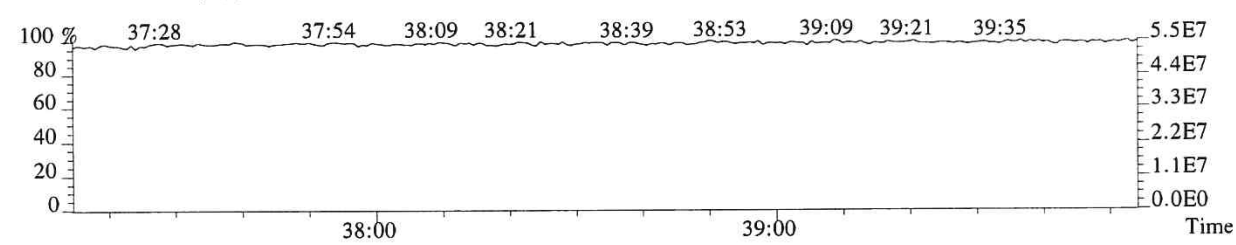
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2912.0,0.50%,F,T)



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

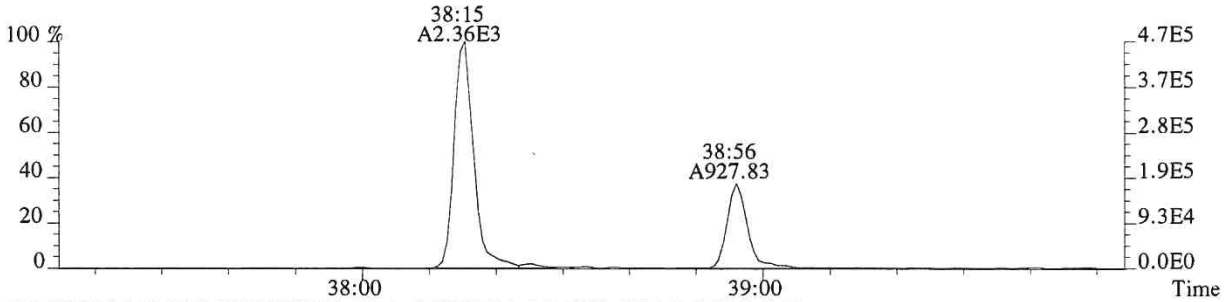


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

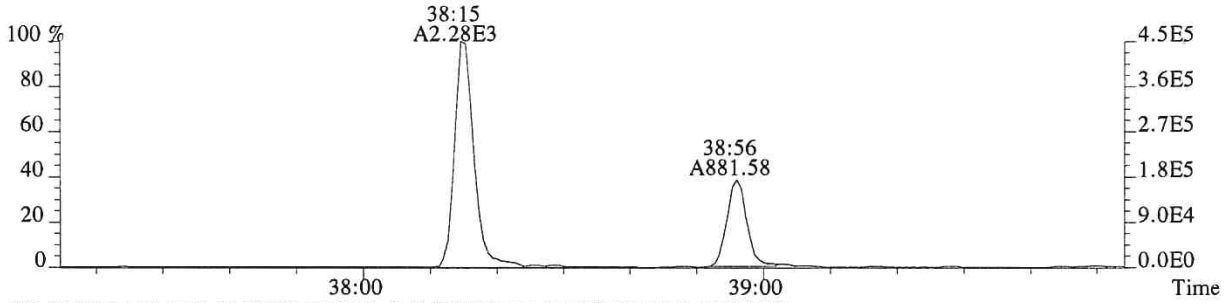


014244

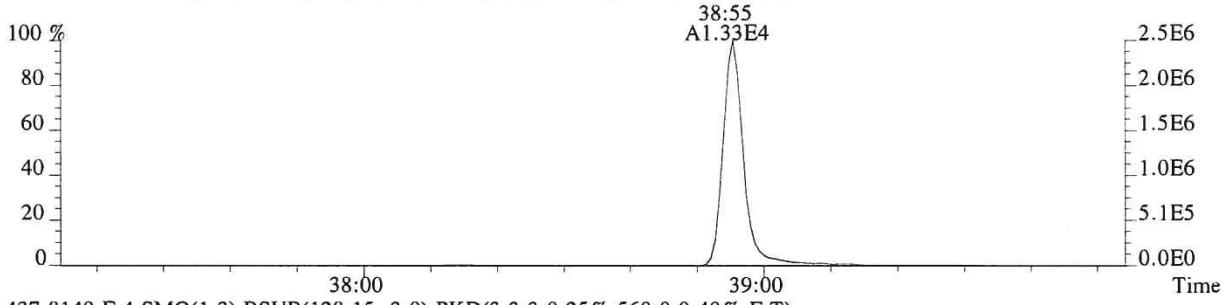
File:P519438 #1-240 Acq:17-DEC-2018 16:11:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-010
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,572.0,0.40%,F,T)



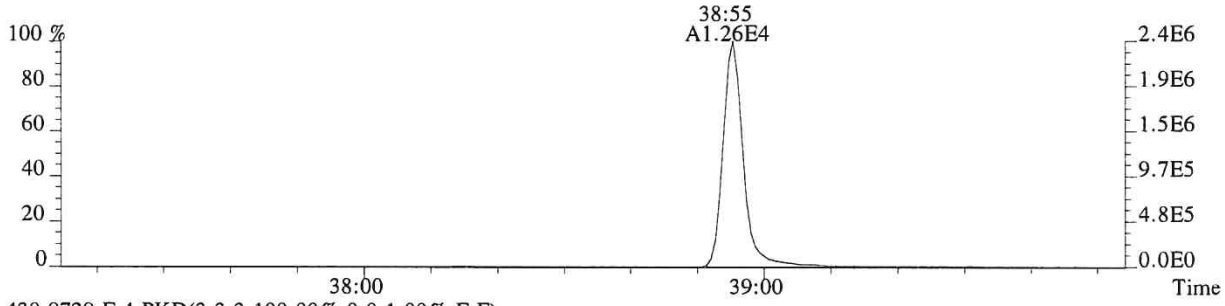
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1636.0,0.40%,F,T)



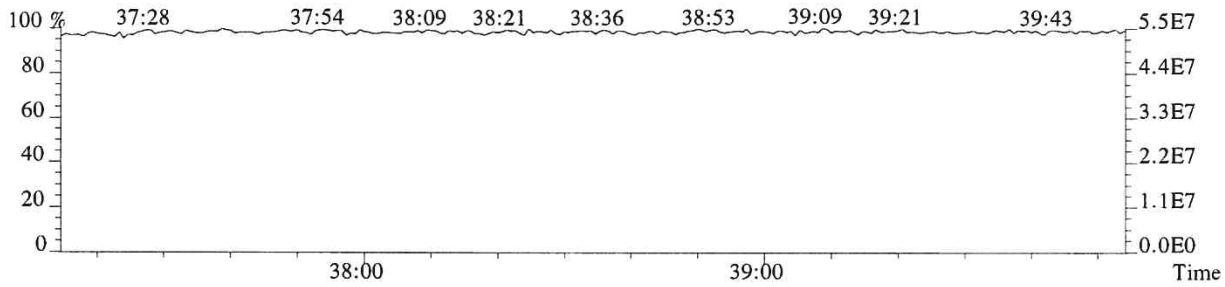
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,524.0,0.40%,F,T)



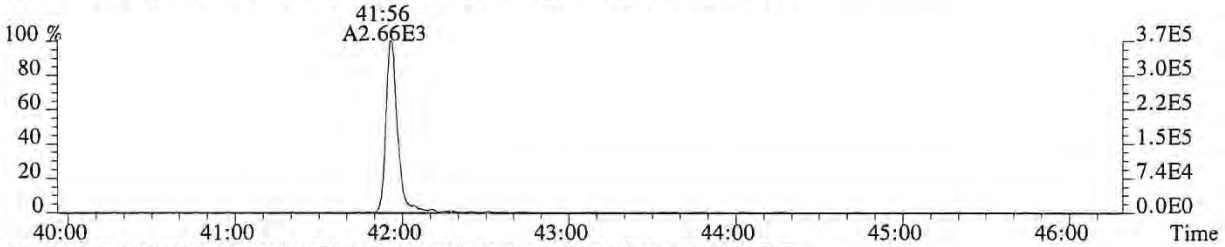
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,560.0,0.40%,F,T)



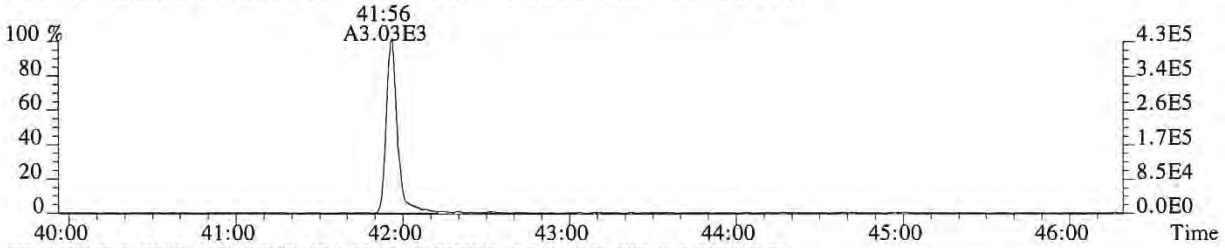
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



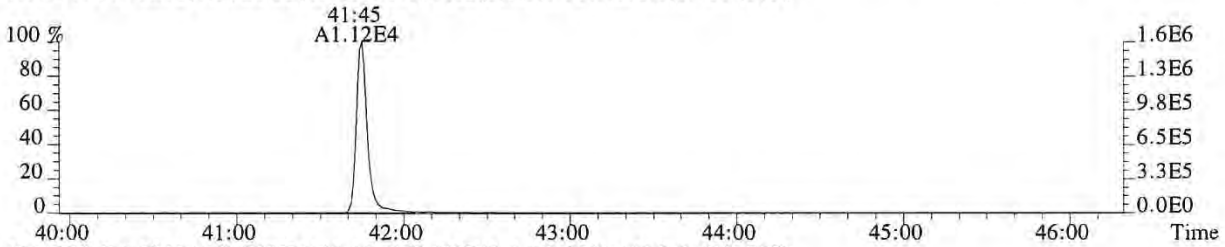
File:P519438 #1-575 Acq:17-DEC-2018 16:11:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-010
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,324.0,0.40%,F,T)



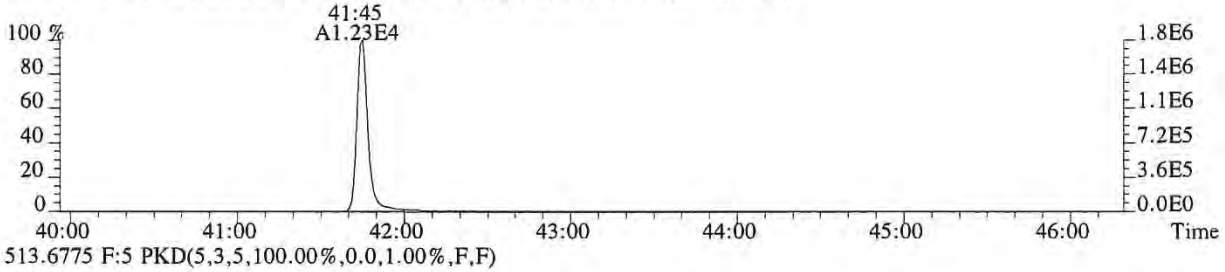
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1248.0,0.40%,F,T)



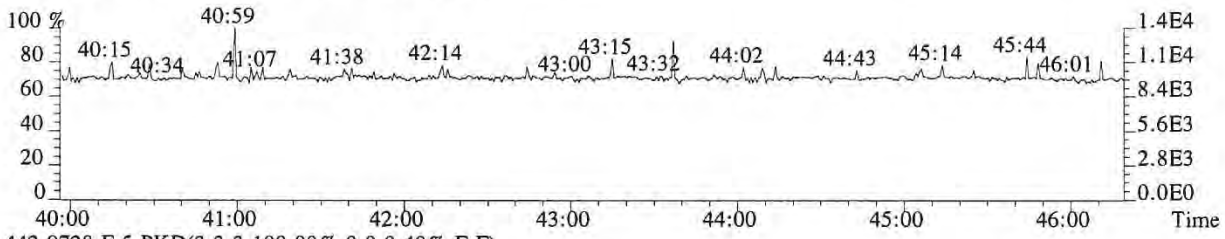
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,696.0,0.40%,F,T)



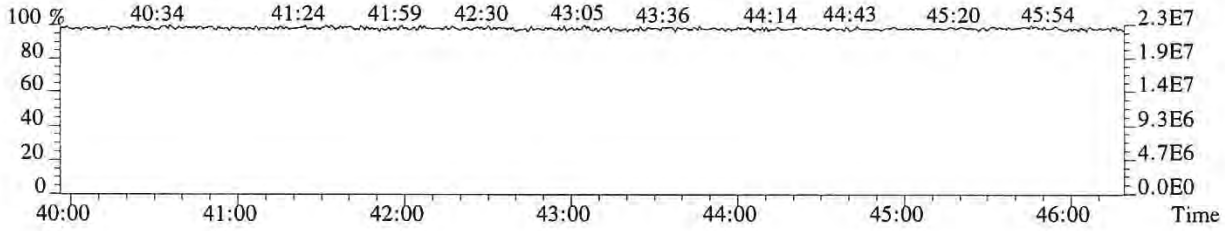
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,440.0,0.40%,F,T)



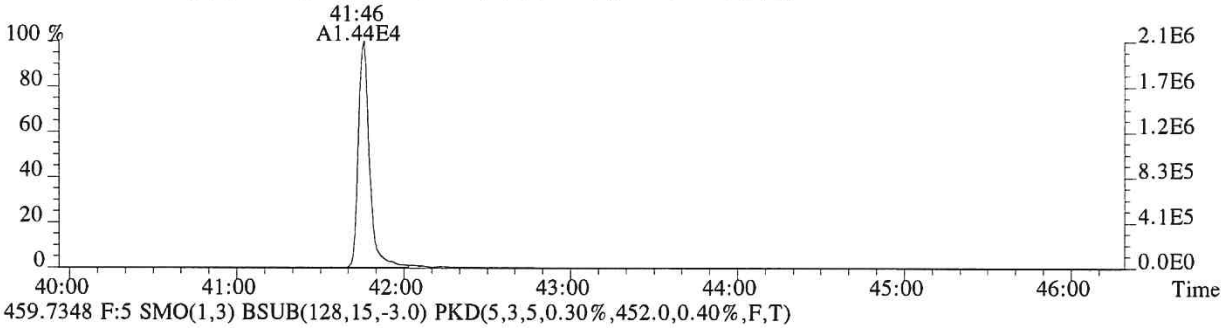
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



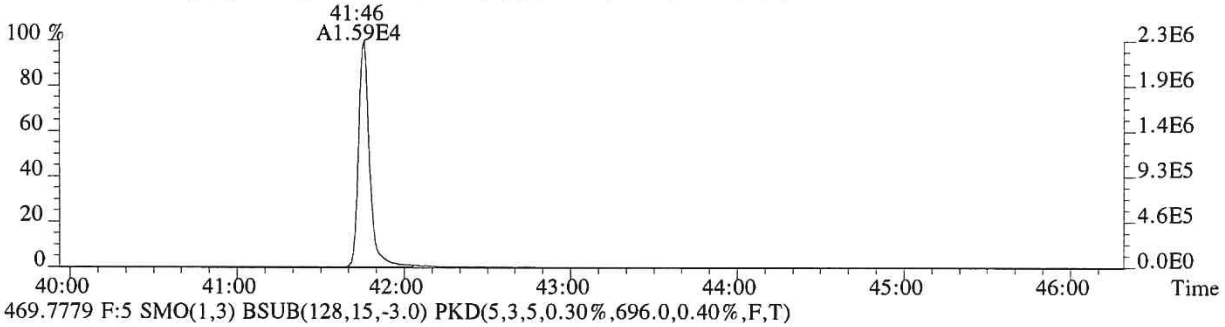
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



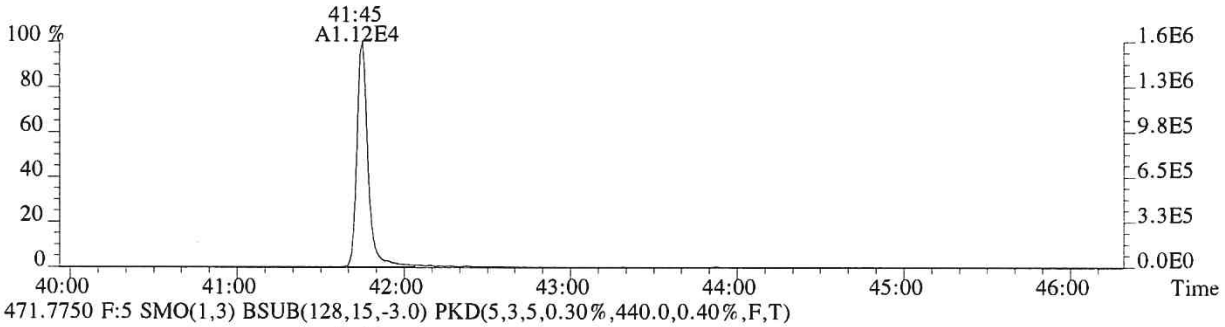
File:P519438 #1-575 Acq:17-DEC-2018 16:11:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-010
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,300.0,0.40%,F,T)



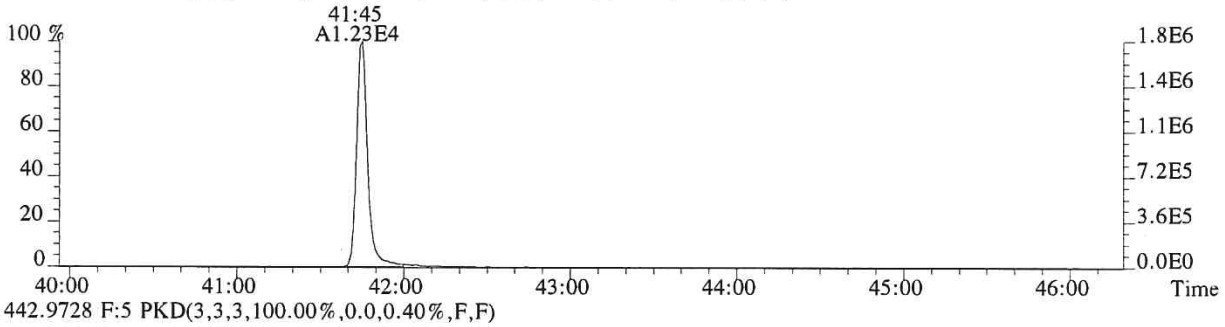
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,452.0,0.40%,F,T)



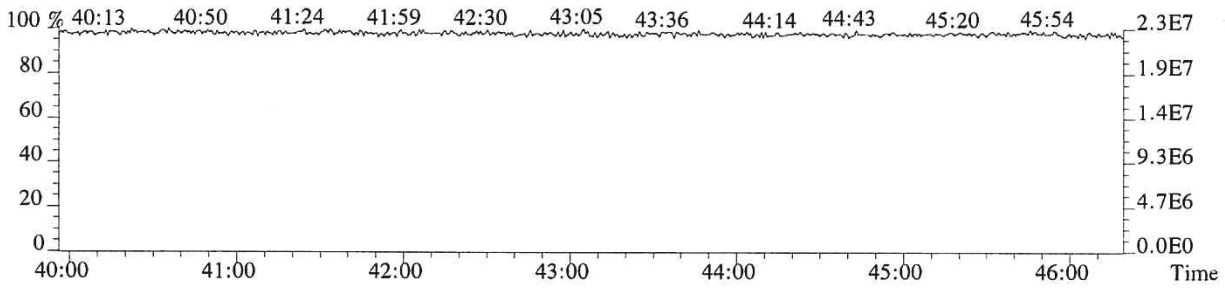
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,696.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,440.0,0.40%,F,T)



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



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0006

Run #10 Filename P519439 Samp: 1 Inj: 1 Acquired: 17-DEC-18 16:58:54
Processed: 19-DEC-18 09:11:00 Sample ID: E1801093-011

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:46	1.934e+03	2.642e+03	0.73	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	31:25	9.952e+01	7.280e+01	1.37	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	32:23	1.800e+02	1.183e+02	1.52	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:13	1.611e+02	1.418e+02	1.14	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:20	1.168e+02	8.344e+01	1.40	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:52	1.359e+02	1.180e+02	1.15	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	36:40	4.675e+01	2.133e+01	2.19	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	37:59	1.486e+03	1.459e+03	1.02	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:24	9.795e+01	7.745e+01	1.26	no	no	1.258
10	Unk	OCDF	41:56	2.300e+03	2.615e+03	0.88	yes	no	1.359
11	Unk	2,3,7,8-TCDD	27:41	2.919e+02	3.809e+02	0.77	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	32:42	3.515e+01	2.067e+01	1.70	yes	yes	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:00	7.597e+01	6.086e+01	1.25	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:06	3.646e+02	2.957e+02	1.23	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:20	2.198e+02	1.618e+02	1.36	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:55	9.460e+03	8.934e+03	1.06	yes	no	1.025
17	Unk	OCDD	41:46	8.277e+04	9.246e+04	0.90	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	26:46	1.439e+04	1.843e+04	0.78	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	31:24	2.420e+04	1.514e+04	1.60	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	32:22	2.200e+04	1.390e+04	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:12	9.913e+03	1.920e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:19	1.167e+04	2.249e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:51	1.020e+04	1.935e+04	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	36:38	9.598e+03	1.898e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:59	7.711e+03	1.730e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:23	7.006e+03	1.550e+04	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	27:40	6.893e+03	8.736e+03	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:41	1.637e+04	1.023e+04	1.60	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:00	1.422e+04	1.102e+04	1.29	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:06	1.392e+04	1.071e+04	1.30	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:55	1.600e+04	1.486e+04	1.08	yes	no	0.858
32	IS	13C-OCDD	41:45	1.580e+04	1.768e+04	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:02	1.600e+04	2.010e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:20	2.218e+04	1.745e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:41	9.766e+03				no	1.014

$$\text{OCDD} = \frac{(8.277e+04 + 9.246e+04) \times 4000\ \text{pg} \times 1}{(1.580e+04 + 1.768e+04) \times 10.5\text{ll}\ \text{g} \times 89.1 / 100 \times 1.118} = 1990\ \text{ng/kg}$$

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0006

Run #10 Filename P519439 Samp: 1 Inj: 1 Acquired: 17-DEC-18 16:58:54
Processed: 19-DEC-18 09:11:00 LAB. ID: E1801093-011

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.90e+05	8.56e+02	3.4e+02	3.69e+05	1.65e+03	2.2e+02
2	1,2,3,7,8-PeCDF	1.75e+04	1.82e+03	9.6e+00	1.21e+04	1.98e+03	6.1e+00
3	2,3,4,7,8-PeCDF	2.57e+04	1.82e+03	1.4e+01	1.34e+04	1.98e+03	6.8e+00
4	1,2,3,4,7,8-HxCDF	3.14e+04	9.76e+02	3.2e+01	2.76e+04	1.44e+03	1.9e+01
5	1,2,3,6,7,8-HxCDF	2.27e+04	9.76e+02	2.3e+01	1.68e+04	1.44e+03	1.2e+01
6	2,3,4,6,7,8-HxCDF	2.64e+04	9.76e+02	2.7e+01	2.68e+04	1.44e+03	1.9e+01
7	1,2,3,7,8,9-HxCDF	8.76e+03	9.76e+02	9.0e+00	4.55e+03	1.44e+03	3.2e+00
8	1,2,3,4,6,7,8-HpCDF	3.08e+05	7.12e+02	4.3e+02	3.03e+05	2.68e+03	1.1e+02
9	1,2,3,4,7,8,9-HpCDF	1.91e+04	7.12e+02	2.7e+01	1.75e+04	2.68e+03	6.5e+00
10	OCDF	3.19e+05	3.20e+02	1.0e+03	3.70e+05	1.26e+03	2.9e+02
11	2,3,7,8-TCDD	5.05e+04	2.41e+03	2.1e+01	7.33e+04	1.04e+03	7.0e+01
12	1,2,3,7,8-PeCDD	7.76e+03	5.72e+02	1.4e+01	5.40e+03	2.88e+02	1.9e+01
13	1,2,3,4,7,8-HxCDD	1.67e+04	7.12e+02	2.3e+01	1.33e+04	1.32e+03	1.0e+01
14	1,2,3,6,7,8-HxCDD	7.65e+04	7.12e+02	1.1e+02	6.53e+04	1.32e+03	5.0e+01
15	1,2,3,7,8,9-HxCDD	3.63e+04	7.12e+02	5.1e+01	3.11e+04	1.32e+03	2.4e+01
16	1,2,3,4,6,7,8-HpCDD	1.85e+06	4.96e+02	3.7e+03	1.67e+06	7.20e+02	2.3e+03
17	OCDD	1.20e+07	3.40e+02	3.5e+04	1.35e+07	4.52e+02	3.0e+04
18	13C-2,3,7,8-TCDF	2.39e+06	6.41e+03	3.7e+02	3.05e+06	5.50e+03	5.5e+02
19	13C-1,2,3,7,8-PeCDF	4.22e+06	5.28e+02	8.0e+03	2.65e+06	2.88e+02	9.2e+03
20	13C-2,3,4,7,8-PeCDF	4.20e+06	5.28e+02	7.9e+03	2.64e+06	2.88e+02	9.2e+03
21	13C-1,2,3,4,7,8-HxCDF	2.03e+06	6.40e+02	3.2e+03	3.95e+06	8.60e+02	4.6e+03
22	13C-1,2,3,6,7,8-HxCDF	2.26e+06	6.40e+02	3.5e+03	4.37e+06	8.60e+02	5.1e+03
23	13C-2,3,4,6,7,8-HxCDF	2.05e+06	6.40e+02	3.2e+03	3.89e+06	8.60e+02	4.5e+03
24	13C-1,2,3,7,8,9-HxCDF	1.84e+06	6.40e+02	2.9e+03	3.57e+06	8.60e+02	4.2e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.55e+06	2.45e+03	6.3e+02	3.53e+06	3.26e+03	1.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.24e+06	2.45e+03	5.1e+02	2.75e+06	3.26e+03	8.4e+02
27	13C-2,3,7,8-TCDD	1.28e+06	5.94e+03	2.1e+02	1.57e+06	1.72e+03	9.1e+02
28	13C-1,2,3,7,8-PeCDD	3.19e+06	9.32e+02	3.4e+03	2.02e+06	1.33e+03	1.5e+03
29	13C-1,2,3,4,7,8-HxCDD	3.08e+06	8.56e+02	3.6e+03	2.37e+06	5.68e+02	4.2e+03
30	13C-1,2,3,6,7,8-HxCDD	2.91e+06	8.56e+02	3.4e+03	2.24e+06	5.68e+02	3.9e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.07e+06	7.52e+02	4.1e+03	2.87e+06	4.04e+02	7.1e+03
32	13C-OCDD	2.26e+06	5.72e+02	3.9e+03	2.56e+06	3.32e+02	7.7e+03
33	13C-1,2,3,4-TCDD	2.76e+06	5.94e+03	4.6e+02	3.44e+06	1.72e+03	2.0e+03
34	13C-1,2,3,7,8,9-HxCDD	4.17e+06	8.56e+02	4.9e+03	3.27e+06	5.68e+02	5.8e+03
35	37Cl-2,3,7,8-TCDD	1.72e+06	9.16e+02	1.9e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (2.412e+03 + 1.044e+03) \times 2000}{(1.276e+06 + 1.567e+06) \times (\quad) \times 1.085} =$$

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Peak List Summary

CLIENT ID.
SL0006

Entry: 36 Totals Name: Total Tetra-Furans

Run: 10 File: P519439 Sample:1 Injection:1 Function:1

Acquired: 17-DEC-18 16:58:54 Processed: 19-DEC-18 09:11:00

Mass: 303.9020 305.8990 Tot Response: 9.21e+03 RRF: 0.9417

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	23:06	1.28e+02	1.86e+02	0.69	yes	3.14e+02		n	n
2	23:32	8.70e+01	1.22e+02	0.71	yes	2.09e+02		n	n
3	23:52	1.78e+02	2.55e+02	0.70	yes	4.34e+02		n	n
4	24:33	1.21e+02	1.51e+02	0.80	yes	2.72e+02		n	n
5	25:13	1.36e+02	1.54e+02	0.88	yes	2.90e+02		n	n
6	25:51	8.97e+02	1.27e+03	0.71	yes	2.17e+03		n	n
7	26:46	1.93e+03	2.64e+03	0.73	yes	4.58e+03	2,3,7,8-TCDF	n	n
8	27:10	2.30e+02	3.04e+02	0.76	yes	5.34e+02		n	n
9	28:48	1.80e+02	2.34e+02	0.77	yes	4.14e+02		n	n

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Peak List Summary

CLIENT ID.
SL0006

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 10 File: P519439 Sample:1 Injection:1 Function:1

Acquired: 17-DEC-18 16:58:54 Processed: 19-DEC-18 09:11:00

Mass: 319.8970 321.8940 Tot Response: 6.73e+02 RRF: 1.085

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	27:41	2.92e+02	3.81e+02 0.77	yes	6.73e+02	2,3,7,8-TCDD	n	n

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CLIENT ID.
SL0006

Entry: 38 Totals Name: Total Penta-Furans1

Run: 10 File: P519439 Sample:1 Injection:1 Function:1

Acquired: 17-DEC-18 16:58:54 Processed: 19-DEC-18 09:11:00

Mass: 339.8600 341.8570 Tot Response: 1.06e+03 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	28:49	6.44e+02	4.11e+02 1.57	yes	1.06e+03		n	n

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Peak List Summary

CLIENT ID.
SL0006

Entry: 39 Totals Name: Total Penta-Furans2

Run: 10 File: P519439 Sample:1 Injection:1 Function:2

Acquired: 17-DEC-18 16:58:54 Processed: 19-DEC-18 09:11:00

Mass: 339.8600 341.8570 Tot Response: 7.98e+02 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:00	1.10e+02	6.99e+01	1.58	yes	1.80e+02		n	n
2	31:25	9.95e+01	7.28e+01	1.37	yes	1.72e+02	1,2,3,7,8-PeCDF	n	n
3	31:41	8.62e+01	6.11e+01	1.41	yes	1.47e+02		n	n
4	32:23	1.80e+02	1.18e+02	1.52	yes	2.98e+02	2,3,4,7,8-PeCDF	n	n

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Peak List Summary

CLIENT ID.
SL0006

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 10 File: P519439 Sample:1 Injection:1 Function:2

Acquired: 17-DEC-18 16:58:54 Processed: 19-DEC-18 09:11:00

Mass: 355.8550 357.8520 Tot Response: 4.67e+02 RRF: 0.9565

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:27	1.27e+02	7.88e+01	1.61	yes	2.06e+02		n	n
2	30:57	5.47e+01	3.93e+01	1.39	yes	9.40e+01		n	n
3	31:42	4.58e+01	2.87e+01	1.59	yes	7.45e+01		n	n
4	31:59	2.21e+01	1.43e+01	1.54	yes	3.65e+01		n	y
5	32:42	3.51e+01	2.07e+01	1.70	yes	5.58e+01	1,2,3,7,8-PeCDD	n	y

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CLIENT ID.
SL0006

Entry: 41 Totals Name: Total Hexa-Furans

Run: 10 File: P519439 Sample:1 Injection:1 Function:3

Acquired: 17-DEC-18 16:58:54 Processed: 19-DEC-18 09:11:00

Mass: 373.8210 375.8180 Tot Response: 4.25e+03 RRF: 1.141

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:03	1.91e+02	1.63e+02	1.17	yes	3.54e+02		n	n
2	34:14	7.80e+02	6.59e+02	1.18	yes	1.44e+03		n	n
3	34:46	8.97e+02	7.16e+02	1.25	yes	1.61e+03		n	n
4	35:08	4.67e+01	4.40e+01	1.06	yes	9.08e+01		n	n
5	35:13	1.61e+02	1.42e+02	1.14	yes	3.03e+02	1,2,3,4,7,8-HxCDF	n	n
6	35:20	1.17e+02	8.34e+01	1.40	yes	2.00e+02	1,2,3,6,7,8-HxCDF	n	n
7	35:52	1.36e+02	1.18e+02	1.15	yes	2.54e+02	2,3,4,6,7,8-HxCDF	n	n

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Peak List Summary

CLIENT ID.
SL0006

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 10 File: P519439 Sample:1 Injection:1 Function:3

Acquired: 17-DEC-18 16:58:54 Processed: 19-DEC-18 09:11:00

Mass: 389.8160 391.8130 Tot Response: 5.37e+03 RRF: 1.047

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:37	9.91e+02	7.01e+02	1.41	yes	1.69e+03		n	n
2	35:24	1.19e+03	1.03e+03	1.16	yes	2.22e+03		n	n
3	35:30	1.04e+02	8.57e+01	1.22	yes	1.90e+02		n	n
4	36:00	7.60e+01	6.09e+01	1.25	yes	1.37e+02	1,2,3,4,7,8-HxCDD	n	n
5	36:06	3.65e+02	2.96e+02	1.23	yes	6.60e+02	1,2,3,6,7,8-HxCDD	n	n
6	36:16	4.74e+01	4.28e+01	1.11	yes	9.02e+01		n	n
7	36:20	2.20e+02	1.62e+02	1.36	yes	3.82e+02	1,2,3,7,8,9-HxCDD	n	n

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Peak List Summary

CLIENT ID.
SL0006

Entry: 43 Totals Name: Total Hepta-Furans

Run: 10 File: P519439 Sample:1 Injection:1 Function:4

Acquired: 17-DEC-18 16:58:54 Processed: 19-DEC-18 09:11:00

Mass: 407.7820 409.7790 Tot Response: 7.70e+03 RRF: 1.308

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:59	1.49e+03	1.46e+03	1.02	yes	2.95e+03	1,2,3,4,6,7,8-HpCDF	n	n
2	38:15	4.35e+01	3.80e+01	1.14	yes	8.15e+01		n	n
3	38:24	2.42e+03	2.25e+03	1.07	yes	4.67e+03		n	n

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SL0006

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 10 File: P519439 Sample:1 Injection:1 Function:4

Acquired: 17-DEC-18 16:58:54 Processed: 19-DEC-18 09:11:00

Mass: 423.7770 425.7740 Tot Response: 4.10e+04 RRF: 1.025

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:15	1.15e+04	1.11e+04	1.04	yes	2.26e+04		n	n
2	38:55	9.46e+03	8.93e+03	1.06	yes	1.84e+04	1,2,3,4,6,7,8-HpCDD	n	n

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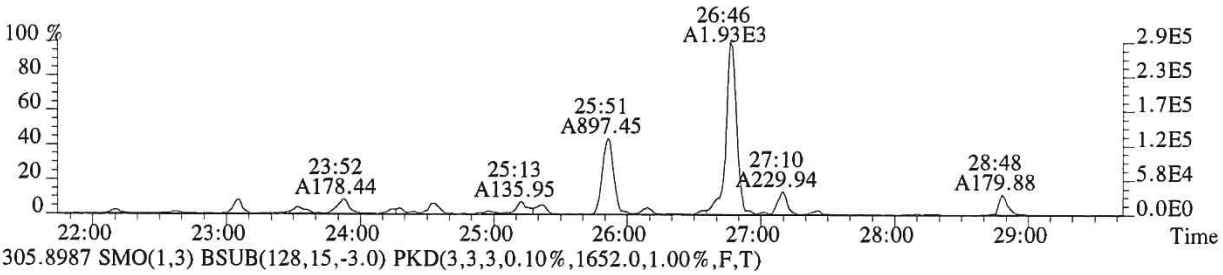
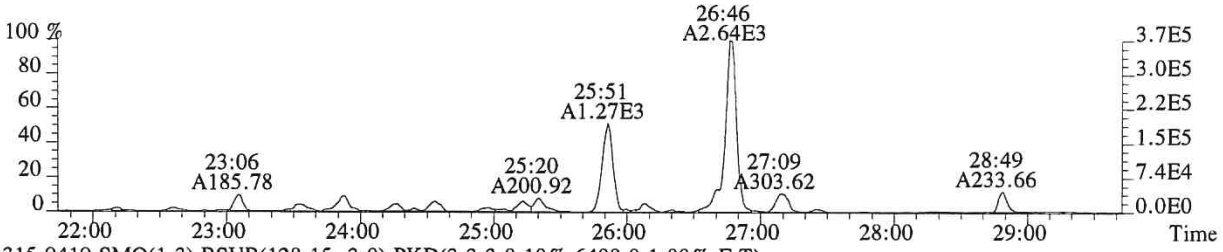
File:P519439 #1-566 Acq:17-DEC-2018 16:58:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-011

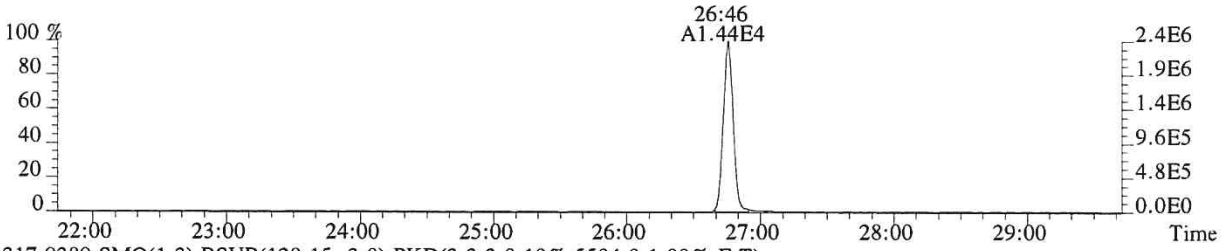
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,856.0,1.00%,F,T)



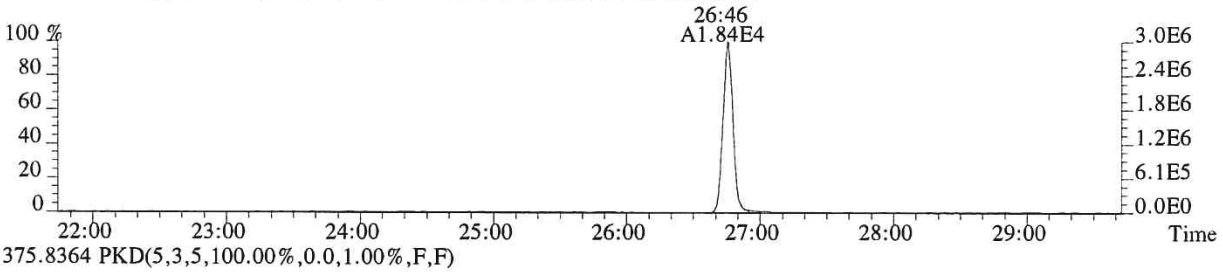
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1652.0,1.00%,F,T)



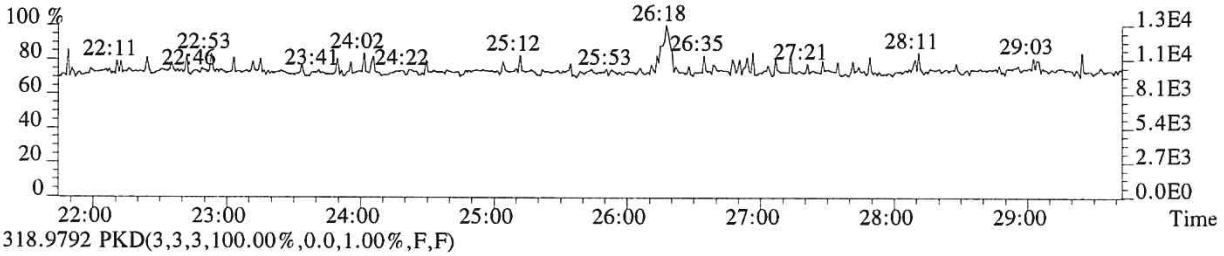
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6408.0,1.00%,F,T)



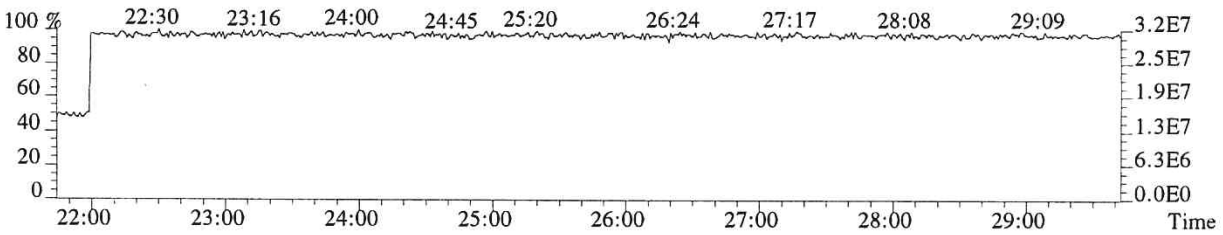
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5504.0,1.00%,F,T)



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



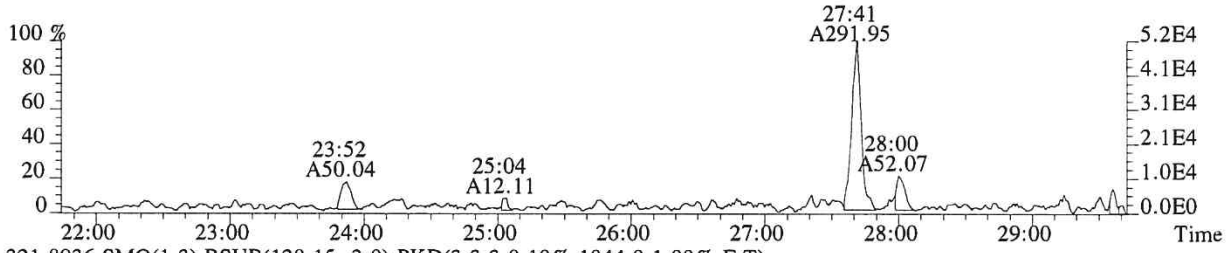
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



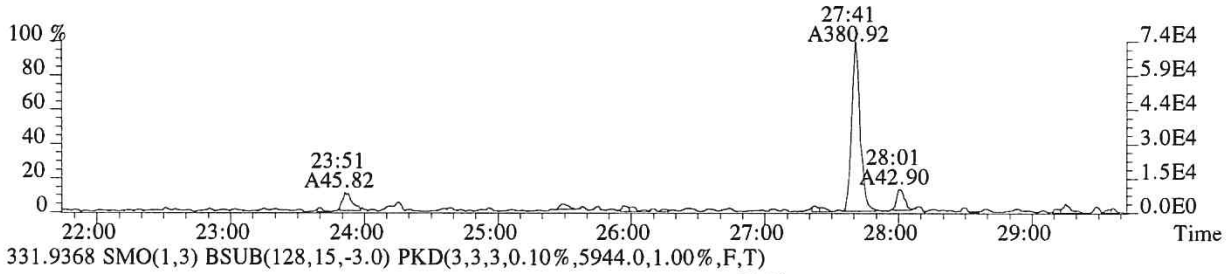
014259

File:P519439 #1-566 Acq:17-DEC-2018 16:58:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-011

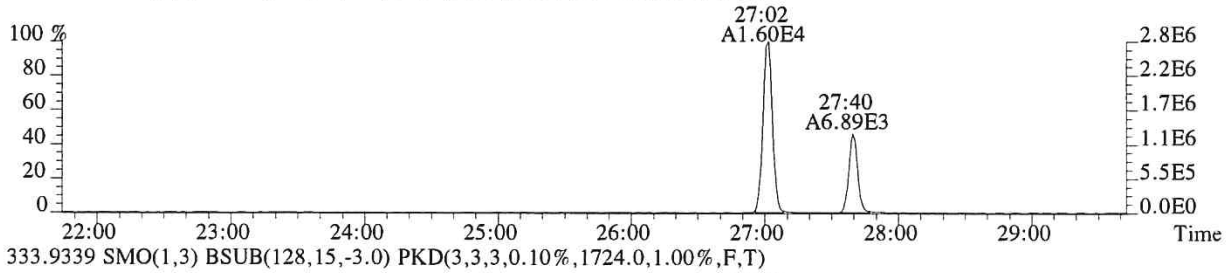
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2412.0,1.00%,F,T)



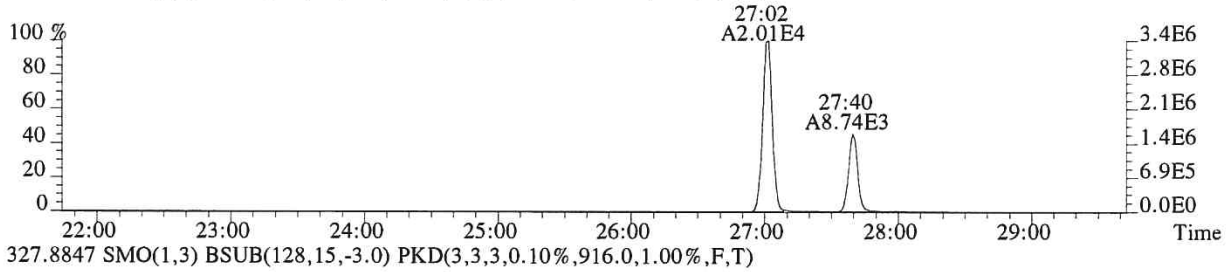
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1044.0,1.00%,F,T)



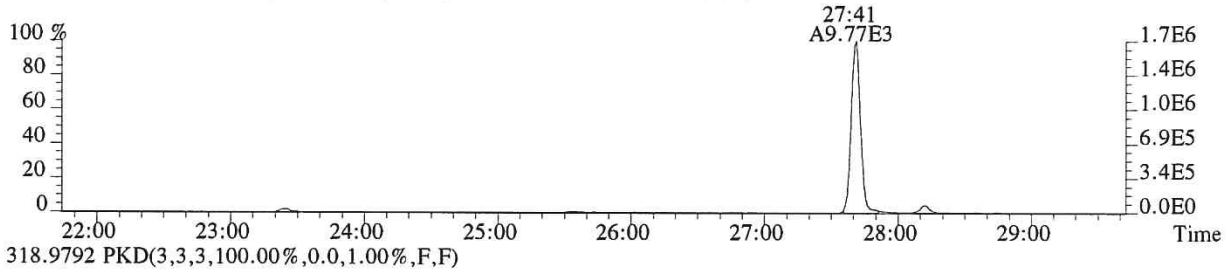
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5944.0,1.00%,F,T)



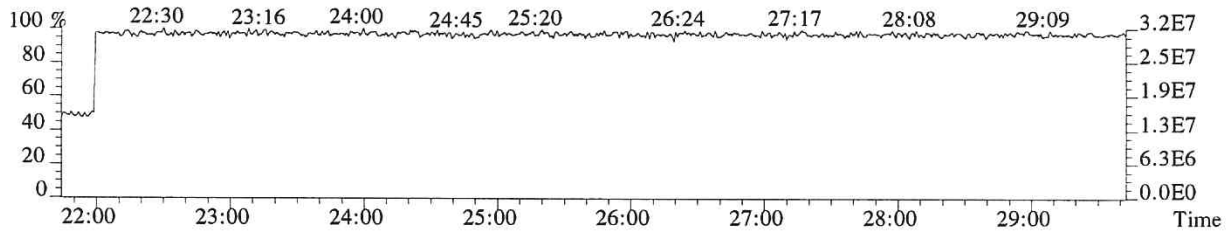
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1724.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,916.0,1.00%,F,T)



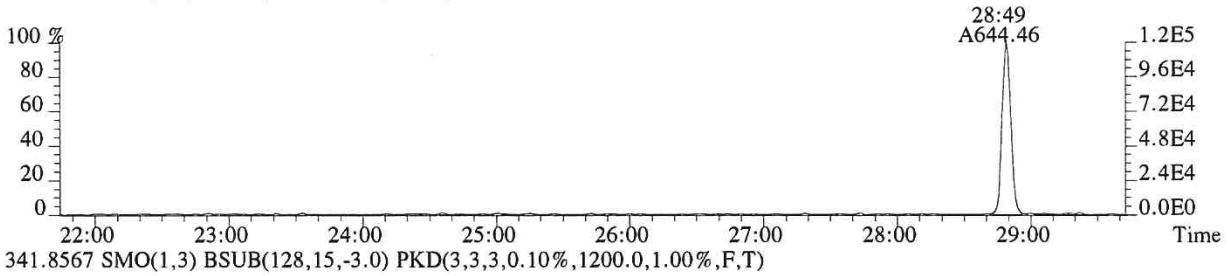
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



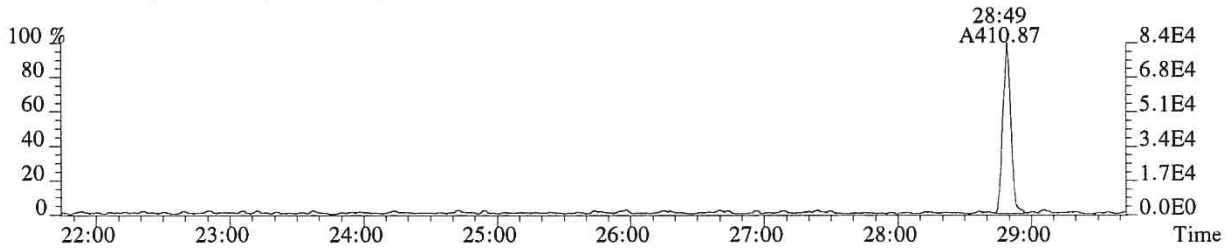
014260

File:P519439 #1-566 Acq:17-DEC-2018 16:58:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-011

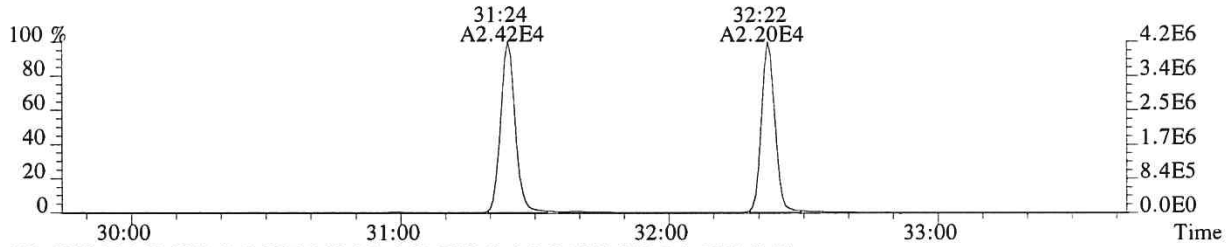
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,624.0,1.00%,F,T)



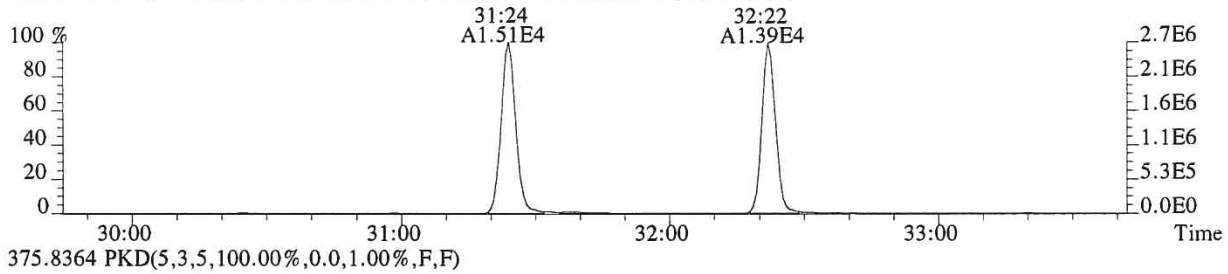
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1200.0,1.00%,F,T)



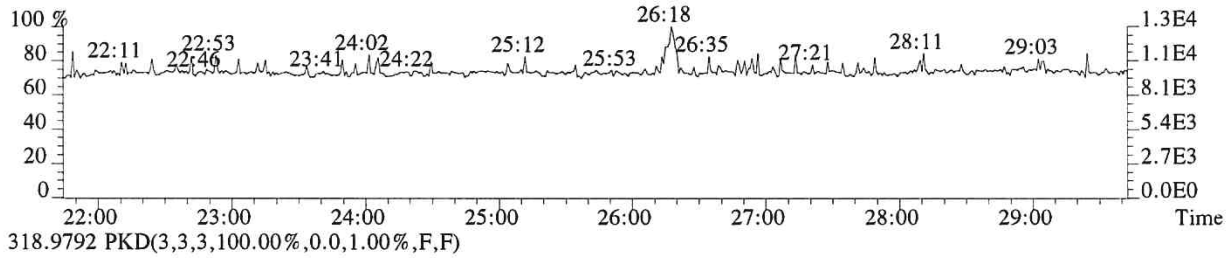
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,528.0,1.00%,F,T)



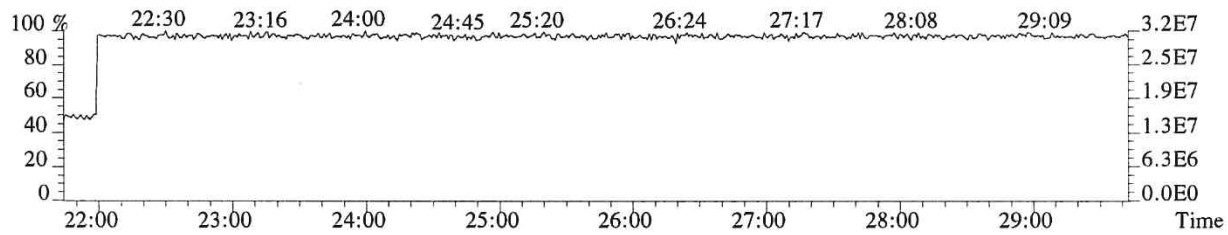
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,288.0,1.00%,F,T)



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

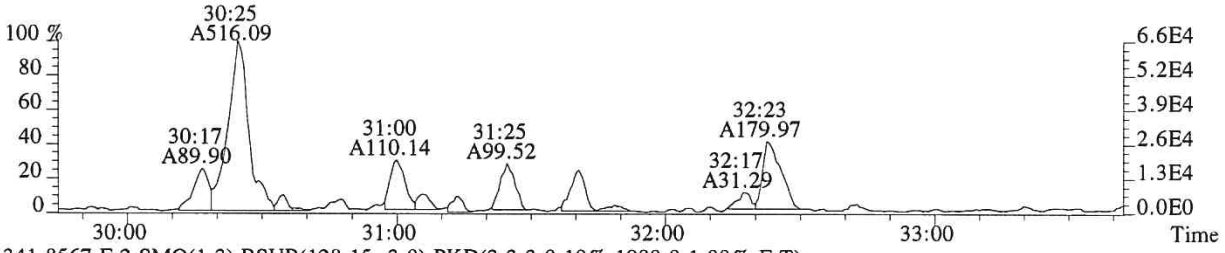


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

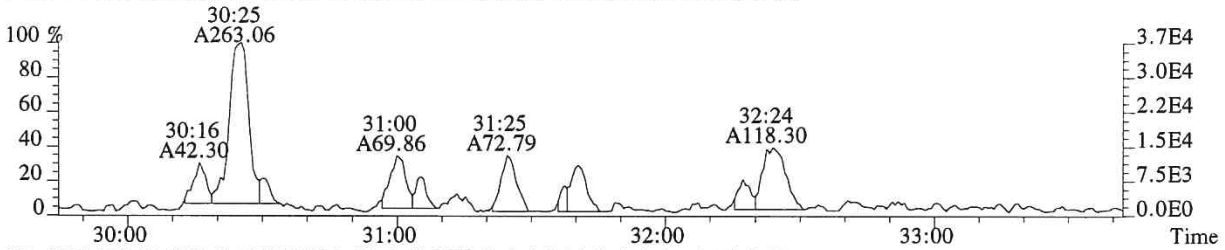


014261

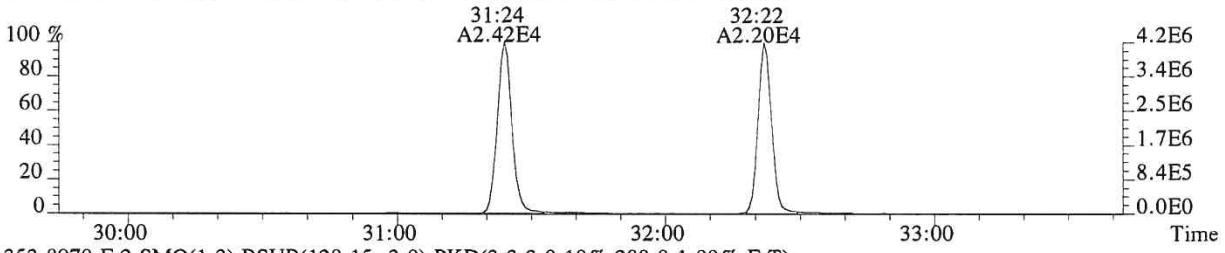
File:P519439 #1-357 Acq:17-DEC-2018 16:58:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-011
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1824.0,1.00%,F,T)



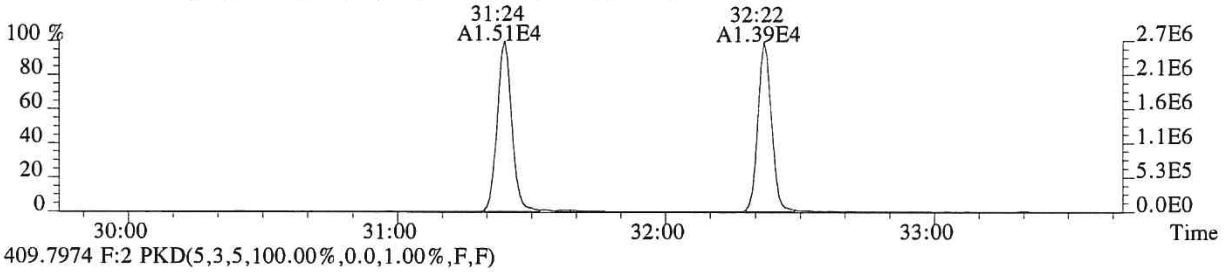
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1980.0,1.00%,F,T)



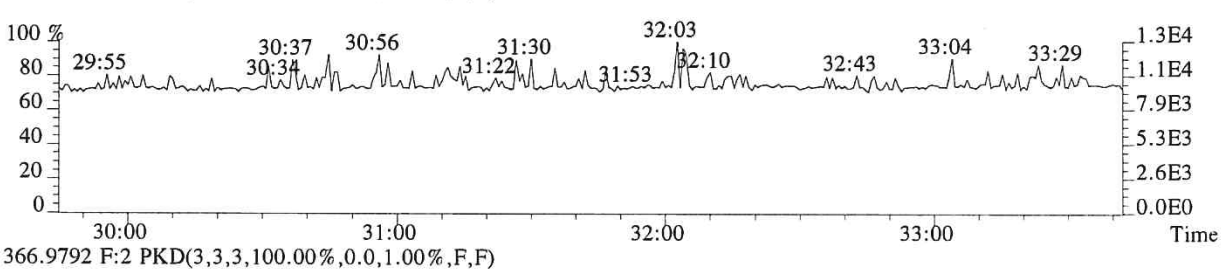
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,528.0,1.00%,F,T)



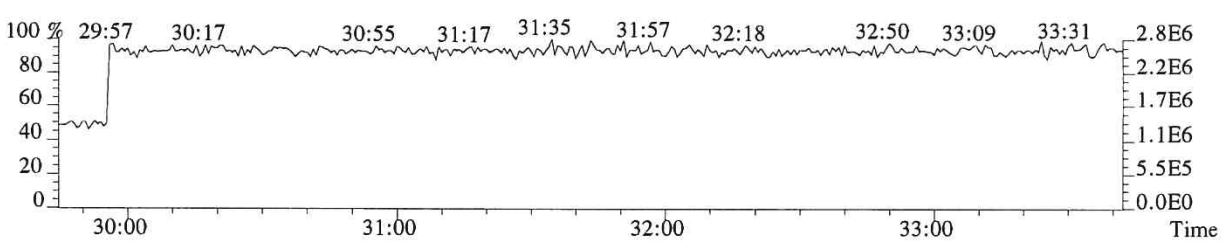
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,288.0,1.00%,F,T)



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

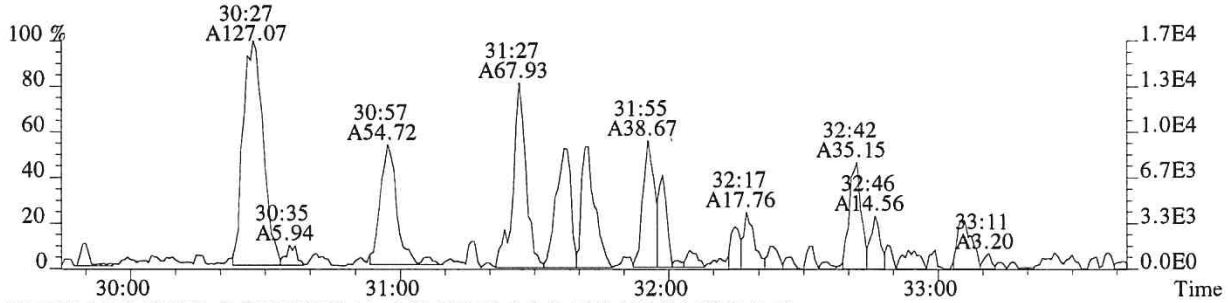


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

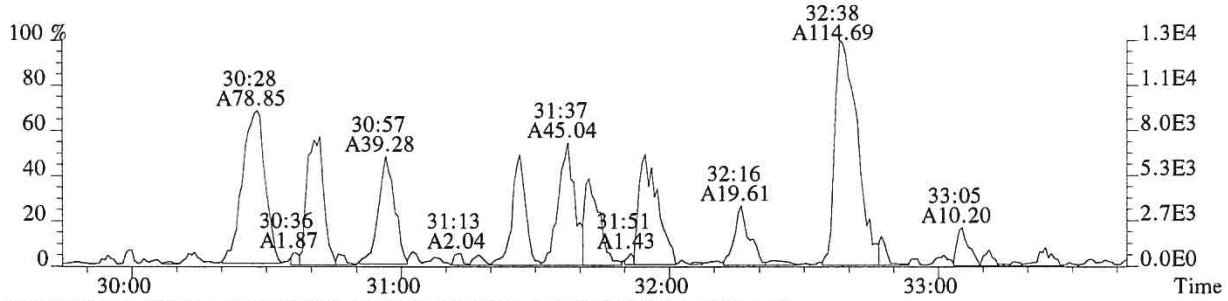


014262

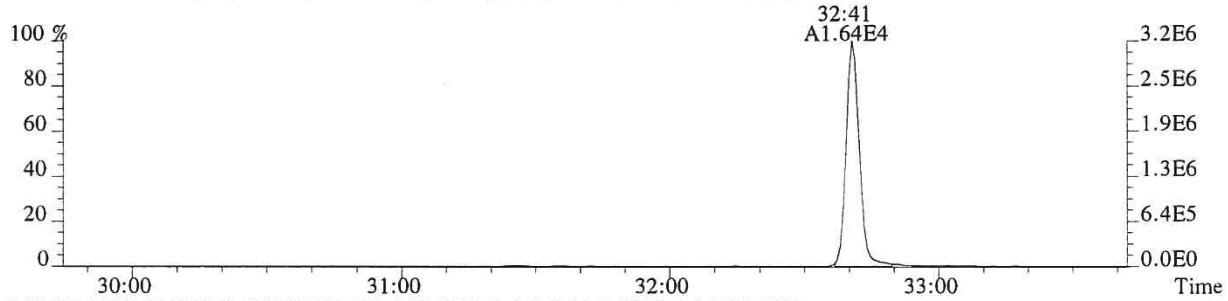
File:P519439 #1-357 Acq:17-DEC-2018 16:58:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-011
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,572.0,1.00%,F,T)



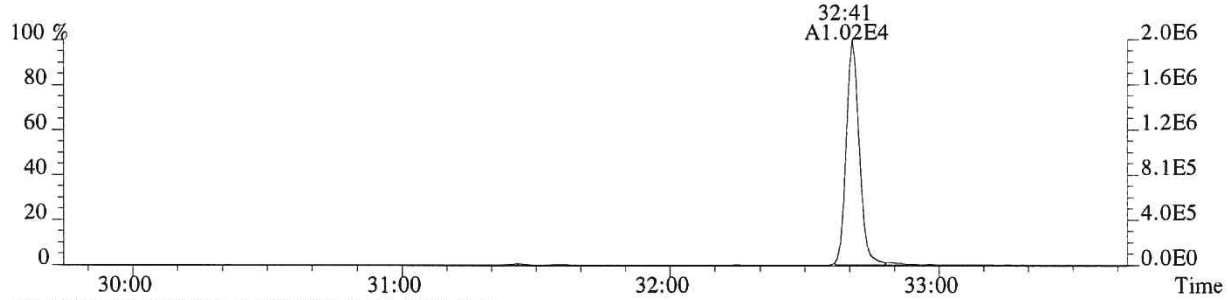
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,288.0,1.00%,F,T)



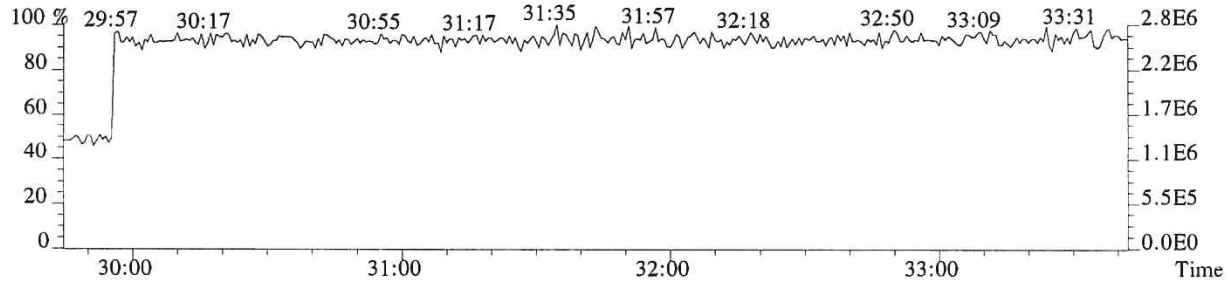
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,932.0,1.00%,F,T)



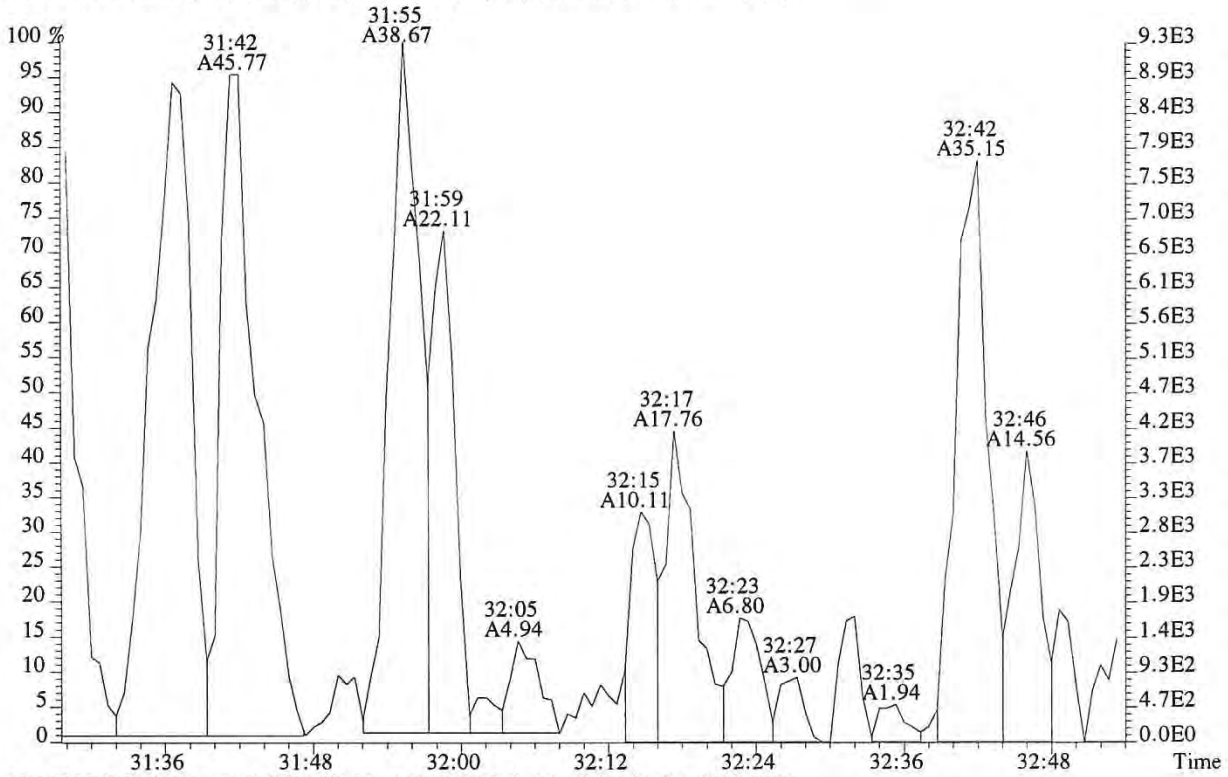
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1332.0,1.00%,F,T)



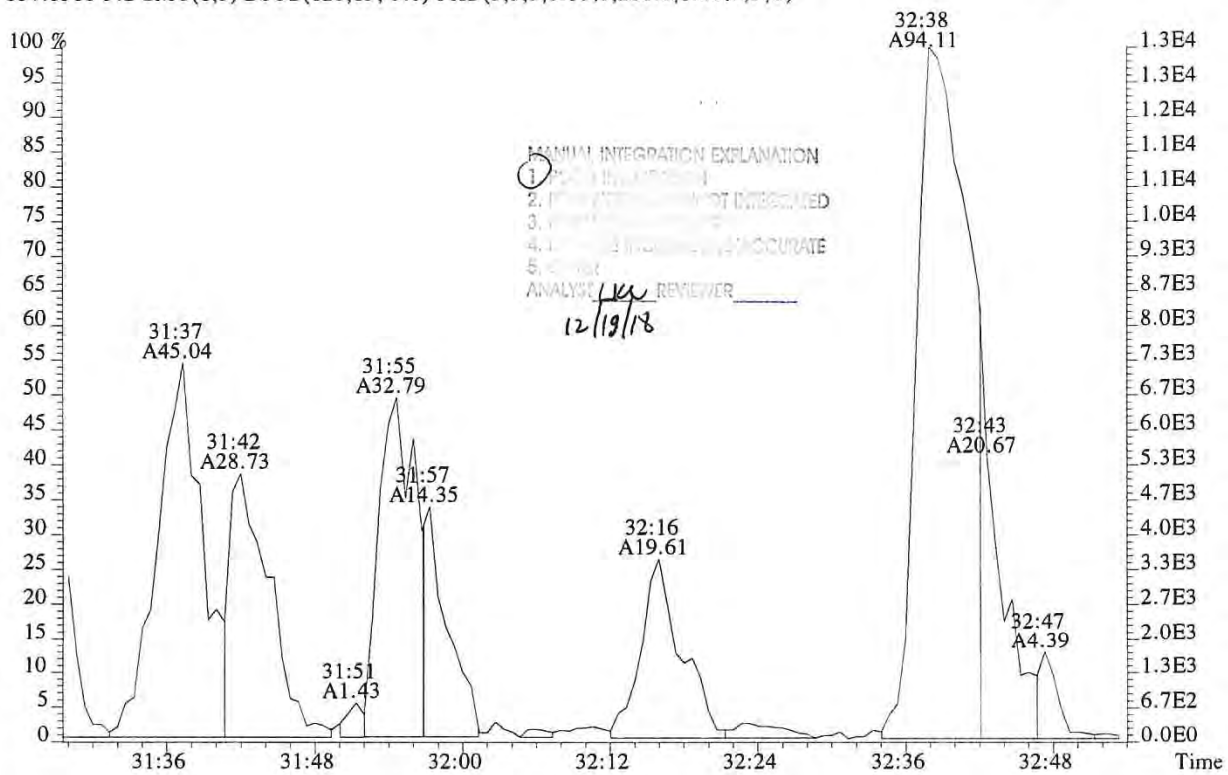
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P519439 #1-357 Acq:17-DEC-2018 16:58:54 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801093-011
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,572.0,1.00%,F,T)



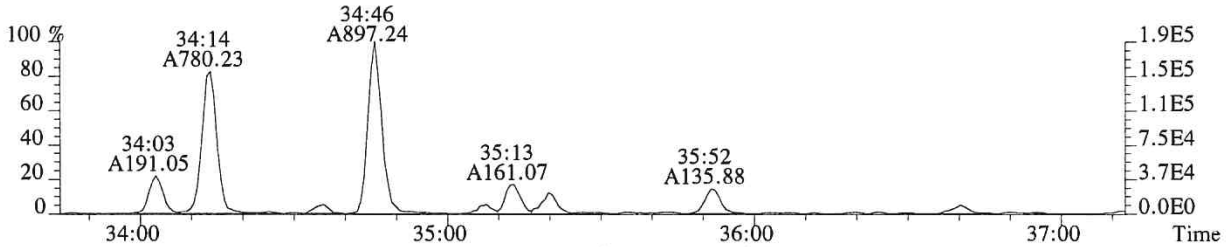
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,288.0,1.00%,F,T)



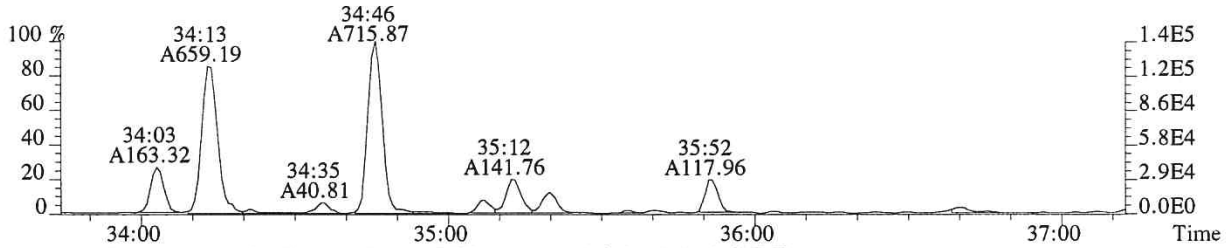
014264

File:P519439 #1-313 Acq:17-DEC-2018 16:58:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-011

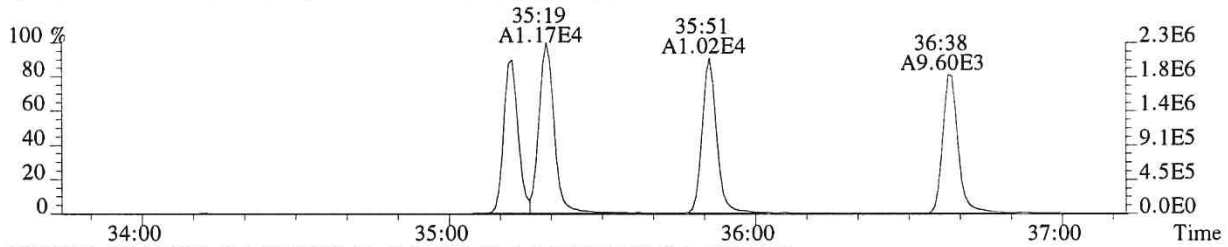
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,976.0,0.40%,F,T)



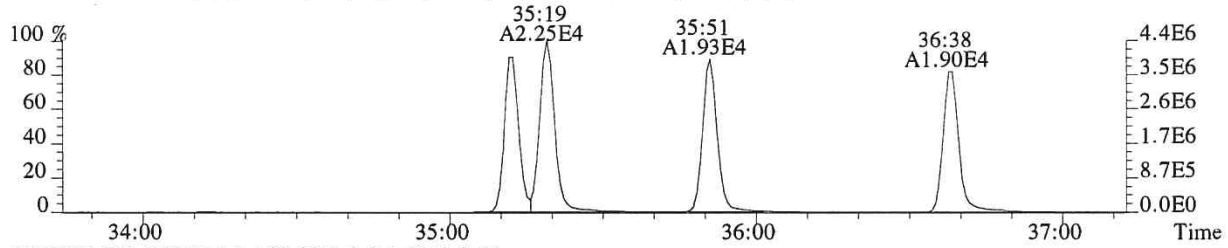
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1436.0,0.40%,F,T)



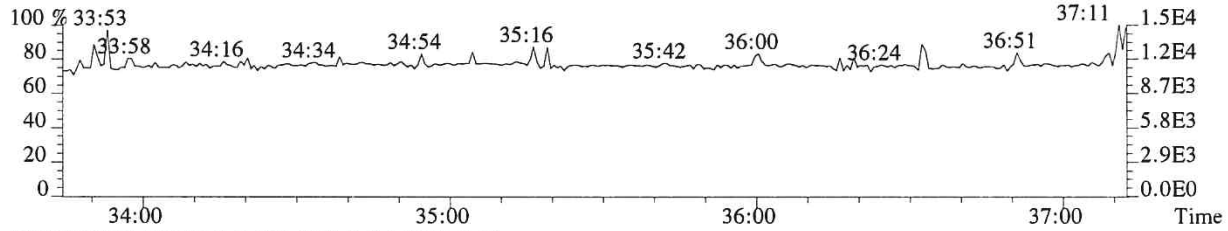
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,640.0,0.40%,F,T)



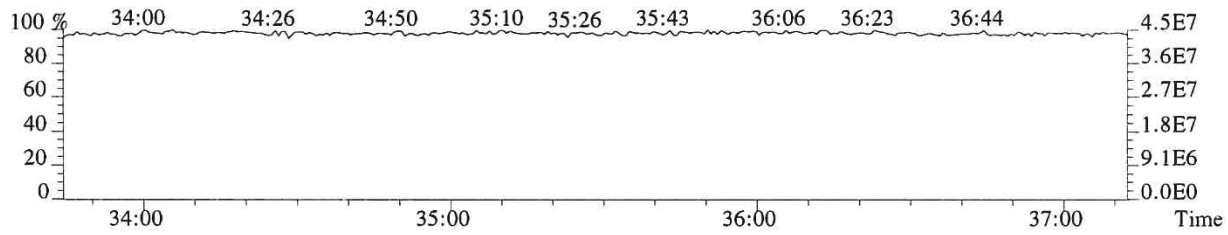
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,860.0,0.40%,F,T)



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



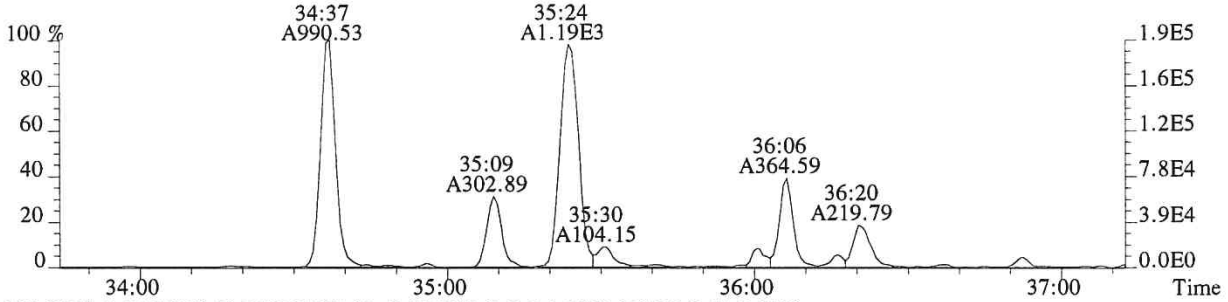
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



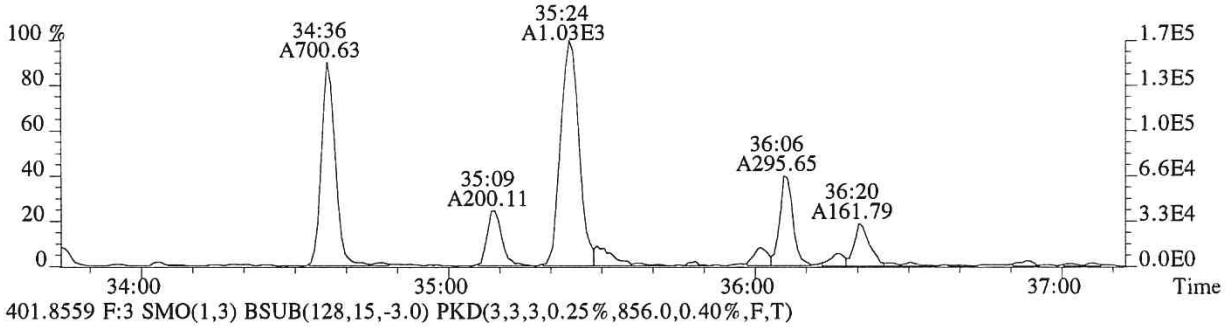
014265

File:P519439 #1-313 Acq:17-DEC-2018 16:58:54 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:E1801093-011

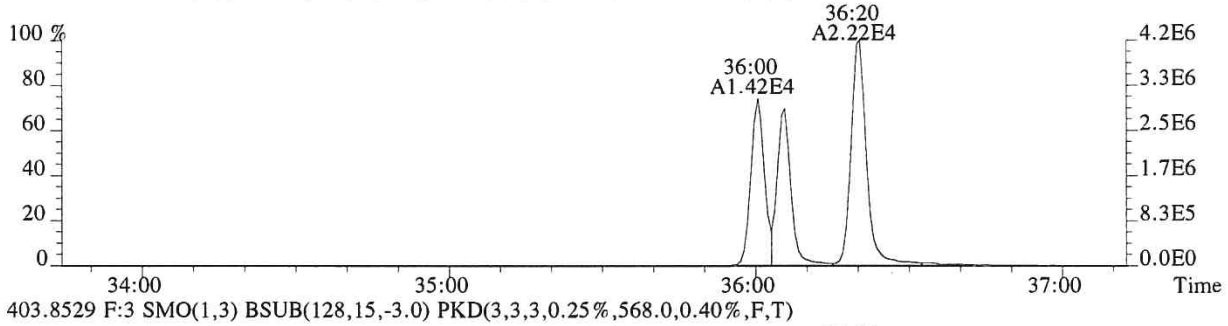
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,712.0,0.40%,F,T)



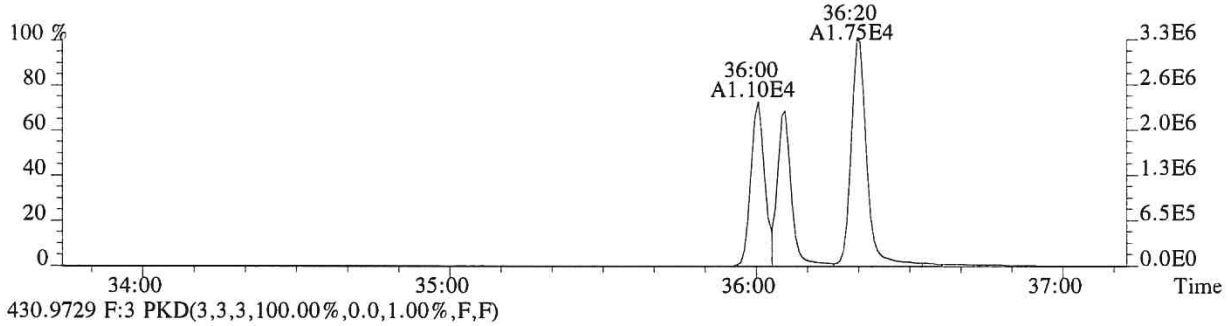
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1316.0,0.40%,F,T)



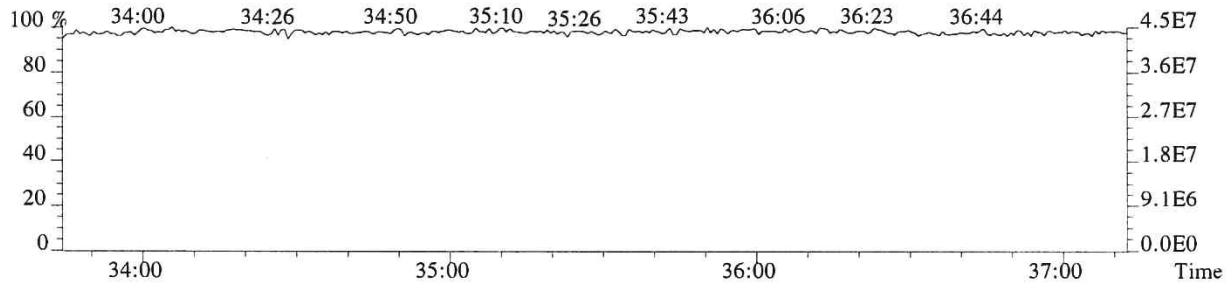
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,856.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,568.0,0.40%,F,T)

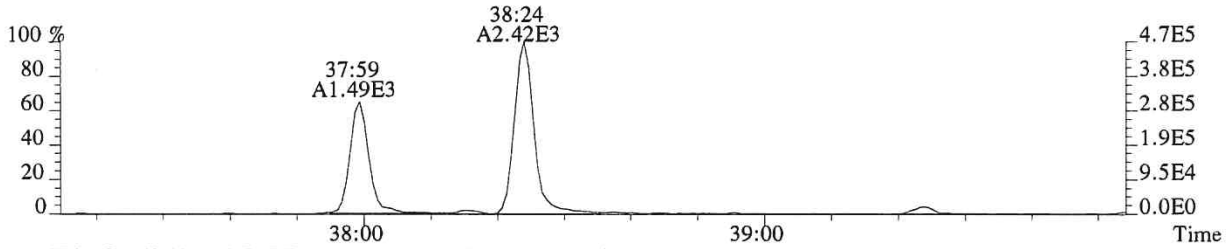


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

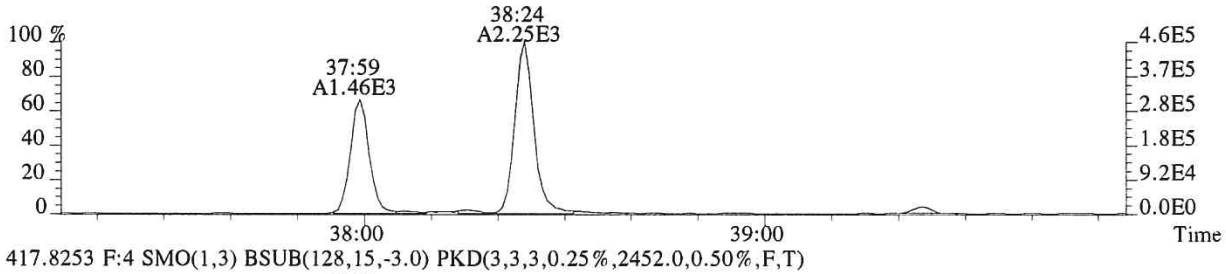


File:P519439 #1-240 Acq:17-DEC-2018 16:58:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-011

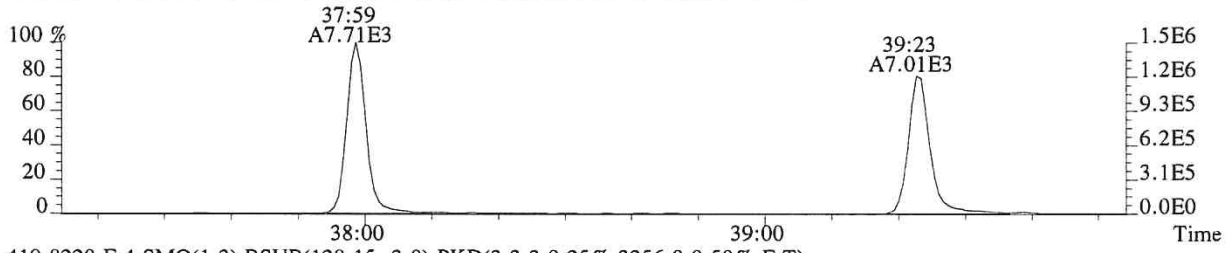
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,712.0,0.50%,F,T)



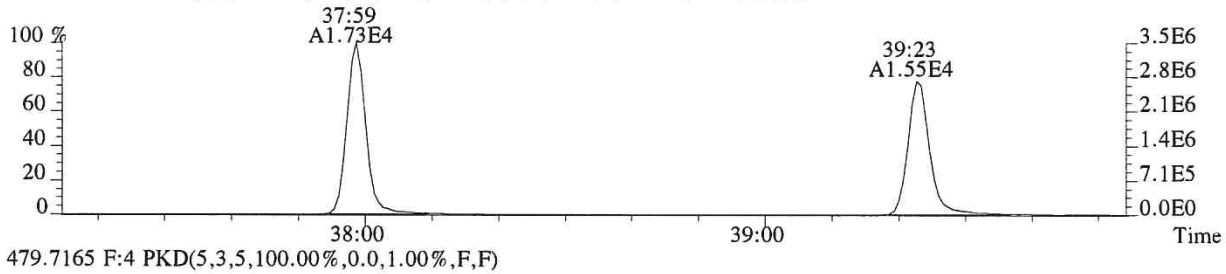
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2684.0,0.50%,F,T)



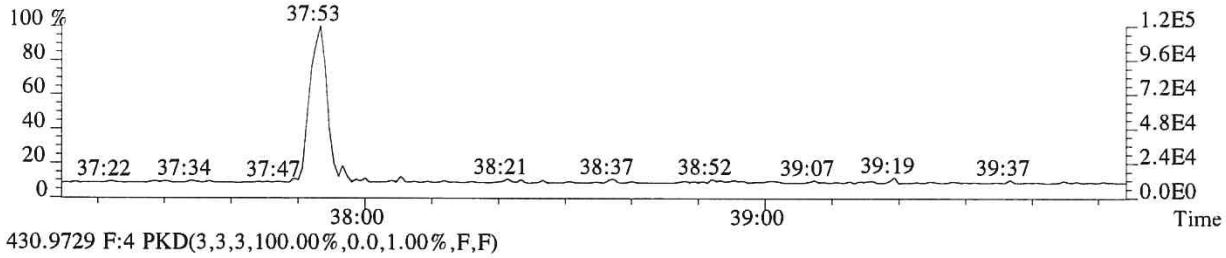
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2452.0,0.50%,F,T)



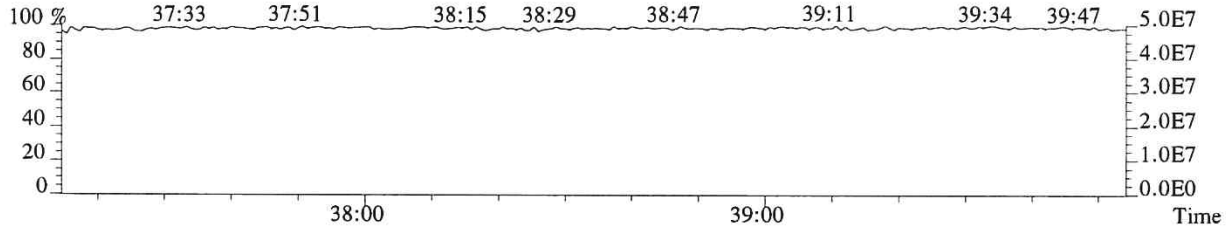
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3256.0,0.50%,F,T)



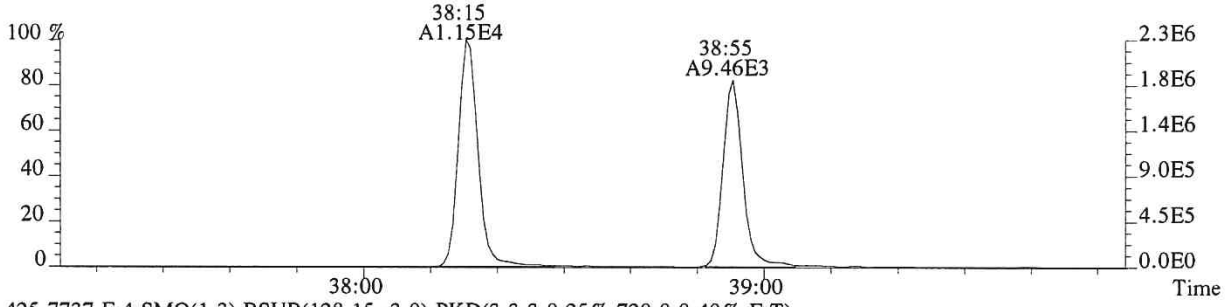
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



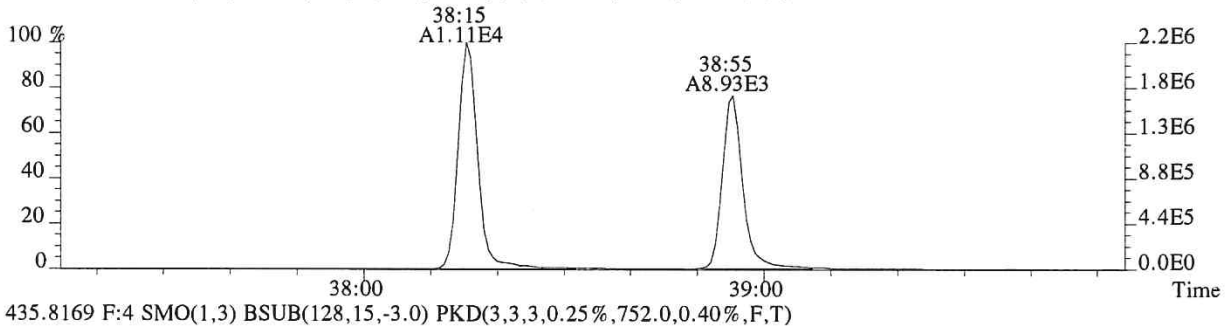
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



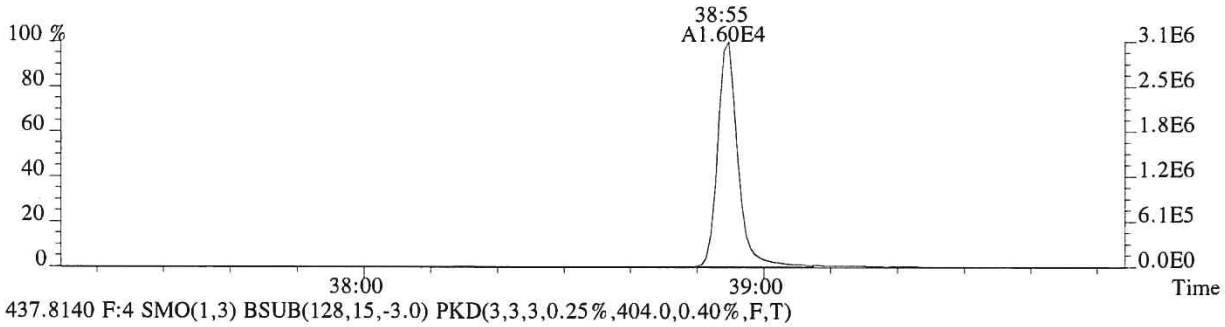
File:P519439 #1-240 Acq:17-DEC-2018 16:58:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-011
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,496.0,0.40%,F,T)



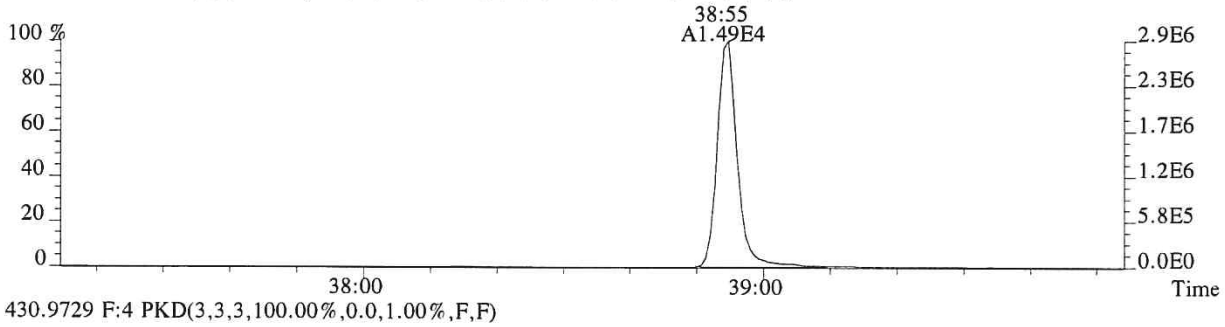
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,720.0,0.40%,F,T)



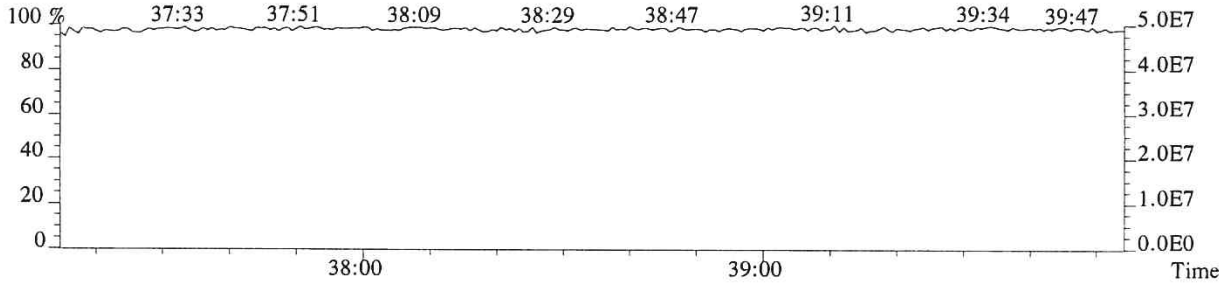
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,752.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,404.0,0.40%,F,T)

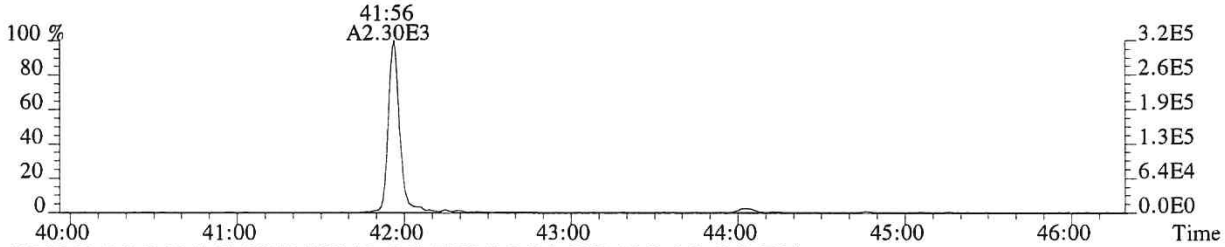


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

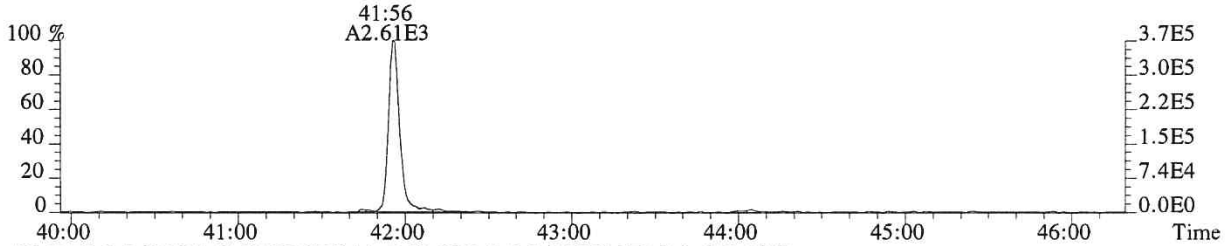


File:P519439 #1-575 Acq:17-DEC-2018 16:58:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-011

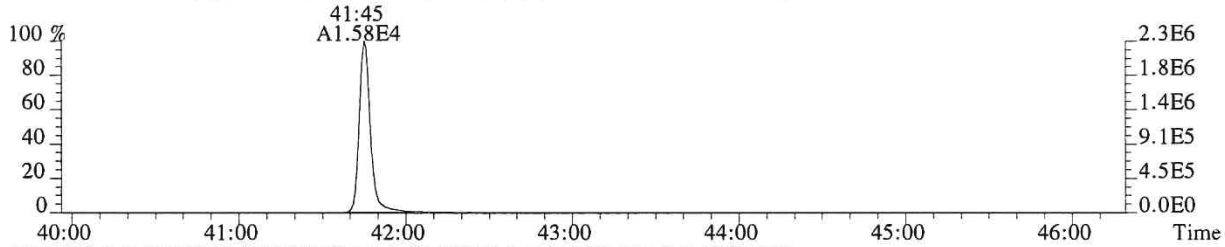
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,320.0,0.40%,F,T)



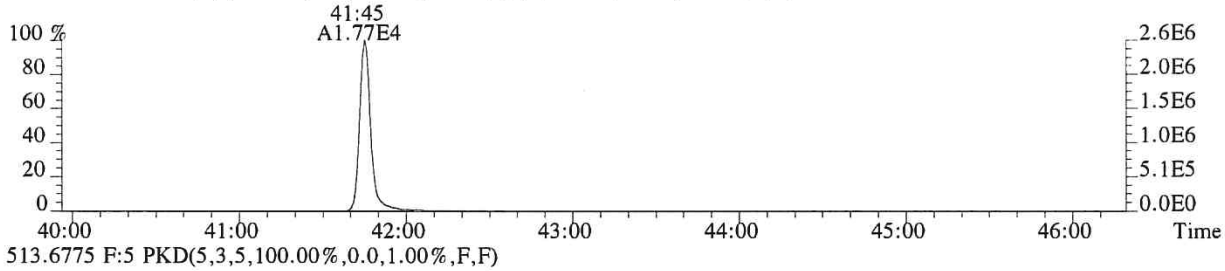
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1260.0,0.40%,F,T)



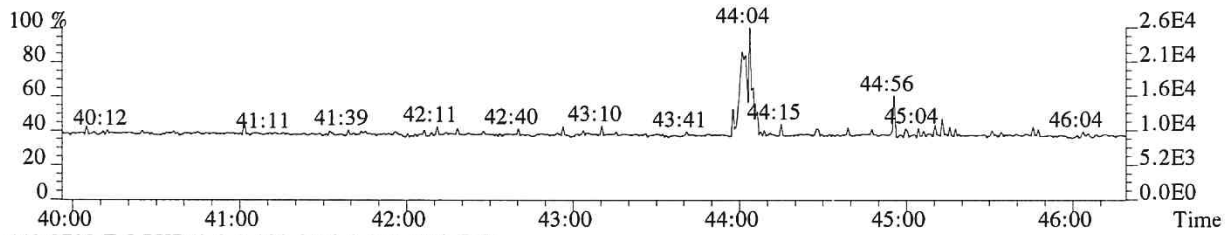
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,572.0,0.40%,F,T)



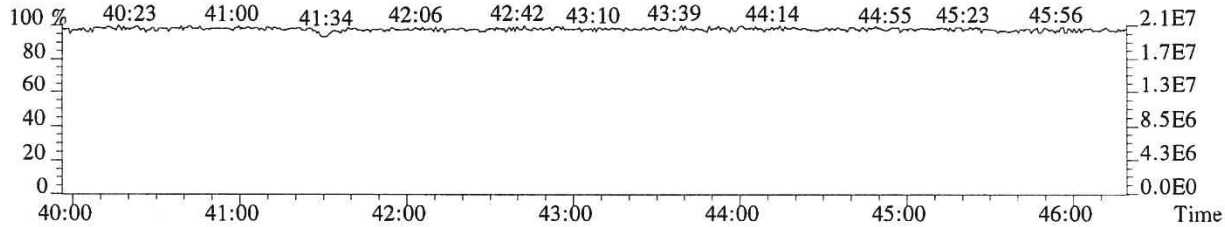
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,332.0,0.40%,F,T)



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

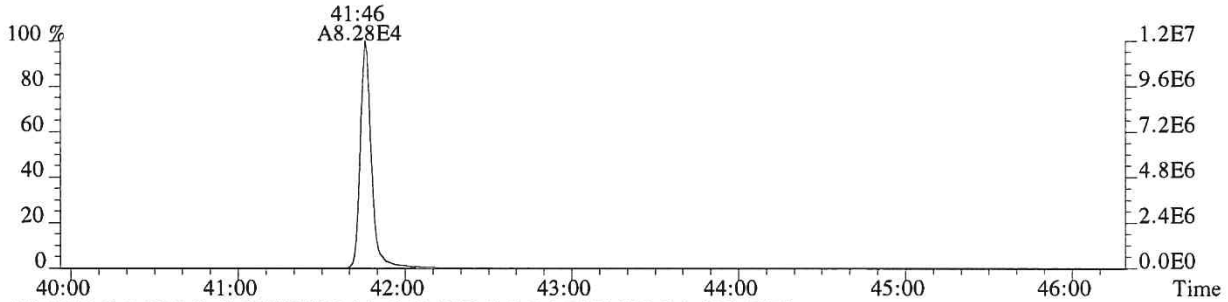


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

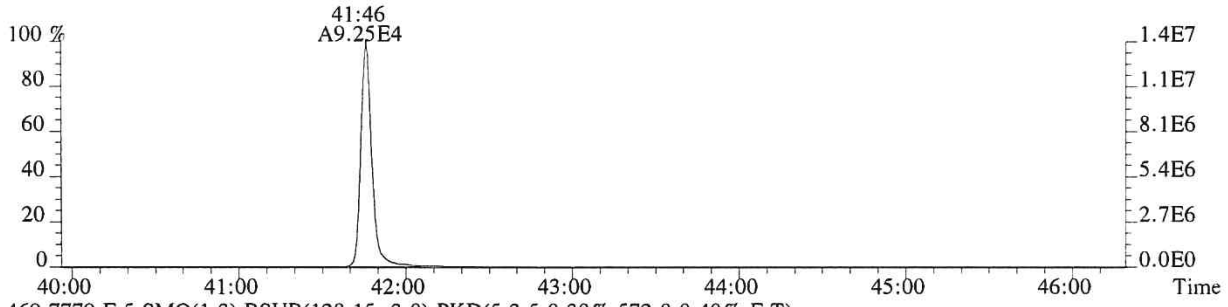


014269

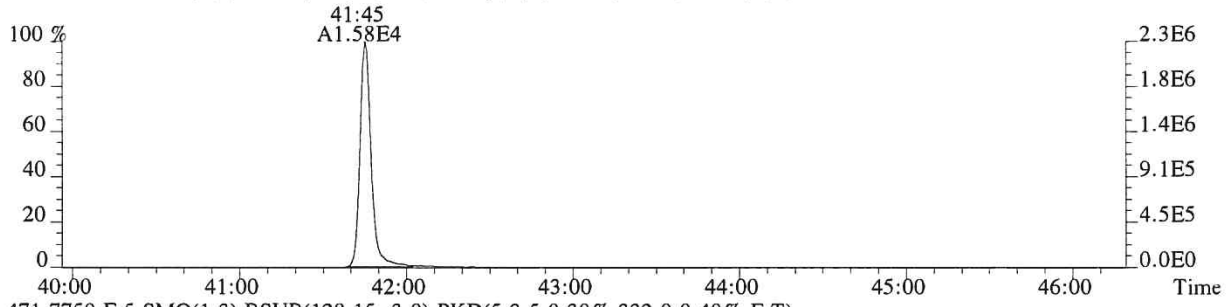
File:P519439 #1-575 Acq:17-DEC-2018 16:58:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-011
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,340.0,0.40%,F,T)



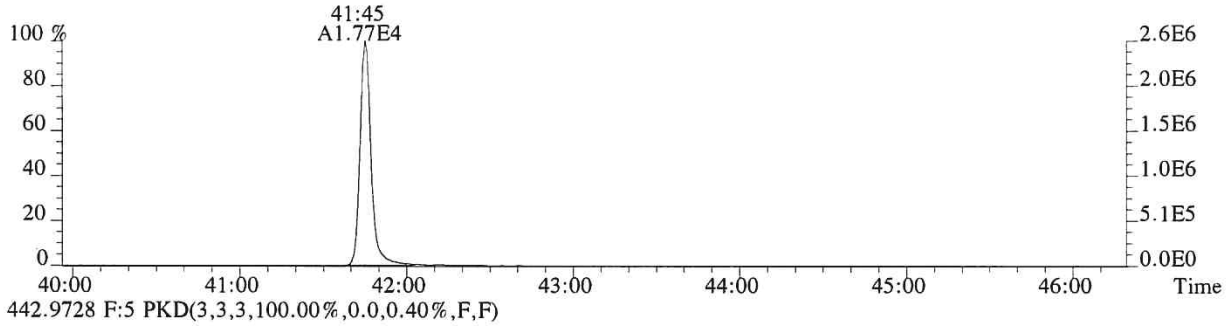
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,452.0,0.40%,F,T)



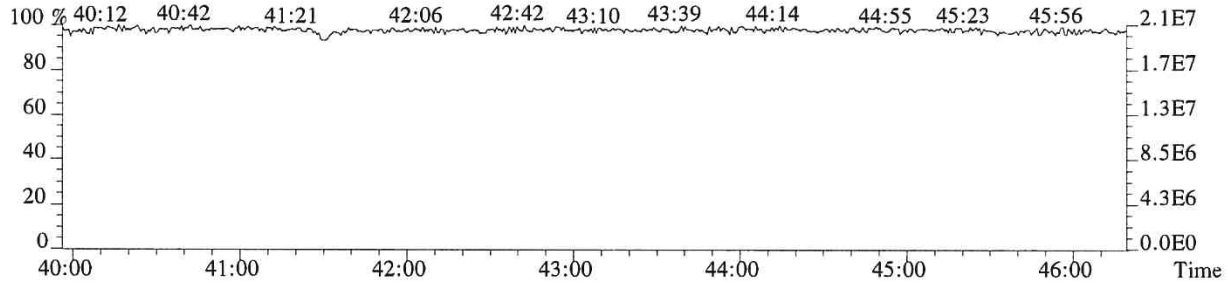
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,572.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,332.0,0.40%,F,T)



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



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0007

Run #11 Filename P519440 Samp: 1 Inj: 1 Acquired: 17-DEC-18 17:47:33
Processed: 19-DEC-18 09:11:55 Sample ID: E1801093-012

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:47	1.421e+04	1.843e+04	0.77	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	31:25	7.903e+02	5.412e+02	1.46	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	32:23	7.824e+02	5.115e+02	1.53	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:13	1.227e+03	1.026e+03	1.20	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:20	6.945e+02	5.505e+02	1.26	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:52	4.295e+02	3.438e+02	1.25	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	36:41	1.594e+02	1.677e+02	0.95	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:00	5.345e+03	5.155e+03	1.04	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:23	2.774e+02	2.945e+02	0.94	yes	no	1.258
10	Unk	OCDF	41:56	3.637e+03	4.183e+03	0.87	yes	no	1.359
11	Unk	2,3,7,8-TCDD	27:41	3.573e+03	4.512e+03	0.79	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	32:42	1.616e+02	1.186e+02	1.36	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:02	1.207e+02	8.565e+01	1.41	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:07	7.749e+02	6.412e+02	1.21	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:22	5.106e+02	3.953e+02	1.29	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:57	1.349e+04	1.295e+04	1.04	yes	no	1.025
17	Unk	OCDD	41:46	8.220e+04	9.247e+04	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	26:46	1.086e+04	1.366e+04	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	31:24	1.735e+04	1.107e+04	1.57	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	32:22	1.635e+04	1.025e+04	1.60	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:12	7.021e+03	1.366e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:20	8.063e+03	1.588e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:52	7.418e+03	1.404e+04	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	36:39	6.933e+03	1.350e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:59	5.251e+03	1.163e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:23	4.716e+03	1.050e+04	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	27:40	5.055e+03	6.328e+03	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:41	1.226e+04	7.517e+03	1.63	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:01	1.065e+04	8.088e+03	1.32	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:06	9.894e+03	7.425e+03	1.33	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:56	1.053e+04	1.001e+04	1.05	yes	no	0.858
32	IS	13C-OCDD	41:45	9.235e+03	1.017e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:02	1.816e+04	2.286e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:21	2.534e+04	1.955e+04	1.30	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:41	7.423e+03				no	1.014

$$\text{OCDD} = \frac{(8.220e{+}04 + 9.247e{+}04) \times 4000\ \text{pg} \times 1}{(9.235e{+}03 + 1.017e{+}04) \times 10.257\ \text{g} \times 30.5 / 100 \times 1.118} = 8620\ \text{ng/kg}$$ by 12/20/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0007

Run #11 Filename P519440 Samp: 1 Inj: 1 Acquired: 17-DEC-18 17:47:33
Processed: 19-DEC-18 09:11:55 LAB. ID: E1801093-012

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.17e+06	9.32e+02	2.3e+03	2.85e+06	1.48e+03	1.9e+03
2	1,2,3,7,8-PeCDF	1.38e+05	3.34e+03	4.1e+01	9.60e+04	2.10e+03	4.6e+01
3	2,3,4,7,8-PeCDF	1.10e+05	3.34e+03	3.3e+01	6.43e+04	2.10e+03	3.1e+01
4	1,2,3,4,7,8-HxCDF	2.49e+05	2.70e+03	9.2e+01	2.08e+05	7.24e+02	2.9e+02
5	1,2,3,6,7,8-HxCDF	1.36e+05	2.70e+03	5.0e+01	1.14e+05	7.24e+02	1.6e+02
6	2,3,4,6,7,8-HxCDF	8.74e+04	2.70e+03	3.2e+01	6.90e+04	7.24e+02	9.5e+01
7	1,2,3,7,8,9-HxCDF	2.68e+04	2.70e+03	9.9e+00	3.29e+04	7.24e+02	4.5e+01
8	1,2,3,4,6,7,8-HpCDF	1.09e+06	4.44e+03	2.4e+02	1.05e+06	1.91e+03	5.5e+02
9	1,2,3,4,7,8,9-HpCDF	5.26e+04	4.44e+03	1.2e+01	5.68e+04	1.91e+03	3.0e+01
10	OCDF	4.94e+05	3.64e+02	1.4e+03	5.53e+05	1.18e+03	4.7e+02
11	2,3,7,8-TCDD	6.51e+05	1.73e+03	3.8e+02	7.96e+05	1.03e+03	7.7e+02
12	1,2,3,7,8-PeCDD	3.20e+04	9.64e+02	3.3e+01	2.48e+04	4.32e+02	5.7e+01
13	1,2,3,4,7,8-HxCDD	2.53e+04	7.84e+02	3.2e+01	1.92e+04	1.36e+03	1.4e+01
14	1,2,3,6,7,8-HxCDD	1.72e+05	7.84e+02	2.2e+02	1.47e+05	1.36e+03	1.1e+02
15	1,2,3,7,8,9-HxCDD	9.50e+04	7.84e+02	1.2e+02	7.27e+04	1.36e+03	5.3e+01
16	1,2,3,4,6,7,8-HpCDD	2.57e+06	4.53e+03	5.7e+02	2.46e+06	2.76e+02	8.9e+03
17	OCDD	1.28e+07	3.92e+02	3.3e+04	1.42e+07	3.32e+02	4.3e+04
18	13C-2,3,7,8-TCDF	1.75e+06	8.19e+03	2.1e+02	2.26e+06	5.20e+03	4.4e+02
19	13C-1,2,3,7,8-PeCDF	3.10e+06	4.36e+02	7.1e+03	1.96e+06	5.76e+02	3.4e+03
20	13C-2,3,4,7,8-PeCDF	3.10e+06	4.36e+02	7.1e+03	1.95e+06	5.76e+02	3.4e+03
21	13C-1,2,3,4,7,8-HxCDF	1.46e+06	9.04e+02	1.6e+03	2.92e+06	8.28e+02	3.5e+03
22	13C-1,2,3,6,7,8-HxCDF	1.56e+06	9.04e+02	1.7e+03	2.95e+06	8.28e+02	3.6e+03
23	13C-2,3,4,6,7,8-HxCDF	1.49e+06	9.04e+02	1.6e+03	2.80e+06	8.28e+02	3.4e+03
24	13C-1,2,3,7,8,9-HxCDF	1.42e+06	9.04e+02	1.6e+03	2.76e+06	8.28e+02	3.3e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.06e+06	1.66e+03	6.4e+02	2.38e+06	1.12e+03	2.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	8.21e+05	1.66e+03	5.0e+02	1.86e+06	1.12e+03	1.7e+03
27	13C-2,3,7,8-TCDD	8.83e+05	5.43e+03	1.6e+02	1.14e+06	2.11e+03	5.4e+02
28	13C-1,2,3,7,8-PeCDD	2.36e+06	1.14e+03	2.1e+03	1.47e+06	1.17e+03	1.3e+03
29	13C-1,2,3,4,7,8-HxCDD	2.24e+06	7.08e+02	3.2e+03	1.69e+06	1.01e+03	1.7e+03
30	13C-1,2,3,6,7,8-HxCDD	2.06e+06	7.08e+02	2.9e+03	1.57e+06	1.01e+03	1.6e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.05e+06	7.72e+02	2.7e+03	1.91e+06	6.04e+02	3.2e+03
32	13C-OCDD	1.47e+06	7.64e+02	1.9e+03	1.58e+06	4.08e+02	3.9e+03
33	13C-1,2,3,4-TCDD	3.04e+06	5.43e+03	5.6e+02	3.84e+06	2.11e+03	1.8e+03
34	13C-1,2,3,7,8,9-HxCDD	4.80e+06	7.08e+02	6.8e+03	3.76e+06	1.01e+03	3.7e+03
35	37Cl-2,3,7,8-TCDD	1.30e+06	1.27e+03	1.0e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.728e{+}03 + 1.028e{+}03) \times 2000}{(8.825e{+}05 + 1.143e{+}06) \times (\quad) \times 1.085} =$$

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0007

Entry: 36 Totals Name: Total Tetra-Furans

Run: 11 File: P519440 Sample:1 Injection:1 Function:1

Acquired: 17-DEC-18 17:47:33 Processed: 19-DEC-18 09:11:55

Mass: 303.9020 305.8990 Tot Response: 6.02e+04 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	22:12	3.49e+01	4.10e+01	0.85	yes	7.59e+01		n	n
2	23:05	1.51e+02	2.31e+02	0.66	yes	3.82e+02		n	n
3	23:34	2.81e+02	3.74e+02	0.75	yes	6.55e+02		n	n
4	23:53	7.85e+02	9.81e+02	0.80	yes	1.77e+03		n	n
5	24:16	3.07e+02	3.83e+02	0.80	yes	6.90e+02		n	n
6	24:25	4.74e+01	7.02e+01	0.68	yes	1.18e+02		n	n
7	24:34	5.87e+02	8.10e+02	0.73	yes	1.40e+03		n	n
8	24:58	1.50e+02	2.10e+02	0.72	yes	3.61e+02		n	n
9	25:04	4.62e+01	7.01e+01	0.66	yes	1.16e+02		n	n
10	25:13	4.94e+02	6.87e+02	0.72	yes	1.18e+03		n	n
11	25:21	6.26e+02	8.46e+02	0.74	yes	1.47e+03		n	n
12	25:51	5.84e+03	7.62e+03	0.77	yes	1.35e+04		n	n
13	26:08	3.41e+02	4.06e+02	0.84	yes	7.47e+02		n	n
14	26:47	1.42e+04	1.84e+04	0.77	yes	3.26e+04	2,3,7,8-TCDF	n	n
15	27:10	9.97e+02	1.36e+03	0.73	yes	2.36e+03		n	n
16	27:26	1.67e+02	1.96e+02	0.86	yes	3.63e+02		n	n
17	28:50	1.08e+03	1.37e+03	0.79	yes	2.46e+03		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0007

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 11 File: P519440 Sample:1 Injection:1 Function:1

Acquired: 17-DEC-18 17:47:33 Processed: 19-DEC-18 09:11:55

Mass: 319.8970 321.8940 Tot Response: 8.99e+03 RRF: 1.085

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	27:41	3.57e+03	4.51e+03	0.79	yes	8.09e+03	2,3,7,8-TCDD	n	n
2	28:01	3.27e+02	4.44e+02	0.74	yes	7.71e+02		n	n
3	28:30	6.00e+01	7.73e+01	0.78	yes	1.37e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0007

Entry: 38 Totals Name: Total Penta-Furans1

Run: 11 File: P519440 Sample:1 Injection:1 Function:1

Acquired: 17-DEC-18 17:47:33 Processed: 19-DEC-18 09:11:55

Mass: 339.8600 341.8570 Tot Response: 1.55e+03 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	28:50	9.40e+02	6.10e+02 1.54	yes	1.55e+03		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0007

Entry: 39 Totals Name: Total Penta-Furans2

Run: 11 File: P519440 Sample:1 Injection:1 Function:2

Acquired: 17-DEC-18 17:47:33 Processed: 19-DEC-18 09:11:55

Mass: 339.8600 341.8570 Tot Response: 5.67e+03 RRF: 0.9857

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:25	1.03e+03	7.08e+02	1.46	yes	1.74e+03		n	n
2	31:01	2.19e+02	1.31e+02	1.68	yes	3.50e+02		n	n
3	31:14	1.19e+02	8.21e+01	1.45	yes	2.01e+02		n	n
4	31:25	7.90e+02	5.41e+02	1.46	yes	1.33e+03	1,2,3,7,8-PeCDF	n	n
5	31:41	3.63e+02	2.45e+02	1.48	yes	6.08e+02		n	n
6	32:18	4.35e+01	2.75e+01	1.58	yes	7.10e+01		n	n
7	32:23	7.82e+02	5.11e+02	1.53	yes	1.29e+03	2,3,4,7,8-PeCDF	n	n
8	33:21	4.52e+01	2.83e+01	1.60	yes	7.35e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0007

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 11 File: P519440 Sample:1 Injection:1 Function:2

Acquired: 17-DEC-18 17:47:33 Processed: 19-DEC-18 09:11:55

Mass: 355.8550 357.8520 Tot Response: 1.38e+03 RRF: 0.9565

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:28	3.33e+02	2.07e+02	1.61	yes	5.39e+02		n	n
2	31:27	1.61e+02	1.02e+02	1.58	yes	2.62e+02		n	n
3	31:37	8.63e+01	5.49e+01	1.57	yes	1.41e+02		n	n
4	31:43	9.25e+01	6.03e+01	1.53	yes	1.53e+02		n	n
5	32:42	1.62e+02	1.19e+02	1.36	yes	2.80e+02	1,2,3,7,8-PeCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0007

Entry: 41 Totals Name: Total Hexa-Furans

Run: 11 File: P519440 Sample:1 Injection:1 Function:3

Acquired: 17-DEC-18 17:47:33 Processed: 19-DEC-18 09:11:55

Mass: 373.8210 375.8180 Tot Response: 1.50e+04 RRF: 1.141

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:04	5.47e+02	4.44e+02	1.23	yes	9.90e+02		n	n
2	34:14	2.24e+03	1.84e+03	1.22	yes	4.08e+03		n	n
3	34:35	1.12e+02	9.16e+01	1.22	yes	2.03e+02		n	n
4	34:46	2.89e+03	2.41e+03	1.20	yes	5.29e+03		n	n
5	35:07	6.33e+01	4.65e+01	1.36	yes	1.10e+02		n	n
6	35:13	1.23e+03	1.03e+03	1.20	yes	2.25e+03	1,2,3,4,7,8-HxCDF	n	n
7	35:20	6.95e+02	5.50e+02	1.26	yes	1.24e+03	1,2,3,6,7,8-HxCDF	n	n
8	35:28	1.93e+01	1.80e+01	1.08	yes	3.73e+01		n	n
9	35:52	4.29e+02	3.44e+02	1.25	yes	7.73e+02	2,3,4,6,7,8-HxCDF	n	n

ALS ENVIRONMENTAL
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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0007

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 11 File: P519440 Sample:1 Injection:1 Function:3

Acquired: 17-DEC-18 17:47:33 Processed: 19-DEC-18 09:11:55

Mass: 389.8160 391.8130 Tot Response: 1.09e+04 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:37	1.49e+03	1.19e+03	1.26	yes	2.68e+03		n	n
2	35:09	2.28e+02	1.91e+02	1.19	yes	4.19e+02		n	n
3	35:24	2.89e+03	2.20e+03	1.31	yes	5.09e+03		n	n
4	35:31	1.27e+02	9.38e+01	1.35	yes	2.21e+02		n	n
5	36:02	1.21e+02	8.56e+01	1.41	yes	2.06e+02	1,2,3,4,7,8-HxCDD	n	n
6	36:07	7.75e+02	6.41e+02	1.21	yes	1.42e+03	1,2,3,6,7,8-HxCDD	n	n
7	36:22	5.11e+02	3.95e+02	1.29	yes	9.06e+02	1,2,3,7,8,9-HxCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0007

Entry: 43 Totals Name: Total Hepta-Furans

Run: 11 File: P519440 Sample:1 Injection:1 Function:4

Acquired: 17-DEC-18 17:47:33 Processed: 19-DEC-18 09:11:55

Mass: 407.7820 409.7790 Tot Response: 2.47e+04 RRF: 1.308

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:00	5.35e+03	5.15e+03	1.04	yes	1.05e+04	1,2,3,4,6,7,8-HpCDF	n	n
2	38:24	6.89e+03	6.75e+03	1.02	yes	1.36e+04		n	n
3	39:23	2.77e+02	2.94e+02	0.94	yes	5.72e+02	1,2,3,4,7,8,9-HpCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0007

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 11 File: P519440 Sample:1 Injection:1 Function:4

Acquired: 17-DEC-18 17:47:33 Processed: 19-DEC-18 09:11:55

Mass: 423.7770 425.7740 Tot Response: 5.26e+04 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:16	1.33e+04	1.04	yes	2.61e+04		n	n
2	38:57	1.35e+04	1.04	yes	2.64e+04	1,2,3,4,6,7,8-HpCDD	n	n

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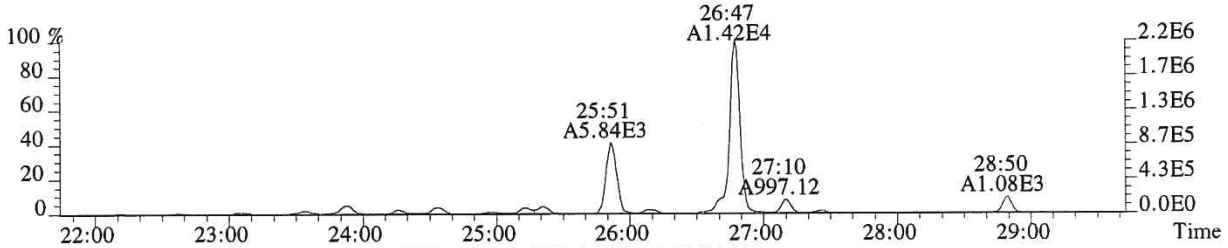
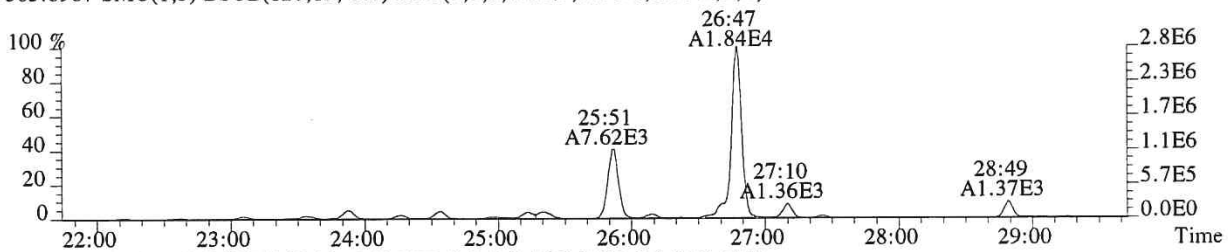
File:P519440 #1-566 Acq:17-DEC-2018 17:47:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-012

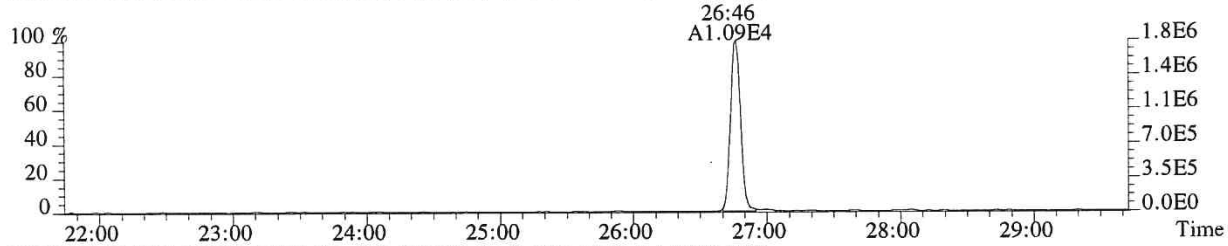
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,932.0,1.00%,F,T)



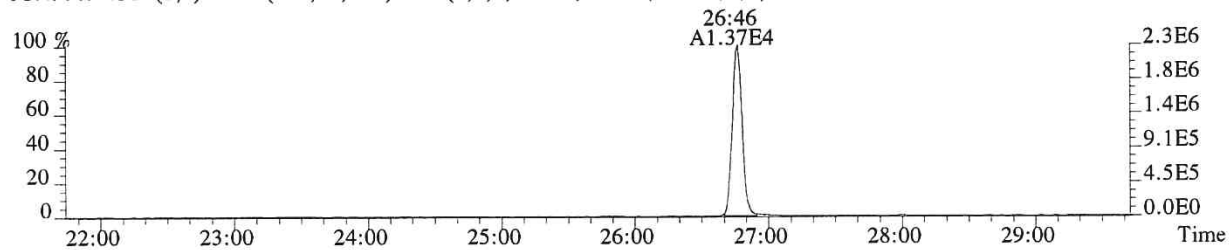
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1476.0,1.00%,F,T)



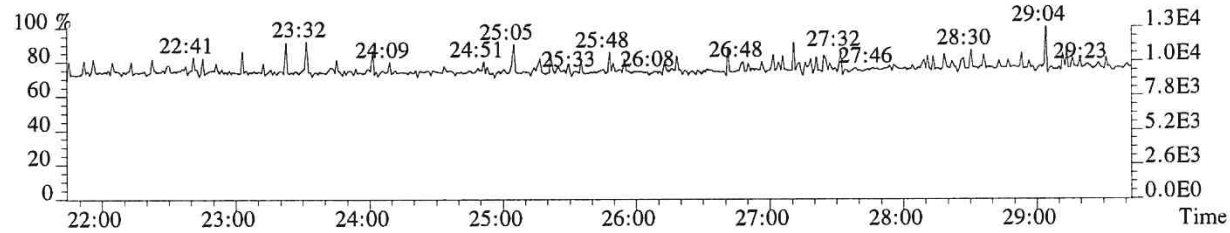
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8192.0,1.00%,F,T)



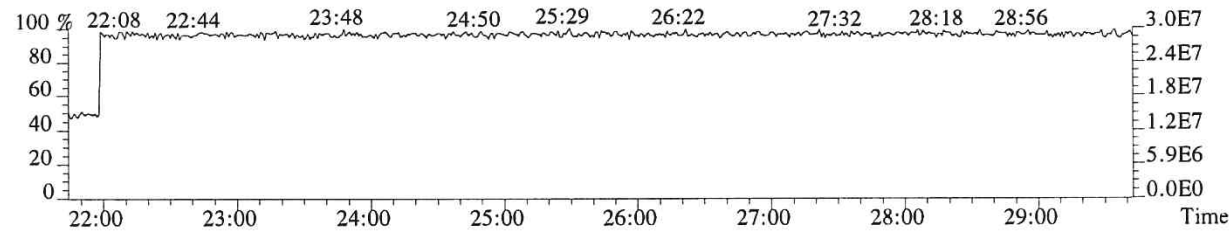
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5196.0,1.00%,F,T)



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

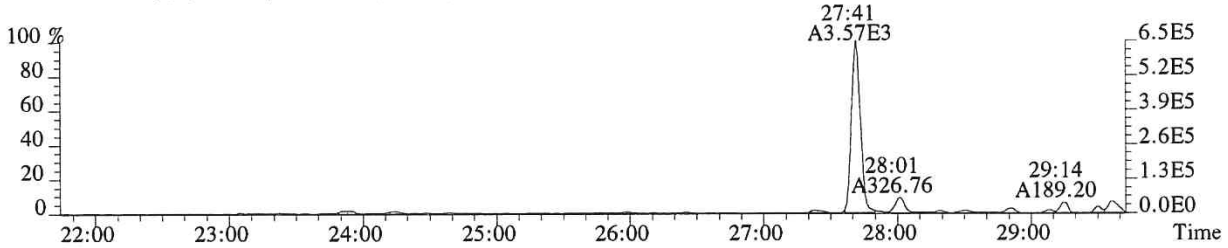


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

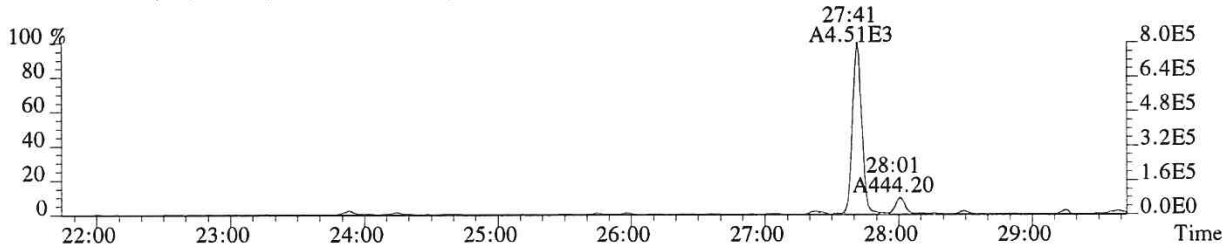


014282

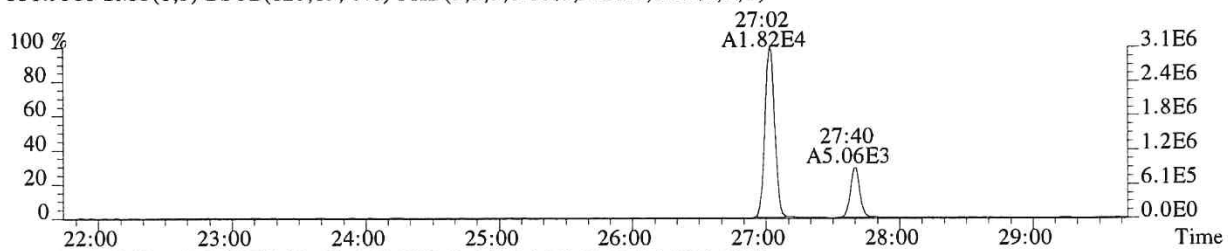
File:P519440 #1-566 Acq:17-DEC-2018 17:47:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-012
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1728.0,1.00%,F,T)



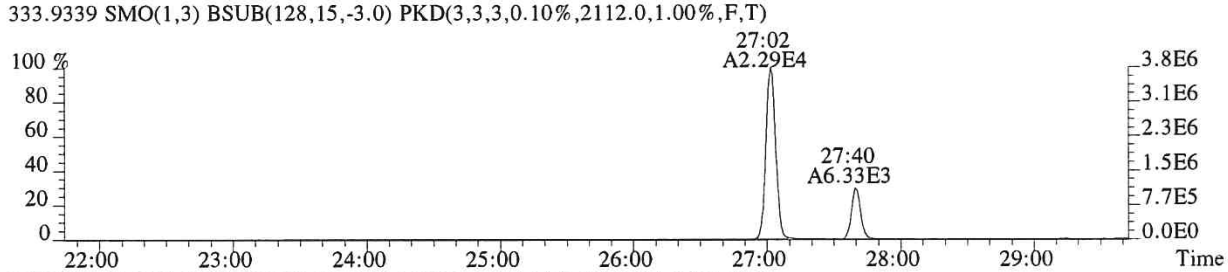
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1028.0,1.00%,F,T)



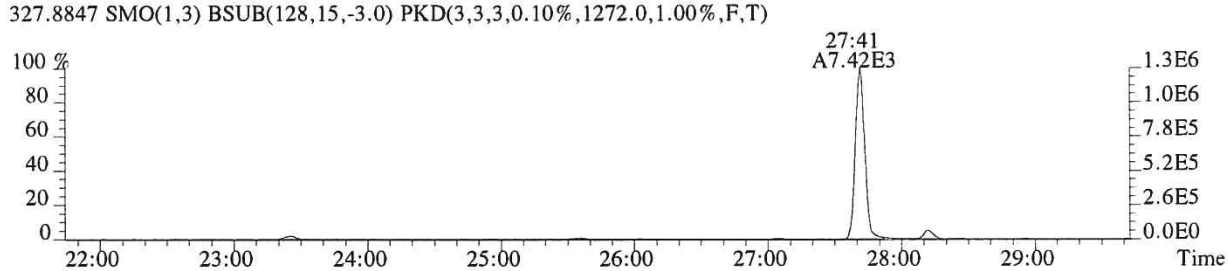
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5428.0,1.00%,F,T)



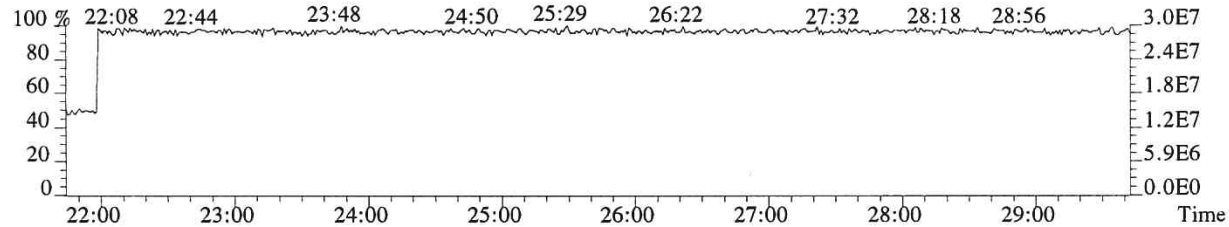
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2112.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1272.0,1.00%,F,T)

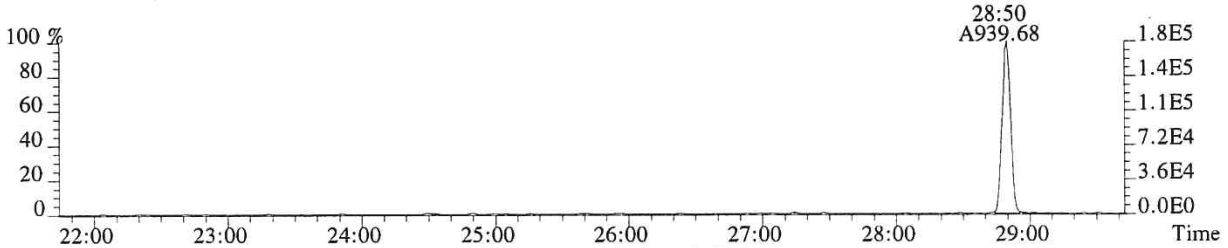


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

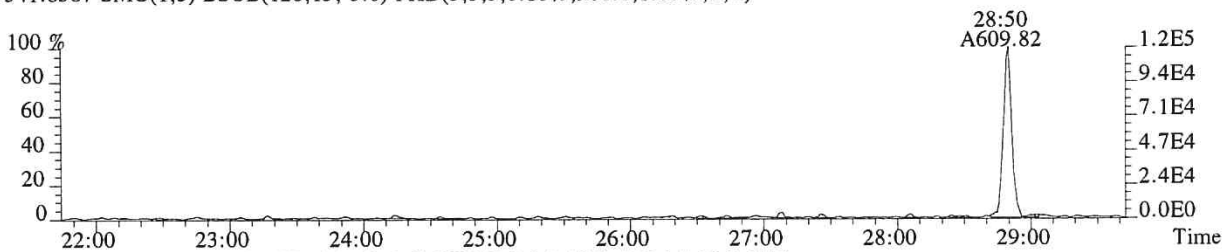


014283

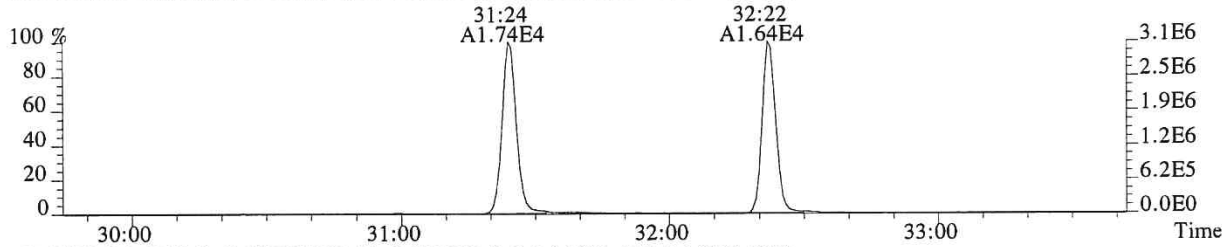
File:P519440 #1-566 Acq:17-DEC-2018 17:47:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-012
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,756.0,1.00%,F,T)



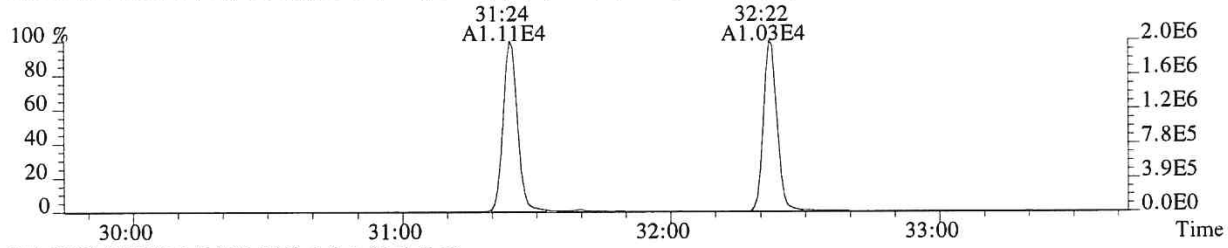
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,960.0,1.00%,F,T)



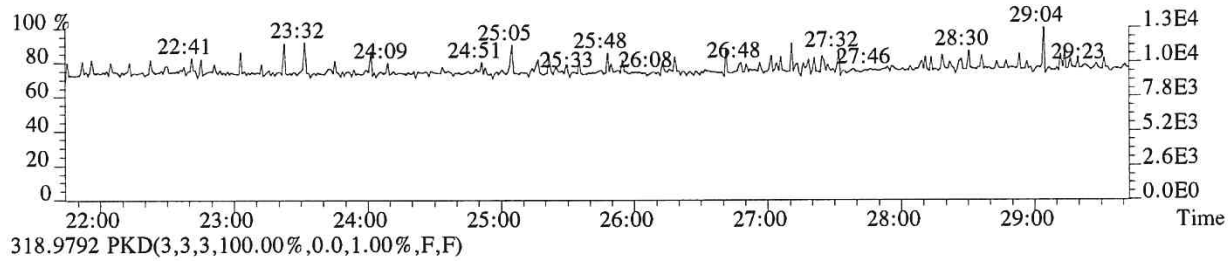
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,436.0,1.00%,F,T)



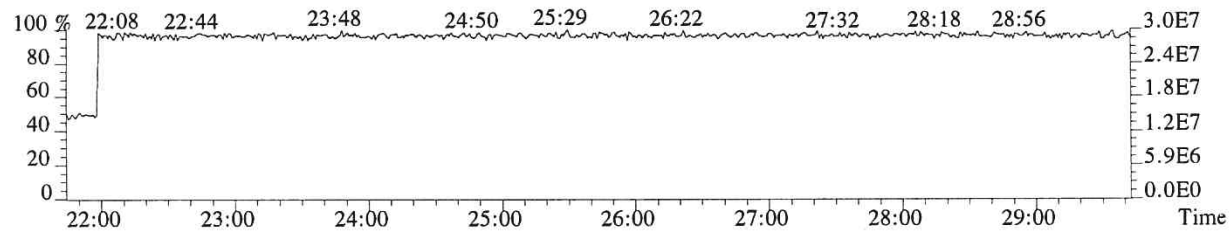
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,576.0,1.00%,F,T)



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



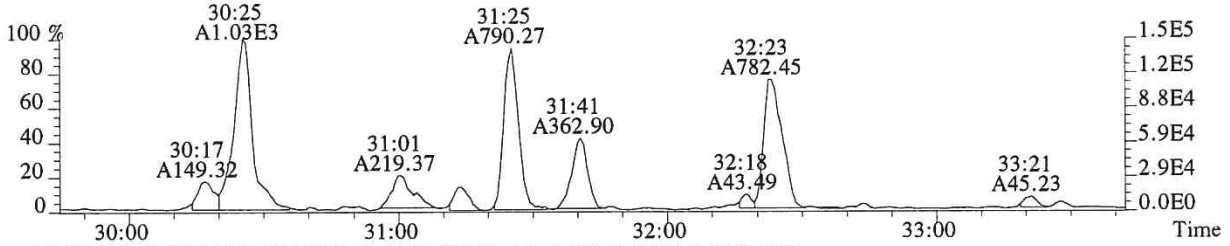
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



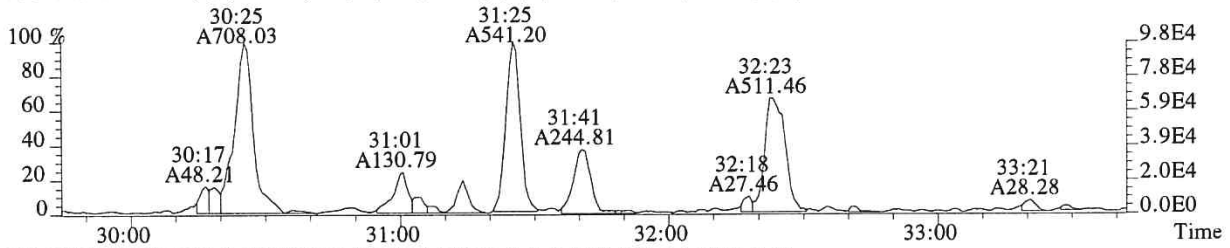
014284

File:P519440 #1-357 Acq:17-DEC-2018 17:47:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-012

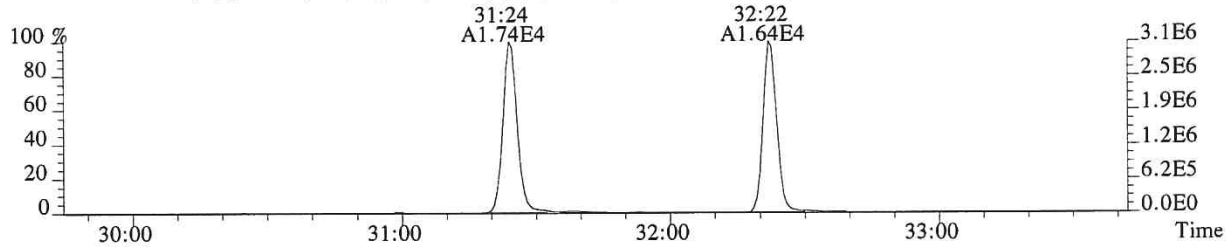
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3340.0,1.00%,F,T)



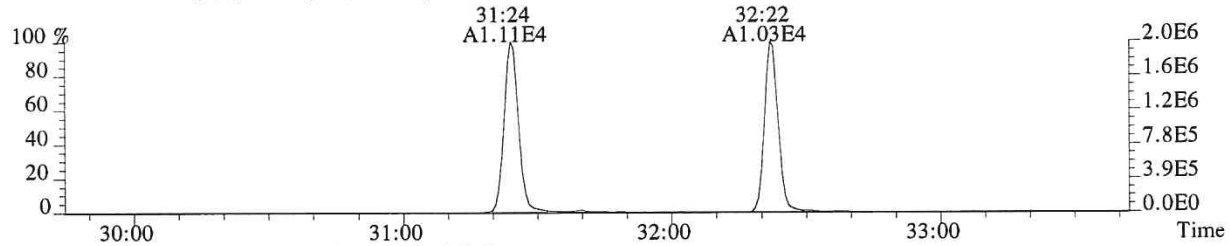
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2100.0,1.00%,F,T)



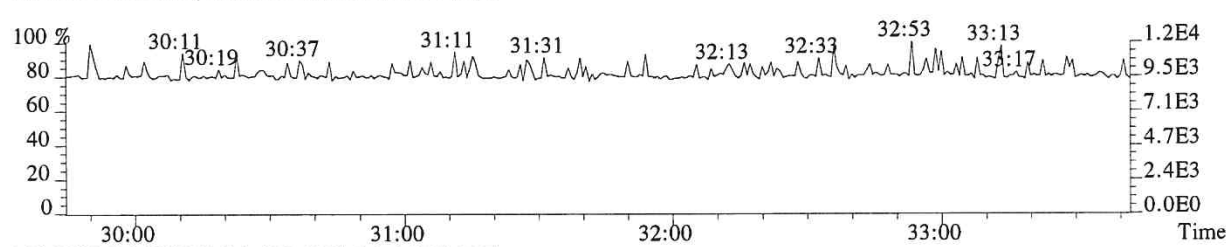
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,436.0,1.00%,F,T)



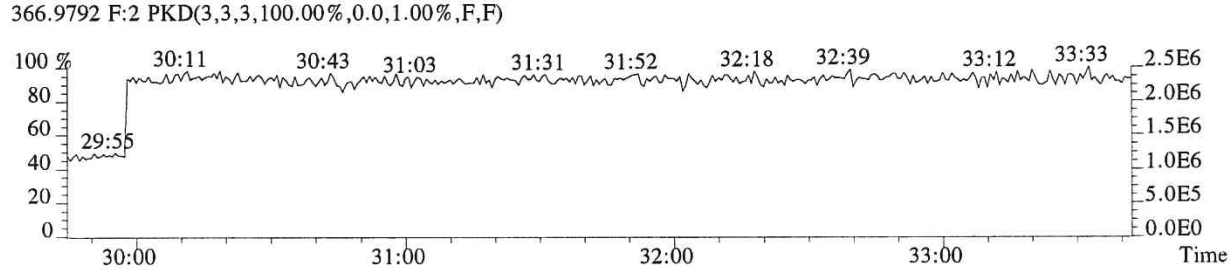
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,576.0,1.00%,F,T)



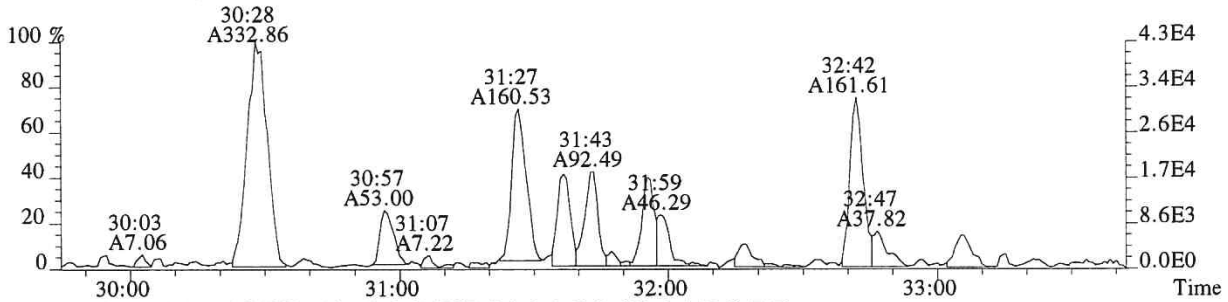
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



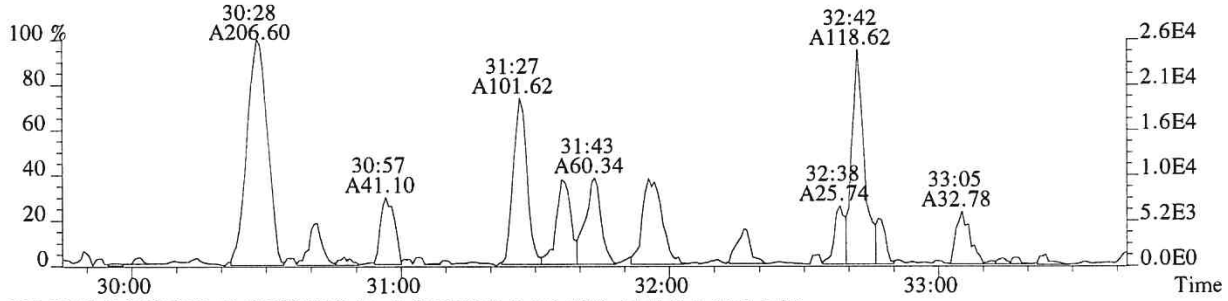
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



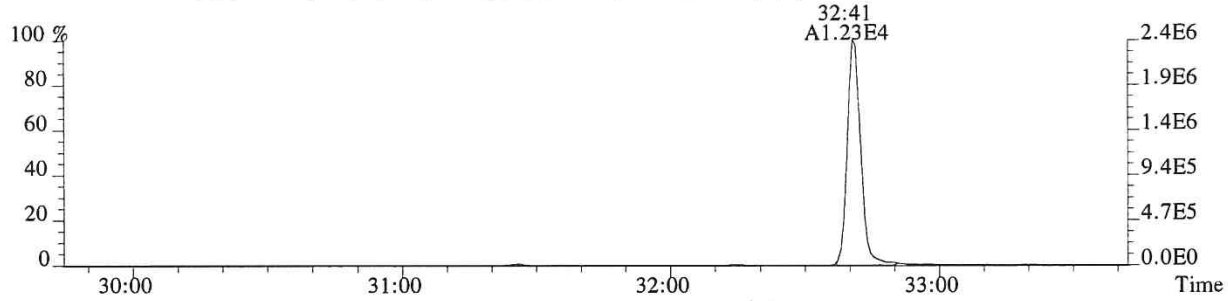
File:P519440 #1-357 Acq:17-DEC-2018 17:47:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-012
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,964.0,1.00%,F,T)



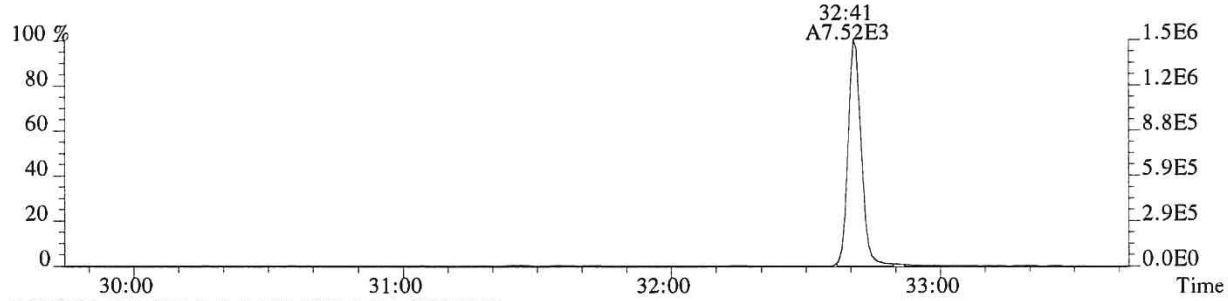
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,432.0,1.00%,F,T)



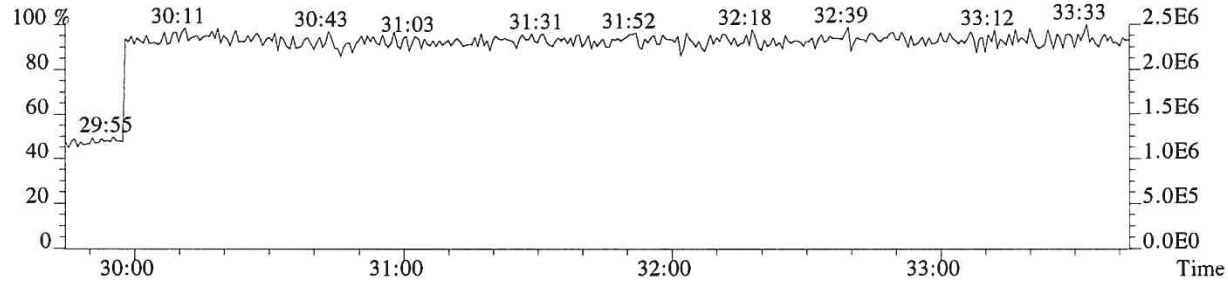
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1140.0,1.00%,F,T)



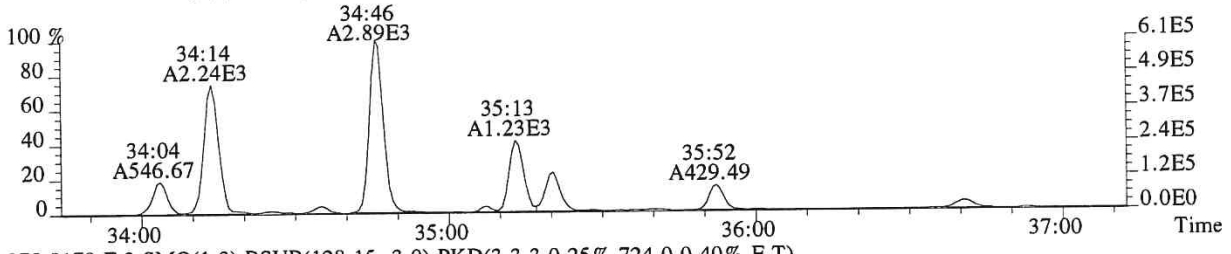
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1172.0,1.00%,F,T)



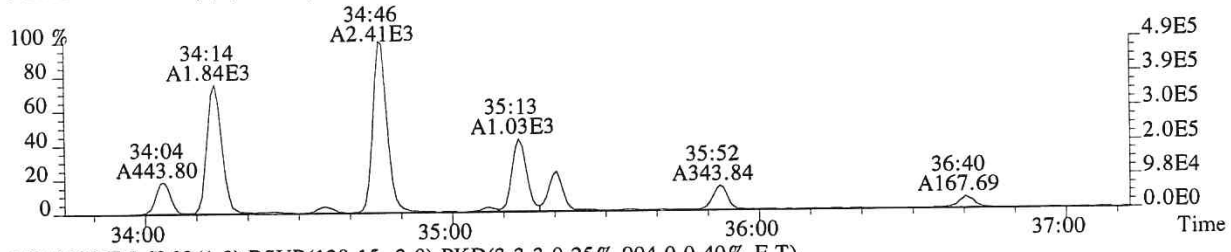
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



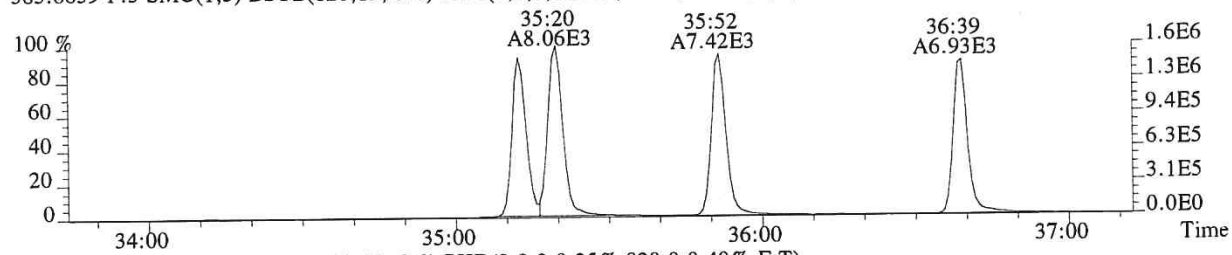
File:P519440 #1-313 Acq:17-DEC-2018 17:47:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-012
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2700.0,0.40%,F,T)



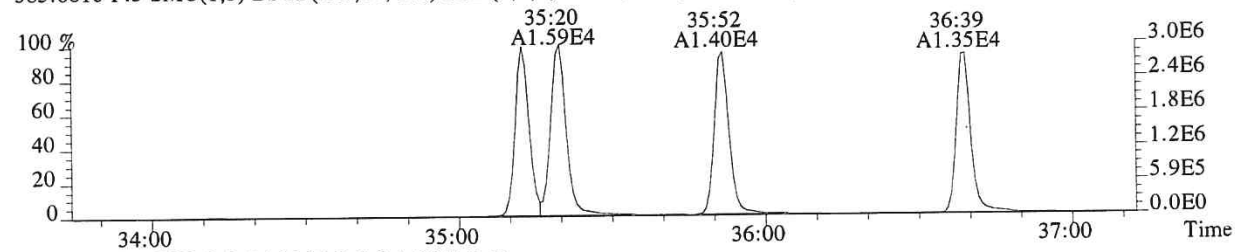
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,724.0,0.40%,F,T)



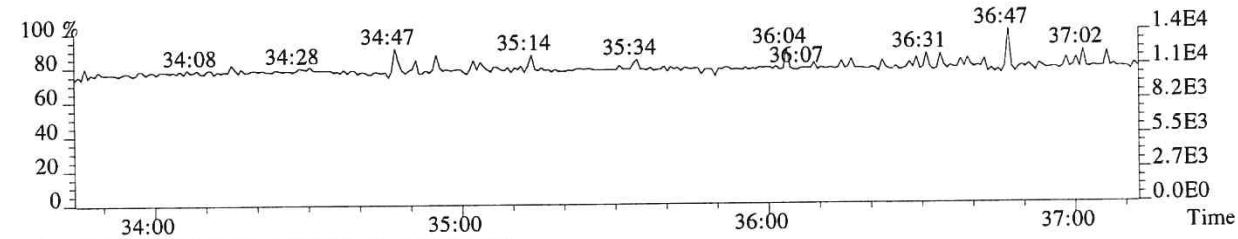
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,904.0,0.40%,F,T)



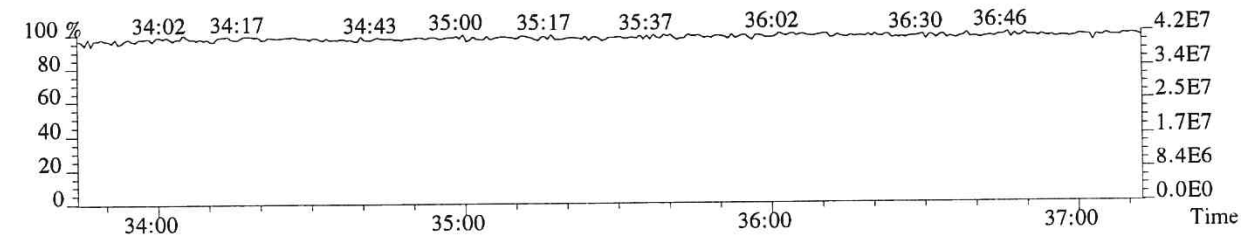
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,828.0,0.40%,F,T)



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

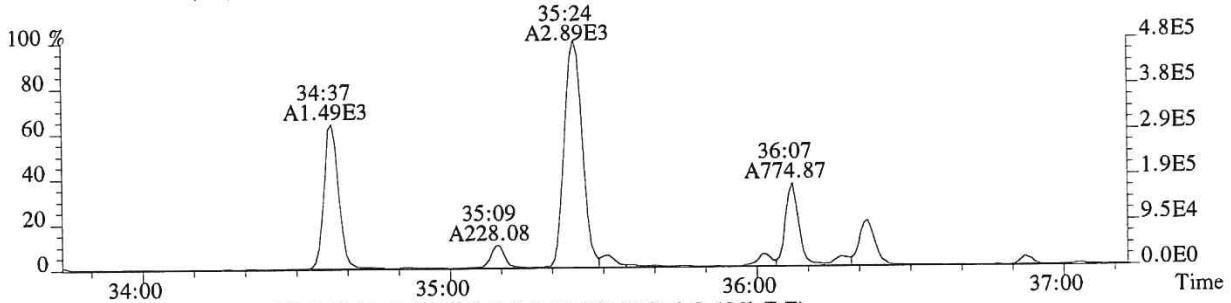


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

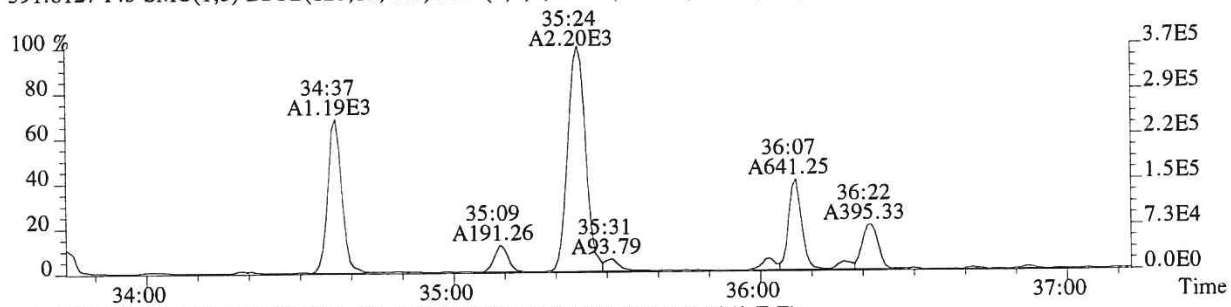


014287

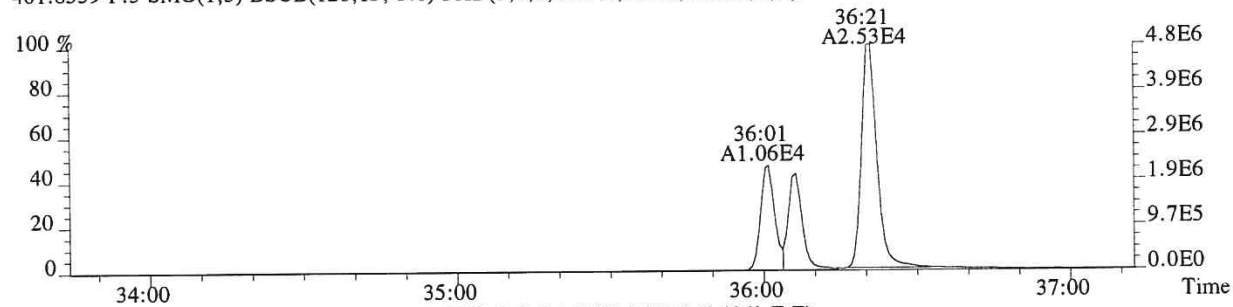
File:P519440 #1-313 Acq:17-DEC-2018 17:47:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-012
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,784.0,0.40%,F,T)



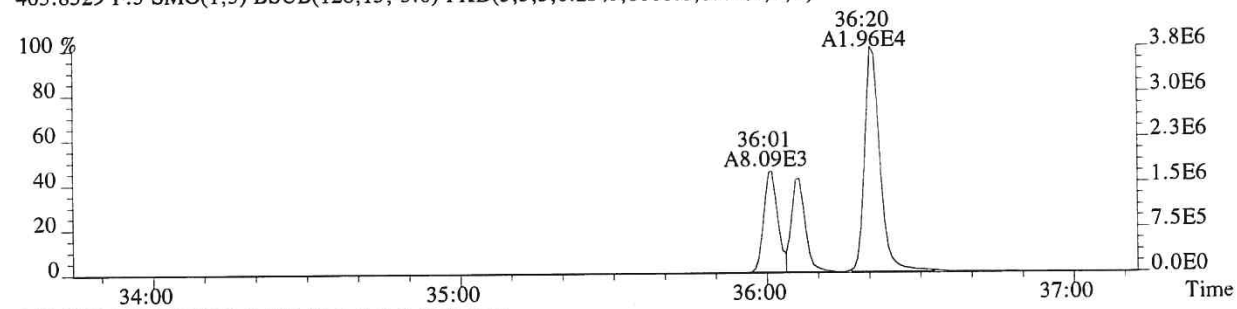
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1364.0,0.40%,F,T)



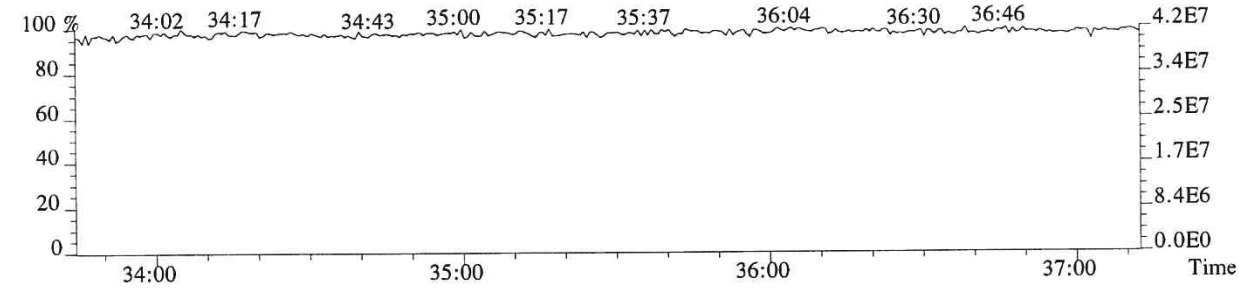
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,708.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1008.0,0.40%,F,T)

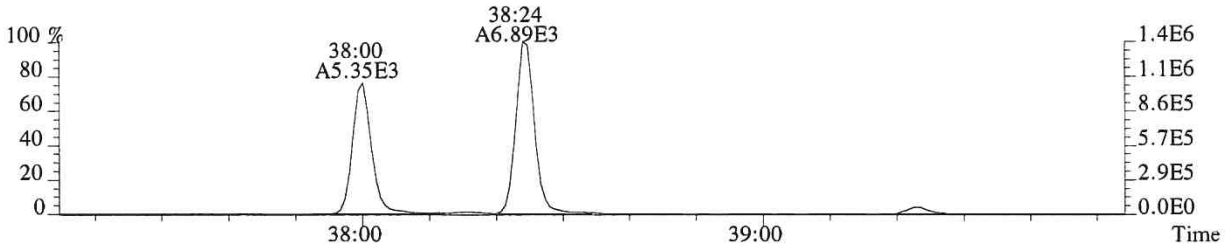


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

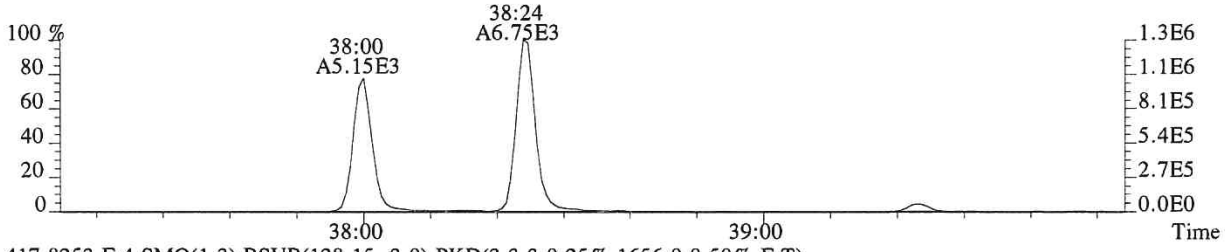


File:P519440 #1-240 Acq:17-DEC-2018 17:47:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-012

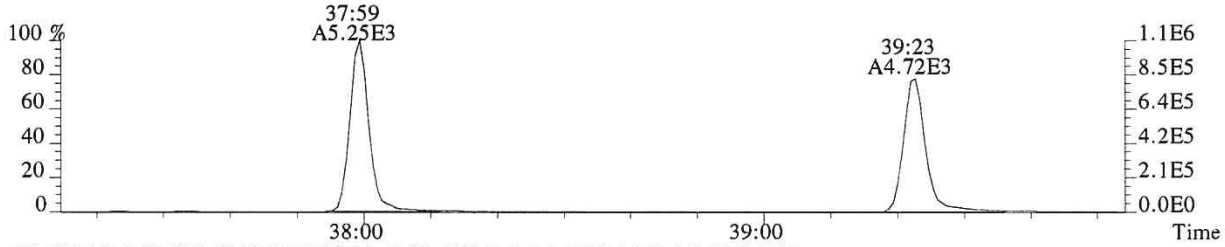
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4440.0,0.50%,F,T)



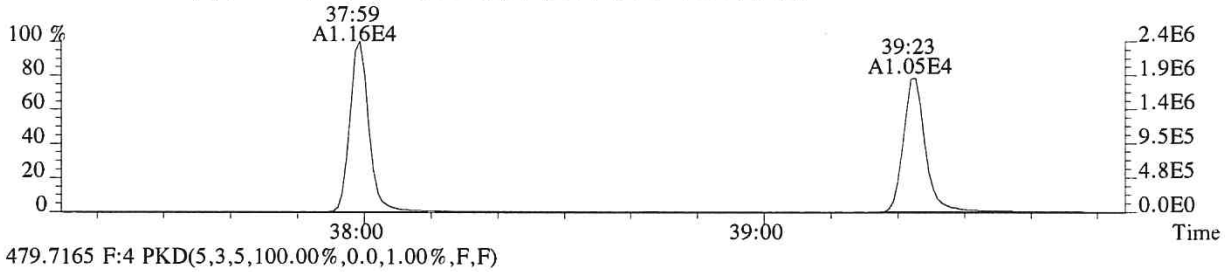
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1908.0,0.50%,F,T)



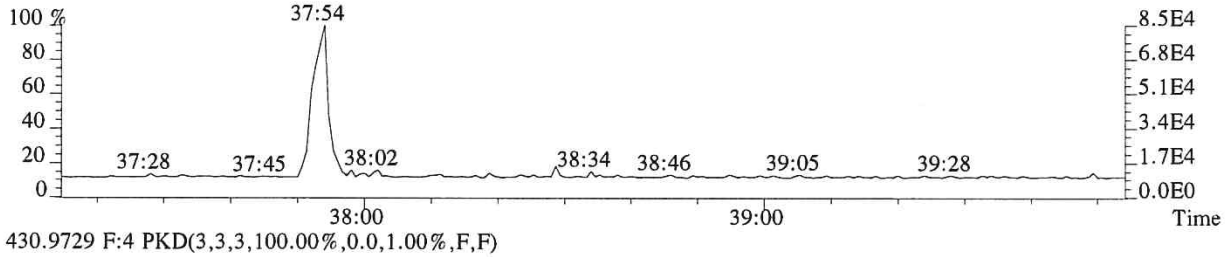
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1656.0,0.50%,F,T)



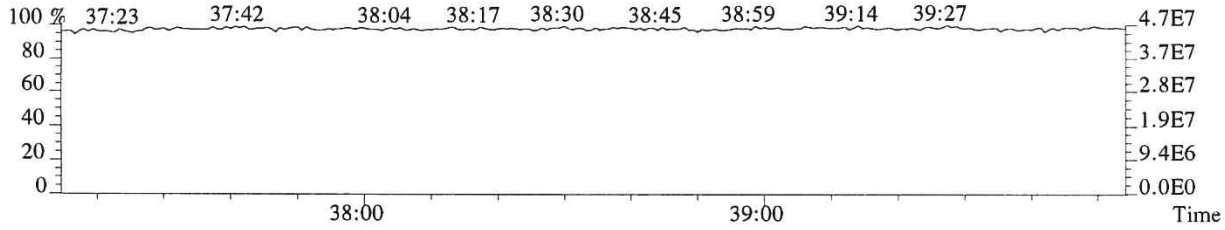
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1120.0,0.50%,F,T)



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

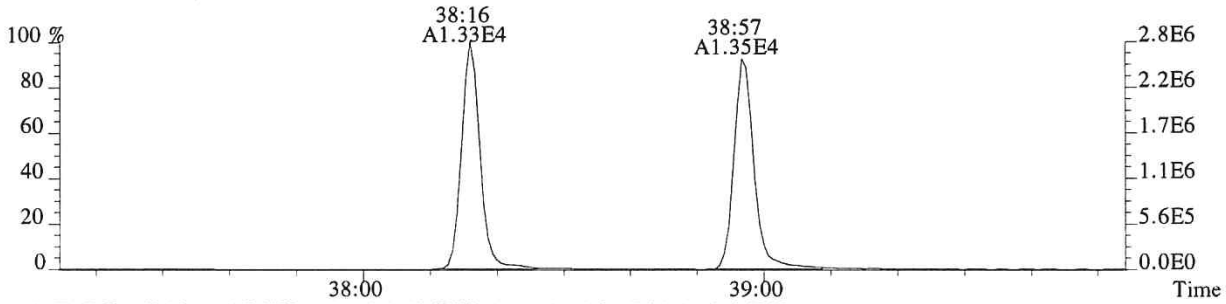


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

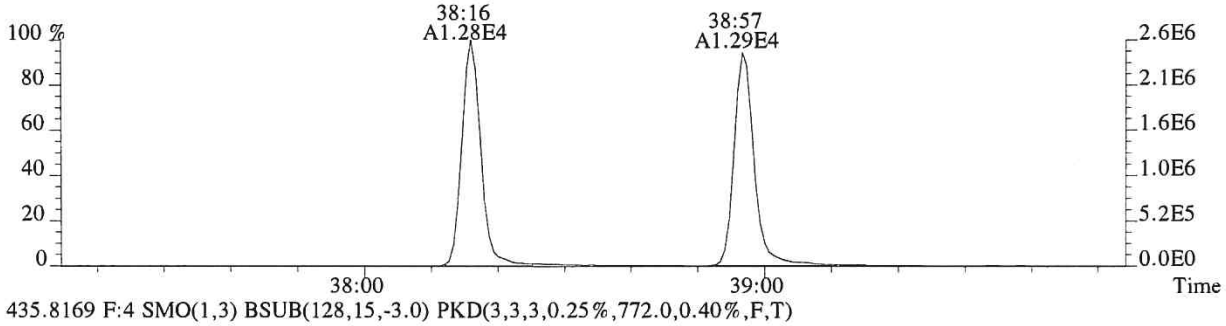


014289

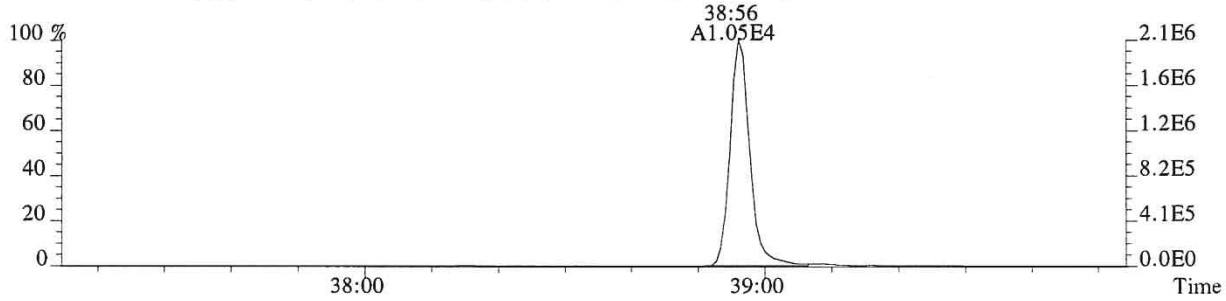
File:P519440 #1-240 Acq:17-DEC-2018 17:47:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-012
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4528.0,0.40%,F,T)



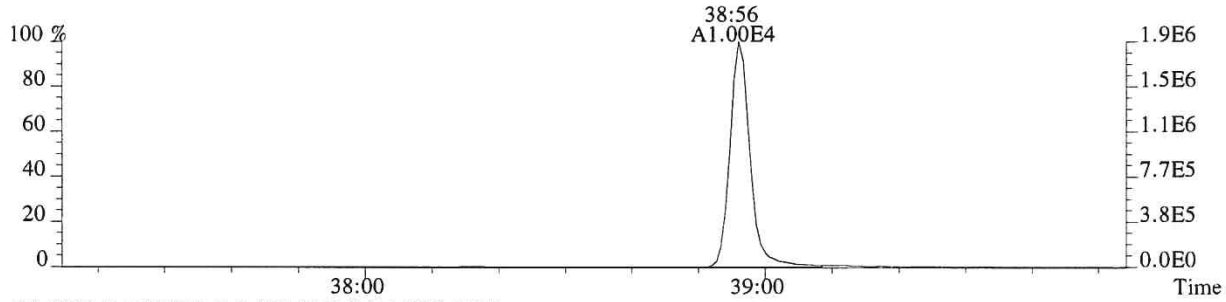
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,276.0,0.40%,F,T)



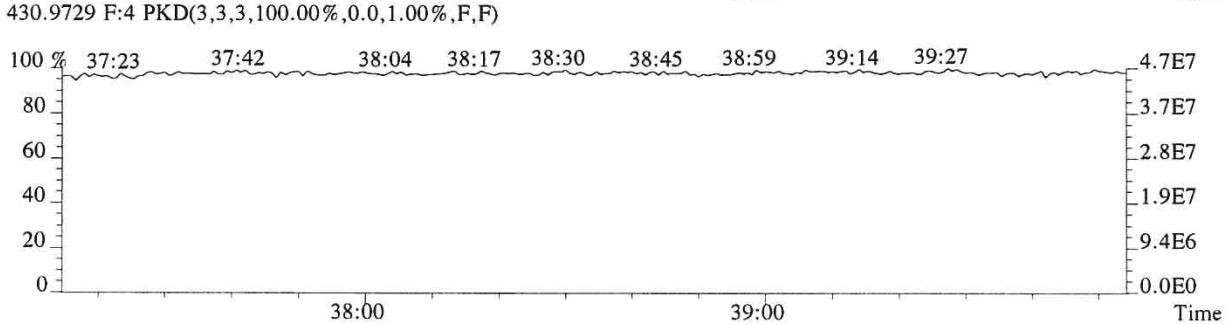
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,772.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,604.0,0.40%,F,T)

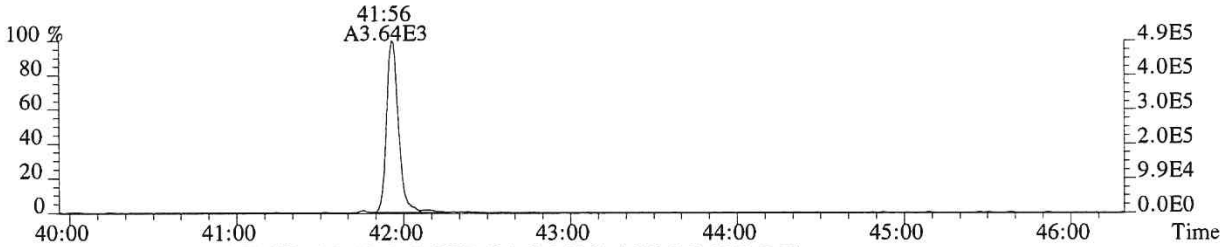


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

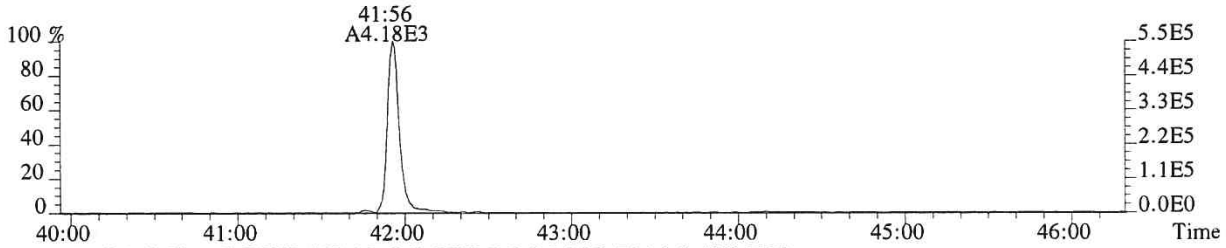


File:P519440 #1-575 Acq:17-DEC-2018 17:47:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-012

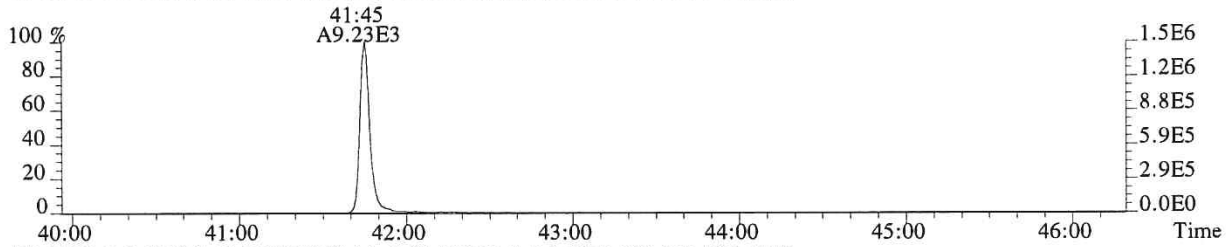
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,364.0,0.40%,F,T)



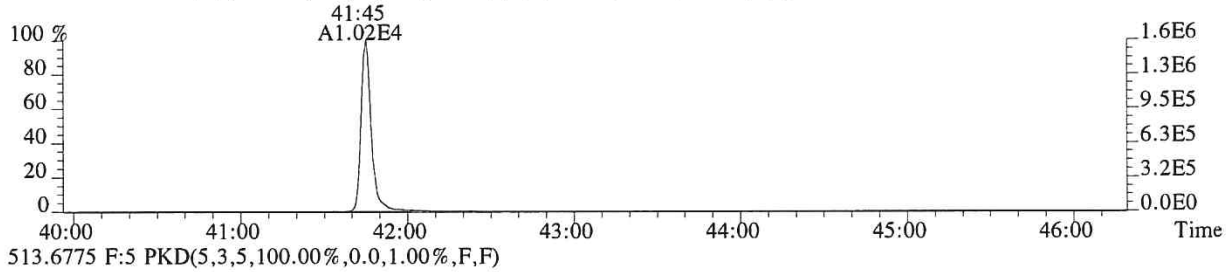
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1176.0,0.40%,F,T)



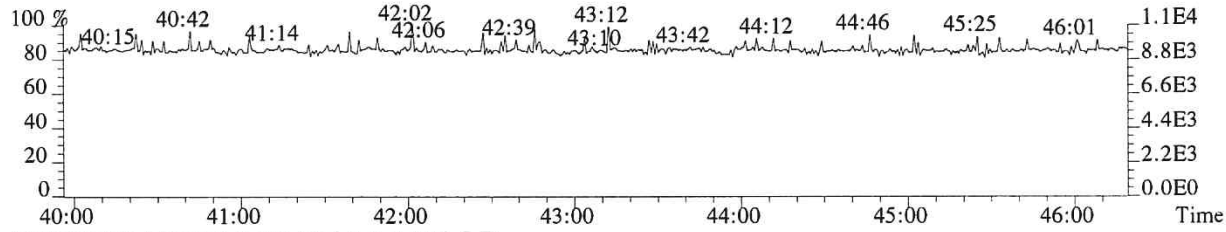
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,764.0,0.40%,F,T)



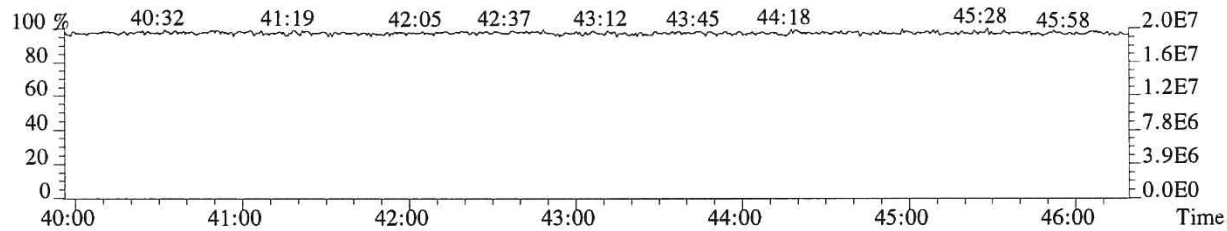
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,408.0,0.40%,F,T)



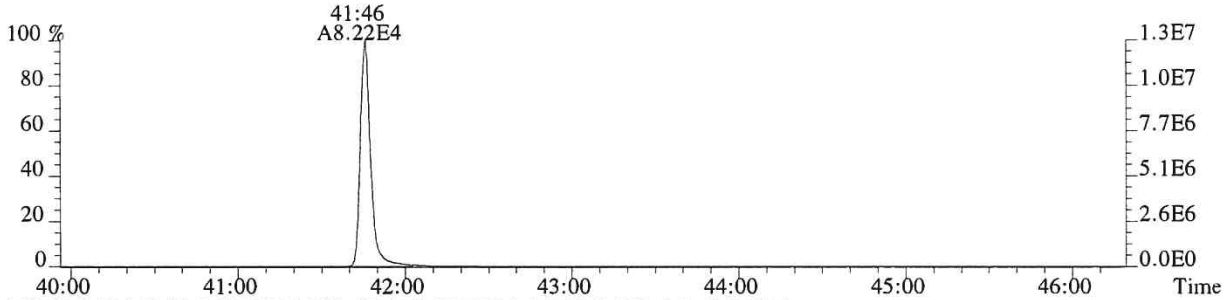
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



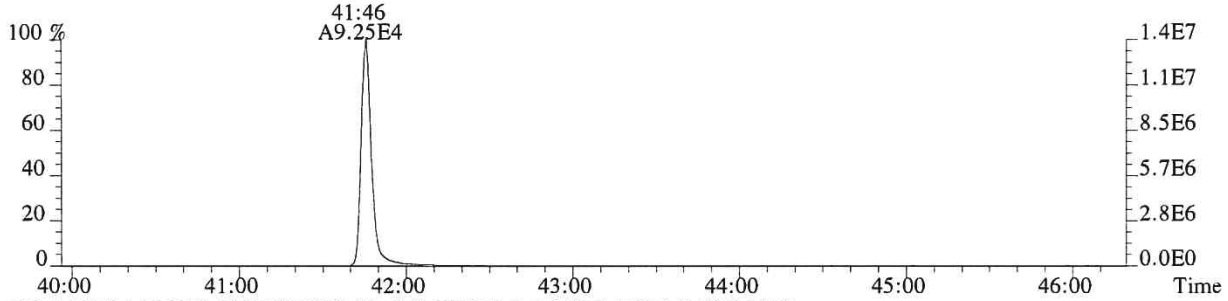
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



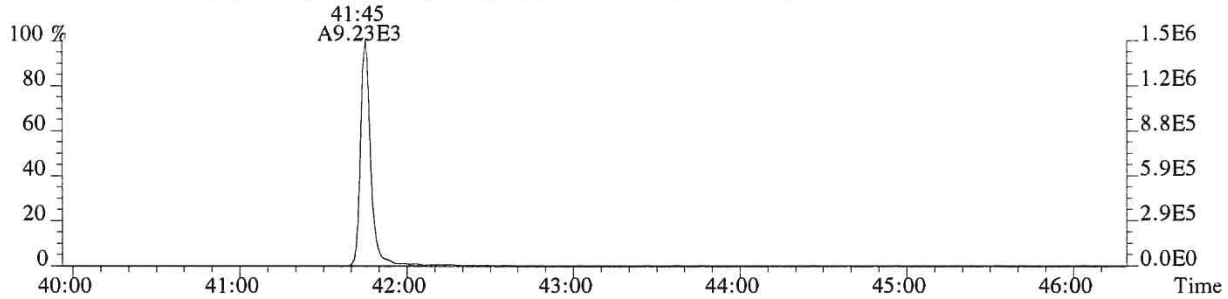
File:P519440 #1-575 Acq:17-DEC-2018 17:47:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-012
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,392.0,0.40%,F,T)



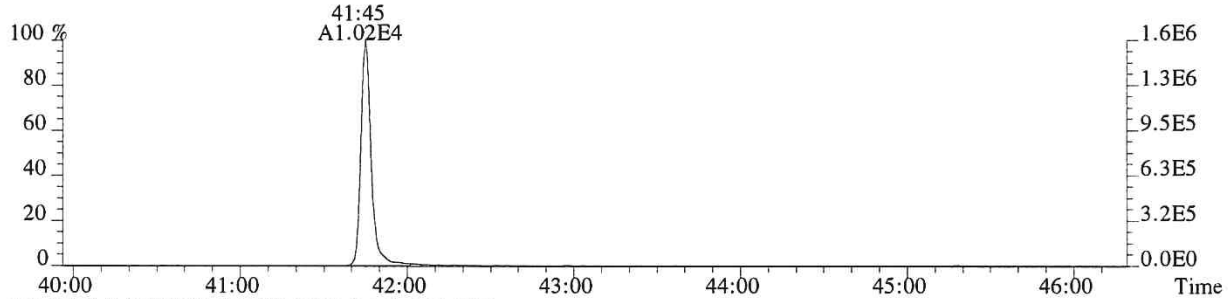
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,332.0,0.40%,F,T)



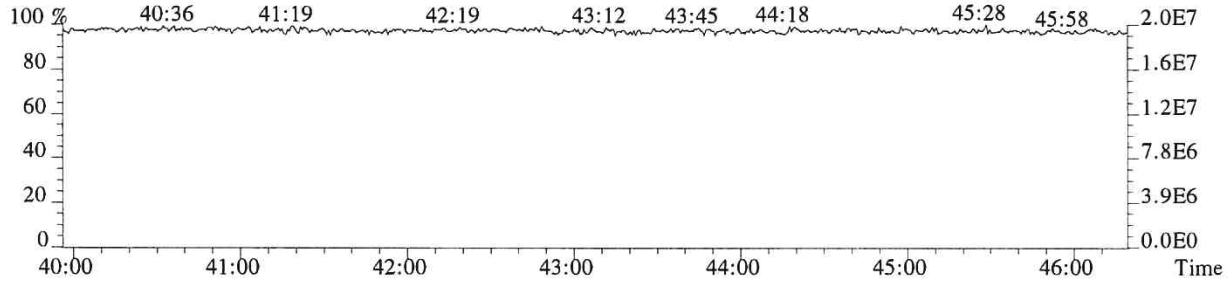
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,764.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,408.0,0.40%,F,T)



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



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0008

Run #12 Filename P519441 Samp: 1 Inj: 1 Acquired: 17-DEC-18 18:36:10
Processed: 19-DEC-18 09:25:41 Sample ID: E1801093-013

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:08	7.237e+06	8.714e+06	0.83	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	31:39	4.287e+05	2.788e+05	1.54	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	32:34	2.709e+05	1.758e+05	1.54	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:20	6.475e+05	5.274e+05	1.23	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:26	1.626e+05	1.330e+05	1.22	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:57	2.792e+04	2.287e+04	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	36:44	4.689e+04	3.817e+04	1.23	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:03	1.170e+05	1.135e+05	1.03	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:27	3.900e+04	3.890e+04	1.00	yes	no	1.258
10	Unk	OCDF	42:00	3.040e+04	3.400e+04	0.89	yes	no	1.359
11	Unk	2,3,7,8-TCDD	27:58	1.928e+06	2.449e+06	0.79	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	32:51	2.888e+04	1.786e+04	1.62	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:06	3.131e+02	2.055e+02	1.52	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:11	1.576e+03	1.165e+03	1.35	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:26	4.715e+02	3.577e+02	1.32	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:59	3.604e+04	3.498e+04	1.03	yes	no	1.025
17	Unk	OCDD	41:50	3.056e+05	3.425e+05	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:07	1.918e+04	2.305e+04	0.83	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	31:38	3.018e+04	1.879e+04	1.61	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	32:33	2.541e+04	1.617e+04	1.57	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:19	1.288e+04	2.508e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:26	1.440e+04	2.823e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:56	1.361e+04	2.681e+04	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	36:42	1.204e+04	2.433e+04	0.49	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:03	8.886e+03	1.969e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:26	7.415e+03	1.705e+04	0.43	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	27:57	8.499e+03	1.032e+04	0.82	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:50	2.109e+04	1.306e+04	1.62	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:05	1.873e+04	1.447e+04	1.29	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:10	1.726e+04	1.378e+04	1.25	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:59	1.708e+04	1.634e+04	1.05	yes	no	0.858
32	IS	13C-OCDD	41:50	1.303e+04	1.435e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:26	1.652e+04	2.104e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:25	2.701e+04	2.060e+04	1.31	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:58	3.308e+04				no	1.014

$$\text{OCDD} = \frac{(3.056e{+}05 + 3.425e{+}05) \times 4000\ \text{pg} \times 1}{(1.303e{+}04 + 1.435e{+}04) \times 10.229\ \text{g} \times 1005 / 100 \times 1.118} = 17800\ \text{ng/kg}$$

KW 12/20/18

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

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0008

Run #12 Filename P519441 Samp: 1 Inj: 1 Acquired: 17-DEC-18 18:36:10
Processed: 19-DEC-18 09:25:41 LAB. ID: E1801093-013

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	9.59e+08	2.87e+03	3.3e+05	1.05e+09	1.01e+04	1.0e+05
2	1,2,3,7,8-PeCDF	6.60e+07	6.96e+03	9.5e+03	4.34e+07	3.09e+03	1.4e+04
3	2,3,4,7,8-PeCDF	4.23e+07	6.96e+03	6.1e+03	2.76e+07	3.09e+03	8.9e+03
4	1,2,3,4,7,8-HxCDF	1.29e+08	3.43e+04	3.8e+03	1.05e+08	8.46e+03	1.2e+04
5	1,2,3,6,7,8-HxCDF	3.19e+07	3.43e+04	9.3e+02	2.63e+07	8.46e+03	3.1e+03
6	2,3,4,6,7,8-HxCDF	6.39e+06	3.43e+04	1.9e+02	5.26e+06	8.46e+03	6.2e+02
7	1,2,3,7,8,9-HxCDF	9.25e+06	3.43e+04	2.7e+02	7.62e+06	8.46e+03	9.0e+02
8	1,2,3,4,6,7,8-HpCDF	2.28e+07	2.07e+04	1.1e+03	2.22e+07	1.64e+04	1.4e+03
9	1,2,3,4,7,8,9-HpCDF	7.32e+06	2.07e+04	3.5e+02	7.11e+06	1.64e+04	4.3e+02
10	OCDF	4.28e+06	4.16e+02	1.0e+04	4.95e+06	1.10e+03	4.5e+03
11	2,3,7,8-TCDD	3.58e+08	7.32e+03	4.9e+04	4.57e+08	1.87e+03	2.4e+05
12	1,2,3,7,8-PeCDD	4.90e+06	1.67e+03	2.9e+03	3.07e+06	1.43e+03	2.1e+03
13	1,2,3,4,7,8-HxCDD	7.32e+04	1.69e+03	4.3e+01	4.74e+04	3.33e+03	1.4e+01
14	1,2,3,6,7,8-HxCDD	3.21e+05	1.69e+03	1.9e+02	2.38e+05	3.33e+03	7.2e+01
15	1,2,3,7,8,9-HxCDD	9.58e+04	1.69e+03	5.7e+01	7.45e+04	3.33e+03	2.2e+01
16	1,2,3,4,6,7,8-HpCDD	6.84e+06	6.28e+02	1.1e+04	6.57e+06	1.12e+03	5.9e+03
17	OCDD	4.27e+07	6.88e+02	6.2e+04	4.78e+07	5.88e+02	8.1e+04
18	13C-2,3,7,8-TCDF	2.67e+06	1.41e+04	1.9e+02	3.20e+06	1.34e+04	2.4e+02
19	13C-1,2,3,7,8-PeCDF	4.74e+06	6.40e+03	7.4e+02	2.93e+06	7.91e+03	3.7e+02
20	13C-2,3,4,7,8-PeCDF	5.13e+06	6.40e+03	8.0e+02	3.31e+06	7.91e+03	4.2e+02
21	13C-1,2,3,4,7,8-HxCDF	2.54e+06	1.28e+04	2.0e+02	4.91e+06	5.53e+03	8.9e+02
22	13C-1,2,3,6,7,8-HxCDF	2.96e+06	1.28e+04	2.3e+02	5.72e+06	5.53e+03	1.0e+03
23	13C-2,3,4,6,7,8-HxCDF	2.92e+06	1.28e+04	2.3e+02	5.66e+06	5.53e+03	1.0e+03
24	13C-1,2,3,7,8,9-HxCDF	2.50e+06	1.28e+04	2.0e+02	4.84e+06	5.53e+03	8.8e+02
25	13C-1,2,3,4,6,7,8-HpCDF	1.74e+06	6.90e+03	2.5e+02	3.86e+06	7.31e+03	5.3e+02
26	13C-1,2,3,4,7,8,9-HpCDF	1.32e+06	6.90e+03	1.9e+02	3.15e+06	7.31e+03	4.3e+02
27	13C-2,3,7,8-TCDD	1.49e+06	5.92e+03	2.5e+02	1.88e+06	2.76e+03	6.8e+02
28	13C-1,2,3,7,8-PeCDD	4.09e+06	1.50e+03	2.7e+03	2.54e+06	1.36e+03	1.9e+03
29	13C-1,2,3,4,7,8-HxCDD	4.07e+06	1.08e+03	3.8e+03	3.10e+06	1.44e+03	2.1e+03
30	13C-1,2,3,6,7,8-HxCDD	3.52e+06	1.08e+03	3.3e+03	2.80e+06	1.44e+03	1.9e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.18e+06	1.74e+03	1.8e+03	3.08e+06	9.80e+02	3.1e+03
32	13C-OCDD	1.79e+06	1.23e+03	1.5e+03	1.98e+06	4.76e+02	4.2e+03
33	13C-1,2,3,4-TCDD	2.09e+06	5.92e+03	3.5e+02	2.65e+06	2.76e+03	9.6e+02
34	13C-1,2,3,7,8,9-HxCDD	5.27e+06	1.08e+03	4.9e+03	4.10e+06	1.44e+03	2.8e+03
35	37Cl-2,3,7,8-TCDD	6.10e+06	4.14e+03	1.5e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (7.324e+03 + 1.872e+03) \times 2000}{(1.494e+06 + 1.878e+06) \times (\quad) \times 1.085} =$$

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Peak List Summary

CLIENT ID.
SL0008

Entry: 36 Totals Name: Total Tetra-Furans

Run: 12 File: P519441 Sample:1 Injection:1 Function:1

Acquired: 17-DEC-18 18:36:10 Processed: 19-DEC-18 09:25:41

Mass: 303.9020 305.8990 Tot Response: 2.97e+07 RRF: 0.9417

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:02	4.90e+04	6.39e+04	0.77	yes	1.13e+05		n	n
2	24:19	2.75e+05	3.56e+05	0.77	yes	6.31e+05		n	n
3	24:39	8.35e+04	1.09e+05	0.77	yes	1.92e+05		n	n
4	24:57	2.74e+05	3.59e+05	0.76	yes	6.33e+05		n	n
5	25:22	5.83e+04	7.52e+04	0.77	yes	1.34e+05		n	n
6	25:37	1.80e+05	2.18e+05	0.82	yes	3.98e+05		n	n
7	25:44	3.18e+05	4.32e+05	0.74	yes	7.50e+05		n	n
8	26:10	3.59e+06	4.55e+06	0.79	yes	8.14e+06		n	n
9	26:29	1.74e+05	2.17e+05	0.80	yes	3.91e+05		n	n
10	27:08	7.24e+06	8.71e+06	0.83	yes	1.60e+07	2,3,7,8-TCDF	n	n
11	27:33	4.21e+05	5.45e+05	0.77	yes	9.66e+05		n	n
12	27:45	9.15e+04	1.23e+05	0.75	yes	2.14e+05		n	n
13	29:09	5.17e+05	6.62e+05	0.78	yes	1.18e+06		n	n

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CLIENT ID.
SL0008

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 12 File: P519441 Sample:1 Injection:1 Function:1

Acquired: 17-DEC-18 18:36:10 Processed: 19-DEC-18 09:25:41

Mass: 319.8970 321.8940 Tot Response: 4.86e+06 RRF: 1.085

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	27:41	2.19e+04	3.27e+04 0.67	yes	5.46e+04		n	n
2	27:58	1.93e+06	2.45e+06 0.79	yes	4.38e+06	2,3,7,8-TCDD	n	n
3	28:17	1.87e+05	2.46e+05 0.76	yes	4.32e+05		n	n

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CLIENT ID.
SL0008

Entry: 39 Totals Name: Total Penta-Furans2

Run: 12 File: P519441 Sample:1 Injection:1 Function:2

Acquired: 17-DEC-18 18:36:10 Processed: 19-DEC-18 09:25:41

Mass: 339.8600 341.8570 Tot Response: 1.73e+06 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:41	1.82e+05	1.55	yes	3.00e+05		n	n
2	31:15	4.89e+03	1.61	yes	7.93e+03		n	n
3	31:19	6.00e+03	1.52	yes	9.94e+03		n	n
4	31:28	3.63e+04	1.53	yes	6.00e+04		n	n
5	31:39	4.29e+05	1.54	yes	7.07e+05	1,2,3,7,8-PeCDF	n	n
6	31:54	1.03e+05	1.56	yes	1.69e+05		n	n
7	32:34	2.71e+05	1.54	yes	4.47e+05	2,3,4,7,8-PeCDF	n	n
8	33:29	1.58e+04	1.54	yes	2.61e+04		n	n

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Peak List Summary

CLIENT ID.
SL0008

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 12 File: P519441 Sample:1 Injection:1 Function:2

Acquired: 17-DEC-18 18:36:10 Processed: 19-DEC-18 09:25:41

Mass: 355.8550 357.8520 Tot Response: 5.21e+04 RRF: 0.9565

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:12	1.37e+02	1.52	yes	2.26e+02		n	n
2	31:41	9.59e+02	1.56	yes	1.57e+03		n	n
3	31:49	1.20e+03	1.58	yes	1.96e+03		n	n
4	31:56	2.89e+02	1.47	yes	4.85e+02		n	n
5	32:27	5.72e+02	1.45	yes	9.66e+02		n	n
6	32:51	2.89e+04	1.62	yes	4.67e+04	1,2,3,7,8-PeCDD	n	n
7	33:23	9.86e+01	1.57	yes	1.61e+02		n	n

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CLIENT ID.
SL0008

Entry: 41 Totals Name: Total Hexa-Furans

Run: 12 File: P519441 Sample:1 Injection:1 Function:3

Acquired: 17-DEC-18 18:36:10 Processed: 19-DEC-18 09:25:41

Mass: 373.8210 375.8180 Tot Response: 1.73e+06 RRF: 1.141

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:12	3.86e+03	3.20e+03 1.21	yes	7.05e+03		n	n
2	34:22	4.31e+04	3.55e+04 1.21	yes	7.87e+04		n	n
3	34:54	2.09e+04	1.70e+04 1.23	yes	3.79e+04		n	n
4	35:20	6.48e+05	5.27e+05 1.23	yes	1.17e+06	1,2,3,4,7,8-HxCDF	n	n
5	35:26	1.63e+05	1.33e+05 1.22	yes	2.96e+05	1,2,3,6,7,8-HxCDF	n	n
6	35:57	2.79e+04	2.29e+04 1.22	yes	5.08e+04	2,3,4,6,7,8-HxCDF	n	n
7	36:44	4.69e+04	3.82e+04 1.23	yes	8.51e+04	1,2,3,7,8,9-HxCDF	n	n

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Peak List Summary

CLIENT ID.
SL0008

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 12 File: P519441 Sample:1 Injection:1 Function:3

Acquired: 17-DEC-18 18:36:10 Processed: 19-DEC-18 09:25:41

Mass: 389.8160 391.8130 Tot Response: 1.80e+04 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:44	3.50e+03	2.77e+03	1.26	yes	6.26e+03		n	n
2	35:16	4.89e+02	4.40e+02	1.11	yes	9.28e+02		n	n
3	35:30	3.88e+03	3.01e+03	1.29	yes	6.88e+03		n	n
4	35:36	1.71e+02	1.45e+02	1.18	yes	3.16e+02		n	n
5	36:11	1.58e+03	1.16e+03	1.35	yes	2.74e+03	1,2,3,6,7,8-HxCDD	n	n
6	36:26	4.72e+02	3.58e+02	1.32	yes	8.29e+02	1,2,3,7,8,9-HxCDD	n	n

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SL0008

Entry: 43 Totals Name: Total Hepta-Furans

Run: 12 File: P519441 Sample:1 Injection:1 Function:4

Acquired: 17-DEC-18 18:36:10 Processed: 19-DEC-18 09:25:41

Mass: 407.7820 409.7790 Tot Response: 3.80e+05 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:03	1.17e+05	1.03	yes	2.31e+05	1,2,3,4,6,7,8-HpCDF	n	n
2	38:19	7.53e+02	0.96	yes	1.54e+03		n	n
3	38:27	3.53e+04	1.02	yes	6.98e+04		n	n
4	39:27	3.90e+04	1.00	yes	7.79e+04	1,2,3,4,7,8,9-HpCDF	n	n

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SL0008

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 12 File: P519441 Sample:1 Injection:1 Function:4

Acquired: 17-DEC-18 18:36:10 Processed: 19-DEC-18 09:25:41

Mass: 423.7770 425.7740 Tot Response: 1.43e+05 RRF: 1.025

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:19	3.64e+04	3.52e+04	1.03	yes	7.17e+04		n	n
2	38:59	3.60e+04	3.50e+04	1.03	yes	7.10e+04	1,2,3,4,6,7,8-HpCDD	n	n

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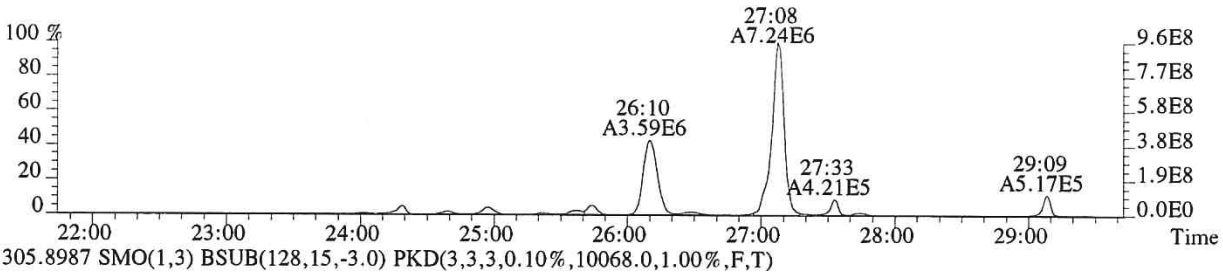
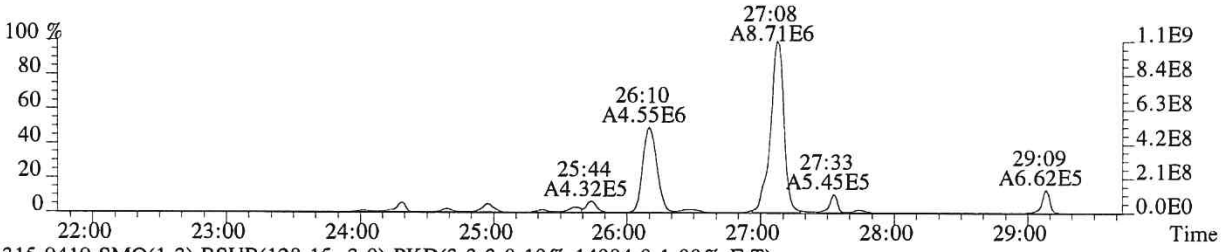
File:P519441 #1-566 Acq:17-DEC-2018 18:36:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-013

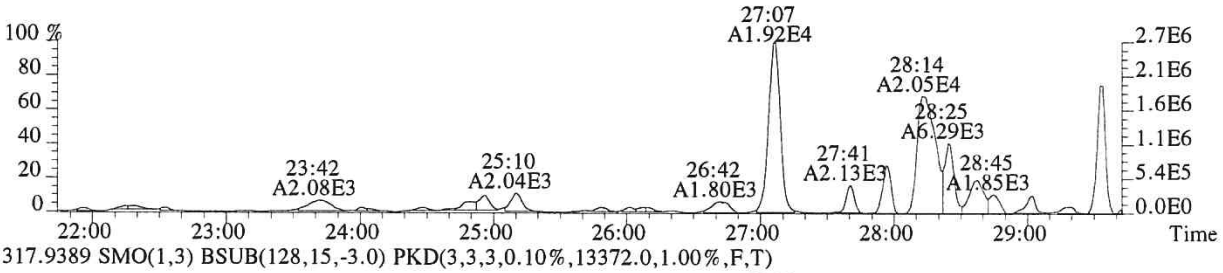
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2868.0,1.00%,F,T)



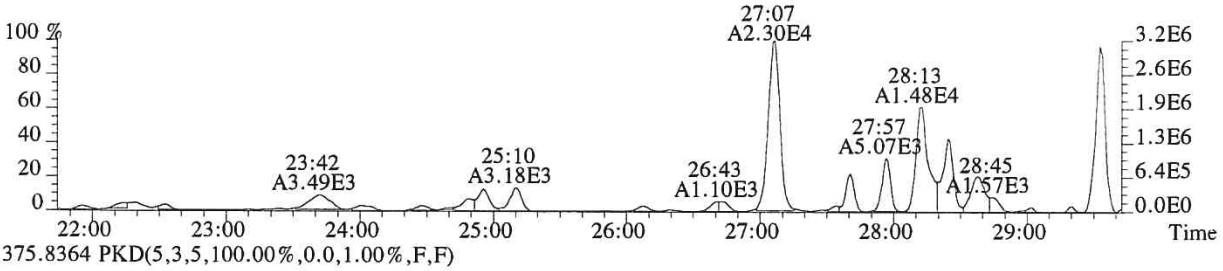
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10068.0,1.00%,F,T)



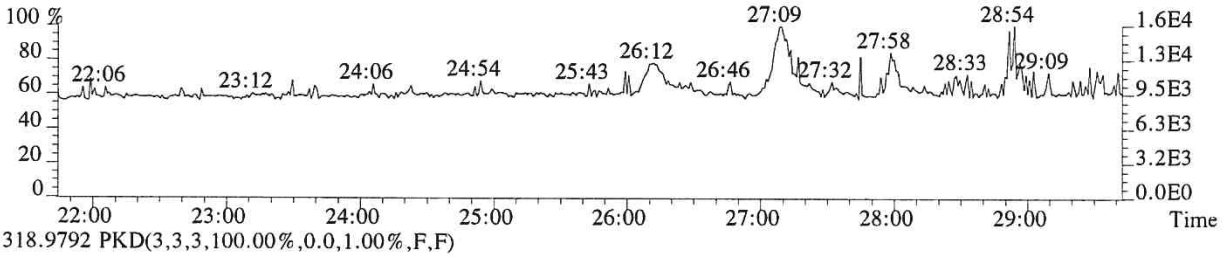
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,14084.0,1.00%,F,T)



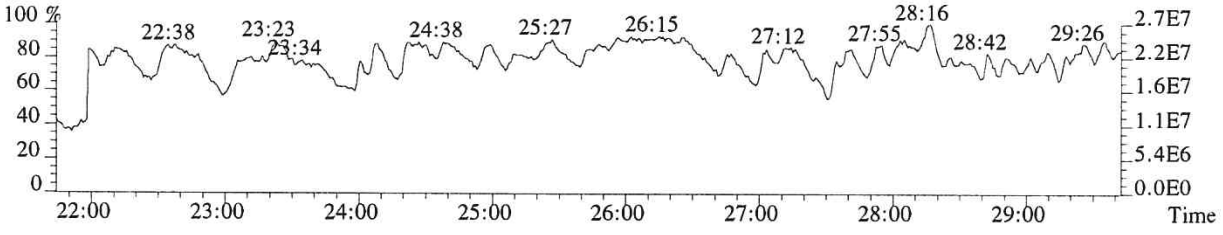
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,13372.0,1.00%,F,T)



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



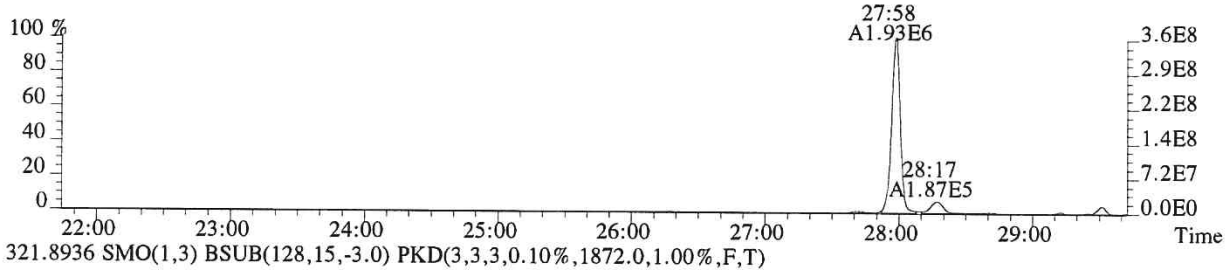
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



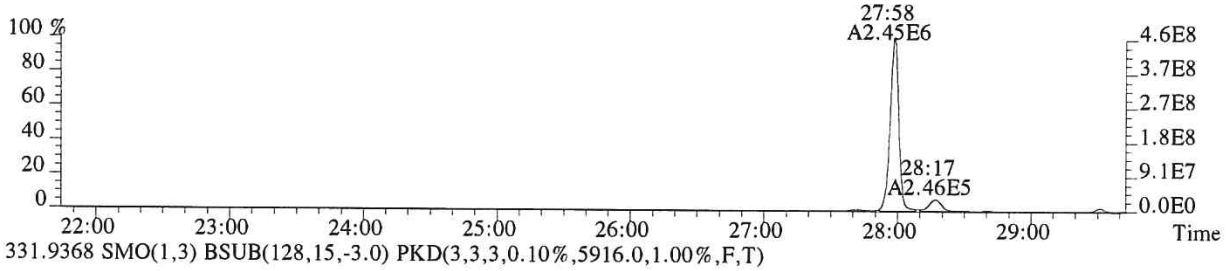
014303

File:P519441 #1-566 Acq:17-DEC-2018 18:36:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-013

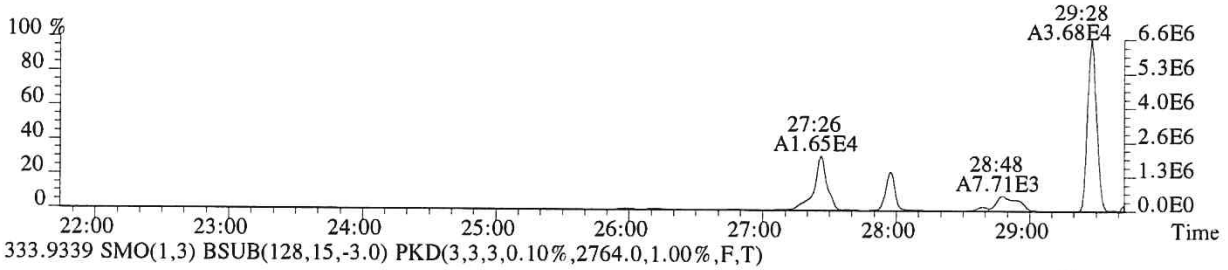
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7324.0,1.00%,F,T)



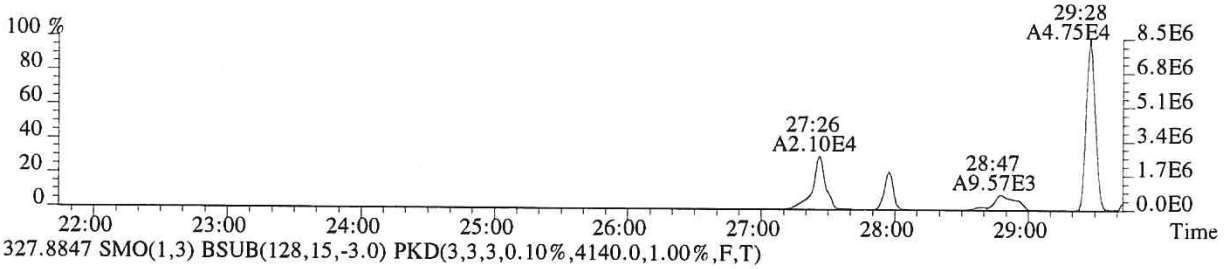
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1872.0,1.00%,F,T)



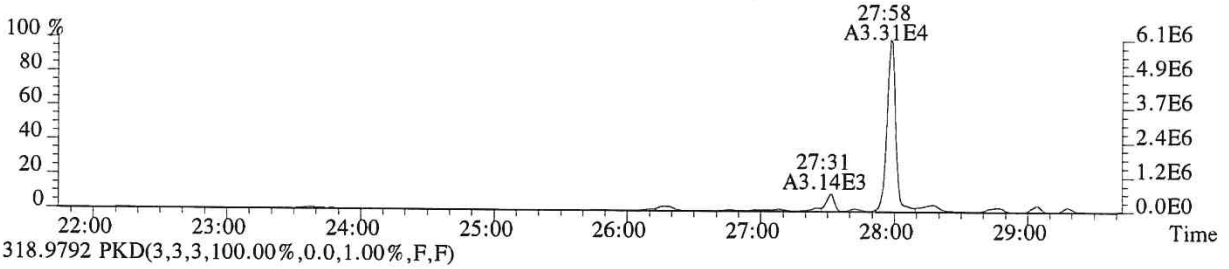
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5916.0,1.00%,F,T)



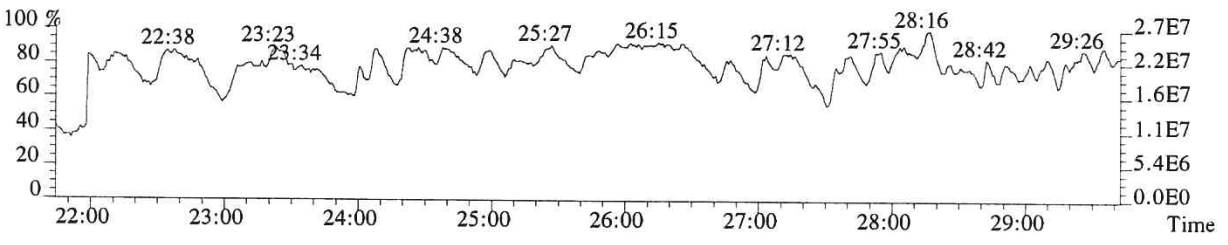
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2764.0,1.00%,F,T)



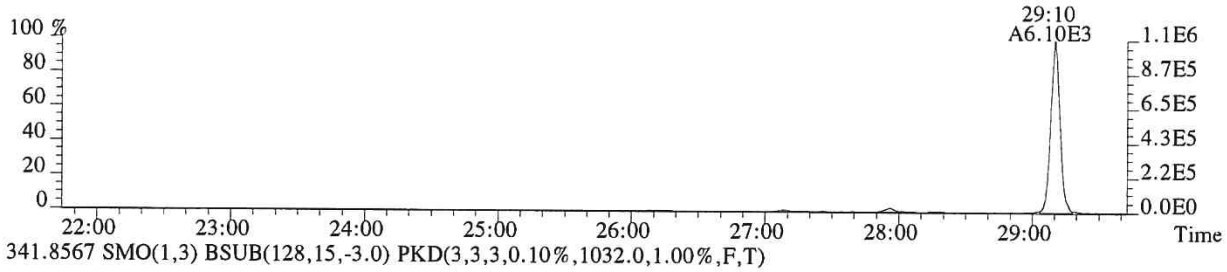
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4140.0,1.00%,F,T)



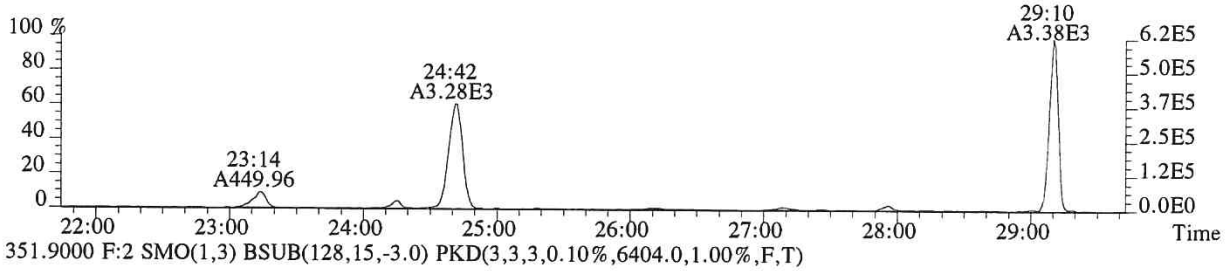
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



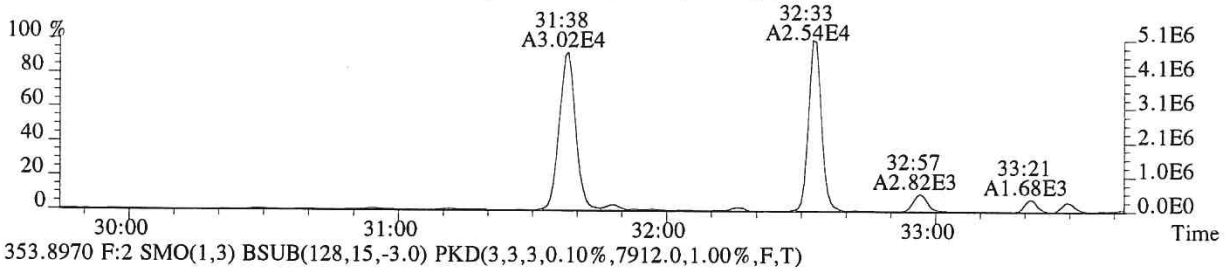
File:P519441 #1-566 Acq:17-DEC-2018 18:36:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-013
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,772.0,1.00%,F,T)



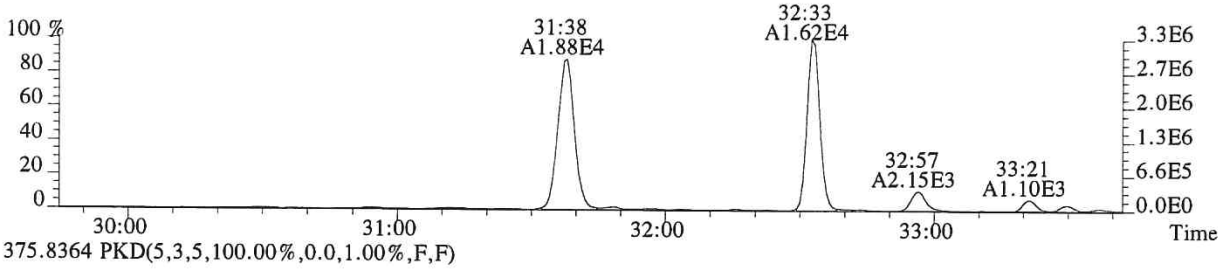
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



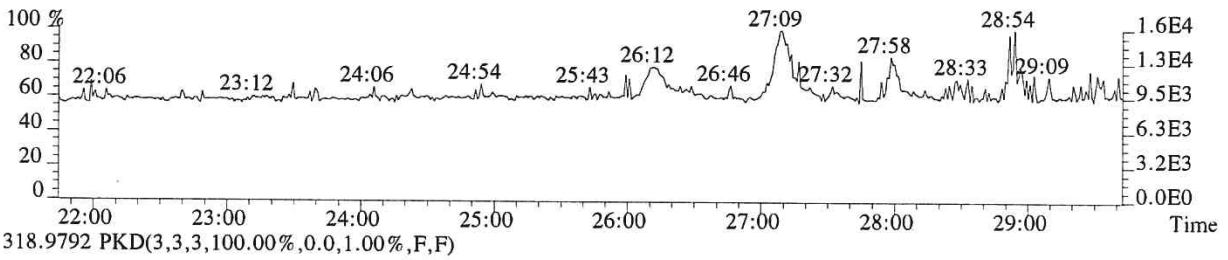
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6404.0,1.00%,F,T)



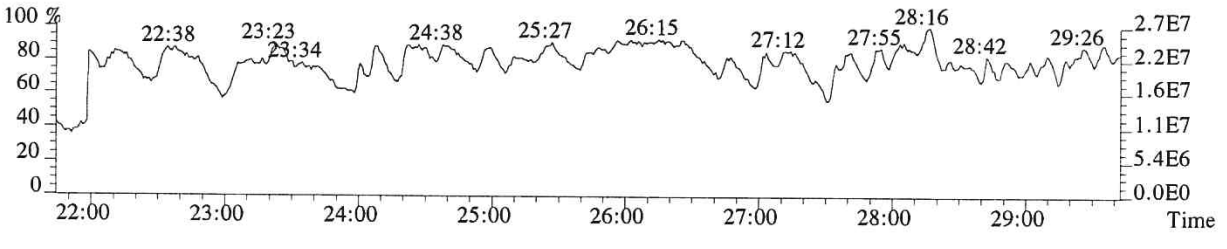
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7912.0,1.00%,F,T)



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



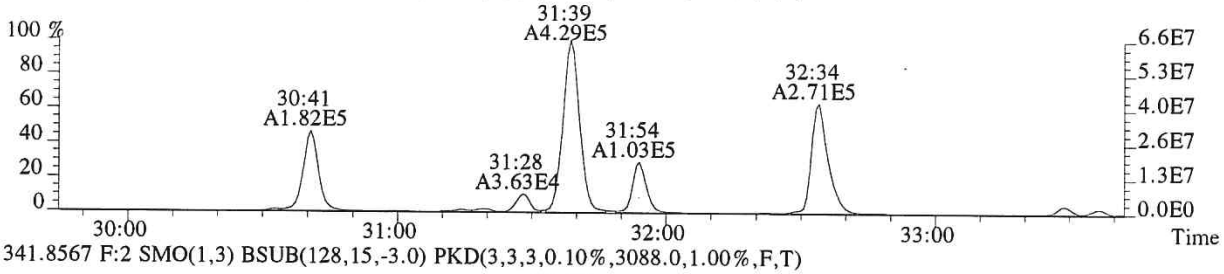
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



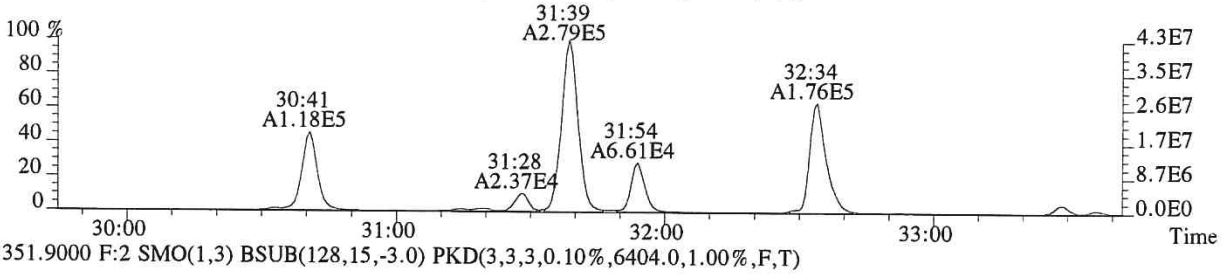
014305

File:P519441 #1-357 Acq:17-DEC-2018 18:36:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-013

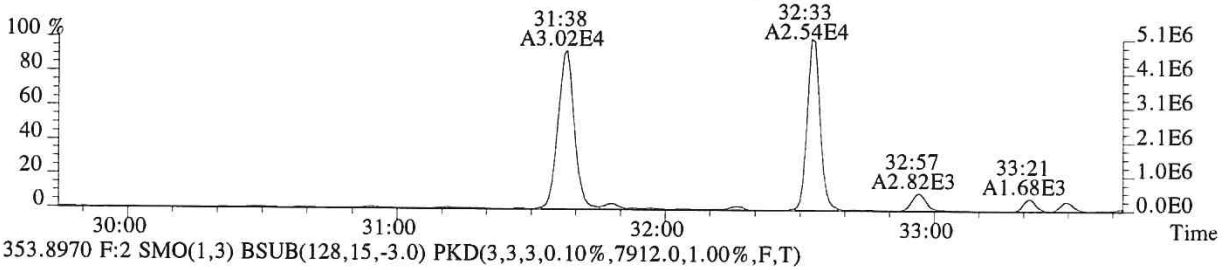
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6964.0,1.00%,F,T)



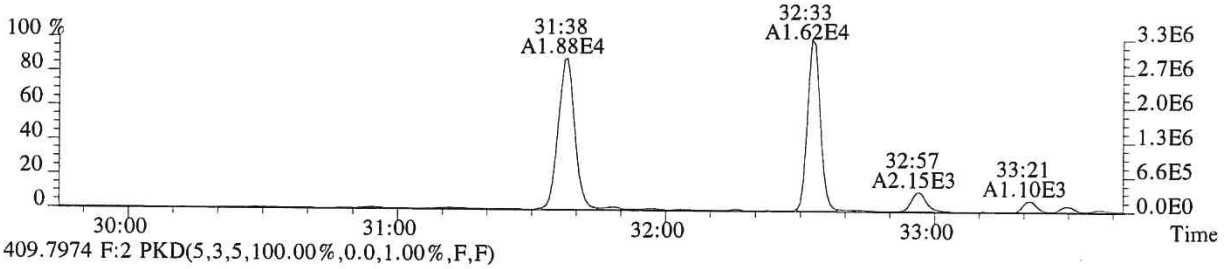
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3088.0,1.00%,F,T)



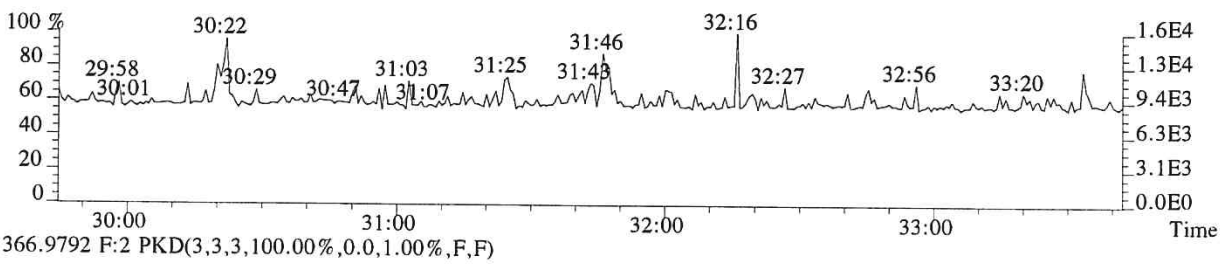
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6404.0,1.00%,F,T)



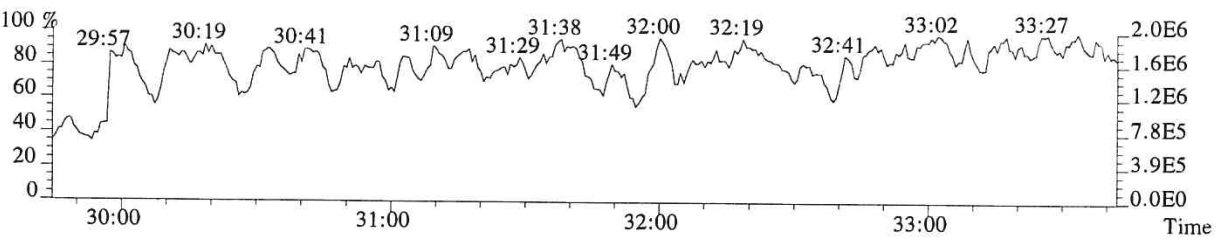
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7912.0,1.00%,F,T)



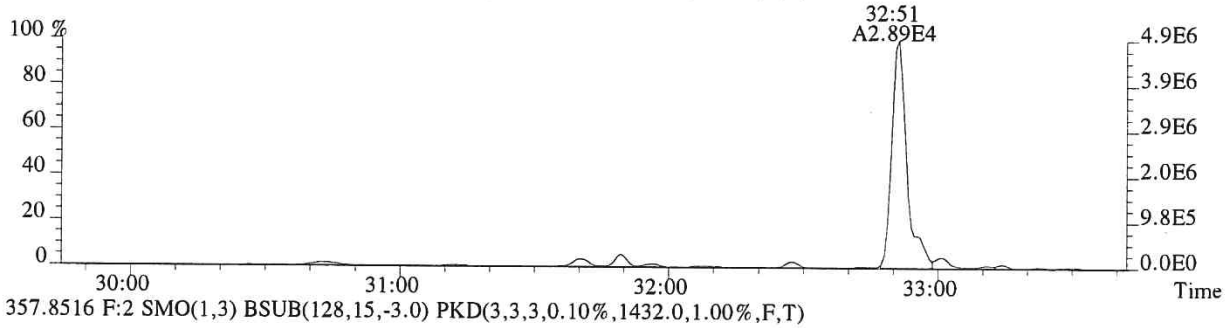
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



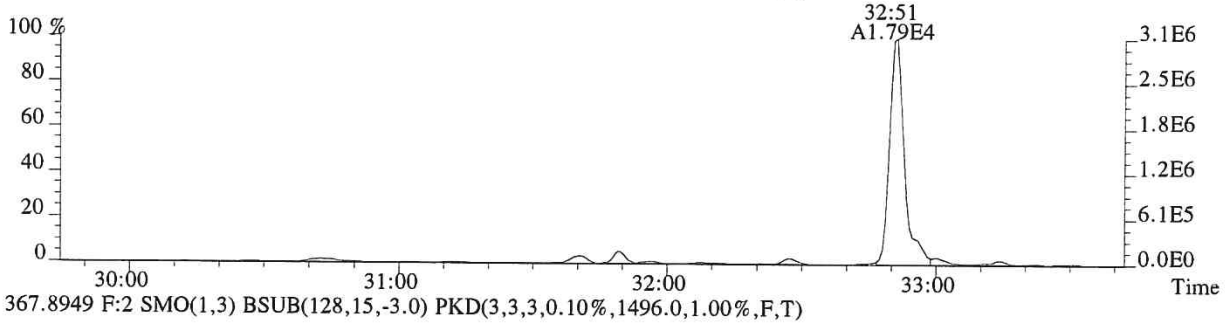
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



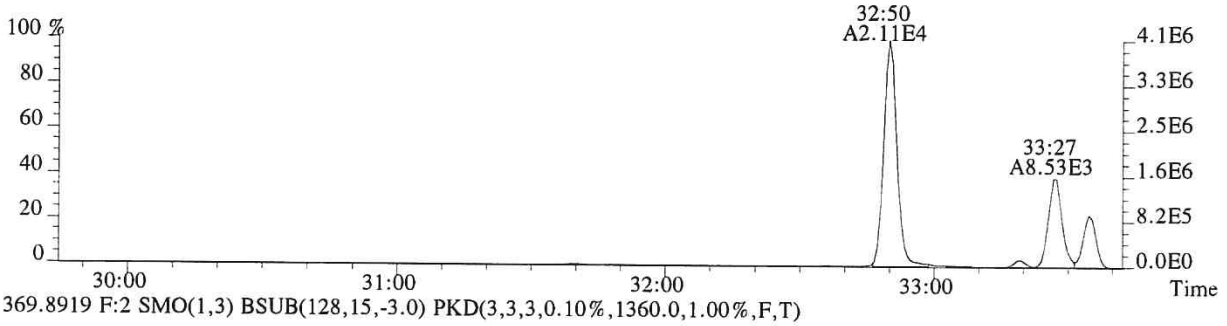
File:P519441 #1-357 Acq:17-DEC-2018 18:36:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-013
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1668.0,1.00%,F,T)



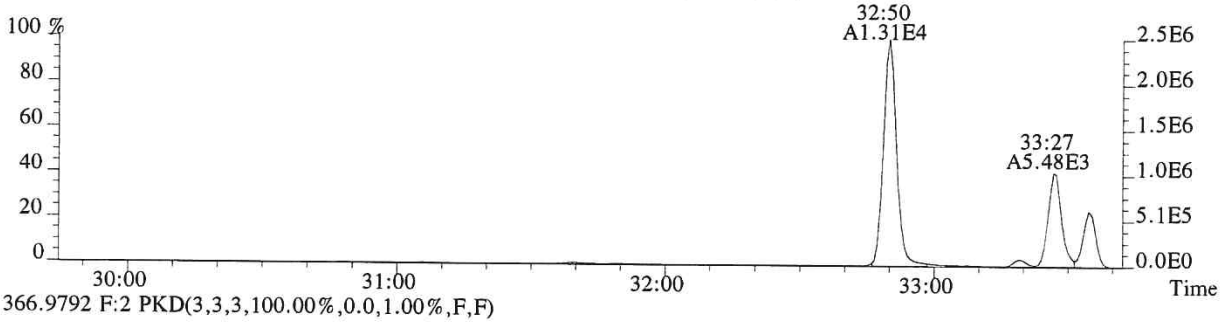
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1432.0,1.00%,F,T)



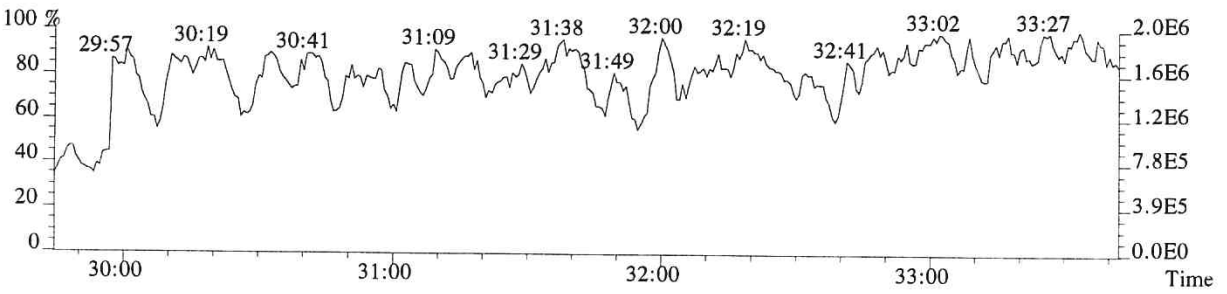
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1496.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1360.0,1.00%,F,T)

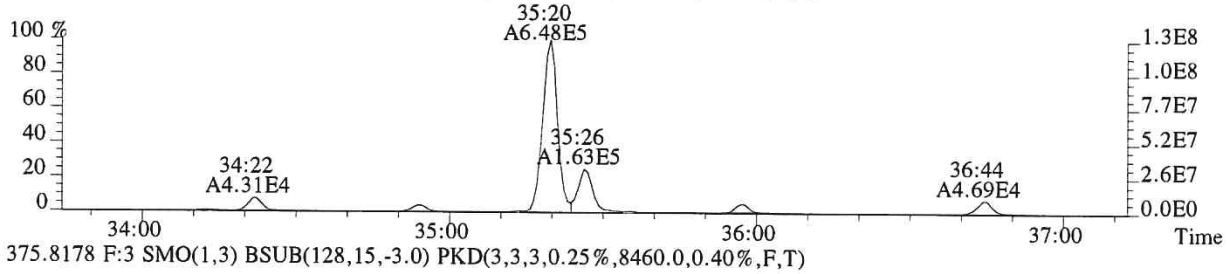


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

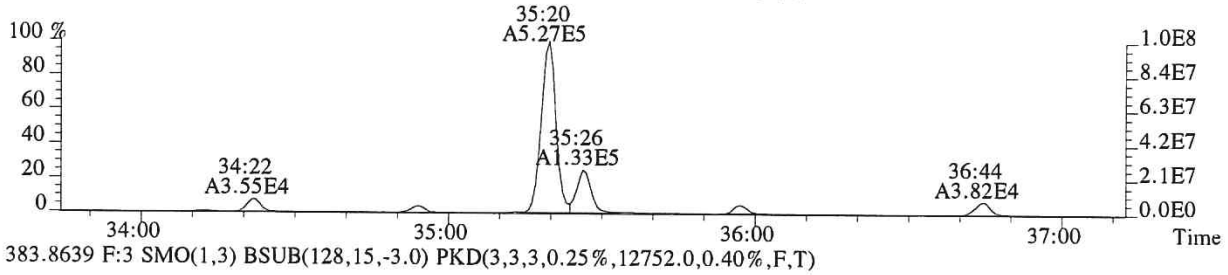


File:P519441 #1-313 Acq:17-DEC-2018 18:36:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-013

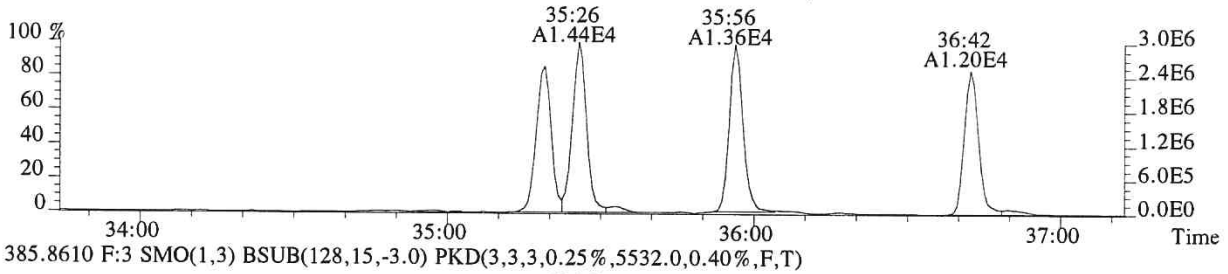
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,34328.0,0.40%,F,T)



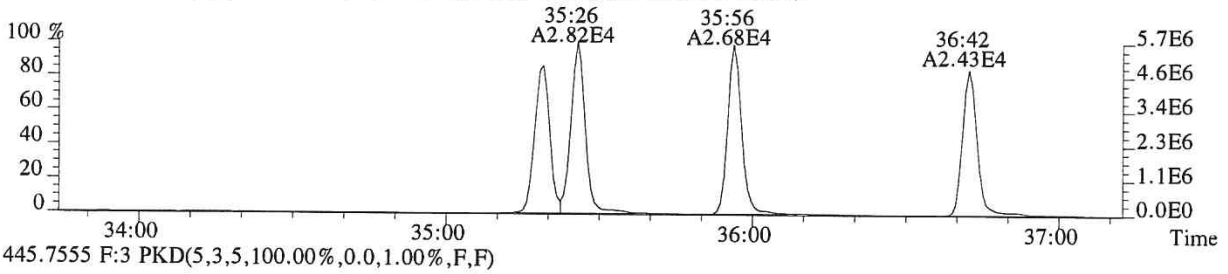
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8460.0,0.40%,F,T)



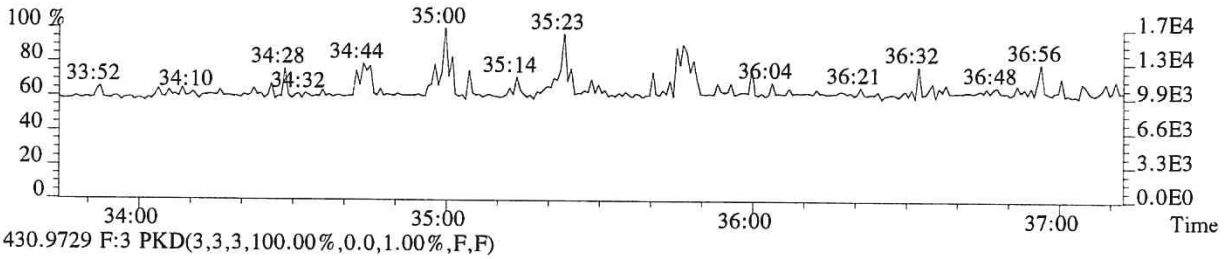
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,12752.0,0.40%,F,T)



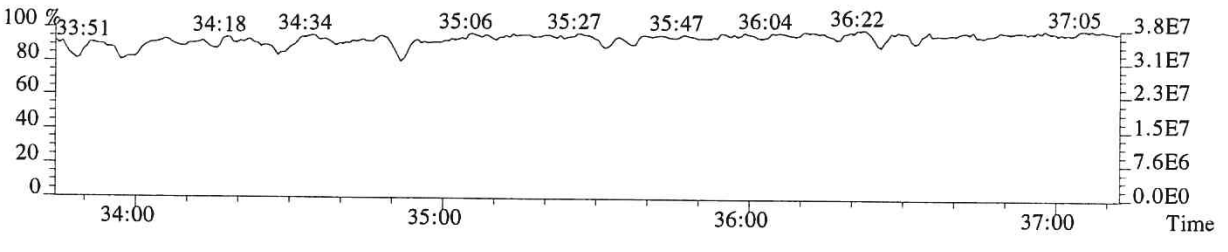
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5532.0,0.40%,F,T)



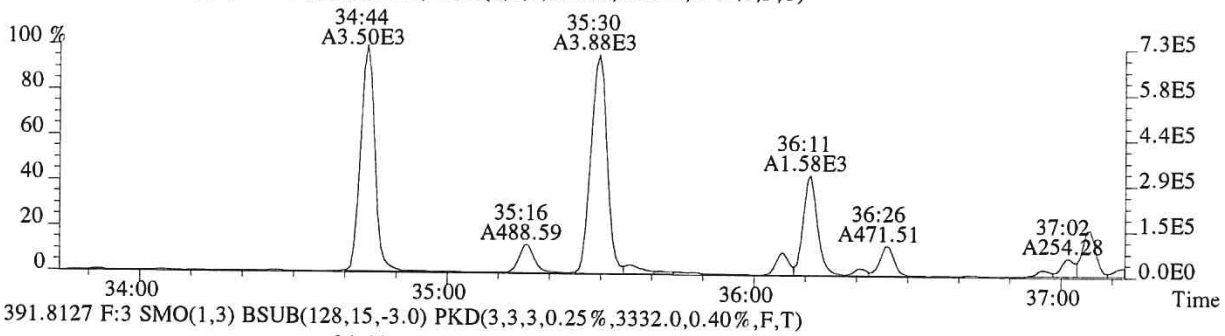
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



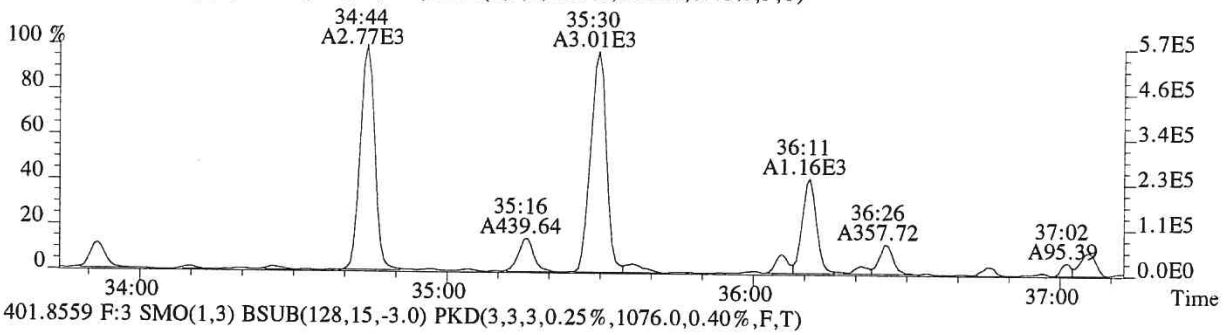
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



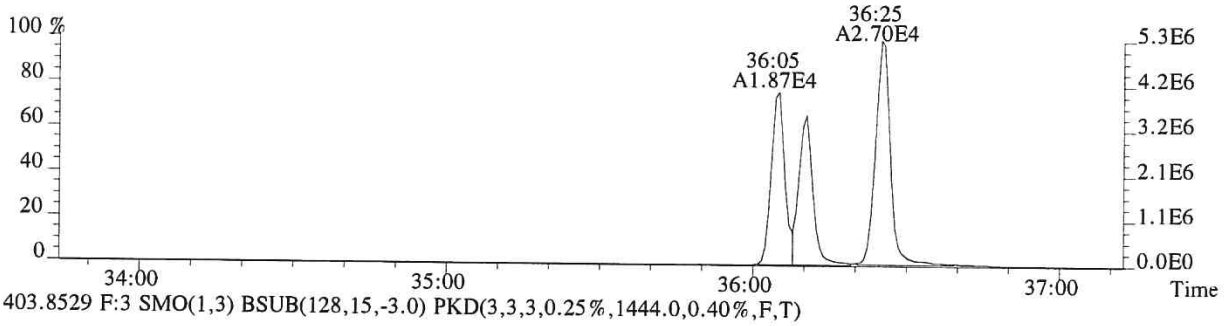
File:P519441 #1-313 Acq:17-DEC-2018 18:36:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-013
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1688.0,0.40%,F,T)



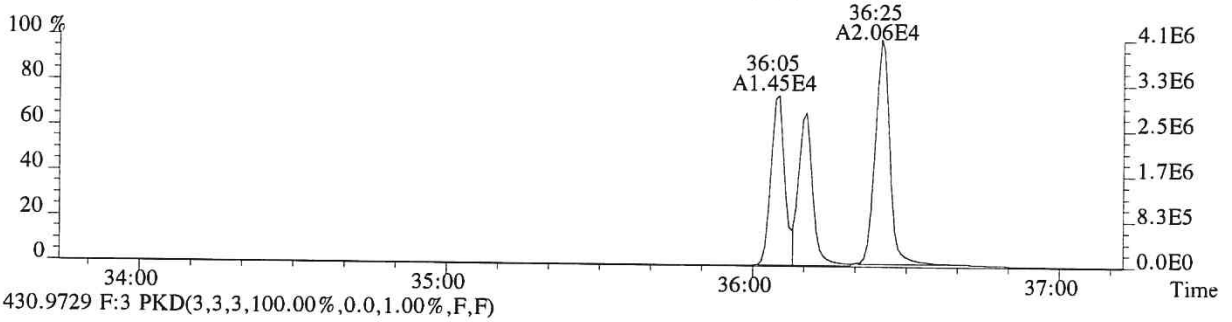
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3332.0,0.40%,F,T)



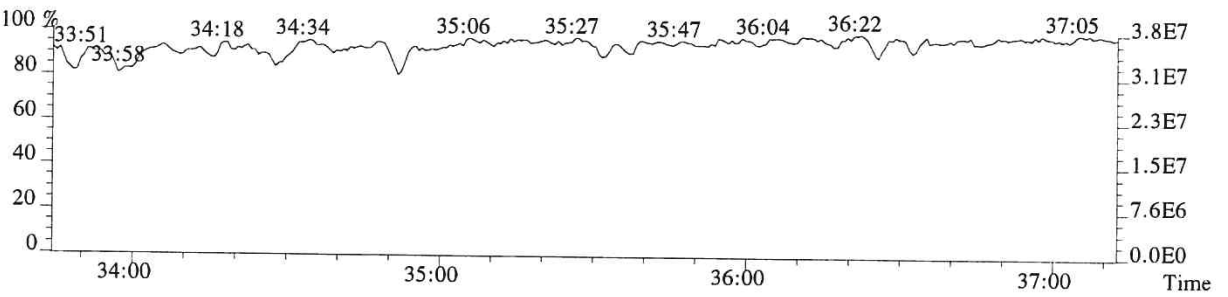
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1076.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1444.0,0.40%,F,T)



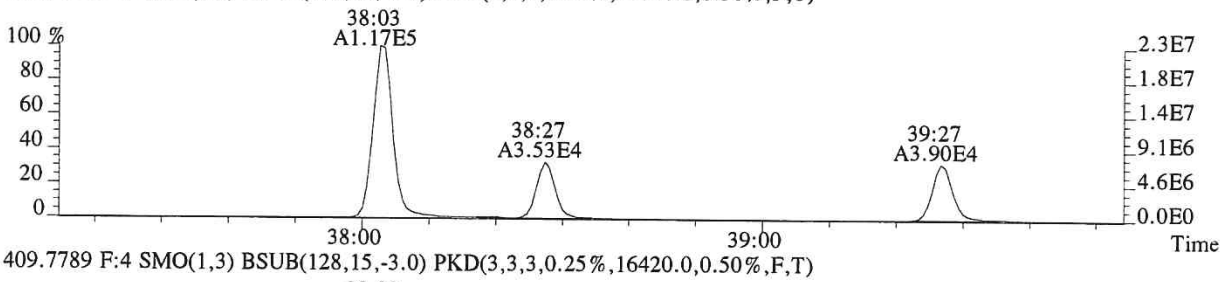
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



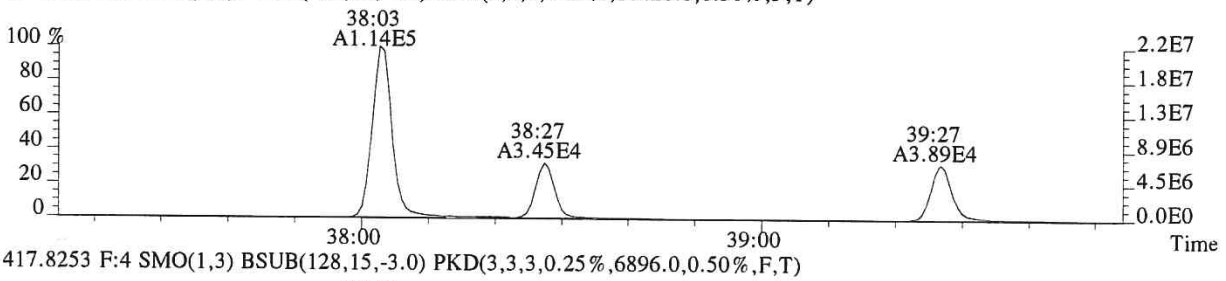
014309

File:P519441 #1-240 Acq:17-DEC-2018 18:36:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-013

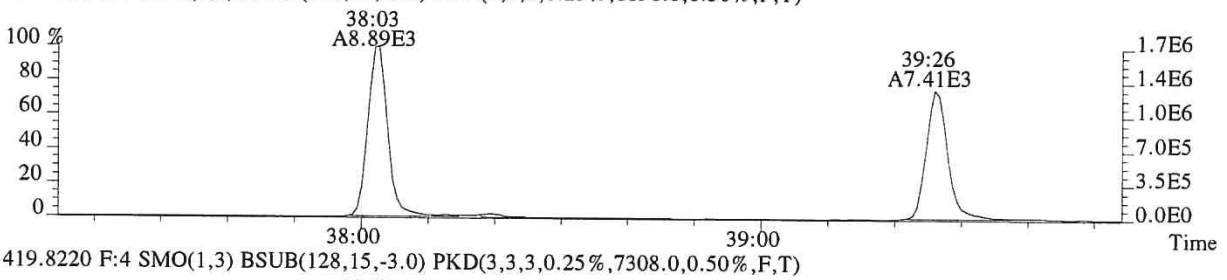
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,20748.0,0.50%,F,T)



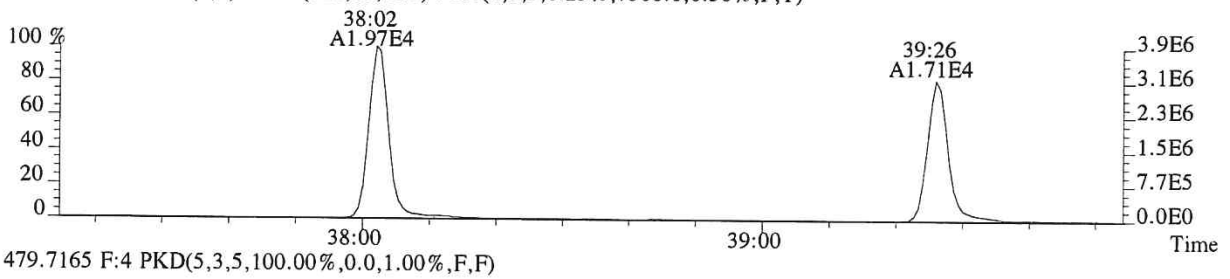
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,16420.0,0.50%,F,T)



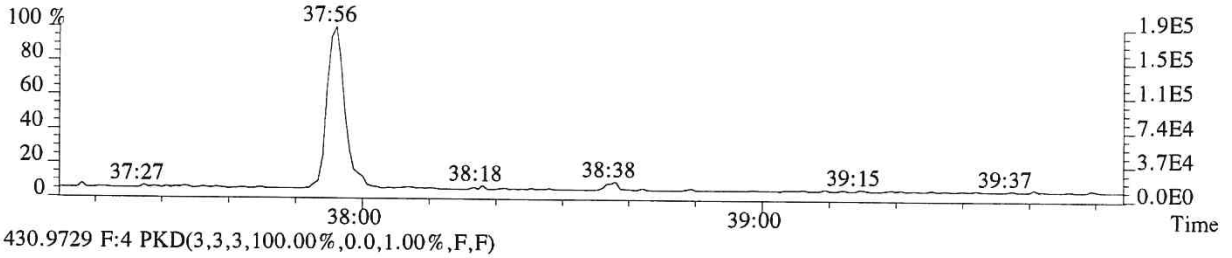
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6896.0,0.50%,F,T)



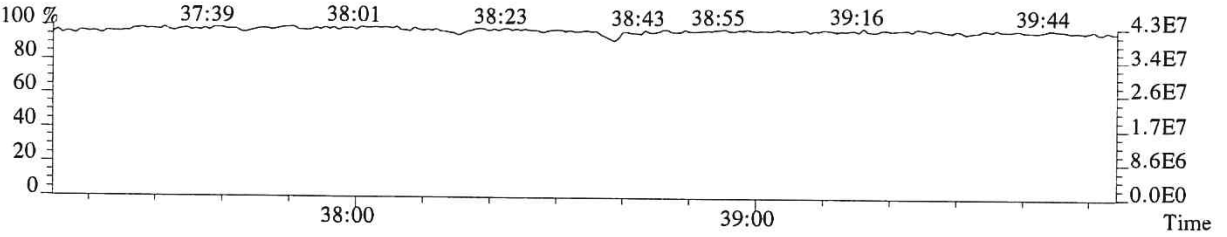
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7308.0,0.50%,F,T)



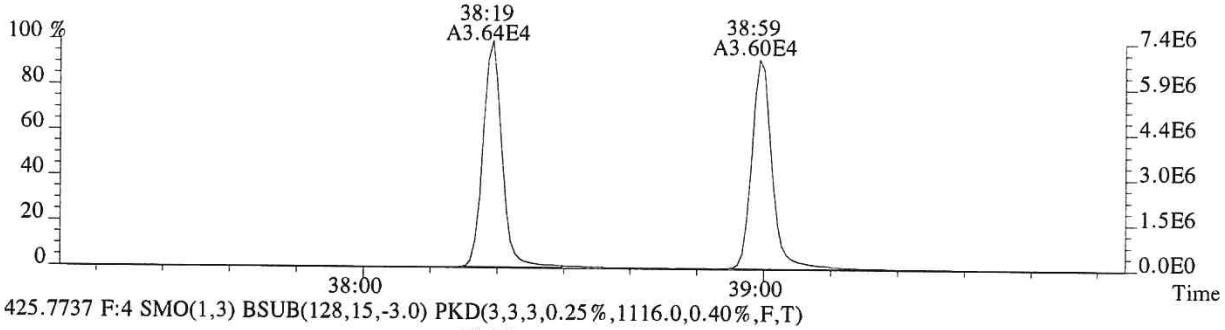
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



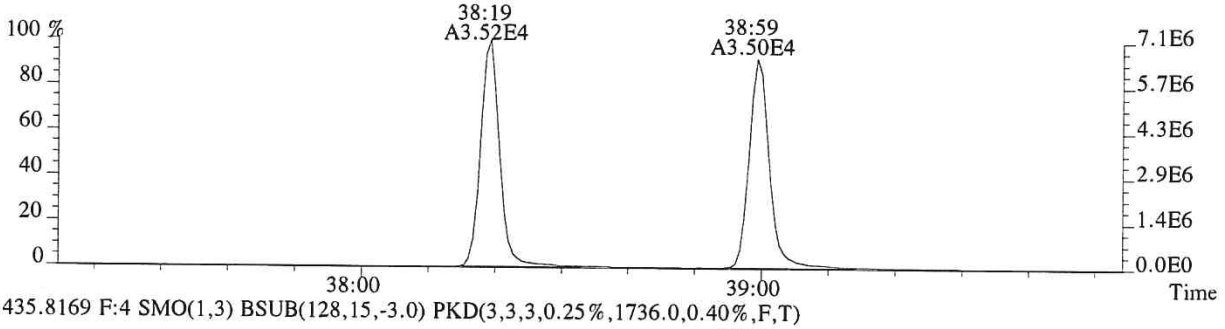
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



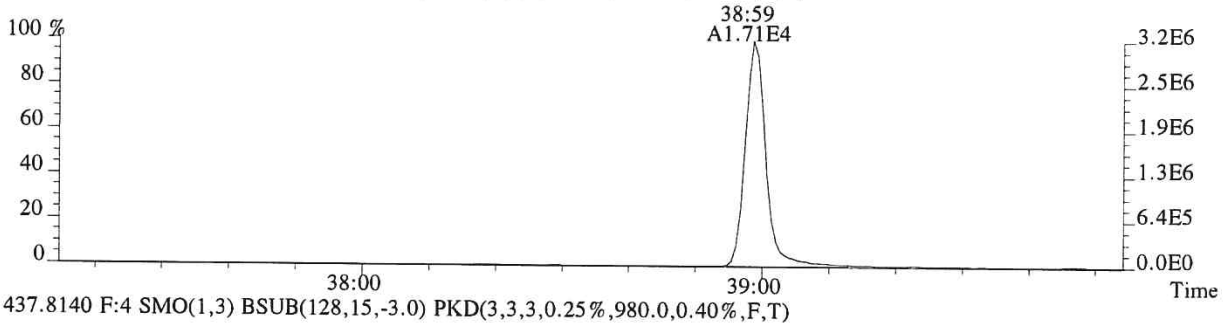
File:P519441 #1-240 Acq:17-DEC-2018 18:36:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-013
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,628.0,0.40%,F,T)



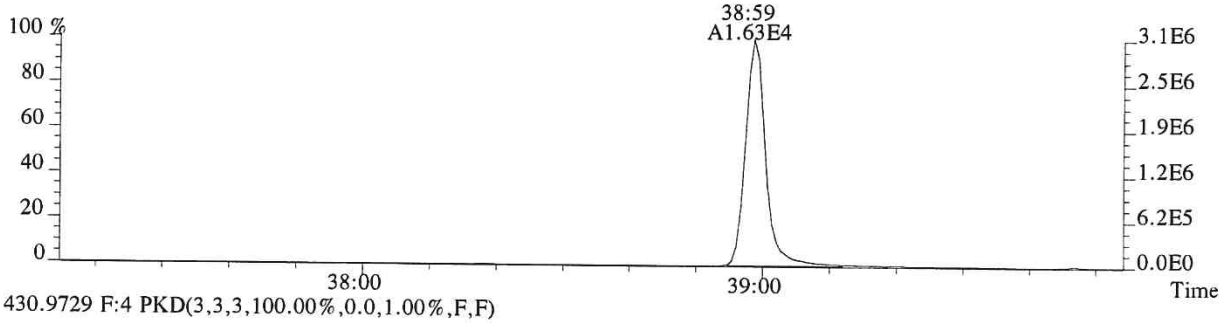
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1116.0,0.40%,F,T)



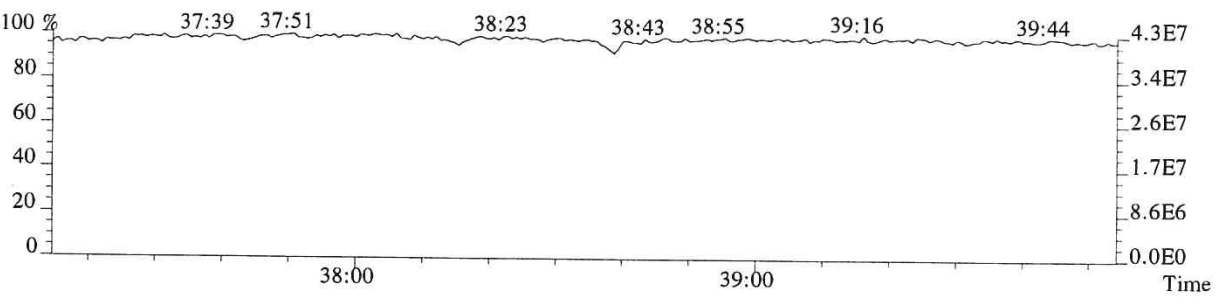
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1736.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,980.0,0.40%,F,T)

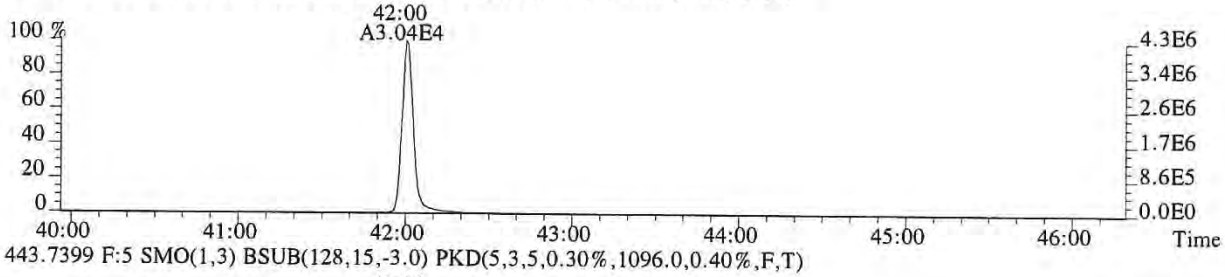


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

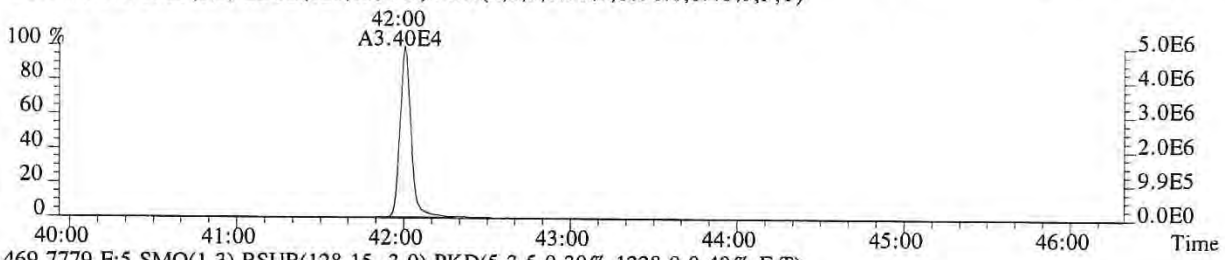


File:P519441 #1-575 Acq:17-DEC-2018 18:36:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-013

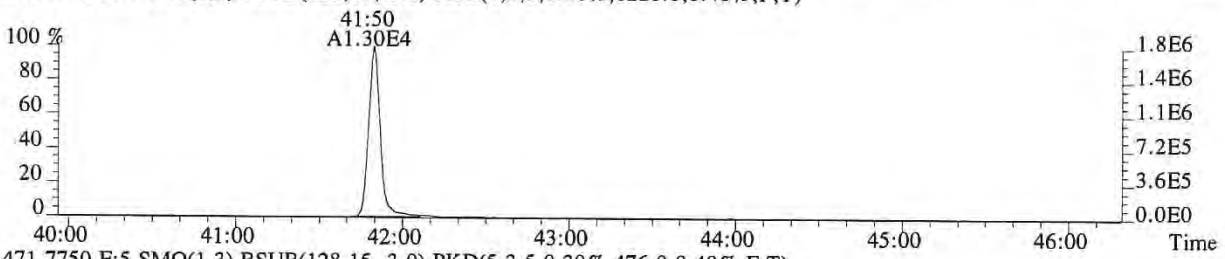
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,416.0,0.40%,F,T)



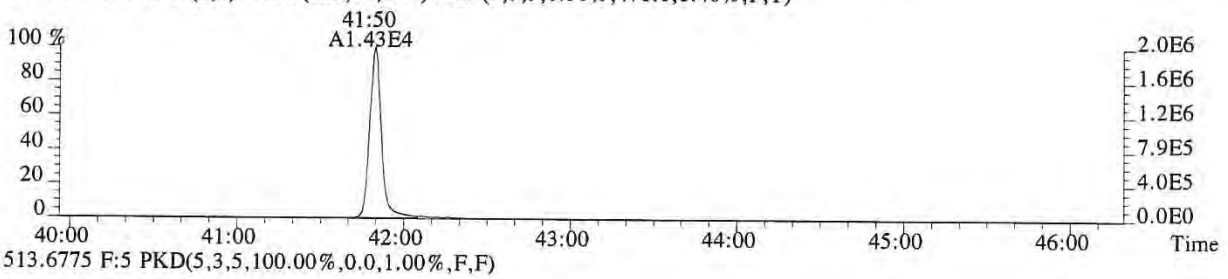
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1096.0,0.40%,F,T)



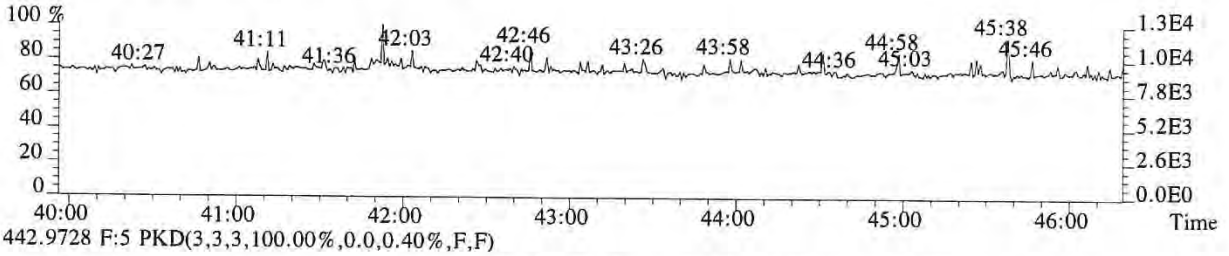
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1228.0,0.40%,F,T)



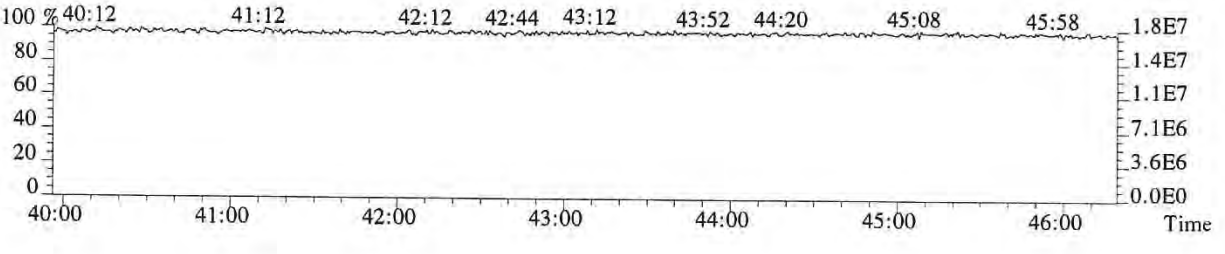
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,476.0,0.40%,F,T)



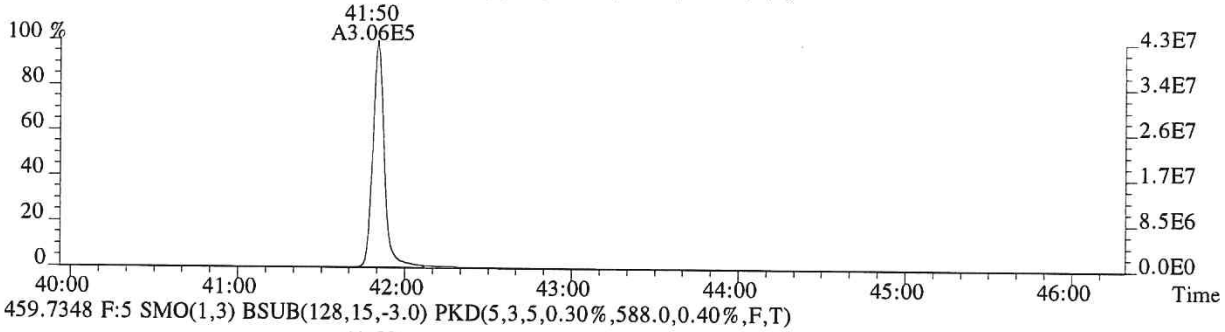
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



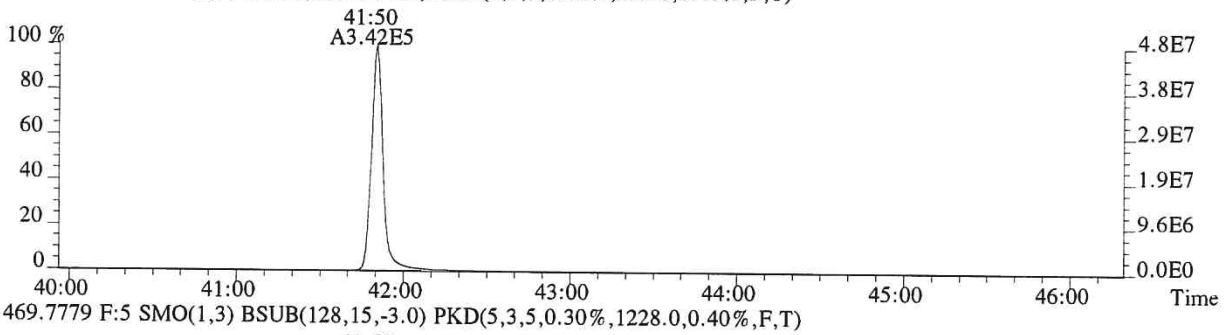
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



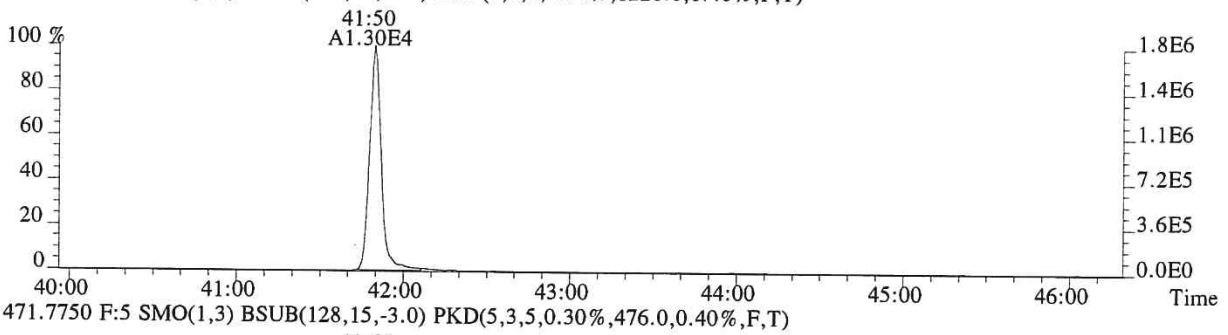
File:P519441 #1-575 Acq:17-DEC-2018 18:36:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-013
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,688.0,0.40%,F,T)



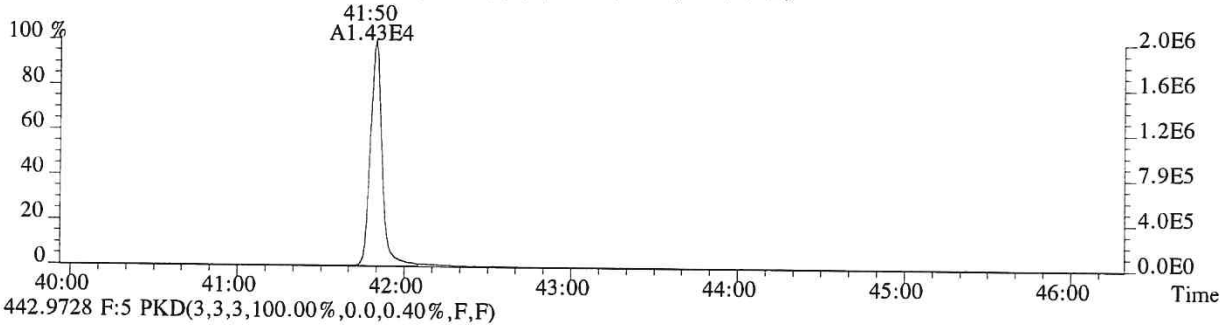
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,588.0,0.40%,F,T)



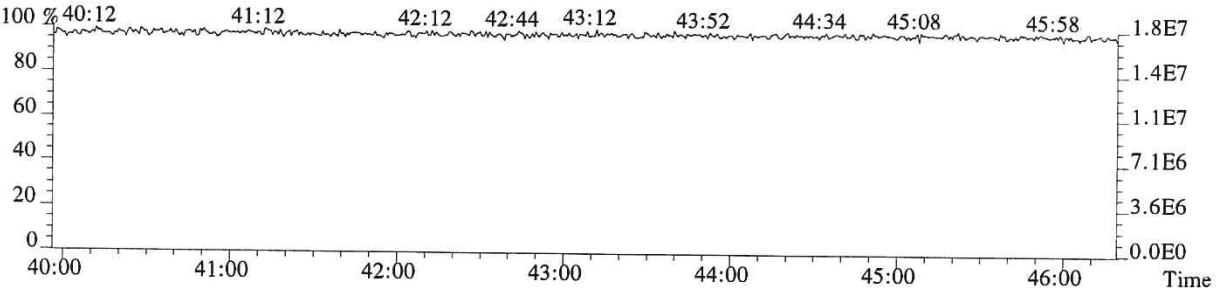
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1228.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,476.0,0.40%,F,T)



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



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Sample Response Summary

CLIENT ID.
SL0008

Run #9 Filename P519535 Samp: 1 Inj: 1 Acquired: 21-DEC-18 04:57:52
Processed: 24-DEC-18 08:03:42 Sample ID: E1801093-013DL

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:49	5.291e+03	7.101e+03	0.75	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	31:27	2.709e+02	2.022e+02	1.34	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	32:26	1.888e+02	1.515e+02	1.25	no	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:18	3.914e+02	3.010e+02	1.30	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:25	1.087e+02	9.609e+01	1.13	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:58	2.741e+01	1.852e+01	1.48	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	36:46	3.908e+01	4.264e+01	0.92	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:08	6.589e+01	7.642e+01	0.86	no	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:35	2.832e+01	1.822e+01	1.55	no	no	1.258
10	Unk	OCDF	NotFnd	*	*	*	no	no	1.359
11	Unk	2,3,7,8-TCDD	27:43	1.360e+03	1.712e+03	0.79	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	32:46	1.819e+01	7.210e+00	2.52	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.038
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	yes	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:07	2.380e+01	2.923e+01	0.81	no	no	1.025
17	Unk	OCDD	42:07	2.800e+02	2.818e+02	0.99	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	26:48	6.496e+03	7.907e+03	0.82	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	31:27	1.020e+04	6.382e+03	1.60	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	32:25	9.433e+03	6.013e+03	1.57	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:17	3.950e+03	7.755e+03	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:24	4.971e+03	9.326e+03	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:56	4.335e+03	8.412e+03	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	36:44	3.439e+03	6.951e+03	0.49	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:07	3.239e+03	7.637e+03	0.42	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:35	2.900e+03	6.137e+03	0.47	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	27:42	3.084e+03	3.957e+03	0.78	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:45	6.919e+03	4.298e+03	1.61	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:06	5.308e+03	4.158e+03	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:12	5.671e+03	4.547e+03	1.25	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:07	5.810e+03	5.686e+03	1.02	yes	no	0.858
32	IS	13C-OCDD	42:06	6.981e+03	7.860e+03	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:03	5.047e+03	6.355e+03	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:26	6.350e+03	5.060e+03	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:43	4.402e+01				no	1.014

$$\text{OCDD} = \frac{(2.800e{+}02 + 2.818e{+}02) \times 4000 \text{ pg} \times 500}{(6.981e{+}03 + 7.860e{+}03) \times 10.229 \text{ g} \times 46.5 / 100 \times 1.118} = 29055.2456 \text{ ng/kg}$$

LG 12/24/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0008

Run #9 Filename P519535 Samp: 1 Inj: 1 Acquired: 21-DEC-18 04:57:52
Processed: 24-DEC-18 08:03:42 LAB. ID: E1801093-013DL

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	7.79e+05	5.20e+02	1.5e+03	1.05e+06	8.52e+02	1.2e+03
2	1,2,3,7,8-PeCDF	4.35e+04	2.68e+02	1.6e+02	3.16e+04	8.08e+02	3.9e+01
3	2,3,4,7,8-PeCDF	3.05e+04	2.68e+02	1.1e+02	2.14e+04	8.08e+02	2.7e+01
4	1,2,3,4,7,8-HxCDF	7.16e+04	3.16e+02	2.3e+02	6.13e+04	2.92e+02	2.1e+02
5	1,2,3,6,7,8-HxCDF	1.50e+04	3.16e+02	4.8e+01	1.50e+04	2.92e+02	5.1e+01
6	2,3,4,6,7,8-HxCDF	3.65e+03	3.16e+02	1.2e+01	4.62e+03	2.92e+02	1.6e+01
7	1,2,3,7,8,9-HxCDF	8.13e+03	3.16e+02	2.6e+01	6.94e+03	2.92e+02	2.4e+01
8	1,2,3,4,6,7,8-HpCDF	1.48e+04	3.84e+02	3.9e+01	1.30e+04	3.80e+02	3.4e+01
9	1,2,3,4,7,8,9-HpCDF	4.26e+03	3.84e+02	1.1e+01	3.80e+03	3.80e+02	1.0e+01
10	OCDF	*	3.52e+02	*	*	4.72e+02	*
11	2,3,7,8-TCDD	2.22e+05	1.36e+03	1.6e+02	2.80e+05	7.76e+02	3.6e+02
12	1,2,3,7,8-PeCDD	3.22e+03	3.76e+02	8.6e+00	2.01e+03	2.56e+02	7.8e+00
13	1,2,3,4,7,8-HxCDD	*	2.72e+02	*	*	3.96e+02	*
14	1,2,3,6,7,8-HxCDD	*	2.72e+02	*	*	3.96e+02	*
15	1,2,3,7,8,9-HxCDD	*	2.72e+02	*	*	3.96e+02	*
16	1,2,3,4,6,7,8-HpCDD	4.15e+03	3.40e+02	1.2e+01	5.57e+03	2.84e+02	2.0e+01
17	OCDD	2.63e+04	4.04e+02	6.5e+01	2.84e+04	3.48e+02	8.2e+01
18	13C-2,3,7,8-TCDF	1.00e+06	3.50e+03	2.9e+02	1.28e+06	1.98e+03	6.5e+02
19	13C-1,2,3,7,8-PeCDF	1.76e+06	4.72e+02	3.7e+03	1.11e+06	2.44e+02	4.6e+03
20	13C-2,3,4,7,8-PeCDF	1.64e+06	4.72e+02	3.5e+03	1.03e+06	2.44e+02	4.2e+03
21	13C-1,2,3,4,7,8-HxCDF	7.39e+05	6.00e+02	1.2e+03	1.47e+06	3.68e+02	4.0e+03
22	13C-1,2,3,6,7,8-HxCDF	8.64e+05	6.00e+02	1.4e+03	1.60e+06	3.68e+02	4.4e+03
23	13C-2,3,4,6,7,8-HxCDF	7.69e+05	6.00e+02	1.3e+03	1.51e+06	3.68e+02	4.1e+03
24	13C-1,2,3,7,8,9-HxCDF	5.46e+05	6.00e+02	9.1e+02	1.10e+06	3.68e+02	3.0e+03
25	13C-1,2,3,4,6,7,8-HpCDF	5.43e+05	4.84e+02	1.1e+03	1.21e+06	1.11e+03	1.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.72e+05	4.84e+02	7.7e+02	8.67e+05	1.11e+03	7.8e+02
27	13C-2,3,7,8-TCDD	5.11e+05	3.37e+03	1.5e+02	6.49e+05	6.48e+02	1.0e+03
28	13C-1,2,3,7,8-PeCDD	1.20e+06	2.32e+02	5.2e+03	7.24e+05	8.12e+02	8.9e+02
29	13C-1,2,3,4,7,8-HxCDD	1.04e+06	4.68e+02	2.2e+03	8.17e+05	4.60e+02	1.8e+03
30	13C-1,2,3,6,7,8-HxCDD	1.01e+06	4.68e+02	2.2e+03	7.89e+05	4.60e+02	1.7e+03
31	13C-1,2,3,4,6,7,8-HpCDD	8.71e+05	3.48e+02	2.5e+03	8.17e+05	3.16e+02	2.6e+03
32	13C-OCDD	6.76e+05	4.00e+02	1.7e+03	7.65e+05	3.68e+02	2.1e+03
33	13C-1,2,3,4-TCDD	8.81e+05	3.37e+03	2.6e+02	1.10e+06	6.48e+02	1.7e+03
34	13C-1,2,3,7,8,9-HxCDD	1.11e+06	4.68e+02	2.4e+03	8.44e+05	4.60e+02	1.8e+03
35	37Cl-2,3,7,8-TCDD	8.30e+03	7.92e+02	1.0e+01			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.356e+03 + 7.760e+02) \times 2000}{(5.108e+05 + 6.489e+05) \times (\quad) \times 1.085} =$$

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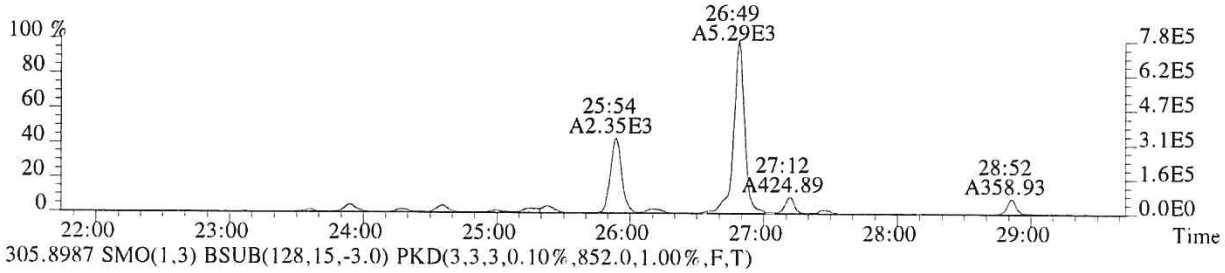
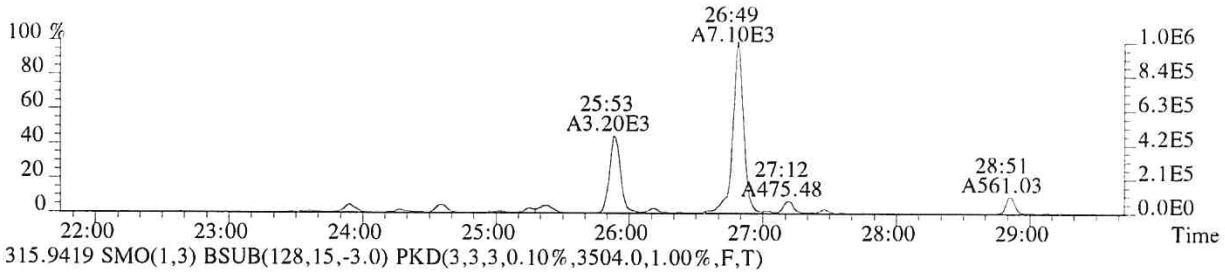
File:P519535 #1-566 Acq:21-DEC-2018 04:57:52 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-013DL

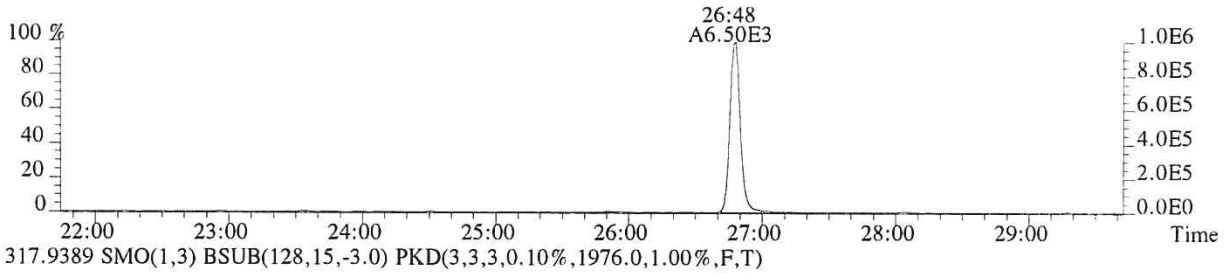
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,520.0,1.00%,F,T)



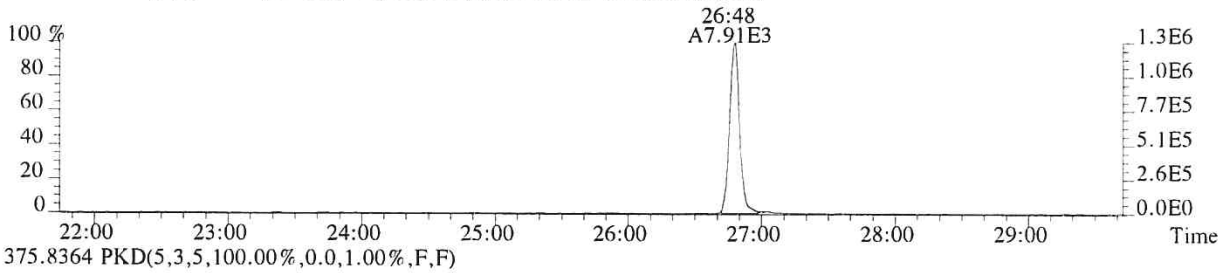
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,852.0,1.00%,F,T)



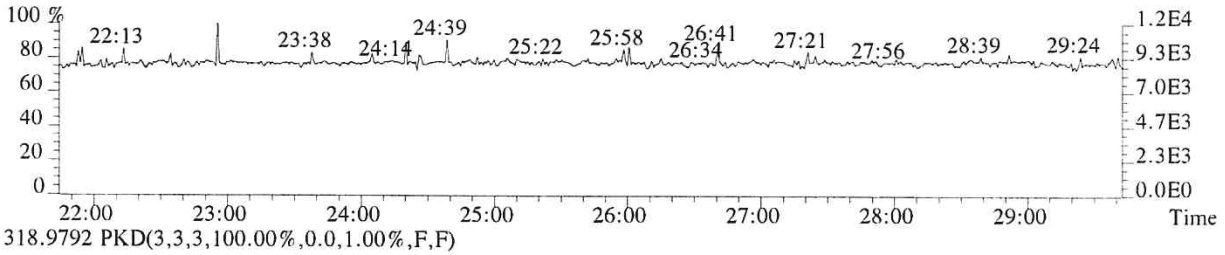
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3504.0,1.00%,F,T)



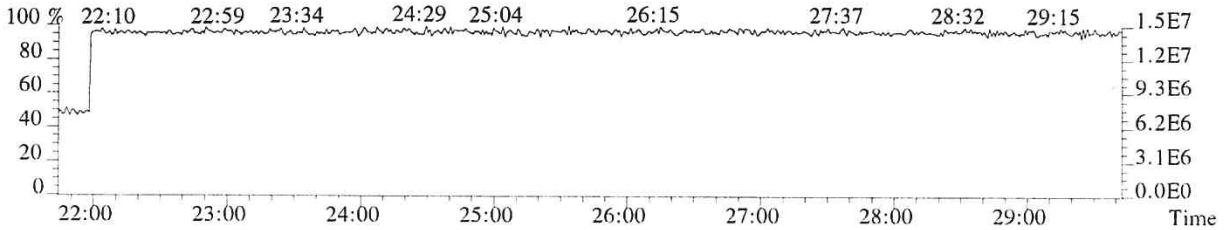
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1976.0,1.00%,F,T)



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

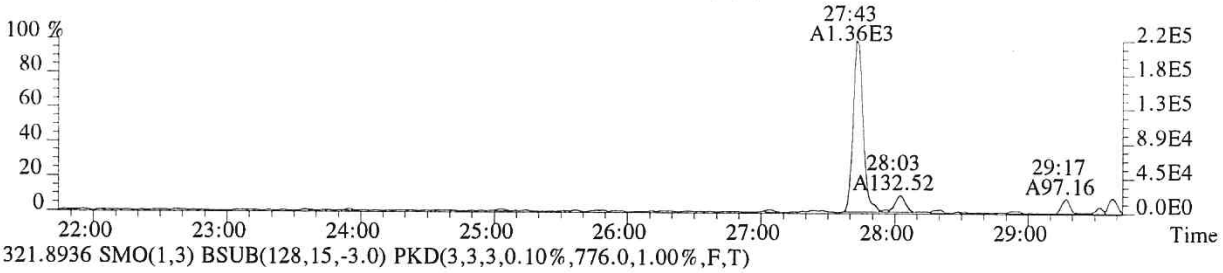


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

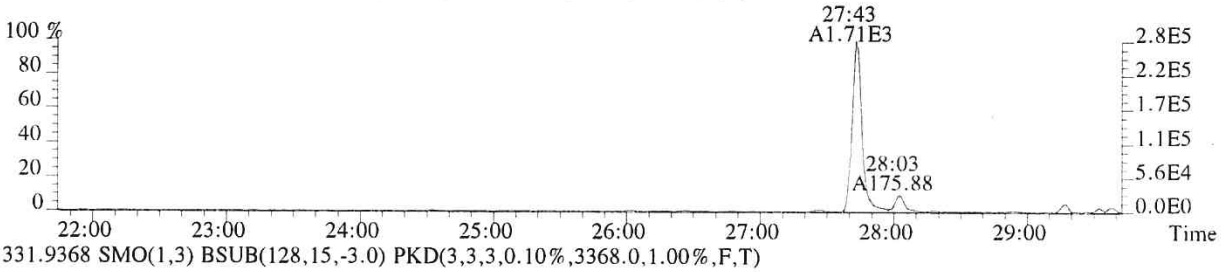


File:P519535 #1-566 Acq:21-DEC-2018 04:57:52 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-013DL

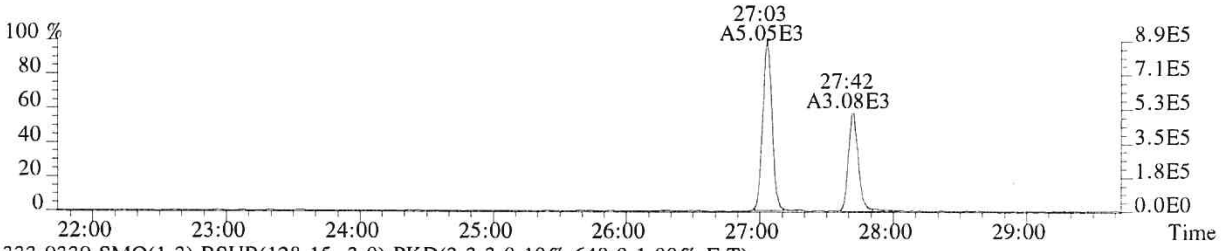
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1356.0,1.00%,F,T)



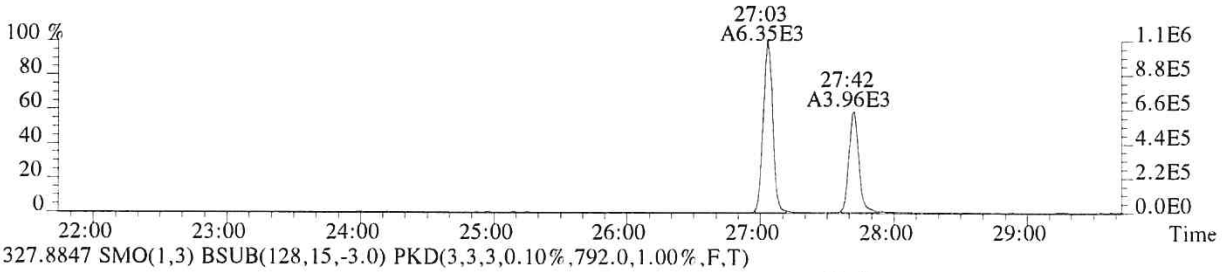
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)



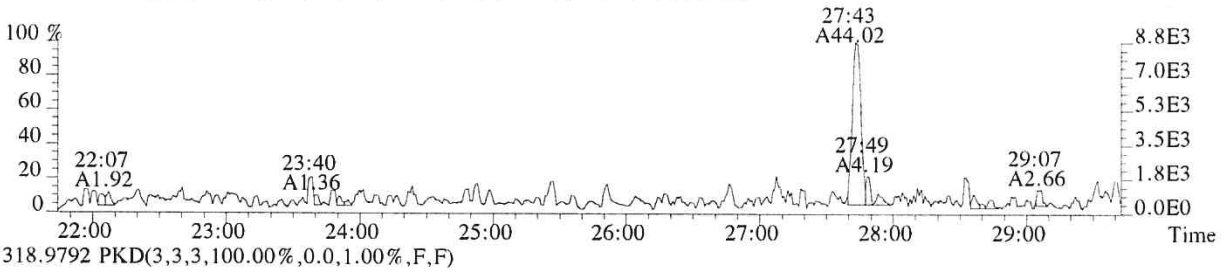
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3368.0,1.00%,F,T)



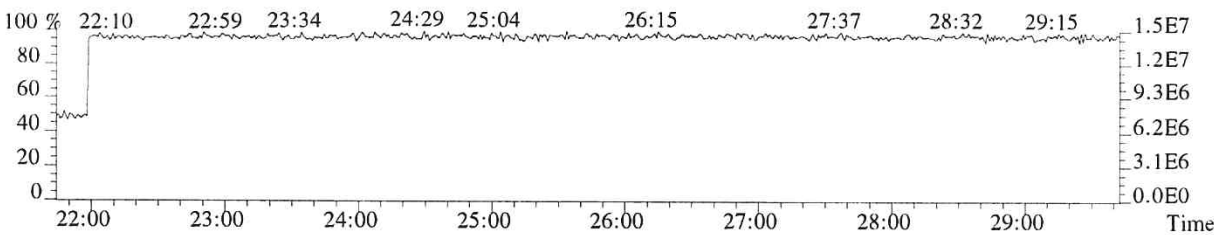
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



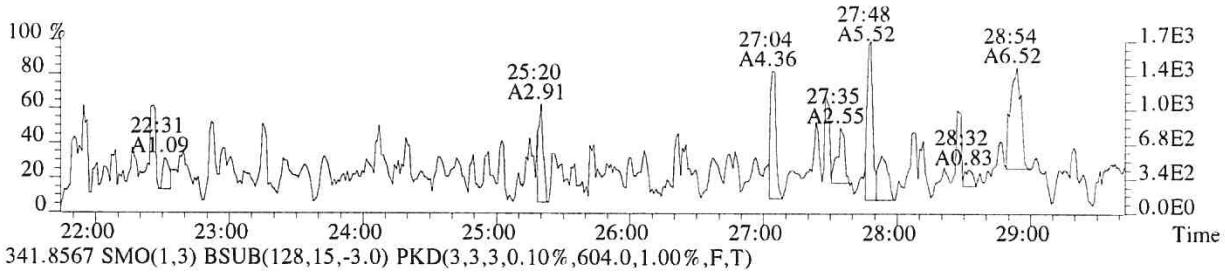
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,792.0,1.00%,F,T)



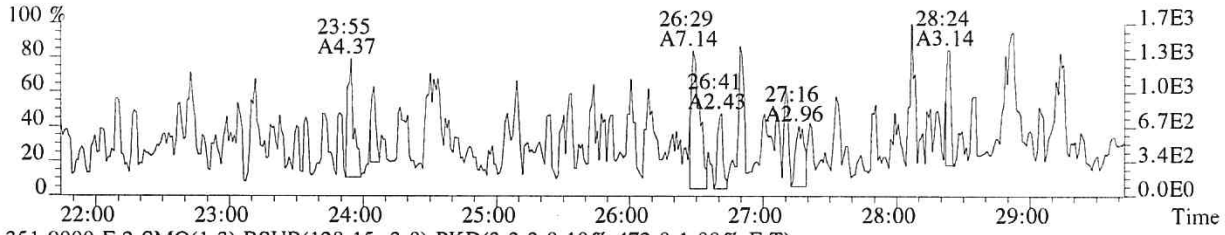
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



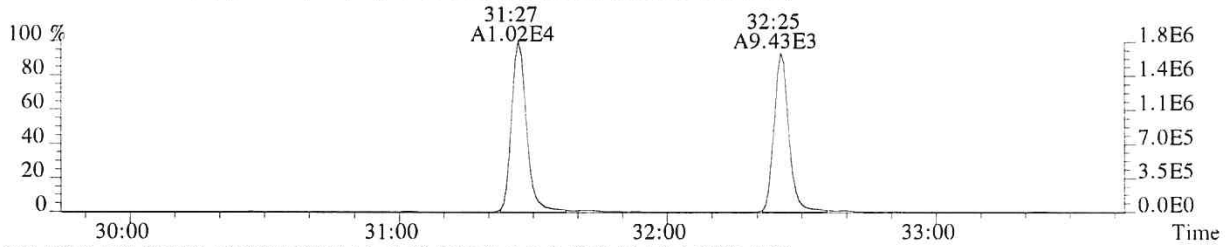
File:P519535 #1-566 Acq:21-DEC-2018 04:57:52 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-013DL
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,504.0,1.00%,F,T)



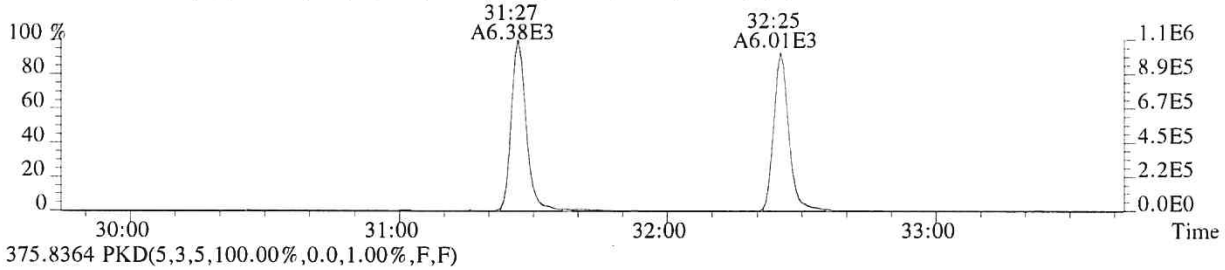
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



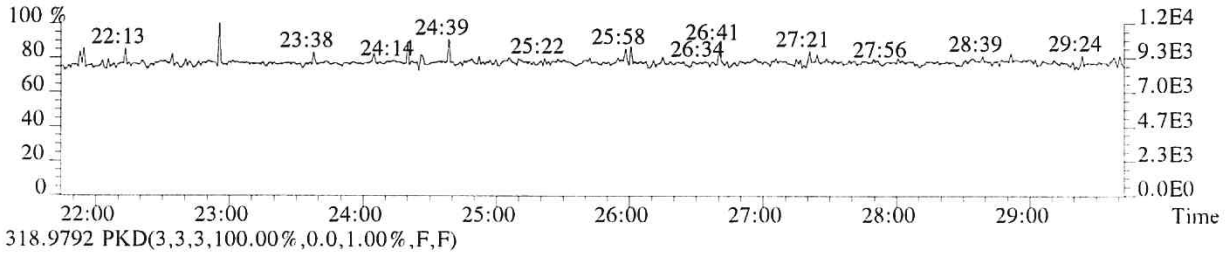
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,472.0,1.00%,F,T)



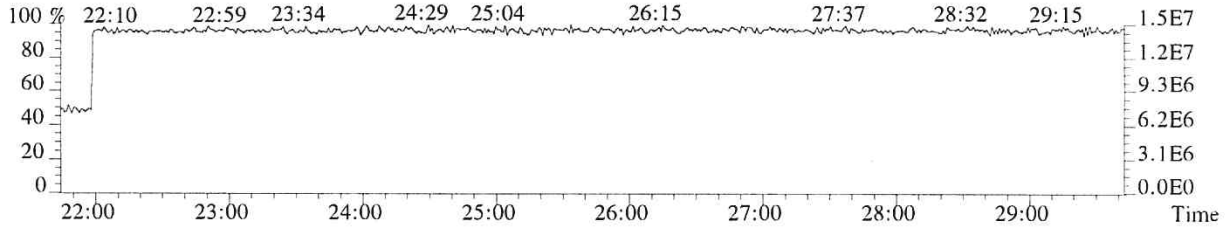
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,244.0,1.00%,F,T)



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



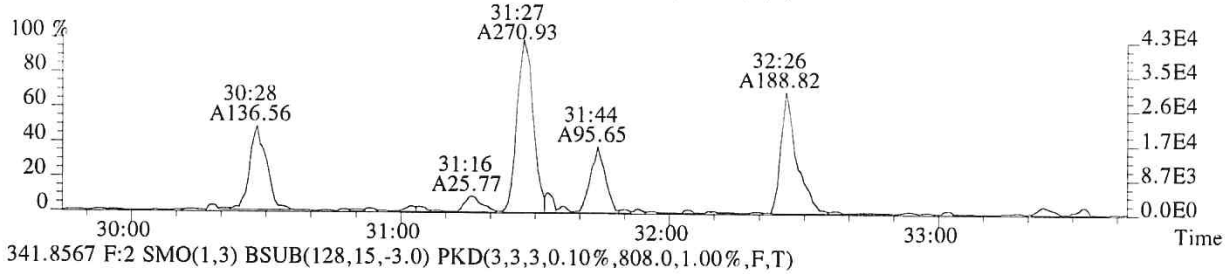
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



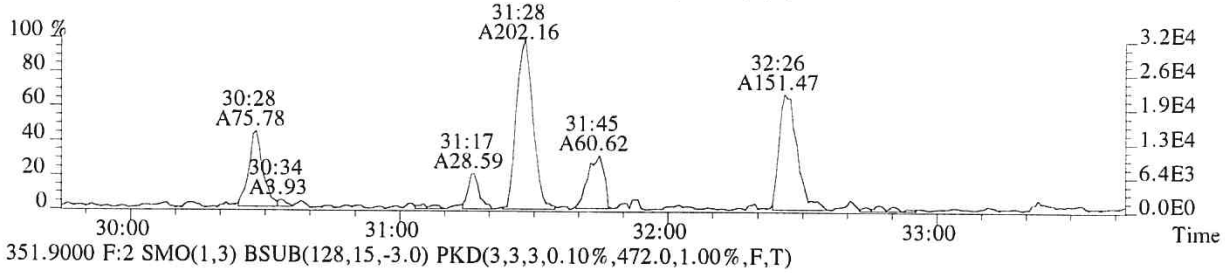
014318

File:P519535 #1-357 Acq:21-DEC-2018 04:57:52 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-013DL

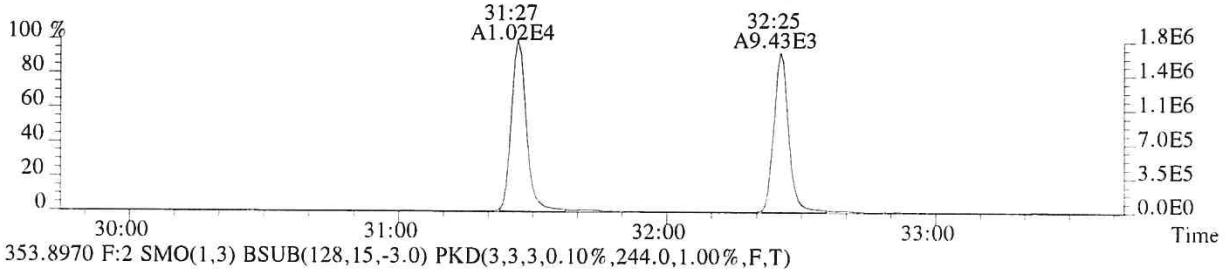
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,268.0,1.00%,F,T)



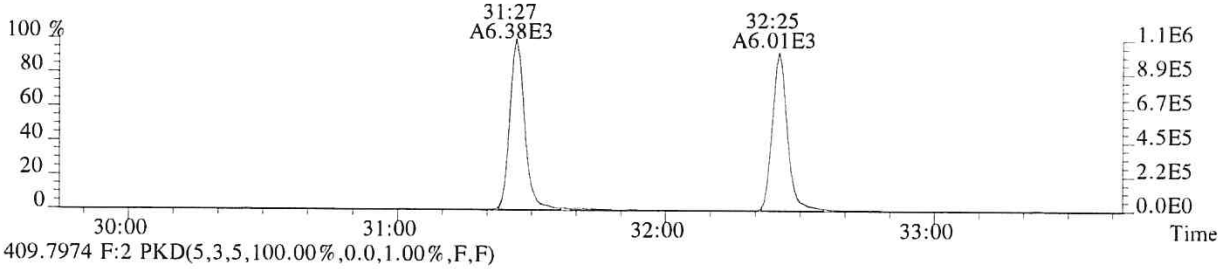
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,808.0,1.00%,F,T)



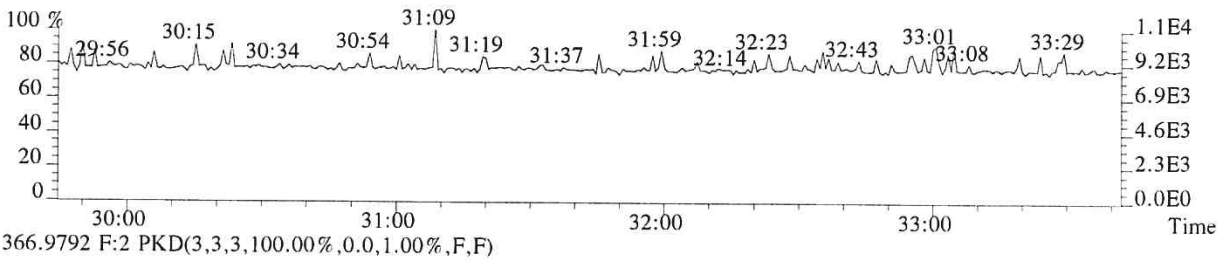
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,472.0,1.00%,F,T)



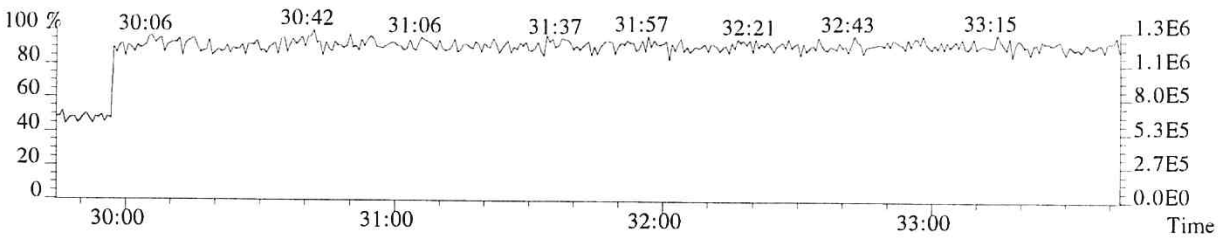
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,244.0,1.00%,F,T)



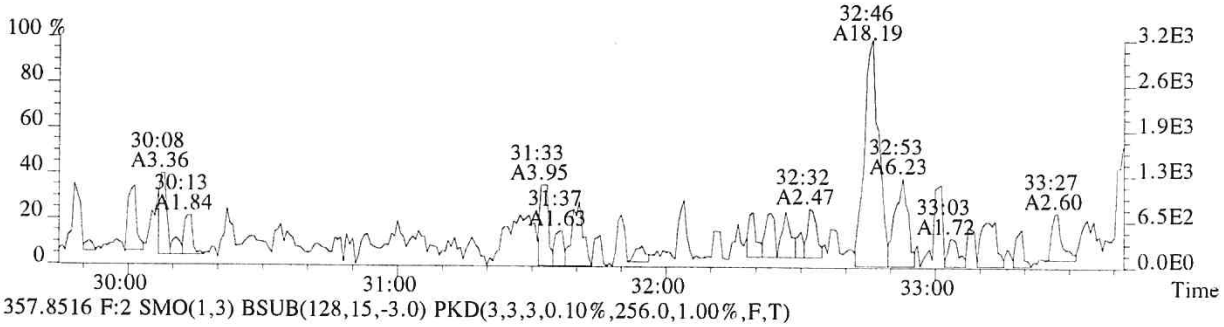
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



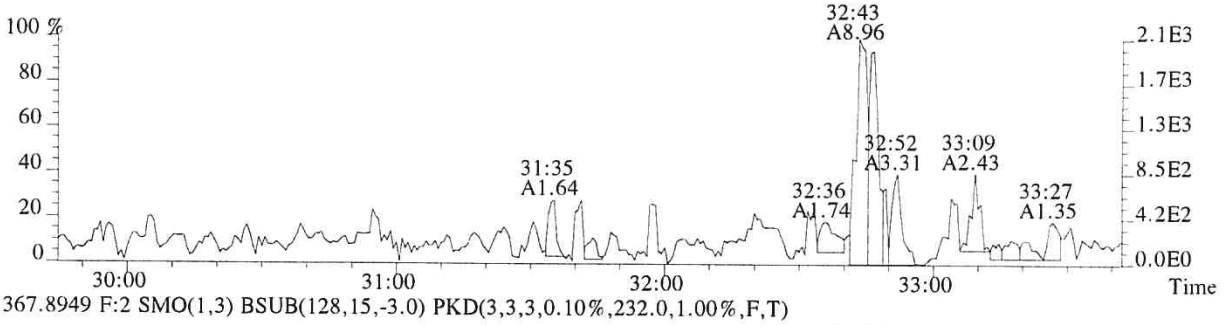
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



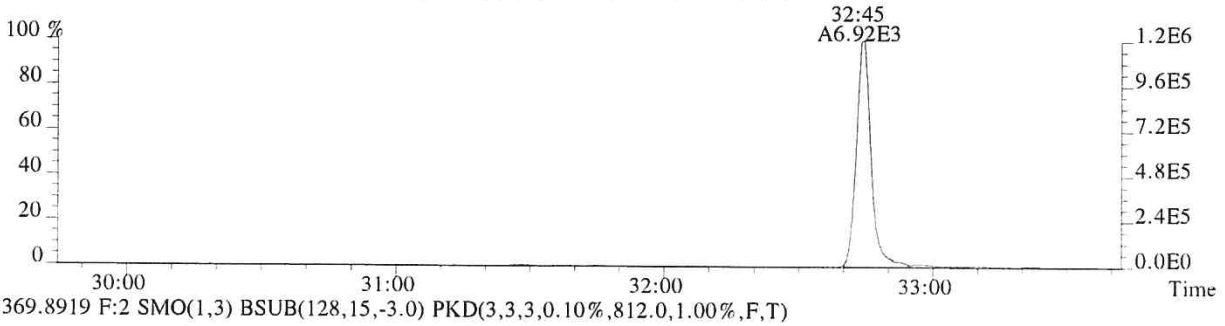
File:P519535 #1-357 Acq:21-DEC-2018 04:57:52 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-013DL
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,376.0,1.00%,F,T)



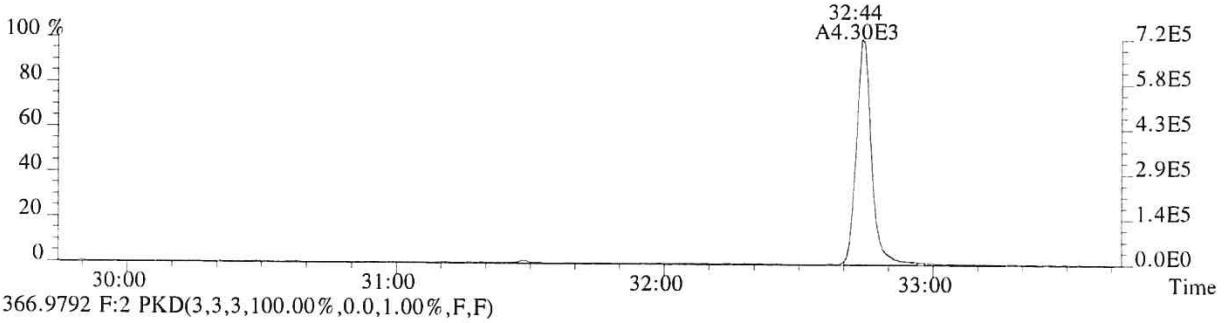
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,256.0,1.00%,F,T)



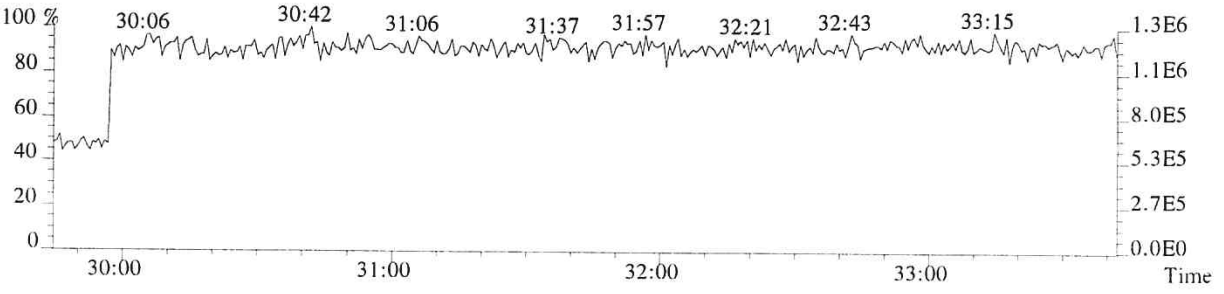
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,232.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,812.0,1.00%,F,T)

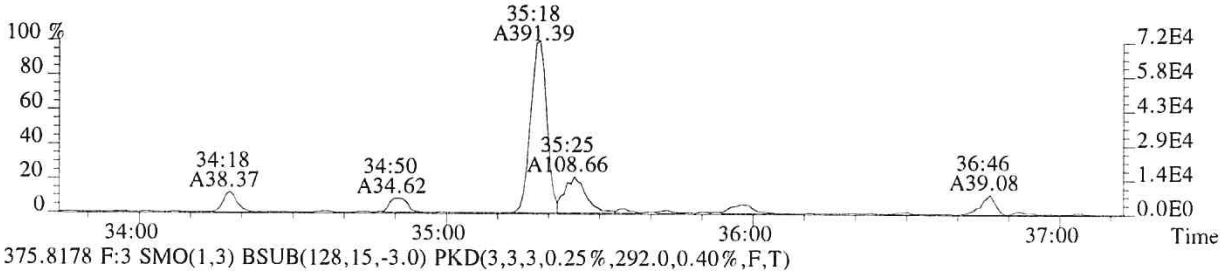


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

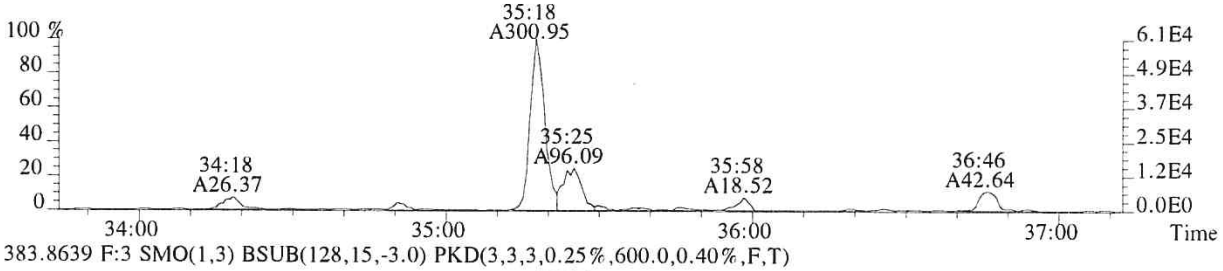


014320

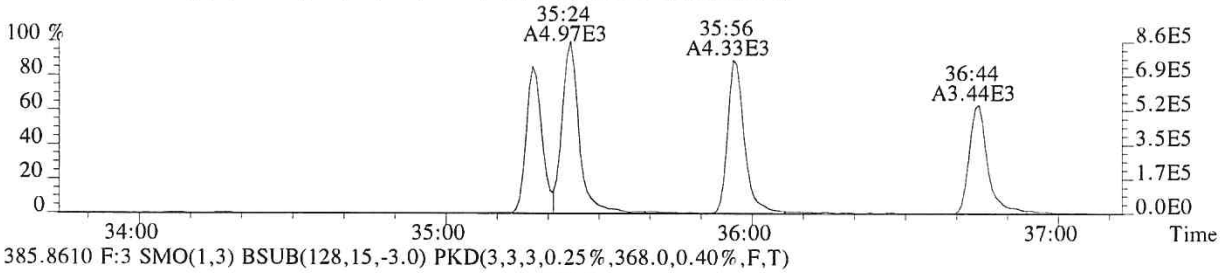
File:P519535 #1-313 Acq:21-DEC-2018 04:57:52 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-013DL
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,316.0,0.40%,F,T)



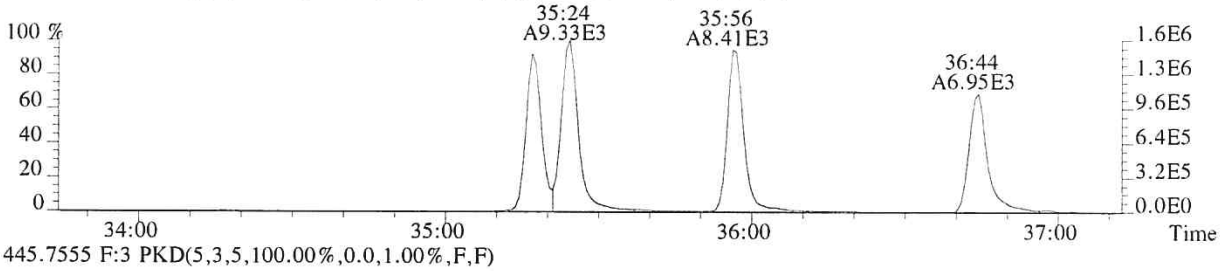
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,292.0,0.40%,F,T)



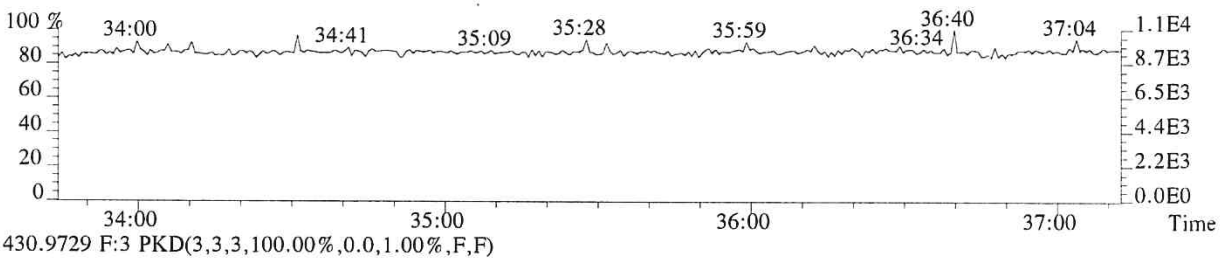
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,600.0,0.40%,F,T)



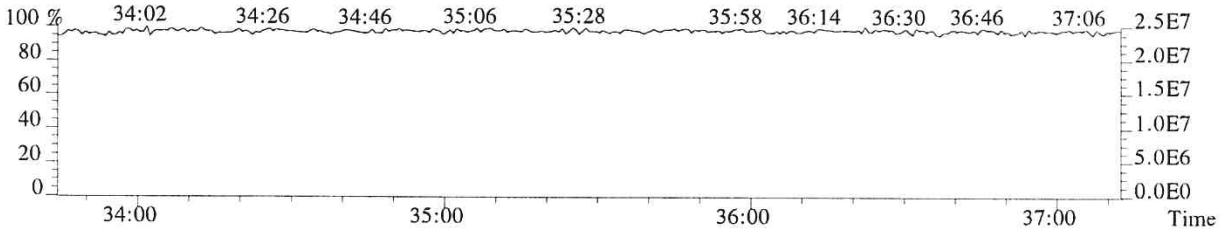
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,368.0,0.40%,F,T)



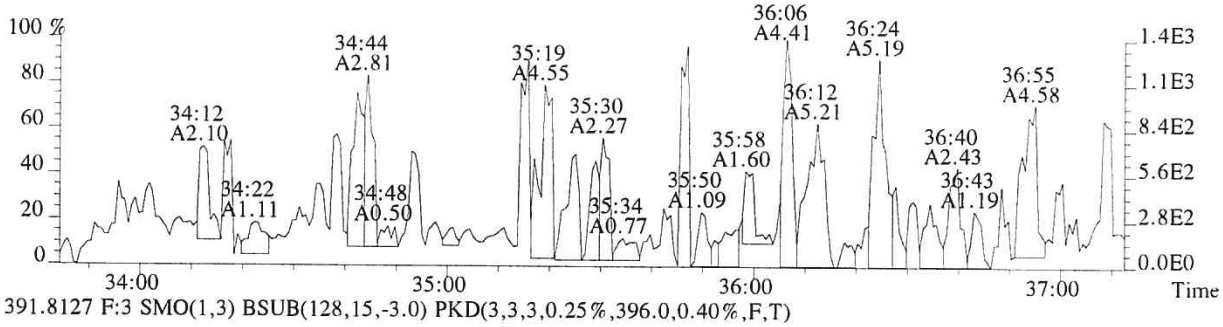
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



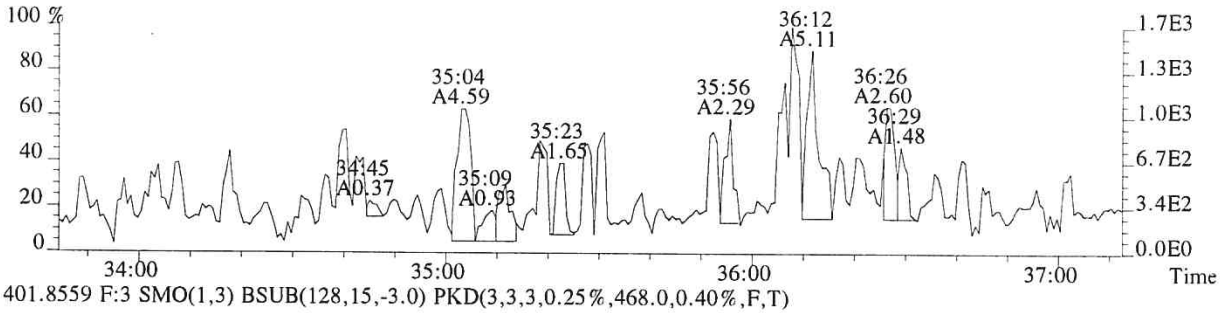
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



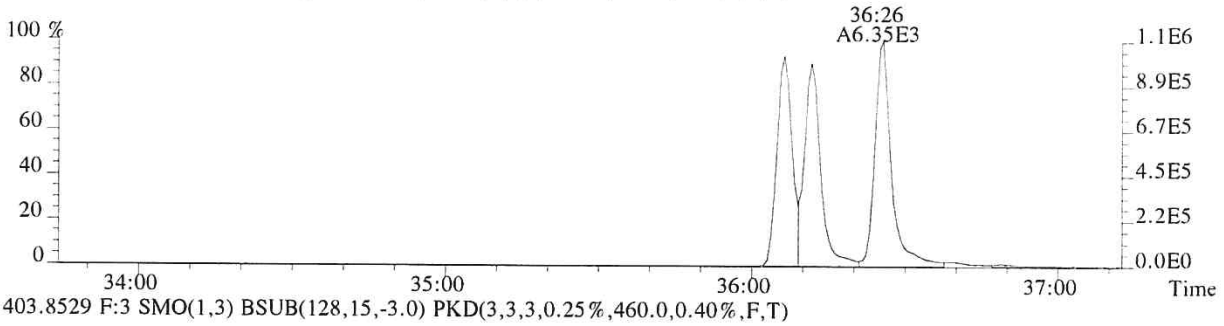
File:P519535 #1-313 Acq:21-DEC-2018 04:57:52 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-013DL
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,272.0,0.40%,F,T)



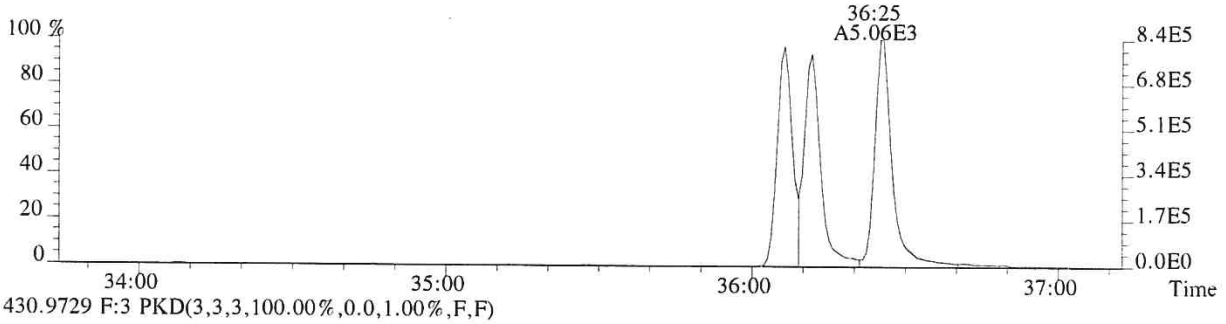
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,396.0,0.40%,F,T)



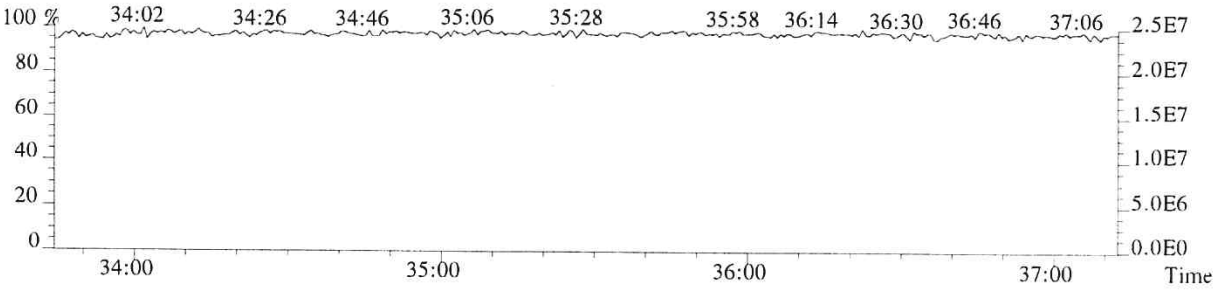
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,468.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,460.0,0.40%,F,T)

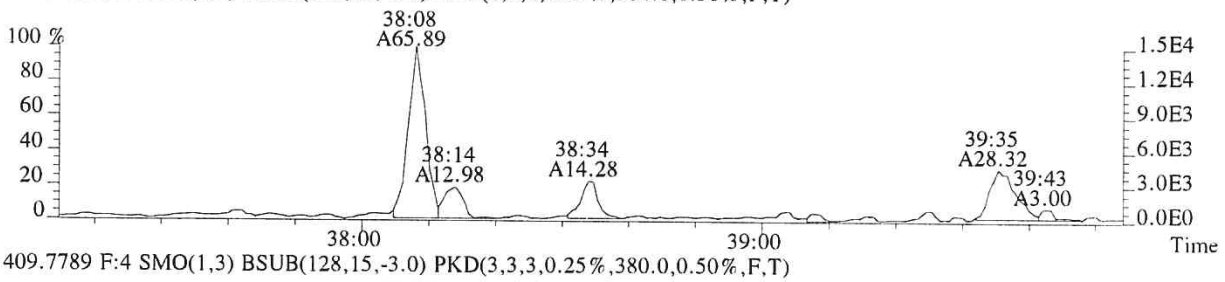


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

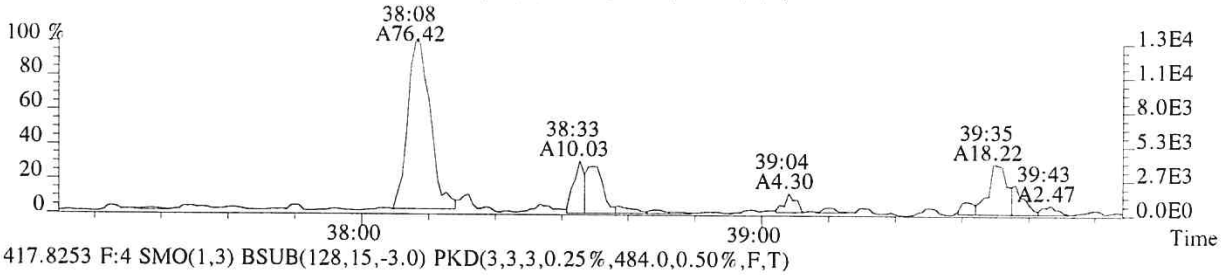


014322

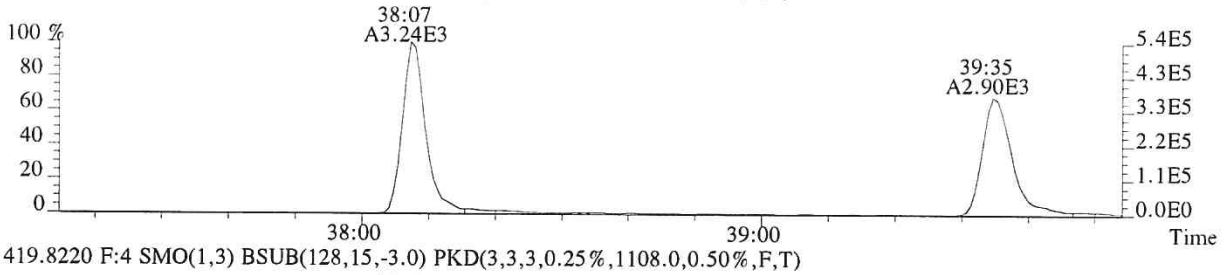
File:P519535 #1-240 Acq:21-DEC-2018 04:57:52 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-013DL
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,384.0,0.50%,F,T)



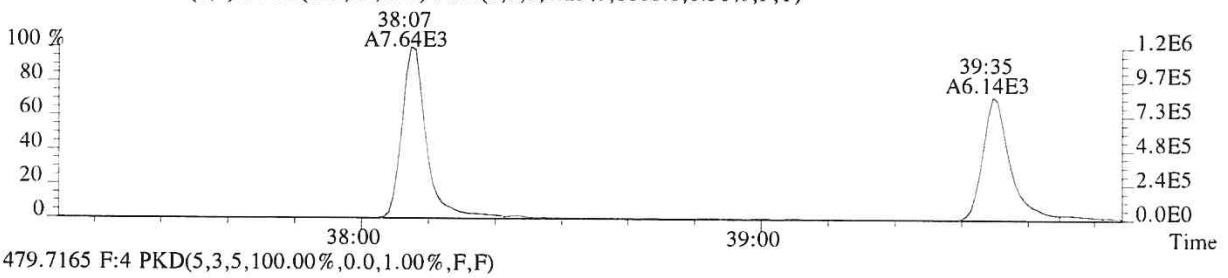
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,380.0,0.50%,F,T)



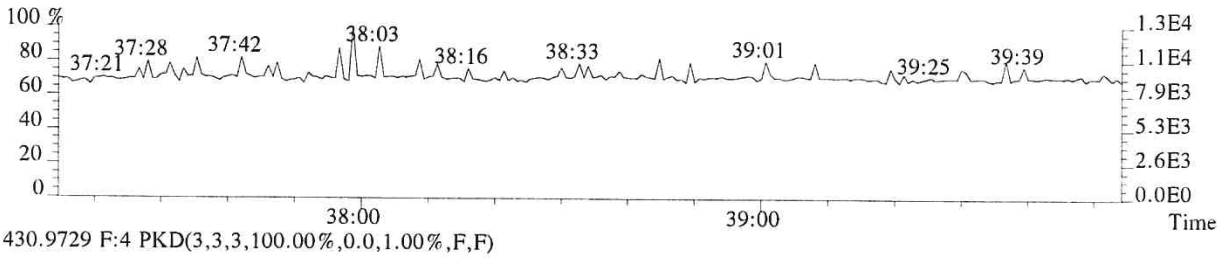
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,484.0,0.50%,F,T)



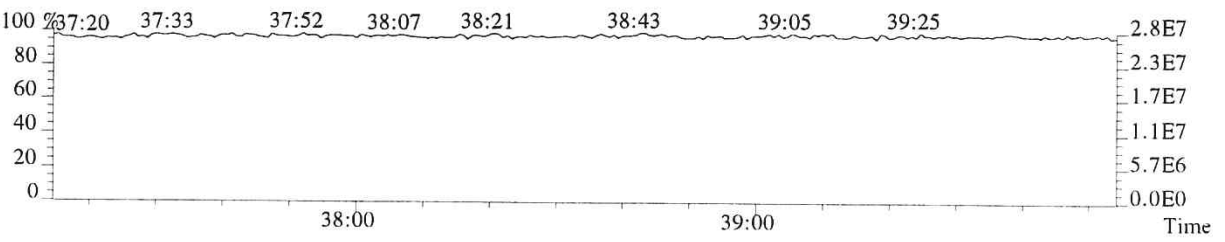
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1108.0,0.50%,F,T)



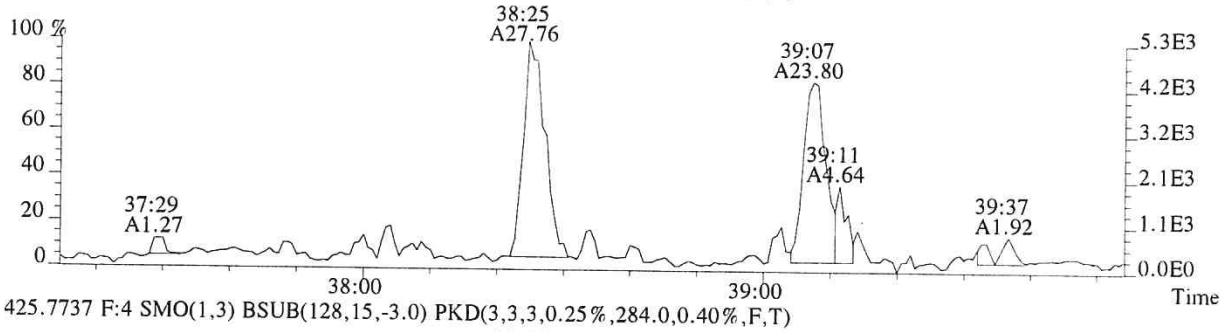
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



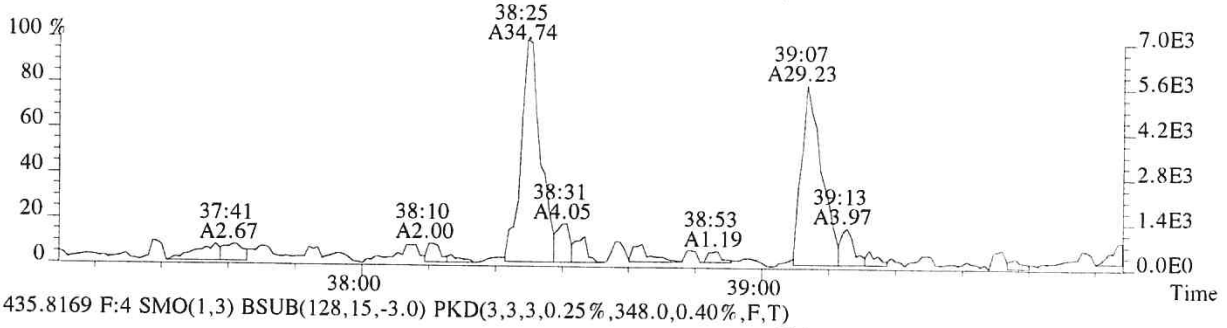
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



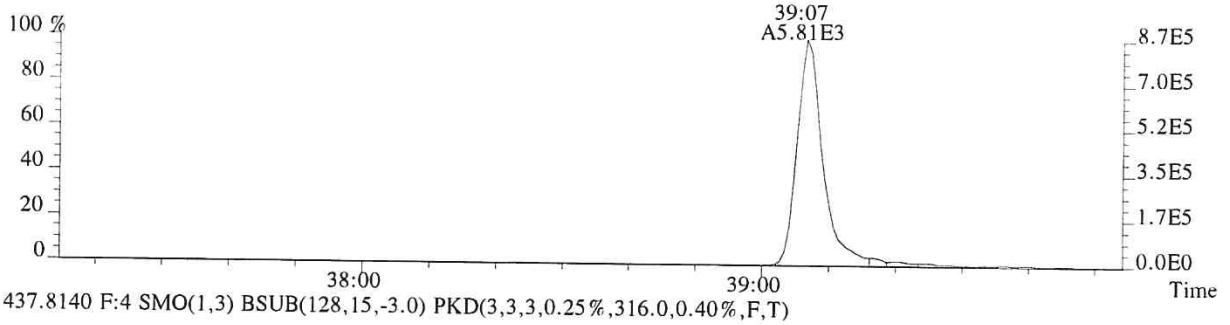
File:P519535 #1-240 Acq:21-DEC-2018 04:57:52 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-013DL
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,340.0,0.40%,F,T)



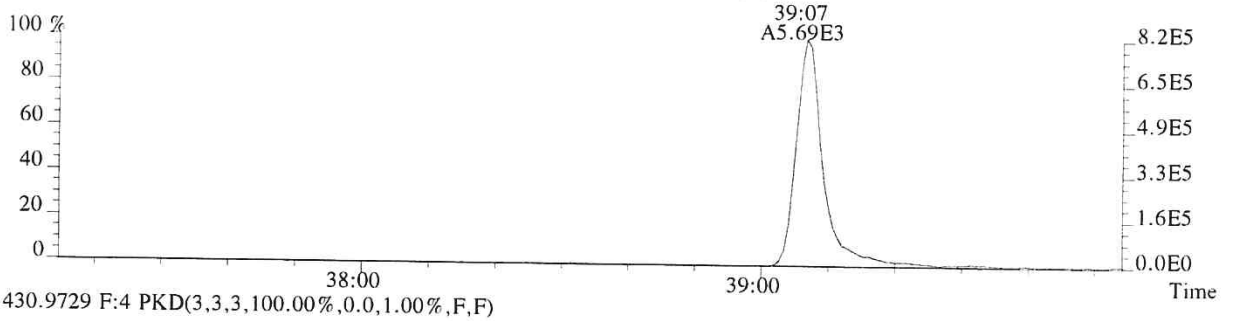
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,284.0,0.40%,F,T)



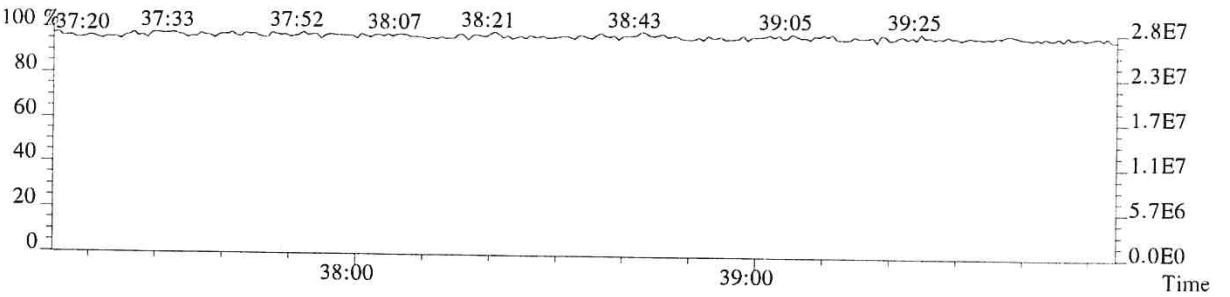
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,348.0,0.40%,F,T)



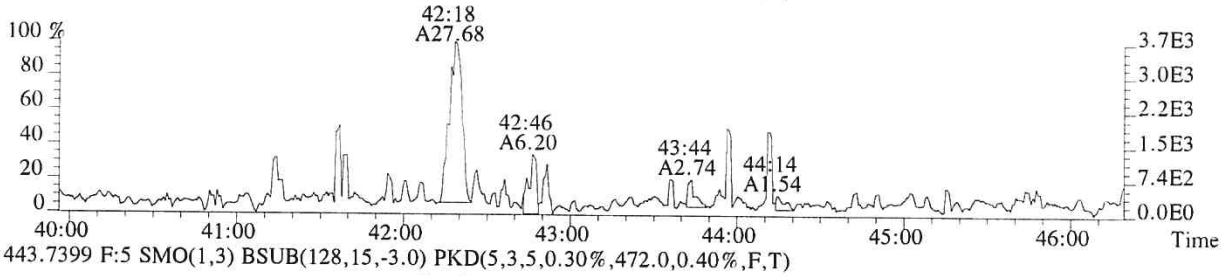
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,316.0,0.40%,F,T)



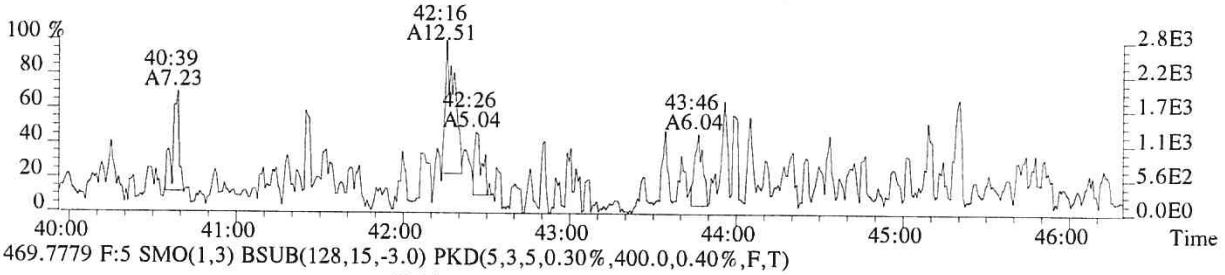
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



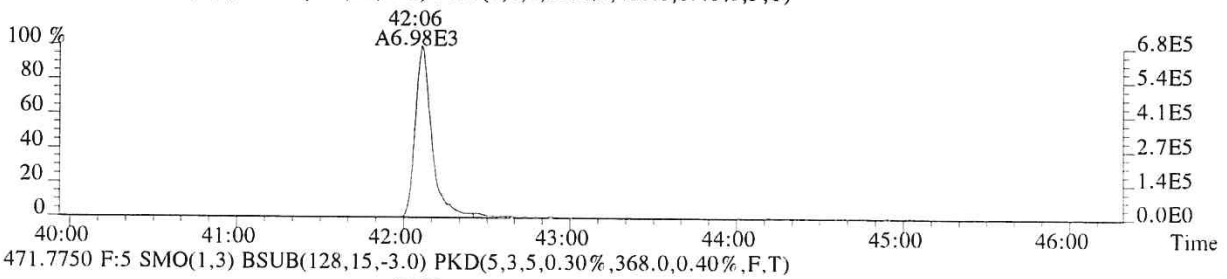
File:P519535 #1-575 Acq:21-DEC-2018 04:57:52 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-013DL
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,352.0,0.40%,F,T)



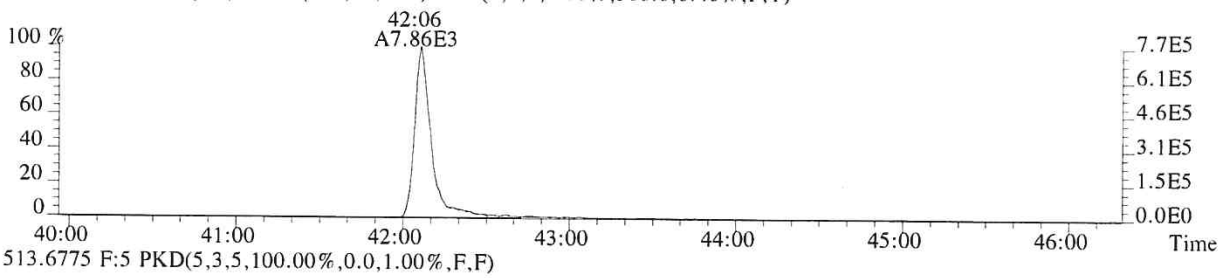
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,472.0,0.40%,F,T)



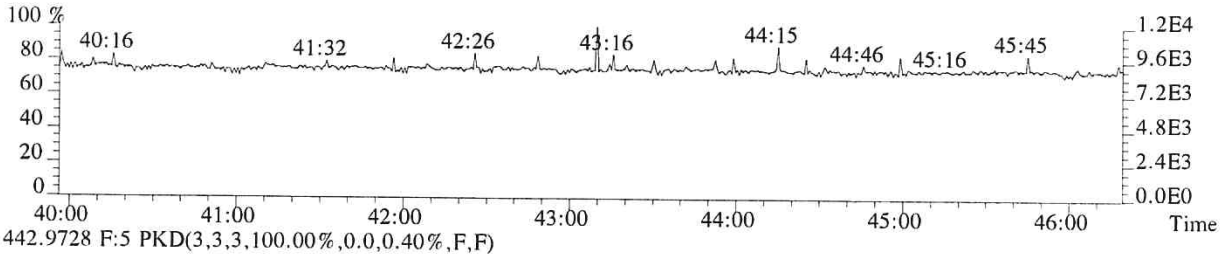
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,400.0,0.40%,F,T)



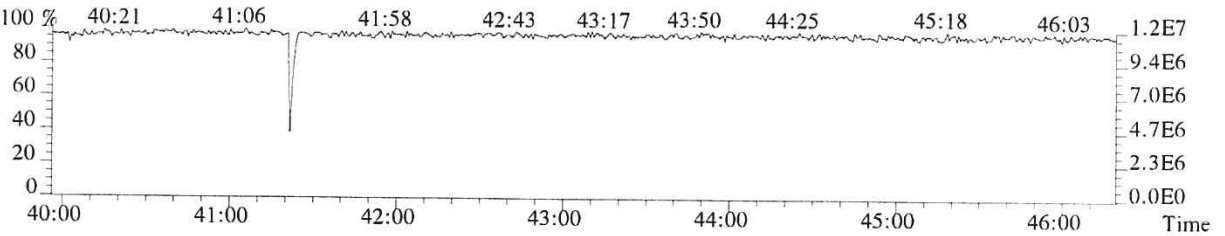
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,368.0,0.40%,F,T)



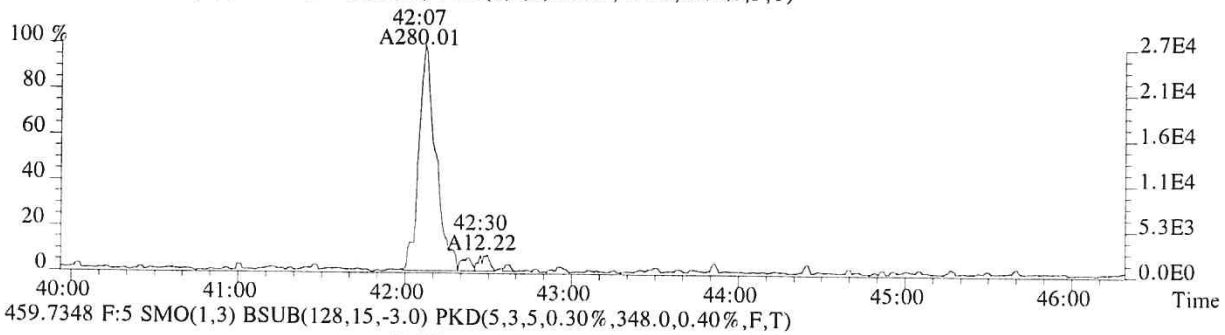
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



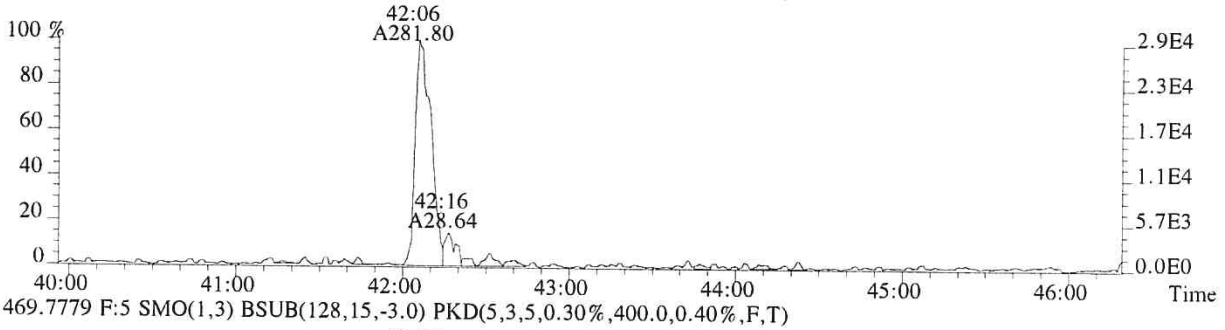
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



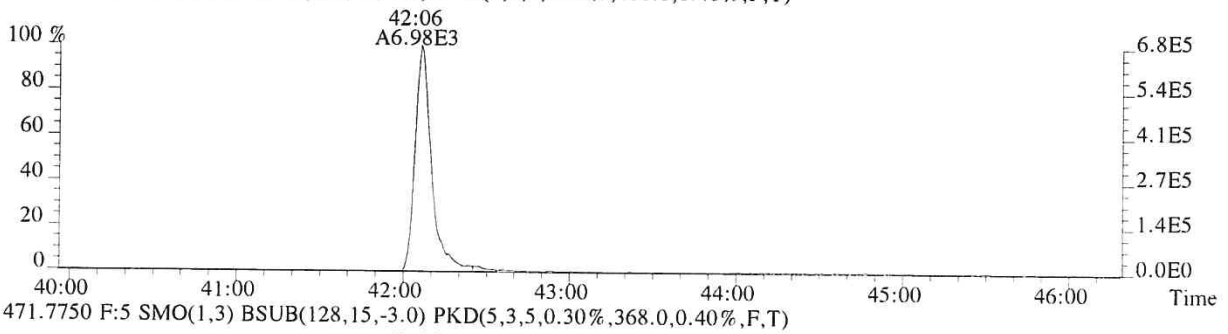
File:P519535 #1-575 Acq:21-DEC-2018 04:57:52 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-013DL
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,404.0,0.40%,F,T)



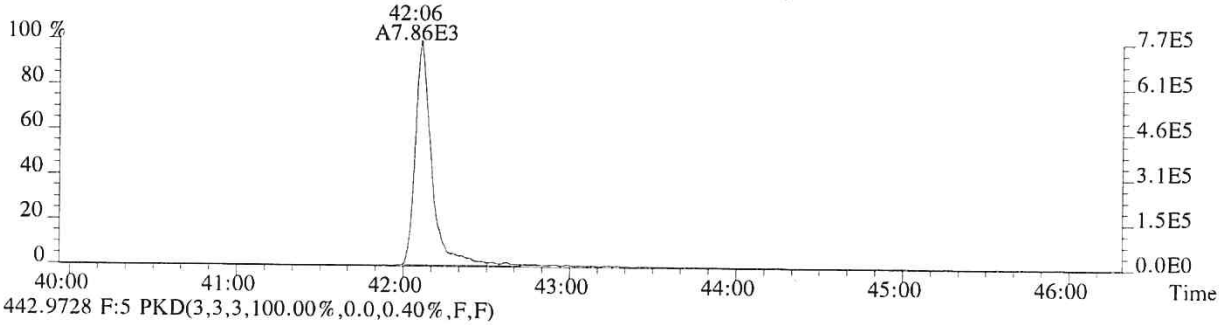
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,348.0,0.40%,F,T)



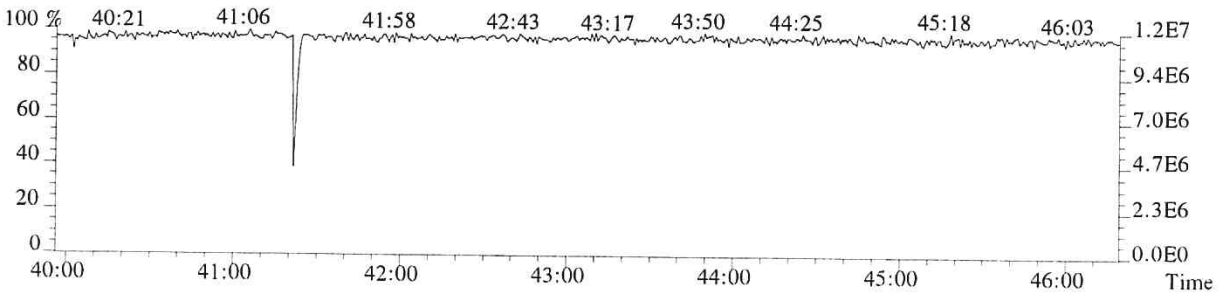
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,400.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,368.0,0.40%,F,T)



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



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0009

Run #13 Filename P519442 Samp: 1 Inj: 1 Acquired: 17-DEC-18 19:24:47
Processed: 19-DEC-18 09:28:12 Sample ID: E1801093-014

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:51	8.165e+04	1.073e+05	0.76	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	31:27	2.420e+03	1.454e+03	1.66	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	32:26	3.004e+03	1.902e+03	1.58	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:16	3.089e+03	2.542e+03	1.21	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:23	1.001e+03	8.883e+02	1.13	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:54	8.222e+02	6.330e+02	1.30	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	36:43	3.811e+02	3.228e+02	1.18	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:02	1.323e+04	1.309e+04	1.01	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:26	8.423e+02	8.056e+02	1.05	yes	no	1.258
10	Unk	OCDF	42:00	2.219e+05	2.505e+05	0.89	yes	no	1.359
11	Unk	2,3,7,8-TCDD	27:45	1.842e+04	2.381e+04	0.77	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	32:44	4.258e+02	3.461e+02	1.23	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:04	2.444e+02	2.141e+02	1.14	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:09	1.187e+03	9.166e+02	1.30	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:23	5.423e+02	4.448e+02	1.22	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:59	1.887e+04	1.784e+04	1.06	yes	no	1.025
17	Unk	OCDD	41:50	1.471e+05	1.649e+05	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	26:49	2.148e+04	2.688e+04	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	31:27	3.296e+04	2.091e+04	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	32:25	3.116e+04	1.955e+04	1.59	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:15	1.288e+04	2.475e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:22	1.451e+04	2.840e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:54	1.310e+04	2.575e+04	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	36:40	1.208e+04	2.297e+04	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:01	8.012e+03	1.833e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:25	6.563e+03	1.512e+04	0.43	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	27:43	9.998e+03	1.250e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:43	2.344e+04	1.473e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:03	1.858e+04	1.459e+04	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:08	1.775e+04	1.382e+04	1.28	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:58	1.594e+04	1.447e+04	1.10	yes	no	0.858
32	IS	13C-OCDD	41:49	1.074e+04	1.175e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:05	1.934e+04	2.419e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:22	2.437e+04	1.994e+04	1.22	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:45	1.446e+04				no	1.014

$$\text{OCDD} = \frac{(1.471e+05 + 1.649e+05) \times 4000\ \text{pg} \times 1}{(1.074e+04 + 1.175e+04) \times 10.399\ \text{g} \times 68.7 / 100 \times 1.118} = 6947\ \text{ng/kg}$$

BN 12/20/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0009

Run #13 Filename P519442 Samp: 1 Inj: 1 Acquired: 17-DEC-18 19:24:47
Processed: 19-DEC-18 09:28:12 LAB. ID: E1801093-014

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.23e+07	3.28e+03	3.8e+03	1.60e+07	6.04e+03	2.7e+03
2	1,2,3,7,8-PeCDF	4.38e+05	4.28e+03	1.0e+02	2.73e+05	3.93e+03	6.9e+01
3	2,3,4,7,8-PeCDF	4.19e+05	4.28e+03	9.8e+01	2.89e+05	3.93e+03	7.3e+01
4	1,2,3,4,7,8-HxCDF	6.34e+05	1.11e+04	5.7e+01	5.10e+05	6.39e+03	8.0e+01
5	1,2,3,6,7,8-HxCDF	1.98e+05	1.11e+04	1.8e+01	1.65e+05	6.39e+03	2.6e+01
6	2,3,4,6,7,8-HxCDF	1.73e+05	1.11e+04	1.6e+01	1.33e+05	6.39e+03	2.1e+01
7	1,2,3,7,8,9-HxCDF	7.29e+04	1.11e+04	6.6e+00	6.57e+04	6.39e+03	1.0e+01
8	1,2,3,4,6,7,8-HpCDF	2.65e+06	6.17e+03	4.3e+02	2.69e+06	8.91e+03	3.0e+02
9	1,2,3,4,7,8,9-HpCDF	1.81e+05	6.17e+03	2.9e+01	1.67e+05	8.91e+03	1.9e+01
10	OCDF	3.15e+07	4.60e+02	6.8e+04	3.57e+07	7.76e+02	4.6e+04
11	2,3,7,8-TCDD	3.32e+06	2.81e+03	1.2e+03	4.24e+06	3.39e+03	1.2e+03
12	1,2,3,7,8-PeCDD	7.41e+04	2.74e+03	2.7e+01	5.26e+04	3.60e+03	1.5e+01
13	1,2,3,4,7,8-HxCDD	5.53e+04	1.70e+03	3.2e+01	4.93e+04	1.84e+03	2.7e+01
14	1,2,3,6,7,8-HxCDD	2.46e+05	1.70e+03	1.4e+02	1.94e+05	1.84e+03	1.1e+02
15	1,2,3,7,8,9-HxCDD	1.07e+05	1.70e+03	6.3e+01	9.17e+04	1.84e+03	5.0e+01
16	1,2,3,4,6,7,8-HpCDD	3.60e+06	8.80e+02	4.1e+03	3.39e+06	1.13e+04	3.0e+02
17	OCDD	2.06e+07	1.11e+03	1.9e+04	2.31e+07	4.40e+02	5.2e+04
18	13C-2,3,7,8-TCDF	3.42e+06	7.17e+03	4.8e+02	4.29e+06	5.66e+03	7.6e+02
19	13C-1,2,3,7,8-PeCDF	6.05e+06	1.59e+04	3.8e+02	3.84e+06	9.88e+03	3.9e+02
20	13C-2,3,4,7,8-PeCDF	6.02e+06	1.59e+04	3.8e+02	3.77e+06	9.88e+03	3.8e+02
21	13C-1,2,3,4,7,8-HxCDF	2.68e+06	1.13e+03	2.4e+03	5.15e+06	1.65e+04	3.1e+02
22	13C-1,2,3,6,7,8-HxCDF	2.86e+06	1.13e+03	2.5e+03	5.37e+06	1.65e+04	3.2e+02
23	13C-2,3,4,6,7,8-HxCDF	2.68e+06	1.13e+03	2.4e+03	5.23e+06	1.65e+04	3.2e+02
24	13C-1,2,3,7,8,9-HxCDF	2.43e+06	1.13e+03	2.2e+03	4.68e+06	1.65e+04	2.8e+02
25	13C-1,2,3,4,6,7,8-HpCDF	1.60e+06	3.62e+03	4.4e+02	3.68e+06	5.28e+03	7.0e+02
26	13C-1,2,3,4,7,8,9-HpCDF	1.21e+06	3.62e+03	3.3e+02	2.75e+06	5.28e+03	5.2e+02
27	13C-2,3,7,8-TCDD	1.81e+06	1.06e+04	1.7e+02	2.27e+06	1.22e+04	1.9e+02
28	13C-1,2,3,7,8-PeCDD	4.30e+06	2.84e+03	1.5e+03	2.71e+06	3.00e+03	9.0e+02
29	13C-1,2,3,4,7,8-HxCDD	3.94e+06	1.70e+03	2.3e+03	3.10e+06	1.60e+03	1.9e+03
30	13C-1,2,3,6,7,8-HxCDD	3.50e+06	1.70e+03	2.1e+03	2.78e+06	1.60e+03	1.7e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.00e+06	1.63e+03	1.8e+03	2.80e+06	1.25e+03	2.2e+03
32	13C-OCDD	1.52e+06	1.14e+03	1.3e+03	1.63e+06	5.16e+02	3.2e+03
33	13C-1,2,3,4-TCDD	3.35e+06	1.06e+04	3.2e+02	4.20e+06	1.22e+04	3.5e+02
34	13C-1,2,3,7,8,9-HxCDD	5.01e+06	1.70e+03	2.9e+03	4.00e+06	1.60e+03	2.5e+03
35	37Cl-2,3,7,8-TCDD	2.62e+06	1.35e+03	1.9e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (2.812e{+}03 + 3.392e{+}03) \times 2000}{(1.812e{+}06 + 2.266e{+}06) \times (\quad) \times 1.085}$$

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0009

Entry: 36 Totals Name: Total Tetra-Furans

Run: 13 File: P519442 Sample:1 Injection:1 Function:1

Acquired: 17-DEC-18 19:24:47 Processed: 19-DEC-18 09:28:12

Mass: 303.9020 305.8990 Tot Response: 3.28e+05 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	23:09	7.99e+02	1.08e+03	0.74	yes	1.88e+03		n	n
2	23:38	1.20e+03	1.59e+03	0.76	yes	2.79e+03		n	n
3	23:56	3.75e+03	5.12e+03	0.73	yes	8.87e+03		n	n
4	24:19	1.31e+03	1.64e+03	0.80	yes	2.95e+03		n	n
5	24:37	2.91e+03	3.93e+03	0.74	yes	6.84e+03		n	n
6	25:02	5.55e+02	7.94e+02	0.70	yes	1.35e+03		n	n
7	25:16	2.37e+03	3.03e+03	0.78	yes	5.41e+03		n	n
8	25:24	2.34e+03	3.12e+03	0.75	yes	5.46e+03		n	n
9	25:55	3.22e+04	4.27e+04	0.75	yes	7.49e+04		n	n
10	26:12	1.41e+03	2.06e+03	0.68	yes	3.48e+03		n	n
11	26:51	8.17e+04	1.07e+05	0.76	yes	1.89e+05	2,3,7,8-TCDF	n	n
12	27:13	5.81e+03	8.06e+03	0.72	yes	1.39e+04		n	n
13	28:52	5.03e+03	6.49e+03	0.77	yes	1.15e+04		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0009

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 13 File: P519442 Sample:1 Injection:1 Function:1

Acquired: 17-DEC-18 19:24:47 Processed: 19-DEC-18 09:28:12

Mass: 319.8970 321.8940 Tot Response: 4.69e+04 RRF: 1.085

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:17	1.78e+02	0.71	yes	4.30e+02		n	n
2	27:28	2.71e+02	0.87	yes	5.81e+02		n	n
3	27:45	1.84e+04	0.77	yes	4.22e+04	2,3,7,8-TCDD	n	n
4	28:03	1.63e+03	0.80	yes	3.66e+03		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0009

Entry: 38 Totals Name: Total Penta-Furans1

Run: 13 File: P519442 Sample:1 Injection:1 Function:1

Acquired: 17-DEC-18 19:24:47 Processed: 19-DEC-18 09:28:12

Mass: 339.8600 341.8570 Tot Response: 7.54e+03 RRF: 0.9857

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	28:53	4.54e+03	2.95e+03	1.54	yes	7.50e+03		n	n
2	29:03	2.36e+01	1.66e+01	1.42	yes	4.02e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0009

Entry: 39 Totals Name: Total Penta-Furans2

Run: 13 File: P519442 Sample:1 Injection:1 Function:2

Acquired: 17-DEC-18 19:24:47 Processed: 19-DEC-18 09:28:12

Mass: 339.8600 341.8570 Tot Response: 2.12e+04 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:21	6.28e+02	3.66e+02	1.72	yes	9.94e+02		n	n
2	30:30	4.04e+03	2.61e+03	1.55	yes	6.64e+03		n	n
3	31:03	1.35e+03	8.99e+02	1.50	yes	2.24e+03		n	n
4	31:17	5.38e+02	3.39e+02	1.58	yes	8.77e+02		n	n
5	31:27	2.42e+03	1.45e+03	1.66	yes	3.87e+03	1,2,3,7,8-PeCDF	n	n
6	31:43	1.06e+03	6.46e+02	1.64	yes	1.70e+03		n	n
7	32:26	3.00e+03	1.90e+03	1.58	yes	4.91e+03	2,3,4,7,8-PeCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0009

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 13 File: P519442 Sample:1 Injection:1 Function:2

Acquired: 17-DEC-18 19:24:47 Processed: 19-DEC-18 09:28:12

Mass: 355.8550 357.8520 Tot Response: 2.77e+03 RRF: 0.9565

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:31	1.14e+03	6.59e+02	1.73	yes	1.80e+03		n	n
2	31:39	2.48e+02	1.88e+02	1.32	yes	4.36e+02		n	n
3	31:46	2.26e+02	1.41e+02	1.61	yes	3.67e+02		n	n
4	33:08	9.84e+01	6.84e+01	1.44	yes	1.67e+02		n	n

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Peak List Summary

CLIENT ID.
SL0009

Entry: 41 Totals Name: Total Hexa-Furans

Run: 13 File: P519442 Sample:1 Injection:1 Function:3

Acquired: 17-DEC-18 19:24:47 Processed: 19-DEC-18 09:28:12

Mass: 373.8210 375.8180 Tot Response: 3.03e+04 RRF: 1.141

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:06	1.41e+03	1.09e+03	1.29	yes	2.51e+03		n	n
2	34:16	4.42e+03	3.63e+03	1.22	yes	8.05e+03		n	n
3	34:38	2.60e+02	2.08e+02	1.25	yes	4.68e+02		n	n
4	34:49	4.97e+03	4.15e+03	1.20	yes	9.11e+03		n	n
5	35:16	3.09e+03	2.54e+03	1.21	yes	5.63e+03	1,2,3,4,7,8-HxCDF	n	n
6	35:23	1.00e+03	8.88e+02	1.13	yes	1.89e+03	1,2,3,6,7,8-HxCDF	n	n
7	35:38	2.42e+02	2.09e+02	1.16	yes	4.51e+02		n	n
8	35:54	8.22e+02	6.33e+02	1.30	yes	1.46e+03	2,3,4,6,7,8-HxCDF	n	n
9	36:43	3.81e+02	3.23e+02	1.18	yes	7.04e+02	1,2,3,7,8,9-HxCDF	n	n

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Peak List Summary

CLIENT ID.
SL0009

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 13 File: P519442 Sample:1 Injection:1 Function:3

Acquired: 17-DEC-18 19:24:47 Processed: 19-DEC-18 09:28:12

Mass: 389.8160 391.8130 Tot Response: 2.25e+04 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:40	5.47e+03	4.37e+03	1.25	yes	9.84e+03		n	n
2	35:12	9.63e+02	7.59e+02	1.27	yes	1.72e+03		n	n
3	35:26	3.80e+03	3.16e+03	1.20	yes	6.96e+03		n	n
4	36:04	2.44e+02	2.14e+02	1.14	yes	4.58e+02	1,2,3,4,7,8-HxCDD	n	n
5	36:09	1.19e+03	9.17e+02	1.30	yes	2.10e+03	1,2,3,6,7,8-HxCDD	n	n
6	36:18	2.26e+02	2.01e+02	1.12	yes	4.27e+02		n	n
7	36:23	5.42e+02	4.45e+02	1.22	yes	9.87e+02	1,2,3,7,8,9-HxCDD	n	n

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Peak List Summary

CLIENT ID.
SL0009

Entry: 43 Totals Name: Total Hepta-Furans

Run: 13 File: P519442 Sample:1 Injection:1 Function:4

Acquired: 17-DEC-18 19:24:47 Processed: 19-DEC-18 09:28:12

Mass: 407.7820 409.7790 Tot Response: 5.52e+04 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:02	1.32e+04	1.01	yes	2.63e+04	1,2,3,4,6,7,8-HpCDF	n	n
2	38:18	7.81e+02	0.98	yes	1.58e+03		n	n
3	38:26	1.30e+04	1.03	yes	2.57e+04		n	n
4	39:26	8.42e+02	1.05	yes	1.65e+03	1,2,3,4,7,8,9-HpCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0009

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 13 File: P519442 Sample:1 Injection:1 Function:4

Acquired: 17-DEC-18 19:24:47 Processed: 19-DEC-18 09:28:12

Mass: 423.7770 425.7740 Tot Response: 9.38e+04 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:18	2.91e+04	2.79e+04 1.04	yes	5.71e+04		n	n
2	38:59	1.89e+04	1.78e+04 1.06	yes	3.67e+04	1,2,3,4,6,7,8-HpCDD	n	n

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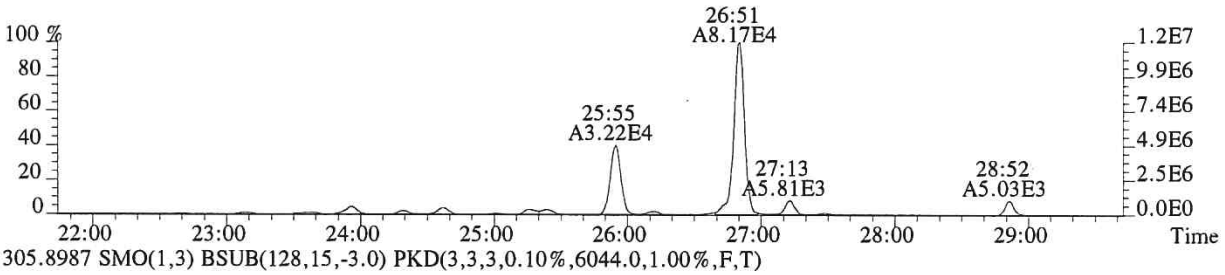
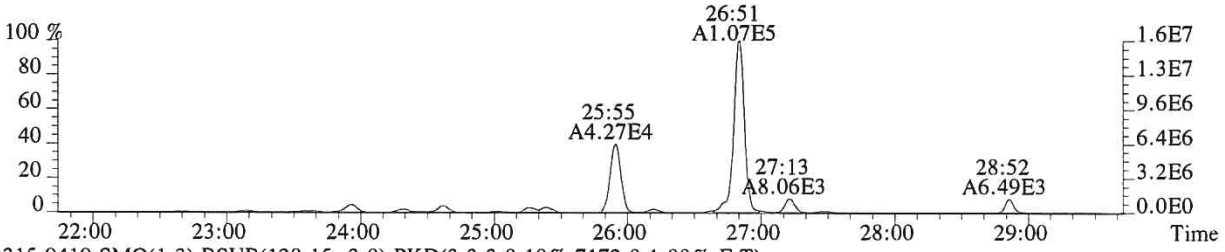
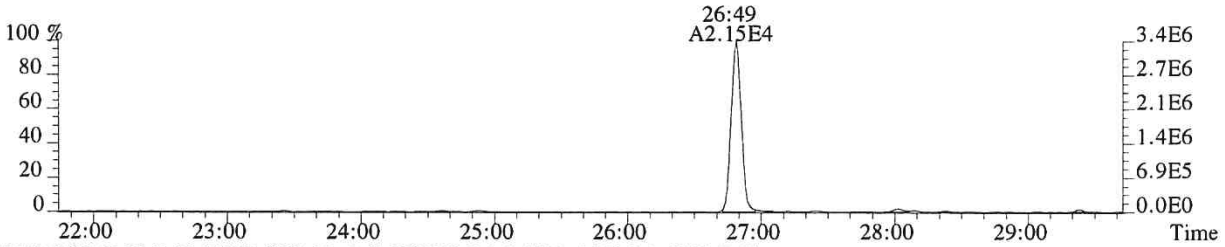
File:P519442 #1-566 Acq:17-DEC-2018 19:24:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-014
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3284.0,1.00%,F,T)



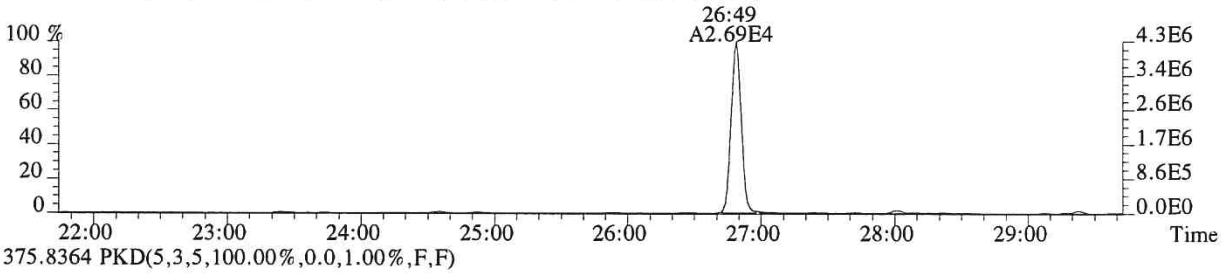
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6044.0,1.00%,F,T)



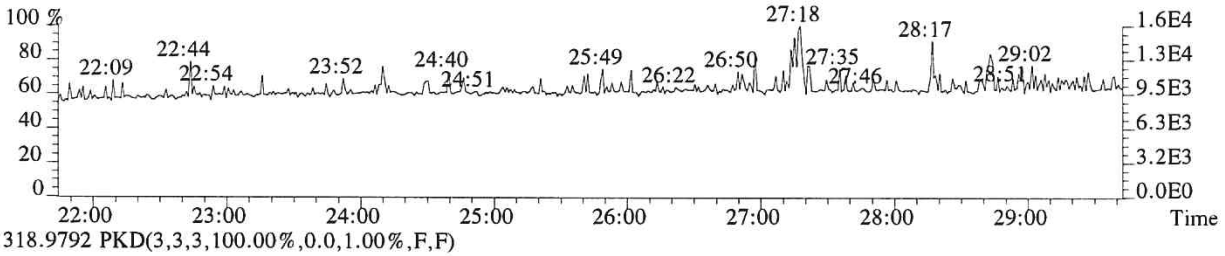
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7172.0,1.00%,F,T)



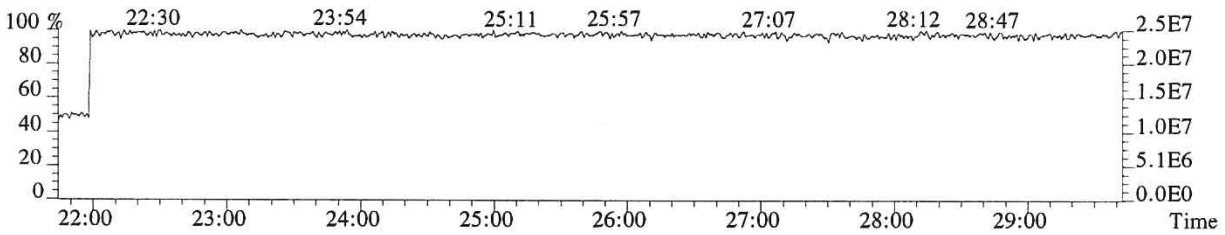
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5660.0,1.00%,F,T)



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



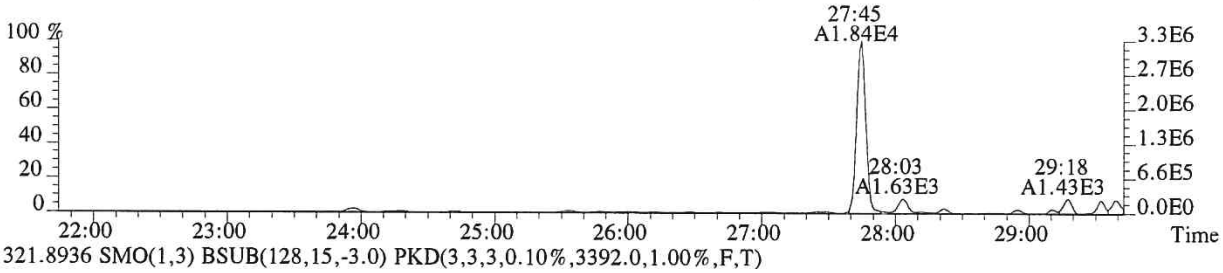
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



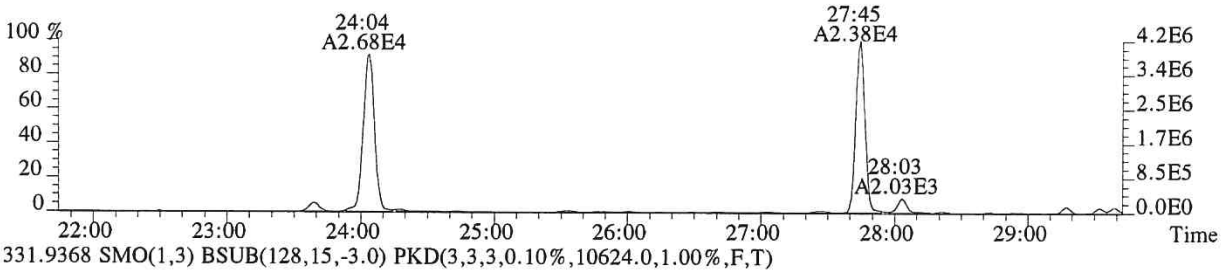
014338

File:P519442 #1-566 Acq:17-DEC-2018 19:24:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-014

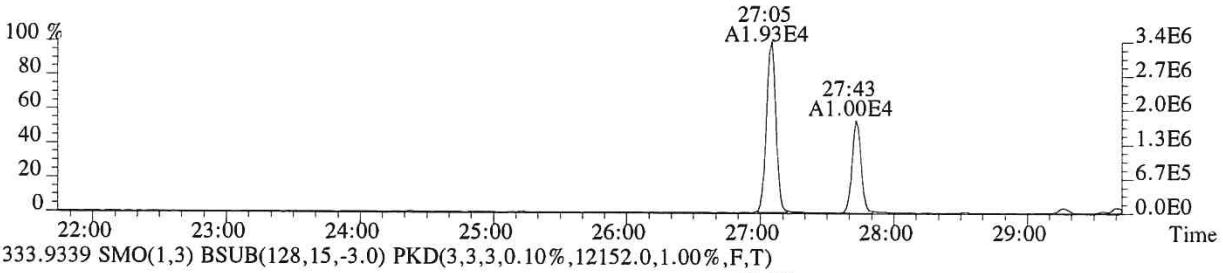
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2812.0,1.00%,F,T)



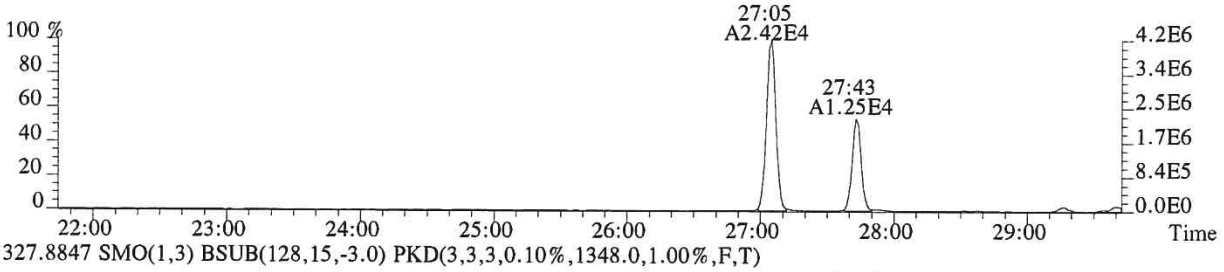
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3392.0,1.00%,F,T)



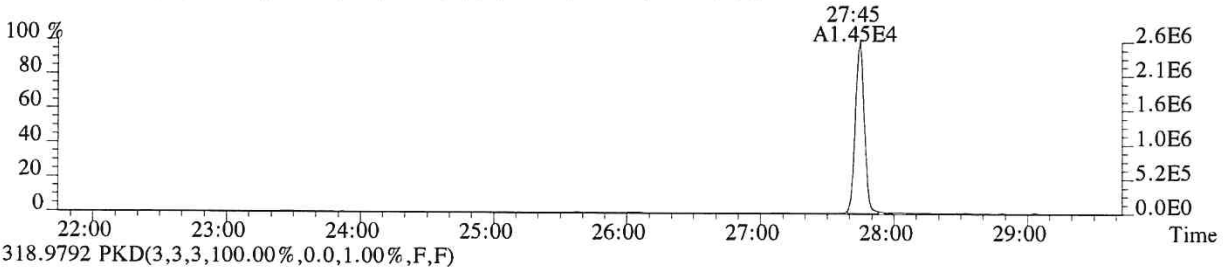
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10624.0,1.00%,F,T)



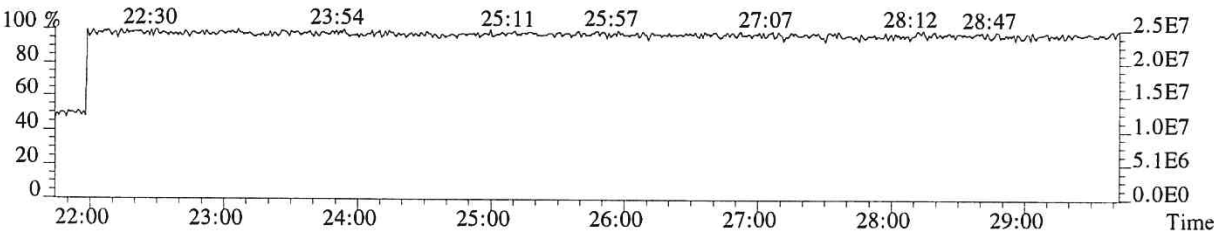
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,12152.0,1.00%,F,T)



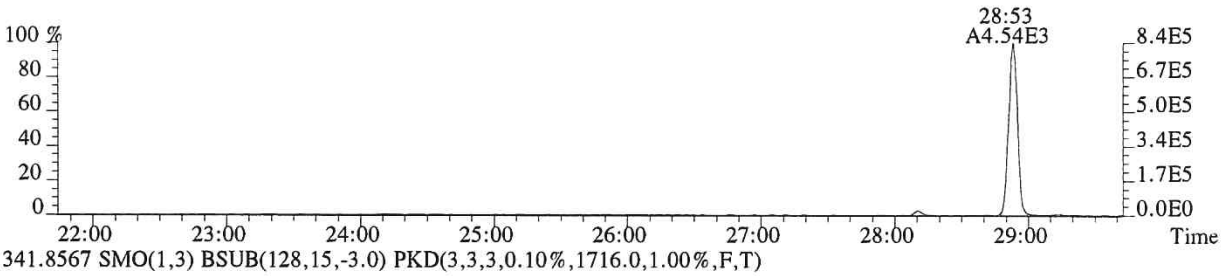
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1348.0,1.00%,F,T)



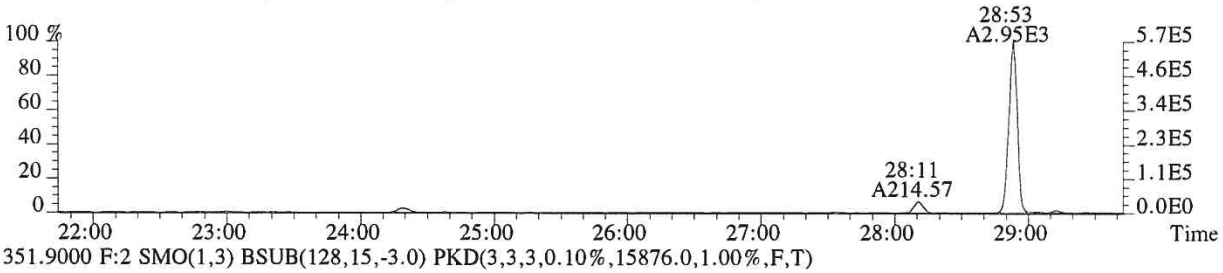
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



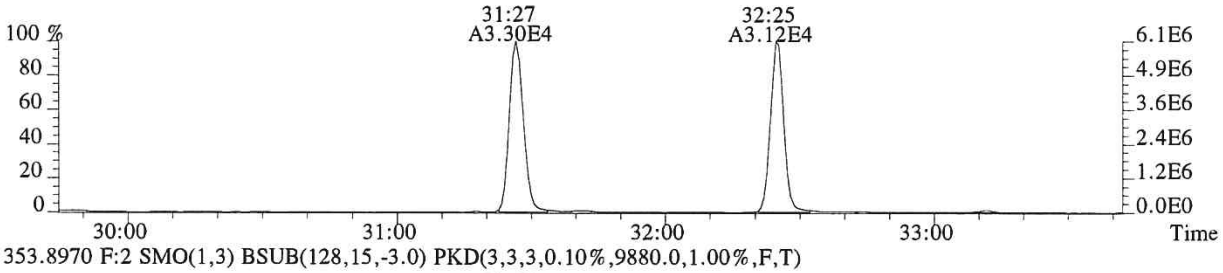
File:P519442 #1-566 Acq:17-DEC-2018 19:24:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-014
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1548.0,1.00%,F,T)



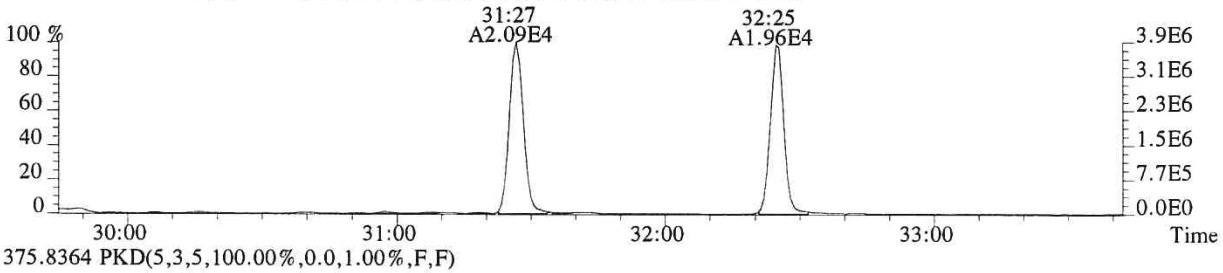
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1716.0,1.00%,F,T)



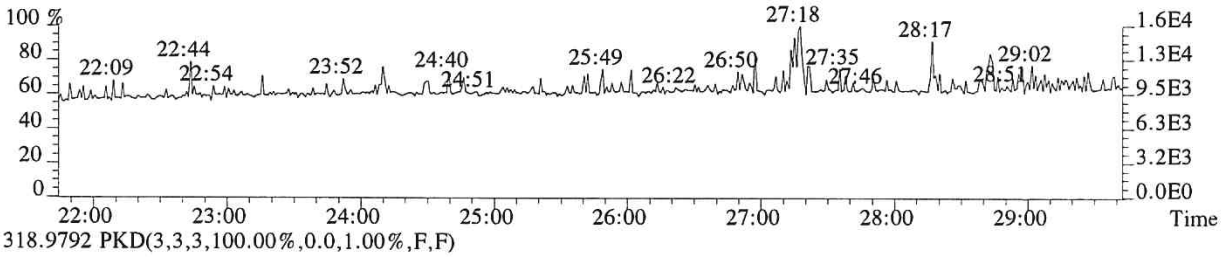
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15876.0,1.00%,F,T)



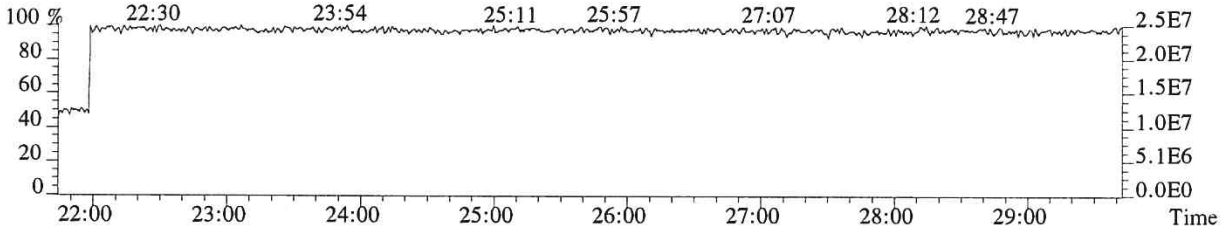
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9880.0,1.00%,F,T)



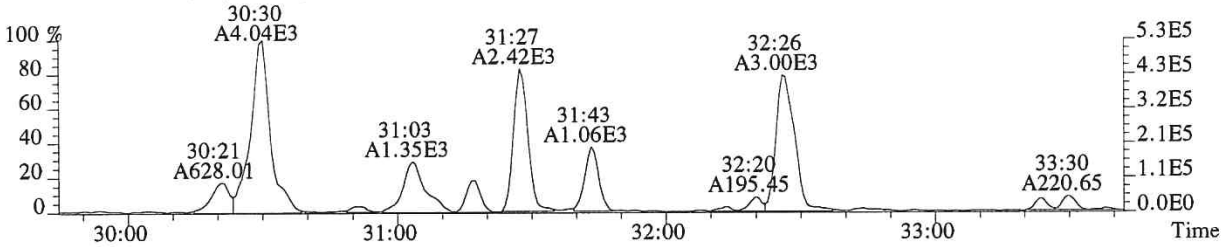
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



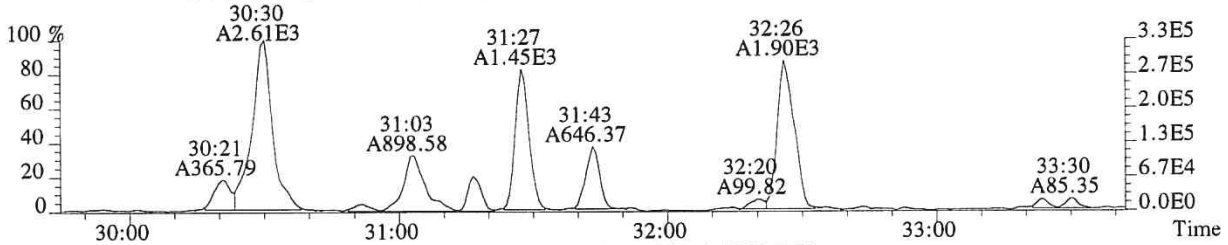
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



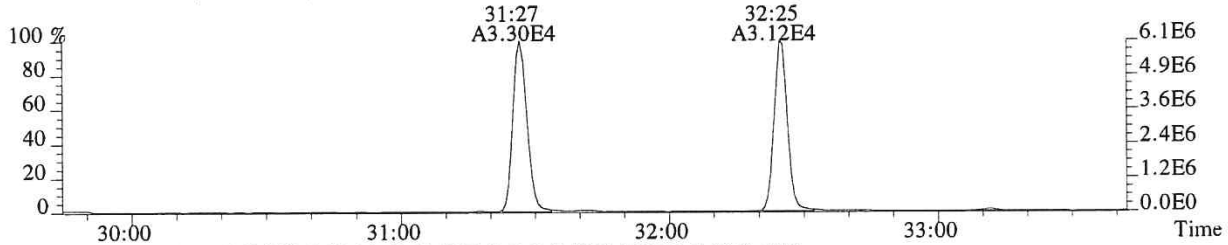
File:P519442 #1-357 Acq:17-DEC-2018 19:24:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-014
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4284.0,1.00%,F,T)



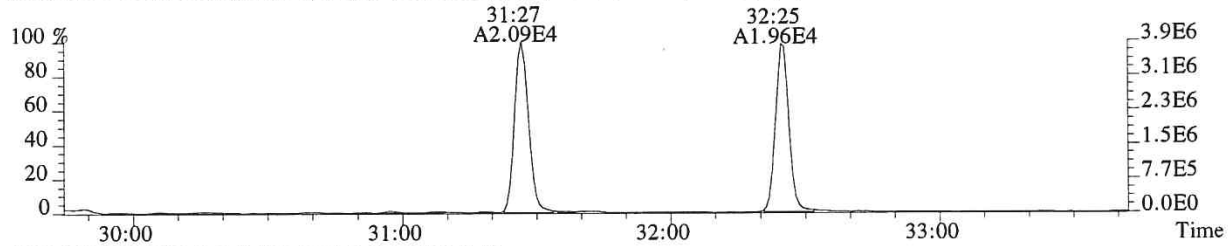
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3932.0,1.00%,F,T)



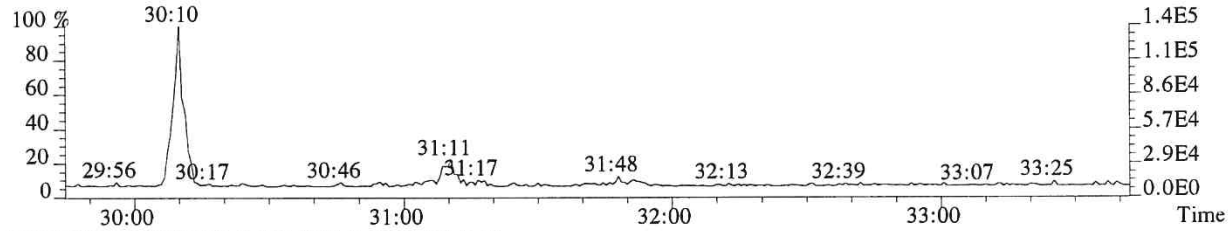
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15876.0,1.00%,F,T)



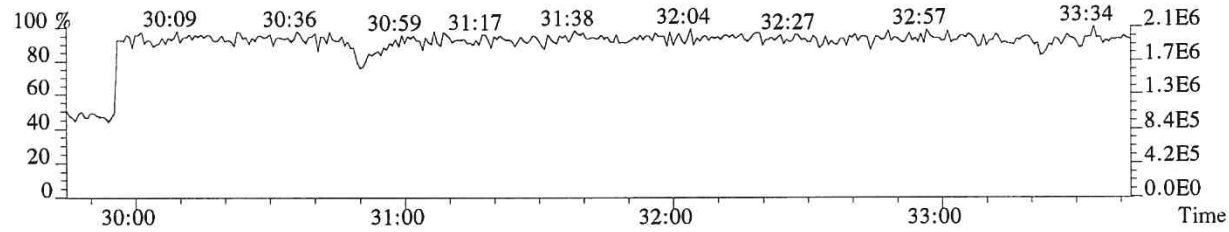
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9880.0,1.00%,F,T)



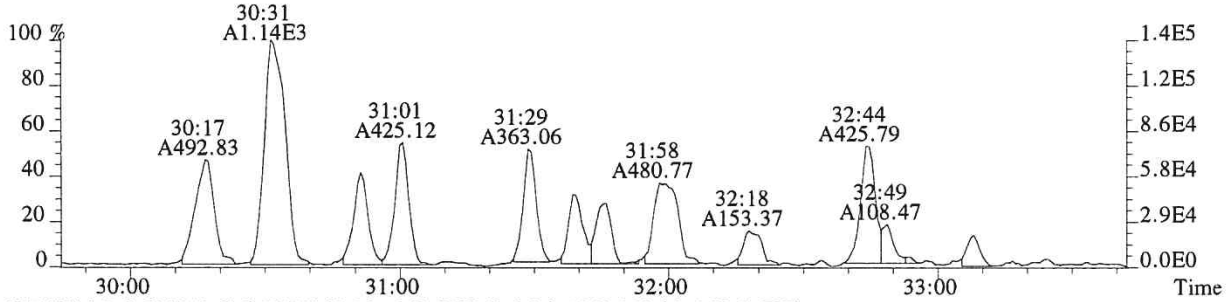
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



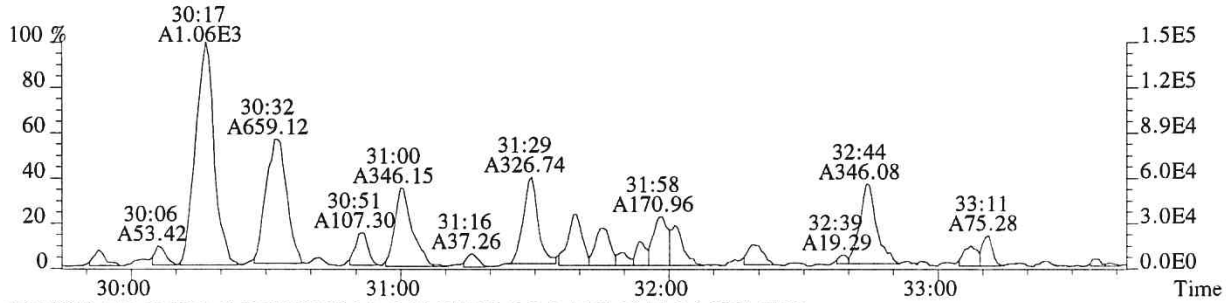
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



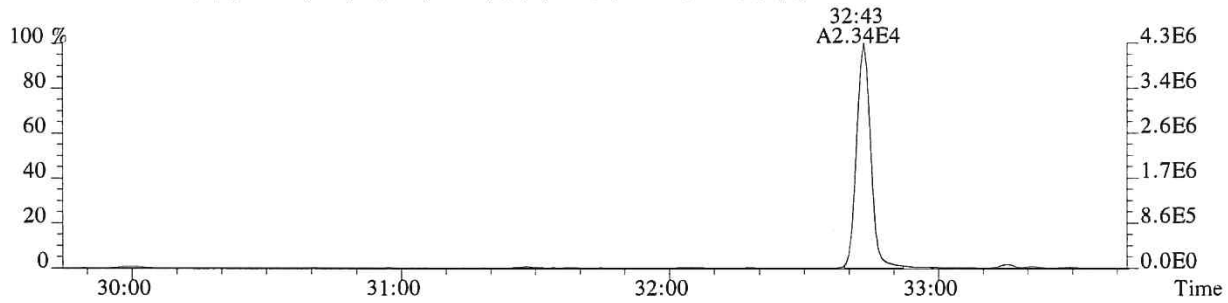
File:P519442 #1-357 Acq:17-DEC-2018 19:24:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-014
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2740.0,1.00%,F,T)



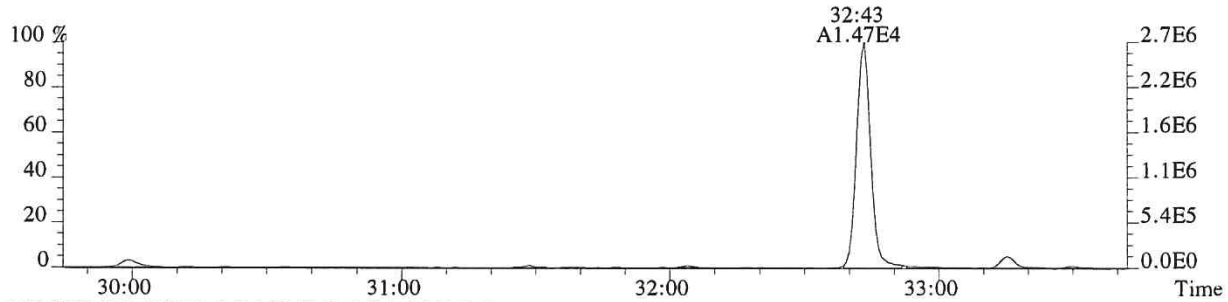
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3596.0,1.00%,F,T)



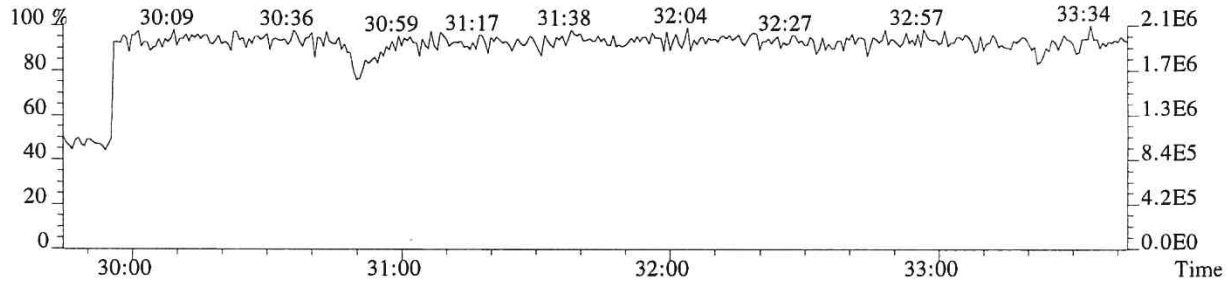
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2844.0,1.00%,F,T)



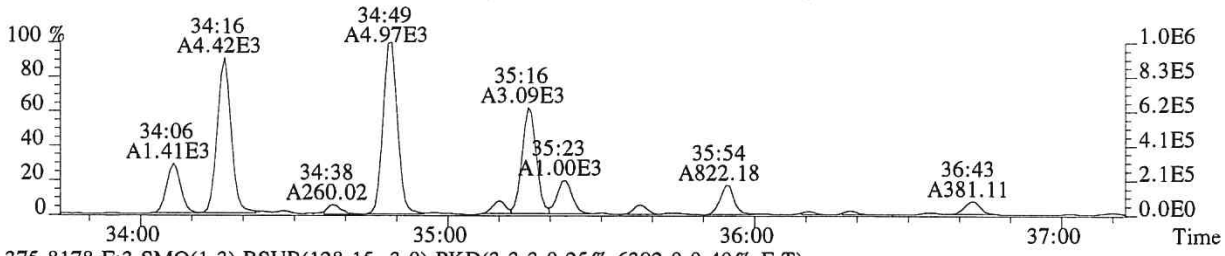
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2996.0,1.00%,F,T)



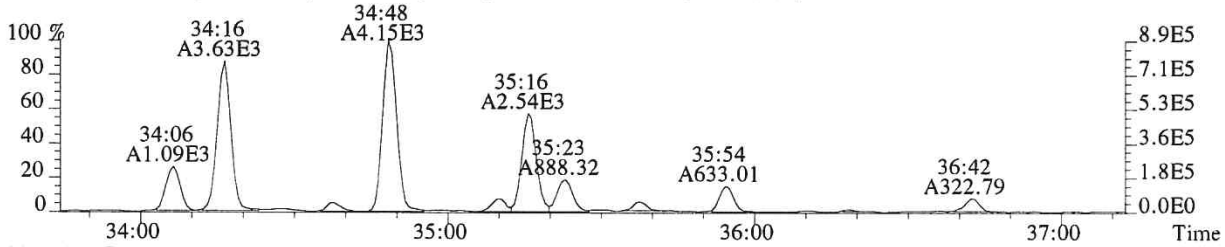
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



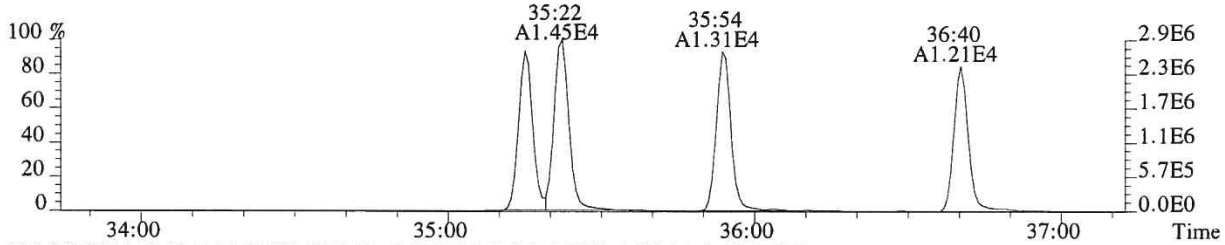
File:P519442 #1-313 Acq:17-DEC-2018 19:24:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-014
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11056.0,0.40%,F,T)



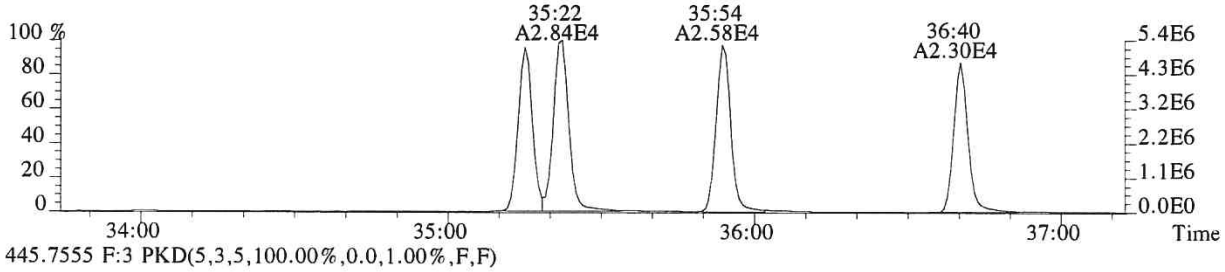
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6392.0,0.40%,F,T)



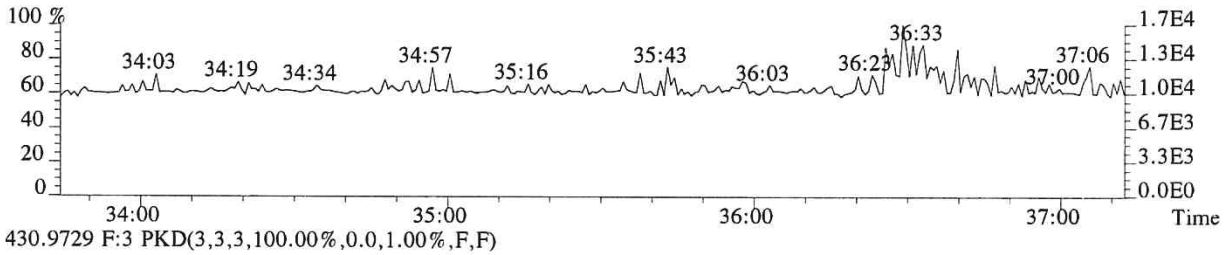
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1132.0,0.40%,F,T)



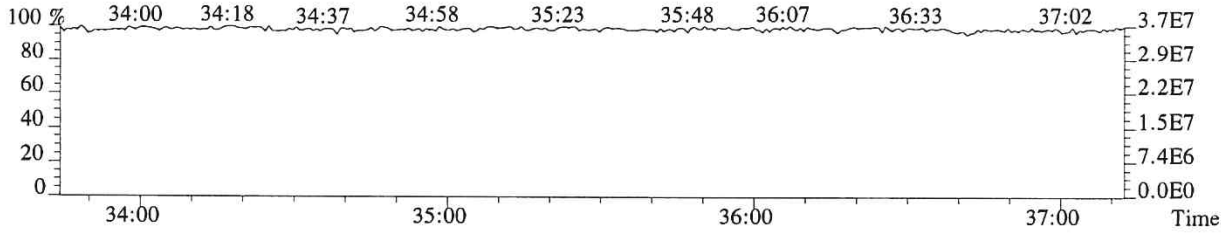
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,16536.0,0.40%,F,T)



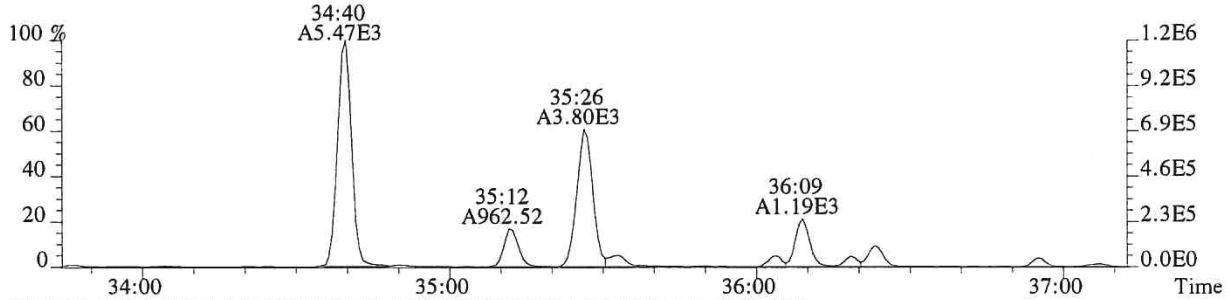
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



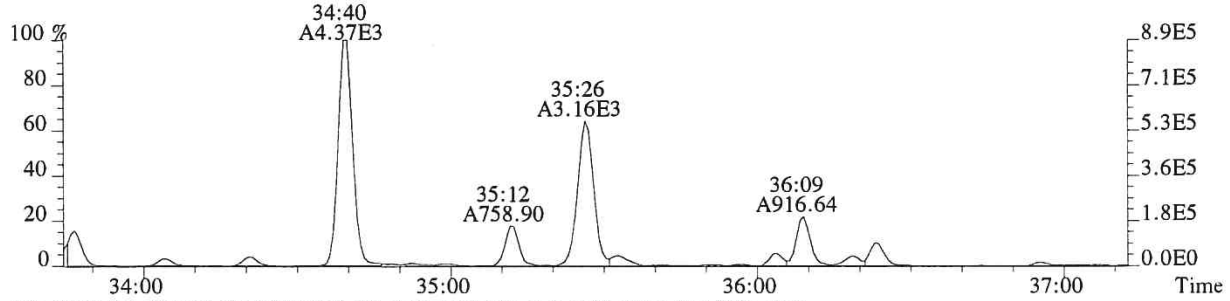
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



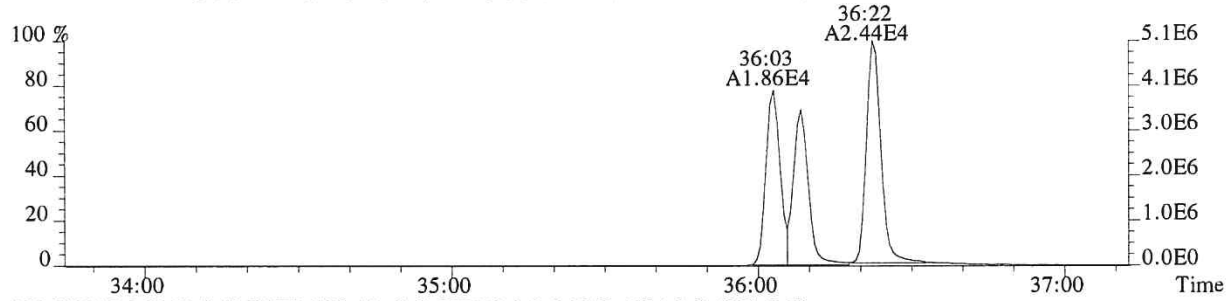
File:P519442 #1-313 Acq:17-DEC-2018 19:24:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-014
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1704.0,0.40%,F,T)



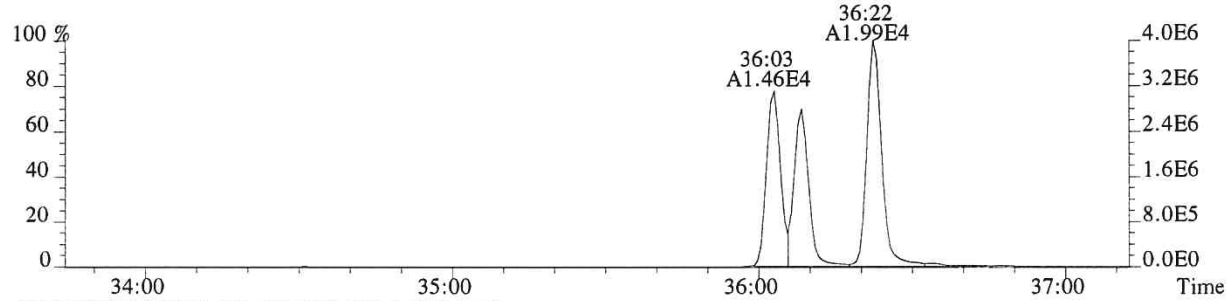
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1840.0,0.40%,F,T)



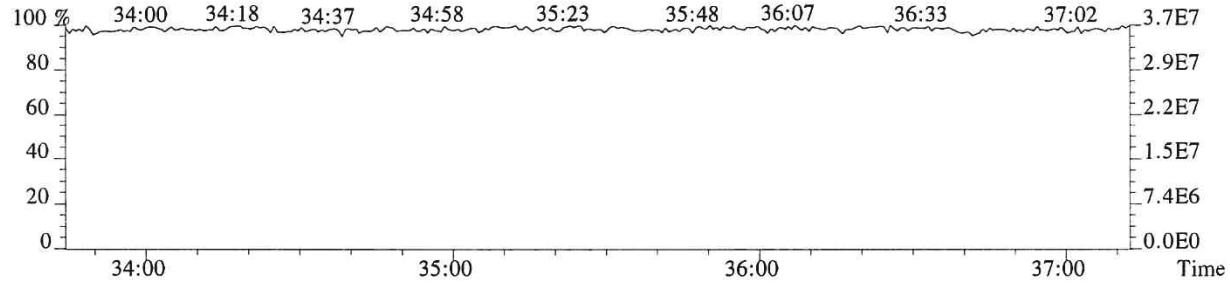
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1704.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1604.0,0.40%,F,T)

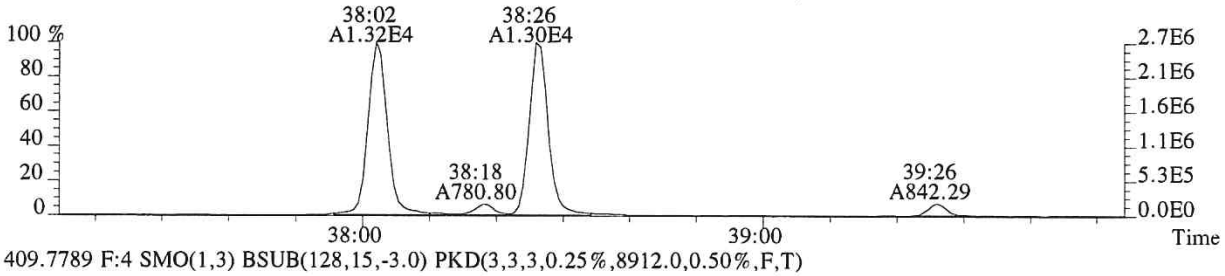


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

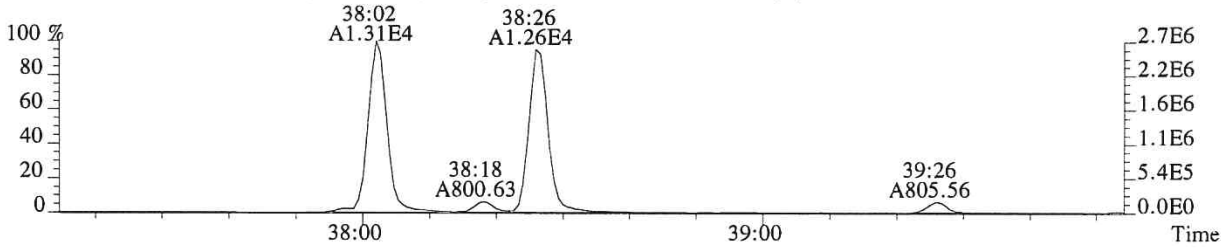


File:P519442 #1-240 Acq:17-DEC-2018 19:24:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-014

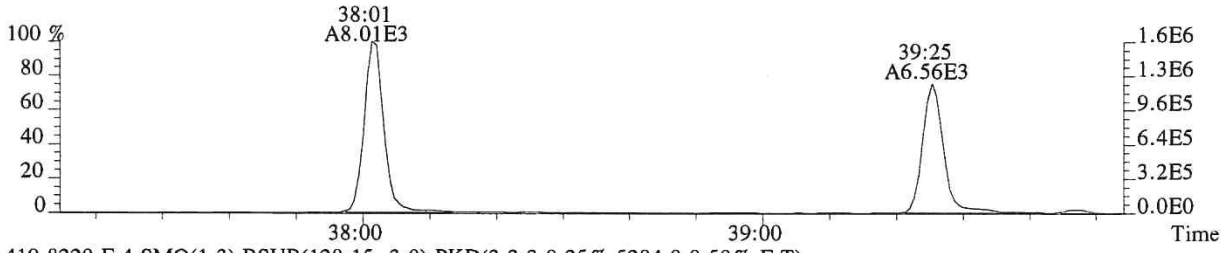
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6172.0,0.50%,F,T)



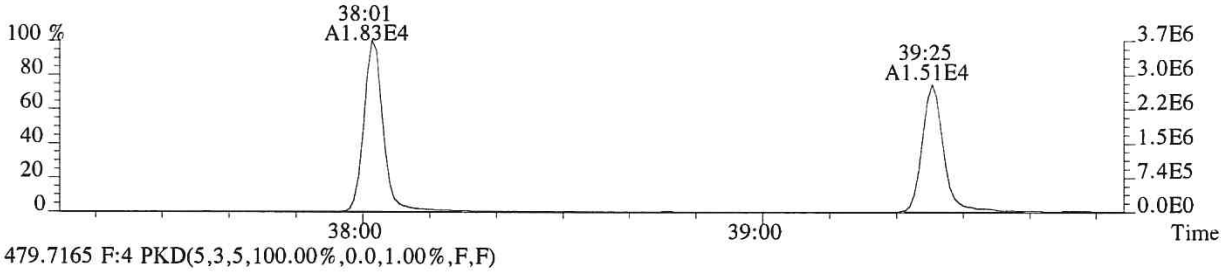
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8912.0,0.50%,F,T)



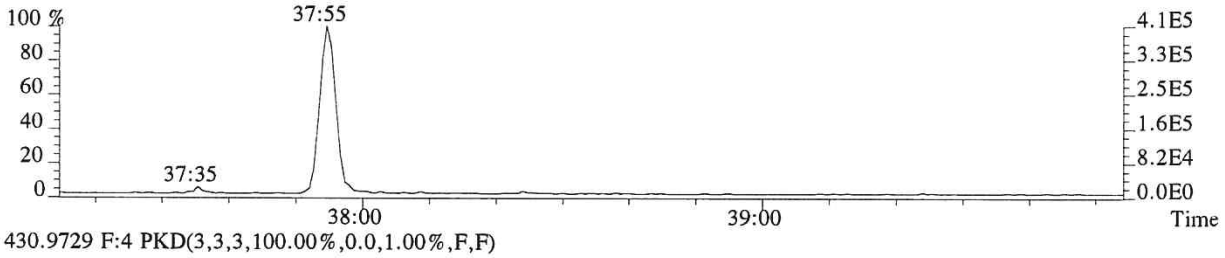
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3616.0,0.50%,F,T)



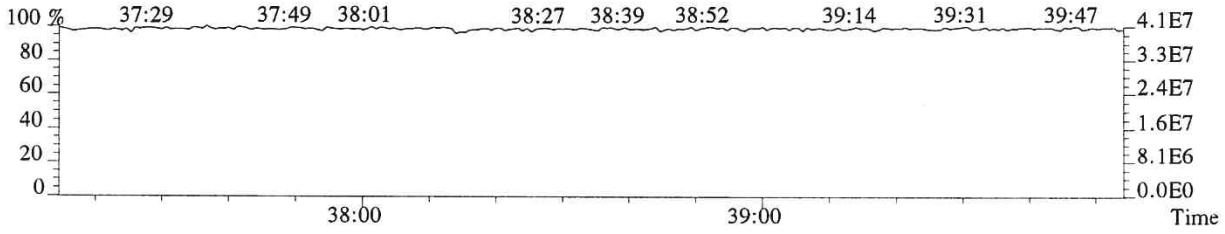
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5284.0,0.50%,F,T)



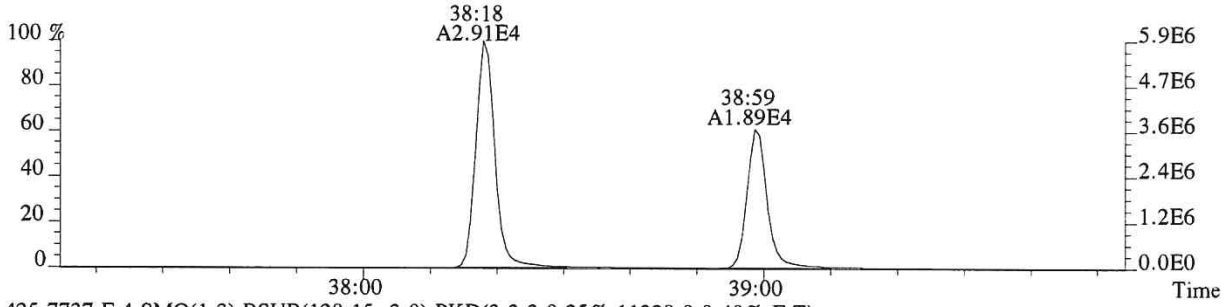
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



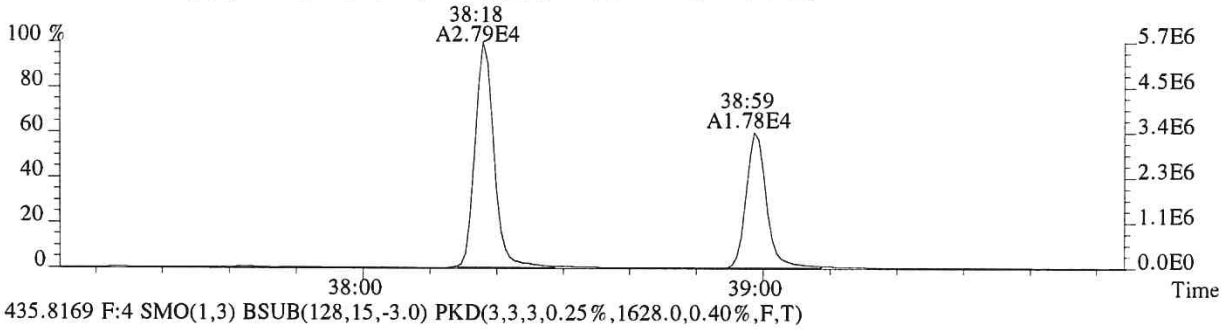
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



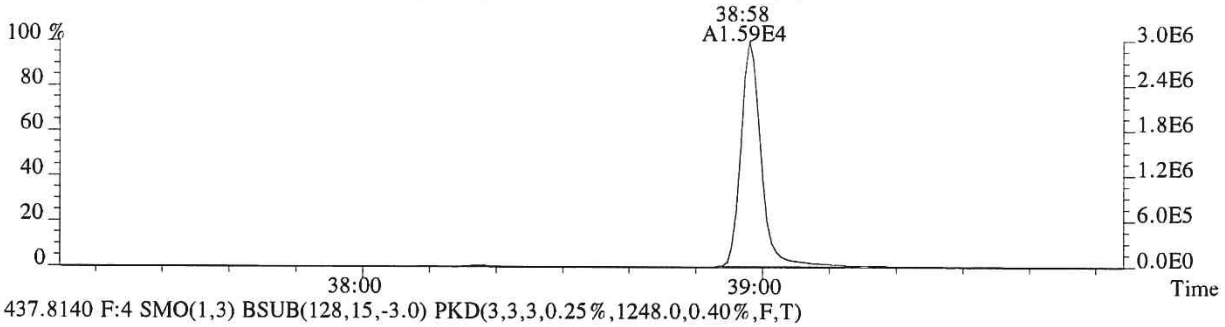
File:P519442 #1-240 Acq:17-DEC-2018 19:24:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-014
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,880.0,0.40%,F,T)



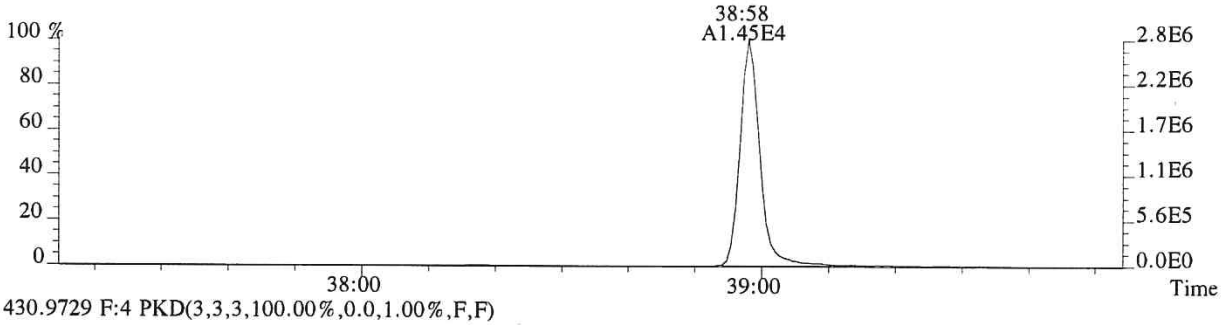
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11328.0,0.40%,F,T)



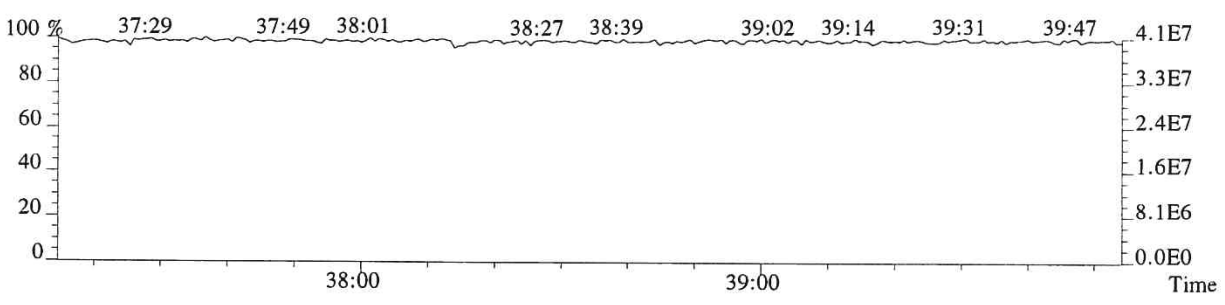
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1628.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1248.0,0.40%,F,T)

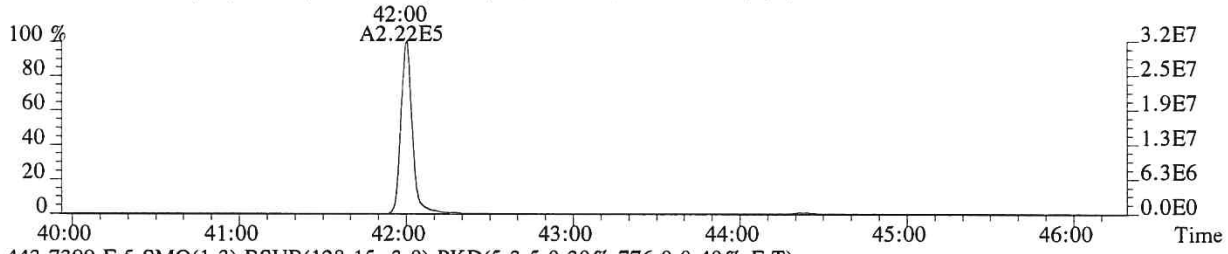


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

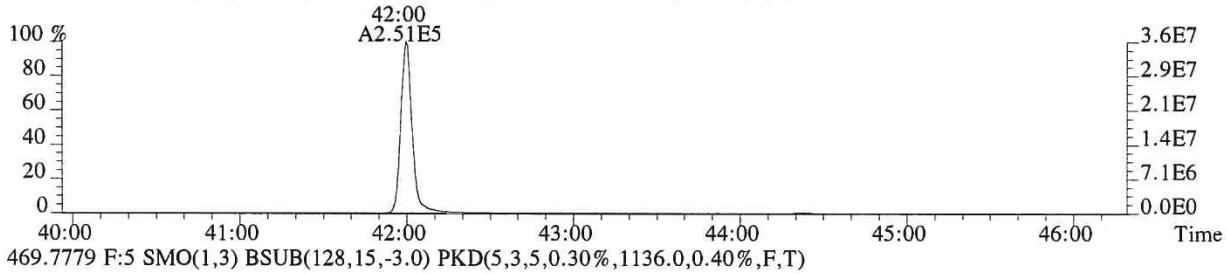


File:P519442 #1-575 Acq:17-DEC-2018 19:24:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-014

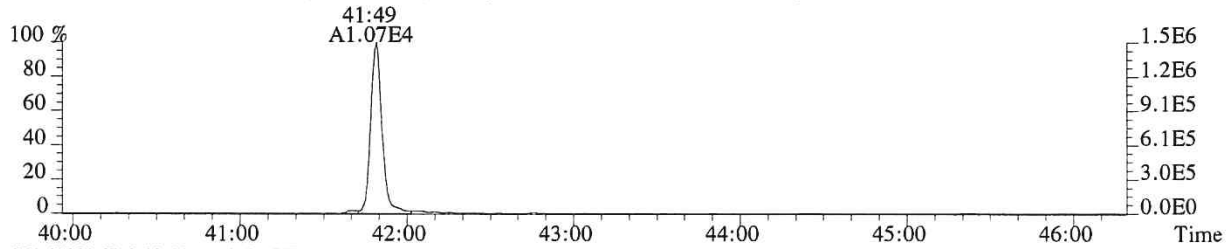
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,460.0,0.40%,F,T)



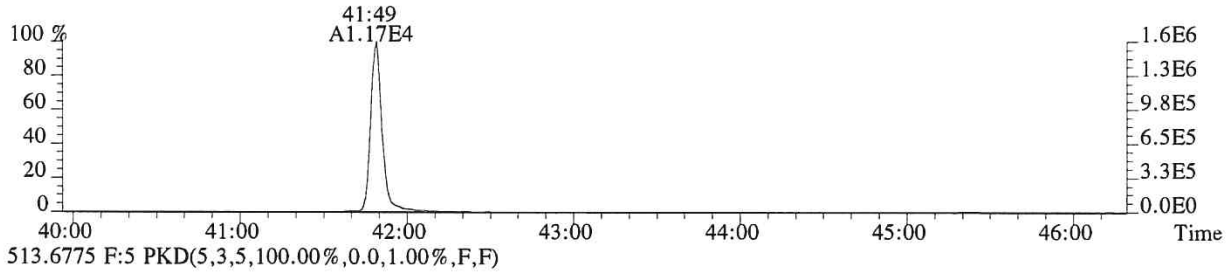
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,776.0,0.40%,F,T)



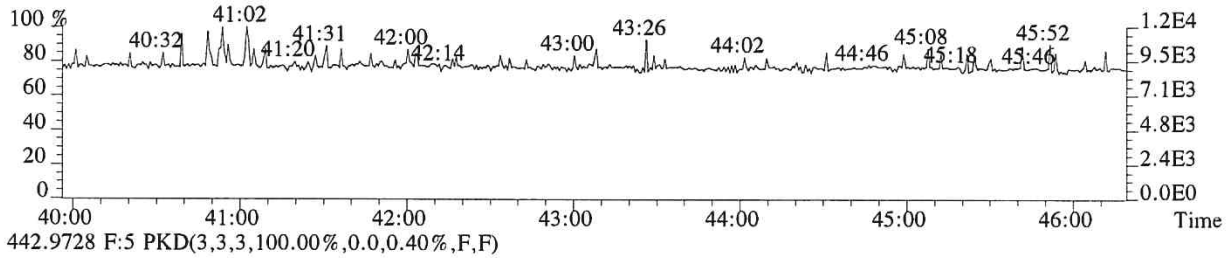
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1136.0,0.40%,F,T)



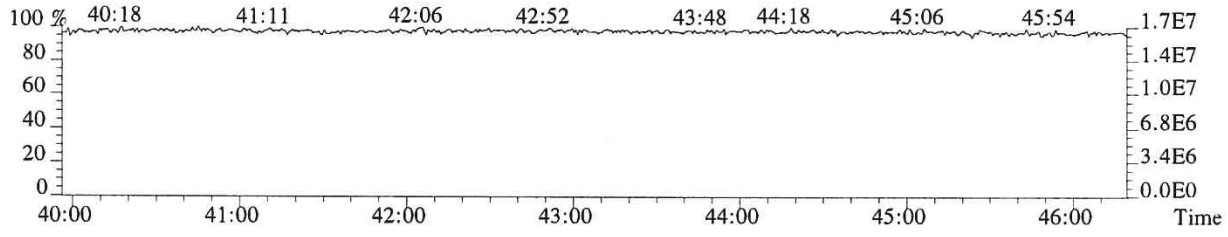
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,516.0,0.40%,F,T)



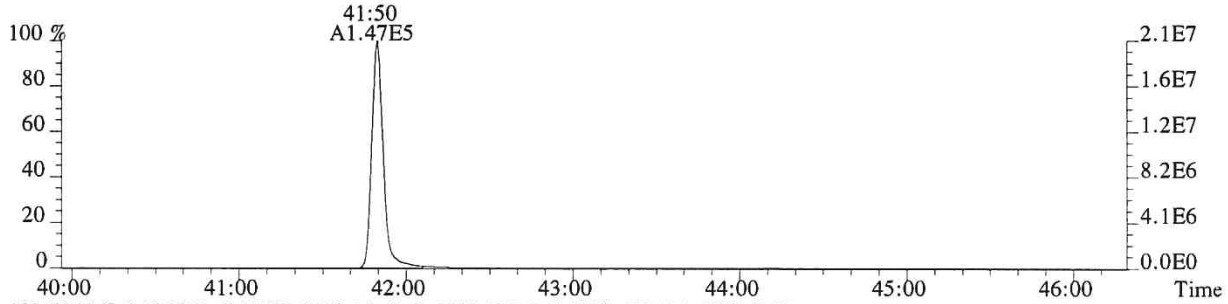
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



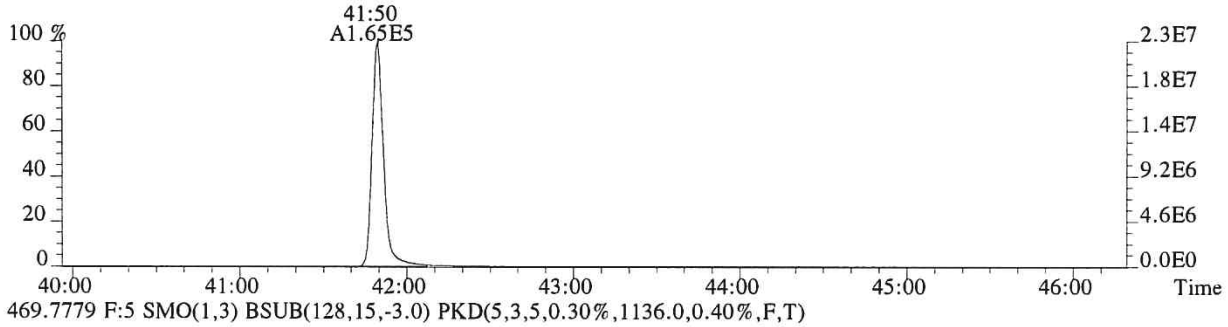
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



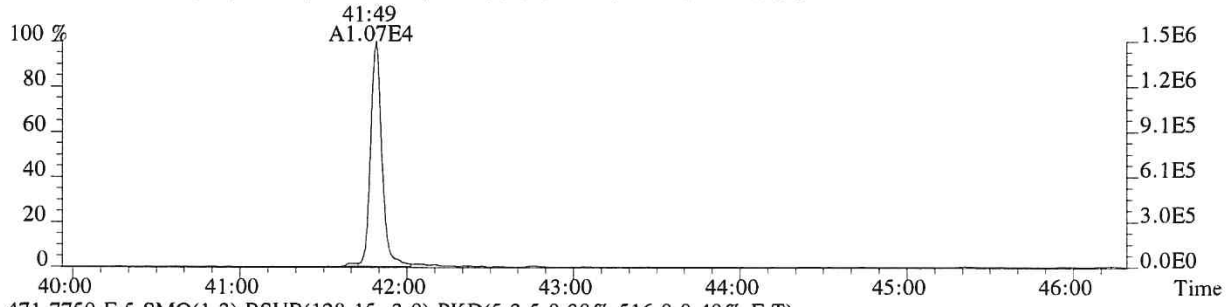
File:P519442 #1-575 Acq:17-DEC-2018 19:24:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-014
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1112.0,0.40%,F,T)



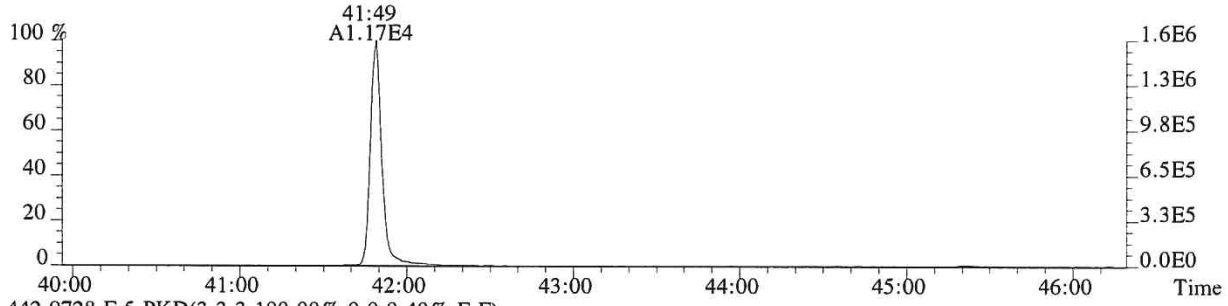
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,440.0,0.40%,F,T)



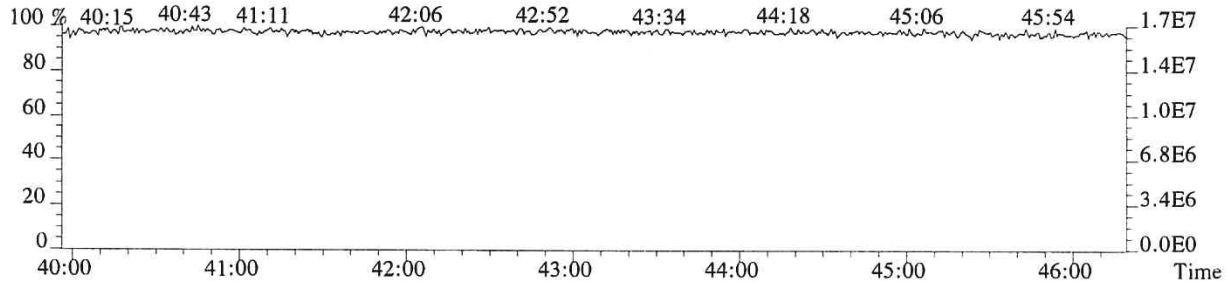
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1136.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,516.0,0.40%,F,T)



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



ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0009

Run #10 Filename P519536 Samp: 1 Inj: 1 Acquired: 21-DEC-18 05:46:29
Processed: 24-DEC-18 08:05:11 LAB. ID: E1801093-014DL

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	4.31e+05	5.56e+02	7.8e+02	5.40e+05	8.92e+02	6.0e+02
2	1,2,3,7,8-PeCDF	1.45e+04	1.57e+03	9.2e+00	1.38e+04	6.32e+02	2.2e+01
3	2,3,4,7,8-PeCDF	1.52e+04	1.57e+03	9.7e+00	6.52e+03	6.32e+02	1.0e+01
4	1,2,3,4,7,8-HxCDF	2.40e+04	4.12e+02	5.8e+01	1.95e+04	5.80e+02	3.4e+01
5	1,2,3,6,7,8-HxCDF	6.54e+03	4.12e+02	1.6e+01	8.23e+03	5.80e+02	1.4e+01
6	2,3,4,6,7,8-HxCDF	6.80e+03	4.12e+02	1.7e+01	6.13e+03	5.80e+02	1.1e+01
7	1,2,3,7,8,9-HxCDF	4.44e+03	4.12e+02	1.1e+01	4.03e+03	5.80e+02	7.0e+00
8	1,2,3,4,6,7,8-HpCDF	9.86e+04	5.68e+02	1.7e+02	9.23e+04	8.08e+02	1.1e+02
9	1,2,3,4,7,8,9-HpCDF	1.18e+04	5.68e+02	2.1e+01	6.35e+03	8.08e+02	7.9e+00
10	OCDF	1.28e+06	2.56e+02	5.0e+03	1.51e+06	5.20e+02	2.9e+03
11	2,3,7,8-TCDD	1.09e+05	1.42e+03	7.7e+01	1.23e+05	4.88e+02	2.5e+02
12	1,2,3,7,8-PeCDD	5.30e+03	6.24e+02	8.5e+00	2.97e+03	3.64e+02	8.2e+00
13	1,2,3,4,7,8-HxCDD	3.91e+03	4.68e+02	8.4e+00	1.78e+03	4.80e+02	3.7e+00
14	1,2,3,6,7,8-HxCDD	8.68e+03	4.68e+02	1.9e+01	6.71e+03	4.80e+02	1.4e+01
15	1,2,3,7,8,9-HxCDD	5.53e+03	4.68e+02	1.2e+01	6.13e+03	4.80e+02	1.3e+01
16	1,2,3,4,6,7,8-HpCDD	1.25e+05	3.04e+02	4.1e+02	1.26e+05	3.72e+02	3.4e+02
17	OCDD	8.72e+05	3.56e+02	2.4e+03	9.09e+05	3.20e+02	2.8e+03
18	13C-2,3,7,8-TCDF	1.13e+06	3.16e+03	3.6e+02	1.37e+06	2.37e+03	5.8e+02
19	13C-1,2,3,7,8-PeCDF	1.92e+06	1.34e+03	1.4e+03	1.22e+06	1.15e+03	1.1e+03
20	13C-2,3,4,7,8-PeCDF	1.95e+06	1.34e+03	1.5e+03	1.21e+06	1.15e+03	1.1e+03
21	13C-1,2,3,4,7,8-HxCDF	8.92e+05	4.88e+02	1.8e+03	1.75e+06	6.60e+02	2.7e+03
22	13C-1,2,3,6,7,8-HxCDF	9.87e+05	4.88e+02	2.0e+03	1.94e+06	6.60e+02	2.9e+03
23	13C-2,3,4,6,7,8-HxCDF	9.62e+05	4.88e+02	2.0e+03	1.86e+06	6.60e+02	2.8e+03
24	13C-1,2,3,7,8,9-HxCDF	6.95e+05	4.88e+02	1.4e+03	1.40e+06	6.60e+02	2.1e+03
25	13C-1,2,3,4,6,7,8-HpCDF	6.44e+05	1.88e+03	3.4e+02	1.47e+06	1.59e+03	9.2e+02
26	13C-1,2,3,4,7,8,9-HpCDF	4.44e+05	1.88e+03	2.4e+02	1.02e+06	1.59e+03	6.4e+02
27	13C-2,3,7,8-TCDD	5.81e+05	3.06e+03	1.9e+02	7.20e+05	9.68e+02	7.4e+02
28	13C-1,2,3,7,8-PeCDD	1.41e+06	7.64e+02	1.8e+03	8.59e+05	1.04e+03	8.3e+02
29	13C-1,2,3,4,7,8-HxCDD	1.26e+06	4.28e+02	2.9e+03	9.77e+05	3.36e+02	2.9e+03
30	13C-1,2,3,6,7,8-HxCDD	1.14e+06	4.28e+02	2.7e+03	9.31e+05	3.36e+02	2.8e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.01e+06	5.24e+02	1.9e+03	9.98e+05	3.40e+02	2.9e+03
32	13C-OCDD	7.67e+05	3.08e+02	2.5e+03	8.38e+05	2.72e+02	3.1e+03
33	13C-1,2,3,4-TCDD	9.43e+05	3.06e+03	3.1e+02	1.23e+06	9.68e+02	1.3e+03
34	13C-1,2,3,7,8,9-HxCDD	1.25e+06	4.28e+02	2.9e+03	9.75e+05	3.36e+02	2.9e+03
35	37Cl-2,3,7,8-TCDD	9.24e+04	4.32e+02	2.1e+02			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.416e{+}03 + 4.880e{+}02) \times 2000}{(5.810e{+}05 + 7.201e{+}05) \times (\quad) \times 1.085} =$$

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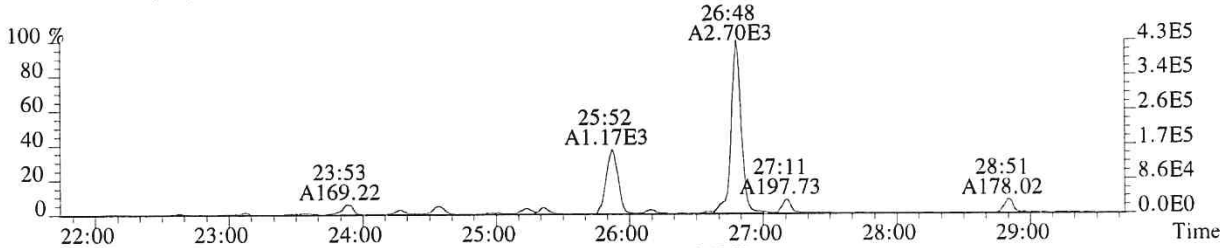
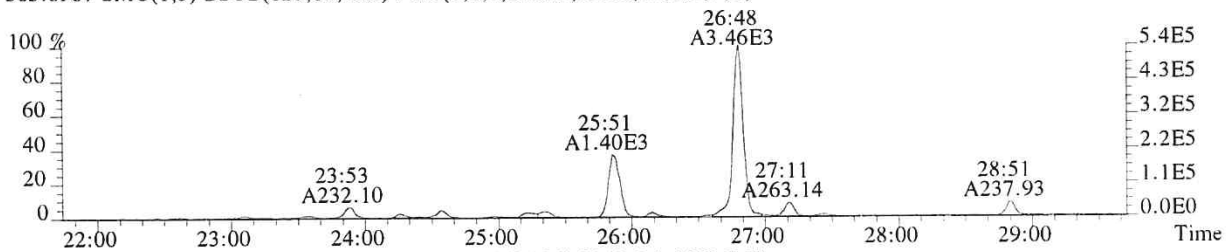
File:P519536 #1-566 Acq:21-DEC-2018 05:46:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-014DL

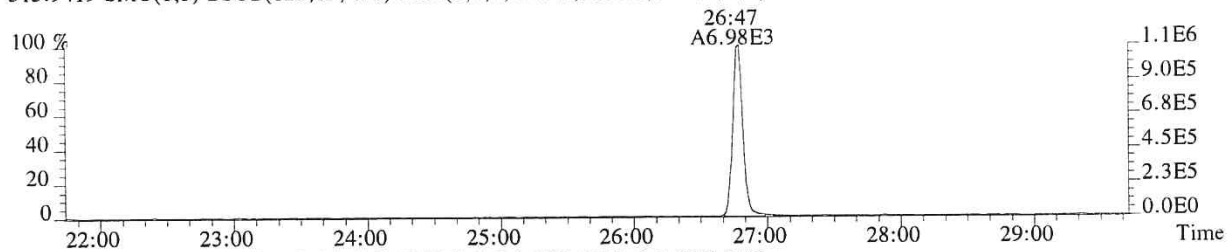
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,556.0,1.00%,F,T)



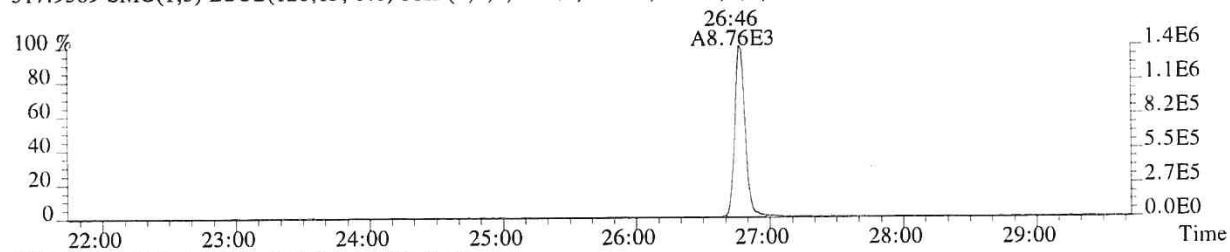
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,892.0,1.00%,F,T)



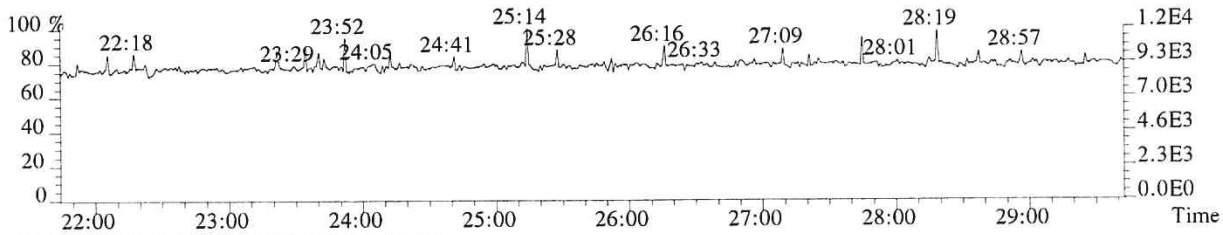
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3160.0,1.00%,F,T)



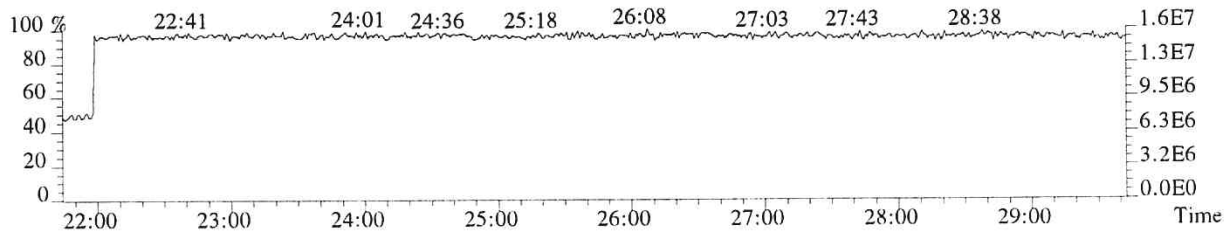
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2372.0,1.00%,F,T)



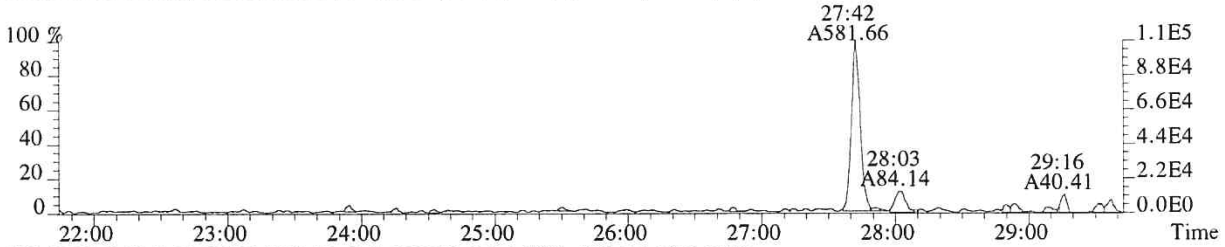
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



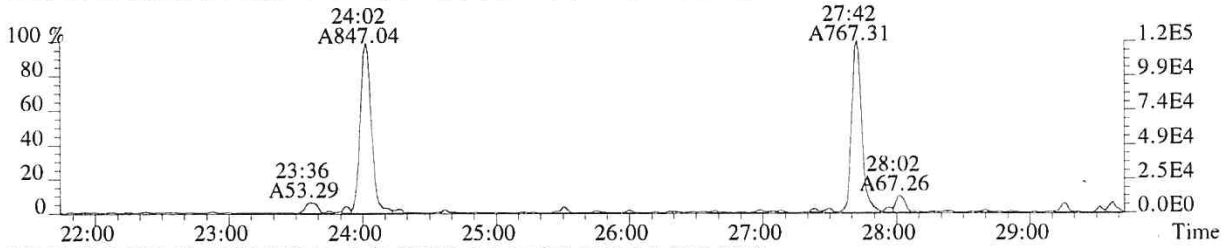
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



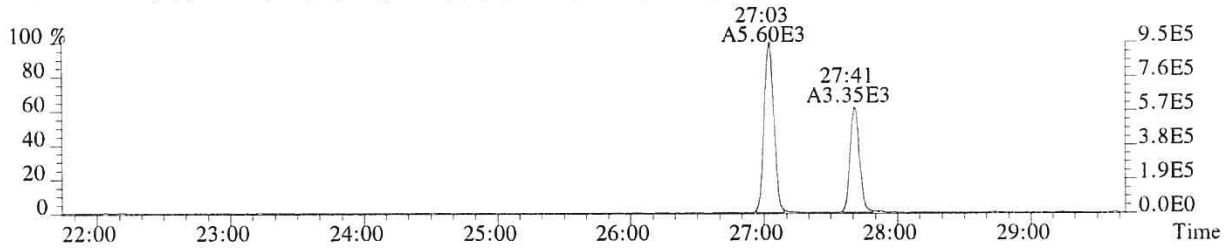
File:P519536 #1-566 Acq:21-DEC-2018 05:46:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-014DL
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1416.0,1.00%,F,T)



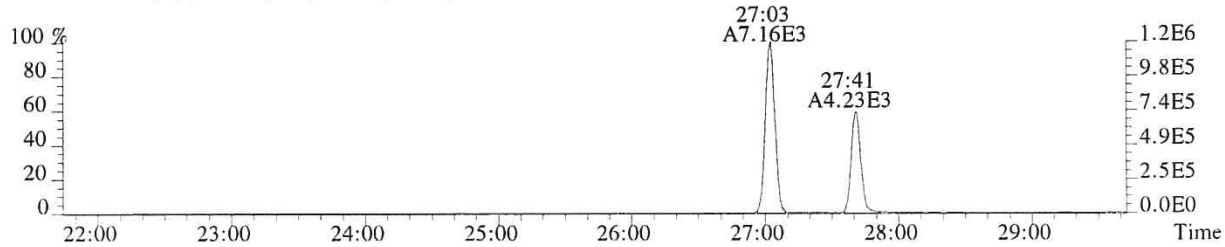
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,488.0,1.00%,F,T)



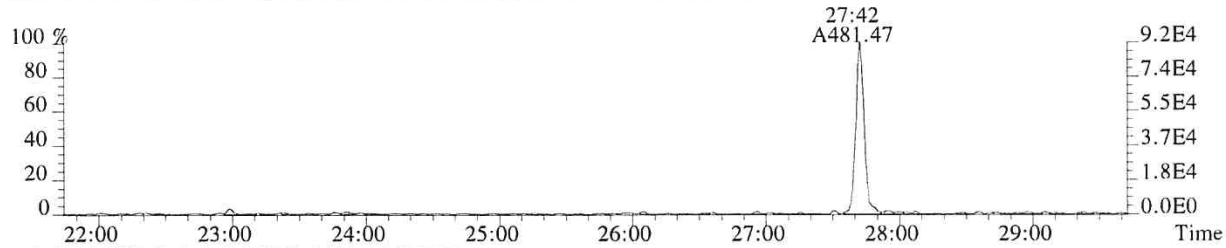
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3060.0,1.00%,F,T)



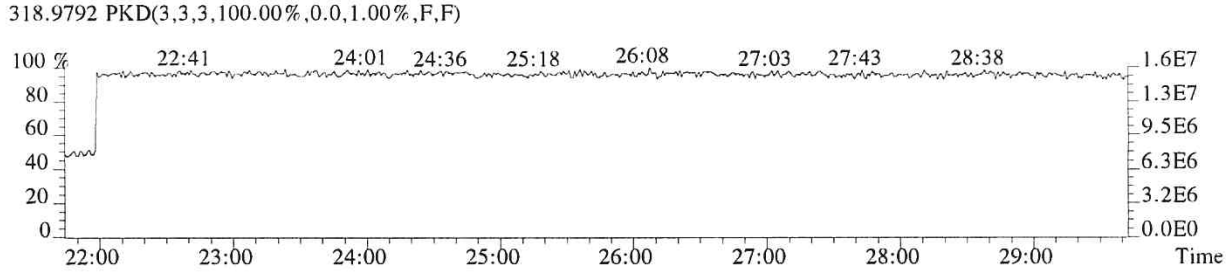
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,968.0,1.00%,F,T)



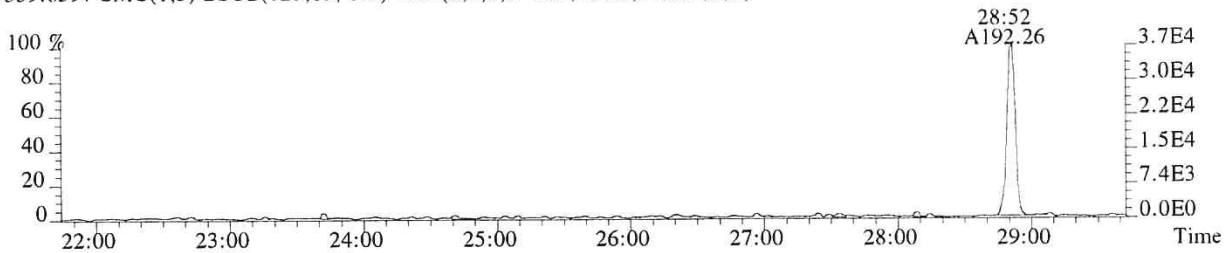
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,432.0,1.00%,F,T)



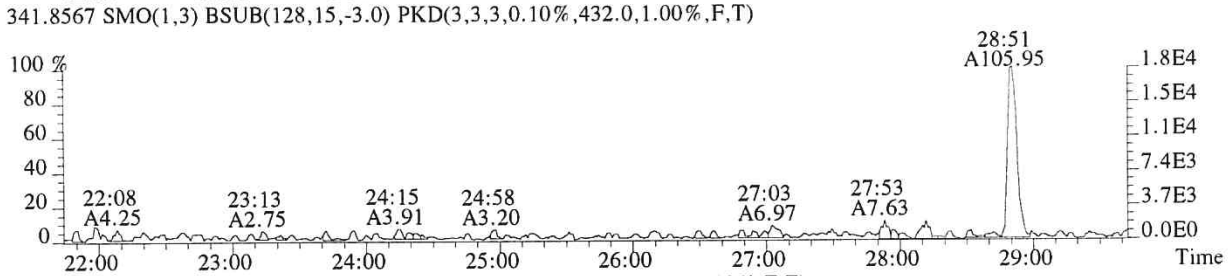
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



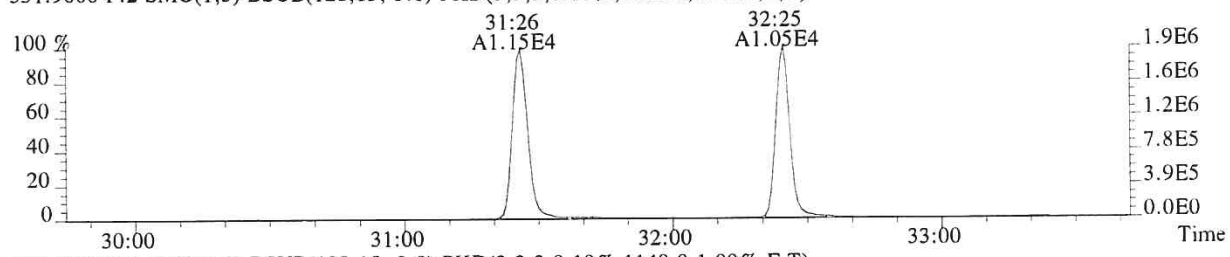
File:P519536 #1-566 Acq:21-DEC-2018 05:46:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-014DL
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,436.0,1.00%,F,T)



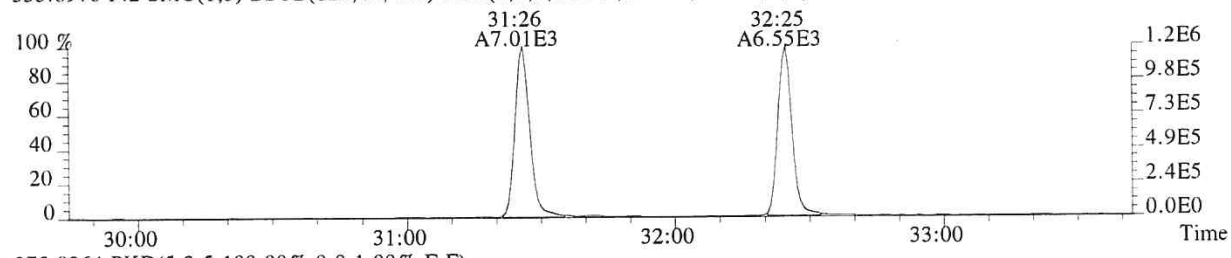
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,432.0,1.00%,F,T)



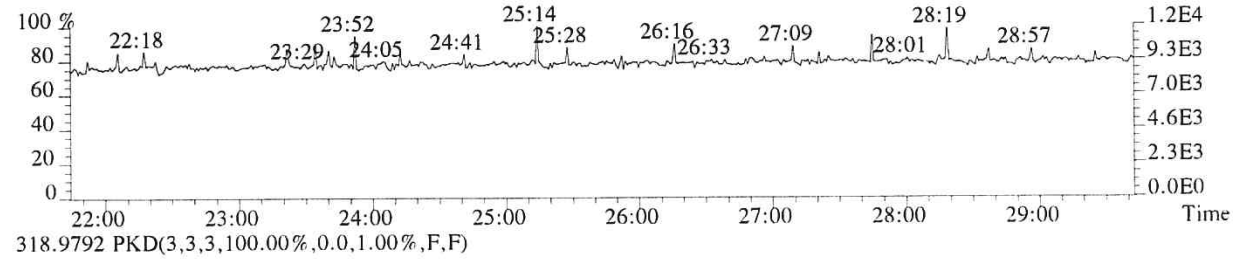
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1336.0,1.00%,F,T)



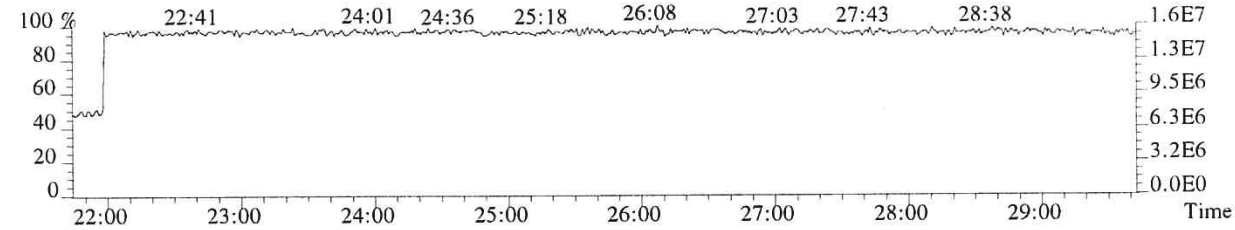
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1148.0,1.00%,F,T)



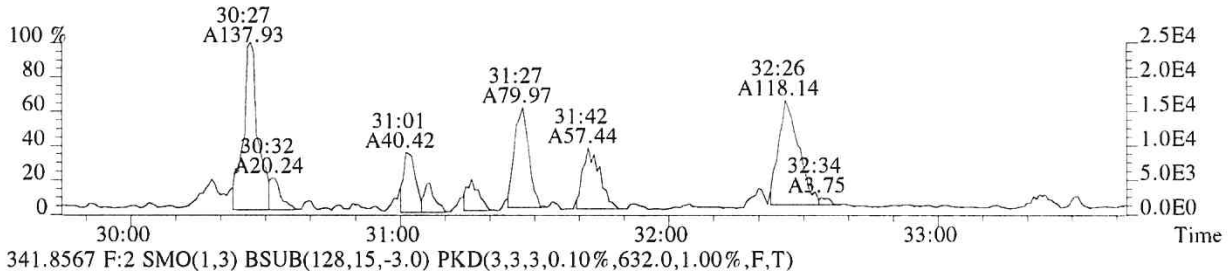
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



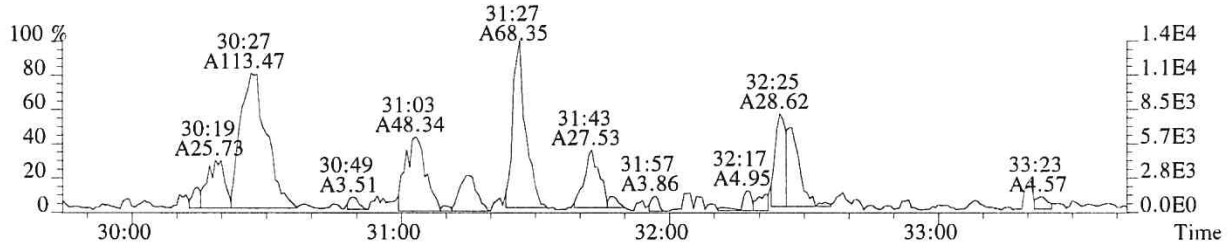
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



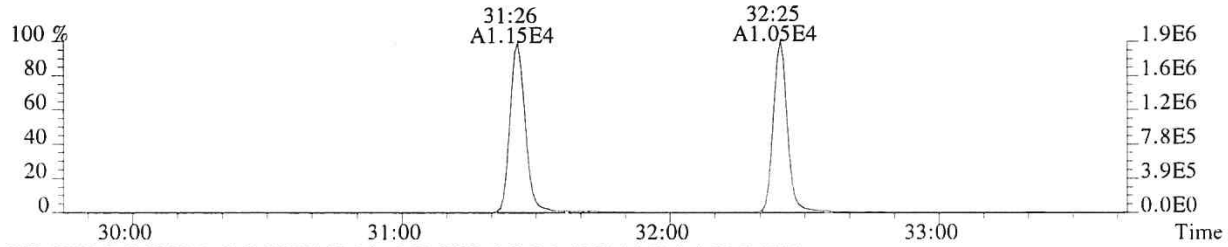
File:P519536 #1-357 Acq:21-DEC-2018 05:46:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-014DL
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1572.0,1.00%,F,T)



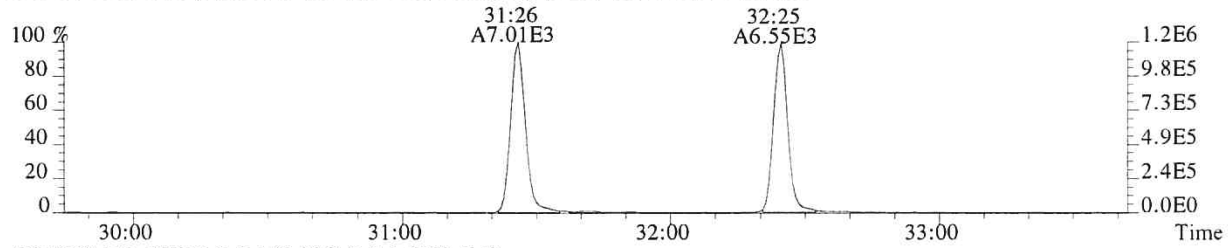
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,632.0,1.00%,F,T)



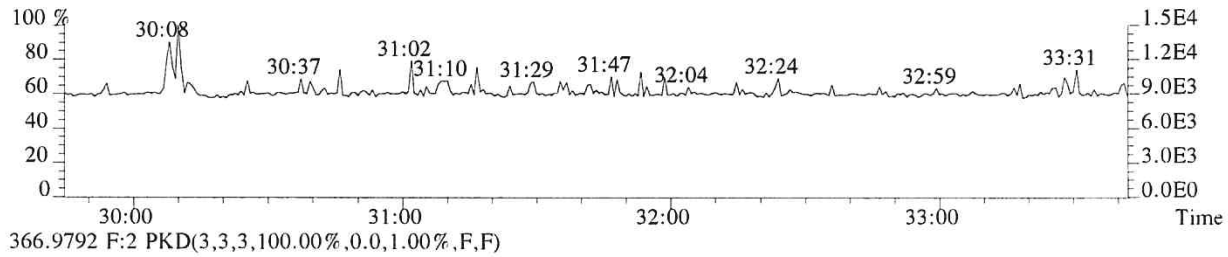
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1336.0,1.00%,F,T)



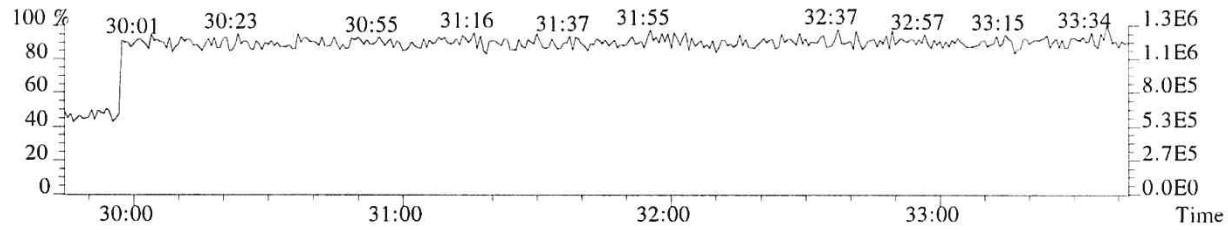
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1148.0,1.00%,F,T)



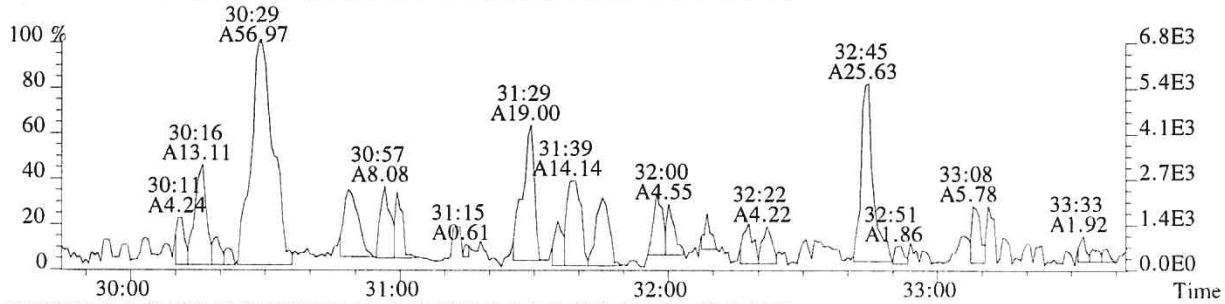
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



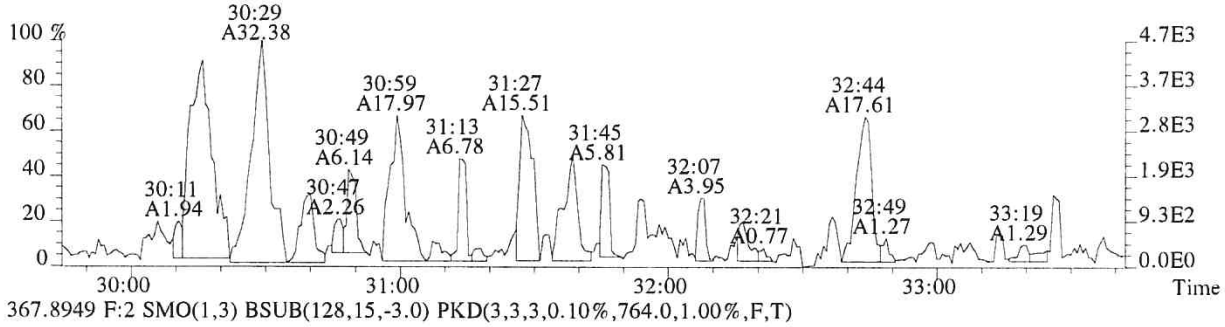
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



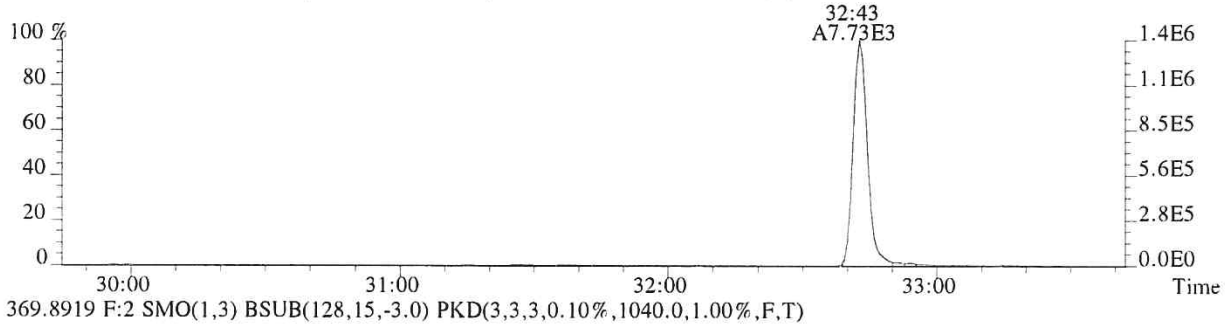
File:P519536 #1-357 Acq:21-DEC-2018 05:46:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-014DL
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,624.0,1.00%,F,T)



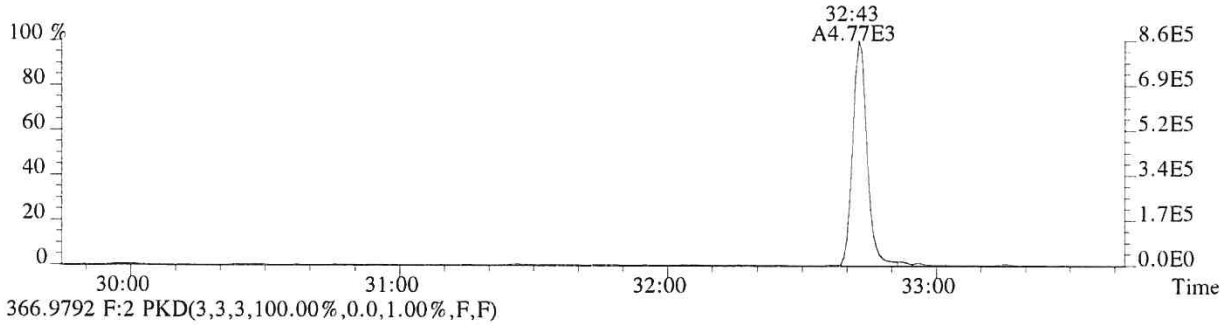
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,364.0,1.00%,F,T)



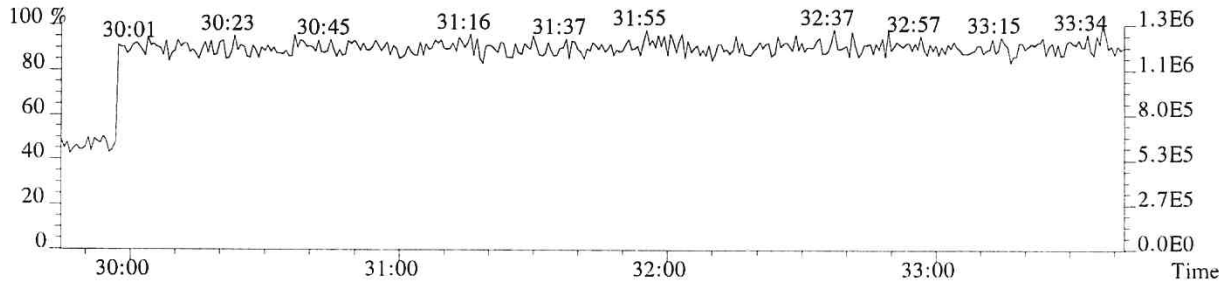
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,764.0,1.00%,F,T)



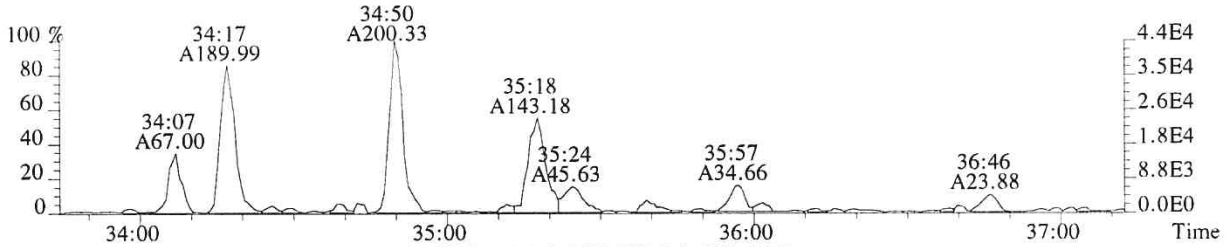
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1040.0,1.00%,F,T)



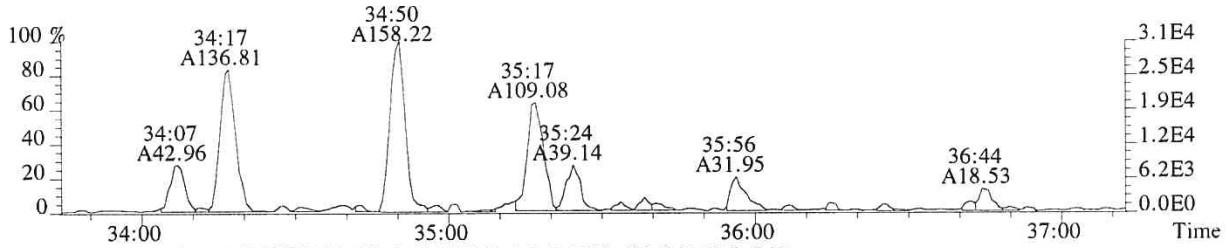
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



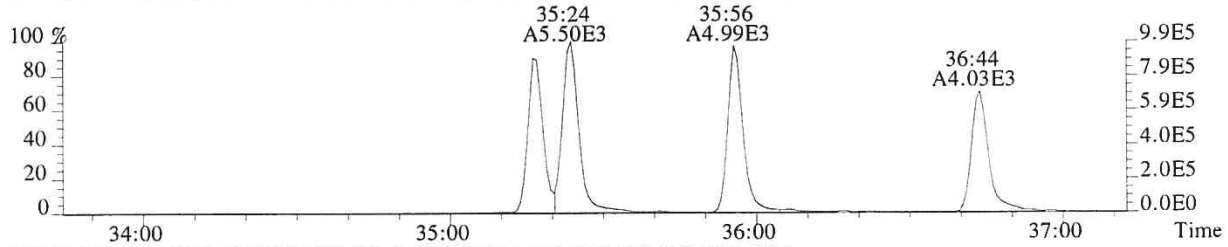
File:P519536 #1-313 Acq:21-DEC-2018 05:46:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-014DL
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,412.0,0.40%,F,T)



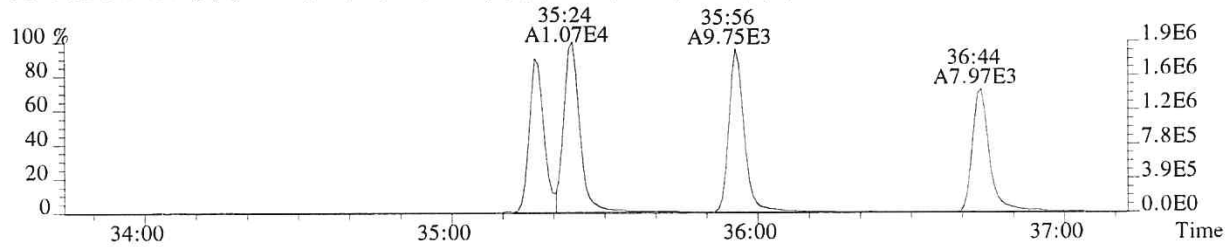
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,580.0,0.40%,F,T)



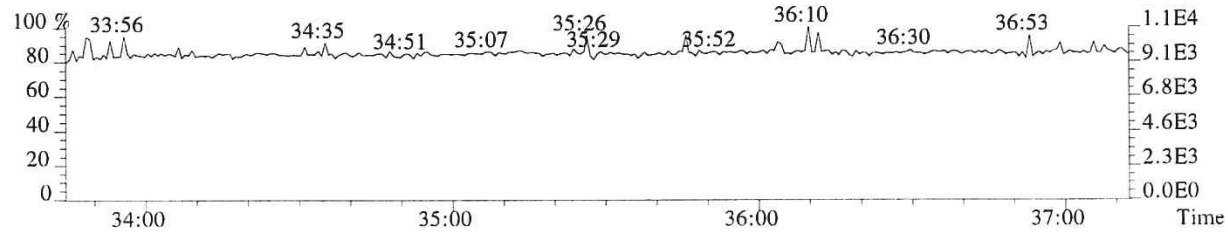
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,488.0,0.40%,F,T)



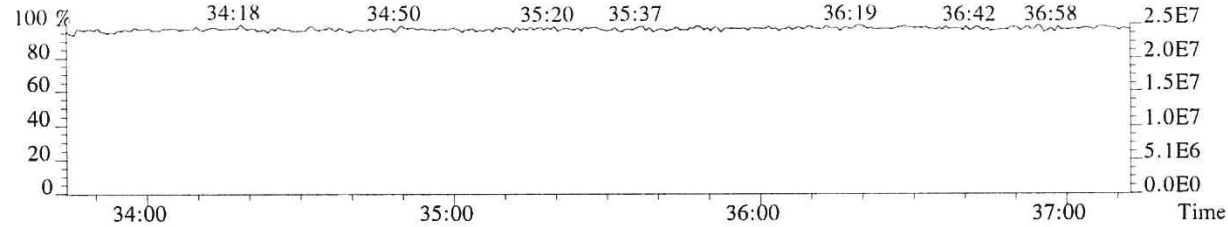
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,660.0,0.40%,F,T)



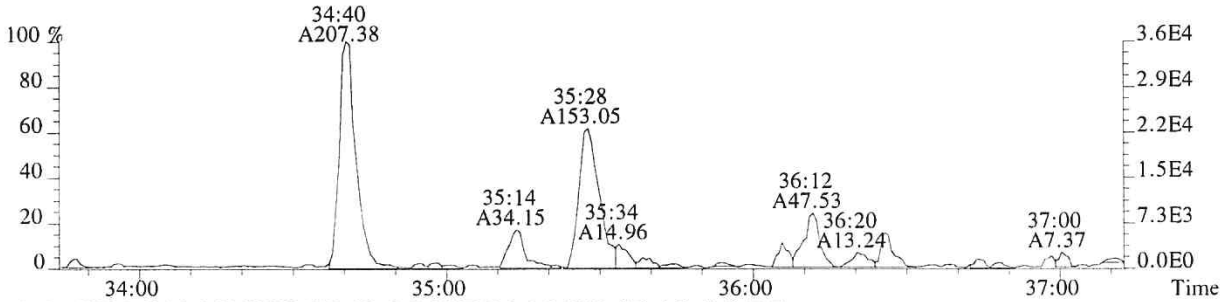
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



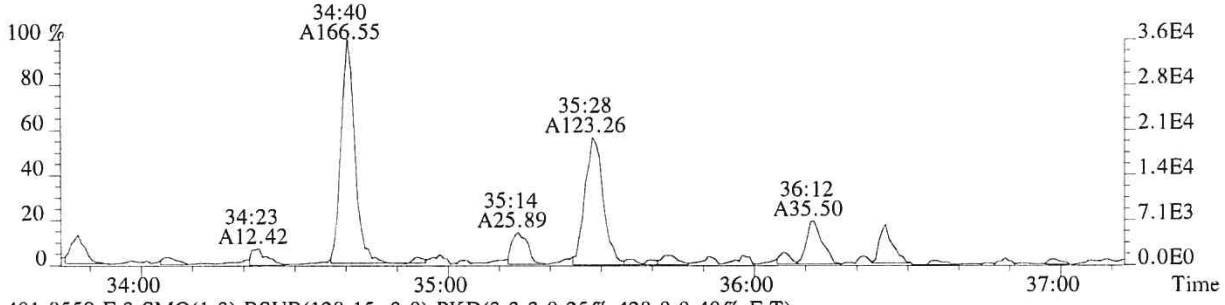
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



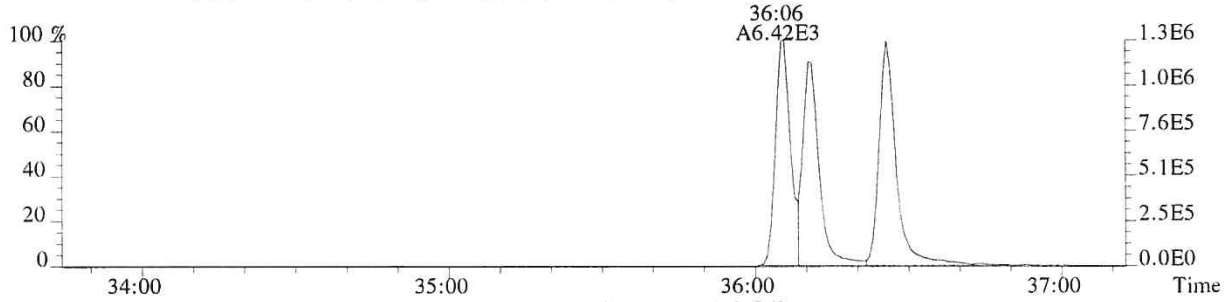
File:P519536 #1-313 Acq:21-DEC-2018 05:46:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-014DL
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,468.0,0.40%,F,T)



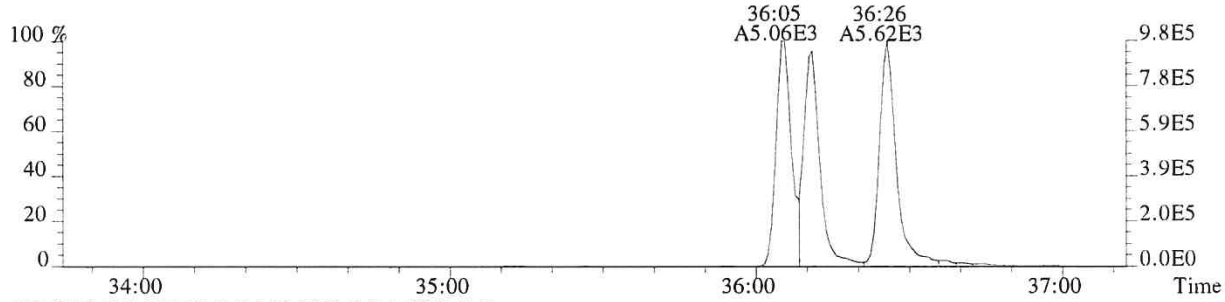
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,480.0,0.40%,F,T)



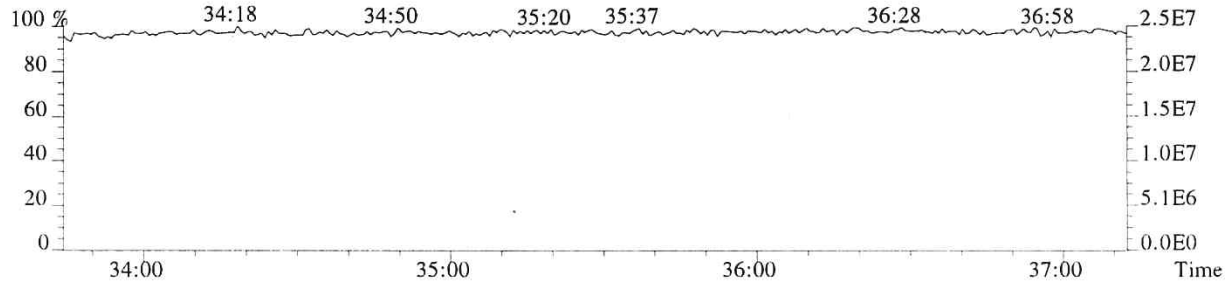
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,428.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,336.0,0.40%,F,T)

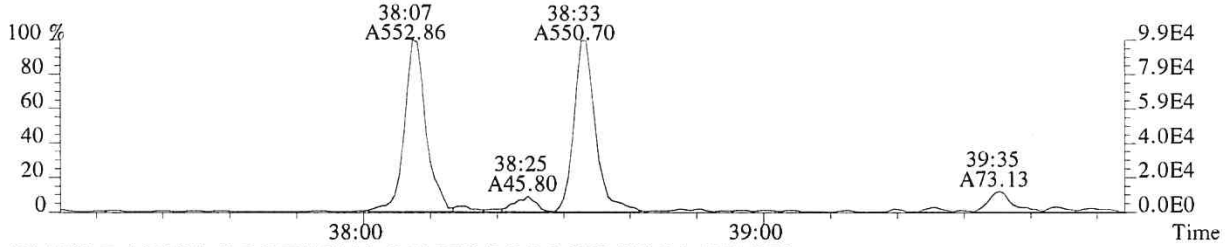


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

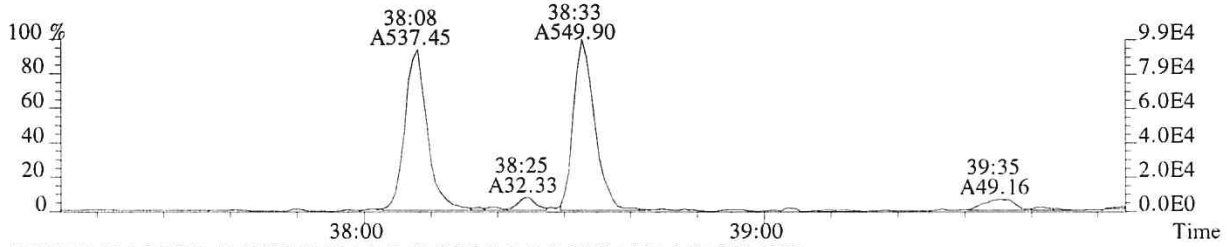


File:P519536 #1-240 Acq:21-DEC-2018 05:46:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-014DL

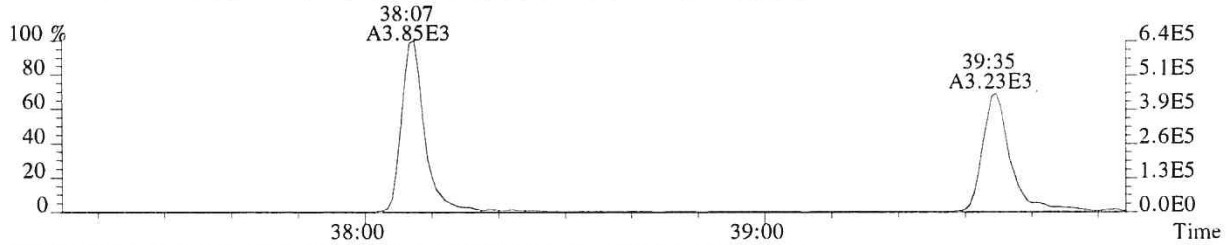
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,568.0,0.50%,F,T)



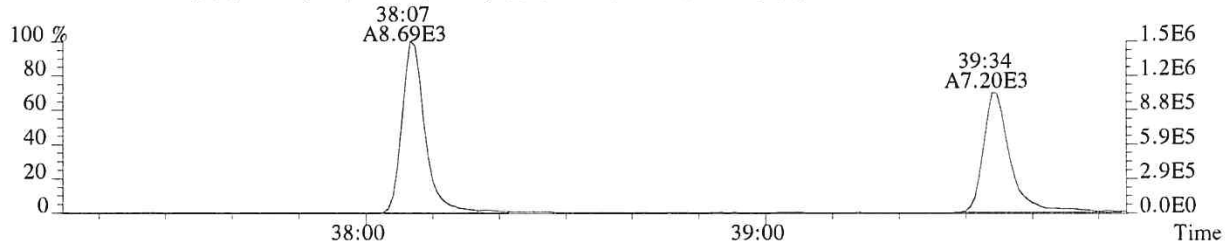
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,808.0,0.50%,F,T)



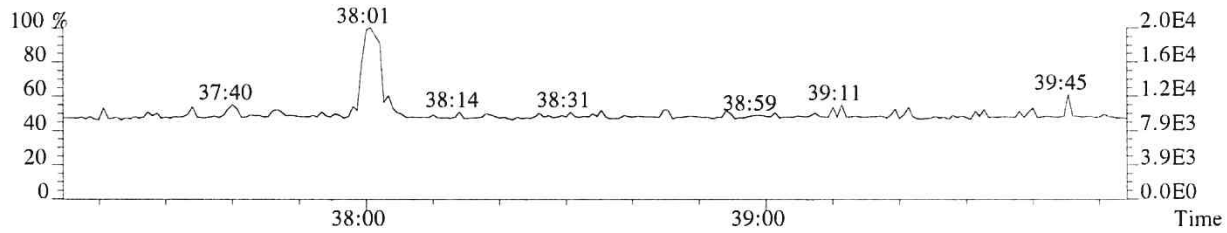
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1884.0,0.50%,F,T)



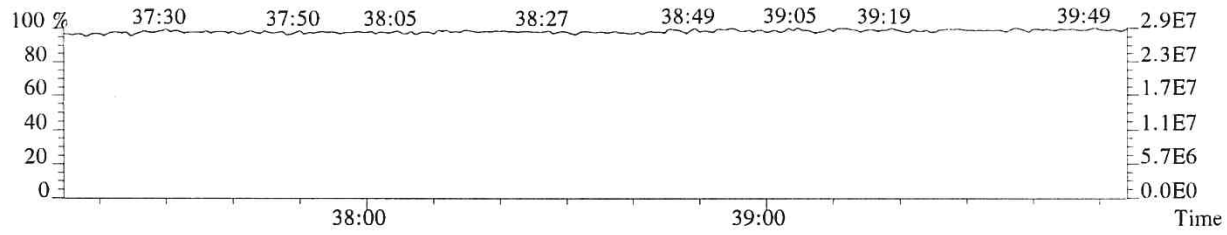
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1592.0,0.50%,F,T)



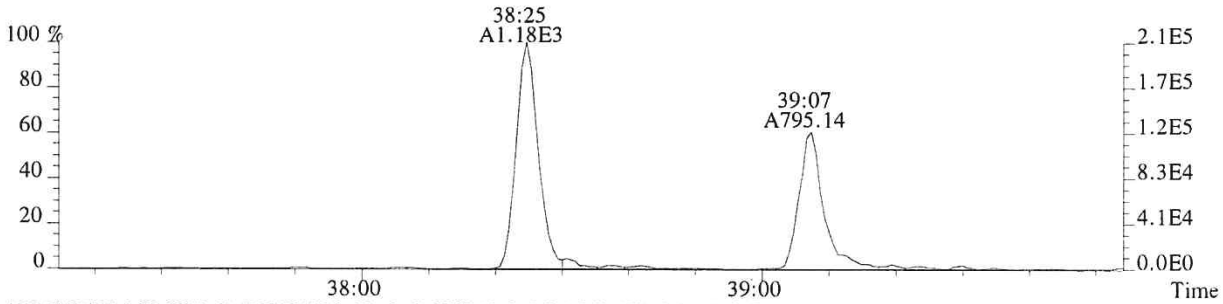
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



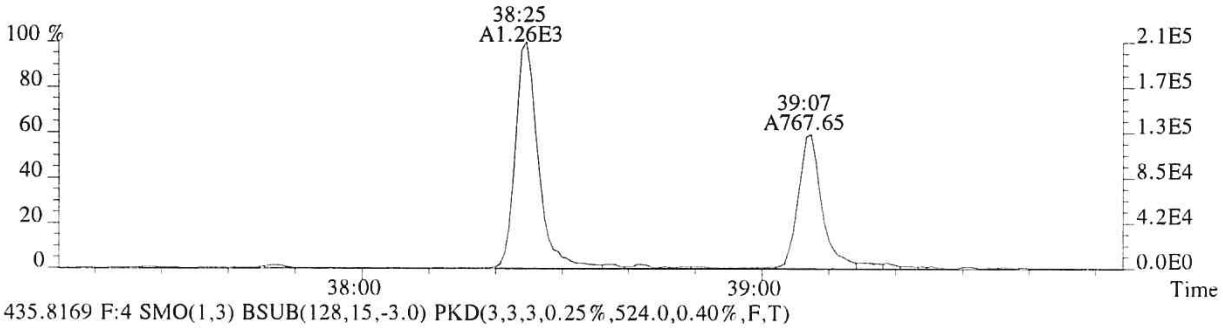
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



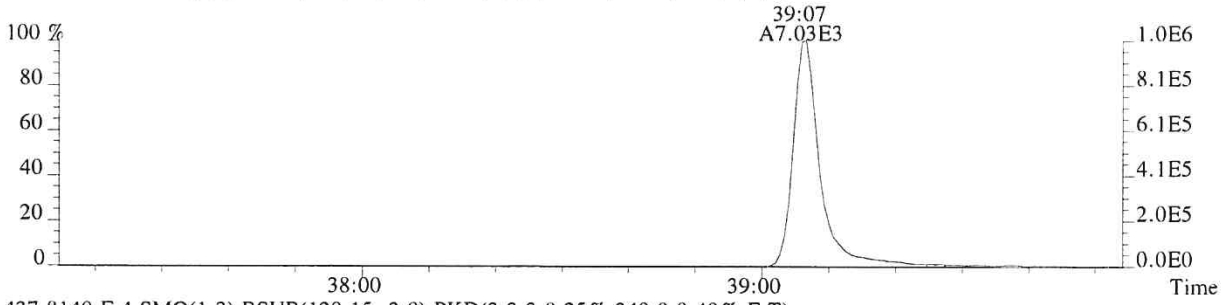
File:P519536 #1-240 Acq:21-DEC-2018 05:46:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-014DL
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,304.0,0.40%,F,T)



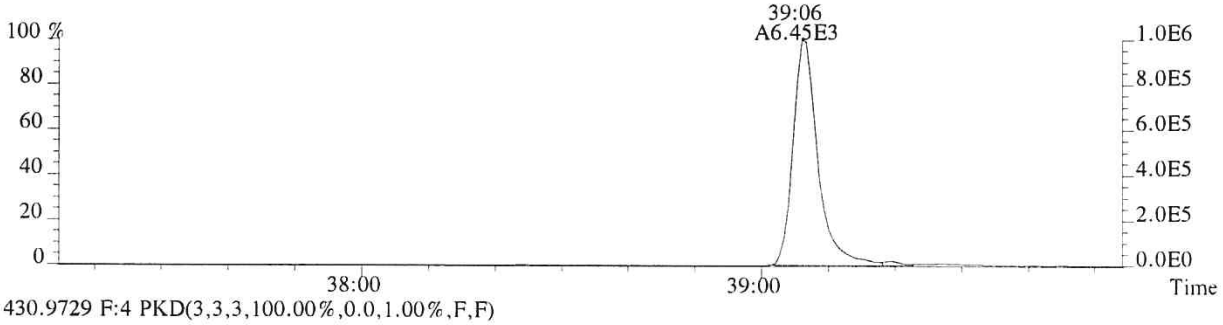
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,372.0,0.40%,F,T)



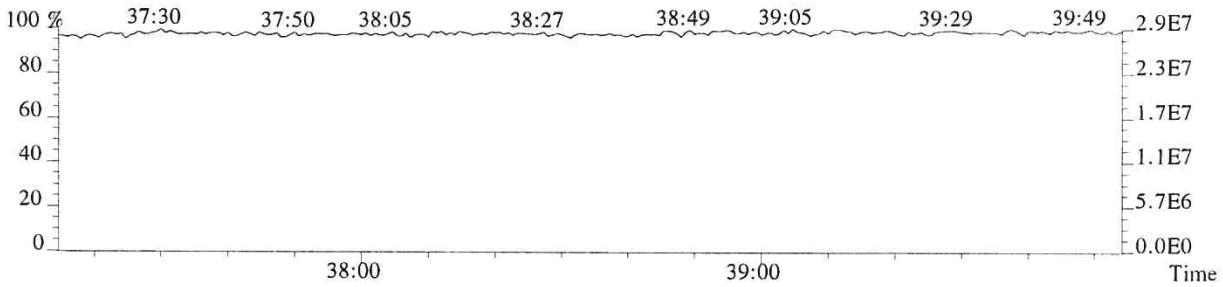
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,524.0,0.40%,F,T)



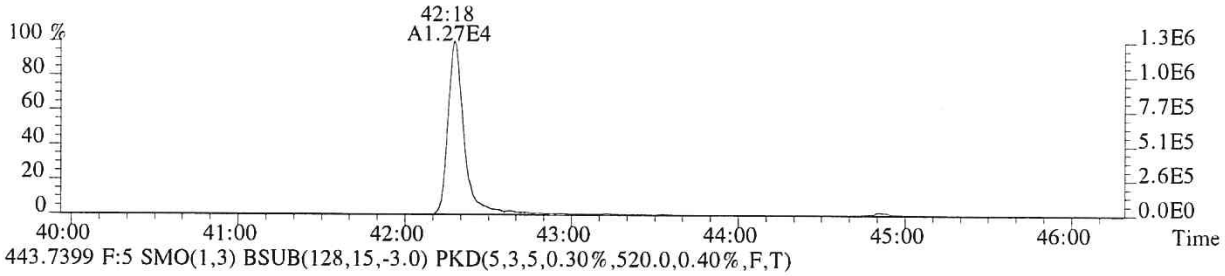
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,340.0,0.40%,F,T)



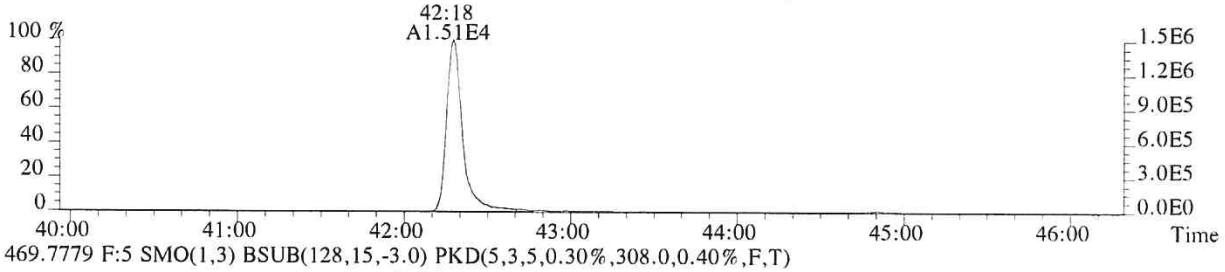
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



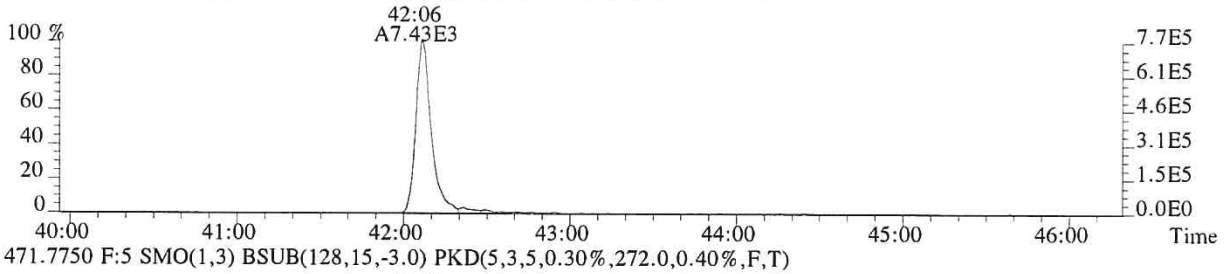
File:P519536 #1-575 Acq:21-DEC-2018 05:46:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-014DL
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,256.0,0.40%,F,T)



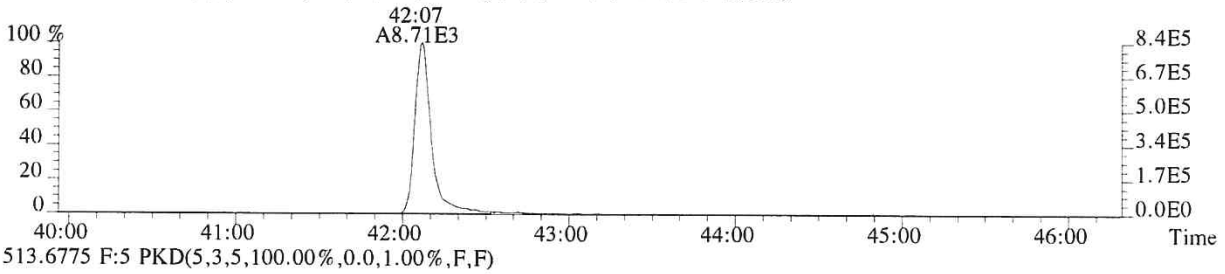
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,520.0,0.40%,F,T)



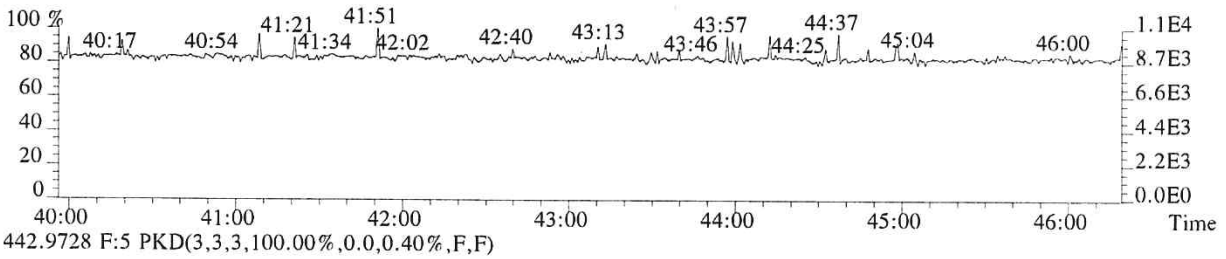
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,308.0,0.40%,F,T)



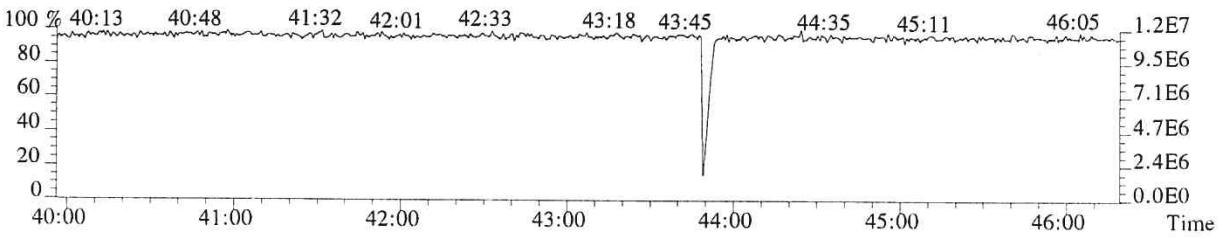
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,272.0,0.40%,F,T)



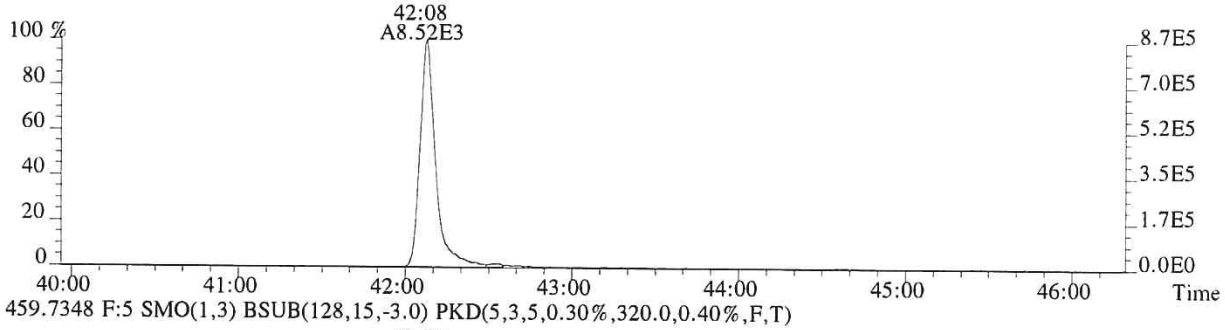
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



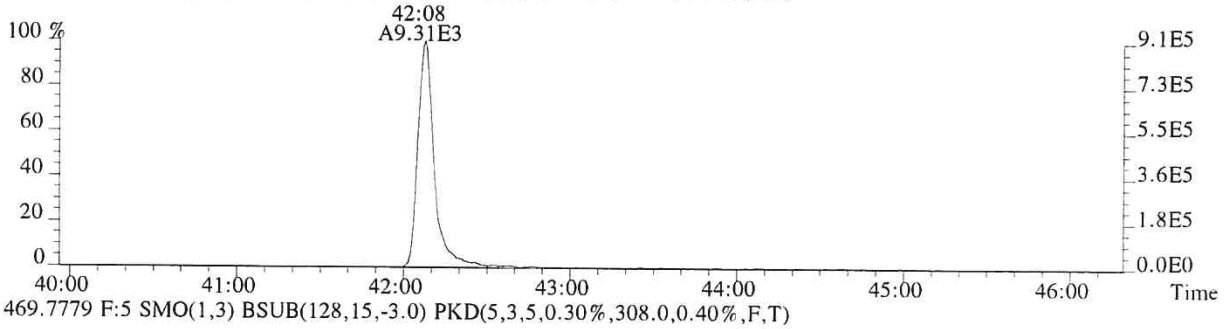
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



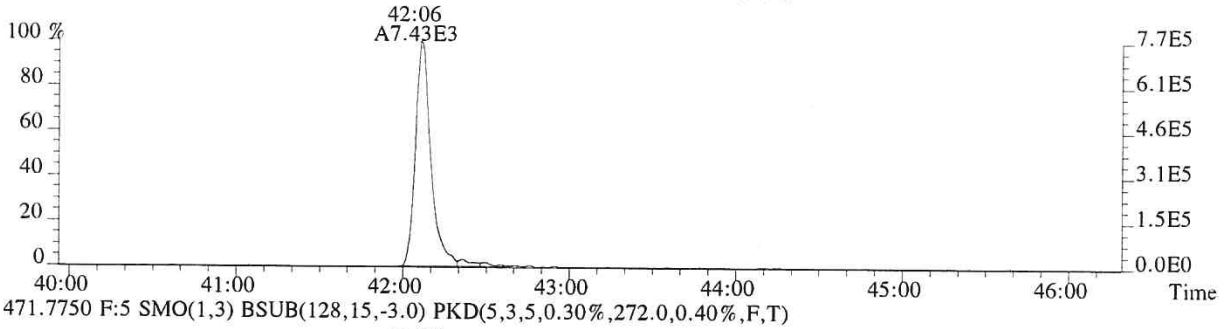
File:P519536 #1-575 Acq:21-DEC-2018 05:46:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-014DL
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,356.0,0.40%,F,T)



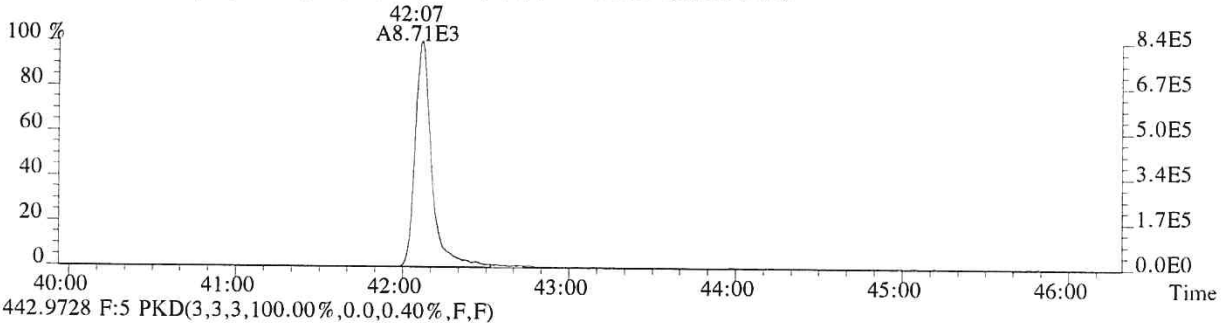
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,320.0,0.40%,F,T)



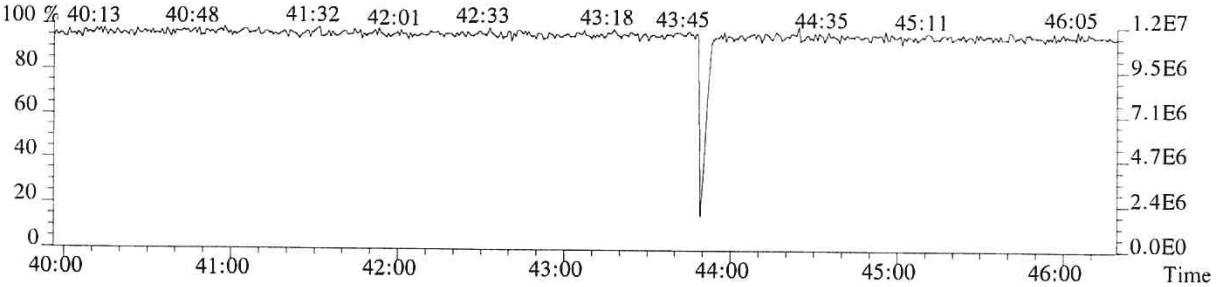
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,308.0,0.40%,F,T)



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



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



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0010

Run #14 Filename P519443 Samp: 1 Inj: 1 Acquired: 17-DEC-18 20:13:25
Processed: 19-DEC-18 09:30:08 Sample ID: E1801093-015

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:50	3.924e+04	5.150e+04	0.76	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	31:27	1.096e+03	6.844e+02	1.60	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	32:27	1.539e+03	9.272e+02	1.66	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:16	1.511e+03	1.238e+03	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:22	5.226e+02	4.197e+02	1.25	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:54	4.939e+02	3.928e+02	1.26	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	36:43	2.331e+02	1.799e+02	1.30	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:02	7.849e+03	7.855e+03	1.00	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:26	5.770e+02	5.403e+02	1.07	yes	no	1.258
10	Unk	OCDF	42:01	1.407e+05	1.592e+05	0.88	yes	no	1.359
11	Unk	2,3,7,8-TCDD	27:44	9.250e+03	1.191e+04	0.78	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	32:44	2.724e+02	1.788e+02	1.52	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:03	1.792e+02	1.203e+02	1.49	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:09	7.722e+02	6.168e+02	1.25	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:24	3.475e+02	2.867e+02	1.21	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:59	1.270e+04	1.234e+04	1.03	yes	no	1.025
17	Unk	OCDD	41:50	1.002e+05	1.124e+05	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	26:49	1.639e+04	2.031e+04	0.81	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	31:27	2.699e+04	1.676e+04	1.61	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	32:25	2.410e+04	1.520e+04	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:15	1.088e+04	2.068e+04	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:22	1.192e+04	2.289e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:54	1.090e+04	2.130e+04	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	36:40	1.001e+04	1.942e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:01	6.563e+03	1.497e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:25	5.615e+03	1.264e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	27:42	7.946e+03	9.974e+03	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:43	1.864e+04	1.191e+04	1.56	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:02	1.506e+04	1.174e+04	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:08	1.445e+04	1.141e+04	1.27	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:58	1.295e+04	1.230e+04	1.05	yes	no	0.858
32	IS	13C-OCDD	41:50	8.798e+03	9.849e+03	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:05	1.653e+04	2.065e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:23	2.197e+04	1.769e+04	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:44	1.174e+04				no	1.014

$$OCDD = \frac{(1.002e+05 + 1.124e+05) \times 4000\ pg \times 1}{(8.798e+03 + 9.849e+03) \times 10.010\ g \times 71.7 / 100 \times 1.118} = 5347\ ng/kg$$

KW 12/20/18

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

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0010

Run #14 Filename P519443 Samp: 1 Inj: 1 Acquired: 17-DEC-18 20:13:25
Processed: 19-DEC-18 09:30:08 LAB. ID: E1801093-015

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.11e+06	2.70e+03	2.3e+03	8.02e+06	3.08e+03	2.6e+03
2	1,2,3,7,8-PeCDF	2.01e+05	3.68e+03	5.5e+01	1.29e+05	1.93e+03	6.7e+01
3	2,3,4,7,8-PeCDF	2.10e+05	3.68e+03	5.7e+01	1.23e+05	1.93e+03	6.4e+01
4	1,2,3,4,7,8-HxCDF	3.24e+05	4.35e+03	7.5e+01	2.54e+05	6.12e+03	4.2e+01
5	1,2,3,6,7,8-HxCDF	9.76e+04	4.35e+03	2.2e+01	8.47e+04	6.12e+03	1.4e+01
6	2,3,4,6,7,8-HxCDF	1.01e+05	4.35e+03	2.3e+01	7.99e+04	6.12e+03	1.3e+01
7	1,2,3,7,8,9-HxCDF	4.74e+04	4.35e+03	1.1e+01	3.68e+04	6.12e+03	6.0e+00
8	1,2,3,4,6,7,8-HpCDF	1.61e+06	2.13e+03	7.6e+02	1.64e+06	1.79e+03	9.2e+02
9	1,2,3,4,7,8,9-HpCDF	1.16e+05	2.13e+03	5.4e+01	1.00e+05	1.79e+03	5.6e+01
10	OCDF	2.04e+07	7.08e+02	2.9e+04	2.28e+07	7.52e+02	3.0e+04
11	2,3,7,8-TCDD	1.64e+06	2.28e+03	7.2e+02	2.10e+06	1.70e+03	1.2e+03
12	1,2,3,7,8-PeCDD	4.68e+04	2.36e+03	2.0e+01	3.31e+04	2.59e+03	1.3e+01
13	1,2,3,4,7,8-HxCDD	4.29e+04	1.41e+03	3.0e+01	3.16e+04	3.41e+03	9.3e+00
14	1,2,3,6,7,8-HxCDD	1.44e+05	1.41e+03	1.0e+02	1.24e+05	3.41e+03	3.6e+01
15	1,2,3,7,8,9-HxCDD	7.51e+04	1.41e+03	5.3e+01	6.39e+04	3.41e+03	1.9e+01
16	1,2,3,4,6,7,8-HpCDD	2.45e+06	1.14e+03	2.1e+03	2.40e+06	1.41e+03	1.7e+03
17	OCDD	1.42e+07	5.32e+02	2.7e+04	1.60e+07	1.29e+03	1.2e+04
18	13C-2,3,7,8-TCDF	2.63e+06	6.86e+03	3.8e+02	3.25e+06	6.25e+03	5.2e+02
19	13C-1,2,3,7,8-PeCDF	5.05e+06	7.43e+03	6.8e+02	3.12e+06	9.65e+03	3.2e+02
20	13C-2,3,4,7,8-PeCDF	4.55e+06	7.43e+03	6.1e+02	2.90e+06	9.65e+03	3.0e+02
21	13C-1,2,3,4,7,8-HxCDF	2.36e+06	7.36e+02	3.2e+03	4.43e+06	3.66e+03	1.2e+03
22	13C-1,2,3,6,7,8-HxCDF	2.40e+06	7.36e+02	3.3e+03	4.52e+06	3.66e+03	1.2e+03
23	13C-2,3,4,6,7,8-HxCDF	2.34e+06	7.36e+02	3.2e+03	4.47e+06	3.66e+03	1.2e+03
24	13C-1,2,3,7,8,9-HxCDF	2.10e+06	7.36e+02	2.9e+03	4.03e+06	3.66e+03	1.1e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.36e+06	2.57e+03	5.3e+02	3.12e+06	3.61e+03	8.7e+02
26	13C-1,2,3,4,7,8,9-HpCDF	1.05e+06	2.57e+03	4.1e+02	2.38e+06	3.61e+03	6.6e+02
27	13C-2,3,7,8-TCDD	1.39e+06	6.58e+03	2.1e+02	1.72e+06	5.44e+03	3.2e+02
28	13C-1,2,3,7,8-PeCDD	3.45e+06	2.14e+03	1.6e+03	2.18e+06	1.28e+03	1.7e+03
29	13C-1,2,3,4,7,8-HxCDD	3.25e+06	1.13e+03	2.9e+03	2.54e+06	9.08e+02	2.8e+03
30	13C-1,2,3,6,7,8-HxCDD	2.75e+06	1.13e+03	2.4e+03	2.23e+06	9.08e+02	2.5e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.46e+06	1.37e+03	1.8e+03	2.38e+06	7.68e+02	3.1e+03
32	13C-OCDD	1.26e+06	1.18e+03	1.1e+03	1.40e+06	3.88e+02	3.6e+03
33	13C-1,2,3,4-TCDD	2.76e+06	6.58e+03	4.2e+02	3.48e+06	5.44e+03	6.4e+02
34	13C-1,2,3,7,8,9-HxCDD	4.52e+06	1.13e+03	4.0e+03	3.56e+06	9.08e+02	3.9e+03
35	37Cl-2,3,7,8-TCDD	2.11e+06	1.15e+03	1.8e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (2.284e{+}03 + 1.704e{+}03) \times 2000}{(1.388e{+}06 + 1.720e{+}06) \times (\quad) \times 1.085} =$$

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Peak List Summary

CLIENT ID.
SL0010

Entry: 36 Totals Name: Total Tetra-Furans

Run: 14 File: P519443 Sample:1 Injection:1 Function:1

Acquired: 17-DEC-18 20:13:25 Processed: 19-DEC-18 09:30:08

Mass: 303.9020 305.8990 Tot Response: 1.56e+05 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	23:08	4.48e+02	5.75e+02	0.78	yes	1.02e+03		n	n
2	23:37	5.22e+02	7.50e+02	0.70	yes	1.27e+03		n	n
3	23:56	1.62e+03	2.30e+03	0.70	yes	3.92e+03		n	n
4	24:18	6.63e+02	8.29e+02	0.80	yes	1.49e+03		n	n
5	24:37	1.21e+03	1.53e+03	0.79	yes	2.74e+03		n	n
6	25:01	2.39e+02	2.93e+02	0.82	yes	5.32e+02		n	n
7	25:17	9.94e+02	1.31e+03	0.76	yes	2.30e+03		n	n
8	25:24	1.25e+03	1.56e+03	0.80	yes	2.81e+03		n	n
9	25:55	1.55e+04	2.05e+04	0.75	yes	3.60e+04		n	n
10	26:11	6.22e+02	9.13e+02	0.68	yes	1.53e+03		n	n
11	26:50	3.92e+04	5.15e+04	0.76	yes	9.07e+04	2,3,7,8-TCDF	n	n
12	27:13	2.67e+03	3.86e+03	0.69	yes	6.54e+03		n	n
13	28:52	2.42e+03	2.97e+03	0.82	yes	5.40e+03		n	n

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Peak List Summary

CLIENT ID.
SL0010

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 14 File: P519443 Sample:1 Injection:1 Function:1

Acquired: 17-DEC-18 20:13:25 Processed: 19-DEC-18 09:30:08

Mass: 319.8970 321.8940 Tot Response: 2.32e+04 RRF: 1.085

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	27:28	1.12e+02	1.58e+02	0.71	yes	2.69e+02		n	n
2	27:44	9.25e+03	1.19e+04	0.78	yes	2.12e+04	2,3,7,8-TCDD	n	n
3	28:03	7.44e+02	9.31e+02	0.80	yes	1.67e+03		n	n
4	28:11	5.19e+01	6.70e+01	0.77	yes	1.19e+02		n	n

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Peak List Summary

CLIENT ID.
SL0010

Entry: 38 Totals Name: Total Penta-Furans1

Run: 14 File: P519443 Sample:1 Injection:1 Function:1

Acquired: 17-DEC-18 20:13:25 Processed: 19-DEC-18 09:30:08

Mass: 339.8600 341.8570 Tot Response: 4.67e+03 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	28:52	2.88e+03	1.79e+03 1.61	yes	4.67e+03		n	n

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CLIENT ID.
SL0010

Entry: 39 Totals Name: Total Penta-Furans2

Run: 14 File: P519443 Sample:1 Injection:1 Function:2

Acquired: 17-DEC-18 20:13:25 Processed: 19-DEC-18 09:30:08

Mass: 339.8600 341.8570 Tot Response: 1.13e+04 RRF: 0.9857

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:21	3.38e+02	2.30e+02	1.47	yes	5.68e+02		n	n
2	30:29	2.24e+03	1.48e+03	1.51	yes	3.72e+03		n	n
3	30:51	5.24e+01	3.45e+01	1.52	yes	8.69e+01		n	n
4	31:03	7.55e+02	4.85e+02	1.55	yes	1.24e+03		n	n
5	31:17	2.75e+02	1.77e+02	1.56	yes	4.52e+02		n	n
6	31:27	1.10e+03	6.84e+02	1.60	yes	1.78e+03	1,2,3,7,8-PeCDF	n	n
7	31:43	5.54e+02	3.48e+02	1.59	yes	9.03e+02		n	n
8	32:27	1.54e+03	9.27e+02	1.66	yes	2.47e+03	2,3,4,7,8-PeCDF	n	n
9	33:23	8.06e+01	4.91e+01	1.64	yes	1.30e+02		n	n

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Peak List Summary

CLIENT ID.
SL0010

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 14 File: P519443 Sample:1 Injection:1 Function:2

Acquired: 17-DEC-18 20:13:25 Processed: 19-DEC-18 09:30:08

Mass: 355.8550 357.8520 Tot Response: 2.80e+03 RRF: 0.9565

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:32	6.11e+02	4.02e+02	1.52	yes	1.01e+03		n	n
2	31:29	2.51e+02	1.65e+02	1.53	yes	4.16e+02		n	n
3	31:39	1.65e+02	1.02e+02	1.62	yes	2.68e+02		n	n
4	31:45	1.39e+02	9.27e+01	1.50	yes	2.32e+02		n	n
5	31:58	2.58e+02	1.62e+02	1.59	yes	4.19e+02		n	n
6	32:44	2.72e+02	1.79e+02	1.52	yes	4.51e+02	1,2,3,7,8-PeCDD	n	n

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Entry: 41 Totals Name: Total Hexa-Furans

Run: 14 File: P519443 Sample:1 Injection:1 Function:3

Acquired: 17-DEC-18 20:13:25 Processed: 19-DEC-18 09:30:08

Mass: 373.8210 375.8180 Tot Response: 1.96e+04 RRF: 1.141

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:06	9.21e+02	7.86e+02 1.17	yes	1.71e+03		n	n
2	34:16	2.94e+03	2.51e+03 1.17	yes	5.45e+03		n	n
3	34:38	1.40e+02	1.27e+02 1.10	yes	2.67e+02		n	n
4	34:48	3.58e+03	2.98e+03 1.20	yes	6.56e+03		n	n
5	35:10	2.09e+02	1.69e+02 1.24	yes	3.78e+02		n	n
6	35:16	1.51e+03	1.24e+03 1.22	yes	2.75e+03	1,2,3,4,7,8-HxCDF	n	n
7	35:22	5.23e+02	4.20e+02 1.25	yes	9.42e+02	1,2,3,6,7,8-HxCDF	n	n
8	35:38	1.51e+02	1.17e+02 1.28	yes	2.68e+02		n	n
9	35:54	4.94e+02	3.93e+02 1.26	yes	8.87e+02	2,3,4,6,7,8-HxCDF	n	n
10	36:43	2.33e+02	1.80e+02 1.30	yes	4.13e+02	1,2,3,7,8,9-HxCDF	n	n

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SL0010

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 14 File: P519443 Sample:1 Injection:1 Function:3

Acquired: 17-DEC-18 20:13:25 Processed: 19-DEC-18 09:30:08

Mass: 389.8160 391.8130 Tot Response: 1.53e+04 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:39	3.72e+03	3.02e+03	1.23	yes	6.74e+03		n	n
2	35:12	6.14e+02	4.95e+02	1.24	yes	1.11e+03		n	n
3	35:26	2.58e+03	2.06e+03	1.26	yes	4.64e+03		n	n
4	35:33	2.61e+02	2.35e+02	1.11	yes	4.97e+02		n	n
5	36:09	7.72e+02	6.17e+02	1.25	yes	1.39e+03	1,2,3,6,7,8-HxCDD	n	n
6	36:19	1.33e+02	1.14e+02	1.16	yes	2.47e+02		n	n
7	36:24	3.48e+02	2.87e+02	1.21	yes	6.34e+02	1,2,3,7,8,9-HxCDD	n	n

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SL0010

Entry: 43 Totals Name: Total Hepta-Furans

Run: 14 File: P519443 Sample:1 Injection:1 Function:4

Acquired: 17-DEC-18 20:13:25 Processed: 19-DEC-18 09:30:08

Mass: 407.7820 409.7790 Tot Response: 3.66e+04 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:02	7.85e+03	1.00	yes	1.57e+04	1,2,3,4,6,7,8-HpCDF	n	n
2	38:26	1.01e+04	1.05	yes	1.98e+04		n	n
3	39:26	5.77e+02	1.07	yes	1.12e+03	1,2,3,4,7,8,9-HpCDF	n	n

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CLIENT ID.
SL0010

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 14 File: P519443 Sample:1 Injection:1 Function:4

Acquired: 17-DEC-18 20:13:25 Processed: 19-DEC-18 09:30:08

Mass: 423.7770 425.7740 Tot Response: 6.76e+04 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:18	2.18e+04	2.08e+04	1.05	yes	4.25e+04		n	n
2	38:59	1.27e+04	1.23e+04	1.03	yes	2.50e+04	1,2,3,4,6,7,8-HpCDD	n	n

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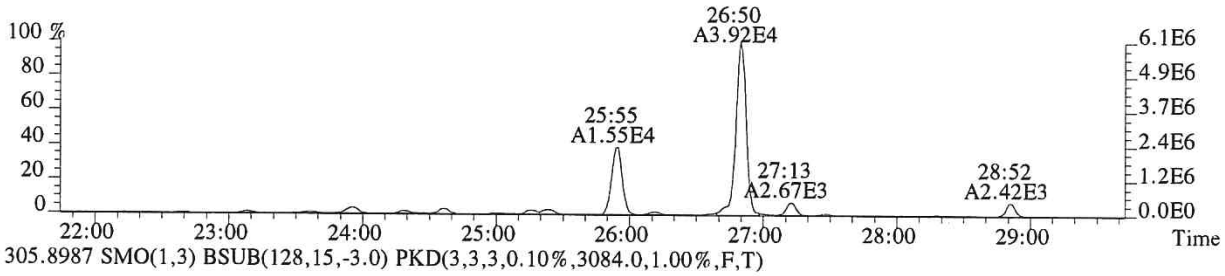
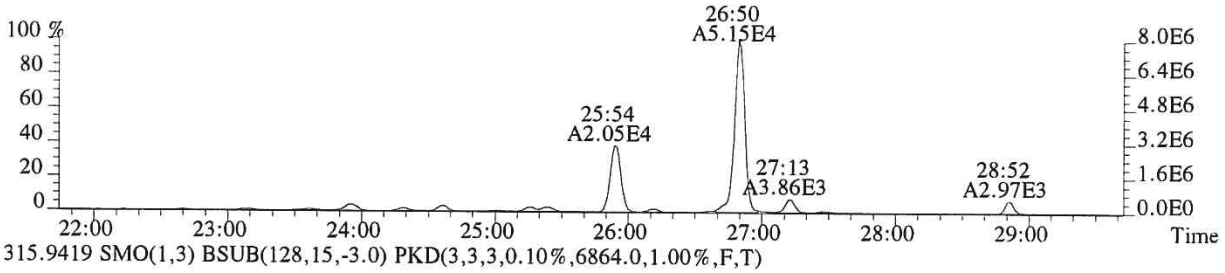
File:P519443 #1-566 Acq:17-DEC-2018 20:13:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-015

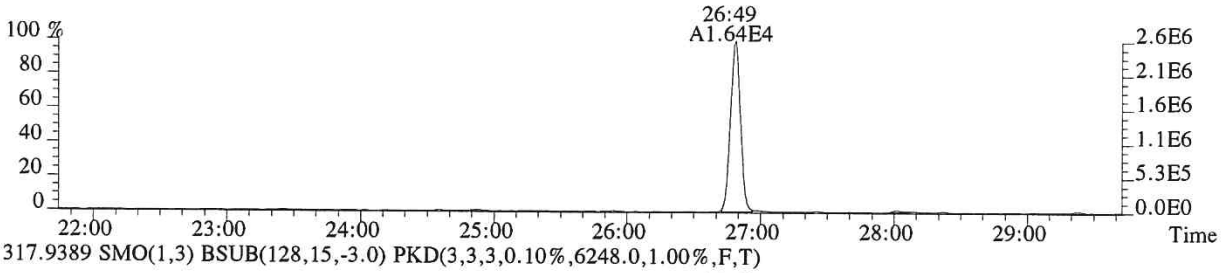
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2696.0,1.00%,F,T)



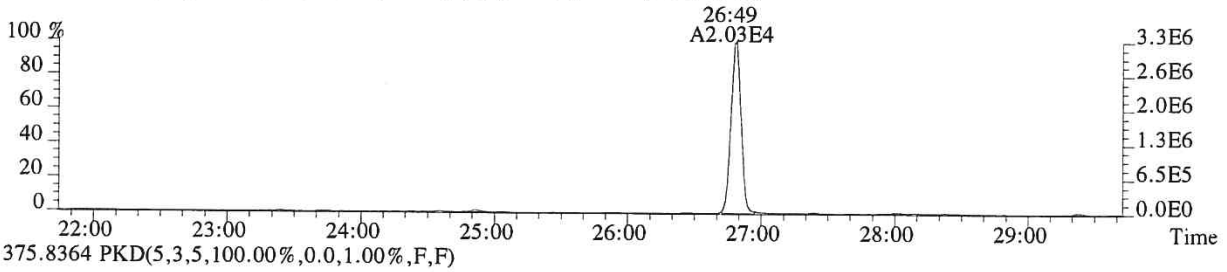
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3084.0,1.00%,F,T)



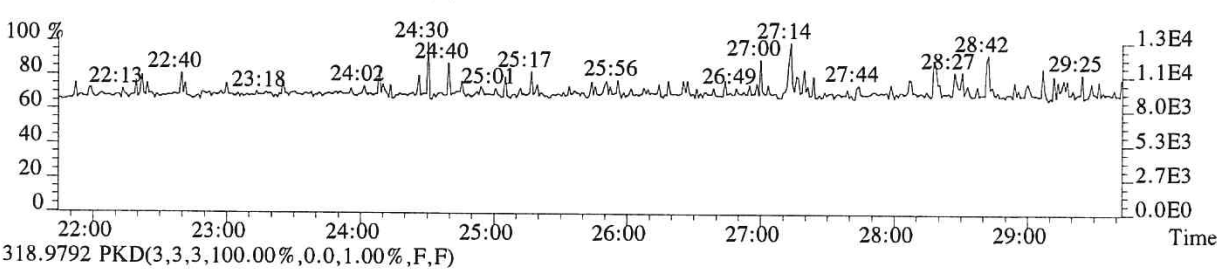
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6864.0,1.00%,F,T)



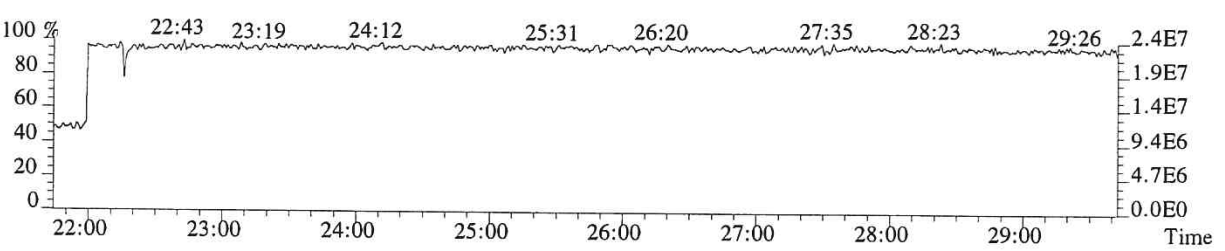
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6248.0,1.00%,F,T)



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



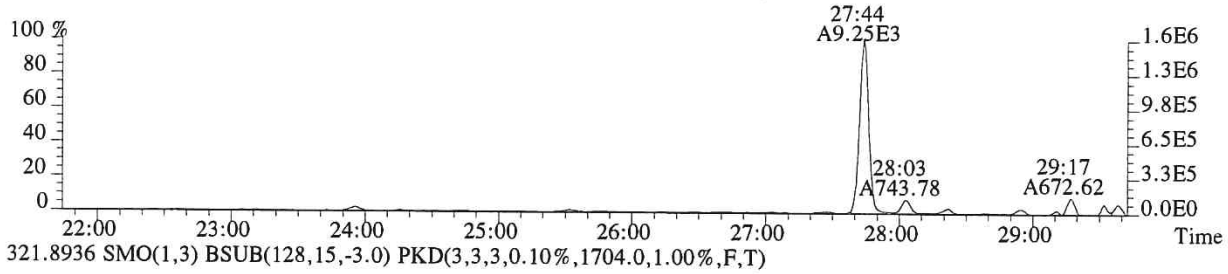
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



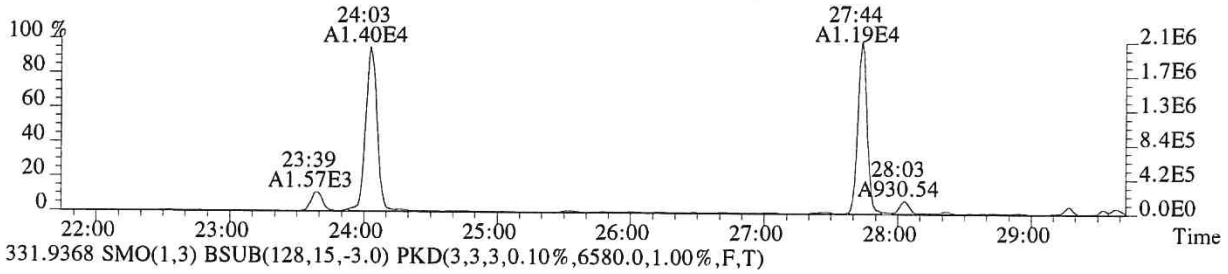
014372

File:P519443 #1-566 Acq:17-DEC-2018 20:13:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-015

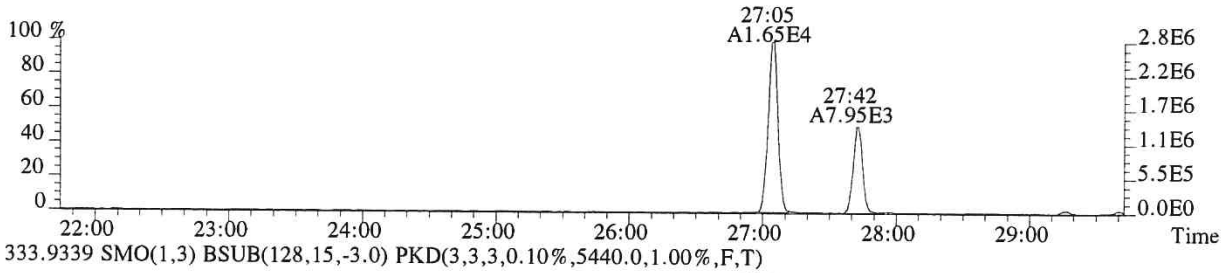
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2284.0,1.00%,F,T)



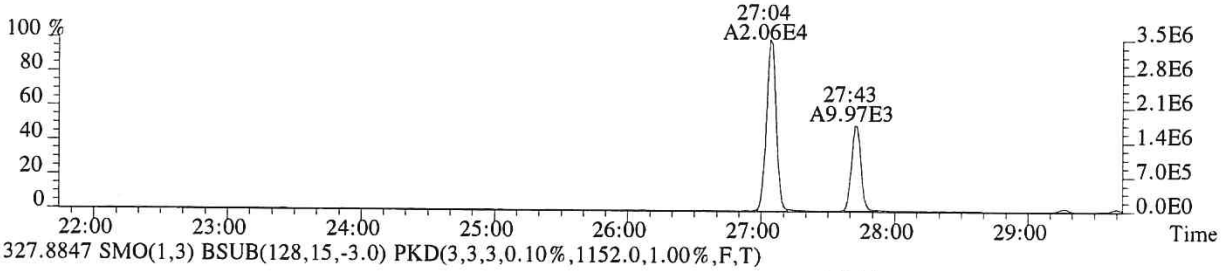
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1704.0,1.00%,F,T)



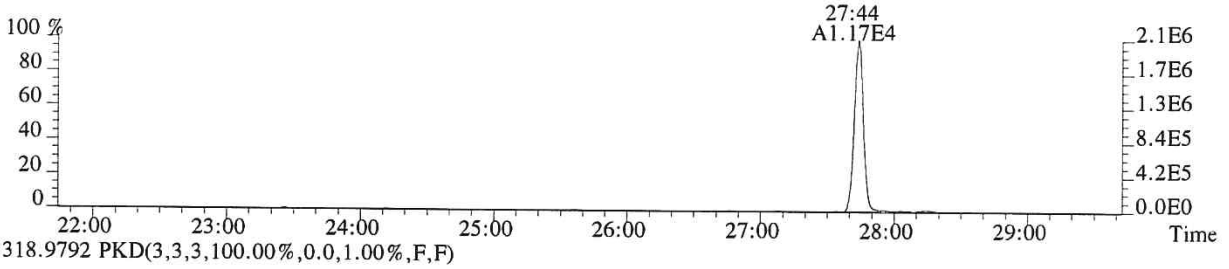
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6580.0,1.00%,F,T)



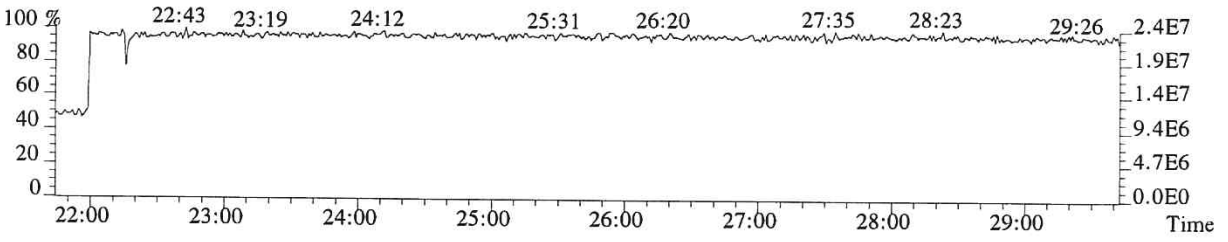
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5440.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1152.0,1.00%,F,T)

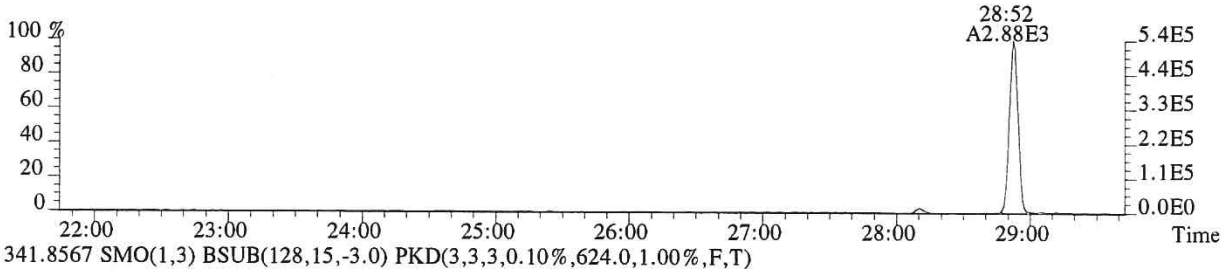


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

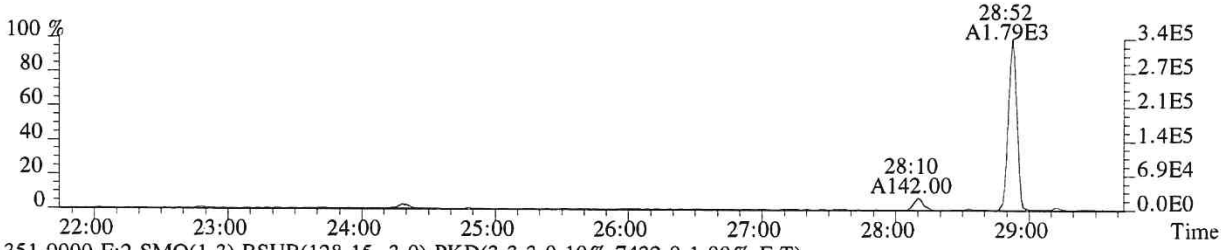


File:P519443 #1-566 Acq:17-DEC-2018 20:13:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-015

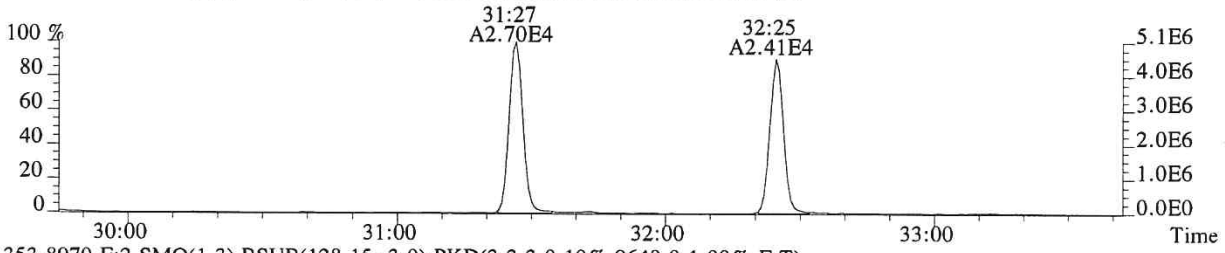
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,916.0,1.00%,F,T)



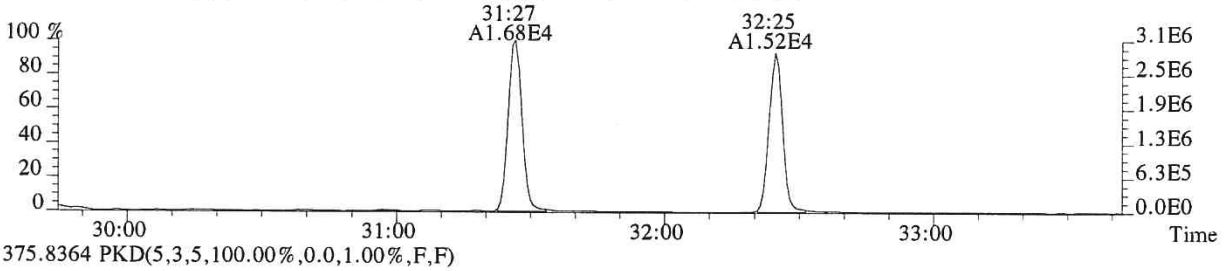
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,624.0,1.00%,F,T)



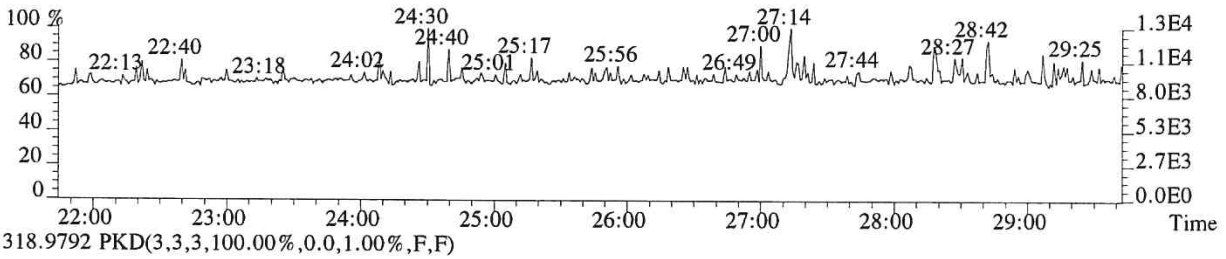
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7432.0,1.00%,F,T)



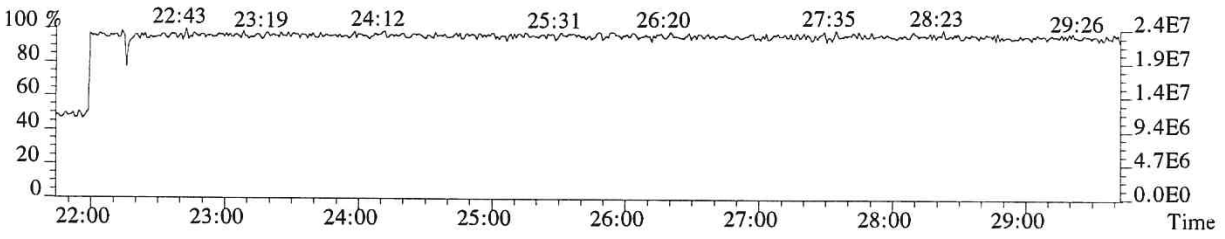
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9648.0,1.00%,F,T)



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

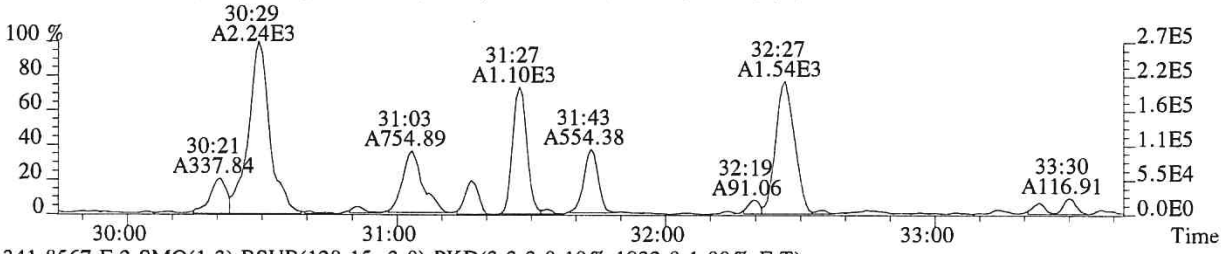


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

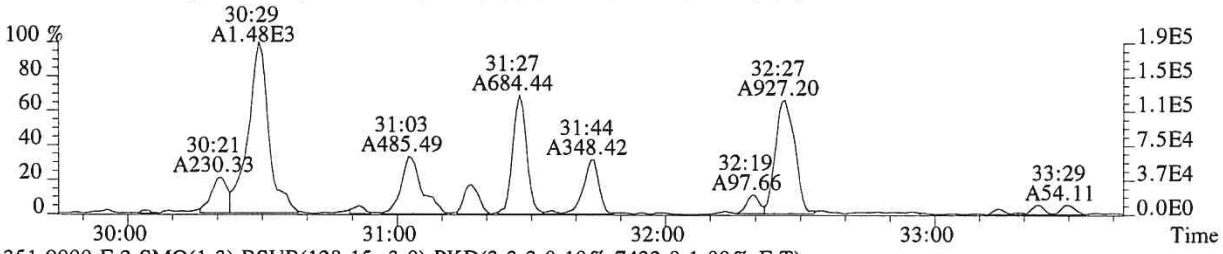


014374

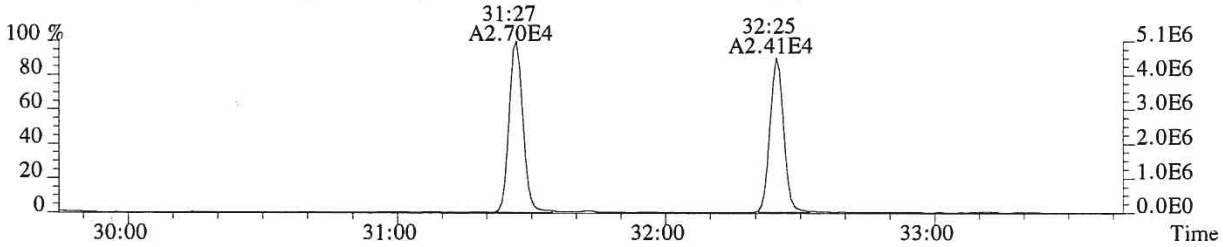
File:P519443 #1-357 Acq:17-DEC-2018 20:13:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-015
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3676.0,1.00%,F,T)



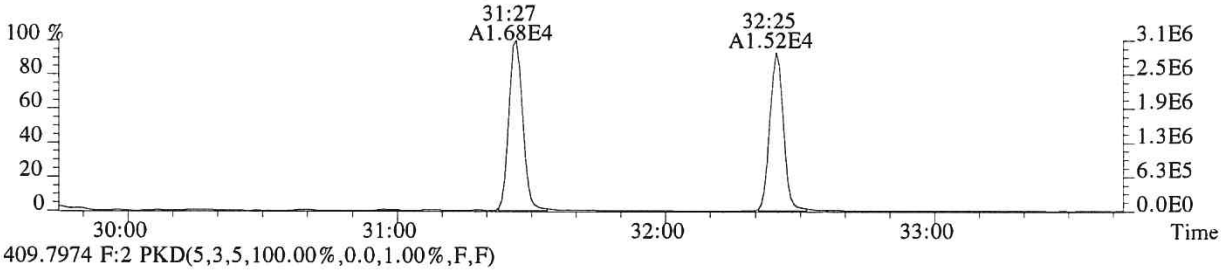
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1932.0,1.00%,F,T)



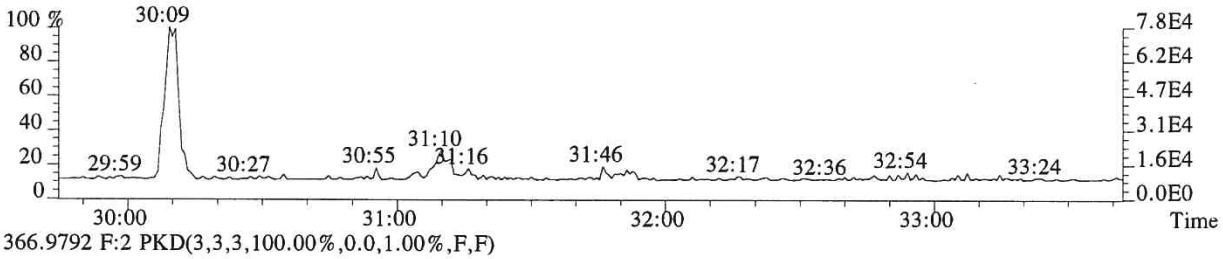
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7432.0,1.00%,F,T)



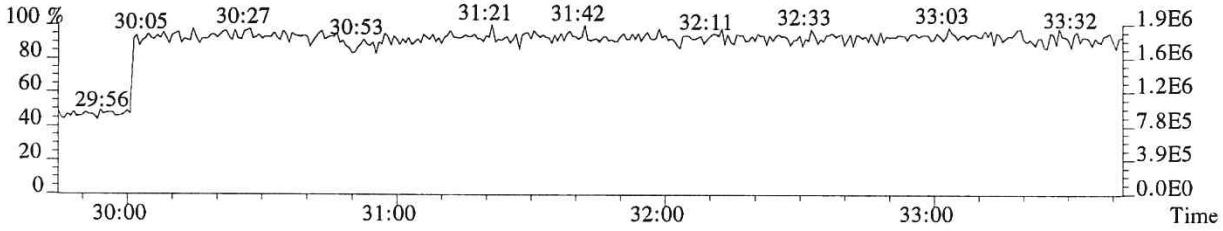
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9648.0,1.00%,F,T)



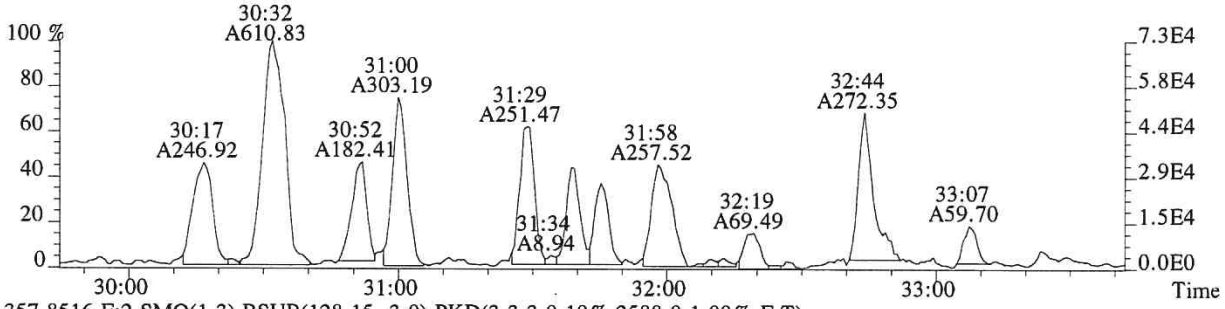
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



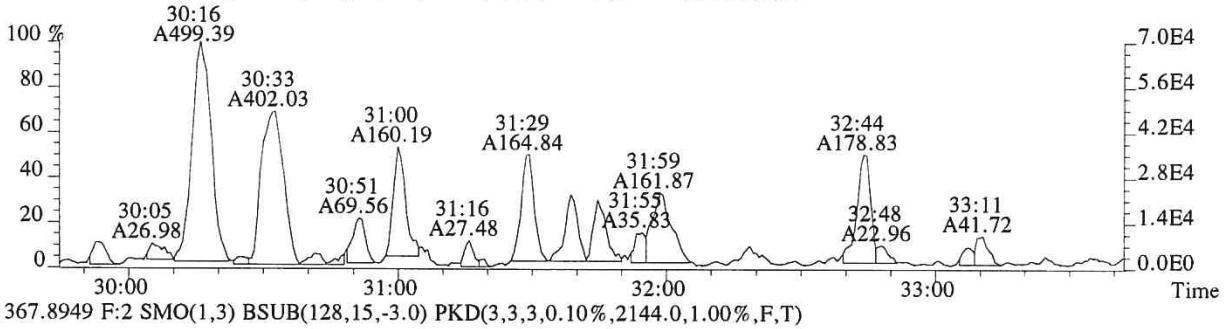
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



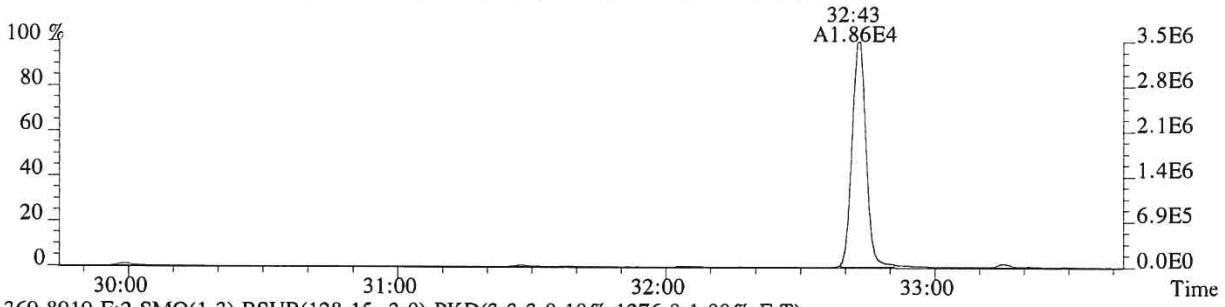
File:P519443 #1-357 Acq:17-DEC-2018 20:13:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-015
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2360.0,1.00%,F,T)



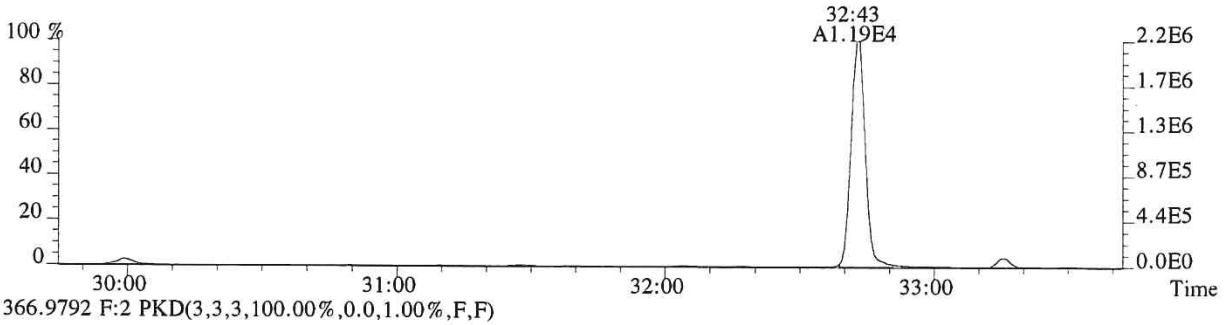
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2588.0,1.00%,F,T)



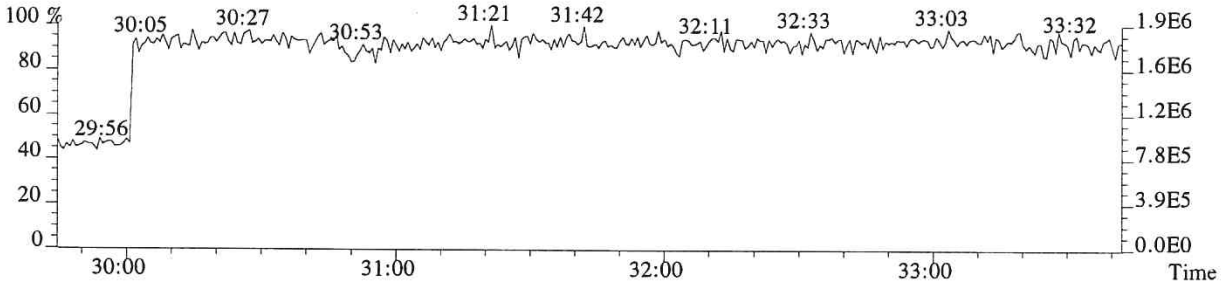
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2144.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1276.0,1.00%,F,T)

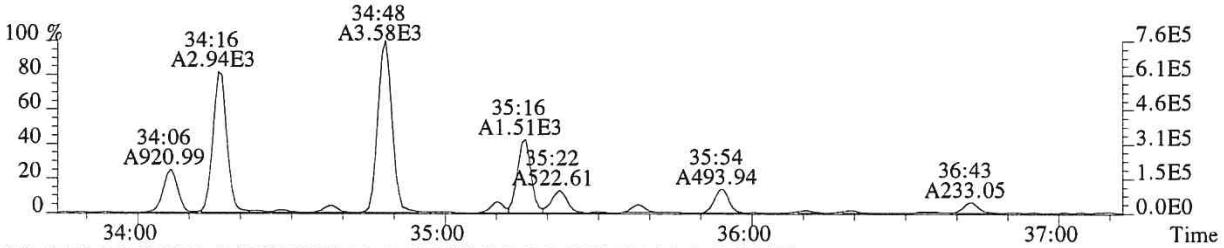


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

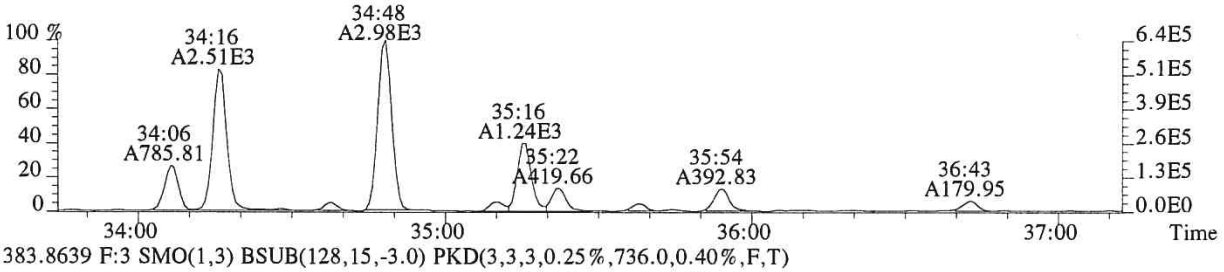


File:P519443 #1-313 Acq:17-DEC-2018 20:13:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-015

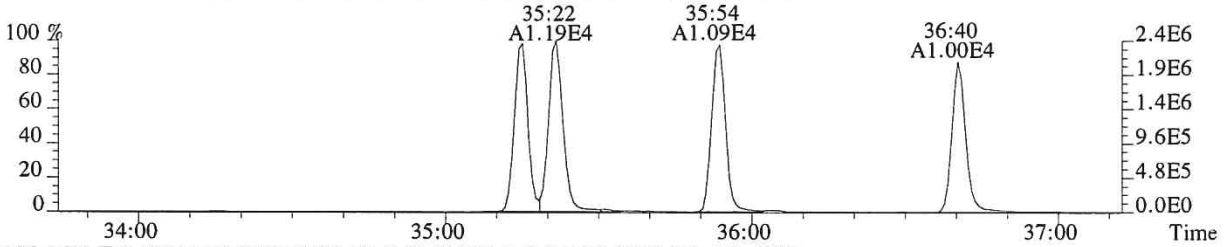
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4348.0,0.40%,F,T)



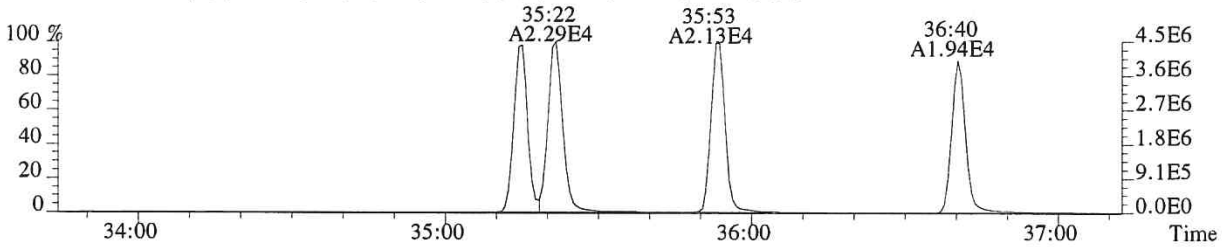
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6116.0,0.40%,F,T)



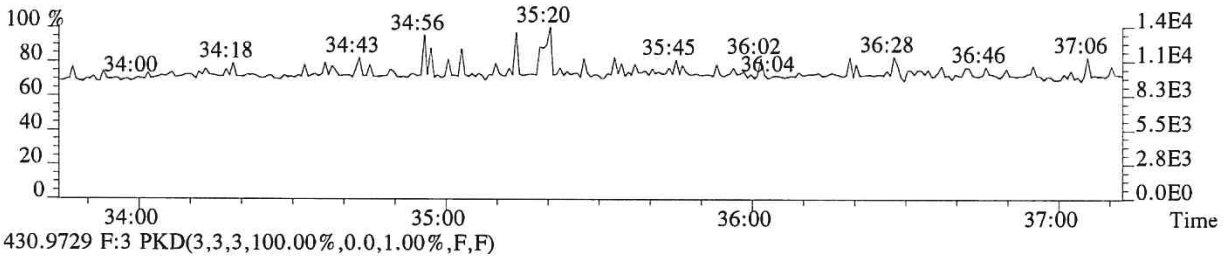
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,736.0,0.40%,F,T)



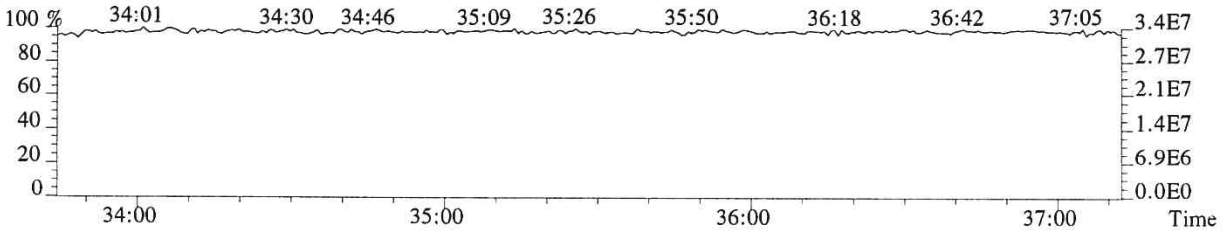
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3660.0,0.40%,F,T)



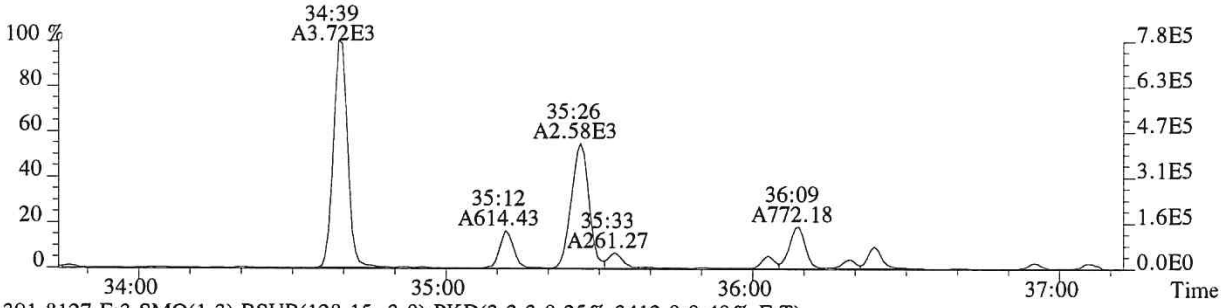
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



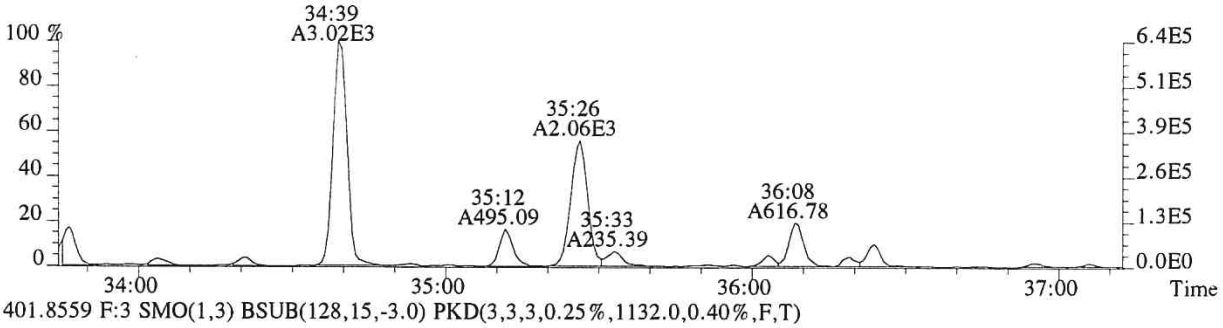
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



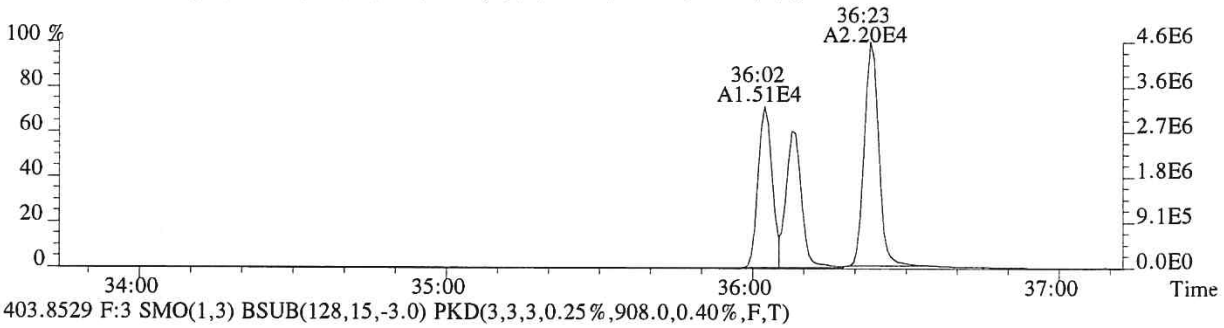
File:P519443 #1-313 Acq:17-DEC-2018 20:13:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-015
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1408.0,0.40%,F,T)



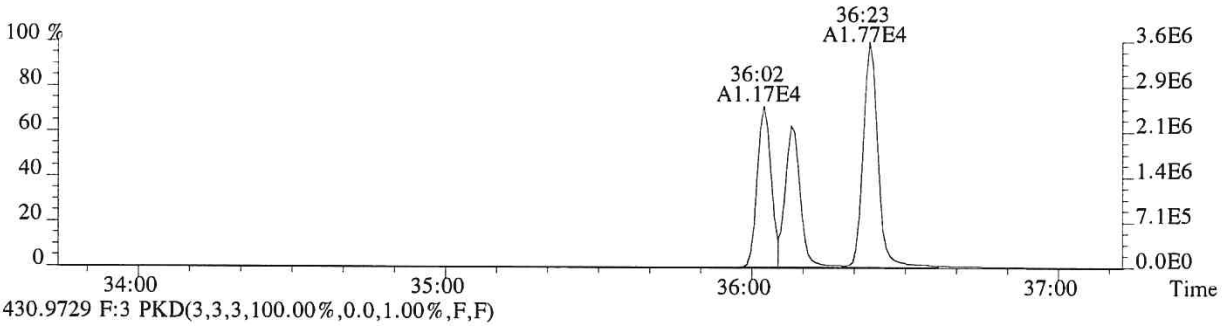
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3412.0,0.40%,F,T)



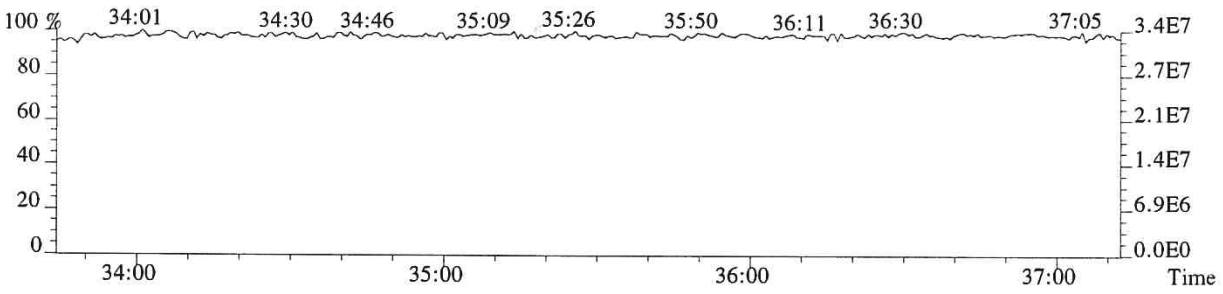
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1132.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,908.0,0.40%,F,T)

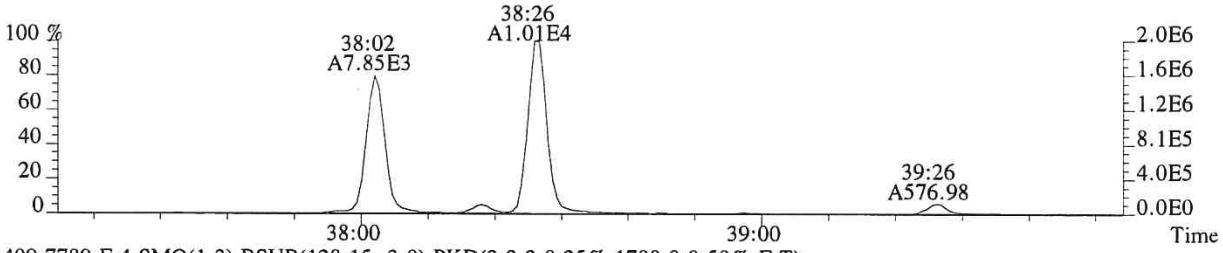


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

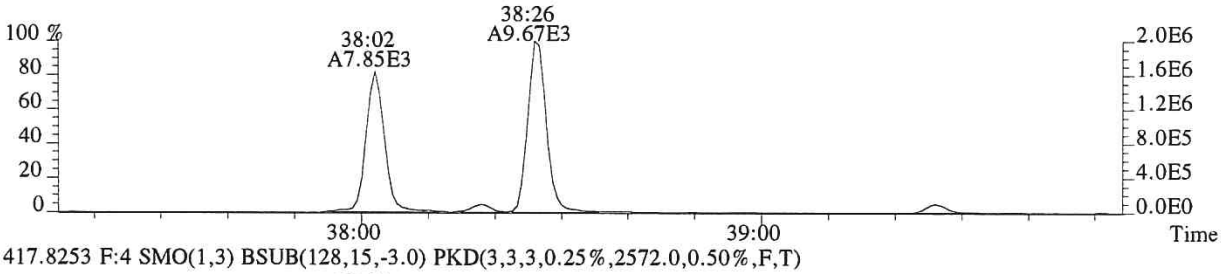


File:P519443 #1-240 Acq:17-DEC-2018 20:13:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-015

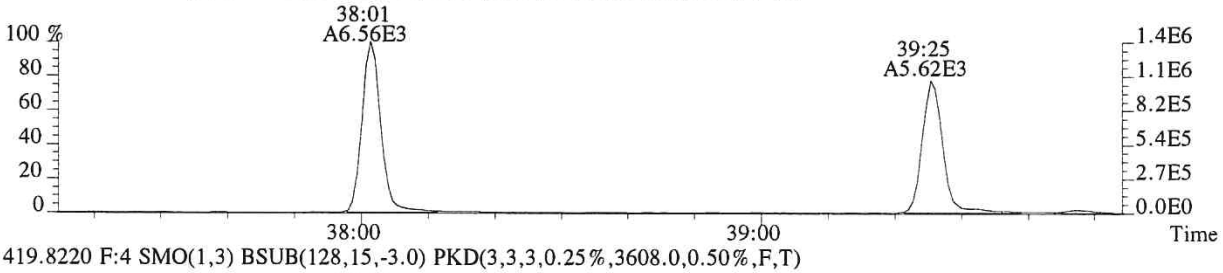
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2132.0,0.50%,F,T)



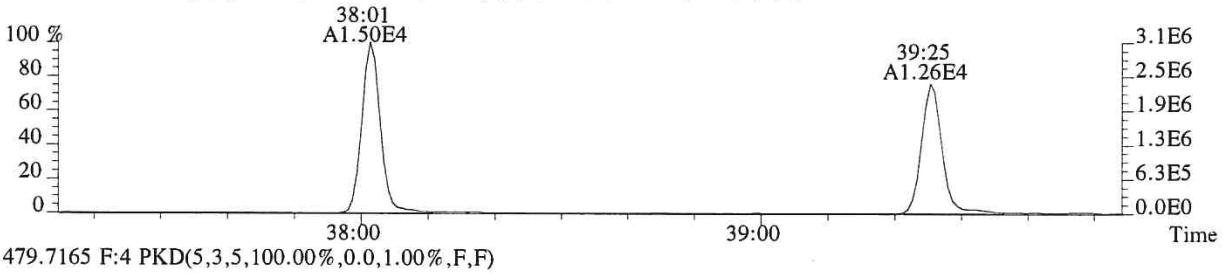
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1788.0,0.50%,F,T)



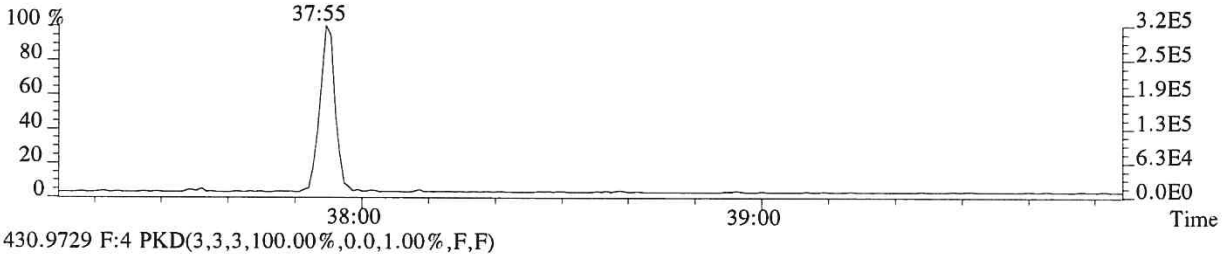
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2572.0,0.50%,F,T)



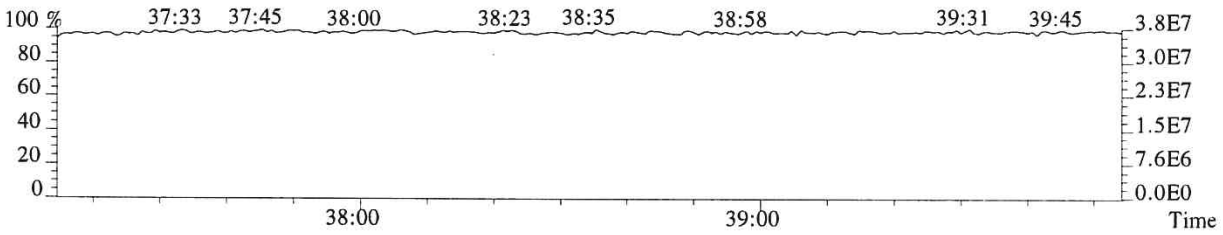
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3608.0,0.50%,F,T)



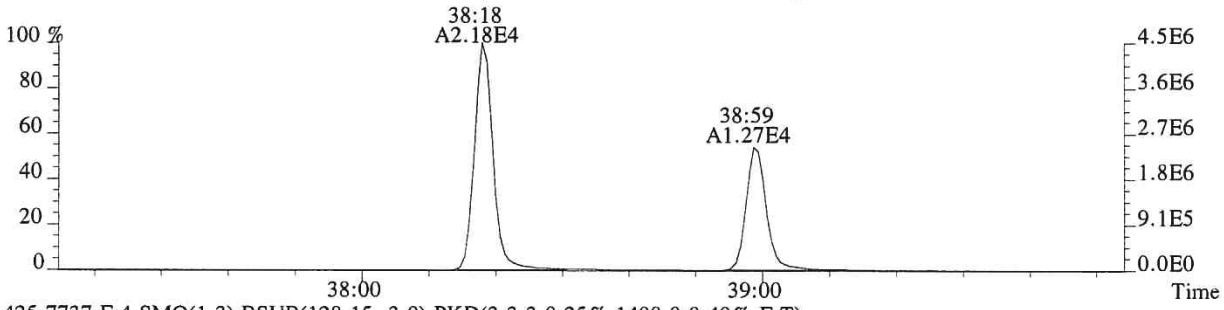
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



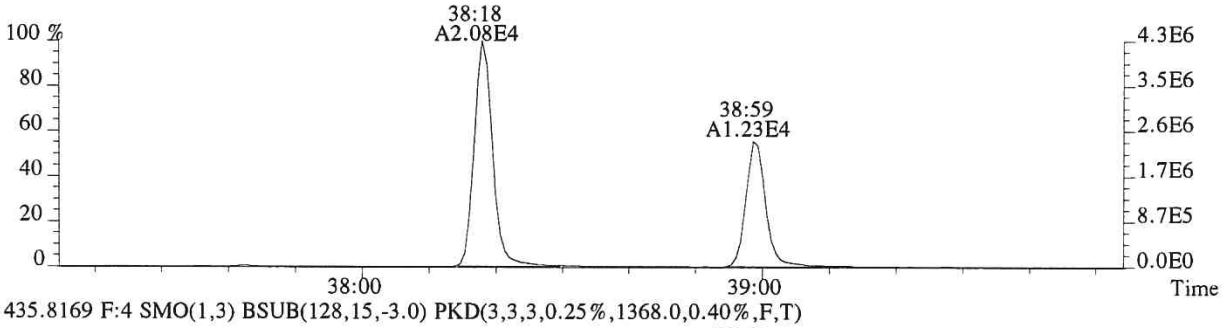
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



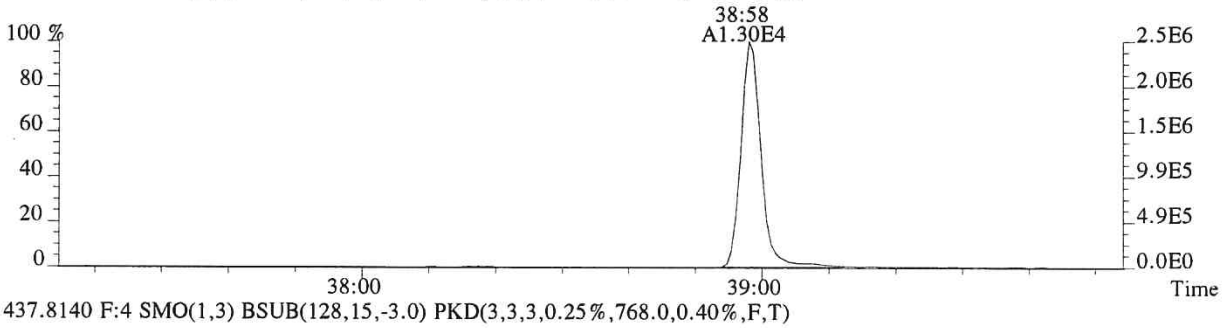
File:P519443 #1-240 Acq:17-DEC-2018 20:13:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-015
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1144.0,0.40%,F,T)



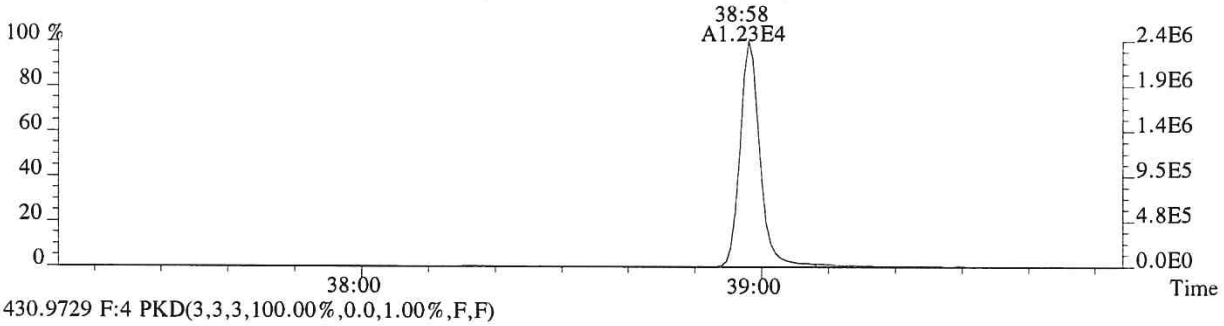
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1408.0,0.40%,F,T)



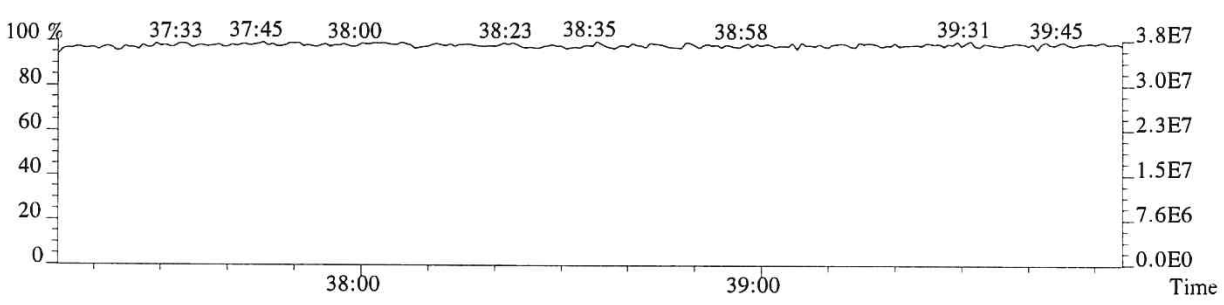
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1368.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,768.0,0.40%,F,T)

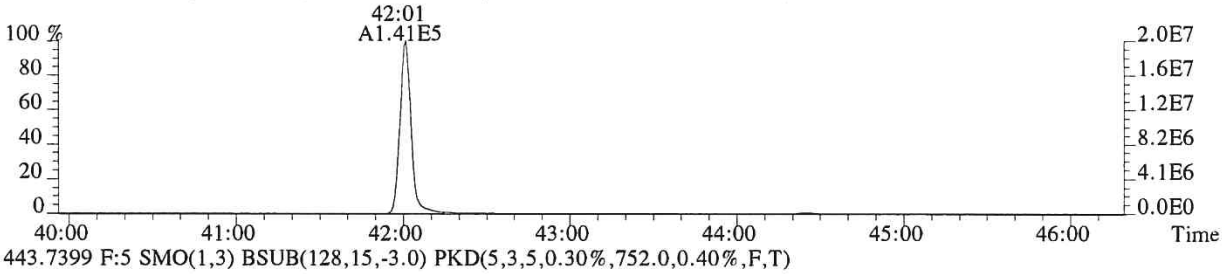


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

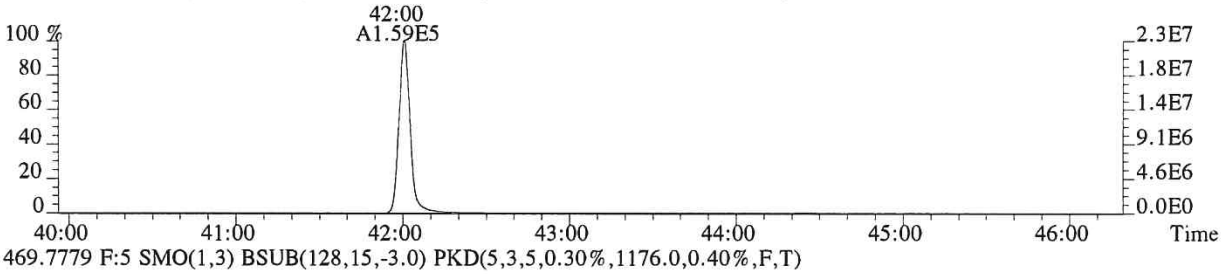


File:P519443 #1-575 Acq:17-DEC-2018 20:13:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-015

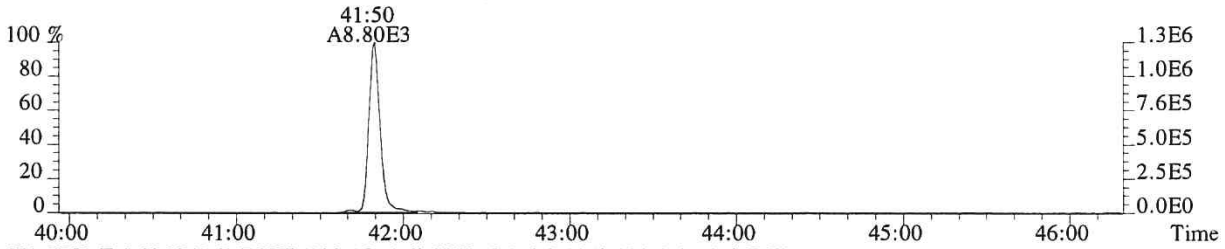
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,708.0,0.40%,F,T)



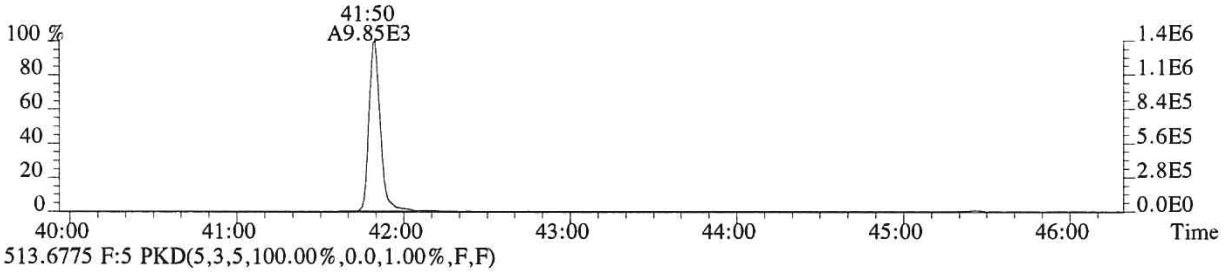
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,752.0,0.40%,F,T)



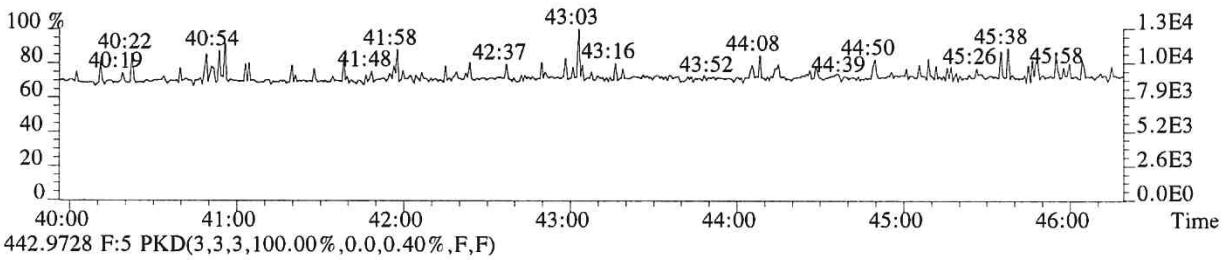
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1176.0,0.40%,F,T)



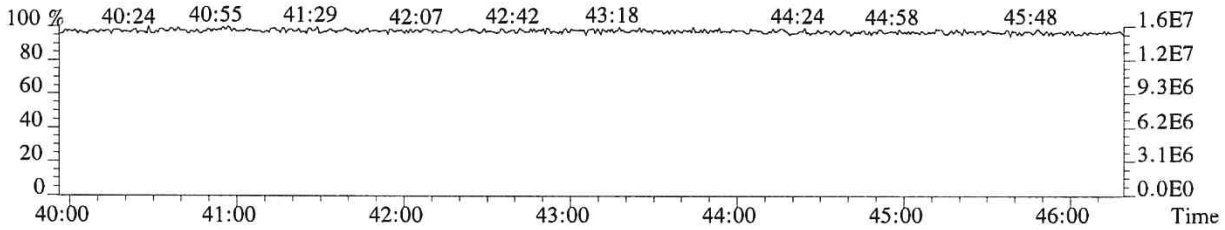
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,388.0,0.40%,F,T)



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

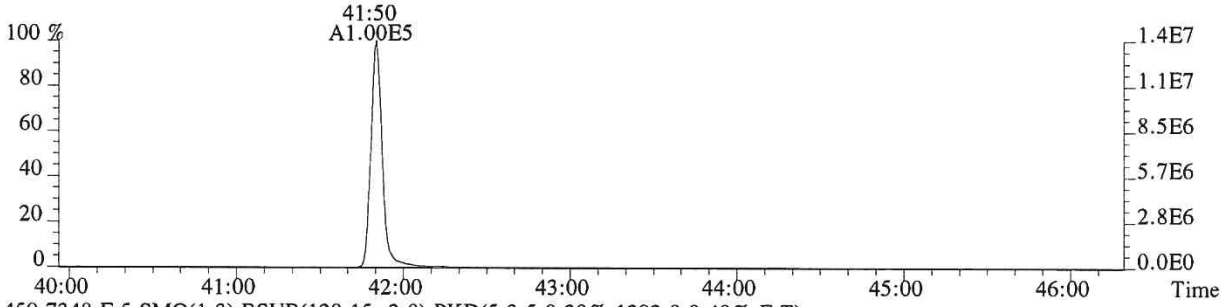


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

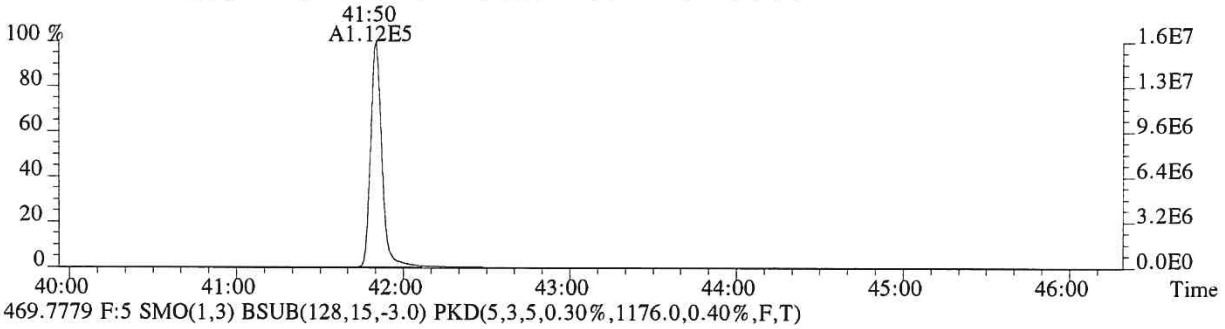


014381

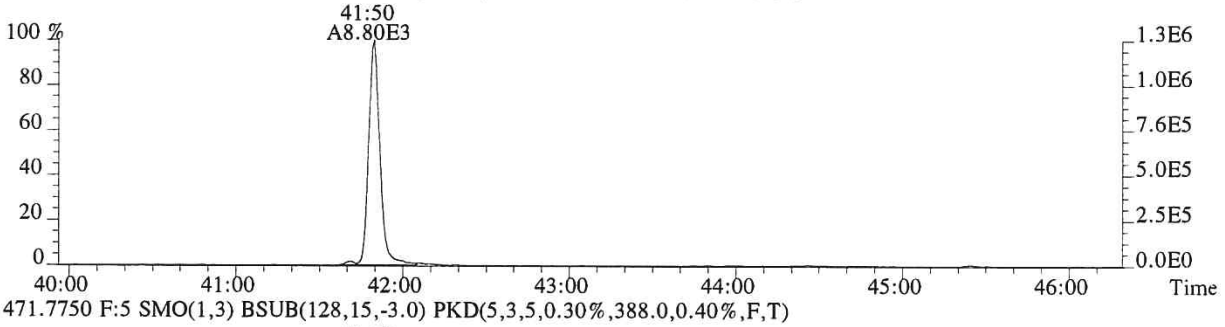
File:P519443 #1-575 Acq:17-DEC-2018 20:13:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-015
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,532.0,0.40%,F,T)



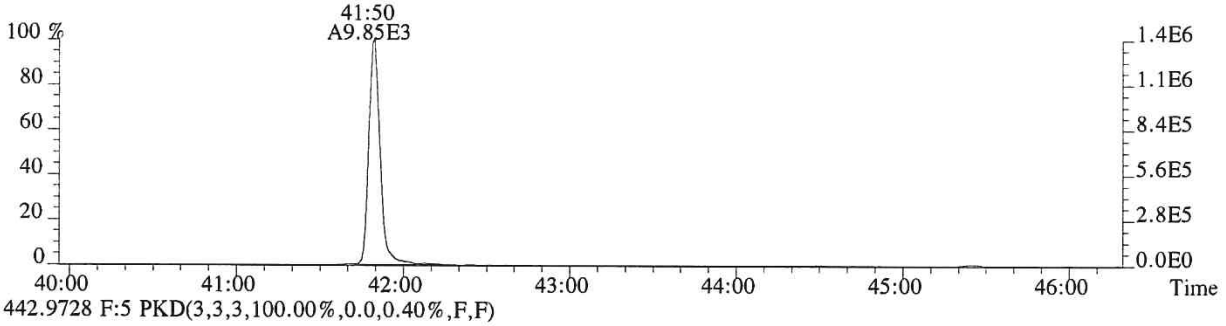
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1292.0,0.40%,F,T)



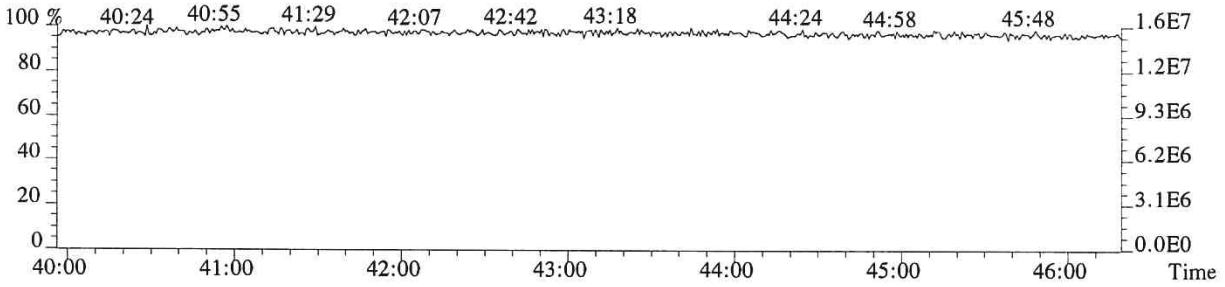
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1176.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,388.0,0.40%,F,T)



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



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Sample Response Summary

CLIENT ID.
SL0010

Run #11 Filename P519537 Samp: 1 Inj: 1 Acquired: 21-DEC-18 06:35:07
Processed: 24-DEC-18 08:06:11 Sample ID: E1801093-015DL

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:49	2.658e+03	3.540e+03	0.75	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	31:27	9.378e+01	5.132e+01	1.83	no	no	1.012
3	Unk	2,3,4,7,8-PeCDF	32:27	9.536e+01	7.614e+01	1.25	no	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:18	1.213e+02	9.584e+01	1.27	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:24	5.212e+01	4.357e+01	1.20	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:56	4.102e+01	2.781e+01	1.48	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	36:46	2.277e+01	2.368e+01	0.96	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:07	6.393e+02	6.473e+02	0.99	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:35	4.074e+01	4.415e+01	0.92	yes	no	1.258
10	Unk	OCDF	42:18	1.754e+04	1.989e+04	0.88	yes	no	1.359
11	Unk	2,3,7,8-TCDD	27:42	6.408e+02	7.517e+02	0.85	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	32:44	1.820e+01	1.733e+01	1.05	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:06	2.673e+01	1.754e+01	1.52	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:12	6.556e+01	5.226e+01	1.25	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:26	2.330e+01	3.008e+01	0.77	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:07	1.214e+03	1.141e+03	1.06	yes	no	1.025
17	Unk	OCDD	42:07	1.187e+04	1.363e+04	0.87	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	26:47	7.149e+03	8.889e+03	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	31:26	1.200e+04	7.381e+03	1.63	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	32:25	1.110e+04	6.910e+03	1.61	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:17	4.814e+03	9.064e+03	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:24	5.732e+03	1.106e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:56	5.422e+03	1.048e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	36:44	4.849e+03	9.167e+03	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:07	4.055e+03	9.021e+03	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:35	3.706e+03	8.022e+03	0.46	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	27:41	3.510e+03	4.209e+03	0.83	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:43	8.093e+03	5.152e+03	1.57	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:06	6.861e+03	5.353e+03	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:11	6.811e+03	5.452e+03	1.25	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:07	7.488e+03	7.081e+03	1.06	yes	no	0.858
32	IS	13C-OCDD	42:06	8.759e+03	9.433e+03	0.93	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:03	6.460e+03	8.024e+03	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:26	9.490e+03	7.069e+03	1.34	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:42	7.877e+02				no	1.014

$$\text{OCDD} = \frac{(1.187e+04 + 1.363e+04) \times 4000\ \text{pg} \times 5}{(8.759e+03 + 9.433e+03) \times 10.61\ \text{g} \times 71.9 / 100 \times 1.118} = 8217.5747\ \text{ng/kg}$$

LG 12/24/18

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Signal/Noise Height Ratio Summary

CLIENT ID.
SL0010

Run #11 Filename P519537 Samp: 1 Inj: 1 Acquired: 21-DEC-18 06:35:07
Processed: 24-DEC-18 08:06:11 LAB. ID: E1801093-015DL

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	4.02e+05	3.60e+02	1.1e+03	5.31e+05	1.20e+03	4.4e+02
2	1,2,3,7,8-PeCDF	1.60e+04	4.00e+02	4.0e+01	8.46e+03	9.72e+02	8.7e+00
3	2,3,4,7,8-PeCDF	1.34e+04	4.00e+02	3.4e+01	9.78e+03	9.72e+02	1.0e+01
4	1,2,3,4,7,8-HxCDF	2.35e+04	5.60e+02	4.2e+01	1.85e+04	5.72e+02	3.2e+01
5	1,2,3,6,7,8-HxCDF	1.03e+04	5.60e+02	1.8e+01	5.72e+03	5.72e+02	1.0e+01
6	2,3,4,6,7,8-HxCDF	9.42e+03	5.60e+02	1.7e+01	5.33e+03	5.72e+02	9.3e+00
7	1,2,3,7,8,9-HxCDF	3.98e+03	5.60e+02	7.1e+00	4.92e+03	5.72e+02	8.6e+00
8	1,2,3,4,6,7,8-HpCDF	1.10e+05	3.56e+02	3.1e+02	1.06e+05	3.88e+02	2.7e+02
9	1,2,3,4,7,8,9-HpCDF	8.34e+03	3.56e+02	2.3e+01	6.66e+03	3.88e+02	1.7e+01
10	OCDF	1.77e+06	2.44e+02	7.3e+03	1.99e+06	6.64e+02	3.0e+03
11	2,3,7,8-TCDD	1.01e+05	9.36e+02	1.1e+02	1.33e+05	4.56e+02	2.9e+02
12	1,2,3,7,8-PeCDD	3.27e+03	8.20e+02	4.0e+00	3.67e+03	4.88e+02	7.5e+00
13	1,2,3,4,7,8-HxCDD	5.59e+03	5.44e+02	1.0e+01	4.20e+03	3.44e+02	1.2e+01
14	1,2,3,6,7,8-HxCDD	1.20e+04	5.44e+02	2.2e+01	9.48e+03	3.44e+02	2.8e+01
15	1,2,3,7,8,9-HxCDD	5.14e+03	5.44e+02	9.5e+00	5.95e+03	3.44e+02	1.7e+01
16	1,2,3,4,6,7,8-HpCDD	1.92e+05	3.12e+02	6.1e+02	1.75e+05	3.16e+02	5.5e+02
17	OCDD	1.18e+06	3.72e+02	3.2e+03	1.33e+06	3.76e+02	3.5e+03
18	13C-2,3,7,8-TCDF	1.13e+06	4.20e+03	2.7e+02	1.39e+06	2.02e+03	6.9e+02
19	13C-1,2,3,7,8-PeCDF	2.08e+06	9.12e+02	2.3e+03	1.27e+06	1.76e+03	7.2e+02
20	13C-2,3,4,7,8-PeCDF	2.03e+06	9.12e+02	2.2e+03	1.28e+06	1.76e+03	7.3e+02
21	13C-1,2,3,4,7,8-HxCDF	9.37e+05	4.88e+02	1.9e+03	1.79e+06	1.38e+03	1.3e+03
22	13C-1,2,3,6,7,8-HxCDF	1.08e+06	4.88e+02	2.2e+03	2.05e+06	1.38e+03	1.5e+03
23	13C-2,3,4,6,7,8-HxCDF	1.05e+06	4.88e+02	2.1e+03	2.00e+06	1.38e+03	1.5e+03
24	13C-1,2,3,7,8,9-HxCDF	8.79e+05	4.88e+02	1.8e+03	1.66e+06	1.38e+03	1.2e+03
25	13C-1,2,3,4,6,7,8-HpCDF	7.14e+05	1.44e+03	5.0e+02	1.55e+06	1.16e+03	1.3e+03
26	13C-1,2,3,4,7,8,9-HpCDF	5.35e+05	1.44e+03	3.7e+02	1.18e+06	1.16e+03	1.0e+03
27	13C-2,3,7,8-TCDD	6.24e+05	3.42e+03	1.8e+02	7.33e+05	1.24e+03	5.9e+02
28	13C-1,2,3,7,8-PeCDD	1.47e+06	4.76e+02	3.1e+03	9.38e+05	6.92e+02	1.4e+03
29	13C-1,2,3,4,7,8-HxCDD	1.40e+06	4.52e+02	3.1e+03	1.07e+06	3.32e+02	3.2e+03
30	13C-1,2,3,6,7,8-HxCDD	1.26e+06	4.52e+02	2.8e+03	1.01e+06	3.32e+02	3.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.13e+06	4.08e+02	2.8e+03	1.07e+06	3.56e+02	3.0e+03
32	13C-OCDD	8.71e+05	2.12e+02	4.1e+03	9.32e+05	2.88e+02	3.2e+03
33	13C-1,2,3,4-TCDD	1.11e+06	3.42e+03	3.2e+02	1.36e+06	1.24e+03	1.1e+03
34	13C-1,2,3,7,8,9-HxCDD	1.70e+06	4.52e+02	3.8e+03	1.24e+06	3.32e+02	3.7e+03
35	37Cl-2,3,7,8-TCDD	1.37e+05	5.96e+02	2.3e+02			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (9.360e+02 + 4.560e+02) \times 2000}{(6.239e+05 + 7.332e+05) \times (\quad) \times 1.085} =$$

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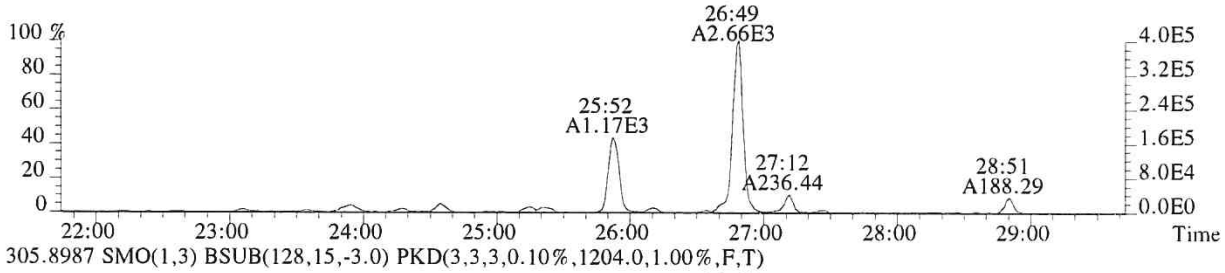
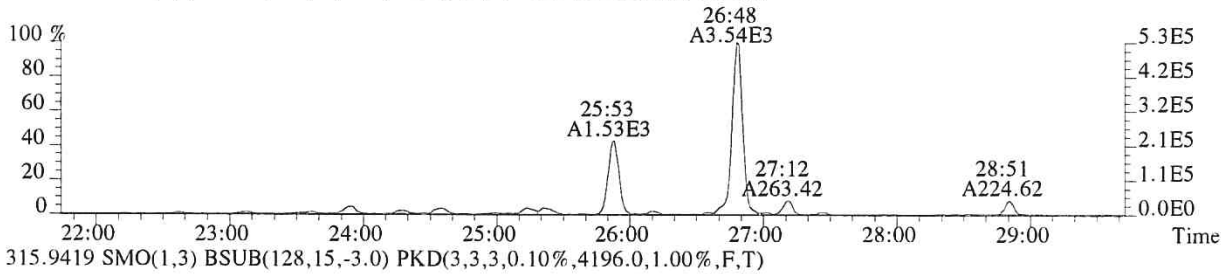
File:P519537 #1-566 Acq:21-DEC-2018 06:35:07 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-015DL

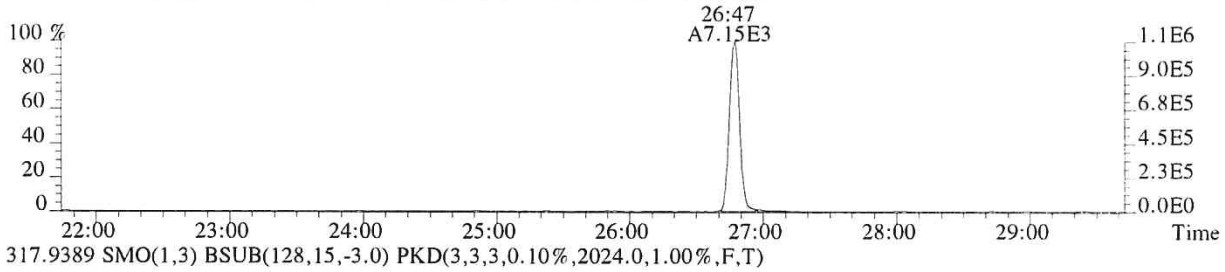
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,360.0,1.00%,F,T)



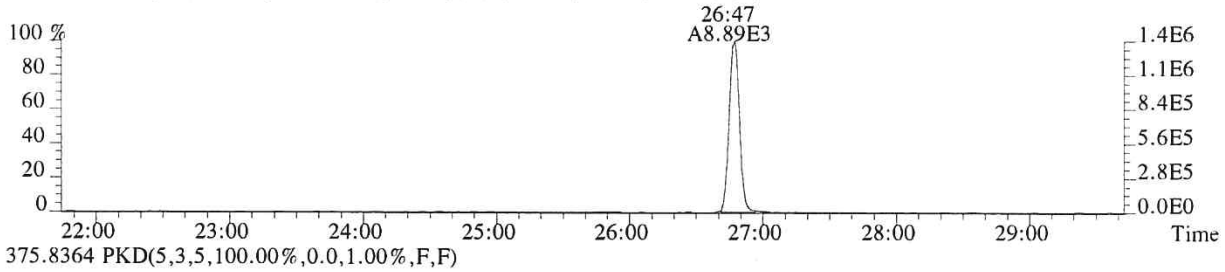
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1204.0,1.00%,F,T)



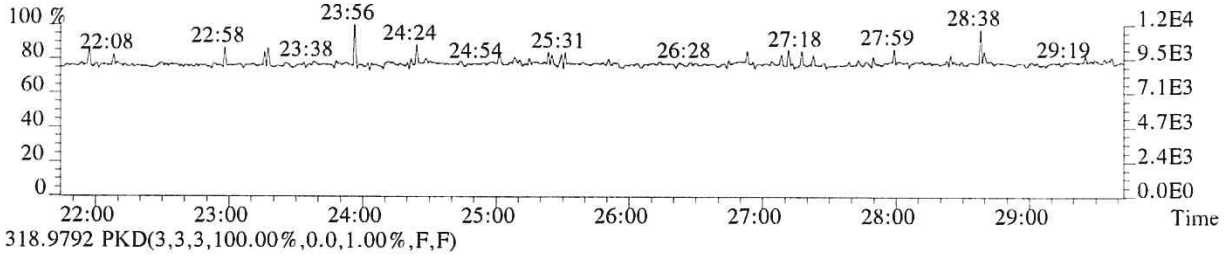
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4196.0,1.00%,F,T)



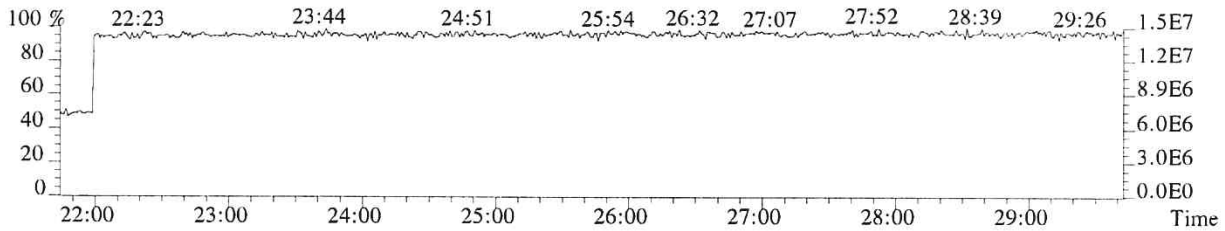
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2024.0,1.00%,F,T)



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

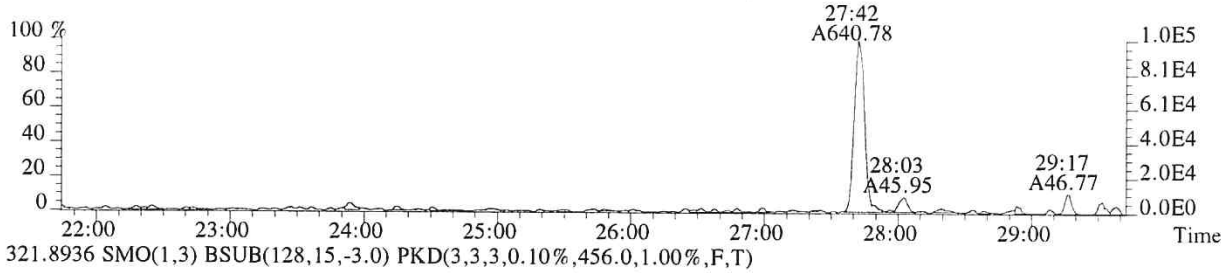


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

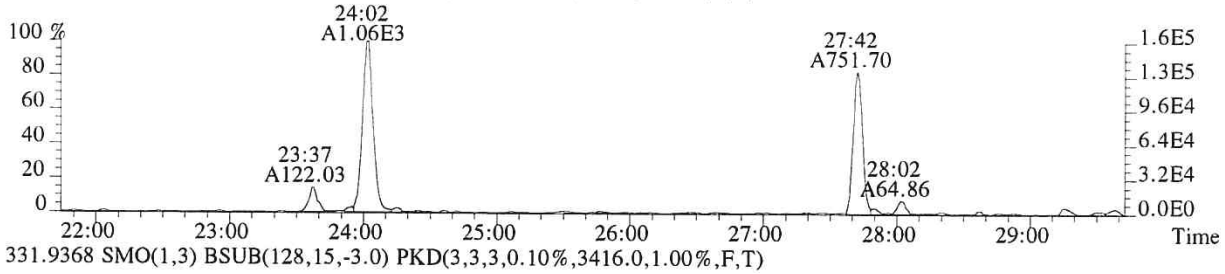


014385

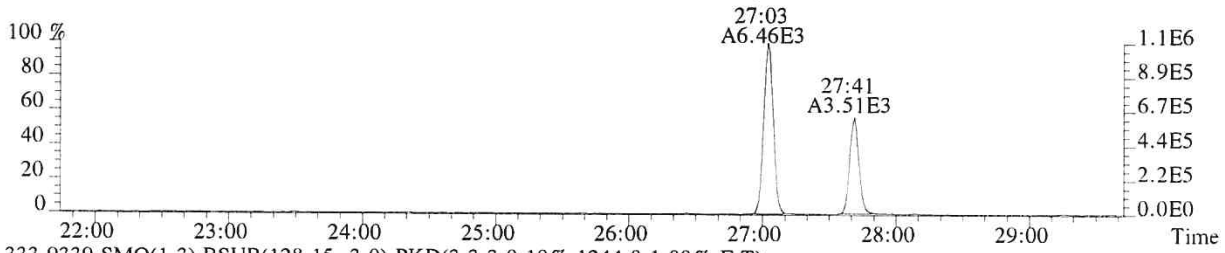
File:P519537 #1-566 Acq:21-DEC-2018 06:35:07 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-015DL
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,936.0,1.00%,F,T)



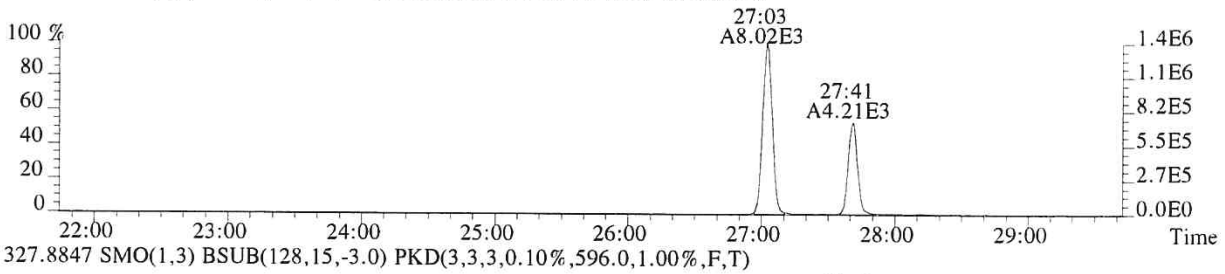
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,456.0,1.00%,F,T)



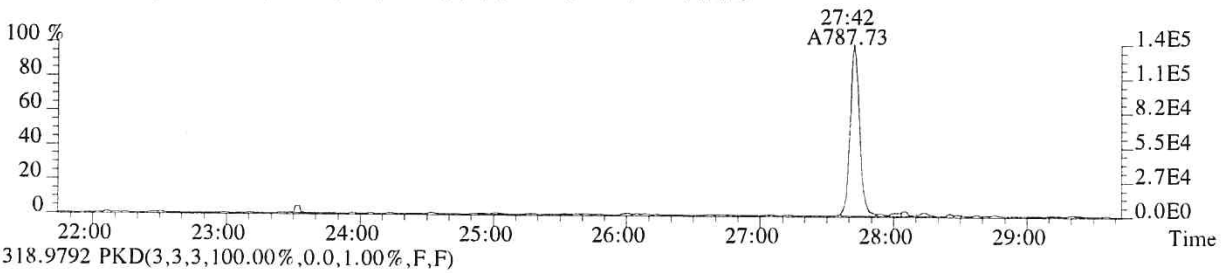
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3416.0,1.00%,F,T)



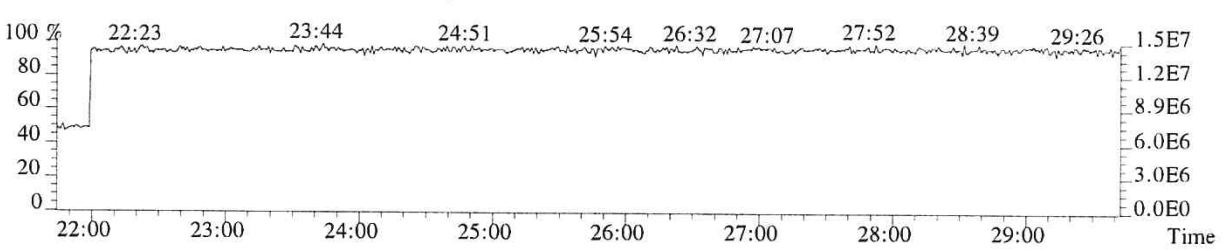
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1244.0,1.00%,F,T)



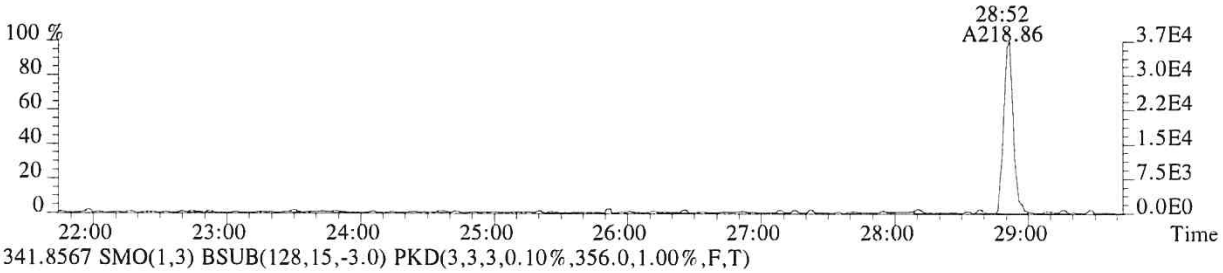
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,596.0,1.00%,F,T)



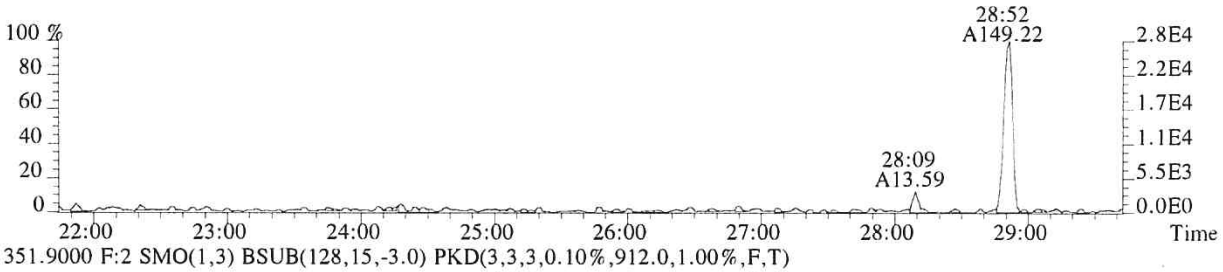
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



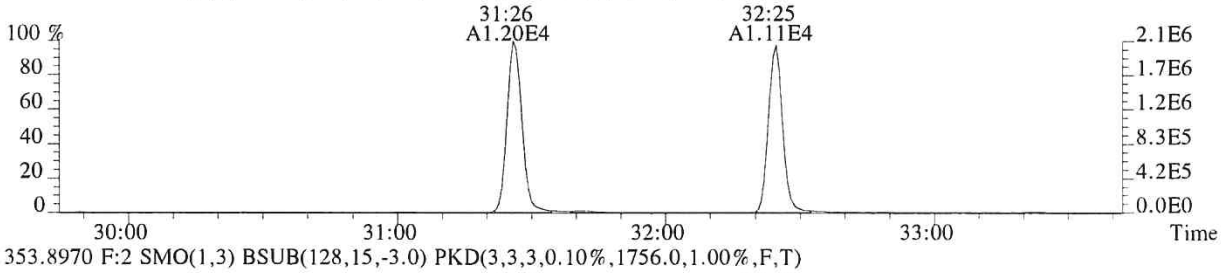
File:P519537 #1-566 Acq:21-DEC-2018 06:35:07 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-015DL
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,188.0,1.00%,F,T)



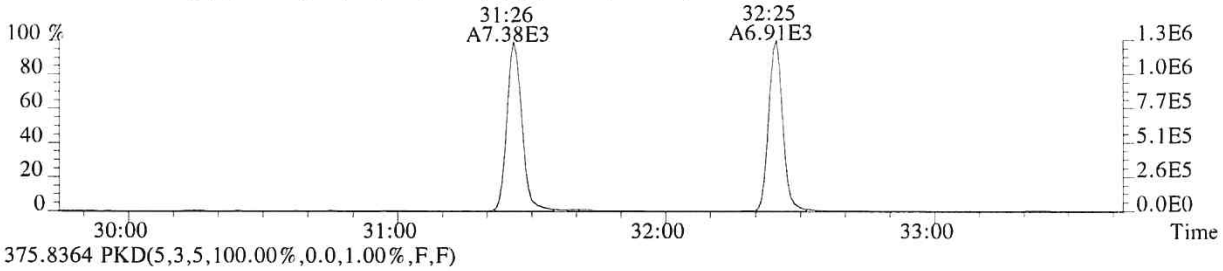
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,356.0,1.00%,F,T)



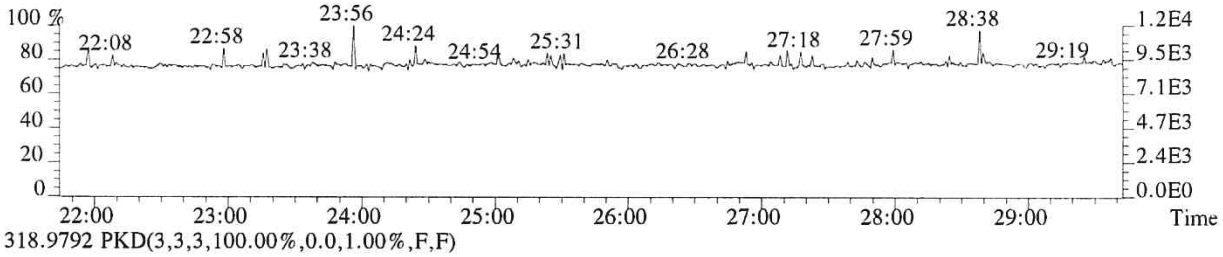
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,912.0,1.00%,F,T)



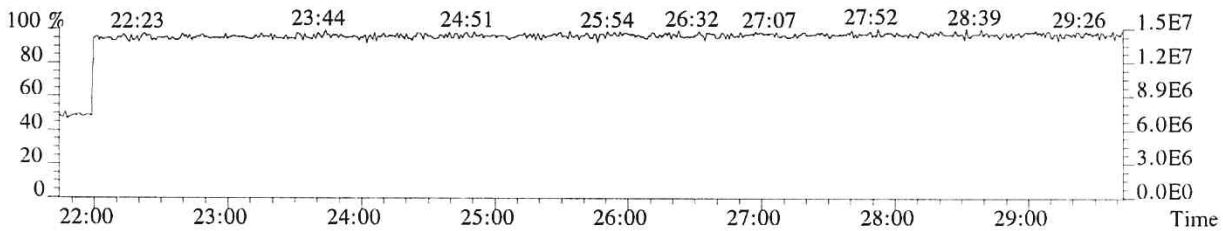
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1756.0,1.00%,F,T)



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

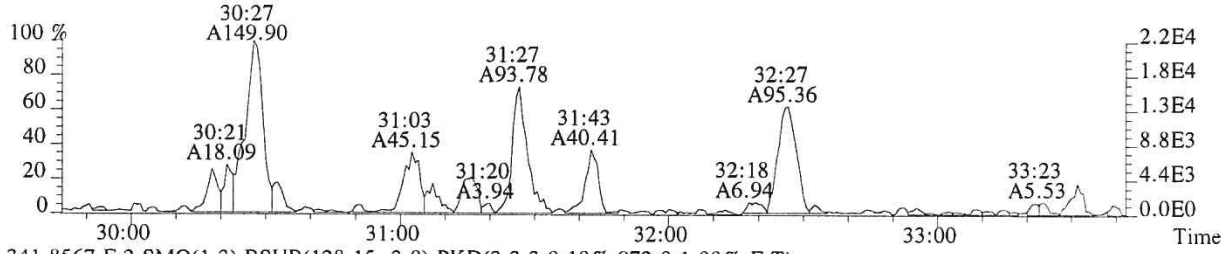


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

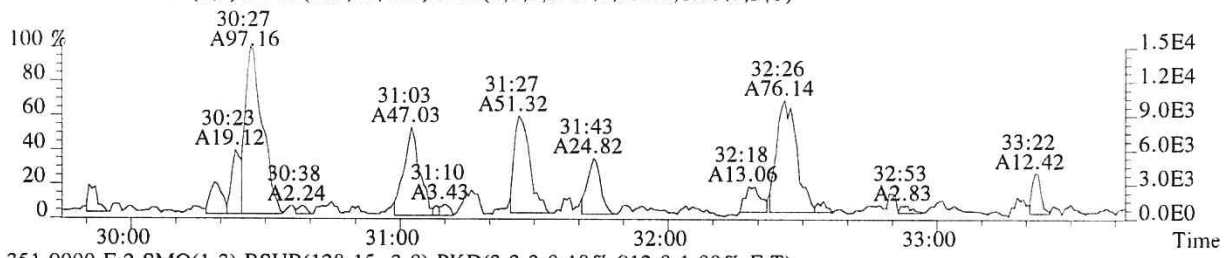


014387

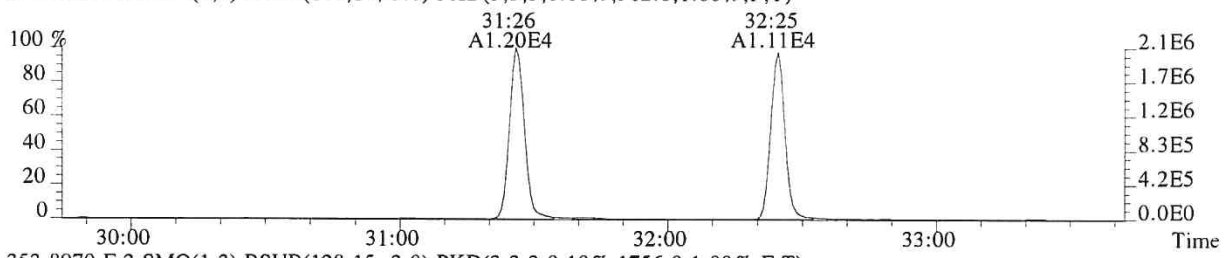
File:P519537 #1-357 Acq:21-DEC-2018 06:35:07 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-015DL
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,400.0,1.00%,F,T)



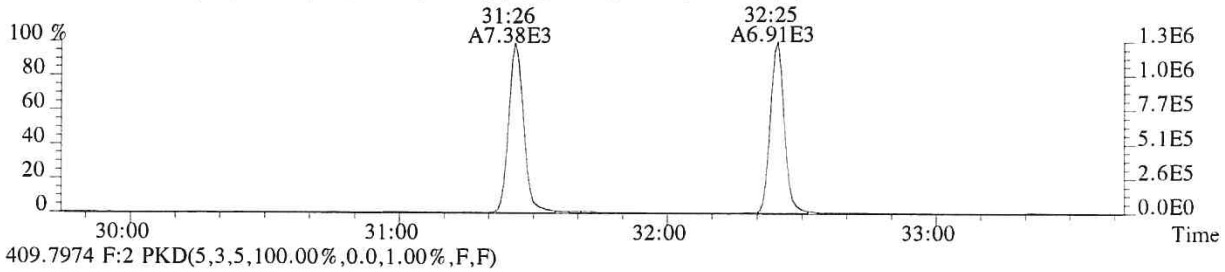
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,972.0,1.00%,F,T)



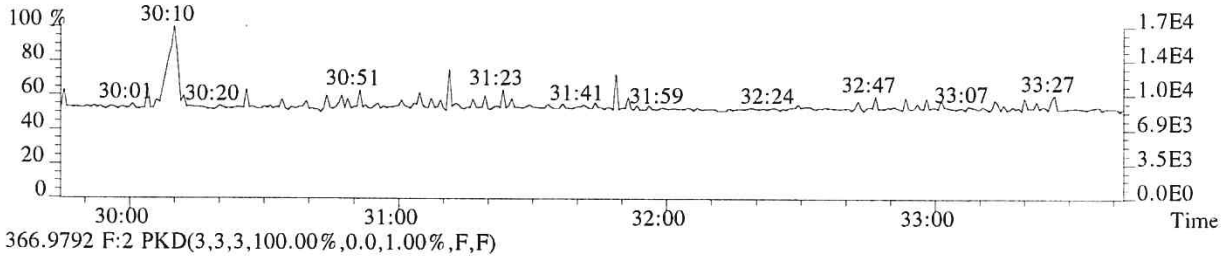
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,912.0,1.00%,F,T)



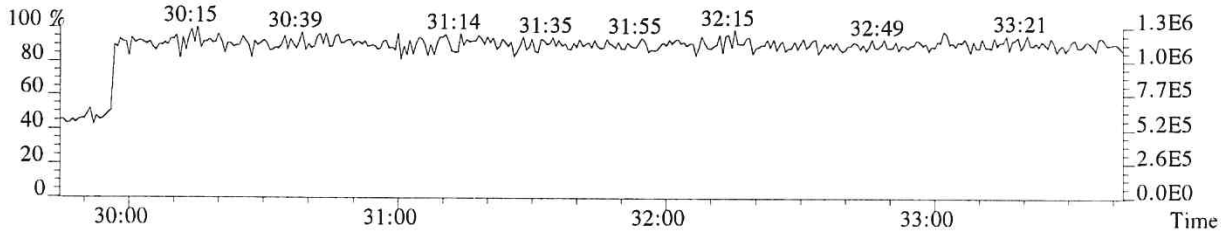
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1756.0,1.00%,F,T)



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

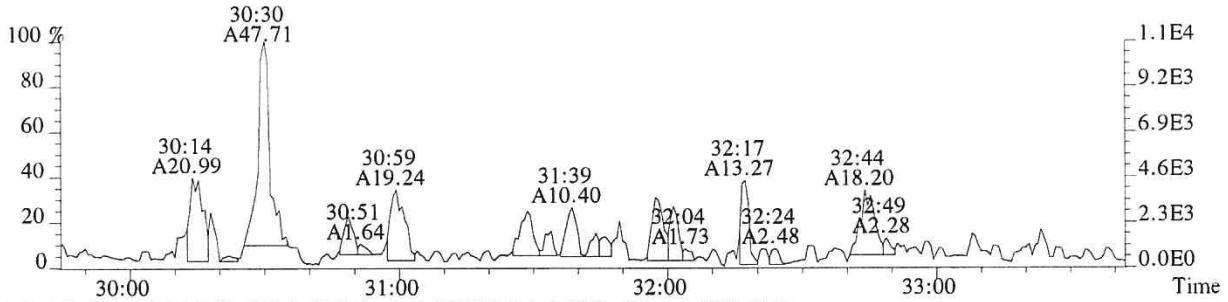


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

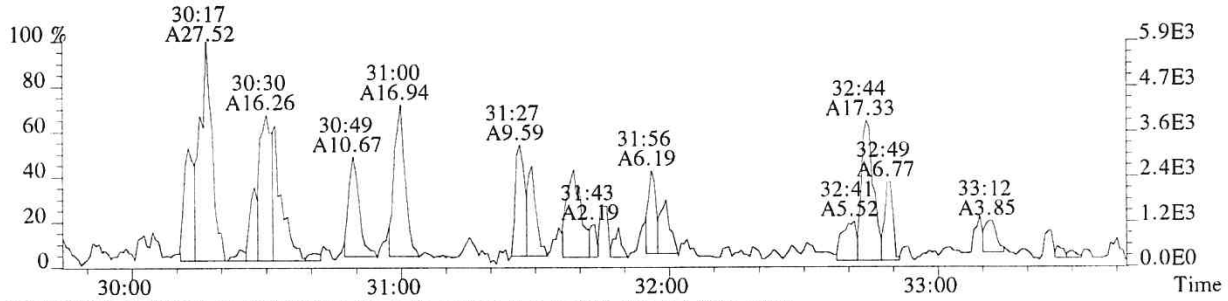


014388

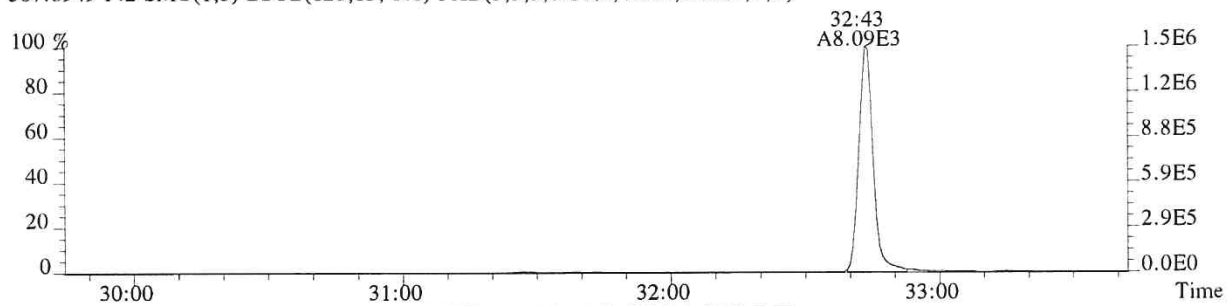
File:P519537 #1-357 Acq:21-DEC-2018 06:35:07 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-015DL
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,820.0,1.00%,F,T)



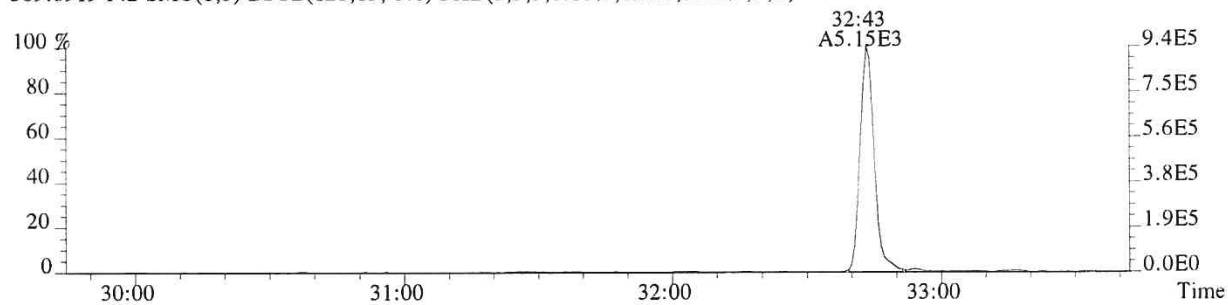
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,488.0,1.00%,F,T)



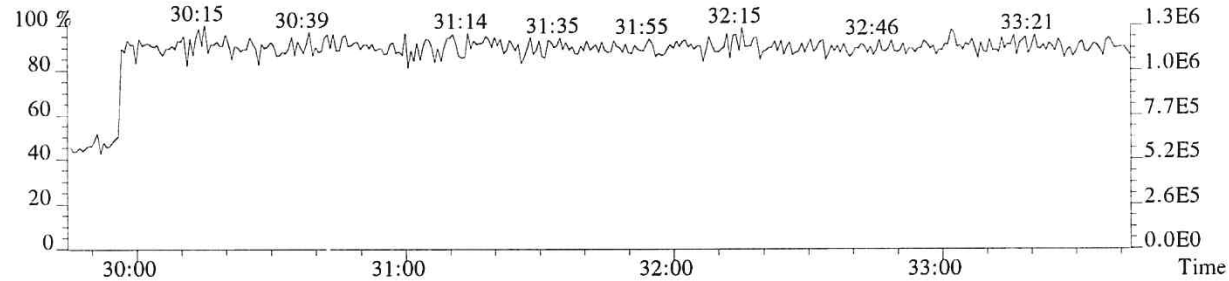
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,476.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,692.0,1.00%,F,T)

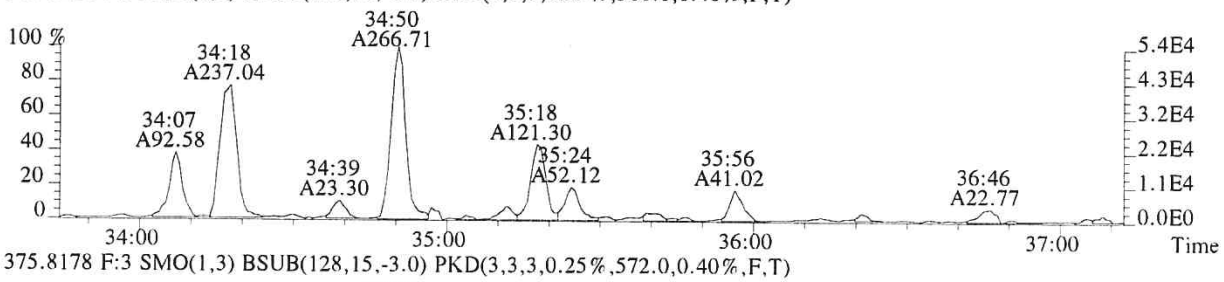


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

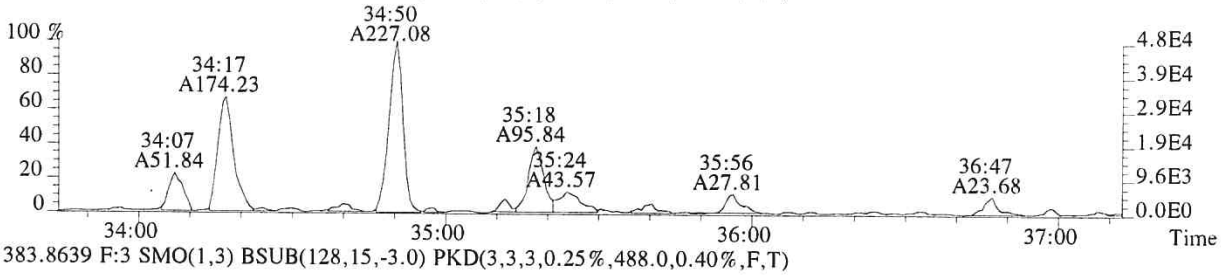


014389

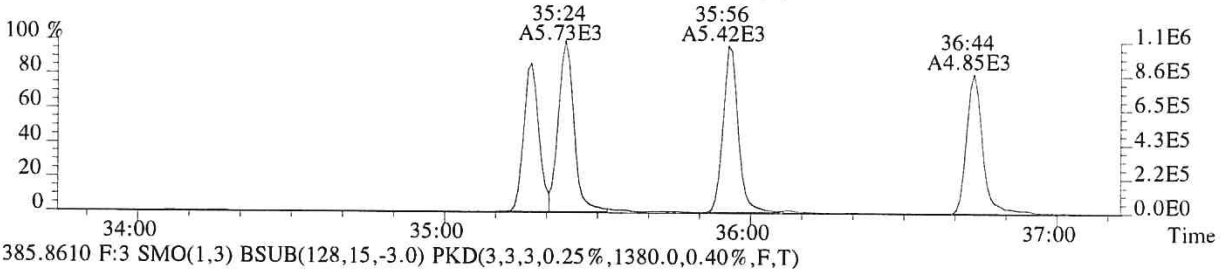
File:P519537 #1-313 Acq:21-DEC-2018 06:35:07 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-015DL
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,560.0,0.40%,F,T)



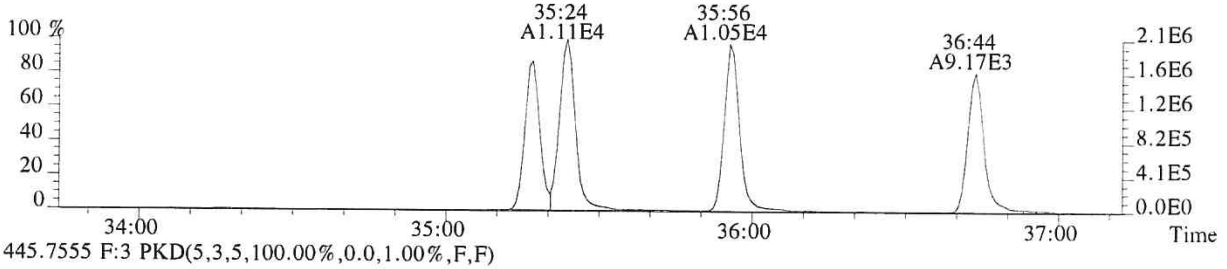
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,572.0,0.40%,F,T)



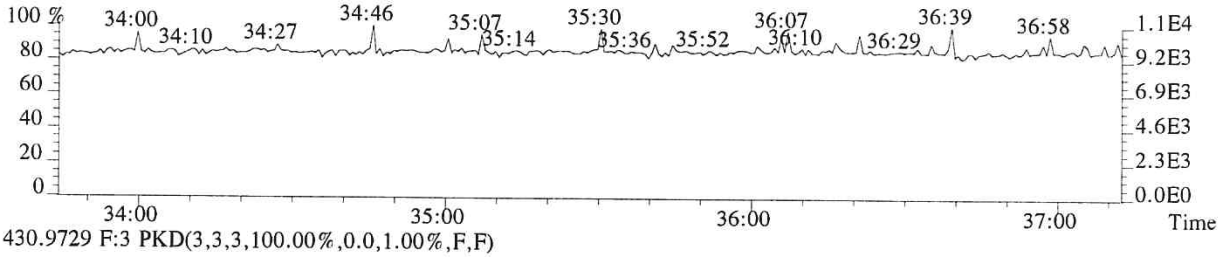
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,488.0,0.40%,F,T)



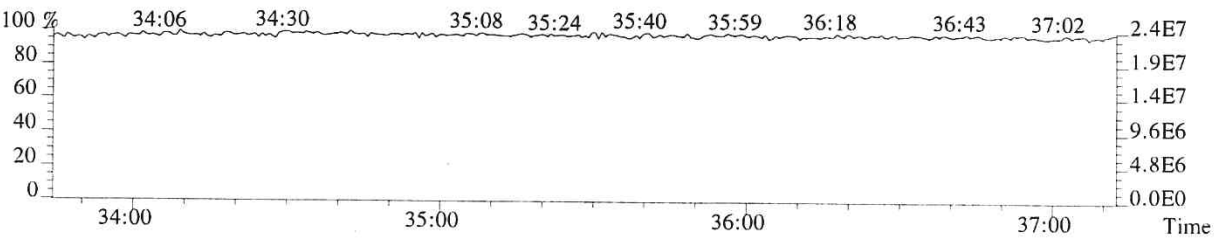
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1380.0,0.40%,F,T)



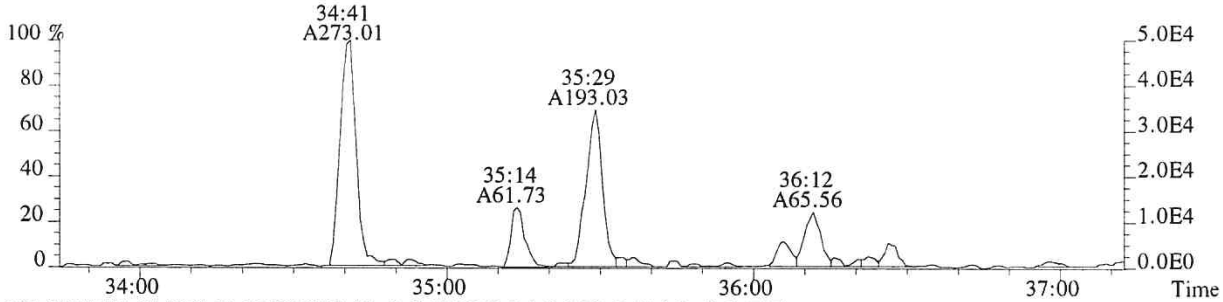
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



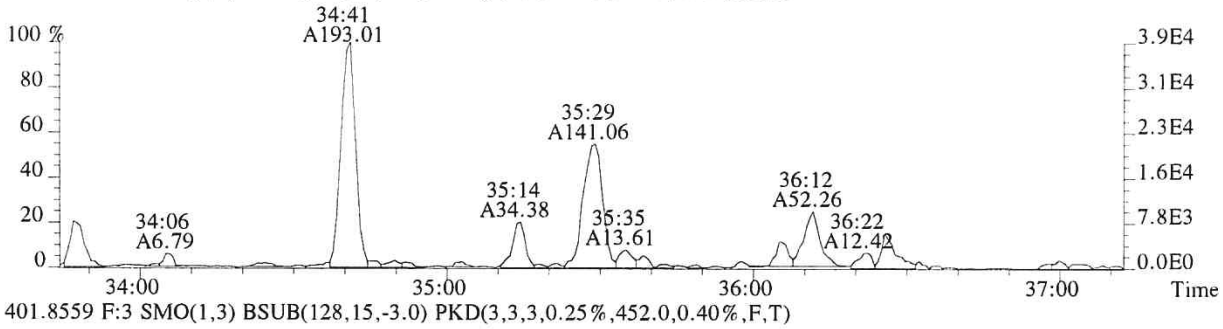
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



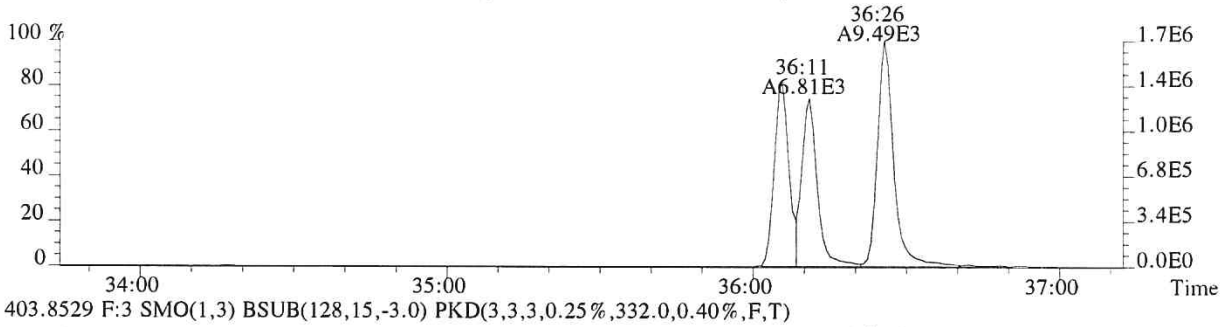
File:P519537 #1-313 Acq:21-DEC-2018 06:35:07 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-015DL
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,544.0,0.40%,F,T)



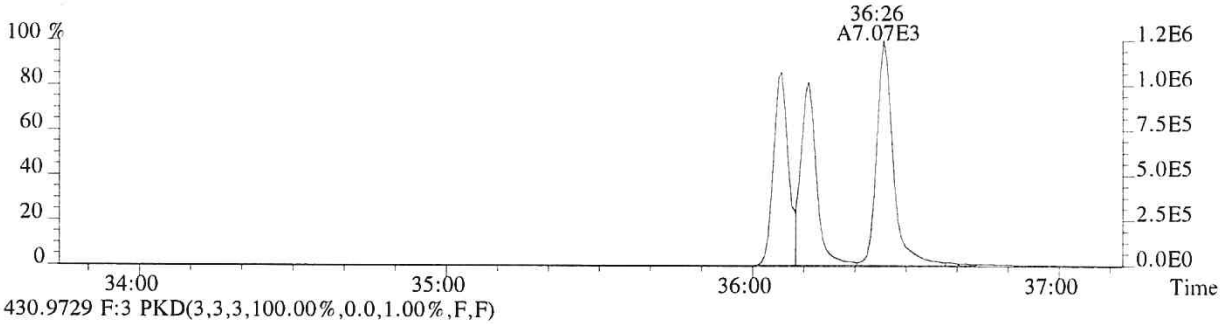
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,344.0,0.40%,F,T)



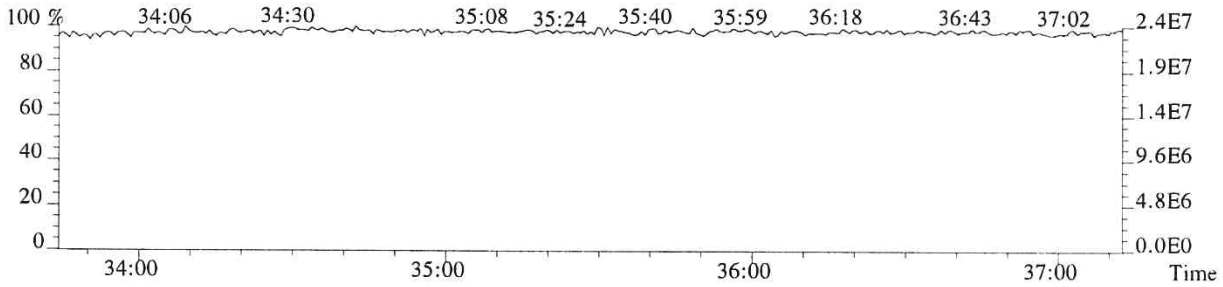
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,452.0,0.40%,F,T)



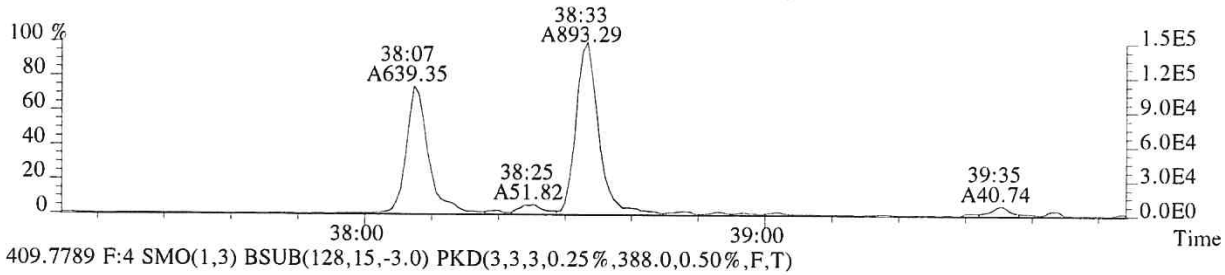
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,332.0,0.40%,F,T)



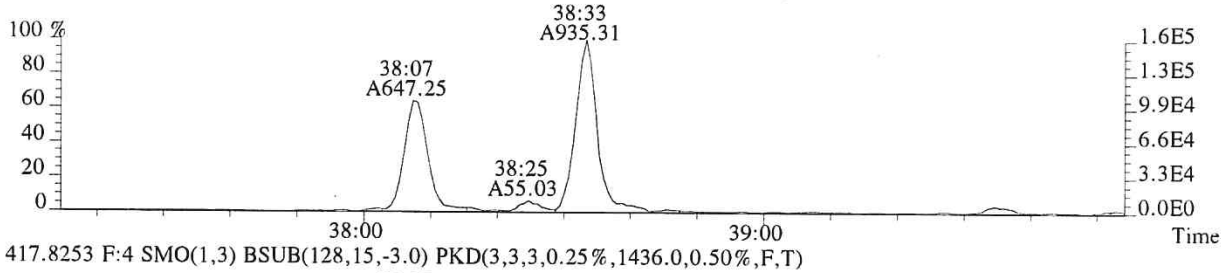
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



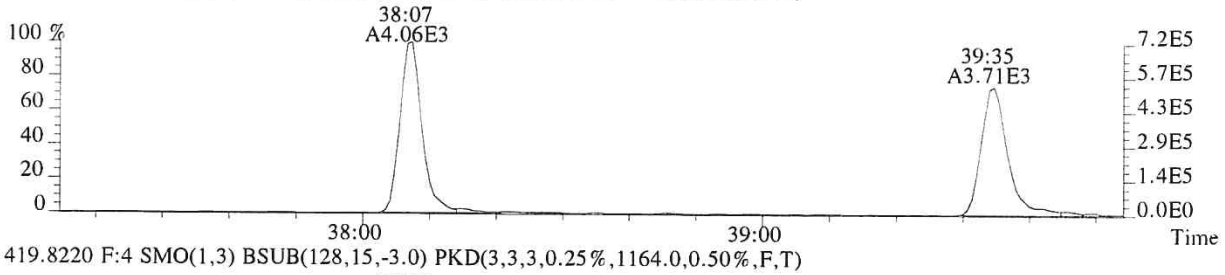
File:P519537 #1-240 Acq:21-DEC-2018 06:35:07 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-015DL
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,356.0,0.50%,F,T)



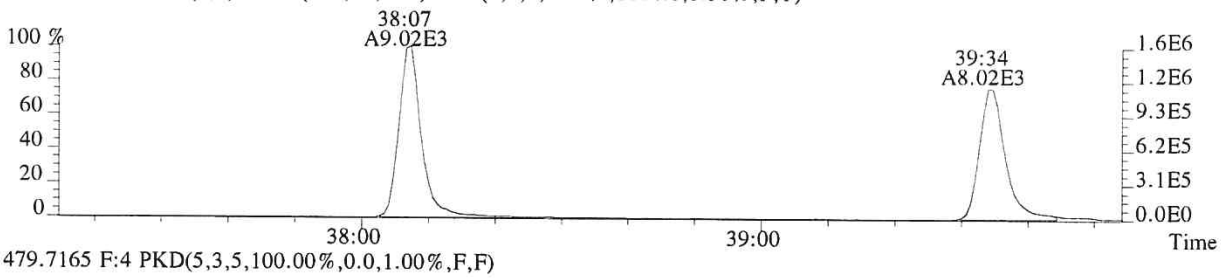
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,388.0,0.50%,F,T)



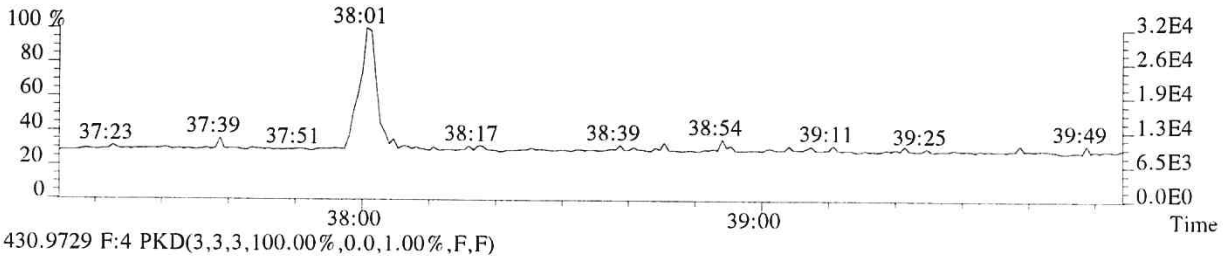
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1436.0,0.50%,F,T)



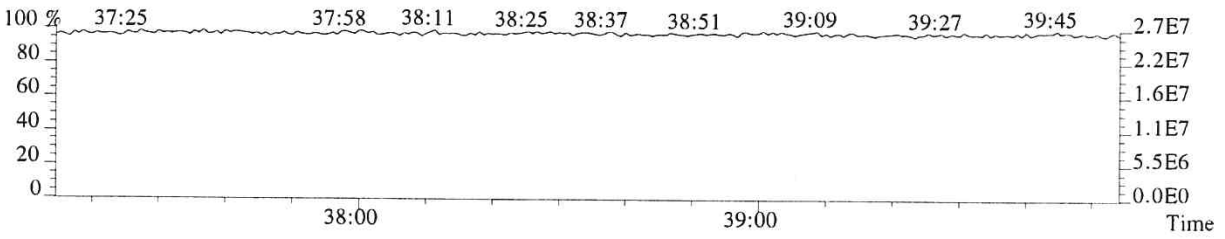
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1164.0,0.50%,F,T)



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

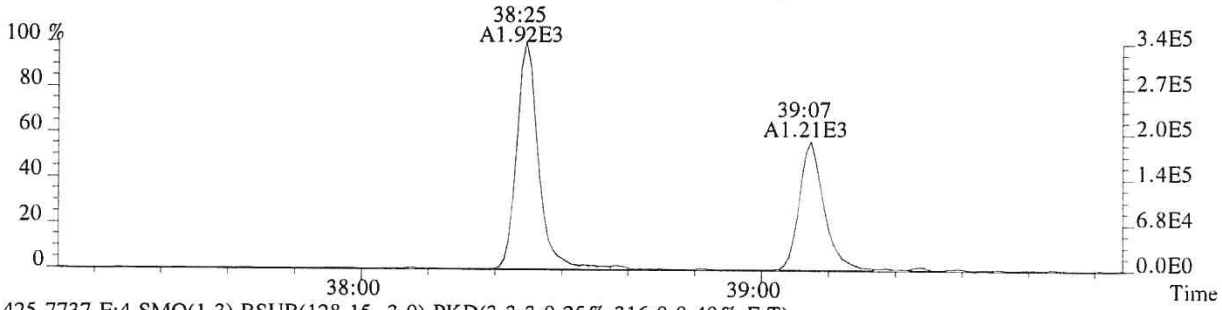


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

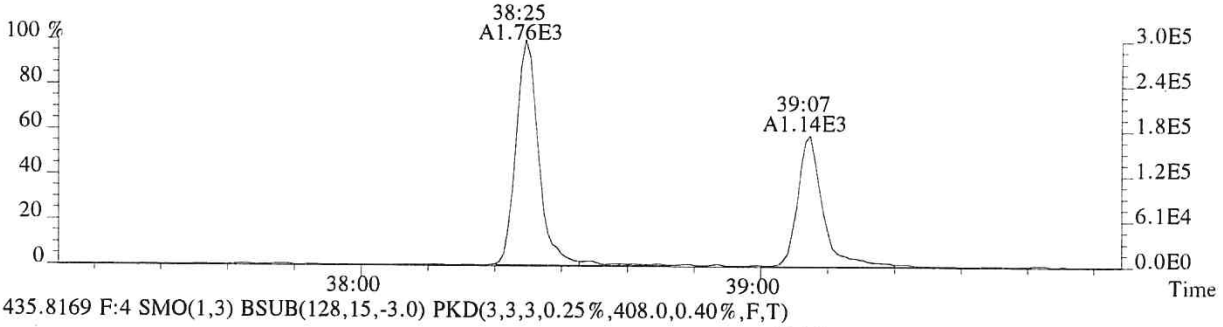


014392

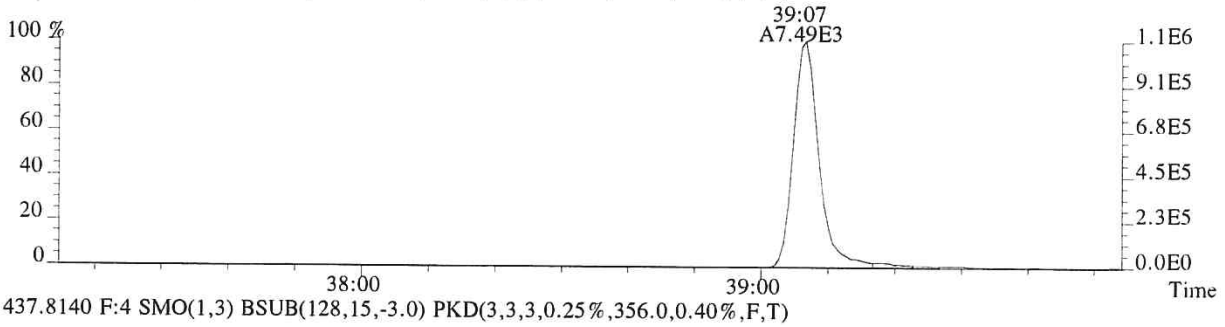
File:P519537 #1-240 Acq:21-DEC-2018 06:35:07 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-015DL
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,312.0,0.40%,F,T)



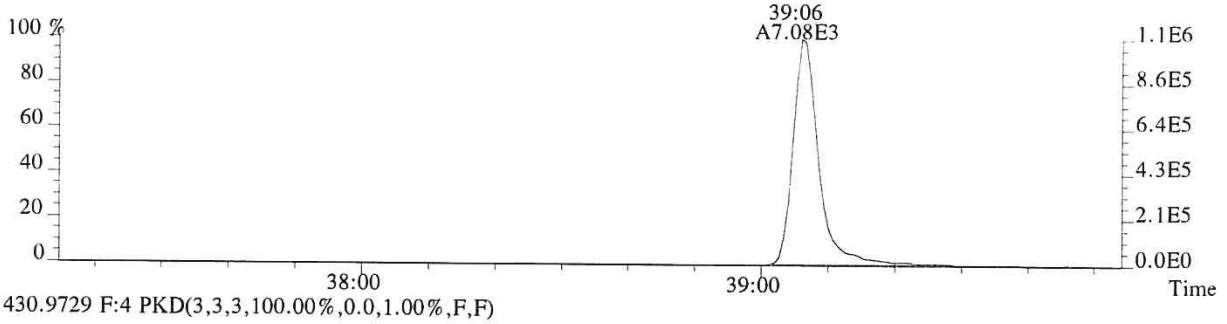
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,316.0,0.40%,F,T)



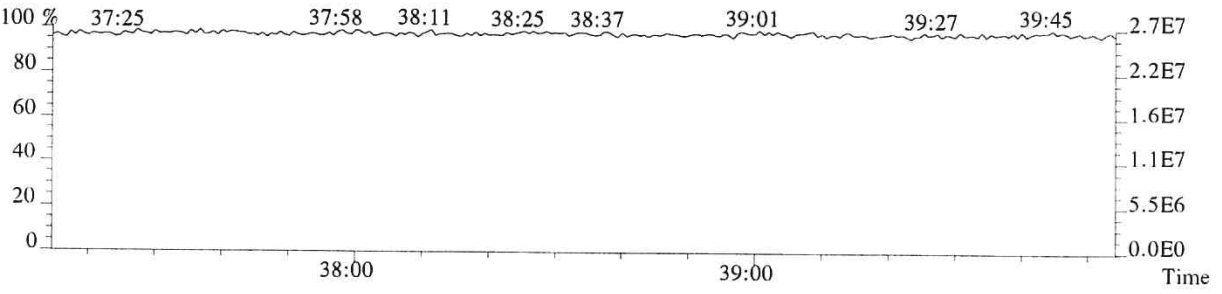
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,408.0,0.40%,F,T)



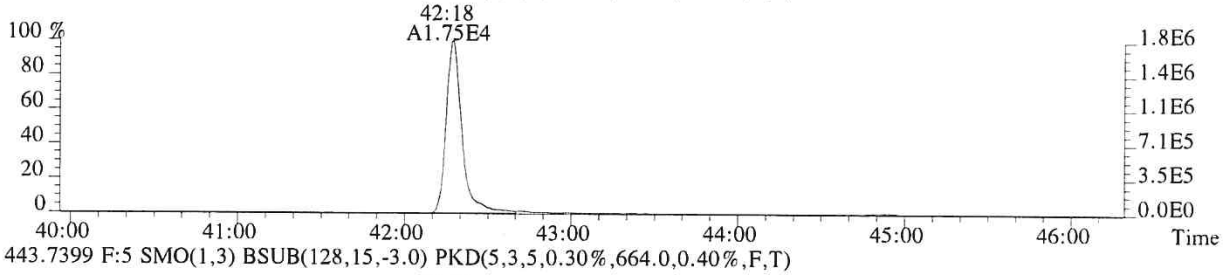
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,356.0,0.40%,F,T)



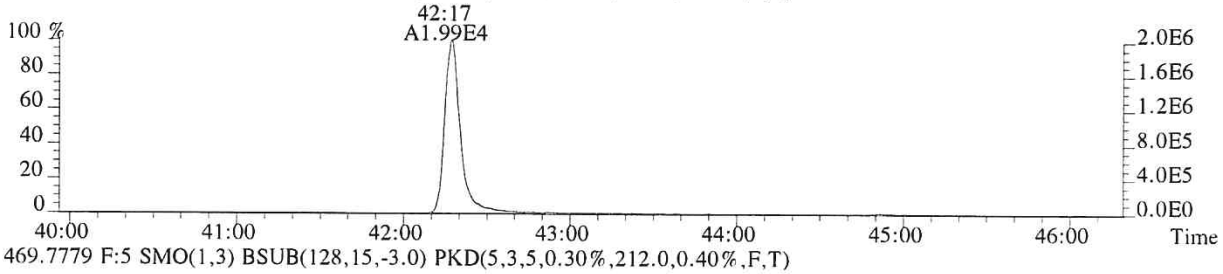
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



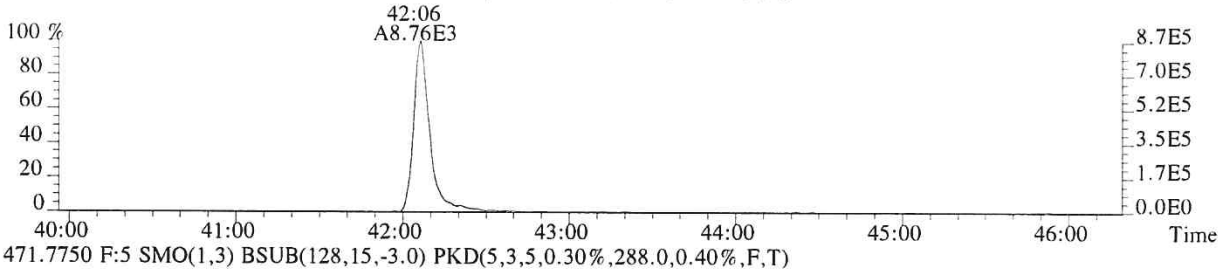
File:P519537 #1-575 Acq:21-DEC-2018 06:35:07 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-015DL
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,244.0,0.40%,F,T)



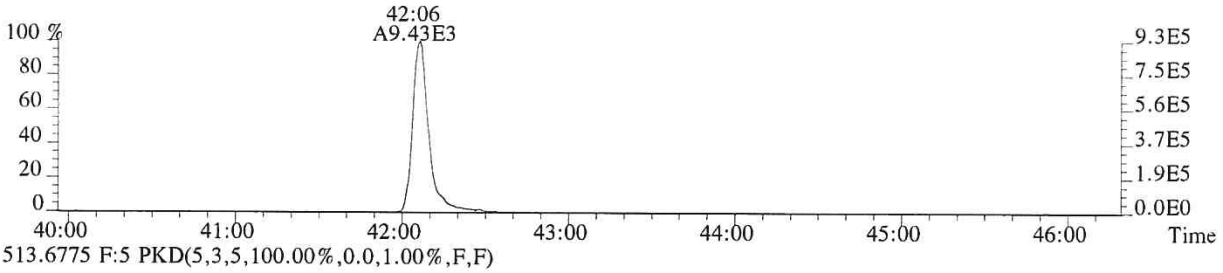
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,664.0,0.40%,F,T)



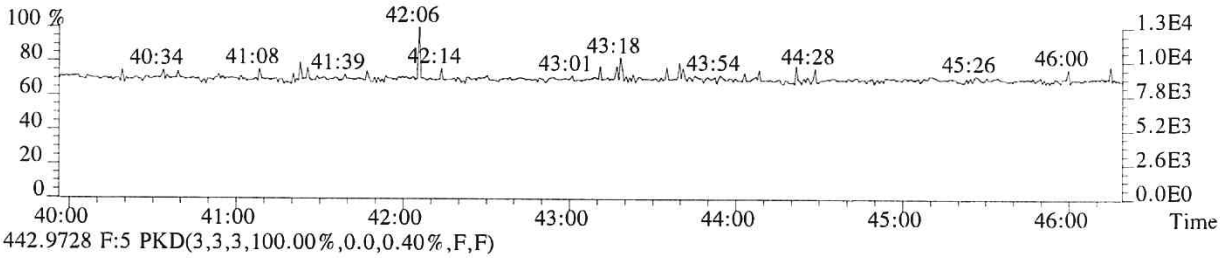
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,212.0,0.40%,F,T)



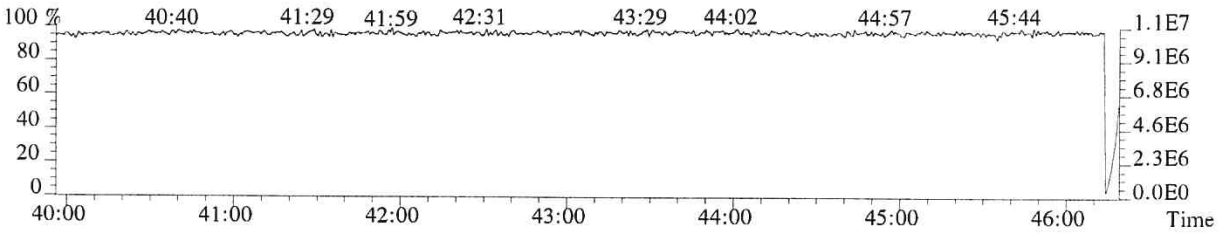
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,288.0,0.40%,F,T)



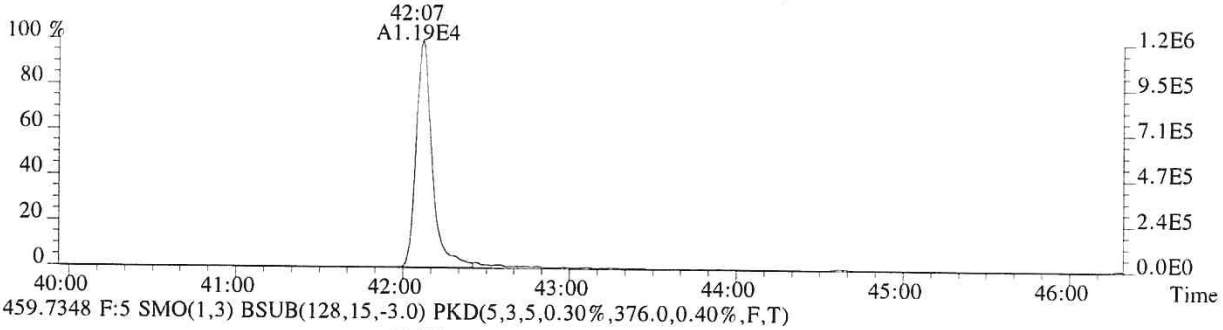
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



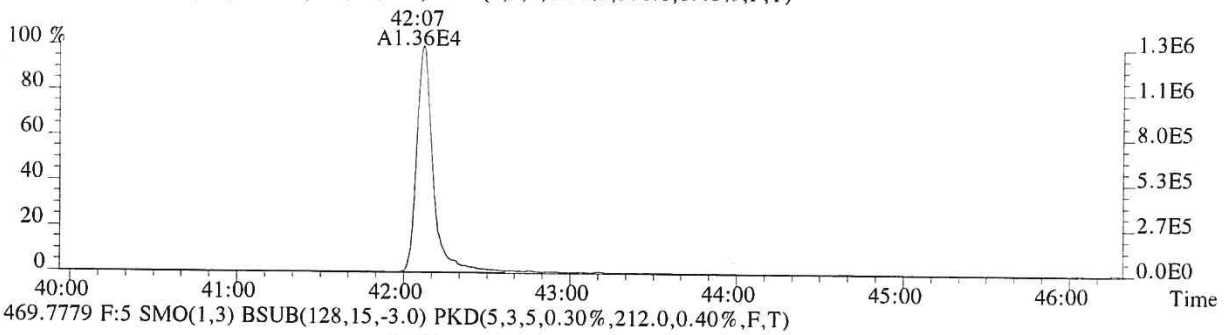
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



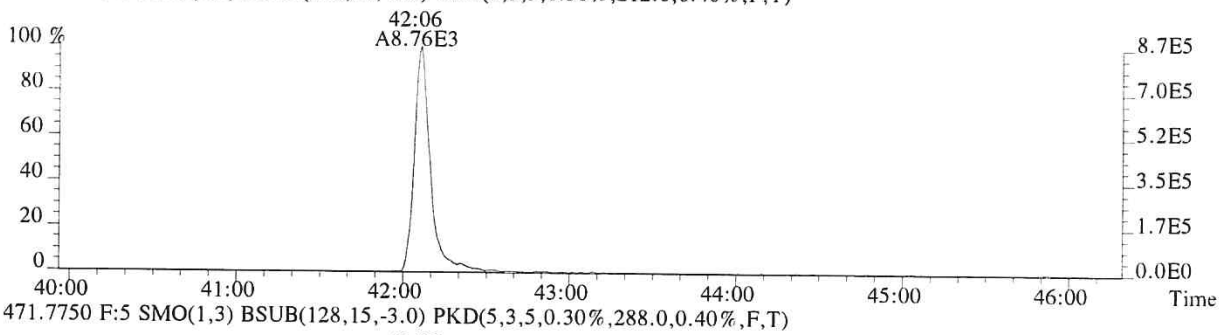
File:P519537 #1-575 Acq:21-DEC-2018 06:35:07 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-015DL
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,372.0,0.40%,F,T)



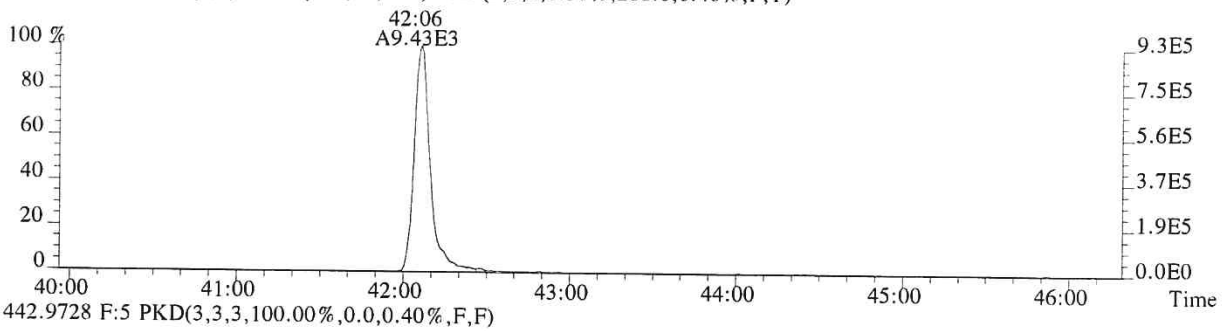
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,376.0,0.40%,F,T)



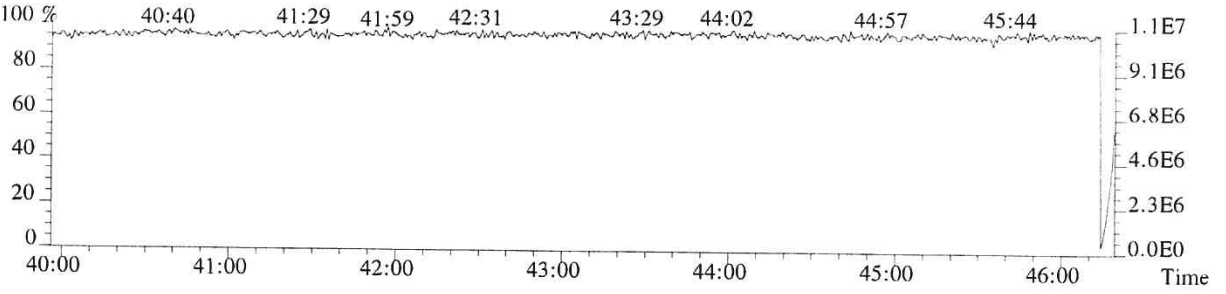
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,212.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,288.0,0.40%,F,T)



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



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL001

Run #11 Filename P519499 Samp: 1 Inj: 1 Acquired: 19-DEC-18 19:40:23
Processed: 20-DEC-18 11:12:51 Sample ID: E1801093-016

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:51	1.291e+04	1.686e+04	0.77	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	31:28	1.225e+03	7.998e+02	1.53	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	32:27	1.902e+03	1.274e+03	1.49	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:18	1.582e+03	1.253e+03	1.26	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:24	7.671e+02	5.873e+02	1.31	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:56	5.382e+02	4.267e+02	1.26	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	36:46	2.341e+02	1.565e+02	1.50	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:06	1.691e+03	1.656e+03	1.02	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:33	1.681e+02	1.504e+02	1.12	yes	no	1.258
10	Unk	OCDF	42:12	1.436e+03	1.670e+03	0.86	yes	no	1.359
11	Unk	2,3,7,8-TCDD	27:45	3.166e+03	4.226e+03	0.75	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	32:45	3.047e+02	2.216e+02	1.37	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:06	9.947e+01	9.281e+01	1.07	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:11	1.052e+03	9.183e+02	1.15	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:26	8.043e+02	7.022e+02	1.15	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:05	2.306e+04	2.238e+04	1.03	yes	no	1.025
17	Unk	OCDD	42:02	8.882e+04	1.002e+05	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	26:49	8.001e+03	9.830e+03	0.81	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	31:27	9.652e+03	5.948e+03	1.62	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	32:26	7.445e+03	4.648e+03	1.60	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:17	1.939e+03	3.686e+03	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:24	2.384e+03	4.418e+03	0.54	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:56	1.723e+03	3.353e+03	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	36:43	1.345e+03	2.614e+03	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:05	6.682e+02	1.508e+03	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:32	4.655e+02	1.035e+03	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	27:43	3.661e+03	4.603e+03	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:44	5.559e+03	3.552e+03	1.57	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:05	2.263e+03	1.783e+03	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:10	2.230e+03	1.772e+03	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:04	1.127e+03	1.119e+03	1.01	yes	no	0.858
32	IS	13C-OCDD	42:00	7.253e+02	7.926e+02	0.92	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:05	1.086e+04	1.363e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:25	4.836e+03	3.933e+03	1.23	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:45	5.256e+03				no	1.014

$$OCDD = \frac{(8.882e+04 + 1.002e+05) \times 4000\ pg \times 1}{(7.253e+02 + 7.926e+02) \times 10.004\ g \times 88.1 / 100 \times 1.118} = 50200\ ng/kg$$

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kw 12/21/18

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL001

Run #11 Filename P519499 Samp: 1 Inj: 1 Acquired: 19-DEC-18 19:40:23
Processed: 20-DEC-18 11:12:51 LAB. ID: E1801093-016

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.97e+06	6.76e+02	2.9e+03	2.55e+06	1.14e+03	2.2e+03
2	1,2,3,7,8-PeCDF	2.15e+05	2.38e+03	9.0e+01	1.43e+05	1.05e+03	1.4e+02
3	2,3,4,7,8-PeCDF	2.64e+05	2.38e+03	1.1e+02	1.76e+05	1.05e+03	1.7e+02
4	1,2,3,4,7,8-HxCDF	3.11e+05	2.15e+03	1.4e+02	2.53e+05	3.96e+03	6.4e+01
5	1,2,3,6,7,8-HxCDF	1.53e+05	2.15e+03	7.1e+01	1.17e+05	3.96e+03	2.9e+01
6	2,3,4,6,7,8-HxCDF	1.10e+05	2.15e+03	5.1e+01	8.30e+04	3.96e+03	2.1e+01
7	1,2,3,7,8,9-HxCDF	4.58e+04	2.15e+03	2.1e+01	2.89e+04	3.96e+03	7.3e+00
8	1,2,3,4,6,7,8-HpCDF	3.04e+05	4.92e+02	6.2e+02	2.91e+05	6.24e+02	4.7e+02
9	1,2,3,4,7,8,9-HpCDF	3.06e+04	4.92e+02	6.2e+01	2.68e+04	6.24e+02	4.3e+01
10	OCDF	1.68e+05	3.64e+02	4.6e+02	1.94e+05	5.00e+02	3.9e+02
11	2,3,7,8-TCDD	5.37e+05	1.89e+03	2.8e+02	7.25e+05	1.53e+03	4.7e+02
12	1,2,3,7,8-PeCDD	6.21e+04	1.54e+03	4.0e+01	3.68e+04	2.83e+03	1.3e+01
13	1,2,3,4,7,8-HxCDD	2.50e+04	6.60e+02	3.8e+01	2.16e+04	1.89e+03	1.1e+01
14	1,2,3,6,7,8-HxCDD	2.16e+05	6.60e+02	3.3e+02	1.78e+05	1.89e+03	9.5e+01
15	1,2,3,7,8,9-HxCDD	1.55e+05	6.60e+02	2.3e+02	1.41e+05	1.89e+03	7.5e+01
16	1,2,3,4,6,7,8-HpCDD	3.85e+06	6.52e+02	5.9e+03	3.74e+06	4.76e+02	7.8e+03
17	OCDD	1.02e+07	3.88e+02	2.6e+04	1.13e+07	4.40e+02	2.6e+04
18	13C-2,3,7,8-TCDF	1.30e+06	3.80e+03	3.4e+02	1.59e+06	4.28e+03	3.7e+02
19	13C-1,2,3,7,8-PeCDF	1.74e+06	1.04e+03	1.7e+03	1.09e+06	9.64e+02	1.1e+03
20	13C-2,3,4,7,8-PeCDF	1.38e+06	1.04e+03	1.3e+03	8.57e+05	9.64e+02	8.9e+02
21	13C-1,2,3,4,7,8-HxCDF	3.99e+05	4.88e+02	8.2e+02	7.48e+05	8.40e+02	8.9e+02
22	13C-1,2,3,6,7,8-HxCDF	4.47e+05	4.88e+02	9.2e+02	8.27e+05	8.40e+02	9.8e+02
23	13C-2,3,4,6,7,8-HxCDF	3.36e+05	4.88e+02	6.9e+02	6.80e+05	8.40e+02	8.1e+02
24	13C-1,2,3,7,8,9-HxCDF	2.51e+05	4.88e+02	5.1e+02	4.97e+05	8.40e+02	5.9e+02
25	13C-1,2,3,4,6,7,8-HpCDF	1.23e+05	8.48e+02	1.5e+02	2.74e+05	1.01e+03	2.7e+02
26	13C-1,2,3,4,7,8,9-HpCDF	7.60e+04	8.48e+02	9.0e+01	1.65e+05	1.01e+03	1.6e+02
27	13C-2,3,7,8-TCDD	6.56e+05	3.77e+03	1.7e+02	7.99e+05	1.89e+03	4.2e+02
28	13C-1,2,3,7,8-PeCDD	1.06e+06	1.23e+03	8.6e+02	6.40e+05	8.40e+02	7.6e+02
29	13C-1,2,3,4,7,8-HxCDD	4.70e+05	9.60e+02	4.9e+02	3.74e+05	1.16e+03	3.2e+02
30	13C-1,2,3,6,7,8-HxCDD	4.06e+05	9.60e+02	4.2e+02	3.23e+05	1.16e+03	2.8e+02
31	13C-1,2,3,4,6,7,8-HpCDD	1.87e+05	3.52e+02	5.3e+02	1.86e+05	3.76e+02	4.9e+02
32	13C-OCDD	8.91e+04	4.28e+02	2.1e+02	9.03e+04	3.24e+02	2.8e+02
33	13C-1,2,3,4-TCDD	1.87e+06	3.77e+03	5.0e+02	2.29e+06	1.89e+03	1.2e+03
34	13C-1,2,3,7,8,9-HxCDD	8.50e+05	9.60e+02	8.9e+02	6.98e+05	1.16e+03	6.0e+02
35	37Cl-2,3,7,8-TCDD	9.15e+05	2.16e+03	4.2e+02			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.892e{+}03 + 1.528e{+}03) \times 2000}{(6.565e{+}05 + 7.991e{+}05) \times (\quad) \times 1.085} =$$

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL001

Entry: 36 Totals Name: Total Tetra-Furans

Run: 11 File: P519499 Sample:1 Injection:1 Function:1

Acquired: 19-DEC-18 19:40:23 Processed: 20-DEC-18 11:12:51

Mass: 303.9020 305.8990 Tot Response: 6.41e+04 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	22:14	8.75e+01	1.19e+02	0.73	yes	2.07e+02		n	n
2	22:40	1.33e+02	1.74e+02	0.76	yes	3.07e+02		n	n
3	23:08	2.53e+02	3.04e+02	0.83	yes	5.57e+02		n	n
4	23:37	1.20e+03	1.76e+03	0.68	yes	2.96e+03		n	n
5	23:56	1.21e+03	1.65e+03	0.73	yes	2.86e+03		n	n
6	24:19	3.79e+02	4.97e+02	0.76	yes	8.76e+02		n	n
7	24:28	1.43e+02	1.91e+02	0.75	yes	3.34e+02		n	n
8	24:37	5.56e+02	7.32e+02	0.76	yes	1.29e+03		n	n
9	25:08	8.64e+01	1.26e+02	0.68	yes	2.13e+02		n	n
10	25:25	9.72e+02	1.26e+03	0.77	yes	2.23e+03		n	n
11	25:55	5.95e+03	7.78e+03	0.76	yes	1.37e+04		n	n
12	26:12	4.49e+02	6.42e+02	0.70	yes	1.09e+03		n	n
13	26:24	6.03e+01	9.01e+01	0.67	yes	1.50e+02		n	n
14	26:39	3.36e+02	4.75e+02	0.71	yes	8.11e+02		n	n
15	26:51	1.29e+04	1.69e+04	0.77	yes	2.98e+04	2,3,7,8-TCDF	n	n
16	27:13	1.85e+03	2.39e+03	0.77	yes	4.24e+03		n	n
17	27:29	1.27e+02	1.71e+02	0.74	yes	2.97e+02		n	n
18	28:52	9.21e+02	1.21e+03	0.76	yes	2.13e+03		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL001

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 11 File: P519499 Sample:1 Injection:1 Function:1

Acquired: 19-DEC-18 19:40:23 Processed: 20-DEC-18 11:12:51

Mass: 319.8970 321.8940 Tot Response: 9.89e+03 RRF: 1.085

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	23:56	2.94e+02	4.06e+02	0.72	yes	7.01e+02		n	n
2	24:18	2.86e+02	3.29e+02	0.87	yes	6.15e+02		n	n
3	26:41	8.12e+01	9.75e+01	0.83	yes	1.79e+02		n	n
4	27:35	4.75e+01	6.49e+01	0.73	yes	1.12e+02		n	n
5	27:45	3.17e+03	4.23e+03	0.75	yes	7.39e+03	2,3,7,8-TCDD	n	n
6	28:04	3.45e+02	4.24e+02	0.81	yes	7.70e+02		n	n
7	28:41	4.88e+01	7.27e+01	0.67	yes	1.22e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL001

Entry: 38 Totals Name: Total Penta-Furans1

Run: 11 File: P519499 Sample:1 Injection:1 Function:1

Acquired: 19-DEC-18 19:40:23 Processed: 20-DEC-18 11:12:51

Mass: 339.8600 341.8570 Tot Response: 3.58e+03 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	28:52	2.15e+03	1.43e+03 1.50	yes	3.58e+03		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL001

Entry: 39 Totals Name: Total Penta-Furans2

Run: 11 File: P519499 Sample:1 Injection:1 Function:2

Acquired: 19-DEC-18 19:40:23 Processed: 20-DEC-18 11:12:51

Mass: 339.8600 341.8570 Tot Response: 2.03e+04 RRF: 0.9857

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:20	1.30e+03	8.19e+02	1.59	yes	2.12e+03		n	n
2	30:29	4.28e+03	2.84e+03	1.51	yes	7.12e+03		n	n
3	30:39	5.91e+01	3.86e+01	1.53	yes	9.77e+01		n	n
4	30:51	1.36e+02	9.67e+01	1.41	yes	2.33e+02		n	n
5	31:03	9.42e+02	5.36e+02	1.76	yes	1.48e+03		n	n
6	31:09	4.07e+02	2.94e+02	1.38	yes	7.01e+02		n	n
7	31:28	1.22e+03	8.00e+02	1.53	yes	2.02e+03	1,2,3,7,8-PeCDF	n	n
8	31:44	1.31e+03	9.35e+02	1.40	yes	2.25e+03		n	n
9	32:21	5.79e+02	4.29e+02	1.35	yes	1.01e+03		n	n
10	32:27	1.90e+03	1.27e+03	1.49	yes	3.18e+03	2,3,4,7,8-PeCDF	n	n
11	32:45	9.15e+01	5.57e+01	1.64	yes	1.47e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL001

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 11 File: P519499 Sample:1 Injection:1 Function:2

Acquired: 19-DEC-18 19:40:23 Processed: 20-DEC-18 11:12:51

Mass: 355.8550 357.8520 Tot Response: 5.43e+03 RRF: 0.9565

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:31	1.02e+03	6.46e+02	1.58	yes	1.66e+03		n	n
2	31:30	5.88e+02	4.40e+02	1.34	yes	1.03e+03		n	n
3	31:40	3.58e+02	2.11e+02	1.69	yes	5.69e+02		n	n
4	31:59	4.05e+02	2.84e+02	1.43	yes	6.89e+02		n	n
5	32:20	2.72e+02	1.72e+02	1.58	yes	4.43e+02		n	n
6	32:45	3.05e+02	2.22e+02	1.37	yes	5.26e+02	1,2,3,7,8-PeCDD	n	n
7	32:50	1.19e+02	7.62e+01	1.56	yes	1.95e+02		n	n
8	33:09	1.83e+02	1.35e+02	1.36	yes	3.18e+02		n	n

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Peak List Summary

CLIENT ID.
SL001

Entry: 41 Totals Name: Total Hexa-Furans

Run: 11 File: P519499 Sample:1 Injection:1 Function:3

Acquired: 19-DEC-18 19:40:23 Processed: 20-DEC-18 11:12:51

Mass: 373.8210 375.8180 Tot Response: 1.59e+04 RRF: 1.141

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:07	4.96e+02	4.25e+02	1.17	yes	9.21e+02		n	n
2	34:18	2.48e+03	2.15e+03	1.16	yes	4.63e+03		n	n
3	34:39	1.63e+02	1.50e+02	1.09	yes	3.13e+02		n	n
4	34:50	2.34e+03	1.76e+03	1.33	yes	4.10e+03		n	n
5	35:12	3.59e+02	2.95e+02	1.22	yes	6.54e+02		n	n
6	35:18	1.58e+03	1.25e+03	1.26	yes	2.84e+03	1,2,3,4,7,8-HxCDF	n	n
7	35:24	7.67e+02	5.87e+02	1.31	yes	1.35e+03	1,2,3,6,7,8-HxCDF	n	n
8	35:40	6.19e+01	5.75e+01	1.08	yes	1.19e+02		n	n
9	35:56	5.38e+02	4.27e+02	1.26	yes	9.65e+02	2,3,4,6,7,8-HxCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL001

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 11 File: P519499 Sample:1 Injection:1 Function:3

Acquired: 19-DEC-18 19:40:23 Processed: 20-DEC-18 11:12:51

Mass: 389.8160 391.8130 Tot Response: 3.12e+04 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:41	6.78e+03	5.60e+03	1.21	yes	1.24e+04		n	n
2	35:14	5.34e+02	4.04e+02	1.32	yes	9.38e+02		n	n
3	35:28	7.63e+03	6.01e+03	1.27	yes	1.36e+04		n	n
4	35:35	3.11e+02	2.66e+02	1.17	yes	5.77e+02		n	n
5	36:06	9.95e+01	9.28e+01	1.07	yes	1.92e+02	1,2,3,4,7,8-HxCDD	n	n
6	36:11	1.05e+03	9.18e+02	1.15	yes	1.97e+03	1,2,3,6,7,8-HxCDD	n	n
7	36:26	8.04e+02	7.02e+02	1.15	yes	1.51e+03	1,2,3,7,8,9-HxCDD	n	n

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Peak List Summary

CLIENT ID.
SL001

Entry: 43 Totals Name: Total Hepta-Furans

Run: 11 File: P519499 Sample:1 Injection:1 Function:4

Acquired: 19-DEC-18 19:40:23 Processed: 20-DEC-18 11:12:51

Mass: 407.7820 409.7790 Tot Response: 9.80e+03 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:06	1.69e+03	1.66e+03	1.02	yes	3.35e+03	1,2,3,4,6,7,8-HpCDF	n	n
2	38:23	1.19e+02	1.04e+02	1.15	yes	2.23e+02		n	n
3	38:32	3.01e+03	2.90e+03	1.04	yes	5.91e+03		n	n
4	39:33	1.68e+02	1.50e+02	1.12	yes	3.18e+02	1,2,3,4,7,8,9-HpCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL001

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 11 File: P519499 Sample:1 Injection:1 Function:4

Acquired: 19-DEC-18 19:40:23 Processed: 20-DEC-18 11:12:51

Mass: 423.7770 425.7740 Tot Response: 9.75e+04 RRF: 1.025

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:23	2.64e+04	2.57e+04	1.03	yes	5.21e+04		n	n
2	39:05	2.31e+04	2.24e+04	1.03	yes	4.54e+04	1,2,3,4,6,7,8-HpCDD	n	n

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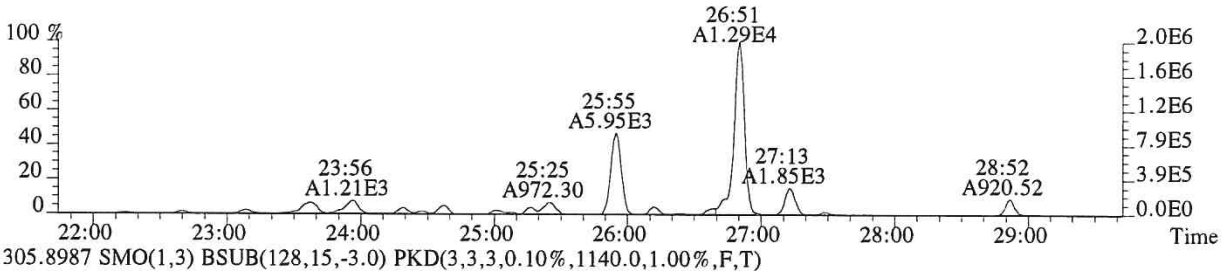
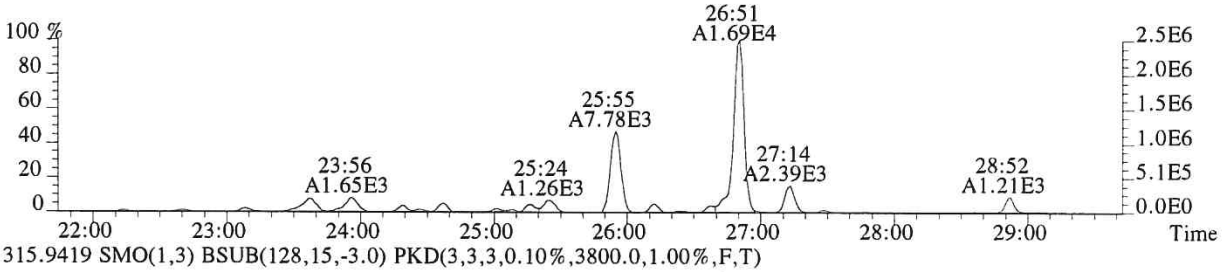
File:P519499 #1-566 Acq:19-DEC-2018 19:40:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-016

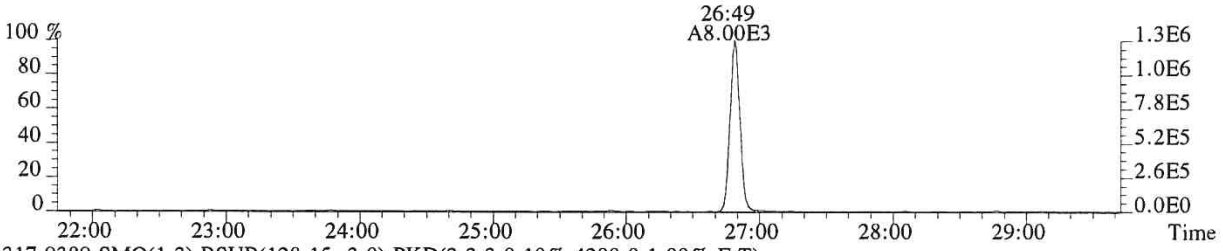
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,676.0,1.00%,F,T)



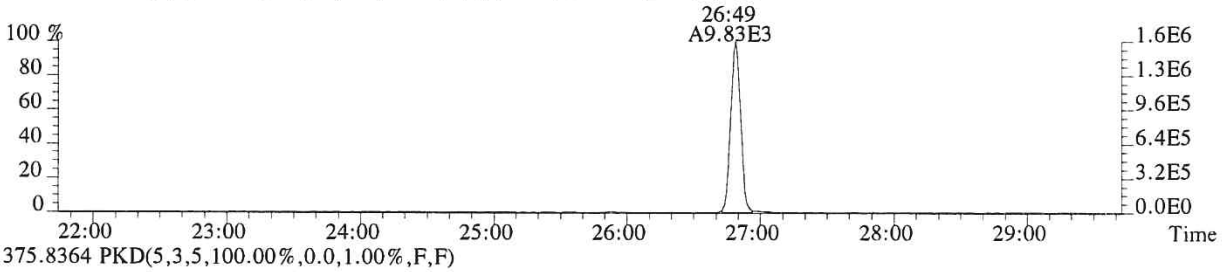
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1140.0,1.00%,F,T)



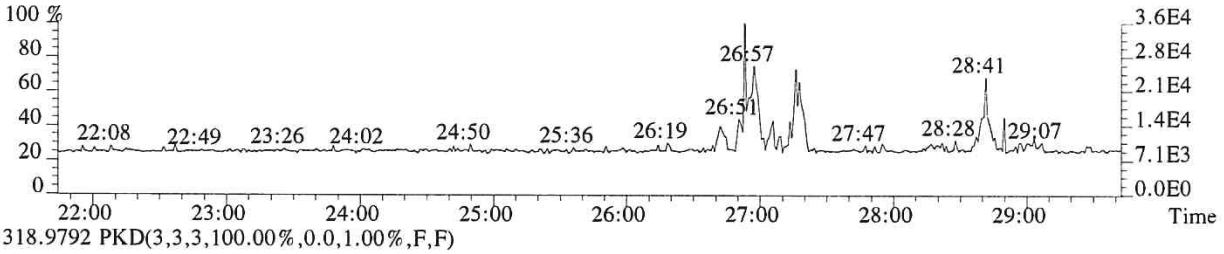
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3800.0,1.00%,F,T)



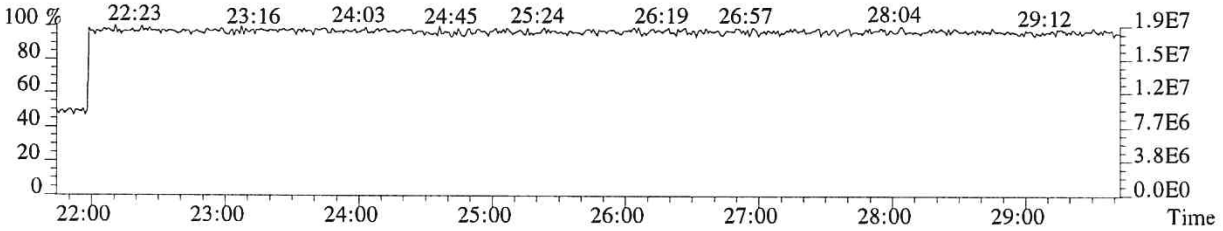
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4280.0,1.00%,F,T)



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



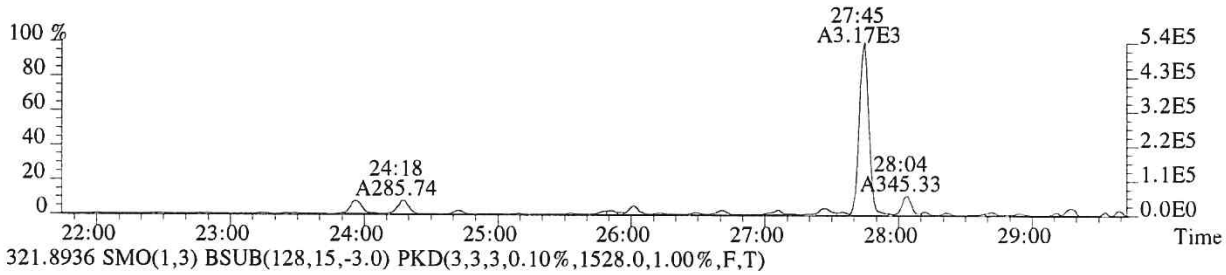
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



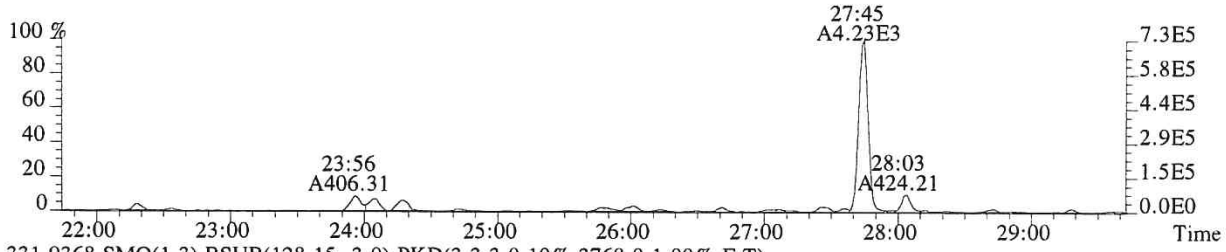
014407

File:P519499 #1-566 Acq:19-DEC-2018 19:40:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-016

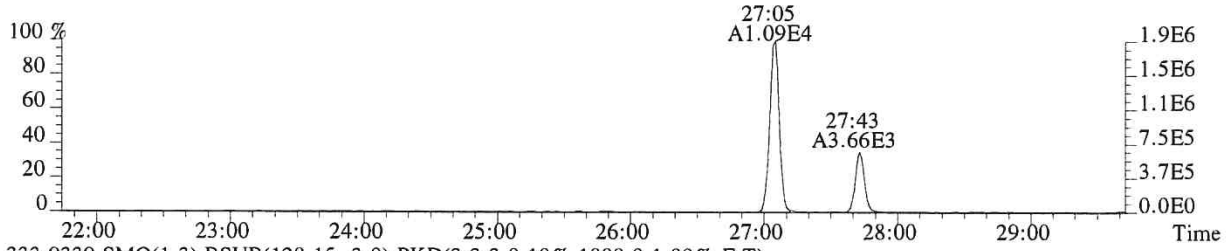
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1892.0,1.00%,F,T)



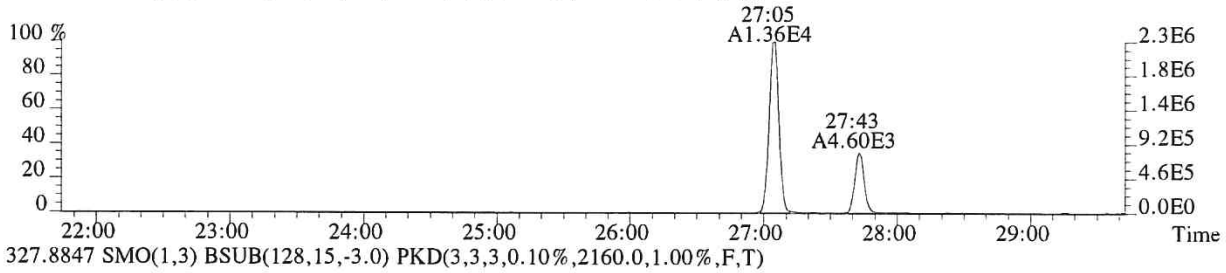
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1528.0,1.00%,F,T)



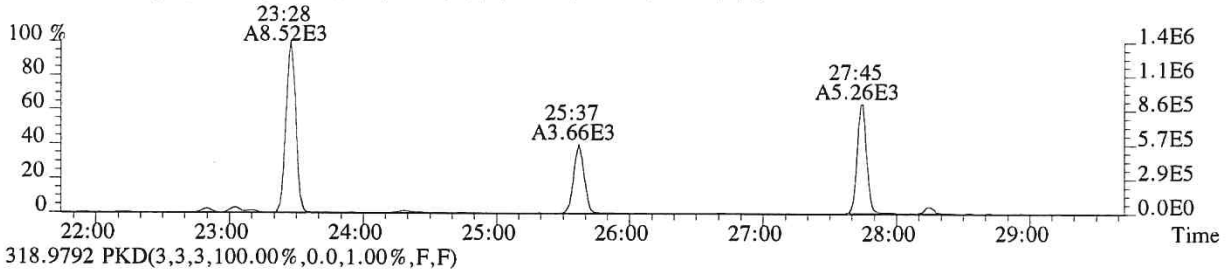
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3768.0,1.00%,F,T)



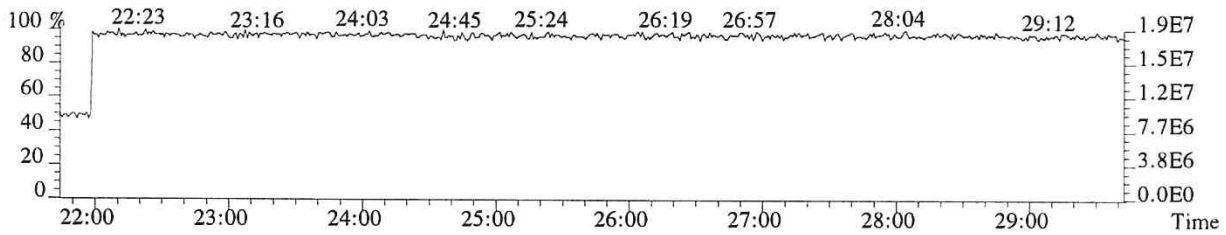
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1888.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2160.0,1.00%,F,T)

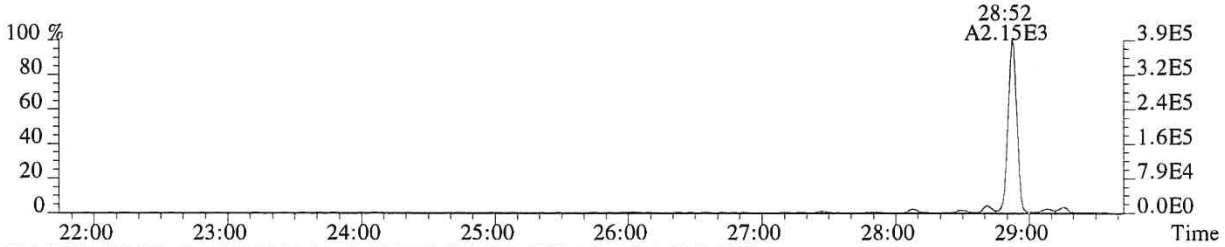


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

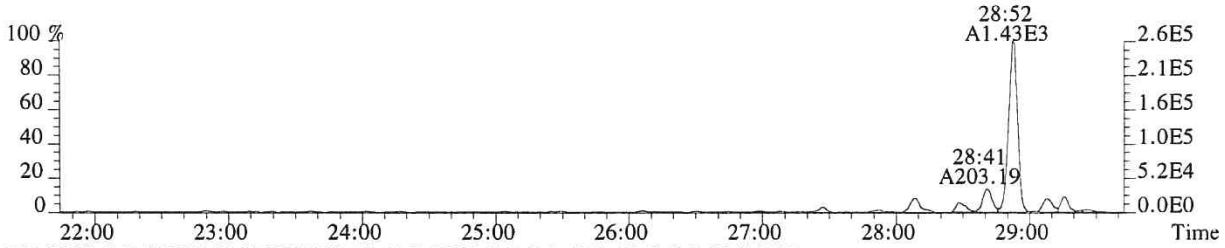


014408

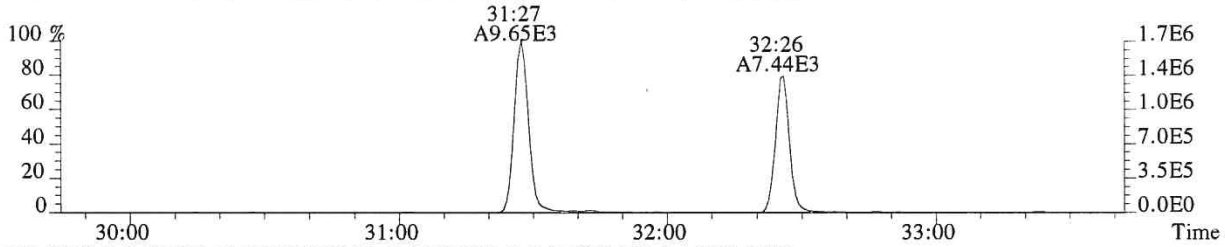
File:P519499 #1-566 Acq:19-DEC-2018 19:40:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-016
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,700.0,1.00%,F,T)



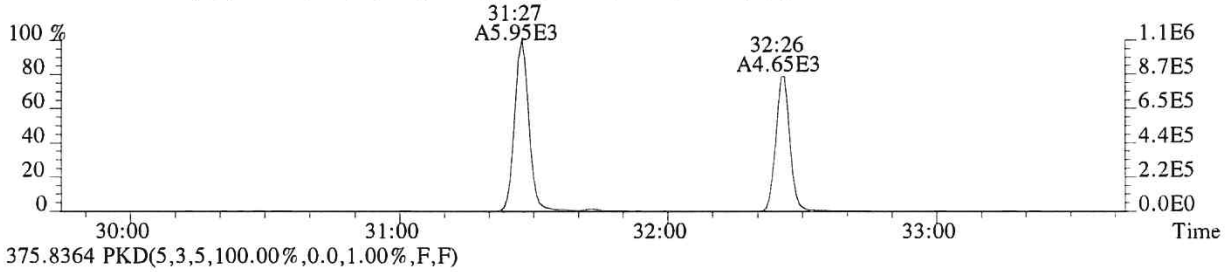
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1124.0,1.00%,F,T)



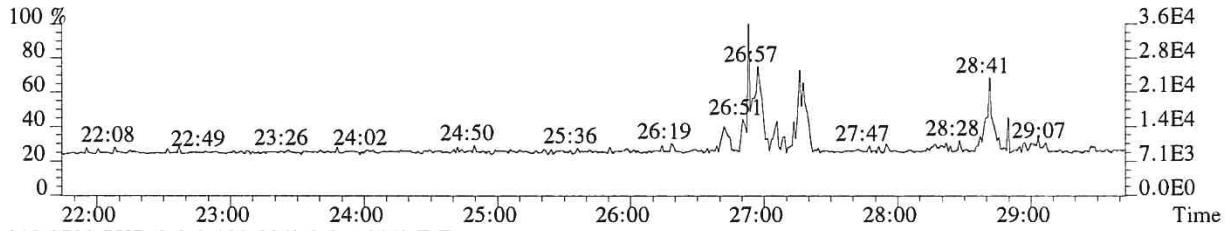
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1040.0,1.00%,F,T)



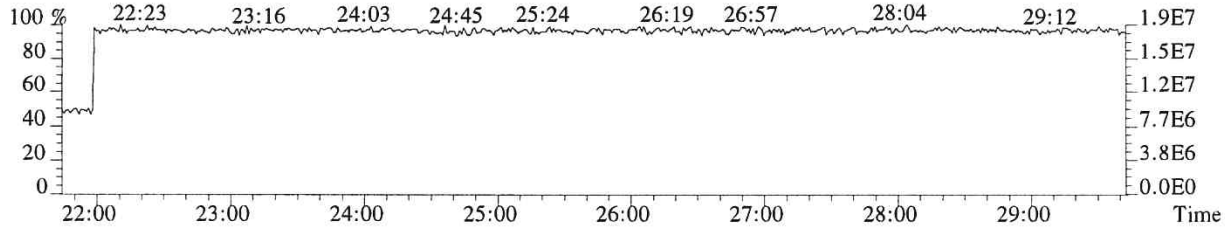
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,964.0,1.00%,F,T)



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



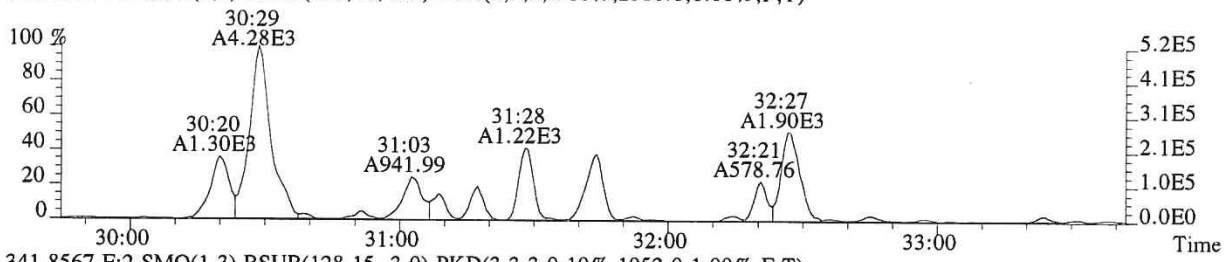
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



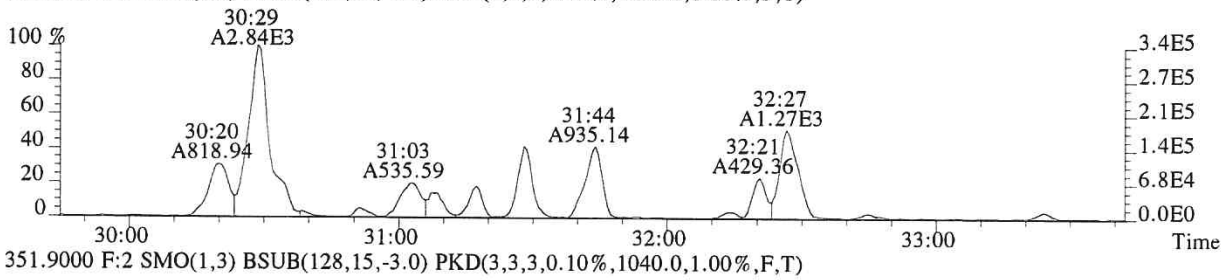
014409

File:P519499 #1-357 Acq:19-DEC-2018 19:40:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-016

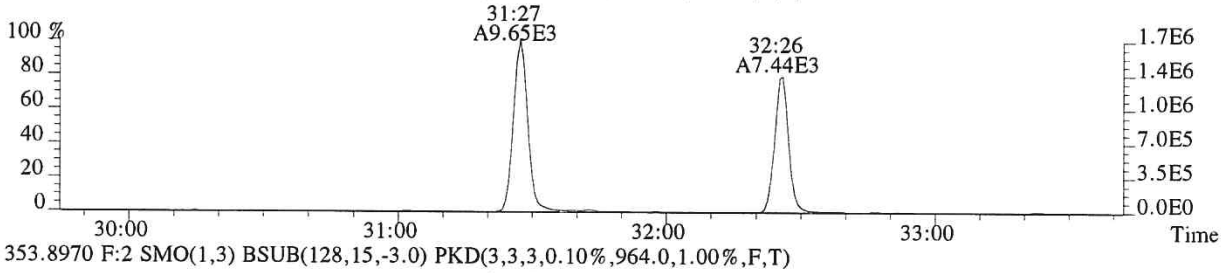
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2380.0,1.00%,F,T)



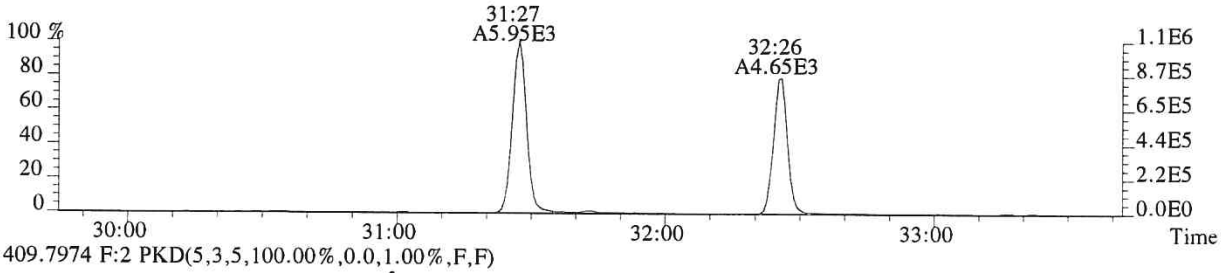
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1052.0,1.00%,F,T)



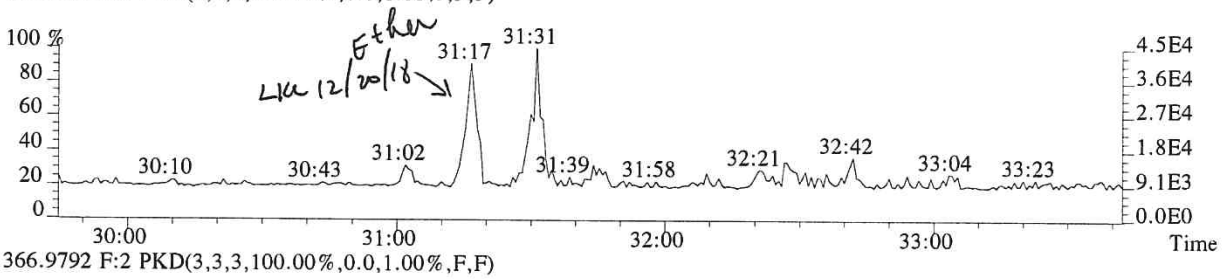
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1040.0,1.00%,F,T)



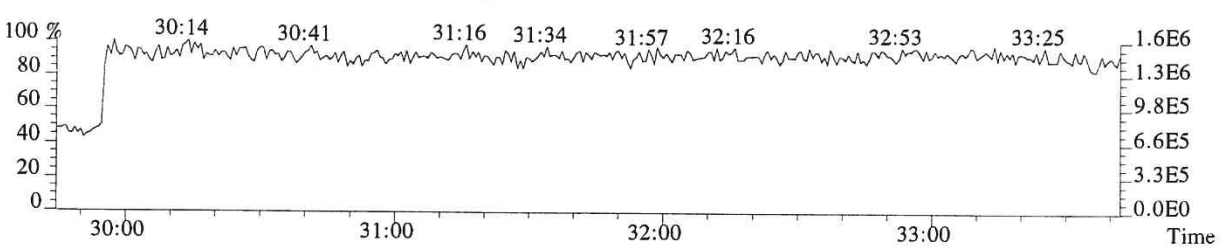
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,964.0,1.00%,F,T)



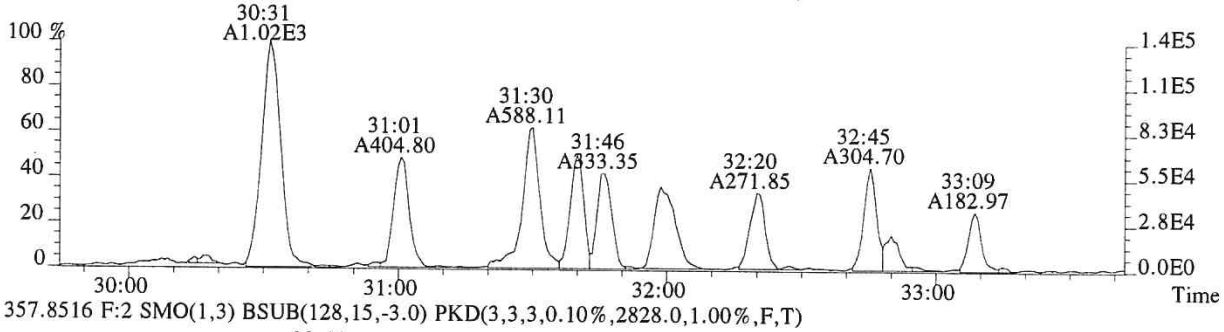
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



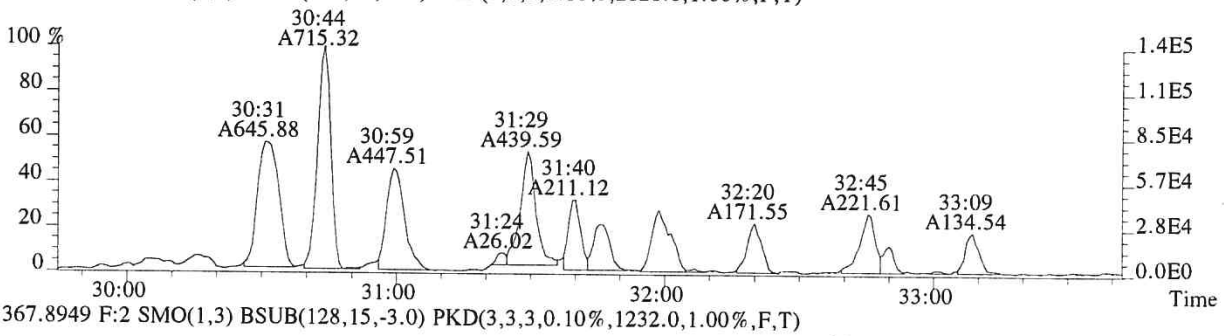
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



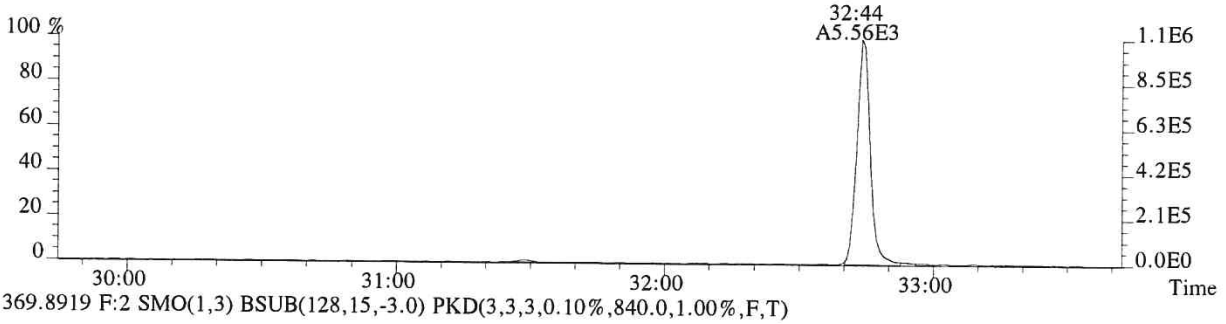
File:P519499 #1-357 Acq:19-DEC-2018 19:40:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-016
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1540.0,1.00%,F,T)



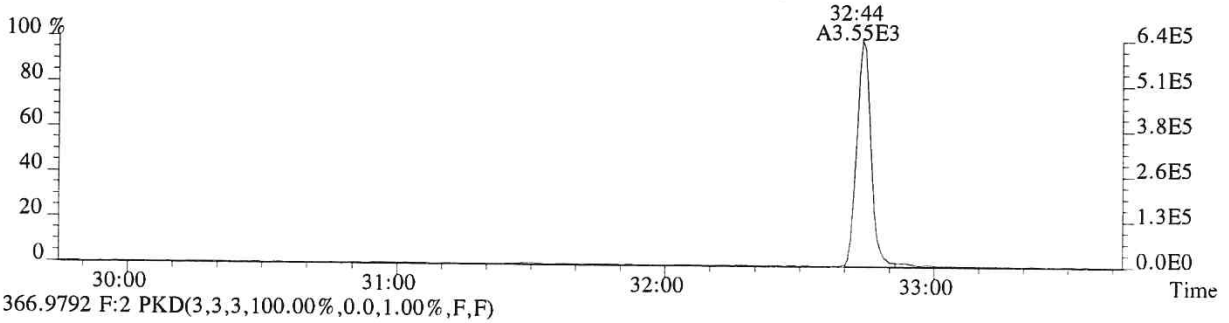
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2828.0,1.00%,F,T)



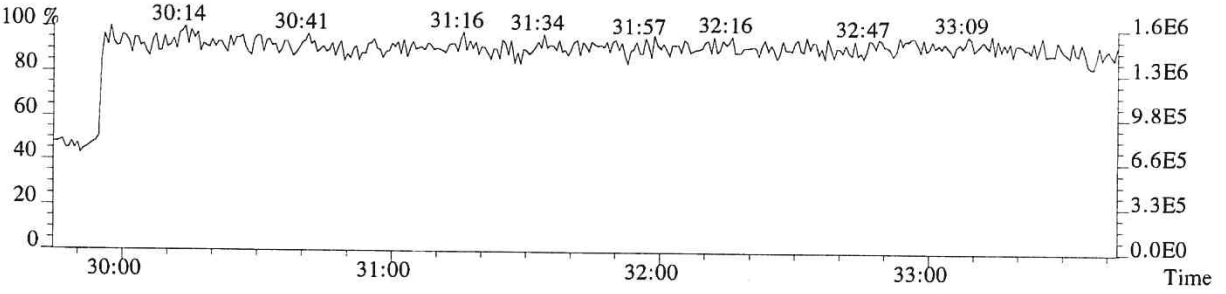
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1232.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,840.0,1.00%,F,T)

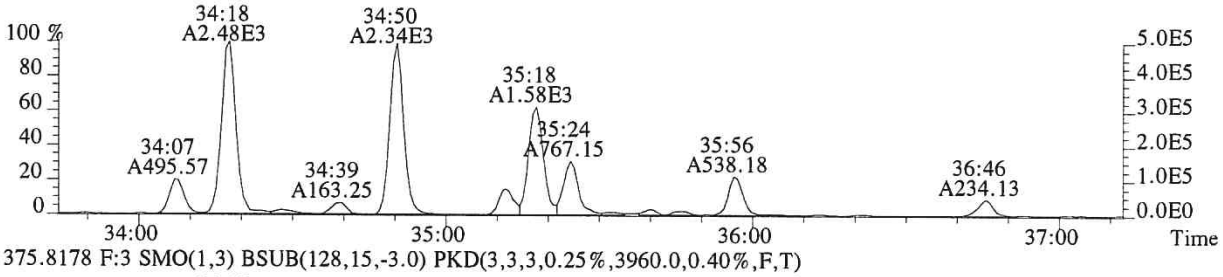


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

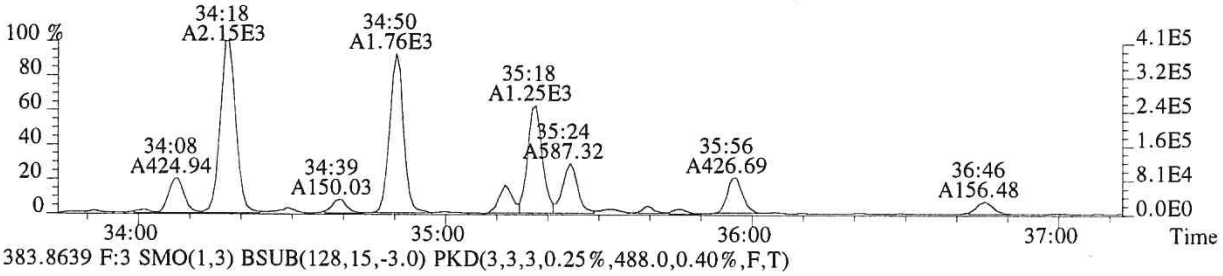


File:P519499 #1-313 Acq:19-DEC-2018 19:40:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-016

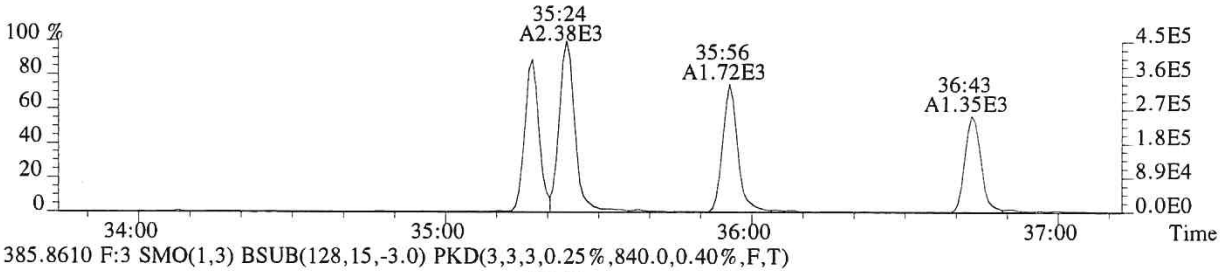
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2152.0,0.40%,F,T)



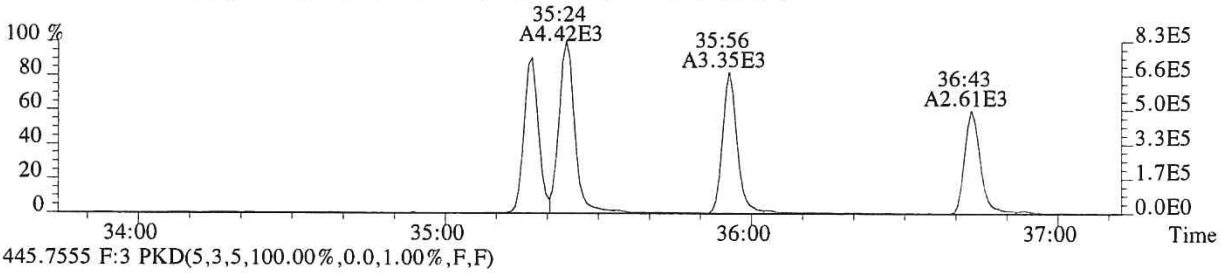
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3960.0,0.40%,F,T)



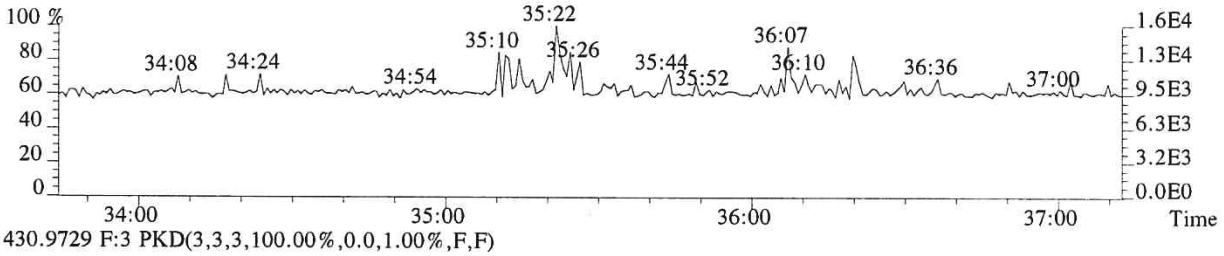
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,488.0,0.40%,F,T)



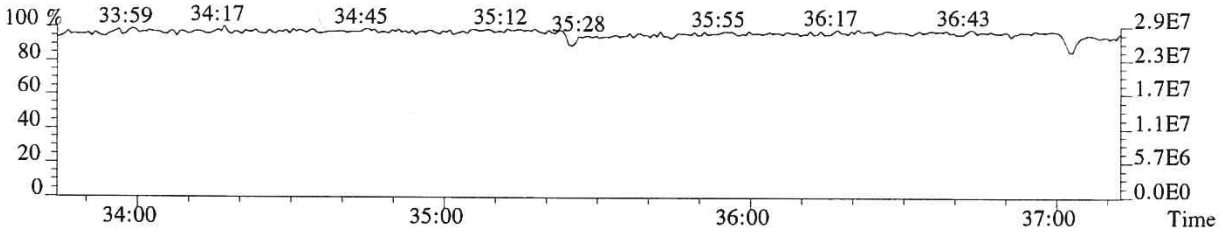
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,840.0,0.40%,F,T)



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

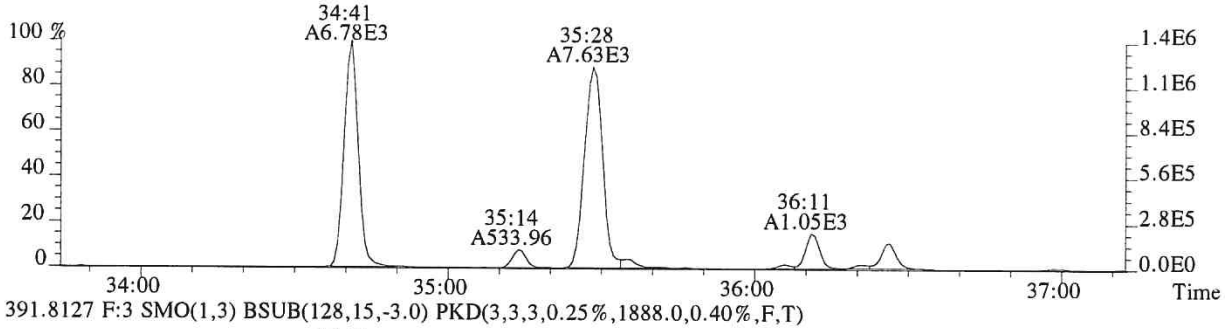


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

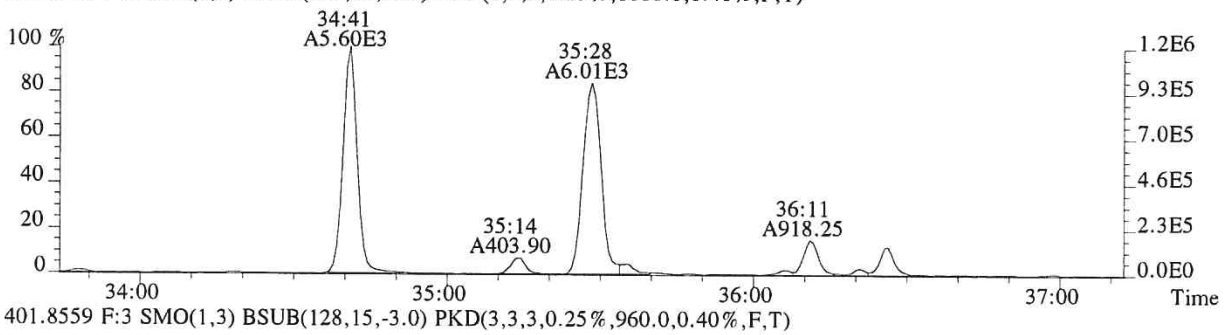


014412

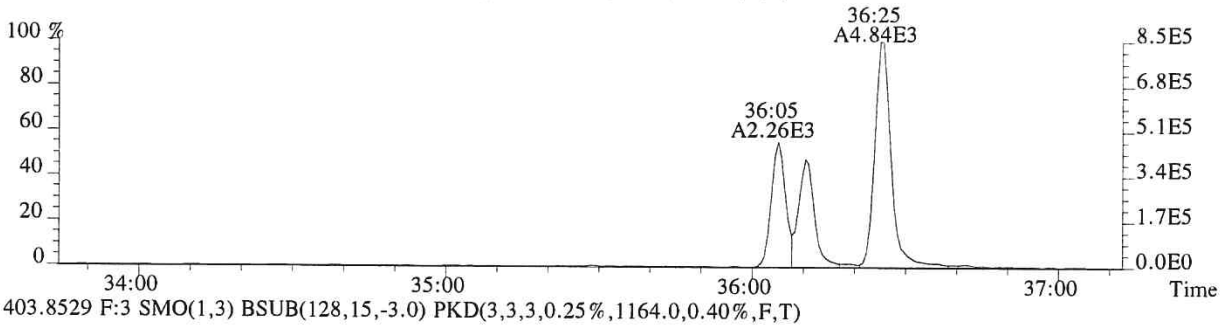
File:P519499 #1-313 Acq:19-DEC-2018 19:40:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-016
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,660.0,0.40%,F,T)



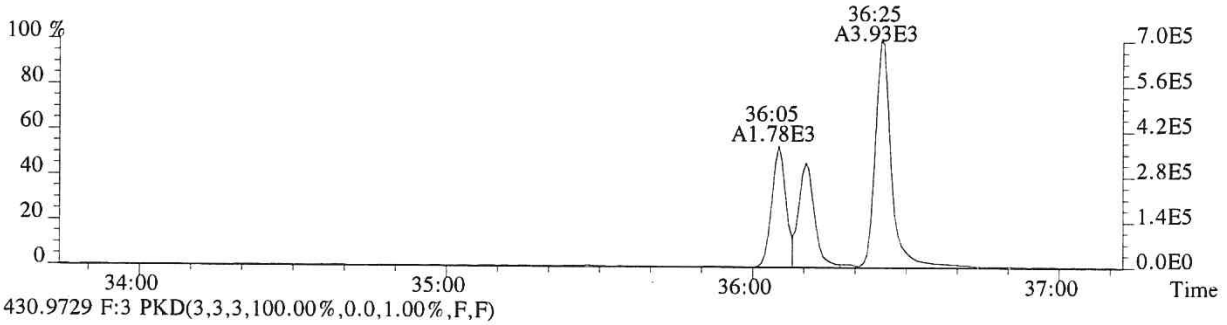
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1888.0,0.40%,F,T)



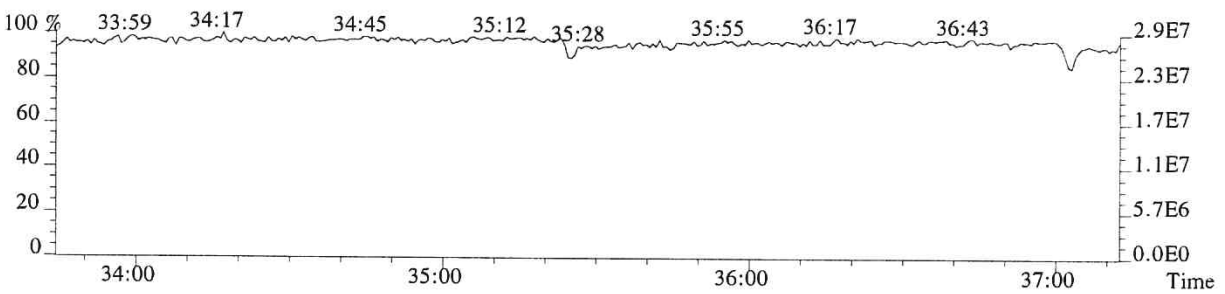
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,960.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1164.0,0.40%,F,T)



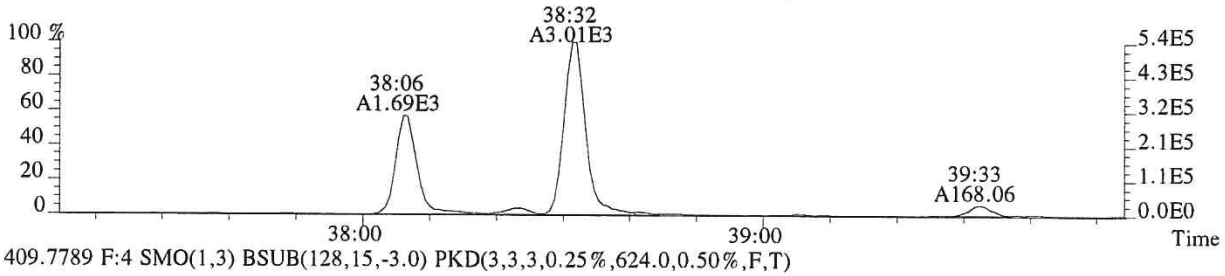
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



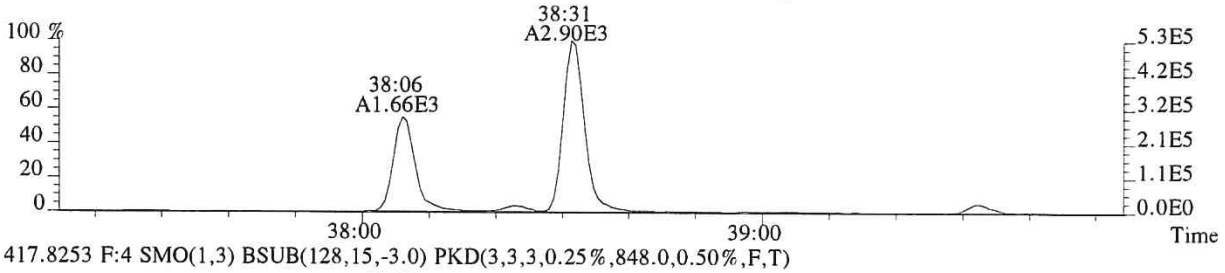
014413

File:P519499 #1-240 Acq:19-DEC-2018 19:40:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-016

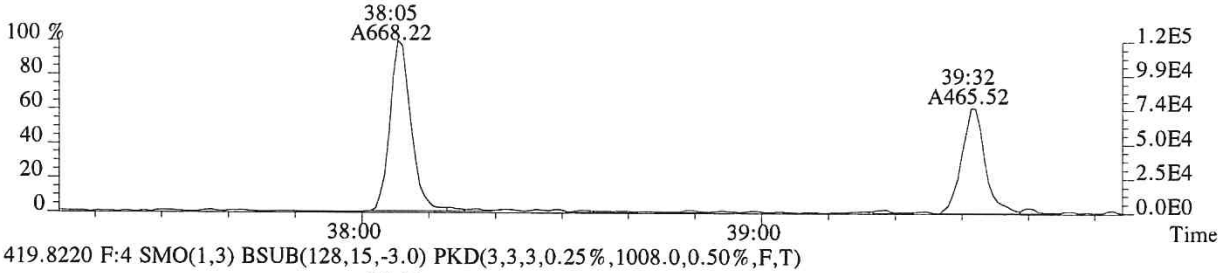
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,492.0,0.50%,F,T)



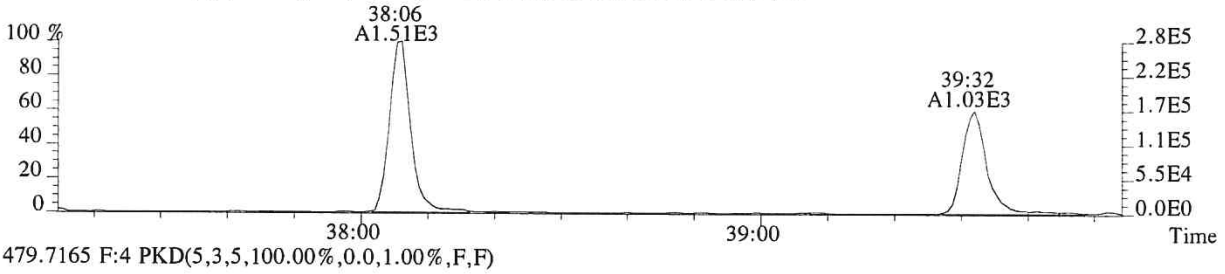
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,624.0,0.50%,F,T)



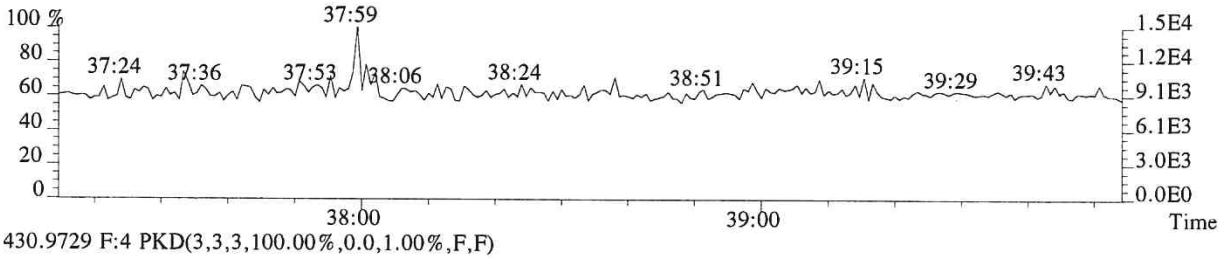
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,848.0,0.50%,F,T)



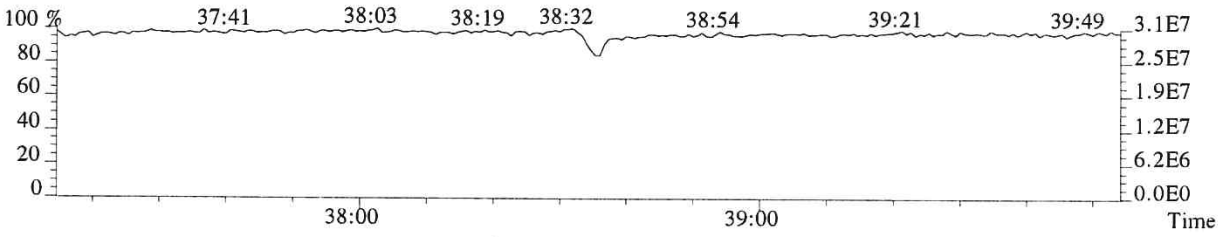
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1008.0,0.50%,F,T)



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

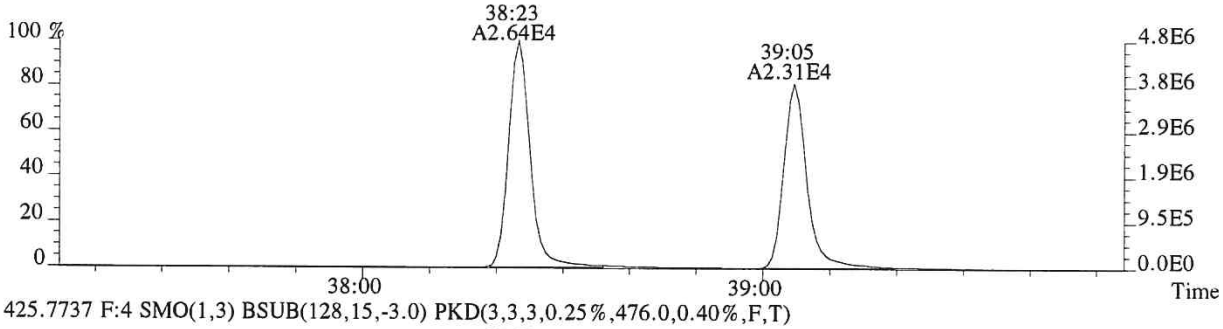


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

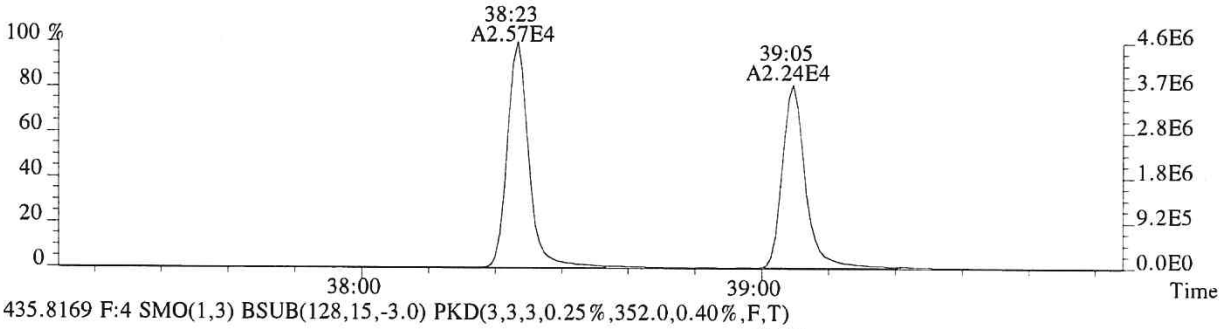


014414

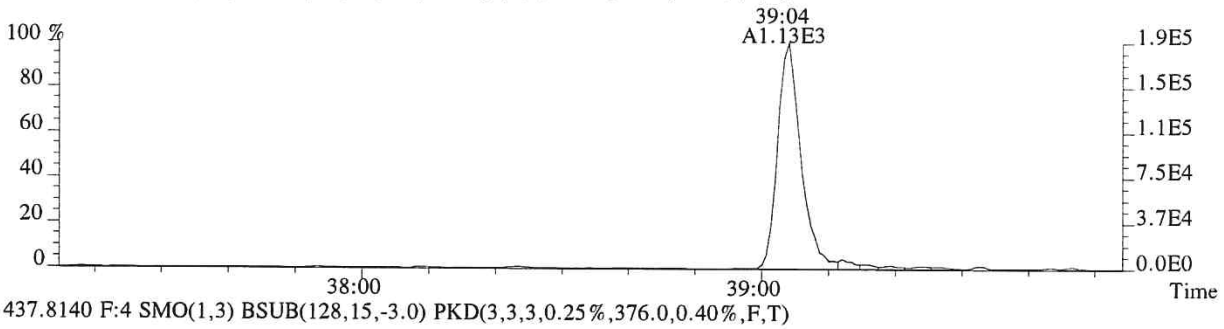
File:P519499 #1-240 Acq:19-DEC-2018 19:40:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-016
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,652.0,0.40%,F,T)



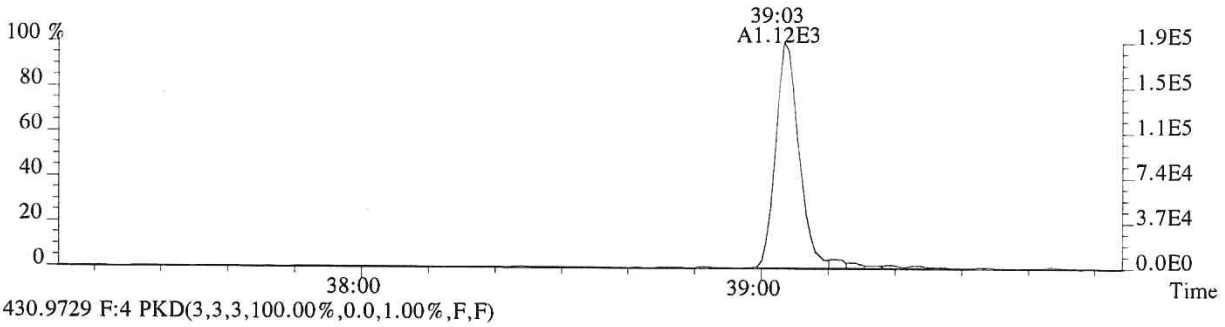
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,476.0,0.40%,F,T)



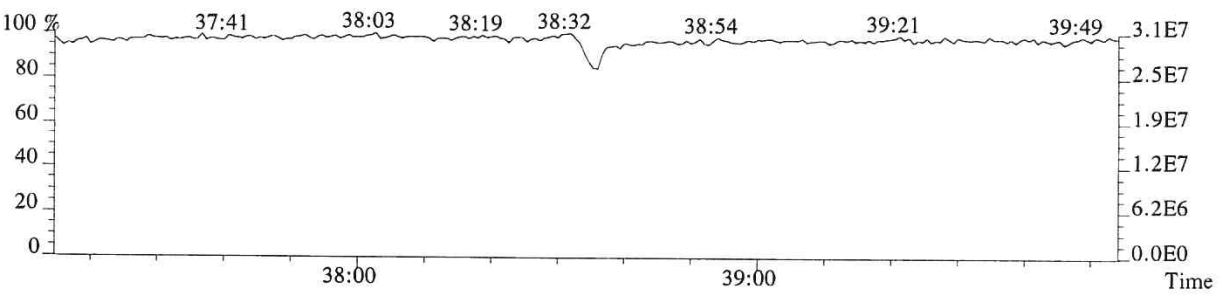
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,352.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,376.0,0.40%,F,T)

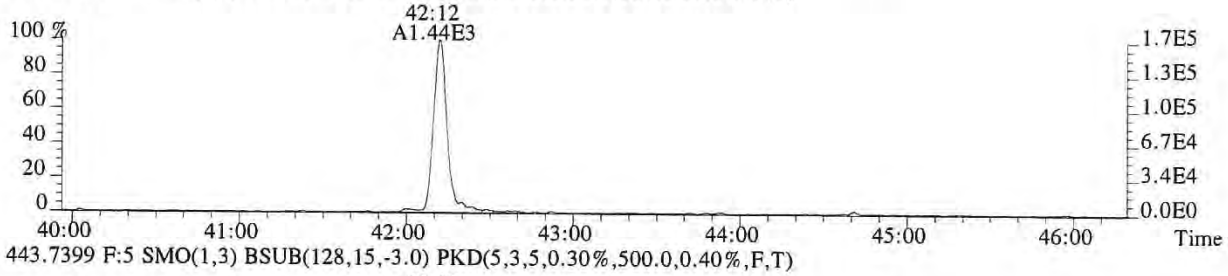


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

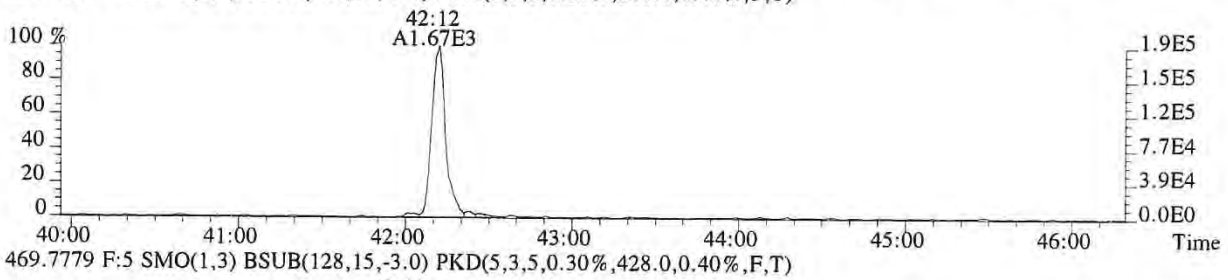


File:P519499 #1-575 Acq:19-DEC-2018 19:40:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-016

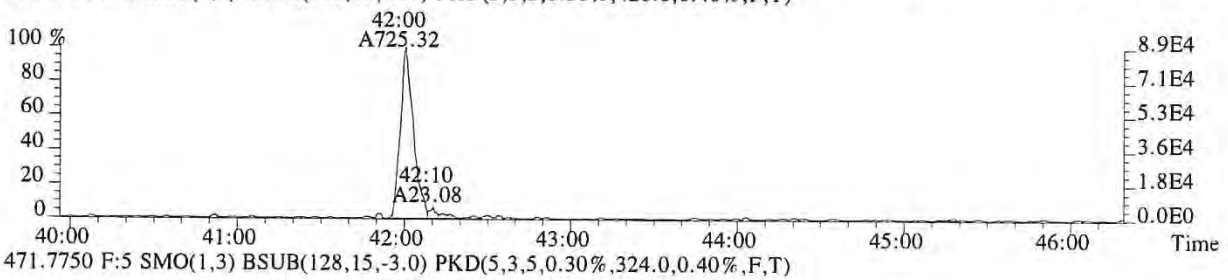
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,364.0,0.40%,F,T)



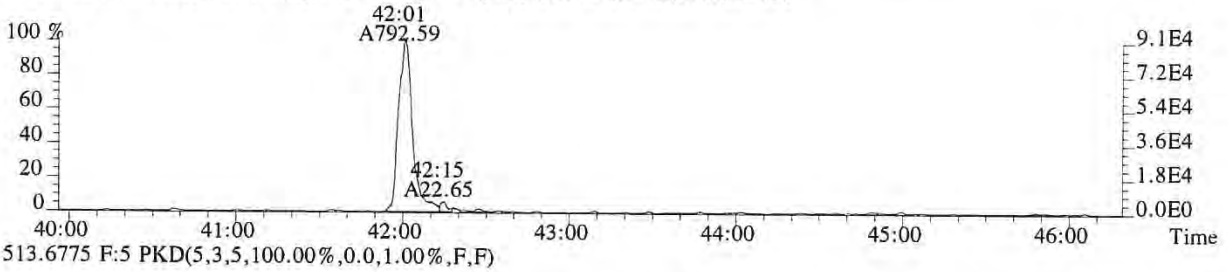
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,500.0,0.40%,F,T)



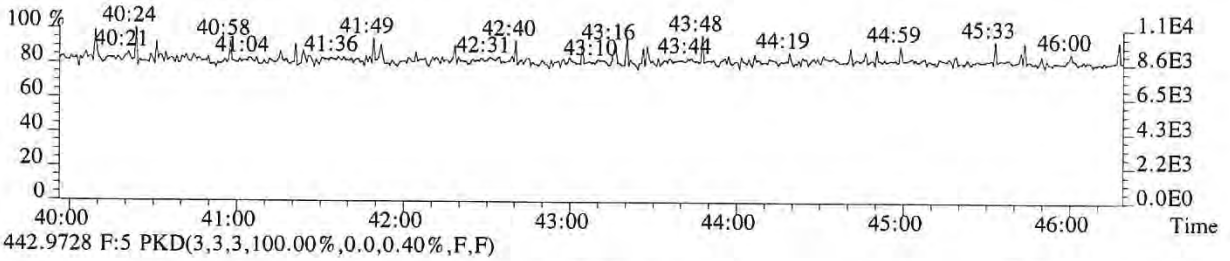
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,428.0,0.40%,F,T)



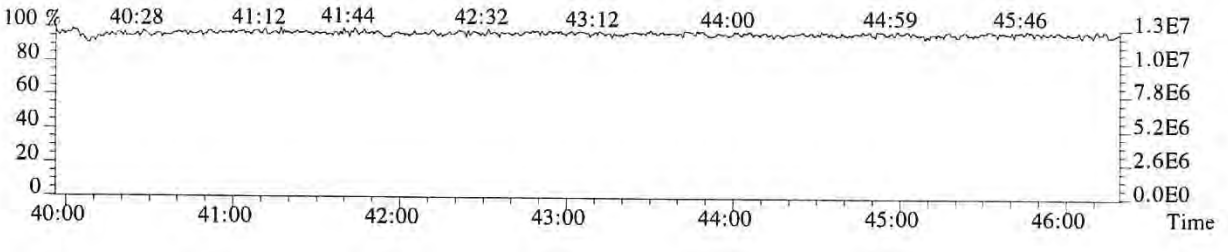
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,324.0,0.40%,F,T)



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

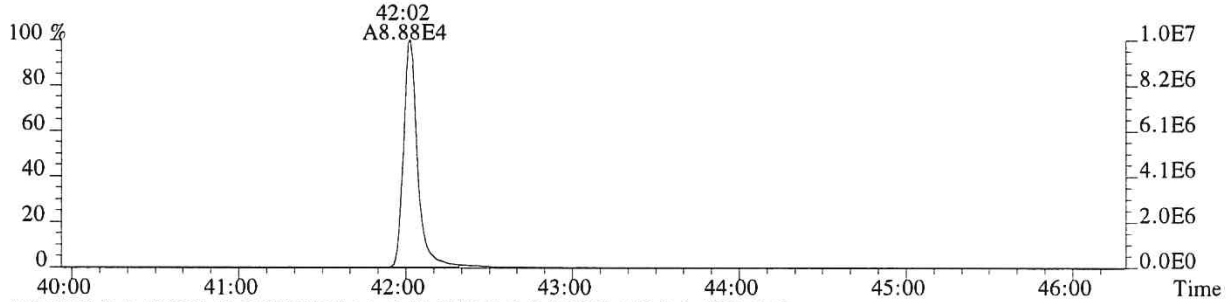


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

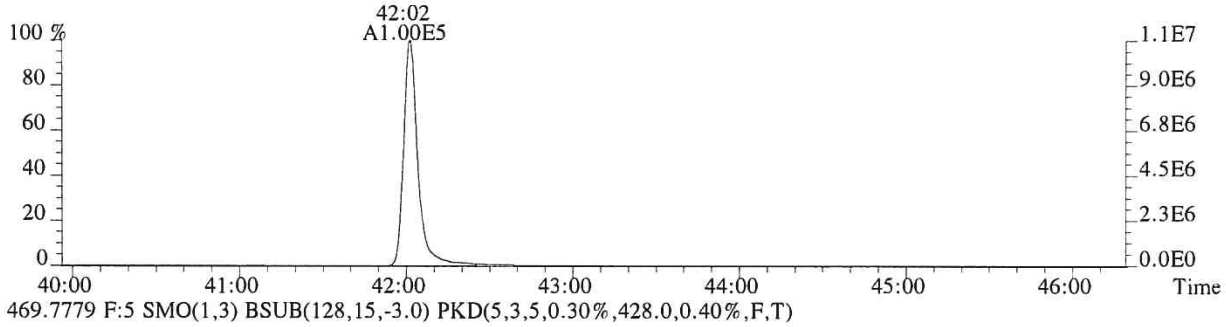


014416

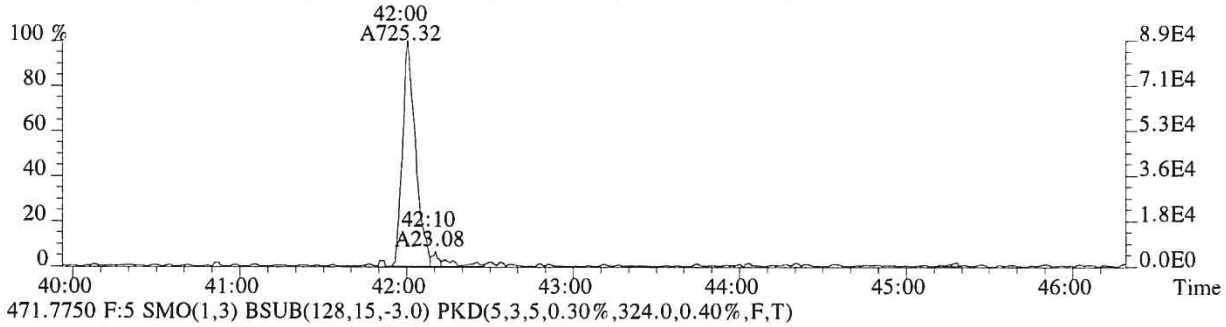
File:P519499 #1-575 Acq:19-DEC-2018 19:40:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-016
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,388.0,0.40%,F,T)



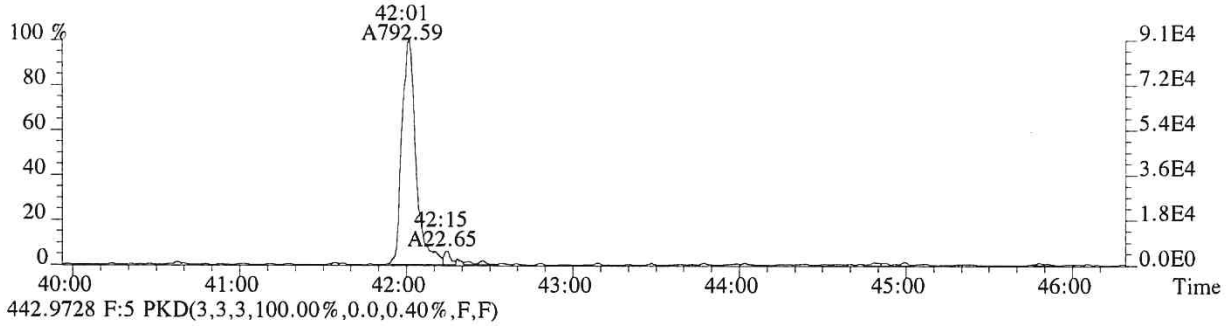
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,440.0,0.40%,F,T)



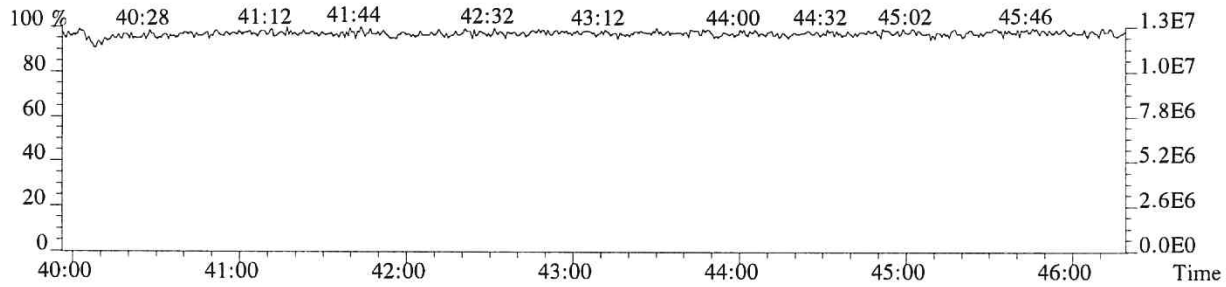
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,428.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,324.0,0.40%,F,T)



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



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0001

Run #12 Filename P519538 Samp: 1 Inj: 1 Acquired: 21-DEC-18 07:23:44
Processed: 24-DEC-18 08:07:22 Sample ID: E1801093-016DL

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:49	5.671e+02	7.715e+02	0.74	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	31:27	5.753e+01	3.922e+01	1.47	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	32:26	1.248e+02	9.535e+01	1.31	no	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:17	1.765e+02	1.422e+02	1.24	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:24	7.856e+01	7.233e+01	1.09	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:56	6.490e+01	5.677e+01	1.14	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	36:46	3.136e+01	2.034e+01	1.54	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:07	3.445e+02	3.544e+02	0.97	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:35	7.862e+01	3.814e+01	2.06	no	no	1.258
10	Unk	OCDF	42:18	6.535e+02	6.999e+02	0.93	yes	no	1.359
11	Unk	2,3,7,8-TCDD	27:43	1.935e+02	2.142e+02	0.90	no	no	1.085
12	Unk	1,2,3,7,8-PeCDD	32:45	2.547e+01	1.208e+01	2.11	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:12	1.410e+02	1.193e+02	1.18	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:26	1.140e+02	8.709e+01	1.31	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:06	6.166e+03	5.938e+03	1.04	yes	no	1.025
17	Unk	OCDD	42:06	3.650e+04	4.074e+04	0.90	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	26:47	7.157e+03	8.692e+03	0.82	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	31:26	1.155e+04	7.077e+03	1.63	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	32:25	1.079e+04	6.739e+03	1.60	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:16	4.507e+03	9.073e+03	0.50	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:23	5.788e+03	1.136e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:56	5.359e+03	1.014e+04	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	36:43	4.484e+03	8.695e+03	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:06	4.076e+03	9.287e+03	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:33	3.459e+03	8.152e+03	0.42	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	27:41	3.263e+03	4.267e+03	0.76	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:43	8.077e+03	4.983e+03	1.62	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:05	6.479e+03	5.130e+03	1.26	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:10	6.884e+03	5.276e+03	1.30	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:05	7.575e+03	7.354e+03	1.03	yes	no	0.858
32	IS	13C-OCDD	42:06	8.918e+03	9.842e+03	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:03	5.277e+03	6.490e+03	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:25	7.433e+03	6.090e+03	1.22	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:43	2.098e+02				no	1.014

$$\text{OCDD} = \frac{(3.650e{+}04 + 4.074e{+}04) \times 4000\ \text{pg} \times 10}{(8.918e{+}03 + 9.842e{+}03) \times 10.064\ \text{g} \times 88.1 / 100 \times 1.118} = 160761.7537\ \text{ng/kg}$$

LG 12/24/18

ALS ENVIRONMENTAL -- HOUSTON HRMS
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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0001

Run #12 Filename P519538 Samp: 1 Inj: 1 Acquired: 21-DEC-18 07:23:44
Processed: 24-DEC-18 08:07:22 LAB. ID: E1801093-016DL

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	7.87e+04	6.24e+02	1.3e+02	1.13e+05	5.52e+02	2.0e+02
2	1,2,3,7,8-PeCDF	1.17e+04	2.48e+02	4.7e+01	7.76e+03	1.56e+03	5.0e+00
3	2,3,4,7,8-PeCDF	1.94e+04	2.48e+02	7.8e+01	9.95e+03	1.56e+03	6.4e+00
4	1,2,3,4,7,8-HxCDF	3.15e+04	1.35e+03	2.3e+01	2.29e+04	1.18e+03	1.9e+01
5	1,2,3,6,7,8-HxCDF	1.27e+04	1.35e+03	9.4e+00	1.59e+04	1.18e+03	1.4e+01
6	2,3,4,6,7,8-HxCDF	1.23e+04	1.35e+03	9.1e+00	1.32e+04	1.18e+03	1.1e+01
7	1,2,3,7,8,9-HxCDF	5.96e+03	1.35e+03	4.4e+00	5.34e+03	1.18e+03	4.5e+00
8	1,2,3,4,6,7,8-HpCDF	5.68e+04	5.08e+02	1.1e+02	5.95e+04	4.24e+02	1.4e+02
9	1,2,3,4,7,8,9-HpCDF	1.37e+04	5.08e+02	2.7e+01	6.56e+03	4.24e+02	1.5e+01
10	OCDF	6.96e+04	3.32e+02	2.1e+02	7.34e+04	5.24e+02	1.4e+02
11	2,3,7,8-TCDD	3.23e+04	1.40e+03	2.3e+01	3.95e+04	6.96e+02	5.7e+01
12	1,2,3,7,8-PeCDD	5.34e+03	4.56e+02	1.2e+01	3.80e+03	4.24e+02	9.0e+00
13	1,2,3,4,7,8-HxCDD	*	4.28e+02	*	*	1.35e+03	*
14	1,2,3,6,7,8-HxCDD	2.59e+04	4.28e+02	6.0e+01	2.14e+04	1.35e+03	1.6e+01
15	1,2,3,7,8,9-HxCDD	2.18e+04	4.28e+02	5.1e+01	1.53e+04	1.35e+03	1.1e+01
16	1,2,3,4,6,7,8-HpCDD	9.11e+05	3.36e+02	2.7e+03	8.91e+05	3.56e+02	2.5e+03
17	OCDD	3.50e+06	4.12e+02	8.5e+03	3.95e+06	3.36e+02	1.2e+04
18	13C-2,3,7,8-TCDF	1.06e+06	3.64e+03	2.9e+02	1.34e+06	1.89e+03	7.1e+02
19	13C-1,2,3,7,8-PeCDF	1.95e+06	3.68e+02	5.3e+03	1.19e+06	7.04e+02	1.7e+03
20	13C-2,3,4,7,8-PeCDF	1.88e+06	3.68e+02	5.1e+03	1.19e+06	7.04e+02	1.7e+03
21	13C-1,2,3,4,7,8-HxCDF	8.89e+05	3.60e+02	2.5e+03	1.79e+06	6.92e+02	2.6e+03
22	13C-1,2,3,6,7,8-HxCDF	1.06e+06	3.60e+02	2.9e+03	2.04e+06	6.92e+02	2.9e+03
23	13C-2,3,4,6,7,8-HxCDF	9.73e+05	3.60e+02	2.7e+03	1.86e+06	6.92e+02	2.7e+03
24	13C-1,2,3,7,8,9-HxCDF	7.93e+05	3.60e+02	2.2e+03	1.50e+06	6.92e+02	2.2e+03
25	13C-1,2,3,4,6,7,8-HpCDF	6.69e+05	1.03e+03	6.5e+02	1.57e+06	1.34e+03	1.2e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.81e+05	1.03e+03	4.7e+02	1.13e+06	1.34e+03	8.5e+02
27	13C-2,3,7,8-TCDD	5.29e+05	3.60e+03	1.5e+02	7.14e+05	9.44e+02	7.6e+02
28	13C-1,2,3,7,8-PeCDD	1.42e+06	6.44e+02	2.2e+03	8.85e+05	6.60e+02	1.3e+03
29	13C-1,2,3,4,7,8-HxCDD	1.33e+06	5.12e+02	2.6e+03	1.04e+06	5.64e+02	1.9e+03
30	13C-1,2,3,6,7,8-HxCDD	1.21e+06	5.12e+02	2.4e+03	9.74e+05	5.64e+02	1.7e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.15e+06	3.88e+02	3.0e+03	1.11e+06	4.48e+02	2.5e+03
32	13C-OCDD	8.88e+05	6.04e+02	1.5e+03	9.85e+05	3.40e+02	2.9e+03
33	13C-1,2,3,4-TCDD	8.93e+05	3.60e+03	2.5e+02	1.14e+06	9.44e+02	1.2e+03
34	13C-1,2,3,7,8,9-HxCDD	1.31e+06	5.12e+02	2.6e+03	1.00e+06	5.64e+02	1.8e+03
35	37Cl-2,3,7,8-TCDD	3.55e+04	7.96e+02	4.5e+01			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.396e{+}03 + 6.960e{+}02) \times 2000}{(5.294e{+}05 + 7.137e{+}05) \times (\quad) \times 1.085} =$$

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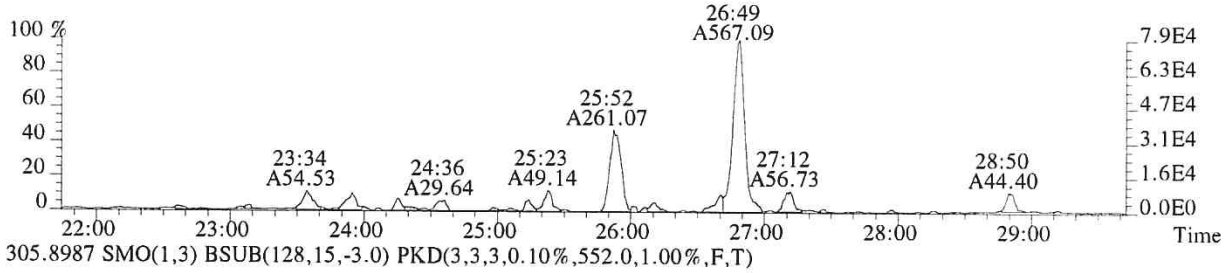
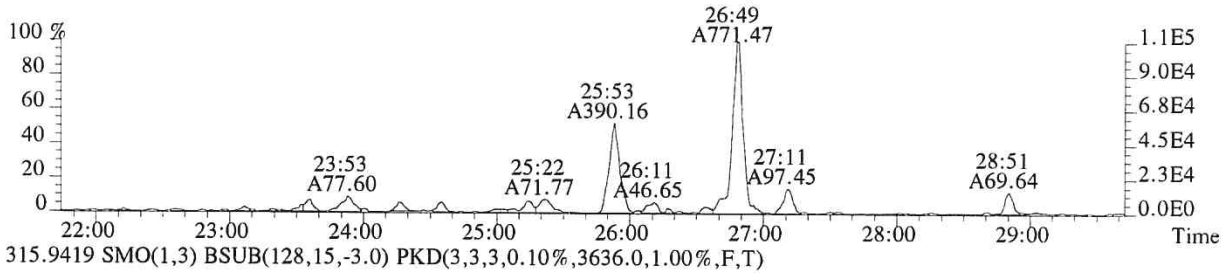
File:P519538 #1-566 Acq:21-DEC-2018 07:23:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-016DL

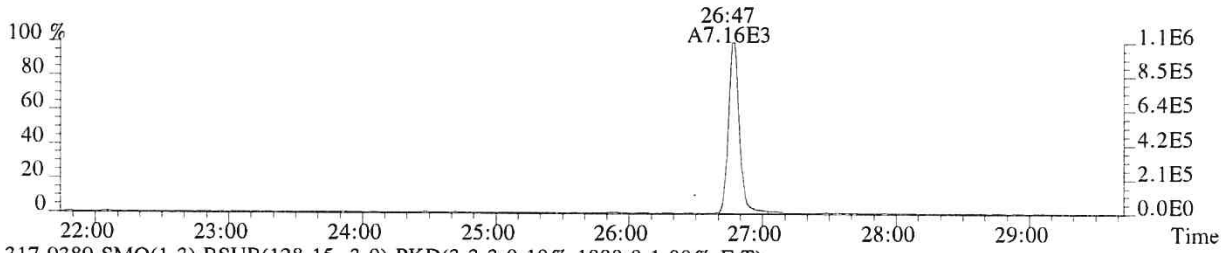
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,624.0,1.00%,F,T)



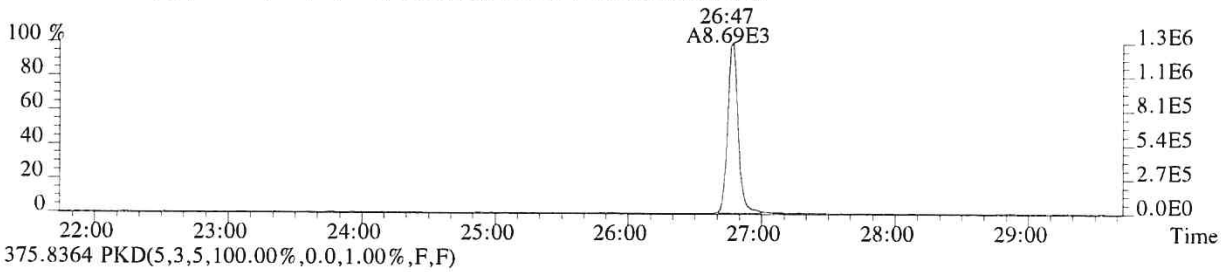
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,552.0,1.00%,F,T)



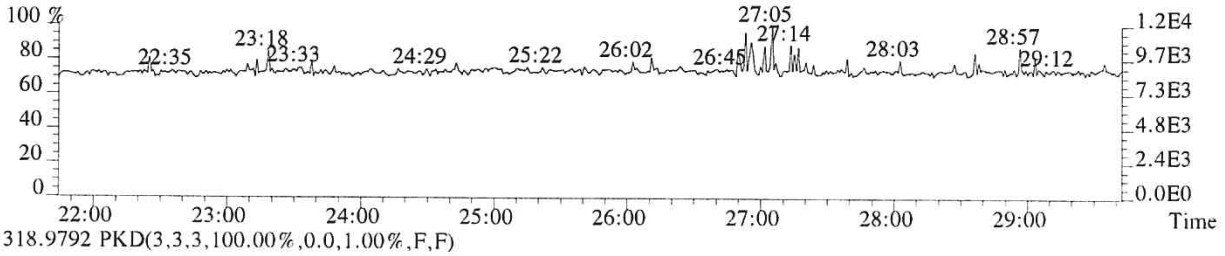
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3636.0,1.00%,F,T)



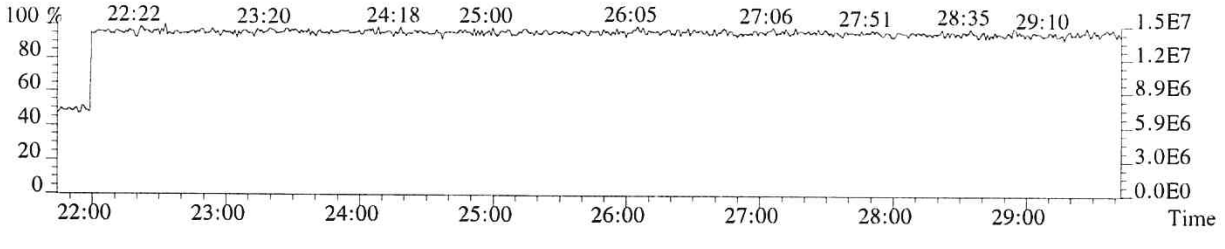
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1888.0,1.00%,F,T)



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

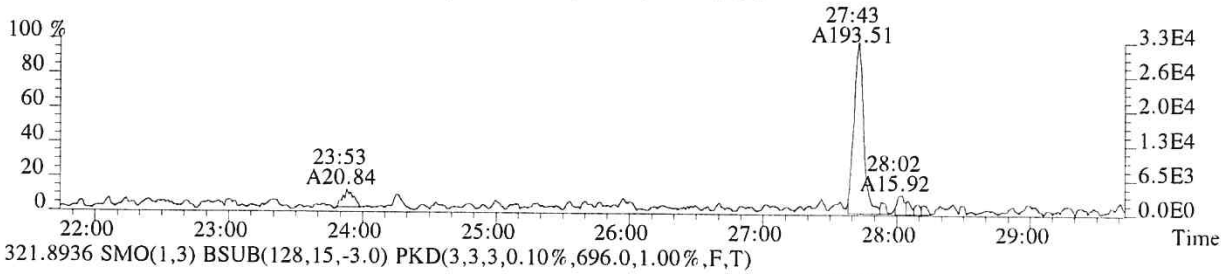


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

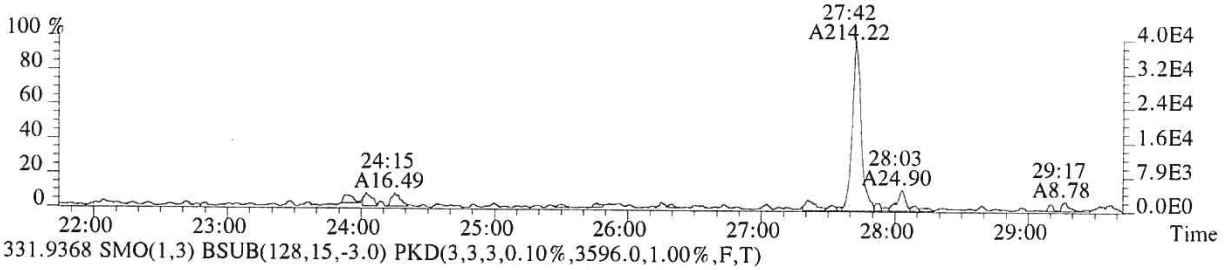


File:P519538 #1-566 Acq:21-DEC-2018 07:23:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-016DL

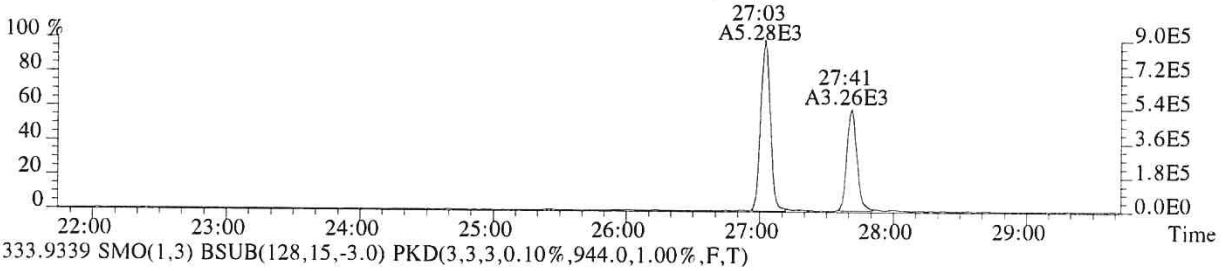
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1396.0,1.00%,F,T)



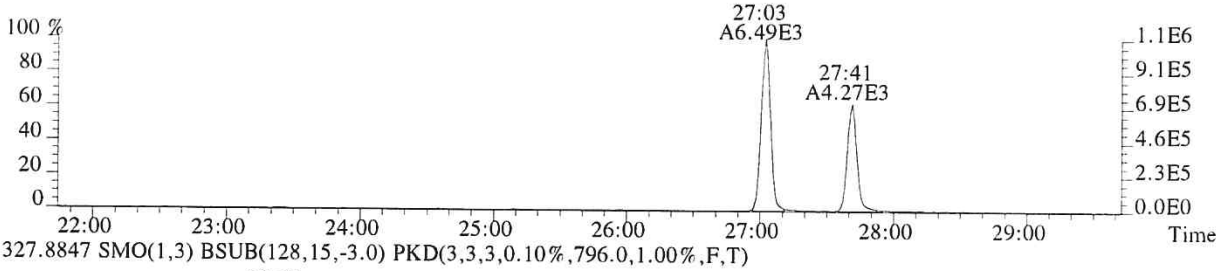
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



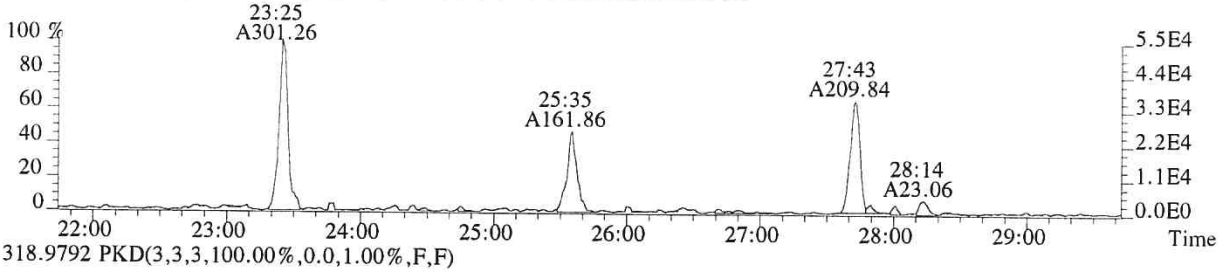
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3596.0,1.00%,F,T)



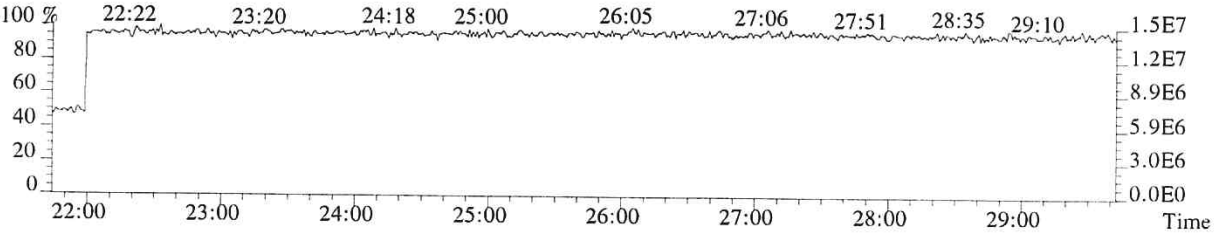
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,944.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,796.0,1.00%,F,T)

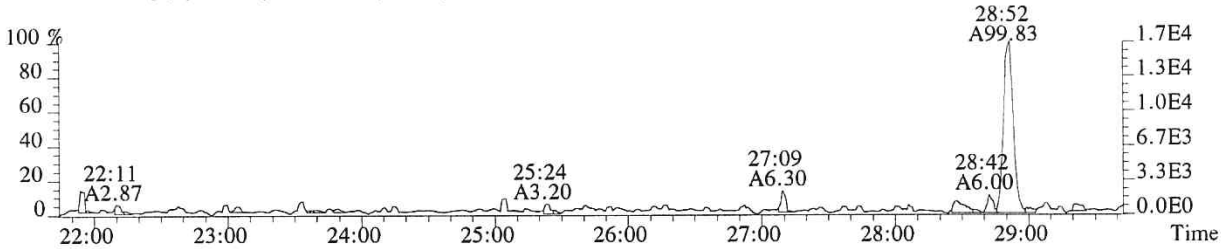


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

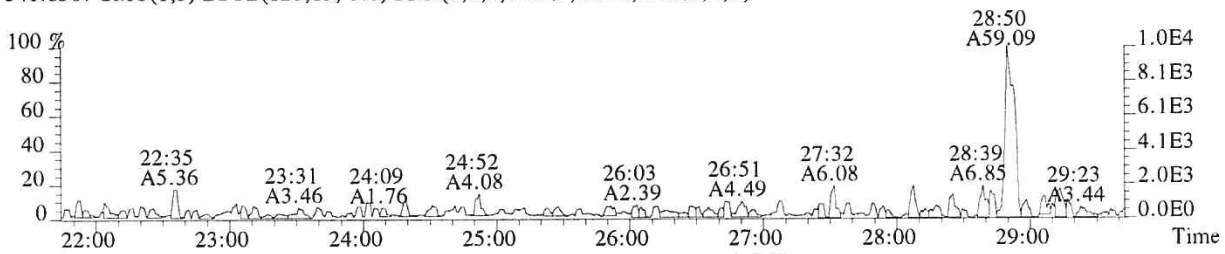


014421

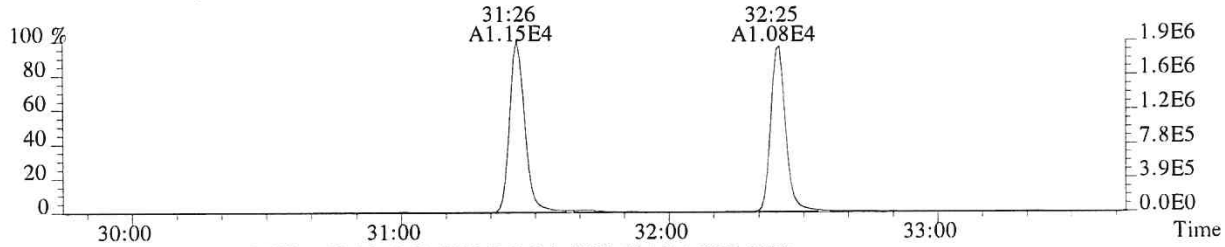
File:P519538 #1-566 Acq:21-DEC-2018 07:23:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-016DL
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,520.0,1.00%,F,T)



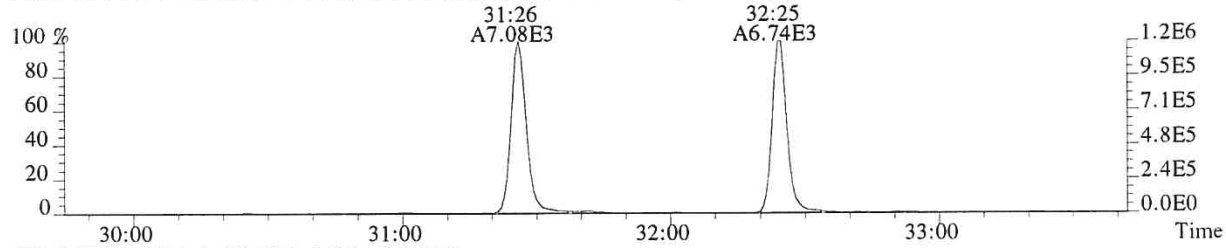
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,328.0,1.00%,F,T)



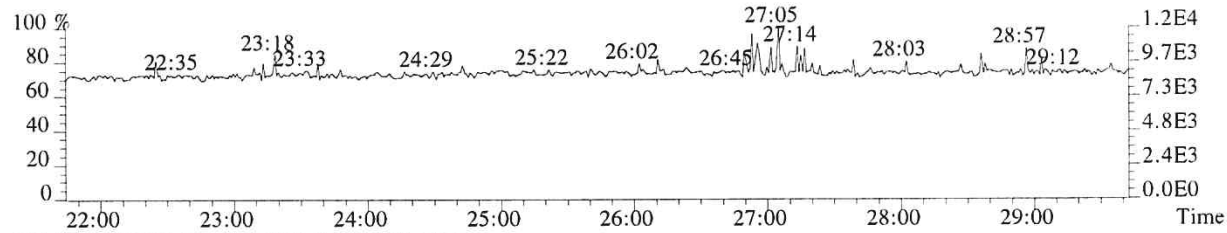
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,368.0,1.00%,F,T)



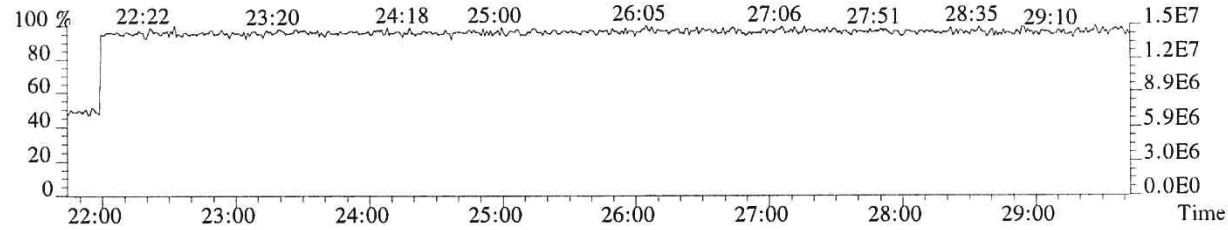
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,704.0,1.00%,F,T)



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

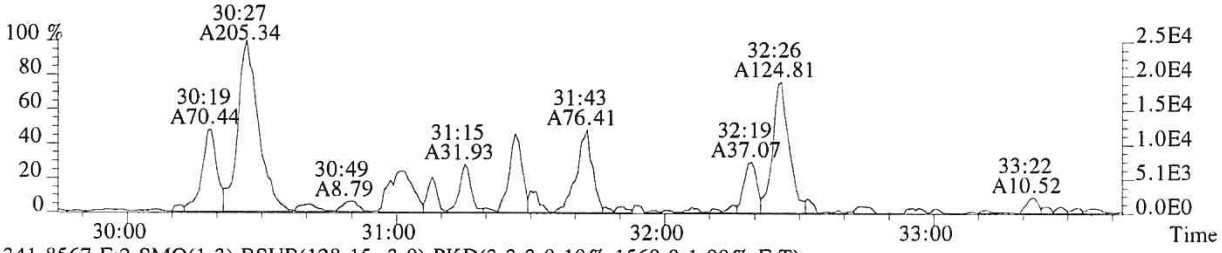


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

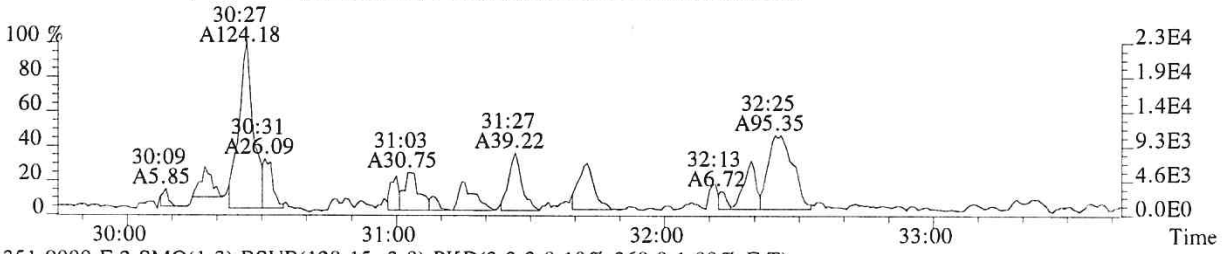


File:P519538 #1-357 Acq:21-DEC-2018 07:23:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-016DL

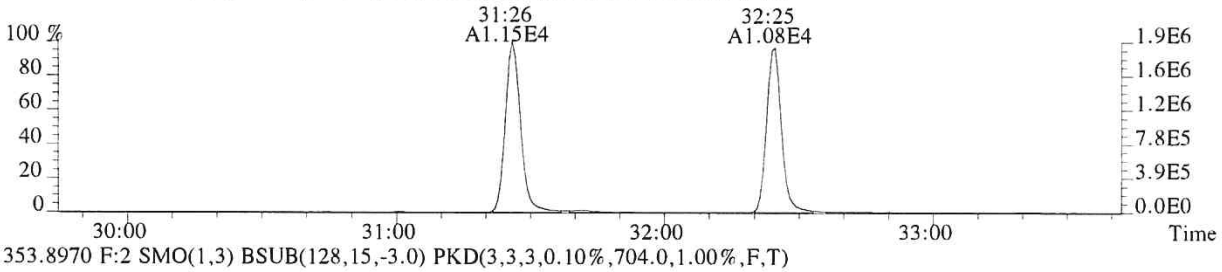
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,248.0,1.00%,F,T)



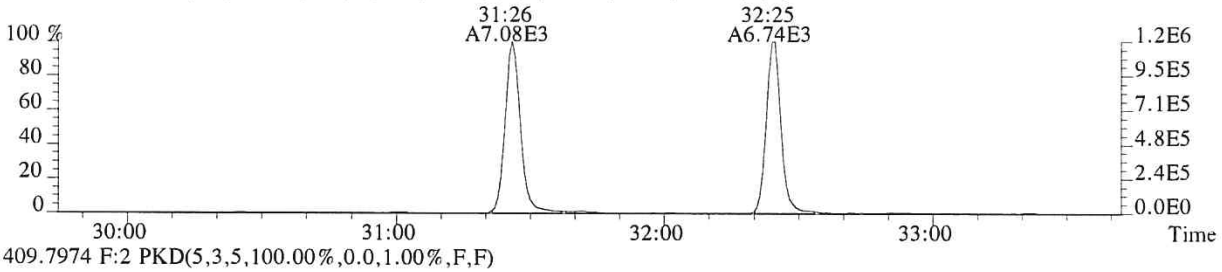
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1560.0,1.00%,F,T)



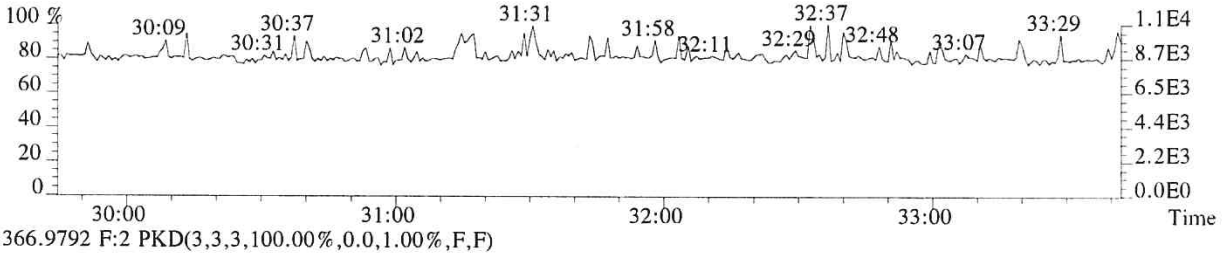
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,368.0,1.00%,F,T)



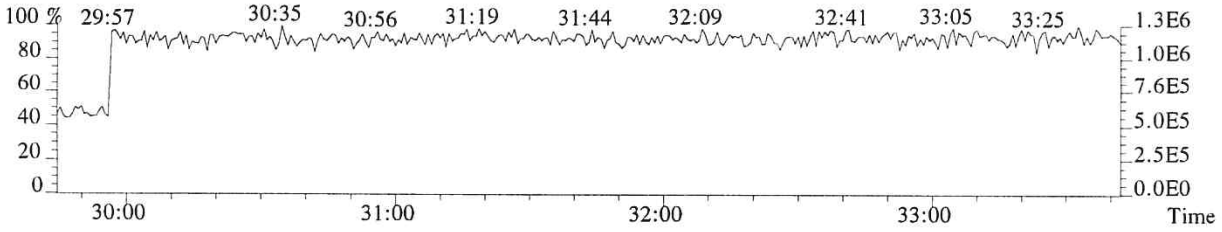
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,704.0,1.00%,F,T)



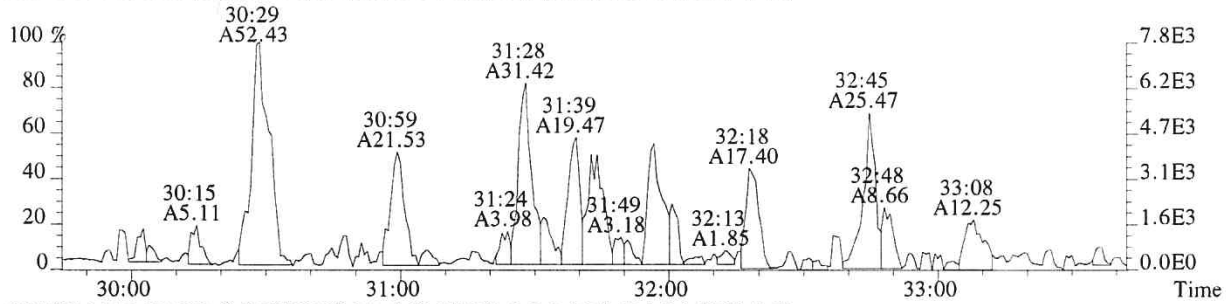
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



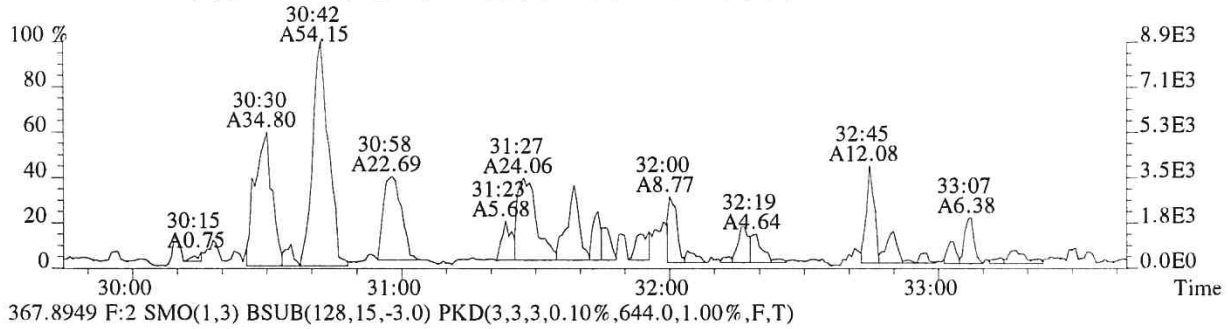
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



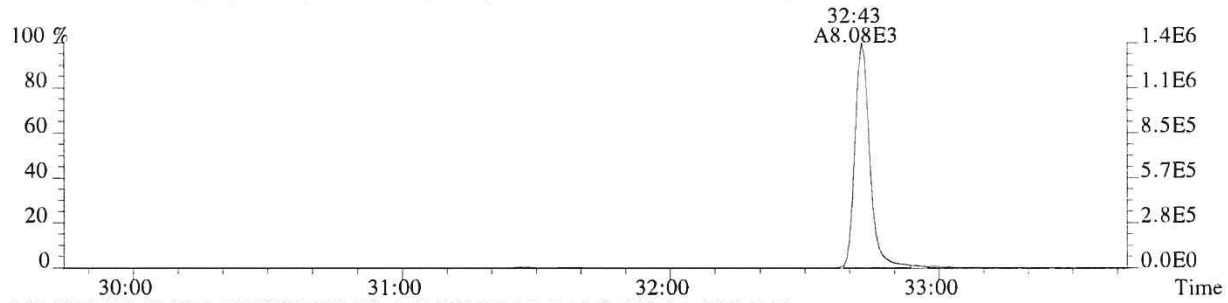
File:P519538 #1-357 Acq:21-DEC-2018 07:23:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-016DL
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,456.0,1.00%,F,T)



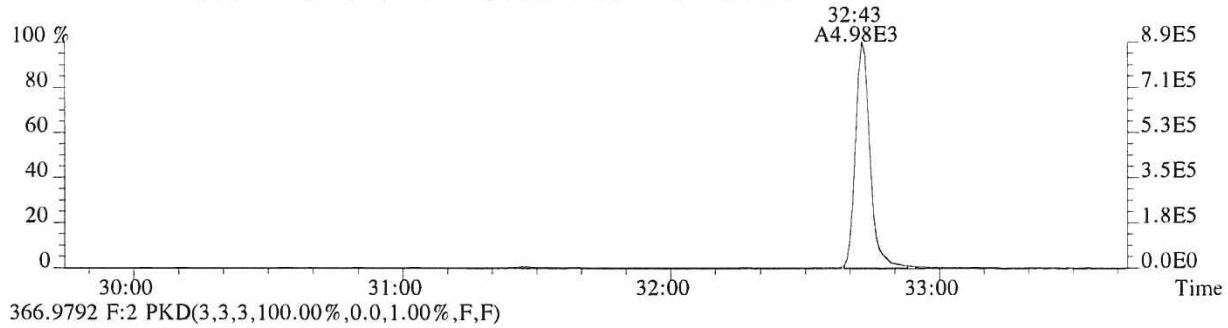
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,424.0,1.00%,F,T)



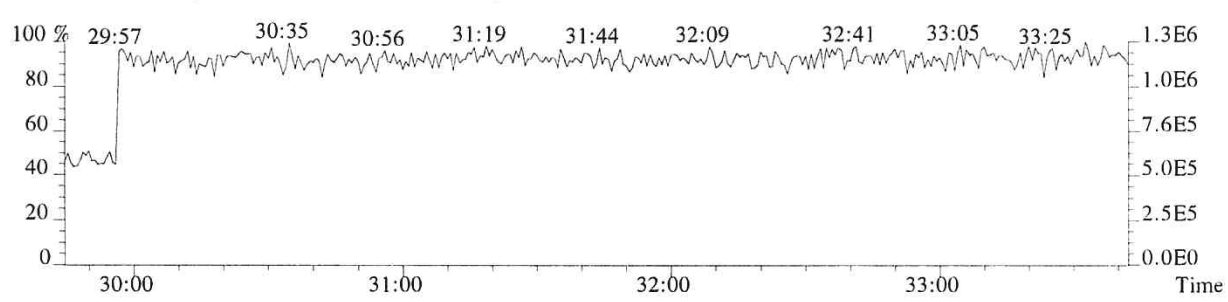
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,644.0,1.00%,F,T)



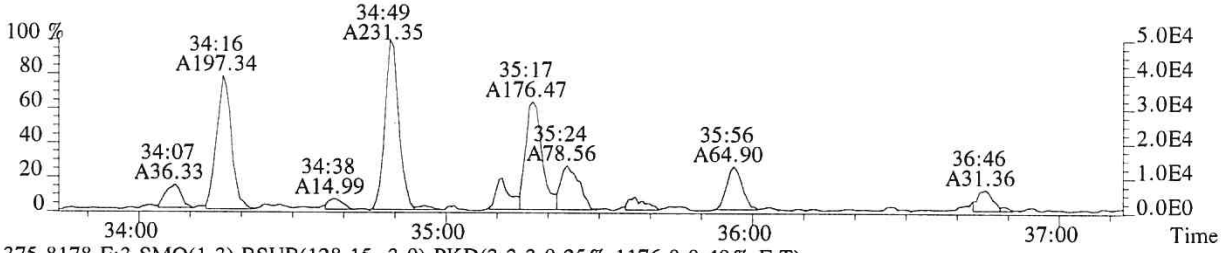
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,660.0,1.00%,F,T)



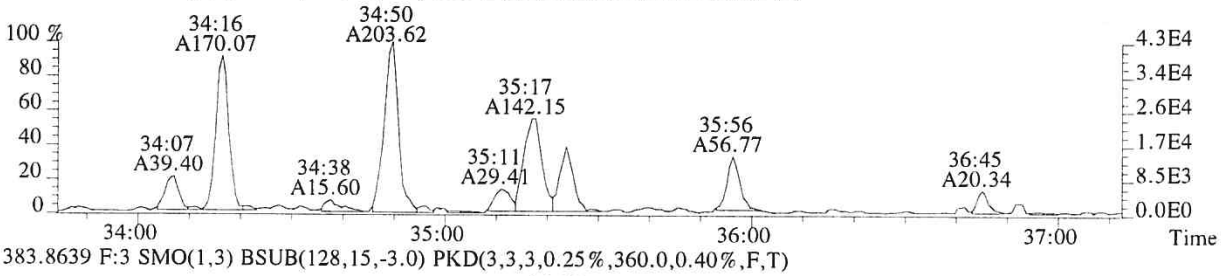
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



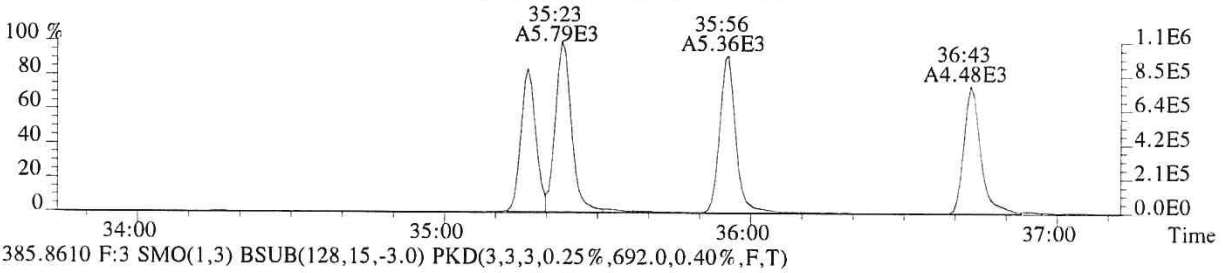
File:P519538 #1-313 Acq:21-DEC-2018 07:23:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-016DL
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1348.0,0.40%,F,T)



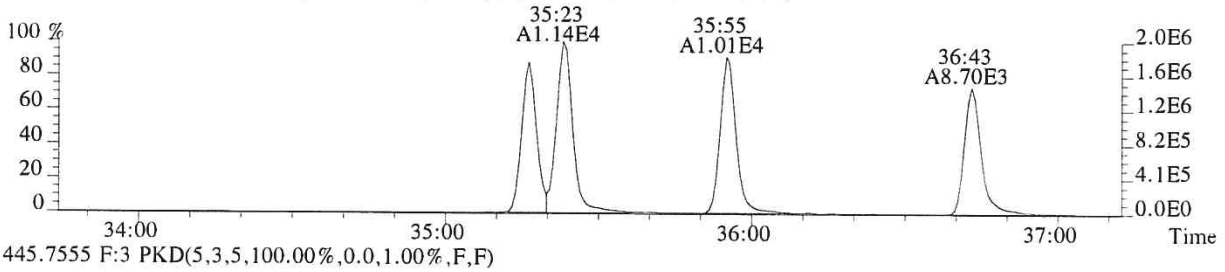
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1176.0,0.40%,F,T)



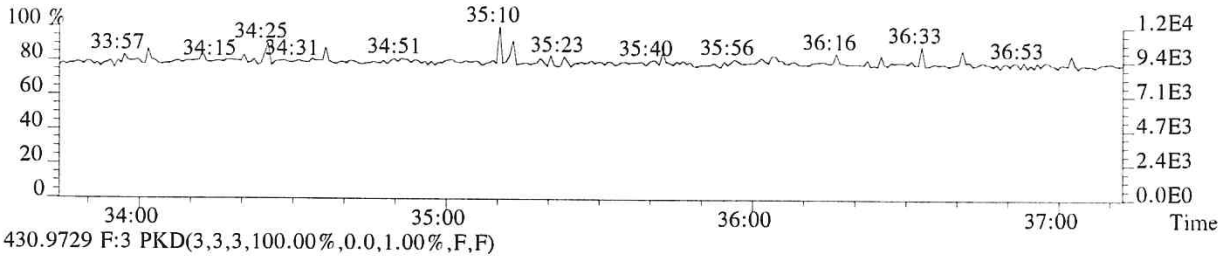
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,360.0,0.40%,F,T)



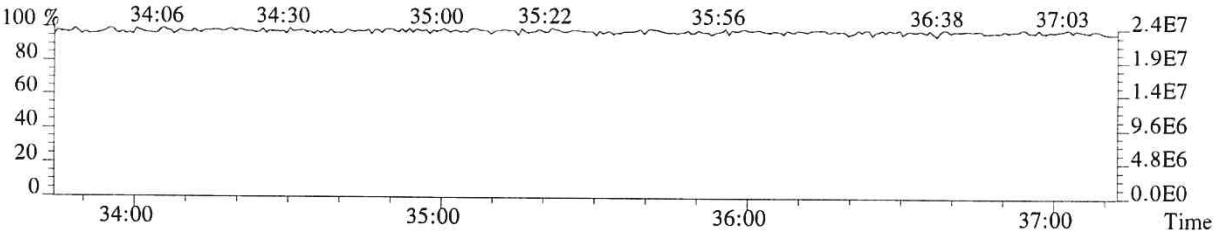
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,692.0,0.40%,F,T)



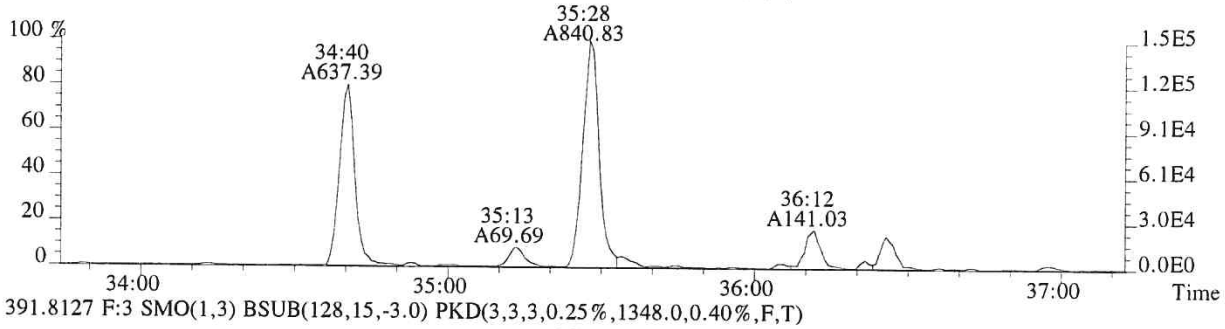
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



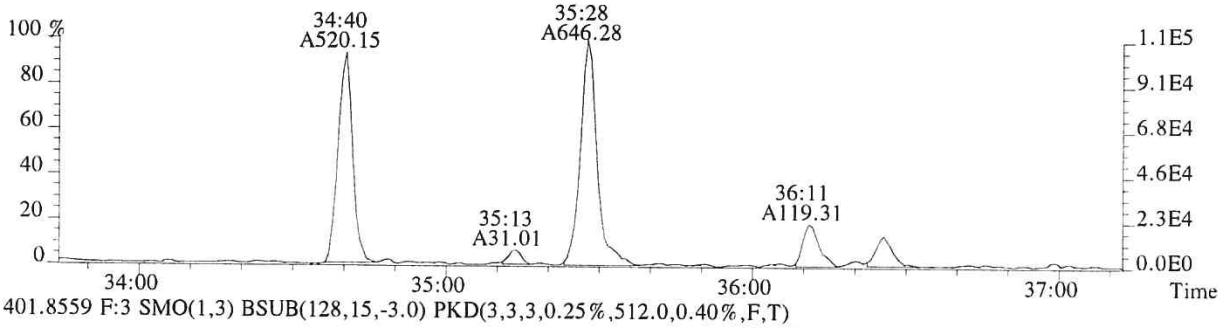
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



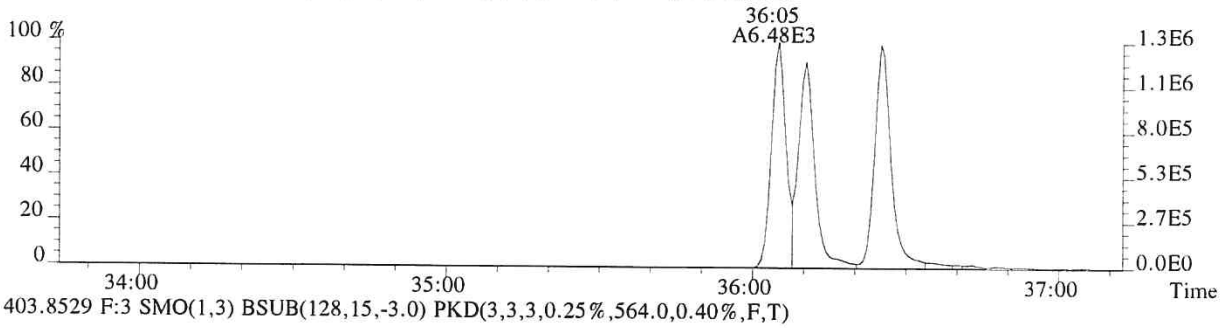
File:P519538 #1-313 Acq:21-DEC-2018 07:23:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-016DL
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,428.0,0.40%,F,T)



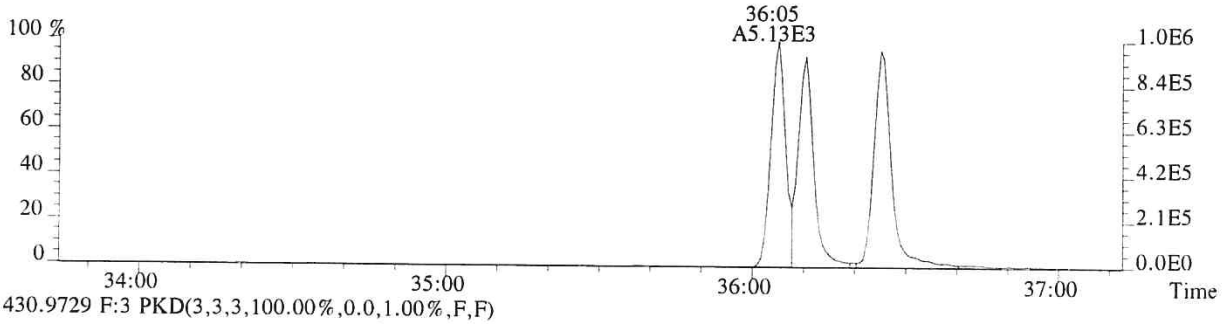
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1348.0,0.40%,F,T)



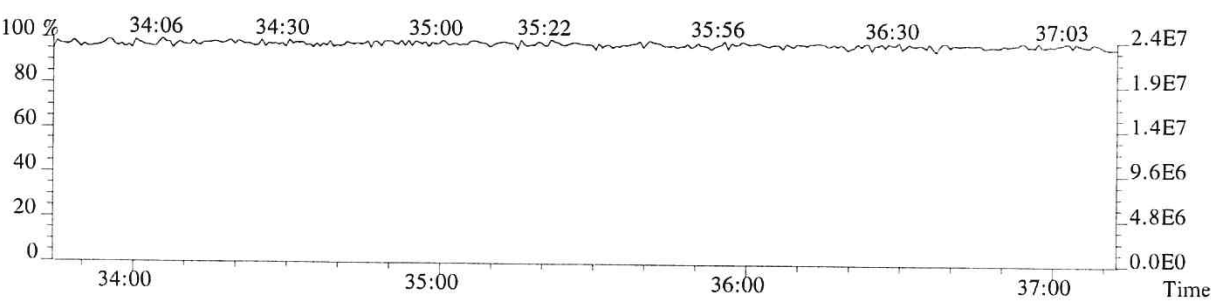
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,512.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,564.0,0.40%,F,T)

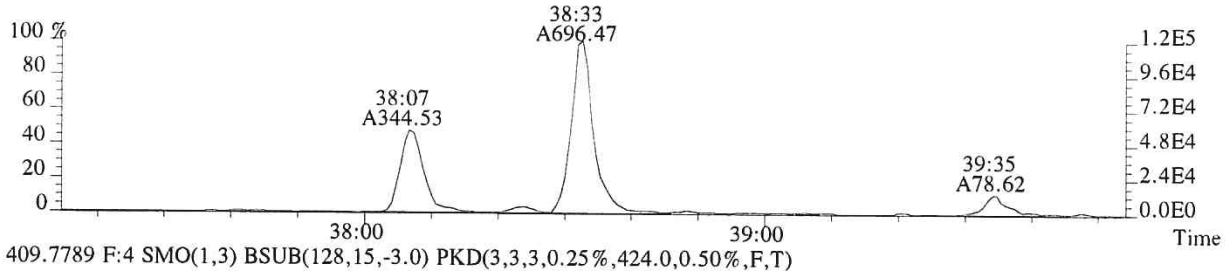


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

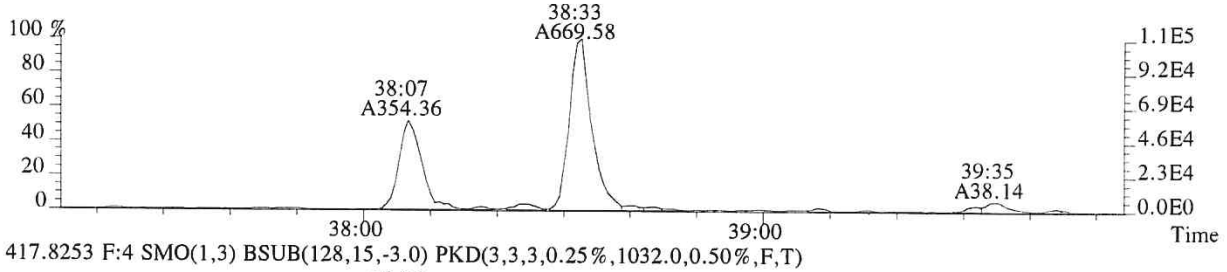


014426

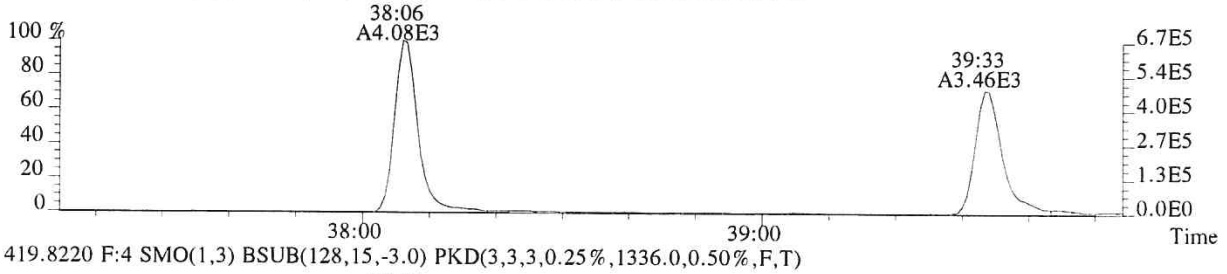
File:P519538 #1-240 Acq:21-DEC-2018 07:23:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-016DL
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,508.0,0.50%,F,T)



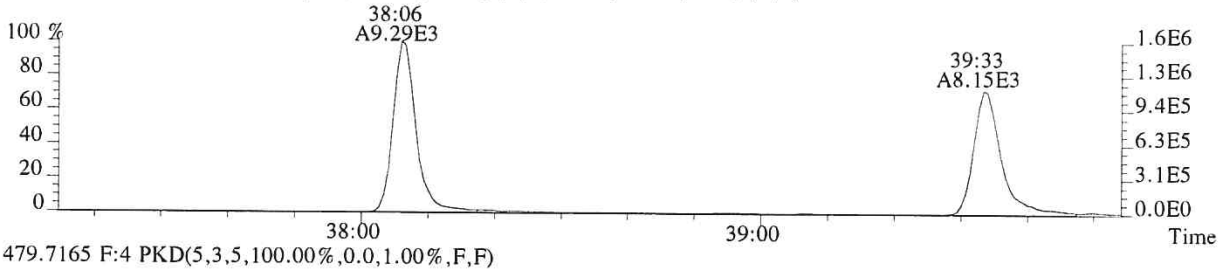
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,424.0,0.50%,F,T)



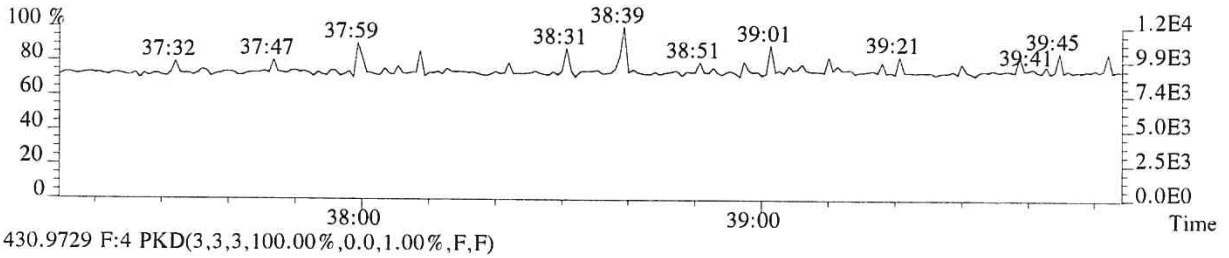
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1032.0,0.50%,F,T)



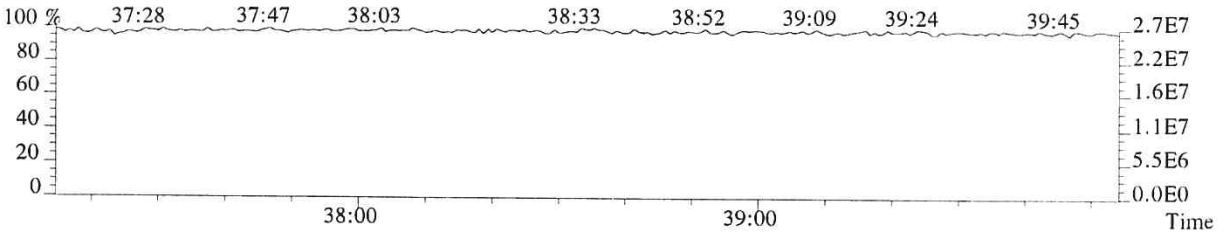
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1336.0,0.50%,F,T)



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

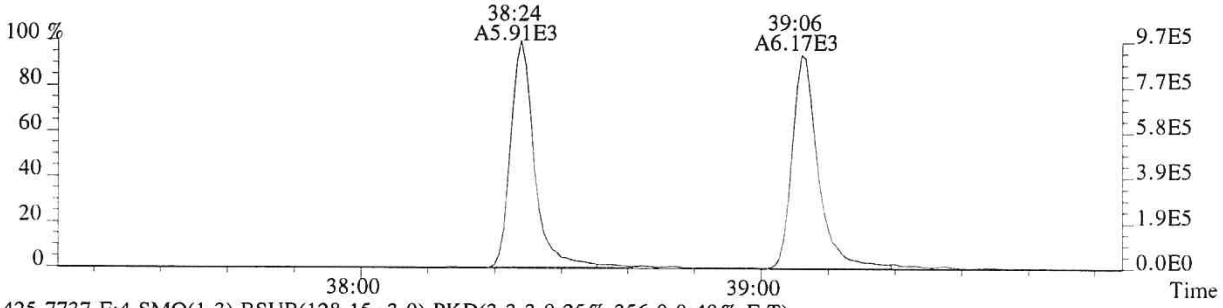


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

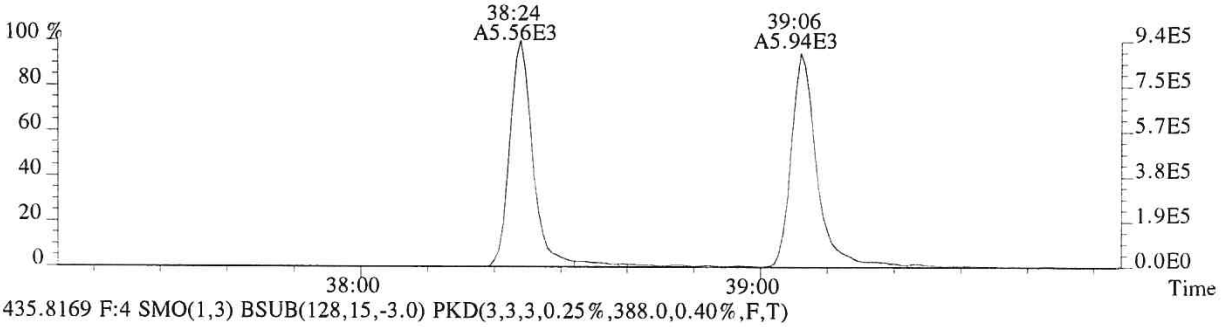


014427

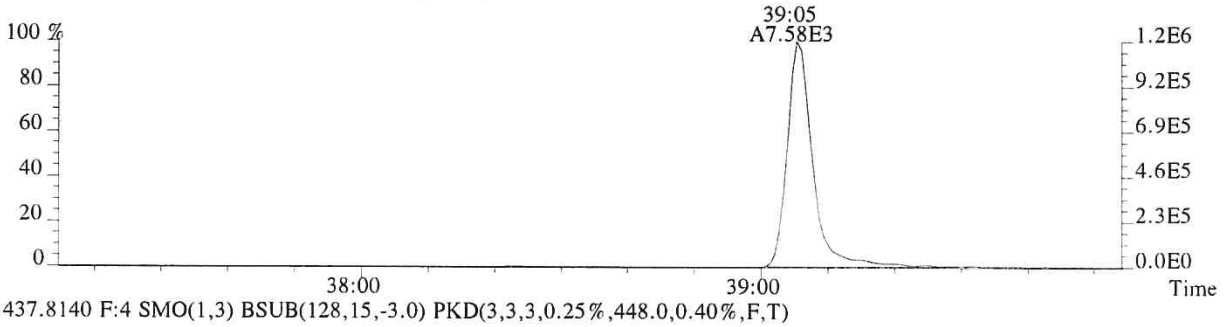
File:P519538 #1-240 Acq:21-DEC-2018 07:23:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-016DL
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,336.0,0.40%,F,T)



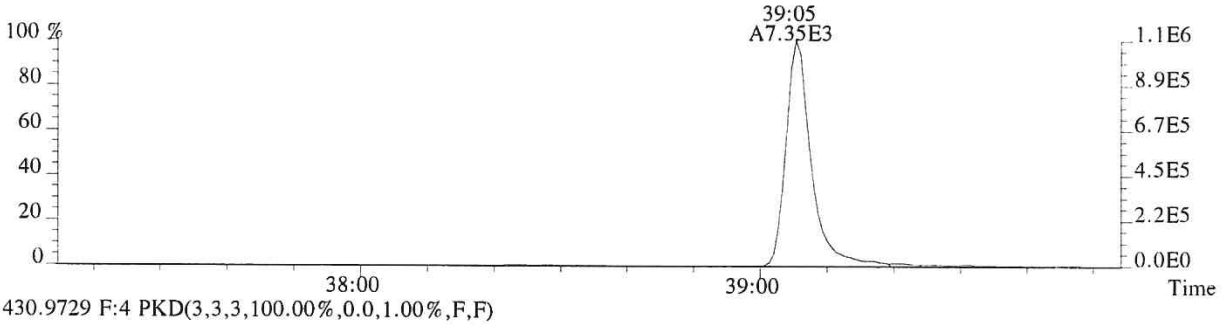
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,356.0,0.40%,F,T)



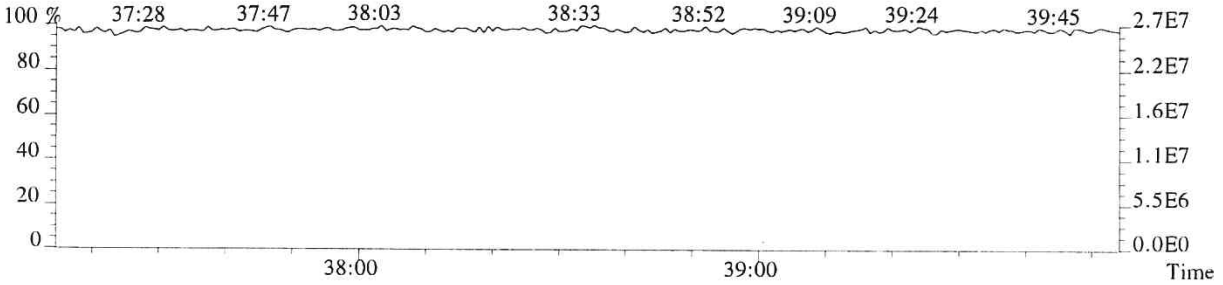
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,388.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,448.0,0.40%,F,T)

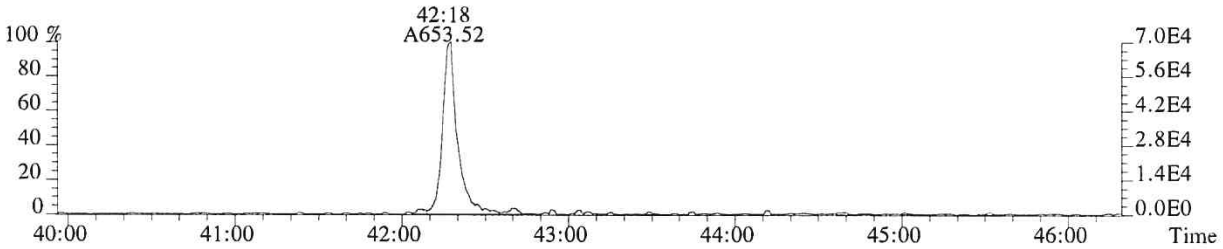


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

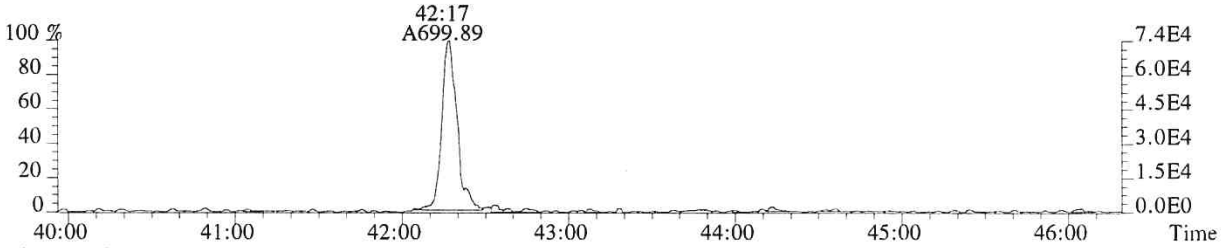


File:P519538 #1-575 Acq:21-DEC-2018 07:23:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-016DL

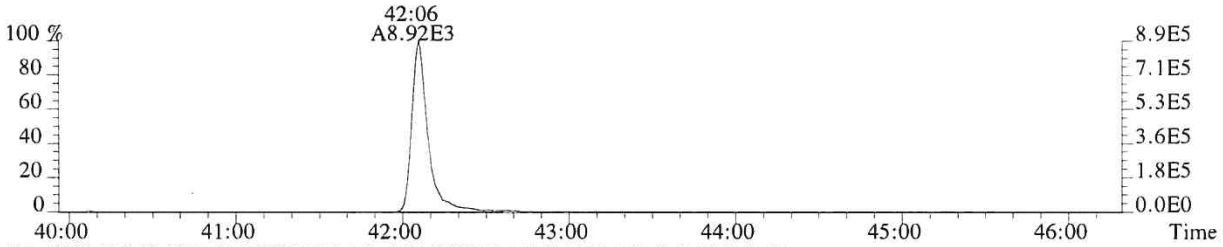
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,332.0,0.40%,F,T)



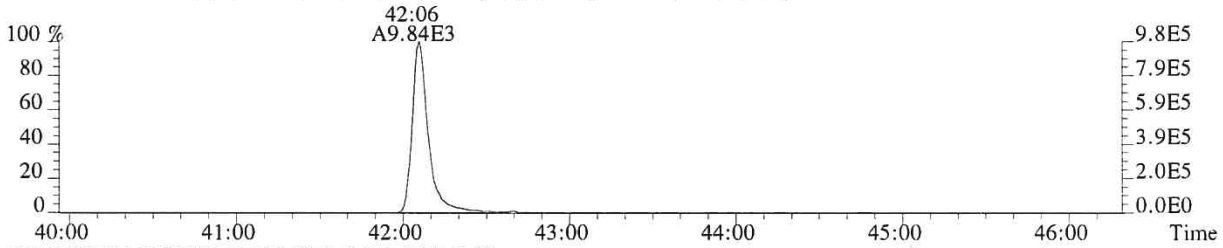
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,524.0,0.40%,F,T)



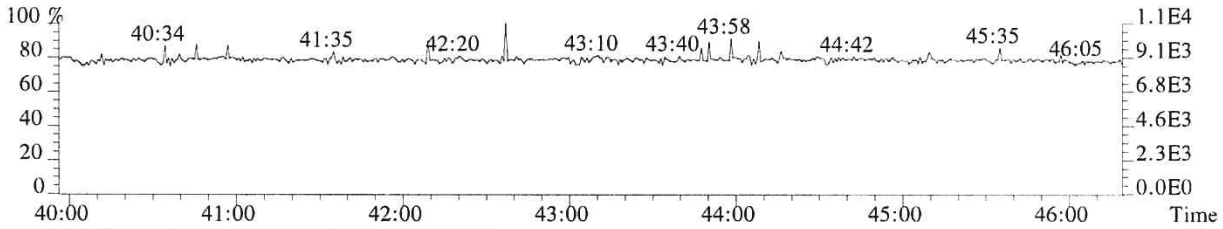
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,604.0,0.40%,F,T)



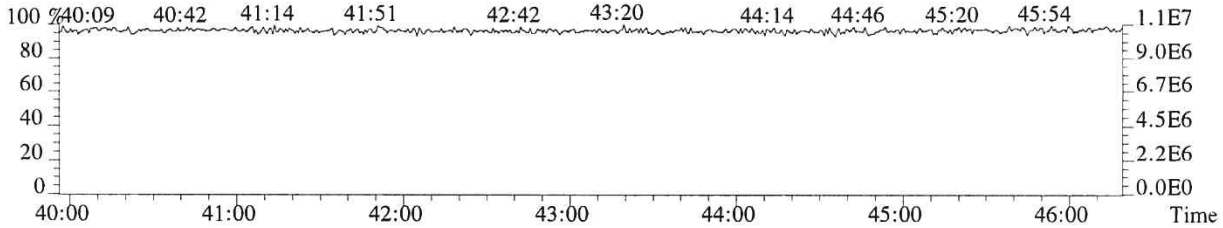
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,340.0,0.40%,F,T)



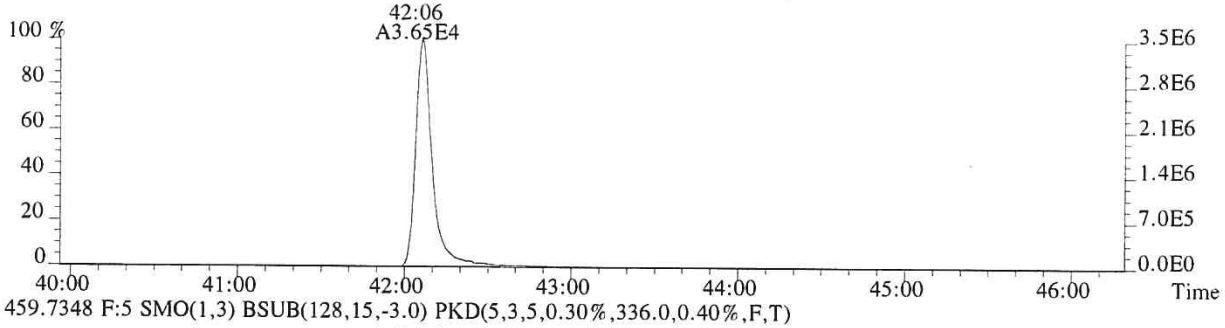
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



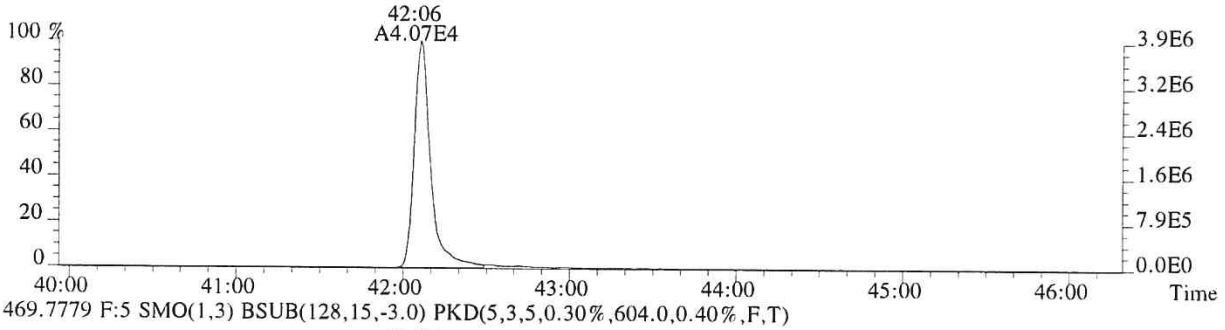
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



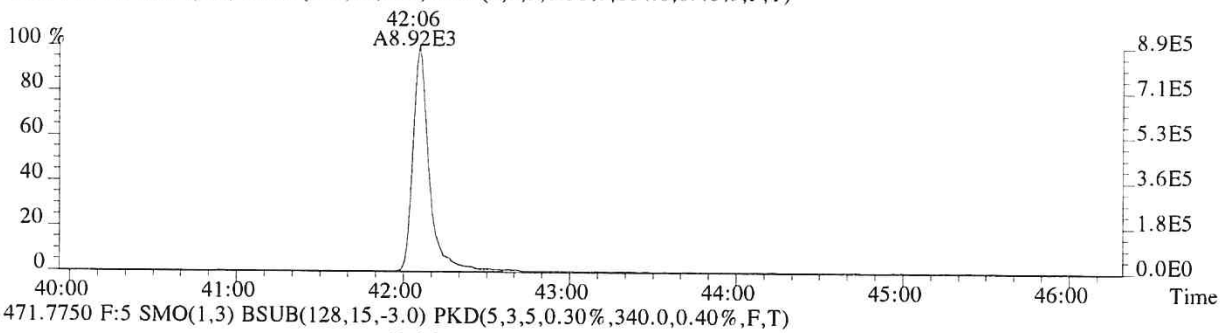
File:P519538 #1-575 Acq:21-DEC-2018 07:23:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-016DL
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,412.0,0.40%,F,T)



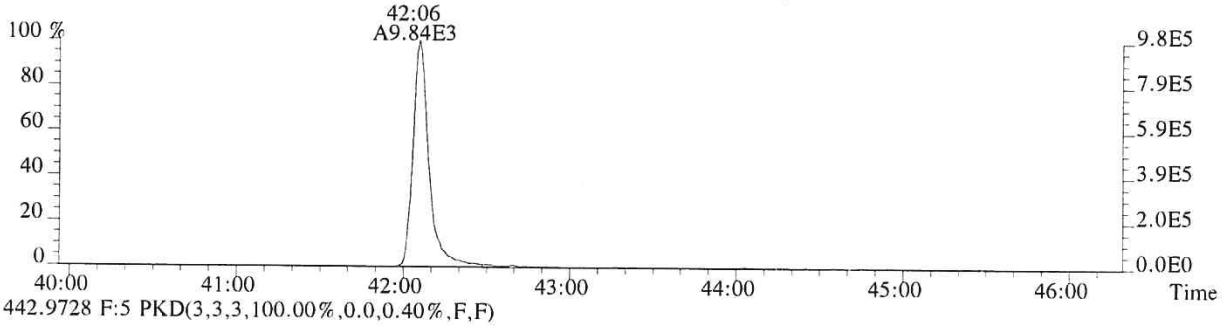
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,336.0,0.40%,F,T)



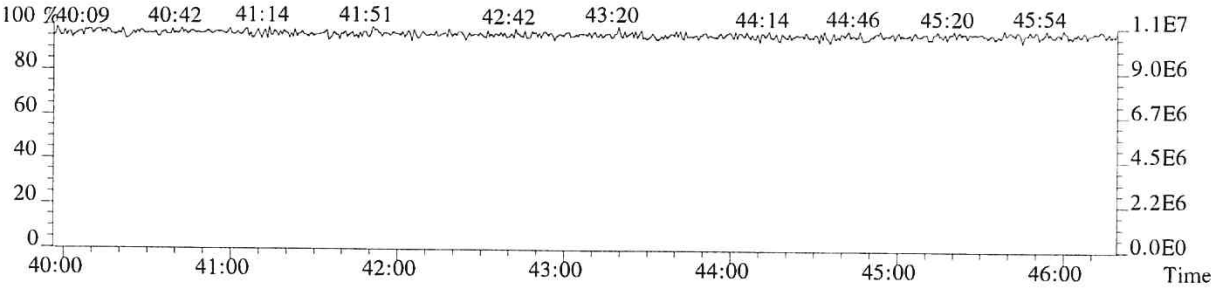
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,604.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,340.0,0.40%,F,T)



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



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0002

Run #16 Filename P519445 Samp: 1 Inj: 1 Acquired: 17-DEC-18 21:50:39
Processed: 19-DEC-18 09:35:50 Sample ID: E1801093-017

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:48	1.169e+03	1.477e+03	0.79	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	31:25	1.039e+02	6.951e+01	1.49	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	32:23	7.257e+01	4.491e+01	1.62	yes	yes	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:13	9.950e+01	6.703e+01	1.48	no	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:20	4.951e+01	4.068e+01	1.22	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:52	1.943e+01	2.495e+01	0.78	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	36:40	2.282e+01	1.614e+01	1.41	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:00	5.330e+01	5.328e+01	1.00	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:24	2.611e+01	1.287e+01	2.03	no	no	1.258
10	Unk	OCDF	41:58	9.978e+01	7.631e+01	1.31	no	no	1.359
11	Unk	2,3,7,8-TCDD	27:41	3.399e+02	5.307e+02	0.64	no	no	1.085
12	Unk	1,2,3,7,8-PeCDD	32:42	3.112e+01	1.930e+01	1.61	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:01	5.382e+01	2.582e+01	2.08	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:07	6.243e+01	5.030e+01	1.24	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:21	1.057e+02	8.443e+01	1.25	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:57	1.285e+03	1.303e+03	0.99	yes	no	1.025
17	Unk	OCDD	41:48	1.450e+04	1.648e+04	0.88	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	26:46	8.913e+03	1.108e+04	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	31:24	1.638e+04	1.019e+04	1.61	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	32:23	1.551e+04	9.684e+03	1.60	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:12	6.812e+03	1.298e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:20	8.049e+03	1.567e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:51	7.178e+03	1.391e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	36:38	6.279e+03	1.210e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:59	4.804e+03	1.070e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:23	4.295e+03	9.393e+03	0.46	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	27:41	4.215e+03	5.481e+03	0.77	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:41	1.168e+04	7.286e+03	1.60	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:00	1.044e+04	7.906e+03	1.32	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:06	9.482e+03	7.878e+03	1.20	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:56	1.013e+04	9.495e+03	1.07	yes	no	0.858
32	IS	13C-OCDD	41:46	8.814e+03	9.901e+03	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:03	1.438e+04	1.809e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:20	1.979e+04	1.455e+04	1.36	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:41	6.155e+03				no	1.014

$$\text{OCDD} = \frac{(1.450e+04 + 1.648e+04) \times 4000\ \text{pg} \times 1}{(8.814e+03 + 9.901e+03) \times 10.003\ \text{g} \times 78.3 / 100 \times 1.118} = 713\ \text{ng/kg}$$

KW 12/20/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0002

Run #16 Filename P519445 Samp: 1 Inj: 1 Acquired: 17-DEC-18 21:50:39
Processed: 19-DEC-18 09:35:50 LAB. ID: E1801093-017

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.81e+05	1.06e+03	1.7e+02	2.30e+05	1.34e+03	1.7e+02
2	1,2,3,7,8-PeCDF	1.91e+04	4.84e+02	3.9e+01	1.37e+04	8.24e+02	1.7e+01
3	2,3,4,7,8-PeCDF	1.38e+04	4.84e+02	2.8e+01	6.05e+03	8.24e+02	7.3e+00
4	1,2,3,4,7,8-HxCDF	2.00e+04	7.60e+02	2.6e+01	1.29e+04	6.08e+02	2.1e+01
5	1,2,3,6,7,8-HxCDF	7.98e+03	7.60e+02	1.0e+01	6.56e+03	6.08e+02	1.1e+01
6	2,3,4,6,7,8-HxCDF	4.26e+03	7.60e+02	5.6e+00	5.41e+03	6.08e+02	8.9e+00
7	1,2,3,7,8,9-HxCDF	5.24e+03	7.60e+02	6.9e+00	5.05e+03	6.08e+02	8.3e+00
8	1,2,3,4,6,7,8-HpCDF	1.23e+04	6.04e+02	2.0e+01	1.17e+04	4.36e+02	2.7e+01
9	1,2,3,4,7,8,9-HpCDF	5.82e+03	6.04e+02	9.6e+00	2.32e+03	4.36e+02	5.3e+00
10	OCDF	1.58e+04	3.84e+02	4.1e+01	1.02e+04	9.32e+02	1.1e+01
11	2,3,7,8-TCDD	6.10e+04	1.66e+03	3.7e+01	9.15e+04	1.30e+03	7.1e+01
12	1,2,3,7,8-PeCDD	6.43e+03	8.88e+02	7.2e+00	3.55e+03	5.92e+02	6.0e+00
13	1,2,3,4,7,8-HxCDD	1.09e+04	6.48e+02	1.7e+01	7.11e+03	9.80e+02	7.3e+00
14	1,2,3,6,7,8-HxCDD	1.47e+04	6.48e+02	2.3e+01	1.11e+04	9.80e+02	1.1e+01
15	1,2,3,7,8,9-HxCDD	2.28e+04	6.48e+02	3.5e+01	1.87e+04	9.80e+02	1.9e+01
16	1,2,3,4,6,7,8-HpCDD	2.33e+05	7.80e+02	3.0e+02	2.48e+05	3.96e+02	6.3e+02
17	OCDD	1.98e+06	4.68e+02	4.2e+03	2.21e+06	2.56e+02	8.6e+03
18	13C-2,3,7,8-TCDF	1.46e+06	3.86e+03	3.8e+02	1.80e+06	4.04e+03	4.5e+02
19	13C-1,2,3,7,8-PeCDF	2.94e+06	4.84e+02	6.1e+03	1.90e+06	4.32e+02	4.4e+03
20	13C-2,3,4,7,8-PeCDF	3.02e+06	4.84e+02	6.2e+03	1.87e+06	4.32e+02	4.3e+03
21	13C-1,2,3,4,7,8-HxCDF	1.36e+06	2.60e+02	5.2e+03	2.59e+06	5.80e+02	4.5e+03
22	13C-1,2,3,6,7,8-HxCDF	1.57e+06	2.60e+02	6.0e+03	3.04e+06	5.80e+02	5.2e+03
23	13C-2,3,4,6,7,8-HxCDF	1.40e+06	2.60e+02	5.4e+03	2.78e+06	5.80e+02	4.8e+03
24	13C-1,2,3,7,8,9-HxCDF	1.21e+06	2.60e+02	4.7e+03	2.29e+06	5.80e+02	3.9e+03
25	13C-1,2,3,4,6,7,8-HpCDF	9.58e+05	1.12e+03	8.5e+02	2.12e+06	2.17e+03	9.8e+02
26	13C-1,2,3,4,7,8,9-HpCDF	8.00e+05	1.12e+03	7.1e+02	1.67e+06	2.17e+03	7.7e+02
27	13C-2,3,7,8-TCDD	7.19e+05	5.16e+03	1.4e+02	9.29e+05	2.88e+03	3.2e+02
28	13C-1,2,3,7,8-PeCDD	2.20e+06	9.16e+02	2.4e+03	1.37e+06	1.23e+03	1.1e+03
29	13C-1,2,3,4,7,8-HxCDD	2.13e+06	5.24e+02	4.1e+03	1.71e+06	3.20e+02	5.3e+03
30	13C-1,2,3,6,7,8-HxCDD	1.87e+06	5.24e+02	3.6e+03	1.48e+06	3.20e+02	4.6e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.88e+06	4.04e+02	4.7e+03	1.76e+06	3.32e+02	5.3e+03
32	13C-OCDD	1.20e+06	3.80e+02	3.1e+03	1.34e+06	3.52e+02	3.8e+03
33	13C-1,2,3,4-TCDD	2.38e+06	5.16e+03	4.6e+02	3.01e+06	2.88e+03	1.0e+03
34	13C-1,2,3,7,8,9-HxCDD	4.08e+06	5.24e+02	7.8e+03	3.13e+06	3.20e+02	9.8e+03
35	37Cl-2,3,7,8-TCDD	1.06e+06	5.32e+02	2.0e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.656e{+}03 + 1.296e{+}03) \times 2000}{(7.194e{+}05 + 9.292e{+}05) \times (\quad) \times 1.085} =$$

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0002

Entry: 36 Totals Name: Total Tetra-Furans

Run: 16 File: P519445 Sample:1 Injection:1 Function:1

Acquired: 17-DEC-18 21:50:39 Processed: 19-DEC-18 09:35:50

Mass: 303.9020 305.8990 Tot Response: 4.20e+03 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	23:06	4.29e+01	5.53e+01	0.78	yes	9.81e+01		n	n
2	24:16	1.56e+01	2.33e+01	0.67	yes	3.88e+01		n	n
3	25:52	4.81e+02	6.17e+02	0.78	yes	1.10e+03		n	n
4	26:09	3.11e+01	3.71e+01	0.84	yes	6.82e+01		n	n
5	26:48	1.17e+03	1.48e+03	0.79	yes	2.65e+03	2,3,7,8-TCDF	n	n
6	28:50	1.05e+02	1.45e+02	0.73	yes	2.50e+02		n	n

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Peak List Summary

CLIENT ID.
SL0002

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 16 File: P519445 Sample:1 Injection:1 Function:1

Acquired: 17-DEC-18 21:50:39 Processed: 19-DEC-18 09:35:50

Mass: 319.8970 321.8940 Tot Response: 2.10e+02 RRF: 1.085

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	25:31	8.94e+01	1.21e+02	0.74	yes	2.10e+02		n	n

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Peak List Summary

CLIENT ID.
SL0002

Entry: 39 Totals Name: Total Penta-Furans2

Run: 16 File: P519445 Sample:1 Injection:1 Function:2

Acquired: 17-DEC-18 21:50:39 Processed: 19-DEC-18 09:35:50

Mass: 339.8600 341.8570 Tot Response: 2.91e+02 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:25	1.04e+02	6.95e+01 1.49	yes	1.73e+02	1,2,3,7,8-PeCDF	n	n
2	32:23	7.26e+01	4.49e+01 1.62	yes	1.17e+02	2,3,4,7,8-PeCDF	n	y

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Peak List Summary

CLIENT ID.
SL0002

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 16 File: P519445 Sample:1 Injection:1 Function:2

Acquired: 17-DEC-18 21:50:39 Processed: 19-DEC-18 09:35:50

Mass: 355.8550 357.8520 Tot Response: 2.72e+02 RRF: 0.9565

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:29	2.14e+01	1.26e+01	1.70	yes	3.41e+01		n	n
2	30:57	1.09e+02	7.86e+01	1.38	yes	1.87e+02		n	n
3	32:42	3.11e+01	1.93e+01	1.61	yes	5.04e+01	1,2,3,7,8-PeCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0002

Entry: 41 Totals Name: Total Hexa-Furans

Run: 16 File: P519445 Sample:1 Injection:1 Function:3

Acquired: 17-DEC-18 21:50:39 Processed: 19-DEC-18 09:35:50

Mass: 373.8210 375.8180 Tot Response: 1.29e+02 RRF: 1.141

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:20	4.95e+01	4.07e+01	1.22	yes	9.02e+01	1,2,3,6,7,8-HxCDF	n	n
2	36:40	2.28e+01	1.61e+01	1.41	yes	3.90e+01	1,2,3,7,8,9-HxCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0002

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 16 File: P519445 Sample:1 Injection:1 Function:3

Acquired: 17-DEC-18 21:50:39 Processed: 19-DEC-18 09:35:50

Mass: 389.8160 391.8130 Tot Response: 2.34e+03 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:36	8.19e+02	6.69e+02	1.22	yes	1.49e+03		n	n
2	35:24	2.89e+02	2.59e+02	1.12	yes	5.49e+02		n	n
3	36:07	6.24e+01	5.03e+01	1.24	yes	1.13e+02	1,2,3,6,7,8-HxCDD	n	n
4	36:21	1.06e+02	8.44e+01	1.25	yes	1.90e+02	1,2,3,7,8,9-HxCDD	n	n

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Peak List Summary

CLIENT ID.
SL0002

Entry: 43 Totals Name: Total Hepta-Furans

Run: 16 File: P519445 Sample:1 Injection:1 Function:4

Acquired: 17-DEC-18 21:50:39 Processed: 19-DEC-18 09:35:50

Mass: 407.7820 409.7790 Tot Response: 1.07e+02 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:00	5.33e+01	1.00	yes	1.07e+02	1,2,3,4,6,7,8-HpCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0002

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 16 File: P519445 Sample:1 Injection:1 Function:4

Acquired: 17-DEC-18 21:50:39 Processed: 19-DEC-18 09:35:50

Mass: 423.7770 425.7740 Tot Response: 7.36e+03 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:16	2.49e+03	2.28e+03 1.09	yes	4.77e+03		n	n
2	38:57	1.28e+03	1.30e+03 0.99	yes	2.59e+03	1,2,3,4,6,7,8-HpCDD	n	n

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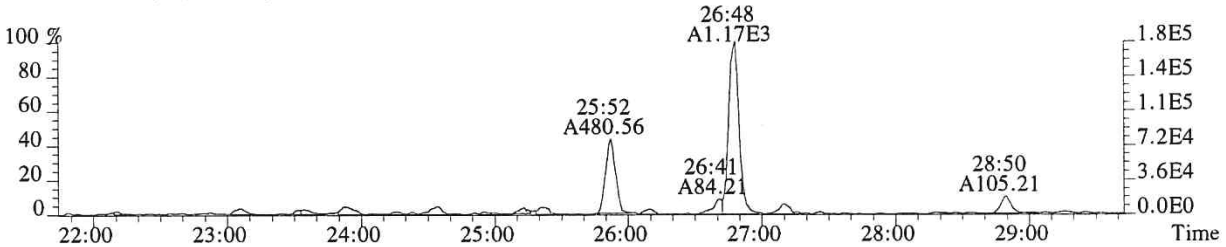
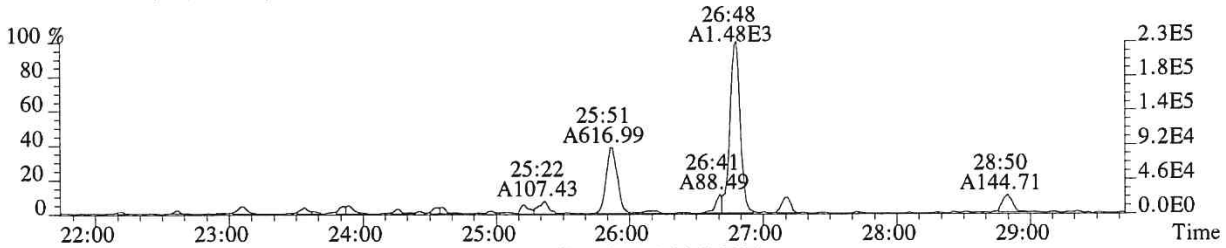
File:P519445 #1-566 Acq:17-DEC-2018 21:50:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-017

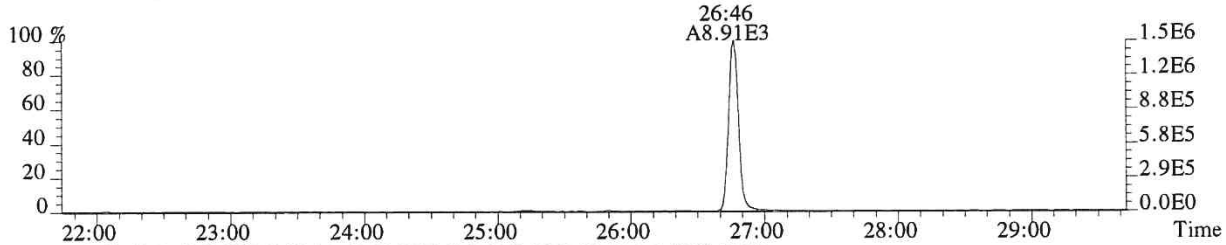
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1056.0,1.00%,F,T)



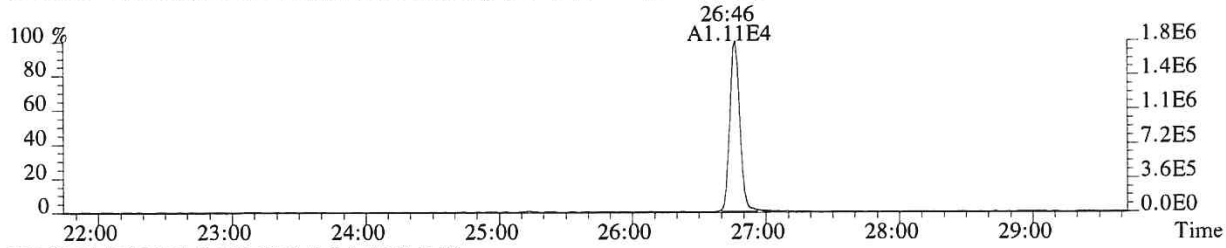
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1340.0,1.00%,F,T)



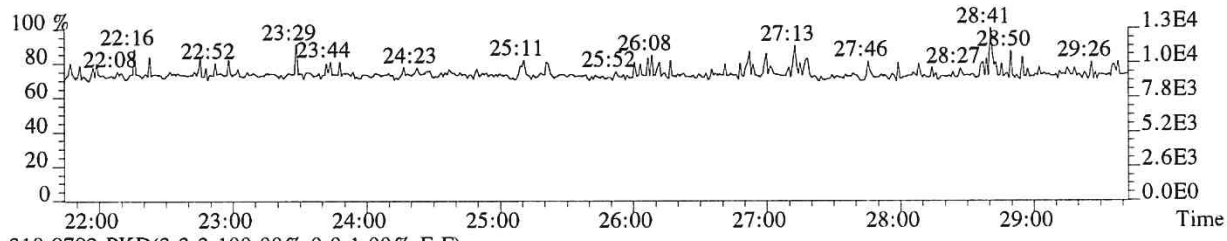
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3860.0,1.00%,F,T)



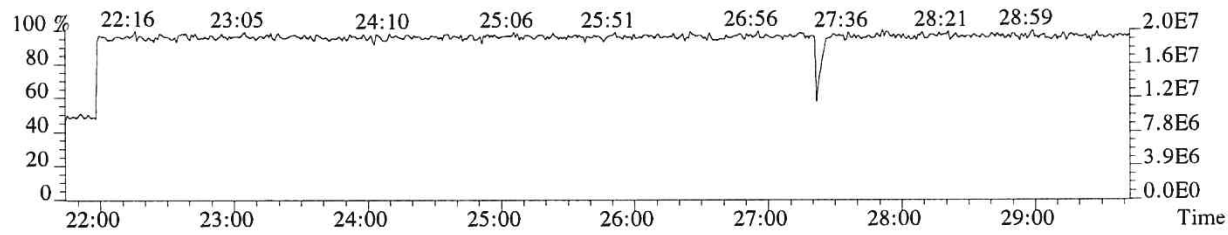
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4044.0,1.00%,F,T)



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



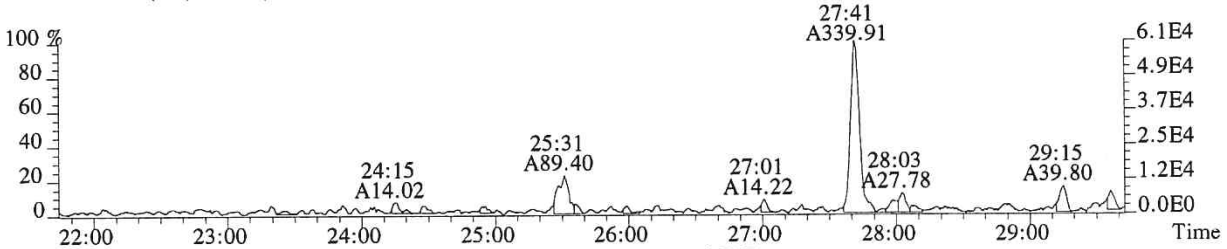
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



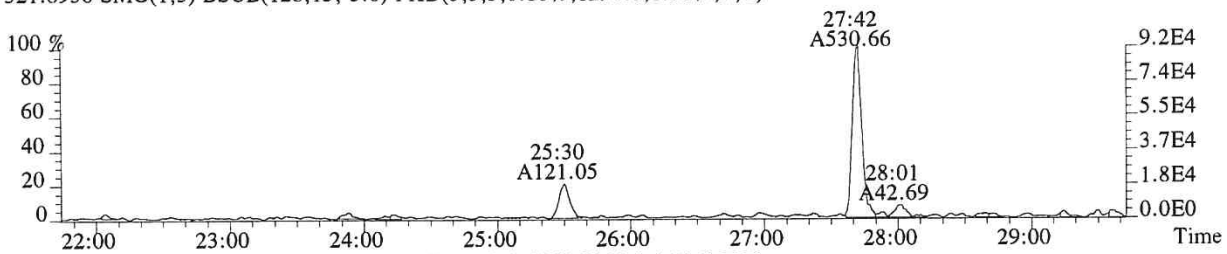
014441

File:P519445 #1-566 Acq:17-DEC-2018 21:50:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-017

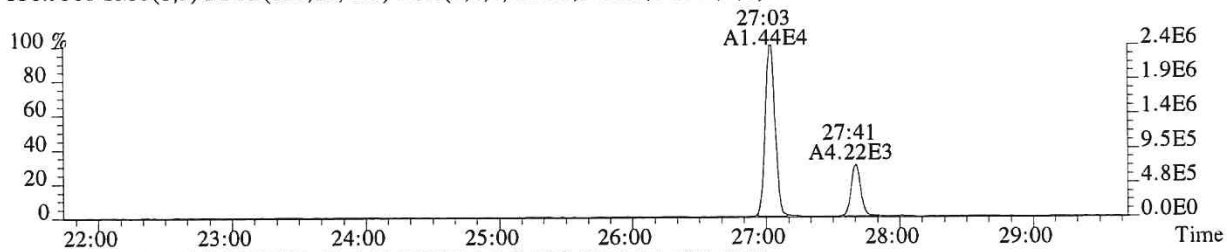
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1656.0,1.00%,F,T)



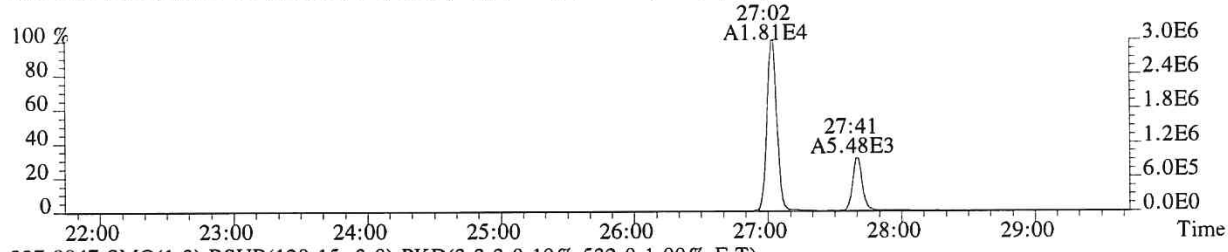
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1296.0,1.00%,F,T)



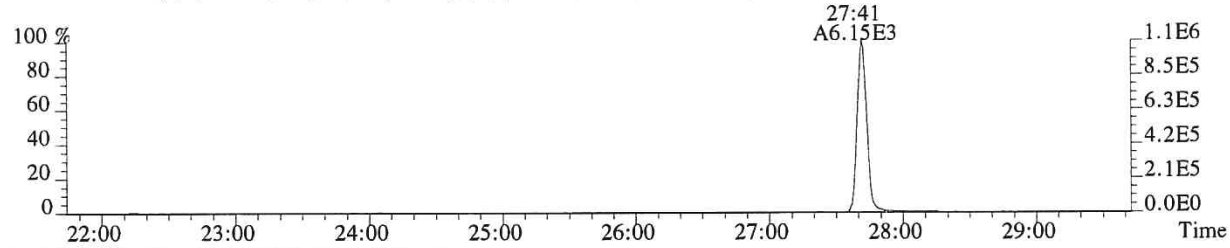
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5164.0,1.00%,F,T)



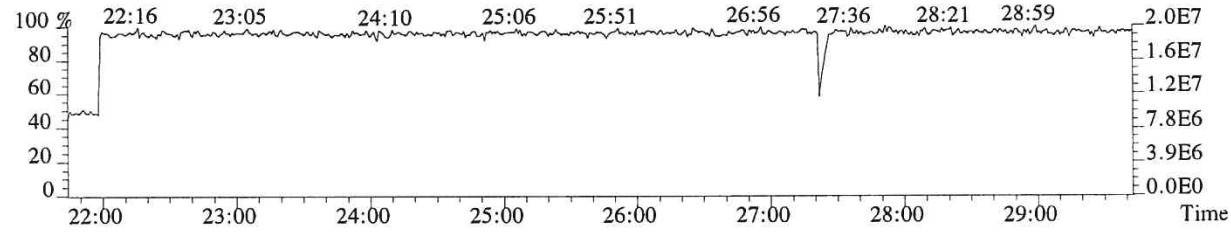
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2876.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,532.0,1.00%,F,T)

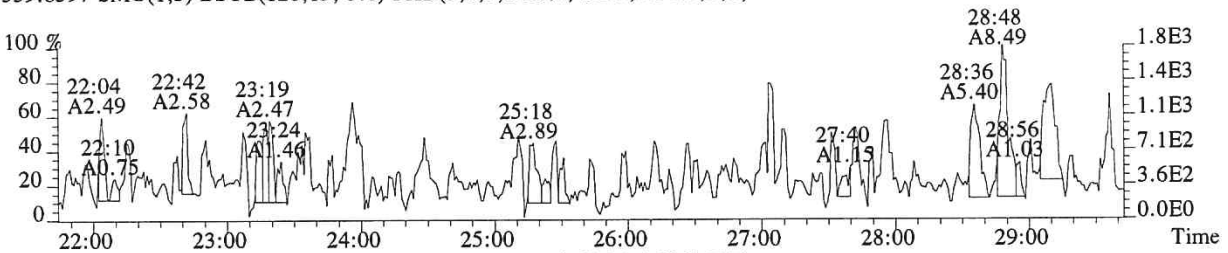


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

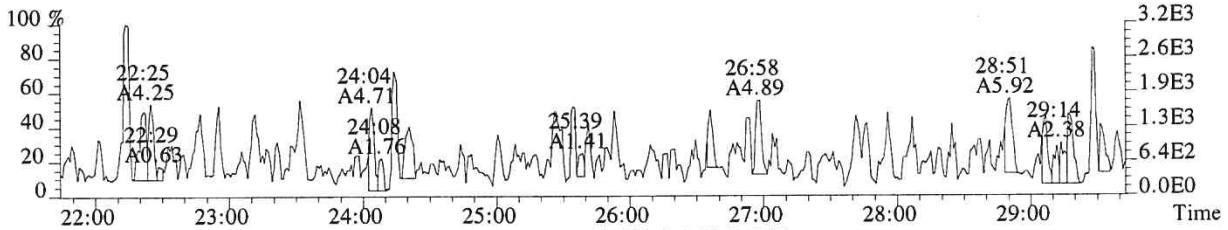


014442

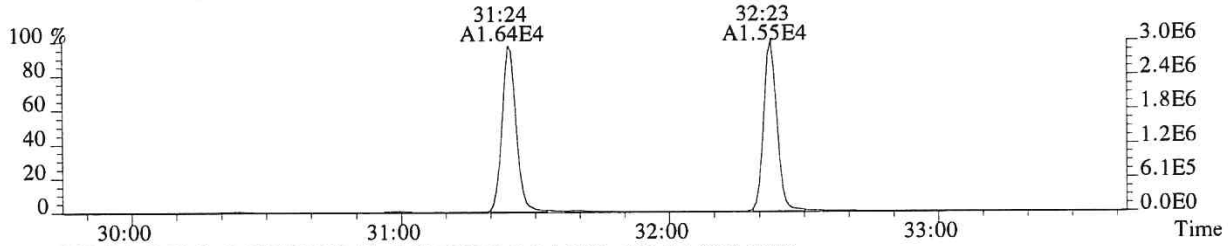
File:P519445 #1-566 Acq:17-DEC-2018 21:50:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-017
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,492.0,1.00%,F,T)



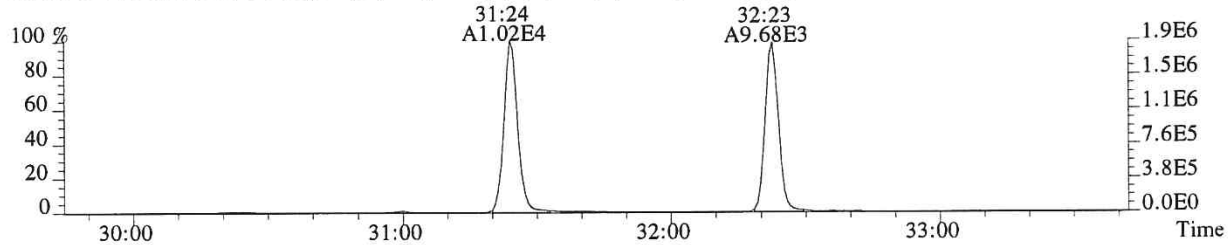
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



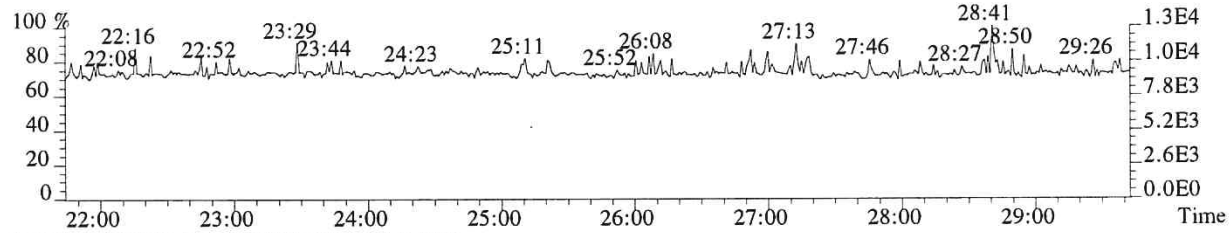
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,484.0,1.00%,F,T)



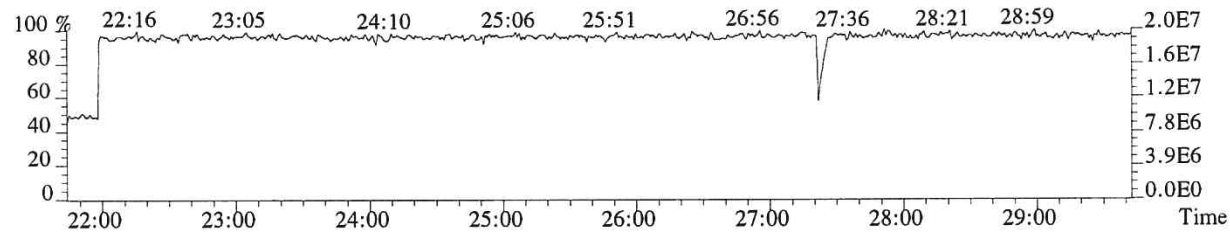
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,432.0,1.00%,F,T)



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

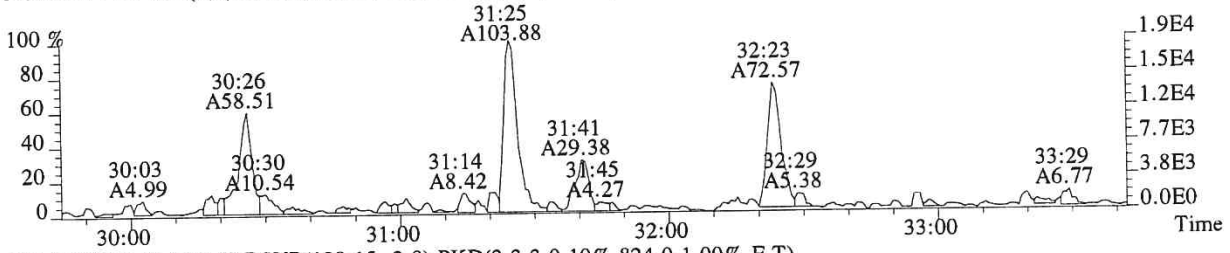


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

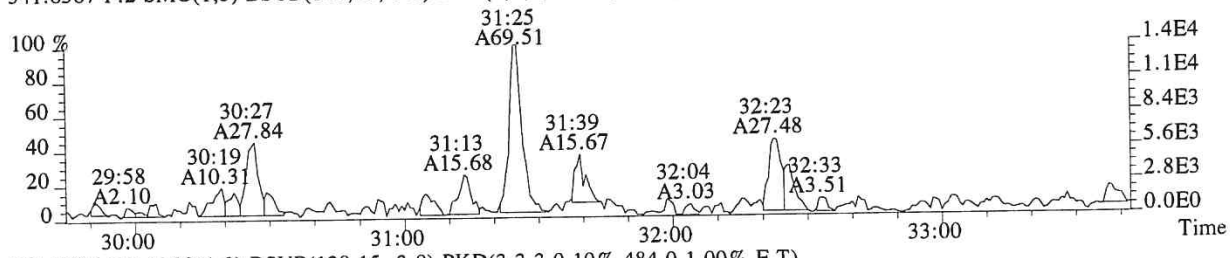


014443

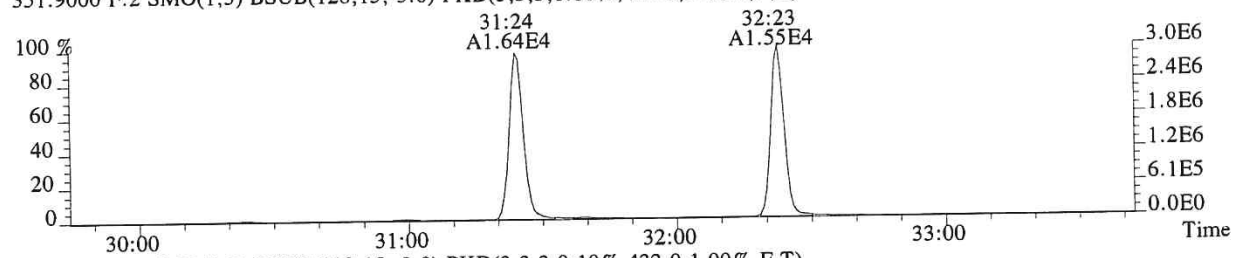
File:P519445 #1-357 Acq:17-DEC-2018 21:50:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-017
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,484.0,1.00%,F,T)



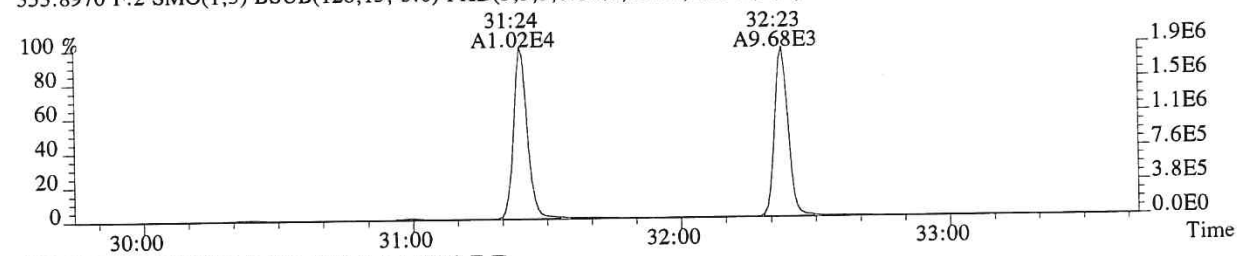
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,824.0,1.00%,F,T)



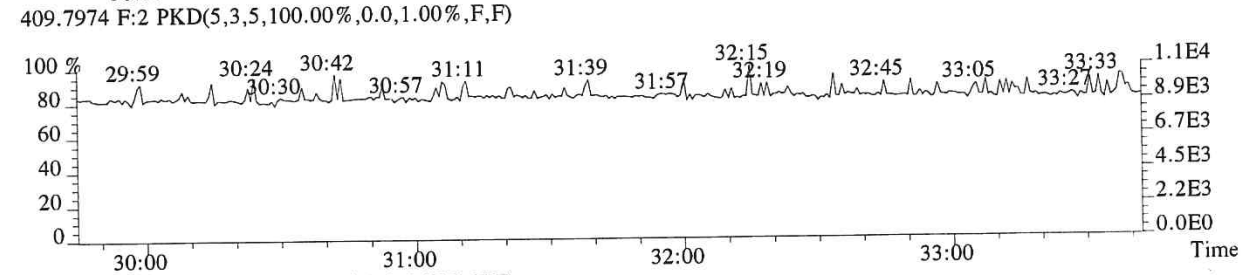
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,484.0,1.00%,F,T)



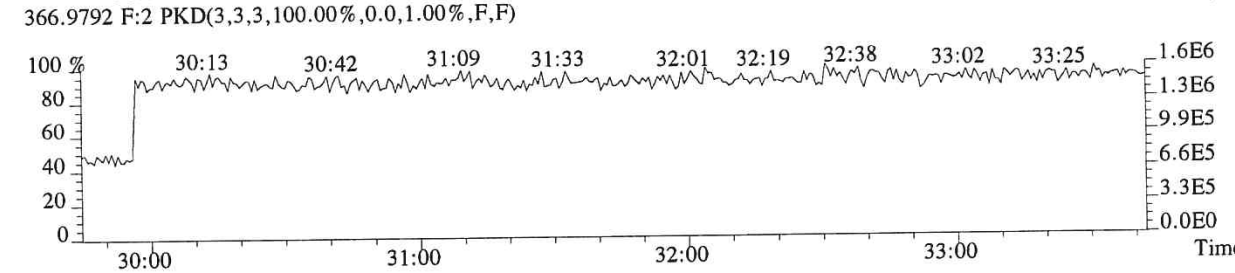
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,432.0,1.00%,F,T)



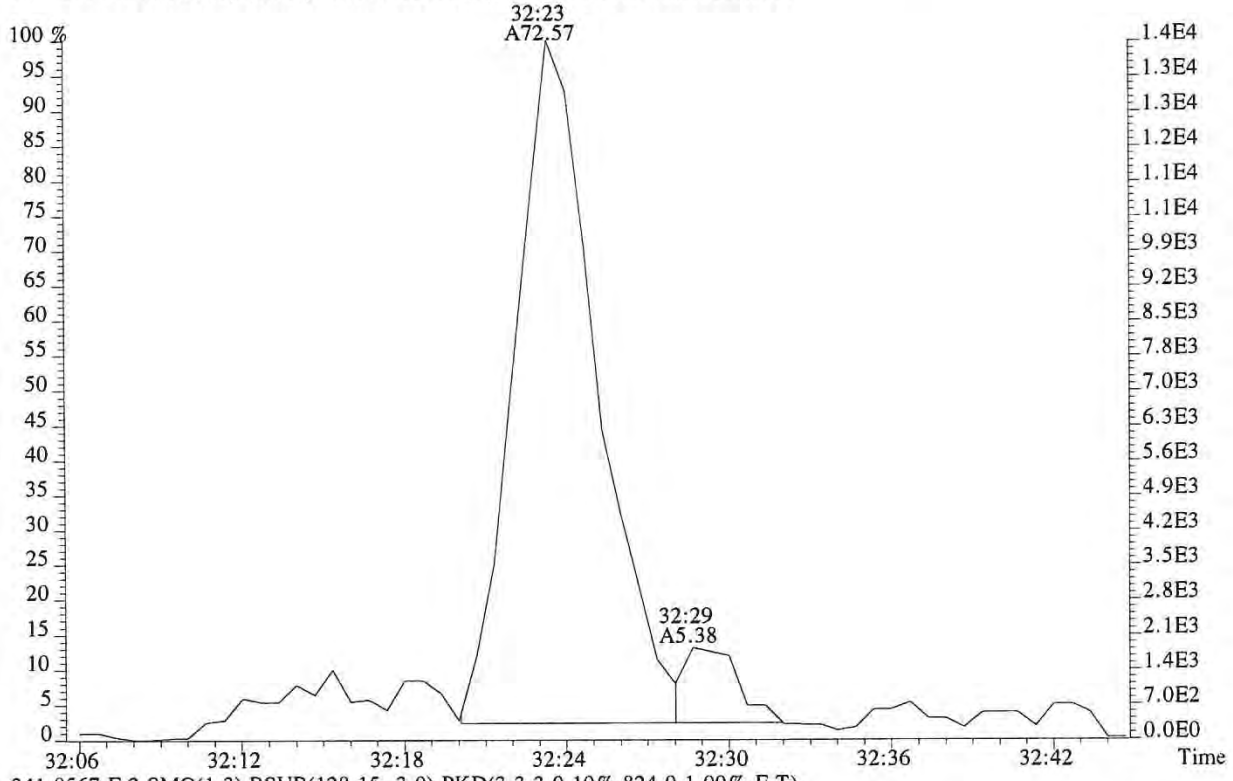
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



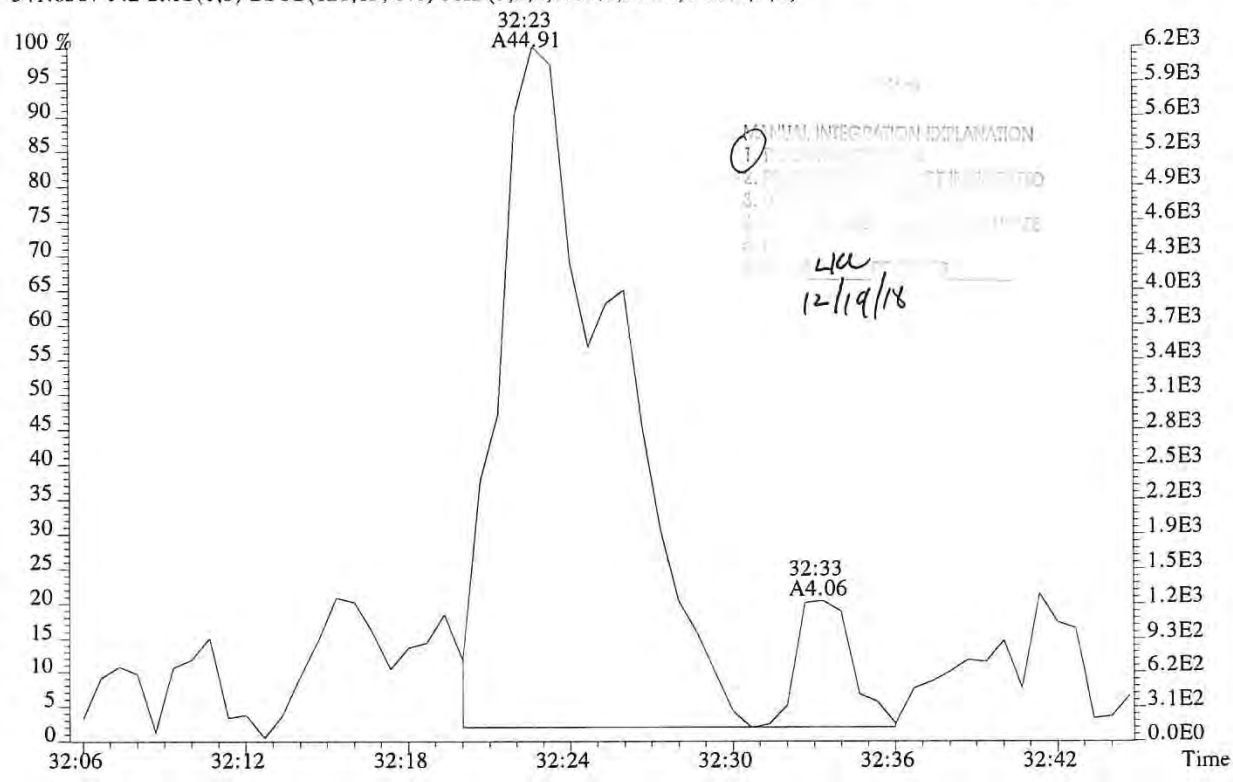
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P519445 #1-357 Acq:17-DEC-2018 21:50:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-017
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,484.0,1.00%,F,T)



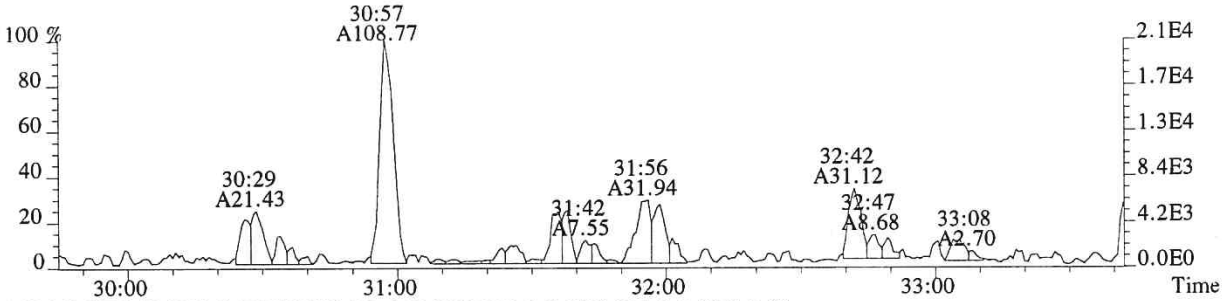
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,824.0,1.00%,F,T)



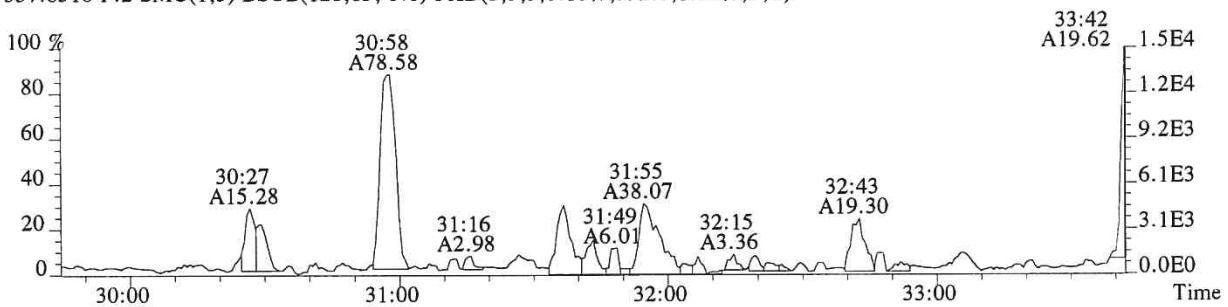
MANUAL INTEGRATION EXPLANATION

LKW
12/19/18

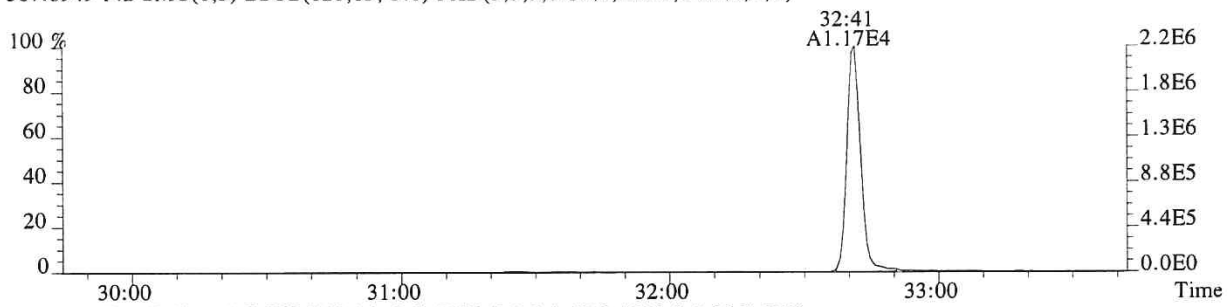
File:P519445 #1-357 Acq:17-DEC-2018 21:50:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-017
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,888.0,1.00%,F,T)



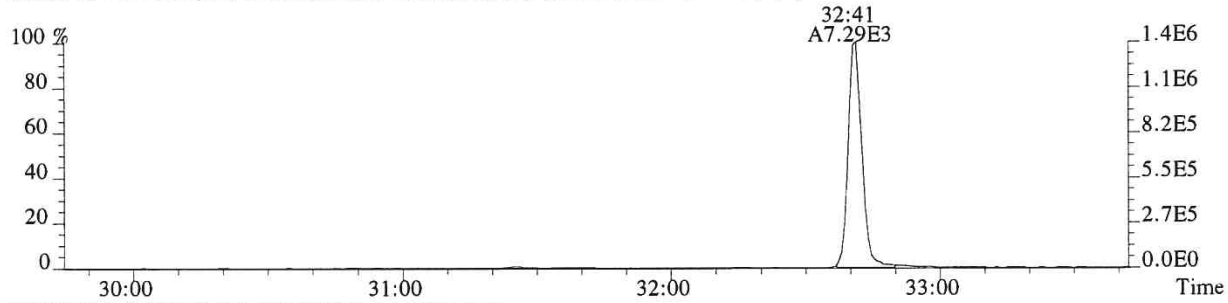
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,592.0,1.00%,F,T)



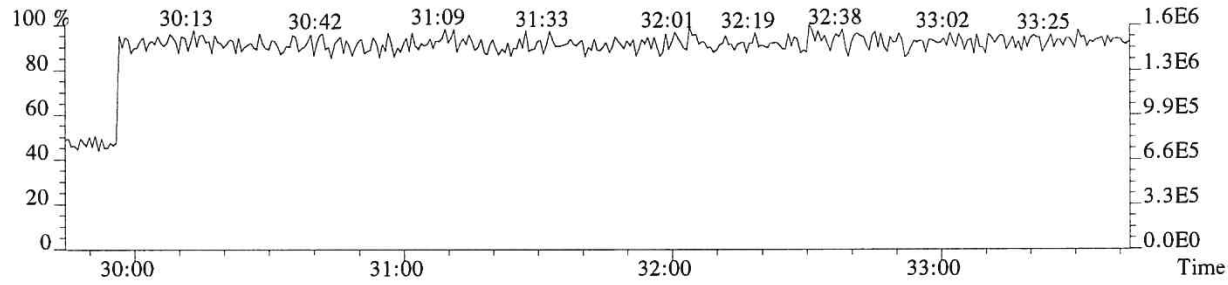
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,916.0,1.00%,F,T)



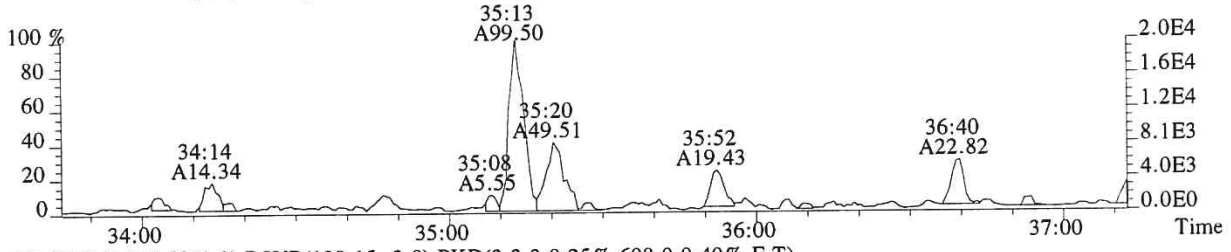
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1228.0,1.00%,F,T)



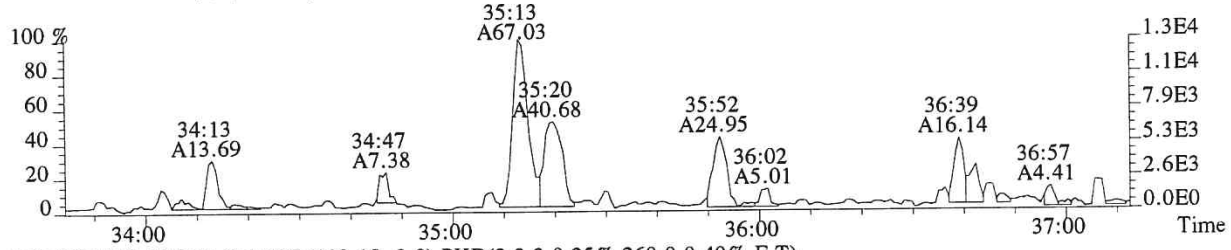
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



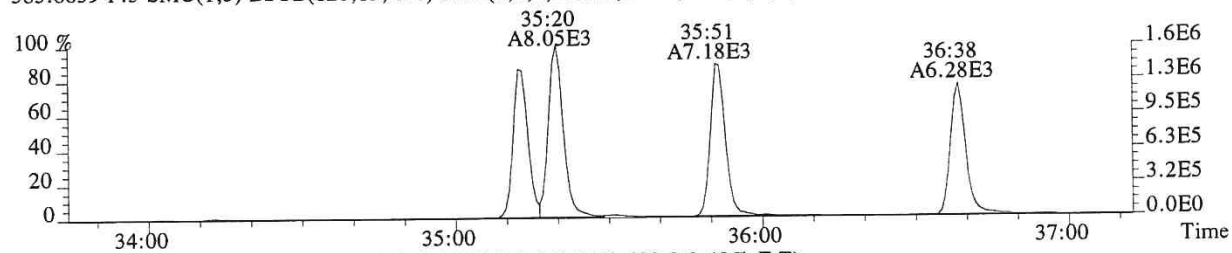
File:P519445 #1-313 Acq:17-DEC-2018 21:50:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-017
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,760.0,0.40%,F,T)



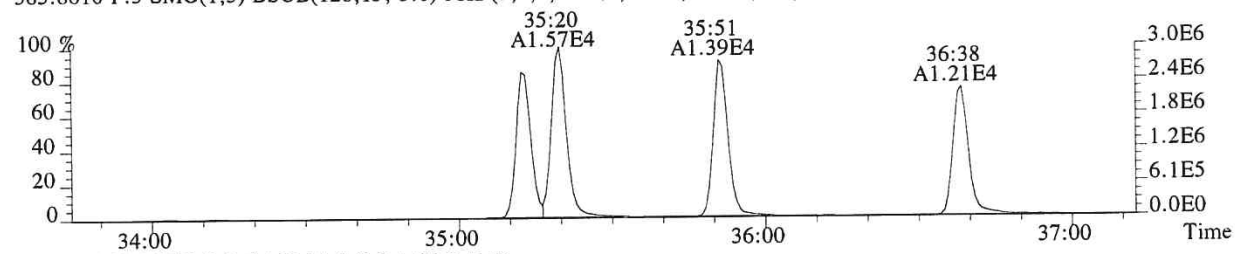
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,608.0,0.40%,F,T)



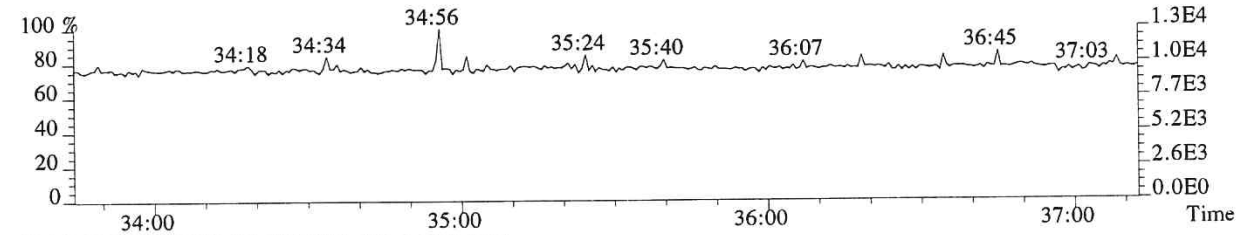
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,260.0,0.40%,F,T)



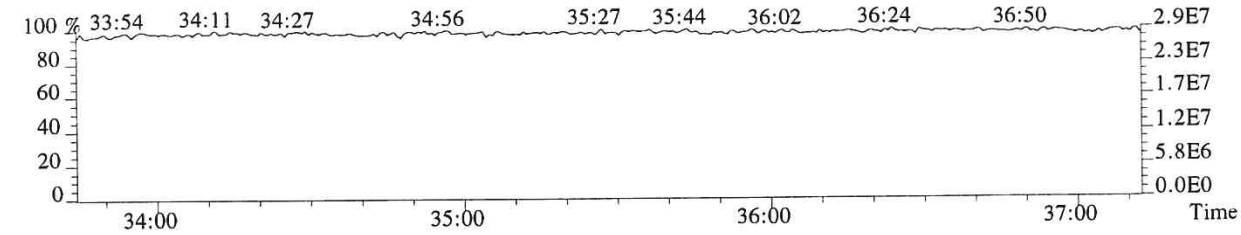
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,580.0,0.40%,F,T)



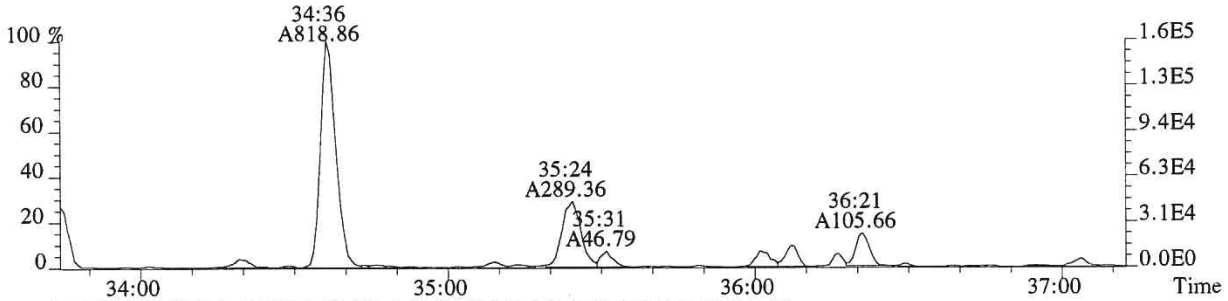
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



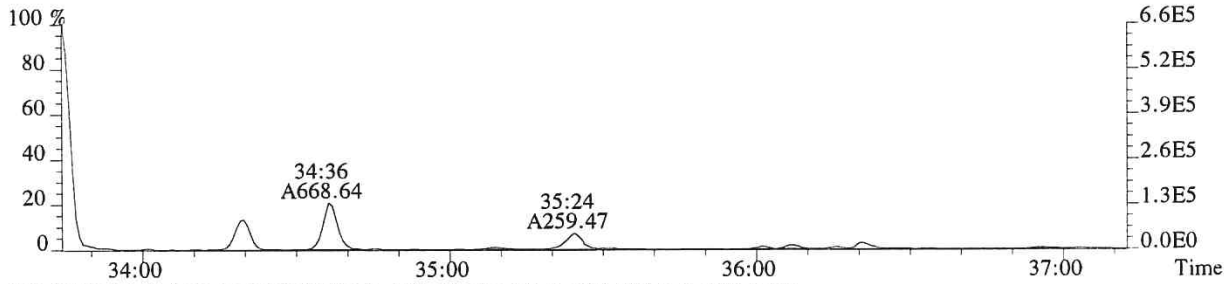
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



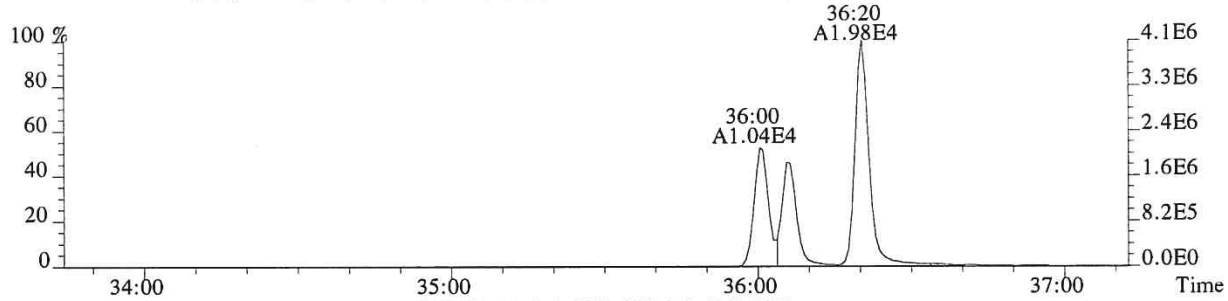
File:P519445 #1-313 Acq:17-DEC-2018 21:50:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-017
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,648.0,0.40%,F,T)



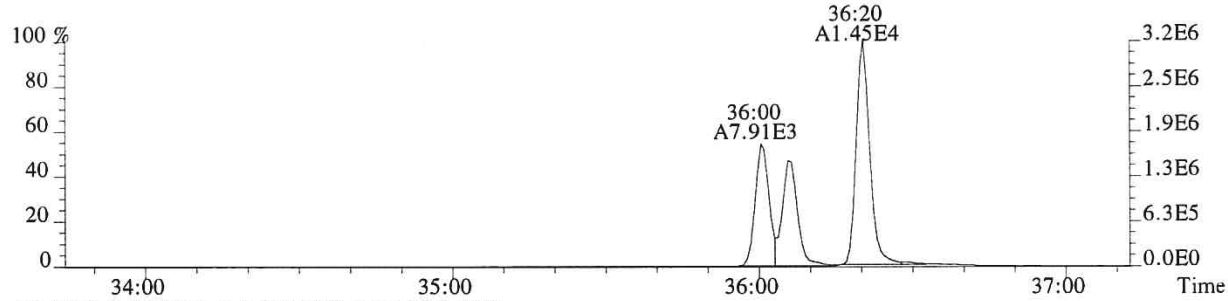
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,980.0,0.40%,F,T)



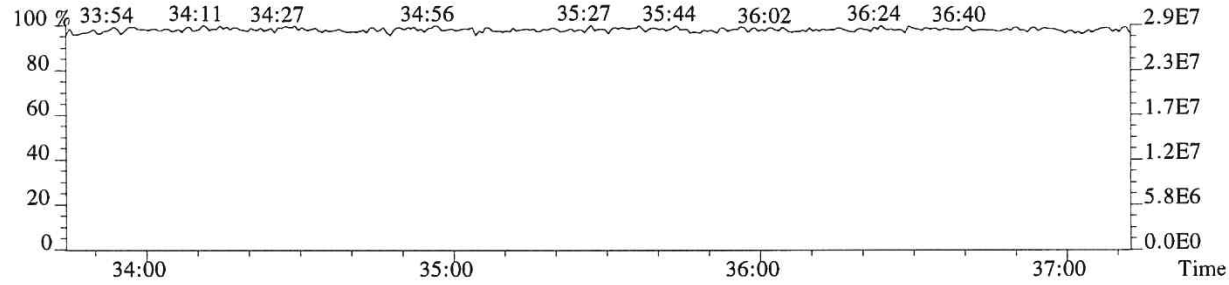
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,524.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,320.0,0.40%,F,T)



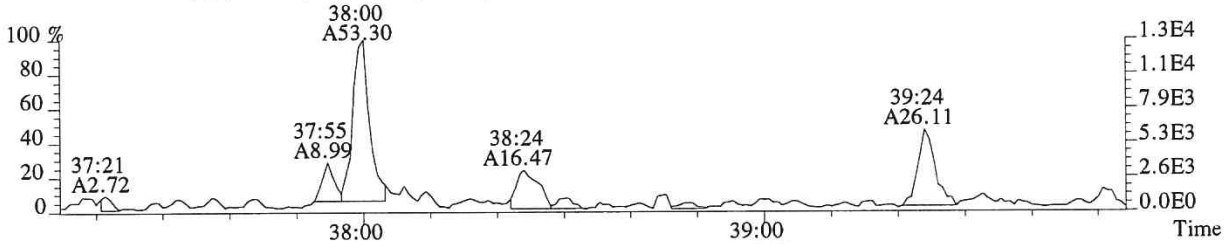
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



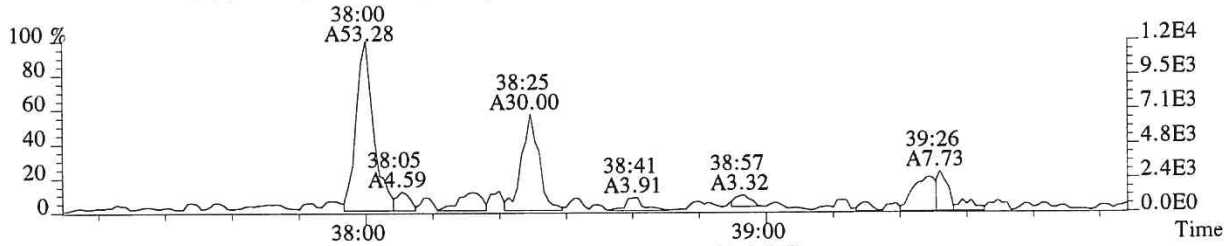
014448

File:P519445 #1-240 Acq:17-DEC-2018 21:50:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-017

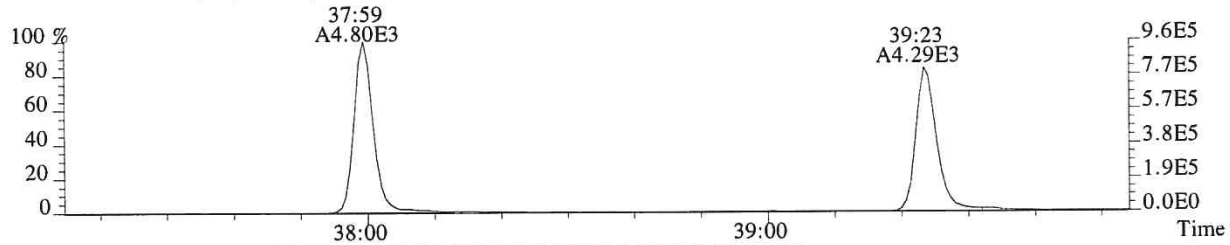
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,604.0,0.50%,F,T)



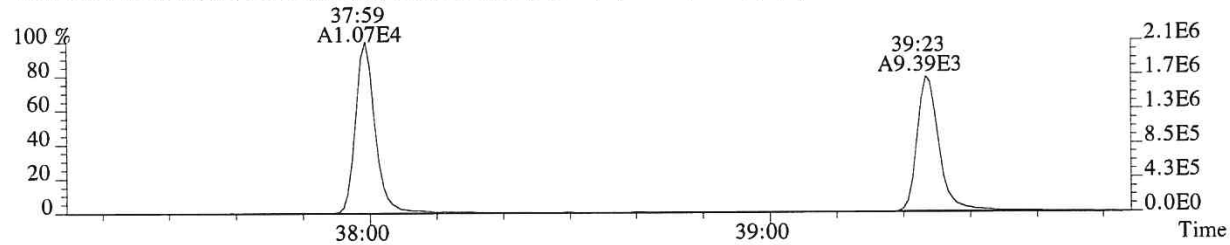
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,436.0,0.50%,F,T)



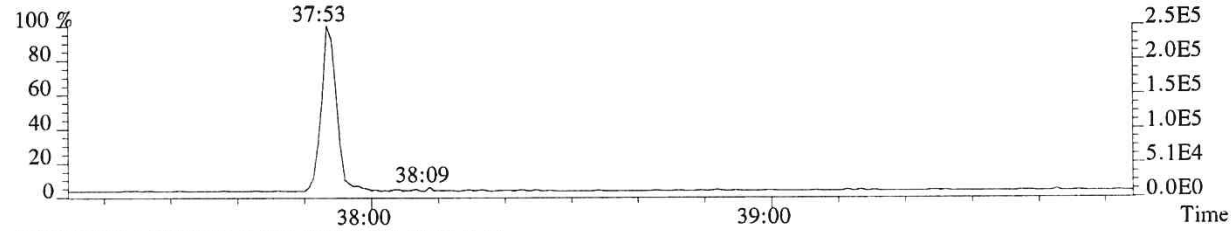
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1124.0,0.50%,F,T)



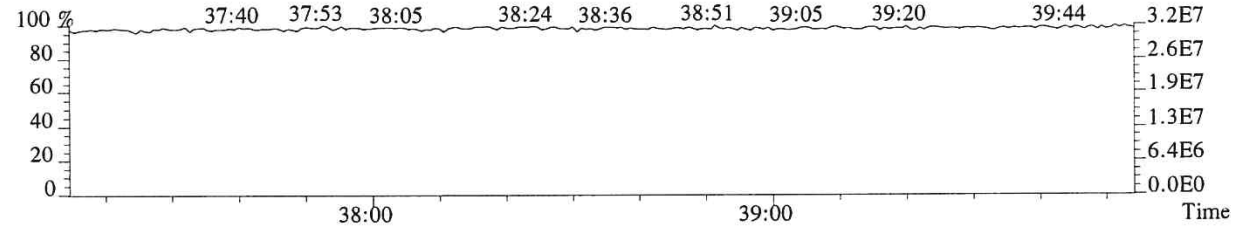
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2172.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

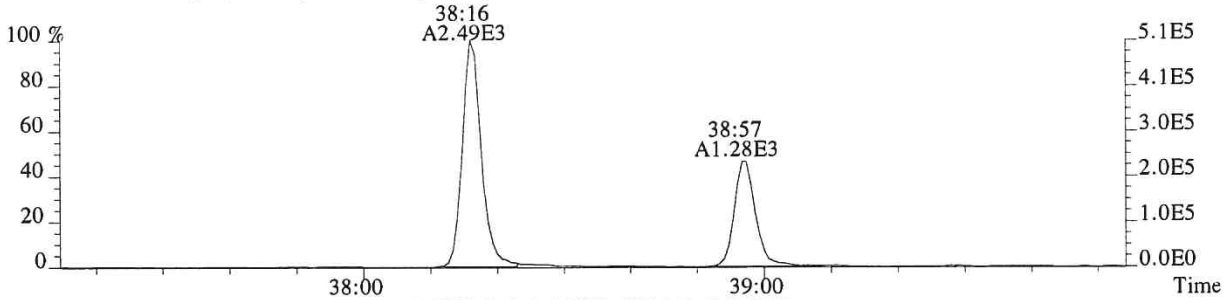


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

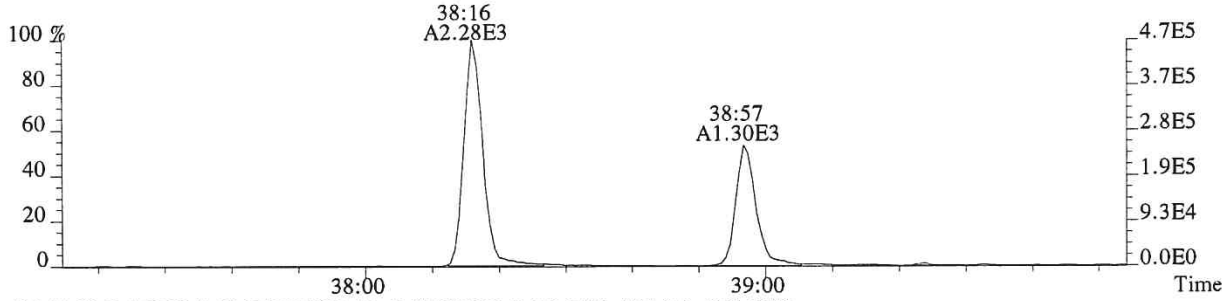


014449

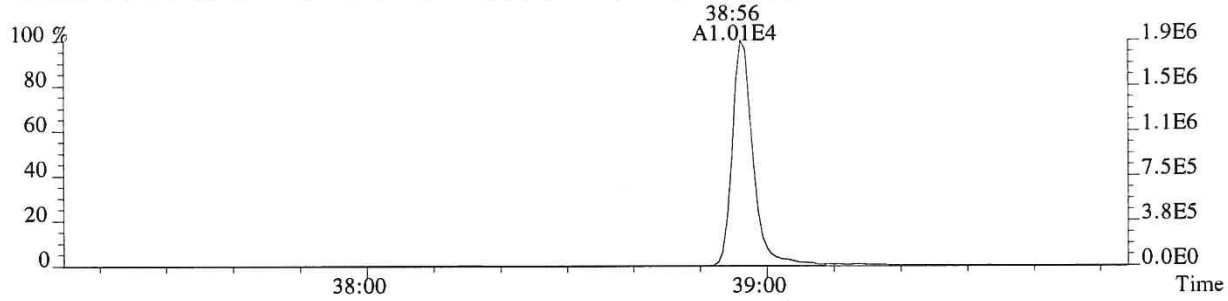
File:P519445 #1-240 Acq:17-DEC-2018 21:50:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-017
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,780.0,0.40%,F,T)



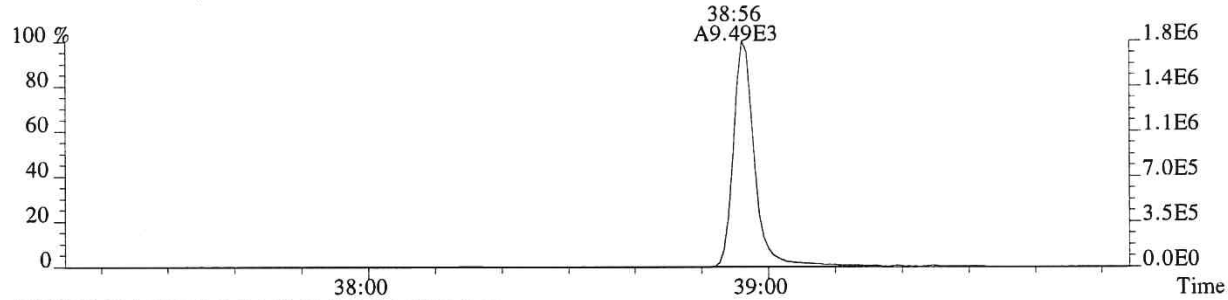
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,396.0,0.40%,F,T)



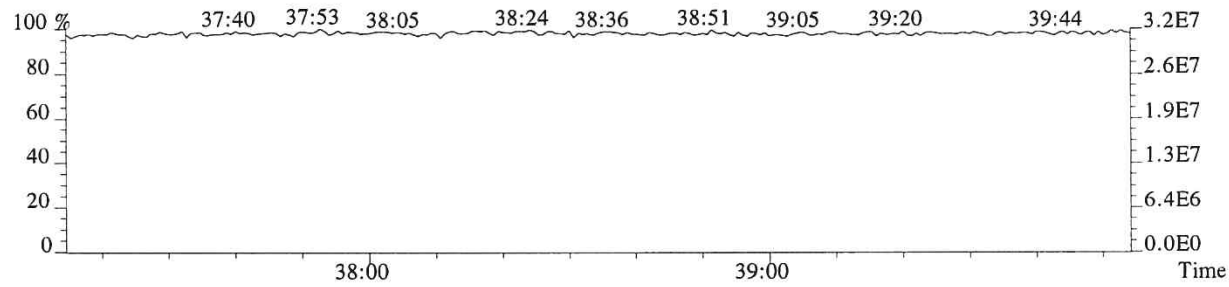
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,404.0,0.40%,F,T)



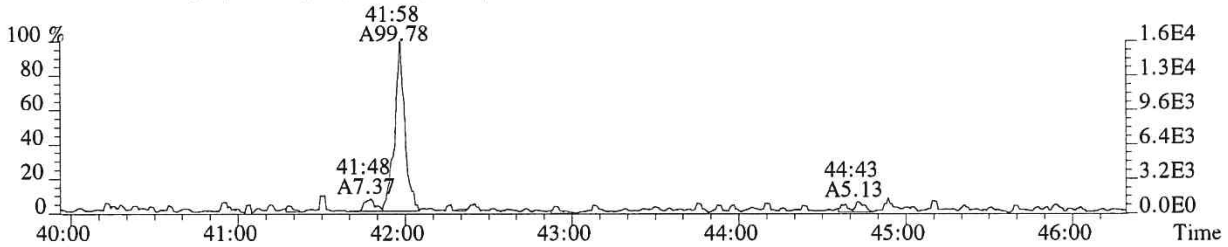
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,332.0,0.40%,F,T)



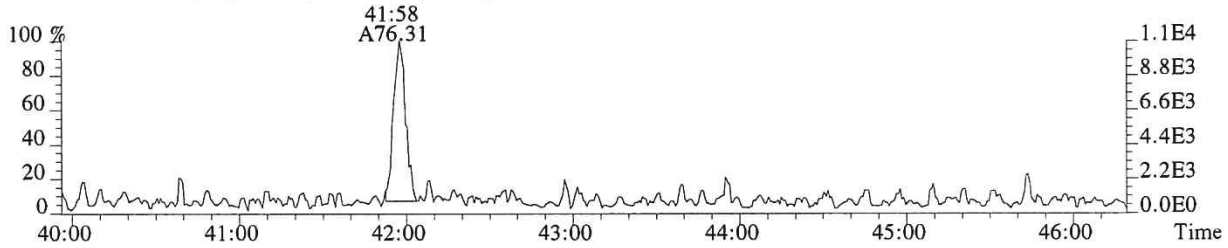
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



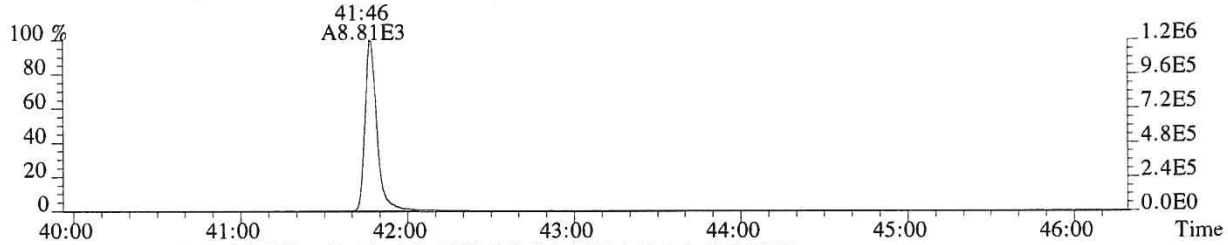
File:P519445 #1-575 Acq:17-DEC-2018 21:50:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-017
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,384.0,0.40%,F,T)



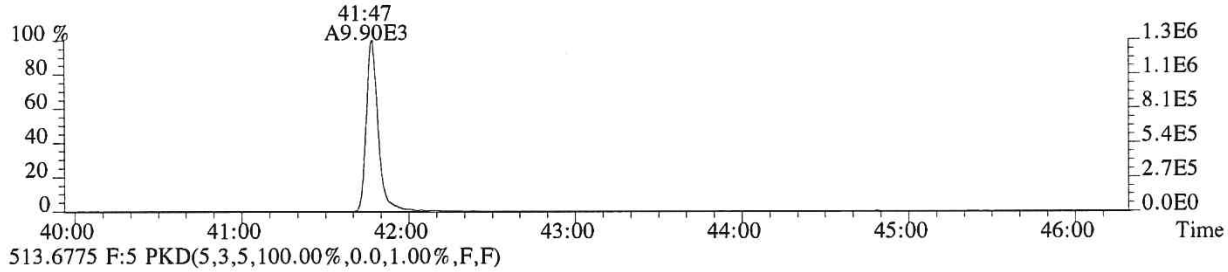
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,932.0,0.40%,F,T)



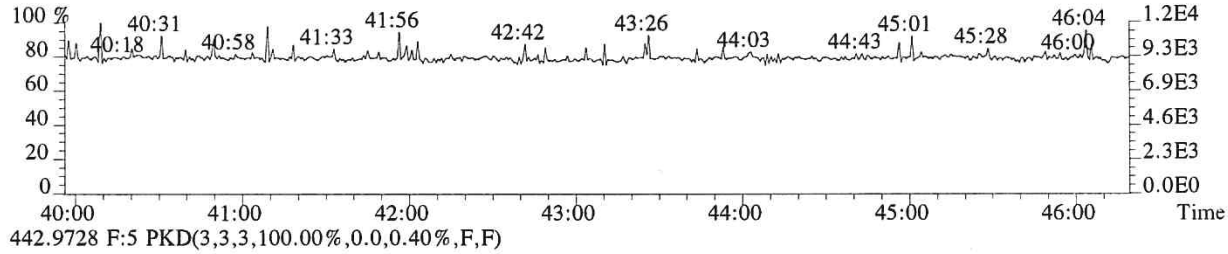
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,380.0,0.40%,F,T)



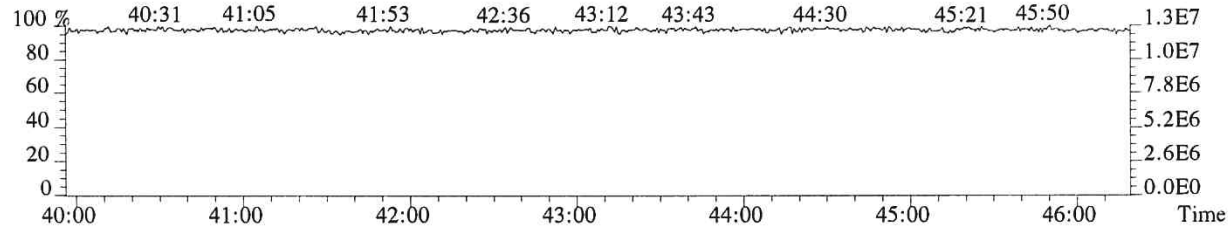
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,352.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

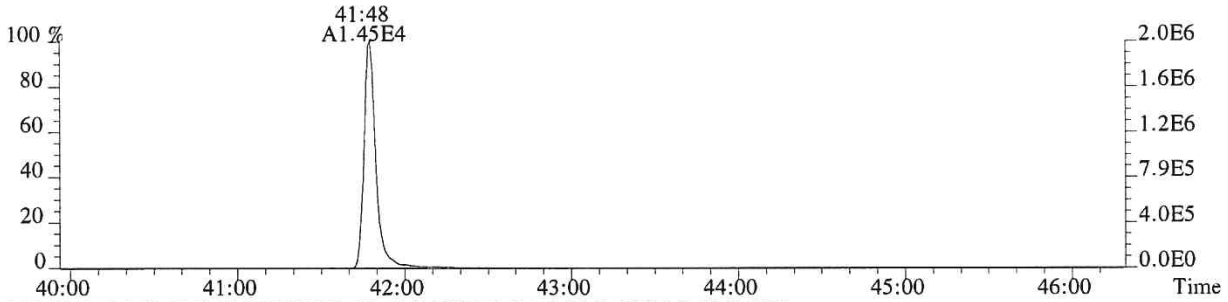


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

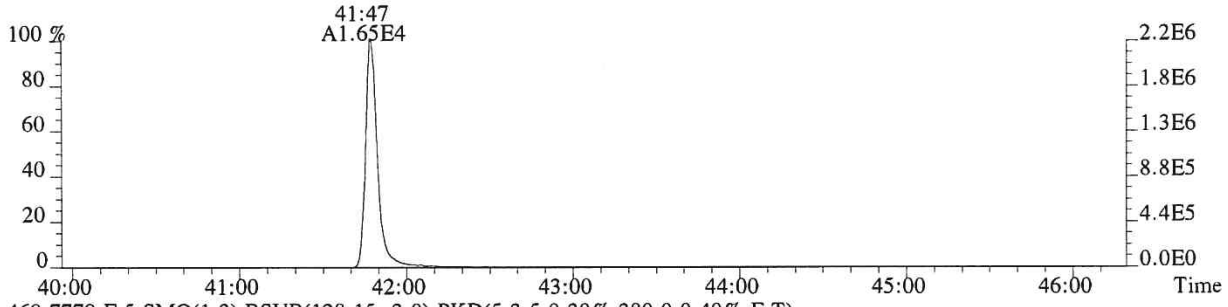


014451

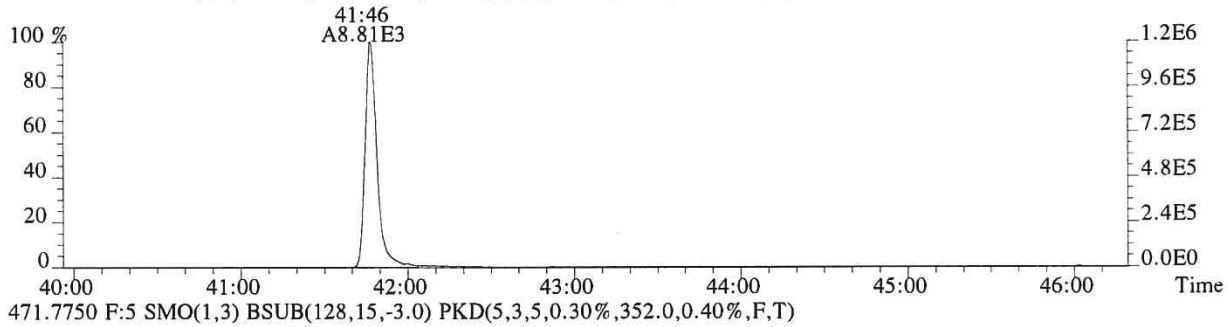
File:P519445 #1-575 Acq:17-DEC-2018 21:50:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-017
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,468.0,0.40%,F,T)



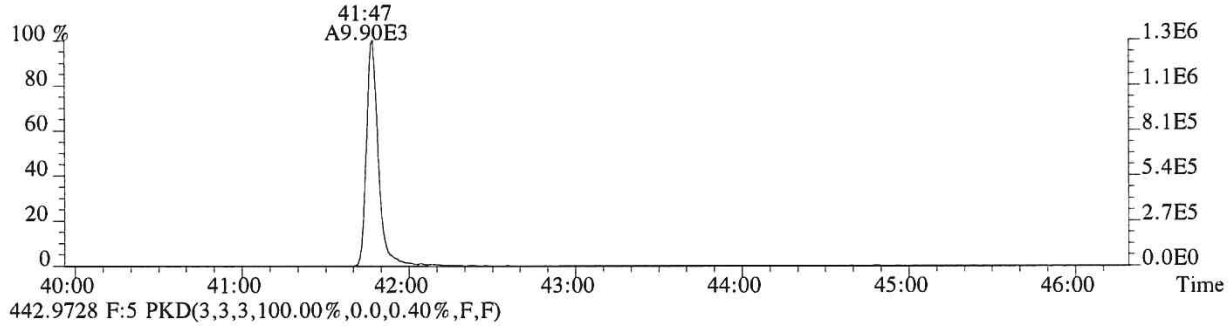
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,256.0,0.40%,F,T)



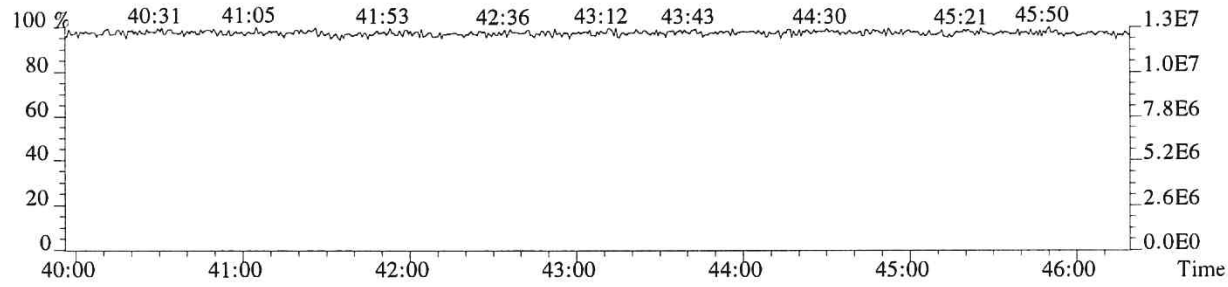
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,380.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,352.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0003

Run #17 Filename P519446 Samp: 1 Inj: 1 Acquired: 17-DEC-18 22:39:17
Processed: 19-DEC-18 09:36:44 Sample ID: E1801093-018

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:48	4.044e+02	4.706e+02	0.86	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	31:25	1.769e+01	1.850e+01	0.96	no	yes	1.012
3	Unk	2,3,4,7,8-PeCDF	32:25	1.893e+01	1.171e+01	1.62	yes	yes	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:13	3.590e+01	3.343e+01	1.07	yes	yes	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:21	1.938e+01	1.109e+01	1.75	no	yes	1.123
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	36:40	6.753e+00	7.726e+00	0.87	no	yes	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:00	4.686e+01	4.195e+01	1.12	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:25	9.799e+00	1.198e+01	0.82	no	no	1.258
10	Unk	OCDF	41:58	3.851e+01	7.251e+01	0.53	no	no	1.359
11	Unk	2,3,7,8-TCDD	27:42	1.105e+02	1.403e+02	0.79	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	32:43	2.478e+01	1.142e+01	2.17	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:02	1.869e+01	2.191e+01	0.85	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:07	2.553e+01	2.469e+01	1.03	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:20	3.026e+01	2.365e+01	1.28	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:57	4.883e+02	4.899e+02	1.00	yes	no	1.025
17	Unk	OCDD	41:48	8.982e+03	1.019e+04	0.88	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	26:46	6.851e+03	8.639e+03	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	31:25	1.301e+04	8.493e+03	1.53	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	32:23	1.251e+04	7.764e+03	1.61	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:13	6.044e+03	1.198e+04	0.50	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:20	7.245e+03	1.404e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:52	6.430e+03	1.224e+04	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	36:39	5.593e+03	1.100e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:00	4.771e+03	1.105e+04	0.43	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:24	4.163e+03	9.886e+03	0.42	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	27:41	3.454e+03	4.100e+03	0.84	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:41	9.482e+03	6.094e+03	1.56	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:01	8.888e+03	7.063e+03	1.26	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:06	8.846e+03	7.112e+03	1.24	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:57	1.075e+04	9.860e+03	1.09	yes	no	0.858
32	IS	13C-OCDD	41:48	1.053e+04	1.161e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:03	8.207e+03	1.043e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:20	1.321e+04	1.038e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:42	4.906e+03				no	1.014

$$\text{OCDD} = \frac{(8.982e+03 + 1.019e+04) \times 4000\ \text{pg} \times 1}{(1.053e+04 + 1.161e+04) \times 10.705\ \text{g} \times 78.8 / 100 \times 1.118} = 307\ \text{ng/kg}$$

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0003

Run #17 Filename P519446 Samp: 1 Inj: 1 Acquired: 17-DEC-18 22:39:17
Processed: 19-DEC-18 09:36:44 LAB. ID: E1801093-018

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.88e+04	1.05e+03	5.6e+01	8.04e+04	1.13e+03	7.1e+01
2	1,2,3,7,8-PeCDF	3.61e+03	5.92e+02	6.1e+00	4.55e+03	5.20e+02	8.8e+00
3	2,3,4,7,8-PeCDF	3.17e+03	5.92e+02	5.4e+00	2.81e+03	5.20e+02	5.4e+00
4	1,2,3,4,7,8-HxCDF	6.49e+03	3.56e+02	1.8e+01	5.95e+03	1.92e+02	3.1e+01
5	1,2,3,6,7,8-HxCDF	4.87e+03	3.56e+02	1.4e+01	2.46e+03	1.92e+02	1.3e+01
6	2,3,4,6,7,8-HxCDF	*	3.56e+02	*	*	1.92e+02	*
7	1,2,3,7,8,9-HxCDF	2.10e+03	3.56e+02	5.9e+00	1.19e+03	1.92e+02	6.2e+00
8	1,2,3,4,6,7,8-HpCDF	8.74e+03	2.32e+02	3.8e+01	7.68e+03	4.24e+02	1.8e+01
9	1,2,3,4,7,8,9-HpCDF	2.72e+03	2.32e+02	1.2e+01	2.21e+03	4.24e+02	5.2e+00
10	OCDF	6.13e+03	3.16e+02	1.9e+01	9.64e+03	3.04e+02	3.2e+01
11	2,3,7,8-TCDD	1.99e+04	1.80e+03	1.1e+01	2.46e+04	9.48e+02	2.6e+01
12	1,2,3,7,8-PeCDD	4.85e+03	6.76e+02	7.2e+00	2.93e+03	2.92e+02	1.0e+01
13	1,2,3,4,7,8-HxCDD	3.90e+03	3.40e+02	1.1e+01	4.02e+03	3.48e+02	1.2e+01
14	1,2,3,6,7,8-HxCDD	5.54e+03	3.40e+02	1.6e+01	4.79e+03	3.48e+02	1.4e+01
15	1,2,3,7,8,9-HxCDD	5.84e+03	3.40e+02	1.7e+01	4.17e+03	3.48e+02	1.2e+01
16	1,2,3,4,6,7,8-HpCDD	9.68e+04	8.28e+02	1.2e+02	9.03e+04	7.08e+02	1.3e+02
17	OCDD	1.19e+06	3.72e+02	3.2e+03	1.35e+06	3.60e+02	3.8e+03
18	13C-2,3,7,8-TCDF	1.13e+06	5.32e+03	2.1e+02	1.36e+06	3.07e+03	4.4e+02
19	13C-1,2,3,7,8-PeCDF	2.28e+06	5.88e+02	3.9e+03	1.50e+06	9.56e+02	1.6e+03
20	13C-2,3,4,7,8-PeCDF	2.38e+06	5.88e+02	4.1e+03	1.51e+06	9.56e+02	1.6e+03
21	13C-1,2,3,4,7,8-HxCDF	1.22e+06	7.64e+02	1.6e+03	2.42e+06	3.72e+02	6.5e+03
22	13C-1,2,3,6,7,8-HxCDF	1.40e+06	7.64e+02	1.8e+03	2.67e+06	3.72e+02	7.2e+03
23	13C-2,3,4,6,7,8-HxCDF	1.26e+06	7.64e+02	1.7e+03	2.47e+06	3.72e+02	6.7e+03
24	13C-1,2,3,7,8,9-HxCDF	1.06e+06	7.64e+02	1.4e+03	2.05e+06	3.72e+02	5.5e+03
25	13C-1,2,3,4,6,7,8-HpCDF	9.41e+05	1.27e+03	7.4e+02	2.11e+06	1.16e+03	1.8e+03
26	13C-1,2,3,4,7,8,9-HpCDF	7.40e+05	1.27e+03	5.8e+02	1.73e+06	1.16e+03	1.5e+03
27	13C-2,3,7,8-TCDD	6.18e+05	3.75e+03	1.6e+02	7.38e+05	2.63e+03	2.8e+02
28	13C-1,2,3,7,8-PeCDD	1.76e+06	4.40e+02	4.0e+03	1.12e+06	1.17e+03	9.6e+02
29	13C-1,2,3,4,7,8-HxCDD	1.94e+06	5.16e+02	3.8e+03	1.52e+06	3.64e+02	4.2e+03
30	13C-1,2,3,6,7,8-HxCDD	1.75e+06	5.16e+02	3.4e+03	1.40e+06	3.64e+02	3.8e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.98e+06	4.68e+02	4.2e+03	1.78e+06	3.44e+02	5.2e+03
32	13C-OCDD	1.39e+06	3.36e+02	4.1e+03	1.56e+06	3.36e+02	4.6e+03
33	13C-1,2,3,4-TCDD	1.42e+06	3.75e+03	3.8e+02	1.81e+06	2.63e+03	6.9e+02
34	13C-1,2,3,7,8,9-HxCDD	2.61e+06	5.16e+02	5.1e+03	2.06e+06	3.64e+02	5.7e+03
35	37Cl-2,3,7,8-TCDD	8.57e+05	7.64e+02	1.1e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.800e+03 + 9.480e+02) \times 2000}{(6.180e+05 + 7.377e+05) \times (\quad) \times 1.085} =$$

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0003

Entry: 36 Totals Name: Total Tetra-Furans

Run: 17 File: P519446 Sample:1 Injection:1 Function:1

Acquired: 17-DEC-18 22:39:17 Processed: 19-DEC-18 09:36:44

Mass: 303.9020 305.8990 Tot Response: 8.75e+02 RRF: 0.9417

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	26:48	4.04e+02	4.71e+02 0.86	yes	8.75e+02	2,3,7,8-TCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0003

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 17 File: P519446 Sample:1 Injection:1 Function:1

Acquired: 17-DEC-18 22:39:17 Processed: 19-DEC-18 09:36:44

Mass: 319.8970 321.8940 Tot Response: 5.61e+02 RRF: 1.085

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	25:30	1.39e+02	1.71e+02	0.81	yes	3.10e+02		n	n
2	27:42	1.11e+02	1.40e+02	0.79	yes	2.51e+02	2,3,7,8-TCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0003

Entry: 39 Totals Name: Total Penta-Furans2

Run: 17 File: P519446 Sample:1 Injection:1 Function:2

Acquired: 17-DEC-18 22:39:17 Processed: 19-DEC-18 09:36:44

Mass: 339.8600 341.8570 Tot Response: 3.06e+01 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	32:25	1.89e+01	1.17e+01 1.62	yes	3.06e+01	2,3,4,7,8-PeCDF	n	y

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0003

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 17 File: P519446 Sample:1 Injection:1 Function:2

Acquired: 17-DEC-18 22:39:17 Processed: 19-DEC-18 09:36:44

Mass: 355.8550 357.8520 Tot Response: 2.34e+02 RRF: 0.9565

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:57	1.36e+02	9.87e+01 1.38	yes	2.34e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0003

Entry: 41 Totals Name: Total Hexa-Furans

Run: 17 File: P519446 Sample:1 Injection:1 Function:3

Acquired: 17-DEC-18 22:39:17 Processed: 19-DEC-18 09:36:44

Mass: 373.8210 375.8180 Tot Response: 6.93e+01 RRF: 1.141

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:13	3.59e+01	3.34e+01 1.07	yes	6.93e+01	1,2,3,4,7,8-HxCDF	y	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0003

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 17 File: P519446 Sample:1 Injection:1 Function:3

Acquired: 17-DEC-18 22:39:17 Processed: 19-DEC-18 09:36:44

Mass: 389.8160 391.8130 Tot Response: 1.64e+03 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:37	7.69e+02	5.80e+02	1.33	yes	1.35e+03		n	n
2	35:24	1.32e+02	1.06e+02	1.25	yes	2.38e+02		n	n
3	36:20	3.03e+01	2.37e+01	1.28	yes	5.39e+01	1,2,3,7,8,9-HxCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0003

Entry: 43 Totals Name: Total Hepta-Furans

Run: 17 File: P519446 Sample:1 Injection:1 Function:4

Acquired: 17-DEC-18 22:39:17 Processed: 19-DEC-18 09:36:44

Mass: 407.7820 409.7790 Tot Response: 8.88e+01 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:00	4.69e+01	4.19e+01 1.12	yes	8.88e+01	1,2,3,4,6,7,8-HpCDF	n	n

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0003

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 17 File: P519446 Sample:1 Injection:1 Function:4

Acquired: 17-DEC-18 22:39:17 Processed: 19-DEC-18 09:36:44

Mass: 423.7770 425.7740 Tot Response: 3.95e+03 RRF: 1.025

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:17	1.52e+03	1.46e+03	1.04	yes	2.98e+03		n	n
2	38:57	4.88e+02	4.90e+02	1.00	yes	9.78e+02	1,2,3,4,6,7,8-HpCDD	n	n

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10450 Stancliff Rd., Suite 115
Houston, TX 77099
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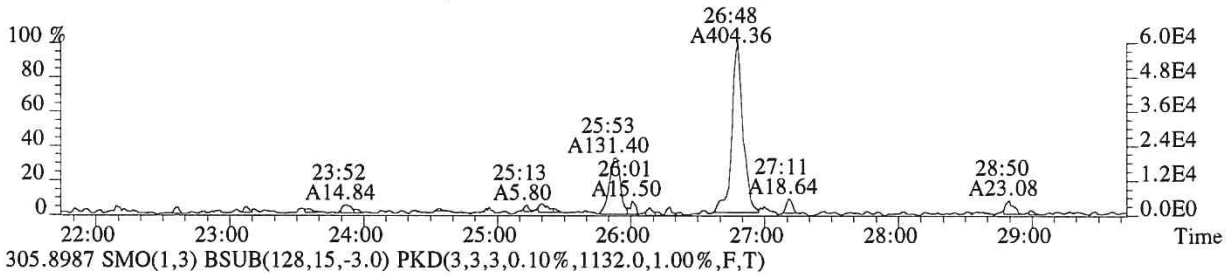
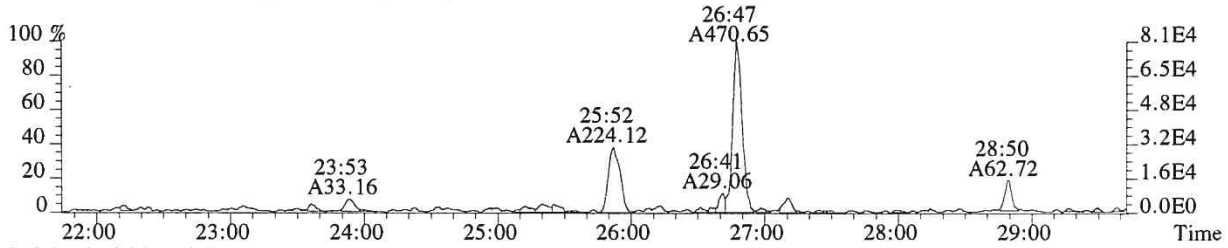
File:P519446 #1-566 Acq:17-DEC-2018 22:39:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-018

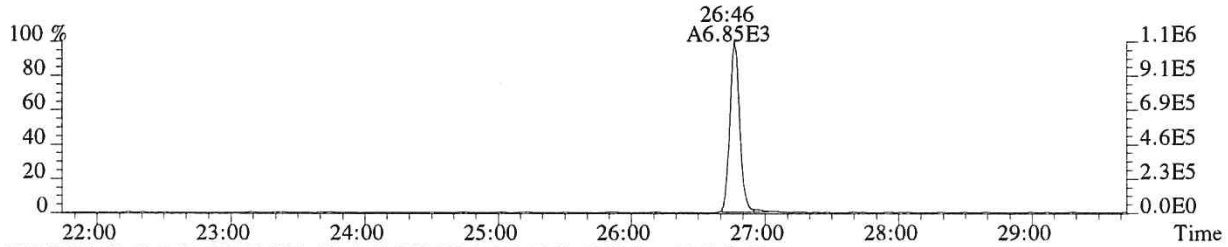
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1048.0,1.00%,F,T)



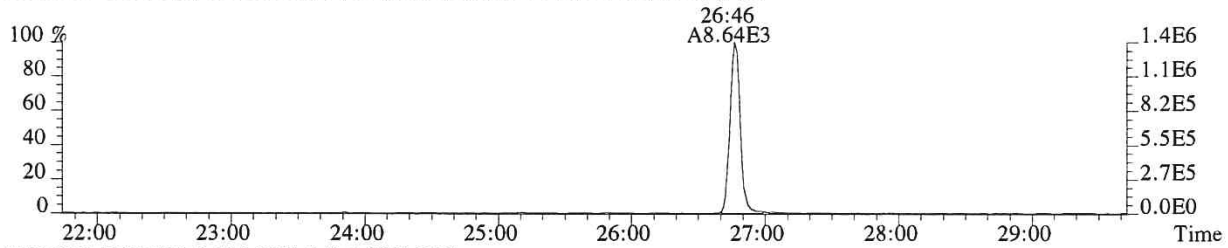
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1132.0,1.00%,F,T)



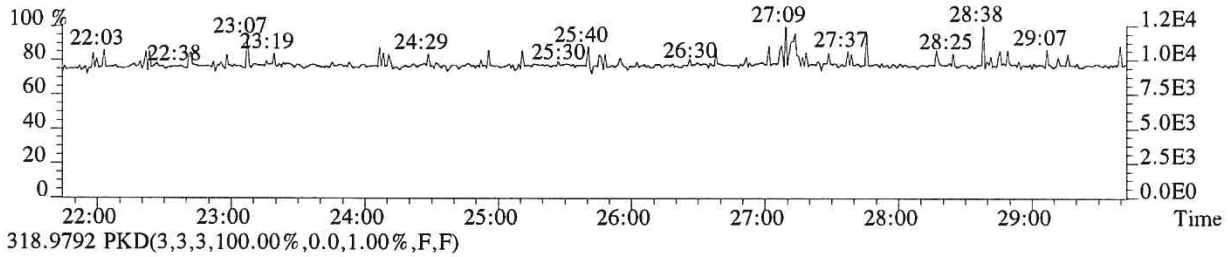
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5324.0,1.00%,F,T)



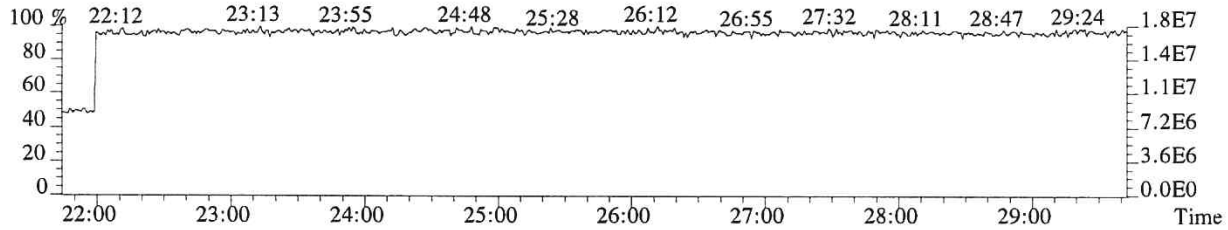
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3068.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



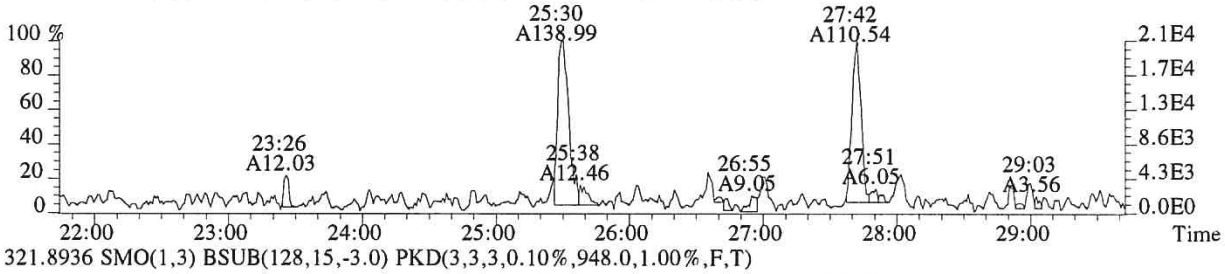
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



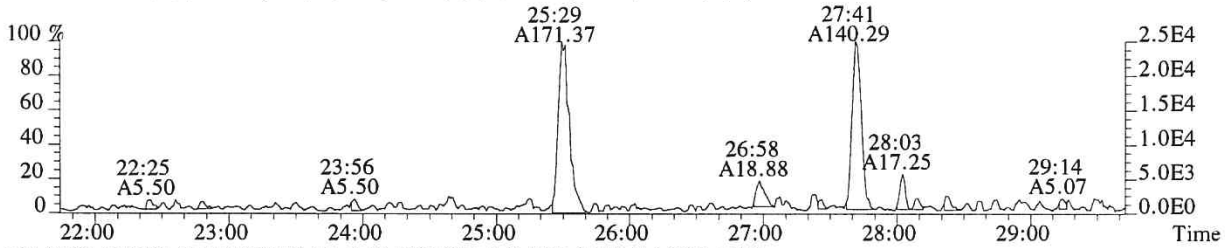
014463

File:P519446 #1-566 Acq:17-DEC-2018 22:39:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-018

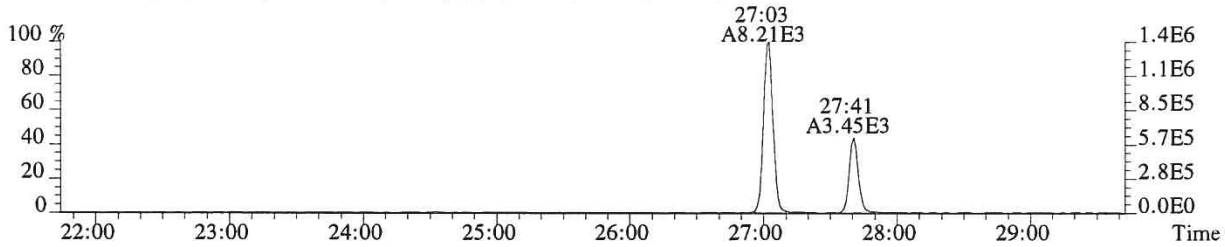
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1800.0,1.00%,F,T)



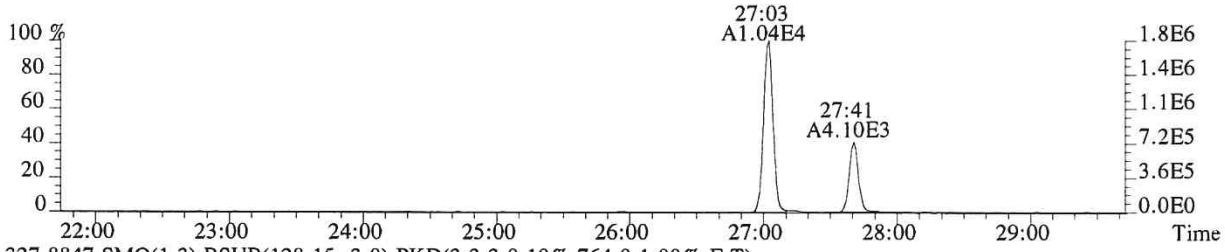
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,948.0,1.00%,F,T)



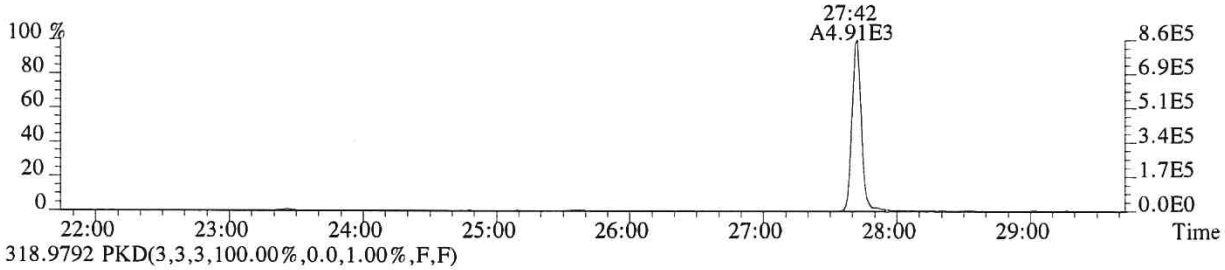
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3748.0,1.00%,F,T)



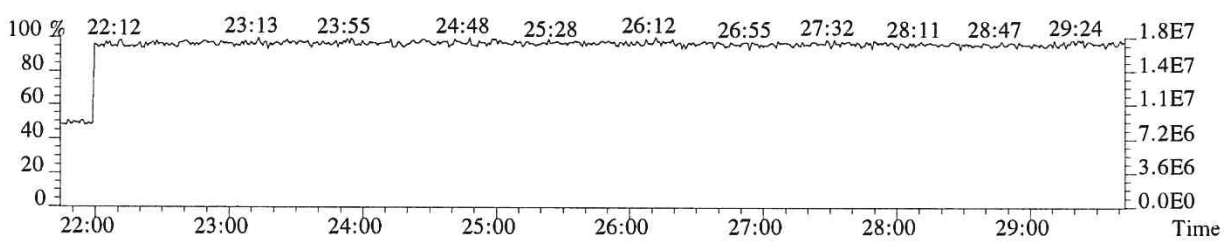
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2632.0,1.00%,F,T)



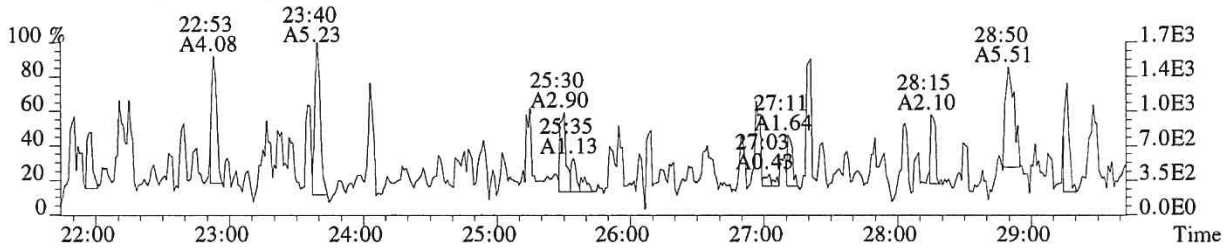
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,764.0,1.00%,F,T)



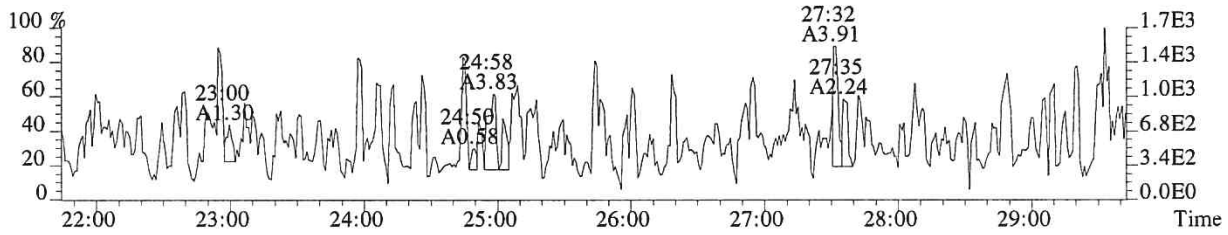
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



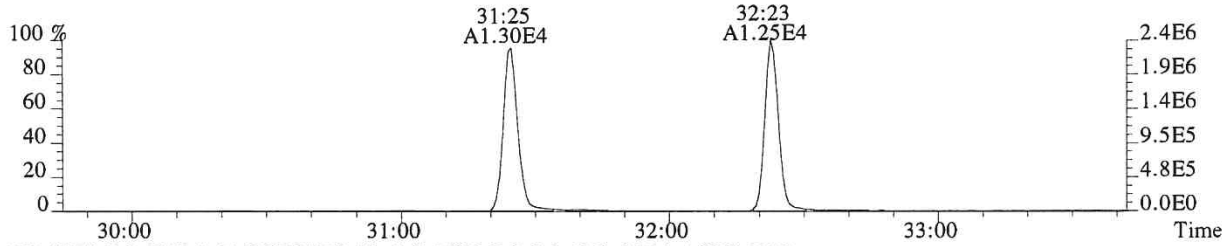
File:P519446 #1-566 Acq:17-DEC-2018 22:39:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-018
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,524.0,1.00%,F,T)



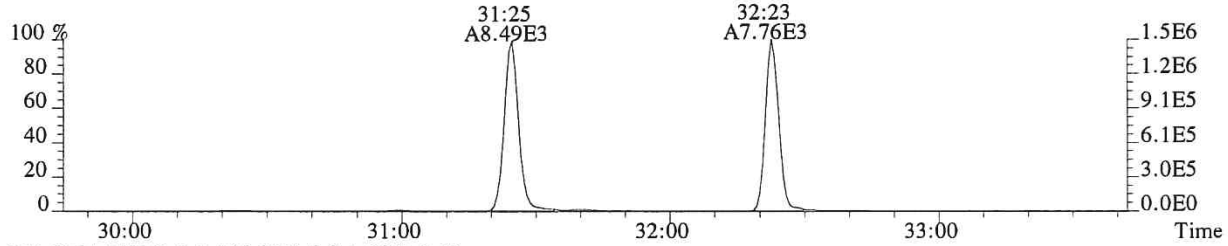
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



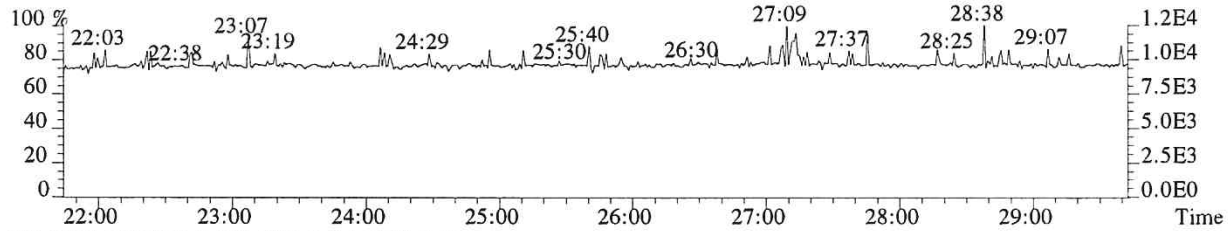
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,588.0,1.00%,F,T)



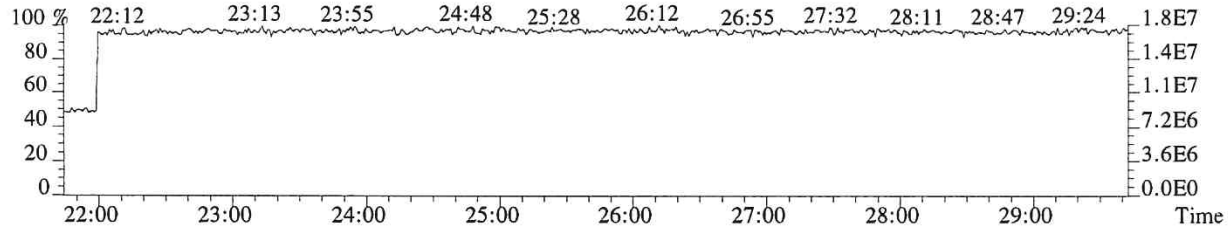
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,956.0,1.00%,F,T)



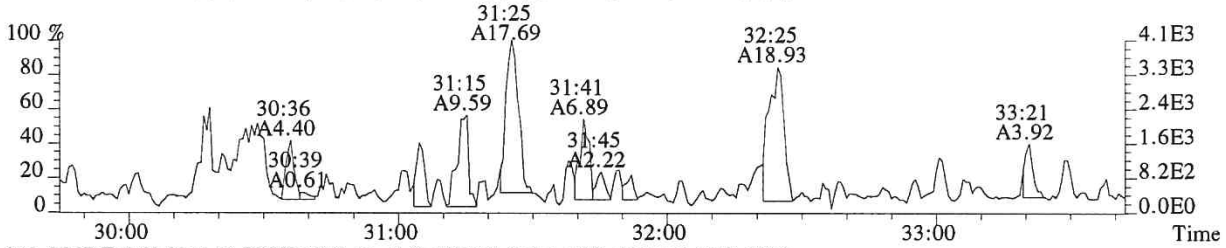
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



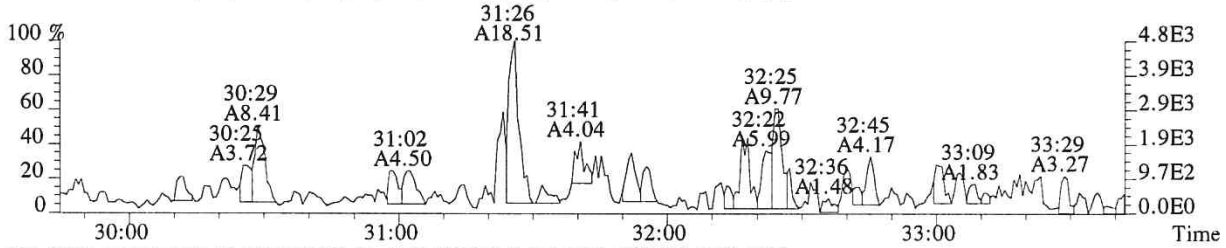
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



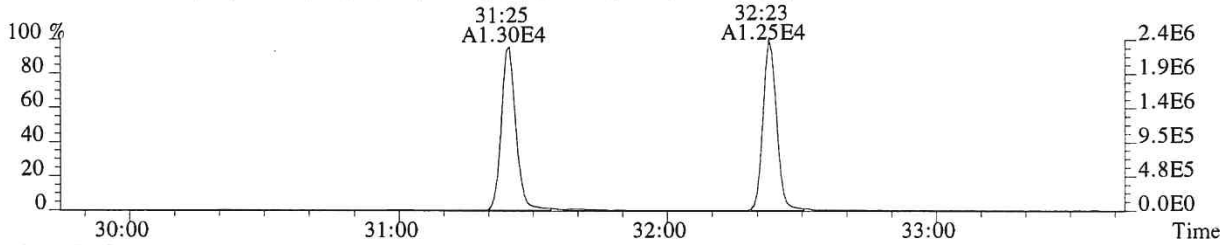
File:P519446 #1-357 Acq:17-DEC-2018 22:39:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-018
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,592.0,1.00%,F,T)



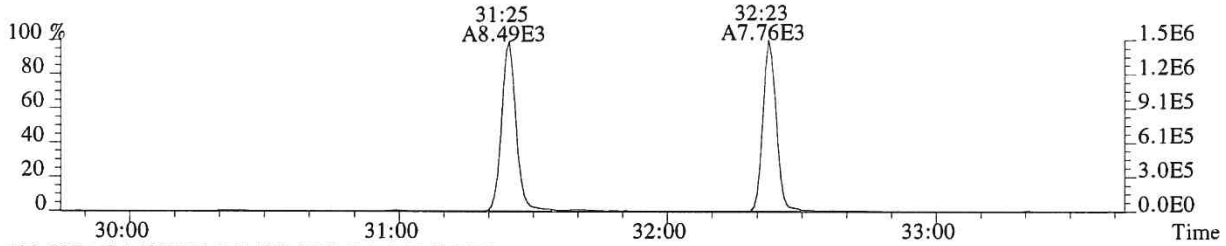
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,520.0,1.00%,F,T)



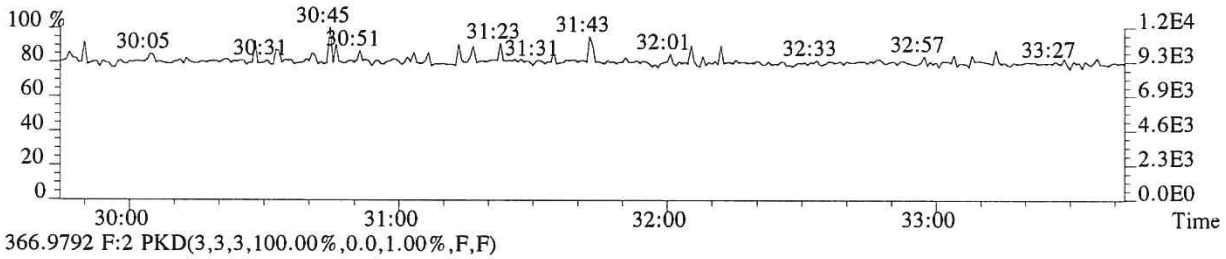
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,588.0,1.00%,F,T)



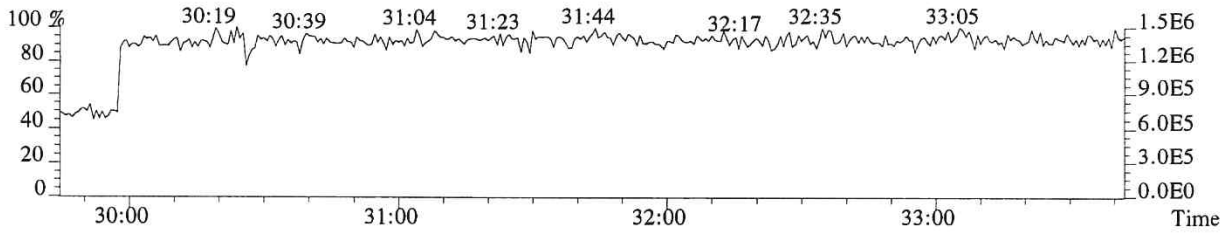
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,956.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

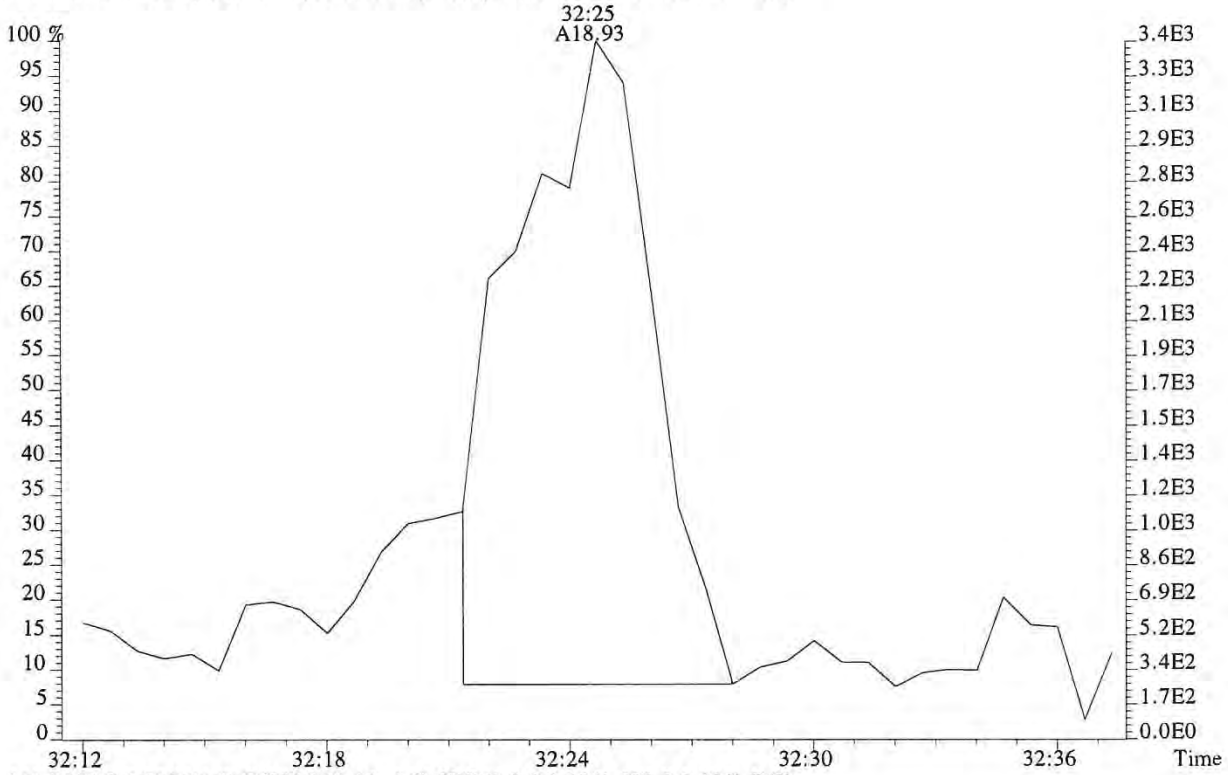


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

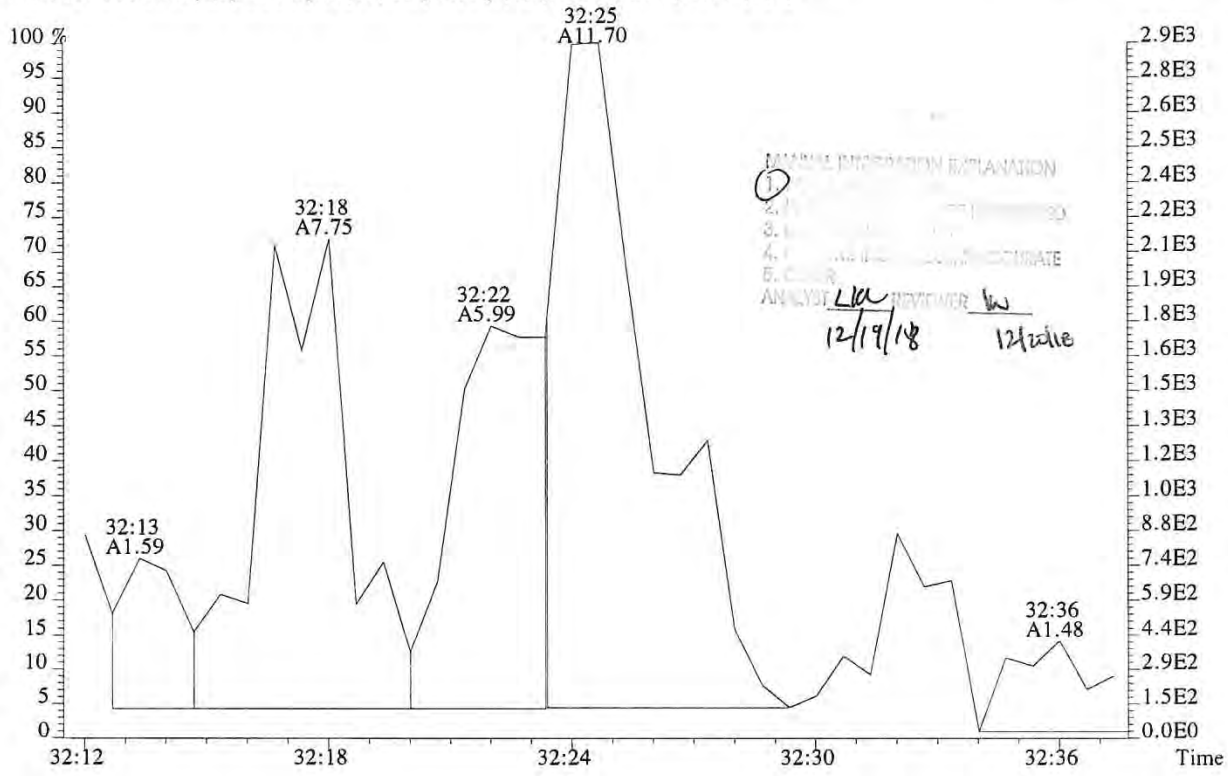


014466

File:P519446 #1-357 Acq:17-DEC-2018 22:39:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-018
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,592.0,1.00%,F,T)

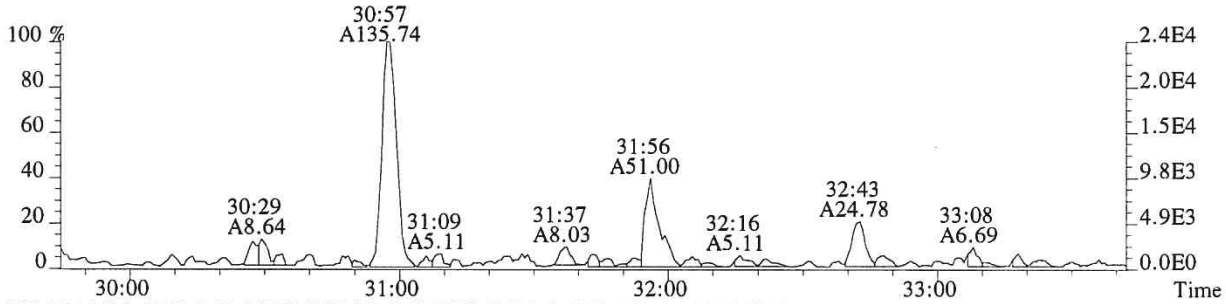


341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,520.0,1.00%,F,T)

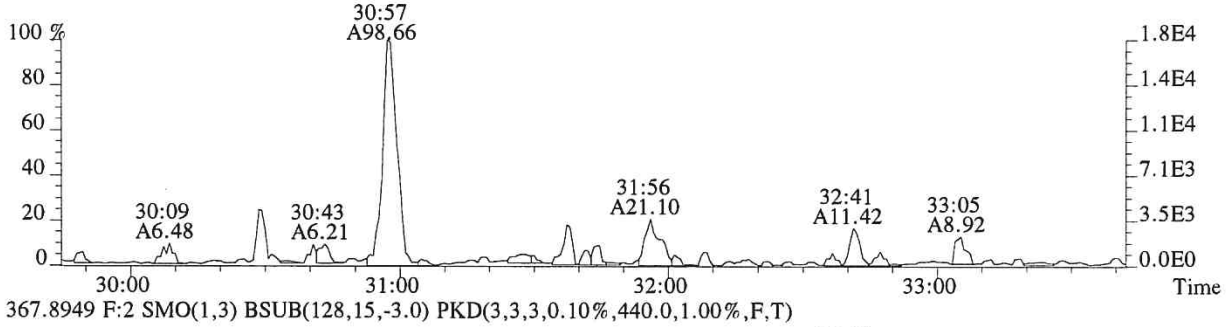


MANUAL INTEGRATION EXPLANATION
1.
2.
3.
4.
5.
ANALYST
REVIEWER
12/19/18
12/19/18

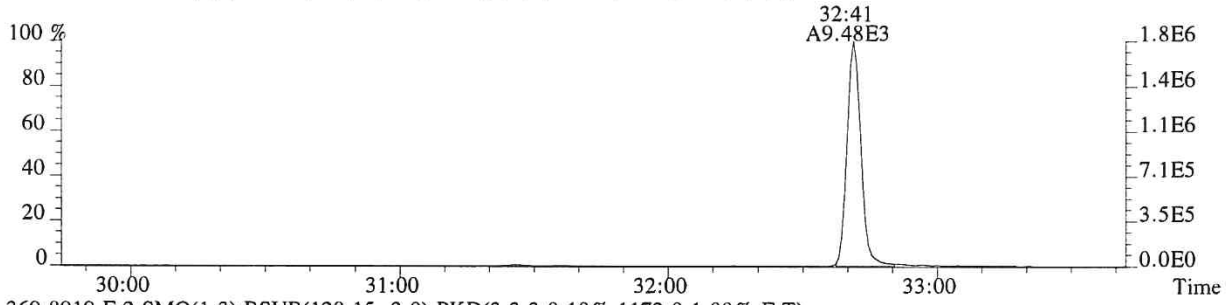
File:P519446 #1-357 Acq:17-DEC-2018 22:39:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-018
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,676.0,1.00%,F,T)



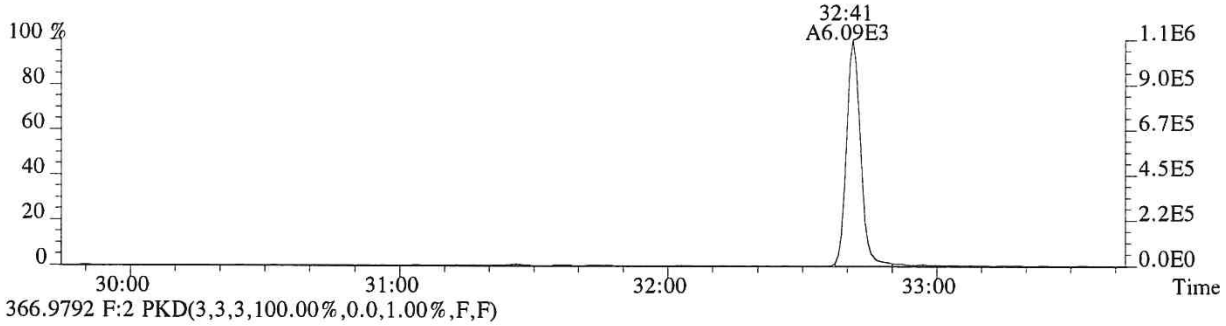
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,292.0,1.00%,F,T)



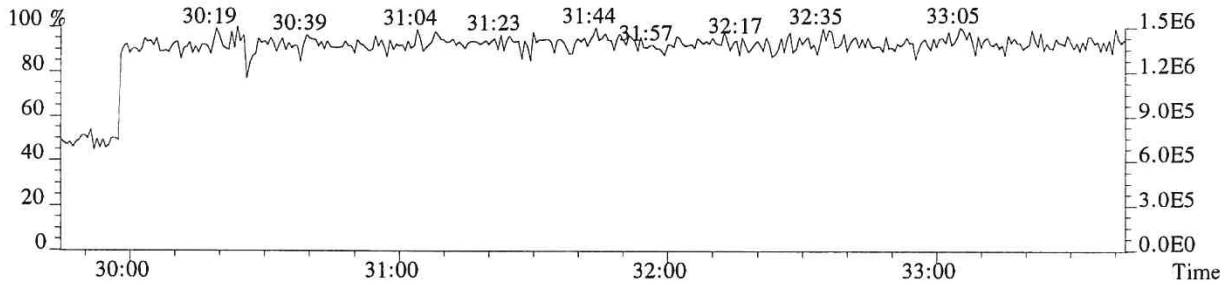
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,440.0,1.00%,F,T)



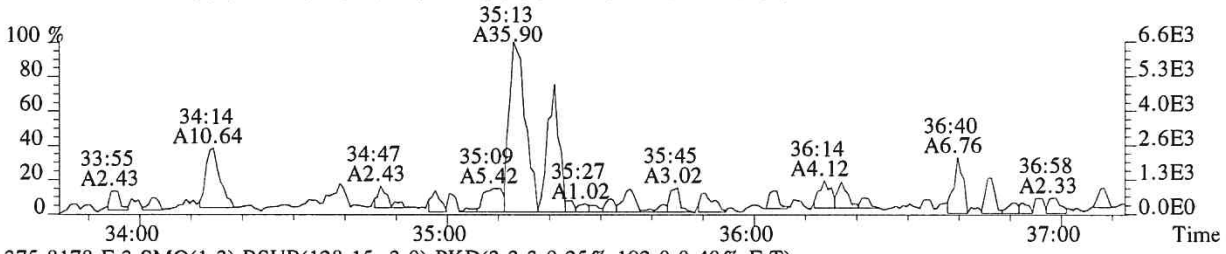
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1172.0,1.00%,F,T)



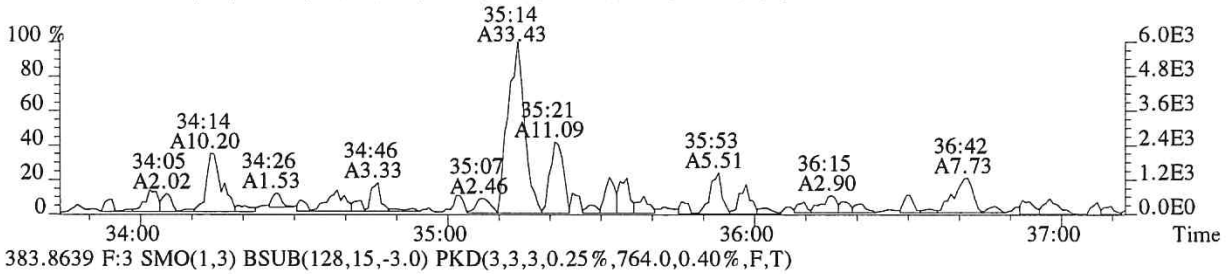
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



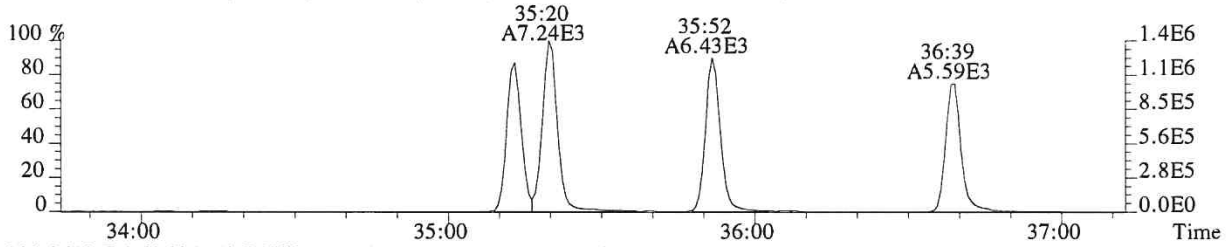
File:P519446 #1-313 Acq:17-DEC-2018 22:39:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-018
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,356.0,0.40%,F,T)



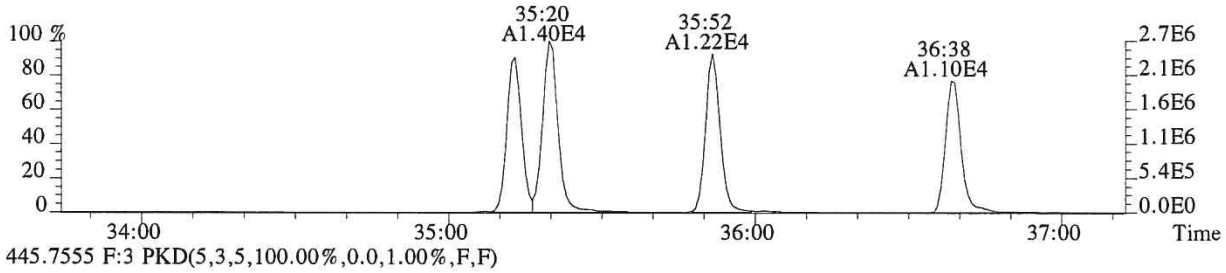
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,192.0,0.40%,F,T)



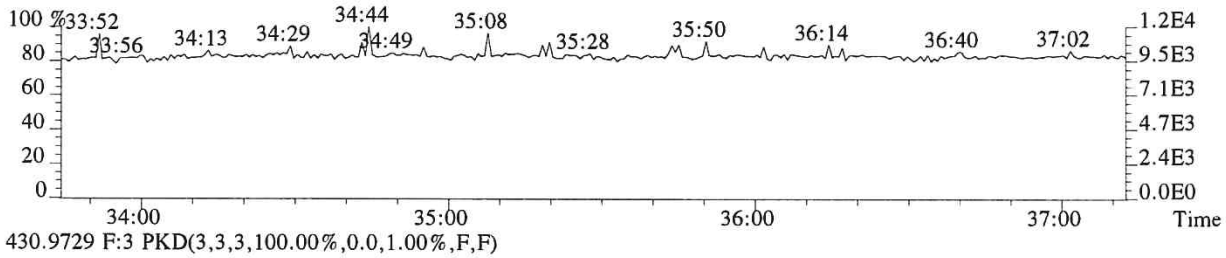
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,764.0,0.40%,F,T)



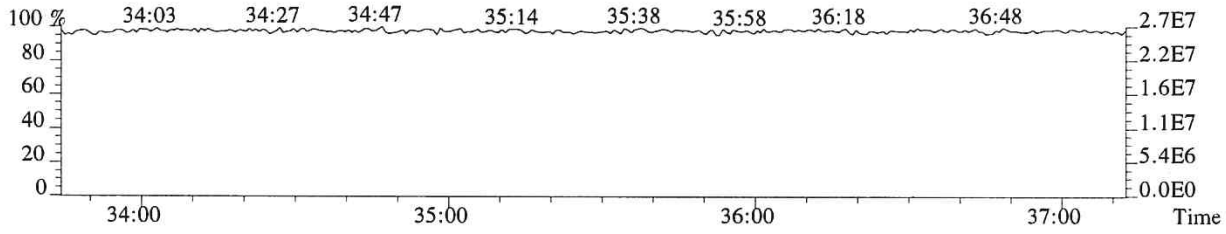
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,372.0,0.40%,F,T)



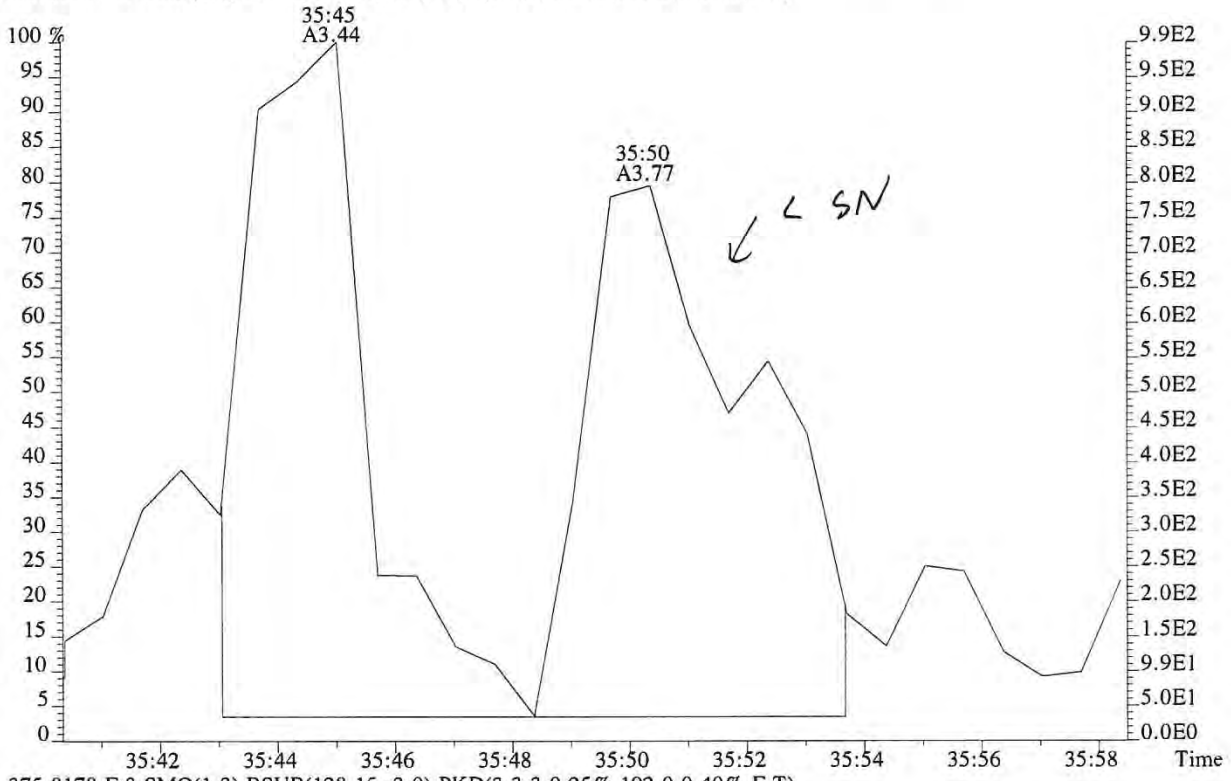
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



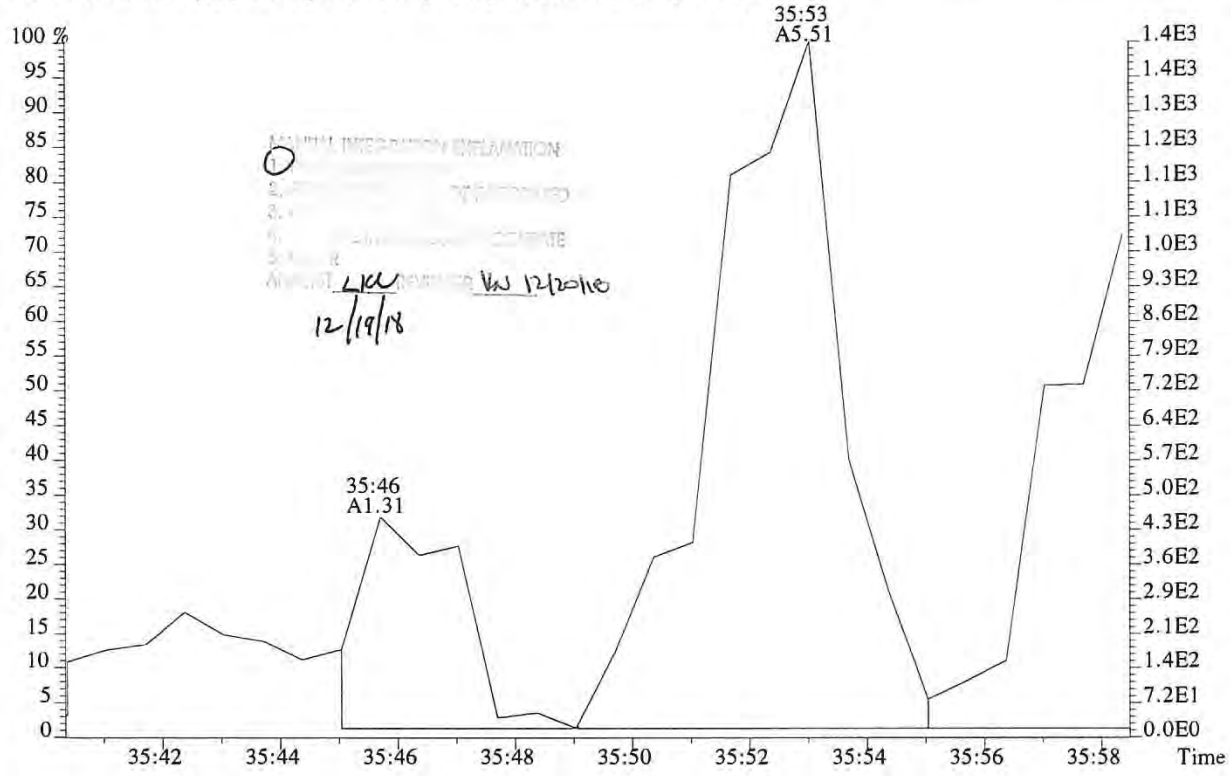
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P519446 #1-313 Acq:17-DEC-2018 22:39:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-018
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,356.0,0.40%,F,T)

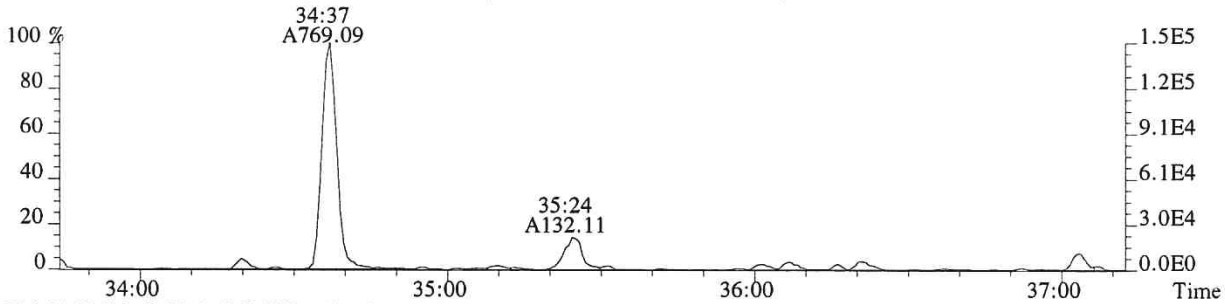


375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,192.0,0.40%,F,T)

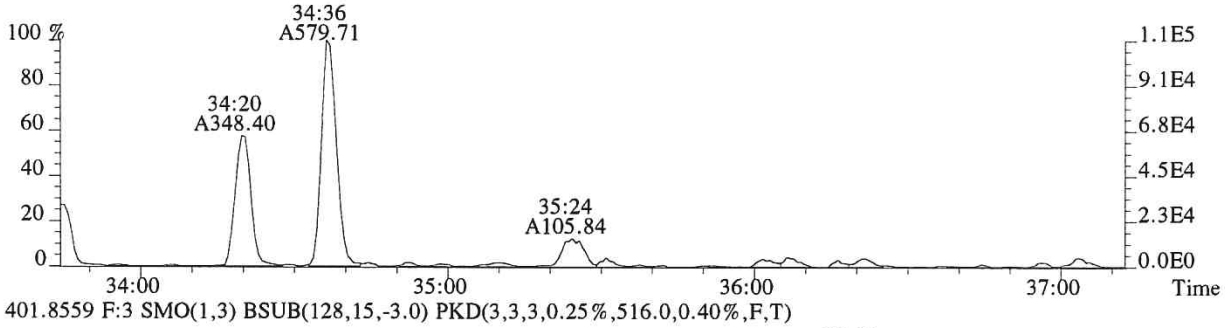


File:P519446 #1-313 Acq:17-DEC-2018 22:39:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-018

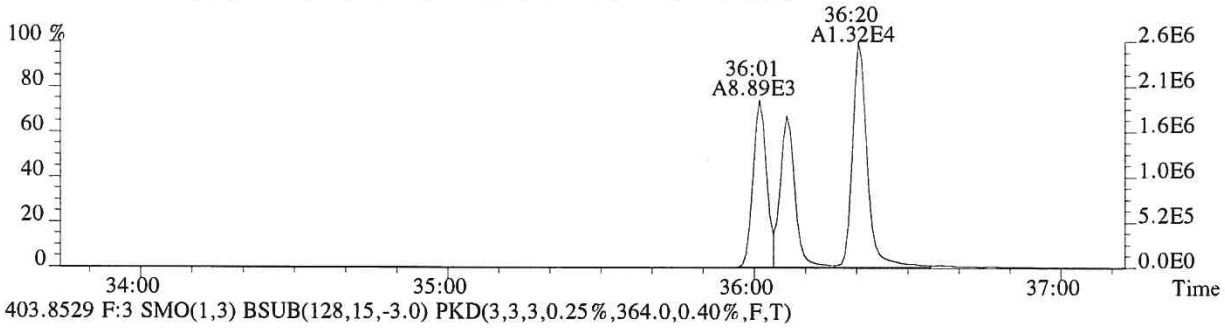
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,340.0,0.40%,F,T)



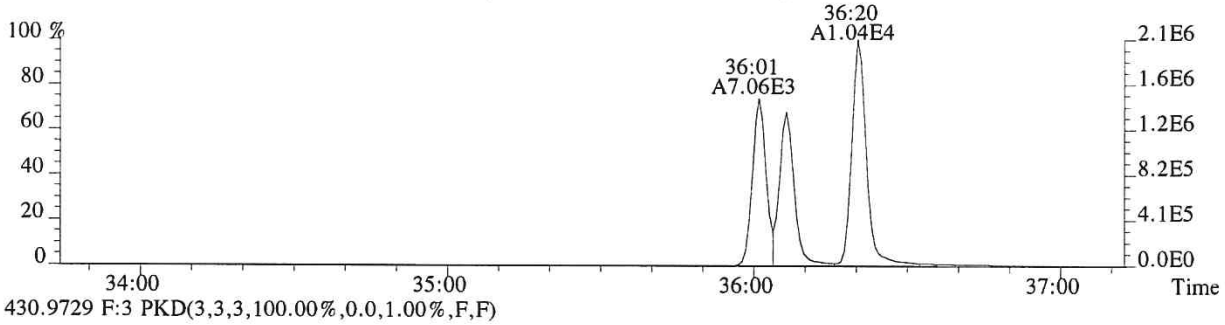
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,348.0,0.40%,F,T)



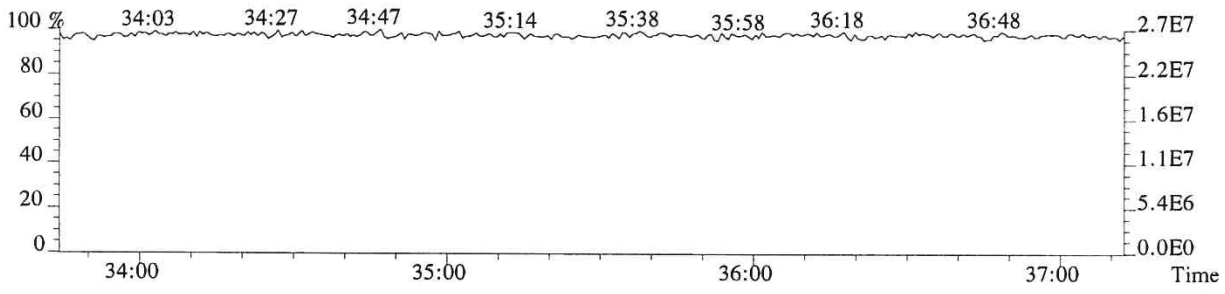
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,516.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,364.0,0.40%,F,T)

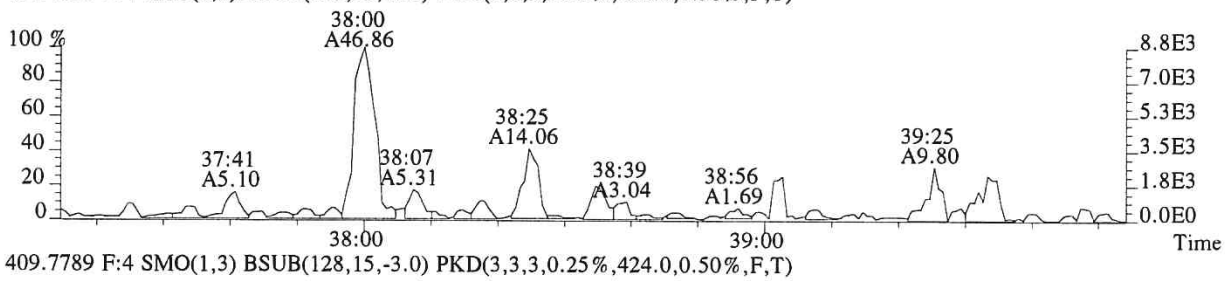


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

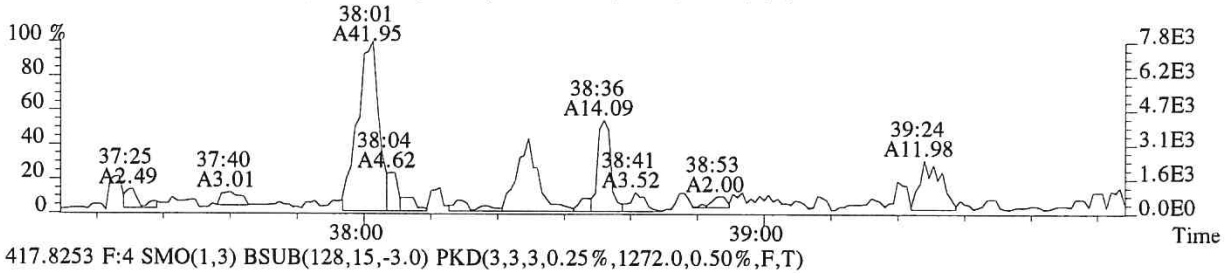


File:P519446 #1-240 Acq:17-DEC-2018 22:39:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-018

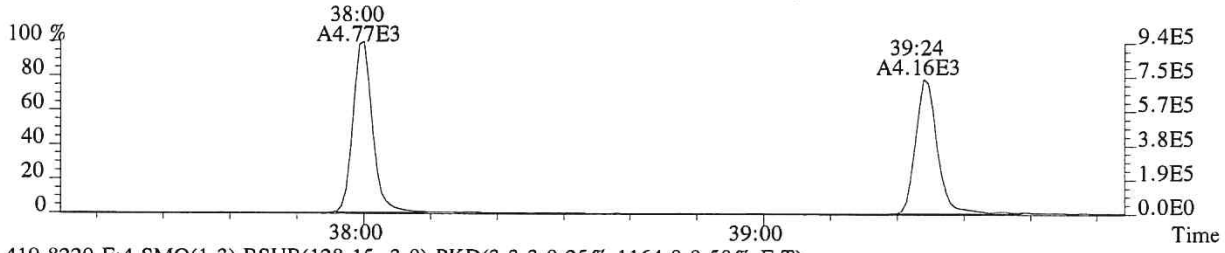
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,232.0,0.50%,F,T)



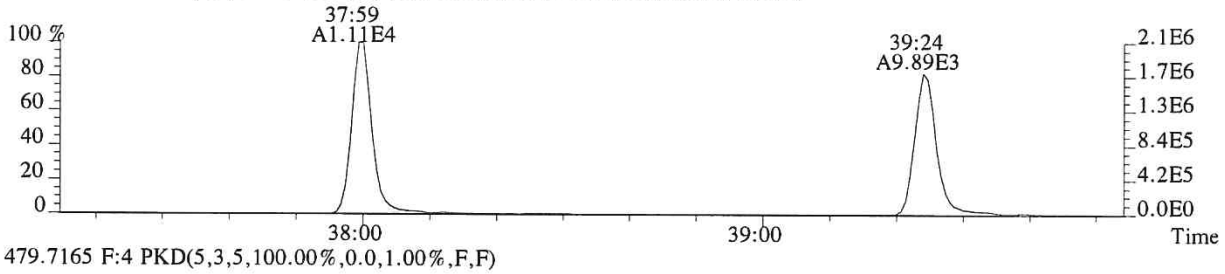
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,424.0,0.50%,F,T)



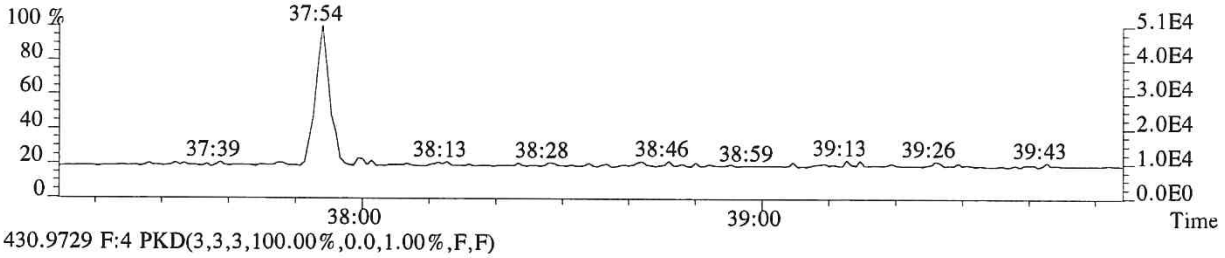
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1272.0,0.50%,F,T)



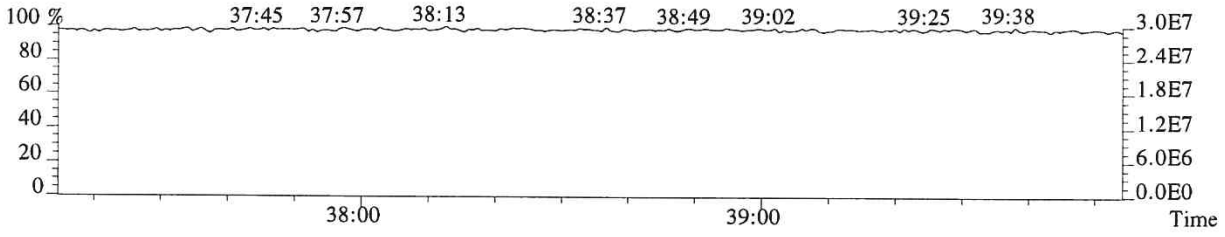
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1164.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

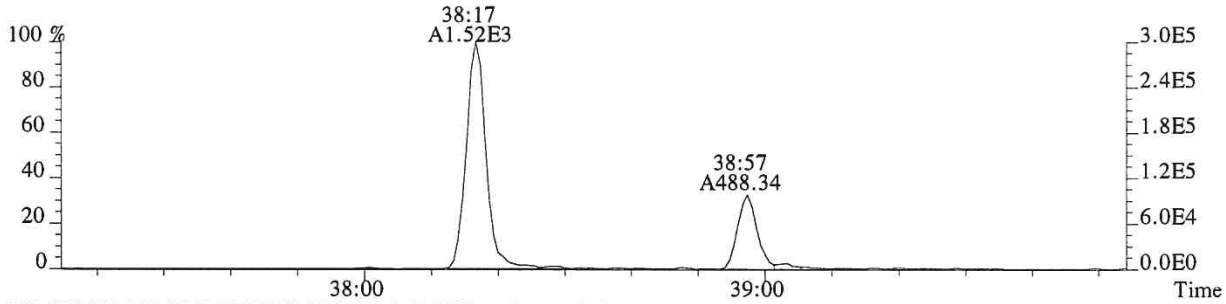


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

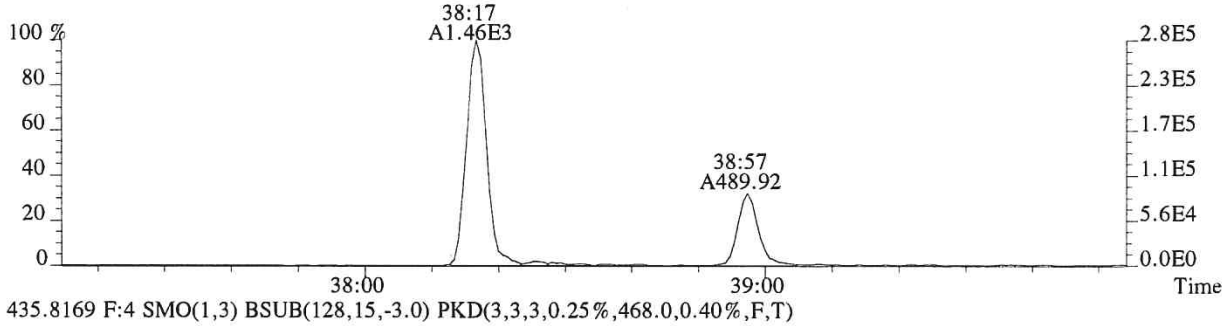


File:P519446 #1-240 Acq:17-DEC-2018 22:39:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-018

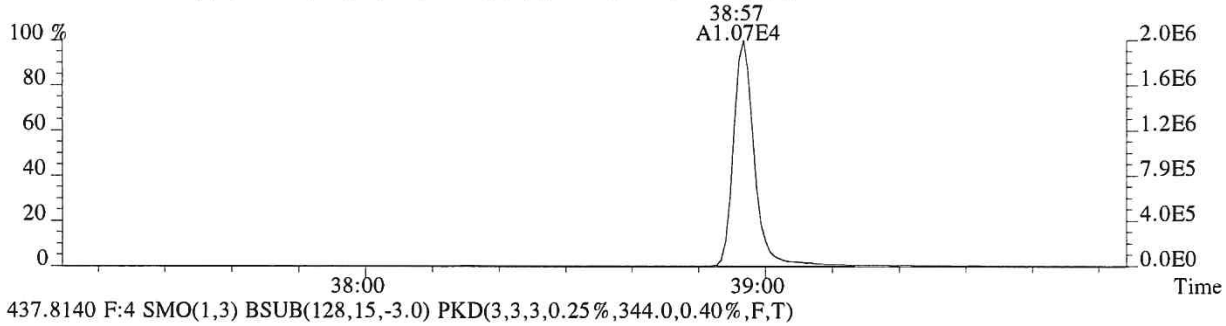
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,828.0,0.40%,F,T)



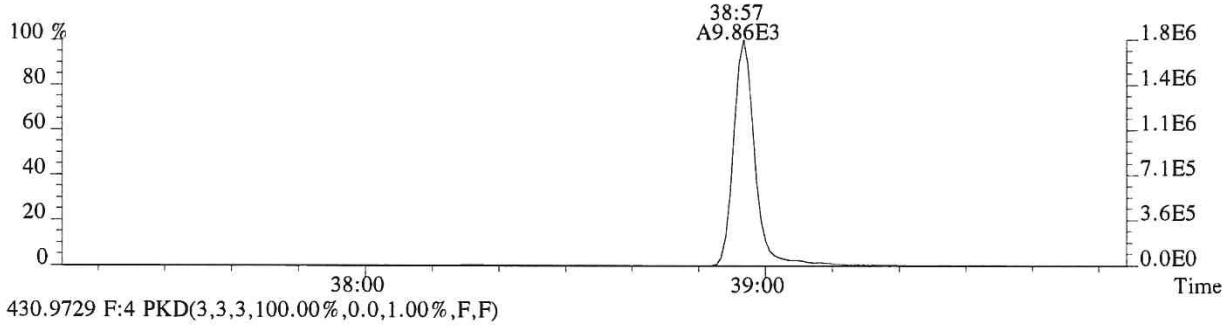
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,708.0,0.40%,F,T)



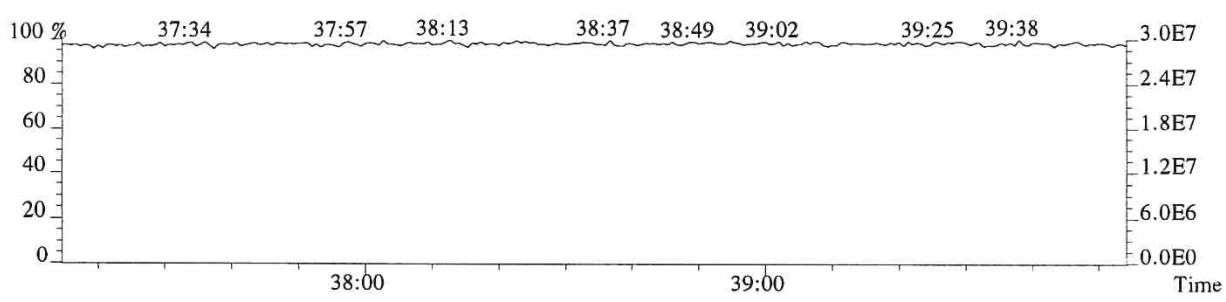
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,468.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,344.0,0.40%,F,T)

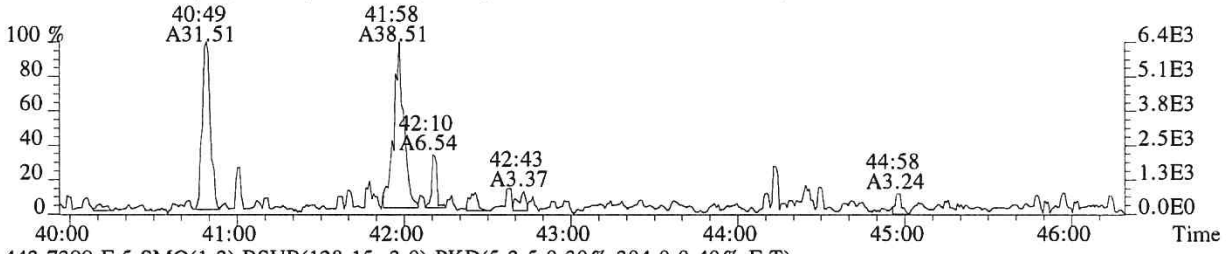


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

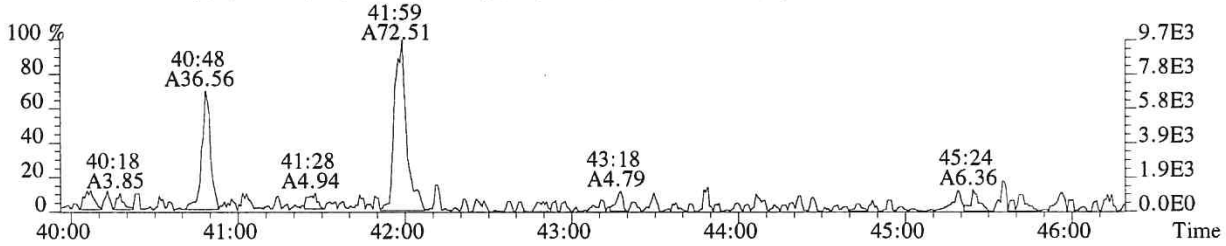


File:P519446 #1-575 Acq:17-DEC-2018 22:39:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-018

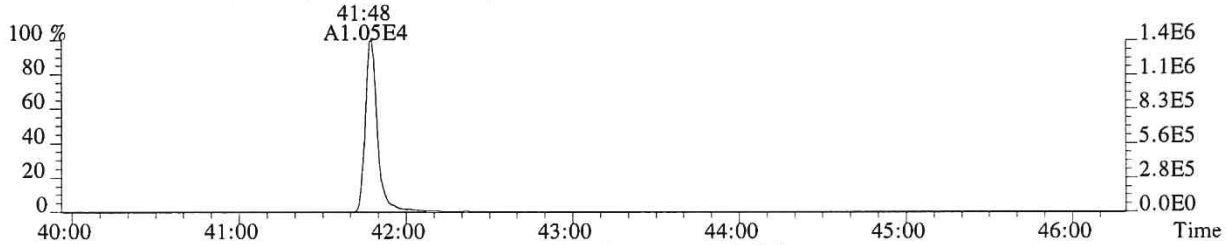
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,316.0,0.40%,F,T)



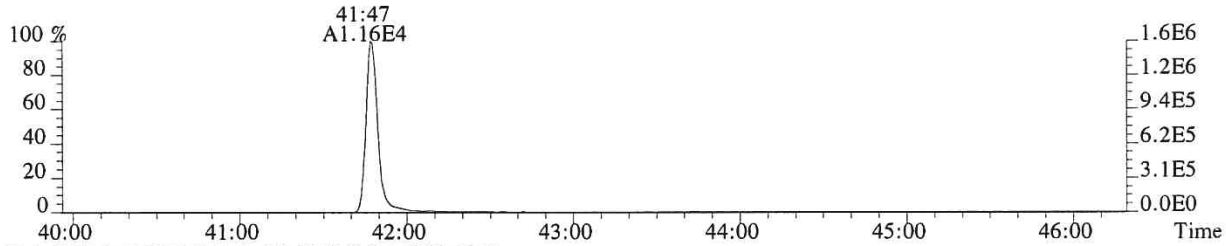
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,304.0,0.40%,F,T)



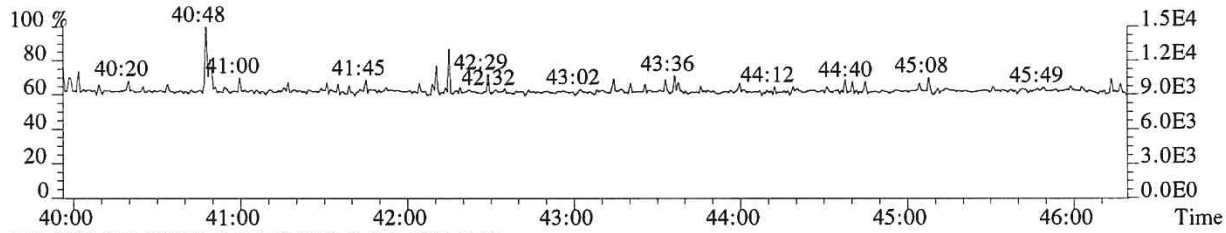
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,336.0,0.40%,F,T)



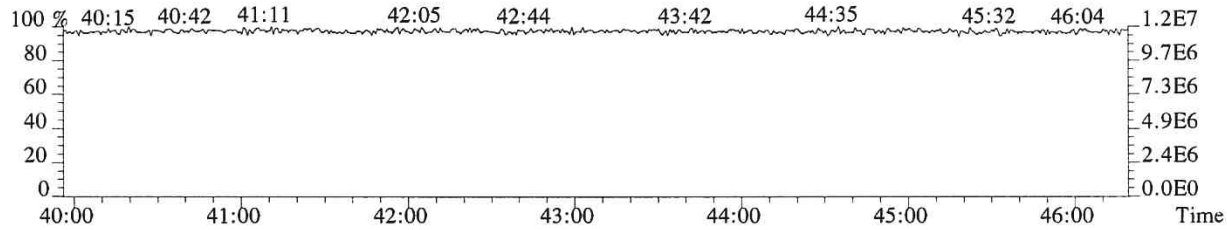
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,336.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



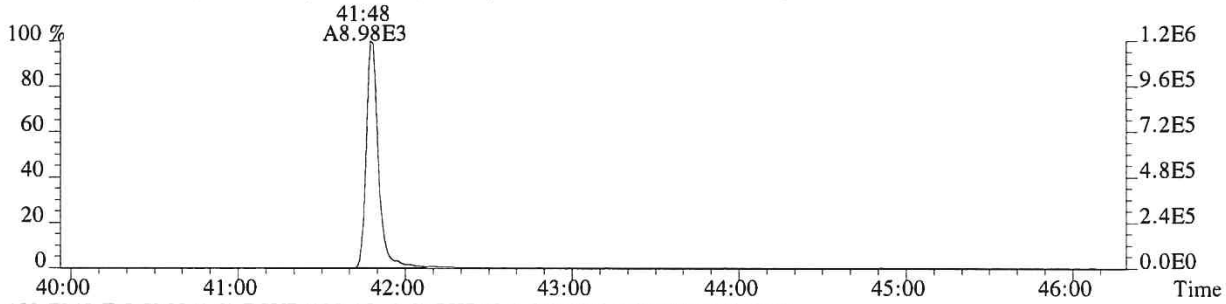
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



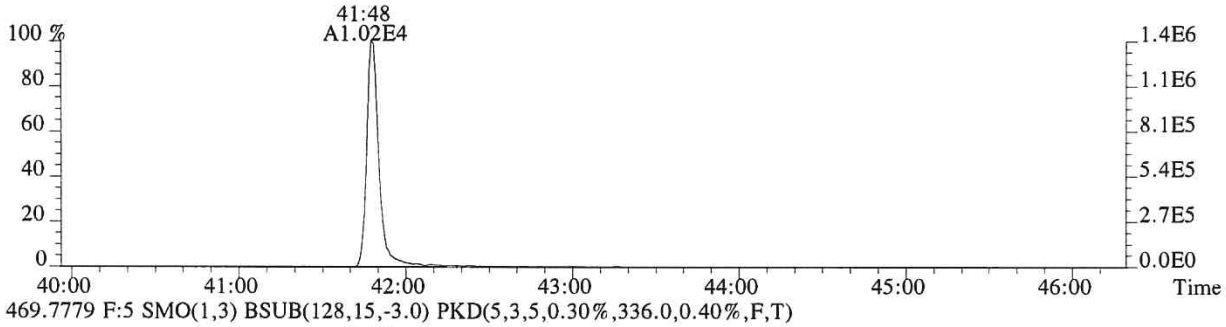
014474

File:P519446 #1-575 Acq:17-DEC-2018 22:39:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-018

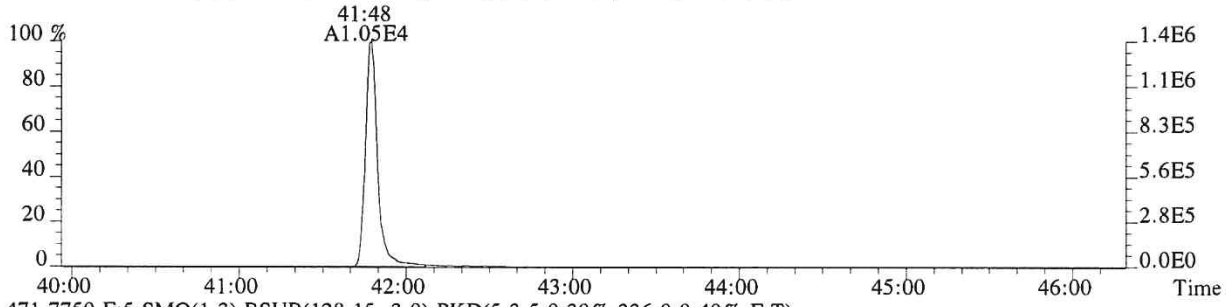
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,372.0,0.40%,F,T)



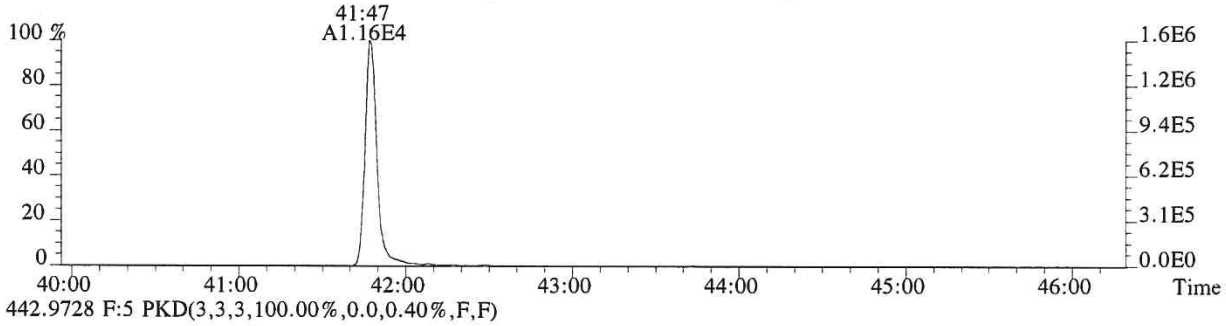
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,360.0,0.40%,F,T)



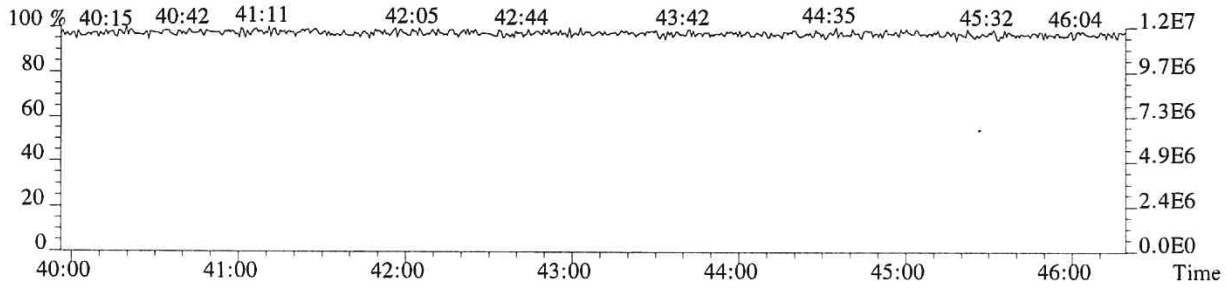
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,336.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,336.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0004

Run #18 Filename P519447 Samp: 1 Inj: 1 Acquired: 17-DEC-18 23:27:56
Processed: 19-DEC-18 09:37:36 LAB. ID: E1801093-019

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	3.09e+06	1.01e+03	3.1e+03	4.02e+06	1.17e+03	3.4e+03
2	1,2,3,7,8-PeCDF	2.91e+05	1.62e+03	1.8e+02	1.92e+05	9.60e+02	2.0e+02
3	2,3,4,7,8-PeCDF	1.54e+05	1.62e+03	9.5e+01	1.10e+05	9.60e+02	1.1e+02
4	1,2,3,4,7,8-HxCDF	6.37e+05	1.64e+03	3.9e+02	5.31e+05	3.52e+02	1.5e+03
5	1,2,3,6,7,8-HxCDF	1.52e+05	1.64e+03	9.3e+01	1.19e+05	3.52e+02	3.4e+02
6	2,3,4,6,7,8-HxCDF	3.41e+04	1.64e+03	2.1e+01	2.69e+04	3.52e+02	7.6e+01
7	1,2,3,7,8,9-HxCDF	4.15e+04	1.64e+03	2.5e+01	3.83e+04	3.52e+02	1.1e+02
8	1,2,3,4,6,7,8-HpCDF	1.62e+05	7.20e+02	2.3e+02	1.50e+05	1.50e+03	1.0e+02
9	1,2,3,4,7,8,9-HpCDF	4.07e+04	7.20e+02	5.7e+01	4.86e+04	1.50e+03	3.2e+01
10	OCDF	1.83e+05	3.48e+02	5.3e+02	2.26e+05	5.84e+02	3.9e+02
11	2,3,7,8-TCDD	8.83e+05	1.60e+03	5.5e+02	1.15e+06	1.27e+03	9.0e+02
12	1,2,3,7,8-PeCDD	1.77e+04	5.96e+02	3.0e+01	1.18e+04	5.64e+02	2.1e+01
13	1,2,3,4,7,8-HxCDD	8.66e+03	9.20e+02	9.4e+00	6.54e+03	2.06e+03	3.2e+00
14	1,2,3,6,7,8-HxCDD	2.06e+04	9.20e+02	2.2e+01	1.45e+04	2.06e+03	7.0e+00
15	1,2,3,7,8,9-HxCDD	2.63e+04	9.20e+02	2.9e+01	1.45e+04	2.06e+03	7.0e+00
16	1,2,3,4,6,7,8-HpCDD	5.41e+05	4.32e+02	1.3e+03	5.07e+05	5.28e+02	9.6e+02
17	OCDD	3.37e+06	2.84e+02	1.2e+04	3.88e+06	3.56e+02	1.1e+04
18	13C-2,3,7,8-TCDF	2.84e+06	5.49e+03	5.2e+02	3.54e+06	3.12e+03	1.1e+03
19	13C-1,2,3,7,8-PeCDF	4.76e+06	7.76e+02	6.1e+03	3.01e+06	6.44e+02	4.7e+03
20	13C-2,3,4,7,8-PeCDF	4.81e+06	7.76e+02	6.2e+03	3.04e+06	6.44e+02	4.7e+03
21	13C-1,2,3,4,7,8-HxCDF	2.26e+06	3.76e+02	6.0e+03	4.38e+06	4.48e+02	9.8e+03
22	13C-1,2,3,6,7,8-HxCDF	2.60e+06	3.76e+02	6.9e+03	5.06e+06	4.48e+02	1.1e+04
23	13C-2,3,4,6,7,8-HxCDF	2.33e+06	3.76e+02	6.2e+03	4.42e+06	4.48e+02	9.9e+03
24	13C-1,2,3,7,8,9-HxCDF	1.89e+06	3.76e+02	5.0e+03	3.70e+06	4.48e+02	8.3e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.46e+06	1.79e+03	8.2e+02	3.39e+06	2.32e+03	1.5e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.19e+06	1.79e+03	6.7e+02	2.67e+06	2.32e+03	1.2e+03
27	13C-2,3,7,8-TCDD	1.39e+06	3.22e+03	4.3e+02	1.77e+06	2.13e+03	8.3e+02
28	13C-1,2,3,7,8-PeCDD	3.75e+06	7.00e+02	5.4e+03	2.33e+06	6.16e+02	3.8e+03
29	13C-1,2,3,4,7,8-HxCDD	3.41e+06	5.12e+02	6.7e+03	2.66e+06	3.76e+02	7.1e+03
30	13C-1,2,3,6,7,8-HxCDD	3.05e+06	5.12e+02	5.9e+03	2.36e+06	3.76e+02	6.3e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.87e+06	5.40e+02	5.3e+03	2.76e+06	3.56e+02	7.7e+03
32	13C-OCDD	1.67e+06	3.72e+02	4.5e+03	1.84e+06	2.96e+02	6.2e+03
33	13C-1,2,3,4-TCDD	2.44e+06	3.22e+03	7.6e+02	3.10e+06	2.13e+03	1.5e+03
34	13C-1,2,3,7,8,9-HxCDD	3.96e+06	5.12e+02	7.7e+03	3.17e+06	3.76e+02	8.4e+03
35	37Cl-2,3,7,8-TCDD	1.87e+06	1.39e+03	1.3e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.600e+03 + 1.268e+03) \times 2000}{(1.389e+06 + 1.771e+06) \times (\quad) \times 1.085} =$$

ALS ENVIRONMENTAL
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Houston, TX 77099
Office:(281)530-5656. Fax:(281)530-5887

ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0004

Entry: 36 Totals Name: Total Tetra-Furans

Run: 18 File: P519447 Sample:1 Injection:1 Function:1

Acquired: 17-DEC-18 23:27:56 Processed: 19-DEC-18 09:37:36

Mass: 303.9020 305.8990 Tot Response: 8.29e+04 RRF: 0.9417

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	23:53	8.88e+02	1.21e+03	0.73	yes	2.10e+03		n	n
2	24:18	2.88e+02	4.29e+02	0.67	yes	7.17e+02		n	n
3	24:35	7.77e+02	9.91e+02	0.78	yes	1.77e+03		n	n
4	25:13	5.52e+02	7.00e+02	0.79	yes	1.25e+03		n	n
5	25:22	8.90e+02	1.24e+03	0.72	yes	2.13e+03		n	n
6	25:52	8.70e+03	1.15e+04	0.76	yes	2.02e+04		n	n
7	26:09	4.07e+02	5.23e+02	0.78	yes	9.30e+02		n	n
8	26:48	2.00e+04	2.64e+04	0.76	yes	4.65e+04	2,3,7,8-TCDF	n	n
9	27:10	1.35e+03	1.93e+03	0.70	yes	3.28e+03		n	n
10	27:27	2.43e+02	3.45e+02	0.70	yes	5.88e+02		n	n
11	28:50	1.47e+03	1.96e+03	0.75	yes	3.43e+03		n	n

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Peak List Summary

CLIENT ID.
SL0004

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 18 File: P519447 Sample:1 Injection:1 Function:1

Acquired: 17-DEC-18 23:27:56 Processed: 19-DEC-18 09:37:36

Mass: 319.8970 321.8940 Tot Response: 1.27e+04 RRF: 1.085

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	23:53	1.22e+01	1.44e+01	0.85	yes	2.66e+01		n	n
2	27:42	5.02e+03	6.51e+03	0.77	yes	1.15e+04	2,3,7,8-TCDD	n	n
3	28:02	4.87e+02	7.04e+02	0.69	yes	1.19e+03		n	n

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Peak List Summary

CLIENT ID.
SL0004

Entry: 38 Totals Name: Total Penta-Furans1

Run: 18 File: P519447 Sample:1 Injection:1 Function:1

Acquired: 17-DEC-18 23:27:56 Processed: 19-DEC-18 09:37:36

Mass: 339.8600 341.8570 Tot Response: 9.85e+01 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	28:50	5.98e+01	3.87e+01 1.54	yes	9.85e+01		n	n

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Peak List Summary

CLIENT ID.
SL0004

Entry: 39 Totals Name: Total Penta-Furans2

Run: 18 File: P519447 Sample:1 Injection:1 Function:2

Acquired: 17-DEC-18 23:27:56 Processed: 19-DEC-18 09:37:36

Mass: 339.8600 341.8570 Tot Response: 6.91e+03 RRF: 0.9857

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:17	3.12e+01	2.22e+01	1.41	yes	5.34e+01		n	n
2	30:26	8.14e+02	5.54e+02	1.47	yes	1.37e+03		n	n
3	31:15	1.05e+02	7.14e+01	1.48	yes	1.77e+02		n	n
4	31:26	1.64e+03	1.15e+03	1.43	yes	2.79e+03	1,2,3,7,8-PeCDF	n	n
5	31:41	4.70e+02	3.39e+02	1.39	yes	8.10e+02		n	n
6	32:24	9.78e+02	6.88e+02	1.42	yes	1.67e+03	2,3,4,7,8-PeCDF	n	n
7	33:28	2.84e+01	1.66e+01	1.71	yes	4.50e+01		n	n

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Peak List Summary

CLIENT ID.
SL0004

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 18 File: P519447 Sample:1 Injection:1 Function:2

Acquired: 17-DEC-18 23:27:56 Processed: 19-DEC-18 09:37:36

Mass: 355.8550 357.8520 Tot Response: 5.83e+02 RRF: 0.9565

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:28	7.10e+01	4.16e+01	1.71	yes	1.13e+02		n	n
2	30:58	2.92e+02	1.78e+02	1.64	yes	4.70e+02		n	n

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Peak List Summary

CLIENT ID.
SL0004

Entry: 41 Totals Name: Total Hexa-Furans

Run: 18 File: P519447 Sample:1 Injection:1 Function:3

Acquired: 17-DEC-18 23:27:56 Processed: 19-DEC-18 09:37:36

Mass: 373.8210 375.8180 Tot Response: 8.31e+03 RRF: 1.141

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:14	3.22e+02	2.34e+02	1.38	yes	5.56e+02		n	n
2	35:14	3.18e+03	2.60e+03	1.22	yes	5.79e+03	1,2,3,4,7,8-HxCDF	n	n
3	35:21	8.00e+02	7.05e+02	1.14	yes	1.51e+03	1,2,3,6,7,8-HxCDF	n	n
4	36:41	2.47e+02	2.17e+02	1.14	yes	4.63e+02	1,2,3,7,8,9-HxCDF	n	n

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Peak List Summary

CLIENT ID.
SL0004

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 18 File: P519447 Sample:1 Injection:1 Function:3

Acquired: 17-DEC-18 23:27:56 Processed: 19-DEC-18 09:37:36

Mass: 389.8160 391.8130 Tot Response: 4.77e+03 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:37	1.87e+03	1.40e+03	1.33	yes	3.27e+03		n	n
2	35:10	4.22e+01	3.99e+01	1.06	yes	8.20e+01		n	n
3	35:25	5.41e+02	4.63e+02	1.17	yes	1.00e+03		n	n
4	35:31	8.03e+01	6.16e+01	1.30	yes	1.42e+02		n	n
5	36:02	4.34e+01	3.74e+01	1.16	yes	8.08e+01	1,2,3,4,7,8-HxCDD	n	n
6	36:22	1.15e+02	8.15e+01	1.42	yes	1.97e+02	1,2,3,7,8,9-HxCDD	n	n

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Peak List Summary

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SL0004

Entry: 43 Totals Name: Total Hepta-Furans

Run: 18 File: P519447 Sample:1 Injection:1 Function:4

Acquired: 17-DEC-18 23:27:56 Processed: 19-DEC-18 09:37:36

Mass: 407.7820 409.7790 Tot Response: 2.90e+03 RRF: 1.308

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:01	8.08e+02	7.51e+02	1.08	yes	1.56e+03	1,2,3,4,6,7,8-HpCDF	n	n
2	38:17	3.17e+01	3.53e+01	0.90	yes	6.70e+01		n	n
3	38:25	4.08e+02	3.94e+02	1.04	yes	8.02e+02		n	n
4	39:25	2.46e+02	2.26e+02	1.09	yes	4.72e+02	1,2,3,4,7,8,9-HpCDF	n	n

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Peak List Summary

CLIENT ID.
SL0004

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 18 File: P519447 Sample:1 Injection:1 Function:4

Acquired: 17-DEC-18 23:27:56 Processed: 19-DEC-18 09:37:36

Mass: 423.7770 425.7740 Tot Response: 1.70e+04 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:17	5.82e+03	1.06	yes	1.13e+04		n	n
2	38:58	2.96e+03	1.07	yes	5.71e+03	1,2,3,4,6,7,8-HpCDD	n	n

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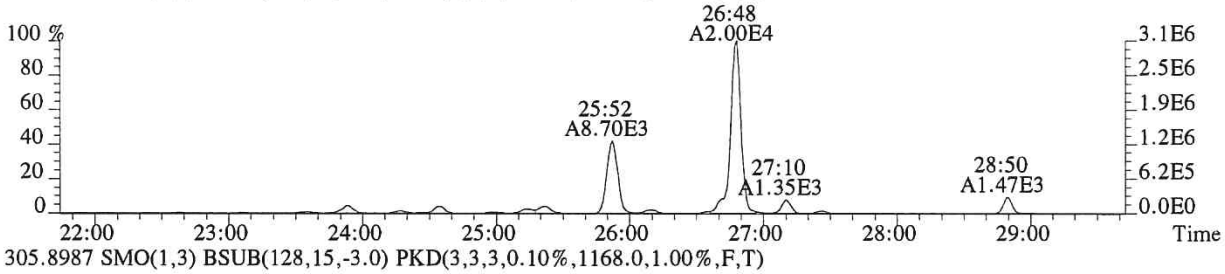
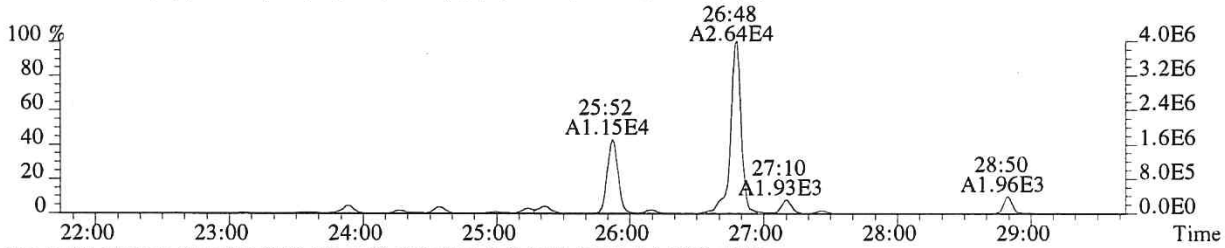
File:P519447 #1-566 Acq:17-DEC-2018 23:27:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-019

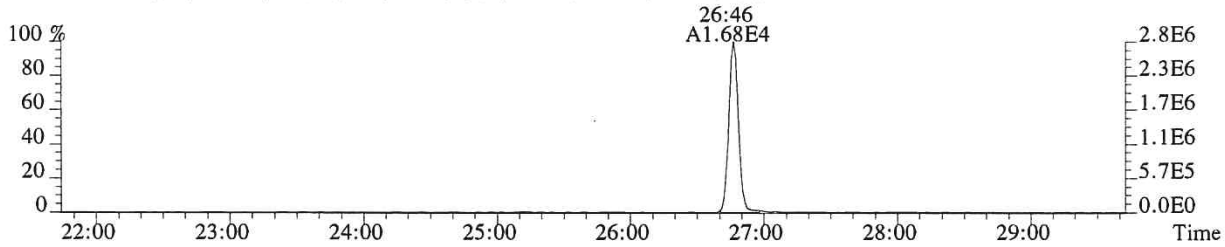
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1012.0,1.00%,F,T)



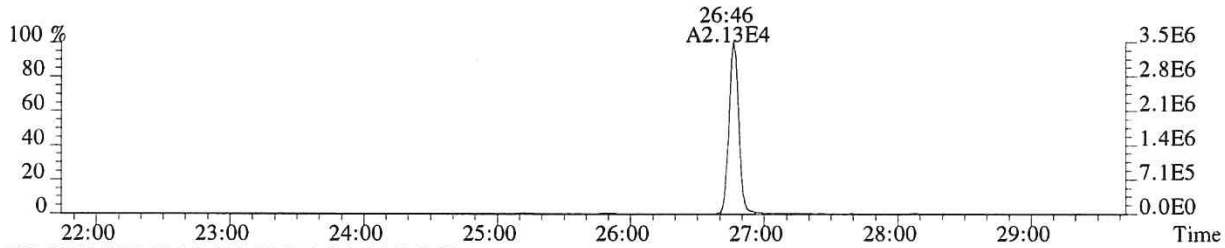
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1168.0,1.00%,F,T)



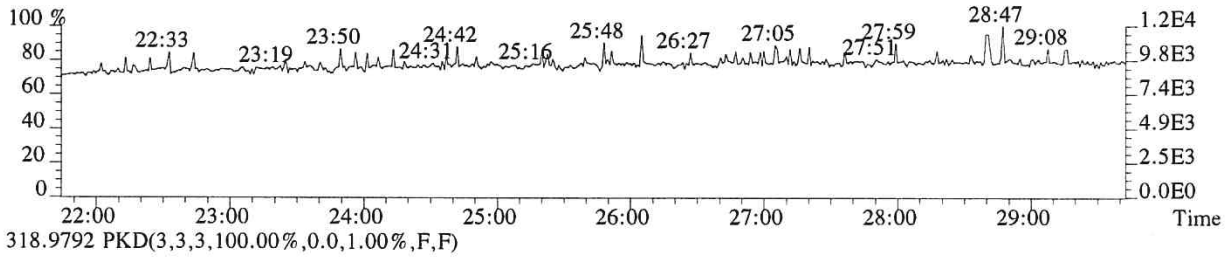
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5488.0,1.00%,F,T)



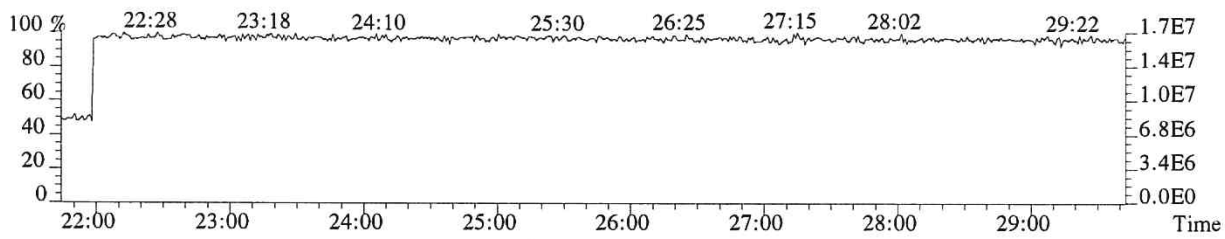
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3120.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



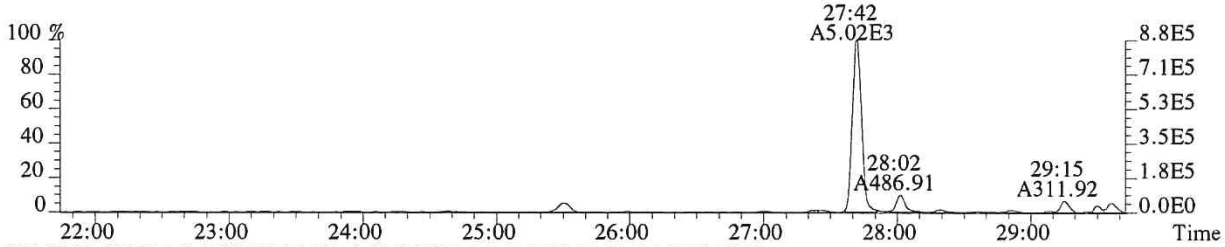
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



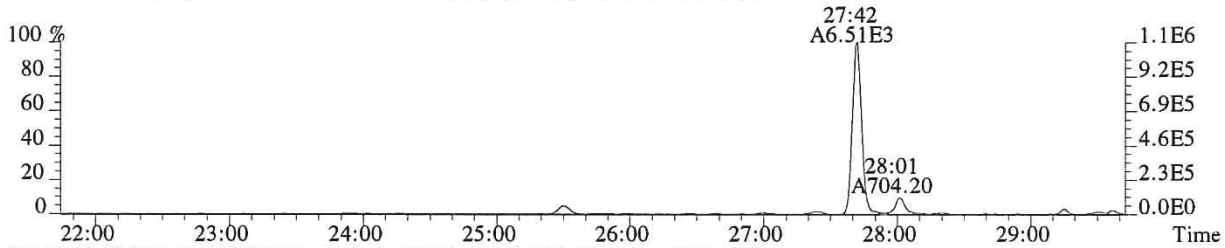
014486

File:P519447 #1-566 Acq:17-DEC-2018 23:27:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-019

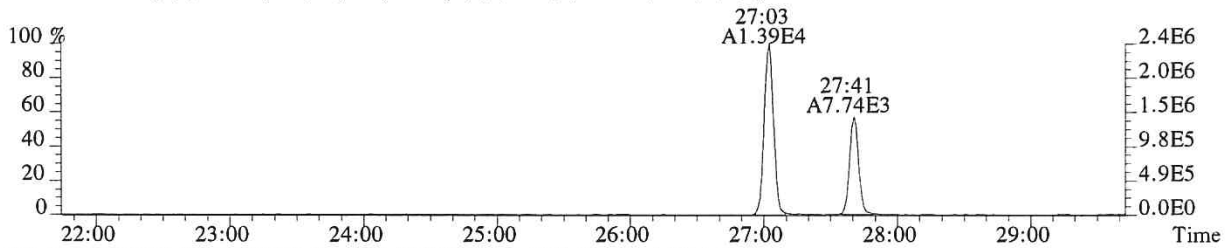
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1600.0,1.00%,F,T)



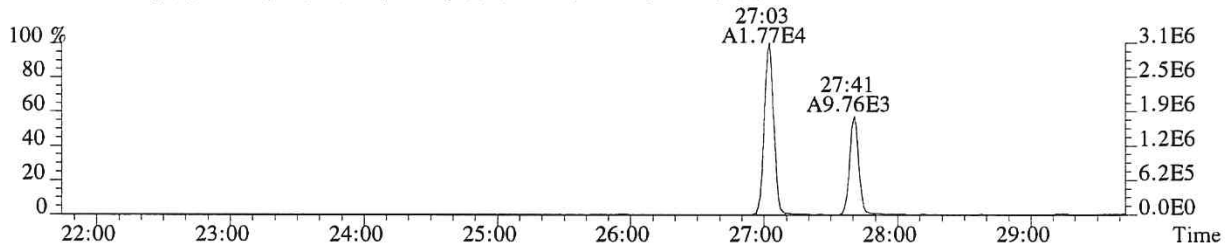
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1268.0,1.00%,F,T)



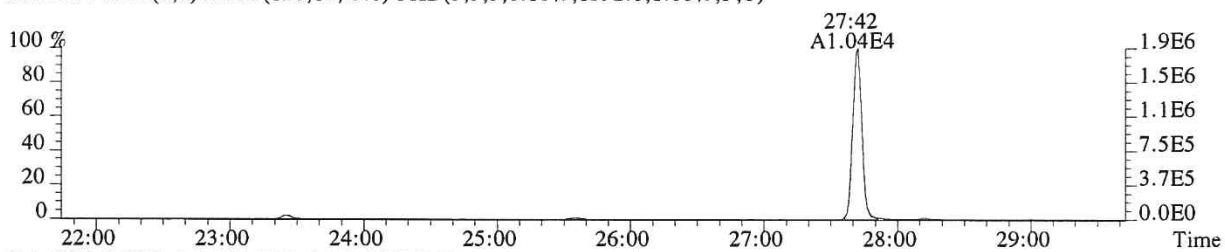
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3224.0,1.00%,F,T)



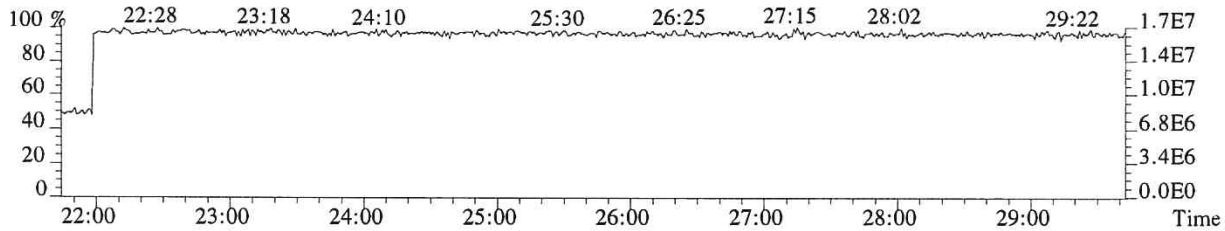
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2132.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1392.0,1.00%,F,T)

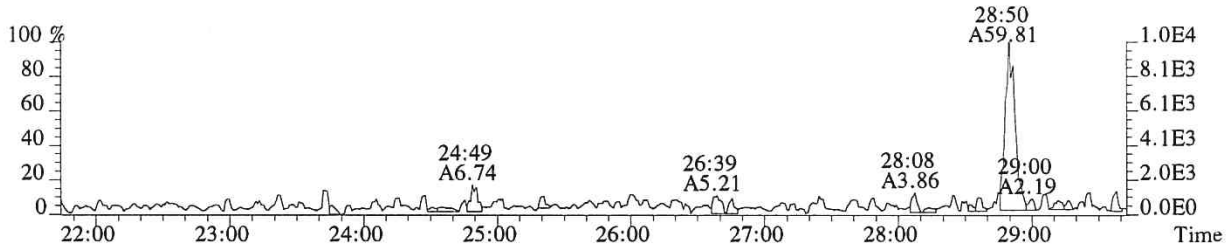


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

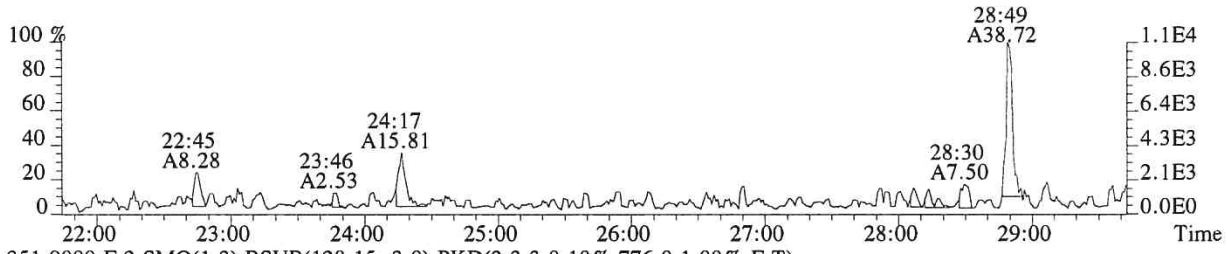


014487

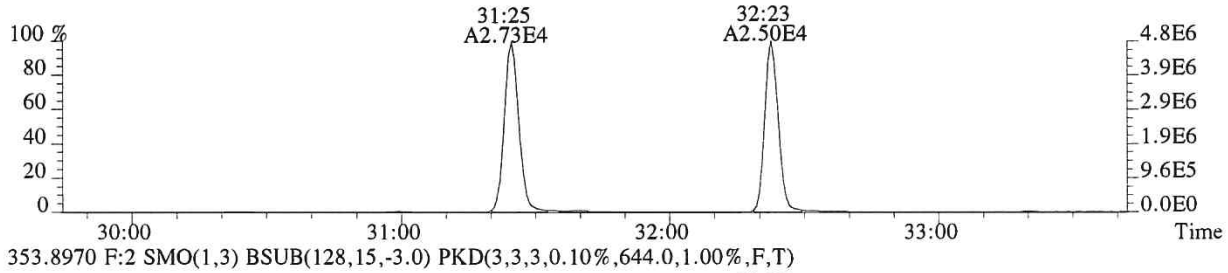
File:P519447 #1-566 Acq:17-DEC-2018 23:27:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-019
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,548.0,1.00%,F,T)



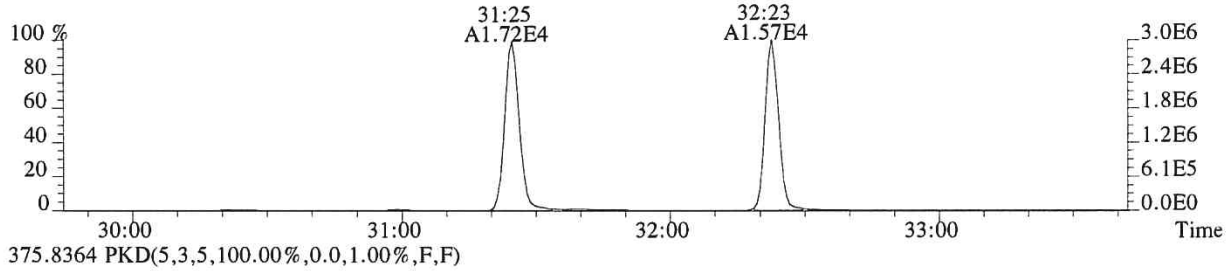
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,812.0,1.00%,F,T)



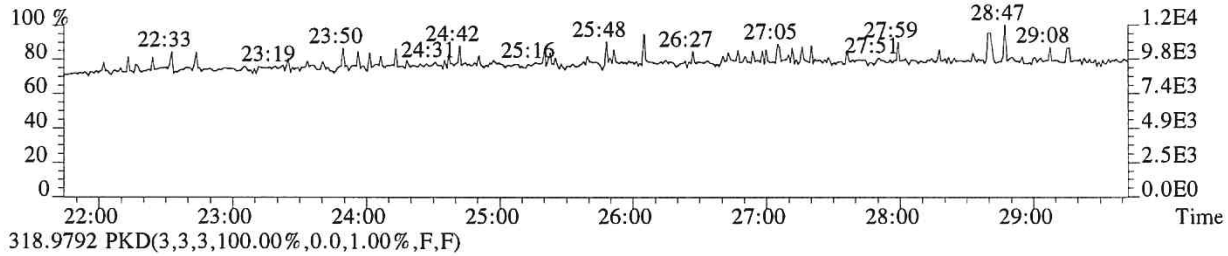
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)



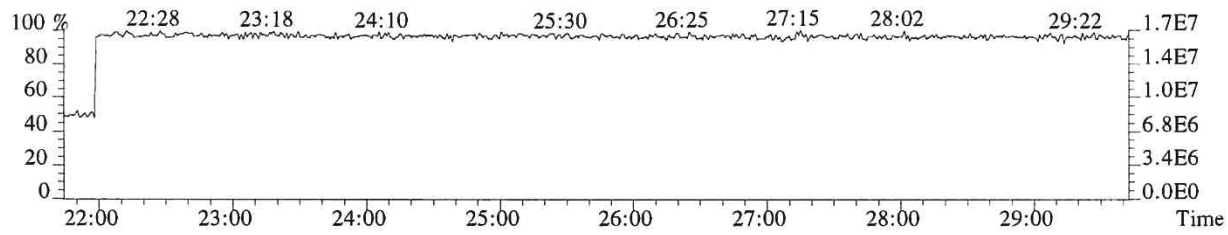
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,644.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



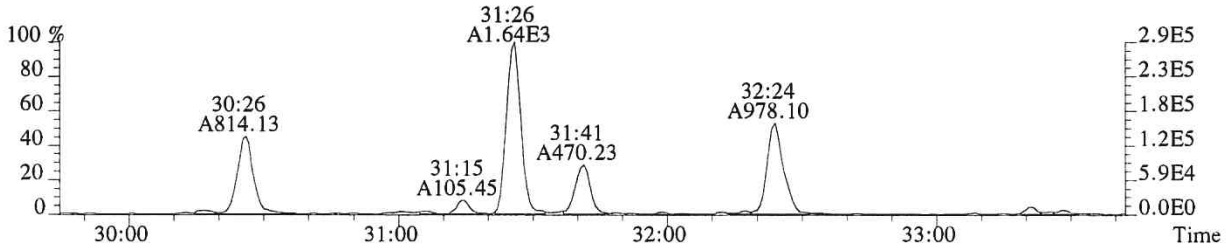
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



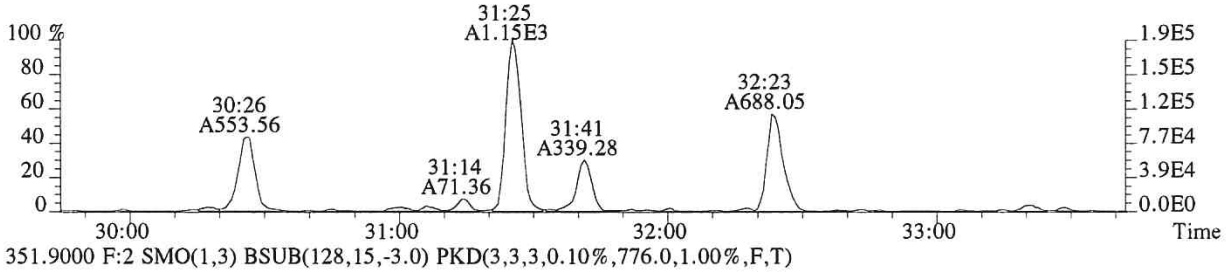
014488

File:P519447 #1-357 Acq:17-DEC-2018 23:27:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-019

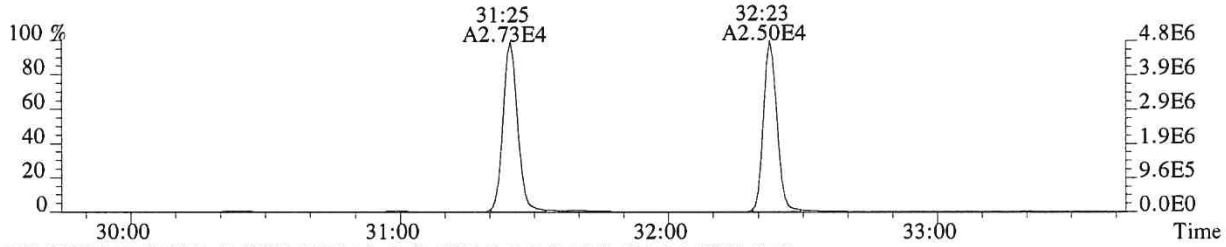
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1624.0,1.00%,F,T)



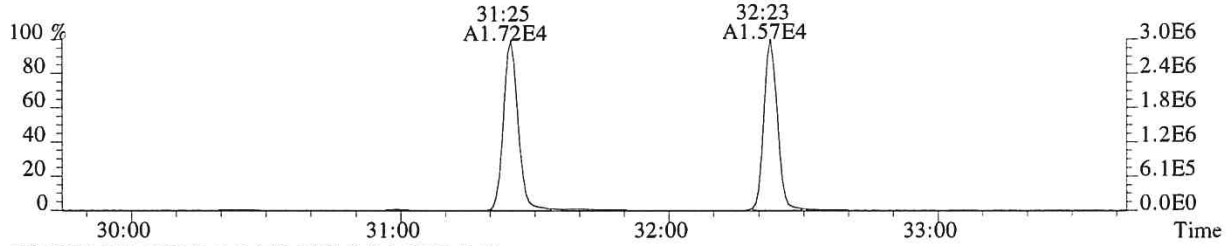
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,960.0,1.00%,F,T)



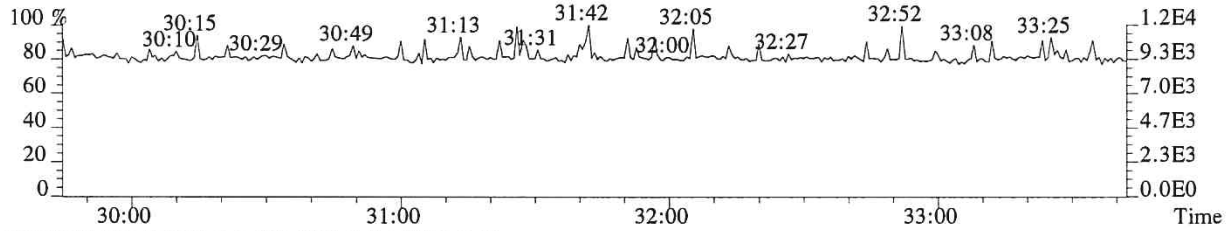
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)



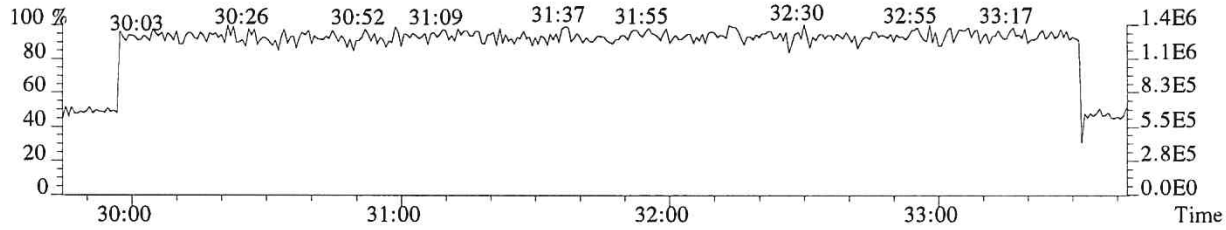
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,644.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



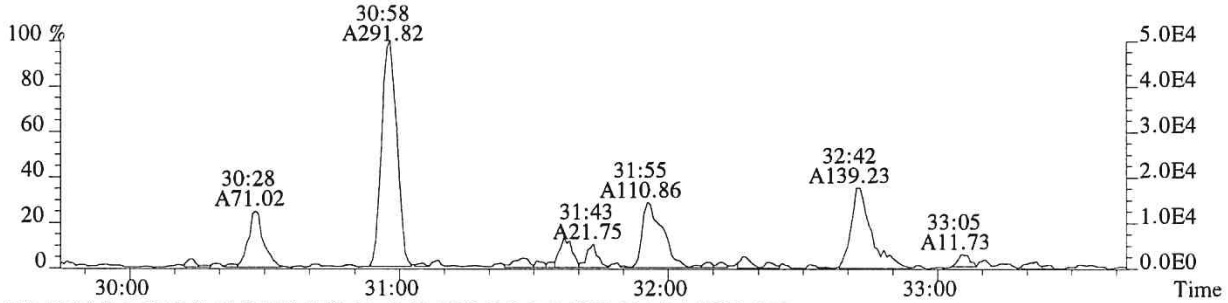
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



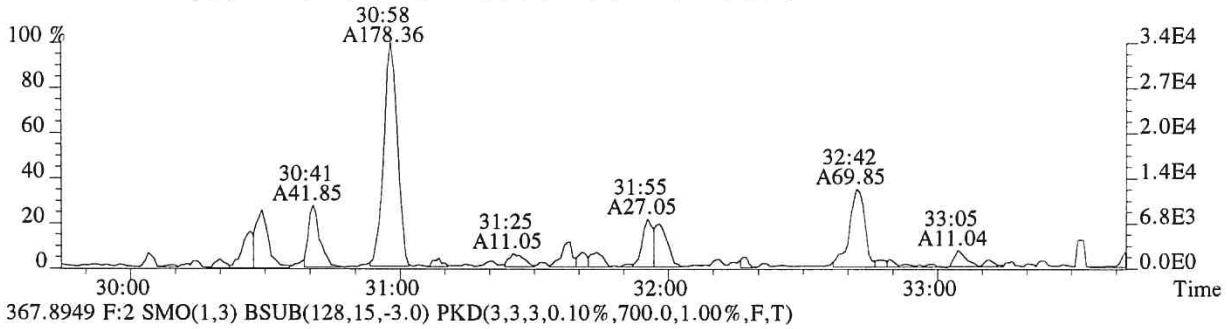
014489

File:P519447 #1-357 Acq:17-DEC-2018 23:27:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-019

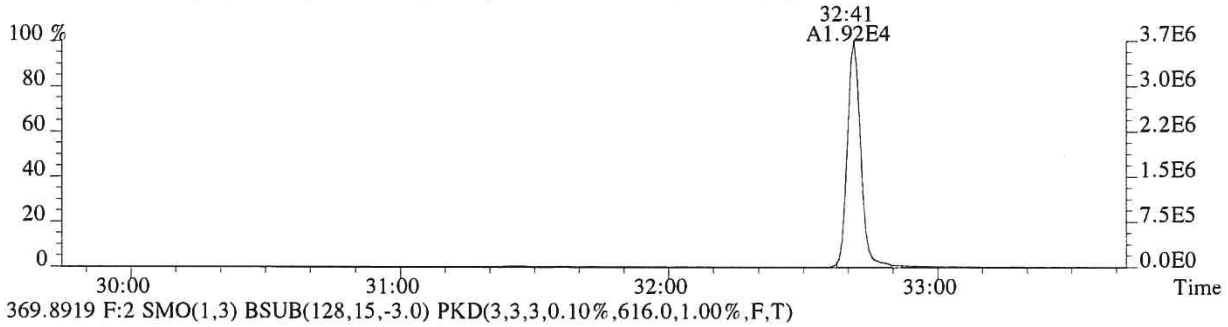
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,596.0,1.00%,F,T)



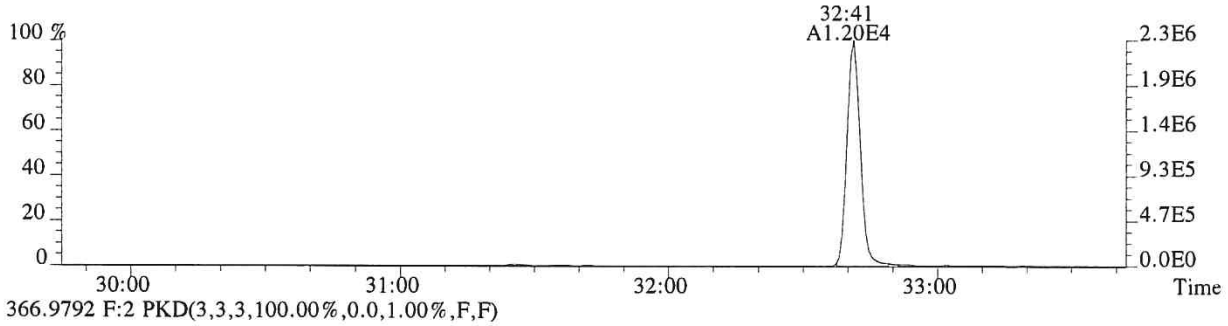
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,564.0,1.00%,F,T)



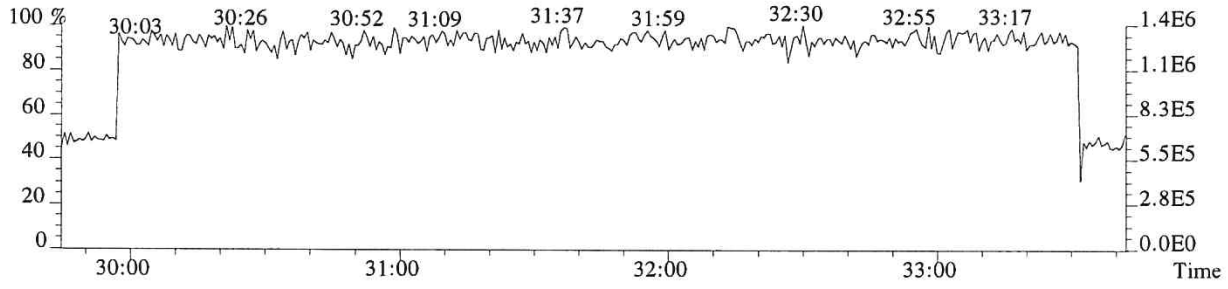
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,700.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,616.0,1.00%,F,T)

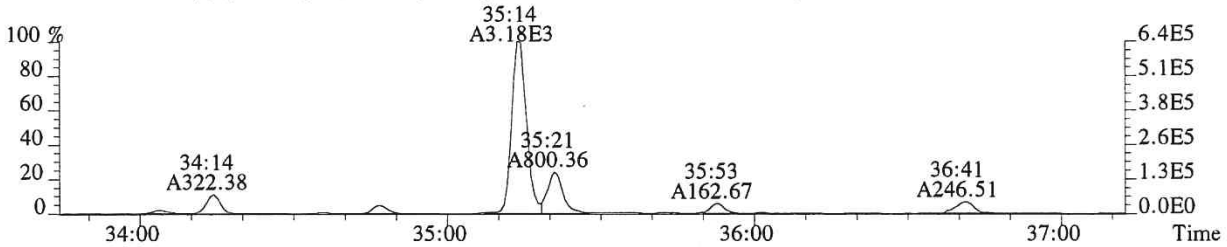


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

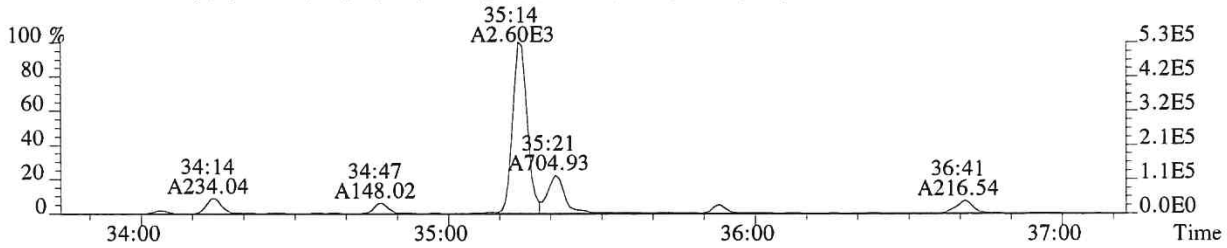


File:P519447 #1-313 Acq:17-DEC-2018 23:27:56 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:E1801093-019

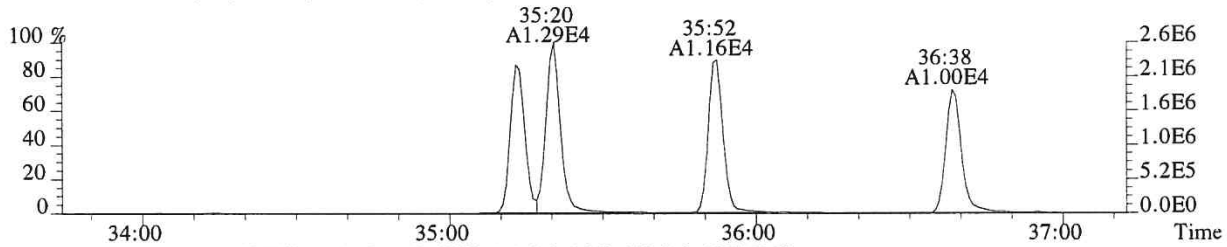
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1640.0,0.40%,F,T)



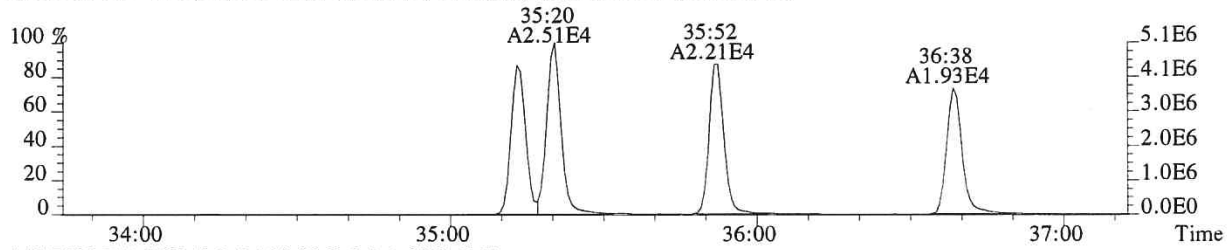
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,352.0,0.40%,F,T)



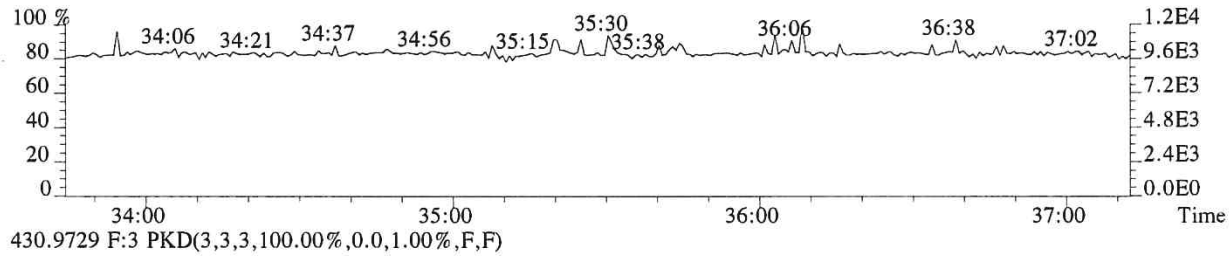
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,376.0,0.40%,F,T)



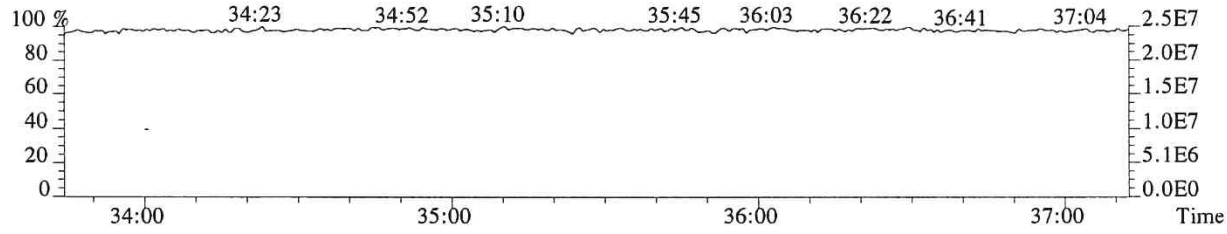
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,448.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



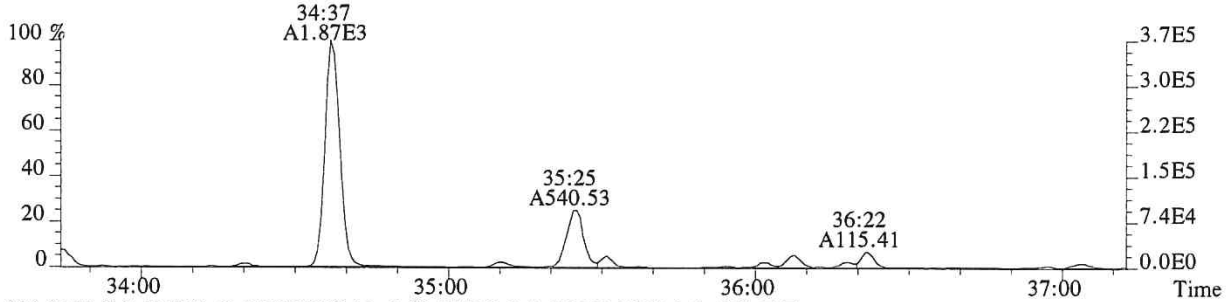
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



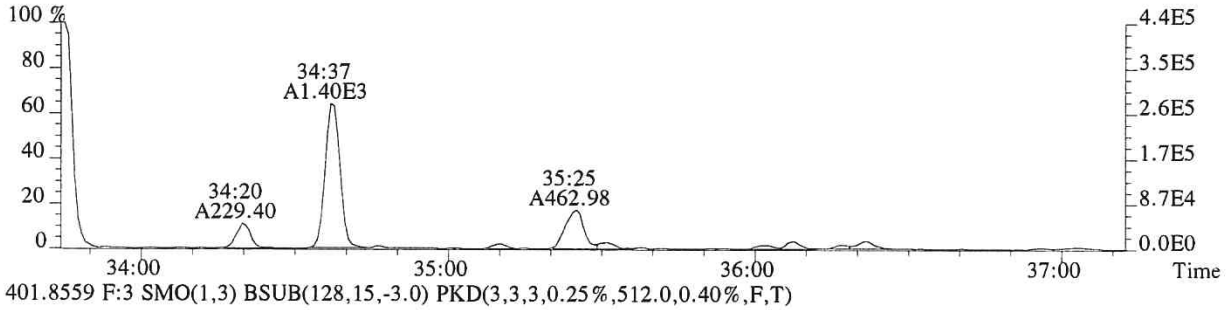
014491

File:P519447 #1-313 Acq:17-DEC-2018 23:27:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-019

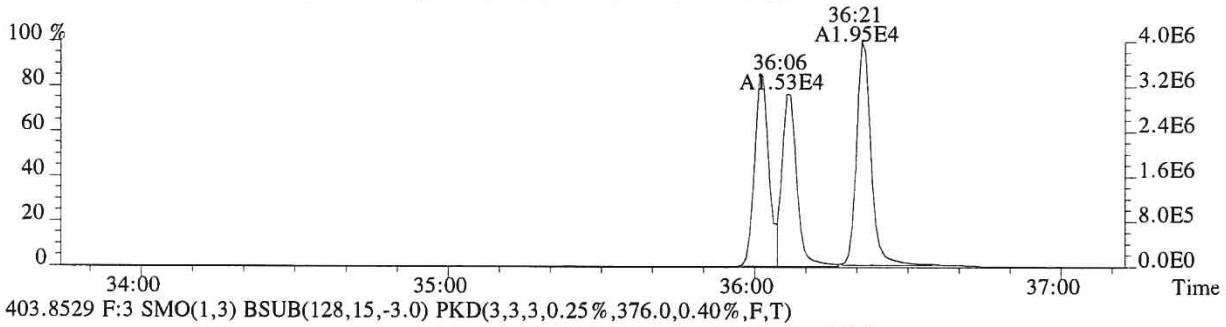
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,920.0,0.40%,F,T)



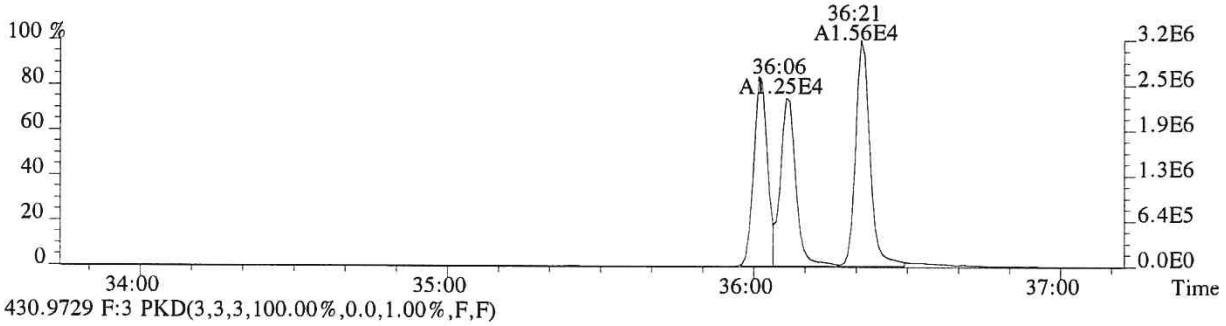
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2060.0,0.40%,F,T)



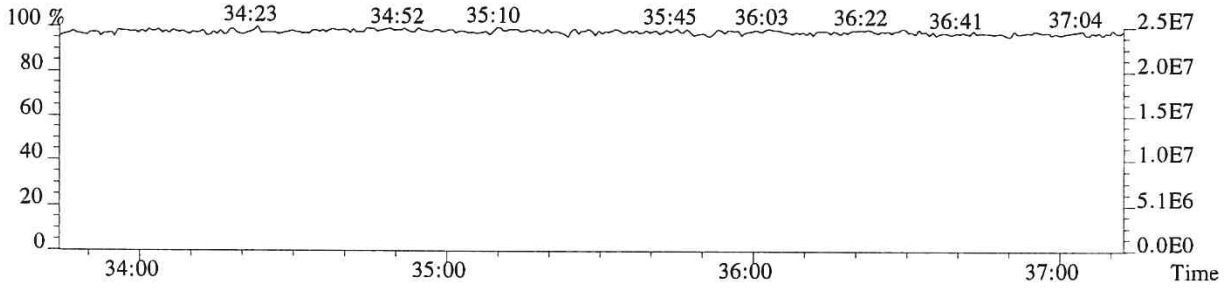
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,512.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,376.0,0.40%,F,T)

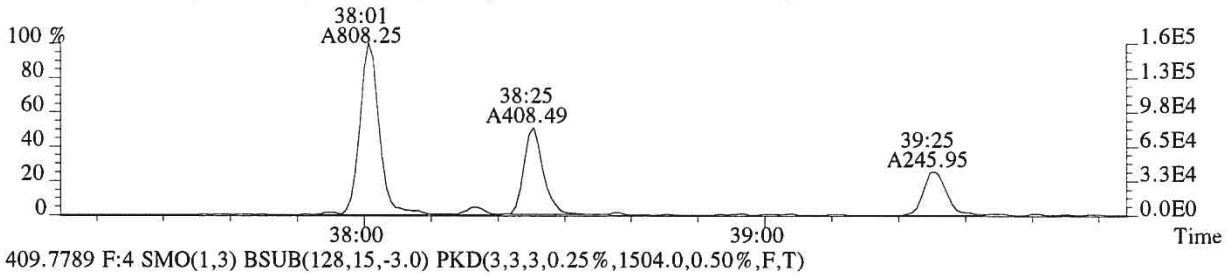


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

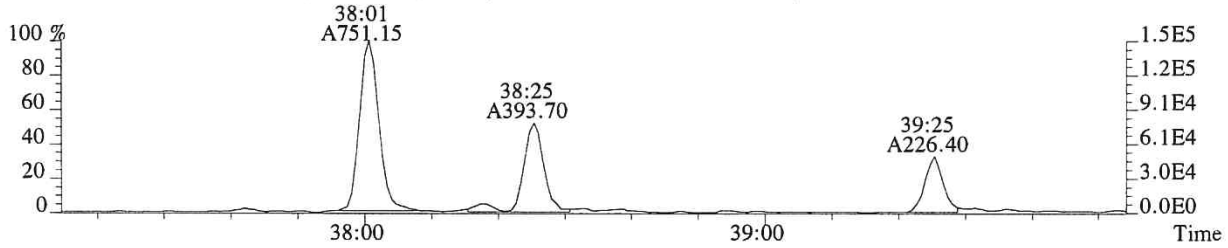


File:P519447 #1-240 Acq:17-DEC-2018 23:27:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-019

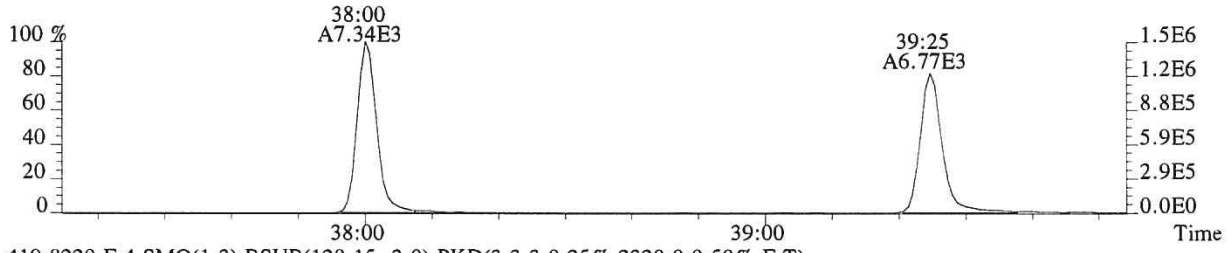
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,720.0,0.50%,F,T)



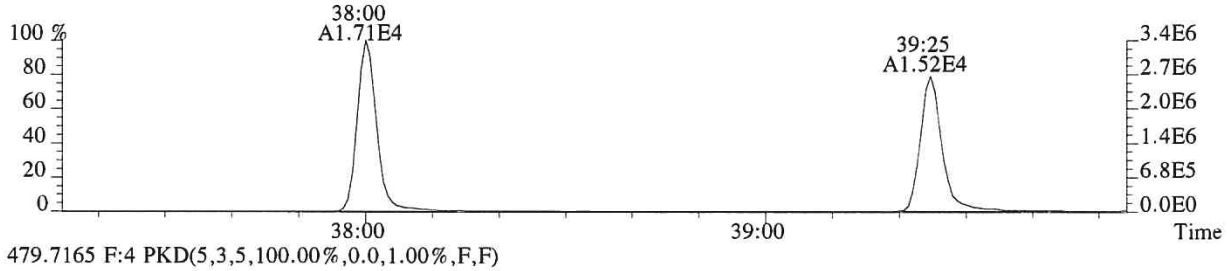
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1504.0,0.50%,F,T)



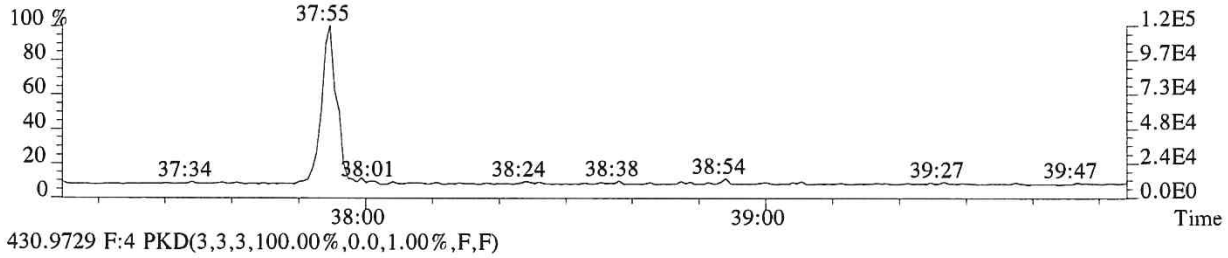
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1792.0,0.50%,F,T)



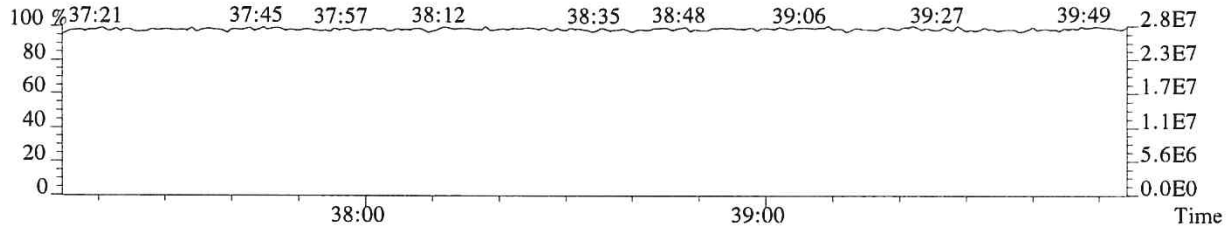
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2320.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

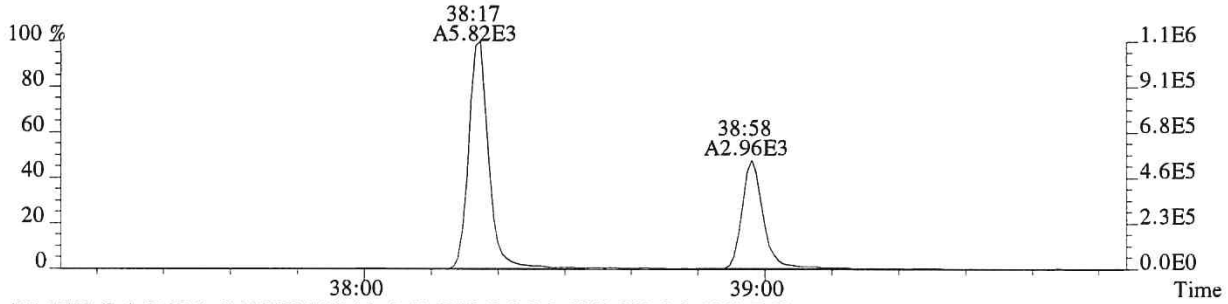


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

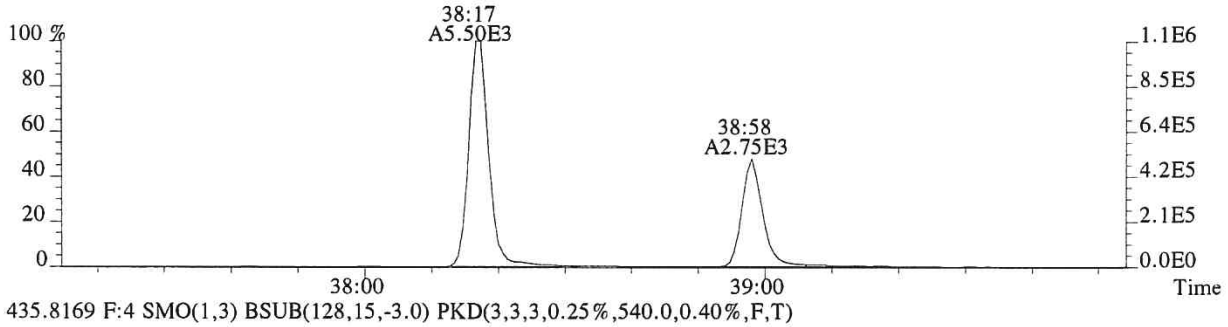


014493

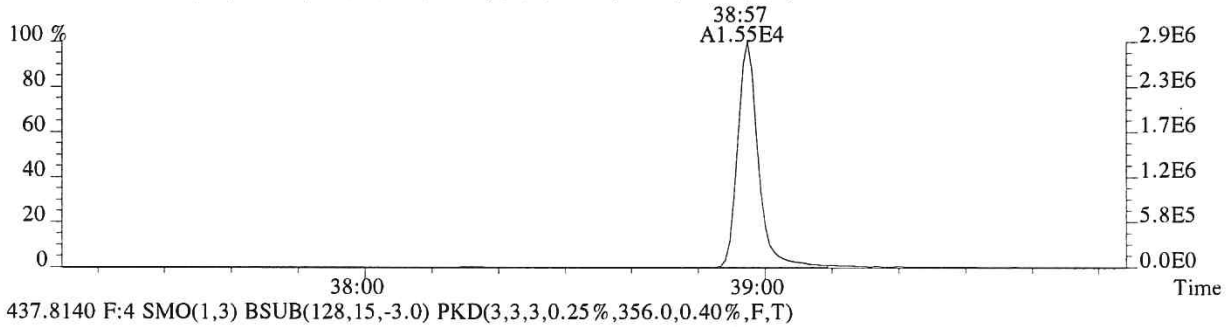
File:P519447 #1-240 Acq:17-DEC-2018 23:27:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-019
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,432.0,0.40%,F,T)



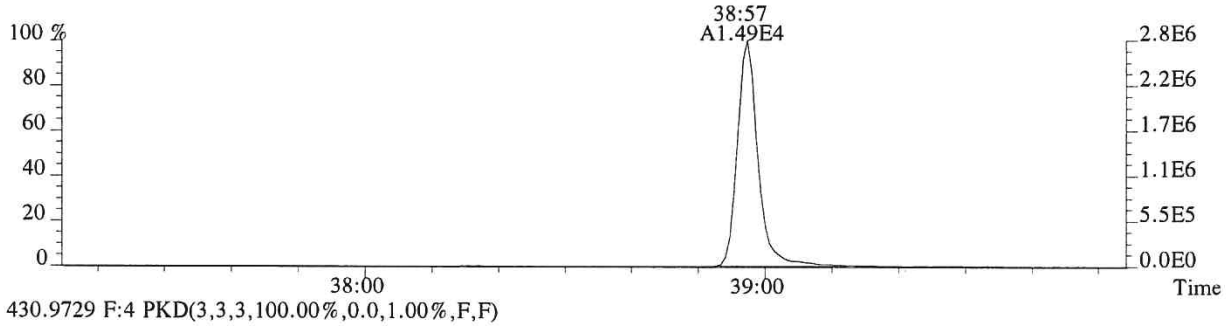
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,528.0,0.40%,F,T)



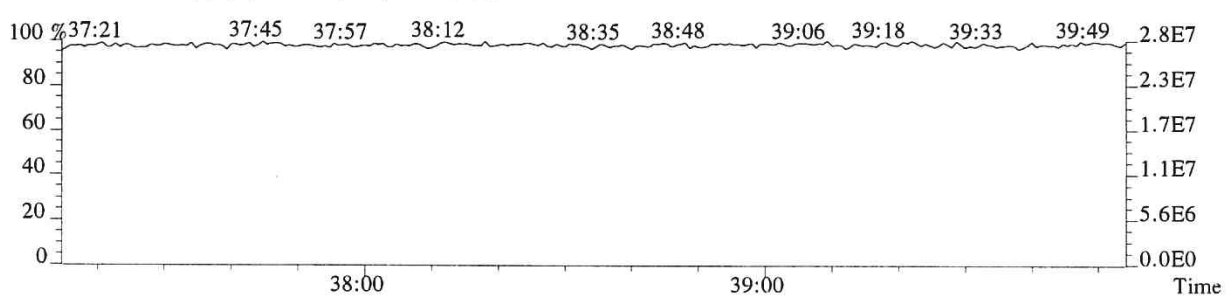
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,540.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,356.0,0.40%,F,T)

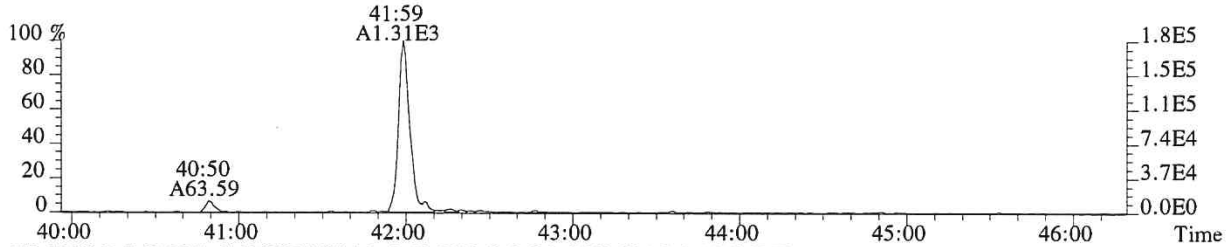


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

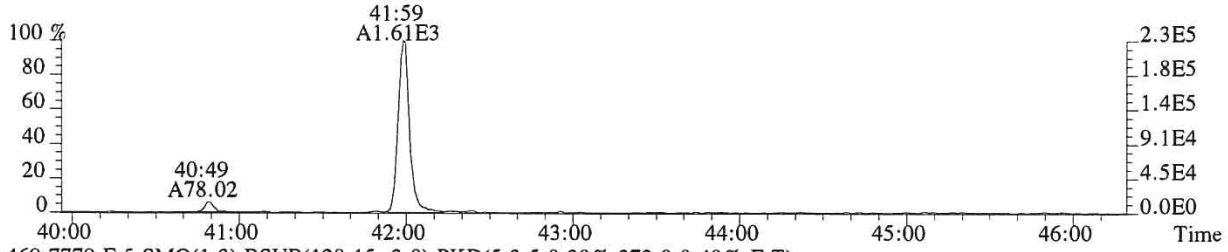


File:P519447 #1-575 Acq:17-DEC-2018 23:27:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-019

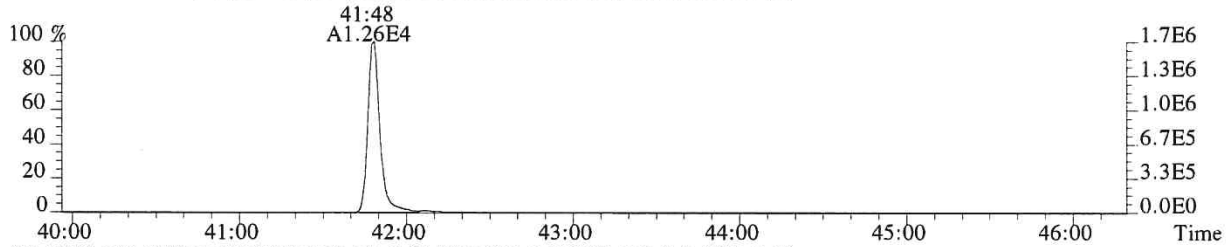
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,348.0,0.40%,F,T)



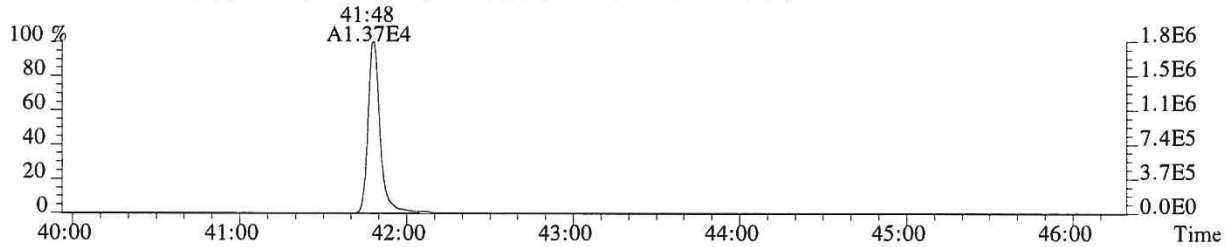
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,584.0,0.40%,F,T)



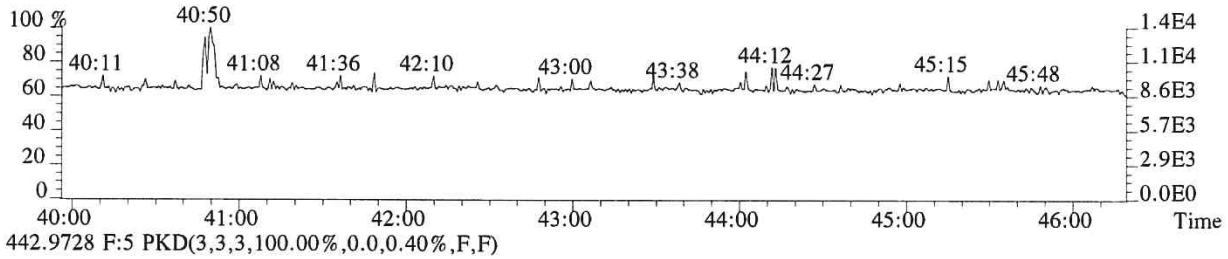
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,372.0,0.40%,F,T)



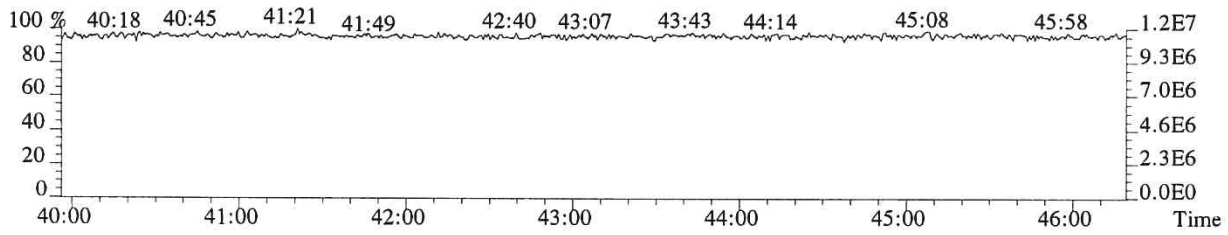
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,296.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



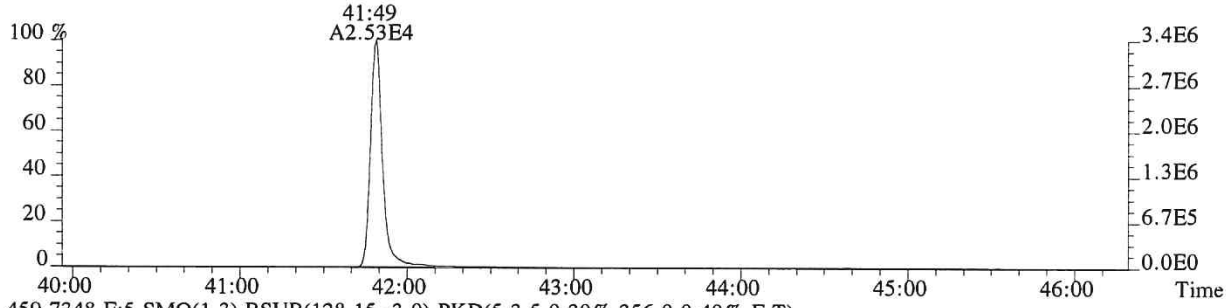
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



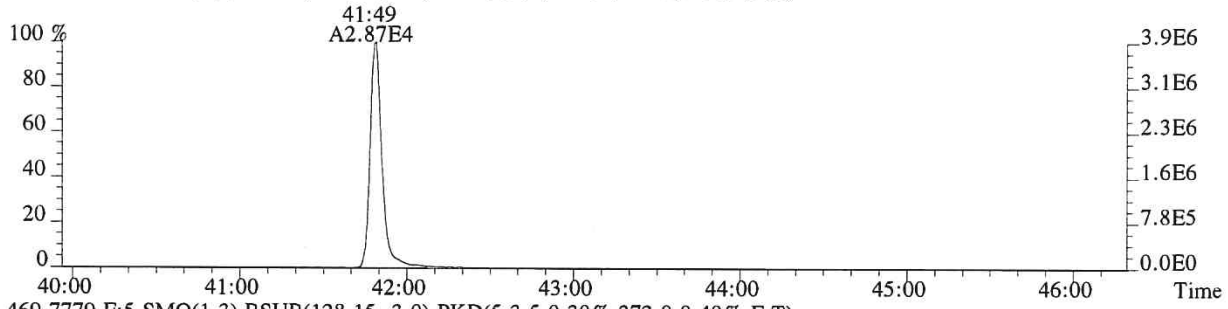
014495

File:P519447 #1-575 Acq:17-DEC-2018 23:27:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-019

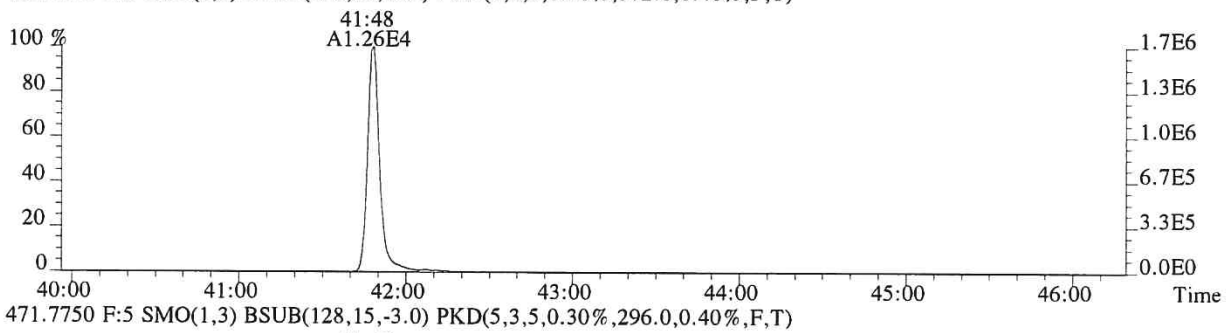
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,284.0,0.40%,F,T)



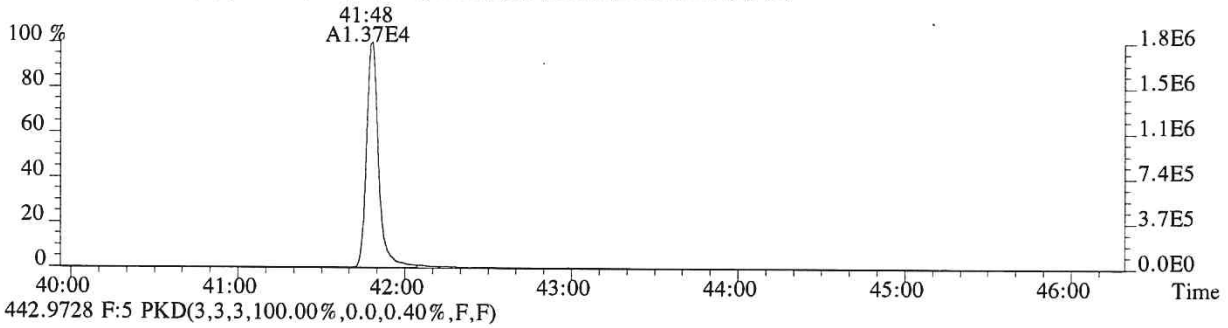
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,356.0,0.40%,F,T)



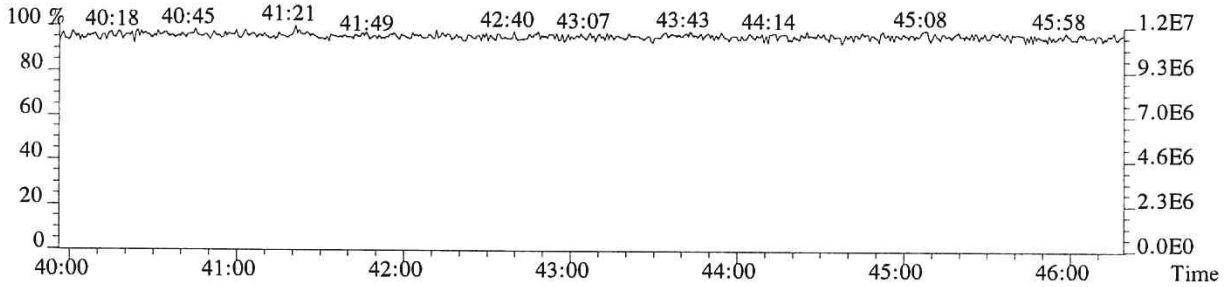
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,372.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,296.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



014496

ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0005

Run #19 Filename P519448 Samp: 1 Inj: 1 Acquired: 18-DEC-18 00:16:34
Processed: 19-DEC-18 09:44:37 Sample ID: E1801093-020

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:48	1.112e+03	1.523e+03	0.73	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	31:27	7.195e+01	5.079e+01	1.42	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	32:24	4.559e+01	2.770e+01	1.65	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:14	1.353e+02	1.382e+02	0.98	no	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:20	3.012e+01	4.249e+01	0.71	no	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:53	8.130e+00	7.892e+00	1.03	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	36:41	1.089e+01	1.240e+01	0.88	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:01	1.978e+02	2.288e+02	0.86	no	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:25	2.121e+01	8.495e+00	2.50	no	yes	1.258
10	Unk	OCDF	42:00	1.892e+02	2.241e+02	0.84	yes	no	1.359
11	Unk	2,3,7,8-TCDD	27:43	3.382e+02	4.027e+02	0.84	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	32:43	2.207e+01	1.236e+01	1.78	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:02	1.926e+01	1.329e+01	1.45	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:06	4.683e+01	3.432e+01	1.36	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:22	6.031e+01	4.778e+01	1.26	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:59	9.986e+02	9.342e+02	1.07	yes	no	1.025
17	Unk	OCDD	41:50	1.260e+04	1.415e+04	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	26:47	1.010e+04	1.258e+04	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	31:25	1.752e+04	1.120e+04	1.56	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	32:23	1.619e+04	1.048e+04	1.55	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:14	7.461e+03	1.452e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:20	8.879e+03	1.750e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:52	7.643e+03	1.529e+04	0.50	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	36:39	6.850e+03	1.351e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:01	5.436e+03	1.262e+04	0.43	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:25	4.720e+03	1.081e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	27:41	4.672e+03	6.042e+03	0.77	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:41	1.262e+04	7.785e+03	1.62	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:01	1.125e+04	8.773e+03	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:06	1.115e+04	8.640e+03	1.29	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:58	1.156e+04	1.083e+04	1.07	yes	no	0.858
32	IS	13C-OCDD	41:50	1.014e+04	1.118e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:03	1.060e+04	1.338e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:22	1.554e+04	1.232e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:42	6.819e+03				no	1.014

$$\text{OCDD} = \frac{(1.260e+04 + 1.415e+04) \times 4000\ \text{pg} \times 1}{(1.014e+04 + 1.118e+04) \times 10.803\ \text{g} \times 76.16 / 100 \times 1.118} = 512\ \text{ng/kg}$$

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12/20/18

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0005

Run #19 Filename P519448 Samp: 1 Inj: 1 Acquired: 18-DEC-18 00:16:34
Processed: 19-DEC-18 09:44:37 LAB. ID: E1801093-020

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.69e+05	9.00e+02	1.9e+02	2.16e+05	9.76e+02	2.2e+02
2	1,2,3,7,8-PeCDF	1.52e+04	3.48e+02	4.4e+01	8.50e+03	4.56e+02	1.9e+01
3	2,3,4,7,8-PeCDF	8.08e+03	3.48e+02	2.3e+01	5.25e+03	4.56e+02	1.2e+01
4	1,2,3,4,7,8-HxCDF	2.79e+04	5.32e+02	5.2e+01	2.66e+04	3.76e+02	7.1e+01
5	1,2,3,6,7,8-HxCDF	5.68e+03	5.32e+02	1.1e+01	9.30e+03	3.76e+02	2.5e+01
6	2,3,4,6,7,8-HxCDF	1.43e+03	5.32e+02	2.7e+00	1.89e+03	3.76e+02	5.0e+00
7	1,2,3,7,8,9-HxCDF	1.96e+03	5.32e+02	3.7e+00	2.27e+03	3.76e+02	6.0e+00
8	1,2,3,4,6,7,8-HpCDF	4.49e+04	3.48e+02	1.3e+02	4.72e+04	6.32e+02	7.5e+01
9	1,2,3,4,7,8,9-HpCDF	3.33e+03	3.48e+02	9.6e+00	2.00e+03	6.32e+02	3.2e+00
10	OCDF	2.87e+04	3.36e+02	8.5e+01	2.97e+04	7.68e+02	3.9e+01
11	2,3,7,8-TCDD	5.92e+04	1.54e+03	3.8e+01	7.53e+04	7.36e+02	1.0e+02
12	1,2,3,7,8-PeCDD	4.56e+03	9.04e+02	5.0e+00	2.93e+03	5.12e+02	5.7e+00
13	1,2,3,4,7,8-HxCDD	3.95e+03	2.44e+02	1.6e+01	4.52e+03	1.19e+03	3.8e+00
14	1,2,3,6,7,8-HxCDD	9.06e+03	2.44e+02	3.7e+01	7.80e+03	1.19e+03	6.5e+00
15	1,2,3,7,8,9-HxCDD	1.21e+04	2.44e+02	5.0e+01	1.03e+04	1.19e+03	8.6e+00
16	1,2,3,4,6,7,8-HpCDD	1.84e+05	7.52e+02	2.4e+02	1.71e+05	3.28e+02	5.2e+02
17	OCDD	1.70e+06	3.04e+02	5.6e+03	1.86e+06	3.92e+02	4.7e+03
18	13C-2,3,7,8-TCDF	1.61e+06	4.73e+03	3.4e+02	1.99e+06	2.78e+03	7.2e+02
19	13C-1,2,3,7,8-PeCDF	3.08e+06	3.80e+02	8.1e+03	1.94e+06	5.12e+02	3.8e+03
20	13C-2,3,4,7,8-PeCDF	3.06e+06	3.80e+02	8.0e+03	1.92e+06	5.12e+02	3.8e+03
21	13C-1,2,3,4,7,8-HxCDF	1.53e+06	6.84e+02	2.2e+03	2.98e+06	3.08e+02	9.7e+03
22	13C-1,2,3,6,7,8-HxCDF	1.77e+06	6.84e+02	2.6e+03	3.53e+06	3.08e+02	1.1e+04
23	13C-2,3,4,6,7,8-HxCDF	1.60e+06	6.84e+02	2.3e+03	3.19e+06	3.08e+02	1.0e+04
24	13C-1,2,3,7,8,9-HxCDF	1.29e+06	6.84e+02	1.9e+03	2.59e+06	3.08e+02	8.4e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.11e+06	8.52e+02	1.3e+03	2.52e+06	1.26e+03	2.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	8.39e+05	8.52e+02	9.8e+02	1.95e+06	1.26e+03	1.5e+03
27	13C-2,3,7,8-TCDD	8.51e+05	5.08e+03	1.7e+02	1.08e+06	1.53e+03	7.0e+02
28	13C-1,2,3,7,8-PeCDD	2.43e+06	4.36e+02	5.6e+03	1.51e+06	1.06e+03	1.4e+03
29	13C-1,2,3,4,7,8-HxCDD	2.56e+06	5.04e+02	5.1e+03	2.00e+06	5.76e+02	3.5e+03
30	13C-1,2,3,6,7,8-HxCDD	2.20e+06	5.04e+02	4.4e+03	1.74e+06	5.76e+02	3.0e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.15e+06	5.60e+02	3.8e+03	2.01e+06	4.24e+02	4.7e+03
32	13C-OCDD	1.35e+06	5.04e+02	2.7e+03	1.47e+06	3.20e+02	4.6e+03
33	13C-1,2,3,4-TCDD	1.86e+06	5.08e+03	3.7e+02	2.31e+06	1.53e+03	1.5e+03
34	13C-1,2,3,7,8,9-HxCDD	3.03e+06	5.04e+02	6.0e+03	2.39e+06	5.76e+02	4.1e+03
35	37Cl-2,3,7,8-TCDD	1.24e+06	4.88e+02	2.5e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.544e{+}03 + 7.360e{+}02) \times 2000}{(8.507e{+}05 + 1.079e{+}06) \times (\quad) \times 1.085} =$$

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0005

Entry: 36 Totals Name: Total Tetra-Furans

Run: 19 File: P519448 Sample:1 Injection:1 Function:1

Acquired: 18-DEC-18 00:16:34 Processed: 19-DEC-18 09:44:37

Mass: 303.9020 305.8990 Tot Response: 4.23e+03 RRF: 0.9417

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	22:12	1.98e+01	2.92e+01	0.68	yes	4.90e+01		n	n
2	24:35	5.14e+01	6.05e+01	0.85	yes	1.12e+02		n	n
3	25:53	4.80e+02	6.31e+02	0.76	yes	1.11e+03		n	n
4	26:10	2.98e+01	3.97e+01	0.75	yes	6.95e+01		n	n
5	26:48	1.11e+03	1.52e+03	0.73	yes	2.64e+03	2,3,7,8-TCDF	n	n
6	27:03	1.01e+01	1.27e+01	0.80	yes	2.28e+01		n	n
7	28:49	1.05e+02	1.22e+02	0.86	yes	2.27e+02		n	n

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Peak List Summary

CLIENT ID.
SL0005

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 19 File: P519448 Sample:1 Injection:1 Function:1

Acquired: 18-DEC-18 00:16:34 Processed: 19-DEC-18 09:44:37

Mass: 319.8970 321.8940 Tot Response: 1.06e+03 RRF: 1.085

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	25:30	1.30e+02	1.92e+02	0.68	yes	3.23e+02		n	n
2	27:43	3.38e+02	4.03e+02	0.84	yes	7.41e+02	2,3,7,8-TCDD	n	n

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Peak List Summary

CLIENT ID.
SL0005

Entry: 39 Totals Name: Total Penta-Furans2

Run: 19 File: P519448 Sample:1 Injection:1 Function:2

Acquired: 18-DEC-18 00:16:34 Processed: 19-DEC-18 09:44:37

Mass: 339.8600 341.8570 Tot Response: 1.96e+02 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:27	7.20e+01	5.08e+01 1.42	yes	1.23e+02	1,2,3,7,8-PeCDF	n	n
2	32:24	4.56e+01	2.77e+01 1.65	yes	7.33e+01	2,3,4,7,8-PeCDF	n	n

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Peak List Summary

CLIENT ID.
SL0005

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 19 File: P519448 Sample:1 Injection:1 Function:2

Acquired: 18-DEC-18 00:16:34 Processed: 19-DEC-18 09:44:37

Mass: 355.8550 357.8520 Tot Response: 3.72e+02 RRF: 0.9565

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:27	3.08e+01	1.77e+01	1.74	yes	4.85e+01		n	n
2	30:58	2.04e+02	1.20e+02	1.70	yes	3.23e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0005

Entry: 41 Totals Name: Total Hexa-Furans

Run: 19 File: P519448 Sample:1 Injection:1 Function:3

Acquired: 18-DEC-18 00:16:34 Processed: 19-DEC-18 09:44:37

Mass: 373.8210 375.8180 Tot Response: 1.44e+02 RRF: 1.141

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:15	5.53e+01	4.73e+01	1.17	yes	1.03e+02		n	n
2	34:48	2.22e+01	1.88e+01	1.18	yes	4.10e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0005

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 19 File: P519448 Sample:1 Injection:1 Function:3

Acquired: 18-DEC-18 00:16:34 Processed: 19-DEC-18 09:44:37

Mass: 389.8160 391.8130 Tot Response: 2.25e+03 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:38	1.09e+03	8.99e+02	1.21	yes	1.99e+03		n	n
2	35:31	4.32e+01	3.06e+01	1.41	yes	7.38e+01		n	n
3	36:06	4.68e+01	3.43e+01	1.36	yes	8.11e+01	1,2,3,6,7,8-HxCDD	n	n
4	36:22	6.03e+01	4.78e+01	1.26	yes	1.08e+02	1,2,3,7,8,9-HxCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0005

Entry: 43 Totals Name: Total Hepta-Furans

Run: 19 File: P519448 Sample:1 Injection:1 Function:4

Acquired: 18-DEC-18 00:16:34 Processed: 19-DEC-18 09:44:37

Mass: 407.7820 409.7790 Tot Response: 1.28e+02 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:25	6.79e+01	5.99e+01 1.13	yes	1.28e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0005

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 19 File: P519448 Sample:1 Injection:1 Function:4

Acquired: 18-DEC-18 00:16:34 Processed: 19-DEC-18 09:44:37

Mass: 423.7770 425.7740 Tot Response: 6.90e+03 RRF: 1.025

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:17	2.55e+03	2.42e+03	1.05	yes	4.97e+03		n	n
2	38:59	9.99e+02	9.34e+02	1.07	yes	1.93e+03	1,2,3,4,6,7,8-HpCDD	n	n

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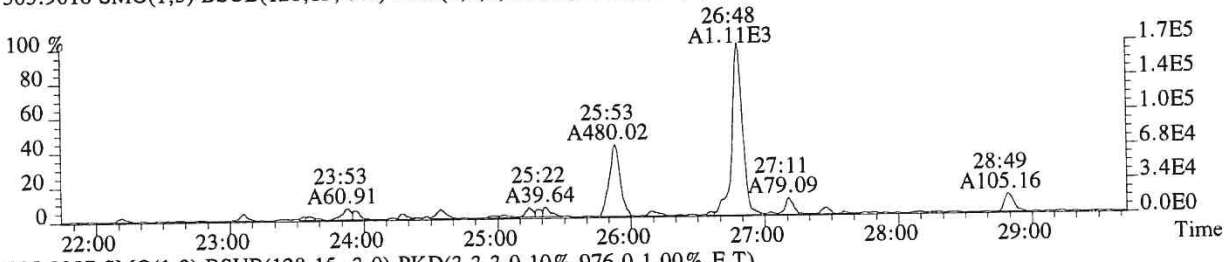
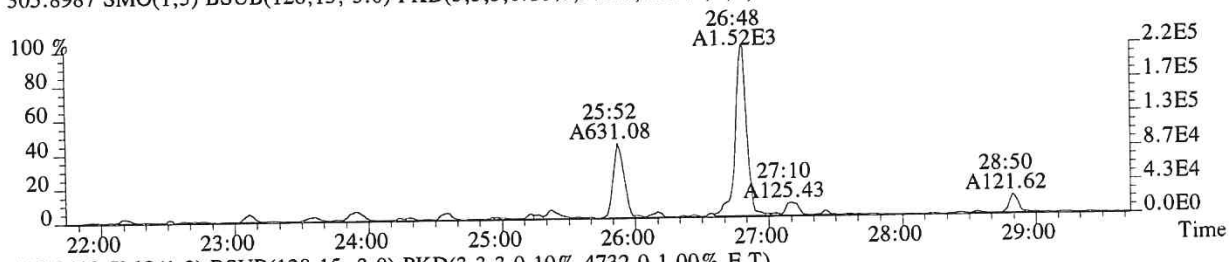
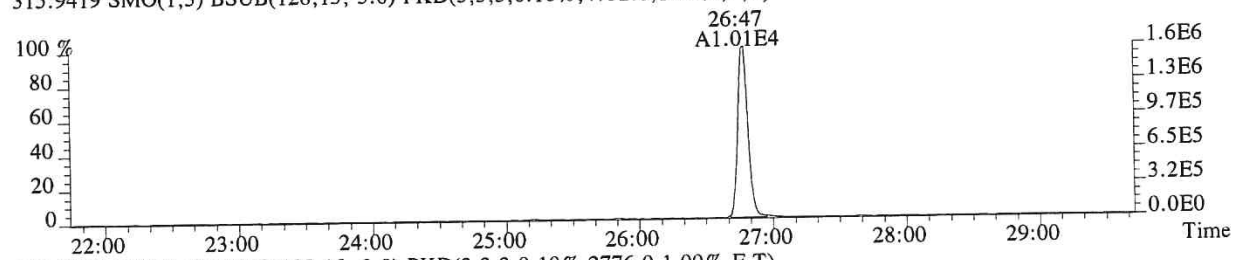
File:P519448 #1-566 Acq:18-DEC-2018 00:16:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-020
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,900.0,1.00%,F,T)



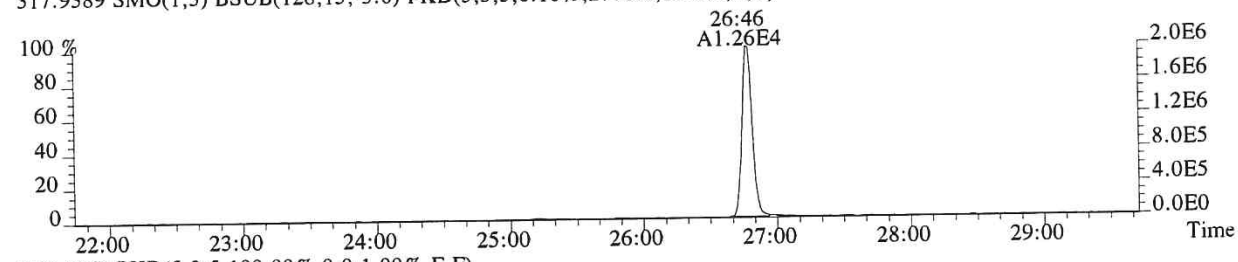
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,976.0,1.00%,F,T)



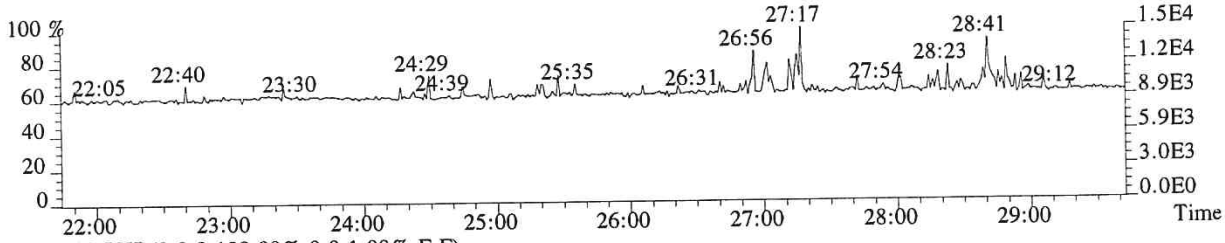
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4732.0,1.00%,F,T)



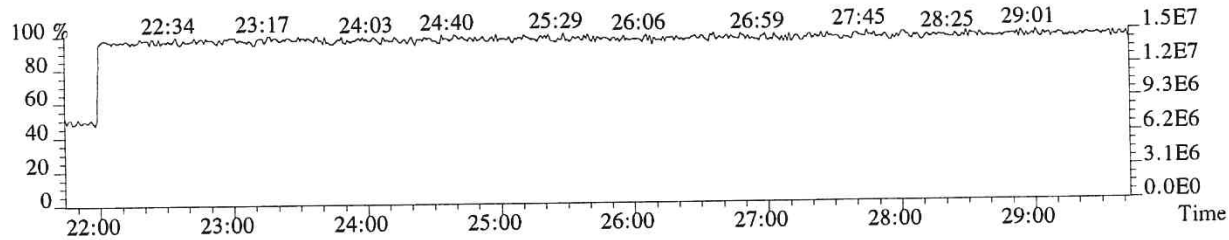
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2776.0,1.00%,F,T)



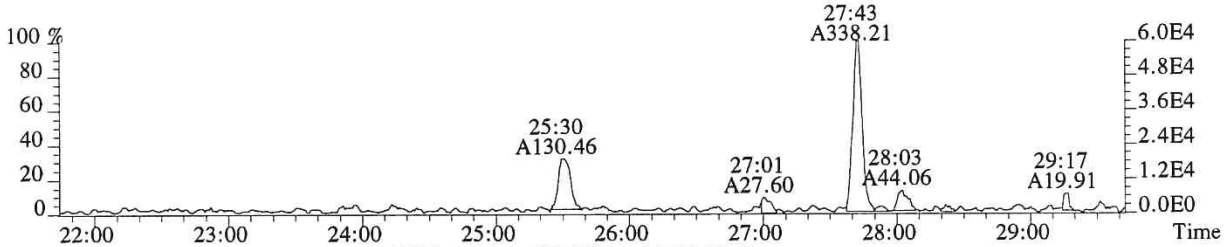
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



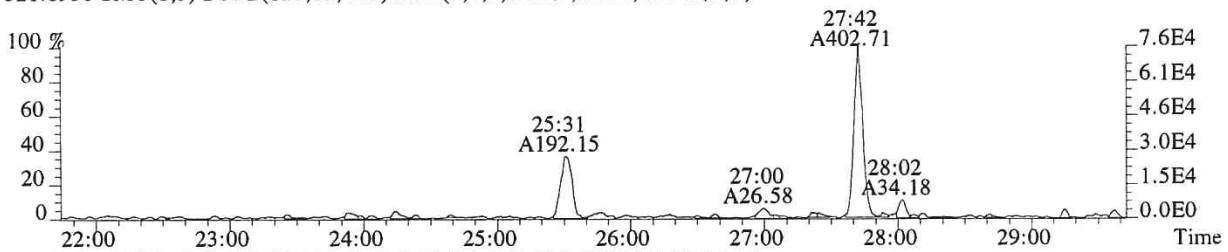
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



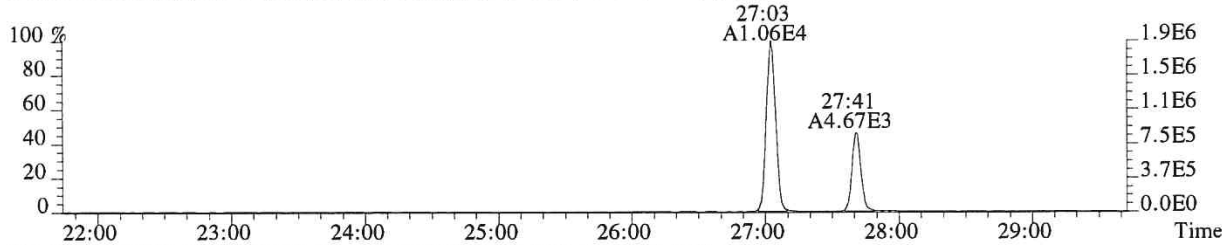
File:P519448 #1-566 Acq:18-DEC-2018 00:16:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-020
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1544.0,1.00%,F,T)



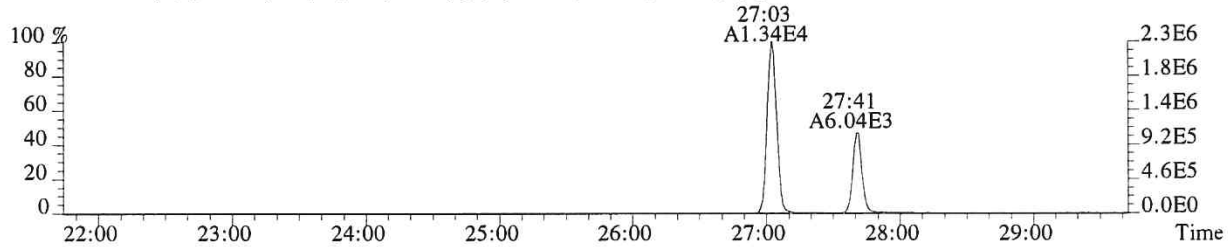
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,736.0,1.00%,F,T)



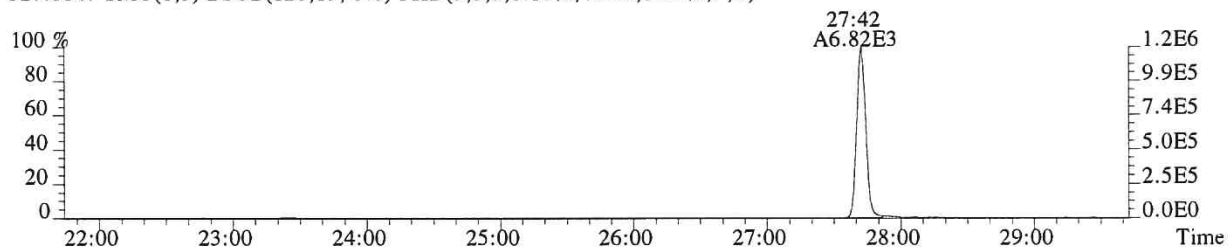
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5080.0,1.00%,F,T)



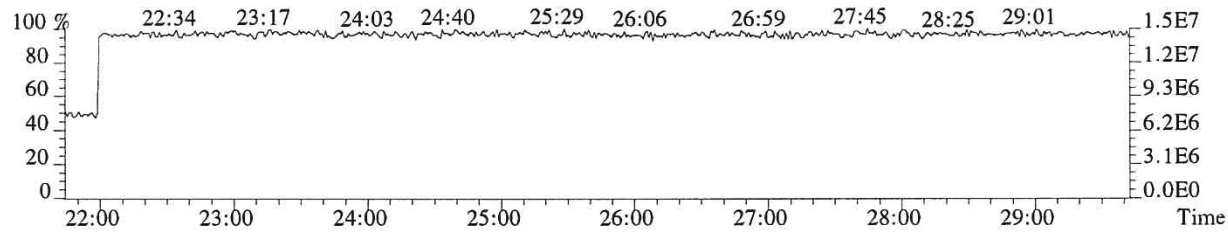
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1532.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,488.0,1.00%,F,T)

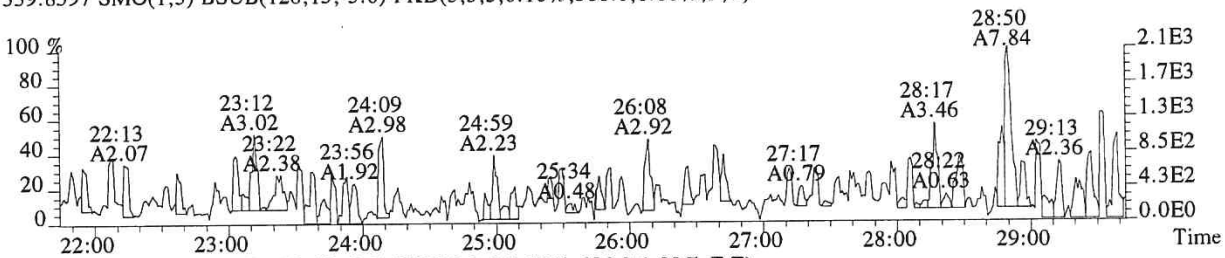


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

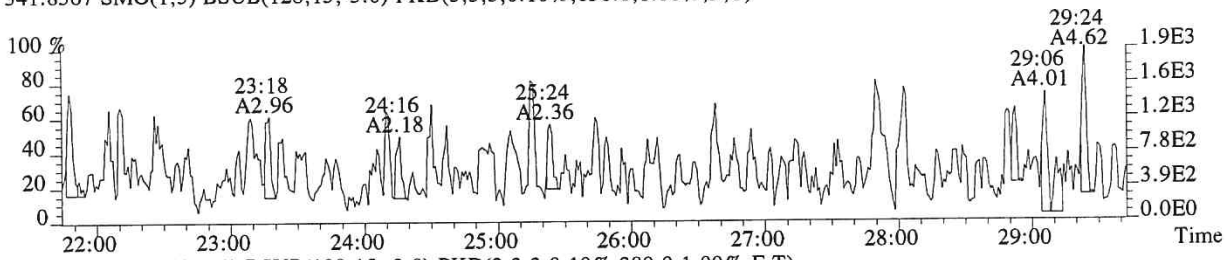


014508

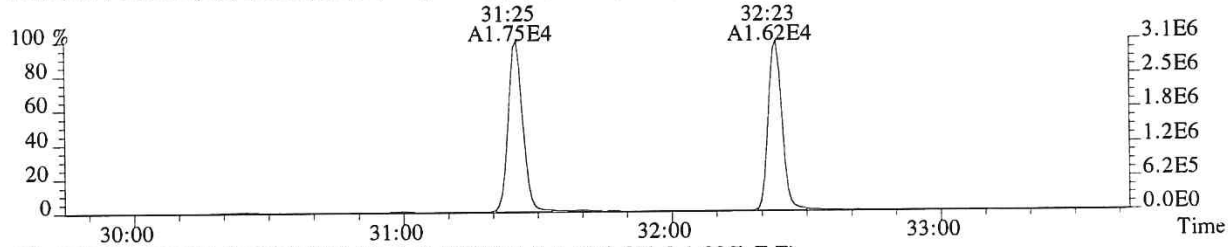
File:P519448 #1-566 Acq:18-DEC-2018 00:16:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-020
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,300.0,1.00%,F,T)



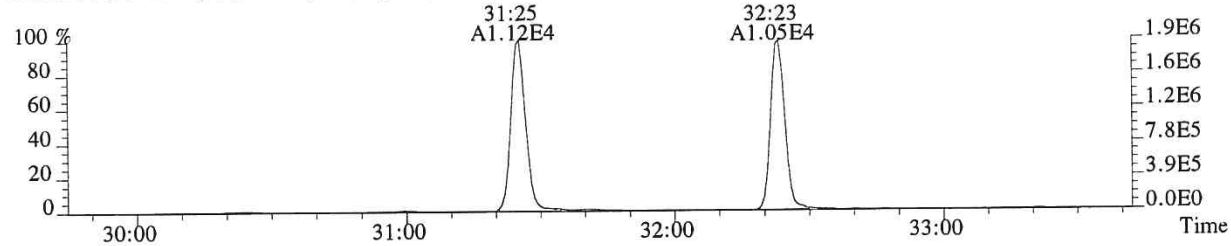
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,656.0,1.00%,F,T)



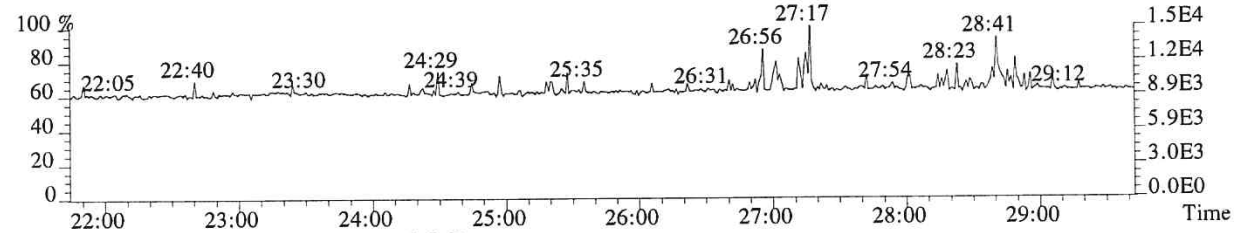
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,380.0,1.00%,F,T)



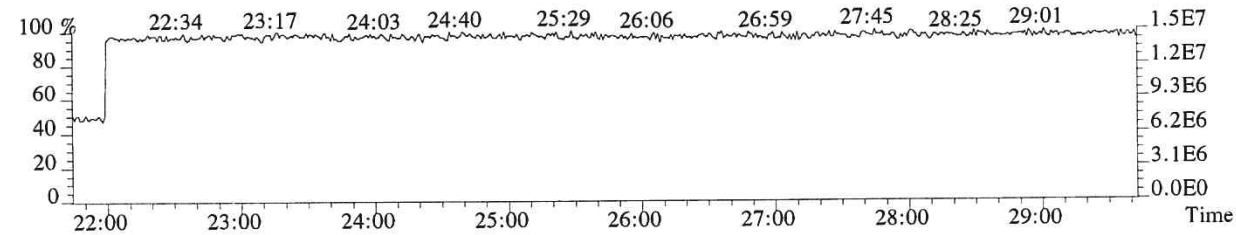
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,512.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

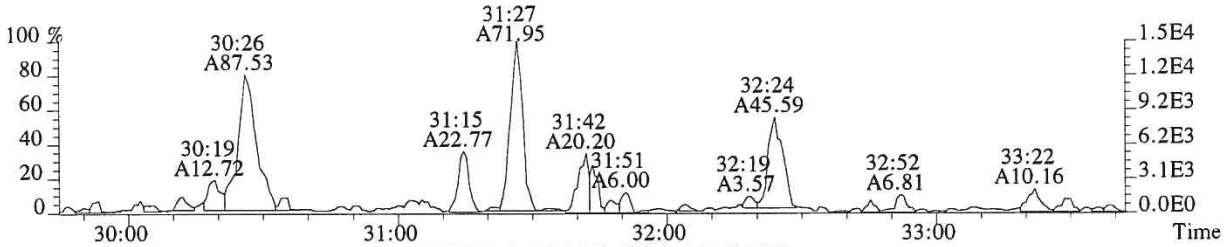


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

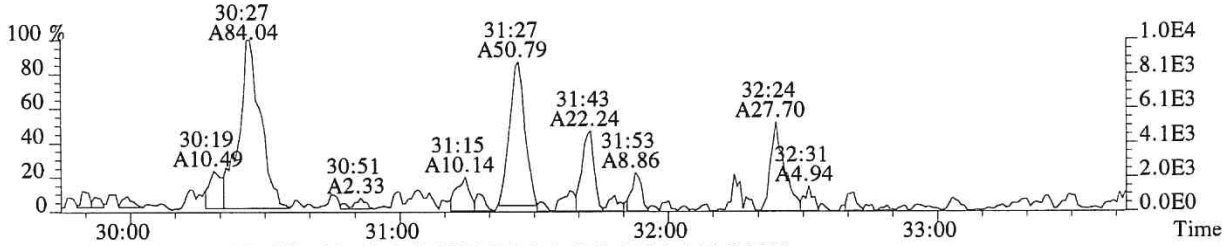


014509

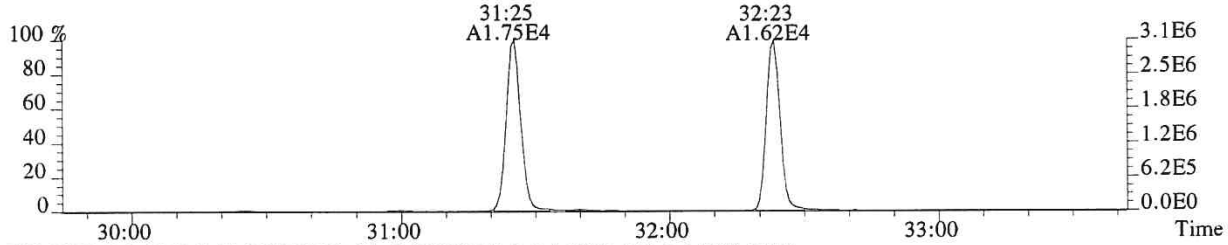
File:P519448 #1-357 Acq:18-DEC-2018 00:16:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-020
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,348.0,1.00%,F,T)



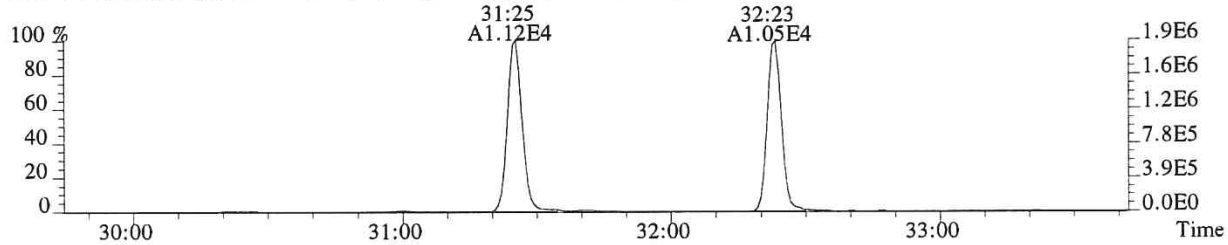
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,456.0,1.00%,F,T)



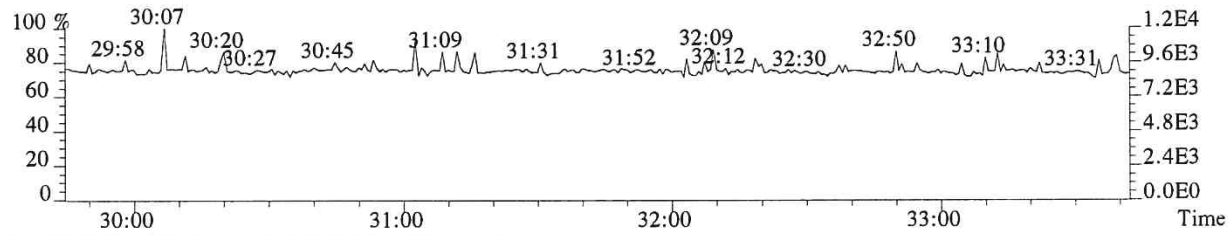
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,380.0,1.00%,F,T)



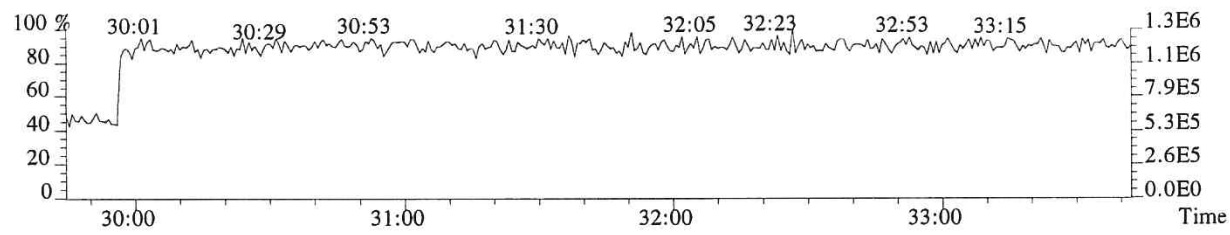
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,512.0,1.00%,F,T)



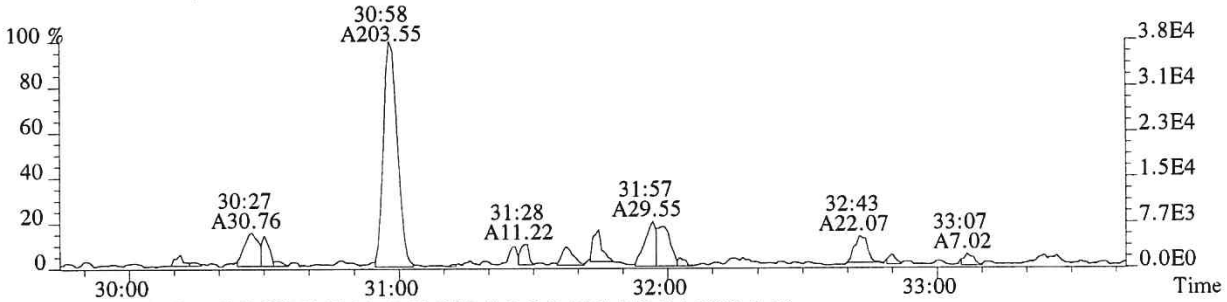
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



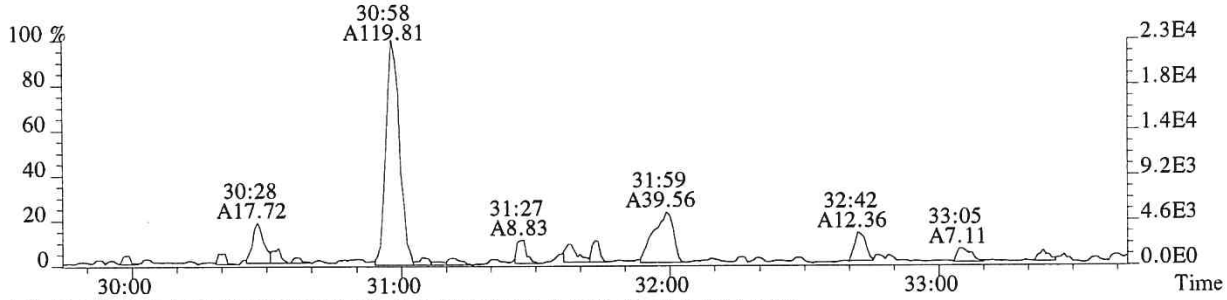
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



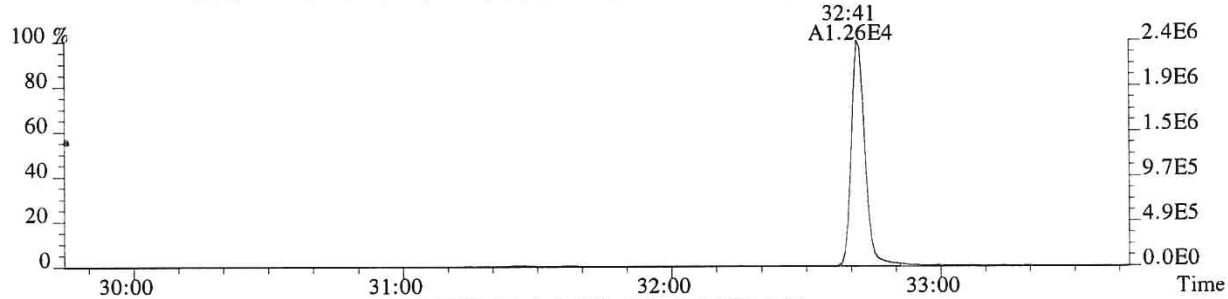
File:P519448 #1-357 Acq:18-DEC-2018 00:16:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-020
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,904.0,1.00%,F,T)



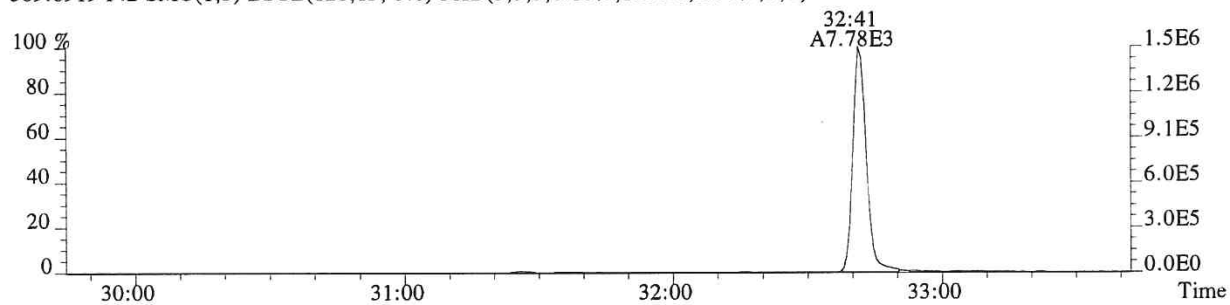
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,512.0,1.00%,F,T)



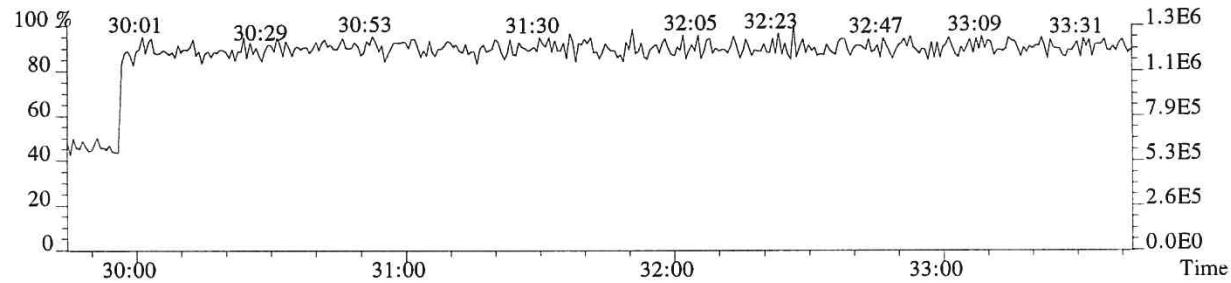
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,436.0,1.00%,F,T)



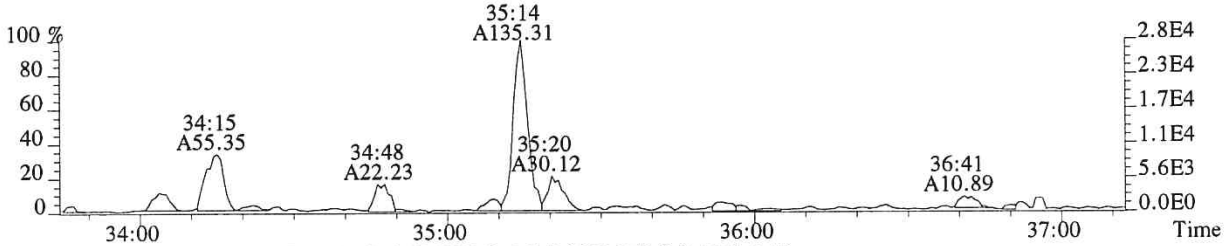
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1060.0,1.00%,F,T)



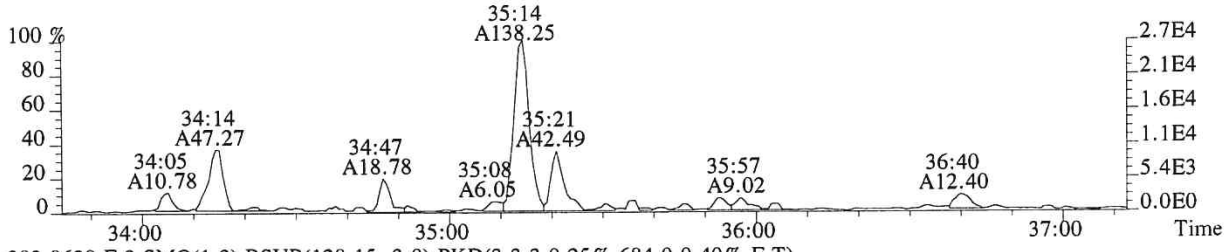
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



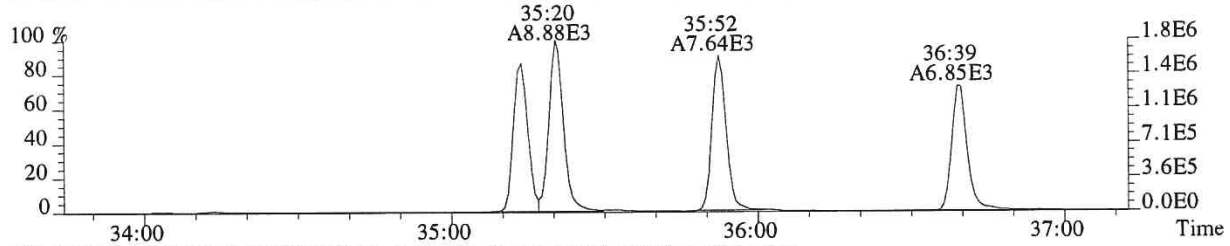
File:P519448 #1-313 Acq:18-DEC-2018 00:16:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-020
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,532.0,0.40%,F,T)



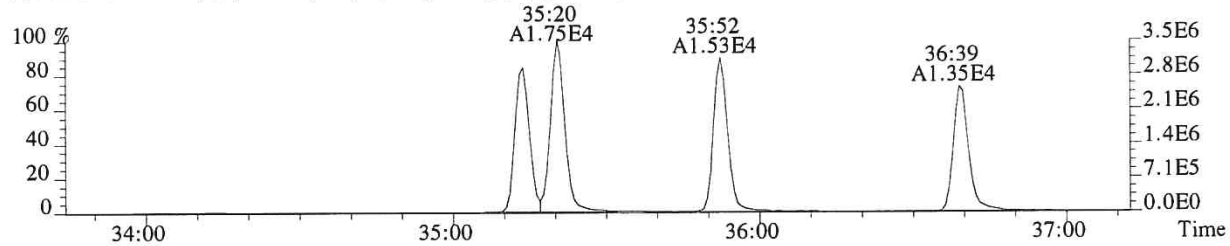
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,376.0,0.40%,F,T)



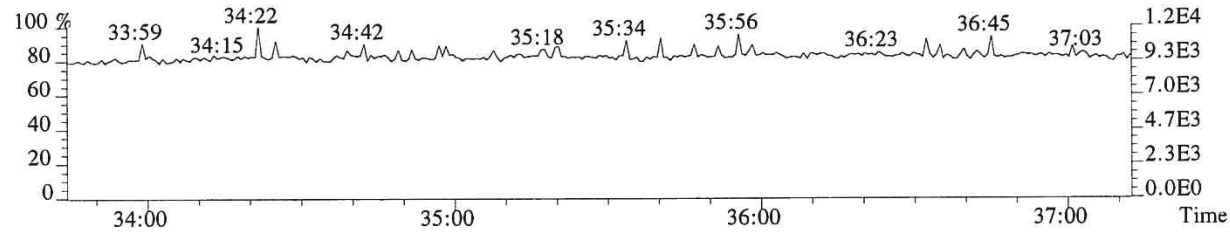
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,684.0,0.40%,F,T)



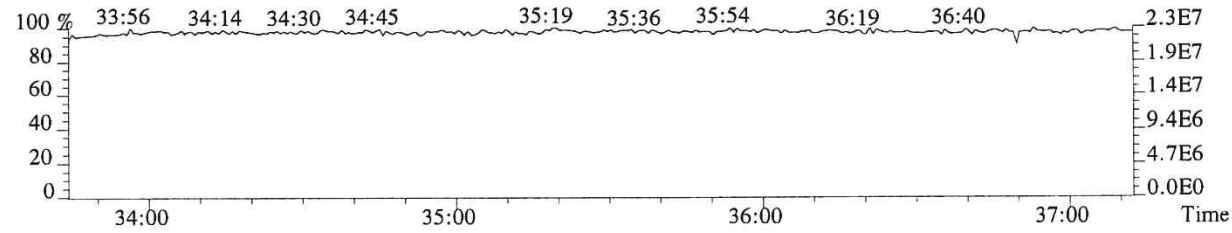
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,308.0,0.40%,F,T)



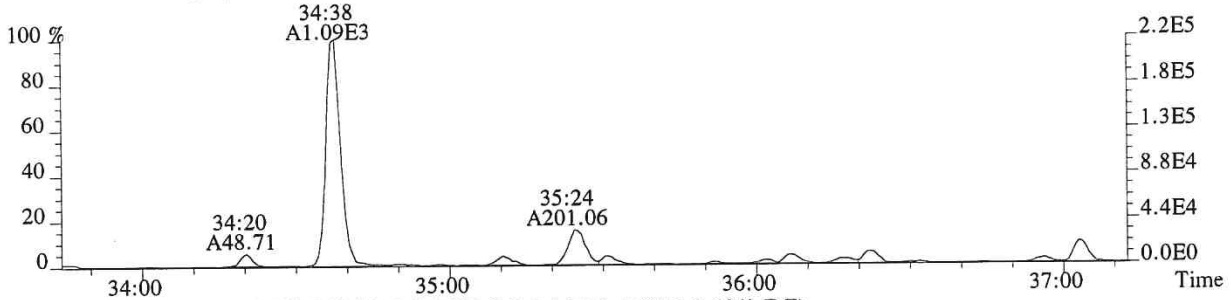
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



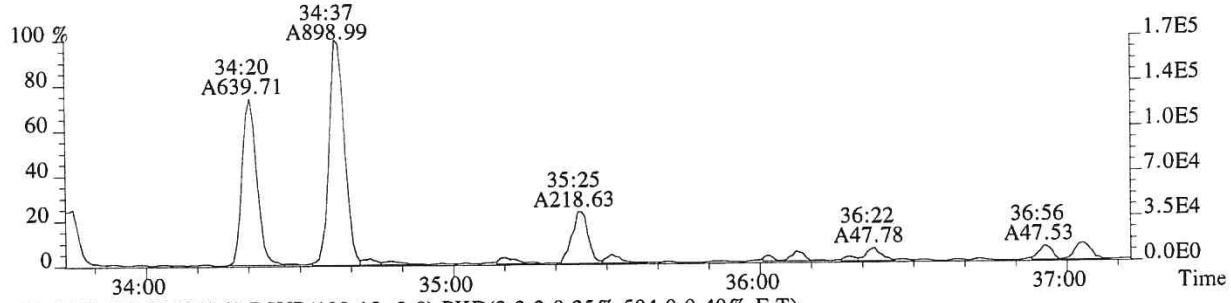
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



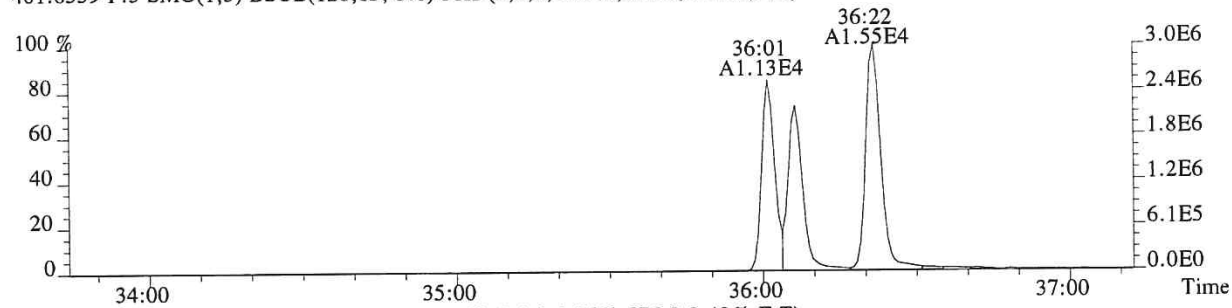
File:P519448 #1-313 Acq:18-DEC-2018 00:16:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-020
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,244.0,0.40%,F,T)



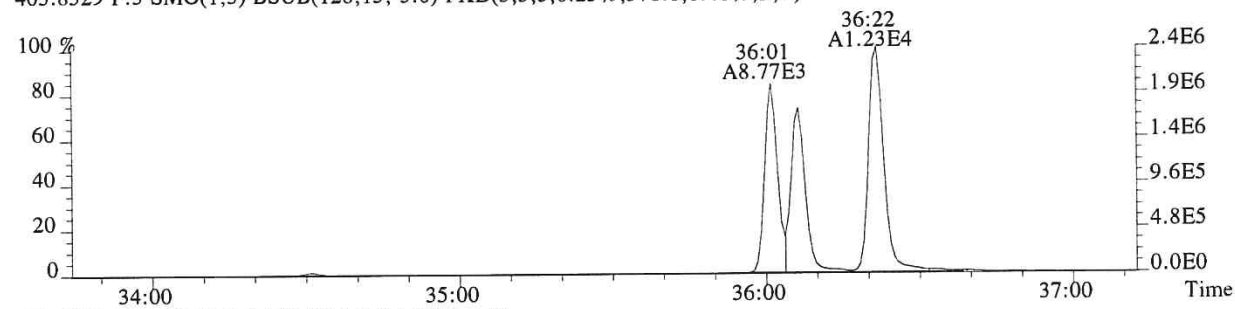
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1192.0,0.40%,F,T)



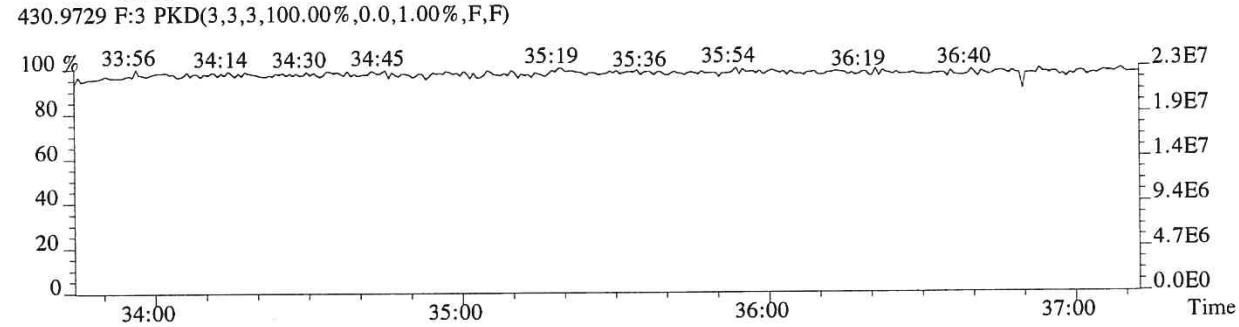
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,504.0,0.40%,F,T)



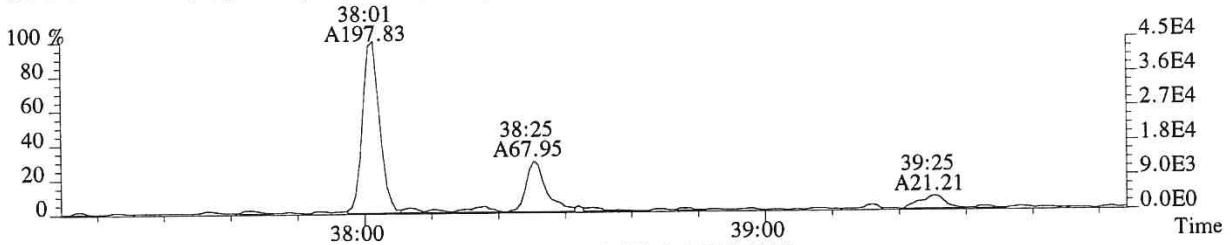
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,576.0,0.40%,F,T)



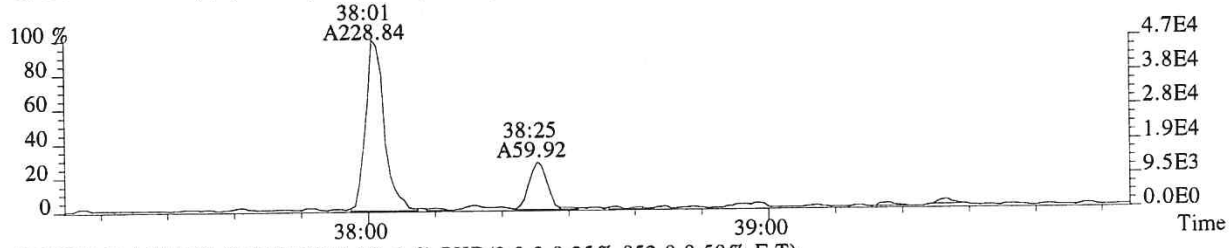
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



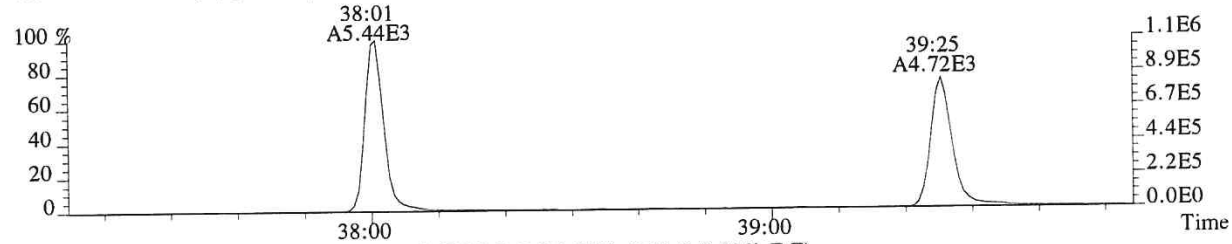
File:P519448 #1-240 Acq:18-DEC-2018 00:16:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-020
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,348.0,0.50%,F,T)



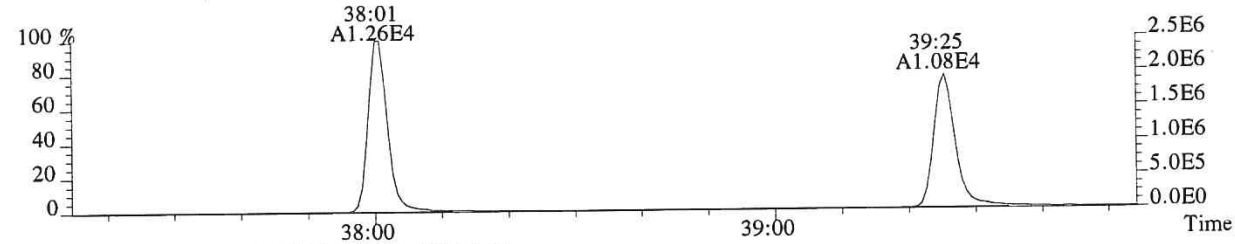
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,632.0,0.50%,F,T)



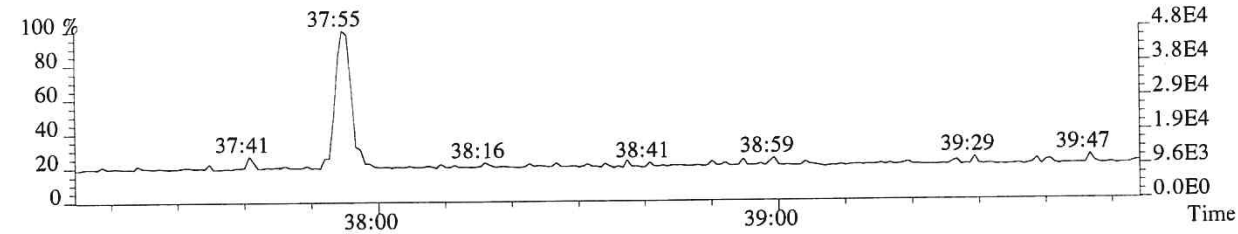
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,852.0,0.50%,F,T)



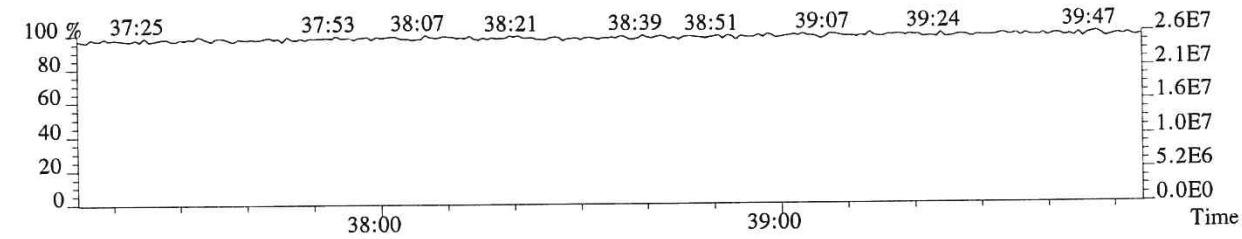
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1264.0,0.50%,F,T)



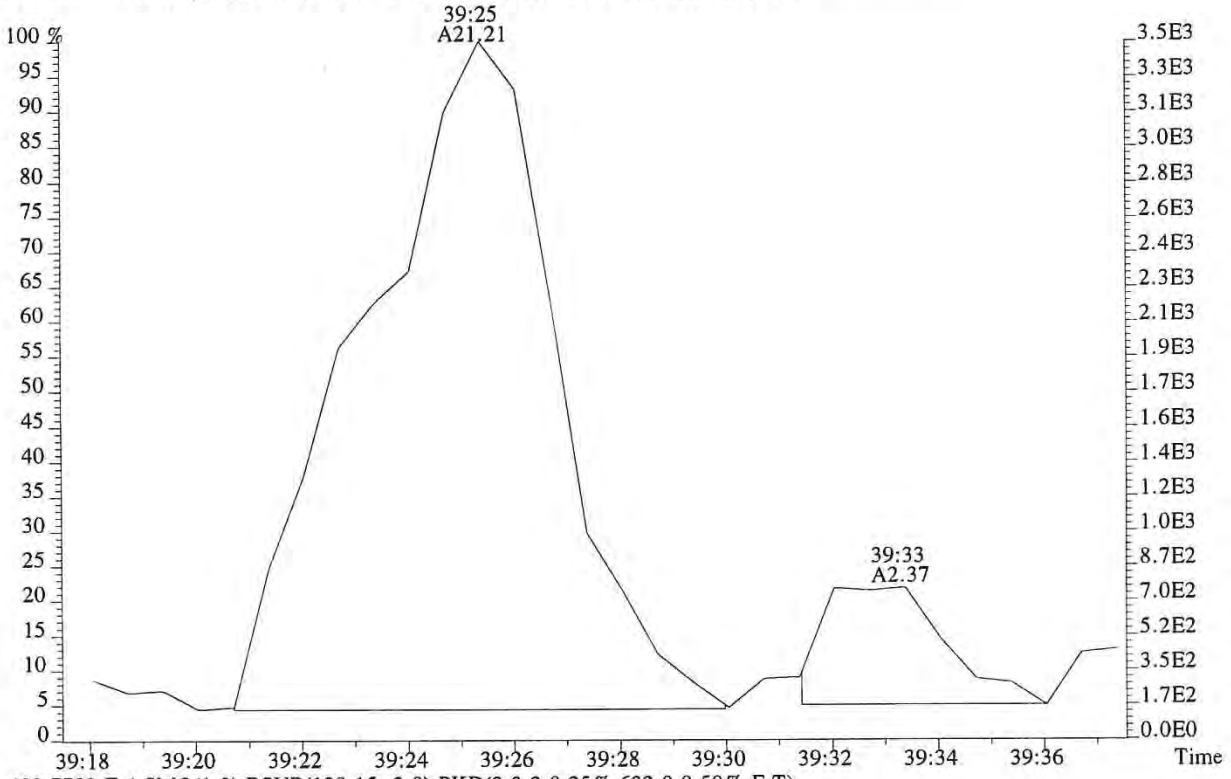
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



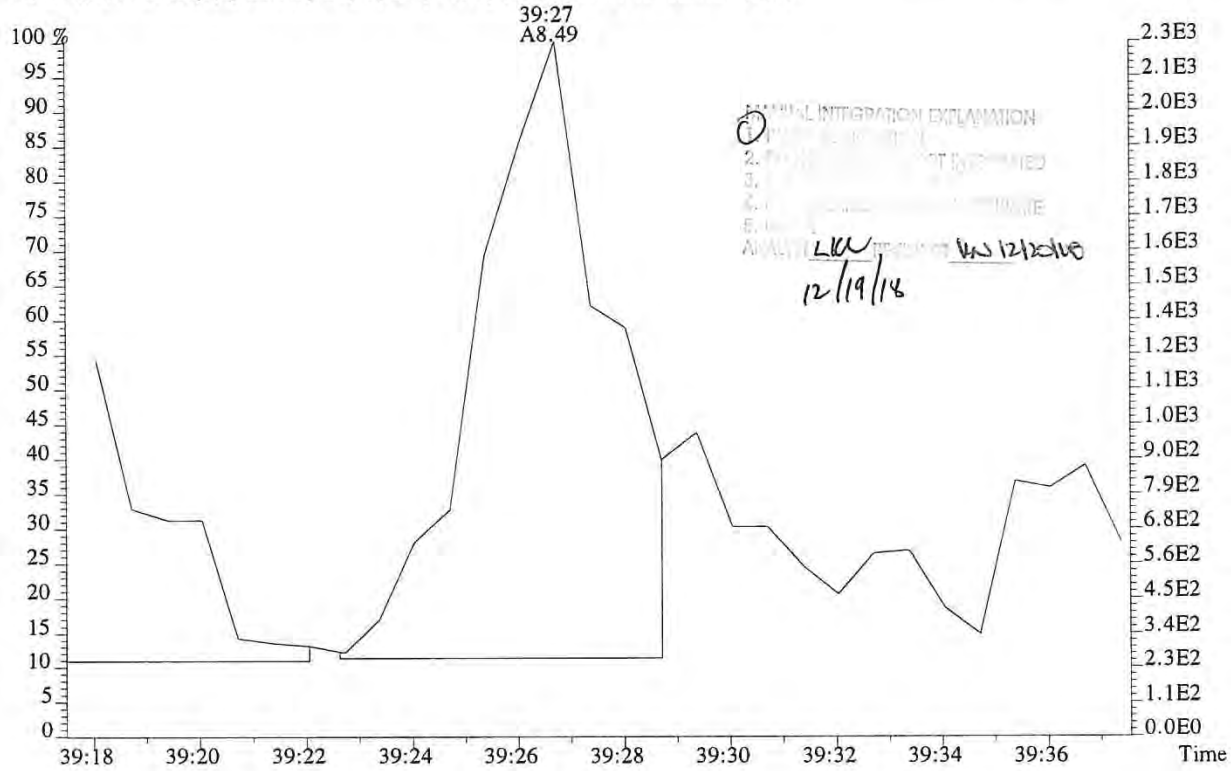
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P519448 #1-240 Acq:18-DEC-2018 00:16:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-020
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,348.0,0.50%,F,T)



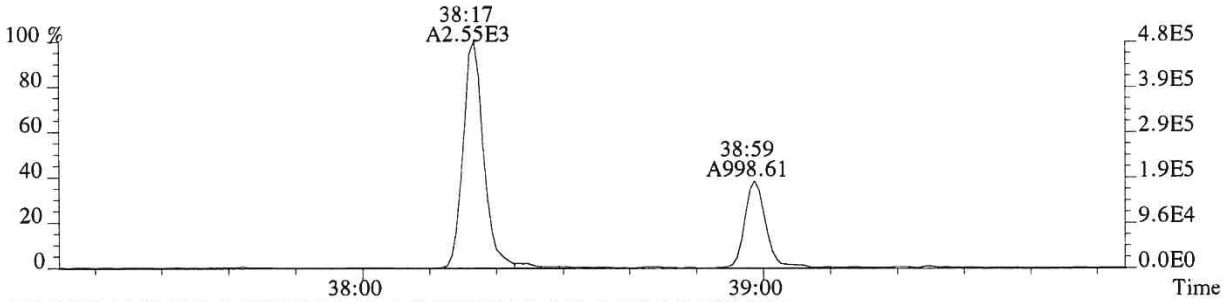
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,632.0,0.50%,F,T)



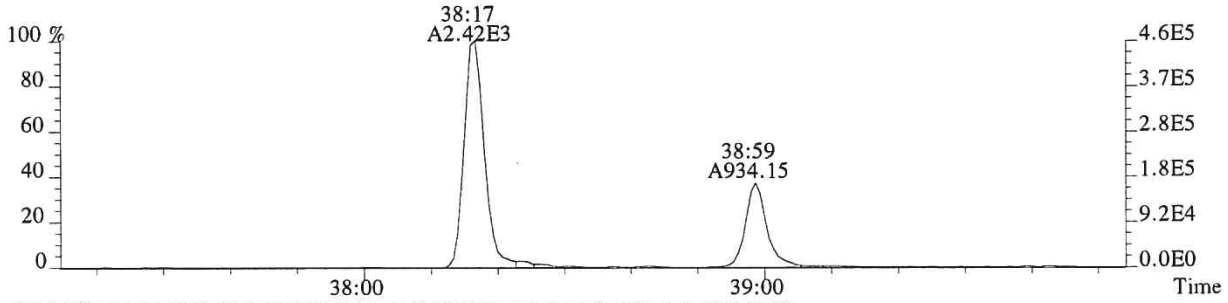
MANUAL INTEGRATION EXPLANATION
LKW 12/20/18
12/19/18

014515

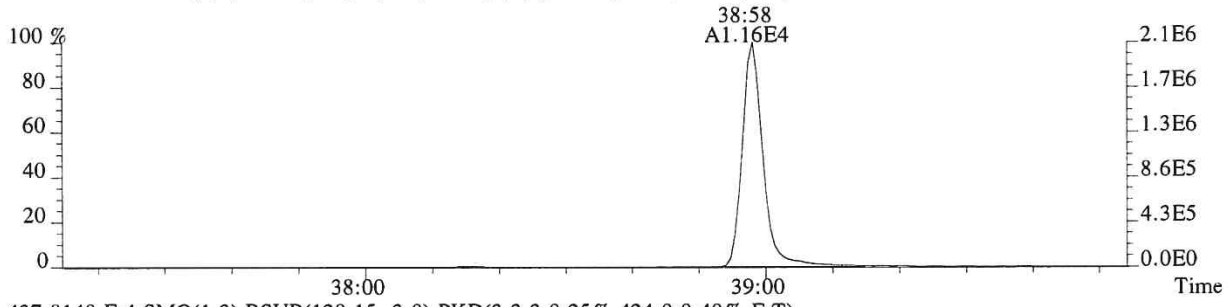
File:P519448 #1-240 Acq:18-DEC-2018 00:16:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-020
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,752.0,0.40%,F,T)



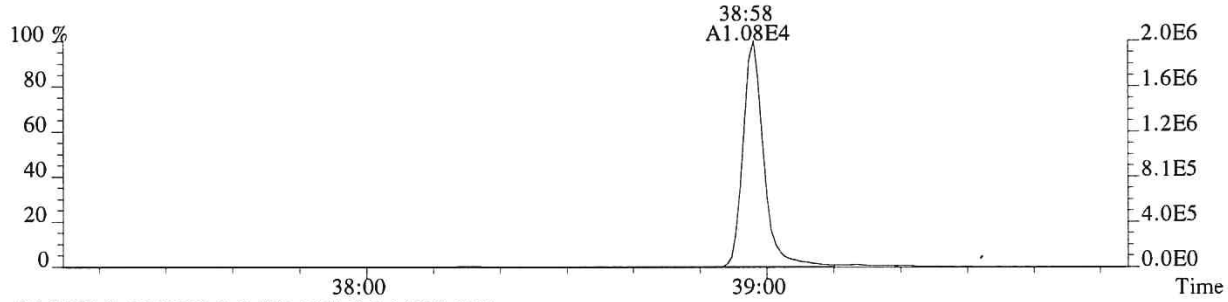
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,328.0,0.40%,F,T)



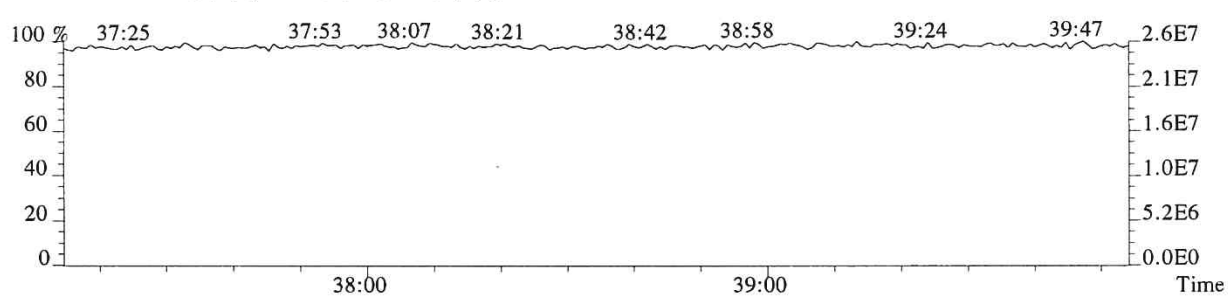
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,560.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,424.0,0.40%,F,T)



430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

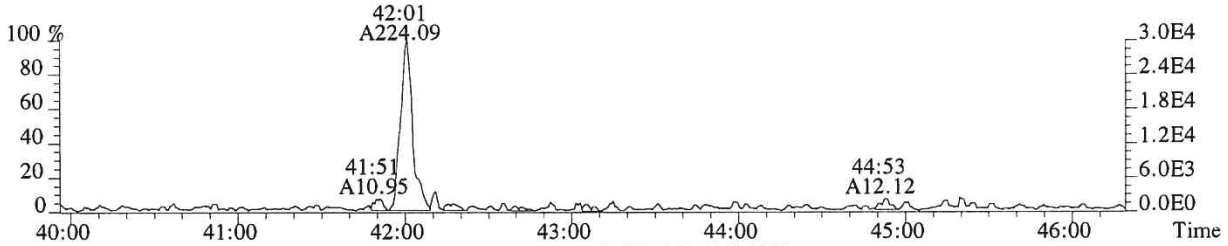


File:P519448 #1-575 Acq:18-DEC-2018 00:16:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-020

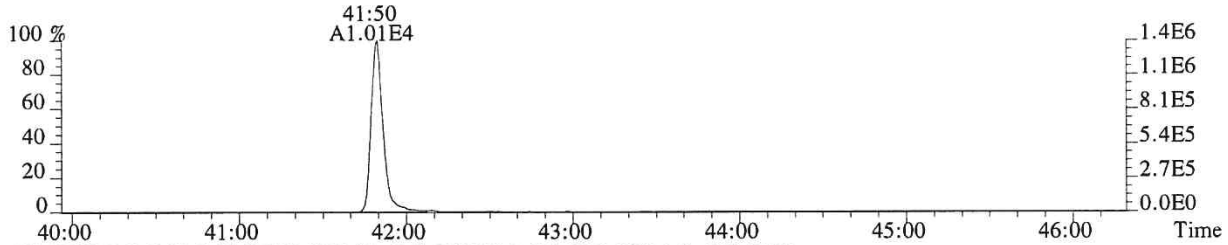
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,336.0,0.40%,F,T)



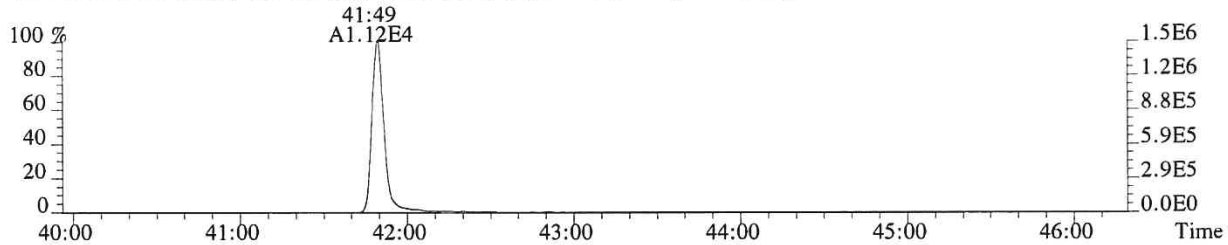
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,768.0,0.40%,F,T)



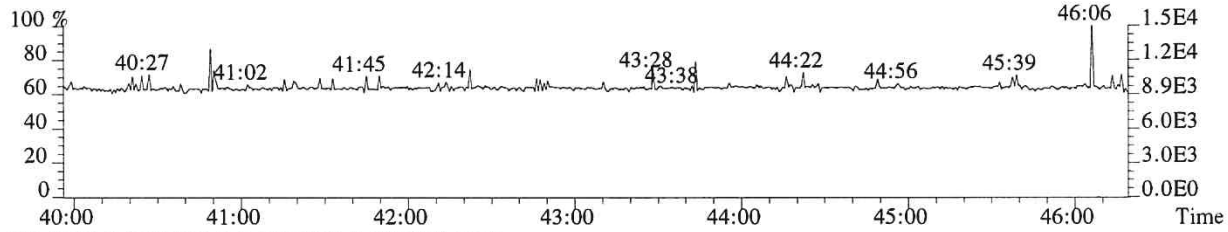
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,504.0,0.40%,F,T)



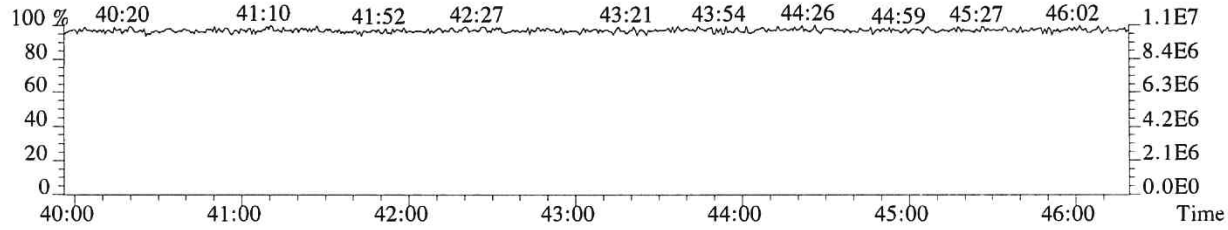
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,320.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

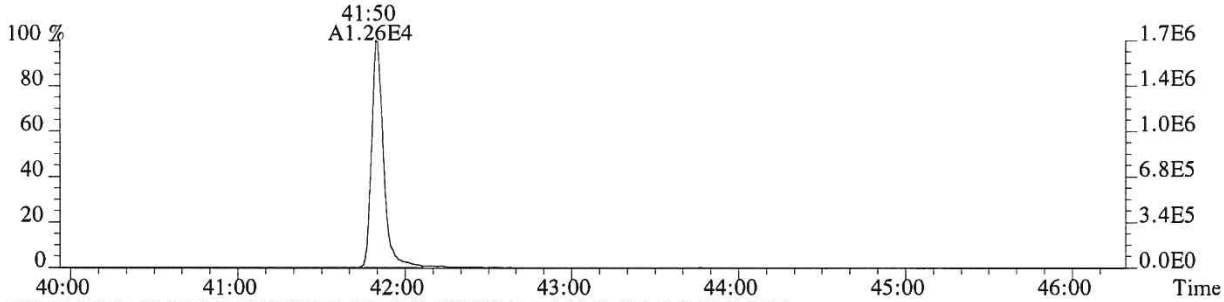


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

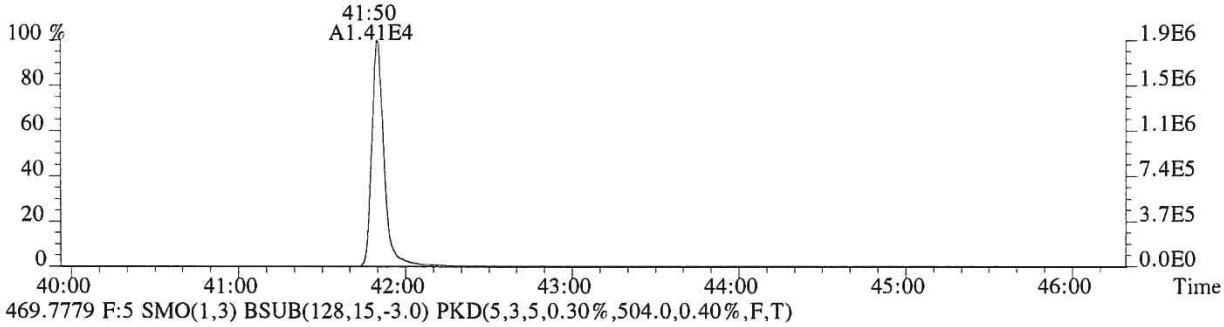


014517

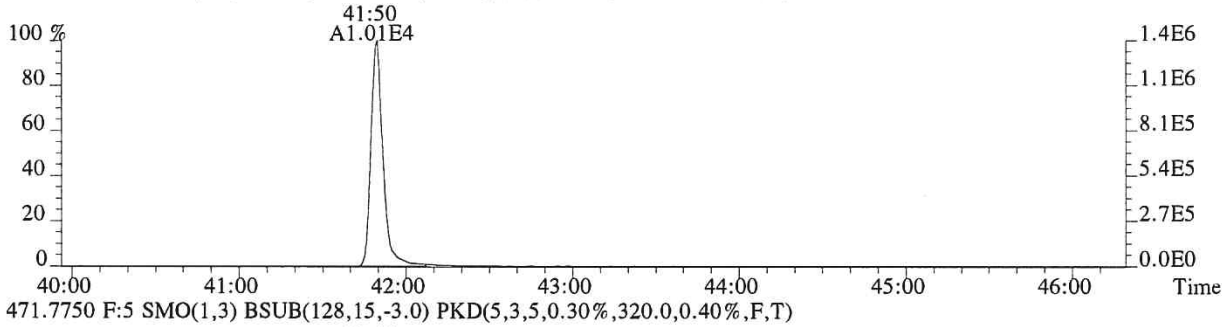
File:P519448 #1-575 Acq:18-DEC-2018 00:16:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801093-020
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,304.0,0.40%,F,T)



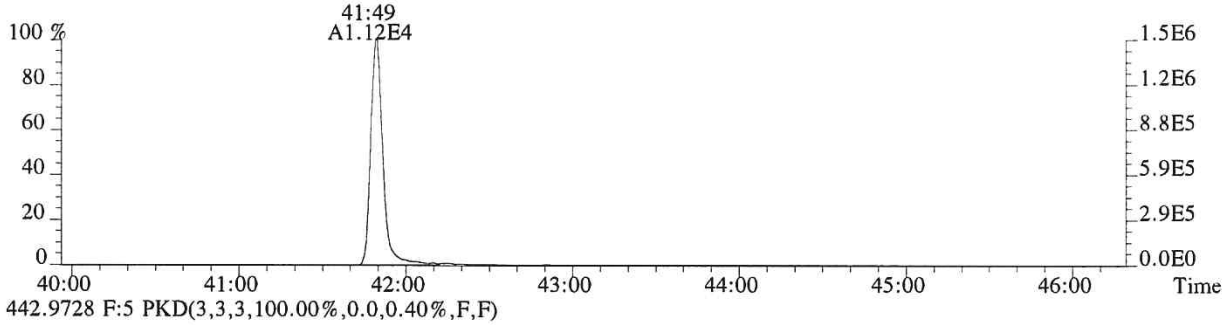
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,392.0,0.40%,F,T)



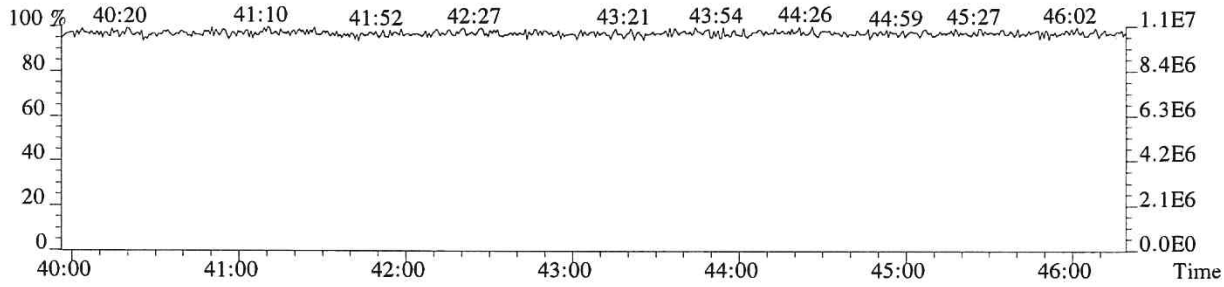
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,504.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,320.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
METHOD BLANK

Run #9 Filename P616103 Samp: 1 Inj: 1 Acquired: 14-DEC-18 12:48:47
Processed: 18-DEC-18 10:10:54 Sample ID: EQ1800507-01

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	yes	1.081
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	yes	1.156
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	yes	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:13	3.774e+01	2.379e+01	1.59	no	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:20	3.432e+01	2.878e+01	1.19	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.281
7	Unk	1,2,3,7,8,9-HxCDF	36:36	1.877e+01	2.492e+01	0.75	no	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	37:51	3.260e+01	4.040e+01	0.81	no	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	yes	1.463
10	Unk	OCDF	41:34	5.920e+01	4.419e+01	1.34	no	no	1.571
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.049
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	yes	0.929
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:04	2.421e+01	2.792e+01	0.87	no	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	38:46	4.467e+01	4.685e+01	0.95	yes	no	1.112
17	Unk	OCDD	41:23	1.172e+02	1.234e+02	0.95	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:01	7.350e+04	9.297e+04	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	31:31	1.215e+05	7.672e+04	1.58	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	32:29	1.115e+05	7.085e+04	1.57	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:12	4.851e+04	9.232e+04	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:19	5.981e+04	1.122e+05	0.53	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	35:50	5.199e+04	9.855e+04	0.53	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	36:36	4.314e+04	8.020e+04	0.54	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:51	3.485e+04	7.596e+04	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:12	3.203e+04	6.875e+04	0.47	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	27:52	3.595e+04	4.666e+04	0.77	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	32:45	8.744e+04	5.568e+04	1.57	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	35:58	7.008e+04	5.538e+04	1.27	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:04	7.057e+04	5.482e+04	1.29	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:45	7.133e+04	6.715e+04	1.06	yes	no	0.857
32	IS	13C-OCDD	41:22	6.192e+04	6.780e+04	0.91	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	27:13	8.655e+04	1.090e+05	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:18	1.159e+05	8.816e+04	1.32	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:53	4.824e+04				no	1.086

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Signal/Noise Height Ratio Summary

CLIENT ID.
METHOD BLANK

Run #9 Filename P616103 Samp: 1 Inj: 1 Acquired: 14-DEC-18 12:48:47
Processed: 18-DEC-18 10:10:54 LAB. ID: EQ1800507-01

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	1.20e+03	*	*	2.48e+03	*
2	1,2,3,7,8-PeCDF	*	1.17e+03	*	*	3.32e+03	*
3	2,3,4,7,8-PeCDF	*	1.17e+03	*	*	3.32e+03	*
4	1,2,3,4,7,8-HxCDF	9.03e+03	1.02e+03	8.9e+00	5.95e+03	1.06e+03	5.6e+00
5	1,2,3,6,7,8-HxCDF	7.82e+03	1.02e+03	7.7e+00	5.10e+03	1.06e+03	4.8e+00
6	2,3,4,6,7,8-HxCDF	*	1.02e+03	*	*	1.06e+03	*
7	1,2,3,7,8,9-HxCDF	4.83e+03	1.02e+03	4.7e+00	5.61e+03	1.06e+03	5.3e+00
8	1,2,3,4,6,7,8-HpCDF	5.60e+03	1.90e+03	2.9e+00	8.26e+03	7.68e+02	1.1e+01
9	1,2,3,4,7,8,9-HpCDF	*	1.90e+03	*	*	7.68e+02	*
10	OCDF	9.91e+03	3.28e+02	3.0e+01	8.68e+03	1.80e+03	4.8e+00
11	2,3,7,8-TCDD	*	2.35e+03	*	*	1.64e+03	*
12	1,2,3,7,8-PeCDD	*	1.46e+03	*	*	8.84e+02	*
13	1,2,3,4,7,8-HxCDD	*	6.12e+02	*	*	1.24e+03	*
14	1,2,3,6,7,8-HxCDD	4.44e+03	6.12e+02	7.3e+00	5.63e+03	1.24e+03	4.6e+00
15	1,2,3,7,8,9-HxCDD	*	6.12e+02	*	*	1.24e+03	*
16	1,2,3,4,6,7,8-HpCDD	8.34e+03	5.92e+02	1.4e+01	1.23e+04	4.32e+02	2.8e+01
17	OCDD	1.56e+04	8.28e+02	1.9e+01	1.95e+04	1.56e+03	1.3e+01
18	13C-2,3,7,8-TCDF	1.09e+07	7.08e+03	1.5e+03	1.40e+07	5.26e+03	2.7e+03
19	13C-1,2,3,7,8-PeCDF	2.03e+07	2.42e+03	8.4e+03	1.28e+07	2.90e+03	4.4e+03
20	13C-2,3,4,7,8-PeCDF	2.03e+07	2.42e+03	8.4e+03	1.29e+07	2.90e+03	4.5e+03
21	13C-1,2,3,4,7,8-HxCDF	1.00e+07	2.07e+03	4.8e+03	1.92e+07	2.71e+03	7.1e+03
22	13C-1,2,3,6,7,8-HxCDF	1.15e+07	2.07e+03	5.6e+03	2.17e+07	2.71e+03	8.0e+03
23	13C-2,3,4,6,7,8-HxCDF	1.05e+07	2.07e+03	5.1e+03	1.99e+07	2.71e+03	7.3e+03
24	13C-1,2,3,7,8,9-HxCDF	7.42e+06	2.07e+03	3.6e+03	1.41e+07	2.71e+03	5.2e+03
25	13C-1,2,3,4,6,7,8-HpCDF	6.94e+06	7.00e+03	9.9e+02	1.56e+07	9.12e+03	1.7e+03
26	13C-1,2,3,4,7,8,9-HpCDF	5.67e+06	7.00e+03	8.1e+02	1.23e+07	9.12e+03	1.4e+03
27	13C-2,3,7,8-TCDD	5.93e+06	1.92e+04	3.1e+02	7.61e+06	8.66e+03	8.8e+02
28	13C-1,2,3,7,8-PeCDD	1.55e+07	8.44e+02	1.8e+04	1.00e+07	1.80e+03	5.6e+03
29	13C-1,2,3,4,7,8-HxCDD	1.52e+07	3.68e+03	4.1e+03	1.19e+07	1.71e+03	7.0e+03
30	13C-1,2,3,6,7,8-HxCDD	1.39e+07	3.68e+03	3.8e+03	1.08e+07	1.71e+03	6.3e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.29e+07	1.42e+03	9.1e+03	1.21e+07	2.33e+03	5.2e+03
32	13C-OCDD	9.81e+06	9.60e+02	1.0e+04	1.07e+07	1.13e+03	9.5e+03
33	13C-1,2,3,4-TCDD	1.45e+07	1.92e+04	7.6e+02	1.82e+07	8.66e+03	2.1e+03
34	13C-1,2,3,7,8,9-HxCDD	2.16e+07	3.68e+03	5.9e+03	1.70e+07	1.71e+03	9.9e+03
35	37Cl-2,3,7,8-TCDD	7.87e+06	2.73e+03	2.9e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (2.348e{+}03 + 1.636e{+}03) \times 2000}{(5.934e{+}06 + 7.613e{+}06) \times (\quad) \times 1.049} =$$

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Peak List Summary

CLIENT ID.
METHOD BLANK

Entry: 41 Totals Name: Total Hexa-Furans

Run: 9 File: P616103 Sample:1 Injection:1 Function:3

Acquired: 14-DEC-18 12:48:47 Processed: 18-DEC-18 10:10:54

Mass: 373.8210 375.8180 Tot Response: 6.31e+01 RRF: 1.324

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:20	3.43e+01	2.88e+01 1.19	yes	6.31e+01	1,2,3,6,7,8-HxCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
METHOD BLANK

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 9 File: P616103 Sample:1 Injection:1 Function:4

Acquired: 14-DEC-18 12:48:47 Processed: 18-DEC-18 10:10:54

Mass: 423.7770 425.7740 Tot Response: 9.15e+01 RRF: 1.112

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:46	4.47e+01	4.69e+01	0.95	yes	9.15e+01	1,2,3,4,6,7,8-HpCDD	n	n

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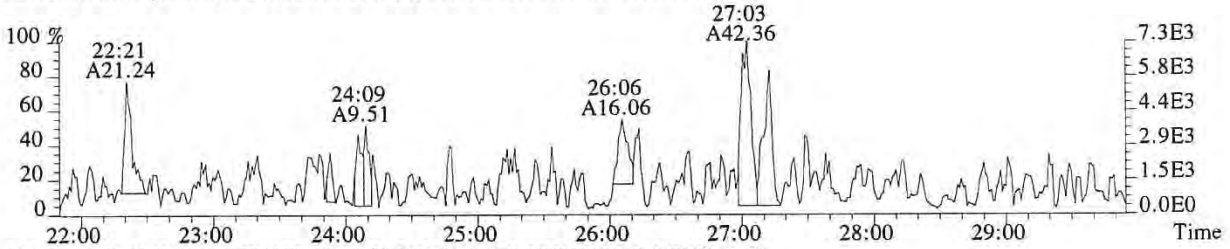
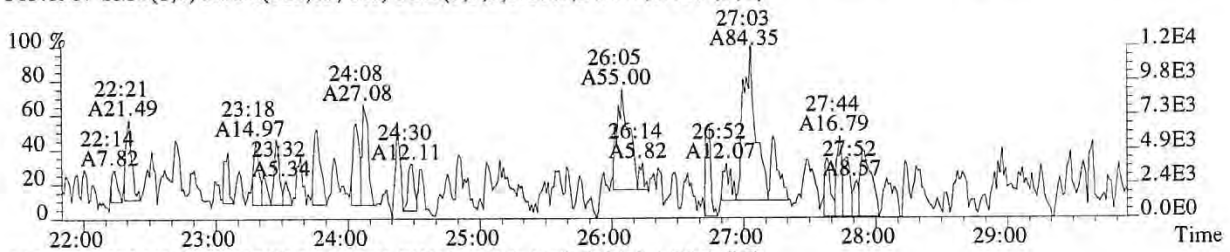
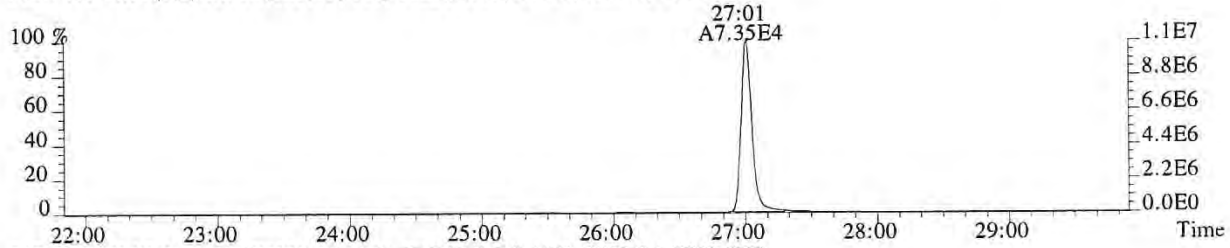
File:P616103 #1-573 Acq:14-DEC-2018 12:48:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1204.0,1.00%,F,T)



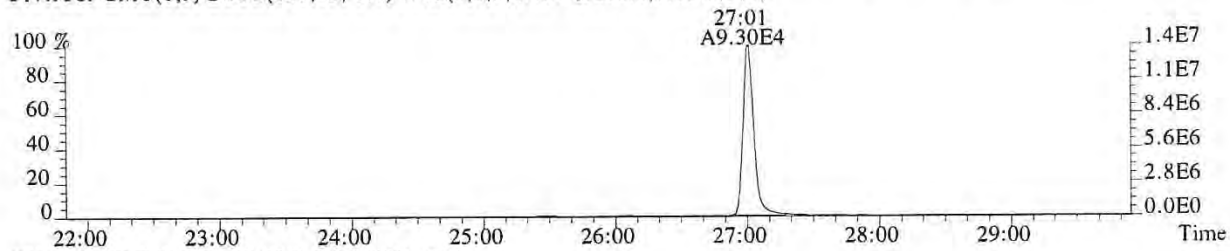
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2480.0,1.00%,F,T)



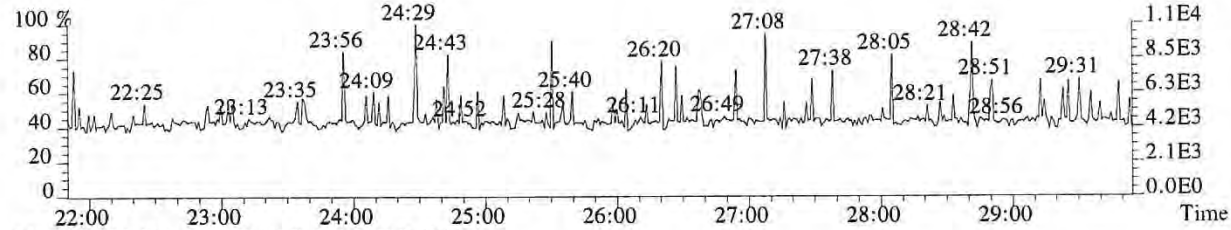
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7084.0,1.00%,F,T)



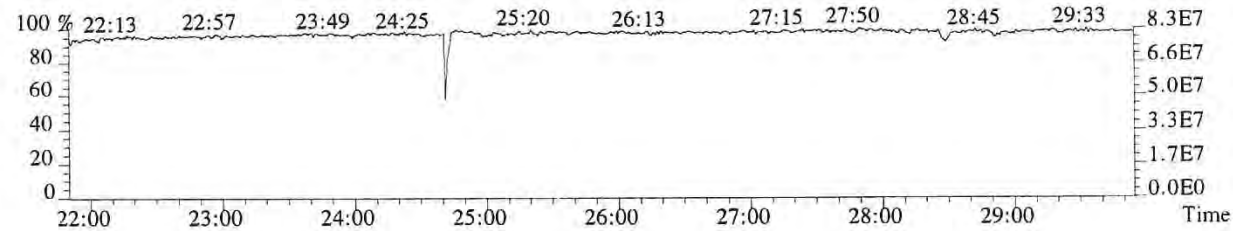
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5256.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



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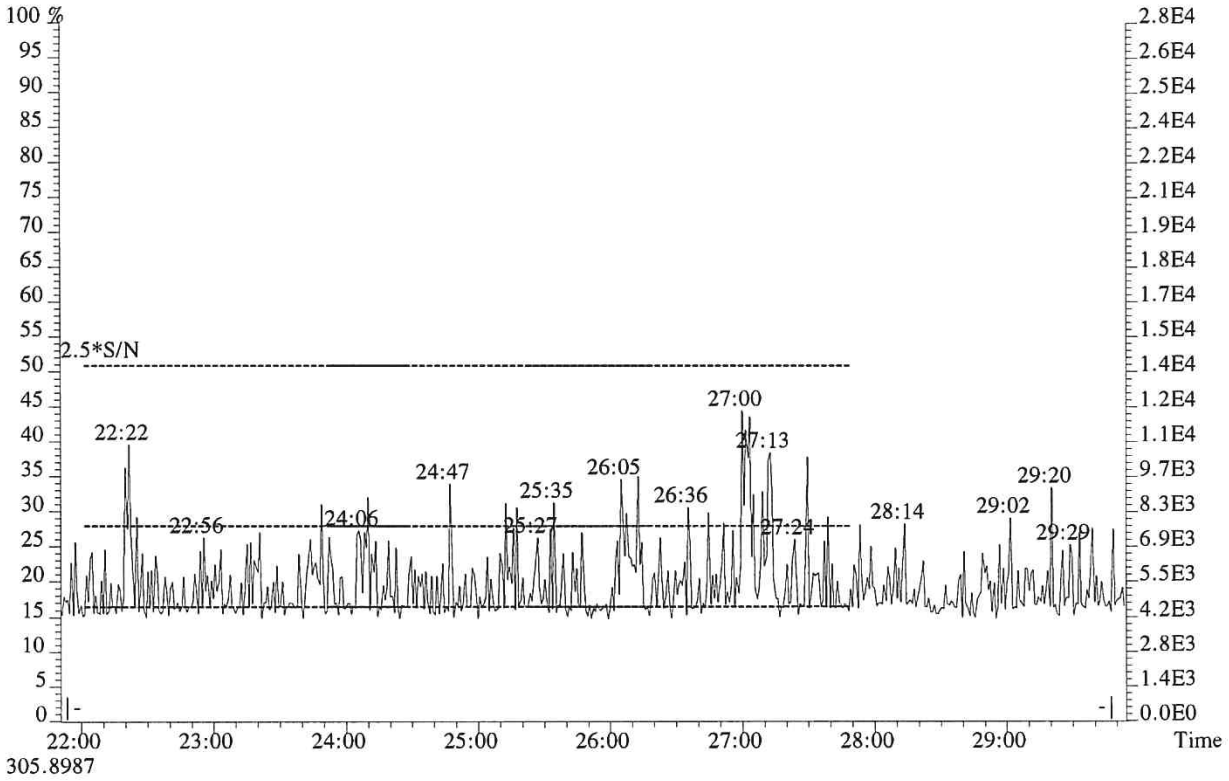
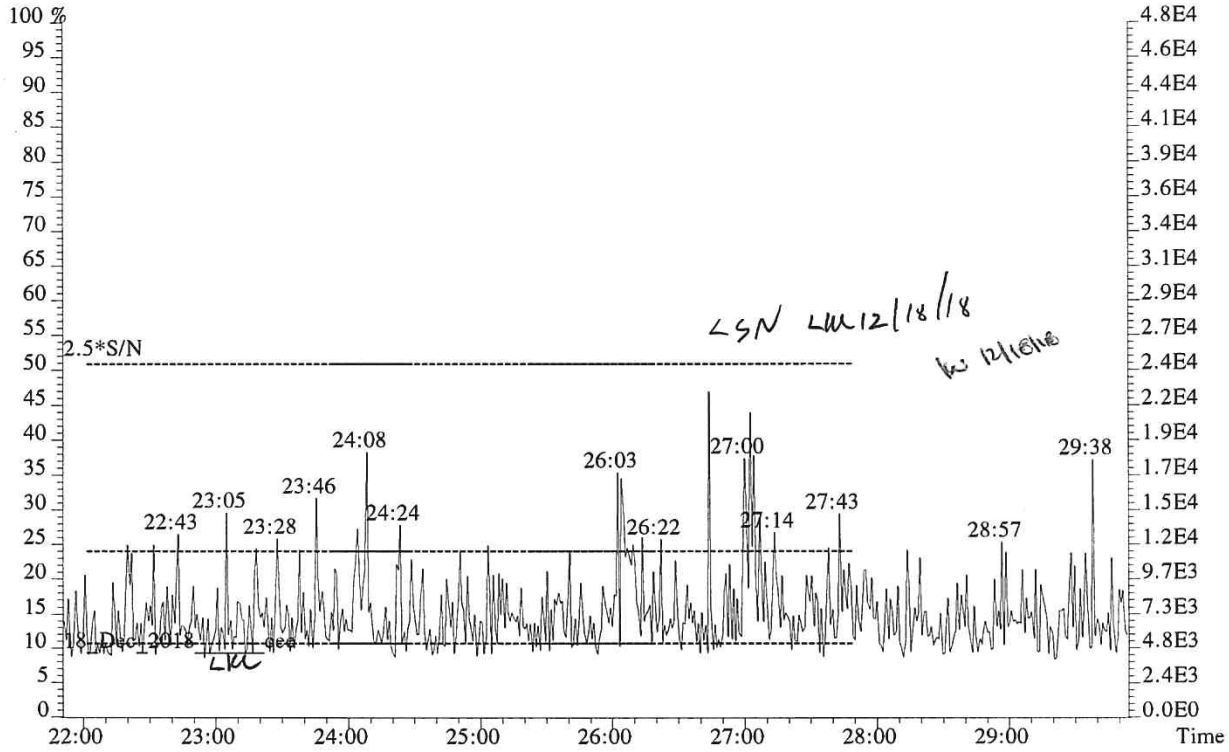
File:P616103 #1-573 Acq:14-DEC-2018 12:48:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
303.9016

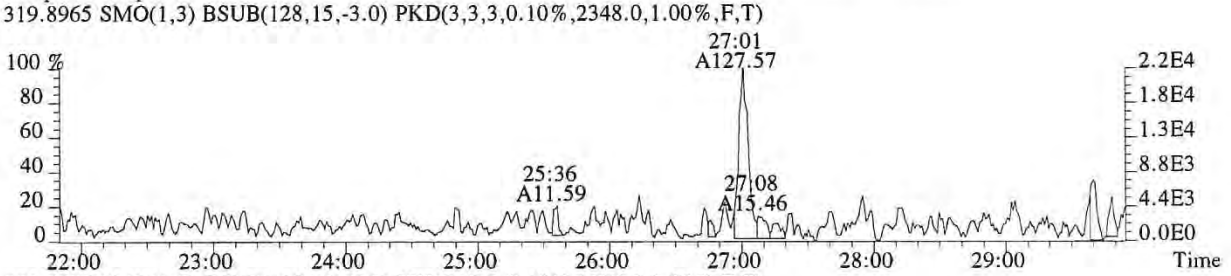


305.8987

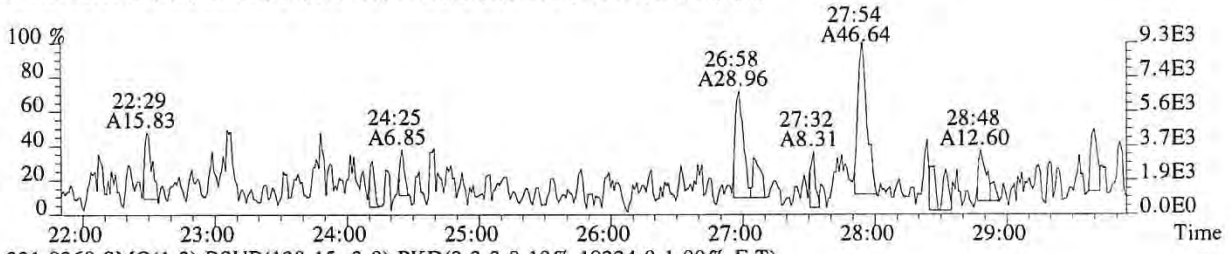


014524

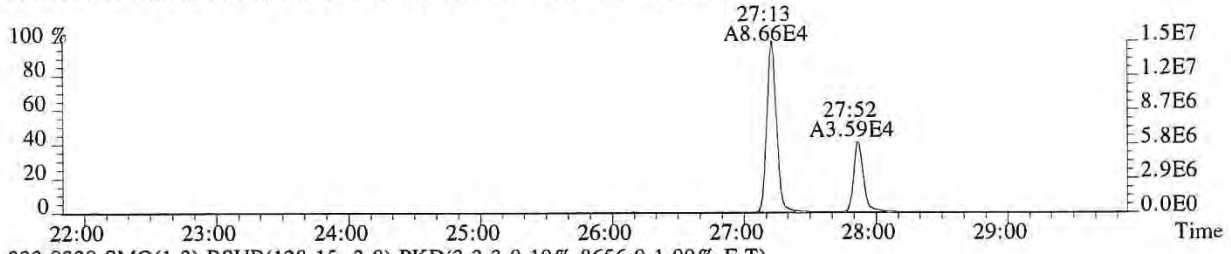
File:P616103 #1-573 Acq:14-DEC-2018 12:48:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2348.0,1.00%,F,T)



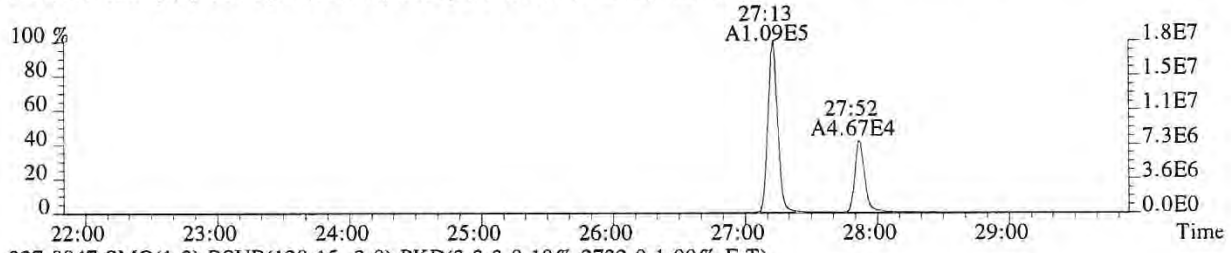
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1636.0,1.00%,F,T)



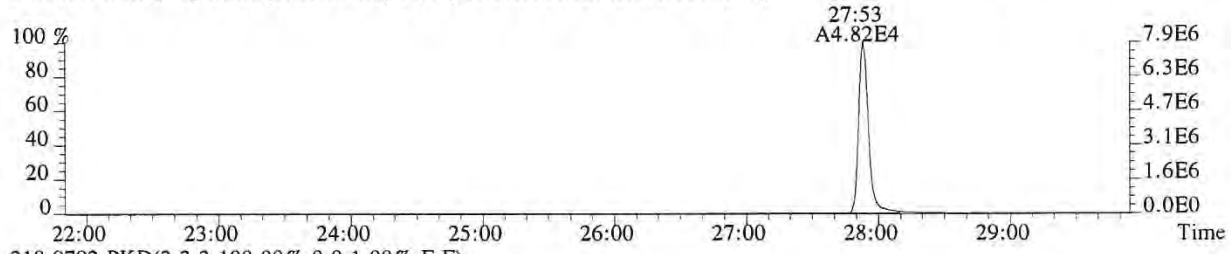
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,19224.0,1.00%,F,T)



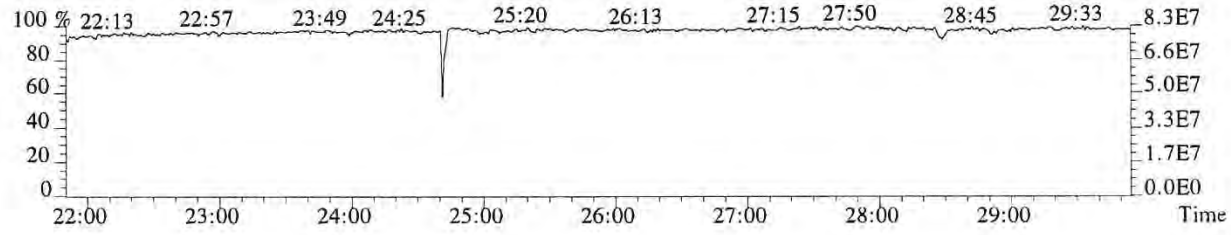
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8656.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2732.0,1.00%,F,T)

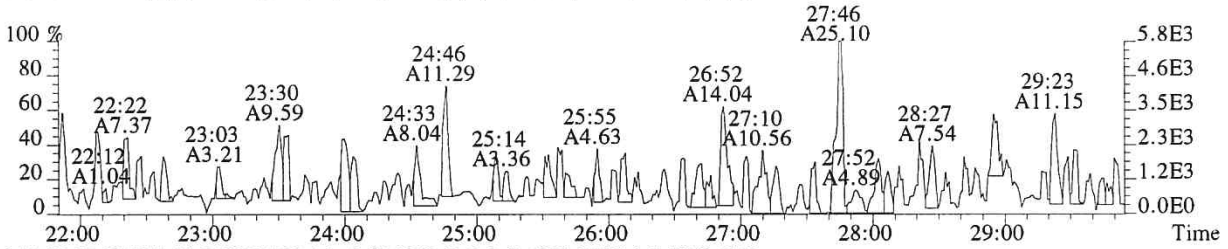


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

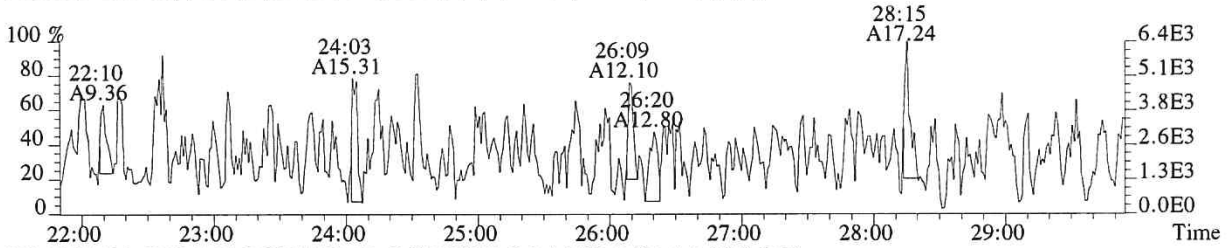


014525

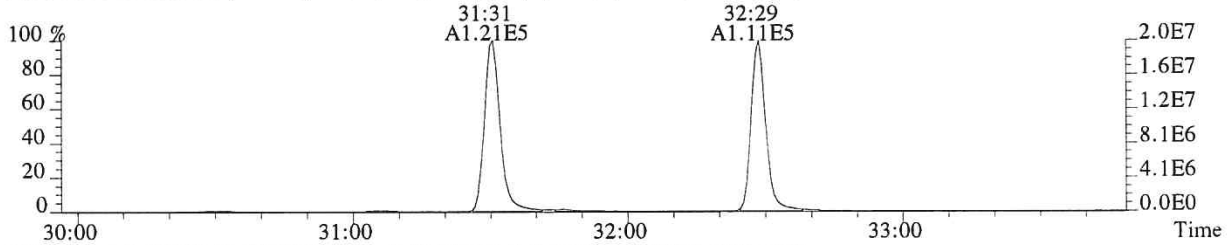
File:P616103 #1-573 Acq:14-DEC-2018 12:48:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,856.0,1.00%,F,T)



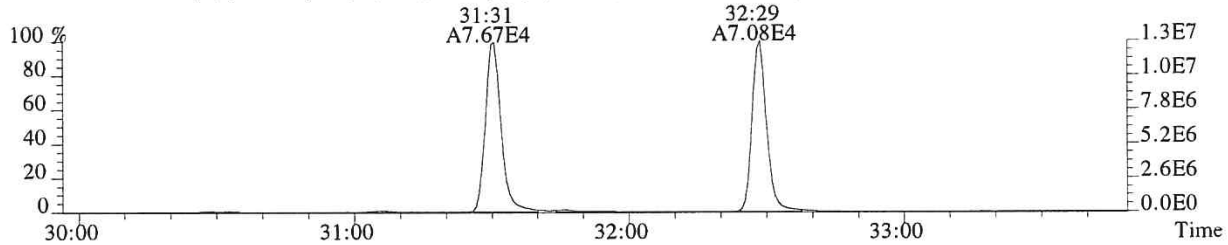
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2556.0,1.00%,F,T)



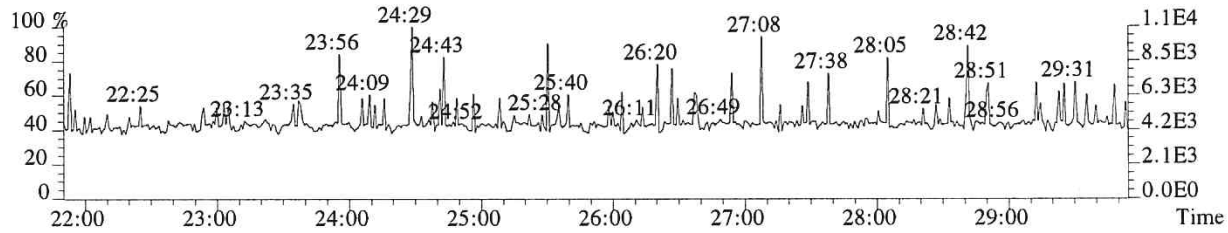
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2424.0,1.00%,F,T)



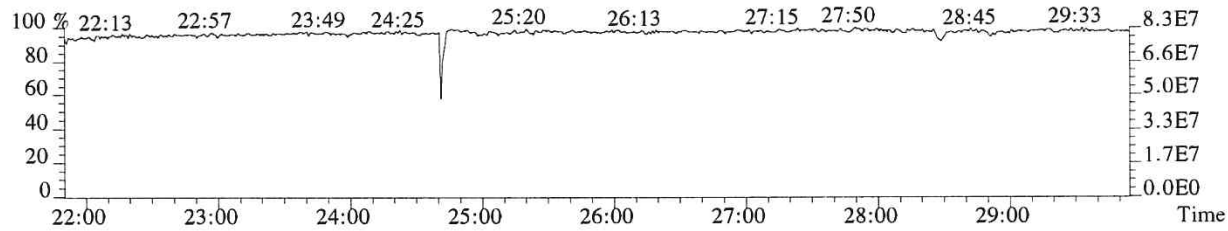
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2900.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

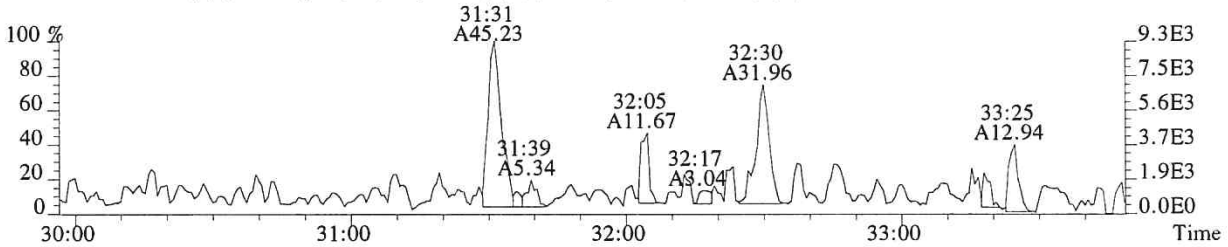


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

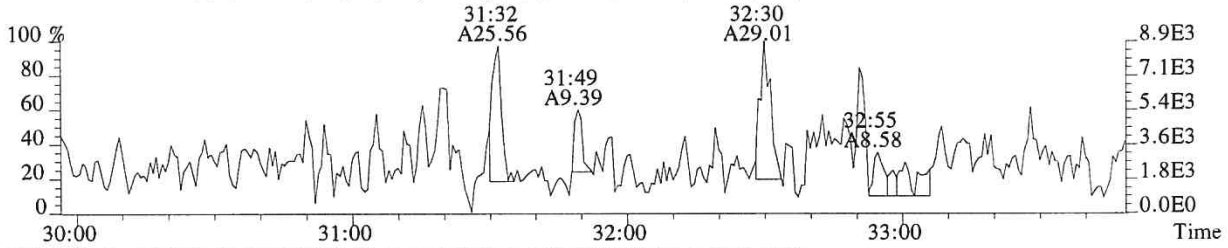


014526

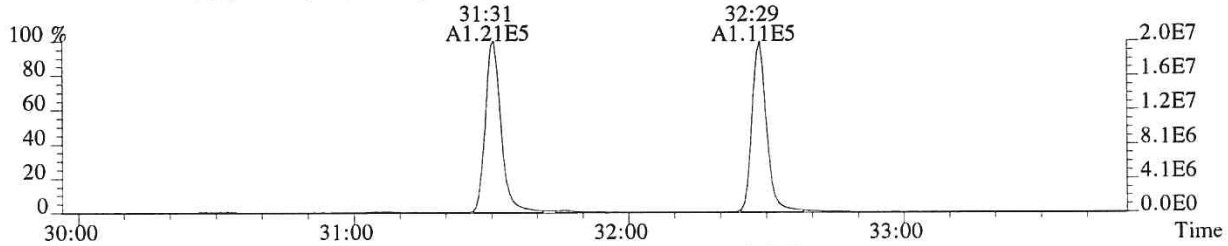
File:P616103 #1-349 Acq:14-DEC-2018 12:48:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1168.0,1.00%,F,T)



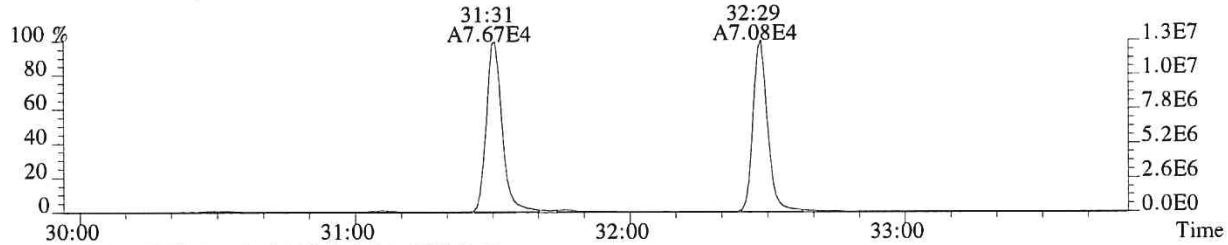
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3316.0,1.00%,F,T)



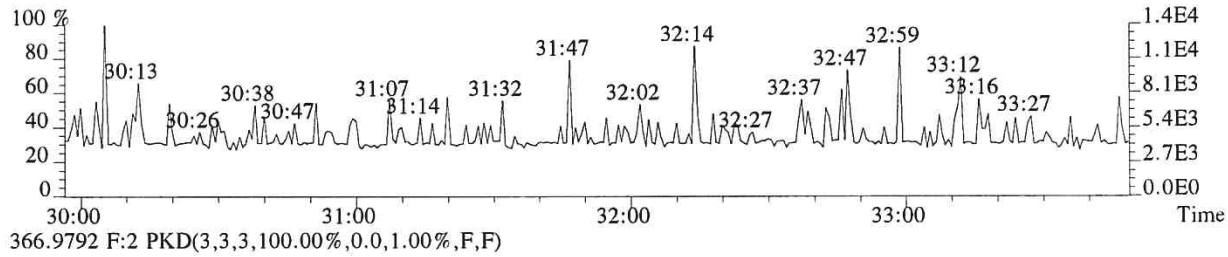
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2424.0,1.00%,F,T)



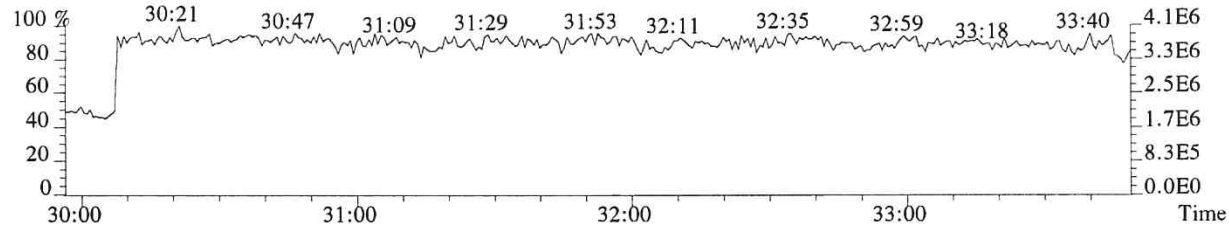
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2900.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

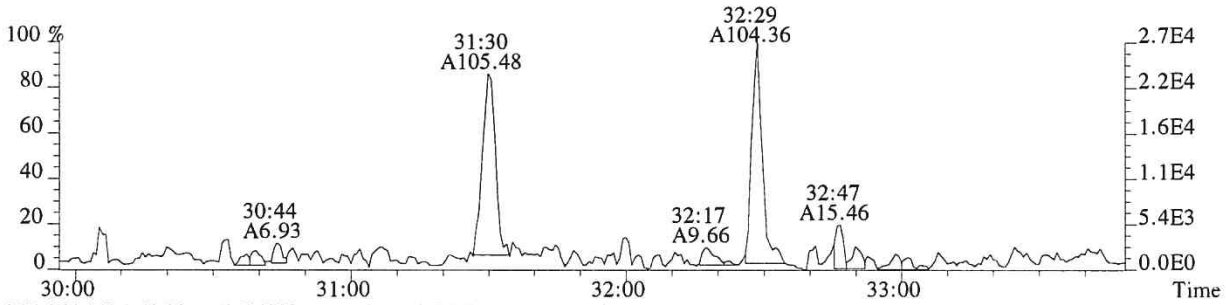


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

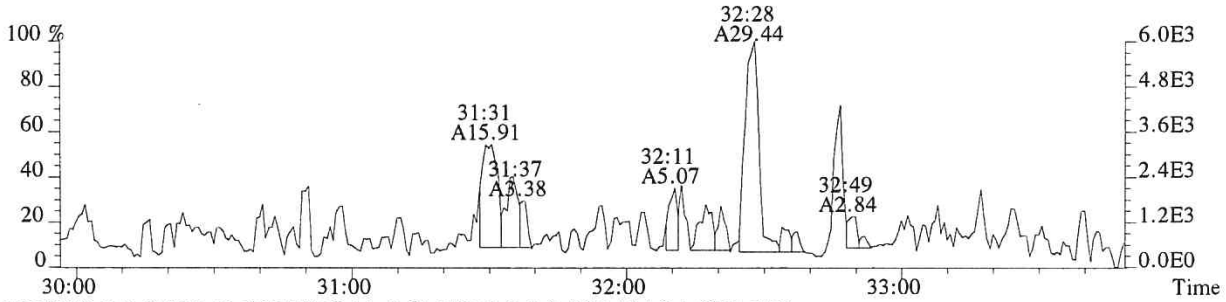


014527

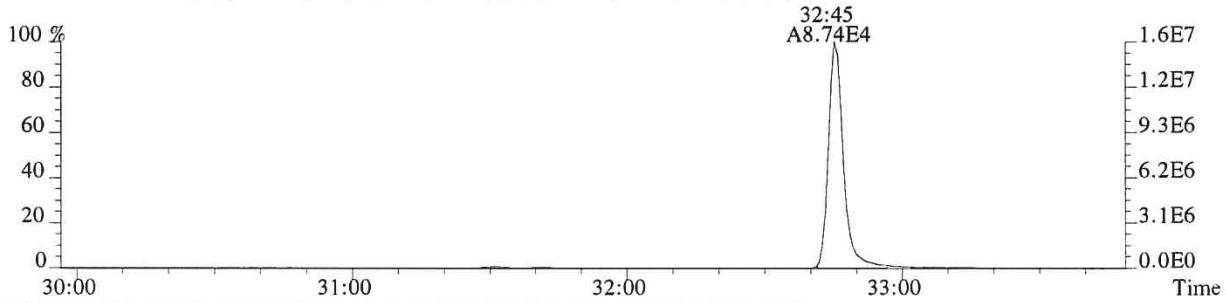
File:P616103 #1-349 Acq:14-DEC-2018 12:48:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1464.0,1.00%,F,T)



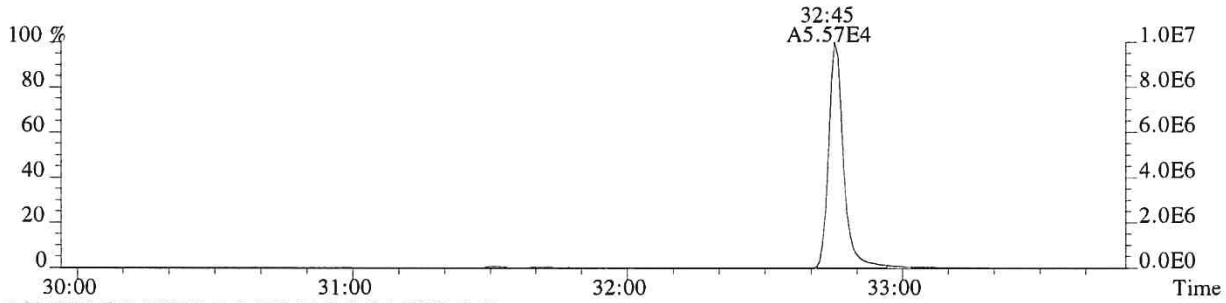
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,884.0,1.00%,F,T)



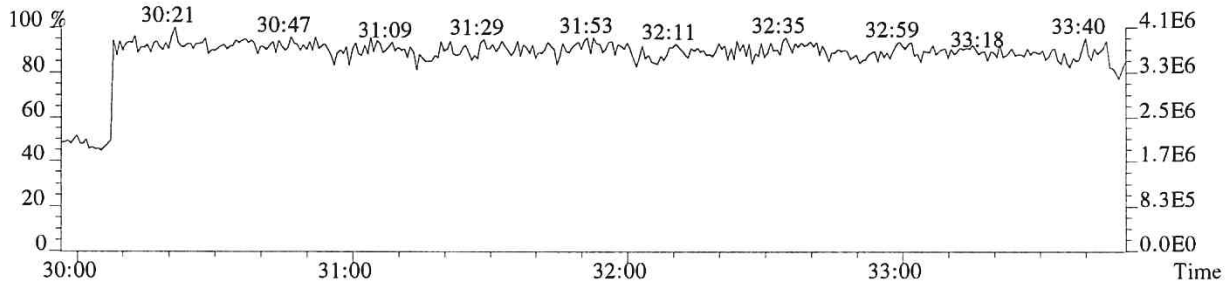
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,844.0,1.00%,F,T)



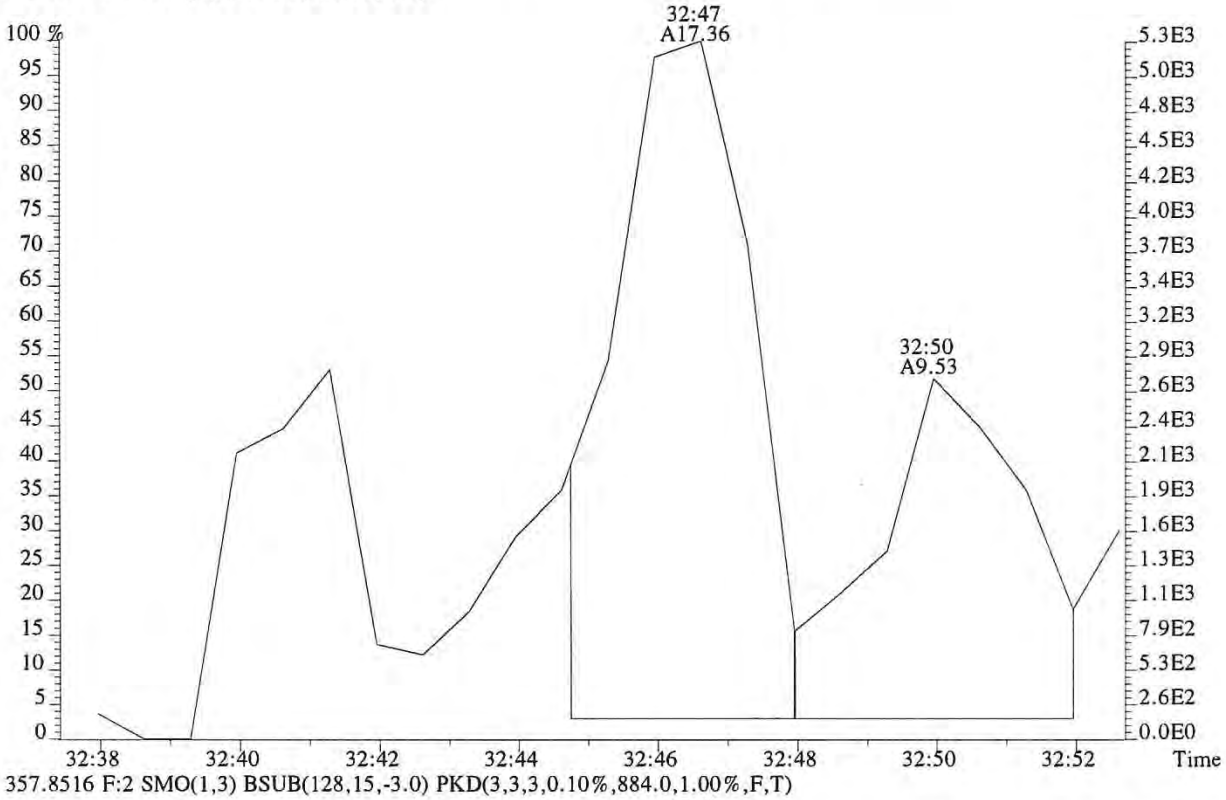
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1796.0,1.00%,F,T)



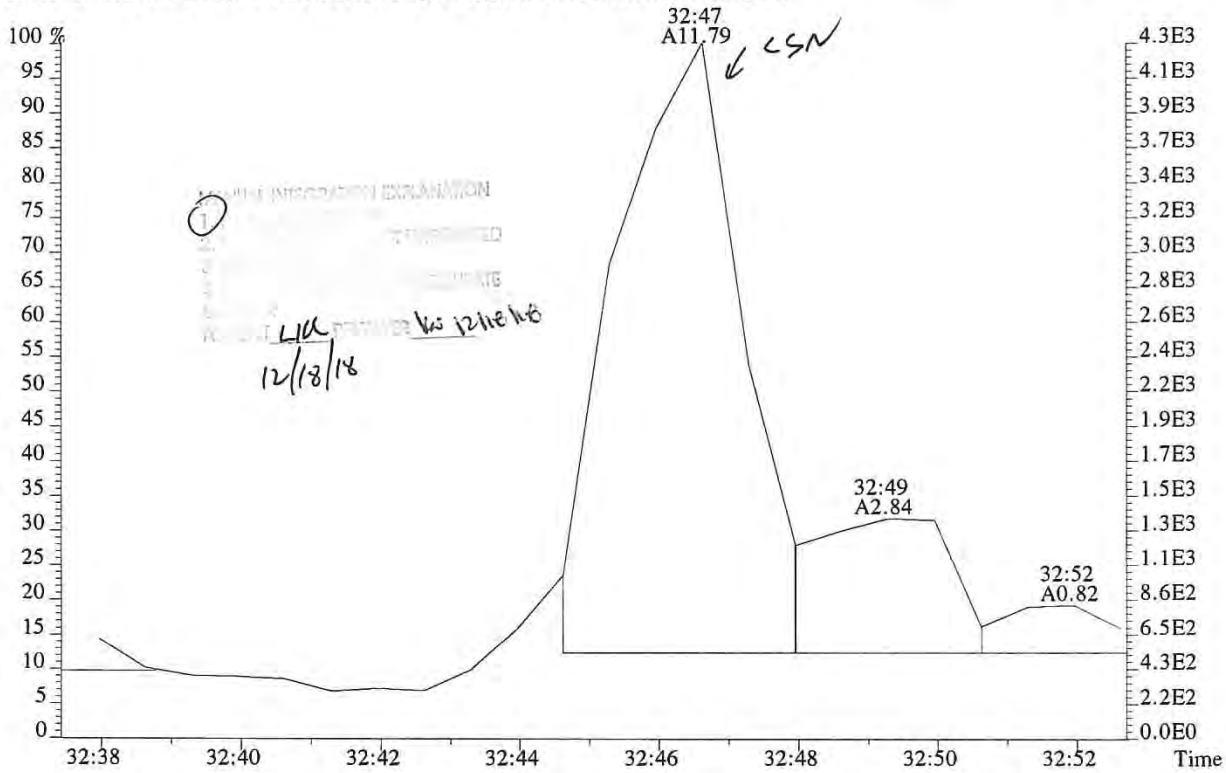
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P616103 #1-349 Acq:14-DEC-2018 12:48:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0)



357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,884.0,1.00%,F,T)



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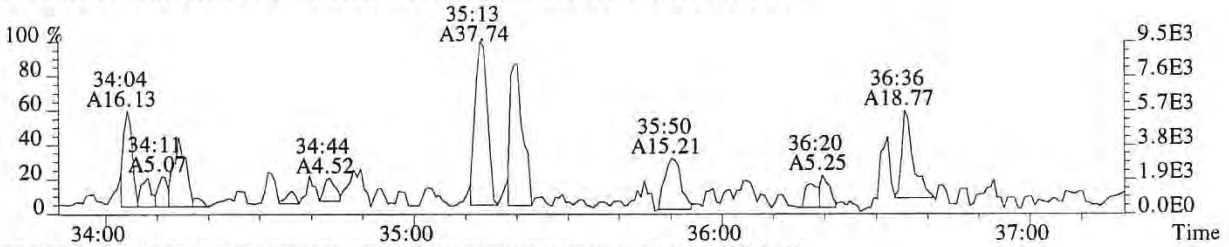
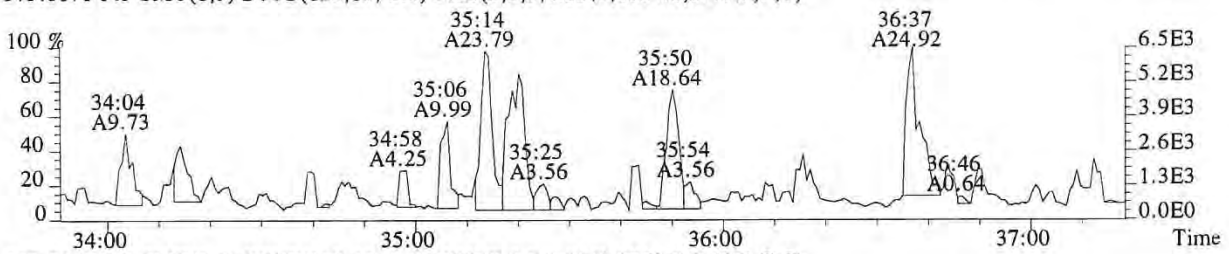
12/18/18

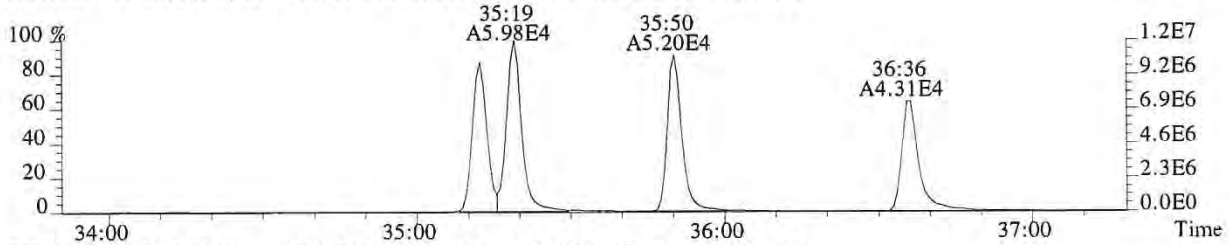
File:P616103 #1-312 Acq:14-DEC-2018 12:48:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1020.0,0.40%,F,T)



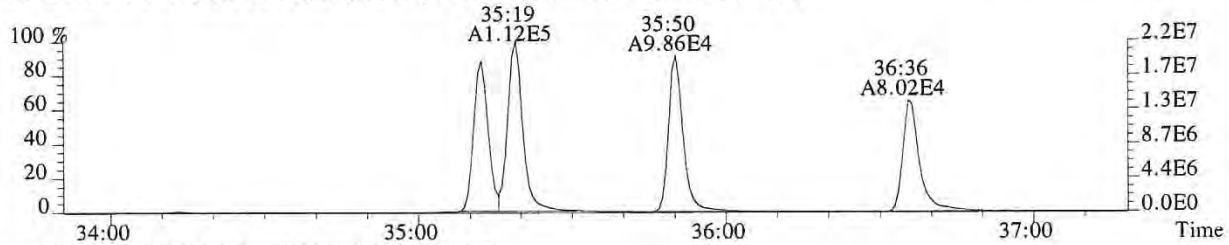
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1064.0,0.40%,F,T)



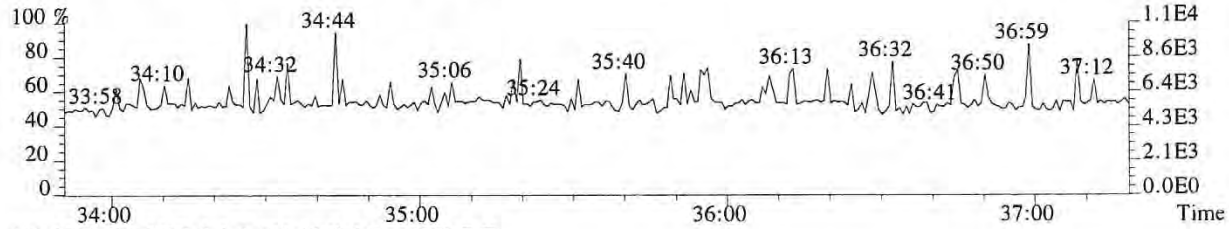
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2068.0,0.40%,F,T)



385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2708.0,0.40%,F,T)



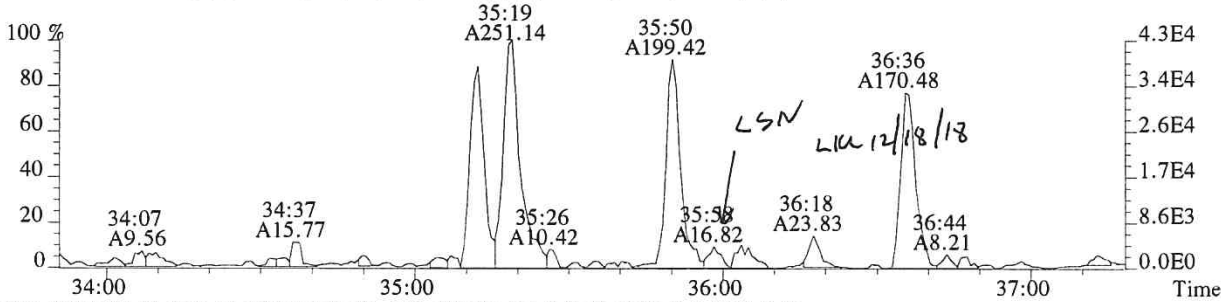
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



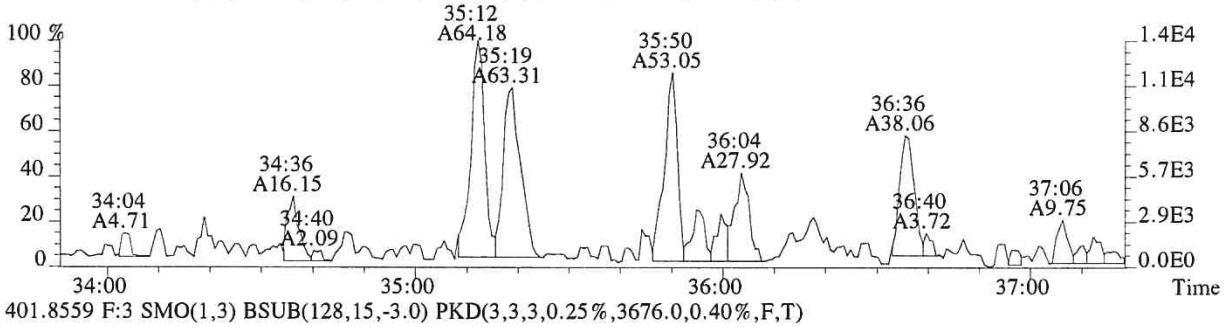
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



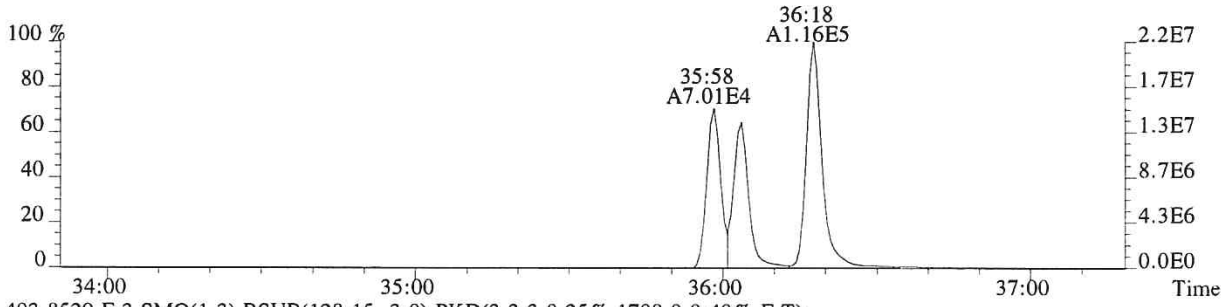
File:P616103 #1-312 Acq:14-DEC-2018 12:48:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,612.0,0.40%,F,T)



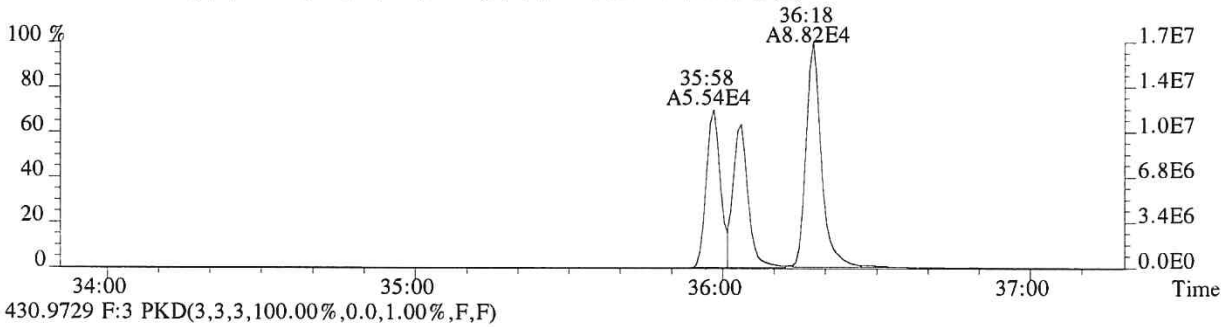
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1236.0,0.40%,F,T)



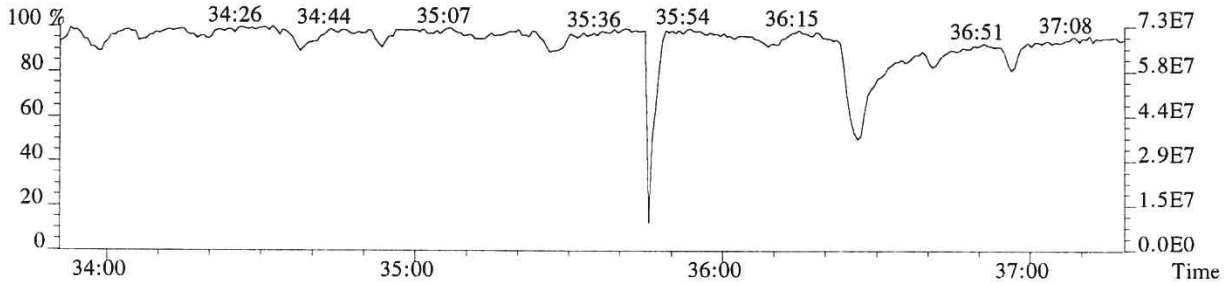
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3676.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1708.0,0.40%,F,T)

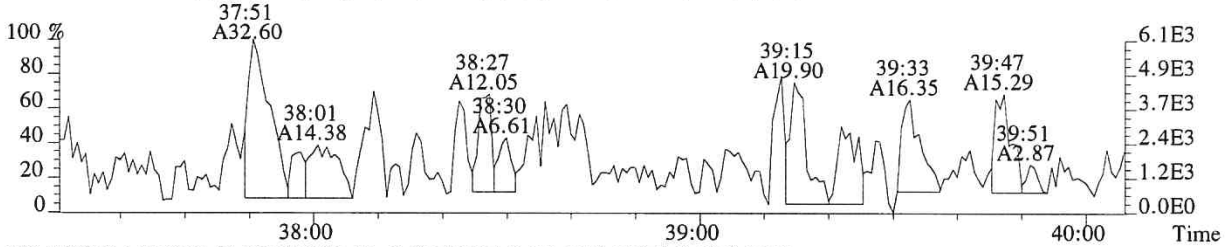


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

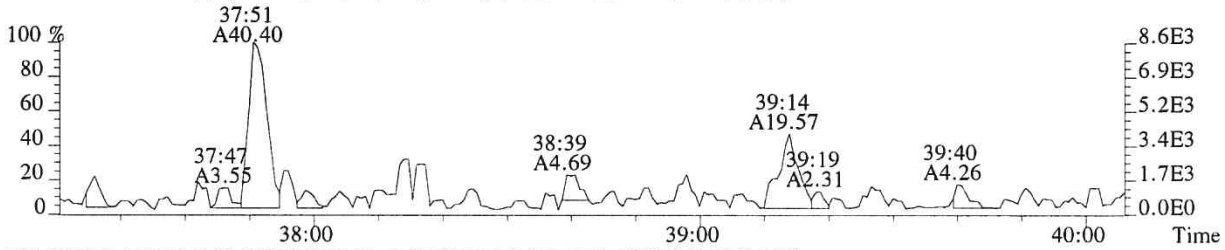


File:P616103 #1-249 Acq:14-DEC-2018 12:48:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB

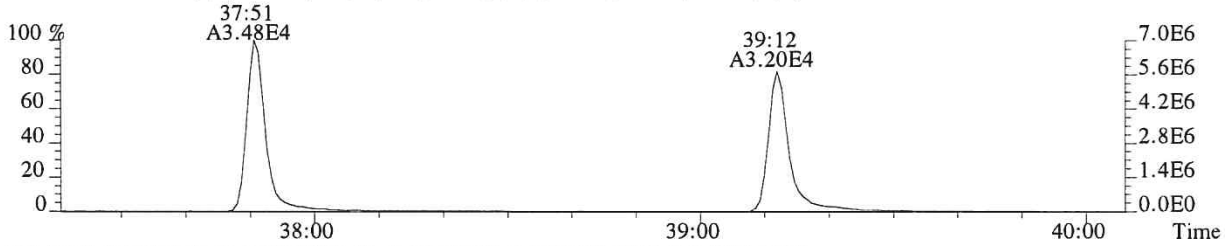
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1900.0,0.50%,F,T)



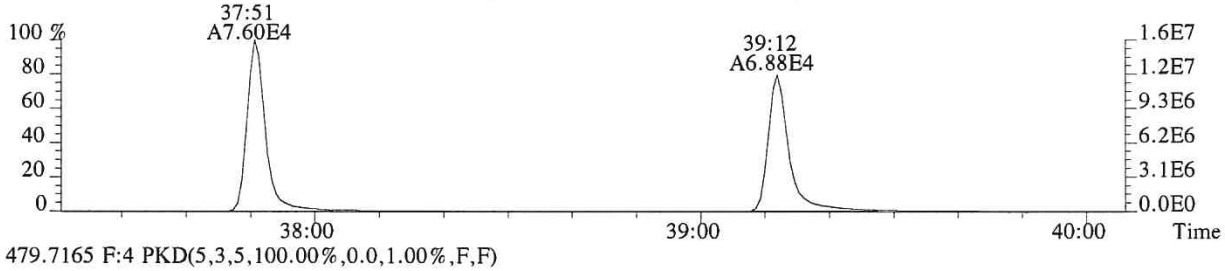
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,768.0,0.50%,F,T)



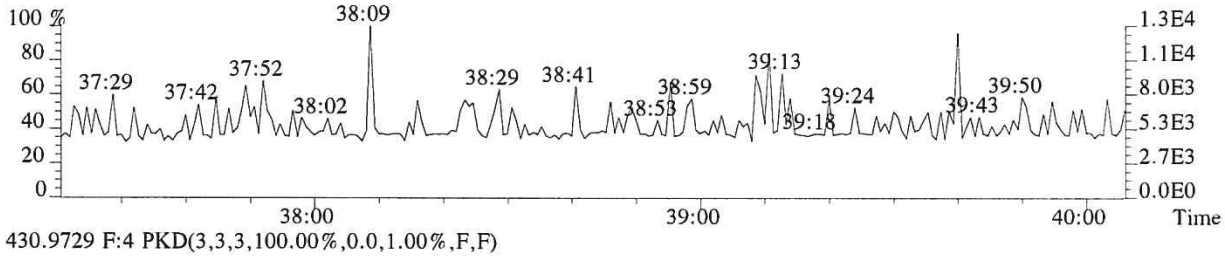
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6996.0,0.50%,F,T)



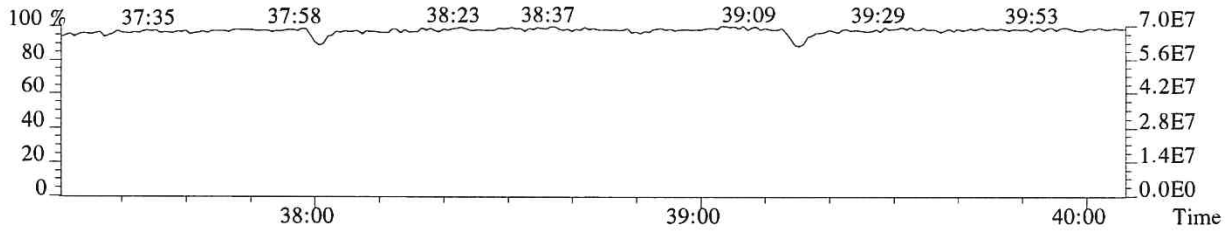
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,9124.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

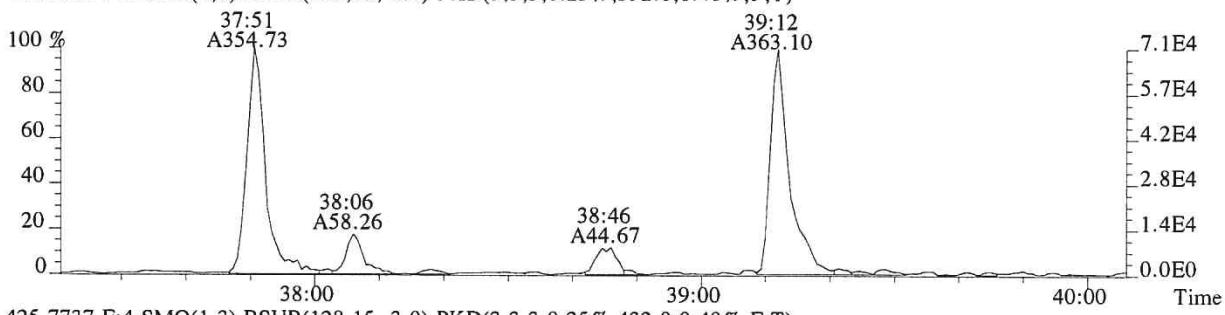


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

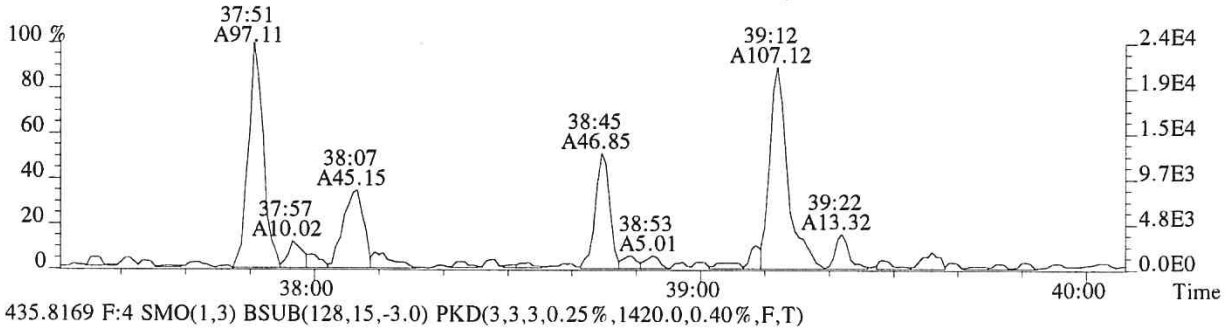


014532

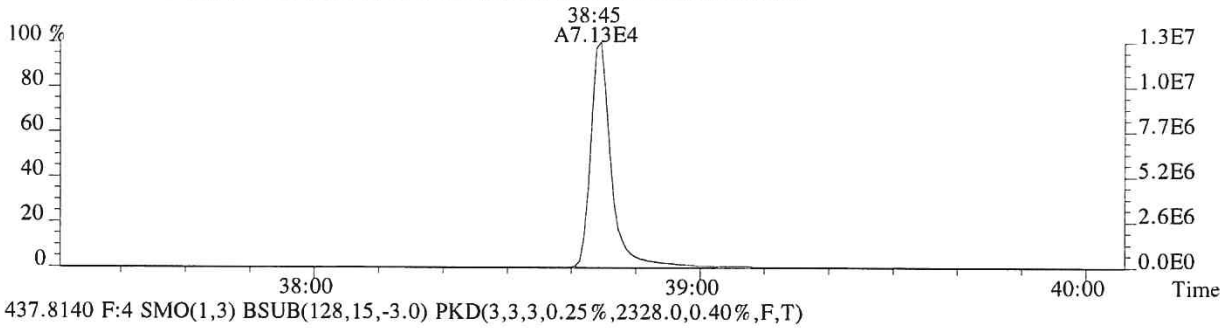
File:P616103 #1-249 Acq:14-DEC-2018 12:48:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,592.0,0.40%,F,T)



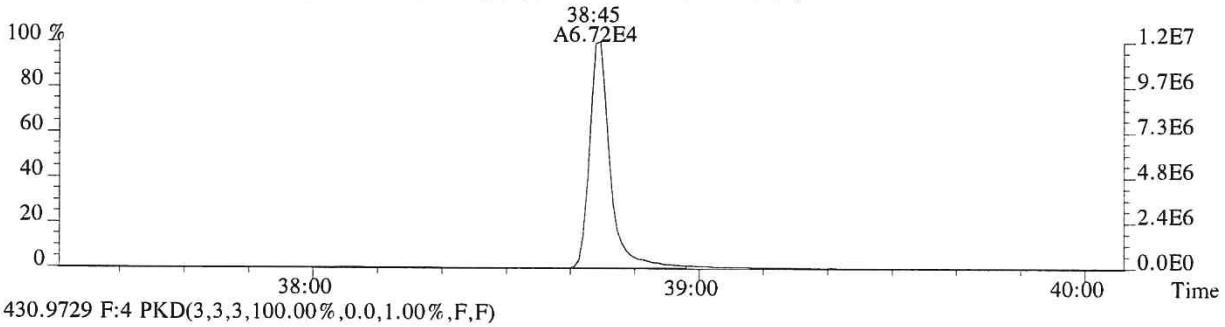
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,432.0,0.40%,F,T)



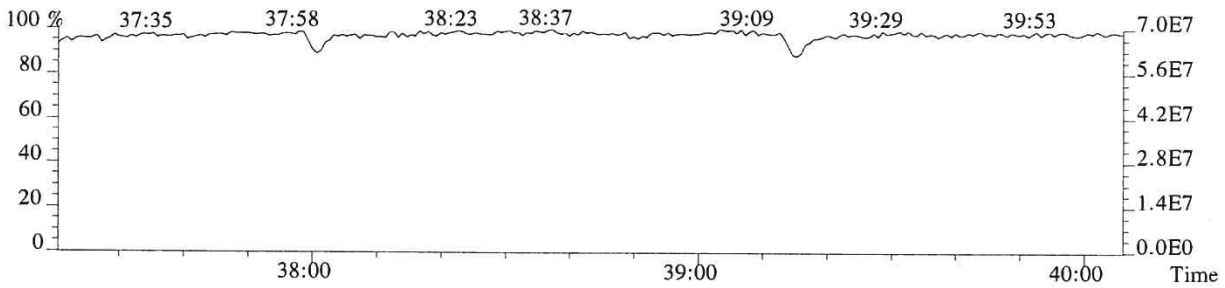
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1420.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2328.0,0.40%,F,T)

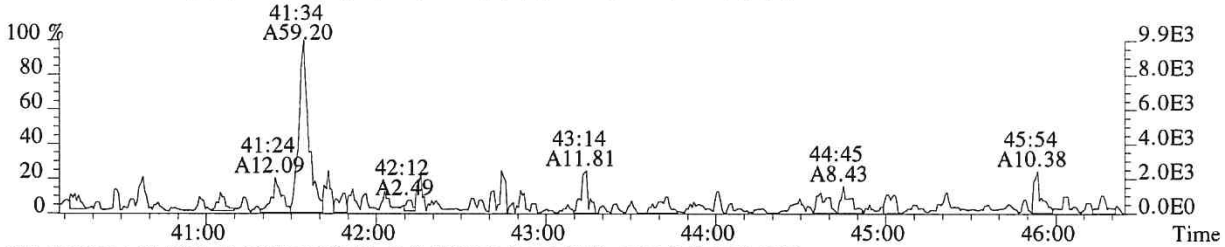


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

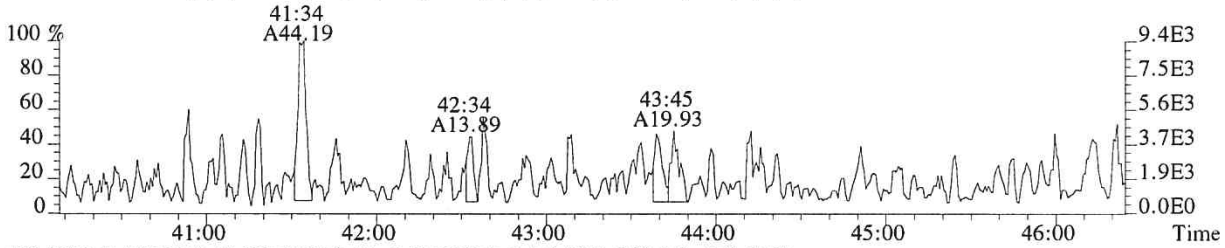


File:P616103 #1-565 Acq:14-DEC-2018 12:48:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB

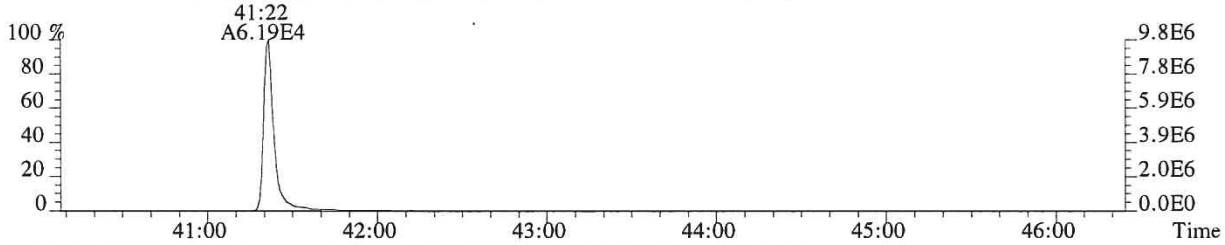
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,328.0,0.40%,F,T)



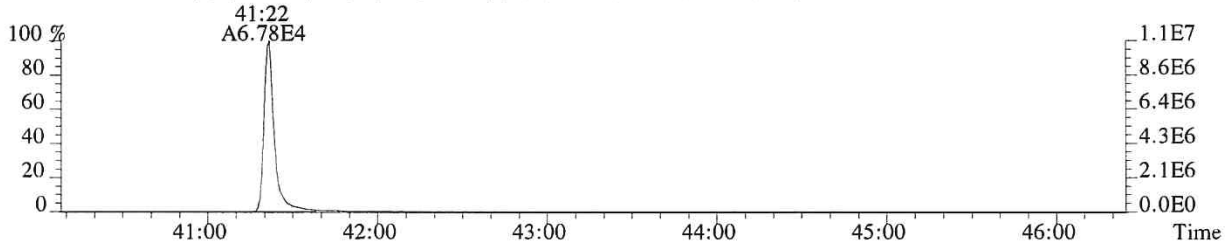
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1804.0,0.40%,F,T)



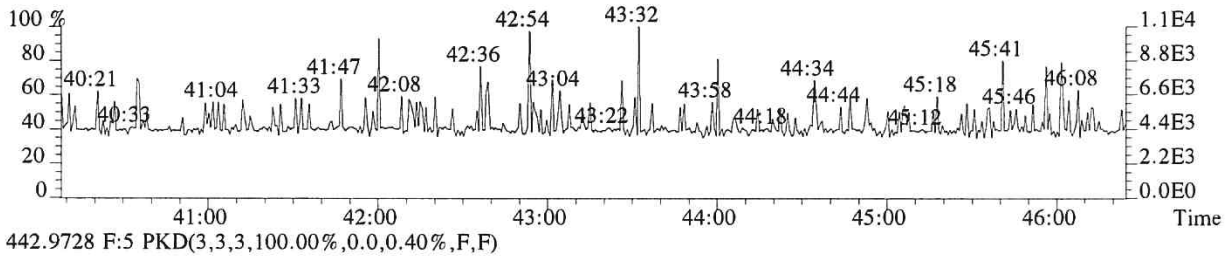
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,960.0,0.40%,F,T)



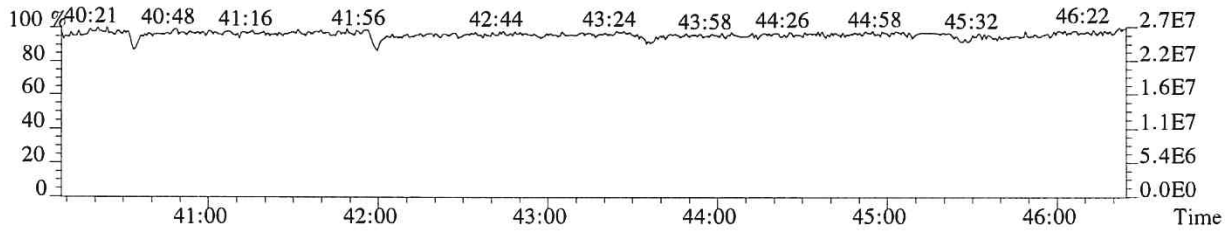
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1128.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

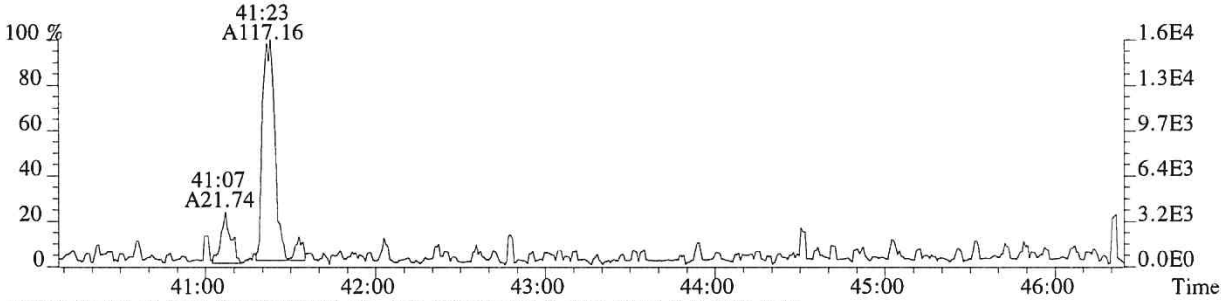


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

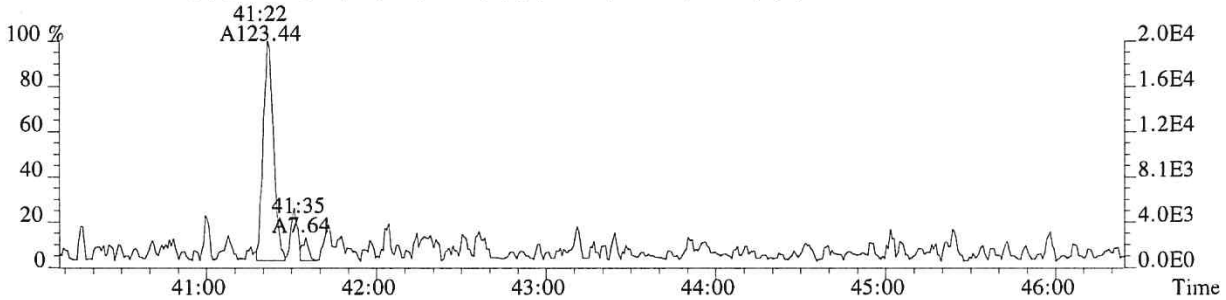


014534

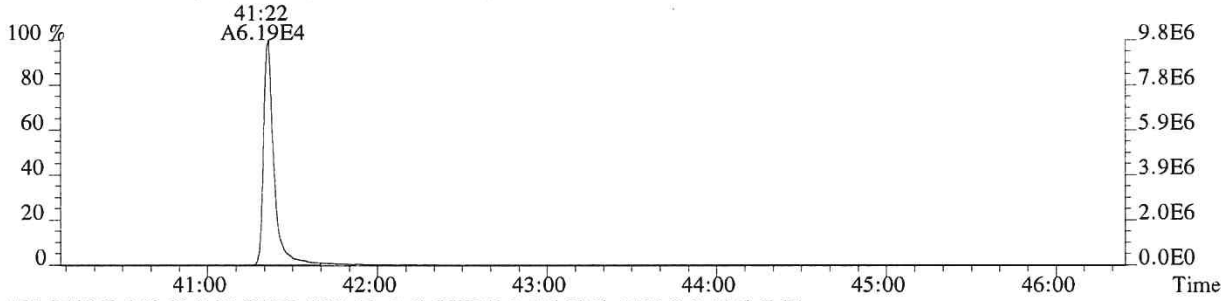
File:P616103 #1-565 Acq:14-DEC-2018 12:48:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,828.0,0.40%,F,T)



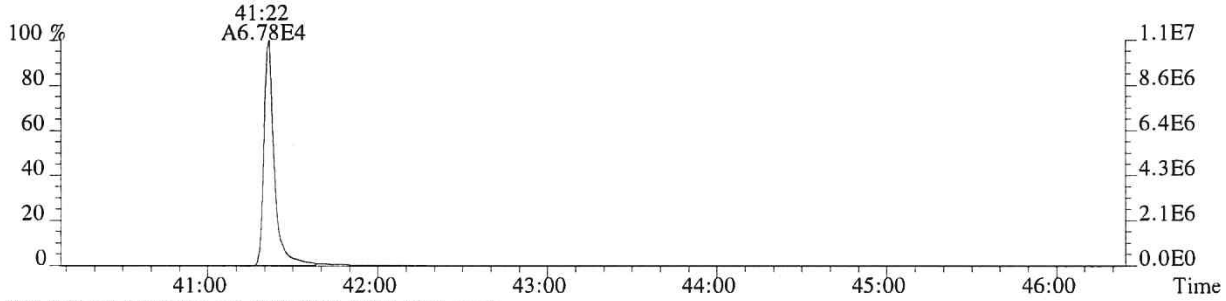
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1556.0,0.40%,F,T)



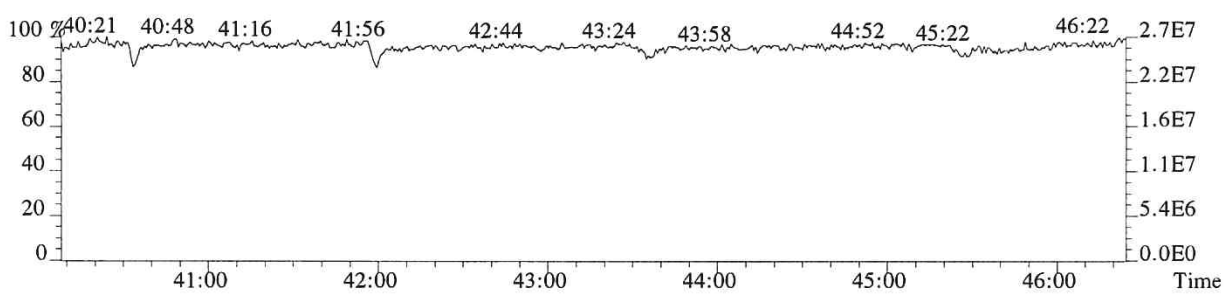
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,960.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1128.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
LCS

Run #20 Filename P519432 Samp: 1 Inj: 1 Acquired: 15-DEC-18 01:35:03
Processed: 17-DEC-18 15:31:58 Sample ID: EQ1800507-02

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:56	1.437e+03	1.828e+03	0.79	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	31:31	8.905e+03	6.094e+03	1.46	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	32:29	8.767e+03	5.975e+03	1.47	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:18	7.652e+03	6.166e+03	1.24	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:25	8.117e+03	6.775e+03	1.20	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:57	7.391e+03	6.317e+03	1.17	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	36:44	6.418e+03	5.549e+03	1.16	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:04	6.883e+03	6.720e+03	1.02	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:28	5.650e+03	5.864e+03	0.96	yes	no	1.258
10	Unk	OCDF	42:02	7.387e+03	8.458e+03	0.87	yes	no	1.359
11	Unk	2,3,7,8-TCDD	27:49	9.463e+02	1.210e+03	0.78	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	32:47	6.925e+03	4.404e+03	1.57	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:06	6.067e+03	4.664e+03	1.30	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:11	6.559e+03	5.103e+03	1.29	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:26	6.674e+03	5.399e+03	1.24	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:01	5.035e+03	4.841e+03	1.04	yes	no	1.025
17	Unk	OCDD	41:50	6.085e+03	7.061e+03	0.86	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	26:55	1.137e+04	1.441e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	31:31	1.971e+04	1.262e+04	1.56	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	32:28	1.908e+04	1.188e+04	1.61	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:18	8.104e+03	1.553e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:24	9.522e+03	1.842e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:56	8.975e+03	1.704e+04	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	36:43	7.901e+03	1.504e+04	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:03	6.267e+03	1.379e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:27	5.629e+03	1.233e+04	0.46	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	27:48	5.740e+03	7.087e+03	0.81	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:47	1.438e+04	9.135e+03	1.57	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:05	1.266e+04	9.860e+03	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:10	1.236e+04	9.746e+03	1.27	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:00	1.327e+04	1.238e+04	1.07	yes	no	0.858
32	IS	13C-OCDD	41:50	1.093e+04	1.220e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:10	1.499e+04	1.906e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:25	2.097e+04	1.657e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:49	7.761e+03				no	1.014

$$\text{OCDD} = \frac{(6.085e+03 + 7.061e+03) \times 4000\ \text{pg} \times 1}{(1.093e+04 + 1.220e+04)\ \text{x}\ \ \text{g}\ \ \text{x}\ \ / 100 \times 1.118} =$$

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
LCS

Run #20 Filename P519432 Samp: 1 Inj: 1 Acquired: 15-DEC-18 01:35:03
Processed: 17-DEC-18 15:31:58 LAB. ID: EQ1800507-02

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.32e+05	3.28e+03	7.1e+01	3.07e+05	3.20e+03	9.6e+01
2	1,2,3,7,8-PeCDF	1.58e+06	6.44e+02	2.5e+03	1.05e+06	1.53e+03	6.8e+02
3	2,3,4,7,8-PeCDF	1.62e+06	6.44e+02	2.5e+03	1.09e+06	1.53e+03	7.1e+02
4	1,2,3,4,7,8-HxCDF	1.62e+06	8.80e+02	1.8e+03	1.31e+06	8.80e+02	1.5e+03
5	1,2,3,6,7,8-HxCDF	1.65e+06	8.80e+02	1.9e+03	1.36e+06	8.80e+02	1.5e+03
6	2,3,4,6,7,8-HxCDF	1.57e+06	8.80e+02	1.8e+03	1.32e+06	8.80e+02	1.5e+03
7	1,2,3,7,8,9-HxCDF	1.24e+06	8.80e+02	1.4e+03	1.06e+06	8.80e+02	1.2e+03
8	1,2,3,4,6,7,8-HpCDF	1.41e+06	2.57e+03	5.5e+02	1.36e+06	2.88e+03	4.7e+02
9	1,2,3,4,7,8,9-HpCDF	1.01e+06	2.57e+03	3.9e+02	1.05e+06	2.88e+03	3.6e+02
10	OCDF	1.06e+06	5.72e+02	1.9e+03	1.21e+06	1.00e+03	1.2e+03
11	2,3,7,8-TCDD	1.62e+05	2.31e+03	7.0e+01	2.03e+05	1.33e+03	1.5e+02
12	1,2,3,7,8-PeCDD	1.27e+06	5.80e+02	2.2e+03	8.14e+05	4.00e+02	2.0e+03
13	1,2,3,4,7,8-HxCDD	1.35e+06	8.32e+02	1.6e+03	1.05e+06	7.36e+02	1.4e+03
14	1,2,3,6,7,8-HxCDD	1.30e+06	8.32e+02	1.6e+03	1.00e+06	7.36e+02	1.4e+03
15	1,2,3,7,8,9-HxCDD	1.29e+06	8.32e+02	1.5e+03	1.03e+06	7.36e+02	1.4e+03
16	1,2,3,4,6,7,8-HpCDD	9.74e+05	1.08e+03	9.0e+02	9.39e+05	1.14e+03	8.2e+02
17	OCDD	8.94e+05	8.76e+02	1.0e+03	1.02e+06	1.11e+03	9.2e+02
18	13C-2,3,7,8-TCDF	1.87e+06	3.21e+03	5.8e+02	2.41e+06	1.84e+03	1.3e+03
19	13C-1,2,3,7,8-PeCDF	3.54e+06	8.00e+02	4.4e+03	2.23e+06	6.64e+02	3.4e+03
20	13C-2,3,4,7,8-PeCDF	3.53e+06	8.00e+02	4.4e+03	2.27e+06	6.64e+02	3.4e+03
21	13C-1,2,3,4,7,8-HxCDF	1.71e+06	7.12e+02	2.4e+03	3.25e+06	1.19e+03	2.7e+03
22	13C-1,2,3,6,7,8-HxCDF	1.89e+06	7.12e+02	2.7e+03	3.71e+06	1.19e+03	3.1e+03
23	13C-2,3,4,6,7,8-HxCDF	1.84e+06	7.12e+02	2.6e+03	3.52e+06	1.19e+03	3.0e+03
24	13C-1,2,3,7,8,9-HxCDF	1.51e+06	7.12e+02	2.1e+03	2.87e+06	1.19e+03	2.4e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.28e+06	1.43e+03	9.0e+02	2.84e+06	1.16e+03	2.4e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.01e+06	1.43e+03	7.1e+02	2.28e+06	1.16e+03	2.0e+03
27	13C-2,3,7,8-TCDD	9.78e+05	5.36e+03	1.8e+02	1.21e+06	4.36e+03	2.8e+02
28	13C-1,2,3,7,8-PeCDD	2.72e+06	9.32e+02	2.9e+03	1.69e+06	1.14e+03	1.5e+03
29	13C-1,2,3,4,7,8-HxCDD	2.80e+06	9.60e+02	2.9e+03	2.18e+06	5.28e+02	4.1e+03
30	13C-1,2,3,6,7,8-HxCDD	2.43e+06	9.60e+02	2.5e+03	1.94e+06	5.28e+02	3.7e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.56e+06	9.16e+02	2.8e+03	2.39e+06	7.80e+02	3.1e+03
32	13C-OCDD	1.55e+06	1.14e+03	1.4e+03	1.75e+06	1.11e+03	1.6e+03
33	13C-1,2,3,4-TCDD	2.59e+06	5.36e+03	4.8e+02	3.24e+06	4.36e+03	7.4e+02
34	13C-1,2,3,7,8,9-HxCDD	4.19e+06	9.60e+02	4.4e+03	3.37e+06	5.28e+02	6.4e+03
35	37Cl-2,3,7,8-TCDD	1.33e+06	7.76e+02	1.7e+03			

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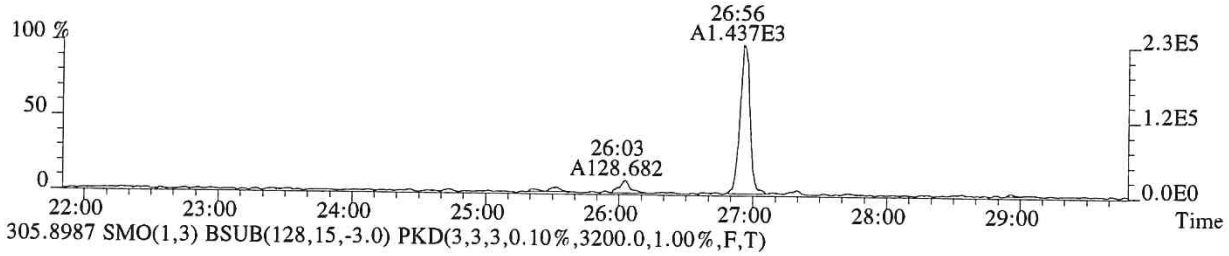
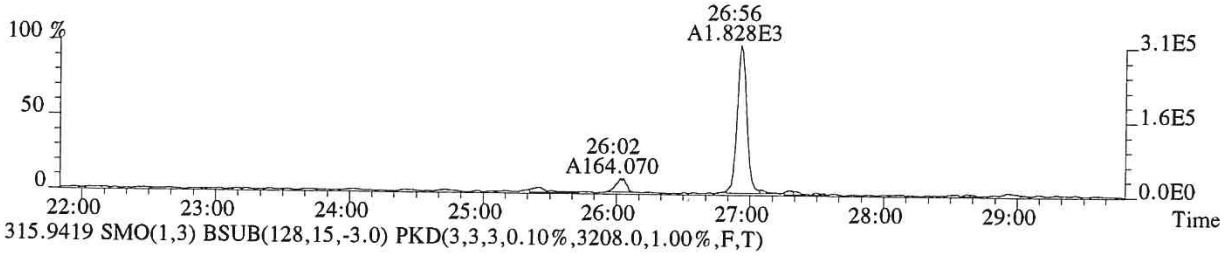
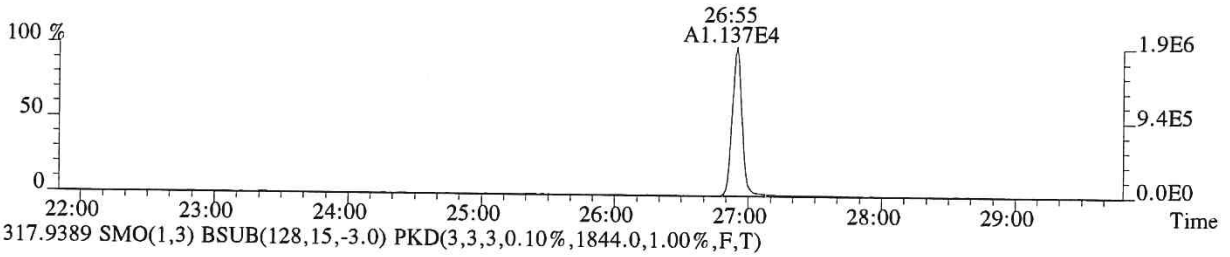
File:P519432 #1-566 Acq:15-DEC-2018 01:35:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800507-02
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3284.0,1.00%,F,T)



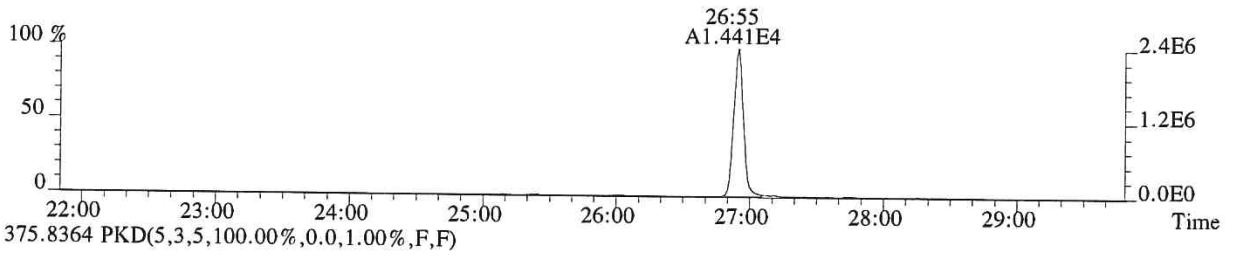
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3200.0,1.00%,F,T)



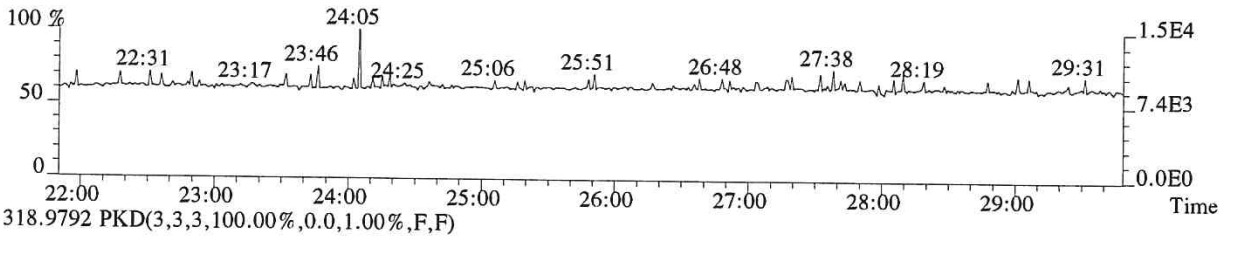
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3208.0,1.00%,F,T)



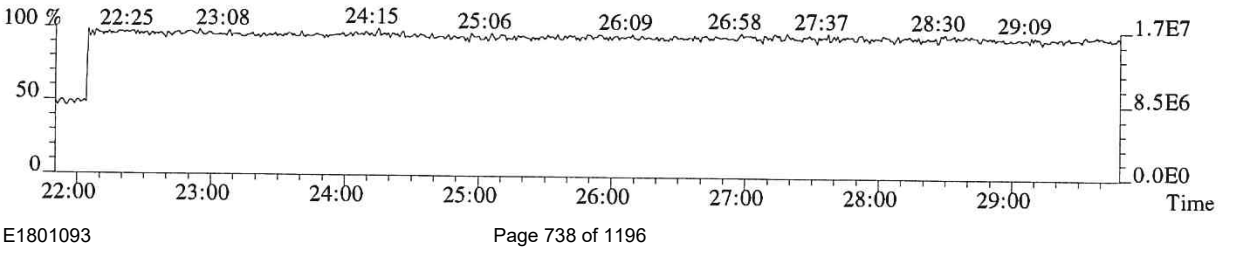
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1844.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

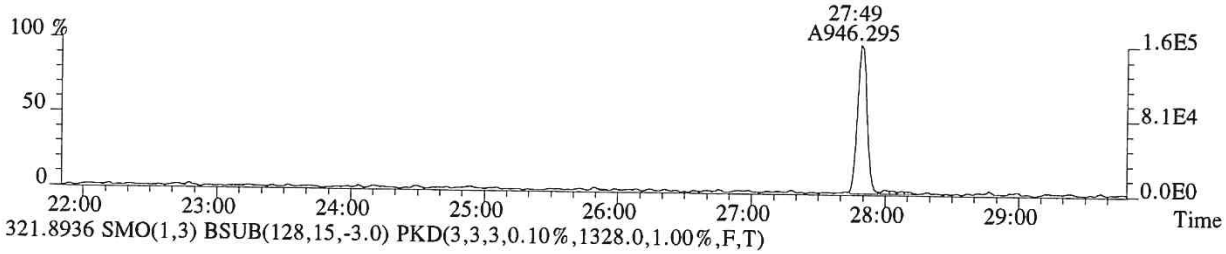


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

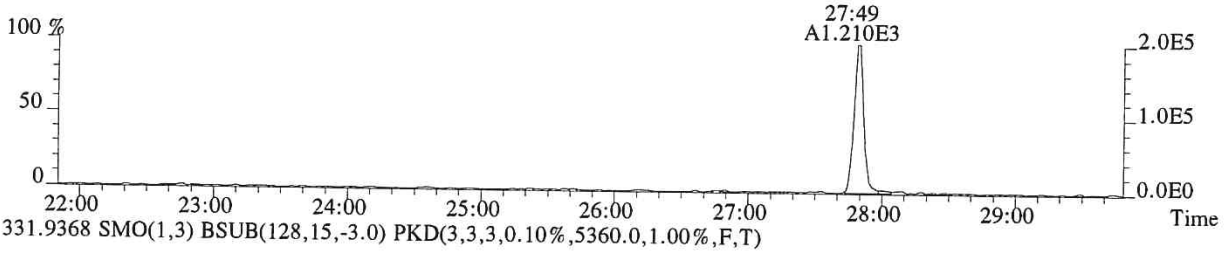


014538

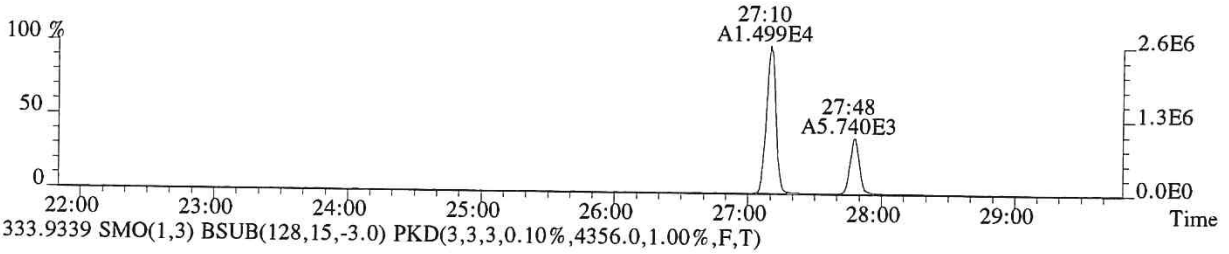
File:P519432 #1-566 Acq:15-DEC-2018 01:35:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800507-02
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2308.0,1.00%,F,T)



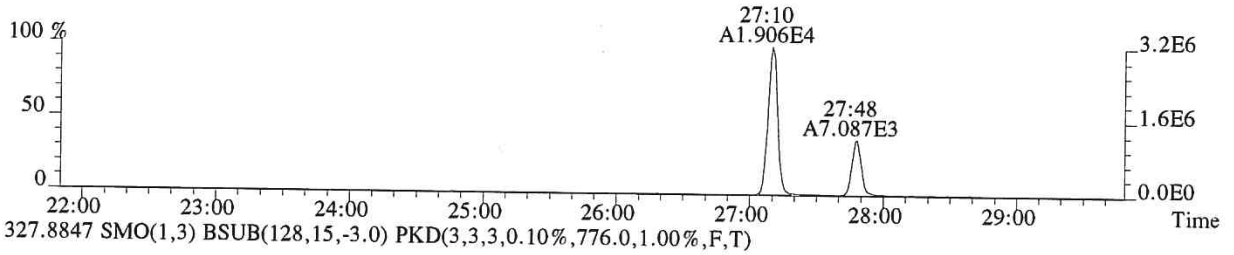
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1328.0,1.00%,F,T)



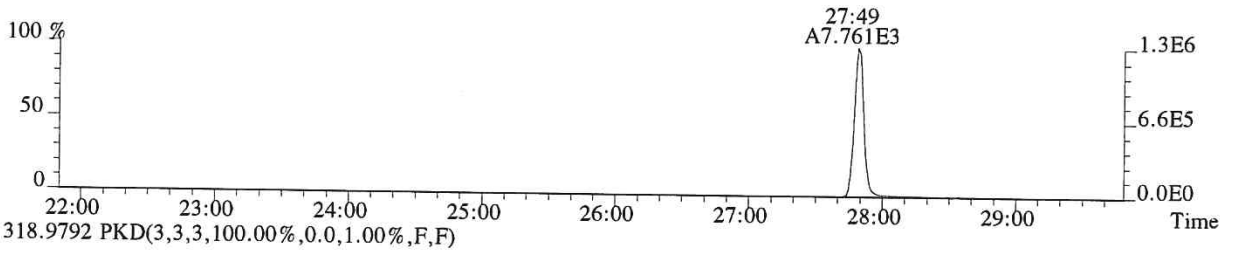
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5360.0,1.00%,F,T)



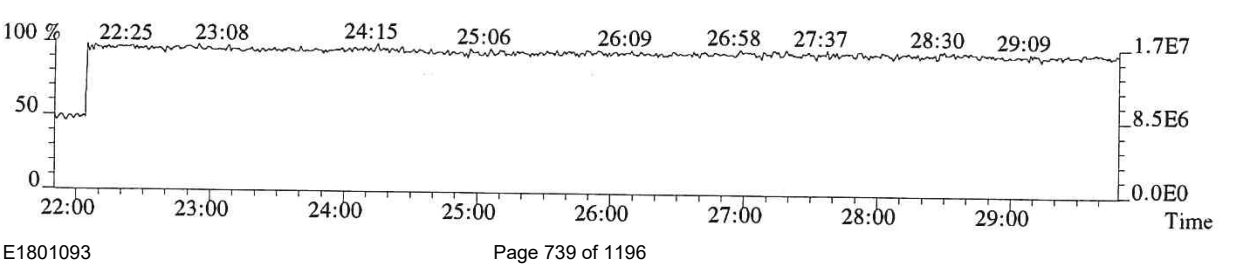
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4356.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)

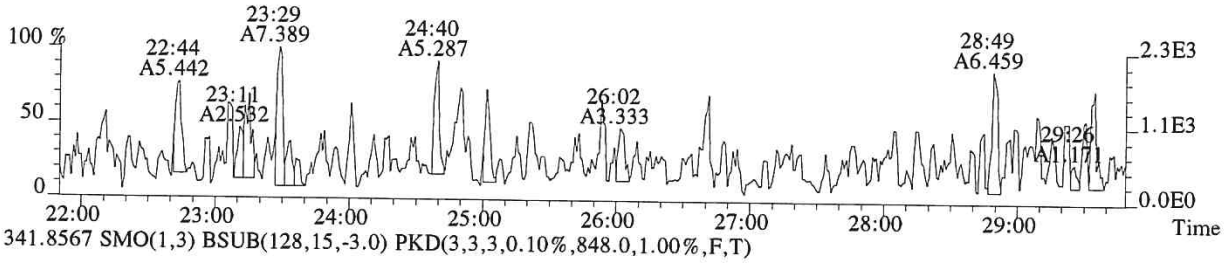


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

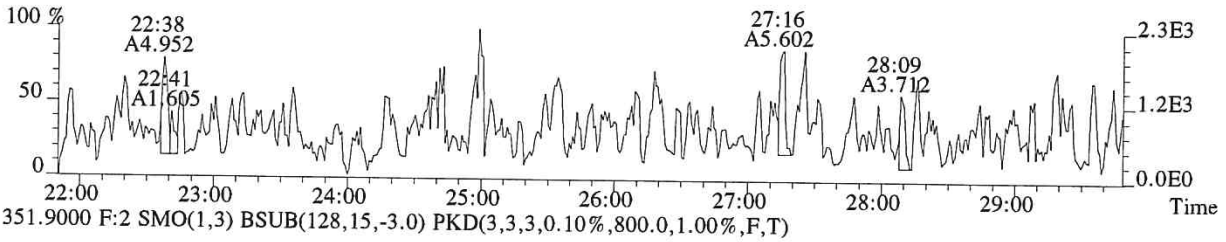


014539

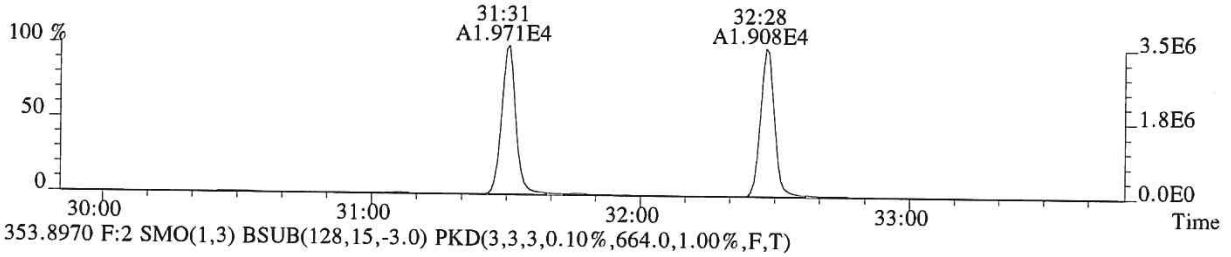
File:P519432 #1-566 Acq:15-DEC-2018 01:35:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800507-02
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)



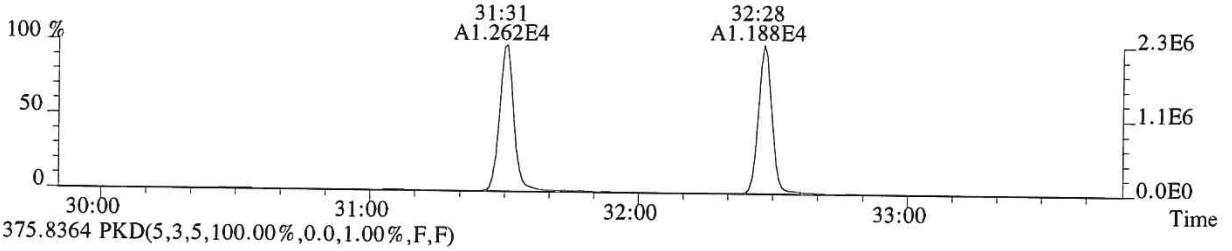
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,848.0,1.00%,F,T)



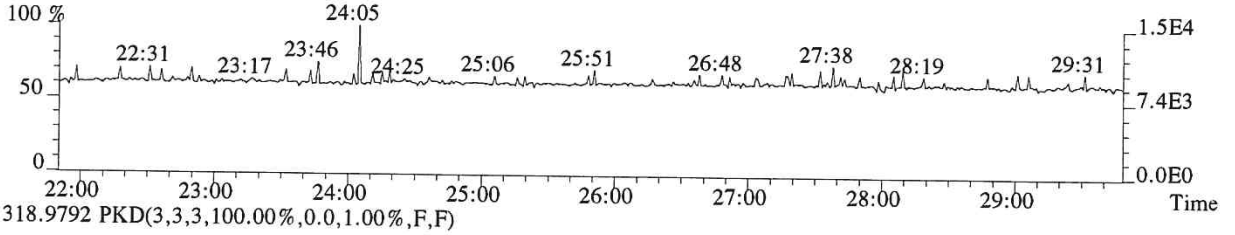
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,800.0,1.00%,F,T)



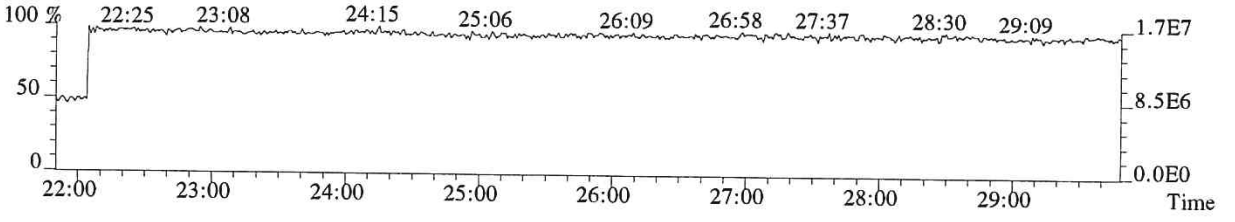
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,664.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

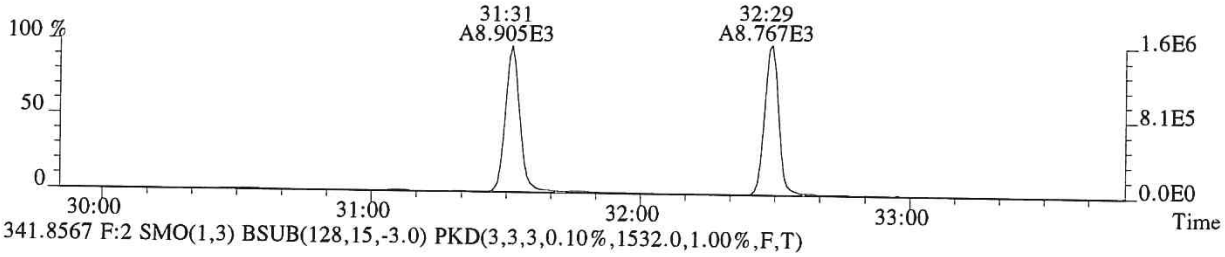


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

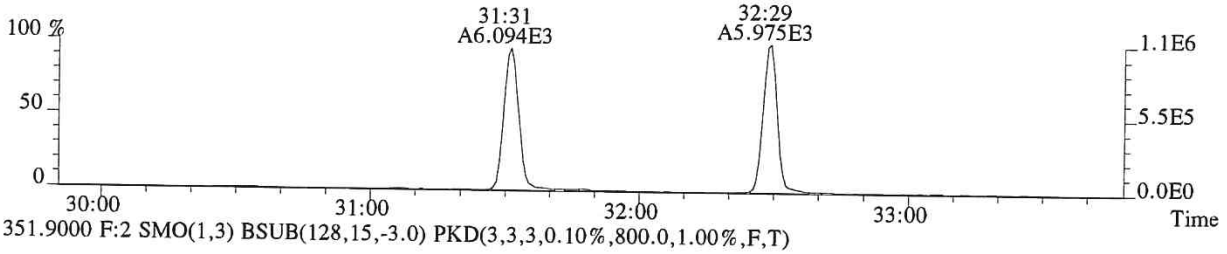


014540

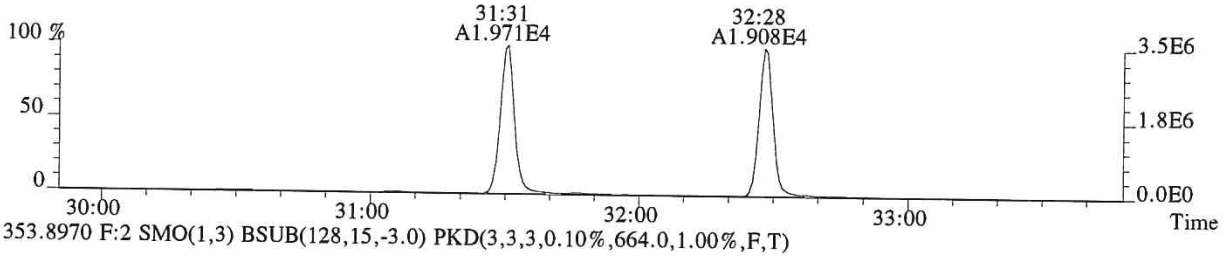
File:P519432 #1-357 Acq:15-DEC-2018 01:35:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800507-02
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,644.0,1.00%,F,T)



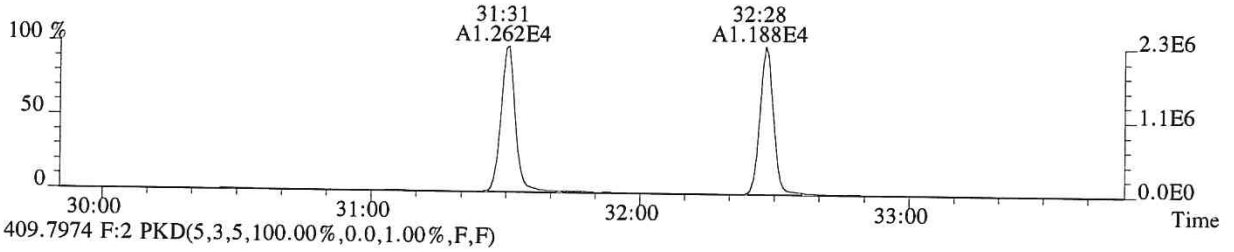
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1532.0,1.00%,F,T)



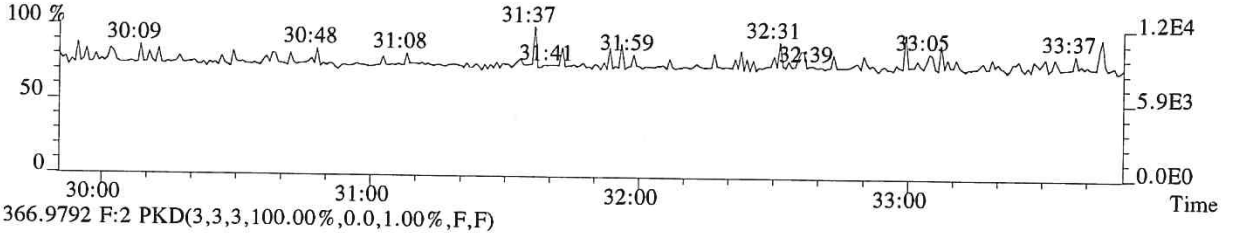
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,800.0,1.00%,F,T)



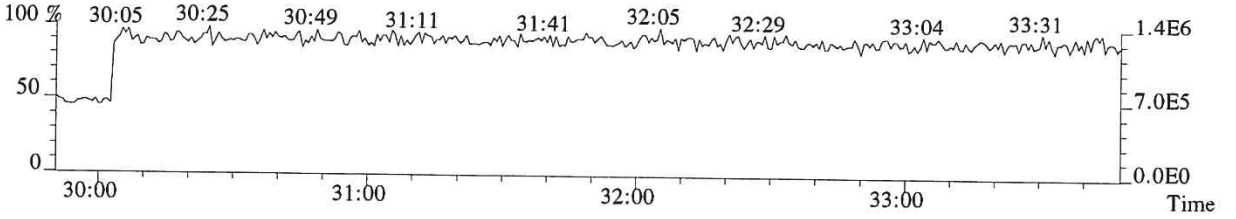
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,664.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

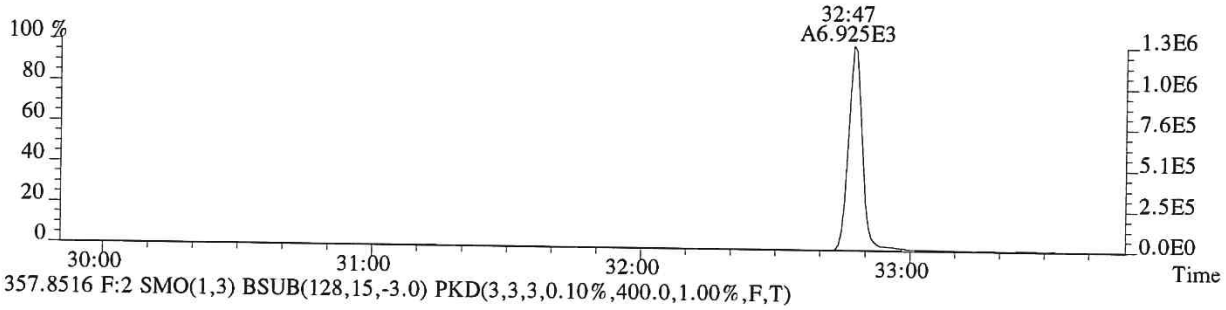


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

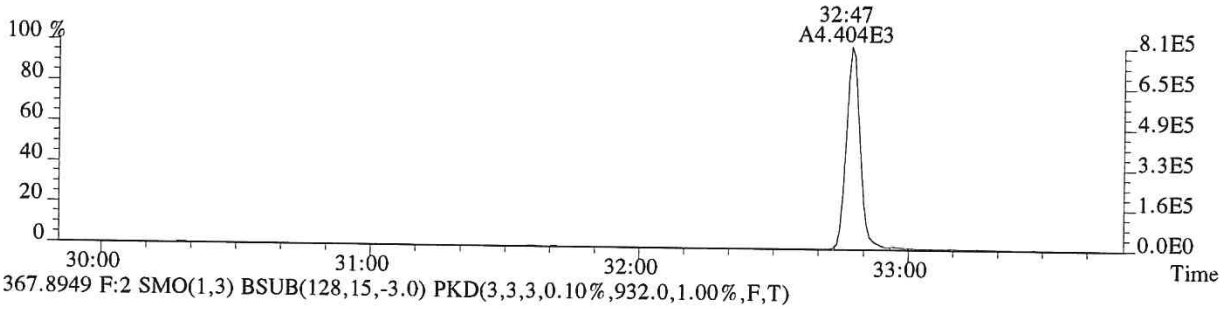


014541

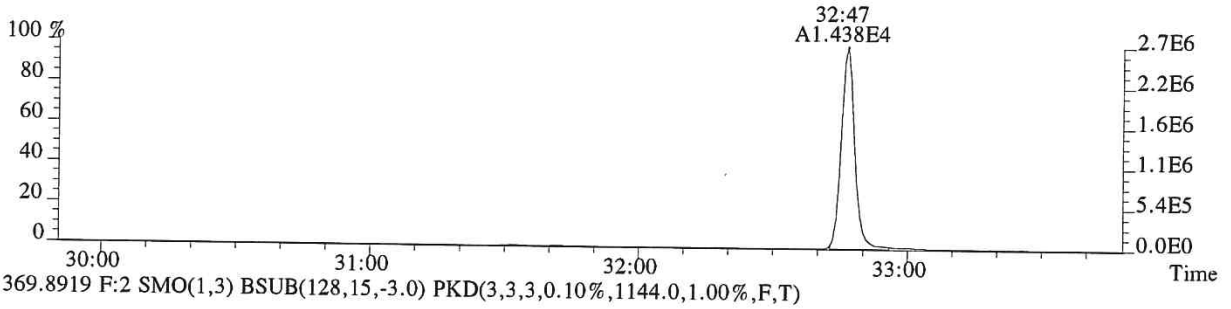
File:P519432 #1-357 Acq:15-DEC-2018 01:35:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800507-02
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,580.0,1.00%,F,T)



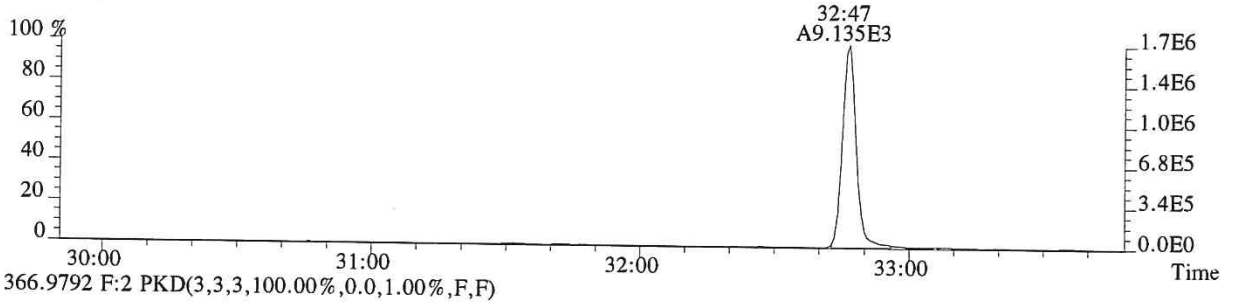
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,400.0,1.00%,F,T)



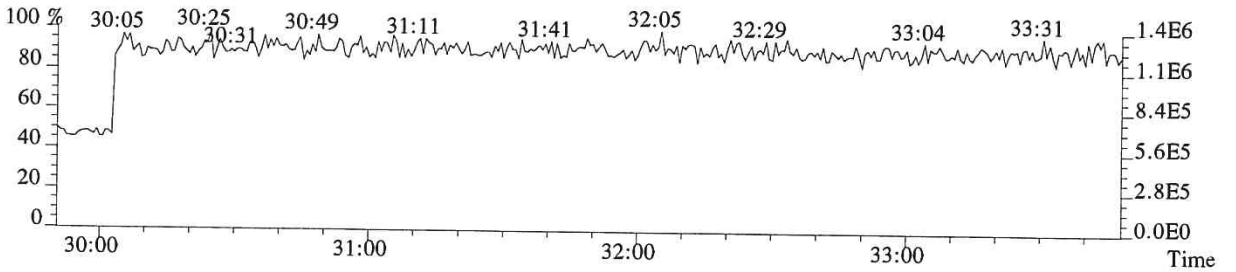
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,932.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1144.0,1.00%,F,T)

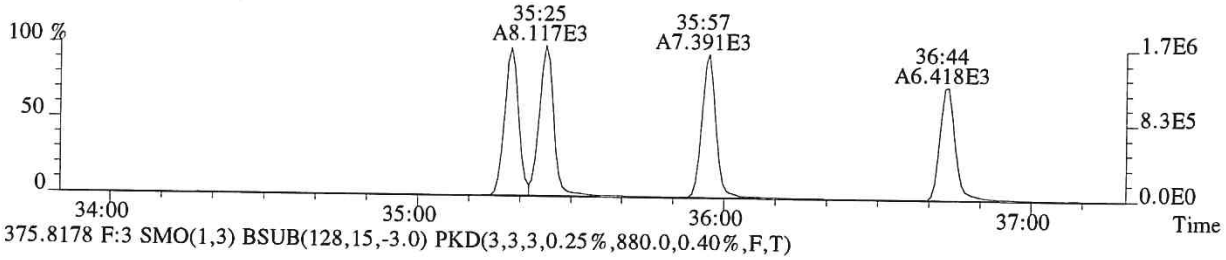


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

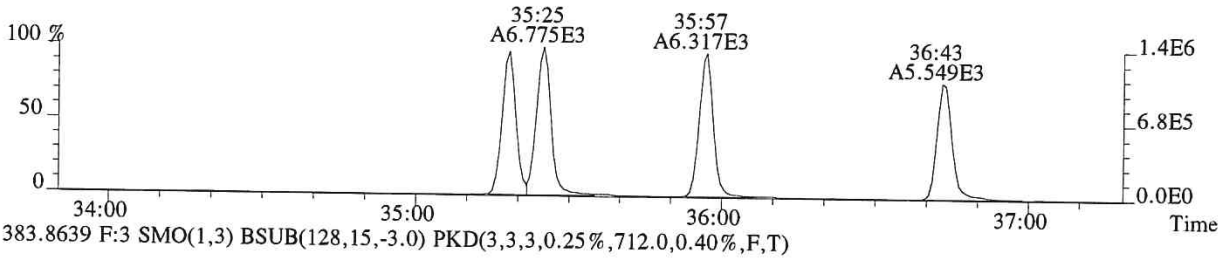


014542

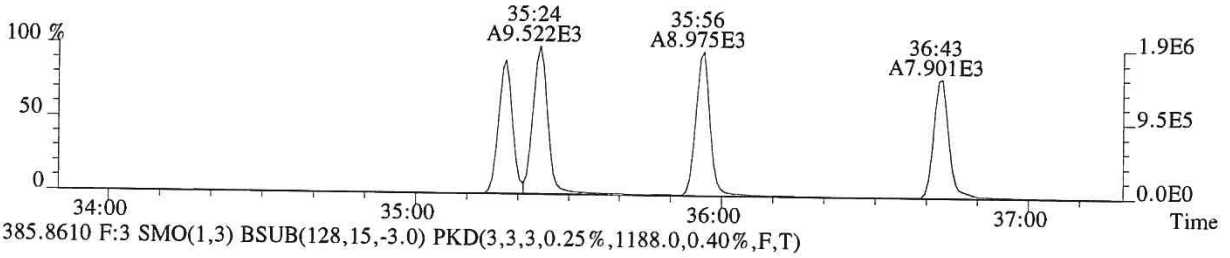
File:P519432 #1-313 Acq:15-DEC-2018 01:35:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800507-02
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,880.0,0.40%,F,T)



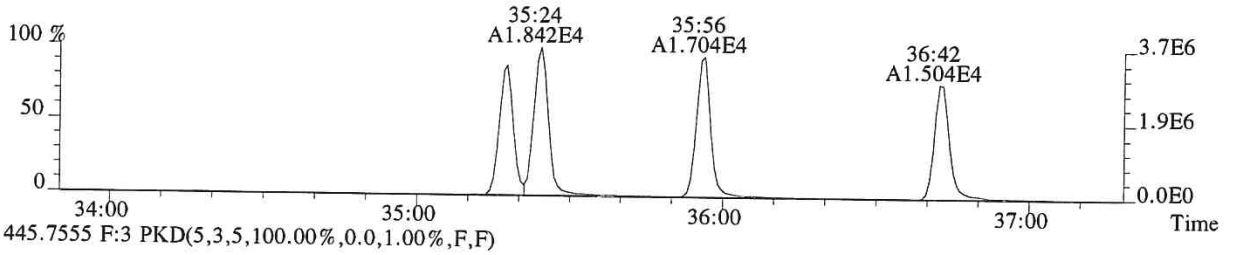
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,880.0,0.40%,F,T)



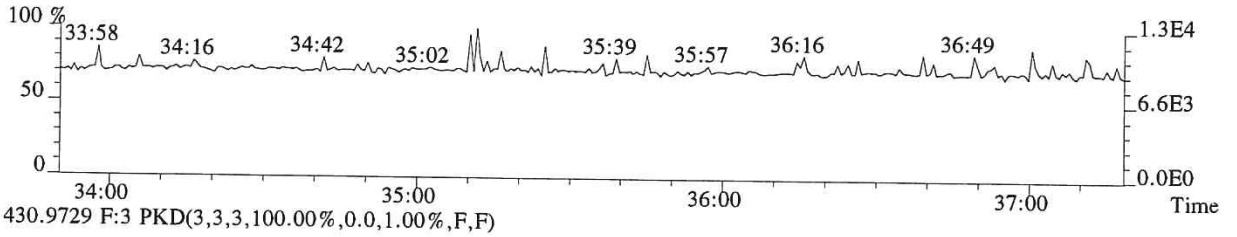
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,712.0,0.40%,F,T)



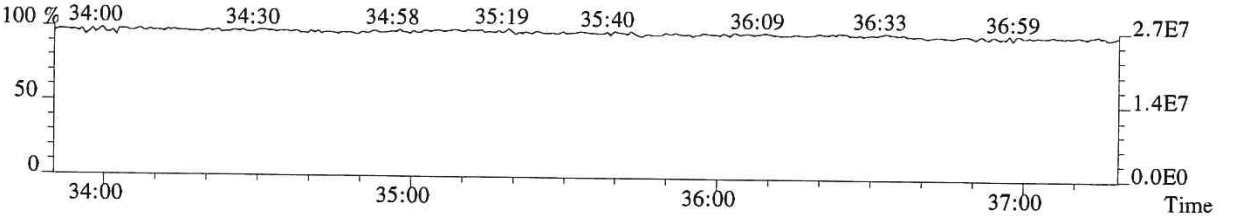
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1188.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

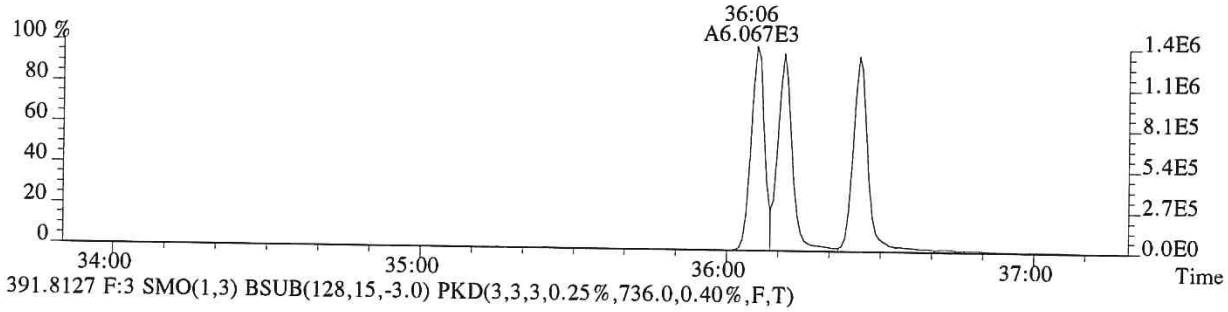


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

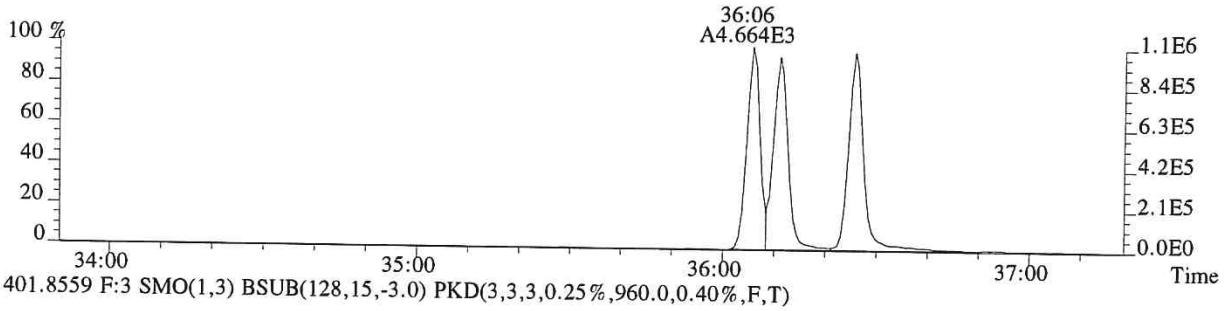


014543

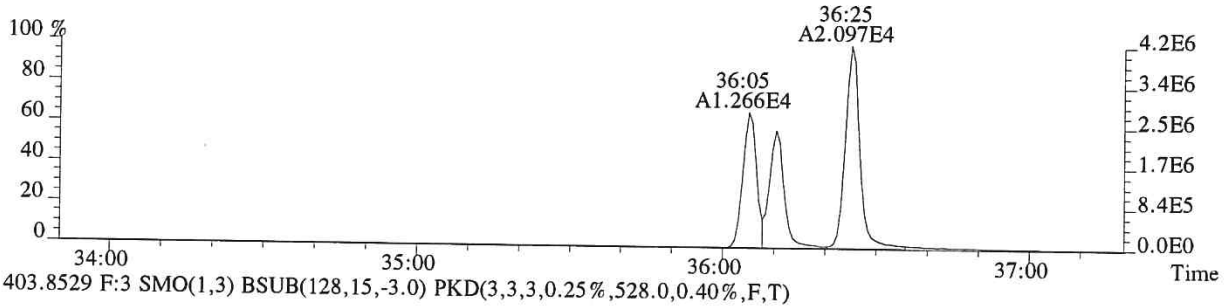
File:P519432 #1-313 Acq:15-DEC-2018 01:35:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800507-02
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,832.0,0.40%,F,T)



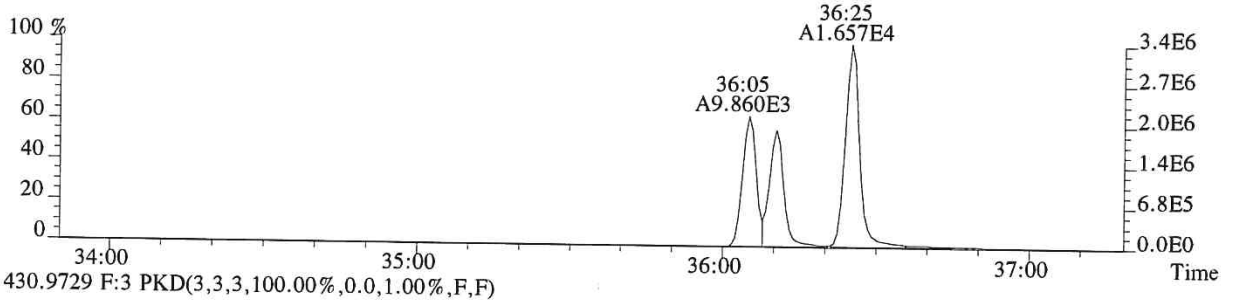
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,736.0,0.40%,F,T)



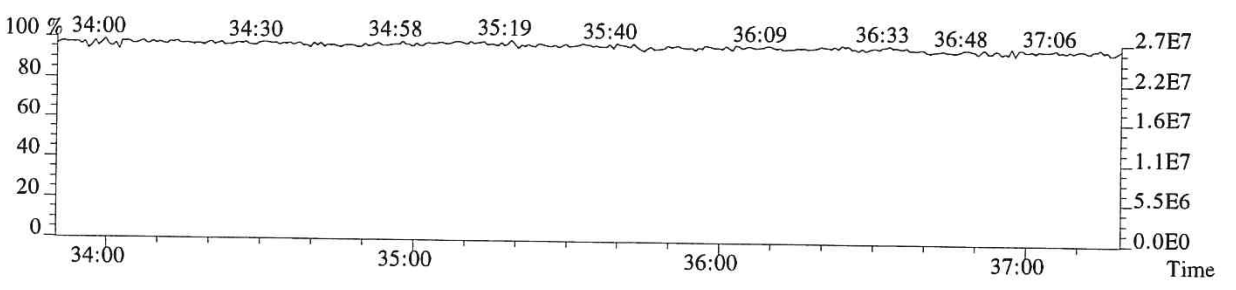
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,960.0,0.40%,F,T)



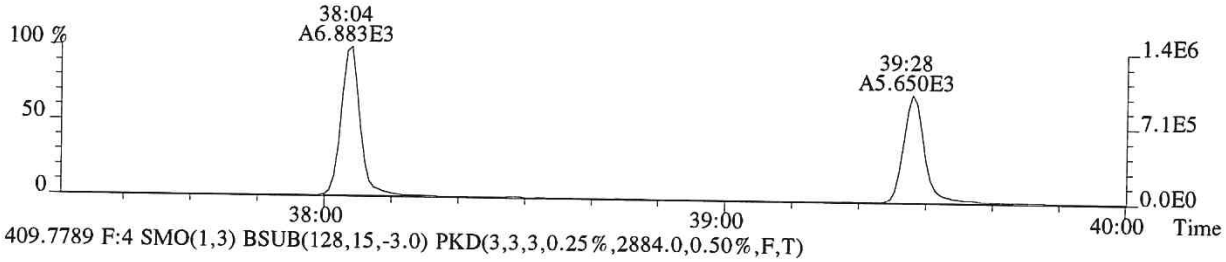
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,528.0,0.40%,F,T)



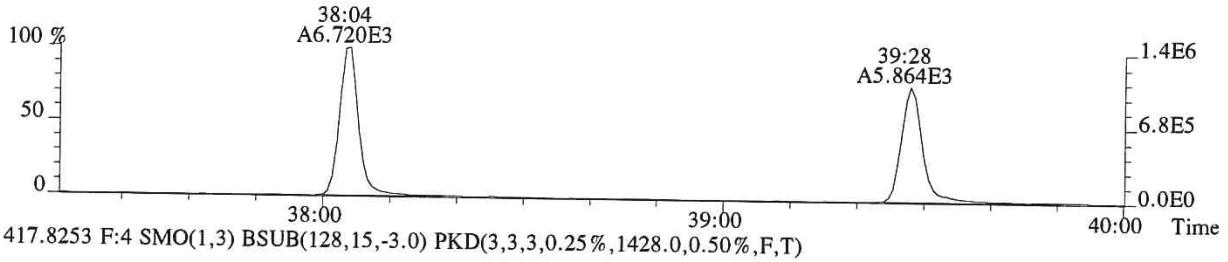
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



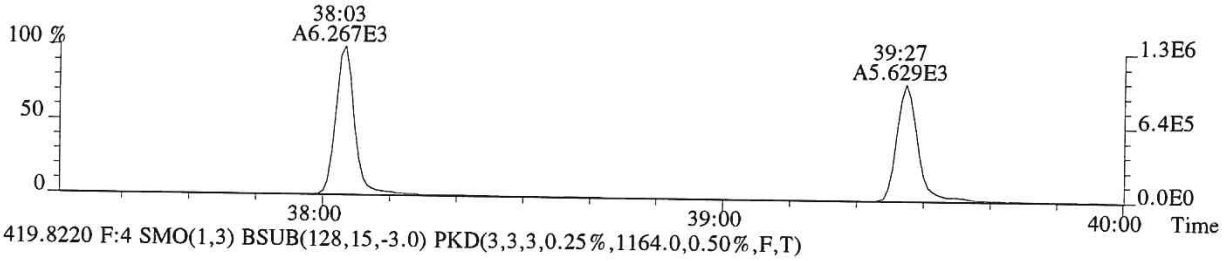
File:P519432 #1-240 Acq:15-DEC-2018 01:35:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800507-02
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2572.0,0.50%,F,T)



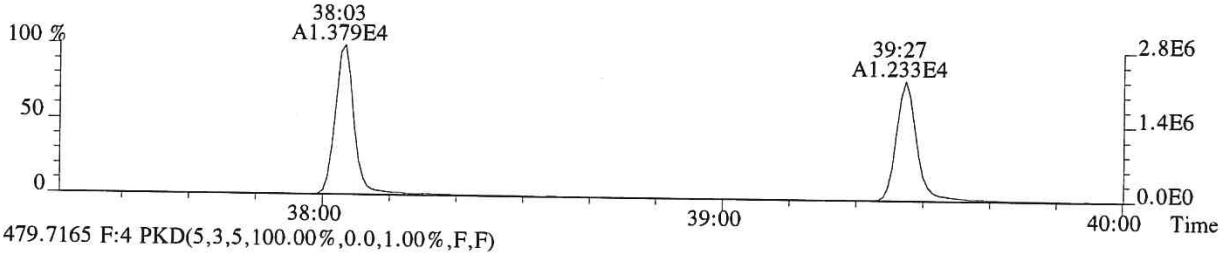
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2884.0,0.50%,F,T)



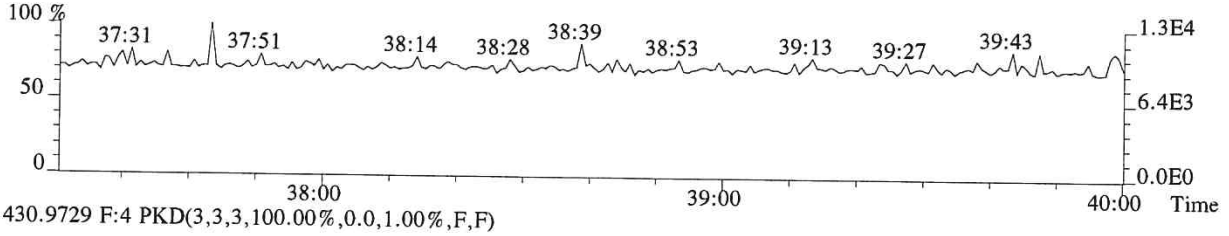
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1428.0,0.50%,F,T)



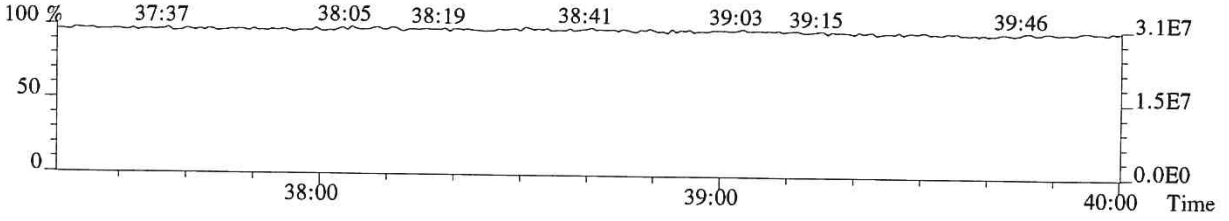
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1164.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

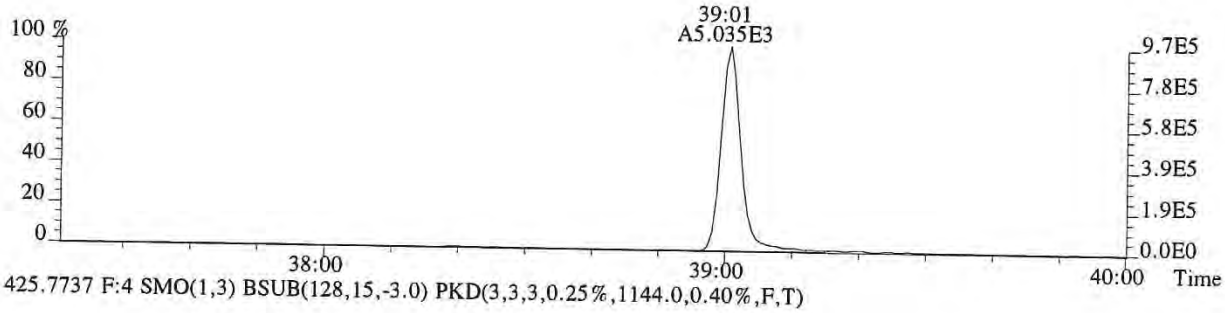


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

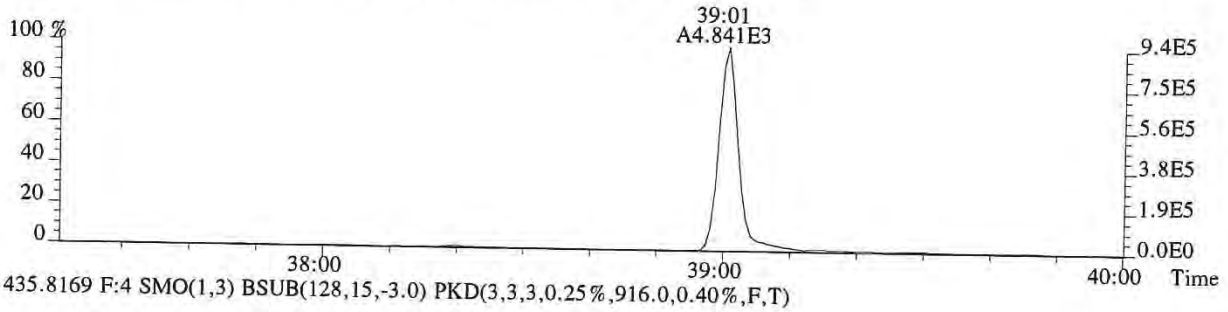


014545

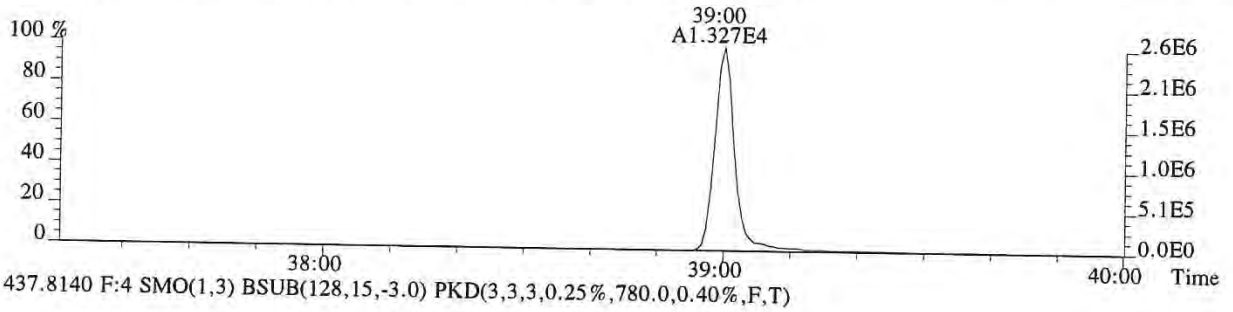
File:P519432 #1-240 Acq:15-DEC-2018 01:35:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800507-02
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1076.0,0.40%,F,T)



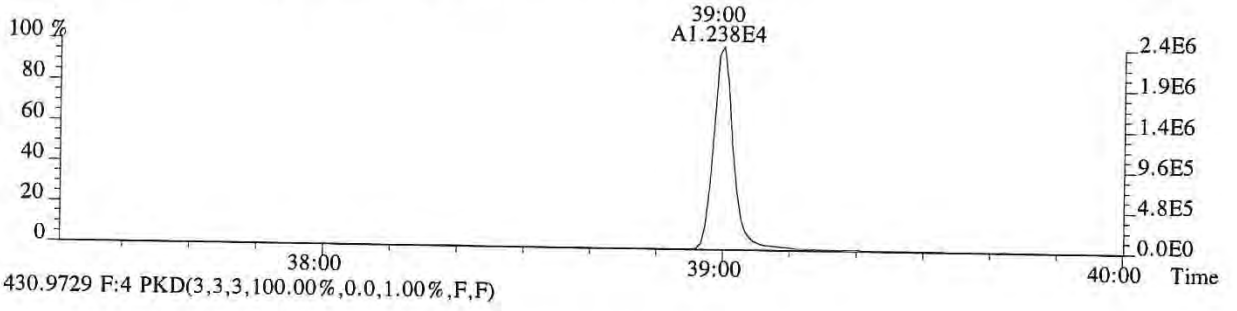
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1144.0,0.40%,F,T)



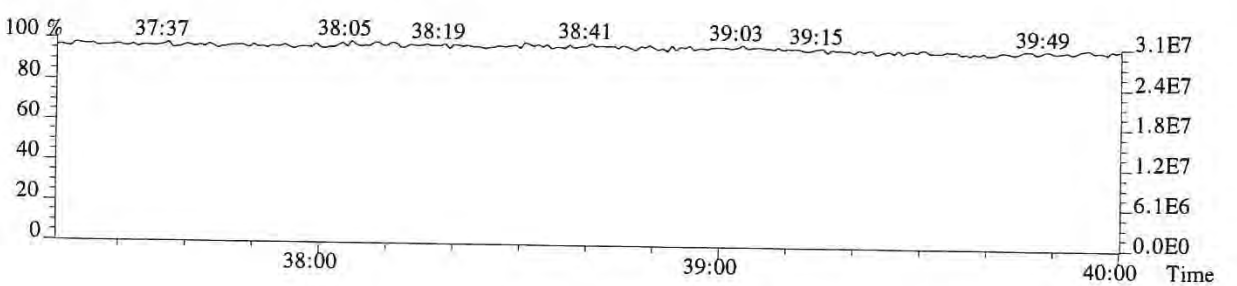
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,916.0,0.40%,F,T)



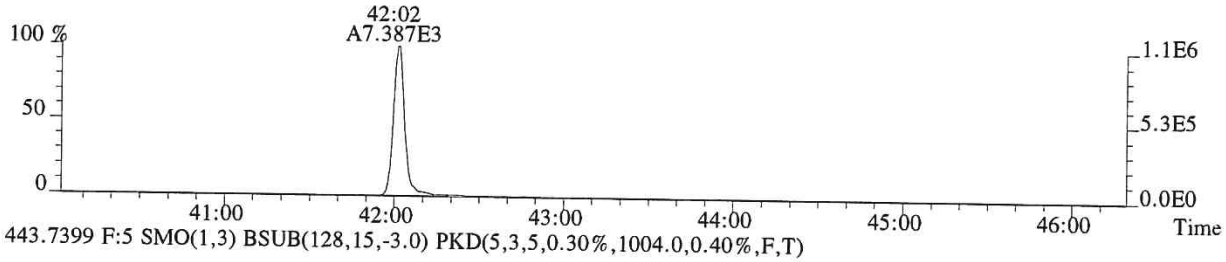
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,780.0,0.40%,F,T)



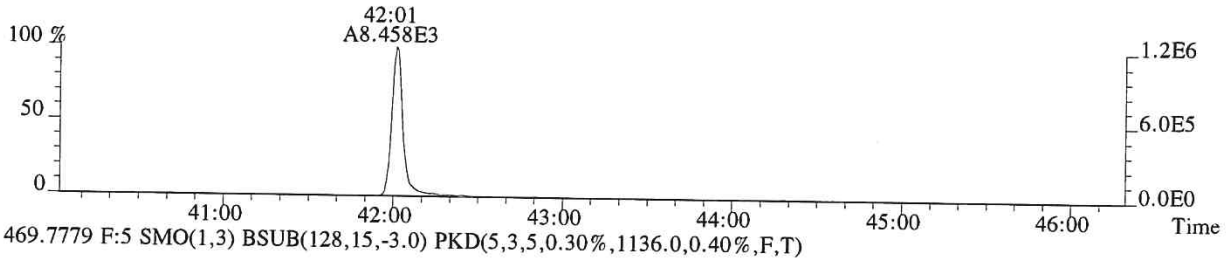
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



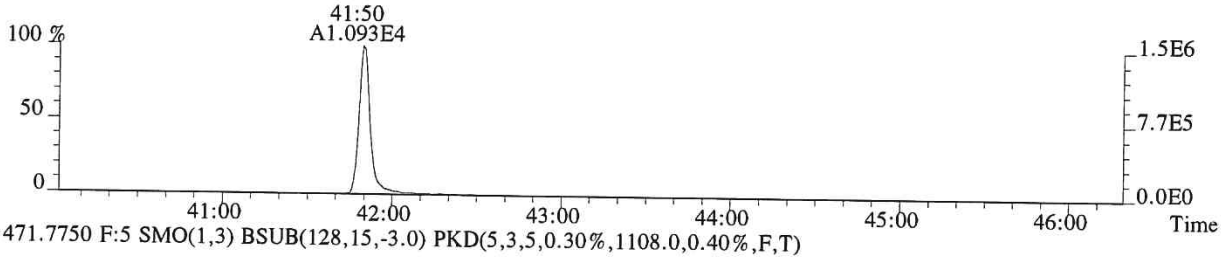
File:P519432 #1-566 Acq:15-DEC-2018 01:35:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800507-02
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,572.0,0.40%,F,T)



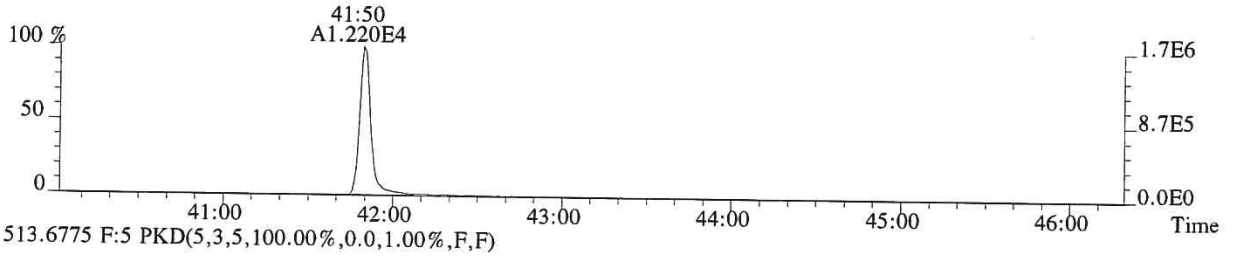
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1004.0,0.40%,F,T)



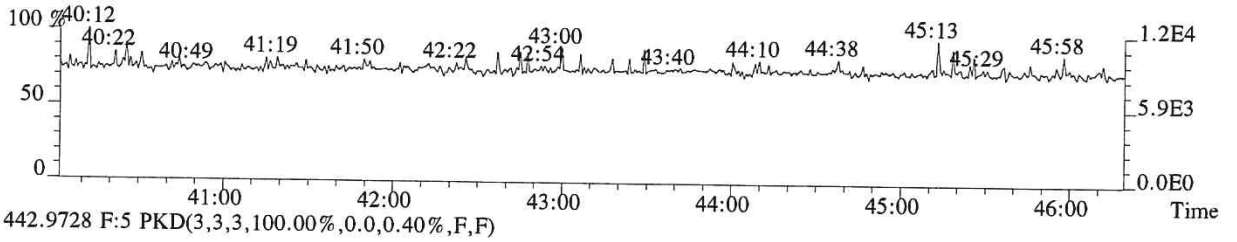
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1136.0,0.40%,F,T)



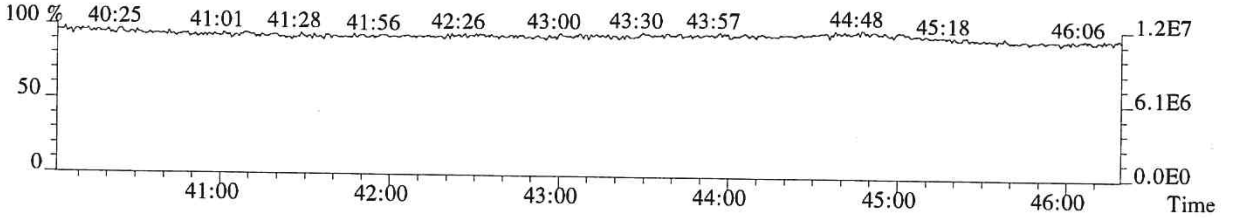
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1108.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

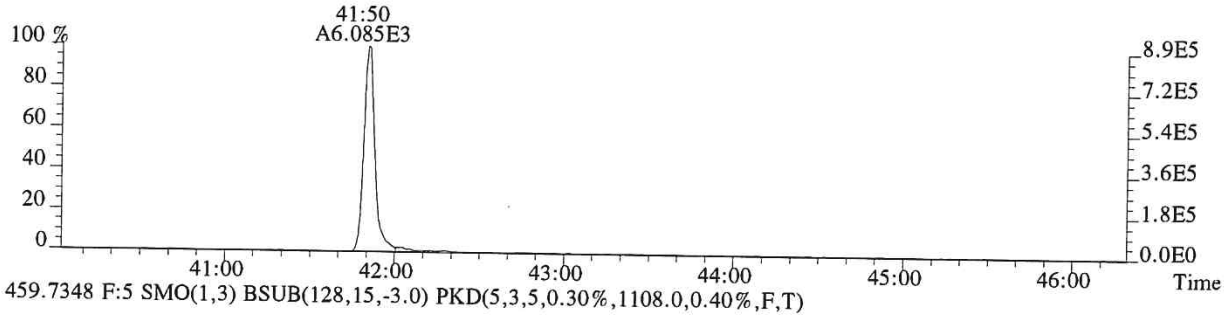


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

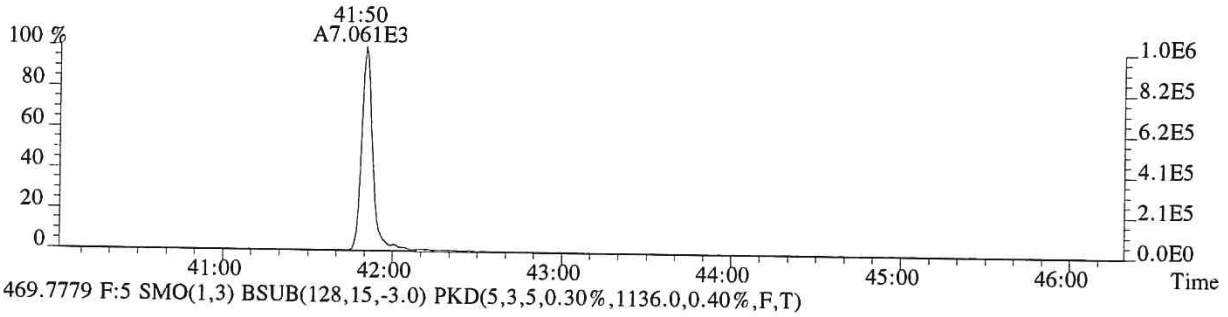


014547

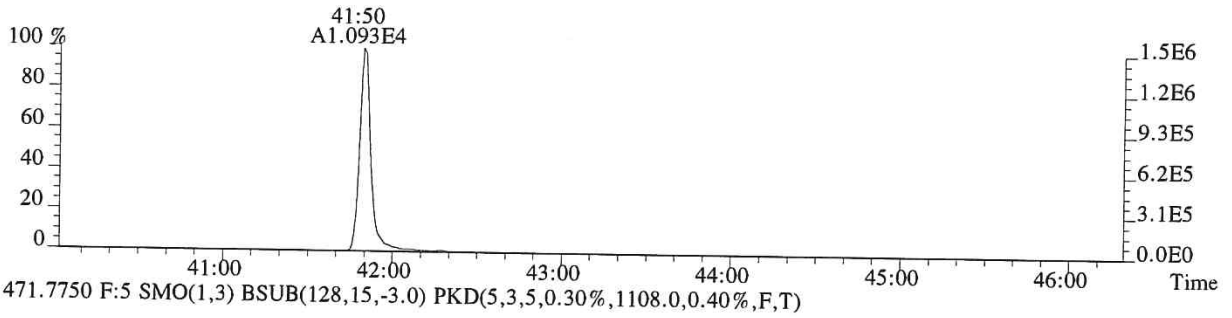
File:P519432 #1-566 Acq:15-DEC-2018 01:35:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800507-02
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,876.0,0.40%,F,T)



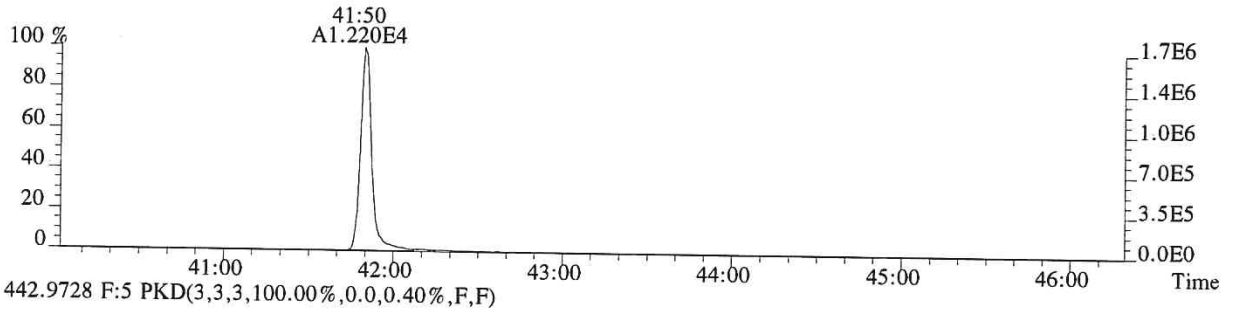
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1108.0,0.40%,F,T)



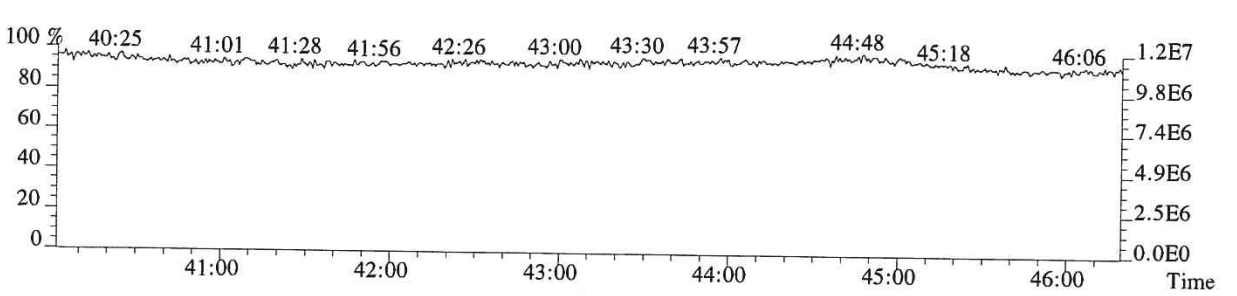
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1136.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1108.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



014548

ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
DLCS

Run #21 Filename P519433 Samp: 1 Inj: 1 Acquired: 15-DEC-18 02:23:49
Processed: 17-DEC-18 15:31:58 Sample ID: EQ1800507-03

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:56	8.811e+02	1.085e+03	0.81	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	31:31	6.936e+03	4.602e+03	1.51	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	32:29	7.111e+03	4.721e+03	1.51	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:18	5.985e+03	4.989e+03	1.20	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:25	6.767e+03	5.832e+03	1.16	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:57	6.259e+03	5.172e+03	1.21	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	36:44	5.468e+03	4.765e+03	1.15	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:04	5.794e+03	5.526e+03	1.05	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:29	4.195e+03	3.780e+03	1.11	yes	no	1.258
10	Unk	OCDF	42:02	7.424e+03	8.089e+03	0.92	yes	no	1.359
11	Unk	2,3,7,8-TCDD	27:50	5.754e+02	8.097e+02	0.71	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	32:48	5.529e+03	3.580e+03	1.54	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:06	4.937e+03	3.890e+03	1.27	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:12	5.253e+03	4.095e+03	1.28	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:26	5.397e+03	4.268e+03	1.26	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:01	4.570e+03	4.259e+03	1.07	yes	no	1.025
17	Unk	OCDD	41:51	6.210e+03	6.869e+03	0.90	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	26:55	7.618e+03	9.812e+03	0.78	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	31:31	1.522e+04	9.405e+03	1.62	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	32:29	1.513e+04	9.501e+03	1.59	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:18	6.495e+03	1.272e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:24	7.780e+03	1.512e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:56	7.269e+03	1.386e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	36:43	6.348e+03	1.265e+04	0.50	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:03	5.356e+03	1.152e+04	0.46	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:29	3.213e+03	6.640e+03	0.48	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	27:48	3.517e+03	4.753e+03	0.74	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:47	1.168e+04	7.289e+03	1.60	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:06	1.060e+04	8.483e+03	1.25	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:11	9.926e+03	7.794e+03	1.27	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:01	1.176e+04	1.101e+04	1.07	yes	no	0.858
32	IS	13C-OCDD	41:51	1.081e+04	1.194e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:10	1.460e+04	1.874e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:26	1.935e+04	1.572e+04	1.23	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:50	5.197e+03				no	1.014

$$\text{OCDD} = \frac{(6.210e+03 + 6.869e+03) \times 4000\ \text{pg} \times 1}{(1.081e+04 + 1.194e+04) \times \text{g} \times / 100 \times 1.118}$$

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
DLCS

Run #21 Filename P519433 Samp: 1 Inj: 1 Acquired: 15-DEC-18 02:23:49
Processed: 17-DEC-18 15:31:58 LAB. ID: EQ1800507-03

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.42e+05	1.20e+03	1.2e+02	1.66e+05	1.63e+03	1.0e+02
2	1,2,3,7,8-PeCDF	1.25e+06	2.92e+02	4.3e+03	8.29e+05	9.12e+02	9.1e+02
3	2,3,4,7,8-PeCDF	1.40e+06	2.92e+02	4.8e+03	9.19e+05	9.12e+02	1.0e+03
4	1,2,3,4,7,8-HxCDF	1.29e+06	7.72e+02	1.7e+03	1.07e+06	5.40e+02	2.0e+03
5	1,2,3,6,7,8-HxCDF	1.35e+06	7.72e+02	1.8e+03	1.12e+06	5.40e+02	2.1e+03
6	2,3,4,6,7,8-HxCDF	1.36e+06	7.72e+02	1.8e+03	1.11e+06	5.40e+02	2.1e+03
7	1,2,3,7,8,9-HxCDF	1.12e+06	7.72e+02	1.4e+03	9.71e+05	5.40e+02	1.8e+03
8	1,2,3,4,6,7,8-HpCDF	1.18e+06	2.35e+03	5.0e+02	1.16e+06	8.36e+02	1.4e+03
9	1,2,3,4,7,8,9-HpCDF	7.32e+05	2.35e+03	3.1e+02	6.78e+05	8.36e+02	8.1e+02
10	OCDF	1.09e+06	3.84e+02	2.8e+03	1.19e+06	5.00e+02	2.4e+03
11	2,3,7,8-TCDD	1.03e+05	1.68e+03	6.1e+01	1.34e+05	1.31e+03	1.0e+02
12	1,2,3,7,8-PeCDD	1.04e+06	3.44e+02	3.0e+03	6.50e+05	4.64e+02	1.4e+03
13	1,2,3,4,7,8-HxCDD	1.05e+06	3.28e+02	3.2e+03	8.20e+05	2.52e+02	3.3e+03
14	1,2,3,6,7,8-HxCDD	1.07e+06	3.28e+02	3.3e+03	8.01e+05	2.52e+02	3.2e+03
15	1,2,3,7,8,9-HxCDD	1.04e+06	3.28e+02	3.2e+03	8.48e+05	2.52e+02	3.4e+03
16	1,2,3,4,6,7,8-HpCDD	8.84e+05	7.72e+02	1.1e+03	8.28e+05	5.44e+02	1.5e+03
17	OCDD	9.30e+05	4.92e+02	1.9e+03	1.03e+06	3.92e+02	2.6e+03
18	13C-2,3,7,8-TCDF	1.21e+06	3.43e+03	3.5e+02	1.60e+06	1.95e+03	8.2e+02
19	13C-1,2,3,7,8-PeCDF	2.72e+06	7.40e+02	3.7e+03	1.65e+06	5.24e+02	3.1e+03
20	13C-2,3,4,7,8-PeCDF	2.90e+06	7.40e+02	3.9e+03	1.78e+06	5.24e+02	3.4e+03
21	13C-1,2,3,4,7,8-HxCDF	1.37e+06	4.92e+02	2.8e+03	2.74e+06	6.28e+02	4.4e+03
22	13C-1,2,3,6,7,8-HxCDF	1.55e+06	4.92e+02	3.1e+03	2.99e+06	6.28e+02	4.8e+03
23	13C-2,3,4,6,7,8-HxCDF	1.54e+06	4.92e+02	3.1e+03	2.97e+06	6.28e+02	4.7e+03
24	13C-1,2,3,7,8,9-HxCDF	1.28e+06	4.92e+02	2.6e+03	2.54e+06	6.28e+02	4.0e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.07e+06	1.51e+03	7.1e+02	2.37e+06	2.19e+03	1.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	5.67e+05	1.51e+03	3.7e+02	1.10e+06	2.19e+03	5.0e+02
27	13C-2,3,7,8-TCDD	6.29e+05	5.33e+03	1.2e+02	8.18e+05	2.77e+03	3.0e+02
28	13C-1,2,3,7,8-PeCDD	2.17e+06	9.88e+02	2.2e+03	1.37e+06	5.32e+02	2.6e+03
29	13C-1,2,3,4,7,8-HxCDD	2.23e+06	6.12e+02	3.6e+03	1.76e+06	2.92e+02	6.0e+03
30	13C-1,2,3,6,7,8-HxCDD	2.02e+06	6.12e+02	3.3e+03	1.60e+06	2.92e+02	5.5e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.28e+06	5.84e+02	3.9e+03	2.11e+06	6.08e+02	3.5e+03
32	13C-OCDD	1.58e+06	5.72e+02	2.8e+03	1.72e+06	3.84e+02	4.5e+03
33	13C-1,2,3,4-TCDD	2.54e+06	5.33e+03	4.8e+02	3.23e+06	2.77e+03	1.2e+03
34	13C-1,2,3,7,8,9-HxCDD	3.94e+06	6.12e+02	6.4e+03	3.07e+06	2.92e+02	1.1e+04
35	37Cl-2,3,7,8-TCDD	8.67e+05	7.32e+02	1.2e+03			

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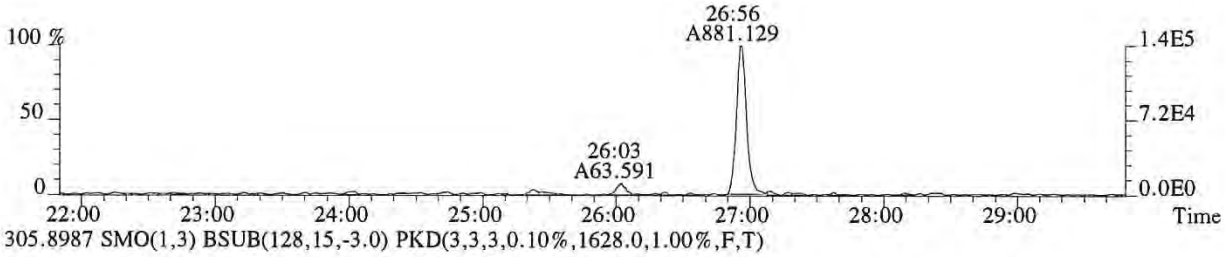
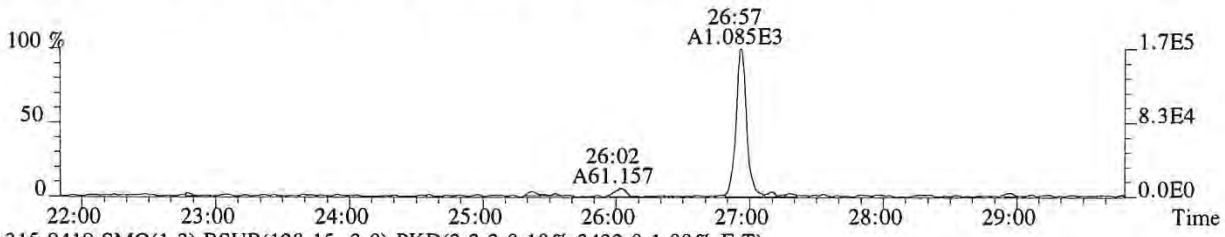
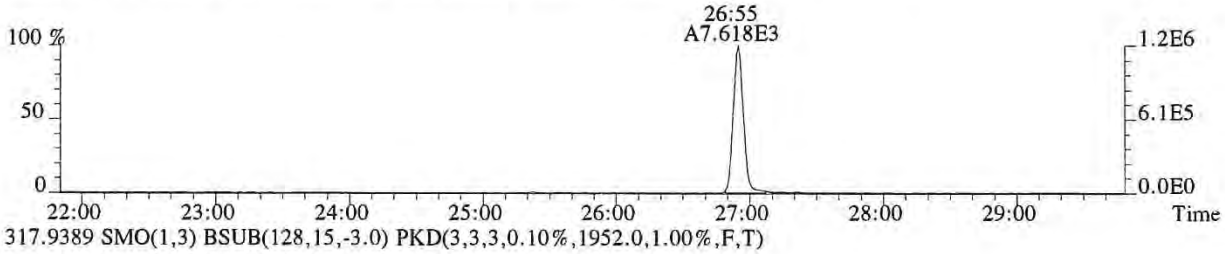
File:P519433 #1-566 Acq:15-DEC-2018 02:23:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800507-03
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1196.0,1.00%,F,T)



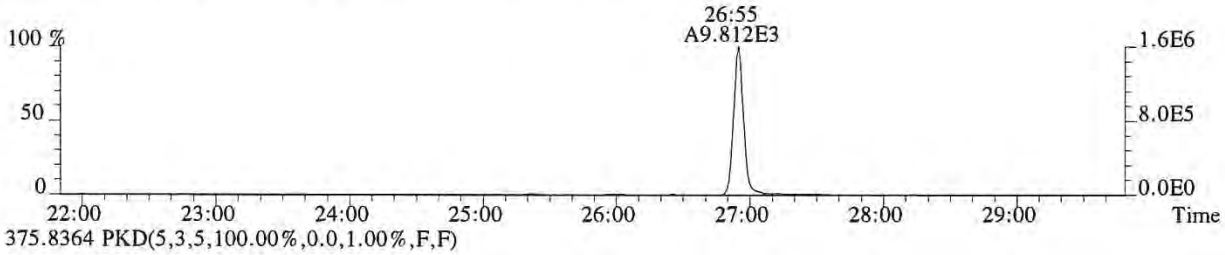
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1628.0,1.00%,F,T)



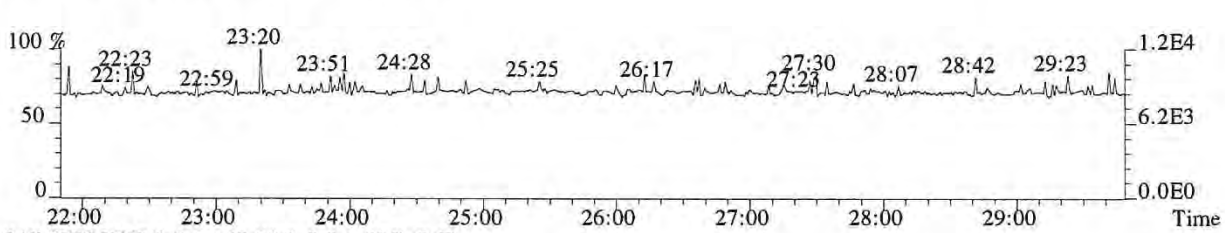
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3432.0,1.00%,F,T)



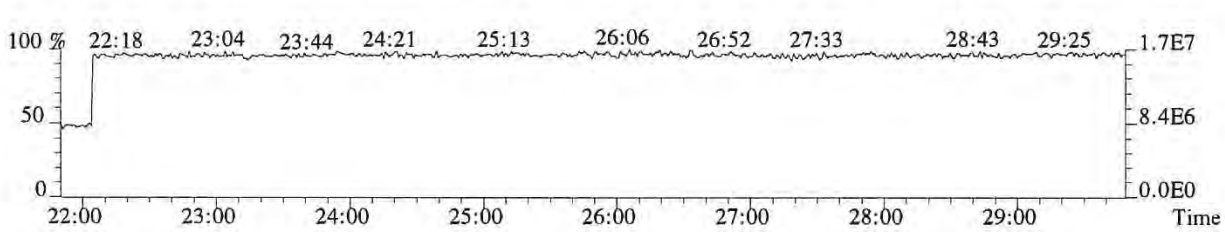
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1952.0,1.00%,F,T)



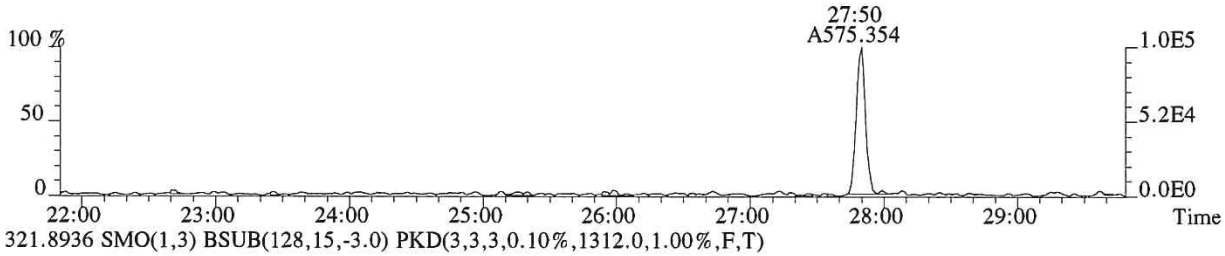
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



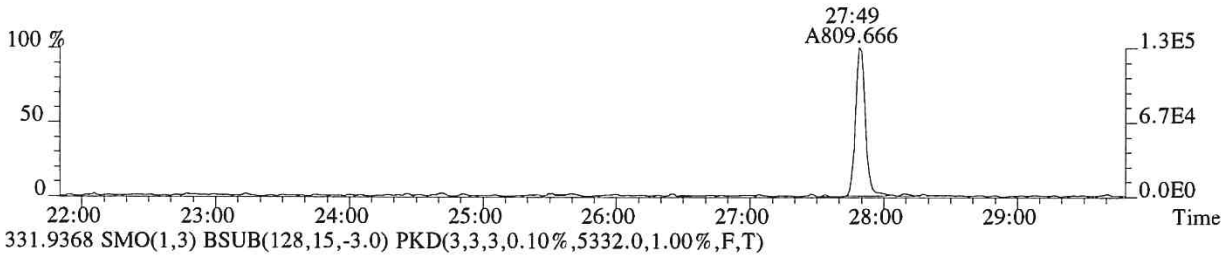
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



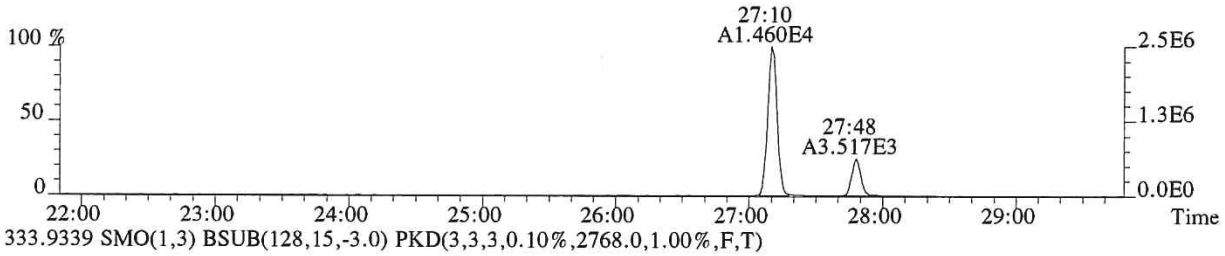
File:P519433 #1-566 Acq:15-DEC-2018 02:23:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800507-03
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1684.0,1.00%,F,T)



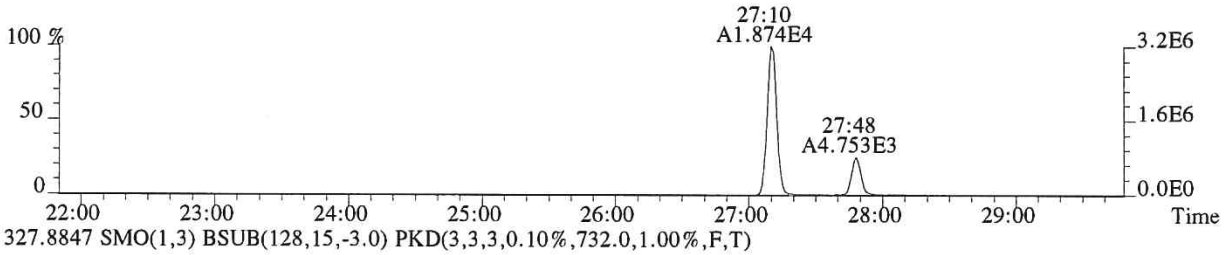
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1312.0,1.00%,F,T)



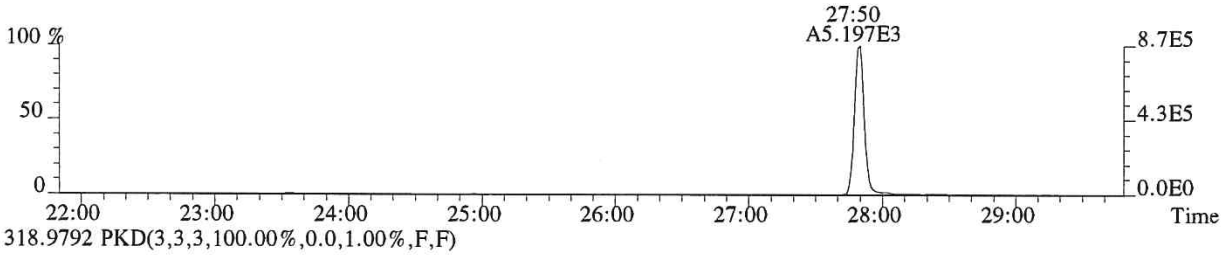
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5332.0,1.00%,F,T)



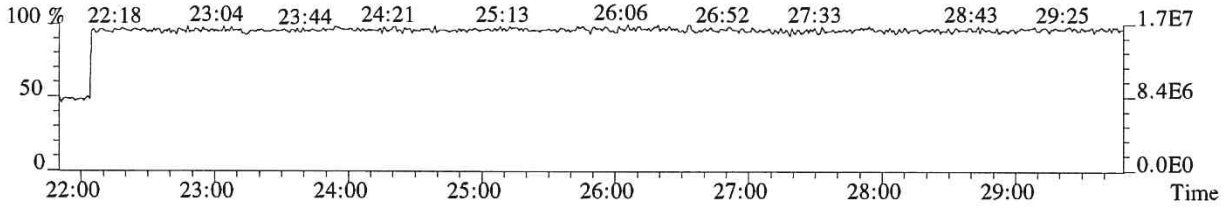
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2768.0,1.00%,F,T)



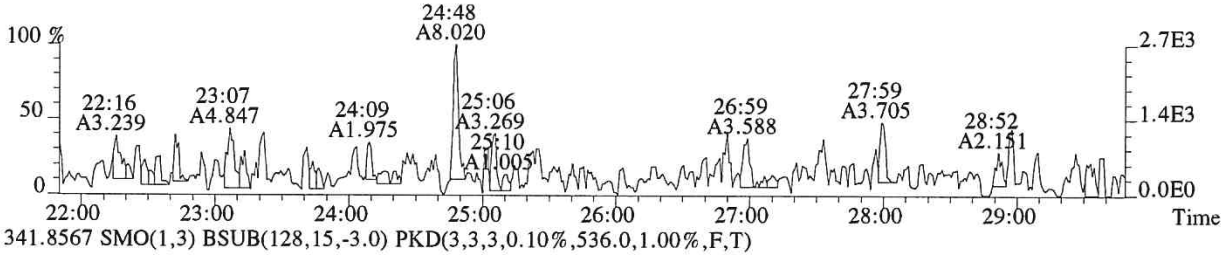
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,732.0,1.00%,F,T)



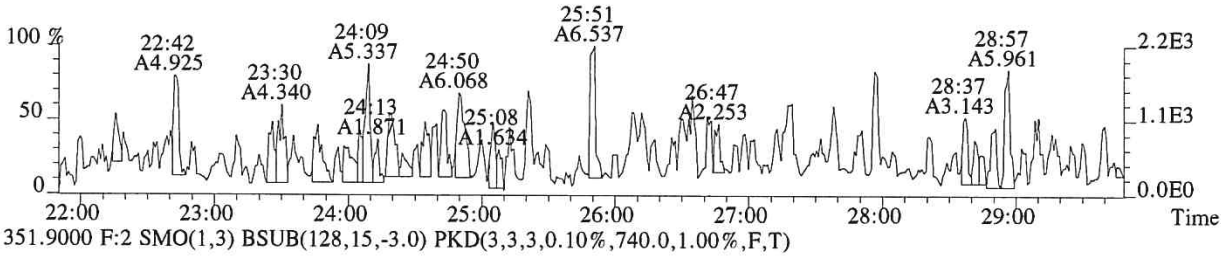
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



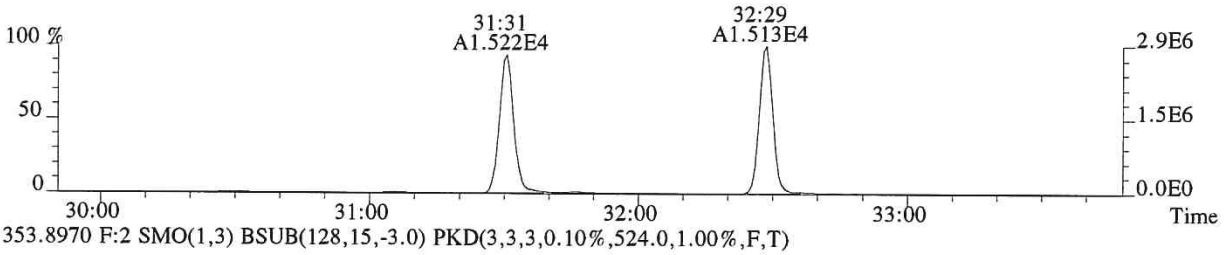
File:P519433 #1-566 Acq:15-DEC-2018 02:23:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800507-03
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,416.0,1.00%,F,T)



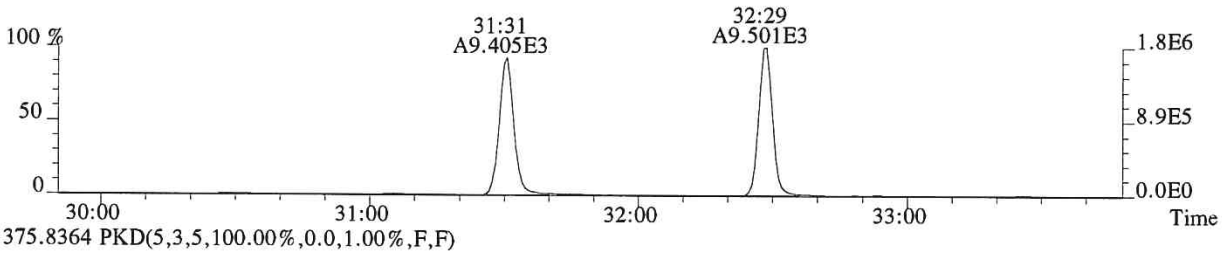
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,536.0,1.00%,F,T)



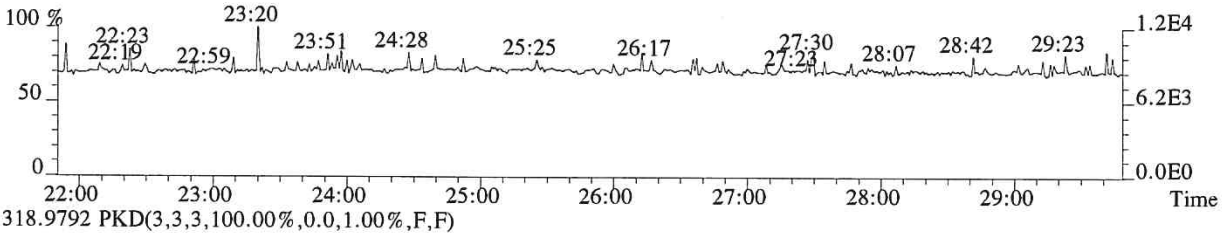
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,740.0,1.00%,F,T)



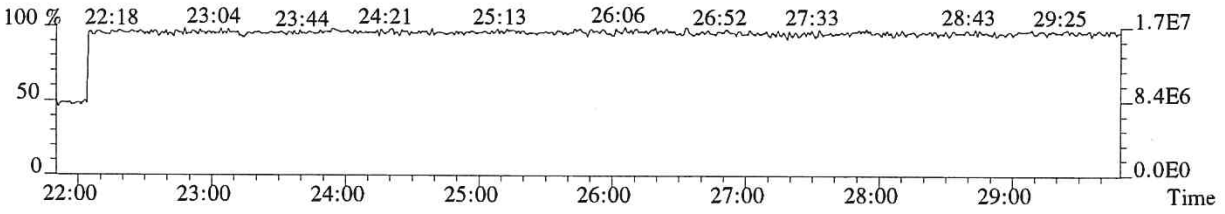
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,524.0,1.00%,F,T)



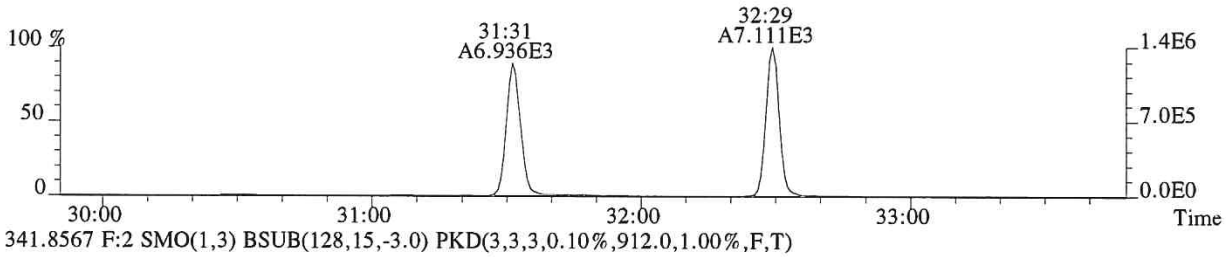
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



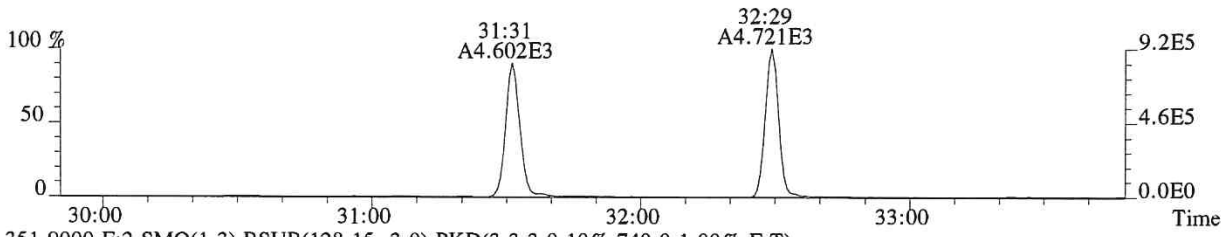
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



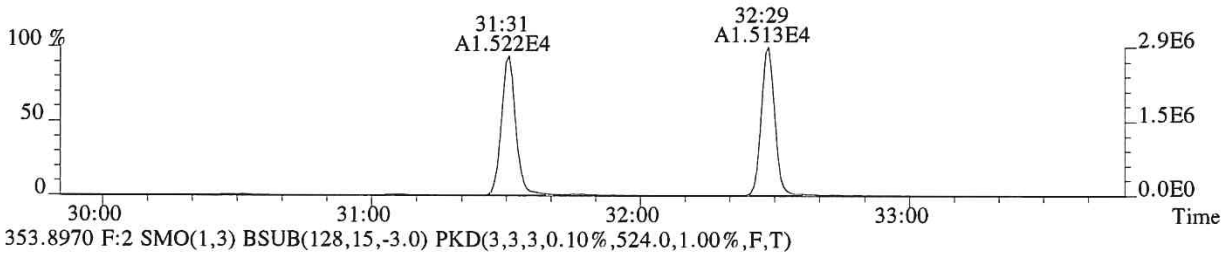
File:P519433 #1-357 Acq:15-DEC-2018 02:23:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800507-03
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,292.0,1.00%,F,T)



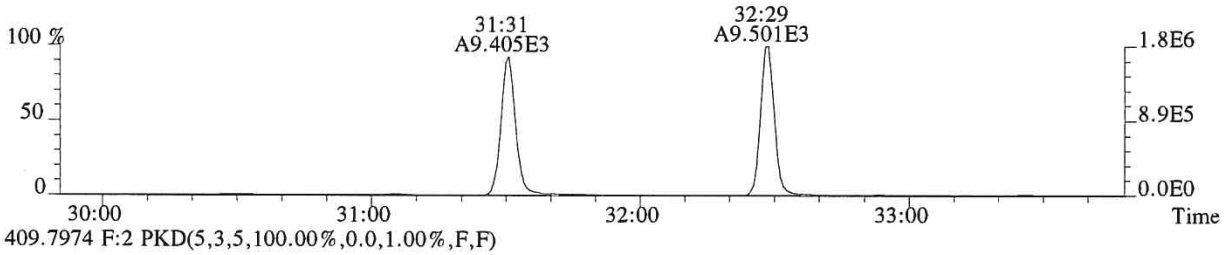
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,912.0,1.00%,F,T)



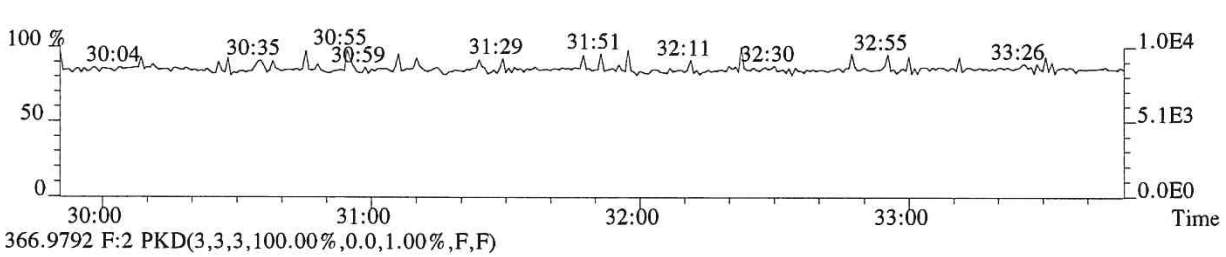
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,740.0,1.00%,F,T)



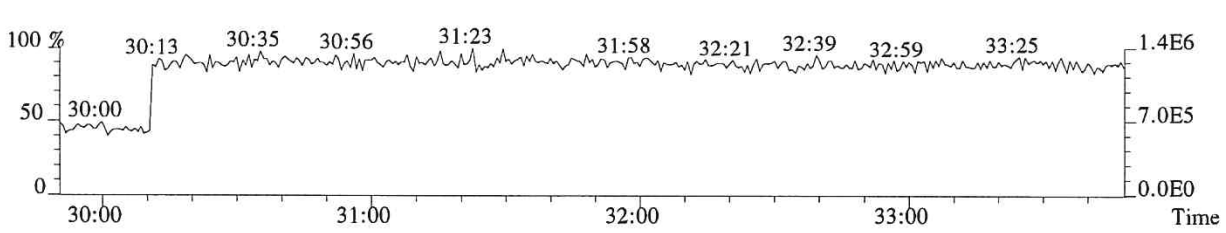
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,524.0,1.00%,F,T)



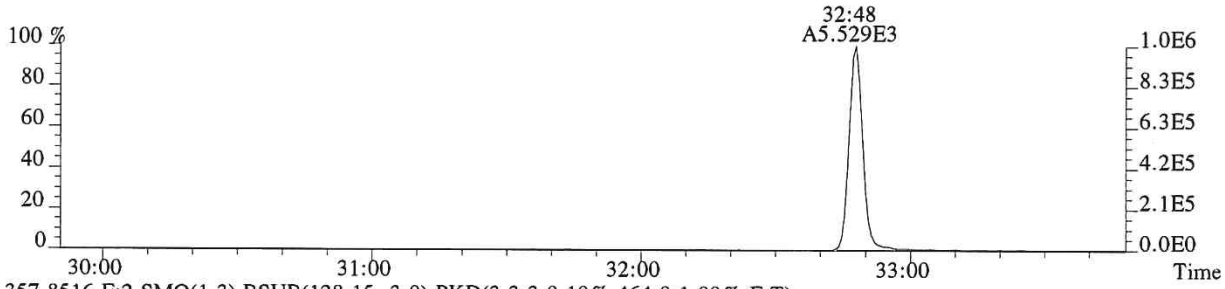
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



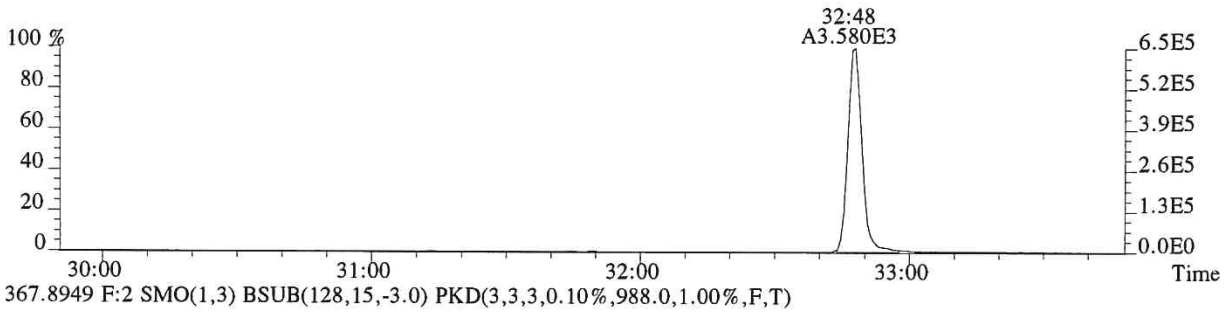
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



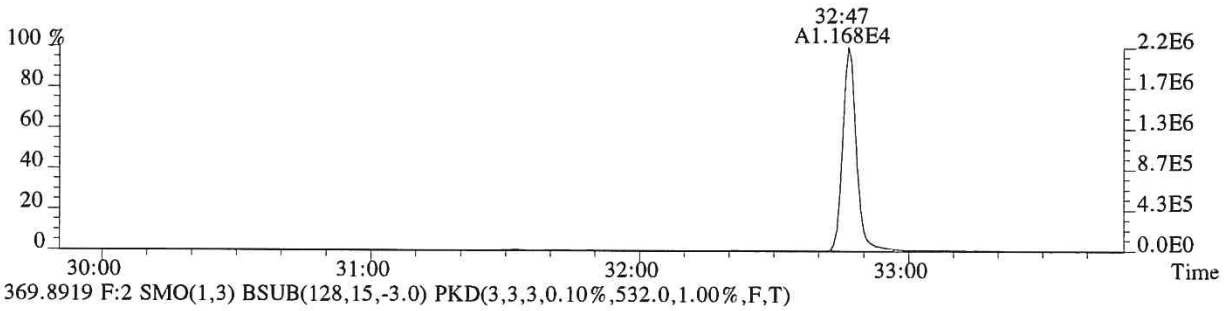
File:P519433 #1-357 Acq:15-DEC-2018 02:23:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800507-03
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,344.0,1.00%,F,T)



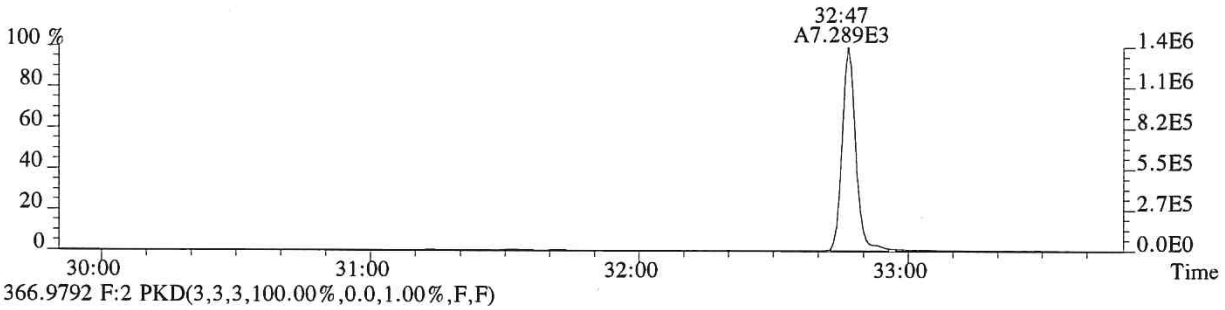
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,464.0,1.00%,F,T)



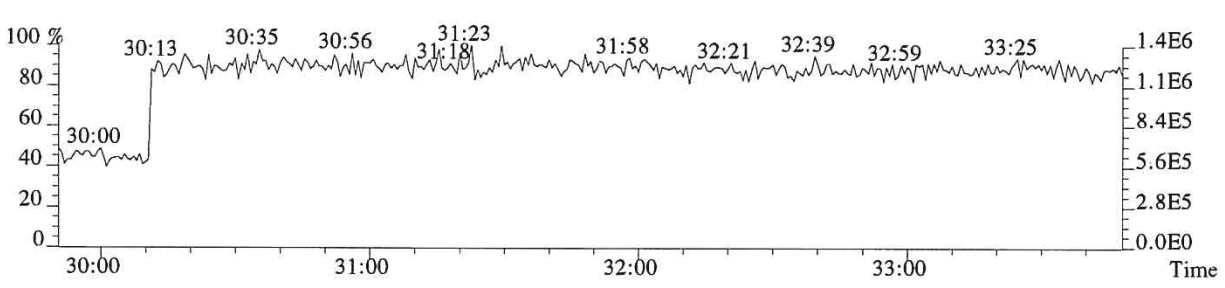
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,988.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,532.0,1.00%,F,T)

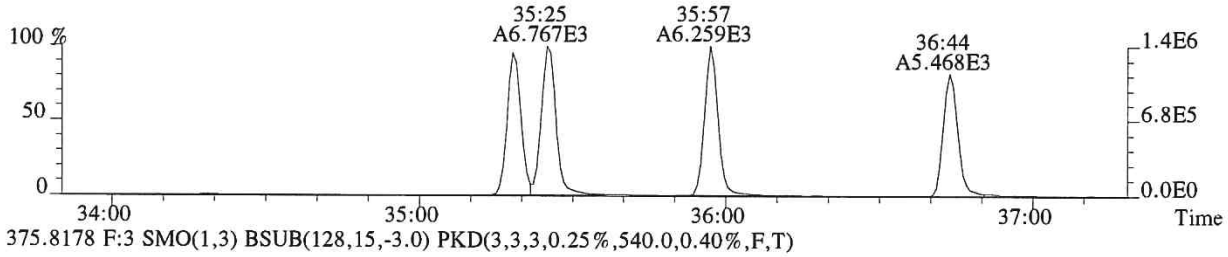


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

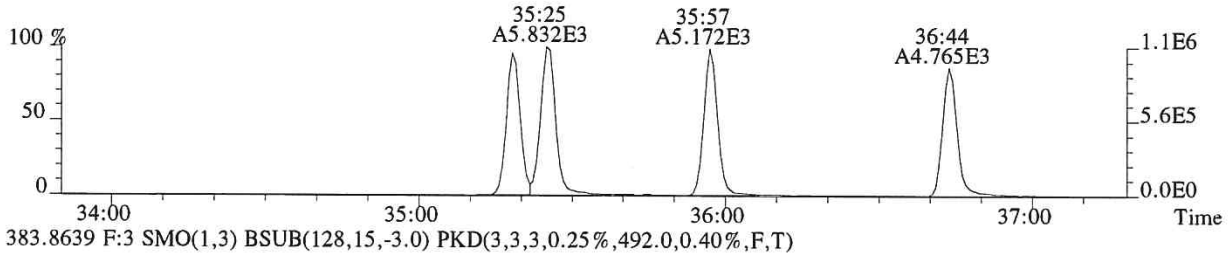


014555

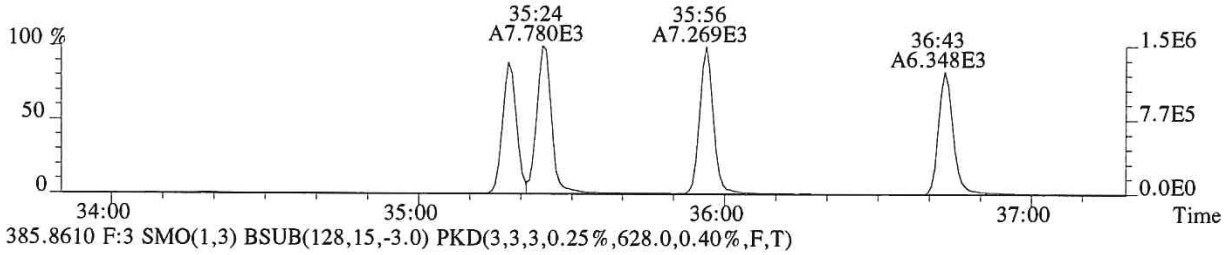
File:P519433 #1-313 Acq:15-DEC-2018 02:23:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800507-03
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,772.0,0.40%,F,T)



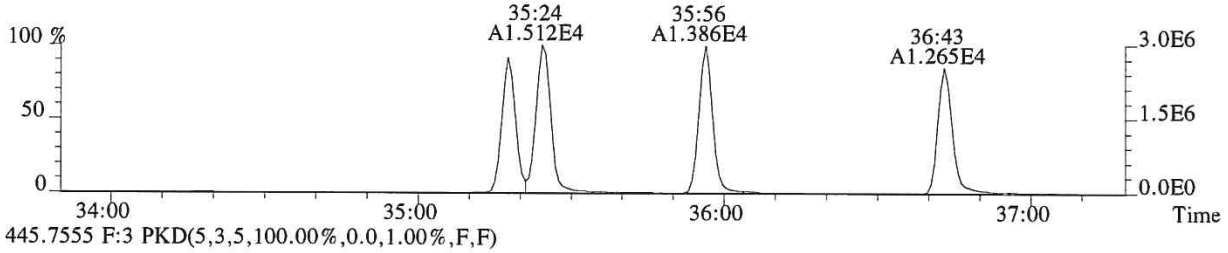
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,540.0,0.40%,F,T)



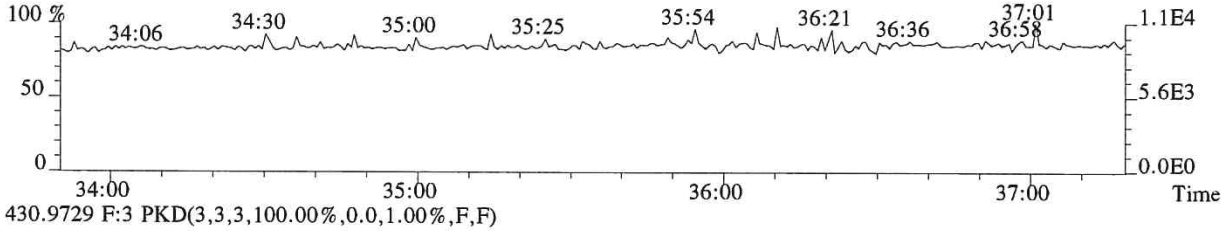
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,492.0,0.40%,F,T)



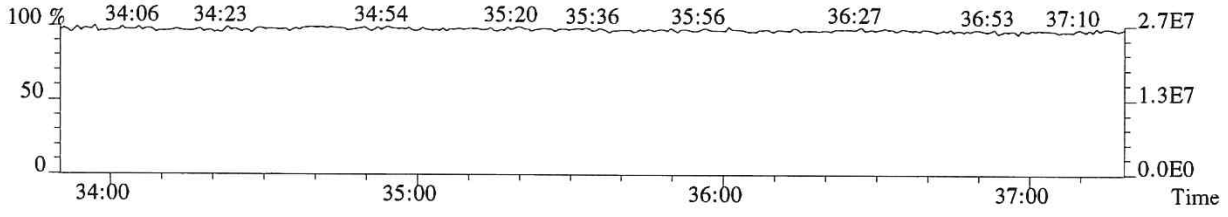
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,628.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

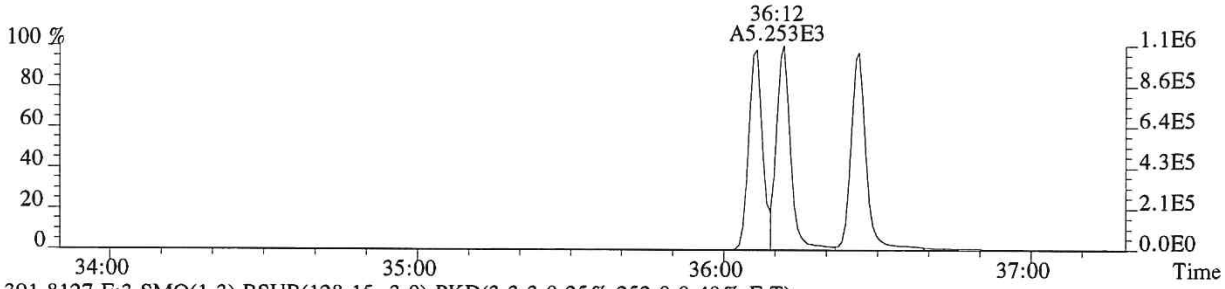


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

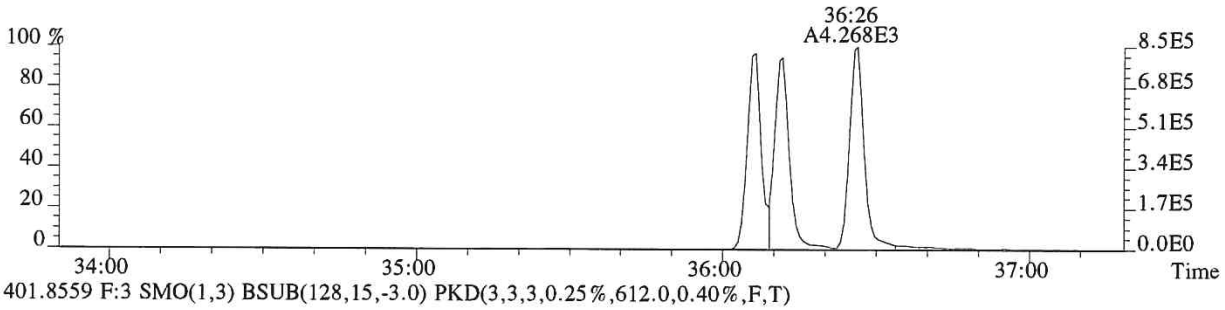


014556

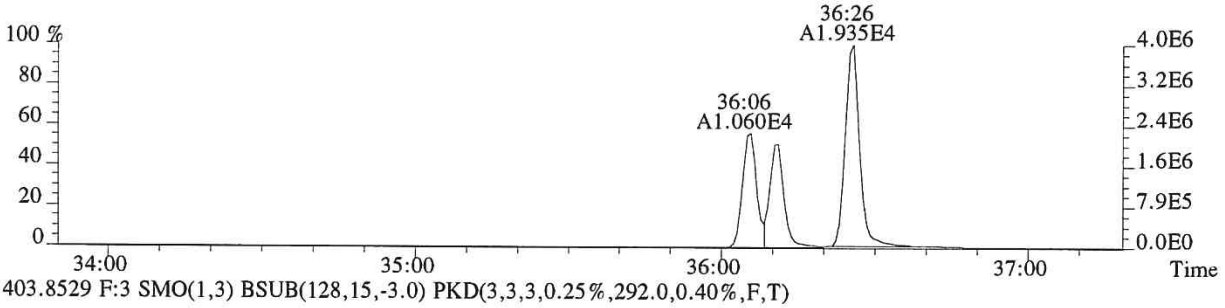
File:P519433 #1-313 Acq:15-DEC-2018 02:23:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800507-03
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,328.0,0.40%,F,T)



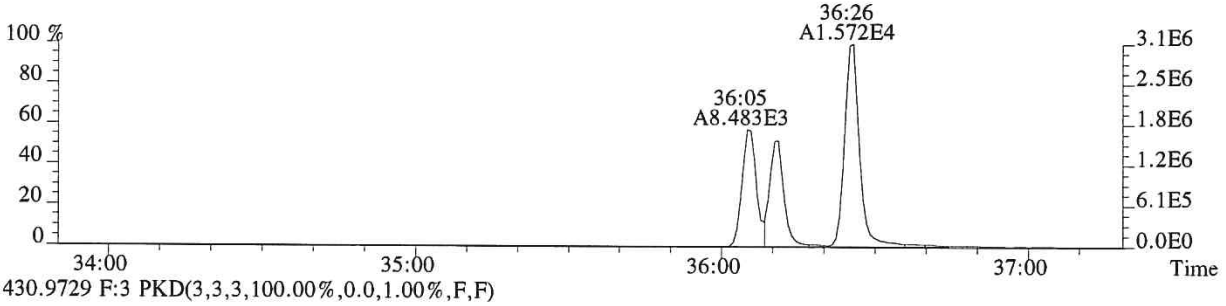
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,252.0,0.40%,F,T)



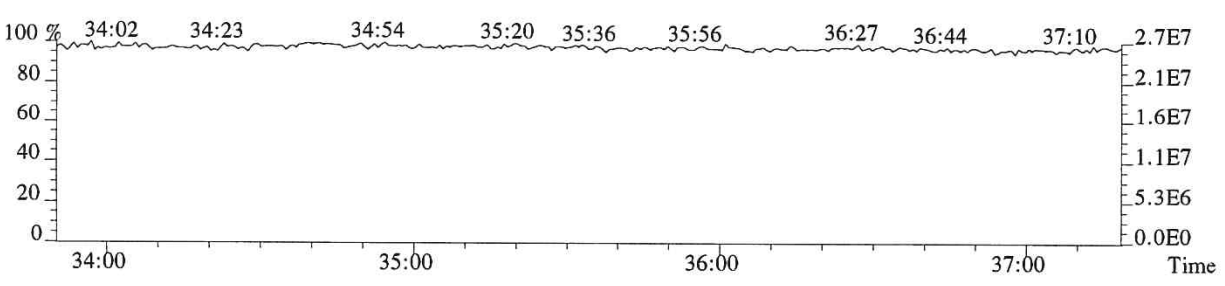
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,612.0,0.40%,F,T)



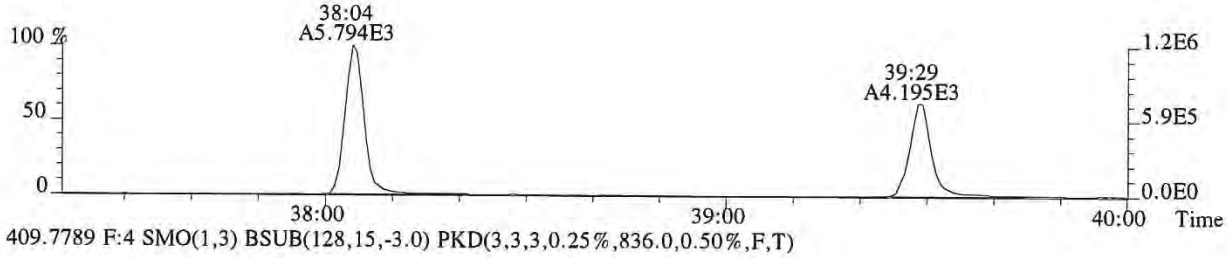
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,292.0,0.40%,F,T)



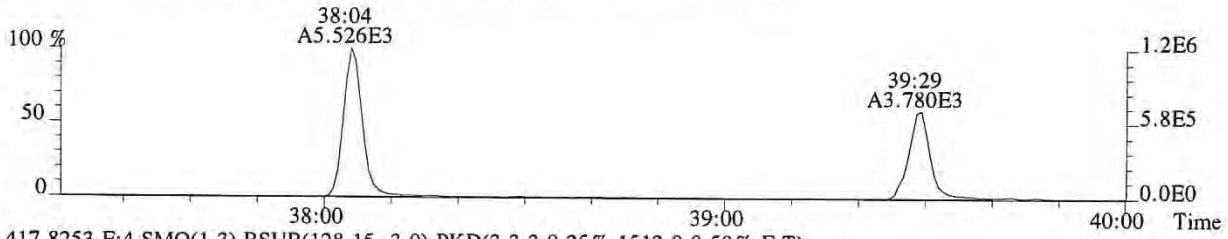
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



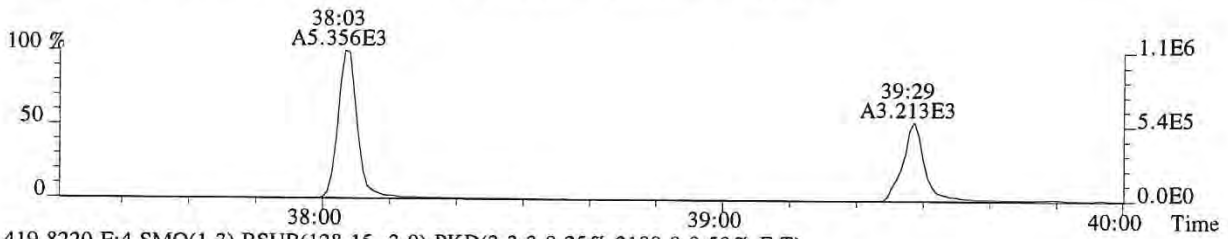
File:P519433 #1-240 Acq:15-DEC-2018 02:23:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800507-03
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2348.0,0.50%,F,T)



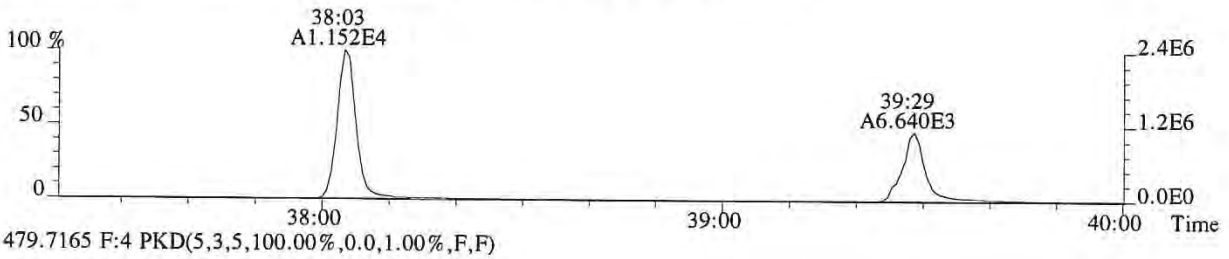
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,836.0,0.50%,F,T)



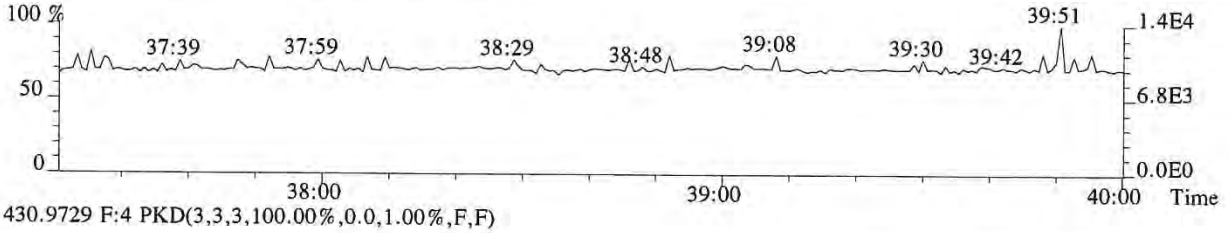
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1512.0,0.50%,F,T)



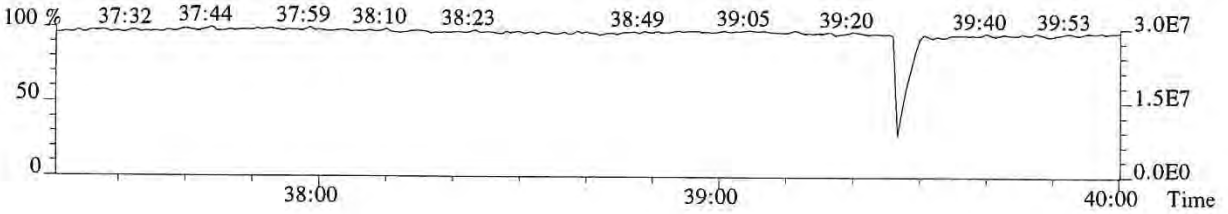
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2188.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

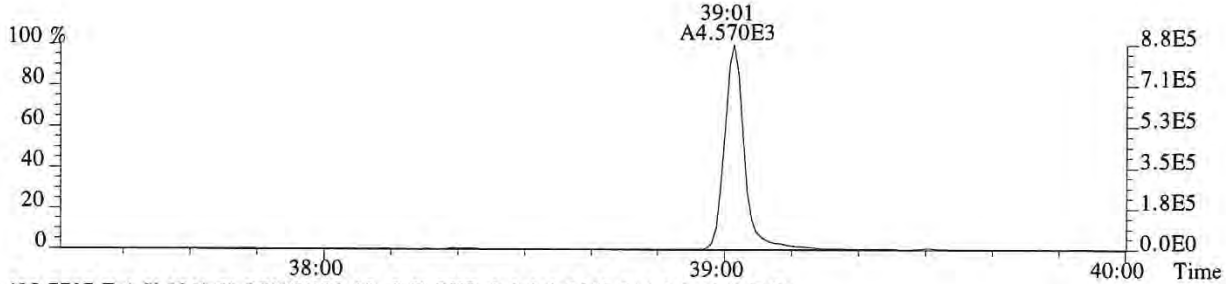


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

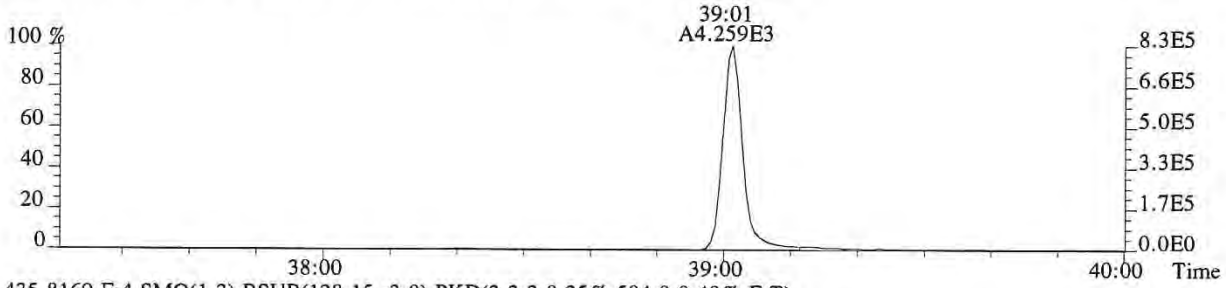


014558

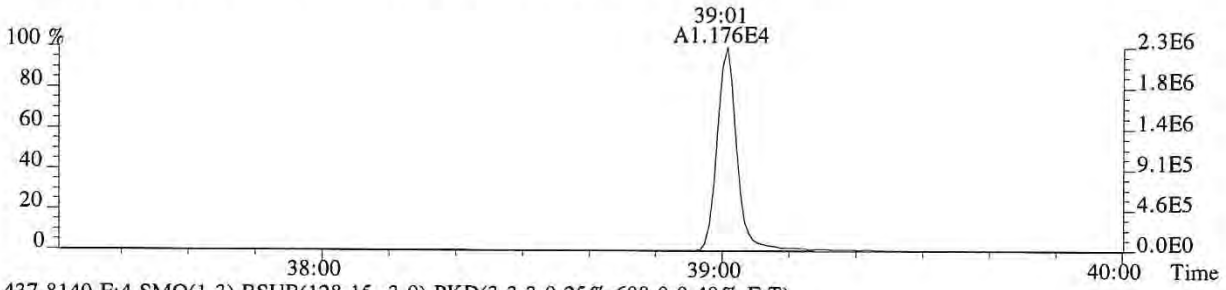
File:P519433 #1-240 Acq:15-DEC-2018 02:23:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800507-03
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,772.0,0.40%,F,T)



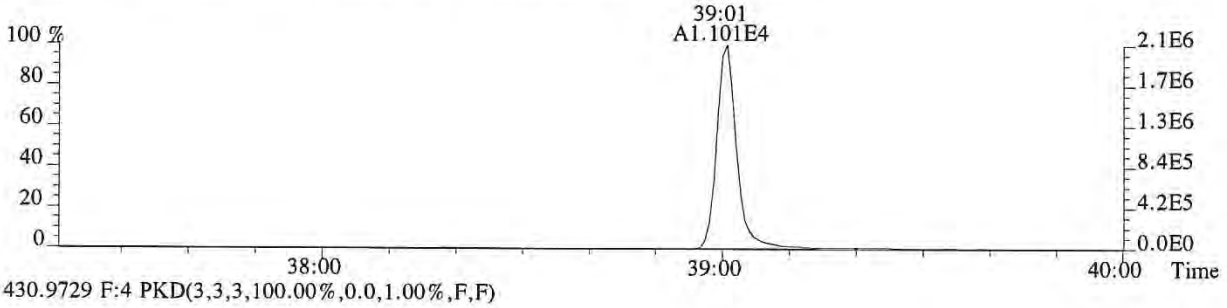
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,544.0,0.40%,F,T)



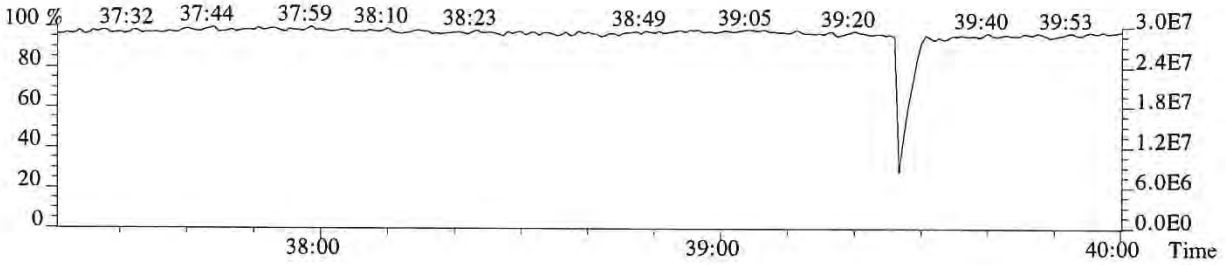
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,584.0,0.40%,F,T)



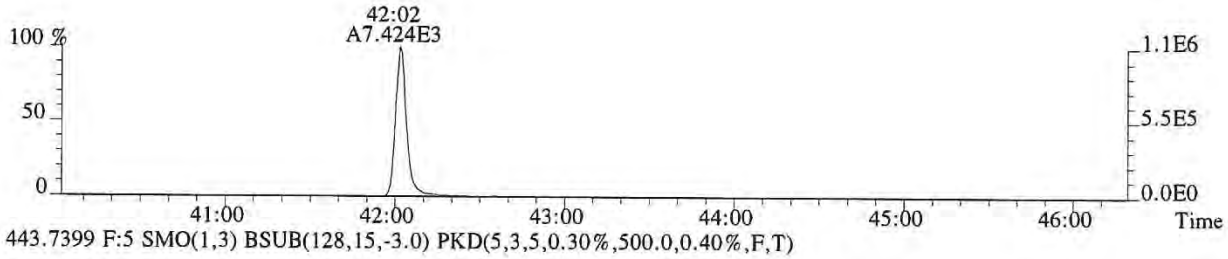
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,608.0,0.40%,F,T)



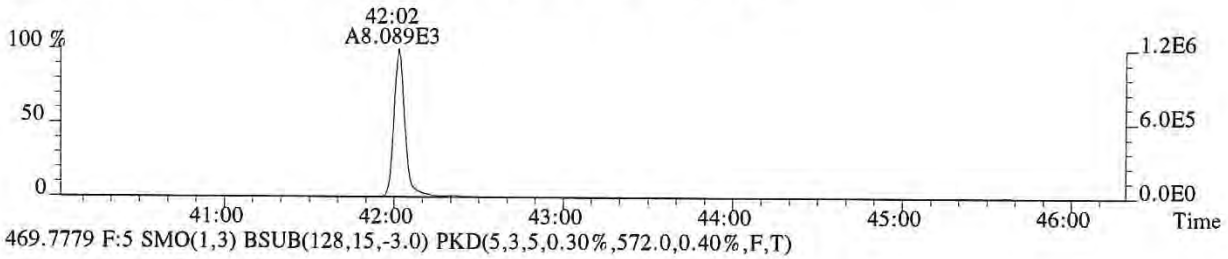
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



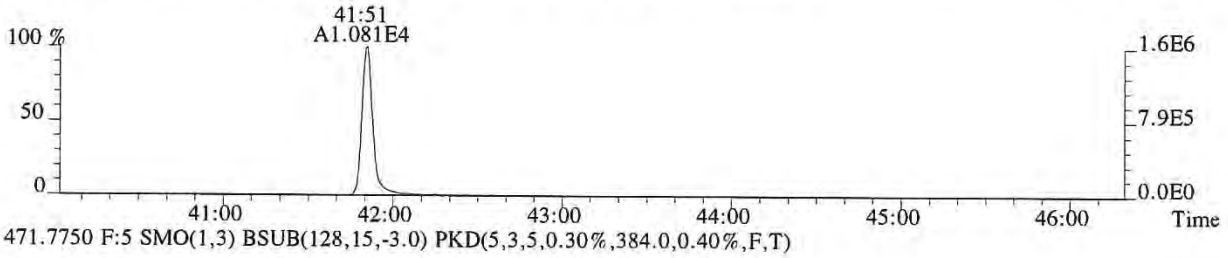
File:P519433 #1-566 Acq:15-DEC-2018 02:23:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800507-03
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,384.0,0.40%,F,T)



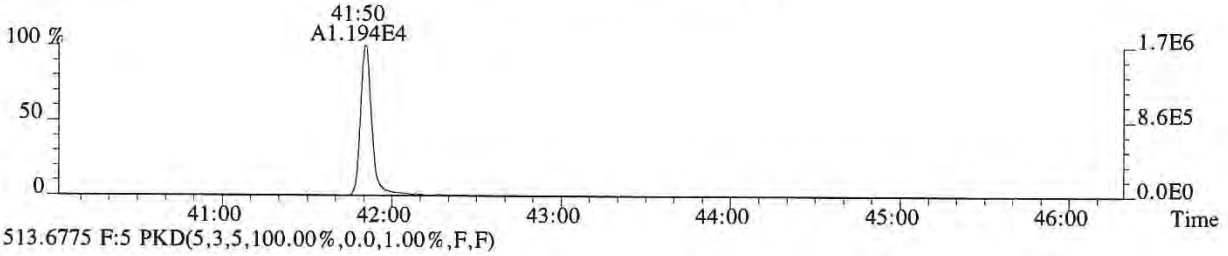
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,500.0,0.40%,F,T)



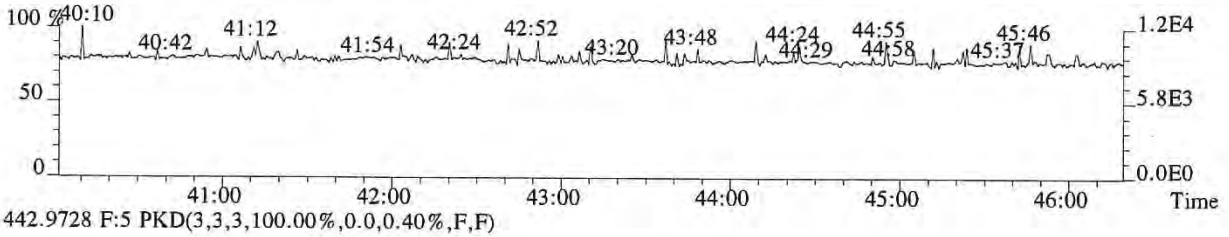
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,572.0,0.40%,F,T)



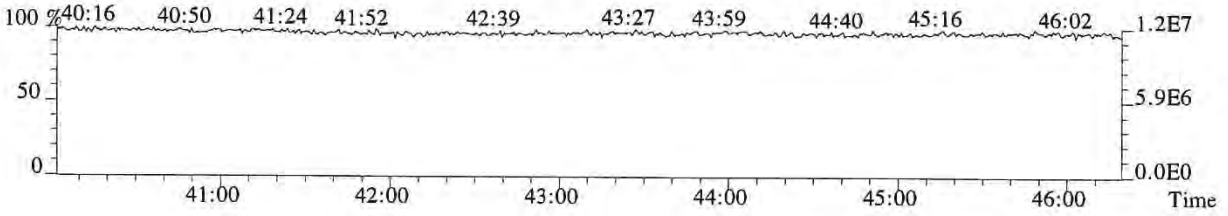
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,384.0,0.40%,F,T)



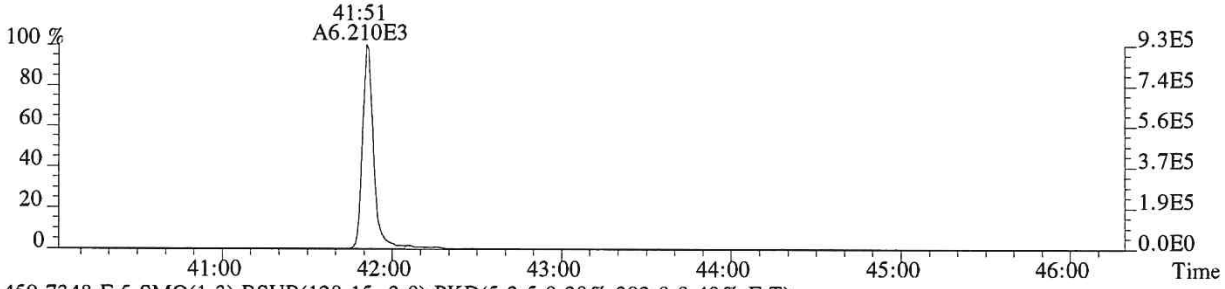
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



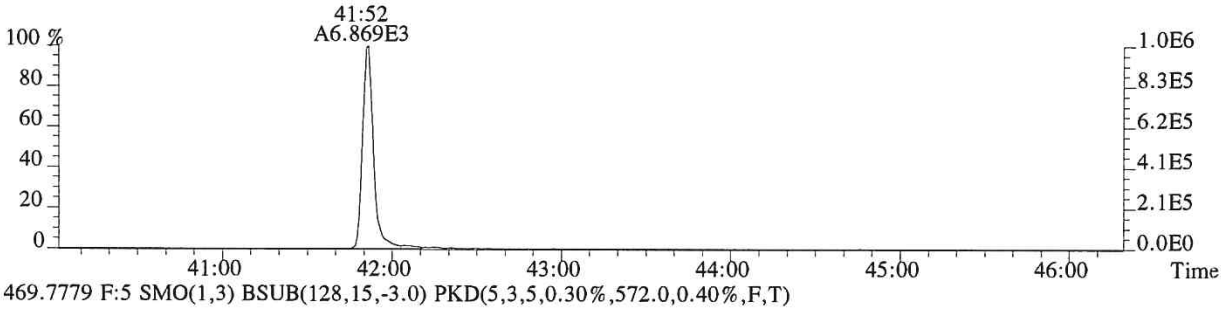
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



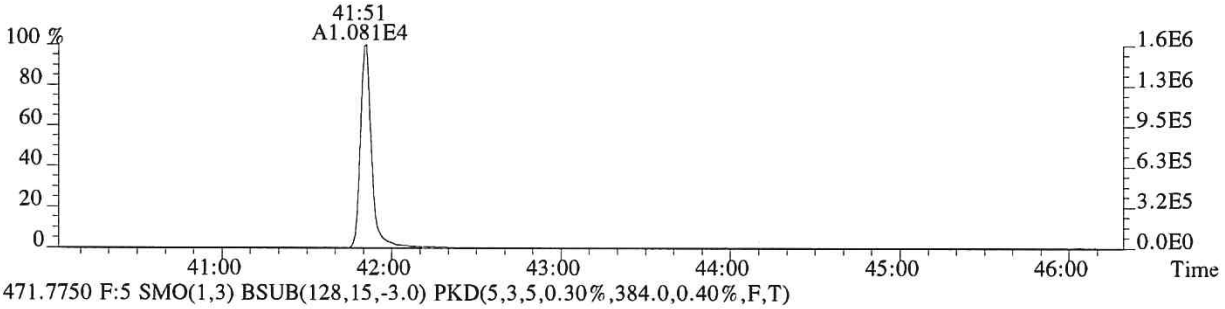
File:P519433 #1-566 Acq:15-DEC-2018 02:23:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800507-03
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,492.0,0.40%,F,T)



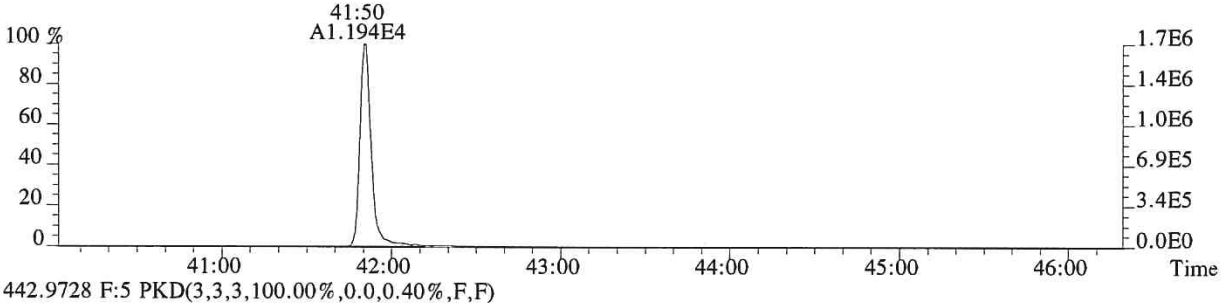
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,392.0,0.40%,F,T)



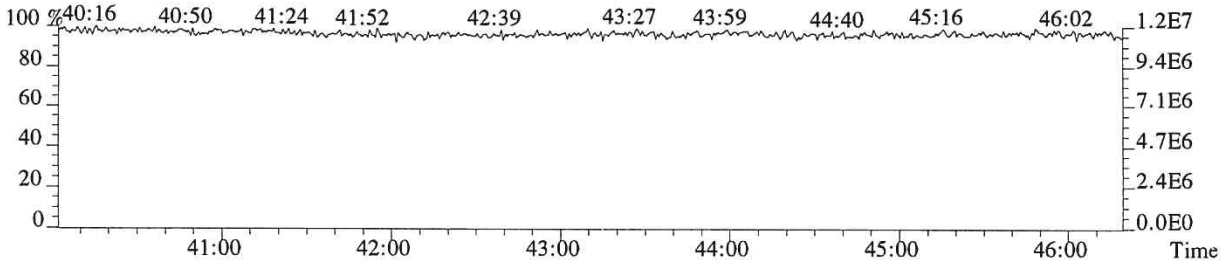
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,572.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,384.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



Continuing Calibration

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P51941 9

Date: 12/14/18 - 12/15/18

Circle one: (Beginning) / Ending

Method: (1613 / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: _____ Second QC: _____

ccalqc.xls 07/17/12

014563

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

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
194503	CS3	P519419	14-DEC-18	15:00:28
192977	WINDOW DEFINE	P519420	14-DEC-18	15:50:53
METHOD BLANK	EQ1800499-01	P519421	14-DEC-18	16:40:47
METHOD BLANK	EQ1800507-01	P519422	14-DEC-18	17:28:33
SL0017	E1801093-001	P519423	14-DEC-18	18:18:16
SL0018	E1801093-002	P519424	14-DEC-18	19:06:04
SL0019	E1801093-003	P519425	14-DEC-18	19:54:42
SL0020	E1801093-004	P519426	14-DEC-18	20:43:19
SL0021	E1801093-005	P519427	14-DEC-18	21:32:04
SL0023	E1801093-006	P519428	14-DEC-18	22:20:42
SL0024	E1801093-007	P519429	14-DEC-18	23:09:18
SL0025	E1801093-008	P519430	14-DEC-18	23:57:57
SL0026	E1801093-009	P519431	15-DEC-18	00:46:26
LCS	EQ1800507-02	P519432	15-DEC-18	01:35:03
DLCS	EQ1800507-03	P519433	15-DEC-18	02:23:49

5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

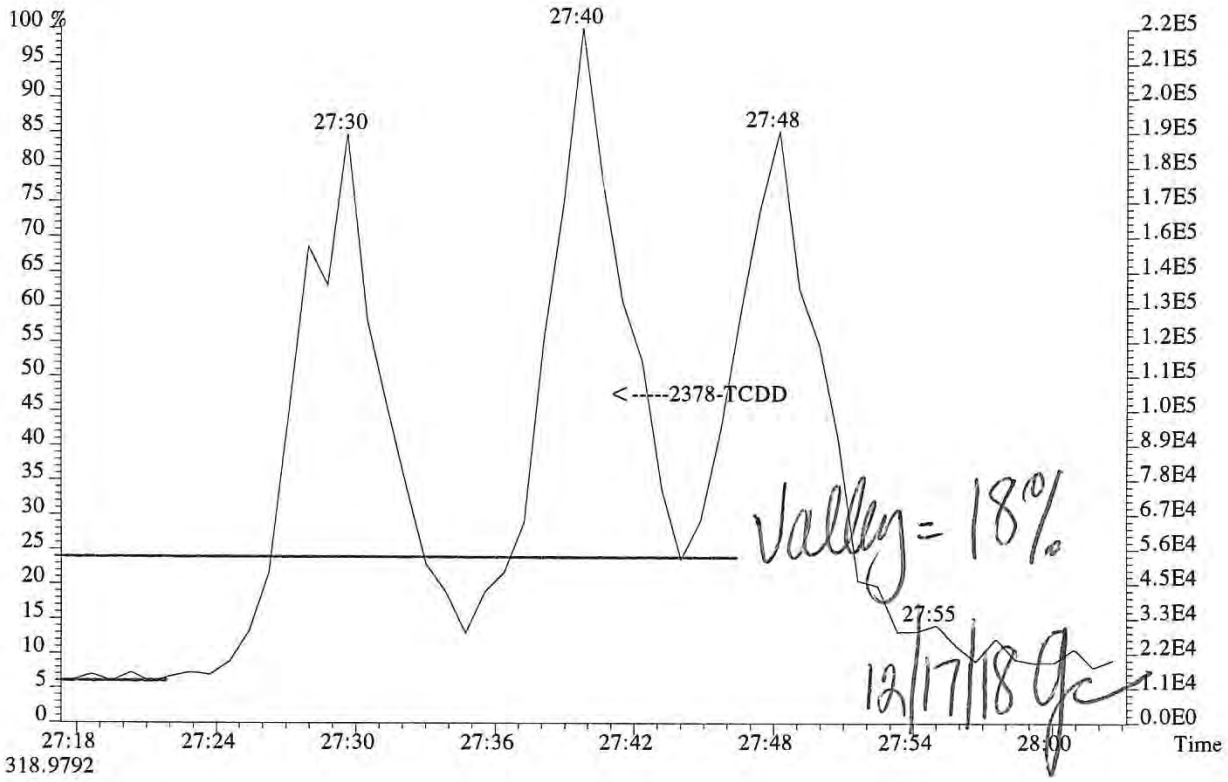
Lab Name: ALS Environmental
Lab Code: ALSTX Case No.: _____ SDG No.:
GC Column: DB-5MSUI ID: 0.25 (mm) Lab File ID: P519420
Date Analyzed: 14-DEC-2018
Time Analyzed: 15:50:53

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	22:18	28:55
TCDD	24:02	28:46
PeCDF	28:53	33:25
PeCDD	30:33	33:10
HxCDF	34:07	36:44
HxCDD	34:40	36:20
HpCDF	38:02	39:27
HpCDD	38:18	38:59

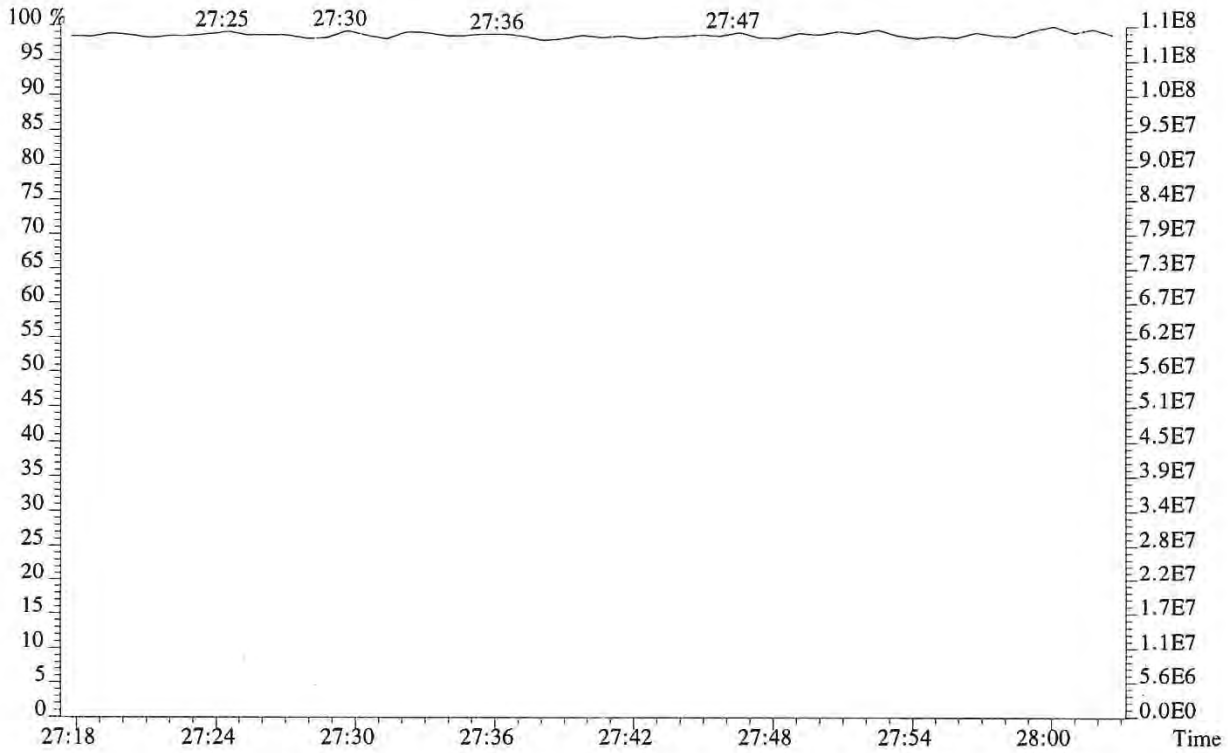
% Valley 2378-TCDD: 18 %

014565

File:P519420 #1-566 Acq:14-DEC-2018 15:50:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
319.8965

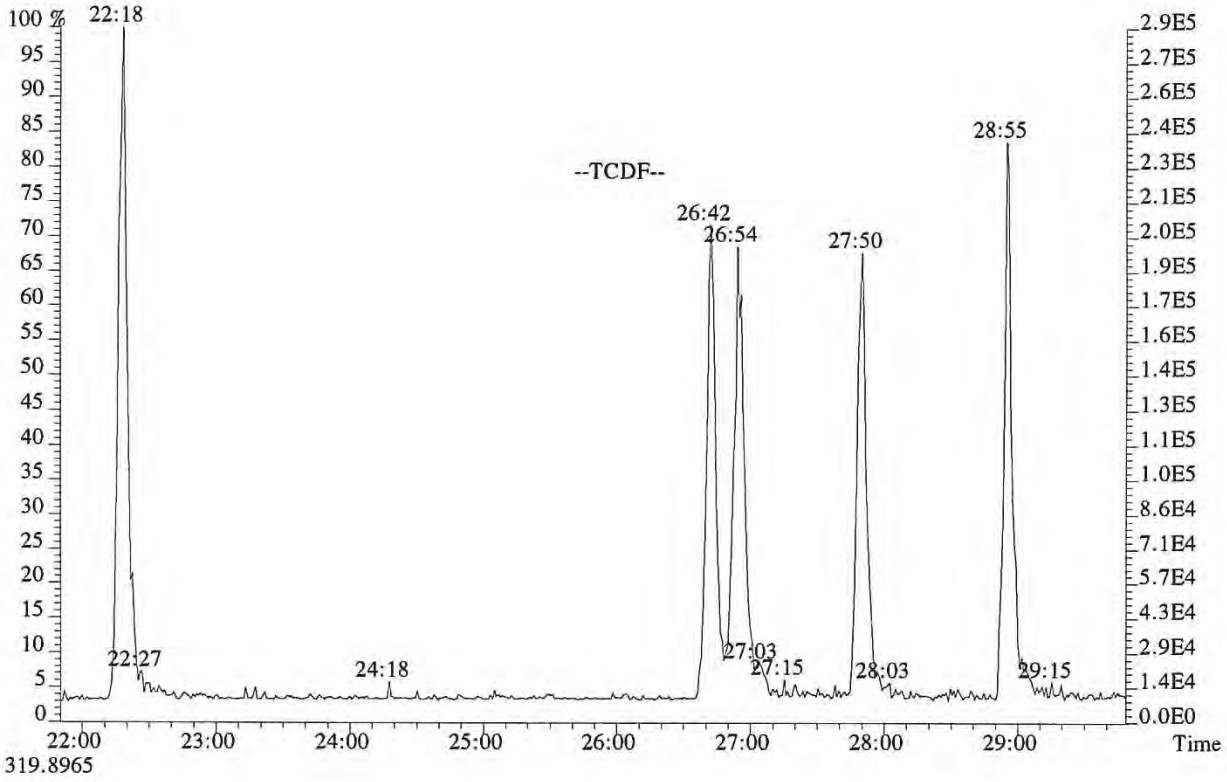


318.9792

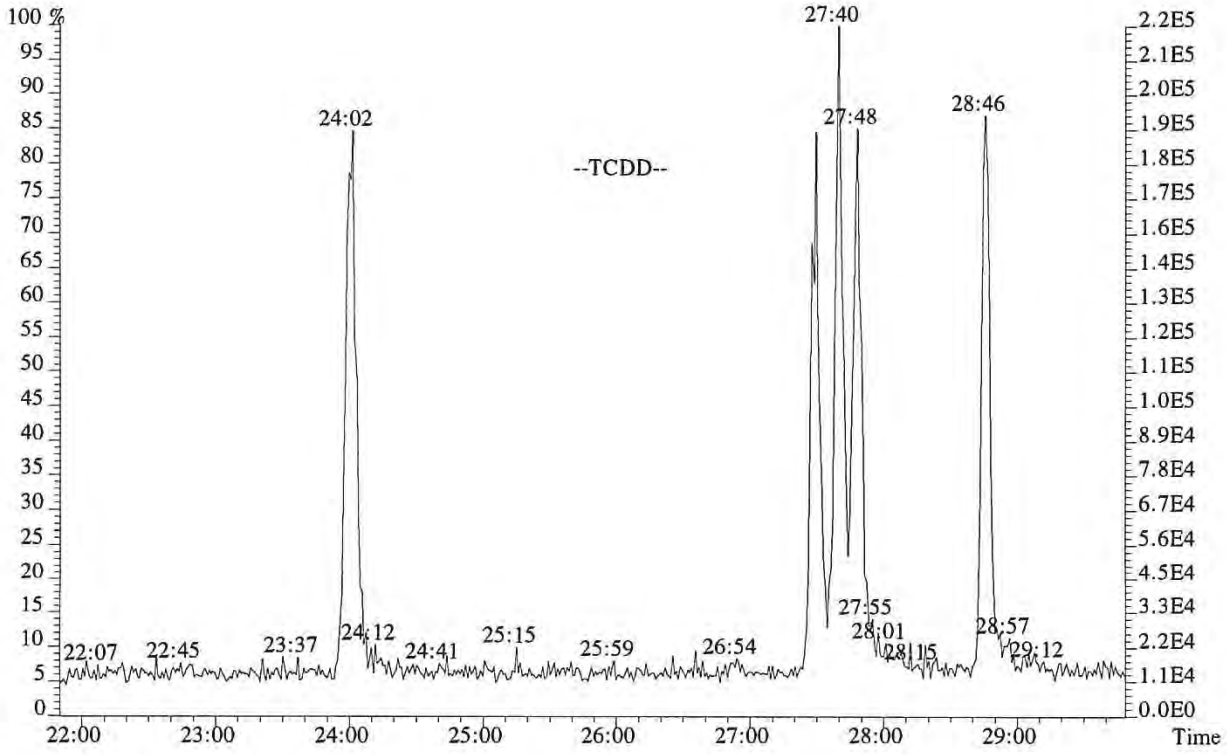


014566

File:P519420 #1-566 Acq:14-DEC-2018 15:50:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
303.9016

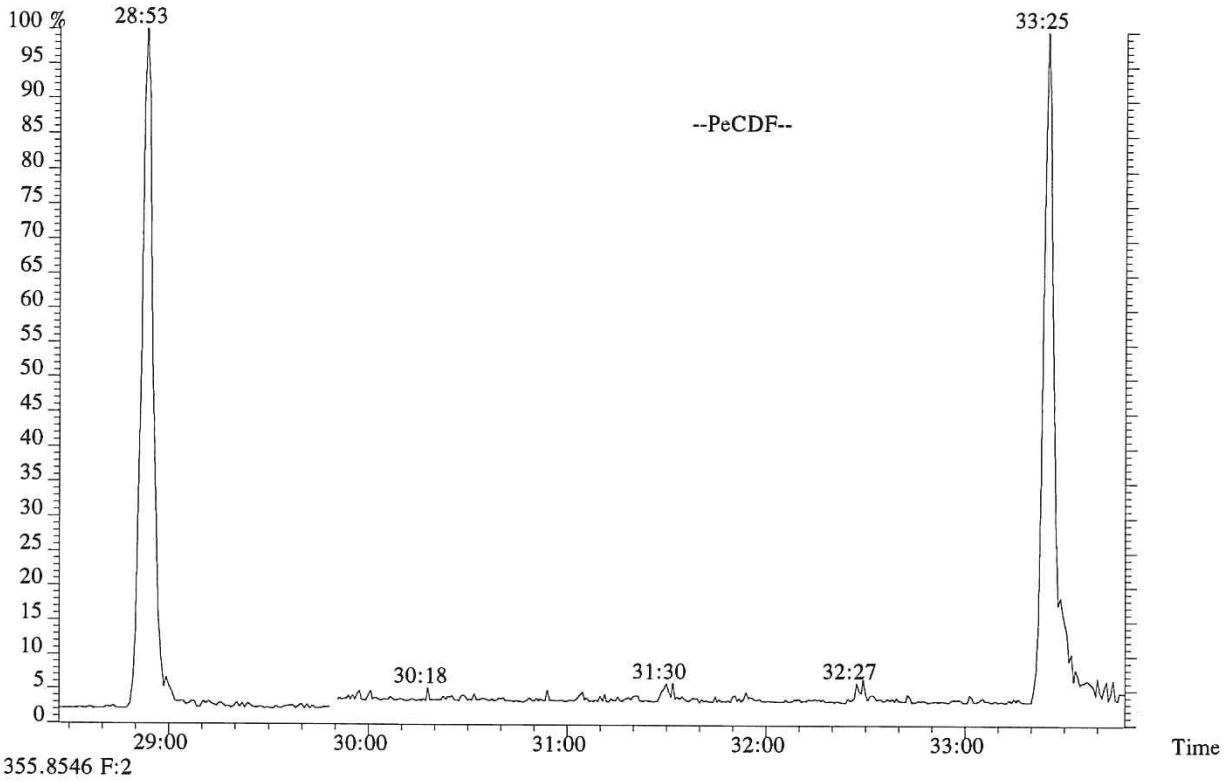


319.8965

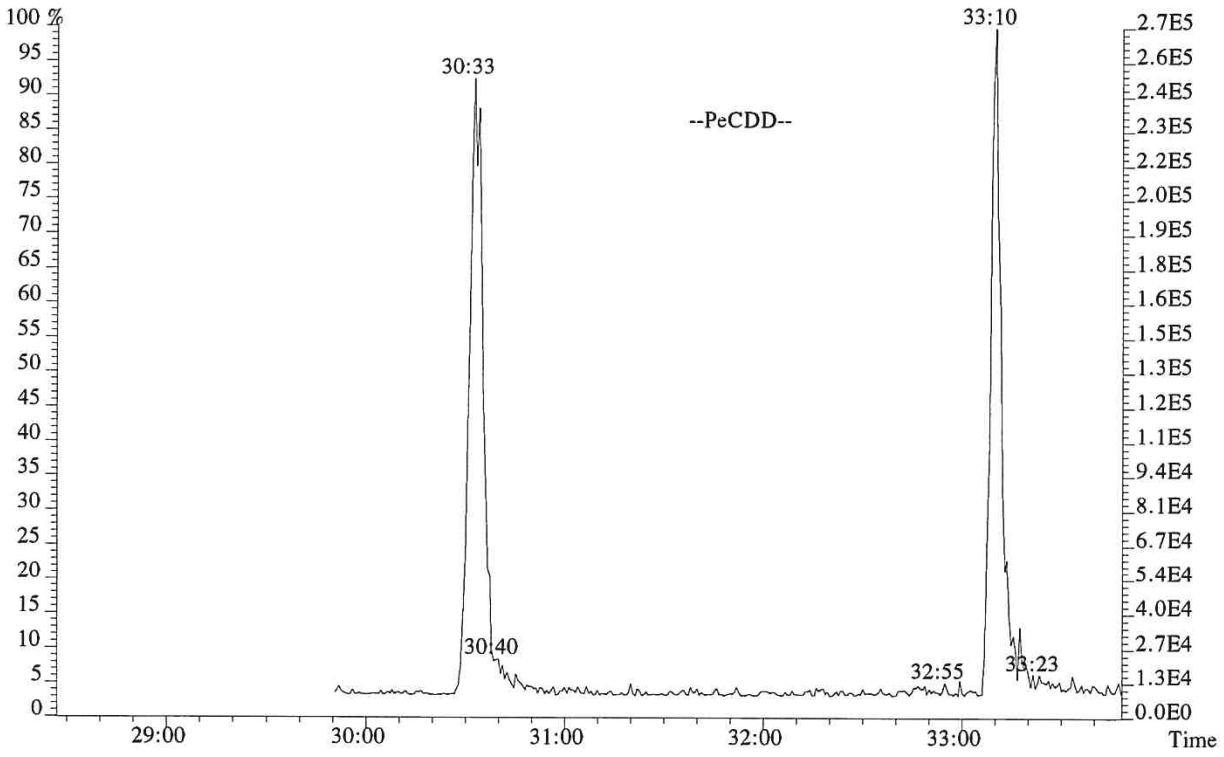


014567

File:P519420 #1-566 Acq:14-DEC-2018 15:50:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
339.8597,339.8597 F:2

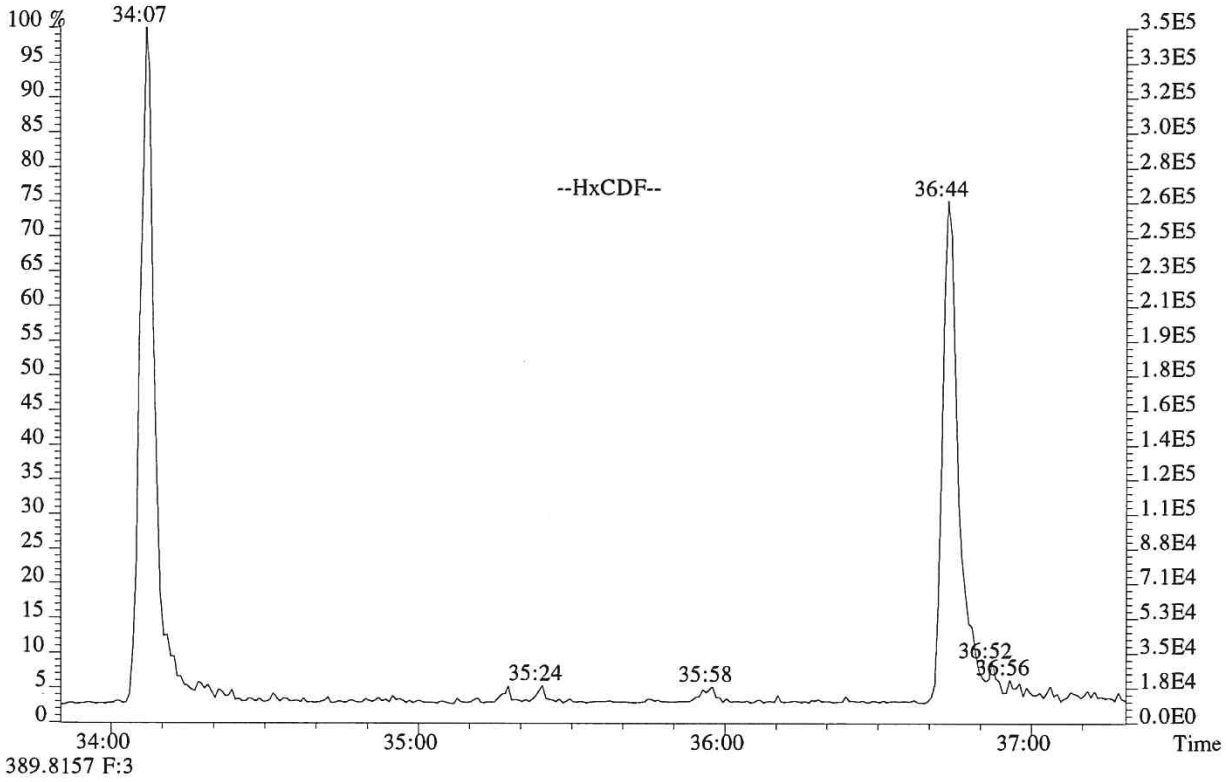


355.8546 F:2

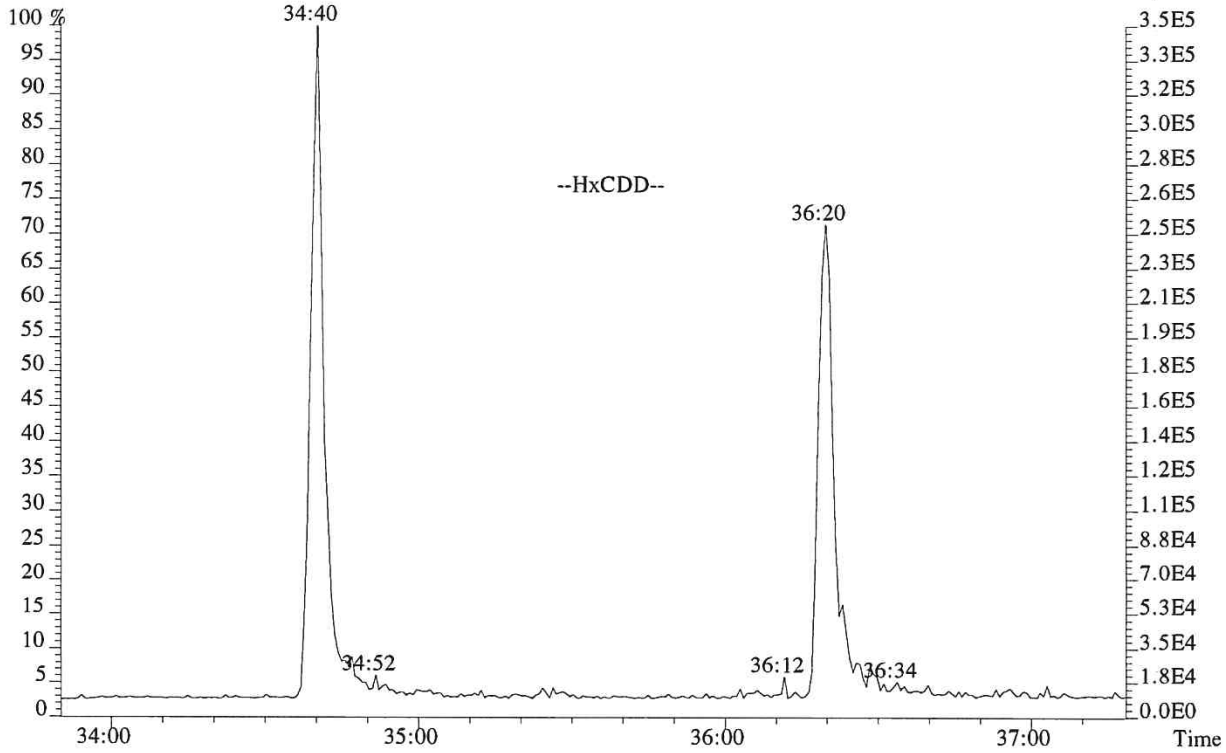


014568

File:P519420 #1-313 Acq:14-DEC-2018 15:50:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
373.8208 F:3

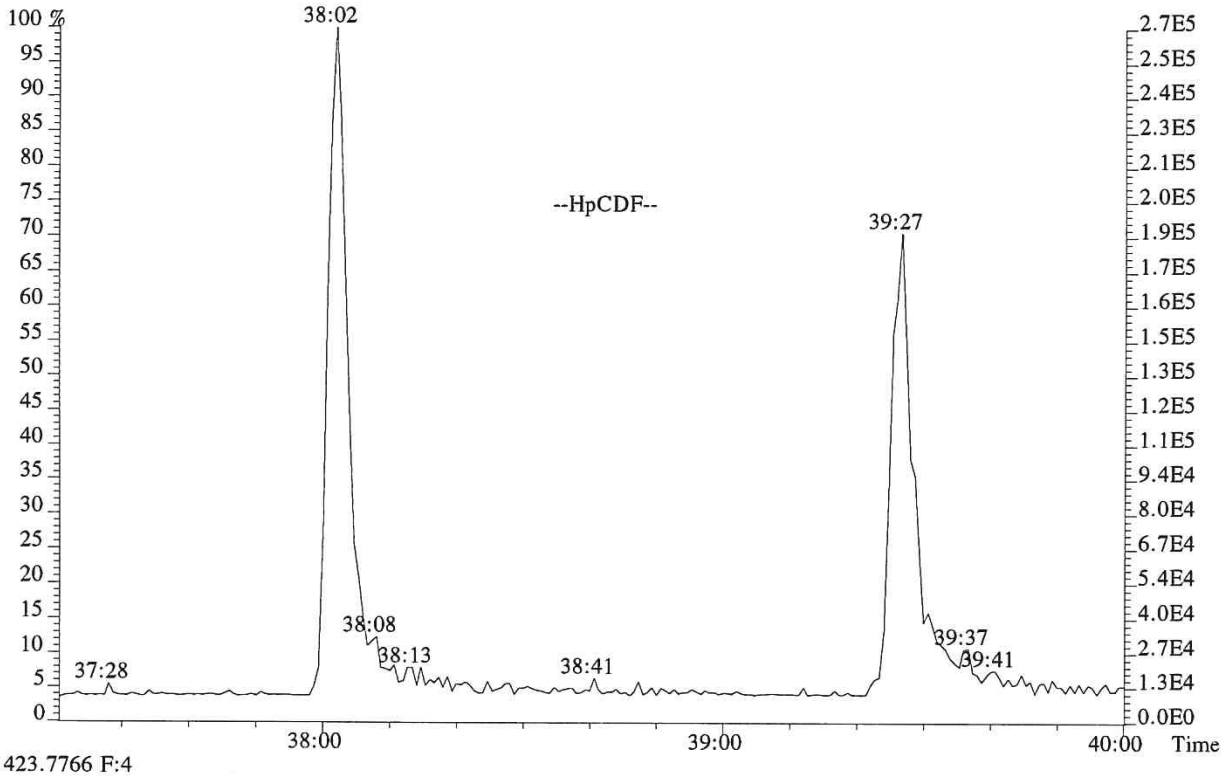


389.8157 F:3

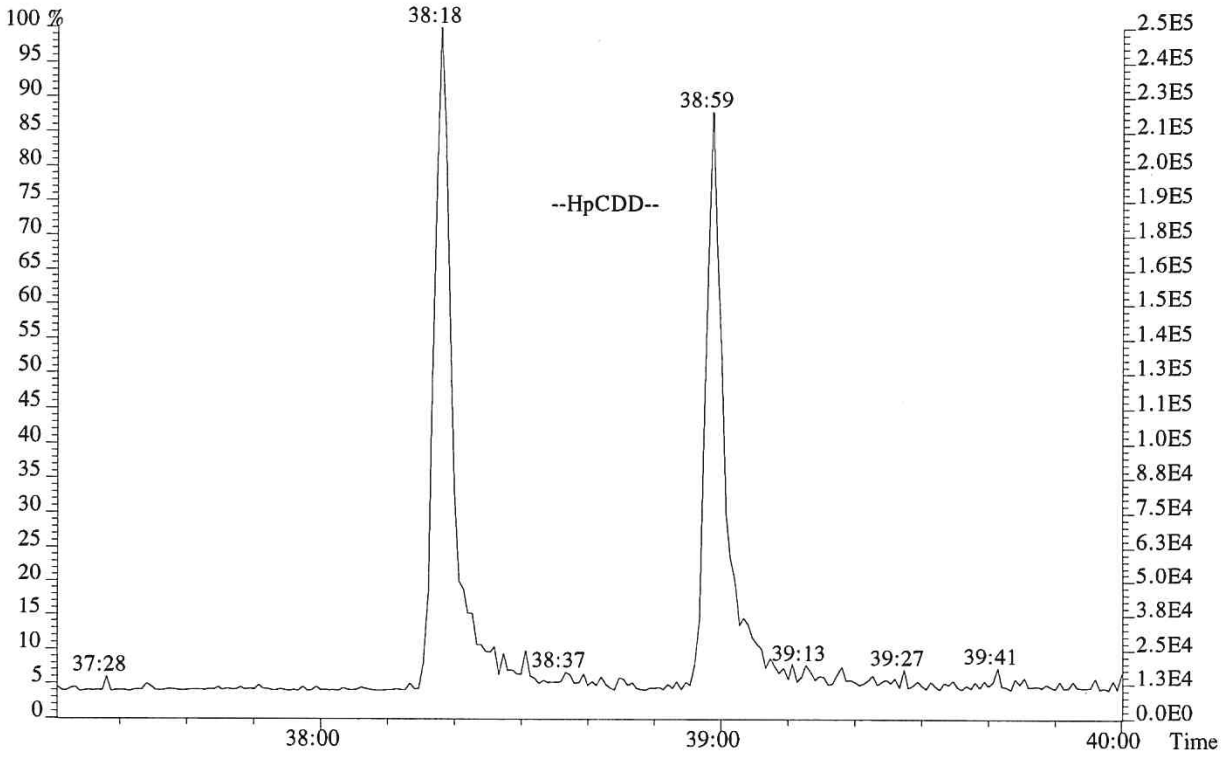


014569

File:P519420 #1-240 Acq:14-DEC-2018 15:50:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
407.7818 F:4



423.7766 F:4



014570

E1801093

Sample List Report — **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20181214A.SPL
Last Modified: Monday, December 17, 2018 06:48:21 Central Standard Time
Printed: Monday, December 17, 2018 06:48:23 Central Standard Time

Page Position (1, 1)

OPUS 4. P519419res

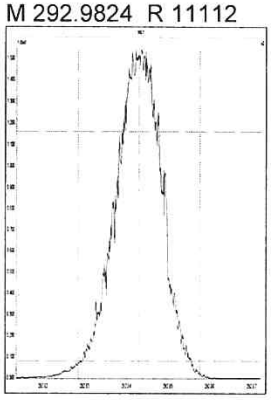
	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	12/14/18	15:00	P519419	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2	LG	HRMScheck 14:56
2		15:50	P519420	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:1		
3		16:40	P519421	MB	EQ1800499-01	EPA1613_ALS	Dioxin_ALS	Tray1:3		
4		17:28	P519422	MB	EQ1800507-01	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		18:18	P519423	E1801093-001	E1801093-001	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		19:06	P519424	E1801093-002	E1801093-002	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		19:54	P519425	E1801093-003	E1801093-003	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		20:43	P519426	E1801093-004	E1801093-004	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		21:32	P519427	E1801093-005	E1801093-005	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		22:20	P519428	E1801093-006	E1801093-006	EPA1613_ALS	Dioxin_ALS	Tray1:2		Dads reinjection
11		23:09	P519429	E1801093-007	E1801093-007	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		23:57	P519430	E1801093-008	E1801093-008	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13	12/15/18	00:46	P519431	E1801093-009	E1801093-009	EPA1613_ALS	Dioxin_ALS	Tray1:13		
14		01:35	P519432	LCS	EQ1800507-02	EPA1613_ALS	Dioxin_ALS	Tray1:14		
15		02:23	P519433	DLCS	EQ1800507-03	EPA1613_ALS	Dioxin_ALS	Tray1:15		
16		03:20	P519434	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2		HRMS check 03:20
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:17	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:18	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

gc 12/18/18

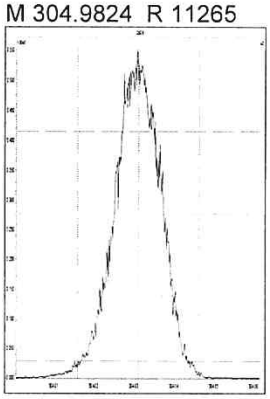
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Friday, December 14, 2018 14:56:04 Central Standard Time

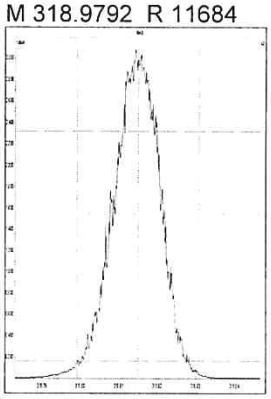
M 292.9824 R 11112



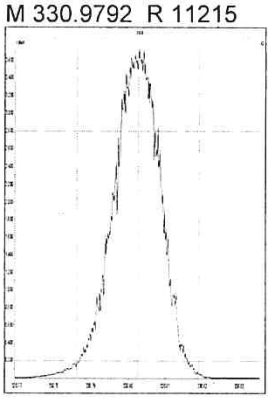
M 304.9824 R 11265



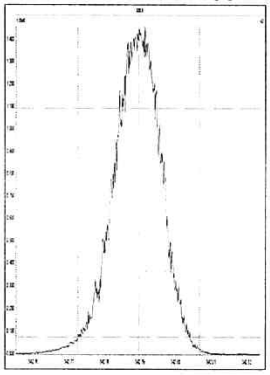
M 318.9792 R 11684



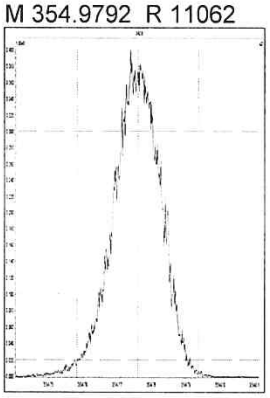
M 330.9792 R 11215



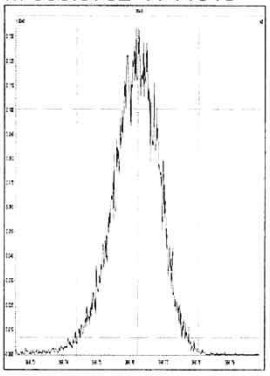
M 342.9792 R 11158



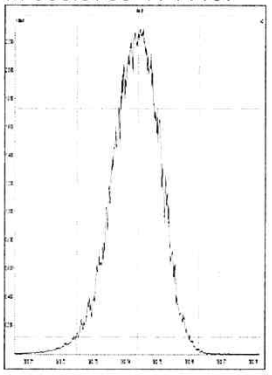
M 354.9792 R 11062



M 366.9792 R 11015



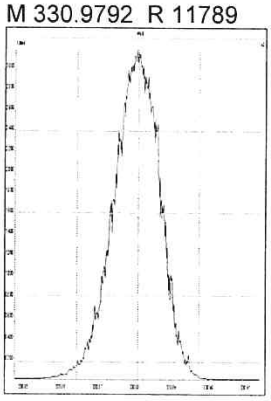
M 380.9760 R 11107



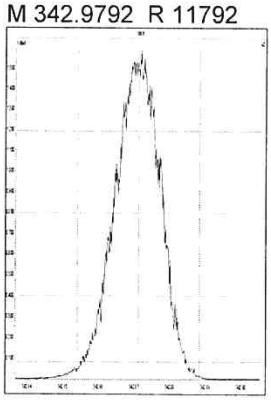
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Friday, December 14, 2018 14:56:56 Central Standard Time

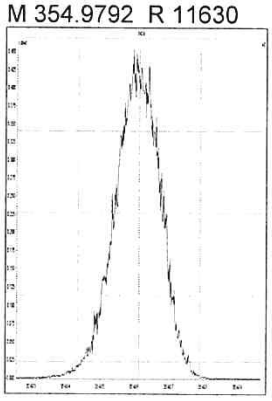
M 330.9792 R 11789



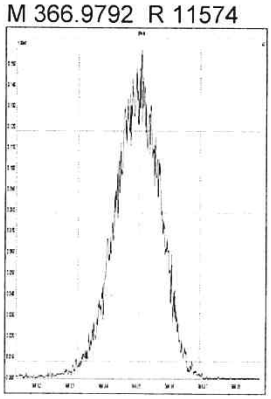
M 342.9792 R 11792



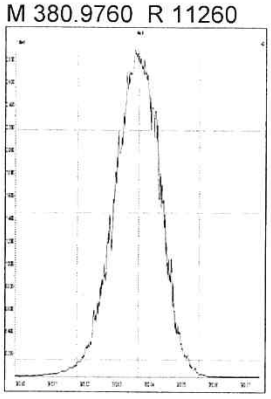
M 354.9792 R 11630



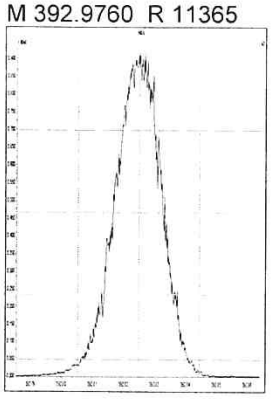
M 366.9792 R 11574



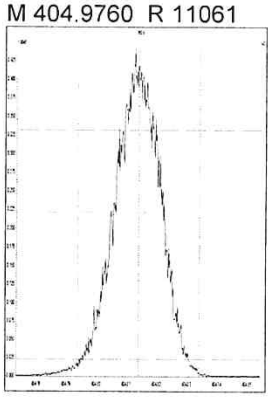
M 380.9760 R 11260



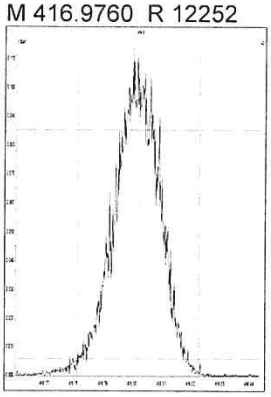
M 392.9760 R 11365



M 404.9760 R 11061



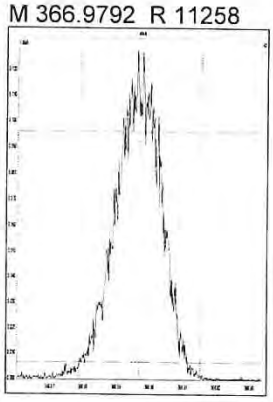
M 416.9760 R 12252



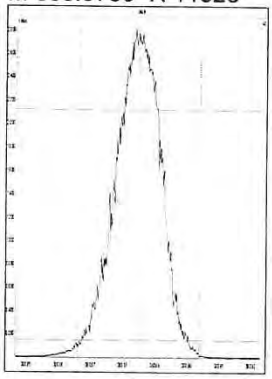
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Friday, December 14, 2018 14:57:36 Central Standard Time

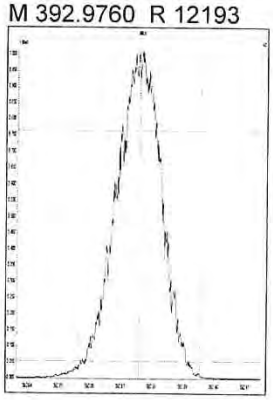
M 366.9792 R 11258



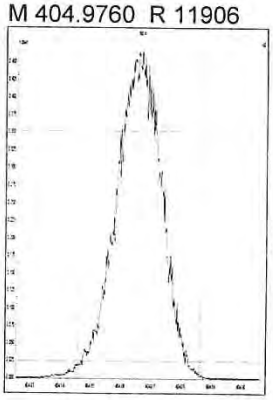
M 380.9760 R 11628



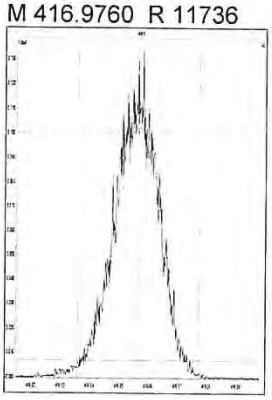
M 392.9760 R 12193



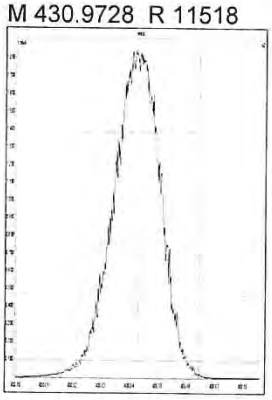
M 404.9760 R 11906



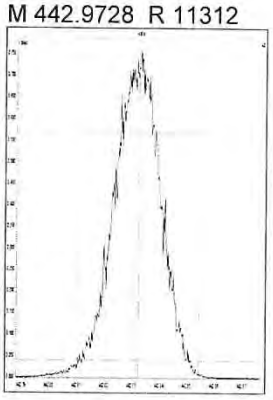
M 416.9760 R 11736



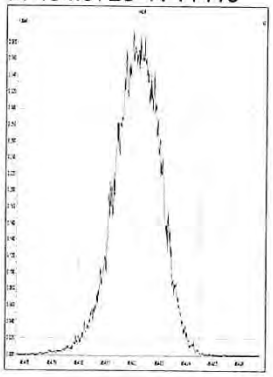
M 430.9728 R 11518



M 442.9728 R 11312



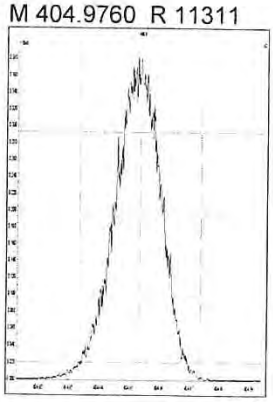
M 454.9728 R 11418



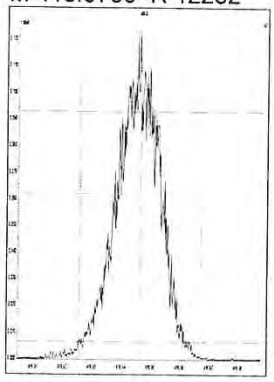
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Friday, December 14, 2018 14:58:08 Central Standard Time

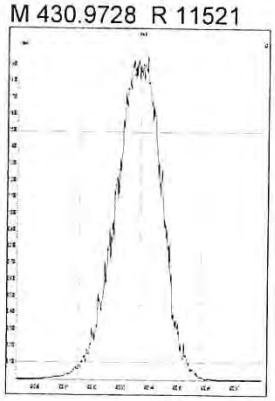
M 404.9760 R 11311



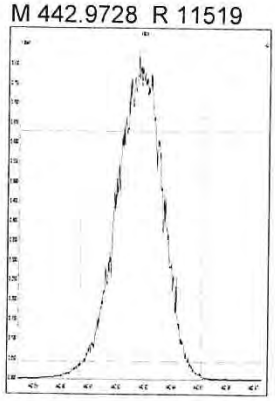
M 416.9760 R 12252



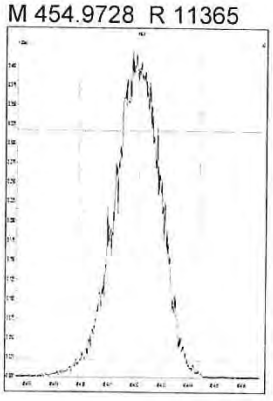
M 430.9728 R 11521



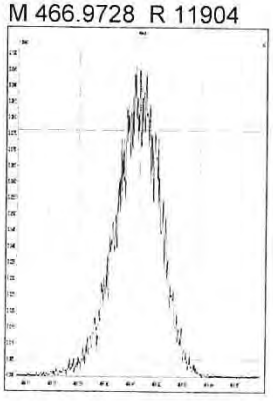
M 442.9728 R 11519



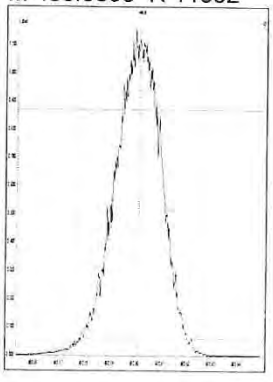
M 454.9728 R 11365



M 466.9728 R 11904



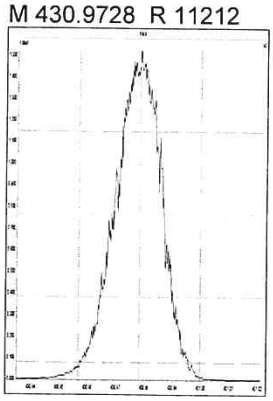
M 480.9696 R 11362



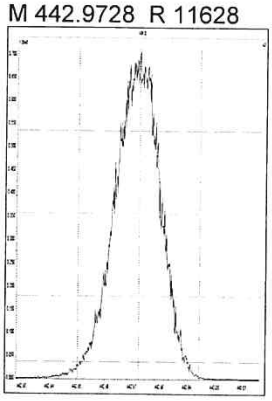
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Friday, December 14, 2018 14:59:15 Central Standard Time

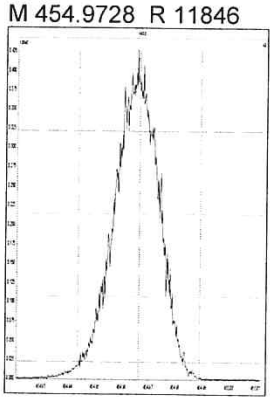
M 430.9728 R 11212



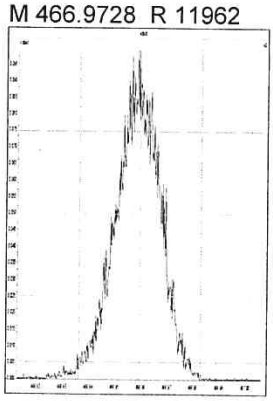
M 442.9728 R 11628



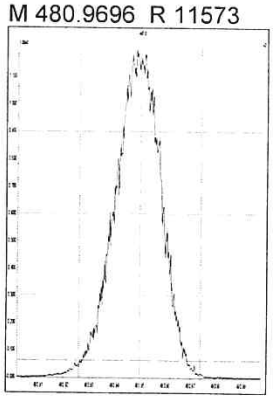
M 454.9728 R 11846



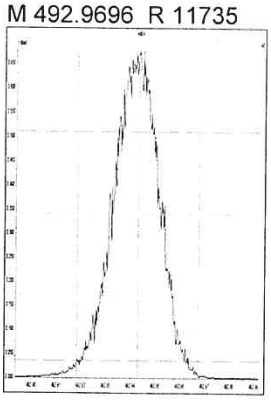
M 466.9728 R 11962



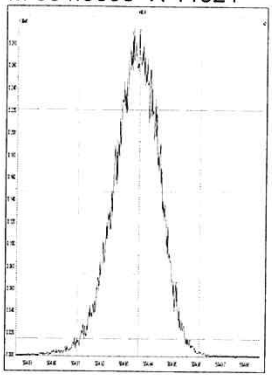
M 480.9696 R 11573



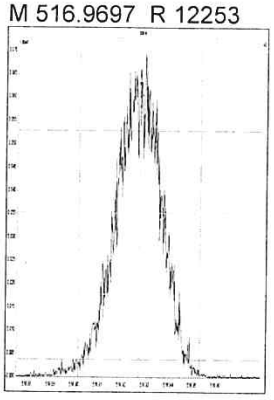
M 492.9696 R 11735



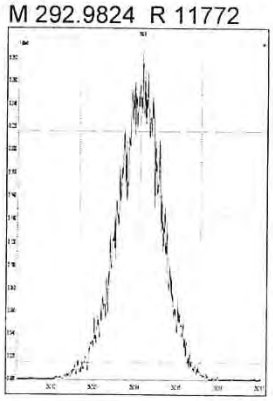
M 504.9696 R 11521



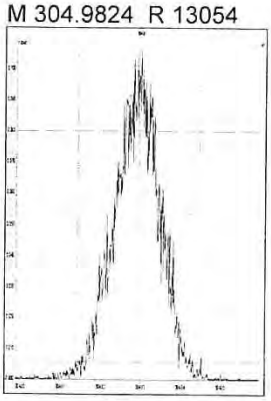
M 516.9697 R 12253



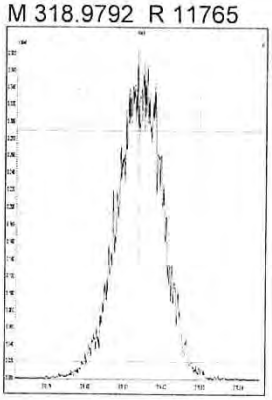
M 292.9824 R 11772



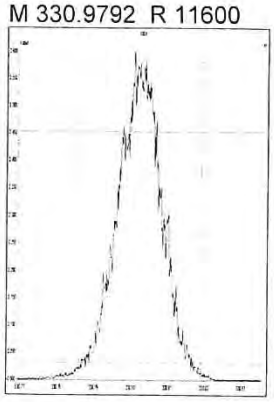
M 304.9824 R 13054



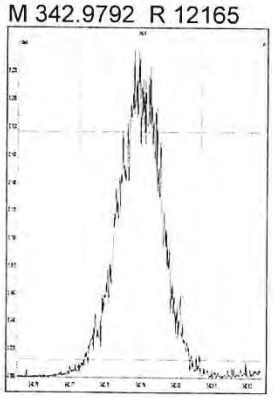
M 318.9792 R 11765



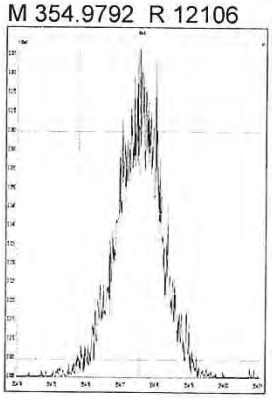
M 330.9792 R 11600



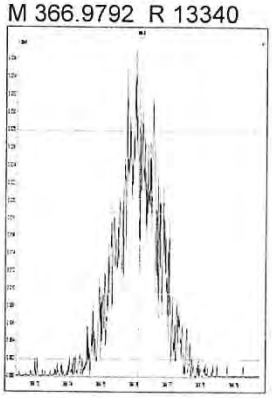
M 342.9792 R 12165



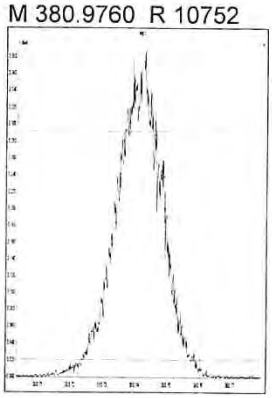
M 354.9792 R 12106



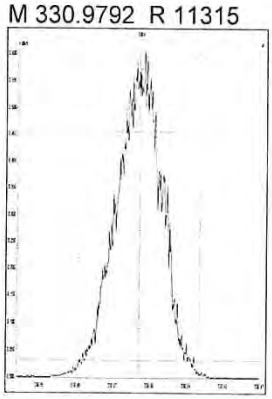
M 366.9792 R 13340



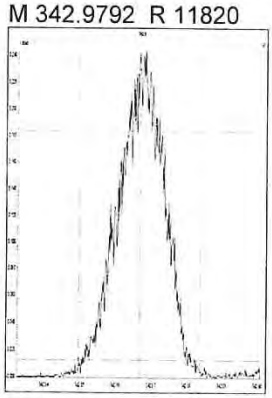
M 380.9760 R 10752



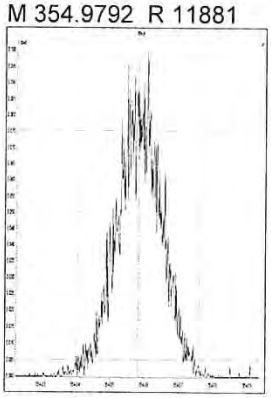
M 330.9792 R 11315



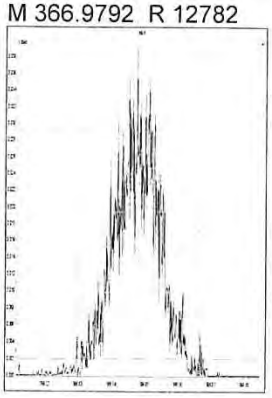
M 342.9792 R 11820



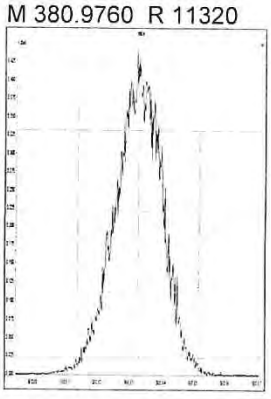
M 354.9792 R 11881



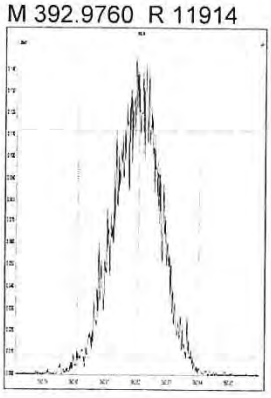
M 366.9792 R 12782



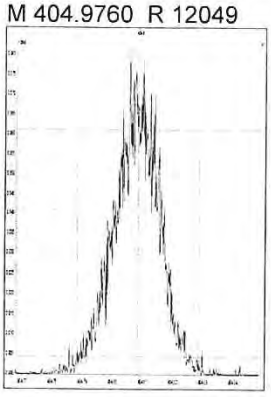
M 380.9760 R 11320



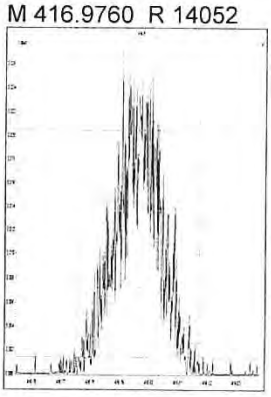
M 392.9760 R 11914



M 404.9760 R 12049

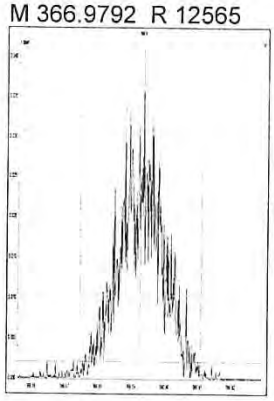


M 416.9760 R 14052

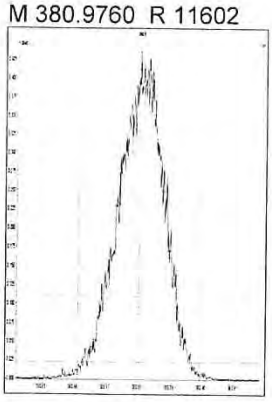


014577

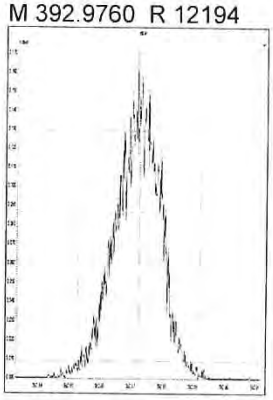
M 366.9792 R 12565



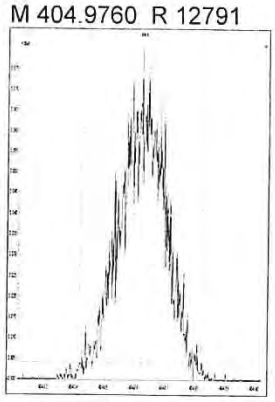
M 380.9760 R 11602



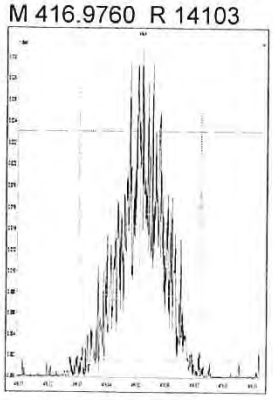
M 392.9760 R 12194



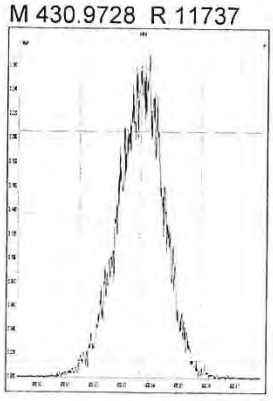
M 404.9760 R 12791



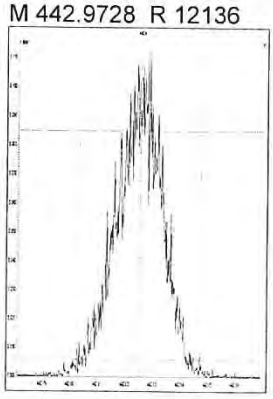
M 416.9760 R 14103



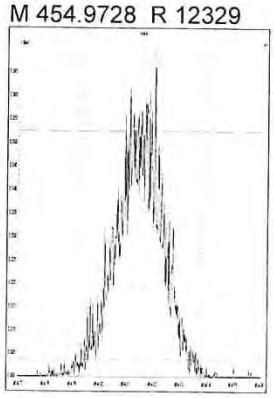
M 430.9728 R 11737



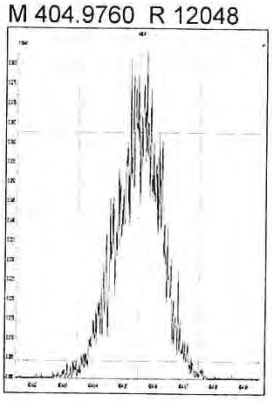
M 442.9728 R 12136



M 454.9728 R 12329



M 404.9760 R 12048



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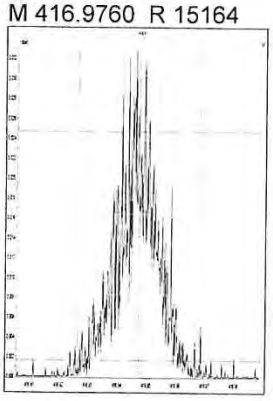
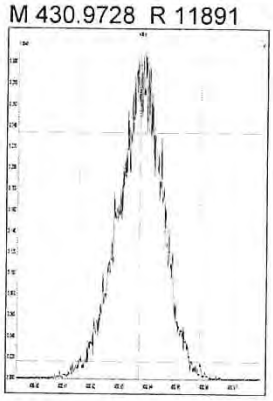
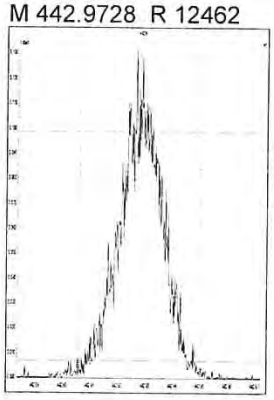


M 430.9728 R 11891



M 442.9728 R 12462



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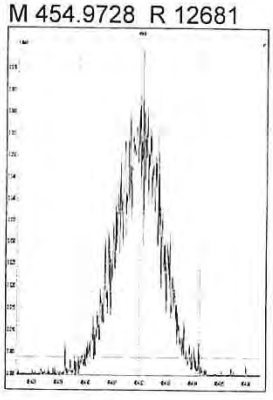
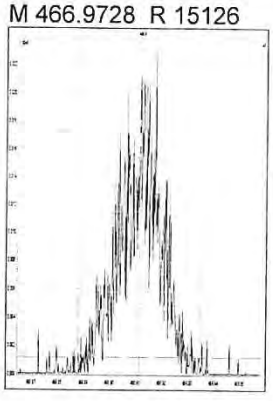


M 466.9728 R 15126



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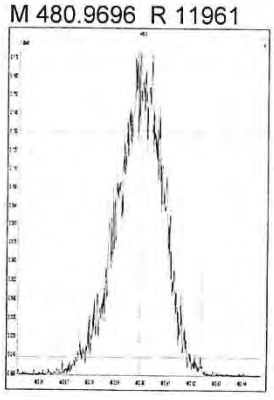
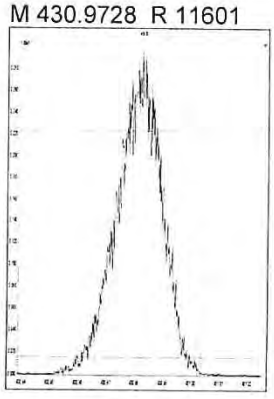
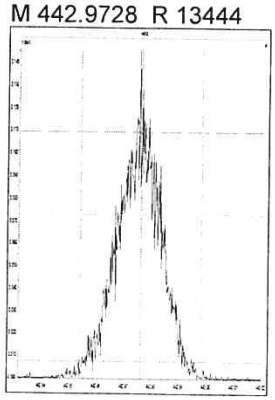


M 430.9728 R 11601



014578

M 442.9728 R 13444



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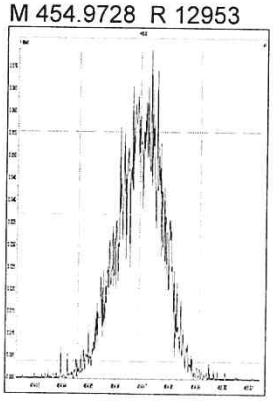

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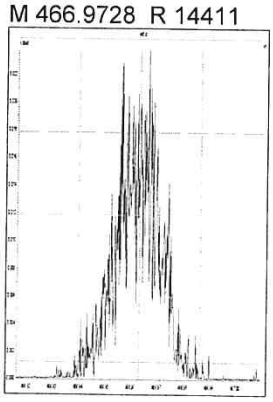
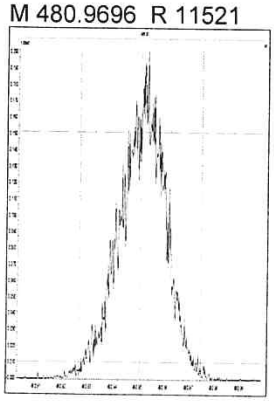
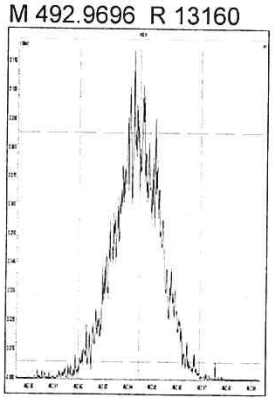


M 480.9696 R 11521



M 492.9696 R 13160



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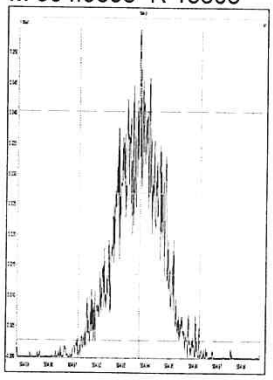
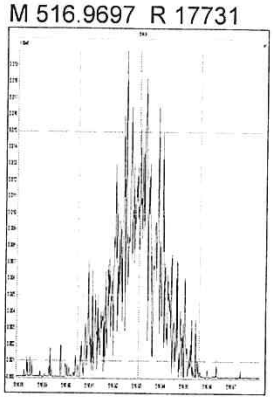


M 516.9697 R 17731



014579

USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519419 Analysis Date: 14-DEC-18 Time: 15:00:28

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.81	0.65-0.89	8.9	7.8 - 12.9	-10.6
1,2,3,7,8-PeCDD	M+2/M+4	1.57	1.32-1.78	48	39 - 65	-4.0
1,2,3,4,7,8-HxCDD	M+2/M+4	1.31	1.05-1.43	49	39 - 64	-1.7
1,2,3,6,7,8-HxCDD	M+2/M+4	1.18	1.05-1.43	46	39 - 64	-7.3
1,2,3,7,8,9-HxCDD	M+2/M+4	1.22	1.05-1.43	50	41 - 61	0.0
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	46	43 - 58	-7.2
OCDD	M+2/M+4	0.89	0.76-1.02	97	79 - 126	-3.1
2,3,7,8-TCDF	M/M+2	0.73	0.65-0.89	9.4	8.4 - 12.0	-6.4
1,2,3,7,8-PeCDF	M+2/M+4	1.52	1.32-1.78	50	41 - 60	0.2
2,3,4,7,8-PeCDF	M+2/M+4	1.51	1.32-1.78	45	41 - 61	-9.1
1,2,3,4,7,8-HxCDF	M+2/M+4	1.18	1.05-1.43	49	45 - 56	-2.2
1,2,3,6,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	46	44 - 57	-7.4
1,2,3,7,8,9-HxCDF	M+2/M+4	1.18	1.05-1.43	46	45 - 56	-7.1
2,3,4,6,7,8-HxCDF	M+2/M+4	1.12	1.05-1.43	47	44 - 57	-5.4
1,2,3,4,6,7,8-HpCDF	M+2/M+4	0.99	0.88-1.20	48	45 - 55	-4.9
1,2,3,4,7,8,9-HpCDF	M+2/M+4	0.98	0.88-1.20	49	43 - 58	-2.8
OCDF	M+2/M+4	0.87	0.76-1.02	90	63 - 159	-9.9

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519419 Analysis Date: 14-DEC-18 Time: 15:00:28

LABELED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
13C-2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	103	82 - 121	2.8
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.57	1.32-1.78	121	62 - 160	20.8
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	88	85 - 117	-12.1
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	107	85 - 118	6.9
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	108	72 - 138	8.3
13C-OCDD	M+2/M+4	0.90	0.76-1.02	285	96 - 415	42.4
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	87	71 - 140	-13.5
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	100	76 - 130	0.3
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	110	77 - 130	10.1
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.53	0.43-0.59	76	76 - 131	-24.3
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.49	0.43-0.59	92	70 - 143	-8.1
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.51	0.43-0.59	84	74 - 135	-16.2
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.50	0.43-0.59	88	73 - 137	-11.6
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.44	0.37-0.51	96	78 - 129	-4.0
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.43	0.37-0.51	98	77 - 129	-1.6
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.7	7.8 - 12.7	-3.3

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #7 Filename P519419 Samp: 1 Inj: 1 Acquired: 14-DEC-18 15:00:28
Processed: 17-DEC-18 15:31:46 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:56	1.968e+03	2.706e+03	0.73	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	31:31	1.829e+04	1.207e+04	1.52	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	32:29	1.705e+04	1.126e+04	1.51	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:17	1.378e+04	1.166e+04	1.18	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:24	1.715e+04	1.413e+04	1.21	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:56	1.442e+04	1.288e+04	1.12	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	36:42	1.224e+04	1.038e+04	1.18	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:02	1.387e+04	1.401e+04	0.99	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:26	1.140e+04	1.169e+04	0.98	yes	no	1.258
10	Unk	OCDF	41:57	2.211e+04	2.542e+04	0.87	yes	no	1.359
11	Unk	2,3,7,8-TCDD	27:49	1.669e+03	2.063e+03	0.81	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	32:47	1.341e+04	8.515e+03	1.57	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:05	1.102e+04	8.386e+03	1.31	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:10	1.237e+04	1.045e+04	1.18	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:25	1.250e+04	1.022e+04	1.22	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:59	1.059e+04	1.008e+04	1.05	yes	no	1.025
17	Unk	OCDD	41:47	1.982e+04	2.223e+04	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	26:54	2.335e+04	2.971e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	31:30	3.677e+04	2.306e+04	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	32:27	3.958e+04	2.539e+04	1.56	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:16	1.507e+04	2.866e+04	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:24	1.991e+04	4.026e+04	0.49	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:55	1.731e+04	3.470e+04	0.50	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	36:42	1.431e+04	2.827e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:01	1.328e+04	3.012e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:25	1.143e+04	2.634e+04	0.43	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	27:47	1.682e+04	2.165e+04	0.78	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:46	2.920e+04	1.855e+04	1.57	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:04	2.124e+04	1.679e+04	1.26	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:09	2.663e+04	2.083e+04	1.28	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:58	2.229e+04	2.119e+04	1.05	yes	no	0.858
32	IS	13C-OCDD	41:46	3.674e+04	4.087e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:10	1.803e+04	2.249e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:24	2.568e+04	2.112e+04	1.22	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:49	3.973e+03				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #7 Filename P519419 Samp: 1 Inj: 1 Acquired: 14-DEC-18 15:00:28
Processed: 17-DEC-18 15:31:46 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	3.00e+05	8.00e+02	3.8e+02	4.17e+05	1.86e+03	2.2e+02
2	1,2,3,7,8-PeCDF	3.09e+06	6.04e+02	5.1e+03	2.06e+06	1.08e+03	1.9e+03
3	2,3,4,7,8-PeCDF	3.07e+06	6.04e+02	5.1e+03	1.98e+06	1.08e+03	1.8e+03
4	1,2,3,4,7,8-HxCDF	2.64e+06	7.16e+02	3.7e+03	2.29e+06	1.02e+03	2.2e+03
5	1,2,3,6,7,8-HxCDF	3.00e+06	7.16e+02	4.2e+03	2.52e+06	1.02e+03	2.5e+03
6	2,3,4,6,7,8-HxCDF	2.74e+06	7.16e+02	3.8e+03	2.44e+06	1.02e+03	2.4e+03
7	1,2,3,7,8,9-HxCDF	2.10e+06	7.16e+02	2.9e+03	1.77e+06	1.02e+03	1.7e+03
8	1,2,3,4,6,7,8-HpCDF	2.55e+06	2.72e+03	9.4e+02	2.56e+06	2.72e+03	9.4e+02
9	1,2,3,4,7,8,9-HpCDF	1.82e+06	2.72e+03	6.7e+02	1.81e+06	2.72e+03	6.6e+02
10	OCDF	2.86e+06	6.04e+02	4.7e+03	3.35e+06	1.78e+03	1.9e+03
11	2,3,7,8-TCDD	2.77e+05	1.80e+03	1.5e+02	3.33e+05	1.08e+03	3.1e+02
12	1,2,3,7,8-PeCDD	2.32e+06	9.52e+02	2.4e+03	1.49e+06	4.08e+02	3.7e+03
13	1,2,3,4,7,8-HxCDD	2.21e+06	5.88e+02	3.8e+03	1.80e+06	7.96e+02	2.3e+03
14	1,2,3,6,7,8-HxCDD	2.24e+06	5.88e+02	3.8e+03	1.80e+06	7.96e+02	2.3e+03
15	1,2,3,7,8,9-HxCDD	2.09e+06	5.88e+02	3.6e+03	1.73e+06	7.96e+02	2.2e+03
16	1,2,3,4,6,7,8-HpCDD	1.78e+06	8.52e+02	2.1e+03	1.67e+06	6.08e+02	2.7e+03
17	OCDD	2.55e+06	3.00e+02	8.5e+03	2.86e+06	3.92e+02	7.3e+03
18	13C-2,3,7,8-TCDF	3.58e+06	9.06e+03	4.0e+02	4.56e+06	6.46e+03	7.1e+02
19	13C-1,2,3,7,8-PeCDF	6.28e+06	7.44e+02	8.4e+03	3.94e+06	5.88e+02	6.7e+03
20	13C-2,3,4,7,8-PeCDF	6.91e+06	7.44e+02	9.3e+03	4.46e+06	5.88e+02	7.6e+03
21	13C-1,2,3,4,7,8-HxCDF	2.98e+06	9.36e+02	3.2e+03	5.80e+06	1.47e+03	3.9e+03
22	13C-1,2,3,6,7,8-HxCDF	3.48e+06	9.36e+02	3.7e+03	6.83e+06	1.47e+03	4.6e+03
23	13C-2,3,4,6,7,8-HxCDF	3.32e+06	9.36e+02	3.6e+03	6.51e+06	1.47e+03	4.4e+03
24	13C-1,2,3,7,8,9-HxCDF	2.49e+06	9.36e+02	2.7e+03	4.79e+06	1.47e+03	3.3e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.42e+06	3.66e+03	6.6e+02	5.53e+06	4.29e+03	1.3e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.84e+06	3.66e+03	5.0e+02	4.19e+06	4.29e+03	9.8e+02
27	13C-2,3,7,8-TCDD	2.85e+06	8.12e+03	3.5e+02	3.58e+06	2.66e+03	1.3e+03
28	13C-1,2,3,7,8-PeCDD	5.02e+06	9.20e+02	5.5e+03	3.16e+06	1.92e+03	1.7e+03
29	13C-1,2,3,4,7,8-HxCDD	4.51e+06	8.12e+02	5.6e+03	3.57e+06	2.12e+02	1.7e+04
30	13C-1,2,3,6,7,8-HxCDD	4.51e+06	8.12e+02	5.6e+03	3.59e+06	2.12e+02	1.7e+04
31	13C-1,2,3,4,6,7,8-HpCDD	3.74e+06	8.12e+02	4.6e+03	3.47e+06	6.56e+02	5.3e+03
32	13C-OCDD	4.68e+06	8.28e+02	5.6e+03	5.11e+06	3.80e+02	1.3e+04
33	13C-1,2,3,4-TCDD	2.95e+06	8.12e+03	3.6e+02	3.70e+06	2.66e+03	1.4e+03
34	13C-1,2,3,7,8,9-HxCDD	4.40e+06	8.12e+02	5.4e+03	3.48e+06	2.12e+02	1.6e+04
35	37Cl-2,3,7,8-TCDD	6.70e+05	1.36e+03	4.9e+02			

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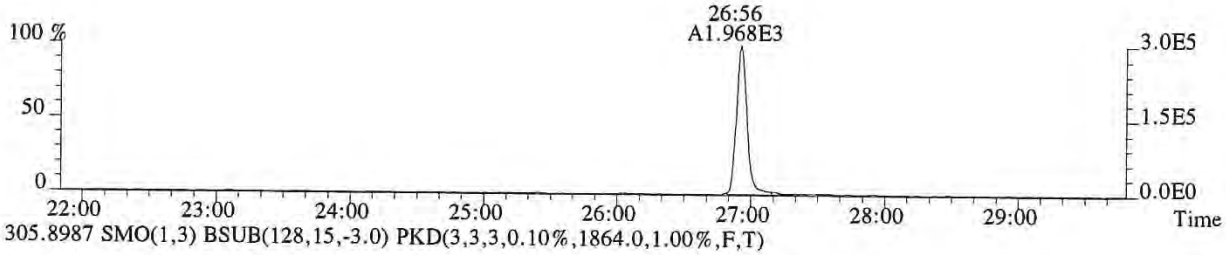
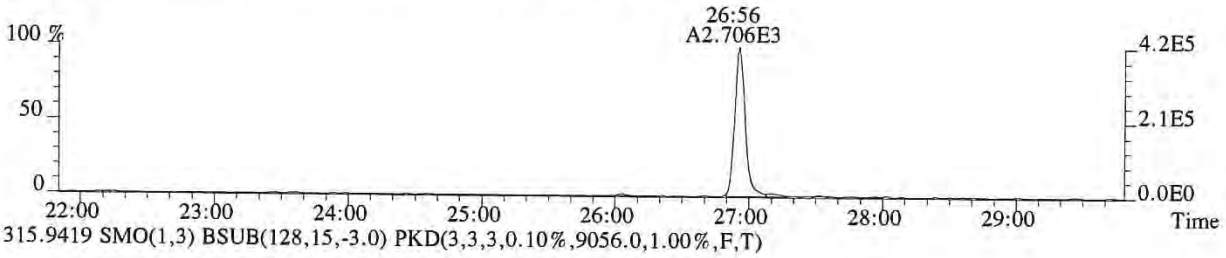
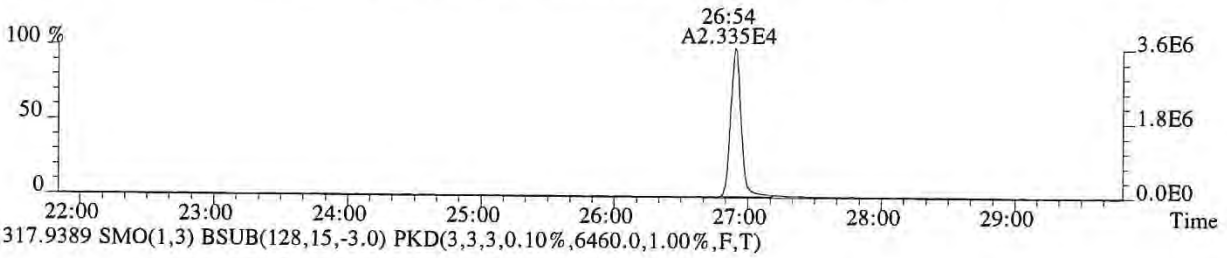
File:P519419 #1-566 Acq:14-DEC-2018 15:00:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,800.0,1.00%,F,T)



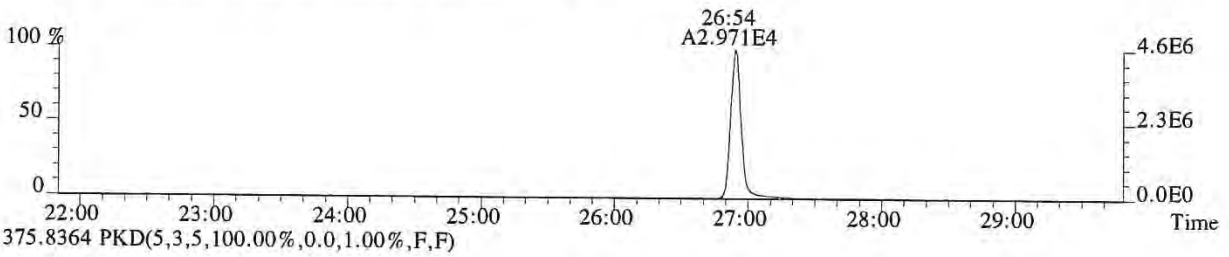
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1864.0,1.00%,F,T)



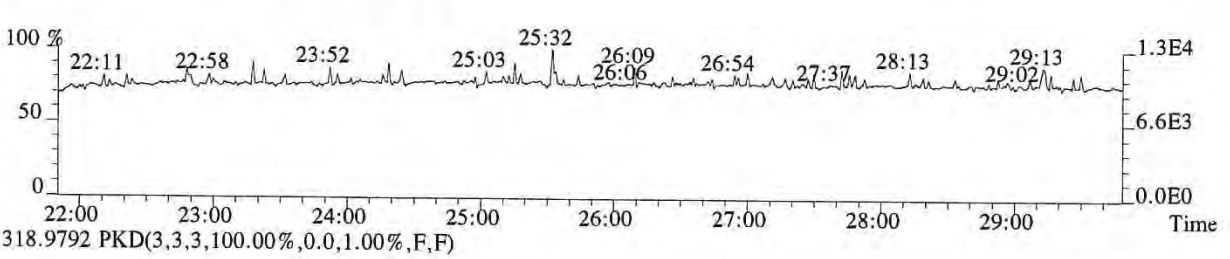
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9056.0,1.00%,F,T)



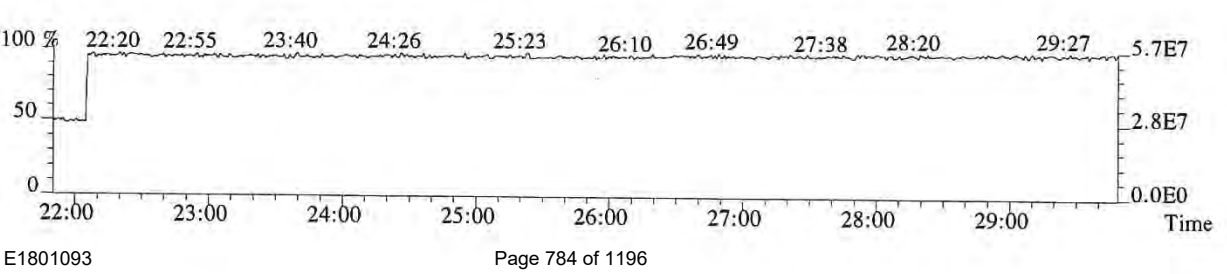
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6460.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

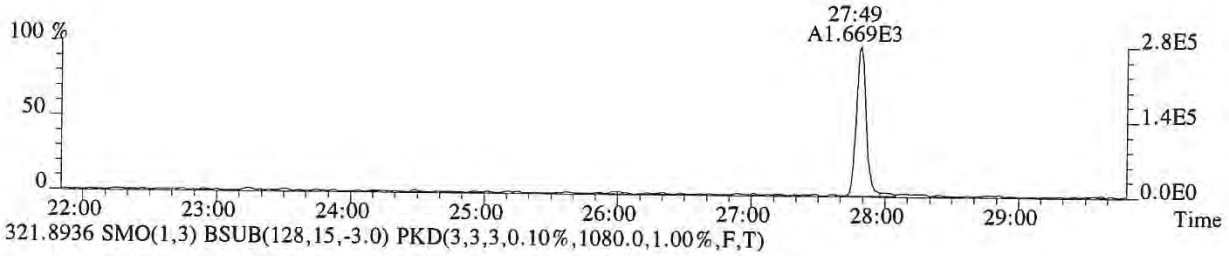


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

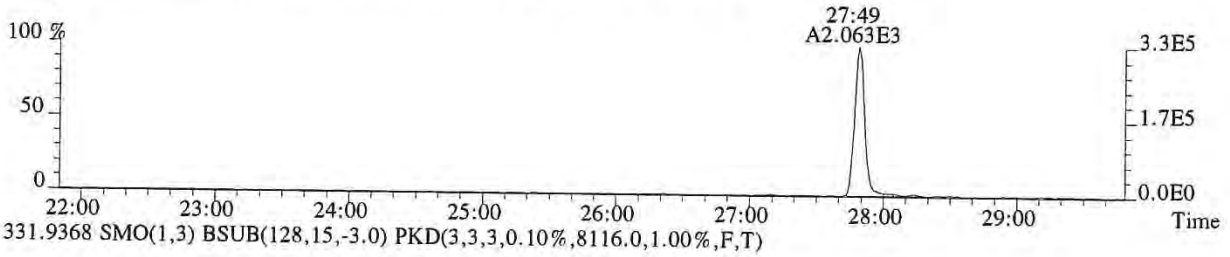


014584

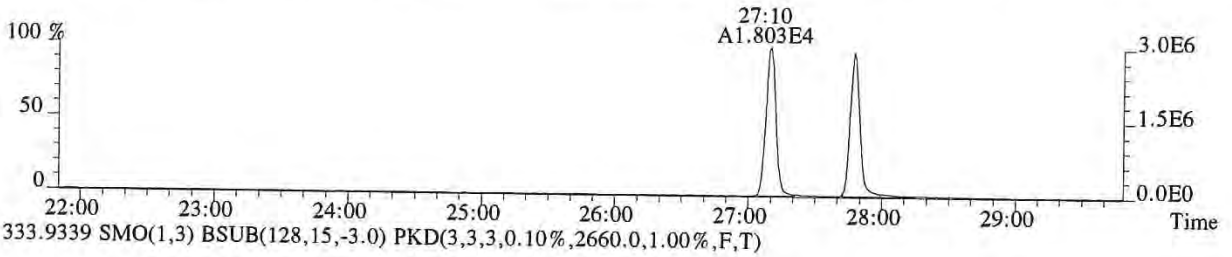
File:P519419 #1-566 Acq:14-DEC-2018 15:00:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1796.0,1.00%,F,T)



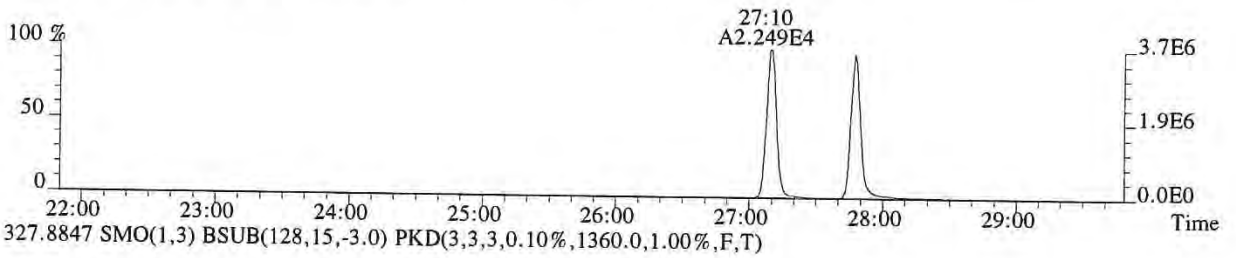
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1080.0,1.00%,F,T)



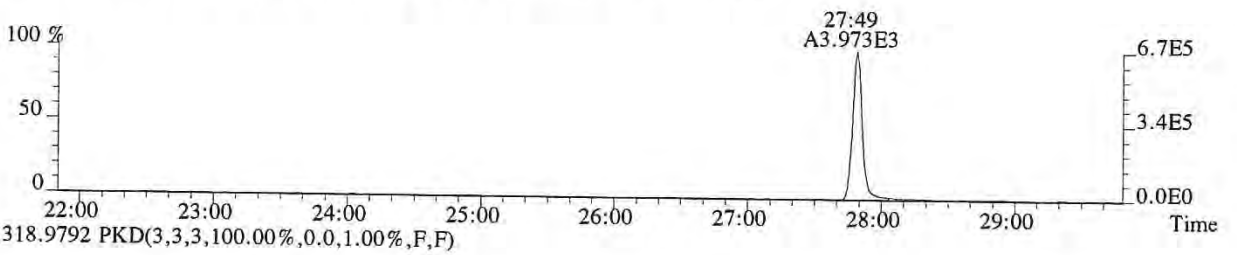
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8116.0,1.00%,F,T)



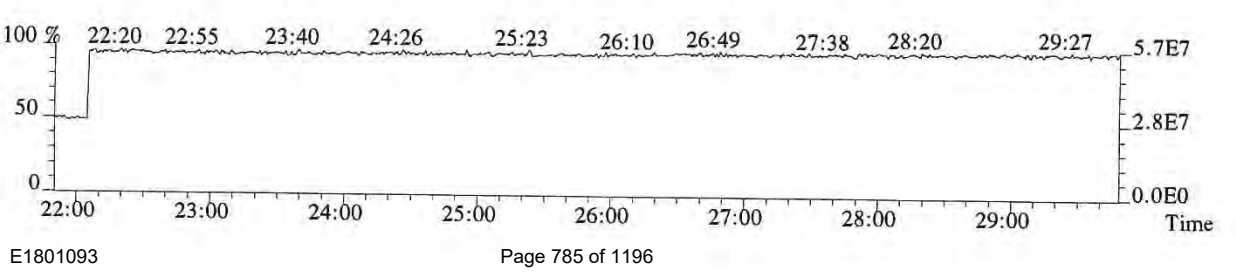
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2660.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1360.0,1.00%,F,T)

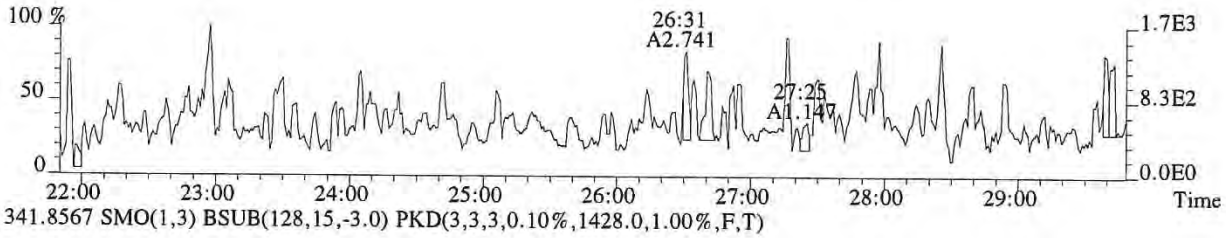


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

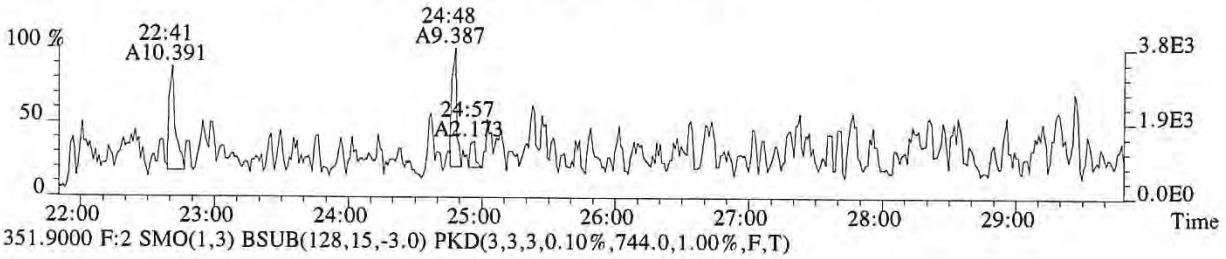


014585

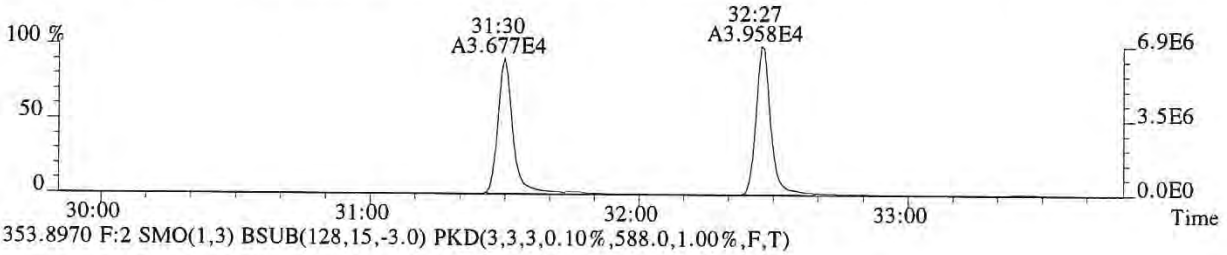
File:P519419 #1-566 Acq:14-DEC-2018 15:00:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,692.0,1.00%,F,T)



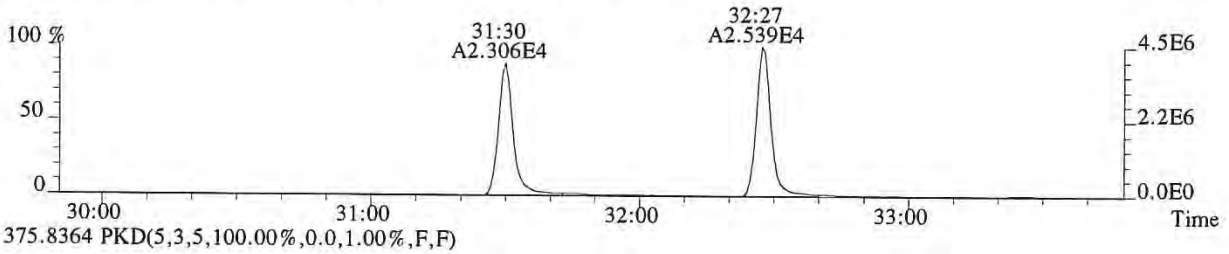
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1428.0,1.00%,F,T)



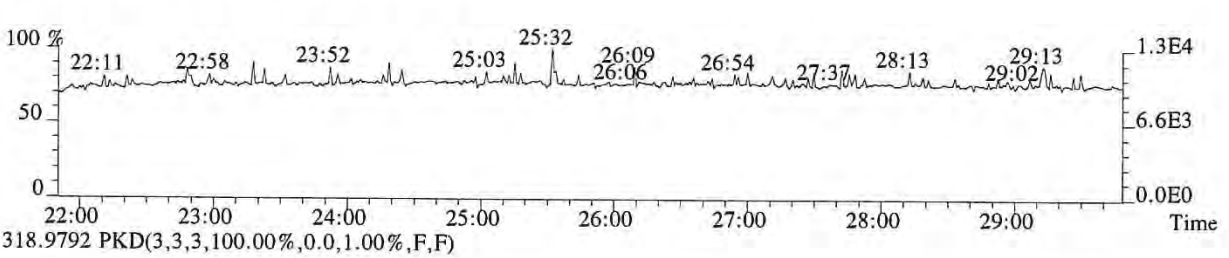
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,744.0,1.00%,F,T)



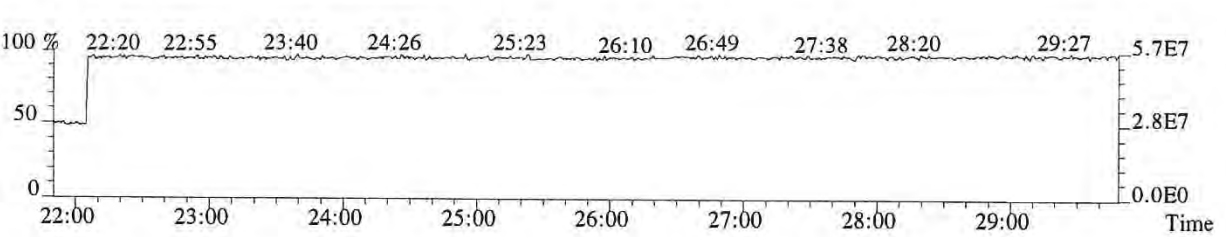
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,588.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

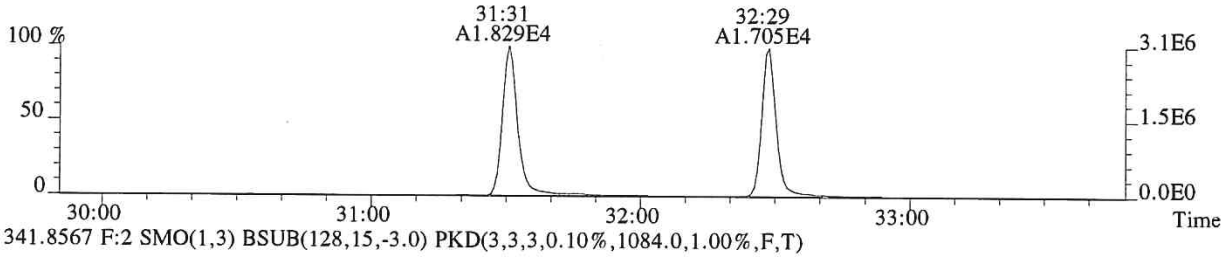


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

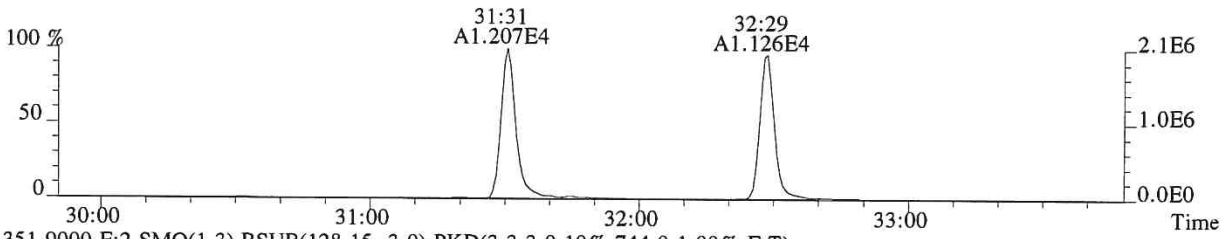


014586

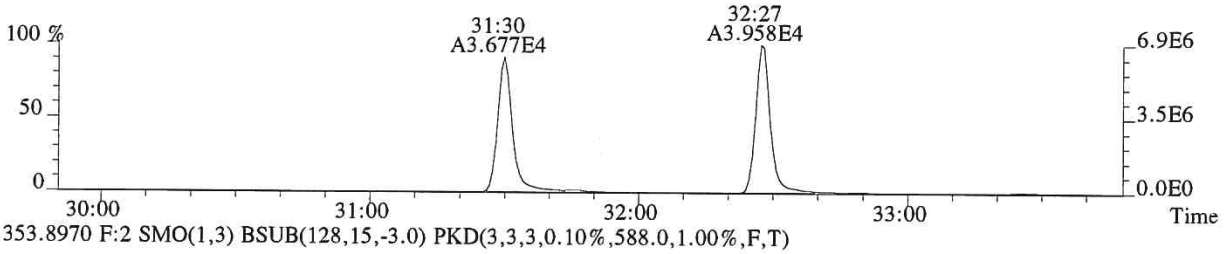
File:P519419 #1-357 Acq:14-DEC-2018 15:00:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



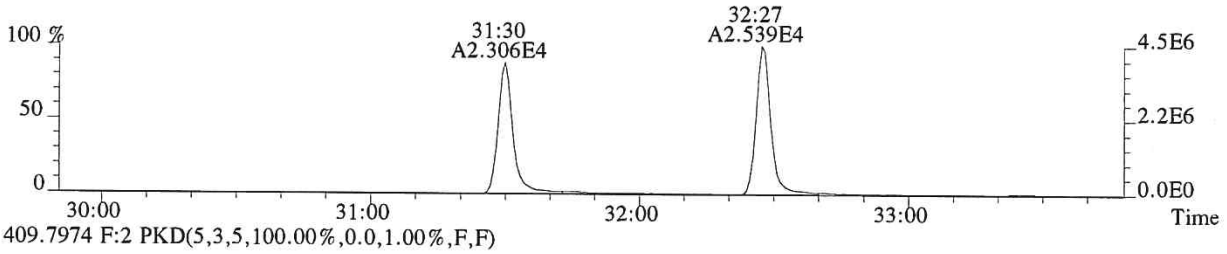
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1084.0,1.00%,F,T)



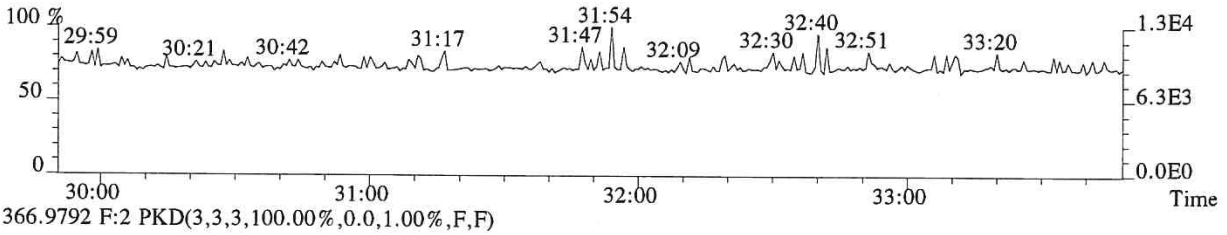
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,744.0,1.00%,F,T)



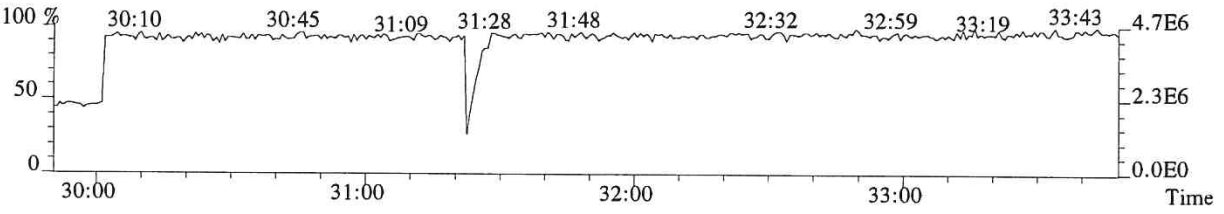
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,588.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

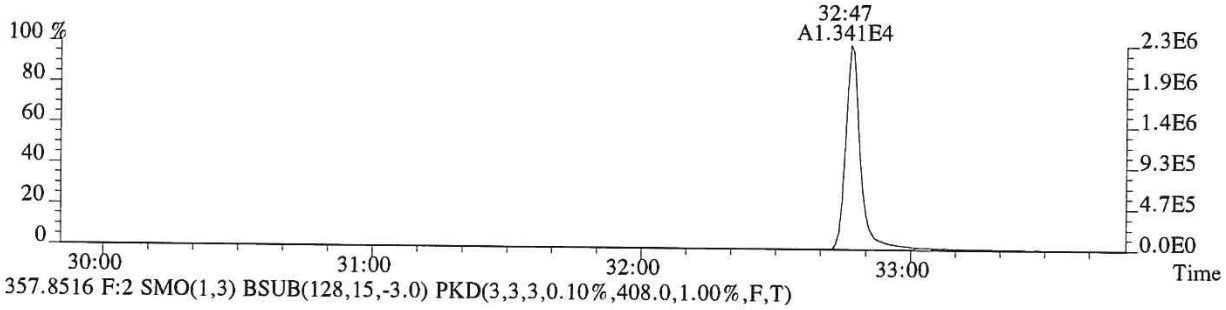


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

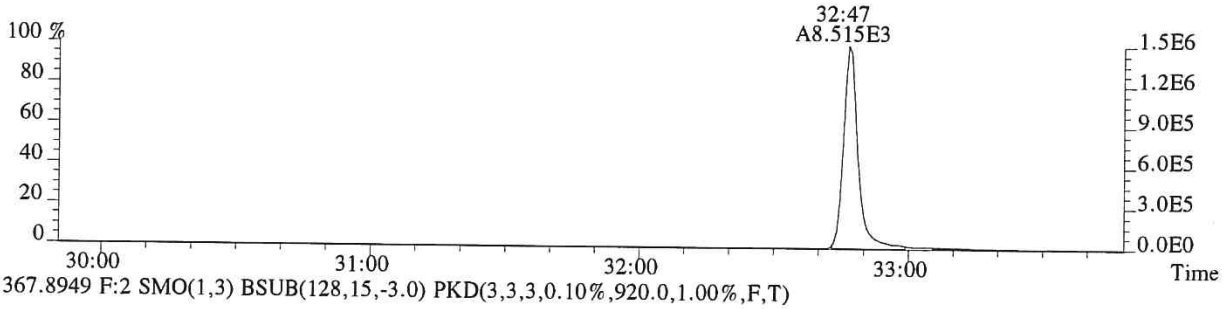


014587

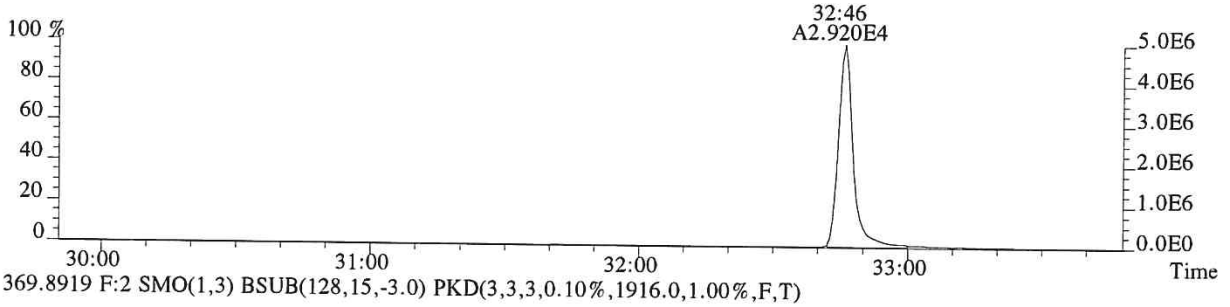
File:P519419 #1-357 Acq:14-DEC-2018 15:00:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,952.0,1.00%,F,T)



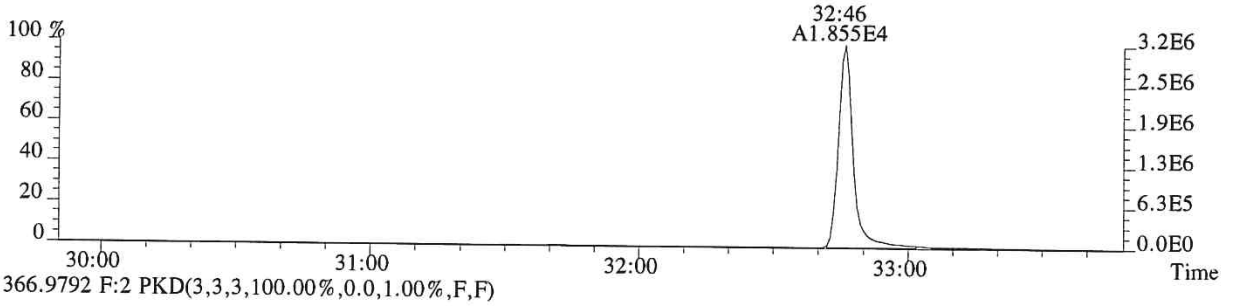
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,408.0,1.00%,F,T)



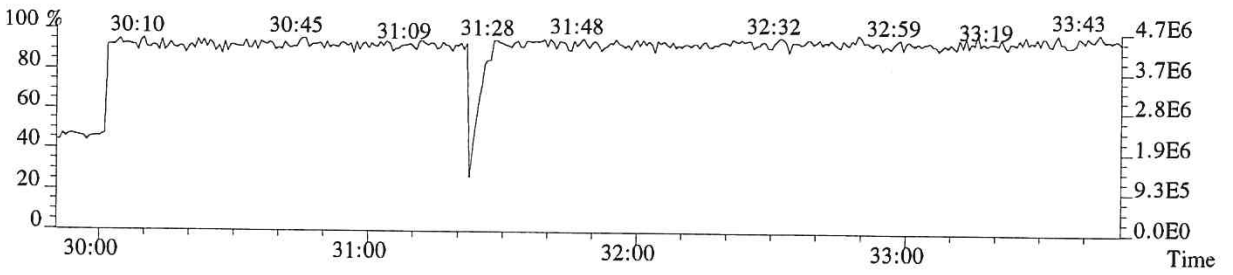
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,920.0,1.00%,F,T)



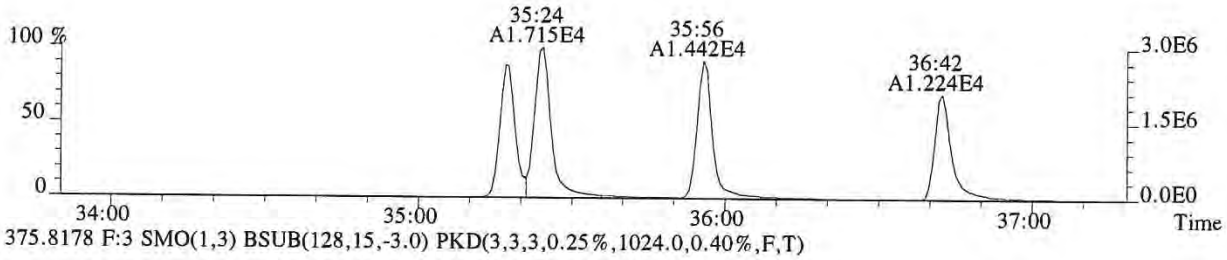
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1916.0,1.00%,F,T)



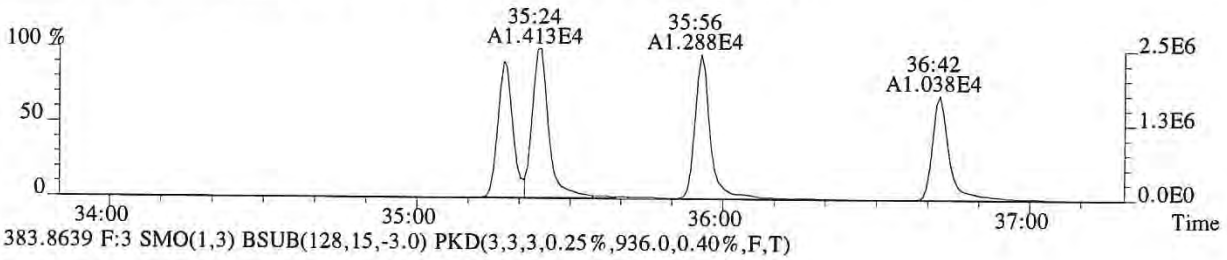
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



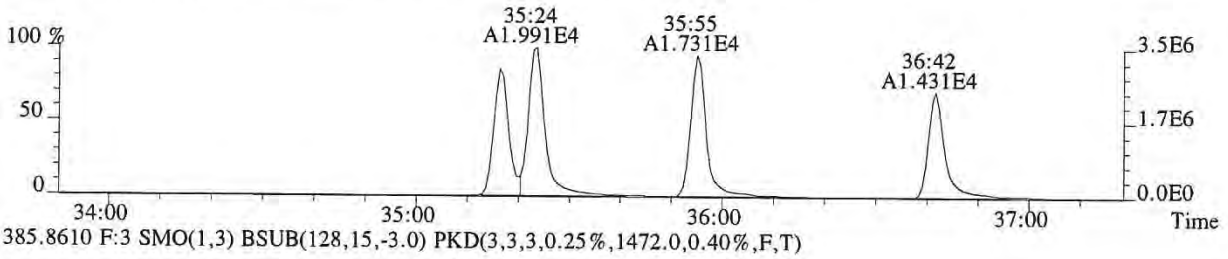
File:P519419 #1-313 Acq:14-DEC-2018 15:00:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,716.0,0.40%,F,T)



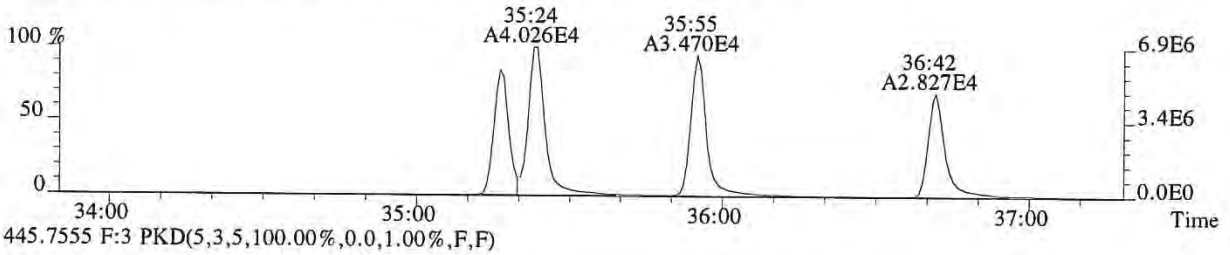
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1024.0,0.40%,F,T)



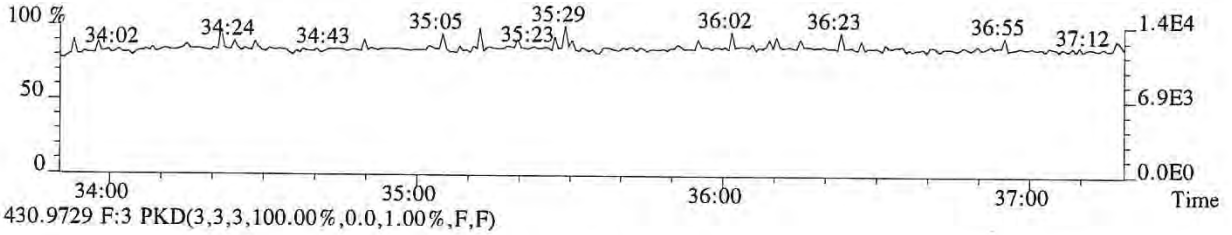
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,936.0,0.40%,F,T)



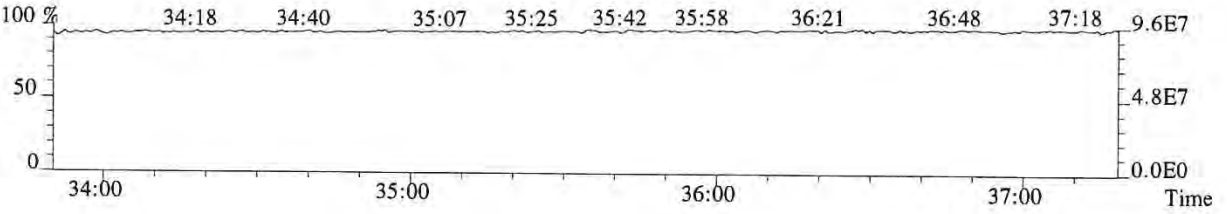
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1472.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

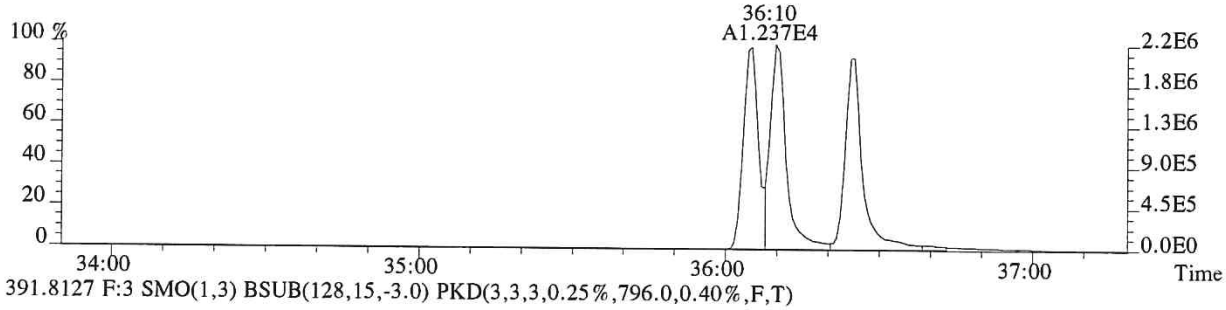


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

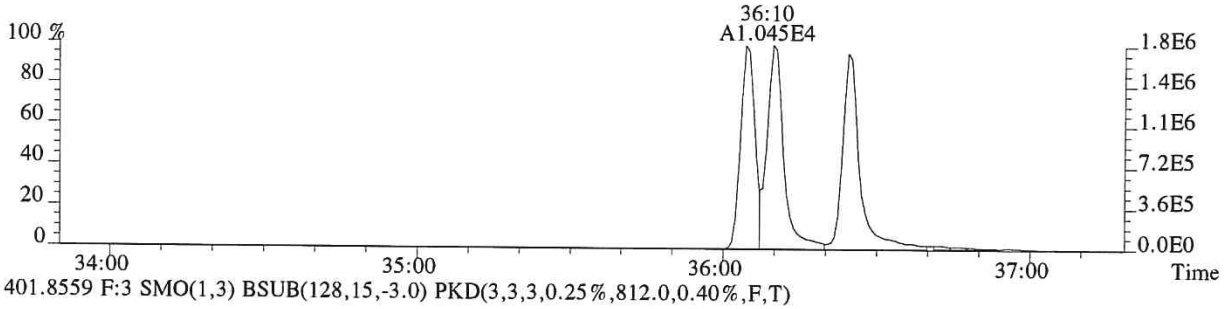


014589

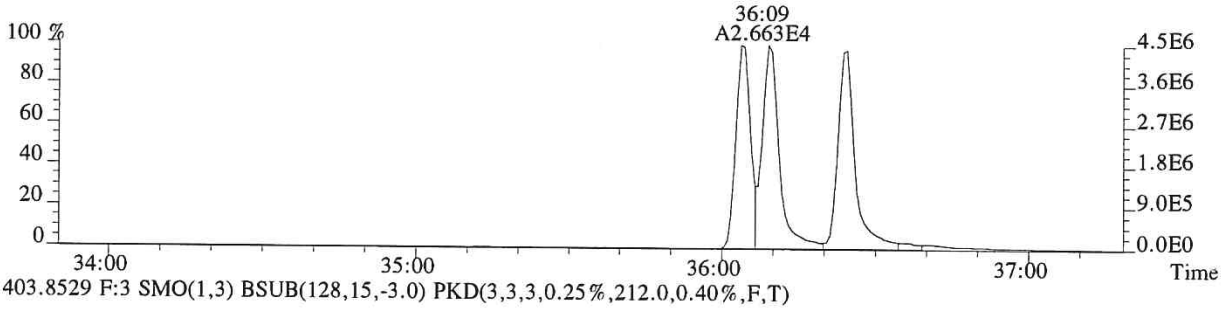
File:P519419 #1-313 Acq:14-DEC-2018 15:00:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,588.0,0.40%,F,T)



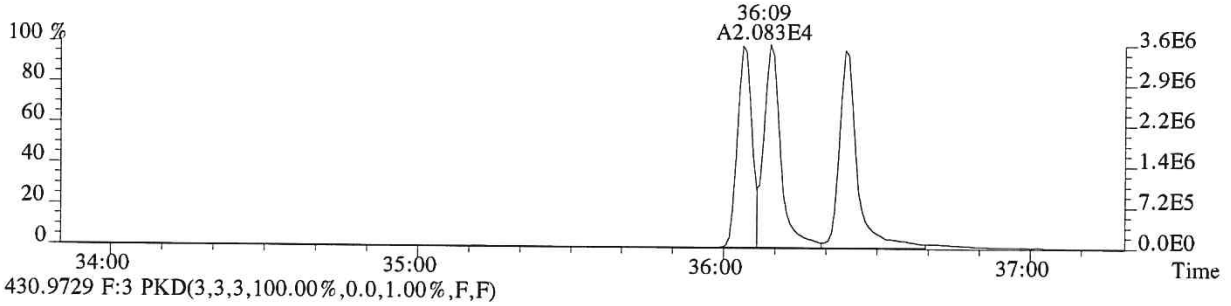
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,796.0,0.40%,F,T)



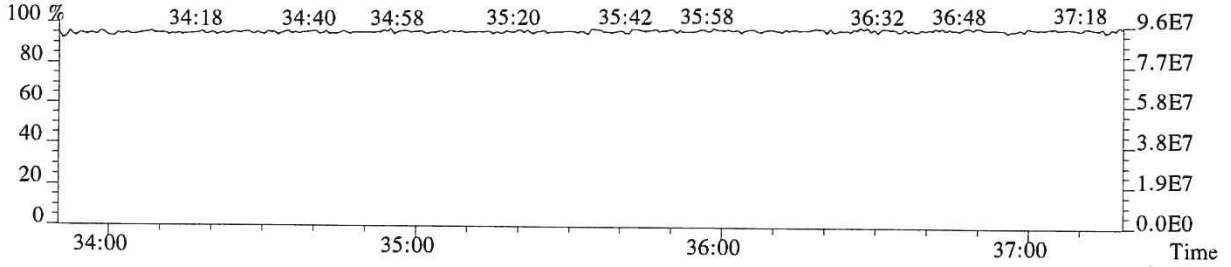
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,812.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,212.0,0.40%,F,T)

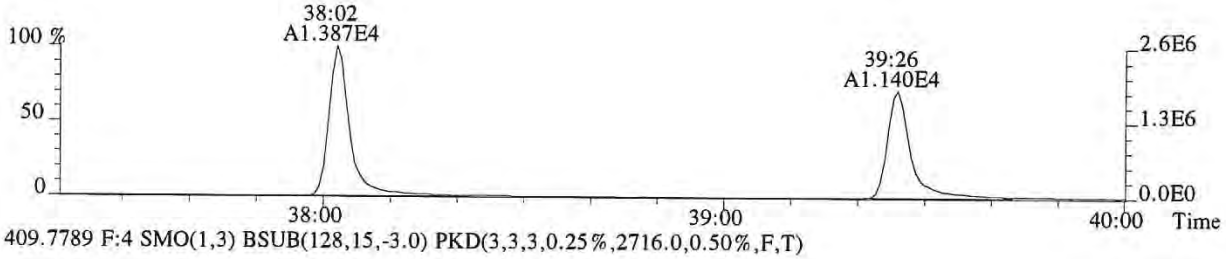


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

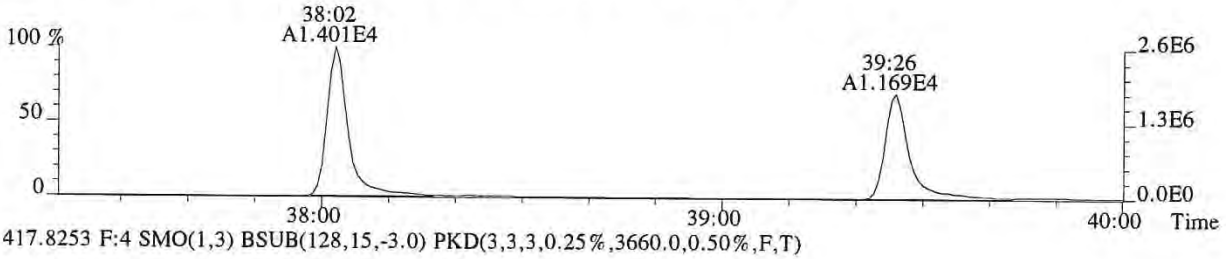


014590

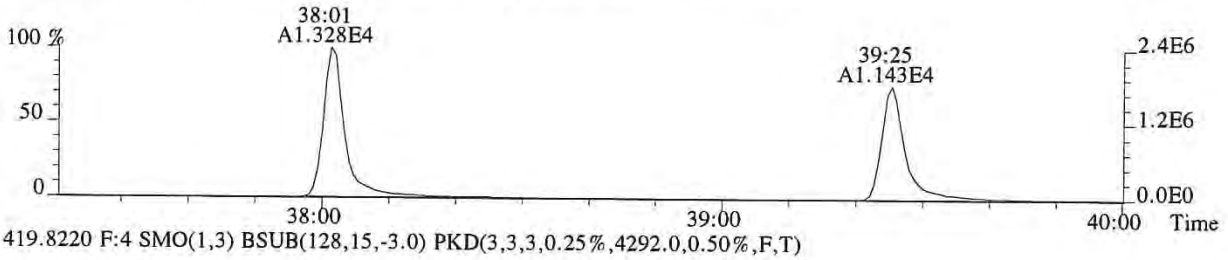
File:P519419 #1-240 Acq:14-DEC-2018 15:00:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2724.0,0.50%,F,T)



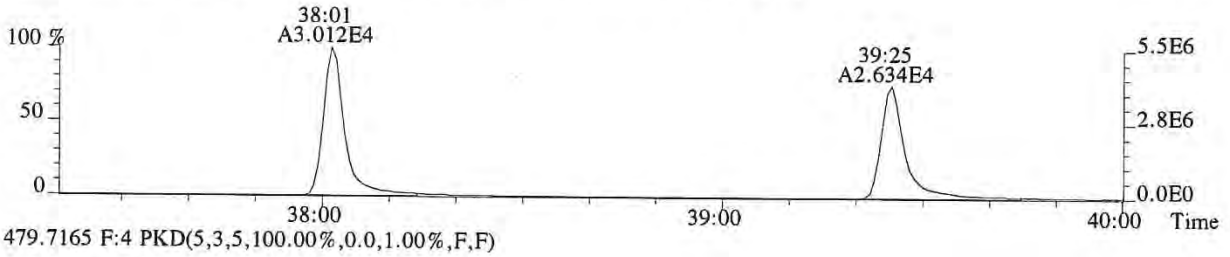
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2716.0,0.50%,F,T)



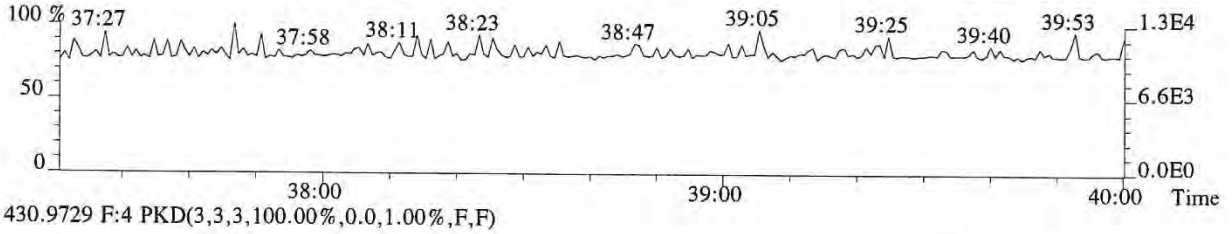
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3660.0,0.50%,F,T)



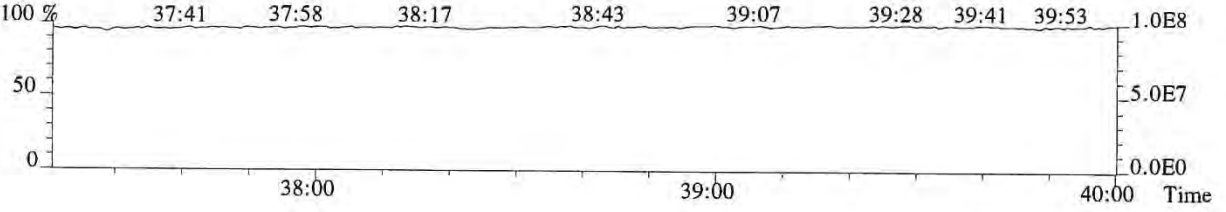
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4292.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

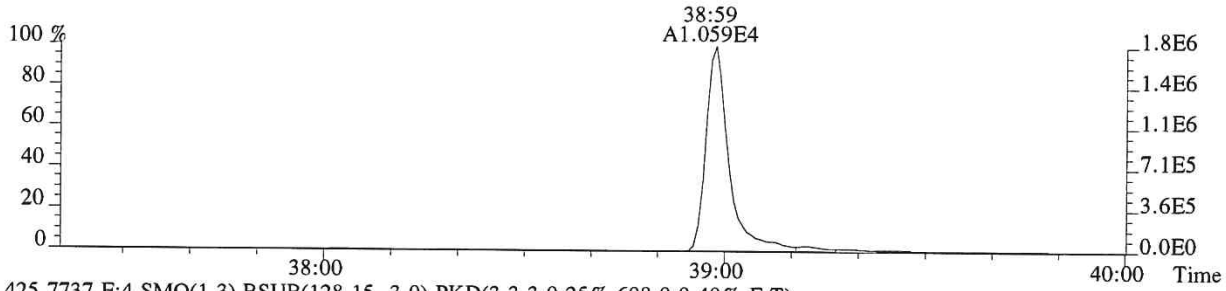


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

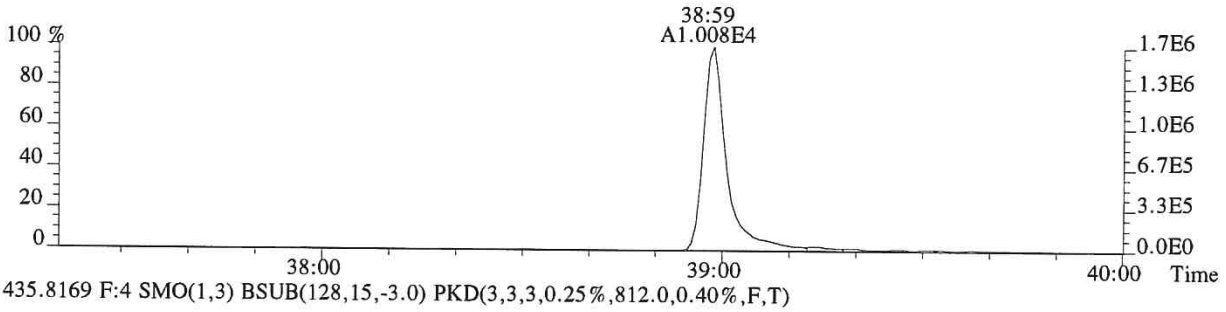


014591

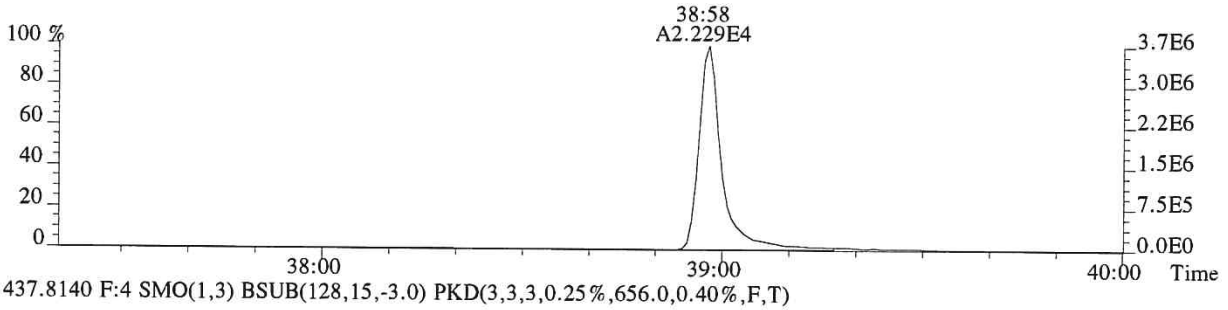
File:P519419 #1-240 Acq:14-DEC-2018 15:00:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,852.0,0.40%,F,T)



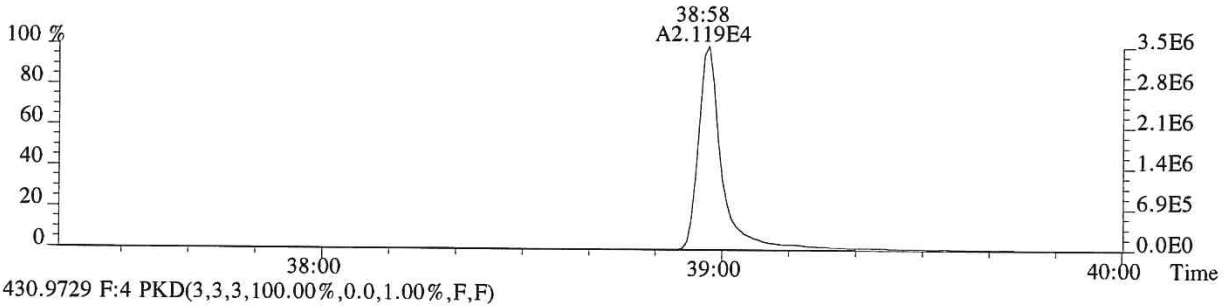
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,608.0,0.40%,F,T)



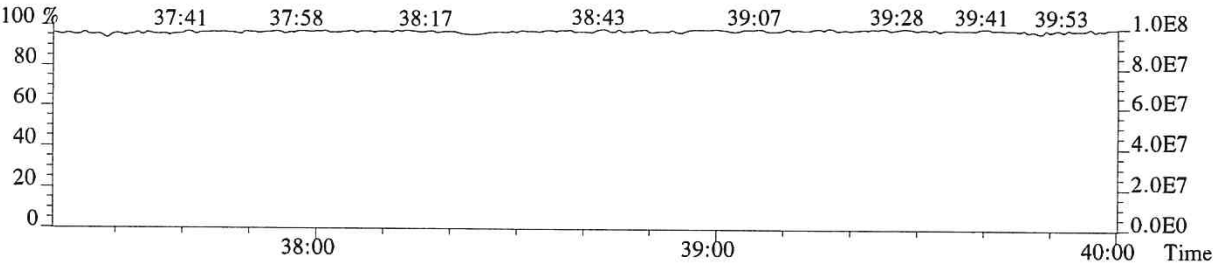
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,812.0,0.40%,F,T)



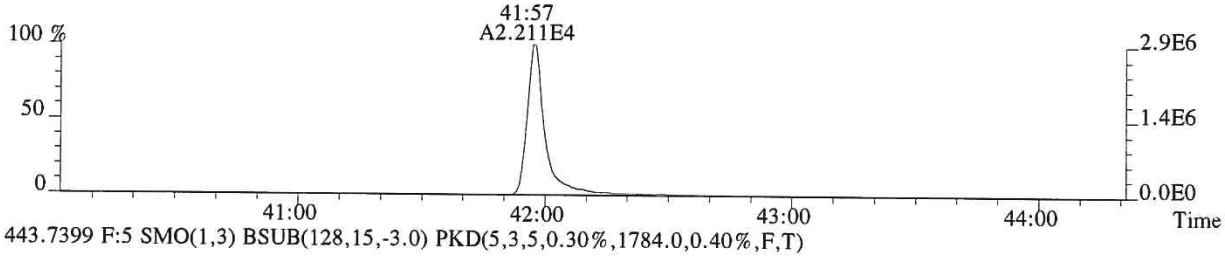
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,656.0,0.40%,F,T)



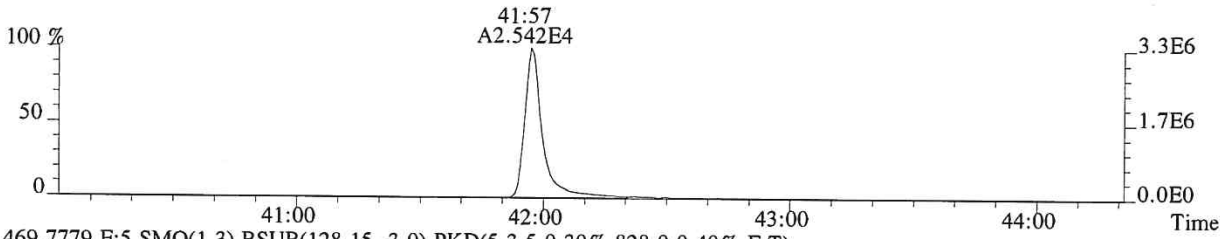
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



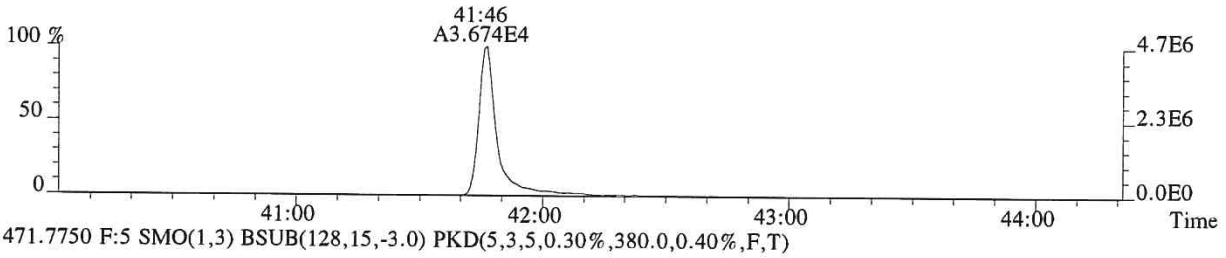
File:P519419 #1-389 Acq:14-DEC-2018 15:00:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,604.0,0.40%,F,T)



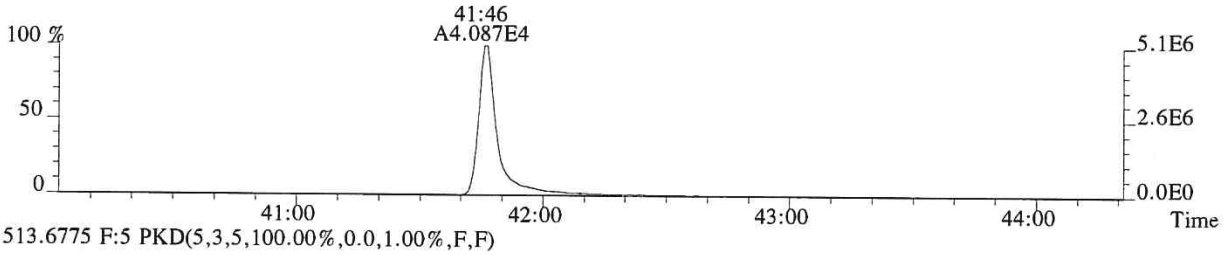
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1784.0,0.40%,F,T)



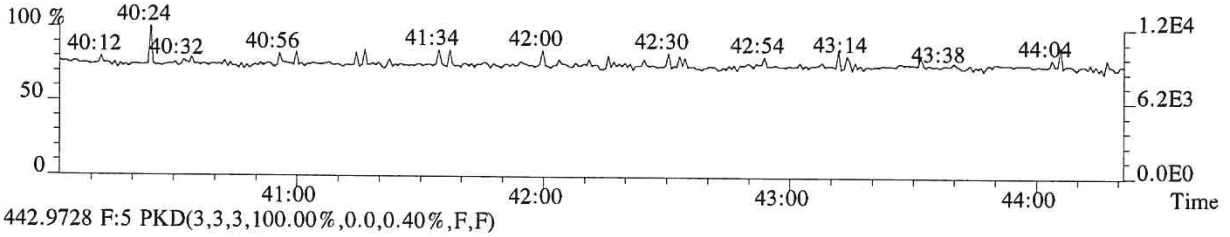
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,828.0,0.40%,F,T)



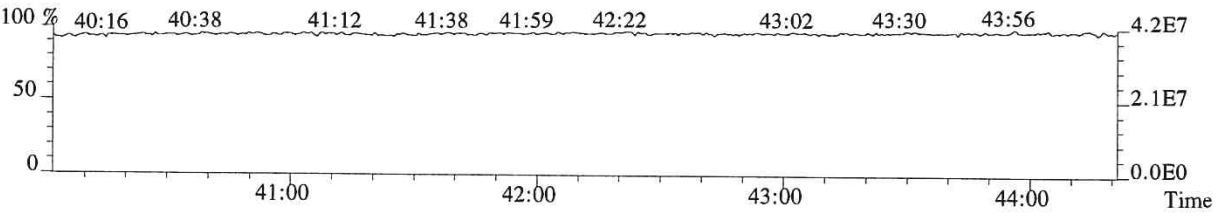
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,380.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

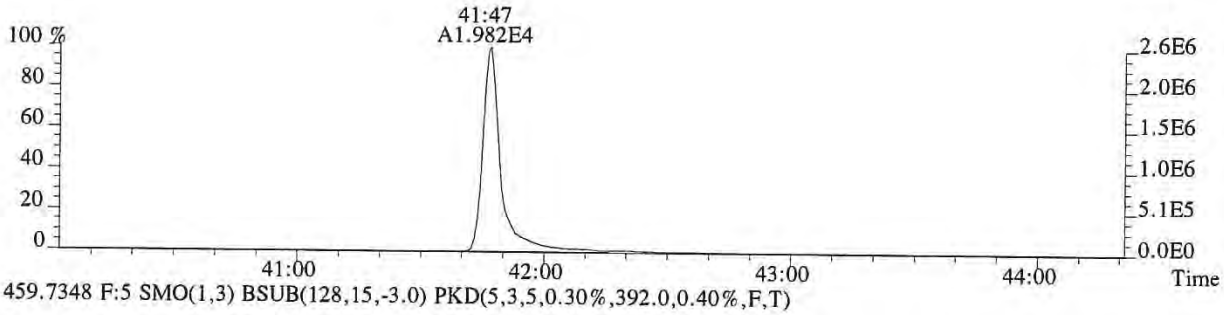


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

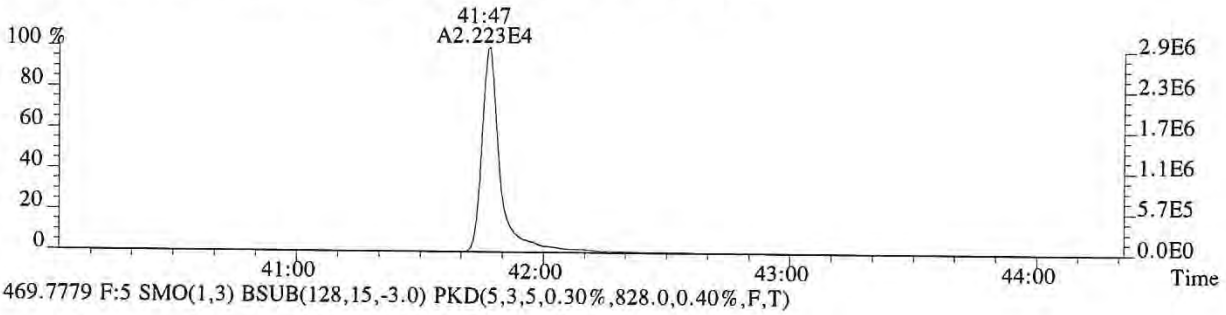


014593

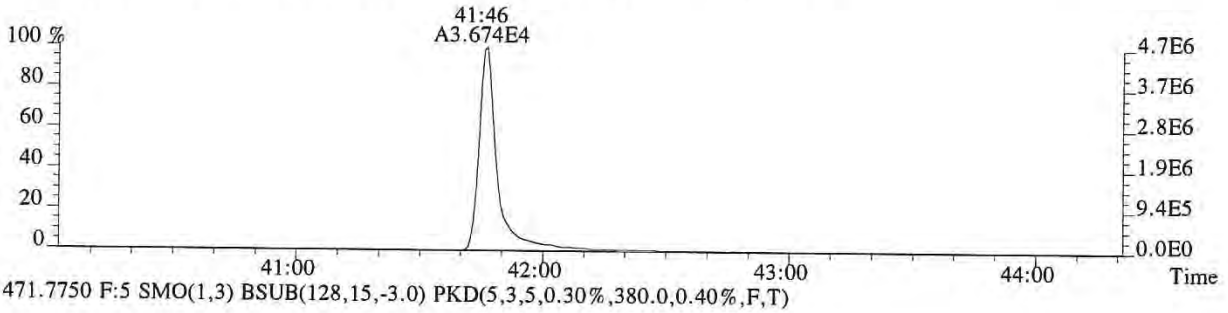
File:P519419 #1-389 Acq:14-DEC-2018 15:00:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,300.0,0.40%,F,T)



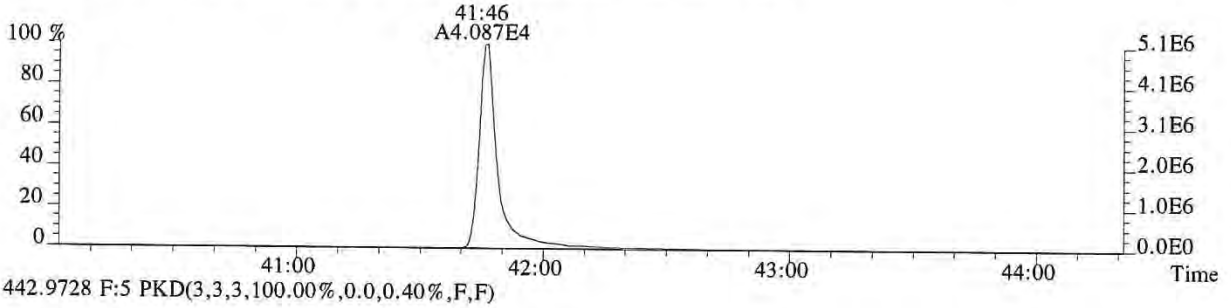
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,392.0,0.40%,F,T)



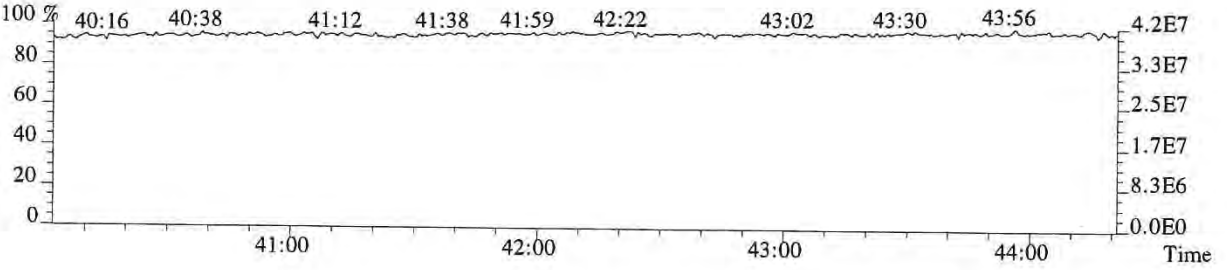
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,828.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,380.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P519435

Date: 12/17 - 12/18/18

Circle one: (Beginning) / Ending

Method: (1613) / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: LKL Second QC: [illegible]

ccalqc.xls 07/17/12

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:14

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
192977	WINDOW DEFINE	P519436	17-DEC-18	14:33:44
194503	CS3	P519435	17-DEC-18	13:42:13
METHOD BLANK	EQ1800498-01	P519437	17-DEC-18	15:21:32
SL0027	E1801093-010	P519438	17-DEC-18	16:11:08
SL0006	E1801093-011	P519439	17-DEC-18	16:58:54
SL0007	E1801093-012	P519440	17-DEC-18	17:47:33
SL0008	E1801093-013	P519441	17-DEC-18	18:36:10
SL0009	E1801093-014	P519442	17-DEC-18	19:24:47
SL0010	E1801093-015	P519443	17-DEC-18	20:13:25
SL0001	E1801093-016	P519444	17-DEC-18	21:02:02
SL0002	E1801093-017	P519445	17-DEC-18	21:50:39
SL0003	E1801093-018	P519446	17-DEC-18	22:39:17
SL0004	E1801093-019	P519447	17-DEC-18	23:27:56
SL0005	E1801093-020	P519448	18-DEC-18	00:16:34

Sample List Report — **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20181217A.SPL
Last Modified: Tuesday, December 18, 2018 09:18:53 Central Standard Time
Printed: Tuesday, December 18, 2018 09:19:07 Central Standard Time

Page Position (1, 1)

OPUS 5 NET: P519435 RES

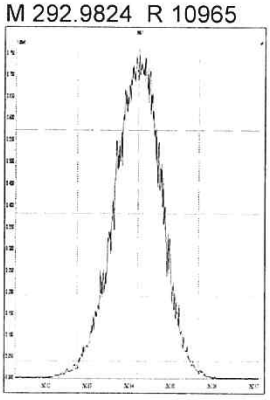
	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	12/17/18	13:42	P519435	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2	LKL for	HRMS check 13:36
2		14:33	P519436	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:1	LG	
3		15:21	P519437	MB	EQ1800498-01	EPA1613_ALS	Dioxin_ALS	Tray1:3		
4		16:11	P519438	E1801093-010	E1801093-010	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		16:58	P519439	E1801093-011	E1801093-011	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		17:47	P519440	E1801093-012	E1801093-012	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		18:36	P519441	E1801093-013	E1801093-013	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		19:24	P519442	E1801093-014	E1801093-014	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		20:13	P519443	E1801093-015	E1801093-015	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		21:02	P519444	E1801093-016	E1801093-016	EPA1613_ALS	Dioxin_ALS	Tray1:2		
11		21:50	P519445	E1801093-017	E1801093-017	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		22:39	P519446	E1801093-018	E1801093-018	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13		23:27	P519447	E1801093-019	E1801093-019	EPA1613_ALS	Dioxin_ALS	Tray1:13		
14	12/18/18	00:16	P519448	E1801093-020	E1801093-020	EPA1613_ALS	Dioxin_ALS	Tray1:14		HRMS check 01:13
15			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2		
16			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2		
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:18	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---
22	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
23	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
24	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:24	---	---
25	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:25	---	---
26	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:26	---	---
27	---	LKL 12/19/18	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:27	---	---
28	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:28	---	---
29	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:29	---	---
30	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:30	---	---
31	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:31	---	---
32	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:32	---	---
33	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:33	---	---
34	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:34	---	---
35	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:35	---	---
36	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:36	---	---
37	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:37	---	---
38	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:38	---	---
39	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:39	---	---

05

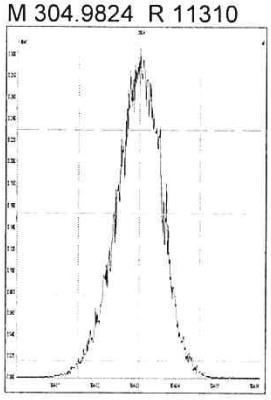
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Monday, December 17, 2018 13:36:37 Central Standard Time

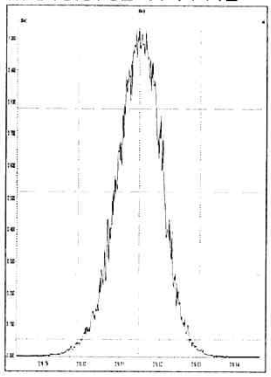
M 292.9824 R 10965



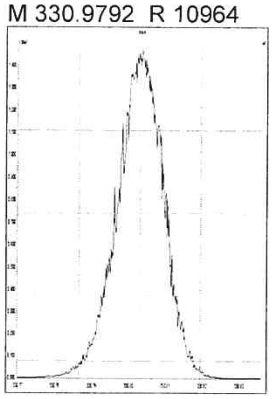
M 304.9824 R 11310



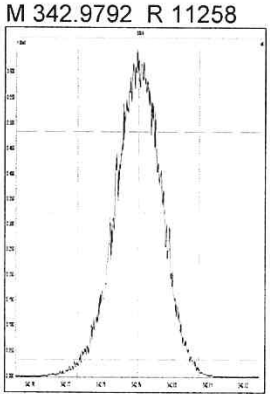
M 318.9792 R 11412



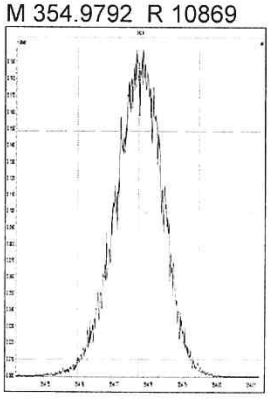
M 330.9792 R 10964



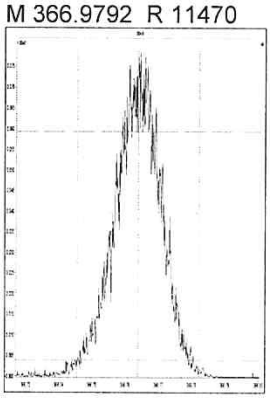
M 342.9792 R 11258



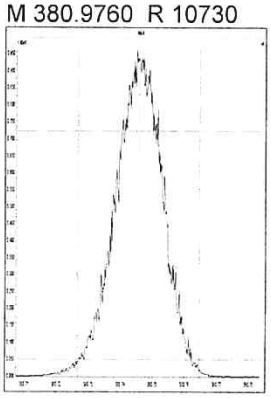
M 354.9792 R 10869



M 366.9792 R 11470



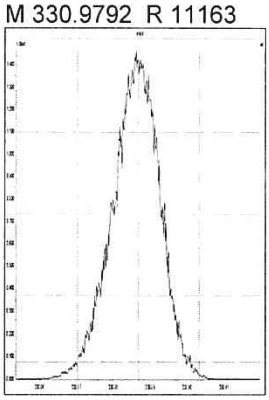
M 380.9760 R 10730



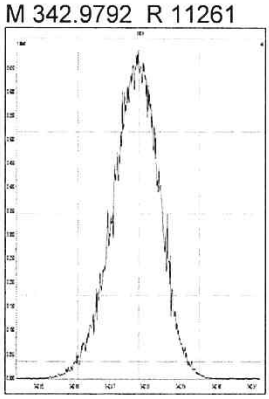
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Monday, December 17, 2018 13:37:20 Central Standard Time

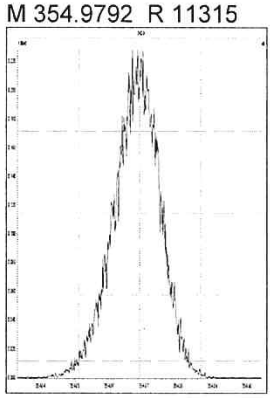
M 330.9792 R 11163



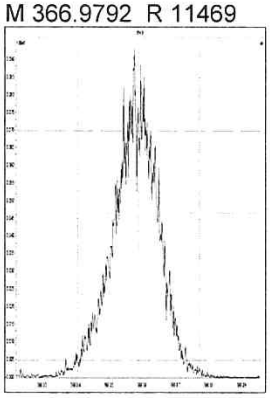
M 342.9792 R 11261



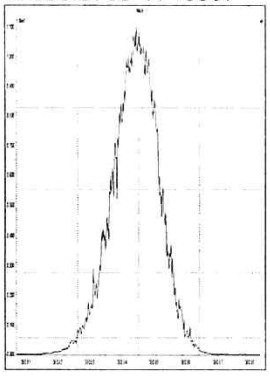
M 354.9792 R 11315



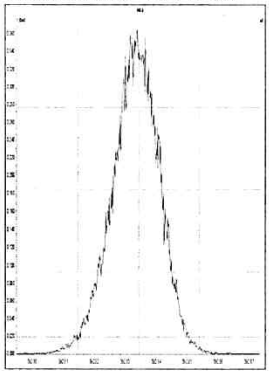
M 366.9792 R 11469



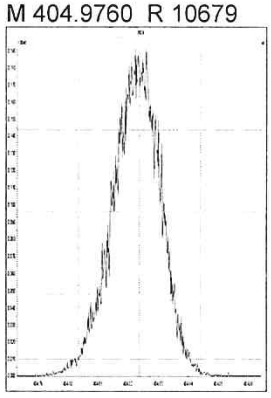
M 380.9760 R 10637



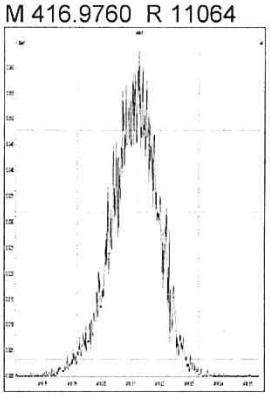
M 392.9760 R 11208



M 404.9760 R 10679



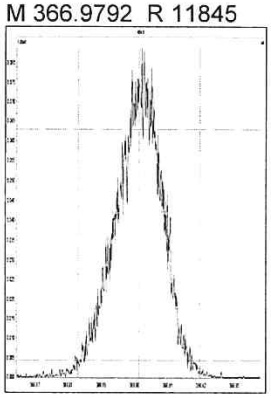
M 416.9760 R 11064



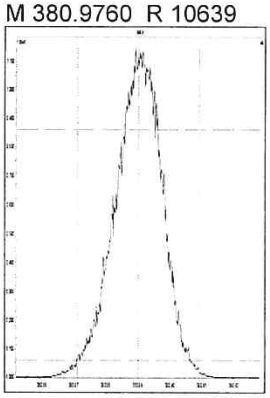
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Monday, December 17, 2018 13:38:17 Central Standard Time

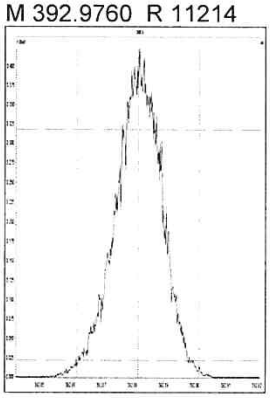
M 366.9792 R 11845



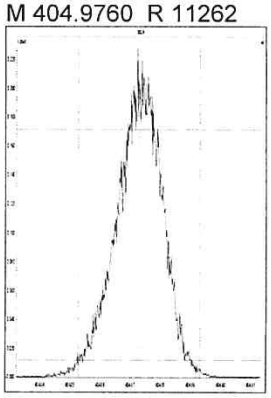
M 380.9760 R 10639



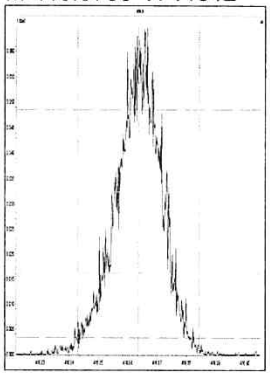
M 392.9760 R 11214



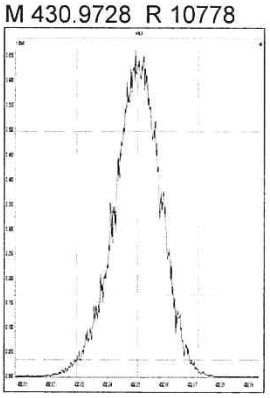
M 404.9760 R 11262



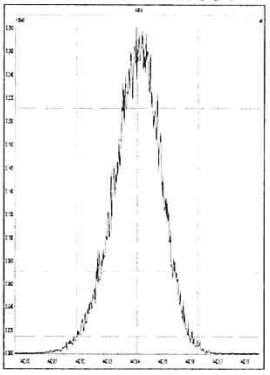
M 416.9760 R 11312



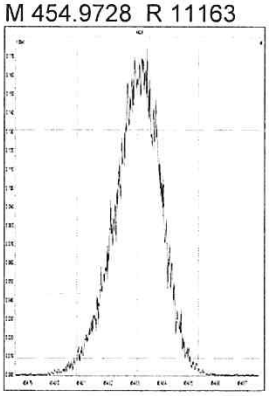
M 430.9728 R 10778



M 442.9728 R 10684



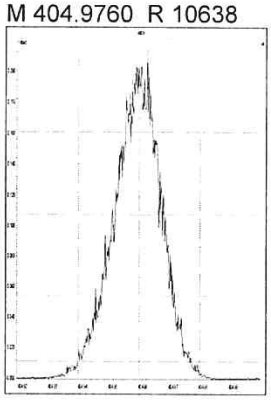
M 454.9728 R 11163



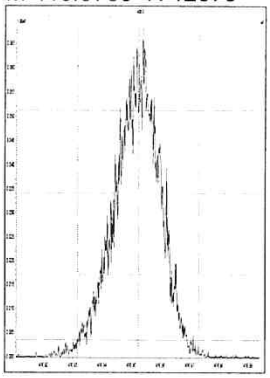
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Monday, December 17, 2018 13:39:14 Central Standard Time

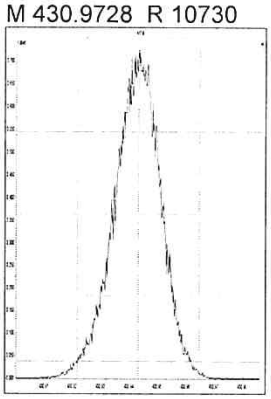
M 404.9760 R 10638



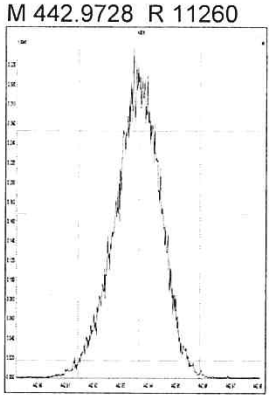
M 416.9760 R 12079



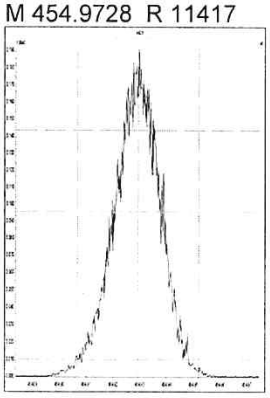
M 430.9728 R 10730



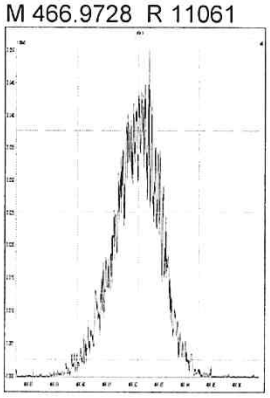
M 442.9728 R 11260



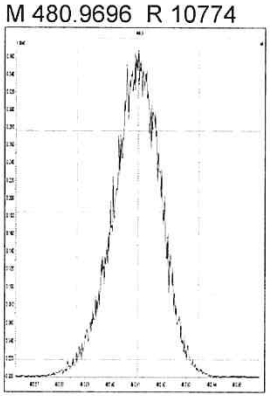
M 454.9728 R 11417



M 466.9728 R 11061



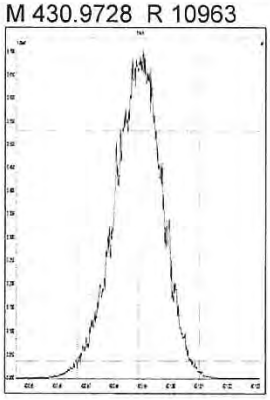
M 480.9696 R 10774



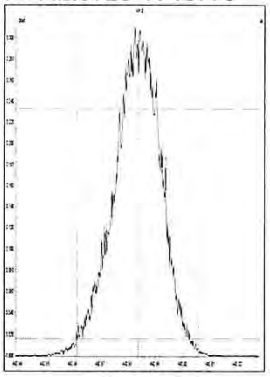
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Monday, December 17, 2018 13:39:53 Central Standard Time

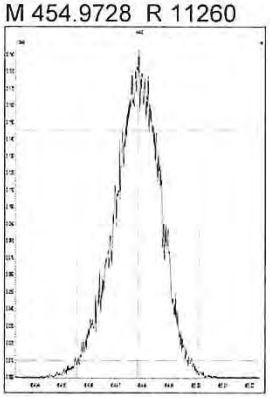
M 430.9728 R 10963



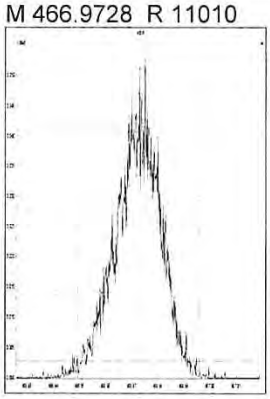
M 442.9728 R 10776



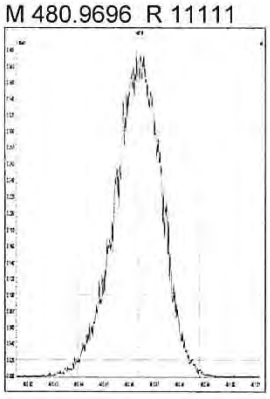
M 454.9728 R 11260



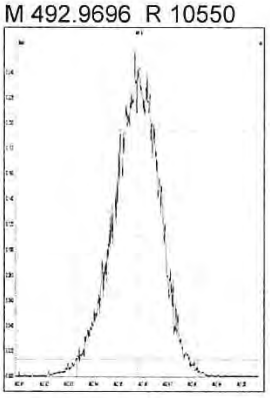
M 466.9728 R 11010



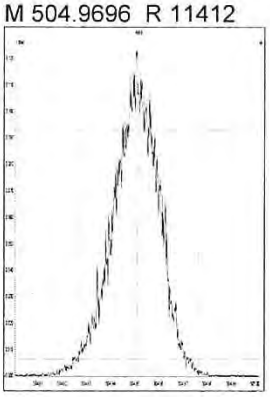
M 480.9696 R 11111



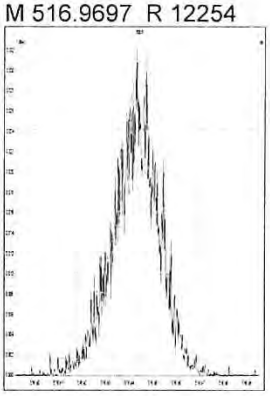
M 492.9696 R 10550



M 504.9696 R 11412

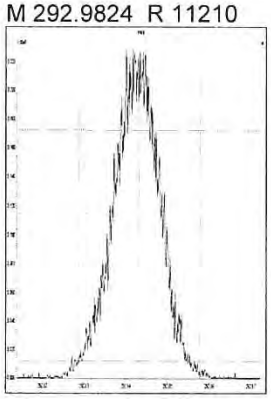


M 516.9697 R 12254

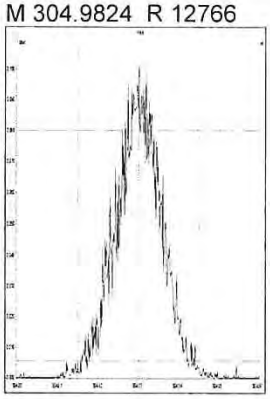


Printed: Tuesday, December 18, 2018 01:13:21 Central Standard Time

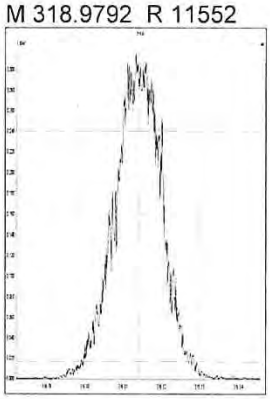
M 292.9824 R 11210



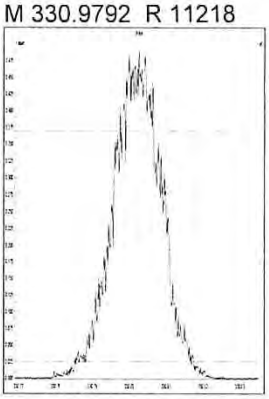
M 304.9824 R 12766



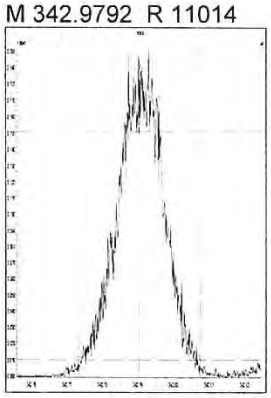
M 318.9792 R 11552



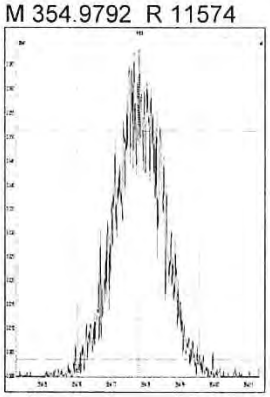
M 330.9792 R 11218



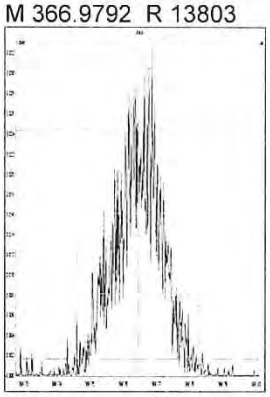
M 342.9792 R 11014



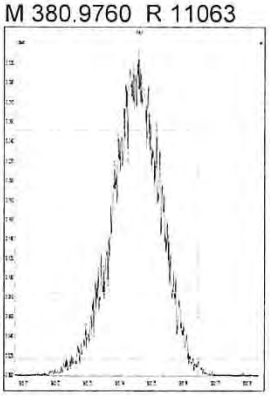
M 354.9792 R 11574



M 366.9792 R 13803



M 380.9760 R 11063



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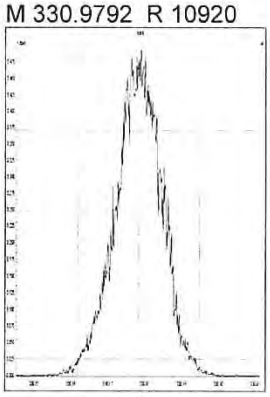

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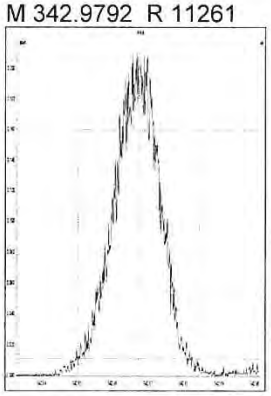

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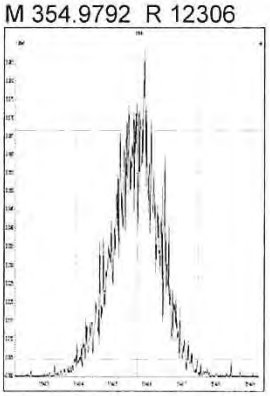

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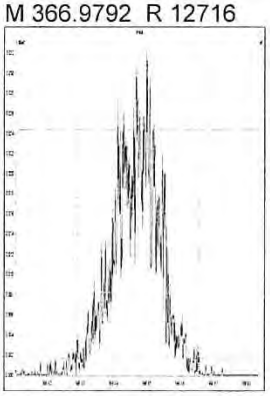

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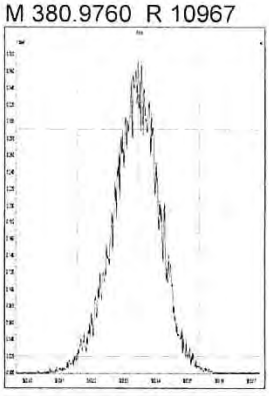

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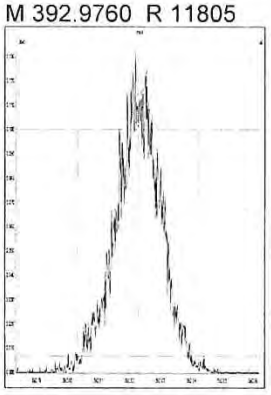

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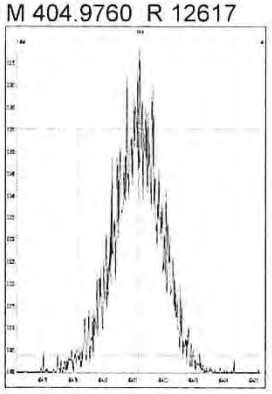

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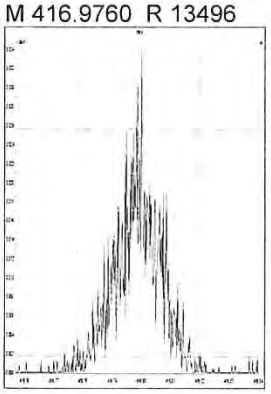

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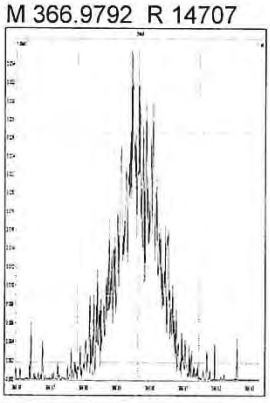

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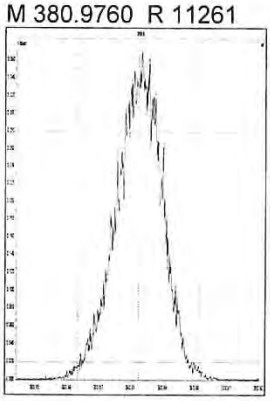

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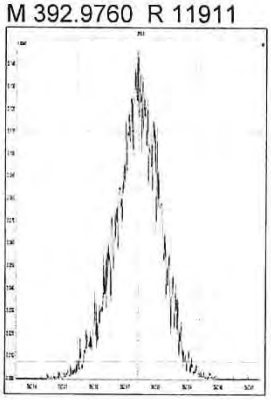

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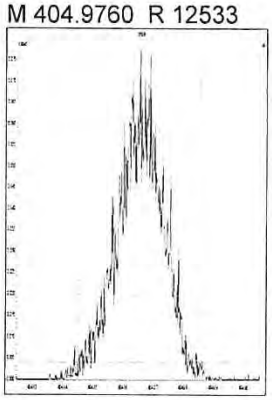

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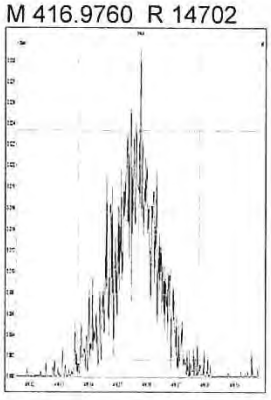

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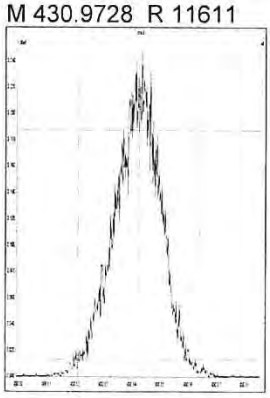

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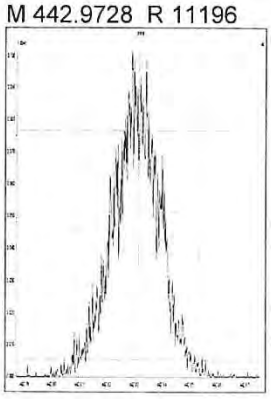

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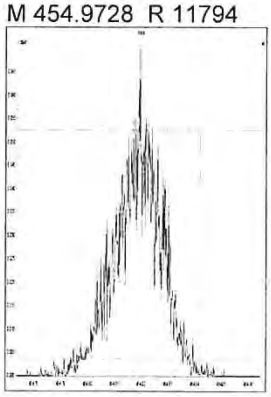

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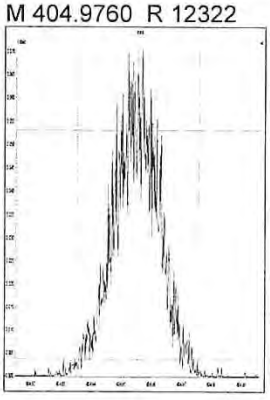

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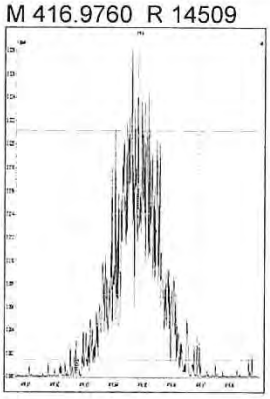

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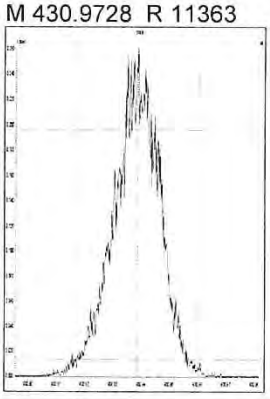

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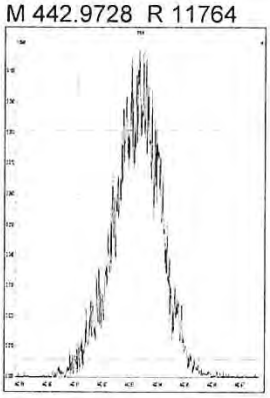

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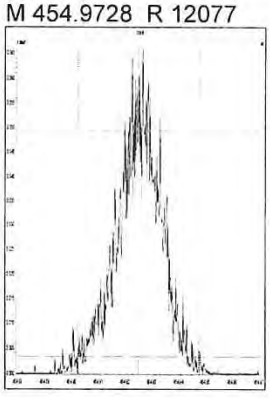

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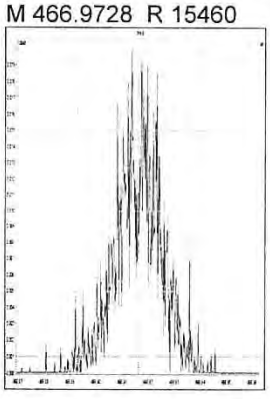
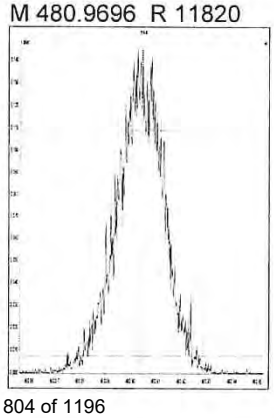


M 480.9696 R 11820



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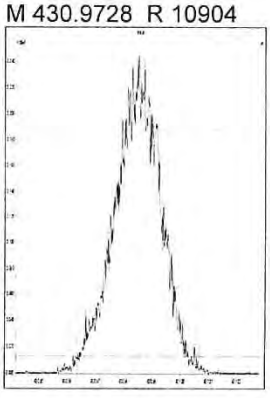

Printed: Tuesday, December 18, 2018 01:13:21 Central Standard Time

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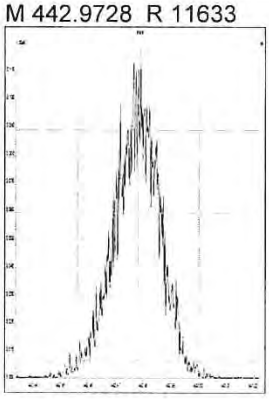

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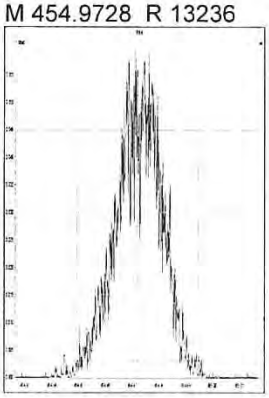

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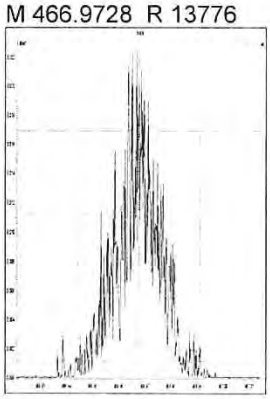

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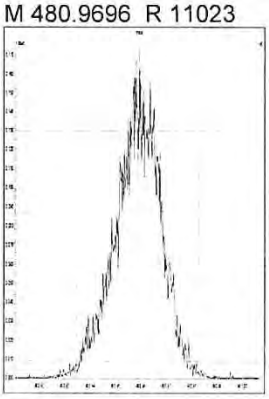

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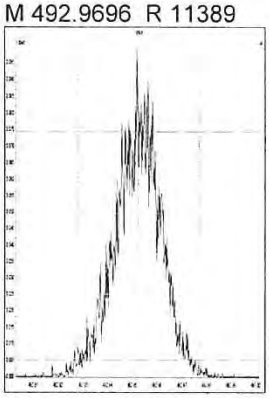

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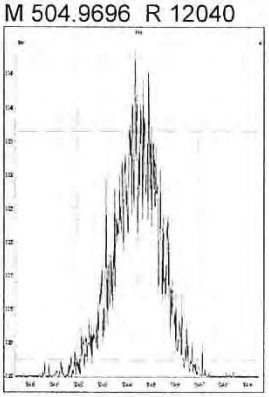

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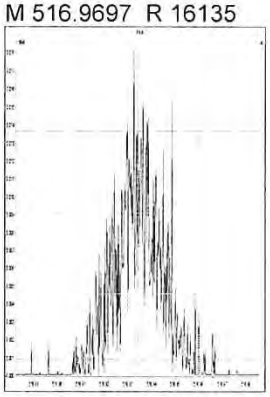


WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

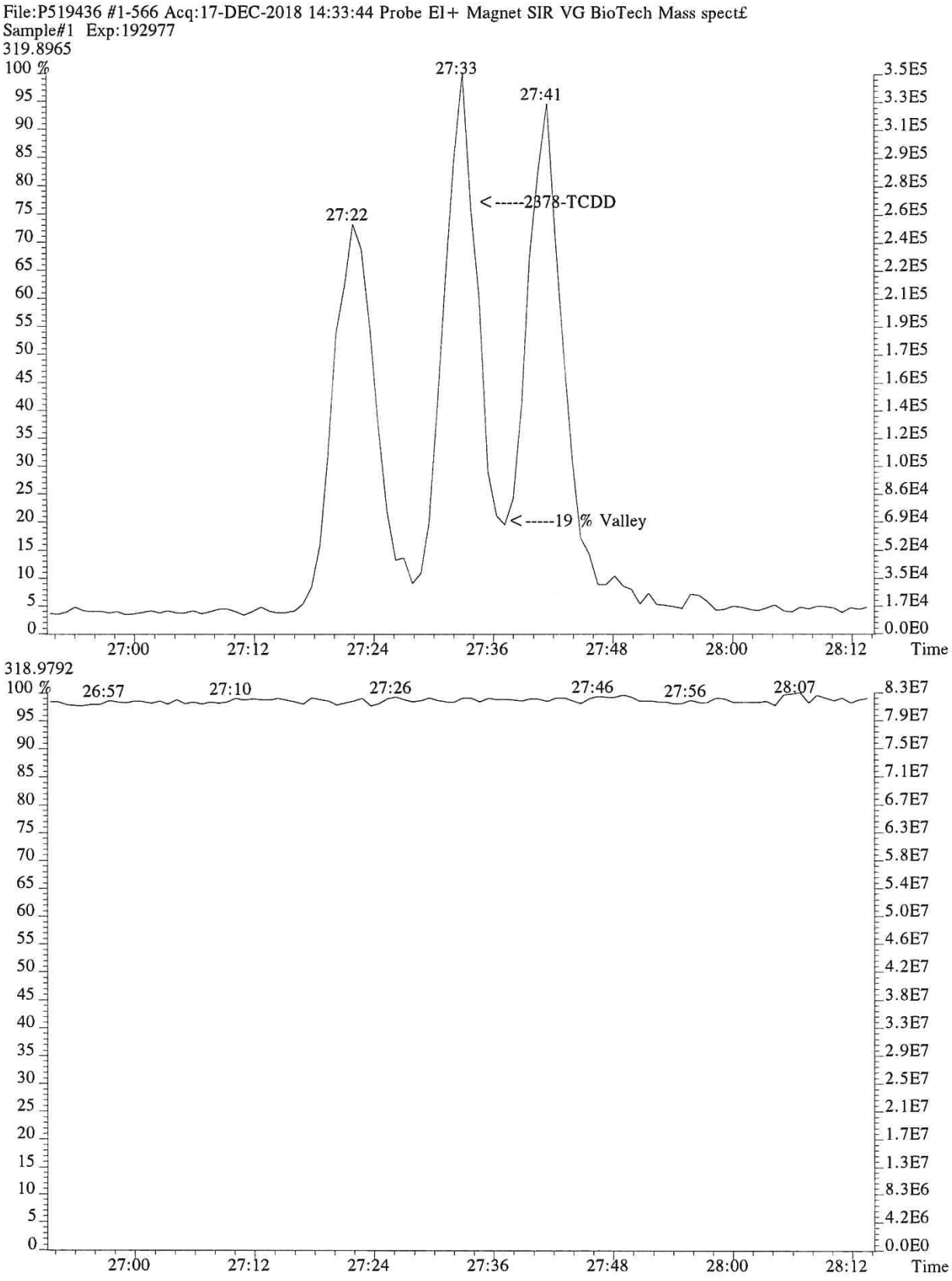
Case No.: _____ SDG No.:
ID: 0.25 (mm)

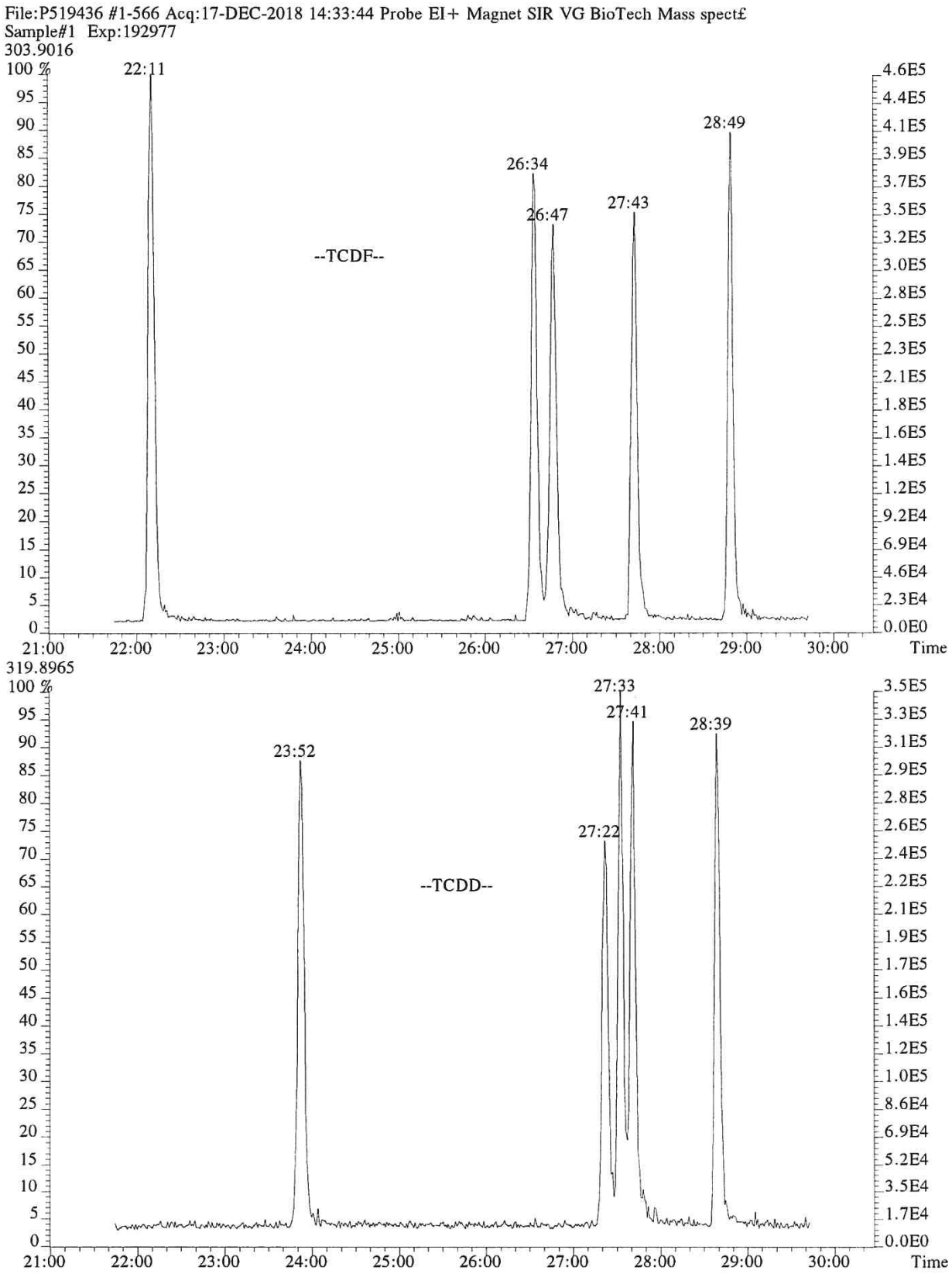
Lab File ID: P519436
Date Analyzed: 17-DEC-18
Time Analyzed: 14:33:44

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	22:11	28:49
TCDD	23:52	28:39
PeCDF	28:47	33:19
PeCDD	30:27	33:05
HxCDF	34:02	36:40
HxCDD	34:36	36:16
HpCDF	37:58	39:22
HpCDD	38:13	38:55

% Valley 2378-TCDD: 19 %

014606


File:P519436 #1-566 Acq:17-DEC-2018 14:33:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
319.8965
27:33
27:41
27:22
<-----2378-TCDD
<-----19 % Valley
Time
318.9792
26:57
27:10
27:26
27:46
27:56
28:07
Time


File:P519436 #1-566 Acq:17-DEC-2018 14:33:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
303.9016
100 %
22:11
26:34
26:47
27:43
28:49
--TCDF--
4.6E5
4.4E5
4.1E5
3.9E5
3.7E5
3.5E5
3.2E5
3.0E5
2.8E5
2.5E5
2.3E5
2.1E5
1.8E5
1.6E5
1.4E5
1.2E5
9.2E4
6.9E4
4.6E4
2.3E4
0.0E0
21:00
22:00
23:00
24:00
25:00
26:00
27:00
28:00
29:00
30:00
Time
319.8965
100 %
23:52
27:22
27:33
27:41
28:39
--TCDD--
3.5E5
3.3E5
3.1E5
2.9E5
2.8E5
2.6E5
2.4E5
2.2E5
2.1E5
1.9E5
1.7E5
1.6E5
1.4E5
1.2E5
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6.9E4
5.2E4
3.5E4
1.7E4
0.0E0
21:00
22:00
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25:00
26:00
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28:00
29:00
30:00
Time

014608

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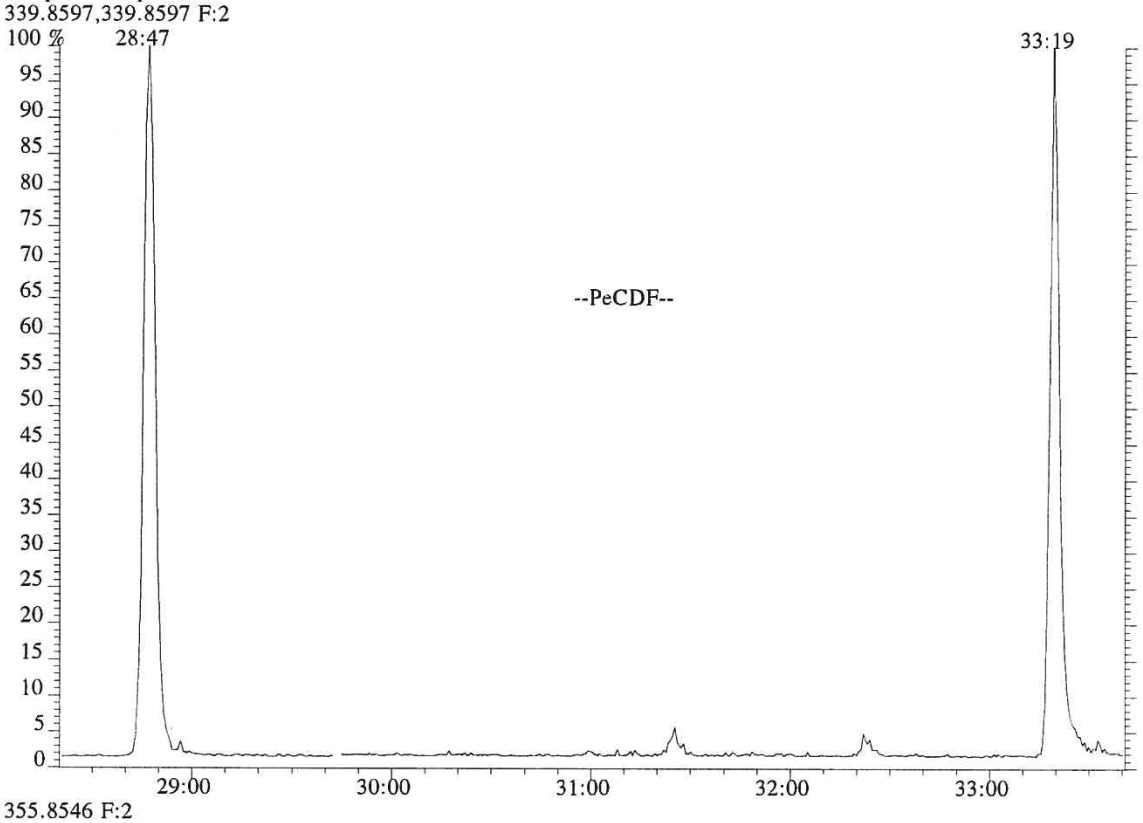
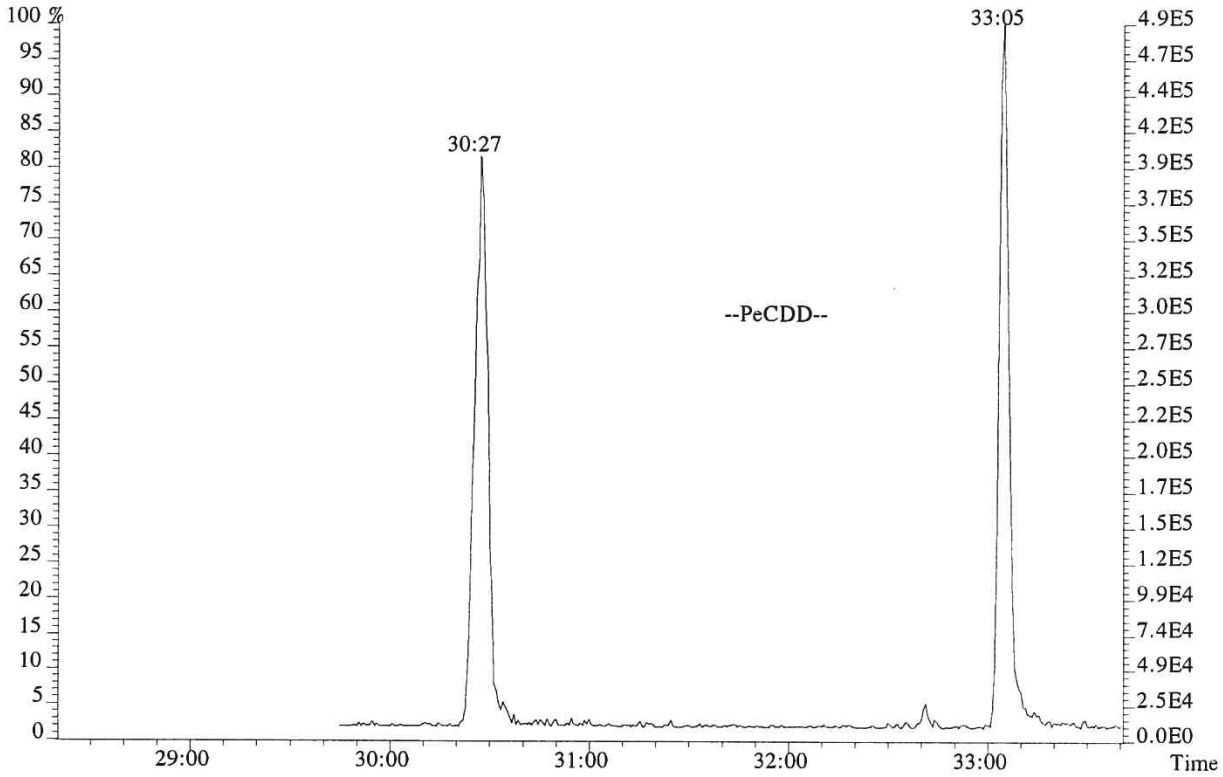
339.8597,339.8597 F:2



355.8546 F:2



014609

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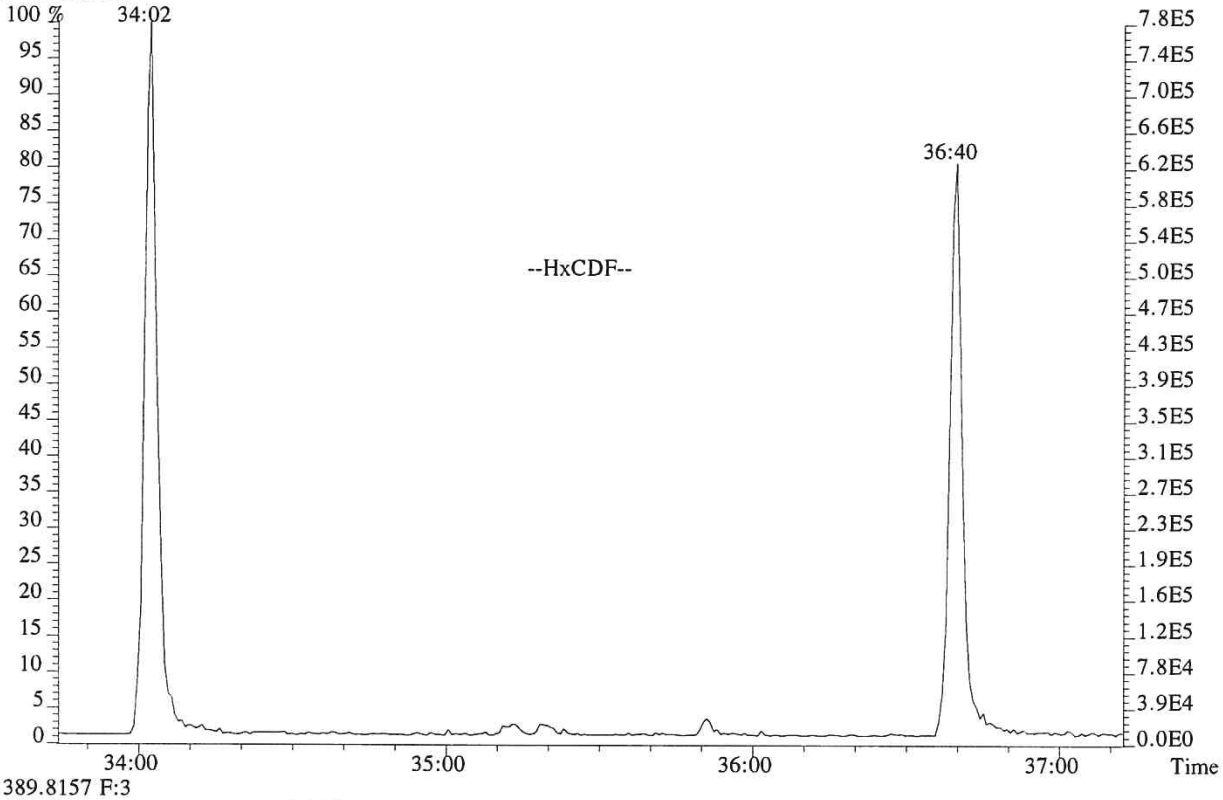
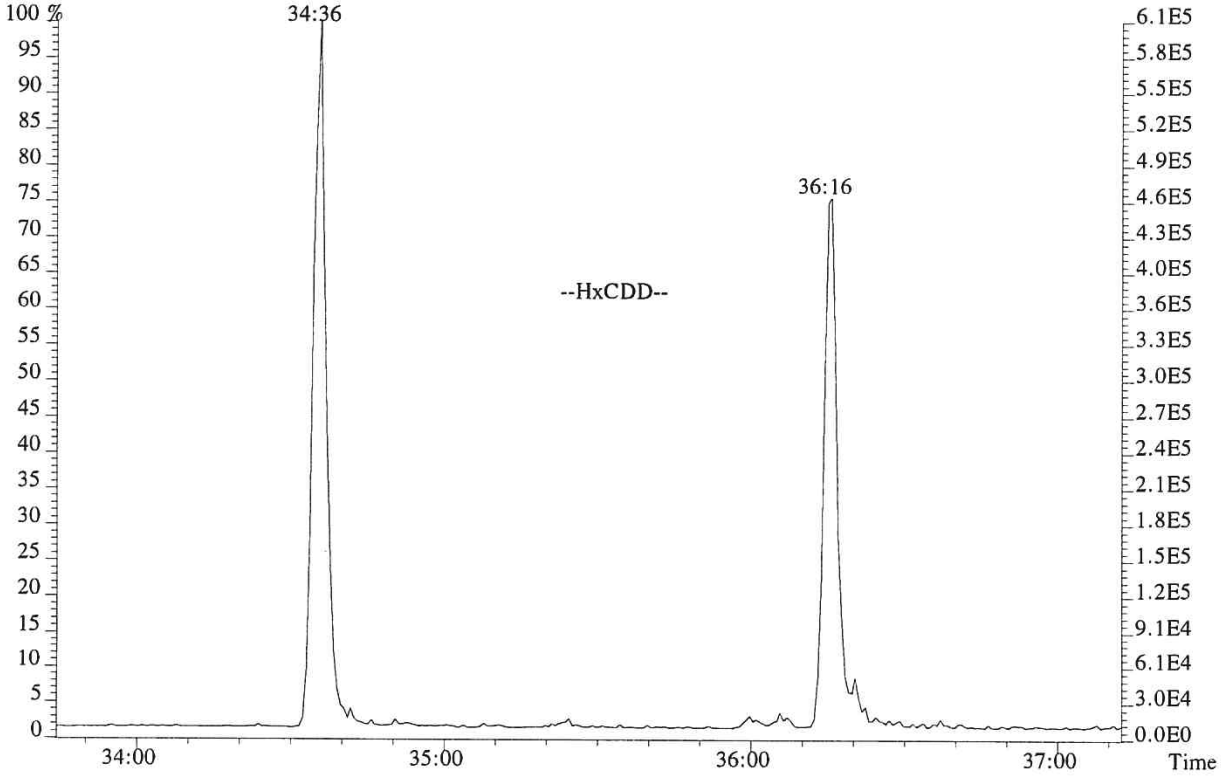
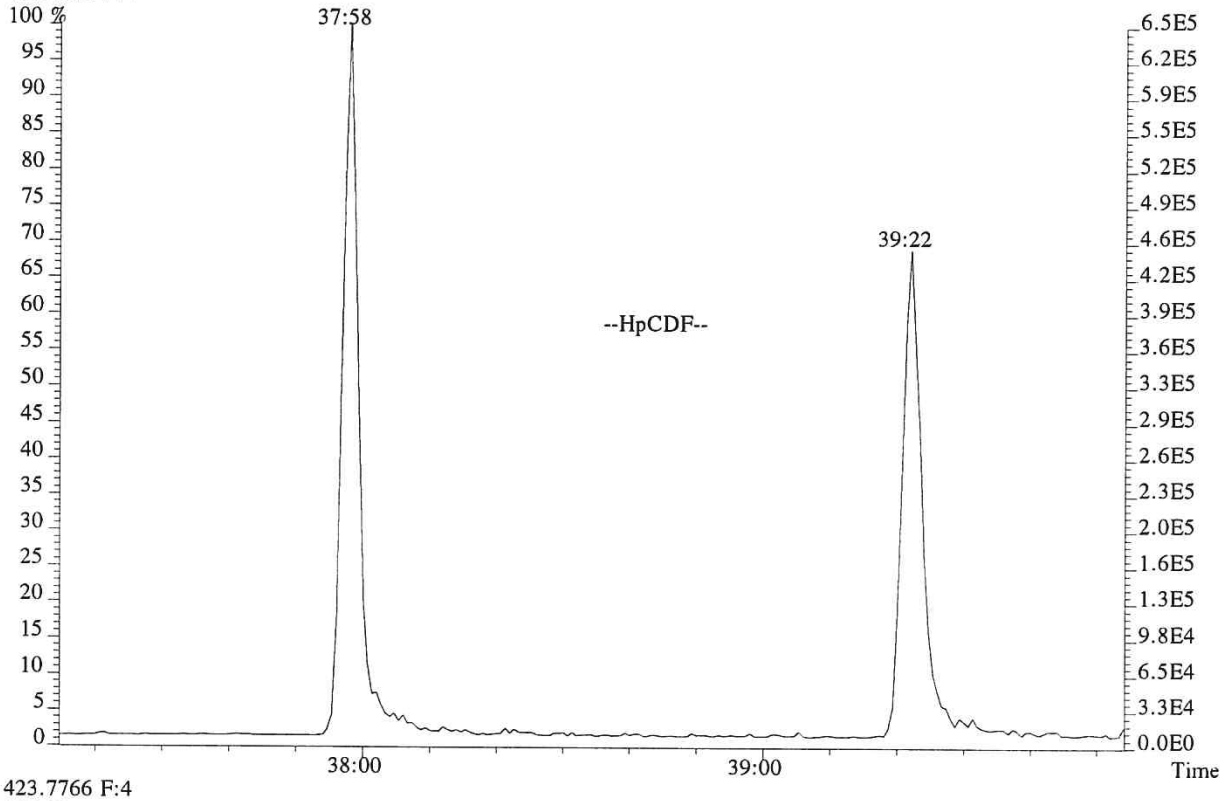
373.8208 F:3



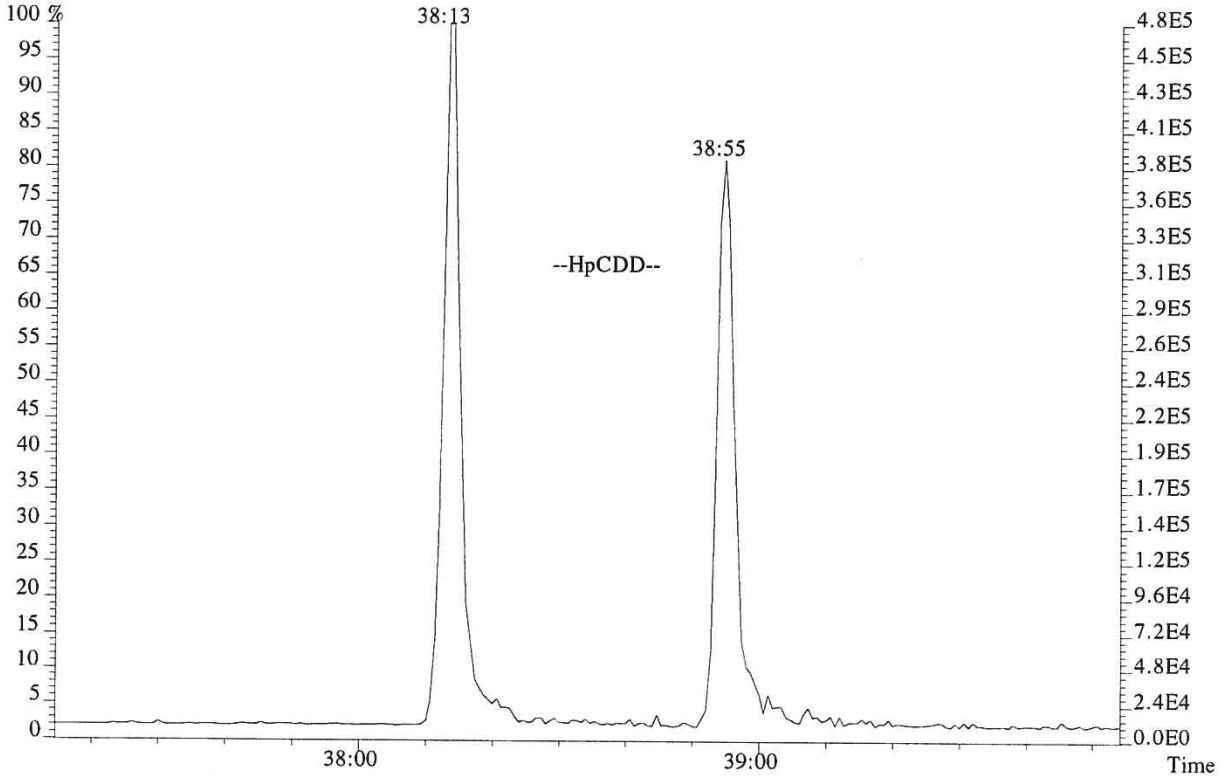
389.8157 F:3



File:P519436 #1-566 Acq:17-DEC-2018 14:33:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
407.7818 F:4



423.7766 F:4



014611

USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519435 Analysis Date: 17-DEC-18 Time: 13:42:13

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.75	0.65-0.89	9.5	7.8 - 12.9	-5.1
1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	51	39 - 65	1.0
1,2,3,4,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	51	39 - 64	1.2
1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	51	39 - 64	1.4
1,2,3,7,8,9-HxCDD	M+2/M+4	1.28	1.05-1.43	53	41 - 61	6.5
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	51	43 - 58	2.3
OCDD	M+2/M+4	0.90	0.76-1.02	101	79 - 126	1.0
2,3,7,8-TCDF	M/M+2	0.76	0.65-0.89	10.0	8.4 - 12.0	-0.3
1,2,3,7,8-PeCDF	M+2/M+4	1.52	1.32-1.78	49	41 - 60	-1.1
2,3,4,7,8-PeCDF	M+2/M+4	1.52	1.32-1.78	49	41 - 61	-2.5
1,2,3,4,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	52	45 - 56	3.6
1,2,3,6,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	52	44 - 57	4.2
1,2,3,7,8,9-HxCDF	M+2/M+4	1.24	1.05-1.43	50	45 - 56	0.5
2,3,4,6,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	51	44 - 57	1.8
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.02	0.88-1.20	51	45 - 55	1.7
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.05	0.88-1.20	50	43 - 58	0.8
OCDF	M+2/M+4	0.89	0.76-1.02	96	63 - 159	-3.8

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519435 Analysis Date: 17-DEC-18 Time: 13:42:13

LABELED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
13C-2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	100	82 - 121	0.1
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.58	1.32-1.78	106	62 - 160	5.6
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	94	85 - 117	-5.9
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	99	85 - 118	-0.6
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	99	72 - 138	-1.2
13C-OCDD	M+2/M+4	0.90	0.76-1.02	235	96 - 415	17.6
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	90	71 - 140	-9.8
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	101	76 - 130	1.4
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	102	77 - 130	2.2
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	85	76 - 131	-15.4
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	95	70 - 143	-4.8
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	87	74 - 135	-12.5
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	94	73 - 137	-6.2
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.44	0.37-0.51	97	78 - 129	-3.4
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	95	77 - 129	-5.5
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD	M+2/M+4			9.7	7.8 - 12.7	-2.8

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #7 Filename P519435 Samp: 1 Inj: 1 Acquired: 17-DEC-18 13:42:13
Processed: 19-DEC-18 09:03:13 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:48	6.725e+03	8.899e+03	0.76	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	31:25	5.497e+04	3.608e+04	1.52	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	32:23	5.119e+04	3.364e+04	1.52	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:13	4.390e+04	3.585e+04	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:20	5.318e+04	4.333e+04	1.23	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:52	4.540e+04	3.714e+04	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	36:38	3.745e+04	3.022e+04	1.24	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	37:59	4.014e+04	3.932e+04	1.02	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:23	3.124e+04	2.965e+04	1.05	yes	no	1.258
10	Unk	OCDF	41:54	5.231e+04	5.863e+04	0.89	yes	no	1.359
11	Unk	2,3,7,8-TCDD	27:42	4.981e+03	6.634e+03	0.75	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	32:42	3.724e+04	2.342e+04	1.59	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:01	3.167e+04	2.498e+04	1.27	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:06	3.440e+04	2.710e+04	1.27	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:21	3.574e+04	2.787e+04	1.28	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:55	2.813e+04	2.691e+04	1.05	yes	no	1.025
17	Unk	OCDD	41:44	4.550e+04	5.041e+04	0.90	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	26:46	7.362e+04	9.287e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	31:25	1.118e+05	7.017e+04	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	32:23	1.113e+05	7.026e+04	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:12	4.435e+04	8.508e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:19	5.673e+04	1.083e+05	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:51	5.031e+04	9.576e+04	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	36:38	4.018e+04	7.750e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:58	3.543e+04	8.027e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:22	2.994e+04	6.615e+04	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	27:41	4.988e+04	6.292e+04	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:41	7.700e+04	4.860e+04	1.58	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:00	6.053e+04	4.732e+04	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:06	6.573e+04	5.115e+04	1.28	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:55	5.380e+04	5.117e+04	1.05	yes	no	0.858
32	IS	13C-OCDD	41:43	8.021e+04	8.960e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:03	5.391e+04	6.809e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:20	6.927e+04	5.464e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:42	1.202e+04				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #7 Filename P519435 Samp: 1 Inj: 1 Acquired: 17-DEC-18 13:42:13
Processed: 19-DEC-18 09:03:13 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	1.10e+06	9.56e+02	1.2e+03	1.44e+06	1.53e+03	9.4e+02
2	1,2,3,7,8-PeCDF	9.86e+06	4.28e+02	2.3e+04	6.44e+06	1.13e+03	5.7e+03
3	2,3,4,7,8-PeCDF	9.72e+06	4.28e+02	2.3e+04	6.34e+06	1.13e+03	5.6e+03
4	1,2,3,4,7,8-HxCDF	9.10e+06	8.84e+02	1.0e+04	7.41e+06	5.12e+02	1.4e+04
5	1,2,3,6,7,8-HxCDF	1.04e+07	8.84e+02	1.2e+04	8.49e+06	5.12e+02	1.7e+04
6	2,3,4,6,7,8-HxCDF	9.10e+06	8.84e+02	1.0e+04	7.42e+06	5.12e+02	1.4e+04
7	1,2,3,7,8,9-HxCDF	7.16e+06	8.84e+02	8.1e+03	5.76e+06	5.12e+02	1.1e+04
8	1,2,3,4,6,7,8-HpCDF	7.71e+06	4.89e+03	1.6e+03	7.57e+06	4.60e+02	1.6e+04
9	1,2,3,4,7,8,9-HpCDF	5.37e+06	4.89e+03	1.1e+03	5.26e+06	4.60e+02	1.1e+04
10	OCDF	7.90e+06	3.76e+02	2.1e+04	8.76e+06	1.31e+03	6.7e+03
11	2,3,7,8-TCDD	8.79e+05	2.19e+03	4.0e+02	1.17e+06	1.12e+03	1.0e+03
12	1,2,3,7,8-PeCDD	6.91e+06	1.08e+03	6.4e+03	4.33e+06	3.48e+02	1.2e+04
13	1,2,3,4,7,8-HxCDD	6.88e+06	3.64e+02	1.9e+04	5.39e+06	8.88e+02	6.1e+03
14	1,2,3,6,7,8-HxCDD	6.76e+06	3.64e+02	1.9e+04	5.41e+06	8.88e+02	6.1e+03
15	1,2,3,7,8,9-HxCDD	6.52e+06	3.64e+02	1.8e+04	5.20e+06	8.88e+02	5.9e+03
16	1,2,3,4,6,7,8-HpCDD	5.07e+06	7.64e+02	6.6e+03	4.89e+06	4.32e+02	1.1e+04
17	OCDD	6.60e+06	3.08e+02	2.1e+04	7.48e+06	3.28e+02	2.3e+04
18	13C-2,3,7,8-TCDF	1.19e+07	1.03e+04	1.2e+03	1.50e+07	7.95e+03	1.9e+03
19	13C-1,2,3,7,8-PeCDF	1.97e+07	7.52e+02	2.6e+04	1.24e+07	4.68e+02	2.6e+04
20	13C-2,3,4,7,8-PeCDF	2.06e+07	7.52e+02	2.7e+04	1.28e+07	4.68e+02	2.7e+04
21	13C-1,2,3,4,7,8-HxCDF	9.16e+06	7.40e+02	1.2e+04	1.74e+07	1.14e+03	1.5e+04
22	13C-1,2,3,6,7,8-HxCDF	1.13e+07	7.40e+02	1.5e+04	2.16e+07	1.14e+03	1.9e+04
23	13C-2,3,4,6,7,8-HxCDF	1.00e+07	7.40e+02	1.4e+04	1.90e+07	1.14e+03	1.7e+04
24	13C-1,2,3,7,8,9-HxCDF	7.58e+06	7.40e+02	1.0e+04	1.46e+07	1.14e+03	1.3e+04
25	13C-1,2,3,4,6,7,8-HpCDF	6.72e+06	7.21e+03	9.3e+02	1.52e+07	7.36e+03	2.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	5.02e+06	7.21e+03	7.0e+02	1.12e+07	7.36e+03	1.5e+03
27	13C-2,3,7,8-TCDD	8.58e+06	7.44e+03	1.2e+03	1.09e+07	3.16e+03	3.4e+03
28	13C-1,2,3,7,8-PeCDD	1.43e+07	1.27e+03	1.1e+04	9.14e+06	1.51e+03	6.0e+03
29	13C-1,2,3,4,7,8-HxCDD	1.29e+07	1.19e+03	1.1e+04	9.96e+06	6.04e+02	1.6e+04
30	13C-1,2,3,6,7,8-HxCDD	1.29e+07	1.19e+03	1.1e+04	9.96e+06	6.04e+02	1.6e+04
31	13C-1,2,3,4,6,7,8-HpCDD	9.75e+06	6.68e+02	1.5e+04	9.12e+06	5.16e+02	1.8e+04
32	13C-OCDD	1.16e+07	4.24e+02	2.7e+04	1.29e+07	4.24e+02	3.0e+04
33	13C-1,2,3,4-TCDD	9.17e+06	7.44e+03	1.2e+03	1.16e+07	3.16e+03	3.7e+03
34	13C-1,2,3,7,8,9-HxCDD	1.28e+07	1.19e+03	1.1e+04	1.02e+07	6.04e+02	1.7e+04
35	37Cl-2,3,7,8-TCDD	2.11e+06	9.96e+02	2.1e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (2.192e{+}03 + 1.116e{+}03) \times 100}{(8.583e{+}06 + 1.088e{+}07) \times (\qquad\qquad) \times 1.085}$$

ALS ENVIRONMENTAL
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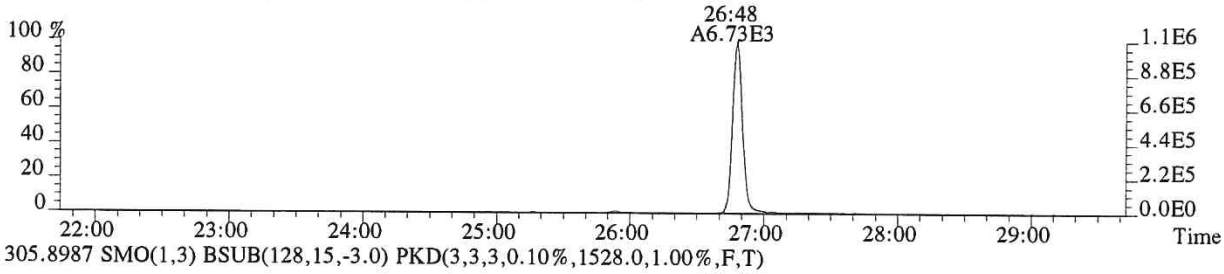
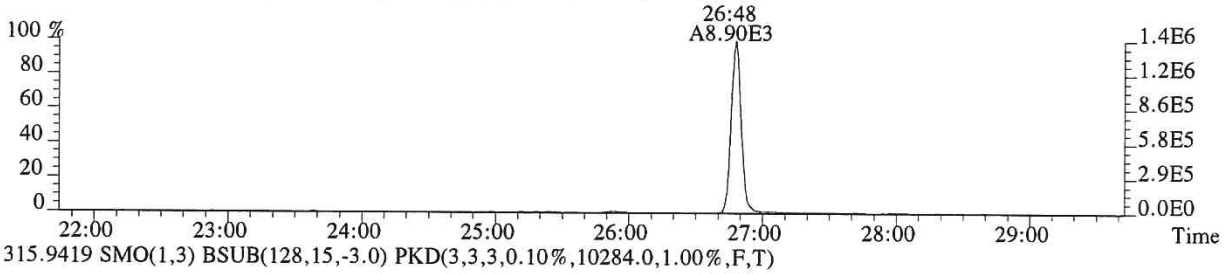
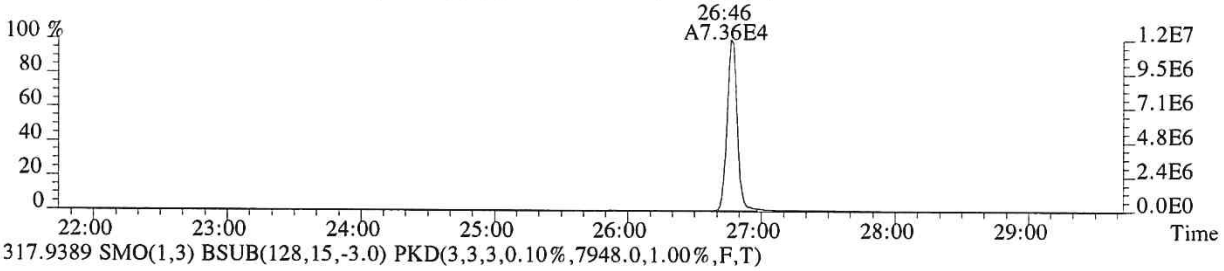
File:P519435 #1-566 Acq:17-DEC-2018 13:42:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,956.0,1.00%,F,T)



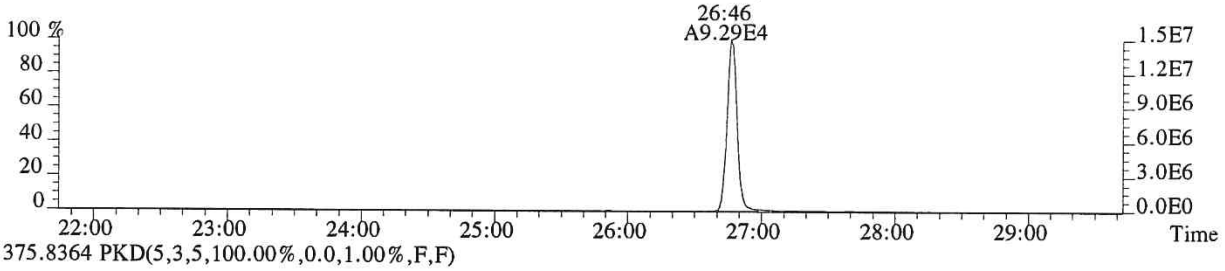
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1528.0,1.00%,F,T)



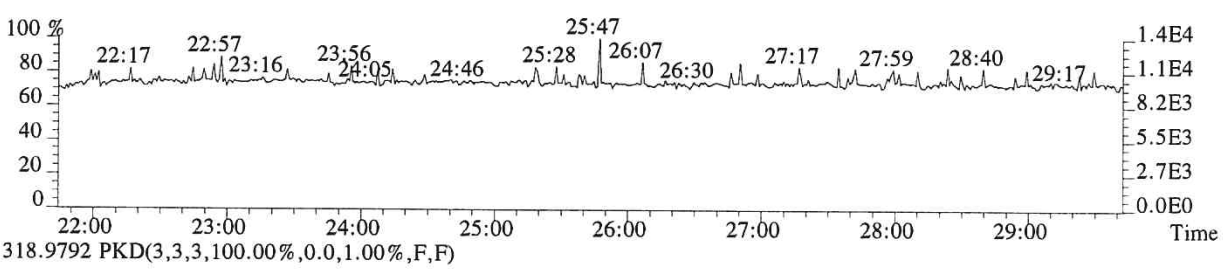
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10284.0,1.00%,F,T)



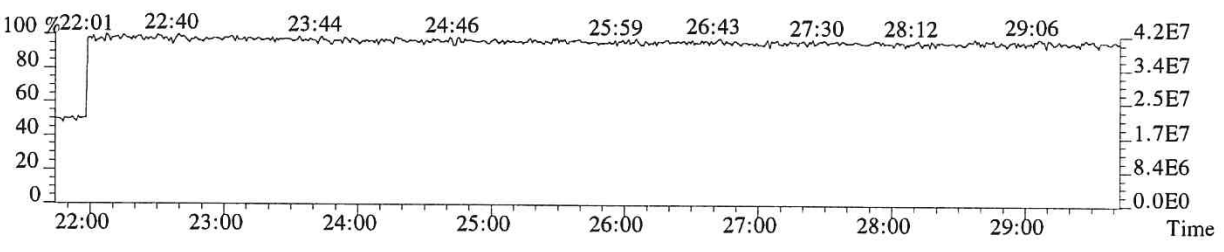
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7948.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

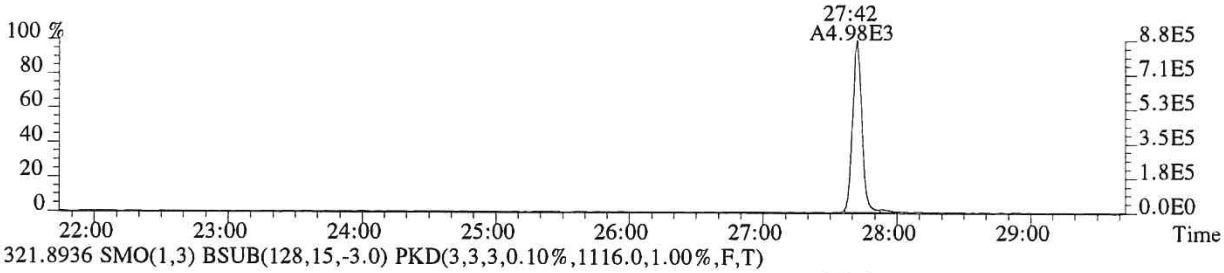


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

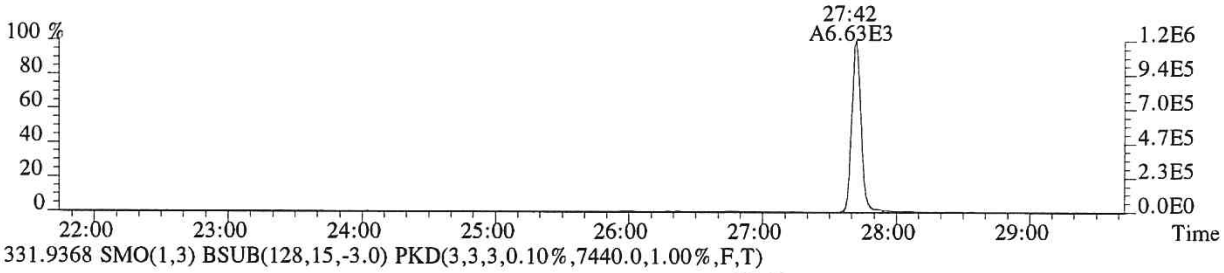


014616

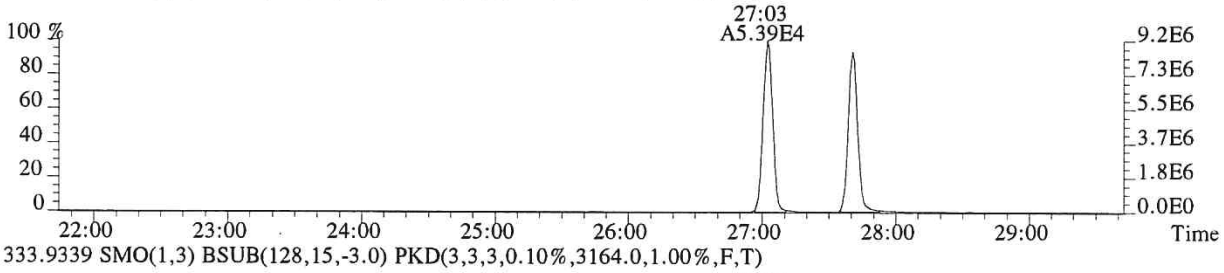
File:P519435 #1-566 Acq:17-DEC-2018 13:42:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2192.0,1.00%,F,T)



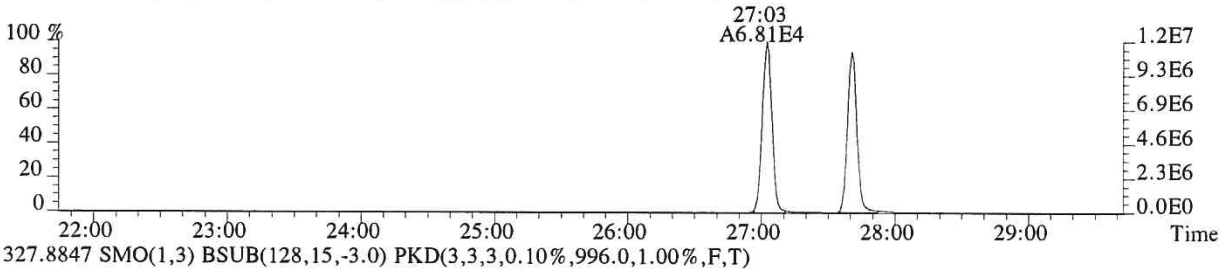
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1116.0,1.00%,F,T)



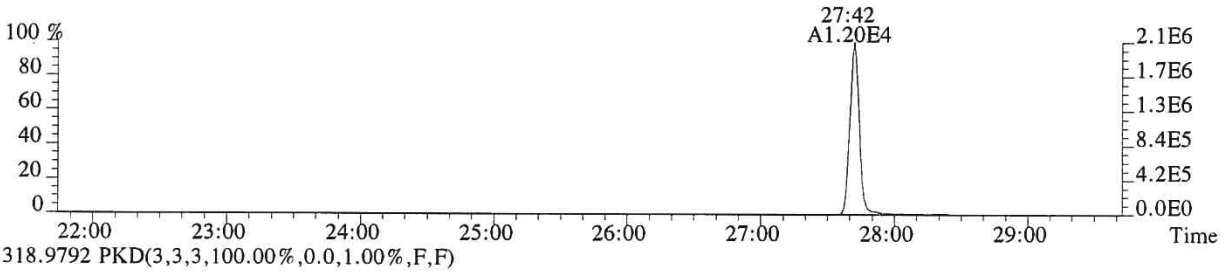
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7440.0,1.00%,F,T)



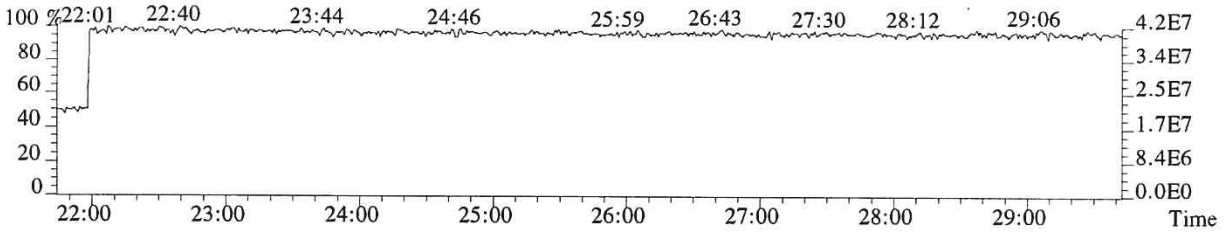
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3164.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,996.0,1.00%,F,T)

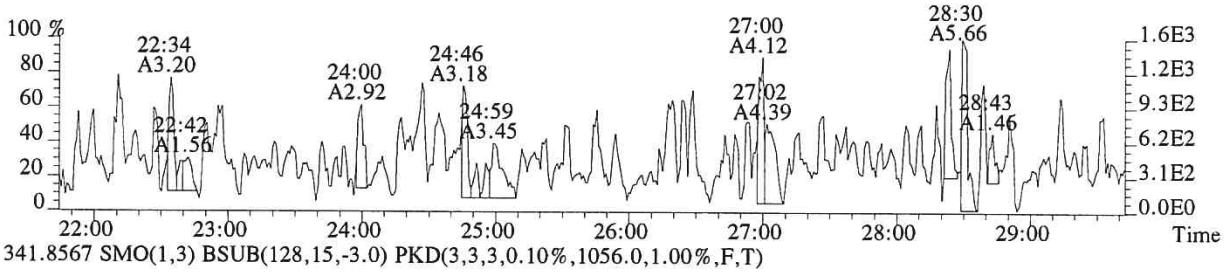


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

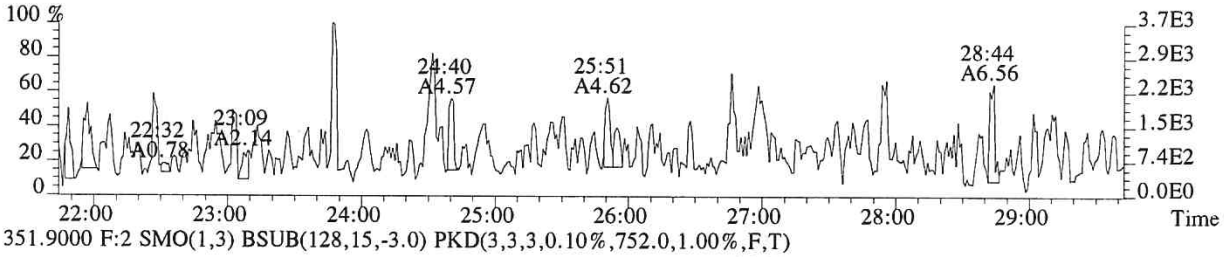


014617

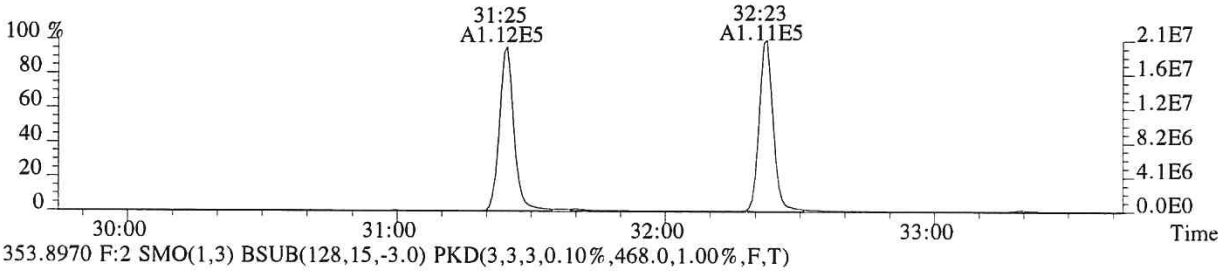
File:P519435 #1-566 Acq:17-DEC-2018 13:42:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,536.0,1.00%,F,T)



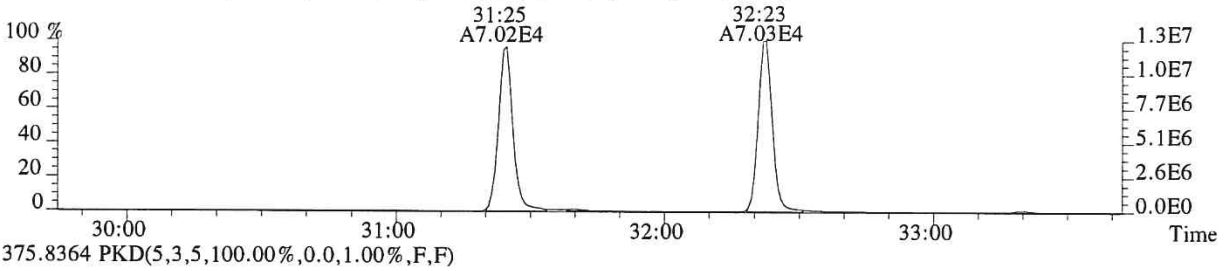
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1056.0,1.00%,F,T)



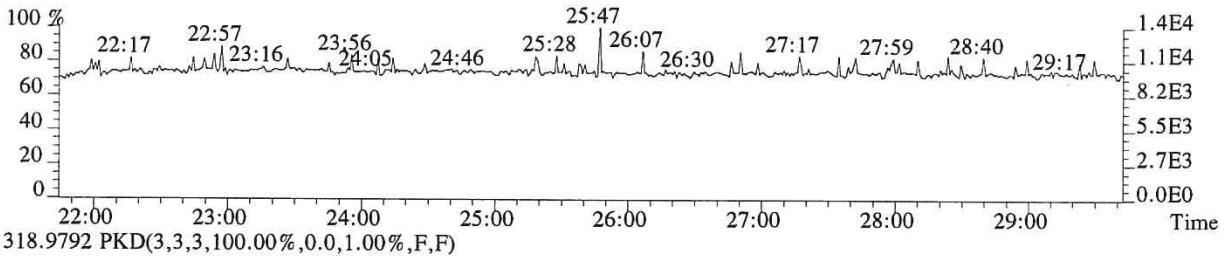
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,752.0,1.00%,F,T)



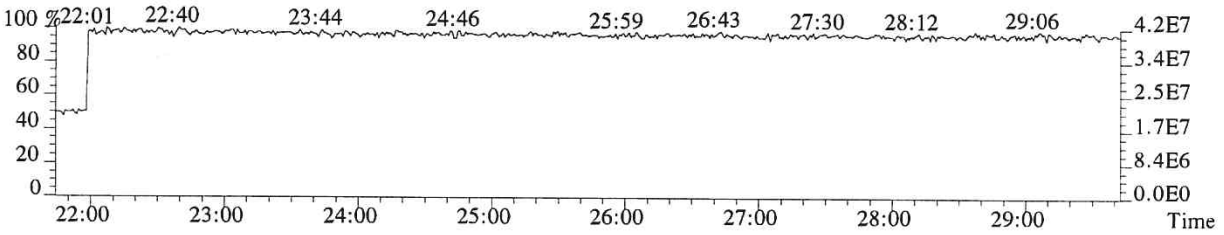
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,468.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



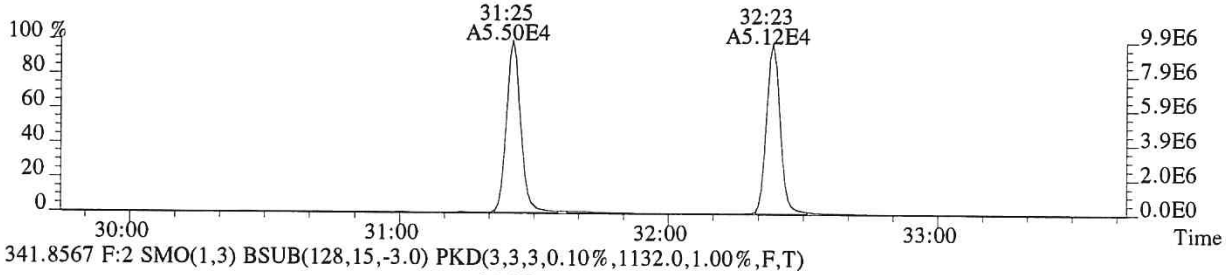
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



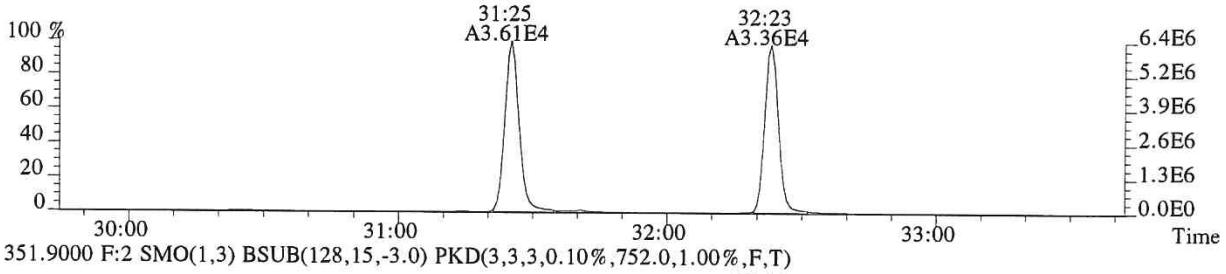
014618

File:P519435 #1-357 Acq:17-DEC-2018 13:42:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

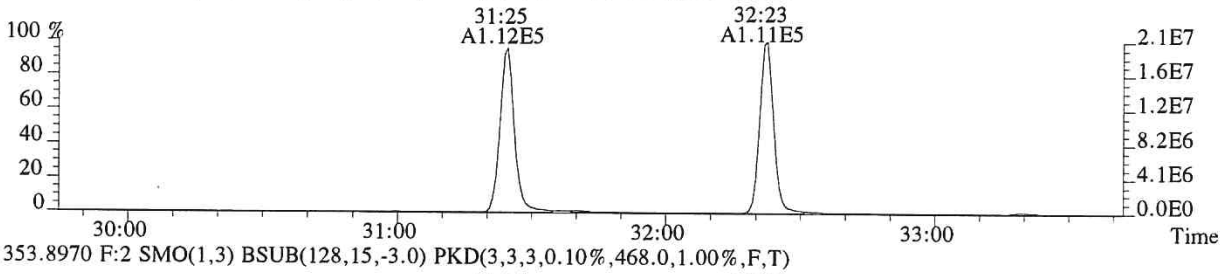
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,428.0,1.00%,F,T)



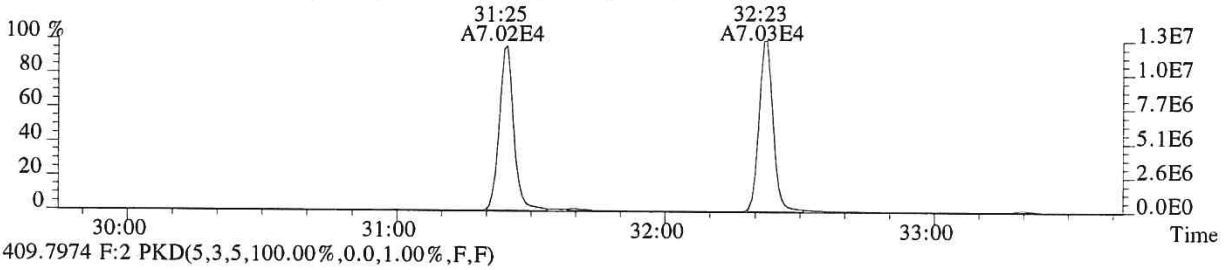
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1132.0,1.00%,F,T)



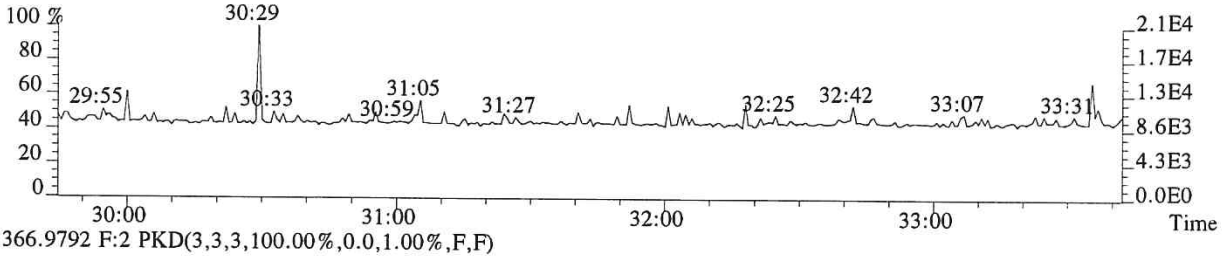
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,752.0,1.00%,F,T)



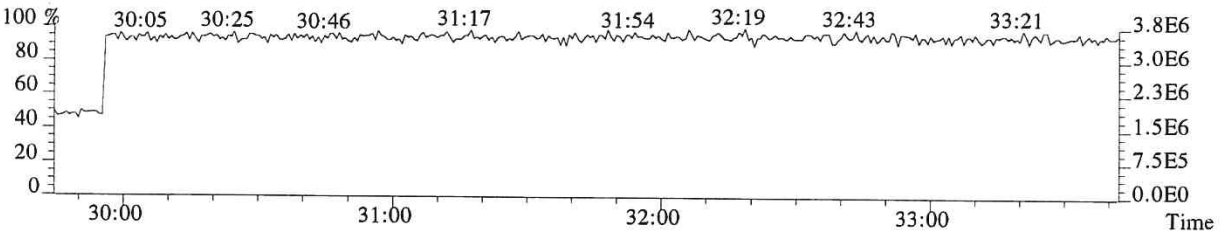
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,468.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

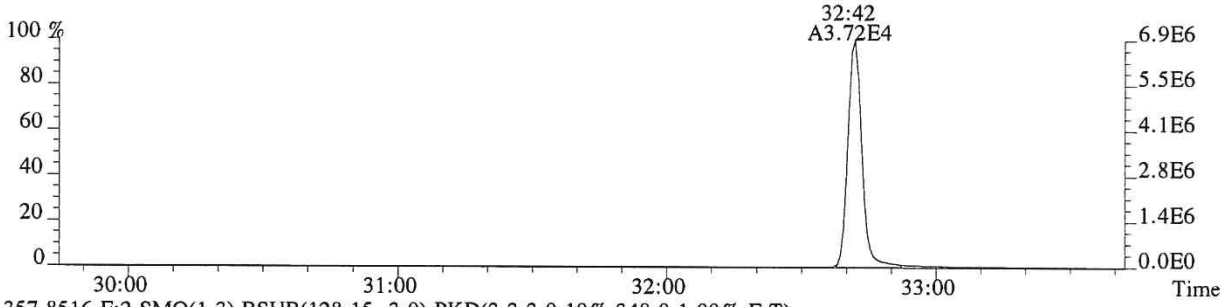


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

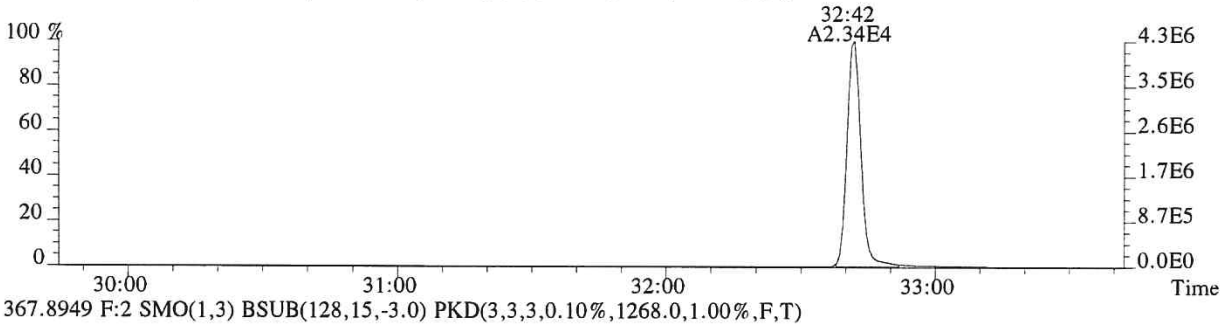


014619

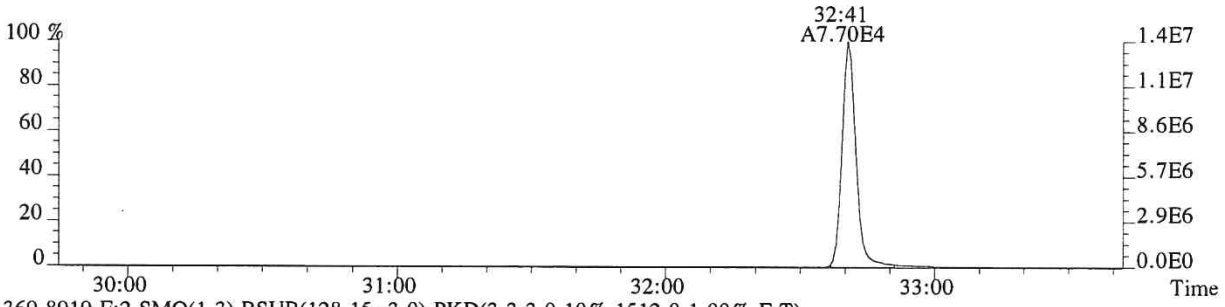
File:P519435 #1-357 Acq:17-DEC-2018 13:42:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1076.0,1.00%,F,T)



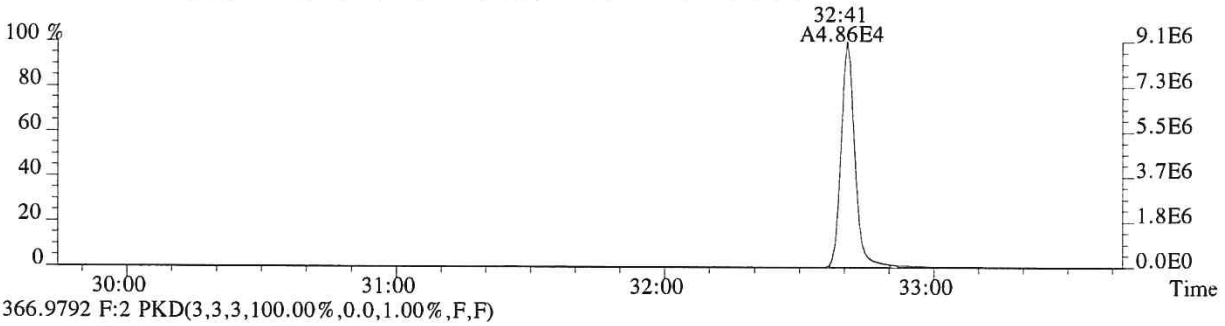
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,348.0,1.00%,F,T)



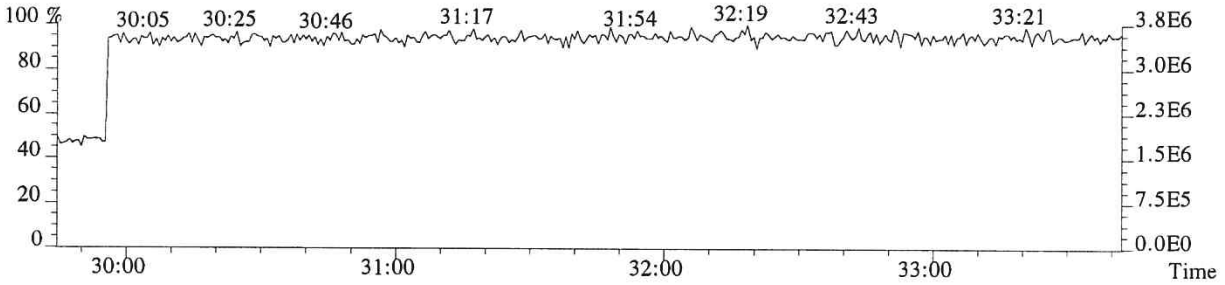
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1268.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1512.0,1.00%,F,T)

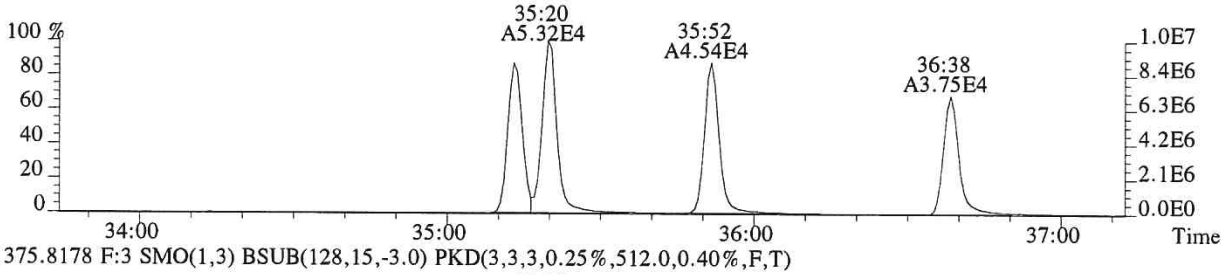


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

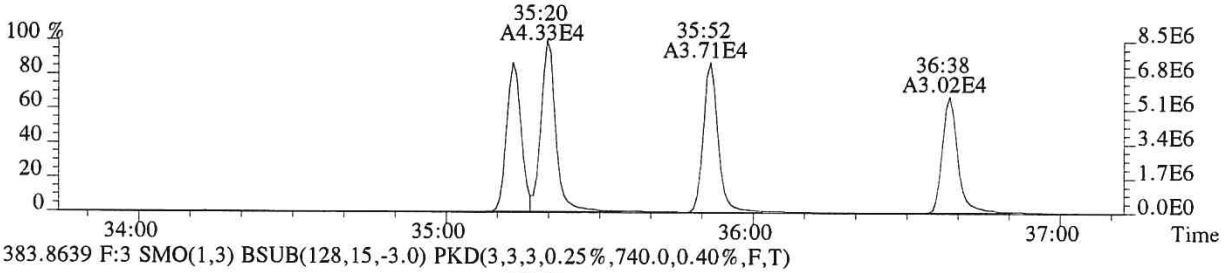


014620

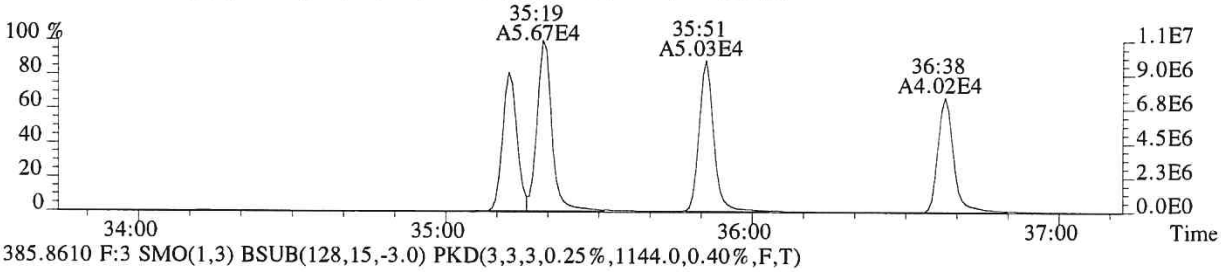
File:P519435 #1-313 Acq:17-DEC-2018 13:42:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,884.0,0.40%,F,T)



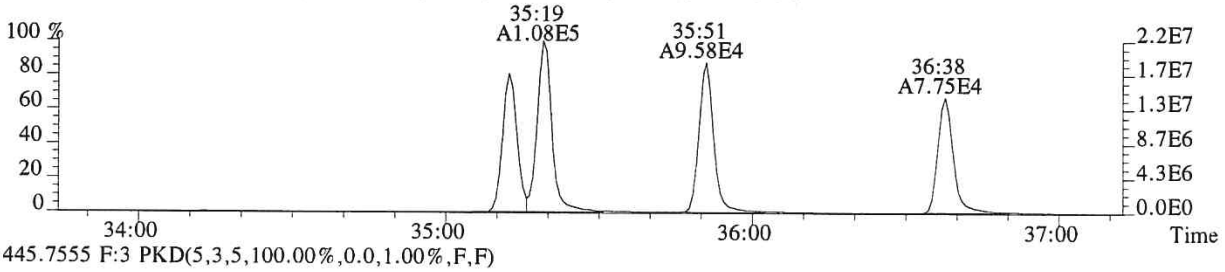
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,512.0,0.40%,F,T)



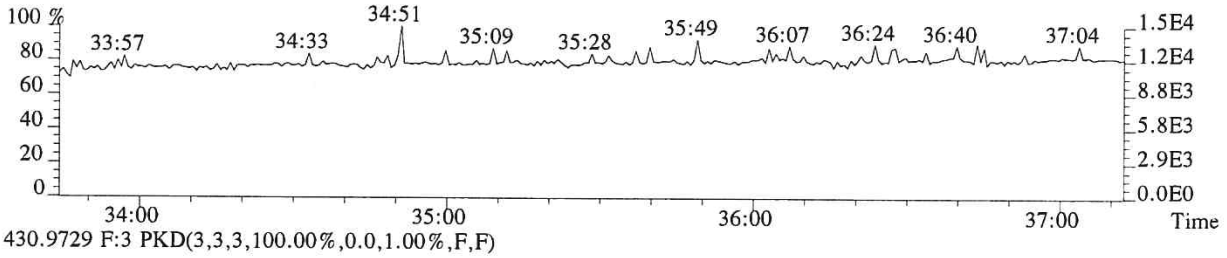
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,740.0,0.40%,F,T)



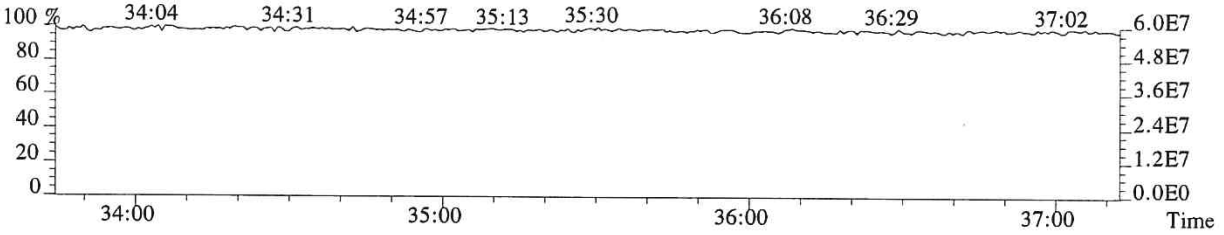
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1144.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

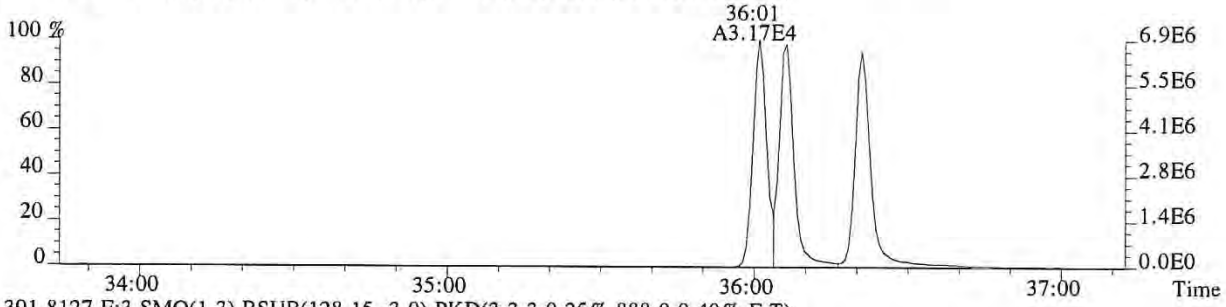


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

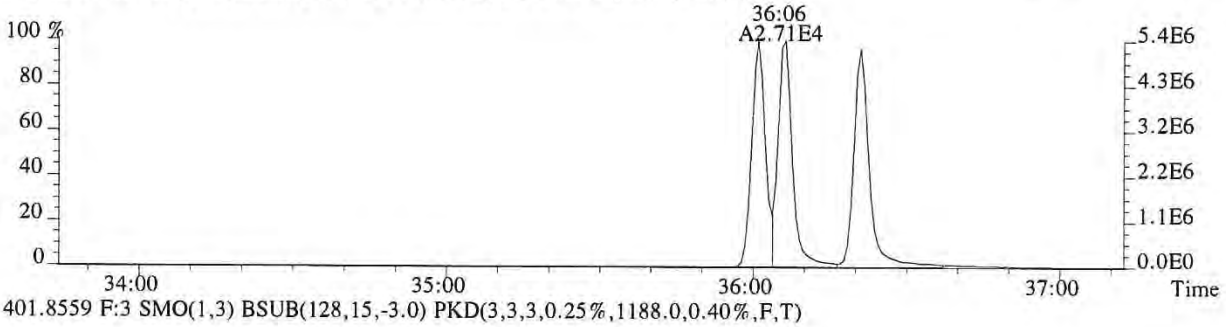


014621

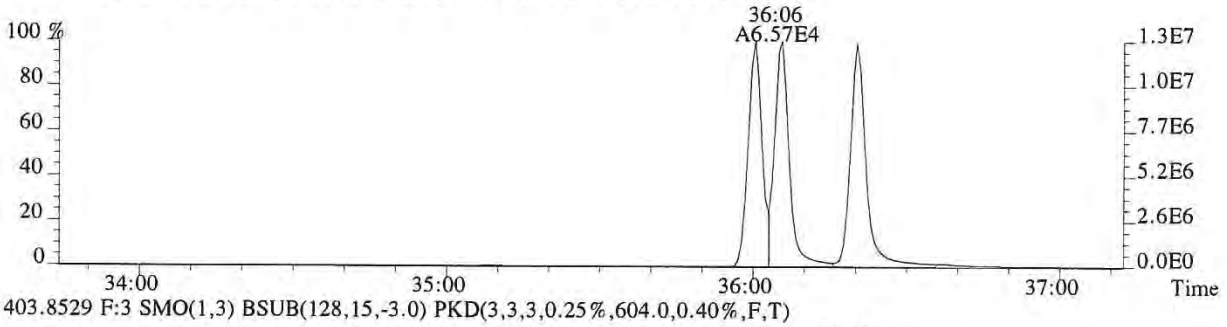
File:P519435 #1-313 Acq:17-DEC-2018 13:42:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,364.0,0.40%,F,T)



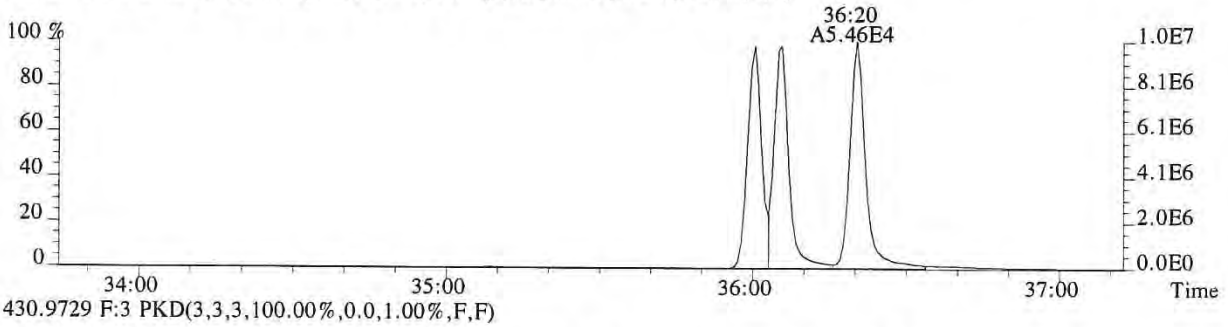
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,888.0,0.40%,F,T)



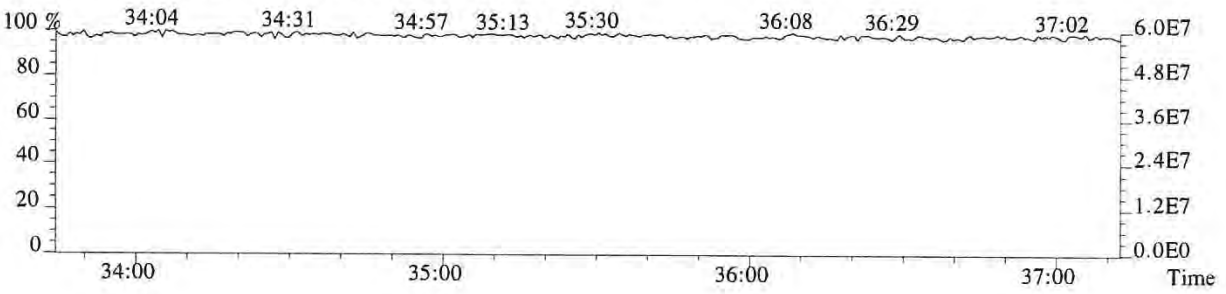
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1188.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,604.0,0.40%,F,T)



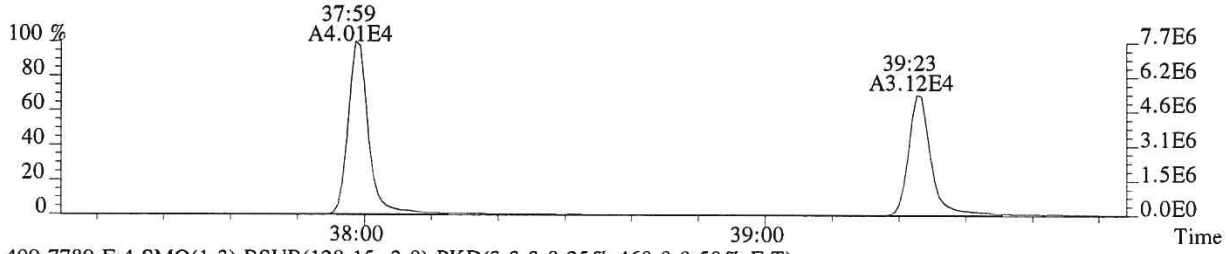
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



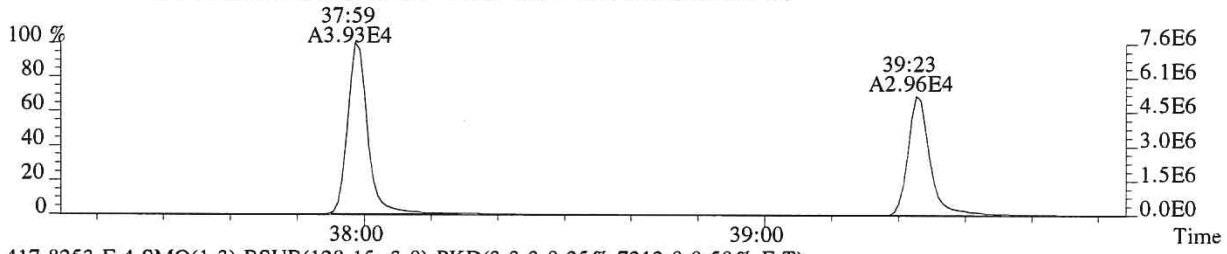
014622

File:P519435 #1-240 Acq:17-DEC-2018 13:42:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

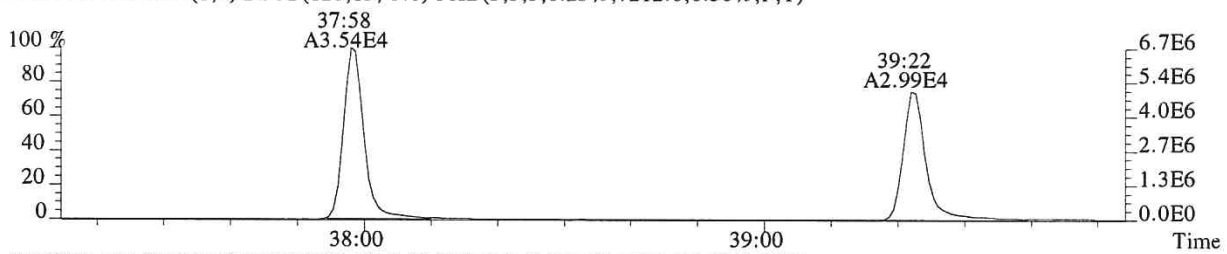
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4888.0,0.50%,F,T)



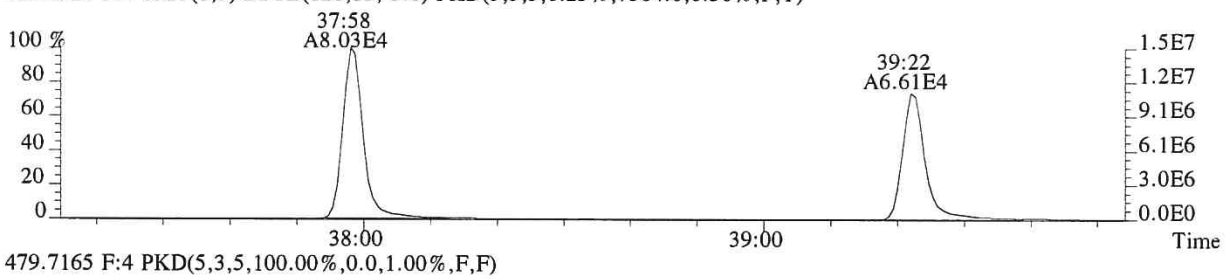
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,460.0,0.50%,F,T)



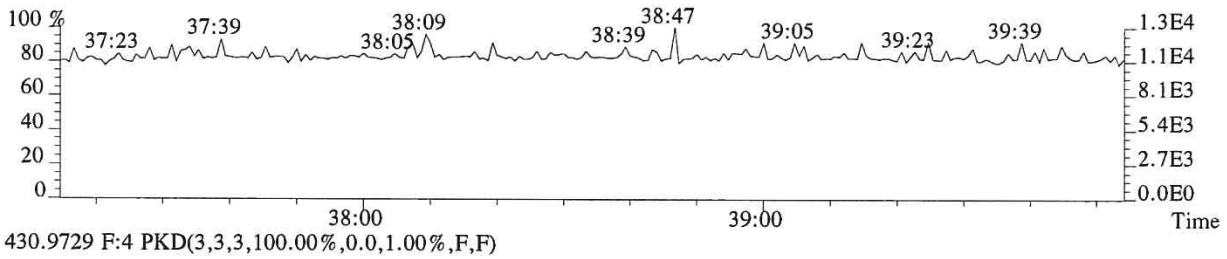
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7212.0,0.50%,F,T)



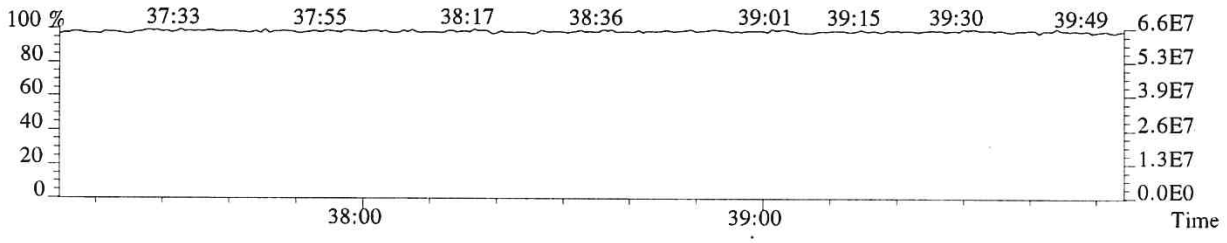
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7364.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

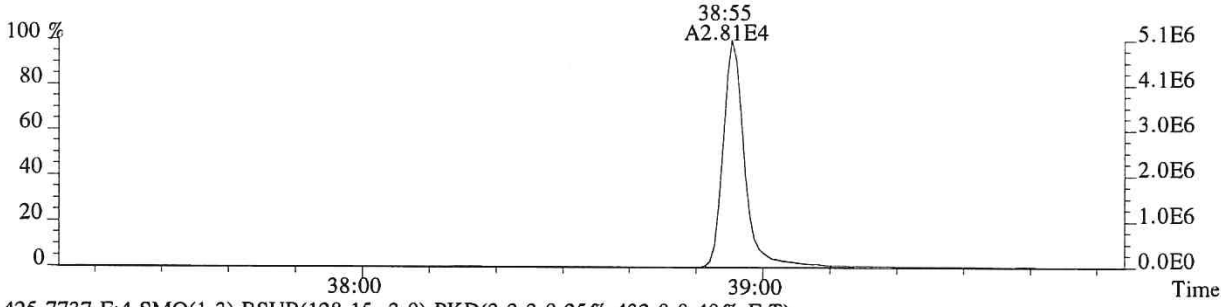


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

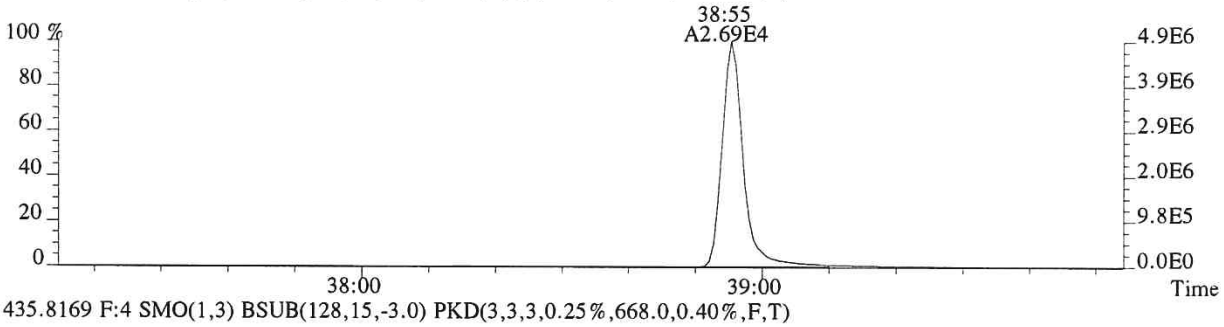


014623

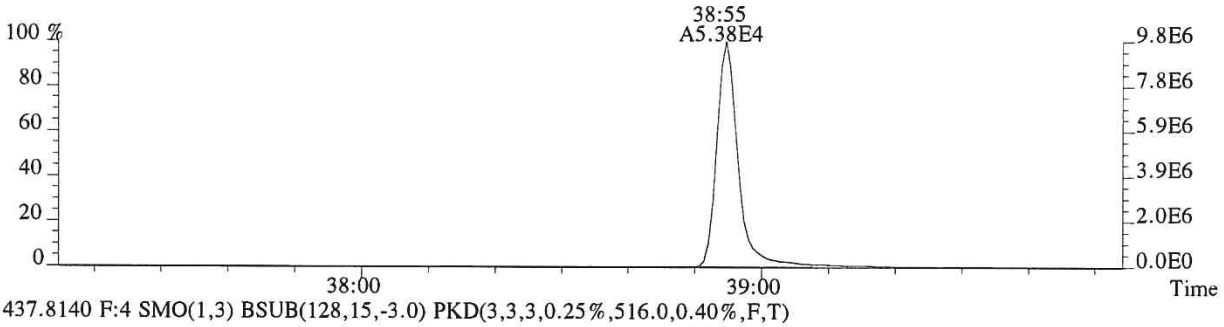
File:P519435 #1-240 Acq:17-DEC-2018 13:42:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,764.0,0.40%,F,T)



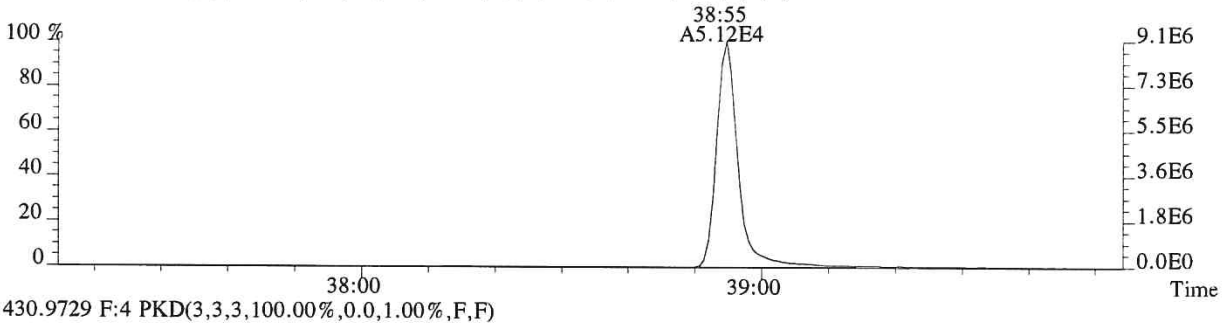
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,432.0,0.40%,F,T)



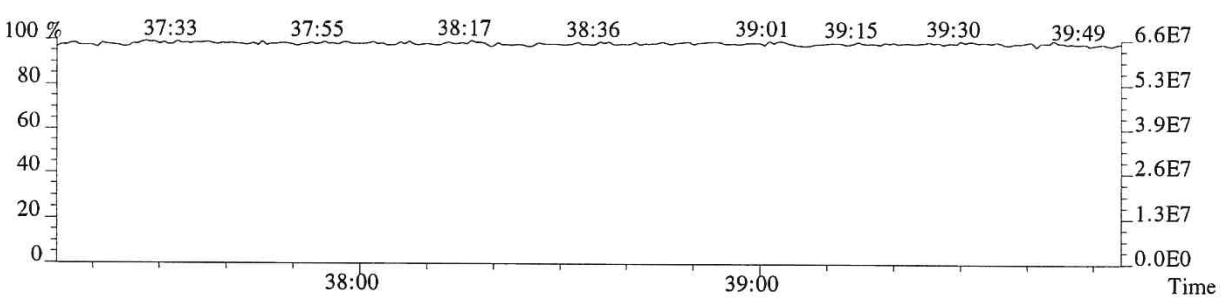
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,668.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,516.0,0.40%,F,T)

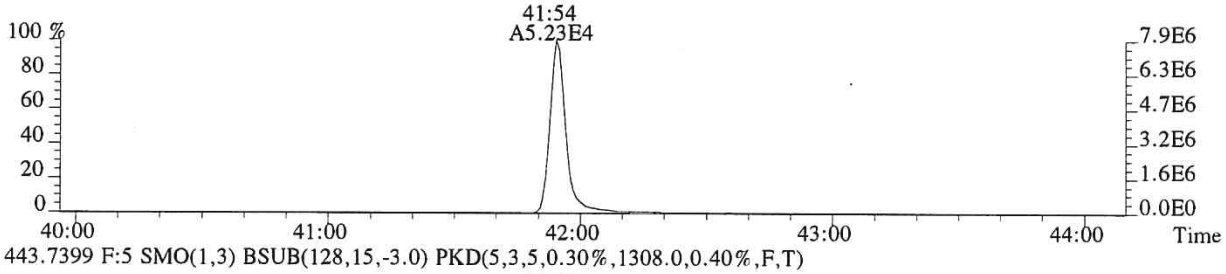


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

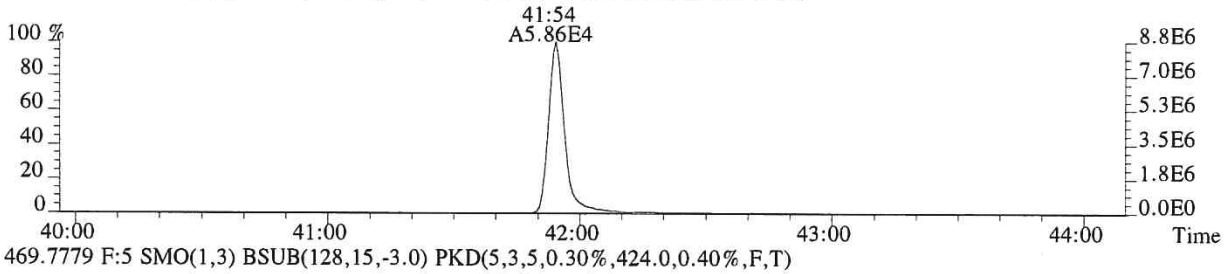


014624

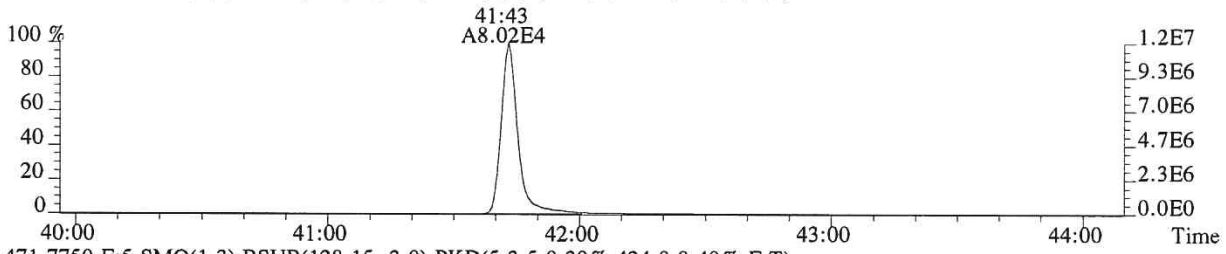
File:P519435 #1-381 Acq:17-DEC-2018 13:42:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,376.0,0.40%,F,T)



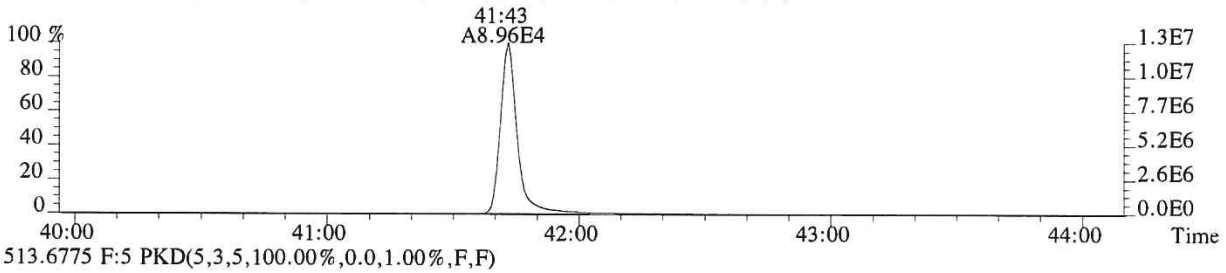
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1308.0,0.40%,F,T)



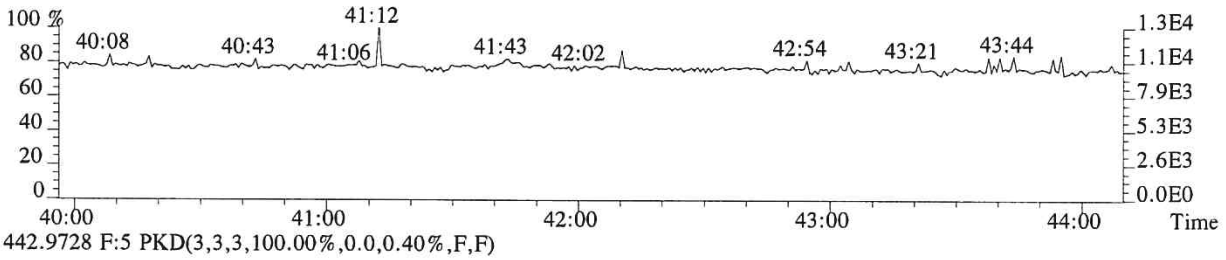
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,424.0,0.40%,F,T)



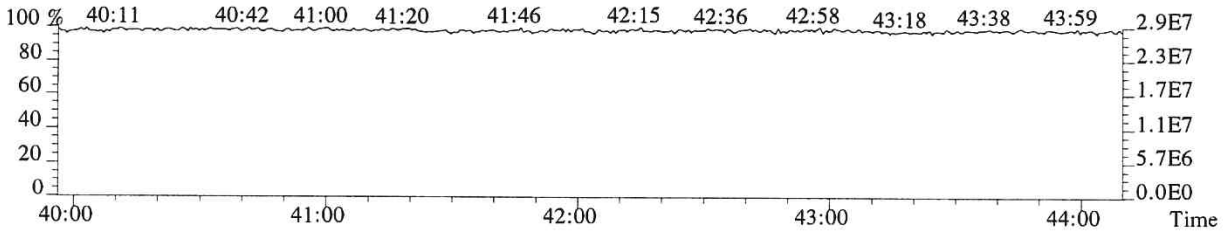
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,424.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

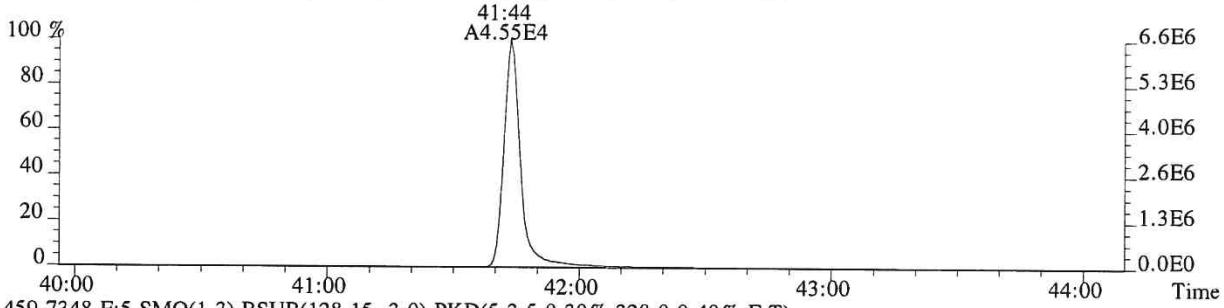


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

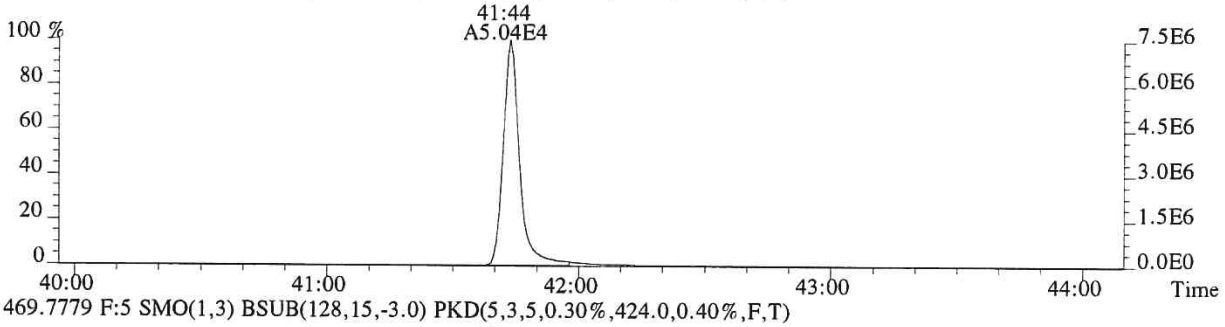


014625

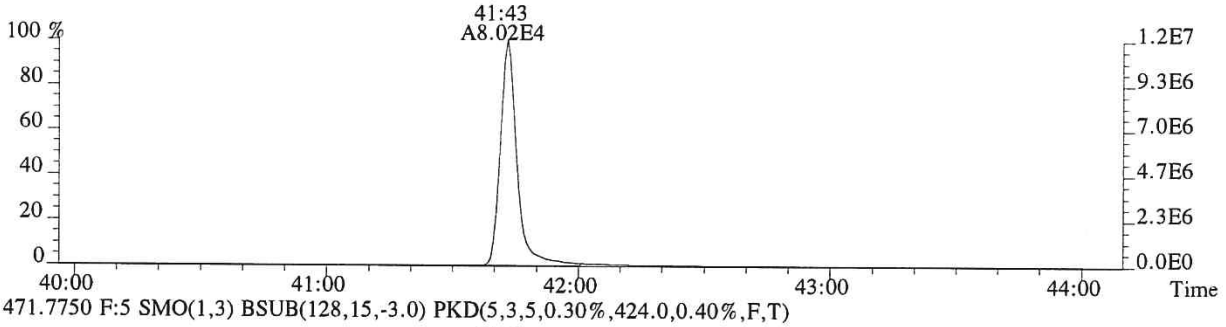
File:P519435 #1-381 Acq:17-DEC-2018 13:42:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,308.0,0.40%,F,T)



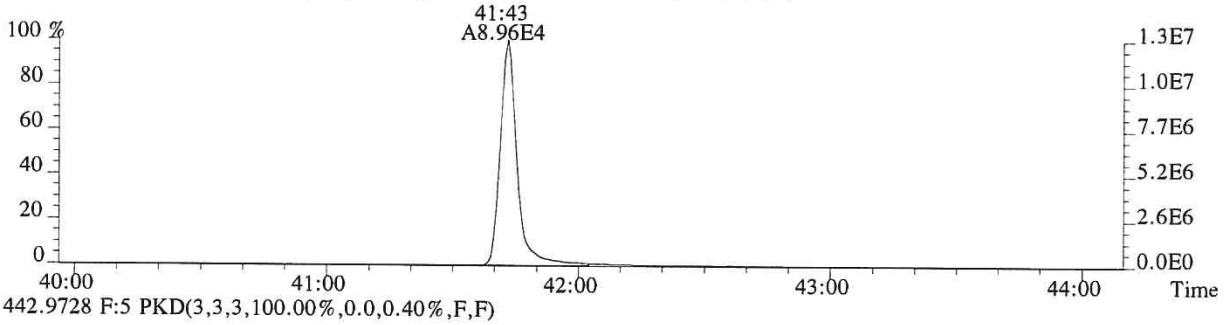
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,328.0,0.40%,F,T)



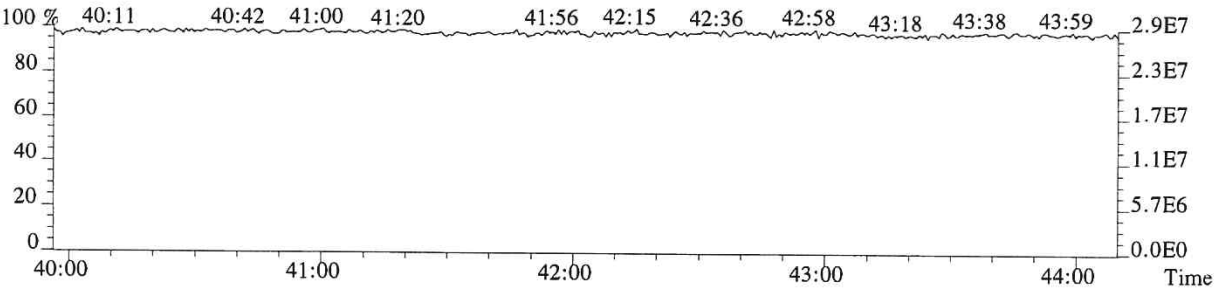
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,424.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,424.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



014626

CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P519494

Date: 12/19 - 12/20/18

Circle one: (Beginning) / Ending

Method: (1613) / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: LKL

Second QC: WW

ccalqc.xls 07/17/12

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

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
192977	WINDOW DEFINE	P519495	19-DEC-18	16:26:45
194503	CS3	P519494	19-DEC-18	15:32:52
METHOD BLANK	EQ1800507-01	P519496	19-DEC-18	17:14:34
METHOD BLANK	EQ1800510-01	P519497	19-DEC-18	18:03:10
SL0023	E1801093-006	P519498	19-DEC-18	18:51:45
SL001	E1801093-016	P519499	19-DEC-18	19:40:23
SL0035	E1801094-006	P519500	19-DEC-18	20:28:59
SL0015	E1801094-019	P519501	19-DEC-18	21:17:37
SL0016	E1801094-020	P519502	19-DEC-18	22:06:15
SL0209	E1801096-009	P519503	19-DEC-18	22:54:52
SL0210	E1801096-010	P519504	19-DEC-18	23:43:31
SL0066	E1801096-011	P519505	20-DEC-18	00:32:08
SL0067	E1801096-012	P519506	20-DEC-18	01:20:46
DLCS	EQ1800510-03	P519507	20-DEC-18	02:09:25

E1801093

Sample List Report — **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20181219C.SPL
Last Modified: Thursday, December 20, 2018 08:45:54 Central Standard Time
Printed: Thursday, December 20, 2018 08:45:55 Central Standard Time

Page Position (1, 1)

OPUS 5 NET: P519494 RES

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	12/19/18	15:32	P519494	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2	LKL	#RMS check 15:27
2		16:26	P519495	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:1		
3		17:14	P519496	MB	EQ1800507-01	EPA1613_ALS	Dioxin_ALS	Tray1:3		
4		18:03	P519497	MB	EQ1800510-01	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		18:51	P519498	E1801093-006	E1801093-006	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		19:40	P519499	E1801093-016	E1801093-016	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		20:28	P519500	E1801094-006	E1801094-006	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		21:17	P519501	E1801094-019	E1801094-019	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		22:06	P519502	E1801094-020	E1801094-020	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		22:54	P519503	E1801096-009	E1801096-009	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		23:43	P519504	E1801096-010	E1801096-010	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12	12/20/18	00:32	P519505	E1801096-011	E1801096-011	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13		01:20	P519506	E1801096-012	E1801096-012	EPA1613_ALS	Dioxin_ALS	Tray1:13		
14		02:09	P519507	DLCS	EQ1800510-03	EPA1613_ALS	Dioxin_ALS	Tray1:14		
15		03:06	P519508	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2		#RMS check 03:06
16			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2		
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:18	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---
22	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---
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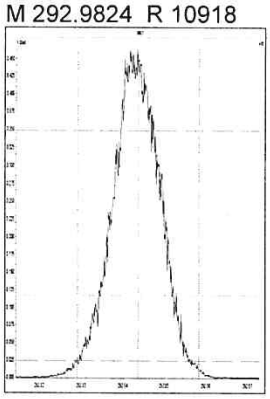
39	---	---	---	---	---	---	---	---	---	---

LKL 12/20/18

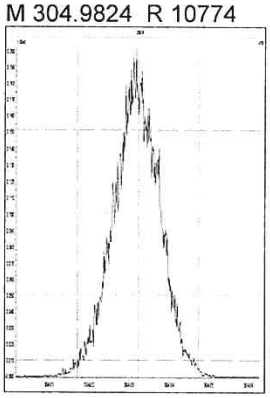
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Wednesday, December 19, 2018 15:27:44 Central Standard Time

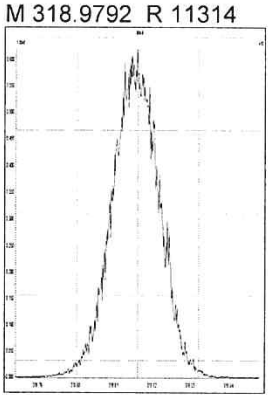
M 292.9824 R 10918



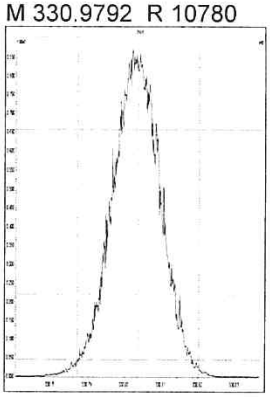
M 304.9824 R 10774



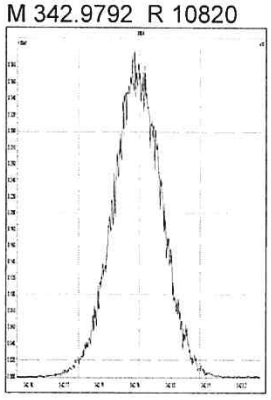
M 318.9792 R 11314



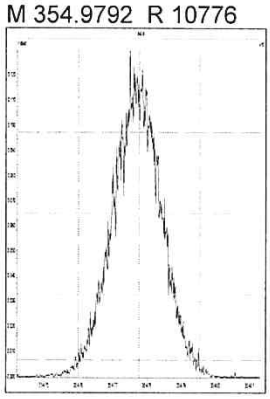
M 330.9792 R 10780



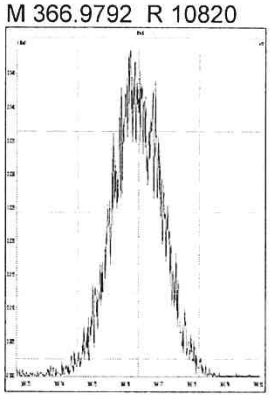
M 342.9792 R 10820



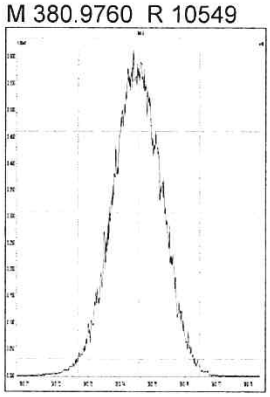
M 354.9792 R 10776



M 366.9792 R 10820



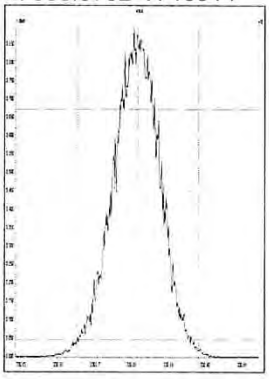
M 380.9760 R 10549



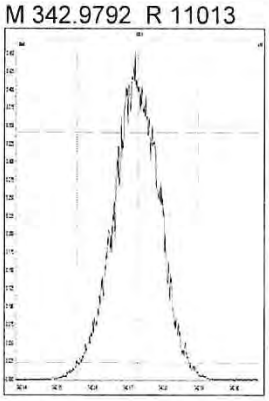
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Wednesday, December 19, 2018 15:28:49 Central Standard Time

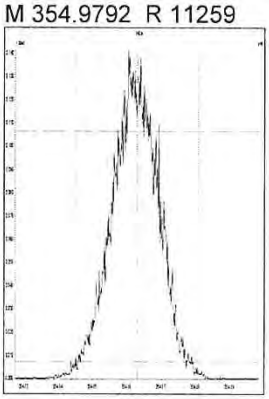
M 330.9792 R 10914



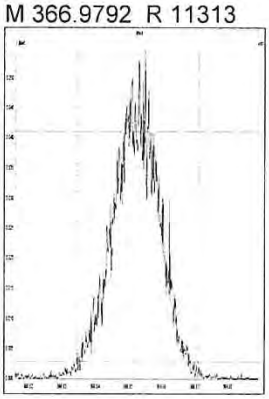
M 342.9792 R 11013



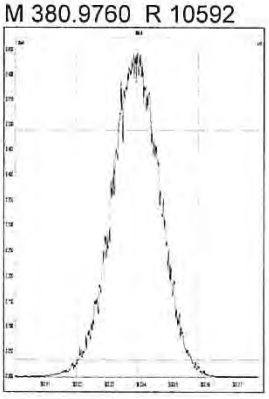
M 354.9792 R 11259



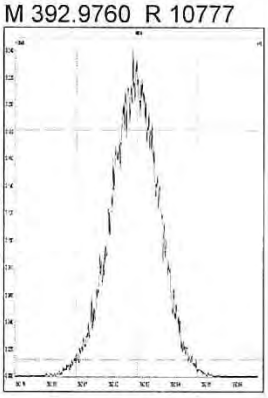
M 366.9792 R 11313



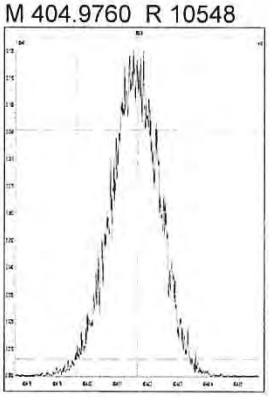
M 380.9760 R 10592



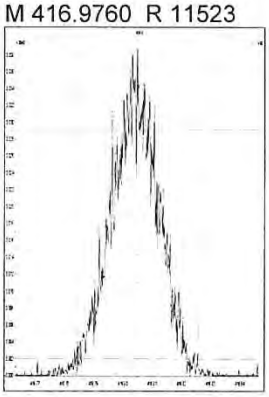
M 392.9760 R 10777



M 404.9760 R 10548



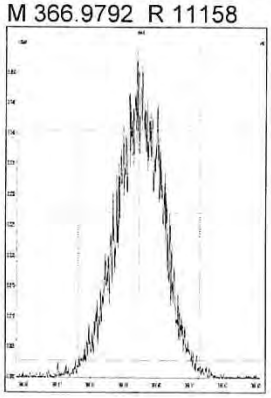
M 416.9760 R 11523



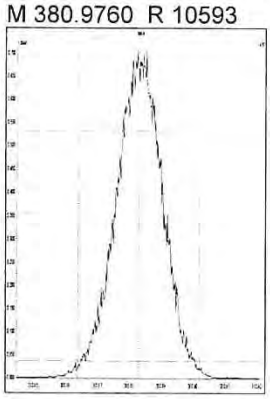
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Wednesday, December 19, 2018 15:29:53 Central Standard Time

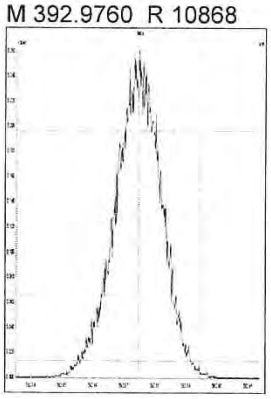
M 366.9792 R 11158



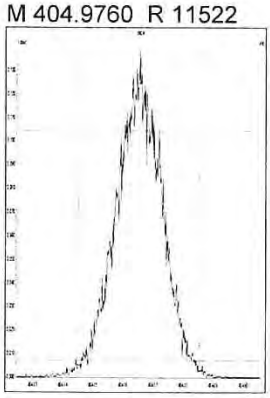
M 380.9760 R 10593



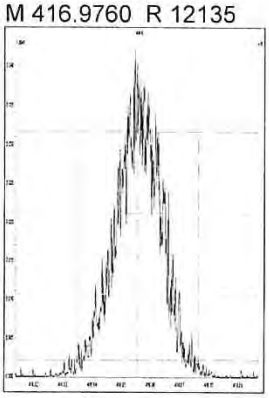
M 392.9760 R 10868



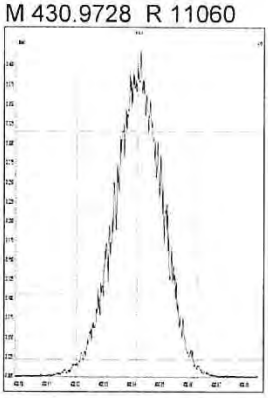
M 404.9760 R 11522



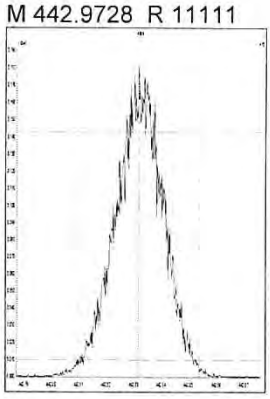
M 416.9760 R 12135



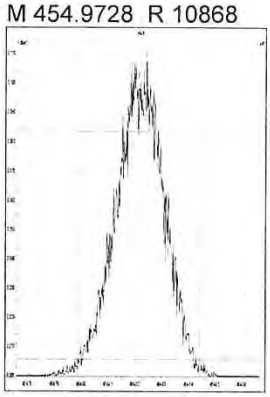
M 430.9728 R 11060



M 442.9728 R 11111



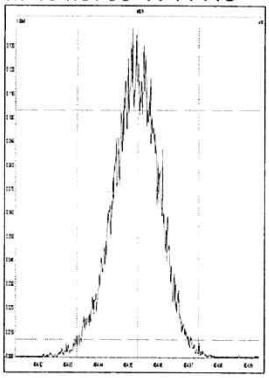
M 454.9728 R 10868



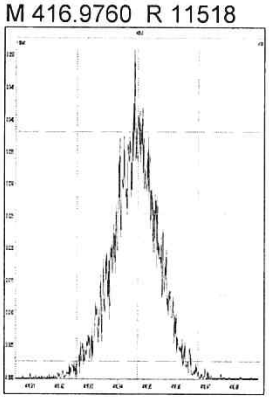
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Wednesday, December 19, 2018 15:31:00 Central Standard Time

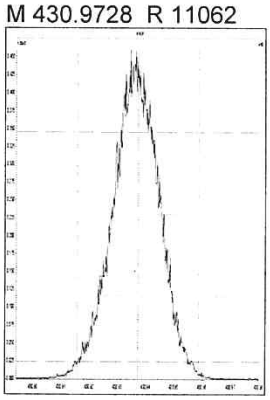
M 404.9760 R 11415



M 416.9760 R 11518



M 430.9728 R 11062



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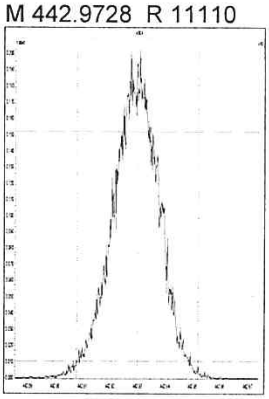

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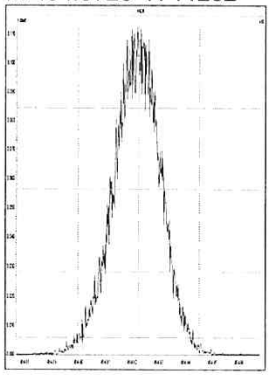

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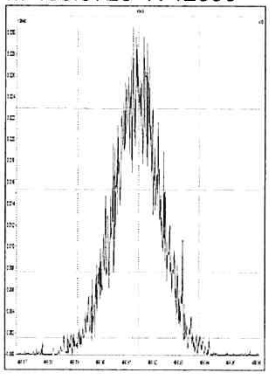

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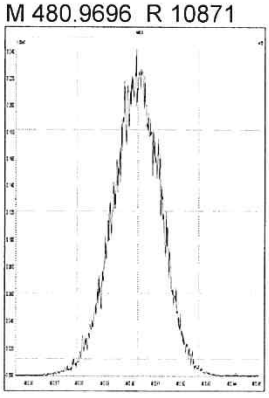

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Printed: Wednesday, December 19, 2018 15:32:06 Central Standard Time

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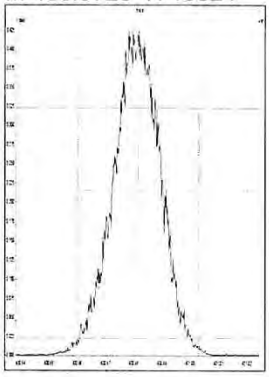

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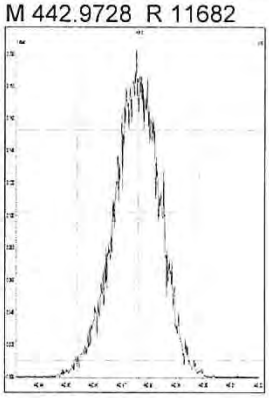

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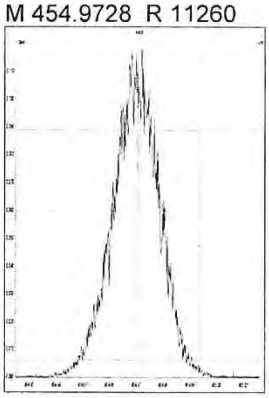

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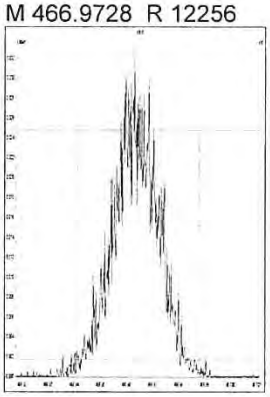

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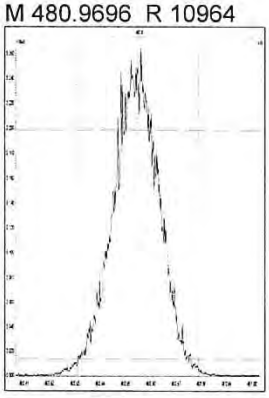

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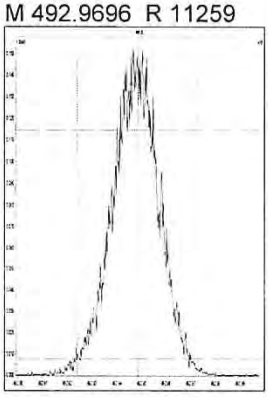

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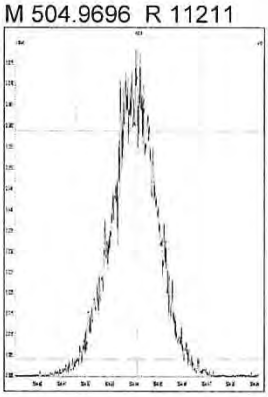

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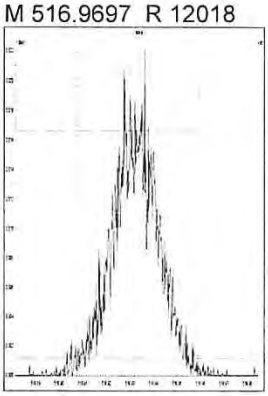

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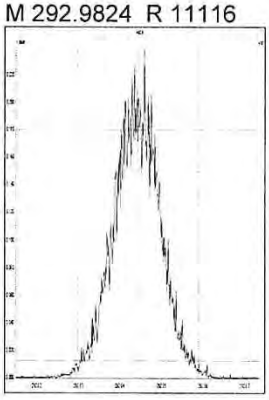

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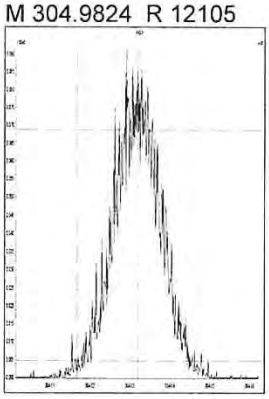

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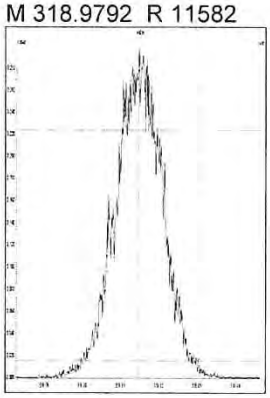

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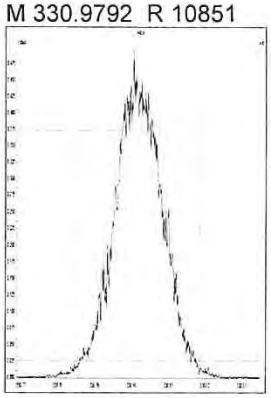

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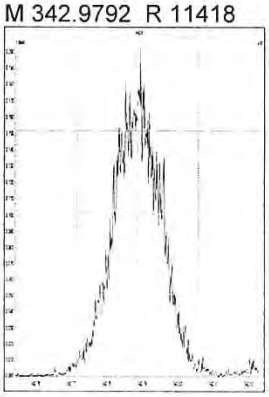

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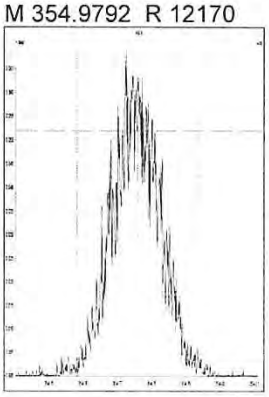

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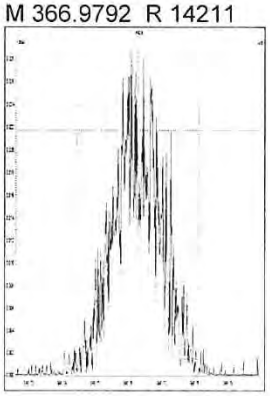

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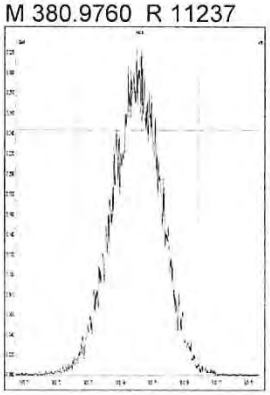

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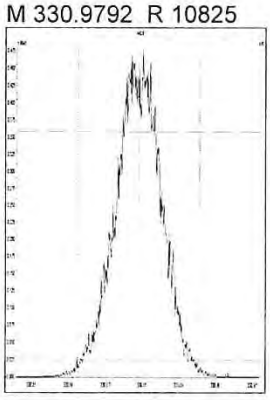

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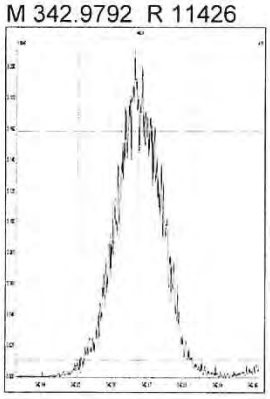

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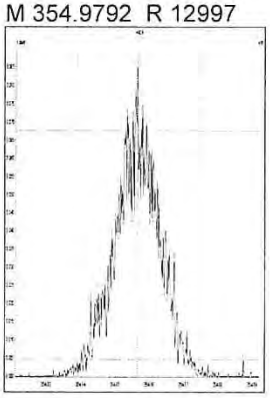

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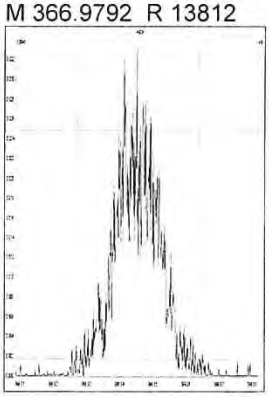

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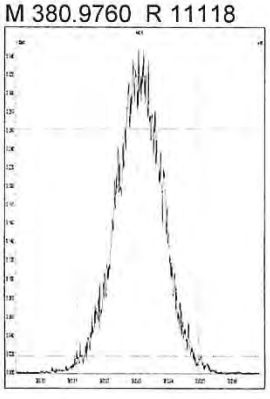

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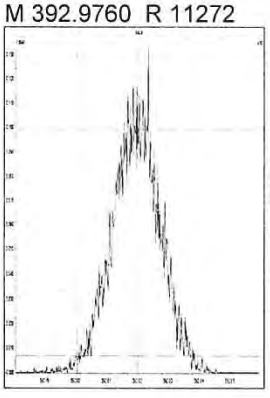

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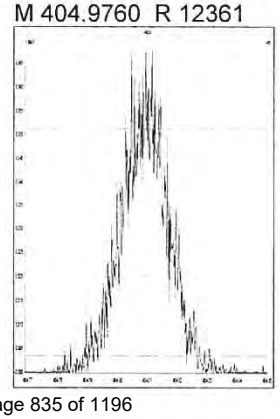

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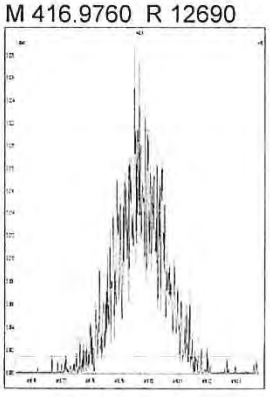

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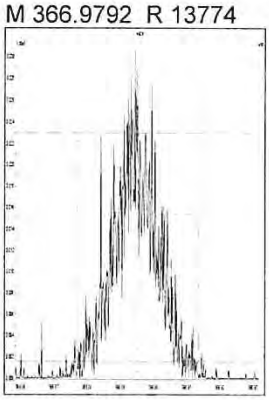

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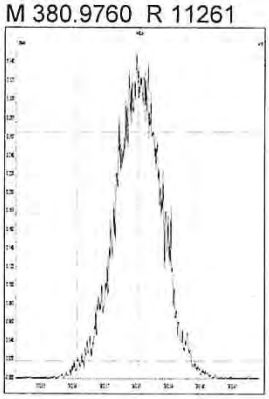

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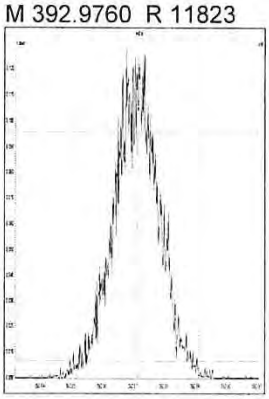

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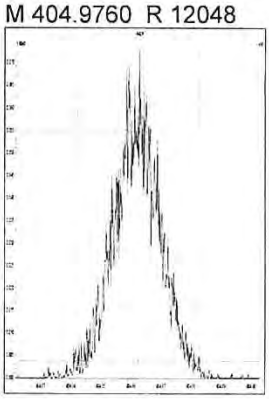

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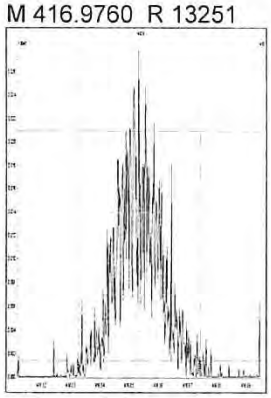

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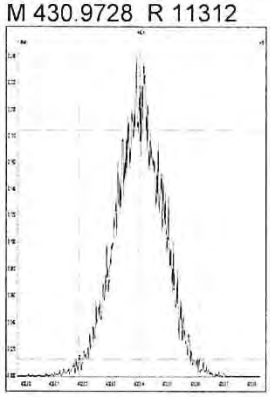

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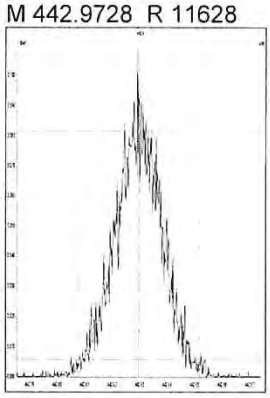

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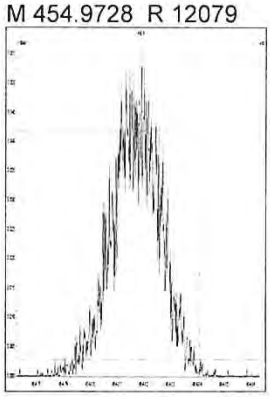

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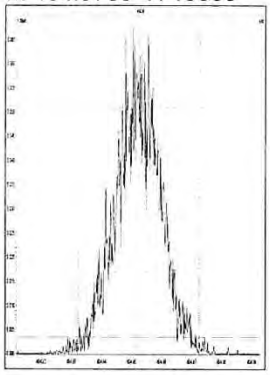

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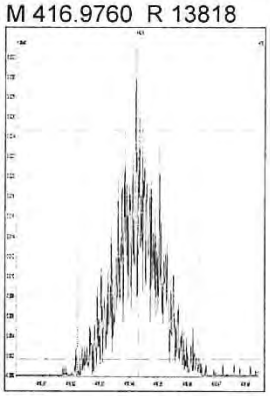

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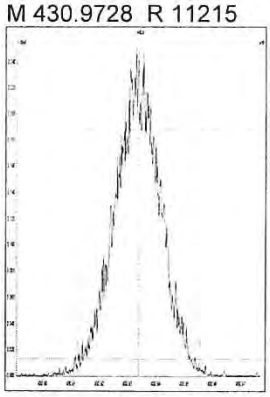

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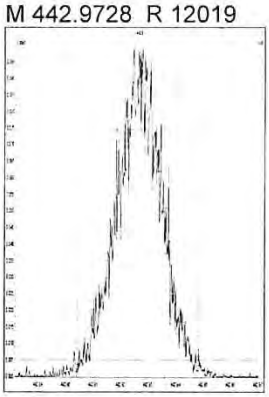

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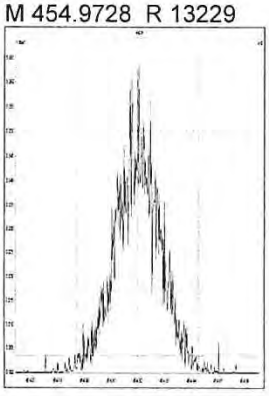

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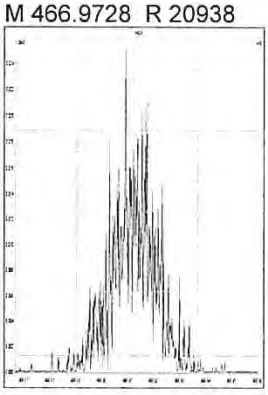

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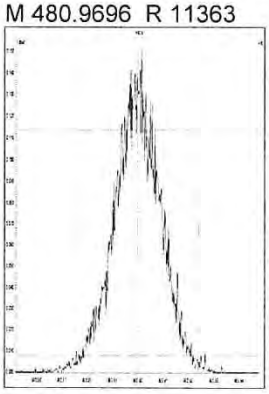

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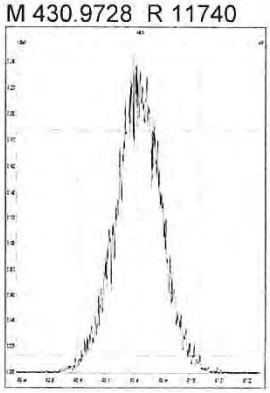

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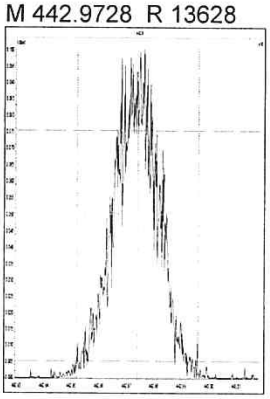

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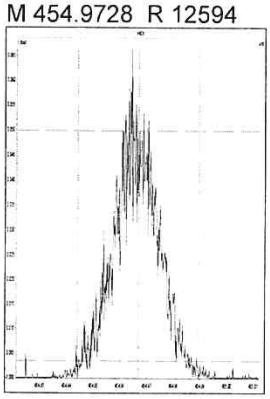

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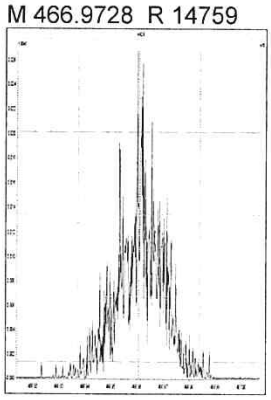

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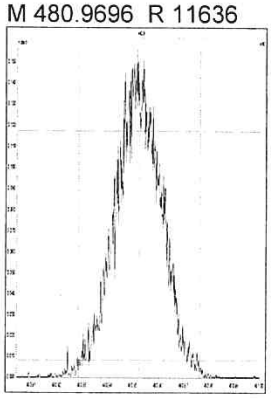

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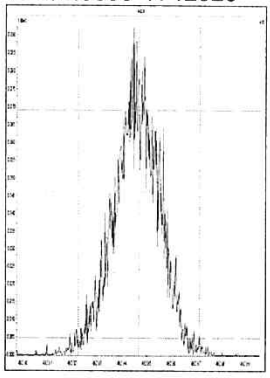

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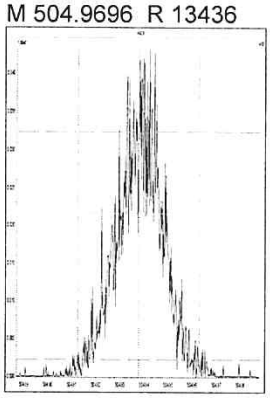

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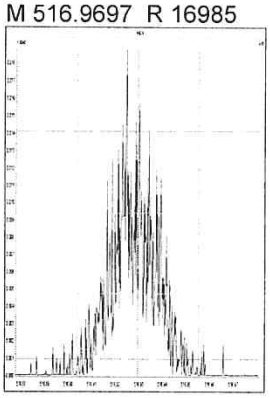


WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

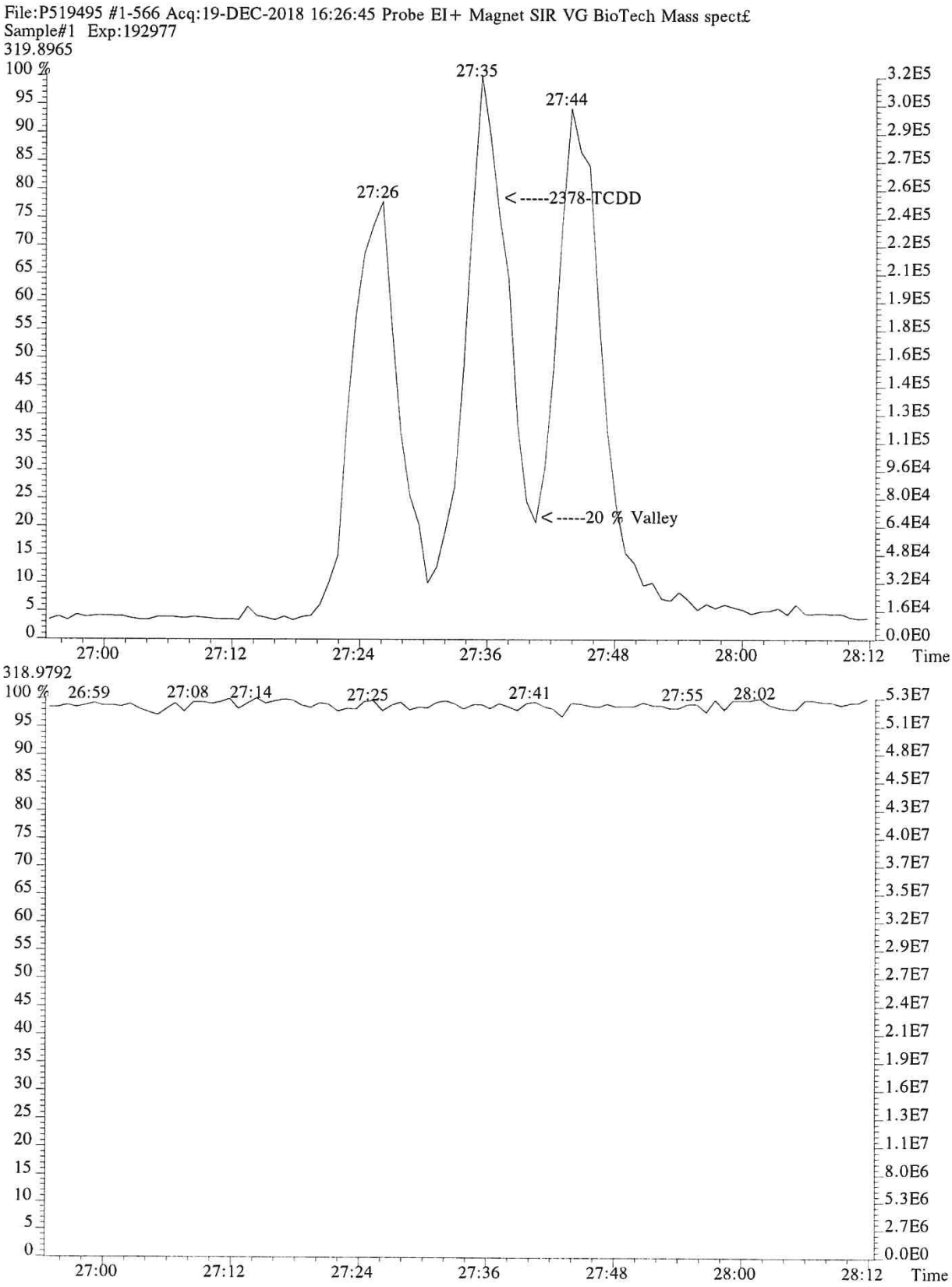
Case No.: _____ SDG No.:
ID: 0.25 (mm)

Lab File ID: P519495
Date Analyzed: 19-DEC-18
Time Analyzed: 16:26:45

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	22:14	28:52
TCDD	23:56	28:42
PeCDF	28:51	33:24
PeCDD	30:31	33:08
HxCDF	34:07	36:45
HxCDD	34:40	36:20
HpCDF	38:05	39:31
HpCDD	38:22	39:04

% Valley 2378-TCDD: 20 %

014638


File:P519495 #1-566 Acq:19-DEC-2018 16:26:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
319.8965
27:35
27:44
27:26
<-----2378-TCDD
<-----20 % Valley
Time
318.9792
26:59
27:08
27:14
27:25
27:41
27:55
28:02
Time

014639

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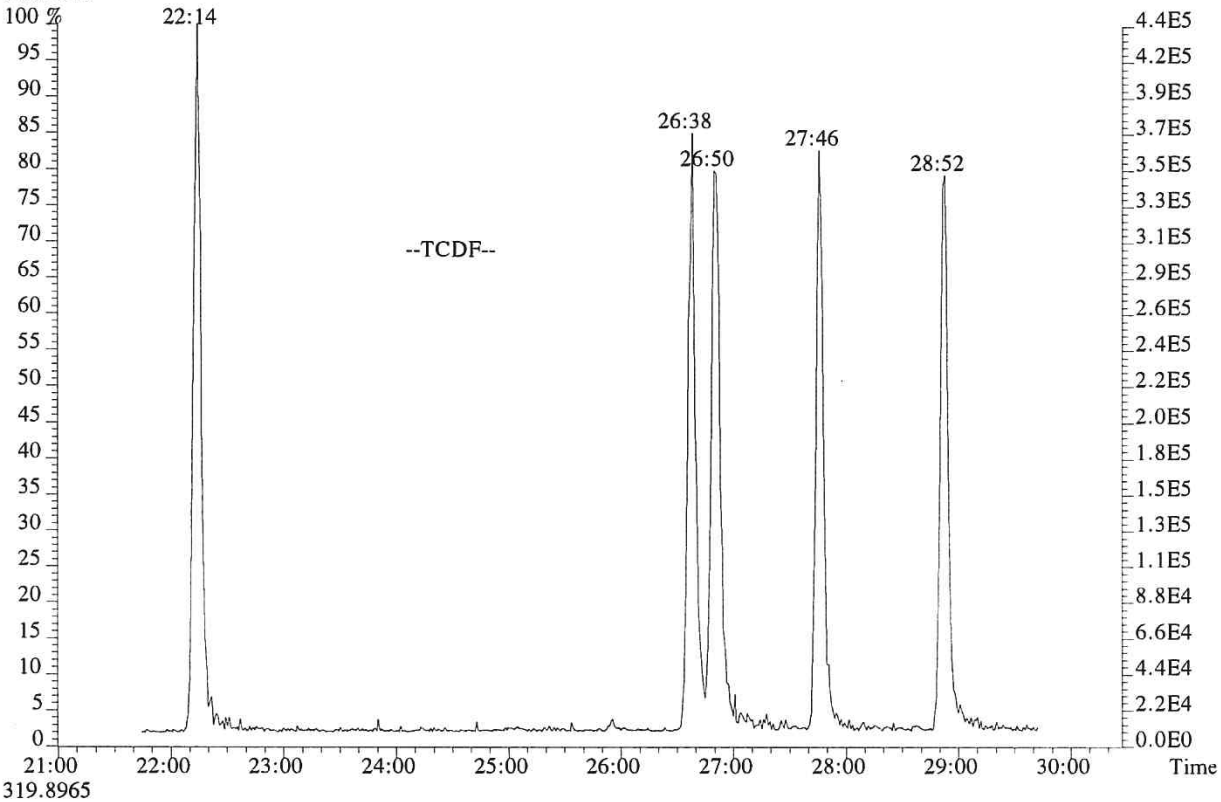
303.9016



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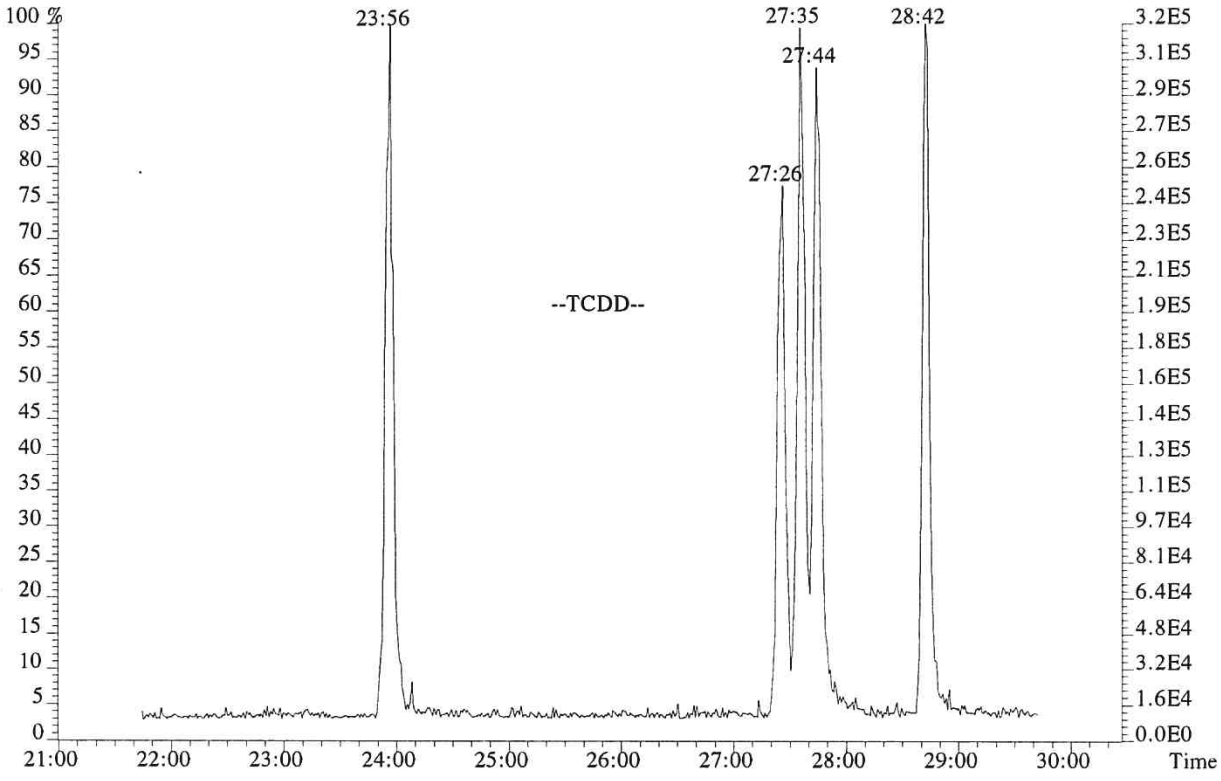
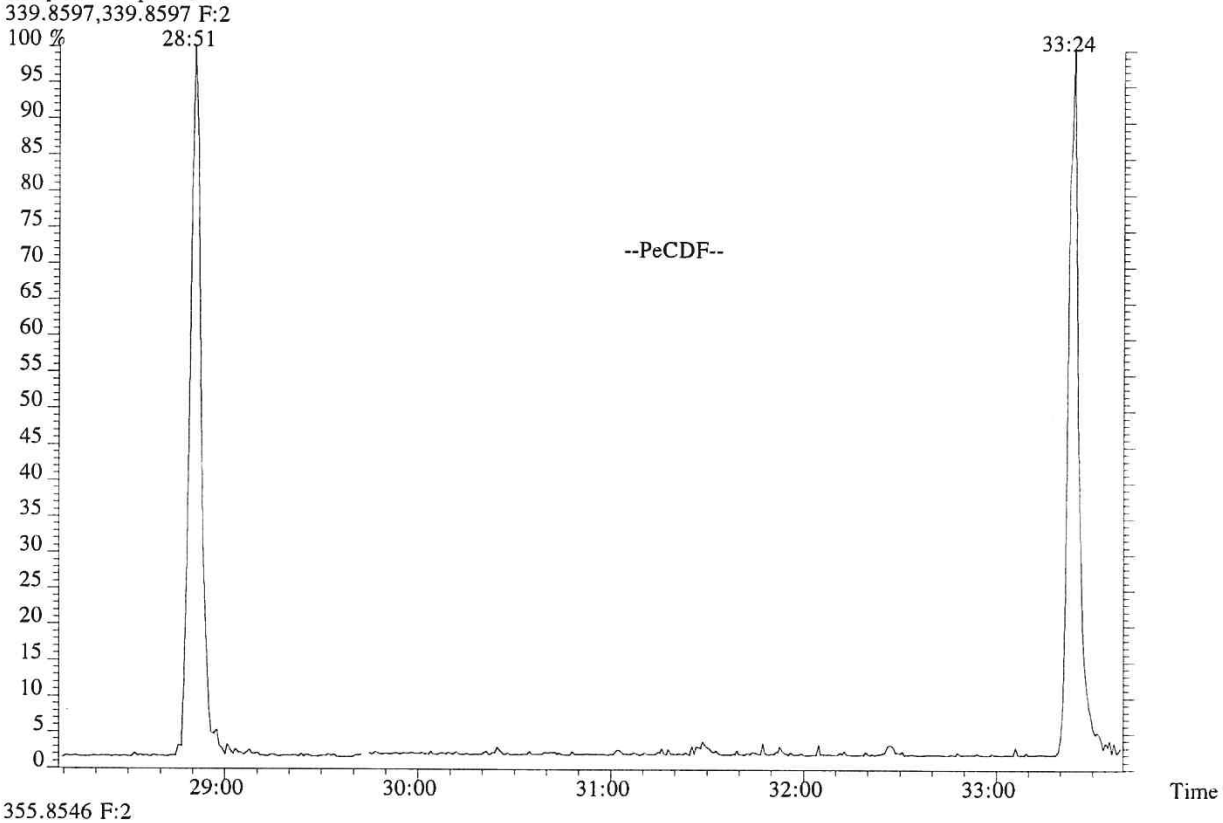
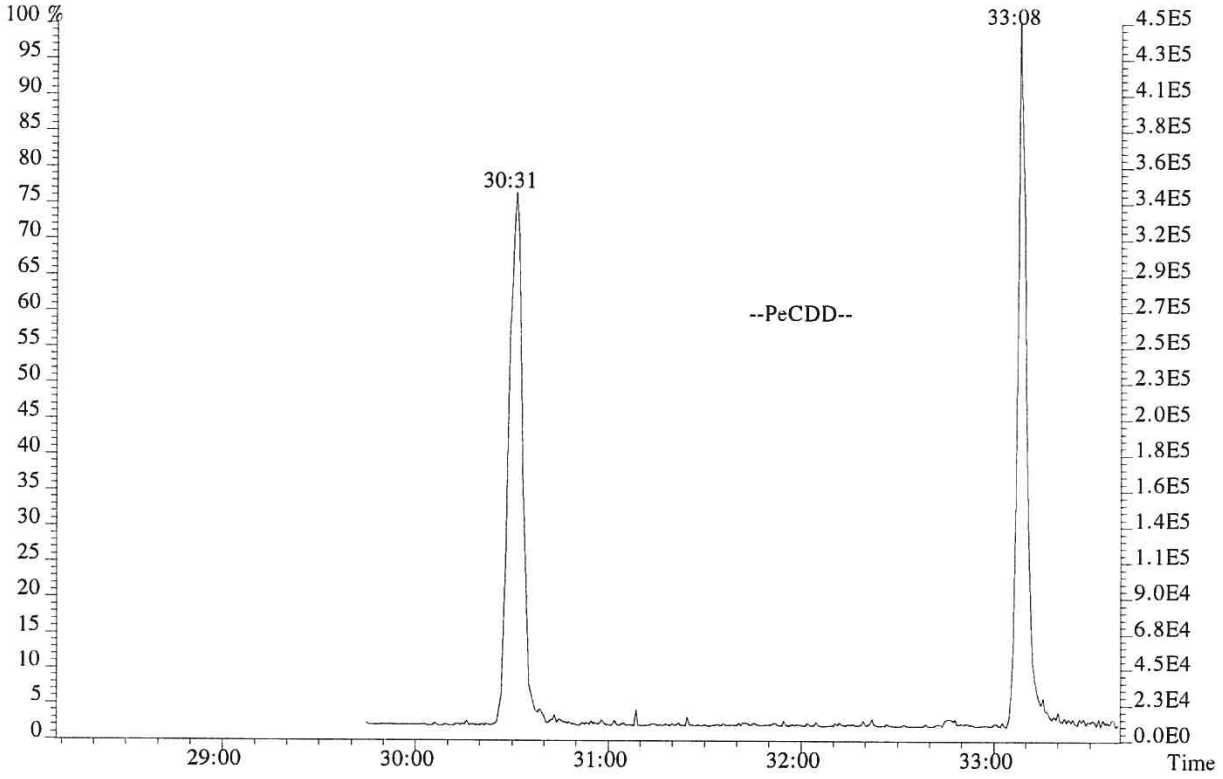


File:P519495 #1-566 Acq:19-DEC-2018 16:26:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
339.8597,339.8597 F:2

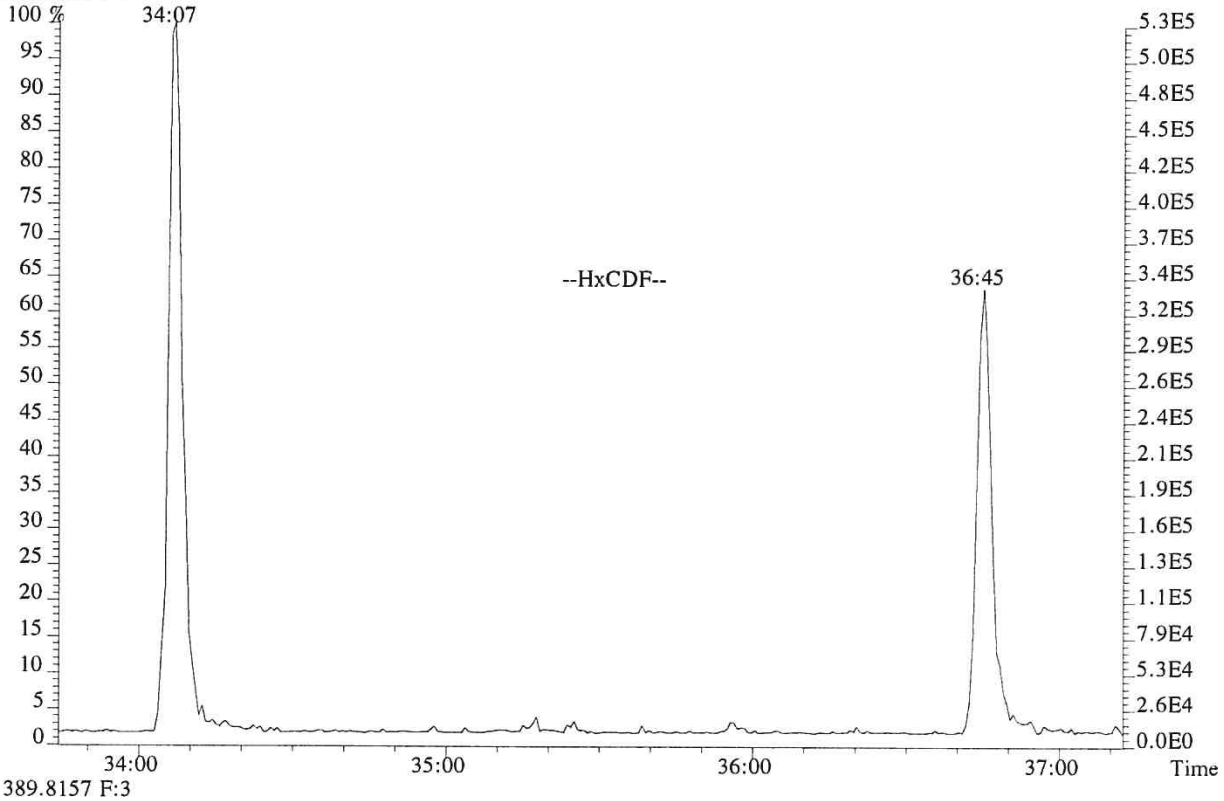


355.8546 F:2

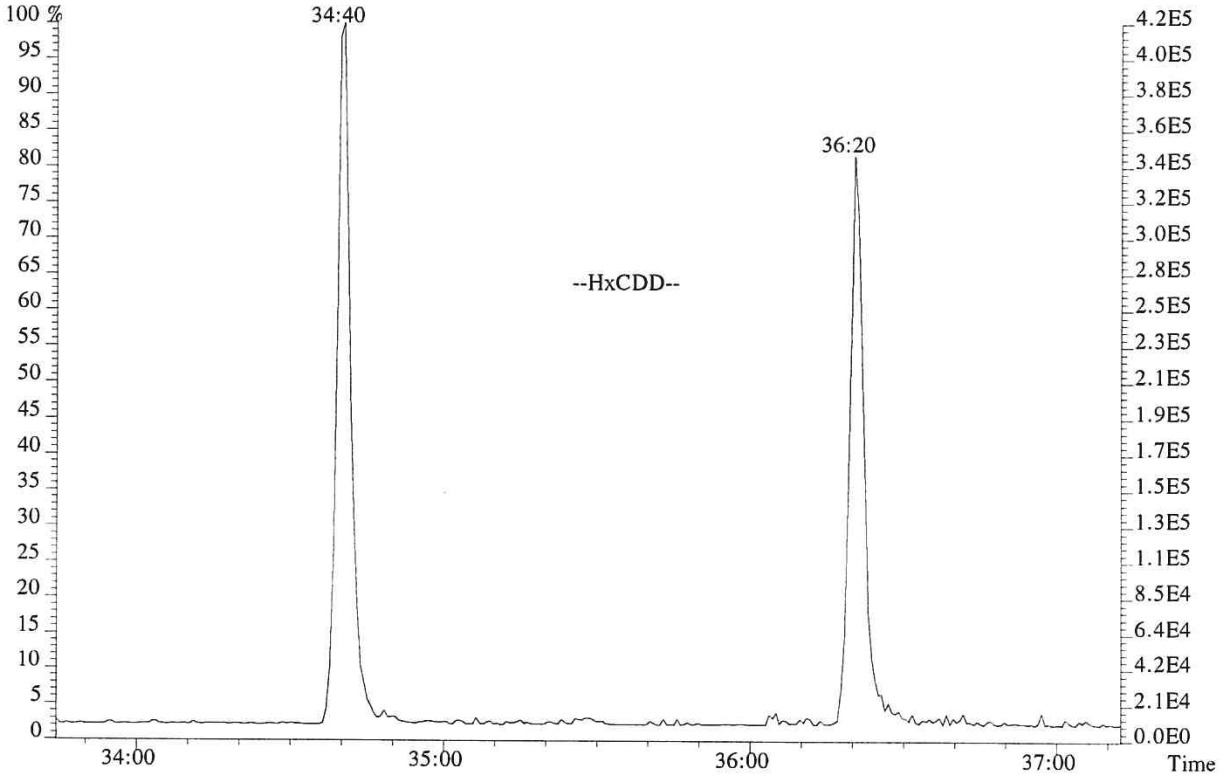


014641

File:P519495 #1-566 Acq:19-DEC-2018 16:26:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
373.8208 F:3

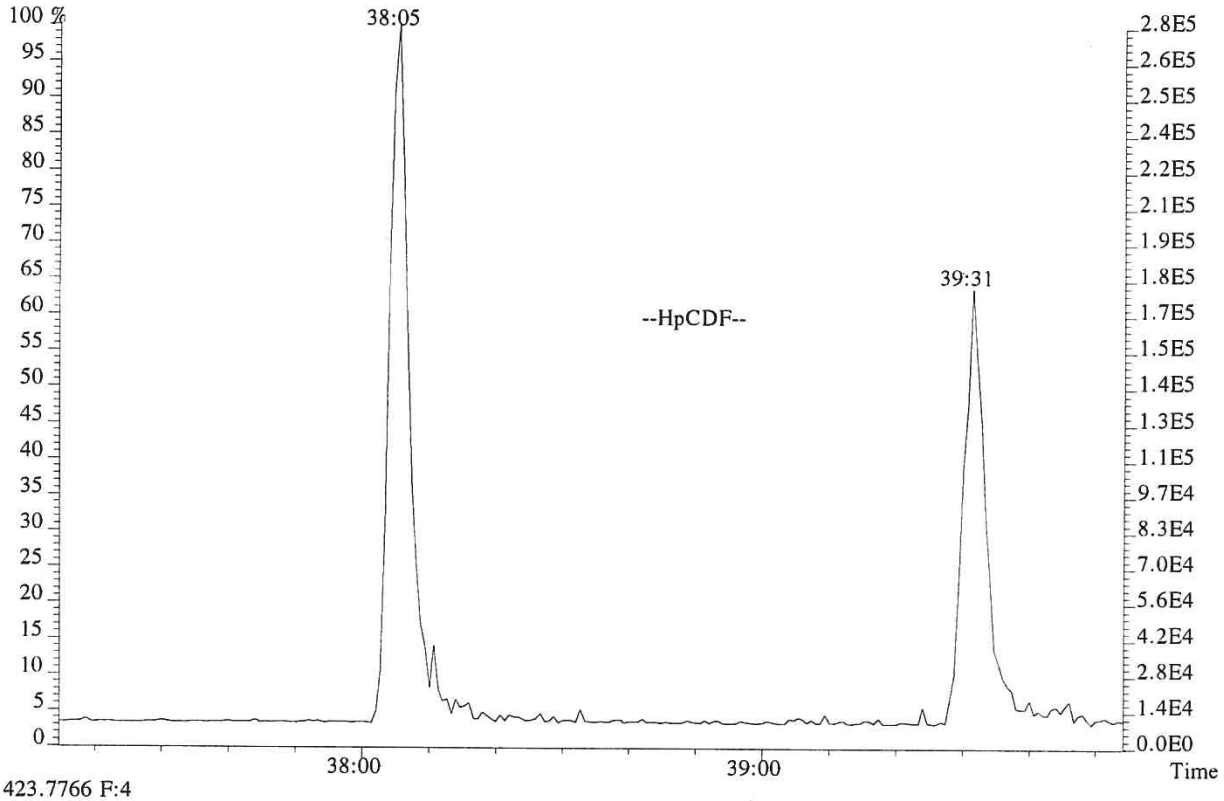


389.8157 F:3

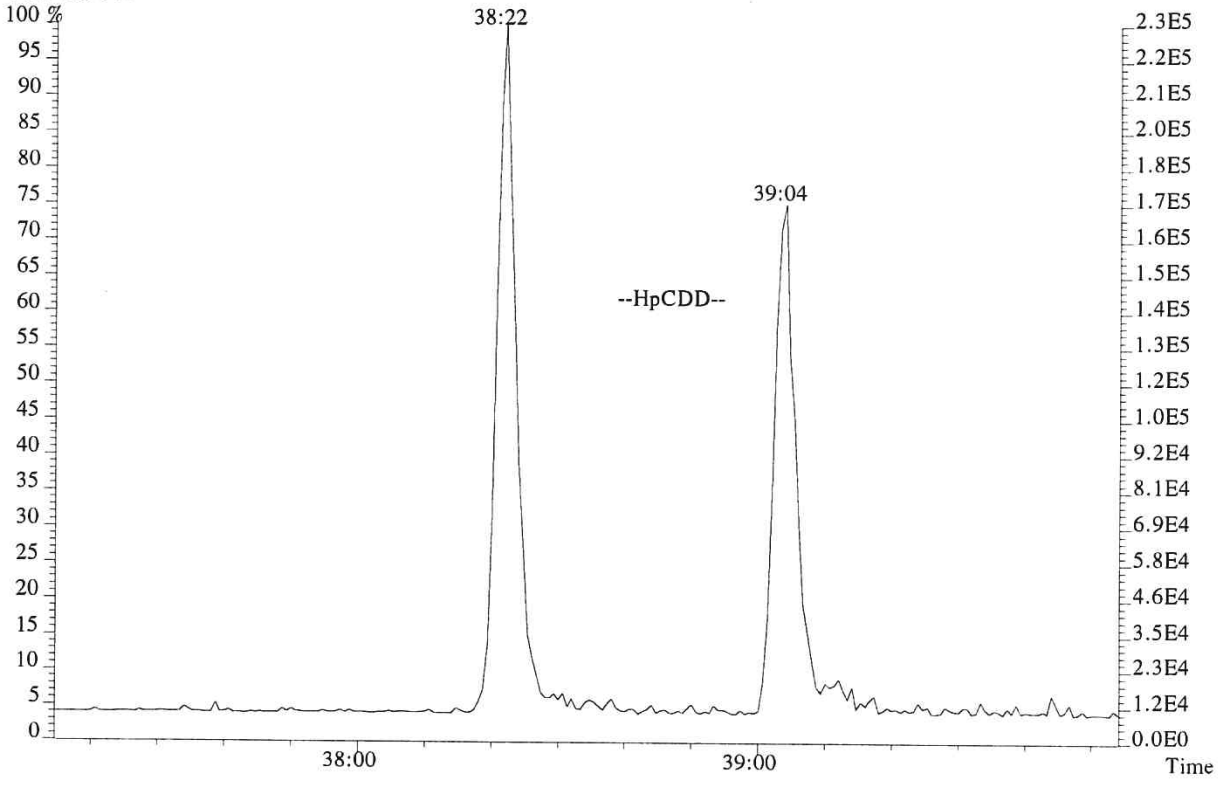


014642

File:P519495 #1-566 Acq:19-DEC-2018 16:26:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
407.7818 F:4



423.7766 F:4



014643

USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519494 Analysis Date: 19-DEC-18 Time: 15:32:52

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	10.5	7.8 - 12.9	4.6
1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	51	39 - 65	1.9
1,2,3,4,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	49	39 - 64	-2.7
1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	51	39 - 64	1.6
1,2,3,7,8,9-HxCDD	M+2/M+4	1.27	1.05-1.43	52	41 - 61	5.0
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.03	0.88-1.20	51	43 - 58	1.1
OCDD	M+2/M+4	0.87	0.76-1.02	101	79 - 126	0.9
2,3,7,8-TCDF	M/M+2	0.75	0.65-0.89	10.8	8.4 - 12.0	8.0
1,2,3,7,8-PeCDF	M+2/M+4	1.55	1.32-1.78	50	41 - 60	-0.7
2,3,4,7,8-PeCDF	M+2/M+4	1.53	1.32-1.78	50	41 - 61	-0.3
1,2,3,4,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	51	45 - 56	2.8
1,2,3,6,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	50	44 - 57	-0.8
1,2,3,7,8,9-HxCDF	M+2/M+4	1.30	1.05-1.43	51	45 - 56	1.3
2,3,4,6,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	51	44 - 57	2.0
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.06	0.88-1.20	48	45 - 55	-3.5
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.01	0.88-1.20	51	43 - 58	1.3
OCDF	M+2/M+4	0.86	0.76-1.02	95	63 - 159	-5.0

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519494 Analysis Date: 19-DEC-18 Time: 15:32:52

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	98	82 - 121	-2.3
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.61	1.32-1.78	112	62 - 160	12.1
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	97	85 - 117	-2.7
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.30	1.05-1.43	101	85 - 118	0.5
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.08	0.88-1.20	91	72 - 138	-9.4
13C-OCDD	M+2/M+4	0.91	0.76-1.02	173	96 - 415	-13.4
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	89	71 - 140	-11.2
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.61	1.32-1.78	108	76 - 130	8.1
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	109	77 - 130	9.4
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.51	0.43-0.59	90	76 - 131	-9.9
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	96	70 - 143	-4.1
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.51	0.43-0.59	90	74 - 135	-9.8
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	97	73 - 137	-2.9
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.43	0.37-0.51	92	78 - 129	-8.0
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.42	0.37-0.51	86	77 - 129	-14.3
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD	M+2/M+4			9.5	7.8 - 12.7	-5.0

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #7 Filename P519494 Samp: 1 Inj: 1 Acquired: 19-DEC-18 15:32:52
Processed: 20-DEC-18 10:33:29 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:51	1.254e+03	1.663e+03	0.75	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	31:28	1.038e+04	6.690e+03	1.55	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	32:26	9.828e+03	6.445e+03	1.53	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:17	8.047e+03	6.535e+03	1.23	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:24	8.781e+03	7.222e+03	1.22	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:56	8.144e+03	6.651e+03	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	36:43	6.863e+03	5.288e+03	1.30	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:05	6.388e+03	6.031e+03	1.06	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:31	4.823e+03	4.768e+03	1.01	yes	no	1.258
10	Unk	OCDF	42:09	6.432e+03	7.515e+03	0.86	yes	no	1.359
11	Unk	2,3,7,8-TCDD	27:44	9.688e+02	1.218e+03	0.80	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	32:45	6.988e+03	4.384e+03	1.59	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:05	5.396e+03	4.341e+03	1.24	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:10	6.019e+03	4.766e+03	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:25	6.211e+03	4.874e+03	1.27	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:03	4.370e+03	4.260e+03	1.03	yes	no	1.025
17	Unk	OCDD	41:59	5.680e+03	6.513e+03	0.87	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	26:49	1.269e+04	1.599e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	31:27	2.093e+04	1.302e+04	1.61	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	32:25	2.075e+04	1.329e+04	1.56	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:16	8.045e+03	1.580e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:23	9.835e+03	1.890e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:55	8.915e+03	1.723e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	36:42	7.083e+03	1.390e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:05	5.770e+03	1.329e+04	0.43	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:30	4.492e+03	1.057e+04	0.42	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	27:43	8.479e+03	1.079e+04	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:44	1.441e+04	8.931e+03	1.61	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:04	1.082e+04	8.466e+03	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:10	1.157e+04	8.876e+03	1.30	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:03	8.627e+03	8.025e+03	1.08	yes	no	0.858
32	IS	13C-OCDD	41:58	1.031e+04	1.131e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:04	9.528e+03	1.183e+04	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:24	1.192e+04	9.513e+03	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:44	2.057e+03				no	1.014

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #7 Filename P519494 Samp: 1 Inj: 1 Acquired: 19-DEC-18 15:32:52
Processed: 20-DEC-18 10:33:29 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	1.87e+05	7.92e+02	2.4e+02	2.57e+05	1.80e+03	1.4e+02
2	1,2,3,7,8-PeCDF	1.78e+06	6.84e+02	2.6e+03	1.13e+06	1.04e+03	1.1e+03
3	2,3,4,7,8-PeCDF	1.80e+06	6.84e+02	2.6e+03	1.15e+06	1.04e+03	1.1e+03
4	1,2,3,4,7,8-HxCDF	1.62e+06	6.28e+02	2.6e+03	1.31e+06	5.52e+02	2.4e+03
5	1,2,3,6,7,8-HxCDF	1.67e+06	6.28e+02	2.7e+03	1.39e+06	5.52e+02	2.5e+03
6	2,3,4,6,7,8-HxCDF	1.58e+06	6.28e+02	2.5e+03	1.31e+06	5.52e+02	2.4e+03
7	1,2,3,7,8,9-HxCDF	1.24e+06	6.28e+02	2.0e+03	9.77e+05	5.52e+02	1.8e+03
8	1,2,3,4,6,7,8-HpCDF	1.15e+06	6.96e+02	1.7e+03	1.12e+06	3.76e+02	3.0e+03
9	1,2,3,4,7,8,9-HpCDF	7.75e+05	6.96e+02	1.1e+03	7.46e+05	3.76e+02	2.0e+03
10	OCDF	7.22e+05	4.24e+02	1.7e+03	8.51e+05	1.08e+03	7.9e+02
11	2,3,7,8-TCDD	1.56e+05	2.02e+03	7.7e+01	1.88e+05	6.72e+02	2.8e+02
12	1,2,3,7,8-PeCDD	1.24e+06	3.00e+02	4.1e+03	7.94e+05	4.60e+02	1.7e+03
13	1,2,3,4,7,8-HxCDD	1.13e+06	3.48e+02	3.3e+03	8.86e+05	7.84e+02	1.1e+03
14	1,2,3,6,7,8-HxCDD	1.14e+06	3.48e+02	3.3e+03	9.13e+05	7.84e+02	1.2e+03
15	1,2,3,7,8,9-HxCDD	1.16e+06	3.48e+02	3.3e+03	9.30e+05	7.84e+02	1.2e+03
16	1,2,3,4,6,7,8-HpCDD	7.27e+05	5.32e+02	1.4e+03	7.05e+05	3.88e+02	1.8e+03
17	OCDD	6.65e+05	3.84e+02	1.7e+03	7.62e+05	6.72e+02	1.1e+03
18	13C-2,3,7,8-TCDF	1.97e+06	7.67e+03	2.6e+02	2.43e+06	5.20e+03	4.7e+02
19	13C-1,2,3,7,8-PeCDF	3.51e+06	5.84e+02	6.0e+03	2.19e+06	6.16e+02	3.6e+03
20	13C-2,3,4,7,8-PeCDF	3.69e+06	5.84e+02	6.3e+03	2.35e+06	6.16e+02	3.8e+03
21	13C-1,2,3,4,7,8-HxCDF	1.59e+06	9.12e+02	1.7e+03	3.11e+06	9.56e+02	3.3e+03
22	13C-1,2,3,6,7,8-HxCDF	1.90e+06	9.12e+02	2.1e+03	3.60e+06	9.56e+02	3.8e+03
23	13C-2,3,4,6,7,8-HxCDF	1.69e+06	9.12e+02	1.9e+03	3.32e+06	9.56e+02	3.5e+03
24	13C-1,2,3,7,8,9-HxCDF	1.30e+06	9.12e+02	1.4e+03	2.50e+06	9.56e+02	2.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.03e+06	1.15e+03	8.9e+02	2.33e+06	2.88e+03	8.1e+02
26	13C-1,2,3,4,7,8,9-HpCDF	7.21e+05	1.15e+03	6.3e+02	1.61e+06	2.88e+03	5.6e+02
27	13C-2,3,7,8-TCDD	1.39e+06	5.33e+03	2.6e+02	1.72e+06	2.48e+03	6.9e+02
28	13C-1,2,3,7,8-PeCDD	2.57e+06	1.00e+03	2.6e+03	1.56e+06	7.52e+02	2.1e+03
29	13C-1,2,3,4,7,8-HxCDD	2.27e+06	6.68e+02	3.4e+03	1.75e+06	7.84e+02	2.2e+03
30	13C-1,2,3,6,7,8-HxCDD	2.20e+06	6.68e+02	3.3e+03	1.71e+06	7.84e+02	2.2e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.38e+06	5.32e+02	2.6e+03	1.32e+06	4.48e+02	2.9e+03
32	13C-OCDD	1.15e+06	6.64e+02	1.7e+03	1.28e+06	4.68e+02	2.7e+03
33	13C-1,2,3,4-TCDD	1.52e+06	5.33e+03	2.9e+02	1.91e+06	2.48e+03	7.7e+02
34	13C-1,2,3,7,8,9-HxCDD	2.29e+06	6.68e+02	3.4e+03	1.73e+06	7.84e+02	2.2e+03
35	37Cl-2,3,7,8-TCDD	3.28e+05	9.12e+02	3.6e+02			

---Sample Calculation---

$$D/L\ TCDD = \frac{2.5 \times (2.024e+03 + 6.720e+02) \times 100}{(1.389e+06 + 1.724e+06) \times (\quad) \times 1.085} =$$

ALS ENVIRONMENTAL
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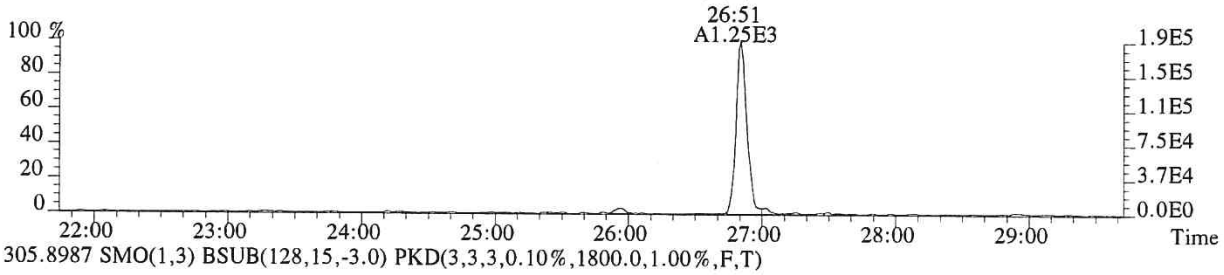
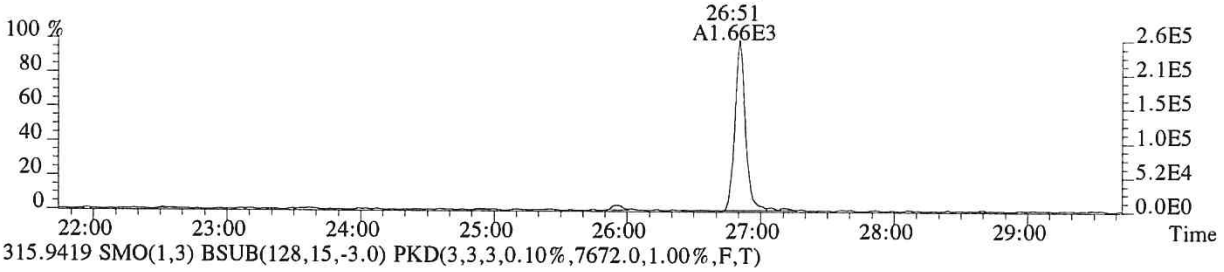
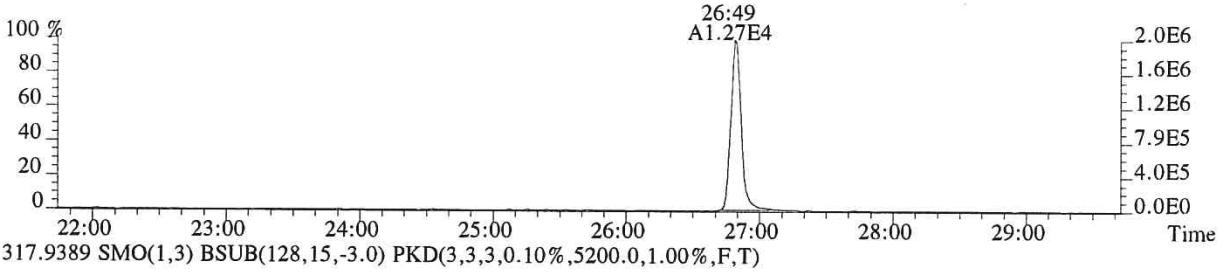
File:P519494 #1-566 Acq:19-DEC-2018 15:32:52 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,792.0,1.00%,F,T)



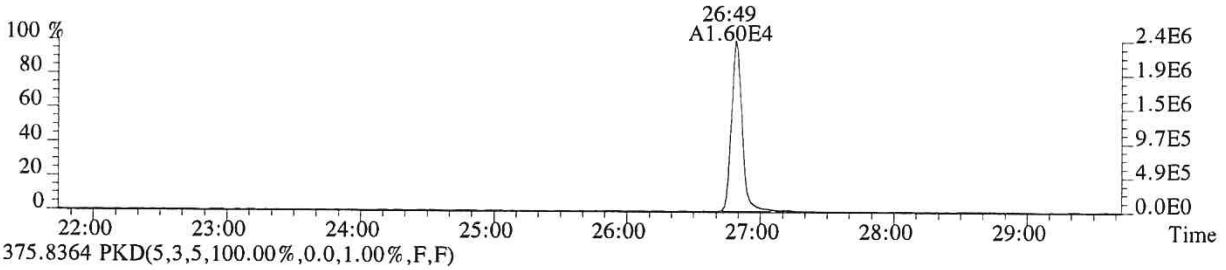
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1800.0,1.00%,F,T)



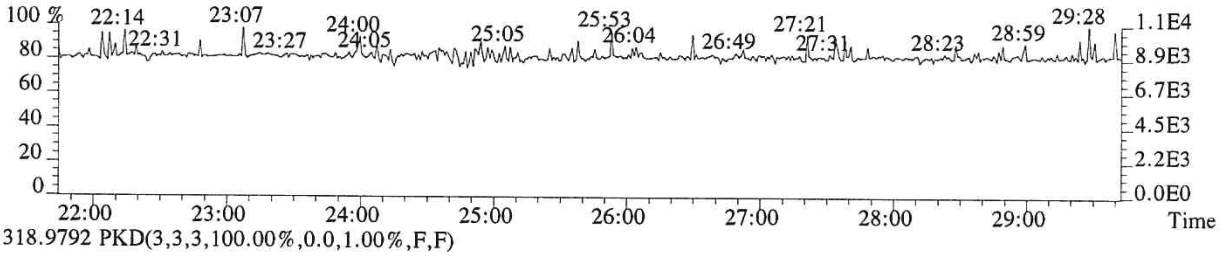
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7672.0,1.00%,F,T)



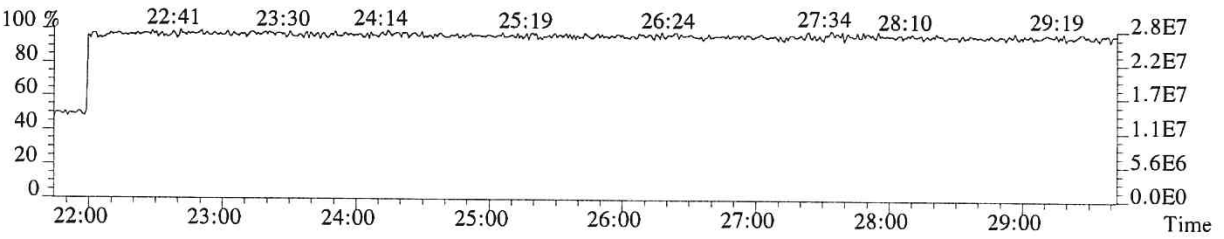
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5200.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

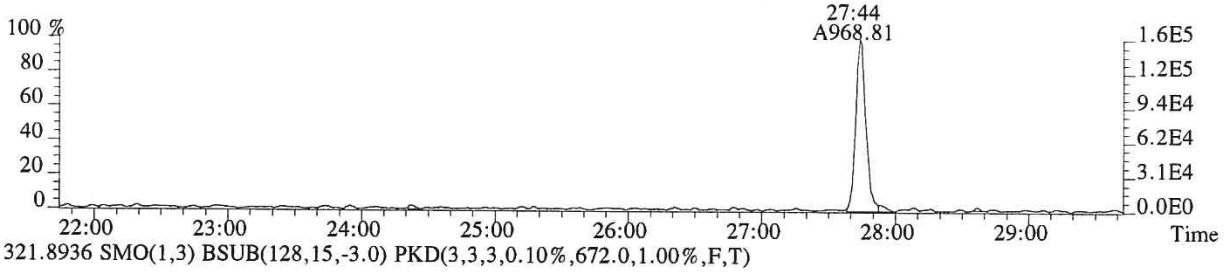


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

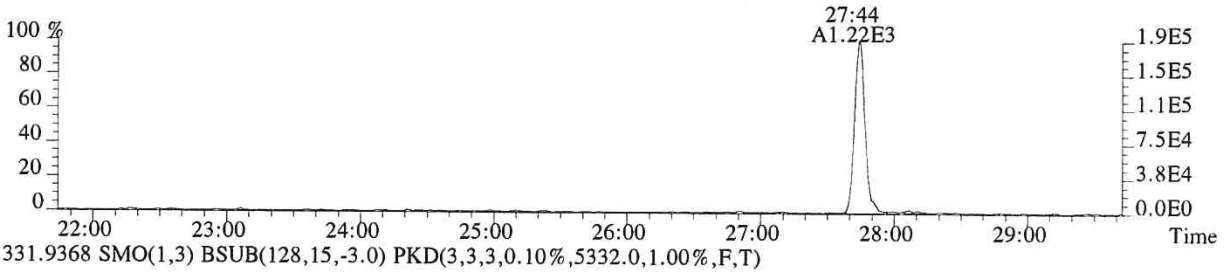


014648

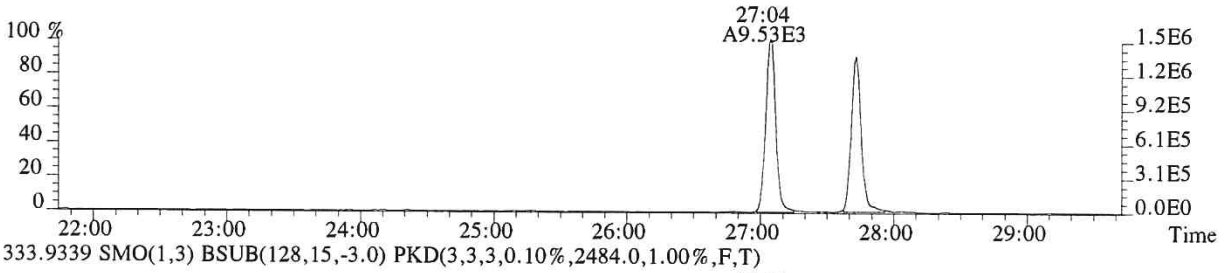
File:P519494 #1-566 Acq:19-DEC-2018 15:32:52 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2024.0,1.00%,F,T)



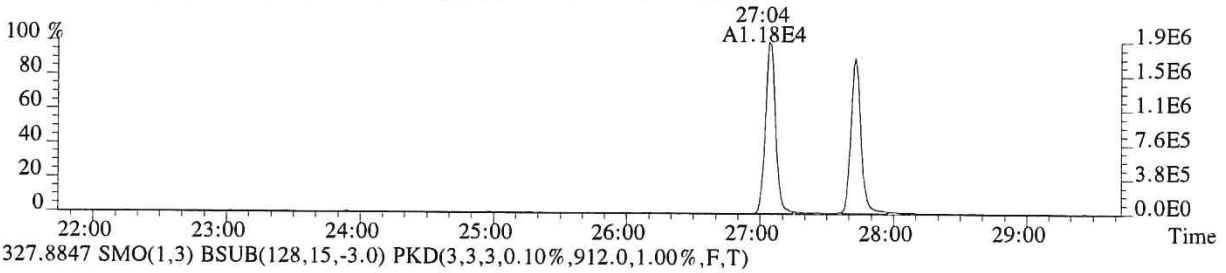
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,672.0,1.00%,F,T)



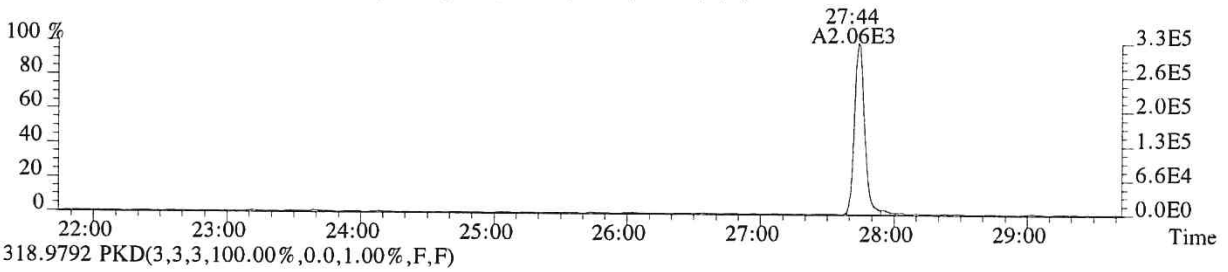
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5332.0,1.00%,F,T)



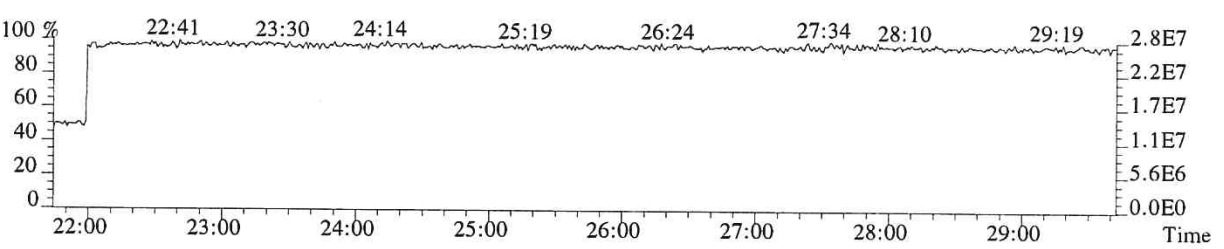
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2484.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,912.0,1.00%,F,T)

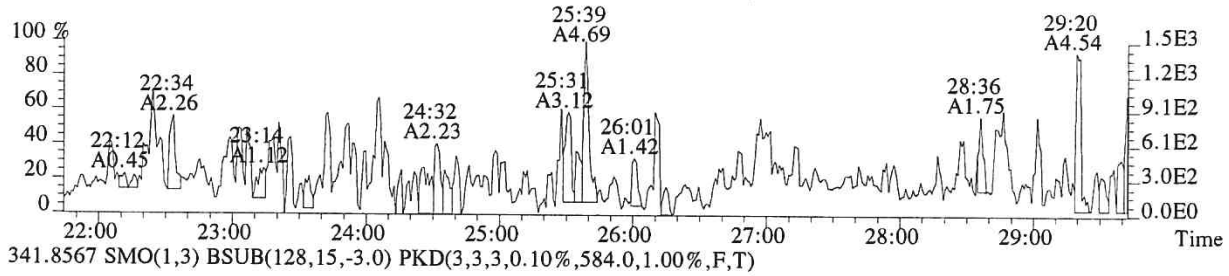


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

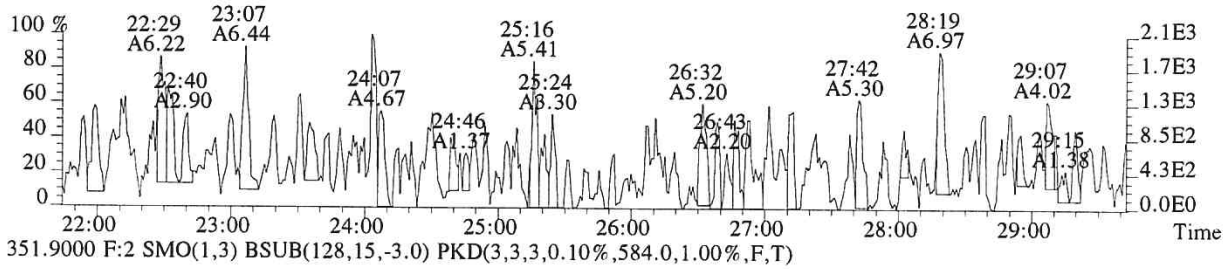


014649

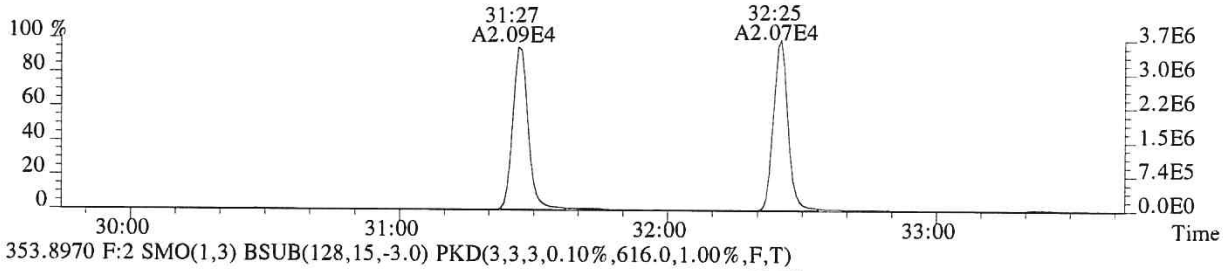
File:P519494 #1-566 Acq:19-DEC-2018 15:32:52 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,356.0,1.00%,F,T)



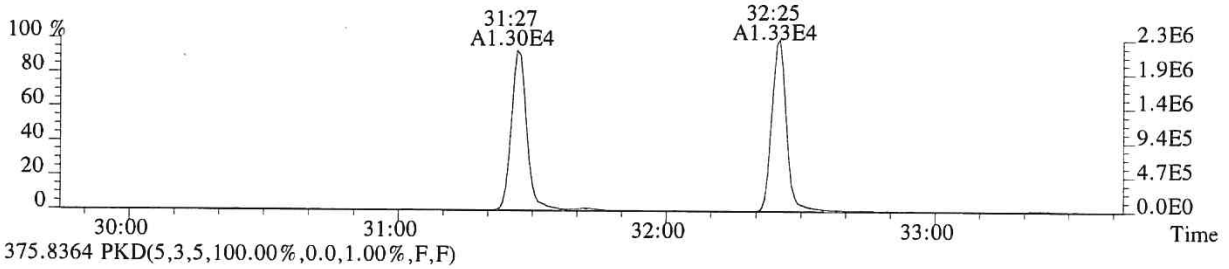
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,584.0,1.00%,F,T)



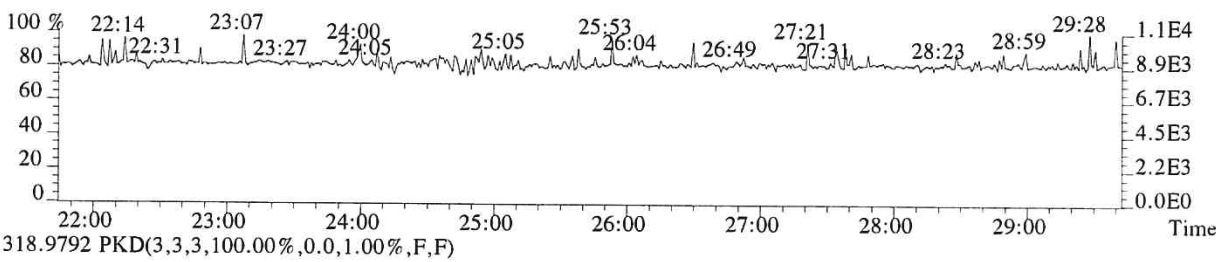
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,584.0,1.00%,F,T)



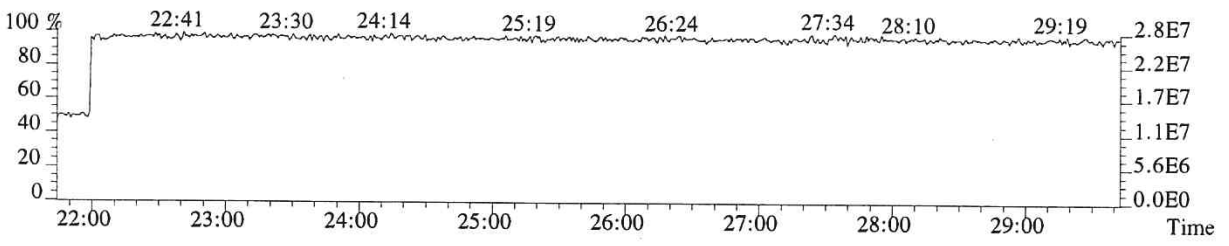
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,616.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

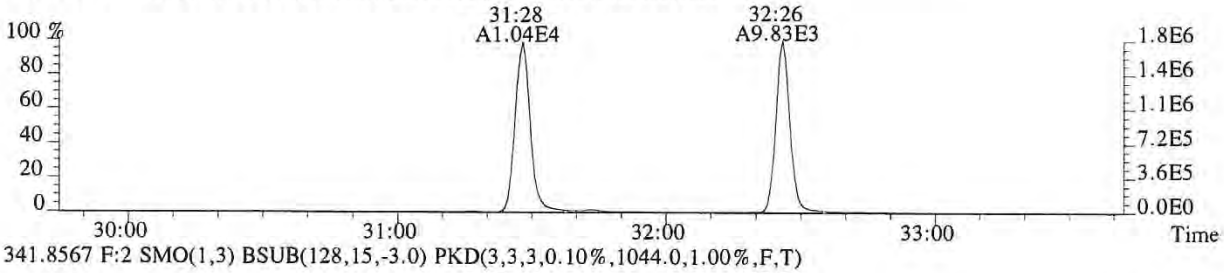


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

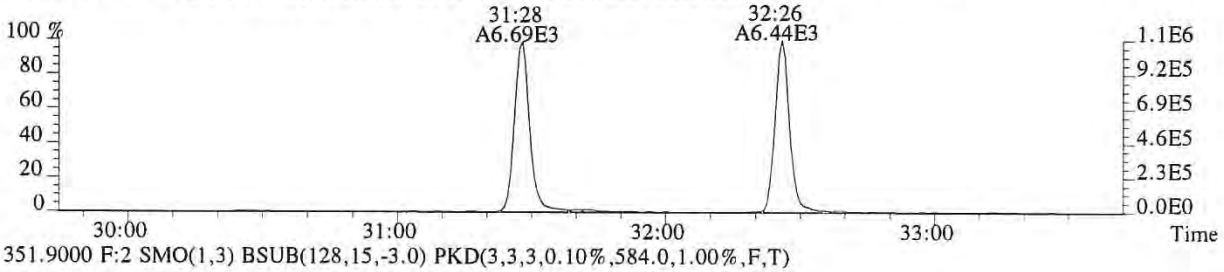


014650

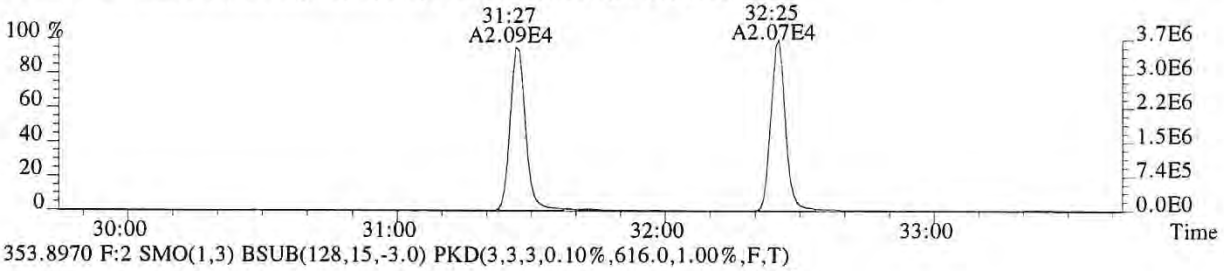
File:P519494 #1-357 Acq:19-DEC-2018 15:32:52 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,684.0,1.00%,F,T)



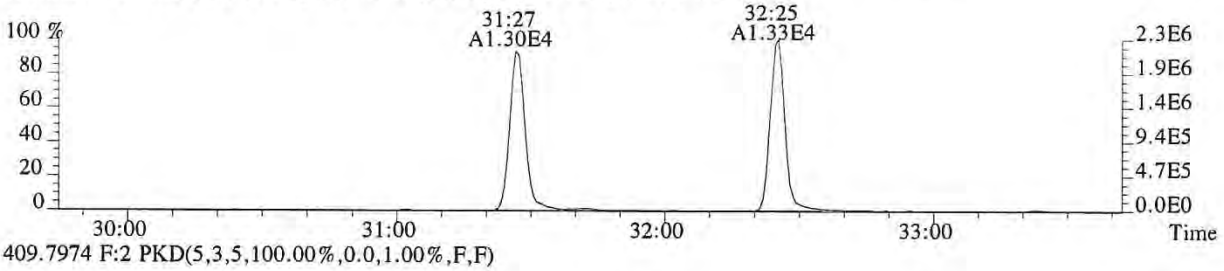
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1044.0,1.00%,F,T)



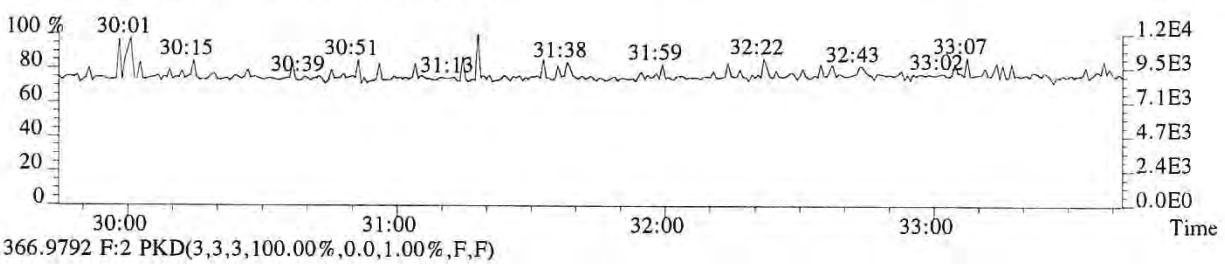
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,584.0,1.00%,F,T)



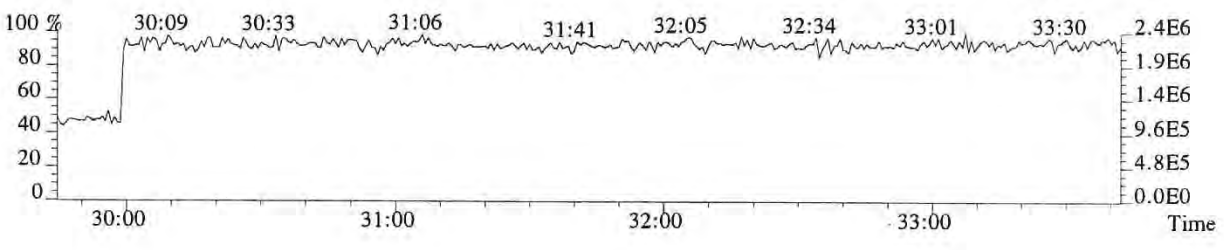
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,616.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

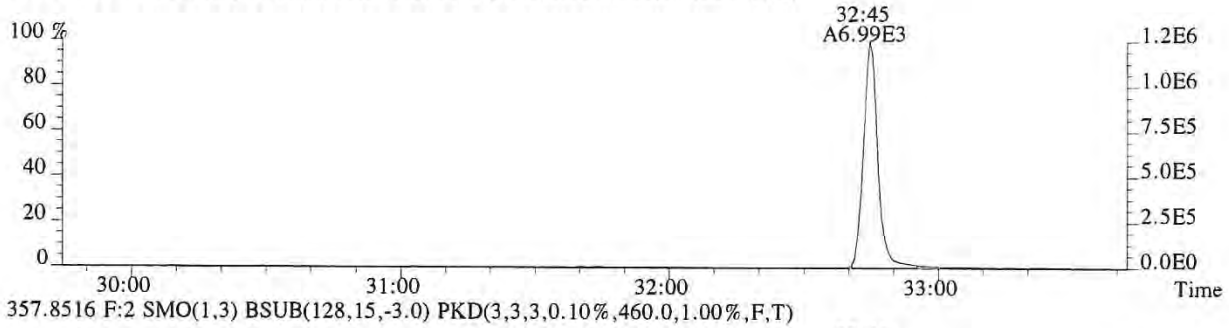


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

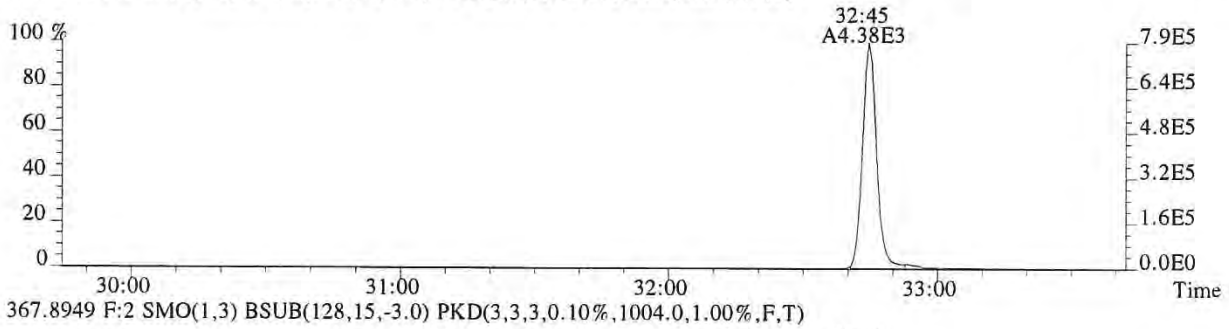


014651

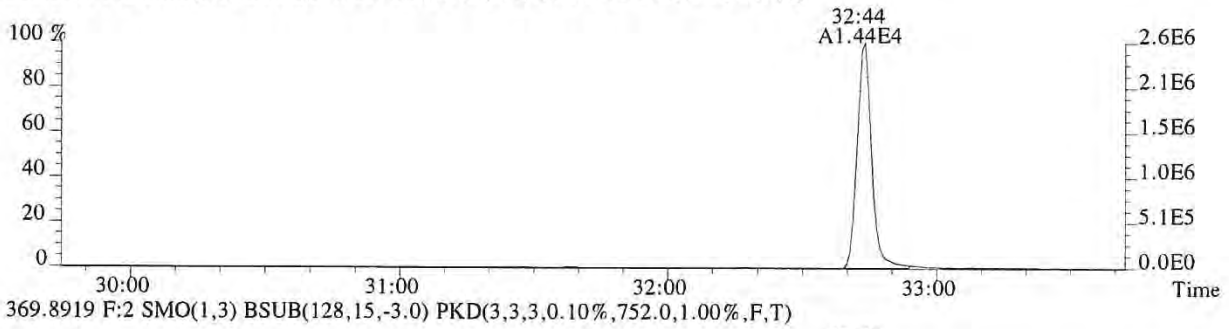
File:P519494 #1-357 Acq:19-DEC-2018 15:32:52 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,300.0,1.00%,F,T)



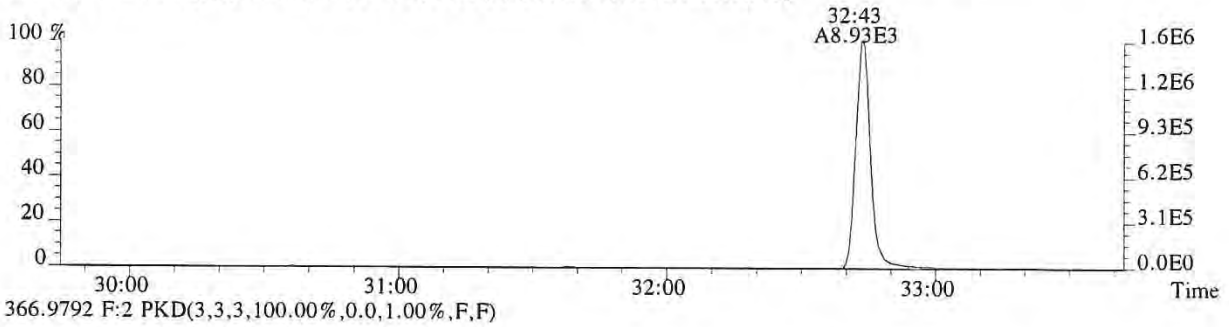
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,460.0,1.00%,F,T)



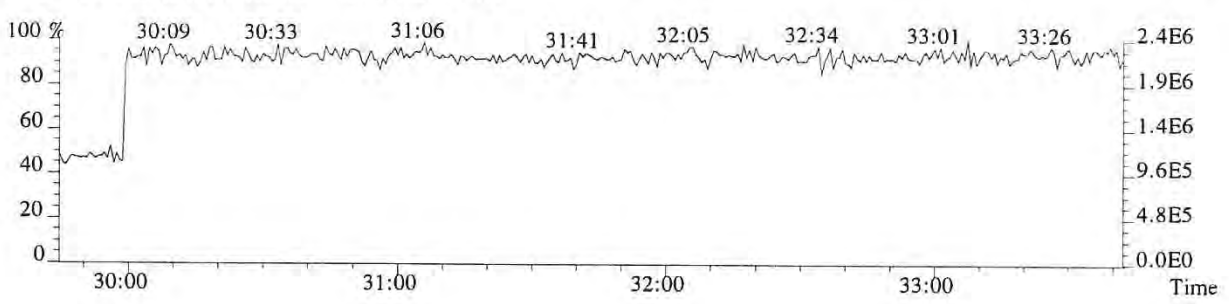
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,752.0,1.00%,F,T)

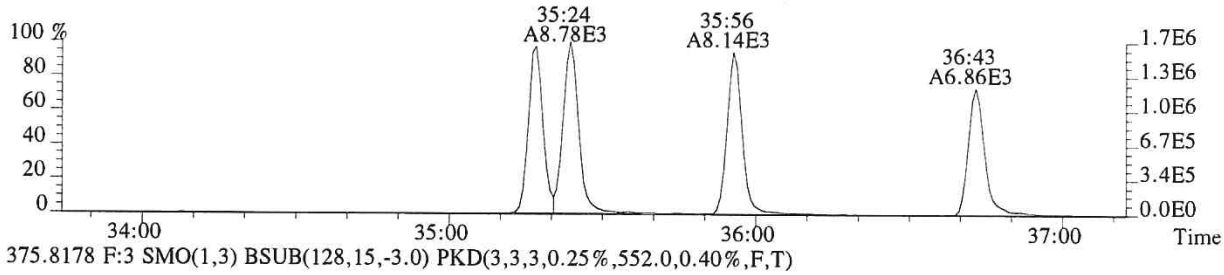


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

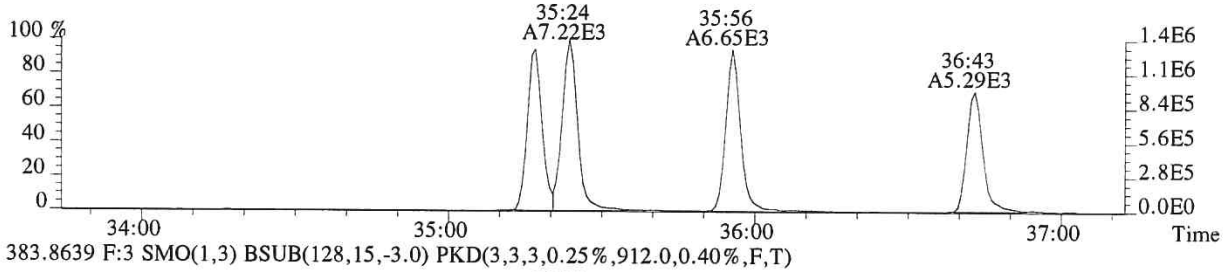


014652

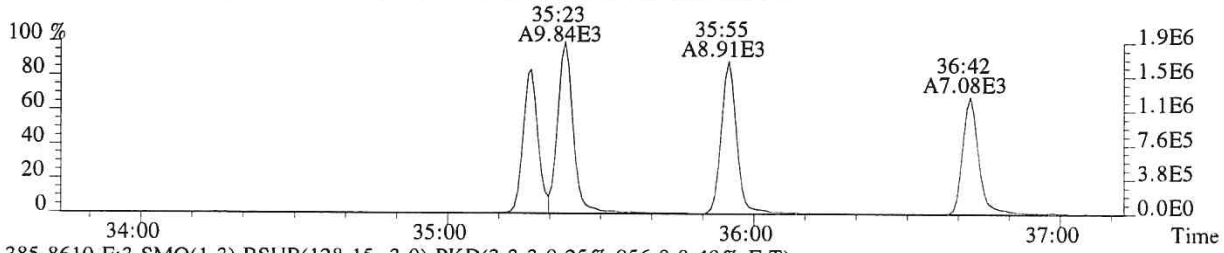
File:P519494 #1-313 Acq:19-DEC-2018 15:32:52 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,628.0,0.40%,F,T)



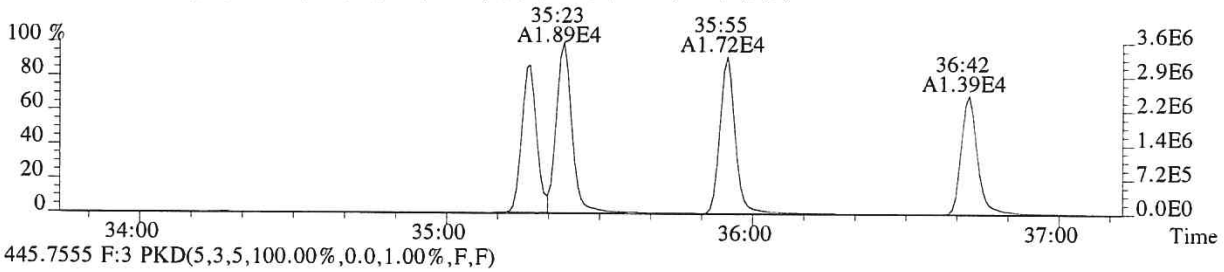
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,552.0,0.40%,F,T)



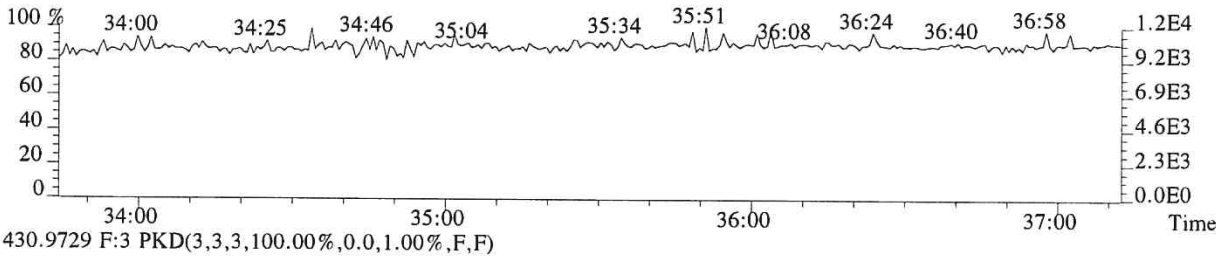
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,912.0,0.40%,F,T)



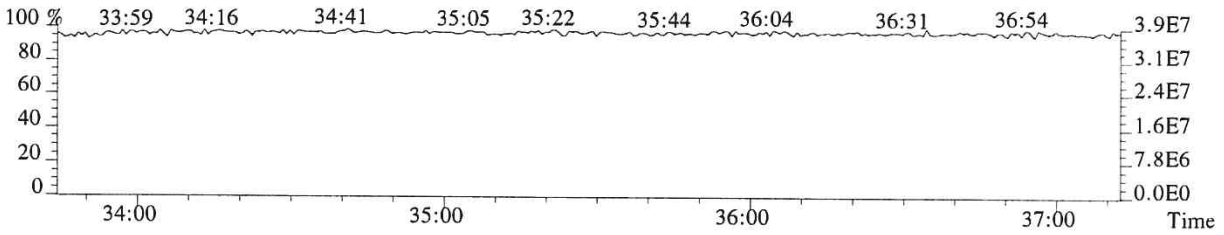
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,956.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

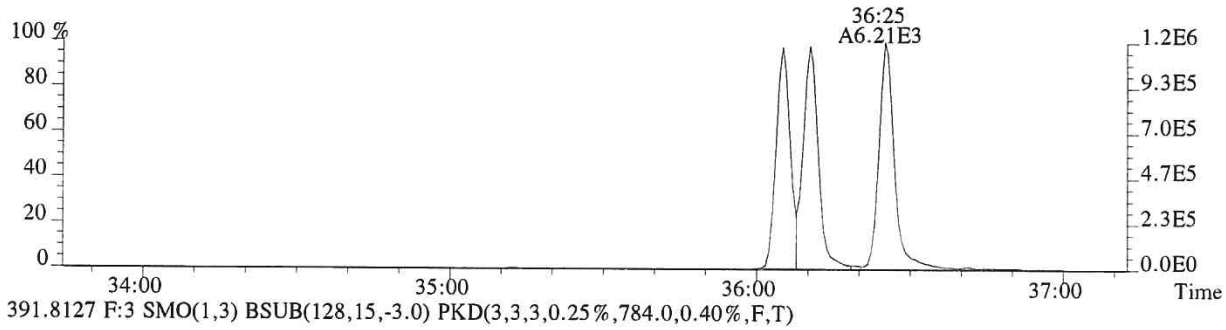


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

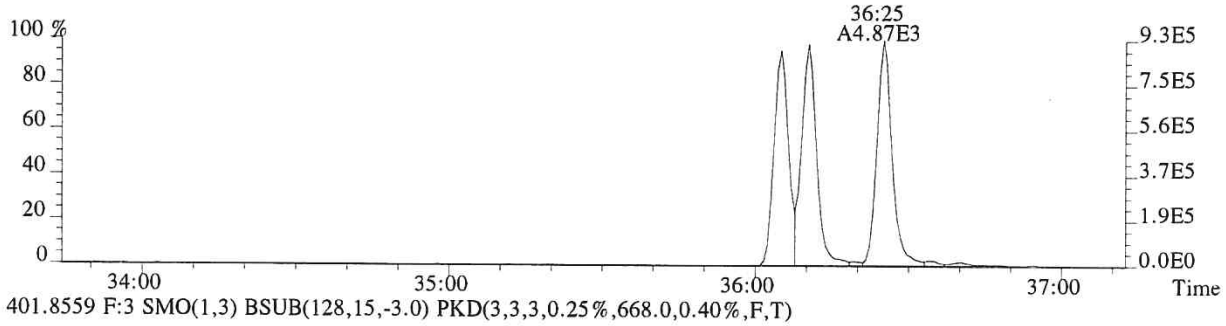


014653

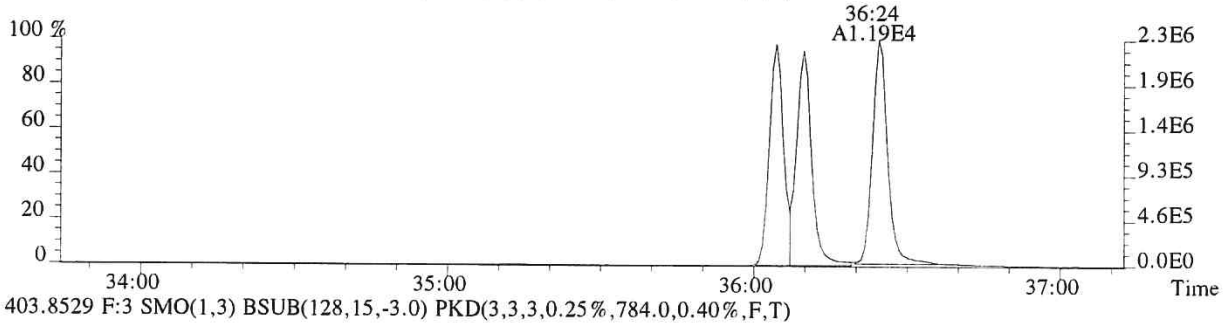
File:P519494 #1-313 Acq:19-DEC-2018 15:32:52 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,348.0,0.40%,F,T)



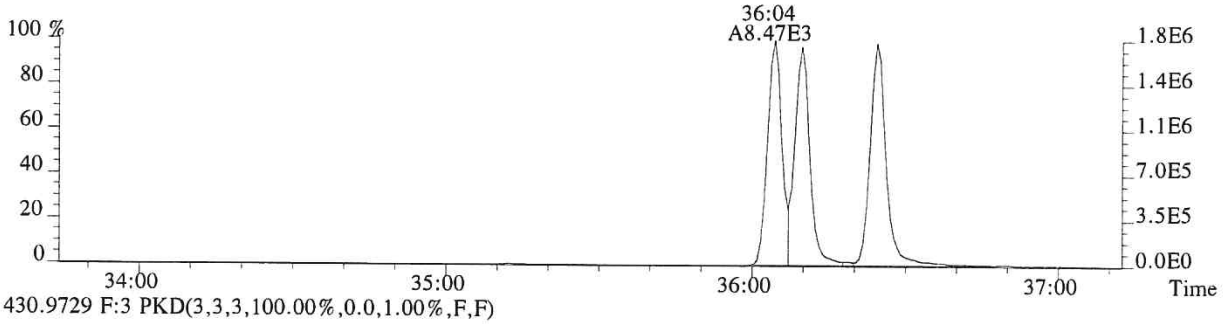
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,784.0,0.40%,F,T)



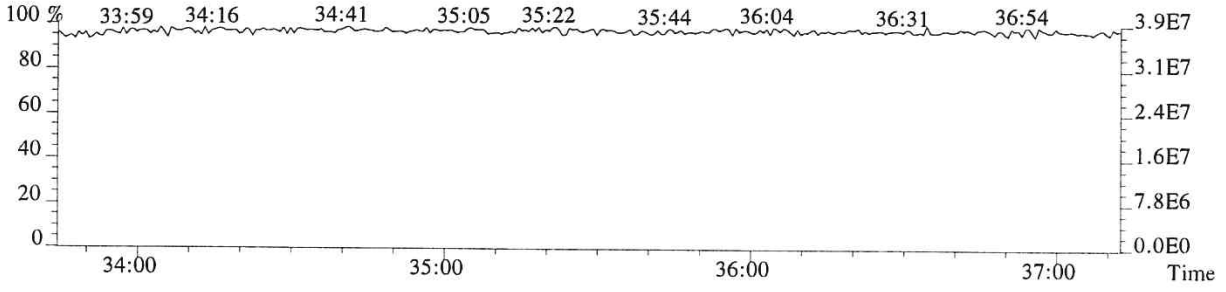
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,668.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,784.0,0.40%,F,T)



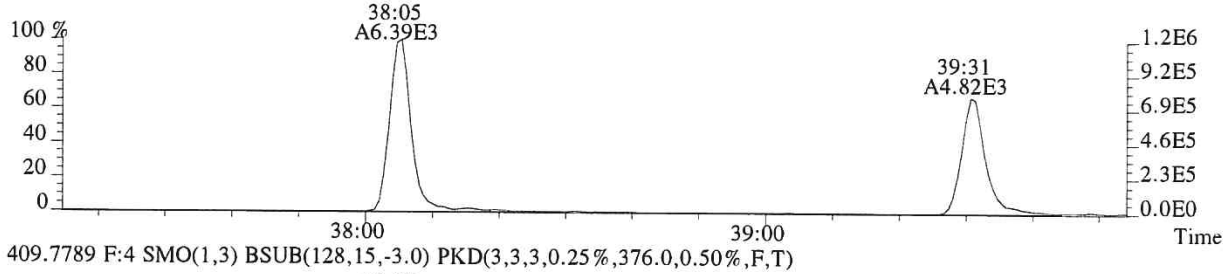
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



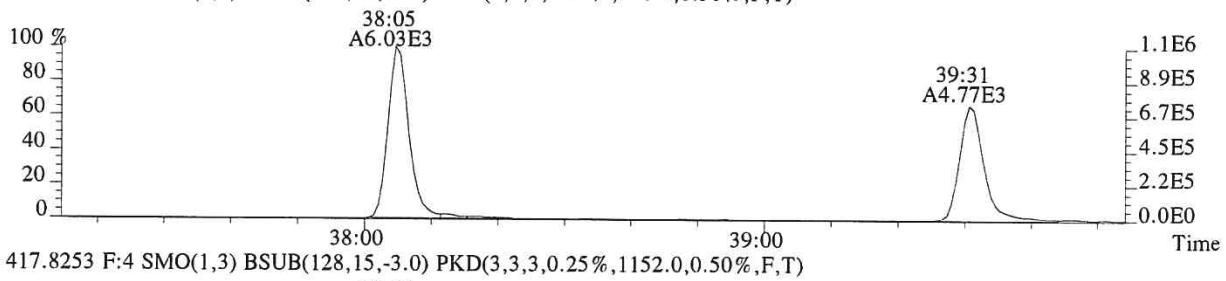
014654

File:P519494 #1-240 Acq:19-DEC-2018 15:32:52 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

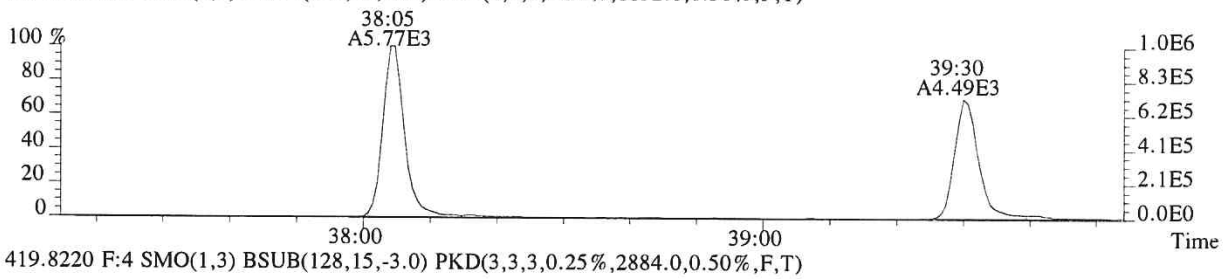
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,696.0,0.50%,F,T)



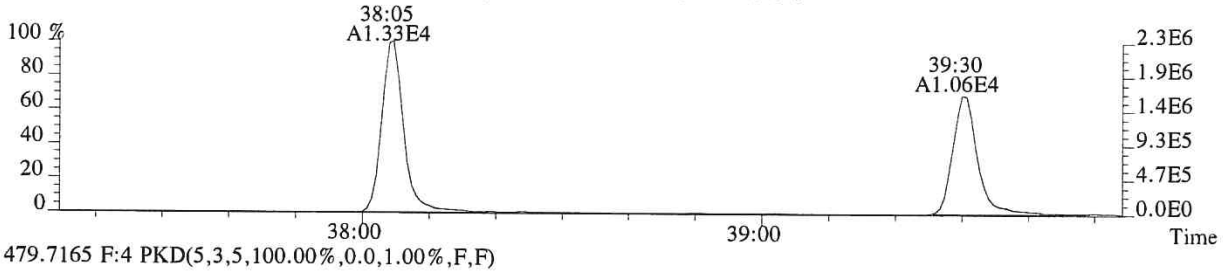
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,376.0,0.50%,F,T)



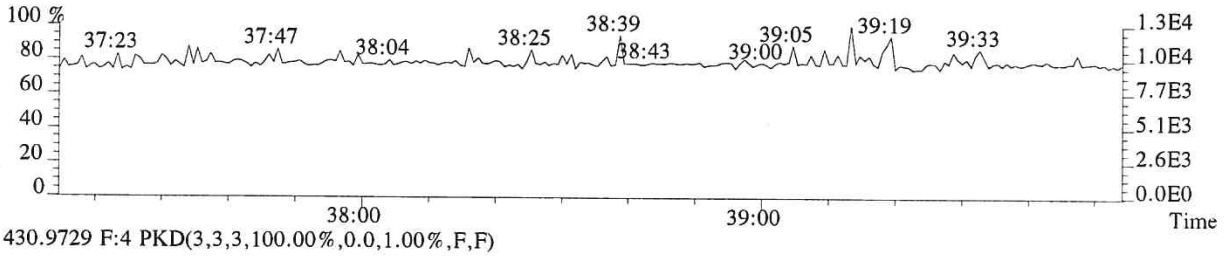
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1152.0,0.50%,F,T)



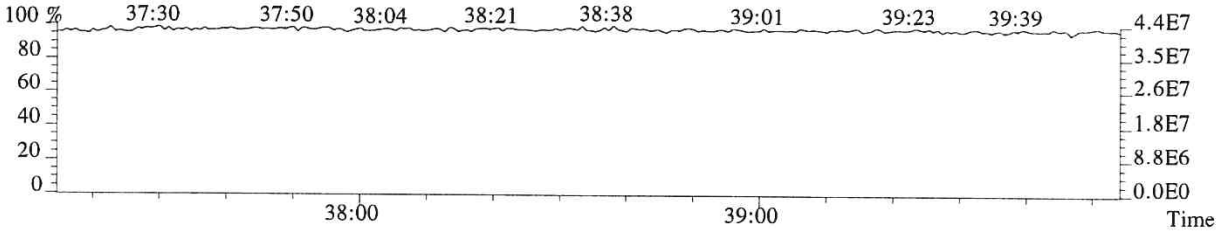
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2884.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

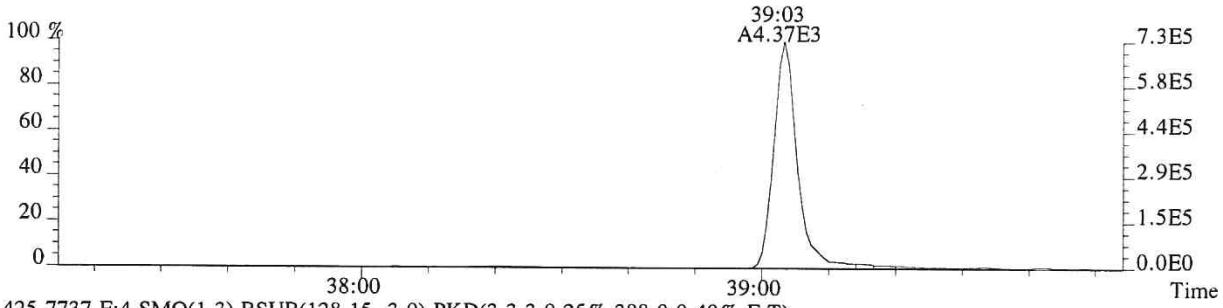


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

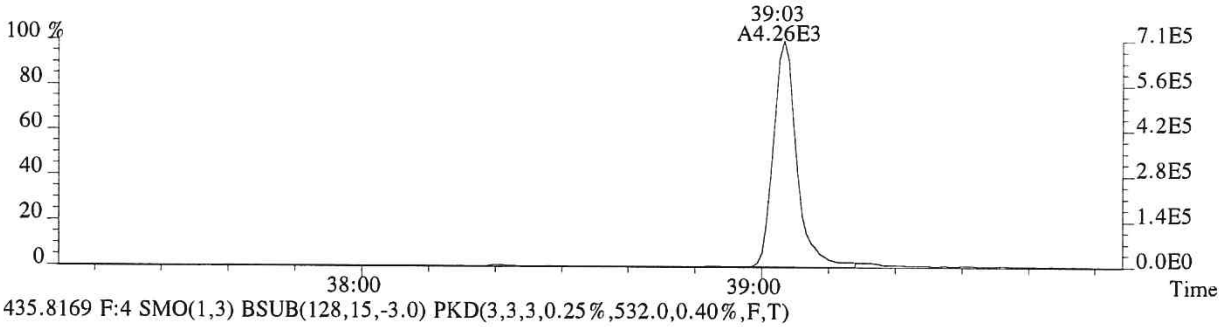


014655

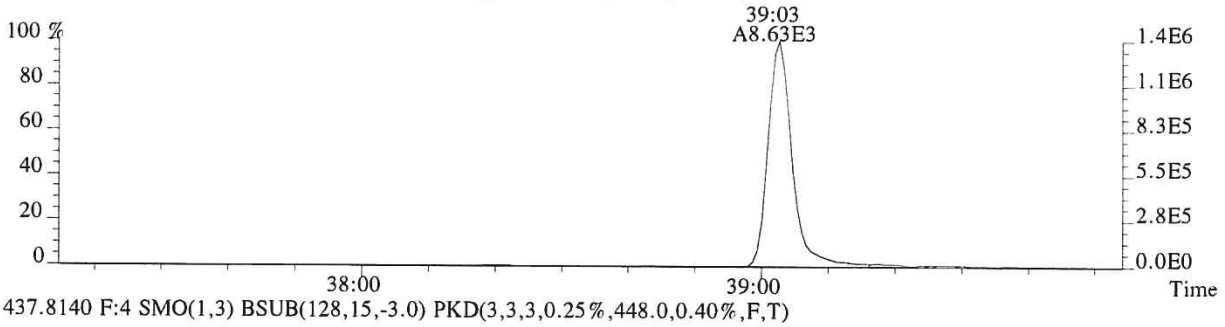
File:P519494 #1-240 Acq:19-DEC-2018 15:32:52 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,532.0,0.40%,F,T)



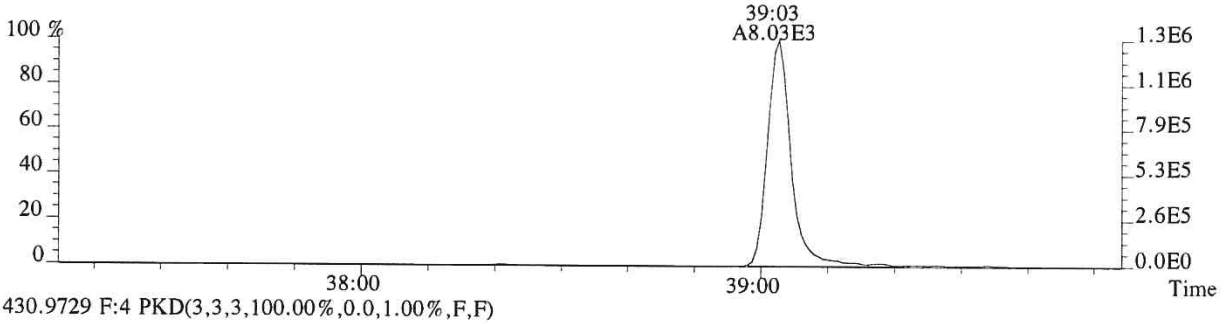
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,388.0,0.40%,F,T)



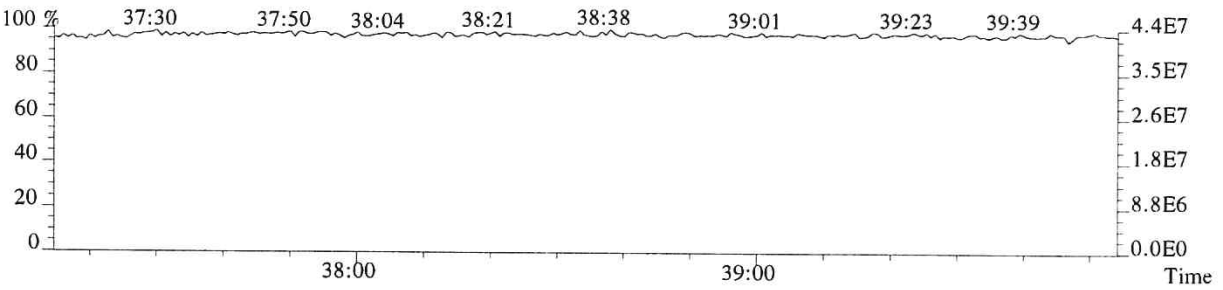
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,532.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,448.0,0.40%,F,T)



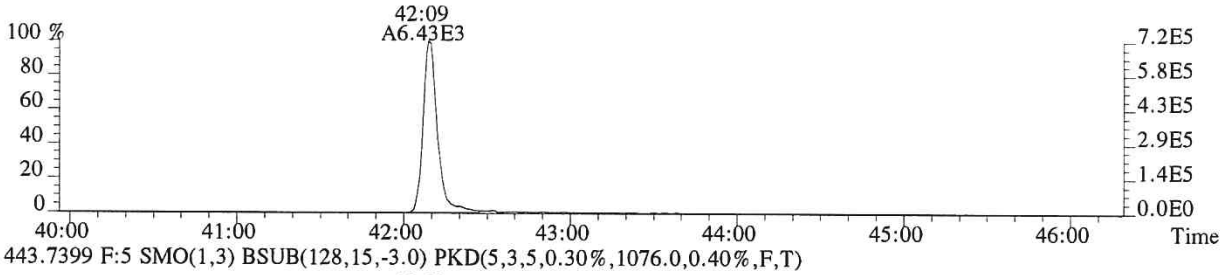
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



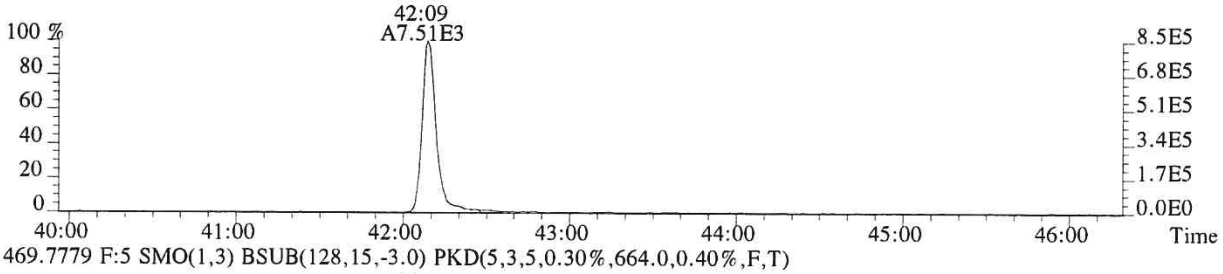
014656

File:P519494 #1-575 Acq:19-DEC-2018 15:32:52 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

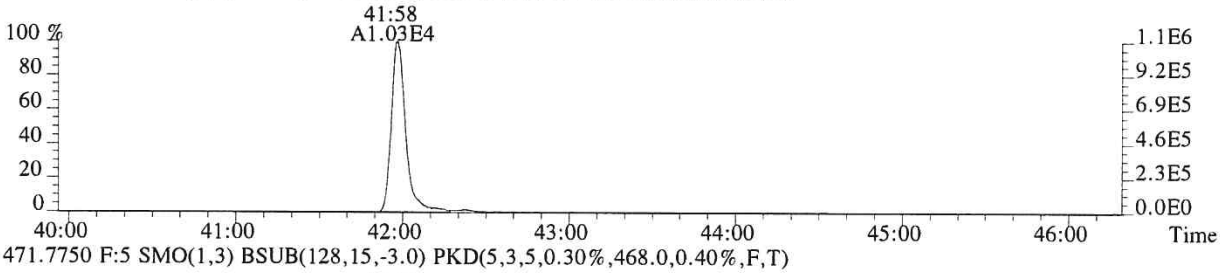
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,424.0,0.40%,F,T)



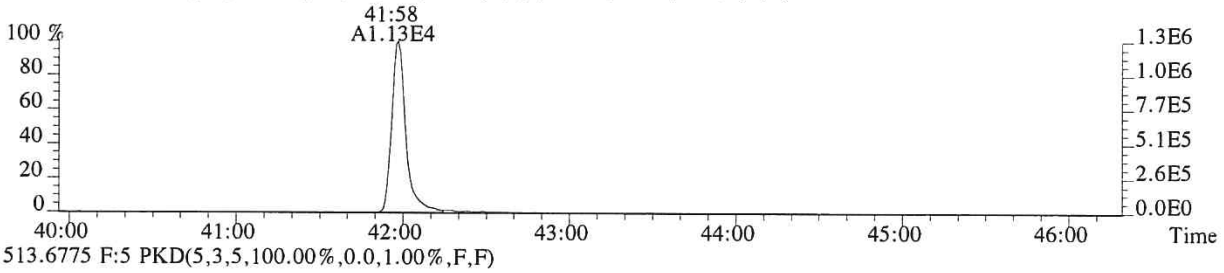
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1076.0,0.40%,F,T)



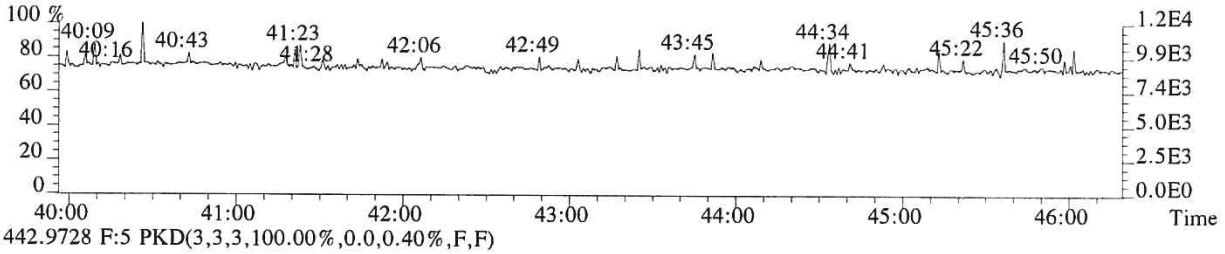
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,664.0,0.40%,F,T)



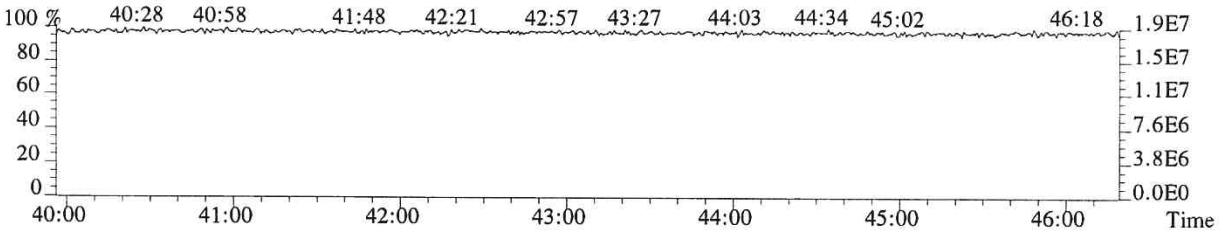
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,468.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

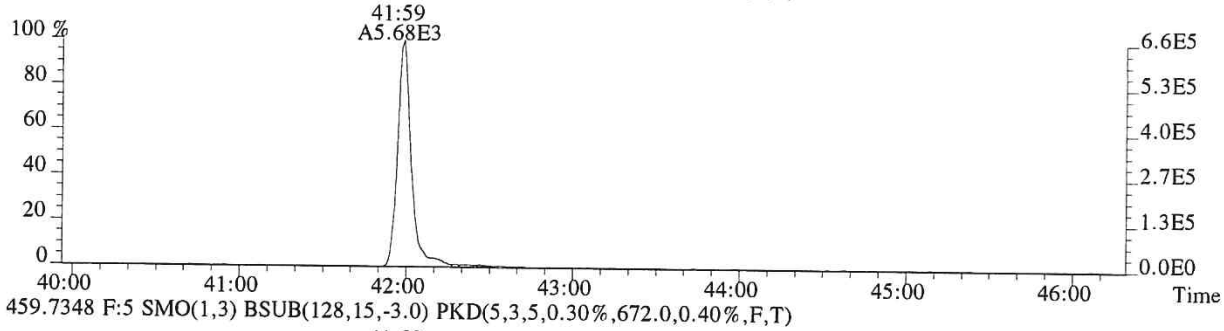


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

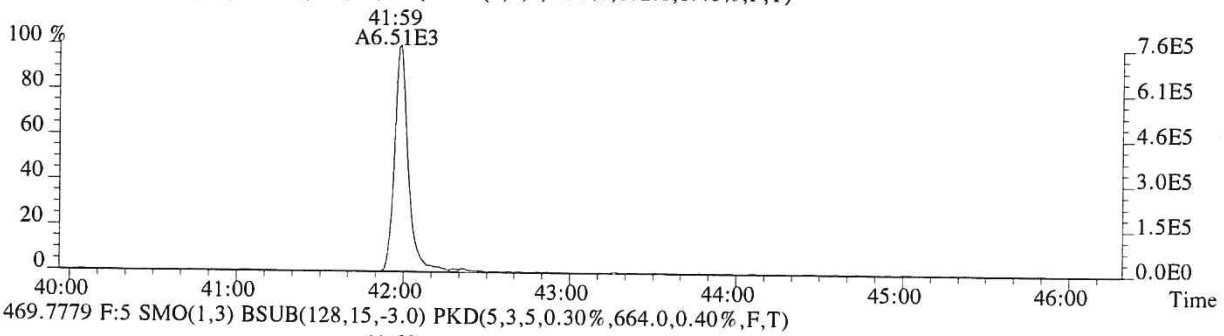


014657

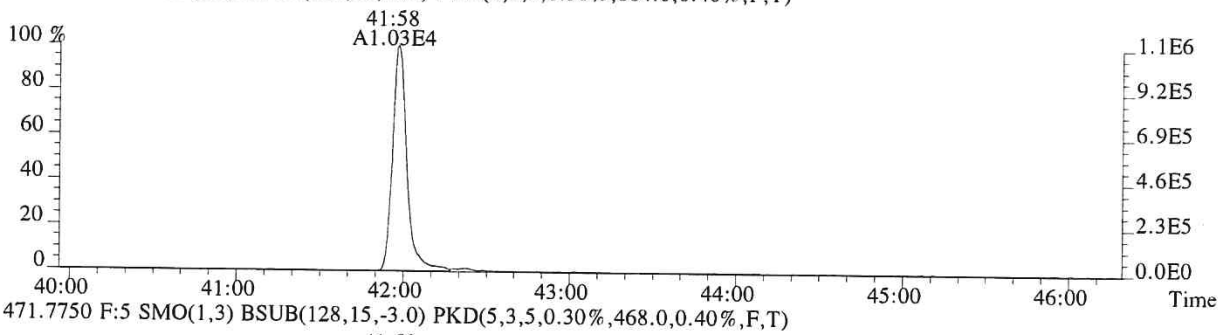
File:P519494 #1-575 Acq:19-DEC-2018 15:32:52 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,384.0,0.40%,F,T)



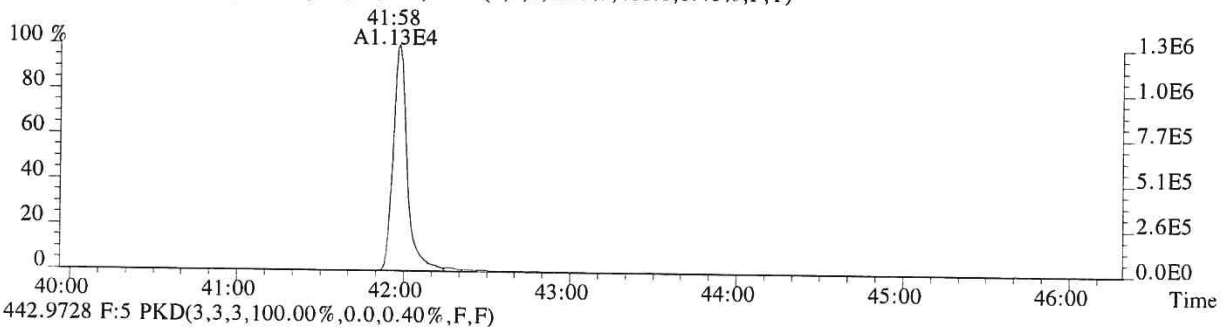
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,672.0,0.40%,F,T)



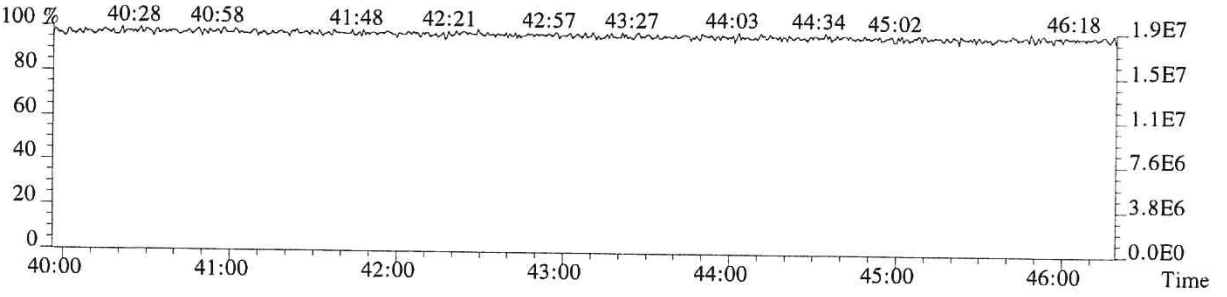
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,664.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,468.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



014658

CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P519519_P519531

Date: 12/20 - 12/21/18

Circle one: (Beginning) / (Ending)

Method: (1613) / 1613E / (8290) / VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	✓	✓

Analyst: LKL

Second QC: [illegible]

ccalqc.xls 07/17/12

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

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
192977	WINDOW DEFINE	P519520	20-DEC-18	16:15:19
194503	CS3	P519519	20-DEC-18	15:17:37
194503	CS3	P519531	21-DEC-18	01:36:42
METHOD BLANK	EQ1800504-01	P519521	20-DEC-18	17:22:54
METHOD BLANK	EQ1800506-01	P519522	20-DEC-18	18:10:40
METHOD BLANK	EQ1800511-01	P519523	20-DEC-18	18:59:20
18125121-01A(TE-CS	E1801091-001	P519524	20-DEC-18	19:47:57
LCS	EQ1800511-02	P519525	20-DEC-18	20:36:35
DLCS	EQ1800511-03	P519526	20-DEC-18	21:25:13
SL0019	E1801093-003DL	P519527	20-DEC-18	22:13:59
SL0020	E1801093-004DL	P519528	20-DEC-18	23:02:36
SL0025	E1801093-008DL	P519529	20-DEC-18	23:51:13
SL0026	E1801093-009DL	P519530	21-DEC-18	00:39:51

Sample List Report — **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20181220A.SPL
Last Modified: Friday, December 21, 2018 08:21:25 Central Standard Time
Printed: Friday, December 21, 2018 08:24:47 Central Standard Time

OPUS 5 NET: P519519 RES

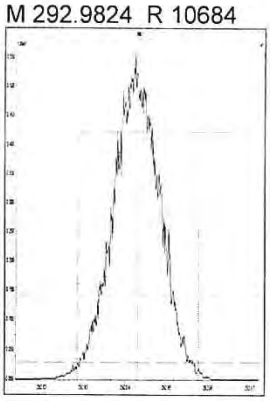
	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	12/20/18	15:17	P519519	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2	IC	HRMS CHECK 14:56
2		16:15	P519520	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:1		
3		17:22	P519521	MB	EQ1800504-01	EPA1613_ALS	Dioxin_ALS	Tray1:3		
4		18:10	P519522	MB	EQ1800506-01	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		18:54	P519523	MB	EQ1800511-01	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		19:47	P519524	E1801091-001	E1801091-001	EPA1613_ALS	Dioxin_ALS	Tray1:6		Needs RR - injection
7		20:36	P519525	LCS	EQ1800511-02	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		21:25	P519526	DLCS	EQ1800511-03	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		22:13	P519527	E1801093-003DL	E1801093-003DL	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		23:02	P519528	E1801093-004DL	E1801093-004DL	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		23:51	P519529	E1801093-008DL	E1801093-008DL	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12	12/21/18	00:39	P519530	E1801093-009DL	E1801093-009DL	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13	↓	01:36	P519531	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2	↓	HRMS CHECK 01:36

LKL 12/21/18

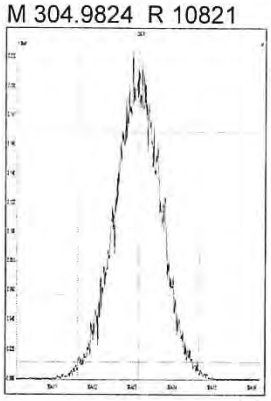
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Thursday, December 20, 2018 14:56:59 Central Standard Time

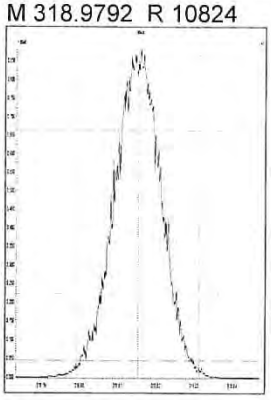
M 292.9824 R 10684



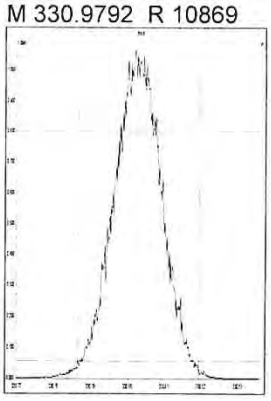
M 304.9824 R 10821



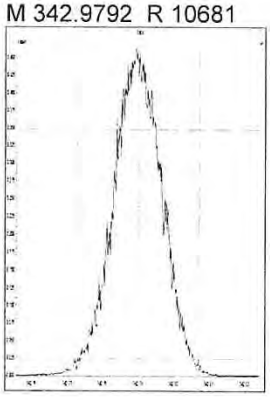
M 318.9792 R 10824



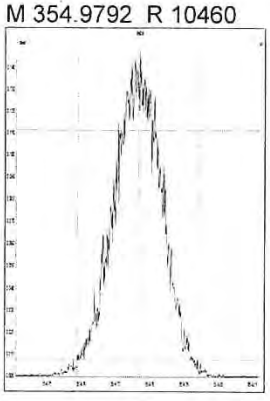
M 330.9792 R 10869



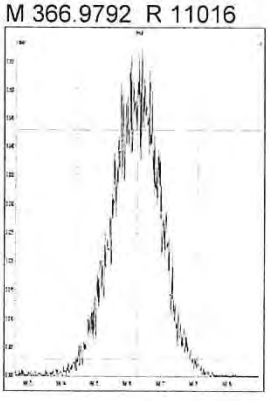
M 342.9792 R 10681



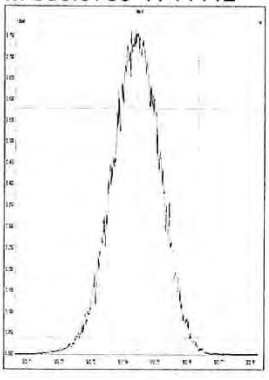
M 354.9792 R 10460



M 366.9792 R 11016



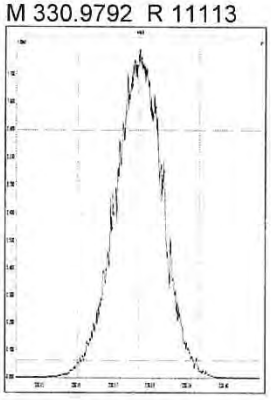
M 380.9760 R 11112



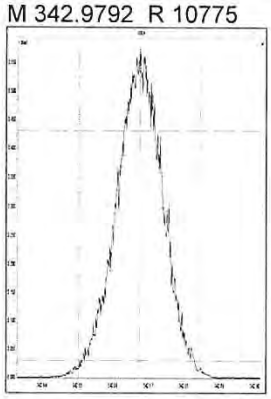
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Thursday, December 20, 2018 14:58:03 Central Standard Time

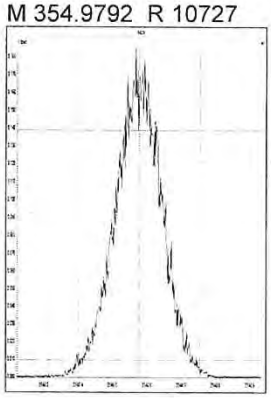
M 330.9792 R 11113



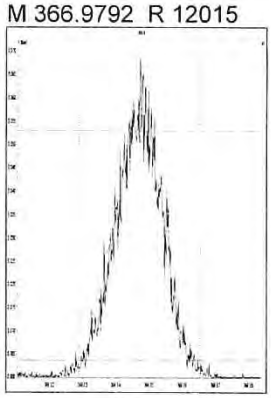
M 342.9792 R 10775



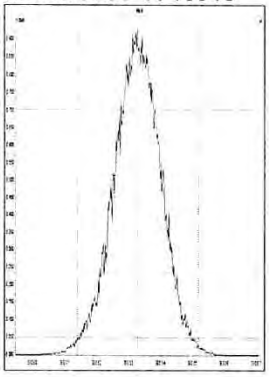
M 354.9792 R 10727



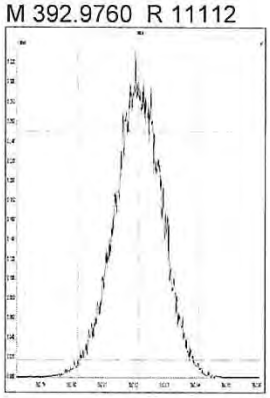
M 366.9792 R 12015



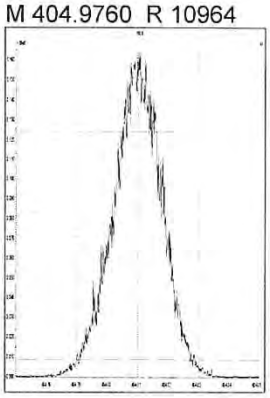
M 380.9760 R 10916



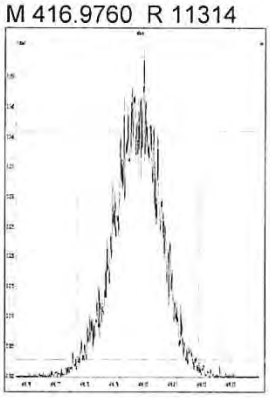
M 392.9760 R 11112



M 404.9760 R 10964



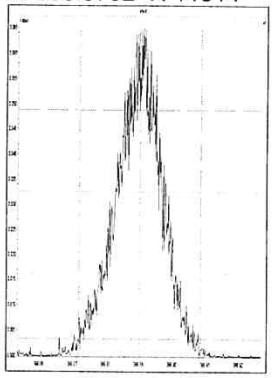
M 416.9760 R 11314



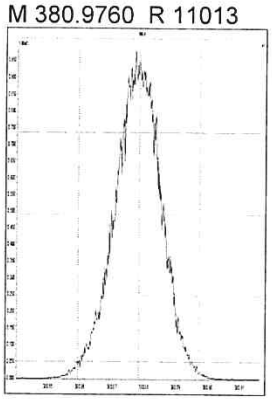
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Thursday, December 20, 2018 14:58:56 Central Standard Time

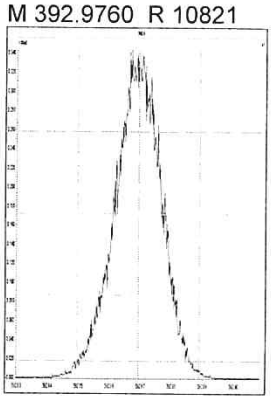
M 366.9792 R 11314



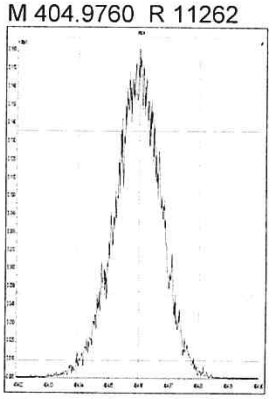
M 380.9760 R 11013



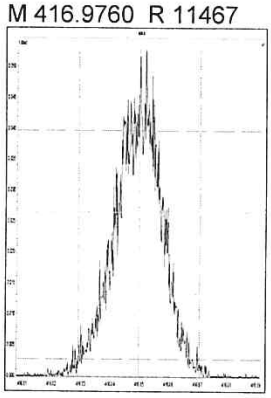
M 392.9760 R 10821



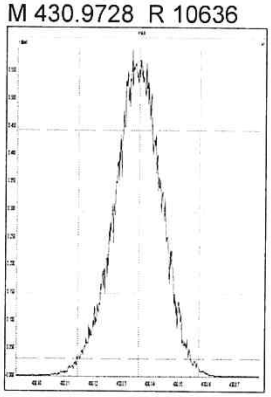
M 404.9760 R 11262



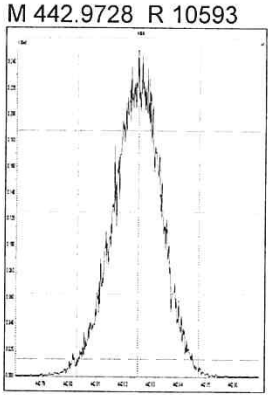
M 416.9760 R 11467



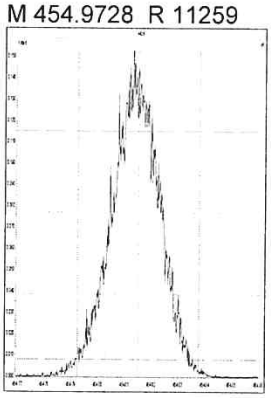
M 430.9728 R 10636



M 442.9728 R 10593



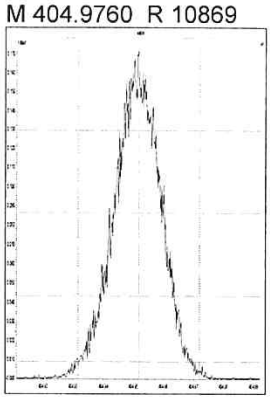
M 454.9728 R 11259



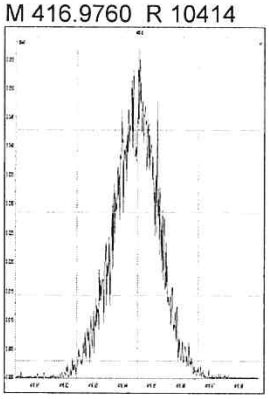
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Thursday, December 20, 2018 15:00:03 Central Standard Time

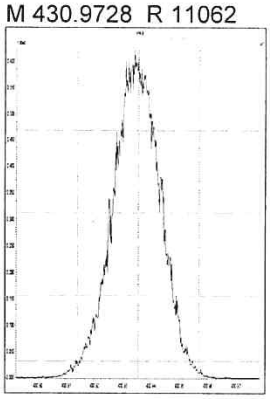
M 404.9760 R 10869



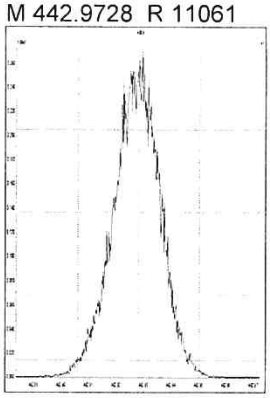
M 416.9760 R 10414



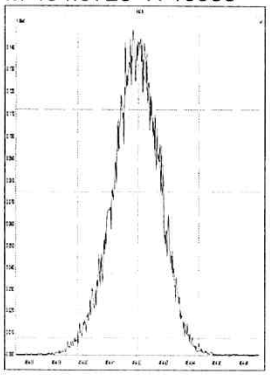
M 430.9728 R 11062



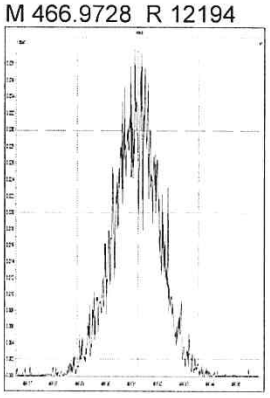
M 442.9728 R 11061



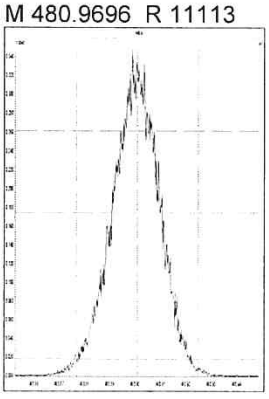
M 454.9728 R 10966



M 466.9728 R 12194



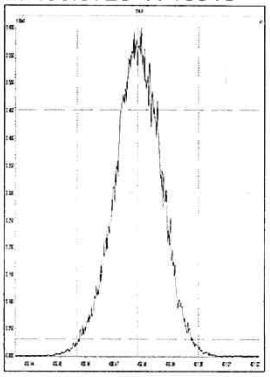
M 480.9696 R 11113



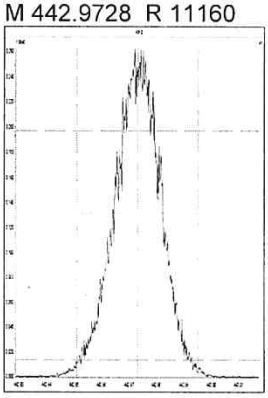
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Thursday, December 20, 2018 15:00:54 Central Standard Time

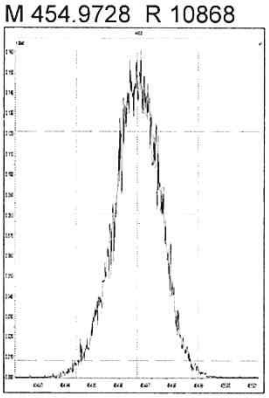
M 430.9728 R 10918



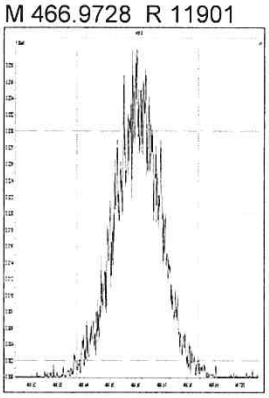
M 442.9728 R 11160



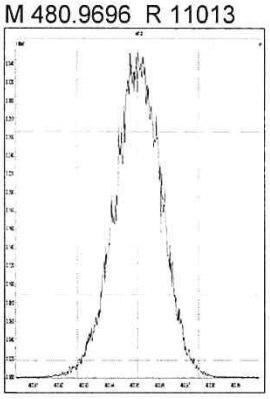
M 454.9728 R 10868



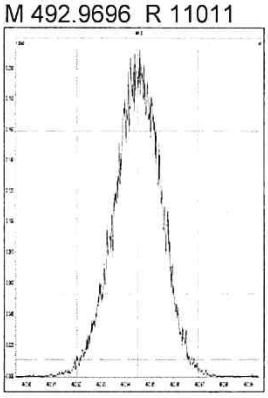
M 466.9728 R 11901



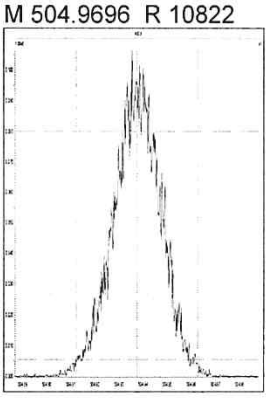
M 480.9696 R 11013



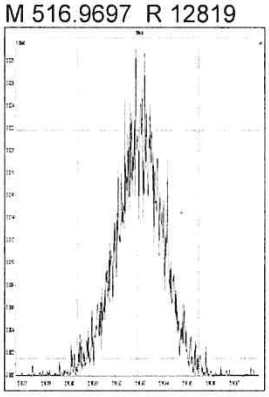
M 492.9696 R 11011



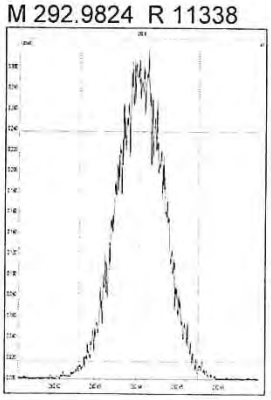
M 504.9696 R 10822



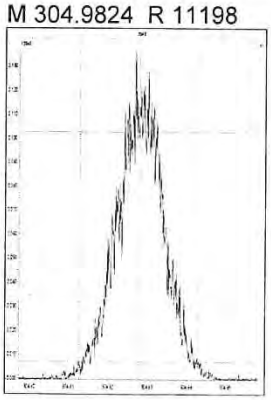
M 516.9697 R 12819



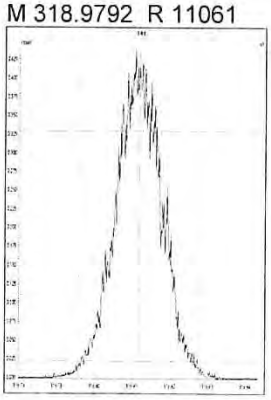
M 292.9824 R 11338



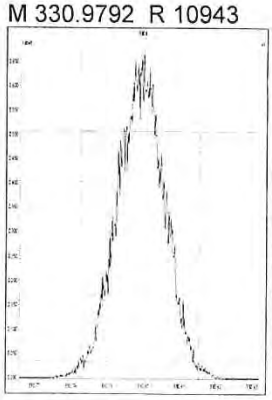
M 304.9824 R 11198



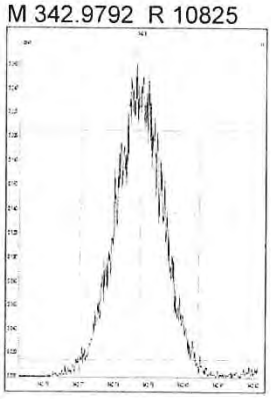
M 318.9792 R 11061



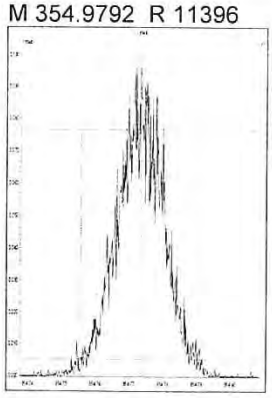
M 330.9792 R 10943



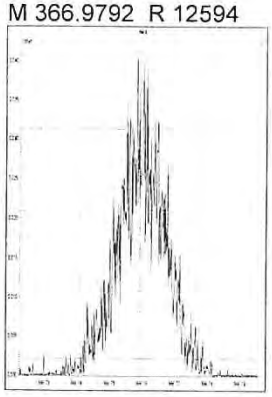
M 342.9792 R 10825



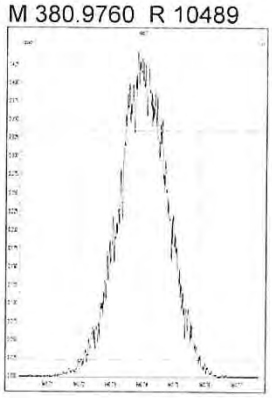
M 354.9792 R 11396



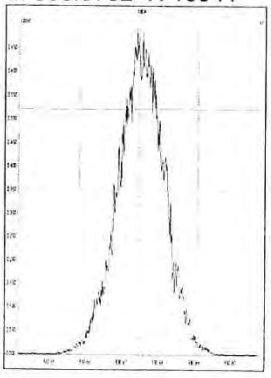
M 366.9792 R 12594



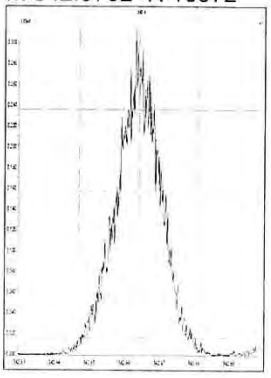
M 380.9760 R 10489



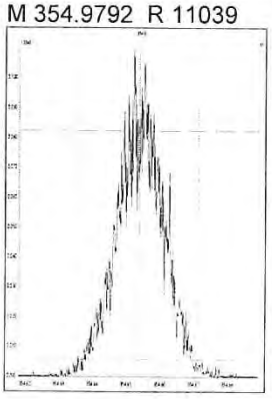
M 330.9792 R 10941



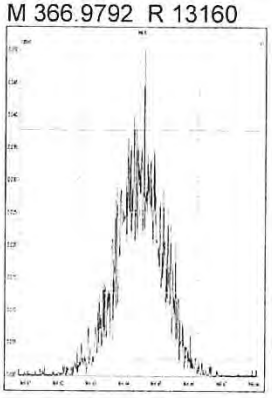
M 342.9792 R 10972



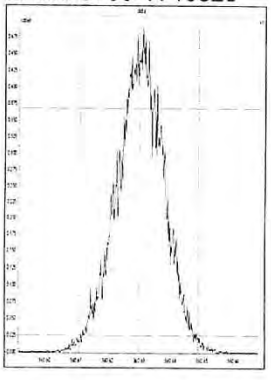
M 354.9792 R 11039



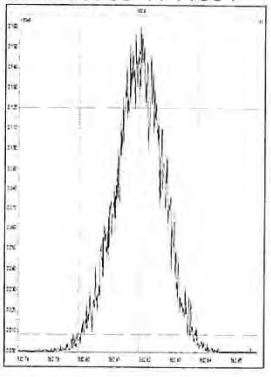
M 366.9792 R 13160



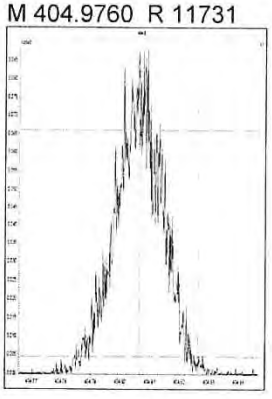
M 380.9760 R 10823



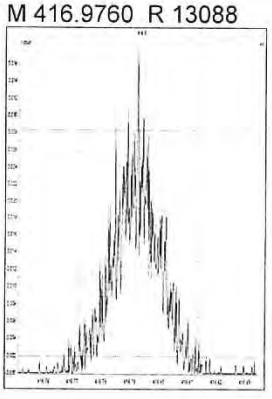
M 392.9760 R 11004



M 404.9760 R 11731

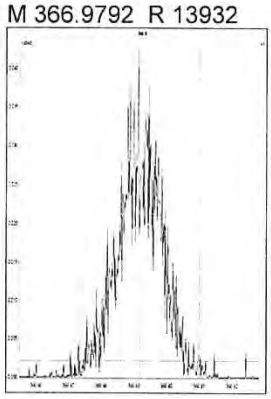


M 416.9760 R 13088

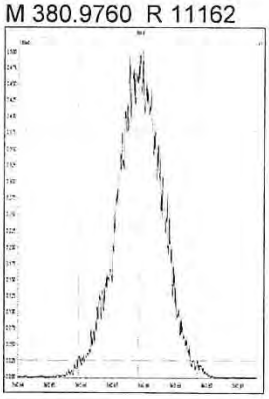


014667

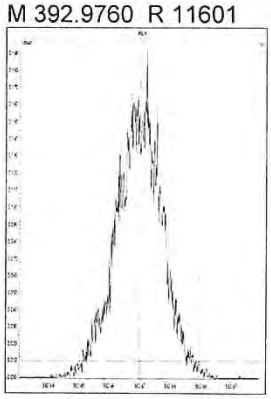
M 366.9792 R 13932



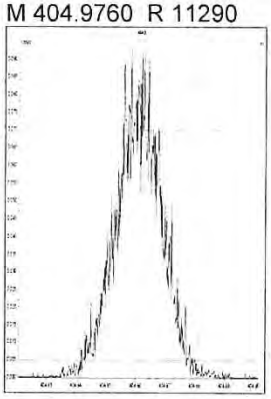
M 380.9760 R 11162



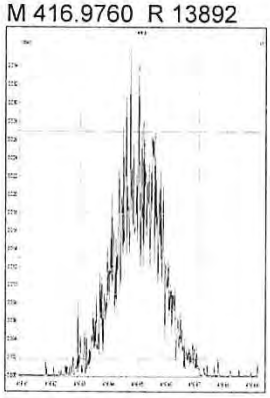
M 392.9760 R 11601



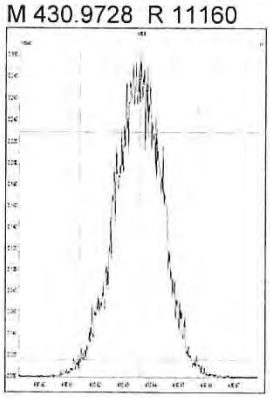
M 404.9760 R 11290



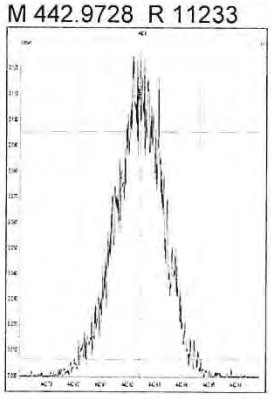
M 416.9760 R 13892



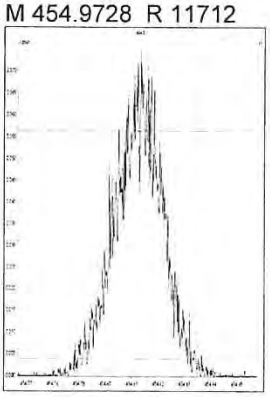
M 430.9728 R 11160



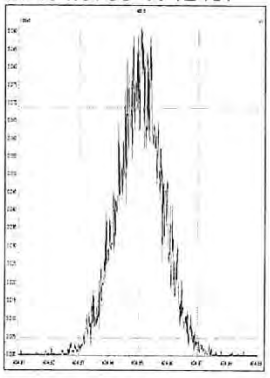
M 442.9728 R 11233



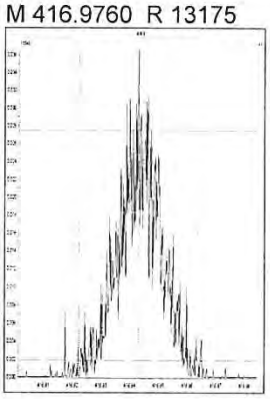
M 454.9728 R 11712



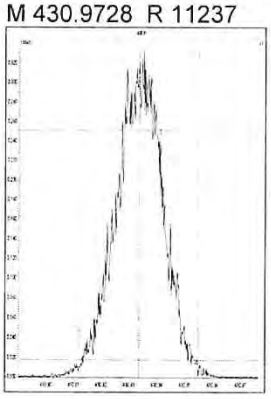
M 404.9760 R 12407



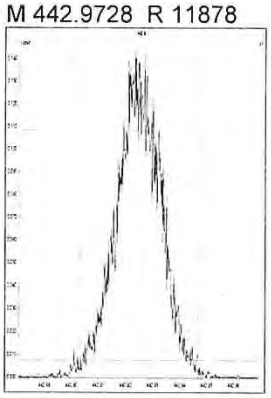
M 416.9760 R 13175



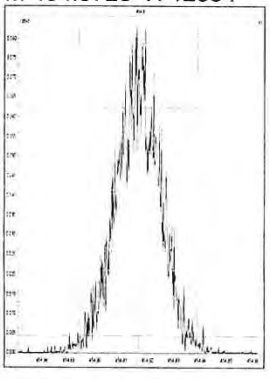
M 430.9728 R 11237



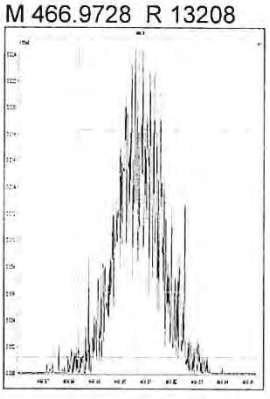
M 442.9728 R 11878



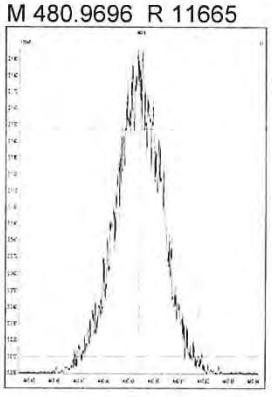
M 454.9728 R 12664



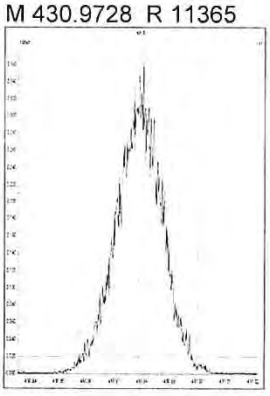
M 466.9728 R 13208



M 480.9696 R 11665

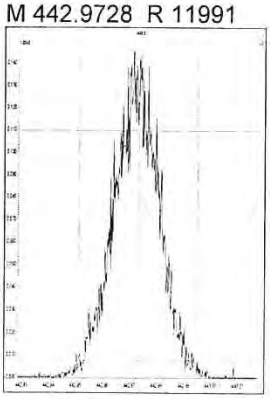


M 430.9728 R 11365

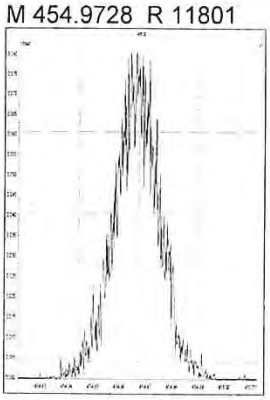


014668

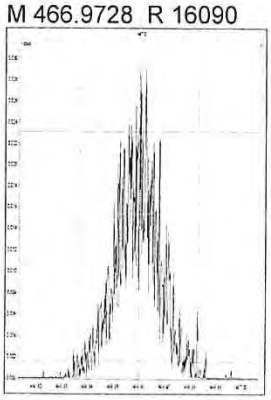
M 442.9728 R 11991



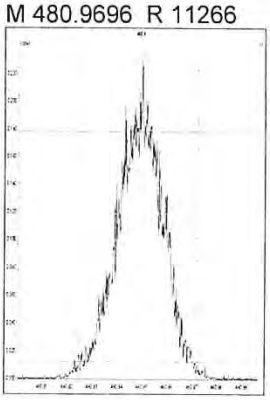
M 454.9728 R 11801



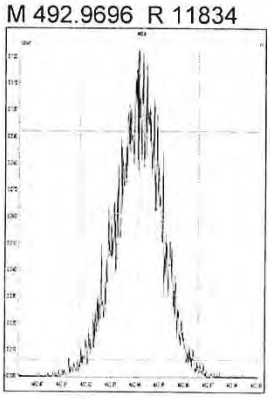
M 466.9728 R 16090



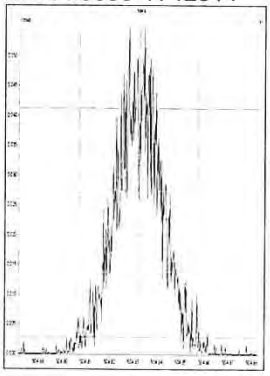
M 480.9696 R 11266



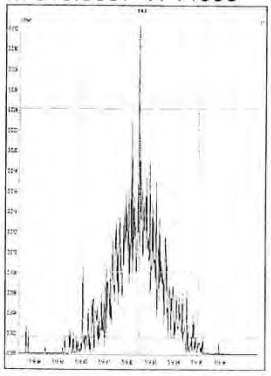
M 492.9696 R 11834



M 504.9696 R 12914



M 516.9697 R 14063



WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

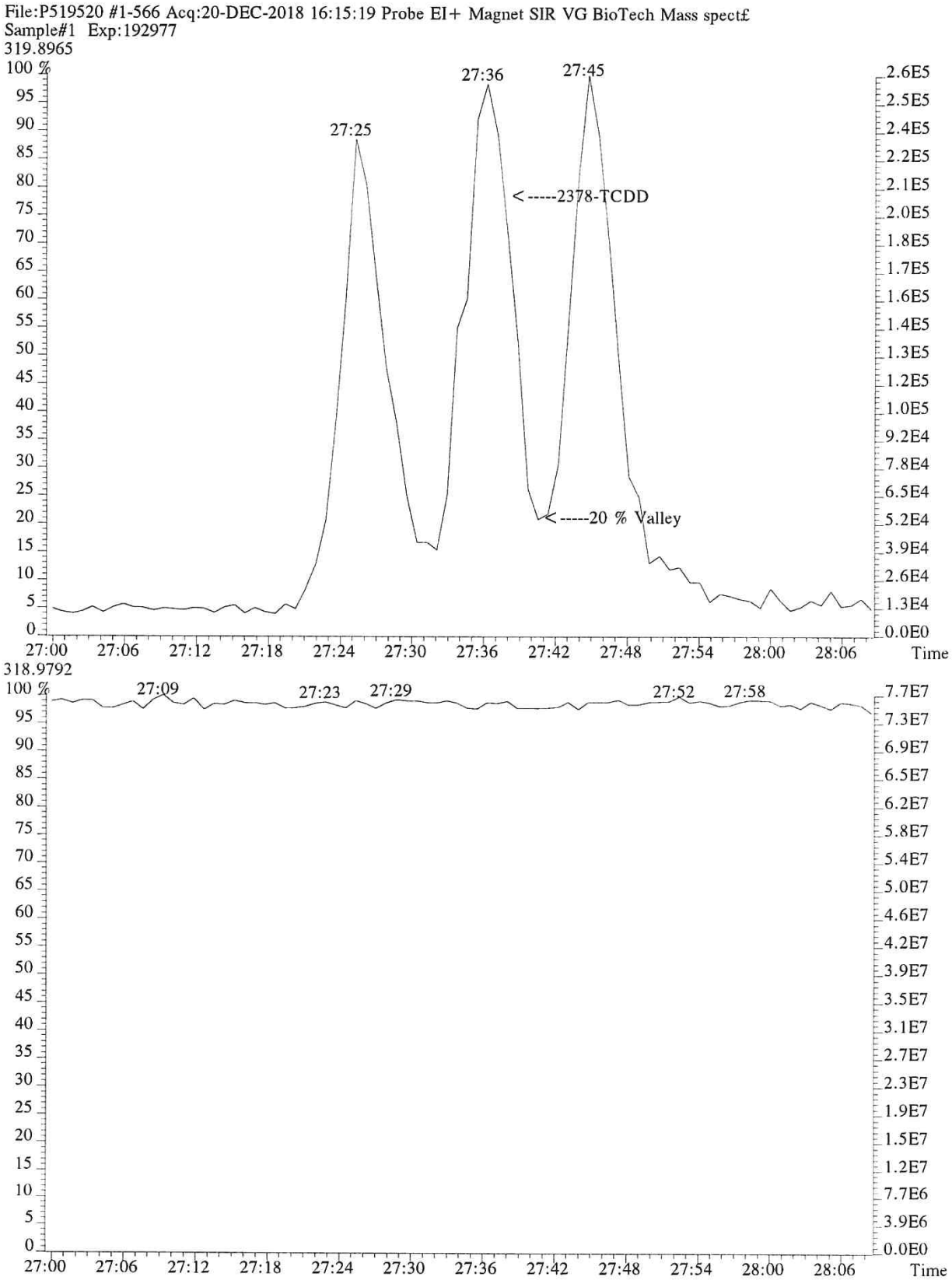
Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

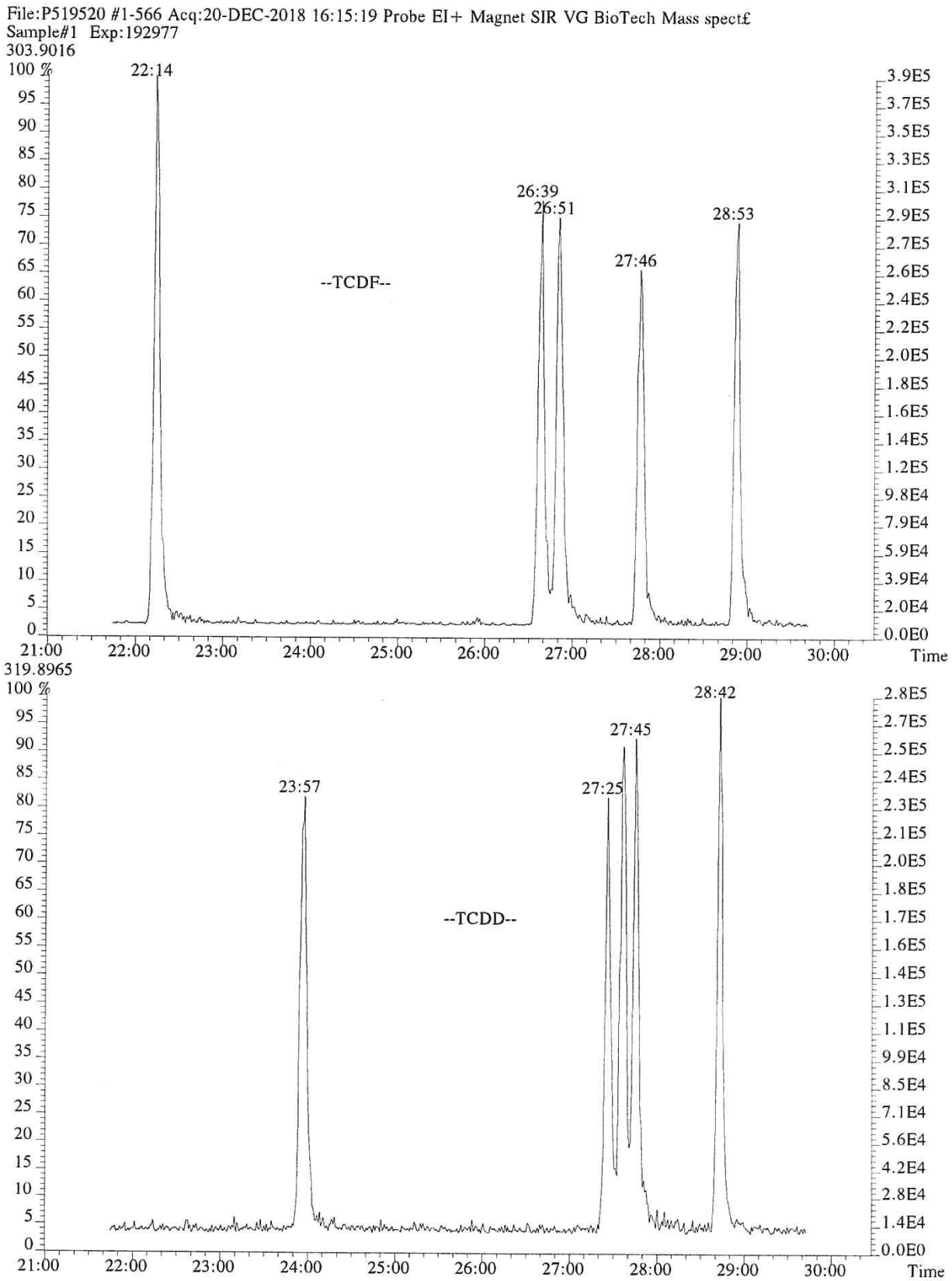
Case No.: _____ SDG No.:
ID: 0.25 (mm)
Lab File ID: P519520
Date Analyzed: 20-DEC-18
Time Analyzed: 16:15:19

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	22:14	28:53
TCDD	23:57	28:42
PeCDF	28:52	33:25
PeCDD	30:31	33:09
HxCDF	34:08	36:46
HxCDD	34:41	36:22
HpCDF	38:08	39:34
HpCDD	38:23	39:05

% Valley 2378-TCDD: 20 %

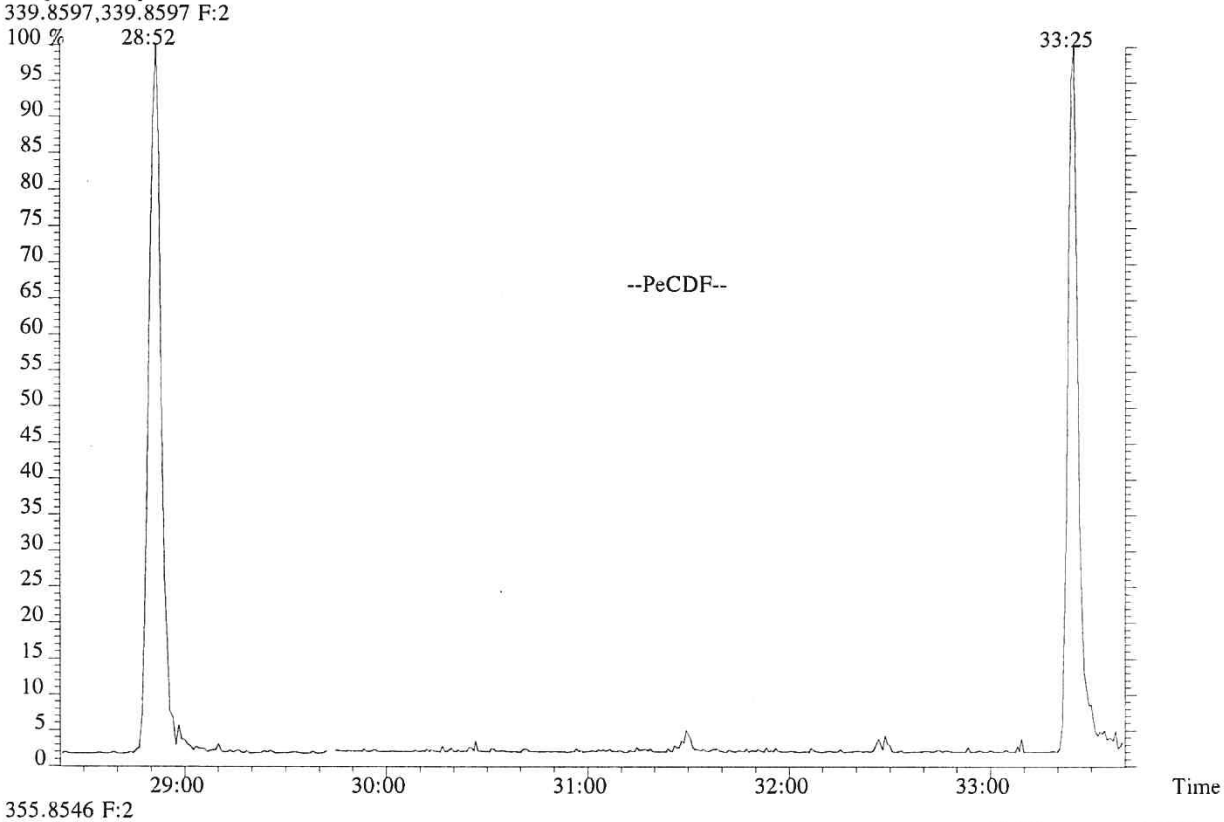
014670


File:P519520 #1-566 Acq:20-DEC-2018 16:15:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
319.8965
27:25
27:36
27:45
<-----2378-TCDD
<-----20 % Valley
Time
318.9792
27:09
27:23
27:29
27:52
27:58
Time

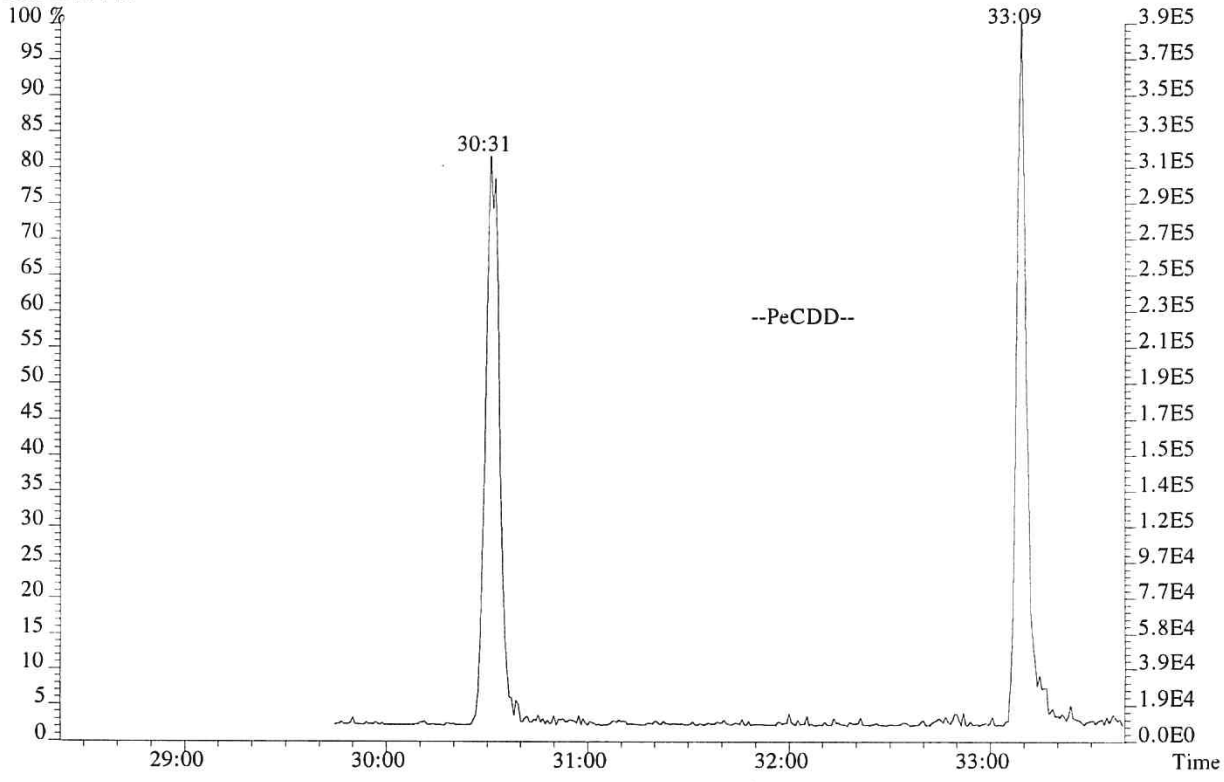

File:P519520 #1-566 Acq:20-DEC-2018 16:15:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
303.9016
100 %
22:14
26:39
26:51
28:53
27:46
--TCDF--
3.9E5
3.7E5
3.5E5
3.3E5
3.1E5
2.9E5
2.7E5
2.6E5
2.4E5
2.2E5
2.0E5
1.8E5
1.6E5
1.4E5
1.2E5
9.8E4
7.9E4
5.9E4
3.9E4
2.0E4
0.0E0
21:00
22:00
23:00
24:00
25:00
26:00
27:00
28:00
29:00
30:00
Time
319.8965
100 %
28:42
27:45
23:57
27:25
--TCDD--
2.8E5
2.7E5
2.5E5
2.4E5
2.3E5
2.1E5
2.0E5
1.8E5
1.7E5
1.6E5
1.4E5
1.3E5
1.1E5
9.9E4
8.5E4
7.1E4
5.6E4
4.2E4
2.8E4
1.4E4
0.0E0
21:00
22:00
23:00
24:00
25:00
26:00
27:00
28:00
29:00
30:00
Time

014672

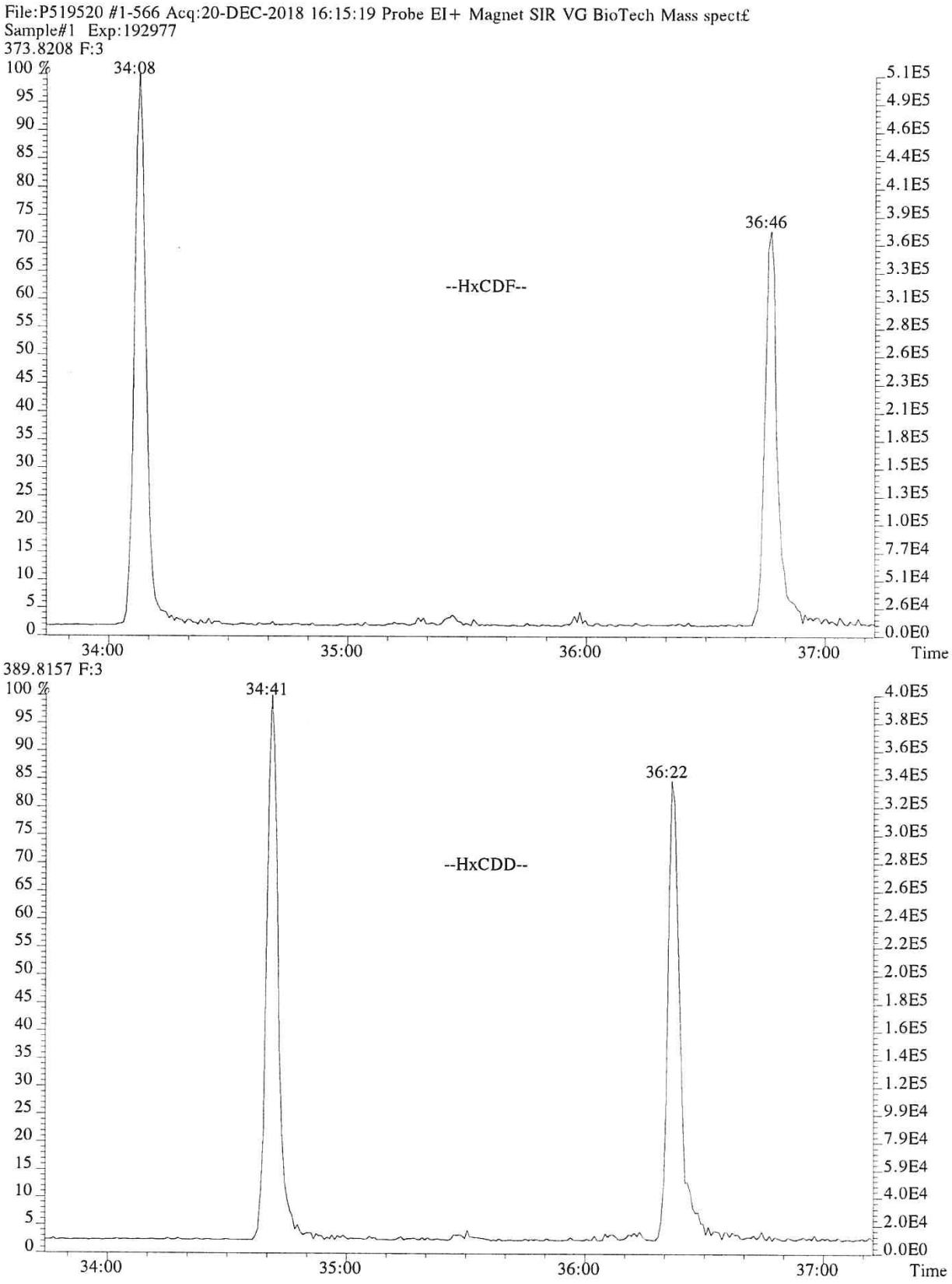
File:P519520 #1-566 Acq:20-DEC-2018 16:15:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
339.8597,339.8597 F:2



355.8546 F:2

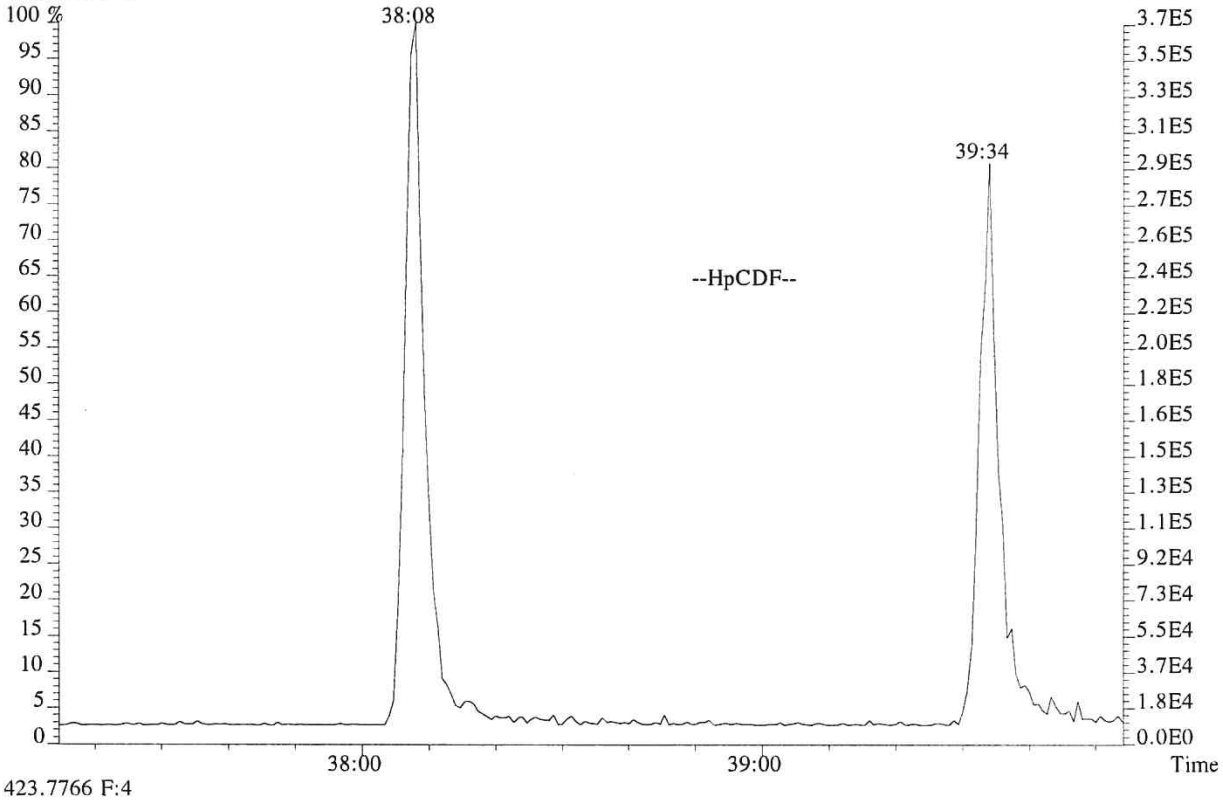


014673

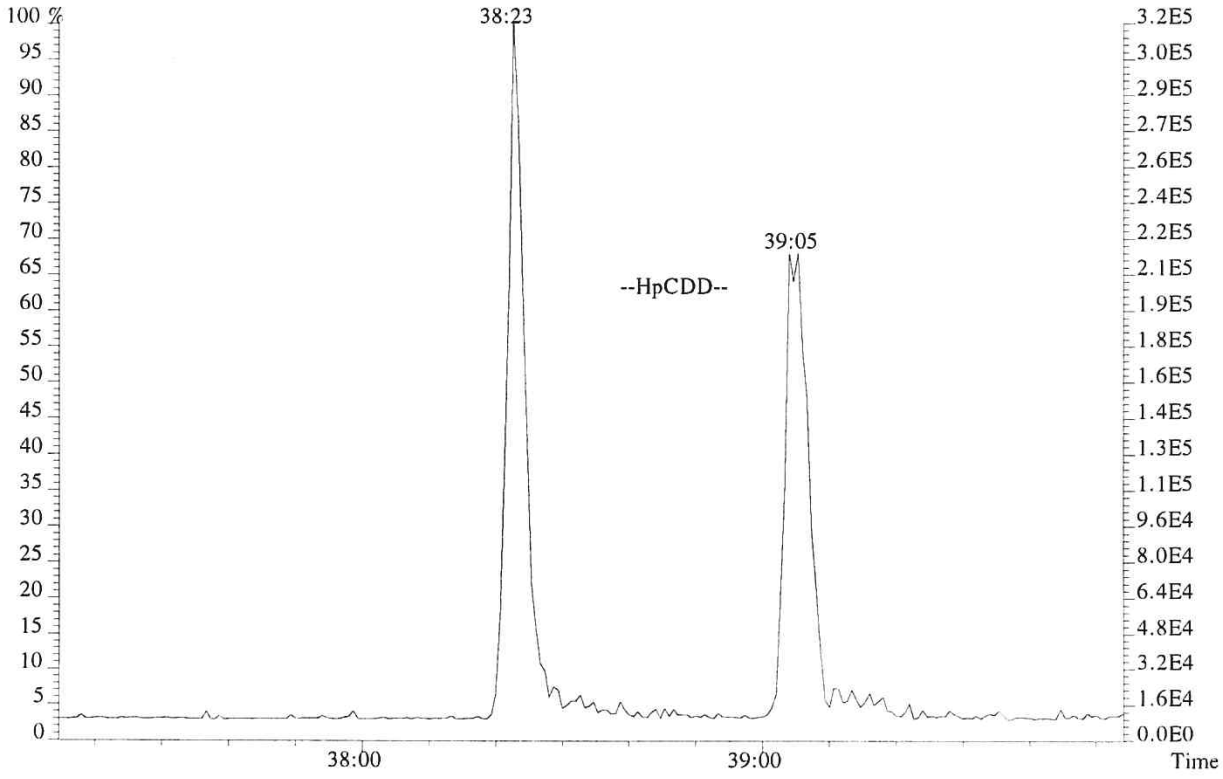

File:P519520 #1-566 Acq:20-DEC-2018 16:15:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
373.8208 F:3
34:08
36:46
--HxCDF--
389.8157 F:3
34:41
36:22
--HxCDD--
Time

014674

File:P519520 #1-566 Acq:20-DEC-2018 16:15:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
407.7818 F:4



423.7766 F:4



014675

USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519519 Analysis Date: 20-DEC-18 Time: 15:17:37

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	10.0	7.8 - 12.9	-0.5
1,2,3,7,8-PeCDD	M+2/M+4	1.55	1.32-1.78	49	39 - 65	-1.4
1,2,3,4,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	50	39 - 64	0.2
1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	50	39 - 64	-0.2
1,2,3,7,8,9-HxCDD	M+2/M+4	1.31	1.05-1.43	51	41 - 61	2.1
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.00	0.88-1.20	50	43 - 58	0.3
OCDD	M+2/M+4	0.91	0.76-1.02	101	79 - 126	1.2
2,3,7,8-TCDF	M/M+2	0.75	0.65-0.89	9.9	8.4 - 12.0	-1.0
1,2,3,7,8-PeCDF	M+2/M+4	1.52	1.32-1.78	48	41 - 60	-3.5
2,3,4,7,8-PeCDF	M+2/M+4	1.50	1.32-1.78	49	41 - 61	-1.0
1,2,3,4,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	50	45 - 56	-0.4
1,2,3,6,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	50	44 - 57	-1.0
1,2,3,7,8,9-HxCDF	M+2/M+4	1.14	1.05-1.43	51	45 - 56	2.0
2,3,4,6,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	50	44 - 57	0.3
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.02	0.88-1.20	49	45 - 55	-2.4
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.04	0.88-1.20	49	43 - 58	-1.2
OCDF	M+2/M+4	0.87	0.76-1.02	96	63 - 159	-3.8

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519519 Analysis Date: 20-DEC-18 Time: 15:17:37

LABELED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
13C-2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	100	82 - 121	0.3
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.61	1.32-1.78	109	62 - 160	9.5
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	94	85 - 117	-6.3
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	101	85 - 118	0.8
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.08	0.88-1.20	99	72 - 138	-1.4
13C-OCDD	M+2/M+4	0.87	0.76-1.02	223	96 - 415	11.4
13C-2,3,7,8-TCDF	M/M+2	0.78	0.65-0.89	92	71 - 140	-8.3
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.62	1.32-1.78	105	76 - 130	5.0
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	104	77 - 130	3.6
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.51	0.43-0.59	89	76 - 131	-10.7
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	93	70 - 143	-6.6
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.51	0.43-0.59	89	74 - 135	-11.4
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.51	0.43-0.59	94	73 - 137	-5.9
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	95	78 - 129	-4.7
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	94	77 - 129	-6.1
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD	M+2/M+4			9.9	7.8 - 12.7	-1.4

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #7 Filename P519519 Samp: 1 Inj: 1 Acquired: 20-DEC-18 15:17:37
Processed: 21-DEC-18 10:04:29 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:52	1.486e+03	1.983e+03	0.75	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	31:29	1.221e+04	8.041e+03	1.52	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	32:27	1.153e+04	7.667e+03	1.50	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:18	9.641e+03	7.975e+03	1.21	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:25	1.076e+04	8.814e+03	1.22	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:57	9.818e+03	7.934e+03	1.24	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	36:44	8.065e+03	7.080e+03	1.14	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:07	8.281e+03	8.089e+03	1.02	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:33	6.584e+03	6.312e+03	1.04	yes	no	1.258
10	Unk	OCDF	42:14	1.063e+04	1.222e+04	0.87	yes	no	1.359
11	Unk	2,3,7,8-TCDD	27:46	1.181e+03	1.502e+03	0.79	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	32:46	8.200e+03	5.297e+03	1.55	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:06	6.800e+03	5.352e+03	1.27	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:12	7.472e+03	5.894e+03	1.27	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:27	7.559e+03	5.786e+03	1.31	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:05	5.852e+03	5.874e+03	1.00	yes	no	1.025
17	Unk	OCDD	42:03	9.448e+03	1.034e+04	0.91	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	26:50	1.636e+04	2.085e+04	0.78	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	31:28	2.564e+04	1.581e+04	1.62	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	32:26	2.487e+04	1.561e+04	1.59	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:17	1.007e+04	1.966e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:24	1.209e+04	2.312e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:56	1.079e+04	2.111e+04	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	36:44	8.765e+03	1.719e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:06	7.730e+03	1.711e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:33	6.468e+03	1.430e+04	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	27:44	1.092e+04	1.393e+04	0.78	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:45	1.764e+04	1.098e+04	1.61	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:06	1.316e+04	1.019e+04	1.29	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:11	1.445e+04	1.135e+04	1.27	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:05	1.182e+04	1.099e+04	1.08	yes	no	0.858
32	IS	13C-OCDD	42:02	1.628e+04	1.871e+04	0.87	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:06	1.191e+04	1.491e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:26	1.505e+04	1.191e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:46	2.682e+03				no	1.014

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #7 Filename P519519 Samp: 1 Inj: 1 Acquired: 20-DEC-18 15:17:37
Processed: 21-DEC-18 10:04:29 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.41e+05	6.32e+02	3.8e+02	3.24e+05	1.60e+03	2.0e+02
2	1,2,3,7,8-PeCDF	2.10e+06	3.24e+02	6.5e+03	1.38e+06	1.26e+03	1.1e+03
3	2,3,4,7,8-PeCDF	2.10e+06	3.24e+02	6.5e+03	1.39e+06	1.26e+03	1.1e+03
4	1,2,3,4,7,8-HxCDF	1.87e+06	5.24e+02	3.6e+03	1.53e+06	5.60e+02	2.7e+03
5	1,2,3,6,7,8-HxCDF	2.10e+06	5.24e+02	4.0e+03	1.73e+06	5.60e+02	3.1e+03
6	2,3,4,6,7,8-HxCDF	1.87e+06	5.24e+02	3.6e+03	1.51e+06	5.60e+02	2.7e+03
7	1,2,3,7,8,9-HxCDF	1.43e+06	5.24e+02	2.7e+03	1.22e+06	5.60e+02	2.2e+03
8	1,2,3,4,6,7,8-HpCDF	1.54e+06	1.69e+03	9.1e+02	1.50e+06	3.44e+02	4.4e+03
9	1,2,3,4,7,8,9-HpCDF	1.02e+06	1.69e+03	6.0e+02	9.72e+05	3.44e+02	2.8e+03
10	OCDF	1.14e+06	4.20e+02	2.7e+03	1.31e+06	1.07e+03	1.2e+03
11	2,3,7,8-TCDD	2.04e+05	2.33e+03	8.8e+01	2.65e+05	6.48e+02	4.1e+02
12	1,2,3,7,8-PeCDD	1.44e+06	9.28e+02	1.6e+03	9.31e+05	4.84e+02	1.9e+03
13	1,2,3,4,7,8-HxCDD	1.40e+06	5.76e+02	2.4e+03	1.11e+06	7.76e+02	1.4e+03
14	1,2,3,6,7,8-HxCDD	1.41e+06	5.76e+02	2.5e+03	1.13e+06	7.76e+02	1.5e+03
15	1,2,3,7,8,9-HxCDD	1.31e+06	5.76e+02	2.3e+03	1.06e+06	7.76e+02	1.4e+03
16	1,2,3,4,6,7,8-HpCDD	9.48e+05	4.32e+02	2.2e+03	9.32e+05	3.68e+02	2.5e+03
17	OCDD	1.03e+06	3.56e+02	2.9e+03	1.11e+06	3.32e+02	3.3e+03
18	13C-2,3,7,8-TCDF	2.52e+06	8.78e+03	2.9e+02	3.28e+06	6.66e+03	4.9e+02
19	13C-1,2,3,7,8-PeCDF	4.30e+06	5.96e+02	7.2e+03	2.63e+06	6.88e+02	3.8e+03
20	13C-2,3,4,7,8-PeCDF	4.57e+06	5.96e+02	7.7e+03	2.88e+06	6.88e+02	4.2e+03
21	13C-1,2,3,4,7,8-HxCDF	1.95e+06	7.52e+02	2.6e+03	3.83e+06	1.22e+03	3.1e+03
22	13C-1,2,3,6,7,8-HxCDF	2.35e+06	7.52e+02	3.1e+03	4.40e+06	1.22e+03	3.6e+03
23	13C-2,3,4,6,7,8-HxCDF	2.05e+06	7.52e+02	2.7e+03	4.09e+06	1.22e+03	3.3e+03
24	13C-1,2,3,7,8,9-HxCDF	1.55e+06	7.52e+02	2.1e+03	2.98e+06	1.22e+03	2.4e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.42e+06	8.96e+02	1.6e+03	3.17e+06	3.35e+03	9.5e+02
26	13C-1,2,3,4,7,8,9-HpCDF	1.03e+06	8.96e+02	1.1e+03	2.27e+06	3.35e+03	6.8e+02
27	13C-2,3,7,8-TCDD	1.92e+06	5.63e+03	3.4e+02	2.41e+06	2.21e+03	1.1e+03
28	13C-1,2,3,7,8-PeCDD	3.11e+06	9.08e+02	3.4e+03	1.99e+06	1.66e+03	1.2e+03
29	13C-1,2,3,4,7,8-HxCDD	2.74e+06	7.00e+02	3.9e+03	2.13e+06	7.84e+02	2.7e+03
30	13C-1,2,3,6,7,8-HxCDD	2.79e+06	7.00e+02	4.0e+03	2.19e+06	7.84e+02	2.8e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.84e+06	6.80e+02	2.7e+03	1.73e+06	3.44e+02	5.0e+03
32	13C-OCDD	1.76e+06	3.20e+02	5.5e+03	1.97e+06	4.16e+02	4.7e+03
33	13C-1,2,3,4-TCDD	2.02e+06	5.63e+03	3.6e+02	2.54e+06	2.21e+03	1.1e+03
34	13C-1,2,3,7,8,9-HxCDD	2.68e+06	7.00e+02	3.8e+03	2.04e+06	7.84e+02	2.6e+03
35	37Cl-2,3,7,8-TCDD	4.53e+05	9.52e+02	4.8e+02			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (2.328e{+}03 + 6.480e{+}02) \times 100}{(1.917e{+}06 + 2.407e{+}06) \times (\qquad) \times 1.085} =$$

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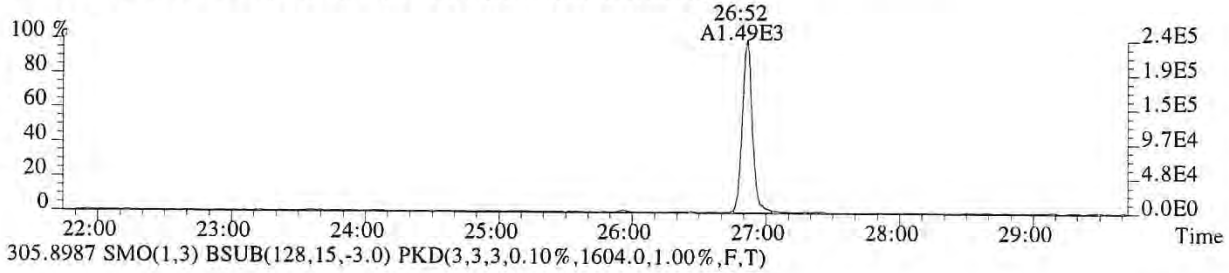
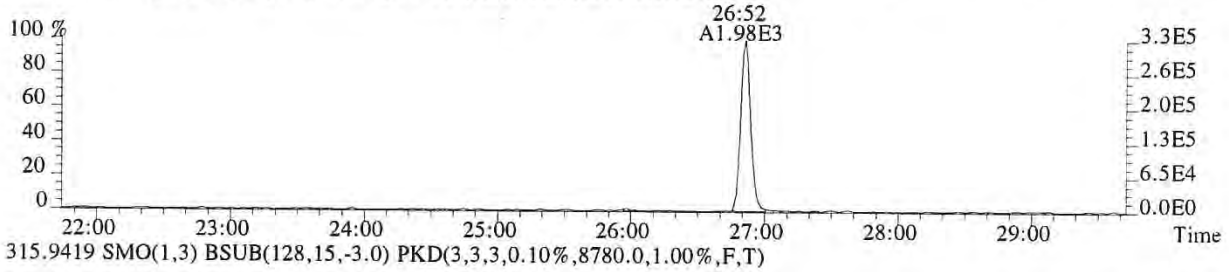
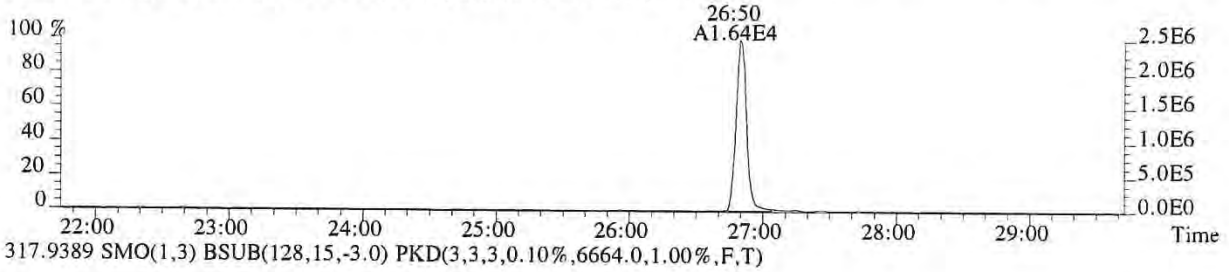
File:P519519 #1-566 Acq:20-DEC-2018 15:17:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,632.0,1.00%,F,T)



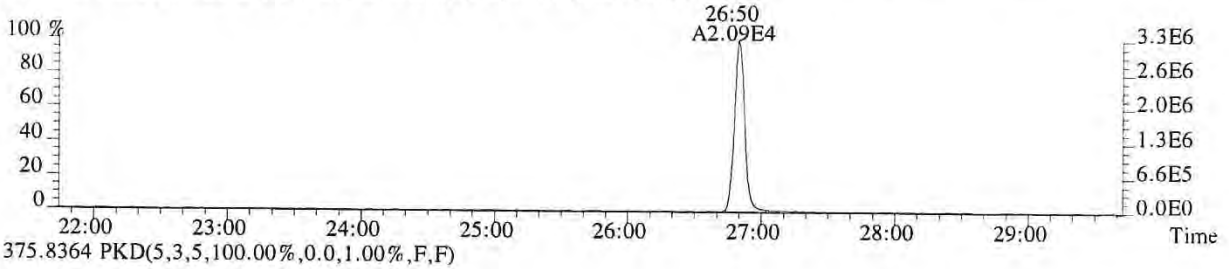
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1604.0,1.00%,F,T)



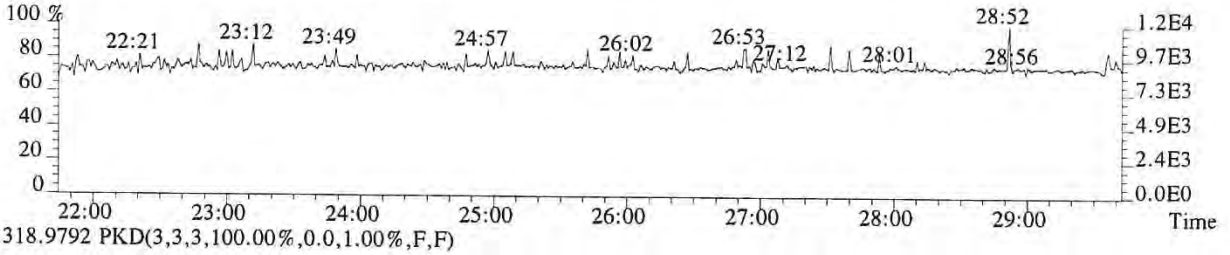
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8780.0,1.00%,F,T)



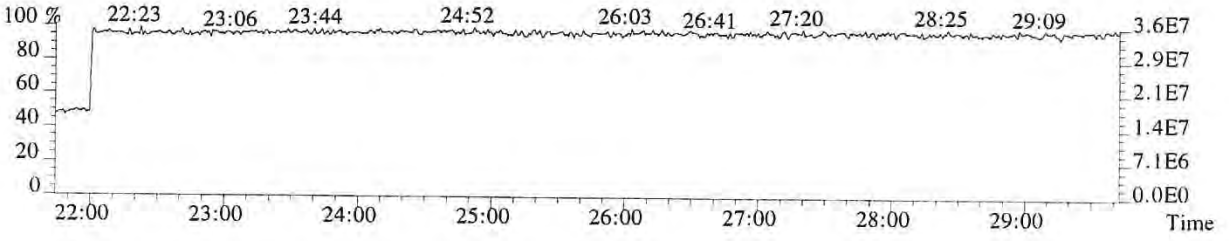
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6664.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

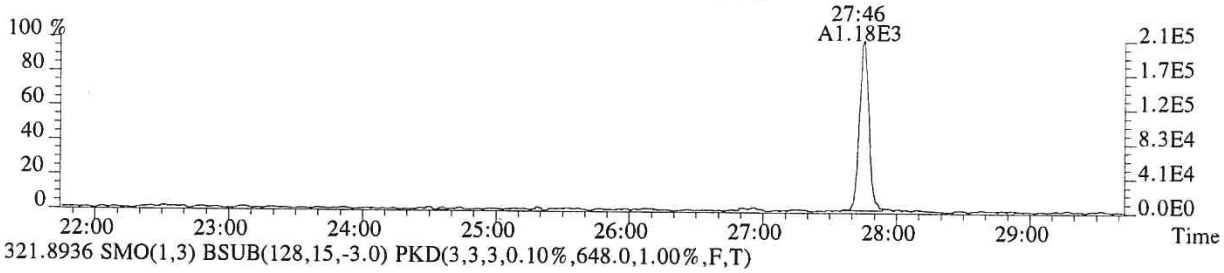


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

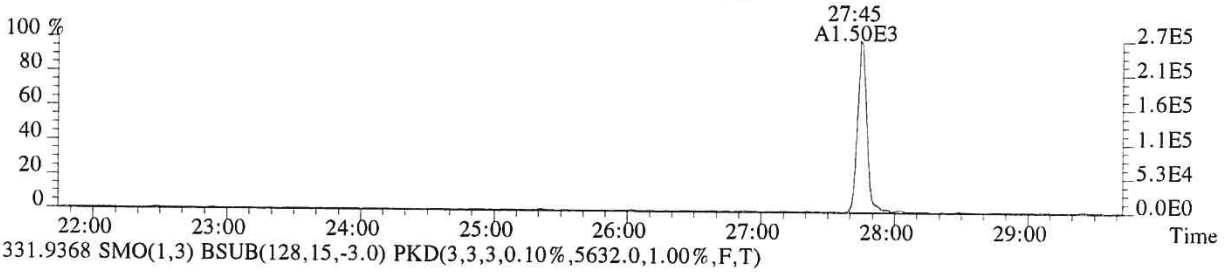


014680

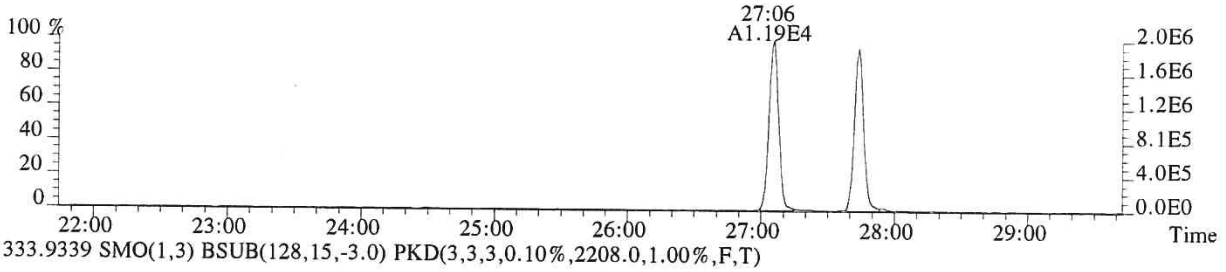
File:P519519 #1-566 Acq:20-DEC-2018 15:17:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2328.0,1.00%,F,T)



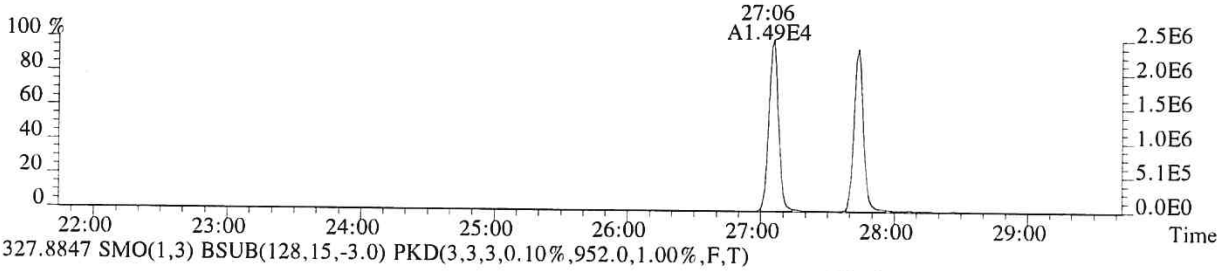
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



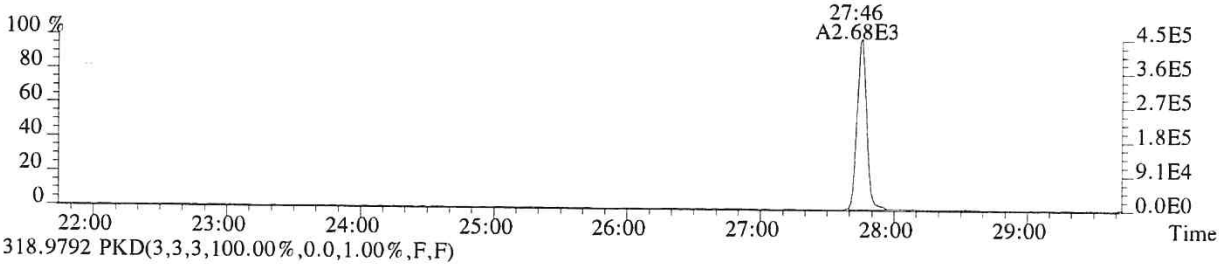
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5632.0,1.00%,F,T)



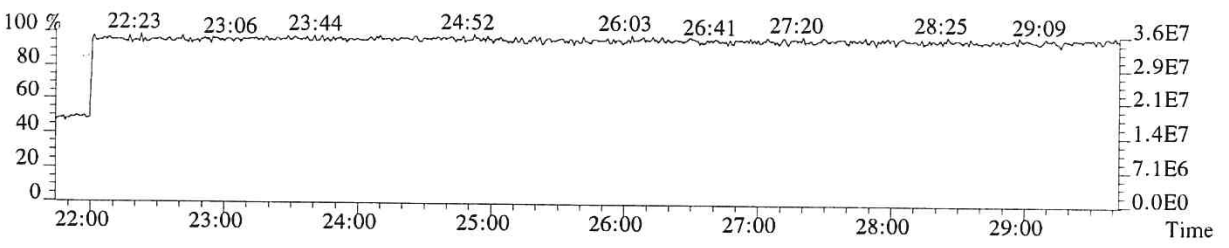
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2208.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,952.0,1.00%,F,T)

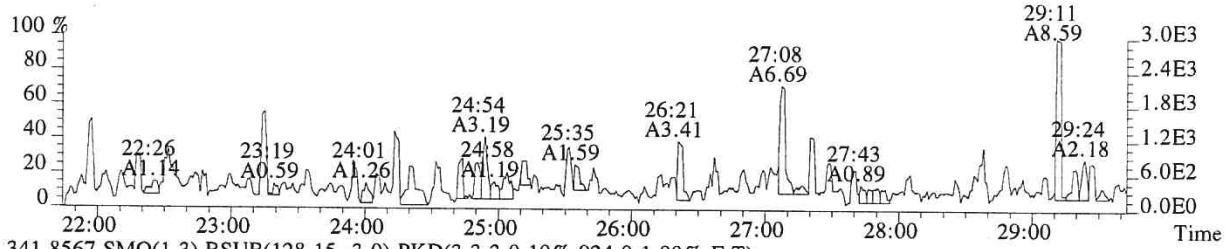


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

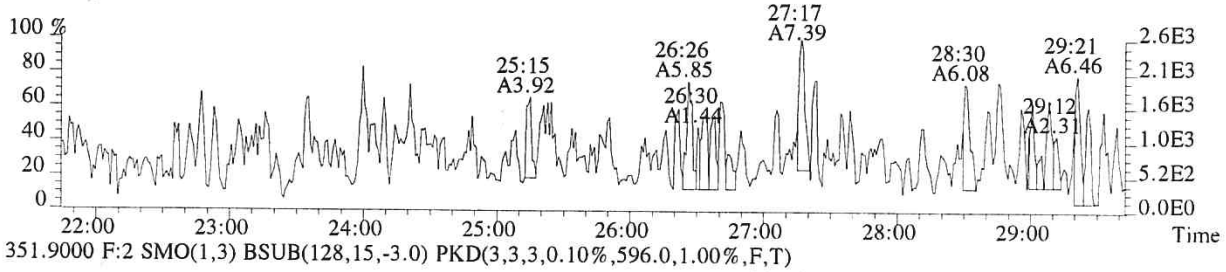


014681

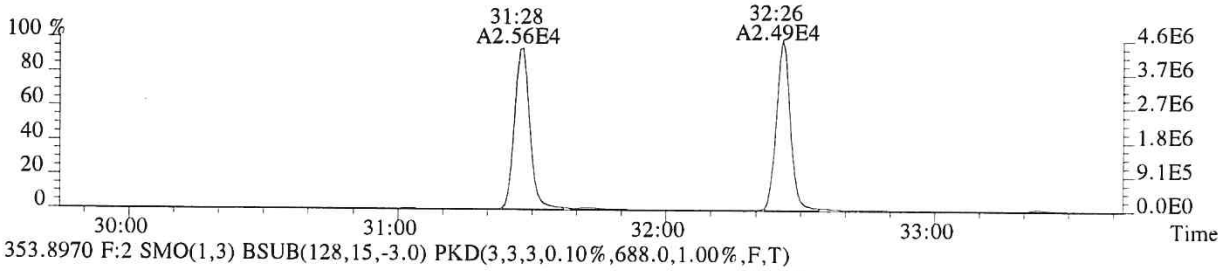
File:P519519 #1-566 Acq:20-DEC-2018 15:17:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,456.0,1.00%,F,T)



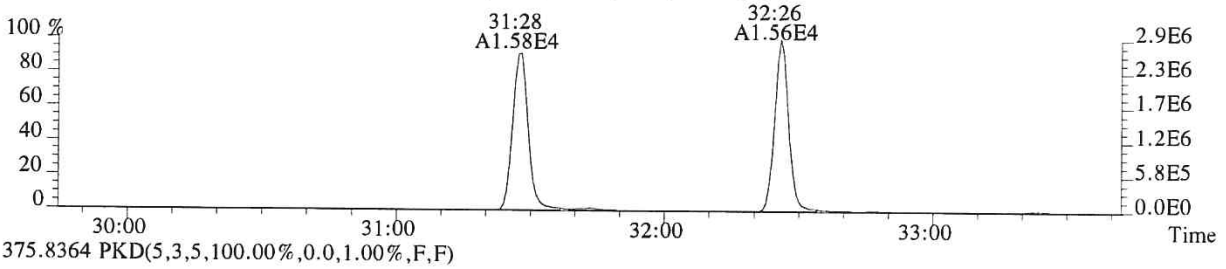
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,924.0,1.00%,F,T)



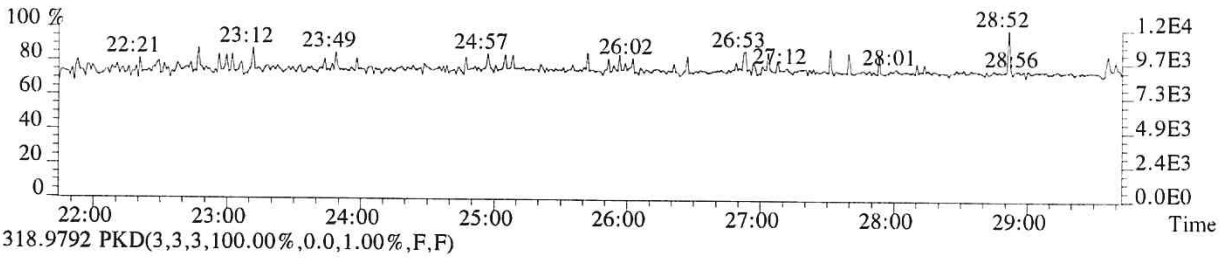
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,596.0,1.00%,F,T)



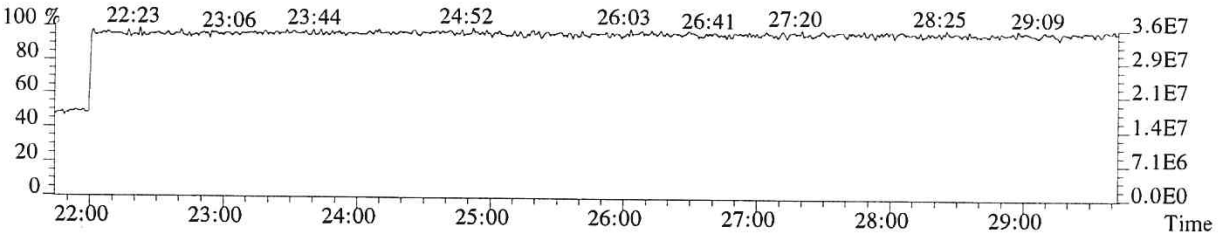
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,688.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

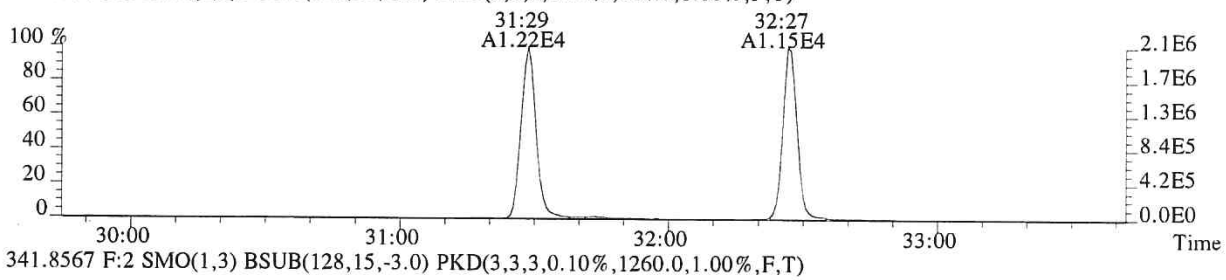


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

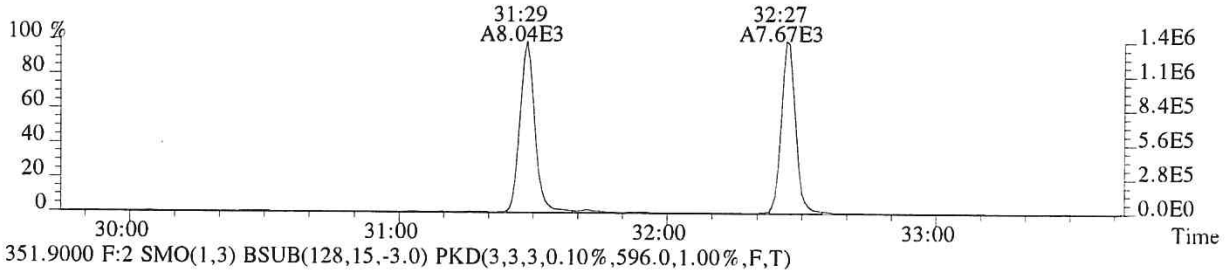


014682

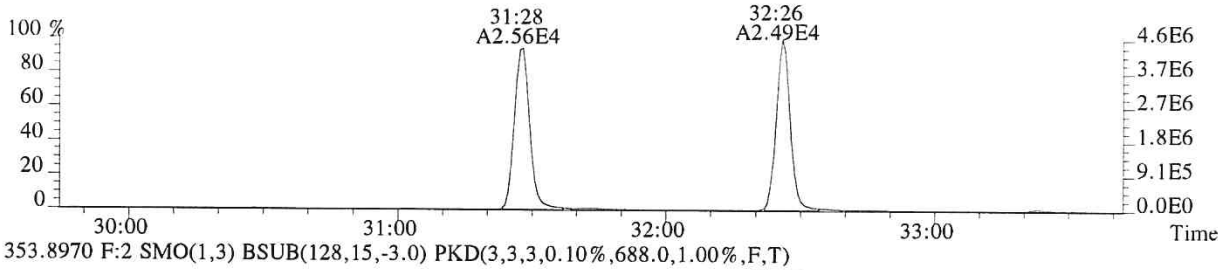
File:P519519 #1-357 Acq:20-DEC-2018 15:17:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,324.0,1.00%,F,T)



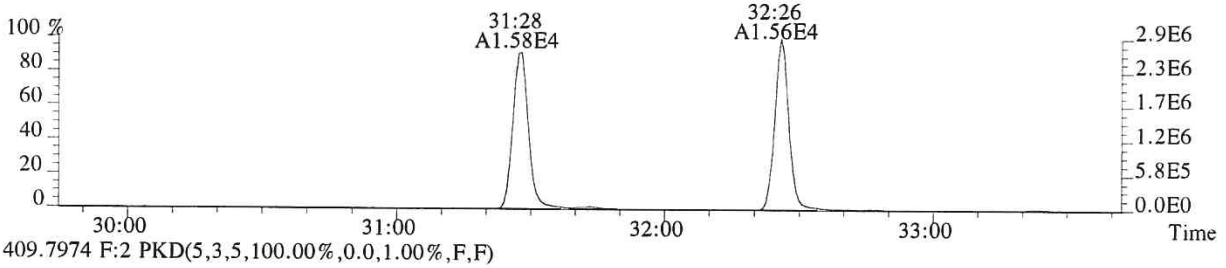
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1260.0,1.00%,F,T)



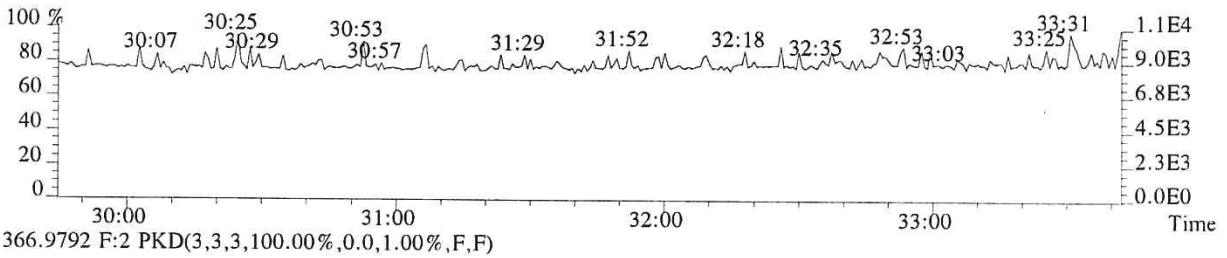
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,596.0,1.00%,F,T)



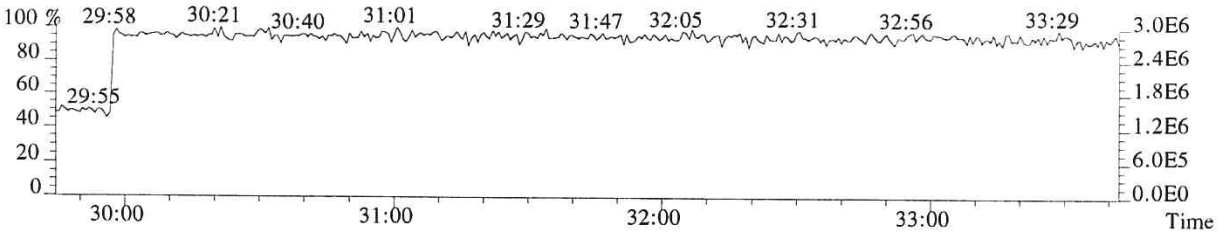
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,688.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

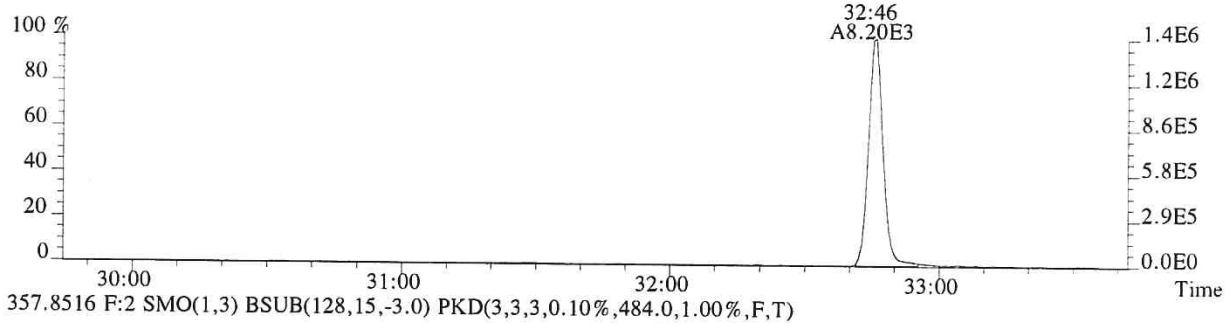


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

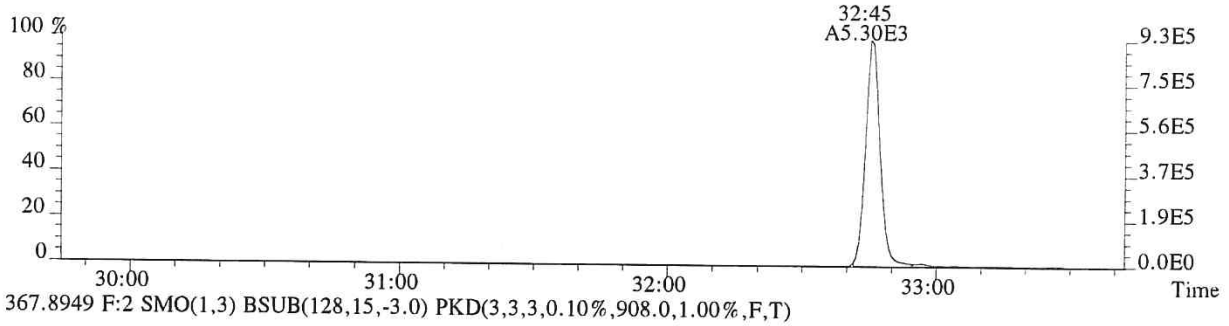


014683

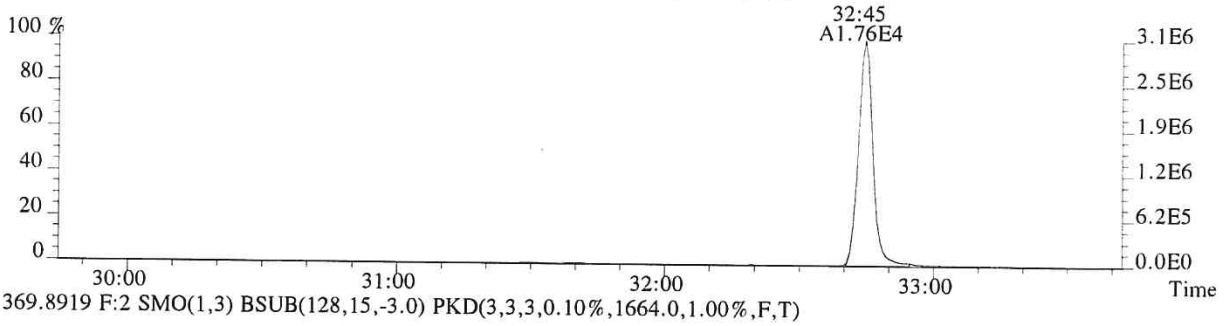
File:P519519 #1-357 Acq:20-DEC-2018 15:17:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,928.0,1.00%,F,T)



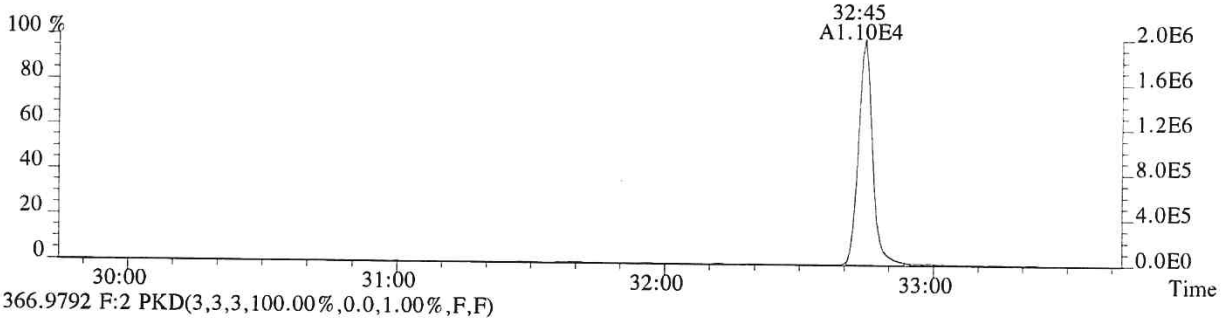
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,484.0,1.00%,F,T)



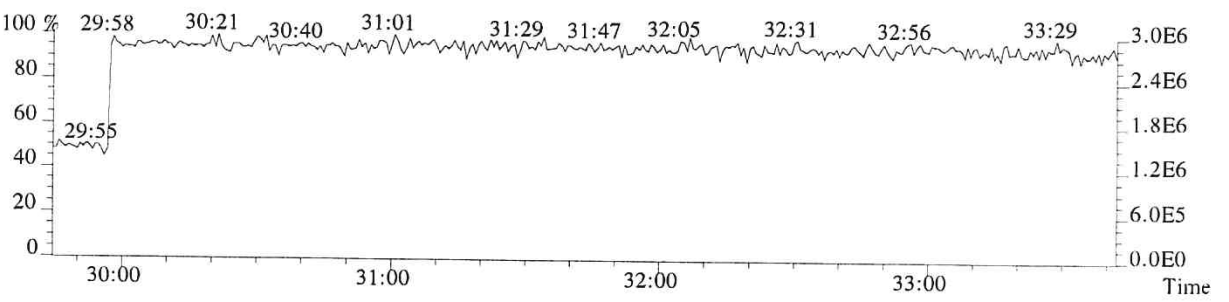
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,908.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1664.0,1.00%,F,T)

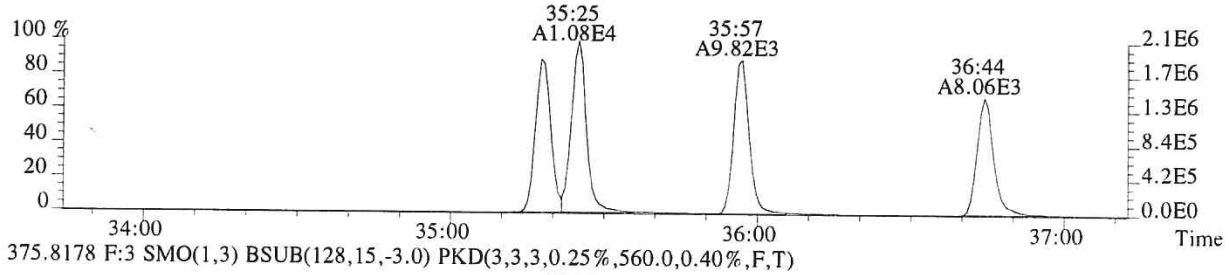


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

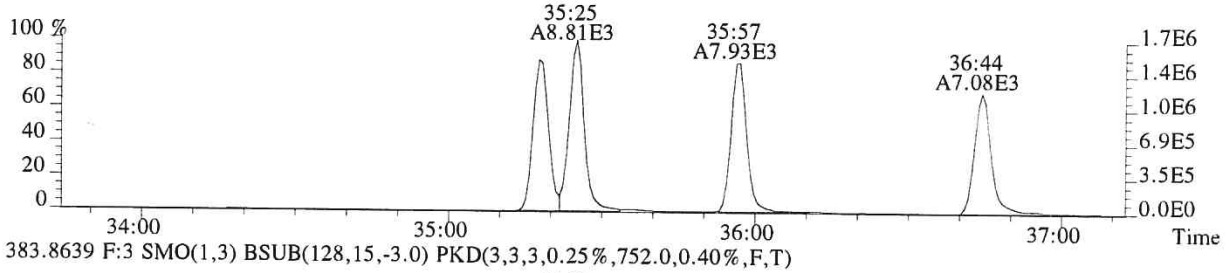


014684

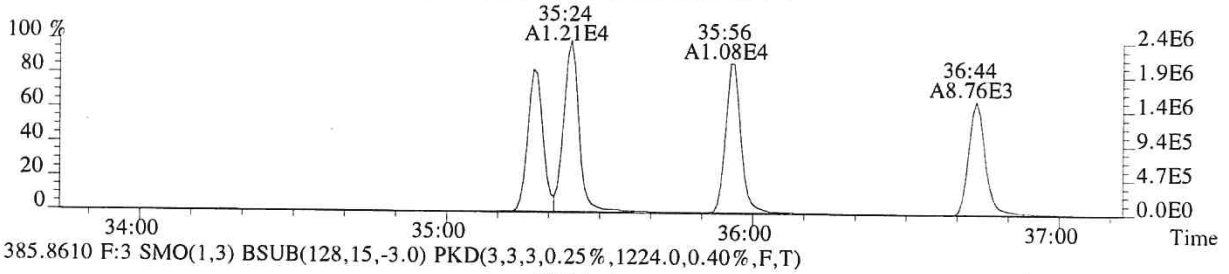
File:P519519 #1-313 Acq:20-DEC-2018 15:17:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,524.0,0.40%,F,T)



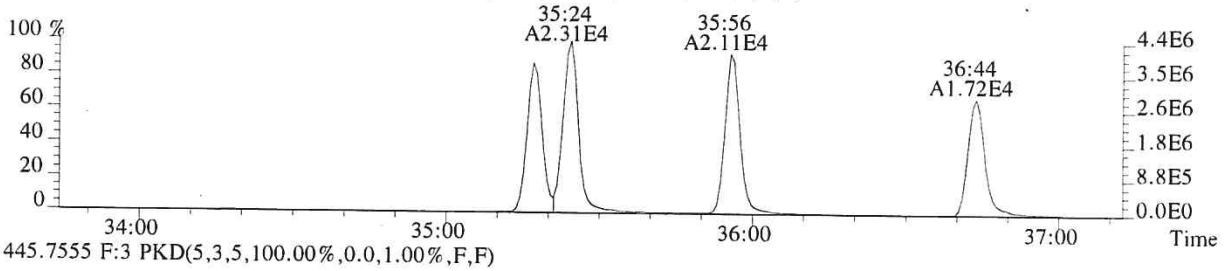
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,560.0,0.40%,F,T)



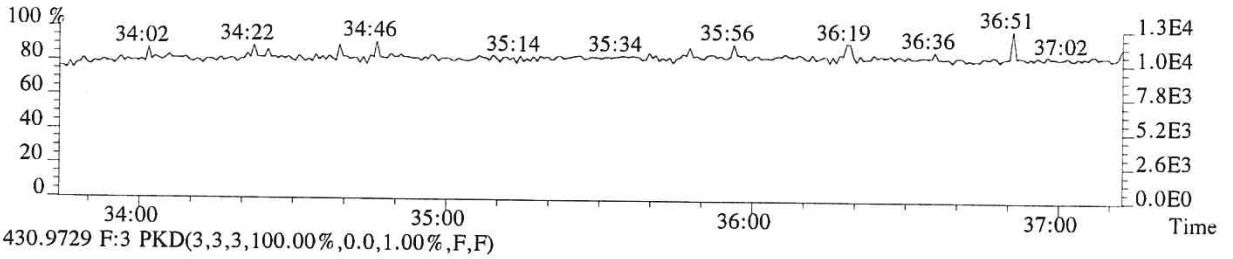
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,752.0,0.40%,F,T)



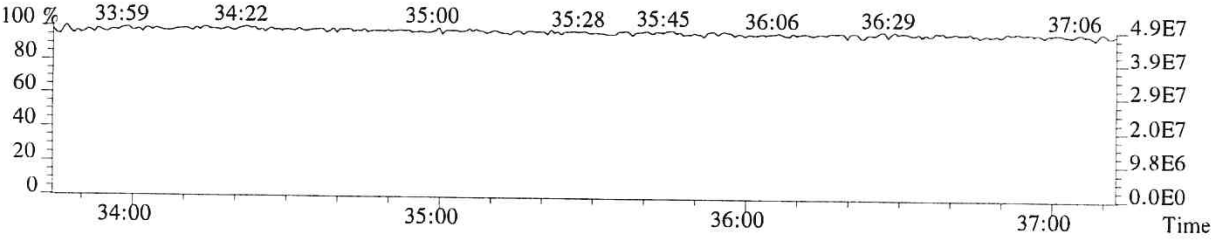
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1224.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

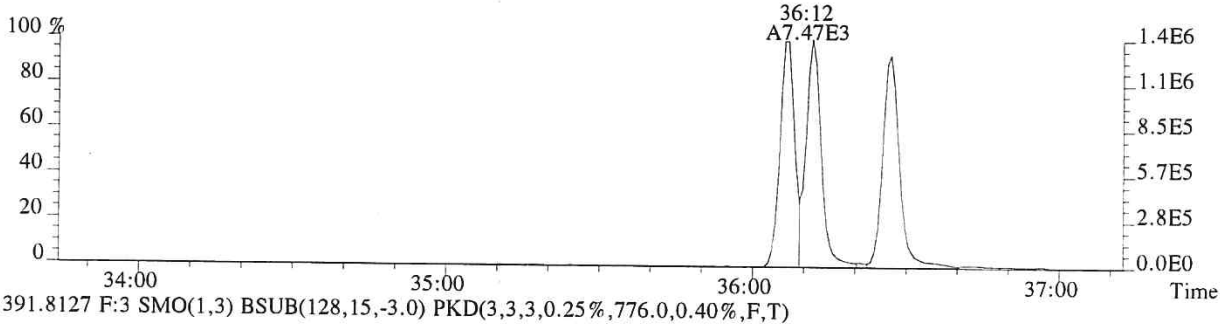


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

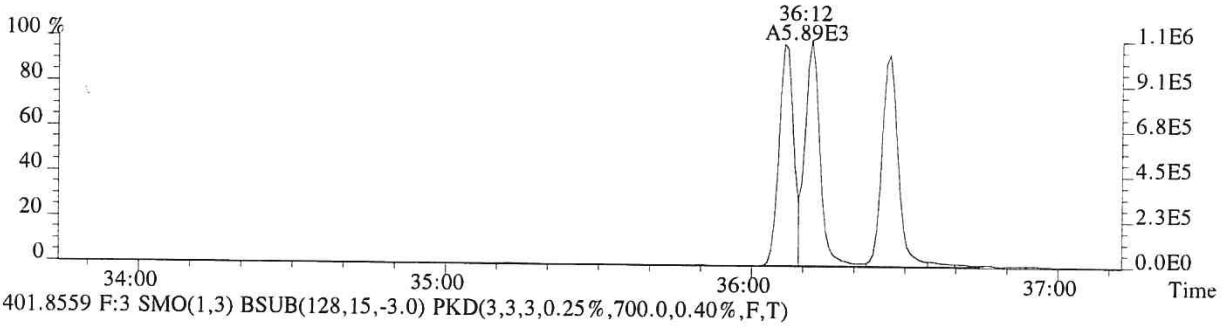


014685

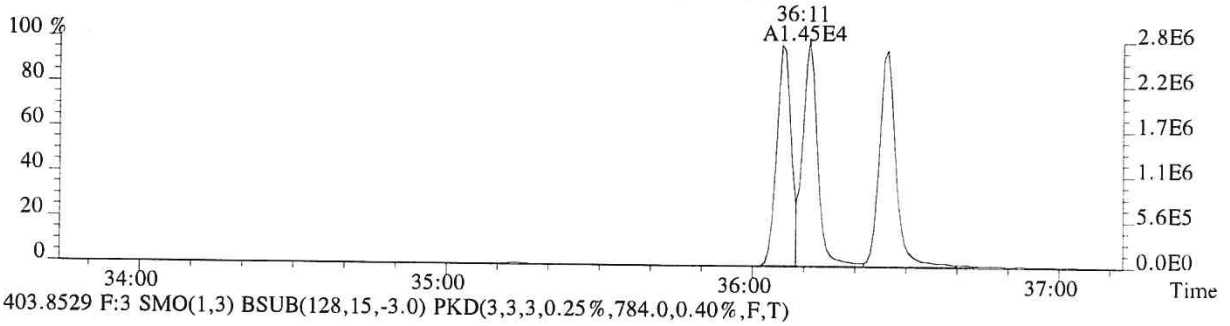
File:P519519 #1-313 Acq:20-DEC-2018 15:17:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,576.0,0.40%,F,T)



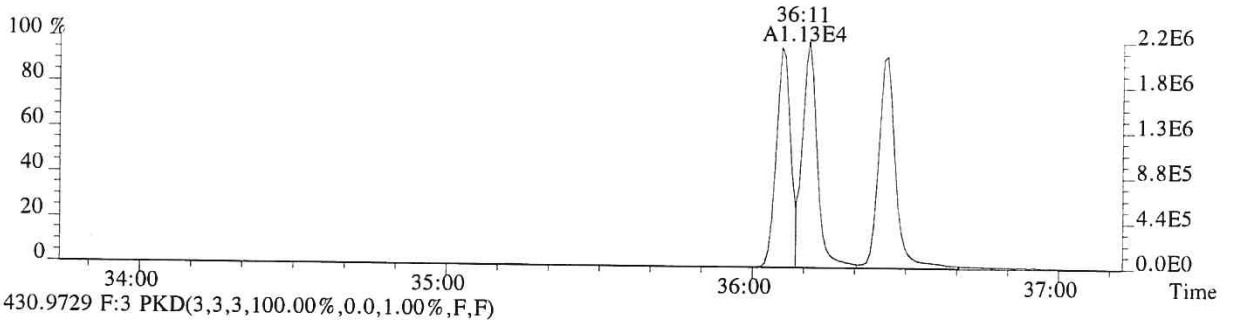
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,776.0,0.40%,F,T)



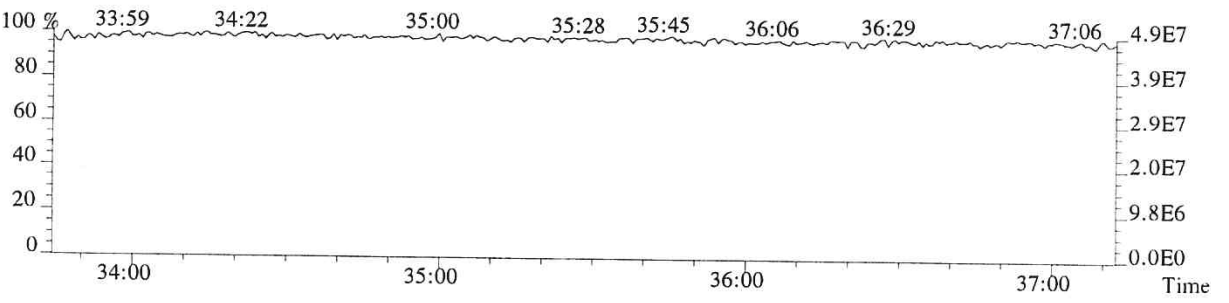
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,700.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,784.0,0.40%,F,T)



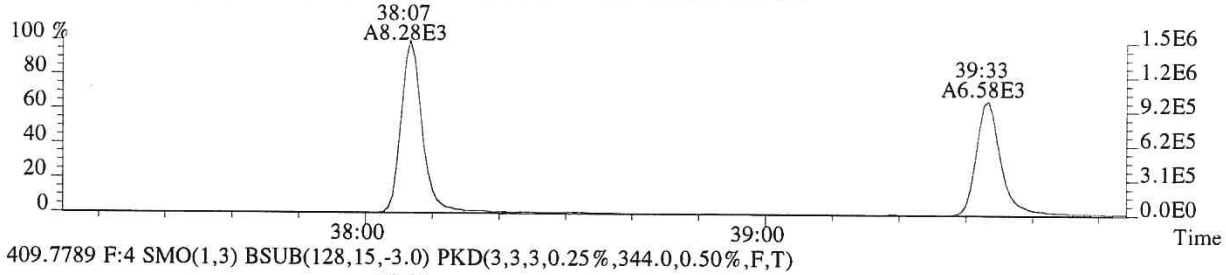
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



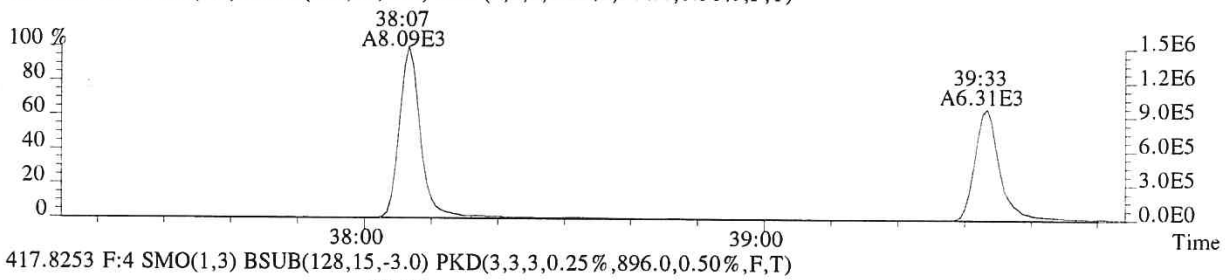
014686

File:P519519 #1-240 Acq:20-DEC-2018 15:17:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

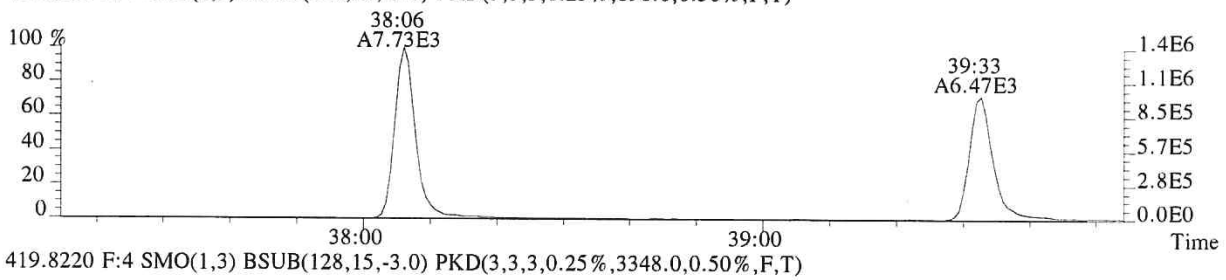
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1692.0,0.50%,F,T)



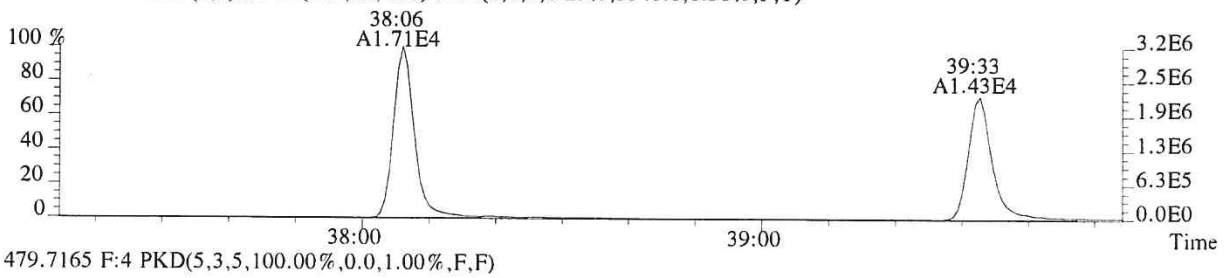
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,344.0,0.50%,F,T)



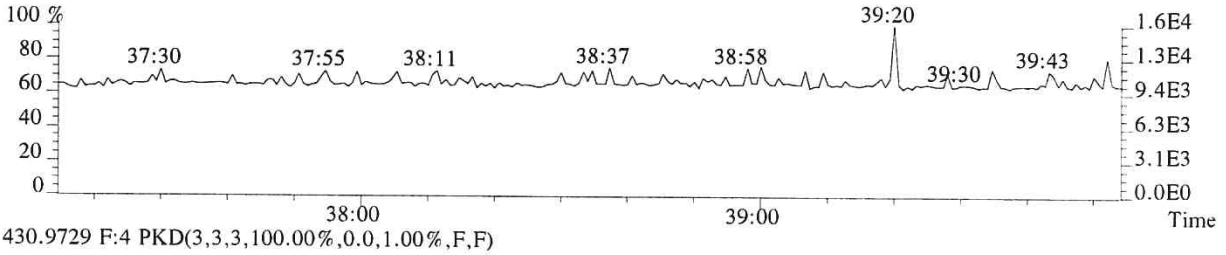
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,896.0,0.50%,F,T)



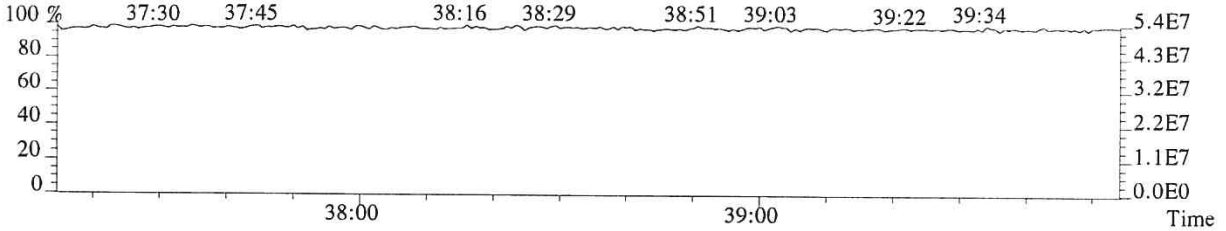
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3348.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

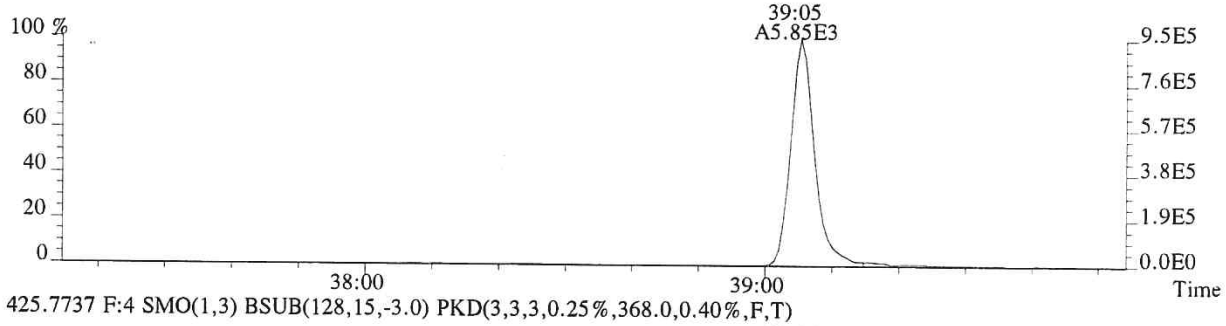


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

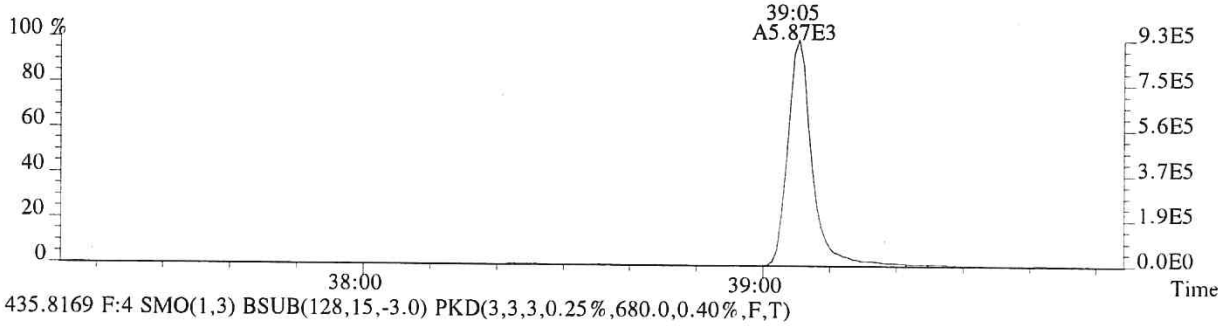


014687

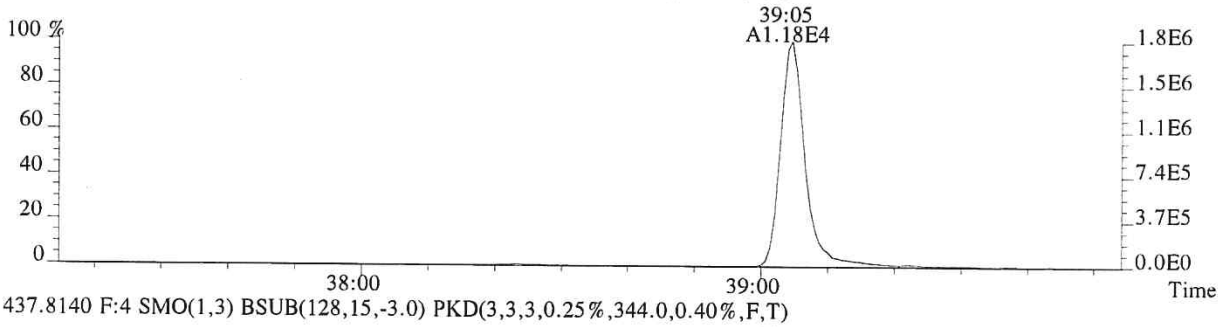
File:P519519 #1-240 Acq:20-DEC-2018 15:17:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,432.0,0.40%,F,T)



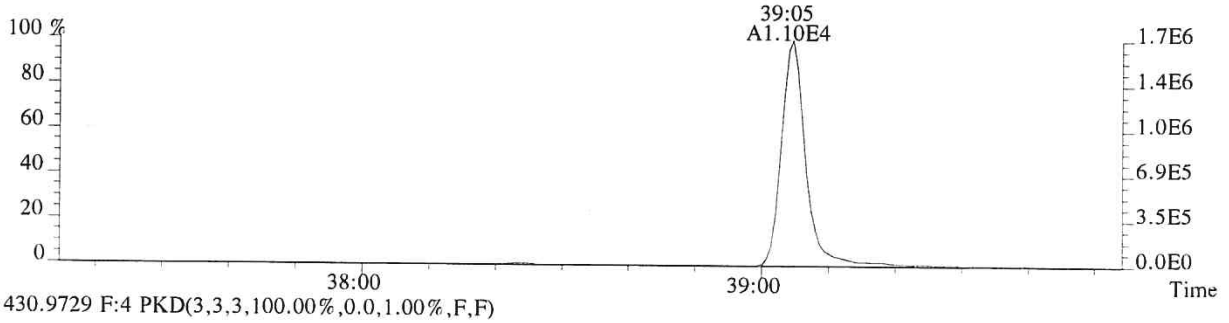
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,368.0,0.40%,F,T)



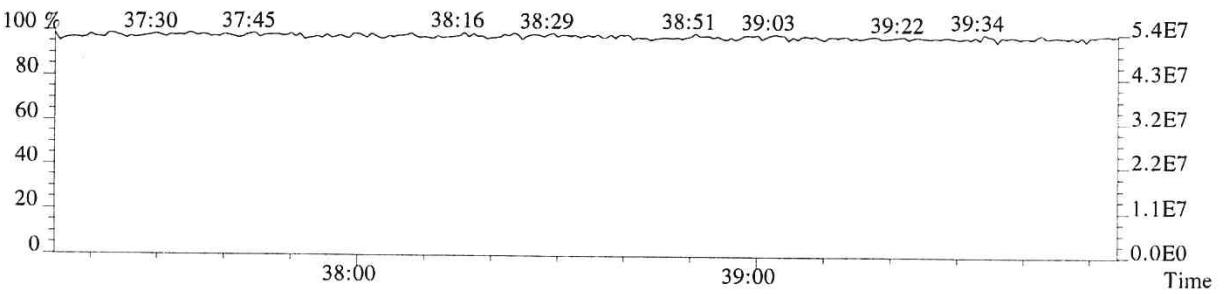
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,680.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,344.0,0.40%,F,T)

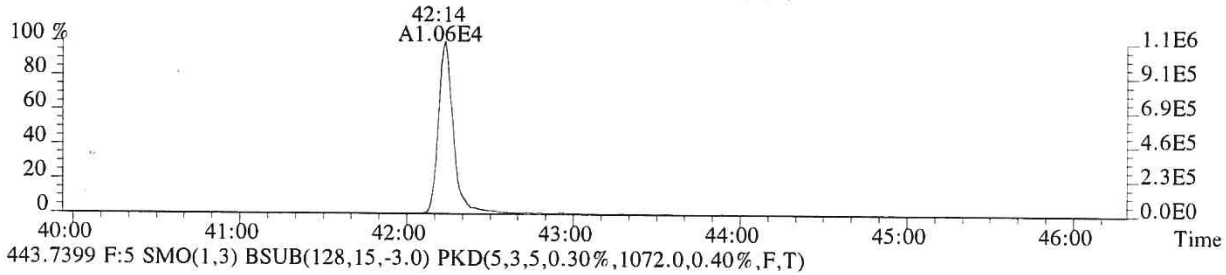


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

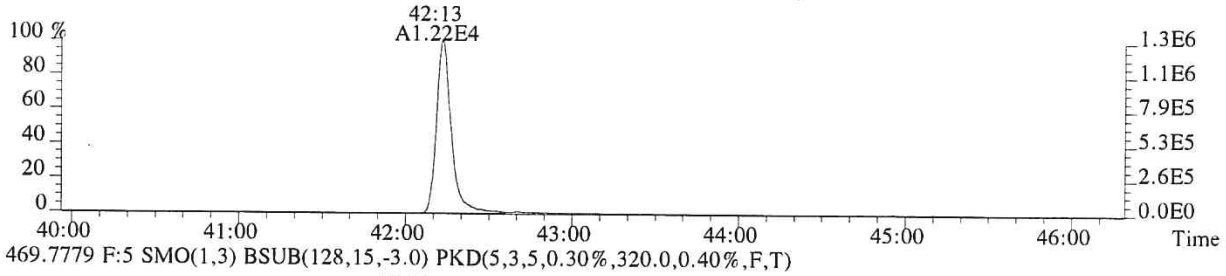


014688

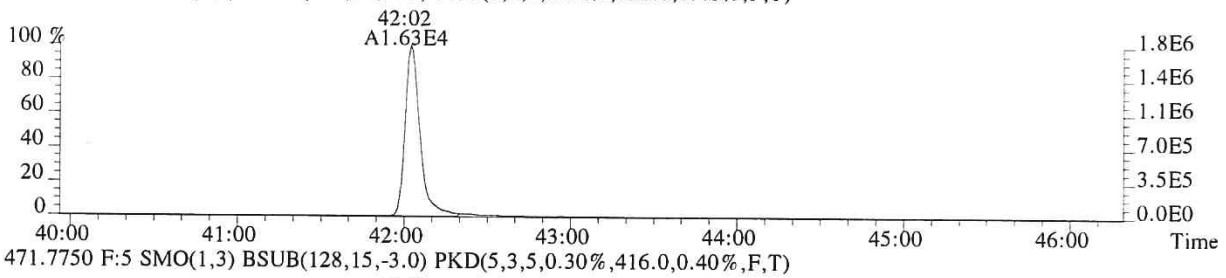
File:P519519 #1-575 Acq:20-DEC-2018 15:17:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,420.0,0.40%,F,T)



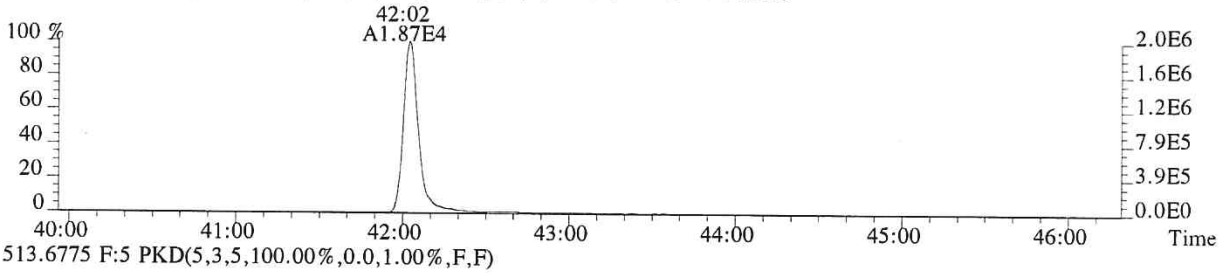
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1072.0,0.40%,F,T)



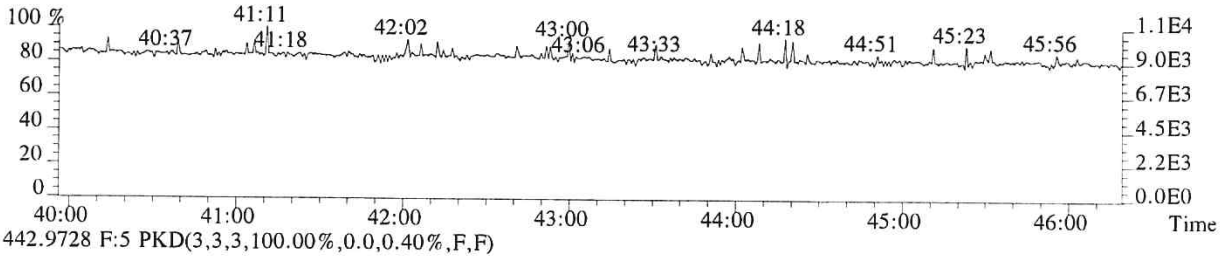
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,320.0,0.40%,F,T)



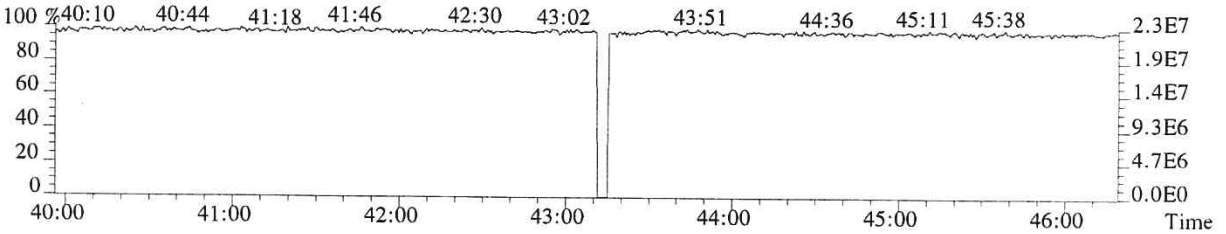
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,416.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

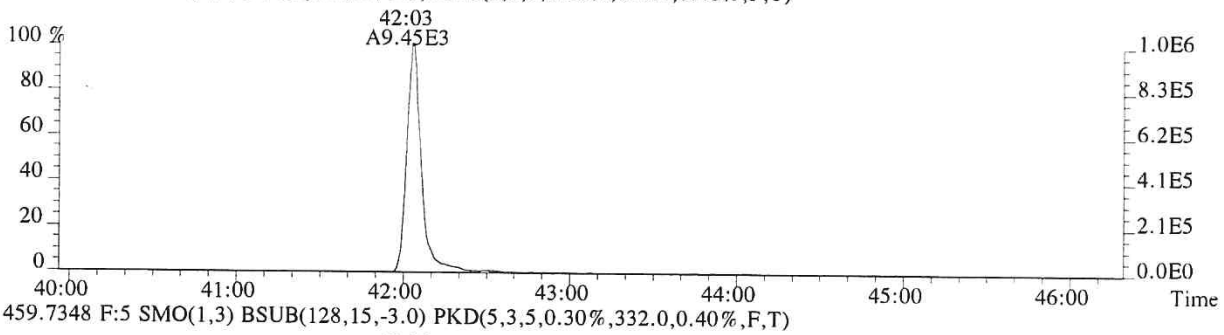


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

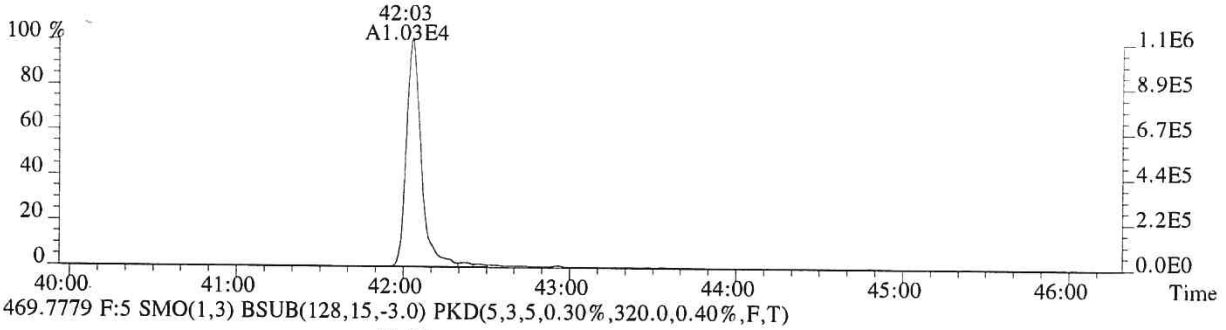


014689

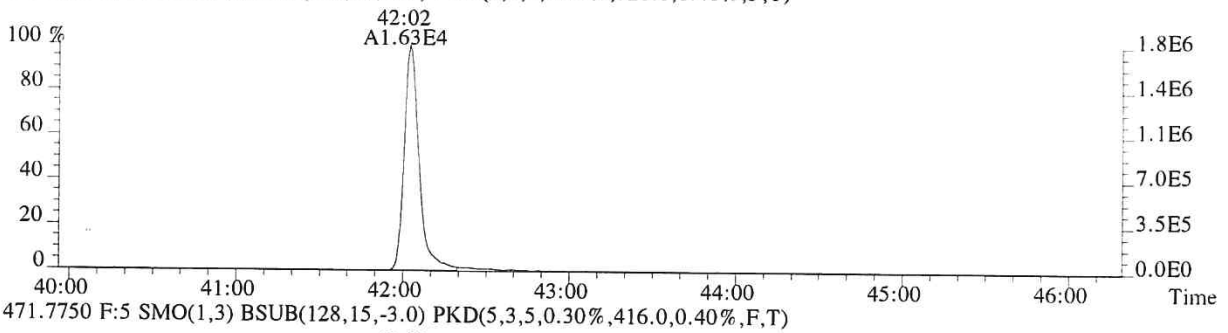
File:P519519 #1-575 Acq:20-DEC-2018 15:17:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,356.0,0.40%,F,T)



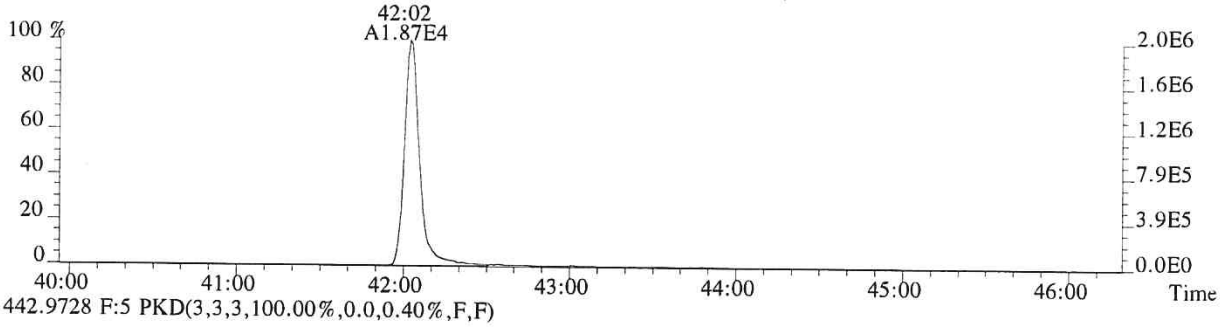
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,332.0,0.40%,F,T)



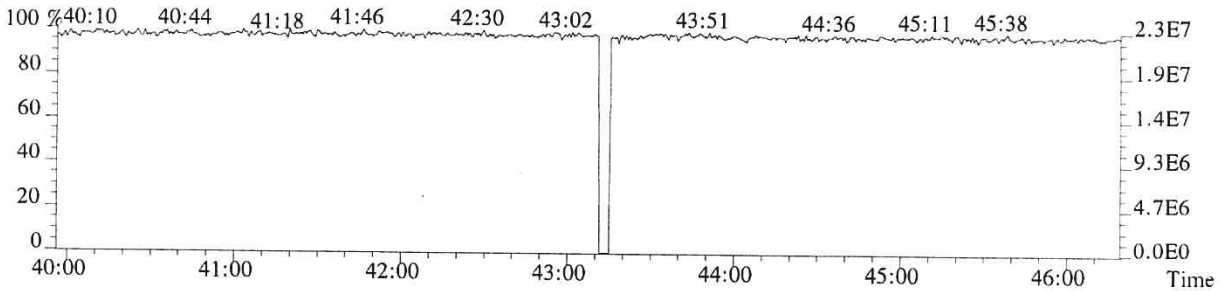
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,320.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,416.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



014690

USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519531 Analysis Date: 21-DEC-18 Time: 01:36:42

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.76	0.65-0.89	9.6	7.8 - 12.9	-3.9
1,2,3,7,8-PeCDD	M+2/M+4	1.62	1.32-1.78	52	39 - 65	3.0
1,2,3,4,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	51	39 - 64	1.3
1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	51	39 - 64	1.9
1,2,3,7,8,9-HxCDD	M+2/M+4	1.27	1.05-1.43	52	41 - 61	4.4
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.04	0.88-1.20	53	43 - 58	6.0
OCDD	M+2/M+4	0.91	0.76-1.02	103	79 - 126	2.9
2,3,7,8-TCDF	M/M+2	0.71	0.65-0.89	9.9	8.4 - 12.0	-0.9
1,2,3,7,8-PeCDF	M+2/M+4	1.53	1.32-1.78	49	41 - 60	-1.0
2,3,4,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	50	41 - 61	0.5
1,2,3,4,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	51	45 - 56	2.2
1,2,3,6,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	52	44 - 57	4.6
1,2,3,7,8,9-HxCDF	M+2/M+4	1.22	1.05-1.43	51	45 - 56	2.0
2,3,4,6,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	52	44 - 57	3.3
1,2,3,4,6,7,8-HpCDF	M+2/M+4	0.98	0.88-1.20	50	45 - 55	-0.7
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.04	0.88-1.20	50	43 - 58	-0.5
OCDF	M+2/M+4	0.90	0.76-1.02	98	63 - 159	-1.7

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519531 Analysis Date: 21-DEC-18 Time: 01:36:42

LABELED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
13C-2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	93	82 - 121	-7.0
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.60	1.32-1.78	101	62 - 160	1.3
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	93	85 - 117	-7.4
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	107	85 - 118	6.5
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.11	0.88-1.20	99	72 - 138	-1.2
13C-OCDD	M+2/M+4	0.92	0.76-1.02	229	96 - 415	14.4
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	86	71 - 140	-14.5
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.61	1.32-1.78	99	76 - 130	-0.5
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	99	77 - 130	-0.6
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.51	0.43-0.59	90	76 - 131	-10.4
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.54	0.43-0.59	96	70 - 143	-3.6
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.54	0.43-0.59	87	74 - 135	-12.7
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.51	0.43-0.59	95	73 - 137	-4.8
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.43	0.37-0.51	102	78 - 129	1.6
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	95	77 - 129	-4.7
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD	M+2/M+4			8.9	7.8 - 12.7	-10.7

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #8 Filename P519531 Samp: 1 Inj: 1 Acquired: 21-DEC-18 01:36:42
Processed: 21-DEC-18 10:06:56 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:50	1.219e+03	1.717e+03	0.71	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	31:28	1.079e+04	7.028e+03	1.53	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	32:26	1.036e+04	6.603e+03	1.57	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:18	8.559e+03	6.849e+03	1.25	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:24	9.934e+03	8.213e+03	1.21	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:57	8.662e+03	7.040e+03	1.23	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	36:45	6.961e+03	5.713e+03	1.22	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:08	7.482e+03	7.605e+03	0.98	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:35	5.705e+03	5.499e+03	1.04	yes	no	1.258
10	Unk	OCDF	42:17	9.677e+03	1.073e+04	0.90	yes	no	1.359
11	Unk	2,3,7,8-TCDD	27:44	9.425e+02	1.234e+03	0.76	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	32:45	7.319e+03	4.510e+03	1.62	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:06	5.708e+03	4.608e+03	1.24	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:12	6.875e+03	5.377e+03	1.28	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:27	6.635e+03	5.232e+03	1.27	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:07	5.387e+03	5.157e+03	1.04	yes	no	1.025
17	Unk	OCDD	42:06	8.370e+03	9.208e+03	0.91	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	26:48	1.388e+04	1.758e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	31:27	2.196e+04	1.361e+04	1.61	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	32:25	2.160e+04	1.360e+04	1.59	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:17	8.573e+03	1.675e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:23	1.077e+04	2.012e+04	0.54	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:56	9.284e+03	1.812e+04	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	36:44	7.589e+03	1.414e+04	0.54	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:07	6.778e+03	1.571e+04	0.43	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:35	5.526e+03	1.238e+04	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	27:42	9.195e+03	1.167e+04	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:44	1.477e+04	9.235e+03	1.60	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:06	1.091e+04	8.692e+03	1.26	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:11	1.293e+04	1.023e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:07	1.022e+04	9.192e+03	1.11	yes	no	0.858
32	IS	13C-OCDD	42:06	1.465e+04	1.589e+04	0.92	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:04	1.086e+04	1.344e+04	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:26	1.294e+04	9.972e+03	1.30	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:44	2.199e+03				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #8 Filename P519531 Samp: 1 Inj: 1 Acquired: 21-DEC-18 01:36:42
Processed: 21-DEC-18 10:06:56 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	1.87e+05	5.84e+02	3.2e+02	2.33e+05	9.96e+02	2.3e+02
2	1,2,3,7,8-PeCDF	1.78e+06	2.88e+02	6.2e+03	1.15e+06	7.84e+02	1.5e+03
3	2,3,4,7,8-PeCDF	1.91e+06	2.88e+02	6.6e+03	1.22e+06	7.84e+02	1.6e+03
4	1,2,3,4,7,8-HxCDF	1.84e+06	6.64e+02	2.8e+03	1.45e+06	4.32e+02	3.4e+03
5	1,2,3,6,7,8-HxCDF	1.80e+06	6.64e+02	2.7e+03	1.50e+06	4.32e+02	3.5e+03
6	2,3,4,6,7,8-HxCDF	1.64e+06	6.64e+02	2.5e+03	1.33e+06	4.32e+02	3.1e+03
7	1,2,3,7,8,9-HxCDF	1.16e+06	6.64e+02	1.8e+03	9.49e+05	4.32e+02	2.2e+03
8	1,2,3,4,6,7,8-HpCDF	1.25e+06	1.54e+03	8.1e+02	1.29e+06	3.08e+02	4.2e+03
9	1,2,3,4,7,8,9-HpCDF	8.34e+05	1.54e+03	5.4e+02	7.93e+05	3.08e+02	2.6e+03
10	OCDF	9.90e+05	4.32e+02	2.3e+03	1.11e+06	7.32e+02	1.5e+03
11	2,3,7,8-TCDD	1.53e+05	1.72e+03	8.9e+01	1.76e+05	5.76e+02	3.1e+02
12	1,2,3,7,8-PeCDD	1.22e+06	7.24e+02	1.7e+03	7.45e+05	2.64e+02	2.8e+03
13	1,2,3,4,7,8-HxCDD	1.17e+06	3.52e+02	3.3e+03	9.57e+05	3.04e+02	3.1e+03
14	1,2,3,6,7,8-HxCDD	1.17e+06	3.52e+02	3.3e+03	9.02e+05	3.04e+02	3.0e+03
15	1,2,3,7,8,9-HxCDD	1.15e+06	3.52e+02	3.3e+03	8.86e+05	3.04e+02	2.9e+03
16	1,2,3,4,6,7,8-HpCDD	8.33e+05	4.12e+02	2.0e+03	7.69e+05	3.60e+02	2.1e+03
17	OCDD	8.01e+05	4.40e+02	1.8e+03	8.79e+05	2.96e+02	3.0e+03
18	13C-2,3,7,8-TCDF	2.04e+06	4.83e+03	4.2e+02	2.54e+06	2.76e+03	9.2e+02
19	13C-1,2,3,7,8-PeCDF	3.66e+06	8.48e+02	4.3e+03	2.23e+06	2.44e+02	9.1e+03
20	13C-2,3,4,7,8-PeCDF	3.94e+06	8.48e+02	4.6e+03	2.52e+06	2.44e+02	1.0e+04
21	13C-1,2,3,4,7,8-HxCDF	1.77e+06	6.32e+02	2.8e+03	3.55e+06	5.12e+02	6.9e+03
22	13C-1,2,3,6,7,8-HxCDF	2.01e+06	6.32e+02	3.2e+03	3.82e+06	5.12e+02	7.5e+03
23	13C-2,3,4,6,7,8-HxCDF	1.76e+06	6.32e+02	2.8e+03	3.42e+06	5.12e+02	6.7e+03
24	13C-1,2,3,7,8,9-HxCDF	1.26e+06	6.32e+02	2.0e+03	2.34e+06	5.12e+02	4.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.15e+06	3.00e+02	3.8e+03	2.67e+06	3.84e+02	7.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	7.97e+05	3.00e+02	2.7e+03	1.77e+06	3.84e+02	4.6e+03
27	13C-2,3,7,8-TCDD	1.42e+06	4.68e+03	3.0e+02	1.84e+06	1.30e+03	1.4e+03
28	13C-1,2,3,7,8-PeCDD	2.50e+06	6.72e+02	3.7e+03	1.57e+06	9.28e+02	1.7e+03
29	13C-1,2,3,4,7,8-HxCDD	2.21e+06	6.12e+02	3.6e+03	1.80e+06	6.44e+02	2.8e+03
30	13C-1,2,3,6,7,8-HxCDD	2.20e+06	6.12e+02	3.6e+03	1.76e+06	6.44e+02	2.7e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.56e+06	6.72e+02	2.3e+03	1.42e+06	3.28e+02	4.3e+03
32	13C-OCDD	1.43e+06	4.00e+02	3.6e+03	1.58e+06	4.04e+02	3.9e+03
33	13C-1,2,3,4-TCDD	1.80e+06	4.68e+03	3.8e+02	2.24e+06	1.30e+03	1.7e+03
34	13C-1,2,3,7,8,9-HxCDD	2.20e+06	6.12e+02	3.6e+03	1.69e+06	6.44e+02	2.6e+03
35	37Cl-2,3,7,8-TCDD	3.40e+05	6.04e+02	5.6e+02			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.720e{+}03 + 5.760e{+}02) \times 100}{(1.424e{+}06 + 1.840e{+}06) \times (\quad) \times 1.085}$$

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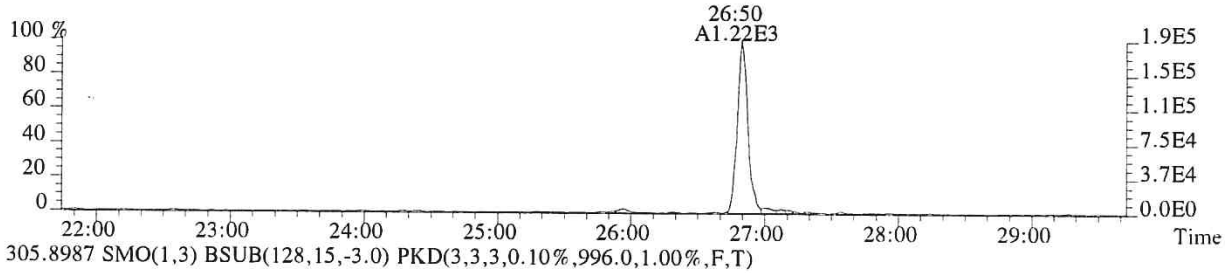
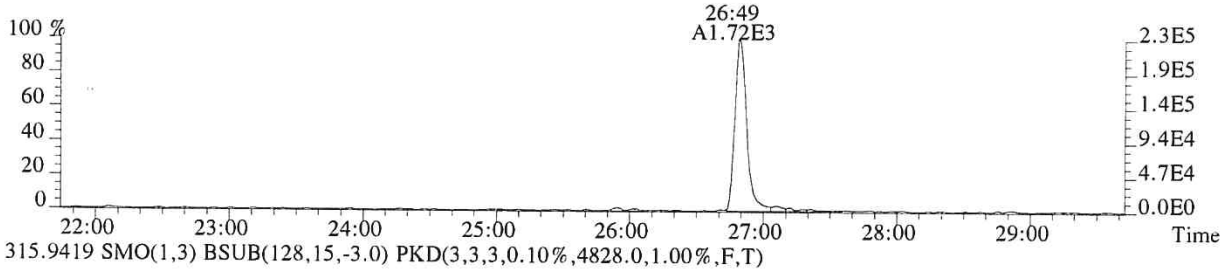
File:P519531 #1-566 Acq:21-DEC-2018 01:36:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

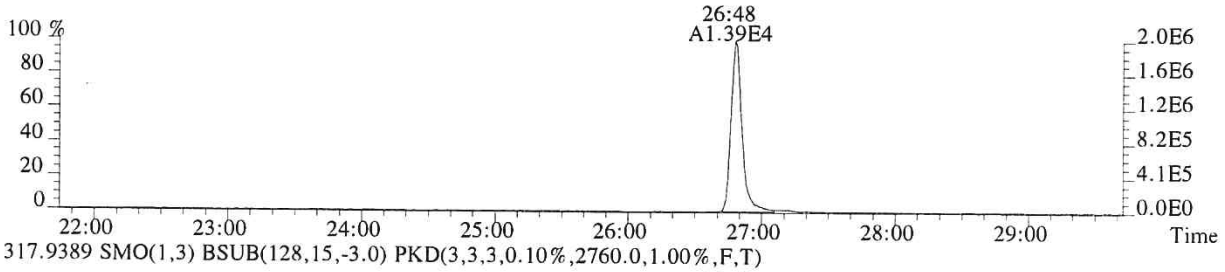
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,584.0,1.00%,F,T)



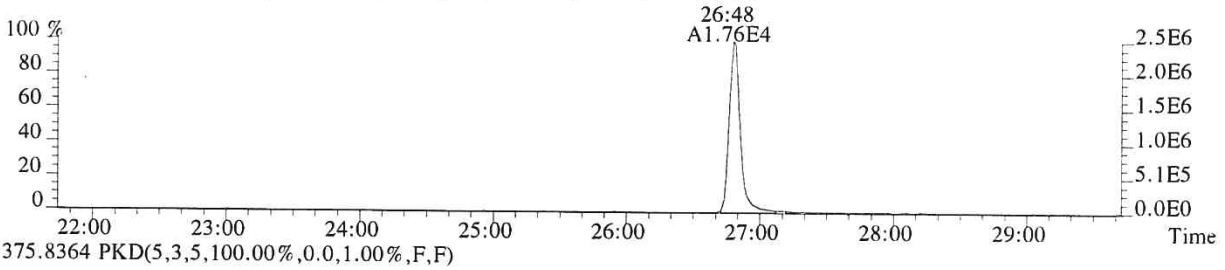
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,996.0,1.00%,F,T)



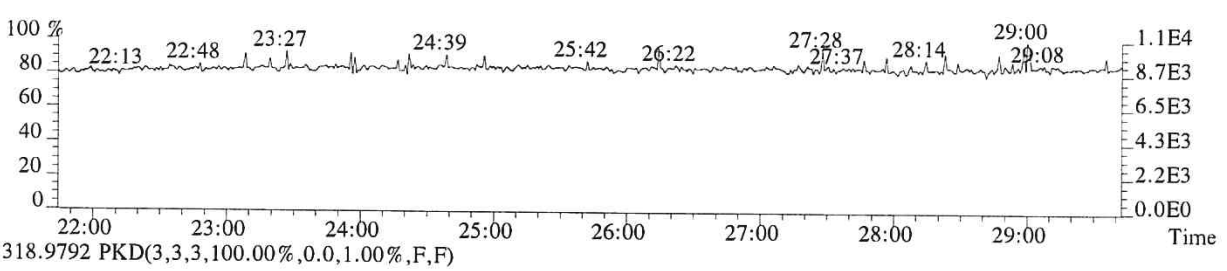
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4828.0,1.00%,F,T)



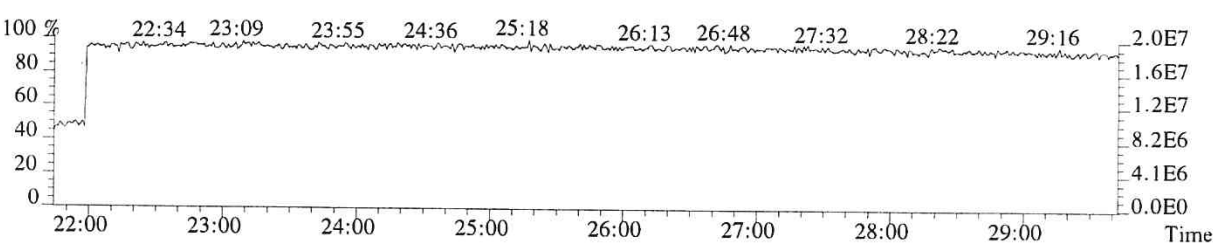
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2760.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

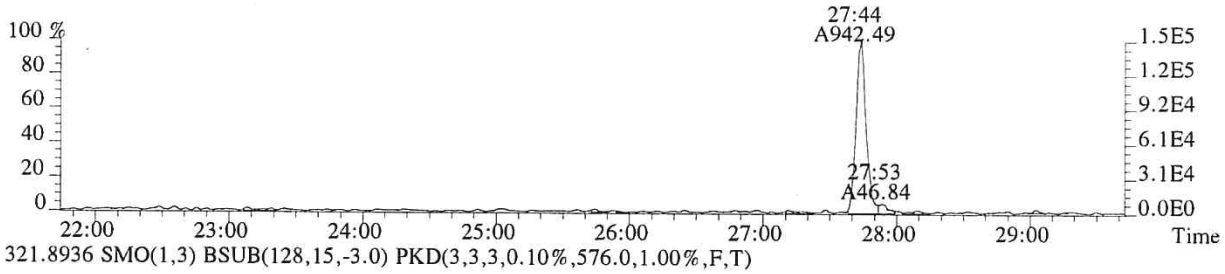


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

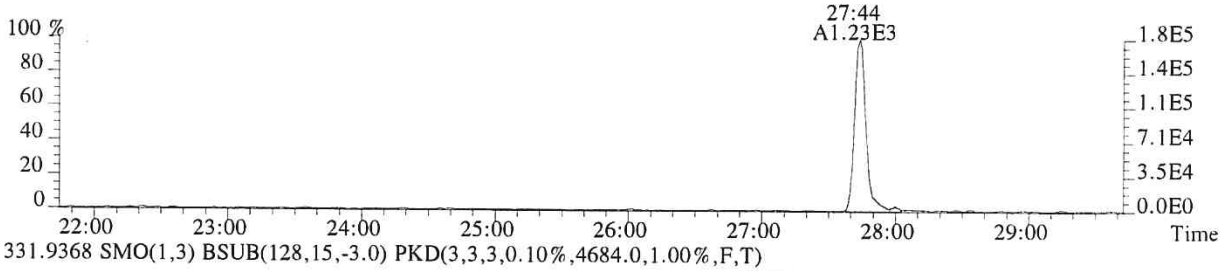


014695

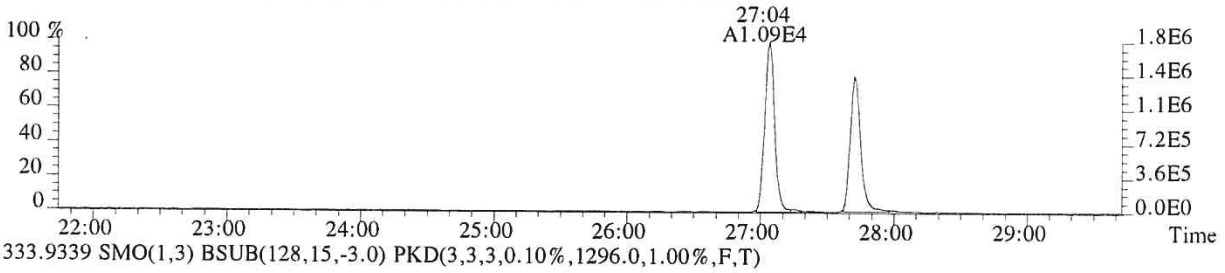
File:P519531 #1-566 Acq:21-DEC-2018 01:36:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1720.0,1.00%,F,T)



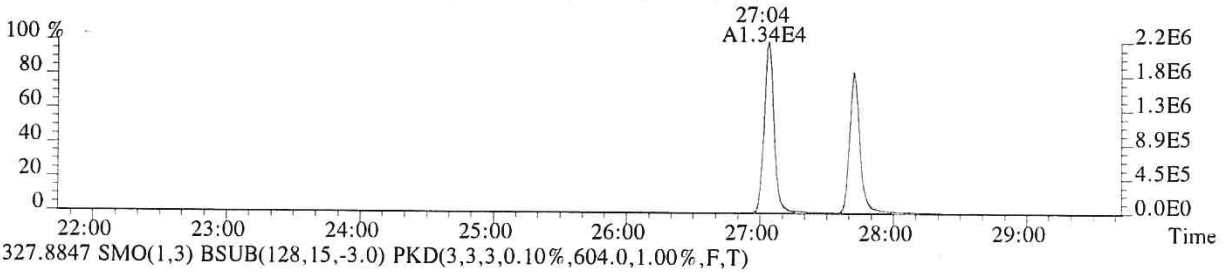
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,576.0,1.00%,F,T)



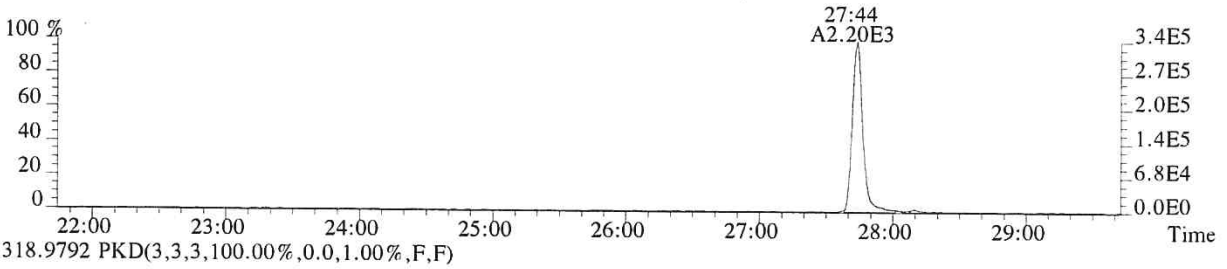
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4684.0,1.00%,F,T)



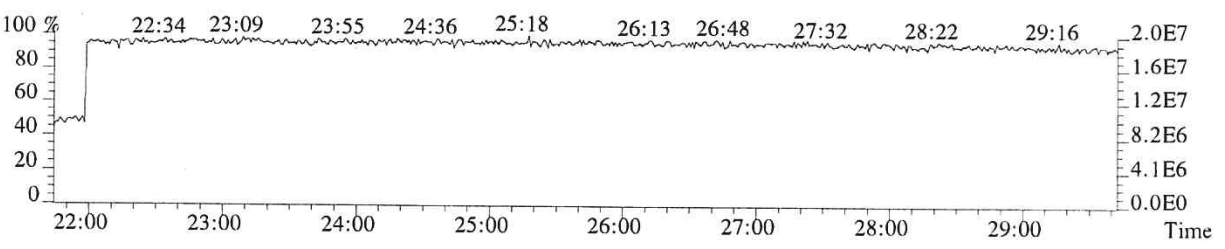
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1296.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)

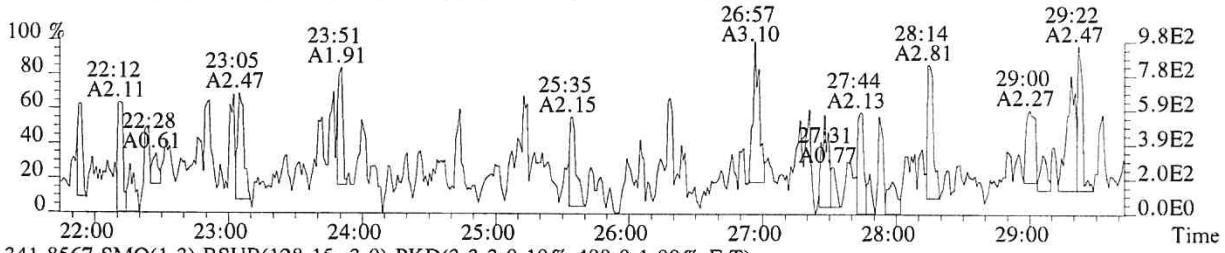


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

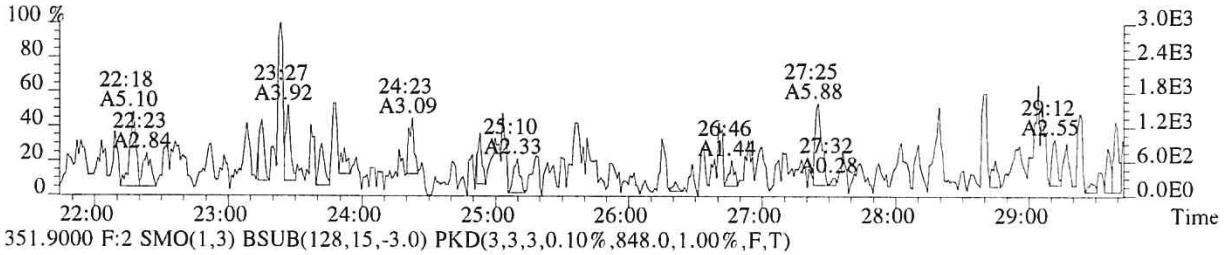


014696

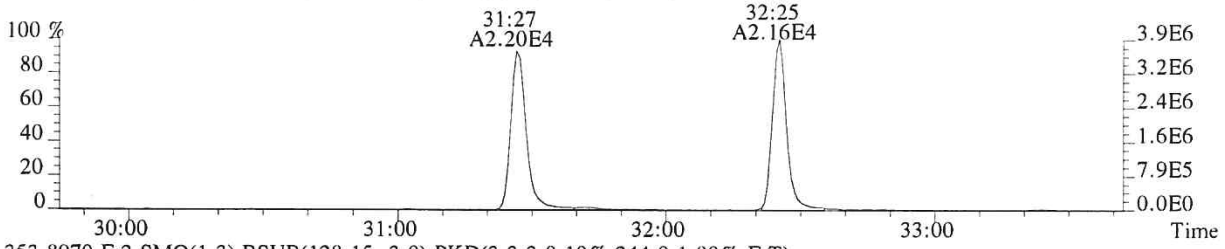
File:P519531 #1-566 Acq:21-DEC-2018 01:36:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,288.0,1.00%,F,T)



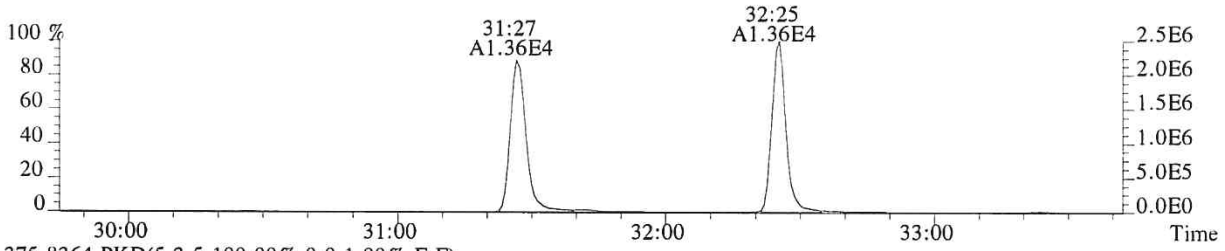
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,488.0,1.00%,F,T)



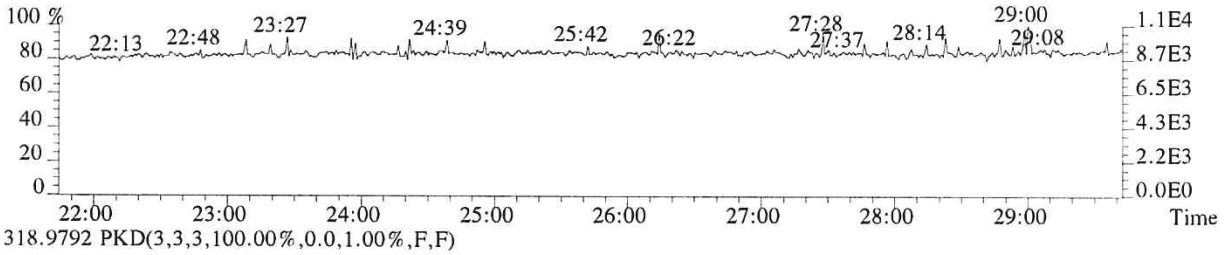
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,848.0,1.00%,F,T)



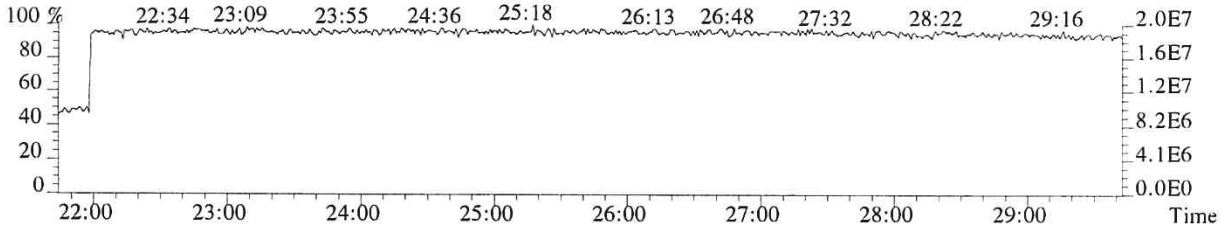
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,244.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

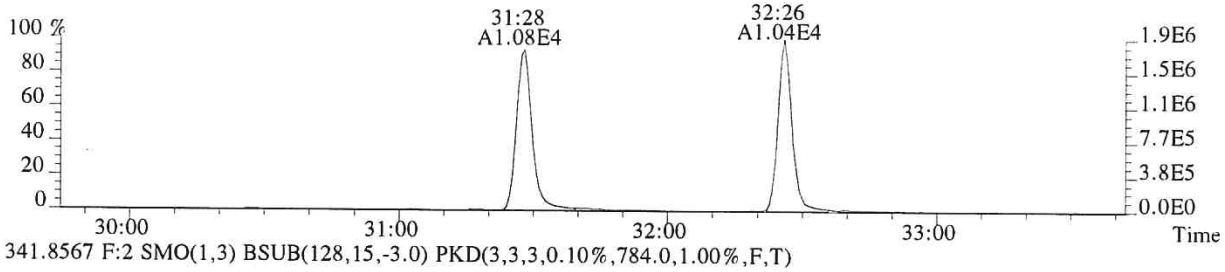


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

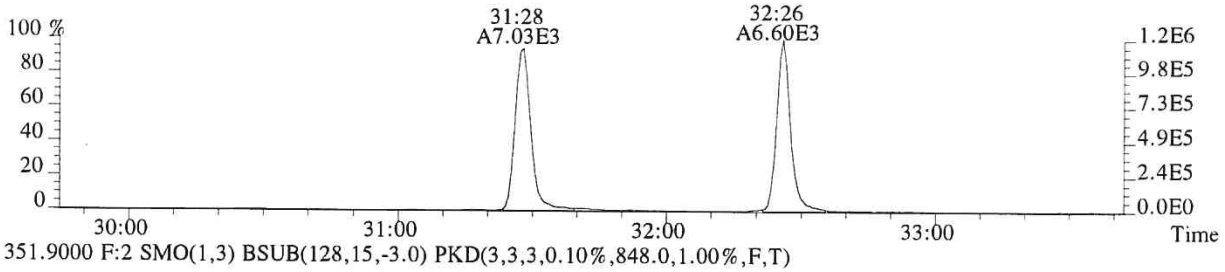


014697

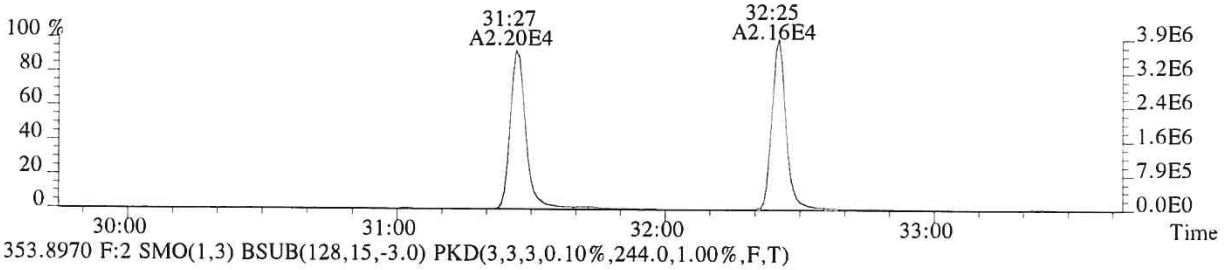
File:P519531 #1-357 Acq:21-DEC-2018 01:36:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,288.0,1.00%,F,T)



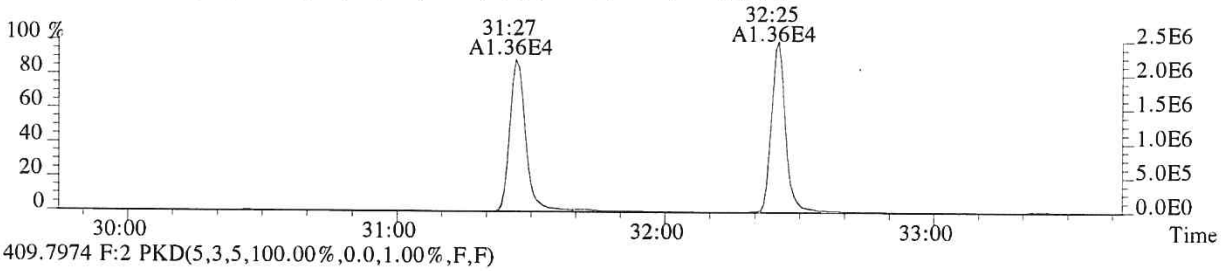
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,784.0,1.00%,F,T)



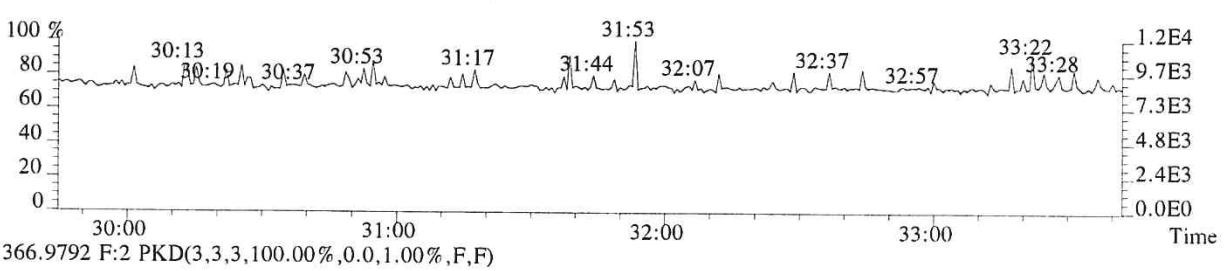
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,848.0,1.00%,F,T)



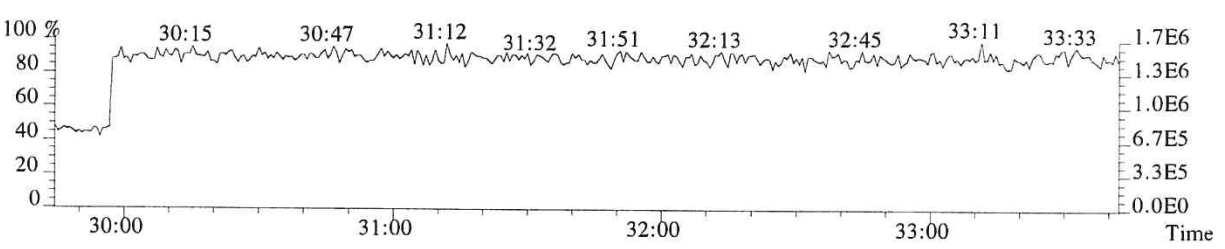
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,244.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

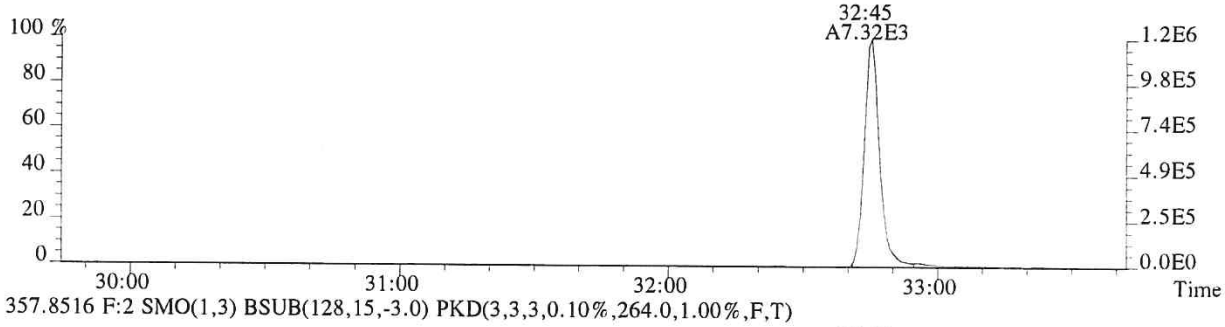


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

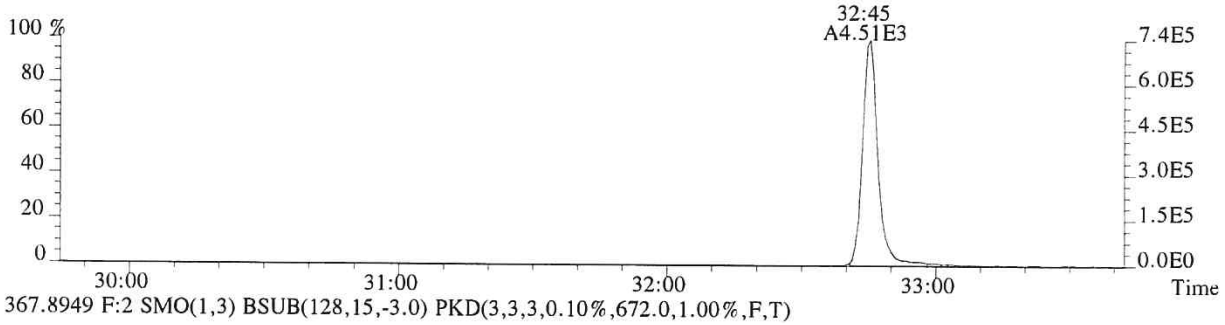


014698

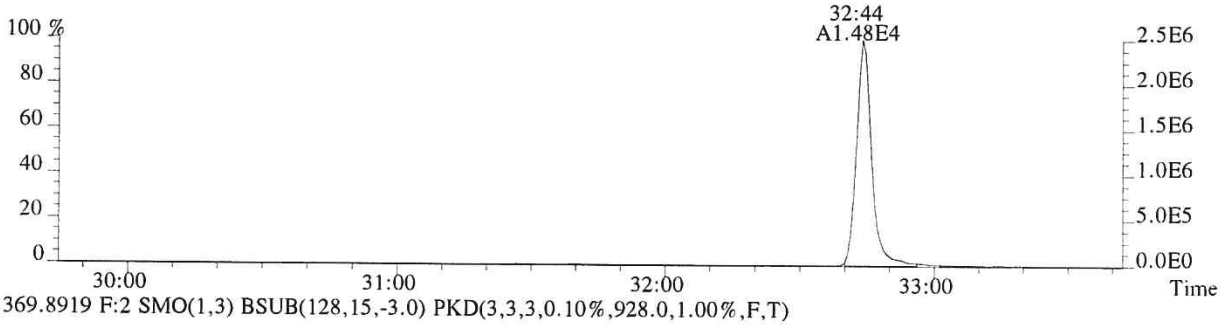
File:P519531 #1-357 Acq:21-DEC-2018 01:36:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,724.0,1.00%,F,T)



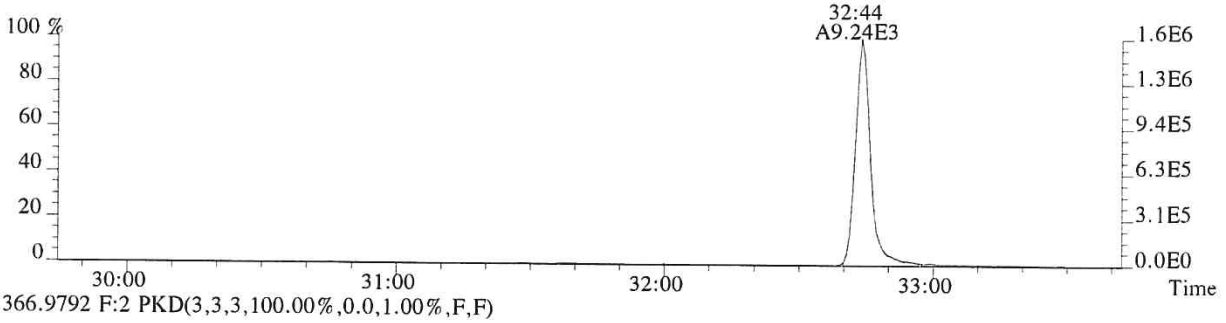
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,264.0,1.00%,F,T)



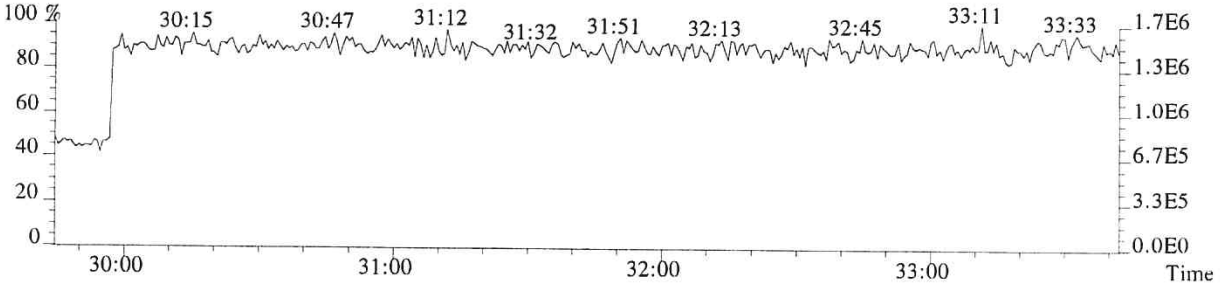
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,672.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,928.0,1.00%,F,T)

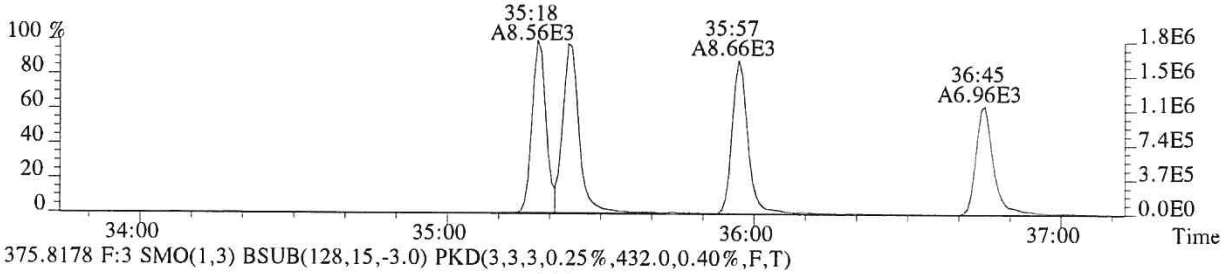


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

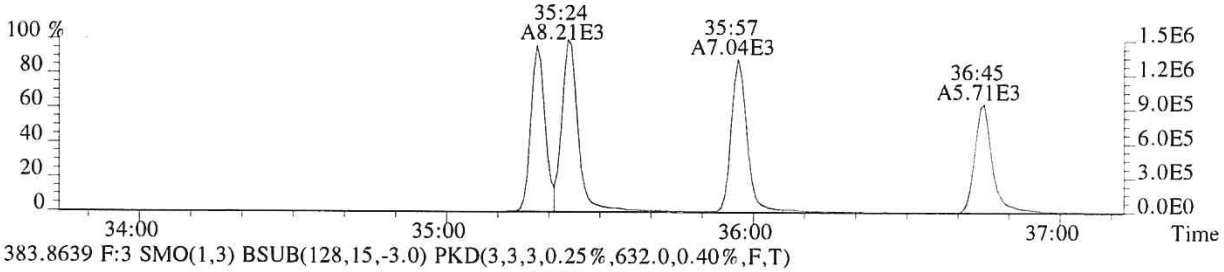


014699

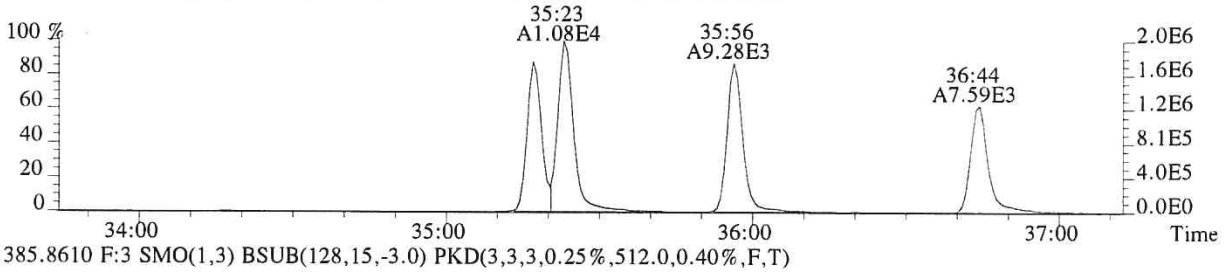
File:P519531 #1-313 Acq:21-DEC-2018 01:36:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,664.0,0.40%,F,T)



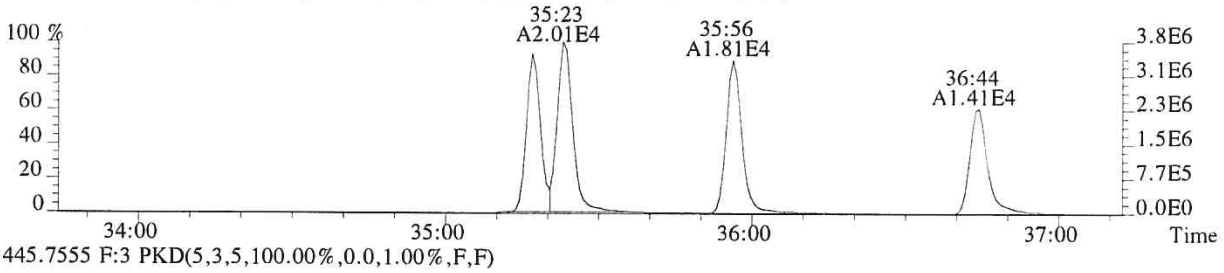
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,432.0,0.40%,F,T)



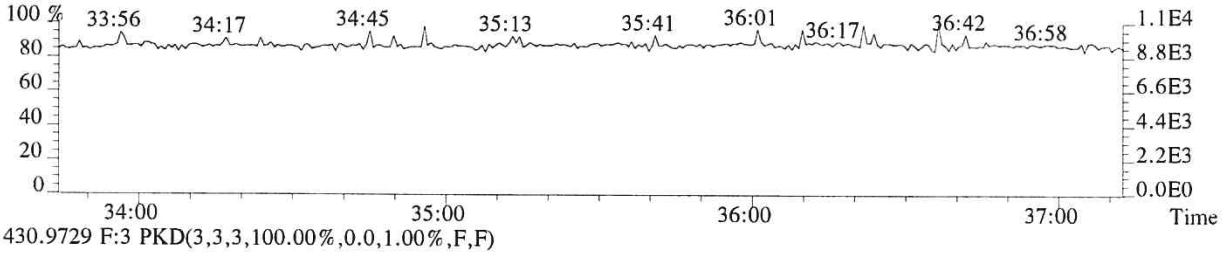
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,632.0,0.40%,F,T)



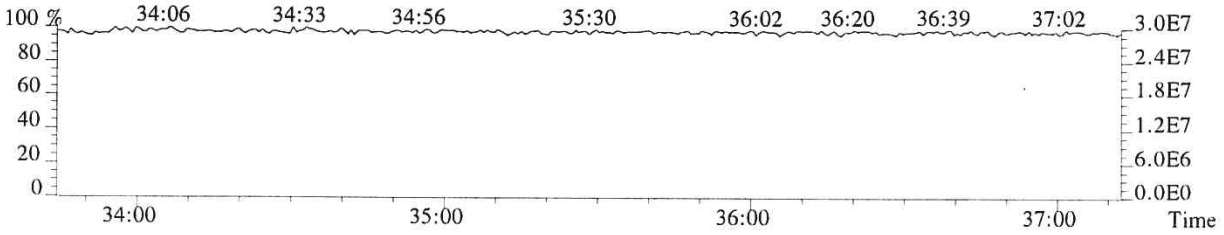
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,512.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

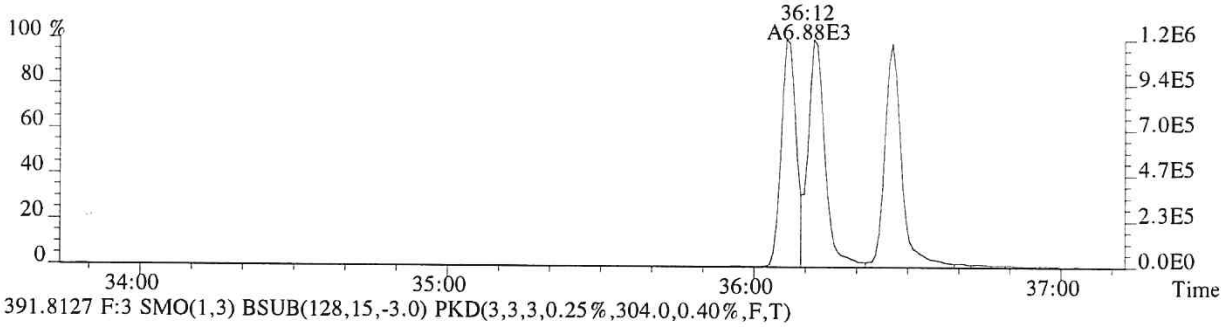


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

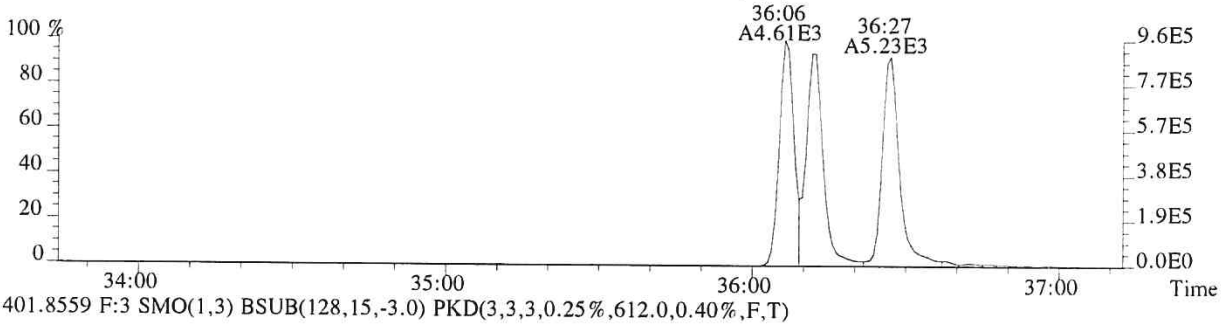


014700

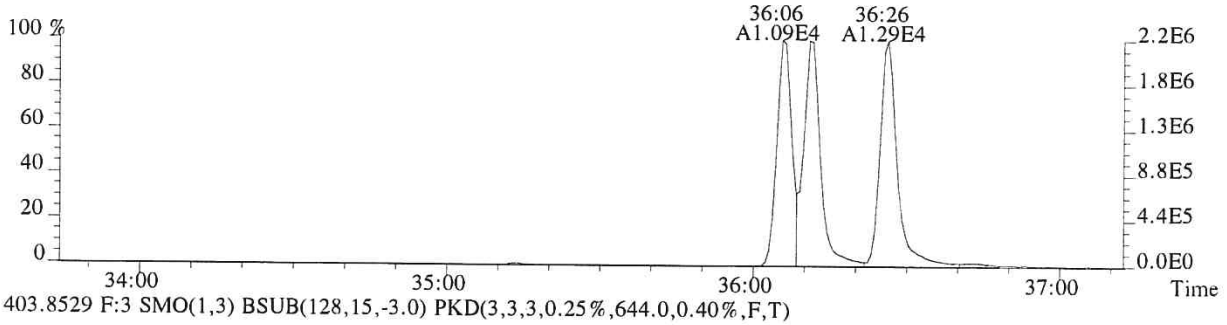
File:P519531 #1-313 Acq:21-DEC-2018 01:36:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,352.0,0.40%,F,T)



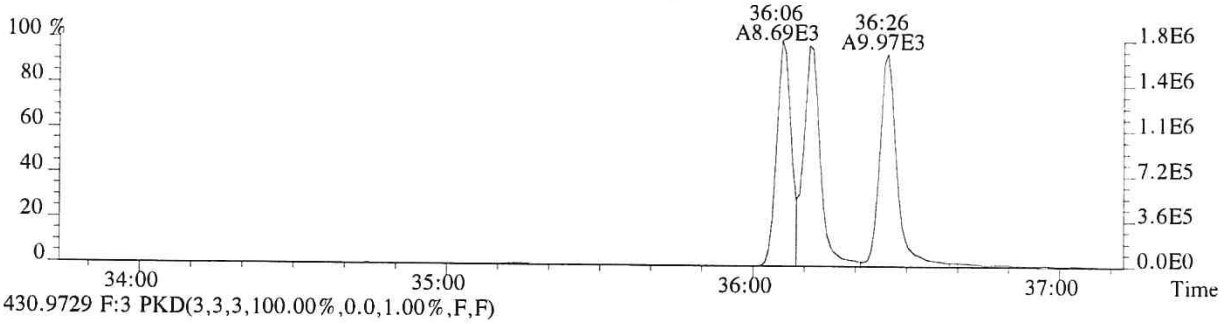
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,304.0,0.40%,F,T)



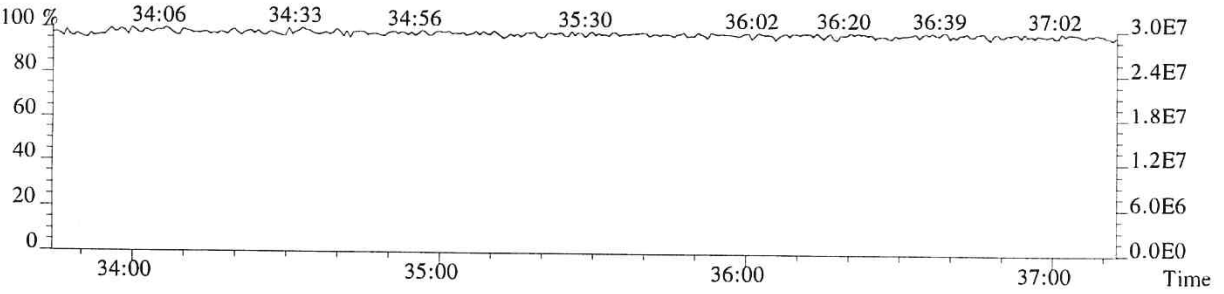
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,612.0,0.40%,F,T)



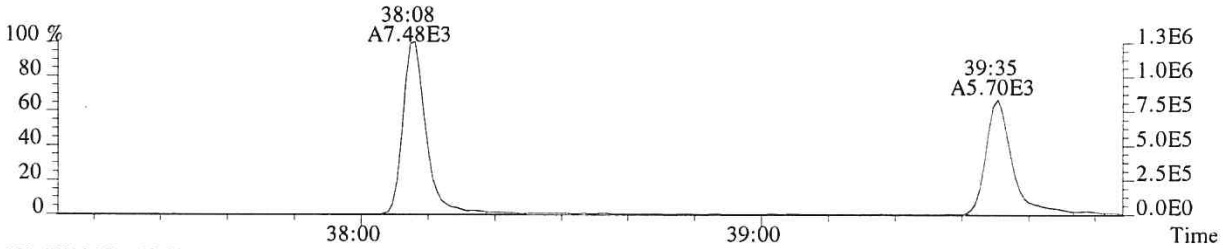
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,644.0,0.40%,F,T)



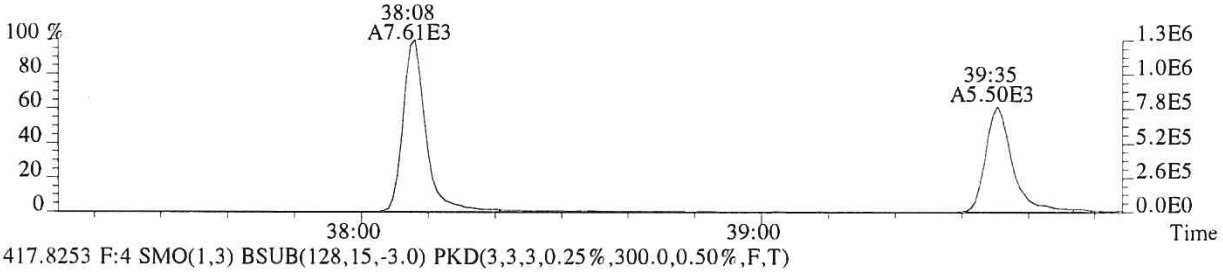
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



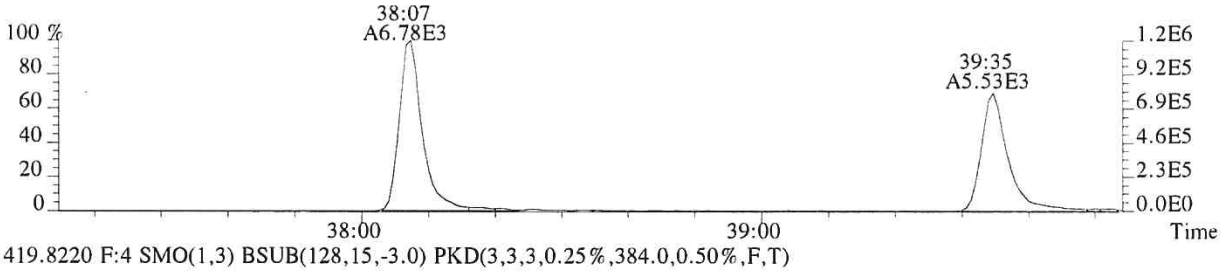
File:P519531 #1-240 Acq:21-DEC-2018 01:36:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1536.0,0.50%,F,T)



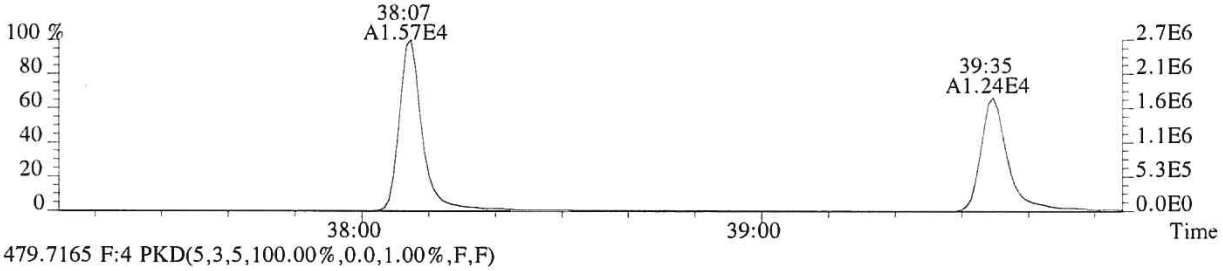
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,308.0,0.50%,F,T)



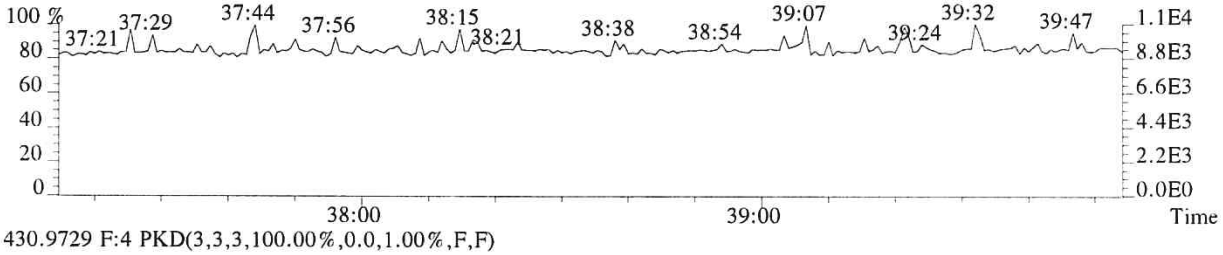
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,300.0,0.50%,F,T)



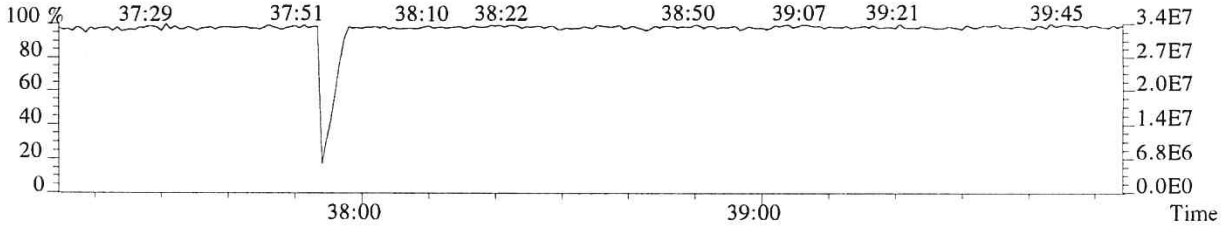
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,384.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

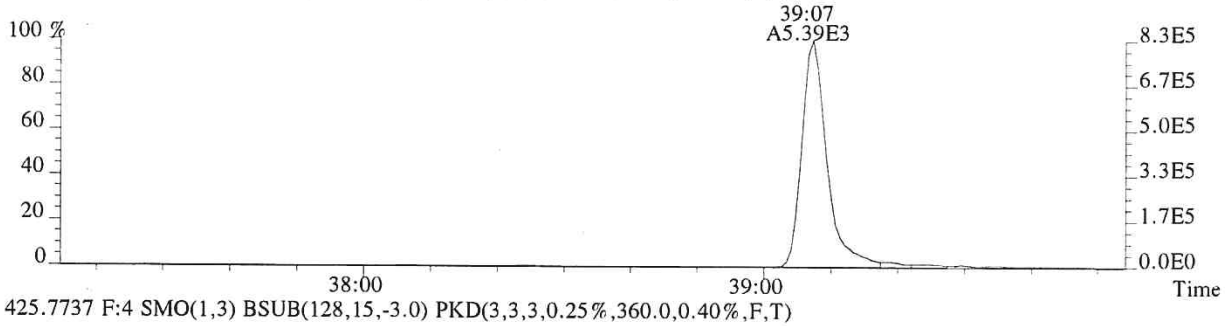


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

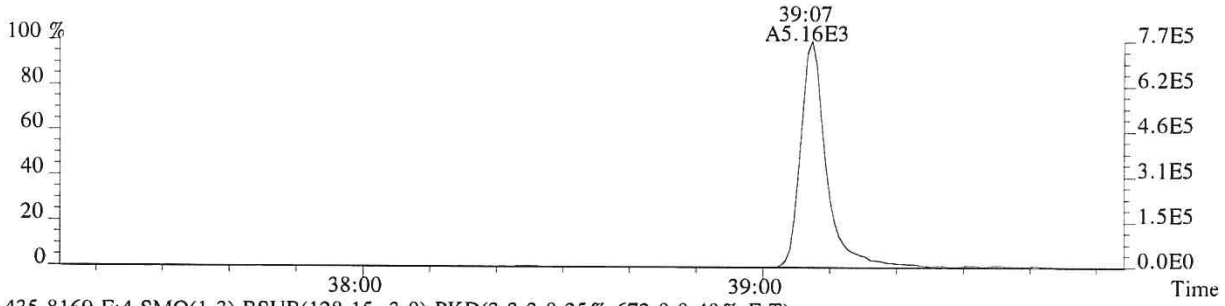


014702

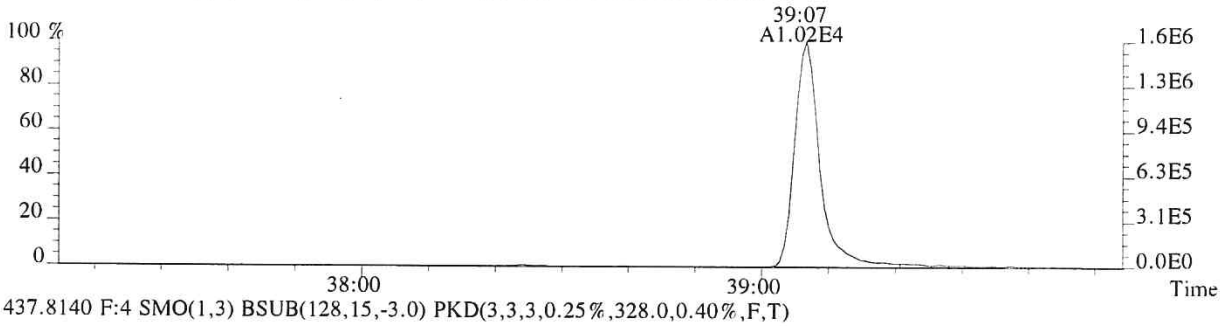
File:P519531 #1-240 Acq:21-DEC-2018 01:36:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,412.0,0.40%,F,T)



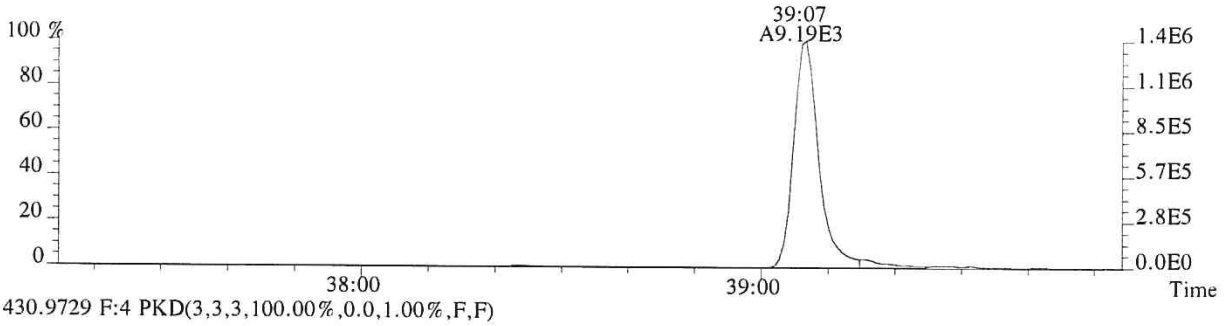
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,360.0,0.40%,F,T)



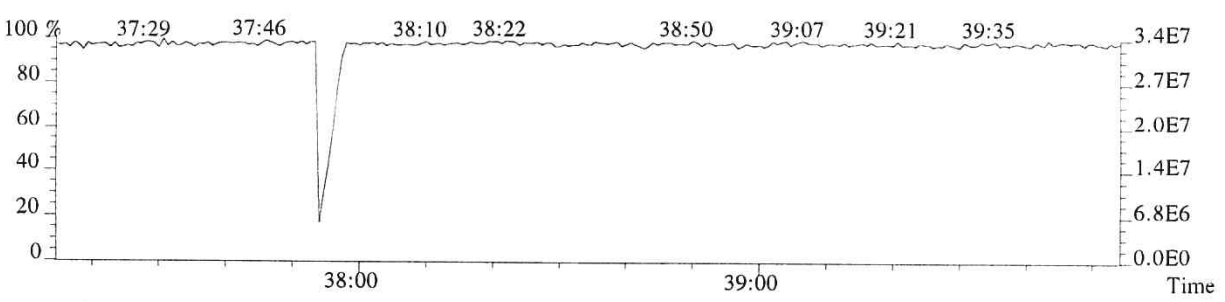
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,672.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,328.0,0.40%,F,T)

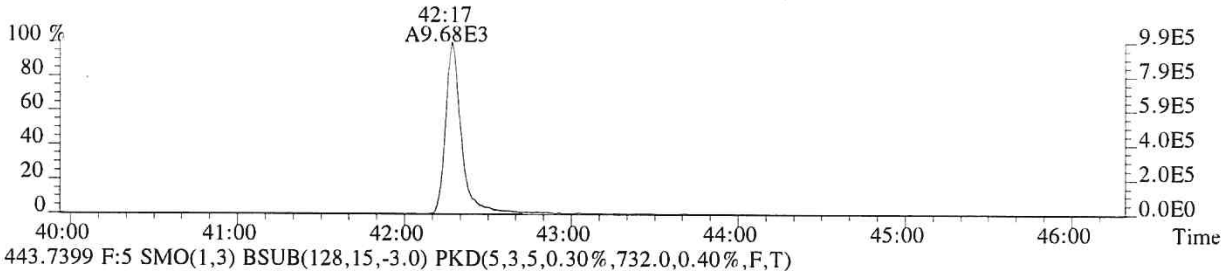


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

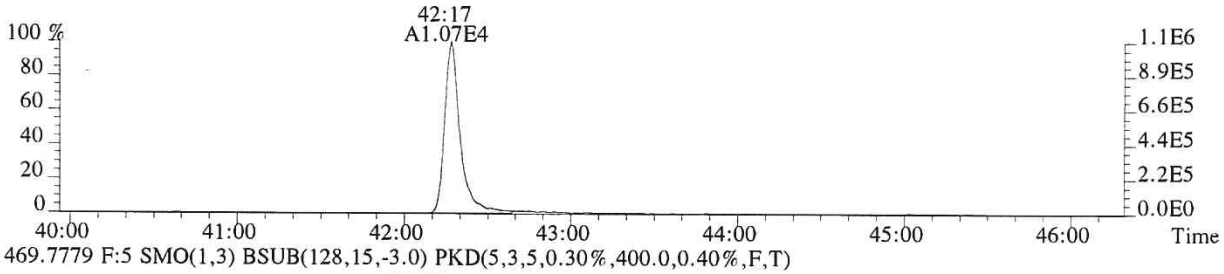


014703

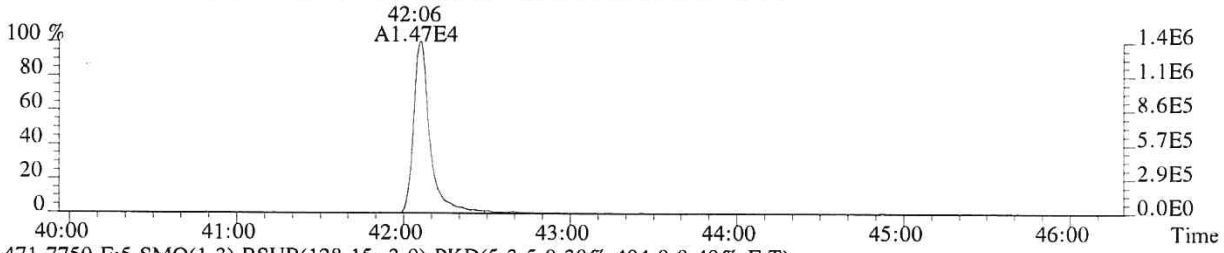
File:P519531 #1-575 Acq:21-DEC-2018 01:36:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,432.0,0.40%,F,T)



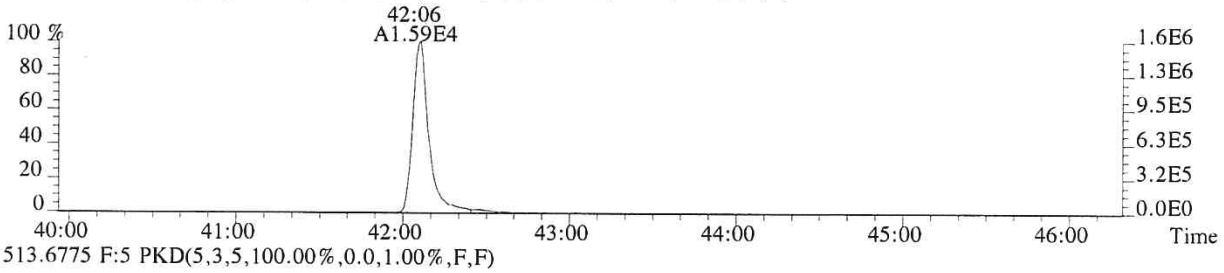
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,732.0,0.40%,F,T)



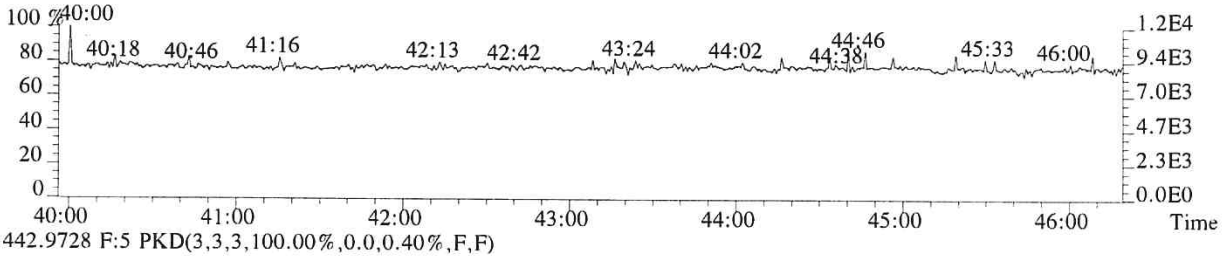
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,400.0,0.40%,F,T)



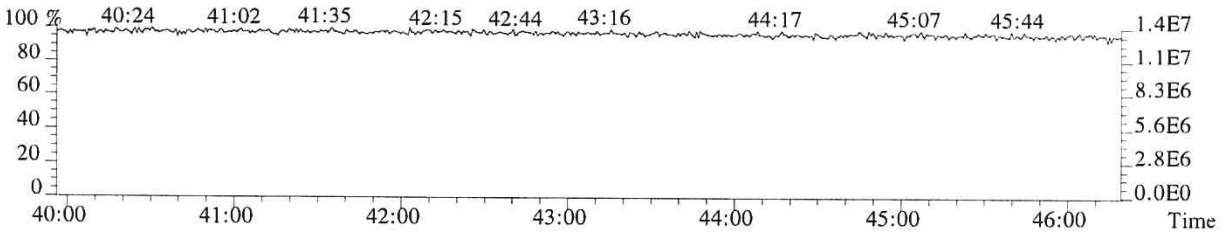
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,404.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

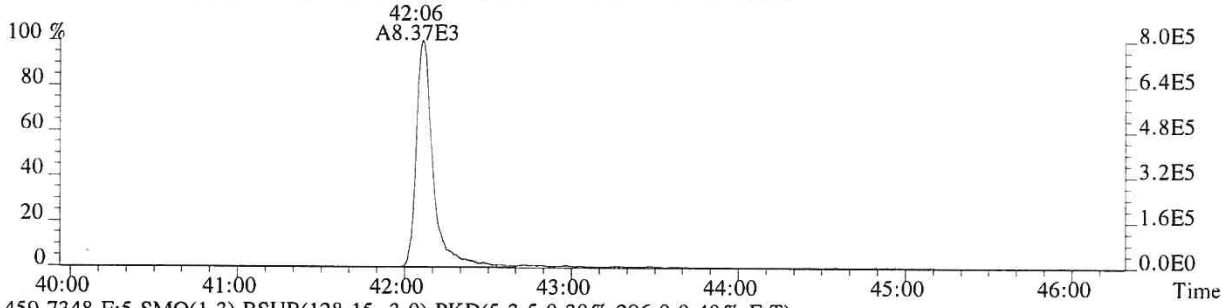


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

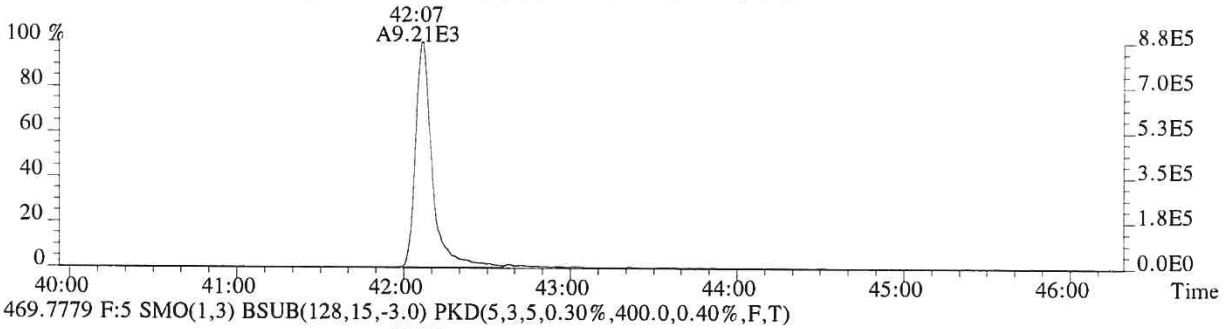


014704

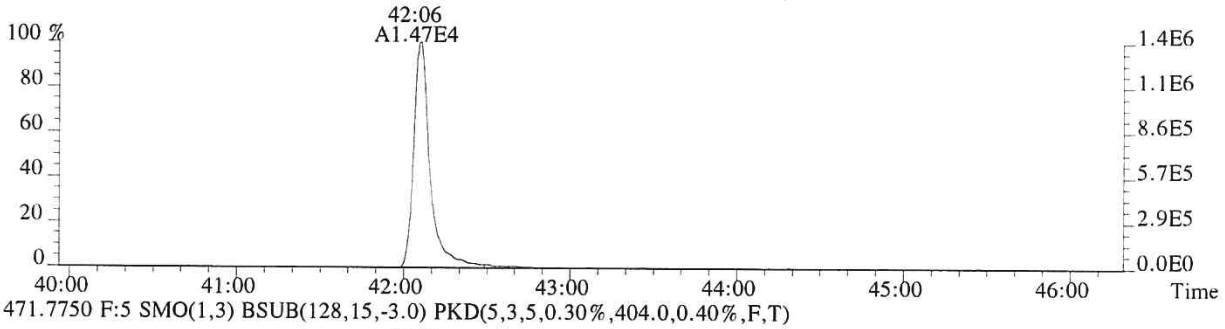
File:P519531 #1-575 Acq:21-DEC-2018 01:36:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,440.0,0.40%,F,T)



459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,296.0,0.40%,F,T)



469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,400.0,0.40%,F,T)



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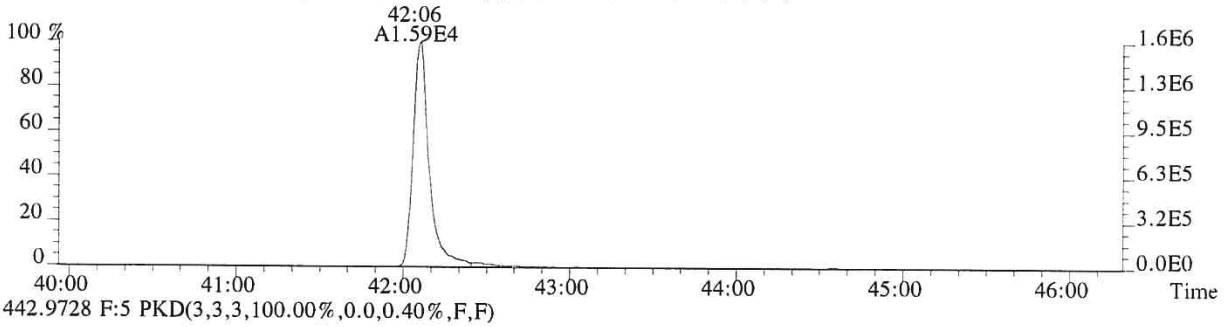
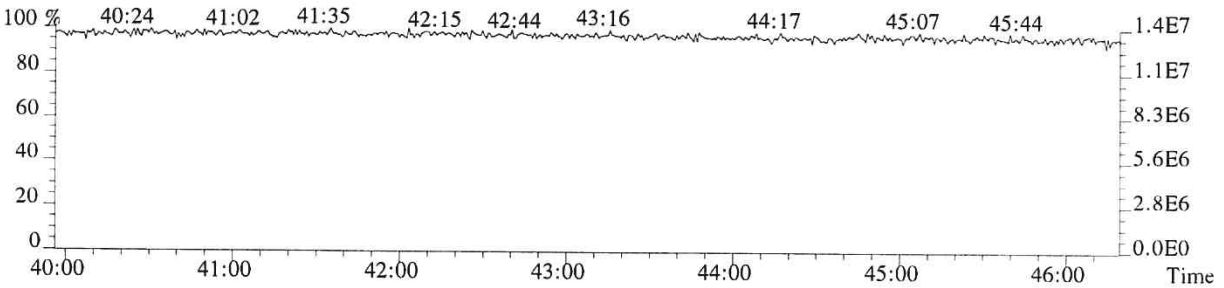


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P519532

Date: 12/21/18

Circle one: (Beginning) / Ending

Method: (1613) / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: LKL Second QC: LG

ccalqc.xls 07/17/12

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

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
192977	WINDOW DEFINE	P519533	21-DEC-18	03:20:28
194503	CS3	P519532	21-DEC-18	02:32:41
METHOD BLANK	EQ1800510-01	P519534	21-DEC-18	04:09:06
SL0008	E1801093-013DL	P519535	21-DEC-18	04:57:52
SL0009	E1801093-014DL	P519536	21-DEC-18	05:46:29
SL0010	E1801093-015DL	P519537	21-DEC-18	06:35:07
SL0001	E1801093-016DL	P519538	21-DEC-18	07:23:44
SL0029	E1801094-002DL	P519539	21-DEC-18	08:12:22
SL0030	E1801094-003DL	P519540	21-DEC-18	09:00:59
SL0030	E1801094-004DL	P519541	21-DEC-18	09:49:36
SL0066	E1801096-011DL	P519542	21-DEC-18	10:38:15
SL0067	E1801096-012DL	P519543	21-DEC-18	11:26:53

E1801093

Sample List Report **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20181221A.SPL
Last Modified: Friday, December 21, 2018 08:23:10 Central Standard Time
Printed: Friday, December 21, 2018 08:23:42 Central Standard Time

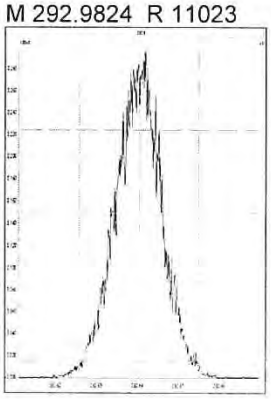
Page Position (1, 1)

OPUS 5 NET: P519532.RES

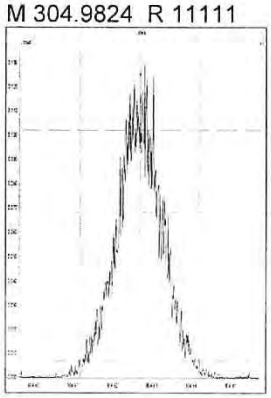
	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	12/21/18	02:32	P519532	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2	T	HRMS CHECK 02:32
2		03:20	P519533	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:1		
3		04:09	P519534	MB	EQ1800510-01	EPA1613_ALS	Dioxin_ALS	Tray1:16		
4		04:57	P519535	E1801093-013DL	E1801093-013DL	EPA1613_ALS	Dioxin_ALS	Tray1:17		
5		05:46	P519536	E1801093-014DL	E1801093-014DL	EPA1613_ALS	Dioxin_ALS	Tray1:18		
6		06:35	P519537	E1801093-015DL	E1801093-015DL	EPA1613_ALS	Dioxin_ALS	Tray1:19		
7		07:23	P519538	E1801093-016DL	E1801093-016DL	EPA1613_ALS	Dioxin_ALS	Tray1:20		
8		08:12	P519539	E1801094-002DL	E1801094-002DL	EPA1613_ALS	Dioxin_ALS	Tray1:21		
9		09:00	P519540	E1801094-003DL	E1801094-003DL	EPA1613_ALS	Dioxin_ALS	Tray1:22		
10		09:49	P519541	E1801094-004DL	E1801094-004DL	EPA1613_ALS	Dioxin_ALS	Tray1:23		
11		10:38	P519542	E1801096-011DL	E1801096-011DL	EPA1613_ALS	Dioxin_ALS	Tray1:24		
12		11:26	P519543	E1801096-012DL	E1801096-012DL	EPA1613_ALS	Dioxin_ALS	Tray1:25		
13		12:23	P519544	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2		HRMS CHECK 12:23

LKL 12/24/18

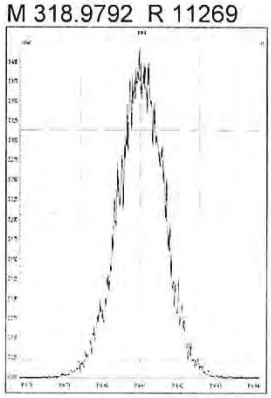
M 292.9824 R 11023



M 304.9824 R 11111



M 318.9792 R 11269



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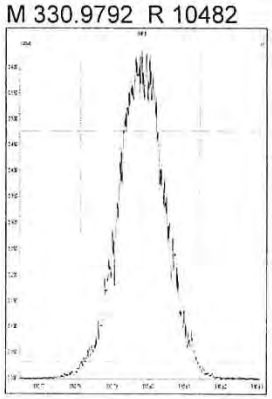
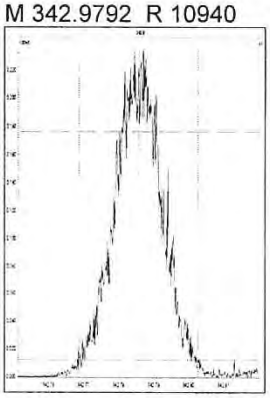
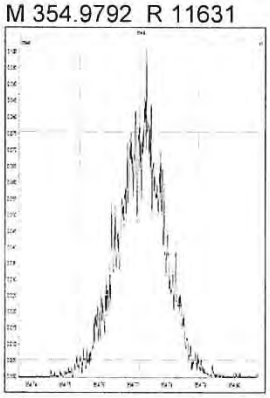


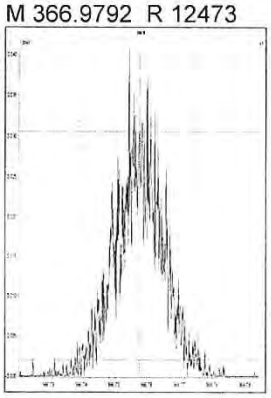
M 342.9792 R 10940



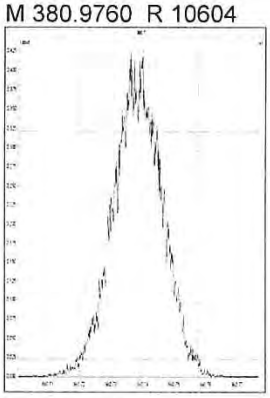
M 354.9792 R 11631



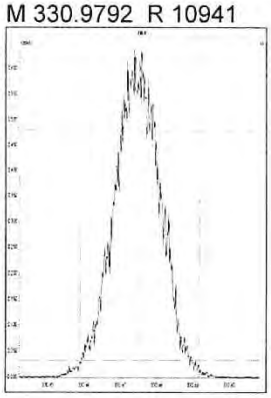
M 366.9792 R 12473



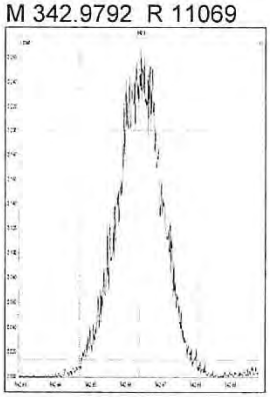
M 380.9760 R 10604



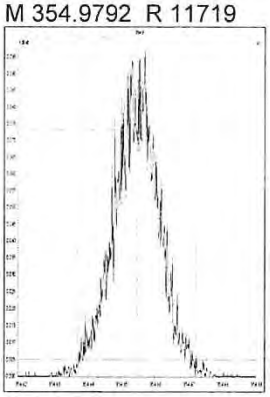
M 330.9792 R 10941



M 342.9792 R 11069



M 354.9792 R 11719



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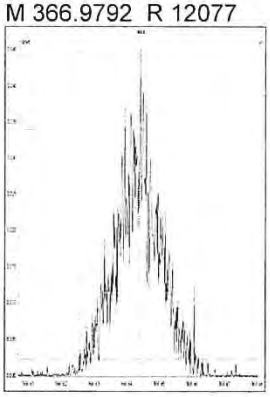

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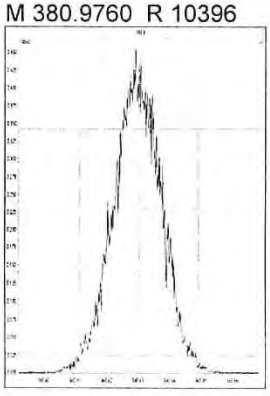
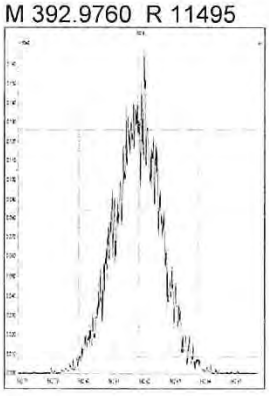
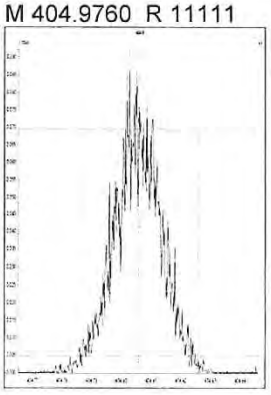


M 392.9760 R 11495



M 404.9760 R 11111



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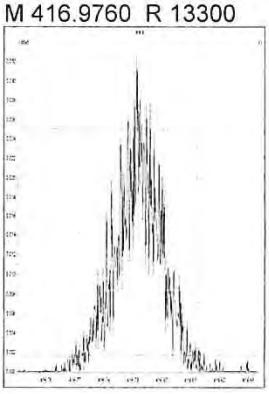
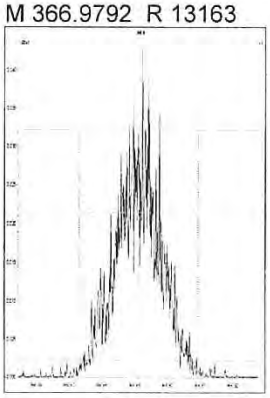
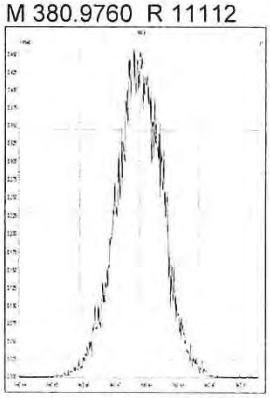


M 366.9792 R 13163



M 380.9760 R 11112



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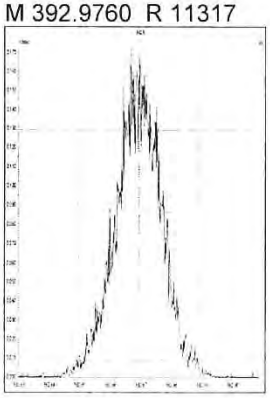
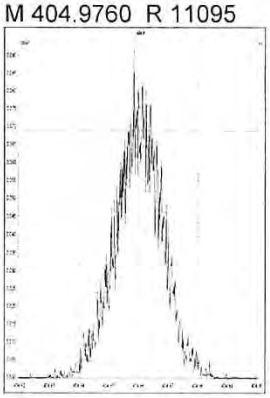
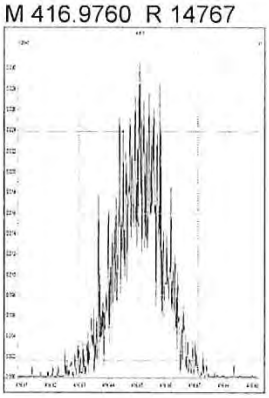


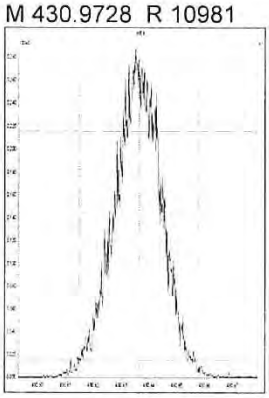
M 404.9760 R 11095



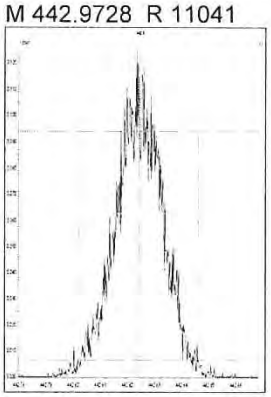
M 416.9760 R 14767



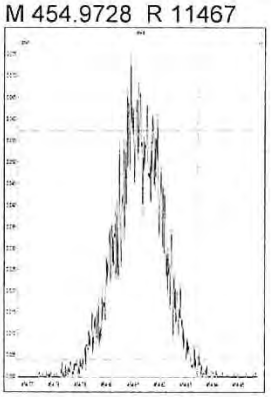
M 430.9728 R 10981



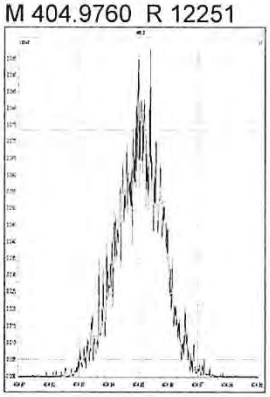
M 442.9728 R 11041



M 454.9728 R 11467



M 404.9760 R 12251



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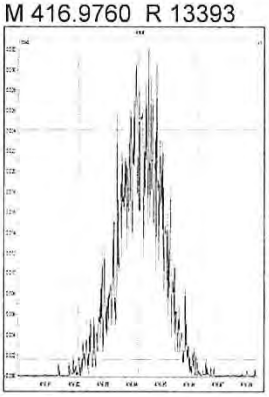

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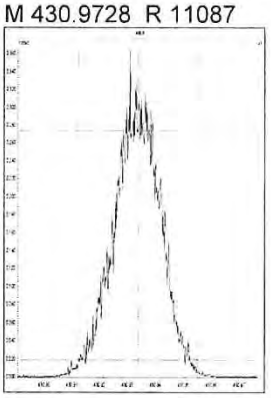
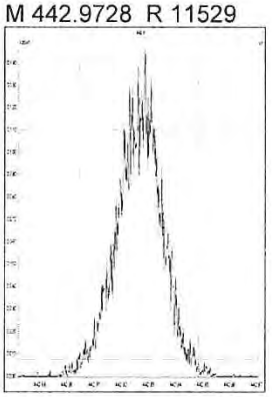
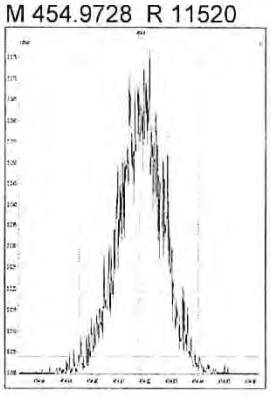


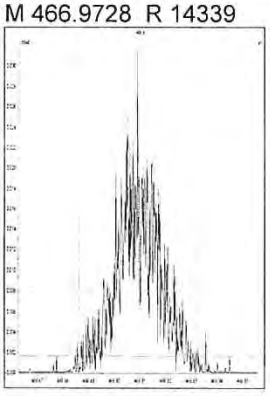
M 442.9728 R 11529



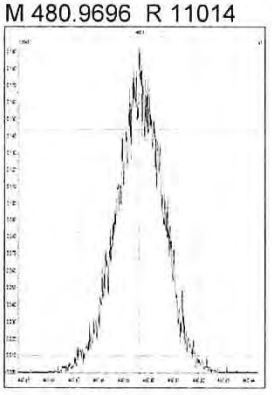
M 454.9728 R 11520



M 466.9728 R 14339



M 480.9696 R 11014



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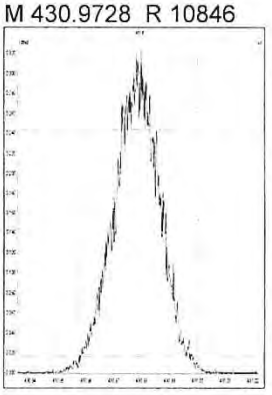

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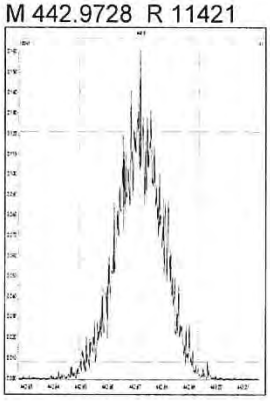

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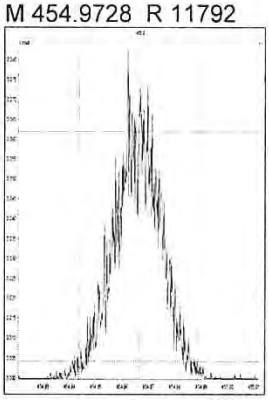

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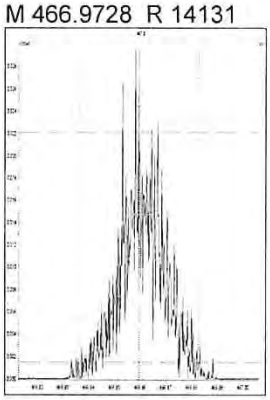

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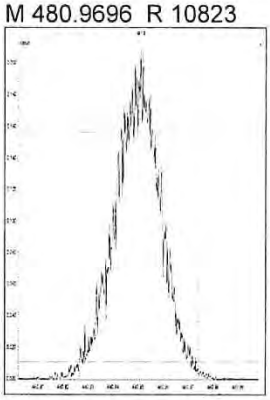

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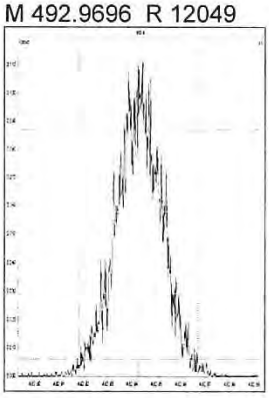
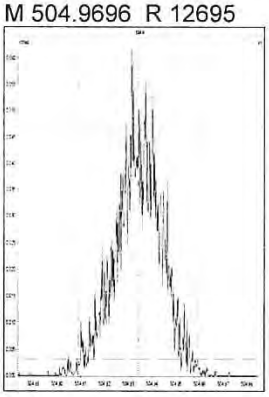


M 504.9696 R 12695



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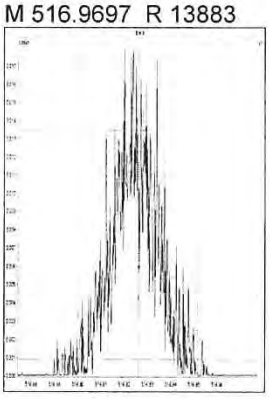

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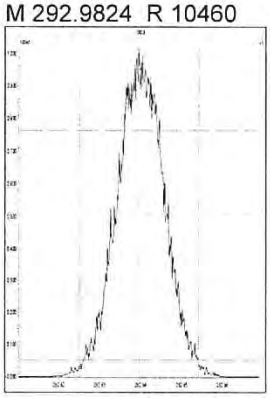

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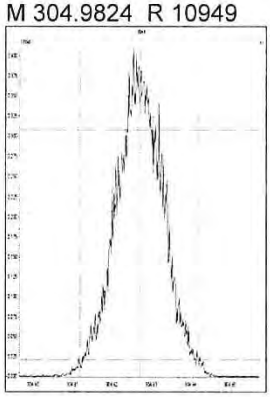

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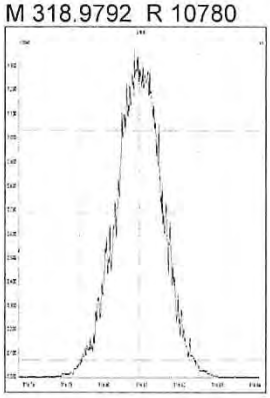

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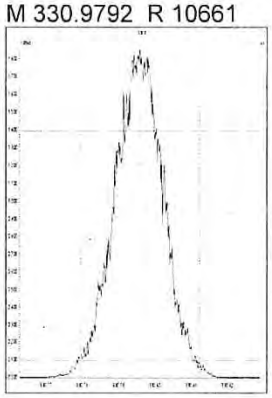

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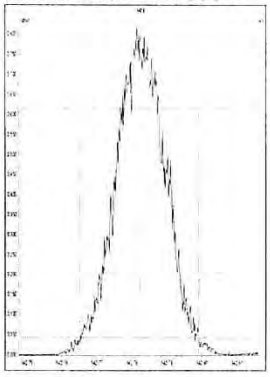

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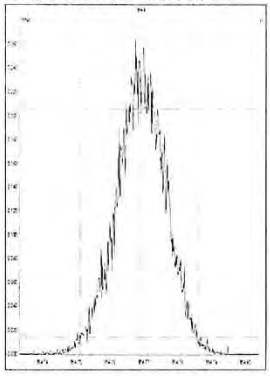

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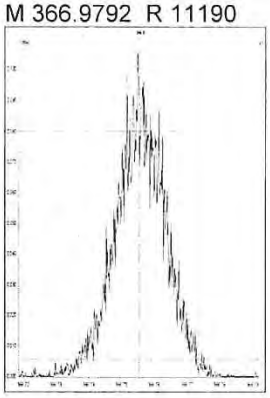

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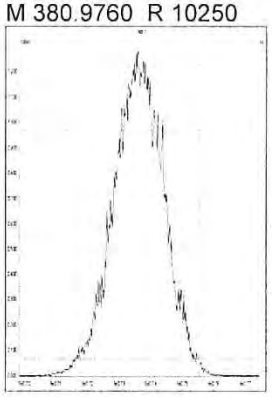

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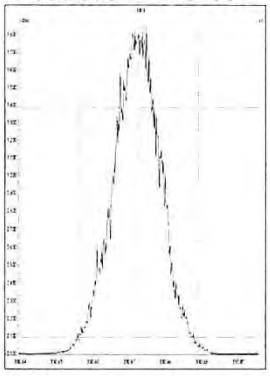

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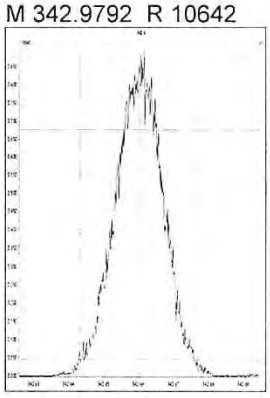

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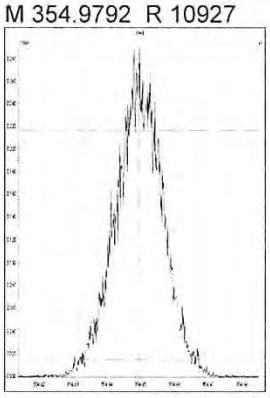

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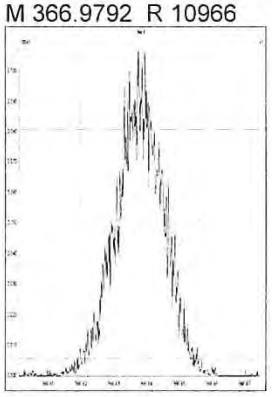

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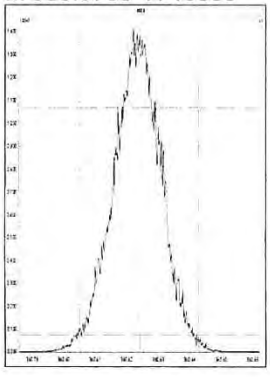

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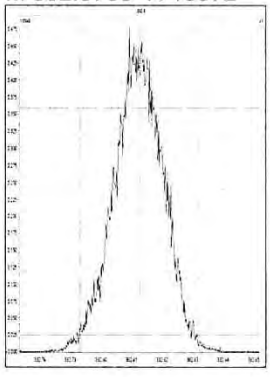

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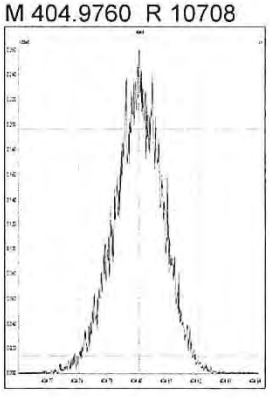

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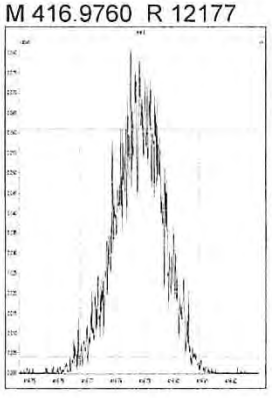

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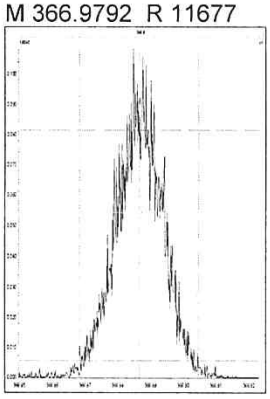

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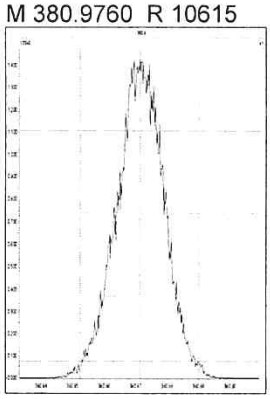

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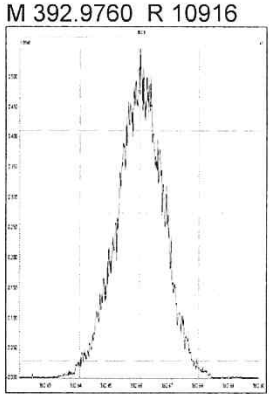

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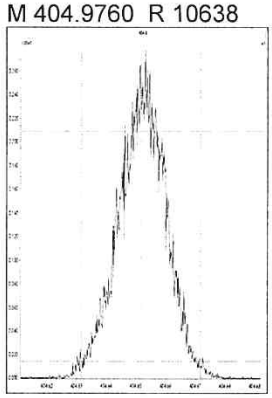

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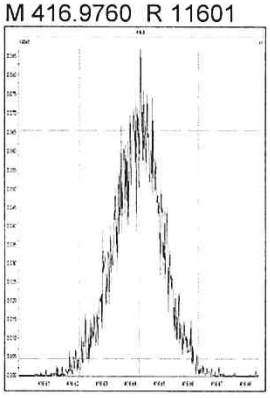

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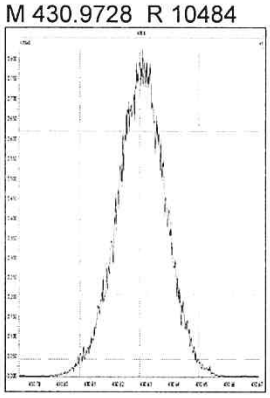

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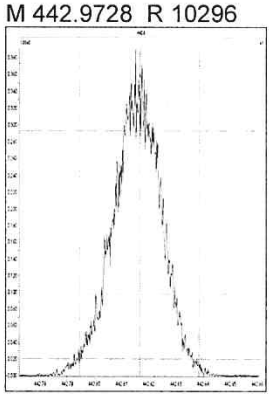

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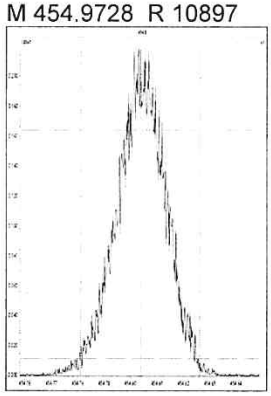

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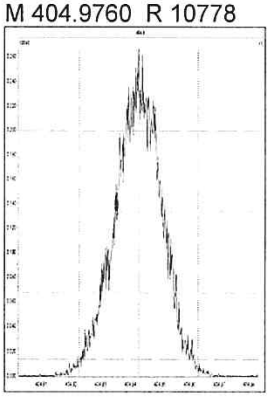

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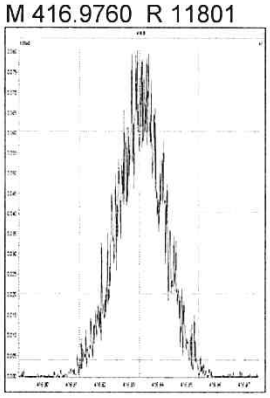

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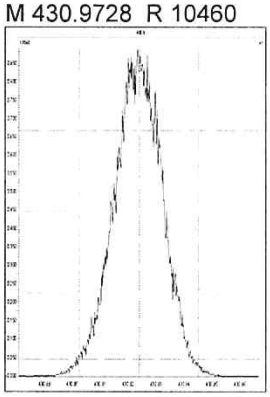

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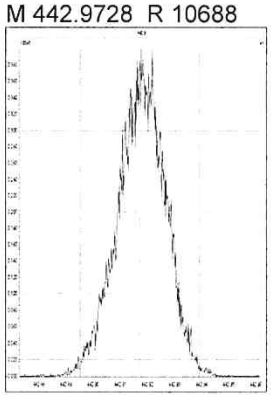

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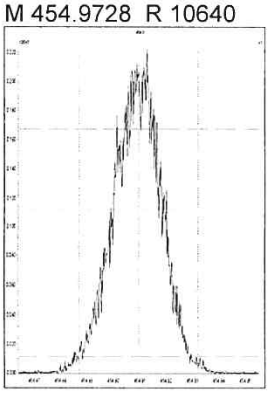

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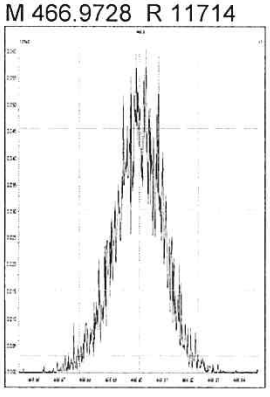

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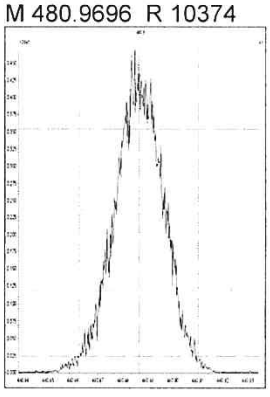

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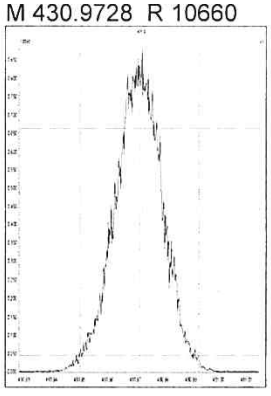

Printed: Friday, December 21, 2018 12:23:41 Central Standard Time

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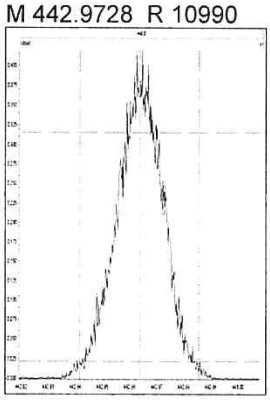

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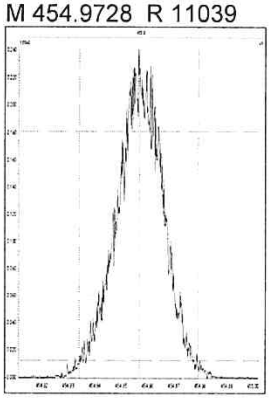

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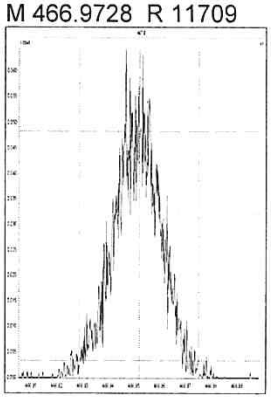

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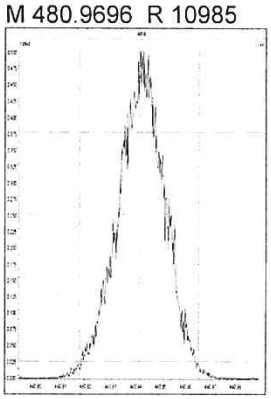

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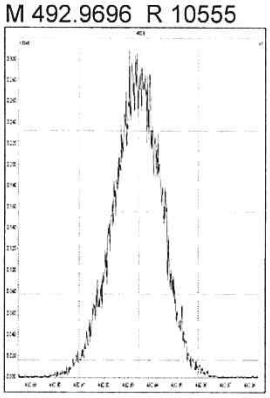

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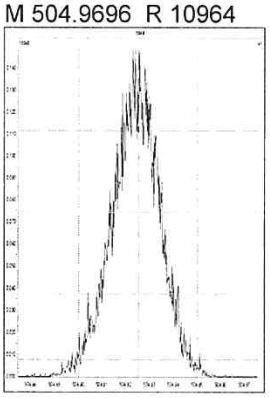
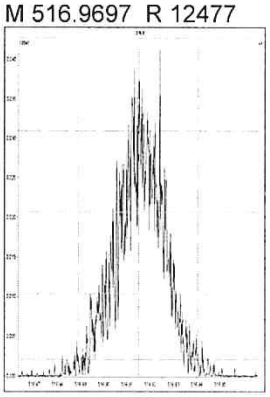


M 516.9697 R 12477



WINDOW DEFINING MIX SUMMARY

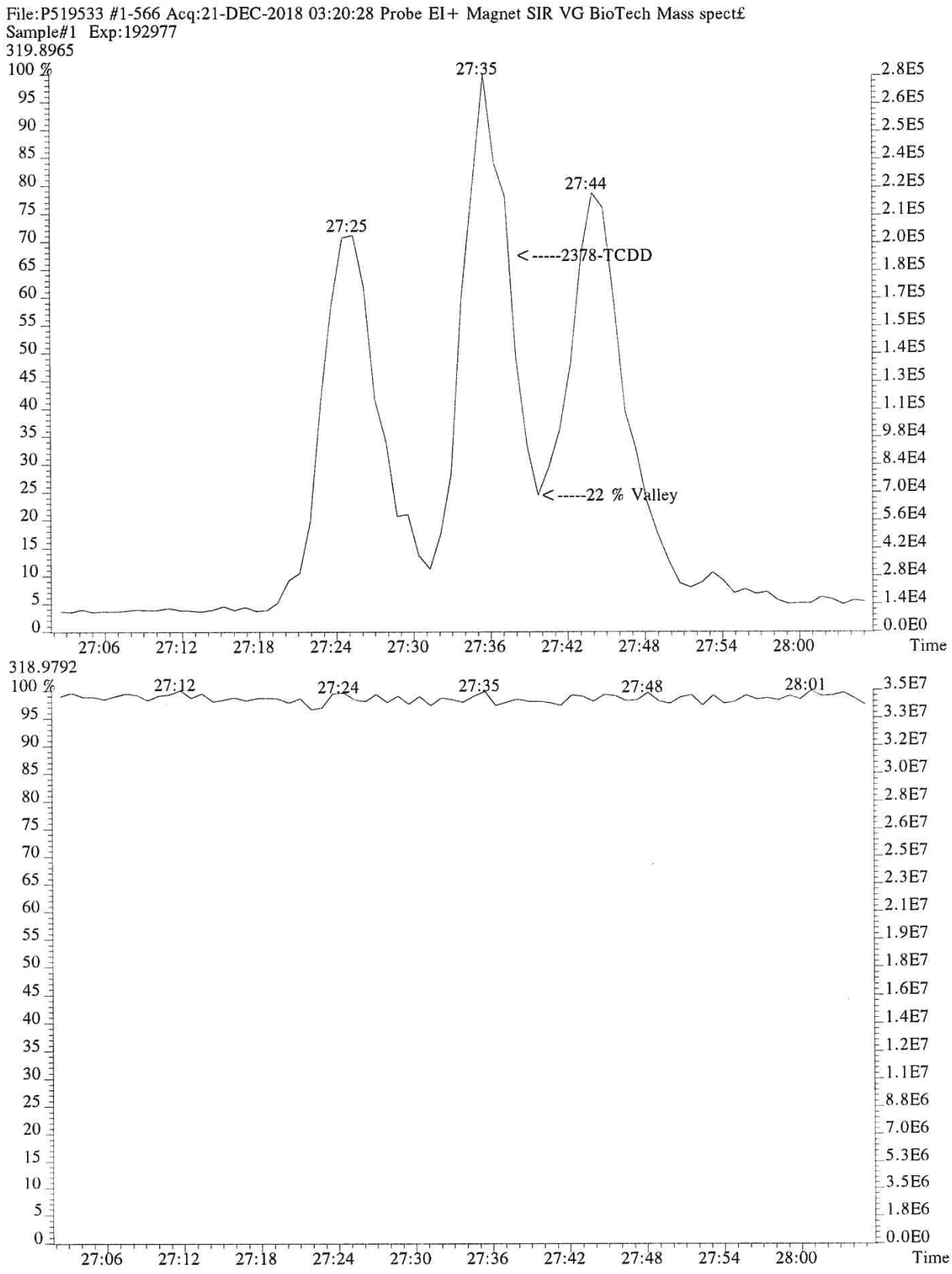
CLIENT ID:

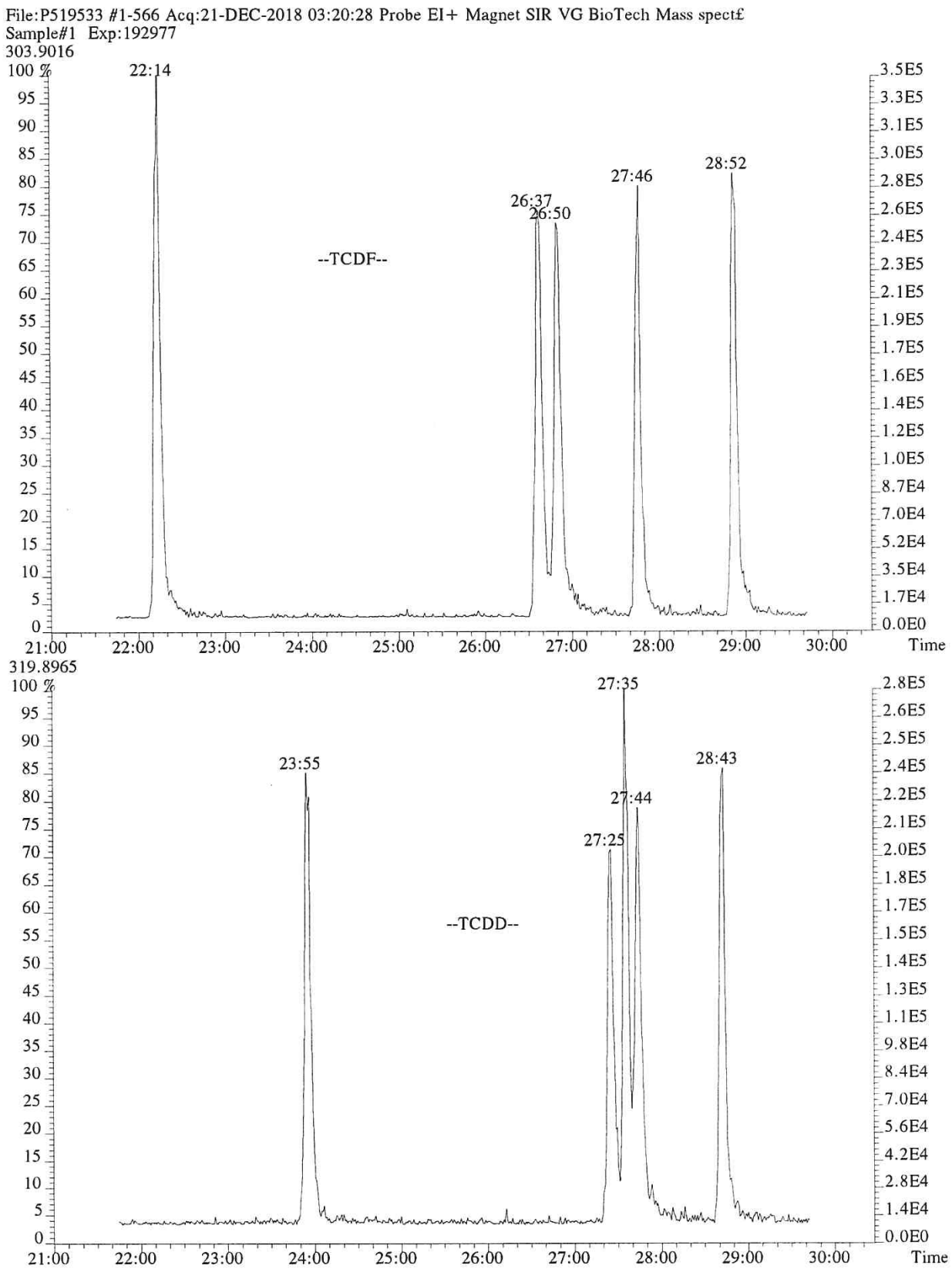
WDM

Lab Name: ALS Environmental
Lab Code: ALSTX Case No.: _____ SDG No.:
GC Column: DB-5MSUI ID: 0.25 (mm) Lab File ID: P519533
Date Analyzed: 21-DEC-18
Time Analyzed: 03:20:28

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	22:14	28:52
TCDD	23:55	28:43
PeCDF	28:51	33:24
PeCDD	30:32	33:09
HxCDF	34:08	36:47
HxCDD	34:42	36:23
HpCDF	38:09	39:36
HpCDD	38:26	39:08

% Valley 2378-TCDD: 22 %


File:P519533 #1-566 Acq:21-DEC-2018 03:20:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
319.8965
100 %
27:35
27:44
27:25
<-----2378-TCDD
<-----22 % Valley
Time
318.9792
100 %
27:12
27:24
27:35
27:48
28:01
Time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Sample#1 Exp:192977
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100 %
22:14
26:37
26:50
27:46
28:52
--TCDF--
Time
319.8965
100 %
23:55
27:25
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27:44
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Time

File:P519533 #1-566 Acq:21-DEC-2018 03:20:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
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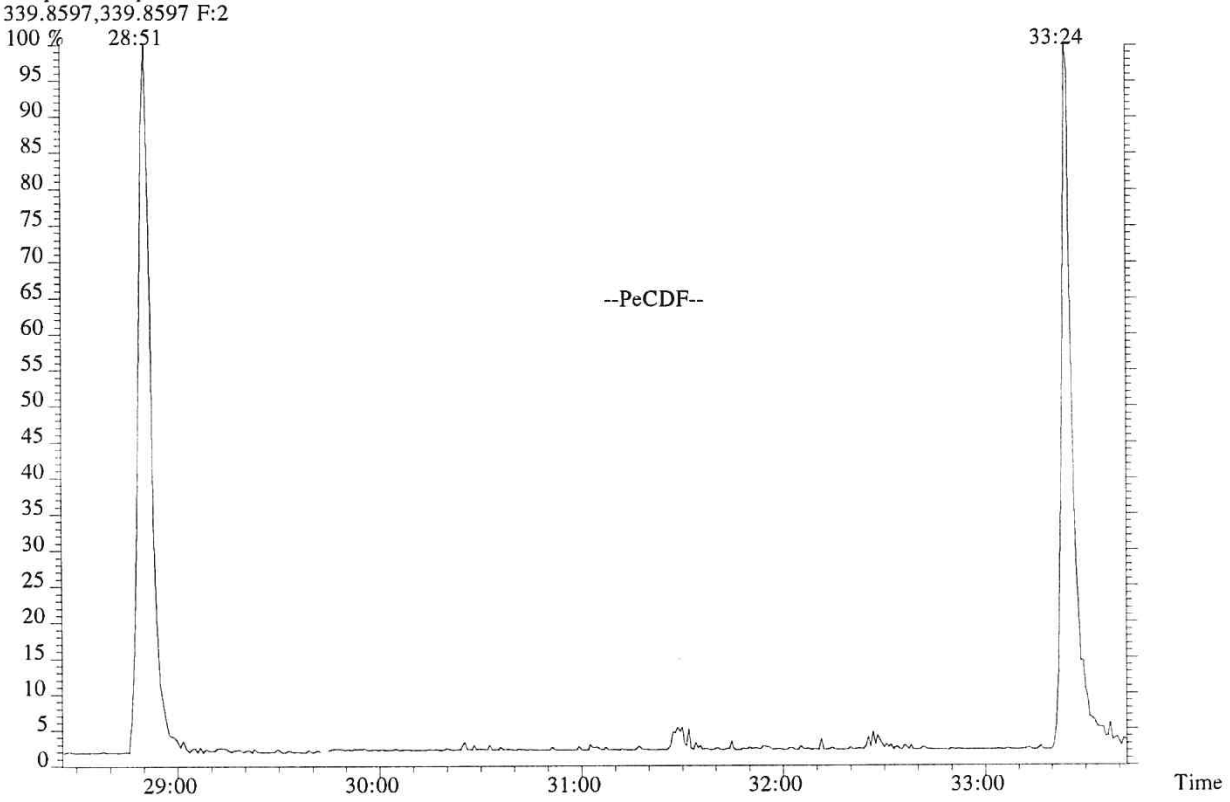
339.8597,339.8597 F:2



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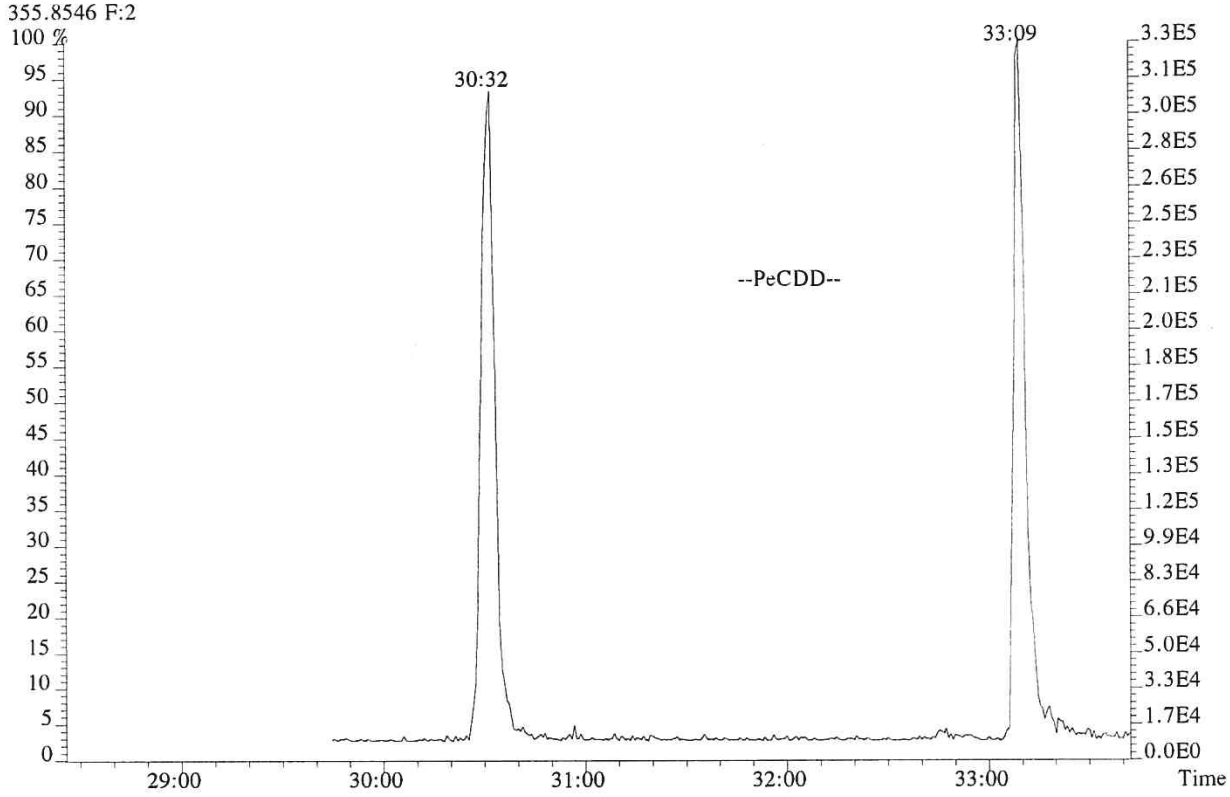

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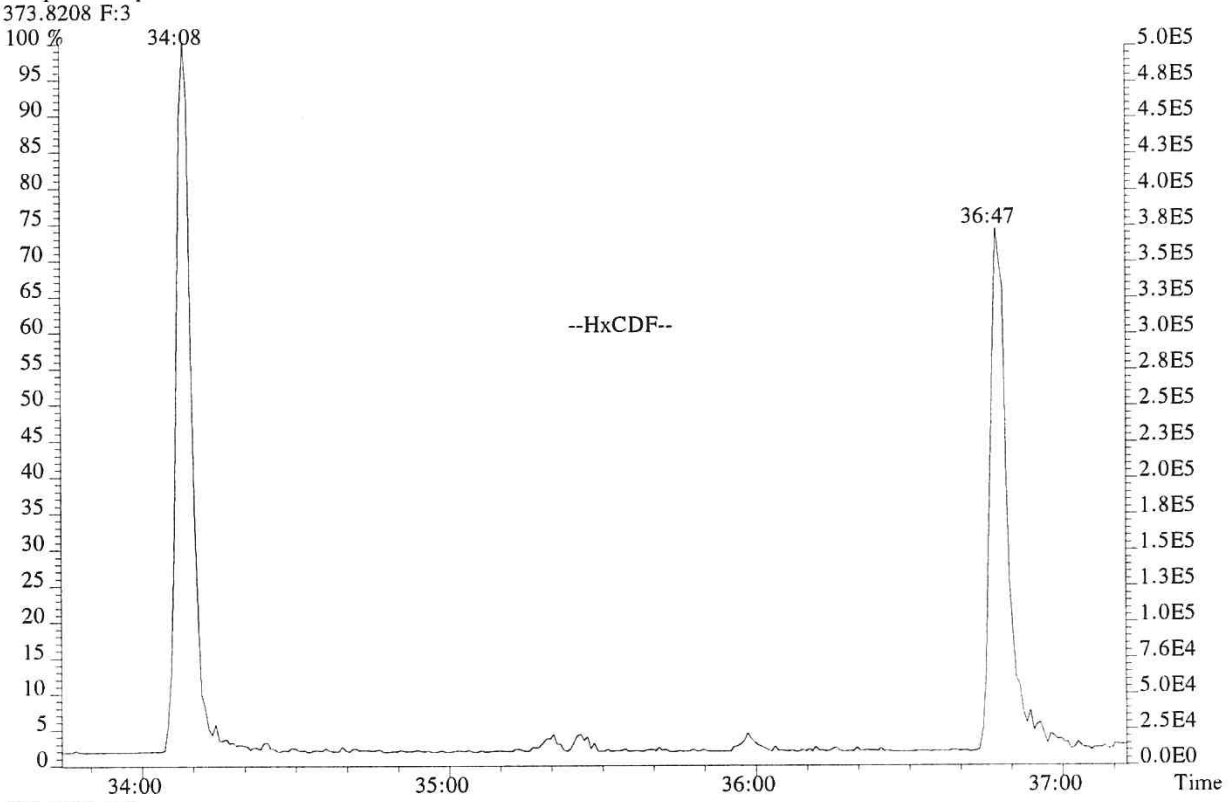

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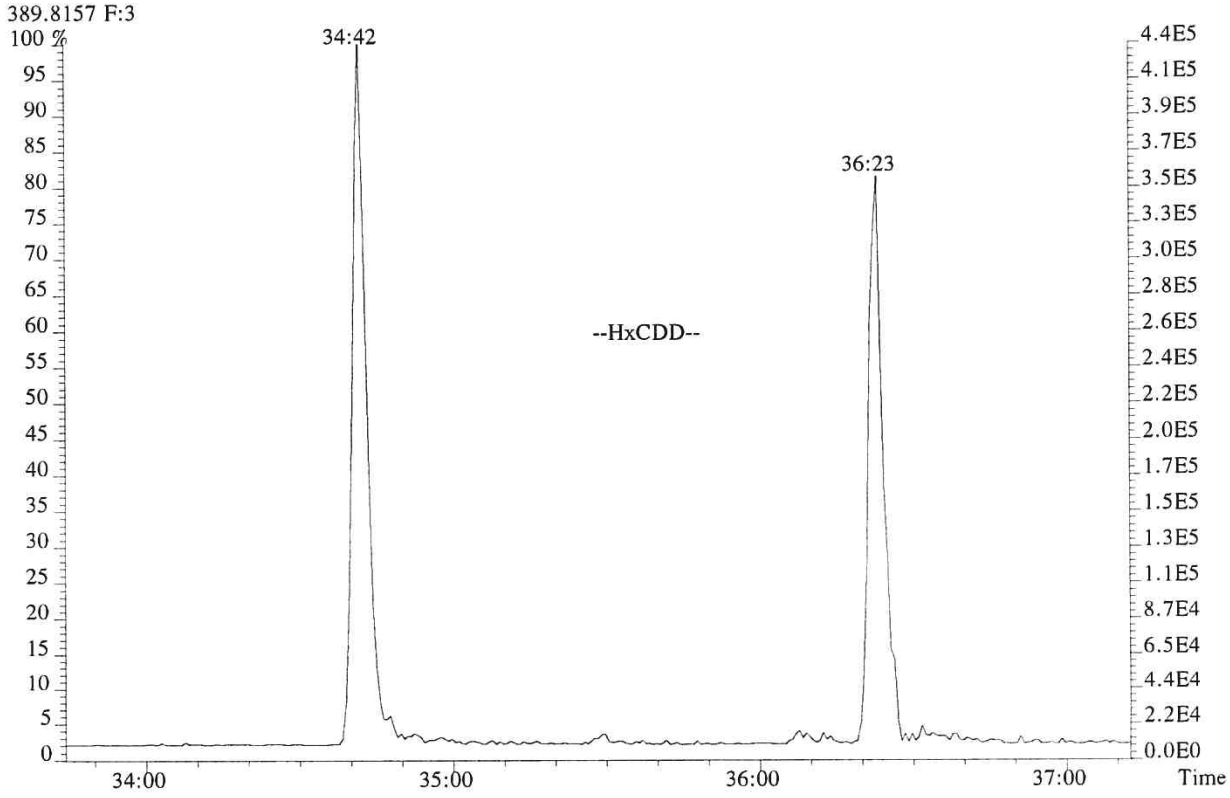

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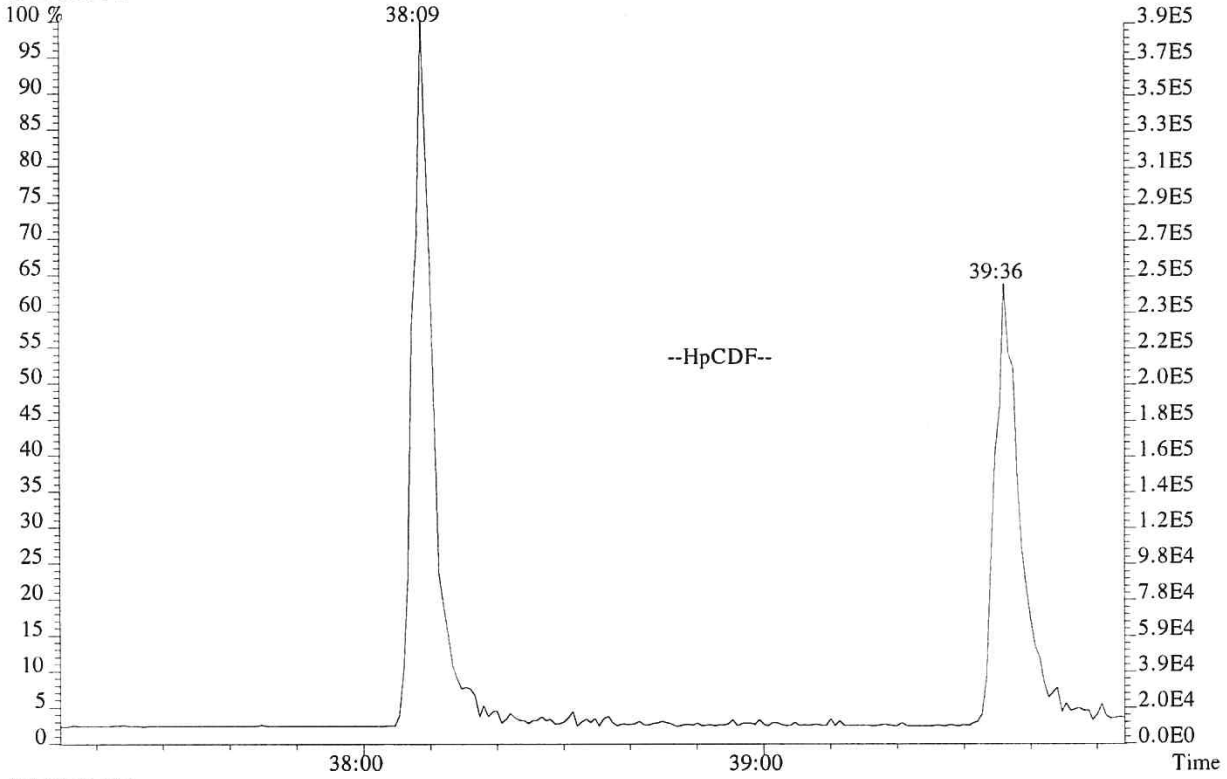
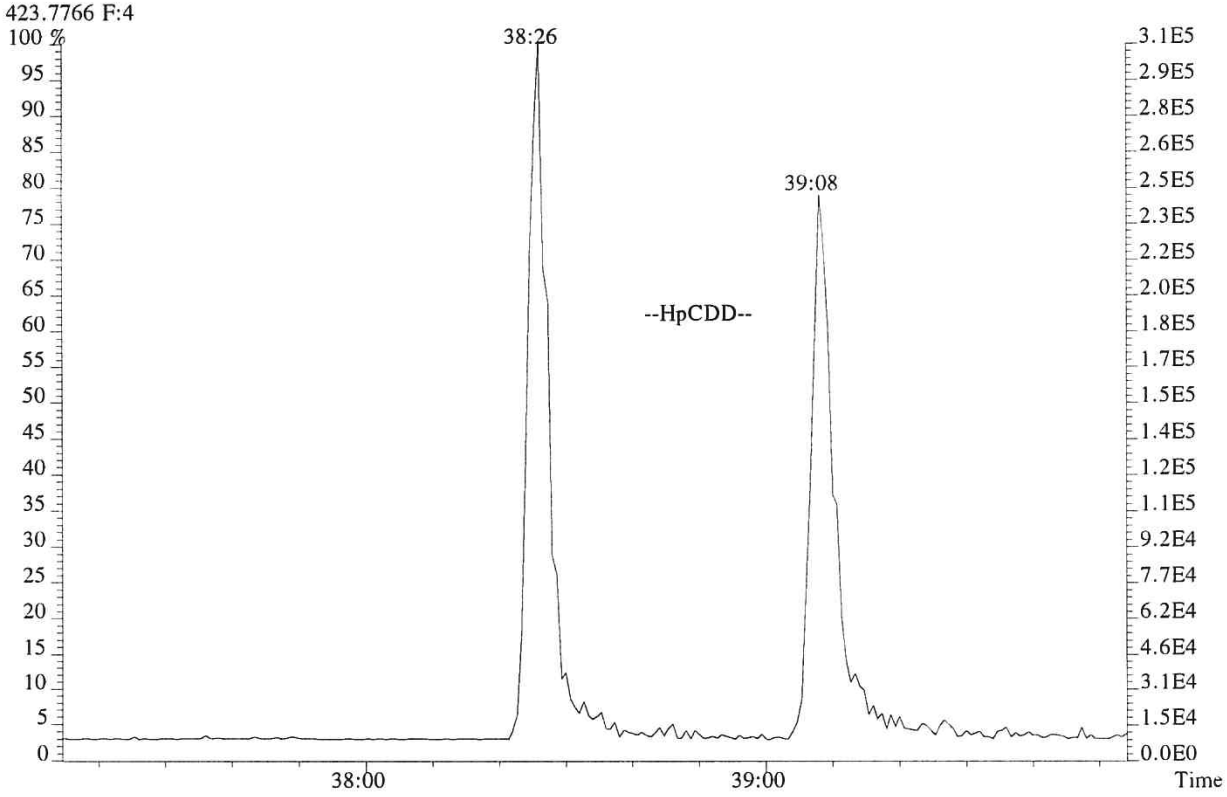
407.7818 F:4



423.7766 F:4



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519532 Analysis Date: 21-DEC-18 Time: 02:32:41

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.82	0.65-0.89	9.9	7.8 - 12.9	-1.3
1,2,3,7,8-PeCDD	M+2/M+4	1.61	1.32-1.78	51	39 - 65	2.4
1,2,3,4,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	52	39 - 64	4.9
1,2,3,6,7,8-HxCDD	M+2/M+4	1.31	1.05-1.43	49	39 - 64	-2.9
1,2,3,7,8,9-HxCDD	M+2/M+4	1.24	1.05-1.43	52	41 - 61	4.4
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.04	0.88-1.20	49	43 - 58	-1.5
OCDD	M+2/M+4	0.88	0.76-1.02	100	79 - 126	-0.1
2,3,7,8-TCDF	M/M+2	0.76	0.65-0.89	10.1	8.4 - 12.0	0.8
1,2,3,7,8-PeCDF	M+2/M+4	1.49	1.32-1.78	51	41 - 60	1.8
2,3,4,7,8-PeCDF	M+2/M+4	1.49	1.32-1.78	50	41 - 61	-0.2
1,2,3,4,7,8-HxCDF	M+2/M+4	1.19	1.05-1.43	52	45 - 56	5.0
1,2,3,6,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	51	44 - 57	2.0
1,2,3,7,8,9-HxCDF	M+2/M+4	1.25	1.05-1.43	50	45 - 56	1.0
2,3,4,6,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	51	44 - 57	1.7
1,2,3,4,6,7,8-HpCDF	M+2/M+4	0.99	0.88-1.20	51	45 - 55	1.2
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.01	0.88-1.20	50	43 - 58	-0.3
OCDF	M+2/M+4	0.88	0.76-1.02	98	63 - 159	-2.5

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519532 Analysis Date: 21-DEC-18 Time: 02:32:41

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	98	82 - 121	-2.5
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.60	1.32-1.78	109	62 - 160	8.8
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	93	85 - 117	-7.3
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	102	85 - 118	1.9
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.09	0.88-1.20	105	72 - 138	4.8
13C-OCDD	M+2/M+4	0.90	0.76-1.02	253	96 - 415	26.6
13C-2,3,7,8-TCDF	M/M+2	0.77	0.65-0.89	90	71 - 140	-10.1
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	105	76 - 130	5.1
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	108	77 - 130	7.7
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.51	0.43-0.59	87	76 - 131	-12.7
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.51	0.43-0.59	96	70 - 143	-3.6
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.51	0.43-0.59	92	74 - 135	-7.8
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.51	0.43-0.59	96	73 - 137	-4.3
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	101	78 - 129	1.5
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.44	0.37-0.51	102	77 - 129	1.7
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD	M+2/M+4			10.1	7.8 - 12.7	1.2

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #7 Filename P519532 Samp: 1 Inj: 1 Acquired: 21-DEC-18 02:32:41
Processed: 24-DEC-18 07:59:54 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:50	1.617e+03	2.136e+03	0.76	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	31:29	1.386e+04	9.286e+03	1.49	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	32:27	1.303e+04	8.762e+03	1.49	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:18	1.129e+04	9.472e+03	1.19	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:25	1.309e+04	1.071e+04	1.22	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:56	1.162e+04	9.309e+03	1.25	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	36:45	9.906e+03	7.933e+03	1.25	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:08	1.030e+04	1.039e+04	0.99	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:35	8.112e+03	8.009e+03	1.01	yes	no	1.258
10	Unk	OCDF	42:18	1.410e+04	1.605e+04	0.88	yes	no	1.359
11	Unk	2,3,7,8-TCDD	27:44	1.262e+03	1.540e+03	0.82	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	32:45	9.314e+03	5.771e+03	1.61	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:06	8.032e+03	6.373e+03	1.26	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:12	8.519e+03	6.524e+03	1.31	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:27	8.646e+03	6.977e+03	1.24	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:07	7.143e+03	6.850e+03	1.04	yes	no	1.025
17	Unk	OCDD	42:07	1.189e+04	1.352e+04	0.88	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	26:49	1.722e+04	2.231e+04	0.77	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	31:27	2.747e+04	1.743e+04	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	32:26	2.800e+04	1.756e+04	1.59	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:18	1.126e+04	2.198e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:24	1.400e+04	2.758e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:56	1.248e+04	2.461e+04	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	36:44	1.045e+04	2.043e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:07	9.352e+03	2.090e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:35	7.883e+03	1.784e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	27:42	1.153e+04	1.464e+04	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:44	1.897e+04	1.185e+04	1.60	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:05	1.480e+04	1.164e+04	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:11	1.676e+04	1.308e+04	1.28	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:07	1.449e+04	1.323e+04	1.09	yes	no	0.858
32	IS	13C-OCDD	42:06	2.159e+04	2.392e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:04	1.283e+04	1.622e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:26	1.723e+04	1.362e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:44	2.979e+03				no	1.014

ALS ENVIRONMENTAL
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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #7 Filename P519532 Samp: 1 Inj: 1 Acquired: 21-DEC-18 02:32:41
Processed: 24-DEC-18 07:59:54 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.51e+05	5.00e+02	5.0e+02	3.28e+05	1.02e+03	3.2e+02
2	1,2,3,7,8-PeCDF	2.22e+06	3.80e+02	5.8e+03	1.49e+06	5.88e+02	2.5e+03
3	2,3,4,7,8-PeCDF	2.46e+06	3.80e+02	6.5e+03	1.60e+06	5.88e+02	2.7e+03
4	1,2,3,4,7,8-HxCDF	2.28e+06	3.88e+02	5.9e+03	1.92e+06	2.28e+02	8.4e+03
5	1,2,3,6,7,8-HxCDF	2.38e+06	3.88e+02	6.1e+03	1.94e+06	2.28e+02	8.5e+03
6	2,3,4,6,7,8-HxCDF	2.28e+06	3.88e+02	5.9e+03	1.80e+06	2.28e+02	7.9e+03
7	1,2,3,7,8,9-HxCDF	1.70e+06	3.88e+02	4.4e+03	1.37e+06	2.28e+02	6.0e+03
8	1,2,3,4,6,7,8-HpCDF	1.73e+06	4.84e+02	3.6e+03	1.76e+06	2.52e+02	7.0e+03
9	1,2,3,4,7,8,9-HpCDF	1.16e+06	4.84e+02	2.4e+03	1.14e+06	2.52e+02	4.5e+03
10	OCDF	1.42e+06	4.08e+02	3.5e+03	1.65e+06	5.92e+02	2.8e+03
11	2,3,7,8-TCDD	2.20e+05	1.64e+03	1.3e+02	2.50e+05	3.84e+02	6.5e+02
12	1,2,3,7,8-PeCDD	1.61e+06	4.52e+02	3.6e+03	9.97e+05	2.96e+02	3.4e+03
13	1,2,3,4,7,8-HxCDD	1.56e+06	4.08e+02	3.8e+03	1.27e+06	2.84e+02	4.5e+03
14	1,2,3,6,7,8-HxCDD	1.55e+06	4.08e+02	3.8e+03	1.17e+06	2.84e+02	4.1e+03
15	1,2,3,7,8,9-HxCDD	1.53e+06	4.08e+02	3.8e+03	1.21e+06	2.84e+02	4.3e+03
16	1,2,3,4,6,7,8-HpCDD	1.09e+06	2.44e+02	4.5e+03	1.03e+06	2.88e+02	3.6e+03
17	OCDD	1.20e+06	4.72e+02	2.5e+03	1.36e+06	2.76e+02	4.9e+03
18	13C-2,3,7,8-TCDF	2.58e+06	3.56e+03	7.3e+02	3.36e+06	2.49e+03	1.4e+03
19	13C-1,2,3,7,8-PeCDF	4.45e+06	5.20e+02	8.6e+03	2.87e+06	8.52e+02	3.4e+03
20	13C-2,3,4,7,8-PeCDF	5.13e+06	5.20e+02	9.9e+03	3.21e+06	8.52e+02	3.8e+03
21	13C-1,2,3,4,7,8-HxCDF	2.24e+06	4.16e+02	5.4e+03	4.41e+06	3.08e+02	1.4e+04
22	13C-1,2,3,6,7,8-HxCDF	2.57e+06	4.16e+02	6.2e+03	5.00e+06	3.08e+02	1.6e+04
23	13C-2,3,4,6,7,8-HxCDF	2.49e+06	4.16e+02	6.0e+03	4.88e+06	3.08e+02	1.6e+04
24	13C-1,2,3,7,8,9-HxCDF	1.81e+06	4.16e+02	4.4e+03	3.61e+06	3.08e+02	1.2e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.58e+06	2.80e+02	5.6e+03	3.53e+06	3.96e+03	8.9e+02
26	13C-1,2,3,4,7,8,9-HpCDF	1.12e+06	2.80e+02	4.0e+03	2.52e+06	3.96e+03	6.4e+02
27	13C-2,3,7,8-TCDD	1.90e+06	3.69e+03	5.1e+02	2.40e+06	1.27e+03	1.9e+03
28	13C-1,2,3,7,8-PeCDD	3.27e+06	3.16e+02	1.0e+04	2.04e+06	5.92e+02	3.4e+03
29	13C-1,2,3,4,7,8-HxCDD	3.01e+06	5.84e+02	5.2e+03	2.40e+06	4.44e+02	5.4e+03
30	13C-1,2,3,6,7,8-HxCDD	2.84e+06	5.84e+02	4.9e+03	2.22e+06	4.44e+02	5.0e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.20e+06	4.12e+02	5.3e+03	2.04e+06	3.20e+02	6.4e+03
32	13C-OCDD	2.10e+06	4.92e+02	4.3e+03	2.37e+06	3.76e+02	6.3e+03
33	13C-1,2,3,4-TCDD	2.14e+06	3.69e+03	5.8e+02	2.71e+06	1.27e+03	2.1e+03
34	13C-1,2,3,7,8,9-HxCDD	3.00e+06	5.84e+02	5.1e+03	2.34e+06	4.44e+02	5.3e+03
35	37Cl-2,3,7,8-TCDD	4.82e+05	5.04e+02	9.6e+02			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.636e{+}03 + 3.840e{+}02) \times 100}{(1.898e{+}06 + 2.399e{+}06) \times (\quad) \times 1.085} =$$

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
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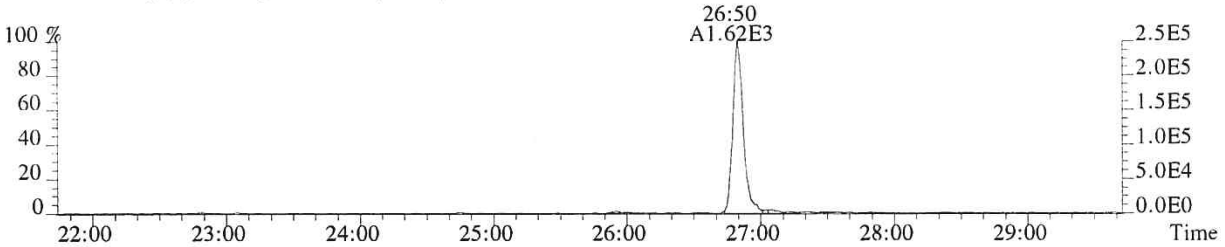
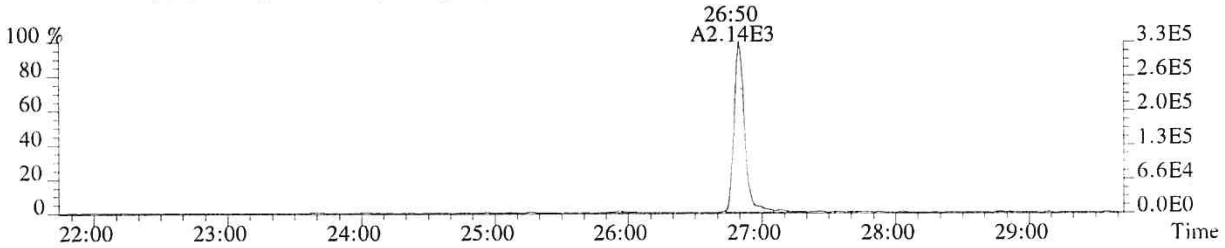
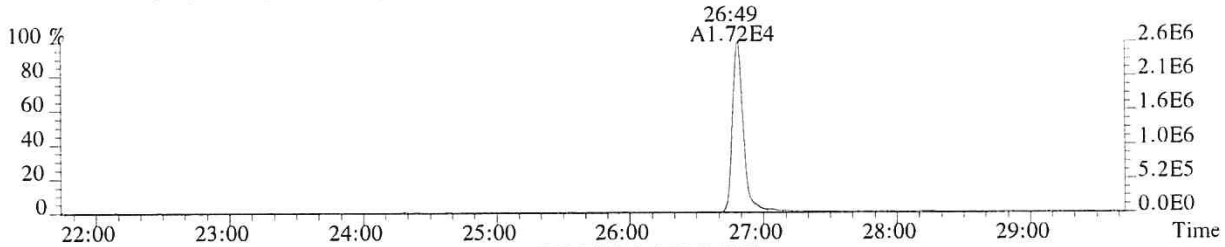
File:P519532 #1-566 Acq:21-DEC-2018 02:32:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,500.0,1.00%,F,T)



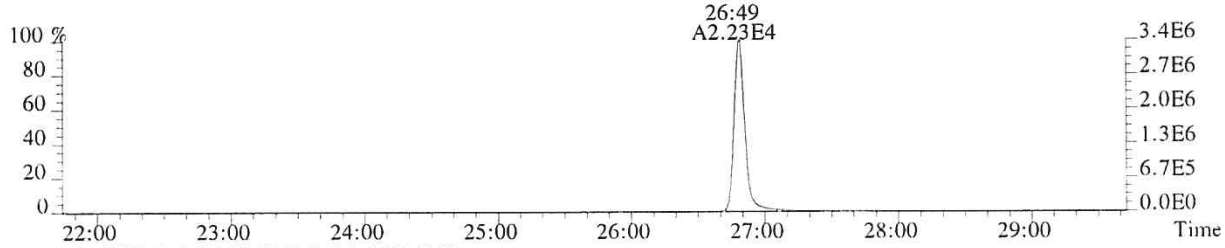
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1024.0,1.00%,F,T)



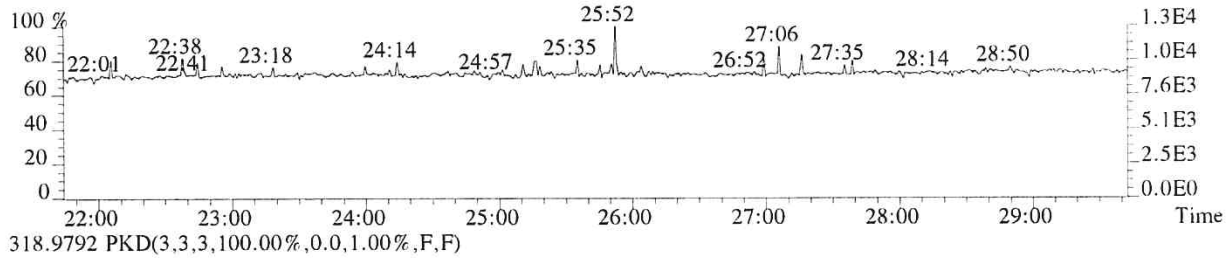
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3556.0,1.00%,F,T)



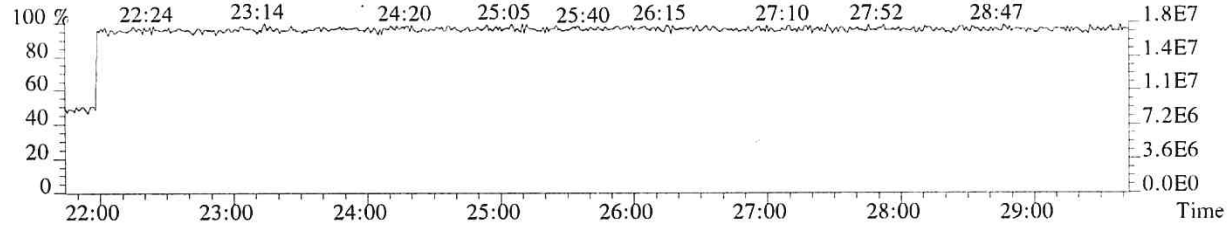
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2488.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

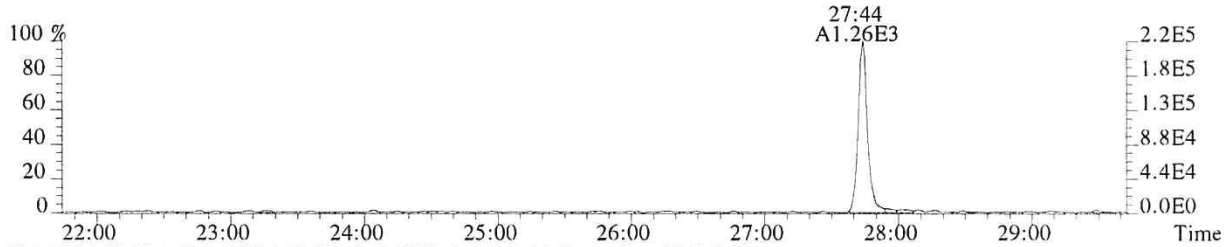


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

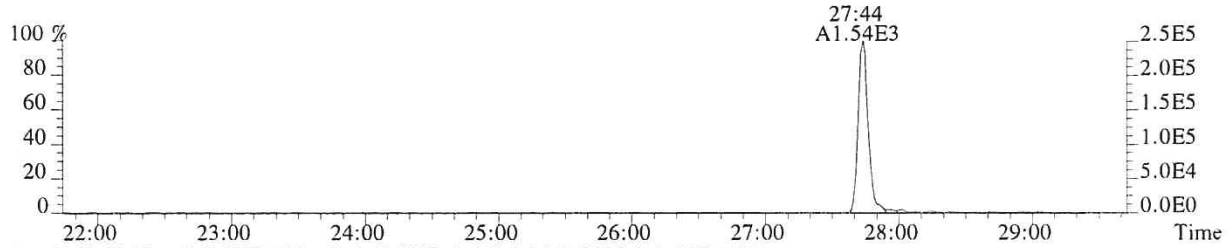


014725

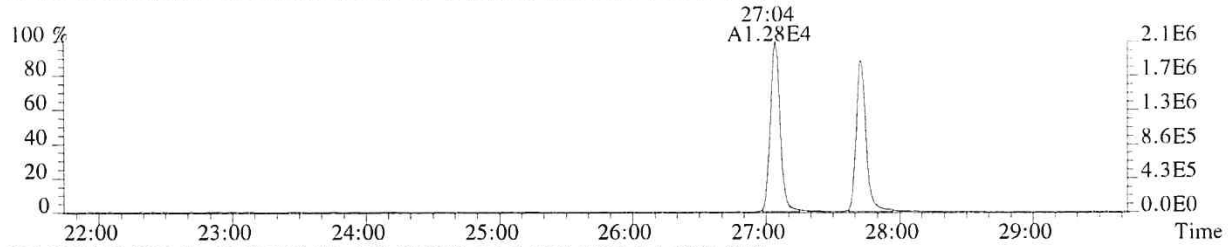
File:P519532 #1-566 Acq:21-DEC-2018 02:32:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1636.0,1.00%,F,T)



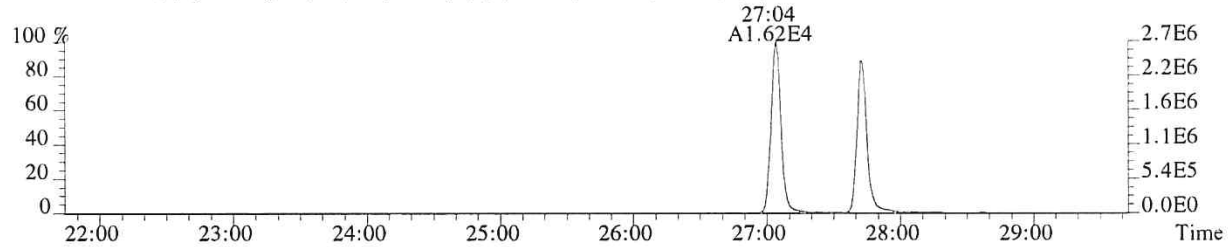
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,384.0,1.00%,F,T)



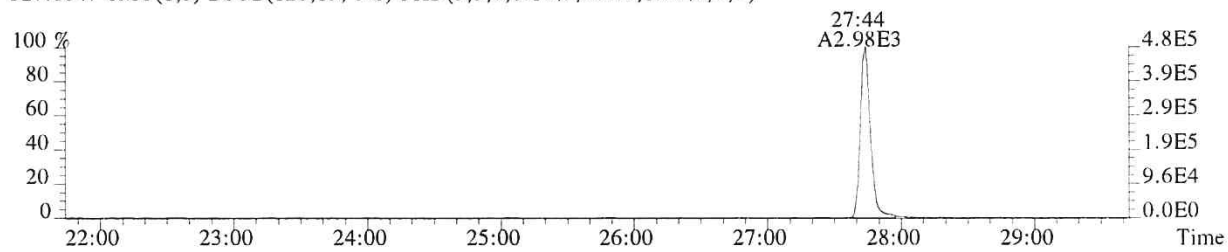
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3692.0,1.00%,F,T)



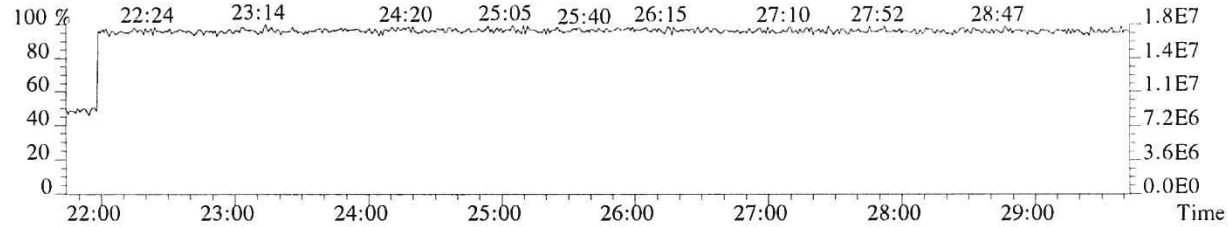
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1268.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,504.0,1.00%,F,T)

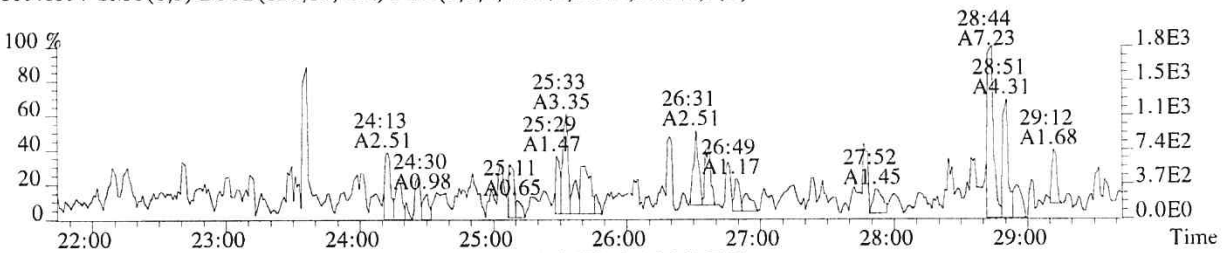


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

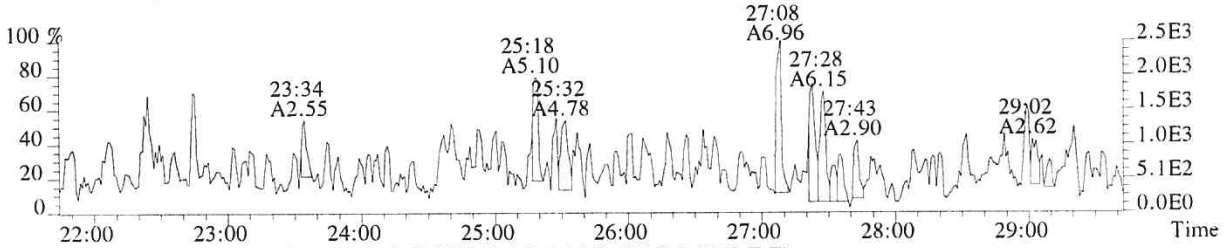


014726

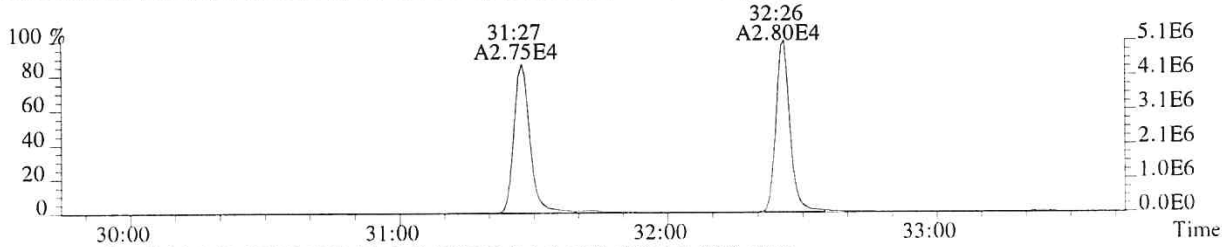
File:P519532 #1-566 Acq:21-DEC-2018 02:32:41 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:194503
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,288.0,1.00%,F,T)



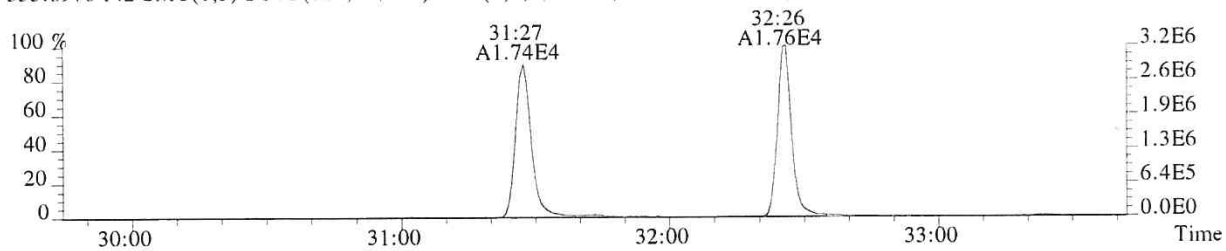
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,772.0,1.00%,F,T)



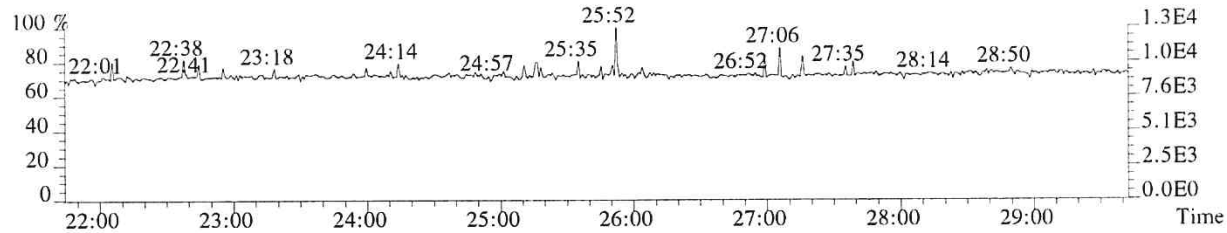
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,520.0,1.00%,F,T)



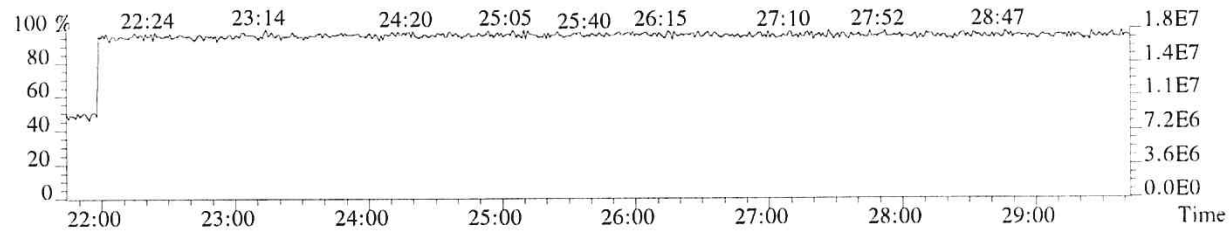
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,852.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

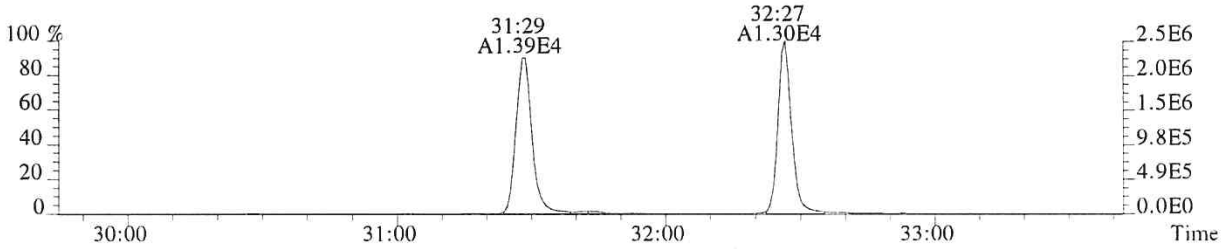


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

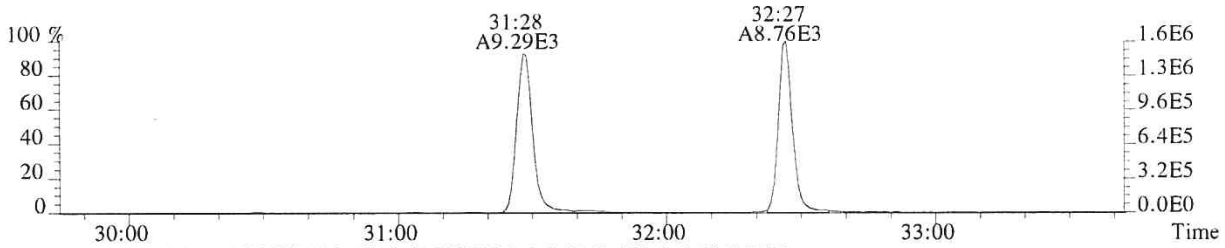


014727

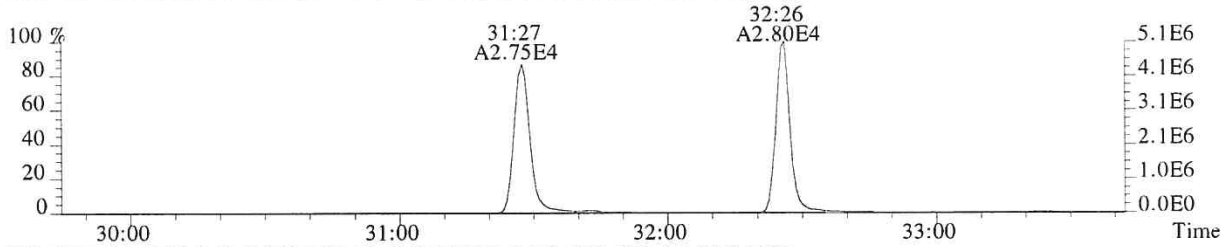
File:P519532 #1-357 Acq:21-DEC-2018 02:32:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,380.0,1.00%,F,T)



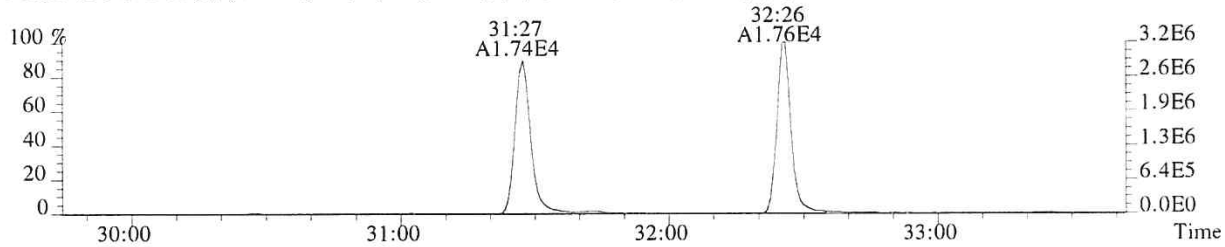
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,588.0,1.00%,F,T)



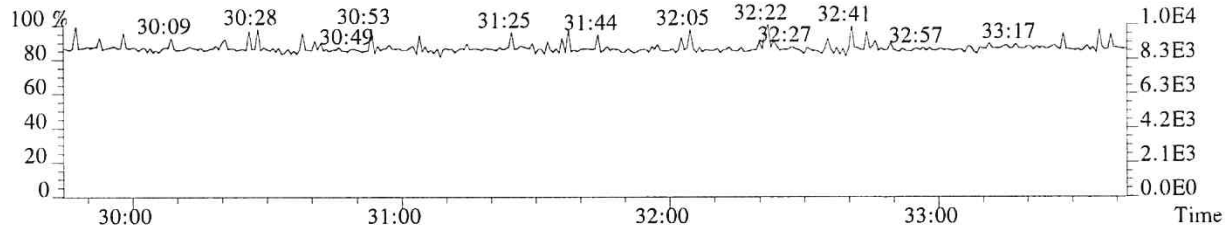
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,520.0,1.00%,F,T)



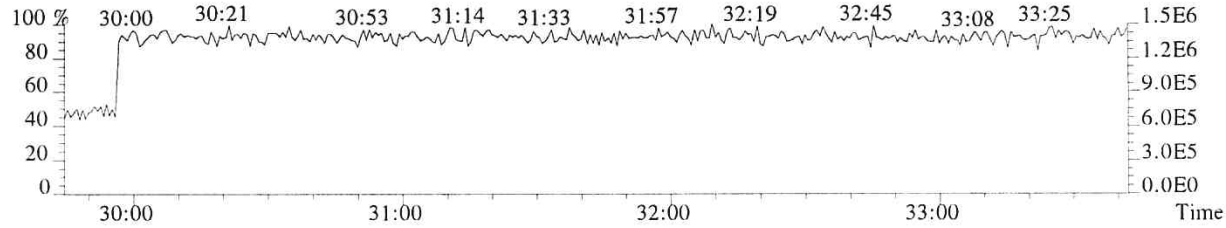
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,852.0,1.00%,F,T)



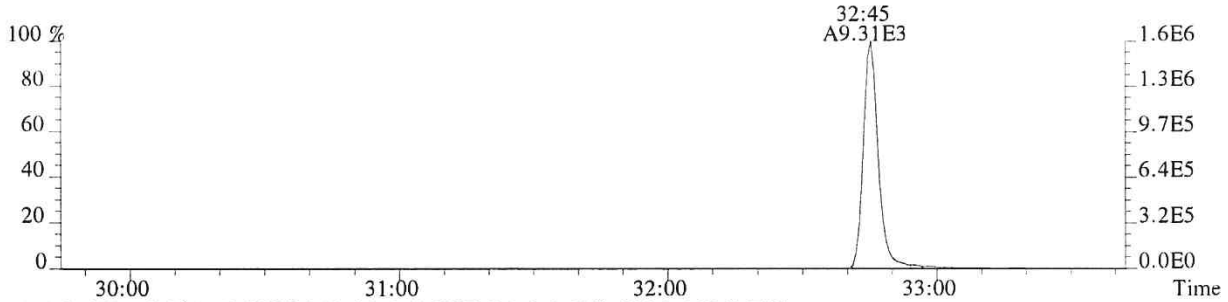
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



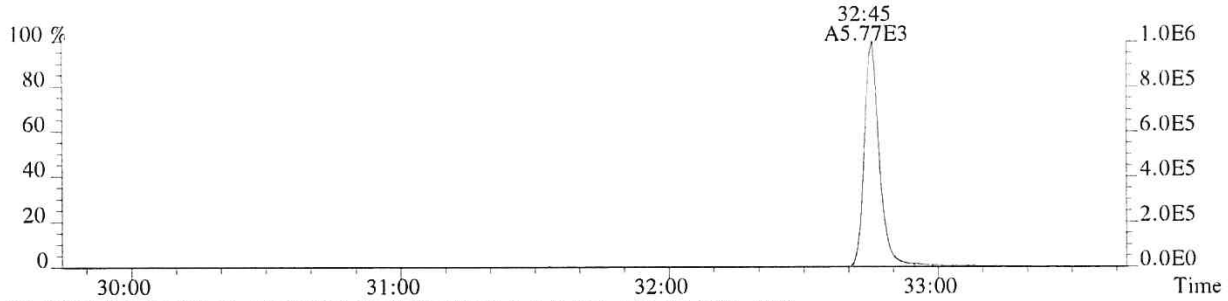
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



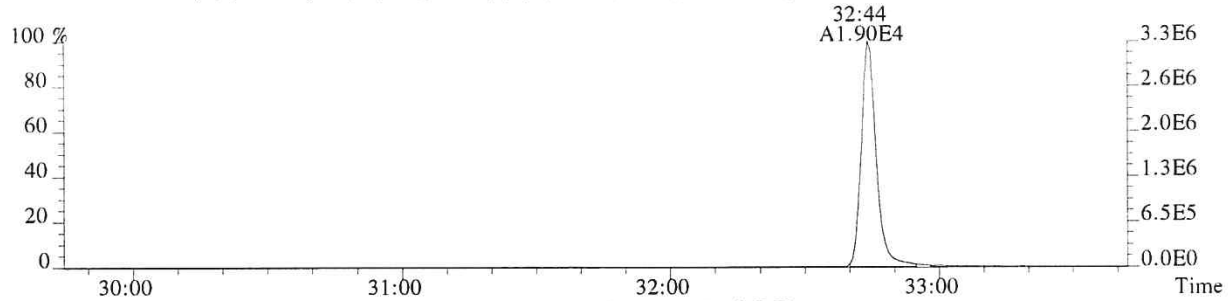
File:P519532 #1-357 Acq:21-DEC-2018 02:32:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,452.0,1.00%,F,T)



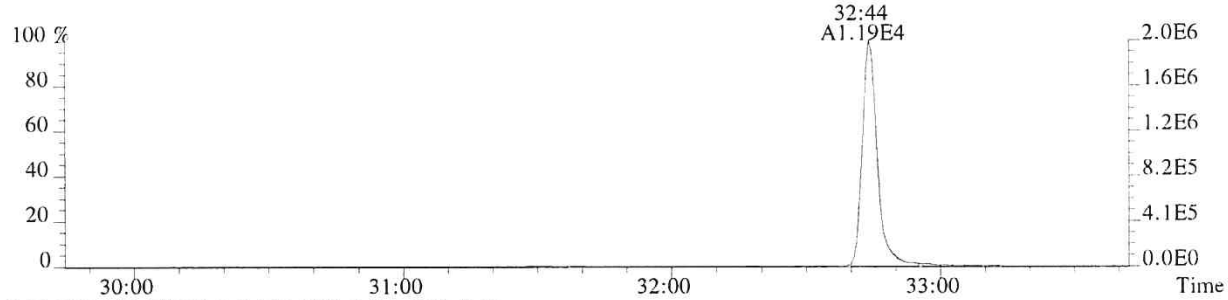
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,296.0,1.00%,F,T)



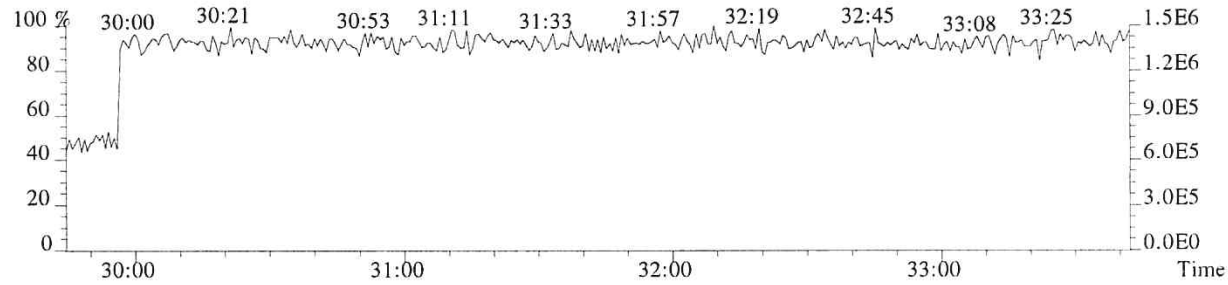
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,316.0,1.00%,F,T)



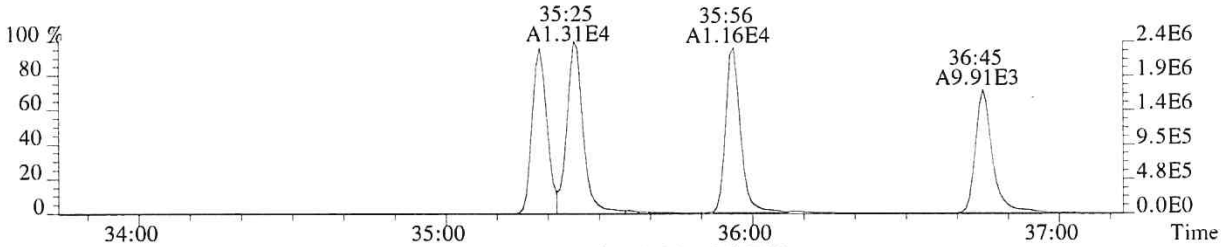
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,592.0,1.00%,F,T)



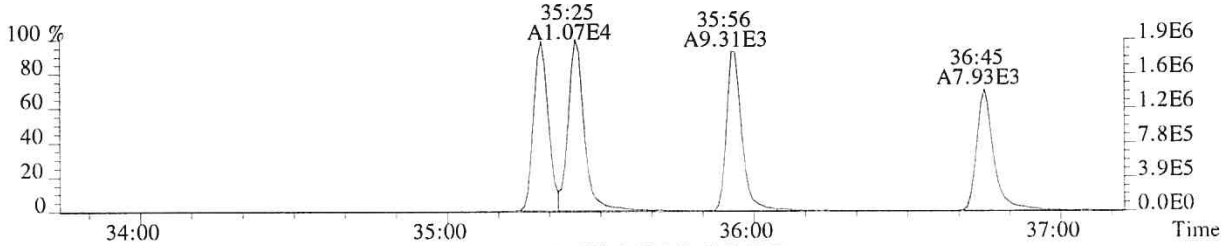
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



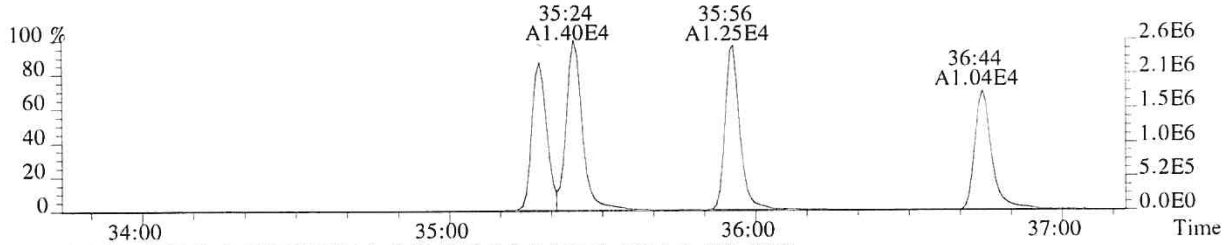
File:P519532 #1-313 Acq:21-DEC-2018 02:32:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,388.0,0.40%,F,T)



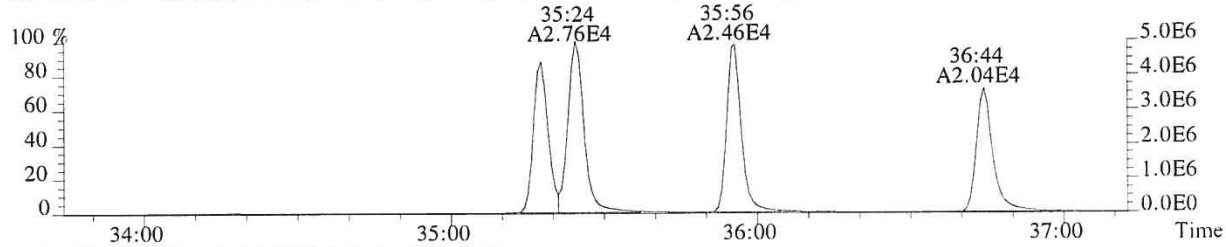
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,228.0,0.40%,F,T)



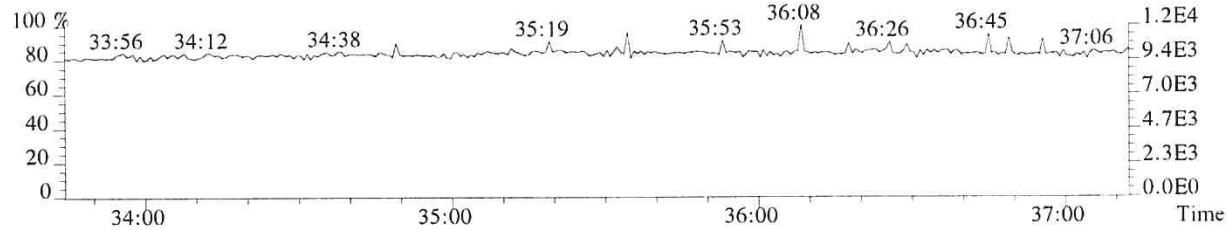
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,416.0,0.40%,F,T)



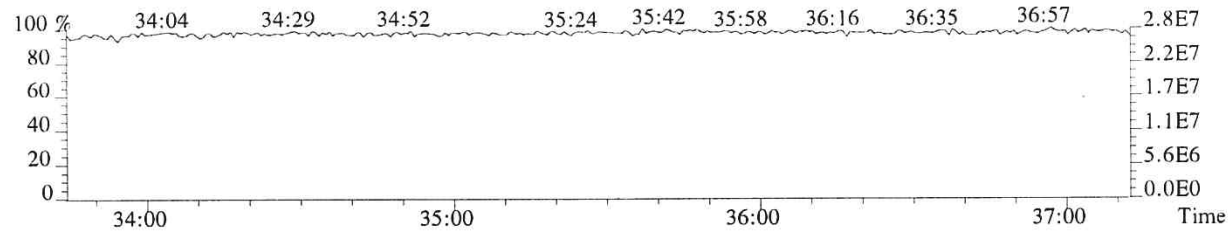
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,308.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



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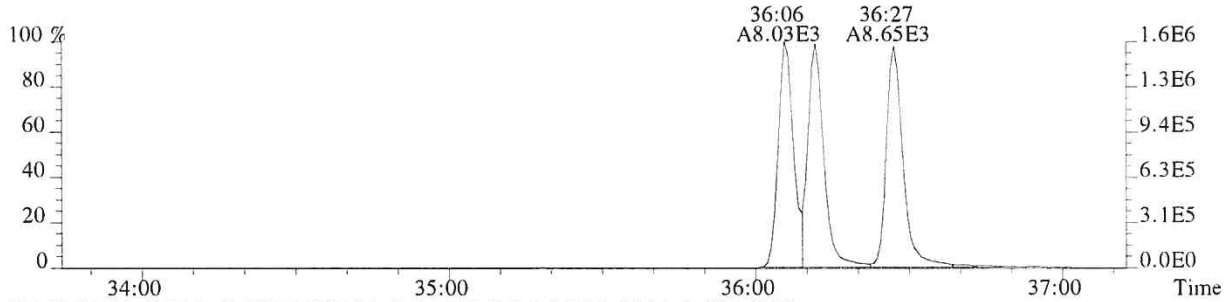
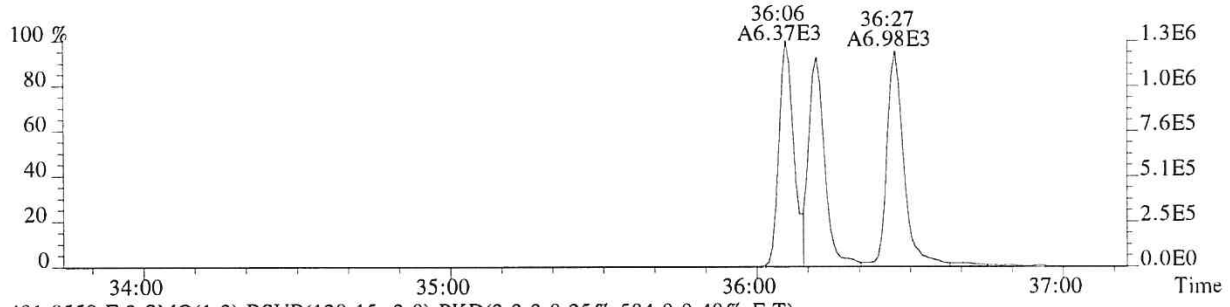
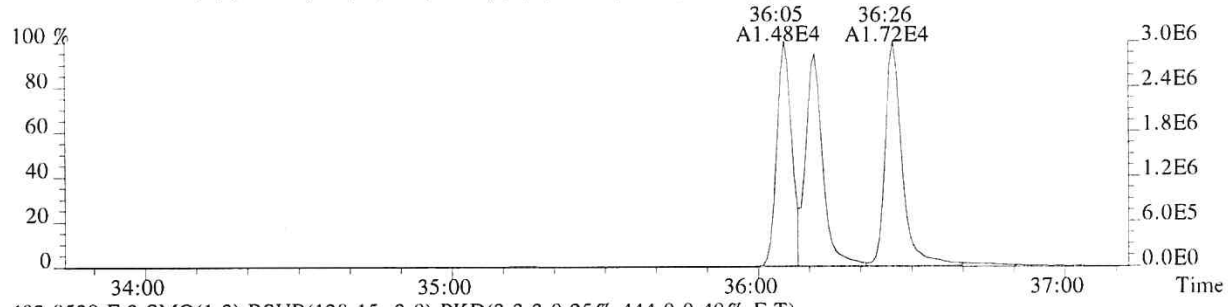
File:P519532 #1-313 Acq:21-DEC-2018 02:32:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,408.0,0.40%,F,T)



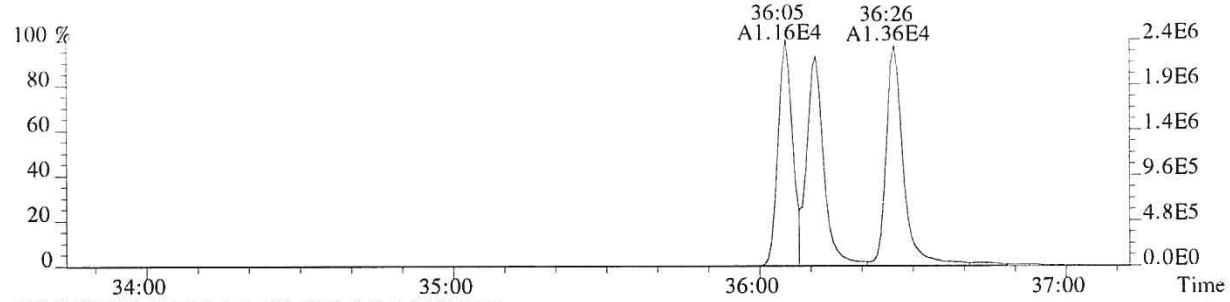
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,284.0,0.40%,F,T)



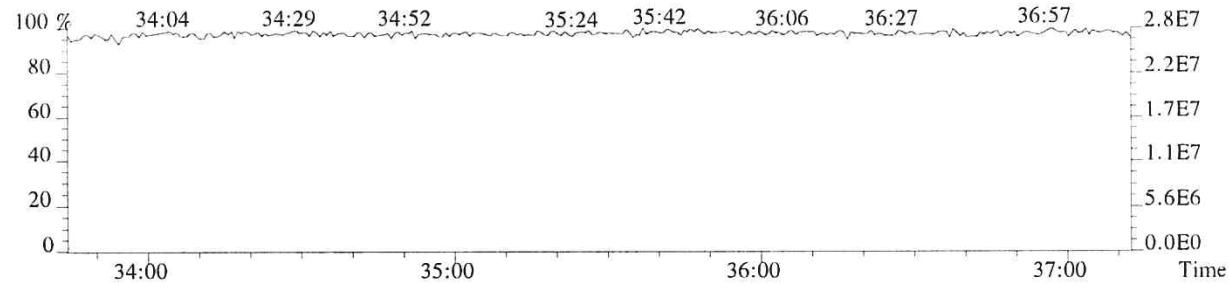
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,584.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,444.0,0.40%,F,T)

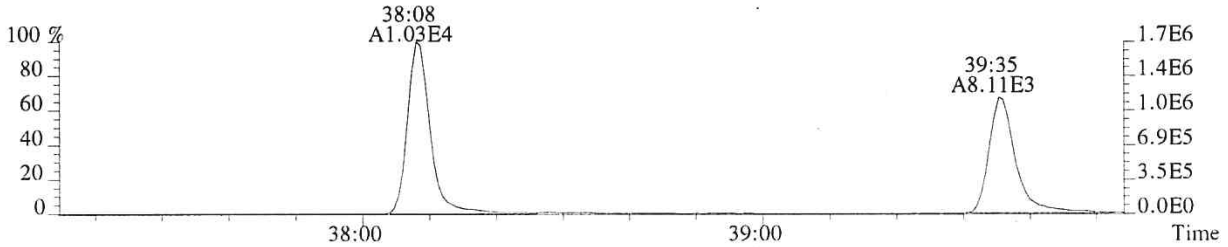


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

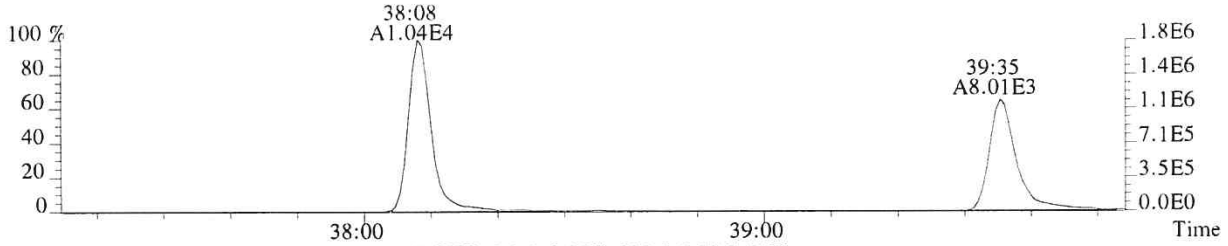


File:P519532 #1-240 Acq:21-DEC-2018 02:32:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

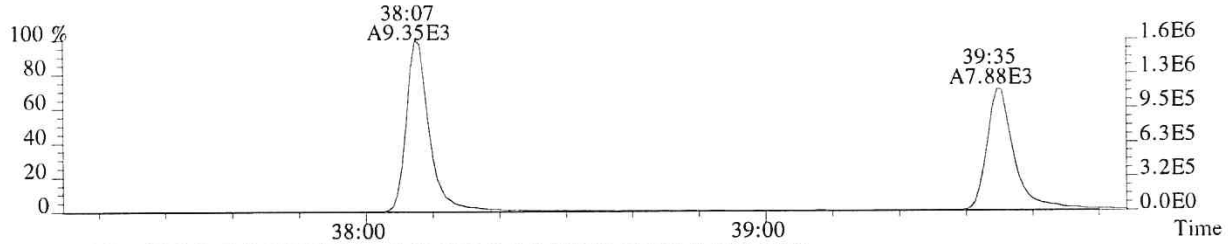
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,484.0,0.50%,F,T)



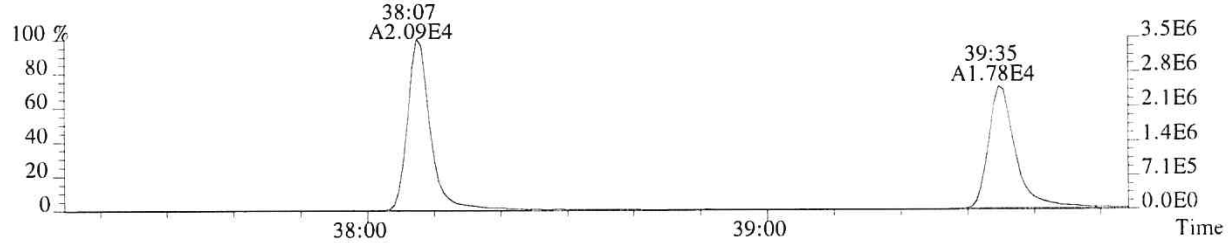
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,252.0,0.50%,F,T)



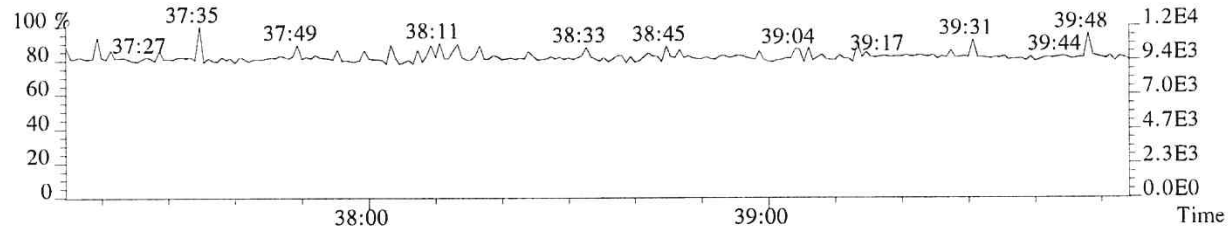
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,280.0,0.50%,F,T)



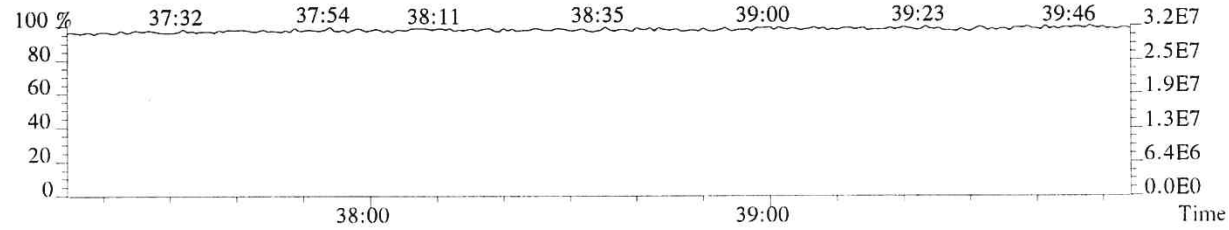
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3956.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



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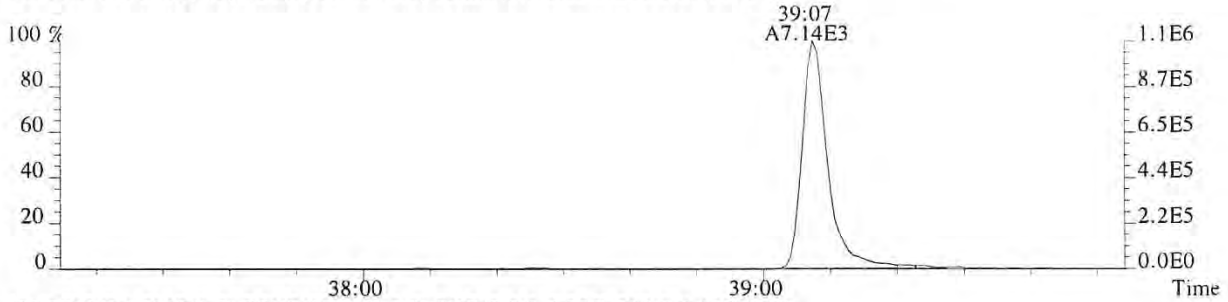
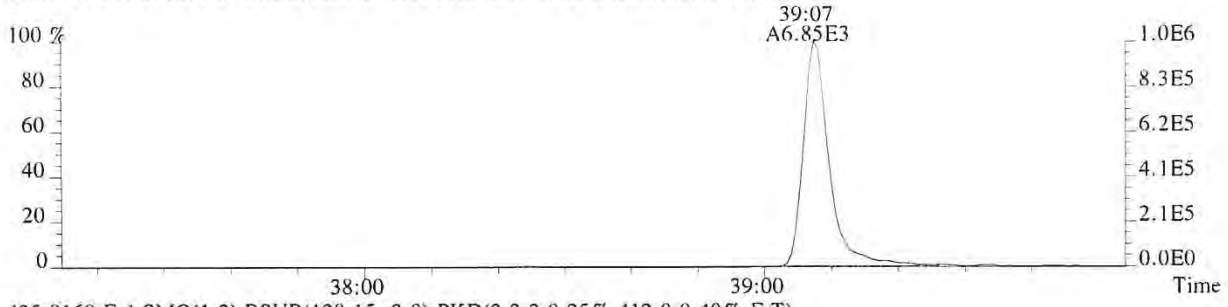
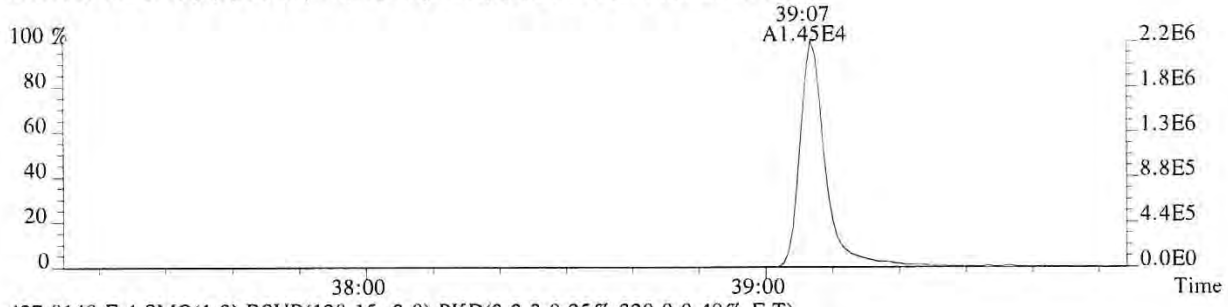
File:P519532 #1-240 Acq:21-DEC-2018 02:32:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,244.0,0.40%,F,T)



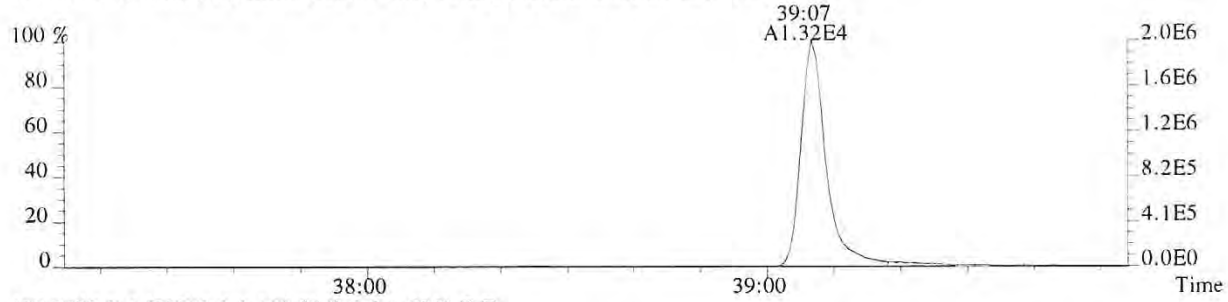
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,288.0,0.40%,F,T)



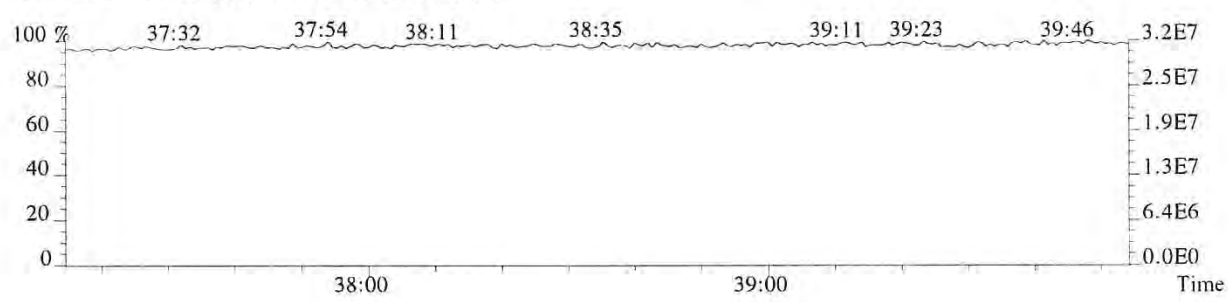
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,412.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,320.0,0.40%,F,T)

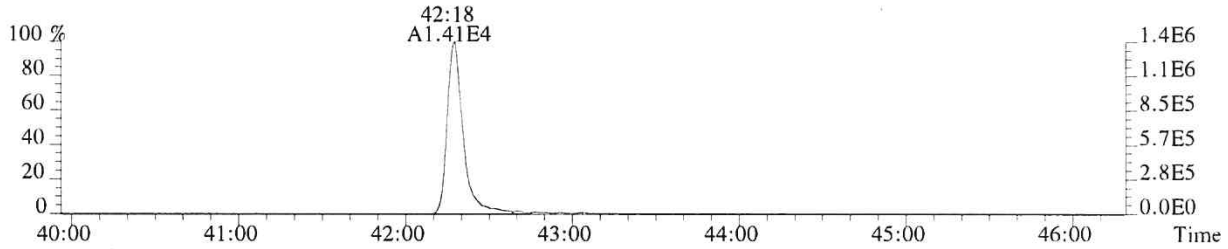


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

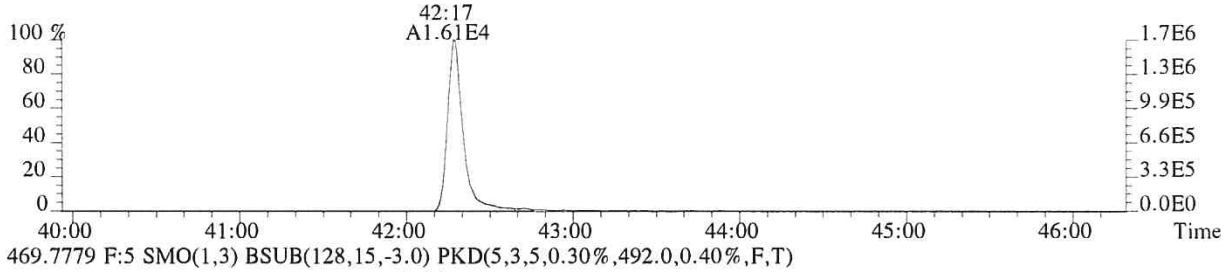


File:P519532 #1-575 Acq:21-DEC-2018 02:32:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

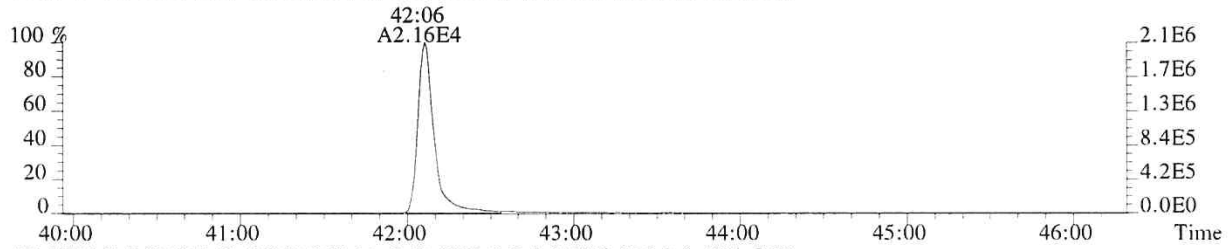
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,408.0,0.40%,F,T)



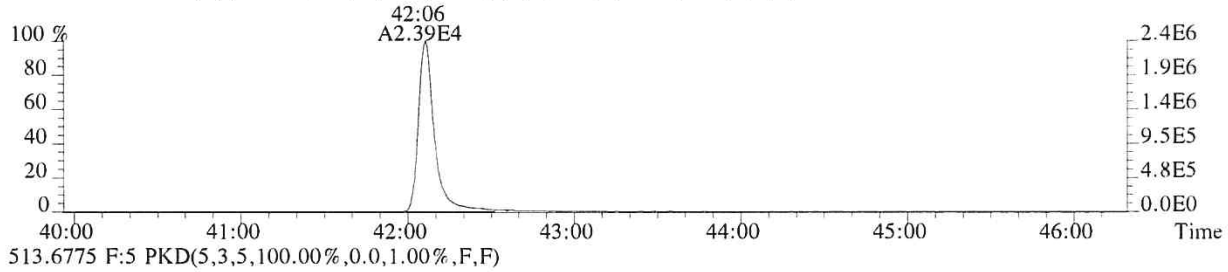
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,592.0,0.40%,F,T)



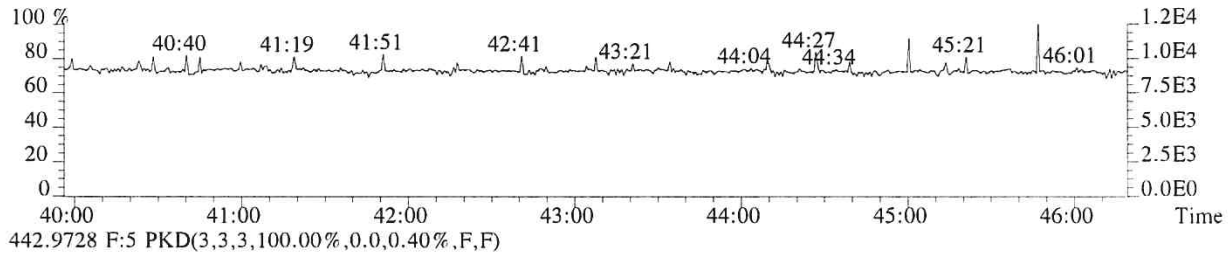
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,492.0,0.40%,F,T)



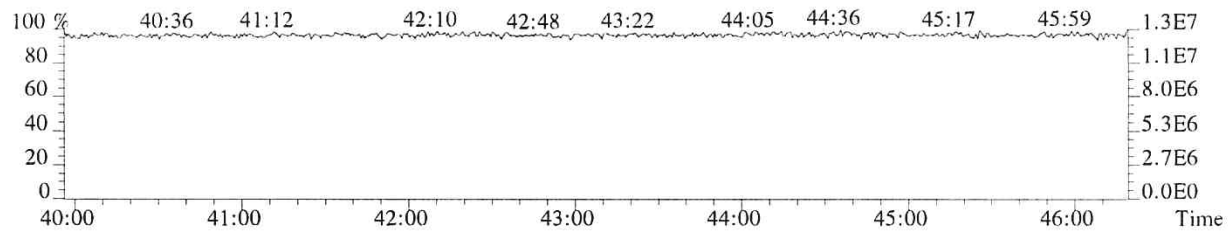
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,376.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

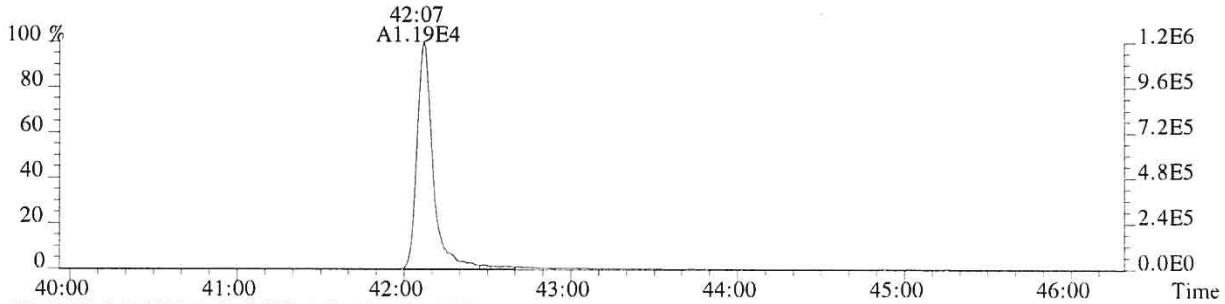


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

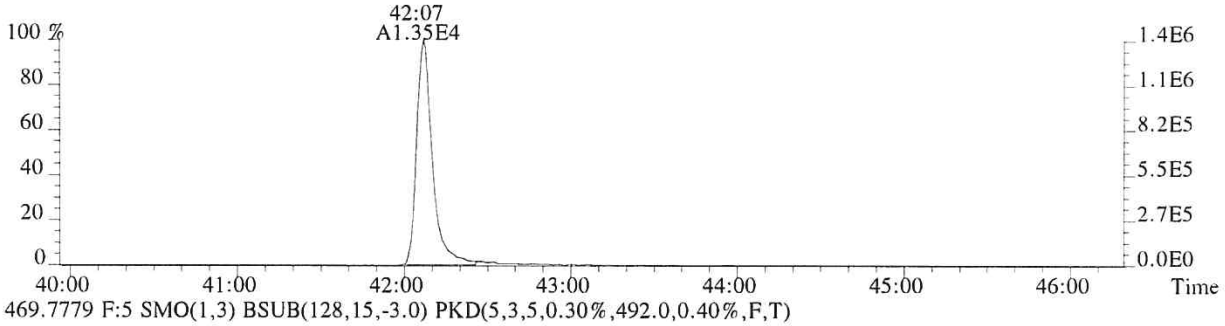


014734

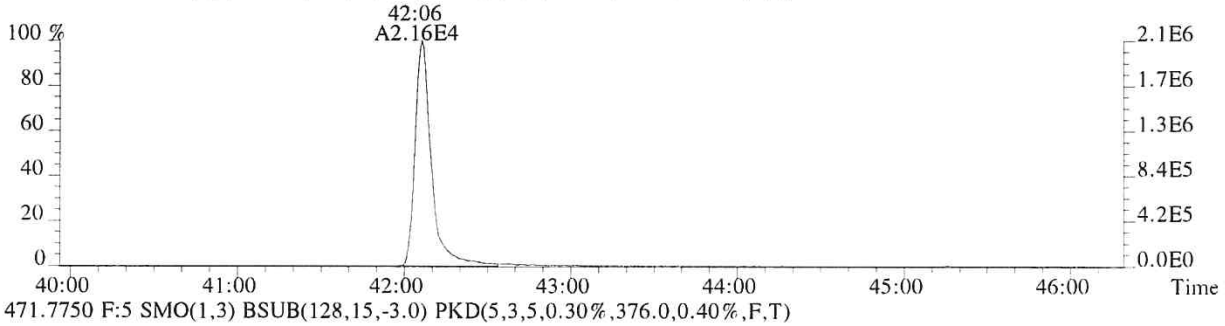
File:P519532 #1-575 Acq:21-DEC-2018 02:32:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,472.0,0.40%,F,T)



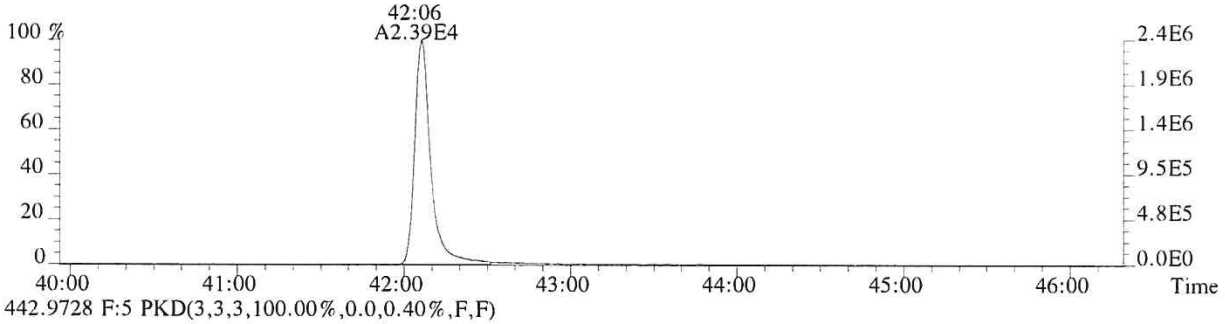
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,276.0,0.40%,F,T)



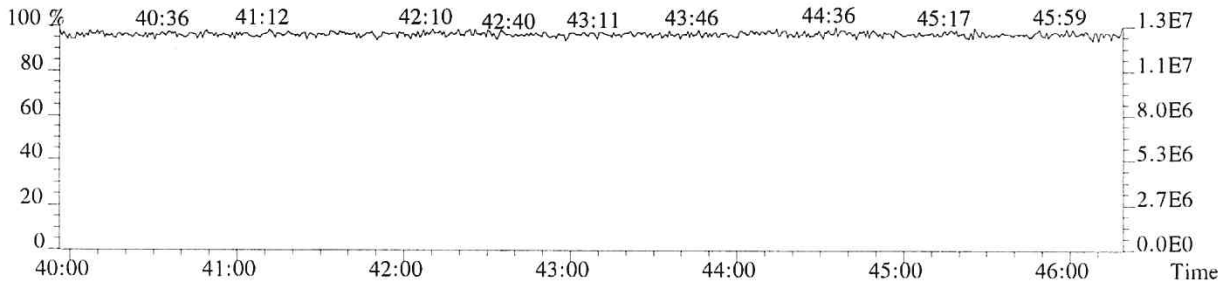
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,492.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,376.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



014735

CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P616100

Date: 12/14/18

Circle one: (Beginning) / Ending

Method: (1613) / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: LKL

Second QC: [illegible]

ccalqc.xls 07/17/12

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 09/25/18

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
192977	WINDOW DEFINE	P616101	14-DEC-18	10:53:39
194503	CS3	P616100	14-DEC-18	09:58:08
METHOD BLANK	EQ1800503-01	P616102	14-DEC-18	11:53:26
METHOD BLANK	EQ1800507-01	P616103	14-DEC-18	12:48:47
METHOD BLANK	EQ1800508-01	P616104	14-DEC-18	13:39:54
# 2 BLEACH PLANT	E1801067-001RE	P616105	14-DEC-18	14:29:23
BLEACH PLANT EFFLU╗	E1801099-001	P616106	14-DEC-18	15:17:53
# 2 BLEACH PLANT	E1801090-001	P616107	14-DEC-18	16:09:02
# 3 BLEACH PLANT	E1801090-002	P616108	14-DEC-18	16:57:40
SLUDGE	E1801084-001DL	P616109	14-DEC-18	17:46:23
TTO'S DIOXIN TANK ╗	E1801089-001	P616110	14-DEC-18	18:35:33
1812085-01A(45016-╗	E1801108-001	P616111	14-DEC-18	19:24:42
LCS	EQ1800508-02	P616112	14-DEC-18	20:13:51
DLCS	EQ1800508-03	P616113	14-DEC-18	21:03:01

Sample List Report **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS08.PRO\SampleDB\20181214A.SPL
Last Modified: Monday, December 17, 2018 06:58:08 Central Standard Time
Printed: Monday, December 17, 2018 06:58:09 Central Standard Time

Page Position (1, 1)

OPUS 5 NET: P616100 RES

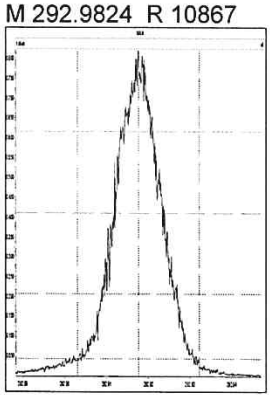
	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	12/14/18	09:00	P616099	194503	CS3	EPA1613_ALS	Dioxin_ALS	Tray1:2	LG	not used
2		09:58	P616100	194503	CS3	EPA1613_ALS	Dioxin_ALS	Tray1:2		HRMS check 07:10
3		10:53	P616101	192977	WINDOW DEFINE	EPA1613_ALS	Dioxin_ALS	Tray1:1		
4		11:53	P616102	EQ1800503-01	MB	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		12:48	P616103	EQ1800507-01	MB	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		13:39	P616104	EQ1800508-01	MB	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		14:29	P616105	E1801067-001RE	E1801067-001RE	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		15:17	P616106	E1801099-001	E1801099-001	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		16:09	P616107	E1801090-001	E1801090-001	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		16:57	P616108	E1801090-002	E1801090-002	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		17:46	P616109	E1801084-001	E1801084-001	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		18:35	P616110	E1801089-001	E1801089-001	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13		19:24	P616111	E1801108-001	E1801108-001	EPA1613_ALS	Dioxin_ALS	Tray1:13		
14		20:13	P616112	EQ1800508-02	LCS	EPA1613_ALS	Dioxin_ALS	Tray1:14		
15		21:03	P616113	EQ1800508-03	DLCS	EPA1613_ALS	Dioxin_ALS	Tray1:15		
16	↓	22:00	P616114	194503	CS3	EPA1613_ALS	Dioxin_ALS	Tray1:2	↓	HRMS check 22:00
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

LKL 12/18/18

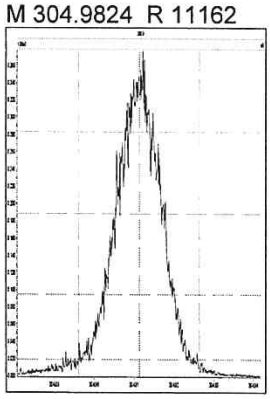
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Friday, December 14, 2018 07:10:19 Central Standard Time

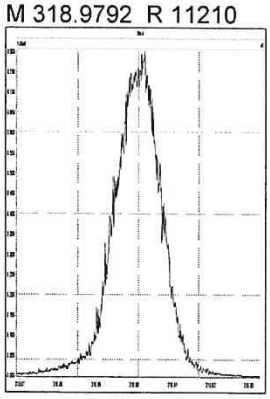
M 292.9824 R 10867



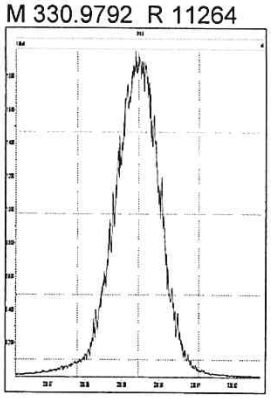
M 304.9824 R 11162



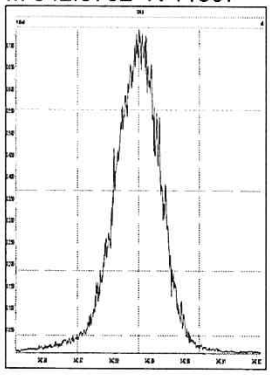
M 318.9792 R 11210



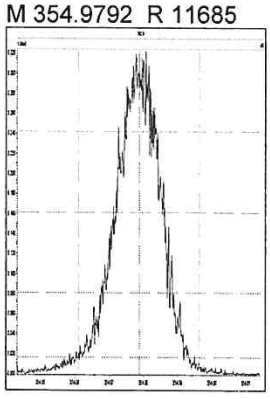
M 330.9792 R 11264



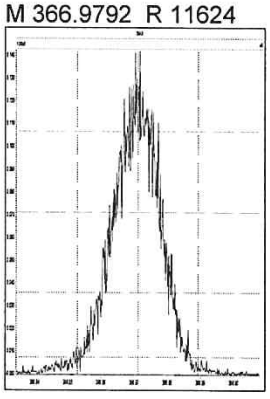
M 342.9792 R 11307



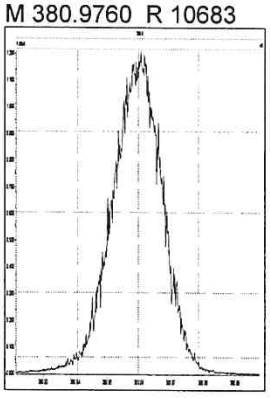
M 354.9792 R 11685



M 366.9792 R 11624



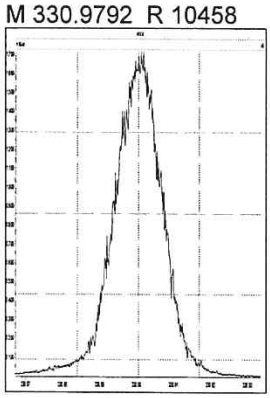
M 380.9760 R 10683



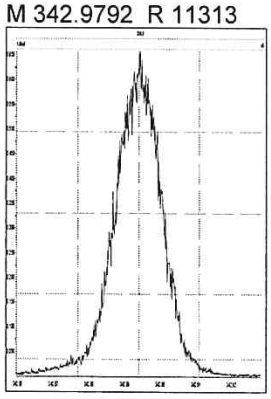
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Friday, December 14, 2018 07:11:15 Central Standard Time

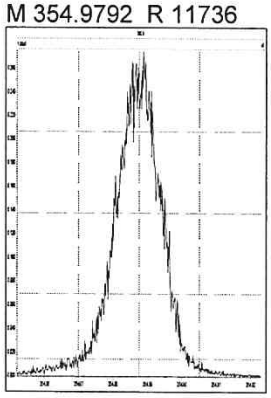
M 330.9792 R 10458



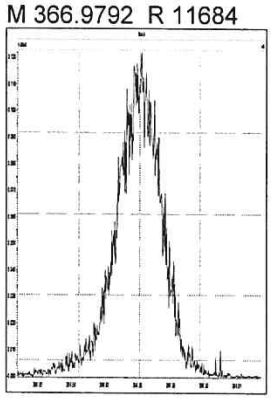
M 342.9792 R 11313



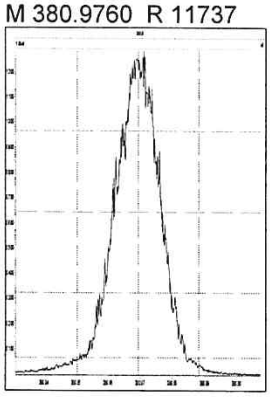
M 354.9792 R 11736



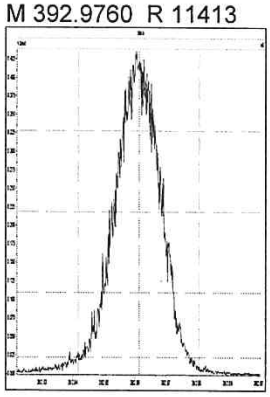
M 366.9792 R 11684



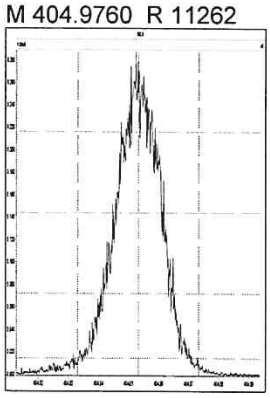
M 380.9760 R 11737



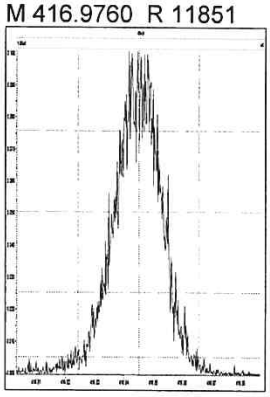
M 392.9760 R 11413



M 404.9760 R 11262



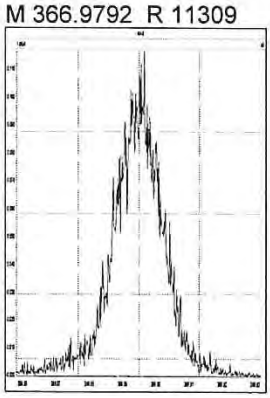
M 416.9760 R 11851



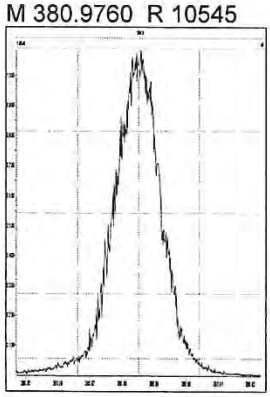
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Friday, December 14, 2018 07:11:59 Central Standard Time

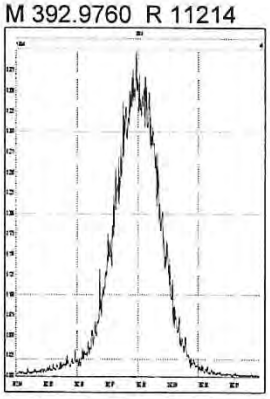
M 366.9792 R 11309



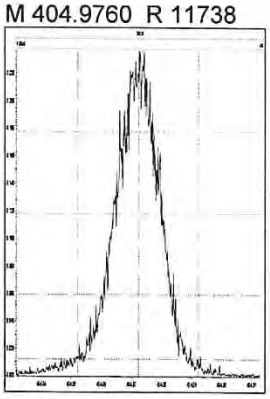
M 380.9760 R 10545



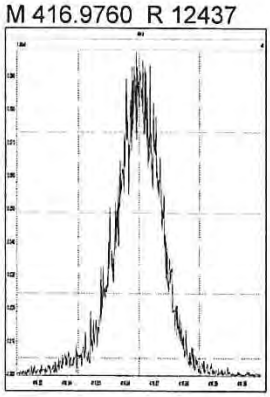
M 392.9760 R 11214



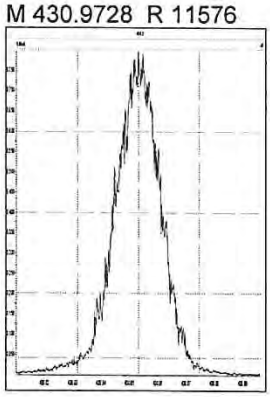
M 404.9760 R 11738



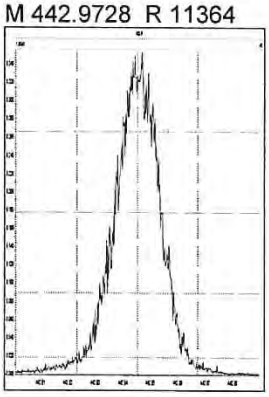
M 416.9760 R 12437



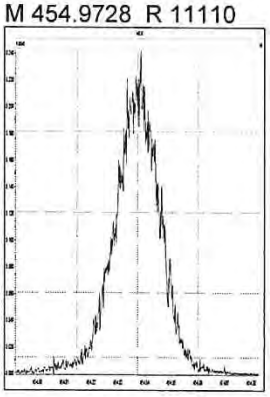
M 430.9728 R 11576



M 442.9728 R 11364



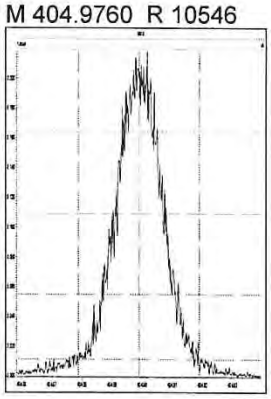
M 454.9728 R 11110



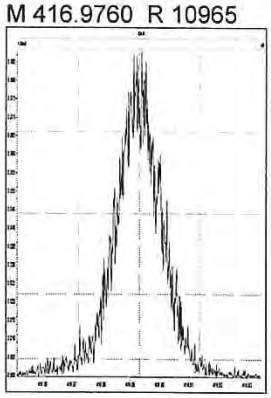
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Friday, December 14, 2018 07:12:50 Central Standard Time

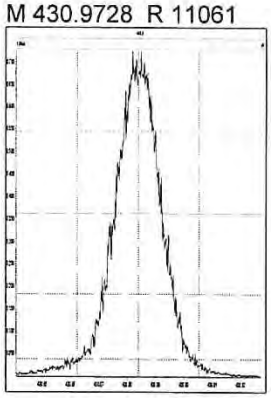
M 404.9760 R 10546



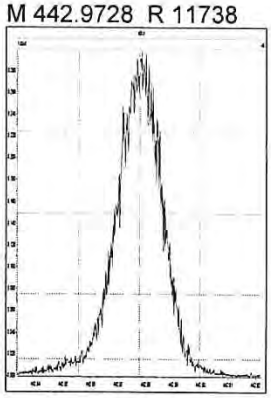
M 416.9760 R 10965



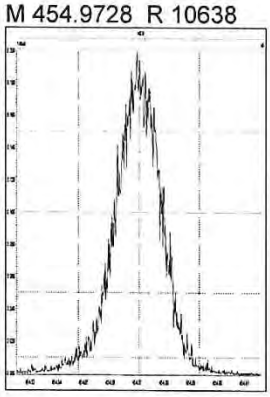
M 430.9728 R 11061



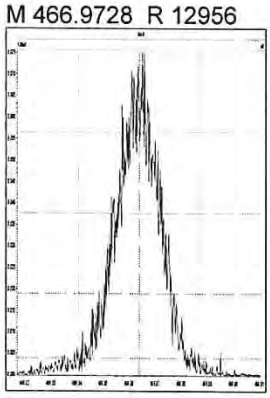
M 442.9728 R 11738



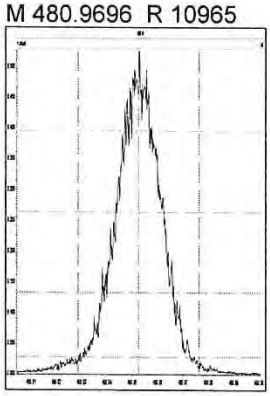
M 454.9728 R 10638



M 466.9728 R 12956



M 480.9696 R 10965



File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

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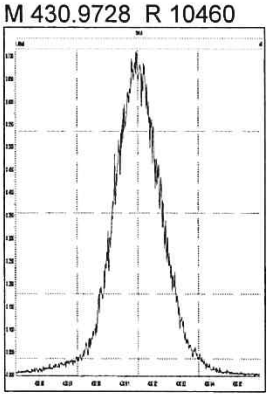
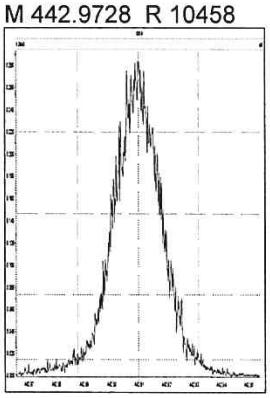
M 430.9728 R 10460



M 442.9728 R 10458



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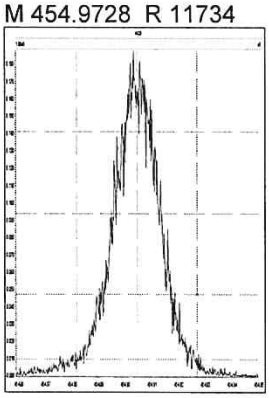
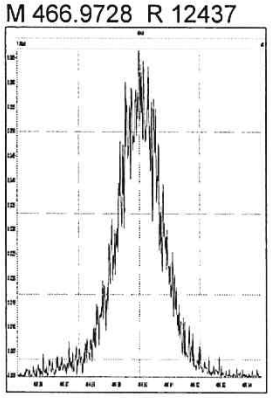
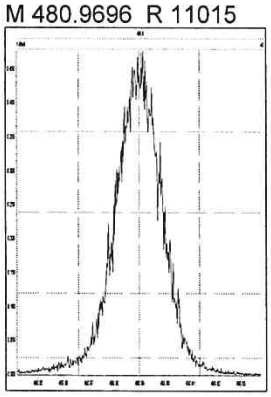


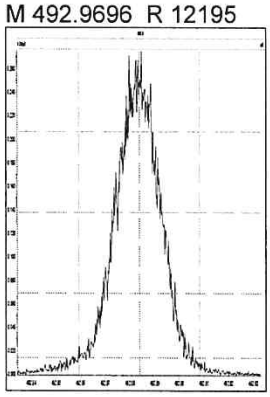
M 466.9728 R 12437



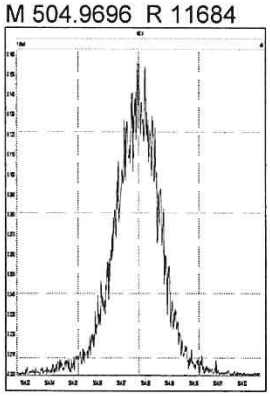
M 480.9696 R 11015



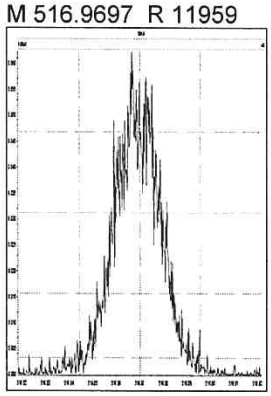
M 492.9696 R 12195



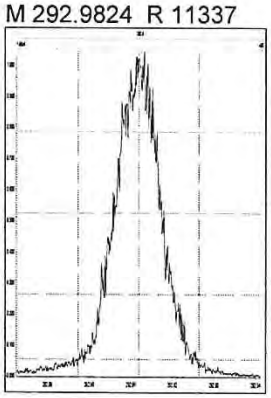
M 504.9696 R 11684



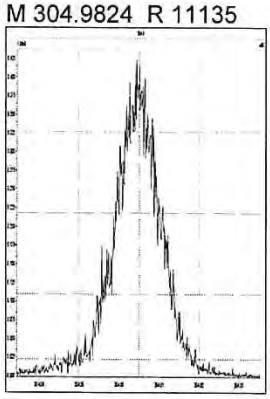
M 516.9697 R 11959



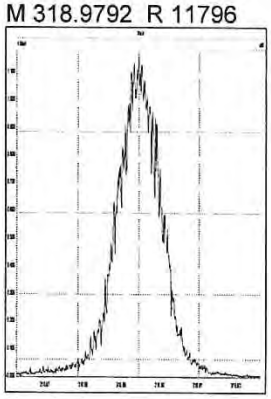
M 292.9824 R 11337



M 304.9824 R 11135



M 318.9792 R 11796



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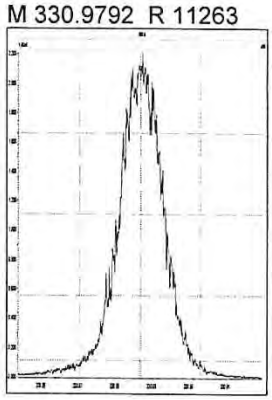
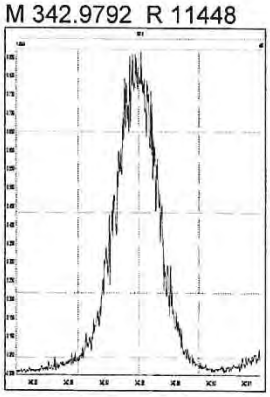
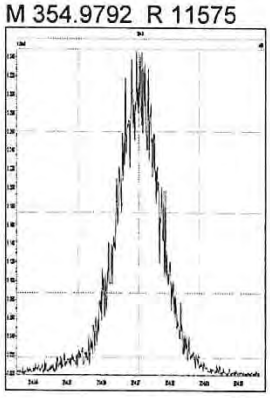


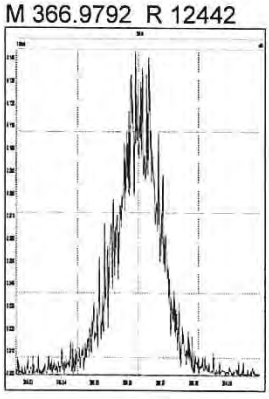
M 342.9792 R 11448



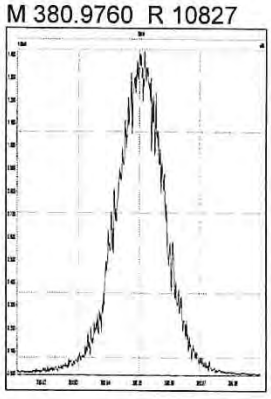
M 354.9792 R 11575



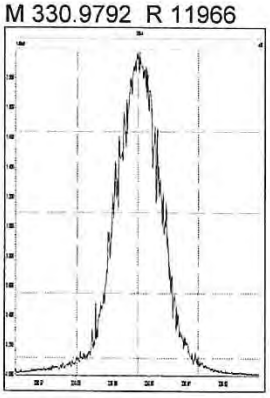
M 366.9792 R 12442



M 380.9760 R 10827



M 330.9792 R 11966



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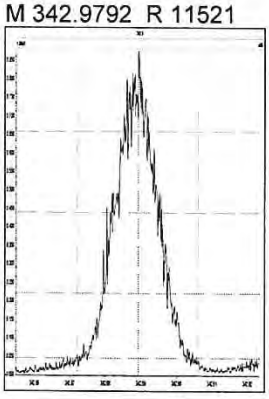

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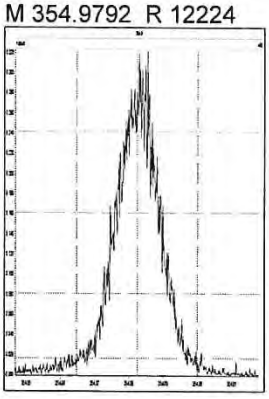

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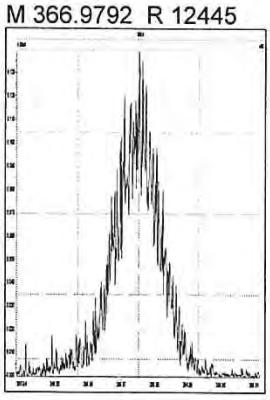
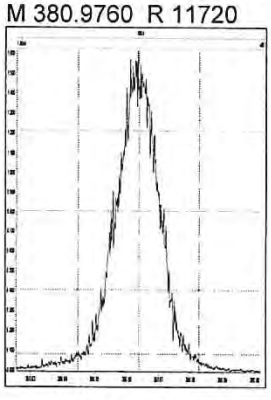
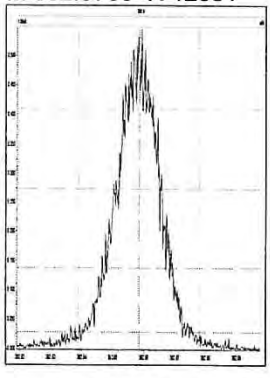


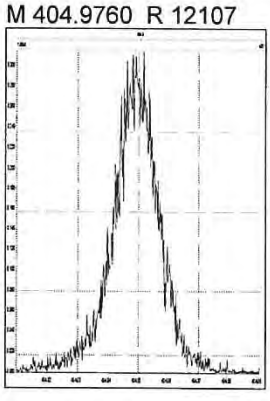
M 380.9760 R 11720



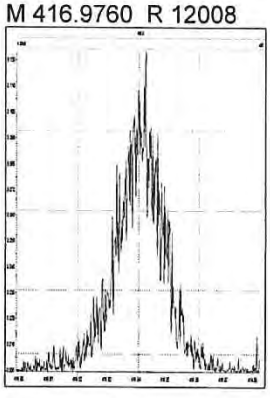
M 392.9760 R 12051



M 404.9760 R 12107



M 416.9760 R 12008



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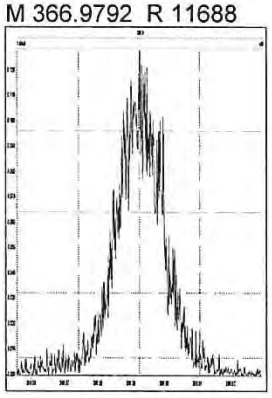
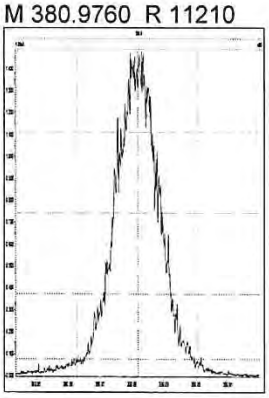
M 366.9792_R 11688



M 380.9760_R 11210



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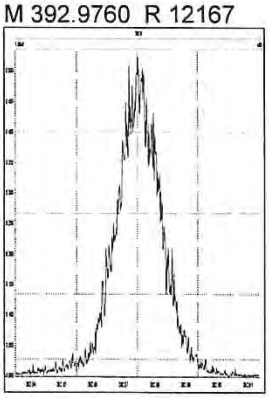
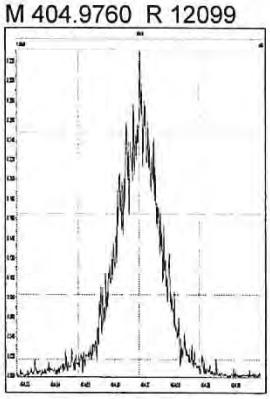


M 404.9760_R 12099



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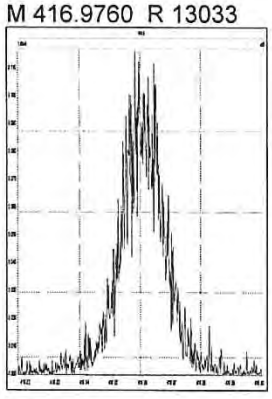
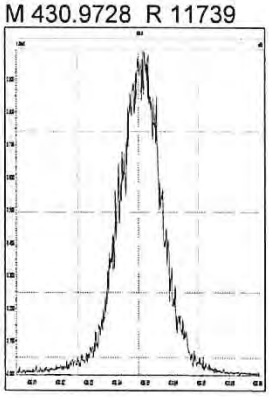
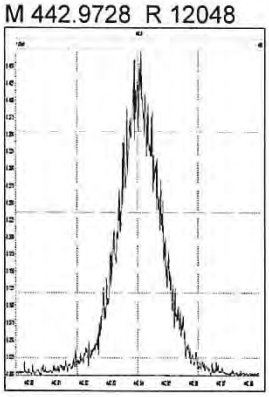


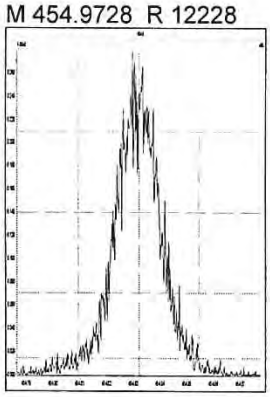
M 430.9728_R 11739



M 442.9728_R 12048



M 454.9728_R 12228



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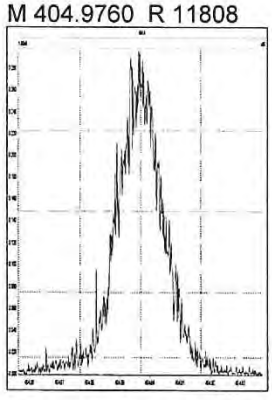

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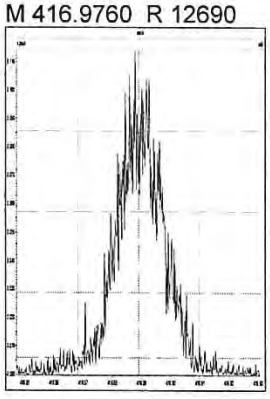

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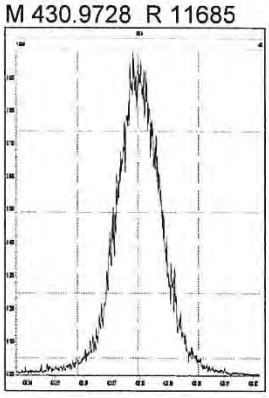
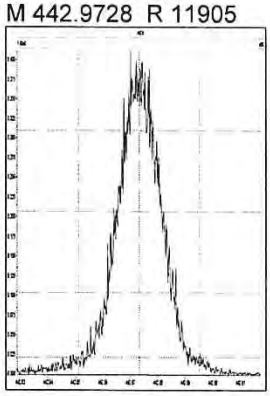
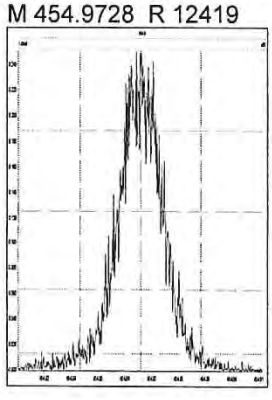


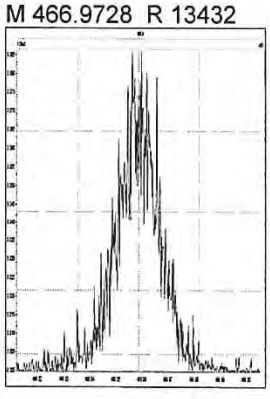
M 442.9728_R 11905



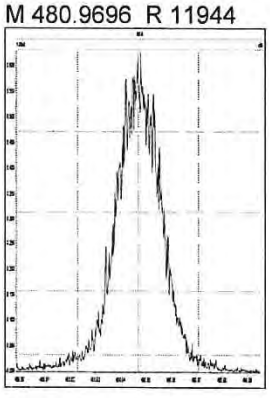
M 454.9728_R 12419



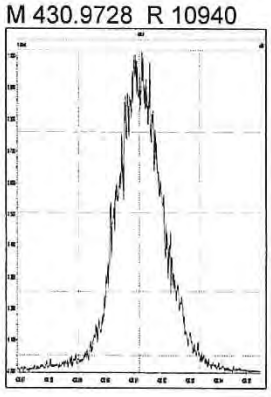
M 466.9728_R 13432



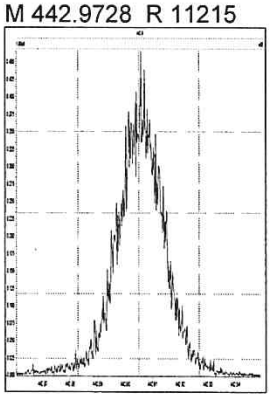
M 480.9696_R 11944



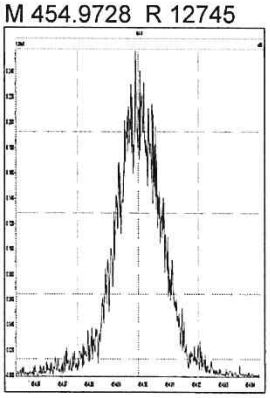
M 430.9728_R 10940



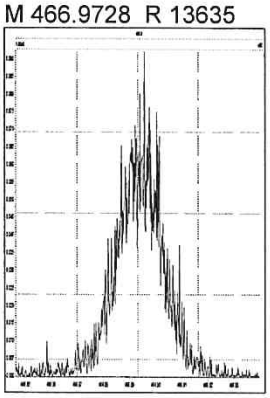
M 442.9728 R 11215



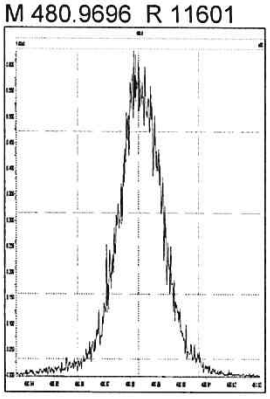
M 454.9728 R 12745



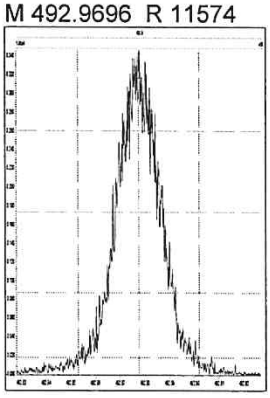
M 466.9728 R 13635



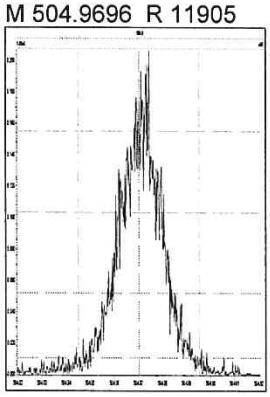
M 480.9696 R 11601



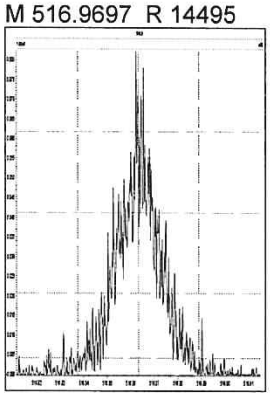
M 492.9696 R 11574



M 504.9696 R 11905



M 516.9697 R 14495



014746

5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

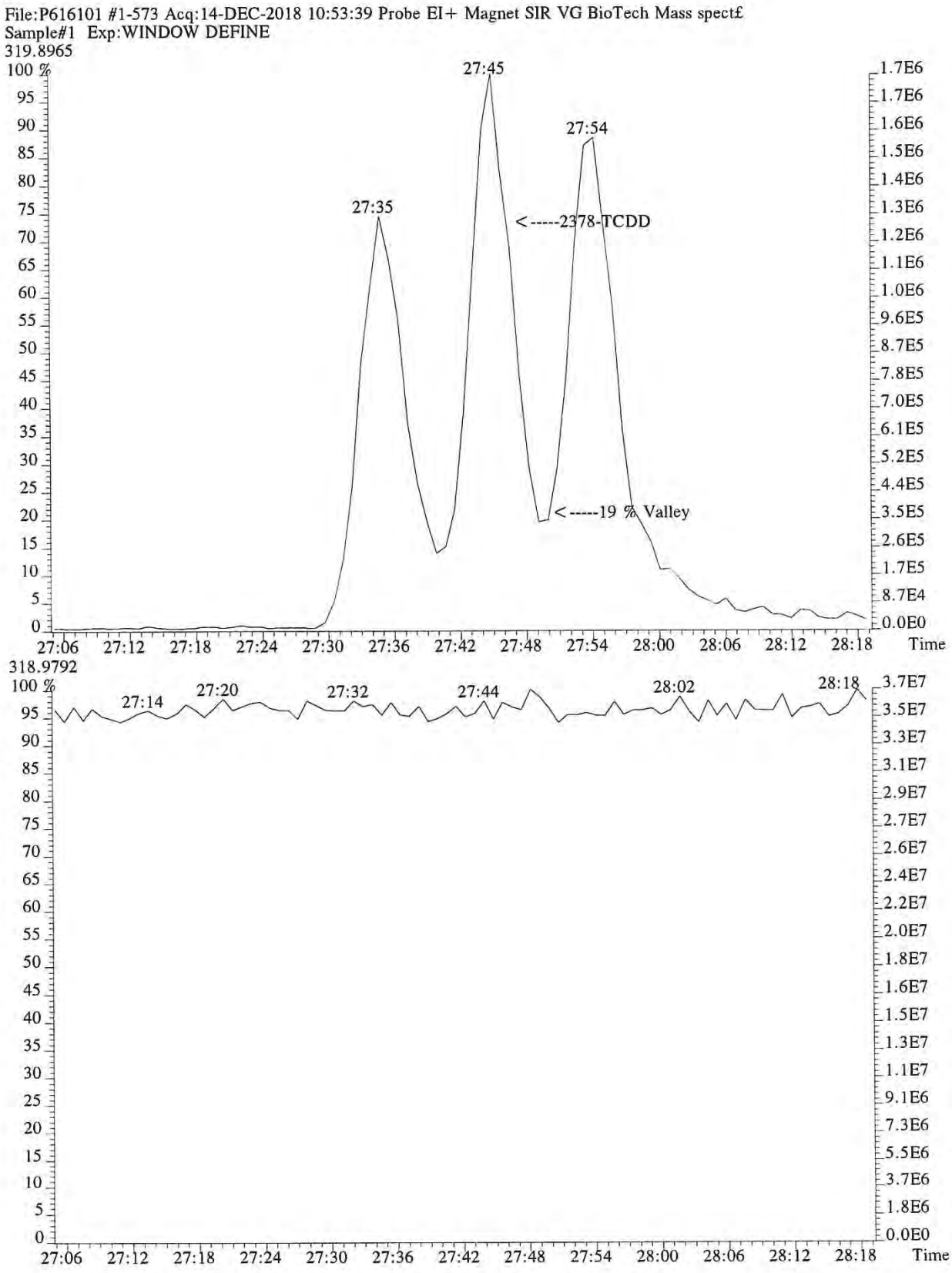
Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

Case No.: _____ SDG No.:
ID: 0.25 (mm)

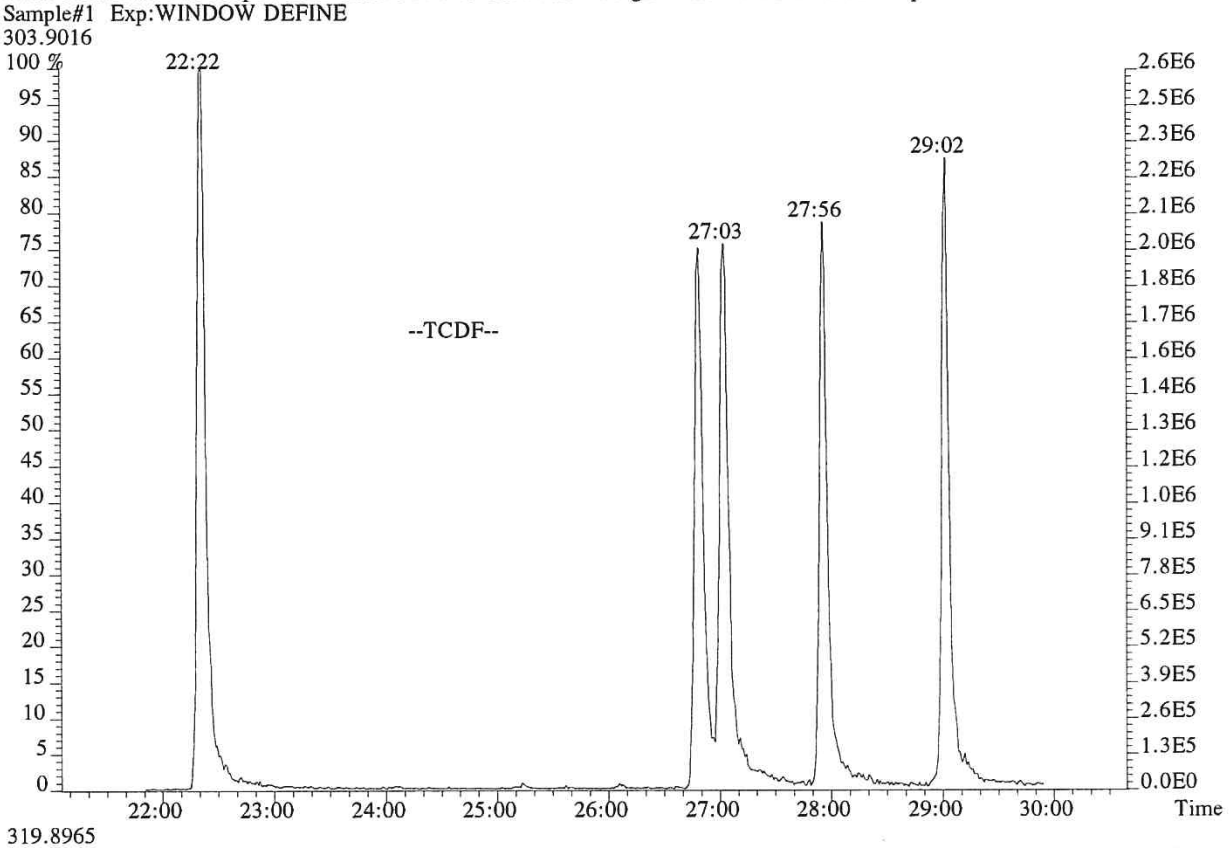
Lab File ID: P616101
Date Analyzed: 14-DEC-18
Time Analyzed: 10:53:39

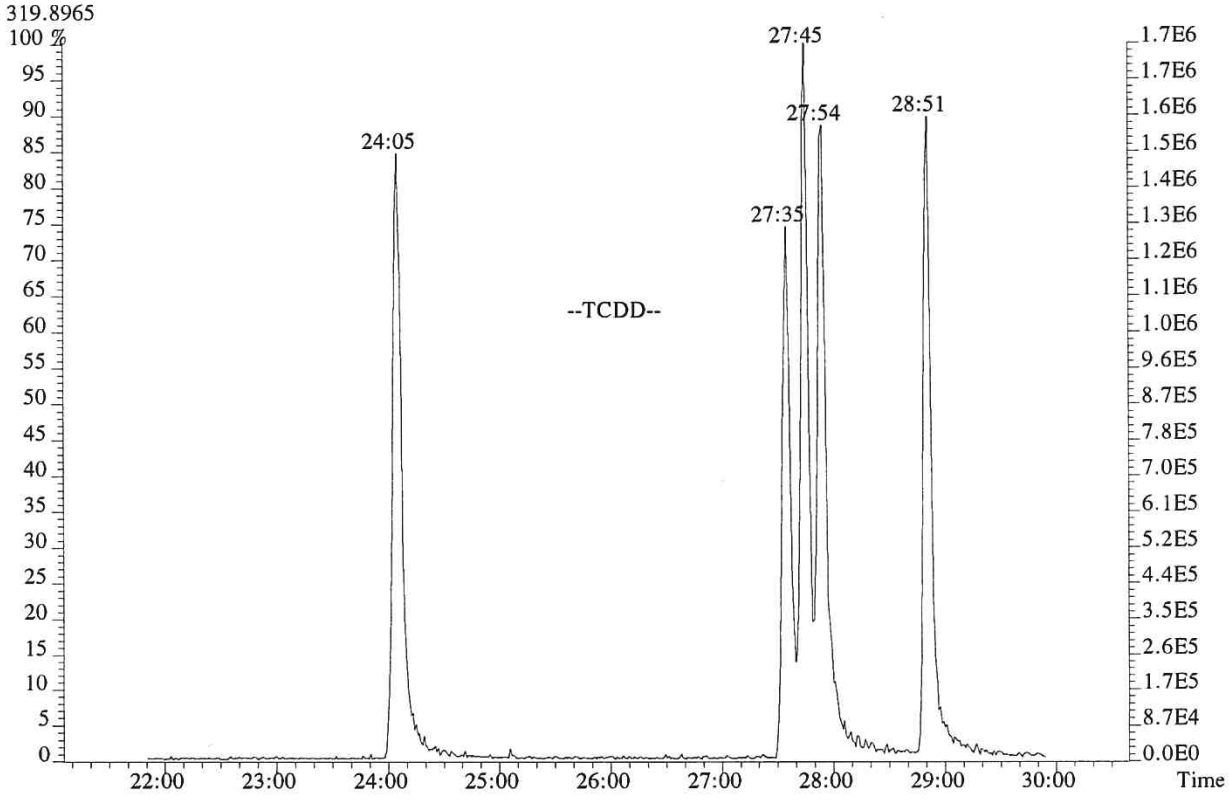
Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	22:22	29:02
TCDD	24:05	28:51
PeCDF	28:56	33:25
PeCDD	30:35	33:10
HxCDF	34:04	36:38
HxCDD	34:37	36:14
HpCDF	37:51	39:13
HpCDD	38:07	38:45

% Valley 2378-TCDD: 19 %

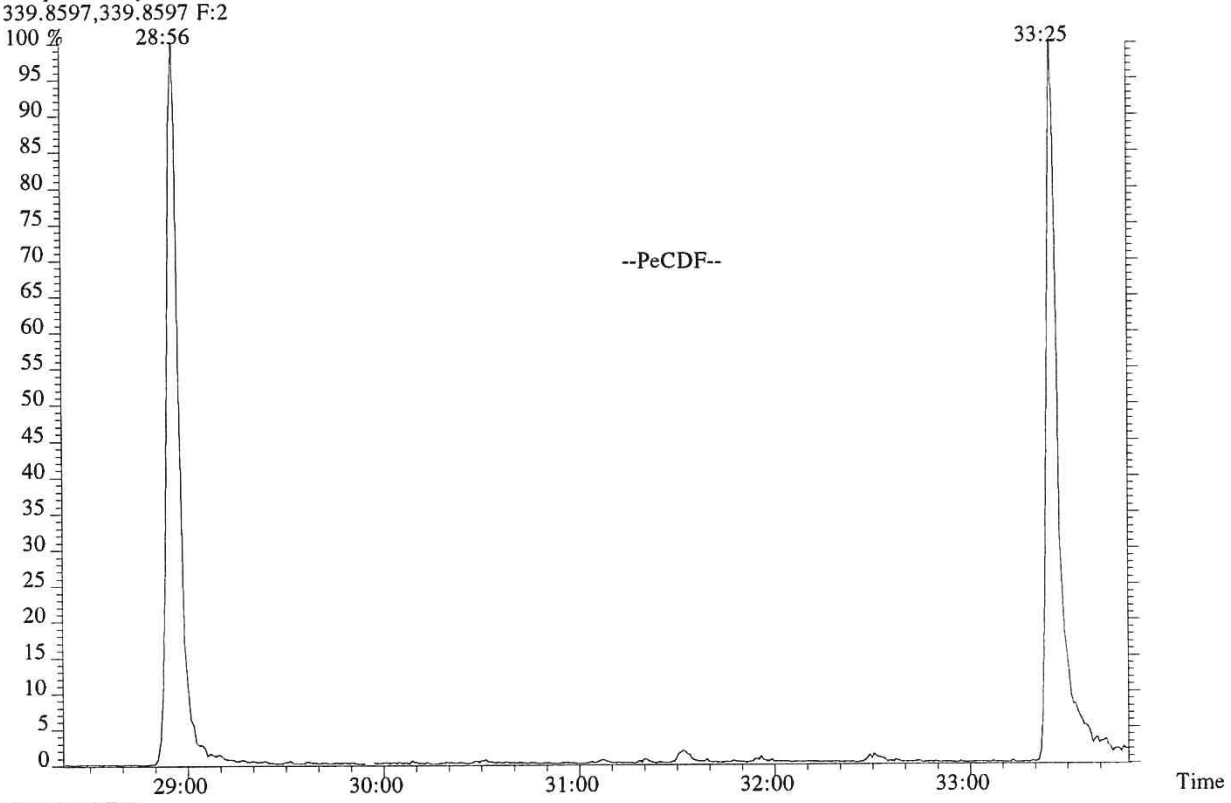

File:P616101 #1-573 Acq:14-DEC-2018 10:53:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
319.8965
27:45
27:54
27:35
<-----2378-TCDD
<-----19 % Valley
Time
318.9792
27:14
27:20
27:32
27:44
28:02
28:18
Time

File:P616101 #1-573 Acq:14-DEC-2018 10:53:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE

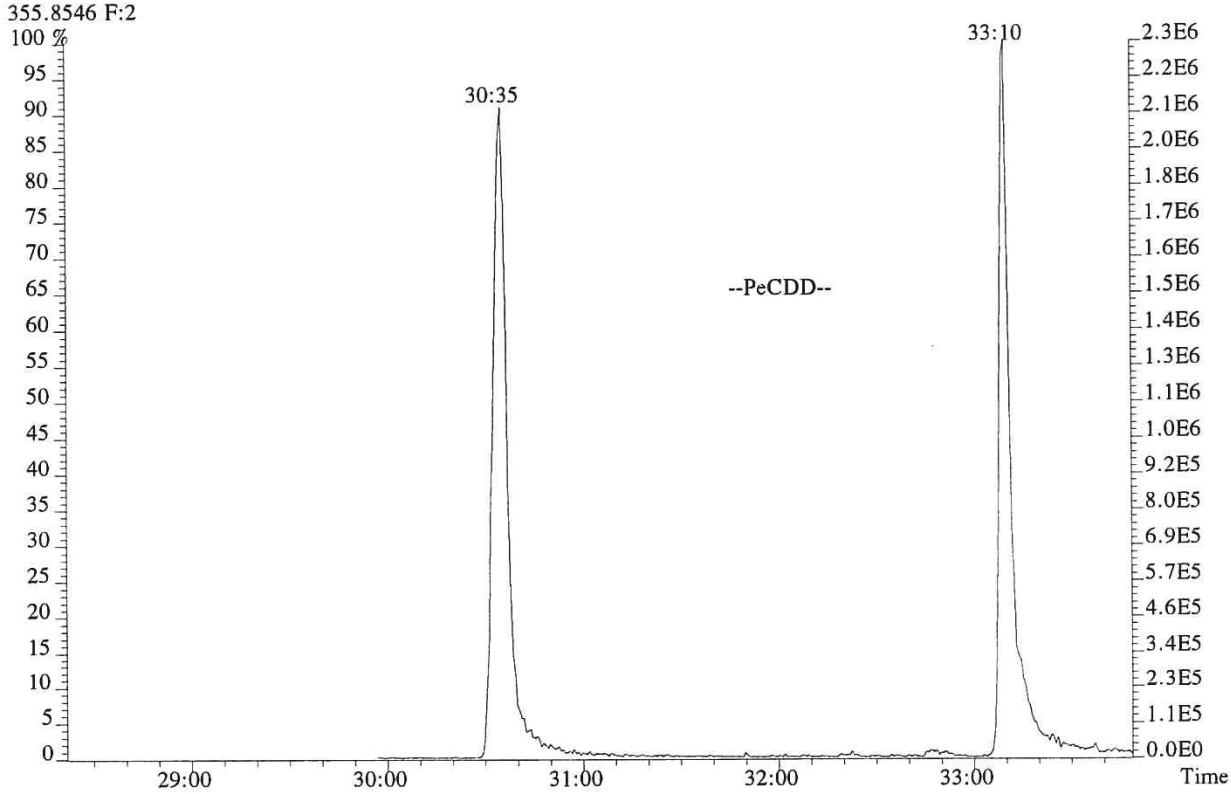




File:P616101 #1-573 Acq:14-DEC-2018 10:53:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
339.8597,339.8597 F:2



355.8546 F:2



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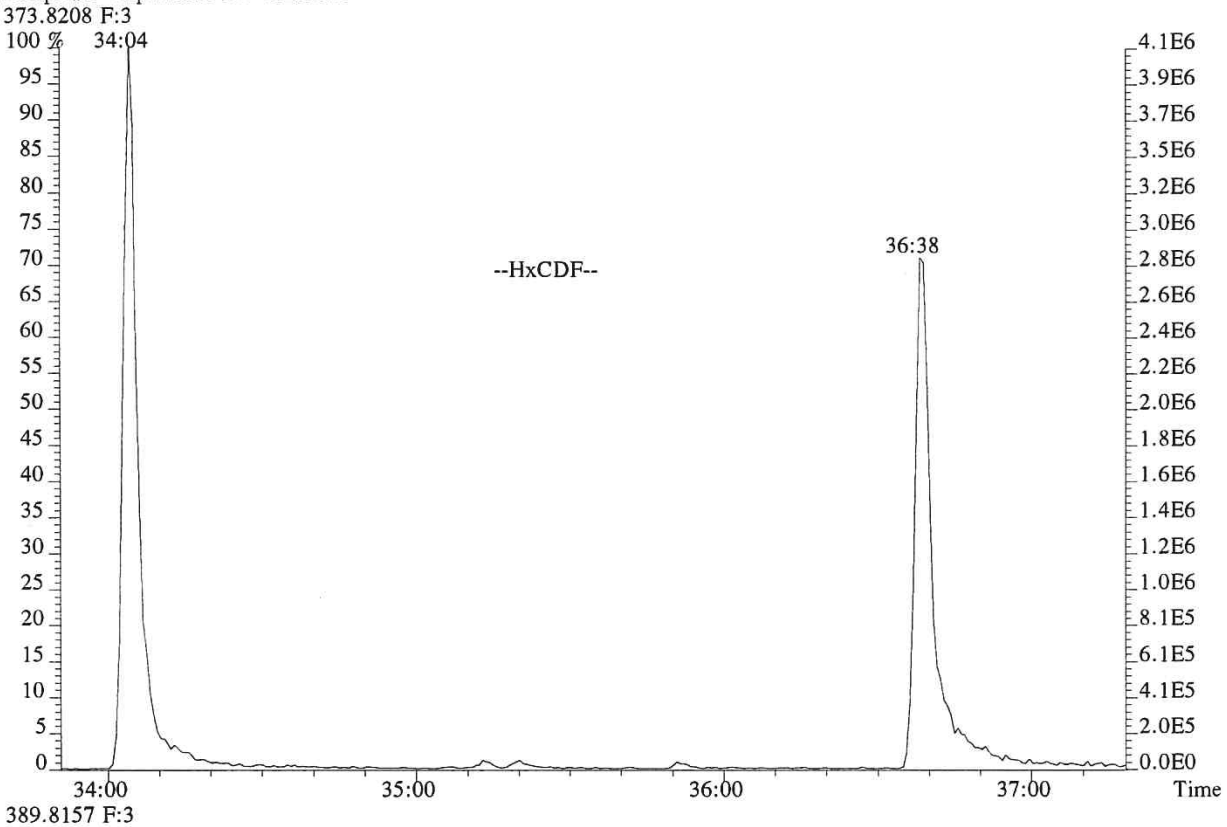
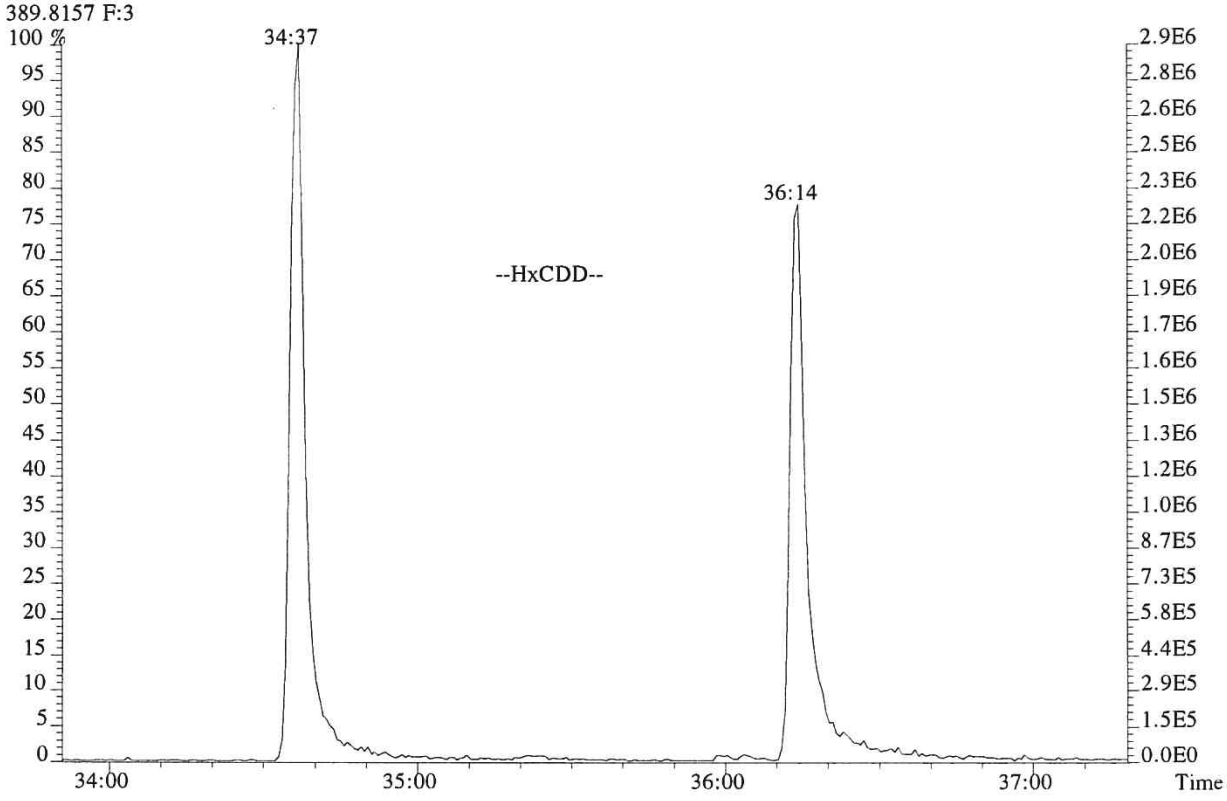
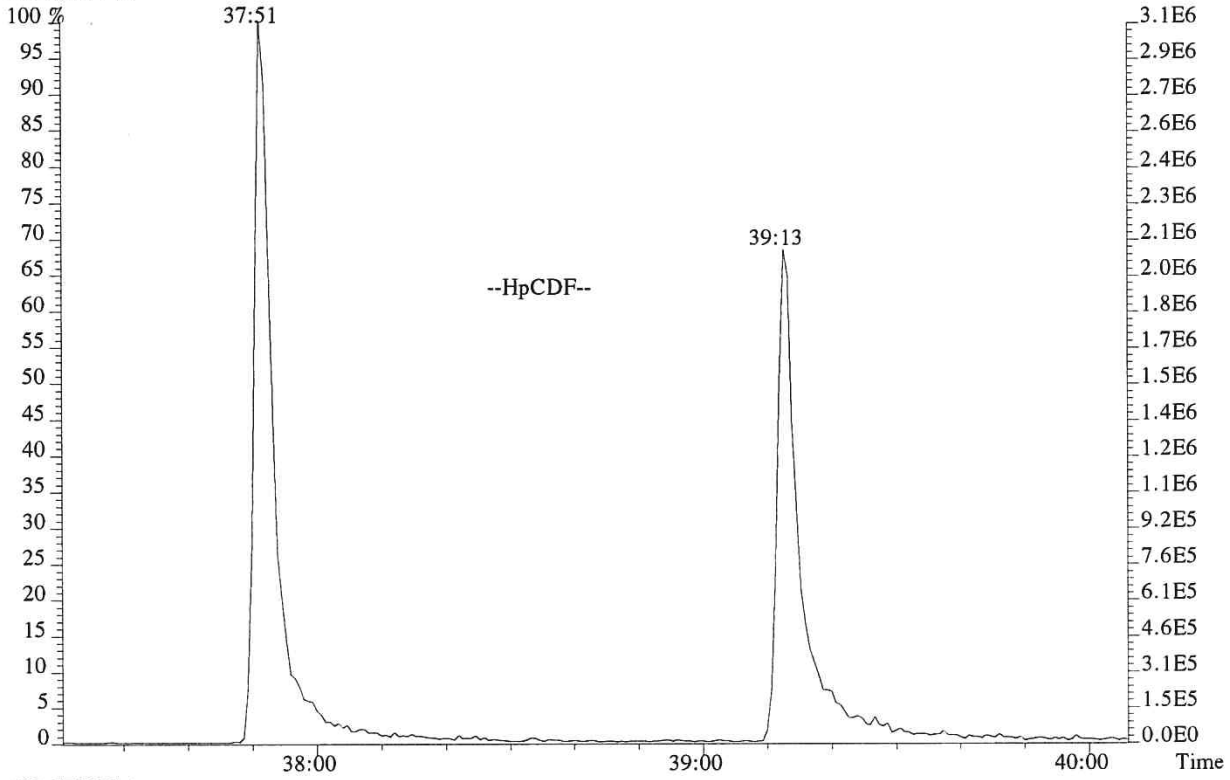
Sample#1 Exp:WINDOW DEFINE

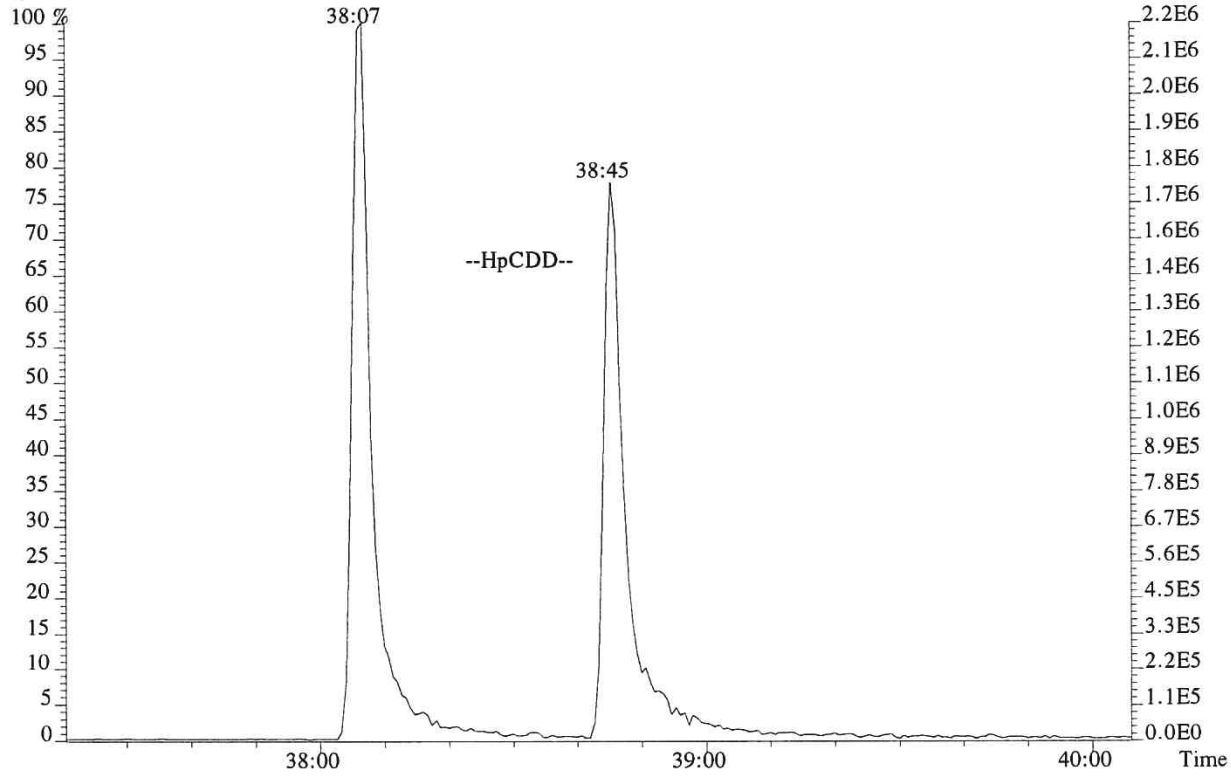




File:P616101 #1-573 Acq:14-DEC-2018 10:53:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
407.7818 F:4



423.7766 F:4



014752

USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 09/25/18

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: P616100 Analysis Date: 14-DEC-18 Time: 09:58:08

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	9.7	7.8 - 12.9	-3.2
1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	51	39 - 65	1.1
1,2,3,4,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	49	39 - 64	-1.9
1,2,3,6,7,8-HxCDD	M+2/M+4	1.23	1.05-1.43	49	39 - 64	-1.4
1,2,3,7,8,9-HxCDD	M+2/M+4	1.19	1.05-1.43	51	41 - 61	1.7
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.07	0.88-1.20	47	43 - 58	-5.2
OCDD	M+2/M+4	0.90	0.76-1.02	98	79 - 126	-1.6
2,3,7,8-TCDF	M/M+2	0.78	0.65-0.89	9.4	8.4 - 12.0	-6.0
1,2,3,7,8-PeCDF	M+2/M+4	1.62	1.32-1.78	46	41 - 60	-7.0
2,3,4,7,8-PeCDF	M+2/M+4	1.54	1.32-1.78	45	41 - 61	-9.7
1,2,3,4,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	45	45 - 56	-10.4
1,2,3,6,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	46	44 - 57	-8.0
1,2,3,7,8,9-HxCDF	M+2/M+4	1.23	1.05-1.43	45	45 - 56	-9.7
2,3,4,6,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	47	44 - 57	-6.7
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.06	0.88-1.20	46	45 - 55	-7.2
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.08	0.88-1.20	46	43 - 58	-8.2
OCDF	M+2/M+4	0.91	0.76-1.02	92	63 - 159	-8.1

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 09/25/18

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: P616100 Analysis Date: 14-DEC-18 Time: 09:58:08

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	95	82 - 121	-5.3
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.56	1.32-1.78	92	62 - 160	-7.9
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	86	85 - 117	-14.0
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	106	85 - 118	6.1
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.03	0.88-1.20	95	72 - 138	-5.2
13C-OCDD	M+2/M+4	0.91	0.76-1.02	188	96 - 415	-5.9
13C-2,3,7,8-TCDF	M/M+2	0.80	0.65-0.89	96	71 - 140	-4.1
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	93	76 - 130	-7.4
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	95	77 - 130	-4.9
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.53	0.43-0.59	86	76 - 131	-14.3
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	104	70 - 143	3.7
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	85	74 - 135	-15.4
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	94	73 - 137	-5.8
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.46	0.37-0.51	91	78 - 129	-9.5
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.46	0.37-0.51	85	77 - 129	-15.4
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD	M+2/M+4			9.2	7.8 - 12.7	-7.9

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #7 Filename P616100 Samp: 1 Inj: 1 Acquired: 14-DEC-18 09:58:08
Processed: 18-DEC-18 10:07:32 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:03	8.584e+03	1.103e+04	0.78	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	31:32	6.973e+04	4.316e+04	1.62	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	32:30	6.413e+04	4.163e+04	1.54	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:14	5.232e+04	4.248e+04	1.23	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:20	6.858e+04	5.509e+04	1.24	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	35:52	5.843e+04	4.724e+04	1.24	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	36:37	4.711e+04	3.815e+04	1.23	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	37:52	5.090e+04	4.807e+04	1.06	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:13	4.010e+04	3.725e+04	1.08	yes	no	1.463
10	Unk	OCDF	41:34	6.411e+04	7.030e+04	0.91	yes	no	1.571
11	Unk	2,3,7,8-TCDD	27:54	5.968e+03	7.461e+03	0.80	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	32:47	4.243e+04	2.667e+04	1.59	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	35:60	3.392e+04	2.736e+04	1.24	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:05	4.152e+04	3.368e+04	1.23	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:19	4.125e+04	3.463e+04	1.19	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	38:46	3.322e+04	3.119e+04	1.07	yes	no	1.112
17	Unk	OCDD	41:23	5.026e+04	5.577e+04	0.90	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:02	8.557e+04	1.075e+05	0.80	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	31:31	1.284e+05	8.165e+04	1.57	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	32:29	1.303e+05	8.202e+04	1.59	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:13	5.147e+04	9.791e+04	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:20	7.172e+04	1.363e+05	0.53	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	35:51	6.114e+04	1.157e+05	0.53	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	36:36	4.941e+04	9.446e+04	0.52	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:51	4.400e+04	9.598e+04	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:13	3.652e+04	7.867e+04	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	27:53	5.813e+04	7.404e+04	0.79	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	32:46	8.965e+04	5.760e+04	1.56	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	35:59	6.515e+04	5.150e+04	1.26	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:04	8.057e+04	6.346e+04	1.27	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:45	6.189e+04	6.023e+04	1.03	yes	no	0.857
32	IS	13C-OCDD	41:22	8.866e+04	9.759e+04	0.91	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	27:14	6.253e+04	7.954e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:18	8.305e+04	6.720e+04	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:54	1.422e+04				no	1.086

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #7 Filename P616100 Samp: 1 Inj: 1 Acquired: 14-DEC-18 09:58:08
Processed: 18-DEC-18 10:07:32 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	1.18e+06	1.42e+03	8.4e+02	1.53e+06	3.65e+03	4.2e+02
2	1,2,3,7,8-PeCDF	1.04e+07	2.16e+03	4.8e+03	6.48e+06	8.27e+03	7.8e+02
3	2,3,4,7,8-PeCDF	1.03e+07	2.16e+03	4.8e+03	6.74e+06	8.27e+03	8.1e+02
4	1,2,3,4,7,8-HxCDF	1.02e+07	1.94e+03	5.2e+03	8.28e+06	1.38e+03	6.0e+03
5	1,2,3,6,7,8-HxCDF	1.10e+07	1.94e+03	5.7e+03	8.77e+06	1.38e+03	6.4e+03
6	2,3,4,6,7,8-HxCDF	1.02e+07	1.94e+03	5.2e+03	8.09e+06	1.38e+03	5.9e+03
7	1,2,3,7,8,9-HxCDF	7.13e+06	1.94e+03	3.7e+03	5.63e+06	1.38e+03	4.1e+03
8	1,2,3,4,6,7,8-HpCDF	8.87e+06	1.43e+04	6.2e+02	8.53e+06	6.51e+03	1.3e+03
9	1,2,3,4,7,8,9-HpCDF	5.95e+06	1.43e+04	4.2e+02	5.68e+06	6.51e+03	8.7e+02
10	OCDF	8.85e+06	3.88e+02	2.3e+04	9.66e+06	1.79e+03	5.4e+03
11	2,3,7,8-TCDD	9.37e+05	3.40e+03	2.8e+02	1.19e+06	2.56e+03	4.6e+02
12	1,2,3,7,8-PeCDD	6.60e+06	1.13e+03	5.9e+03	4.14e+06	1.03e+03	4.0e+03
13	1,2,3,4,7,8-HxCDD	6.97e+06	2.04e+03	3.4e+03	5.58e+06	2.38e+03	2.3e+03
14	1,2,3,6,7,8-HxCDD	7.07e+06	2.04e+03	3.5e+03	5.68e+06	2.38e+03	2.4e+03
15	1,2,3,7,8,9-HxCDD	6.54e+06	2.04e+03	3.2e+03	5.30e+06	2.38e+03	2.2e+03
16	1,2,3,4,6,7,8-HpCDD	5.09e+06	1.02e+03	5.0e+03	4.83e+06	1.79e+03	2.7e+03
17	OCDD	6.93e+06	4.56e+02	1.5e+04	7.54e+06	1.02e+03	7.4e+03
18	13C-2,3,7,8-TCDF	1.19e+07	5.81e+03	2.1e+03	1.48e+07	3.00e+03	4.9e+03
19	13C-1,2,3,7,8-PeCDF	1.94e+07	7.24e+02	2.7e+04	1.24e+07	1.52e+03	8.1e+03
20	13C-2,3,4,7,8-PeCDF	2.13e+07	7.24e+02	2.9e+04	1.34e+07	1.52e+03	8.8e+03
21	13C-1,2,3,4,7,8-HxCDF	1.01e+07	1.62e+03	6.2e+03	1.91e+07	1.31e+03	1.5e+04
22	13C-1,2,3,6,7,8-HxCDF	1.16e+07	1.62e+03	7.1e+03	2.21e+07	1.31e+03	1.7e+04
23	13C-2,3,4,6,7,8-HxCDF	1.08e+07	1.62e+03	6.7e+03	2.03e+07	1.31e+03	1.5e+04
24	13C-1,2,3,7,8,9-HxCDF	7.34e+06	1.62e+03	4.5e+03	1.40e+07	1.31e+03	1.1e+04
25	13C-1,2,3,4,6,7,8-HpCDF	7.61e+06	2.03e+04	3.7e+02	1.70e+07	9.58e+03	1.8e+03
26	13C-1,2,3,4,7,8,9-HpCDF	5.48e+06	2.03e+04	2.7e+02	1.18e+07	9.58e+03	1.2e+03
27	13C-2,3,7,8-TCDD	8.70e+06	2.26e+04	3.8e+02	1.09e+07	7.27e+03	1.5e+03
28	13C-1,2,3,7,8-PeCDD	1.36e+07	1.06e+03	1.3e+04	8.74e+06	1.51e+03	5.8e+03
29	13C-1,2,3,4,7,8-HxCDD	1.33e+07	3.18e+03	4.2e+03	1.04e+07	3.82e+03	2.7e+03
30	13C-1,2,3,6,7,8-HxCDD	1.37e+07	3.18e+03	4.3e+03	1.07e+07	3.82e+03	2.8e+03
31	13C-1,2,3,4,6,7,8-HpCDD	9.79e+06	2.89e+03	3.4e+03	9.07e+06	1.23e+03	7.4e+03
32	13C-OCDD	1.20e+07	2.19e+03	5.5e+03	1.32e+07	1.14e+03	1.2e+04
33	13C-1,2,3,4-TCDD	1.00e+07	2.26e+04	4.4e+02	1.26e+07	7.27e+03	1.7e+03
34	13C-1,2,3,7,8,9-HxCDD	1.28e+07	3.18e+03	4.0e+03	1.02e+07	3.82e+03	2.7e+03
35	37Cl-2,3,7,8-TCDD	2.15e+06	2.90e+03	7.4e+02			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (3.396e{+}03 + 2.560e{+}03) \times 100}{(8.697e{+}06 + 1.094e{+}07) \times (\quad) \times 1.049} =$$

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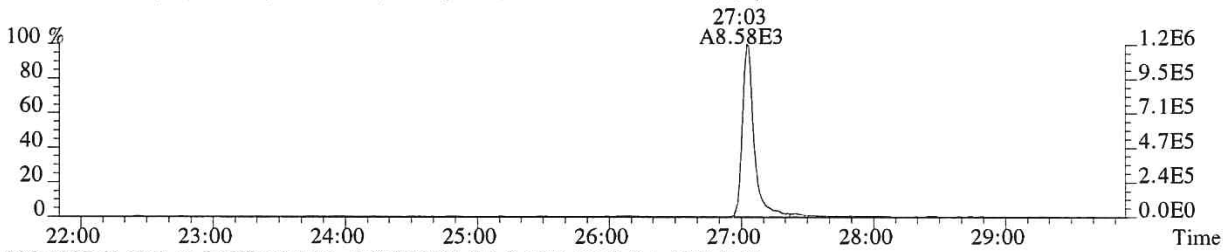
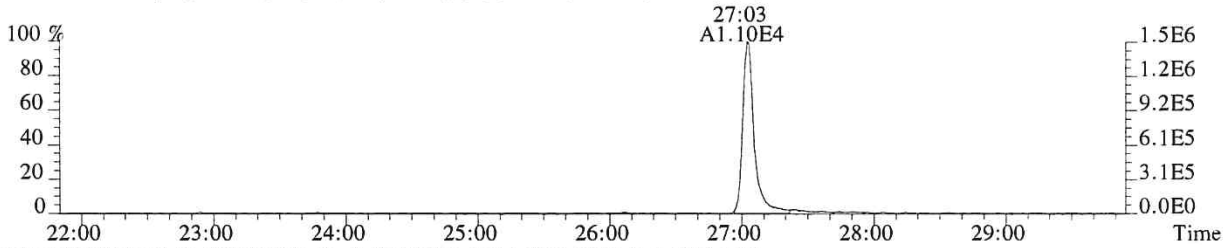
File:P616100 #1-573 Acq:14-DEC-2018 09:58:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

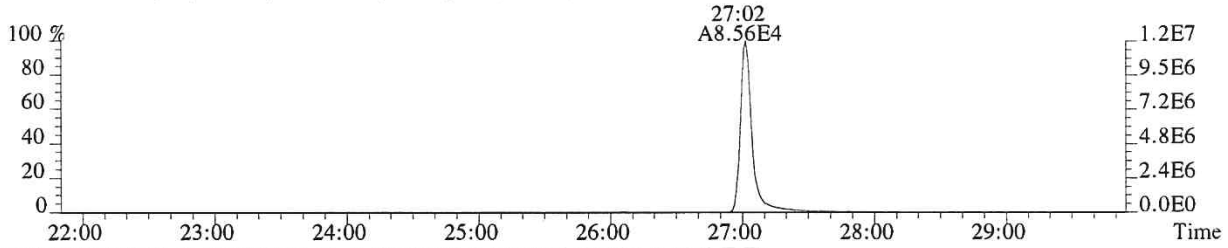
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1416.0,1.00%,F,T)



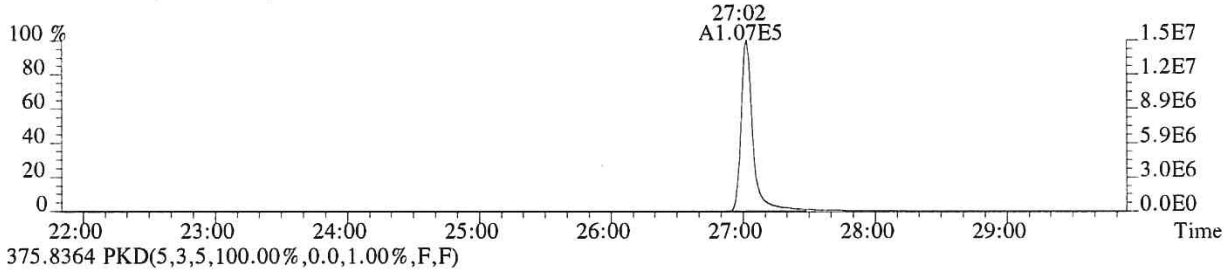
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3648.0,1.00%,F,T)



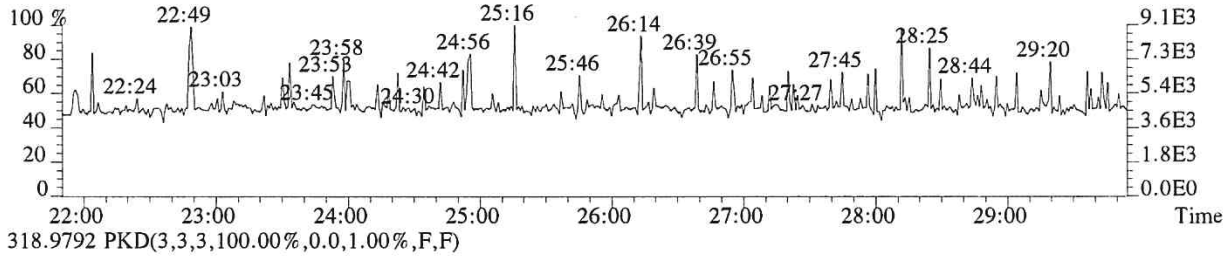
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5812.0,1.00%,F,T)



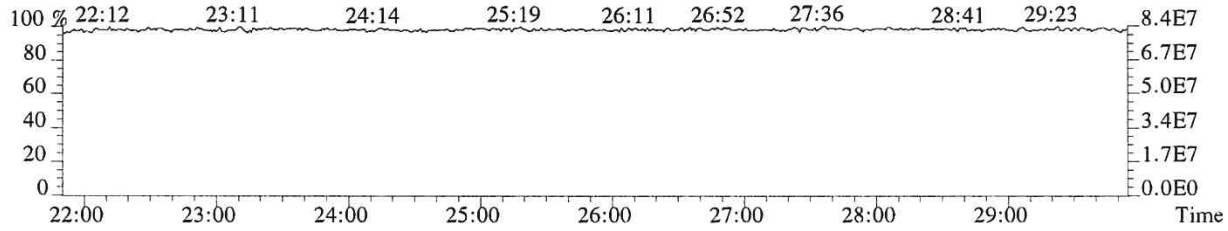
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2996.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

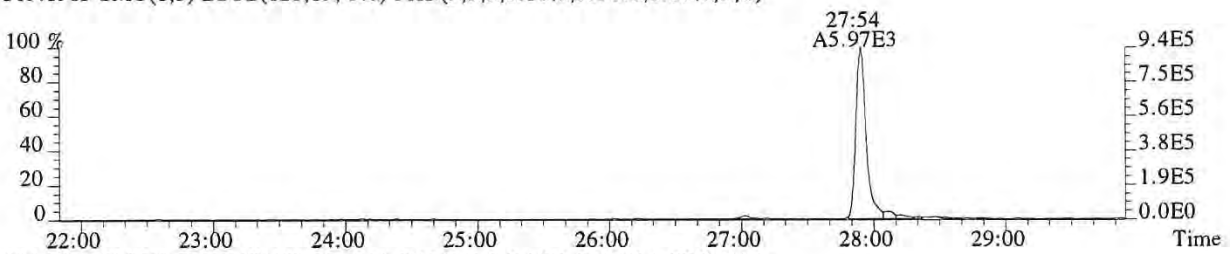


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

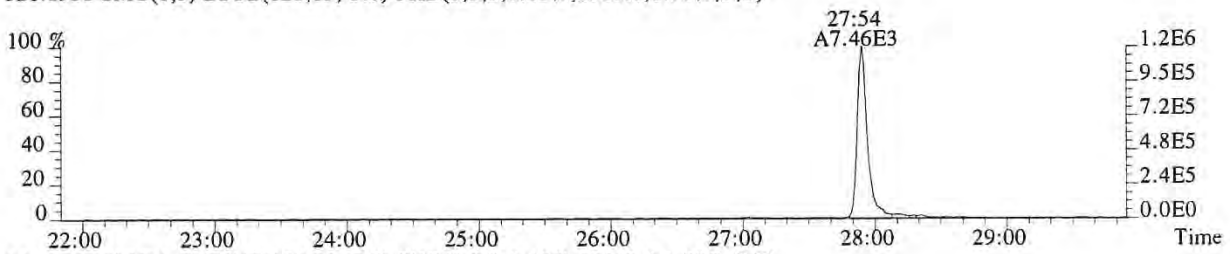


014757

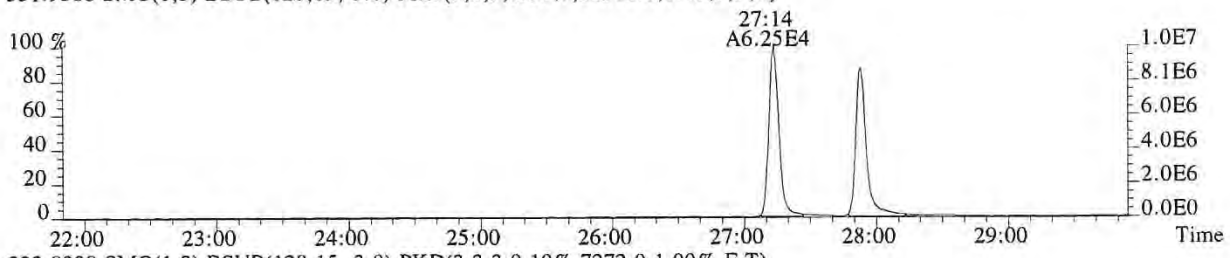
File:P616100 #1-573 Acq:14-DEC-2018 09:58:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3396.0,1.00%,F,T)



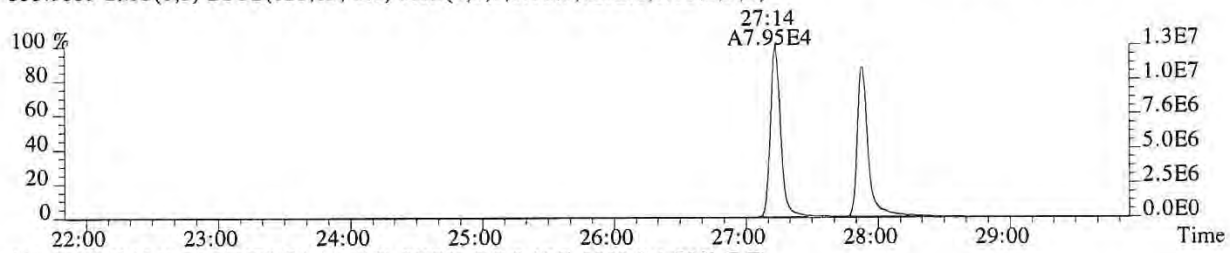
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2560.0,1.00%,F,T)



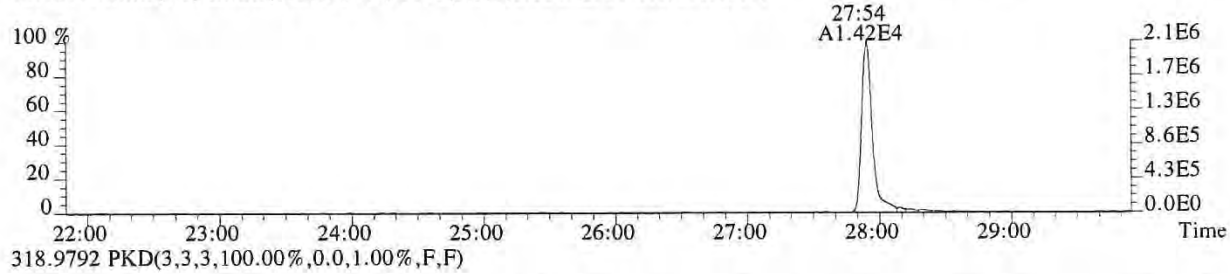
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,22612.0,1.00%,F,T)



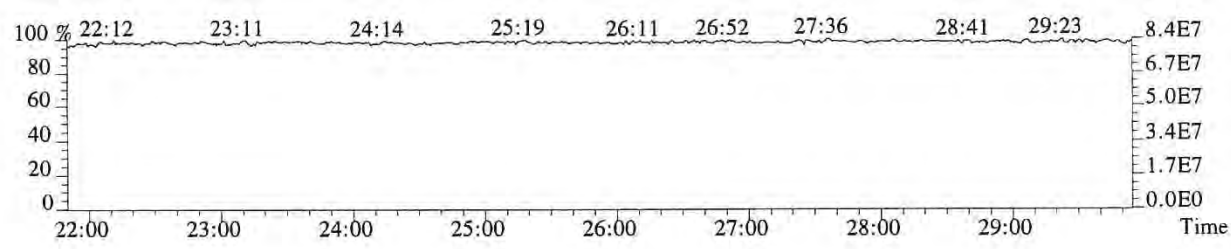
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7272.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2900.0,1.00%,F,T)

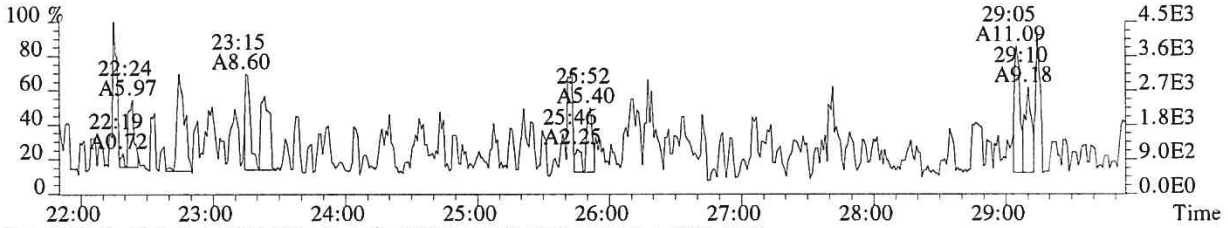


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

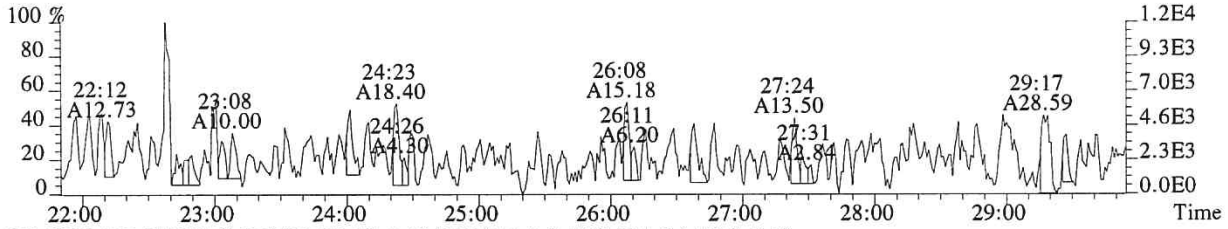


014758

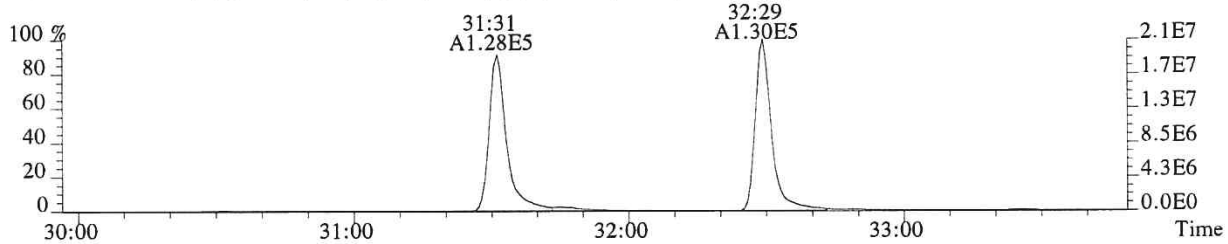
File:P616100 #1-573 Acq:14-DEC-2018 09:58:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1248.0,1.00%,F,T)



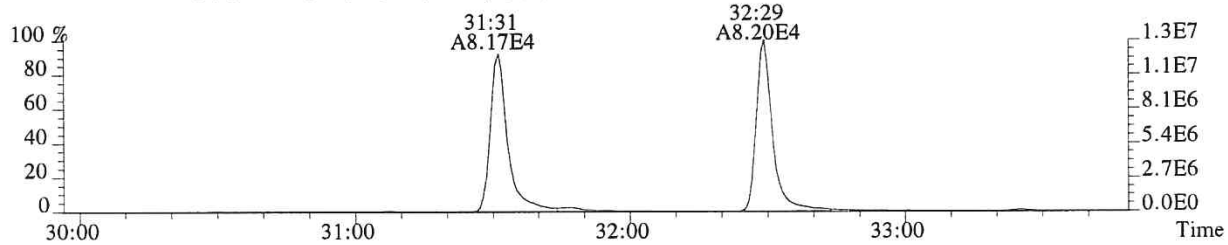
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2656.0,1.00%,F,T)



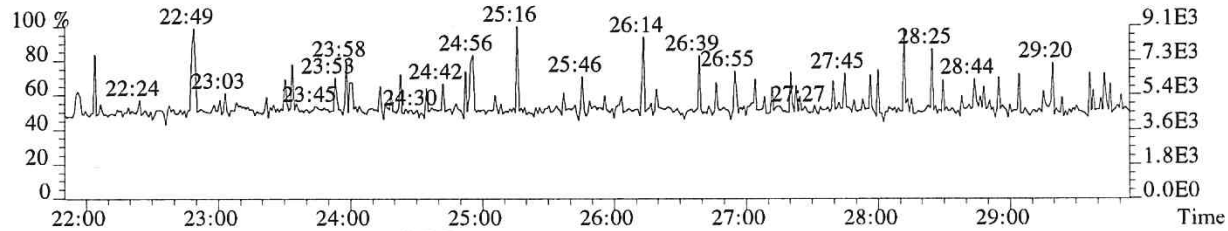
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,724.0,1.00%,F,T)



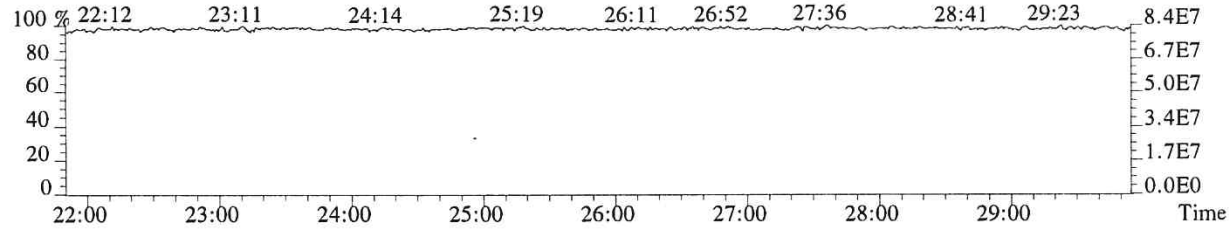
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1520.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

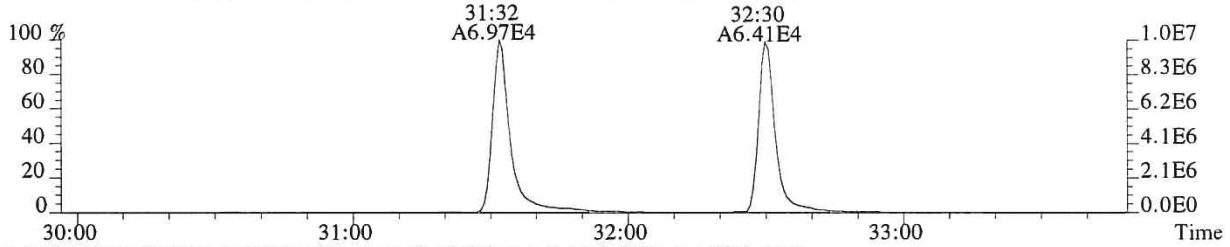


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

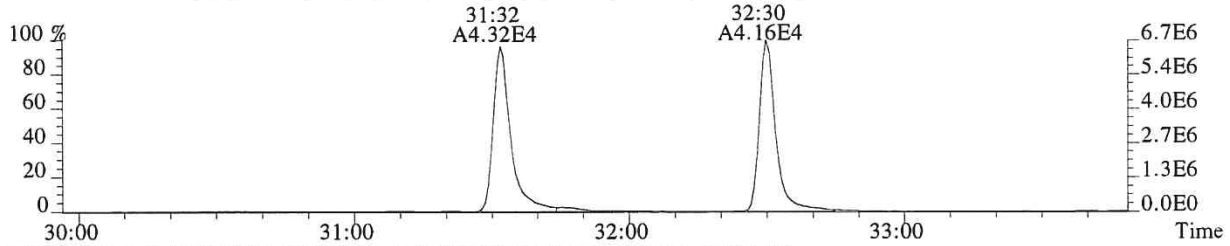


014759

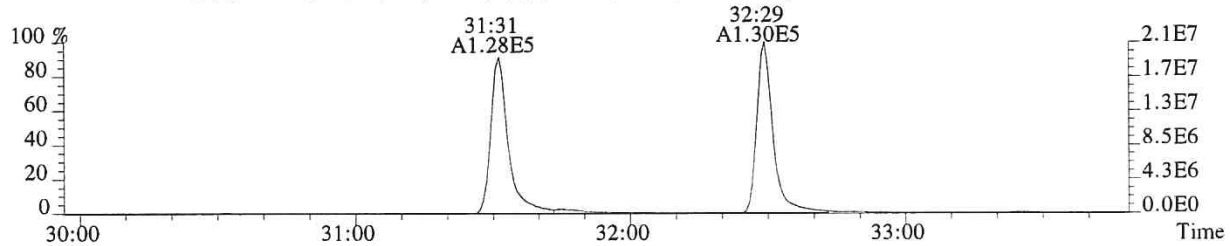
File:P616100 #1-349 Acq:14-DEC-2018 09:58:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2156.0,1.00%,F,T)



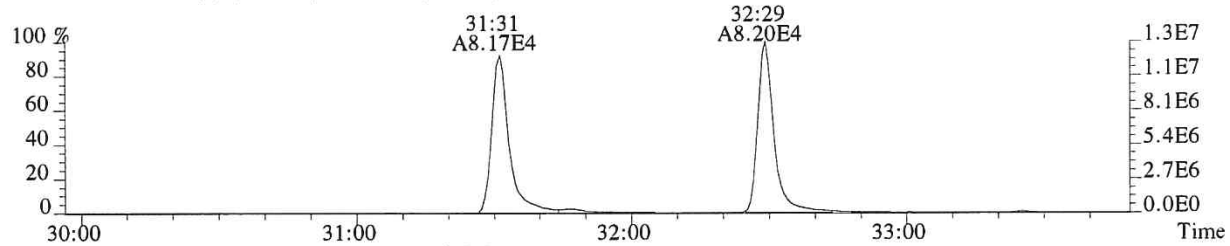
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8272.0,1.00%,F,T)



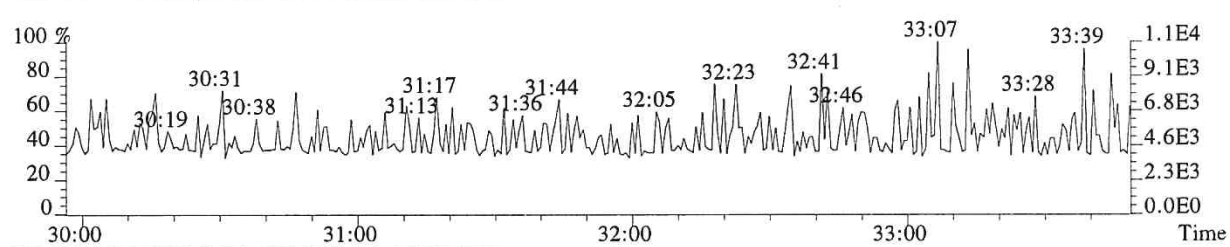
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,724.0,1.00%,F,T)



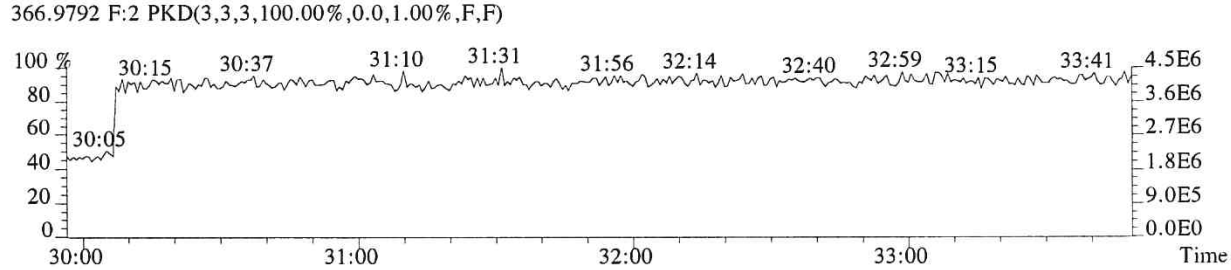
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1520.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

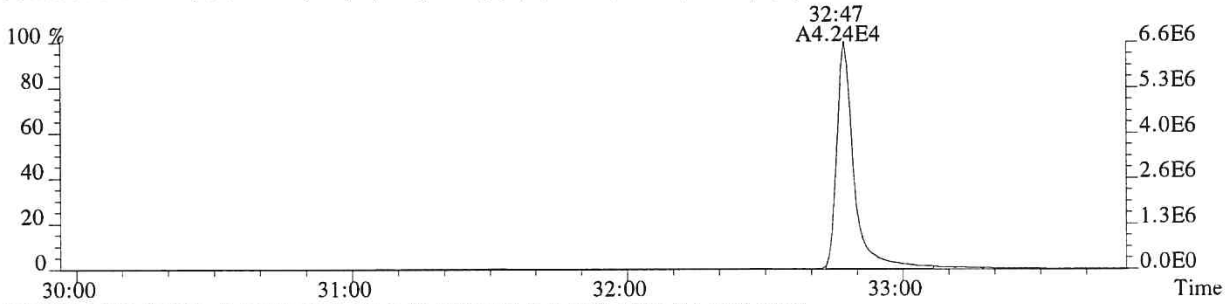


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

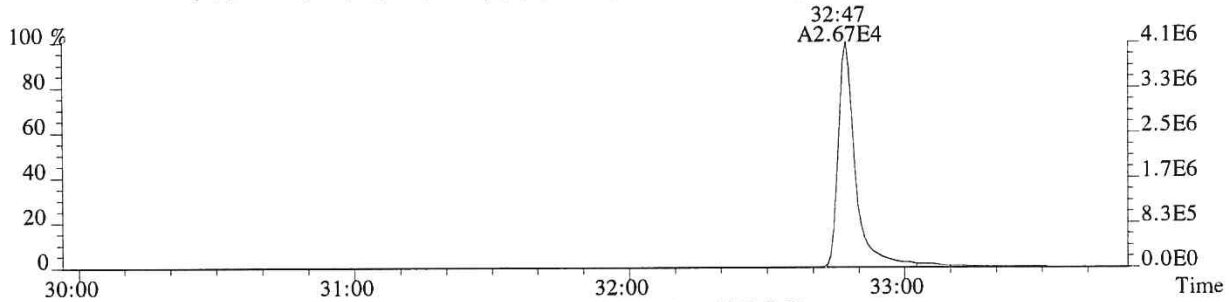


014760

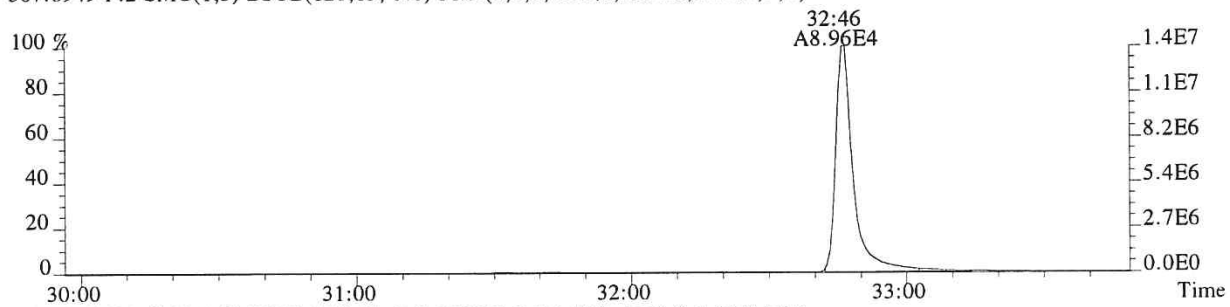
File:P616100 #1-349 Acq:14-DEC-2018 09:58:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1128.0,1.00%,F,T)



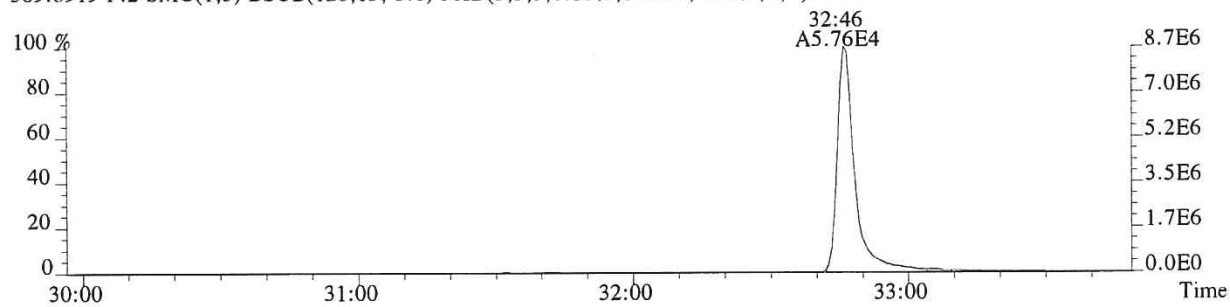
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



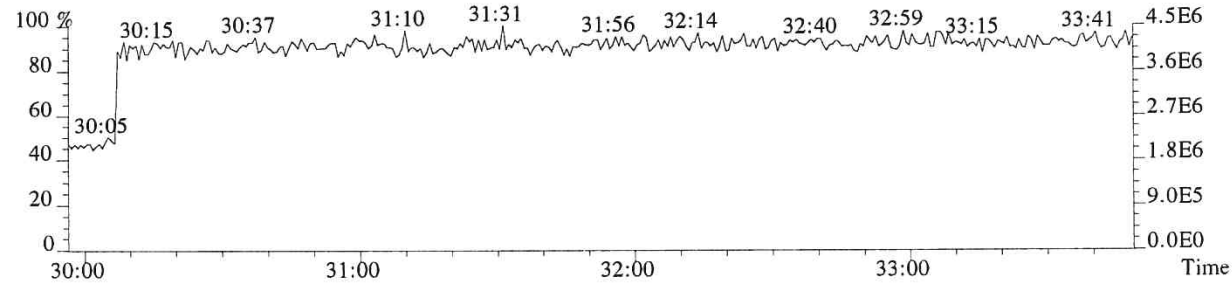
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1064.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1512.0,1.00%,F,T)

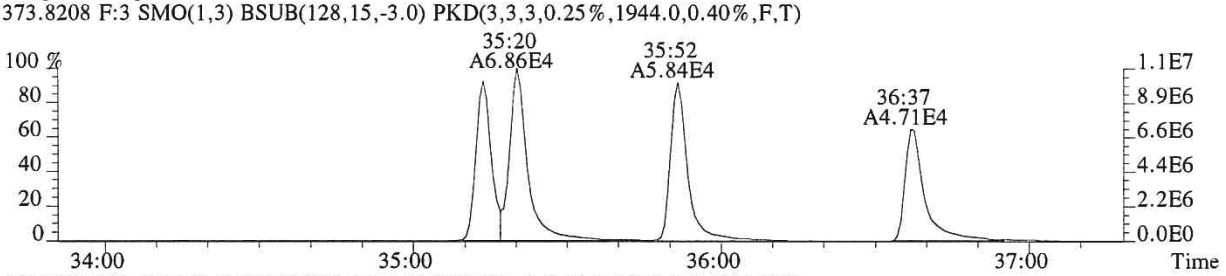


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

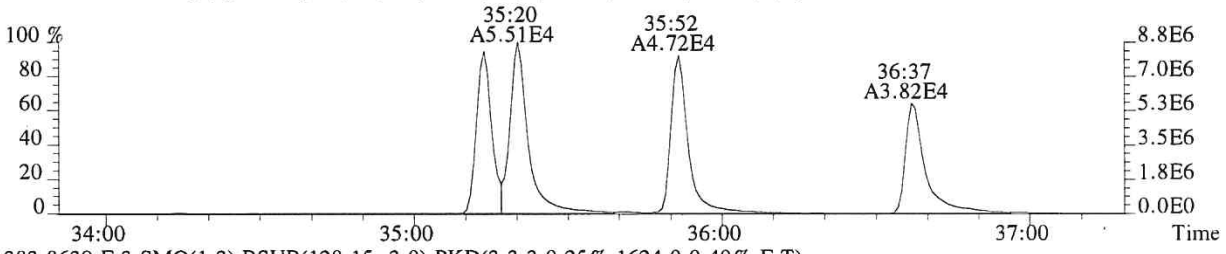


File:P616100 #1-312 Acq:14-DEC-2018 09:58:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

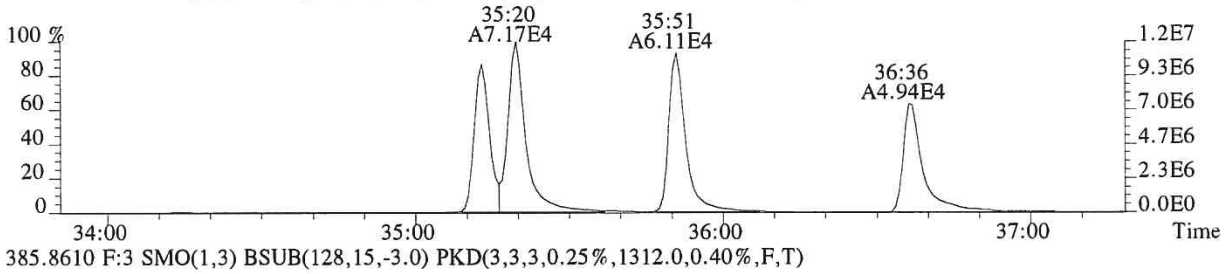
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1944.0,0.40%,F,T)



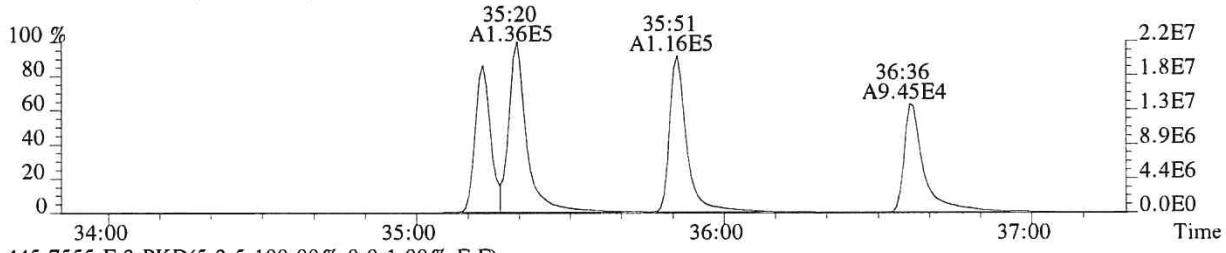
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1376.0,0.40%,F,T)



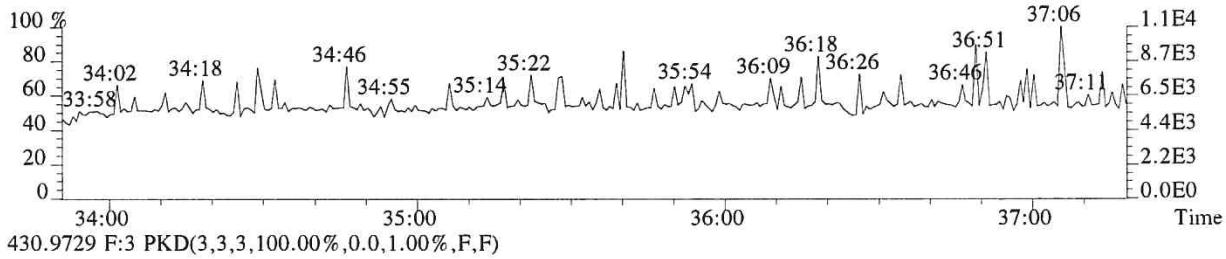
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1624.0,0.40%,F,T)



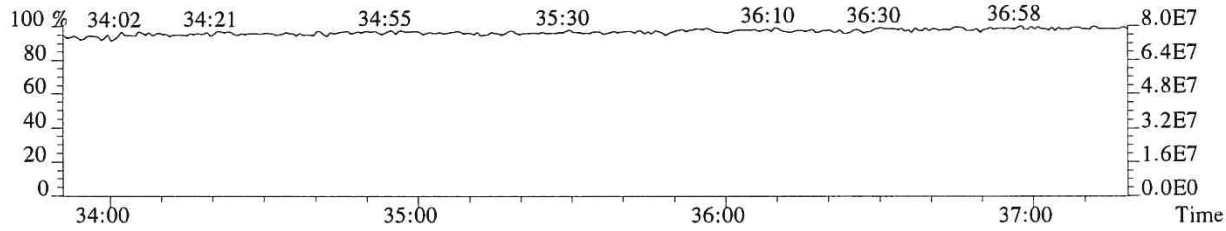
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1312.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

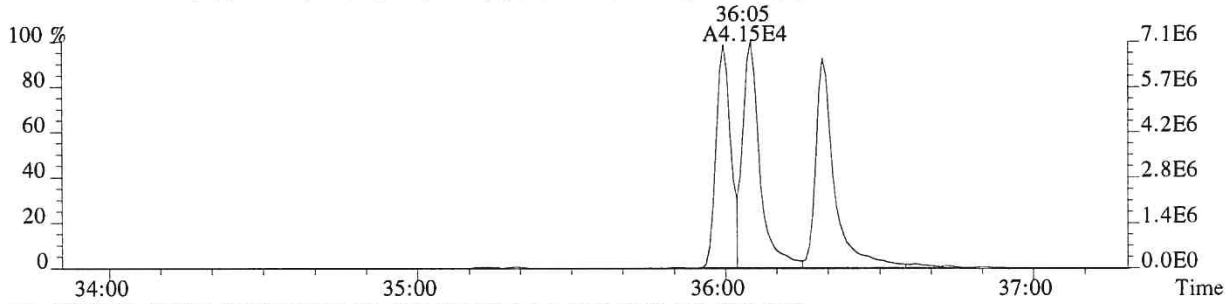


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

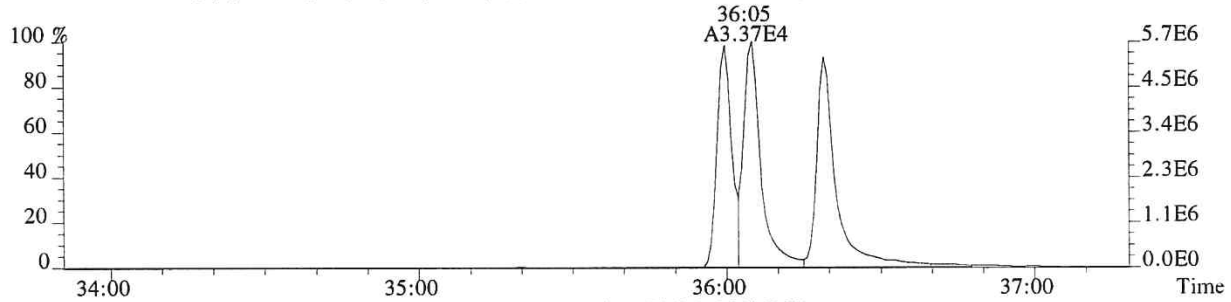


014762

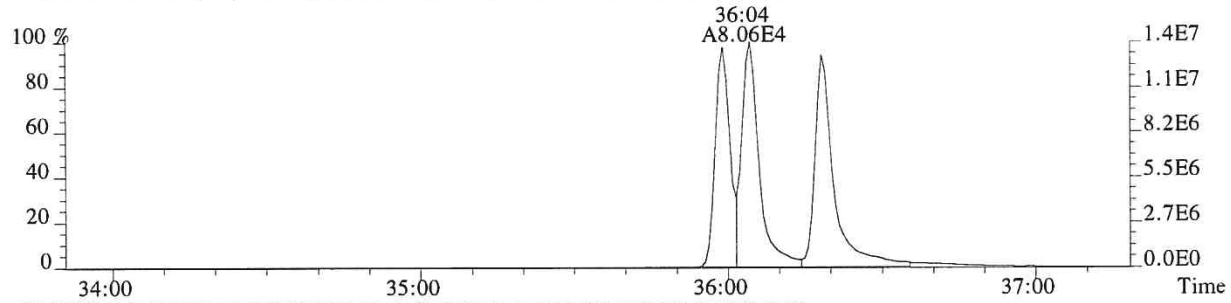
File:P616100 #1-312 Acq:14-DEC-2018 09:58:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2044.0,0.40%,F,T)



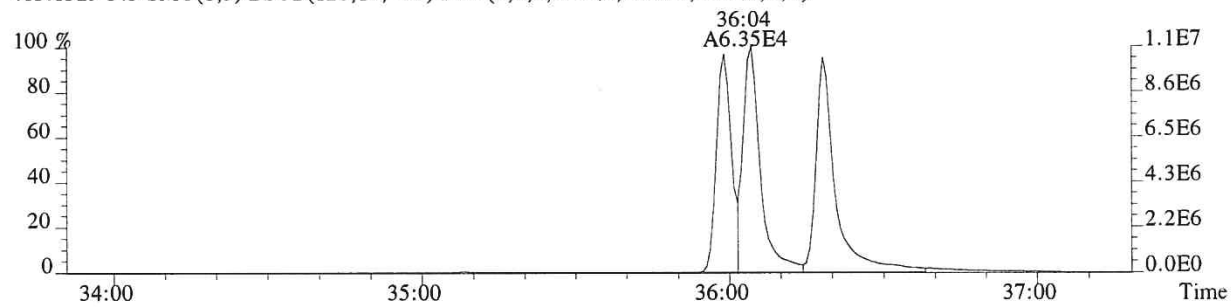
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2380.0,0.40%,F,T)



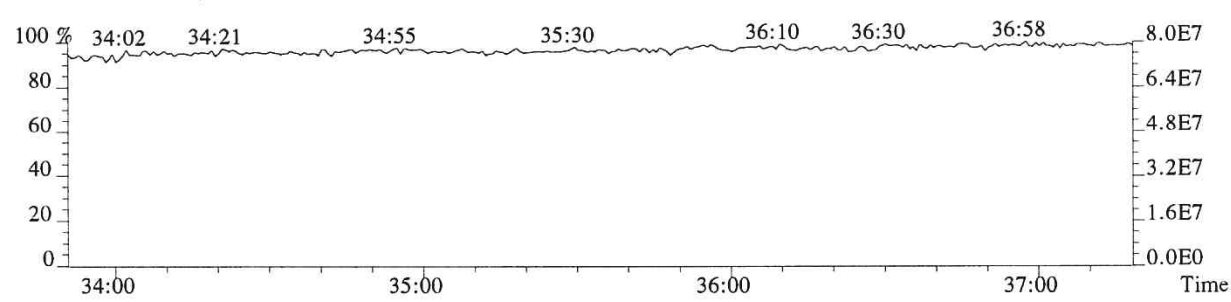
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3176.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3820.0,0.40%,F,T)



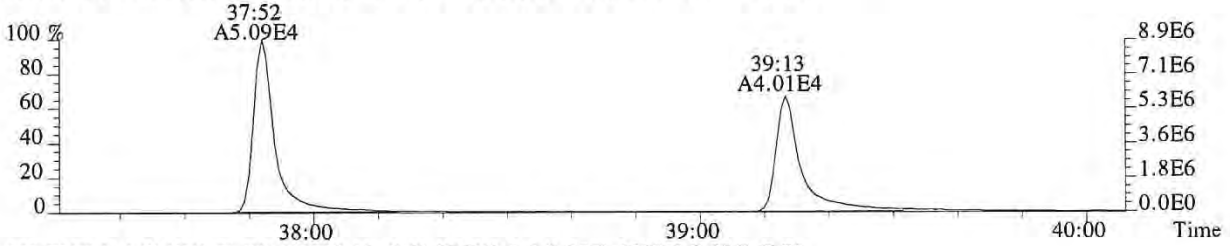
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



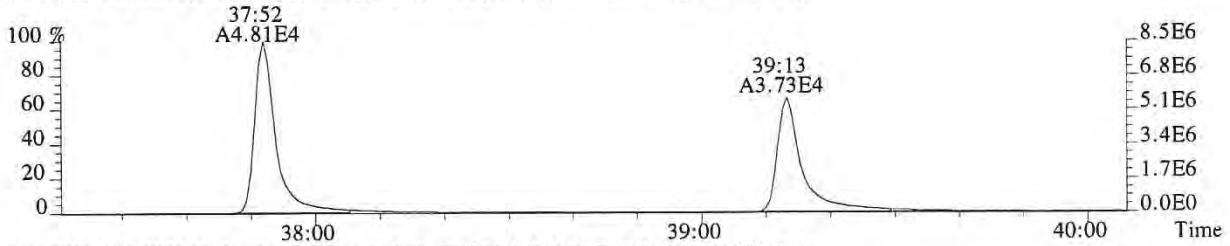
014763

File:P616100 #1-249 Acq:14-DEC-2018 09:58:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

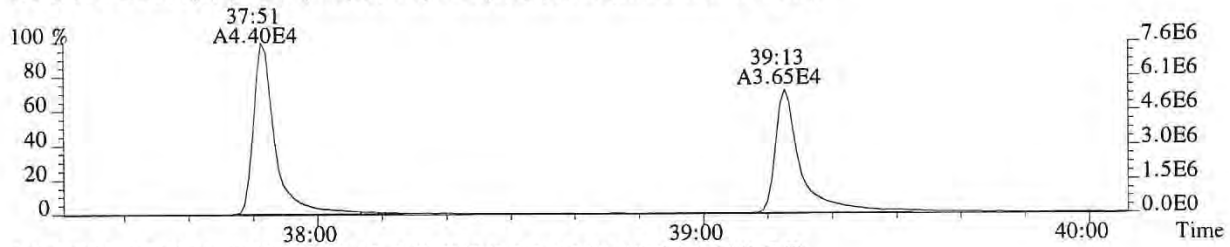
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,14256.0,0.50%,F,T)



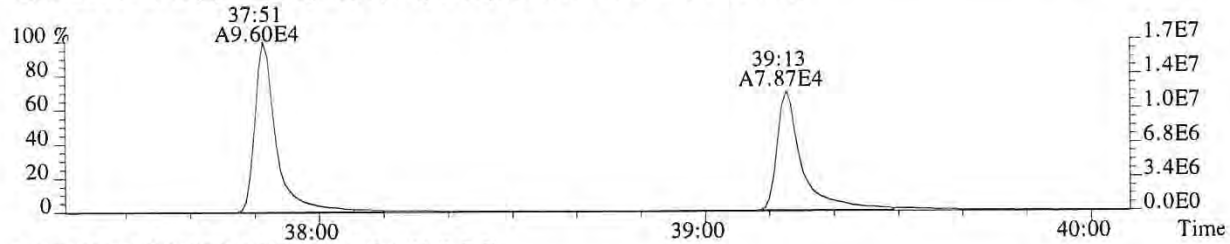
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6508.0,0.50%,F,T)



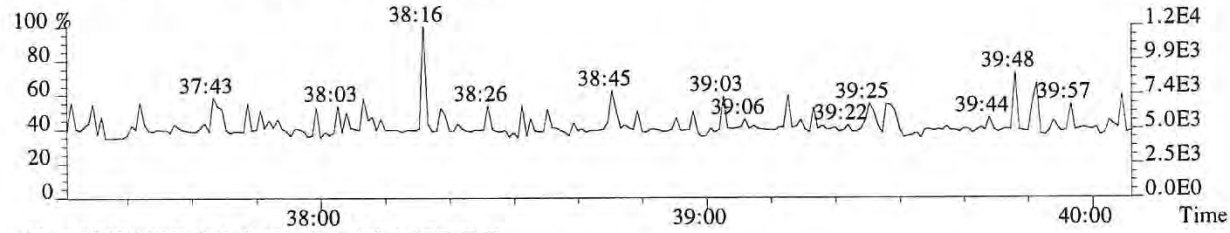
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,20336.0,0.50%,F,T)



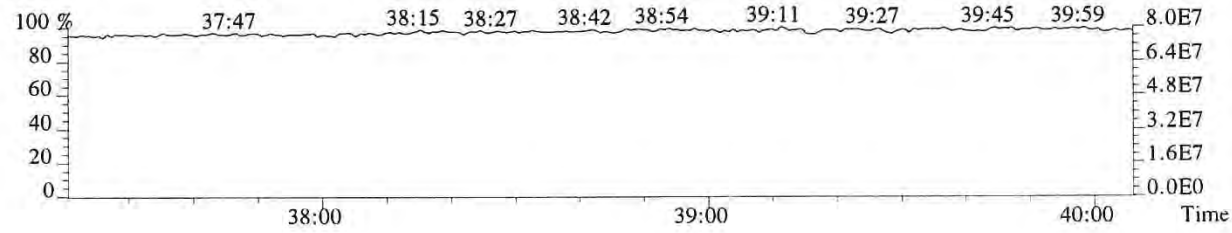
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,9576.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

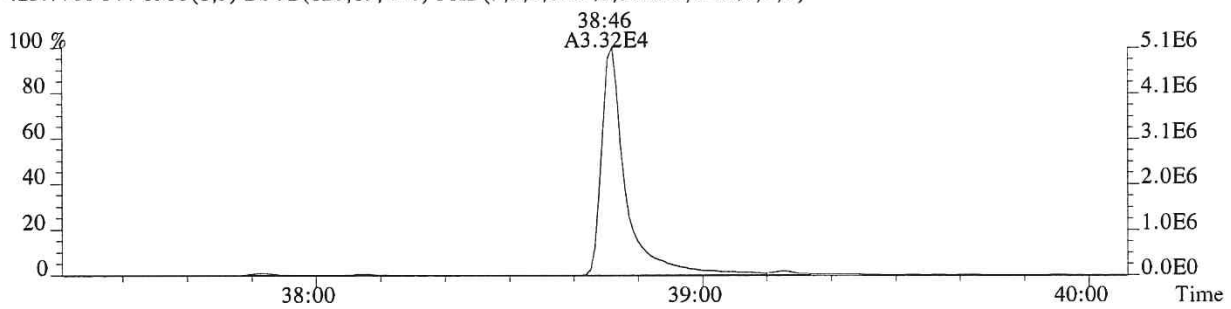


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

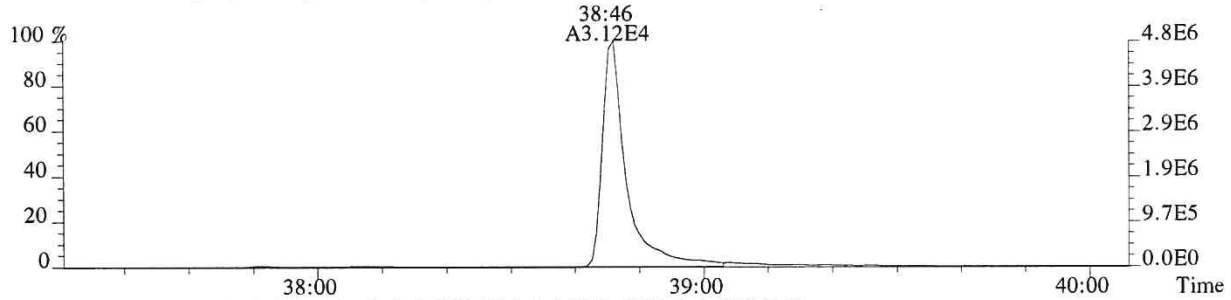


014764

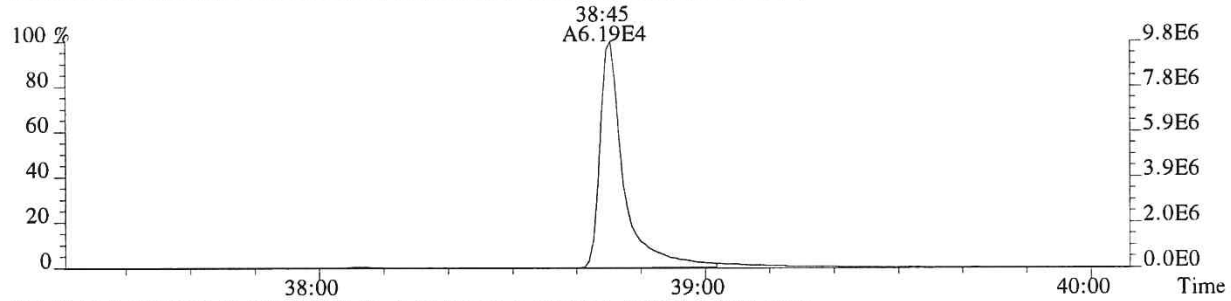
File:P616100 #1-249 Acq:14-DEC-2018 09:58:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1020.0,0.40%,F,T)



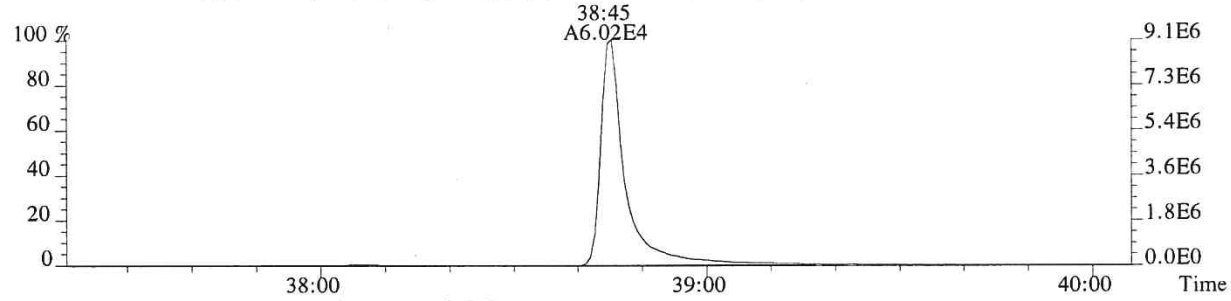
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1792.0,0.40%,F,T)



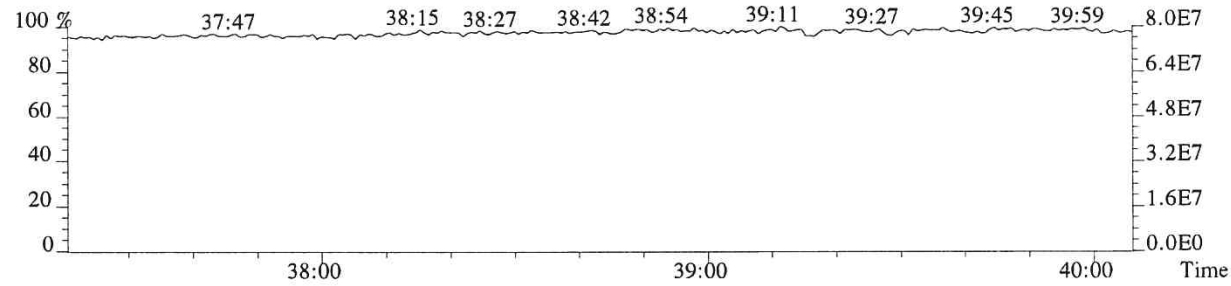
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2892.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1232.0,0.40%,F,T)

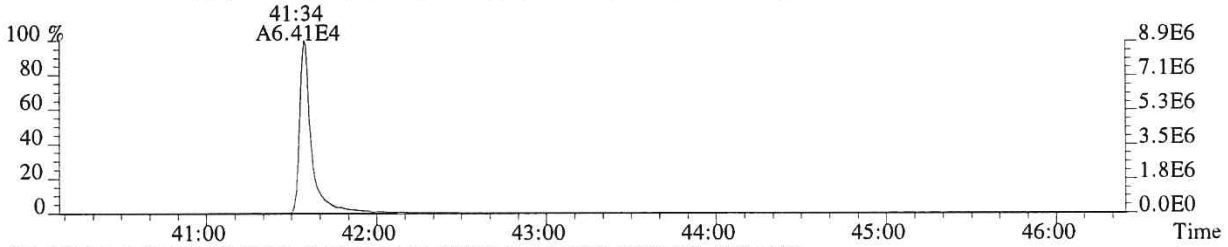


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

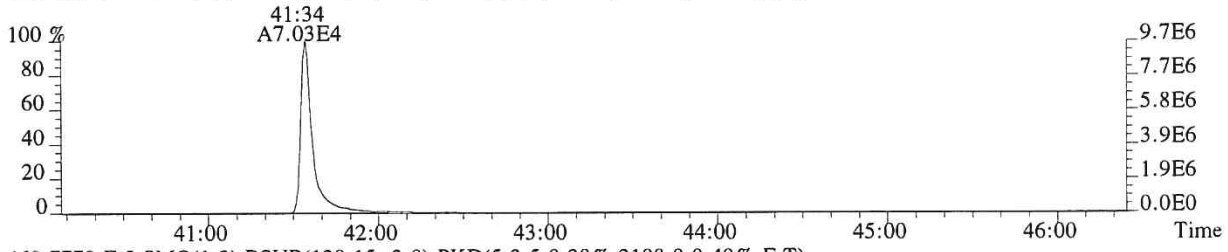


File:P616100 #1-565 Acq:14-DEC-2018 09:58:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

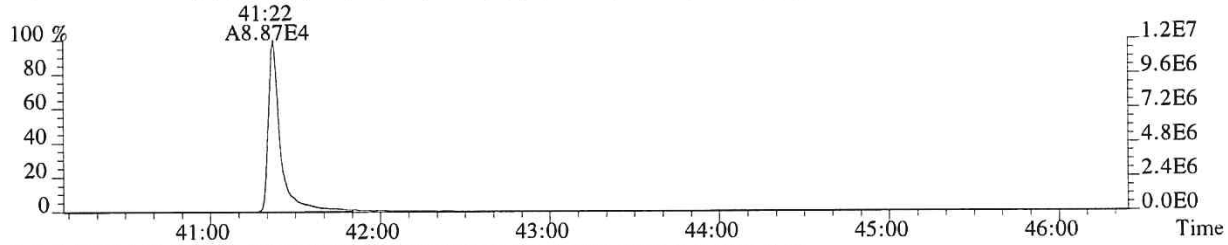
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,388.0,0.40%,F,T)



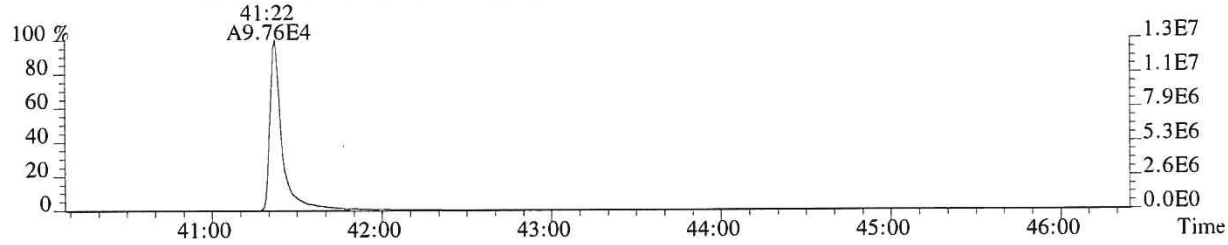
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1788.0,0.40%,F,T)



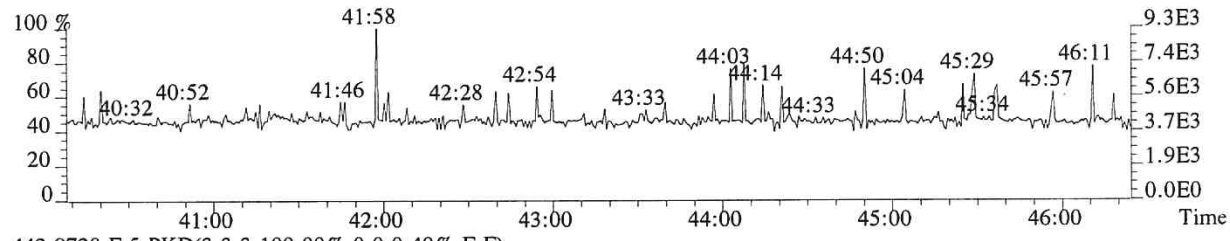
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2188.0,0.40%,F,T)



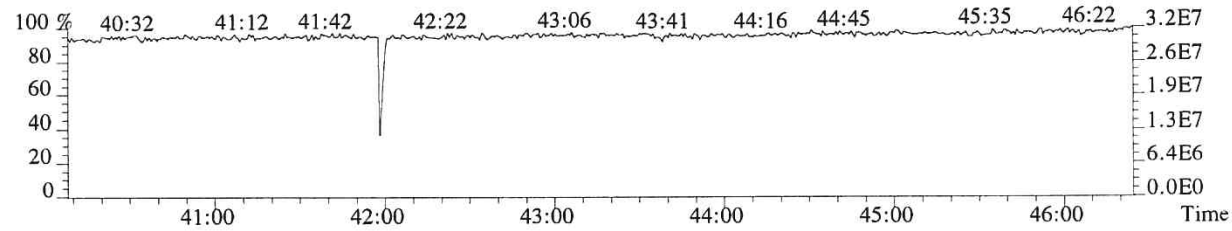
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1144.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

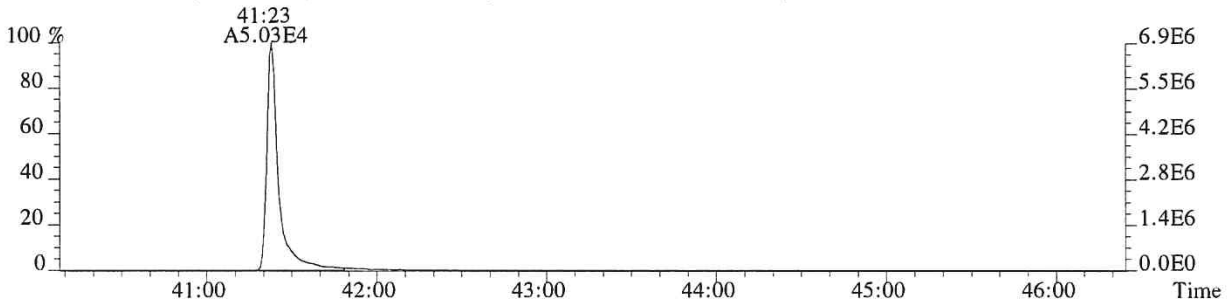


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

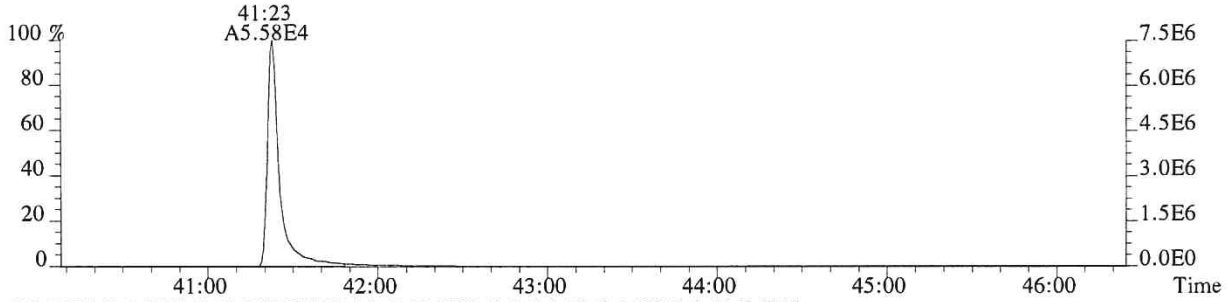


014766

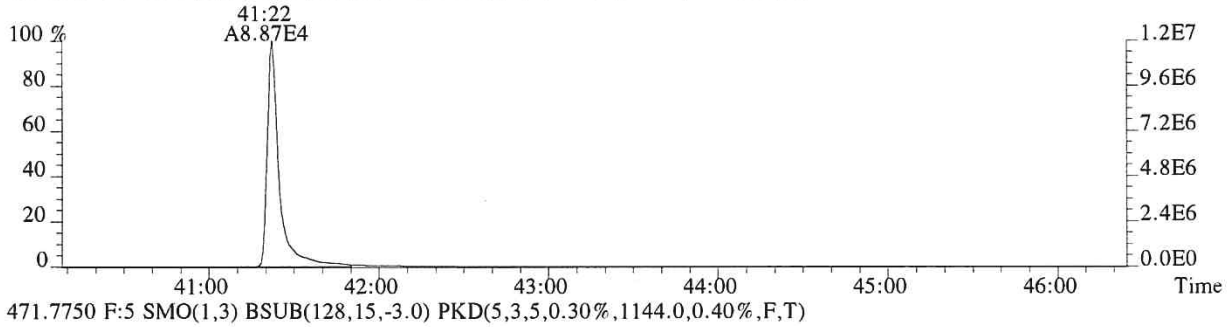
File:P616100 #1-565 Acq:14-DEC-2018 09:58:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,456.0,0.40%,F,T)



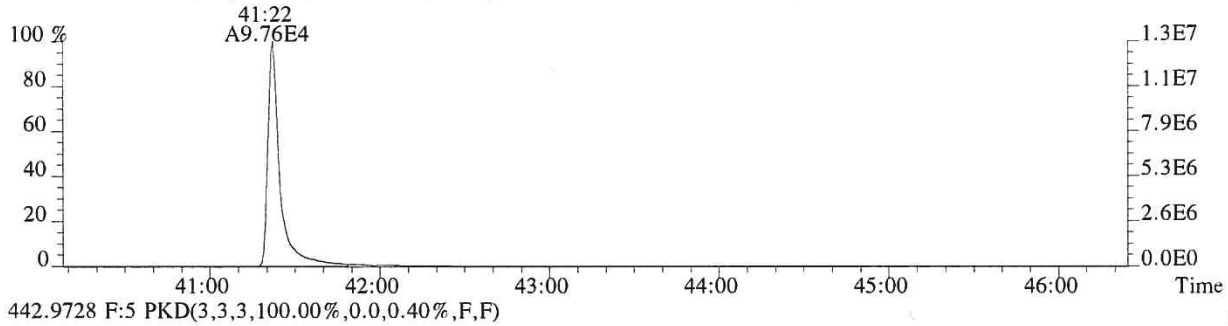
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1020.0,0.40%,F,T)



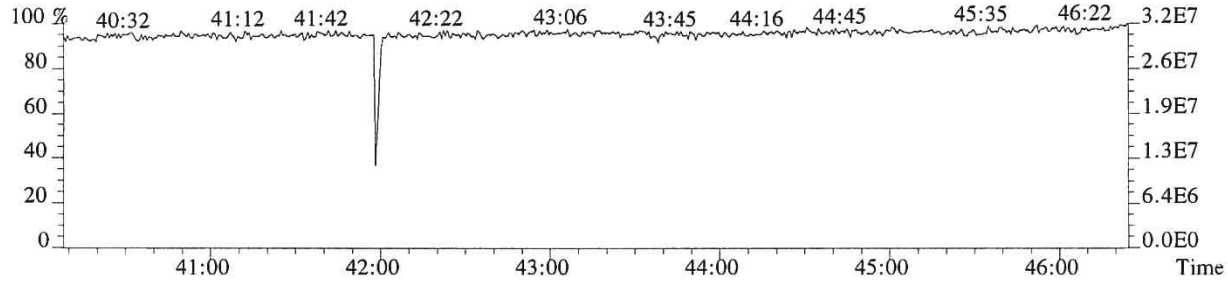
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2188.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1144.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



014767

Initial Calibration

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290	Process Date: 01/25/18
Instrument Name: E-HRMS-07	Calibration File Name: P5-1801241613I
Processor Name: Gisela Cruz	Reviewer Name: Loan Leung
Supervisor: Kristin Neir	

Description	Yes	No	NA	NR	ER#
Analytical Sequence					
Does the analytical sequence summary accurately reflect the instrument run log, including ICV?	√				
Was a Mass Resolution Check performed at the beginning and end of the 12-hour sequence?	√				
Were all calibration standards and the ICV analyzed within the same 12-hour sequence?	√				
Were all calibration standards analyzed only once?	√				
Was the ICV analyzed after the ICAL, before analyzing samples?	√				
	√				
Mass Resolution Check					
Are beginning and ending resolution checks provided and legible?	√				
Were all target masses >10,000 resolving power at the beginning of the sequence?	√				
Were all target masses >10,000 resolving power at the end of the sequence?	√				
For PCB analysis, were masses at the low and high end of each function mass range >8,000?			√		
Where automatic printout of the mass resolution were not >10,000, was the resolution inspected by a trained analyst, including manual calculation of the resolution, if warranted?			√		
Window Define/209					
Is the window defining mix summary present, and accompanied by SICPs/Chromatograms for the WDM?	√				
Was the WDM/Column Performance/209 solution analyzed prior to the analysis of the calibration standards?	√				
Was 2,3,7,8-TCDD peak valley <25% to any other TCDD?	√				
Were all first and last eluters adequately resolved in each function?	√				
If first and last eluters were not resolved, was corrective action performed and documented, followed by a reanalysis of the WDM?			√		
Was the retention time of PCB 209 >55 min?			√		
Were the following congeners uniquely resolved (valley height <40% of the shortest peak)? PCB-34 and PCB-23 PCB-187 and PCB-182			√		
Did PCB 156/157 co-elute within 2 seconds at peak maximum?			√		
Calibration Standards					
Were there at least 5 calibration standards analyzed?	√				
If not all calibration standards were used, were the omitted standards either the lowest or highest calibration standard?			√		

Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290	Process Date: 01/25/18
Instrument Name: E-HRMS-07	Calibration File Name: P5-180124161 3I
Processor Name: Gisela Cruz	Reviewer Name: Loan Luong
Supervisor: Kristin Neir	

Description	Yes	No	NA	NR	ER#
Are all sample response summaries, S/N height summaries, and SICPs included (and legible) for the entire sequence?	√				
Did each calibration point meet method criteria for Ion Abundance Ratio for all analytes and labeled standards?	√				
Did each calibration point meet method criteria for signal-to-noise ratios (S/N)?	√				
Were area counts for the highest calibration standard below levels of saturation?	√				
Were manual integrations technically justified to correct for poor software integration?		√			
Response Factors					
Is the ICAL Response Factor Summary present, including RR/RF values for each native/labeled analyte at each level of calibration?	√				
Were all calibration standards used in determining response factors?	√				
Were relative response factors (RR) for each native analyte calculated at each calibration point?	√				
Did the RSD for RRFs for each native analyte meet method criteria?	√				
Were response factors (RF) for each native analyte not having a corresponding labeled compound calculated at each calibration point?	√				
Were RFs for each labeled compound calculated for each calibration point?	√				
Did the RSD for RF for each labeled compound meet method criteria?	√				
Initial Calibration Verification					
Is the calibration verification present, including form 4A/B reflecting results for the ICV (Conc. or %D)	√				
Did all analytes meet method criteria for the ICV.	√				

Laboratory Review Checklist: Initial Calibration

Method: 1613/8290	Process Date: 01/25/18
Instrument Name: E-HRMS-07	Calibration File Name: P5-180124161 3I
Processor Name: Gisela Cruz	Reviewer Name: Loan Luong

ER#[5]	Description

NA = Not Applicable;
NR = Not Reviewed;
R# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: TX01411 Episode No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm) Instrument ID: E-HRMS-07

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, SPIKES AND DUPLICATES IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
183360	WINDOW DEFINE	P513848	24-JAN-18	11:44:47
76554	CS0.5	P513850	24-JAN-18	13:32:06
76555	CS1	P513851	24-JAN-18	14:23:56
76556	CS2	P513852	24-JAN-18	15:18:44
76557	CS3	P513853	24-JAN-18	16:06:29
76558	CS4	P513854	24-JAN-18	16:55:09
185657	CS5	P513855	24-JAN-18	17:43:48
75080	2ND SOURCE	P513857	24-JAN-18	19:21:06

Sample List Report — **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20180124A.SPL
Last Modified: Thursday, January 25, 2018 07:09:10 Eastern Standard Time
Printed: Thursday, January 25, 2018 07:24:00 Eastern Standard Time

Page Position (1, 1)

Opus 4: P5-180124I613I P513857res * Opus 4: P5-180124m23I P513857resm23

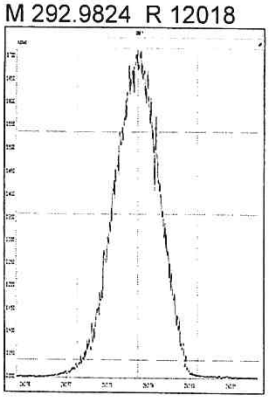
	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	1/24/18	10:39	P513847	CS3	186061	EPA1613_ALS	Dioxin_ALS	Tray1:1	YY	not used
2		11:44	P513848	WINDOWDEFINE	183360	EPA1613_ALS	Dioxin_ALS	Tray1:2		HRMS check 11:10
3		12:35	P513849	CS0.5	76554	EPA1613_ALS	Dioxin_ALS	Tray1:3		not used
4		13:32	P513850	CS0.5	76554	EPA1613_ALS	Dioxin_ALS	Tray1:4		~~not used~~ YB 1/25/18
5		14:23	P513851	CS1	76555	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		15:18	P513852	CS2	76556	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		16:06	P513853	CS3	76557	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		16:55	P513854	CS4	76558	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		17:43	P513855	CS5	185657	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		18:32	P513856	NONANE	NONANE	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		19:21	P513857	2ND SOURCE	75080	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1		
13			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1		
14			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2		
15			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:15		HRMS check 1/25/18 00:51
16		19:21	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:16	---	---
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:17	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:18	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---
22	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:22	---	---
23	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:23	---	---
24	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:24	---	---
25	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:25	---	---

gc 01/25/18 * gc 01/25/18

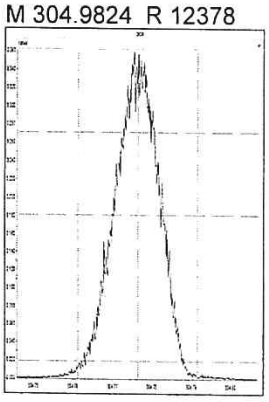
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:40:23 Eastern Standard Time

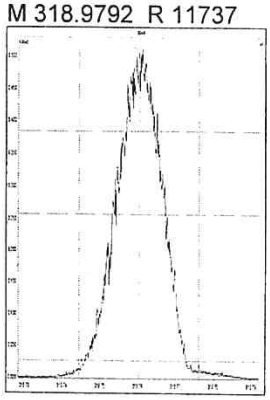
M 292.9824 R 12018



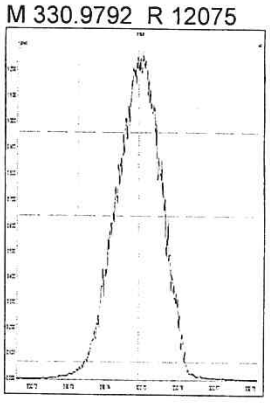
M 304.9824 R 12378



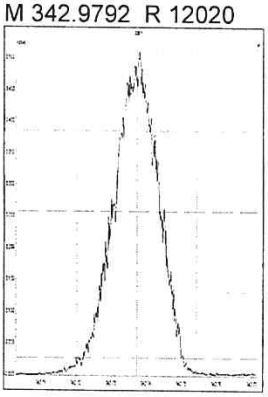
M 318.9792 R 11737



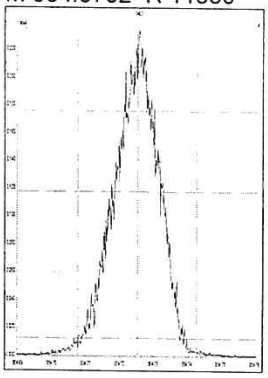
M 330.9792 R 12075



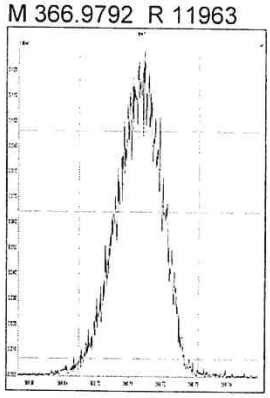
M 342.9792 R 12020



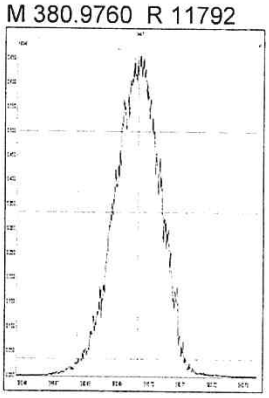
M 354.9792 R 11680



M 366.9792 R 11963



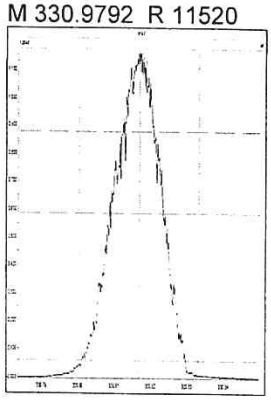
M 380.9760 R 11792



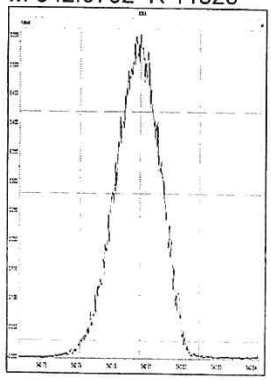
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:41:23 Eastern Standard Time

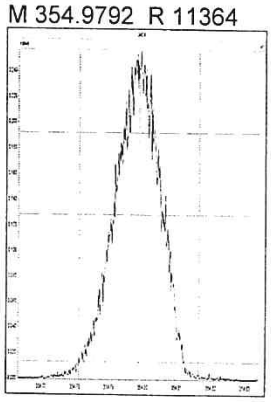
M 330.9792 R 11520



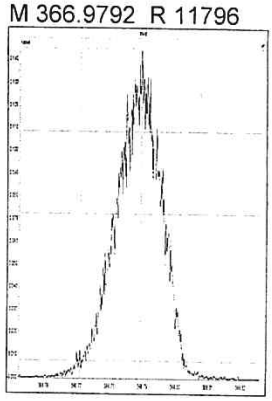
M 342.9792 R 11625



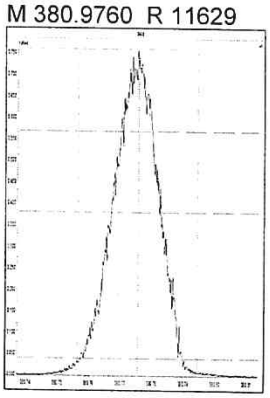
M 354.9792 R 11364



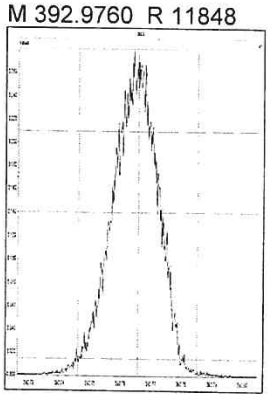
M 366.9792 R 11796



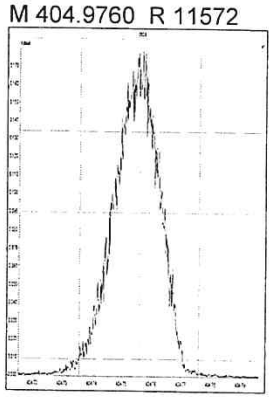
M 380.9760 R 11629



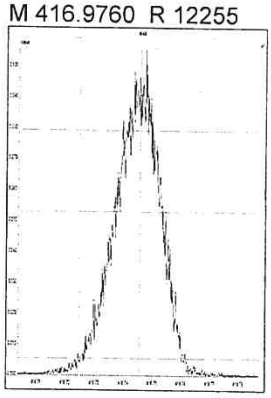
M 392.9760 R 11848



M 404.9760 R 11572



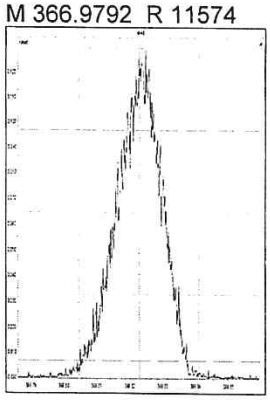
M 416.9760 R 12255



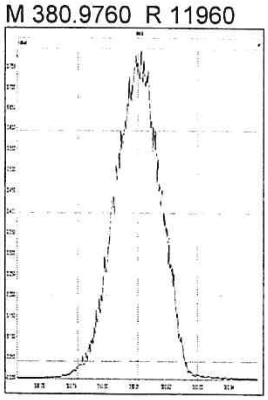
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:42:15 Eastern Standard Time

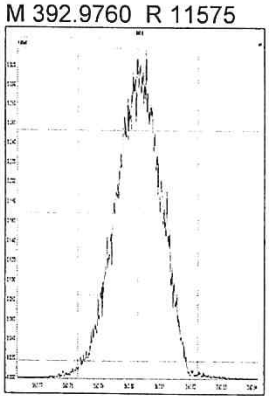
M 366.9792 R 11574



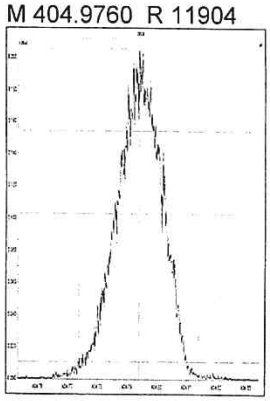
M 380.9760 R 11960



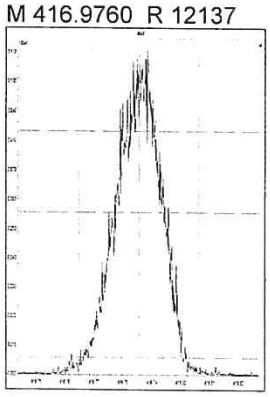
M 392.9760 R 11575



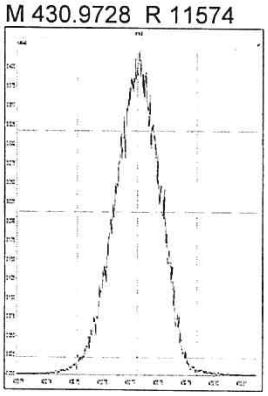
M 404.9760 R 11904



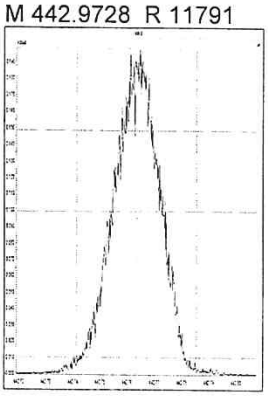
M 416.9760 R 12137



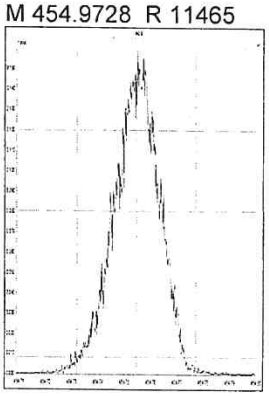
M 430.9728 R 11574



M 442.9728 R 11791



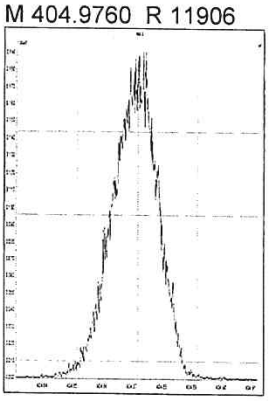
M 454.9728 R 11465



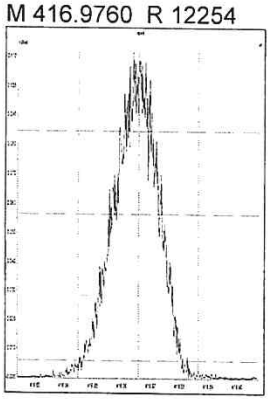
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:43:11 Eastern Standard Time

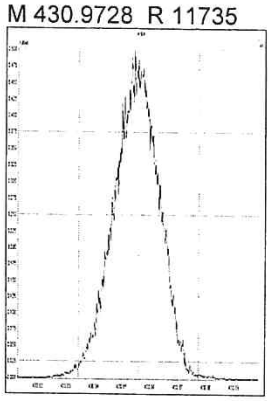
M 404.9760 R 11906



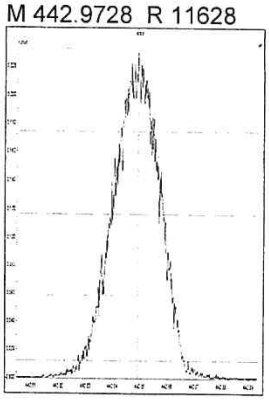
M 416.9760 R 12254



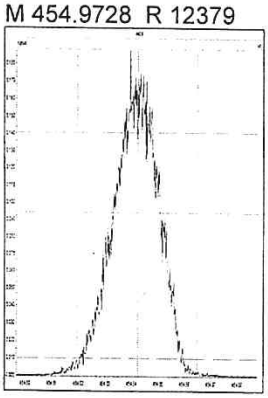
M 430.9728 R 11735



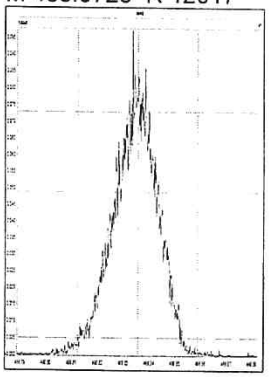
M 442.9728 R 11628



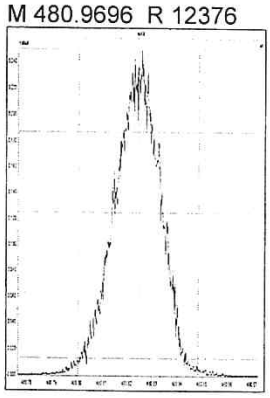
M 454.9728 R 12379



M 466.9728 R 12017



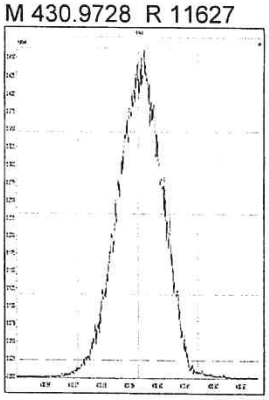
M 480.9696 R 12376



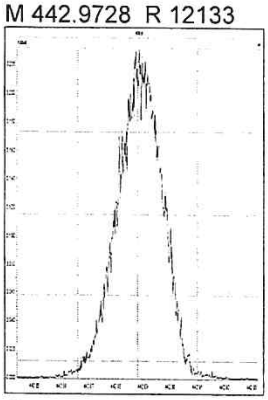
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:43:57 Eastern Standard Time

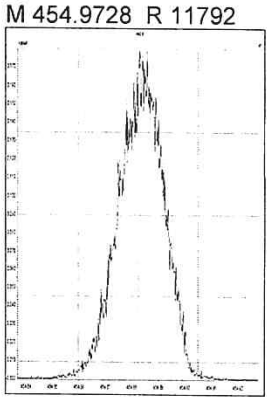
M 430.9728 R 11627



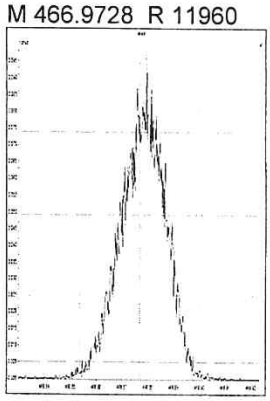
M 442.9728 R 12133



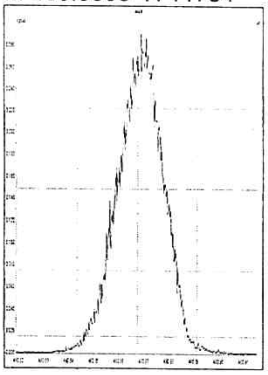
M 454.9728 R 11792



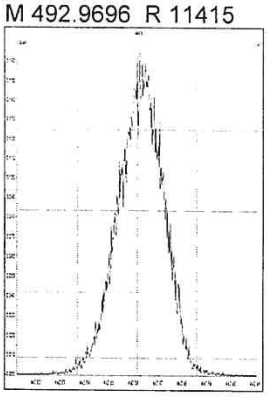
M 466.9728 R 11960



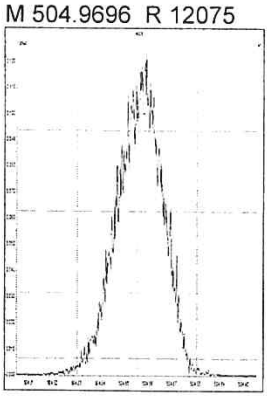
M 480.9696 R 11734



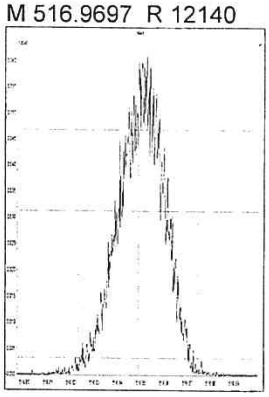
M 492.9696 R 11415



M 504.9696 R 12075



M 516.9697 R 12140

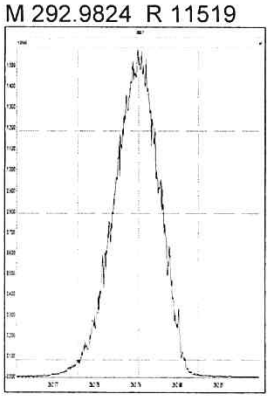


014777

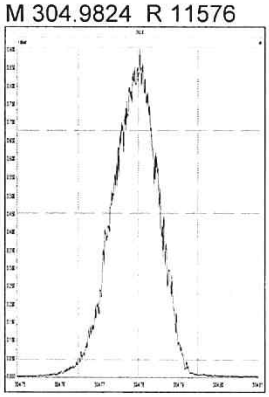
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:51:19 Eastern Standard Time

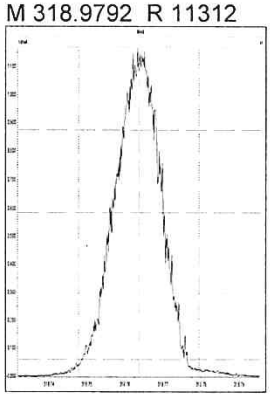
M 292.9824 R 11519



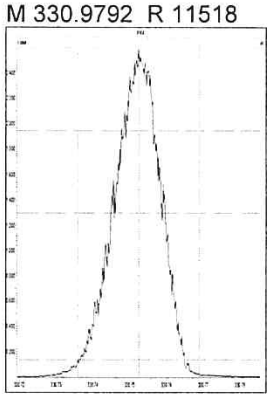
M 304.9824 R 11576



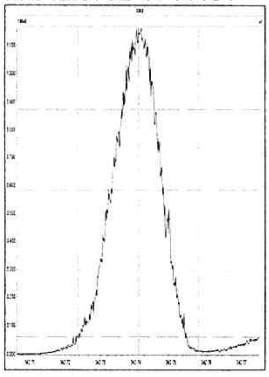
M 318.9792 R 11312



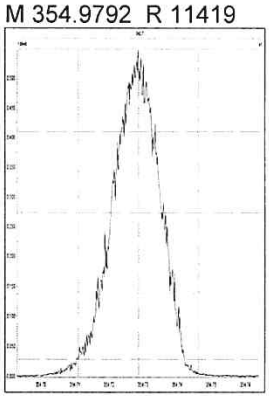
M 330.9792 R 11518



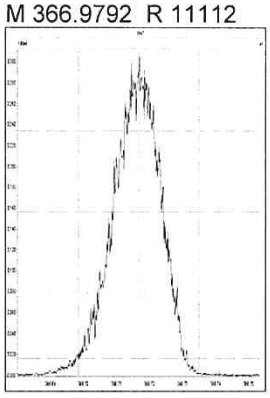
M 342.9792 R 11161



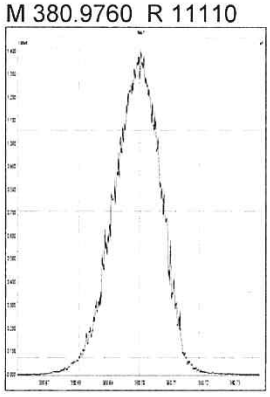
M 354.9792 R 11419



M 366.9792 R 11112



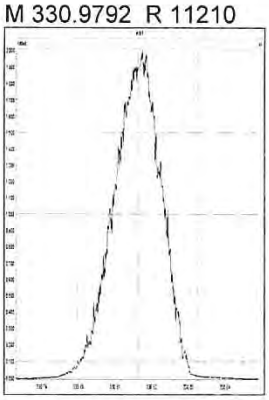
M 380.9760 R 11110



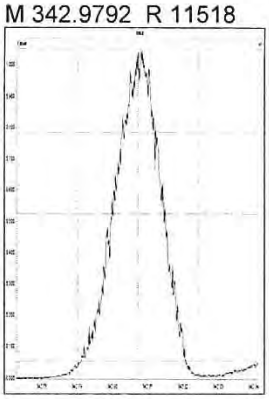
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:52:11 Eastern Standard Time

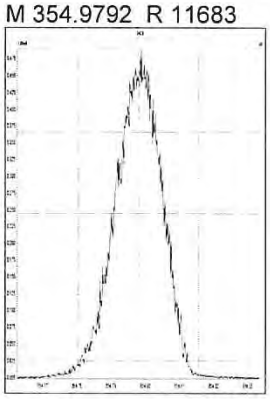
M 330.9792 R 11210



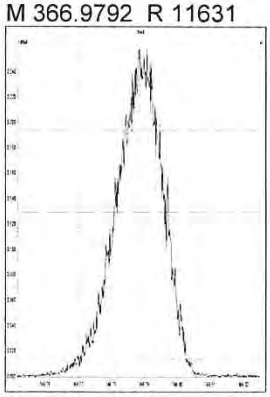
M 342.9792 R 11518



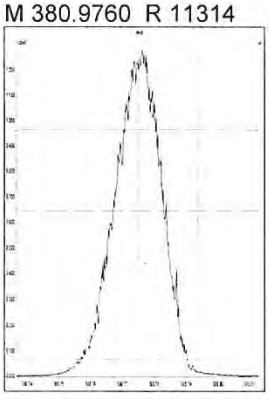
M 354.9792 R 11683



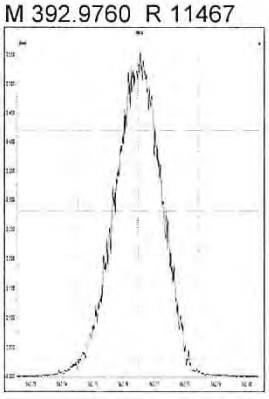
M 366.9792 R 11631



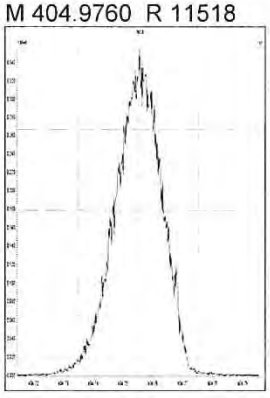
M 380.9760 R 11314



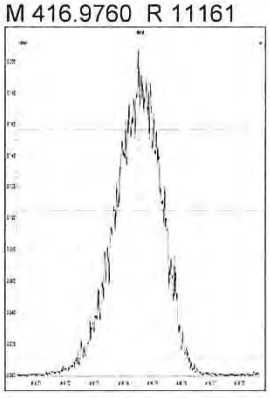
M 392.9760 R 11467



M 404.9760 R 11518



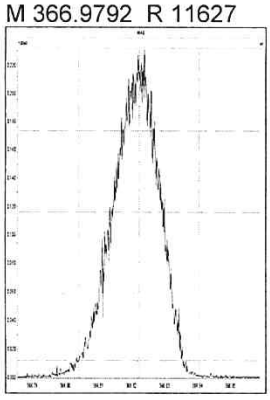
M 416.9760 R 11161



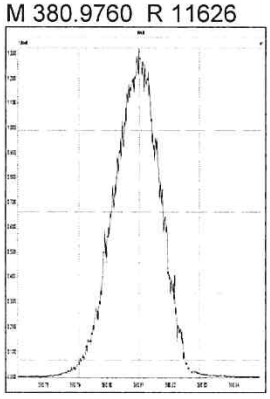
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:52:51 Eastern Standard Time

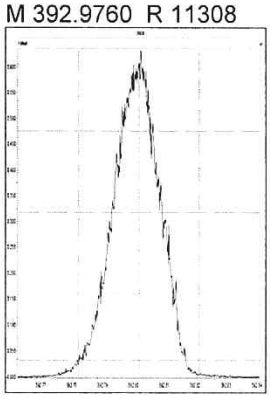
M 366.9792 R 11627



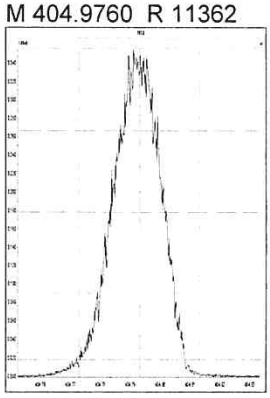
M 380.9760 R 11626



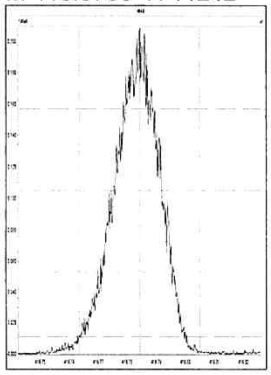
M 392.9760 R 11308



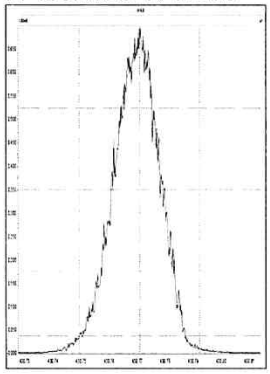
M 404.9760 R 11362



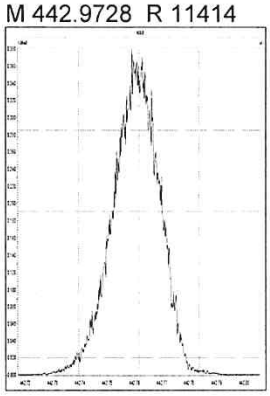
M 416.9760 R 11212



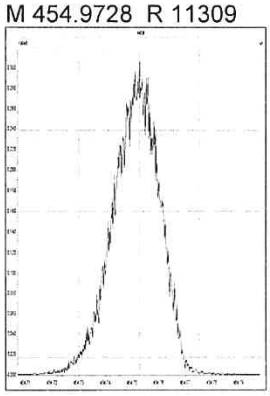
M 430.9728 R 11363



M 442.9728 R 11414



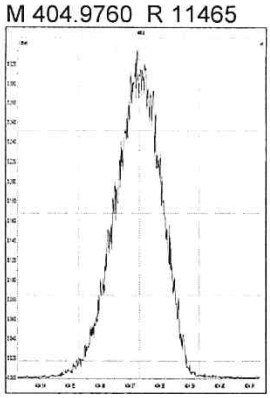
M 454.9728 R 11309



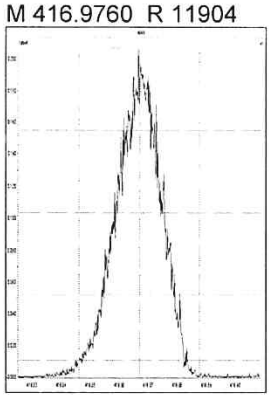
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:53:26 Eastern Standard Time

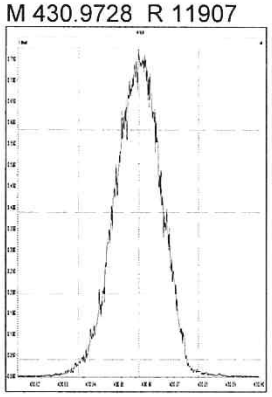
M 404.9760 R 11465



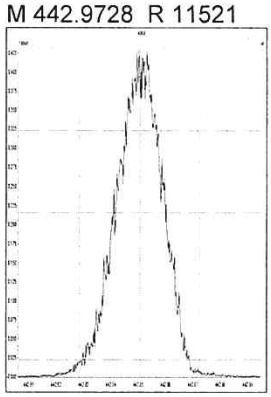
M 416.9760 R 11904



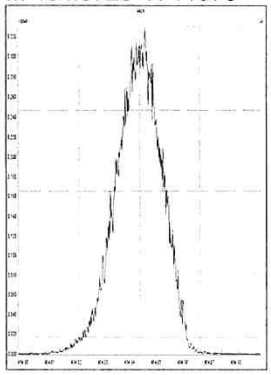
M 430.9728 R 11907



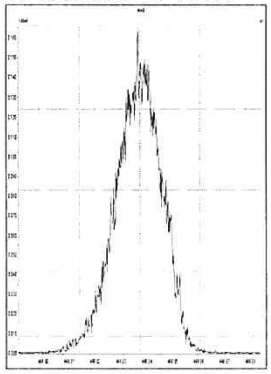
M 442.9728 R 11521



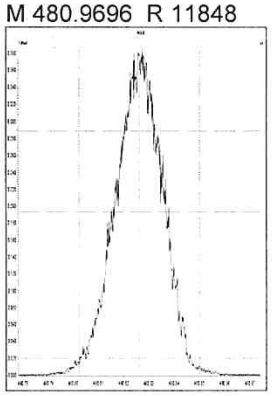
M 454.9728 R 11573



M 466.9728 R 11417



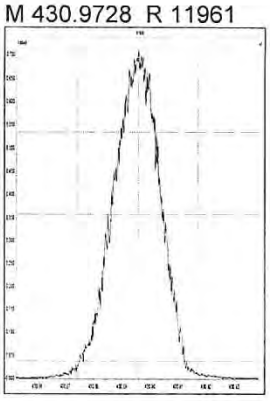
M 480.9696 R 11848



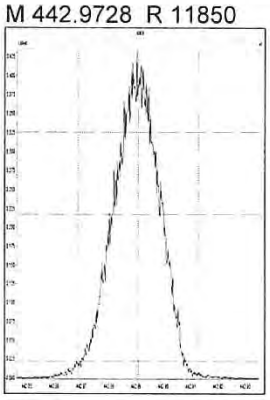
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:53:57 Eastern Standard Time

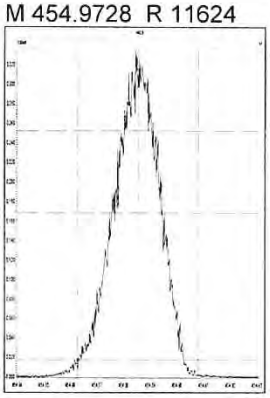
M 430.9728 R 11961



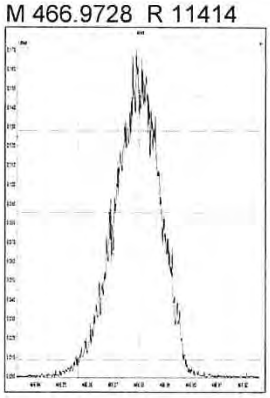
M 442.9728 R 11850



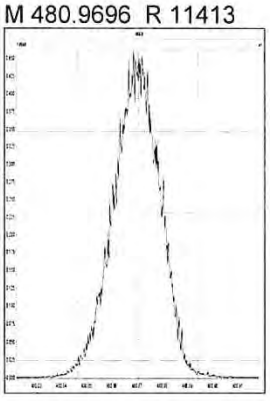
M 454.9728 R 11624



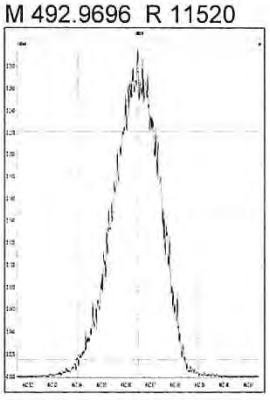
M 466.9728 R 11414



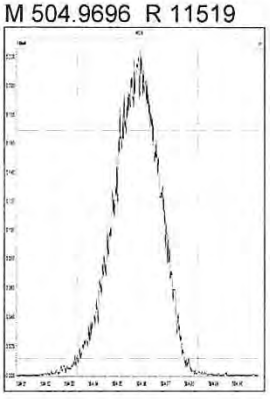
M 480.9696 R 11413



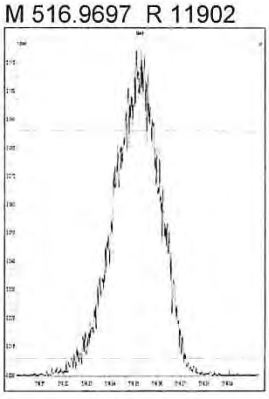
M 492.9696 R 11520



M 504.9696 R 11519



M 516.9697 R 11902



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

Case No.: _____ SDG No.:
ID: 0.25 (mm)

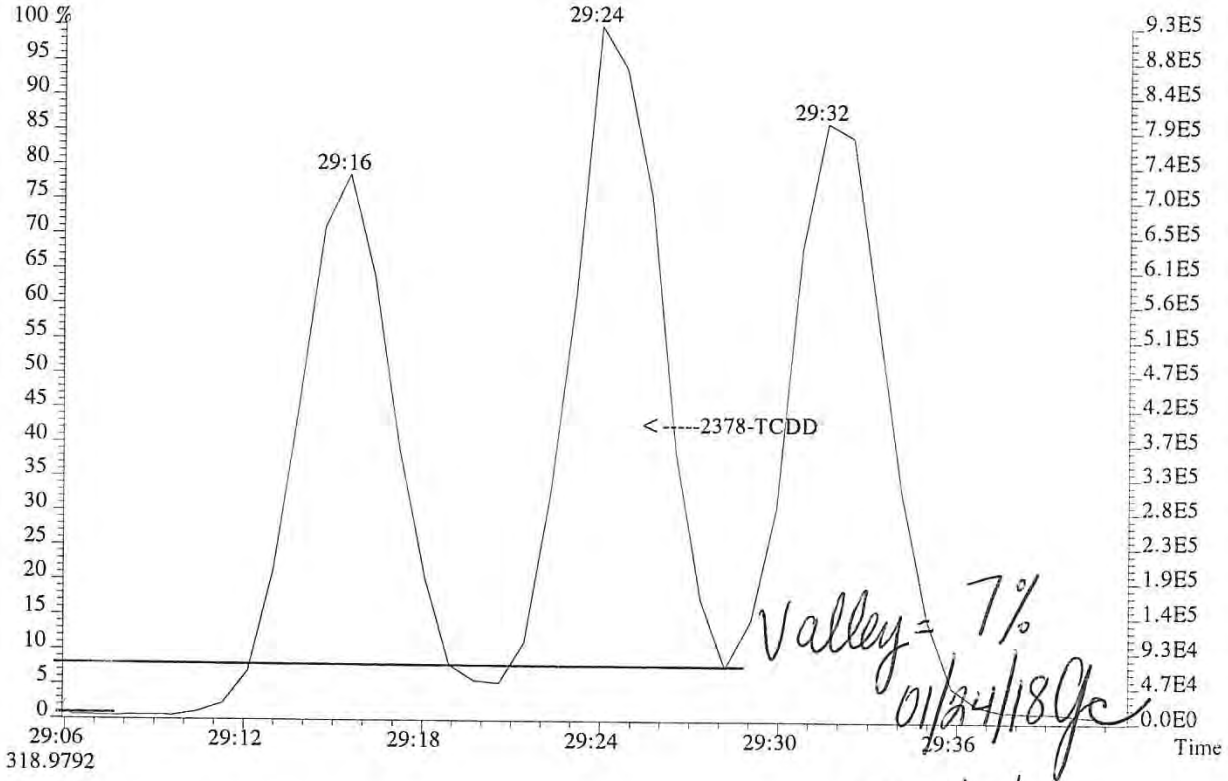
Lab File ID: P513848
Date Analyzed: 24-JAN-2018
Time Analyzed: 11:44:47

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	24:25	30:32
TCDD	26:17	30:22
PeCDF	30:27	34:34
PeCDD	31:55	34:19
HxCDF	35:11	37:38
HxCDD	35:41	37:14
HpCDF	38:49	40:14
HpCDD	39:04	39:44

% Valley 2378-TCDD: 7 %

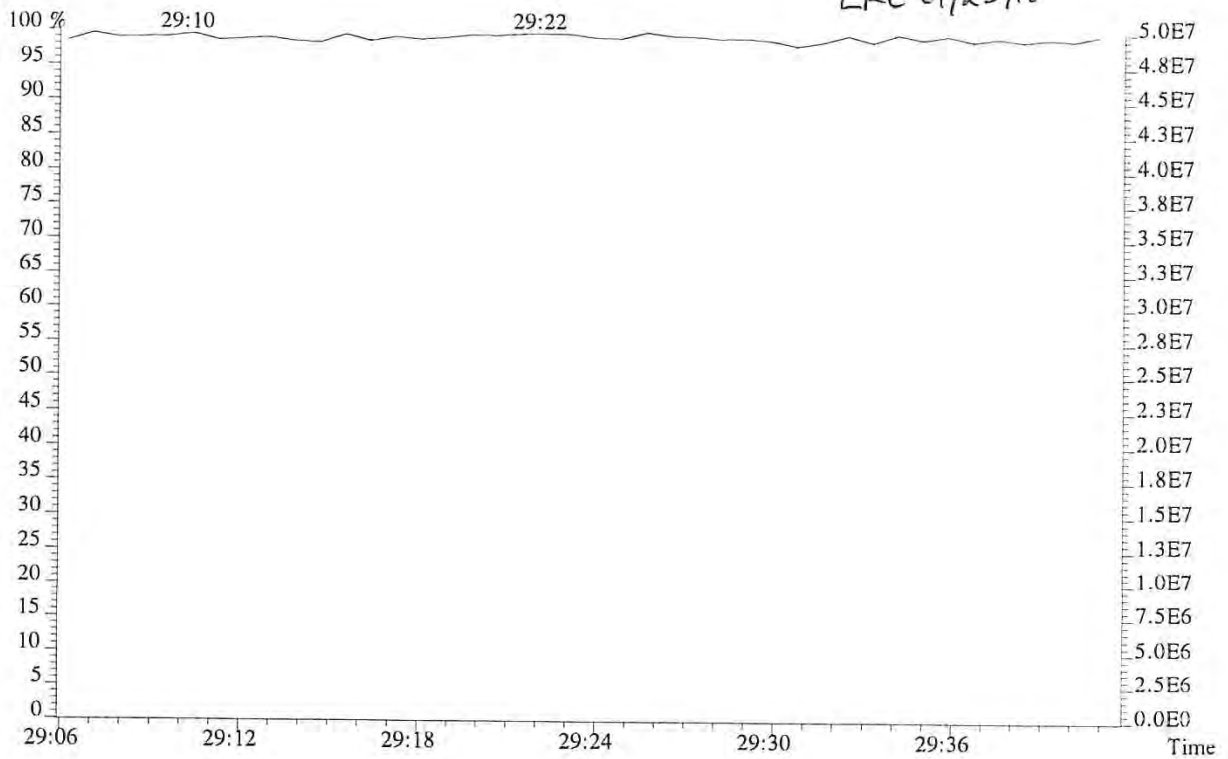
014783

File:P513848 #1-665 Acq:24-JAN-2018 11:44:47 Probe EI+ Magnet SIR VG BioTech Mass spectt
Sample#1 Exp:183360
319.8965



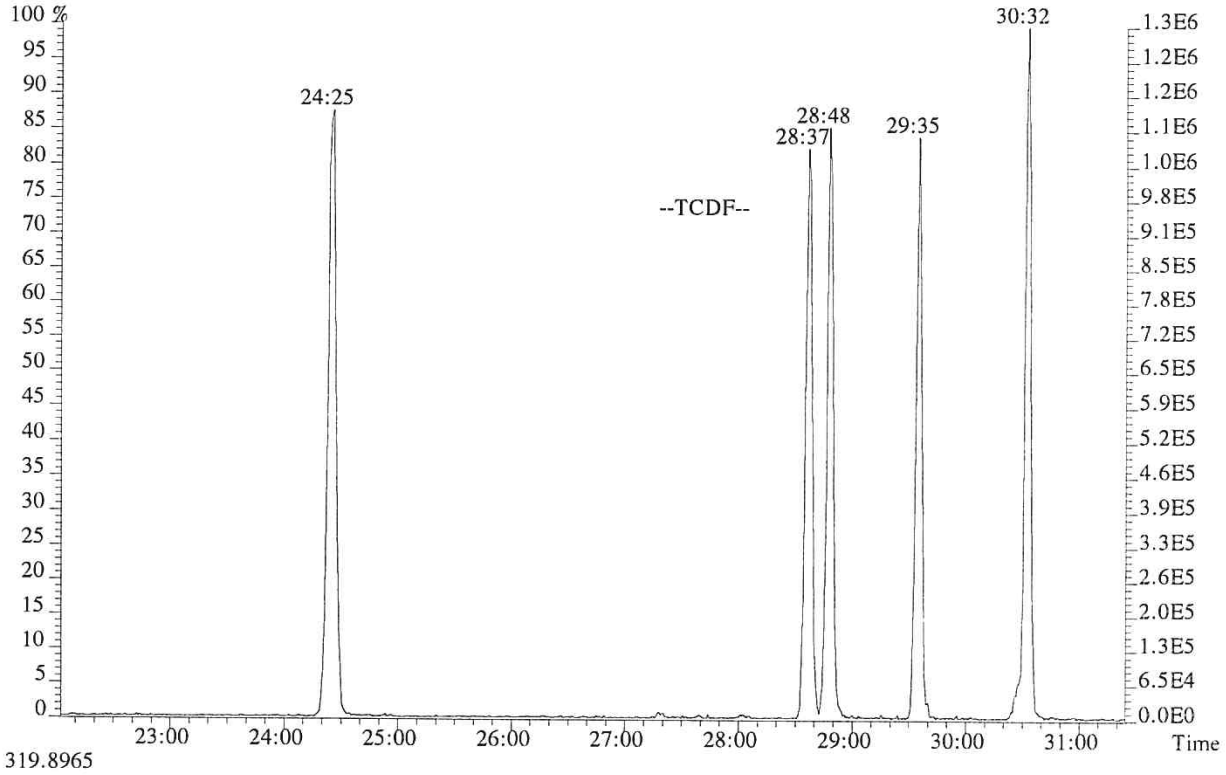
318.9792

LKL 01/25/18

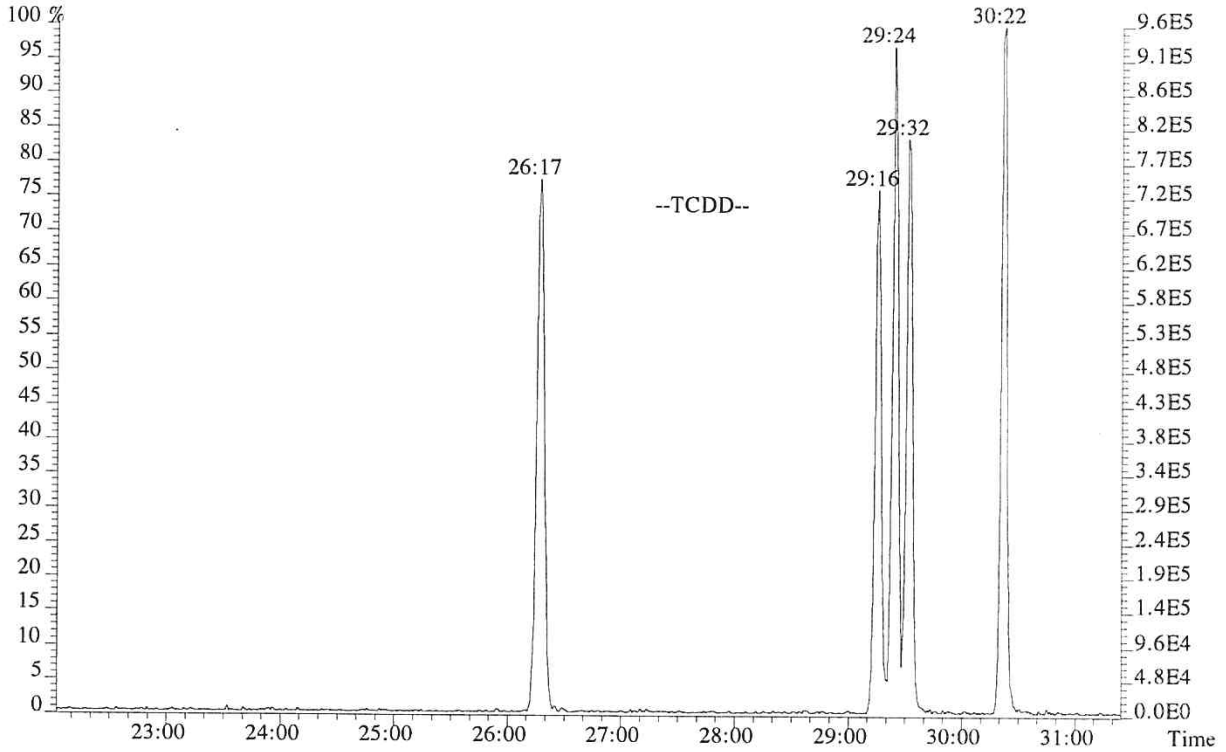


014784

File:P513848 #1-665 Acq:24-JAN-2018 11:44:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:183360
303.9016

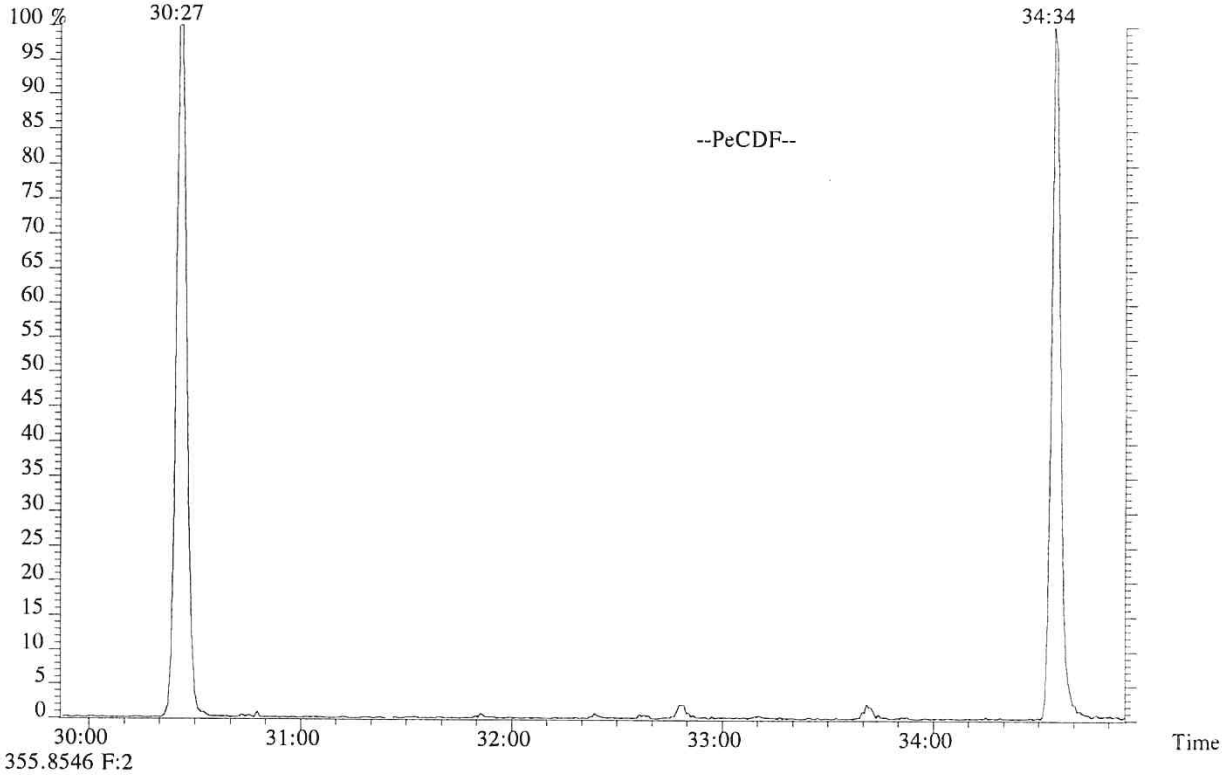


319.8965

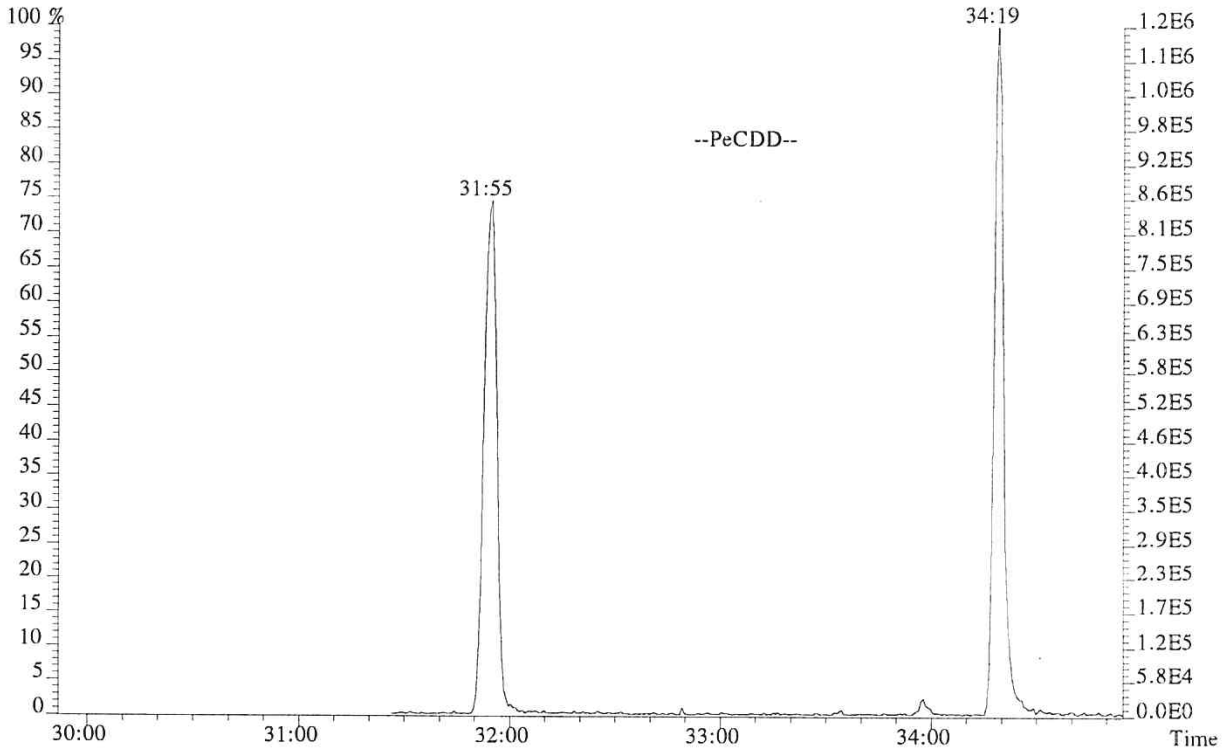


014785

File:P513848 #1-665 Acq:24-JAN-2018 11:44:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:183360
339.8597,339.8597 F:2

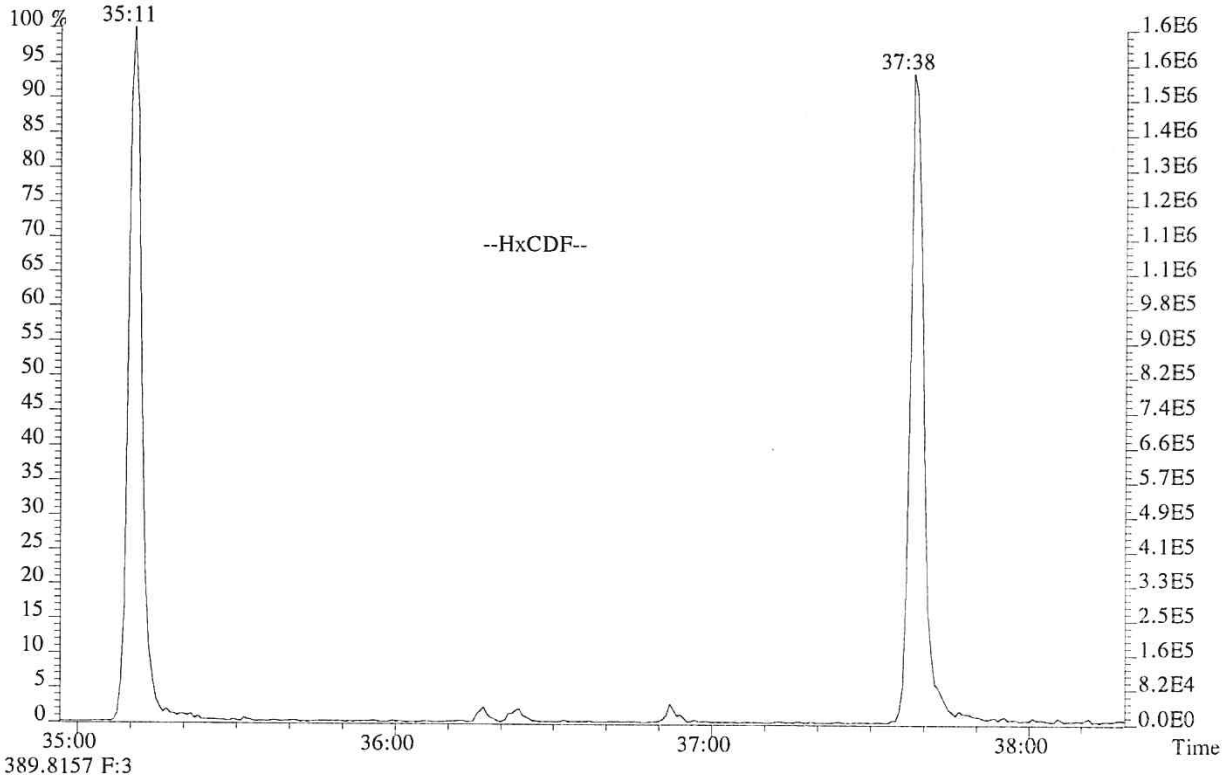


355.8546 F:2

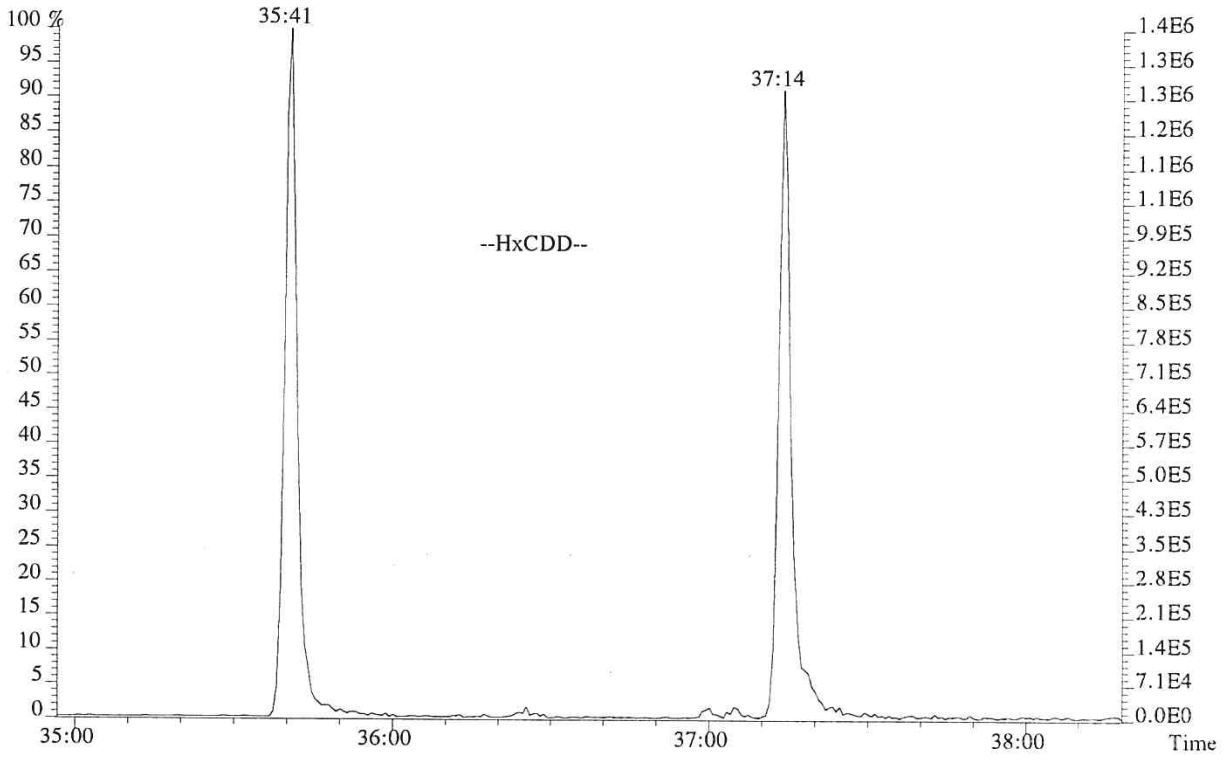


014786

File:P513848 #1-303 Acq:24-JAN-2018 11:44:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:183360
373.8208 F:3

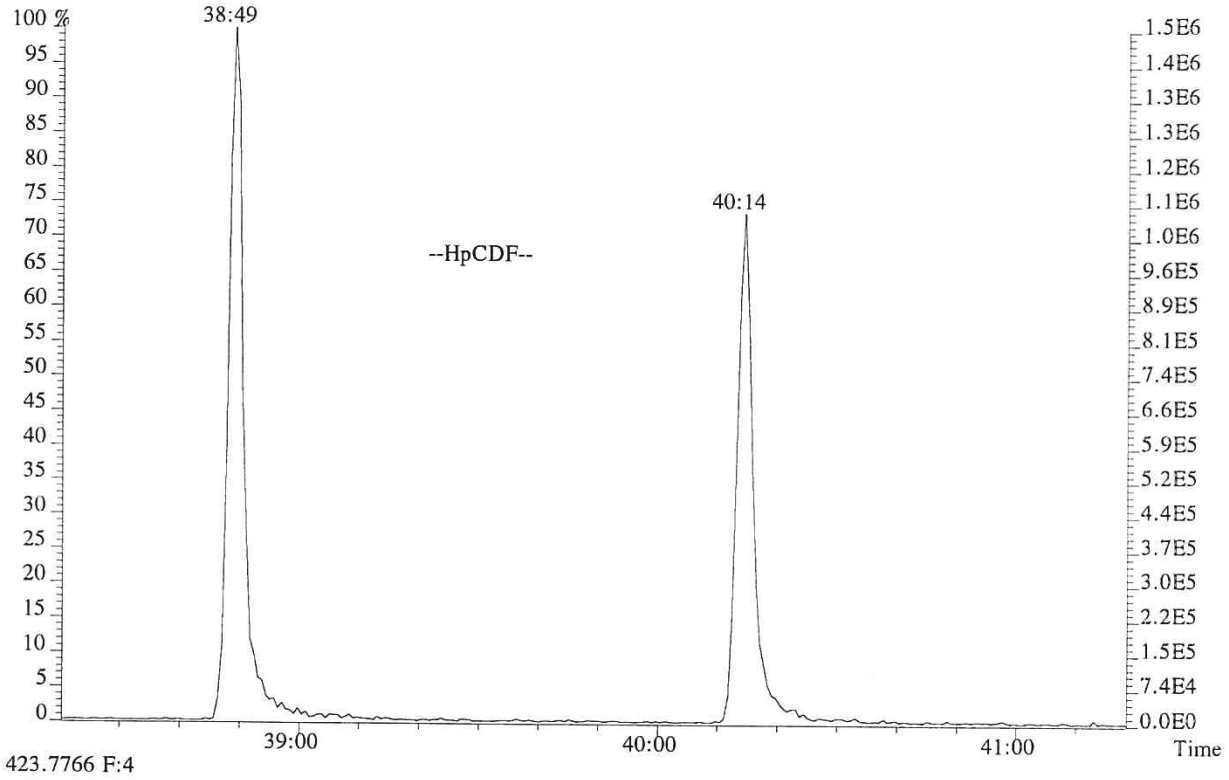


389.8157 F:3

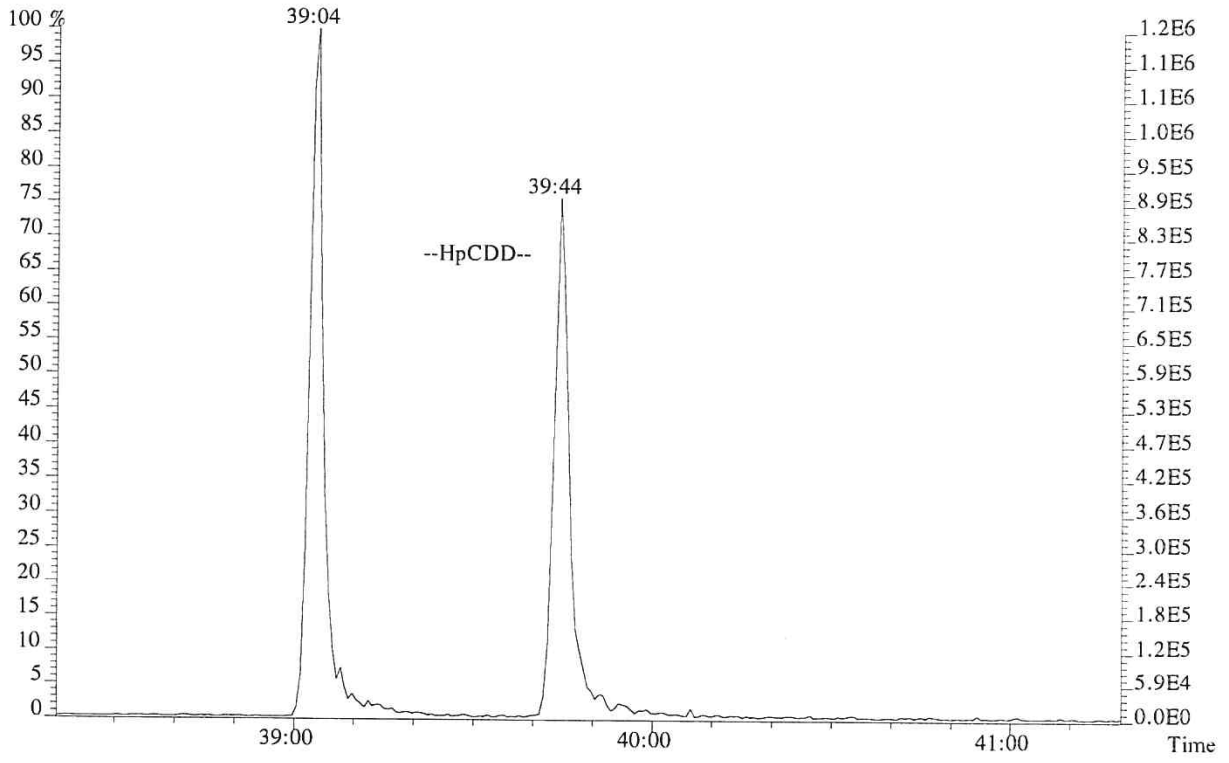


014787

File:P513848 #1-268 Acq:24-JAN-2018 11:44:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:183360
407.7818 F:4



423.7766 F:4



014788

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-07
Init. Calib. Date(s).: 01/24/18 Method 1613/8290
Init. Calib. Time.: 11:44

RR/RRF

Target Analytes	CS0.5	CS1	CS2	CS3	CS4	CS5	MEAN RR/RRF	%RSD	QC LIMITS
2,3,7,8-TCDD	1.10	1.07	1.06	1.07	1.10	1.11	1.09	1.96	+/-20%
2,3,7,8-TCDF	0.89	0.96	0.91	0.94	0.96	0.99	0.94	4.09	+/-20%
1,2,3,7,8-PeCDF	0.93	0.98	1.02	1.03	1.06	1.06	1.01	5.02	+/-20%
1,2,3,7,8-PeCDD	0.92	0.97	0.96	0.95	0.97	0.97	0.96	2.08	+/-20%
2,3,4,7,8-PeCDF	0.87	0.94	0.98	0.97	0.99	1.00	0.96	4.97	+/-20%
1,2,3,4,7,8-HxCDF	1.07	1.13	1.22	1.21	1.25	1.26	1.19	6.34	+/-20%
1,2,3,6,7,8-HxCDF	1.06	1.07	1.13	1.13	1.17	1.17	1.12	4.28	+/-20%
1,2,3,4,7,8-HxCDD	0.96	1.04	1.03	1.06	1.06	1.07	1.04	3.78	+/-20%
1,2,3,6,7,8-HxCDD	1.00	1.06	1.03	1.03	1.05	1.06	1.04	2.33	+/-20%
1,2,3,7,8,9-HxCDD	0.98	1.06	1.10	1.06	1.07	1.10	1.06	4.09	+/-20%
2,3,4,6,7,8-HxCDF	1.01	1.09	1.12	1.13	1.15	1.17	1.11	5.18	+/-20%
1,2,3,7,8,9-HxCDF	1.08	1.10	1.15	1.17	1.18	1.18	1.14	3.94	+/-20%
1,2,3,4,6,7,8-HpCDF	1.31	1.32	1.36	1.37	1.37	1.38	1.35	2.22	+/-20%
1,2,3,4,6,7,8-HpCDD	1.00	0.98	1.05	1.03	1.05	1.04	1.02	2.88	+/-20%
1,2,3,4,7,8,9-HpCDF	1.18	1.23	1.29	1.30	1.28	1.27	1.26	3.68	+/-20%
OCDD	1.05	1.14	1.14	1.13	1.12	1.12	1.12	2.97	+/-20%
OCDF	1.26	1.39	1.35	1.33	1.39	1.43	1.36	4.36	+/-20%
Labeled Compounds									
13C-2,3,7,8-TCDD	0.91	0.87	0.93	0.90	0.94	0.98	0.92	4.14	+/-35%
13C-1,2,3,7,8-PeCDD	0.91	0.83	1.03	0.99	1.01	1.08	0.98	9.21	+/-35%
13C-1,2,3,4,7,8-HxCDD	0.94	0.90	0.90	0.95	0.93	0.92	0.92	2.06	+/-35%
13C-1,2,3,6,7,8-HxCDD	0.96	0.96	0.94	0.97	0.97	0.91	0.95	2.50	+/-35%
13C-1,2,3,4,6,7,8-HpCDD	0.81	0.92	0.79	0.88	0.90	0.85	0.86	5.83	+/-35%
13C-OCDD	0.52	0.63	0.58	0.58	0.62	0.57	0.58	6.90	+/-35%
13C-2,3,7,8-TCDF	1.45	1.48	1.53	1.60	1.53	1.49	1.51	3.54	+/-35%
13C-1,2,3,7,8-PeCDF	1.37	1.32	1.50	1.50	1.52	1.62	1.47	7.34	+/-35%
13C-2,3,4,7,8-PeCDF	1.36	1.29	1.50	1.46	1.52	1.61	1.46	7.94	+/-35%
13C-1,2,3,4,7,8-HxCDF	1.22	1.27	1.18	1.29	1.25	1.19	1.23	3.63	+/-35%
13C-1,2,3,6,7,8-HxCDF	1.40	1.48	1.34	1.42	1.41	1.34	1.40	3.84	+/-35%
13C-2,3,4,6,7,8-HxCDF	1.26	1.26	1.23	1.27	1.28	1.23	1.26	1.87	+/-35%
13C-1,2,3,7,8,9-HxCDF	1.03	1.17	1.06	1.00	1.17	1.08	1.09	6.47	+/-35%
13C-1,2,3,4,6,7,8-HpCDF	0.96	1.02	0.92	0.99	0.98	0.93	0.97	3.83	+/-35%
13C-1,2,3,4,7,8,9-HpCDF	0.76	0.95	0.79	0.74	0.86	0.82	0.82	9.19	+/-35%
37Cl-2,3,7,8-TCDD	0.93	0.96	1.03	1.00	1.05	1.11	1.01	6.21	+/-35%

1.123789-HxCDD Relative Response (RR) is calculated based on the labeled analog of the other two HxCDDs.
2. OCDF RR is calculated based on the labeled analog of OCDD

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-07
Init. Calib. Date(s).: 01/24/18 Method 1613/8290
Init. Calib. Time.: 11:44

Target Analytes	SELECTED IONS	ION ABUNDANCE RATIO CS0.5	CS1	CS2	CS3	CS4	CS5	FLAG	ION RATIO QC LIMITS
2,3,7,8-TCDF	304/306	0.76	0.72	0.74	0.75	0.77	0.77		0.65-0.89
2,3,7,8-TCDD	320/322	0.73	0.88	0.76	0.79	0.78	0.78		0.65-0.89
1,2,3,7,8-PeCDF	340/342	1.42	1.54	1.48	1.53	1.54	1.55		1.32-1.78
2,3,4,7,8-PeCDF	340/342	1.48	1.46	1.50	1.52	1.53	1.54		1.32-1.78
1,2,3,7,8-PeCDD	356/358	1.64	1.66	1.58	1.56	1.56	1.57		1.32-1.78
1,2,3,4,7,8-HxCDF	374/376	1.18	1.20	1.20	1.22	1.22	1.23		1.05-1.43
1,2,3,6,7,8-HxCDF	374/376	1.28	1.17	1.21	1.21	1.22	1.24		1.05-1.43
2,3,4,6,7,8-HxCDF	374/376	1.12	1.24	1.22	1.22	1.21	1.22		1.05-1.43
1,2,3,7,8,9-HxCDF	374/376	1.19	1.33	1.22	1.21	1.24	1.23		1.05-1.43
1,2,3,4,7,8-HxCDD	390/392	1.32	1.26	1.25	1.25	1.25	1.26		1.05-1.43
1,2,3,6,7,8-HxCDD	390/392	1.09	1.35	1.26	1.26	1.26	1.26		1.05-1.43
1,2,3,7,8,9-HxCDD	390/392	1.23	1.21	1.24	1.28	1.26	1.25		1.05-1.43
1,2,3,4,6,7,8-HpCDF	408/410	0.98	1.03	1.02	1.02	1.03	1.04		0.88-1.20
1,2,3,4,7,8,9-HpCDF	408/410	1.03	0.96	1.01	1.03	1.03	1.04		0.88-1.20
1,2,3,4,6,7,8-HpCDD	424/426	0.99	1.11	1.04	1.05	1.05	1.05		0.88-1.20
OCDF	442/444	0.88	0.95	0.89	0.90	0.91	0.91		0.76-1.02
OCDD	458/460	0.86	0.88	0.89	0.89	0.89	0.89		0.76-1.02
13C-2,3,7,8-TCDD	332/334	0.81	0.80	0.80	0.80	0.81	0.80		0.65-0.89
13C-1,2,3,7,8-PeCDD	368/370	1.60	1.59	1.59	1.58	1.59	1.59		1.32-1.78
13C-1,2,3,4,7,8-HxCDD	402/404	1.29	1.27	1.26	1.33	1.27	1.28		1.05-1.43
13C-1,2,3,6,7,8-HxCDD	402/404	1.26	1.28	1.27	1.20	1.26	1.26		1.05-1.43
13C-1,2,3,4,6,7,8-HpCDD	436/438	1.06	1.04	1.06	1.06	1.08	1.06		0.88-1.20
13C-OCDD	470/472	0.90	0.91	0.90	0.89	0.90	0.89		0.76-1.02
13C-2,3,7,8-TCDF	316/318	0.79	0.79	0.80	0.79	0.79	0.79		0.65-0.89
13C-1,2,3,7,8-PeCDF	352/354	1.58	1.60	1.59	1.58	1.58	1.59		1.32-1.78
13C-2,3,4,7,8-PeCDF	352/354	1.58	1.58	1.58	1.58	1.58	1.58		1.32-1.78
13C-1,2,3,4,7,8-HxCDF	384/386	0.53	0.52	0.52	0.53	0.53	0.53		0.43-0.59
13C-1,2,3,6,7,8-HxCDF	384/386	0.53	0.53	0.53	0.53	0.53	0.53		0.43-0.59
13C-2,3,4,6,7,8-HxCDF	384/386	0.52	0.52	0.52	0.52	0.53	0.52		0.43-0.59
13C-1,2,3,7,8,9-HxCDF	384/386	0.52	0.52	0.53	0.53	0.52	0.52		0.43-0.59
13C-1,2,3,4,6,7,8-HpCDF	418/420	0.45	0.45	0.45	0.45	0.45	0.45		0.37-0.51
13C-1,2,3,4,7,8,9-HpCDF	418/420	0.45	0.44	0.45	0.45	0.45	0.45		0.37-0.51
13C-1,2,3,4-TCDD	332/334	0.81	0.82	0.81	0.81	0.82	0.82		0.65-0.89
13C-1,2,3,7,8,9-HxCDD	402/404	1.26	1.25	1.27	1.23	1.25	1.25		1.05-1.43

Quality Control (QC) limits represent +/- 15% window around the theoretical ion abundance ratio. The laboratory must flag any analyte in any calibration solution which does not meet the ion abundance ratio QC limit by placing an asterisk in the flag column.

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76554

Run #1 Filename P513850 Samp: 1 Inj: 1 Acquired: 24-JAN-18 13:32:06
Processed: 24-JAN-18 15:49:37 Sample ID: CS0.5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	3.276e+02	4.332e+02	0.76	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	2.212e+03	1.557e+03	1.42	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:42	2.093e+03	1.410e+03	1.48	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:17	1.728e+03	1.459e+03	1.18	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	2.025e+03	1.584e+03	1.28	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:53	1.636e+03	1.459e+03	1.12	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	1.473e+03	1.234e+03	1.19	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	1.513e+03	1.543e+03	0.98	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	1.104e+03	1.067e+03	1.03	yes	no	1.258
10	Unk	OCDF	42:45	1.481e+03	1.680e+03	0.88	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	2.508e+02	3.419e+02	0.73	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:58	1.543e+03	9.381e+02	1.64	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	37:00	1.247e+03	9.443e+02	1.32	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	1.208e+03	1.105e+03	1.09	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	1.245e+03	1.015e+03	1.23	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	9.700e+02	9.817e+02	0.99	yes	no	1.025
17	Unk	OCDD	42:31	1.223e+03	1.416e+03	0.86	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:47	1.518e+05	1.920e+05	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:48	1.987e+05	1.259e+05	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:41	1.969e+05	1.249e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:16	8.196e+04	1.558e+05	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	9.429e+04	1.782e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:52	8.377e+04	1.622e+05	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:37	6.829e+04	1.322e+05	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	5.778e+04	1.288e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	4.552e+04	1.019e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:31	9.630e+04	1.195e+05	0.81	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	1.330e+05	8.317e+04	1.60	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	1.026e+05	7.962e+04	1.29	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	1.036e+05	8.231e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	8.056e+04	7.625e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	9.520e+04	1.052e+05	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:58	1.055e+05	1.310e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	1.085e+05	8.606e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	5.518e+02				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76554

Run #1 Filename P513850 Samp: 1 Inj: 1 Acquired: 24-JAN-18 13:32:06
Processed: 24-JAN-18 15:49:37 LAB. ID: CS0.5

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.43e+04	7.40e+02	8.7e+01	8.19e+04	1.58e+03	5.2e+01
2	1,2,3,7,8-PeCDF	4.30e+05	1.01e+03	4.3e+02	3.00e+05	2.96e+03	1.0e+02
3	2,3,4,7,8-PeCDF	4.25e+05	1.01e+03	4.2e+02	2.98e+05	2.96e+03	1.0e+02
4	1,2,3,4,7,8-HxCDF	3.96e+05	8.76e+02	4.5e+02	3.10e+05	2.44e+02	1.3e+03
5	1,2,3,6,7,8-HxCDF	4.08e+05	8.76e+02	4.7e+02	3.20e+05	2.44e+02	1.3e+03
6	2,3,4,6,7,8-HxCDF	3.56e+05	8.76e+02	4.1e+02	3.17e+05	2.44e+02	1.3e+03
7	1,2,3,7,8,9-HxCDF	3.08e+05	8.76e+02	3.5e+02	2.40e+05	2.44e+02	9.9e+02
8	1,2,3,4,6,7,8-HpCDF	3.07e+05	8.60e+02	3.6e+02	3.29e+05	5.36e+02	6.1e+02
9	1,2,3,4,7,8,9-HpCDF	2.09e+05	8.60e+02	2.4e+02	1.94e+05	5.36e+02	3.6e+02
10	OCDF	2.59e+05	6.40e+02	4.0e+02	2.85e+05	1.05e+03	2.7e+02
11	2,3,7,8-TCDD	4.96e+04	1.22e+03	4.1e+01	7.37e+04	7.32e+02	1.0e+02
12	1,2,3,7,8-PeCDD	3.05e+05	1.17e+03	2.6e+02	1.78e+05	1.88e+02	9.5e+02
13	1,2,3,4,7,8-HxCDD	2.70e+05	5.20e+02	5.2e+02	2.09e+05	4.64e+02	4.5e+02
14	1,2,3,6,7,8-HxCDD	2.52e+05	5.20e+02	4.8e+02	2.26e+05	4.64e+02	4.9e+02
15	1,2,3,7,8,9-HxCDD	2.55e+05	5.20e+02	4.9e+02	2.09e+05	4.64e+02	4.5e+02
16	1,2,3,4,6,7,8-HpCDD	1.84e+05	1.72e+02	1.1e+03	2.04e+05	1.92e+02	1.1e+03
17	OCDD	1.95e+05	1.24e+02	1.6e+03	2.29e+05	1.76e+03	1.3e+02
18	13C-2,3,7,8-TCDF	2.97e+07	7.00e+03	4.2e+03	3.74e+07	3.24e+03	1.2e+04
19	13C-1,2,3,7,8-PeCDF	3.75e+07	6.04e+02	6.2e+04	2.38e+07	1.03e+03	2.3e+04
20	13C-2,3,4,7,8-PeCDF	3.92e+07	6.04e+02	6.5e+04	2.45e+07	1.03e+03	2.4e+04
21	13C-1,2,3,4,7,8-HxCDF	1.77e+07	4.00e+02	4.4e+04	3.34e+07	1.14e+03	2.9e+04
22	13C-1,2,3,6,7,8-HxCDF	1.91e+07	4.00e+02	4.8e+04	3.65e+07	1.14e+03	3.2e+04
23	13C-2,3,4,6,7,8-HxCDF	1.78e+07	4.00e+02	4.5e+04	3.38e+07	1.14e+03	3.0e+04
24	13C-1,2,3,7,8,9-HxCDF	1.38e+07	4.00e+02	3.5e+04	2.65e+07	1.14e+03	2.3e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.16e+07	1.44e+03	8.1e+03	2.60e+07	5.60e+03	4.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	8.60e+06	1.44e+03	6.0e+03	1.92e+07	5.60e+03	3.4e+03
27	13C-2,3,7,8-TCDD	1.97e+07	6.10e+03	3.2e+03	2.45e+07	2.10e+03	1.2e+04
28	13C-1,2,3,7,8-PeCDD	2.62e+07	9.88e+02	2.7e+04	1.65e+07	6.72e+02	2.4e+04
29	13C-1,2,3,4,7,8-HxCDD	2.25e+07	4.24e+03	5.3e+03	1.74e+07	9.28e+02	1.9e+04
30	13C-1,2,3,6,7,8-HxCDD	2.12e+07	4.24e+03	5.0e+03	1.71e+07	9.28e+02	1.8e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.57e+07	9.20e+02	1.7e+04	1.49e+07	8.32e+02	1.8e+04
32	13C-OCDD	1.56e+07	1.68e+02	9.3e+04	1.71e+07	3.40e+02	5.0e+04
33	13C-1,2,3,4-TCDD	2.11e+07	6.10e+03	3.5e+03	2.60e+07	2.10e+03	1.2e+04
34	13C-1,2,3,7,8,9-HxCDD	2.13e+07	4.24e+03	5.0e+03	1.71e+07	9.28e+02	1.8e+04
35	37Cl-2,3,7,8-TCDD	1.10e+05	1.04e+03	1.1e+02			

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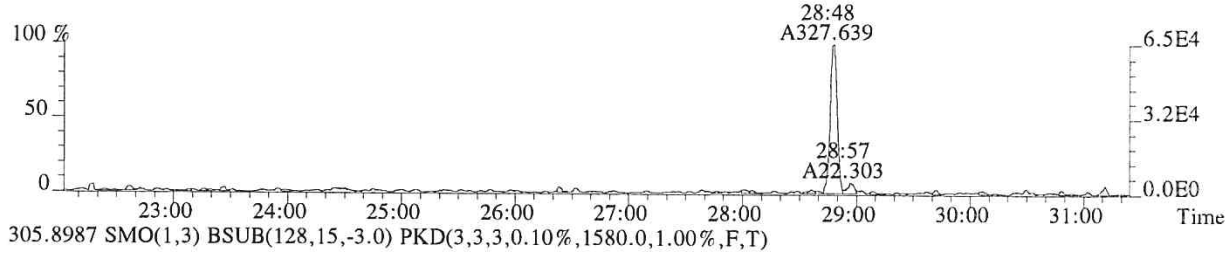
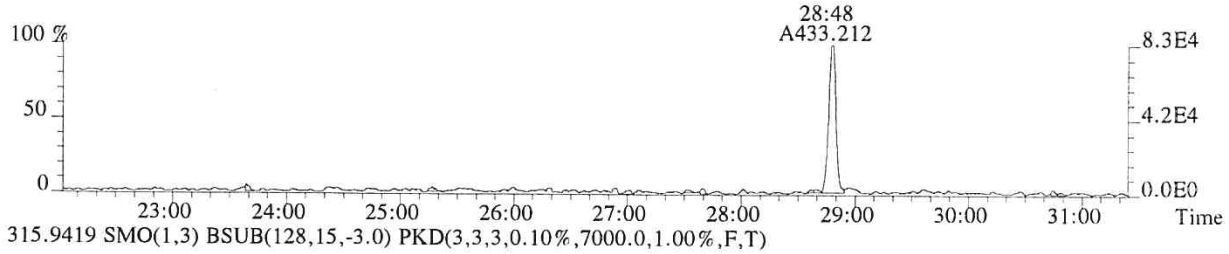
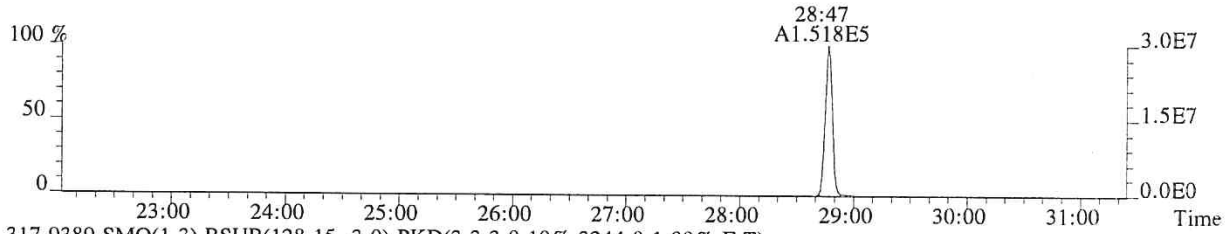
File:P513850 #1-665 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,740.0,1.00%,F,T)



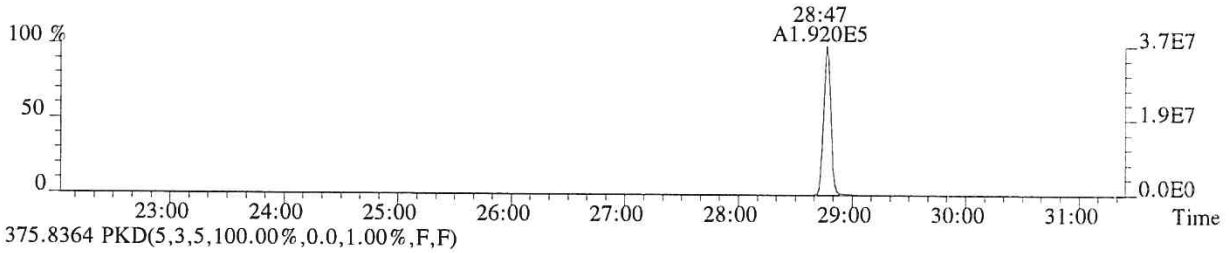
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1580.0,1.00%,F,T)



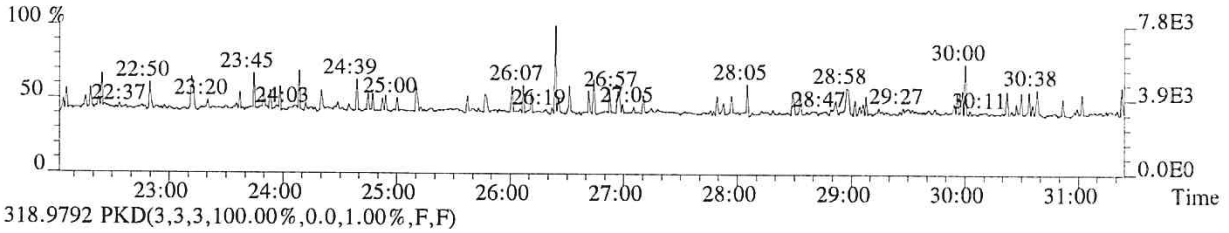
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7000.0,1.00%,F,T)



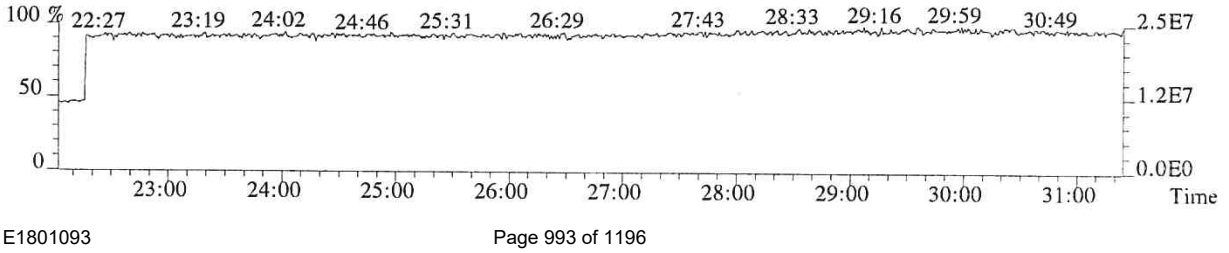
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3244.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



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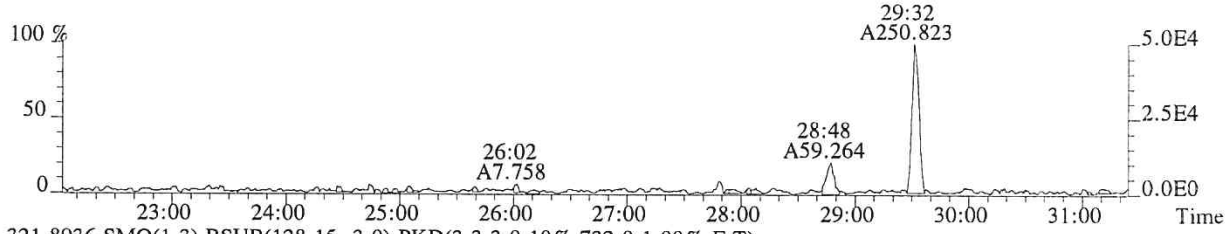
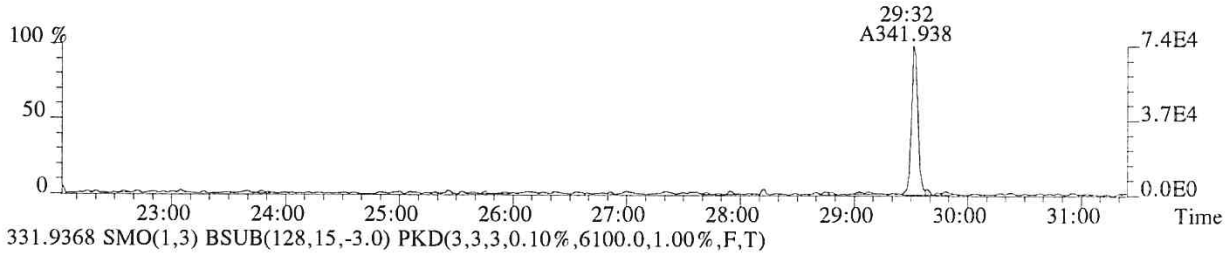
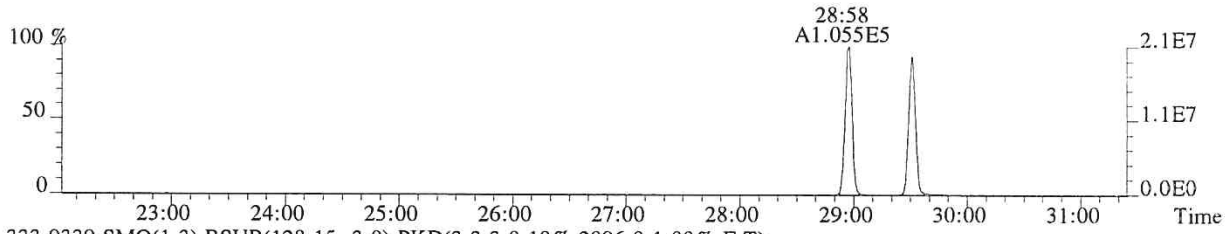
File:P513850 #1-665 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1220.0,1.00%,F,T)



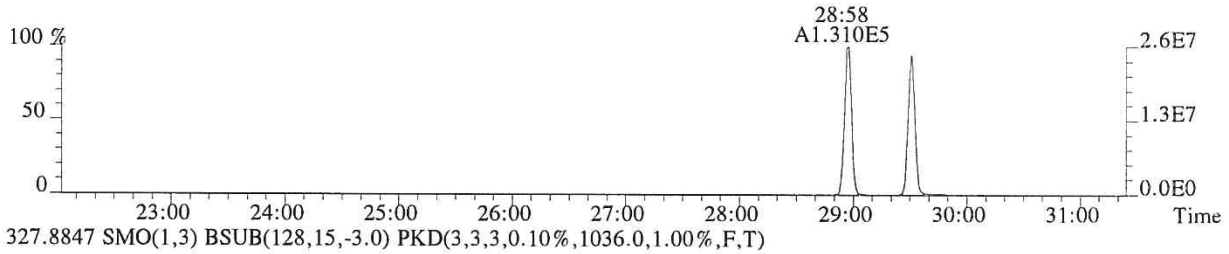
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,732.0,1.00%,F,T)



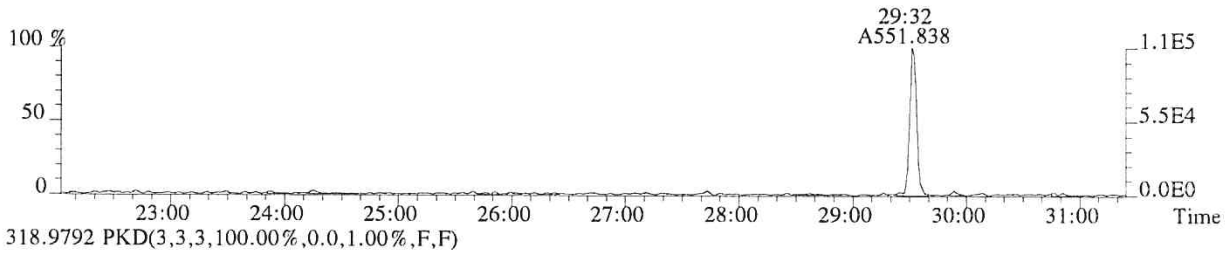
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6100.0,1.00%,F,T)



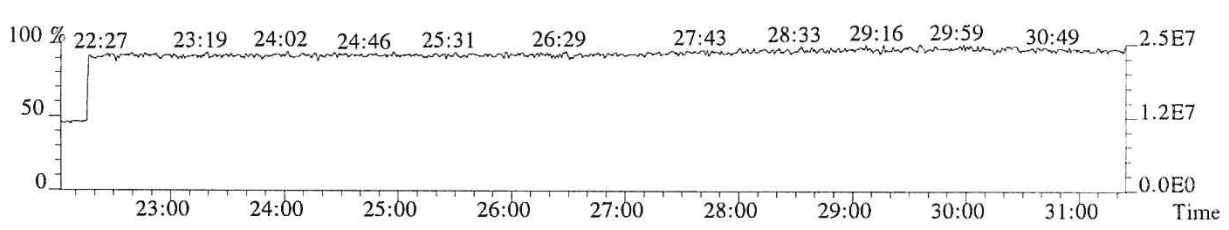
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2096.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1036.0,1.00%,F,T)

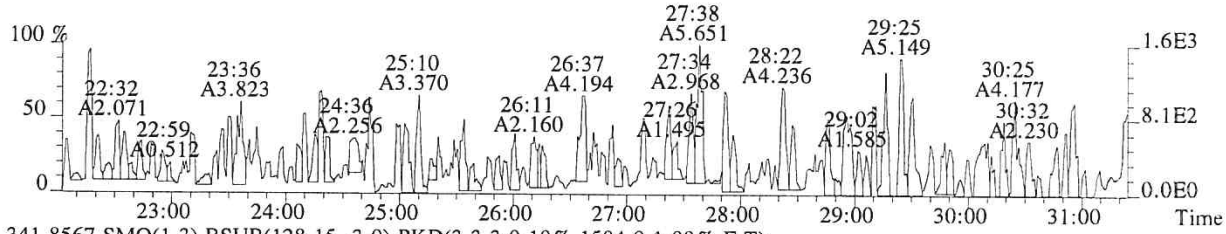


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

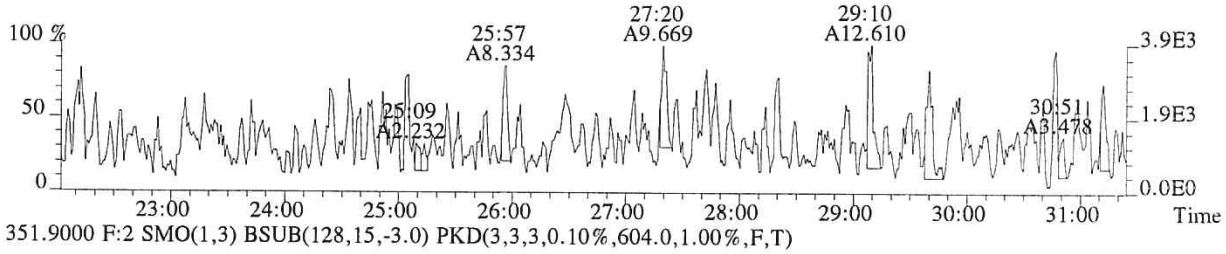


014794

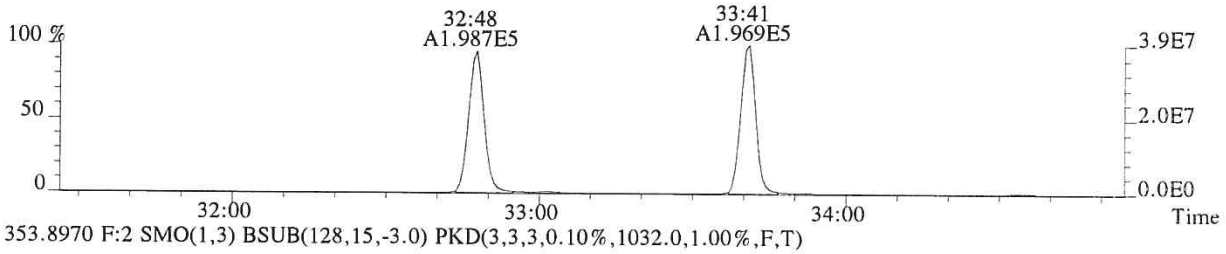
File:P513850 #1-665 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,244.0,1.00%,F,T)



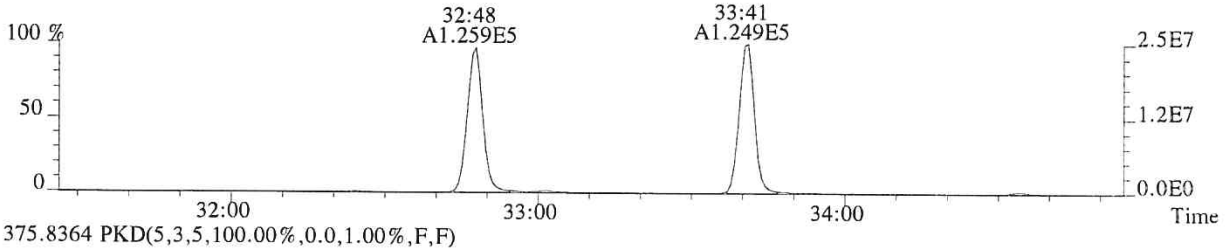
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1504.0,1.00%,F,T)



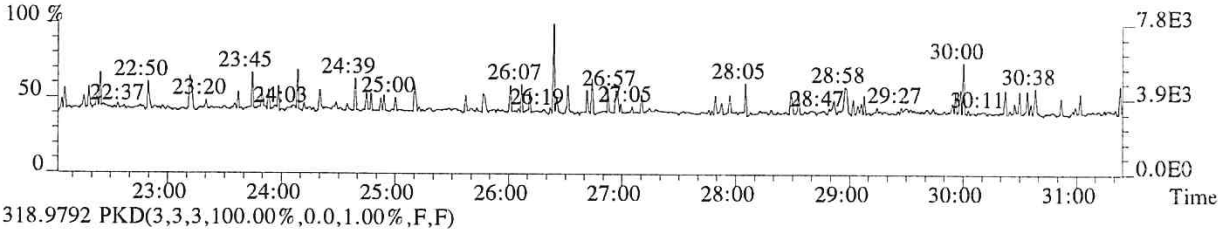
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



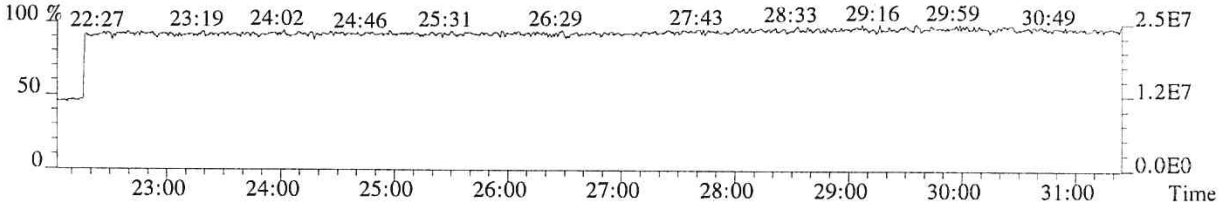
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

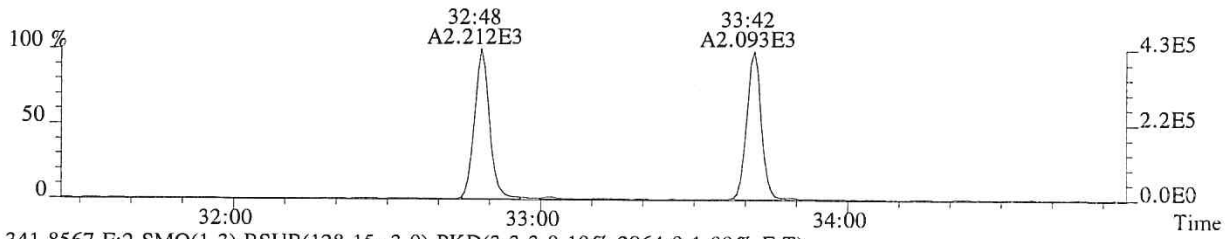


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

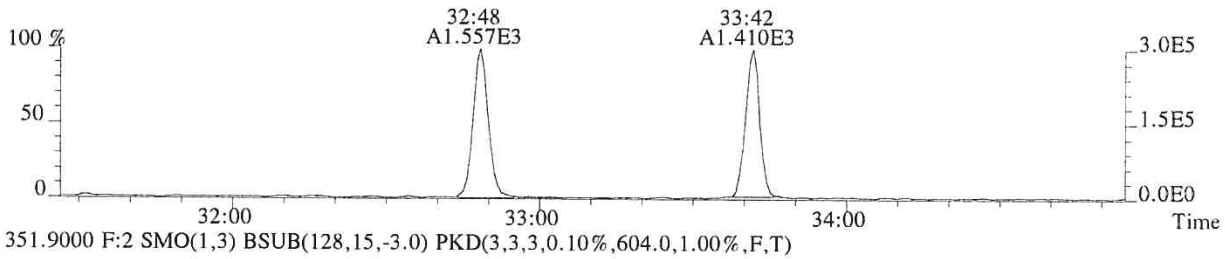


014795

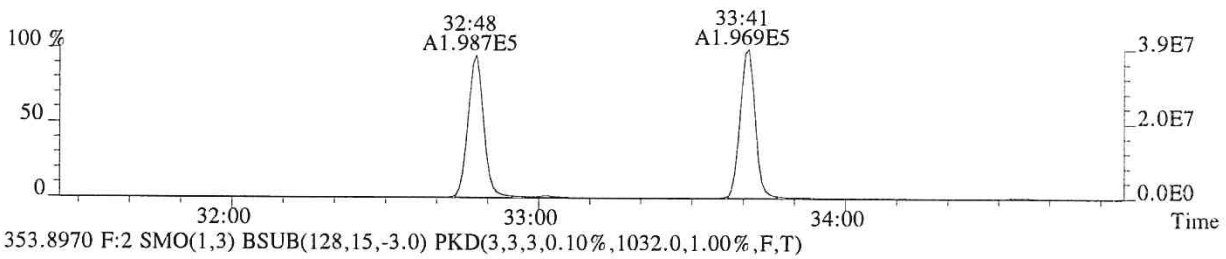
File:P513850 #1-313 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1008.0,1.00%,F,T)



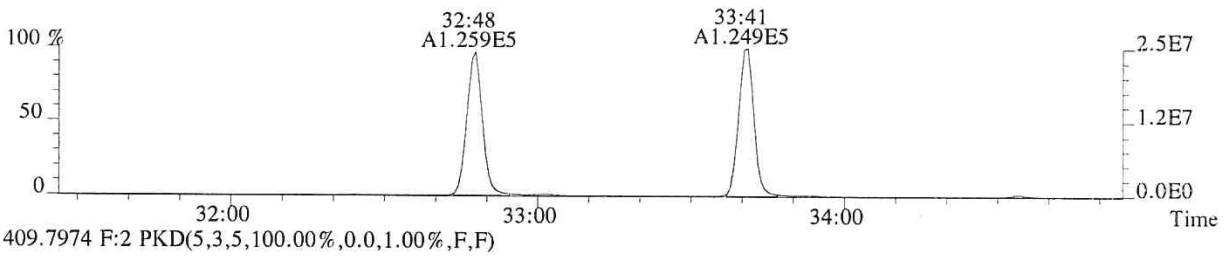
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2964.0,1.00%,F,T)



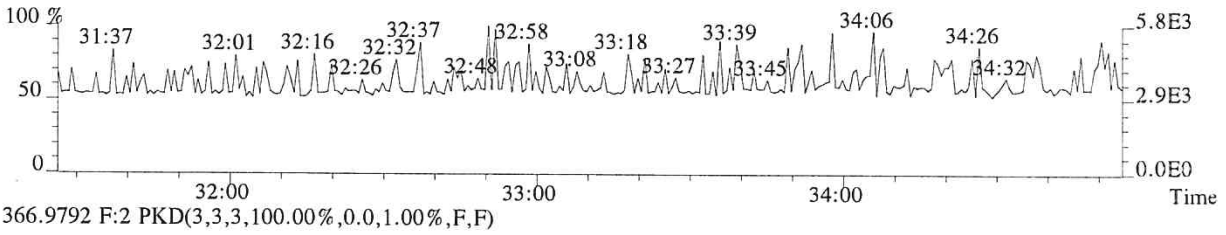
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



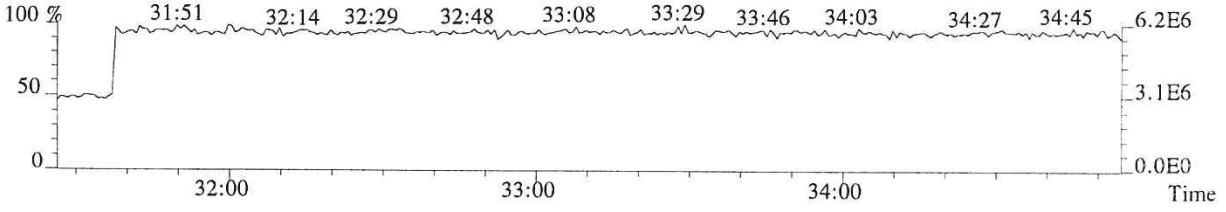
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

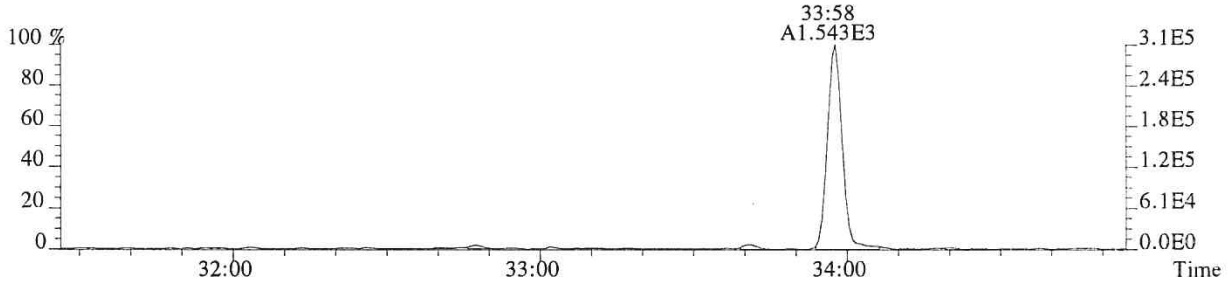


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

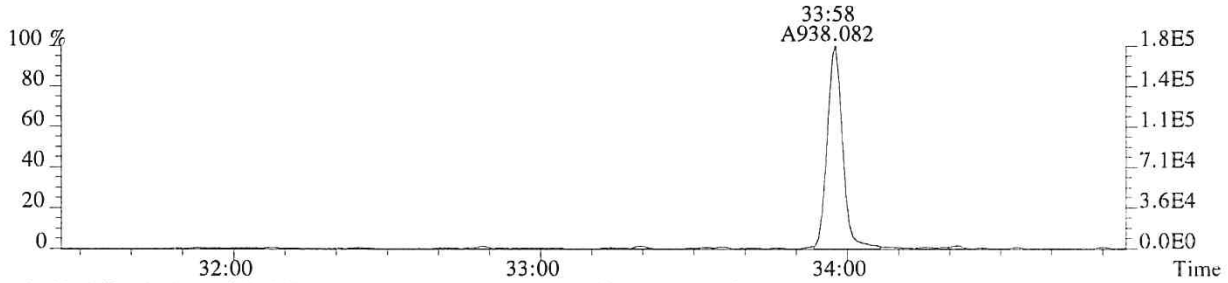


014796

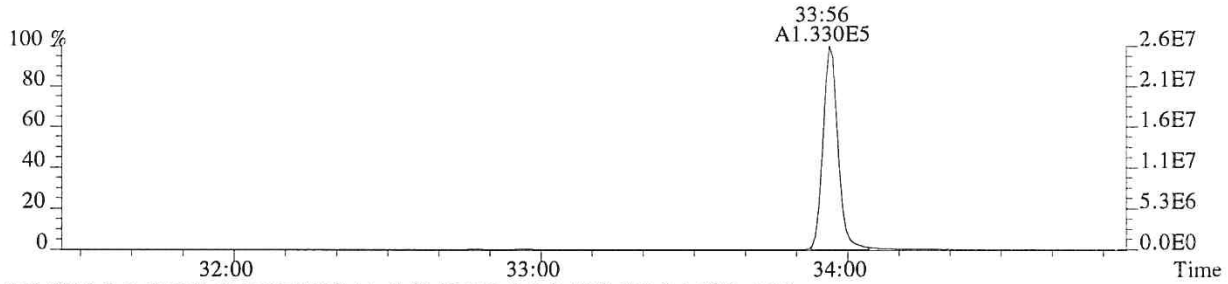
File:P513850 #1-313 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1172.0,1.00%,F,T)



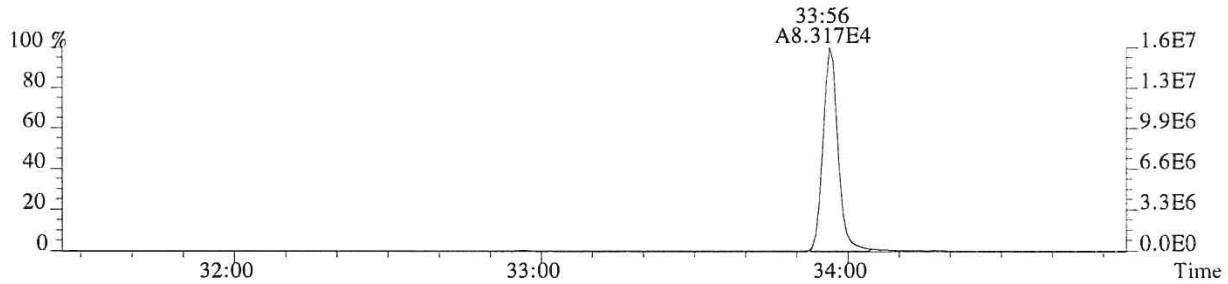
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,188.0,1.00%,F,T)



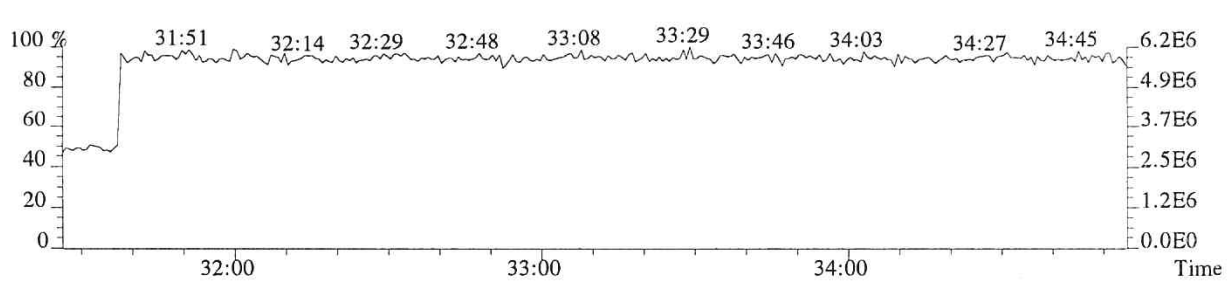
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,988.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,672.0,1.00%,F,T)

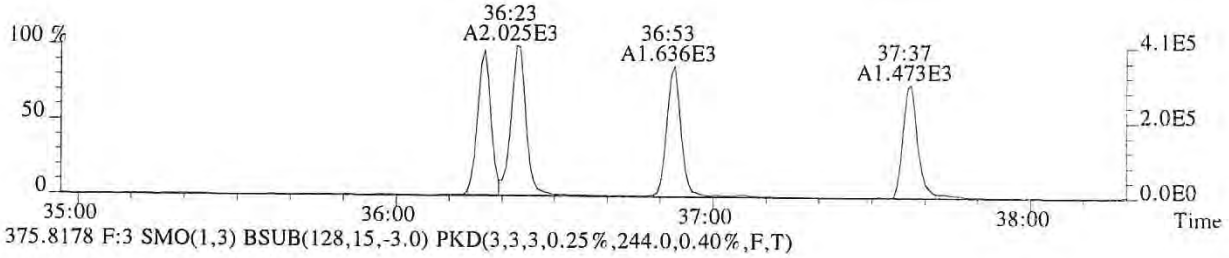


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

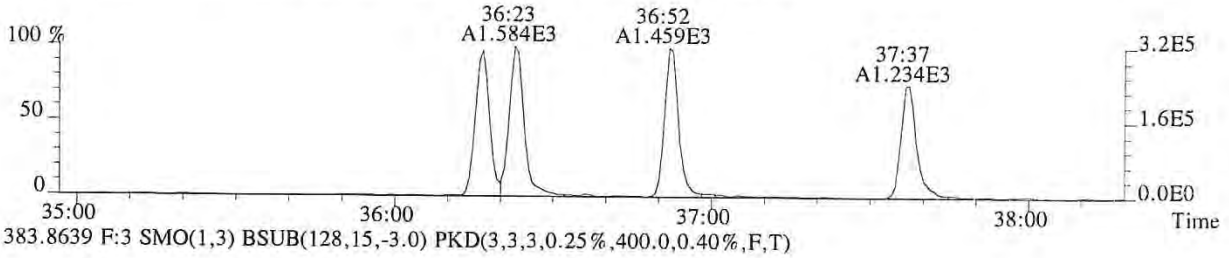


014797

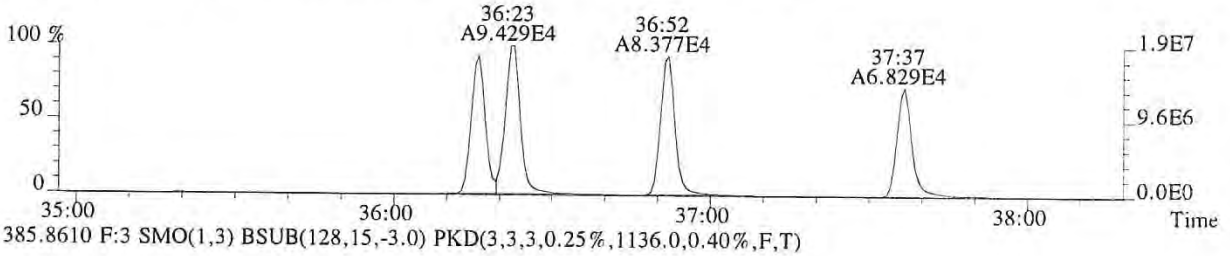
File:P513850 #1-303 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,876.0,0.40%,F,T)



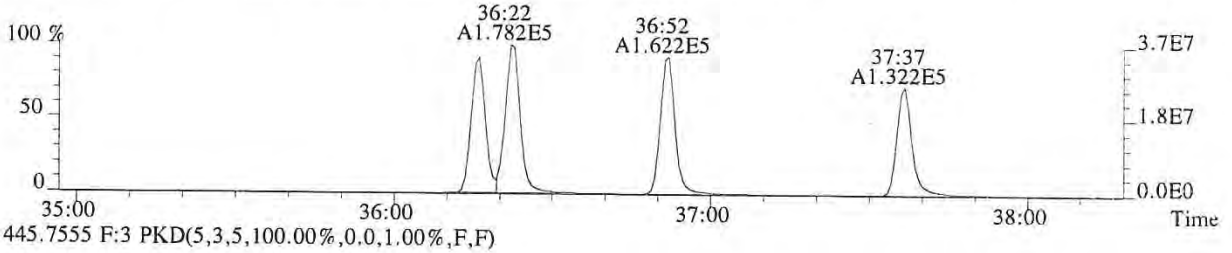
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,244.0,0.40%,F,T)



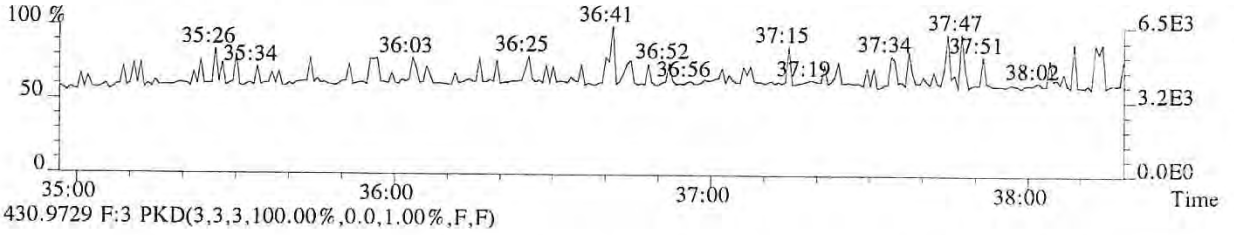
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,400.0,0.40%,F,T)



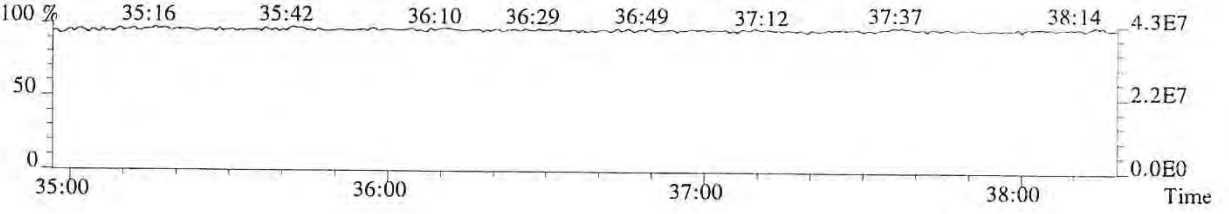
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1136.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

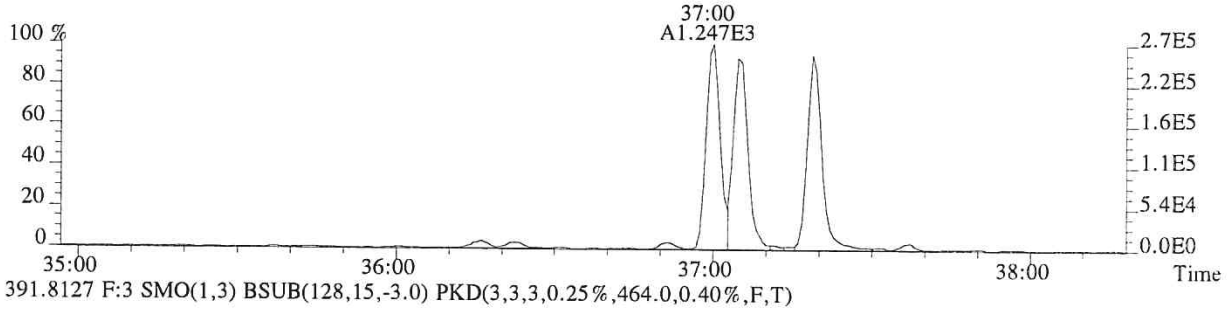


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

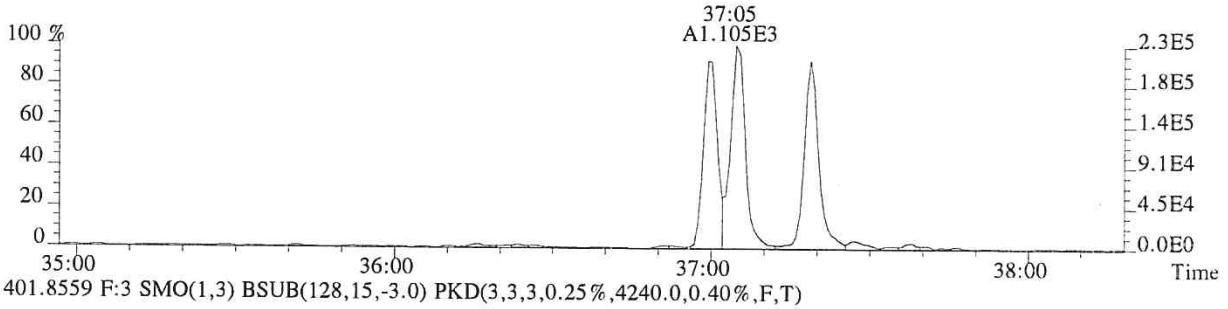


014798

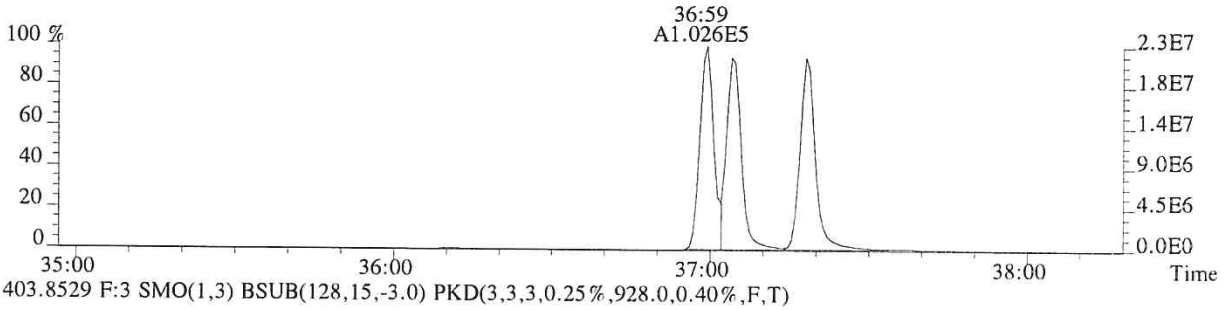
File:P513850 #1-303 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,520.0,0.40%,F,T)



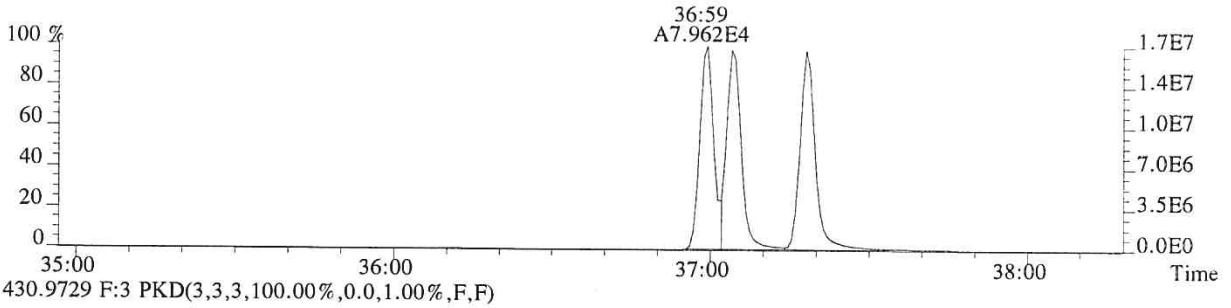
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,464.0,0.40%,F,T)



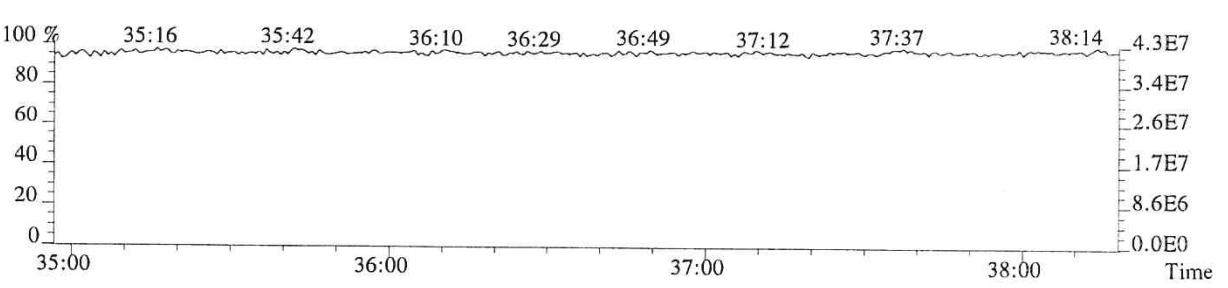
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4240.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,928.0,0.40%,F,T)

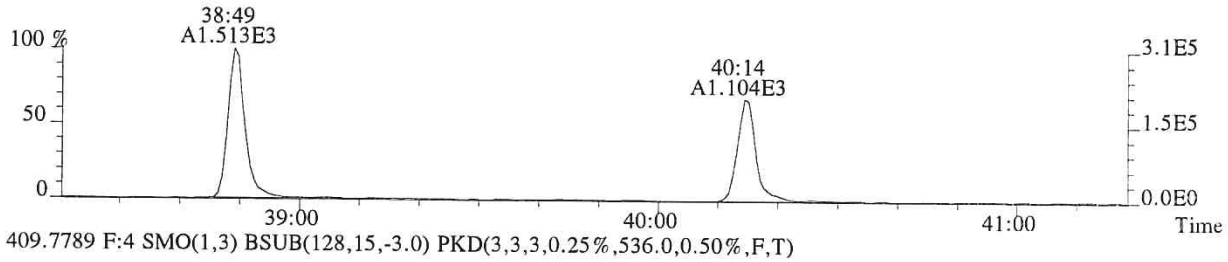


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

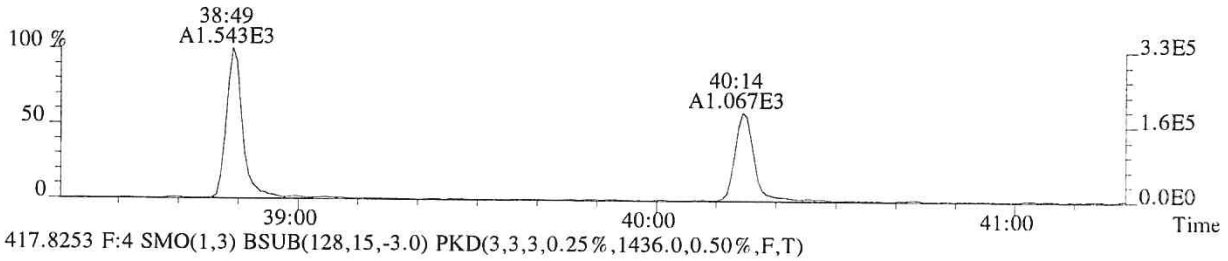


014799

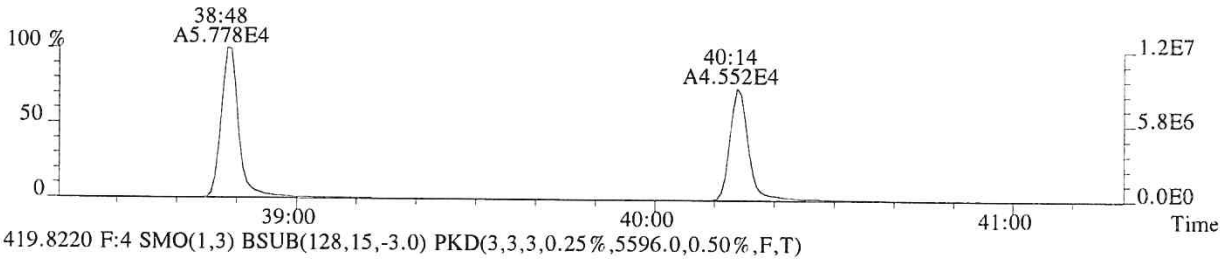
File:P513850 #1-268 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,860.0,0.50%,F,T)



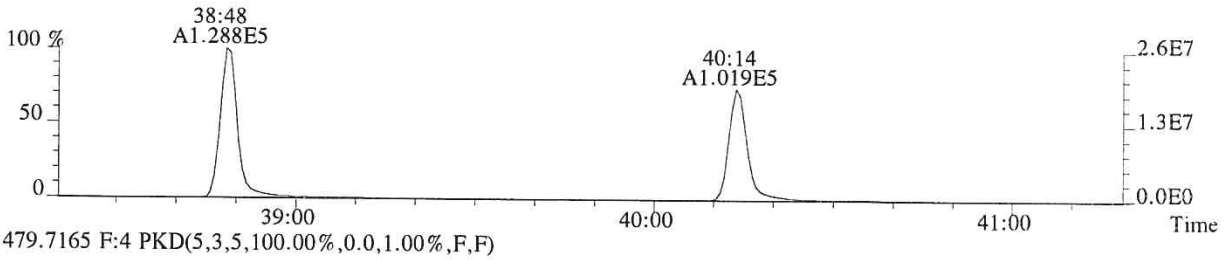
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,536.0,0.50%,F,T)



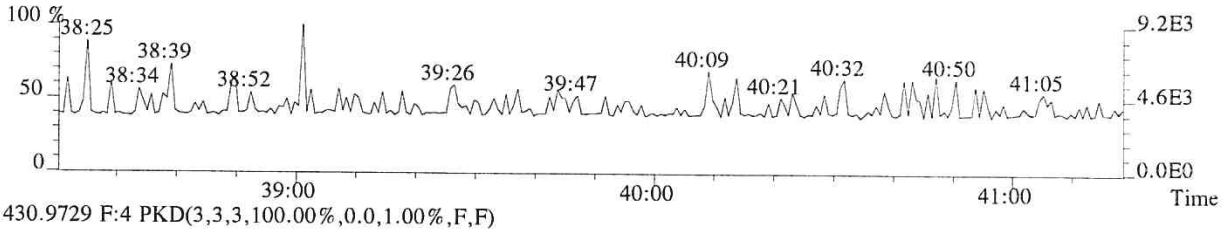
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1436.0,0.50%,F,T)



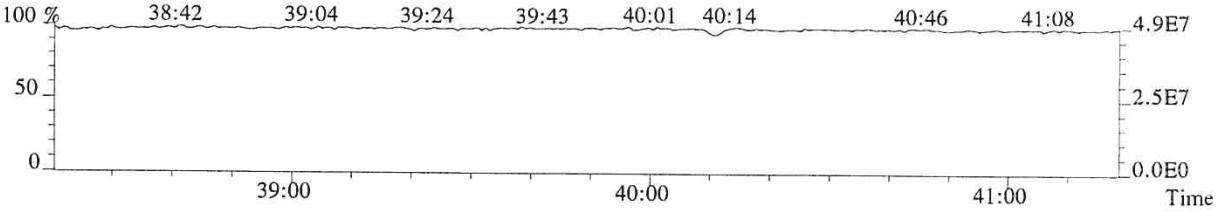
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5596.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

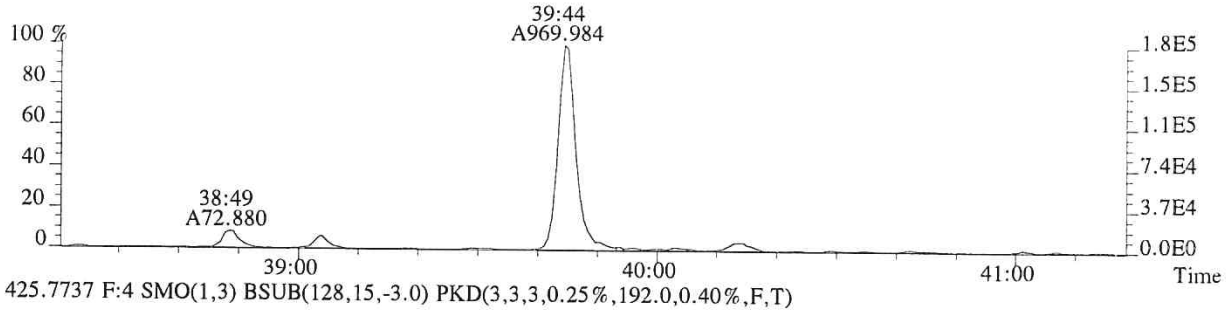


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

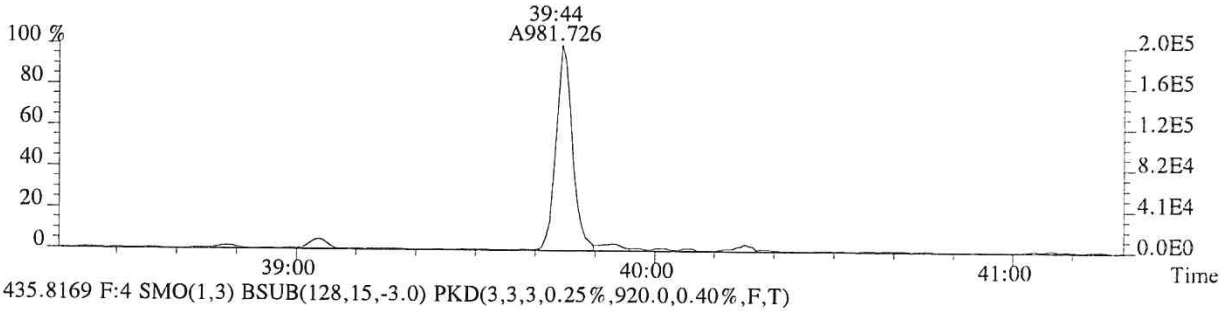


014800

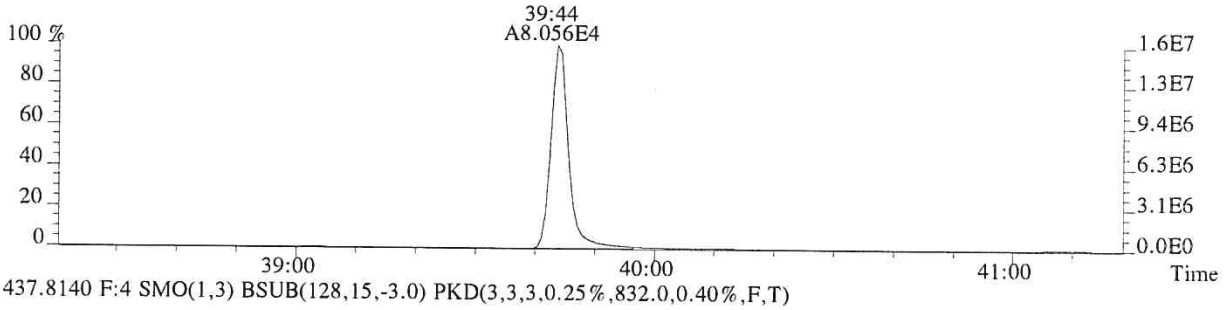
File:P513850 #1-268 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,172.0,0.40%,F,T)



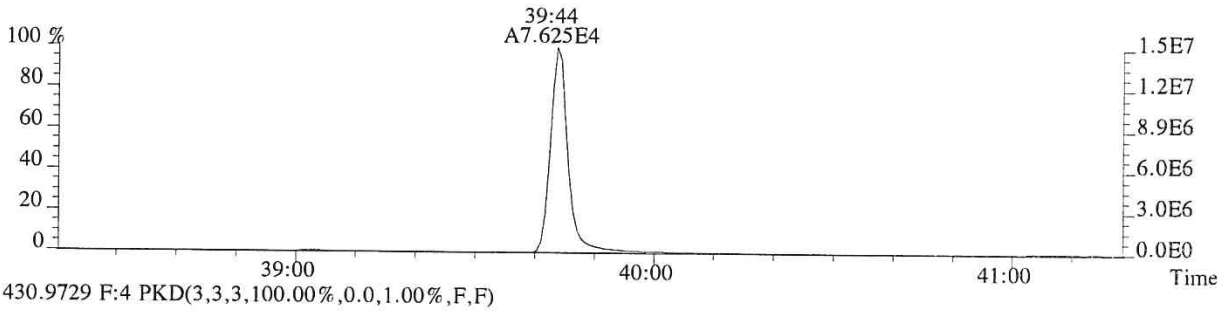
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,192.0,0.40%,F,T)



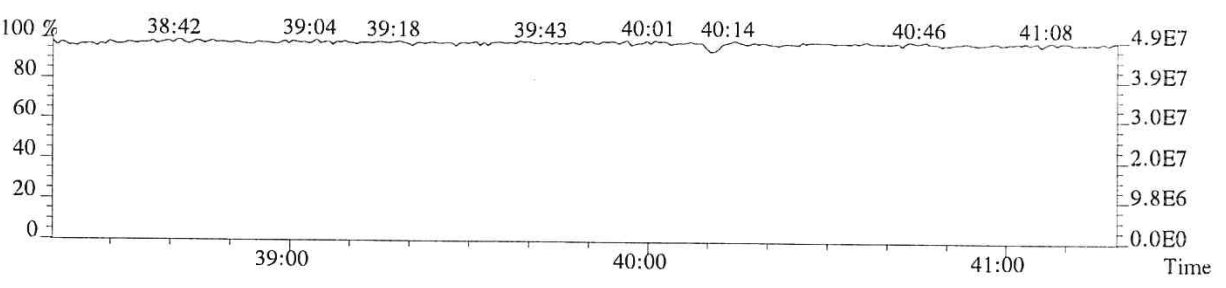
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,920.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,832.0,0.40%,F,T)

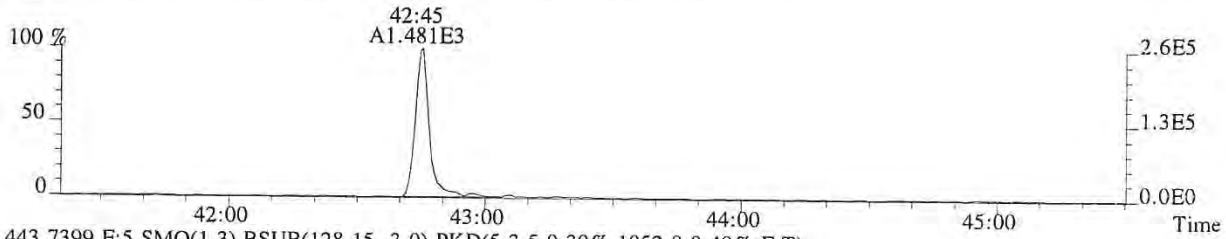


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

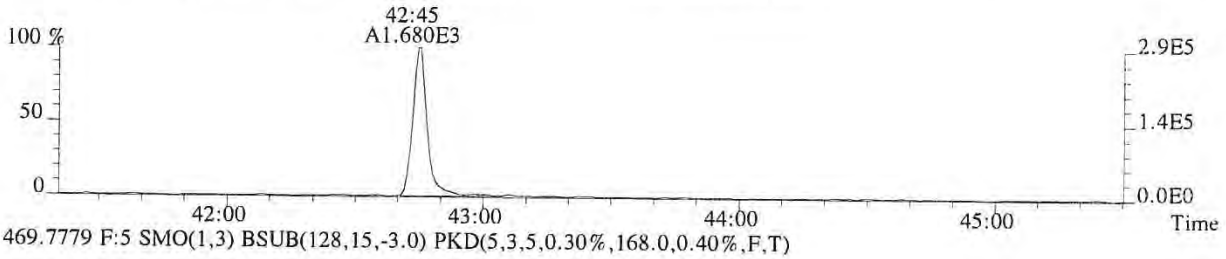


014801

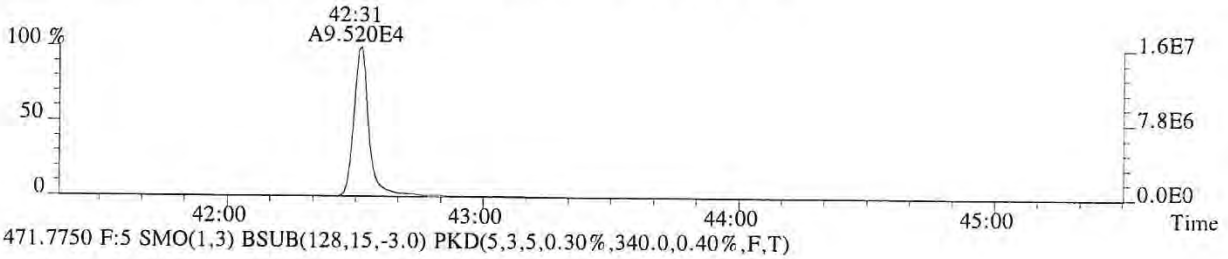
File:P513850 #1-375 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,640.0,0.40%,F,T)



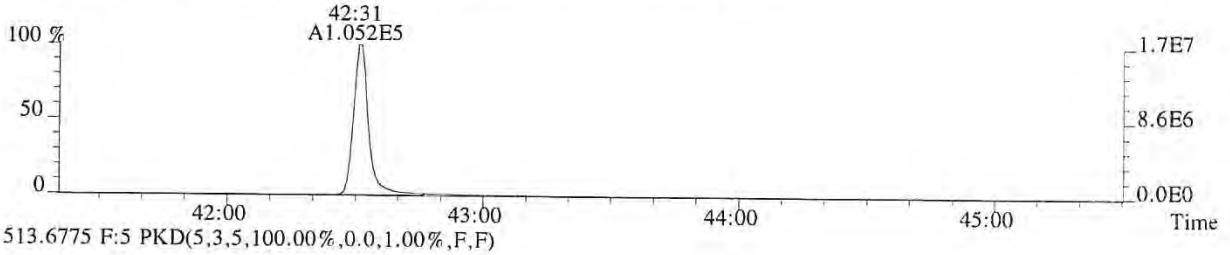
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1052.0,0.40%,F,T)



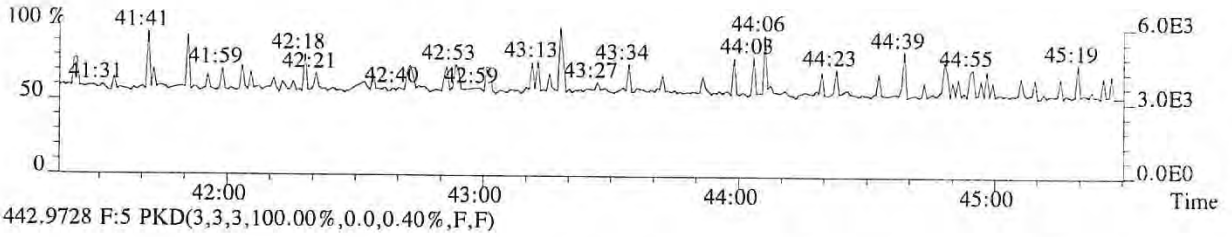
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,168.0,0.40%,F,T)



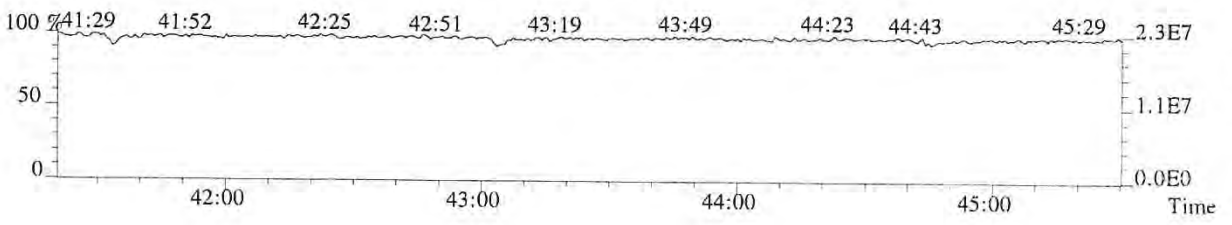
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,340.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

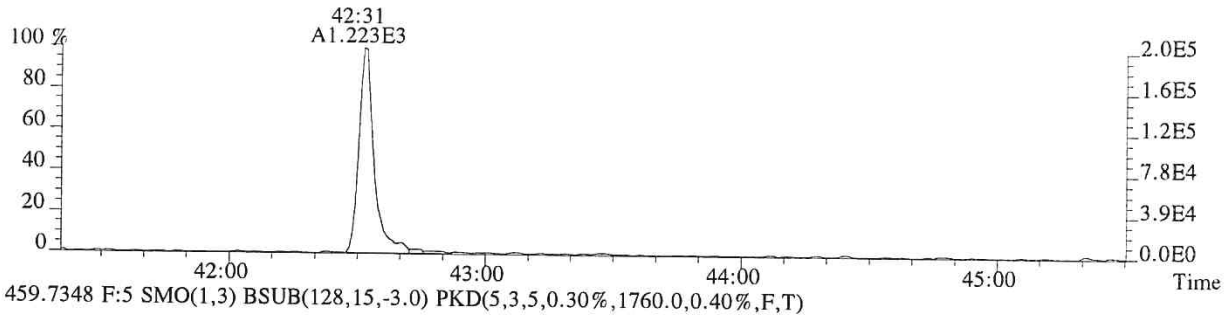


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

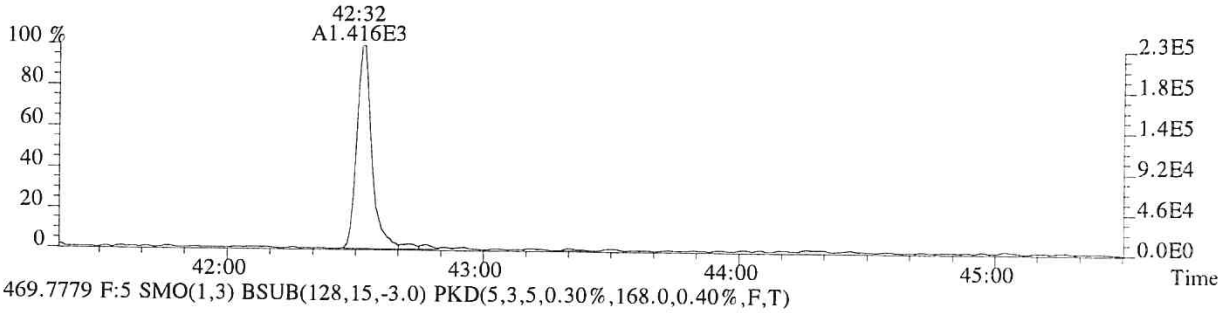


014802

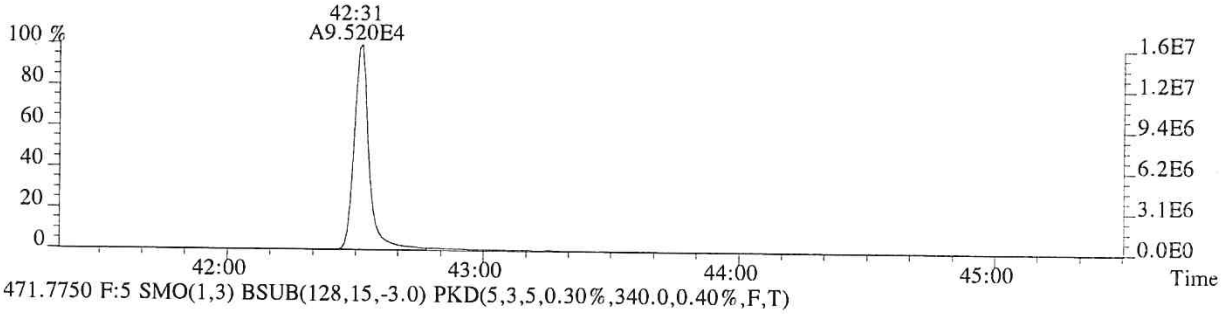
File:P513850 #1-375 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,124.0,0.40%,F,T)



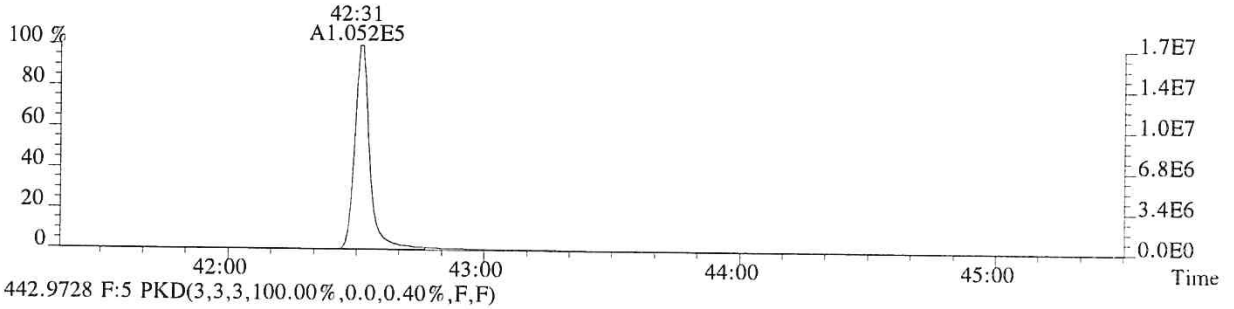
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1760.0,0.40%,F,T)



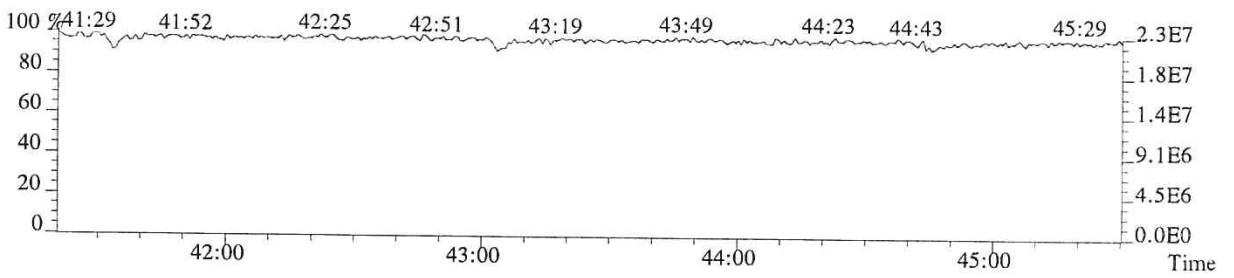
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,168.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,340.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



014803

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76555

Run #2 Filename P513851 Samp: 1 Inj: 1 Acquired: 24-JAN-18 14:23:56
Processed: 24-JAN-18 15:49:38 Sample ID: CS1

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	3.265e+02	4.510e+02	0.72	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	2.143e+03	1.390e+03	1.54	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:41	1.966e+03	1.345e+03	1.46	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:16	1.692e+03	1.406e+03	1.20	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	1.851e+03	1.586e+03	1.17	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:52	1.642e+03	1.320e+03	1.24	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	1.587e+03	1.193e+03	1.33	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	1.464e+03	1.425e+03	1.03	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	1.230e+03	1.277e+03	0.96	yes	no	1.258
10	Unk	OCDF	42:45	1.832e+03	1.936e+03	0.95	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	2.385e+02	2.700e+02	0.88	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:57	1.365e+03	8.234e+02	1.66	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:59	1.134e+03	9.001e+02	1.26	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	1.250e+03	9.288e+02	1.35	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	1.168e+03	9.616e+02	1.21	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	1.020e+03	9.210e+02	1.11	yes	no	1.025
17	Unk	OCDD	42:31	1.446e+03	1.652e+03	0.88	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:47	7.137e+04	9.000e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:47	8.867e+04	5.547e+04	1.60	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	8.638e+04	5.480e+04	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	3.777e+04	7.232e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:22	4.414e+04	8.392e+04	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:51	3.753e+04	7.150e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:36	3.488e+04	6.647e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	2.710e+04	6.070e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	2.509e+04	5.658e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:31	4.231e+04	5.302e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	5.560e+04	3.503e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	4.358e+04	3.432e+04	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	4.635e+04	3.621e+04	1.28	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	4.039e+04	3.882e+04	1.04	yes	no	0.858
32	IS	13C-OCDD	42:31	5.166e+04	5.687e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:57	4.919e+04	6.018e+04	0.82	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	4.800e+04	3.836e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	5.257e+02				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76555

Run #2 Filename P513851 Samp: 1 Inj: 1 Acquired: 24-JAN-18 14:23:56
Processed: 24-JAN-18 15:49:38 LAB. ID: CS1

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.11e+04	5.52e+02	1.1e+02	8.10e+04	1.82e+03	4.5e+01
2	1,2,3,7,8-PeCDF	4.20e+05	1.32e+03	3.2e+02	2.59e+05	1.41e+03	1.8e+02
3	2,3,4,7,8-PeCDF	4.04e+05	1.32e+03	3.1e+02	2.67e+05	1.41e+03	1.9e+02
4	1,2,3,4,7,8-HxCDF	3.58e+05	5.32e+02	6.7e+02	3.14e+05	1.28e+02	2.5e+03
5	1,2,3,6,7,8-HxCDF	3.97e+05	5.32e+02	7.5e+02	3.35e+05	1.28e+02	2.6e+03
6	2,3,4,6,7,8-HxCDF	3.52e+05	5.32e+02	6.6e+02	2.91e+05	1.28e+02	2.3e+03
7	1,2,3,7,8,9-HxCDF	3.28e+05	5.32e+02	6.2e+02	2.40e+05	1.28e+02	1.9e+03
8	1,2,3,4,6,7,8-HpCDF	3.00e+05	3.04e+02	9.9e+02	3.07e+05	7.12e+02	4.3e+02
9	1,2,3,4,7,8,9-HpCDF	2.35e+05	3.04e+02	7.7e+02	2.45e+05	7.12e+02	3.4e+02
10	OCDF	3.05e+05	4.12e+02	7.4e+02	3.13e+05	8.20e+02	3.8e+02
11	2,3,7,8-TCDD	5.05e+04	1.50e+03	3.4e+01	5.68e+04	1.02e+03	5.5e+01
12	1,2,3,7,8-PeCDD	2.75e+05	9.88e+02	2.8e+02	1.65e+05	1.80e+02	9.2e+02
13	1,2,3,4,7,8-HxCDD	2.60e+05	5.96e+02	4.4e+02	2.09e+05	7.60e+02	2.7e+02
14	1,2,3,6,7,8-HxCDD	2.55e+05	5.96e+02	4.3e+02	1.96e+05	7.60e+02	2.6e+02
15	1,2,3,7,8,9-HxCDD	2.36e+05	5.96e+02	4.0e+02	1.94e+05	7.60e+02	2.6e+02
16	1,2,3,4,6,7,8-HpCDD	1.99e+05	6.88e+02	2.9e+02	1.95e+05	5.68e+02	3.4e+02
17	OCDD	2.63e+05	1.92e+02	1.4e+03	2.88e+05	1.59e+03	1.8e+02
18	13C-2,3,7,8-TCDF	1.42e+07	6.97e+03	2.0e+03	1.79e+07	2.86e+03	6.3e+03
19	13C-1,2,3,7,8-PeCDF	1.70e+07	6.48e+02	2.6e+04	1.08e+07	1.59e+03	6.8e+03
20	13C-2,3,4,7,8-PeCDF	1.78e+07	6.48e+02	2.7e+04	1.13e+07	1.59e+03	7.1e+03
21	13C-1,2,3,4,7,8-HxCDF	8.20e+06	9.16e+02	9.0e+03	1.58e+07	1.42e+03	1.1e+04
22	13C-1,2,3,6,7,8-HxCDF	9.34e+06	9.16e+02	1.0e+04	1.79e+07	1.42e+03	1.3e+04
23	13C-2,3,4,6,7,8-HxCDF	8.09e+06	9.16e+02	8.8e+03	1.56e+07	1.42e+03	1.1e+04
24	13C-1,2,3,7,8,9-HxCDF	7.17e+06	9.16e+02	7.8e+03	1.36e+07	1.42e+03	9.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	5.66e+06	2.69e+03	2.1e+03	1.28e+07	9.09e+03	1.4e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.79e+06	2.69e+03	1.8e+03	1.07e+07	9.09e+03	1.2e+03
27	13C-2,3,7,8-TCDD	8.84e+06	4.39e+03	2.0e+03	1.11e+07	2.59e+03	4.3e+03
28	13C-1,2,3,7,8-PeCDD	1.13e+07	1.11e+03	1.0e+04	7.15e+06	7.88e+02	9.1e+03
29	13C-1,2,3,4,7,8-HxCDD	9.90e+06	2.00e+03	4.9e+03	7.79e+06	1.42e+03	5.5e+03
30	13C-1,2,3,6,7,8-HxCDD	9.60e+06	2.00e+03	4.8e+03	7.47e+06	1.42e+03	5.2e+03
31	13C-1,2,3,4,6,7,8-HpCDD	7.95e+06	1.15e+03	6.9e+03	7.67e+06	8.88e+02	8.6e+03
32	13C-OCDD	8.56e+06	6.00e+01	1.4e+05	9.50e+06	8.00e+02	1.2e+04
33	13C-1,2,3,4-TCDD	9.96e+06	4.39e+03	2.3e+03	1.22e+07	2.59e+03	4.7e+03
34	13C-1,2,3,7,8,9-HxCDD	9.63e+06	2.00e+03	4.8e+03	7.67e+06	1.42e+03	5.4e+03
35	37Cl-2,3,7,8-TCDD	1.07e+05	1.30e+03	8.2e+01			

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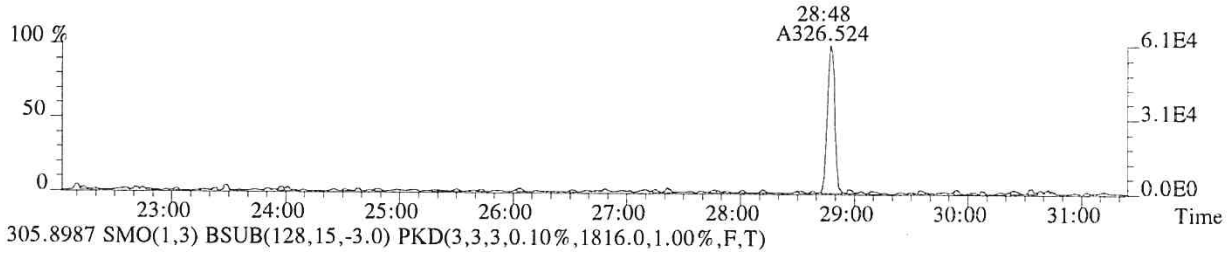
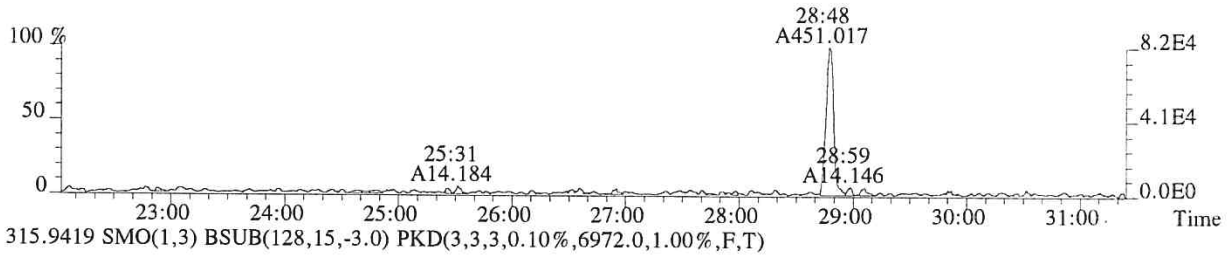
File:P513851 #1-665 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555

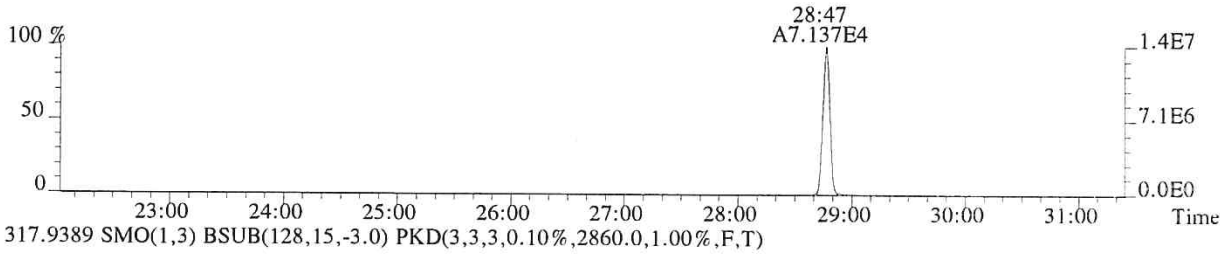
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,552.0,1.00%,F,T)



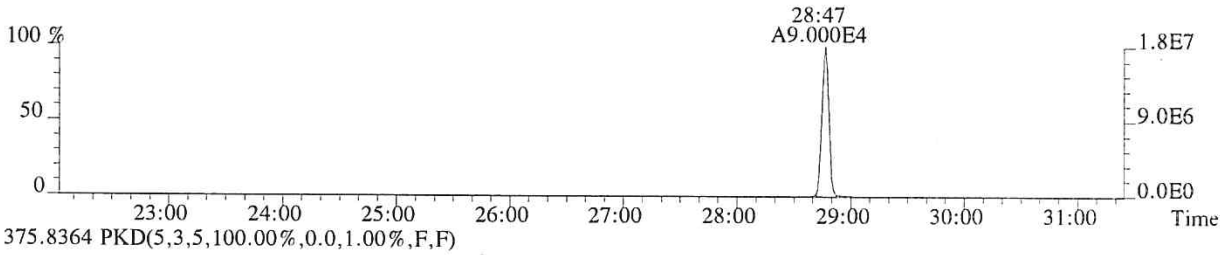
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1816.0,1.00%,F,T)



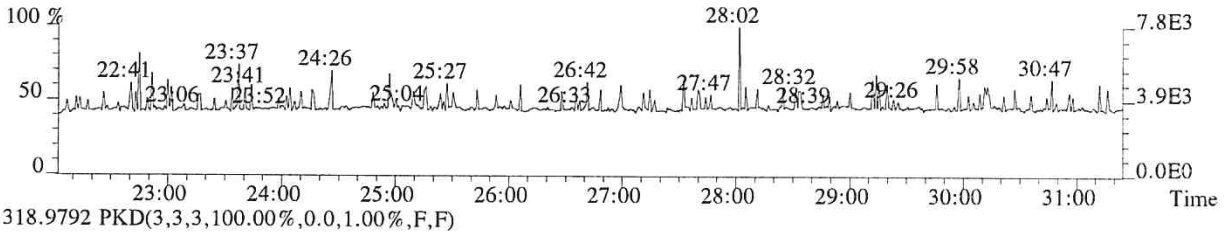
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6972.0,1.00%,F,T)



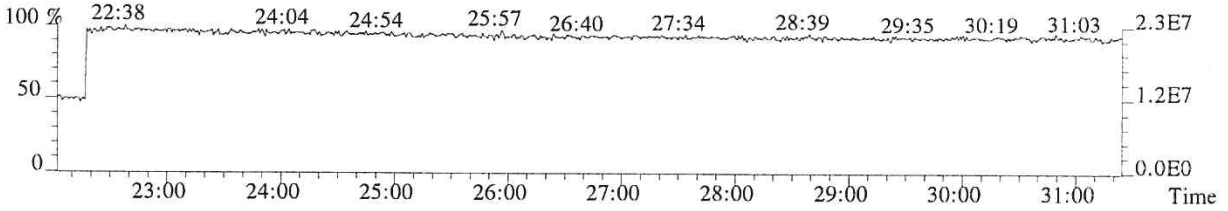
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2860.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

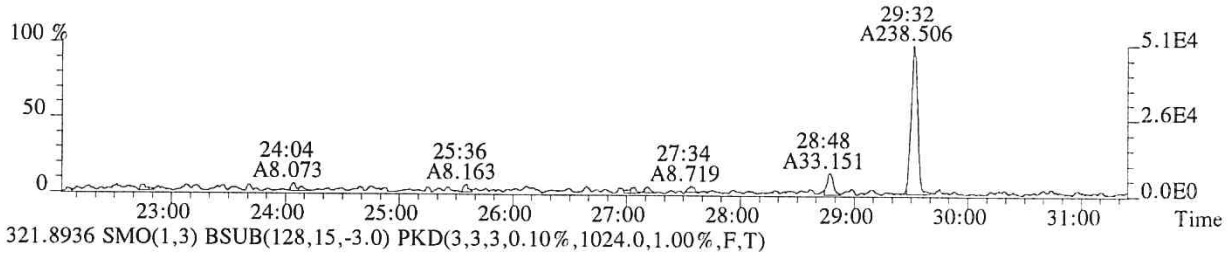


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

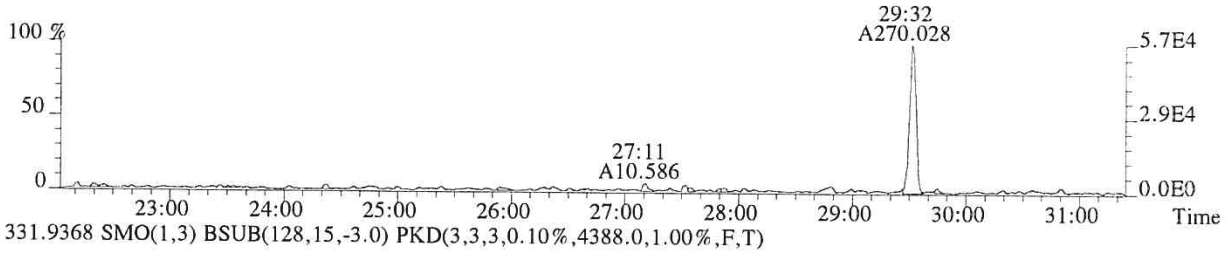


014806

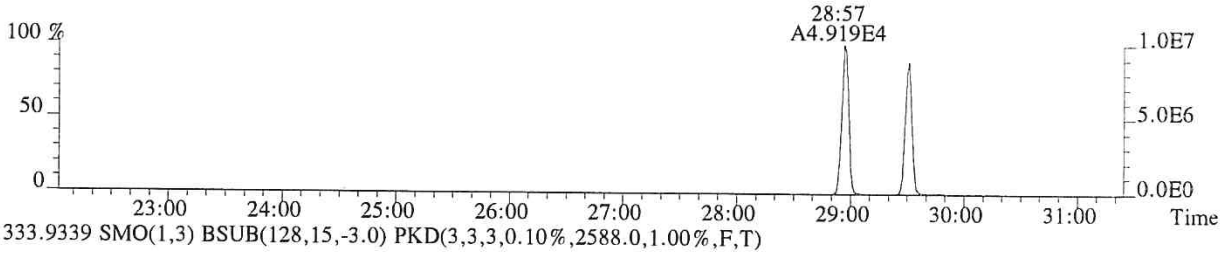
File:P513851 #1-665 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1496.0,1.00%,F,T)



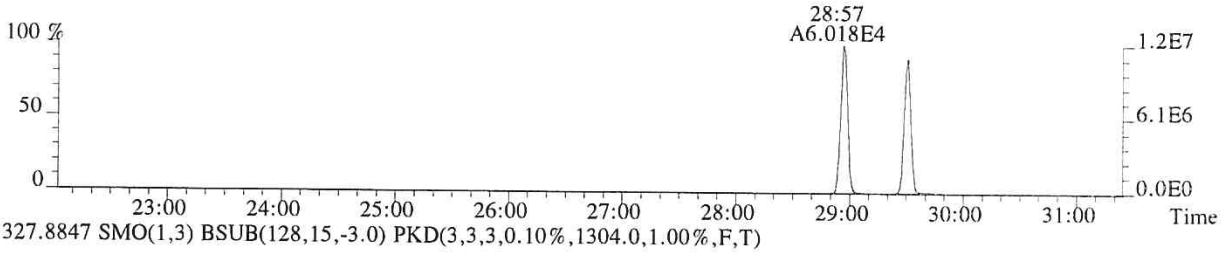
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1024.0,1.00%,F,T)



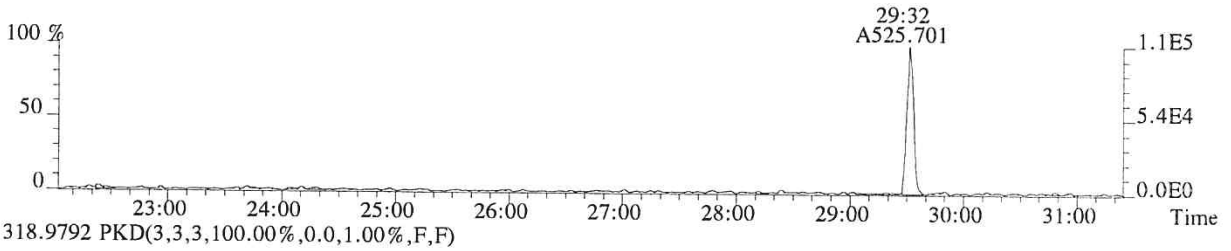
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4388.0,1.00%,F,T)



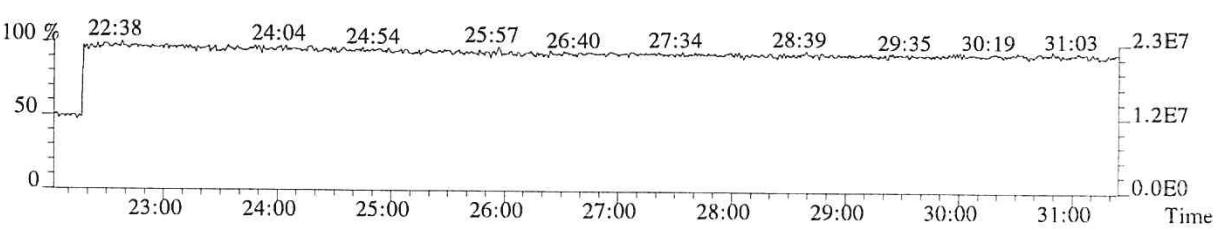
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2588.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1304.0,1.00%,F,T)

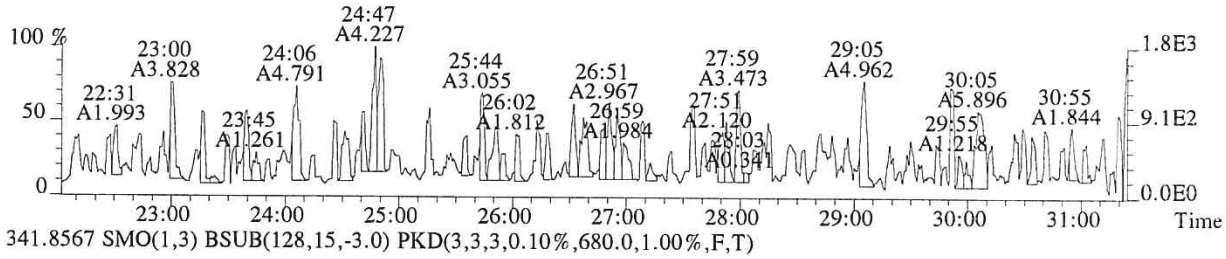


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

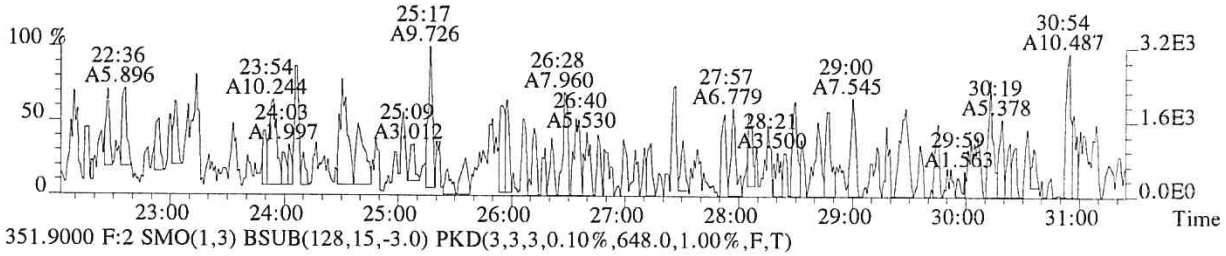


014807

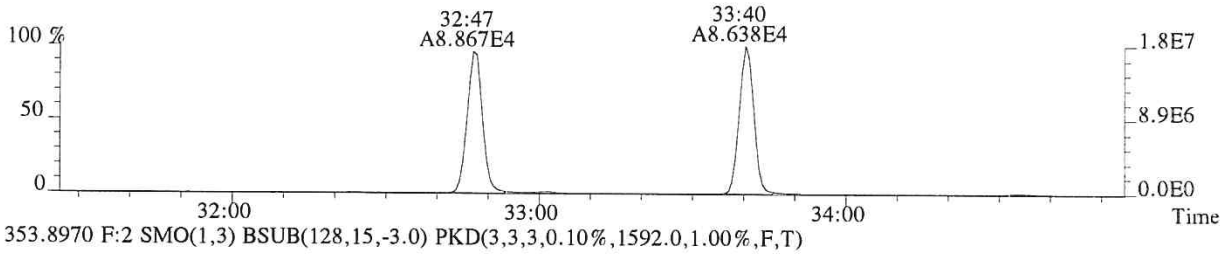
File:P513851 #1-665 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:76555
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,388.0,1.00%,F,T)



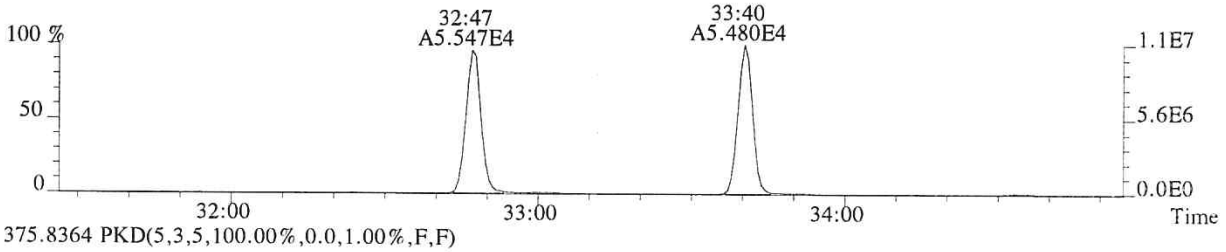
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,680.0,1.00%,F,T)



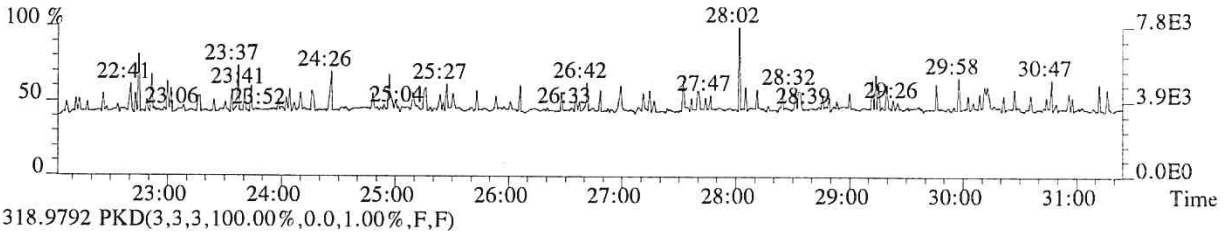
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



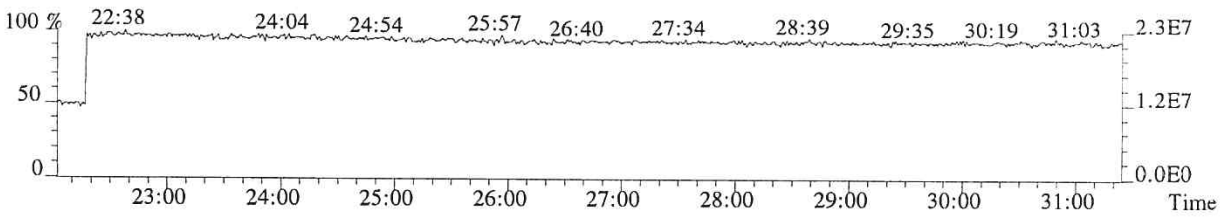
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1592.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

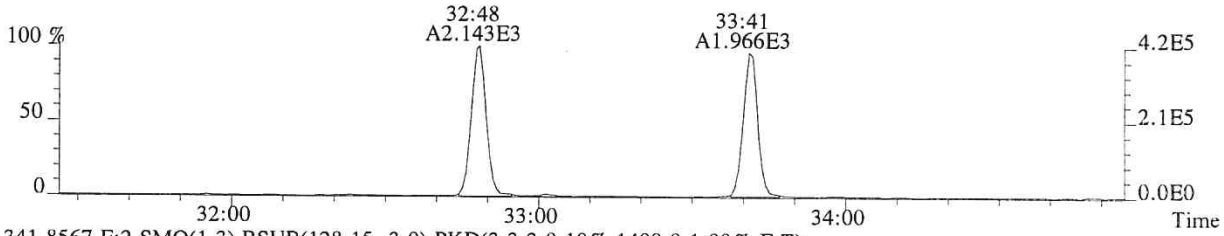


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

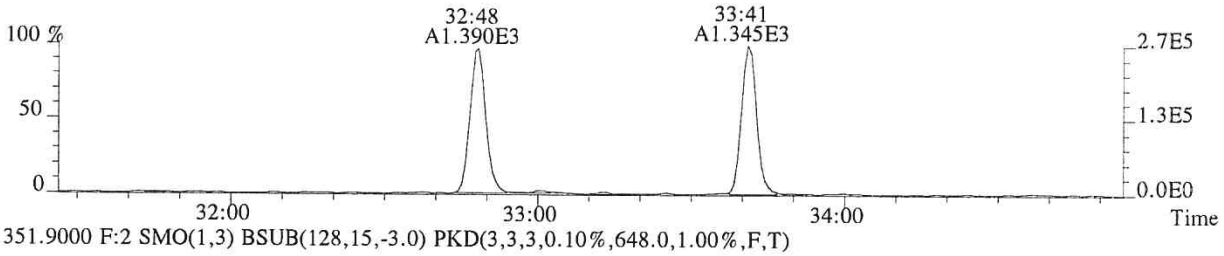


014808

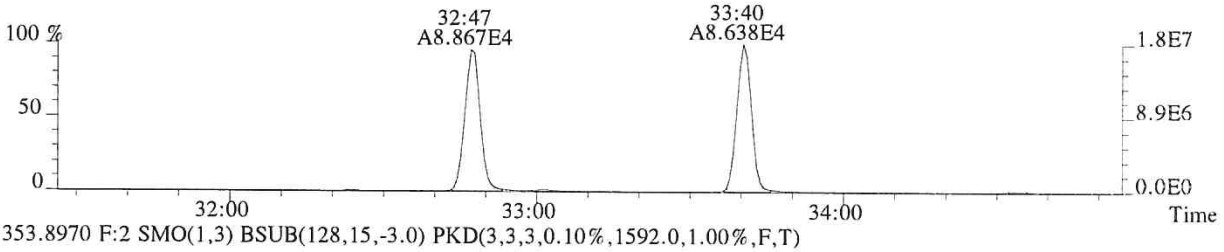
File:P513851 #1-313 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1316.0,1.00%,F,T)



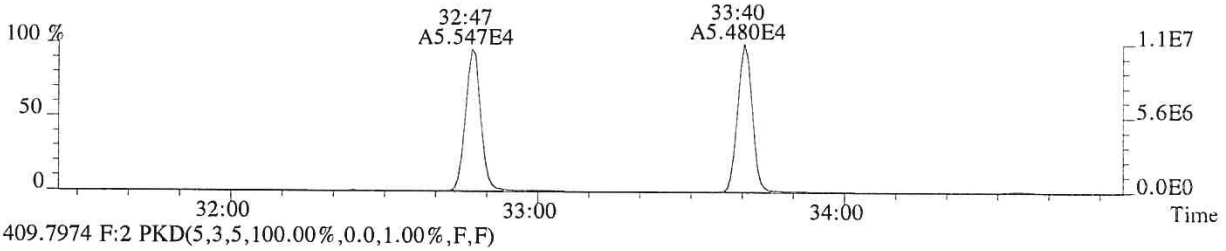
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1408.0,1.00%,F,T)



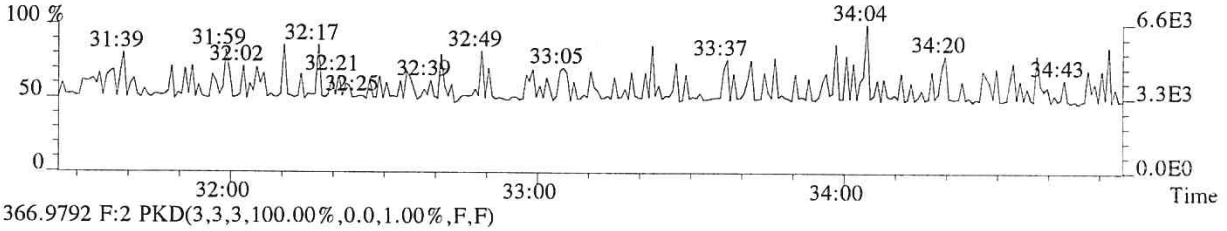
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



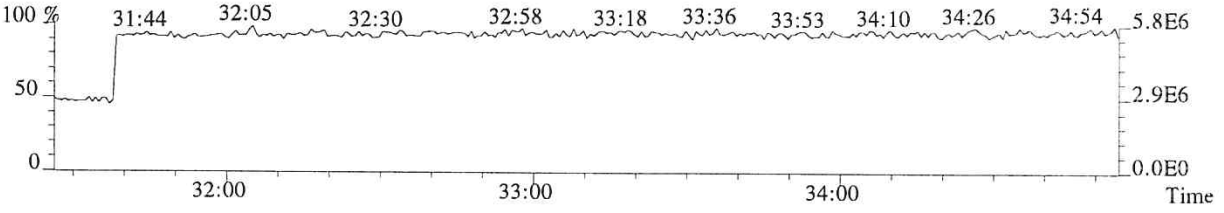
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1592.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

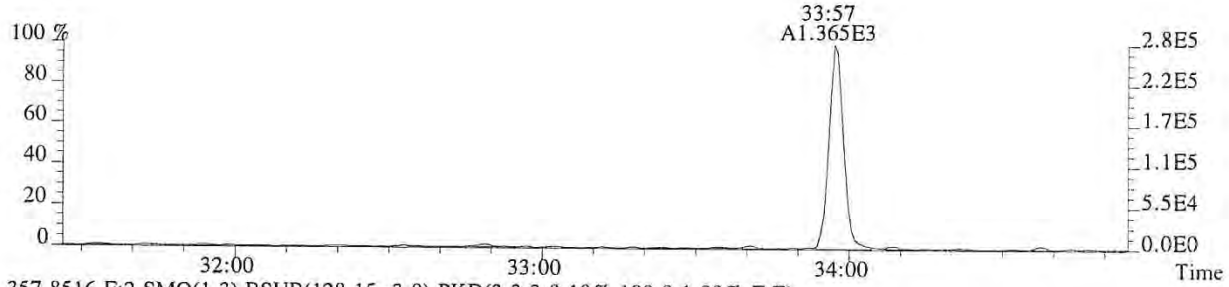


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

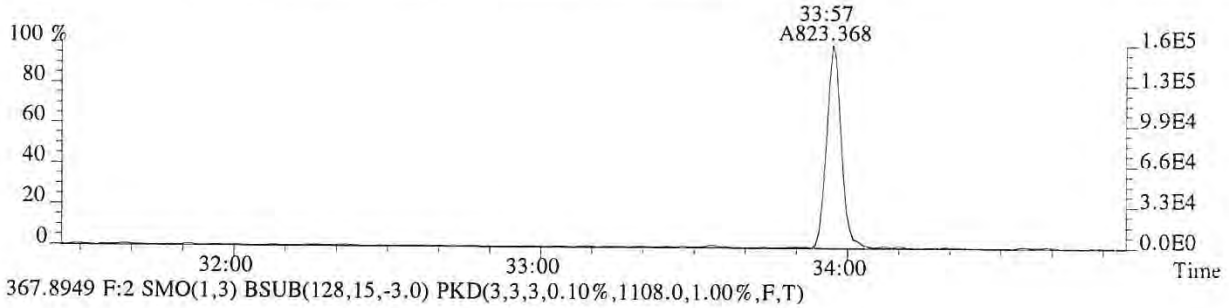


014809

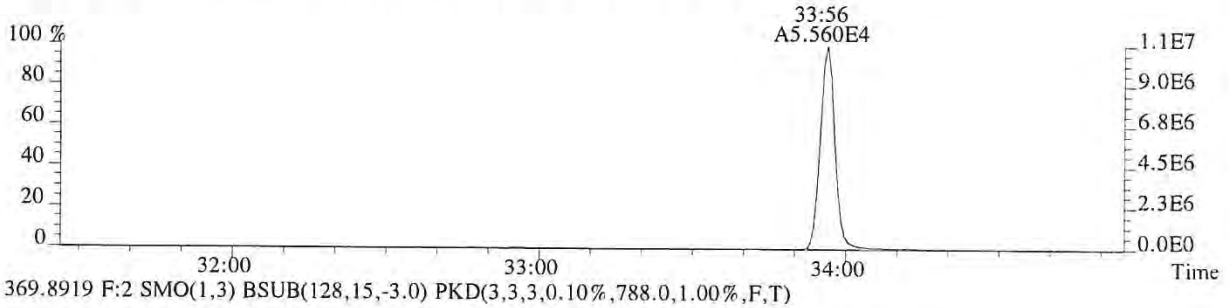
File:P513851 #1-313 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,988.0,1.00%,F,T)



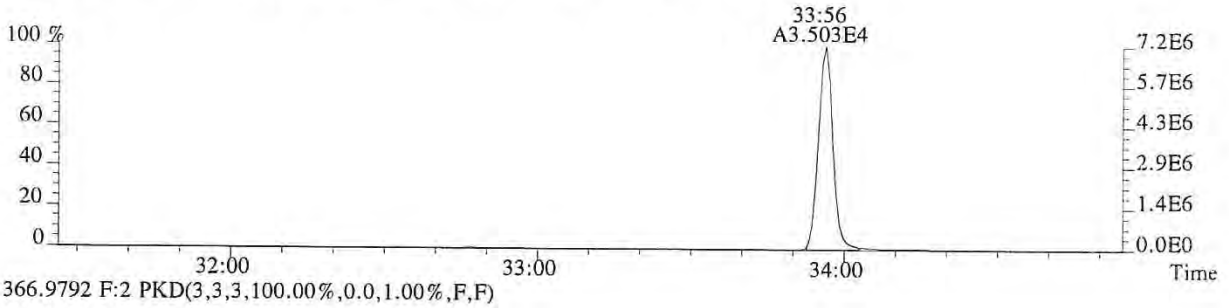
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,180.0,1.00%,F,T)



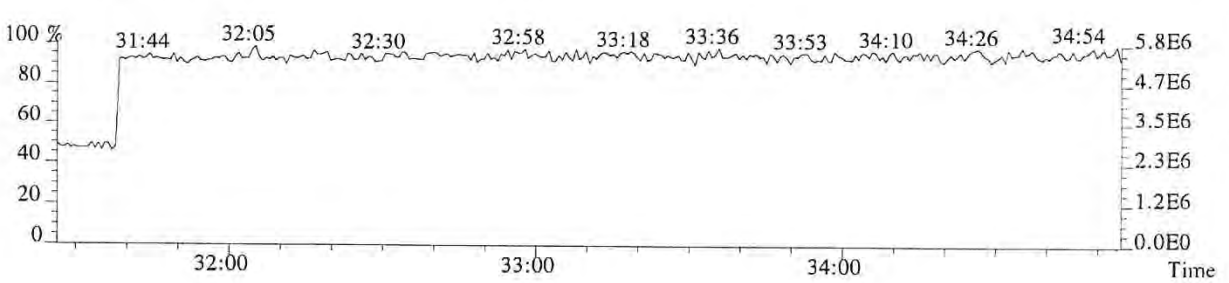
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1108.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,788.0,1.00%,F,T)

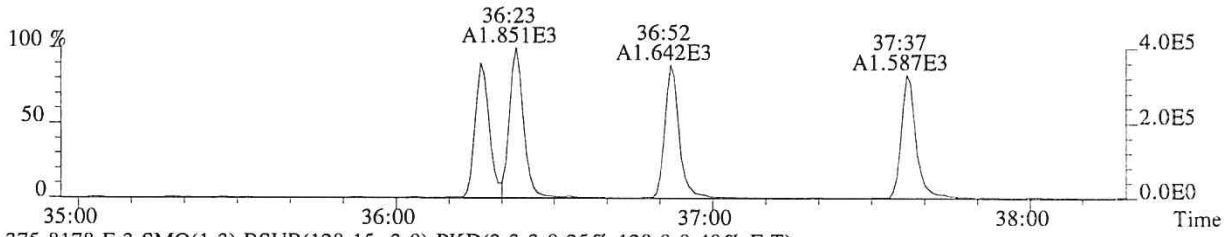


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

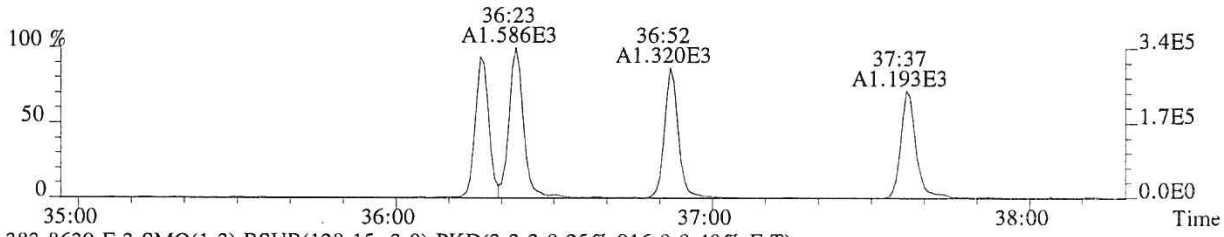


File:P513851 #1-303 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555

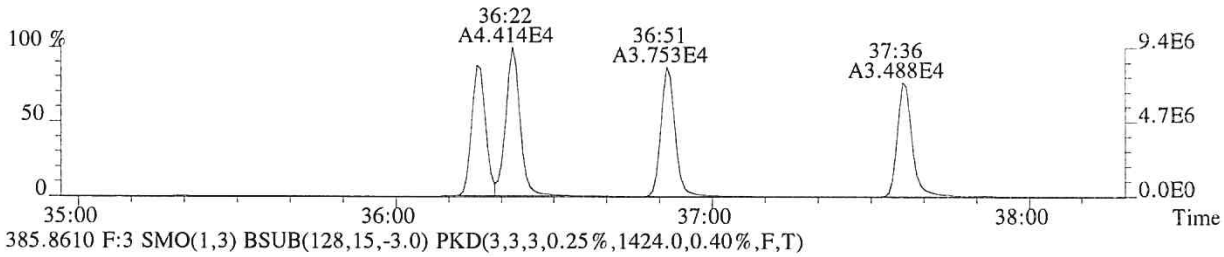
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,532.0,0.40%,F,T)



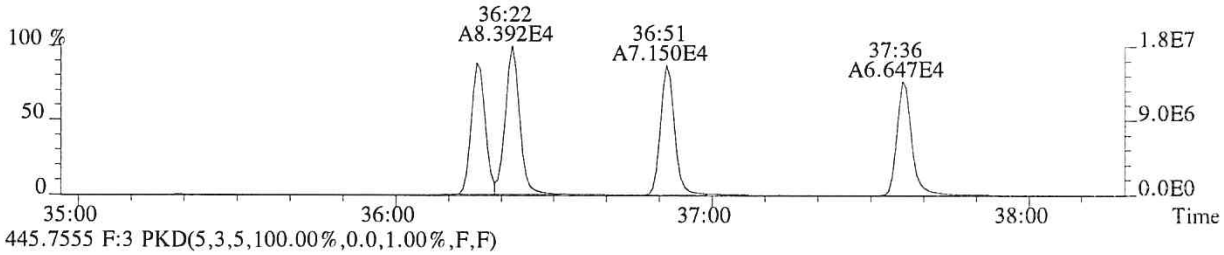
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,128.0,0.40%,F,T)



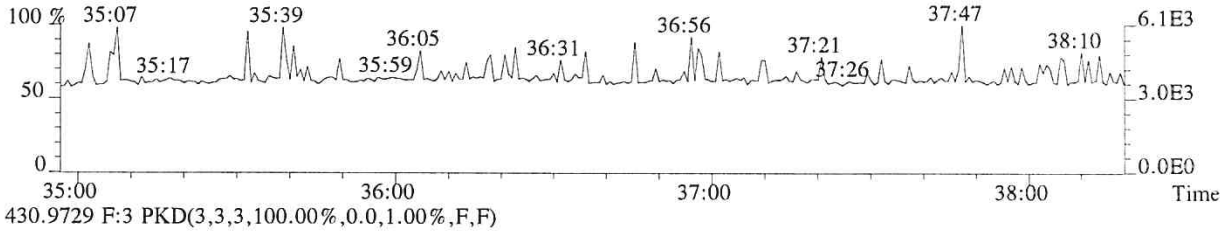
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,916.0,0.40%,F,T)



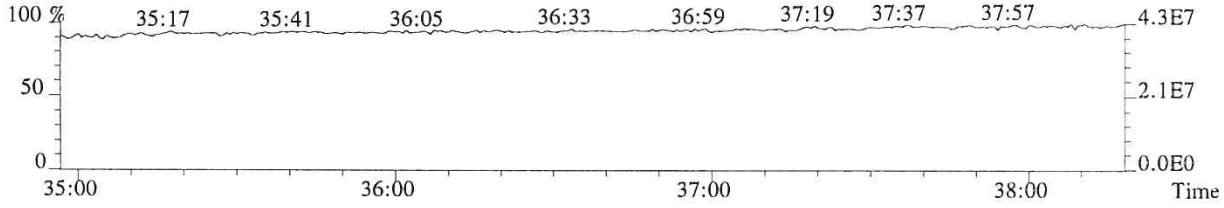
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1424.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

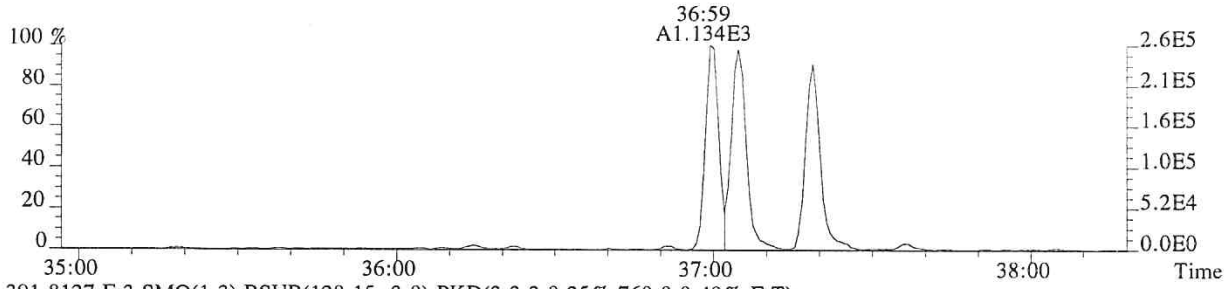


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

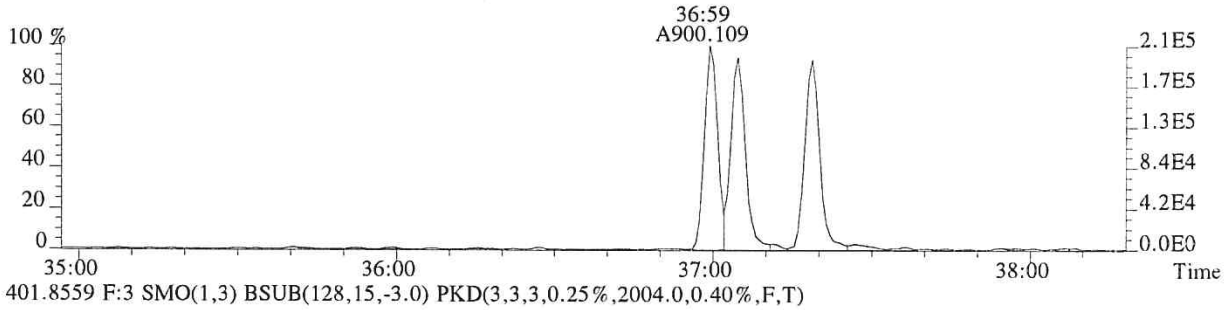


014811

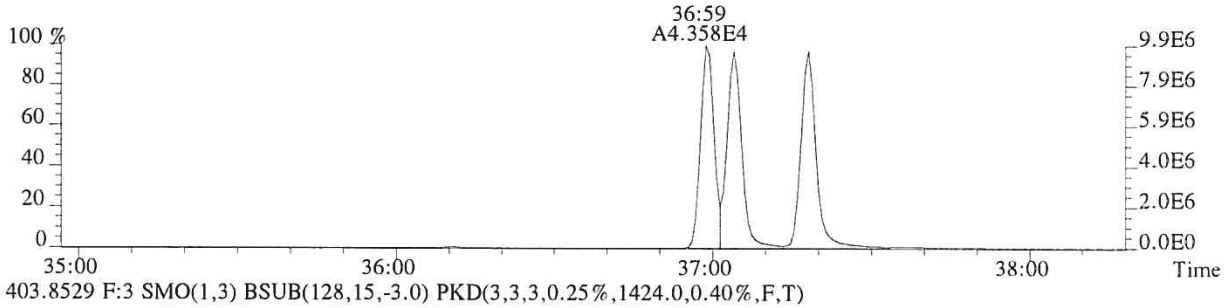
File:P513851 #1-303 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,596.0,0.40%,F,T)



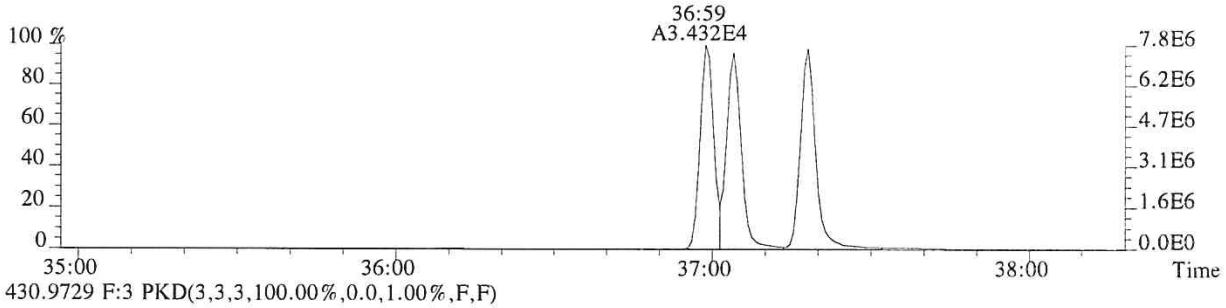
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,760.0,0.40%,F,T)



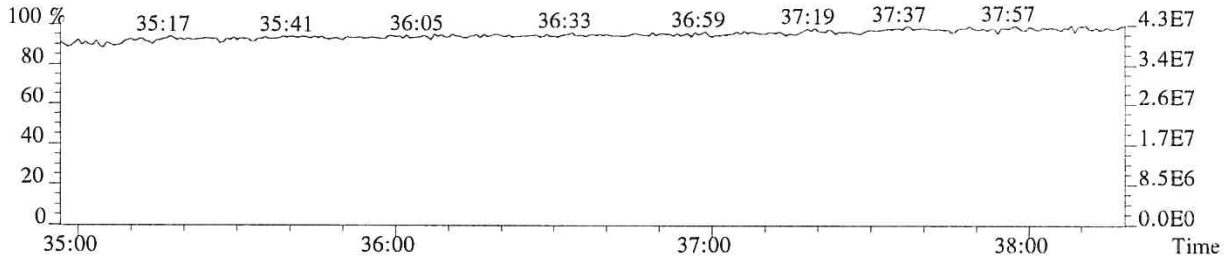
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2004.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1424.0,0.40%,F,T)

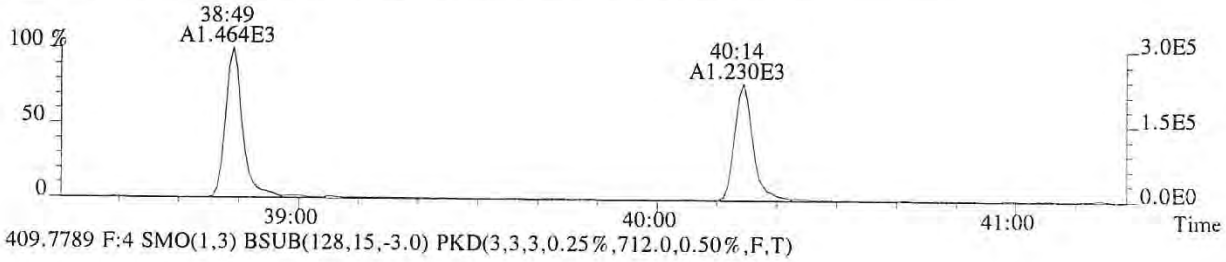


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

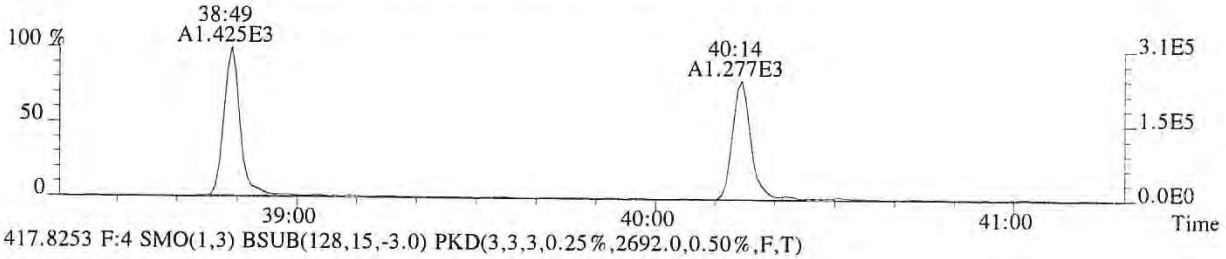


014812

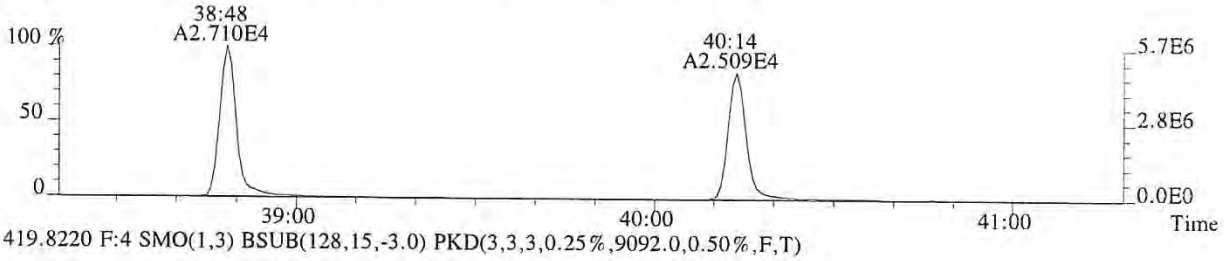
File:P513851 #1-268 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,304.0,0.50%,F,T)



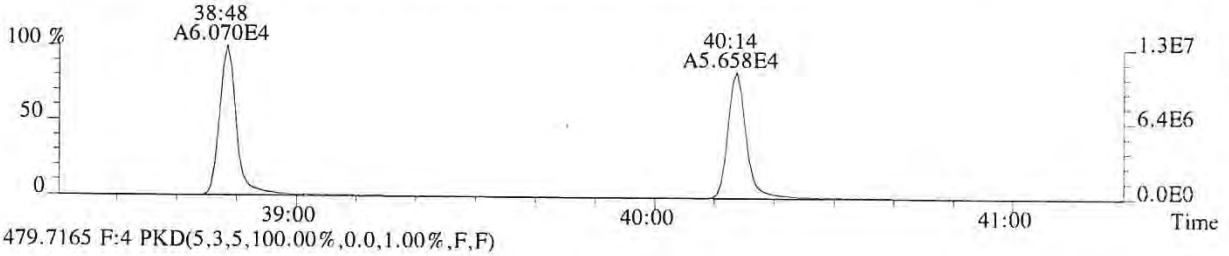
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,712.0,0.50%,F,T)



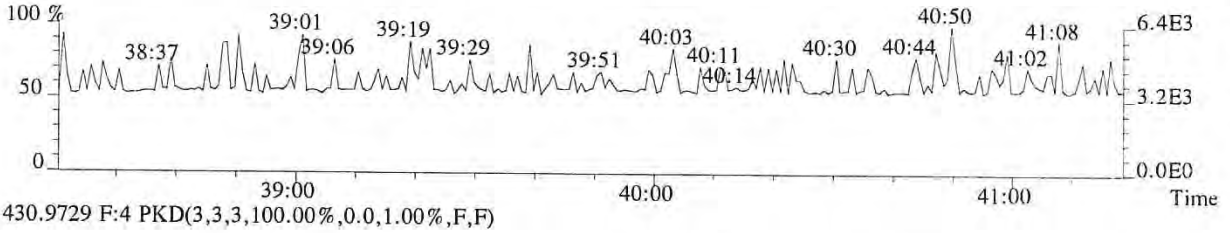
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2692.0,0.50%,F,T)



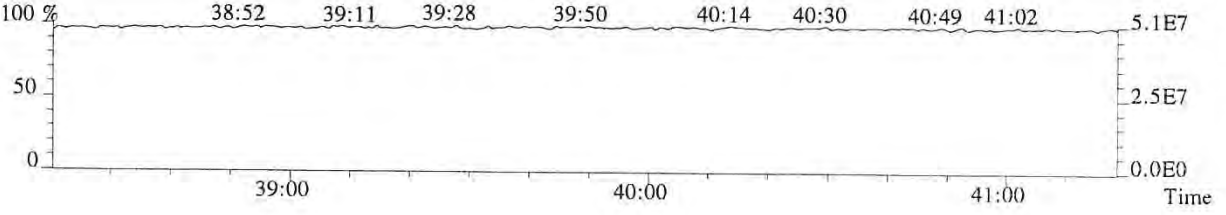
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,9092.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

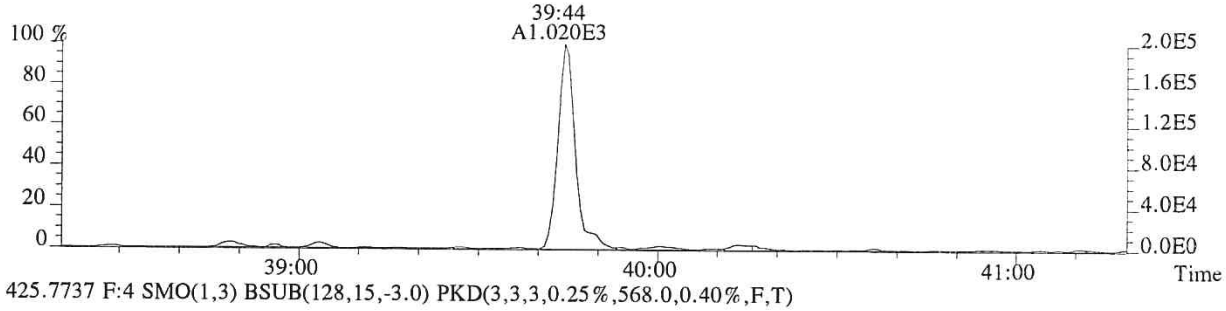


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

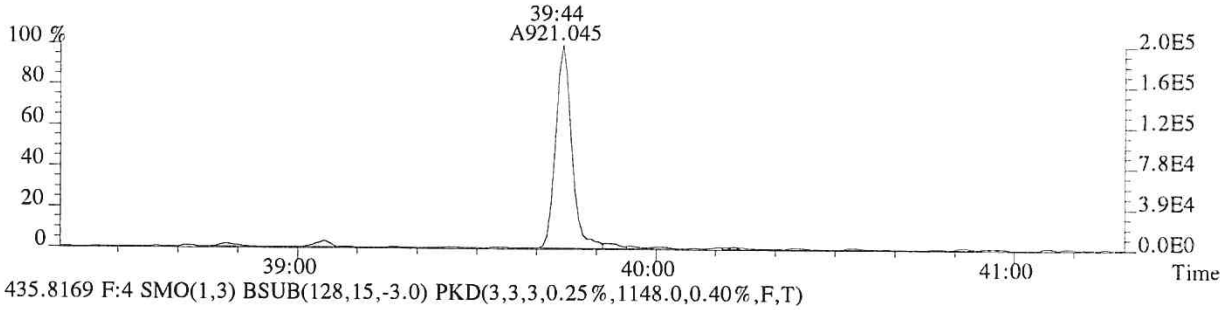


014813

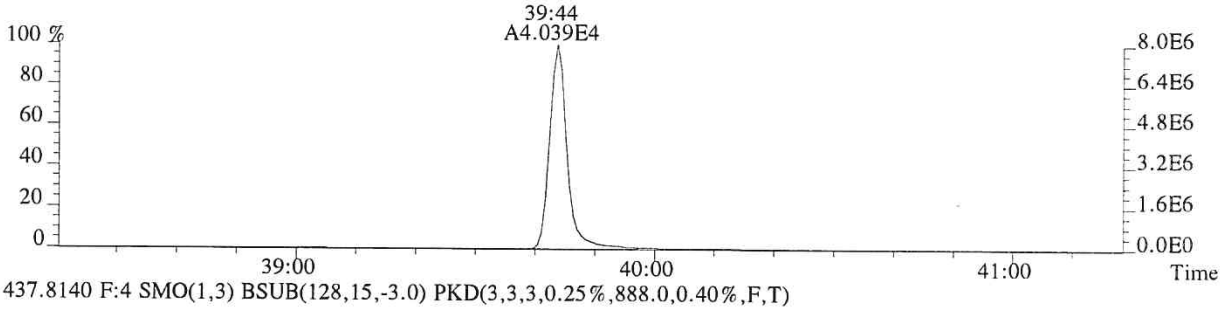
File:P513851 #1-268 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,688.0,0.40%,F,T)



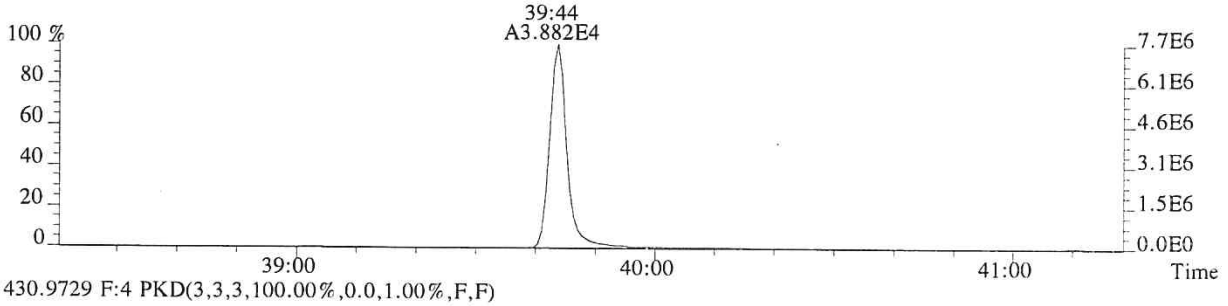
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,568.0,0.40%,F,T)



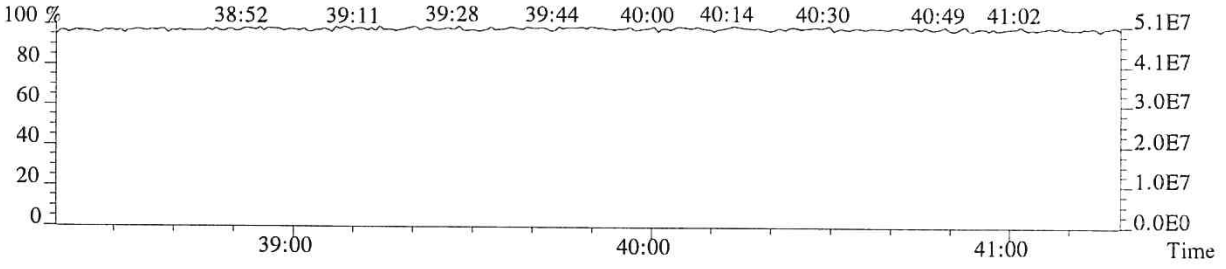
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1148.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,888.0,0.40%,F,T)

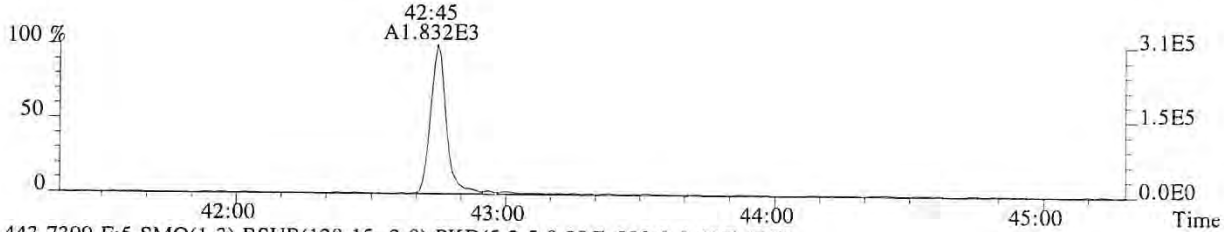


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

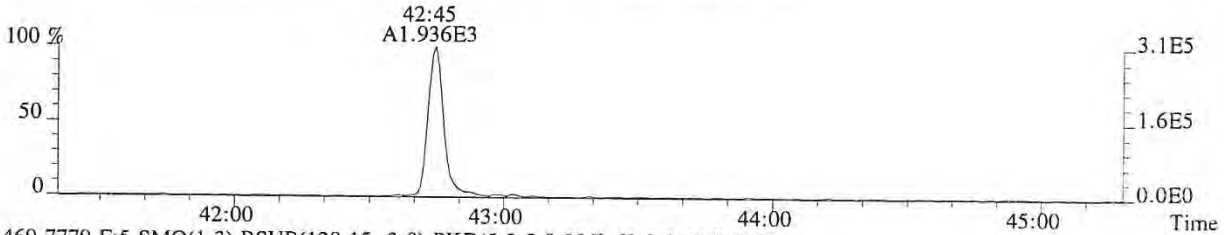


014814

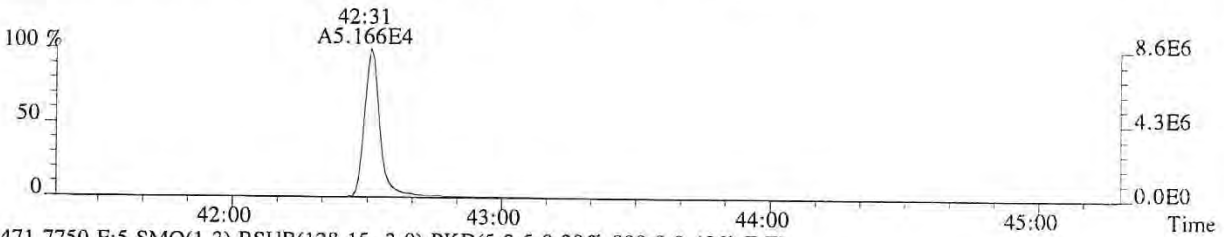
File:P513851 #1-357 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,412.0,0.40%,F,T)



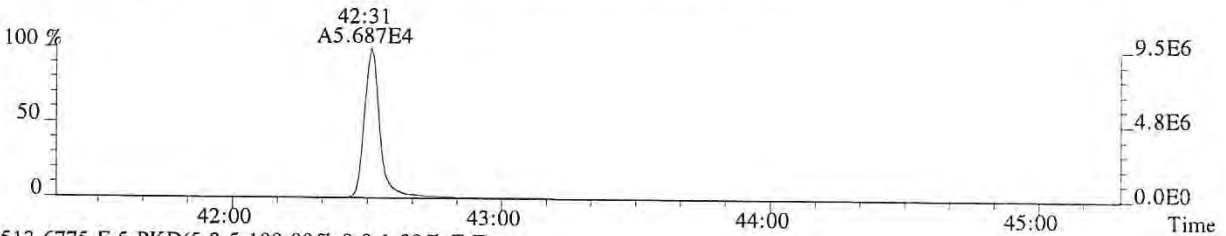
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,820.0,0.40%,F,T)



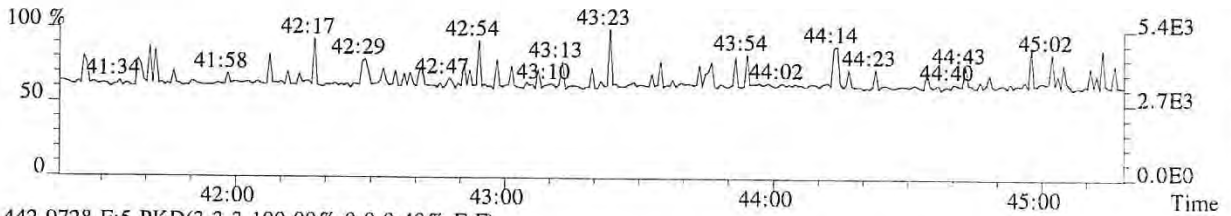
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,60.0,0.40%,F,T)



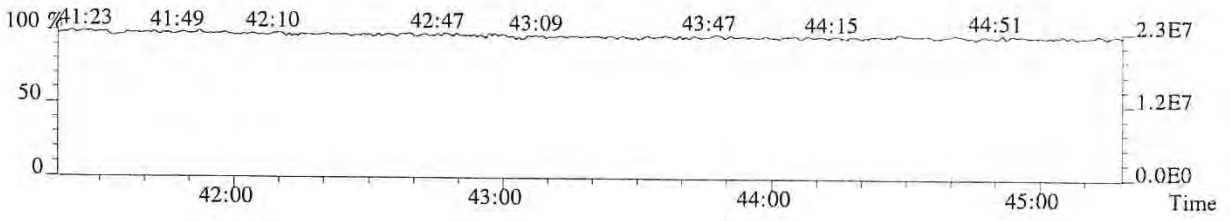
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,800.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

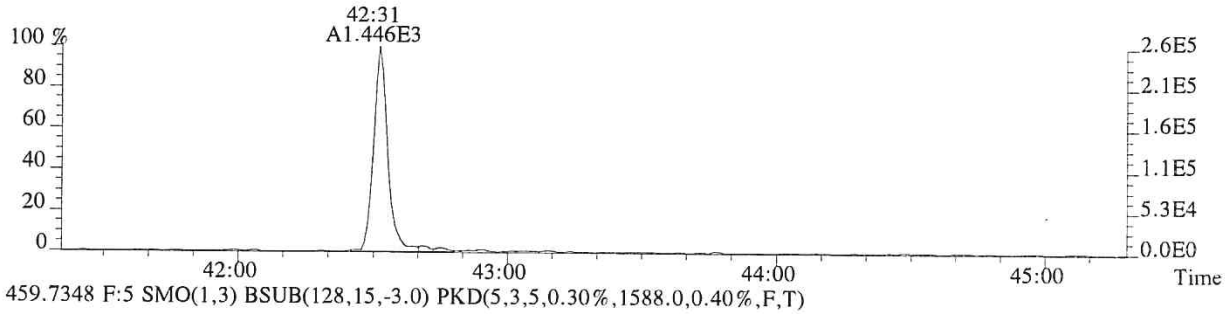


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

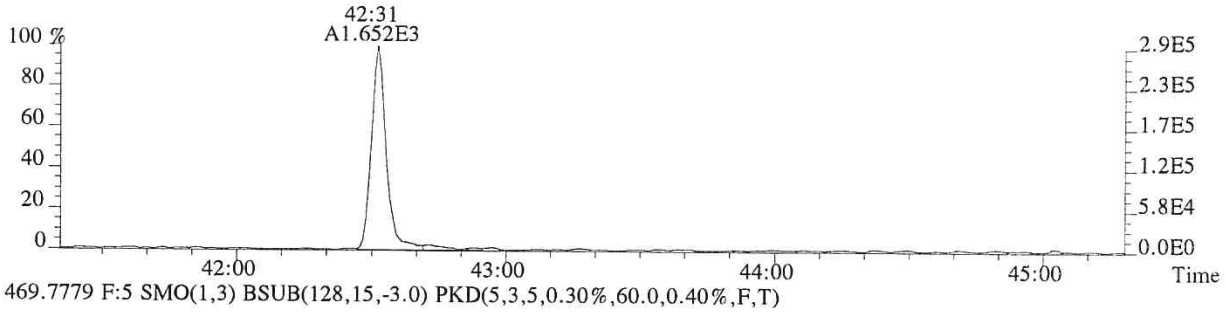


014815

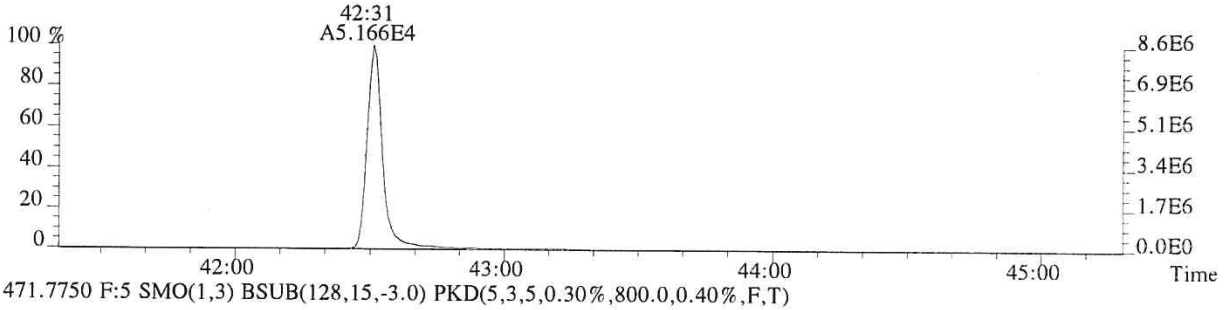
File:P513851 #1-357 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,192.0,0.40%,F,T)



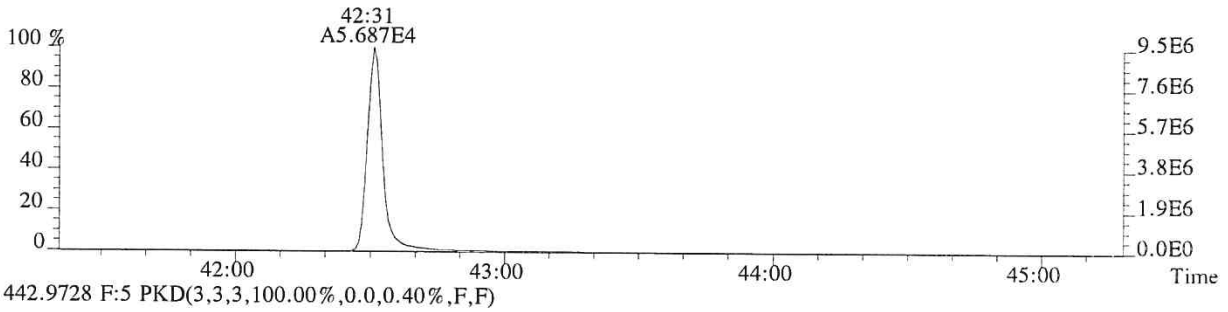
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1588.0,0.40%,F,T)



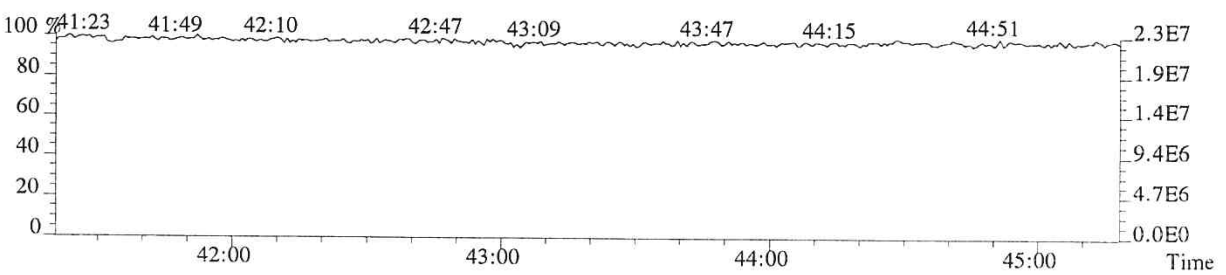
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,60.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,800.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



014816

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76556

Run #3 Filename P513852 Samp: 1 Inj: 1 Acquired: 24-JAN-18 15:18:44
Processed: 24-JAN-18 16:27:06 Sample ID: CS2

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	5.859e+03	7.932e+03	0.74	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	4.499e+04	3.047e+04	1.48	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:42	4.356e+04	2.901e+04	1.50	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:17	4.061e+04	3.382e+04	1.20	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	4.295e+04	3.562e+04	1.21	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:53	3.905e+04	3.212e+04	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	3.479e+04	2.862e+04	1.22	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	3.262e+04	3.207e+04	1.02	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	2.654e+04	2.632e+04	1.01	yes	no	1.258
10	Unk	OCDF	42:45	3.789e+04	4.247e+04	0.89	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	4.192e+03	5.525e+03	0.76	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:58	2.973e+04	1.886e+04	1.58	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	37:00	2.687e+04	2.156e+04	1.25	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	2.801e+04	2.223e+04	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	2.898e+04	2.343e+04	1.24	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:45	2.194e+04	2.114e+04	1.04	yes	no	1.025
17	Unk	OCDD	42:32	3.213e+04	3.615e+04	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:47	3.357e+05	4.220e+05	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:48	4.551e+05	2.871e+05	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	4.534e+05	2.868e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:16	2.091e+05	4.014e+05	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	2.405e+05	4.554e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:52	2.176e+05	4.192e+05	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:37	1.900e+05	3.615e+05	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:49	1.476e+05	3.275e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	1.279e+05	2.823e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:31	2.035e+05	2.546e+05	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	3.112e+05	1.963e+05	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	2.611e+05	2.071e+05	1.26	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:05	2.721e+05	2.137e+05	1.27	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	2.118e+05	1.999e+05	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	2.824e+05	3.150e+05	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:57	2.212e+05	2.732e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:19	2.902e+05	2.282e+05	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	1.018e+04				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76556

Run #3 Filename P513852 Samp: 1 Inj: 1 Acquired: 24-JAN-18 15:18:44
Processed: 24-JAN-18 16:27:06 LAB. ID: CS2

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.20e+06	7.00e+02	1.7e+03	1.59e+06	1.72e+03	9.3e+02
2	1,2,3,7,8-PeCDF	9.02e+06	1.92e+02	4.7e+04	6.06e+06	3.56e+03	1.7e+03
3	2,3,4,7,8-PeCDF	8.94e+06	1.92e+02	4.7e+04	5.88e+06	3.56e+03	1.7e+03
4	1,2,3,4,7,8-HxCDF	9.11e+06	1.02e+03	9.0e+03	7.52e+06	1.04e+03	7.2e+03
5	1,2,3,6,7,8-HxCDF	8.86e+06	1.02e+03	8.7e+03	7.32e+06	1.04e+03	7.0e+03
6	2,3,4,6,7,8-HxCDF	8.62e+06	1.02e+03	8.5e+03	6.97e+06	1.04e+03	6.7e+03
7	1,2,3,7,8,9-HxCDF	7.31e+06	1.02e+03	7.2e+03	6.00e+06	1.04e+03	5.7e+03
8	1,2,3,4,6,7,8-HpCDF	6.83e+06	3.67e+03	1.9e+03	6.77e+06	3.04e+03	2.2e+03
9	1,2,3,4,7,8,9-HpCDF	5.23e+06	3.67e+03	1.4e+03	5.30e+06	3.04e+03	1.7e+03
10	OCDF	6.47e+06	1.08e+03	6.0e+03	7.24e+06	1.74e+03	4.2e+03
11	2,3,7,8-TCDD	8.47e+05	1.35e+03	6.3e+02	1.14e+06	7.40e+02	1.5e+03
12	1,2,3,7,8-PeCDD	6.05e+06	5.16e+02	1.2e+04	3.80e+06	5.04e+02	7.5e+03
13	1,2,3,4,7,8-HxCDD	6.06e+06	7.48e+02	8.1e+03	4.85e+06	1.29e+03	3.8e+03
14	1,2,3,6,7,8-HxCDD	5.88e+06	7.48e+02	7.9e+03	4.64e+06	1.29e+03	3.6e+03
15	1,2,3,7,8,9-HxCDD	5.73e+06	7.48e+02	7.7e+03	4.69e+06	1.29e+03	3.6e+03
16	1,2,3,4,6,7,8-HpCDD	4.40e+06	1.68e+03	2.6e+03	4.18e+06	7.28e+02	5.7e+03
17	OCDD	5.55e+06	1.60e+02	3.5e+04	6.20e+06	1.07e+03	5.8e+03
18	13C-2,3,7,8-TCDF	6.63e+07	8.64e+03	7.7e+03	8.31e+07	4.36e+03	1.9e+04
19	13C-1,2,3,7,8-PeCDF	8.82e+07	9.44e+02	9.3e+04	5.54e+07	2.55e+03	2.2e+04
20	13C-2,3,4,7,8-PeCDF	9.11e+07	9.44e+02	9.6e+04	5.80e+07	2.55e+03	2.3e+04
21	13C-1,2,3,4,7,8-HxCDF	4.63e+07	1.33e+03	3.5e+04	8.84e+07	3.58e+03	2.5e+04
22	13C-1,2,3,6,7,8-HxCDF	4.97e+07	1.33e+03	3.7e+04	9.31e+07	3.58e+03	2.6e+04
23	13C-2,3,4,6,7,8-HxCDF	4.74e+07	1.33e+03	3.6e+04	9.03e+07	3.58e+03	2.5e+04
24	13C-1,2,3,7,8,9-HxCDF	3.91e+07	1.33e+03	2.9e+04	7.44e+07	3.58e+03	2.1e+04
25	13C-1,2,3,4,6,7,8-HpCDF	3.05e+07	5.18e+03	5.9e+03	6.68e+07	7.38e+03	9.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.48e+07	5.18e+03	4.8e+03	5.51e+07	7.38e+03	7.5e+03
27	13C-2,3,7,8-TCDD	4.21e+07	6.43e+03	6.5e+03	5.22e+07	3.34e+03	1.6e+04
28	13C-1,2,3,7,8-PeCDD	6.30e+07	1.05e+03	6.0e+04	3.99e+07	1.24e+03	3.2e+04
29	13C-1,2,3,4,7,8-HxCDD	5.84e+07	4.36e+03	1.3e+04	4.60e+07	2.04e+03	2.3e+04
30	13C-1,2,3,6,7,8-HxCDD	5.57e+07	4.36e+03	1.3e+04	4.34e+07	2.04e+03	2.1e+04
31	13C-1,2,3,4,6,7,8-HpCDD	4.12e+07	2.07e+03	2.0e+04	3.91e+07	2.18e+03	1.8e+04
32	13C-OCDD	4.87e+07	6.80e+01	7.2e+05	5.40e+07	9.12e+02	5.9e+04
33	13C-1,2,3,4-TCDD	4.48e+07	6.43e+03	7.0e+03	5.57e+07	3.34e+03	1.7e+04
34	13C-1,2,3,7,8,9-HxCDD	5.61e+07	4.36e+03	1.3e+04	4.47e+07	2.04e+03	2.2e+04
35	37Cl-2,3,7,8-TCDD	2.10e+06	1.00e+03	2.1e+03			

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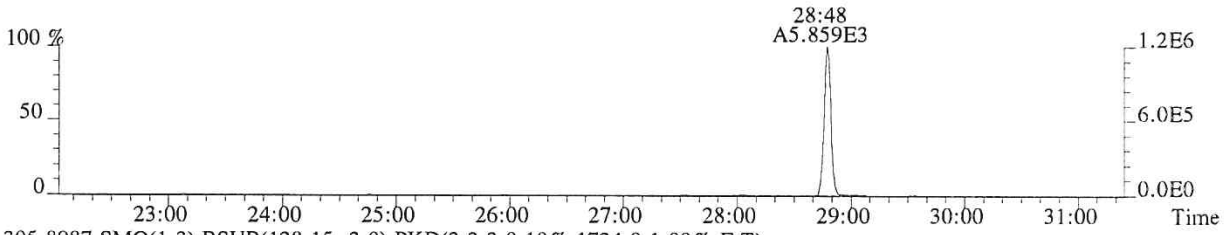
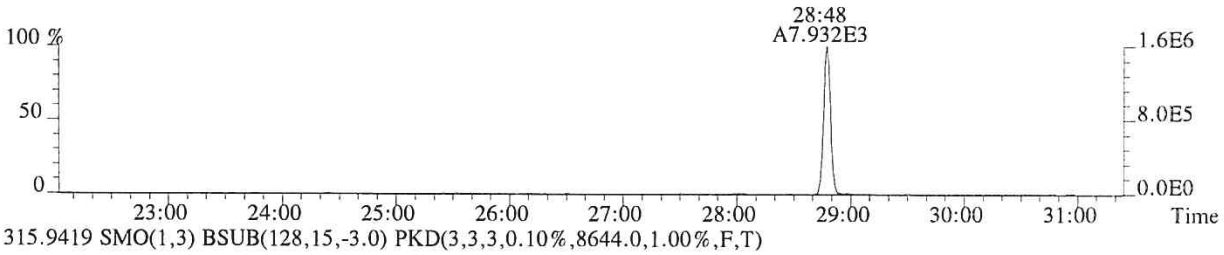
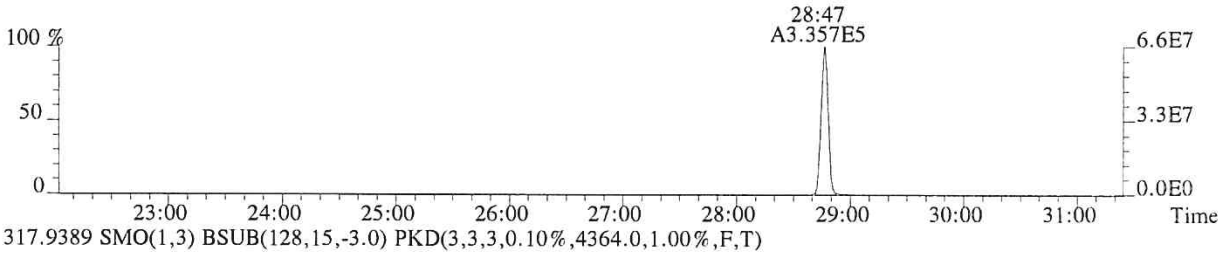
File:P513852 #1-665 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,700.0,1.00%,F,T)



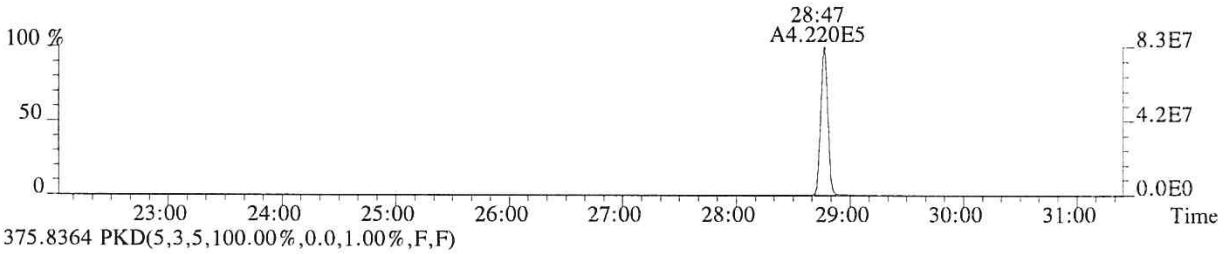
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1724.0,1.00%,F,T)



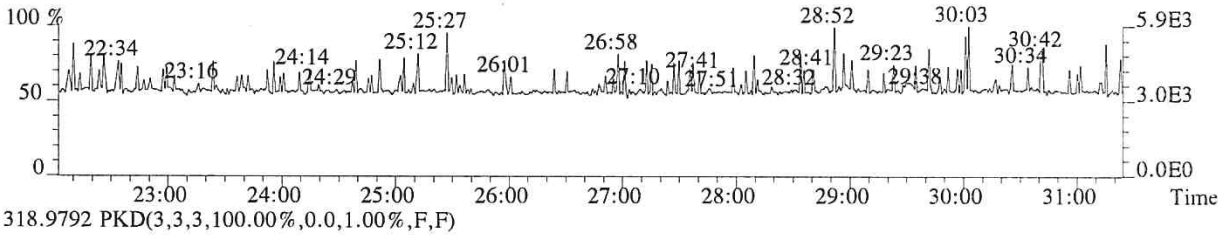
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8644.0,1.00%,F,T)



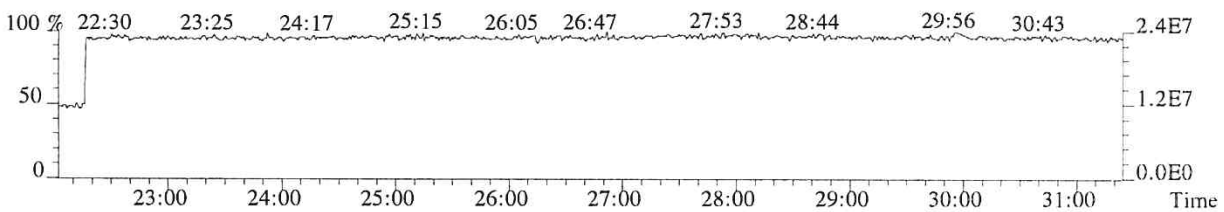
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4364.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

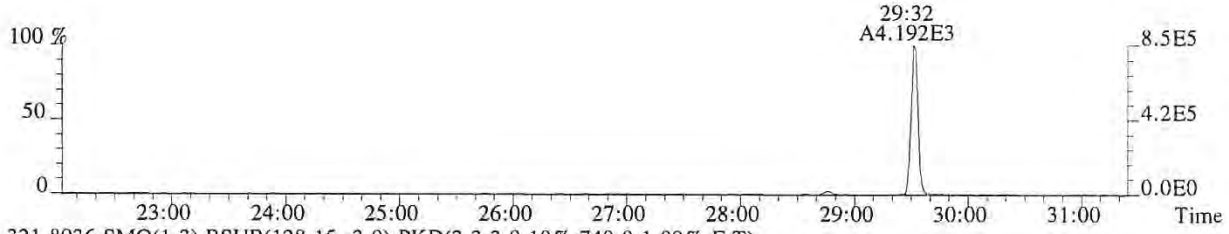


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

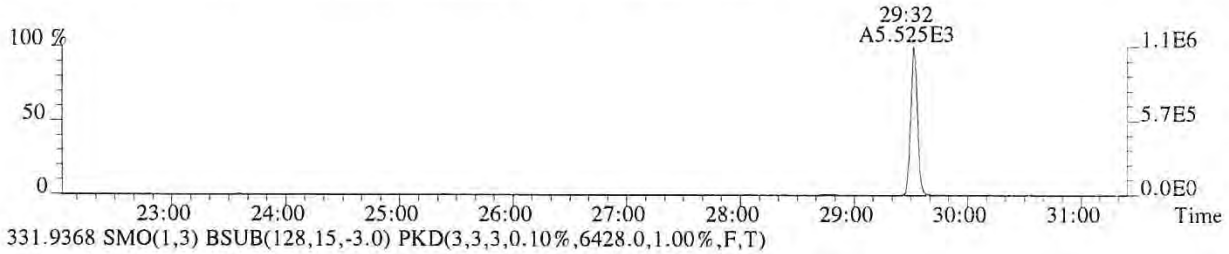


014819

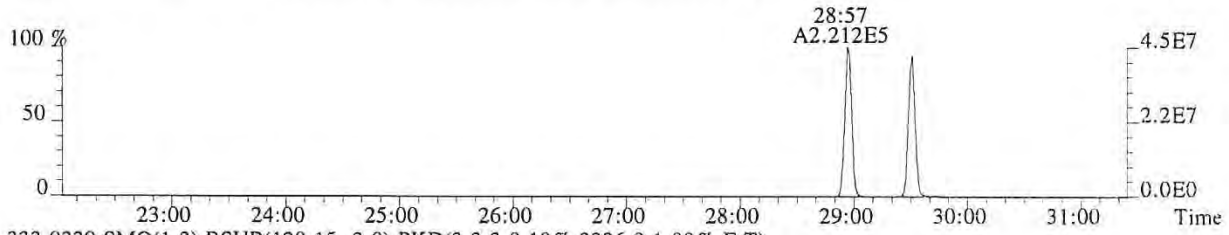
File:P513852 #1-665 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1348.0,1.00%,F,T)



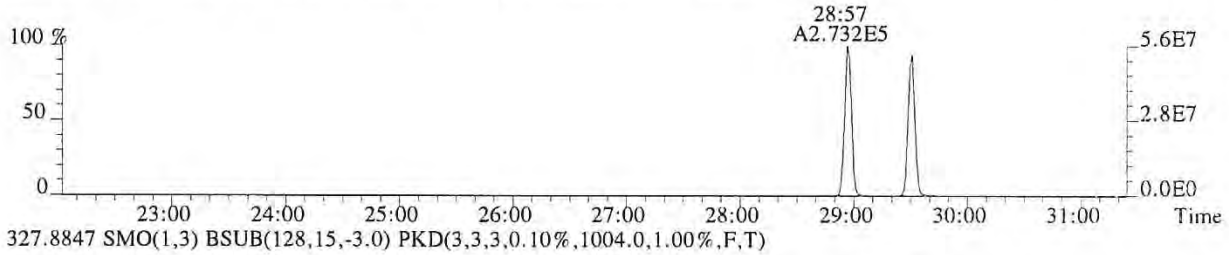
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,740.0,1.00%,F,T)



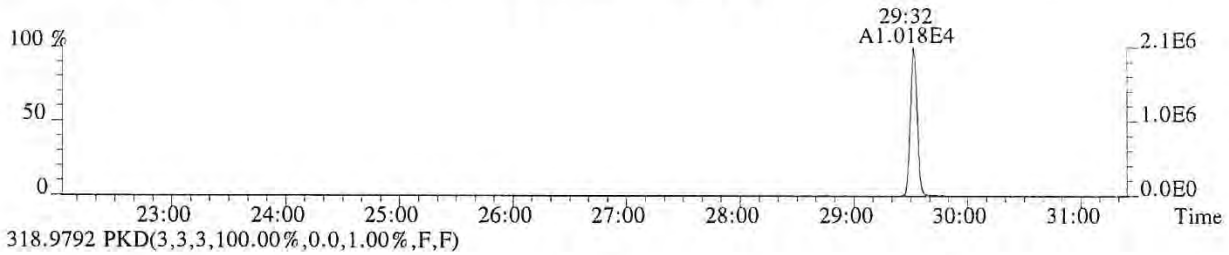
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6428.0,1.00%,F,T)



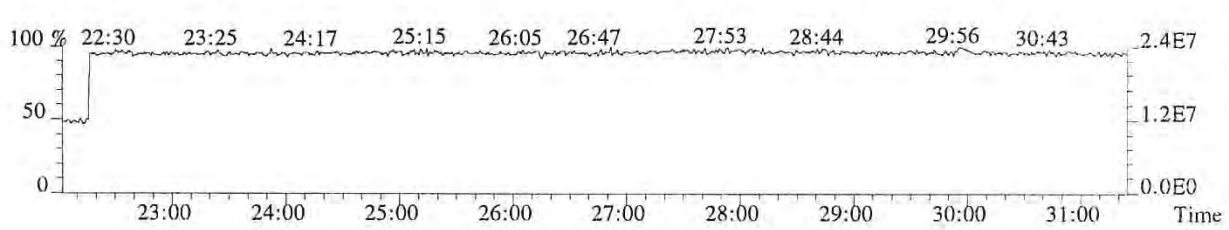
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3336.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)

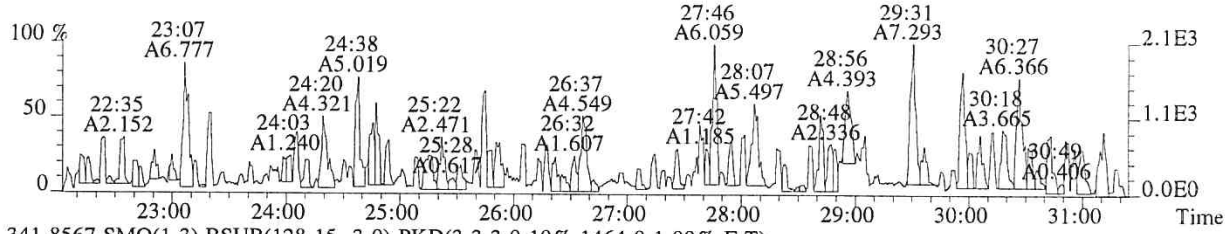


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

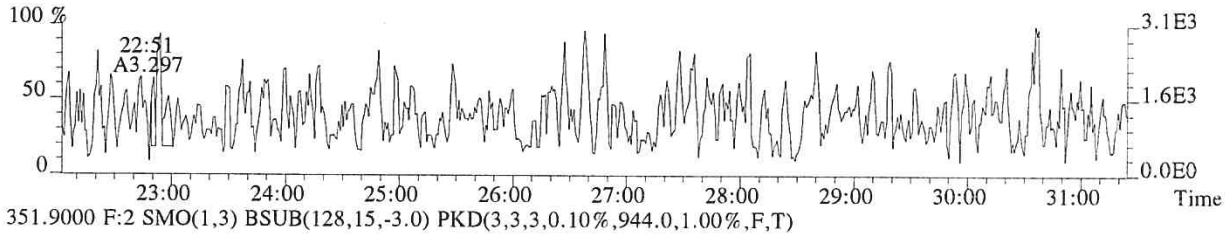


014820

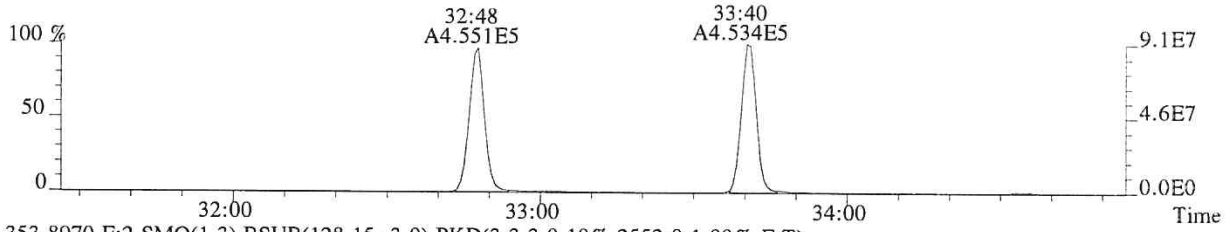
File:P513852 #1-665 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,196.0,1.00%,F,T)



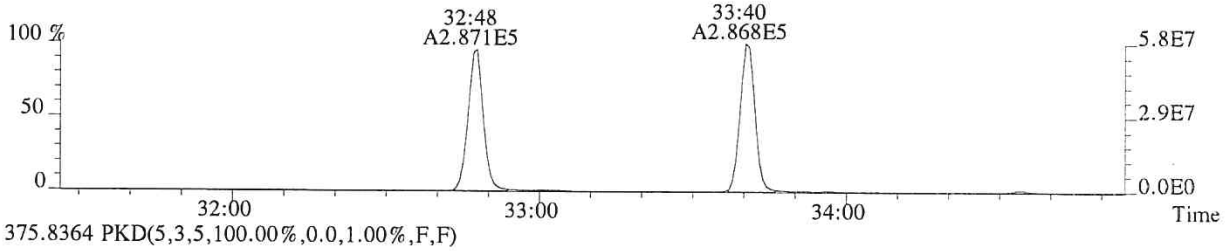
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1464.0,1.00%,F,T)



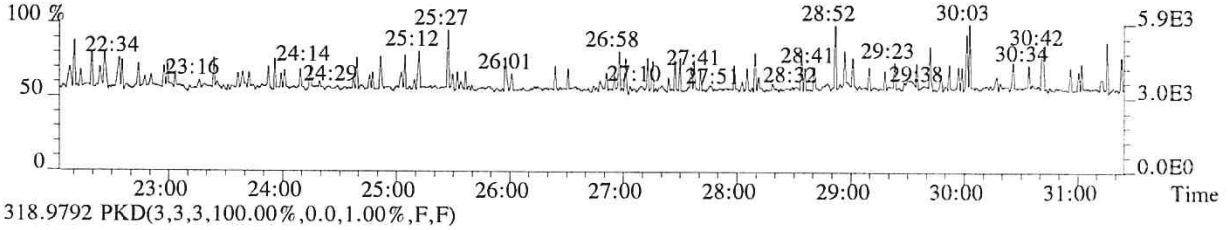
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,944.0,1.00%,F,T)



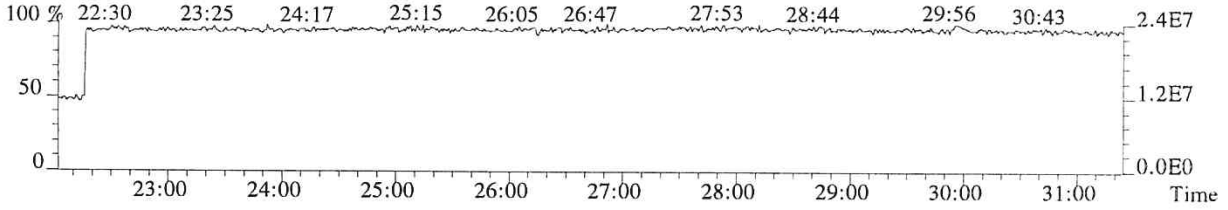
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2552.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

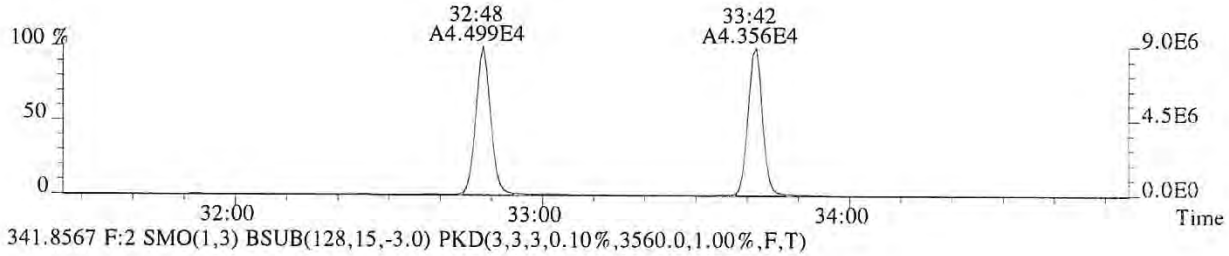


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

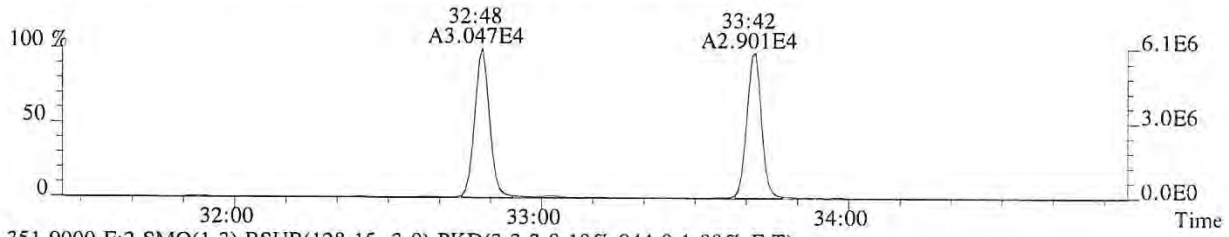


014821

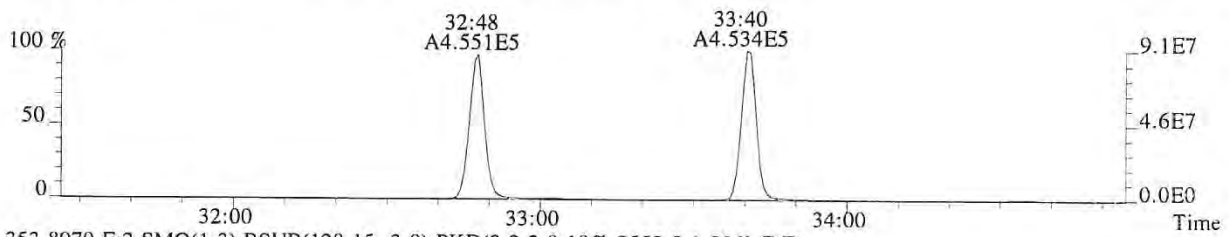
File:P513852 #1-313 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,192.0,1.00%,F,T)



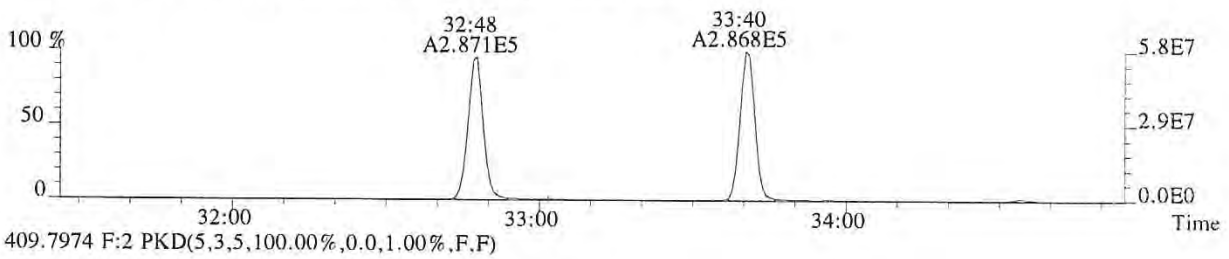
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3560.0,1.00%,F,T)



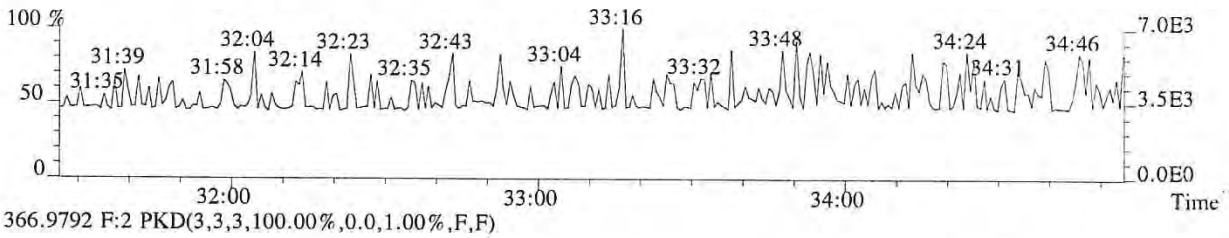
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,944.0,1.00%,F,T)



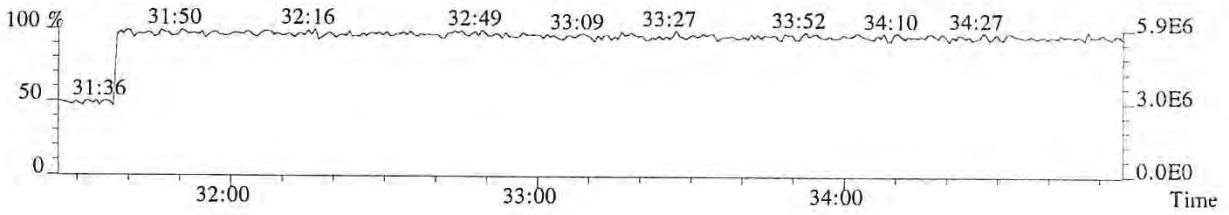
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2552.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

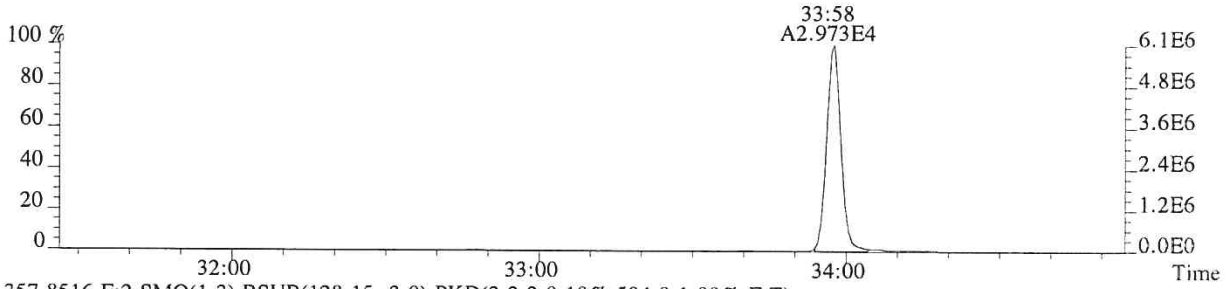


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

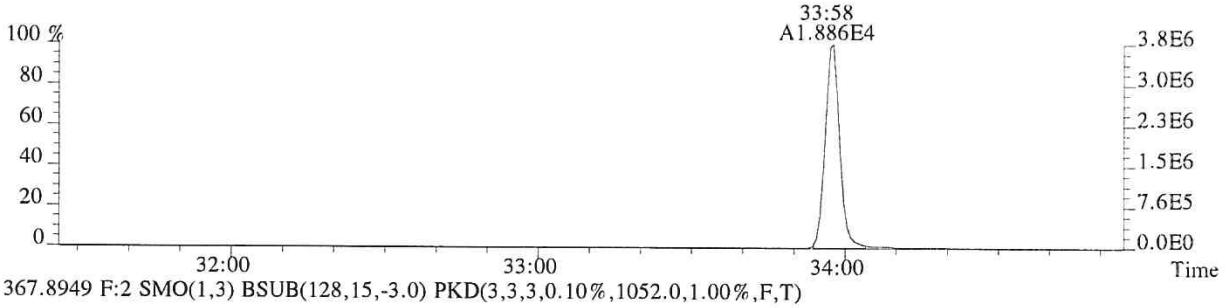


014822

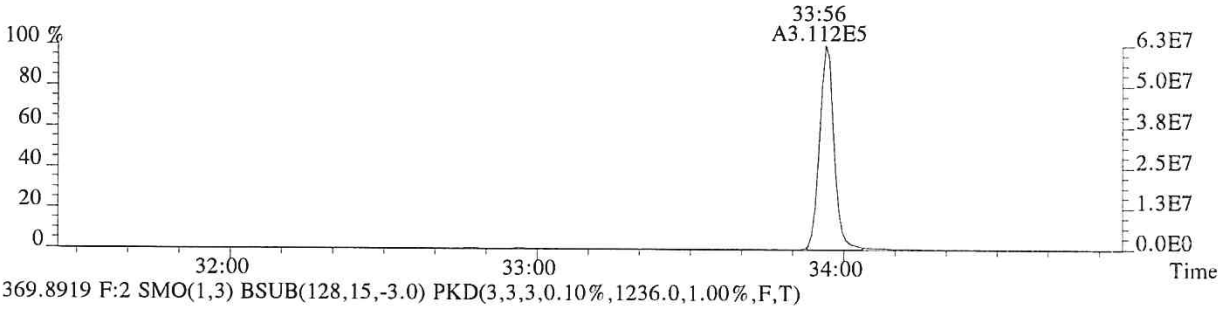
File:P513852 #1-313 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,516.0,1.00%,F,T)



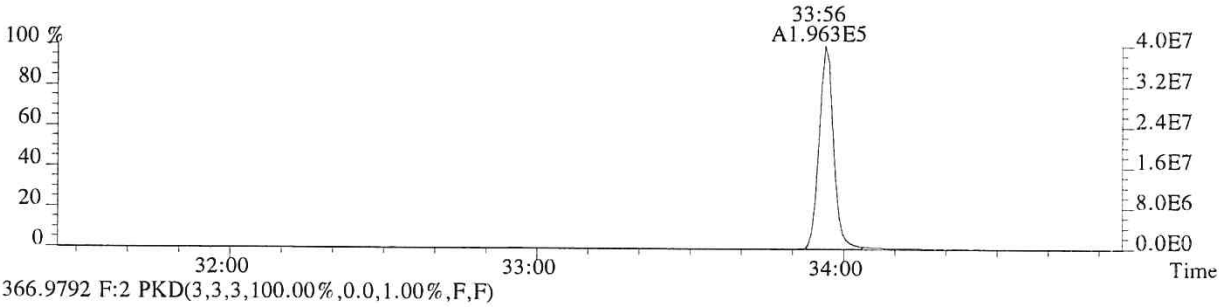
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,504.0,1.00%,F,T)



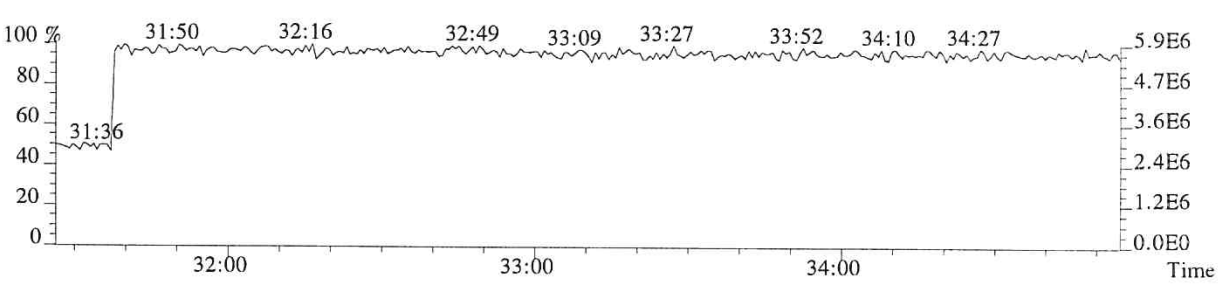
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1052.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1236.0,1.00%,F,T)

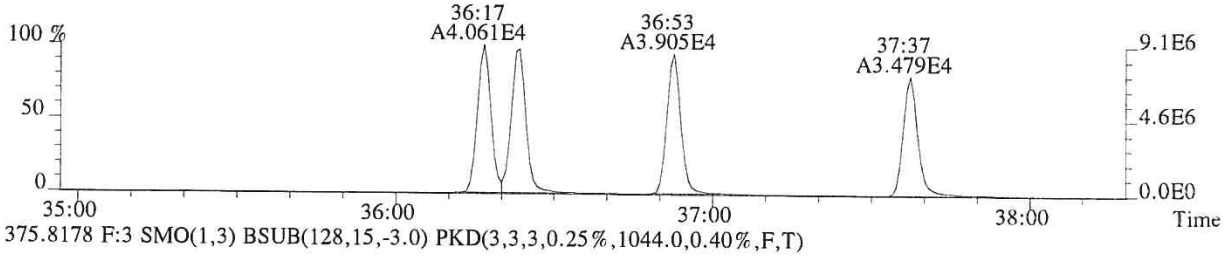


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

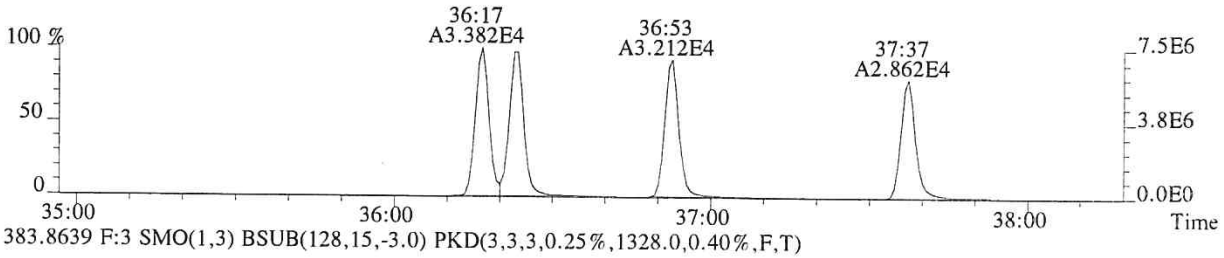


014823

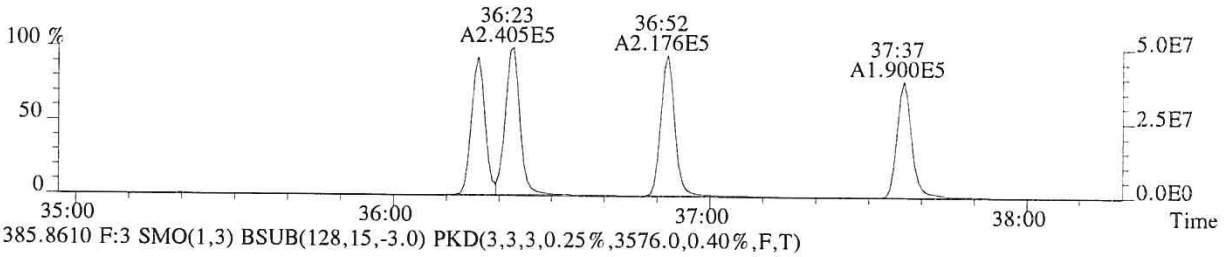
File:P513852 #1-303 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:76556
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1016.0,0.40%,F,T)



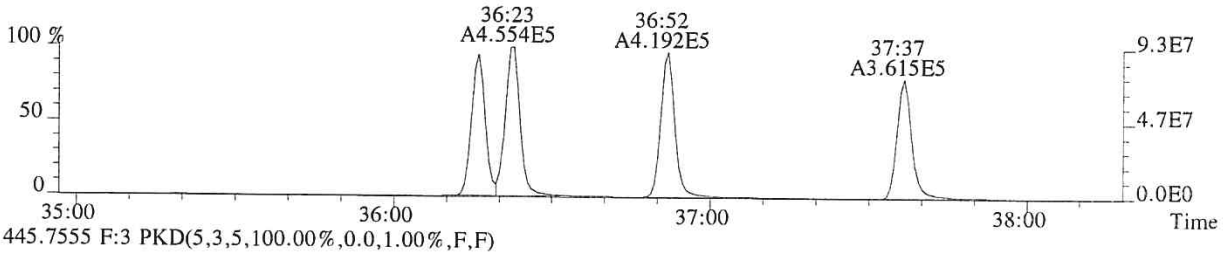
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1044.0,0.40%,F,T)



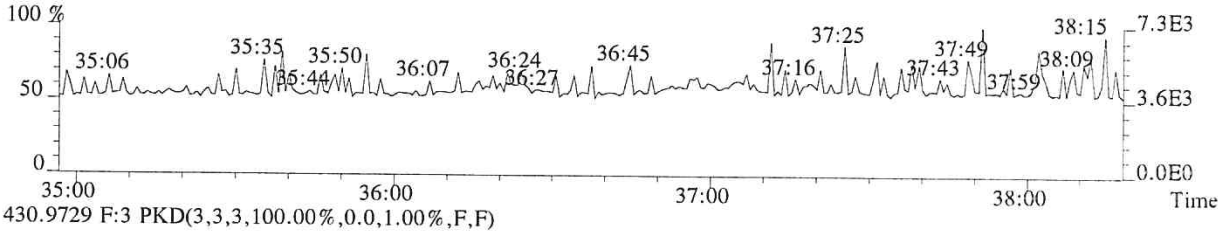
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1328.0,0.40%,F,T)



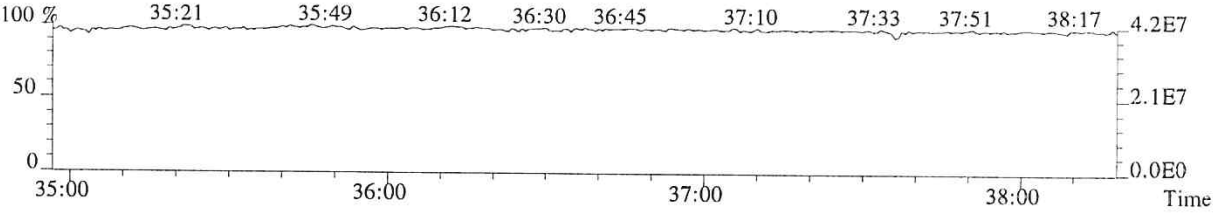
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3576.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

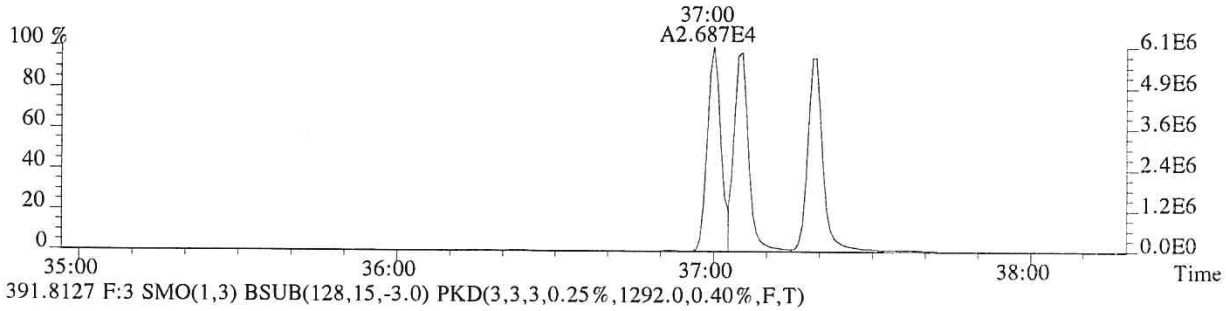


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

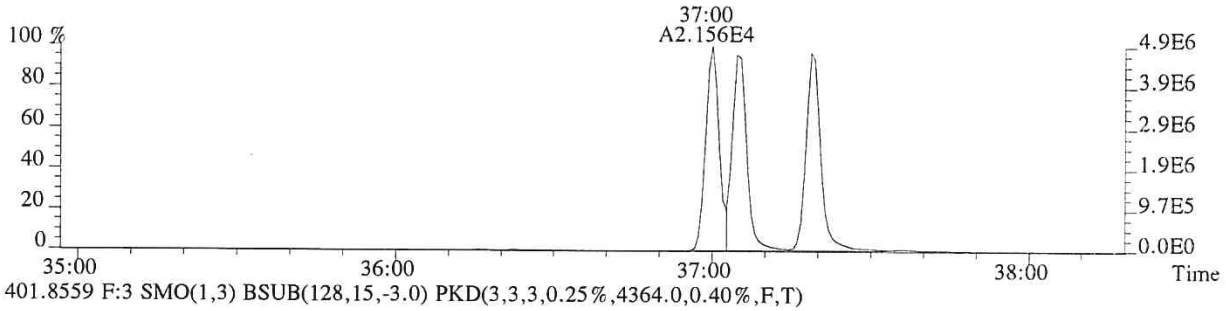


014824

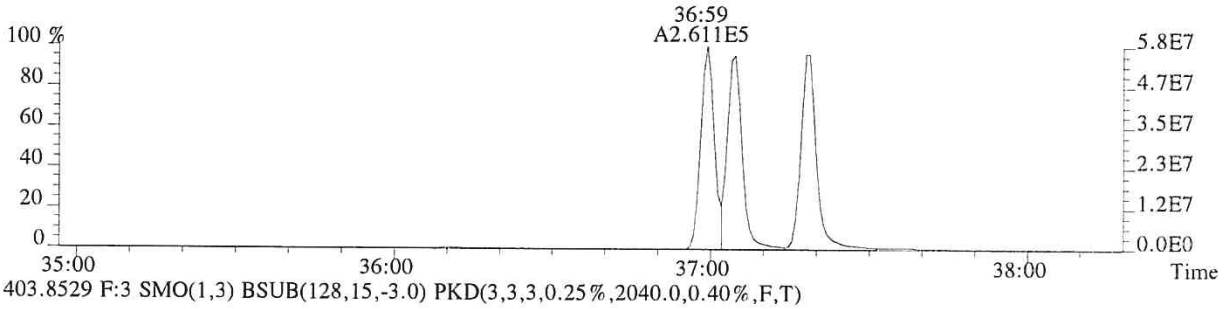
File:P513852 #1-303 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,748.0,0.40%,F,T)



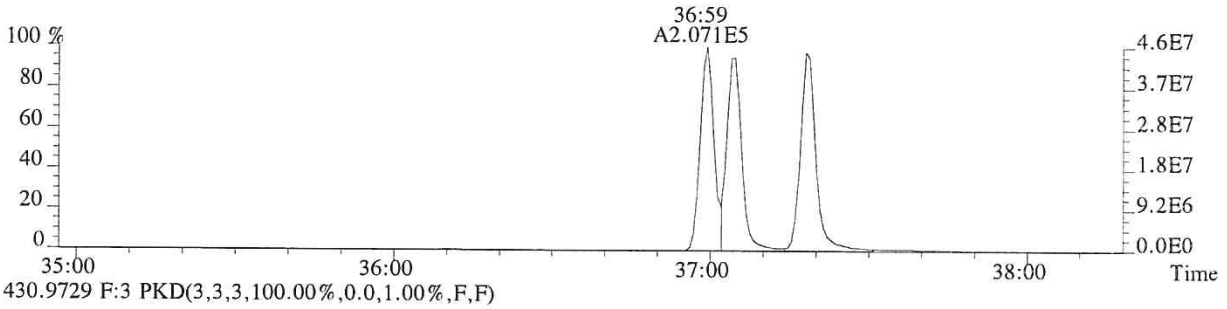
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1292.0,0.40%,F,T)



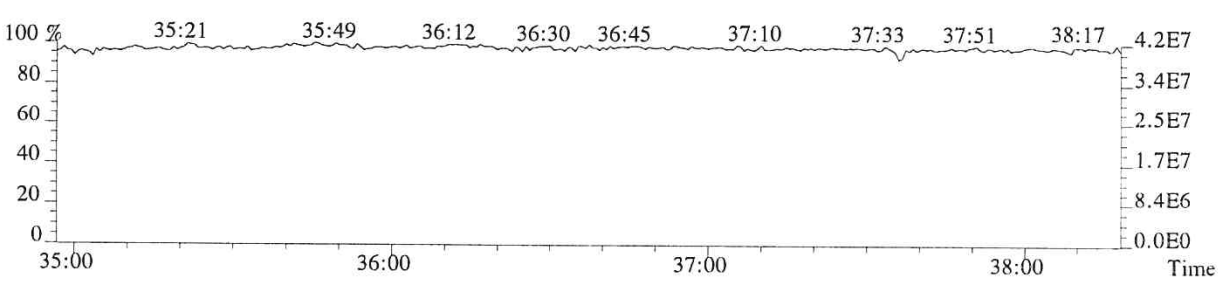
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4364.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2040.0,0.40%,F,T)

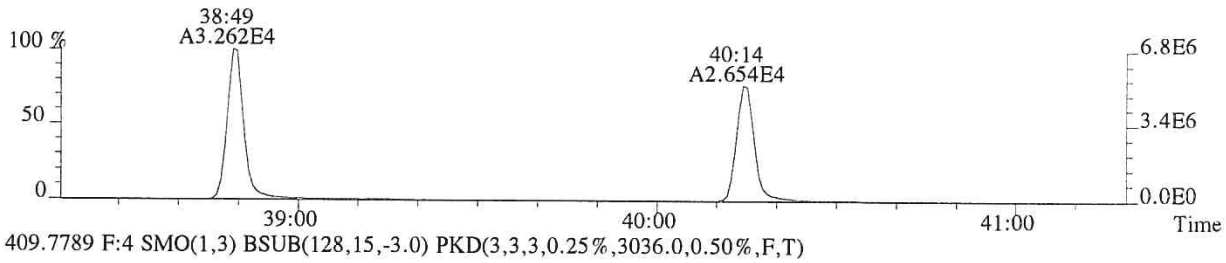


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

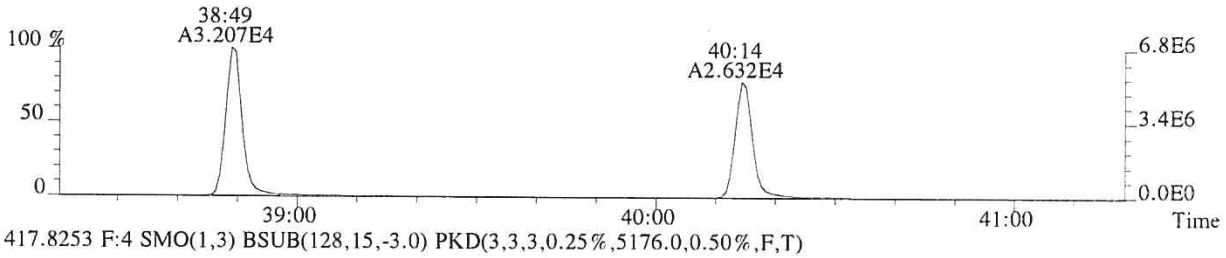


014825

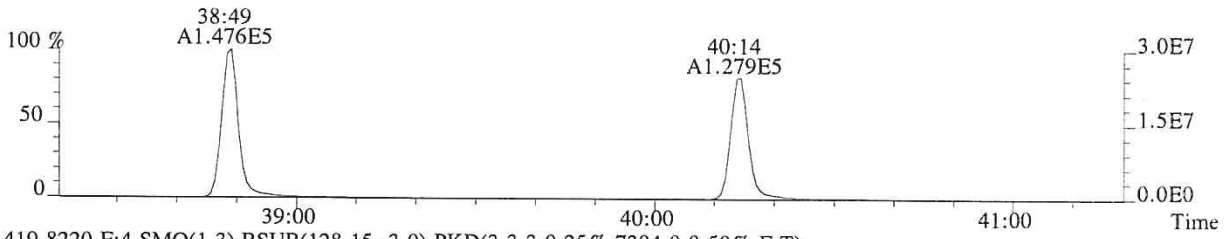
File:P513852 #1-268 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3668.0,0.50%,F,T)



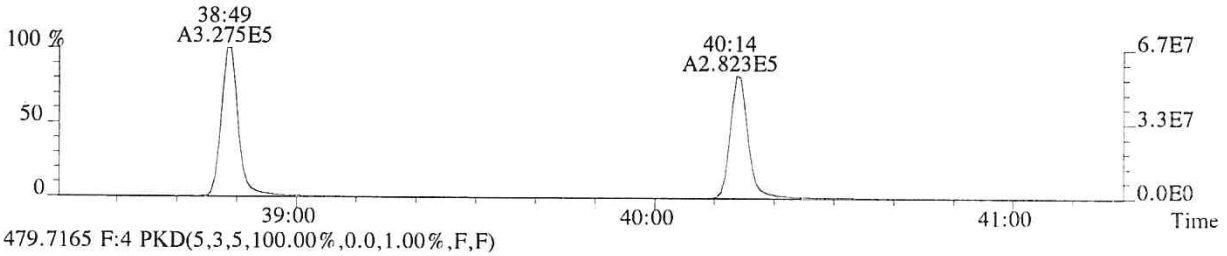
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3036.0,0.50%,F,T)



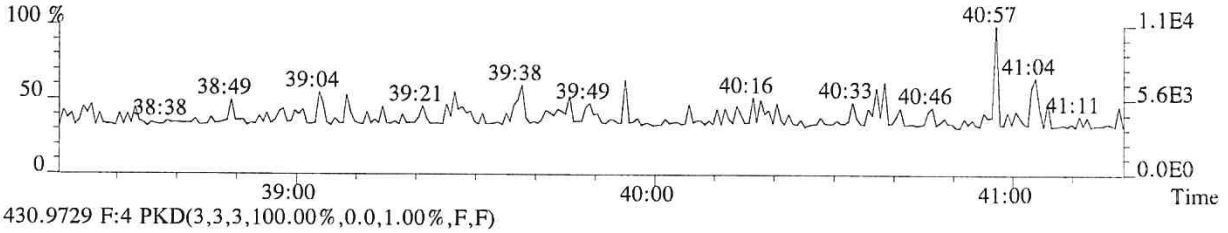
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5176.0,0.50%,F,T)



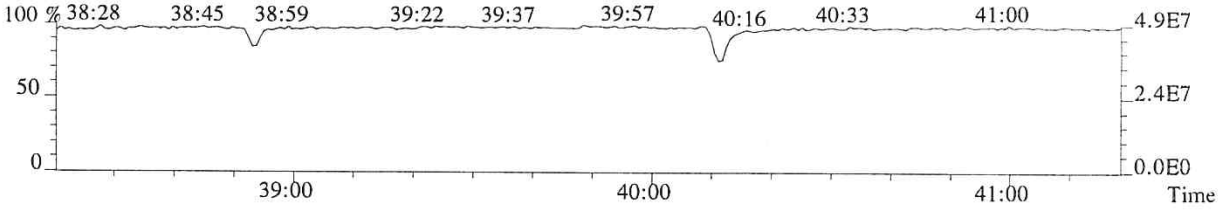
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7384.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

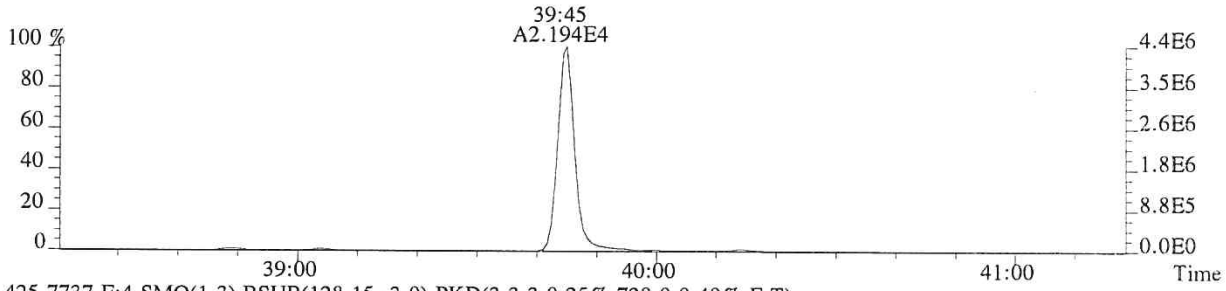


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

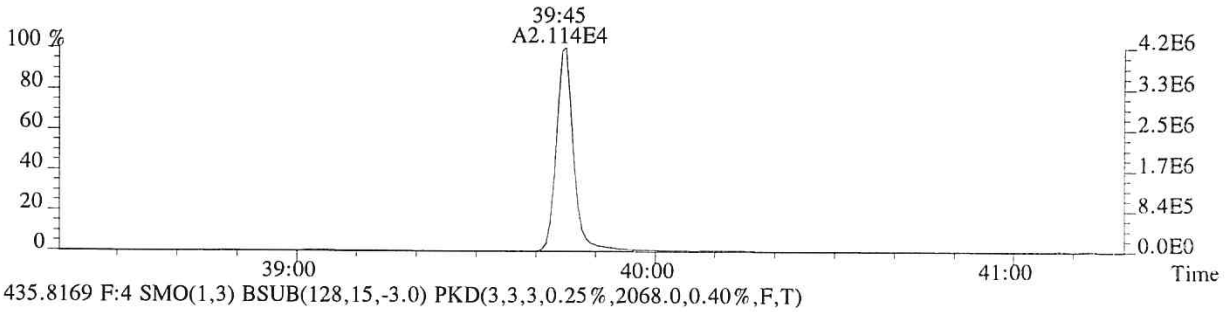


014826

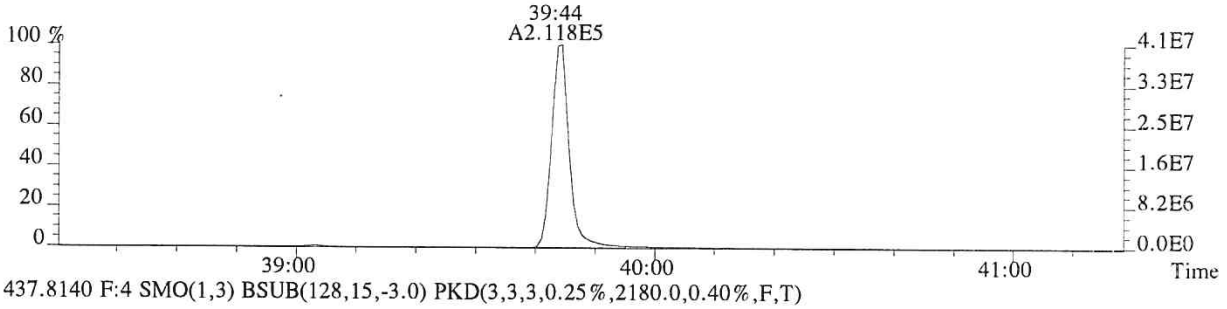
File:P513852 #1-268 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spectŁ
Sample#1 Exp:76556
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1676.0,0.40%,F,T)



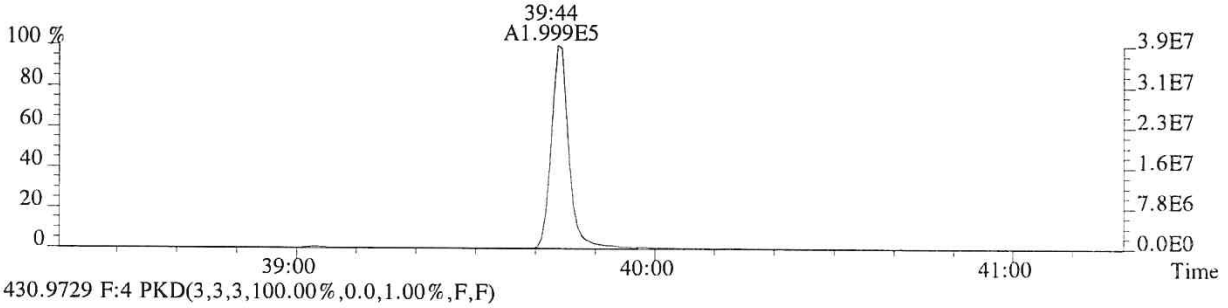
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,728.0,0.40%,F,T)



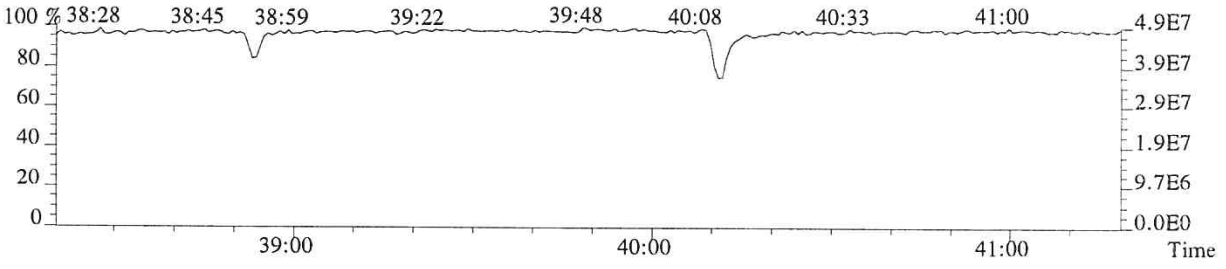
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2068.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2180.0,0.40%,F,T)

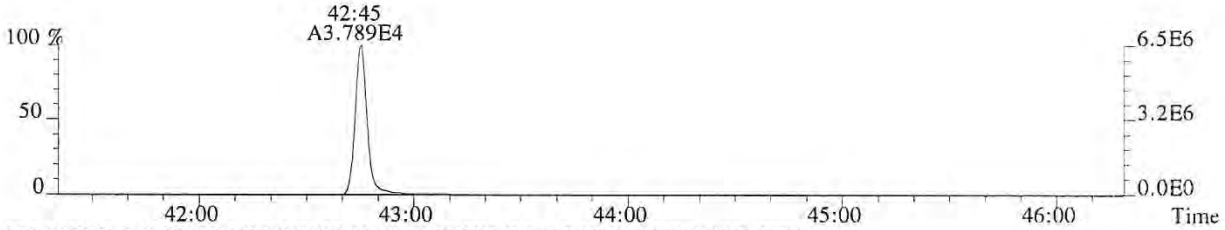


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

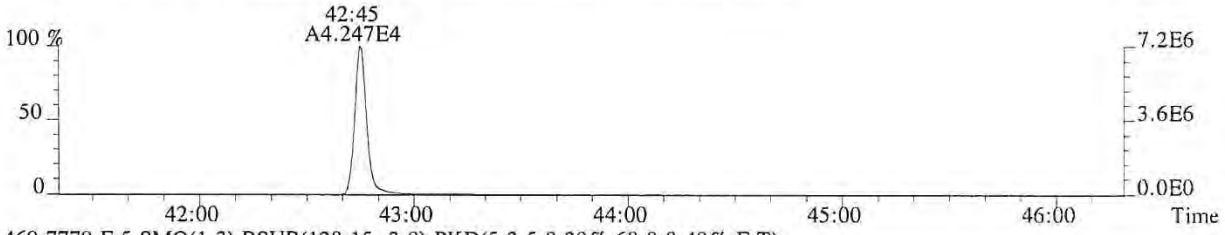


014827

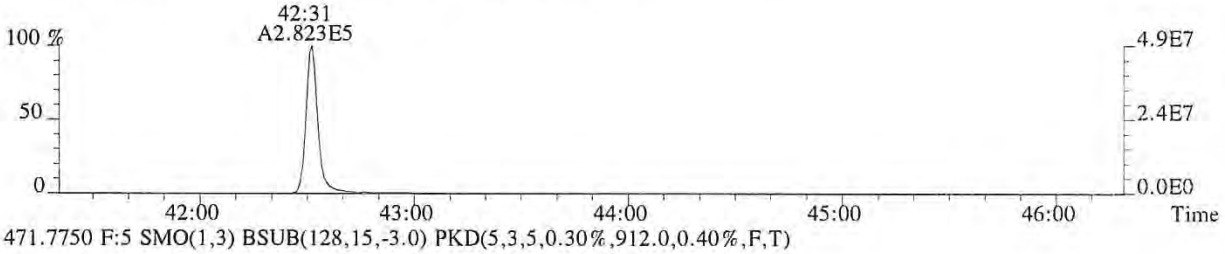
File:P513852 #1-448 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1076.0,0.40%,F,T)



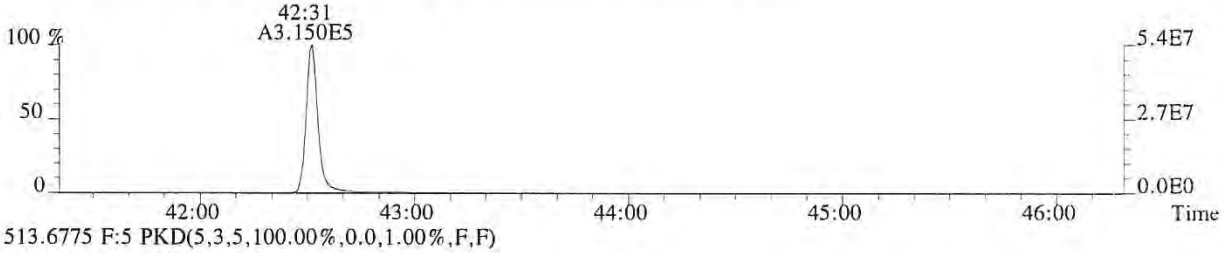
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1736.0,0.40%,F,T)



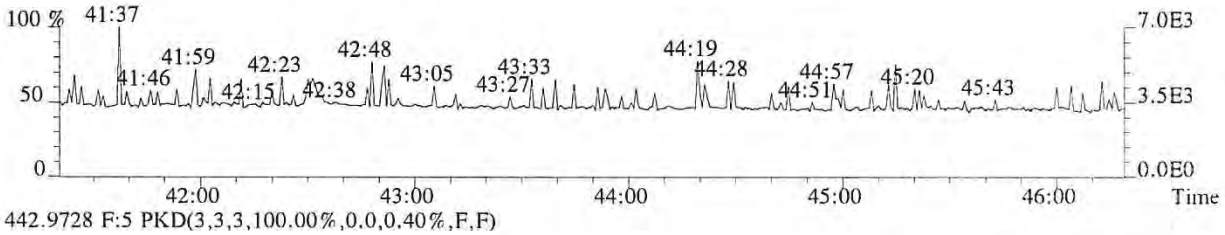
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,68.0,0.40%,F,T)



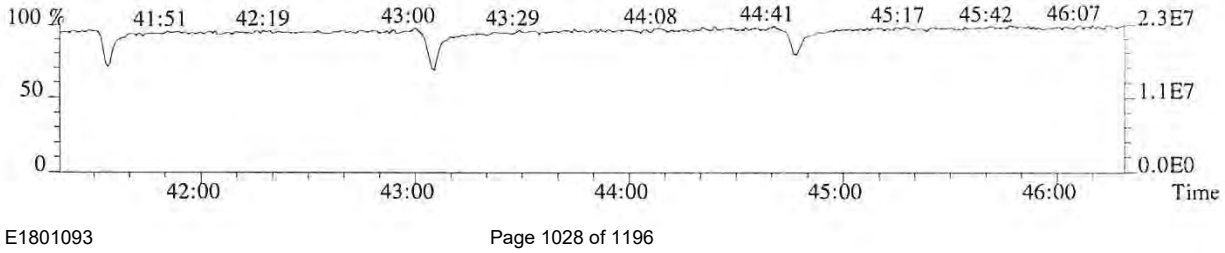
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,912.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

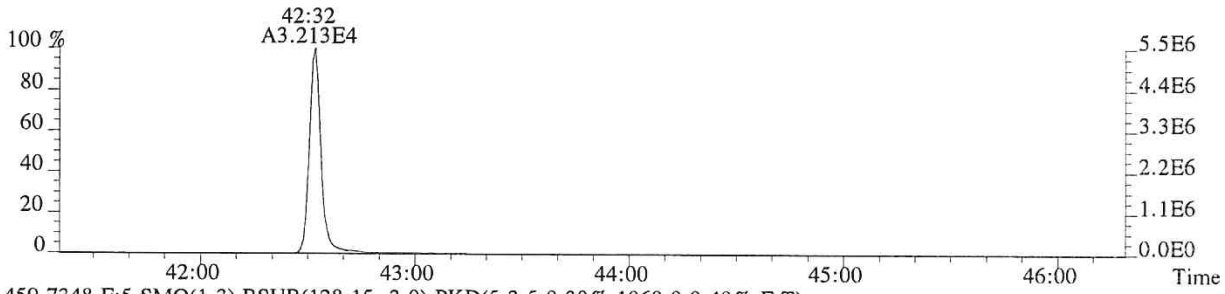


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

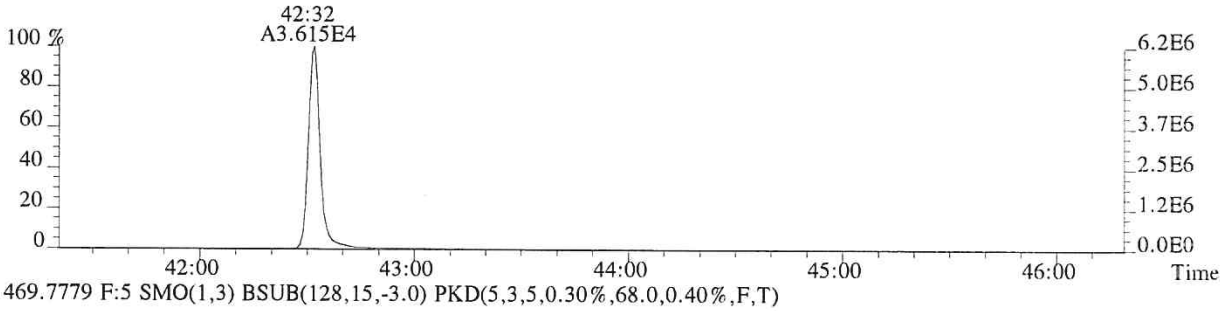


014828

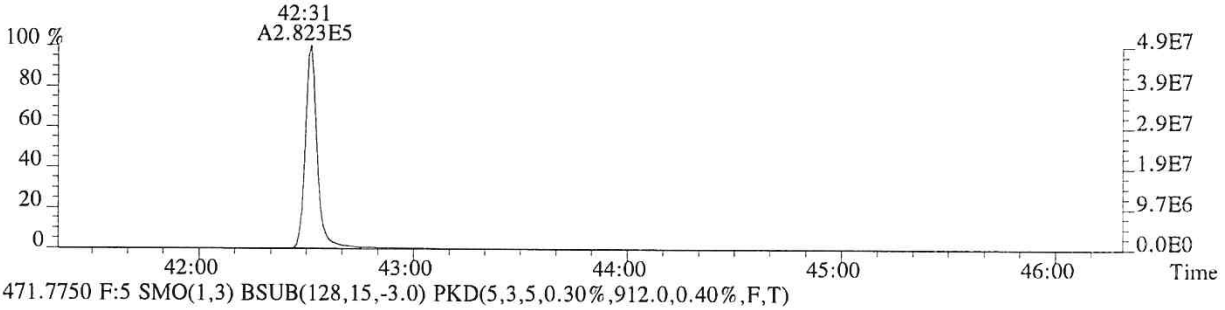
File:P513852 #1-448 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,160.0,0.40%,F,T)



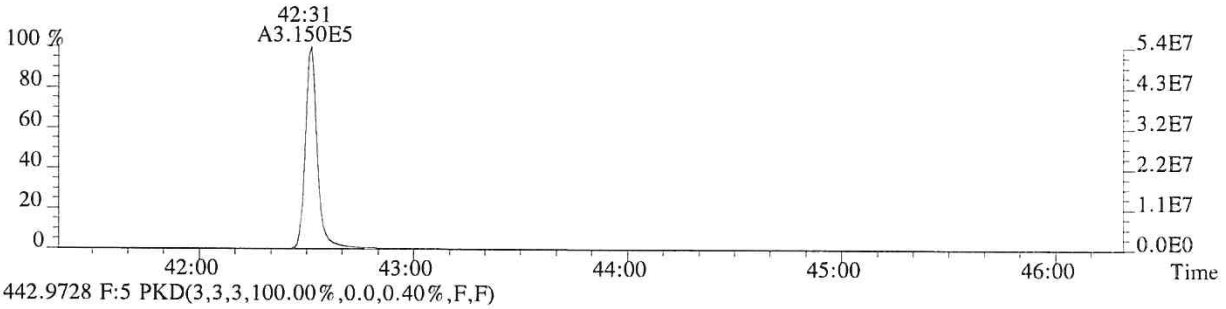
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1068.0,0.40%,F,T)



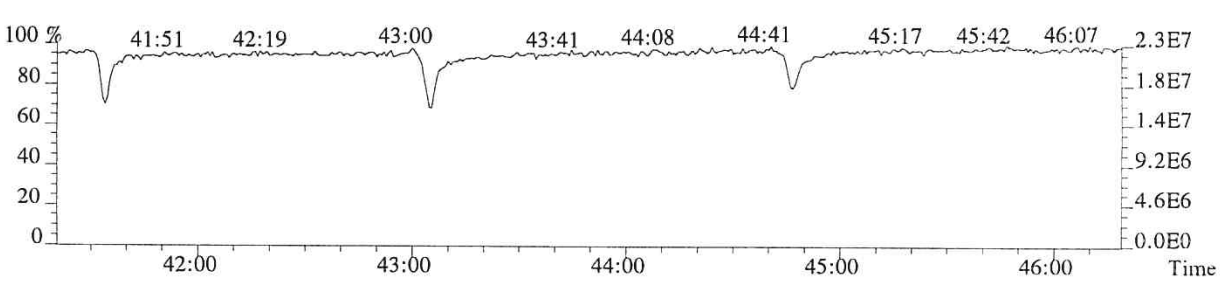
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,68.0,0.40%,F,T)



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)



014829

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76557

Run #4 Filename P513853 Samp: 1 Inj: 1 Acquired: 24-JAN-18 16:06:29
Processed: 24-JAN-18 17:13:42 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:47	4.270e+04	5.692e+04	0.75	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	3.077e+05	2.016e+05	1.53	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:41	2.833e+05	1.864e+05	1.52	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:16	2.625e+05	2.158e+05	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:22	2.702e+05	2.228e+05	1.21	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:52	2.439e+05	2.001e+05	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	1.977e+05	1.631e+05	1.21	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:48	2.099e+05	2.057e+05	1.02	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	1.509e+05	1.470e+05	1.03	yes	no	1.258
10	Unk	OCDF	42:45	2.260e+05	2.525e+05	0.90	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:31	2.824e+04	3.588e+04	0.79	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:57	1.903e+05	1.221e+05	1.56	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:59	1.727e+05	1.384e+05	1.25	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:04	1.705e+05	1.356e+05	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:18	1.758e+05	1.371e+05	1.28	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	1.431e+05	1.365e+05	1.05	yes	no	1.025
17	Unk	OCDD	42:31	1.906e+05	2.140e+05	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:46	4.689e+05	5.926e+05	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:47	6.073e+05	3.832e+05	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	5.900e+05	3.740e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	2.738e+05	5.189e+05	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:21	3.023e+05	5.708e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:51	2.671e+05	5.167e+05	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:36	2.133e+05	4.042e+05	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	1.882e+05	4.188e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	1.419e+05	3.155e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:30	2.668e+05	3.316e+05	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	4.009e+05	2.534e+05	1.58	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	3.335e+05	2.508e+05	1.33	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:03	3.244e+05	2.699e+05	1.20	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:43	2.779e+05	2.632e+05	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	3.375e+05	3.799e+05	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:56	2.956e+05	3.663e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:17	3.390e+05	2.761e+05	1.23	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:31	6.612e+04				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76557

Run #4 Filename P513853 Samp: 1 Inj: 1 Acquired: 24-JAN-18 16:06:29
Processed: 24-JAN-18 17:13:42 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	8.50e+06	6.40e+02	1.3e+04	1.14e+07	2.11e+03	5.4e+03
2	1,2,3,7,8-PeCDF	6.16e+07	1.61e+03	3.8e+04	4.01e+07	2.10e+03	1.9e+04
3	2,3,4,7,8-PeCDF	5.79e+07	1.61e+03	3.6e+04	3.78e+07	2.10e+03	1.8e+04
4	1,2,3,4,7,8-HxCDF	5.83e+07	1.86e+03	3.1e+04	4.74e+07	2.55e+03	1.9e+04
5	1,2,3,6,7,8-HxCDF	5.80e+07	1.86e+03	3.1e+04	4.80e+07	2.55e+03	1.9e+04
6	2,3,4,6,7,8-HxCDF	5.37e+07	1.86e+03	2.9e+04	4.34e+07	2.55e+03	1.7e+04
7	1,2,3,7,8,9-HxCDF	4.12e+07	1.86e+03	2.2e+04	3.39e+07	2.55e+03	1.3e+04
8	1,2,3,4,6,7,8-HpCDF	4.57e+07	4.44e+03	1.0e+04	4.52e+07	1.05e+04	4.3e+03
9	1,2,3,4,7,8,9-HpCDF	3.06e+07	4.44e+03	6.9e+03	2.99e+07	1.05e+04	2.8e+03
10	OCDF	3.93e+07	1.44e+02	2.7e+05	4.34e+07	1.38e+03	3.1e+04
11	2,3,7,8-TCDD	5.83e+06	1.92e+03	3.0e+03	7.39e+06	1.30e+03	5.7e+03
12	1,2,3,7,8-PeCDD	3.83e+07	1.45e+03	2.6e+04	2.46e+07	7.04e+02	3.5e+04
13	1,2,3,4,7,8-HxCDD	3.89e+07	5.12e+02	7.6e+04	3.08e+07	1.23e+03	2.5e+04
14	1,2,3,6,7,8-HxCDD	3.74e+07	5.12e+02	7.3e+04	3.02e+07	1.23e+03	2.5e+04
15	1,2,3,7,8,9-HxCDD	3.75e+07	5.12e+02	7.3e+04	3.01e+07	1.23e+03	2.5e+04
16	1,2,3,4,6,7,8-HpCDD	2.89e+07	1.84e+03	1.6e+04	2.78e+07	1.41e+03	2.0e+04
17	OCDD	3.41e+07	6.32e+02	5.4e+04	3.81e+07	1.31e+03	2.9e+04
18	13C-2,3,7,8-TCDF	9.47e+07	6.52e+03	1.5e+04	1.19e+08	4.12e+03	2.9e+04
19	13C-1,2,3,7,8-PeCDF	1.17e+08	1.28e+03	9.1e+04	7.33e+07	8.08e+02	9.1e+04
20	13C-2,3,4,7,8-PeCDF	1.21e+08	1.28e+03	9.4e+04	7.72e+07	8.08e+02	9.6e+04
21	13C-1,2,3,4,7,8-HxCDF	6.01e+07	1.97e+03	3.1e+04	1.13e+08	1.75e+03	6.5e+04
22	13C-1,2,3,6,7,8-HxCDF	6.52e+07	1.97e+03	3.3e+04	1.24e+08	1.75e+03	7.1e+04
23	13C-2,3,4,6,7,8-HxCDF	5.86e+07	1.97e+03	3.0e+04	1.11e+08	1.75e+03	6.4e+04
24	13C-1,2,3,7,8,9-HxCDF	4.44e+07	1.97e+03	2.3e+04	8.35e+07	1.75e+03	4.8e+04
25	13C-1,2,3,4,6,7,8-HpCDF	4.03e+07	8.48e+03	4.8e+03	9.01e+07	6.21e+03	1.5e+04
26	13C-1,2,3,4,7,8,9-HpCDF	2.83e+07	8.48e+03	3.3e+03	6.33e+07	6.21e+03	1.0e+04
27	13C-2,3,7,8-TCDD	5.56e+07	5.87e+03	9.5e+03	6.88e+07	2.90e+03	2.4e+04
28	13C-1,2,3,7,8-PeCDD	8.27e+07	1.46e+03	5.7e+04	5.24e+07	1.17e+03	4.5e+04
29	13C-1,2,3,4,7,8-HxCDD	7.51e+07	3.07e+03	2.4e+04	5.90e+07	2.67e+03	2.2e+04
30	13C-1,2,3,6,7,8-HxCDD	7.07e+07	3.07e+03	2.3e+04	5.69e+07	2.67e+03	2.1e+04
31	13C-1,2,3,4,6,7,8-HpCDD	5.63e+07	2.93e+03	1.9e+04	5.39e+07	1.32e+03	4.1e+04
32	13C-OCDD	5.98e+07	1.07e+03	5.6e+04	6.69e+07	9.36e+02	7.1e+04
33	13C-1,2,3,4-TCDD	5.97e+07	5.87e+03	1.0e+04	7.42e+07	2.90e+03	2.6e+04
34	13C-1,2,3,7,8,9-HxCDD	7.31e+07	3.07e+03	2.4e+04	5.89e+07	2.67e+03	2.2e+04
35	37Cl-2,3,7,8-TCDD	1.36e+07	1.25e+03	1.1e+04			

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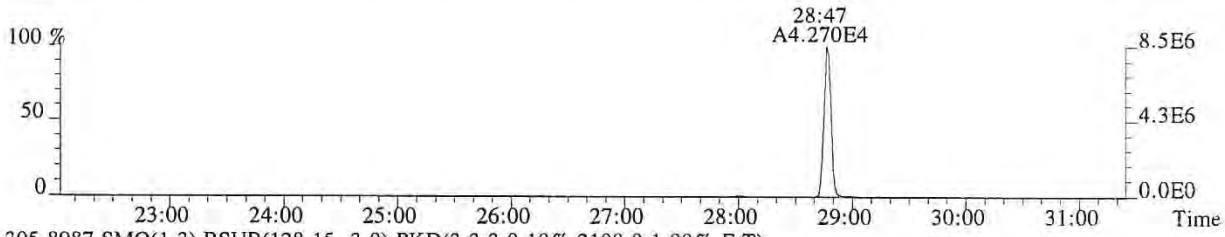
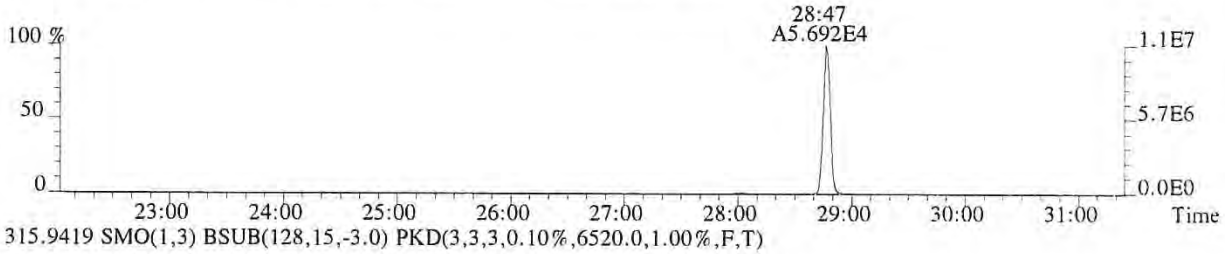
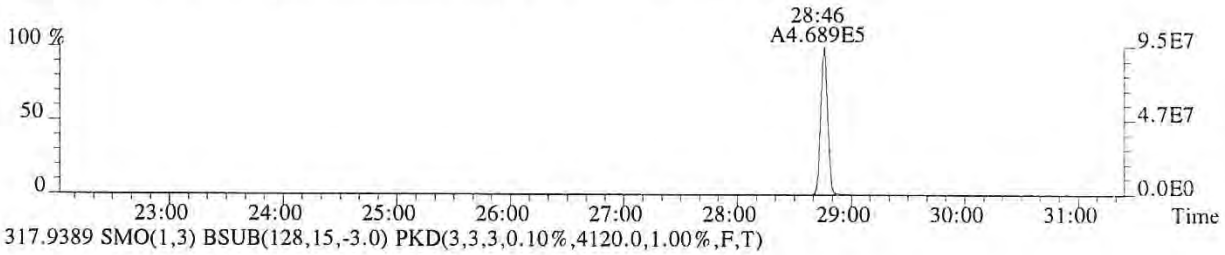
File:P513853 #1-665 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,640.0,1.00%,F,T)



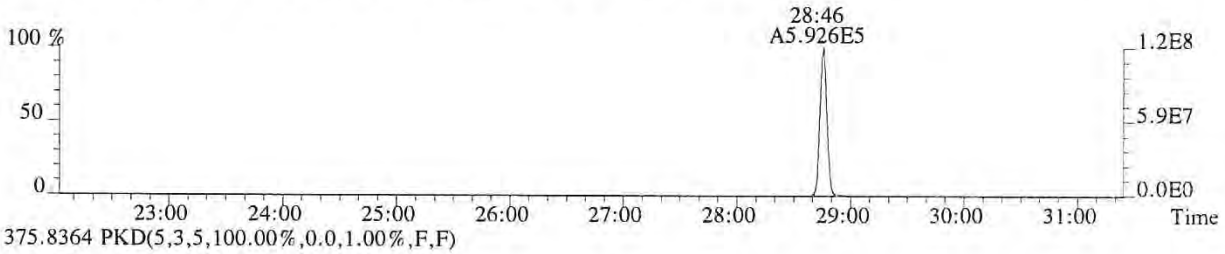
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2108.0,1.00%,F,T)



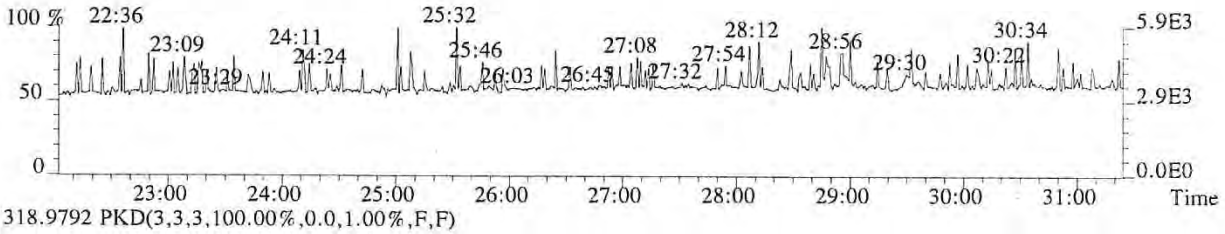
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6520.0,1.00%,F,T)



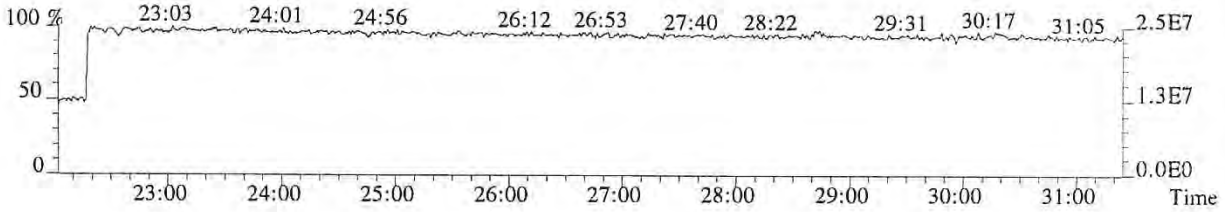
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4120.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

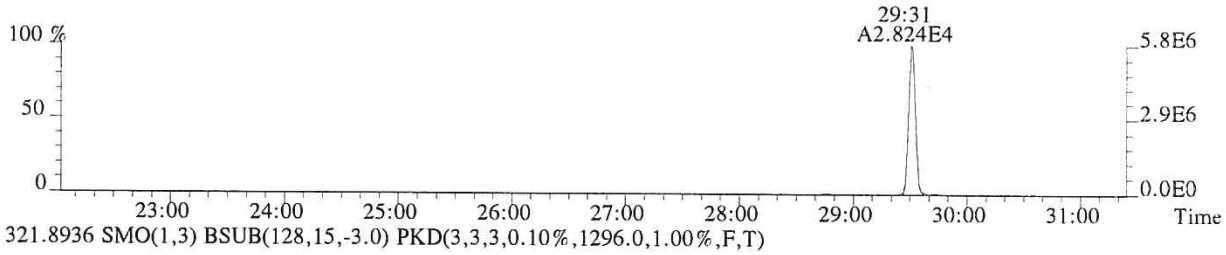


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

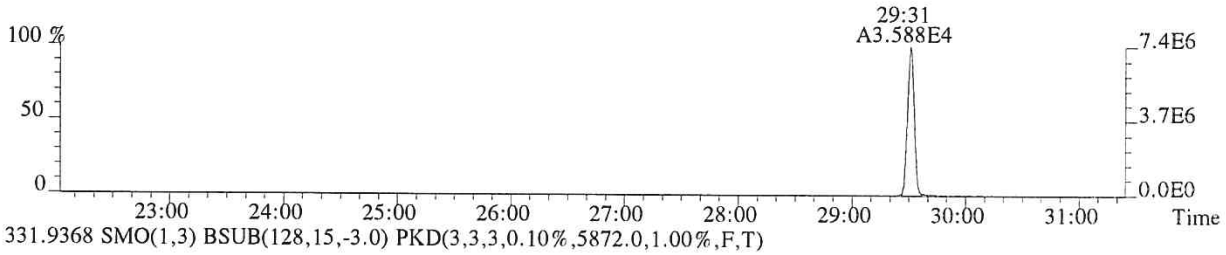


014832

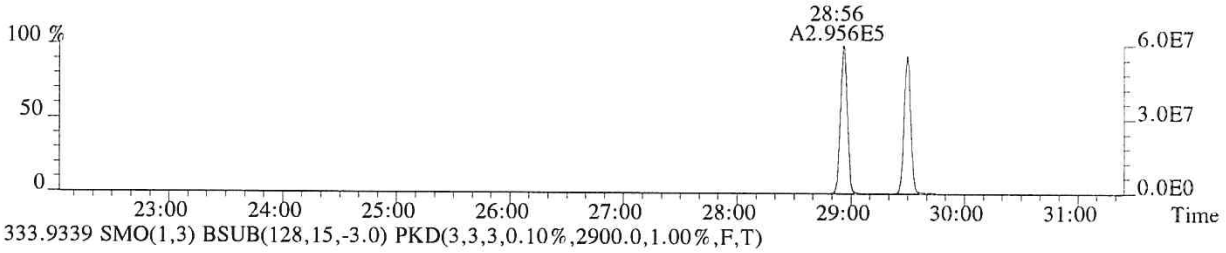
File:P513853 #1-665 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1924.0,1.00%,F,T)



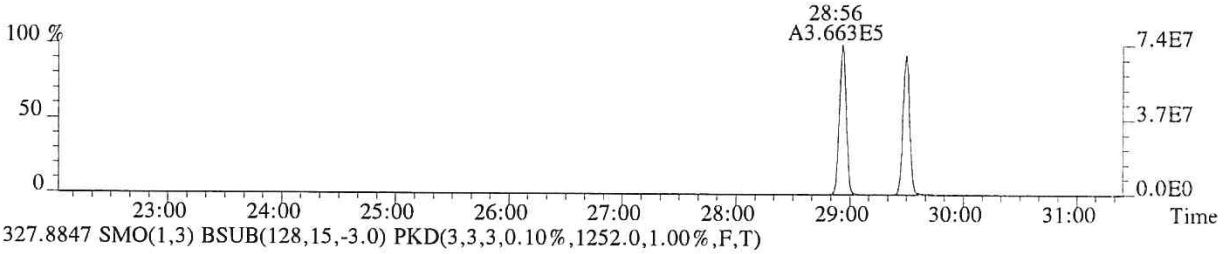
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1296.0,1.00%,F,T)



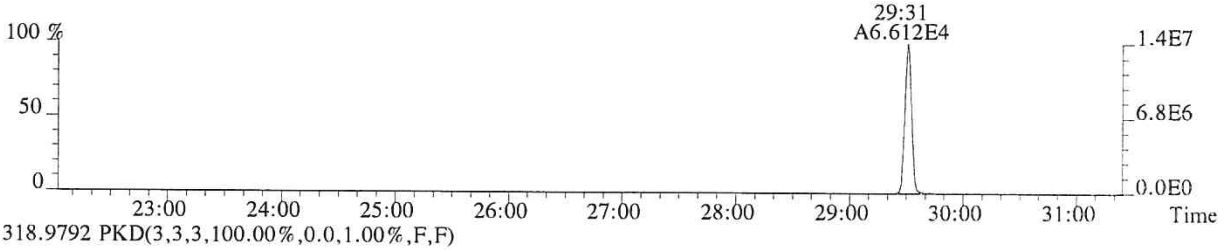
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5872.0,1.00%,F,T)



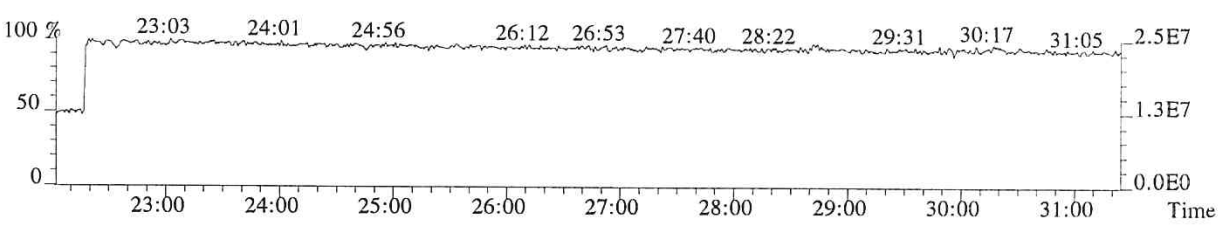
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2900.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1252.0,1.00%,F,T)

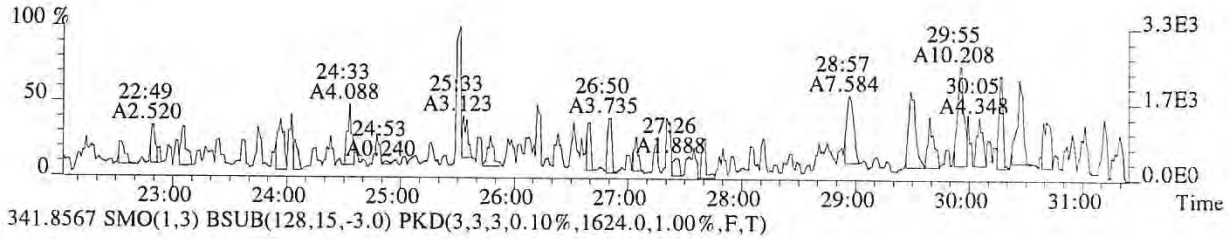


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

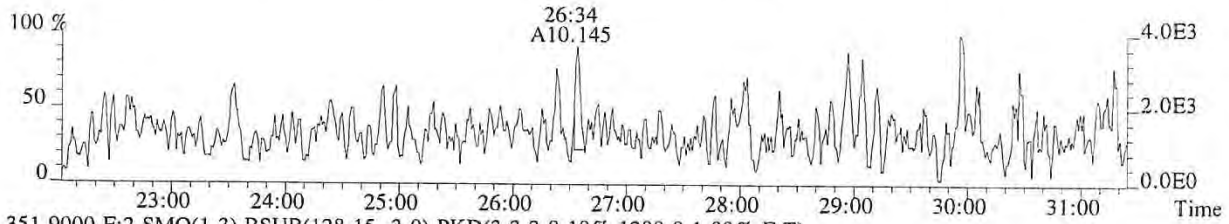


014833

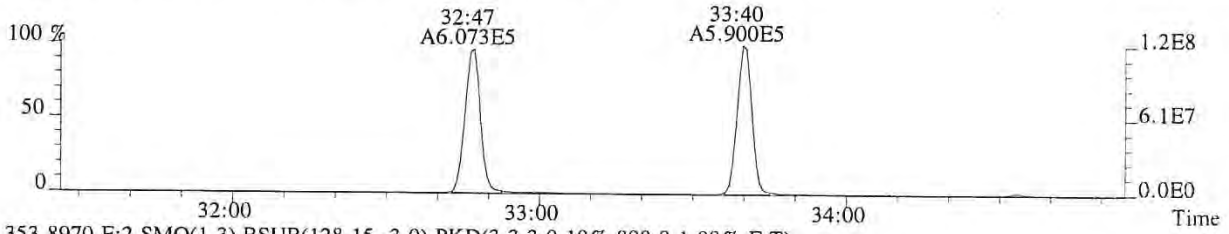
File:P513853 #1-665 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,452.0,1.00%,F,T)



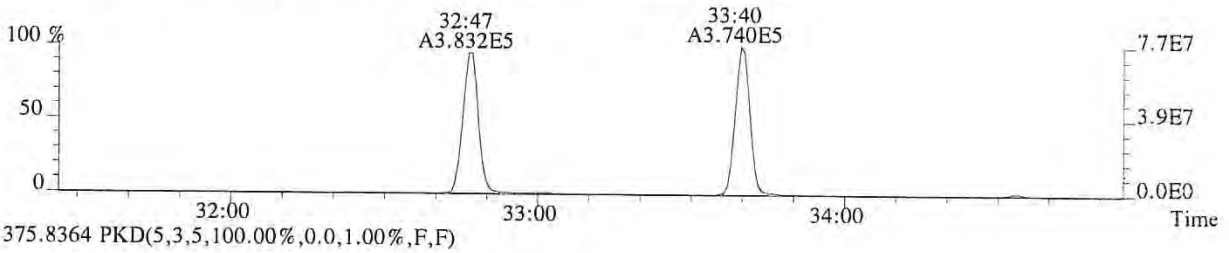
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1624.0,1.00%,F,T)



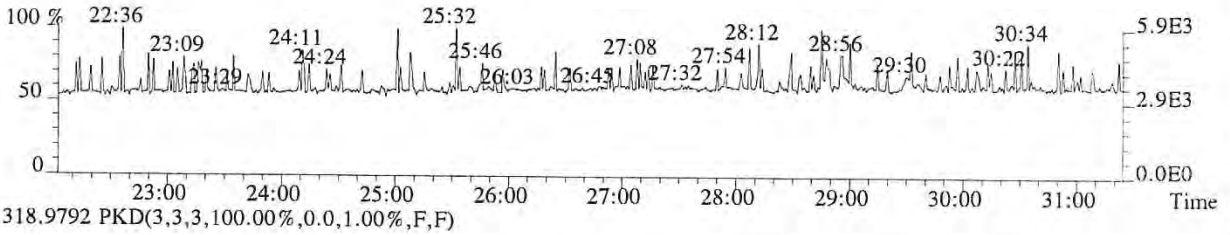
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1280.0,1.00%,F,T)



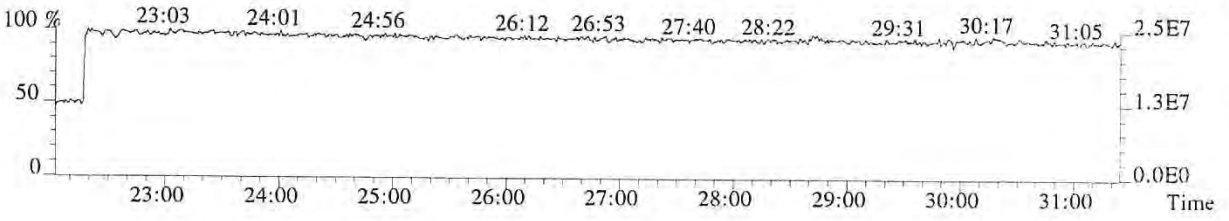
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,808.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

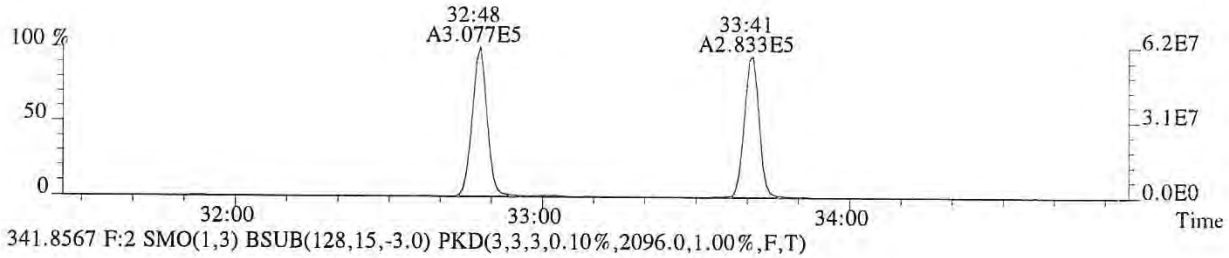


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

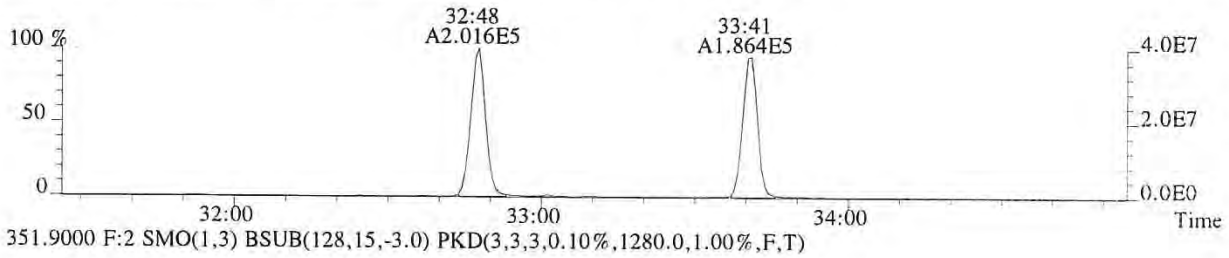


014834

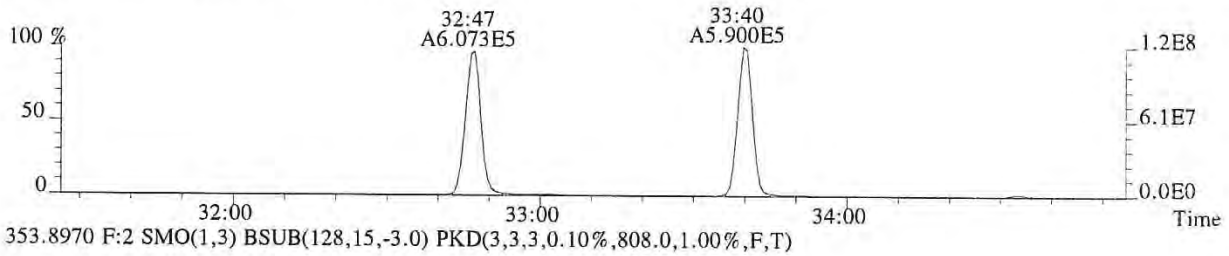
File:P513853 #1-313 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1612.0,1.00%,F,T)



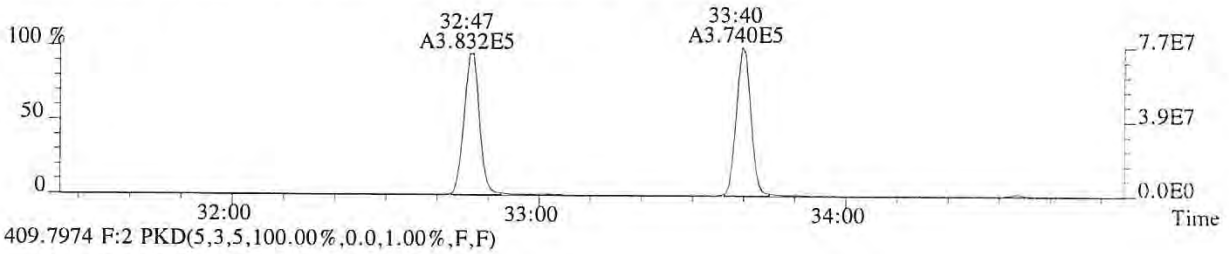
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2096.0,1.00%,F,T)



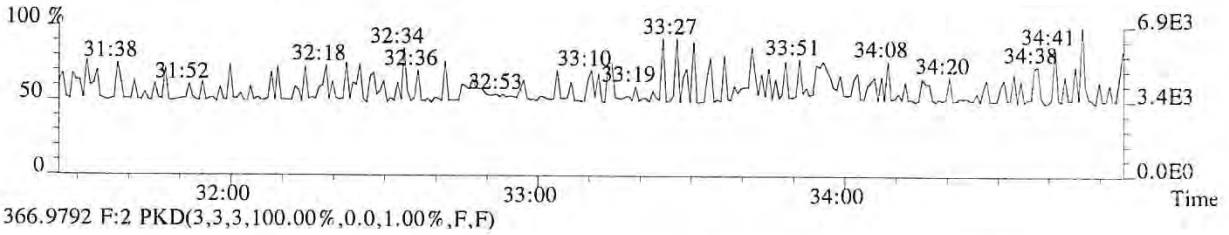
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1280.0,1.00%,F,T)



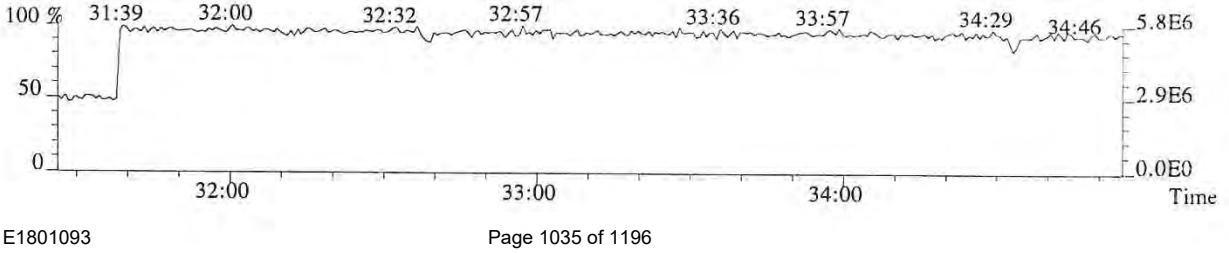
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,808.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

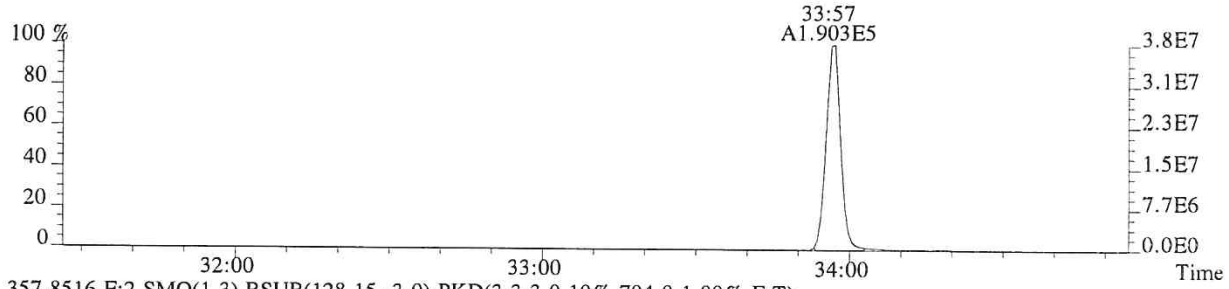


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

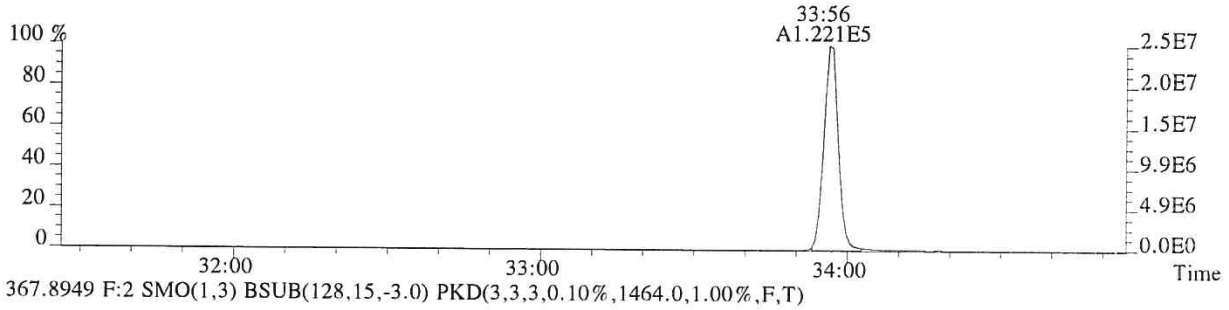


014835

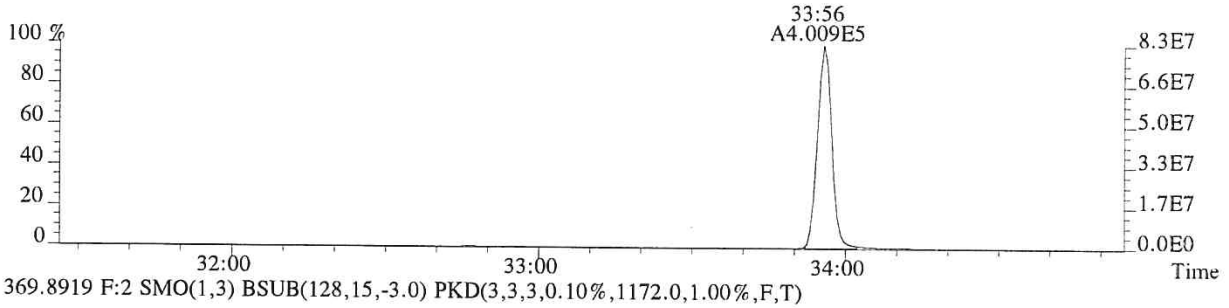
File:P513853 #1-313 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1452.0,1.00%,F,T)



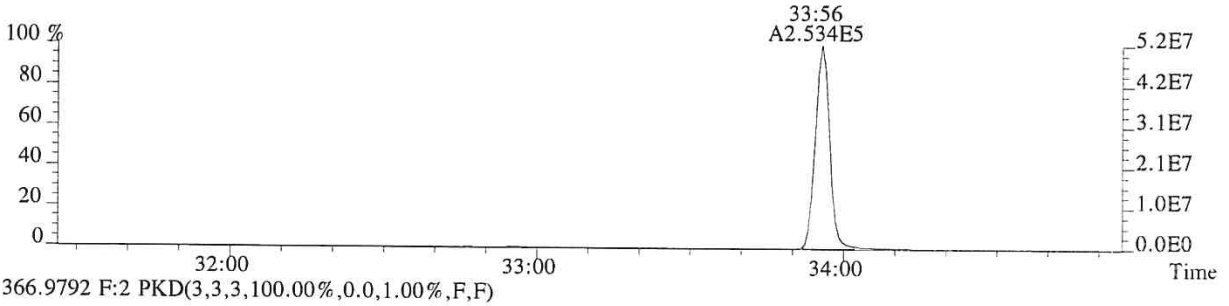
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,704.0,1.00%,F,T)



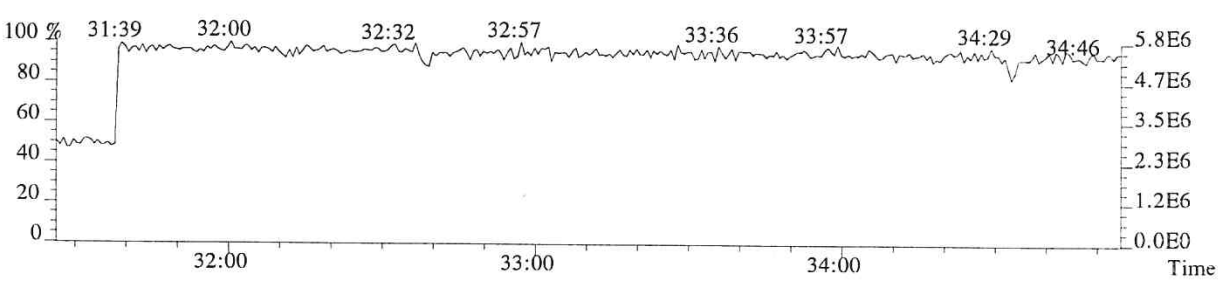
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1464.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1172.0,1.00%,F,T)

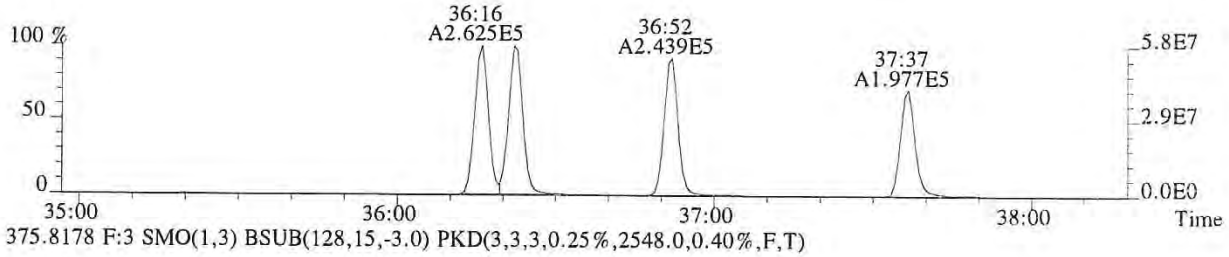


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

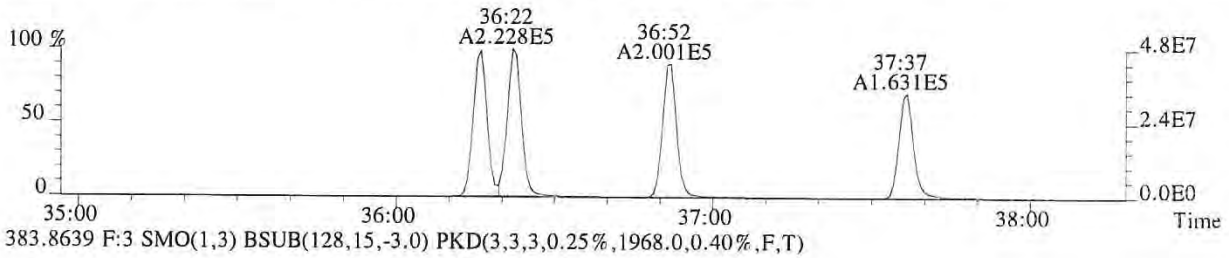


014836

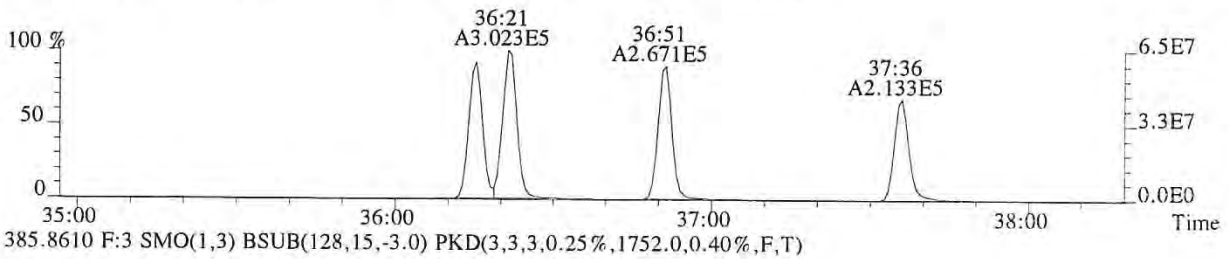
File:P513853 #1-303 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1856.0,0.40%,F,T)



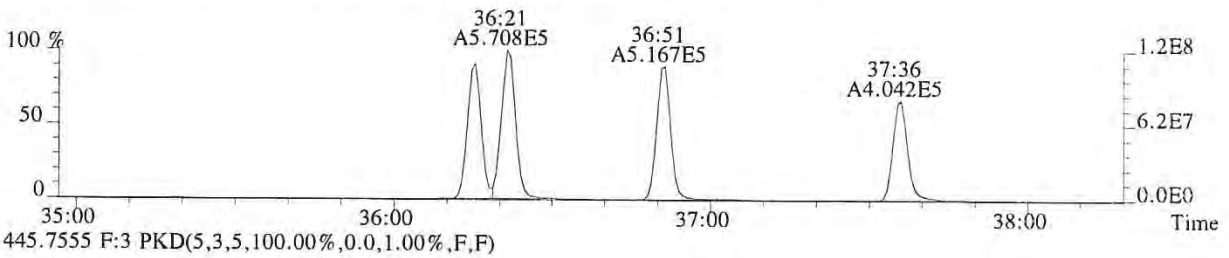
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2548.0,0.40%,F,T)



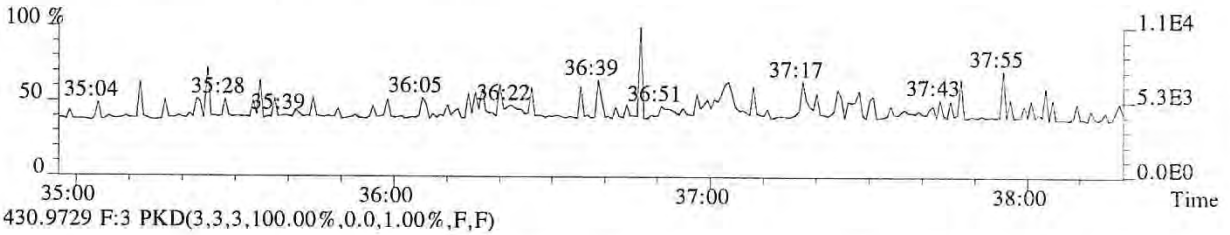
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1968.0,0.40%,F,T)



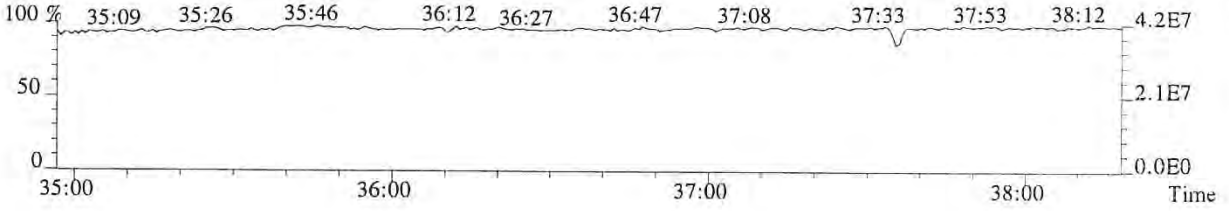
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1752.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

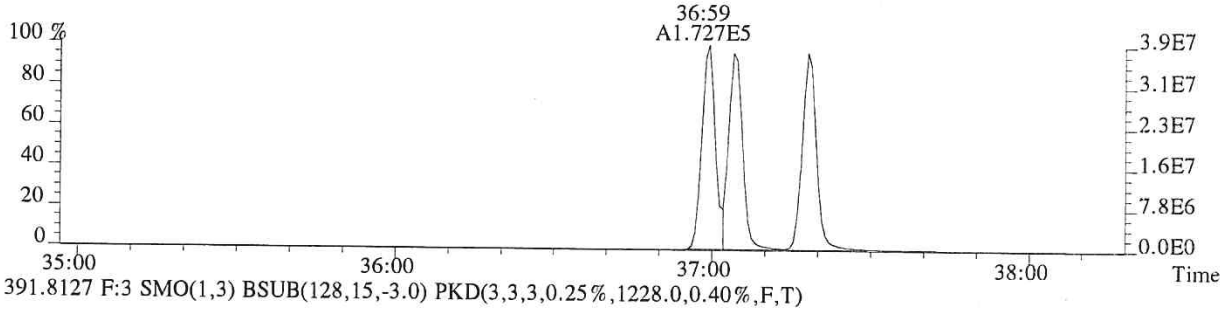


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

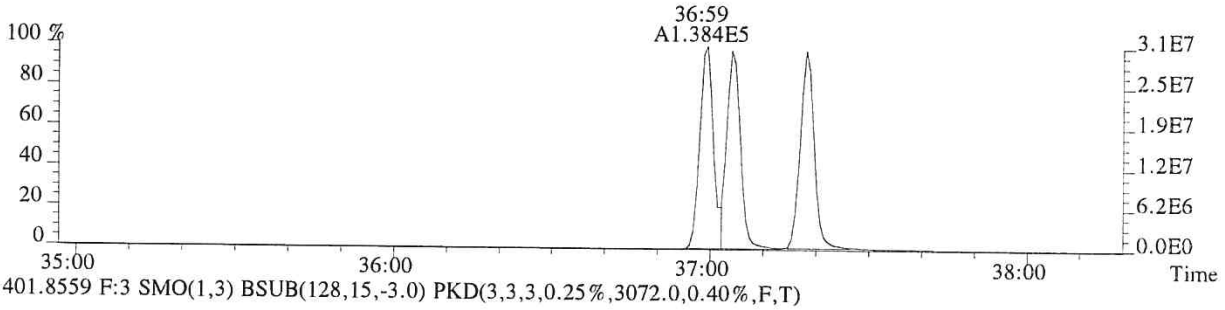


014837

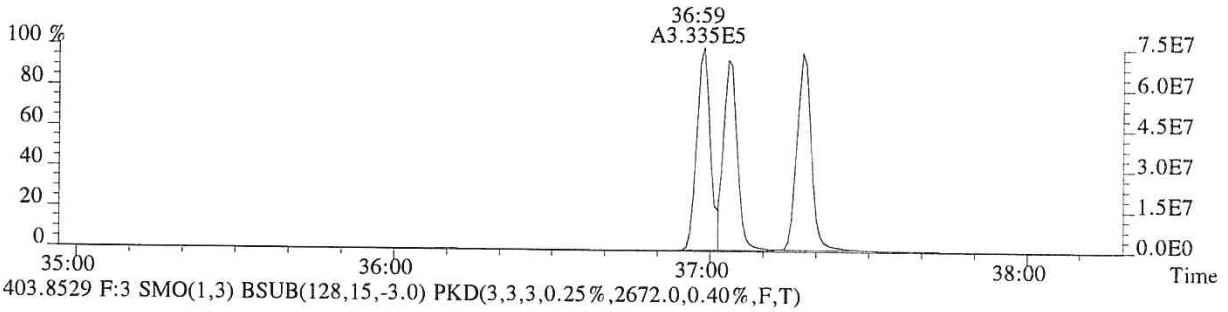
File:P513853 #1-303 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,512.0,0.40%,F,T)



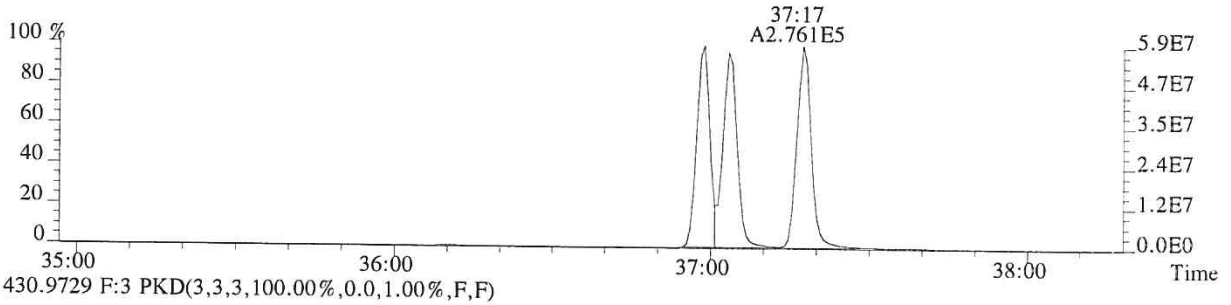
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1228.0,0.40%,F,T)



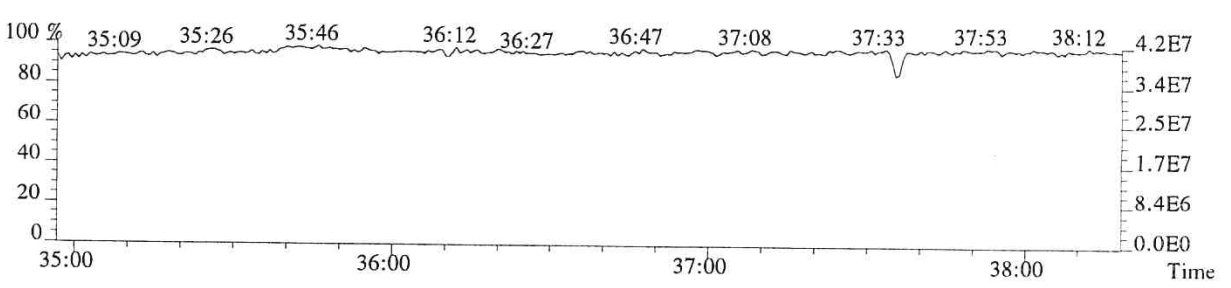
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3072.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2672.0,0.40%,F,T)

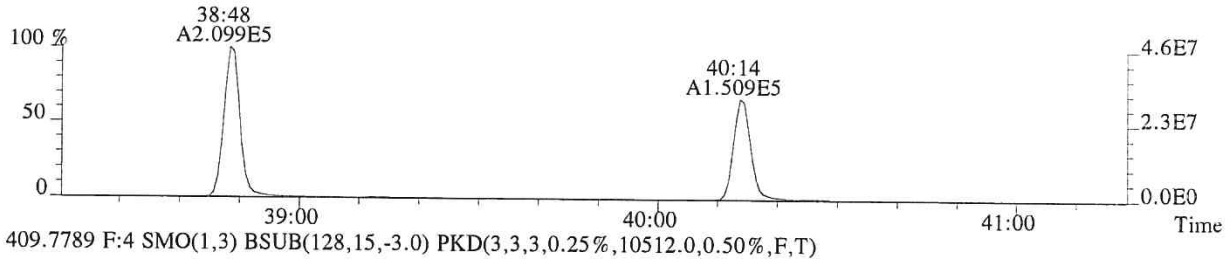


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

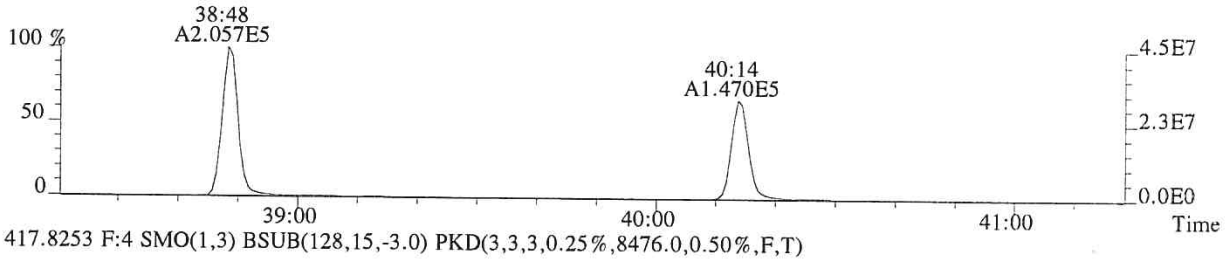


014838

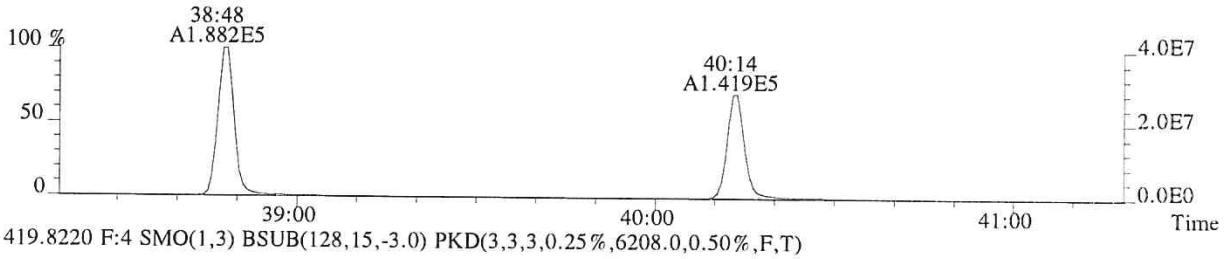
File:P513853 #1-268 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4436.0,0.50%,F,T)



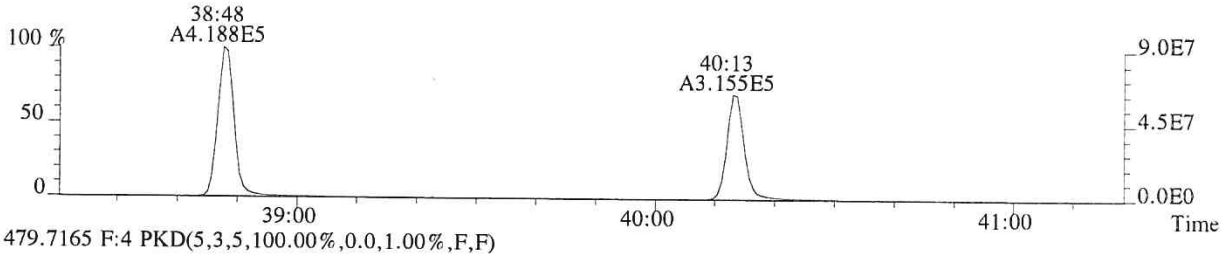
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,10512.0,0.50%,F,T)



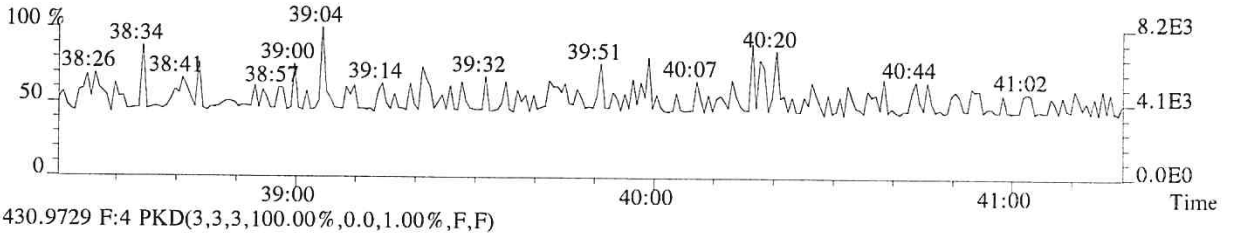
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8476.0,0.50%,F,T)



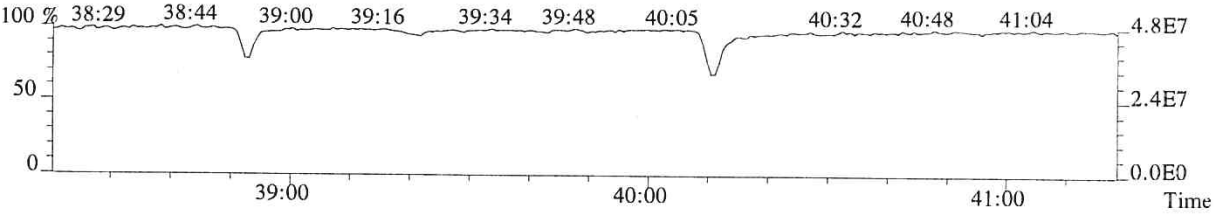
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6208.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

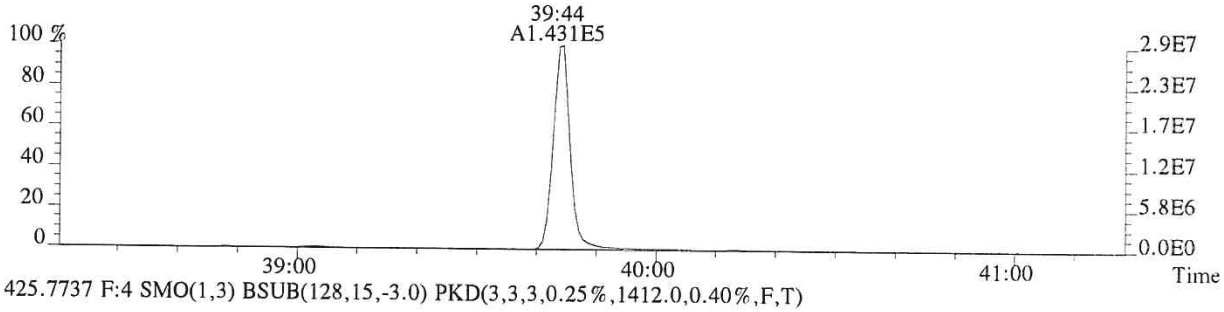


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

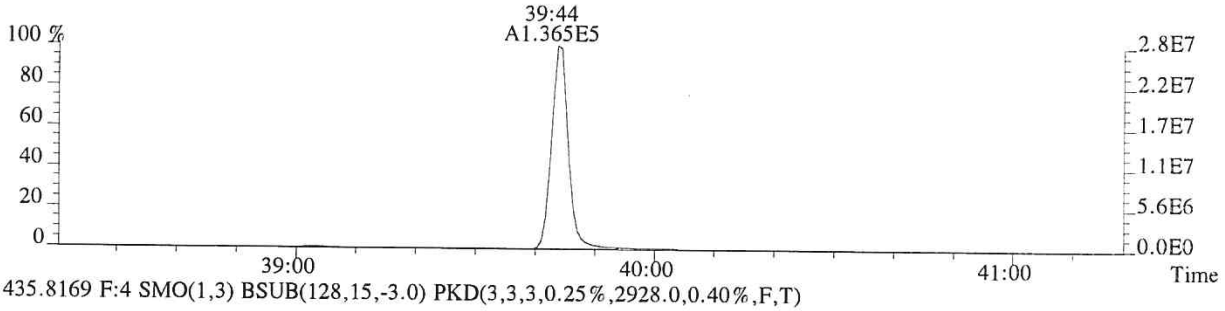


014839

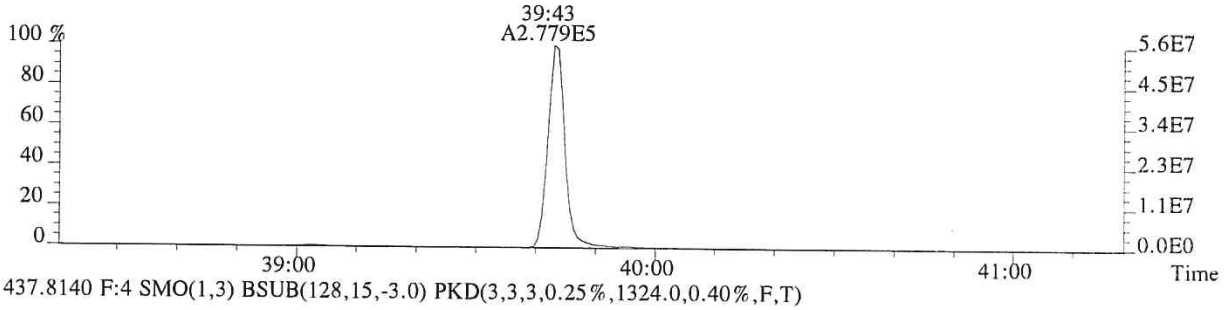
File:P513853 #1-268 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1840.0,0.40%,F,T)



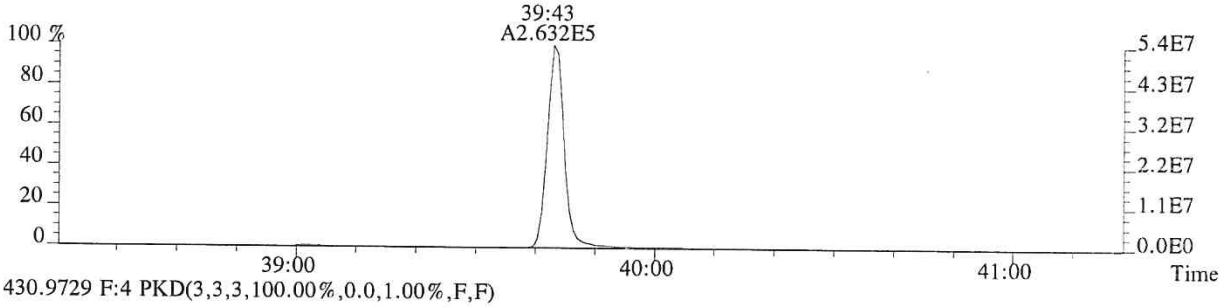
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1412.0,0.40%,F,T)



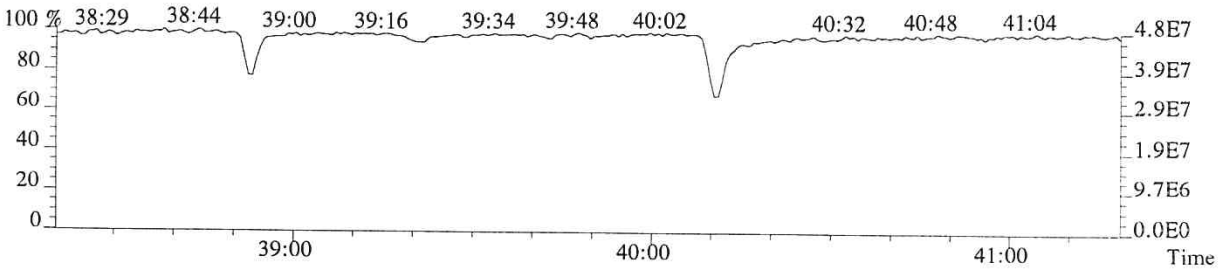
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2928.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1324.0,0.40%,F,T)

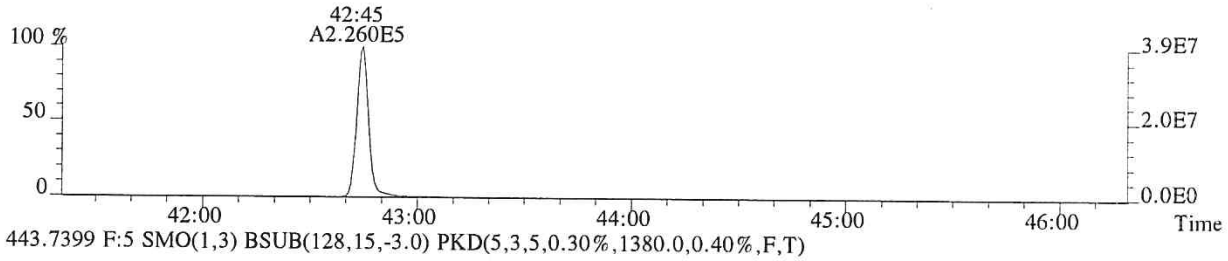


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

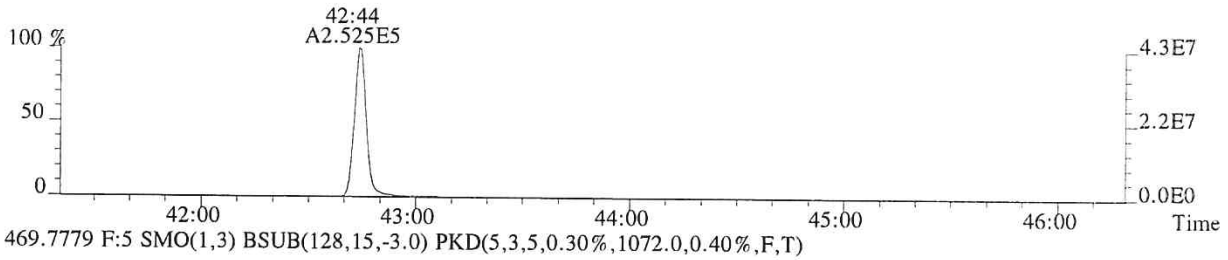


014840

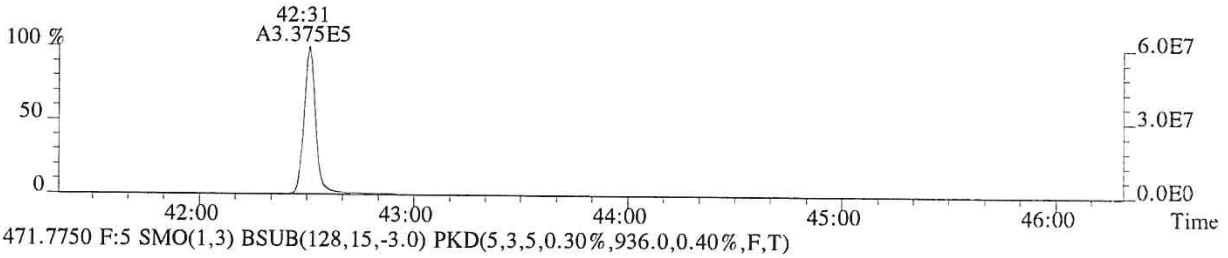
File:P513853 #1-448 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,144.0,0.40%,F,T)



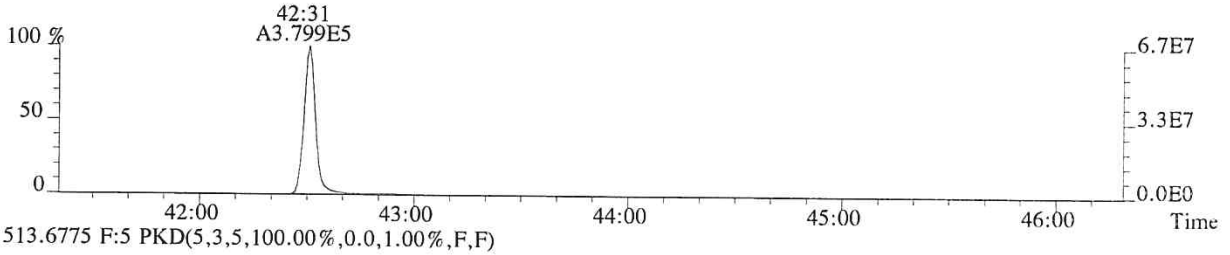
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1380.0,0.40%,F,T)



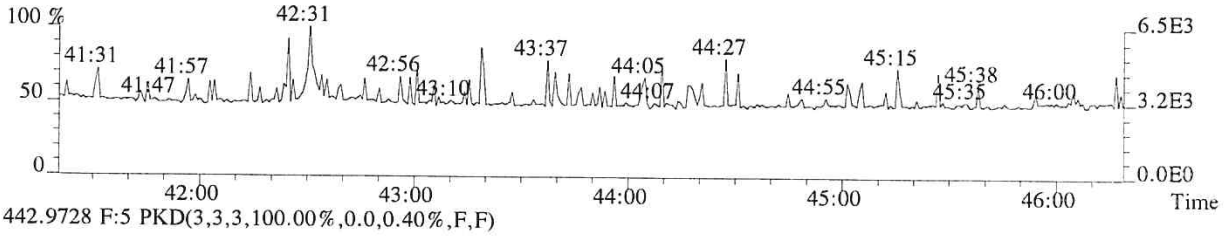
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1072.0,0.40%,F,T)



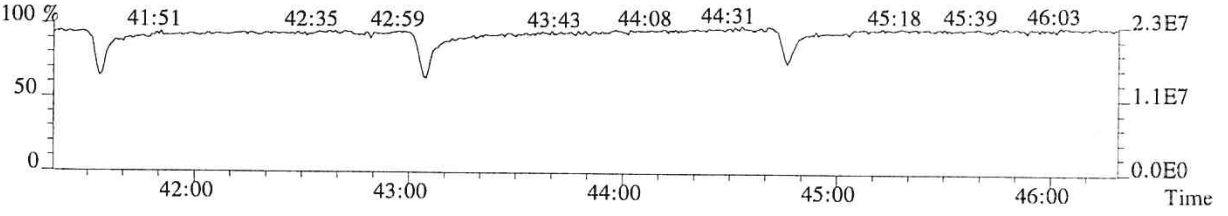
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,936.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

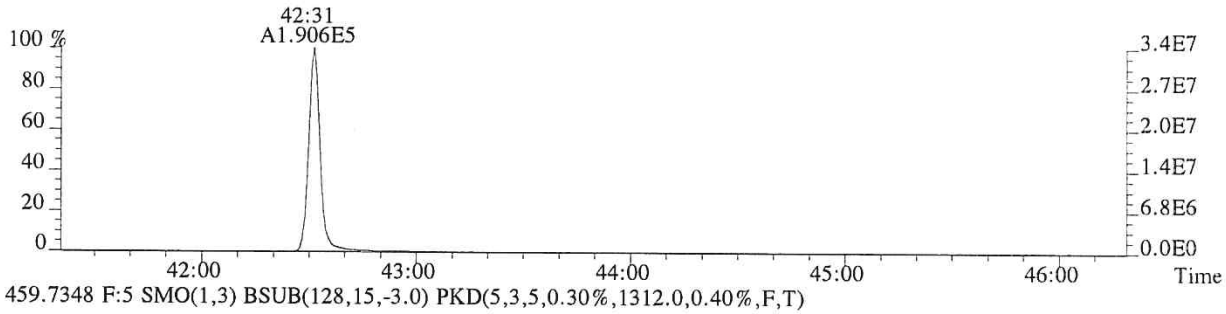


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

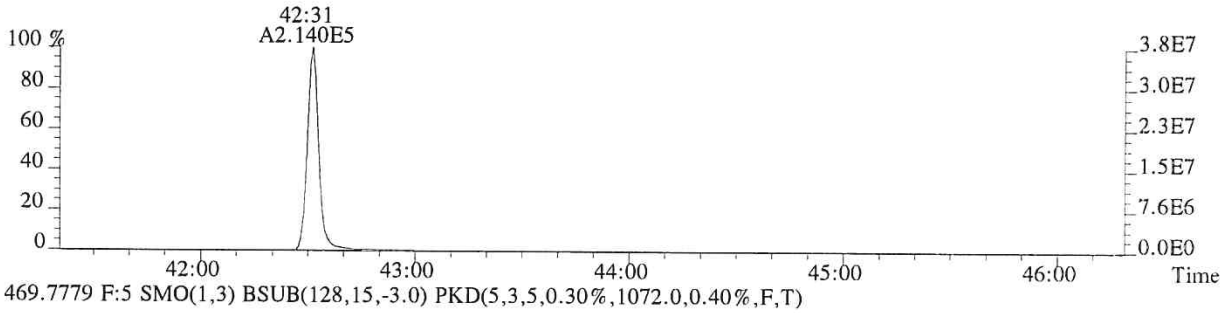


014841

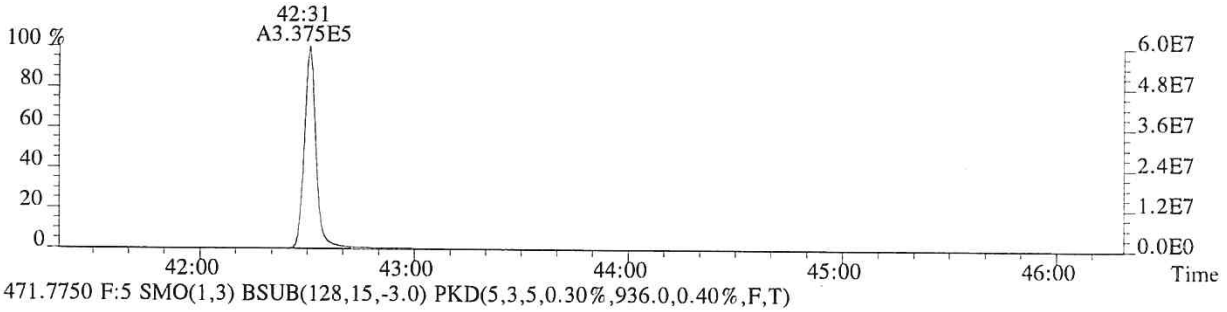
File:P513853 #1-448 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,632.0,0.40%,F,T)



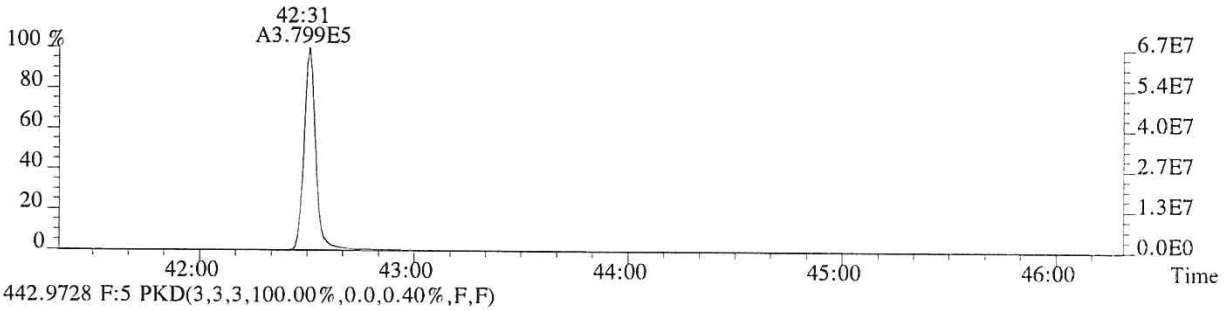
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1312.0,0.40%,F,T)



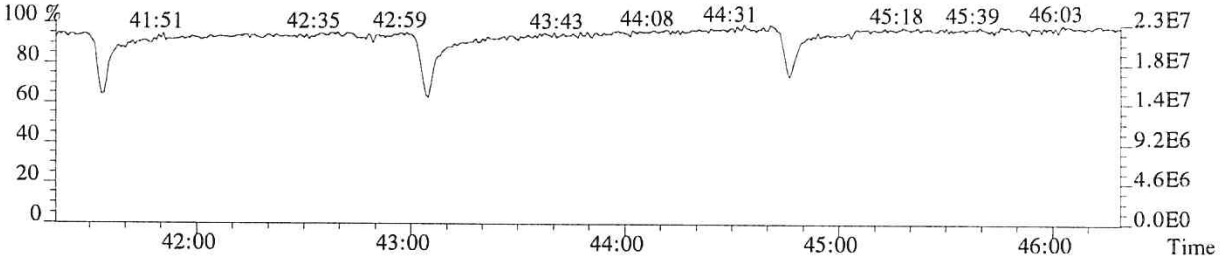
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1072.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,936.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



014842

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76558

Run #5 Filename P513854 Samp: 1 Inj: 1 Acquired: 24-JAN-18 16:55:09
Processed: 24-JAN-18 17:50:33 Sample ID: CS4

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:47	9.367e+04	1.218e+05	0.77	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:47	7.158e+05	4.652e+05	1.54	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:40	6.668e+05	4.362e+05	1.53	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:15	6.097e+05	4.979e+05	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:22	6.415e+05	5.246e+05	1.22	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:51	5.685e+05	4.706e+05	1.21	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:36	5.397e+05	4.367e+05	1.24	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:48	4.833e+05	4.698e+05	1.03	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	3.955e+05	3.845e+05	1.03	yes	no	1.258
10	Unk	OCDF	42:44	5.770e+05	6.374e+05	0.91	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:31	6.699e+04	8.569e+04	0.78	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:56	4.394e+05	2.817e+05	1.56	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:59	3.869e+05	3.085e+05	1.25	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:04	4.031e+05	3.210e+05	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:18	4.024e+05	3.196e+05	1.26	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	3.425e+05	3.252e+05	1.05	yes	no	1.025
17	Unk	OCDD	42:31	4.623e+05	5.191e+05	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:46	2.467e+05	3.121e+05	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:46	3.414e+05	2.167e+05	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	3.412e+05	2.161e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	1.522e+05	2.895e+05	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:21	1.720e+05	3.253e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:51	1.562e+05	2.969e+05	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:36	1.406e+05	2.715e+05	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	1.081e+05	2.395e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:13	9.438e+04	2.110e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:30	1.544e+05	1.910e+05	0.81	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	2.282e+05	1.431e+05	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	1.841e+05	1.451e+05	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:03	1.915e+05	1.516e+05	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:43	1.646e+05	1.528e+05	1.08	yes	no	0.858
32	IS	13C-OCDD	42:31	2.072e+05	2.298e+05	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:56	1.645e+05	2.018e+05	0.82	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:17	1.964e+05	1.566e+05	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:31	1.545e+05				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76558

Run #5 Filename P513854 Samp: 1 Inj: 1 Acquired: 24-JAN-18 16:55:09
Processed: 24-JAN-18 17:50:33 LAB. ID: CS4

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.89e+07	1.00e+03	1.9e+04	2.44e+07	1.90e+03	1.3e+04
2	1,2,3,7,8-PeCDF	1.40e+08	2.03e+03	6.9e+04	9.16e+07	1.47e+03	6.2e+04
3	2,3,4,7,8-PeCDF	1.39e+08	2.03e+03	6.9e+04	9.17e+07	1.47e+03	6.2e+04
4	1,2,3,4,7,8-HxCDF	1.35e+08	1.80e+03	7.5e+04	1.11e+08	2.10e+03	5.3e+04
5	1,2,3,6,7,8-HxCDF	1.41e+08	1.80e+03	7.8e+04	1.16e+08	2.10e+03	5.5e+04
6	2,3,4,6,7,8-HxCDF	1.27e+08	1.80e+03	7.0e+04	1.06e+08	2.10e+03	5.0e+04
7	1,2,3,7,8,9-HxCDF	1.14e+08	1.80e+03	6.3e+04	9.30e+07	2.10e+03	4.4e+04
8	1,2,3,4,6,7,8-HpCDF	1.07e+08	1.75e+04	6.1e+03	1.05e+08	2.93e+04	3.6e+03
9	1,2,3,4,7,8,9-HpCDF	8.10e+07	1.75e+04	4.6e+03	7.89e+07	2.93e+04	2.7e+03
10	OCDF	1.02e+08	5.04e+02	2.0e+05	1.14e+08	1.72e+03	6.6e+04
11	2,3,7,8-TCDD	1.41e+07	2.20e+03	6.4e+03	1.80e+07	1.38e+03	1.3e+04
12	1,2,3,7,8-PeCDD	9.08e+07	1.42e+03	6.4e+04	5.86e+07	1.44e+02	4.1e+05
13	1,2,3,4,7,8-HxCDD	8.77e+07	1.20e+03	7.3e+04	7.06e+07	1.58e+03	4.5e+04
14	1,2,3,6,7,8-HxCDD	8.80e+07	1.20e+03	7.3e+04	7.05e+07	1.58e+03	4.5e+04
15	1,2,3,7,8,9-HxCDD	8.97e+07	1.20e+03	7.5e+04	7.13e+07	1.58e+03	4.5e+04
16	1,2,3,4,6,7,8-HpCDD	7.19e+07	1.52e+03	4.7e+04	6.86e+07	1.50e+03	4.6e+04
17	OCDD	8.05e+07	7.36e+02	1.1e+05	9.09e+07	1.16e+03	7.8e+04
18	13C-2,3,7,8-TCDF	4.92e+07	8.28e+03	5.9e+03	6.18e+07	3.78e+03	1.6e+04
19	13C-1,2,3,7,8-PeCDF	6.78e+07	1.09e+03	6.2e+04	4.35e+07	7.12e+02	6.1e+04
20	13C-2,3,4,7,8-PeCDF	7.11e+07	1.09e+03	6.5e+04	4.54e+07	7.12e+02	6.4e+04
21	13C-1,2,3,4,7,8-HxCDF	3.32e+07	1.94e+03	1.7e+04	6.39e+07	1.54e+03	4.2e+04
22	13C-1,2,3,6,7,8-HxCDF	3.76e+07	1.94e+03	1.9e+04	7.17e+07	1.54e+03	4.7e+04
23	13C-2,3,4,6,7,8-HxCDF	3.46e+07	1.94e+03	1.8e+04	6.63e+07	1.54e+03	4.3e+04
24	13C-1,2,3,7,8,9-HxCDF	2.97e+07	1.94e+03	1.5e+04	5.66e+07	1.54e+03	3.7e+04
25	13C-1,2,3,4,6,7,8-HpCDF	2.37e+07	7.11e+03	3.3e+03	5.25e+07	1.03e+04	5.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.95e+07	7.11e+03	2.7e+03	4.34e+07	1.03e+04	4.2e+03
27	13C-2,3,7,8-TCDD	3.25e+07	6.40e+03	5.1e+03	3.99e+07	2.77e+03	1.4e+04
28	13C-1,2,3,7,8-PeCDD	4.73e+07	1.13e+03	4.2e+04	2.97e+07	8.40e+02	3.5e+04
29	13C-1,2,3,4,7,8-HxCDD	4.15e+07	3.03e+03	1.4e+04	3.28e+07	2.40e+03	1.4e+04
30	13C-1,2,3,6,7,8-HxCDD	4.14e+07	3.03e+03	1.4e+04	3.31e+07	2.40e+03	1.4e+04
31	13C-1,2,3,4,6,7,8-HpCDD	3.45e+07	1.55e+03	2.2e+04	3.21e+07	1.32e+03	2.4e+04
32	13C-OCDD	3.61e+07	1.25e+03	2.9e+04	4.00e+07	1.19e+03	3.4e+04
33	13C-1,2,3,4-TCDD	3.34e+07	6.40e+03	5.2e+03	4.12e+07	2.77e+03	1.5e+04
34	13C-1,2,3,7,8,9-HxCDD	4.34e+07	3.03e+03	1.4e+04	3.46e+07	2.40e+03	1.4e+04
35	37Cl-2,3,7,8-TCDD	3.25e+07	1.28e+03	2.5e+04			

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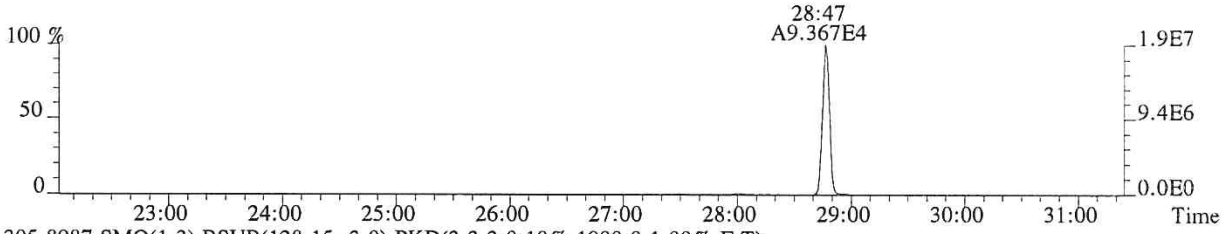
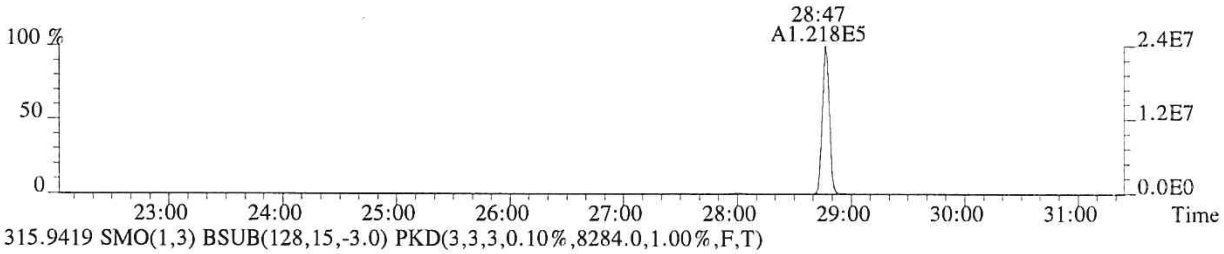
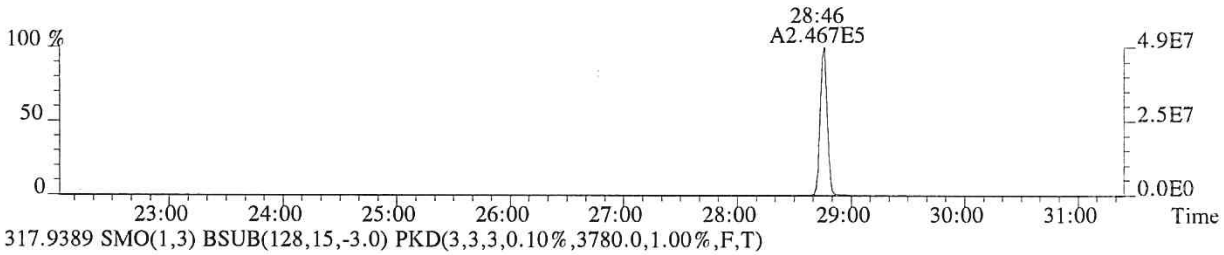
File:P513854 #1-665 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)



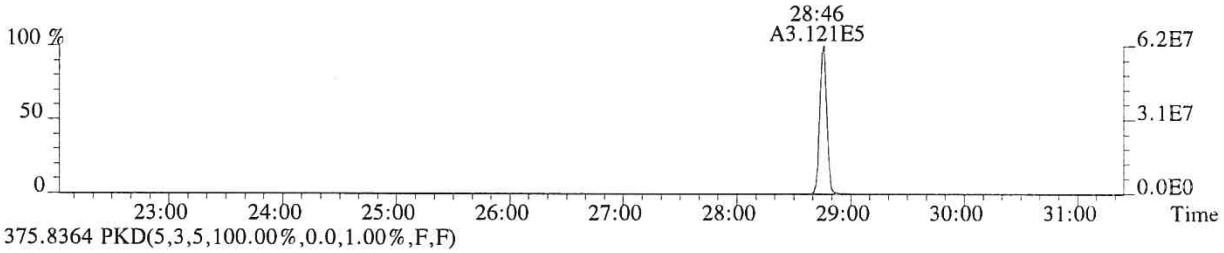
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1900.0,1.00%,F,T)



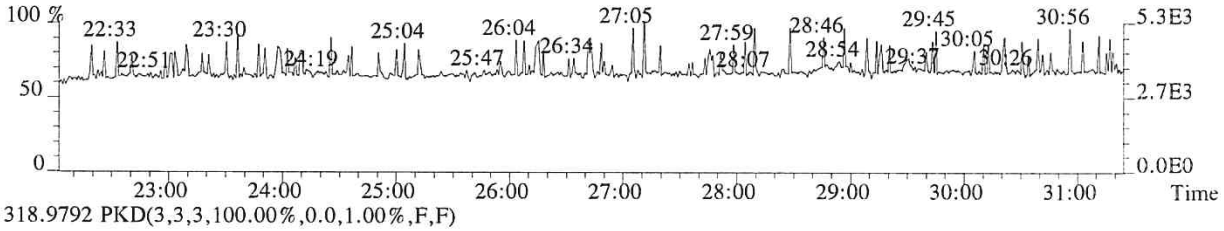
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8284.0,1.00%,F,T)



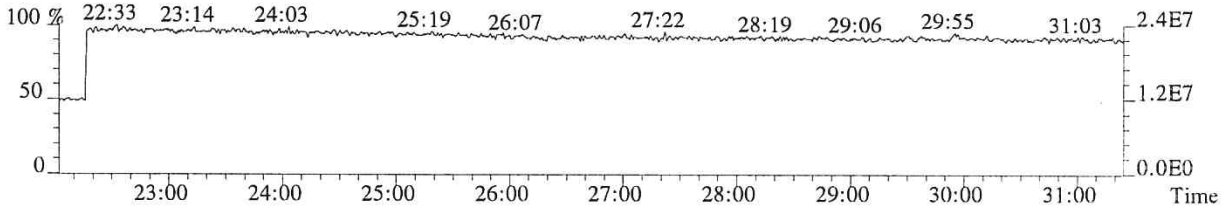
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3780.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

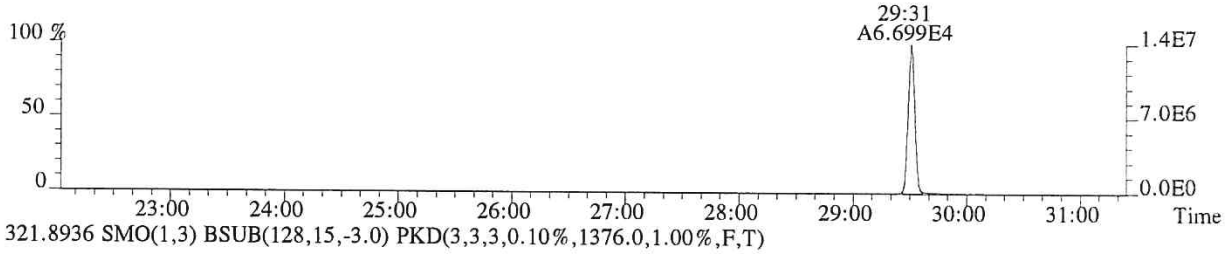


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

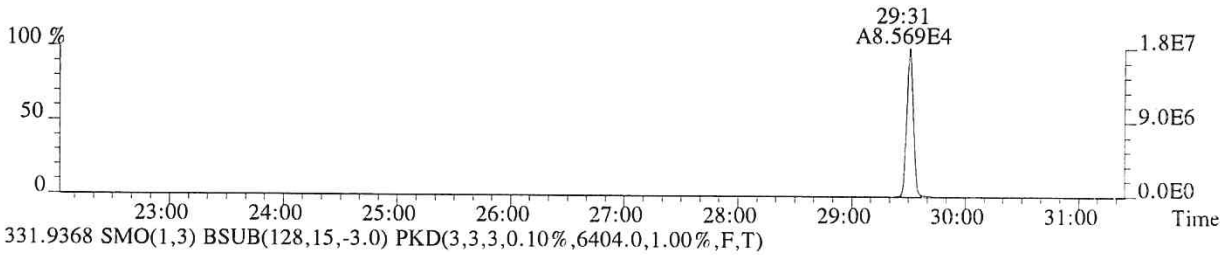


014845

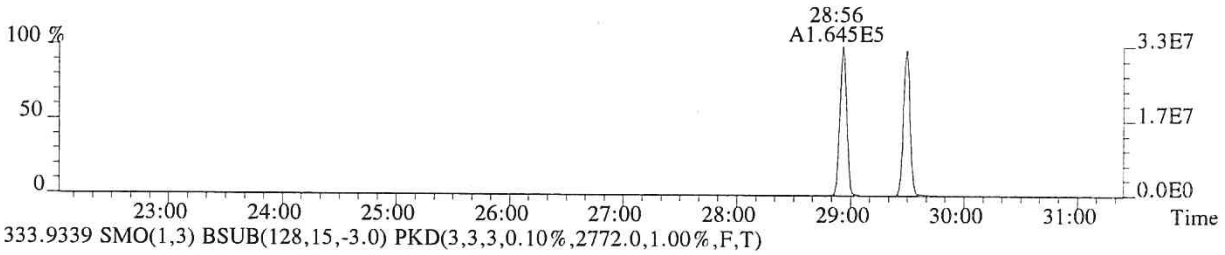
File:P513854 #1-665 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2200.0,1.00%,F,T)



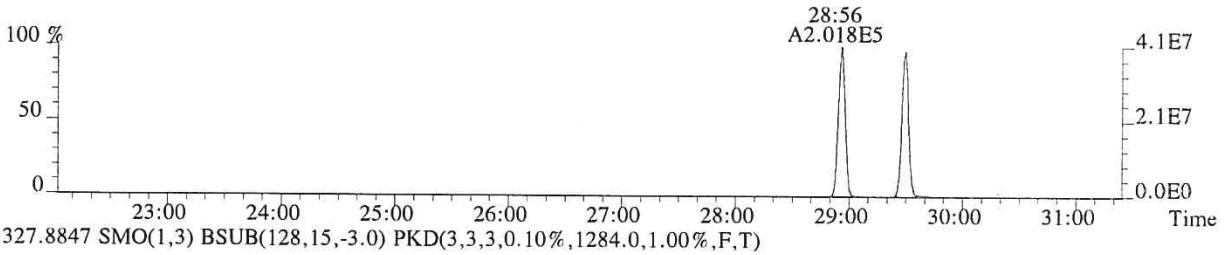
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1376.0,1.00%,F,T)



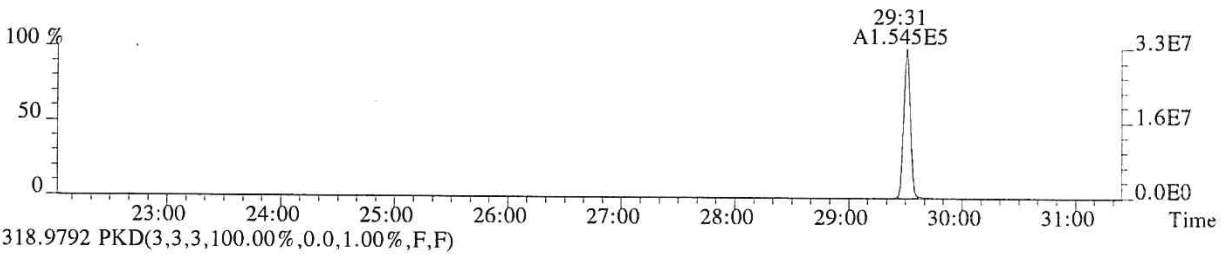
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6404.0,1.00%,F,T)



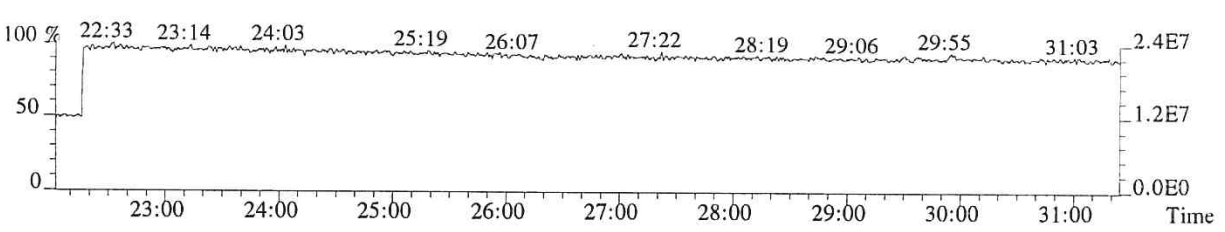
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2772.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1284.0,1.00%,F,T)

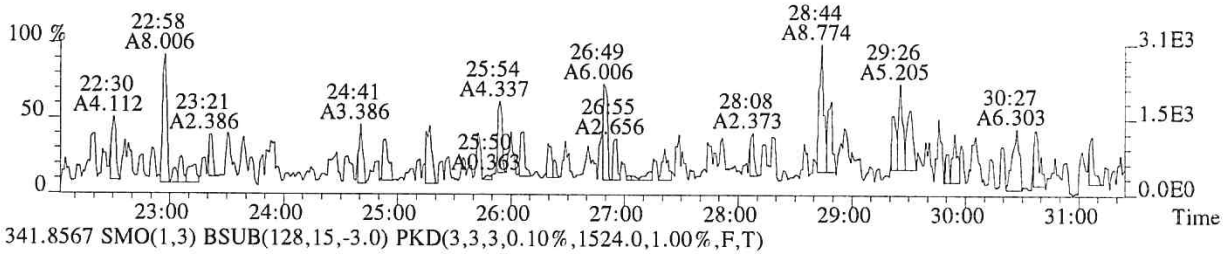


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

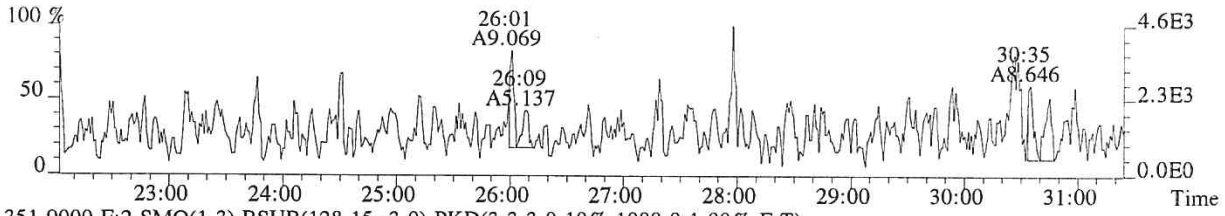


014846

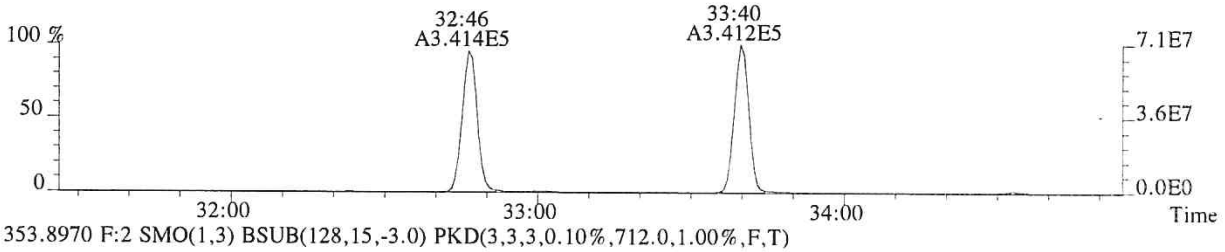
File:P513854 #1-665 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,600.0,1.00%,F,T)



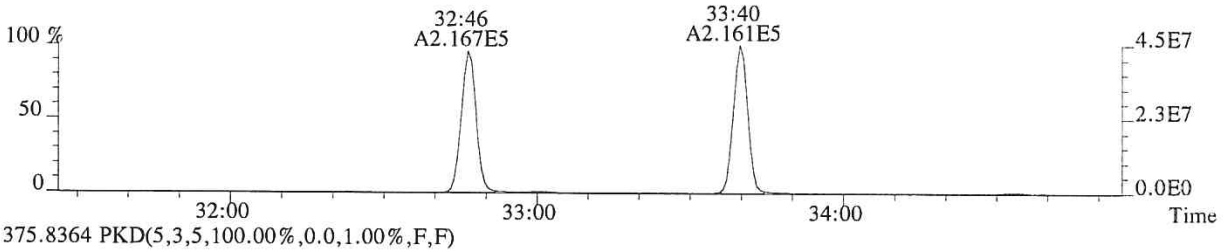
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1524.0,1.00%,F,T)



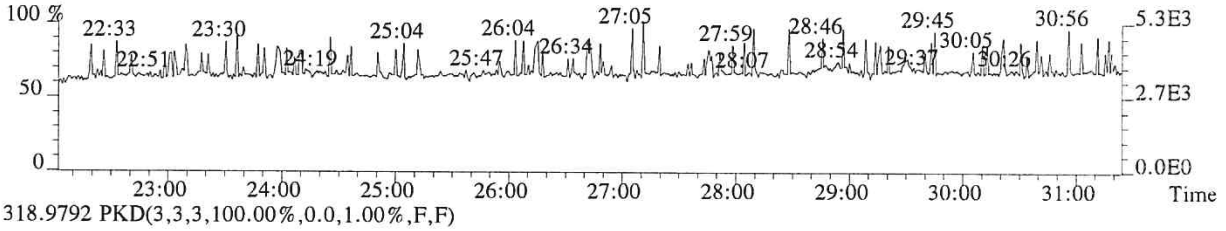
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1088.0,1.00%,F,T)



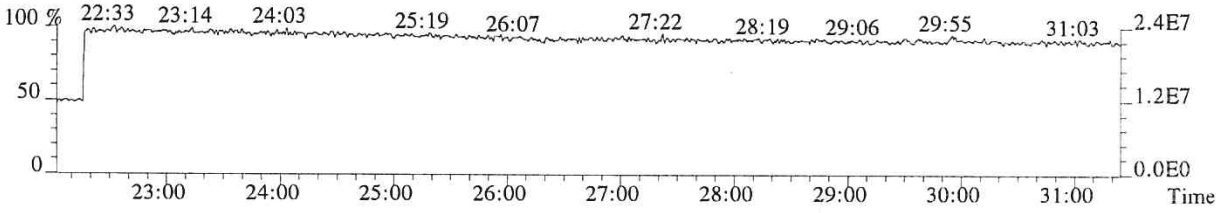
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

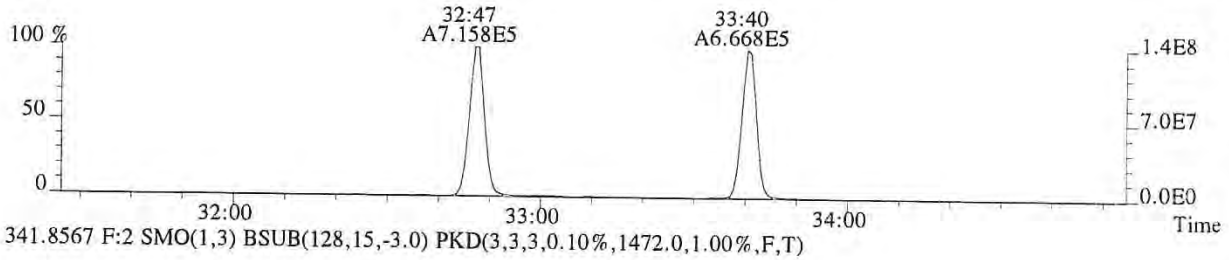


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

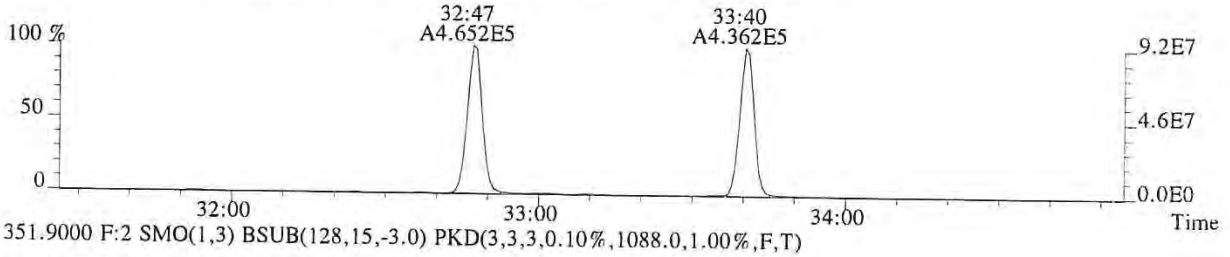


014847

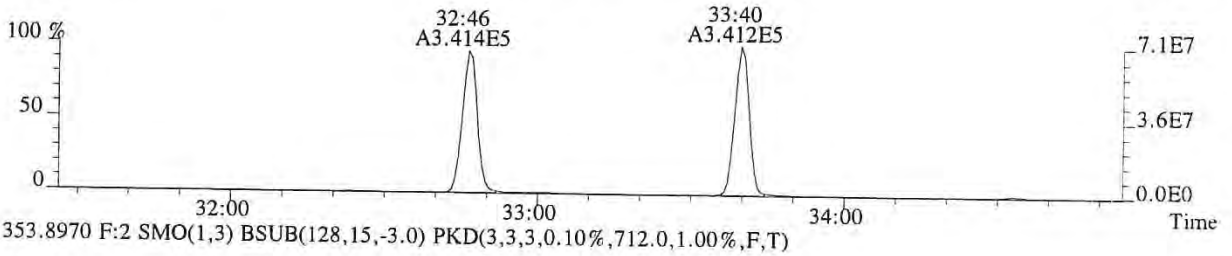
File:P513854 #1-313 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2028.0,1.00%,F,T)



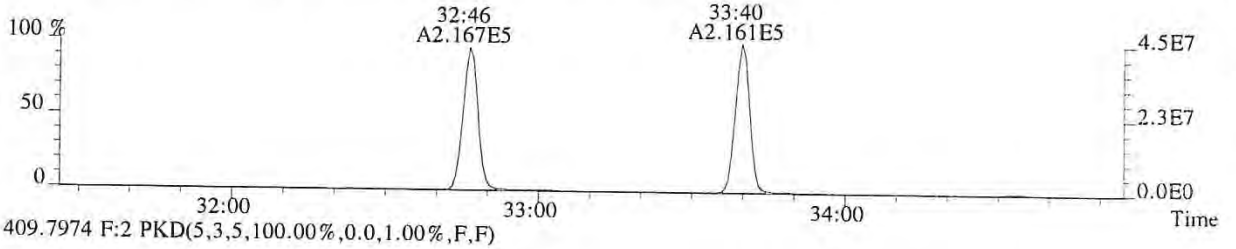
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1472.0,1.00%,F,T)



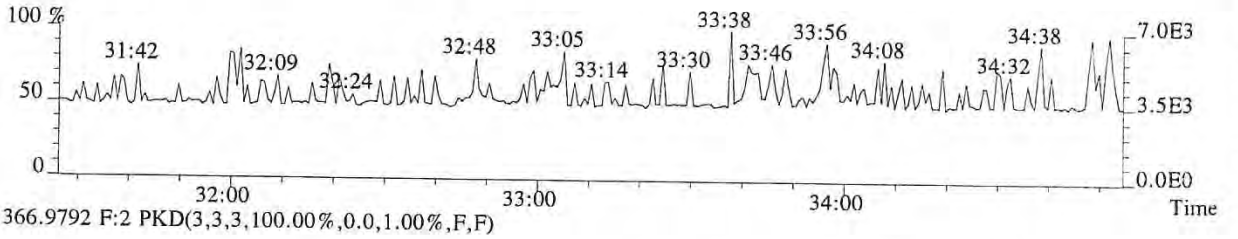
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1088.0,1.00%,F,T)



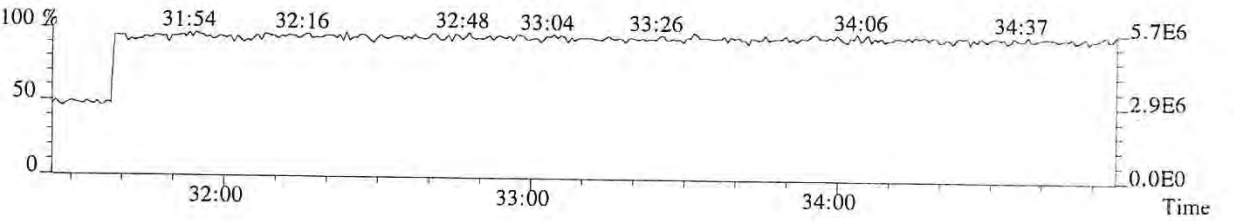
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

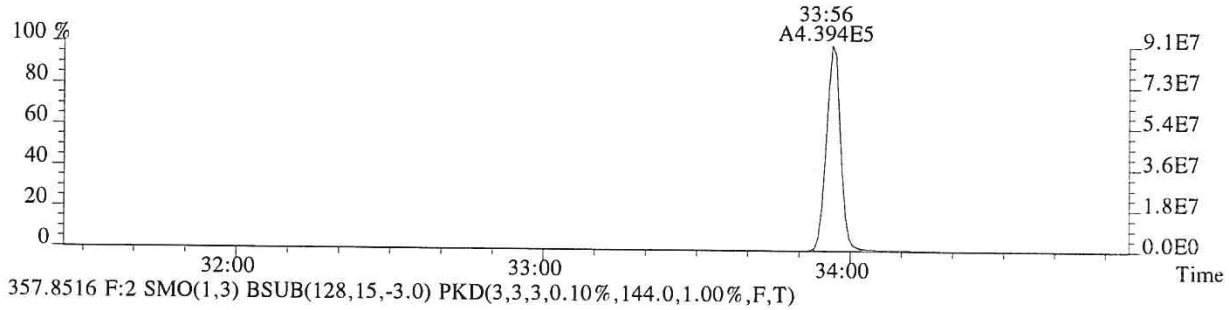


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

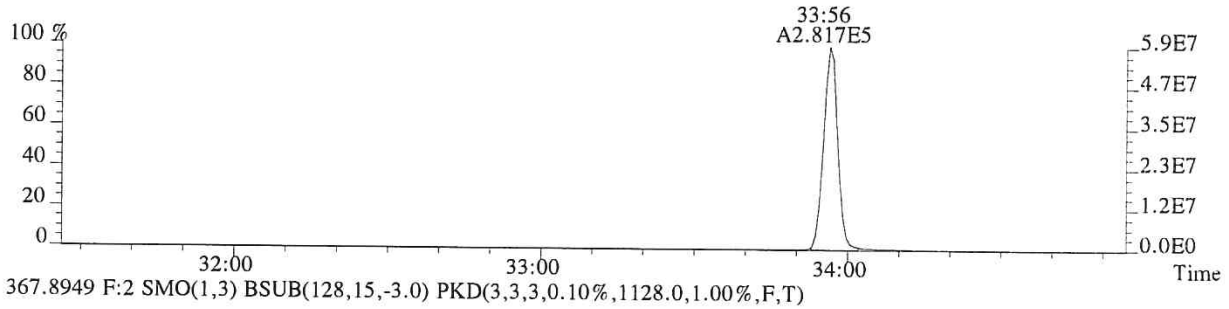


014848

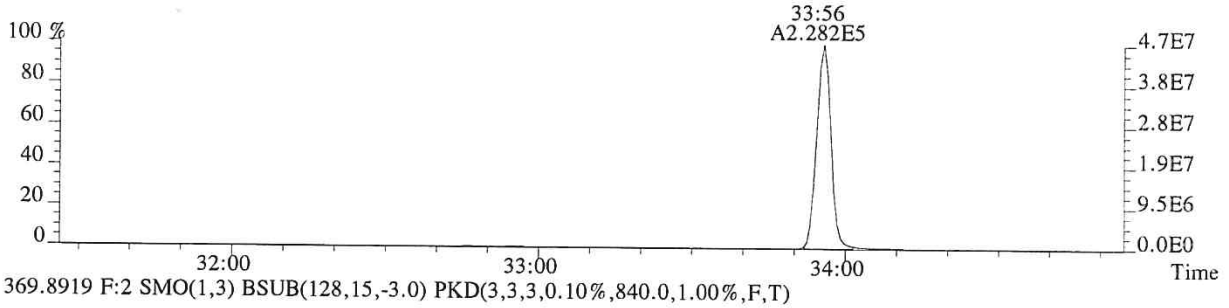
File:P513854 #1-313 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1420.0,1.00%,F,T)



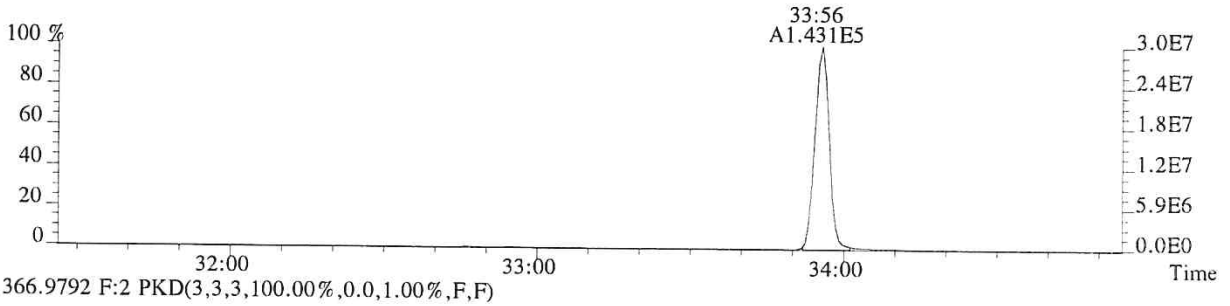
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,144.0,1.00%,F,T)



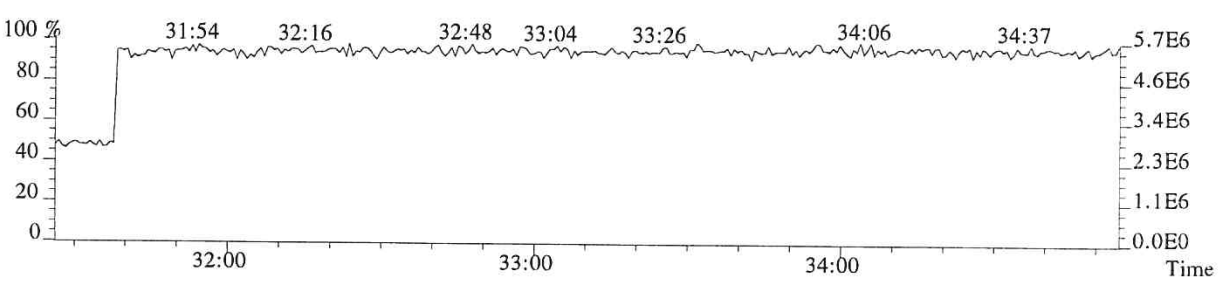
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1128.0,1.00%,F,T)



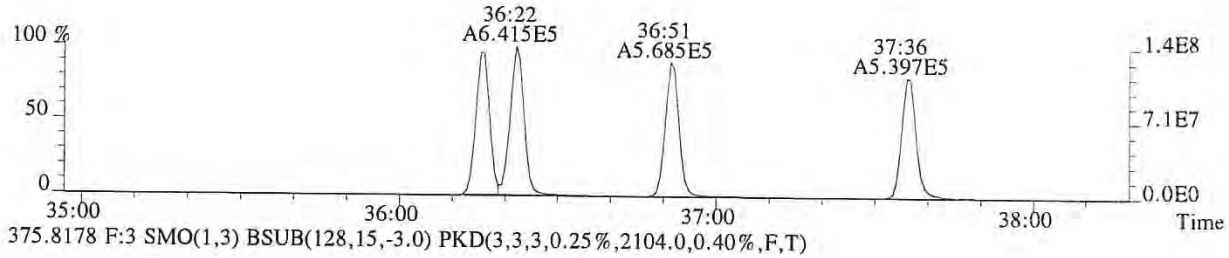
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,840.0,1.00%,F,T)



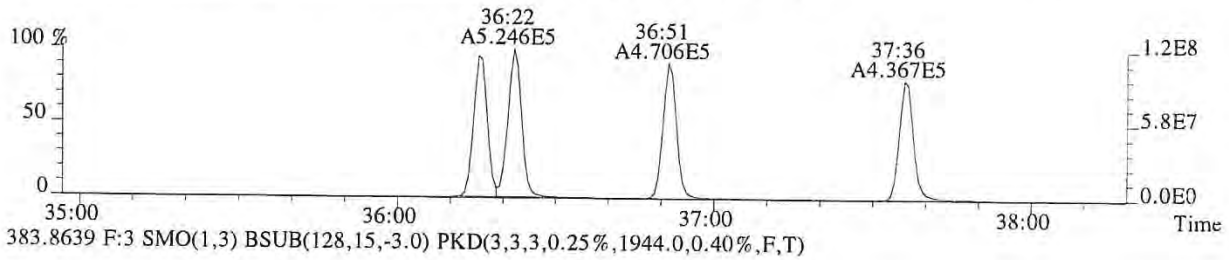
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



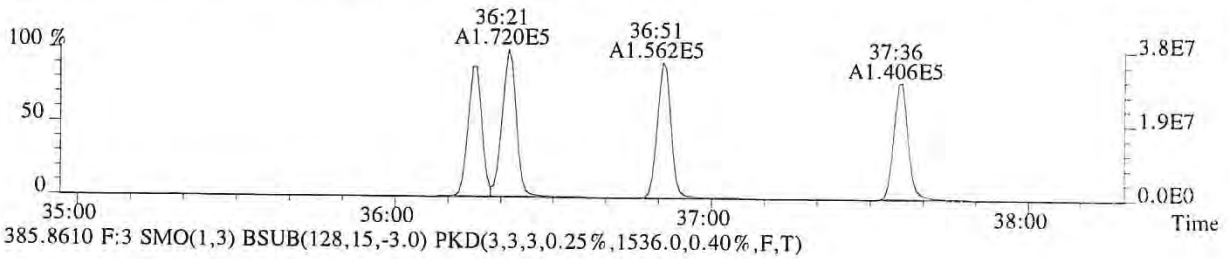
File:P513854 #1-303 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1804.0,0.40%,F,T)



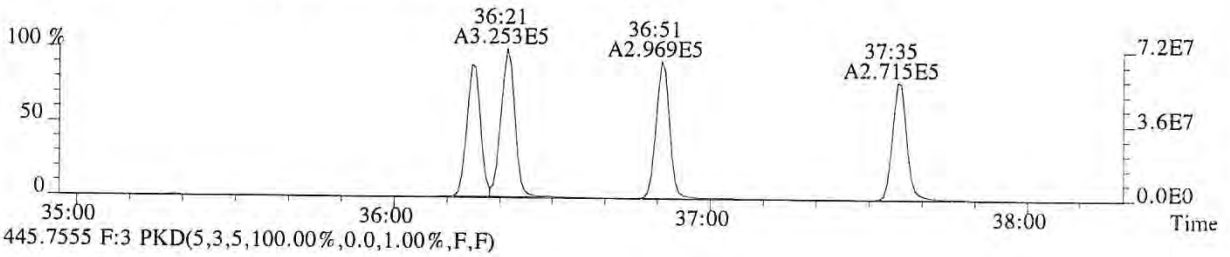
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2104.0,0.40%,F,T)



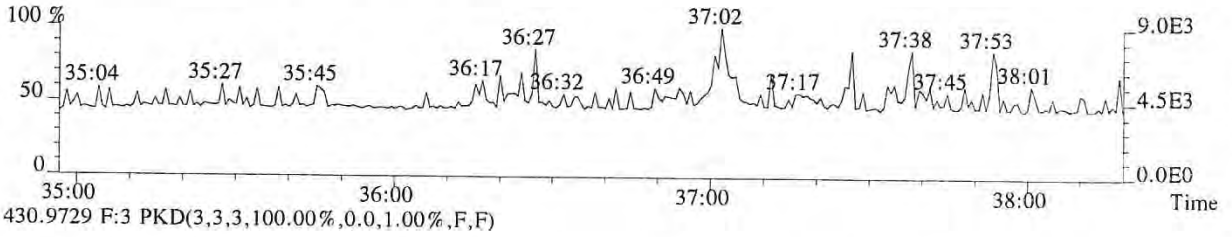
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1944.0,0.40%,F,T)



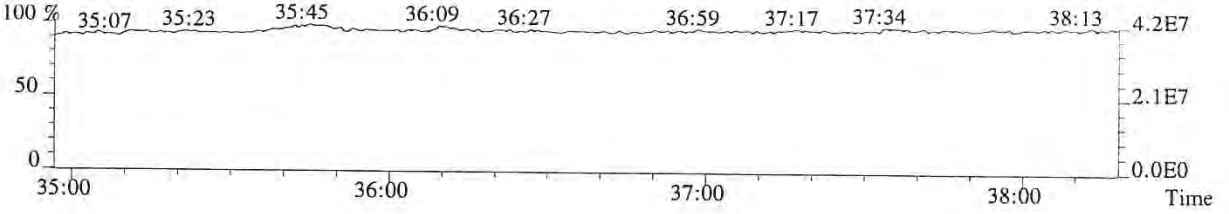
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1536.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

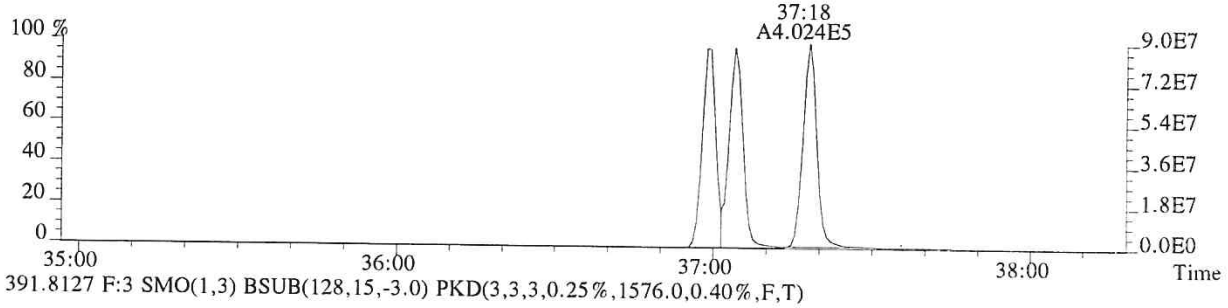


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

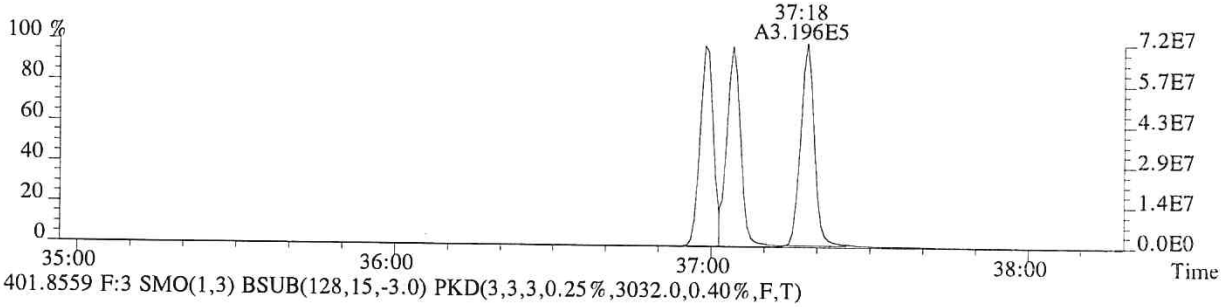


014850

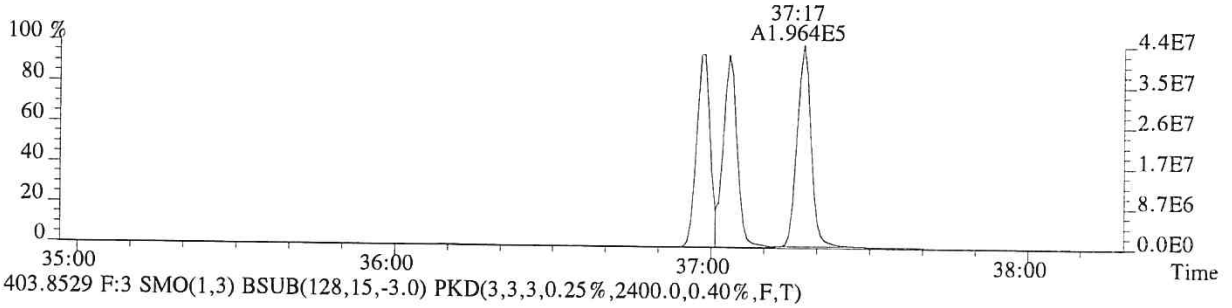
File:P513854 #1-303 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1200.0,0.40%,F,T)



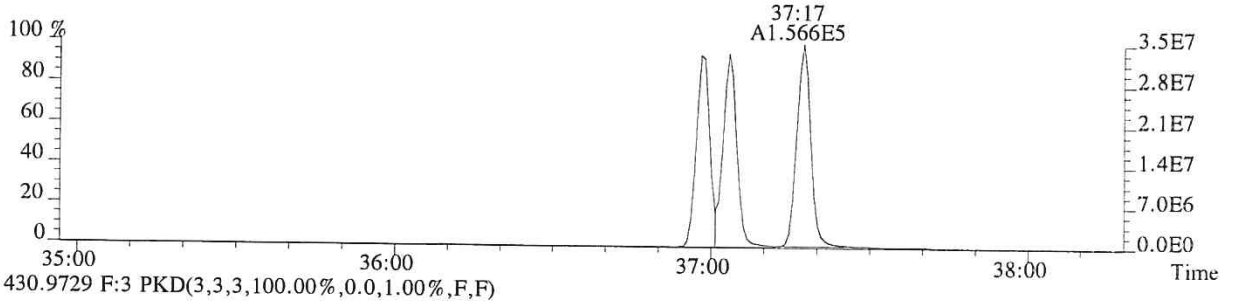
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1576.0,0.40%,F,T)



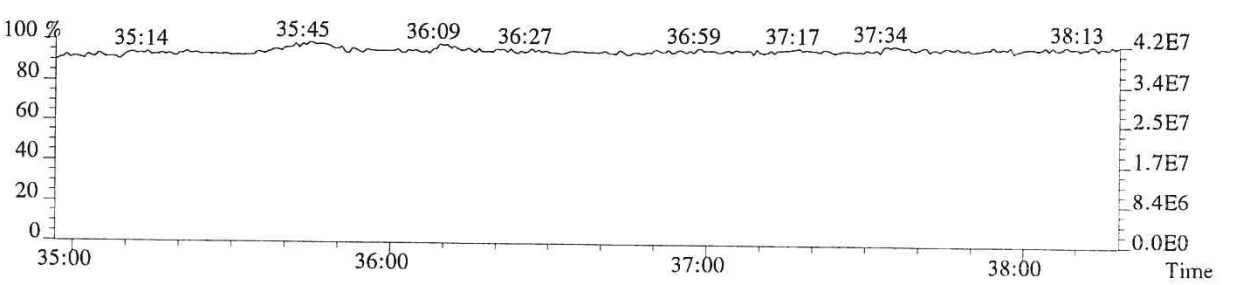
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3032.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2400.0,0.40%,F,T)



430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



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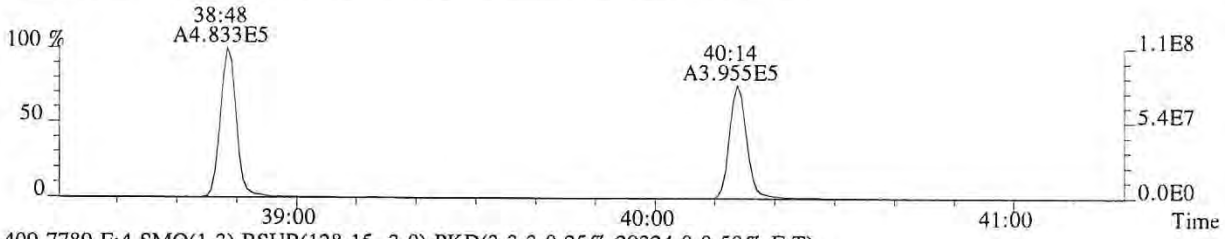
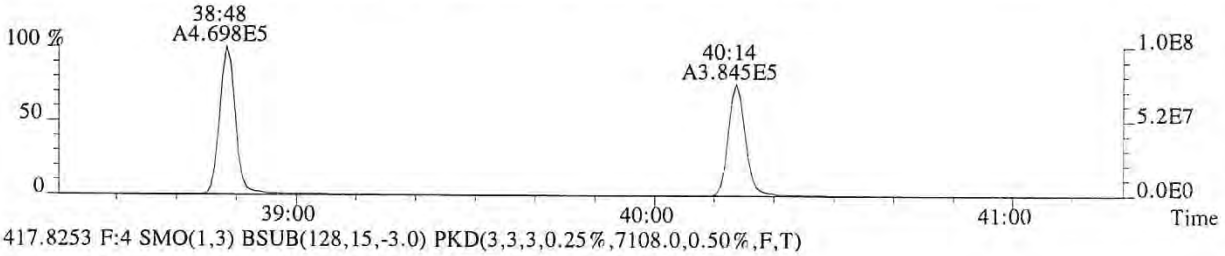
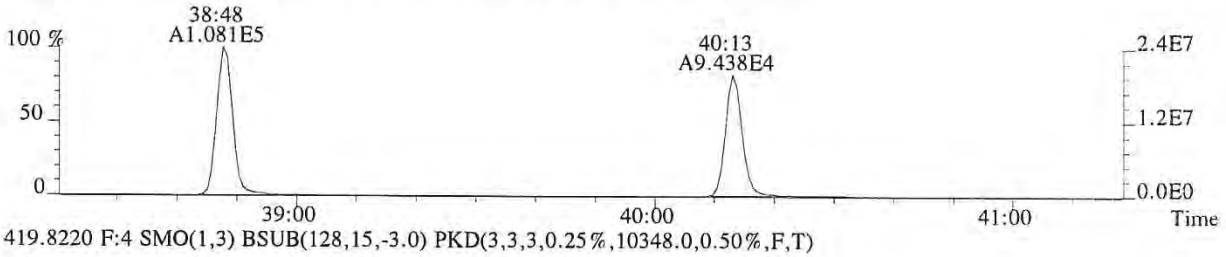
File:P513854 #1-268 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,17516.0,0.50%,F,T)



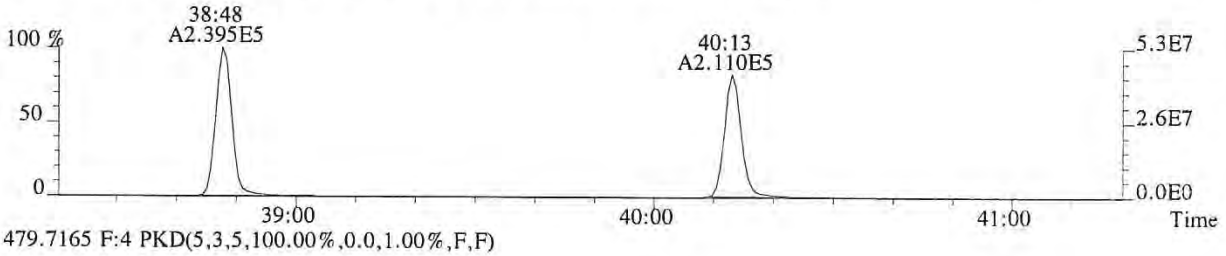
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,29324.0,0.50%,F,T)



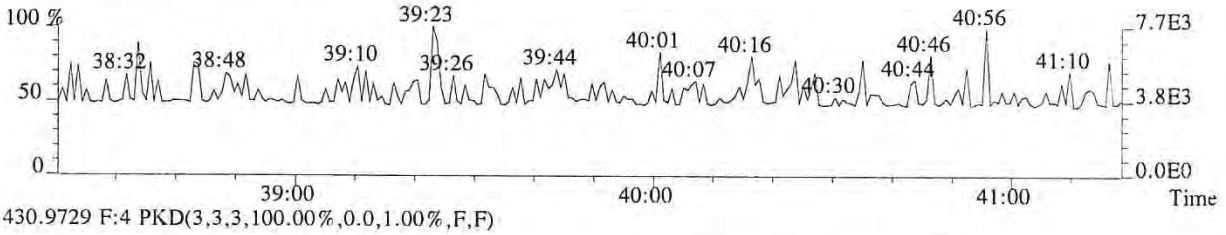
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7108.0,0.50%,F,T)



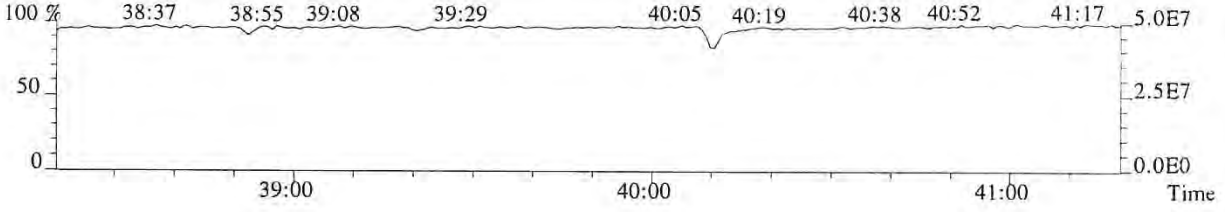
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,10348.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

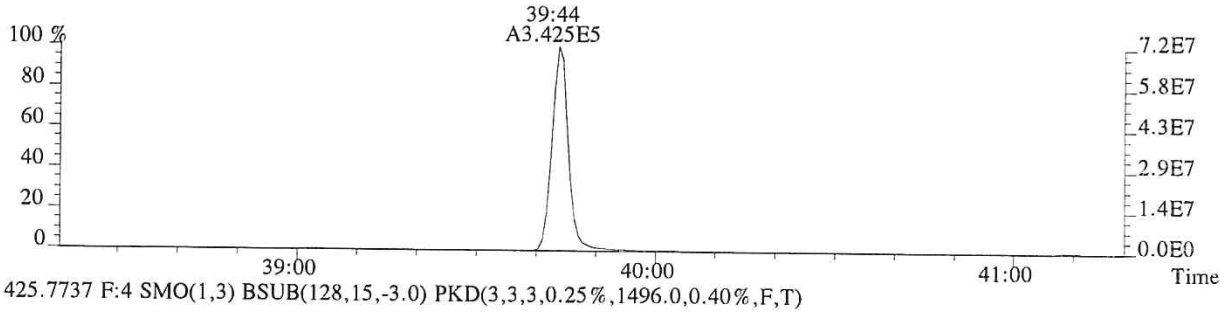


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

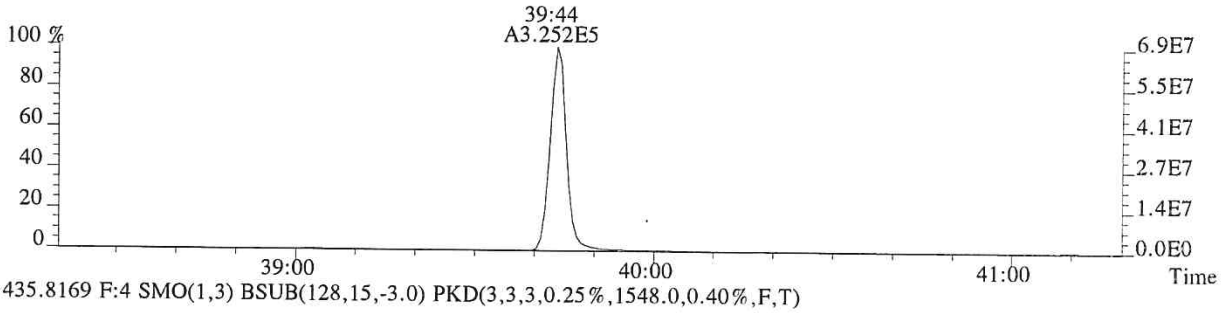


014852

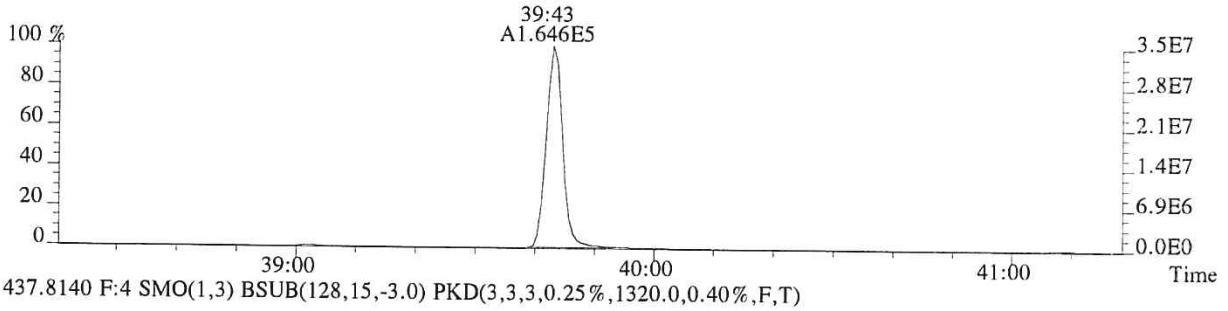
File:P513854 #1-268 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1516.0,0.40%,F,T)



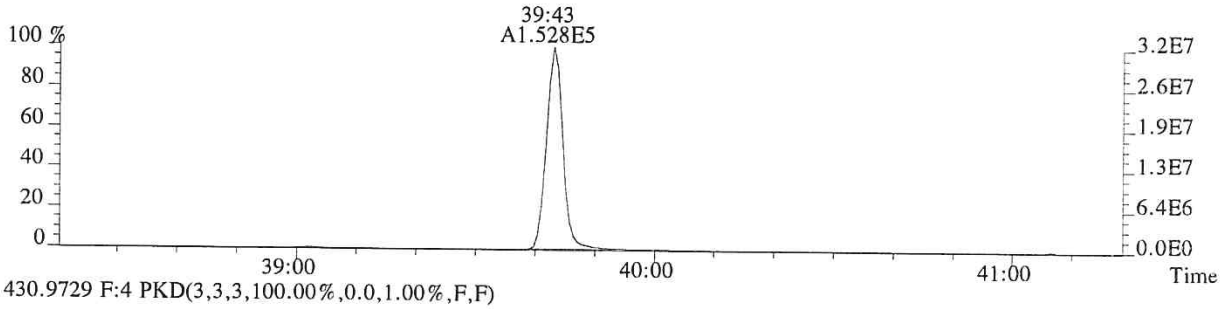
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1496.0,0.40%,F,T)



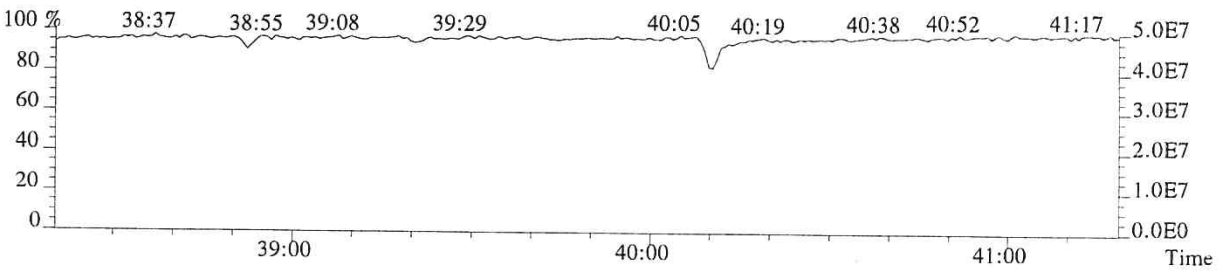
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1548.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1320.0,0.40%,F,T)

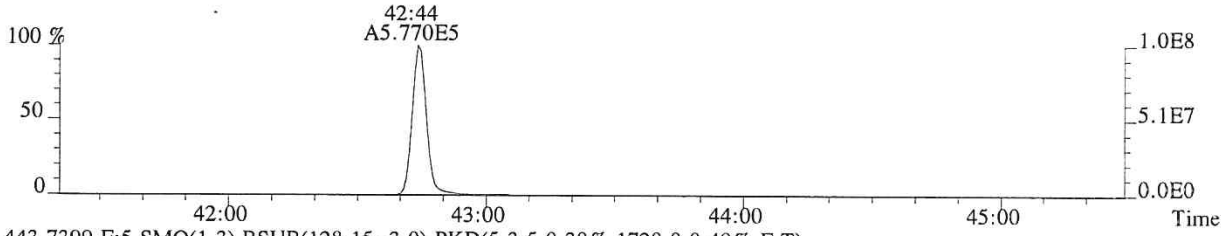


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

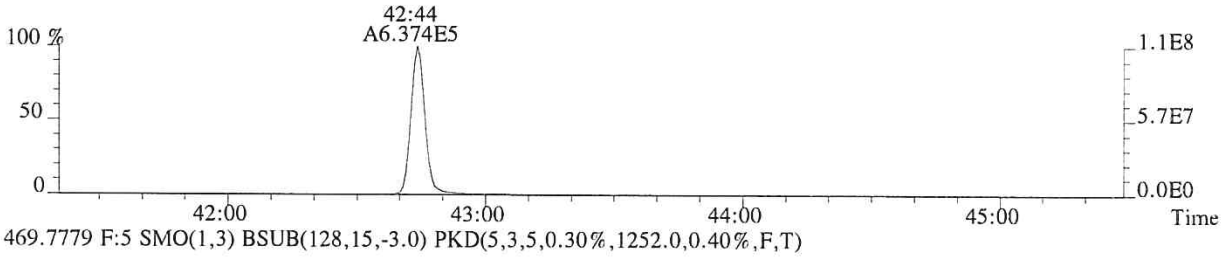


014853

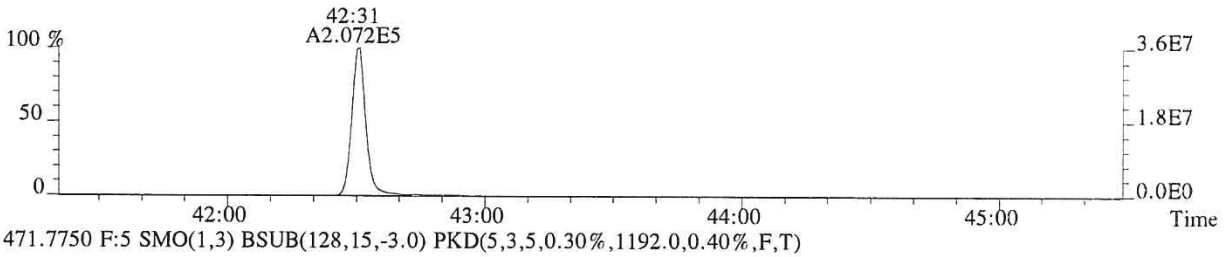
File:P513854 #1-373 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,504.0,0.40%,F,T)



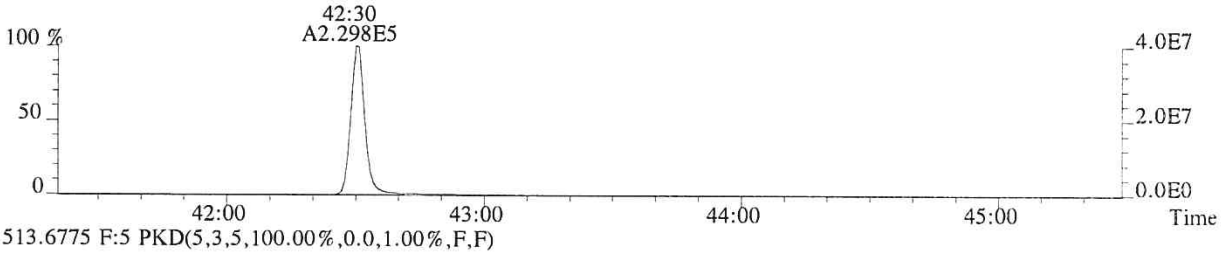
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1720.0,0.40%,F,T)



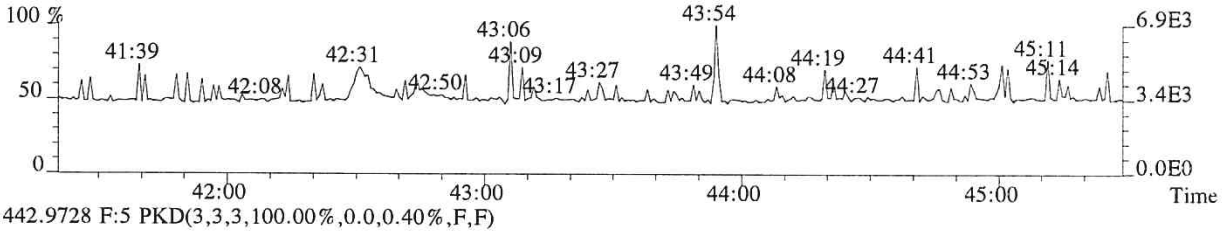
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1252.0,0.40%,F,T)



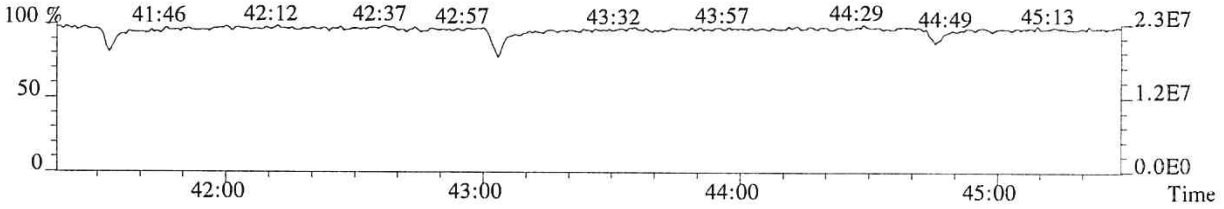
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1192.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

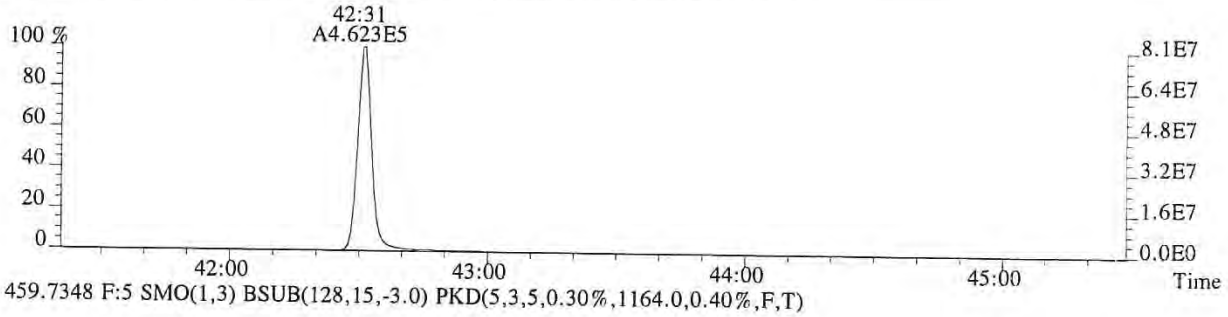


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

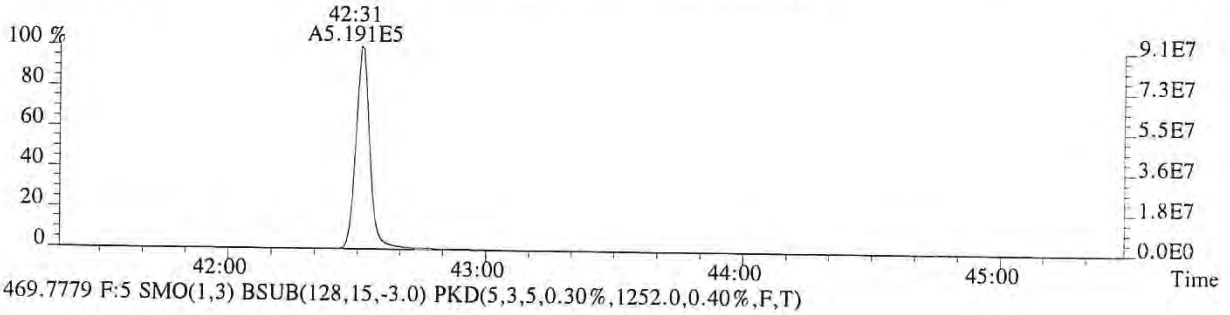


014854

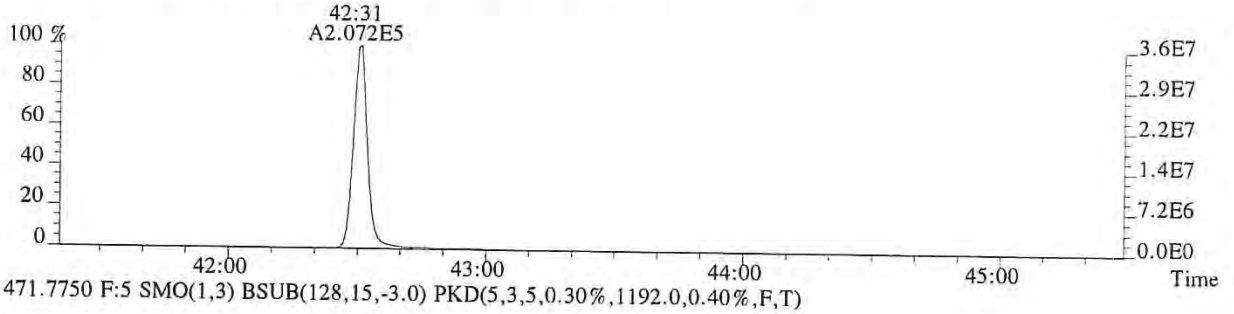
File:P513854 #1-373 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,736.0,0.40%,F,T)



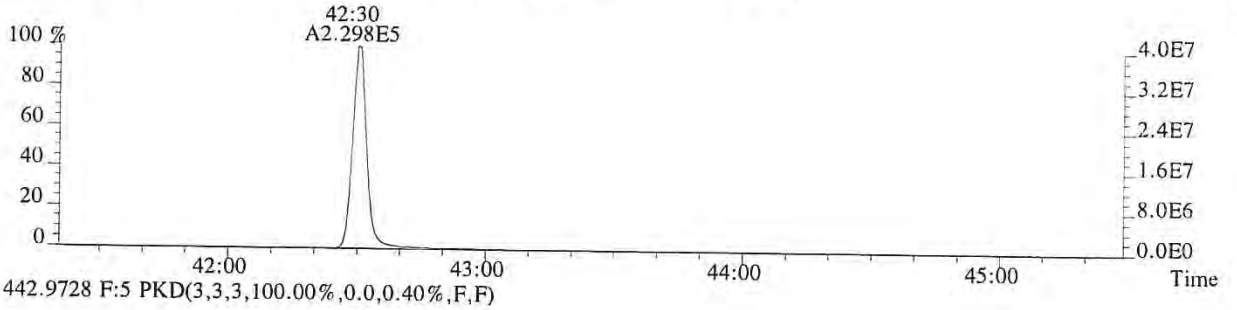
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1164.0,0.40%,F,T)



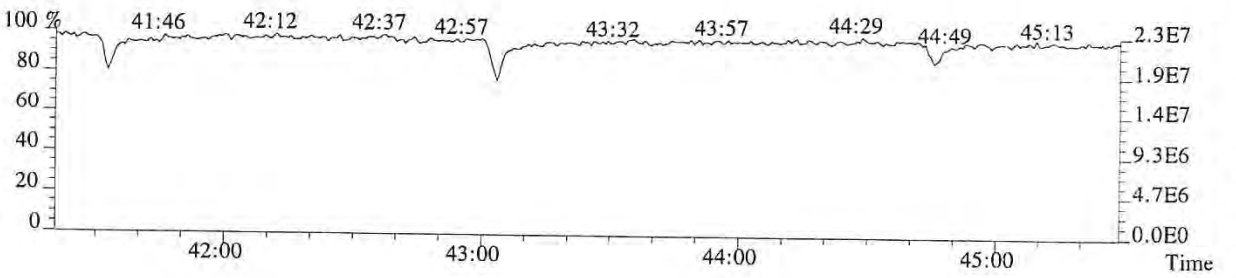
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1252.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1192.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



014855

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
185657

Run #6 Filename P513855 Samp: 1 Inj: 1 Acquired: 24-JAN-18 17:43:48
Processed: 25-JAN-18 08:12:42 Sample ID: CS5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	2.519e+05	3.290e+05	0.77	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	2.059e+06	1.330e+06	1.55	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:42	1.928e+06	1.251e+06	1.54	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:17	1.692e+06	1.377e+06	1.23	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	1.772e+06	1.434e+06	1.24	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:53	1.608e+06	1.317e+06	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	1.433e+06	1.167e+06	1.23	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	1.339e+06	1.290e+06	1.04	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	1.080e+06	1.042e+06	1.04	yes	no	1.258
10	Unk	OCDF	42:45	1.595e+06	1.756e+06	0.91	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	1.888e+05	2.423e+05	0.78	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:58	1.263e+06	8.057e+05	1.57	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	37:00	1.121e+06	8.925e+05	1.26	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	1.092e+06	8.671e+05	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	1.145e+06	9.139e+05	1.25	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:45	9.236e+05	8.810e+05	1.05	yes	no	1.025
17	Unk	OCDD	42:32	1.236e+06	1.384e+06	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:47	1.298e+05	1.639e+05	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:48	1.958e+05	1.231e+05	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	1.948e+05	1.236e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:16	8.374e+04	1.594e+05	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	9.521e+04	1.780e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:52	8.554e+04	1.650e+05	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:37	7.556e+04	1.441e+05	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:49	5.927e+04	1.314e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	5.166e+04	1.153e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:31	8.633e+04	1.080e+05	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	1.308e+05	8.218e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	1.058e+05	8.279e+04	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	1.031e+05	8.205e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	8.934e+04	8.409e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	1.103e+05	1.236e+05	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:57	8.893e+04	1.085e+05	0.82	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	1.136e+05	9.051e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	4.366e+05				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
185657

Run #6 Filename P513855 Samp: 1 Inj: 1 Acquired: 24-JAN-18 17:43:48
Processed: 25-JAN-18 08:12:42 LAB. ID: CS5

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.13e+07	1.02e+03	5.0e+04	6.69e+07	2.00e+03	3.3e+04
2	1,2,3,7,8-PeCDF	4.18e+08	1.72e+03	2.4e+05	2.69e+08	4.25e+03	6.3e+04
3	2,3,4,7,8-PeCDF	4.06e+08	1.72e+03	2.4e+05	2.60e+08	4.25e+03	6.1e+04
4	1,2,3,4,7,8-HxCDF	3.87e+08	3.18e+03	1.2e+05	3.12e+08	2.28e+03	1.4e+05
5	1,2,3,6,7,8-HxCDF	3.87e+08	3.18e+03	1.2e+05	3.14e+08	2.28e+03	1.4e+05
6	2,3,4,6,7,8-HxCDF	3.59e+08	3.18e+03	1.1e+05	2.88e+08	2.28e+03	1.3e+05
7	1,2,3,7,8,9-HxCDF	3.14e+08	3.18e+03	9.9e+04	2.53e+08	2.28e+03	1.1e+05
8	1,2,3,4,6,7,8-HpCDF	2.94e+08	4.87e+04	6.0e+03	2.86e+08	4.51e+04	6.3e+03
9	1,2,3,4,7,8,9-HpCDF	2.17e+08	4.87e+04	4.5e+03	2.12e+08	4.51e+04	4.7e+03
10	OCDF	2.95e+08	6.68e+02	4.4e+05	3.20e+08	1.53e+03	2.1e+05
11	2,3,7,8-TCDD	4.01e+07	1.56e+03	2.6e+04	5.16e+07	1.78e+03	2.9e+04
12	1,2,3,7,8-PeCDD	2.63e+08	1.48e+03	1.8e+05	1.68e+08	6.04e+02	2.8e+05
13	1,2,3,4,7,8-HxCDD	2.57e+08	1.76e+03	1.5e+05	2.02e+08	1.10e+03	1.8e+05
14	1,2,3,6,7,8-HxCDD	2.40e+08	1.76e+03	1.4e+05	1.94e+08	1.10e+03	1.8e+05
15	1,2,3,7,8,9-HxCDD	2.55e+08	1.76e+03	1.5e+05	2.05e+08	1.10e+03	1.9e+05
16	1,2,3,4,6,7,8-HpCDD	1.92e+08	4.16e+03	4.6e+04	1.82e+08	2.40e+03	7.6e+04
17	OCDD	2.24e+08	1.92e+02	1.2e+06	2.52e+08	1.77e+03	1.4e+05
18	13C-2,3,7,8-TCDF	2.56e+07	8.72e+03	2.9e+03	3.23e+07	4.65e+03	7.0e+03
19	13C-1,2,3,7,8-PeCDF	3.90e+07	1.47e+03	2.7e+04	2.42e+07	1.14e+03	2.1e+04
20	13C-2,3,4,7,8-PeCDF	3.95e+07	1.47e+03	2.7e+04	2.53e+07	1.14e+03	2.2e+04
21	13C-1,2,3,4,7,8-HxCDF	1.87e+07	1.28e+03	1.5e+04	3.55e+07	3.08e+03	1.2e+04
22	13C-1,2,3,6,7,8-HxCDF	2.06e+07	1.28e+03	1.6e+04	3.85e+07	3.08e+03	1.3e+04
23	13C-2,3,4,6,7,8-HxCDF	1.90e+07	1.28e+03	1.5e+04	3.60e+07	3.08e+03	1.2e+04
24	13C-1,2,3,7,8,9-HxCDF	1.65e+07	1.28e+03	1.3e+04	3.12e+07	3.08e+03	1.0e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.32e+07	1.18e+04	1.1e+03	2.87e+07	5.77e+03	5.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.03e+07	1.18e+04	8.7e+02	2.29e+07	5.77e+03	4.0e+03
27	13C-2,3,7,8-TCDD	1.81e+07	7.00e+03	2.6e+03	2.26e+07	3.08e+03	7.3e+03
28	13C-1,2,3,7,8-PeCDD	2.76e+07	1.47e+03	1.9e+04	1.74e+07	7.76e+02	2.2e+04
29	13C-1,2,3,4,7,8-HxCDD	2.40e+07	2.43e+03	9.9e+03	1.87e+07	1.70e+03	1.1e+04
30	13C-1,2,3,6,7,8-HxCDD	2.24e+07	2.43e+03	9.2e+03	1.82e+07	1.70e+03	1.1e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.84e+07	1.79e+03	1.0e+04	1.72e+07	1.40e+03	1.2e+04
32	13C-OCDD	1.97e+07	1.62e+03	1.2e+04	2.22e+07	1.42e+03	1.6e+04
33	13C-1,2,3,4-TCDD	1.83e+07	7.00e+03	2.6e+03	2.22e+07	3.08e+03	7.2e+03
34	13C-1,2,3,7,8,9-HxCDD	2.50e+07	2.43e+03	1.0e+04	1.99e+07	1.70e+03	1.2e+04
35	37Cl-2,3,7,8-TCDD	9.29e+07	1.57e+03	5.9e+04			

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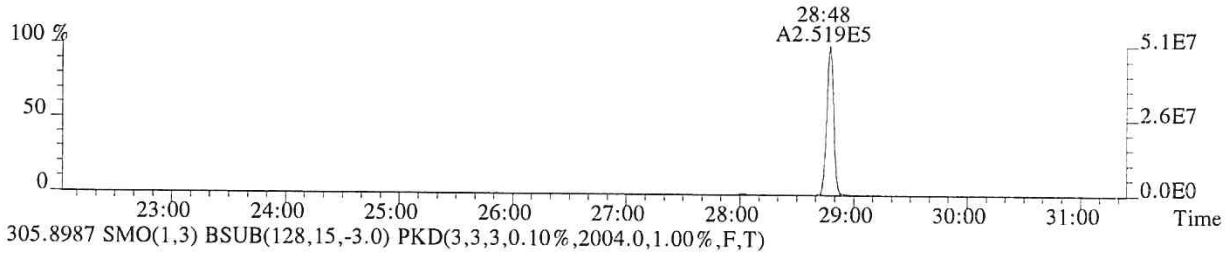
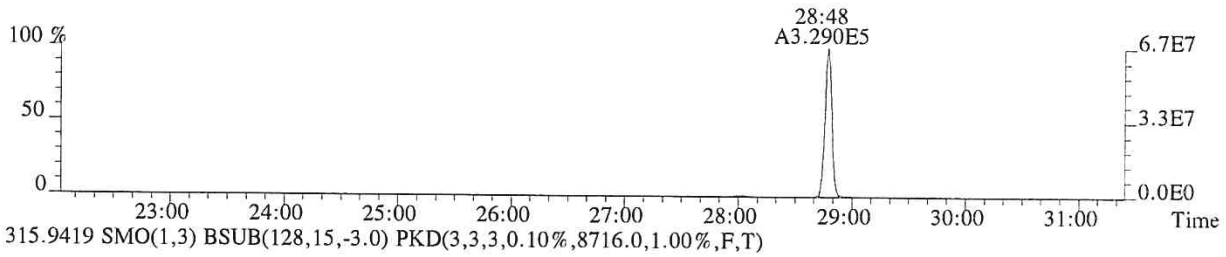
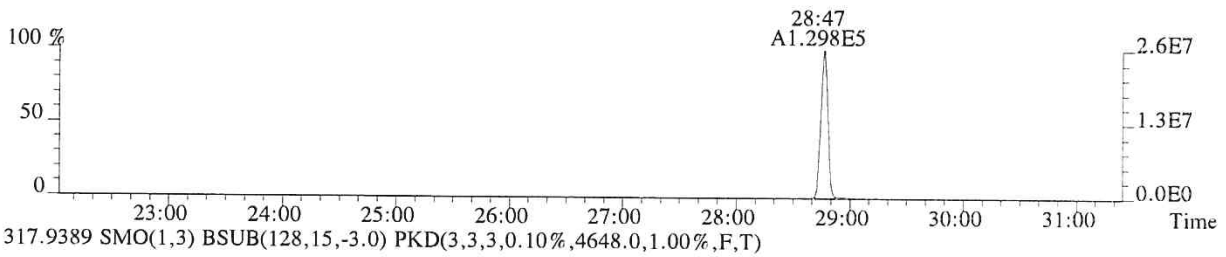
File:P513855 #1-665 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1024.0,1.00%,F,T)



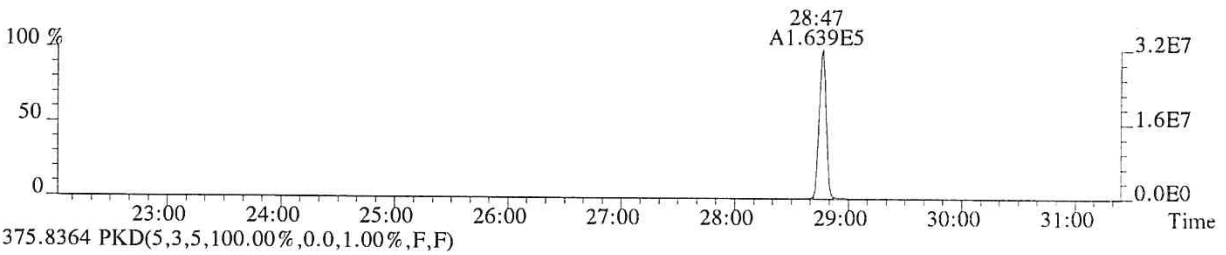
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2004.0,1.00%,F,T)



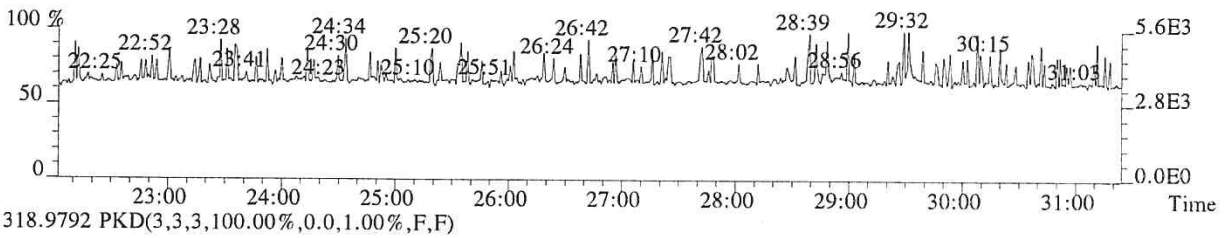
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8716.0,1.00%,F,T)



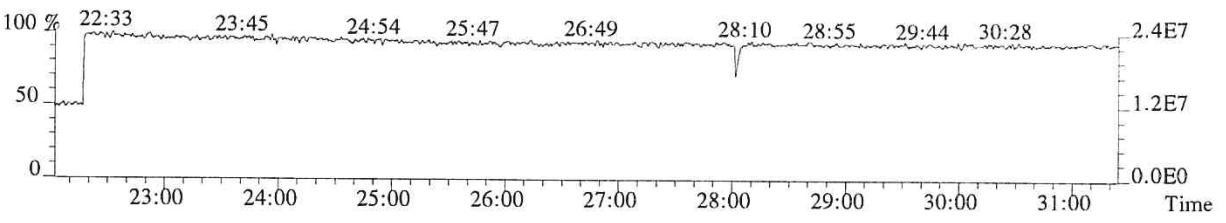
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4648.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

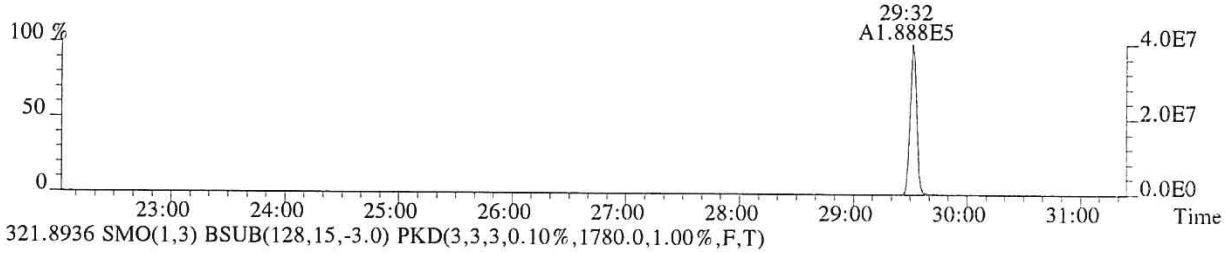


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

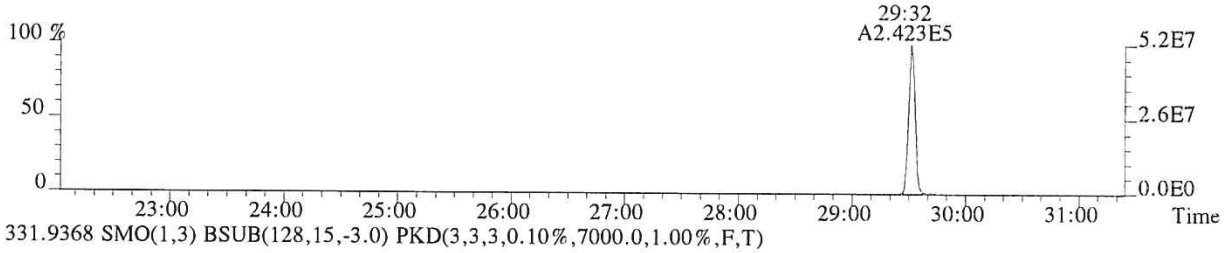


014858

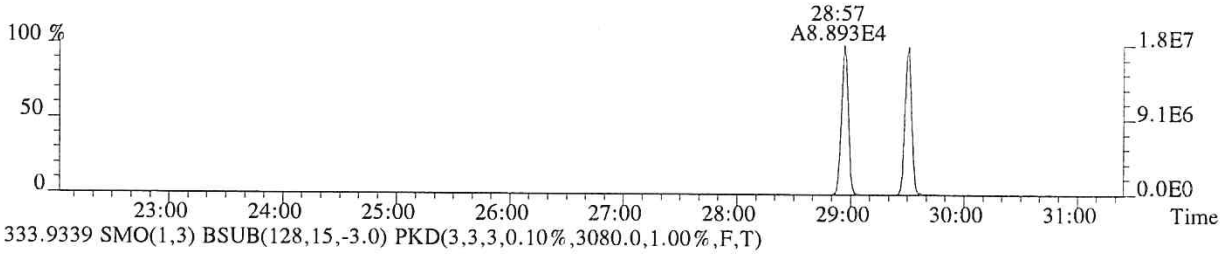
File:P513855 #1-665 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1556.0,1.00%,F,T)



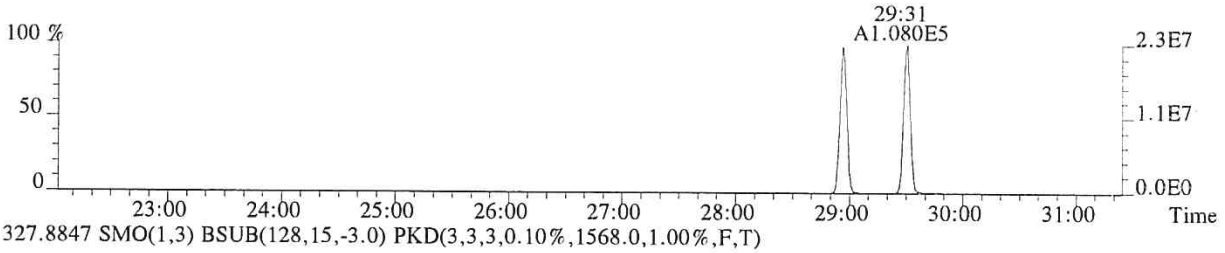
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1780.0,1.00%,F,T)



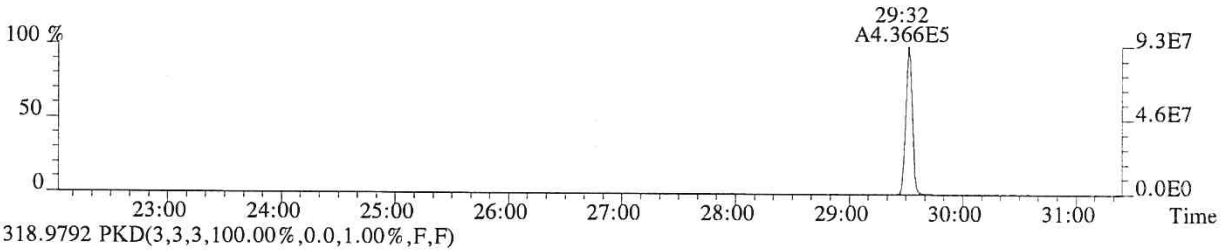
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7000.0,1.00%,F,T)



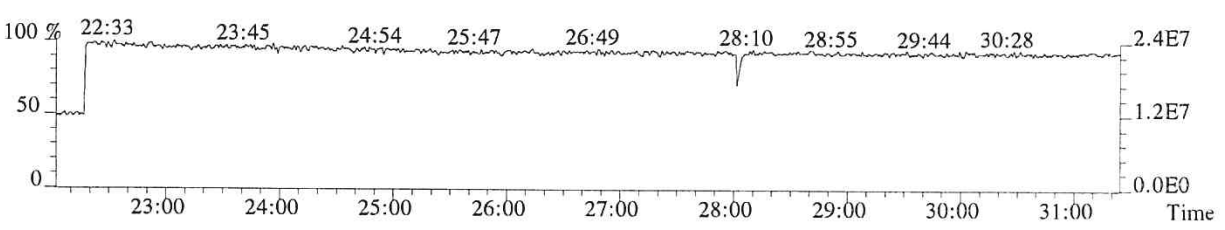
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3080.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1568.0,1.00%,F,T)

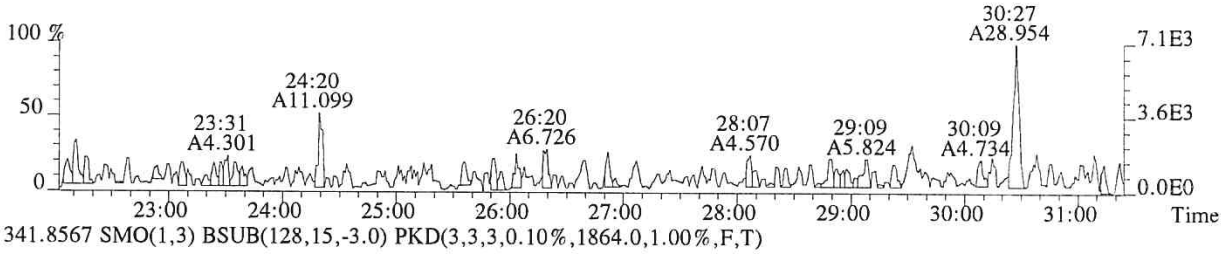


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

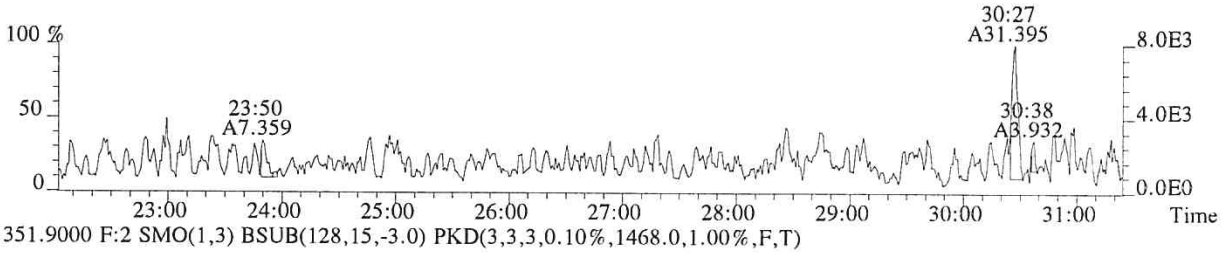


014859

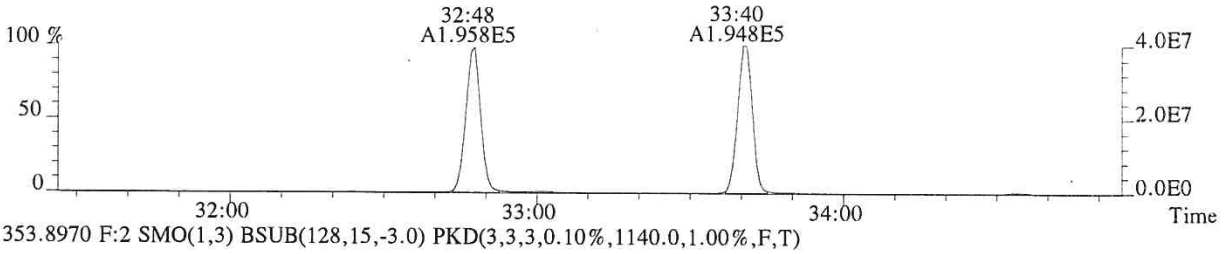
File:P513855 #1-665 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



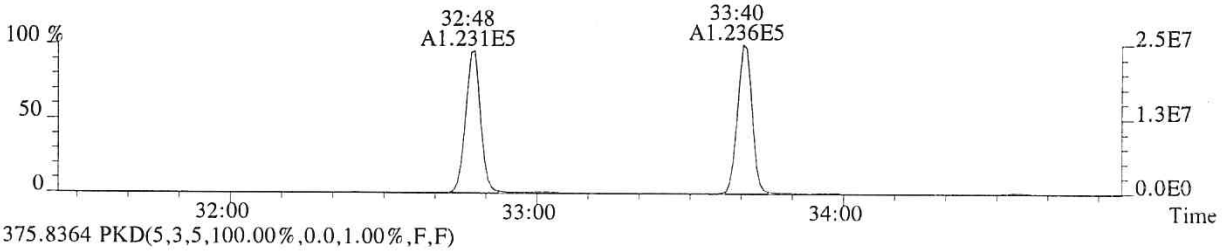
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1864.0,1.00%,F,T)



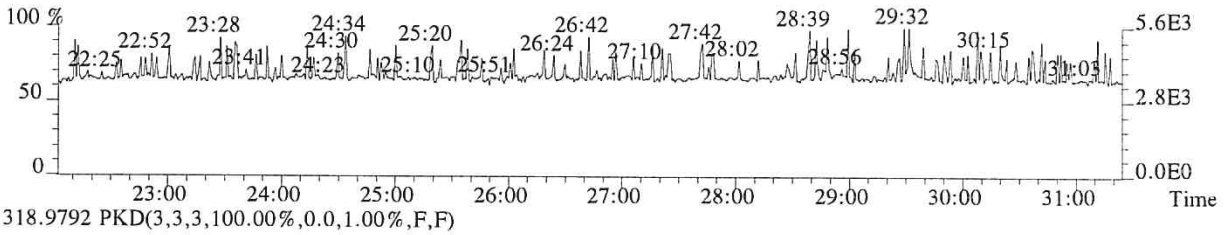
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1468.0,1.00%,F,T)



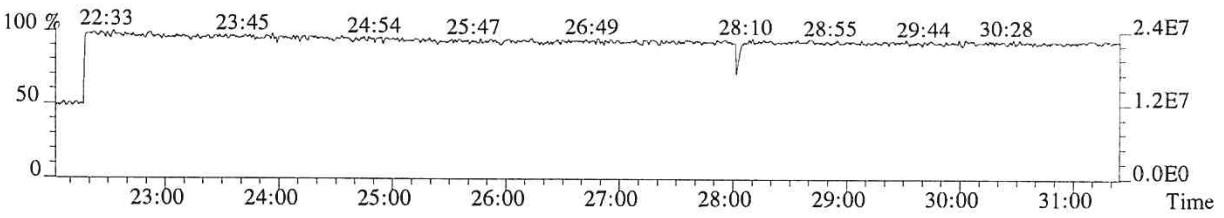
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1140.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

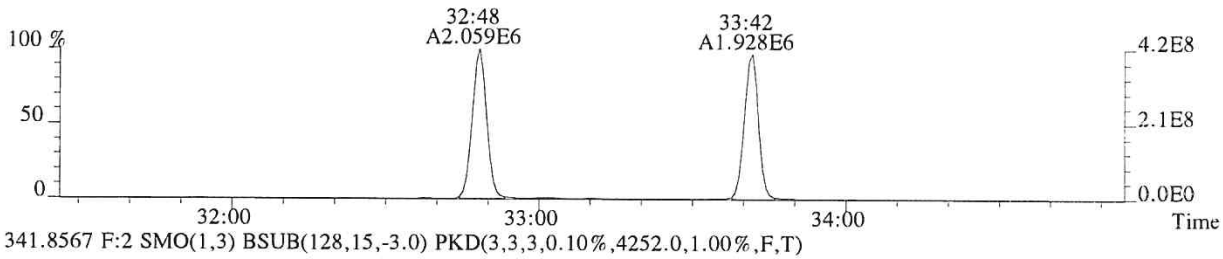


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

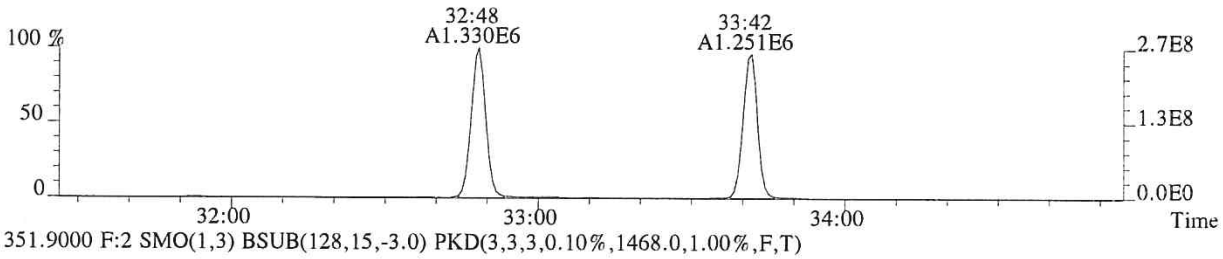


014860

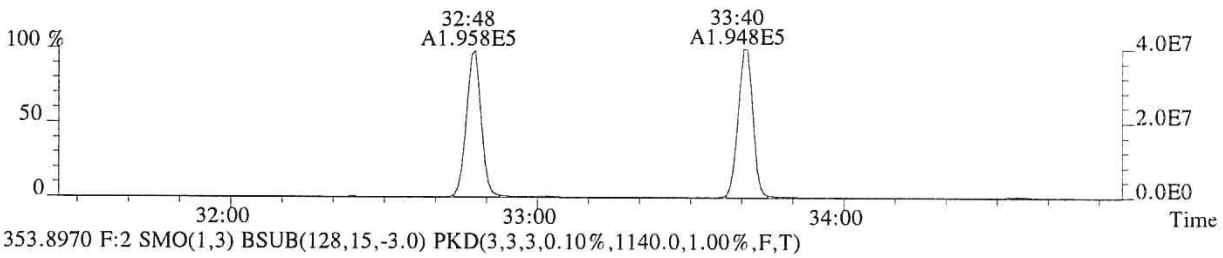
File:P513855 #1-313 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1724.0,1.00%,F,T)



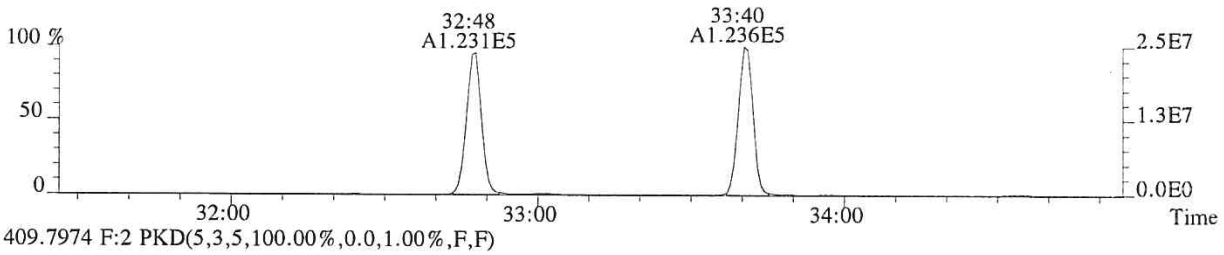
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4252.0,1.00%,F,T)



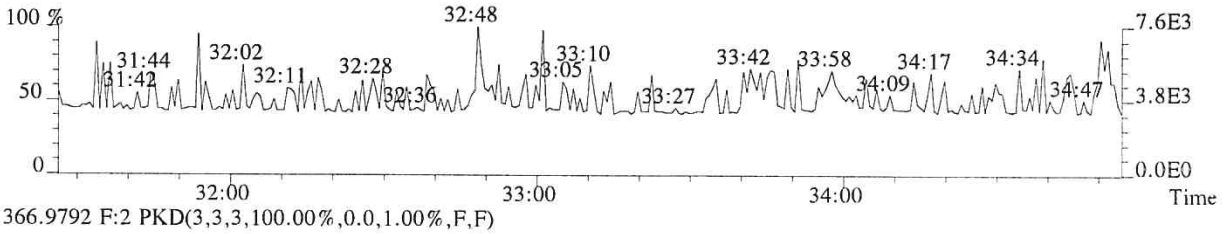
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1468.0,1.00%,F,T)



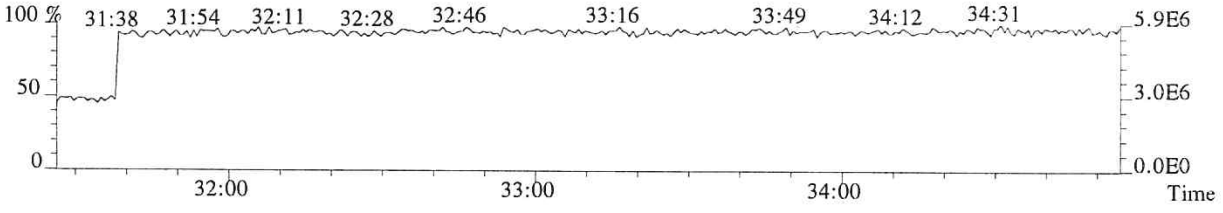
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1140.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

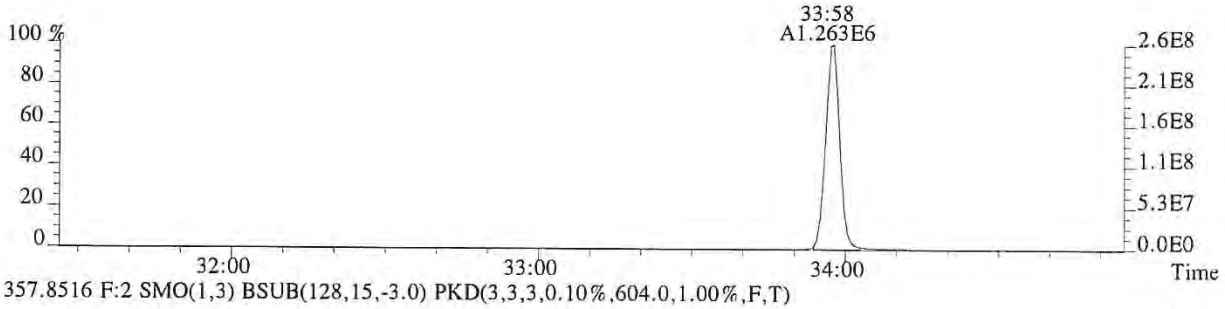


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

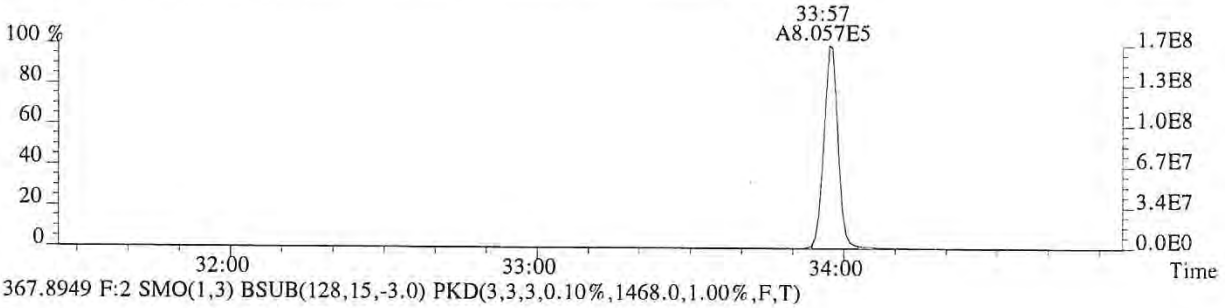


014861

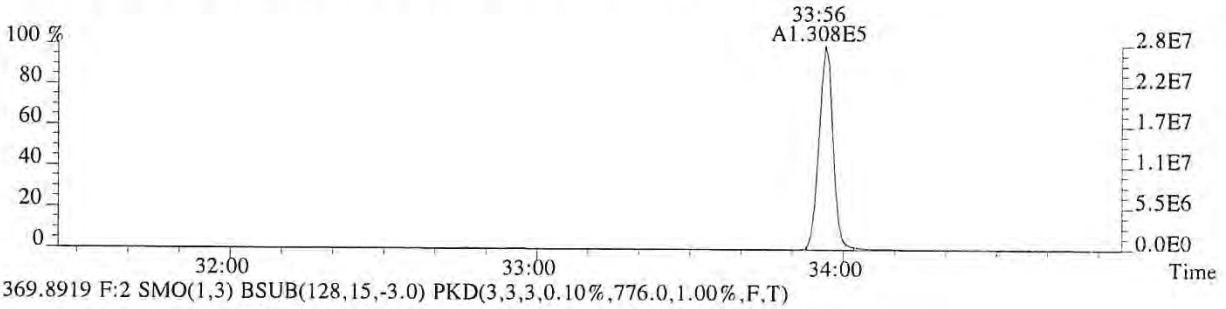
File:P513855 #1-313 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1476.0,1.00%,F,T)



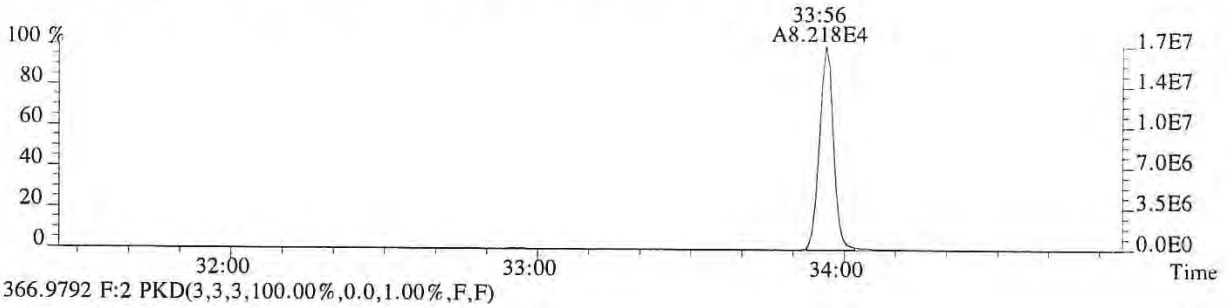
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



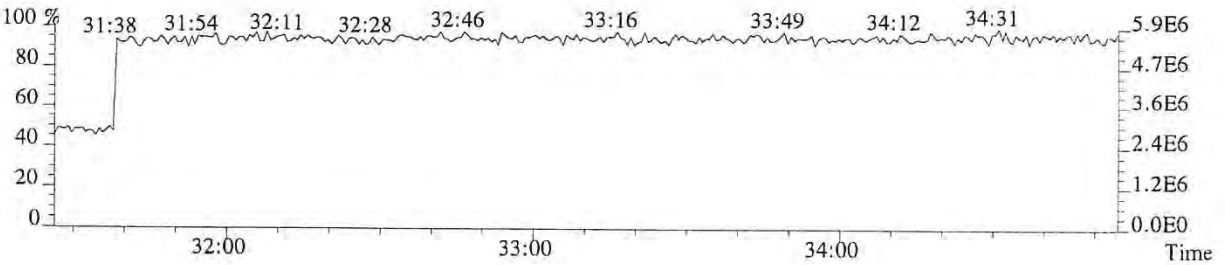
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1468.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)

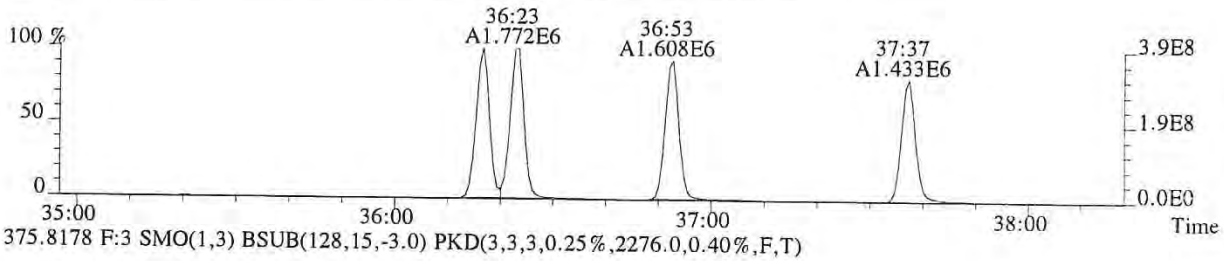


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

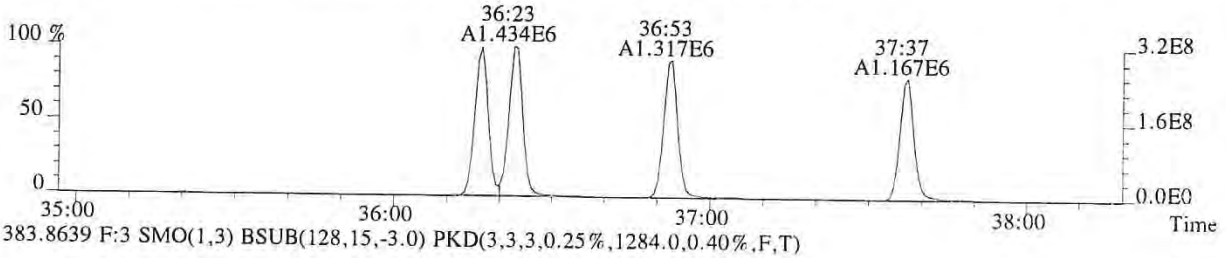


014862

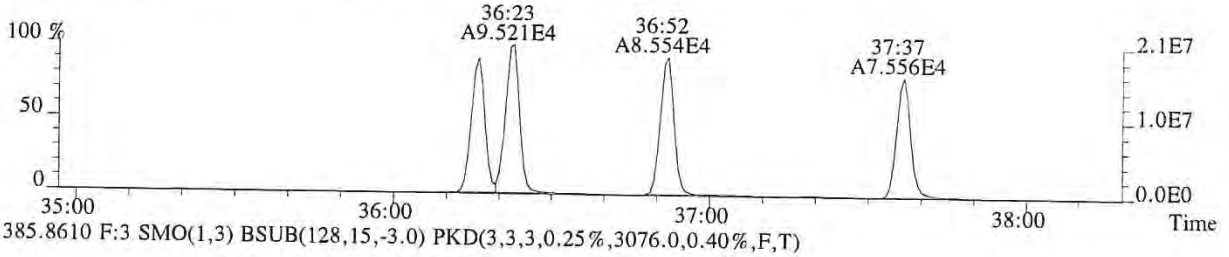
File:P513855 #1-303 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:185657
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3180.0,0.40%,F,T)



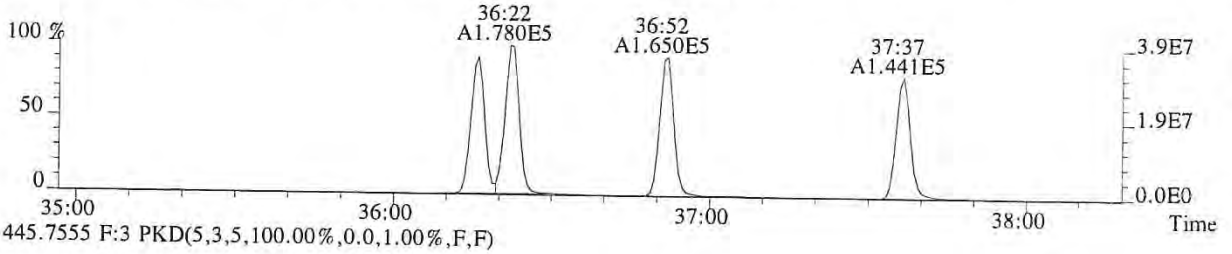
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2276.0,0.40%,F,T)



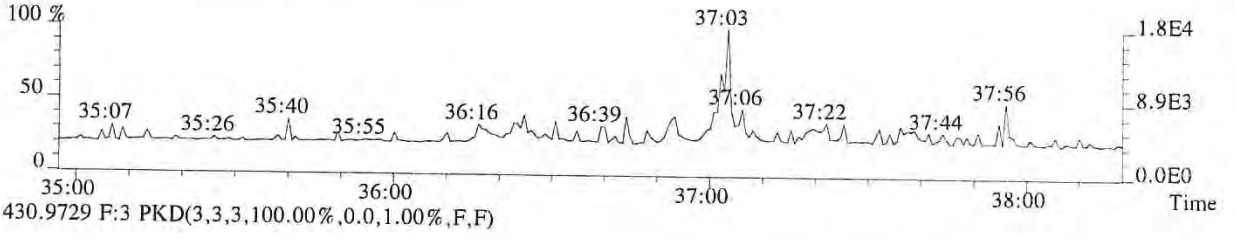
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1284.0,0.40%,F,T)



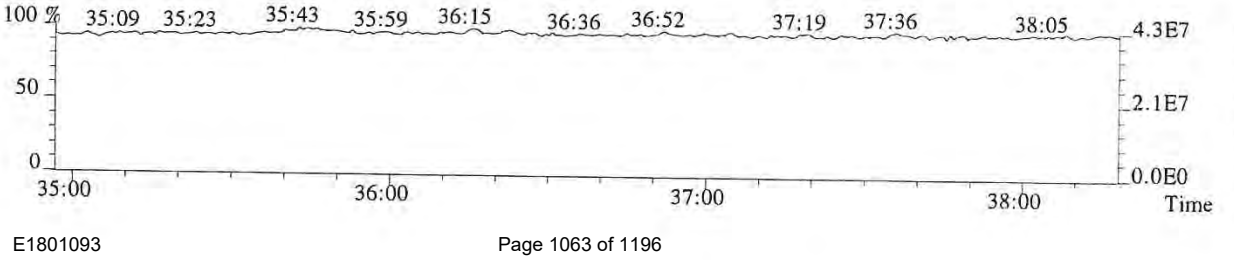
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3076.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

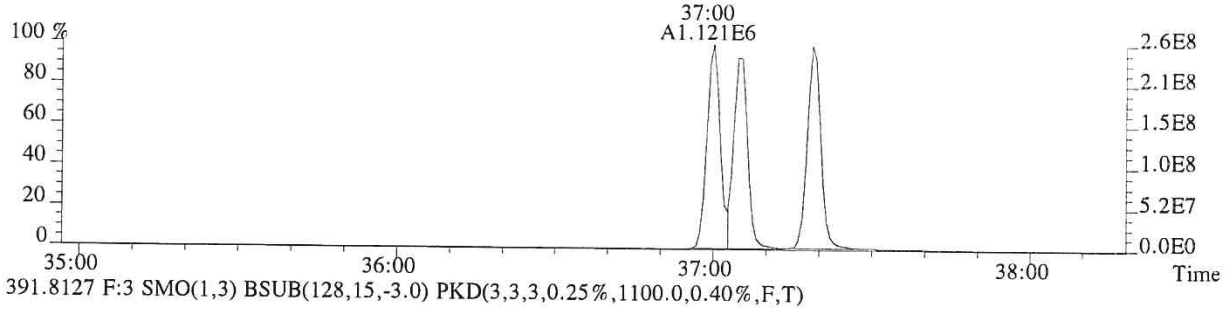


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

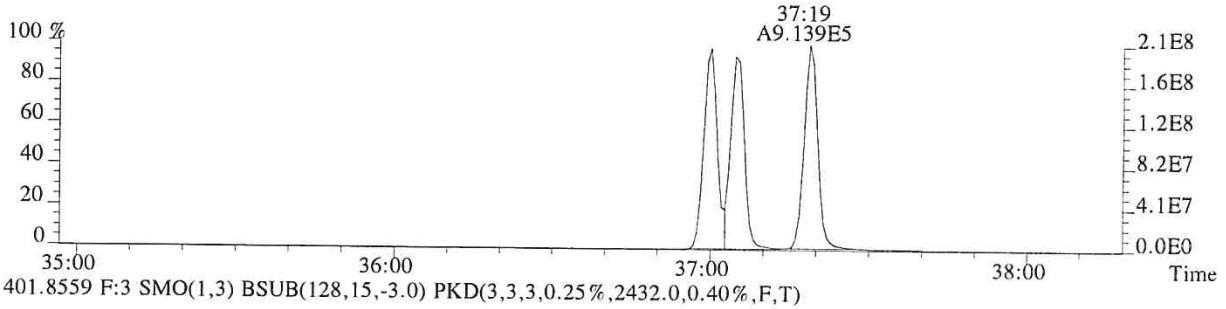


014863

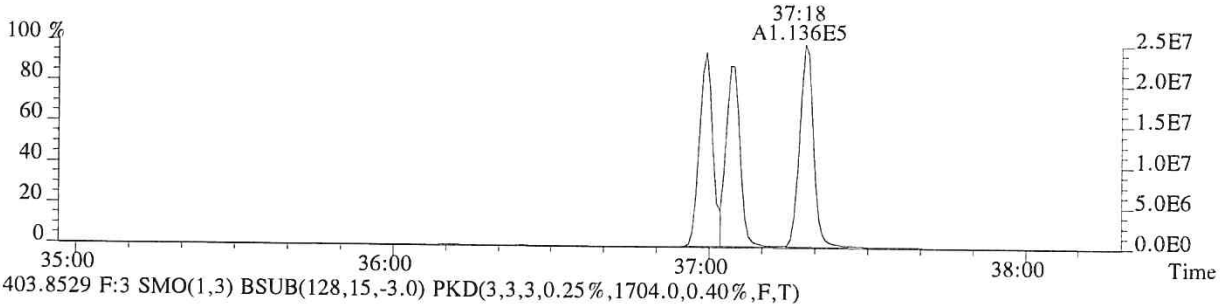
File:P513855 #1-303 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1760.0,0.40%,F,T)



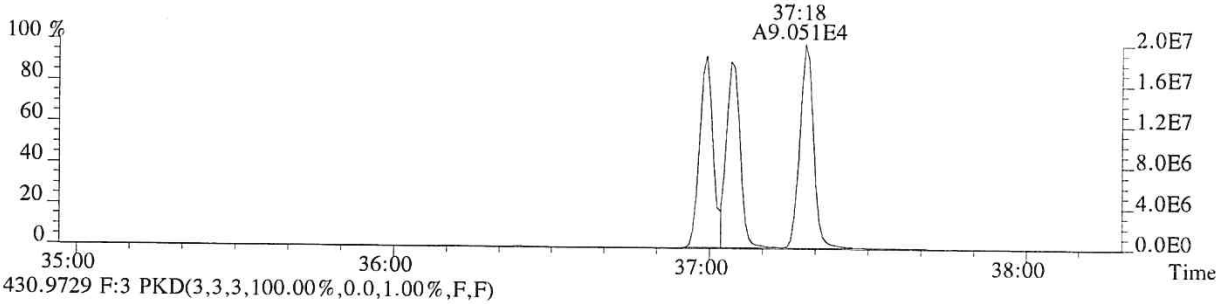
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1100.0,0.40%,F,T)



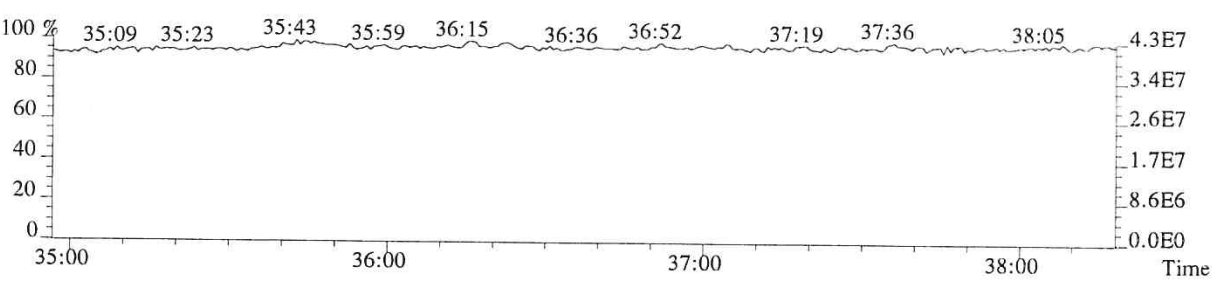
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2432.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1704.0,0.40%,F,T)

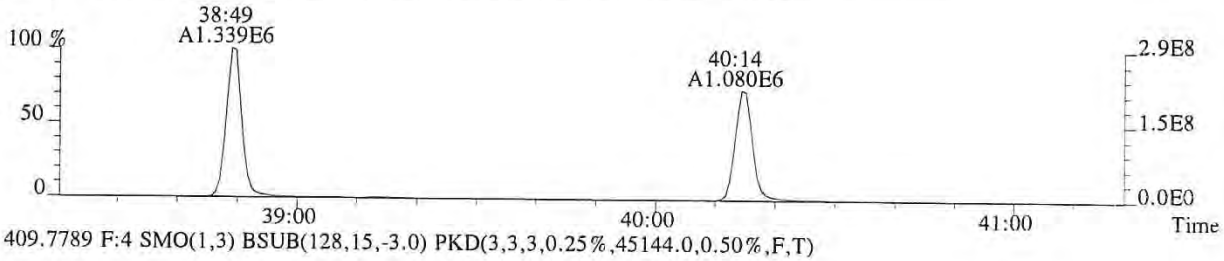


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

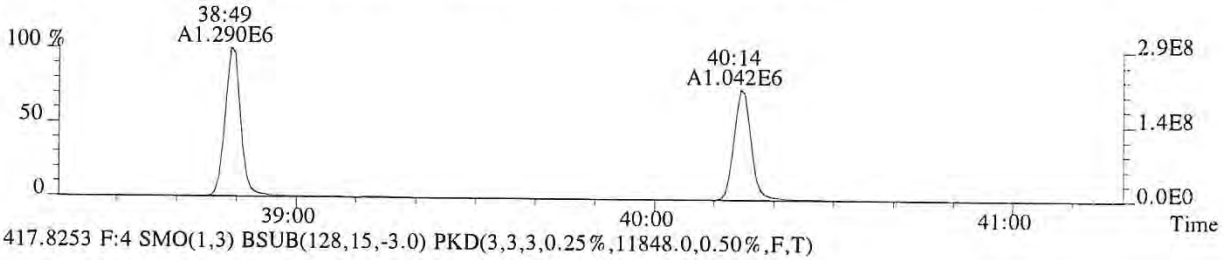


014864

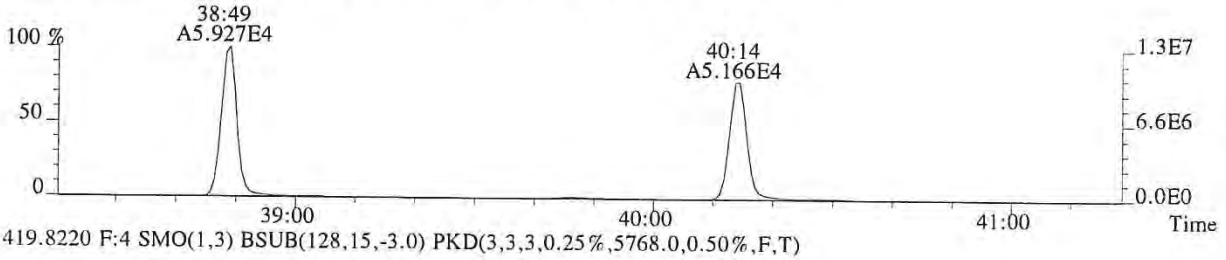
File:P513855 #1-268 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:185657
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,48736.0,0.50%,F,T)



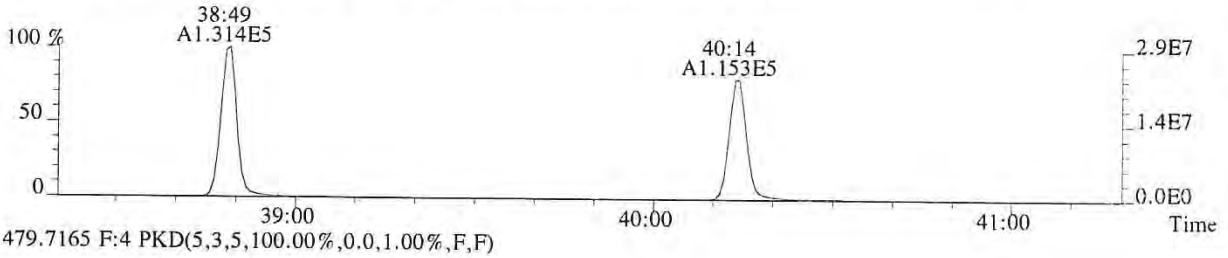
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,45144.0,0.50%,F,T)



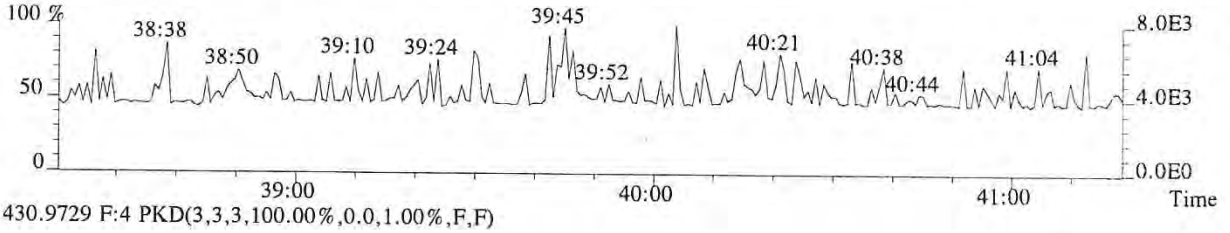
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11848.0,0.50%,F,T)



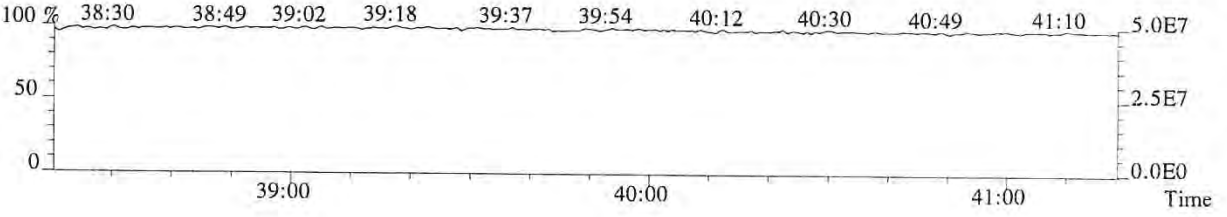
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5768.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

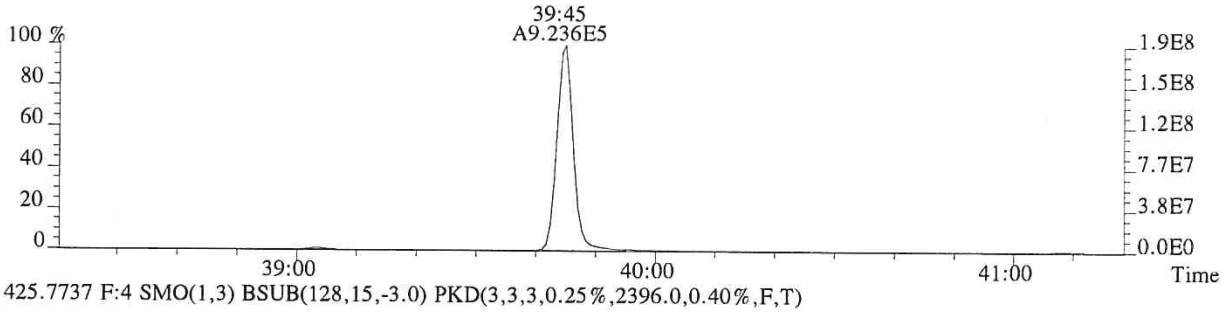


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

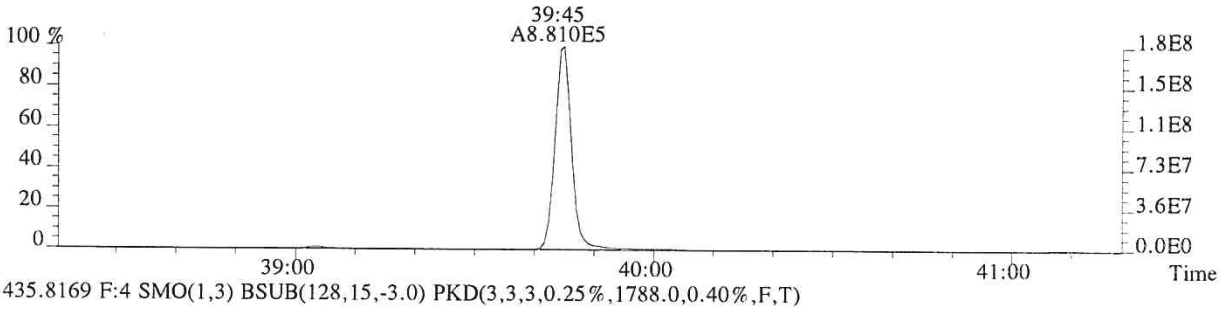


014865

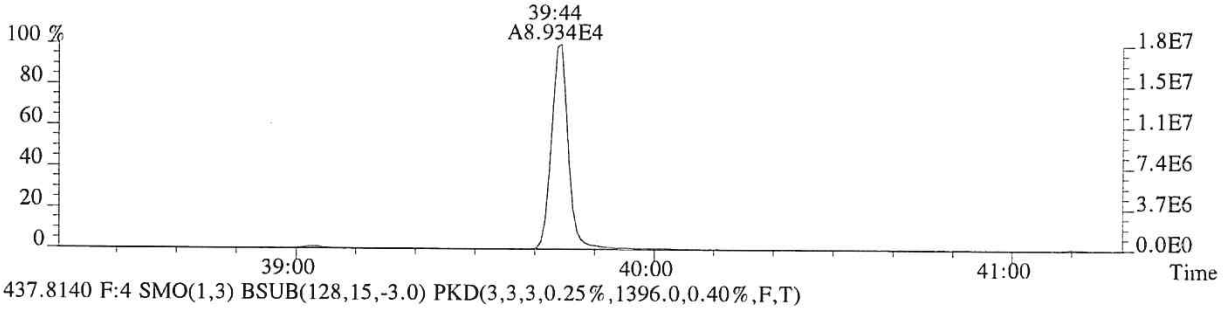
File:P513855 #1-268 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4156.0,0.40%,F,T)



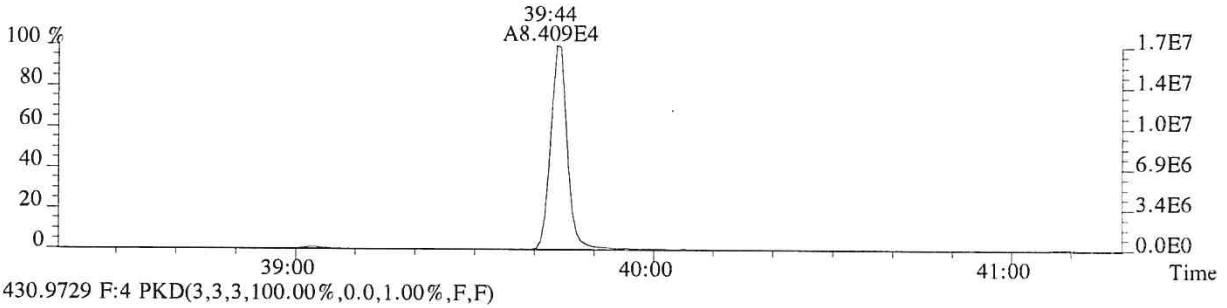
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2396.0,0.40%,F,T)



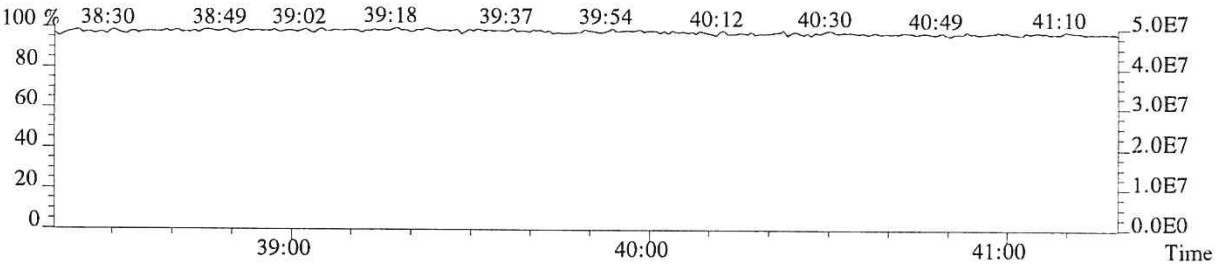
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1788.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1396.0,0.40%,F,T)

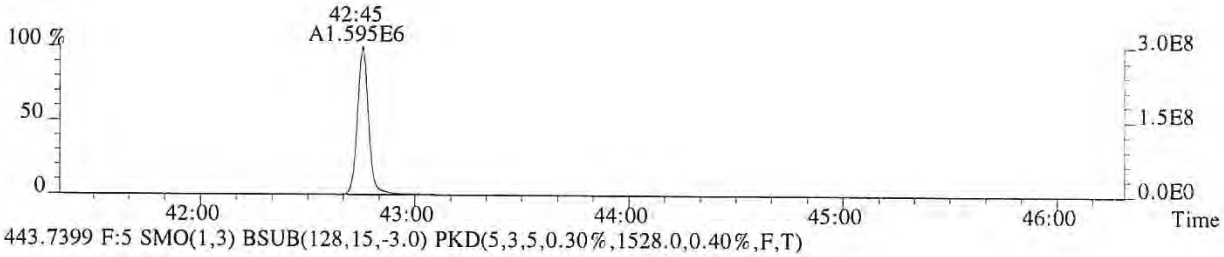


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

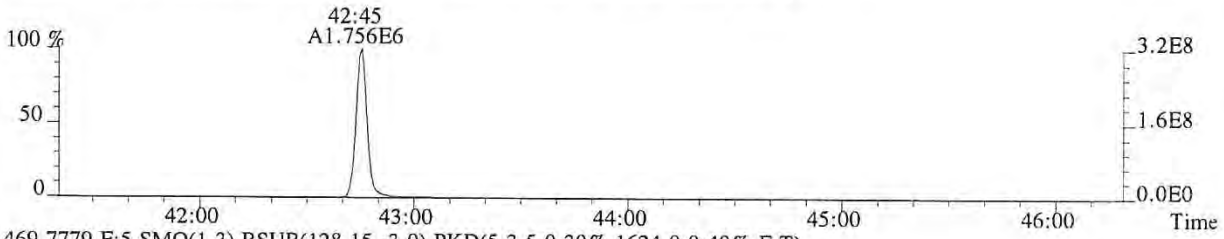


014866

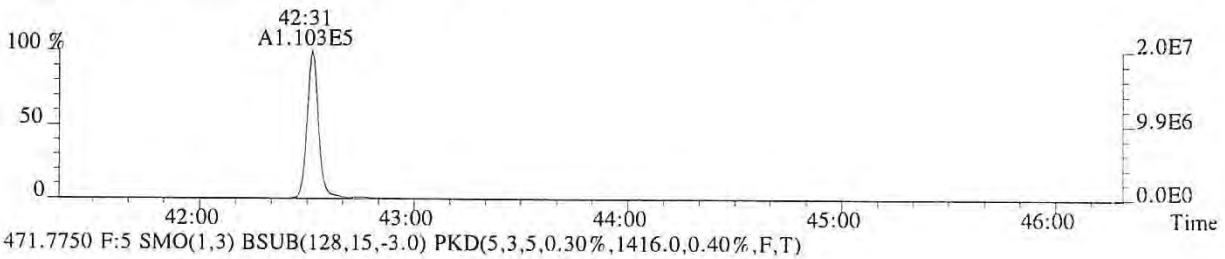
File:P513855 #1-448 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,668.0,0.40%,F,T)



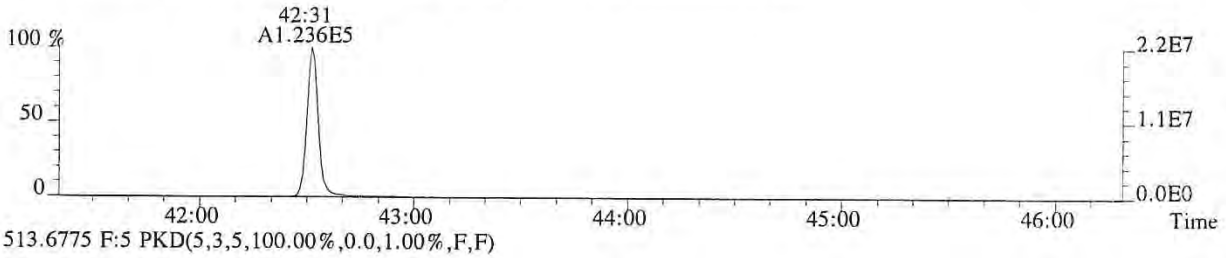
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1528.0,0.40%,F,T)



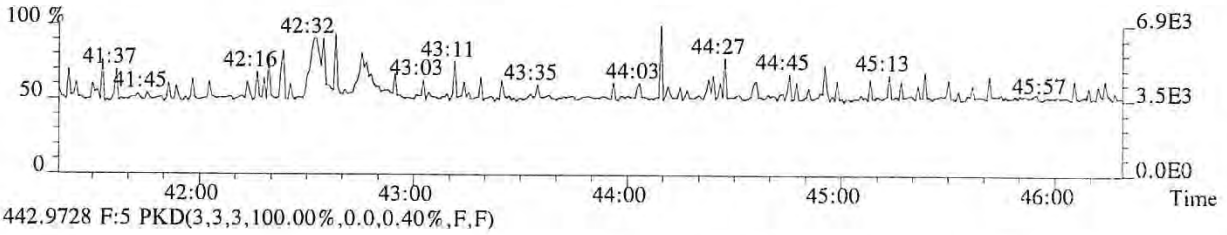
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1624.0,0.40%,F,T)



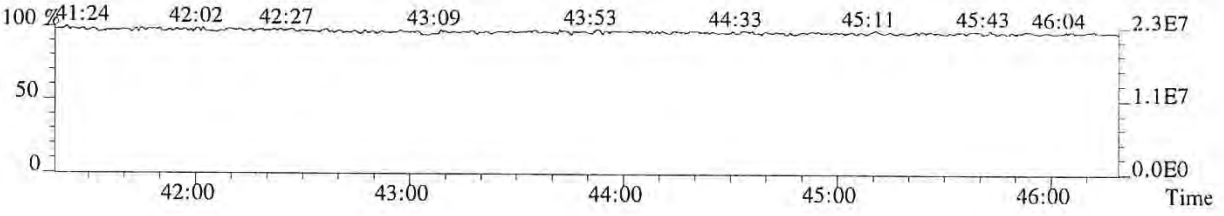
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1416.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

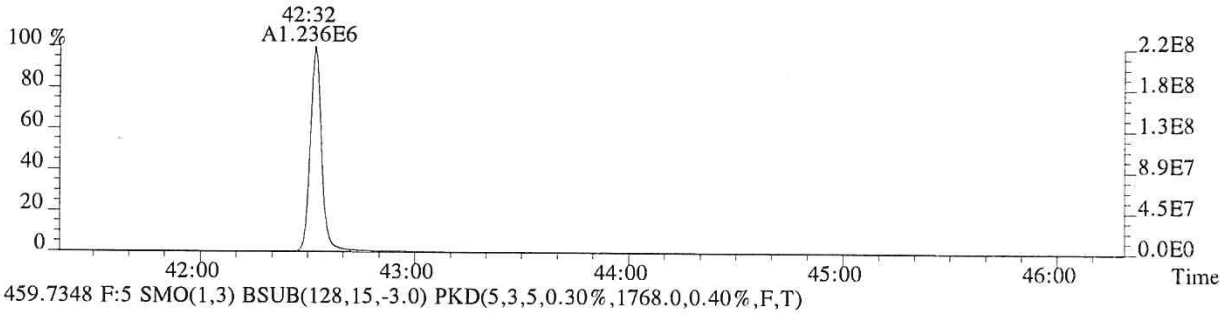


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

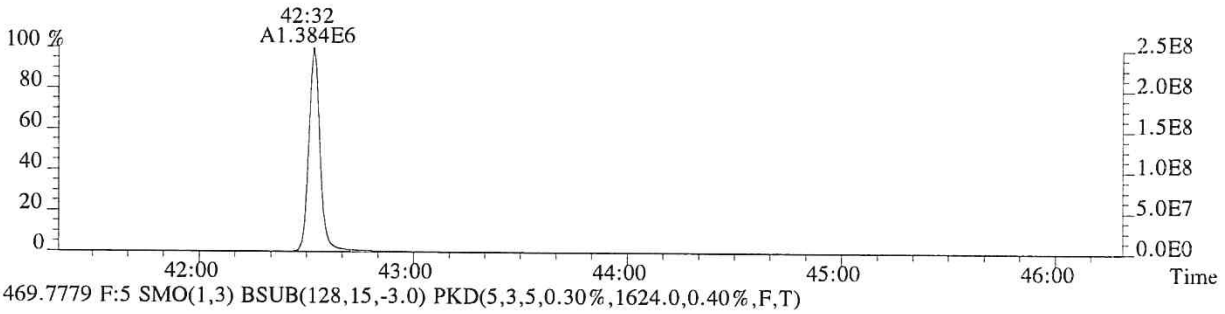


014867

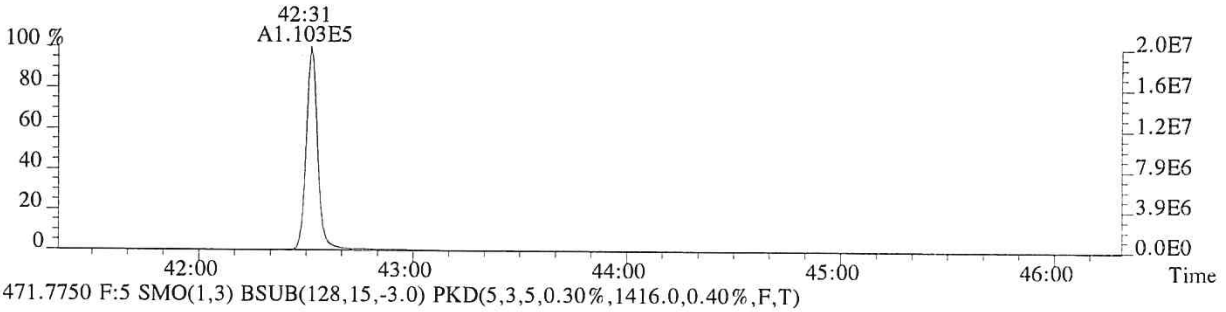
File:P513855 #1-448 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,192.0,0.40%,F,T)



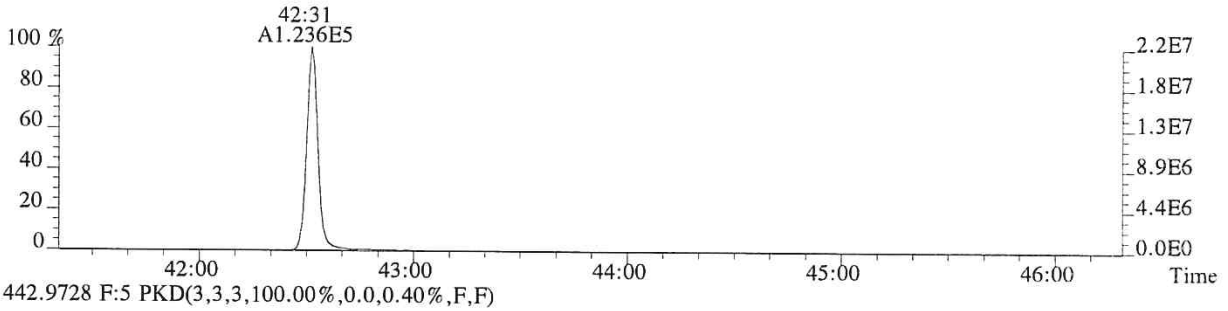
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1768.0,0.40%,F,T)



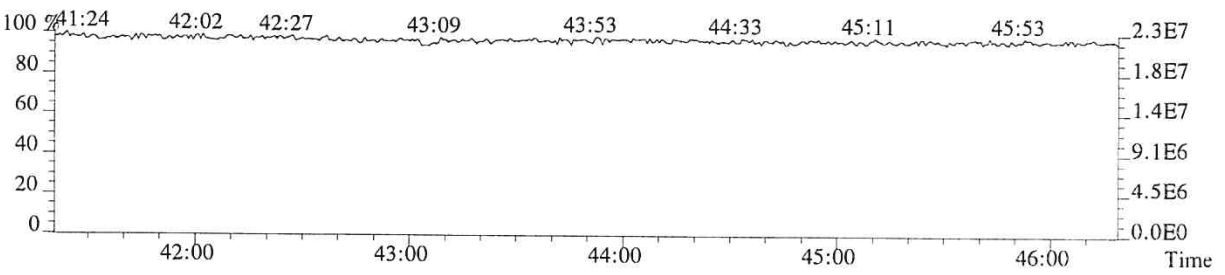
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1624.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1416.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



014868

USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P513857 Analysis Date: 24-JAN-18 Time: 19:21:06

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.76	0.65-0.89	9.9	7.8 - 12.9	-0.8
1,2,3,7,8-PeCDD	M+2/M+4	1.55	1.32-1.78	50	39 - 65	0.9
1,2,3,4,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	50	39 - 64	0.2
1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	50	39 - 64	0.8
1,2,3,7,8,9-HxCDD	M+2/M+4	1.27	1.05-1.43	50	41 - 61	-0.7
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	51	43 - 58	1.6
OCDD	M+2/M+4	0.89	0.76-1.02	101	79 - 126	1.5
2,3,7,8-TCDF	M/M+2	0.71	0.65-0.89	10.2	8.4 - 12.0	2.1
1,2,3,7,8-PeCDF	M+2/M+4	1.51	1.32-1.78	51	41 - 60	2.7
2,3,4,7,8-PeCDF	M+2/M+4	1.52	1.32-1.78	50	41 - 61	0.8
1,2,3,4,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	52	45 - 56	4.0
1,2,3,6,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	50	44 - 57	-0.1
1,2,3,7,8,9-HxCDF	M+2/M+4	1.23	1.05-1.43	51	45 - 56	2.0
2,3,4,6,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	50	44 - 57	0.8
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.00	0.88-1.20	50	45 - 55	0.3
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.00	0.88-1.20	50	43 - 58	0.1
OCDF	M+2/M+4	0.89	0.76-1.02	100	63 - 159	0.0

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P513857 Analysis Date: 24-JAN-18 Time: 19:21:06

LABELED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
13C-2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	98	82 - 121	-1.7
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	92	62 - 160	-8.5
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	101	85 - 117	1.4
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	103	85 - 118	2.7
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	113	72 - 138	13.3
13C-OCDD	M+2/M+4	0.89	0.76-1.02	253	96 - 415	26.3
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	94	71 - 140	-6.2
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	94	76 - 130	-6.3
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	94	77 - 130	-6.4
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	97	76 - 131	-2.6
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	102	70 - 143	1.7
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	104	74 - 135	3.6
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	105	73 - 137	4.9
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	112	78 - 129	11.6
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.44	0.37-0.51	116	77 - 129	16.1
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				10.1	7.8 - 12.7	0.9

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
75080

Run #7 Filename P513857 Samp: 1 Inj: 1 Acquired: 24-JAN-18 19:21:06
Processed: 25-JAN-18 08:41:26 Sample ID: 2ND SOURCE

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	5.152e+03	7.223e+03	0.71	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	3.916e+04	2.586e+04	1.51	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:41	3.607e+04	2.366e+04	1.52	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:16	3.202e+04	2.632e+04	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	3.416e+04	2.839e+04	1.20	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:52	3.150e+04	2.633e+04	1.20	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	2.836e+04	2.314e+04	1.23	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	2.874e+04	2.862e+04	1.00	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	2.352e+04	2.346e+04	1.00	yes	no	1.258
10	Unk	OCDF	42:45	3.688e+04	4.148e+04	0.89	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	3.845e+03	5.032e+03	0.76	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:57	2.377e+04	1.531e+04	1.55	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:59	2.145e+04	1.680e+04	1.28	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	2.240e+04	1.756e+04	1.28	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	2.219e+04	1.741e+04	1.27	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	2.034e+04	1.933e+04	1.05	yes	no	1.025
17	Unk	OCDD	42:31	3.083e+04	3.462e+04	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:46	5.681e+04	7.189e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:47	7.678e+04	4.833e+04	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	7.550e+04	4.814e+04	1.57	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	3.216e+04	6.216e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:22	3.808e+04	7.348e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:51	3.589e+04	6.747e+04	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:36	3.054e+04	5.771e+04	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	2.616e+04	5.845e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	2.287e+04	5.181e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:30	3.654e+04	4.587e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	4.972e+04	3.125e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	4.147e+04	3.207e+04	1.29	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	4.264e+04	3.379e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	3.921e+04	3.703e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	5.445e+04	6.090e+04	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:57	4.052e+04	5.019e+04	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	4.325e+04	3.518e+04	1.23	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	9.276e+03				no	1.014

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Houston, TX 77099
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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
75080

Run #7 Filename P513857 Samp: 1 Inj: 1 Acquired: 24-JAN-18 19:21:06
Processed: 25-JAN-18 08:41:26 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	1.04e+06	1.03e+03	1.0e+03	1.42e+06	2.00e+03	7.1e+02
2	1,2,3,7,8-PeCDF	7.88e+06	8.44e+02	9.3e+03	5.19e+06	1.52e+03	3.4e+03
3	2,3,4,7,8-PeCDF	7.53e+06	8.44e+02	8.9e+03	4.93e+06	1.52e+03	3.2e+03
4	1,2,3,4,7,8-HxCDF	7.21e+06	1.53e+03	4.7e+03	5.89e+06	1.36e+03	4.3e+03
5	1,2,3,6,7,8-HxCDF	7.34e+06	1.53e+03	4.8e+03	6.08e+06	1.36e+03	4.5e+03
6	2,3,4,6,7,8-HxCDF	7.02e+06	1.53e+03	4.6e+03	5.88e+06	1.36e+03	4.3e+03
7	1,2,3,7,8,9-HxCDF	6.10e+06	1.53e+03	4.0e+03	4.95e+06	1.36e+03	3.6e+03
8	1,2,3,4,6,7,8-HpCDF	6.16e+06	5.00e+03	1.2e+03	6.13e+06	6.59e+03	9.3e+02
9	1,2,3,4,7,8,9-HpCDF	4.58e+06	5.00e+03	9.1e+02	4.45e+06	6.59e+03	6.7e+02
10	OCDF	6.54e+06	1.44e+02	4.5e+04	7.12e+06	8.36e+02	8.5e+03
11	2,3,7,8-TCDD	8.13e+05	1.92e+03	4.2e+02	1.05e+06	1.26e+03	8.3e+02
12	1,2,3,7,8-PeCDD	4.95e+06	8.52e+02	5.8e+03	3.18e+06	2.84e+02	1.1e+04
13	1,2,3,4,7,8-HxCDD	4.98e+06	7.64e+02	6.5e+03	3.93e+06	4.12e+02	9.5e+03
14	1,2,3,6,7,8-HxCDD	4.78e+06	7.64e+02	6.3e+03	3.77e+06	4.12e+02	9.2e+03
15	1,2,3,7,8,9-HxCDD	4.67e+06	7.64e+02	6.1e+03	3.64e+06	4.12e+02	8.8e+03
16	1,2,3,4,6,7,8-HpCDD	4.20e+06	1.17e+03	3.6e+03	3.99e+06	7.20e+01	5.5e+04
17	OCDD	5.25e+06	1.60e+02	3.3e+04	5.90e+06	1.22e+03	4.8e+03
18	13C-2,3,7,8-TCDF	1.11e+07	9.00e+03	1.2e+03	1.40e+07	3.76e+03	3.7e+03
19	13C-1,2,3,7,8-PeCDF	1.52e+07	6.36e+02	2.4e+04	9.62e+06	1.34e+03	7.2e+03
20	13C-2,3,4,7,8-PeCDF	1.56e+07	6.36e+02	2.5e+04	9.99e+06	1.34e+03	7.5e+03
21	13C-1,2,3,4,7,8-HxCDF	7.22e+06	7.60e+02	9.5e+03	1.40e+07	1.60e+03	8.8e+03
22	13C-1,2,3,6,7,8-HxCDF	8.16e+06	7.60e+02	1.1e+04	1.57e+07	1.60e+03	9.8e+03
23	13C-2,3,4,6,7,8-HxCDF	7.92e+06	7.60e+02	1.0e+04	1.49e+07	1.60e+03	9.3e+03
24	13C-1,2,3,7,8,9-HxCDF	6.41e+06	7.60e+02	8.4e+03	1.22e+07	1.60e+03	7.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	5.67e+06	2.84e+03	2.0e+03	1.26e+07	6.70e+03	1.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.44e+06	2.84e+03	1.6e+03	1.00e+07	6.70e+03	1.5e+03
27	13C-2,3,7,8-TCDD	7.51e+06	5.77e+03	1.3e+03	9.42e+06	2.25e+03	4.2e+03
28	13C-1,2,3,7,8-PeCDD	1.01e+07	1.06e+03	9.5e+03	6.31e+06	5.88e+02	1.1e+04
29	13C-1,2,3,4,7,8-HxCDD	9.57e+06	2.66e+03	3.6e+03	7.40e+06	1.57e+03	4.7e+03
30	13C-1,2,3,6,7,8-HxCDD	9.03e+06	2.66e+03	3.4e+03	7.14e+06	1.57e+03	4.6e+03
31	13C-1,2,3,4,6,7,8-HpCDD	7.97e+06	1.17e+03	6.8e+03	7.51e+06	7.00e+02	1.1e+04
32	13C-OCDD	9.30e+06	2.60e+02	3.6e+04	1.03e+07	4.00e+02	2.6e+04
33	13C-1,2,3,4-TCDD	8.25e+06	5.77e+03	1.4e+03	1.02e+07	2.25e+03	4.5e+03
34	13C-1,2,3,7,8,9-HxCDD	9.23e+06	2.66e+03	3.5e+03	7.29e+06	1.57e+03	4.6e+03
35	37Cl-2,3,7,8-TCDD	1.94e+06	1.18e+03	1.6e+03			

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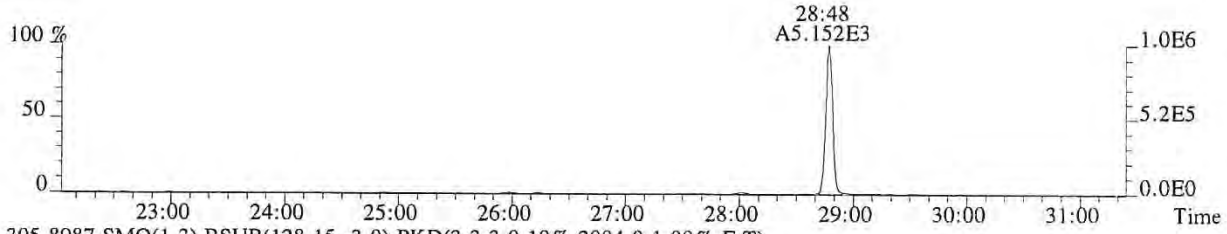
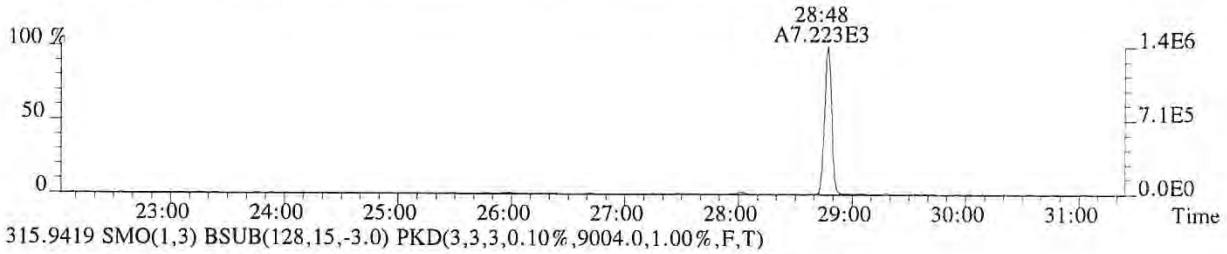
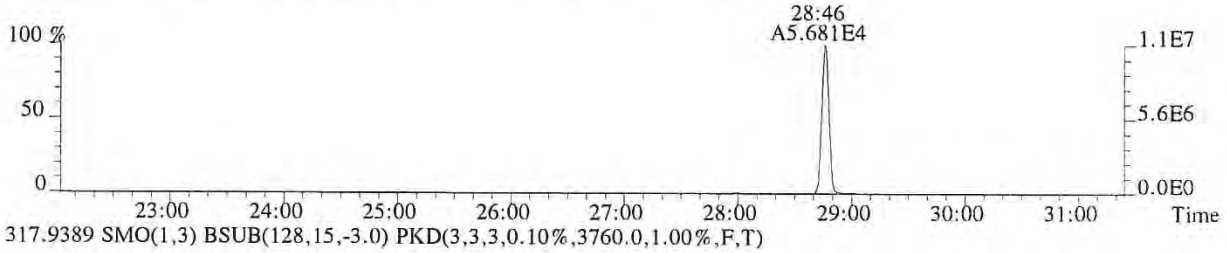
File:P513857 #1-665 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



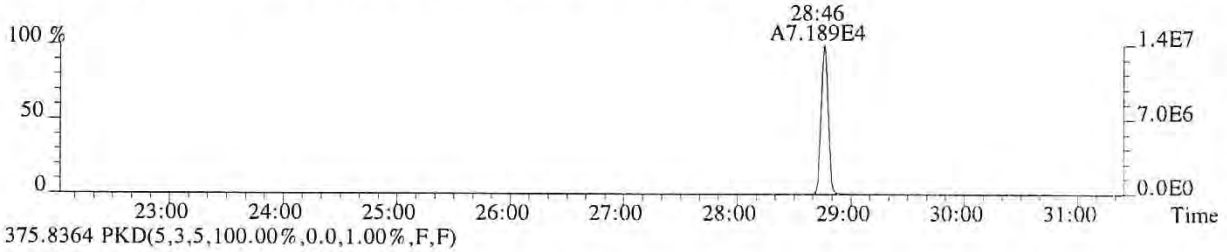
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2004.0,1.00%,F,T)



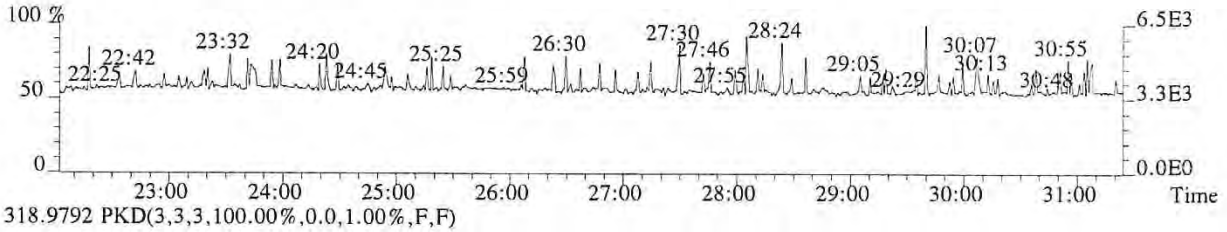
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9004.0,1.00%,F,T)



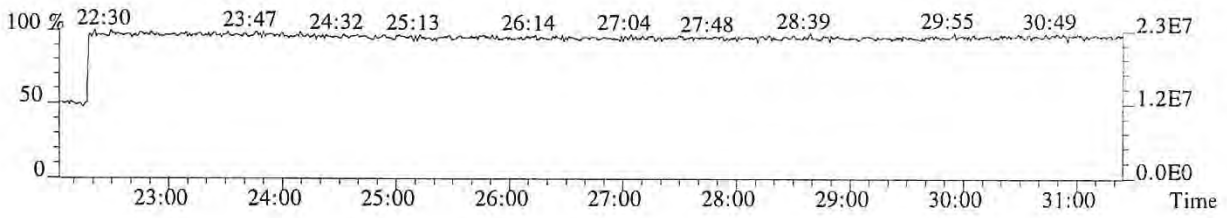
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3760.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

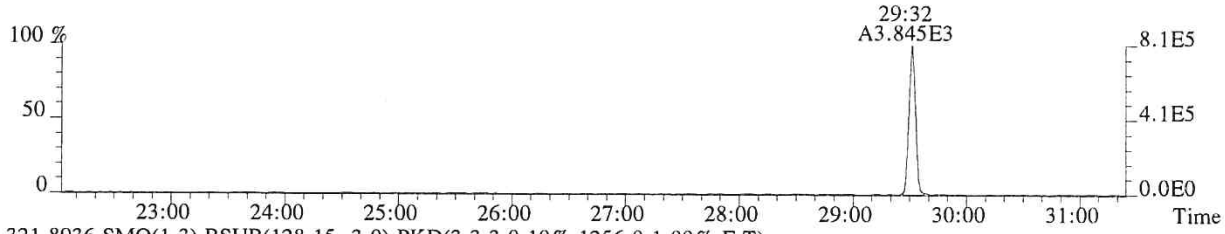


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

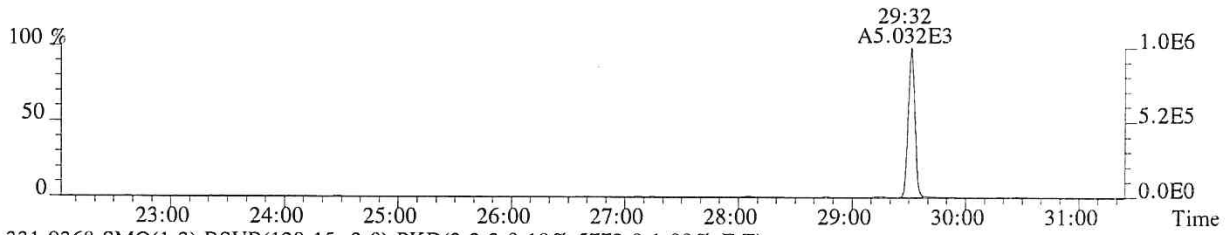


014873

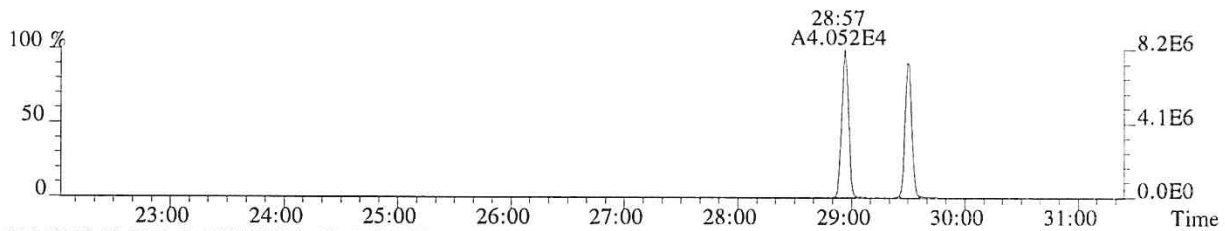
File:P513857 #1-665 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1924.0,1.00%,F,T)



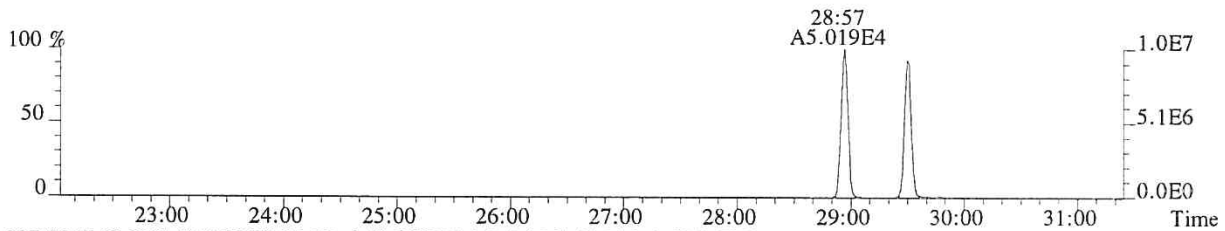
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1256.0,1.00%,F,T)



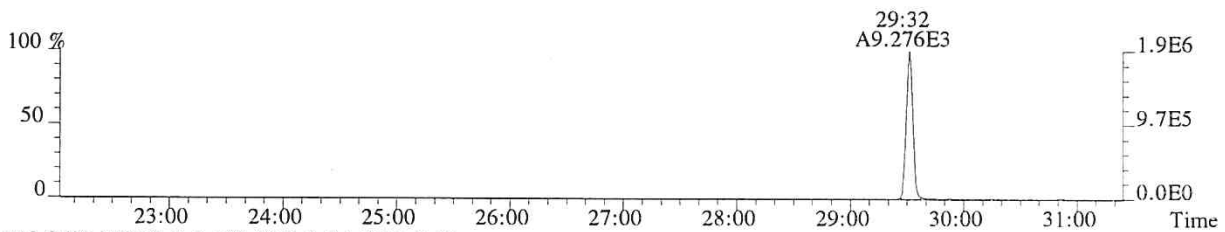
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5772.0,1.00%,F,T)



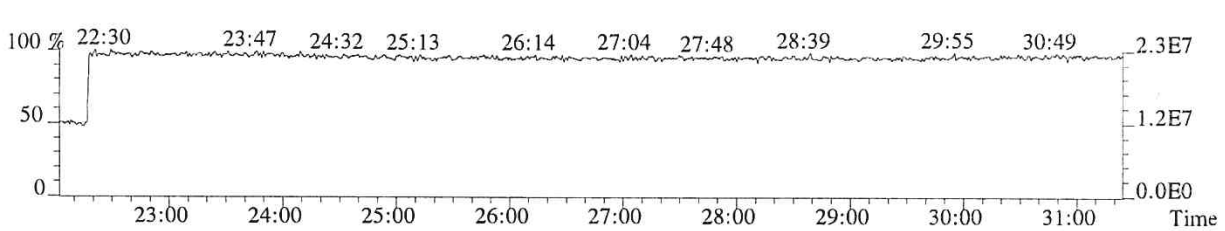
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2248.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1184.0,1.00%,F,T)

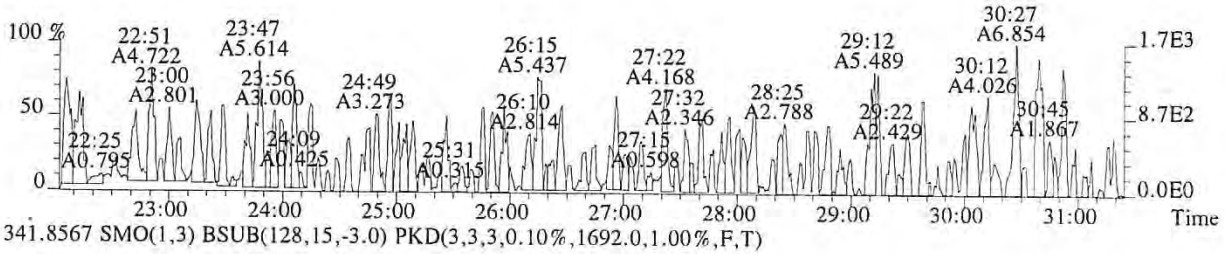


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

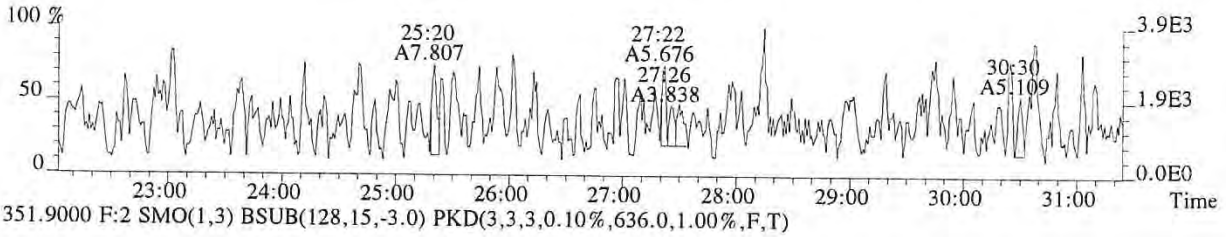


014874

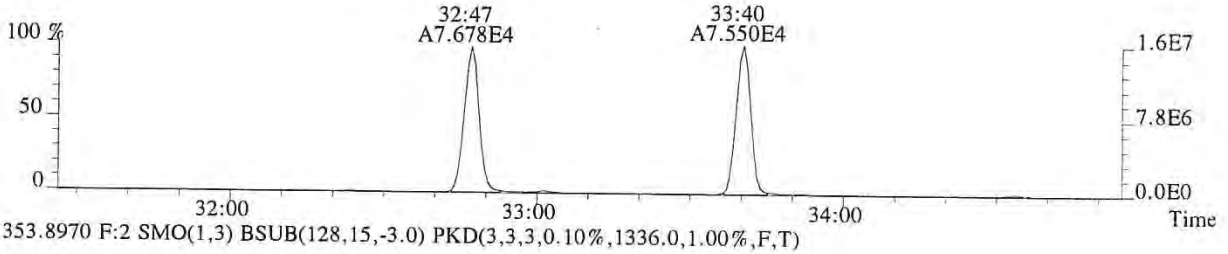
File:P513857 #1-665 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,188.0,1.00%,F,T)



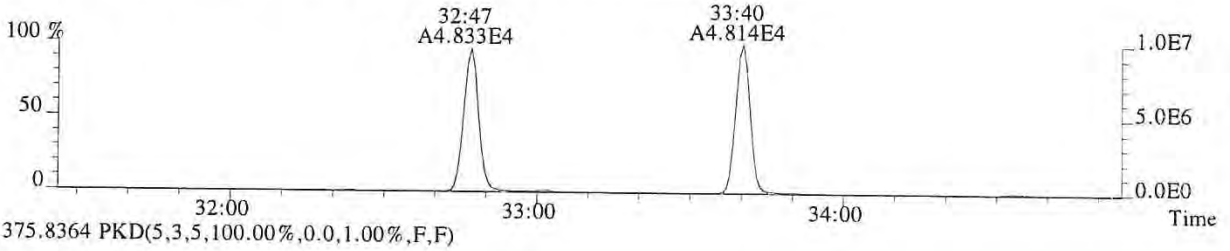
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1692.0,1.00%,F,T)



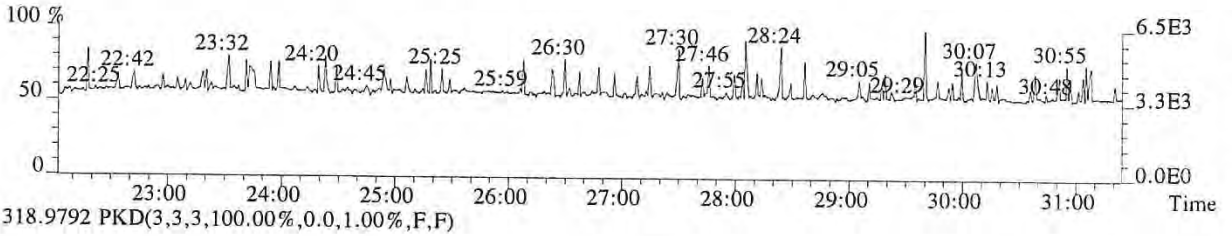
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)



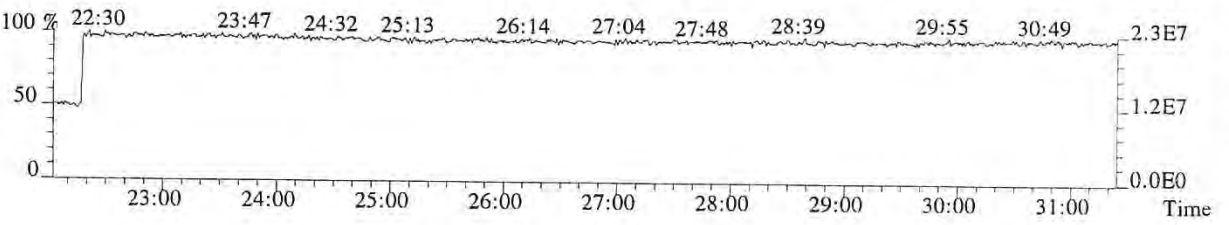
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1336.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

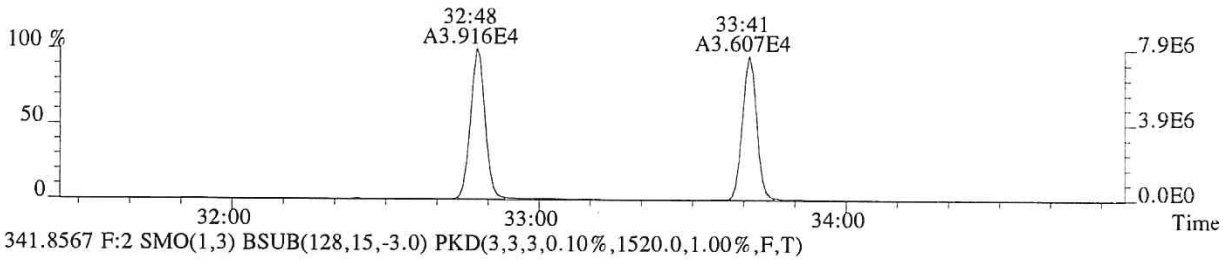


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

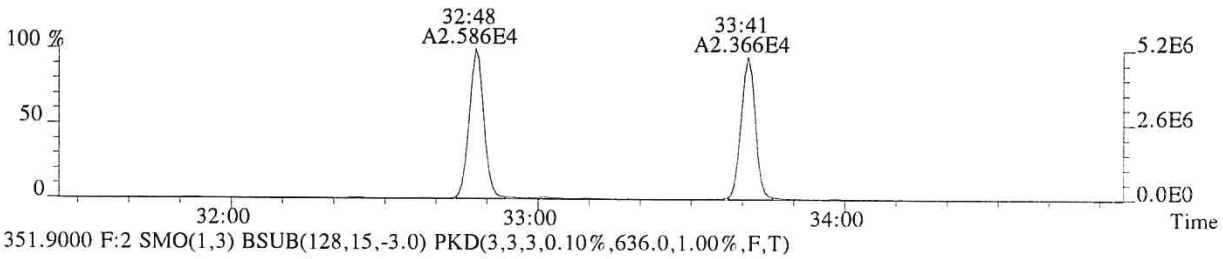


014875

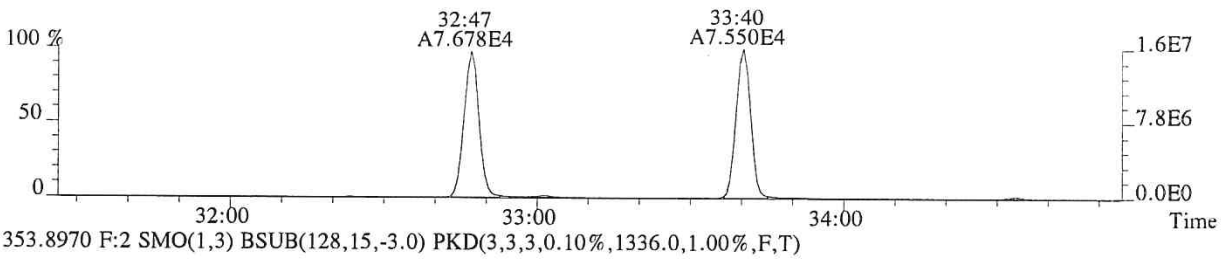
File:P513857 #1-313 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,844.0,1.00%,F,T)



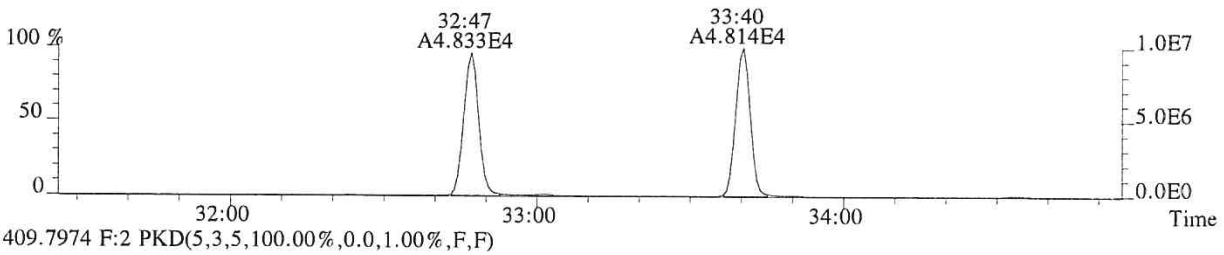
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1520.0,1.00%,F,T)



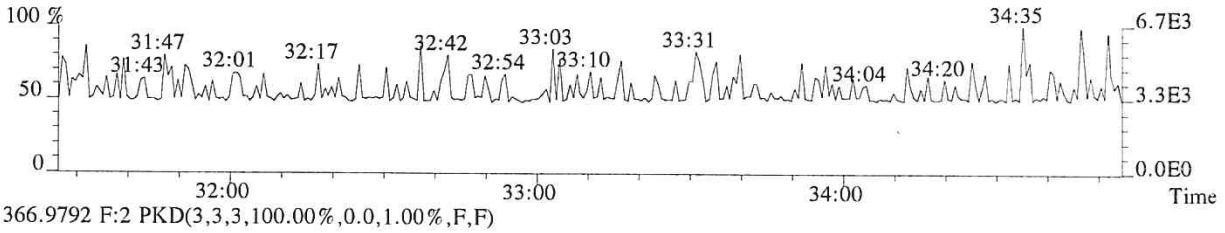
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)



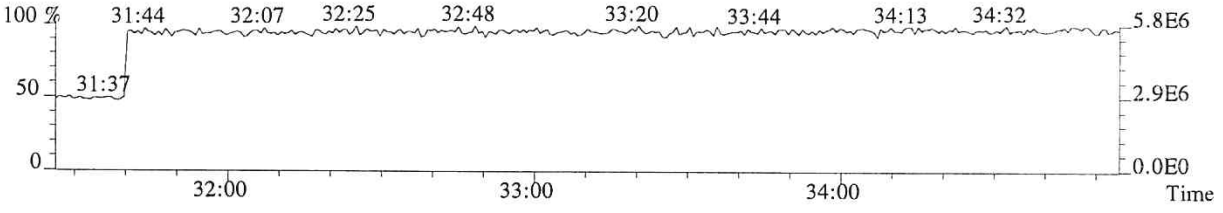
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1336.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

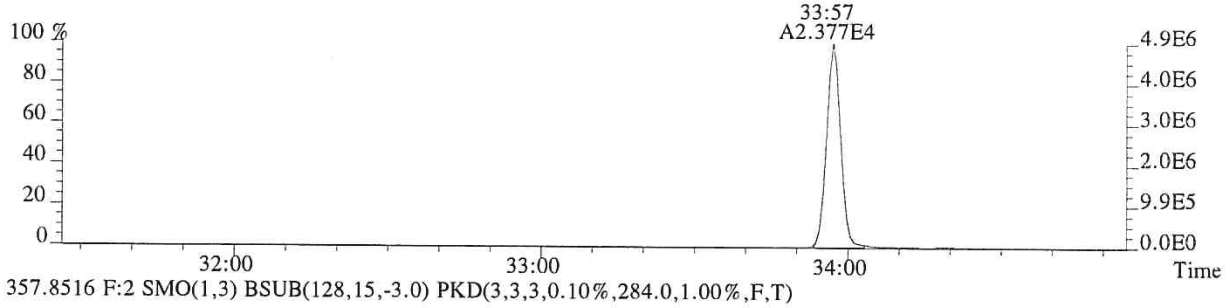


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

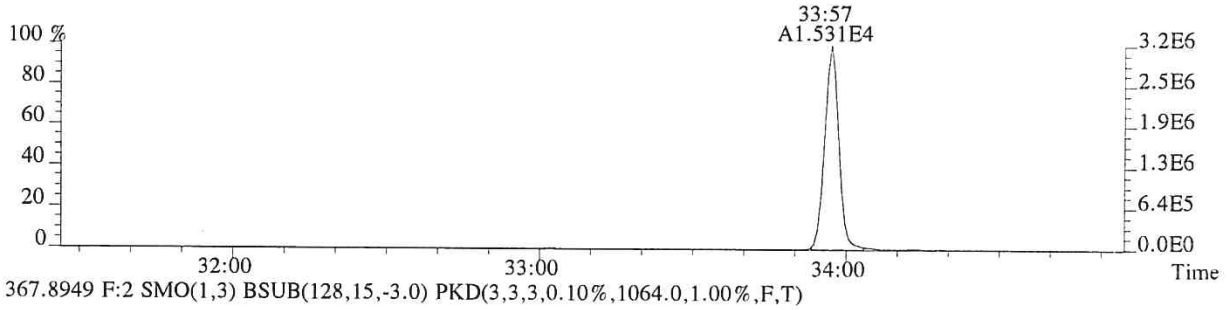


014876

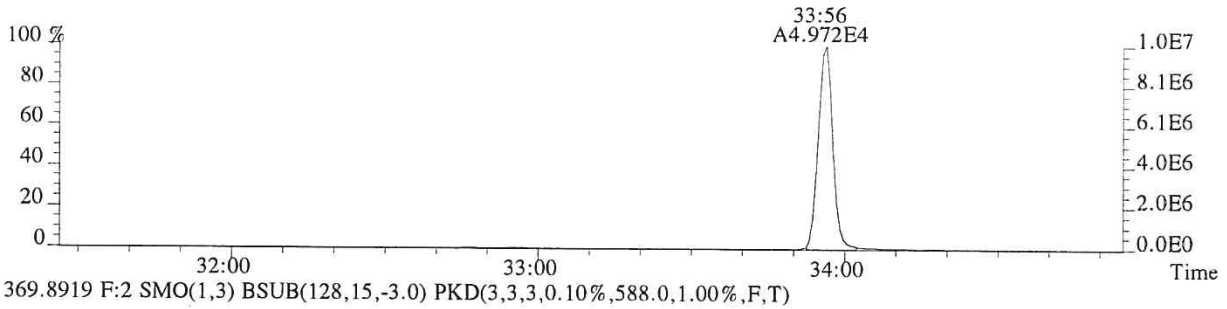
File:P513857 #1-313 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,852.0,1.00%,F,T)



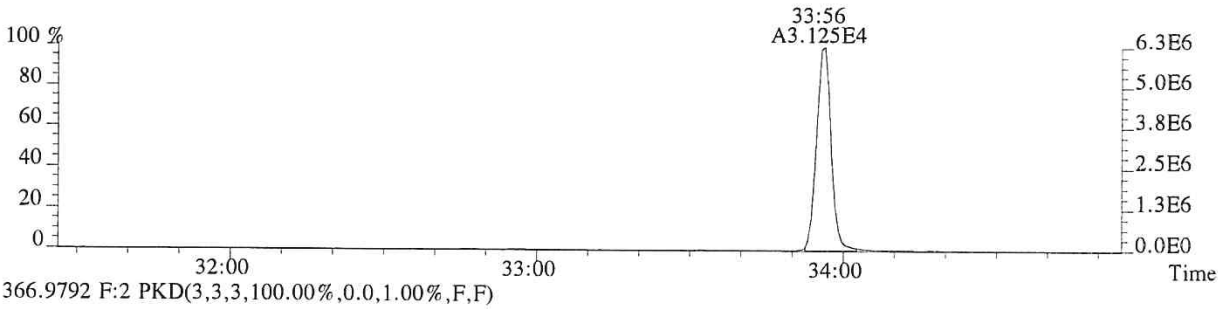
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,284.0,1.00%,F,T)



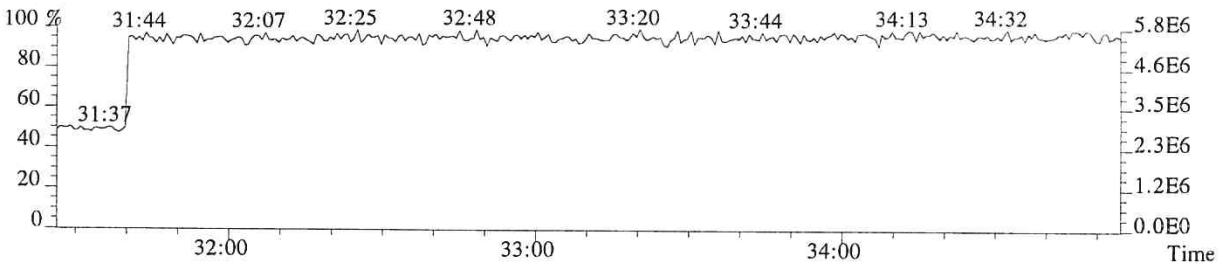
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1064.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,588.0,1.00%,F,T)

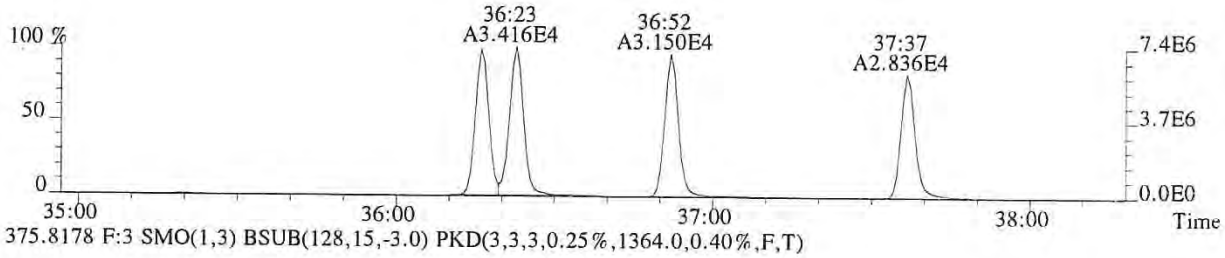


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

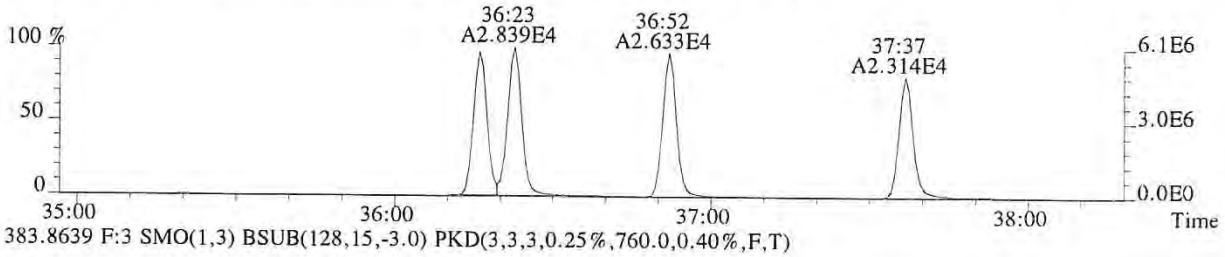


014877

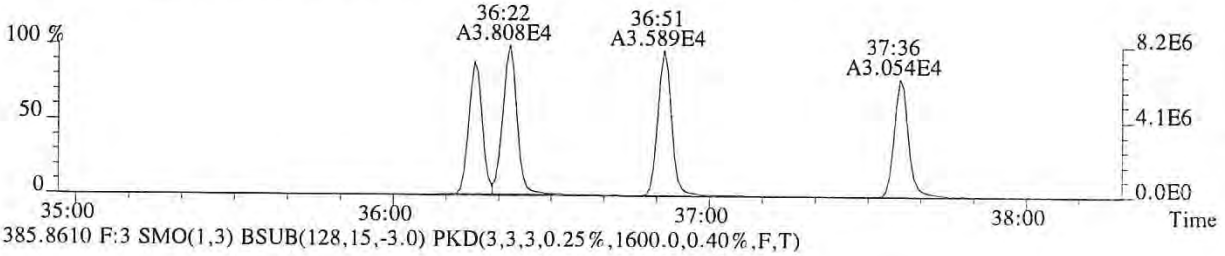
File:P513857 #1-303 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1528.0,0.40%,F,T)



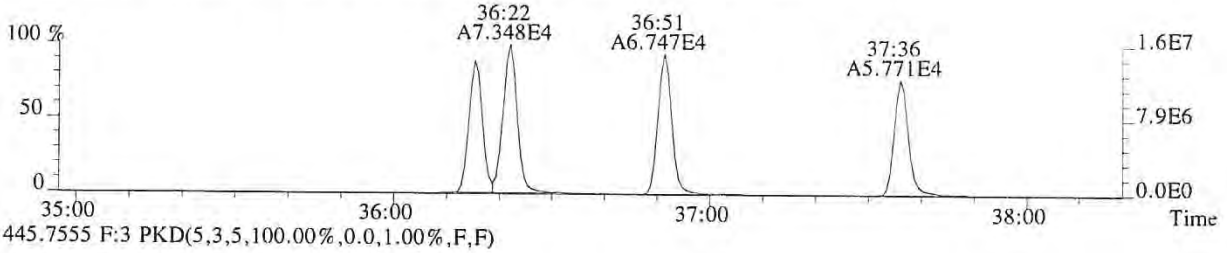
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1364.0,0.40%,F,T)



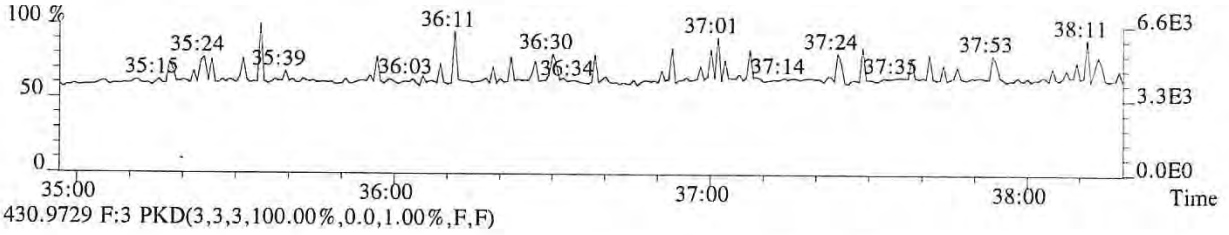
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,760.0,0.40%,F,T)



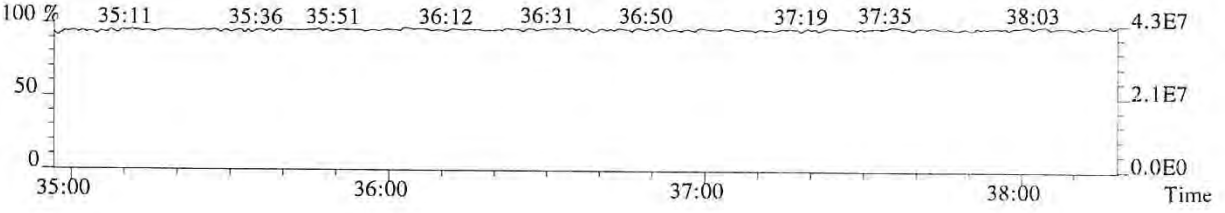
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1600.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

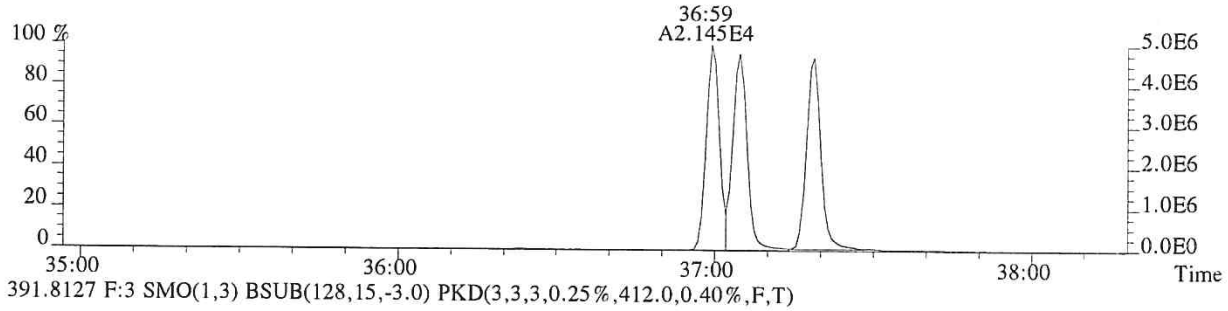


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

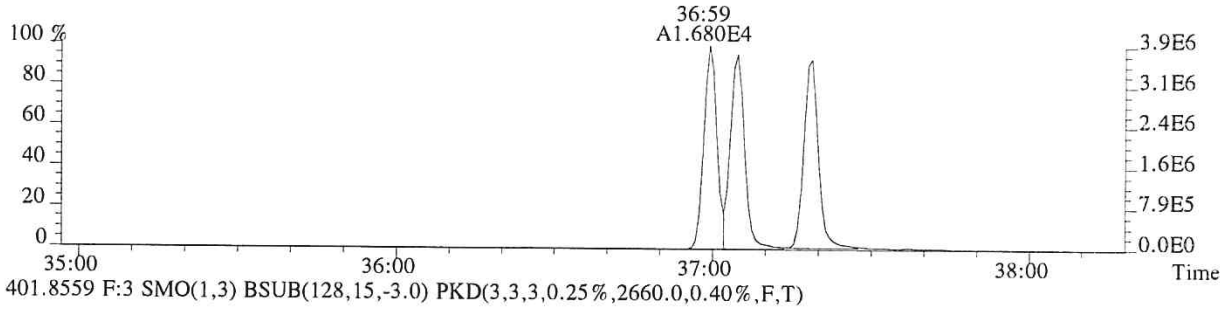


014878

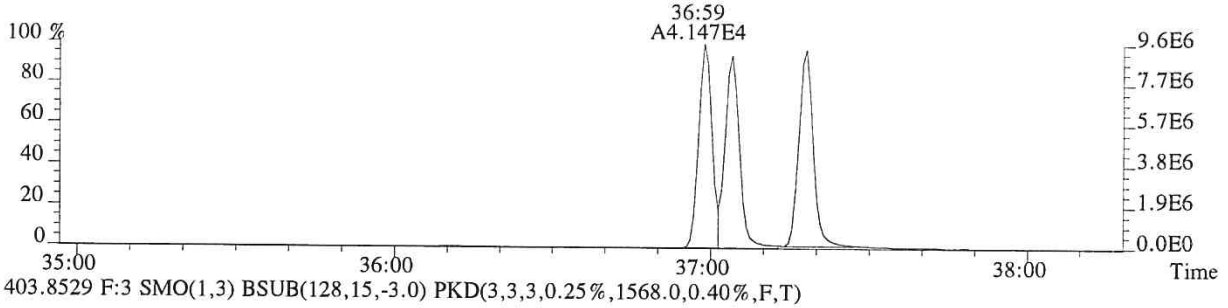
File:P513857 #1-303 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,764.0,0.40%,F,T)



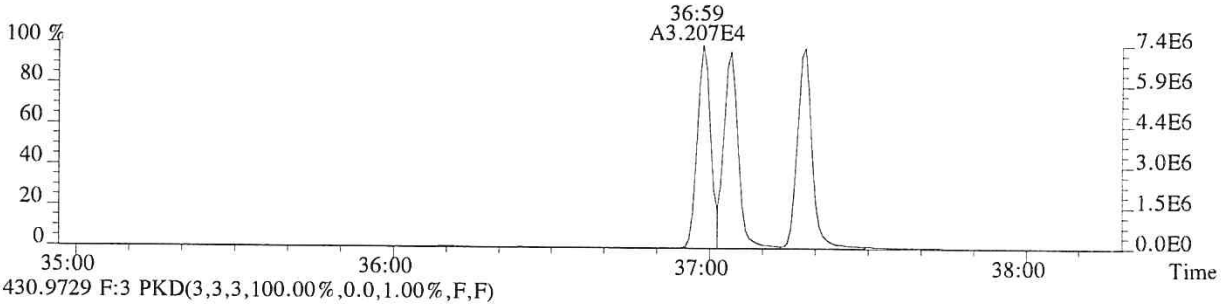
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,412.0,0.40%,F,T)



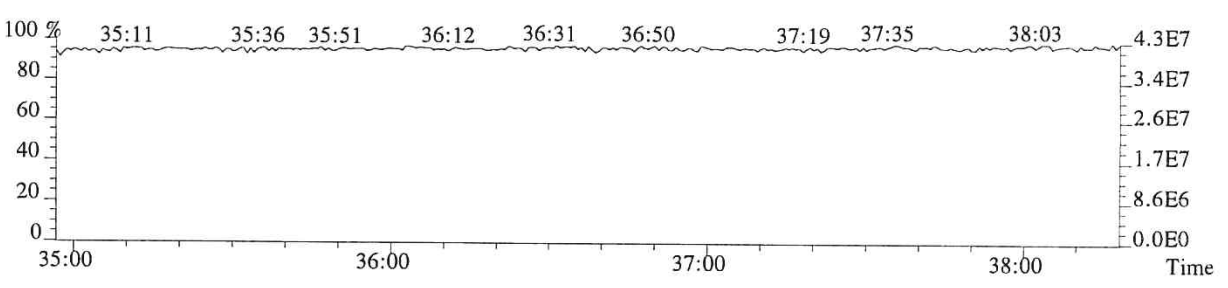
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2660.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1568.0,0.40%,F,T)

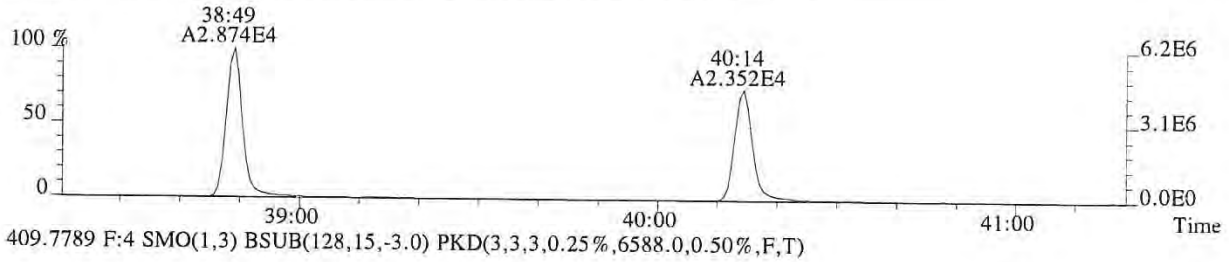


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

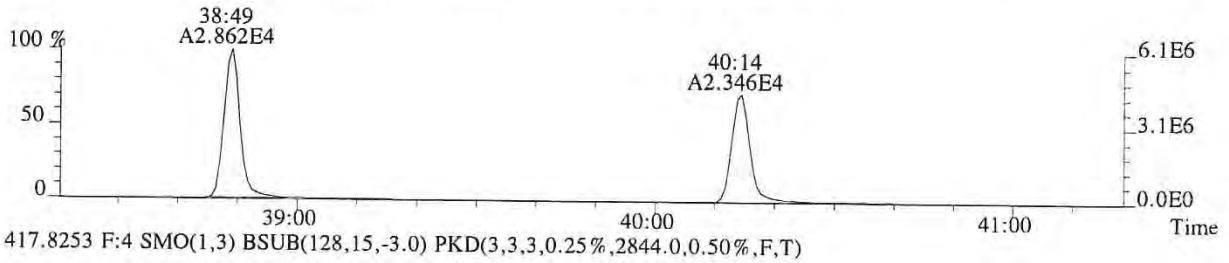


014879

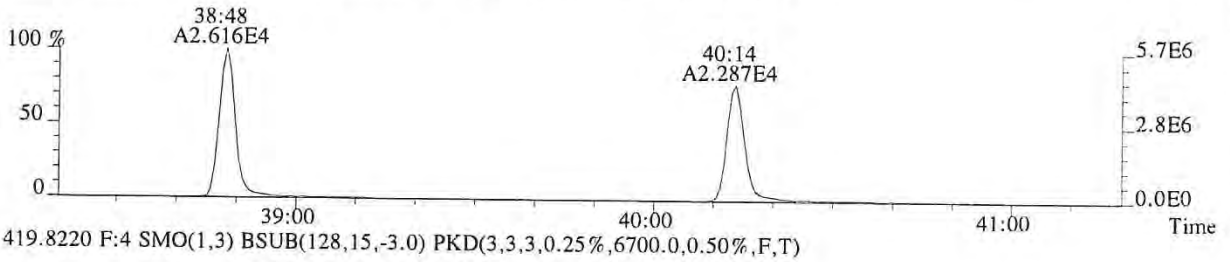
File:P513857 #1-268 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:75080
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5004.0,0.50%,F,T)



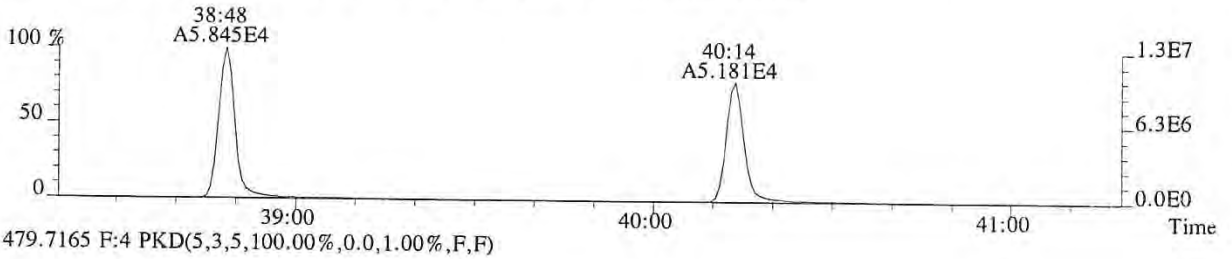
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6588.0,0.50%,F,T)



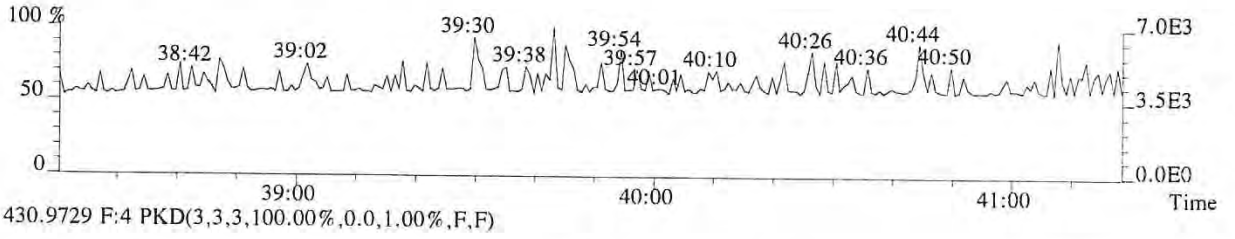
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2844.0,0.50%,F,T)



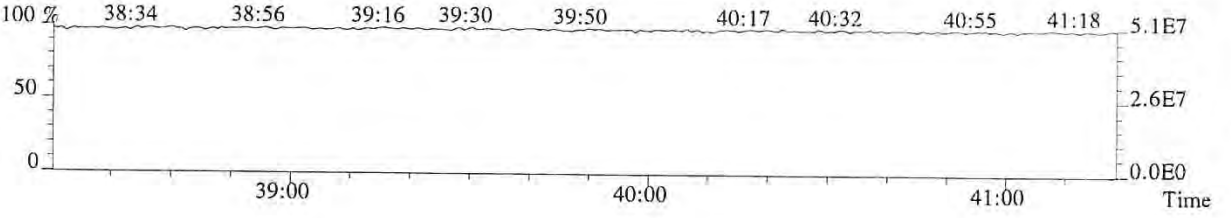
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6700.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

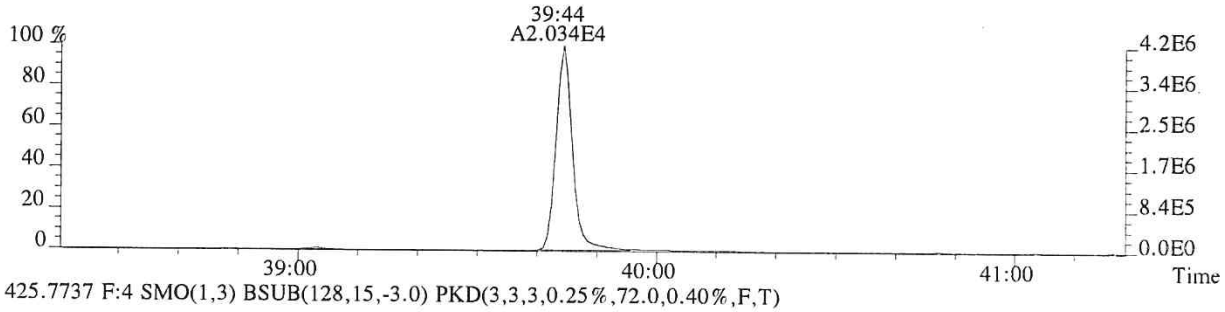


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

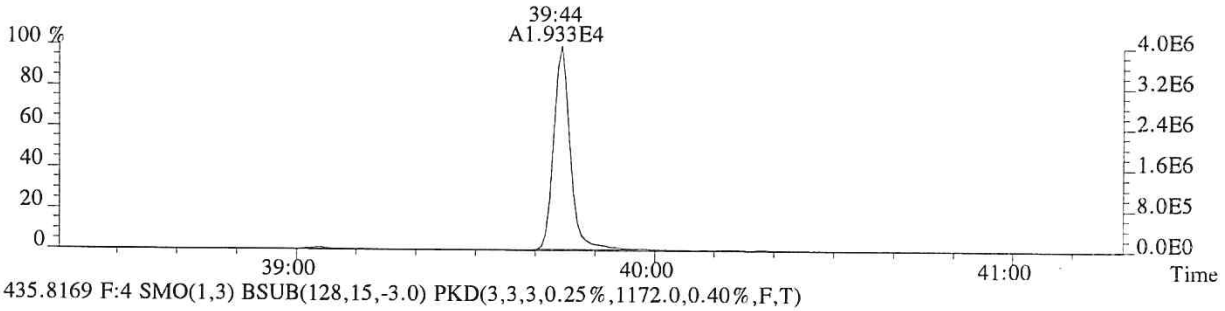


014880

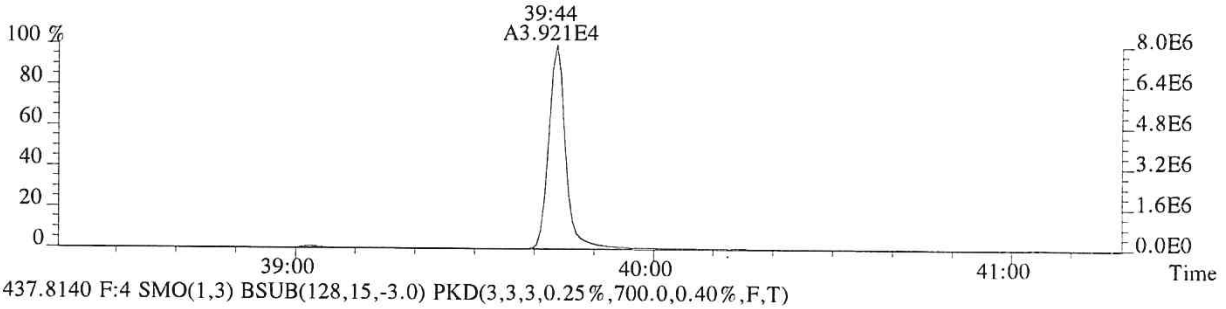
File:P513857 #1-268 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1168.0,0.40%,F,T)



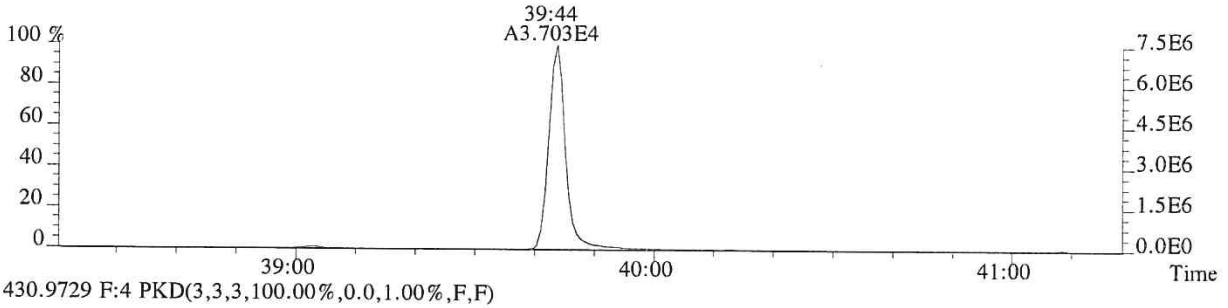
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,72.0,0.40%,F,T)



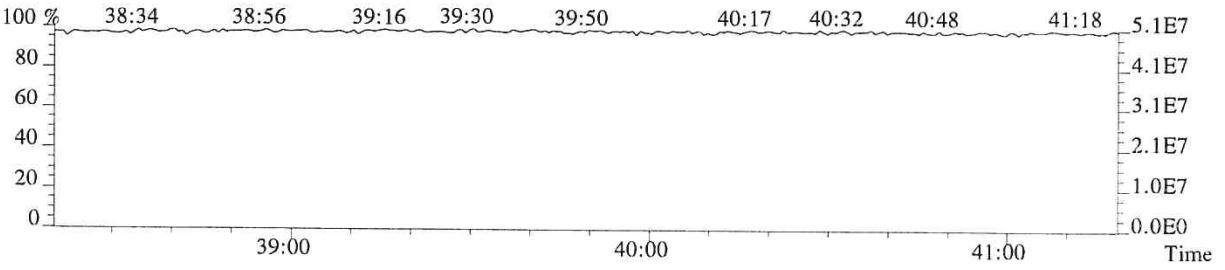
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1172.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,700.0,0.40%,F,T)

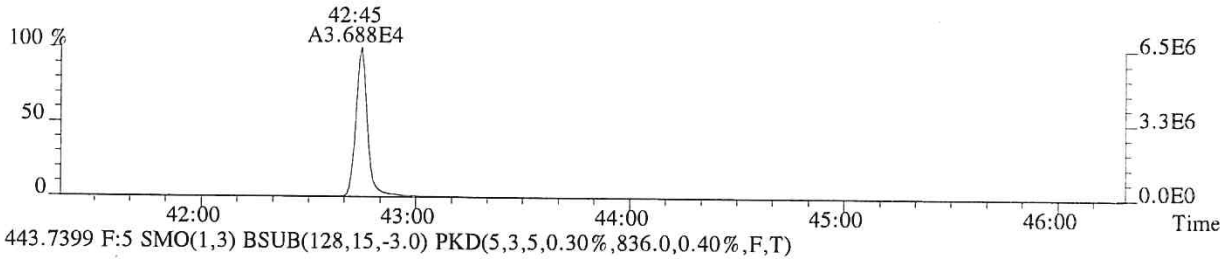


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

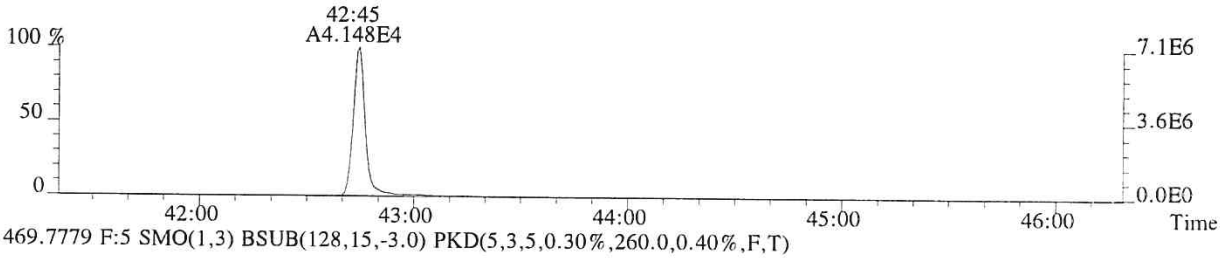


014881

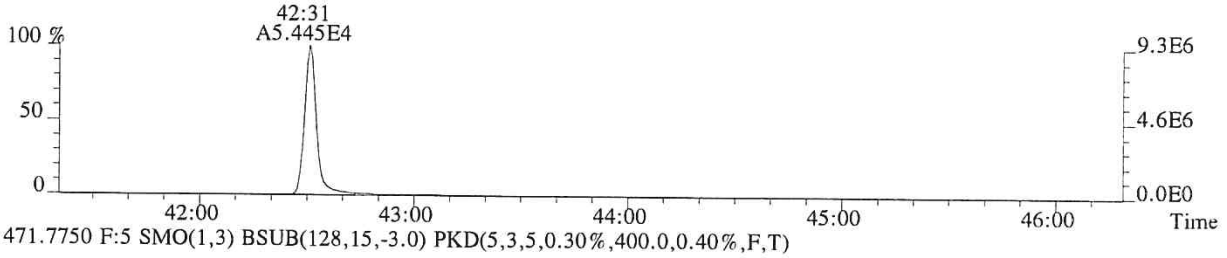
File:P513857 #1-448 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,144.0,0.40%,F,T)



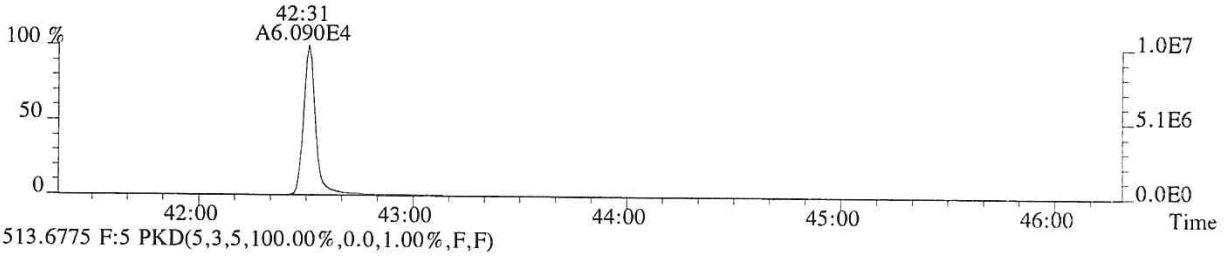
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,836.0,0.40%,F,T)



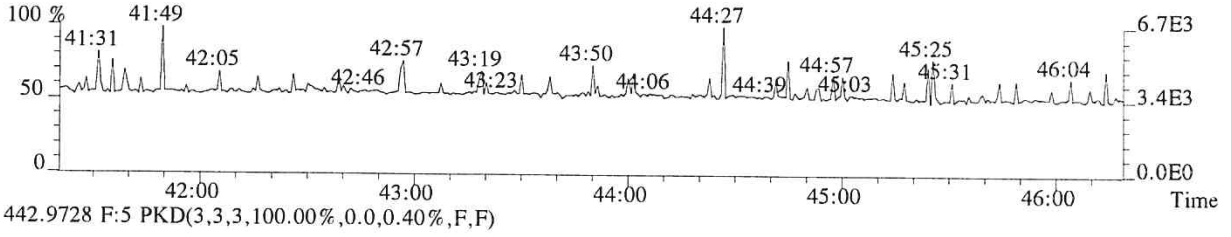
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,260.0,0.40%,F,T)



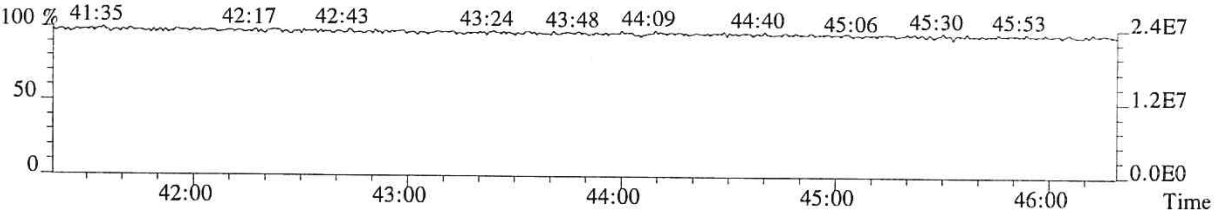
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,400.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

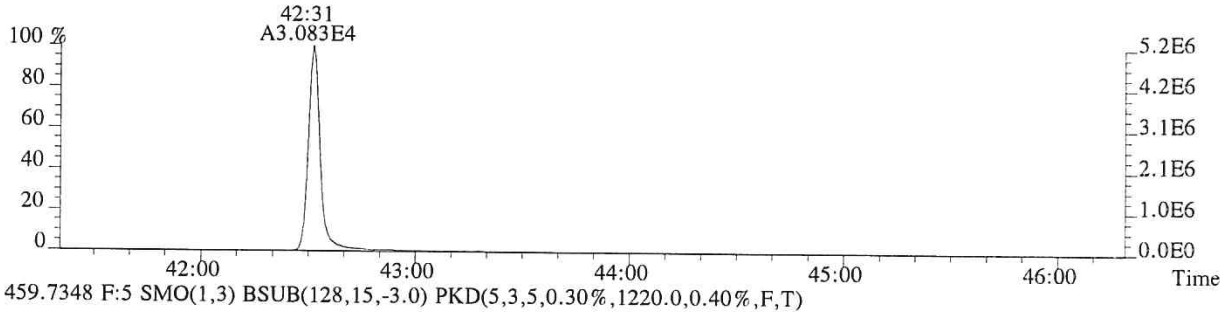


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

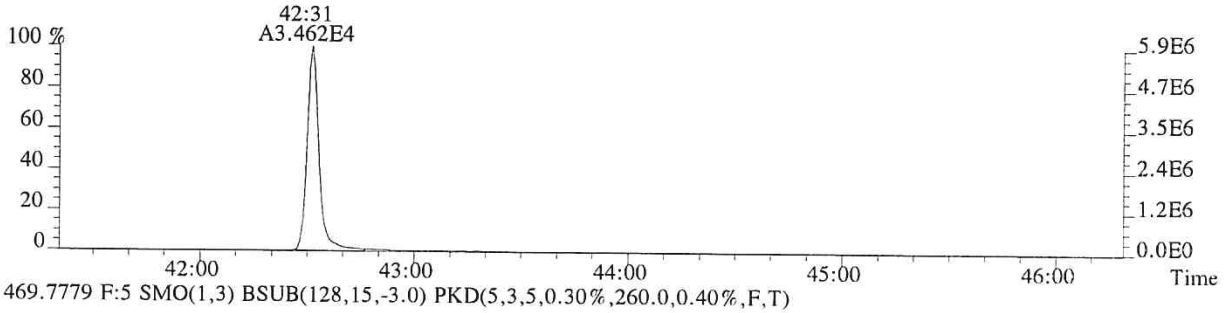


014882

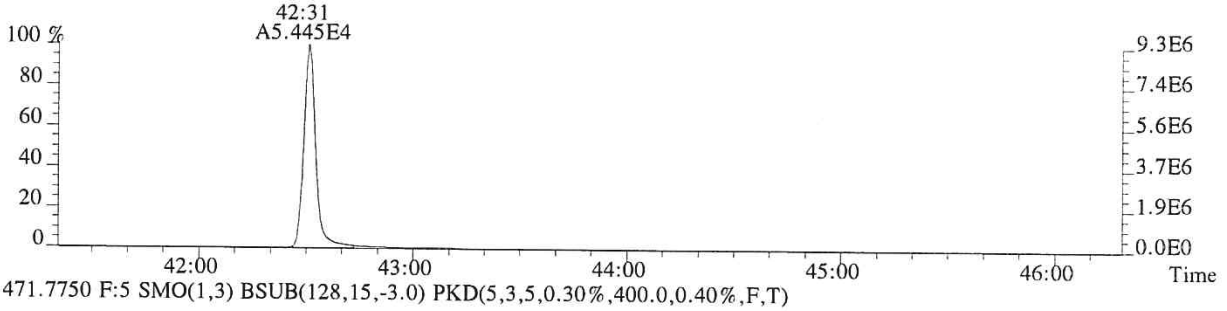
File:P513857 #1-448 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,160.0,0.40%,F,T)



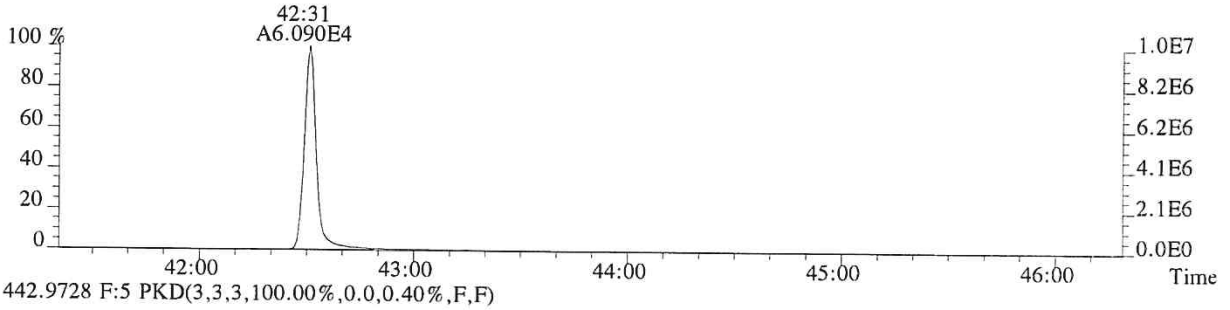
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1220.0,0.40%,F,T)



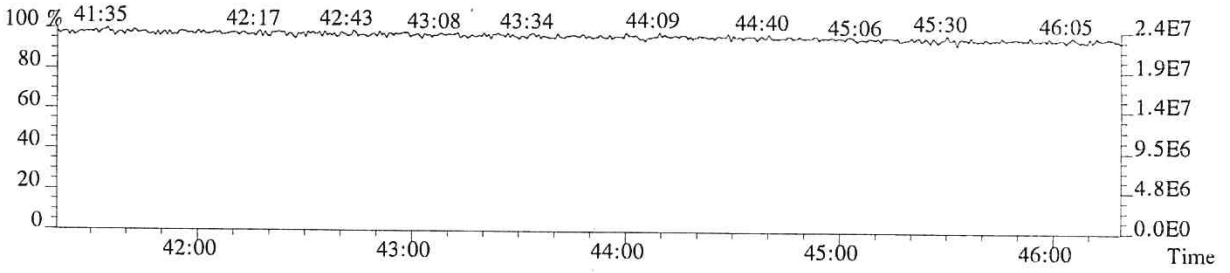
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,260.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,400.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



014883

Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290		Process Date: 09/26/2018				
Instrument Name: E-HRMS-08		Calibration File Name: P6-18092516131				
Processor Name: Gisela Cruz		Reviewer Name: Loan Luong				
Supervisor Signature: Kristin Neir						
Description		**Yes**	**No**	**NA**	**NR**	**ER#**
Analytical Sequence						
Does the analytical sequence summary accurately reflect the instrument run log, including ICV?		√				
Was a Mass Resolution Check performed at the beginning and end of the 12-hour sequence?		√				
Were all calibration standards and the ICV analyzed within the same 12-hour sequence?		√				
Were all calibration standards analyzed only once?		√				
Was the ICV analyzed after the ICAL, before analyzing samples?		√				
Mass Resolution Check						
Are beginning and ending resolution checks provided and legible?		√				
Were all target masses >10,000 resolving power at the beginning of the sequence?		√				
Were all target masses >10,000 resolving power at the end of the sequence?		√				
For PCB analysis, were masses at the low and high end of each function mass range >8,000?				√		
Where automatic printout of the mass resolution were not >10,000, was the resolution inspected by a trained analyst, including manual calculation of the resolution, if warranted?				√		
Window Define/209						
Is the window defining mix summary present, and accompanied by SICPs/Chromatograms for the WDM?		√				
Was the WDM/Column Performance/209 solution analyzed prior to the analysis of the calibration standards?		√				
Was 2,3,7,8-TCDD peak valley <25% to any other TCDD?		√				
Were all first and last eluters adequately resolved in each function?		√				
If first and last eluters were not resolved, was corrective action performed and documented, followed by a reanalysis of the WDM?				√		
Was the retention time of PCB 209 >55 min?				√		
Were the following congeners uniquely resolved (valley height <40% of the shortest peak)? PCB-34 and PCB-23 PCB-187 and PCB-182				√		
Did PCB 156/157 co-elute within 2 seconds at peak maximum?				√		
Calibration Standards						
Were there at least 5 calibration standards analyzed?		√				
If not all calibration standards were used, were the omitted standards either the lowest or highest calibration standard?				√		
Are all sample response summaries, S/N height summaries, and SICPs included (and legible) for the entire sequence?		√				

Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290		Process Date: 09/26/2018				
Instrument Name: E-HRMS-08		Calibration File Name: P6-180925161 3I				
Processor Name: Gisela Cruz		Reviewer Name: Loan Luong				
Supervisor Signature: Kristin Neir		Yes	No	NA	NR	ER#
Description						
Did each calibration point meet method criteria for Ion Abundance Ratio for all analytes and labeled standards?		√				
Did each calibration point meet method criteria for signal-to-noise ratios (S/N)?		√				
Were area counts for the highest calibration standard below levels of saturation?		√				
Were manual integrations technically justified to correct for poor software integration?				√		
Response Factors						
Is the ICAL Response Factor Summary present, including RR/RF values for each native/labeled analyte at each level of calibration?		√				
Were all calibration standards used in determining response factors?		√				
Were relative response factors (RR) for each native analyte calculated at each calibration point?		√				
Did the RSD for RRFs for each native analyte meet method criteria?		√				
Were response factors (RF) for each native analyte not having a corresponding labeled compound calculated at each calibration point?		√				
Were RFs for each labeled compound calculated for each calibration point?		√				
Did the RSD for RF for each labeled compound meet method criteria?		√				
Initial Calibration Verification						
Is the calibration verification present, including form 4A/B reflecting results for the ICV (Conc. or %D)		√				
Did all analytes meet method criteria for the ICV.		√				

Laboratory Review Checklist: Initial Calibration			
Method: 1613/8290		Process Date: 09/26/2018	
Instrument Name: E-HRMS-08		Calibration File Name: P6-180925161 3I	
Processor Name: Gisela Cruz		Reviewer Name: Loan Luong	
ER#[5]	**Description**		

NA = Not Applicable;
NR = Not Reviewed;
R# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: TX01411 Episode No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm) Instrument ID: E-HRMS-08

Init. Calib. Date: 09/25/18

Init. Calib.Times: 12:13

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, SPIKES AND DUPLICATES IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
192977	WINDOW DEFINE	P614680	25-SEP-18	12:13:01
76554	CS0.5	P614682	25-SEP-18	14:18:27
82614	CS1	P614683	25-SEP-18	15:08:49
193434	CS2	P614684	25-SEP-18	15:59:37
76557	CS3	P614685	25-SEP-18	16:52:47
82167	CS4	P614686	25-SEP-18	17:41:03
185657	CS5	P614687	25-SEP-18	18:30:08
188969	2ND SOURCE	P614690	25-SEP-18	20:57:19

Sample List Report **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS08.PRO\SampleDB\20180925A.SPL
Last Modified: Wednesday, September 26, 2018 06:14:12 Central Daylight Time
Printed: Wednesday, September 26, 2018 06:14:14 Central Daylight Time

Page Position (1, 1)

OPUS4: P6-180925161 3I
P614690res

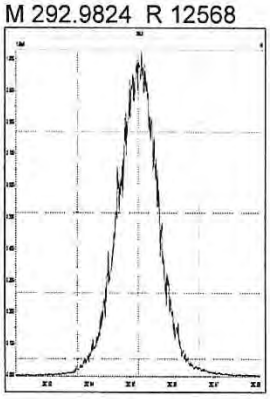
	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	9/25/18	12:13	P614680	192977	WINDOW DEFINE	EPA1613_ALS	Dioxin_ALS	Tray1:1	LG	HRMScheck 12:08
2		13:01	P614681	192807	CS3	EPA1613_ALS	Dioxin_ALS	Tray1:2		
3		14:18	P614682	76554	CS0.5	EPA1613_ALS	Dioxin_ALS	Tray1:3		
4		15:08	P614683	82614	CS1	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		15:59	P614684	193434	CS2	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		16:52	P614685	76557	CS3	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		17:41	P614686	82167	CS4	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		18:30	P614687	185657	CS5	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		19:19	P614688	NONANE	NONANE	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		20:08	P614689	188969	2ND SOURCE	EPA1613_ALS	Dioxin_ALS	Tray1:10		Do not use
11		20:57	P614690	188969	2ND SOURCE	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		21:52	P614691	NONANE	NONANE	EPA1613_ALS	Dioxin_ALS	Tray1:12		HRMScheck 22:51
13	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:13	---	---
14	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:14	---	---
15	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:15	---	---
16	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:16	---	---
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:17	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:18	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

LG 09/26/18

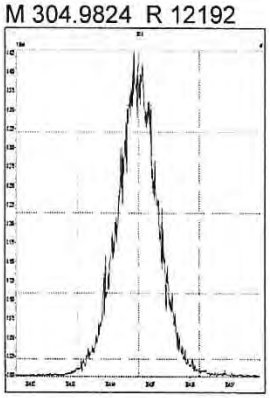
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Tuesday, September 25, 2018 12:08:26 Central Daylight Time

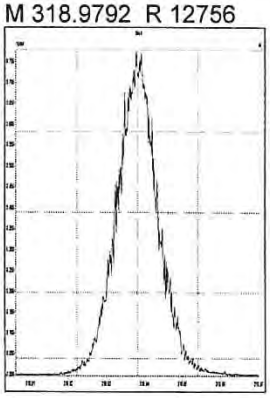
M 292.9824 R 12568



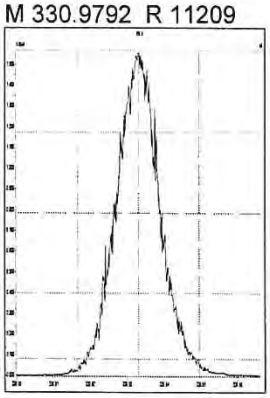
M 304.9824 R 12192



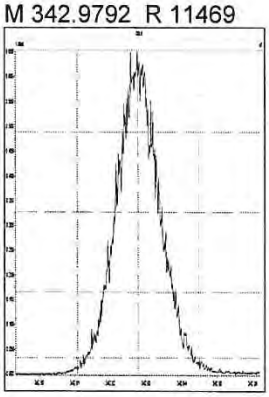
M 318.9792 R 12756



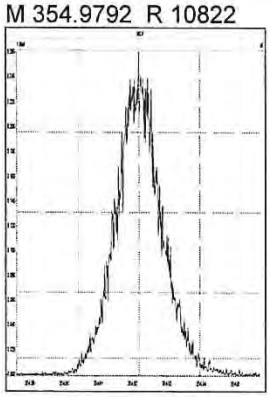
M 330.9792 R 11209



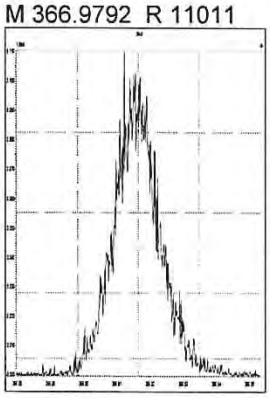
M 342.9792 R 11469



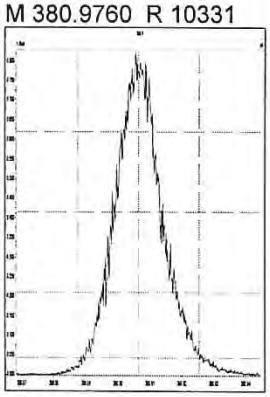
M 354.9792 R 10822



M 366.9792 R 11011



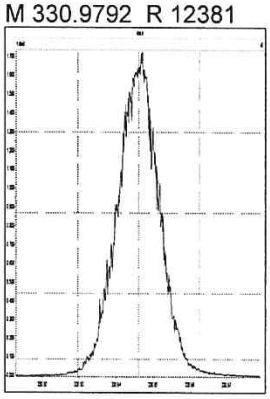
M 380.9760 R 10331



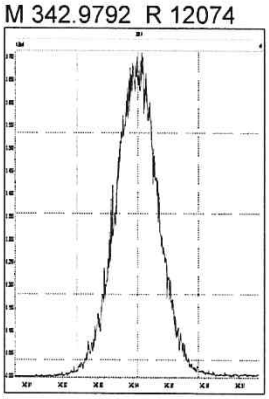
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Tuesday, September 25, 2018 12:09:22 Central Daylight Time

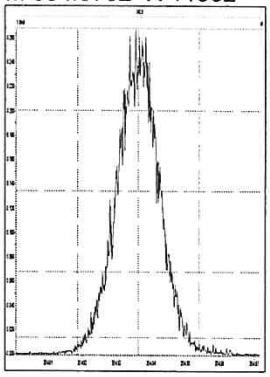
M 330.9792 R 12381



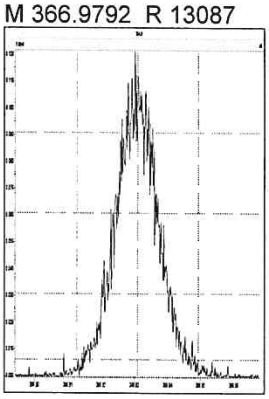
M 342.9792 R 12074



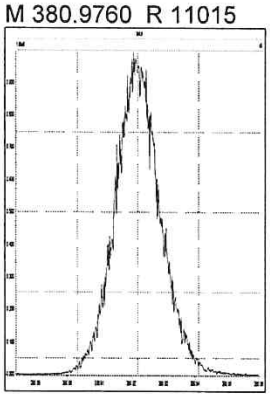
M 354.9792 R 11962



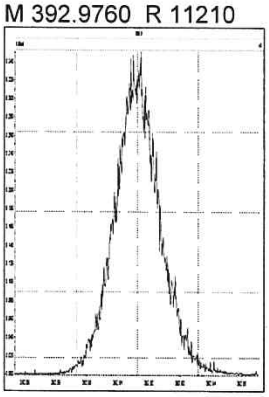
M 366.9792 R 13087



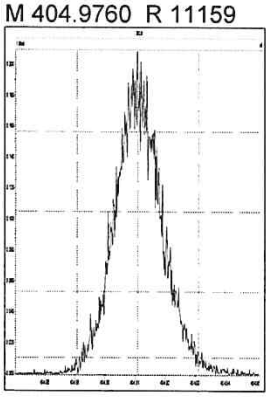
M 380.9760 R 11015



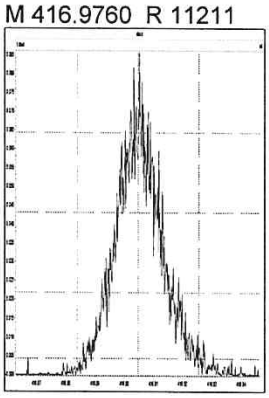
M 392.9760 R 11210



M 404.9760 R 11159



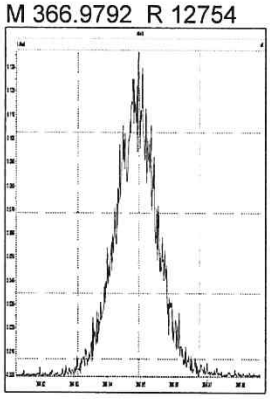
M 416.9760 R 11211



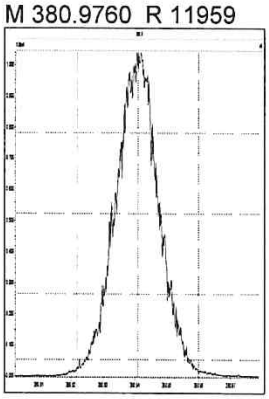
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Tuesday, September 25, 2018 12:10:10 Central Daylight Time

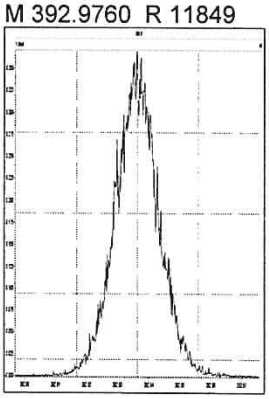
M 366.9792 R 12754



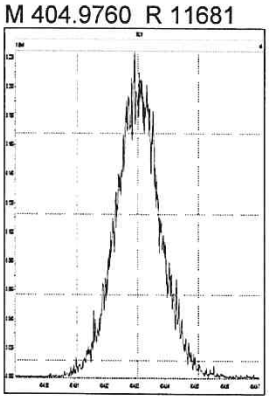
M 380.9760 R 11959



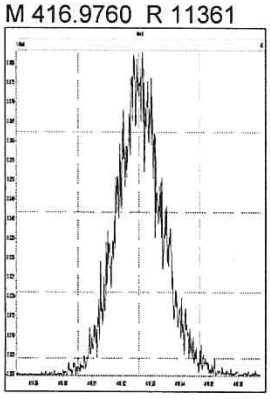
M 392.9760 R 11849



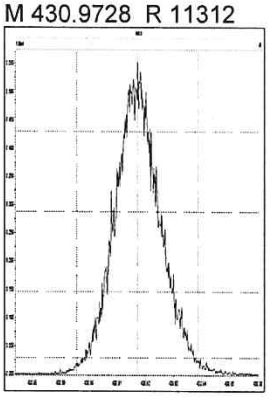
M 404.9760 R 11681



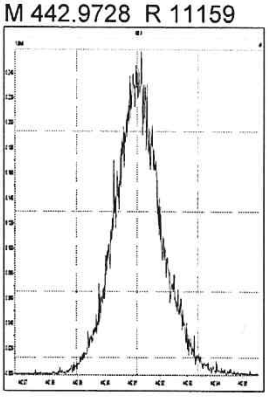
M 416.9760 R 11361



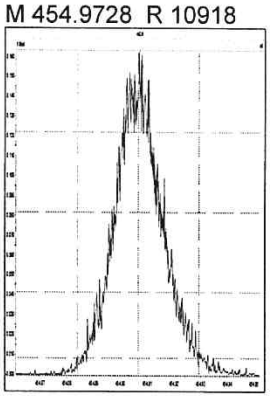
M 430.9728 R 11312



M 442.9728 R 11159



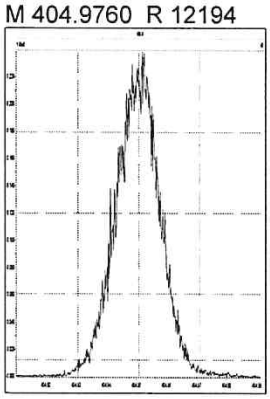
M 454.9728 R 10918



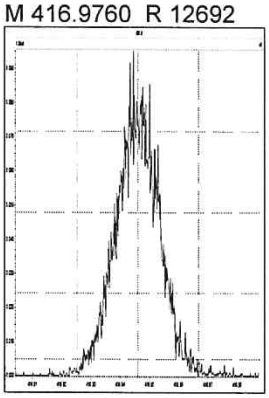
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Tuesday, September 25, 2018 12:10:51 Central Daylight Time

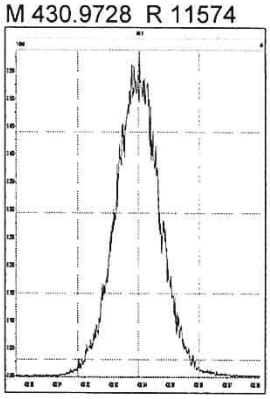
M 404.9760 R 12194



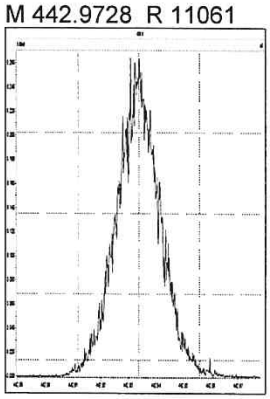
M 416.9760 R 12692



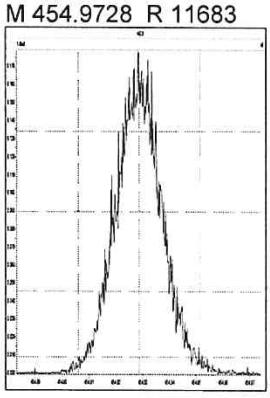
M 430.9728 R 11574



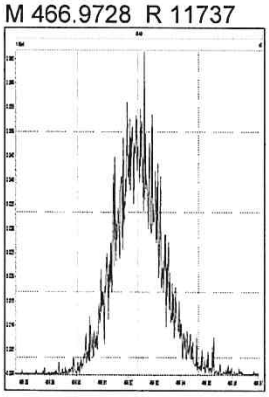
M 442.9728 R 11061



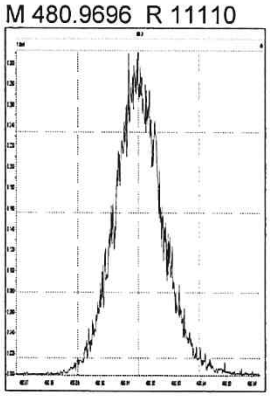
M 454.9728 R 11683



M 466.9728 R 11737



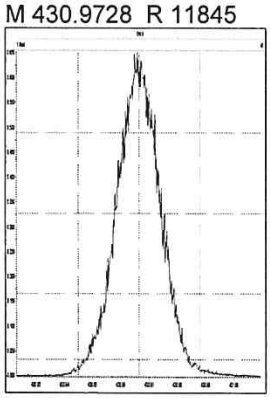
M 480.9696 R 11110



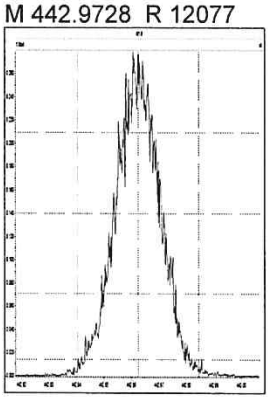
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Tuesday, September 25, 2018 12:11:41 Central Daylight Time

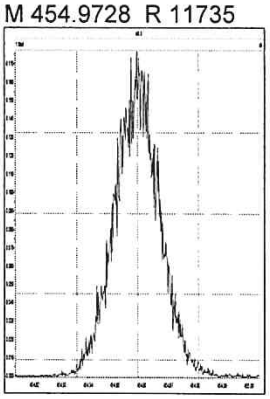
M 430.9728 R 11845



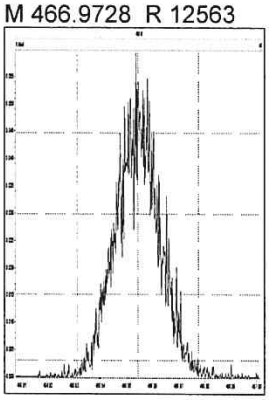
M 442.9728 R 12077



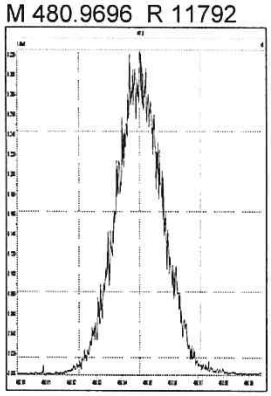
M 454.9728 R 11735



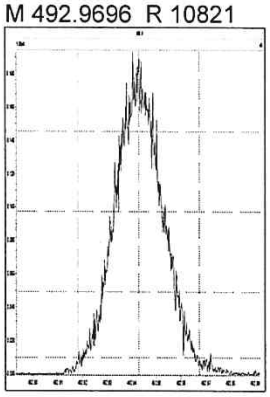
M 466.9728 R 12563



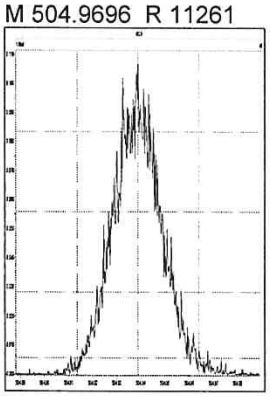
M 480.9696 R 11792



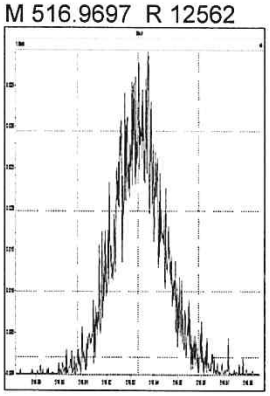
M 492.9696 R 10821



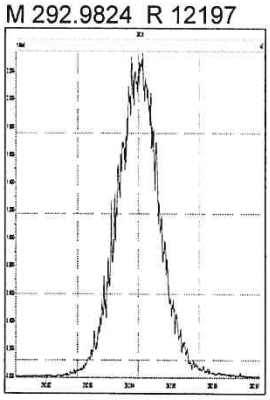
M 504.9696 R 11261



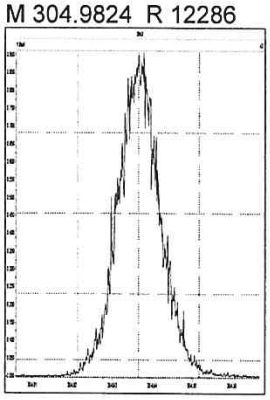
M 516.9697 R 12562



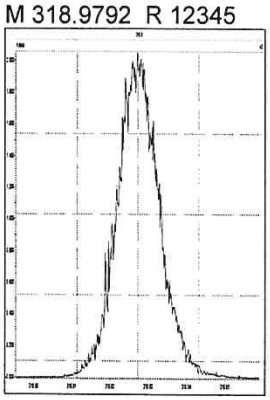
M 292.9824 R 12197



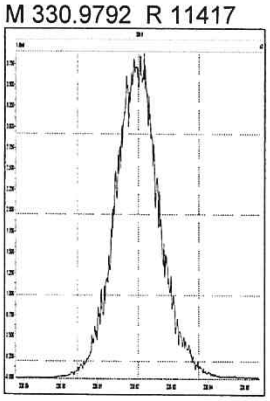
M 304.9824 R 12286



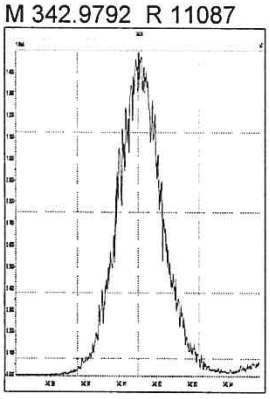
M 318.9792 R 12345



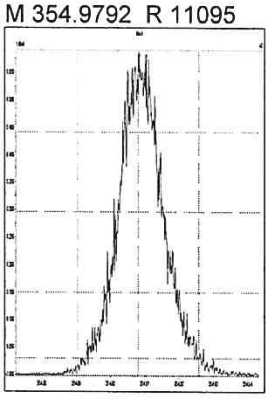
M 330.9792 R 11417



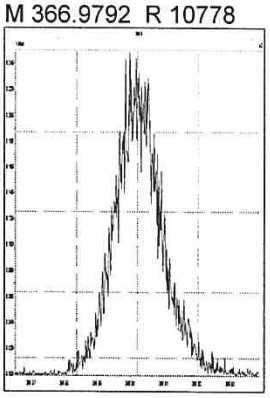
M 342.9792 R 11087



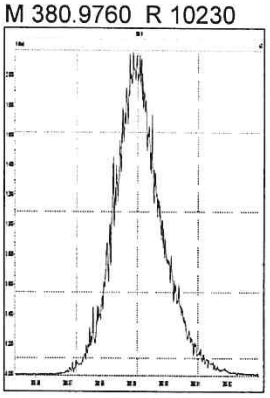
M 354.9792 R 11095



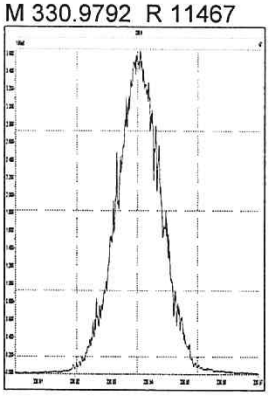
M 366.9792 R 10778



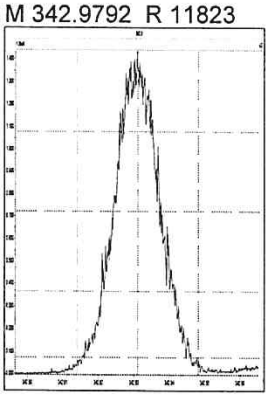
M 380.9760 R 10230



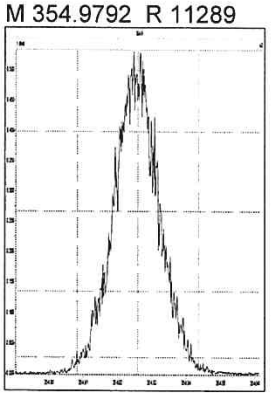
M 330.9792 R 11467



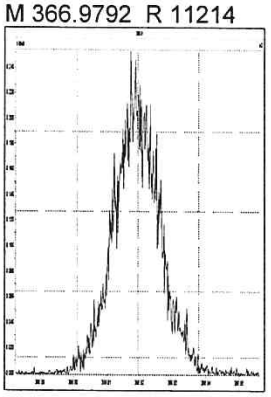
M 342.9792 R 11823



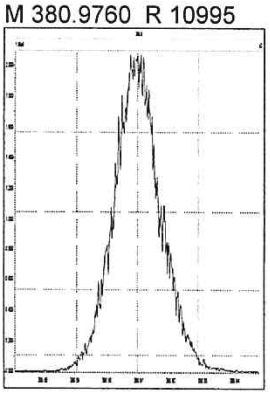
M 354.9792 R 11289



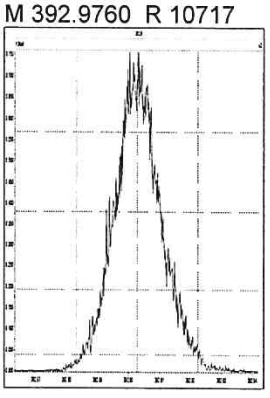
M 366.9792 R 11214



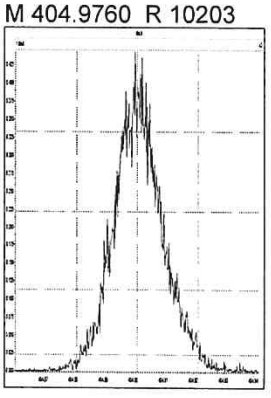
M 380.9760 R 10995



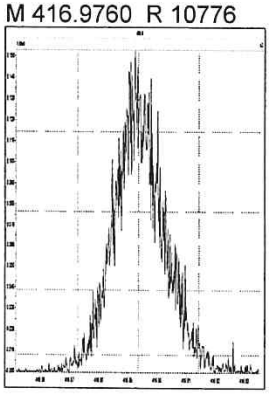
M 392.9760 R 10717



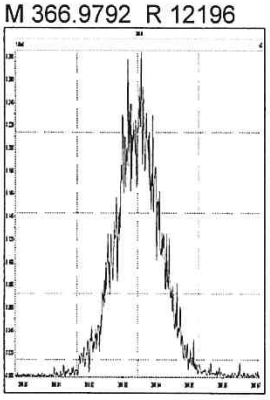
M 404.9760 R 10203



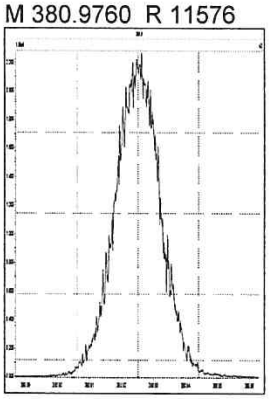
M 416.9760 R 10776



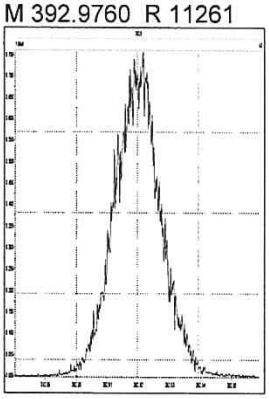
M 366.9792 R 12196



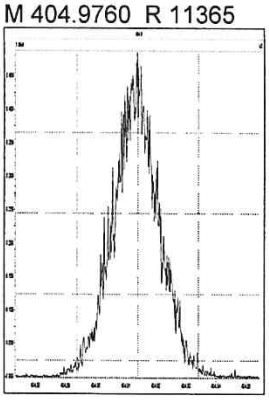
M 380.9760 R 11576



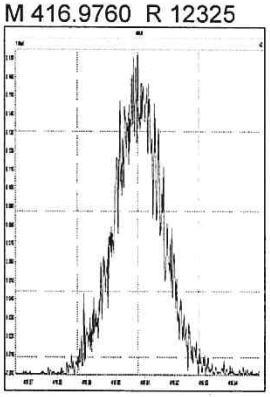
M 392.9760 R 11261



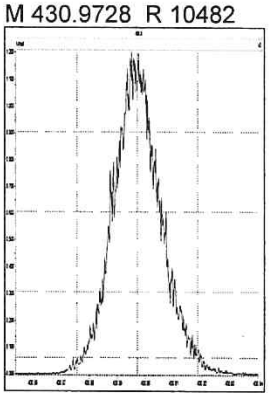
M 404.9760 R 11365



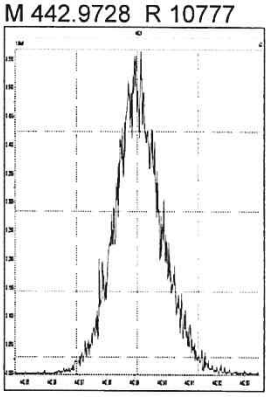
M 416.9760 R 12325



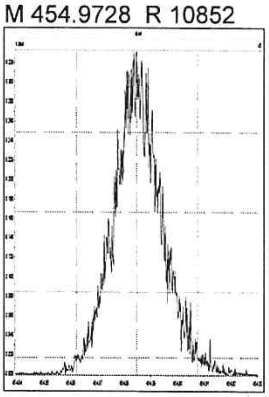
M 430.9728 R 10482



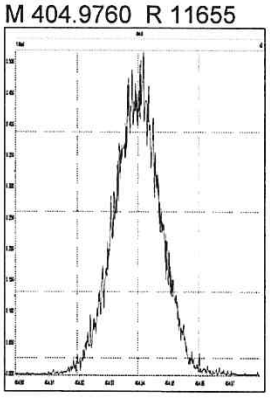
M 442.9728 R 10777



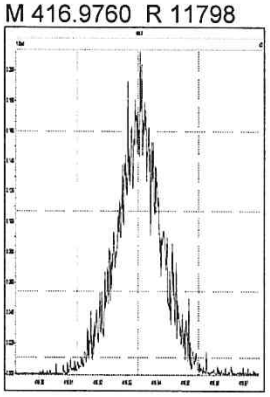
M 454.9728 R 10852



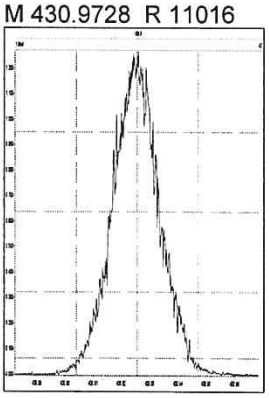
M 404.9760 R 11655



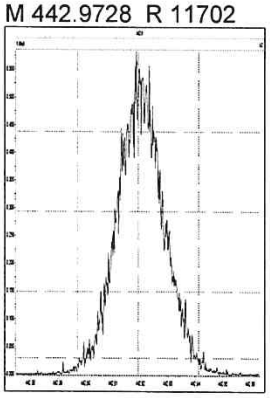
M 416.9760 R 11798



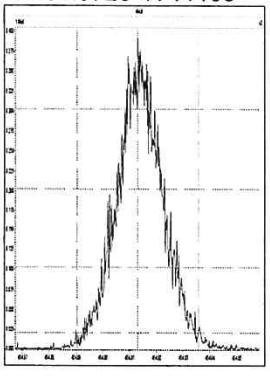
M 430.9728 R 11016



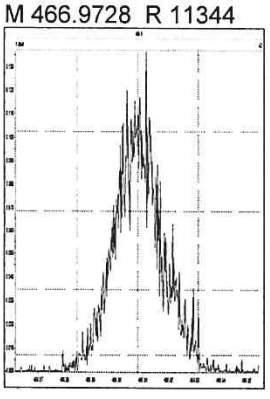
M 442.9728 R 11702



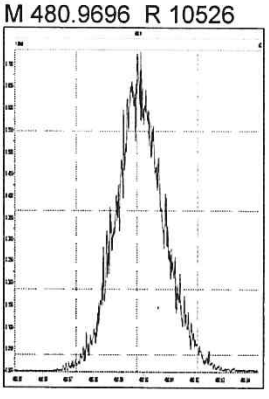
M 454.9728 R 11188



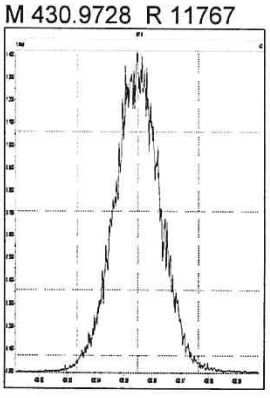
M 466.9728 R 11344



M 480.9696 R 10526

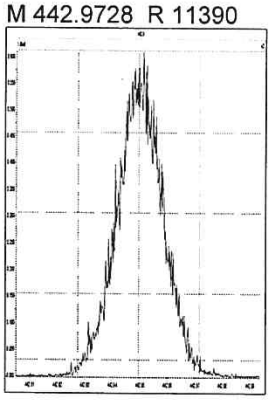


M 430.9728 R 11767

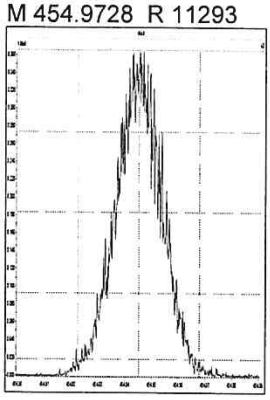


014894

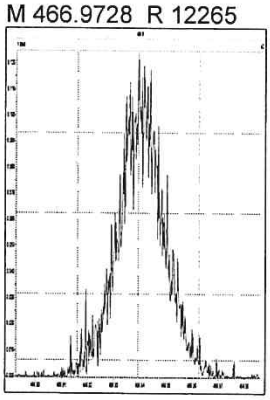
M 442.9728 R 11390



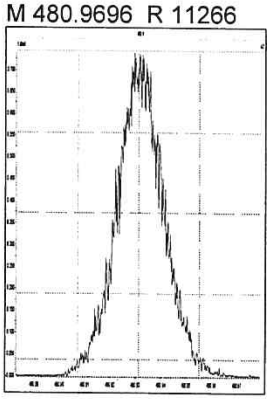
M 454.9728 R 11293



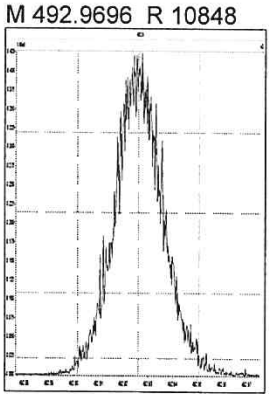
M 466.9728 R 12265



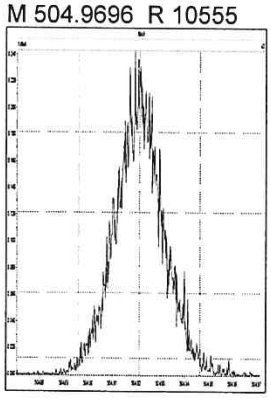
M 480.9696 R 11266



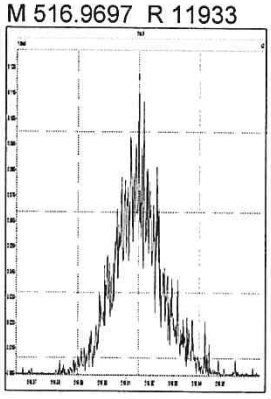
M 492.9696 R 10848



M 504.9696 R 10555



M 516.9697 R 11933



014895

5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

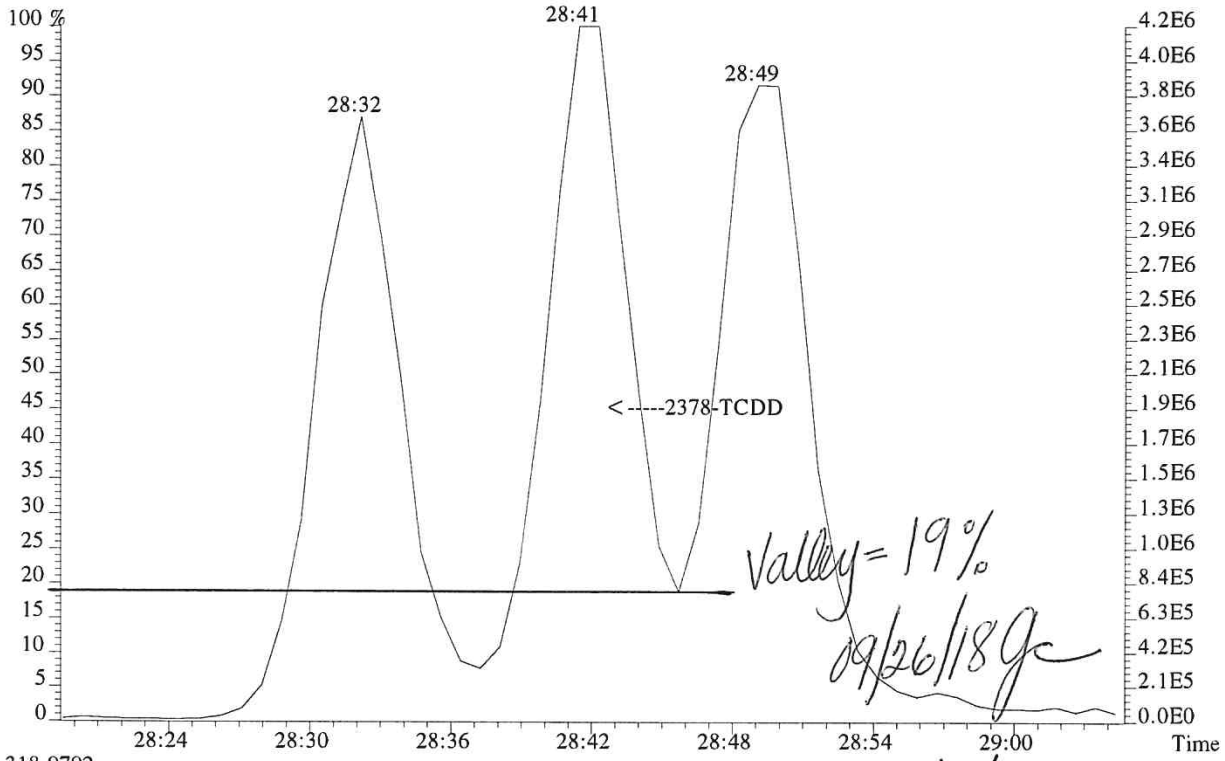
Lab Name: ALS Environmental
Lab Code: ALSTX Case No.: _____ SDG No.:
GC Column: DB-5MSUI ID: 0.25 (mm) Lab File ID: P614680
Date Analyzed: 25-SEP-18
Time Analyzed: 12:13:01

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	23:28	29:52
TCDD	25:18	29:42
PeCDF	29:48	34:04
PeCDD	31:21	33:49
HxCDF	34:43	37:12
HxCDD	35:14	36:49
HpCDF	38:24	39:46
HpCDD	38:39	39:18

% Valley 2378-TCDD: 19 %

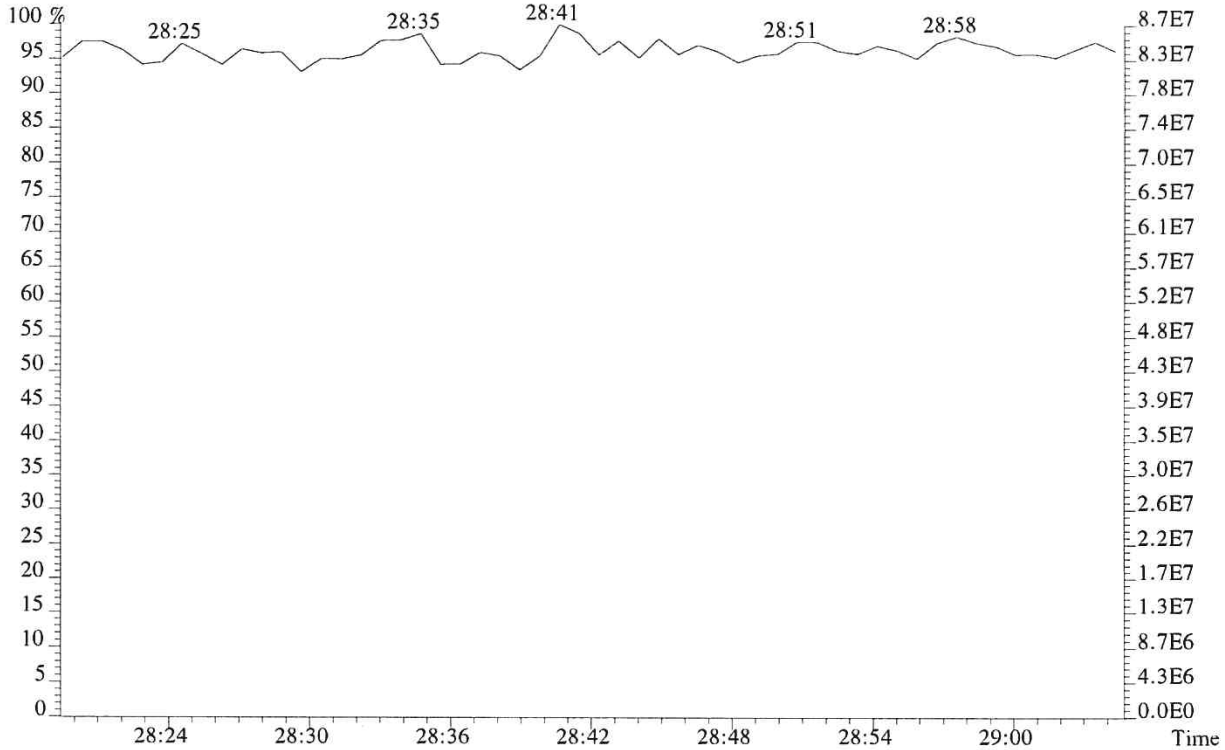
014896

File:P614680 #1-552 Acq:25-SEP-2018 12:13:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
319.8965



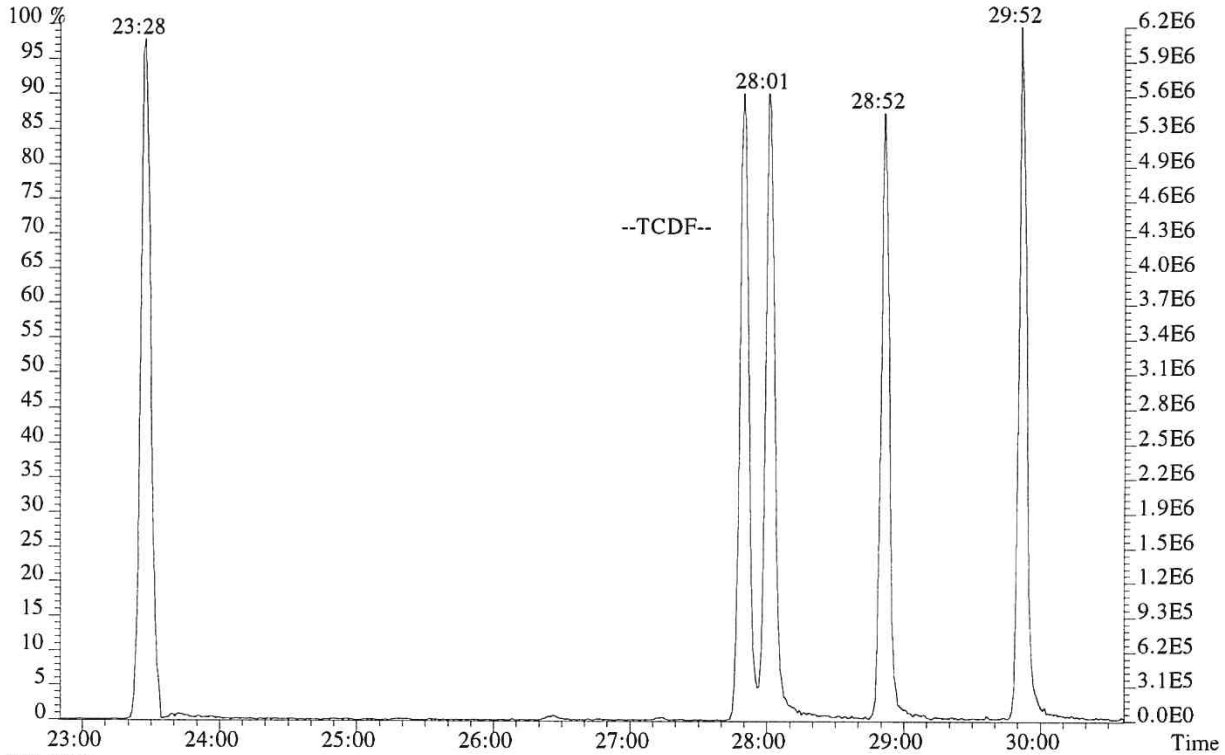
318.9792

LKL 09/26/18

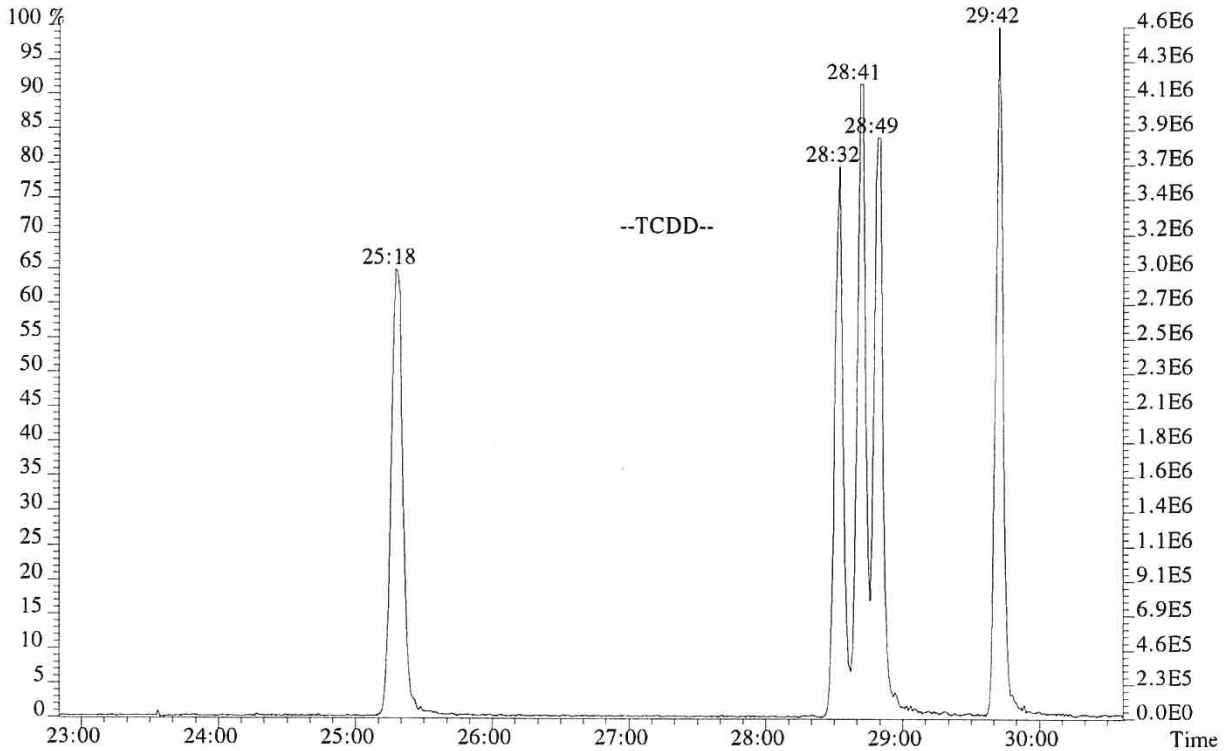


014897

File:P614680 #1-552 Acq:25-SEP-2018 12:13:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
303.9016

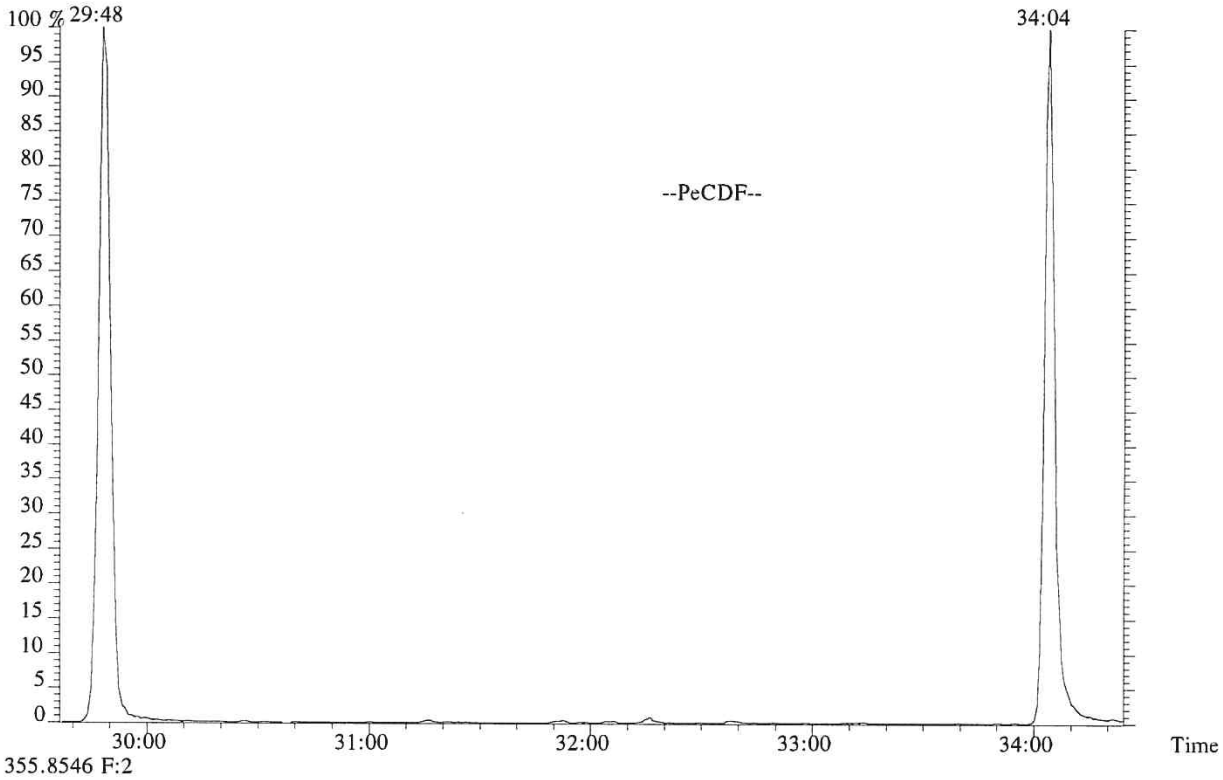


319.8965

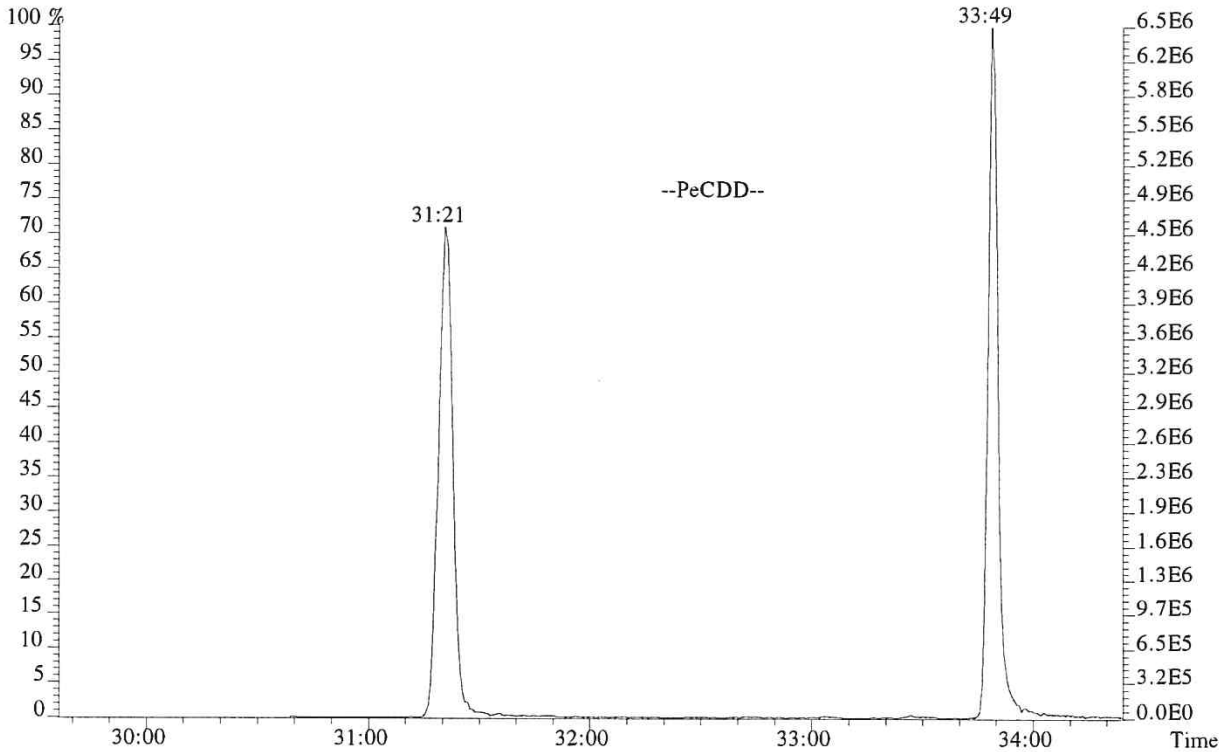


014898

File:P614680 #1-552 Acq:25-SEP-2018 12:13:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
339.8597,339.8597 F:2

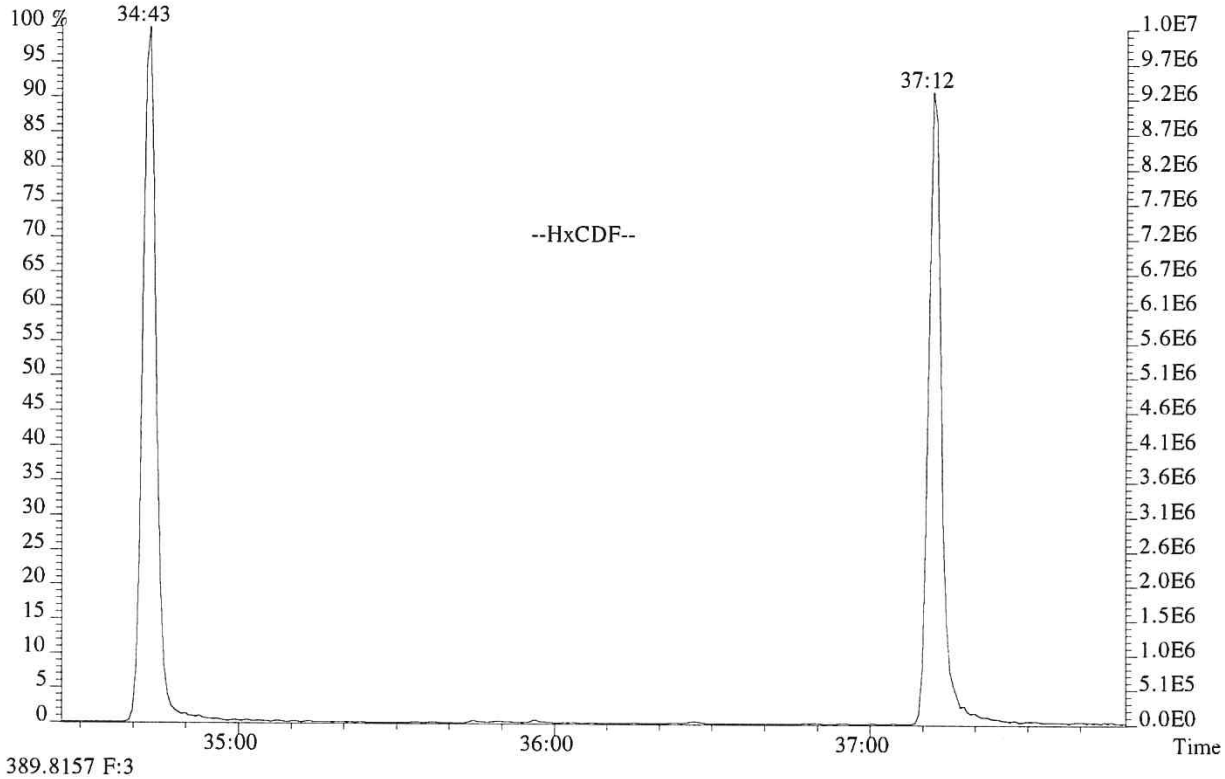


355.8546 F:2

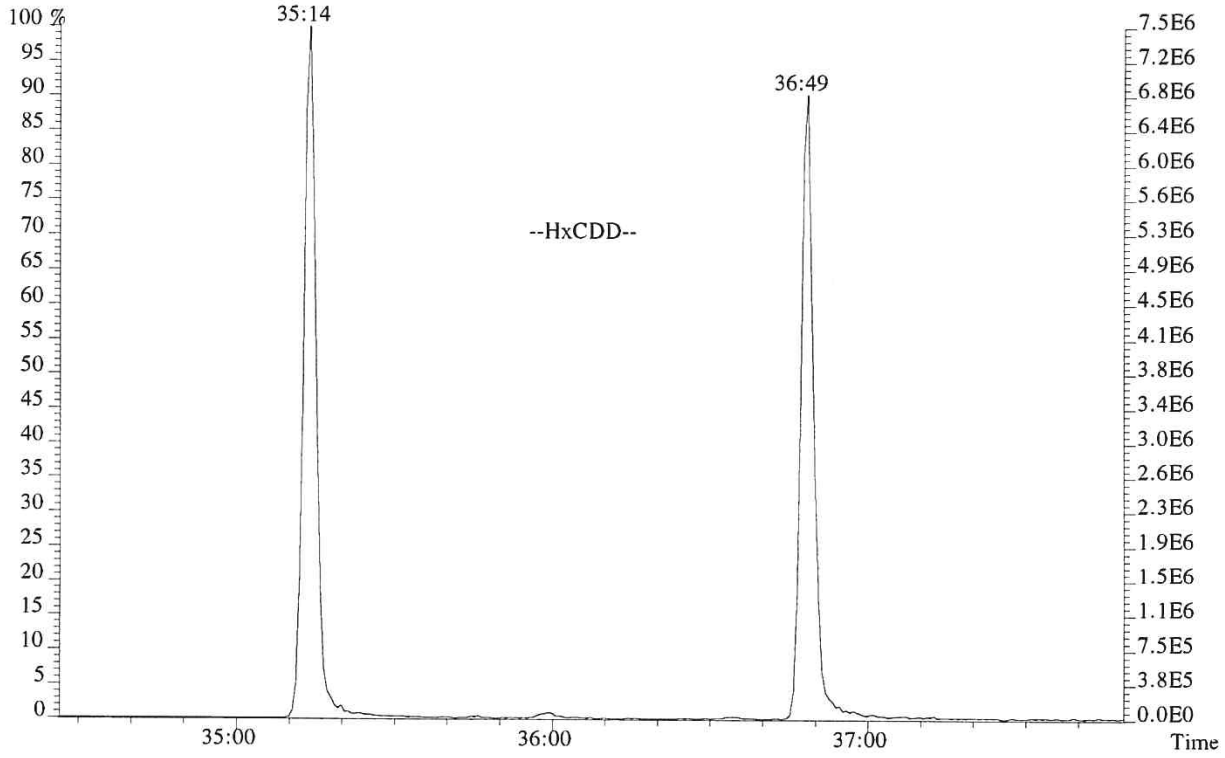


014899

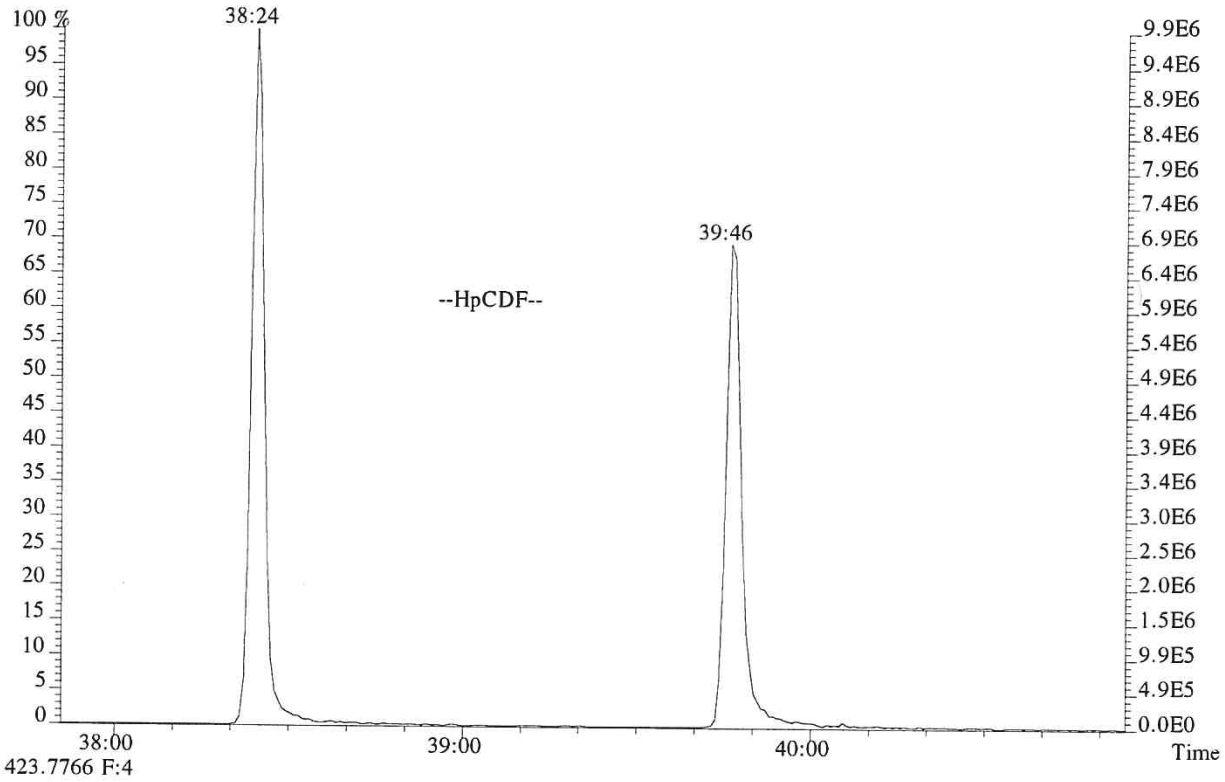
File:P614680 #1-304 Acq:25-SEP-2018 12:13:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
373.8208 F:3



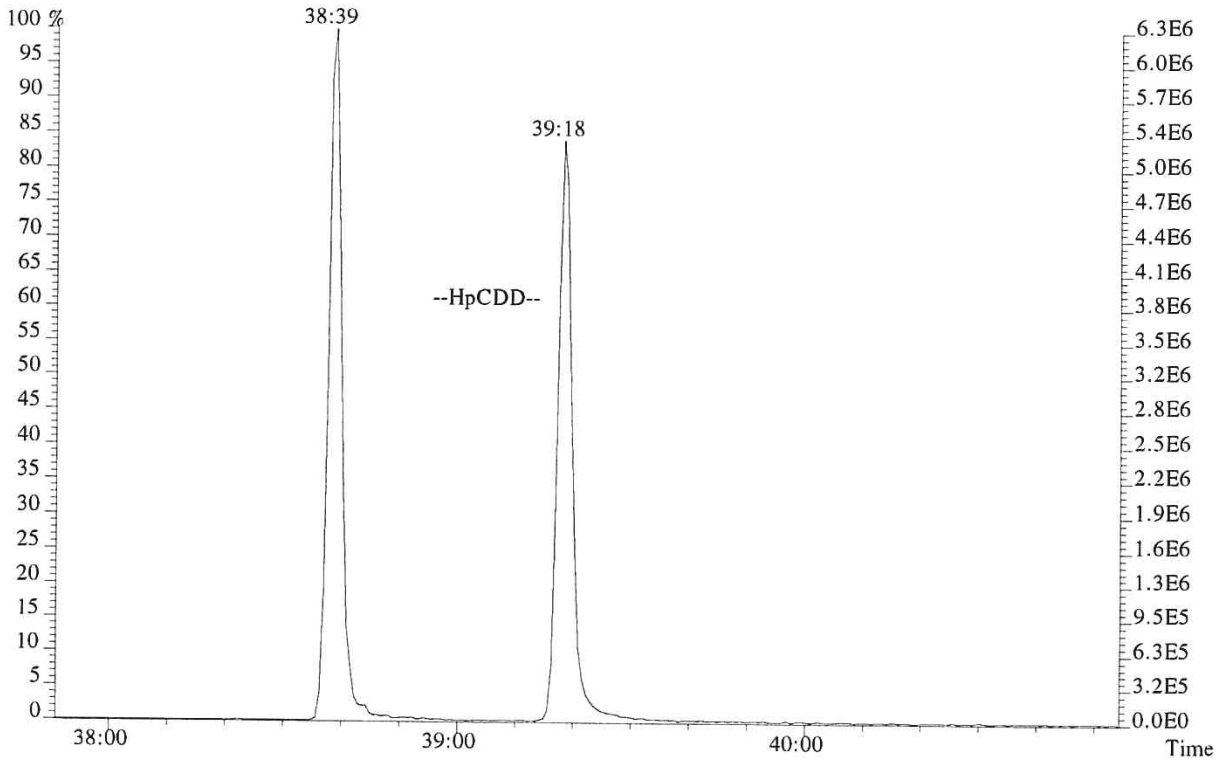
389.8157 F:3



File:P614680 #1-276 Acq:25-SEP-2018 12:13:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
407.7818 F:4



423.7766 F:4



USEPA - CLP
6DFA6
CDD/CDF INITIAL CALIBRATION RESPONSE FACTOR SUMMARY
HIGH RESOLUTION

Lab Name: ALS Environmental Contract No.:
Lab Code: ALSTX Case No.: TO No.: SDG No.:
GC Column: DB-5MSUI ID: 0.25(mm) Instrument ID: E-HRMS-08
Init. Calib. Date(s).: 09/25/18 Method 1613/8290
Init. Calib. Time.: 12:13

	RR/RRF						MEAN		
Target Analytes	CS0.5	CS1	CS2	CS3	CS4	CS5	RR/RRF	%RSD	QC LIMITS
2,3,7,8-TCDD	1.15	1.00	1.00	1.03	1.05	1.06	1.05	5.38	+/-20%
2,3,7,8-TCDF	1.13	1.08	1.12	1.05	1.06	1.05	1.08	3.07	+/-20%
1,2,3,7,8-PeCDF	1.16	1.17	1.12	1.15	1.16	1.18	1.16	1.72	+/-20%
1,2,3,7,8-PeCDD	0.89	0.95	0.95	0.91	0.93	0.93	0.93	2.61	+/-20%
2,3,4,7,8-PeCDF	1.10	1.13	1.10	1.08	1.10	1.11	1.10	1.49	+/-20%
1,2,3,4,7,8-HxCDF	1.47	1.46	1.39	1.36	1.38	1.42	1.42	3.10	+/-20%
1,2,3,6,7,8-HxCDF	1.27	1.36	1.30	1.28	1.28	1.28	1.29	2.52	+/-20%
1,2,3,4,7,8-HxCDD	1.11	1.11	1.04	1.06	1.05	1.06	1.07	3.00	+/-20%
1,2,3,6,7,8-HxCDD	1.06	1.07	1.06	1.06	1.06	1.05	1.06	0.70	+/-20%
1,2,3,7,8,9-HxCDD	1.17	1.18	1.12	1.13	1.14	1.12	1.15	2.24	+/-20%
2,3,4,6,7,8-HxCDF	1.27	1.32	1.29	1.28	1.27	1.27	1.28	1.52	+/-20%
1,2,3,7,8,9-HxCDF	1.34	1.34	1.29	1.30	1.30	1.30	1.31	1.68	+/-20%
1,2,3,4,6,7,8-HpCDF	1.56	1.60	1.46	1.50	1.51	1.51	1.52	3.15	+/-20%
1,2,3,4,6,7,8-HpCDD	1.14	1.13	1.09	1.10	1.10	1.11	1.11	1.85	+/-20%
1,2,3,4,7,8,9-HpCDF	1.47	1.54	1.46	1.45	1.43	1.43	1.46	2.80	+/-20%
OCDD	1.22	1.21	1.10	1.14	1.14	1.14	1.16	4.23	+/-20%
OCDF	1.60	1.61	1.49	1.57	1.57	1.59	1.57	2.60	+/-20%
Labeled Compounds									
13C-2,3,7,8-TCDD	0.96	0.98	0.97	0.97	1.00	1.01	0.98	2.13	+/-35%
13C-1,2,3,7,8-PeCDD	1.09	1.05	1.16	1.13	1.16	1.15	1.12	3.77	+/-35%
13C-1,2,3,4,7,8-HxCDD	0.91	0.90	0.91	0.90	0.90	0.89	0.90	0.67	+/-35%
13C-1,2,3,6,7,8-HxCDD	0.92	0.92	0.89	0.89	0.91	0.90	0.90	1.52	+/-35%
13C-1,2,3,4,6,7,8-HpCDD	0.86	0.88	0.85	0.86	0.84	0.84	0.86	1.91	+/-35%
13C-OCDD	0.65	0.69	0.65	0.67	0.65	0.65	0.66	2.45	+/-35%
13C-2,3,7,8-TCDF	1.40	1.41	1.42	1.44	1.40	1.43	1.42	1.24	+/-35%
13C-1,2,3,7,8-PeCDF	1.52	1.54	1.61	1.61	1.65	1.63	1.60	3.24	+/-35%
13C-2,3,4,7,8-PeCDF	1.52	1.49	1.60	1.57	1.63	1.61	1.57	3.42	+/-35%
13C-1,2,3,4,7,8-HxCDF	1.18	1.19	1.14	1.21	1.18	1.06	1.16	4.58	+/-35%
13C-1,2,3,6,7,8-HxCDF	1.39	1.34	1.33	1.35	1.31	1.29	1.34	2.46	+/-35%
13C-2,3,4,6,7,8-HxCDF	1.27	1.25	1.24	1.24	1.25	1.24	1.25	1.06	+/-35%
13C-1,2,3,7,8,9-HxCDF	1.13	1.13	1.12	1.15	1.15	1.10	1.13	1.66	+/-35%
13C-1,2,3,4,6,7,8-HpCDF	1.04	1.06	1.02	1.04	1.01	1.01	1.03	1.93	+/-35%
13C-1,2,3,4,7,8,9-HpCDF	0.94	0.95	0.90	0.86	0.90	0.88	0.91	3.64	+/-35%
37Cl-2,3,7,8-TCDD	1.06	1.11	1.07	1.05	1.11	1.13	1.09	3.15	+/-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-08
Init. Calib. Date(s).: 09/25/18 Method 1613/8290
Init. Calib. Time.: 12:13

Target Analytes	SELECTED IONS	ION ABUNDANCE RATIO CS0.5	CS1	CS2	CS3	CS4	CS5	FLAG	ION RATIO QC lIMITS
2,3,7,8-TCDF	304/306	0.75	0.75	0.83	0.80	0.79	0.80		0.65-0.89
2,3,7,8-TCDD	320/322	0.78	0.83	0.80	0.78	0.79	0.77		0.65-0.89
1,2,3,7,8-PeCDF	340/342	1.65	1.58	1.57	1.58	1.60	1.60		1.32-1.78
2,3,4,7,8-PeCDF	340/342	1.57	1.61	1.57	1.58	1.59	1.59		1.32-1.78
1,2,3,7,8-PeCDD	356/358	1.56	1.52	1.53	1.55	1.55	1.57		1.32-1.78
1,2,3,4,7,8-HxCDF	374/376	1.26	1.29	1.25	1.26	1.28	1.29		1.05-1.43
1,2,3,6,7,8-HxCDF	374/376	1.29	1.24	1.25	1.27	1.27	1.27		1.05-1.43
2,3,4,6,7,8-HxCDF	374/376	1.29	1.25	1.28	1.28	1.26	1.26		1.05-1.43
1,2,3,7,8,9-HxCDF	374/376	1.22	1.29	1.23	1.28	1.28	1.27		1.05-1.43
1,2,3,4,7,8-HxCDD	390/392	1.21	1.20	1.26	1.33	1.26	1.27		1.05-1.43
1,2,3,6,7,8-HxCDD	390/392	1.41	1.27	1.25	1.23	1.27	1.26		1.05-1.43
1,2,3,7,8,9-HxCDD	390/392	1.20	1.22	1.25	1.24	1.27	1.26		1.05-1.43
1,2,3,4,6,7,8-HpCDF	408/410	1.04	1.02	1.06	1.05	1.04	1.05		0.88-1.20
1,2,3,4,7,8,9-HpCDF	408/410	0.89	1.07	1.05	1.04	1.05	1.05		0.88-1.20
1,2,3,4,6,7,8-HpCDD	424/426	1.10	1.07	1.07	1.06	1.06	1.06		0.88-1.20
OCDF	442/444	0.90	0.87	0.91	0.92	0.93	0.92		0.76-1.02
OCDD	458/460	0.93	0.89	0.88	0.90	0.90	0.90		0.76-1.02
13C-2,3,7,8-TCDD	332/334	0.79	0.80	0.80	0.80	0.80	0.79		0.65-0.89
13C-1,2,3,7,8-PeCDD	368/370	1.58	1.58	1.57	1.58	1.56	1.57		1.32-1.78
13C-1,2,3,4,7,8-HxCDD	402/404	1.27	1.26	1.26	1.32	1.25	1.26		1.05-1.43
13C-1,2,3,6,7,8-HxCDD	402/404	1.27	1.26	1.26	1.20	1.25	1.26		1.05-1.43
13C-1,2,3,4,6,7,8-HpCDD	436/438	1.06	1.06	1.04	1.06	1.05	1.05		0.88-1.20
13C-OCDD	470/472	0.90	0.90	0.90	0.91	0.90	0.89		0.76-1.02
13C-2,3,7,8-TCDF	316/318	0.78	0.80	0.79	0.79	0.79	0.79		0.65-0.89
13C-1,2,3,7,8-PeCDF	352/354	1.61	1.62	1.60	1.60	1.60	1.60		1.32-1.78
13C-2,3,4,7,8-PeCDF	352/354	1.59	1.59	1.62	1.61	1.59	1.61		1.32-1.78
13C-1,2,3,4,7,8-HxCDF	384/386	0.54	0.53	0.53	0.53	0.53	0.54		0.43-0.59
13C-1,2,3,6,7,8-HxCDF	384/386	0.53	0.54	0.53	0.54	0.54	0.54		0.43-0.59
13C-2,3,4,6,7,8-HxCDF	384/386	0.54	0.54	0.53	0.54	0.54	0.53		0.43-0.59
13C-1,2,3,7,8,9-HxCDF	384/386	0.52	0.53	0.53	0.54	0.53	0.53		0.43-0.59
13C-1,2,3,4,6,7,8-HpCDF	418/420	0.46	0.46	0.46	0.46	0.46	0.46		0.37-0.51
13C-1,2,3,4,7,8,9-HpCDF	418/420	0.46	0.46	0.45	0.46	0.45	0.46		0.37-0.51
13C-1,2,3,4-TCDD	332/334	0.81	0.81	0.81	0.80	0.79	0.81		0.65-0.89
13C-1,2,3,7,8,9-HxCDD	402/404	1.24	1.26	1.26	1.24	1.25	1.25		1.05-1.43

Quality Control (QC) limits represent +/- 15% window around the theoretical ion abundance ratio. The laboratory must flag any analyte in any calibration solution which does not meet the ion abundance ratio QC limit by placing an asterisk in the flag column.

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76554

Run #1 Filename P614682 Samp: 1 Inj: 1 Acquired: 25-SEP-18 14:18:27
Processed: 26-SEP-18 07:39:04 Sample ID: CS0.5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:01	3.991e+02	5.332e+02	0.75	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:15	3.245e+03	1.970e+03	1.65	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:10	3.017e+03	1.917e+03	1.57	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	2.964e+03	2.360e+03	1.26	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	3.032e+03	2.349e+03	1.29	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	2.788e+03	2.154e+03	1.29	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:10	2.544e+03	2.080e+03	1.22	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	2.520e+03	2.421e+03	1.04	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	1.988e+03	2.226e+03	0.89	yes	no	1.463
10	Unk	OCDF	42:13	3.006e+03	3.322e+03	0.90	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:49	2.873e+02	3.690e+02	0.78	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	1.757e+03	1.126e+03	1.56	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	1.695e+03	1.402e+03	1.21	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:39	1.736e+03	1.234e+03	1.41	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:53	1.790e+03	1.494e+03	1.20	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	1.575e+03	1.438e+03	1.10	yes	no	1.112
17	Unk	OCDD	42:01	2.333e+03	2.510e+03	0.93	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	28:00	1.453e+05	1.860e+05	0.78	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	2.225e+05	1.378e+05	1.61	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	2.208e+05	1.389e+05	1.59	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:49	1.017e+05	1.873e+05	0.54	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	1.172e+05	2.227e+05	0.53	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	1.097e+05	2.020e+05	0.54	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	9.463e+04	1.814e+05	0.52	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:24	7.990e+04	1.736e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:46	7.243e+04	1.569e+05	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	1.005e+05	1.270e+05	0.79	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:26	1.588e+05	1.004e+05	1.58	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:33	1.251e+05	9.838e+04	1.27	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:38	1.252e+05	9.893e+04	1.27	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:18	1.083e+05	1.026e+05	1.06	yes	no	0.857
32	IS	13C-OCDD	42:01	1.503e+05	1.668e+05	0.90	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:14	1.058e+05	1.311e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:52	1.355e+05	1.094e+05	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:49	6.272e+02				no	1.086

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76554

Run #1 Filename P614682 Samp: 1 Inj: 1 Acquired: 25-SEP-18 14:18:27
Processed: 26-SEP-18 07:39:04 LAB. ID: CS0.5

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.55e+04	1.79e+03	3.7e+01	1.00e+05	4.41e+03	2.3e+01
2	1,2,3,7,8-PeCDF	5.99e+05	1.18e+03	5.1e+02	3.57e+05	4.28e+03	8.3e+01
3	2,3,4,7,8-PeCDF	5.69e+05	1.18e+03	4.8e+02	3.70e+05	4.28e+03	8.7e+01
4	1,2,3,4,7,8-HxCDF	6.38e+05	3.25e+03	2.0e+02	4.85e+05	1.42e+03	3.4e+02
5	1,2,3,6,7,8-HxCDF	6.38e+05	3.25e+03	2.0e+02	4.95e+05	1.42e+03	3.5e+02
6	2,3,4,6,7,8-HxCDF	6.03e+05	3.25e+03	1.9e+02	4.83e+05	1.42e+03	3.4e+02
7	1,2,3,7,8,9-HxCDF	4.97e+05	3.25e+03	1.5e+02	4.13e+05	1.42e+03	2.9e+02
8	1,2,3,4,6,7,8-HpCDF	5.62e+05	1.66e+03	3.4e+02	5.47e+05	1.04e+03	5.3e+02
9	1,2,3,4,7,8,9-HpCDF	4.02e+05	1.66e+03	2.4e+02	4.51e+05	1.04e+03	4.3e+02
10	OCDF	5.23e+05	1.34e+03	3.9e+02	5.81e+05	4.02e+03	1.4e+02
11	2,3,7,8-TCDD	6.18e+04	5.07e+03	1.2e+01	6.68e+04	2.40e+03	2.8e+01
12	1,2,3,7,8-PeCDD	3.47e+05	2.36e+03	1.5e+02	2.20e+05	2.64e+02	8.3e+02
13	1,2,3,4,7,8-HxCDD	3.95e+05	1.84e+03	2.1e+02	3.18e+05	1.66e+03	1.9e+02
14	1,2,3,6,7,8-HxCDD	3.64e+05	1.84e+03	2.0e+02	2.60e+05	1.66e+03	1.6e+02
15	1,2,3,7,8,9-HxCDD	4.06e+05	1.84e+03	2.2e+02	3.23e+05	1.66e+03	1.9e+02
16	1,2,3,4,6,7,8-HpCDD	3.19e+05	2.32e+03	1.4e+02	3.31e+05	1.19e+03	2.8e+02
17	OCDD	4.28e+05	8.48e+02	5.0e+02	4.37e+05	1.30e+03	3.4e+02
18	13C-2,3,7,8-TCDF	2.54e+07	1.52e+04	1.7e+03	3.22e+07	1.06e+04	3.1e+03
19	13C-1,2,3,7,8-PeCDF	4.04e+07	2.12e+03	1.9e+04	2.49e+07	3.13e+03	8.0e+03
20	13C-2,3,4,7,8-PeCDF	4.23e+07	2.12e+03	2.0e+04	2.67e+07	3.13e+03	8.5e+03
21	13C-1,2,3,4,7,8-HxCDF	2.18e+07	3.28e+03	6.7e+03	4.05e+07	3.71e+03	1.1e+04
22	13C-1,2,3,6,7,8-HxCDF	2.40e+07	3.28e+03	7.3e+03	4.55e+07	3.71e+03	1.2e+04
23	13C-2,3,4,6,7,8-HxCDF	2.42e+07	3.28e+03	7.4e+03	4.44e+07	3.71e+03	1.2e+04
24	13C-1,2,3,7,8,9-HxCDF	1.91e+07	3.28e+03	5.8e+03	3.68e+07	3.71e+03	9.9e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.81e+07	5.66e+03	3.2e+03	3.90e+07	2.05e+04	1.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.45e+07	5.66e+03	2.6e+03	3.15e+07	2.05e+04	1.5e+03
27	13C-2,3,7,8-TCDD	1.84e+07	1.55e+04	1.2e+03	2.34e+07	5.32e+03	4.4e+03
28	13C-1,2,3,7,8-PeCDD	3.10e+07	3.24e+03	9.6e+03	1.95e+07	2.82e+03	6.9e+03
29	13C-1,2,3,4,7,8-HxCDD	2.85e+07	5.20e+03	5.5e+03	2.24e+07	3.08e+03	7.3e+03
30	13C-1,2,3,6,7,8-HxCDD	2.65e+07	5.20e+03	5.1e+03	2.10e+07	3.08e+03	6.8e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.26e+07	2.60e+03	8.7e+03	2.13e+07	2.03e+03	1.1e+04
32	13C-OCDD	2.73e+07	1.56e+03	1.8e+04	2.99e+07	4.32e+02	6.9e+04
33	13C-1,2,3,4-TCDD	1.96e+07	1.55e+04	1.3e+03	2.41e+07	5.32e+03	4.5e+03
34	13C-1,2,3,7,8,9-HxCDD	3.00e+07	5.20e+03	5.8e+03	2.40e+07	3.08e+03	7.8e+03
35	37Cl-2,3,7,8-TCDD	1.12e+05	4.66e+03	2.4e+01			

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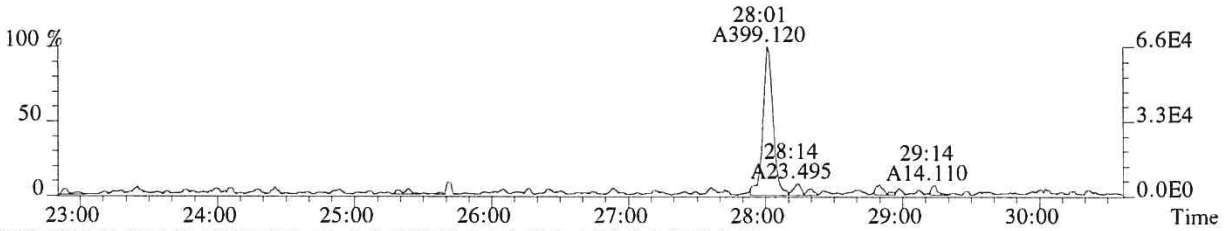
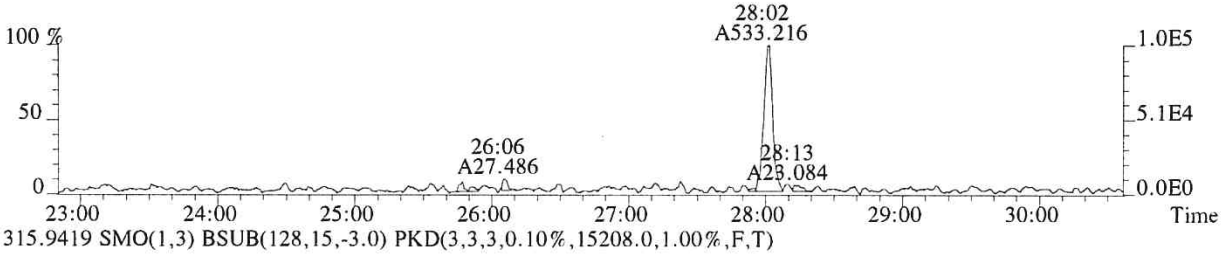
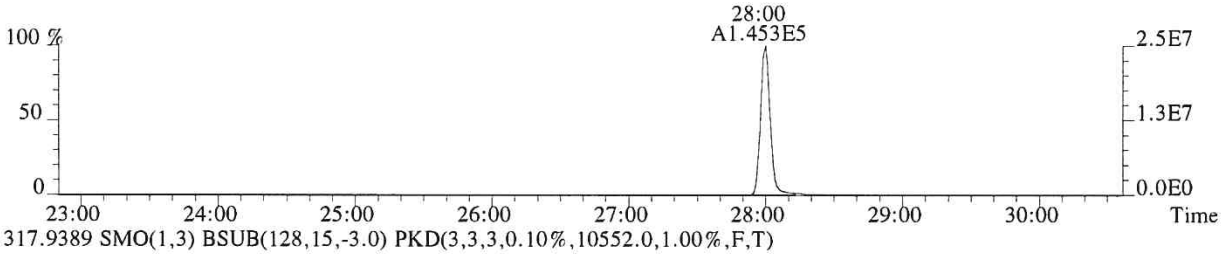
File:P614682 #1-552 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1788.0,1.00%,F,T)



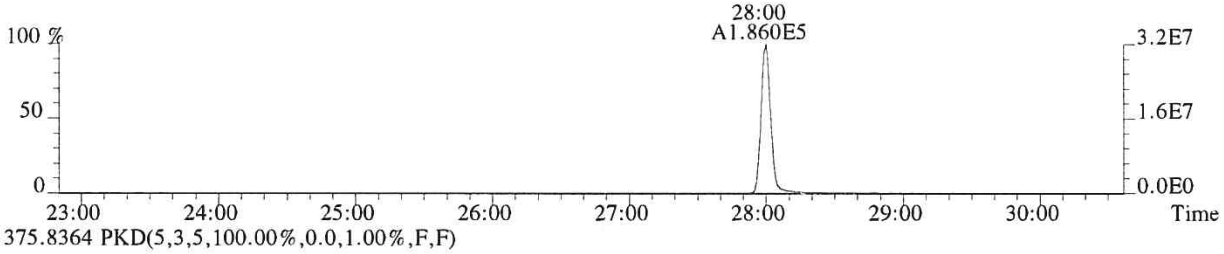
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4408.0,1.00%,F,T)



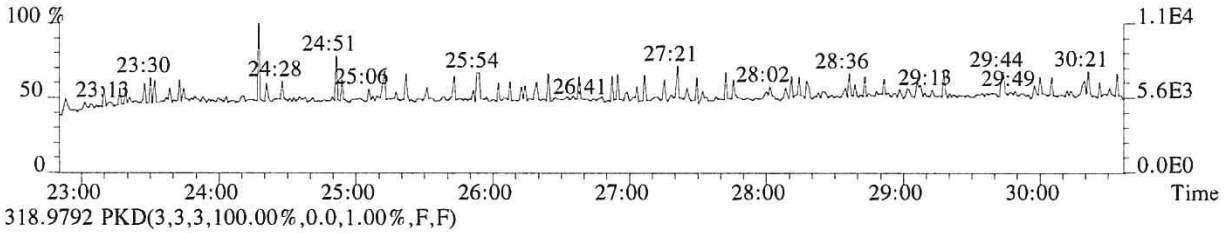
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15208.0,1.00%,F,T)



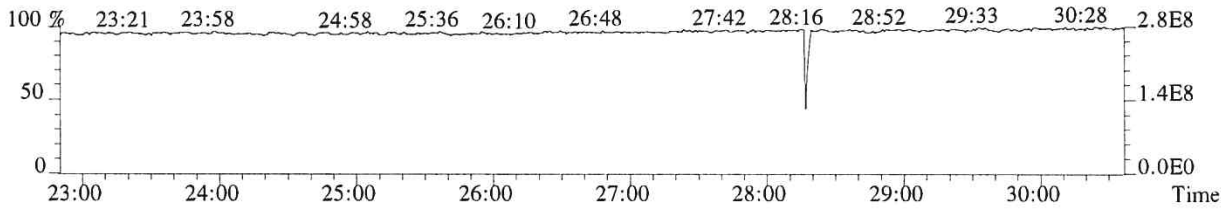
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10552.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

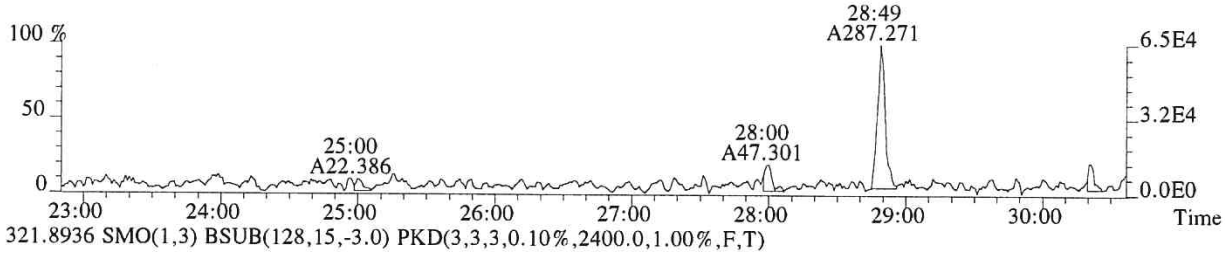


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

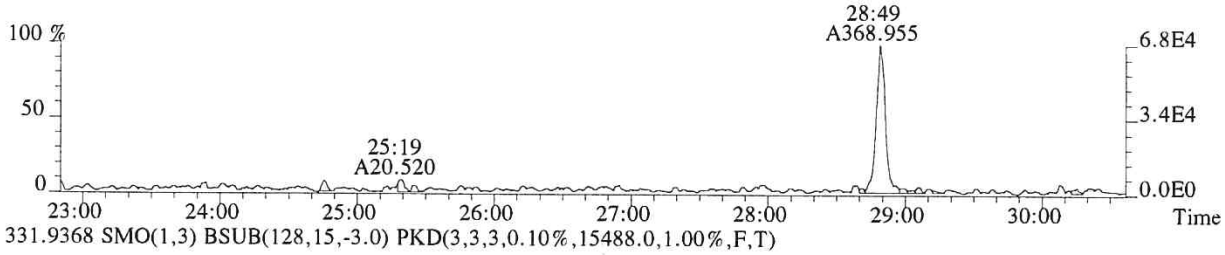


014906

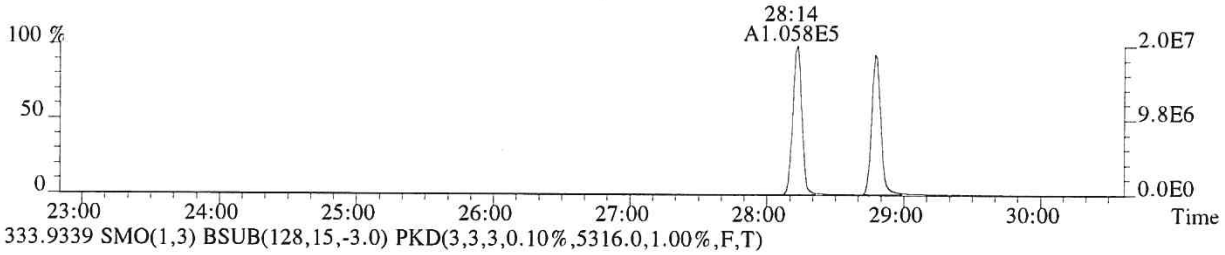
File:P614682 #1-552 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5072.0,1.00%,F,T)



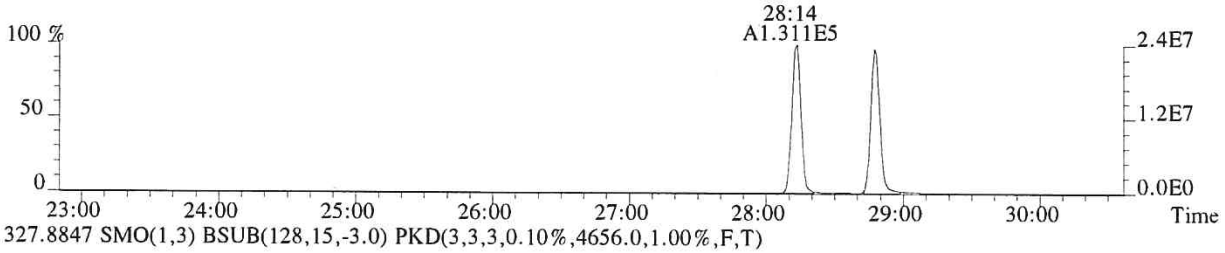
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2400.0,1.00%,F,T)



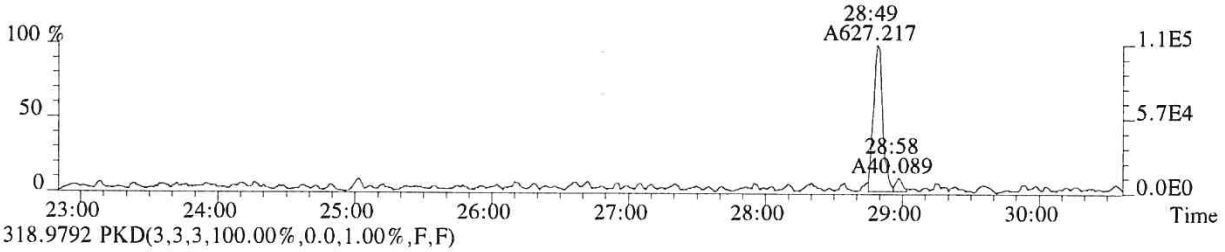
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15488.0,1.00%,F,T)



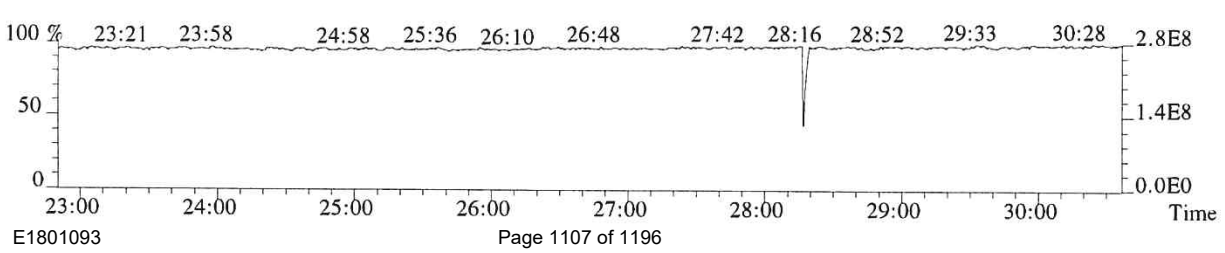
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5316.0,1.00%,F,T)



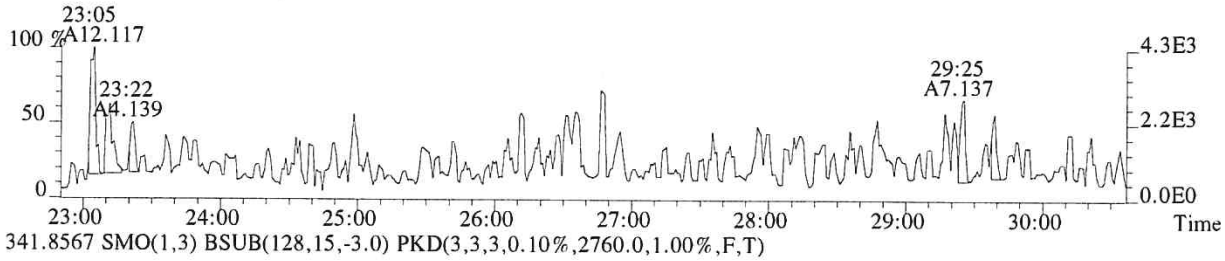
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4656.0,1.00%,F,T)



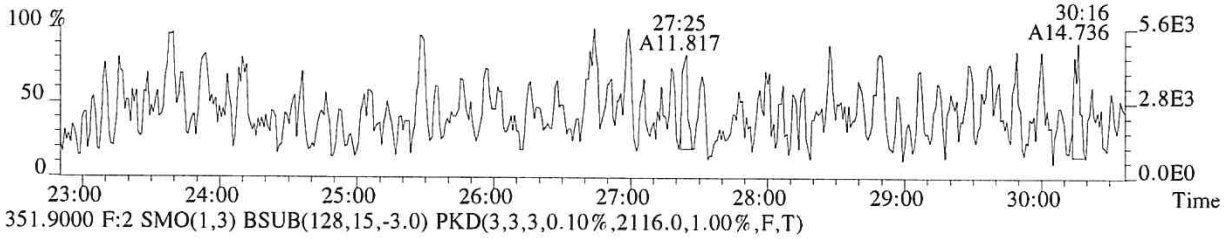
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



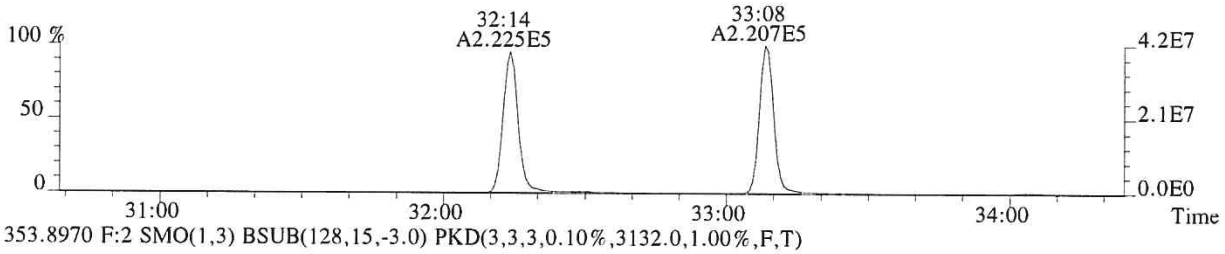
File:P614682 #1-552 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1072.0,1.00%,F,T)



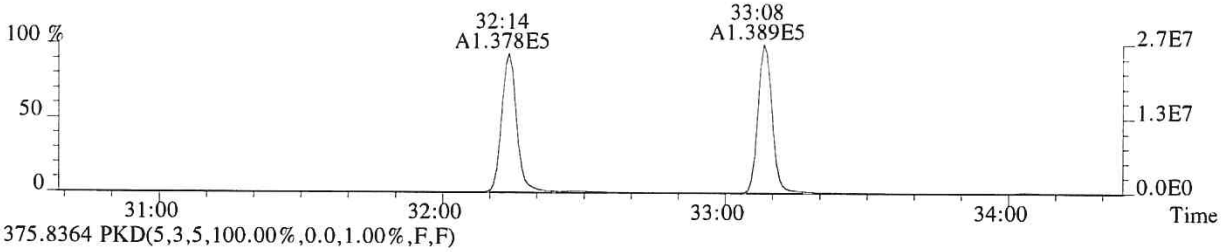
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2760.0,1.00%,F,T)



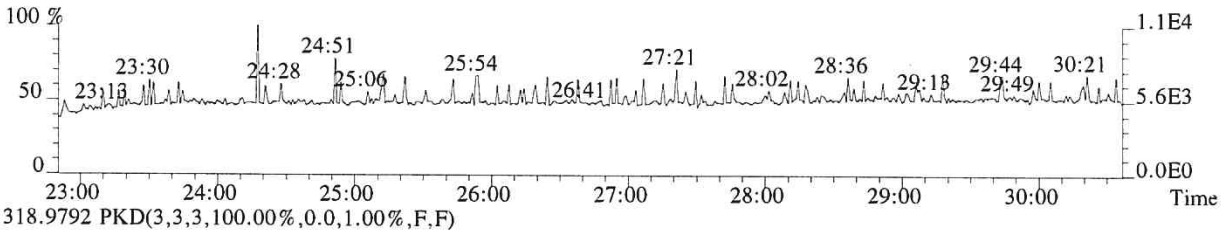
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2116.0,1.00%,F,T)



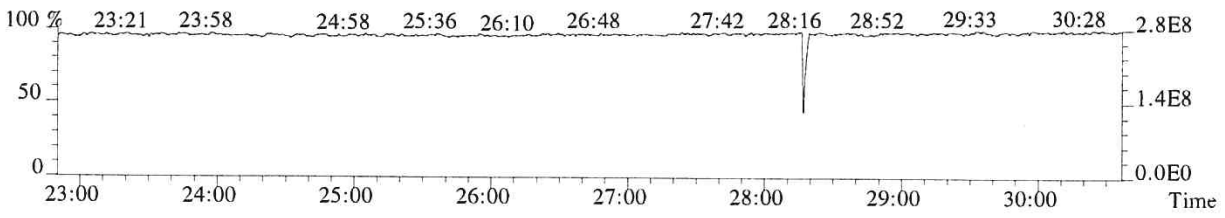
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3132.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

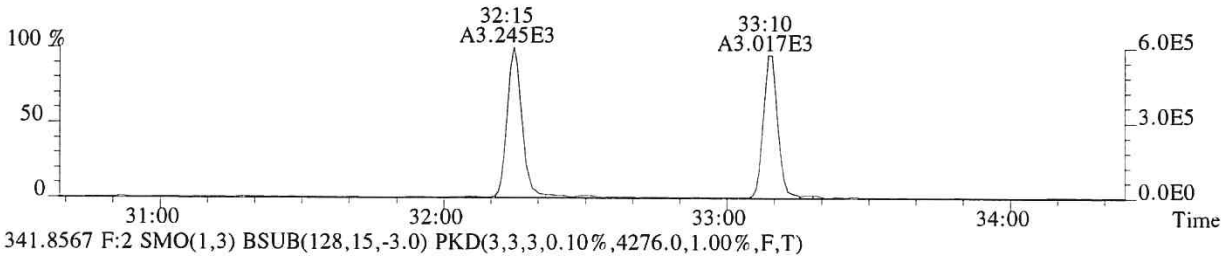


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

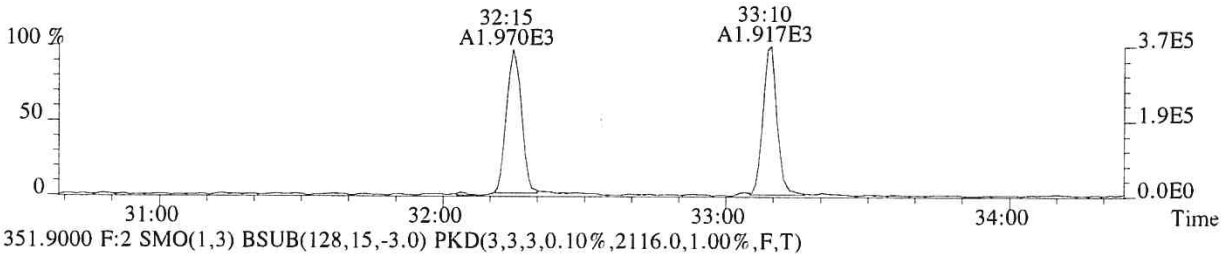


014908

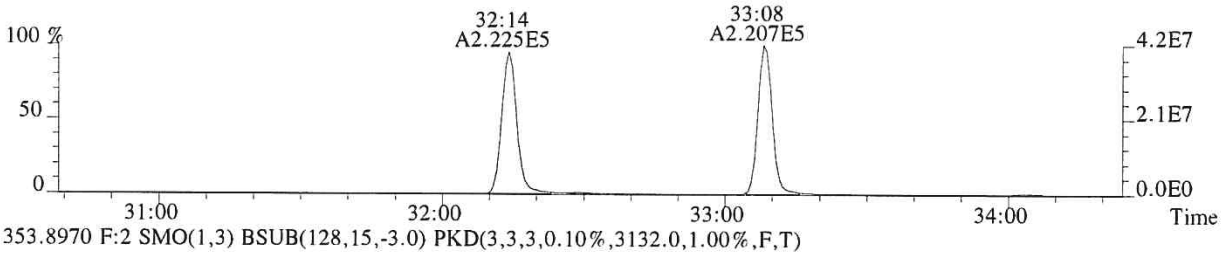
File:P614682 #1-339 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1180.0,1.00%,F,T)



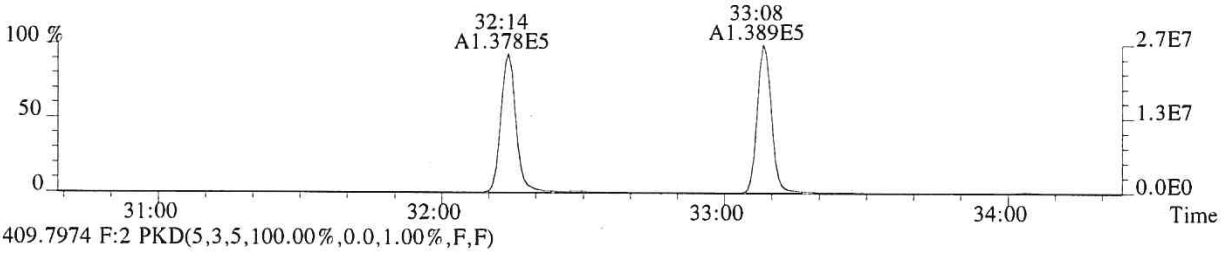
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4276.0,1.00%,F,T)



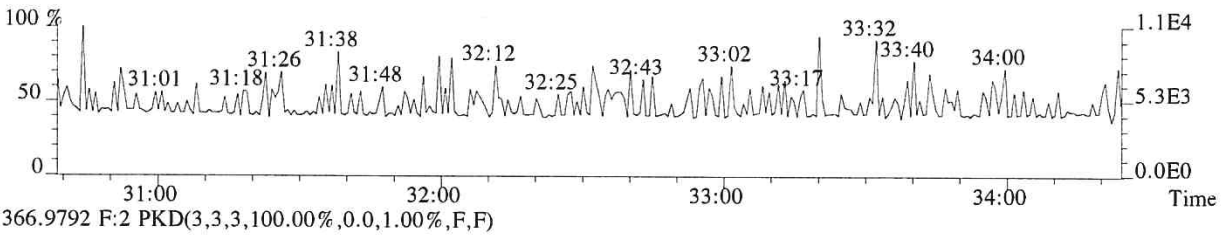
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2116.0,1.00%,F,T)



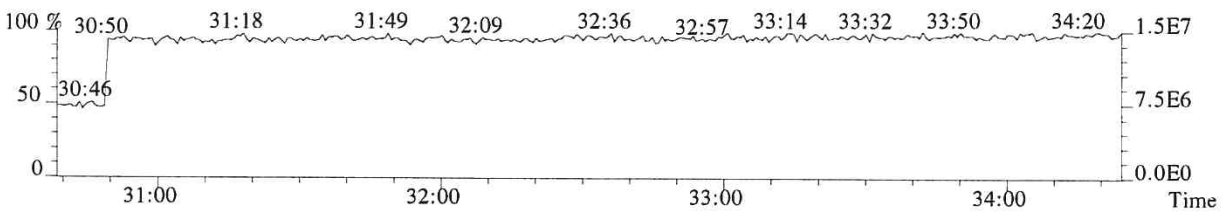
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3132.0,1.00%,F,T)



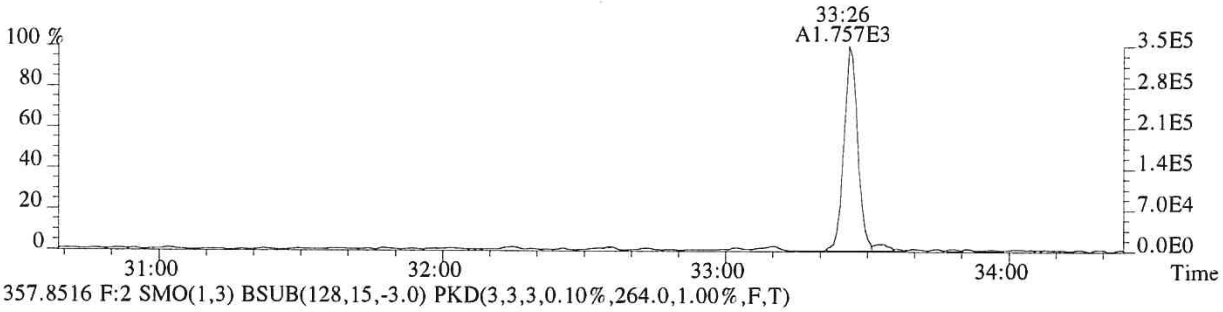
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



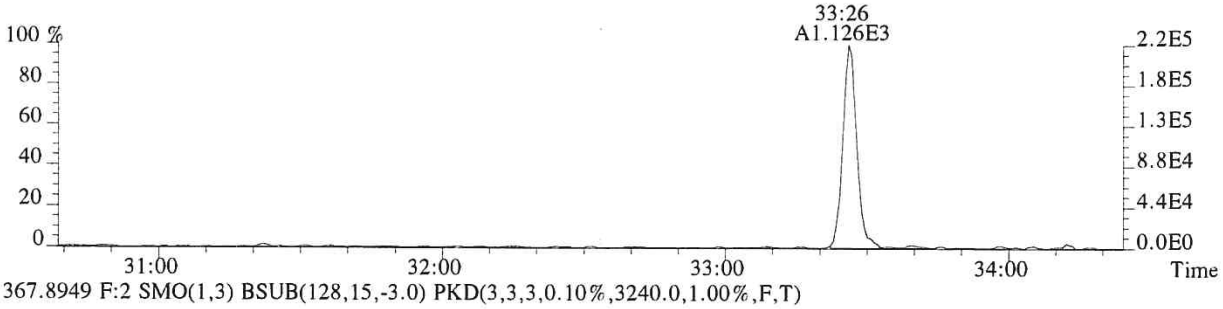
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



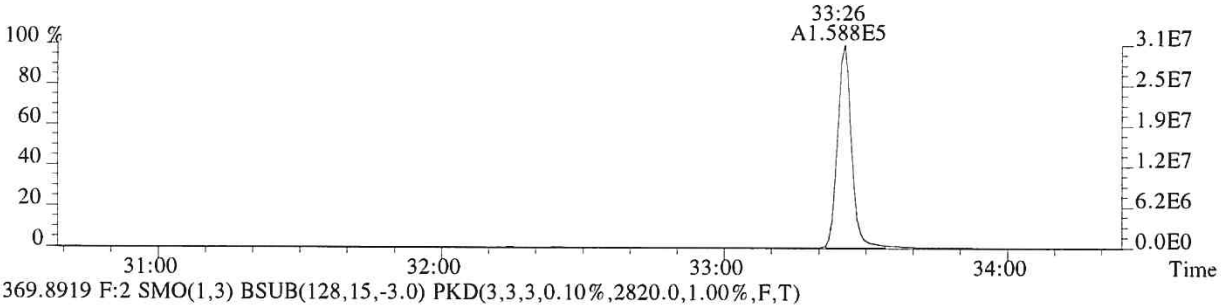
File:P614682 #1-339 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2356.0,1.00%,F,T)



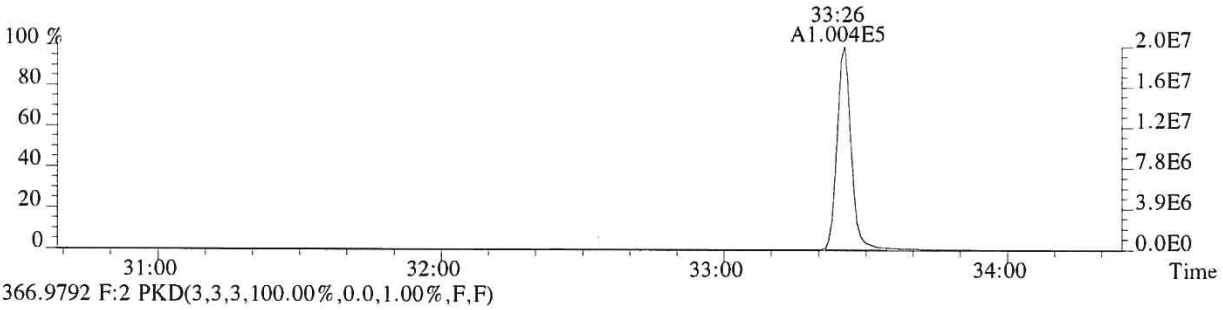
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,264.0,1.00%,F,T)



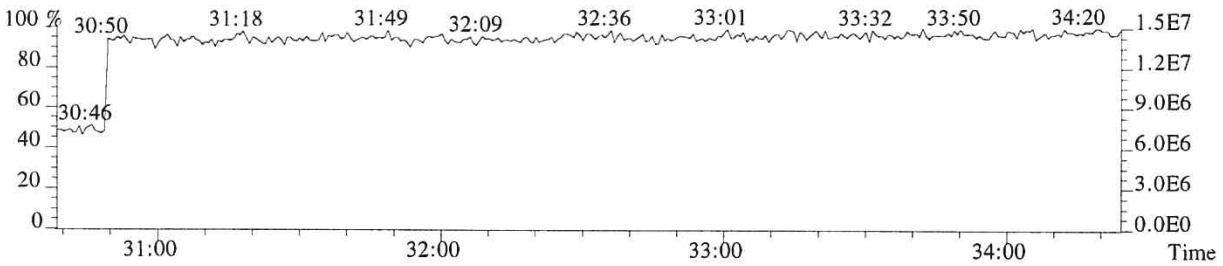
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3240.0,1.00%,F,T)



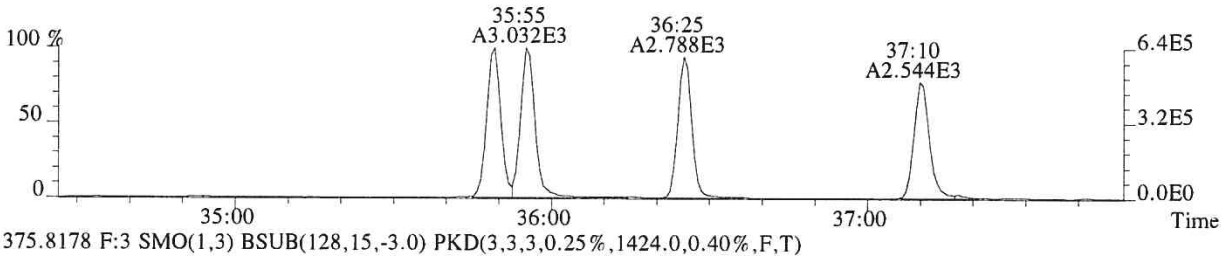
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2820.0,1.00%,F,T)



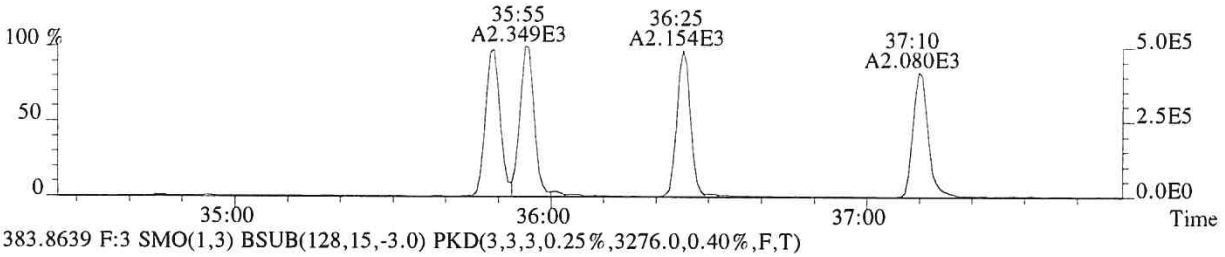
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



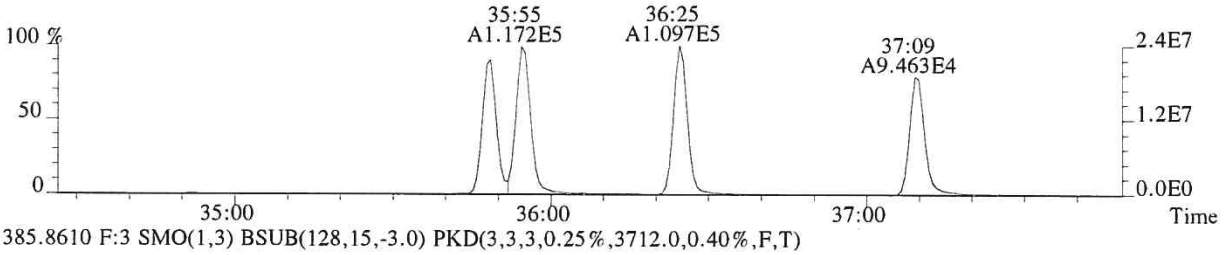
File:P614682 #1-304 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3252.0,0.40%,F,T)



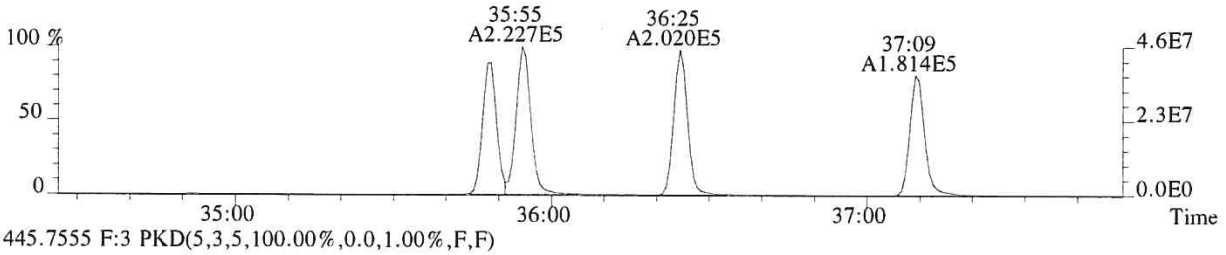
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1424.0,0.40%,F,T)



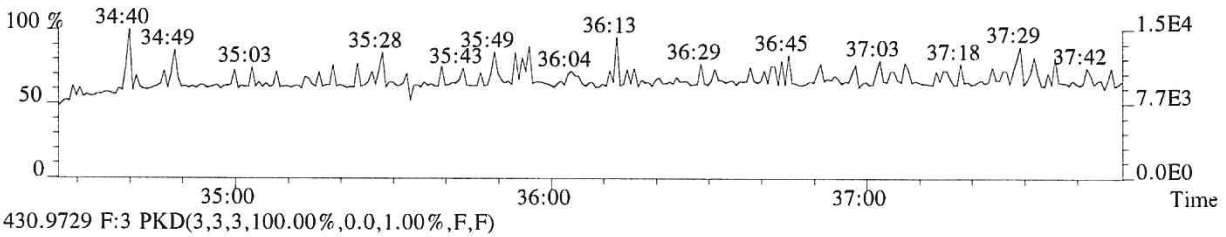
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3276.0,0.40%,F,T)



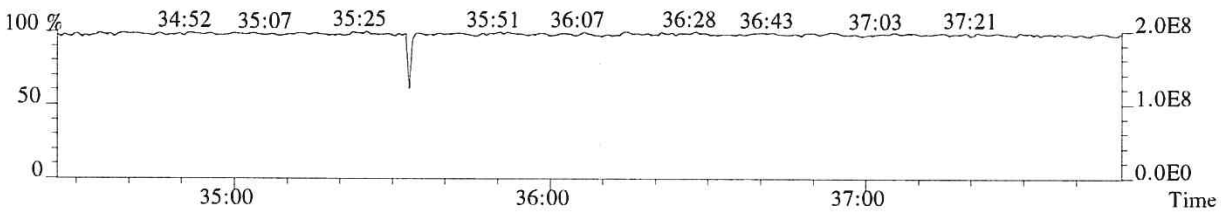
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3712.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

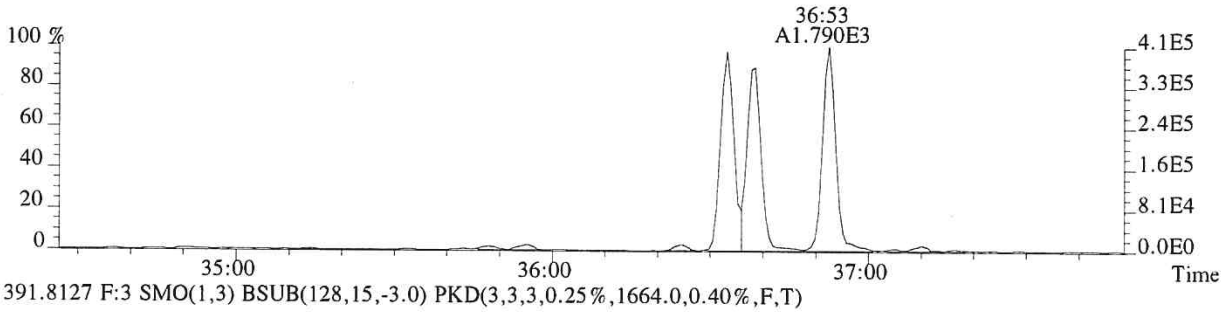


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

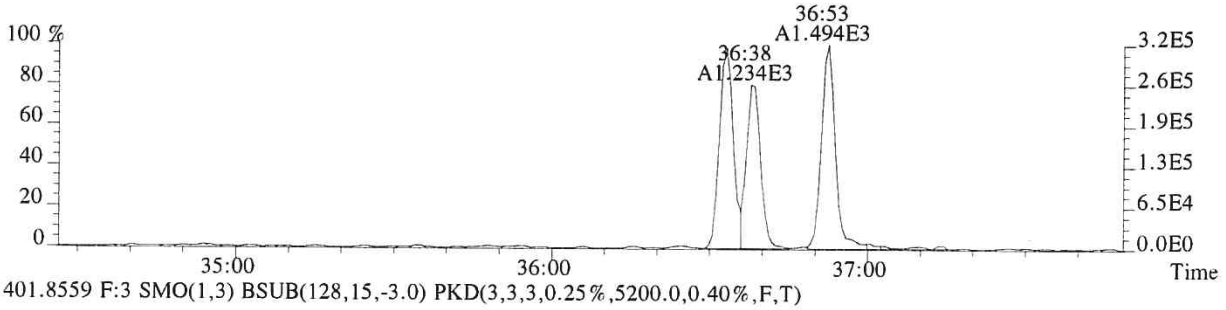


014911

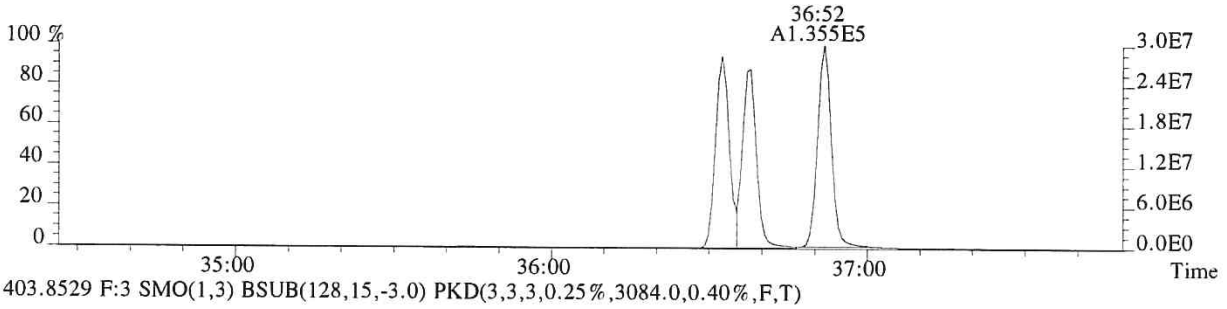
File:P614682 #1-304 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1840.0,0.40%,F,T)



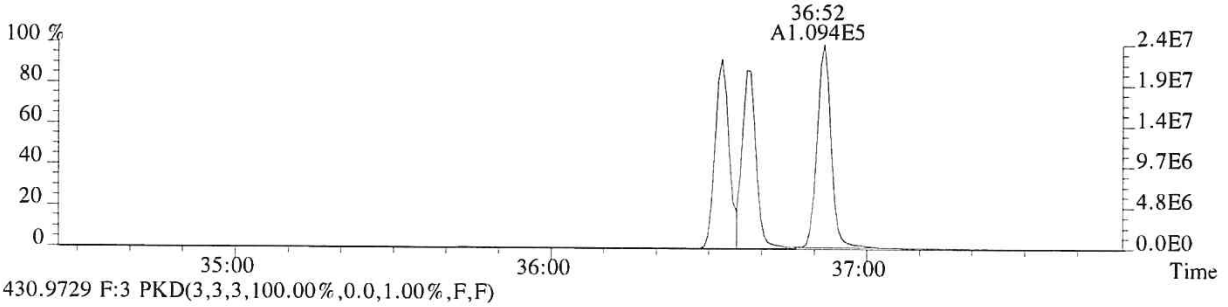
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1664.0,0.40%,F,T)



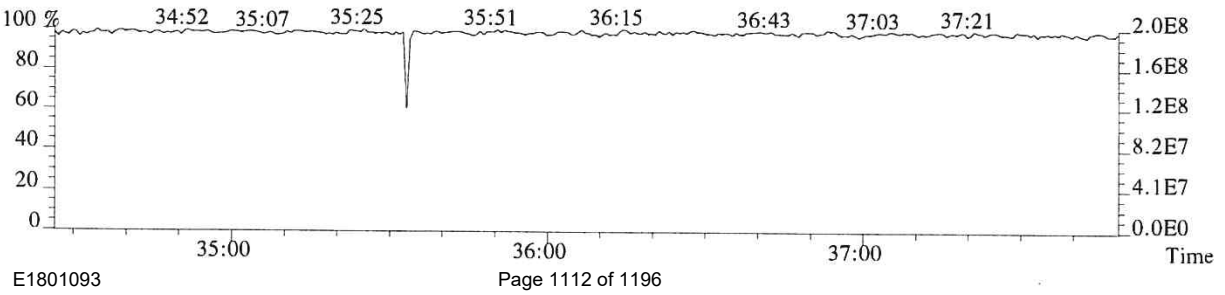
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5200.0,0.40%,F,T)



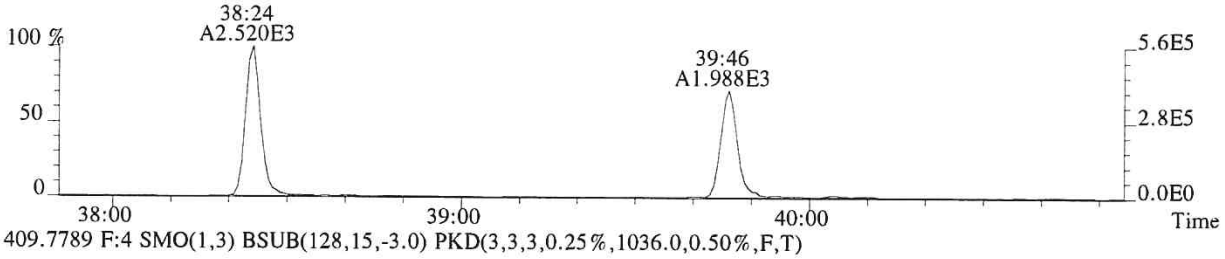
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3084.0,0.40%,F,T)



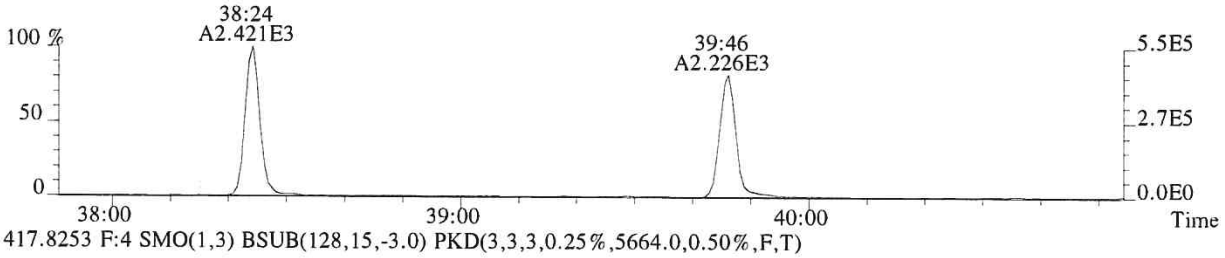
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



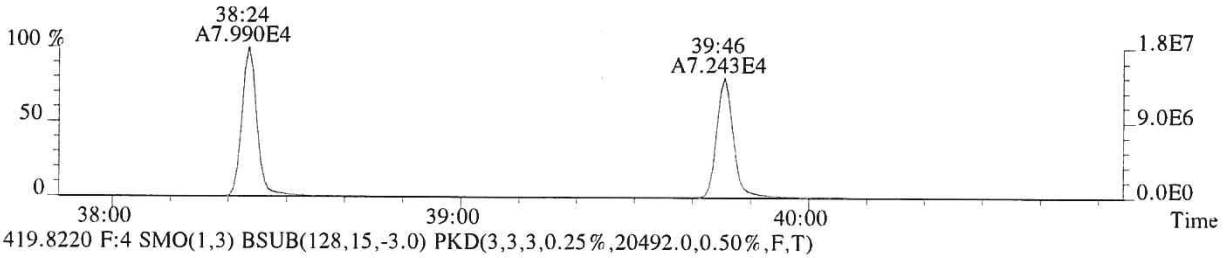
File:P614682 #1-276 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1664.0,0.50%,F,T)



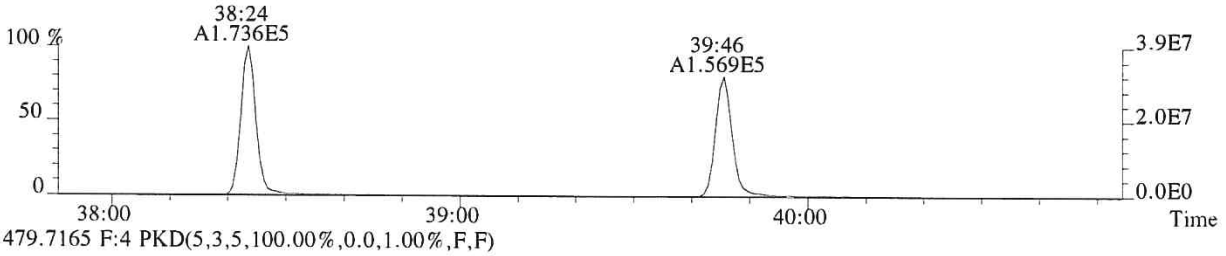
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1036.0,0.50%,F,T)



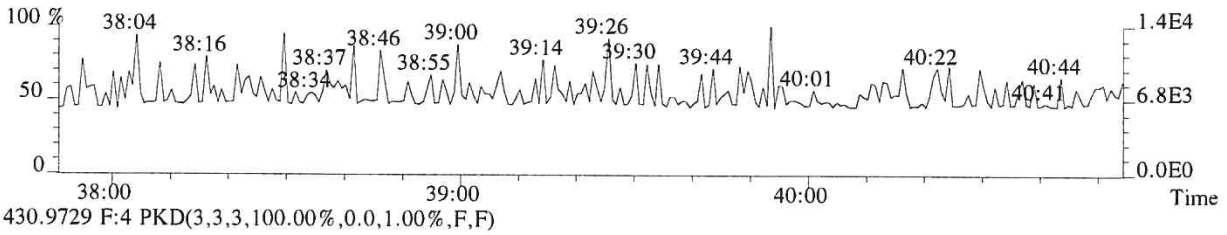
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5664.0,0.50%,F,T)



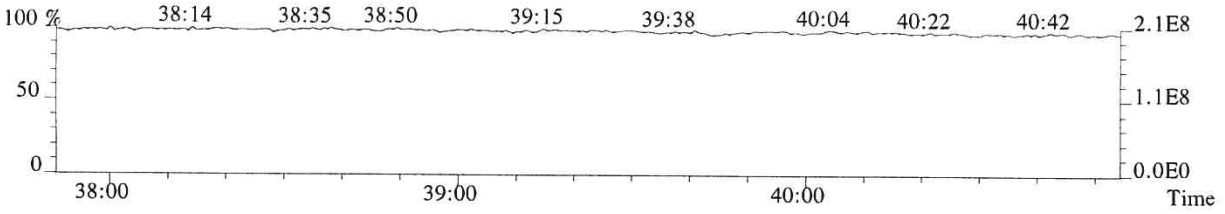
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,20492.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

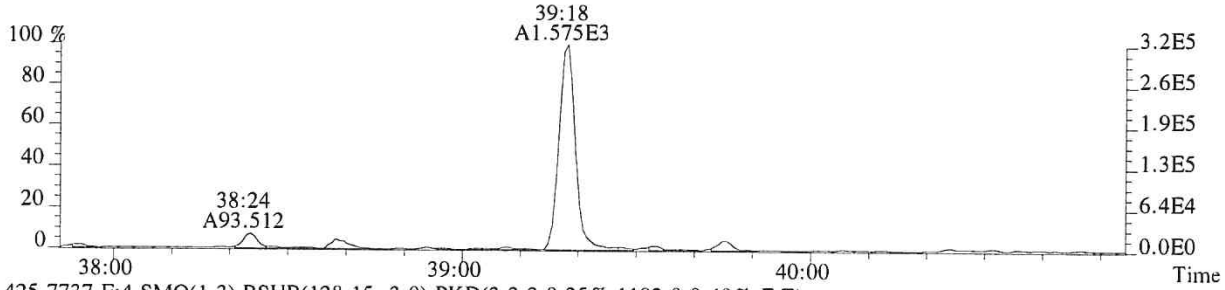


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

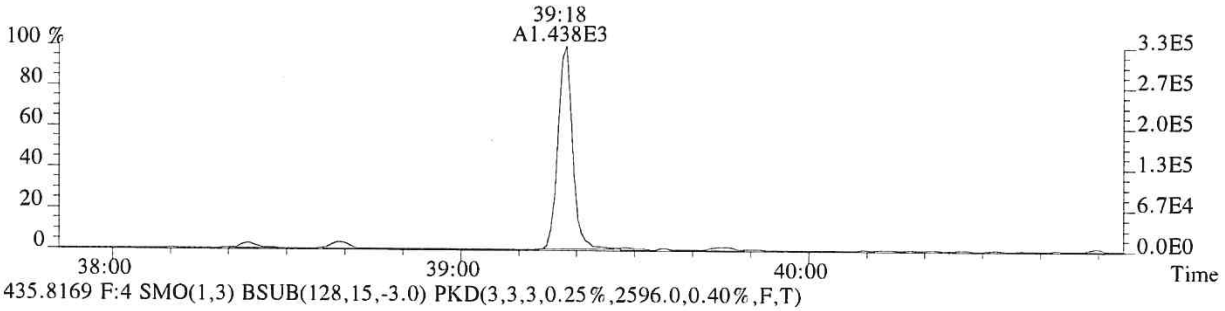


014913

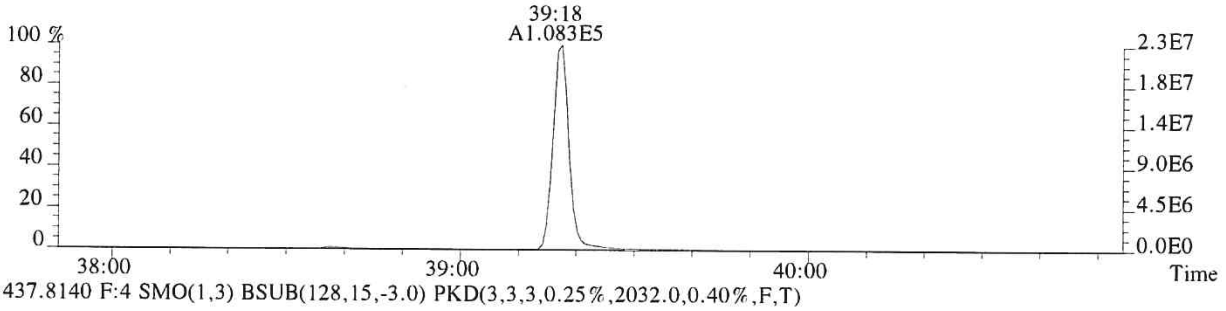
File:P614682 #1-276 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2320.0,0.40%,F,T)



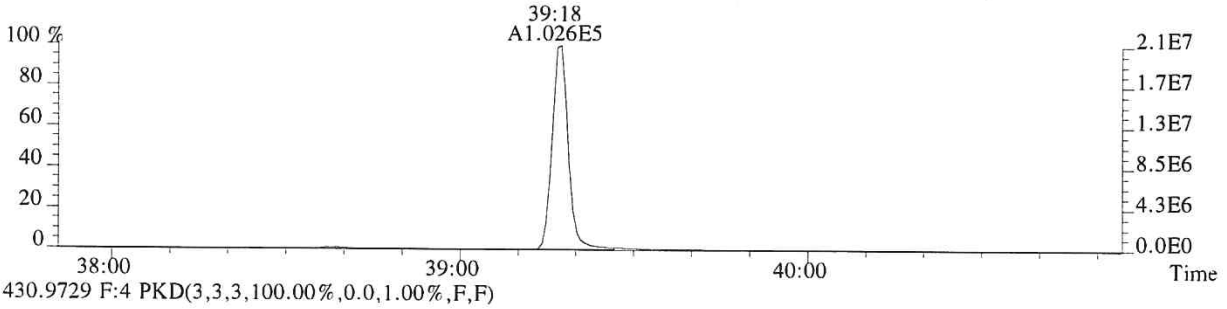
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1192.0,0.40%,F,T)



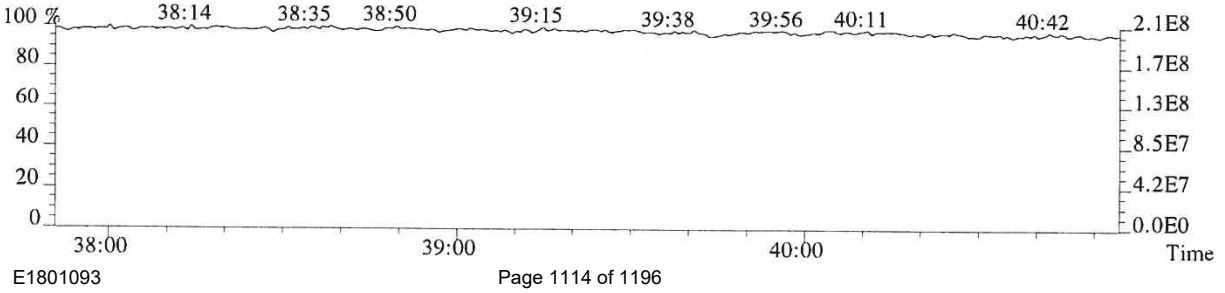
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2596.0,0.40%,F,T)



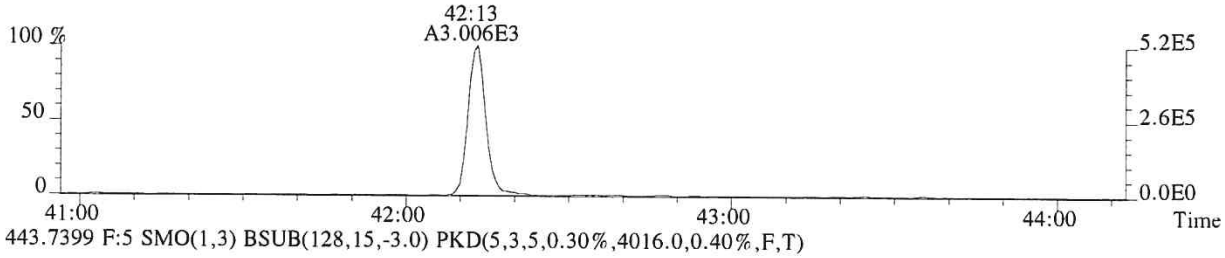
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2032.0,0.40%,F,T)



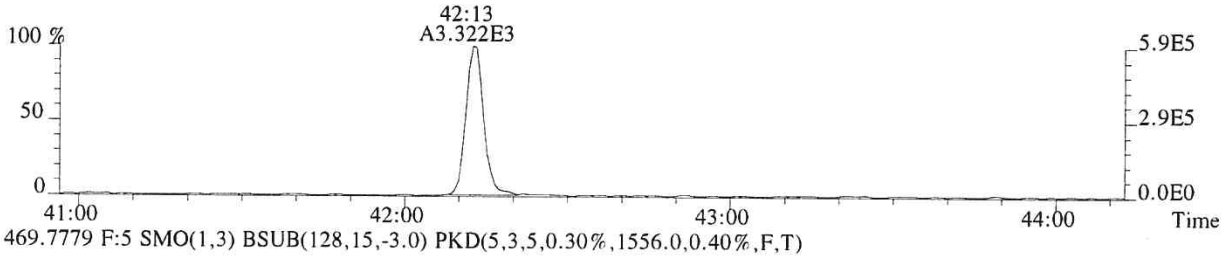
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



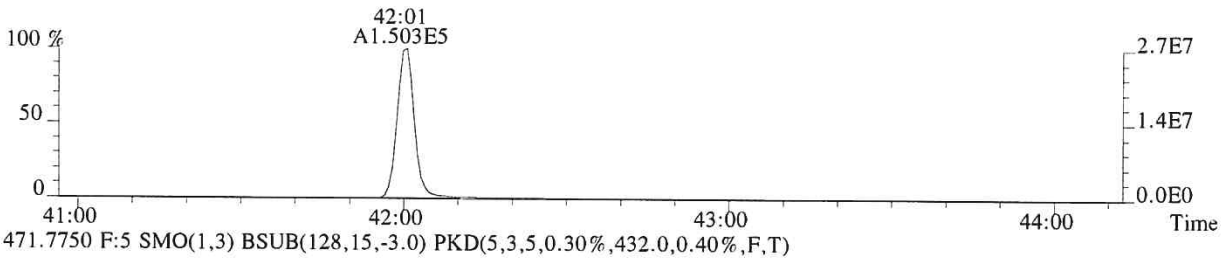
File:P614682 #1-295 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1340.0,0.40%,F,T)



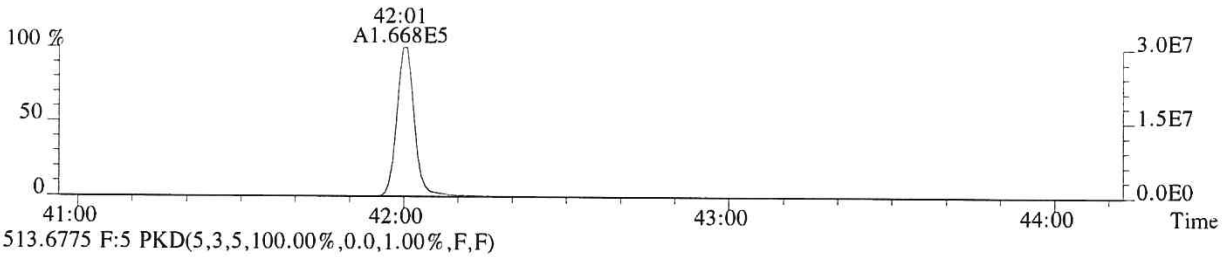
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,4016.0,0.40%,F,T)



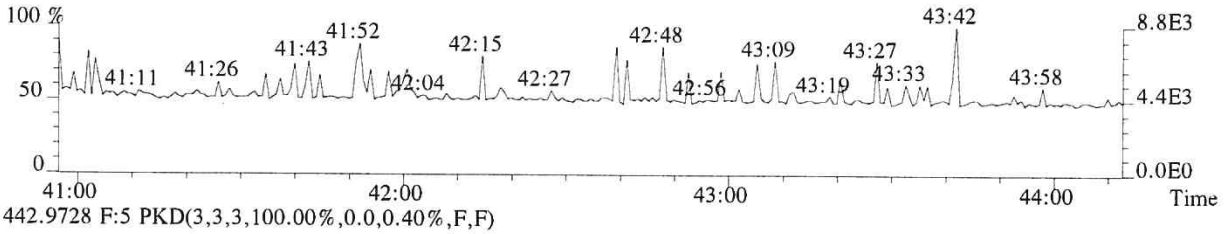
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1556.0,0.40%,F,T)



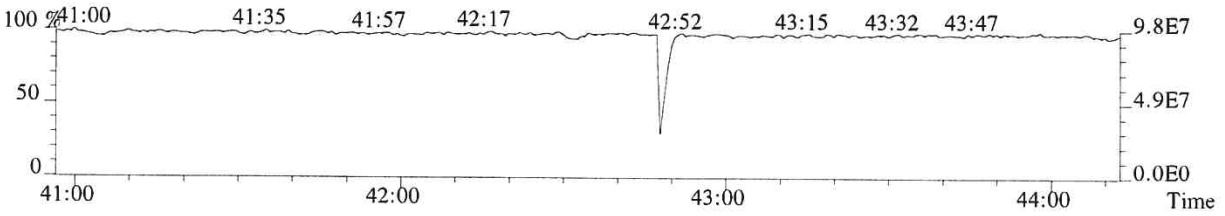
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,432.0,0.40%,F,T)



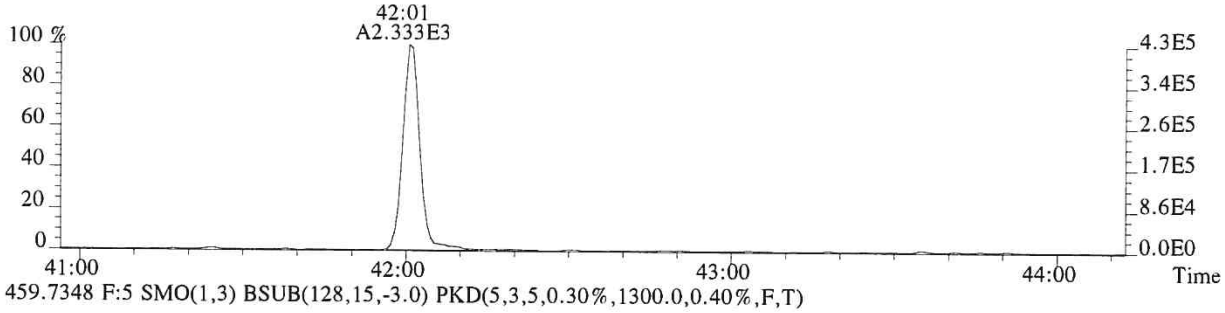
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



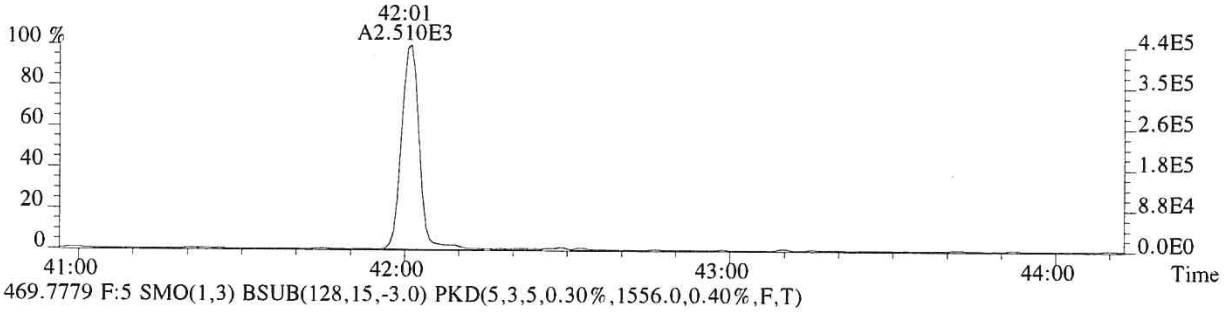
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



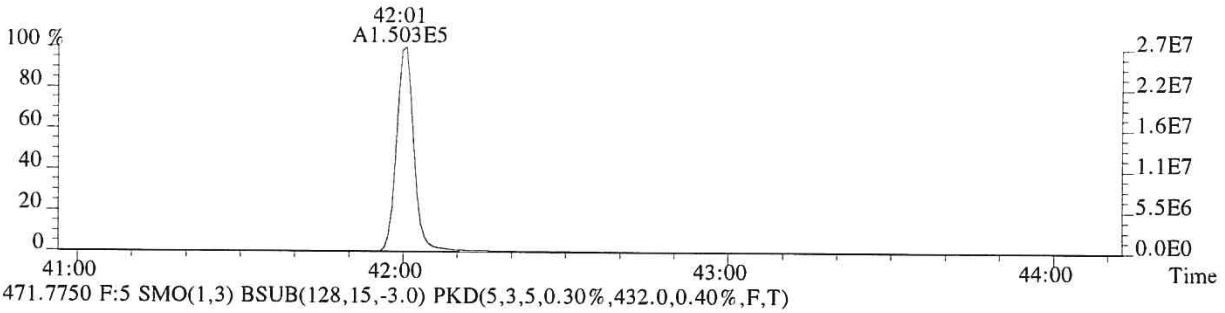
File:P614682 #1-295 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,848.0,0.40%,F,T)



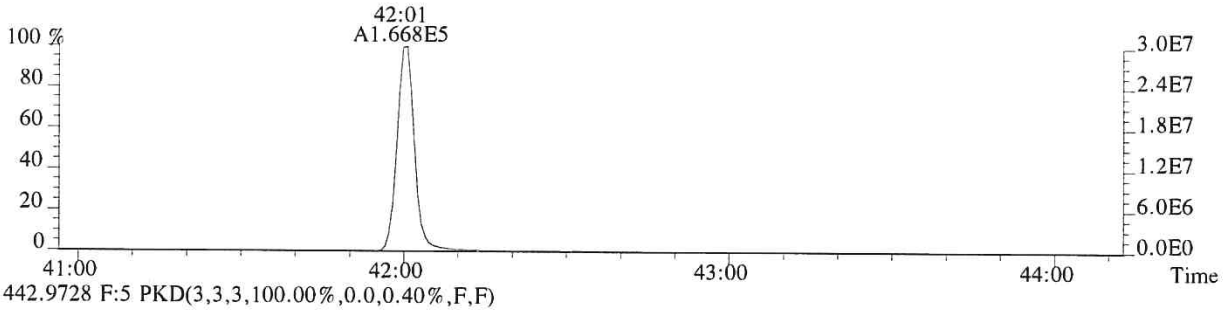
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1300.0,0.40%,F,T)



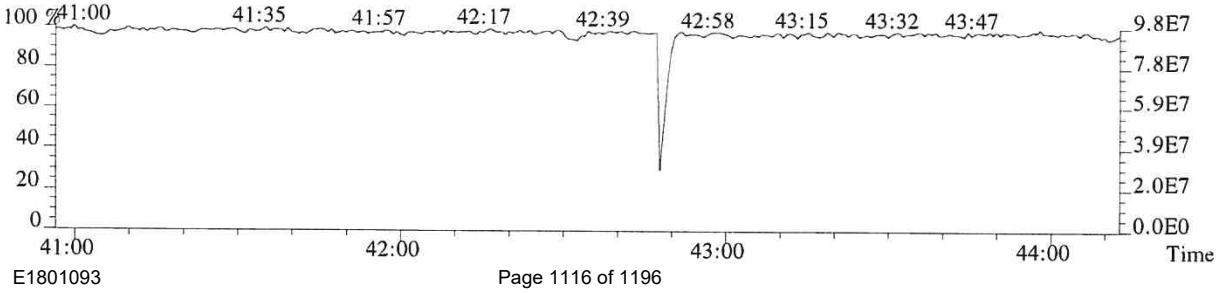
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1556.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,432.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
82614

Run #2 Filename P614683 Samp: 1 Inj: 1 Acquired: 25-SEP-18 15:08:49
Processed: 26-SEP-18 07:39:06 Sample ID: CS1

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:00	9.696e+02	1.301e+03	0.75	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:14	8.209e+03	5.211e+03	1.58	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:09	7.782e+03	4.847e+03	1.61	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	7.580e+03	5.860e+03	1.29	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	7.826e+03	6.295e+03	1.24	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	7.149e+03	5.707e+03	1.25	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:10	6.633e+03	5.137e+03	1.29	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	6.668e+03	6.509e+03	1.02	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	5.874e+03	5.515e+03	1.07	yes	no	1.463
10	Unk	OCDF	42:13	7.957e+03	9.190e+03	0.87	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:48	6.591e+02	7.969e+02	0.83	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	4.521e+03	2.979e+03	1.52	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	4.250e+03	3.535e+03	1.20	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:38	4.303e+03	3.394e+03	1.27	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:52	4.586e+03	3.767e+03	1.22	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	4.011e+03	3.764e+03	1.07	yes	no	1.112
17	Unk	OCDD	42:01	6.097e+03	6.815e+03	0.89	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:59	1.863e+05	2.330e+05	0.80	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	2.845e+05	1.757e+05	1.62	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	2.739e+05	1.718e+05	1.59	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	1.281e+05	2.407e+05	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	1.461e+05	2.703e+05	0.54	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	1.362e+05	2.538e+05	0.54	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	1.215e+05	2.294e+05	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:23	1.041e+05	2.259e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:45	9.345e+04	2.024e+05	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	1.293e+05	1.616e+05	0.80	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:25	1.924e+05	1.218e+05	1.58	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:32	1.556e+05	1.239e+05	1.26	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:37	1.601e+05	1.267e+05	1.26	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	1.414e+05	1.336e+05	1.06	yes	no	0.857
32	IS	13C-OCDD	42:00	2.022e+05	2.237e+05	0.90	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:13	1.337e+05	1.646e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:51	1.731e+05	1.377e+05	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	1.653e+03				no	1.086

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Signal/Noise Height Ratio Summary CLIENT ID.
82614

Run #2 Filename P614683 Samp: 1 Inj: 1 Acquired: 25-SEP-18 15:08:49
Processed: 26-SEP-18 07:39:06 LAB. ID: CS1

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.73e+05	2.52e+03	6.9e+01	2.26e+05	4.68e+03	4.8e+01
2	1,2,3,7,8-PeCDF	1.49e+06	1.07e+03	1.4e+03	9.88e+05	5.47e+03	1.8e+02
3	2,3,4,7,8-PeCDF	1.55e+06	1.07e+03	1.5e+03	9.81e+05	5.47e+03	1.8e+02
4	1,2,3,4,7,8-HxCDF	1.64e+06	3.19e+03	5.1e+02	1.29e+06	1.24e+03	1.0e+03
5	1,2,3,6,7,8-HxCDF	1.65e+06	3.19e+03	5.2e+02	1.30e+06	1.24e+03	1.0e+03
6	2,3,4,6,7,8-HxCDF	1.53e+06	3.19e+03	4.8e+02	1.19e+06	1.24e+03	9.6e+02
7	1,2,3,7,8,9-HxCDF	1.37e+06	3.19e+03	4.3e+02	1.06e+06	1.24e+03	8.5e+02
8	1,2,3,4,6,7,8-HpCDF	1.48e+06	1.97e+03	7.5e+02	1.45e+06	1.25e+03	1.2e+03
9	1,2,3,4,7,8,9-HpCDF	1.19e+06	1.97e+03	6.0e+02	1.11e+06	1.25e+03	8.9e+02
10	OCDF	1.45e+06	1.15e+03	1.3e+03	1.64e+06	2.28e+03	7.2e+02
11	2,3,7,8-TCDD	1.20e+05	6.88e+03	1.7e+01	1.48e+05	2.99e+03	5.0e+01
12	1,2,3,7,8-PeCDD	8.64e+05	2.37e+03	3.6e+02	5.83e+05	1.39e+03	4.2e+02
13	1,2,3,4,7,8-HxCDD	9.60e+05	1.02e+03	9.4e+02	8.07e+05	1.68e+03	4.8e+02
14	1,2,3,6,7,8-HxCDD	9.46e+05	1.02e+03	9.3e+02	7.52e+05	1.68e+03	4.5e+02
15	1,2,3,7,8,9-HxCDD	1.01e+06	1.02e+03	9.9e+02	8.34e+05	1.68e+03	5.0e+02
16	1,2,3,4,6,7,8-HpCDD	8.38e+05	1.17e+03	7.2e+02	8.29e+05	4.84e+02	1.7e+03
17	OCDD	1.16e+06	3.14e+03	3.7e+02	1.30e+06	1.96e+03	6.6e+02
18	13C-2,3,7,8-TCDF	3.28e+07	1.64e+04	2.0e+03	4.11e+07	1.27e+04	3.2e+03
19	13C-1,2,3,7,8-PeCDF	5.29e+07	3.44e+03	1.5e+04	3.26e+07	2.57e+03	1.3e+04
20	13C-2,3,4,7,8-PeCDF	5.43e+07	3.44e+03	1.6e+04	3.38e+07	2.57e+03	1.3e+04
21	13C-1,2,3,4,7,8-HxCDF	2.86e+07	3.47e+03	8.3e+03	5.39e+07	4.48e+03	1.2e+04
22	13C-1,2,3,6,7,8-HxCDF	3.07e+07	3.47e+03	8.8e+03	5.68e+07	4.48e+03	1.3e+04
23	13C-2,3,4,6,7,8-HxCDF	2.95e+07	3.47e+03	8.5e+03	5.46e+07	4.48e+03	1.2e+04
24	13C-1,2,3,7,8,9-HxCDF	2.51e+07	3.47e+03	7.2e+03	4.72e+07	4.48e+03	1.1e+04
25	13C-1,2,3,4,6,7,8-HpCDF	2.28e+07	1.29e+04	1.8e+03	4.99e+07	2.56e+04	2.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.87e+07	1.29e+04	1.5e+03	4.06e+07	2.56e+04	1.6e+03
27	13C-2,3,7,8-TCDD	2.37e+07	1.79e+04	1.3e+03	2.98e+07	7.48e+03	4.0e+03
28	13C-1,2,3,7,8-PeCDD	3.81e+07	3.05e+03	1.3e+04	2.43e+07	1.79e+03	1.4e+04
29	13C-1,2,3,4,7,8-HxCDD	3.53e+07	4.99e+03	7.1e+03	2.84e+07	2.28e+03	1.2e+04
30	13C-1,2,3,6,7,8-HxCDD	3.46e+07	4.99e+03	6.9e+03	2.73e+07	2.28e+03	1.2e+04
31	13C-1,2,3,4,6,7,8-HpCDD	3.08e+07	3.94e+03	7.8e+03	2.93e+07	1.60e+03	1.8e+04
32	13C-OCDD	3.85e+07	1.12e+03	3.4e+04	4.22e+07	1.86e+03	2.3e+04
33	13C-1,2,3,4-TCDD	2.49e+07	1.79e+04	1.4e+03	3.07e+07	7.48e+03	4.1e+03
34	13C-1,2,3,7,8,9-HxCDD	3.76e+07	4.99e+03	7.5e+03	3.01e+07	2.28e+03	1.3e+04
35	37Cl-2,3,7,8-TCDD	3.03e+05	3.87e+03	7.8e+01			

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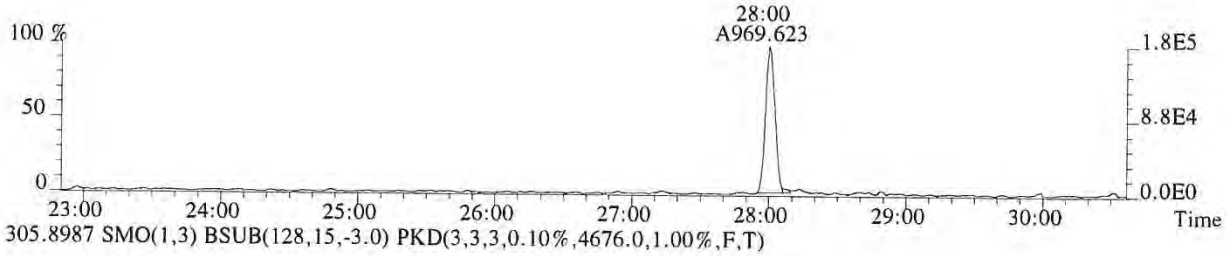
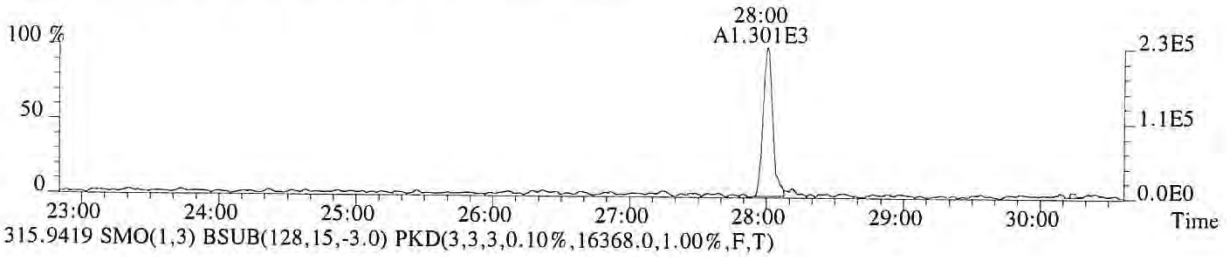
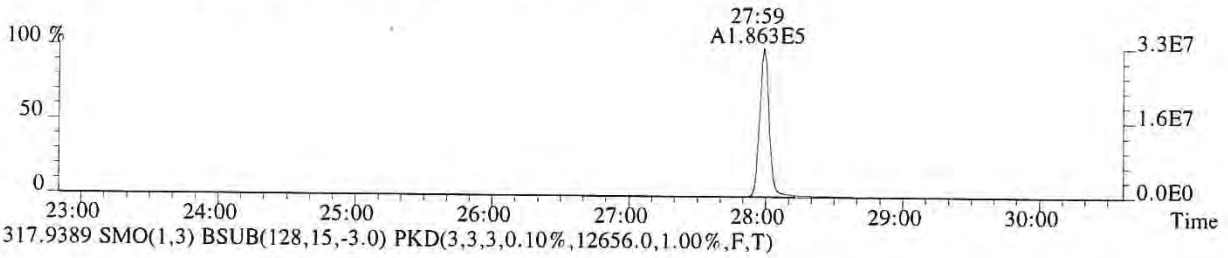
File:P614683 #1-552 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:CS1
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2516.0,1.00%,F,T)



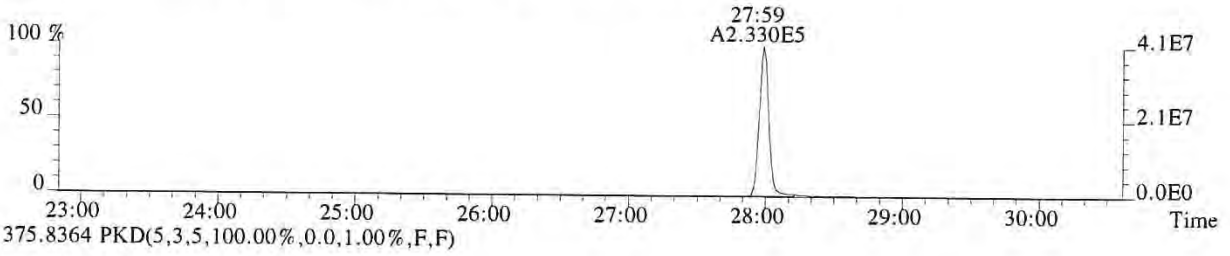
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4676.0,1.00%,F,T)



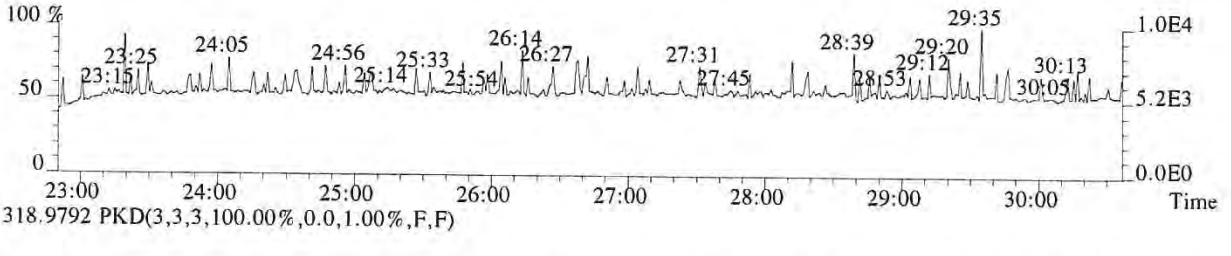
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,16368.0,1.00%,F,T)



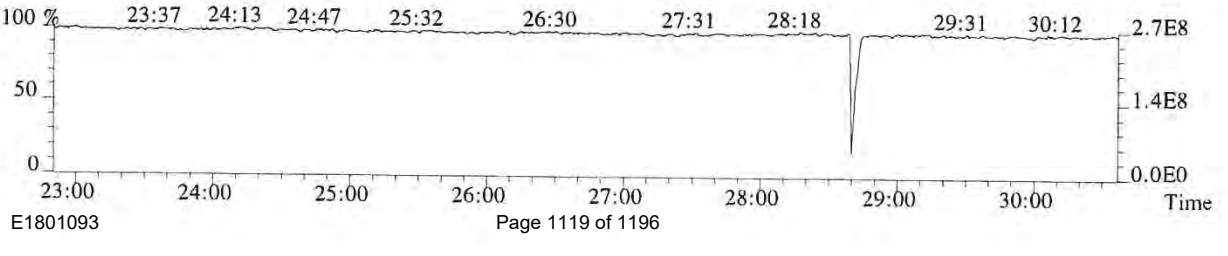
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,12656.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

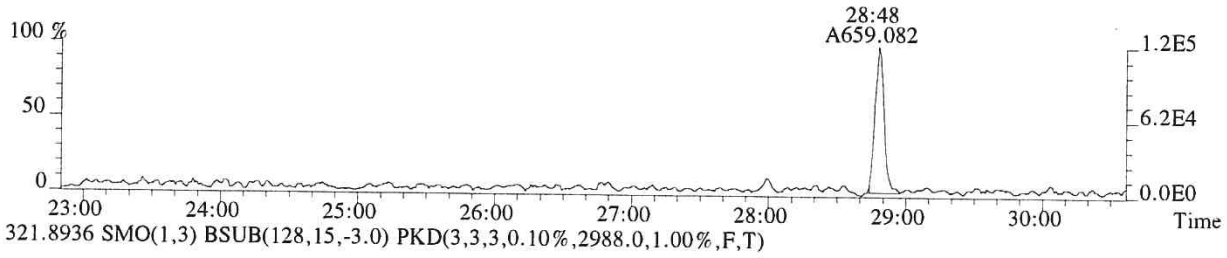


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

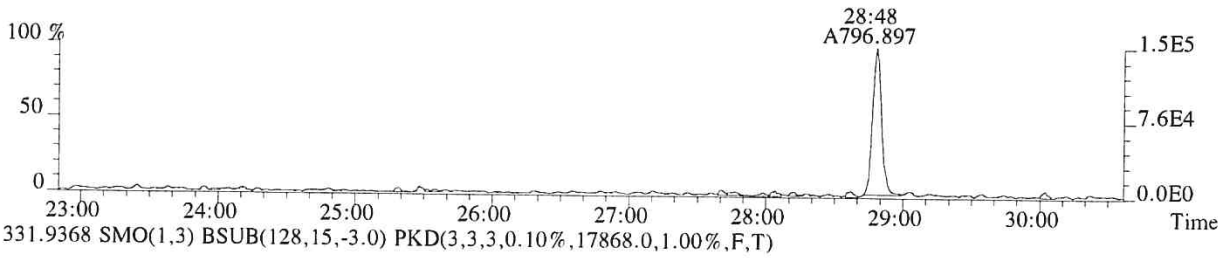


014919

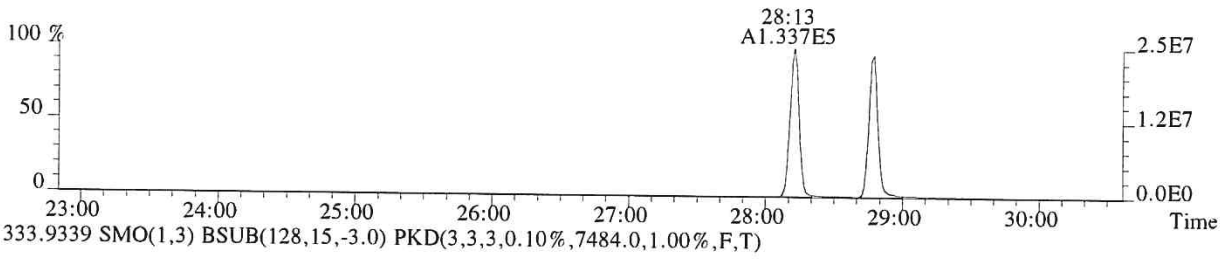
File:P614683 #1-552 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6880.0,1.00%,F,T)



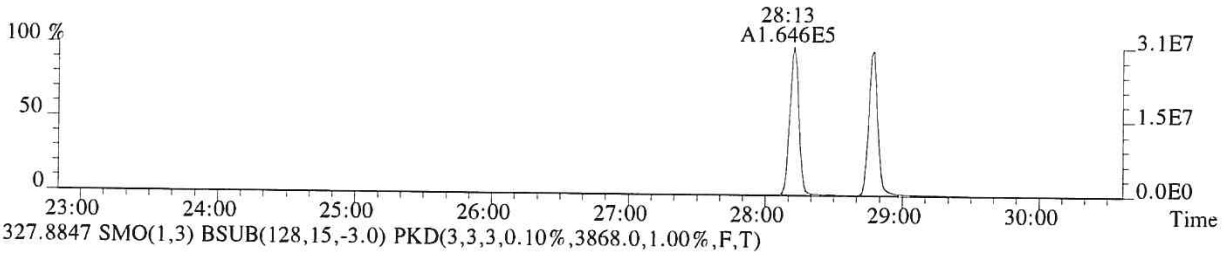
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2988.0,1.00%,F,T)



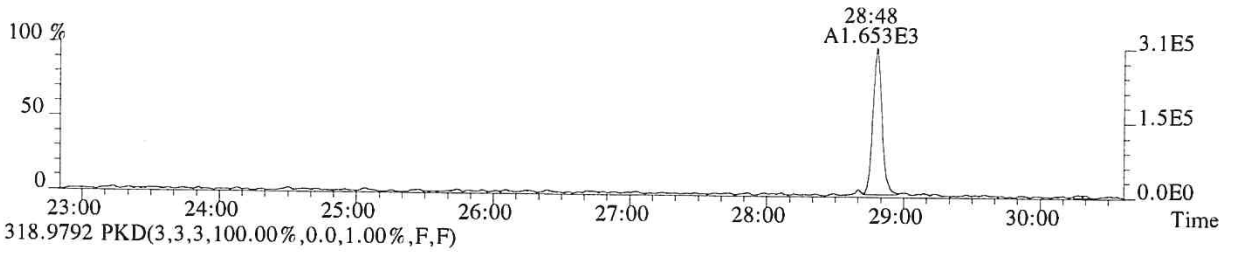
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,17868.0,1.00%,F,T)



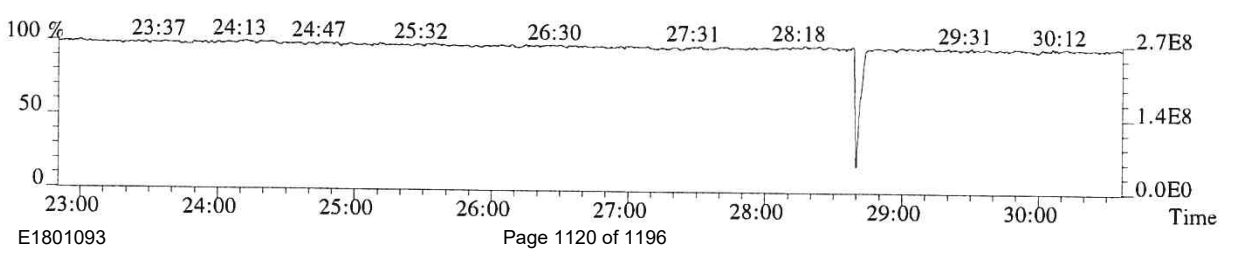
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7484.0,1.00%,F,T)



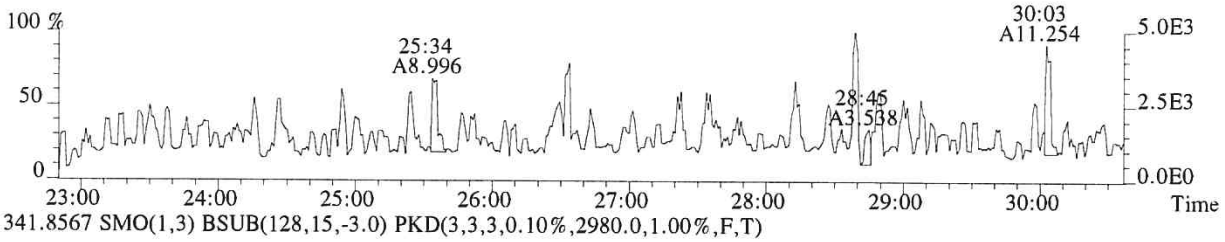
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3868.0,1.00%,F,T)



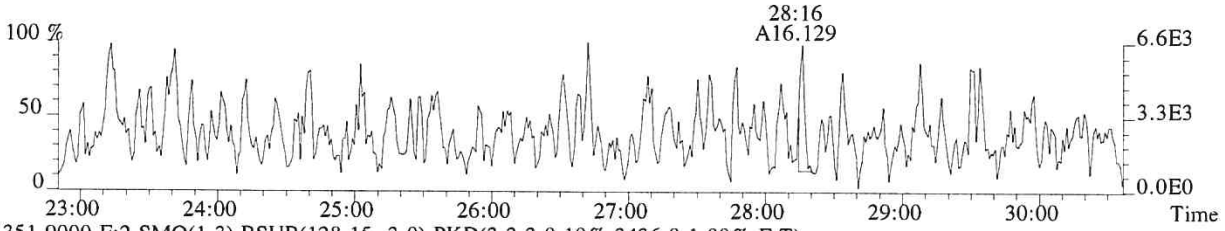
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



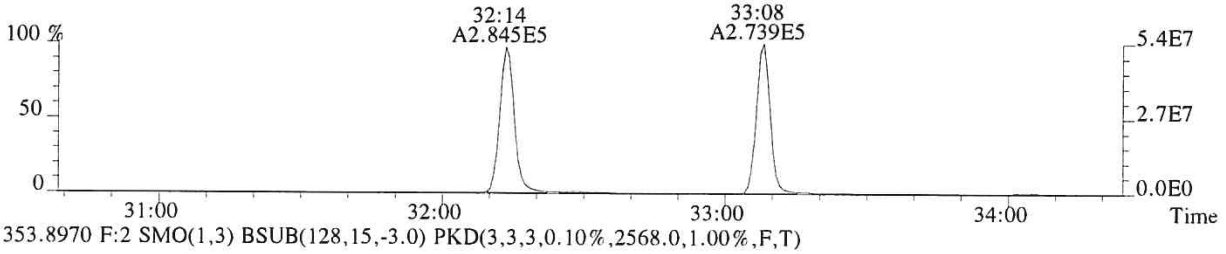
File:P614683 #1-552 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1796.0,1.00%,F,T)



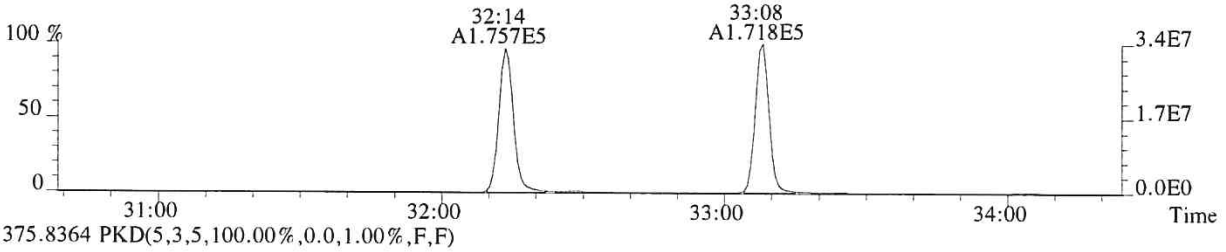
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2980.0,1.00%,F,T)



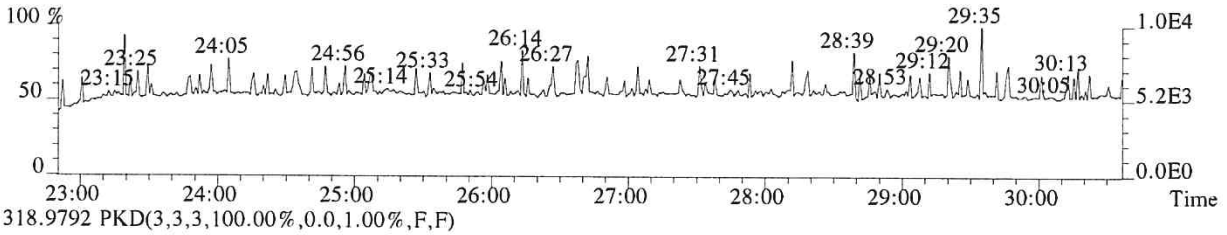
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3436.0,1.00%,F,T)



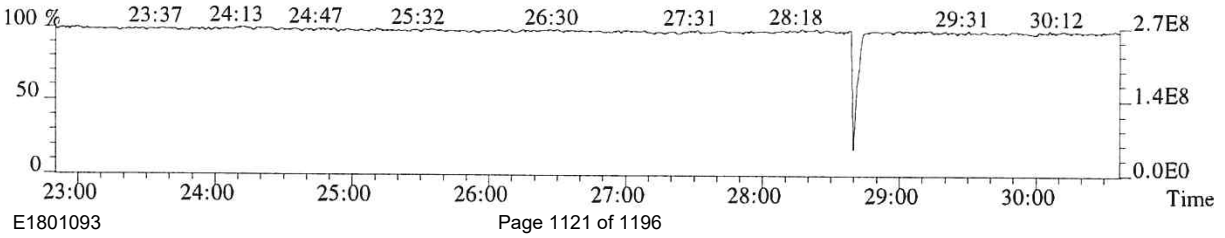
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2568.0,1.00%,F,T)



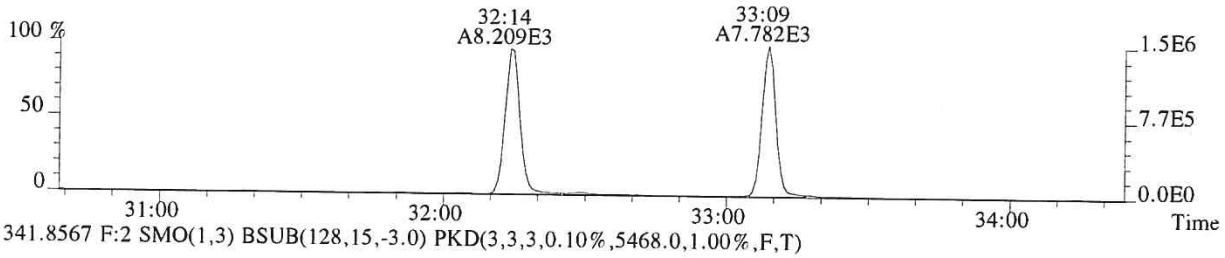
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



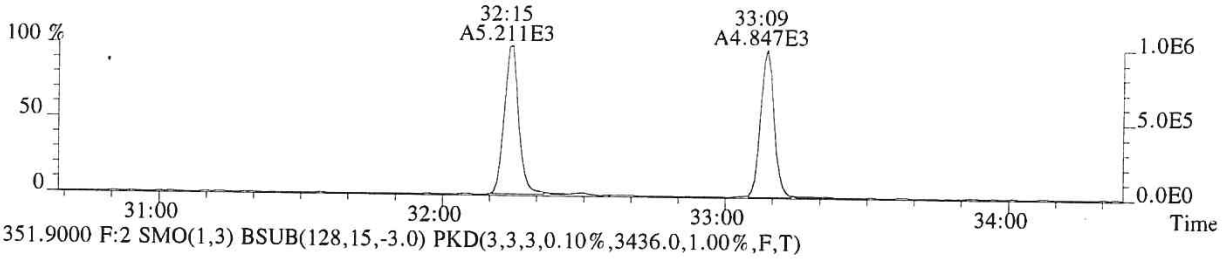
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



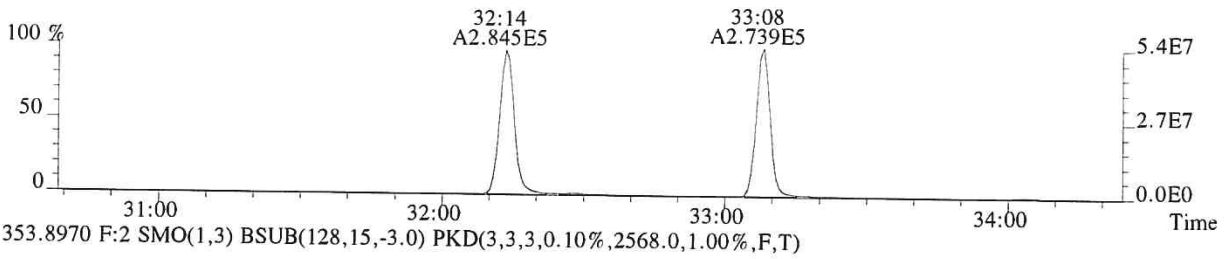
File:P614683 #1-339 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1068.0,1.00%,F,T)



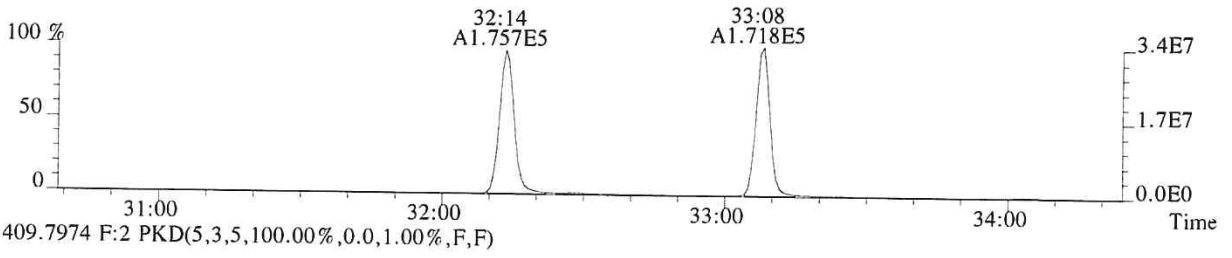
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5468.0,1.00%,F,T)



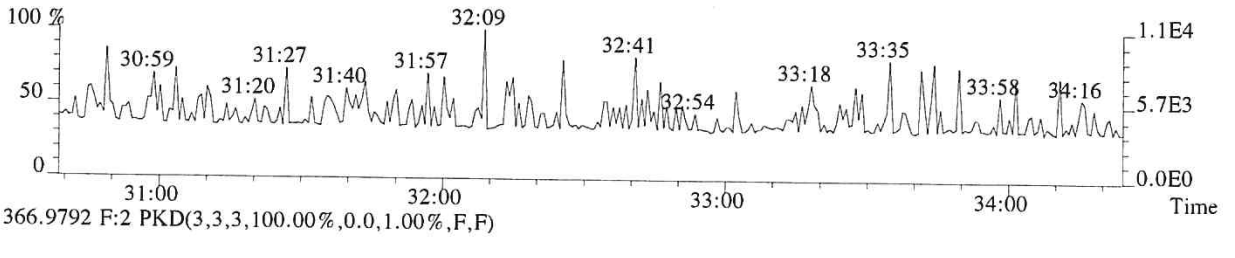
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3436.0,1.00%,F,T)



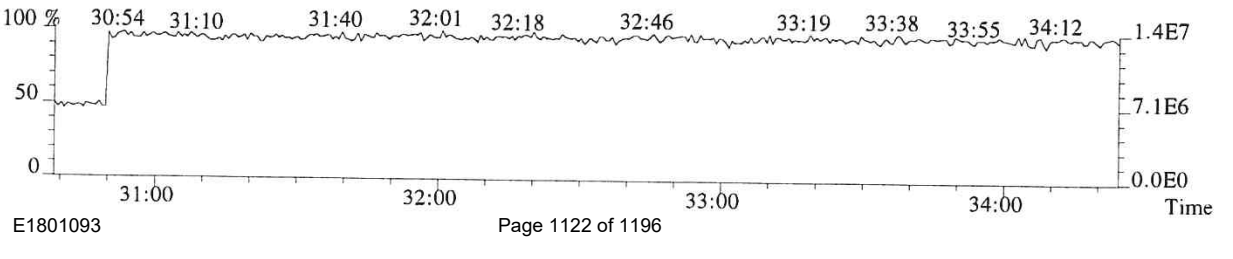
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2568.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

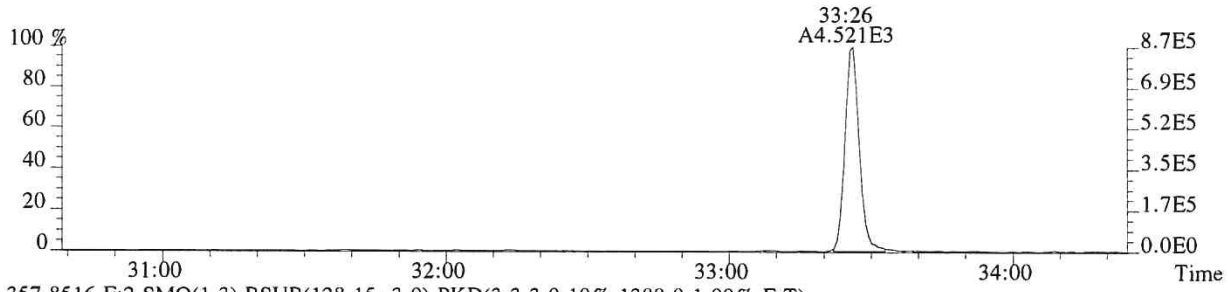


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

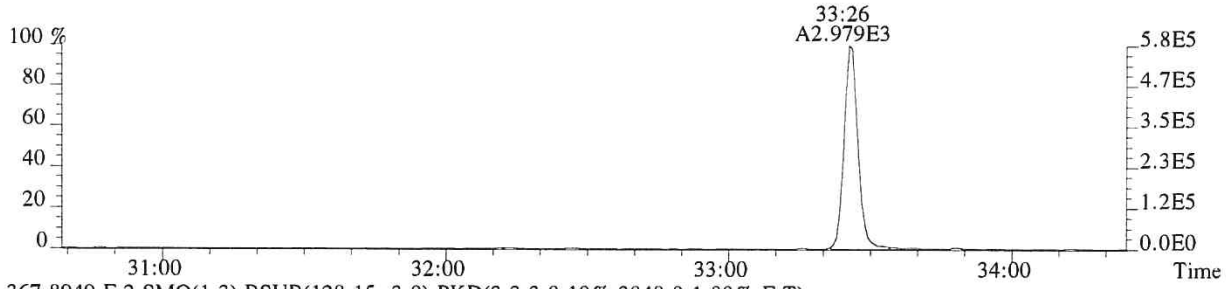


014922

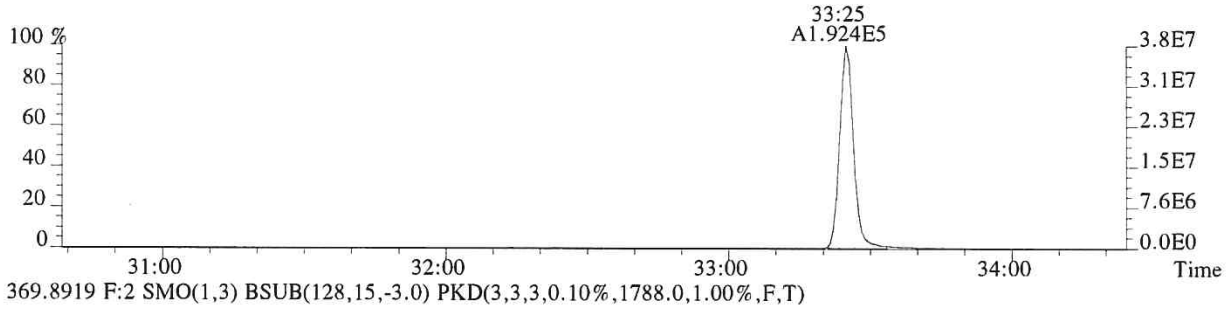
File:P614683 #1-339 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2368.0,1.00%,F,T)



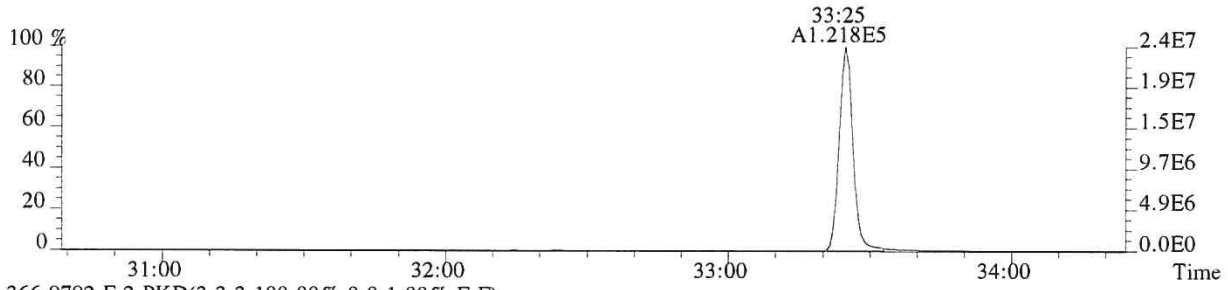
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1388.0,1.00%,F,T)



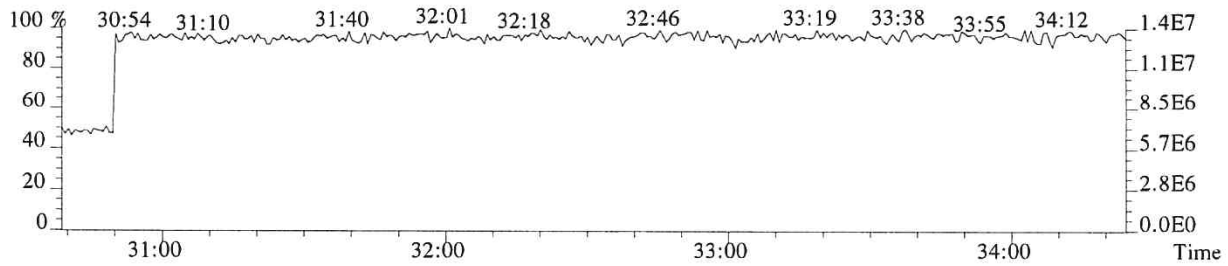
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3048.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1788.0,1.00%,F,T)

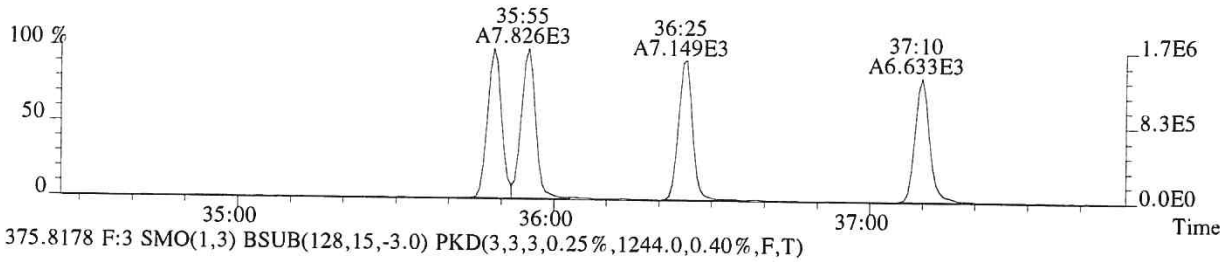


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

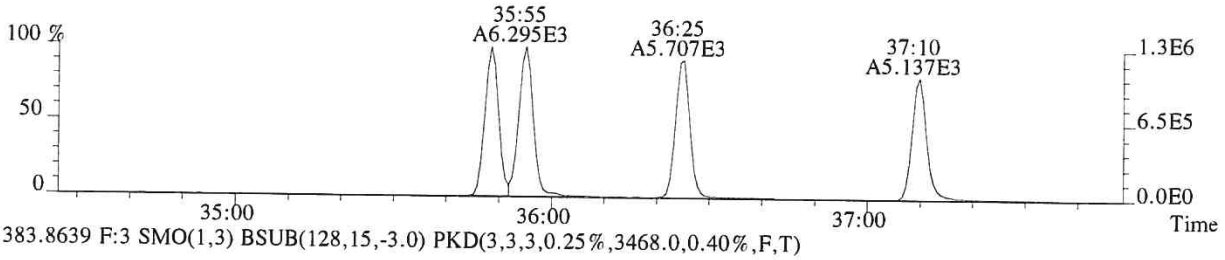


014923

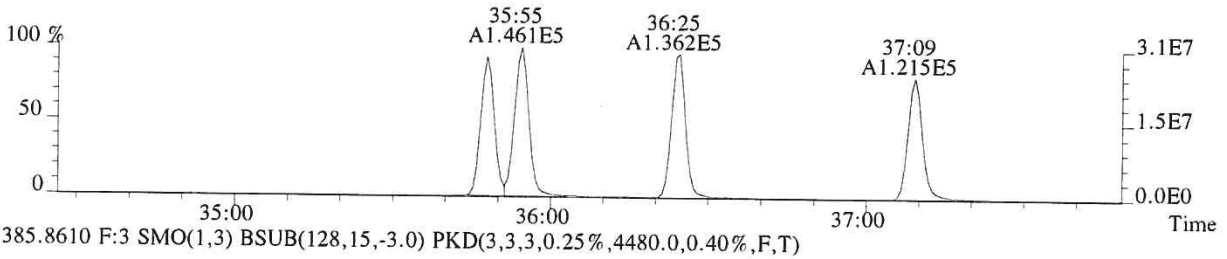
File:P614683 #1-304 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3192.0,0.40%,F,T)



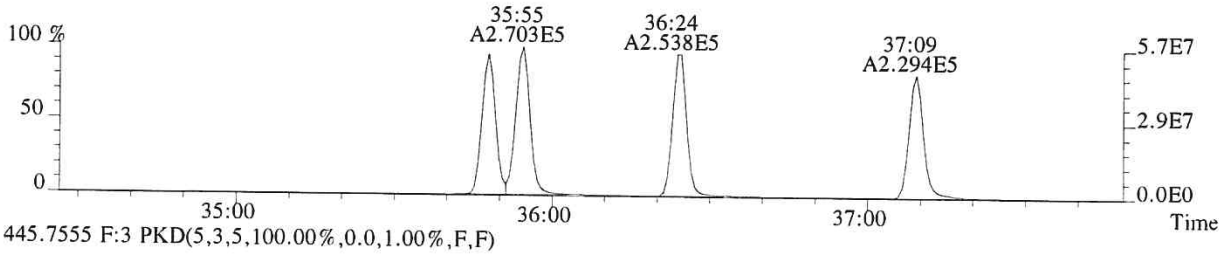
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1244.0,0.40%,F,T)



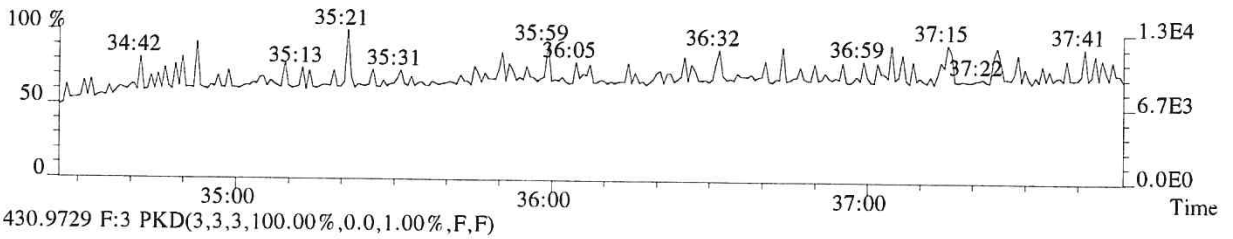
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3468.0,0.40%,F,T)



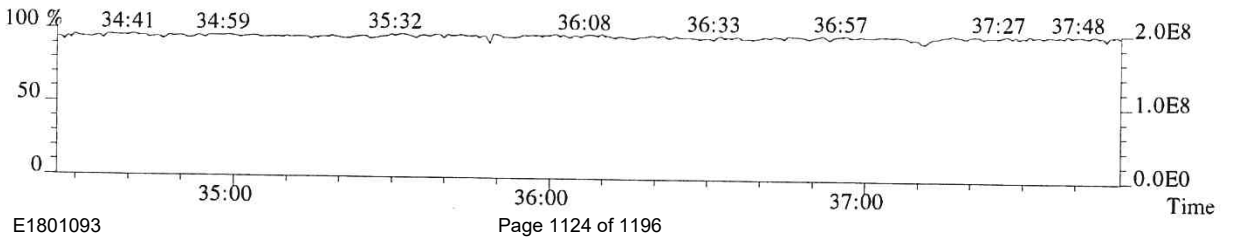
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4480.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

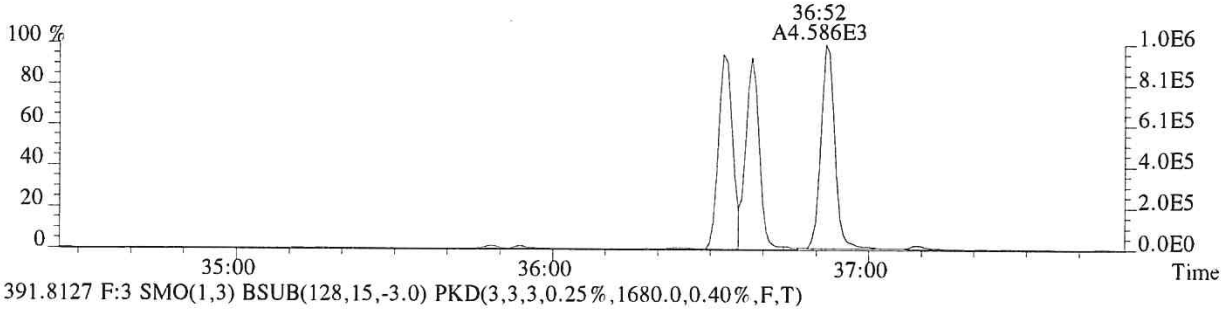


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

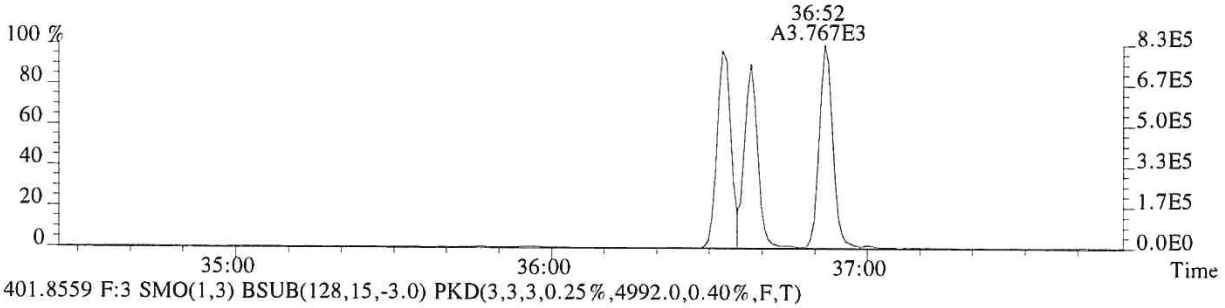


014924

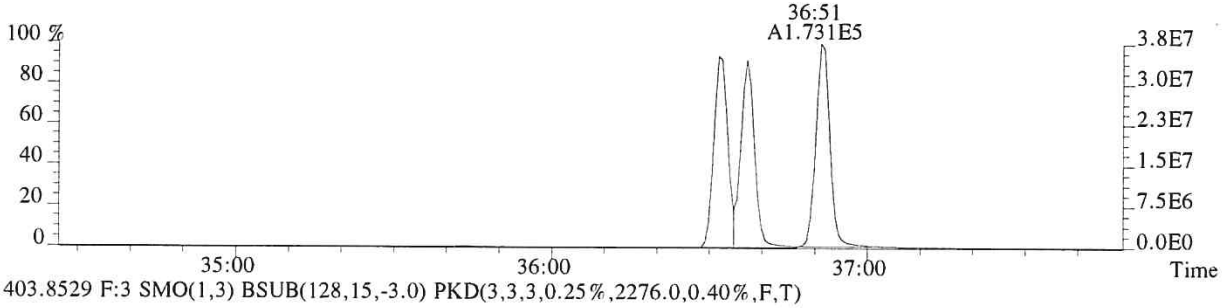
File:P614683 #1-304 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1020.0,0.40%,F,T)



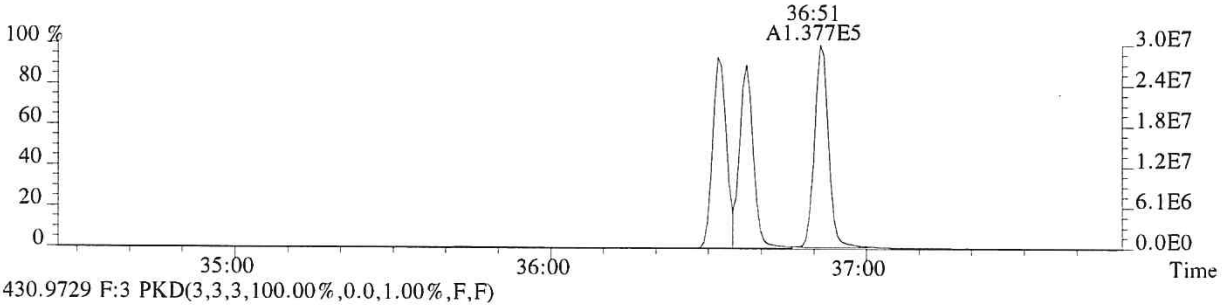
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1680.0,0.40%,F,T)



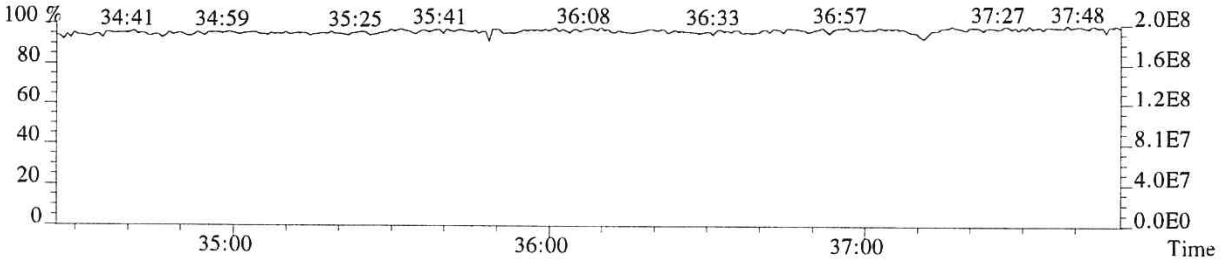
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4992.0,0.40%,F,T)



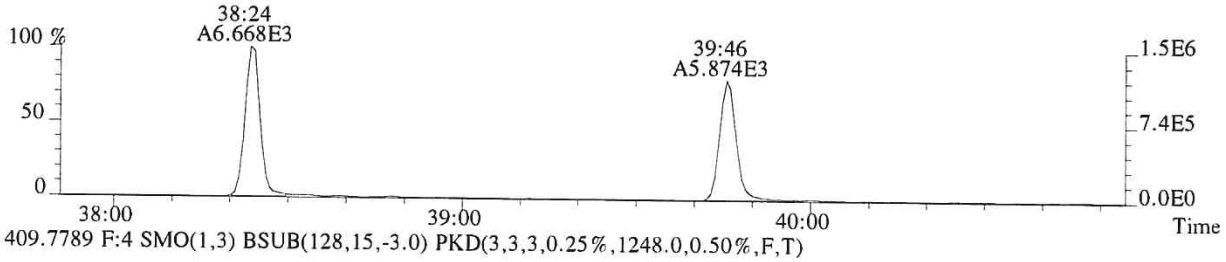
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2276.0,0.40%,F,T)



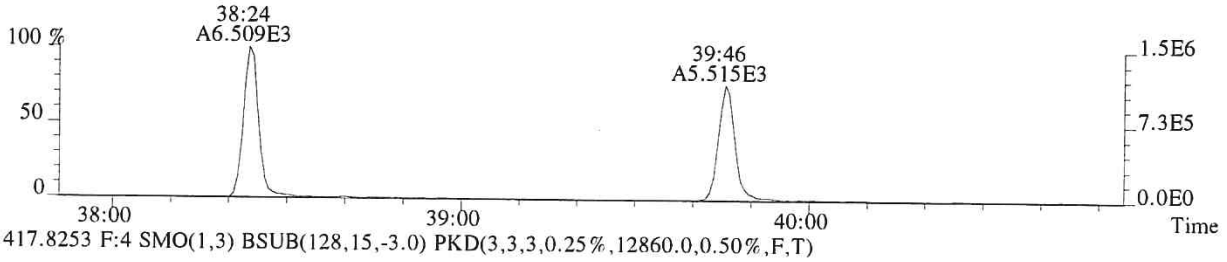
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



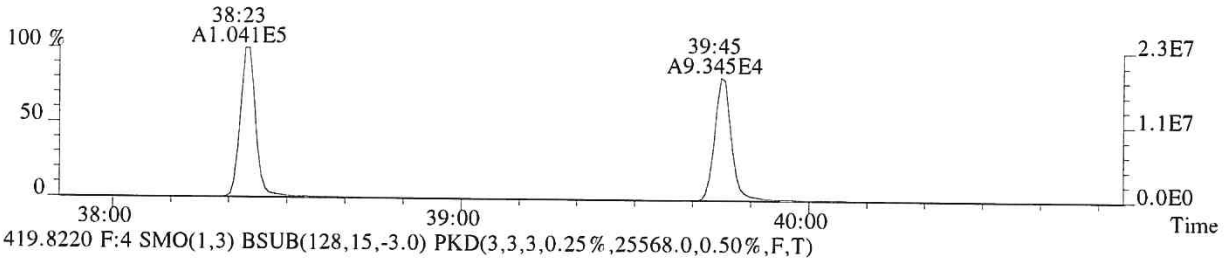
File:P614683 #1-276 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1968.0,0.50%,F,T)



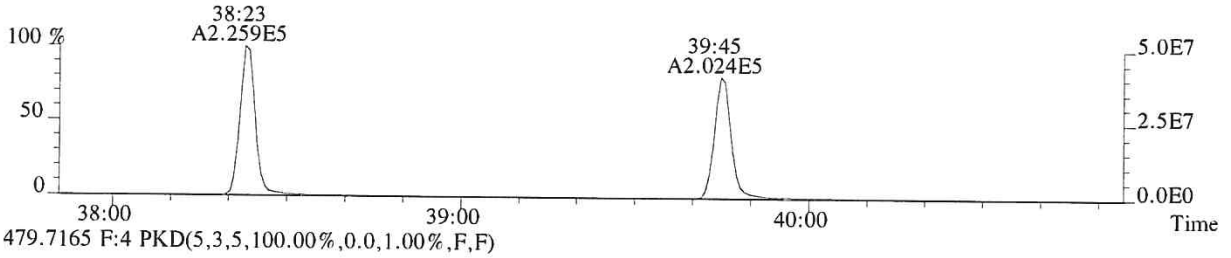
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1248.0,0.50%,F,T)



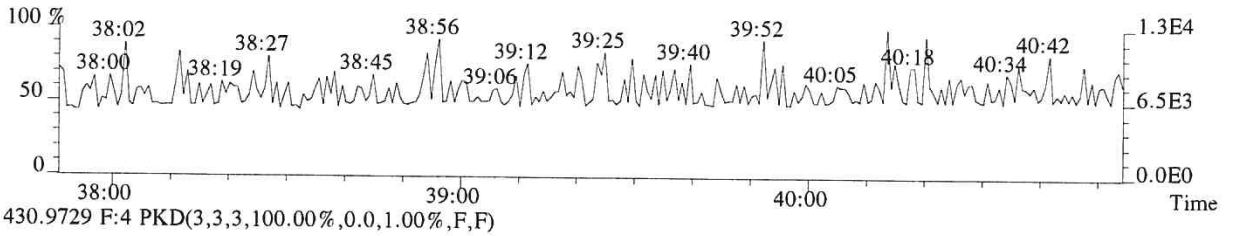
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,12860.0,0.50%,F,T)



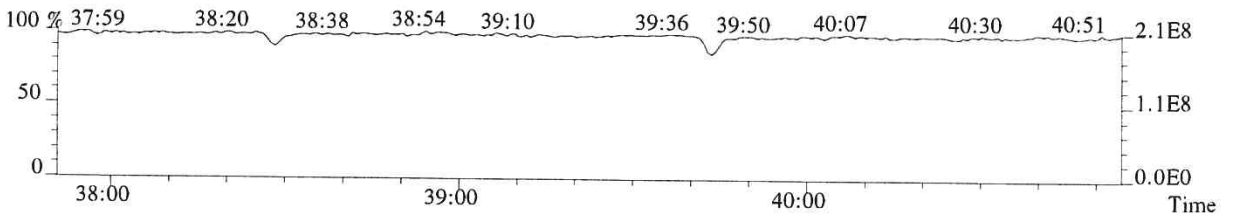
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,25568.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



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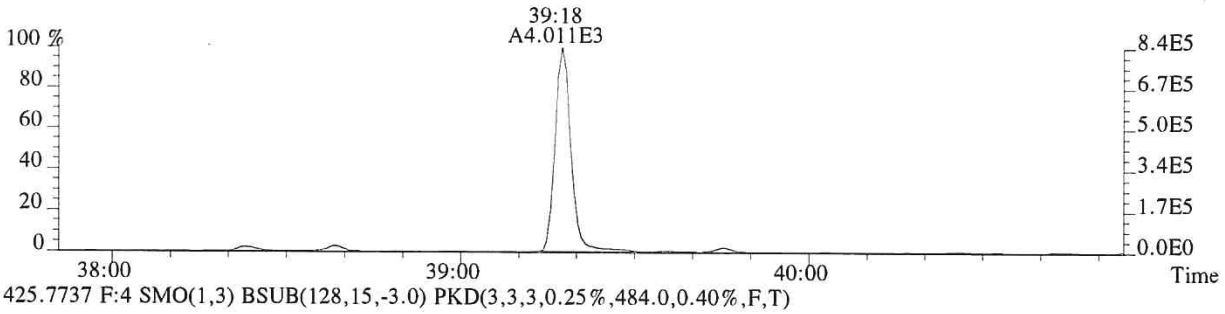
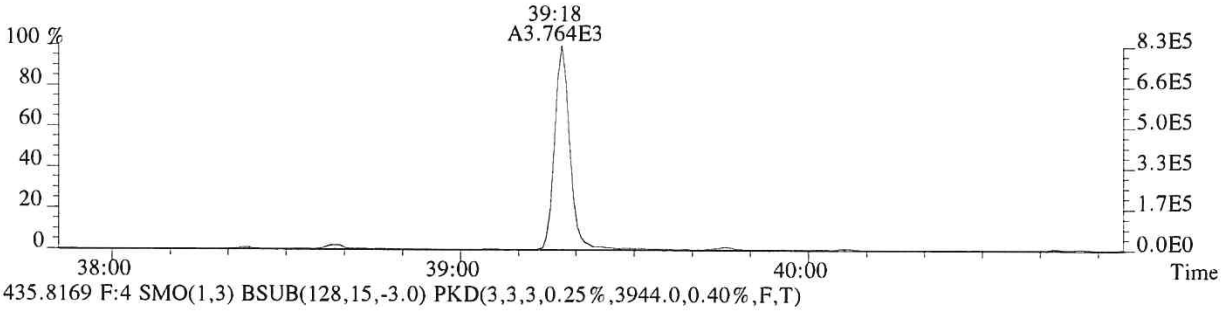
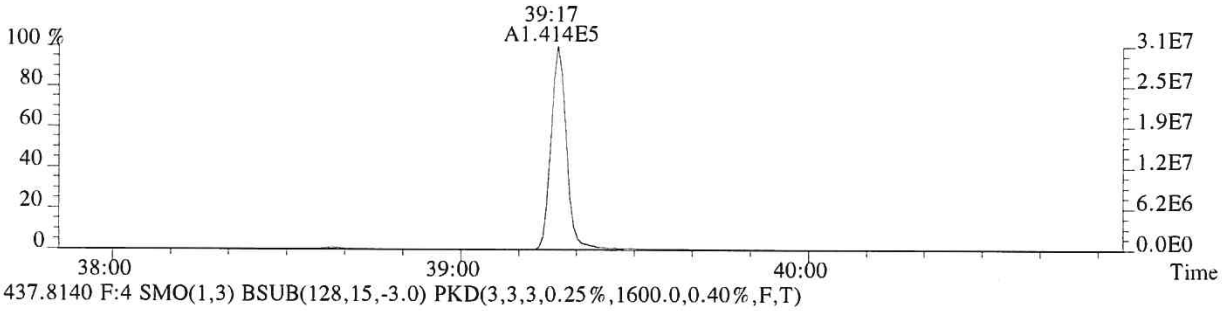
File:P614683 #1-276 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1168.0,0.40%,F,T)



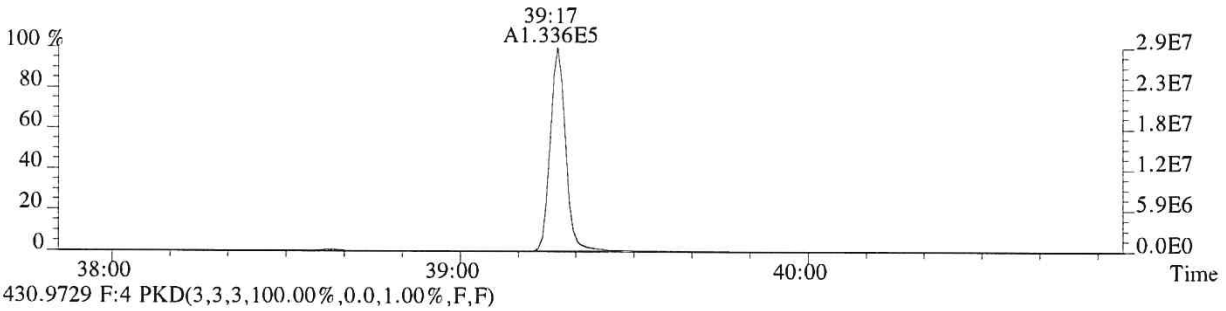
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,484.0,0.40%,F,T)



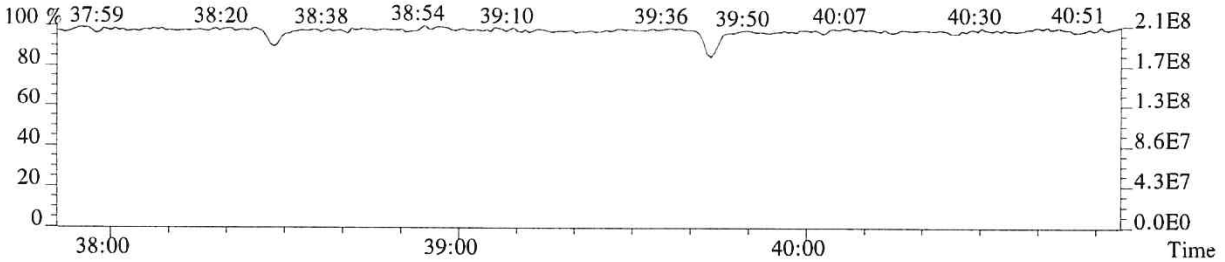
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3944.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1600.0,0.40%,F,T)



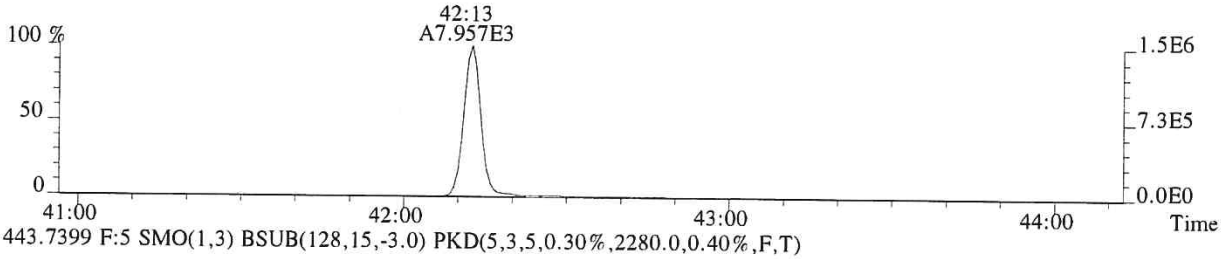
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



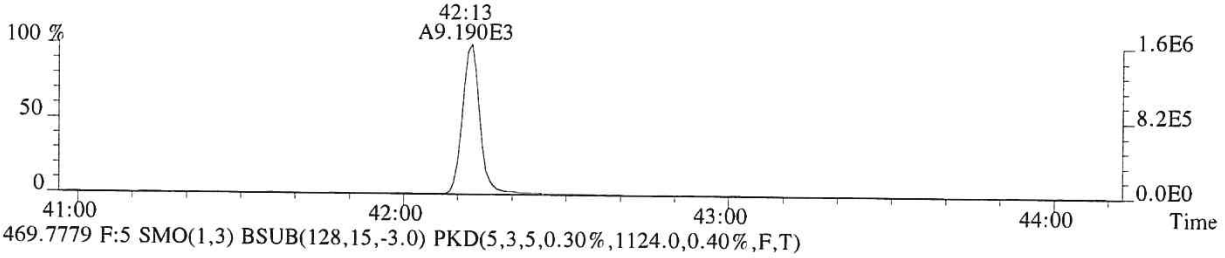
014927

File:P614683 #1-295 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1

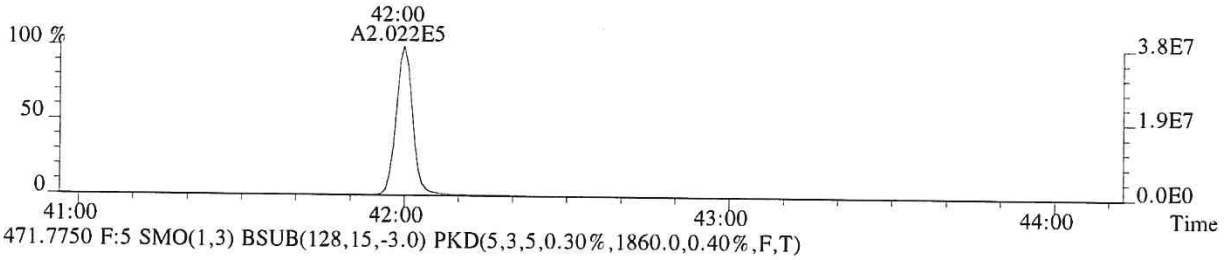
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1152.0,0.40%,F,T)



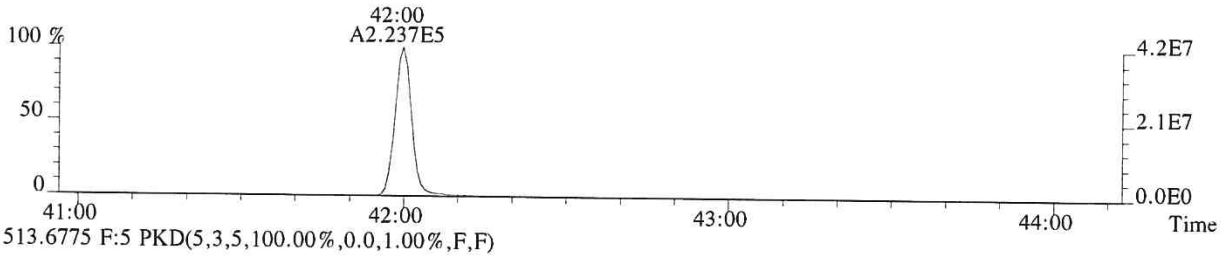
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2280.0,0.40%,F,T)



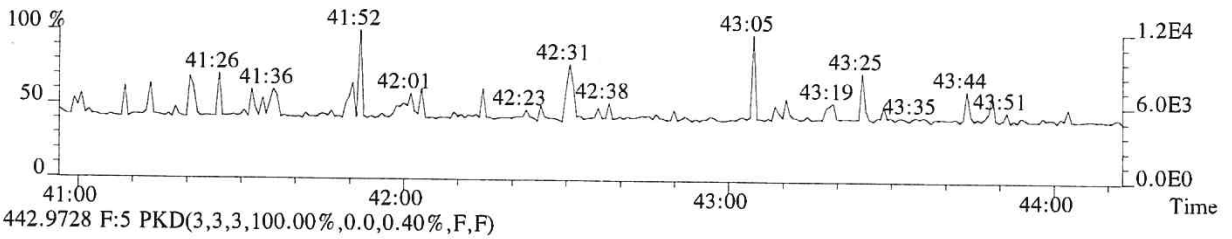
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1124.0,0.40%,F,T)



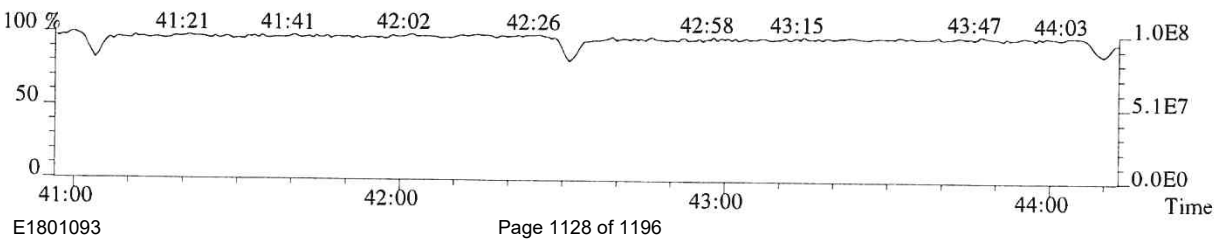
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1860.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

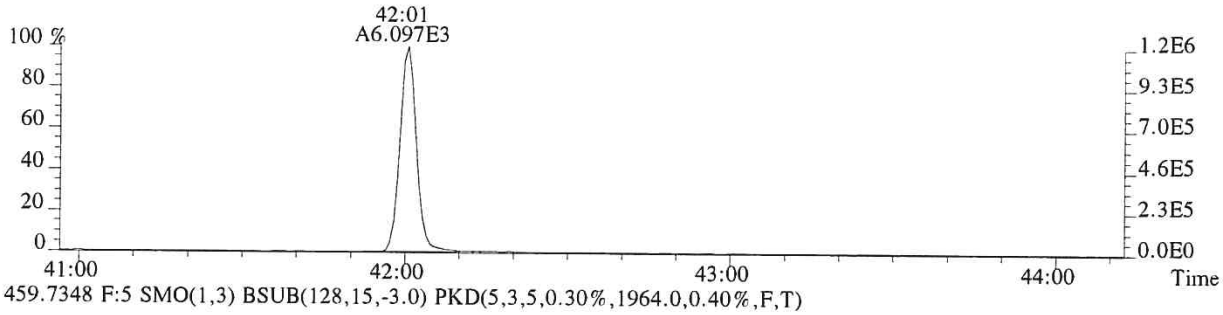


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

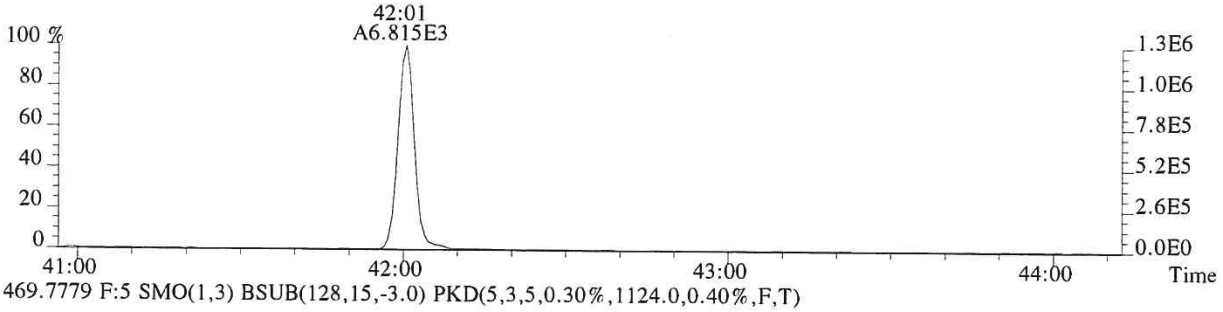


014928

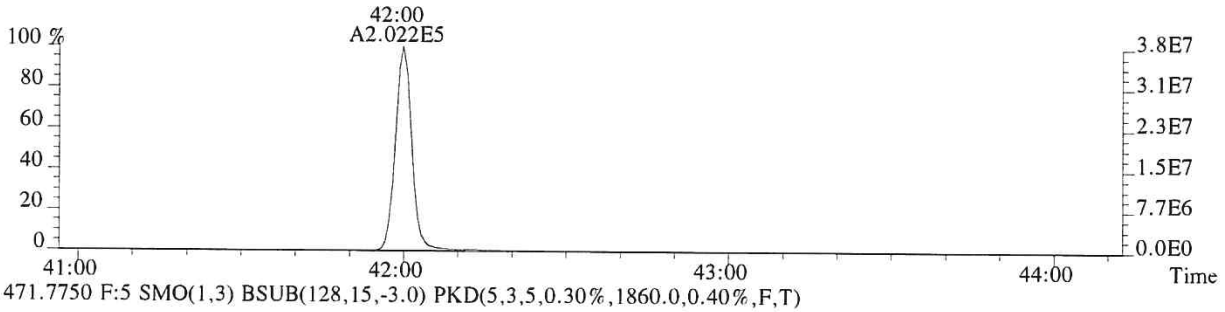
File:P614683 #1-295 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3136.0,0.40%,F,T)



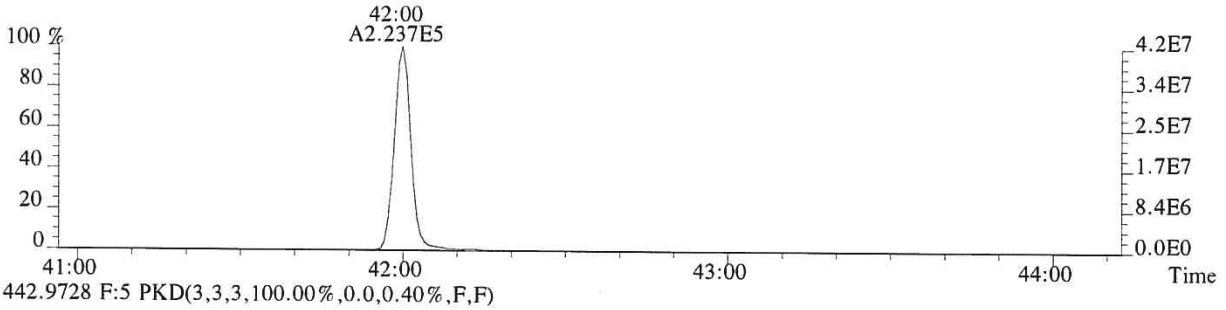
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1964.0,0.40%,F,T)



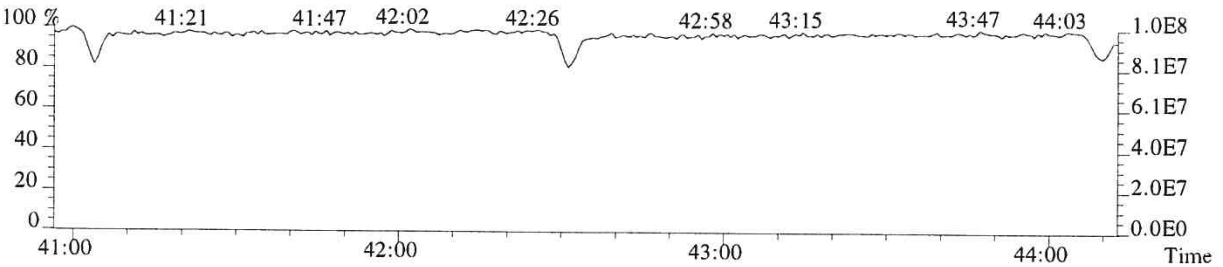
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1124.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1860.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



014929

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
193434

Run #3 Filename P614684 Samp: 1 Inj: 1 Acquired: 25-SEP-18 15:59:37
Processed: 26-SEP-18 07:39:08 Sample ID: CS2

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:00	3.102e+03	3.732e+03	0.83	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:14	2.387e+04	1.519e+04	1.57	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:08	2.329e+04	1.484e+04	1.57	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	2.143e+04	1.713e+04	1.25	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	2.340e+04	1.874e+04	1.25	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	2.188e+04	1.713e+04	1.28	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:09	1.950e+04	1.588e+04	1.23	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	1.863e+04	1.764e+04	1.06	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	1.650e+04	1.567e+04	1.05	yes	no	1.463
10	Unk	OCDF	42:12	2.250e+04	2.478e+04	0.91	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:48	1.874e+03	2.328e+03	0.80	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	1.440e+04	9.416e+03	1.53	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	1.279e+04	1.013e+04	1.26	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:38	1.275e+04	1.020e+04	1.25	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:52	1.359e+04	1.091e+04	1.25	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	1.169e+04	1.088e+04	1.07	yes	no	1.112
17	Unk	OCDD	42:01	1.626e+04	1.848e+04	0.88	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:59	1.350e+05	1.713e+05	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	2.144e+05	1.340e+05	1.60	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	2.142e+05	1.318e+05	1.62	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:47	9.603e+04	1.811e+05	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:54	1.132e+05	2.120e+05	0.53	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:24	1.055e+05	1.978e+05	0.53	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	9.513e+04	1.787e+05	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:23	7.767e+04	1.706e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:45	6.849e+04	1.521e+05	0.45	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	9.327e+04	1.167e+05	0.80	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:25	1.531e+05	9.729e+04	1.57	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:32	1.232e+05	9.748e+04	1.26	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:37	1.208e+05	9.608e+04	1.26	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	1.060e+05	1.018e+05	1.04	yes	no	0.857
32	IS	13C-OCDD	42:00	1.501e+05	1.663e+05	0.90	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:12	9.647e+04	1.194e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:51	1.360e+05	1.078e+05	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	4.600e+03				no	1.086

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
193434

Run #3 Filename P614684 Samp: 1 Inj: 1 Acquired: 25-SEP-18 15:59:37
Processed: 26-SEP-18 07:39:08 LAB. ID: CS2

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.46e+05	1.35e+03	4.0e+02	6.81e+05	4.17e+03	1.6e+02
2	1,2,3,7,8-PeCDF	4.40e+06	1.19e+03	3.7e+03	2.83e+06	5.62e+03	5.0e+02
3	2,3,4,7,8-PeCDF	4.45e+06	1.19e+03	3.7e+03	2.83e+06	5.62e+03	5.0e+02
4	1,2,3,4,7,8-HxCDF	4.64e+06	2.66e+03	1.7e+03	3.65e+06	1.33e+03	2.7e+03
5	1,2,3,6,7,8-HxCDF	4.85e+06	2.66e+03	1.8e+03	3.88e+06	1.33e+03	2.9e+03
6	2,3,4,6,7,8-HxCDF	4.77e+06	2.66e+03	1.8e+03	3.75e+06	1.33e+03	2.8e+03
7	1,2,3,7,8,9-HxCDF	3.92e+06	2.66e+03	1.5e+03	3.16e+06	1.33e+03	2.4e+03
8	1,2,3,4,6,7,8-HpCDF	4.16e+06	4.06e+03	1.0e+03	3.98e+06	5.19e+03	7.7e+02
9	1,2,3,4,7,8,9-HpCDF	3.43e+06	4.06e+03	8.5e+02	3.23e+06	5.19e+03	6.2e+02
10	OCDF	4.02e+06	1.02e+03	3.9e+03	4.45e+06	3.18e+03	1.4e+03
11	2,3,7,8-TCDD	3.59e+05	5.08e+03	7.1e+01	4.49e+05	2.84e+03	1.6e+02
12	1,2,3,7,8-PeCDD	2.79e+06	2.23e+03	1.3e+03	1.83e+06	1.03e+03	1.8e+03
13	1,2,3,4,7,8-HxCDD	2.90e+06	1.16e+03	2.5e+03	2.30e+06	2.22e+03	1.0e+03
14	1,2,3,6,7,8-HxCDD	2.75e+06	1.16e+03	2.4e+03	2.20e+06	2.22e+03	9.9e+02
15	1,2,3,7,8,9-HxCDD	2.97e+06	1.16e+03	2.6e+03	2.38e+06	2.22e+03	1.1e+03
16	1,2,3,4,6,7,8-HpCDD	2.45e+06	1.22e+03	2.0e+03	2.30e+06	1.43e+03	1.6e+03
17	OCDD	3.03e+06	8.24e+02	3.7e+03	3.48e+06	2.34e+03	1.5e+03
18	13C-2,3,7,8-TCDF	2.30e+07	1.44e+04	1.6e+03	2.91e+07	8.40e+03	3.5e+03
19	13C-1,2,3,7,8-PeCDF	3.88e+07	2.39e+03	1.6e+04	2.43e+07	1.71e+03	1.4e+04
20	13C-2,3,4,7,8-PeCDF	4.22e+07	2.39e+03	1.8e+04	2.60e+07	1.71e+03	1.5e+04
21	13C-1,2,3,4,7,8-HxCDF	2.07e+07	2.16e+03	9.6e+03	3.93e+07	5.29e+03	7.4e+03
22	13C-1,2,3,6,7,8-HxCDF	2.36e+07	2.16e+03	1.1e+04	4.45e+07	5.29e+03	8.4e+03
23	13C-2,3,4,6,7,8-HxCDF	2.32e+07	2.16e+03	1.1e+04	4.39e+07	5.29e+03	8.3e+03
24	13C-1,2,3,7,8,9-HxCDF	1.94e+07	2.16e+03	8.9e+03	3.69e+07	5.29e+03	7.0e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.76e+07	7.69e+03	2.3e+03	3.85e+07	2.07e+04	1.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.41e+07	7.69e+03	1.8e+03	3.12e+07	2.07e+04	1.5e+03
27	13C-2,3,7,8-TCDD	1.74e+07	1.66e+04	1.0e+03	2.17e+07	7.77e+03	2.8e+03
28	13C-1,2,3,7,8-PeCDD	2.92e+07	3.94e+03	7.4e+03	1.87e+07	3.45e+03	5.4e+03
29	13C-1,2,3,4,7,8-HxCDD	2.82e+07	5.37e+03	5.3e+03	2.21e+07	2.98e+03	7.4e+03
30	13C-1,2,3,6,7,8-HxCDD	2.61e+07	5.37e+03	4.9e+03	2.11e+07	2.98e+03	7.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.24e+07	3.06e+03	7.3e+03	2.12e+07	2.68e+03	7.9e+03
32	13C-OCDD	2.74e+07	2.09e+03	1.3e+04	3.02e+07	1.61e+03	1.9e+04
33	13C-1,2,3,4-TCDD	1.78e+07	1.66e+04	1.1e+03	2.20e+07	7.77e+03	2.8e+03
34	13C-1,2,3,7,8,9-HxCDD	2.99e+07	5.37e+03	5.6e+03	2.35e+07	2.98e+03	7.9e+03
35	37Cl-2,3,7,8-TCDD	8.73e+05	3.54e+03	2.5e+02			

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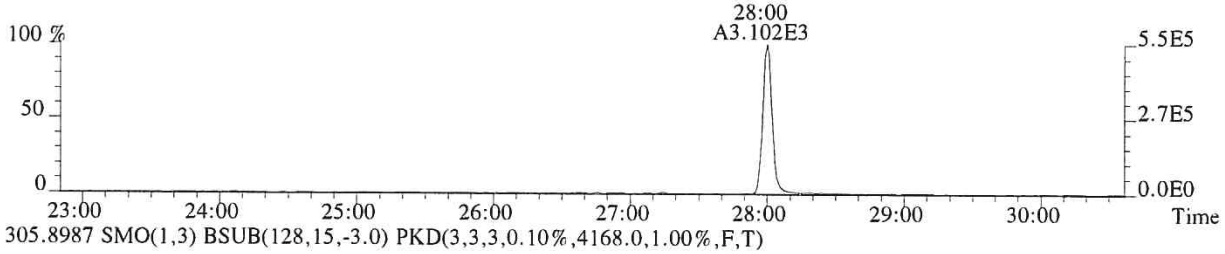
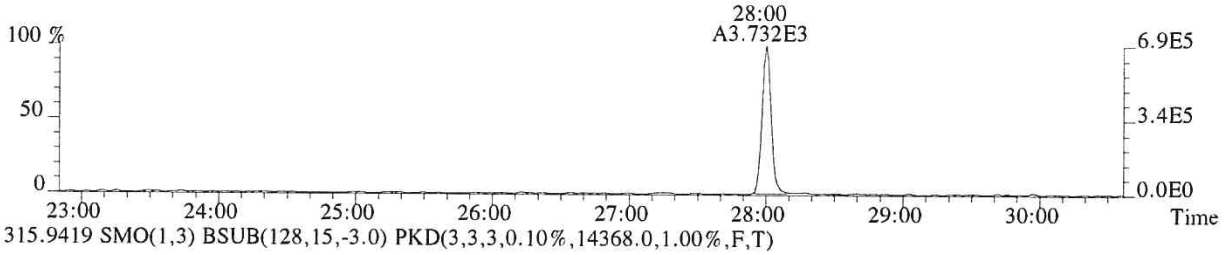
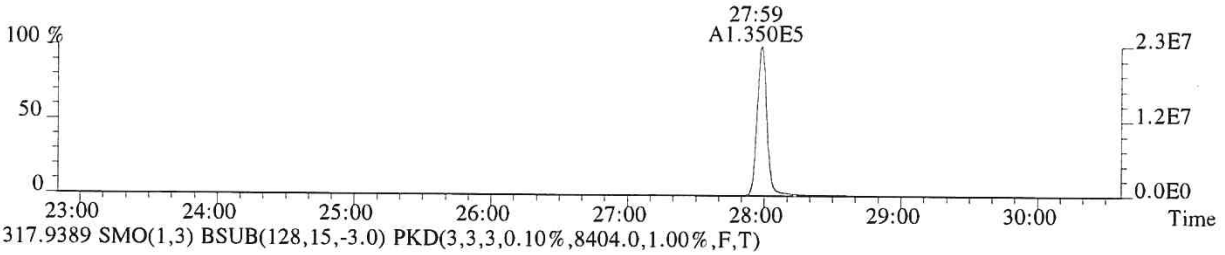
File:P614684 #1-552 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1352.0,1.00%,F,T)



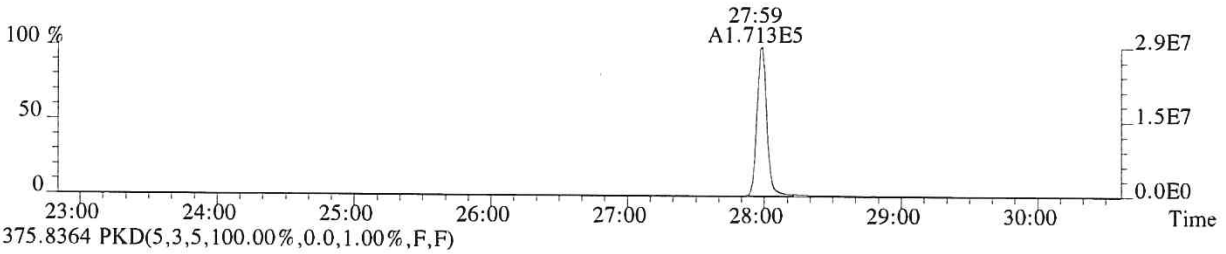
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4168.0,1.00%,F,T)



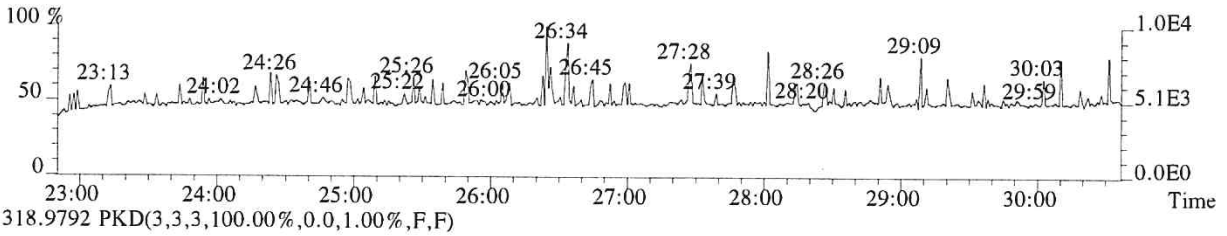
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,14368.0,1.00%,F,T)



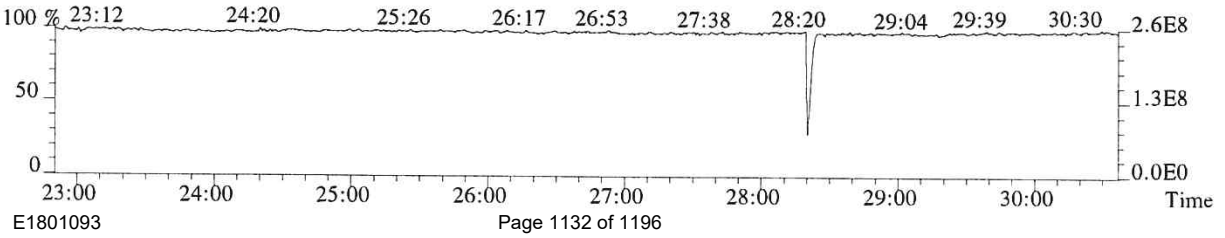
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8404.0,1.00%,F,T)



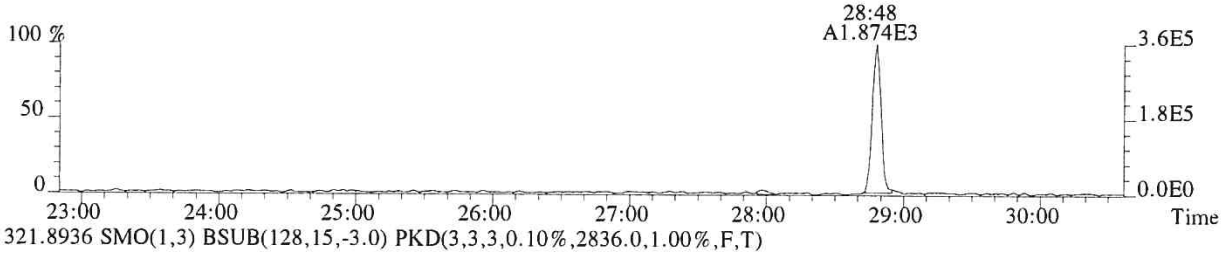
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



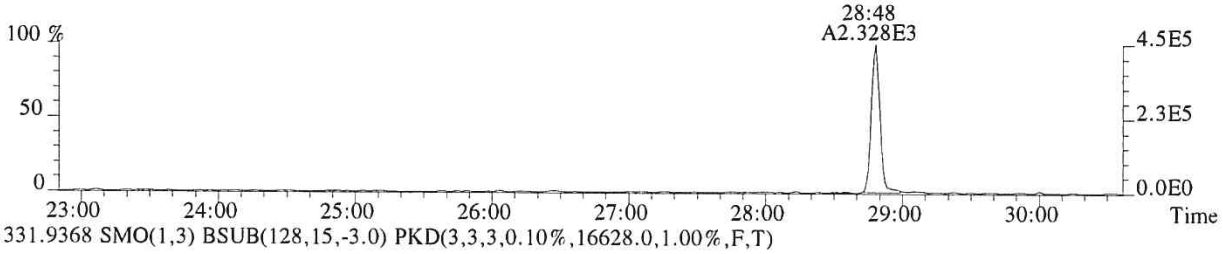
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



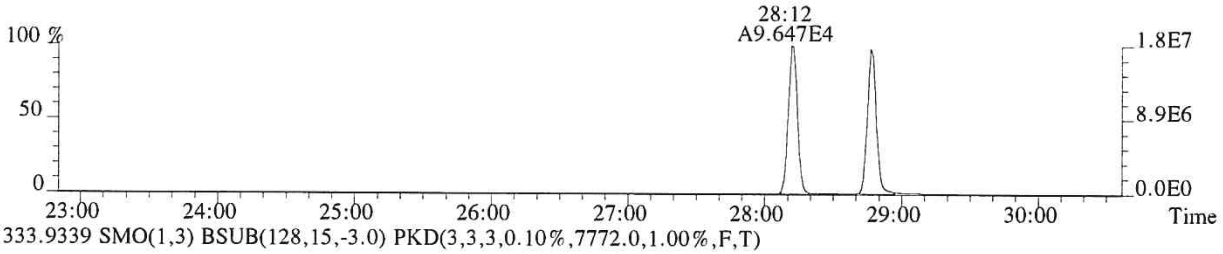
File:P614684 #1-552 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5080.0,1.00%,F,T)



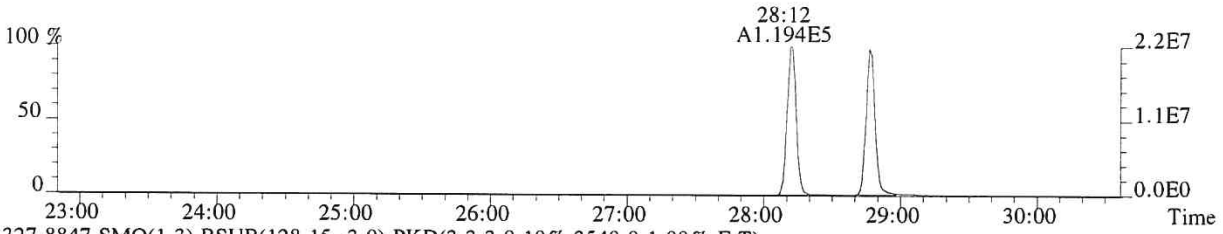
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2836.0,1.00%,F,T)



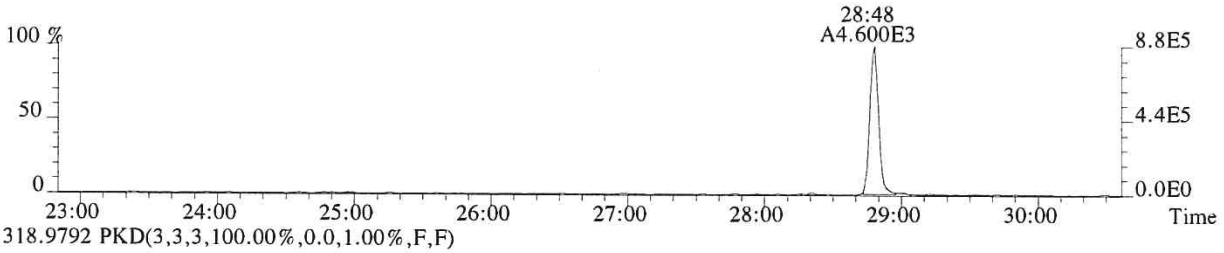
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,16628.0,1.00%,F,T)



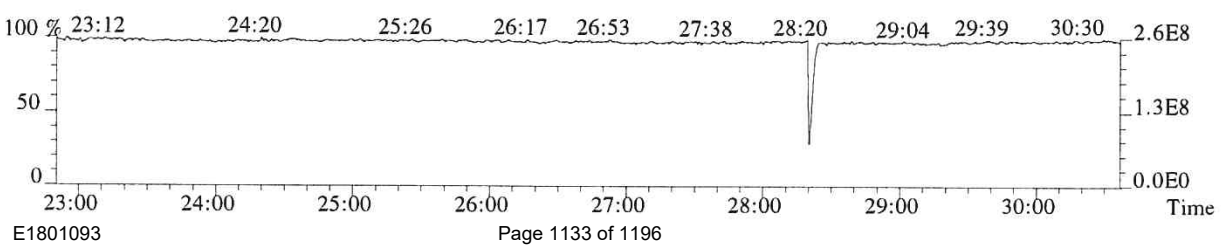
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7772.0,1.00%,F,T)



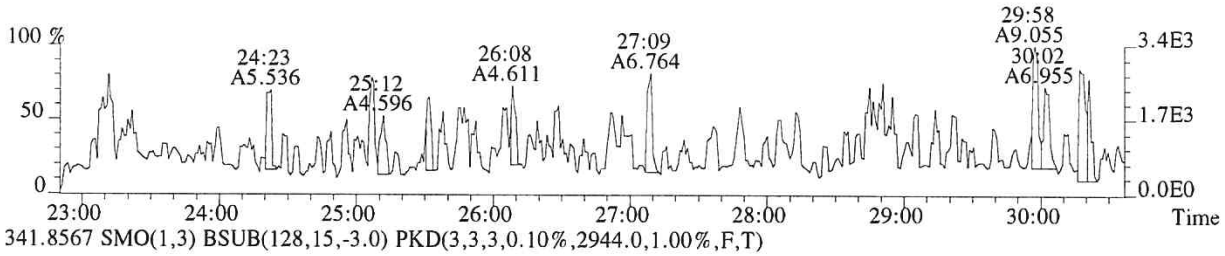
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3540.0,1.00%,F,T)



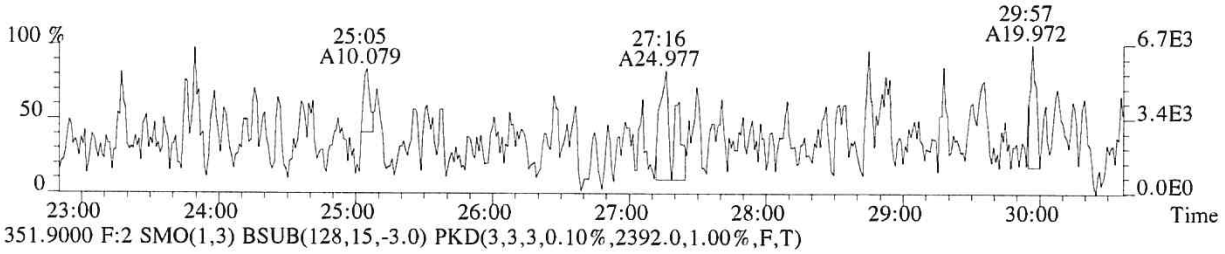
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



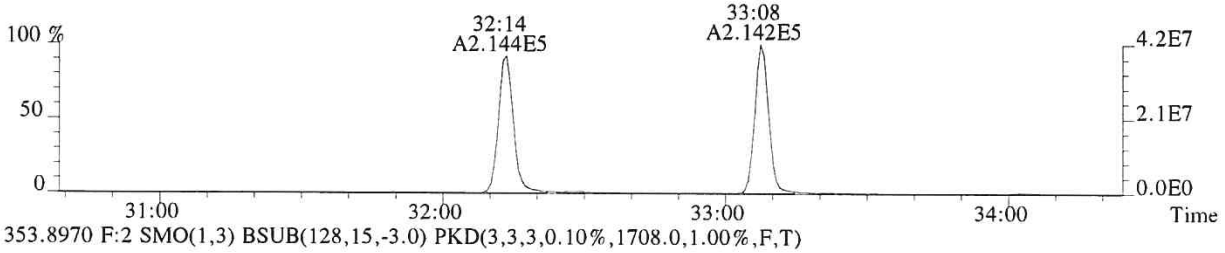
File:P614684 #1-552 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1084.0,1.00%,F,T)



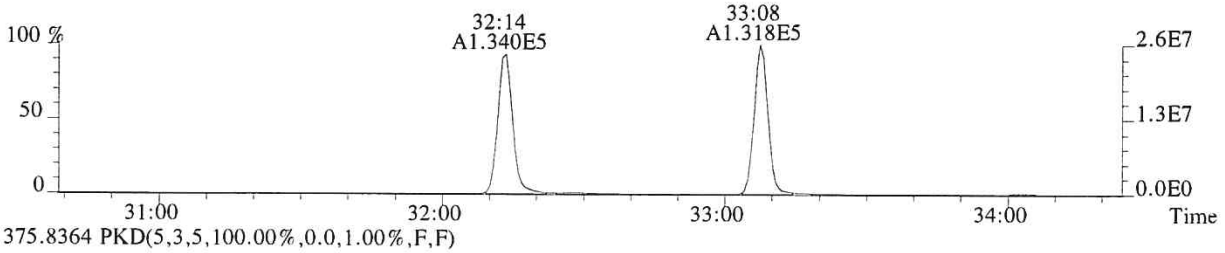
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2944.0,1.00%,F,T)



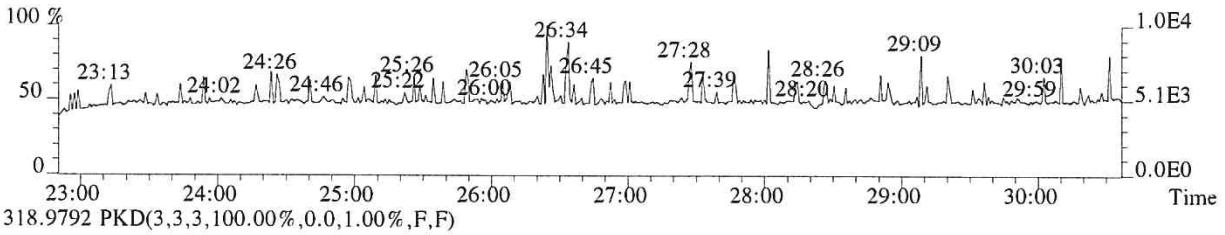
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2392.0,1.00%,F,T)



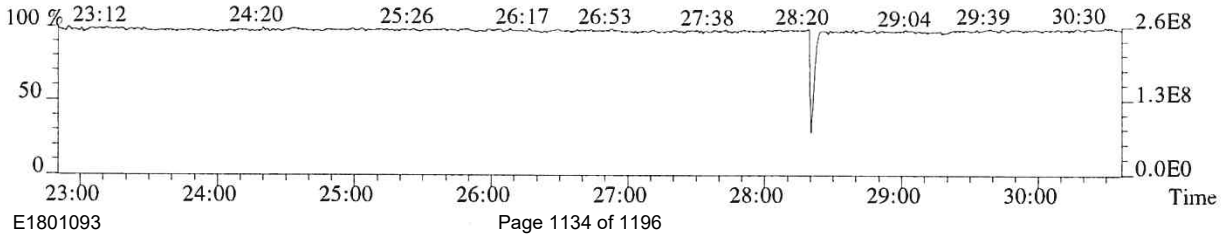
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1708.0,1.00%,F,T)



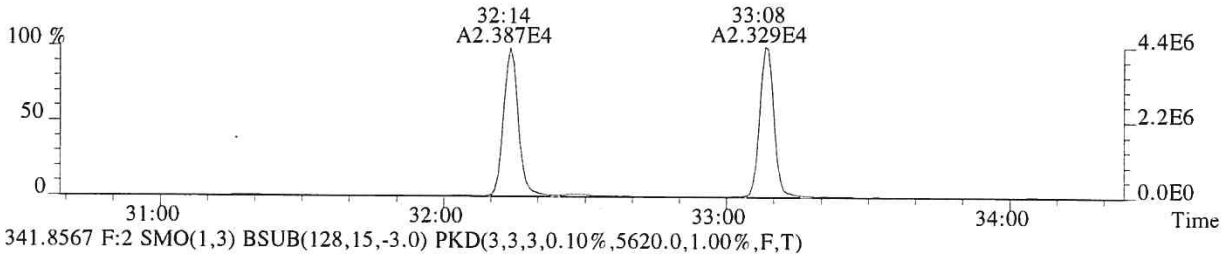
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



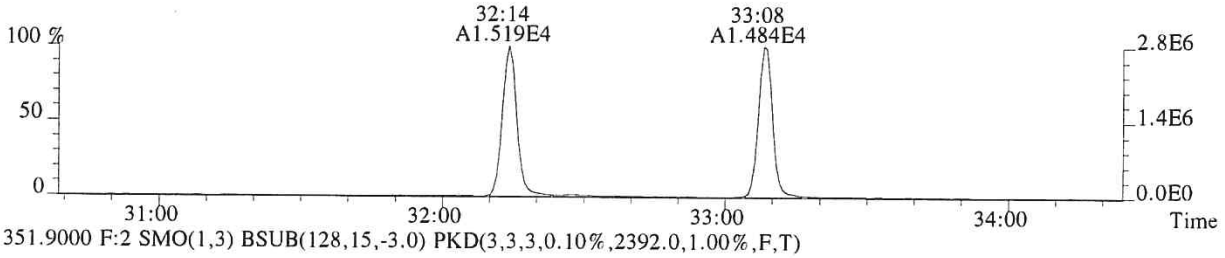
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



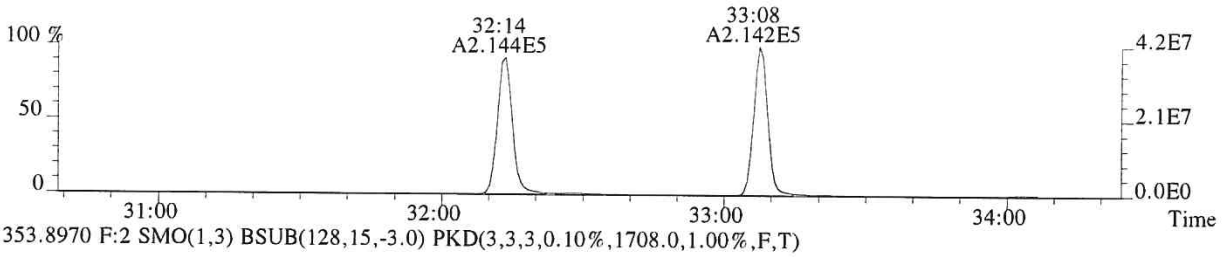
File:P614684 #1-339 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1188.0,1.00%,F,T)



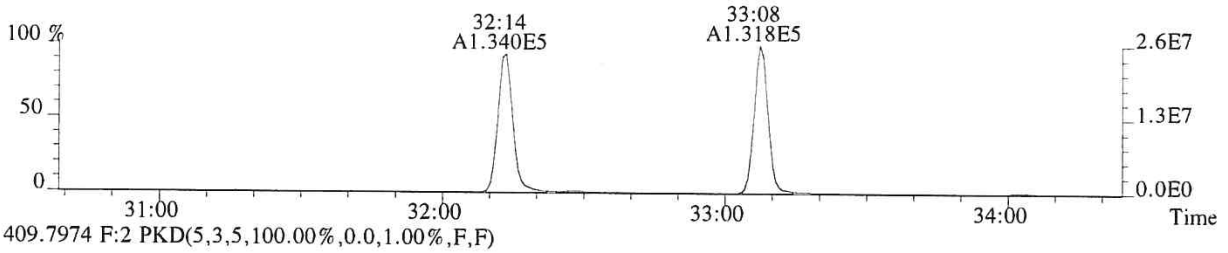
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5620.0,1.00%,F,T)



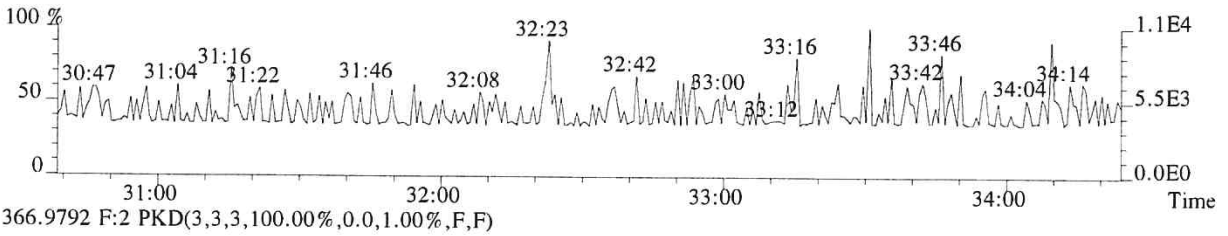
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2392.0,1.00%,F,T)



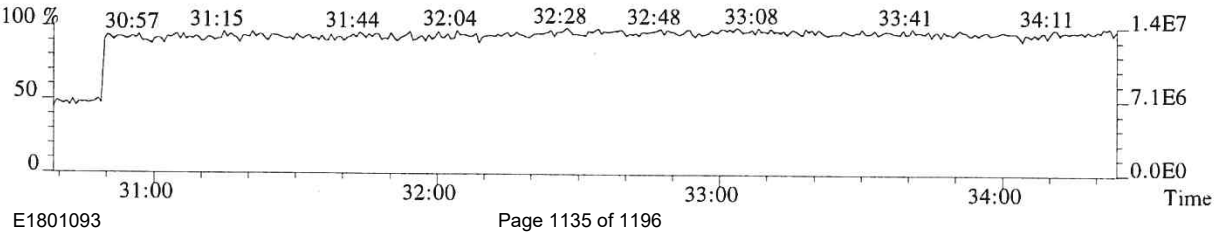
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1708.0,1.00%,F,T)



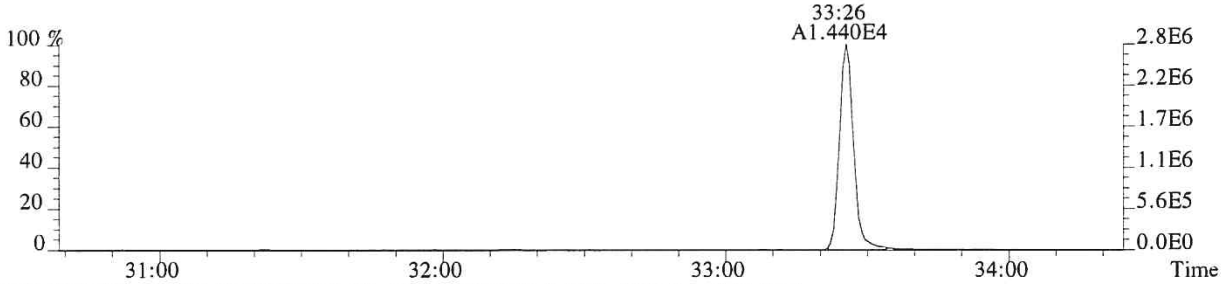
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



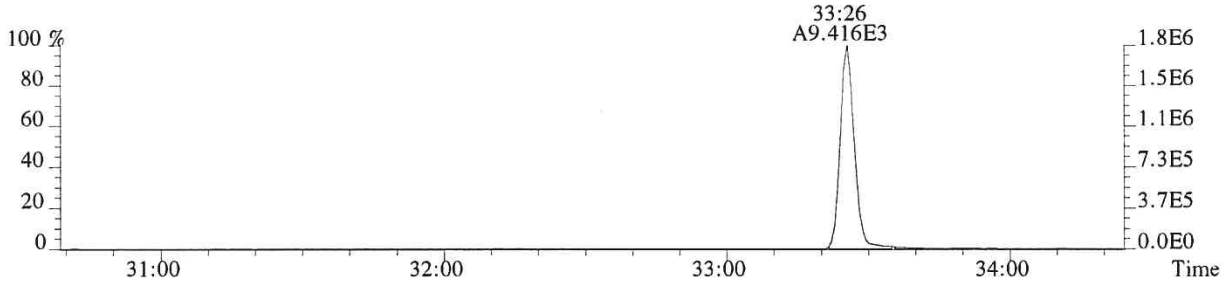
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



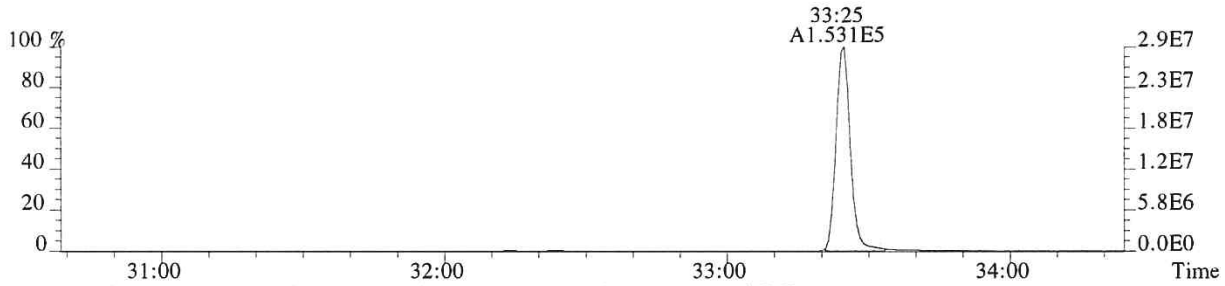
File:P614684 #1-339 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2228.0,1.00%,F,T)



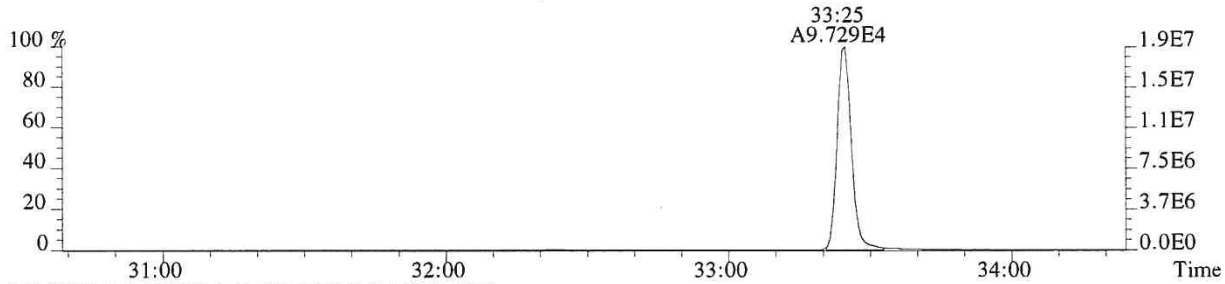
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



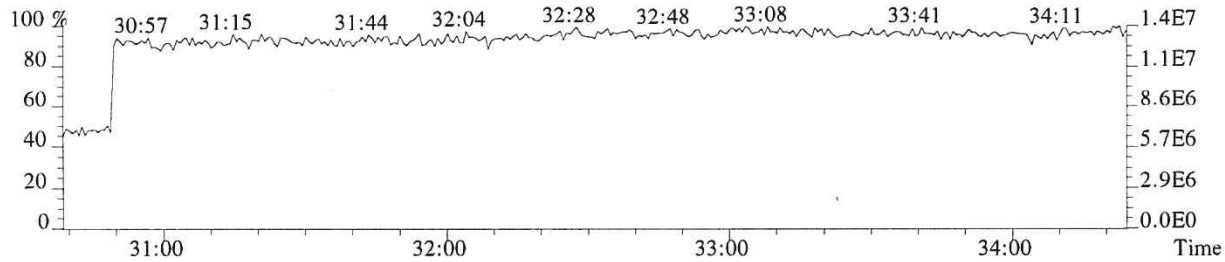
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3936.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3448.0,1.00%,F,T)

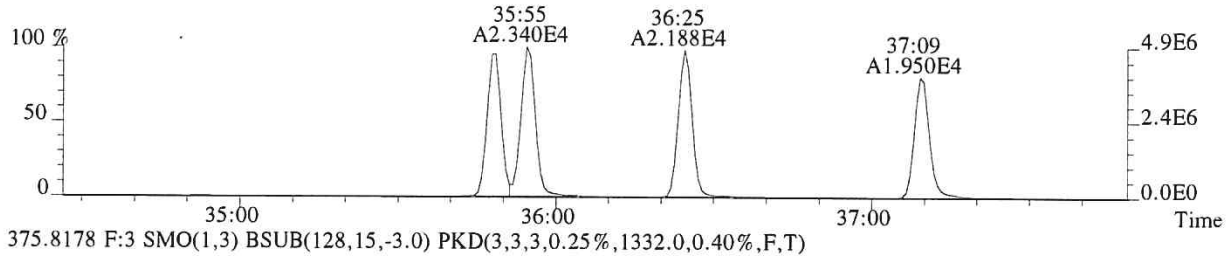


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

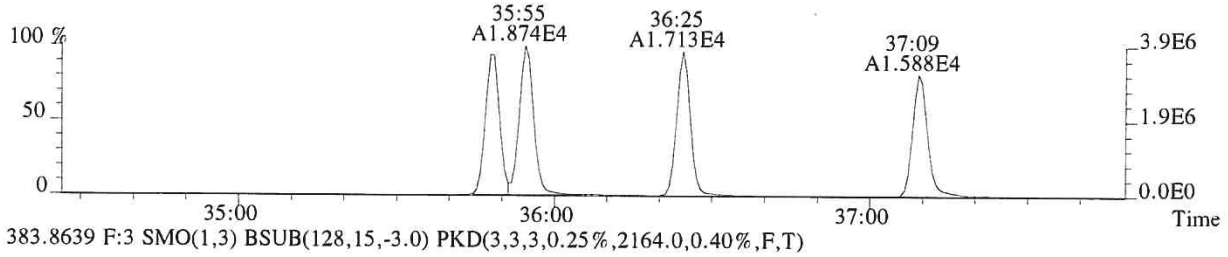


014936

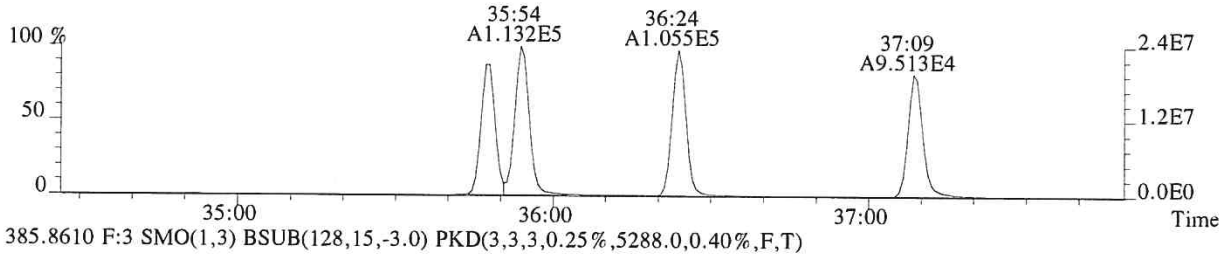
File:P614684 #1-304 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2656.0,0.40%,F,T)



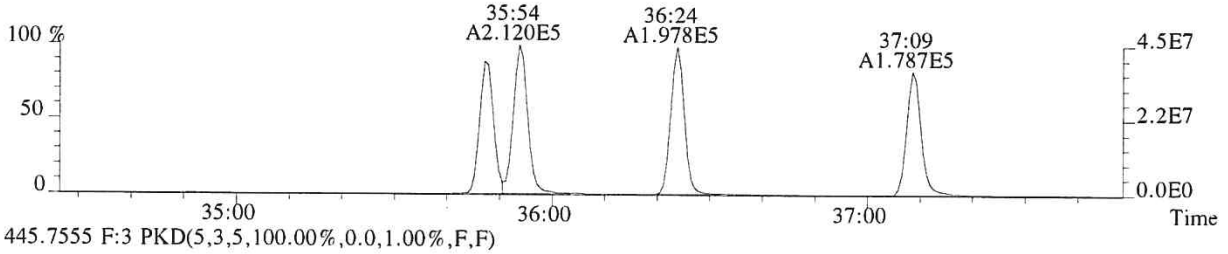
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1332.0,0.40%,F,T)



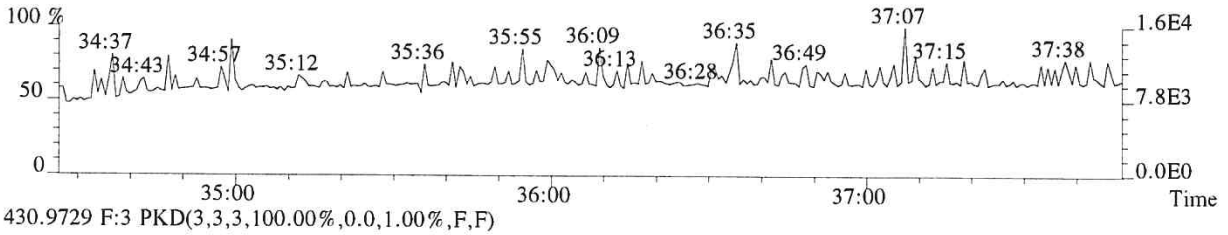
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2164.0,0.40%,F,T)



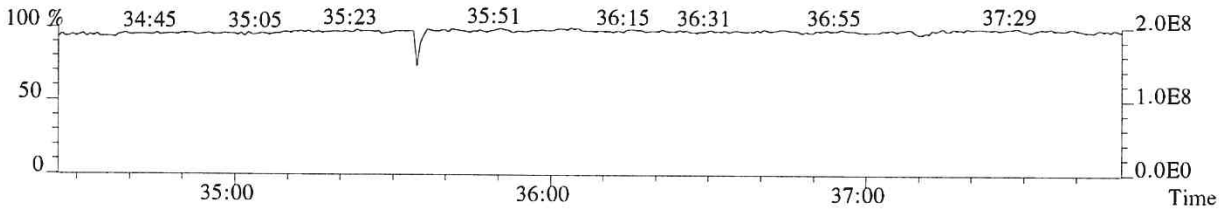
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5288.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

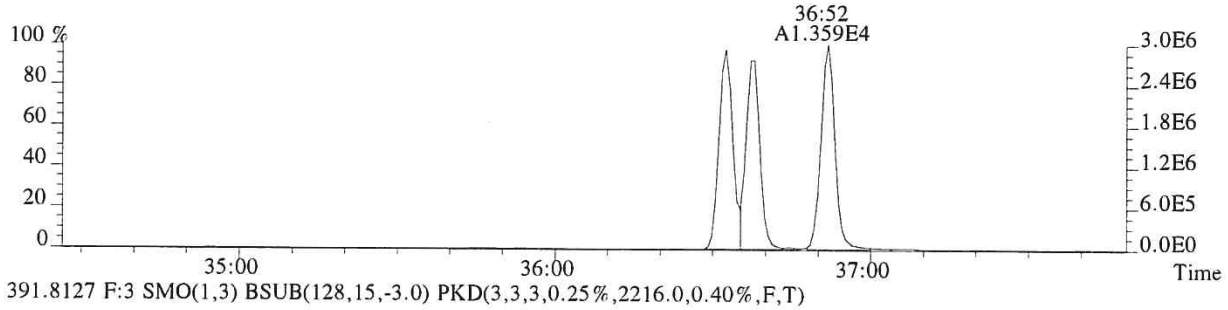


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

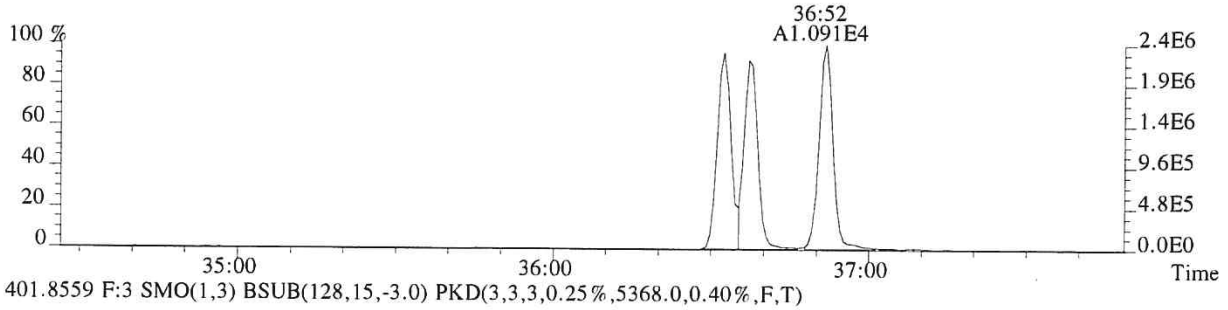


014937

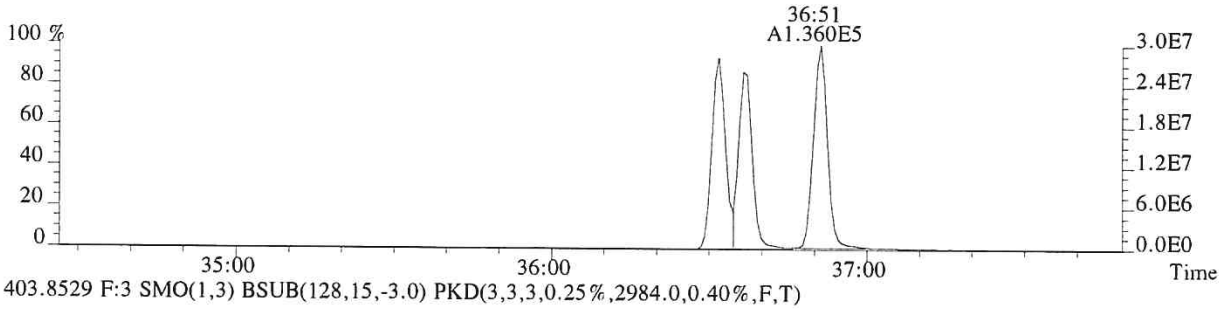
File:P614684 #1-304 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1156.0,0.40%,F,T)



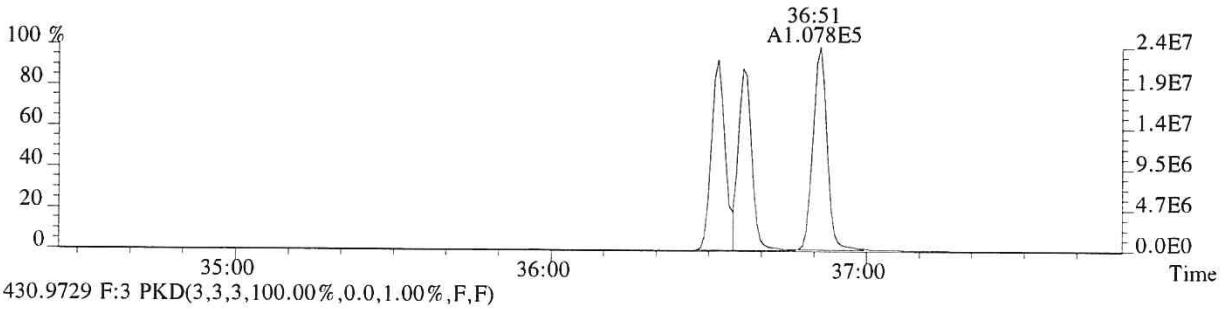
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2216.0,0.40%,F,T)



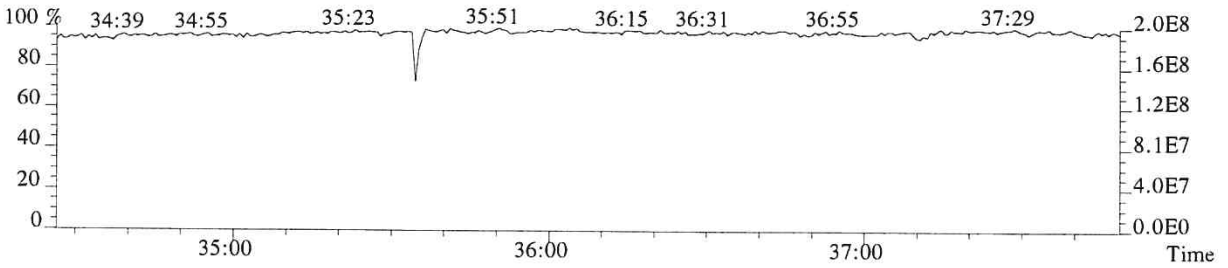
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5368.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2984.0,0.40%,F,T)

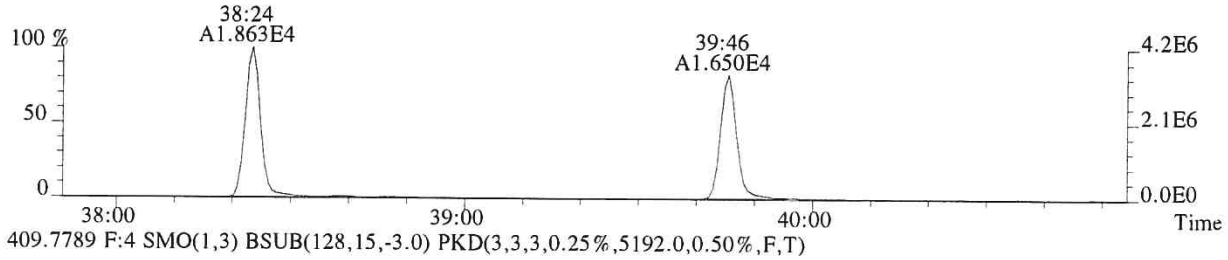


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

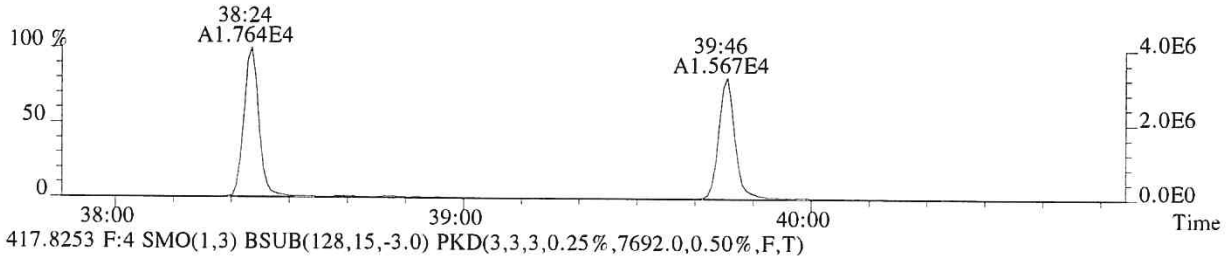


014938

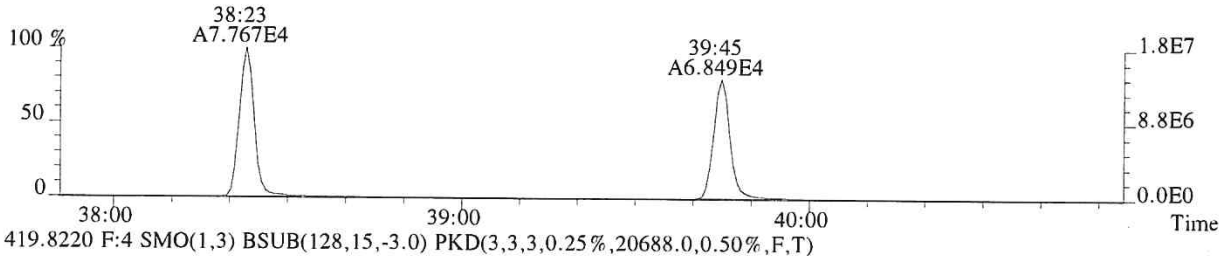
File:P614684 #1-276 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4060.0,0.50%,F,T)



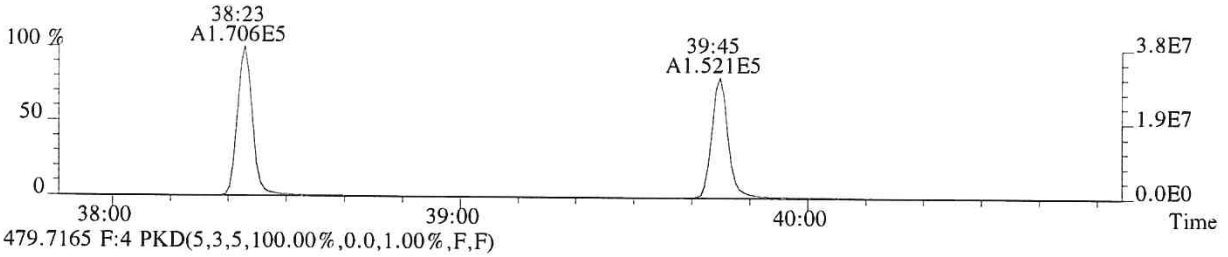
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5192.0,0.50%,F,T)



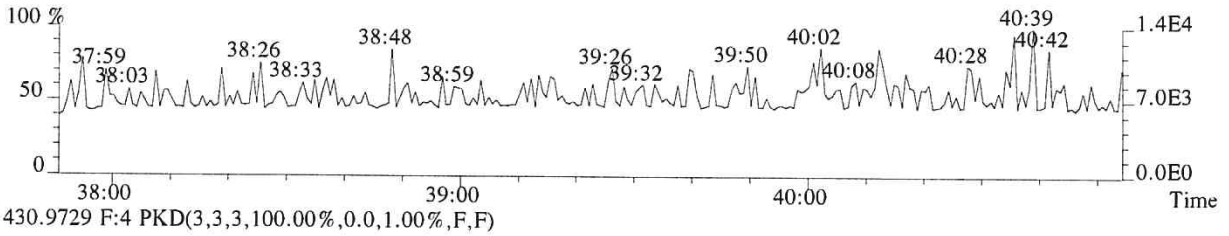
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7692.0,0.50%,F,T)



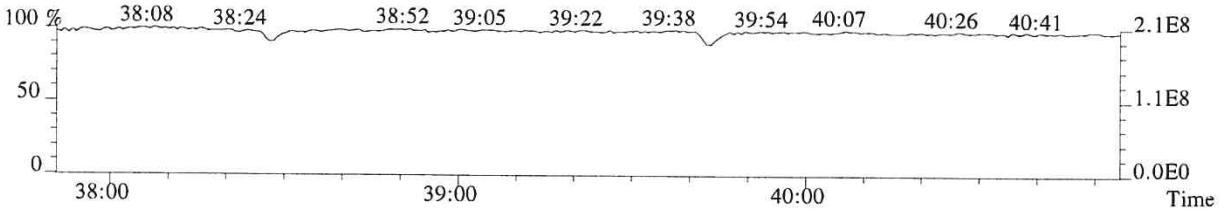
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,20688.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

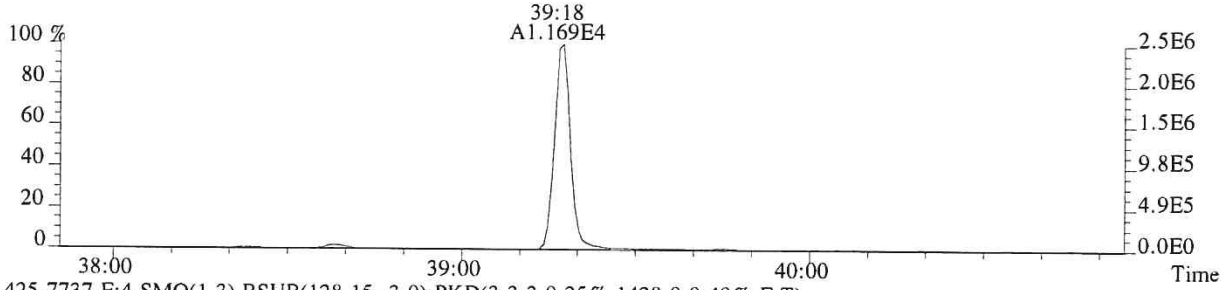


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

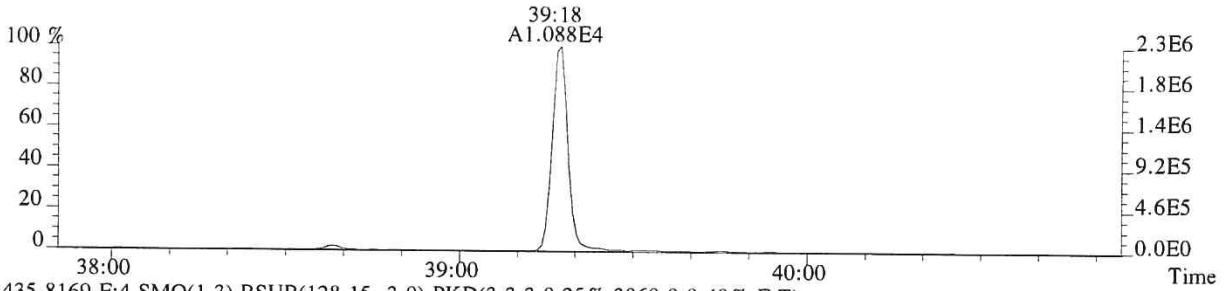


014939

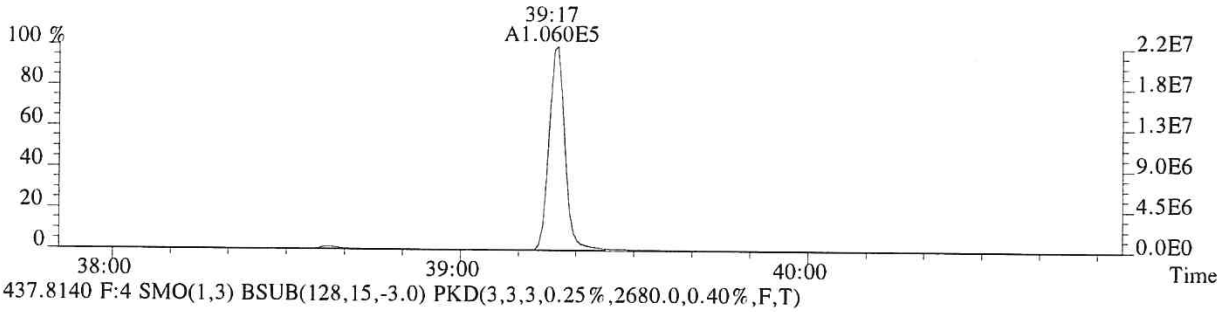
File:P614684 #1-276 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1224.0,0.40%,F,T)



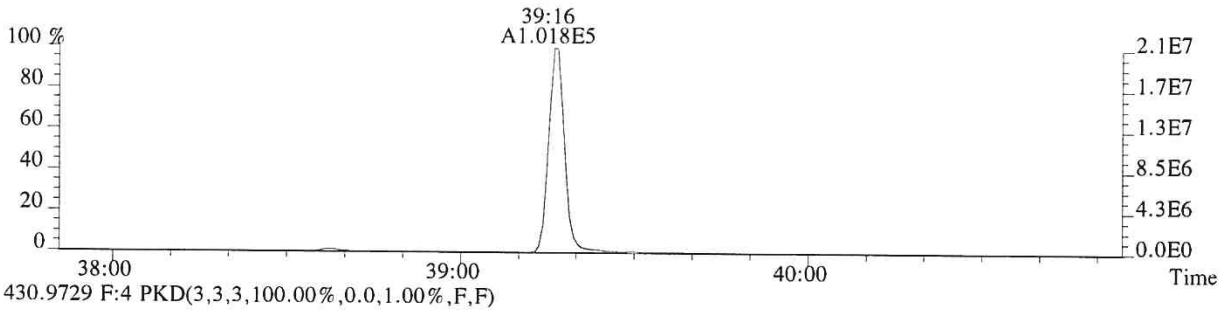
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1428.0,0.40%,F,T)



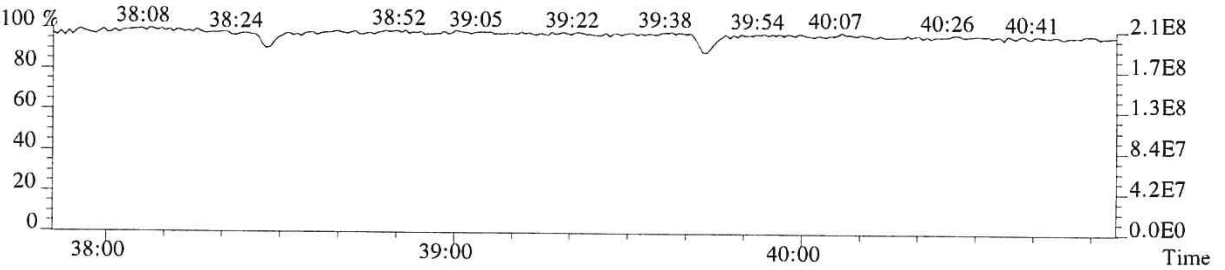
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3060.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2680.0,0.40%,F,T)

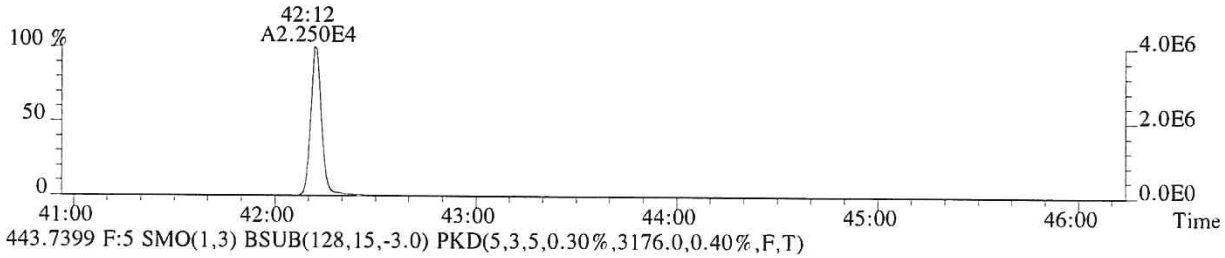


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

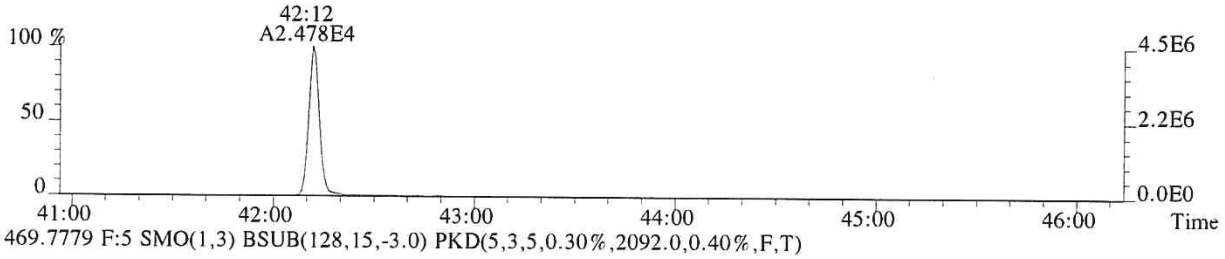


014940

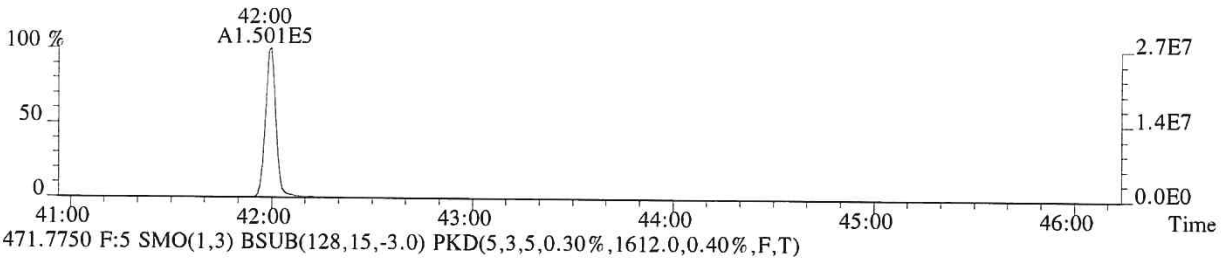
File:P614684 #1-477 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1020.0,0.40%,F,T)



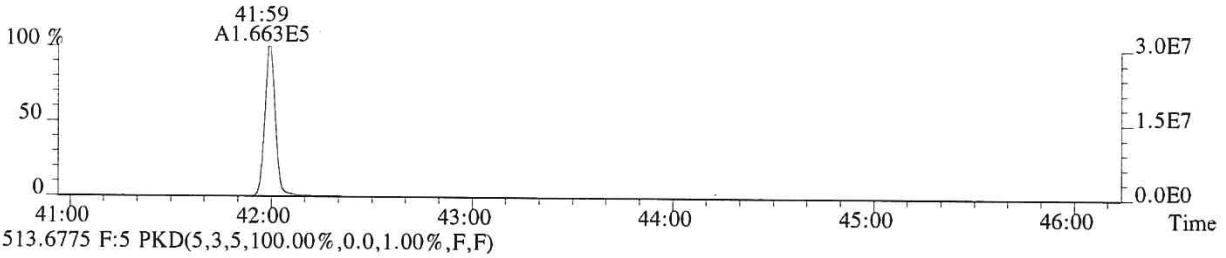
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3176.0,0.40%,F,T)



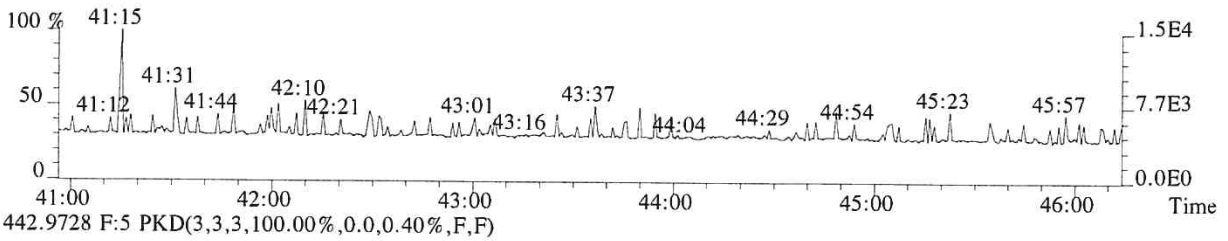
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2092.0,0.40%,F,T)



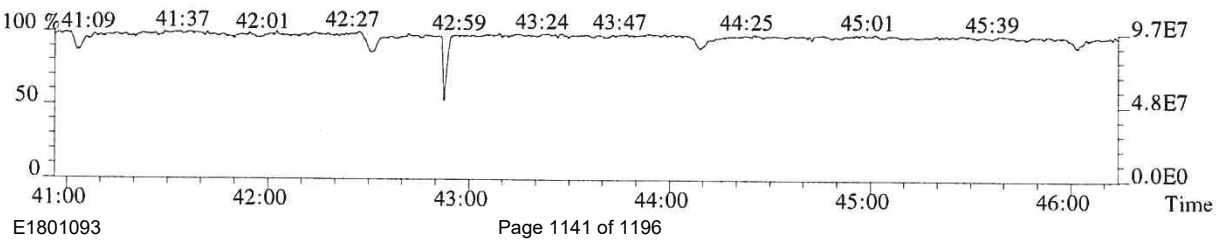
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1612.0,0.40%,F,T)



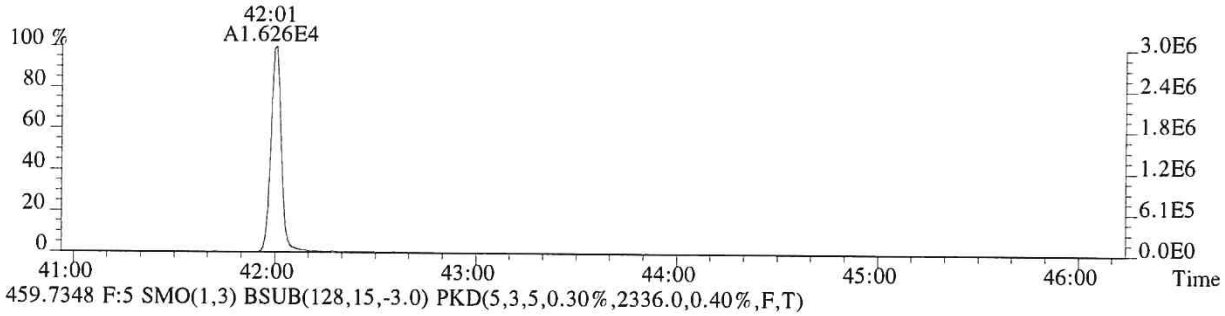
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



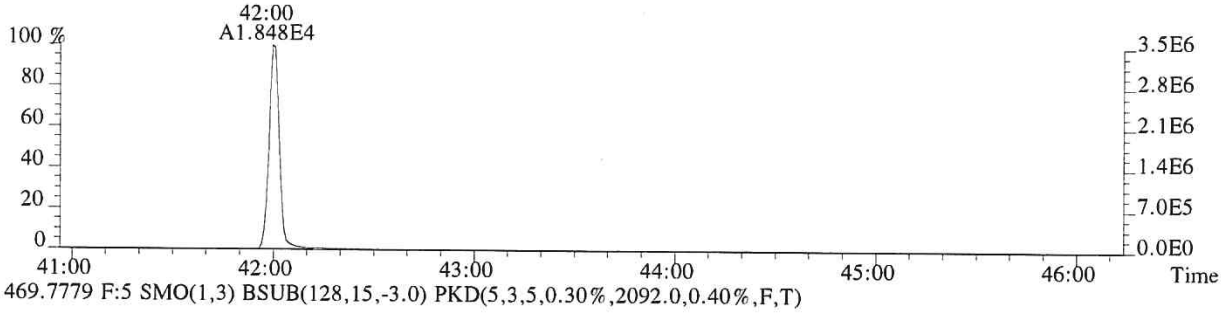
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



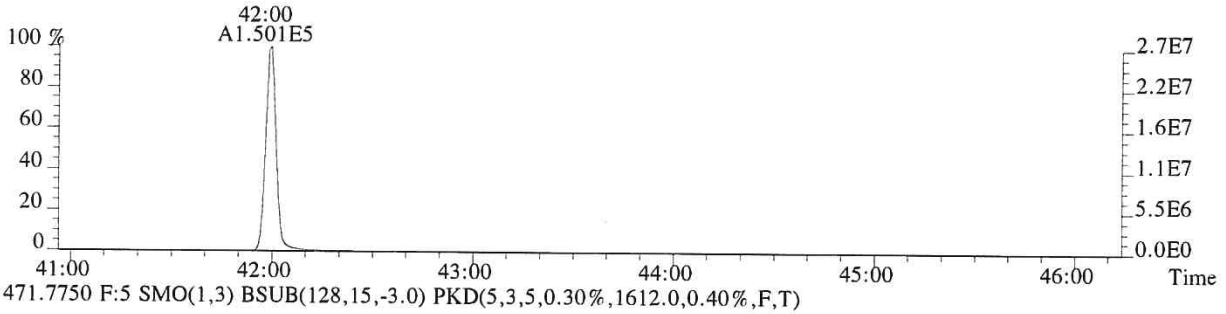
File:P614684 #1-477 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,824.0,0.40%,F,T)



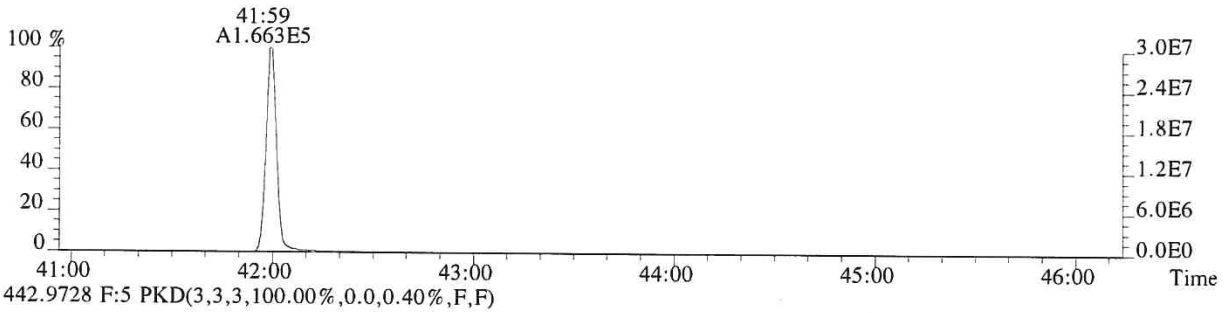
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2336.0,0.40%,F,T)



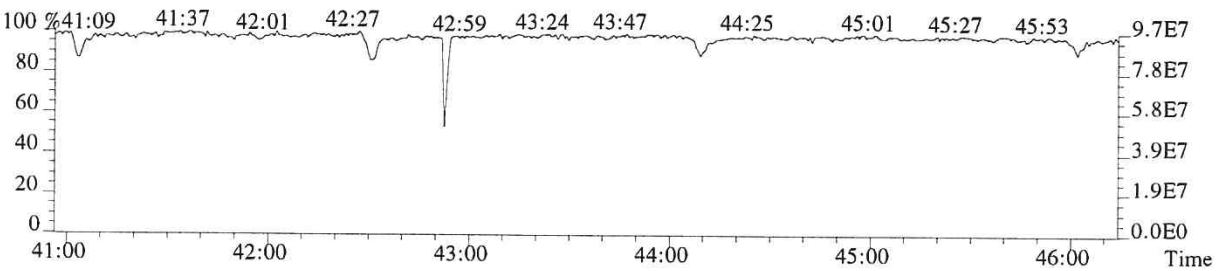
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2092.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1612.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



014942

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76557

Run #4 Filename P614685 Samp: 1 Inj: 1 Acquired: 25-SEP-18 16:52:47
Processed: 26-SEP-18 07:39:09 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:01	3.637e+04	4.546e+04	0.80	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:15	3.073e+05	1.939e+05	1.58	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:09	2.818e+05	1.782e+05	1.58	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	2.774e+05	2.200e+05	1.26	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	2.905e+05	2.295e+05	1.27	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	2.685e+05	2.105e+05	1.28	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:10	2.537e+05	1.982e+05	1.28	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	2.407e+05	2.292e+05	1.05	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	1.925e+05	1.847e+05	1.04	yes	no	1.463
10	Unk	OCDF	42:13	3.041e+05	3.309e+05	0.92	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:48	2.365e+04	3.051e+04	0.78	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	1.706e+05	1.098e+05	1.55	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	1.645e+05	1.238e+05	1.33	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:38	1.567e+05	1.272e+05	1.23	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:53	1.702e+05	1.368e+05	1.24	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	1.477e+05	1.392e+05	1.06	yes	no	1.112
17	Unk	OCDD	42:01	2.180e+05	2.422e+05	0.90	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:59	3.444e+05	4.352e+05	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	5.358e+05	3.352e+05	1.60	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	5.234e+05	3.254e+05	1.61	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	2.524e+05	4.773e+05	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	2.834e+05	5.294e+05	0.54	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	2.621e+05	4.867e+05	0.54	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	2.431e+05	4.520e+05	0.54	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:24	1.967e+05	4.289e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:46	1.638e+05	3.571e+05	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	2.330e+05	2.909e+05	0.80	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:25	3.758e+05	2.372e+05	1.58	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:33	3.106e+05	2.345e+05	1.32	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:37	2.932e+05	2.439e+05	1.20	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	2.673e+05	2.524e+05	1.06	yes	no	0.857
32	IS	13C-OCDD	42:00	3.863e+05	4.247e+05	0.91	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:13	2.395e+05	3.006e+05	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:52	3.335e+05	2.694e+05	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	5.645e+04				no	1.086

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76557

Run #4 Filename P614685 Samp: 1 Inj: 1 Acquired: 25-SEP-18 16:52:47
Processed: 26-SEP-18 07:39:09 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	6.55e+06	2.18e+03	3.0e+03	8.17e+06	4.39e+03	1.9e+03
2	1,2,3,7,8-PeCDF	5.78e+07	2.87e+03	2.0e+04	3.64e+07	4.35e+03	8.4e+03
3	2,3,4,7,8-PeCDF	5.79e+07	2.87e+03	2.0e+04	3.65e+07	4.35e+03	8.4e+03
4	1,2,3,4,7,8-HxCDF	6.15e+07	2.89e+03	2.1e+04	4.93e+07	2.08e+03	2.4e+04
5	1,2,3,6,7,8-HxCDF	6.26e+07	2.89e+03	2.2e+04	4.97e+07	2.08e+03	2.4e+04
6	2,3,4,6,7,8-HxCDF	6.14e+07	2.89e+03	2.1e+04	4.79e+07	2.08e+03	2.3e+04
7	1,2,3,7,8,9-HxCDF	5.42e+07	2.89e+03	1.9e+04	4.26e+07	2.08e+03	2.0e+04
8	1,2,3,4,6,7,8-HpCDF	5.56e+07	1.47e+04	3.8e+03	5.23e+07	1.66e+04	3.1e+03
9	1,2,3,4,7,8,9-HpCDF	3.99e+07	1.47e+04	2.7e+03	3.80e+07	1.66e+04	2.3e+03
10	OCDF	5.72e+07	1.23e+03	4.7e+04	6.22e+07	3.01e+03	2.1e+04
11	2,3,7,8-TCDD	4.49e+06	5.36e+03	8.4e+02	5.78e+06	2.64e+03	2.2e+03
12	1,2,3,7,8-PeCDD	3.45e+07	2.46e+03	1.4e+04	2.21e+07	1.02e+03	2.2e+04
13	1,2,3,4,7,8-HxCDD	3.72e+07	9.04e+02	4.1e+04	2.90e+07	1.56e+03	1.9e+04
14	1,2,3,6,7,8-HxCDD	3.60e+07	9.04e+02	4.0e+04	2.81e+07	1.56e+03	1.8e+04
15	1,2,3,7,8,9-HxCDD	3.80e+07	9.04e+02	4.2e+04	3.00e+07	1.56e+03	1.9e+04
16	1,2,3,4,6,7,8-HpCDD	3.19e+07	1.58e+03	2.0e+04	3.06e+07	1.63e+03	1.9e+04
17	OCDD	4.21e+07	1.71e+03	2.5e+04	4.66e+07	1.53e+03	3.0e+04
18	13C-2,3,7,8-TCDF	6.23e+07	1.55e+04	4.0e+03	7.90e+07	1.02e+04	7.8e+03
19	13C-1,2,3,7,8-PeCDF	1.00e+08	2.14e+03	4.7e+04	6.28e+07	2.18e+03	2.9e+04
20	13C-2,3,4,7,8-PeCDF	1.07e+08	2.14e+03	5.0e+04	6.66e+07	2.18e+03	3.1e+04
21	13C-1,2,3,4,7,8-HxCDF	5.63e+07	2.92e+03	1.9e+04	1.07e+08	4.60e+03	2.3e+04
22	13C-1,2,3,6,7,8-HxCDF	6.12e+07	2.92e+03	2.1e+04	1.15e+08	4.60e+03	2.5e+04
23	13C-2,3,4,6,7,8-HxCDF	5.95e+07	2.92e+03	2.0e+04	1.10e+08	4.60e+03	2.4e+04
24	13C-1,2,3,7,8,9-HxCDF	5.22e+07	2.92e+03	1.8e+04	9.74e+07	4.60e+03	2.1e+04
25	13C-1,2,3,4,6,7,8-HpCDF	4.59e+07	1.18e+04	3.9e+03	9.95e+07	3.82e+04	2.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.37e+07	1.18e+04	2.9e+03	7.29e+07	3.82e+04	1.9e+03
27	13C-2,3,7,8-TCDD	4.45e+07	1.91e+04	2.3e+03	5.53e+07	7.70e+03	7.2e+03
28	13C-1,2,3,7,8-PeCDD	7.50e+07	3.59e+03	2.1e+04	4.74e+07	2.50e+03	1.9e+04
29	13C-1,2,3,4,7,8-HxCDD	6.95e+07	5.55e+03	1.3e+04	5.43e+07	3.18e+03	1.7e+04
30	13C-1,2,3,6,7,8-HxCDD	6.70e+07	5.55e+03	1.2e+04	5.36e+07	3.18e+03	1.7e+04
31	13C-1,2,3,4,6,7,8-HpCDD	5.80e+07	4.72e+03	1.2e+04	5.53e+07	2.63e+03	2.1e+04
32	13C-OCDD	7.33e+07	1.86e+03	4.0e+04	8.10e+07	5.92e+02	1.4e+05
33	13C-1,2,3,4-TCDD	4.48e+07	1.91e+04	2.3e+03	5.67e+07	7.70e+03	7.4e+03
34	13C-1,2,3,7,8,9-HxCDD	7.38e+07	5.55e+03	1.3e+04	5.89e+07	3.18e+03	1.9e+04
35	37Cl-2,3,7,8-TCDD	1.08e+07	3.52e+03	3.1e+03			

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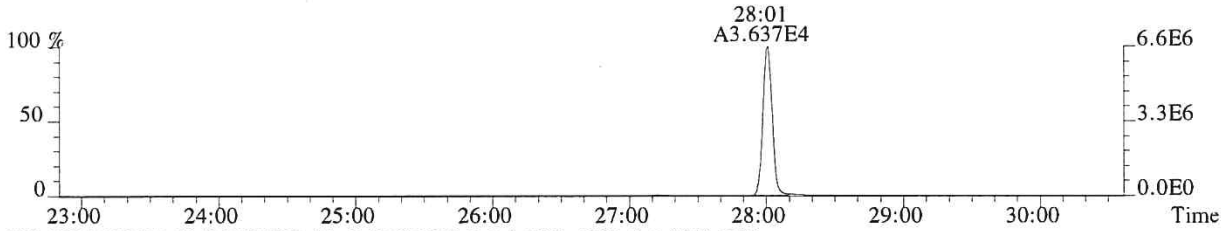
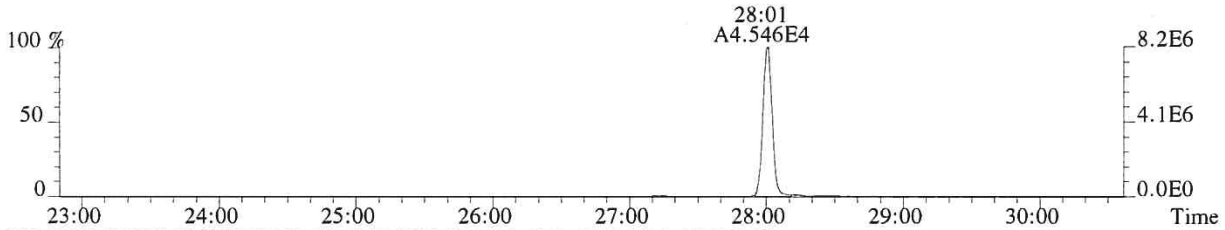
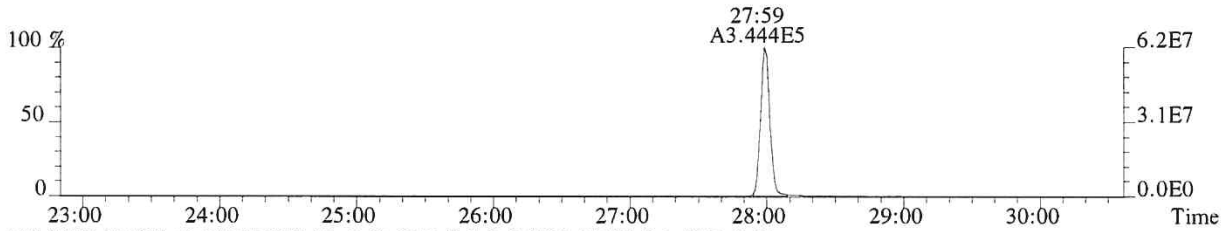
File:P614685 #1-552 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2176.0,1.00%,F,T)



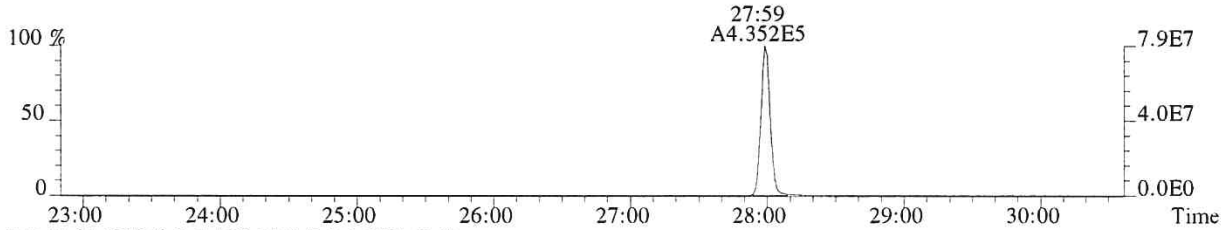
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4392.0,1.00%,F,T)



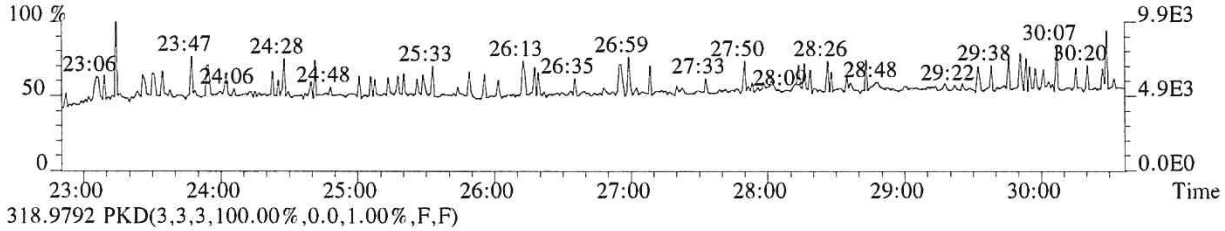
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15516.0,1.00%,F,T)



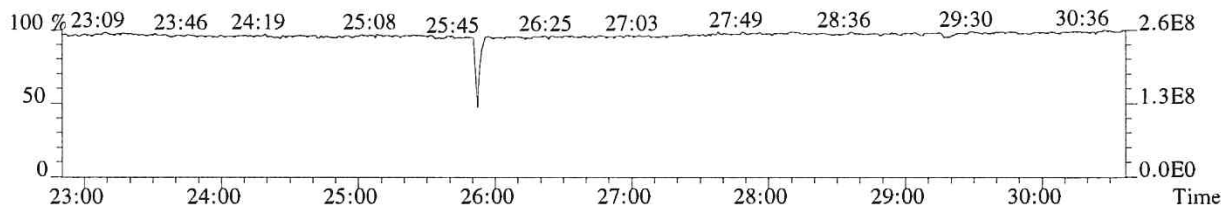
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10180.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

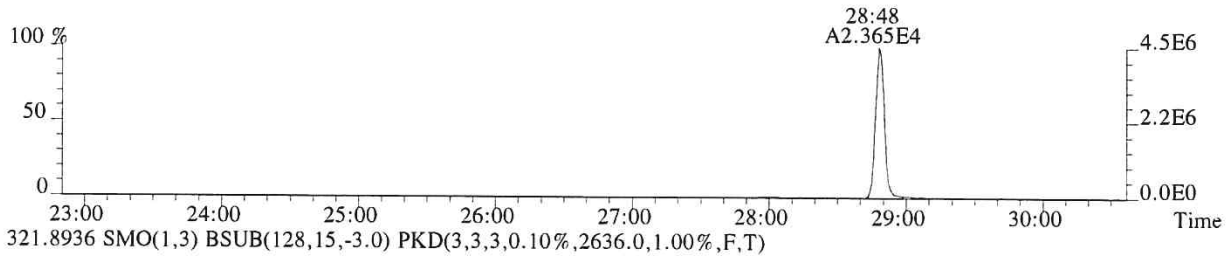


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

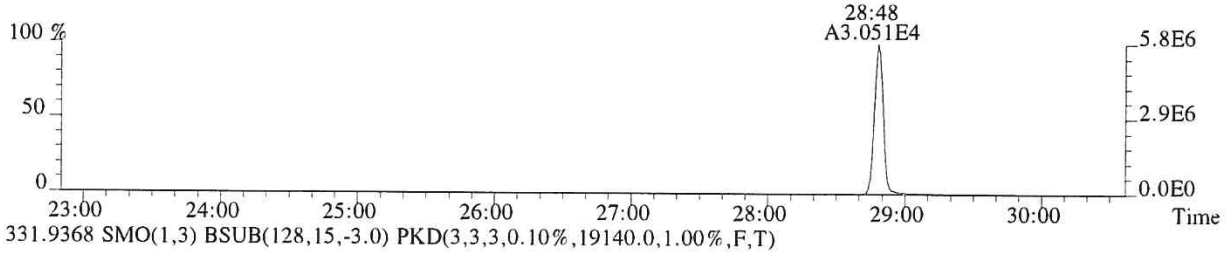


014945

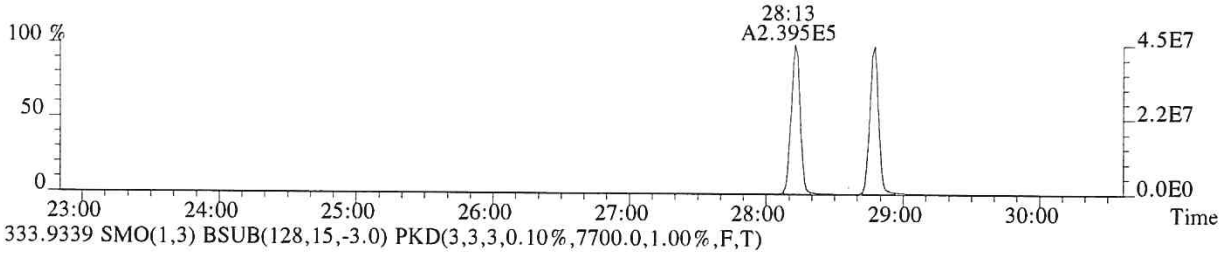
File:P614685 #1-552 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5364.0,1.00%,F,T)



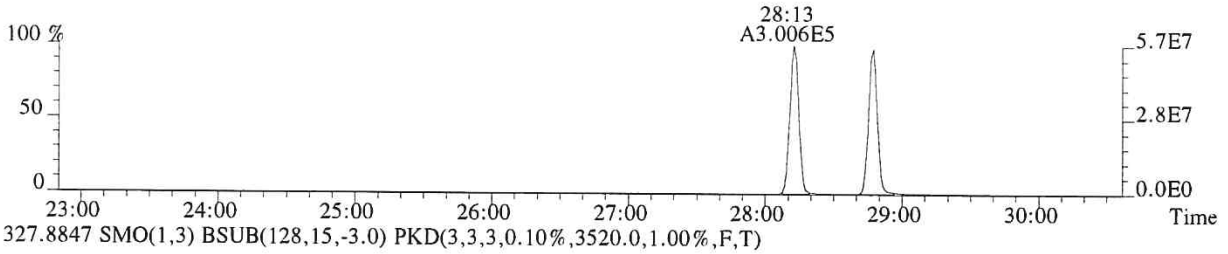
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2636.0,1.00%,F,T)



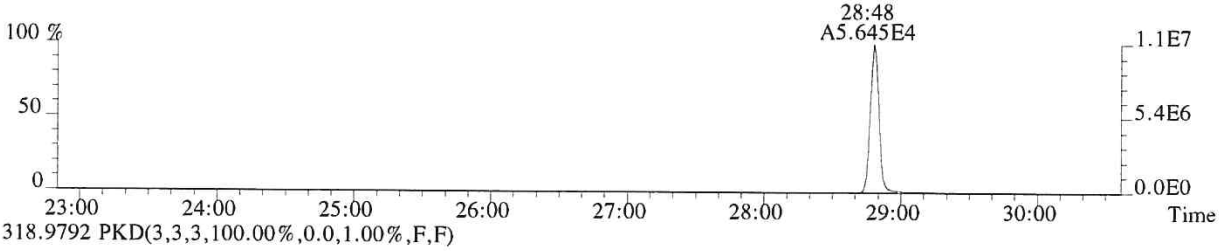
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,19140.0,1.00%,F,T)



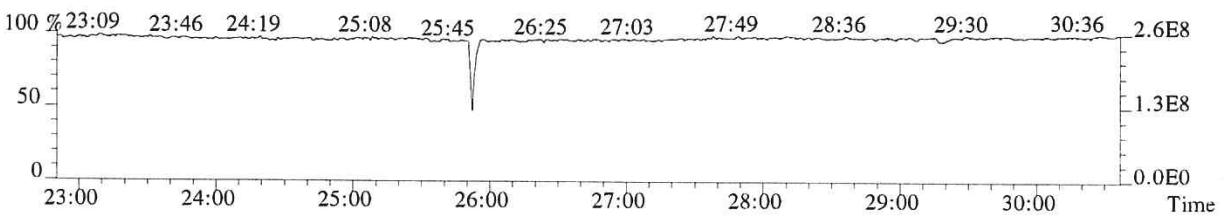
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7700.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3520.0,1.00%,F,T)

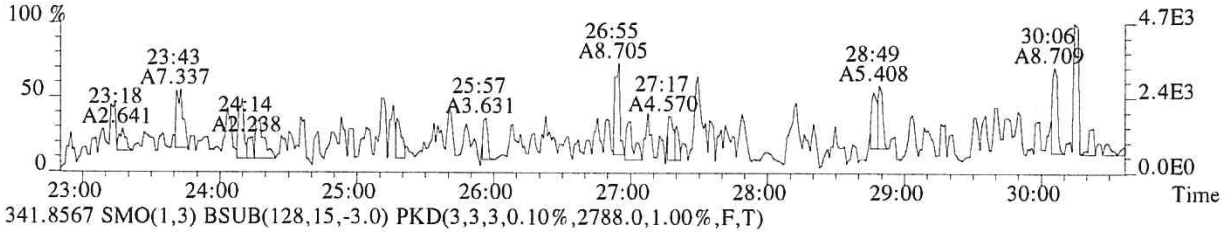


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

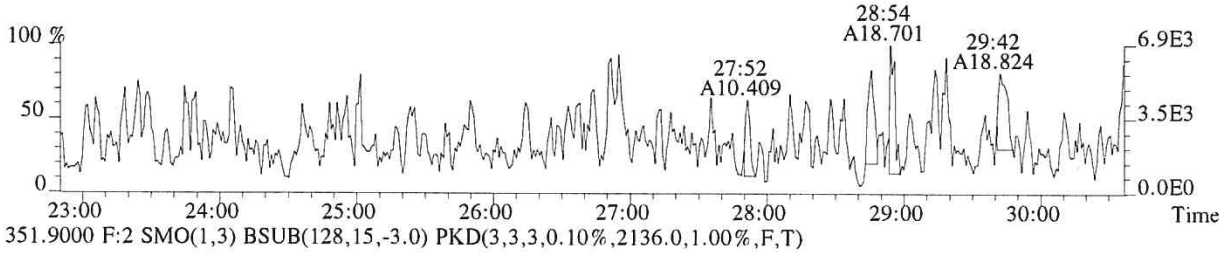


014946

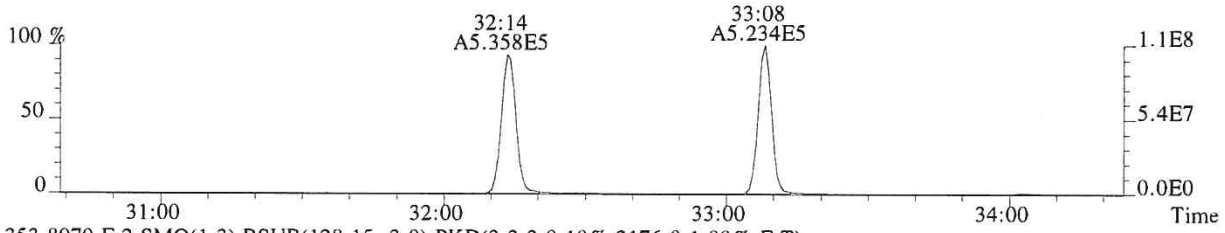
File:P614685 #1-552 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1116.0,1.00%,F,T)



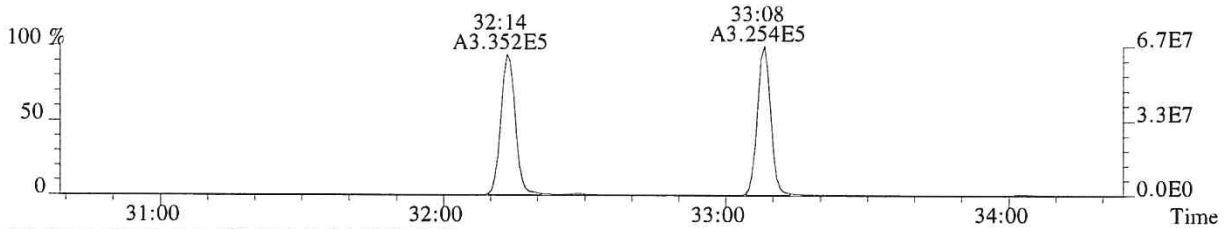
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2788.0,1.00%,F,T)



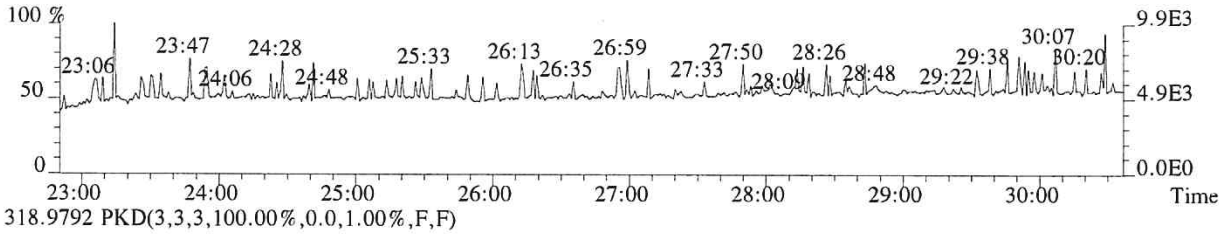
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2136.0,1.00%,F,T)



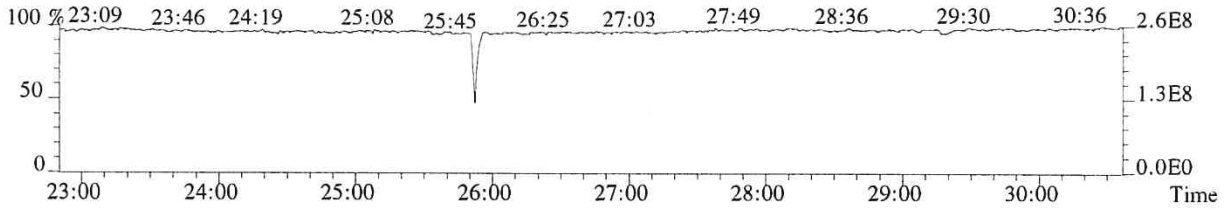
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2176.0,1.00%,F,T)



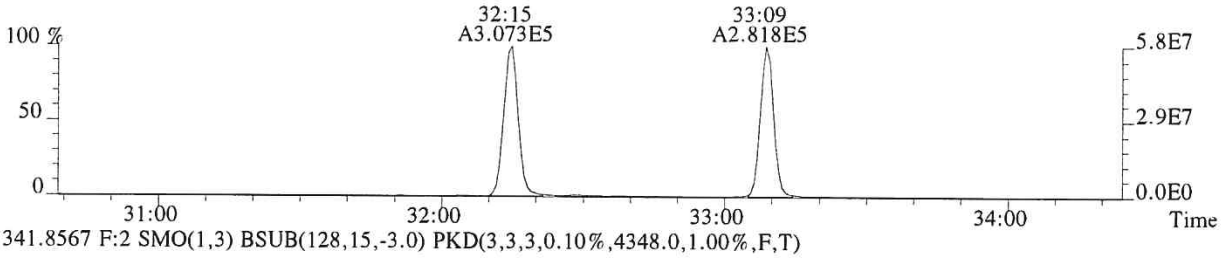
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



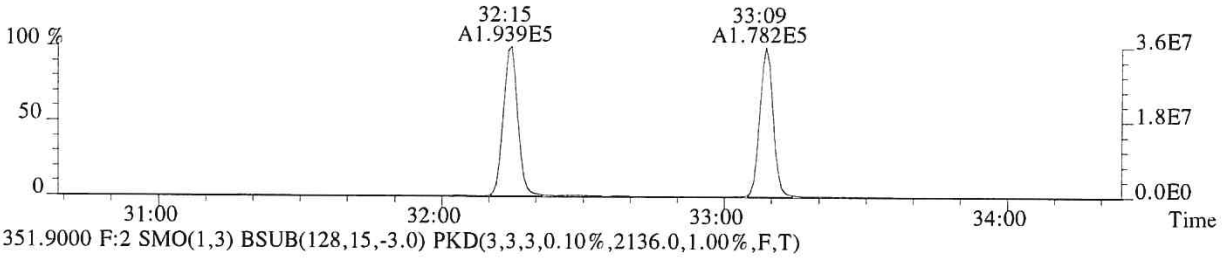
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



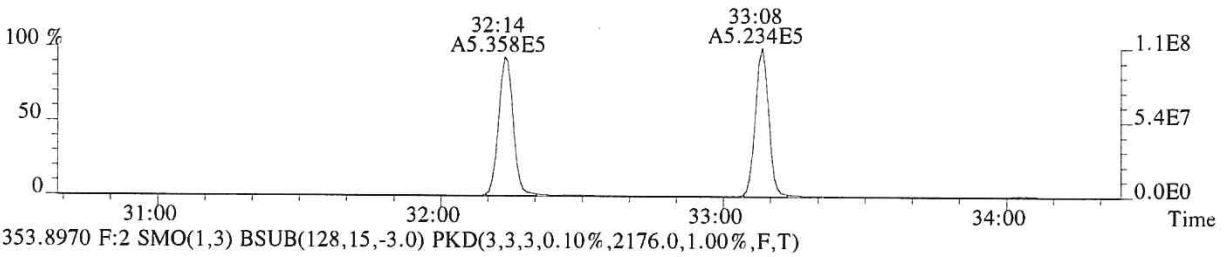
File:P614685 #1-339 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2872.0,1.00%,F,T)



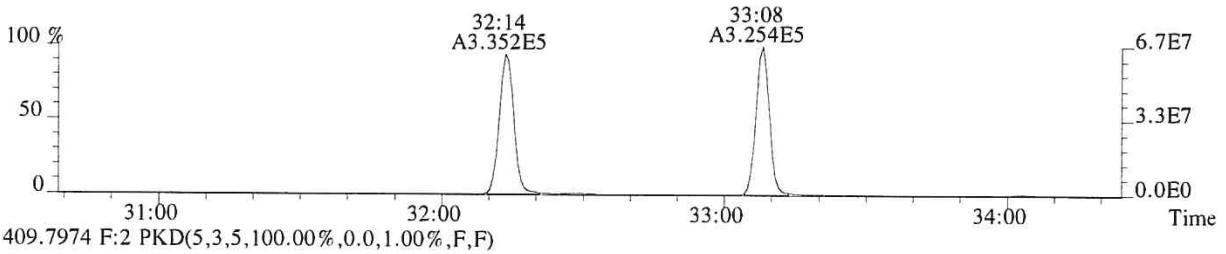
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4348.0,1.00%,F,T)



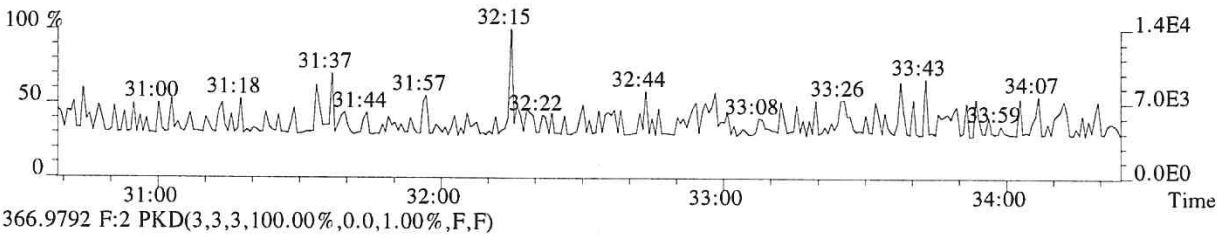
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2136.0,1.00%,F,T)



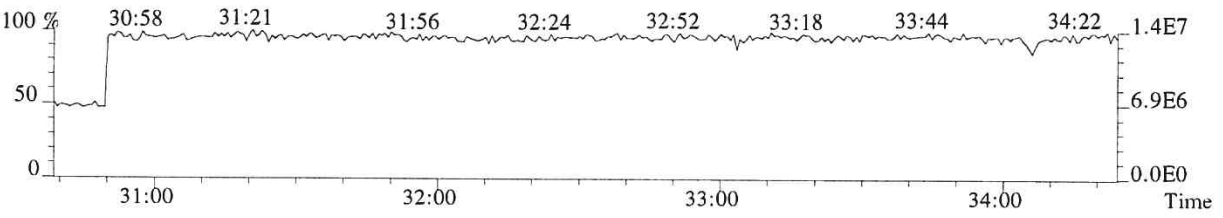
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2176.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

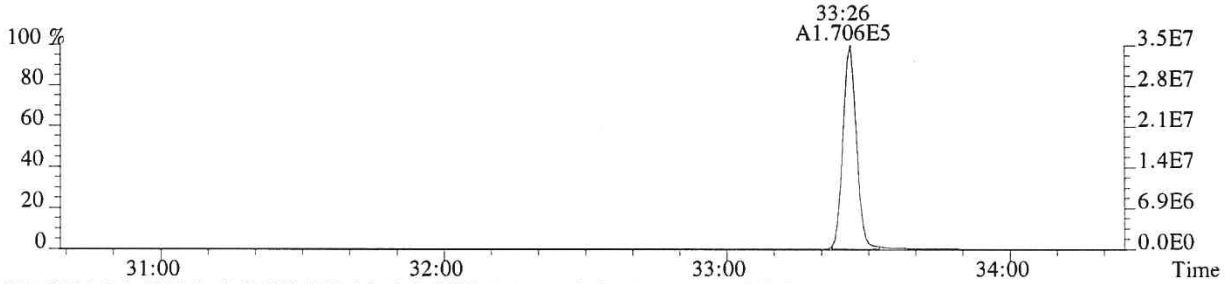


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

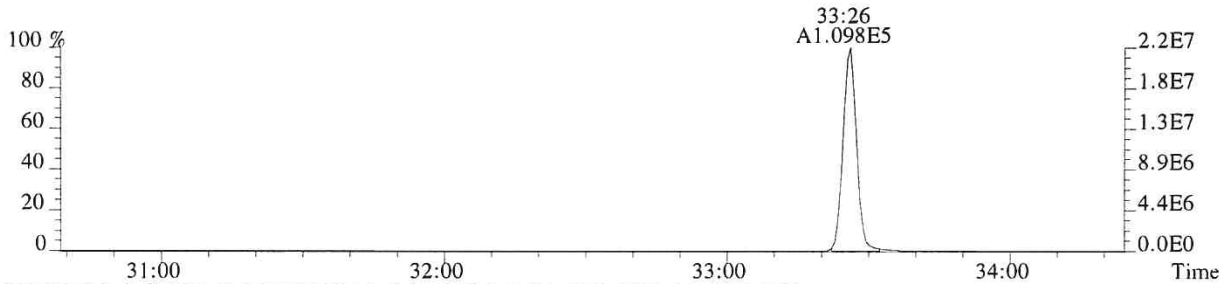


014948

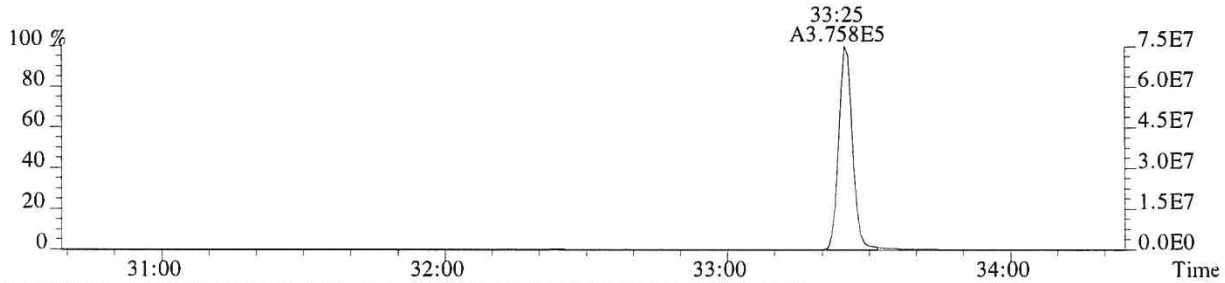
File:P614685 #1-339 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2460.0,1.00%,F,T)



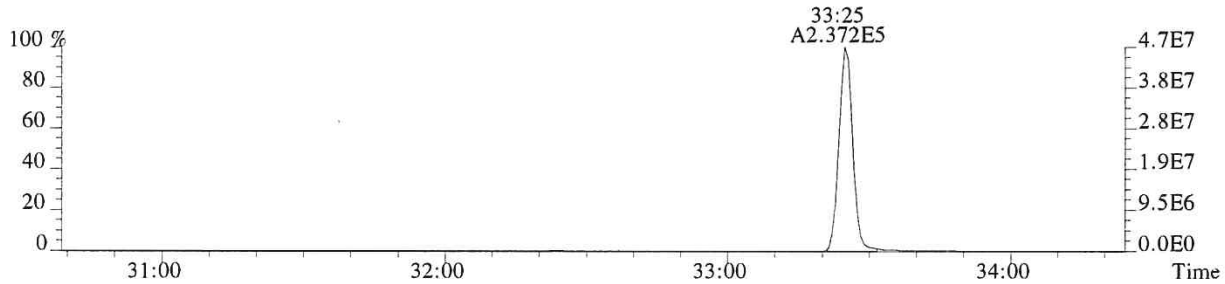
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1020.0,1.00%,F,T)



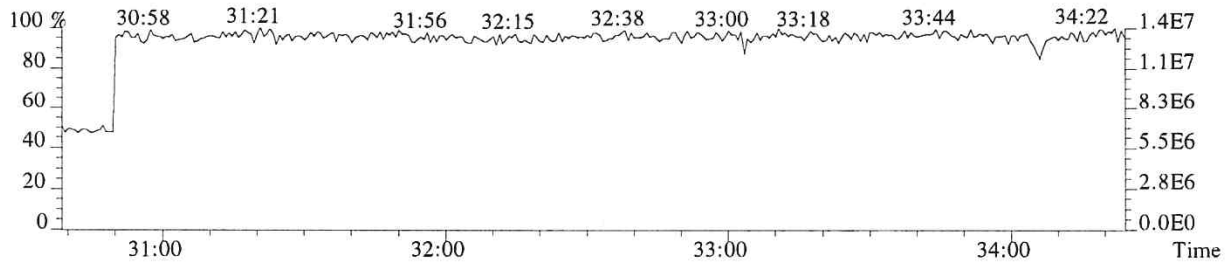
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3592.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2496.0,1.00%,F,T)

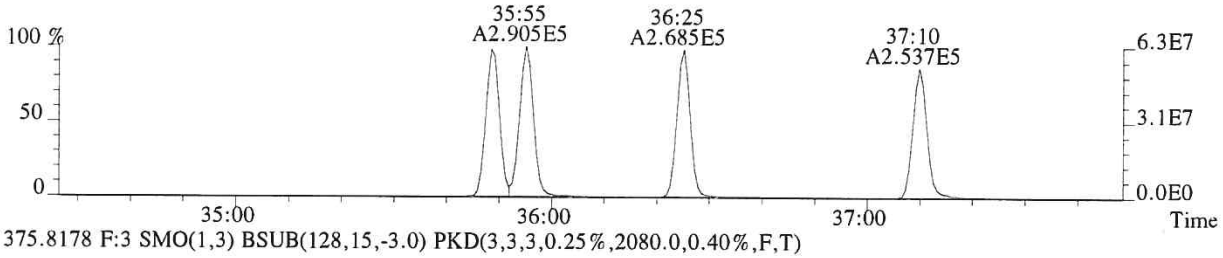


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

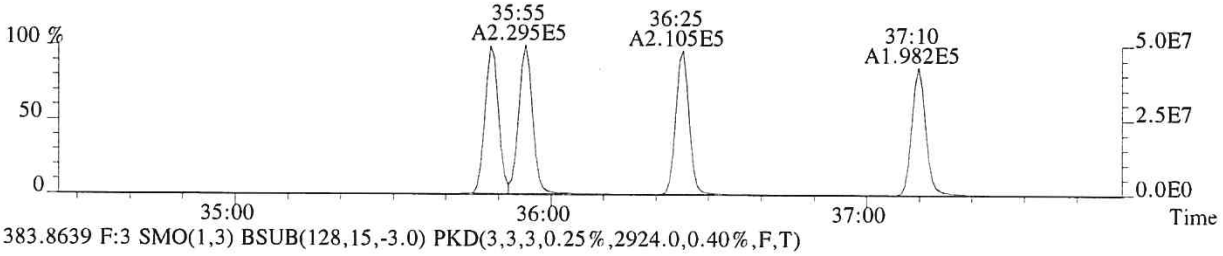


014949

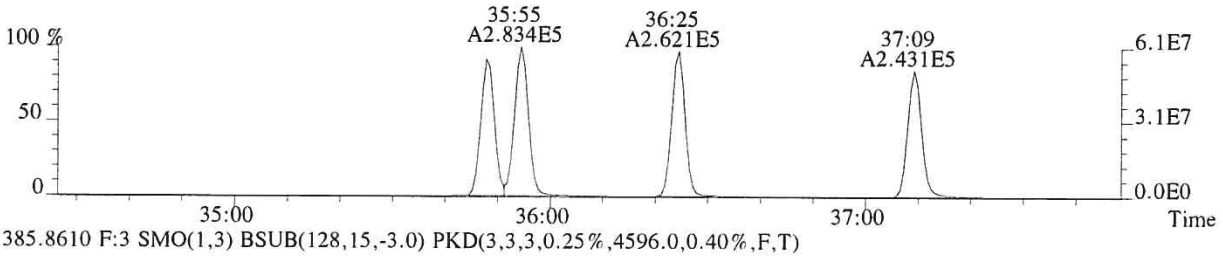
File:P614685 #1-304 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2888.0,0.40%,F,T)



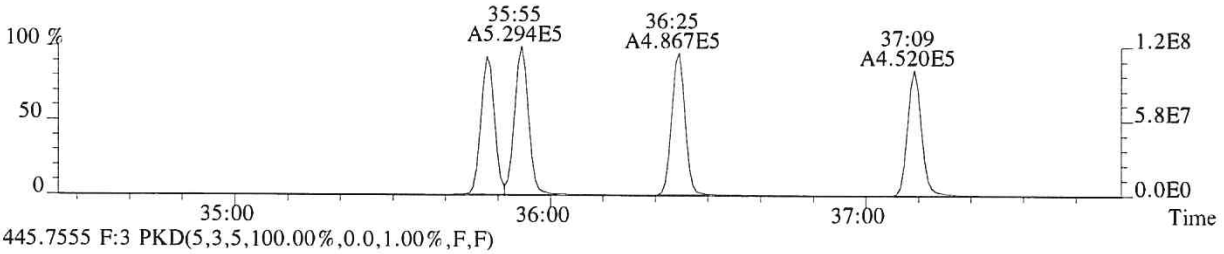
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2080.0,0.40%,F,T)



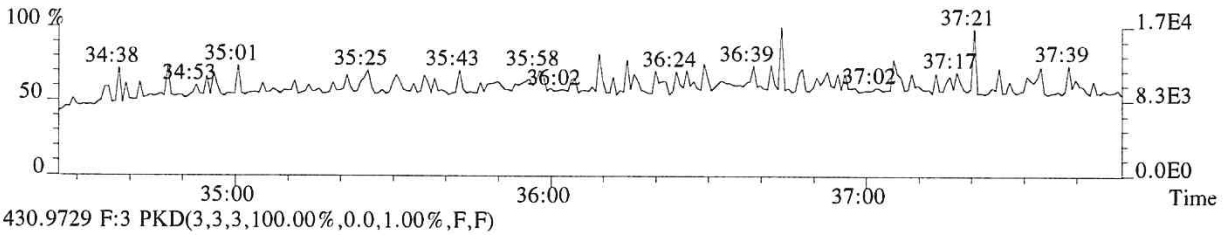
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2924.0,0.40%,F,T)



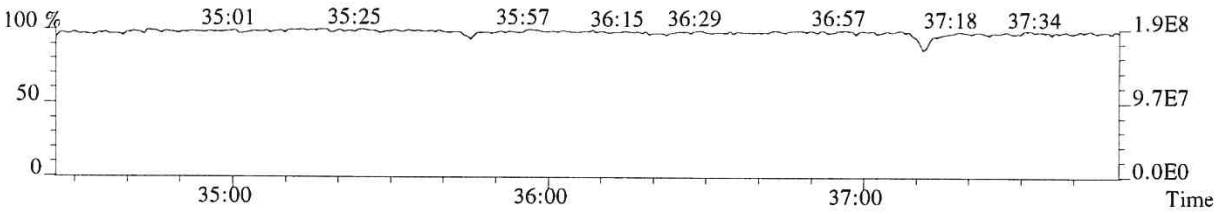
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4596.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

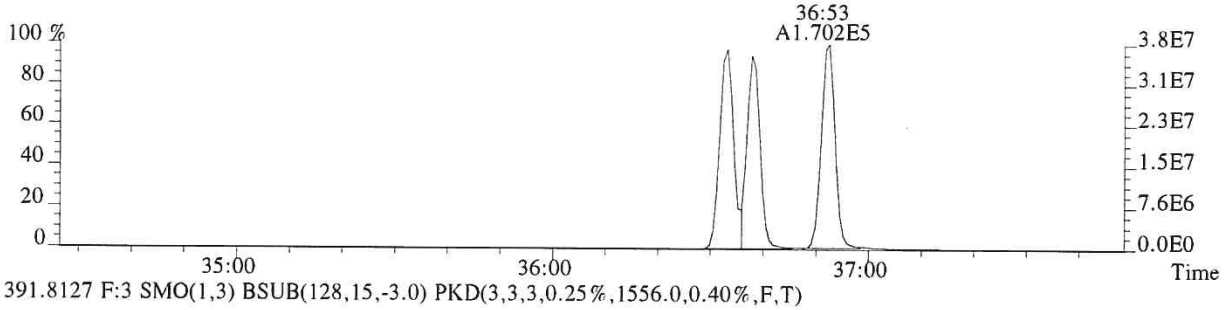


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

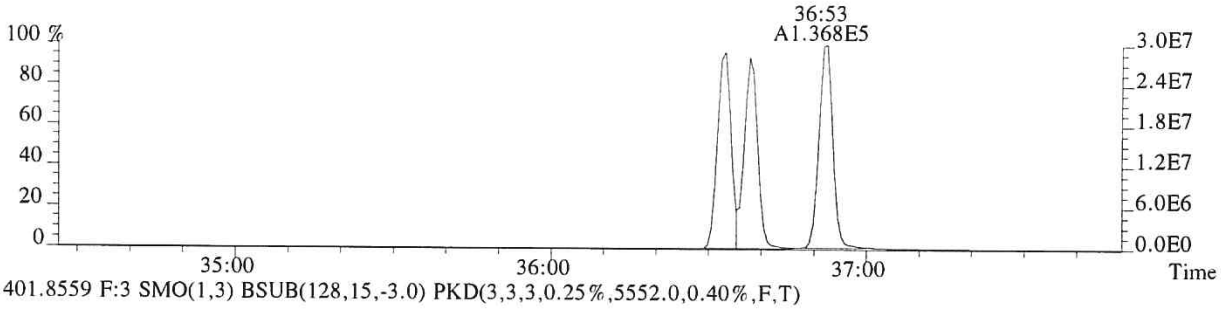


014950

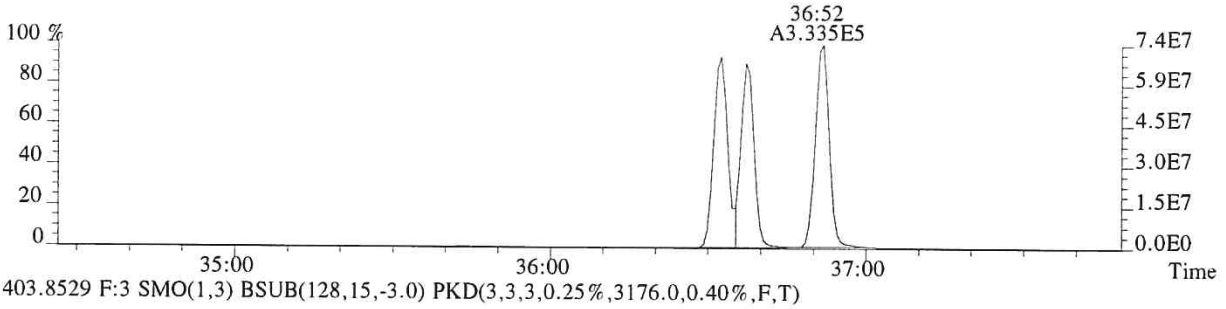
File:P614685 #1-304 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,904.0,0.40%,F,T)



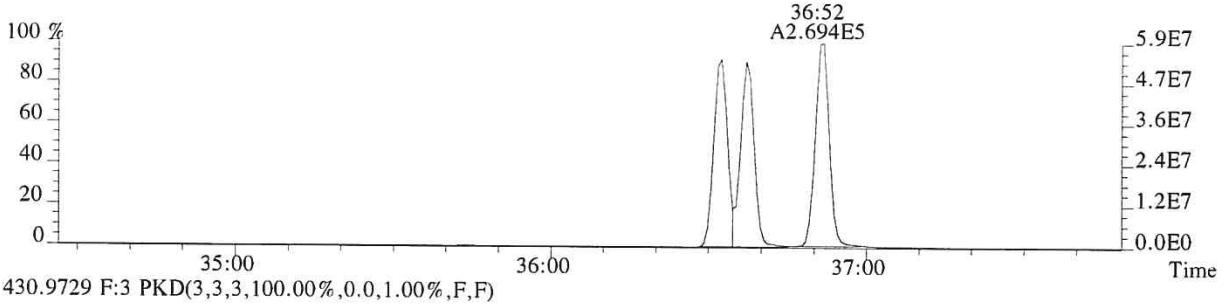
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1556.0,0.40%,F,T)



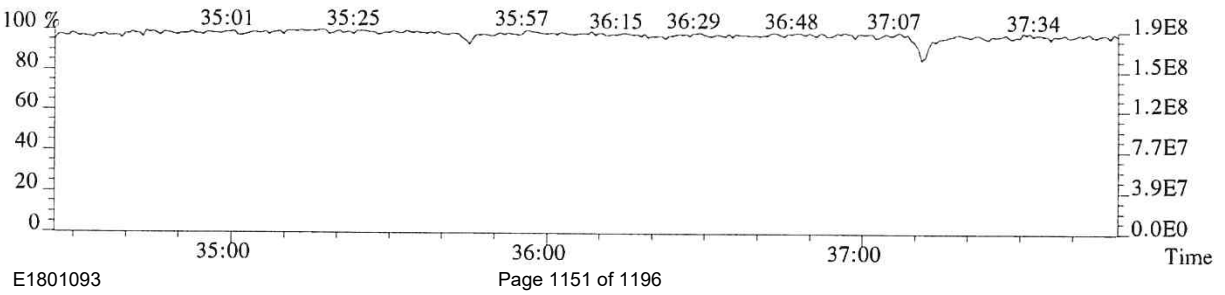
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5552.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3176.0,0.40%,F,T)

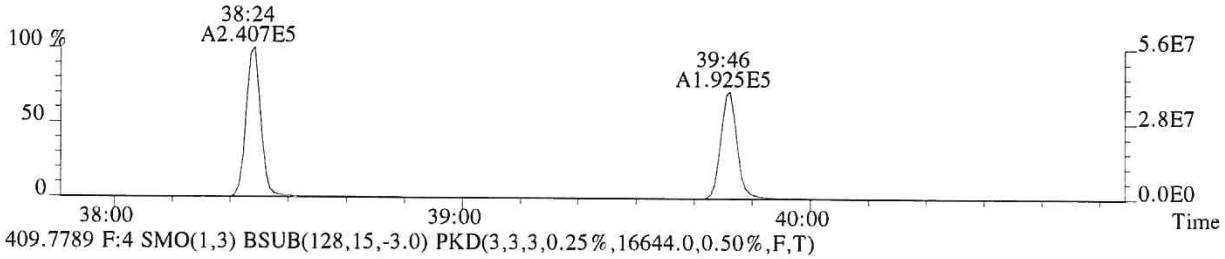


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

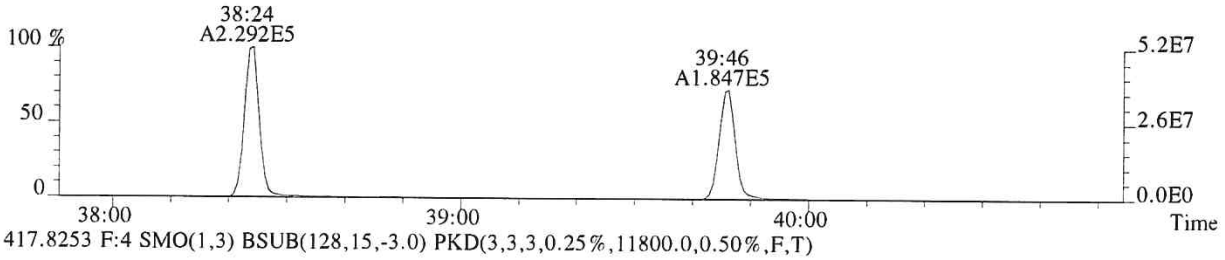


014951

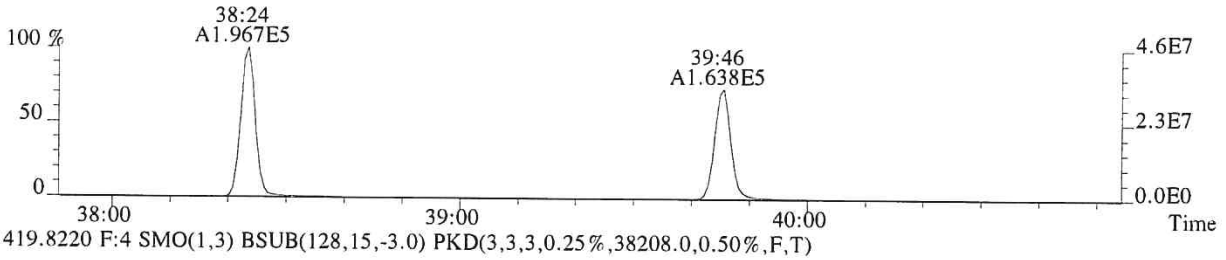
File:P614685 #1-276 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,14728.0,0.50%,F,T)



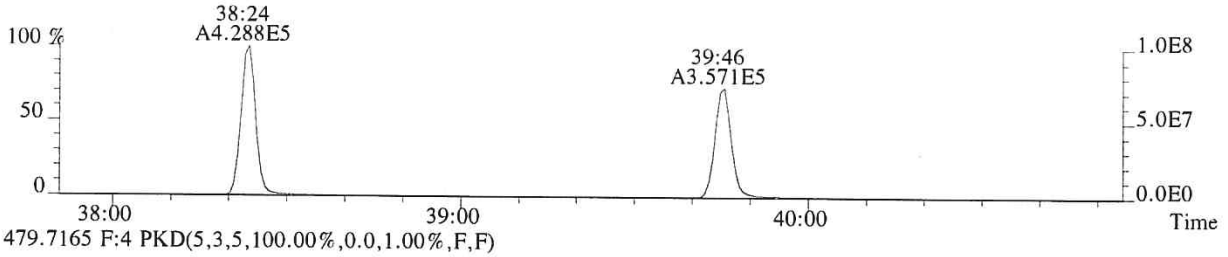
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,16644.0,0.50%,F,T)



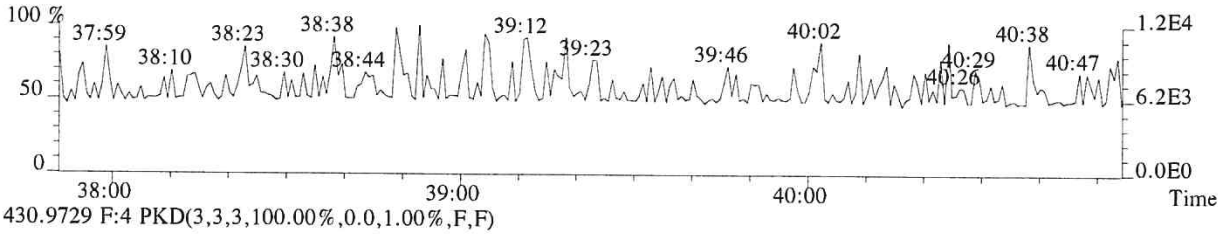
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11800.0,0.50%,F,T)



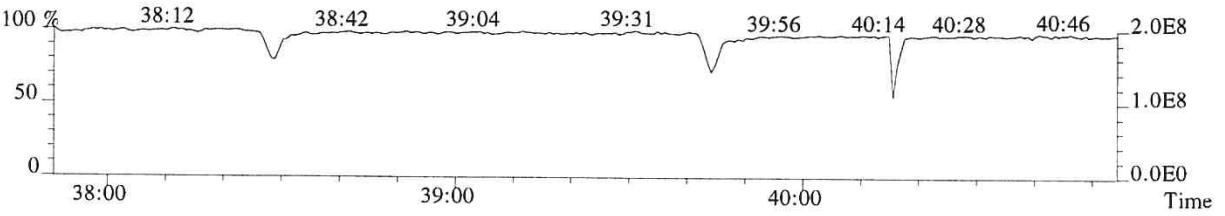
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,38208.0,0.50%,F,T)



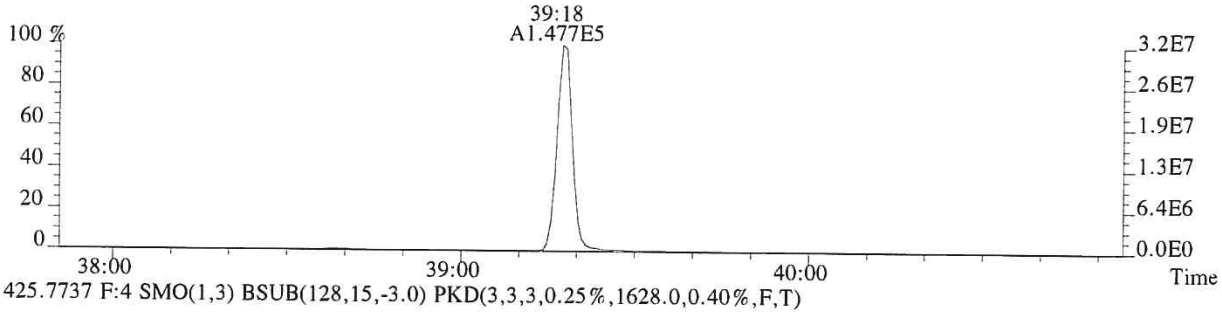
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



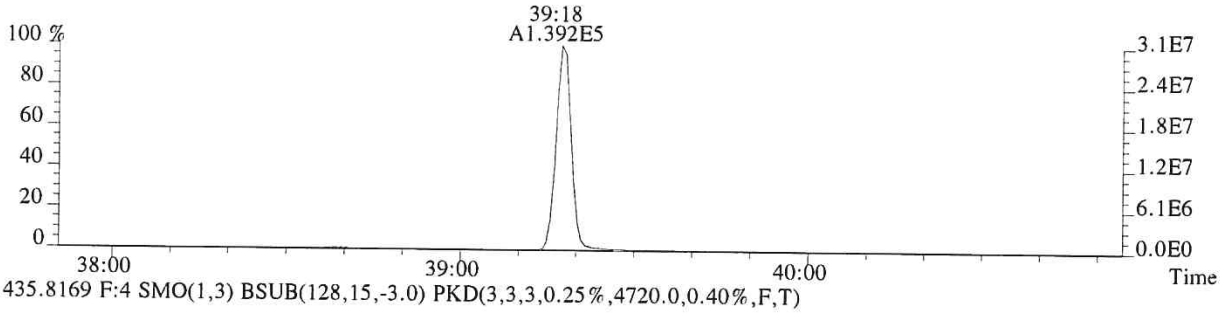
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



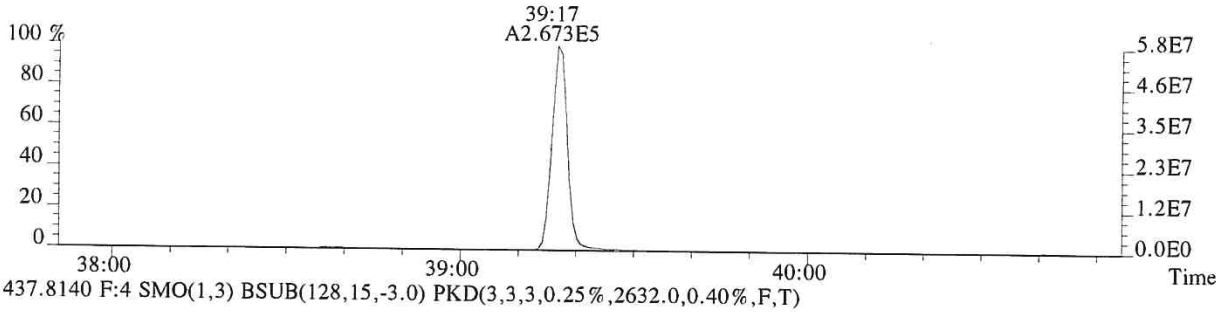
File:P614685 #1-276 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1576.0,0.40%,F,T)



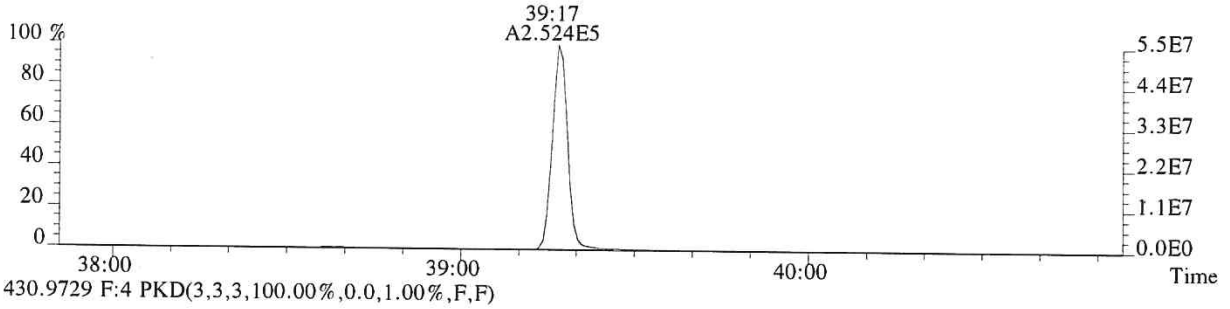
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1628.0,0.40%,F,T)



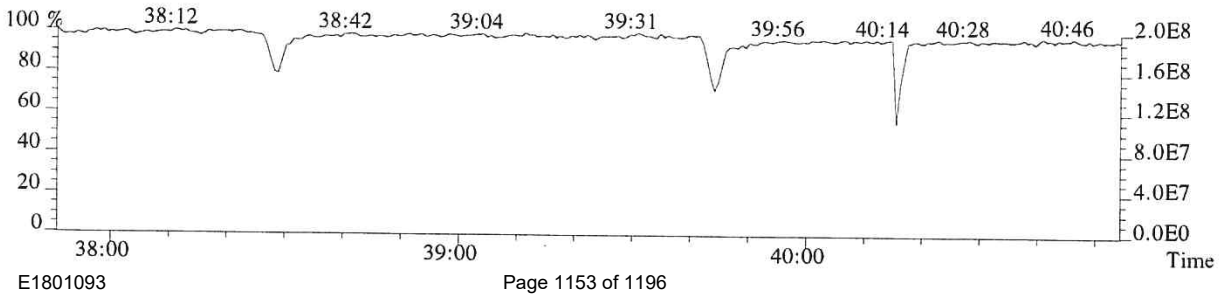
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4720.0,0.40%,F,T)



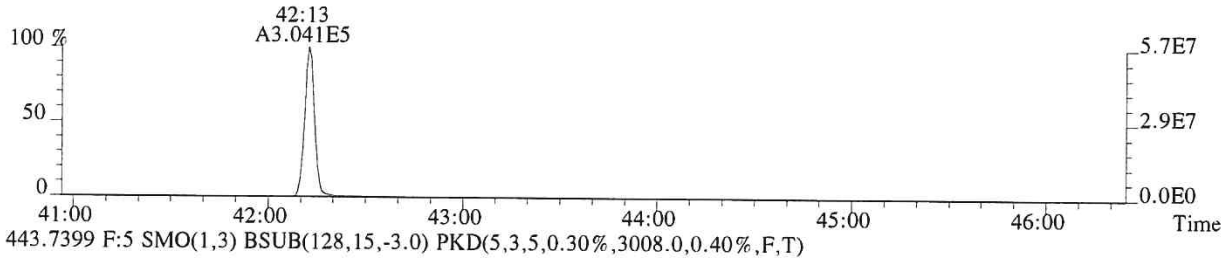
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2632.0,0.40%,F,T)



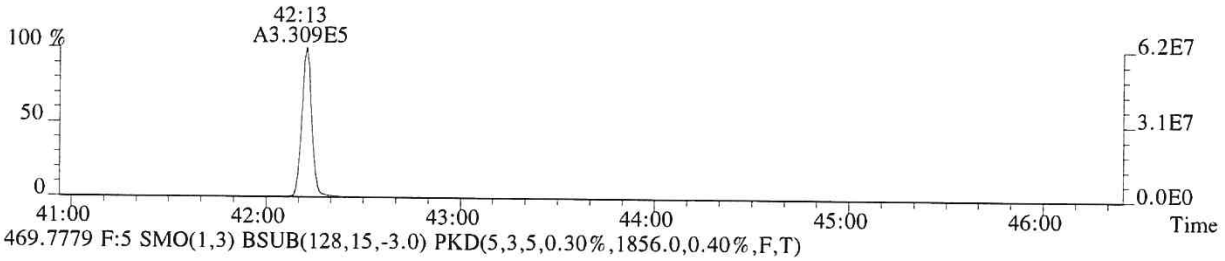
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



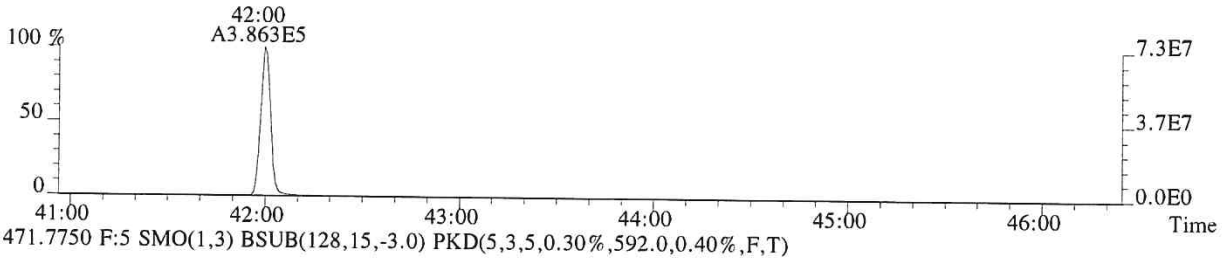
File:P614685 #1-493 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:CS3
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1228.0,0.40%,F,T)



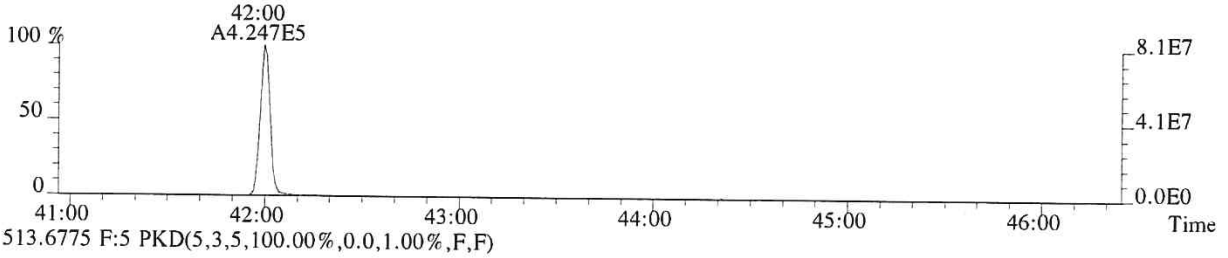
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3008.0,0.40%,F,T)



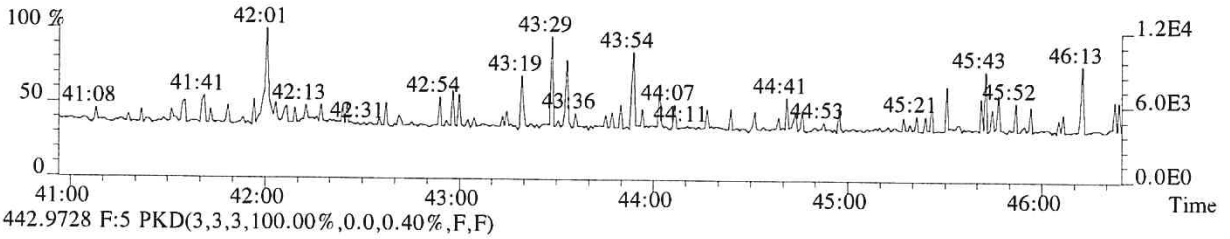
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1856.0,0.40%,F,T)



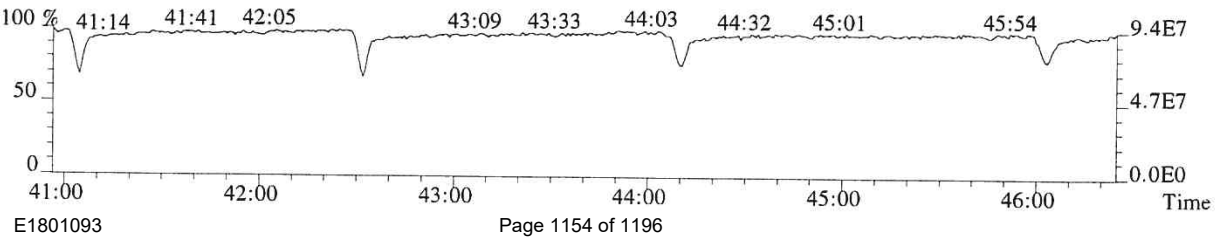
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,592.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

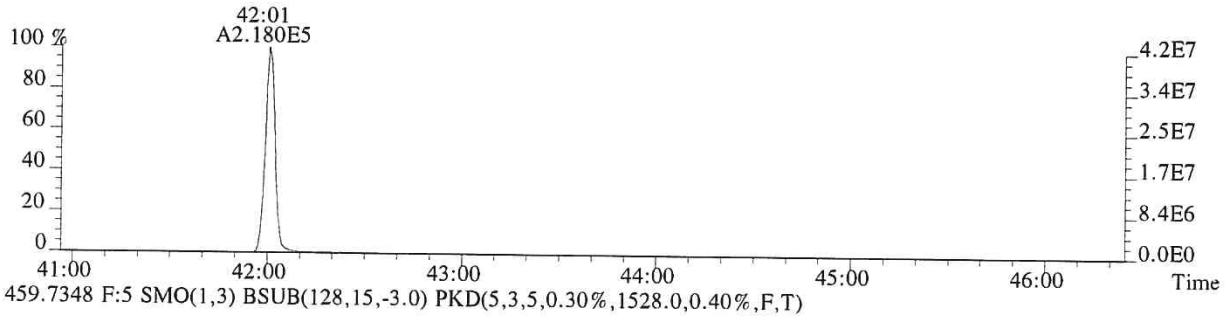


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

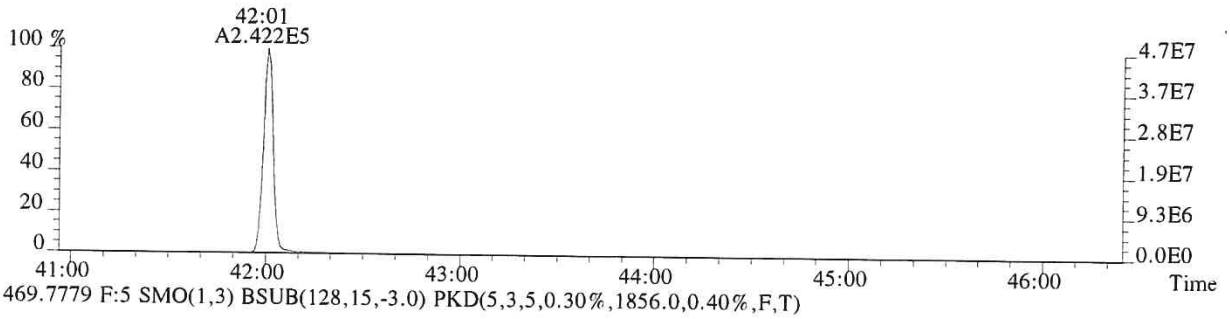


014954

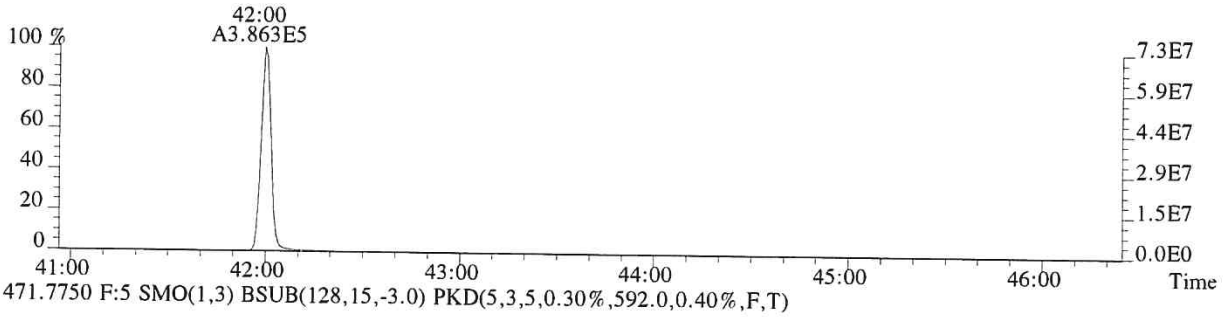
File:P614685 #1-493 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1708.0,0.40%,F,T)



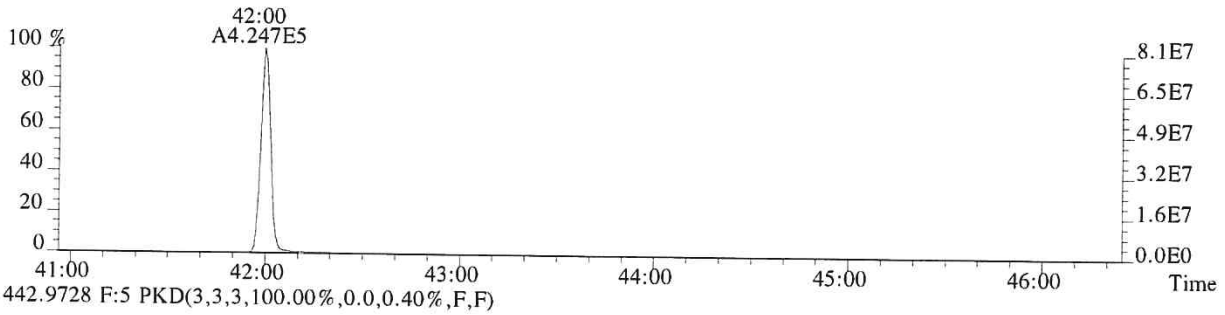
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1528.0,0.40%,F,T)



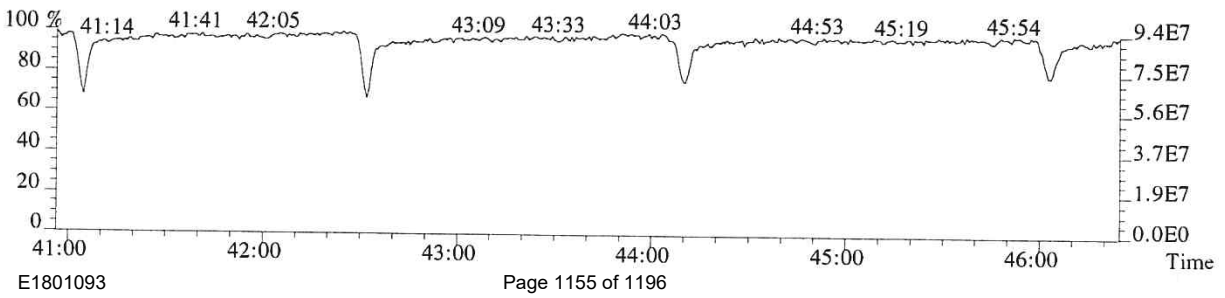
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1856.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,592.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
82167

Run #5 Filename P614686 Samp: 1 Inj: 1 Acquired: 25-SEP-18 17:41:03
Processed: 26-SEP-18 07:39:11 Sample ID: CS4

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:00	1.186e+05	1.498e+05	0.79	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:14	1.070e+06	6.680e+05	1.60	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:09	9.931e+05	6.255e+05	1.59	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	9.336e+05	7.318e+05	1.28	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	9.546e+05	7.530e+05	1.27	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	9.004e+05	7.134e+05	1.26	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:10	8.574e+05	6.711e+05	1.28	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	7.924e+05	7.640e+05	1.04	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	6.712e+05	6.389e+05	1.05	yes	no	1.463
10	Unk	OCDF	42:13	9.999e+05	1.075e+06	0.93	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:48	8.371e+04	1.065e+05	0.79	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	5.908e+05	3.807e+05	1.55	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	5.387e+05	4.268e+05	1.26	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:38	5.444e+05	4.299e+05	1.27	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:52	5.850e+05	4.610e+05	1.27	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	4.859e+05	4.568e+05	1.06	yes	no	1.112
17	Unk	OCDD	42:01	7.127e+05	7.901e+05	0.90	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:59	2.799e+05	3.543e+05	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	4.595e+05	2.875e+05	1.60	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	4.523e+05	2.842e+05	1.59	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	2.092e+05	3.928e+05	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	2.332e+05	4.327e+05	0.54	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	2.224e+05	4.139e+05	0.54	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	2.041e+05	3.825e+05	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:24	1.626e+05	3.528e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:46	1.431e+05	3.159e+05	0.45	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	2.012e+05	2.528e+05	0.80	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:25	3.193e+05	2.044e+05	1.56	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:33	2.552e+05	2.035e+05	1.25	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:37	2.565e+05	2.045e+05	1.25	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	2.187e+05	2.081e+05	1.05	yes	no	0.857
32	IS	13C-OCDD	42:00	3.133e+05	3.464e+05	0.90	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:13	2.000e+05	2.518e+05	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:51	2.828e+05	2.264e+05	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	2.003e+05				no	1.086

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www.alsglobal.com

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
82167

Run #5 Filename P614686 Samp: 1 Inj: 1 Acquired: 25-SEP-18 17:41:03
Processed: 26-SEP-18 07:39:11 LAB. ID: CS4

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.13e+07	2.15e+03	9.9e+03	2.70e+07	4.22e+03	6.4e+03
2	1,2,3,7,8-PeCDF	2.03e+08	3.06e+03	6.6e+04	1.29e+08	4.95e+03	2.6e+04
3	2,3,4,7,8-PeCDF	2.04e+08	3.06e+03	6.7e+04	1.28e+08	4.95e+03	2.6e+04
4	1,2,3,4,7,8-HxCDF	2.14e+08	1.85e+03	1.2e+05	1.68e+08	4.92e+03	3.4e+04
5	1,2,3,6,7,8-HxCDF	2.12e+08	1.85e+03	1.1e+05	1.67e+08	4.92e+03	3.4e+04
6	2,3,4,6,7,8-HxCDF	2.02e+08	1.85e+03	1.1e+05	1.59e+08	4.92e+03	3.2e+04
7	1,2,3,7,8,9-HxCDF	1.88e+08	1.85e+03	1.0e+05	1.47e+08	4.92e+03	3.0e+04
8	1,2,3,4,6,7,8-HpCDF	1.78e+08	2.61e+04	6.8e+03	1.72e+08	1.83e+04	9.4e+03
9	1,2,3,4,7,8,9-HpCDF	1.41e+08	2.61e+04	5.4e+03	1.35e+08	1.83e+04	7.4e+03
10	OCDF	1.94e+08	1.46e+03	1.3e+05	2.08e+08	3.00e+03	6.9e+04
11	2,3,7,8-TCDD	1.62e+07	6.38e+03	2.5e+03	2.06e+07	2.42e+03	8.5e+03
12	1,2,3,7,8-PeCDD	1.19e+08	3.22e+03	3.7e+04	7.64e+07	1.02e+03	7.5e+04
13	1,2,3,4,7,8-HxCDD	1.25e+08	9.48e+02	1.3e+05	9.78e+07	1.64e+03	5.9e+04
14	1,2,3,6,7,8-HxCDD	1.22e+08	9.48e+02	1.3e+05	9.73e+07	1.64e+03	5.9e+04
15	1,2,3,7,8,9-HxCDD	1.31e+08	9.48e+02	1.4e+05	1.04e+08	1.64e+03	6.3e+04
16	1,2,3,4,6,7,8-HpCDD	1.10e+08	2.46e+03	4.5e+04	1.04e+08	2.38e+03	4.4e+04
17	OCDD	1.42e+08	1.24e+03	1.1e+05	1.57e+08	1.46e+03	1.1e+05
18	13C-2,3,7,8-TCDF	5.06e+07	1.14e+04	4.4e+03	6.41e+07	7.28e+03	8.8e+03
19	13C-1,2,3,7,8-PeCDF	8.88e+07	3.08e+03	2.9e+04	5.58e+07	3.54e+03	1.6e+04
20	13C-2,3,4,7,8-PeCDF	9.15e+07	3.08e+03	3.0e+04	5.70e+07	3.54e+03	1.6e+04
21	13C-1,2,3,4,7,8-HxCDF	4.76e+07	3.01e+03	1.6e+04	8.96e+07	4.64e+03	1.9e+04
22	13C-1,2,3,6,7,8-HxCDF	5.17e+07	3.01e+03	1.7e+04	9.54e+07	4.64e+03	2.1e+04
23	13C-2,3,4,6,7,8-HxCDF	4.99e+07	3.01e+03	1.7e+04	9.21e+07	4.64e+03	2.0e+04
24	13C-1,2,3,7,8,9-HxCDF	4.48e+07	3.01e+03	1.5e+04	8.44e+07	4.64e+03	1.8e+04
25	13C-1,2,3,4,6,7,8-HpCDF	3.73e+07	8.80e+03	4.2e+03	8.02e+07	1.92e+04	4.2e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.97e+07	8.80e+03	3.4e+03	6.54e+07	1.92e+04	3.4e+03
27	13C-2,3,7,8-TCDD	3.77e+07	1.85e+04	2.0e+03	4.78e+07	7.81e+03	6.1e+03
28	13C-1,2,3,7,8-PeCDD	6.47e+07	3.56e+03	1.8e+04	4.18e+07	3.26e+03	1.3e+04
29	13C-1,2,3,4,7,8-HxCDD	5.86e+07	4.66e+03	1.3e+04	4.67e+07	3.04e+03	1.5e+04
30	13C-1,2,3,6,7,8-HxCDD	5.76e+07	4.66e+03	1.2e+04	4.61e+07	3.04e+03	1.5e+04
31	13C-1,2,3,4,6,7,8-HpCDD	4.94e+07	3.14e+03	1.6e+04	4.74e+07	1.71e+03	2.8e+04
32	13C-OCDD	6.18e+07	1.83e+03	3.4e+04	6.87e+07	9.56e+02	7.2e+04
33	13C-1,2,3,4-TCDD	3.76e+07	1.85e+04	2.0e+03	4.73e+07	7.81e+03	6.1e+03
34	13C-1,2,3,7,8,9-HxCDD	6.25e+07	4.66e+03	1.3e+04	5.04e+07	3.04e+03	1.7e+04
35	37Cl-2,3,7,8-TCDD	3.86e+07	4.32e+03	9.0e+03			

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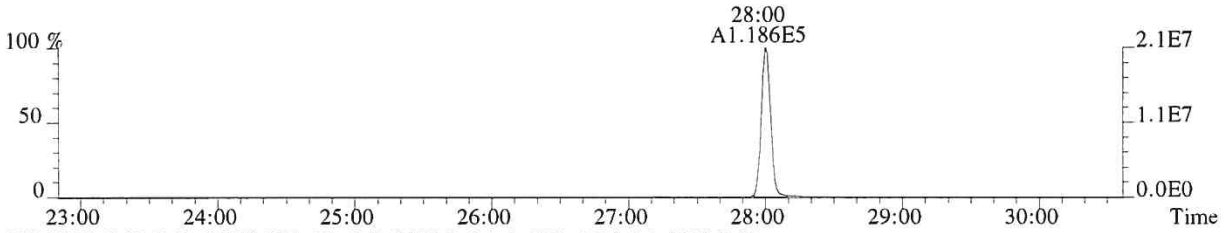
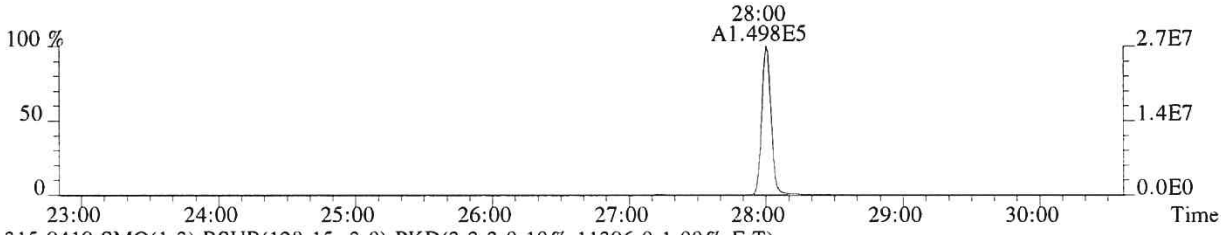
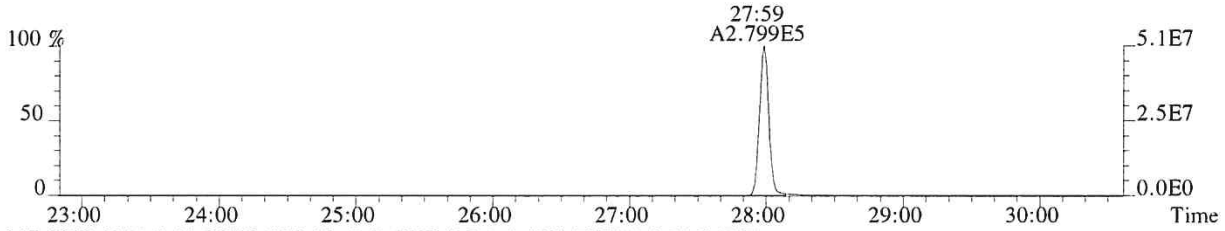
File:P614686 #1-552 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2148.0,1.00%,F,T)



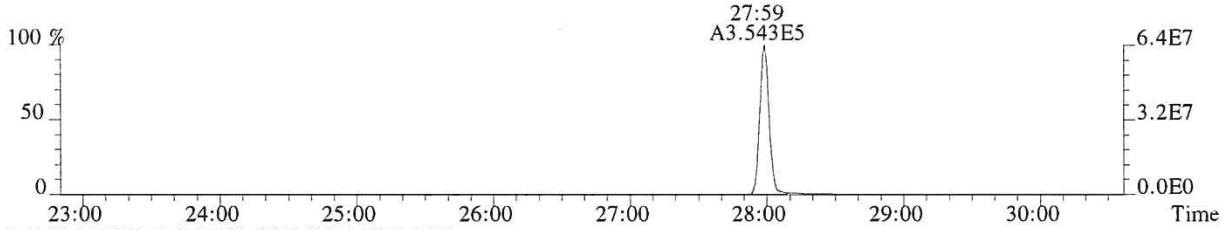
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4220.0,1.00%,F,T)



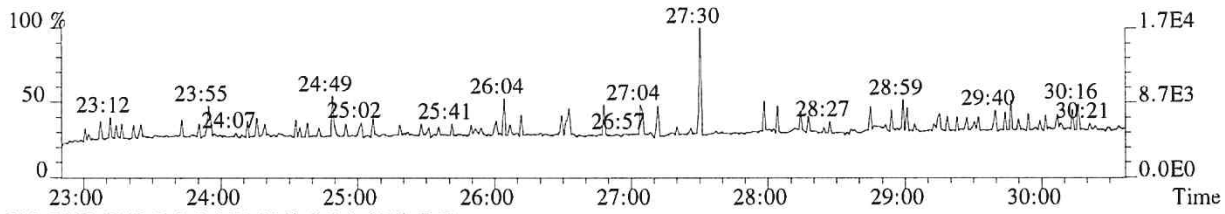
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,11396.0,1.00%,F,T)



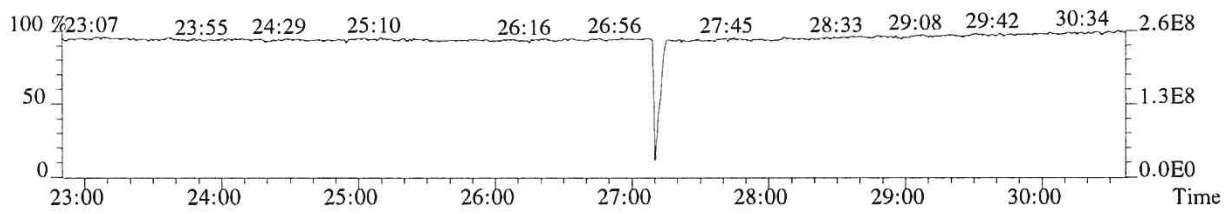
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7276.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

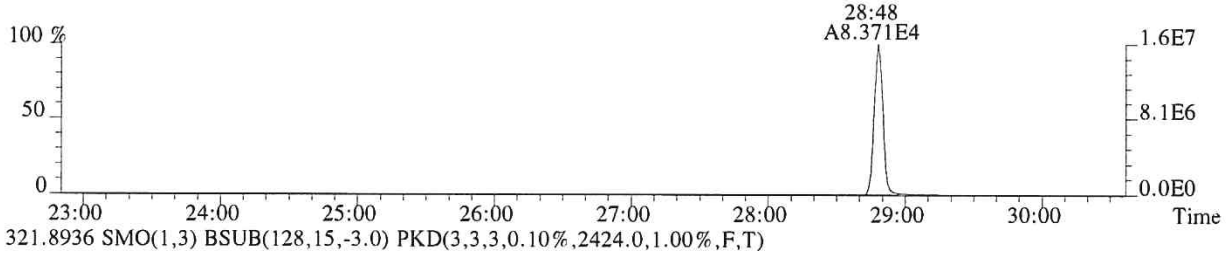


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

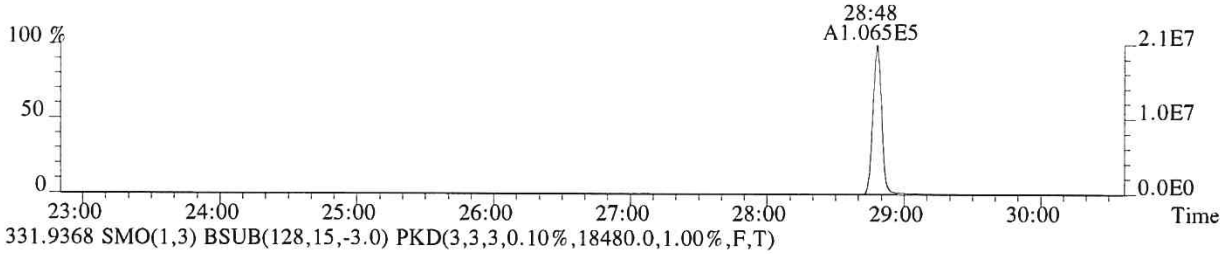


014958

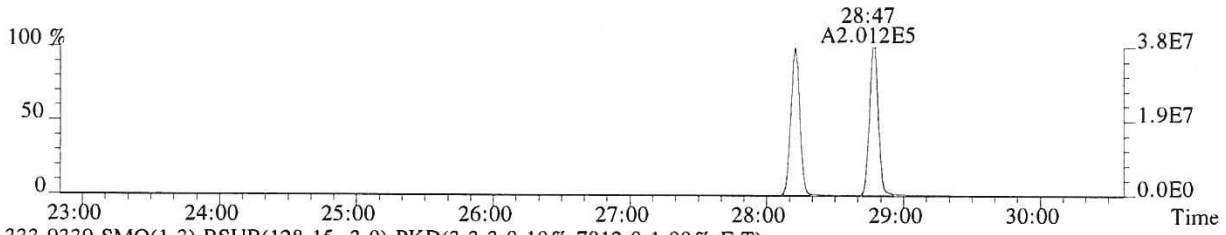
File:P614686 #1-552 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6384.0,1.00%,F,T)



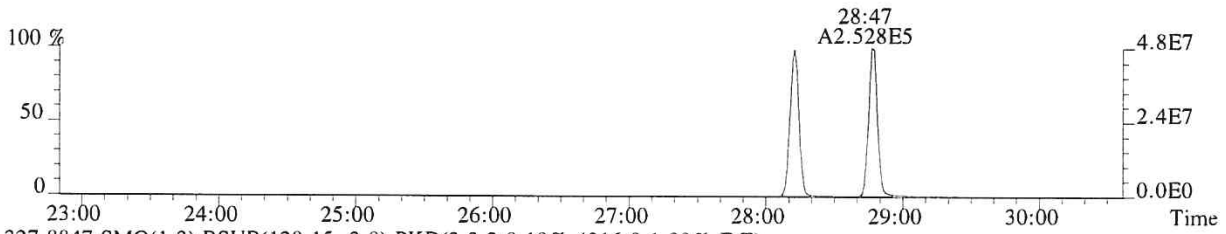
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2424.0,1.00%,F,T)



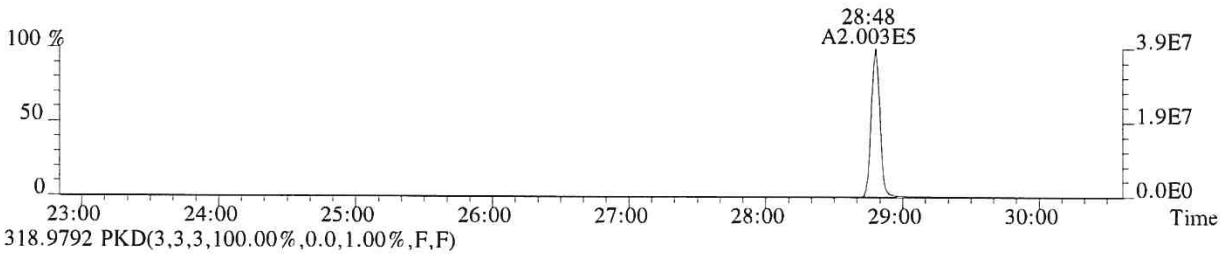
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,18480.0,1.00%,F,T)



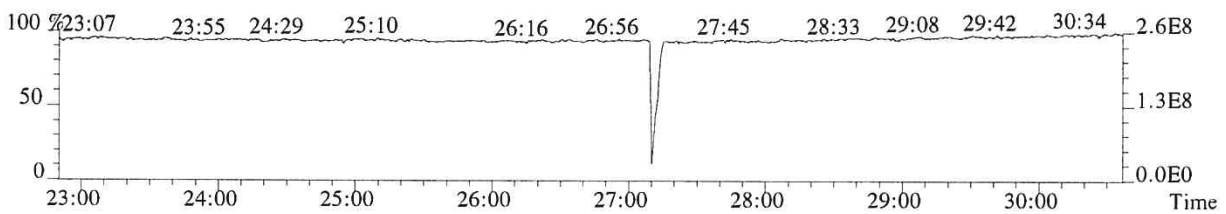
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7812.0,1.00%,F,T)



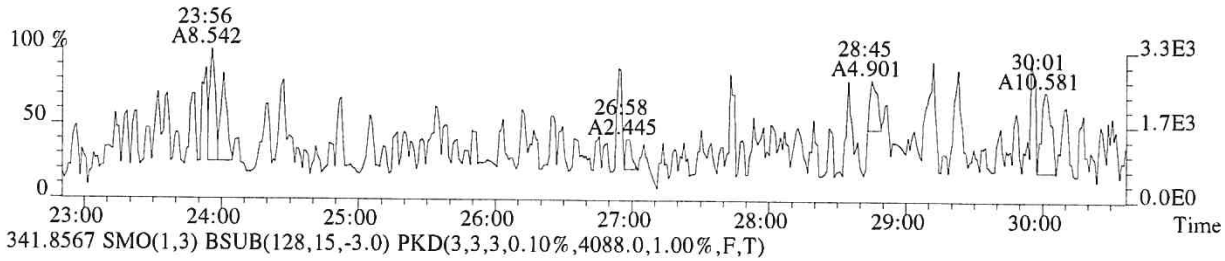
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4316.0,1.00%,F,T)



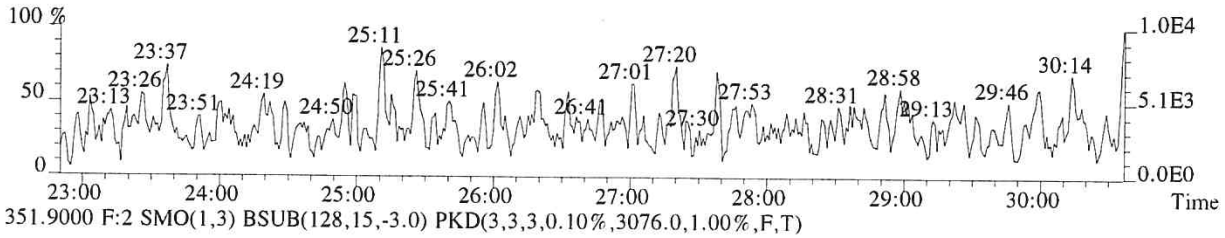
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



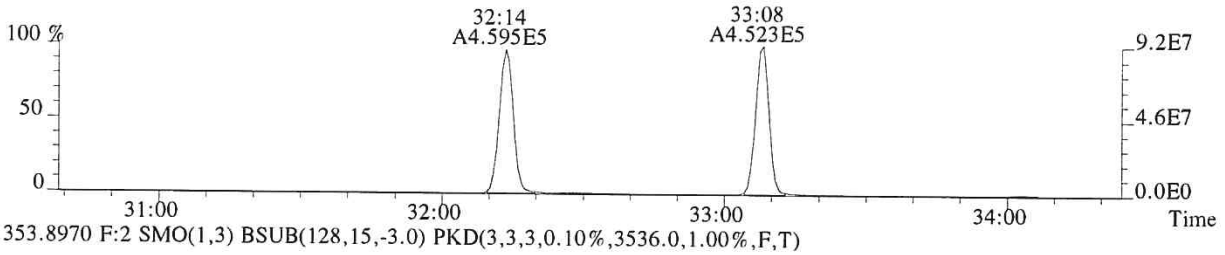
File:P614686 #1-552 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1356.0,1.00%,F,T)



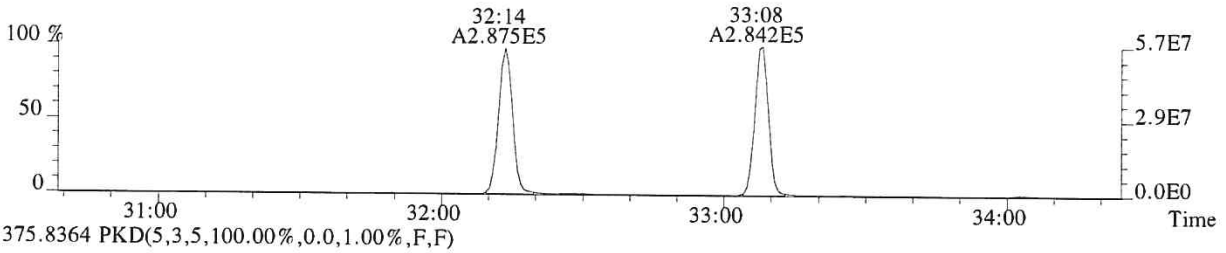
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4088.0,1.00%,F,T)



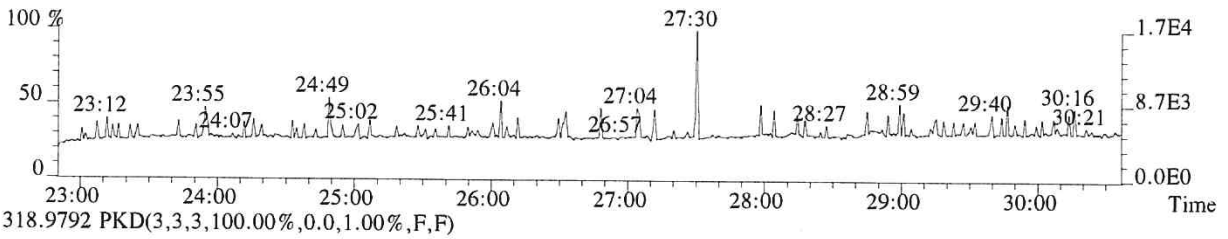
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3076.0,1.00%,F,T)



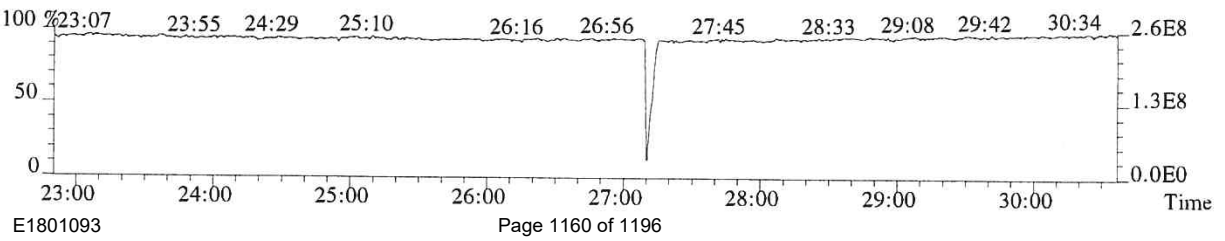
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3536.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

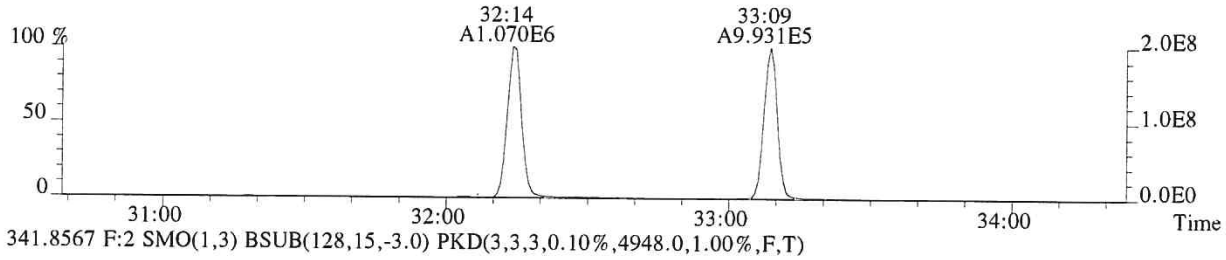


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

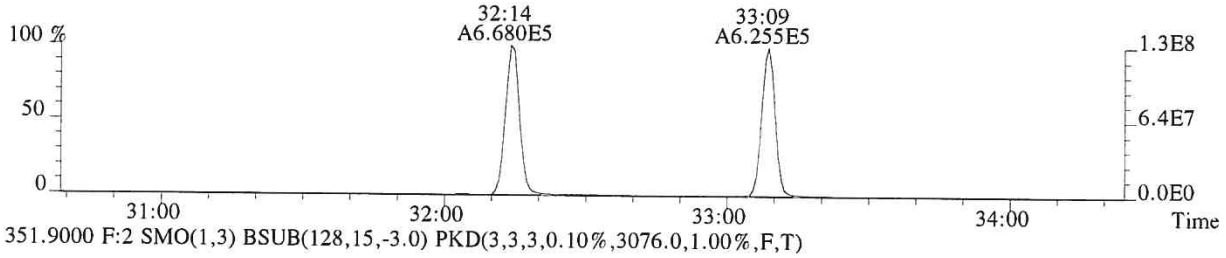


014960

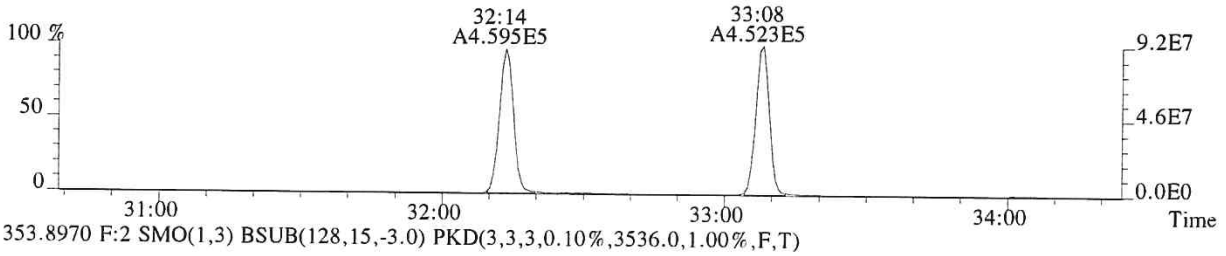
File:P614686 #1-339 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3064.0,1.00%,F,T)



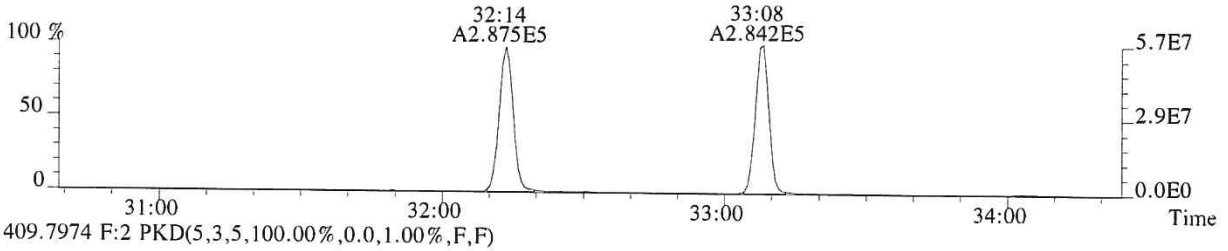
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4948.0,1.00%,F,T)



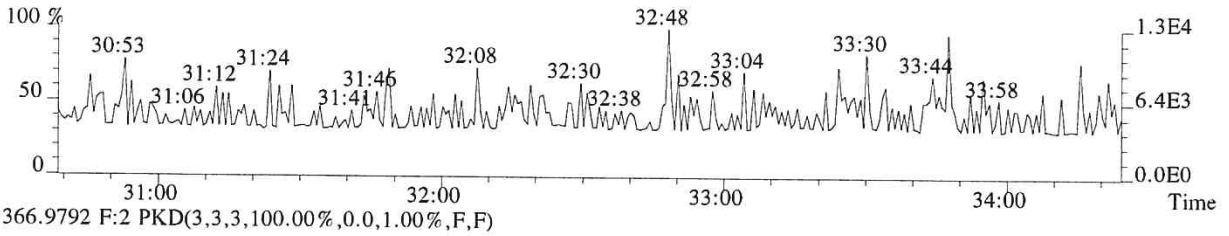
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3076.0,1.00%,F,T)



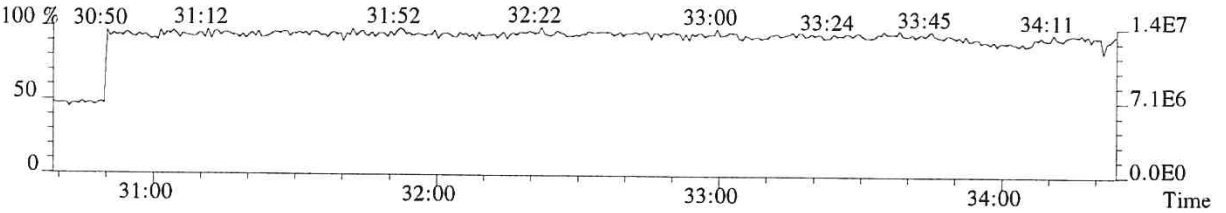
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3536.0,1.00%,F,T)



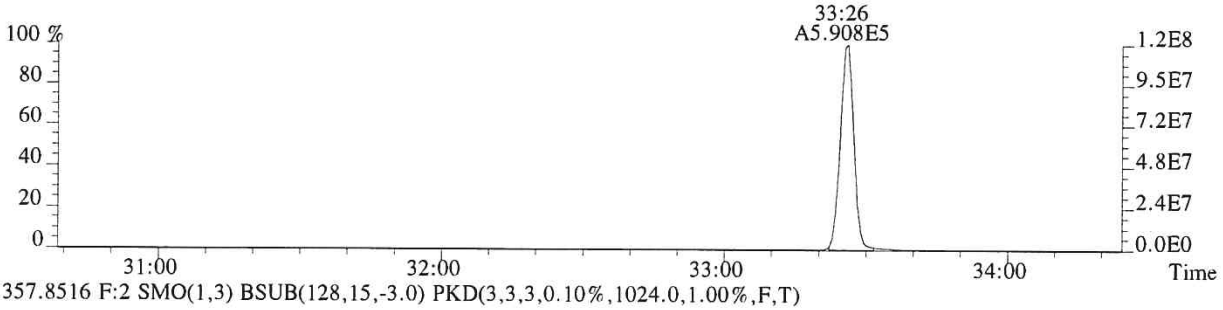
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



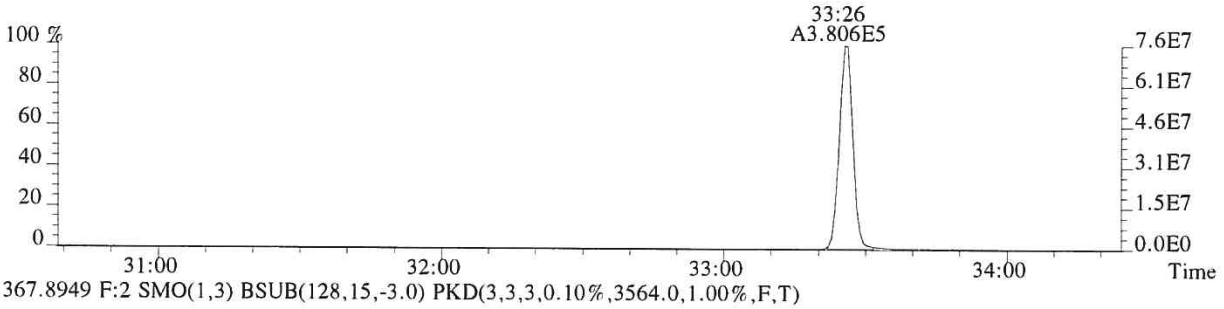
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



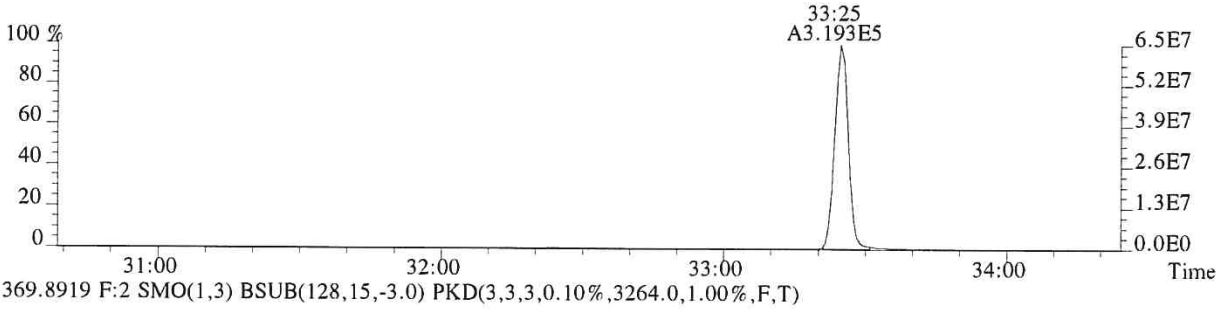
File:P614686 #1-339 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3220.0,1.00%,F,T)



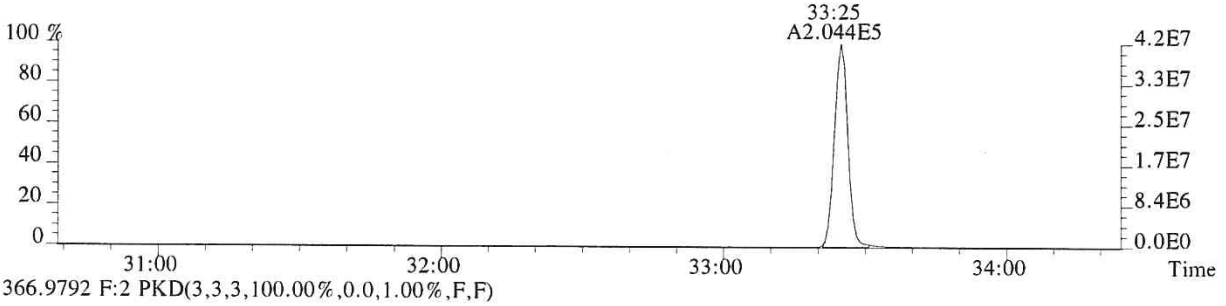
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1024.0,1.00%,F,T)



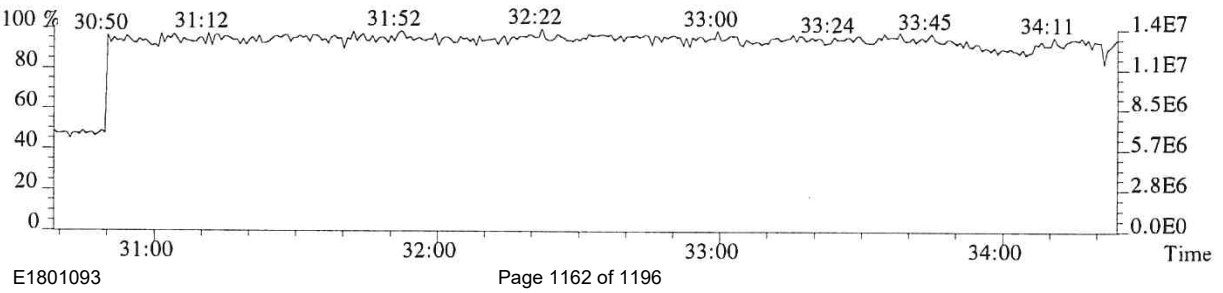
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3564.0,1.00%,F,T)



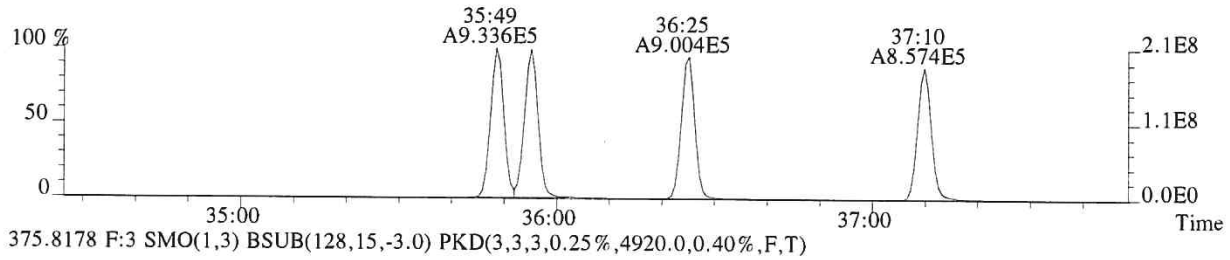
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3264.0,1.00%,F,T)



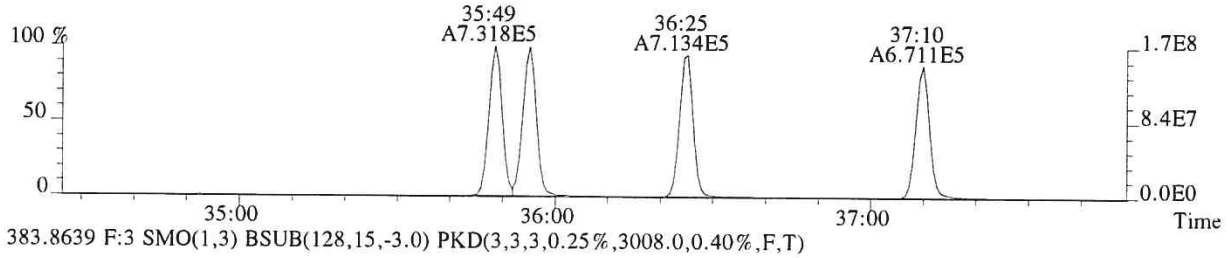
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



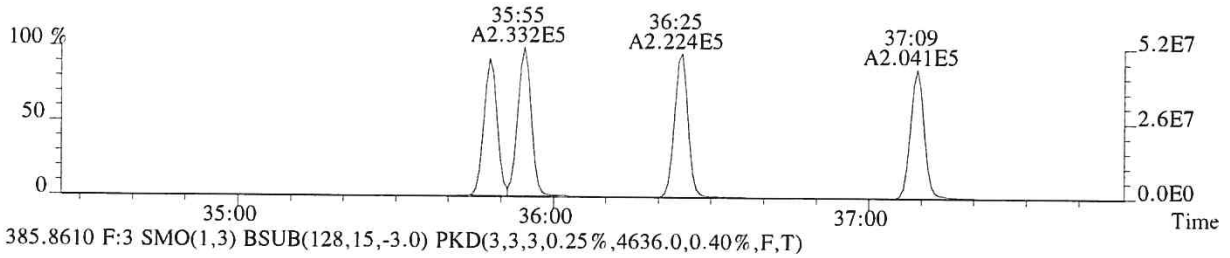
File:P614686 #1-304 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1848.0,0.40%,F,T)



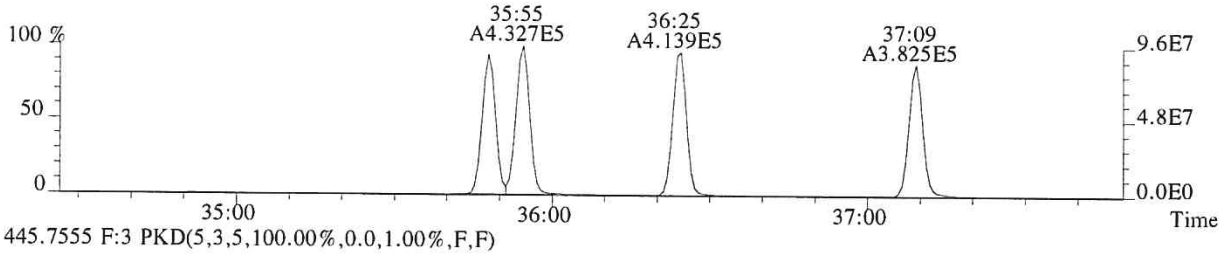
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4920.0,0.40%,F,T)



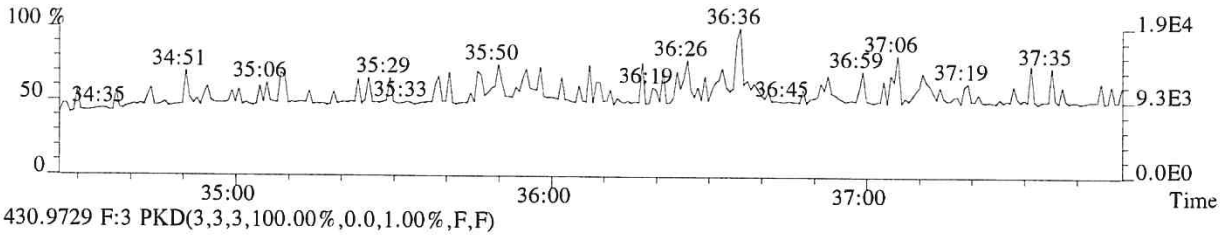
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3008.0,0.40%,F,T)



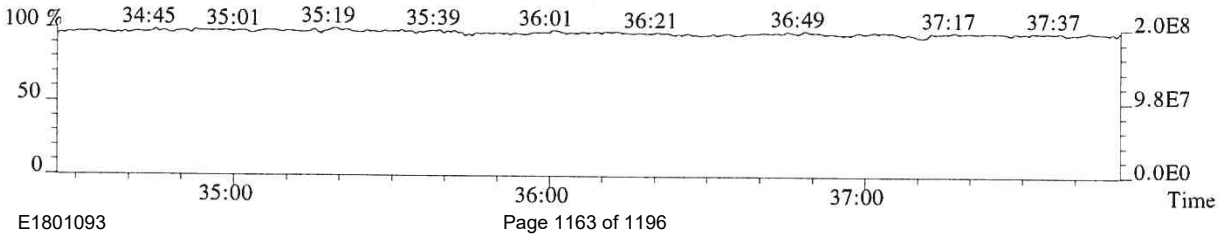
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4636.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

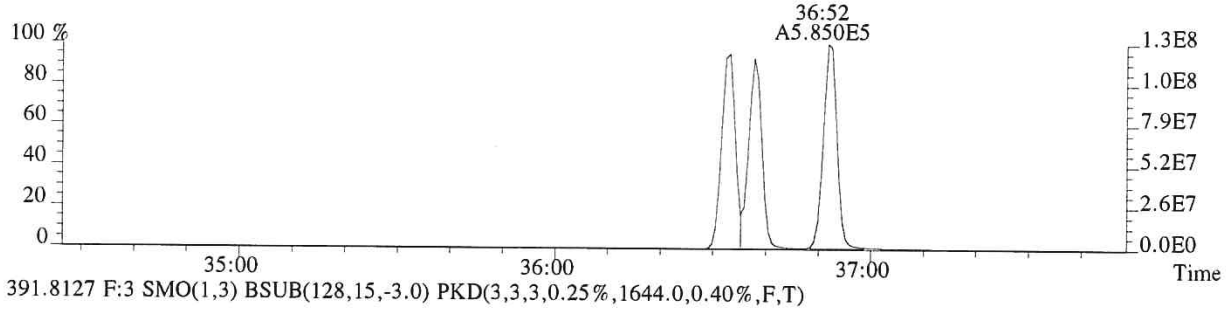


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

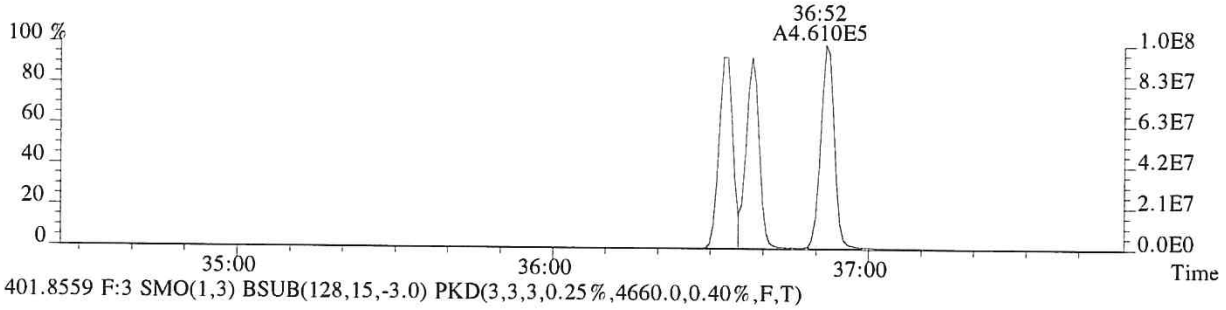


014963

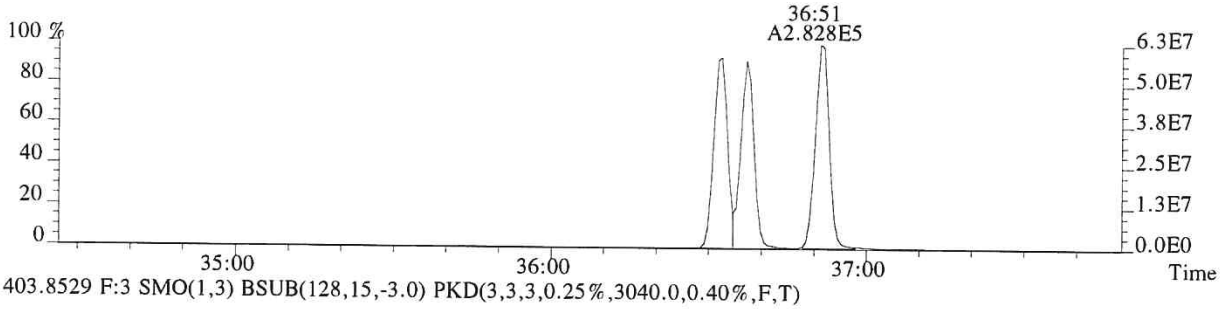
File:P614686 #1-304 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,948.0,0.40%,F,T)



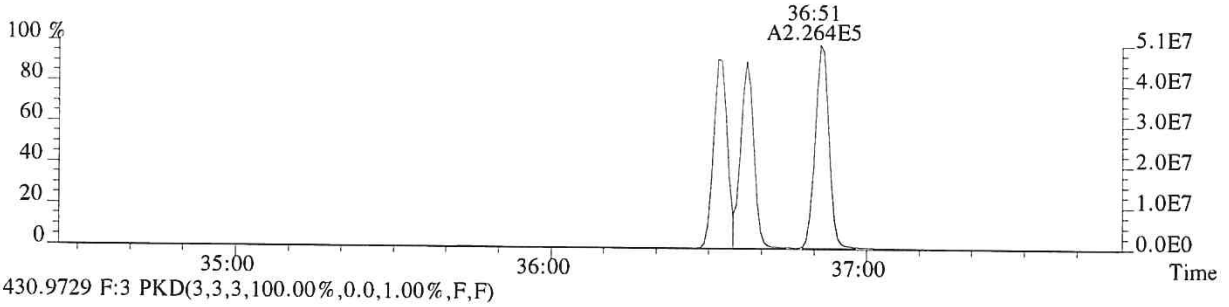
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1644.0,0.40%,F,T)



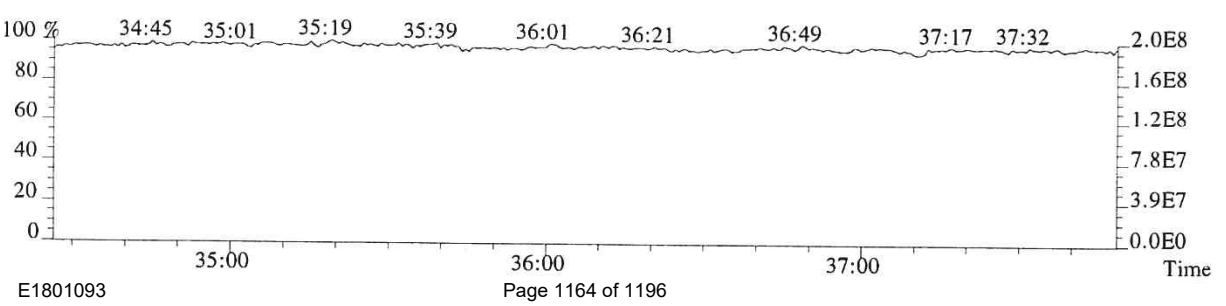
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4660.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3040.0,0.40%,F,T)



430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



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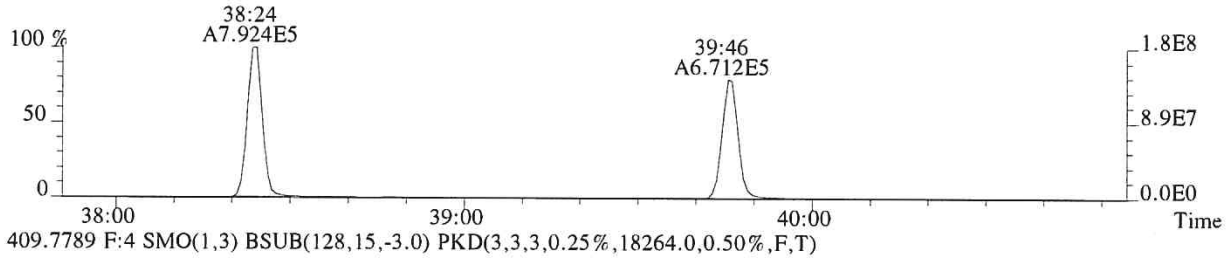
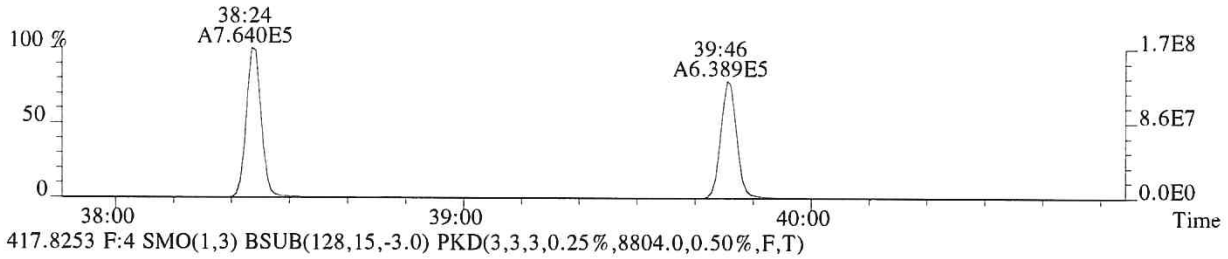
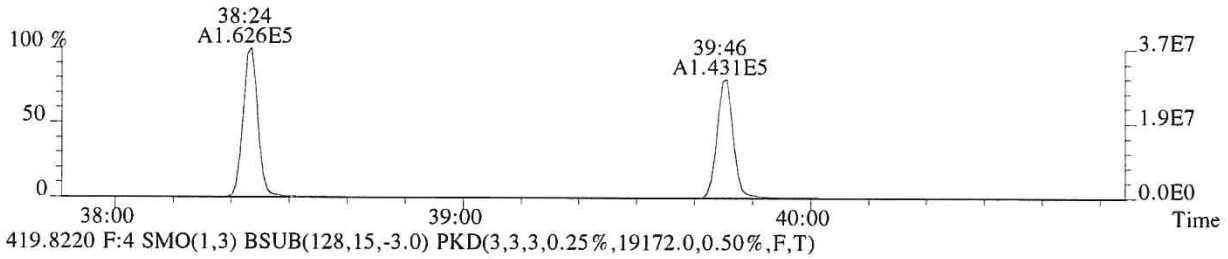
File:P614686 #1-276 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,26056.0,0.50%,F,T)



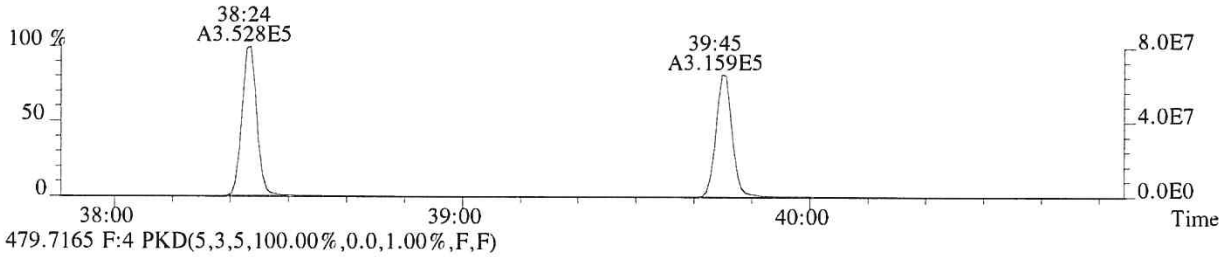
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,18264.0,0.50%,F,T)



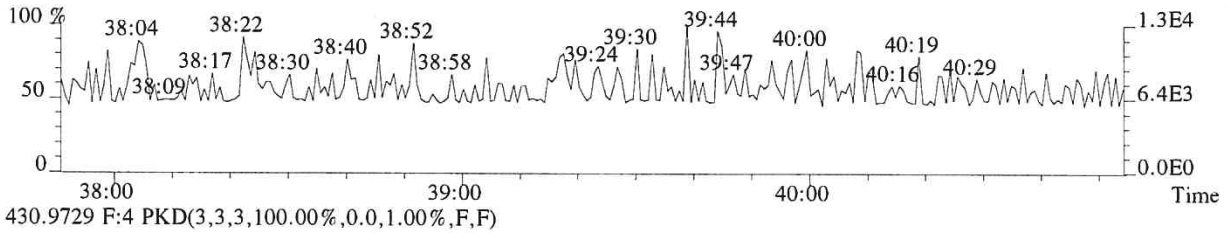
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8804.0,0.50%,F,T)



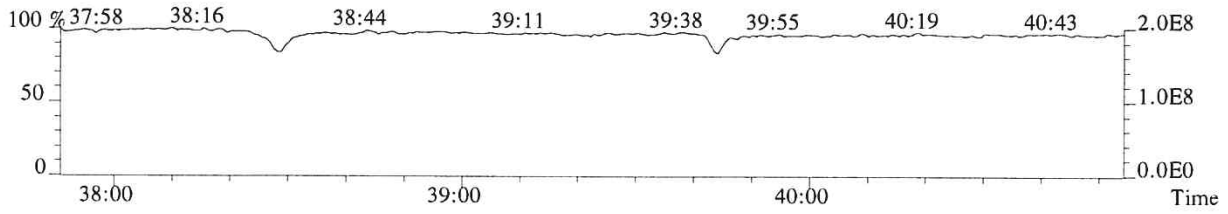
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,19172.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

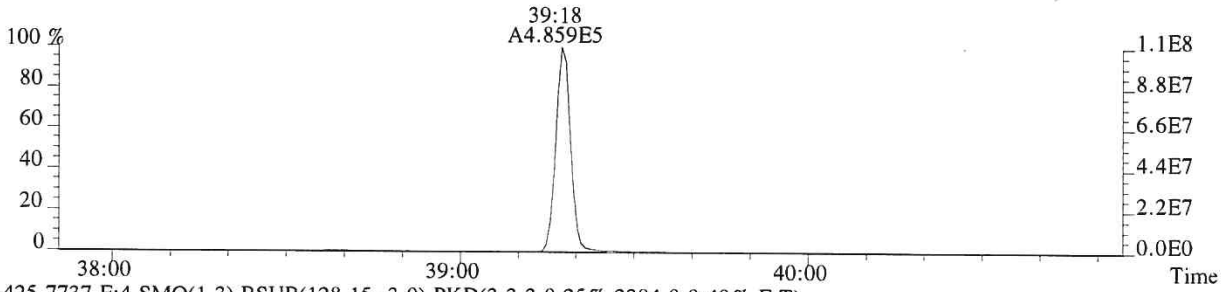


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

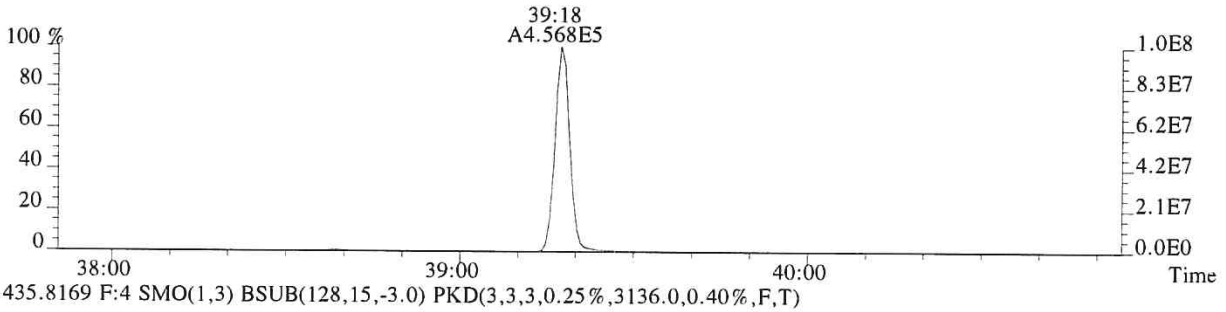


014965

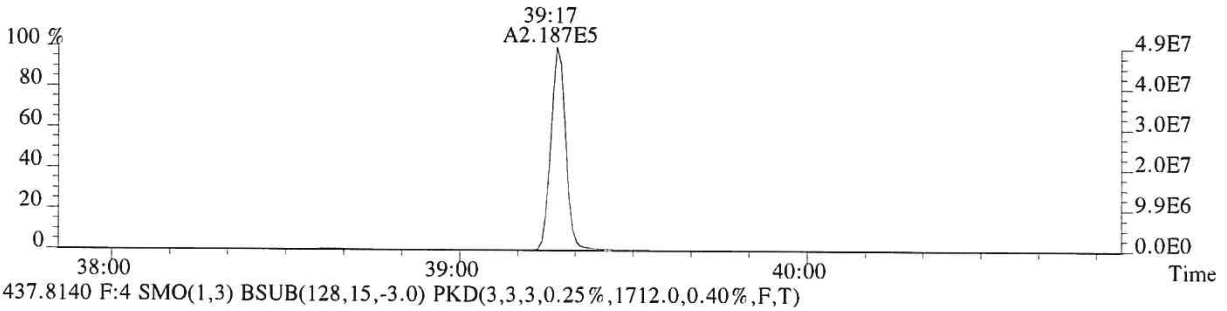
File:P614686 #1-276 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2456.0,0.40%,F,T)



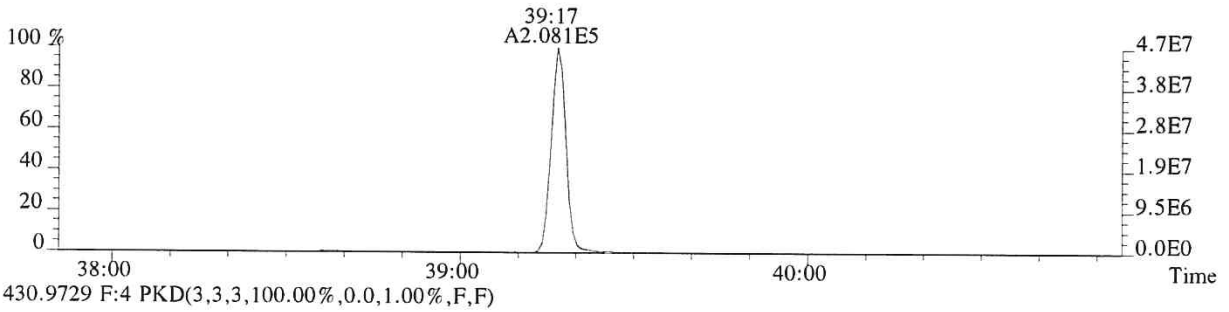
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2384.0,0.40%,F,T)



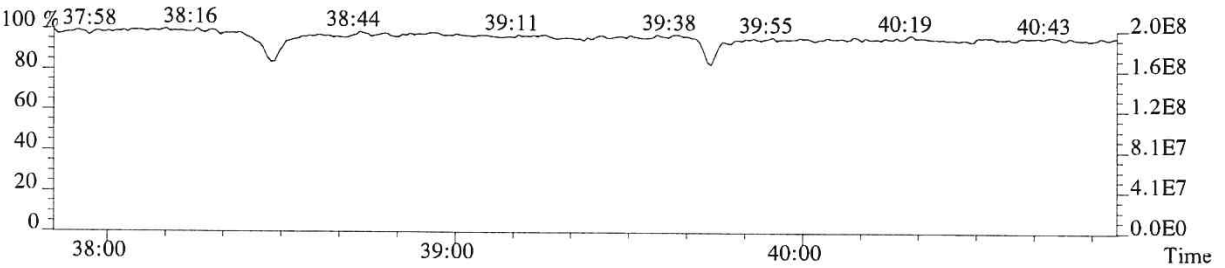
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3136.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1712.0,0.40%,F,T)

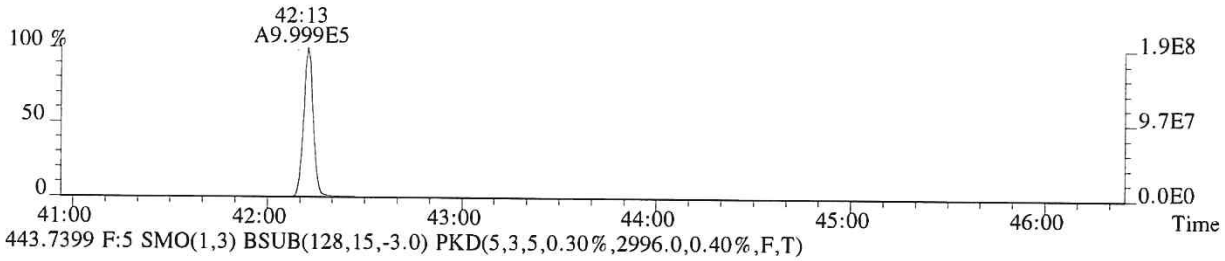


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

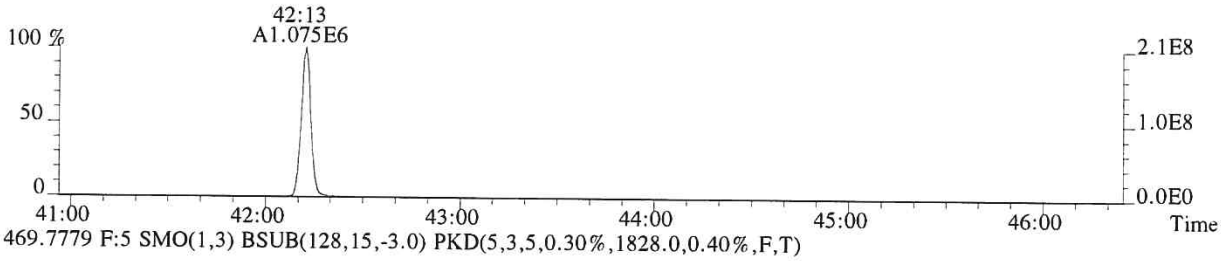


014966

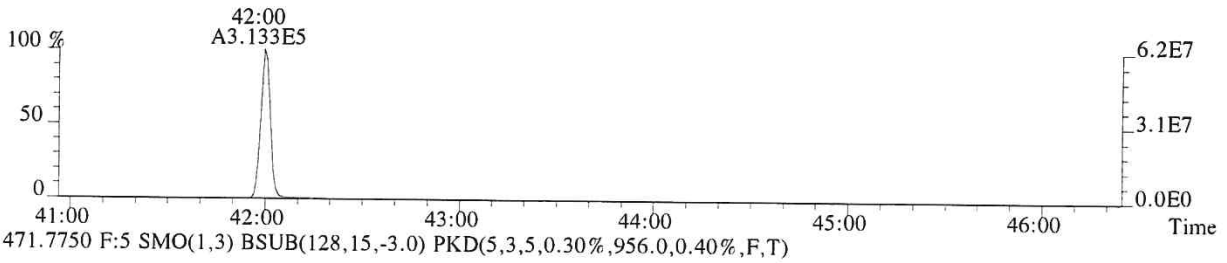
File:P614686 #1-493 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1464.0,0.40%,F,T)



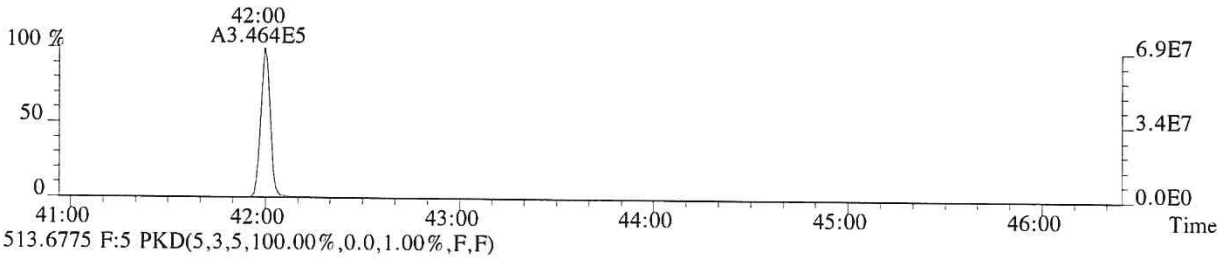
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2996.0,0.40%,F,T)



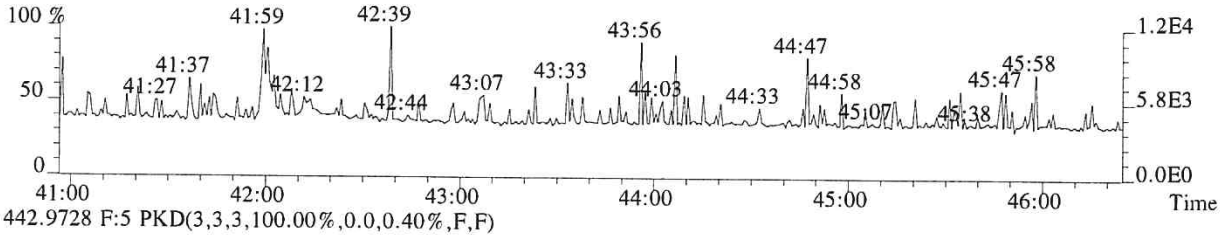
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1828.0,0.40%,F,T)



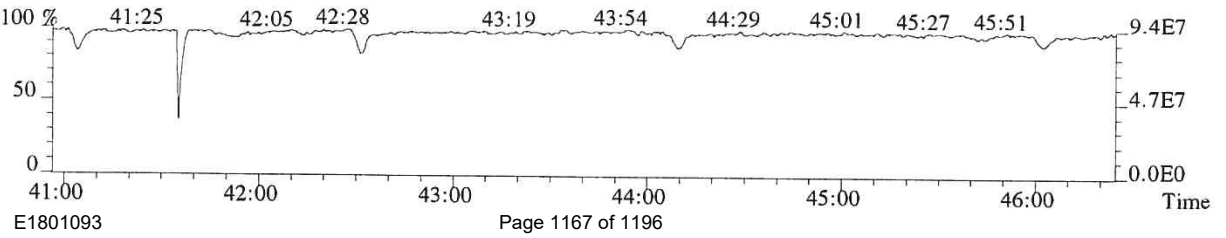
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,956.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

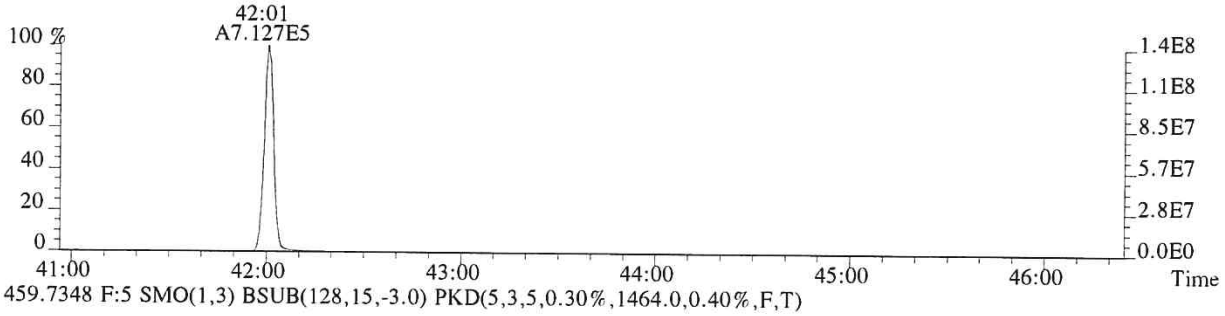


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

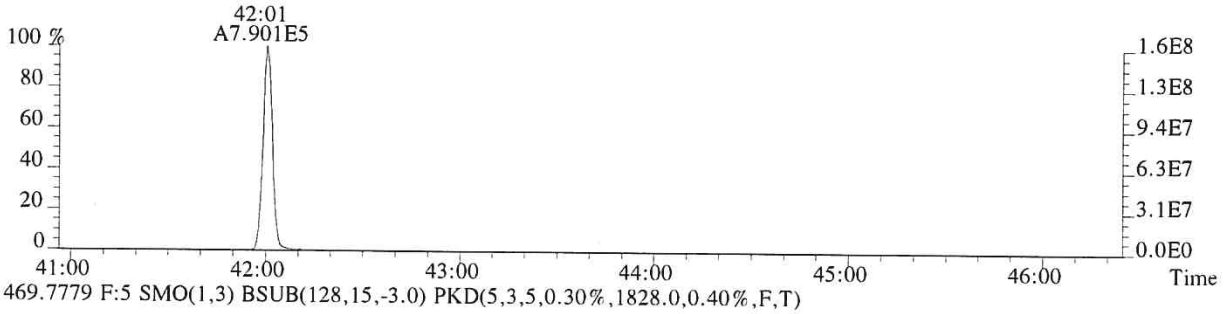


014967

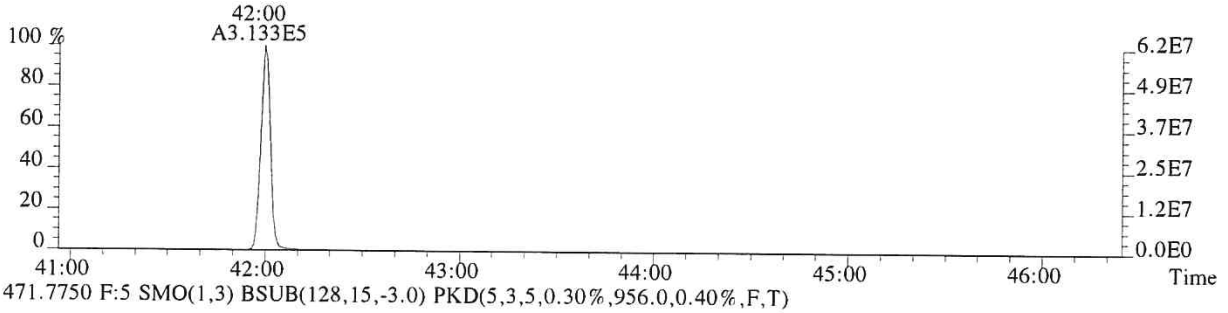
File:P614686 #1-493 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1244.0,0.40%,F,T)



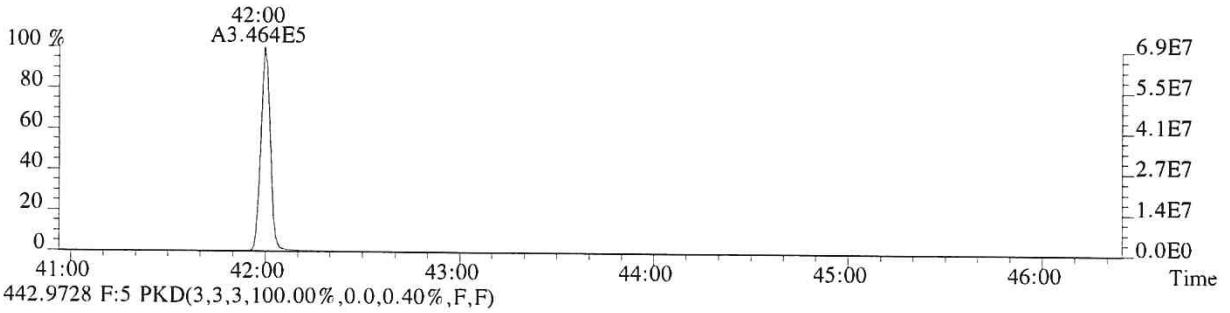
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1464.0,0.40%,F,T)



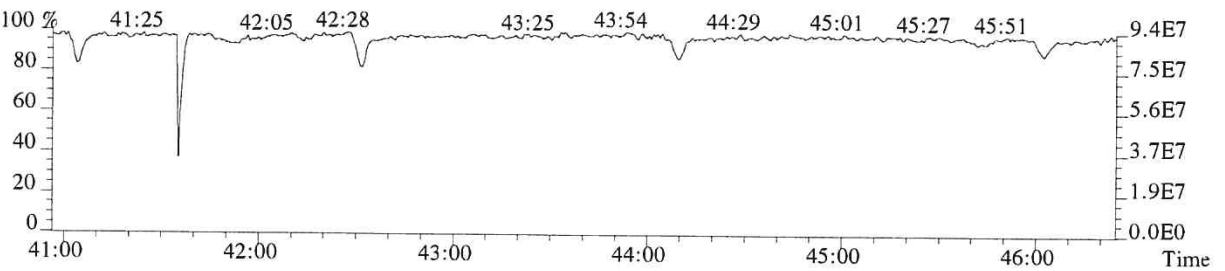
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1828.0,0.40%,F,T)



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)



014968

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
185657

Run #6 Filename P614687 Samp: 1 Inj: 1 Acquired: 25-SEP-18 18:30:08
Processed: 26-SEP-18 07:39:13 Sample ID: CS5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:00	4.651e+05	5.844e+05	0.80	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:14	4.117e+06	2.575e+06	1.60	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:09	3.795e+06	2.391e+06	1.59	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	3.313e+06	2.571e+06	1.29	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	3.588e+06	2.836e+06	1.27	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	3.399e+06	2.690e+06	1.26	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:10	3.119e+06	2.463e+06	1.27	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	3.035e+06	2.883e+06	1.05	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	2.518e+06	2.388e+06	1.05	yes	no	1.463
10	Unk	OCDF	42:13	3.855e+06	4.175e+06	0.92	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:48	3.257e+05	4.207e+05	0.77	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	2.277e+06	1.455e+06	1.57	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	2.053e+06	1.616e+06	1.27	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:38	2.042e+06	1.617e+06	1.26	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:52	2.180e+06	1.732e+06	1.26	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	1.868e+06	1.765e+06	1.06	yes	no	1.112
17	Unk	OCDD	42:01	2.725e+06	3.028e+06	0.90	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:59	2.197e+05	2.785e+05	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	3.496e+05	2.178e+05	1.60	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	3.453e+05	2.138e+05	1.61	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	1.447e+05	2.684e+05	0.54	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	1.758e+05	3.274e+05	0.54	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	1.668e+05	3.132e+05	0.53	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	1.489e+05	2.799e+05	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:23	1.241e+05	2.682e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:45	1.078e+05	2.346e+05	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	1.558e+05	1.966e+05	0.79	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:25	2.439e+05	1.553e+05	1.57	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:32	1.940e+05	1.538e+05	1.26	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:37	1.938e+05	1.542e+05	1.26	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	1.682e+05	1.601e+05	1.05	yes	no	0.857
32	IS	13C-OCDD	42:00	2.375e+05	2.681e+05	0.89	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:13	1.555e+05	1.925e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:51	2.160e+05	1.725e+05	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	7.877e+05				no	1.086

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www.alsglobal.com

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
185657

Run #6 Filename P614687 Samp: 1 Inj: 1 Acquired: 25-SEP-18 18:30:08
Processed: 26-SEP-18 07:39:13 LAB. ID: CS5

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	8.41e+07	1.94e+03	4.3e+04	1.06e+08	4.26e+03	2.5e+04
2	1,2,3,7,8-PeCDF	8.11e+08	8.46e+03	9.6e+04	5.11e+08	9.13e+03	5.6e+04
3	2,3,4,7,8-PeCDF	7.87e+08	8.46e+03	9.3e+04	4.93e+08	9.13e+03	5.4e+04
4	1,2,3,4,7,8-HxCDF	7.76e+08	1.23e+04	6.3e+04	6.07e+08	9.42e+03	6.4e+04
5	1,2,3,6,7,8-HxCDF	8.10e+08	1.23e+04	6.6e+04	6.40e+08	9.42e+03	6.8e+04
6	2,3,4,6,7,8-HxCDF	7.65e+08	1.23e+04	6.2e+04	6.05e+08	9.42e+03	6.4e+04
7	1,2,3,7,8,9-HxCDF	6.96e+08	1.23e+04	5.6e+04	5.46e+08	9.42e+03	5.8e+04
8	1,2,3,4,6,7,8-HpCDF	7.09e+08	9.68e+04	7.3e+03	6.78e+08	6.15e+04	1.1e+04
9	1,2,3,4,7,8,9-HpCDF	5.55e+08	9.68e+04	5.7e+03	5.29e+08	6.15e+04	8.6e+03
10	OCDF	7.55e+08	1.43e+03	5.3e+05	8.22e+08	2.80e+03	2.9e+05
11	2,3,7,8-TCDD	6.32e+07	4.52e+03	1.4e+04	8.21e+07	2.67e+03	3.1e+04
12	1,2,3,7,8-PeCDD	4.67e+08	3.26e+03	1.4e+05	2.98e+08	1.54e+03	1.9e+05
13	1,2,3,4,7,8-HxCDD	4.65e+08	2.34e+03	2.0e+05	3.68e+08	1.99e+03	1.8e+05
14	1,2,3,6,7,8-HxCDD	4.59e+08	2.34e+03	2.0e+05	3.67e+08	1.99e+03	1.8e+05
15	1,2,3,7,8,9-HxCDD	4.96e+08	2.34e+03	2.1e+05	3.98e+08	1.99e+03	2.0e+05
16	1,2,3,4,6,7,8-HpCDD	4.28e+08	1.10e+04	3.9e+04	4.06e+08	8.82e+03	4.6e+04
17	OCDD	5.24e+08	9.60e+02	5.5e+05	5.87e+08	1.87e+03	3.1e+05
18	13C-2,3,7,8-TCDF	3.91e+07	1.53e+04	2.6e+03	4.94e+07	1.22e+04	4.0e+03
19	13C-1,2,3,7,8-PeCDF	6.89e+07	2.06e+03	3.3e+04	4.27e+07	4.55e+03	9.4e+03
20	13C-2,3,4,7,8-PeCDF	6.95e+07	2.06e+03	3.4e+04	4.34e+07	4.55e+03	9.5e+03
21	13C-1,2,3,4,7,8-HxCDF	3.33e+07	2.62e+03	1.3e+04	6.22e+07	4.07e+03	1.5e+04
22	13C-1,2,3,6,7,8-HxCDF	3.91e+07	2.62e+03	1.5e+04	7.31e+07	4.07e+03	1.8e+04
23	13C-2,3,4,6,7,8-HxCDF	3.74e+07	2.62e+03	1.4e+04	6.98e+07	4.07e+03	1.7e+04
24	13C-1,2,3,7,8,9-HxCDF	3.36e+07	2.62e+03	1.3e+04	6.29e+07	4.07e+03	1.5e+04
25	13C-1,2,3,4,6,7,8-HpCDF	2.82e+07	6.76e+03	4.2e+03	6.20e+07	1.14e+04	5.5e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.34e+07	6.76e+03	3.5e+03	5.11e+07	1.14e+04	4.5e+03
27	13C-2,3,7,8-TCDD	3.04e+07	1.91e+04	1.6e+03	3.86e+07	8.85e+03	4.4e+03
28	13C-1,2,3,7,8-PeCDD	5.04e+07	1.98e+03	2.5e+04	3.21e+07	2.85e+03	1.1e+04
29	13C-1,2,3,4,7,8-HxCDD	4.39e+07	4.70e+03	9.3e+03	3.50e+07	2.24e+03	1.6e+04
30	13C-1,2,3,6,7,8-HxCDD	4.37e+07	4.70e+03	9.3e+03	3.49e+07	2.24e+03	1.6e+04
31	13C-1,2,3,4,6,7,8-HpCDD	3.82e+07	2.97e+03	1.3e+04	3.65e+07	2.54e+03	1.4e+04
32	13C-OCDD	4.50e+07	3.46e+03	1.3e+04	5.10e+07	1.82e+03	2.8e+04
33	13C-1,2,3,4-TCDD	2.93e+07	1.91e+04	1.5e+03	3.60e+07	8.85e+03	4.1e+03
34	13C-1,2,3,7,8,9-HxCDD	4.90e+07	4.70e+03	1.0e+04	3.94e+07	2.24e+03	1.8e+04
35	37Cl-2,3,7,8-TCDD	1.54e+08	4.95e+03	3.1e+04			

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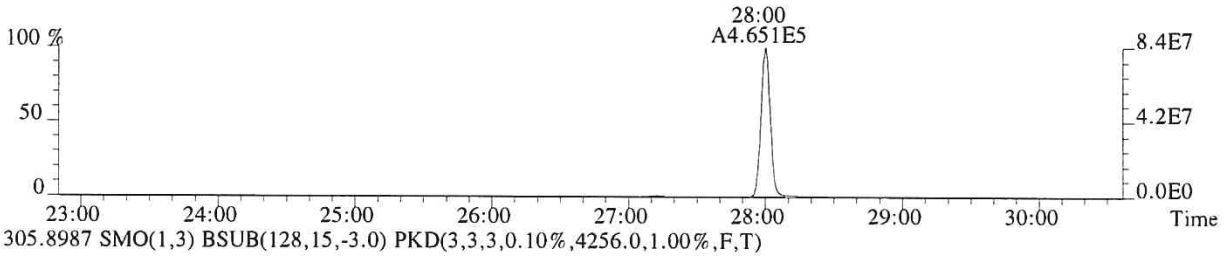
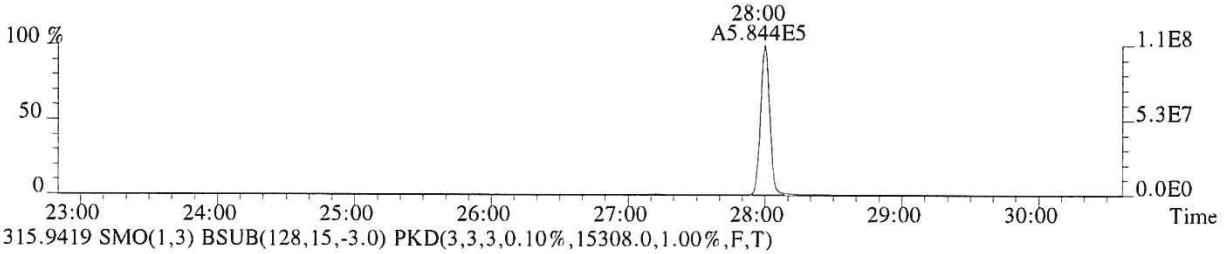
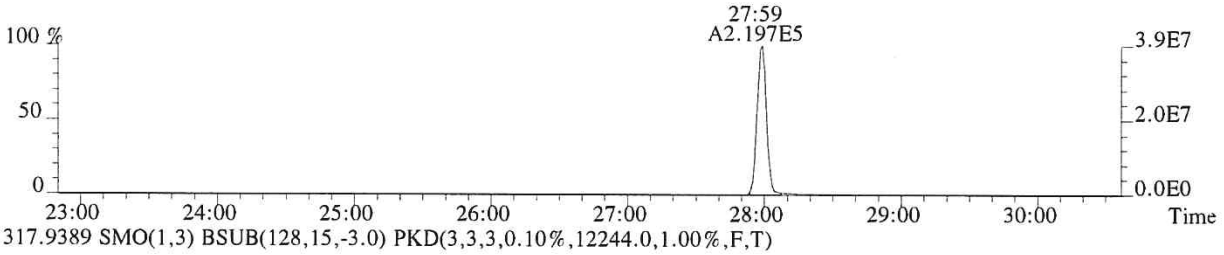
File:P614687 #1-552 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1940.0,1.00%,F,T)



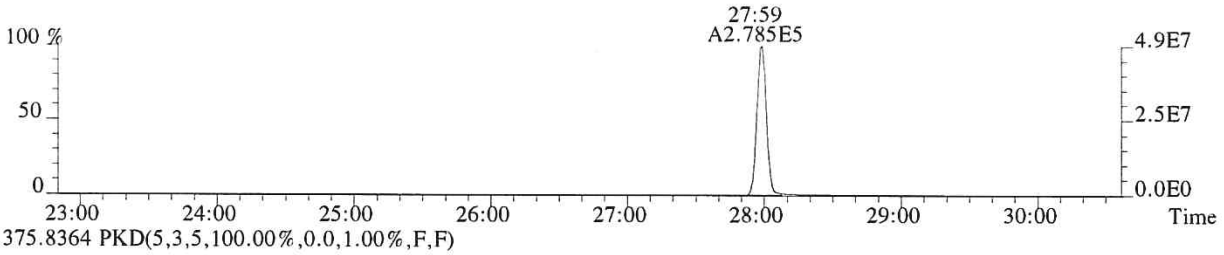
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4256.0,1.00%,F,T)



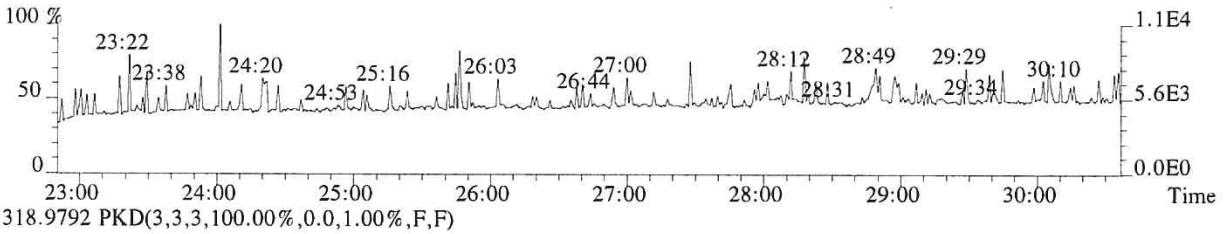
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15308.0,1.00%,F,T)



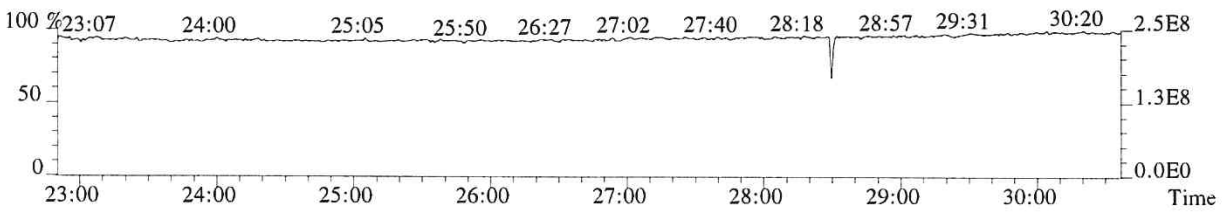
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,12244.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

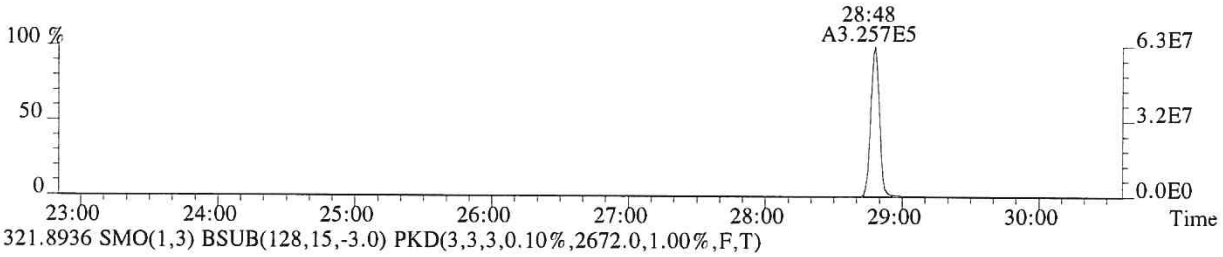


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

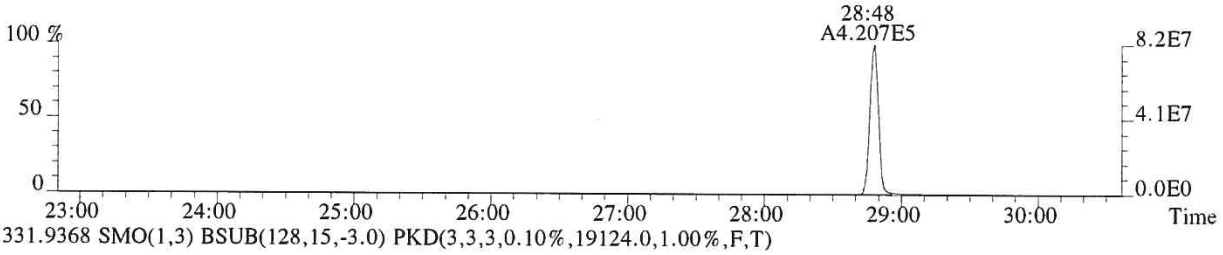


014971

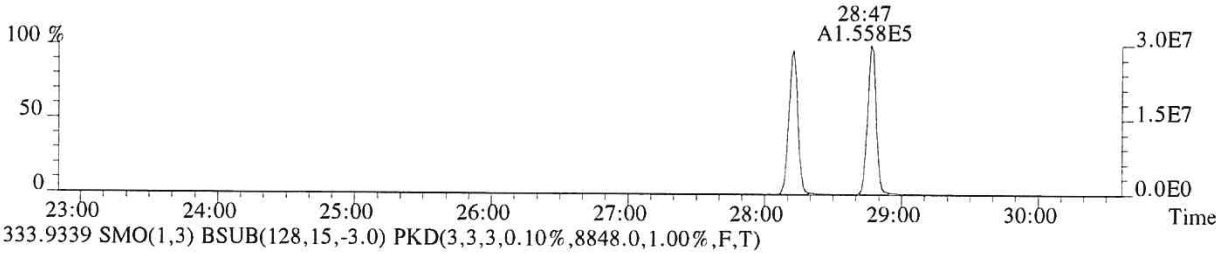
File:P614687 #1-552 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4516.0,1.00%,F,T)



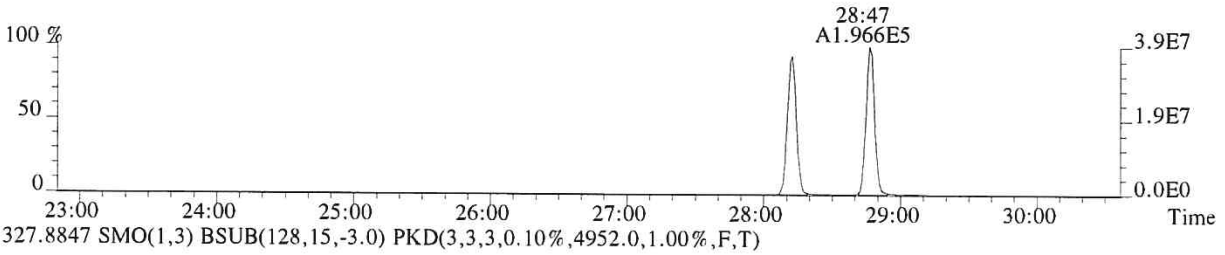
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2672.0,1.00%,F,T)



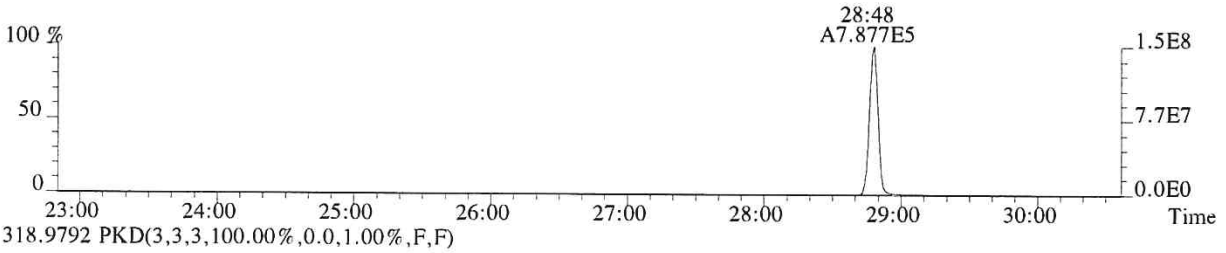
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,19124.0,1.00%,F,T)



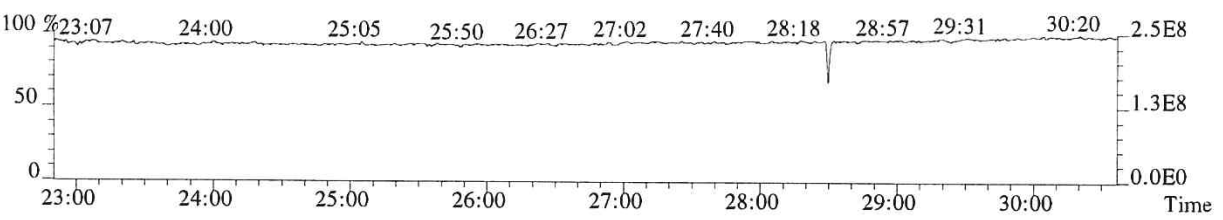
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8848.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4952.0,1.00%,F,T)

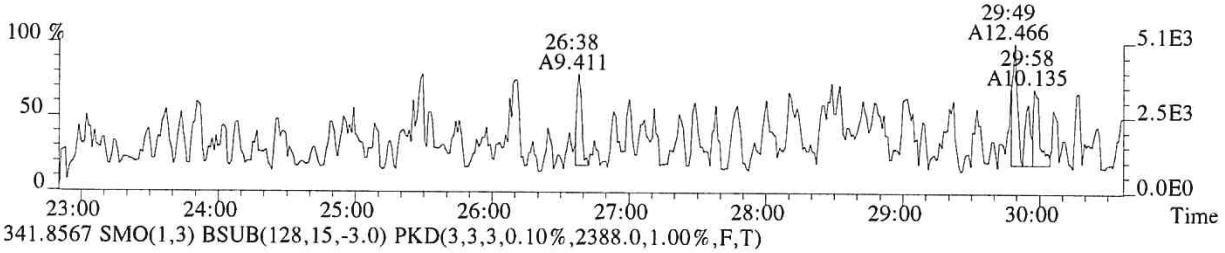


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

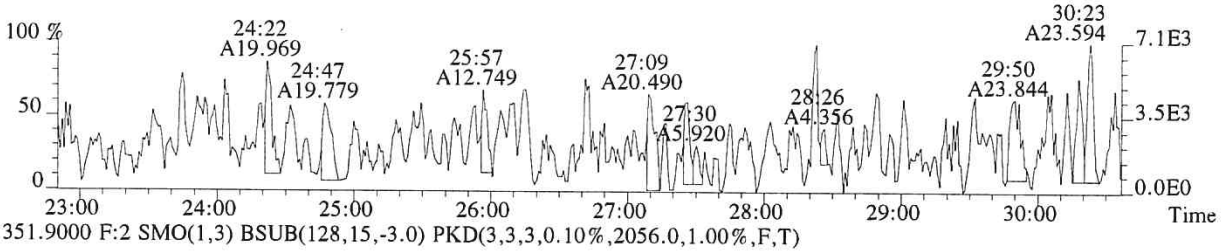


014972

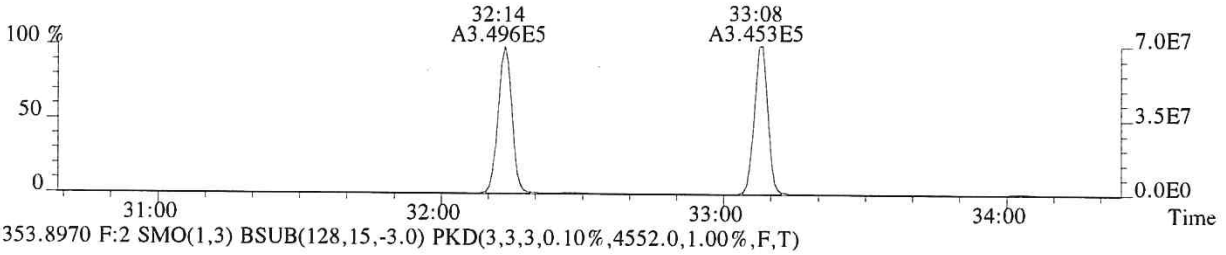
File:P614687 #1-552 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1884.0,1.00%,F,T)



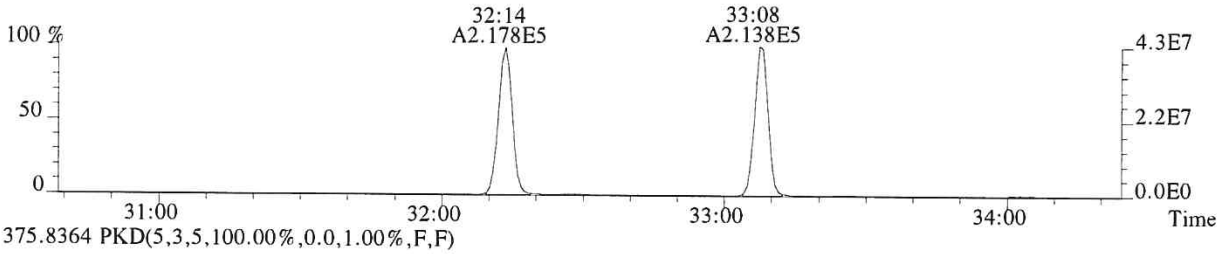
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2388.0,1.00%,F,T)



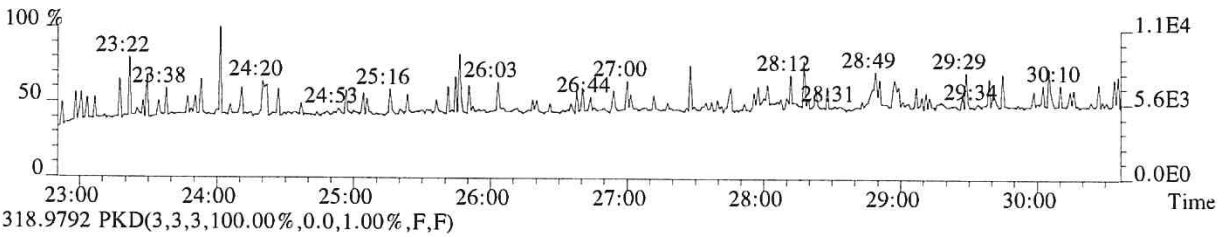
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2056.0,1.00%,F,T)



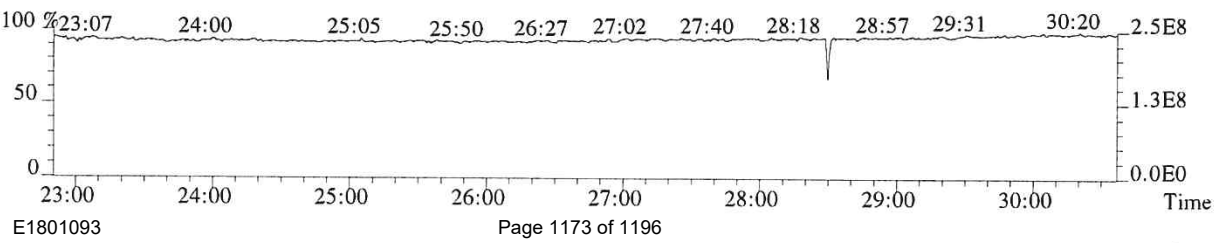
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4552.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



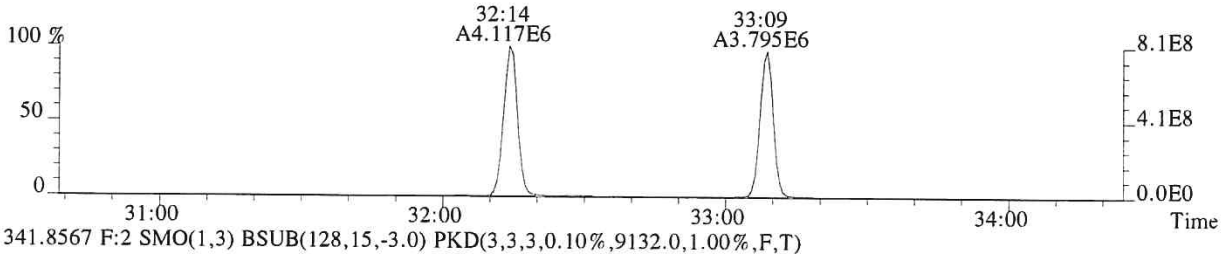
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



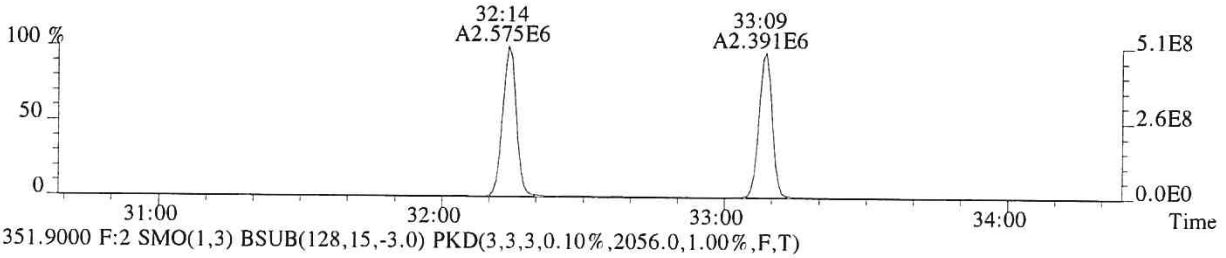
014973

File:P614687 #1-339 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5

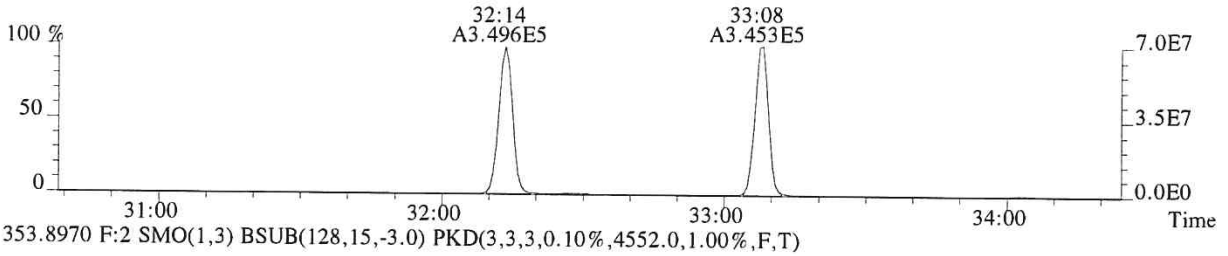
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8456.0,1.00%,F,T)



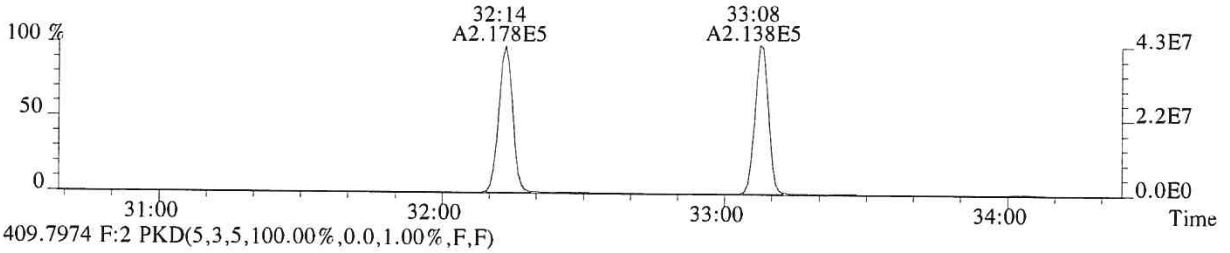
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9132.0,1.00%,F,T)



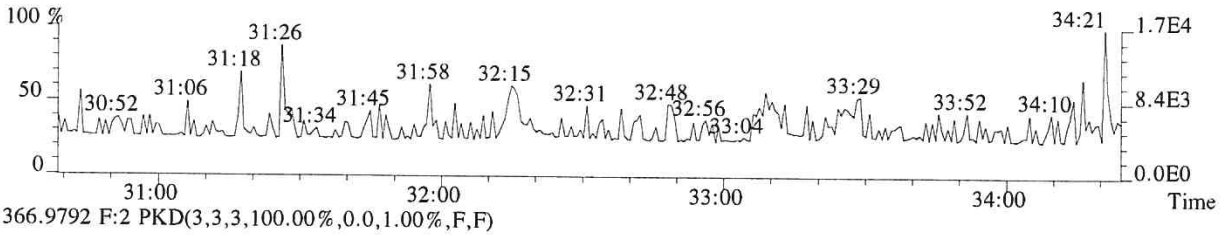
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2056.0,1.00%,F,T)



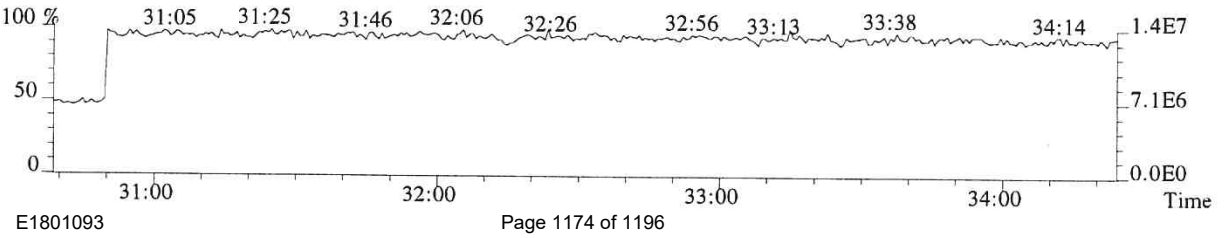
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4552.0,1.00%,F,T)



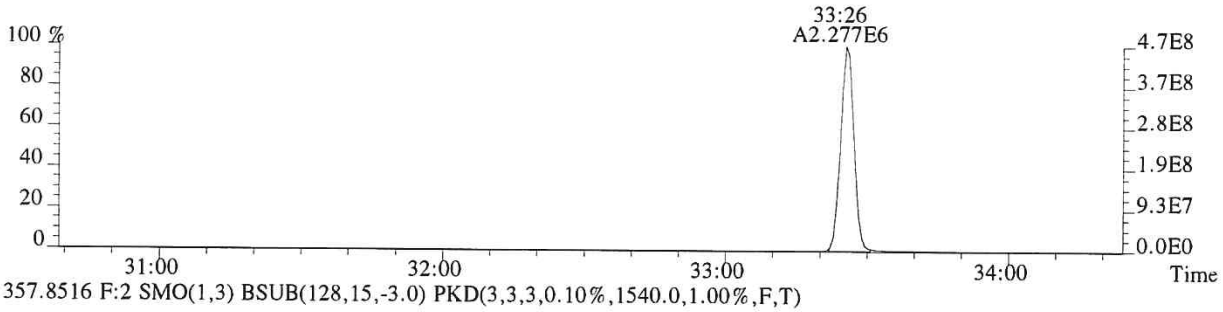
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



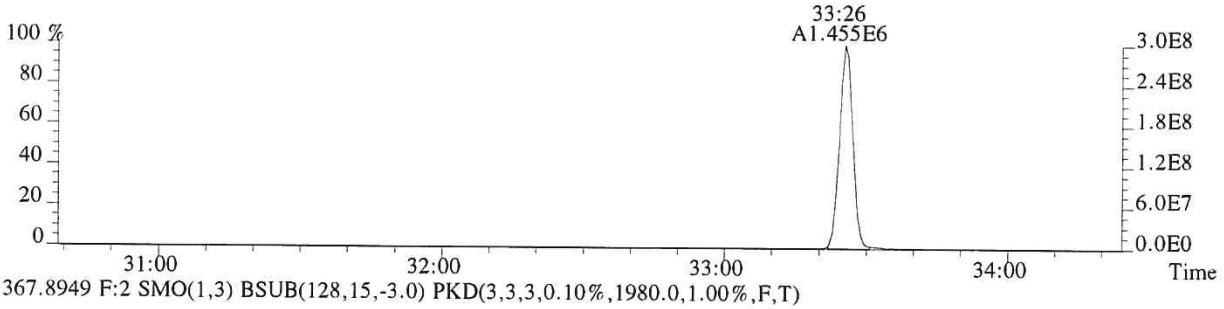
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



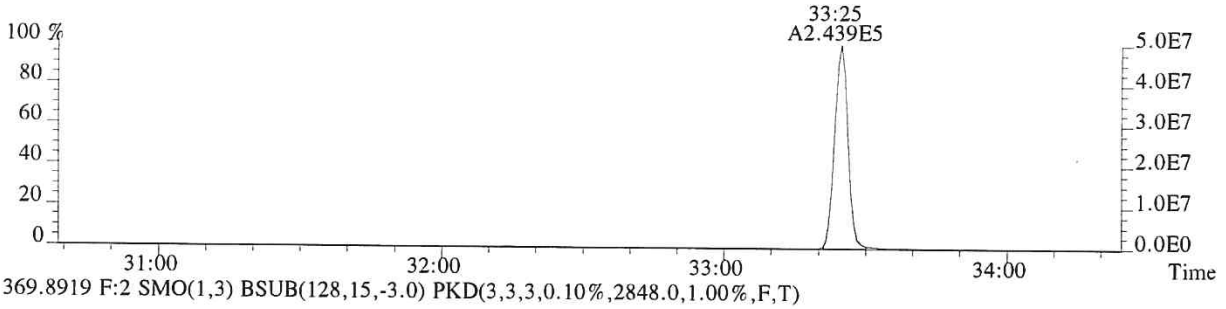
File:P614687 #1-339 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3264.0,1.00%,F,T)



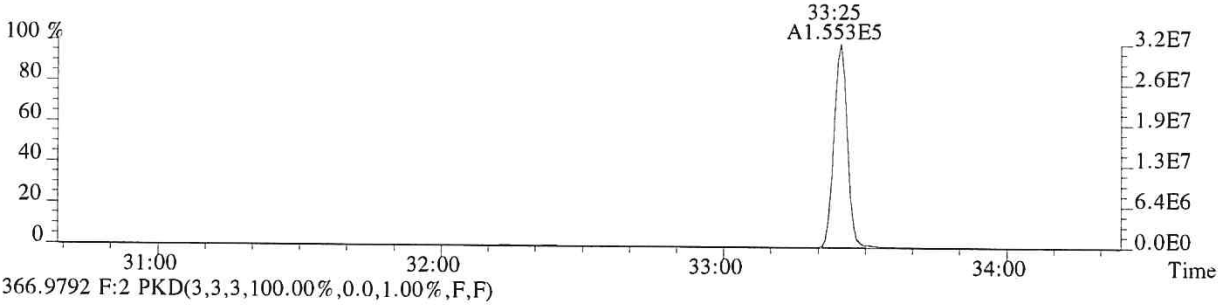
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1540.0,1.00%,F,T)



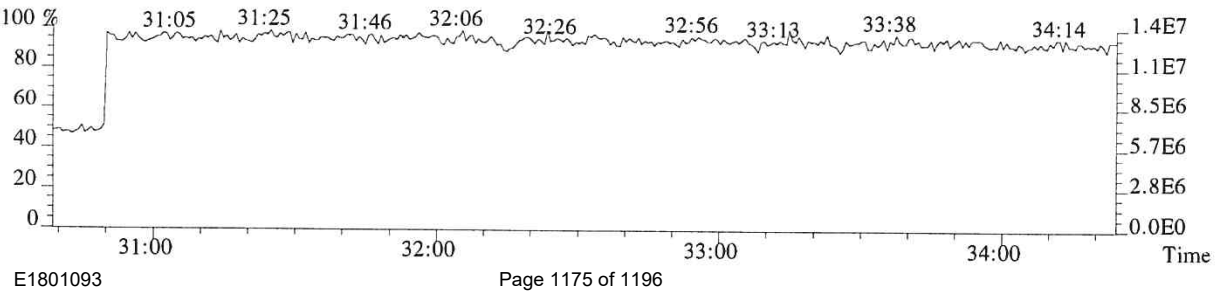
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1980.0,1.00%,F,T)



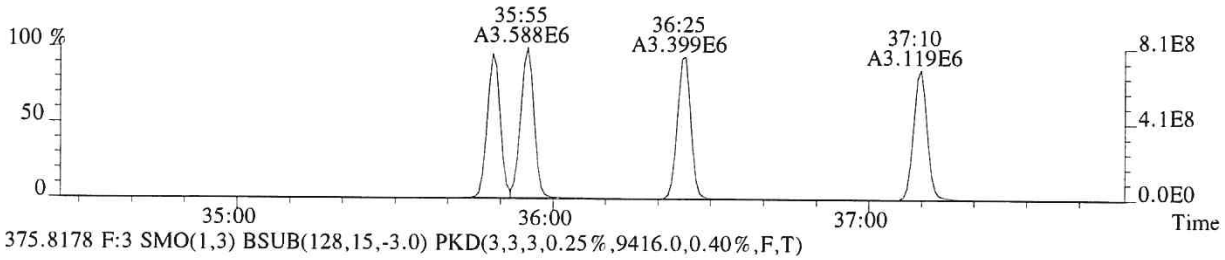
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2848.0,1.00%,F,T)



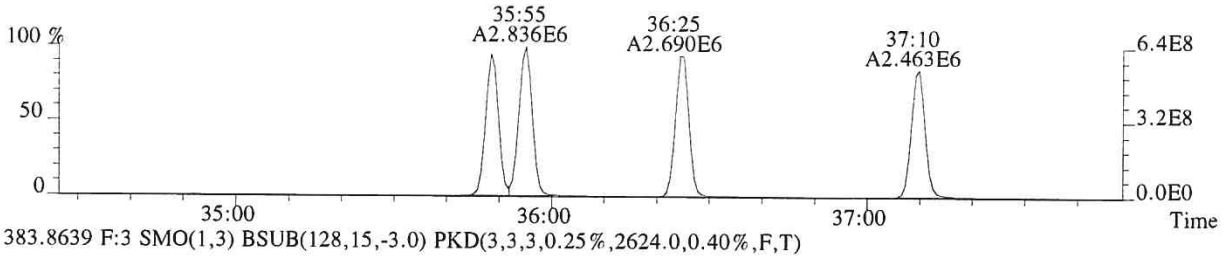
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



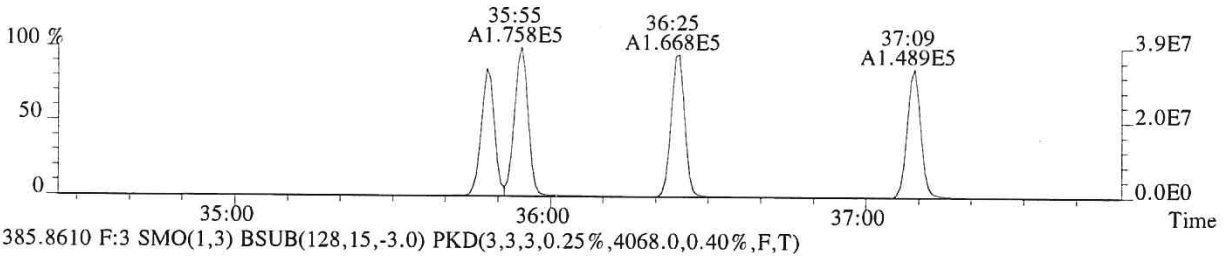
File:P614687 #1-304 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,12332.0,0.40%,F,T)



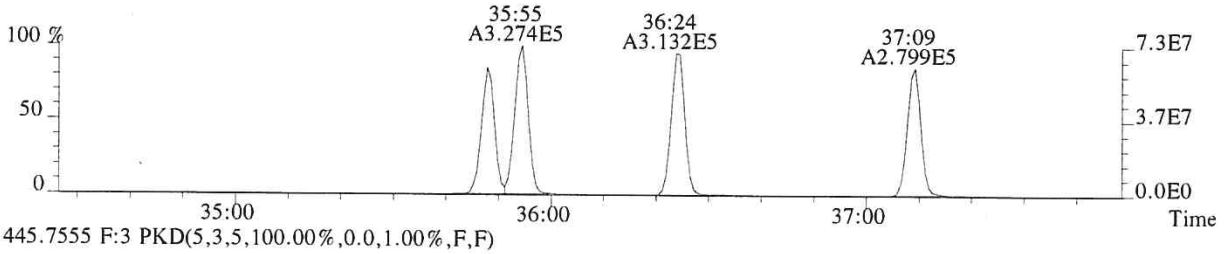
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,9416.0,0.40%,F,T)



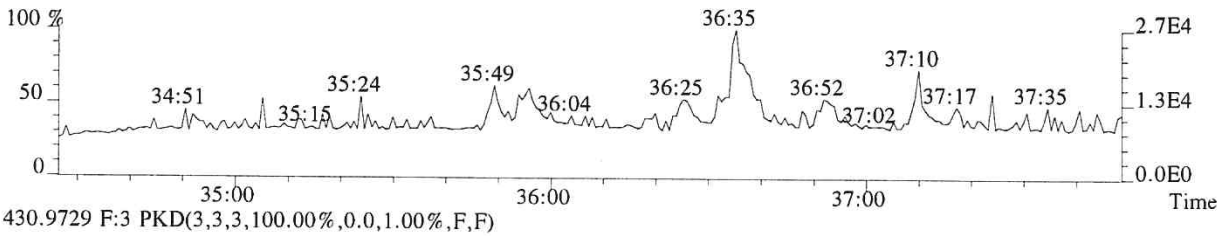
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2624.0,0.40%,F,T)



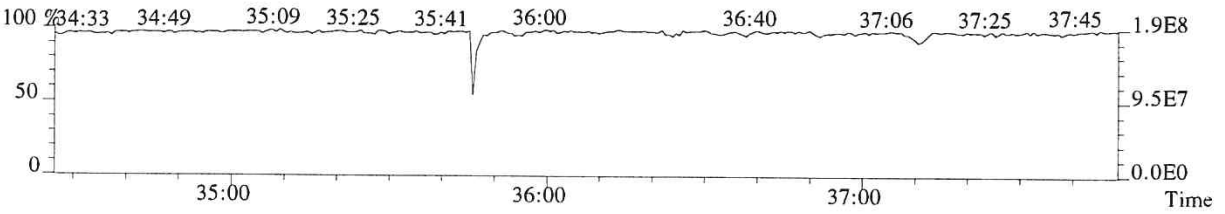
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4068.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

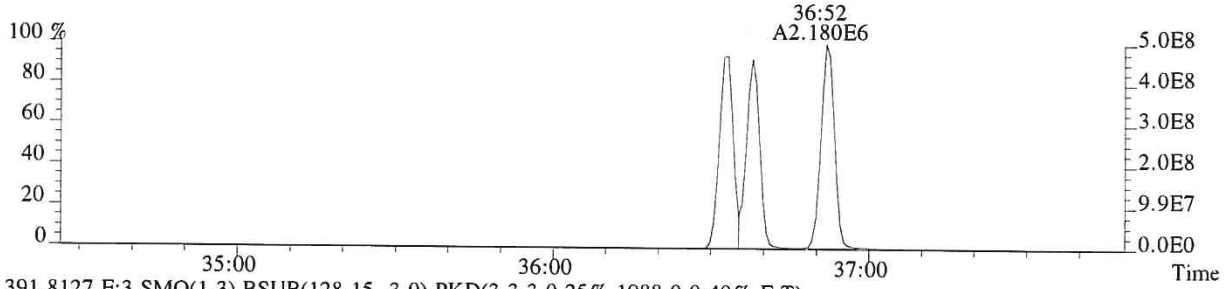


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

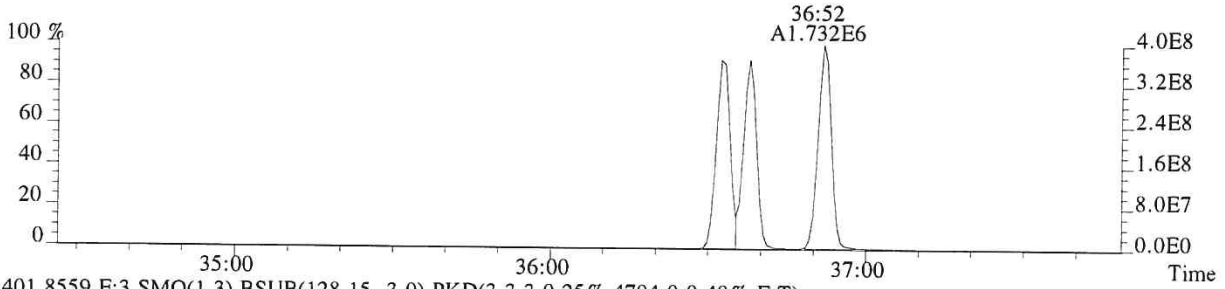


014976

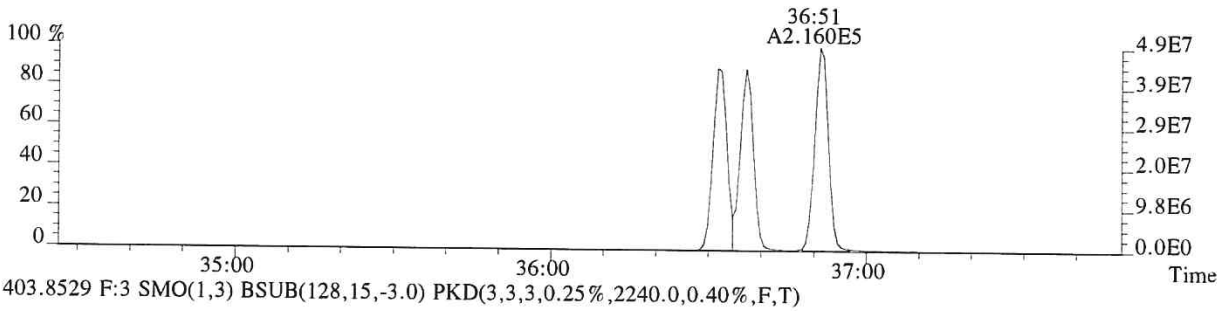
File:P614687 #1-304 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2336.0,0.40%,F,T)



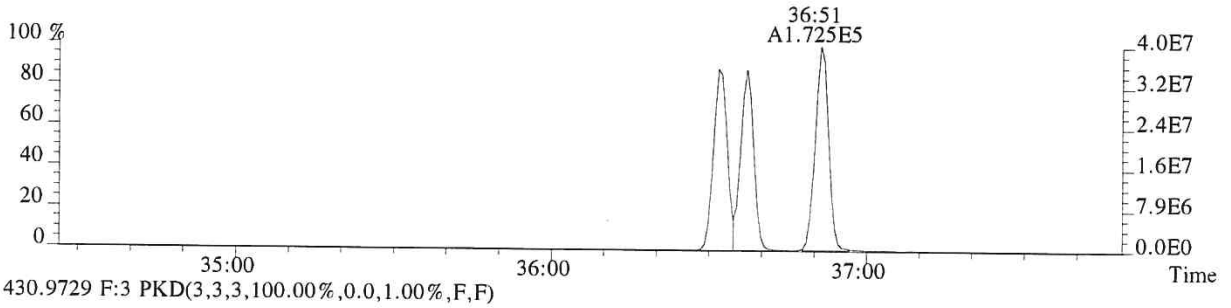
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1988.0,0.40%,F,T)



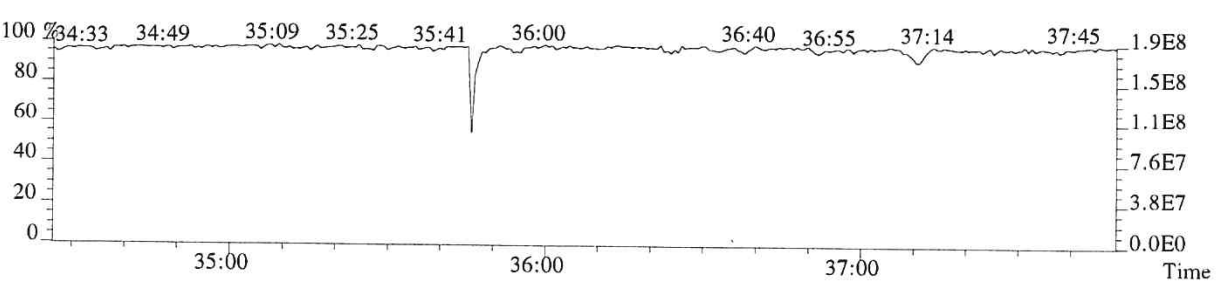
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4704.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2240.0,0.40%,F,T)

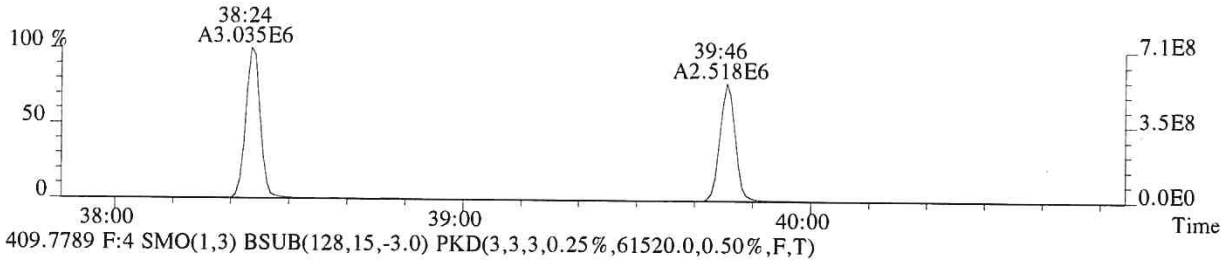


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

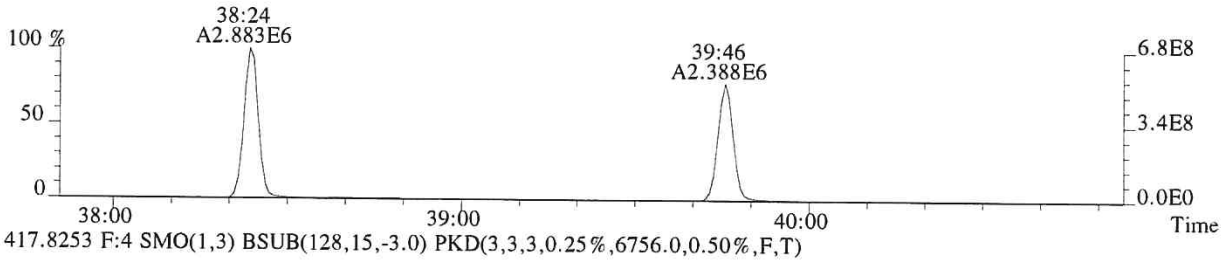


014977

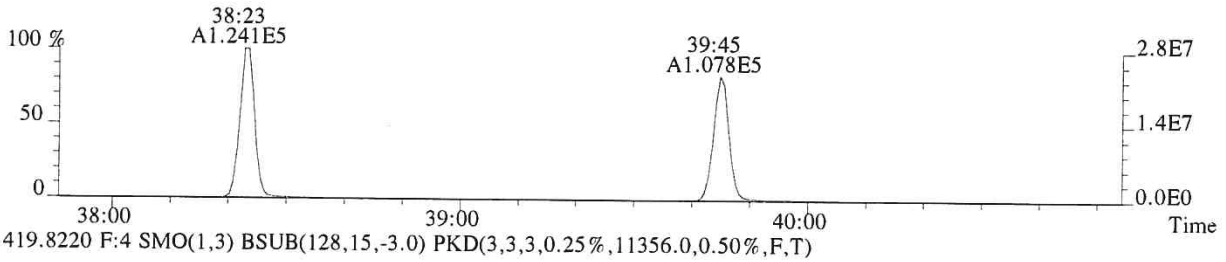
File:P614687 #1-276 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,96804.0,0.50%,F,T)



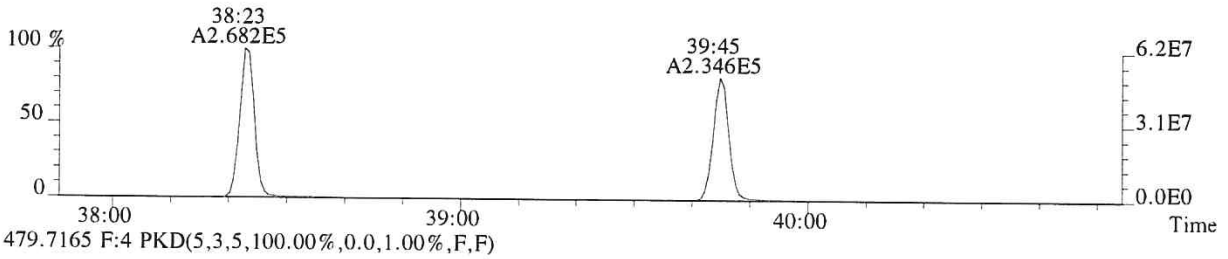
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,61520.0,0.50%,F,T)



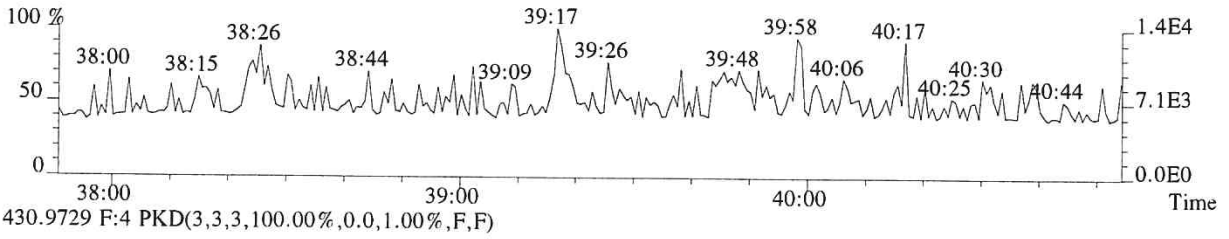
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6756.0,0.50%,F,T)



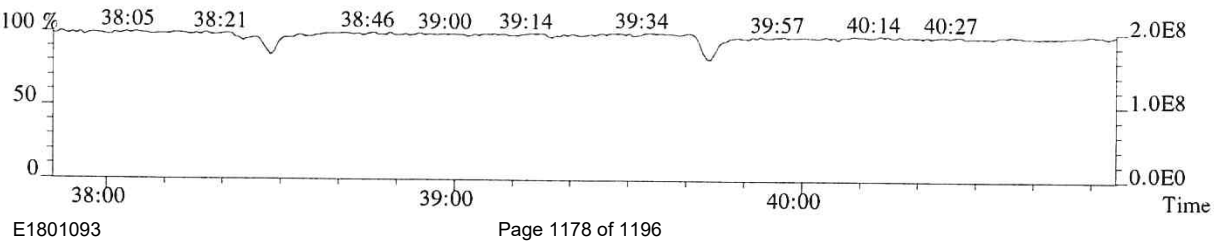
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11356.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

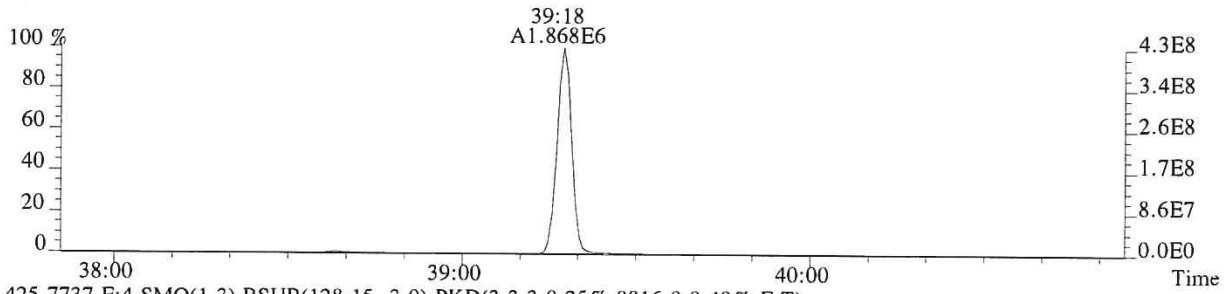


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

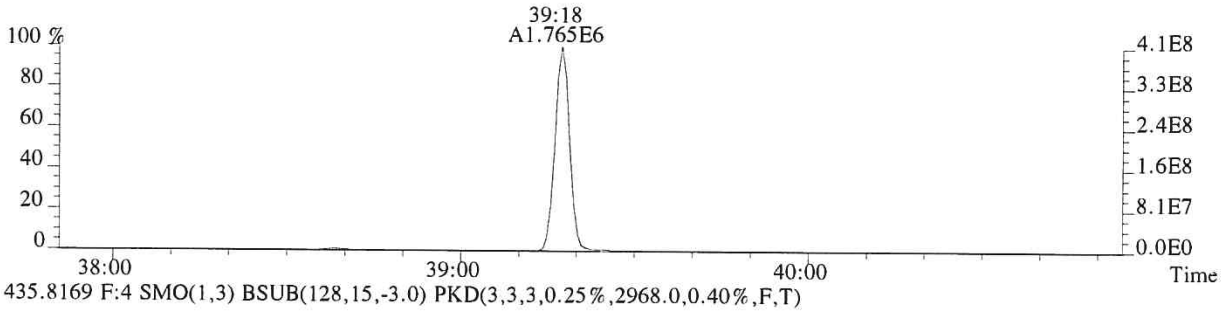


014978

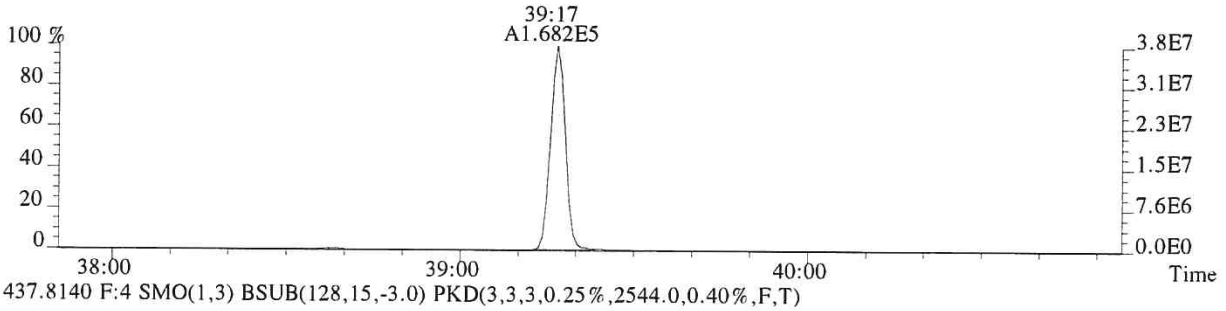
File:P614687 #1-276 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11044.0,0.40%,F,T)



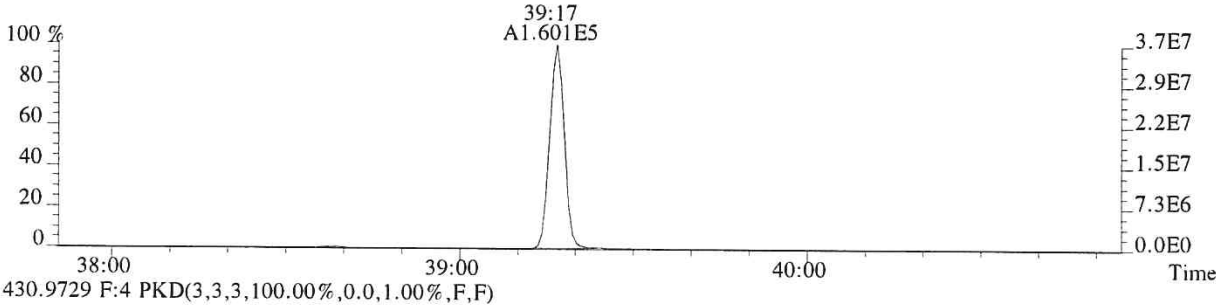
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8816.0,0.40%,F,T)



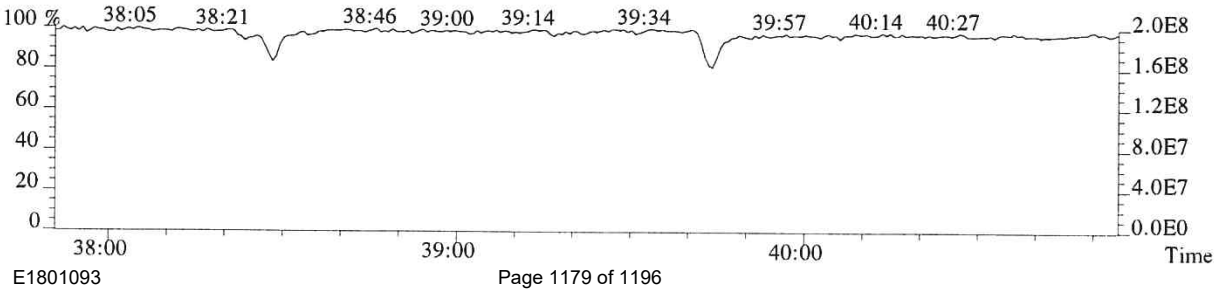
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2968.0,0.40%,F,T)



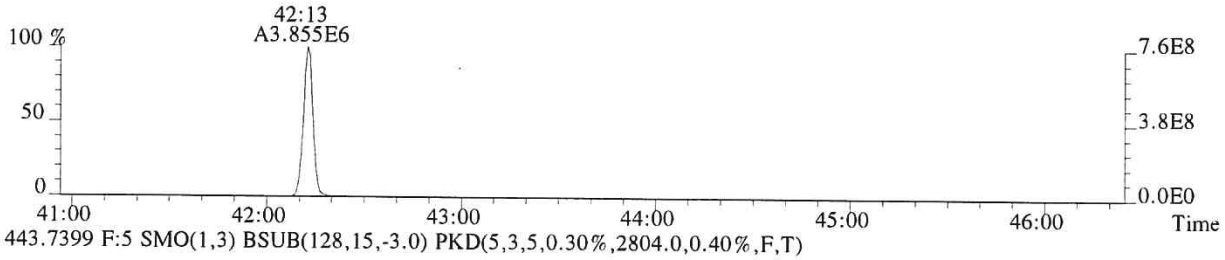
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2544.0,0.40%,F,T)



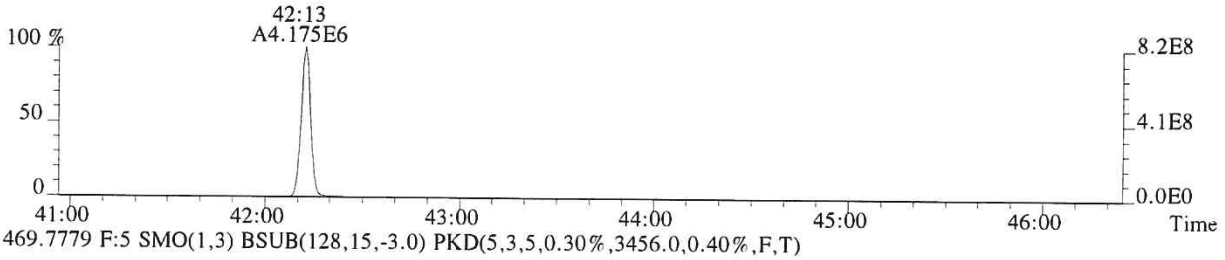
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



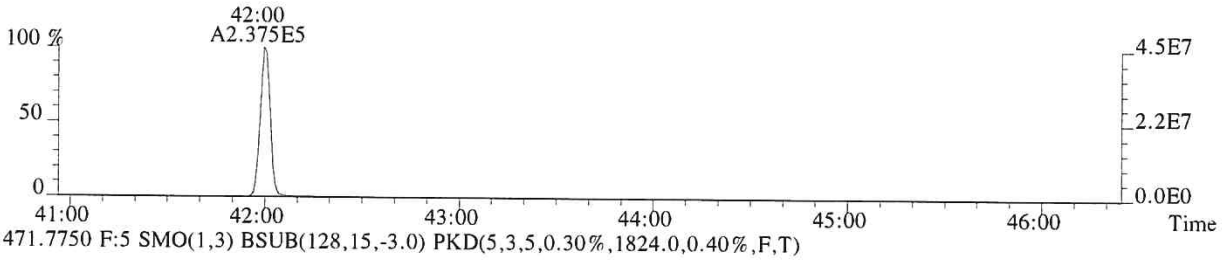
File:P614687 #1-493 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1428.0,0.40%,F,T)



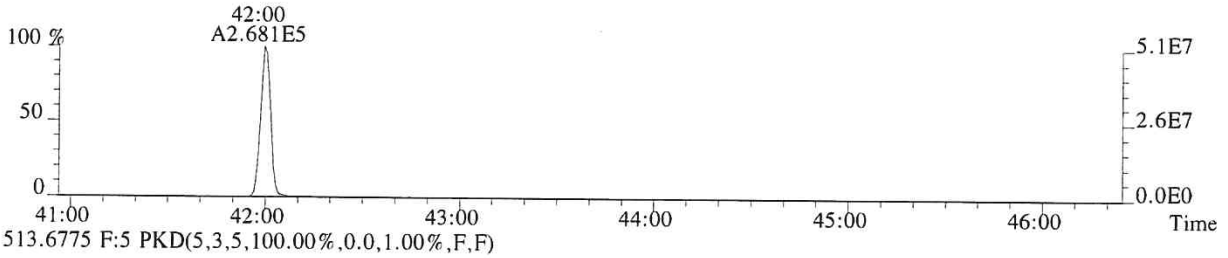
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2804.0,0.40%,F,T)



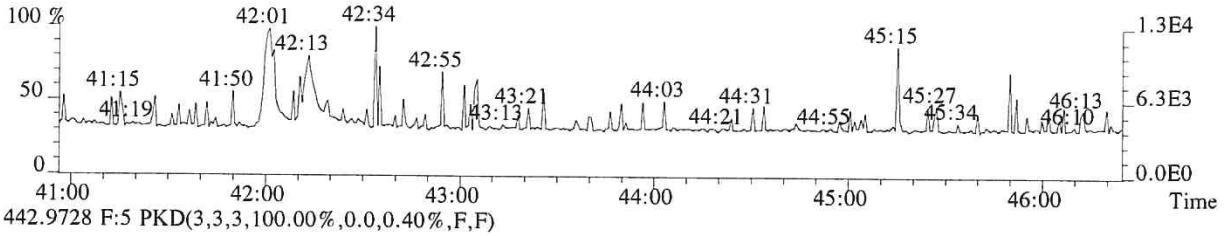
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3456.0,0.40%,F,T)



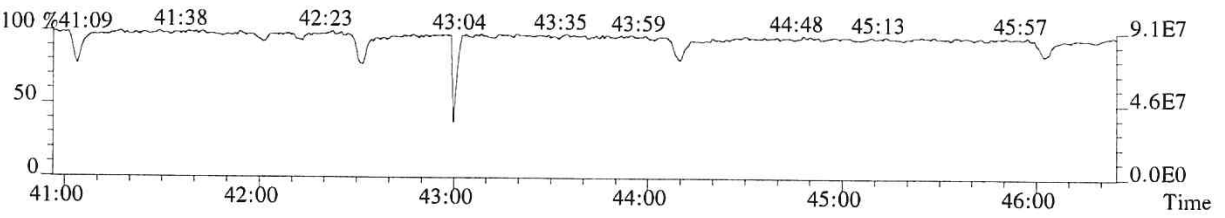
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1824.0,0.40%,F,T)



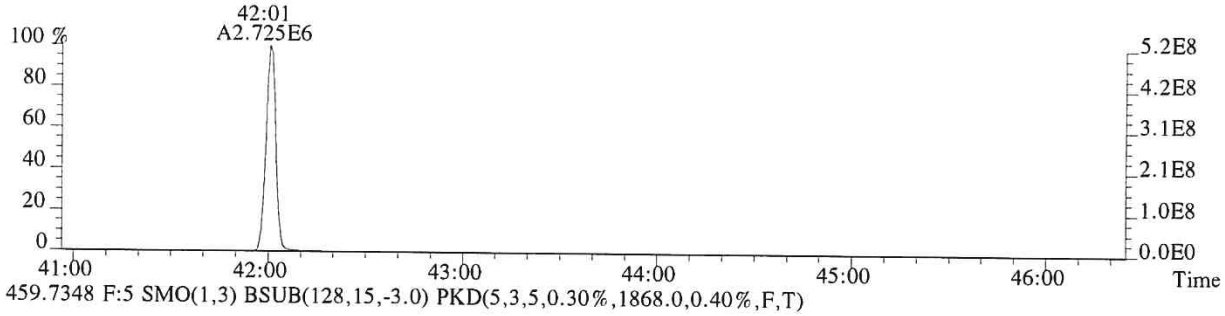
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



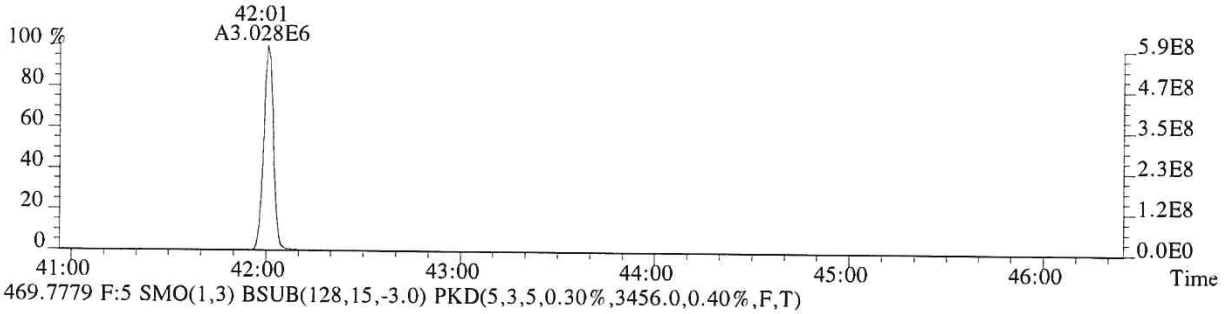
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



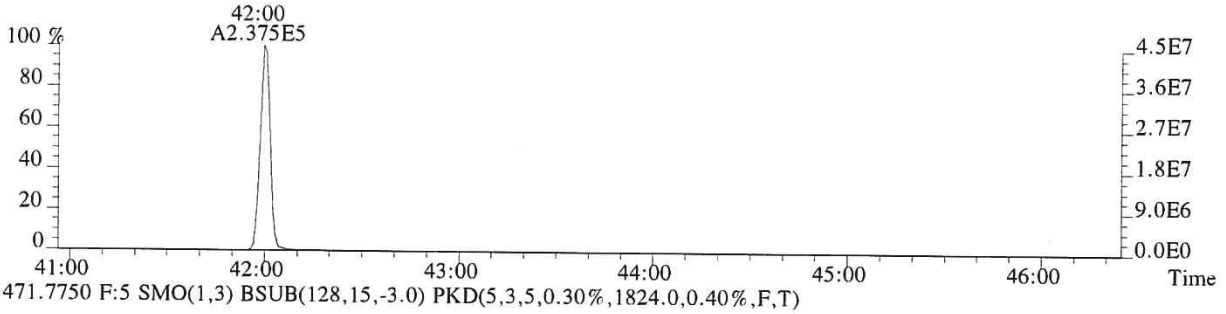
File:P614687 #1-493 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spectℓ
Sample#1 Exp:CS5
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,960.0,0.40%,F,T)



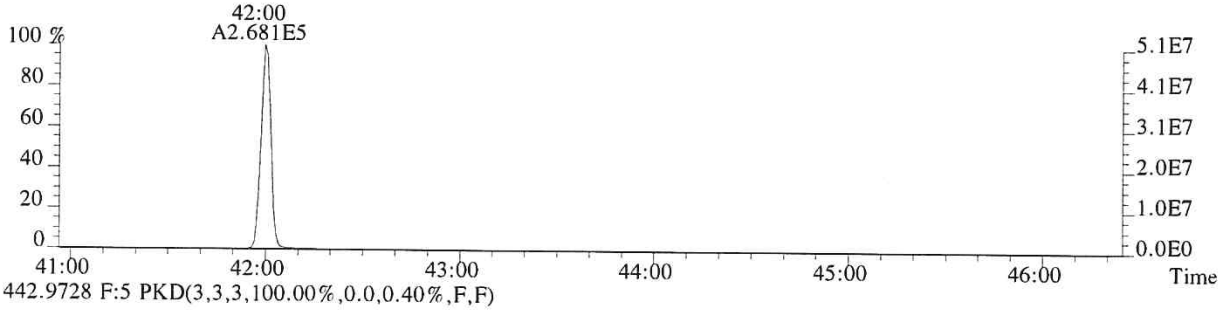
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1868.0,0.40%,F,T)



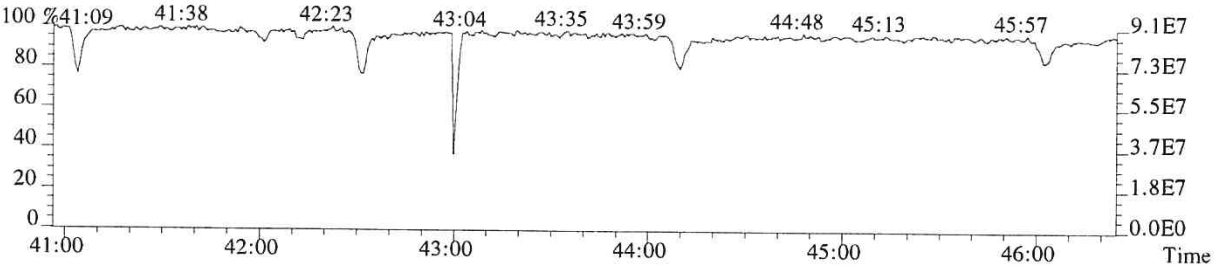
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3456.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1824.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 09/25/18

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: P614690 Analysis Date: 25-SEP-18 Time: 20:57:19

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	9.7	7.8 - 12.9	-2.5
1,2,3,7,8-PeCDD	M+2/M+4	1.57	1.32-1.78	49	39 - 65	-2.2
1,2,3,4,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	49	39 - 64	-2.2
1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	50	39 - 64	-0.1
1,2,3,7,8,9-HxCDD	M+2/M+4	1.26	1.05-1.43	49	41 - 61	-1.9
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	50	43 - 58	-0.9
OCDD	M+2/M+4	0.91	0.76-1.02	98	79 - 126	-2.1
2,3,7,8-TCDF	M/M+2	0.78	0.65-0.89	9.7	8.4 - 12.0	-2.7
1,2,3,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	49	41 - 60	-1.1
2,3,4,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	49	41 - 61	-1.4
1,2,3,4,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	49	45 - 56	-2.6
1,2,3,6,7,8-HxCDF	M+2/M+4	1.28	1.05-1.43	49	44 - 57	-2.3
1,2,3,7,8,9-HxCDF	M+2/M+4	1.28	1.05-1.43	50	45 - 56	0.3
2,3,4,6,7,8-HxCDF	M+2/M+4	1.26	1.05-1.43	50	44 - 57	-0.4
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.05	0.88-1.20	50	45 - 55	-0.6
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.02	0.88-1.20	48	43 - 58	-3.5
OCDF	M+2/M+4	0.93	0.76-1.02	100	63 - 159	-0.4

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 09/25/18

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: P614690 Analysis Date: 25-SEP-18 Time: 20:57:19

LABELED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
13C-2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	99	82 - 121	-0.7
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.56	1.32-1.78	97	62 - 160	-2.6
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	102	85 - 117	1.5
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	100	85 - 118	-0.2
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	105	72 - 138	5.2
13C-OCDD	M+2/M+4	0.89	0.76-1.02	224	96 - 415	11.9
13C-2,3,7,8-TCDF	M/M+2	0.80	0.65-0.89	99	71 - 140	-0.7
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.61	1.32-1.78	98	76 - 130	-2.1
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	96	77 - 130	-3.8
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.54	0.43-0.59	102	76 - 131	2.1
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	101	70 - 143	0.6
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	100	74 - 135	0.4
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.54	0.43-0.59	100	73 - 137	0.2
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.46	0.37-0.51	103	78 - 129	2.7
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.46	0.37-0.51	109	77 - 129	9.0
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.9	7.8 - 12.7	-1.0

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
188969

Run #7 Filename P614690 Samp: 1 Inj: 1 Acquired: 25-SEP-18 20:57:19
Processed: 26-SEP-18 08:08:37 Sample ID: 2ND SOURCE

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:00	1.742e+04	2.239e+04	0.78	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:14	1.470e+05	9.342e+04	1.57	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:09	1.362e+05	8.490e+04	1.60	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	1.308e+05	1.044e+05	1.25	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	1.371e+05	1.074e+05	1.28	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	1.285e+05	1.018e+05	1.26	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:09	1.211e+05	9.459e+04	1.28	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	1.180e+05	1.126e+05	1.05	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	1.018e+05	9.931e+04	1.02	yes	no	1.463
10	Unk	OCDF	42:12	1.605e+05	1.721e+05	0.93	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:48	1.193e+04	1.490e+04	0.80	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	8.164e+04	5.215e+04	1.57	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	7.752e+04	6.082e+04	1.27	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:38	7.678e+04	6.066e+04	1.27	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:52	8.213e+04	6.494e+04	1.26	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	7.382e+04	6.944e+04	1.06	yes	no	1.112
17	Unk	OCDD	42:01	1.146e+05	1.261e+05	0.91	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:59	1.682e+05	2.104e+05	0.80	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	2.590e+05	1.613e+05	1.61	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	2.497e+05	1.565e+05	1.60	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	1.202e+05	2.212e+05	0.54	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:54	1.342e+05	2.529e+05	0.53	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:24	1.258e+05	2.350e+05	0.54	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	1.132e+05	2.142e+05	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:23	9.579e+04	2.089e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:45	8.964e+04	1.952e+05	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	1.166e+05	1.457e+05	0.80	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:25	1.797e+05	1.149e+05	1.56	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:32	1.476e+05	1.165e+05	1.27	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:37	1.453e+05	1.145e+05	1.27	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	1.336e+05	1.263e+05	1.06	yes	no	0.857
32	IS	13C-OCDD	42:00	2.007e+05	2.242e+05	0.89	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:13	1.202e+05	1.487e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:51	1.598e+05	1.284e+05	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	2.893e+04				no	1.086

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
188969

Run #7 Filename P614690 Samp: 1 Inj: 1 Acquired: 25-SEP-18 20:57:19
Processed: 26-SEP-18 08:08:37 LAB. ID: 2ND SOURCE

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	3.08e+06	2.16e+03	1.4e+03	3.95e+06	5.67e+03	7.0e+02
2	1,2,3,7,8-PeCDF	2.75e+07	1.50e+03	1.8e+04	1.74e+07	8.24e+03	2.1e+03
3	2,3,4,7,8-PeCDF	2.67e+07	1.50e+03	1.8e+04	1.67e+07	8.24e+03	2.0e+03
4	1,2,3,4,7,8-HxCDF	2.88e+07	2.35e+03	1.2e+04	2.29e+07	2.48e+03	9.3e+03
5	1,2,3,6,7,8-HxCDF	2.88e+07	2.35e+03	1.2e+04	2.30e+07	2.48e+03	9.3e+03
6	2,3,4,6,7,8-HxCDF	2.86e+07	2.35e+03	1.2e+04	2.28e+07	2.48e+03	9.2e+03
7	1,2,3,7,8,9-HxCDF	2.47e+07	2.35e+03	1.1e+04	1.95e+07	2.48e+03	7.9e+03
8	1,2,3,4,6,7,8-HpCDF	2.70e+07	4.46e+03	6.0e+03	2.58e+07	1.29e+04	2.0e+03
9	1,2,3,4,7,8,9-HpCDF	2.12e+07	4.46e+03	4.8e+03	2.03e+07	1.29e+04	1.6e+03
10	OCDF	3.01e+07	1.50e+03	2.0e+04	3.28e+07	3.09e+03	1.1e+04
11	2,3,7,8-TCDD	2.20e+06	4.04e+03	5.4e+02	2.73e+06	2.27e+03	1.2e+03
12	1,2,3,7,8-PeCDD	1.64e+07	3.14e+03	5.2e+03	1.06e+07	2.92e+02	3.6e+04
13	1,2,3,4,7,8-HxCDD	1.79e+07	1.59e+03	1.1e+04	1.41e+07	2.43e+03	5.8e+03
14	1,2,3,6,7,8-HxCDD	1.70e+07	1.59e+03	1.1e+04	1.34e+07	2.43e+03	5.5e+03
15	1,2,3,7,8,9-HxCDD	1.85e+07	1.59e+03	1.2e+04	1.48e+07	2.43e+03	6.1e+03
16	1,2,3,4,6,7,8-HpCDD	1.59e+07	2.28e+03	7.0e+03	1.49e+07	8.84e+02	1.7e+04
17	OCDD	2.16e+07	1.17e+03	1.8e+04	2.38e+07	1.31e+03	1.8e+04
18	13C-2,3,7,8-TCDF	2.88e+07	1.57e+04	1.8e+03	3.60e+07	9.18e+03	3.9e+03
19	13C-1,2,3,7,8-PeCDF	4.79e+07	4.01e+03	1.2e+04	3.00e+07	3.41e+03	8.8e+03
20	13C-2,3,4,7,8-PeCDF	4.95e+07	4.01e+03	1.2e+04	3.12e+07	3.41e+03	9.1e+03
21	13C-1,2,3,4,7,8-HxCDF	2.65e+07	2.99e+03	8.9e+03	4.93e+07	3.83e+03	1.3e+04
22	13C-1,2,3,6,7,8-HxCDF	2.83e+07	2.99e+03	9.5e+03	5.32e+07	3.83e+03	1.4e+04
23	13C-2,3,4,6,7,8-HxCDF	2.80e+07	2.99e+03	9.4e+03	5.25e+07	3.83e+03	1.4e+04
24	13C-1,2,3,7,8,9-HxCDF	2.35e+07	2.99e+03	7.9e+03	4.43e+07	3.83e+03	1.2e+04
25	13C-1,2,3,4,6,7,8-HpCDF	2.19e+07	7.32e+03	3.0e+03	4.77e+07	1.38e+04	3.5e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.88e+07	7.32e+03	2.6e+03	4.06e+07	1.38e+04	2.9e+03
27	13C-2,3,7,8-TCDD	2.17e+07	2.56e+04	8.4e+02	2.71e+07	6.97e+03	3.9e+03
28	13C-1,2,3,7,8-PeCDD	3.57e+07	3.26e+03	1.1e+04	2.28e+07	2.28e+03	1.0e+04
29	13C-1,2,3,4,7,8-HxCDD	3.37e+07	5.66e+03	6.0e+03	2.64e+07	3.42e+03	7.7e+03
30	13C-1,2,3,6,7,8-HxCDD	3.18e+07	5.66e+03	5.6e+03	2.51e+07	3.42e+03	7.3e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.85e+07	3.13e+03	9.1e+03	2.68e+07	1.88e+03	1.4e+04
32	13C-OCDD	3.77e+07	2.72e+03	1.4e+04	4.17e+07	9.60e+02	4.3e+04
33	13C-1,2,3,4-TCDD	2.21e+07	2.56e+04	8.6e+02	2.72e+07	6.97e+03	3.9e+03
34	13C-1,2,3,7,8,9-HxCDD	3.62e+07	5.66e+03	6.4e+03	2.92e+07	3.42e+03	8.5e+03
35	37Cl-2,3,7,8-TCDD	5.28e+06	4.24e+03	1.2e+03			

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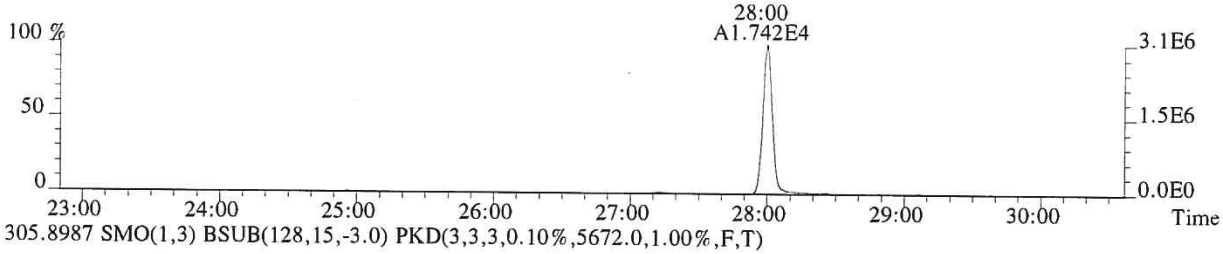
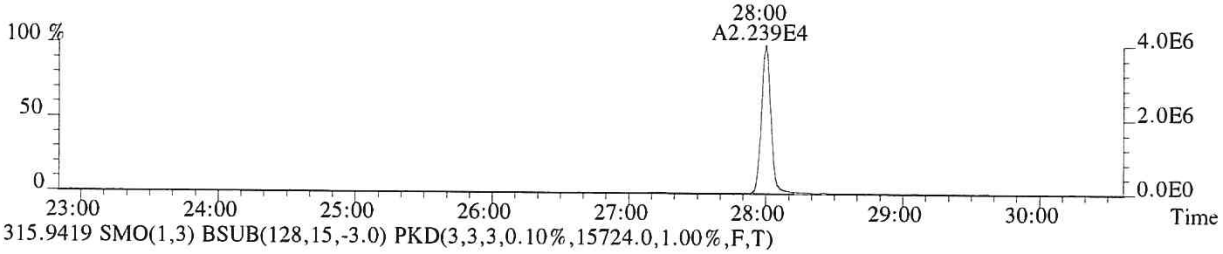
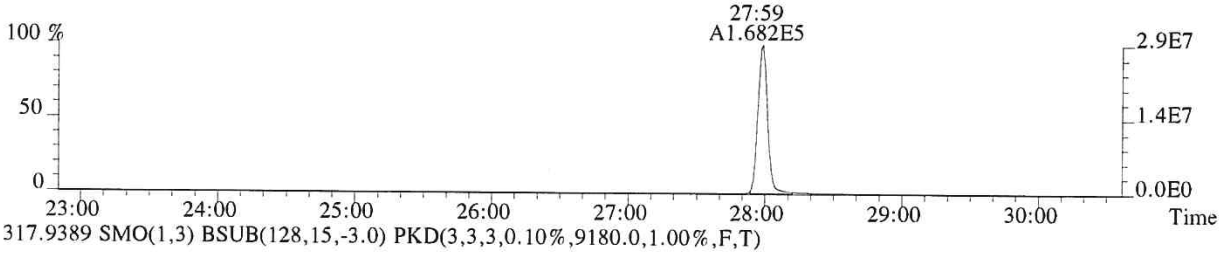
File:P614690 #1-552 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2160.0,1.00%,F,T)



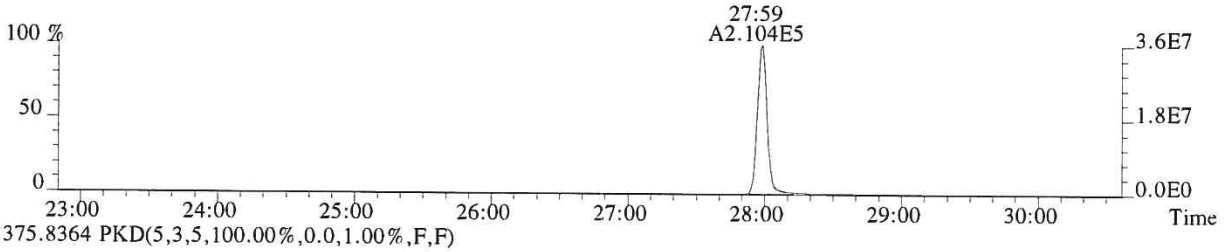
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5672.0,1.00%,F,T)



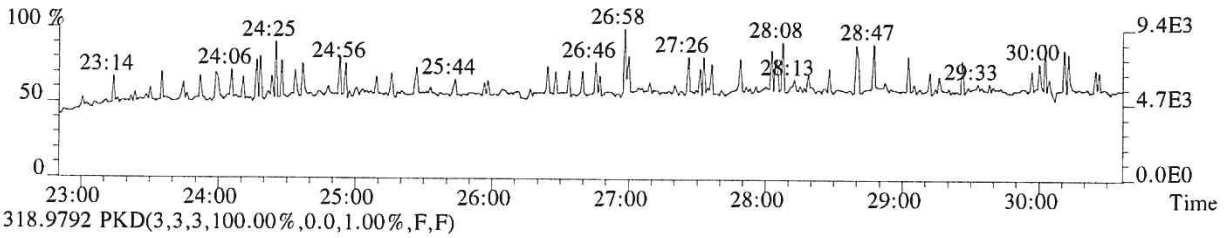
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15724.0,1.00%,F,T)



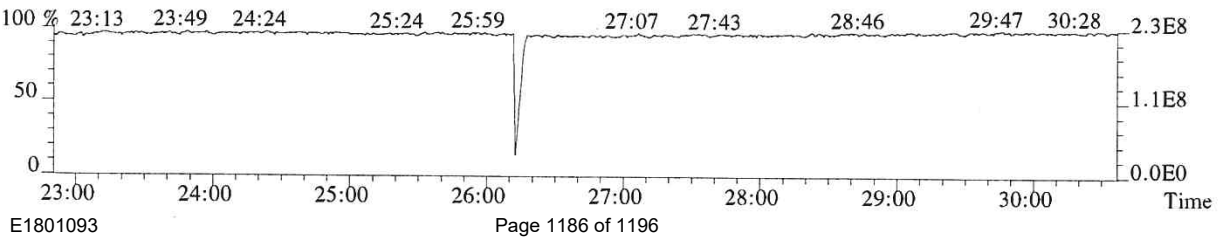
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9180.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

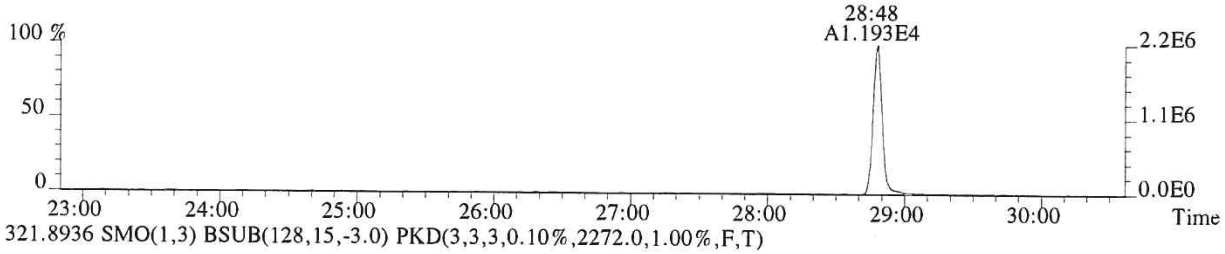


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

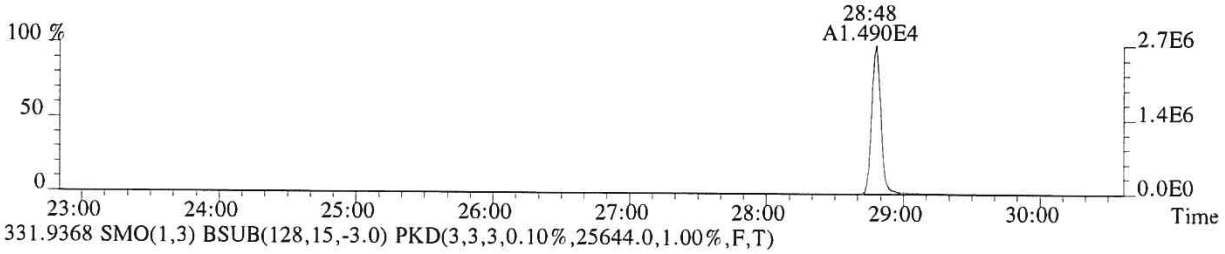


014986

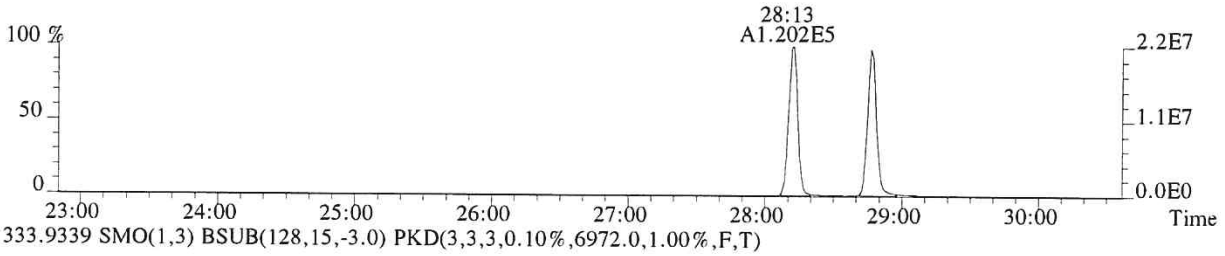
File:P614690 #1-552 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4040.0,1.00%,F,T)



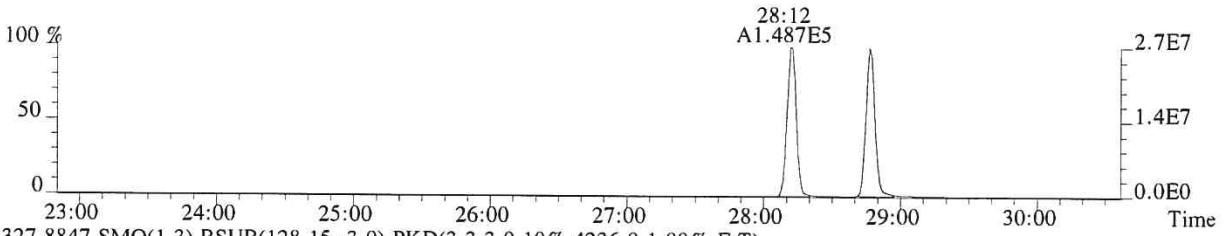
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2272.0,1.00%,F,T)



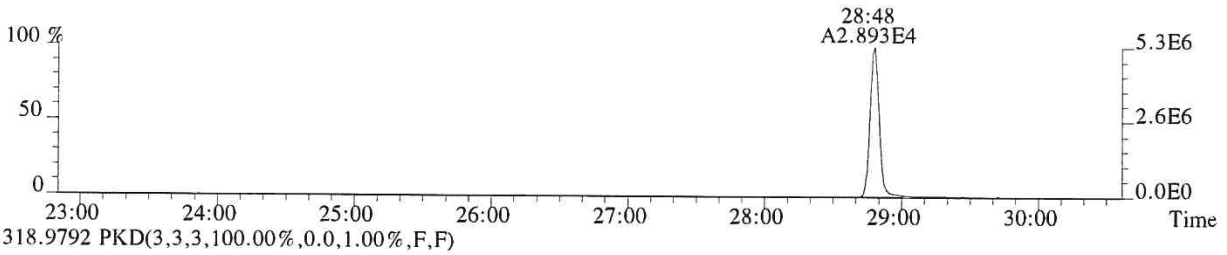
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,25644.0,1.00%,F,T)



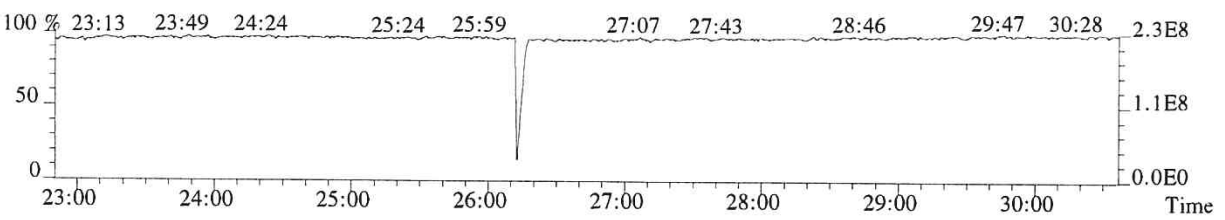
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6972.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4236.0,1.00%,F,T)

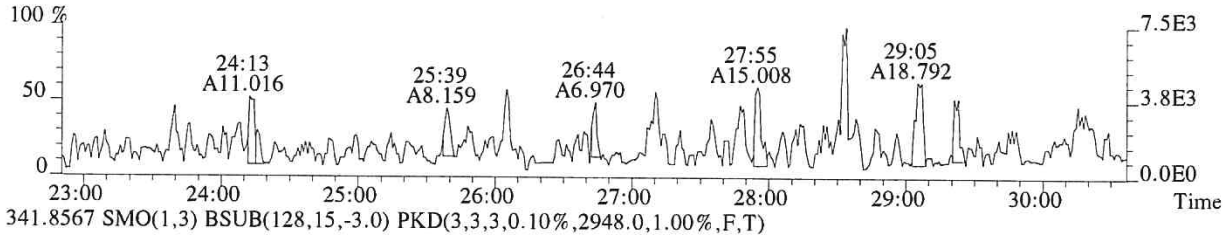


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

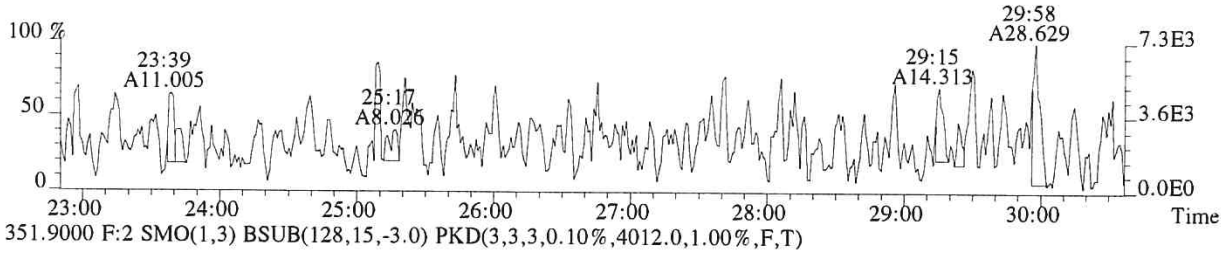


014987

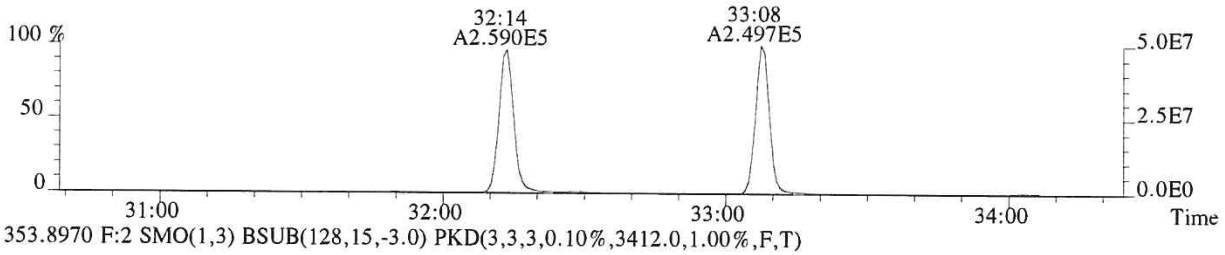
File:P614690 #1-552 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1588.0,1.00%,F,T)



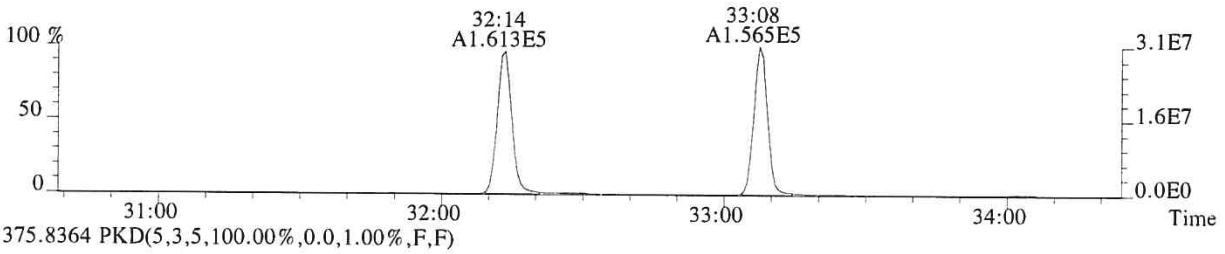
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2948.0,1.00%,F,T)



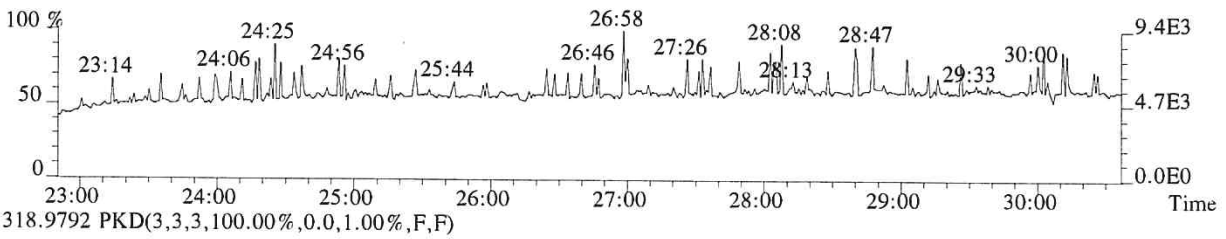
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4012.0,1.00%,F,T)



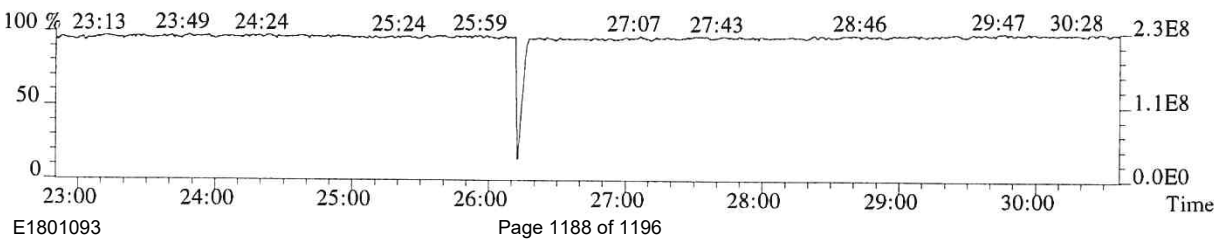
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3412.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

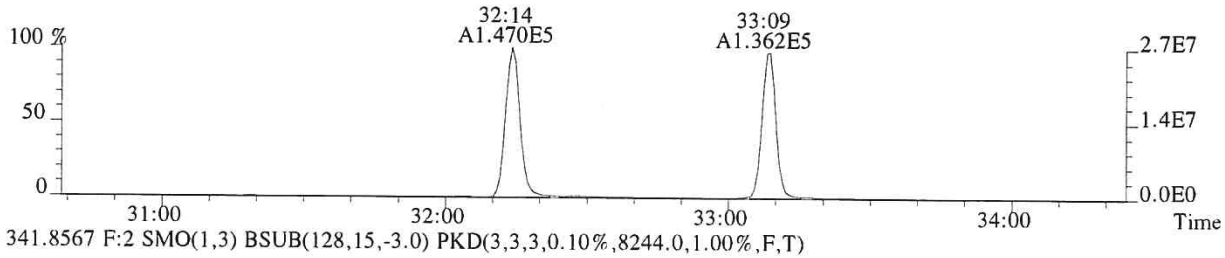


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

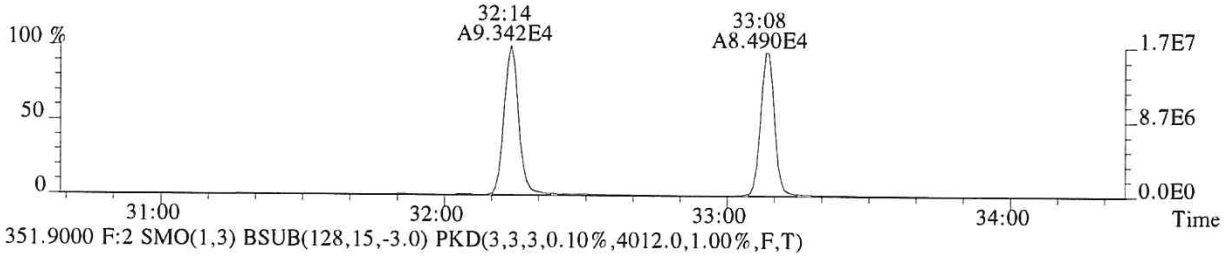


014988

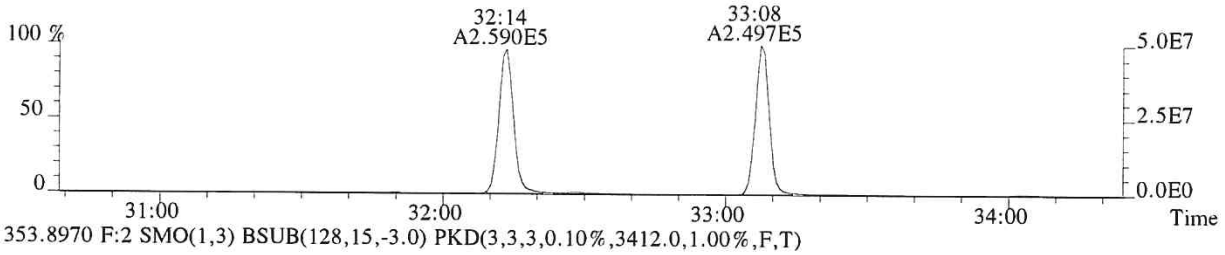
File:P614690 #1-339 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1504.0,1.00%,F,T)



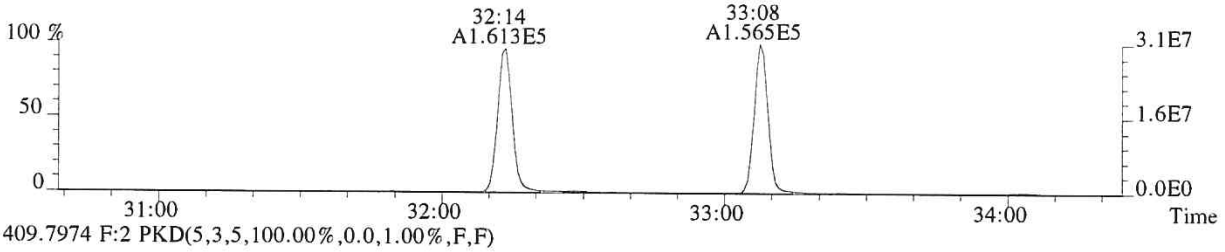
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8244.0,1.00%,F,T)



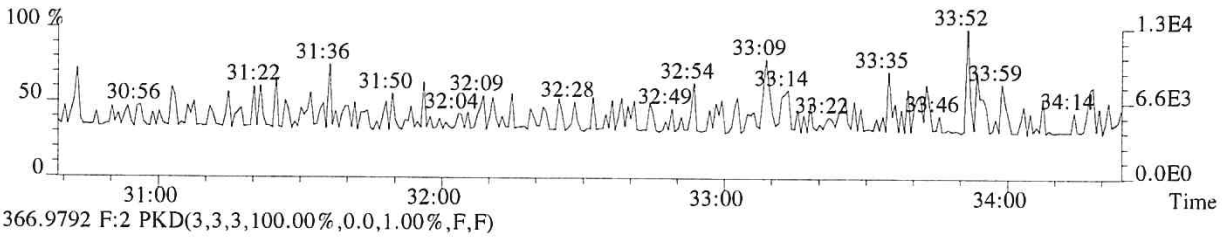
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4012.0,1.00%,F,T)



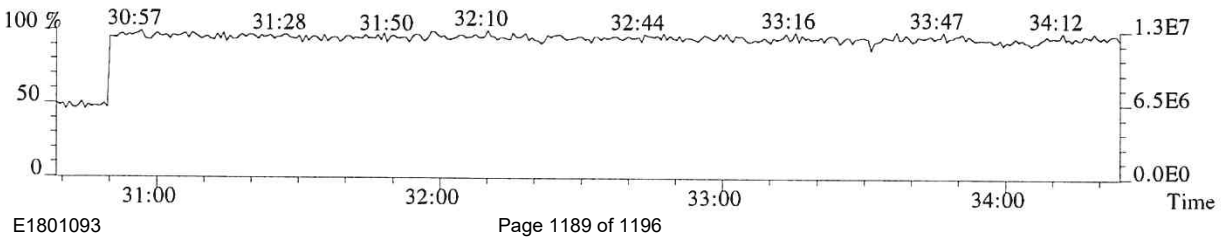
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3412.0,1.00%,F,T)



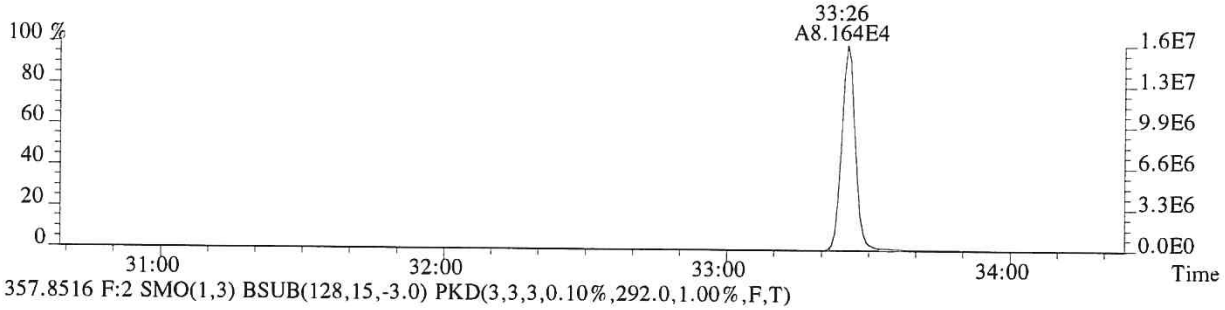
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



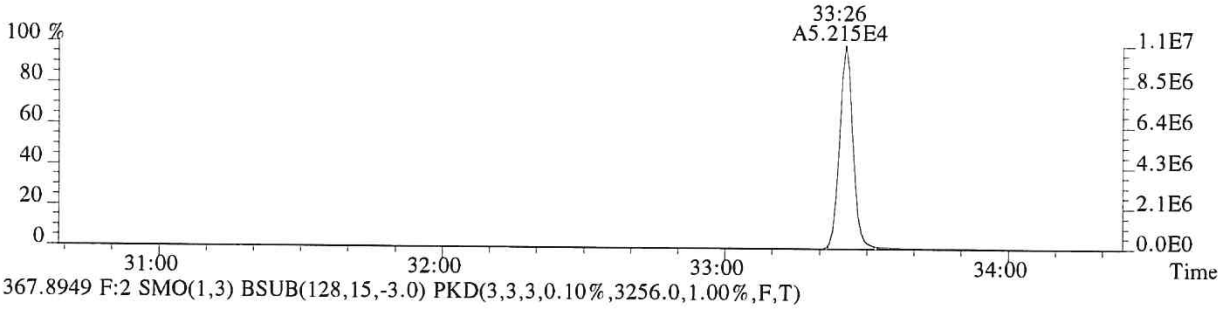
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



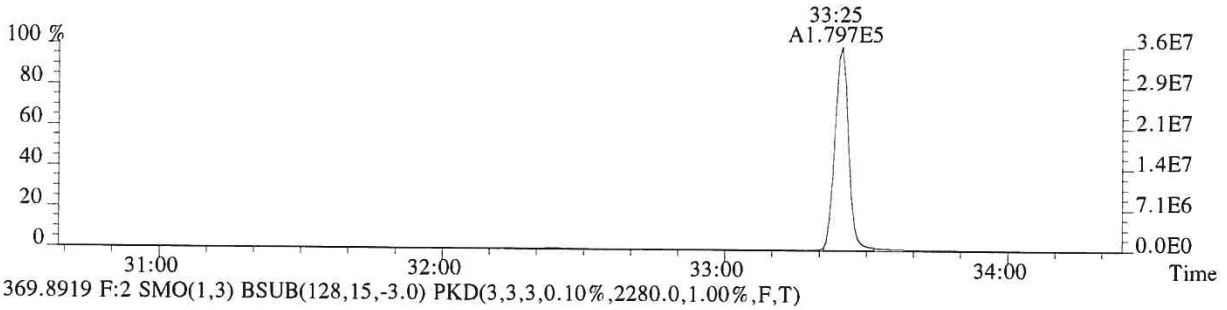
File:P614690 #1-339 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3144.0,1.00%,F,T)



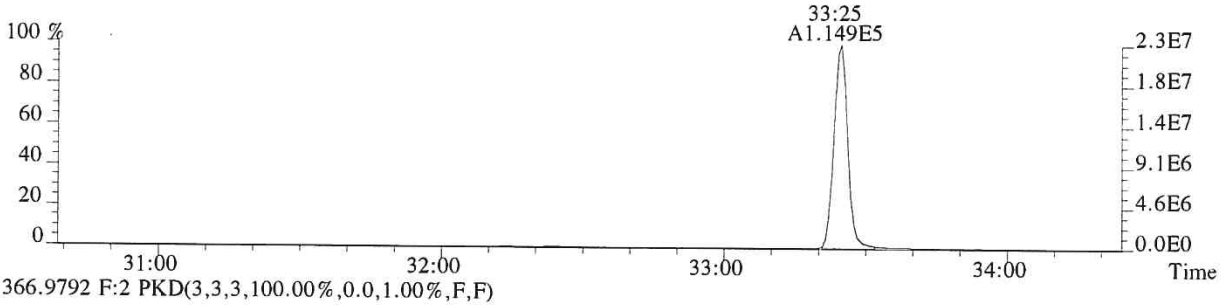
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,292.0,1.00%,F,T)



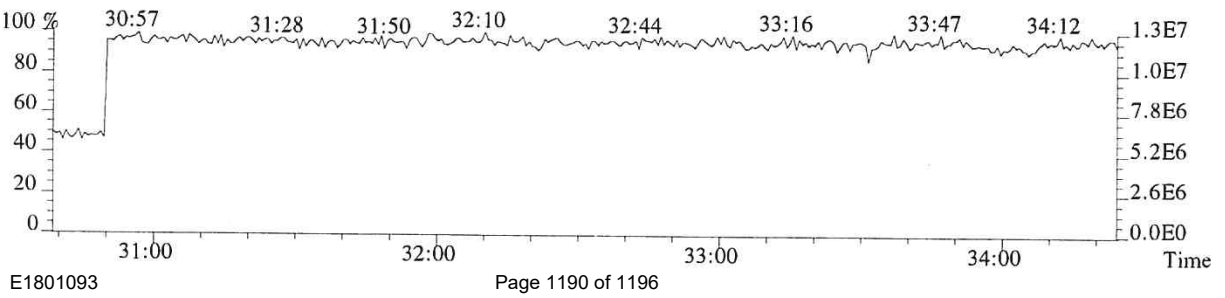
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3256.0,1.00%,F,T)



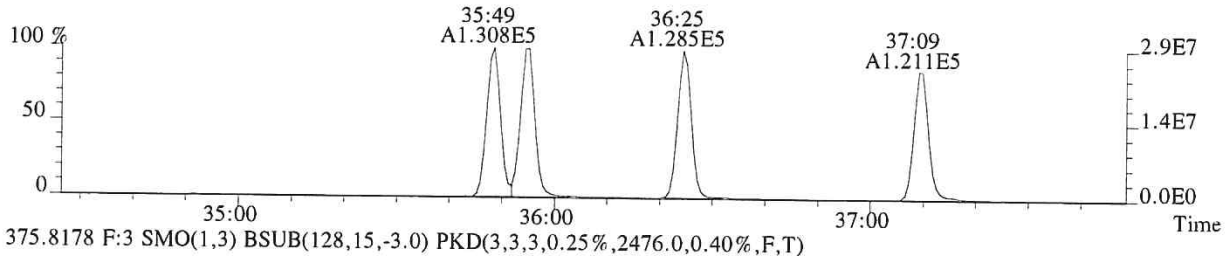
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2280.0,1.00%,F,T)



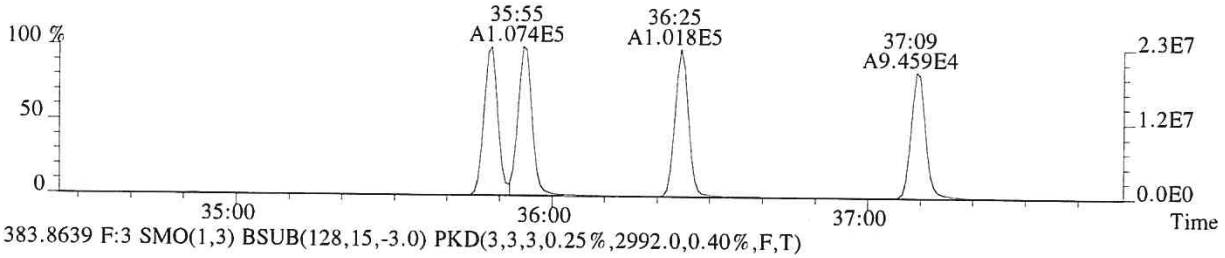
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



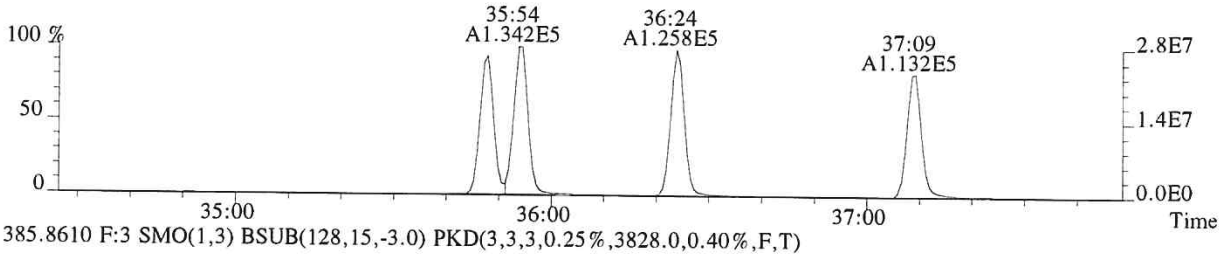
File:P614690 #1-304 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2352.0,0.40%,F,T)



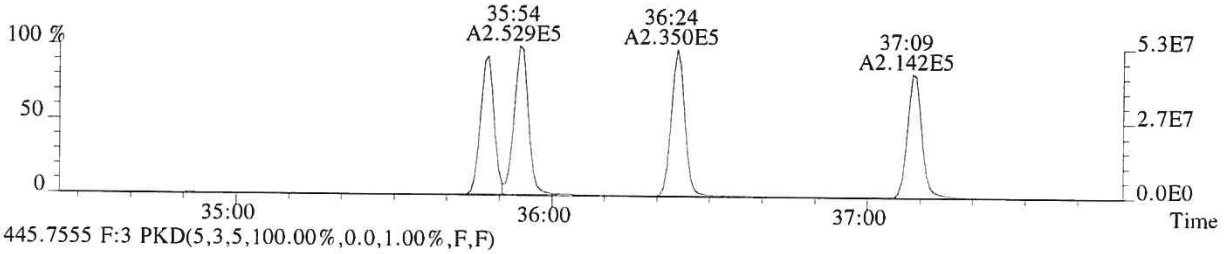
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2476.0,0.40%,F,T)



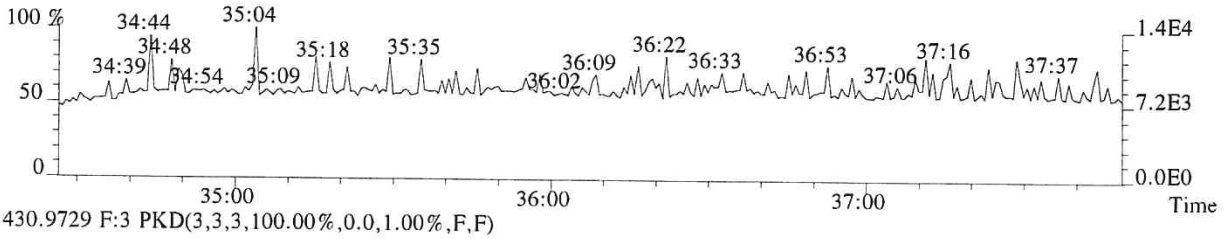
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2992.0,0.40%,F,T)



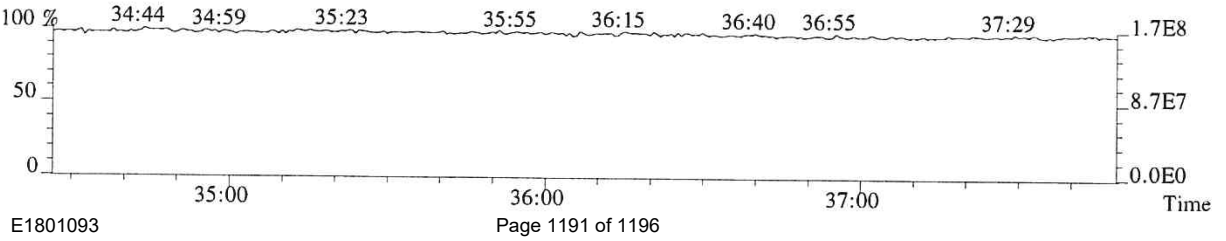
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3828.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

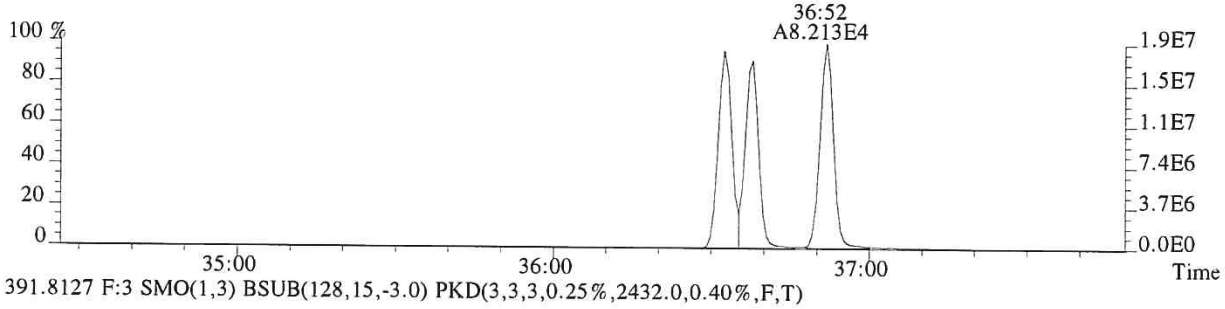


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

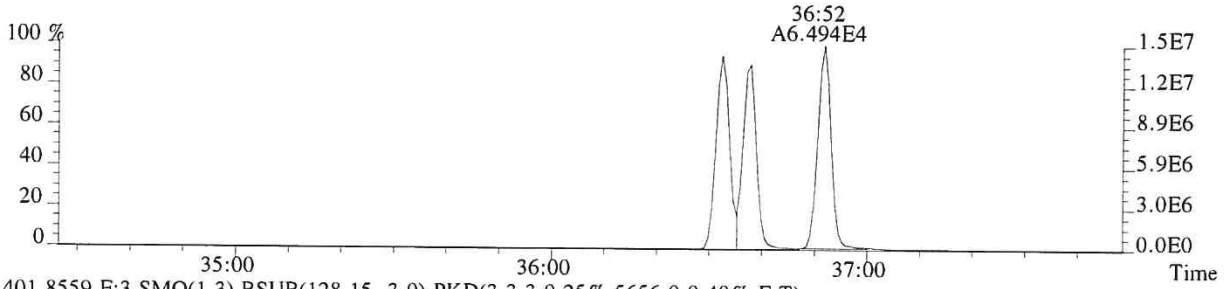


014991

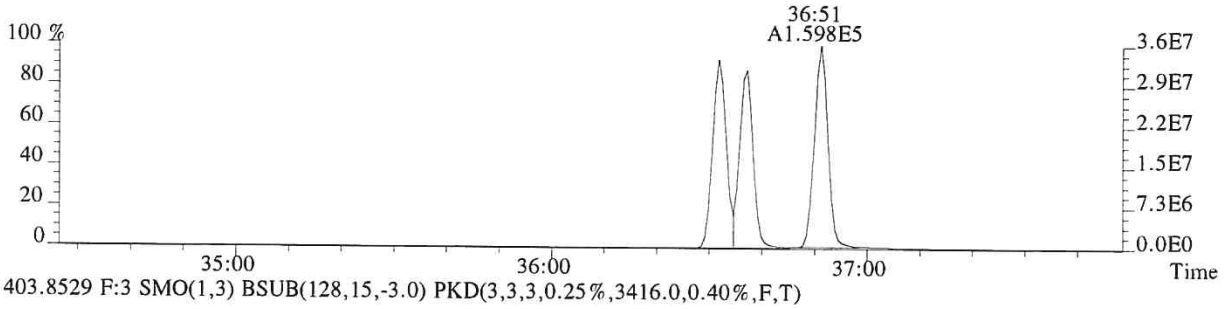
File:P614690 #1-304 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1588.0,0.40%,F,T)



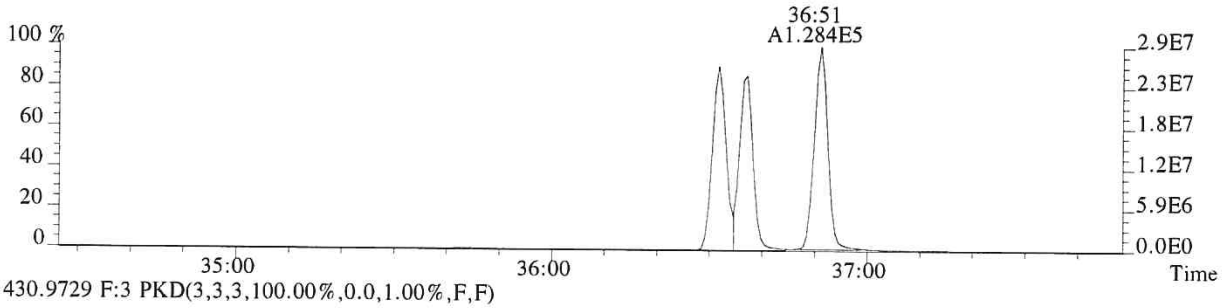
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2432.0,0.40%,F,T)



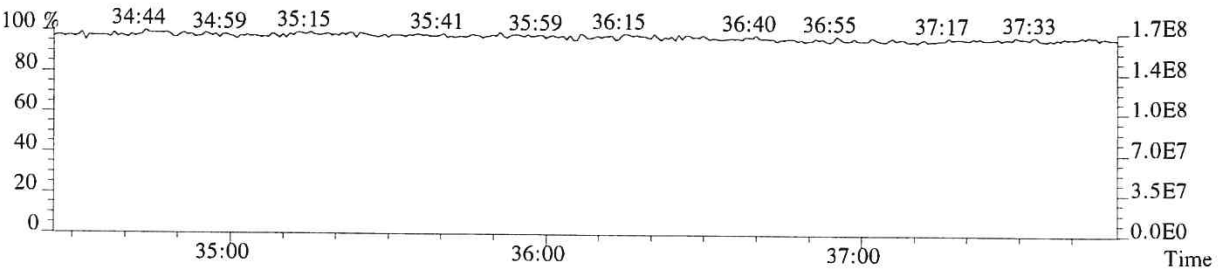
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5656.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3416.0,0.40%,F,T)

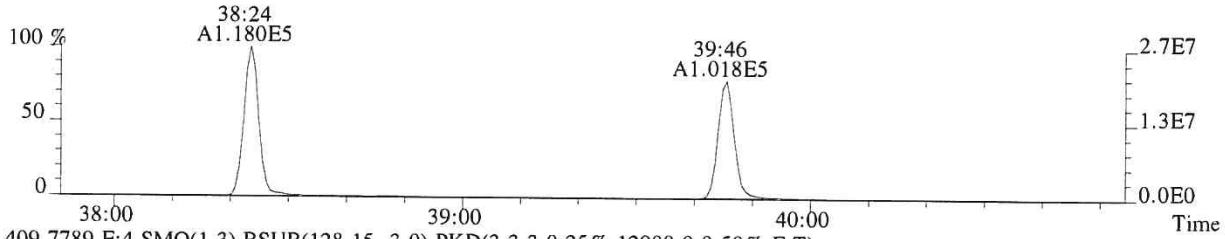


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

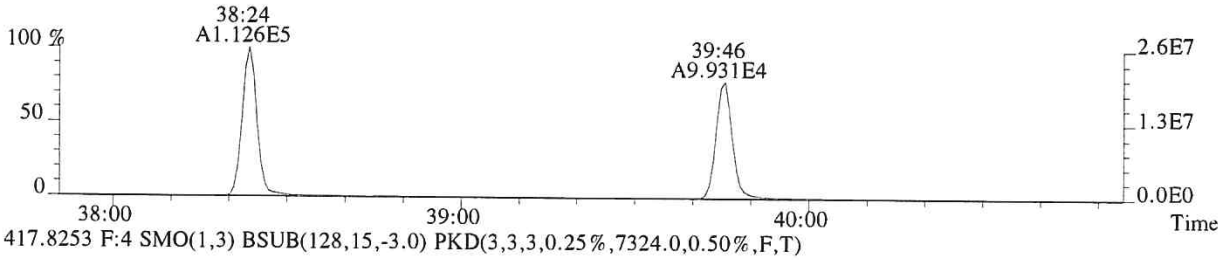


014992

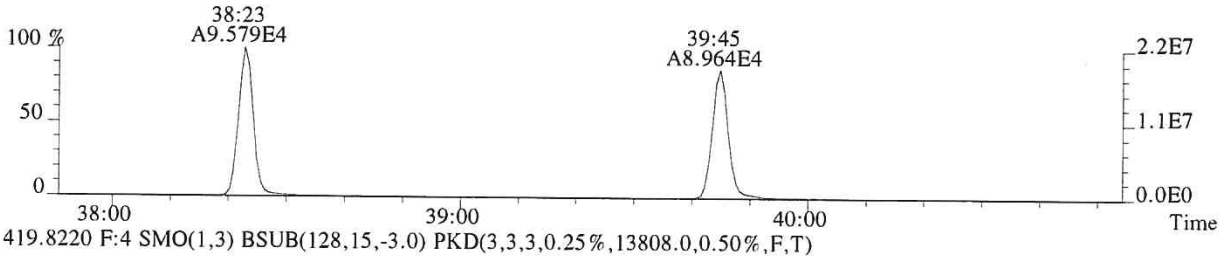
File:P614690 #1-276 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4460.0,0.50%,F,T)



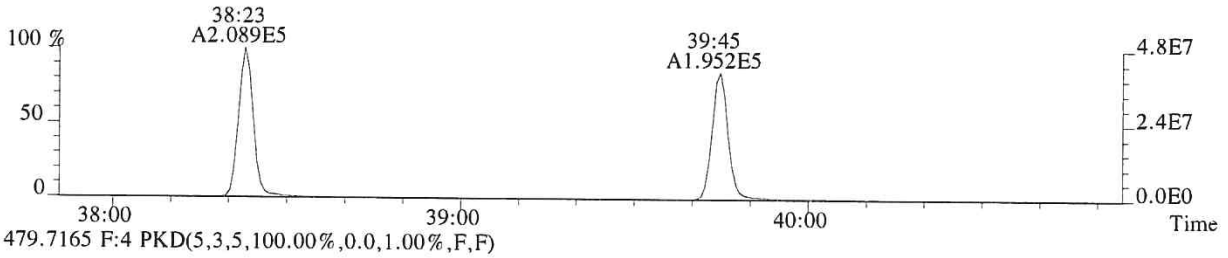
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,12908.0,0.50%,F,T)



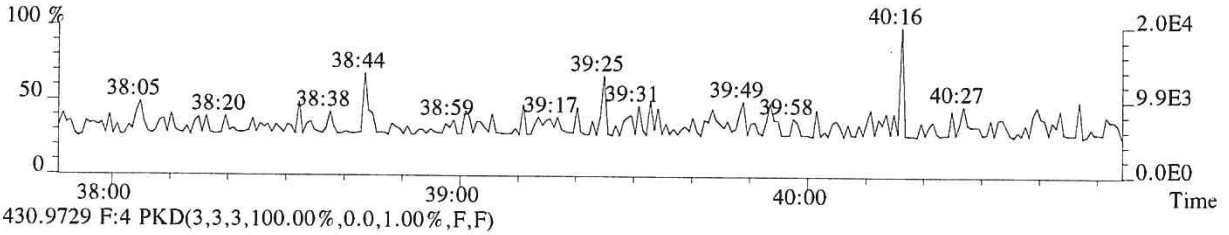
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7324.0,0.50%,F,T)



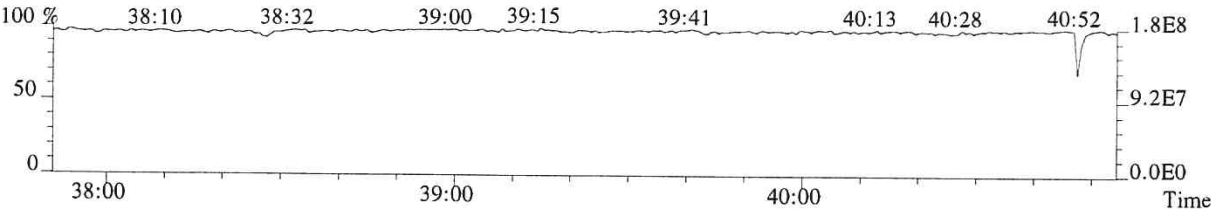
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,13808.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

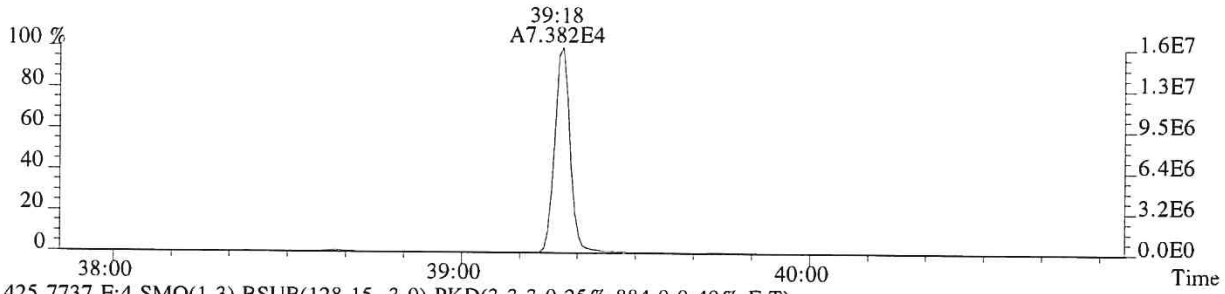


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

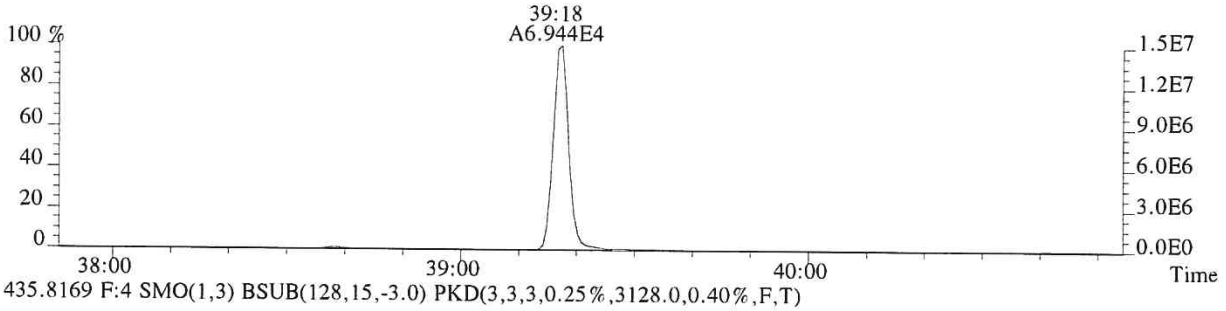


014993

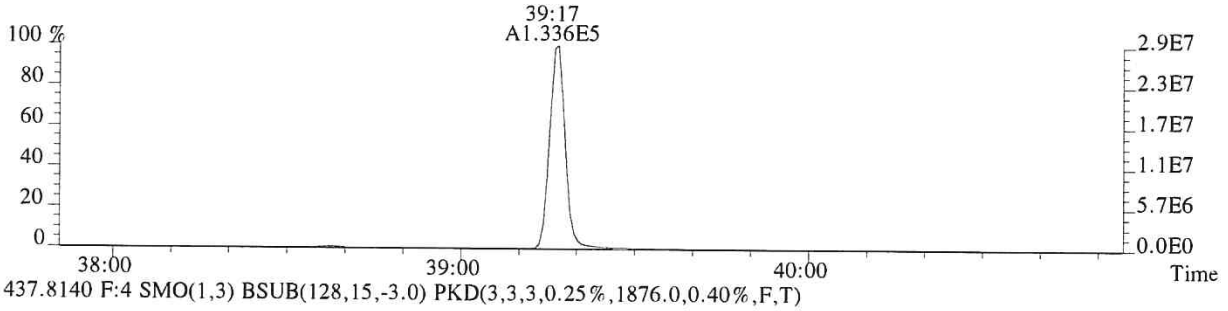
File:P614690 #1-276 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2280.0,0.40%,F,T)



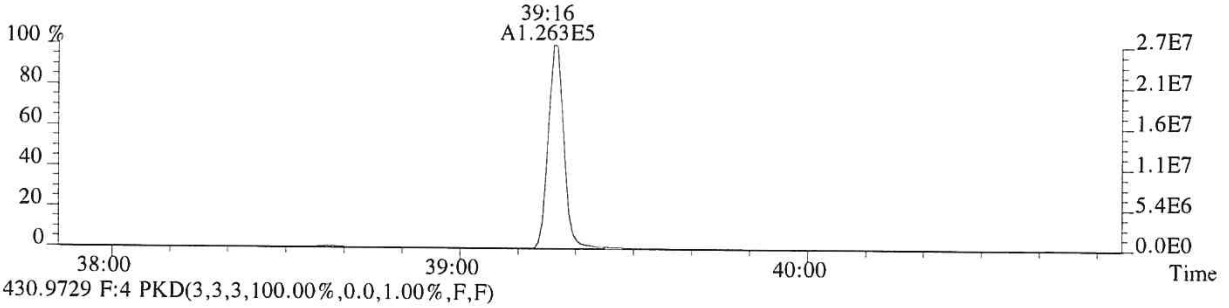
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,884.0,0.40%,F,T)



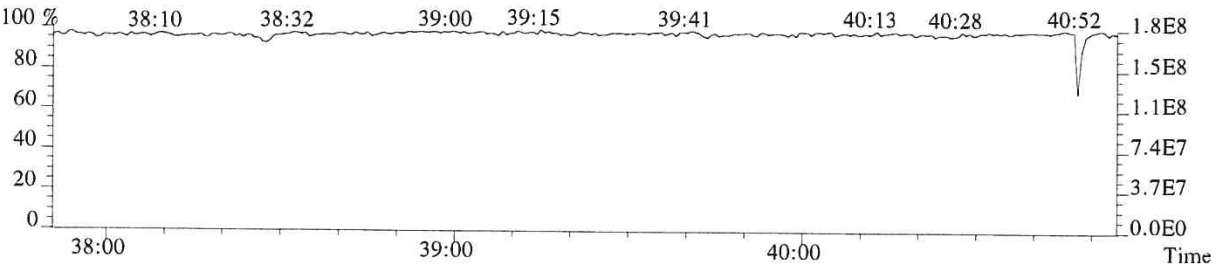
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3128.0,0.40%,F,T)



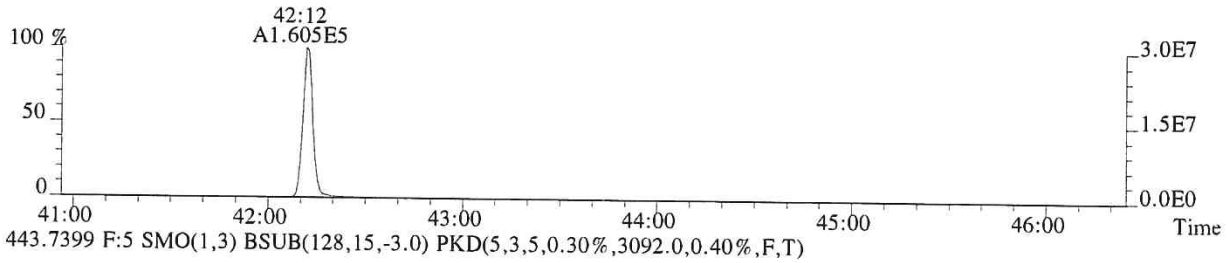
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1876.0,0.40%,F,T)



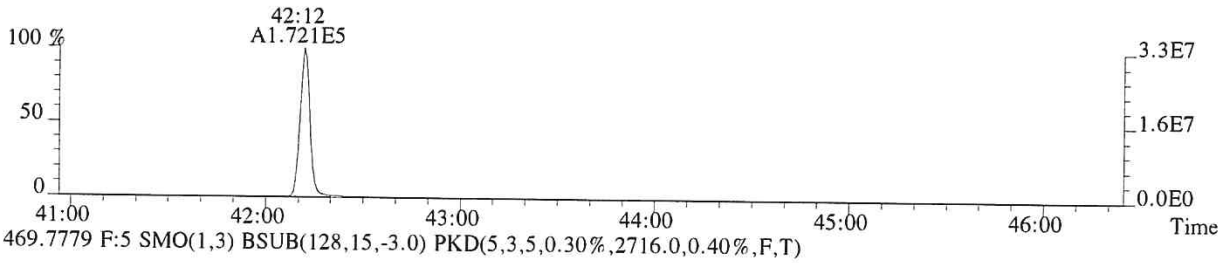
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



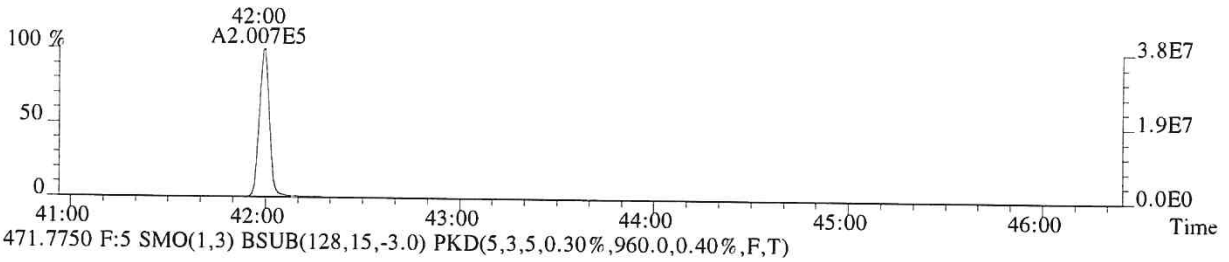
File:P614690 #1-493 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1500.0,0.40%,F,T)



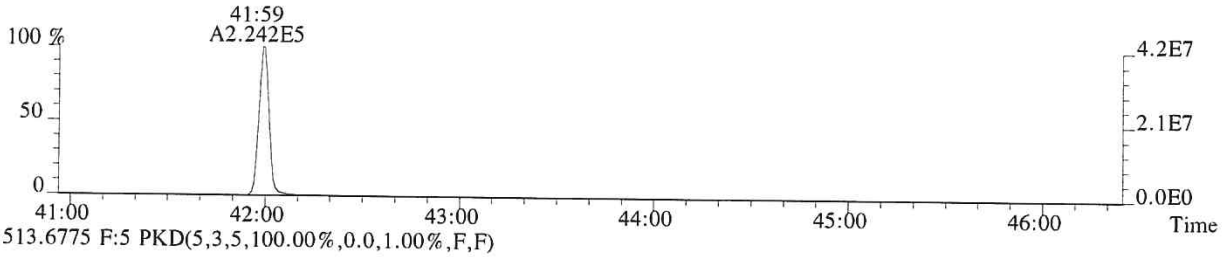
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3092.0,0.40%,F,T)



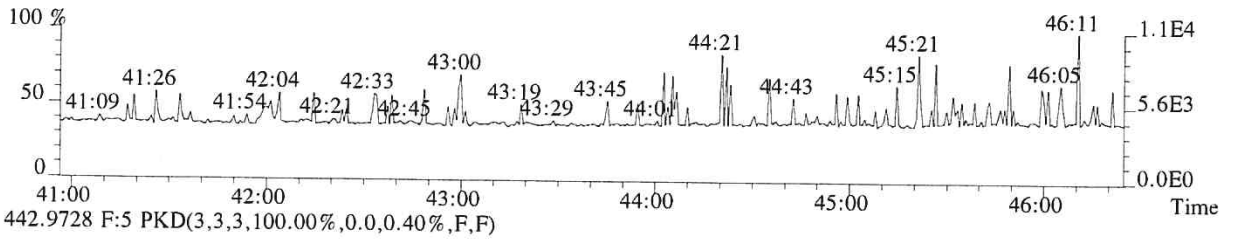
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2716.0,0.40%,F,T)



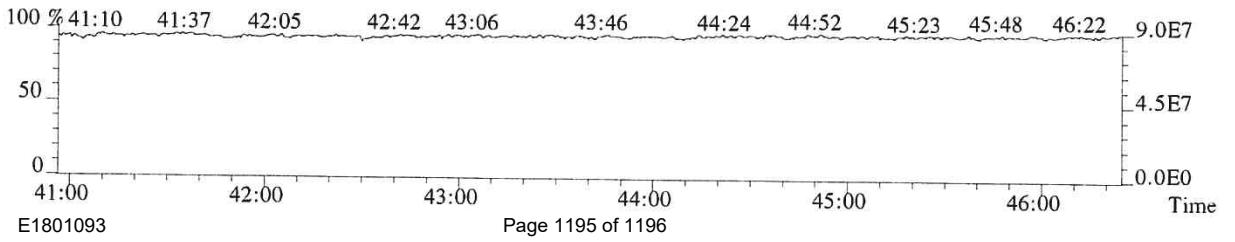
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,960.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

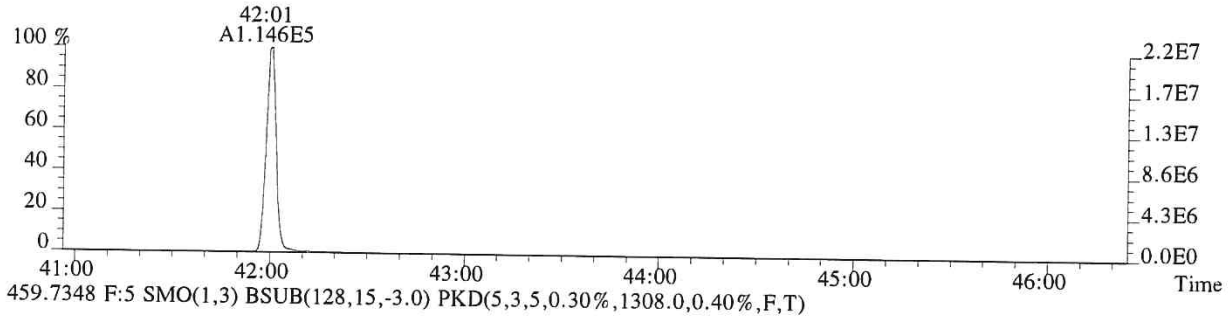


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

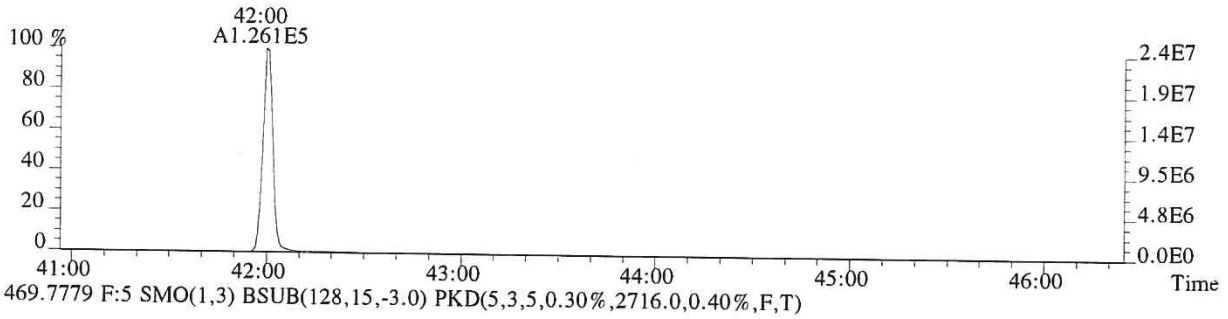


014995

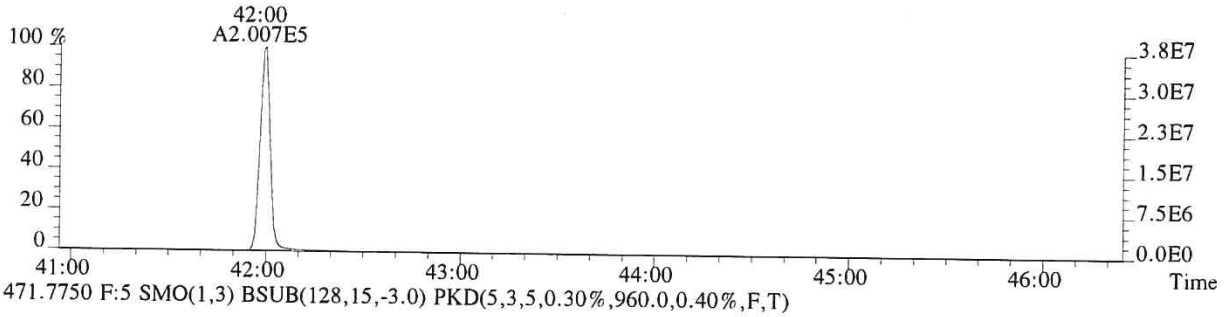
File:P614690 #1-493 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1172.0,0.40%,F,T)



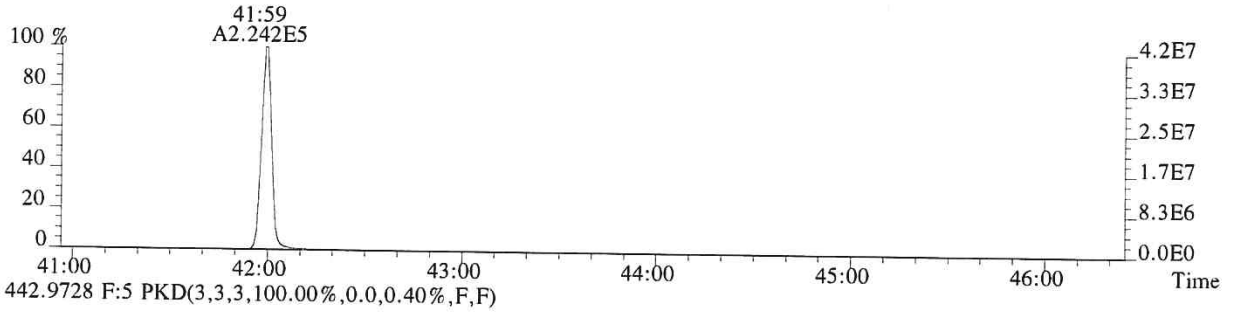
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1308.0,0.40%,F,T)



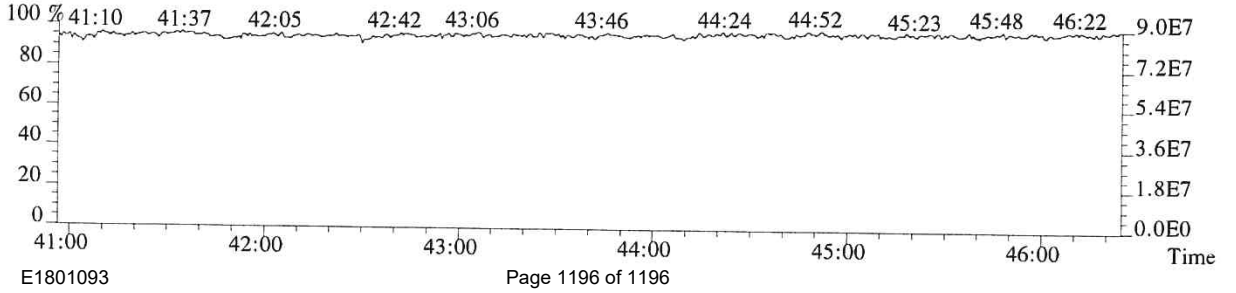
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2716.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,960.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



014996

December 27, 2018 Service Request No:E1801094

Craig Hutchings
Integral Consulting, Inc.
1205 West Bay Drive NW
Olympia, WA 98502-4670

Laboratory Results for: C1887-0501

Dear Craig,

Enclosed are the results of the sample(s) submitted to our laboratory December 07, 2018
For your reference, these analyses have been assigned our service request number **E1801094.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current TNI standards, where applicable, and except as noted in the laboratory case narrative provided. All results are intended to be considered in their entirety, and ALS Environmental is not responsible for use of less than the final complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. In accordance to the TNI 2009 Standard, a statement on the estimated uncertainty of measurement of any quantitative analysis will be supplied upon request.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Kristin Brown

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PHONE +1 281 530 5656 | FAX +1 281 530 5887
ALS Group USA, Corp.
dba ALS Environmental

Certificate of Analysis

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

ALS Environmental

Client:	Integral	**Service Request No.:**	E1801094
Project:	SJWP		
Sample Matrix:	Sediment		

CASE NARRATIVE

All analyses were performed in adherence to the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier IV. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Sample on hold originally reported on a separate ALS service request number; samples were activated and reported under E1801094.

Data Validation Notes and Discussion

Precision and Accuracy:

EQ1800510: Laboratory Control Spike/Duplicate Laboratory Control Spike (LCS/DLCS) samples were analyzed and reported in lieu of a MS/MSD for this extraction batch. 2,3,7,8-TCDD recovered high in the DLCS; LCS and RPD within QC limits.

B flags – Method Blanks

The Method Blank EQ1800510-01 contained low levels of target compounds above the EDL however below the Method Reporting Limit (MRL).

The associated compounds in the samples are flagged with 'B' flags where the sample result is less than ten times the level detected in the method blank.

Y flags – Cleanup Standard

The recoveries for the cleanup standard, 37Cl-2,3,7,8-TCDD are below control limits in samples E1801094-006 and E1801094-009. The sample results are not affected since this labeled standard is provided as a means of demonstrating that both the sample extraction and subsequent cleanup steps performed as expected, and is not used in quantitation of target analytes.

Y flags – Labeled Standards

Select labeled standards recovered below control limits in samples E1801094-006, E1801094-009, and E1801094-014 (re-analysis to confirm).

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.

E flags

When OCDD exceed the upper method calibration limit (MCL), we use an 'E' flag on the Sample Analytical Report results page when the detector is not saturated. Samples E1801094-001, E1801094-006, E1801094-013 and E1801094-017 are reported with an 'E' flag to denote that they had concentration greater than the highest calibration point. The process of dilution is counter to the isotopic dilution technique that the laboratory uses to determine recovery and produces variability in the final value. The laboratory only dilutes when detector saturation occurs.

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.

P flags

Chlorodiphenyl ether interference was present at the retention time of the target analyte 1,2,3,6,7,8-HxCDF in sample E1801094-001 and 1,2,3,6,7,8-HxCDF in samples E1801094-006/E1801094-013. Reported result should be considered an estimate.

2378-TCDF

Samples analyzed on the DB-5MSUI column were analyzed under conditions where sufficient separation between 2,3,7,8-TCDF and its closest eluter was achieved. Confirmation of this result was not required.

Dilutions

The samples E1801094-002, E1801094-003, E1801094-004, E1801094-012, E1801094-014, E1801094-015, and E1801094-018 had elevated levels of target analytes and required a dilution. The undiluted and diluted results were combined into one Total TEQ summary report for each sample. This reports a 'Total' result that includes the most appropriate concentration found for the associated target analyte.

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.

E1801094-009:TCDD had high EDL (> MRL) due to low recoveries and clean up. Sample ran 3 times to confirm.

Manual Integrations

For this type of instrumentation and software, manual integration may be required frequently to correct inaccurate integrations performed by the processing software. These manual integrations are indicated in the raw data with a before and after chromatogram and are stamped with the reason for integration.

The TEQ Summary results for each sample have been calculated by ALS/Houston to include:

- WHO-2005 TEFs, The 2005 World Health Organization Reevaluation of Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-Like Compounds (M. Van den Berg et al., Toxicological Sciences 93(2):223-241, 2006)
- 2378-TCDF from the DB-225 column, when confirmation required
- Non-detected compounds are not included in the 'Total'
- The 1:1 and associated dilution have been combined into one TEQ Summary report

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS group USA Corp dba ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E1801094-001	SL0028	11/4/2018	1120
E1801094-002	SL0029	11/4/2018	1125
E1801094-003	SL0030	11/4/2018	1130
E1801094-004	SL0031	11/4/2018	1135
E1801094-005	SL0032	11/4/2018	1140
E1801094-006	SL0035	11/4/2018	1310
E1801094-007	SL0036	11/4/2018	1315
E1801094-008	SL0037	11/4/2018	1320
E1801094-009	SL0038	11/4/2018	1325
E1801094-010	SL0039	11/4/2018	1330
E1801094-011	SL0053	11/5/2018	1340
E1801094-012	SL0054	11/5/2018	1344
E1801094-013	SL0055	11/5/2018	1351
E1801094-014	SL0056	11/5/2018	1357
E1801094-015	SL0057	11/5/2018	1402
E1801094-016	SL0012	11/3/2018	1400
E1801094-017	SL0013	11/3/2018	1405
E1801094-018	SL0014	11/3/2018	1411
E1801094-019	SL0015	11/3/2018	1417
E1801094-020	SL0016	11/3/2018	1424

Service Request Summary

Folder #: **E1801094**
Client Name: Integral Consulting, Incorporated
Project Name: C1887-0501
Project Number:

Report To: Craig Hutchings
Integral Consulting, Inc.
1205 West Bay Drive NW
Olympia, WA 98502-4670
USA
Phone Number: 360-705-3534
Cell Number:
Fax Number:
E-mail: chutchings@integral-corp.com

Project Chemist: Kristin Brown
Originating Lab: HOUSTON
Logged By: ALOPEZ
Date Received: 12/07/18
Internal Due Date: 12/21/2018
QAP: LAB QAP
Qualifier Set: HRMS Qualifier Set
Formset: Lab Standard
Merged?: N
Report to MDL?: N, Y
P.O. Number:
EDD: Integral-UCR

20 8 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved
20 4 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved
Location: EHRMS-WIC 2B, SMO
Pressure Gas:

				HOUSTON	
				Dioxins Furans/1613B	Total Solids/ALS SOP
Lab Samp No.	**Client Samp No**	**Matrix**	**Collected**		
E1801094-001	SL0028	Sediment	11/04/18 1120	**IV**	**IV**
E1801094-002	SL0029	Sediment	11/04/18 1125	**IV**	**IV**
E1801094-003	SL0030	Sediment	11/04/18 1130	**IV**	**IV**
E1801094-004	SL0031	Sediment	11/04/18 1135	**IV**	**IV**
E1801094-005	SL0032	Sediment	11/04/18 1140	**IV**	**IV**
E1801094-006	SL0035	Sediment	11/04/18 1310	**IV**	**IV**
E1801094-007	SL0036	Sediment	11/04/18 1315	**IV**	**IV**
E1801094-008	SL0037	Sediment	11/04/18 1320	**IV**	**IV**
E1801094-009	SL0038	Sediment	11/04/18 1325	**IV**	**IV**
E1801094-010	SL0039	Sediment	11/04/18 1330	**IV**	**IV**
E1801094-011	SL0053	Sediment	11/05/18 1340	**IV**	**IV**
E1801094-012	SL0054	Sediment	11/05/18 1344	**IV**	**IV**
E1801094-013	SL0055	Sediment	11/05/18 1351	**IV**	**IV**
E1801094-014	SL0056	Sediment	11/05/18 1357	**IV**	**IV**
E1801094-015	SL0057	Sediment	11/05/18 1402	**IV**	**IV**
E1801094-016	SL0012	Sediment	11/03/18 1400	**IV**	**IV**

Service Request Summary

Folder #: **E1801094**
Client Name: Integral Consulting, Incorporated
Project Name: C1887-0501
Project Number:

Report To: Craig Hutchings
Integral Consulting, Inc.
1205 West Bay Drive NW
Olympia, WA 98502-4670
USA
Phone Number: 360-705-3534
Cell Number:
Fax Number:
E-mail: chutchings@integral-corp.com

Project Chemist: Kristin Brown
Originating Lab: HOUSTON
Logged By: ALOPEZ
Date Received: 12/07/18
Internal Due Date: 12/21/2018
QAP: LAB QAP
Qualifier Set: HRMS Qualifier Set
Formset: Lab Standard
Merged?: N
Report to MDL?: N, Y
P.O. Number:
EDD: Integral-UCR

20 8 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved
20 4 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved
Location: EHRMS-WIC 2B, SMO
Pressure Gas:

				HOUSTON	
Lab Samp No.	**Client Samp No**	**Matrix**	**Collected**	Dioxins Furans/1613B	Total Solids/ALS SOP
E1801094-017	SL0013	Sediment	11/03/18 1405	**IV**	**IV**
E1801094-018	SL0014	Sediment	11/03/18 1411	**IV**	**IV**
E1801094-019	SL0015	Sediment	11/03/18 1417	**IV**	**IV**
E1801094-020	SL0016	Sediment	11/03/18 1424	**IV**	**IV**

Service Request Summary

Folder #:	**E1801094**
Client Name:	Integral Consulting, Incorporated
Project Name:	C1887-0501
Project Number:	

Report To: Craig Hutchings
Integral Consulting, Inc.
1205 West Bay Drive NW
Olympia, WA 98502-4670
USA

Phone Number:	360-705-3534
Cell Number:	
Fax Number:	
E-mail:	chutchings@integral-corp.com

Project Chemist:	Kristin Brown
Originating Lab:	HOUSTON
Logged By:	ALOPEZ
Date Received:	12/07/18
Internal Due Date:	12/21/2018
QAP:	LAB QAP
Qualifier Set:	HRMS Qualifier Set
Formset:	Lab Standard
Merged?:	N
Report to MDL?:	N, Y
P.O. Number:	
EDD:	Integral-UCR

20 8 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved
20 4 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved

Location: EHRMS-WIC 2B, SMO

Pressure Gas:

Superset Summary

Service Request: E1801094 **SuperSet Reference:** 18-0000491611 rev 00

Analytical Method: **1613B**

Calibrations: 01/24/18

Data Files:

Raw Data	Begin CCAL	Method Blank	Lab ID
P519469	P519465	P519467	E1801094-001
P519470	P519465	P519467	E1801094-002.R01
P519539	P519532	P519467	E1801094-002
P519471	P519465	P519467	E1801094-003.R01
P519540	P519532	P519467	E1801094-003
P519472	P519465	P519467	E1801094-004.R01
P519541	P519532	P519467	E1801094-004
P519473	P519465	P519467	E1801094-005
P519474	P519465	P519467	E1801094-006
P519475	P519465	P519467	E1801094-007
P519482	P519479	P519467	E1801094-008
P519637	P519625	P519467	E1801094-009
P519484	P519479	P519467	E1801094-010
P519485	P519479	P519467	E1801094-011
P519486	P519479	P519467	E1801094-012.R01
P519594	P519587	P519467	E1801094-012
P519487	P519479	P519467	E1801094-013
P519488	P519479	P519467	E1801094-014.R01
P519595	P519587	P519467	E1801094-014
P519489	P519479	P519467	E1801094-015.R01
P519596	P519587	P519467	E1801094-015
P519490	P519479	P519467	E1801094-016
P519491	P519479	P519467	E1801094-017
P519492	P519479	P519467	E1801094-018.R01
P519597	P519587	P519467	E1801094-018
P519501	P519494	P519467	E1801094-019
P519502	P519494	P519467	E1801094-020
P519467	P519465	P519467	EQ1800510-01
P519476	P519465	P519467	EQ1800510-02
P519507	P519494	P519467	EQ1800510-03

Data Qualifiers

HRMS Qualifier Set

B	Indicates the associated analyte was found in the method blank at >1/10th the reported value.
E	Estimated value. The reported concentration is above the calibration range of the instrument.
H	Sample extracted and/or analyzed out of suggested holding time.
J	Estimated value. The reported concentration is below the MRL.
K	The ion abundance ratio between the primary and secondary ions were outside of theoretical acceptance limits.The concentration of this analyte should be considered as an estimate.
P	Chlorodiphenyl ether interference was present at the retention time of the target analyte. Reported result should be considered an estimate.
Q	Monitored lock-mass indicates matrix-interference. Reported result is estimated.
S	Signal saturated detector. Result reported from dilution.
U	Compound was analyzed for, but was not detected (ND).
X	See Case Narrative.
Y	Isotopically Labeled Standard recovery outside of acceptance limits. In all cases, the signal-to-nois ratios are greater than 10:1, making the recoveries acceptable.
i	The MDL/MRL have been elevated due to a matrix interference.

Acronyms

Cal	Calibration
Conc	CONCentration
Dioxin(s)	Polychlorinated dibenzo-p-dioxin(s)
EDL	Estimated Detection Limit
EMPC	Estimated Maximum Possible Concentration
Flags	Data qualifiers
Furan(s)	Polychlorinated dibenzofuran(s)
g	Grams
ICAL	Initial CALibration
ID	IDentifier
Ions	Masses monitored for the analyte during data acquisition
L	Liter (s)
LCS	Laboratory Control Sample
DLCS	Duplicate Laboratory Control Sample
MB	Method Blank
MCL	Method Calibration Limit
MDL	Method Detection Limit
mL	Milliliters
MS	Matrix Spiked sample
DMS	Duplicate Matrix Spiked sample
NO	Number of peaks meeting all identification criteria
PCDD(s)	Polychlorinated dibenzo-p-dioxin(s)
PCDF(s)	Polychlorinated dibenzofuran(s)
ppb	Parts per billion
ppm	Parts per million
ppq	Parts per quadrillion
ppt	Parts per trillion
QA	Quality Assurance
QC	Quality Control
Ratio	Ratio of areas from monitored ions for an analyte
% Rec.	Percent recovery
RPD	Relative Percent Difference
RRF	Relative Response Factor
RT	Retention Time
SDG	Sample Delivery Group
S/N	Signal-to-noise ratio
TEF	Toxicity Equivalence Factor
TEQ	Toxicity Equivalence Quotient

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID: E1801094 | DB-5MSUI | SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date:	Analyst:	Samples:
12/19/18	LKL	001_007

Second Level - Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:
12/20/18	KJ	001-007

HS-HRMSREVIEW R1.0

PEER REVIEW PAGE2015

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID: E1801094 DB-5MSUI SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date:	Analyst:	Samples:
12/27/18	YC	009

Second Level - Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:
12/27/18	LG	009

HS-HRMSREVIEW R1.0

PEER REVIEW PAGE2015

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID: E1801094 | DB-5MSUI | SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date:	Analyst:	Samples:
12/21/18	LKL	008, 010_018

Second Level - Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:
12/21/18	KO	008, 010-018

HS-HRMSREVIEW R1.0

PEER REVIEW PAGE2015

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID: E1081094 | DB-5MSUI | SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date:	Analyst:	Samples:
12/20/18	LKL	019, 020

Second Level - Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:
12/20/18	WW	019, 020

HS-HRMSREVIEW R1.0

PEER REVIEW PAGE2015

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID E1801094 (DB-5MSUI) SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date:	Analyst:	Samples:
12/24/18	LKL	002DL – 004DL

Second Level - Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:
12/24/18	LG	002DL – 004DL

HS-HRMSREVIEW R1.0

PEER REVIEW PAGE2015

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID E1801094 (DB-5MSUI) SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date:	Analyst:	Samples:
12/26/18	LKL	012DL, 014DL, 015DL, 018DL

Second Level - Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:
12/27/18	LG	012DL, 014DL, 015DL, 018DL

Chain of Custody

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
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SAMPLE ACCEPTANCE POLICY

This policy outlines the criteria samples must meet to be accepted by ALS Environmental – Houston HRMS.

Cooler Custody Seals (desirable, mandatory if specified in SAP):

- ✓ Intact on outside of cooler, signed and dated

Chain-of-Custody (COC) documentation (mandatory):

The following is required on each COC:

- ✓ Sample ID, the location, date and time of collection, collector's name, preservation type, sample type, and any other special remarks concerning the sampleThe COC must be completed in ink.
- ✓ Signature and date of relinquishing party.

In the absence of a COC at sample receipt, the COC will be requested from the client.

Sample Integrity (mandatory):

Samples are inspected upon arrival to ensure that sample integrity was not compromised during transfer to the laboratory.

- ✓ Sample containers must arrive in good condition (not broken or leaking).
- ✓ Samples must be labeled appropriately, including Sample IDs, and requested test using durable labels and indelible ink.
- ✓ The correct type of sample bottle must be used for the method requested.
- ✓ An appropriate sample volume, or weight, must be received.
- ✓ Sample IDs and number of containers must reconcile with the COC.
- ✓ Samples must be received within the method defined holding time.

Temperature Requirement (varies by sample matrix):

- ✓ Aqueous and Non-aqueous samples must be shipped and stored cold, at 0 to 6ºC.
- ✓ Tissue samples must be shipped and stored frozen, at -20 to -10ºC.
- ✓ Air samples are shipped and stored cold, at 0 to 6ºC
- ✓ The sample temperature must be recorded on the COC

All cooler inspections are documented on the Cooler Receipt Form (CRF). A separate CRF is completed for each service request. Any samples not meeting the above criteria are noted on the CRF and the Project Manager notified. The Project Manager must resolve any sample integrity issues with the client prior to proceeding with the analysis. Such resolutions are documented in writing and filed with the project folder. Data associated with samples received outside of this acceptance policy will be qualified on the case narrative of the final report

Preparation Information Benchsheets

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Preparation Information Benchsheet

Prep Run#: 328121 **Prep WorkFlow:** OrgExtS(365) **Status:** Prepped
Team: Semivoa GCMS/ALOPEZ **Prep Method:** Method Soxhlet **Prep Date/Time:** 12/12/18 11:00 AM

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E1801094-001	SL0028	.01	1613B/Dioxins Furans			Sediment	10.175g	Brown Mud
2	E1801094-002	SL0029	.01	1613B/Dioxins Furans			Sediment	10.467g	Brown Mud + Rocks
3	E1801094-003	SL0030	.01	1613B/Dioxins Furans			Sediment	10.084g	Brown Mud
4	E1801094-004	SL0031	.01	1613B/Dioxins Furans			Sediment	10.677g	Brown Mud
5	E1801094-005	SL0032	.01	1613B/Dioxins Furans			Sediment	10.053g	Brown Mud
6	E1801094-006	SL0035	.01	1613B/Dioxins Furans			Sediment	10.542g	Brown Mud Clumps
7	E1801094-007	SL0036	.01	1613B/Dioxins Furans			Sediment	10.556g	Brown Mud
8	E1801094-008	SL0037	.01	1613B/Dioxins Furans			Sediment	10.150g	Brown Mud
9	E1801094-009	SL0038	.01	1613B/Dioxins Furans			Sediment	10.584g	Brown Mud
10	E1801094-010	SL0039	.01	1613B/Dioxins Furans			Sediment	10.497g	Brown Mud
11	E1801094-011	SL0053	.01	1613B/Dioxins Furans			Sediment	10.463g	Brown Dirt + Mud
12	E1801094-012	SL0054	.01	1613B/Dioxins Furans			Sediment	10.625g	Brown Mud
13	E1801094-013	SL0055	.01	1613B/Dioxins Furans			Sediment	10.762g	Brown Dirt + Rocks
14	E1801094-014	SL0056	.01	1613B/Dioxins Furans			Sediment	10.442g	Black Mud
15	E1801094-015	SL0057	.01	1613B/Dioxins Furans			Sediment	10.936g	Black + Brown Mud
16	E1801094-016	SL0012	.01	1613B/Dioxins Furans			Sediment	10.593g	Brown Dirt + Rocks
17	E1801094-017	SL0013	.01	1613B/Dioxins Furans			Sediment	10.752g	Brown Dirt + Mud
18	E1801094-018	SL0014	.01	1613B/Dioxins Furans			Sediment	10.514g	Brown Mud
19	E1801094-019	SL0015	.01	1613B/Dioxins Furans			Sediment	10.784g	Brown Mud Clumps
20	E1801094-020	SL0016	.01	1613B/Dioxins Furans			Sediment	10.205g	Brown Mud
21	EQ1800510-01	MB		1613B/Dioxins Furans			Solid	10.384g	
22	EQ1800510-02	LCS		1613B/Dioxins Furans			Solid	10.203g	
23	EQ1800510-03	DLCS		1613B/Dioxins Furans			Solid	10.426g	

Spiking Solutions

Name: 1613B Labeled Working Standard Inventory ID 195563 Logbook Ref: 195563 AL 12/11/18 2-4 ng/mL Expires On: 01/31/2019

E1801094-001	1,000.00µL	E1801094-002	1,000.00µL	E1801094-002.R	1,000.00µL	E1801094-003	1,000.00µL	E1801094-003.R	1,000.00µL	E1801094-004	1,000.00µL
E1801094-004.R	1,000.00µL	E1801094-005	1,000.00µL	E1801094-006	1,000.00µL	E1801094-007	1,000.00µL	E1801094-008	1,000.00µL	E1801094-009	1,000.00µL
E1801094-010	1,000.00µL	E1801094-011	1,000.00µL	E1801094-012	1,000.00µL	E1801094-012.R	1,000.00µL	E1801094-013	1,000.00µL	E1801094-014	1,000.00µL
E1801094-014.R	1,000.00µL	E1801094-015	1,000.00µL	E1801094-015.R	1,000.00µL	E1801094-016	1,000.00µL	E1801094-017	1,000.00µL	E1801094-018	1,000.00µL
E1801094-018.R	1,000.00µL	E1801094-019	1,000.00µL	E1801094-020	1,000.00µL	EQ1800510-01	1,000.00µL	EQ1800510-02	1,000.00µL	EQ1800510-03	1,000.00µL

Name: 1613B Matrix Working Standard Inventory ID 195564 Logbook Ref: 195564 AL 12/11/18 2-20 ng/mL Expires On: 06/09/2019

EQ1800510-02 100.00µL EQ1800510-03 100.00µL

Preparation Information Benchsheet

Prep Run#: 328121 **Prep WorkFlow:** OrgExtS(365) **Status:** Prepped
Team: Semivoa GCMS/ALOPEZ **Prep Method:** Method Soxhlet **Prep Date/Time:** 12/12/18 11:00 AM

Name:	8290/1613B Cleanup Working Standard	Inventory ID	195630	Logbook Ref:	195630 tw012/14/18 8ng/ml	Expires On:	04/27/2019

E1801094-001	100.00µL	E1801094-002	100.00µL	E1801094-002.R	100.00µL	E1801094-003	100.00µL	E1801094-003.R	100.00µL	E1801094-004	100.00µL
E1801094-004.R	100.00µL	E1801094-005	100.00µL	E1801094-006	100.00µL	E1801094-007	100.00µL	E1801094-008	100.00µL	E1801094-009	100.00µL
E1801094-010	100.00µL	E1801094-011	100.00µL	E1801094-012	100.00µL	E1801094-012.R	100.00µL	E1801094-013	100.00µL	E1801094-014	100.00µL
E1801094-014.R	100.00µL	E1801094-015	100.00µL	E1801094-015.R	100.00µL	E1801094-016	100.00µL	E1801094-017	100.00µL	E1801094-018	100.00µL
E1801094-018.R	100.00µL	E1801094-019	100.00µL	E1801094-020	100.00µL	EQ1800510-01	100.00µL	EQ1800510-02	100.00µL	EQ1800510-03	100.00µL

Preparation Materials

Carbon, High Purity	12/7/18 carbon tw (195519)	Ethyl Acetate 99.9% Minimum EtOAc	tw ethyl acet 080218 (192158)	Glass Wool	112018 tw glasswool (195079)
Hexanes 95%	AL 11/16/18 (195004)	Toluene 99.9% Minimum	AL 11/16/18 (195003)	Dichloromethane (Methylene Chloride) 99.9% MeCl2	AL (195005)
Sodium Sulfate Anhydrous Reagent Grade Na2SO4	AL 10/12/18 (194060)	Silica Gel	AL 10/11/18 (194005)	sulfuric acid	AL 10/11/18 (194007)
Sodium Hydroxide 1N NaOH	TW 6/14/18 (191093)	Tridecane (n-Tridecane)	AL 10/23/18 (194374)		

Preparation Steps

Step:	Extraction	Step:	Acid Clean	Step:	Silica Gel Clean	Step:	Final Volume
Started:	12/12/18 11:00	Started:	12/17/18 14:00	Started:	12/18/18 09:00	Started:	12/18/18 12:00
Finished:	12/13/18 07:30	Finished:	12/17/18 15:00	Finished:	12/18/18 12:00	Finished:	12/18/18 15:00
By:	ALOPEZ	By:	ALOPEZ	By:	ALOPEZ	By:	ALOPEZ
Comments		Comments		Comments		Comments	

Comments: _____

Reviewed By: _____ Date: _____

Chain of Custody

Relinquished By: _____ Date: _____ Extracts Examined

Received By: _____ Date: _____ Yes No

Analytical Results

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
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ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/04/18 11:20
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0028	**Units:**	ng/Kg
Lab Code:	E1801094-001	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/18/18 18:15
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.175g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519469	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519465

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	3.33	**K**	0.837	0.837	0.56	1.001	1
1,2,3,7,8-PeCDD	4.69	**K**	0.188	3.33	2.06	1.001	1
1,2,3,4,7,8-HxCDD	10.4		0.539	3.33	1.23	1.000	1
1,2,3,6,7,8-HxCDD	68.5		0.597	3.33	1.27	1.000	1
1,2,3,7,8,9-HxCDD	25.3		0.555	3.33	1.35	1.007	1
1,2,3,4,6,7,8-HpCDD	2130		0.203	3.33	1.04	1.000	1
OCDD	28200	**E**	0.683	6.66	0.89	1.000	1
2,3,7,8-TCDF	16.8		0.401	0.666	0.79	1.001	1
1,2,3,7,8-PeCDF	4.31		2.80	3.33	1.36	1.001	1
2,3,4,7,8-PeCDF	18.7		3.02	3.33	1.58	1.001	1
1,2,3,4,7,8-HxCDF	15.8		0.836	3.33	1.11	1.000	1
1,2,3,6,7,8-HxCDF	12.5	**P**	0.806	3.33	1.17	1.000	1
1,2,3,7,8,9-HxCDF	2.32	**JK**	1.01	3.33	1.63	1.001	1
2,3,4,6,7,8-HxCDF	17.9		0.889	3.33	1.20	1.000	1
1,2,3,4,6,7,8-HpCDF	151		1.15	3.33	1.02	1.000	1
1,2,3,4,7,8,9-HpCDF	6.83		1.81	3.33	0.98	1.000	1
OCDF	141		0.858	6.66	0.83	1.004	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/04/18 11:20
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0028	**Units:**	ng/Kg
Lab Code:	E1801094-001	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/18/18 18:15
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.175g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519469	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519465

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	28.3		0.837	0.837	0.81		1
Total Penta-Dioxins	108		0.188	3.33	1.57		1
Total Hexa-Dioxins	806		0.564	3.33	1.25		1
Total Hepta-Dioxins	4820		0.203	3.33	1.03		1
Total Tetra-Furans	111		0.401	0.666	0.77		1
Total Penta-Furans	174		0.0834	3.33	1.32		1
Total Hexa-Furans	300		0.878	3.33	1.17		1
Total Hepta-Furans	360		1.43	3.33	1.02		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/04/18 11:20
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0028	**Units:**	Percent
Lab Code:	E1801094-001	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/18/18 18:15
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.175g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519469	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519465

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	881.750	44		25-164	0.78	1.024
13C-1,2,3,7,8-PeCDD	2000	1428.071	71		25-181	1.63	1.210
13C-1,2,3,4,7,8-HxCDD	2000	1301.786	65		32-141	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1284.435	64		28-130	1.27	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1287.730	64		23-140	1.04	1.071
13C-OCDD	4000	1222.547	31		17-157	0.90	1.151
13C-2,3,7,8-TCDF	2000	1154.638	58		24-169	0.79	0.991
13C-1,2,3,7,8-PeCDF	2000	1360.264	68		24-185	1.60	1.162
13C-2,3,4,7,8-PeCDF	2000	1299.121	65		21-178	1.58	1.199
13C-1,2,3,4,7,8-HxCDF	2000	1123.003	56		26-152	0.52	0.968
13C-1,2,3,6,7,8-HxCDF	2000	1167.386	58		26-123	0.51	0.972
13C-1,2,3,7,8,9-HxCDF	2000	1180.314	59		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1115.920	56		28-136	0.52	0.986
13C-1,2,3,4,6,7,8-HpCDF	2000	1003.797	50		28-143	0.45	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	912.475	46		26-138	0.43	1.084
37Cl-2,3,7,8-TCDD	800	528.442	66		35-197	NA	1.025

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/04/18 11:20
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0028	**Units:**	ng/Kg
Lab Code:	E1801094-001	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**3.33**	0.837	0.837	1	1	3.33
1,2,3,7,8-PeCDD	**4.69**	0.188	3.33	1	1	4.69
1,2,3,4,7,8-HxCDD	**10.4**	0.539	3.33	1	0.1	1.04
1,2,3,6,7,8-HxCDD	**68.5**	0.597	3.33	1	0.1	6.85
1,2,3,7,8,9-HxCDD	**25.3**	0.555	3.33	1	0.1	2.53
1,2,3,4,6,7,8-HpCDD	**2130**	0.203	3.33	1	0.01	21.3
OCDD	**28200**	0.683	6.66	1	0.0003	8.46
2,3,7,8-TCDF	**16.8**	0.401	0.666	1	0.1	1.68
1,2,3,7,8-PeCDF	**4.31**	2.80	3.33	1	0.03	0.129
2,3,4,7,8-PeCDF	**18.7**	3.02	3.33	1	0.3	5.61
1,2,3,4,7,8-HxCDF	**15.8**	0.836	3.33	1	0.1	1.58
1,2,3,6,7,8-HxCDF	**12.5**	0.806	3.33	1	0.1	1.25
1,2,3,7,8,9-HxCDF	**2.32**	1.01	3.33	1	0.1	0.232
2,3,4,6,7,8-HxCDF	**17.9**	0.889	3.33	1	0.1	1.79
1,2,3,4,6,7,8-HpCDF	**151**	1.15	3.33	1	0.01	1.51
1,2,3,4,7,8,9-HpCDF	**6.83**	1.81	3.33	1	0.01	0.0683
OCDF	**141**	0.858	6.66	1	0.0003	0.0423
		Total TEQ				62.1

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/04/18 11:20
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0028	**Units:**	Percent
Lab Code:	E1801094-001	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/14/18 15:24
	10.33g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	73.8		-	1

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/04/18 11:25
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0029	**Units:**	ng/Kg
Lab Code:	E1801094-002	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/21/18 08:12
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.467g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519539	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519532

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	17100		357	357	0.77	1.001	100
1,2,3,7,8-PeCDD	104**JK**		67.6	430	0.86	1.001	100
1,2,3,4,7,8-HxCDD	ND	U	212	430			100
1,2,3,6,7,8-HxCDD	ND	U	203	430			100
1,2,3,7,8,9-HxCDD	ND	U	203	430			100
1,2,3,4,6,7,8-HpCDD	6490		274	430	0.97	1.000	100
OCDD	109000		738	859	0.90	1.000	100
2,3,7,8-TCDF	28000		112	112	0.78	1.001	100
1,2,3,7,8-PeCDF	895**K**		58.4	430	1.31	1.001	100
2,3,4,7,8-PeCDF	627**K**		67.2	430	1.98	1.000	100
1,2,3,4,7,8-HxCDF	1590		254	430	1.06	1.000	100
1,2,3,6,7,8-HxCDF	314**JK**		220	430	2.22	1.000	100
1,2,3,7,8,9-HxCDF	ND	U	304	430			100
2,3,4,6,7,8-HxCDF	ND	U	255	430			100
1,2,3,4,6,7,8-HpCDF	560**K**		259	430	0.86	1.000	100
1,2,3,4,7,8,9-HpCDF	ND	U	386	430			100
OCDF	1490**K**		1390	1390	1.09	1.005	100

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/04/18 11:25
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0029	**Units:**	ng/Kg
Lab Code:	E1801094-002	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/21/18 08:12
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.467g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519539	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519532

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	18800		357	357	0.77		100
Total Penta-Dioxins	ND	U	67.6	430			100
Total Hexa-Dioxins	ND	U	197	430			100
Total Hepta-Dioxins	6520		274	430	0.99		100
Total Tetra-Furans	49400		112	112	0.71		100
Total Penta-Furans	78.4**J**		65.6	430	1.70		100
Total Hexa-Furans	1590		255	430	1.06		100
Total Hepta-Furans	704		337	430	0.98		100

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/04/18 11:25
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0029	**Units:**	ng/Kg
Lab Code:	E1801094-002	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/18/18 19:04
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.467g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519470	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519465

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	17000**E**		1.96	1.96	0.80	1.001	1
1,2,3,7,8-PeCDD	129		1.63	4.30	1.58	1.000	1
1,2,3,4,7,8-HxCDD	11.8		1.87	4.30	1.23	1.000	1
1,2,3,6,7,8-HxCDD	162		2.12	4.30	1.17	1.000	1
1,2,3,7,8,9-HxCDD	61.7		1.95	4.30	1.33	1.007	1
1,2,3,4,6,7,8-HpCDD	7560**E**		1.23	4.30	1.04	1.000	1
OCDD	70500**E**		3.45	8.59	0.90	1.000	1
2,3,7,8-TCDF	36300**E**		0.926	0.926	0.78	1.001	1
1,2,3,7,8-PeCDF	1110**P**		2.38	4.30	1.54	1.000	1
2,3,4,7,8-PeCDF	978		2.66	4.30	1.55	1.000	1
1,2,3,4,7,8-HxCDF	2020		3.66	4.30	1.18	1.000	1
1,2,3,6,7,8-HxCDF	524		3.67	4.30	1.25	1.000	1
1,2,3,7,8,9-HxCDF	148		5.09	5.09	1.06	1.001	1
2,3,4,6,7,8-HxCDF	111		4.05	4.30	1.09	1.000	1
1,2,3,4,6,7,8-HpCDF	713		5.41	5.41	0.98	1.000	1
1,2,3,4,7,8,9-HpCDF	224		8.86	8.86	1.01	1.000	1
OCDF	937		2.85	8.59	0.88	1.004	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/04/18 11:25
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0029	**Units:**	ng/Kg
Lab Code:	E1801094-002	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/18/18 19:04
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.467g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519470	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519465

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	18900		1.96	1.96	0.78		1
Total Penta-Dioxins	355		1.63	4.30	1.58		1
Total Hexa-Dioxins	1820		1.98	4.30	1.22		1
Total Hepta-Dioxins	13800		1.23	4.30	1.04		1
Total Tetra-Furans	64600		0.926	0.926	0.71		1
Total Penta-Furans	3450		0.108	4.30	1.35		1
Total Hexa-Furans	3360		4.06	4.30	1.32		1
Total Hepta-Furans	1730		6.82	6.82	0.98		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/04/18 11:25
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0029	**Units:**	Percent
Lab Code:	E1801094-002	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/18/18 19:04
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.467g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519470	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519465

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	654.726	33		25-164	0.80	1.023
13C-1,2,3,7,8-PeCDD	2000	838.956	42		25-181	1.53	1.207
13C-1,2,3,4,7,8-HxCDD	2000	929.764	46		32-141	1.29	0.991
13C-1,2,3,6,7,8-HxCDD	2000	867.887	43		28-130	1.26	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	752.494	38		23-140	1.08	1.072
13C-OCDD	4000	772.164	19		17-157	0.89	1.151
13C-2,3,7,8-TCDF	2000	879.651	44		24-169	0.81	0.990
13C-1,2,3,7,8-PeCDF	2000	852.701	43		24-185	1.60	1.161
13C-2,3,4,7,8-PeCDF	2000	779.715	39		21-178	1.57	1.196
13C-1,2,3,4,7,8-HxCDF	2000	865.580	43		26-152	0.54	0.969
13C-1,2,3,6,7,8-HxCDF	2000	869.745	43		26-123	0.51	0.972
13C-1,2,3,7,8,9-HxCDF	2000	812.029	41		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	855.809	43		28-136	0.51	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	604.027	30		28-143	0.43	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	519.532	26		26-138	0.41	1.084
37Cl-2,3,7,8-TCDD	800	517.157	65		35-197	NA	1.023

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/04/18 11:25
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0029	**Units:**	Percent
Lab Code:	E1801094-002	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/21/18 08:12
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.467g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519539	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519532

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	6060	1470.663	24	**Y**	25-164	0.78	1.023
13C-1,2,3,7,8-PeCDD	4760	2286.652	48		25-181	1.64	1.210
13C-1,2,3,4,7,8-HxCDD	4350	1915.450	44		32-141	1.30	0.991
13C-1,2,3,6,7,8-HxCDD	4650	2132.622	46		28-130	1.27	0.993
13C-1,2,3,4,6,7,8-HpCDD	5260	2609.549	50		23-140	1.13	1.073
13C-OCDD	21100	4874.433	23		17-157	0.89	1.155
13C-2,3,7,8-TCDF	4550	1875.265	41		24-169	0.80	0.990
13C-1,2,3,7,8-PeCDF	4650	2172.181	47		24-185	1.57	1.163
13C-2,3,4,7,8-PeCDF	5130	2051.576	40		21-178	1.58	1.198
13C-1,2,3,4,7,8-HxCDF	4650	1723.058	37		26-152	0.49	0.969
13C-1,2,3,6,7,8-HxCDF	4650	1965.239	42		26-123	0.53	0.972
13C-1,2,3,7,8,9-HxCDF	4880	1889.552	39		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	4650	1934.517	42		28-136	0.50	0.987
13C-1,2,3,4,6,7,8-HpCDF	6670	2205.255	33		28-143	0.45	1.046
13C-1,2,3,4,7,8,9-HpCDF	7690	2120.973	28		26-138	0.42	1.086
37Cl-2,3,7,8-TCDD	8.00	2.442	31	**Y**	35-197	NA	1.025

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/04/18 11:25
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0029	**Units:**	ng/Kg
Lab Code:	E1801094-002	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**17000**	1.96	1.96	1	1	17000
2,3,7,8-TCDD	**17100**	357	357	100	1	17100
1,2,3,7,8-PeCDD	**129**	1.63	4.30	1	1	129
1,2,3,4,7,8-HxCDD	**11.8**	1.87	4.30	1	0.1	1.18
1,2,3,6,7,8-HxCDD	**162**	2.12	4.30	1	0.1	16.2
1,2,3,7,8,9-HxCDD	**61.7**	1.95	4.30	1	0.1	6.17
1,2,3,4,6,7,8-HpCDD	**7560**	1.23	4.30	1	0.01	75.6
1,2,3,4,6,7,8-HpCDD	**6490**	274	430	100	0.01	64.9
OCDD	**70500**	3.45	8.59	1	0.0003	21.2
OCDD	**109000**	738	859	100	0.0003	32.7
2,3,7,8-TCDF	**36300**	0.926	0.926	1	0.1	3630
2,3,7,8-TCDF	**28000**	112	112	100	0.1	2800
1,2,3,7,8-PeCDF	**1110**	2.38	4.30	1	0.03	33.3
2,3,4,7,8-PeCDF	**978**	2.66	4.30	1	0.3	293
1,2,3,4,7,8-HxCDF	**2020**	3.66	4.30	1	0.1	202
1,2,3,6,7,8-HxCDF	**524**	3.67	4.30	1	0.1	52.4
1,2,3,7,8,9-HxCDF	**148**	5.09	5.09	1	0.1	14.8
2,3,4,6,7,8-HxCDF	**111**	4.05	4.30	1	0.1	11.1
1,2,3,4,6,7,8-HpCDF	**713**	5.41	5.41	1	0.01	7.13
1,2,3,4,7,8,9-HpCDF	**224**	8.86	8.86	1	0.01	2.24
OCDF	**937**	2.85	8.59	1	0.0003	0.281
		Total TEQ				20800
		Total TEQ				20800

2005 WHO TEFs, ND = 0

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/04/18 11:25
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0029	**Units:**	Percent
Lab Code:	E1801094-002	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/14/18 15:24
	5.662g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	55.6		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/04/18 11:30
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0030	**Units:**	ng/Kg
Lab Code:	E1801094-003	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/21/18 09:00
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.084g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519540	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519532

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	97800		6650	6650	0.75	1.001	500
1,2,3,7,8-PeCDD	ND	U	1080	2430			500
1,2,3,4,7,8-HxCDD	ND	U	687	2430			500
1,2,3,6,7,8-HxCDD	ND	U	683	2430			500
1,2,3,7,8,9-HxCDD	ND	U	669	2430			500
1,2,3,4,6,7,8-HpCDD	1290**J**		870	2430	1.01	1.000	500
OCDD	51000		2540	4860	1.01	1.001	500
2,3,7,8-TCDF	149000		2480	2480	0.78	1.001	500
1,2,3,7,8-PeCDF	5870		1100	2430	1.40	1.000	500
2,3,4,7,8-PeCDF	3670		1110	2430	1.39	1.001	500
1,2,3,4,7,8-HxCDF	8460		819	2430	1.24	1.000	500
1,2,3,6,7,8-HxCDF	1560**JK**		783	2430	1.03	1.000	500
1,2,3,7,8,9-HxCDF	ND	U	1140	2430			500
2,3,4,6,7,8-HxCDF	ND	U	863	2430			500
1,2,3,4,6,7,8-HpCDF	2410**JK**		890	2430	0.82	1.001	500
1,2,3,4,7,8,9-HpCDF	ND	U	1380	2430			500
OCDF	13500		7020	7020	0.76	1.004	500

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/04/18 11:30
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0030	**Units:**	ng/Kg
Lab Code:	E1801094-003	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/21/18 09:00
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.084g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519540	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519532

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	109000		6650	6650	0.75		500
Total Penta-Dioxins	ND	U	1080	2430			500
Total Hexa-Dioxins	ND	U	668	2430			500
Total Hepta-Dioxins	1290**J**		870	2430	1.01		500
Total Tetra-Furans	241000		2480	2480	0.86		500
Total Penta-Furans	9910		1150	2430	1.40		500
Total Hexa-Furans	8610		900	2430	1.24		500
Total Hepta-Furans	ND	U	1160	2430			500

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/04/18 11:30
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0030	**Units:**	ng/Kg
Lab Code:	E1801094-003	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/18/18 19:52
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.084g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519471	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519465

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	63900	**E**	0.852	0.972	0.79	1.001	1
1,2,3,7,8-PeCDD	430		1.25	4.86	1.70	1.001	1
1,2,3,4,7,8-HxCDD	7.53		0.860	4.86	1.05	1.000	1
1,2,3,6,7,8-HxCDD	45.2		0.987	4.86	1.27	1.000	1
1,2,3,7,8,9-HxCDD	16.0		0.901	4.86	1.23	1.007	1
1,2,3,4,6,7,8-HpCDD	1200		1.19	4.86	1.05	1.000	1
OCDD	24300	**E**	3.15	9.72	0.91	1.001	1
2,3,7,8-TCDF	125000	**E**	1.53	1.53	0.79	1.001	1
1,2,3,7,8-PeCDF	4050	**E**	3.52	4.86	1.55	1.001	1
2,3,4,7,8-PeCDF	3160		3.60	4.86	1.53	1.001	1
1,2,3,4,7,8-HxCDF	7490	**E**	8.12	8.12	1.22	1.000	1
1,2,3,6,7,8-HxCDF	1860		7.82	7.82	1.26	1.000	1
1,2,3,7,8,9-HxCDF	558		10.8	10.8	1.23	1.001	1
2,3,4,6,7,8-HxCDF	310		8.56	8.56	1.21	1.000	1
1,2,3,4,6,7,8-HpCDF	2040		0.468	4.86	1.02	1.000	1
1,2,3,4,7,8,9-HpCDF	745		0.741	4.86	1.04	1.000	1
OCDF	8150	**E**	1.55	9.72	0.87	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/04/18 11:30
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0030	**Units:**	ng/Kg
Lab Code:	E1801094-003	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/18/18 19:52
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.084g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519471	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519465

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	70800		0.852	0.972	0.80		1
Total Penta-Dioxins	515		1.25	4.86	1.42		1
Total Hexa-Dioxins	348		0.916	4.86	1.28		1
Total Hepta-Dioxins	2760		1.19	4.86	1.04		1
Total Tetra-Furans	222000		1.53	1.53	0.71		1
Total Penta-Furans	11200		0.122	4.86	1.49		1
Total Hexa-Furans	11300		8.70	8.70	1.14		1
Total Hepta-Furans	3760		0.583	4.86	1.02		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/04/18 11:30
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0030	**Units:**	Percent
Lab Code:	E1801094-003	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/18/18 19:52
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.084g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519471	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519465

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	778.489	39		25-164	0.81	1.021
13C-1,2,3,7,8-PeCDD	2000	1098.905	55		25-181	1.59	1.203
13C-1,2,3,4,7,8-HxCDD	2000	1249.855	62		32-141	1.30	0.990
13C-1,2,3,6,7,8-HxCDD	2000	1203.638	60		28-130	1.27	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1032.324	52		23-140	1.09	1.071
13C-OCDD	4000	1018.573	25		17-157	0.92	1.150
13C-2,3,7,8-TCDF	2000	1031.152	52		24-169	0.82	0.989
13C-1,2,3,7,8-PeCDF	2000	1082.071	54		24-185	1.58	1.157
13C-2,3,4,7,8-PeCDF	2000	1001.932	50		21-178	1.62	1.192
13C-1,2,3,4,7,8-HxCDF	2000	1155.134	58		26-152	0.53	0.969
13C-1,2,3,6,7,8-HxCDF	2000	1149.771	57		26-123	0.49	0.972
13C-1,2,3,7,8,9-HxCDF	2000	1096.382	55		29-147	0.53	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1160.634	58		28-136	0.53	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	850.445	43		28-143	0.42	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	771.121	39		26-138	0.42	1.084
37Cl-2,3,7,8-TCDD	800	1048.687	131		35-197	NA	1.022

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/04/18 11:30
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0030	**Units:**	Percent
Lab Code:	E1801094-003	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/21/18 09:00
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.084g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519540	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519532

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	5130	1361.339	27		25-164	0.79	1.023
13C-1,2,3,7,8-PeCDD	3640	2135.034	59		25-181	1.63	1.209
13C-1,2,3,4,7,8-HxCDD	3230	1809.292	56		32-141	1.29	0.991
13C-1,2,3,6,7,8-HxCDD	3330	2053.668	62		28-130	1.29	0.993
13C-1,2,3,4,6,7,8-HpCDD	3850	2408.617	63		23-140	1.08	1.073
13C-OCDD	16000	4298.653	27		17-157	0.92	1.155
13C-2,3,7,8-TCDF	3850	1772.035	46		24-169	0.83	0.990
13C-1,2,3,7,8-PeCDF	3700	2158.571	58		24-185	1.59	1.163
13C-2,3,4,7,8-PeCDF	4000	2066.971	52		21-178	1.58	1.198
13C-1,2,3,4,7,8-HxCDF	3450	1670.846	48		26-152	0.52	0.968
13C-1,2,3,6,7,8-HxCDF	3510	1928.300	55		26-123	0.53	0.972
13C-1,2,3,7,8,9-HxCDF	3640	1731.736	48		29-147	0.47	1.008
13C-2,3,4,6,7,8-HxCDF	3450	1885.694	55		28-136	0.53	0.986
13C-1,2,3,4,6,7,8-HpCDF	4650	2063.379	44		28-143	0.46	1.046
13C-1,2,3,4,7,8,9-HpCDF	5130	2007.340	39		26-138	0.44	1.086
37Cl-2,3,7,8-TCDD		*			35-197	NA	

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/04/18 11:30
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0030	**Units:**	ng/Kg
Lab Code:	E1801094-003	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**63900**	0.852	0.972	1	1	63900
2,3,7,8-TCDD	**97800**	6650	6650	500	1	97800
1,2,3,7,8-PeCDD	**430**	1.25	4.86	1	1	430
1,2,3,4,7,8-HxCDD	**7.53**	0.860	4.86	1	0.1	0.753
1,2,3,6,7,8-HxCDD	**45.2**	0.987	4.86	1	0.1	4.52
1,2,3,7,8,9-HxCDD	**16.0**	0.901	4.86	1	0.1	1.60
1,2,3,4,6,7,8-HpCDD	**1200**	1.19	4.86	1	0.01	12.0
OCDD	**24300**	3.15	9.72	1	0.0003	7.29
OCDD	**51000**	2540	4860	500	0.0003	15.3
2,3,7,8-TCDF	**125000**	1.53	1.53	1	0.1	12500
2,3,7,8-TCDF	**149000**	2480	2480	500	0.1	14900
1,2,3,7,8-PeCDF	**4050**	3.52	4.86	1	0.03	122
1,2,3,7,8-PeCDF	**5870**	1100	2430	500	0.03	176
2,3,4,7,8-PeCDF	**3160**	3.60	4.86	1	0.3	948
1,2,3,4,7,8-HxCDF	**7490**	8.12	8.12	1	0.1	749
1,2,3,4,7,8-HxCDF	**8460**	819	2430	500	0.1	846
1,2,3,6,7,8-HxCDF	**1860**	7.82	7.82	1	0.1	186
1,2,3,7,8,9-HxCDF	**558**	10.8	10.8	1	0.1	55.8
2,3,4,6,7,8-HxCDF	**310**	8.56	8.56	1	0.1	31.0
1,2,3,4,6,7,8-HpCDF	**2040**	0.468	4.86	1	0.01	20.4
1,2,3,4,7,8,9-HpCDF	**745**	0.741	4.86	1	0.01	7.45
OCDF	**8150**	1.55	9.72	1	0.0003	2.45
OCDF	**13500**	7020	7020	500	0.0003	4.05
		Total TEQ				115000
		Total TEQ				115000

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/04/18 11:30
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0030	**Units:**	Percent
Lab Code:	E1801094-003	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/14/18 15:24
	5.686g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	51.0		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/04/18 11:35
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0031	**Units:**	ng/Kg
Lab Code:	E1801094-004	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/18/18 20:41
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.677g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519472	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519465

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	1050		166	166	0.82	1.001	20
1,2,3,7,8-PeCDD	6.81		0.354	3.17	1.53	1.001	1
1,2,3,4,7,8-HxCDD	1.49	**J**	0.471	3.17	1.22	1.000	1
1,2,3,6,7,8-HxCDD	4.45		0.510	3.17	1.29	1.000	1
1,2,3,7,8,9-HxCDD	3.18		0.479	3.17	1.42	1.007	1
1,2,3,4,6,7,8-HpCDD	109		0.545	3.17	1.06	1.000	1
OCDD	2320		1.19	6.34	0.88	1.000	1
2,3,7,8-TCDF	1550		105	105	0.92	1.001	20
1,2,3,7,8-PeCDF	44.0		0.540	3.17	1.44	1.000	1
2,3,4,7,8-PeCDF	39.8		0.590	3.17	1.41	1.001	1
1,2,3,4,7,8-HxCDF	72.4		0.395	3.17	1.21	1.000	1
1,2,3,6,7,8-HxCDF	19.4		0.381	3.17	1.08	1.000	1
1,2,3,7,8,9-HxCDF	6.07		0.545	3.17	1.17	1.001	1
2,3,4,6,7,8-HxCDF	5.18		0.430	3.17	1.40	1.001	1
1,2,3,4,6,7,8-HpCDF	53.4		0.456	3.17	1.01	1.000	1
1,2,3,4,7,8,9-HpCDF	9.51		0.758	3.17	1.11	1.000	1
OCDF	1550		0.971	6.34	0.86	1.004	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/04/18 11:35
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0031	**Units:**	ng/Kg
Lab Code:	E1801094-004	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/18/18 20:41
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.677g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519472	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519465

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	918		1.06	1.06	0.78		1
Total Penta-Dioxins	17.3		0.354	3.17	1.64		1
Total Hexa-Dioxins	72.1		0.487	3.17	1.26		1
Total Hepta-Dioxins	288		0.545	3.17	1.04		1
Total Tetra-Furans	3170		0.874	0.874	0.73		1
Total Penta-Furans	143		0.0794	3.17	1.46		1
Total Hexa-Furans	135		0.431	3.17	1.35		1
Total Hepta-Furans	117		0.579	3.17	1.01		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/04/18 11:35
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0031	**Units:**	Percent
Lab Code:	E1801094-004	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/18/18 20:41
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.677g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519472	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519465

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	897.350	45		25-164	0.78	1.023
13C-1,2,3,7,8-PeCDD	2000	1369.403	68		25-181	1.60	1.208
13C-1,2,3,4,7,8-HxCDD	2000	1339.289	67		32-141	1.26	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1350.639	68		28-130	1.29	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1262.259	63		23-140	1.07	1.072
13C-OCDD	4000	1322.059	33		17-157	0.92	1.151
13C-2,3,7,8-TCDF	2000	1184.653	59		24-169	0.80	0.990
13C-1,2,3,7,8-PeCDF	2000	1311.711	66		24-185	1.57	1.161
13C-2,3,4,7,8-PeCDF	2000	1226.055	61		21-178	1.62	1.197
13C-1,2,3,4,7,8-HxCDF	2000	1199.753	60		26-152	0.51	0.969
13C-1,2,3,6,7,8-HxCDF	2000	1267.208	63		26-123	0.52	0.972
13C-1,2,3,7,8,9-HxCDF	2000	1172.897	59		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1225.504	61		28-136	0.52	0.986
13C-1,2,3,4,6,7,8-HpCDF	2000	1004.617	50		28-143	0.45	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	862.026	43		26-138	0.44	1.084
37Cl-2,3,7,8-TCDD	800	518.123	65		35-197	NA	1.023

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/04/18 11:35
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0031	**Units:**	Percent
Lab Code:	E1801094-004	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/21/18 09:49
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.677g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519541	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519532

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	4440	1245.891	28		25-164	0.80	1.024
13C-1,2,3,7,8-PeCDD	2940	1924.580	65		25-181	1.72	1.210
13C-1,2,3,4,7,8-HxCDD	2990	1726.779	58		32-141	1.32	0.990
13C-1,2,3,6,7,8-HxCDD	2940	2055.791	70		28-130	1.25	0.993
13C-1,2,3,4,6,7,8-HpCDD	3170	2148.343	68		23-140	1.07	1.074
13C-OCDD	12100	3801.130	31		17-157	0.83	1.156
13C-2,3,7,8-TCDF	3390	1534.307	45		24-169	0.82	0.991
13C-1,2,3,7,8-PeCDF	3030	1900.225	63		24-185	1.60	1.163
13C-2,3,4,7,8-PeCDF	3280	1819.729	56		21-178	1.61	1.198
13C-1,2,3,4,7,8-HxCDF	3330	1620.486	49		26-152	0.54	0.968
13C-1,2,3,6,7,8-HxCDF	3170	1995.059	63		26-123	0.50	0.972
13C-1,2,3,7,8,9-HxCDF	3390	1639.036	48		29-147	0.50	1.008
13C-2,3,4,6,7,8-HxCDF	3280	1864.888	57		28-136	0.51	0.986
13C-1,2,3,4,6,7,8-HpCDF	4000	1981.597	50		28-143	0.43	1.046
13C-1,2,3,4,7,8,9-HpCDF	4650	1759.122	38		26-138	0.44	1.086
37Cl-2,3,7,8-TCDD	40.0	18.496	46		35-197	NA	1.025

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/04/18 11:35
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0031	**Units:**	ng/Kg
Lab Code:	E1801094-004	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**835**	1.06	1.06	1	1	835
2,3,7,8-TCDD	**1050**	166	166	20	1	1050
1,2,3,7,8-PeCDD	**6.81**	0.354	3.17	1	1	6.81
1,2,3,4,7,8-HxCDD	**1.49**	0.471	3.17	1	0.1	0.149
1,2,3,6,7,8-HxCDD	**4.45**	0.510	3.17	1	0.1	0.445
1,2,3,7,8,9-HxCDD	**3.18**	0.479	3.17	1	0.1	0.318
1,2,3,4,6,7,8-HpCDD	**109**	0.545	3.17	1	0.01	1.09
OCDD	**2320**	1.19	6.34	1	0.0003	0.696
2,3,7,8-TCDF	**1820**	0.874	0.874	1	0.1	182
2,3,7,8-TCDF	**1550**	105	105	20	0.1	155
1,2,3,7,8-PeCDF	**44.0**	0.540	3.17	1	0.03	1.32
2,3,4,7,8-PeCDF	**39.8**	0.590	3.17	1	0.3	11.9
1,2,3,4,7,8-HxCDF	**72.4**	0.395	3.17	1	0.1	7.24
1,2,3,6,7,8-HxCDF	**19.4**	0.381	3.17	1	0.1	1.94
1,2,3,7,8,9-HxCDF	**6.07**	0.545	3.17	1	0.1	0.607
2,3,4,6,7,8-HxCDF	**5.18**	0.430	3.17	1	0.1	0.518
1,2,3,4,6,7,8-HpCDF	**53.4**	0.456	3.17	1	0.01	0.534
1,2,3,4,7,8,9-HpCDF	**9.51**	0.758	3.17	1	0.01	0.0951
OCDF	**1550**	0.971	6.34	1	0.0003	0.465
		Total TEQ				1240
		Total TEQ				1240

2005 WHO TEFs, ND = 0

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/04/18 11:35
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0031	**Units:**	Percent
Lab Code:	E1801094-004	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/14/18 15:24
	7.806g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	73.9		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/04/18 11:40
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0032	**Units:**	ng/Kg
Lab Code:	E1801094-005	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/18/18 21:30
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.053g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519473	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519465

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	13.7		1.17	1.17	0.89	1.001	1
1,2,3,7,8-PeCDD	0.257**JK**		0.133	3.18	2.61	1.000	1
1,2,3,4,7,8-HxCDD	ND	U	0.411	3.18			1
1,2,3,6,7,8-HxCDD	ND	U	0.461	3.18			1
1,2,3,7,8,9-HxCDD	1.43**JK**		0.426	3.18	1.56	1.007	1
1,2,3,4,6,7,8-HpCDD	19.6		0.290	3.18	0.98	1.000	1
OCDD	513		0.810	6.36	0.92	1.000	1
2,3,7,8-TCDF	31.2		0.612	0.636	0.79	1.001	1
1,2,3,7,8-PeCDF	0.914**J**		0.190	3.18	1.38	1.001	1
2,3,4,7,8-PeCDF	0.609**JK**		0.217	3.18	0.86	1.001	1
1,2,3,4,7,8-HxCDF	1.29**JK**		0.113	3.18	1.79	1.000	1
1,2,3,6,7,8-HxCDF	0.433**JK**		0.105	3.18	1.00	1.000	1
1,2,3,7,8,9-HxCDF	ND	U	0.154	3.18			1
2,3,4,6,7,8-HxCDF	ND	U	0.115	3.18			1
1,2,3,4,6,7,8-HpCDF	0.551**BJK**		0.152	3.18	0.81	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.245	3.18			1
OCDF	3.30**J**		0.938	6.36	1.00	1.005	1

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/04/18 11:40
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0032	**Units:**	ng/Kg
Lab Code:	E1801094-005	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/18/18 21:30
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.053g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519473	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519465

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	1.17	1.17			1
Total Penta-Dioxins	ND	U	0.133	3.18			1
Total Hexa-Dioxins	14.4		0.433	3.18	1.24		1
Total Hepta-Dioxins	61.8		0.290	3.18	1.06		1
Total Tetra-Furans	45.2		0.612	0.636	0.69		1
Total Penta-Furans	0.914**J**		0.0797	3.18	1.38		1
Total Hexa-Furans	ND	U	0.119	3.18			1
Total Hepta-Furans	ND	U	0.190	3.18			1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/04/18 11:40
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0032	**Units:**	Percent
Lab Code:	E1801094-005	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/18/18 21:30
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.053g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519473	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519465

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	791.787	40		25-164	0.78	1.023
13C-1,2,3,7,8-PeCDD	2000	1279.579	64		25-181	1.60	1.209
13C-1,2,3,4,7,8-HxCDD	2000	1255.830	63		32-141	1.31	0.990
13C-1,2,3,6,7,8-HxCDD	2000	1292.618	65		28-130	1.29	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1219.442	61		23-140	1.05	1.071
13C-OCDD	4000	1286.927	32		17-157	0.93	1.151
13C-2,3,7,8-TCDF	2000	1045.715	52		24-169	0.79	0.990
13C-1,2,3,7,8-PeCDF	2000	1243.631	62		24-185	1.60	1.162
13C-2,3,4,7,8-PeCDF	2000	1164.743	58		21-178	1.59	1.198
13C-1,2,3,4,7,8-HxCDF	2000	1125.178	56		26-152	0.52	0.968
13C-1,2,3,6,7,8-HxCDF	2000	1236.198	62		26-123	0.50	0.972
13C-1,2,3,7,8,9-HxCDF	2000	1066.562	53		29-147	0.50	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1171.303	59		28-136	0.53	0.986
13C-1,2,3,4,6,7,8-HpCDF	2000	995.226	50		28-143	0.44	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	867.807	43		26-138	0.42	1.084
37Cl-2,3,7,8-TCDD	800	468.312	59		35-197	NA	1.025

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/04/18 11:40
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0032	**Units:**	ng/Kg
Lab Code:	E1801094-005	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**13.7**	1.17	1.17	1	1	13.7
1,2,3,7,8-PeCDD	**0.257**	0.133	3.18	1	1	0.257
1,2,3,4,7,8-HxCDD	ND	0.411	3.18	1	0.1	
1,2,3,6,7,8-HxCDD	ND	0.461	3.18	1	0.1	
1,2,3,7,8,9-HxCDD	**1.43**	0.426	3.18	1	0.1	0.143
1,2,3,4,6,7,8-HpCDD	**19.6**	0.290	3.18	1	0.01	0.196
OCDD	**513**	0.810	6.36	1	0.0003	0.154
2,3,7,8-TCDF	**31.2**	0.612	0.636	1	0.1	3.12
1,2,3,7,8-PeCDF	**0.914**	0.190	3.18	1	0.03	0.0274
2,3,4,7,8-PeCDF	**0.609**	0.217	3.18	1	0.3	0.183
1,2,3,4,7,8-HxCDF	**1.29**	0.113	3.18	1	0.1	0.129
1,2,3,6,7,8-HxCDF	**0.433**	0.105	3.18	1	0.1	0.0433
1,2,3,7,8,9-HxCDF	ND	0.154	3.18	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.115	3.18	1	0.1	
1,2,3,4,6,7,8-HpCDF	**0.551**	0.152	3.18	1	0.01	0.00551
1,2,3,4,7,8,9-HpCDF	ND	0.245	3.18	1	0.01	
OCDF	**3.30**	0.938	6.36	1	0.0003	0.000990
		Total TEQ				18.0

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/04/18 11:40
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0032	**Units:**	Percent
Lab Code:	E1801094-005	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/14/18 15:24
	10.477g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	78.2		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/04/18 13:10
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0035	**Units:**	ng/Kg
Lab Code:	E1801094-006	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/18/18 22:18
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.542g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519474	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519465

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	18.4		2.01	2.01	0.86	1.001	1
1,2,3,7,8-PeCDD	6.55		1.15	2.97	1.60	1.001	1
1,2,3,4,7,8-HxCDD	25.2		1.37	2.97	1.20	1.000	1
1,2,3,6,7,8-HxCDD	50.0		1.56	2.97	1.31	1.000	1
1,2,3,7,8,9-HxCDD	19.4**K**		1.43	2.97	1.47	1.007	1
1,2,3,4,6,7,8-HpCDD	893		0.482	2.97	1.06	1.000	1
OCDD	15600**E**		1.73	5.94	0.91	1.001	1
2,3,7,8-TCDF	45.3		2.38	2.38	0.69	1.001	1
1,2,3,7,8-PeCDF	7.60		1.98	2.97	1.63	1.001	1
2,3,4,7,8-PeCDF	10.9**K**		3.99	3.99	2.15	0.998	1
1,2,3,4,7,8-HxCDF	25.1		2.67	2.97	1.23	1.000	1
1,2,3,6,7,8-HxCDF	42.5**P**		2.03	2.97	1.24	1.000	1
1,2,3,7,8,9-HxCDF	ND	U	3.72	3.72			1
2,3,4,6,7,8-HxCDF	26.2		2.80	2.97	1.25	1.000	1
1,2,3,4,6,7,8-HpCDF	249		1.30	2.97	1.04	1.000	1
1,2,3,4,7,8,9-HpCDF	17.4		2.12	2.97	0.91	1.000	1
OCDF	355		2.77	5.94	0.87	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/04/18 13:10
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0035	**Units:**	ng/Kg
Lab Code:	E1801094-006	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/18/18 22:18
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.542g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519474	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519465

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	20.4		2.01	2.01	0.65		1
Total Penta-Dioxins	28.2		1.15	2.97	1.70		1
Total Hexa-Dioxins	362		1.45	2.97	1.25		1
Total Hepta-Dioxins	2090		0.482	2.97	1.07		1
Total Tetra-Furans	150		2.38	2.38	0.68		1
Total Penta-Furans	505		0.0744	2.97	1.44		1
Total Hexa-Furans	512		2.84	2.97	1.23		1
Total Hepta-Furans	679		1.64	2.97	1.04		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/04/18 13:10
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0035	**Units:**	Percent
Lab Code:	E1801094-006	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/18/18 22:18
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.542g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519474	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519465

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	300.901	15	**Y**	25-164	0.71	1.023
13C-1,2,3,7,8-PeCDD	2000	513.981	26		25-181	1.61	1.209
13C-1,2,3,4,7,8-HxCDD	2000	515.160	26	**Y**	32-141	1.31	0.991
13C-1,2,3,6,7,8-HxCDD	2000	492.269	25	**Y**	28-130	1.25	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	514.962	26		23-140	1.07	1.072
13C-OCDD	4000	574.653	14	**Y**	17-157	0.90	1.151
13C-2,3,7,8-TCDF	2000	385.806	19	**Y**	24-169	0.85	0.990
13C-1,2,3,7,8-PeCDF	2000	486.825	24		24-185	1.57	1.161
13C-2,3,4,7,8-PeCDF	2000	206.754	10	**Y**	21-178	1.50	1.197
13C-1,2,3,4,7,8-HxCDF	2000	451.572	23	**Y**	26-152	0.52	0.969
13C-1,2,3,6,7,8-HxCDF	2000	490.670	25	**Y**	26-123	0.54	0.972
13C-1,2,3,7,8,9-HxCDF	2000	418.568	21	**Y**	29-147	0.53	1.008
13C-2,3,4,6,7,8-HxCDF	2000	464.530	23	**Y**	28-136	0.51	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	408.140	20	**Y**	28-143	0.44	1.046
13C-1,2,3,4,7,8,9-HpCDF	2000	363.101	18	**Y**	26-138	0.47	1.085
37Cl-2,3,7,8-TCDD	800	175.469	22	**Y**	35-197	NA	1.024

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/04/18 13:10
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0035	**Units:**	ng/Kg
Lab Code:	E1801094-006	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**18.4**	2.01	2.01	1	1	18.4
1,2,3,7,8-PeCDD	**6.55**	1.15	2.97	1	1	6.55
1,2,3,4,7,8-HxCDD	**25.2**	1.37	2.97	1	0.1	2.52
1,2,3,6,7,8-HxCDD	**50.0**	1.56	2.97	1	0.1	5.00
1,2,3,7,8,9-HxCDD	**19.4**	1.43	2.97	1	0.1	1.94
1,2,3,4,6,7,8-HpCDD	**893**	0.482	2.97	1	0.01	8.93
OCDD	**15600**	1.73	5.94	1	0.0003	4.68
2,3,7,8-TCDF	**45.3**	2.38	2.38	1	0.1	4.53
1,2,3,7,8-PeCDF	**7.60**	1.98	2.97	1	0.03	0.228
2,3,4,7,8-PeCDF	**10.9**	3.99	3.99	1	0.3	3.27
1,2,3,4,7,8-HxCDF	**25.1**	2.67	2.97	1	0.1	2.51
1,2,3,6,7,8-HxCDF	**42.5**	2.03	2.97	1	0.1	4.25
1,2,3,7,8,9-HxCDF	ND	3.72	3.72	1	0.1	
2,3,4,6,7,8-HxCDF	**26.2**	2.80	2.97	1	0.1	2.62
1,2,3,4,6,7,8-HpCDF	**249**	1.30	2.97	1	0.01	2.49
1,2,3,4,7,8,9-HpCDF	**17.4**	2.12	2.97	1	0.01	0.174
OCDF	**355**	2.77	5.94	1	0.0003	0.107
		Total TEQ				68.2

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/04/18 13:10
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0035	**Units:**	Percent
Lab Code:	E1801094-006	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/14/18 15:24
	7.475g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	79.9		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/04/18 13:15
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0036	**Units:**	ng/Kg
Lab Code:	E1801094-007	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/18/18 23:07
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.556g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519475	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519465

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	10.3		1.01	1.01	0.71	1.000	1
1,2,3,7,8-PeCDD	0.574**JK**		0.258	3.30	1.99	1.000	1
1,2,3,4,7,8-HxCDD	0.534**JK**		0.412	3.30	0.74	1.001	1
1,2,3,6,7,8-HxCDD	2.90**J**		0.468	3.30	1.24	1.000	1
1,2,3,7,8,9-HxCDD	1.70**JK**		0.430	3.30	0.90	1.007	1
1,2,3,4,6,7,8-HpCDD	55.7		0.295	3.30	1.18	1.001	1
OCDD	1390		0.920	6.61	0.91	1.000	1
2,3,7,8-TCDF	20.5		0.489	0.661	0.68	1.001	1
1,2,3,7,8-PeCDF	0.678**JK**		0.289	3.30	1.08	1.001	1
2,3,4,7,8-PeCDF	1.25**JK**		0.312	3.30	1.12	1.001	1
1,2,3,4,7,8-HxCDF	1.53**J**		0.117	3.30	1.05	1.000	1
1,2,3,6,7,8-HxCDF	0.797**JK**		0.112	3.30	0.82	1.000	1
1,2,3,7,8,9-HxCDF	0.191**BJK**		0.157	3.30	0.52	1.001	1
2,3,4,6,7,8-HxCDF	0.710**JK**		0.120	3.30	0.86	1.000	1
1,2,3,4,6,7,8-HpCDF	9.49		0.524	3.30	1.16	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.828	3.30			1
OCDF	11.9**K**		0.758	6.61	0.64	1.004	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/04/18 13:15
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0036	**Units:**	ng/Kg
Lab Code:	E1801094-007	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/18/18 23:07
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.556g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519475	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519465

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	16.0		1.01	1.01	0.77		1
Total Penta-Dioxins	0.662**J**		0.258	3.30	1.41		1
Total Hexa-Dioxins	41.6		0.436	3.30	1.36		1
Total Hepta-Dioxins	152		0.295	3.30	1.07		1
Total Tetra-Furans	29.4		0.489	0.661	0.78		1
Total Penta-Furans	ND	U	0.300	3.30			1
Total Hexa-Furans	13.9		0.124	3.30	1.25		1
Total Hepta-Furans	21.9		0.650	3.30	1.16		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/04/18 13:15
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0036	**Units:**	Percent
Lab Code:	E1801094-007	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/18/18 23:07
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.556g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519475	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519465

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	821.581	41		25-164	0.81	1.023
13C-1,2,3,7,8-PeCDD	2000	1327.572	66		25-181	1.62	1.209
13C-1,2,3,4,7,8-HxCDD	2000	1325.859	66		32-141	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1266.767	63		28-130	1.28	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1224.698	61		23-140	1.09	1.072
13C-OCDD	4000	1238.605	31		17-157	0.90	1.152
13C-2,3,7,8-TCDF	2000	1083.681	54		24-169	0.78	0.990
13C-1,2,3,7,8-PeCDF	2000	1264.000	63		24-185	1.60	1.161
13C-2,3,4,7,8-PeCDF	2000	1161.834	58		21-178	1.54	1.197
13C-1,2,3,4,7,8-HxCDF	2000	1186.807	59		26-152	0.52	0.969
13C-1,2,3,6,7,8-HxCDF	2000	1230.357	62		26-123	0.52	0.972
13C-1,2,3,7,8,9-HxCDF	2000	1124.763	56		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1201.888	60		28-136	0.51	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	977.262	49		28-143	0.44	1.046
13C-1,2,3,4,7,8,9-HpCDF	2000	863.155	43		26-138	0.45	1.085
37Cl-2,3,7,8-TCDD	800	499.479	62		35-197	NA	1.024

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/04/18 13:15
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0036	**Units:**	ng/Kg
Lab Code:	E1801094-007	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**10.3**	1.01	1.01	1	1	10.3
1,2,3,7,8-PeCDD	**0.574**	0.258	3.30	1	1	0.574
1,2,3,4,7,8-HxCDD	**0.534**	0.412	3.30	1	0.1	0.0534
1,2,3,6,7,8-HxCDD	**2.90**	0.468	3.30	1	0.1	0.290
1,2,3,7,8,9-HxCDD	**1.70**	0.430	3.30	1	0.1	0.170
1,2,3,4,6,7,8-HpCDD	**55.7**	0.295	3.30	1	0.01	0.557
OCDD	**1390**	0.920	6.61	1	0.0003	0.417
2,3,7,8-TCDF	**20.5**	0.489	0.661	1	0.1	2.05
1,2,3,7,8-PeCDF	**0.678**	0.289	3.30	1	0.03	0.0203
2,3,4,7,8-PeCDF	**1.25**	0.312	3.30	1	0.3	0.375
1,2,3,4,7,8-HxCDF	**1.53**	0.117	3.30	1	0.1	0.153
1,2,3,6,7,8-HxCDF	**0.797**	0.112	3.30	1	0.1	0.0797
1,2,3,7,8,9-HxCDF	**0.191**	0.157	3.30	1	0.1	0.0191
2,3,4,6,7,8-HxCDF	**0.710**	0.120	3.30	1	0.1	0.0710
1,2,3,4,6,7,8-HpCDF	**9.49**	0.524	3.30	1	0.01	0.0949
1,2,3,4,7,8,9-HpCDF	ND	0.828	3.30	1	0.01	
OCDF	**11.9**	0.758	6.61	1	0.0003	0.00357
		Total TEQ				15.2

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/04/18 13:15
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0036	**Units:**	Percent
Lab Code:	E1801094-007	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/14/18 15:24
	6.978g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	71.7		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/04/18 13:20
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0037	**Units:**	ng/Kg
Lab Code:	E1801094-008	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/19/18 05:02
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.150g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519482	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519479

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	1.98**K**		0.861	0.861	0.94	1.000	1
1,2,3,7,8-PeCDD	0.344**JK**		0.159	3.11	1.11	1.000	1
1,2,3,4,7,8-HxCDD	ND	U	0.180	3.11			1
1,2,3,6,7,8-HxCDD	0.385**J**		0.195	3.11	1.33	1.001	1
1,2,3,7,8,9-HxCDD	0.492**BJK**		0.183	3.11	2.00	1.007	1
1,2,3,4,6,7,8-HpCDD	10.7		0.337	3.11	1.06	1.000	1
OCDD	314		0.745	6.21	0.88	1.000	1
2,3,7,8-TCDF	3.12		0.309	0.621	0.82	1.001	1
1,2,3,7,8-PeCDF	0.230**J**		0.117	3.11	1.48	1.000	1
2,3,4,7,8-PeCDF	0.137**J**		0.116	3.11	1.76	1.000	1
1,2,3,4,7,8-HxCDF	0.122**JK**		0.113	3.11	0.50	1.000	1
1,2,3,6,7,8-HxCDF	0.169**JK**		0.108	3.11	0.83	1.000	1
1,2,3,7,8,9-HxCDF	ND	U	0.154	3.11			1
2,3,4,6,7,8-HxCDF	ND	U	0.116	3.11			1
1,2,3,4,6,7,8-HpCDF	0.456**BJ**		0.131	3.11	1.10	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.210	3.11			1
OCDF	0.930**JK**		0.690	6.21	0.71	1.004	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/04/18 13:20
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0037	**Units:**	ng/Kg
Lab Code:	E1801094-008	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/19/18 05:02
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.150g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519482	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519479

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.861	0.861			1
Total Penta-Dioxins	ND	U	0.159	3.11			1
Total Hexa-Dioxins	10.0		0.186	3.11	1.38		1
Total Hepta-Dioxins	38.3		0.337	3.11	1.07		1
Total Tetra-Furans	3.52		0.309	0.621	0.82		1
Total Penta-Furans	0.367**J**		0.116	3.11	1.48		1
Total Hexa-Furans	ND	U	0.121	3.11			1
Total Hepta-Furans	0.456**J**		0.164	3.11	1.10		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/04/18 13:20
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0037	**Units:**	Percent
Lab Code:	E1801094-008	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/19/18 05:02
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.150g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519482	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519479

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	668.738	33		25-164	0.78	1.023
13C-1,2,3,7,8-PeCDD	2000	1310.770	66		25-181	1.60	1.209
13C-1,2,3,4,7,8-HxCDD	2000	1198.524	60		32-141	1.30	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1190.191	60		28-130	1.28	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1141.498	57		23-140	1.09	1.072
13C-OCDD	4000	1289.434	32		17-157	0.91	1.152
13C-2,3,7,8-TCDF	2000	937.242	47		24-169	0.80	0.990
13C-1,2,3,7,8-PeCDF	2000	1158.045	58		24-185	1.59	1.161
13C-2,3,4,7,8-PeCDF	2000	1155.919	58		21-178	1.60	1.198
13C-1,2,3,4,7,8-HxCDF	2000	1042.806	52		26-152	0.52	0.969
13C-1,2,3,6,7,8-HxCDF	2000	1109.865	55		26-123	0.51	0.972
13C-1,2,3,7,8,9-HxCDF	2000	1016.953	51		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1093.704	55		28-136	0.51	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	890.909	45		28-143	0.45	1.046
13C-1,2,3,4,7,8,9-HpCDF	2000	799.851	40		26-138	0.42	1.085
37Cl-2,3,7,8-TCDD	800	386.951	48		35-197	NA	1.024

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/04/18 13:20
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0037	**Units:**	ng/Kg
Lab Code:	E1801094-008	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**1.98**	0.861	0.861	1	1	1.98
1,2,3,7,8-PeCDD	**0.344**	0.159	3.11	1	1	0.344
1,2,3,4,7,8-HxCDD	ND	0.180	3.11	1	0.1	
1,2,3,6,7,8-HxCDD	**0.385**	0.195	3.11	1	0.1	0.0385
1,2,3,7,8,9-HxCDD	**0.492**	0.183	3.11	1	0.1	0.0492
1,2,3,4,6,7,8-HpCDD	**10.7**	0.337	3.11	1	0.01	0.107
OCDD	**314**	0.745	6.21	1	0.0003	0.0942
2,3,7,8-TCDF	**3.12**	0.309	0.621	1	0.1	0.312
1,2,3,7,8-PeCDF	**0.230**	0.117	3.11	1	0.03	0.00690
2,3,4,7,8-PeCDF	**0.137**	0.116	3.11	1	0.3	0.0411
1,2,3,4,7,8-HxCDF	**0.122**	0.113	3.11	1	0.1	0.0122
1,2,3,6,7,8-HxCDF	**0.169**	0.108	3.11	1	0.1	0.0169
1,2,3,7,8,9-HxCDF	ND	0.154	3.11	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.116	3.11	1	0.1	
1,2,3,4,6,7,8-HpCDF	**0.456**	0.131	3.11	1	0.01	0.00456
1,2,3,4,7,8,9-HpCDF	ND	0.210	3.11	1	0.01	
OCDF	**0.930**	0.690	6.21	1	0.0003	0.000279
		Total TEQ				3.01

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/04/18 13:20
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0037	**Units:**	Percent
Lab Code:	E1801094-008	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/14/18 15:24
	8.2g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	79.3		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/04/18 13:25
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0038	**Units:**	ng/Kg
Lab Code:	E1801094-009	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/26/18 21:33
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.584g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519637	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519625

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	1.38	1.38			1
1,2,3,7,8-PeCDD	ND	U	0.221	2.84			1
1,2,3,4,7,8-HxCDD	0.295**JK**		0.170	2.84	0.82	1.000	1
1,2,3,6,7,8-HxCDD	0.864**J**		0.178	2.84	1.29	1.000	1
1,2,3,7,8,9-HxCDD	0.943**BJ**		0.170	2.84	1.05	1.007	1
1,2,3,4,6,7,8-HpCDD	16.7		0.214	2.84	1.10	1.000	1
OCDD	459		0.673	5.68	0.89	1.000	1
2,3,7,8-TCDF	3.79		0.563	0.568	0.75	1.001	1
1,2,3,7,8-PeCDF	ND	U	0.154	2.84			1
2,3,4,7,8-PeCDF	ND	U	0.157	2.84			1
1,2,3,4,7,8-HxCDF	ND	U	0.163	2.84			1
1,2,3,6,7,8-HxCDF	ND	U	0.161	2.84			1
1,2,3,7,8,9-HxCDF	ND	U	0.195	2.84			1
2,3,4,6,7,8-HxCDF	ND	U	0.162	2.84			1
1,2,3,4,6,7,8-HpCDF	0.265**BJK**		0.147	2.84	0.67	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.198	2.84			1
OCDF	ND	U	0.578	5.68			1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/04/18 13:25
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0038	**Units:**	ng/Kg
Lab Code:	E1801094-009	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/26/18 21:33
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.584g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519637	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519625

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	2.44		1.38	1.38	0.73		1
Total Penta-Dioxins	1.30**J**		0.221	2.84	1.47		1
Total Hexa-Dioxins	16.3		0.173	2.84	1.23		1
Total Hepta-Dioxins	51.4		0.214	2.84	0.97		1
Total Tetra-Furans	3.79		0.563	0.568	0.75		1
Total Penta-Furans	ND	U	0.155	2.84			1
Total Hexa-Furans	ND	U	0.170	2.84			1
Total Hepta-Furans	0.452**J**		0.170	2.84	1.01		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/04/18 13:25
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0038	**Units:**	Percent
Lab Code:	E1801094-009	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/26/18 21:33
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.584g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519637	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519625

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	197.696	10	**Y**	25-164	0.80	1.025
13C-1,2,3,7,8-PeCDD	2000	478.538	24	**Y**	25-181	1.59	1.221
13C-1,2,3,4,7,8-HxCDD	2000	458.556	23	**Y**	32-141	1.31	0.991
13C-1,2,3,6,7,8-HxCDD	2000	453.102	23	**Y**	28-130	1.26	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	629.750	31		23-140	1.08	1.074
13C-OCDD	4000	1053.629	26		17-157	0.89	1.155
13C-2,3,7,8-TCDF	2000	236.487	12	**Y**	24-169	0.76	0.989
13C-1,2,3,7,8-PeCDF	2000	386.776	19	**Y**	24-185	1.58	1.171
13C-2,3,4,7,8-PeCDF	2000	399.293	20	**Y**	21-178	1.60	1.209
13C-1,2,3,4,7,8-HxCDF	2000	358.019	18	**Y**	26-152	0.52	0.968
13C-1,2,3,6,7,8-HxCDF	2000	362.958	18	**Y**	26-123	0.52	0.971
13C-1,2,3,7,8,9-HxCDF	2000	406.852	20	**Y**	29-147	0.53	1.009
13C-2,3,4,6,7,8-HxCDF	2000	383.983	19	**Y**	28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	412.747	21	**Y**	28-143	0.42	1.047
13C-1,2,3,4,7,8,9-HpCDF	2000	449.515	22	**Y**	26-138	0.43	1.087
37Cl-2,3,7,8-TCDD	800	117.377	15	**Y**	35-197	NA	1.026

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/04/18 13:25
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0038	**Units:**	ng/Kg
Lab Code:	E1801094-009	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	1.38	1.38	1	1	
1,2,3,7,8-PeCDD	ND	0.221	2.84	1	1	
1,2,3,4,7,8-HxCDD	**0.295**	0.170	2.84	1	0.1	0.0295
1,2,3,6,7,8-HxCDD	**0.864**	0.178	2.84	1	0.1	0.0864
1,2,3,7,8,9-HxCDD	**0.943**	0.170	2.84	1	0.1	0.0943
1,2,3,4,6,7,8-HpCDD	**16.7**	0.214	2.84	1	0.01	0.167
OCDD	**459**	0.673	5.68	1	0.0003	0.138
2,3,7,8-TCDF	**3.79**	0.563	0.568	1	0.1	0.379
1,2,3,7,8-PeCDF	ND	0.154	2.84	1	0.03	
2,3,4,7,8-PeCDF	ND	0.157	2.84	1	0.3	
1,2,3,4,7,8-HxCDF	ND	0.163	2.84	1	0.1	
1,2,3,6,7,8-HxCDF	ND	0.161	2.84	1	0.1	
1,2,3,7,8,9-HxCDF	ND	0.195	2.84	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.162	2.84	1	0.1	
1,2,3,4,6,7,8-HpCDF	**0.265**	0.147	2.84	1	0.01	0.00265
1,2,3,4,7,8,9-HpCDF	ND	0.198	2.84	1	0.01	
OCDF	ND	0.578	5.68	1	0.0003	
		Total TEQ				0.897

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/04/18 13:25
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0038	**Units:**	Percent
Lab Code:	E1801094-009	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/14/18 15:24
	9.902g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	83.2		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/04/18 13:30
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0039	**Units:**	ng/Kg
Lab Code:	E1801094-010	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/19/18 06:40
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.497g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519484	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519479

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	0.962**K**		0.812	0.812	0.37	1.001	1
1,2,3,7,8-PeCDD	0.519**JK**		0.197	2.99	2.02	1.001	1
1,2,3,4,7,8-HxCDD	ND	U	0.358	2.99			1
1,2,3,6,7,8-HxCDD	0.692**JK**		0.391	2.99	0.85	1.000	1
1,2,3,7,8,9-HxCDD	1.70**J**		0.366	2.99	1.25	1.007	1
1,2,3,4,6,7,8-HpCDD	22.7		0.263	2.99	1.02	1.000	1
OCDD	683		1.45	5.98	0.87	1.000	1
2,3,7,8-TCDF	4.07		0.391	0.598	0.84	1.001	1
1,2,3,7,8-PeCDF	0.419**JK**		0.194	2.99	2.72	1.001	1
2,3,4,7,8-PeCDF	0.351**JK**		0.205	2.99	2.15	1.001	1
1,2,3,4,7,8-HxCDF	ND	U	0.140	2.99			1
1,2,3,6,7,8-HxCDF	ND	U	0.134	2.99			1
1,2,3,7,8,9-HxCDF	ND	U	0.189	2.99			1
2,3,4,6,7,8-HxCDF	ND	U	0.149	2.99			1
1,2,3,4,6,7,8-HpCDF	ND	U	0.144	2.99			1
1,2,3,4,7,8,9-HpCDF	ND	U	0.236	2.99			1
OCDF	ND	U	0.788	5.98			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/04/18 13:30
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0039	**Units:**	ng/Kg
Lab Code:	E1801094-010	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/19/18 06:40
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.497g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519484	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519479

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	5.61		0.812	0.812	0.70		1
Total Penta-Dioxins	2.56**J**		0.197	2.99	1.33		1
Total Hexa-Dioxins	24.1		0.372	2.99	1.22		1
Total Hepta-Dioxins	77.4		0.263	2.99	0.99		1
Total Tetra-Furans	16.0		0.391	0.598	0.68		1
Total Penta-Furans	ND	U	0.199	2.99			1
Total Hexa-Furans	ND	U	0.151	2.99			1
Total Hepta-Furans	ND	U	0.182	2.99			1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/04/18 13:30
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0039	**Units:**	Percent
Lab Code:	E1801094-010	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/19/18 06:40
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.497g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519484	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519479

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	670.304	34		25-164	0.78	1.023
13C-1,2,3,7,8-PeCDD	2000	1144.029	57		25-181	1.63	1.209
13C-1,2,3,4,7,8-HxCDD	2000	1120.764	56		32-141	1.28	0.990
13C-1,2,3,6,7,8-HxCDD	2000	1169.024	58		28-130	1.27	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1175.493	59		23-140	1.05	1.072
13C-OCDD	4000	1364.461	34		17-157	0.94	1.152
13C-2,3,7,8-TCDF	2000	880.806	44		24-169	0.78	0.990
13C-1,2,3,7,8-PeCDF	2000	1093.092	55		24-185	1.54	1.162
13C-2,3,4,7,8-PeCDF	2000	1019.986	51		21-178	1.60	1.198
13C-1,2,3,4,7,8-HxCDF	2000	963.651	48		26-152	0.53	0.968
13C-1,2,3,6,7,8-HxCDF	2000	1084.855	54		26-123	0.54	0.972
13C-1,2,3,7,8,9-HxCDF	2000	977.196	49		29-147	0.50	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1011.185	51		28-136	0.52	0.986
13C-1,2,3,4,6,7,8-HpCDF	2000	909.434	45		28-143	0.44	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	813.995	41		26-138	0.49	1.085
37Cl-2,3,7,8-TCDD	800	392.540	49		35-197	NA	1.024

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/04/18 13:30
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0039	**Units:**	ng/Kg
Lab Code:	E1801094-010	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**0.962**	0.812	0.812	1	1	0.962
1,2,3,7,8-PeCDD	**0.519**	0.197	2.99	1	1	0.519
1,2,3,4,7,8-HxCDD	ND	0.358	2.99	1	0.1	
1,2,3,6,7,8-HxCDD	**0.692**	0.391	2.99	1	0.1	0.0692
1,2,3,7,8,9-HxCDD	**1.70**	0.366	2.99	1	0.1	0.170
1,2,3,4,6,7,8-HpCDD	**22.7**	0.263	2.99	1	0.01	0.227
OCDD	**683**	1.45	5.98	1	0.0003	0.205
2,3,7,8-TCDF	**4.07**	0.391	0.598	1	0.1	0.407
1,2,3,7,8-PeCDF	**0.419**	0.194	2.99	1	0.03	0.0126
2,3,4,7,8-PeCDF	**0.351**	0.205	2.99	1	0.3	0.105
1,2,3,4,7,8-HxCDF	ND	0.140	2.99	1	0.1	
1,2,3,6,7,8-HxCDF	ND	0.134	2.99	1	0.1	
1,2,3,7,8,9-HxCDF	ND	0.189	2.99	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.149	2.99	1	0.1	
1,2,3,4,6,7,8-HpCDF	ND	0.144	2.99	1	0.01	
1,2,3,4,7,8,9-HpCDF	ND	0.236	2.99	1	0.01	
OCDF	ND	0.788	5.98	1	0.0003	
		Total TEQ				2.68

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/04/18 13:30
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0039	**Units:**	Percent
Lab Code:	E1801094-010	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/14/18 15:24
	8.86g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	79.7		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/05/18 13:40
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0053	**Units:**	ng/Kg
Lab Code:	E1801094-011	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/19/18 07:28
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.463g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519485	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519479

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	4.27**K**		0.600	0.600	0.63	1.001	1
1,2,3,7,8-PeCDD	1.04**JK**		0.183	2.91	0.45	1.001	1
1,2,3,4,7,8-HxCDD	1.57**J**		0.144	2.91	1.18	1.000	1
1,2,3,6,7,8-HxCDD	4.64		0.165	2.91	1.37	1.000	1
1,2,3,7,8,9-HxCDD	2.61**JK**		0.151	2.91	1.57	1.007	1
1,2,3,4,6,7,8-HpCDD	114		0.221	2.91	1.06	1.000	1
OCDD	2720		1.16	5.81	0.90	1.000	1
2,3,7,8-TCDF	11.4**K**		0.285	0.581	0.63	1.001	1
1,2,3,7,8-PeCDF	0.808**JK**		0.421	2.91	1.89	1.001	1
2,3,4,7,8-PeCDF	2.00**J**		0.475	2.91	1.36	1.001	1
1,2,3,4,7,8-HxCDF	2.29**J**		0.373	2.91	1.11	1.001	1
1,2,3,6,7,8-HxCDF	1.51**JK**		0.350	2.91	1.55	1.000	1
1,2,3,7,8,9-HxCDF	ND	U	0.507	2.91			1
2,3,4,6,7,8-HxCDF	2.58**JK**		0.406	2.91	1.50	1.000	1
1,2,3,4,6,7,8-HpCDF	27.7		0.678	2.91	0.97	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	1.24	2.91			1
OCDF	61.8		0.827	5.81	0.88	1.004	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/05/18 13:40
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0053	**Units:**	ng/Kg
Lab Code:	E1801094-011	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/19/18 07:28
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.463g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519485	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519479

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.600	0.600			1
Total Penta-Dioxins	ND	U	0.183	2.91			1
Total Hexa-Dioxins	46.9		0.153	2.91	1.22		1
Total Hepta-Dioxins	304		0.221	2.91	1.07		1
Total Tetra-Furans	4.71		0.285	0.581	0.68		1
Total Penta-Furans	22.7		0.0728	2.91	1.37		1
Total Hexa-Furans	42.4		0.402	2.91	1.12		1
Total Hepta-Furans	80.4		0.903	2.91	0.97		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/05/18 13:40
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0053	**Units:**	Percent
Lab Code:	E1801094-011	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/19/18 07:28
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.463g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519485	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519479

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	793.456	40		25-164	0.80	1.023
13C-1,2,3,7,8-PeCDD	2000	1185.187	59		25-181	1.56	1.209
13C-1,2,3,4,7,8-HxCDD	2000	1173.355	59		32-141	1.26	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1108.810	55		28-130	1.29	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	999.035	50		23-140	1.07	1.072
13C-OCDD	4000	899.239	22		17-157	0.87	1.153
13C-2,3,7,8-TCDF	2000	1018.603	51		24-169	0.77	0.990
13C-1,2,3,7,8-PeCDF	2000	1153.025	58		24-185	1.60	1.161
13C-2,3,4,7,8-PeCDF	2000	1054.759	53		21-178	1.55	1.197
13C-1,2,3,4,7,8-HxCDF	2000	1055.034	53		26-152	0.52	0.968
13C-1,2,3,6,7,8-HxCDF	2000	1109.094	55		26-123	0.51	0.972
13C-1,2,3,7,8,9-HxCDF	2000	971.213	49		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1022.740	51		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	821.108	41		28-143	0.44	1.046
13C-1,2,3,4,7,8,9-HpCDF	2000	680.444	34		26-138	0.45	1.085
37Cl-2,3,7,8-TCDD	800	457.510	57		35-197	NA	1.024

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/05/18 13:40
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0053	**Units:**	ng/Kg
Lab Code:	E1801094-011	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**4.27**	0.600	0.600	1	1	4.27
1,2,3,7,8-PeCDD	**1.04**	0.183	2.91	1	1	1.04
1,2,3,4,7,8-HxCDD	**1.57**	0.144	2.91	1	0.1	0.157
1,2,3,6,7,8-HxCDD	**4.64**	0.165	2.91	1	0.1	0.464
1,2,3,7,8,9-HxCDD	**2.61**	0.151	2.91	1	0.1	0.261
1,2,3,4,6,7,8-HpCDD	**114**	0.221	2.91	1	0.01	1.14
OCDD	**2720**	1.16	5.81	1	0.0003	0.816
2,3,7,8-TCDF	**11.4**	0.285	0.581	1	0.1	1.14
1,2,3,7,8-PeCDF	**0.808**	0.421	2.91	1	0.03	0.0242
2,3,4,7,8-PeCDF	**2.00**	0.475	2.91	1	0.3	0.600
1,2,3,4,7,8-HxCDF	**2.29**	0.373	2.91	1	0.1	0.229
1,2,3,6,7,8-HxCDF	**1.51**	0.350	2.91	1	0.1	0.151
1,2,3,7,8,9-HxCDF	ND	0.507	2.91	1	0.1	
2,3,4,6,7,8-HxCDF	**2.58**	0.406	2.91	1	0.1	0.258
1,2,3,4,6,7,8-HpCDF	**27.7**	0.678	2.91	1	0.01	0.277
1,2,3,4,7,8,9-HpCDF	ND	1.24	2.91	1	0.01	
OCDF	**61.8**	0.827	5.81	1	0.0003	0.0185
		Total TEQ				10.8

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/05/18 13:40
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0053	**Units:**	Percent
Lab Code:	E1801094-011	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/14/18 15:24
	9.552g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	82.2		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/05/18 13:44
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0054	**Units:**	ng/Kg
Lab Code:	E1801094-012	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/24/18 14:47
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.625g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519594	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519587

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	735		133	133	0.74	1.001	10
1,2,3,7,8-PeCDD	ND	U	18.4	35.9			10
1,2,3,4,7,8-HxCDD	ND	U	19.7	35.9			10
1,2,3,6,7,8-HxCDD	134		21.5	35.9	1.36	1.000	10
1,2,3,7,8,9-HxCDD	ND	U	20.2	35.9			10
1,2,3,4,6,7,8-HpCDD	4300		15.2	35.9	0.98	1.000	10
OCDD	185000		49.5	71.8	0.90	1.000	10
2,3,7,8-TCDF	1010		48.9	48.9	0.82	1.001	10
1,2,3,7,8-PeCDF	47.4**K**		27.7	35.9	1.00	1.001	10
2,3,4,7,8-PeCDF	ND	U	29.2	35.9			10
1,2,3,4,7,8-HxCDF	134		33.2	35.9	1.23	1.000	10
1,2,3,6,7,8-HxCDF	56.9**K**		31.3	35.9	0.94	1.000	10
1,2,3,7,8,9-HxCDF	ND	U	45.2	45.2			10
2,3,4,6,7,8-HxCDF	66.6**K**		34.7	35.9	1.82	1.000	10
1,2,3,4,6,7,8-HpCDF	704		14.4	35.9	0.88	1.001	10
1,2,3,4,7,8,9-HpCDF	50.1**K**		23.0	35.9	1.93	1.000	10
OCDF	1390		177	177	1.01	1.005	10

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/05/18 13:44
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0054	**Units:**	ng/Kg
Lab Code:	E1801094-012	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/24/18 14:47
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.625g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519594	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519587

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	735		133	133	0.74		10
Total Penta-Dioxins	30.8	**J**	18.4	35.9	1.68		10
Total Hexa-Dioxins	530		19.4	35.9	1.17		10
Total Hepta-Dioxins	11100		15.2	35.9	1.05		10
Total Tetra-Furans	1570		48.9	48.9	0.68		10
Total Penta-Furans	377		28.9	35.9	1.56		10
Total Hexa-Furans	978		37.0	37.0	1.30		10
Total Hepta-Furans	1520		20.3	35.9	1.03		10

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/05/18 13:44
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0054	**Units:**	ng/Kg
Lab Code:	E1801094-012	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/19/18 08:17
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.625g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519486	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519479

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	361		0.867	0.867	0.77	1.001	1
1,2,3,7,8-PeCDD	12.1	**K**	2.63	3.59	0.26	1.000	1
1,2,3,4,7,8-HxCDD	14.4		2.09	3.59	1.29	1.000	1
1,2,3,6,7,8-HxCDD	107		2.37	3.59	1.25	1.000	1
1,2,3,7,8,9-HxCDD	39.0		2.17	3.59	1.32	1.007	1
1,2,3,4,6,7,8-HpCDD	2730		0.389	3.59	1.03	1.000	1
OCDD	58200	**E**	1.53	7.18	0.90	1.000	1
2,3,7,8-TCDF	783	**E**	0.565	0.718	0.76	1.001	1
1,2,3,7,8-PeCDF	31.5		0.717	3.59	1.56	1.001	1
2,3,4,7,8-PeCDF	51.0		0.725	3.59	1.53	1.001	1
1,2,3,4,7,8-HxCDF	99.9		1.34	3.59	1.14	1.000	1
1,2,3,6,7,8-HxCDF	43.3	**P**	1.40	3.59	1.17	1.000	1
1,2,3,7,8,9-HxCDF	11.5		1.92	3.59	1.22	1.001	1
2,3,4,6,7,8-HxCDF	58.0		1.50	3.59	1.22	1.000	1
1,2,3,4,6,7,8-HpCDF	434		4.10	4.10	0.99	1.000	1
1,2,3,4,7,8,9-HpCDF	25.8	**K**	7.35	7.35	1.22	1.000	1
OCDF	414		1.67	7.18	0.90	1.004	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/05/18 13:44
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0054	**Units:**	ng/Kg
Lab Code:	E1801094-012	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/19/18 08:17
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.625g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519486	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519479

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	415		0.867	0.867	0.85		1
Total Penta-Dioxins	55.0		2.63	3.59	1.44		1
Total Hexa-Dioxins	1060		2.21	3.59	1.28		1
Total Hepta-Dioxins	7320		0.389	3.59	1.04		1
Total Tetra-Furans	1420		0.565	0.718	0.82		1
Total Penta-Furans	450		0.0900	3.59	1.44		1
Total Hexa-Furans	948		1.51	3.59	1.14		1
Total Hepta-Furans	1150		5.37	5.37	0.99		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/05/18 13:44
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0054	**Units:**	Percent
Lab Code:	E1801094-012	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/19/18 08:17
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.625g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519486	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519479

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	765.361	38		25-164	0.81	1.023
13C-1,2,3,7,8-PeCDD	2000	1108.739	55		25-181	1.58	1.209
13C-1,2,3,4,7,8-HxCDD	2000	1187.030	59		32-141	1.27	0.990
13C-1,2,3,6,7,8-HxCDD	2000	1065.660	53		28-130	1.25	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	875.350	44		23-140	1.08	1.072
13C-OCDD	4000	804.085	20		17-157	0.87	1.152
13C-2,3,7,8-TCDF	2000	1023.268	51		24-169	0.80	0.990
13C-1,2,3,7,8-PeCDF	2000	1050.786	53		24-185	1.59	1.162
13C-2,3,4,7,8-PeCDF	2000	1020.725	51		21-178	1.59	1.198
13C-1,2,3,4,7,8-HxCDF	2000	1052.210	53		26-152	0.52	0.968
13C-1,2,3,6,7,8-HxCDF	2000	1029.688	51		26-123	0.54	0.972
13C-1,2,3,7,8,9-HxCDF	2000	937.484	47		29-147	0.50	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1040.907	52		28-136	0.51	0.986
13C-1,2,3,4,6,7,8-HpCDF	2000	721.110	36		28-143	0.44	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	567.053	28		26-138	0.43	1.085
37Cl-2,3,7,8-TCDD	800	442.935	55		35-197	NA	1.024

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/05/18 13:44
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0054	**Units:**	Percent
Lab Code:	E1801094-012	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/24/18 14:47
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.625g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519594	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519587

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	5260	1249.967	24	**Y**	25-164	0.81	1.026
13C-1,2,3,7,8-PeCDD	3640	2024.883	56		25-181	1.60	1.221
13C-1,2,3,4,7,8-HxCDD	3390	1660.369	49		32-141	1.25	0.991
13C-1,2,3,6,7,8-HxCDD	3770	2019.620	54		28-130	1.24	0.993
13C-1,2,3,4,6,7,8-HpCDD	4550	2354.184	52		23-140	1.05	1.074
13C-OCDD	20000	4559.838	23		17-157	0.93	1.154
13C-2,3,7,8-TCDF	3920	1683.607	43		24-169	0.77	0.990
13C-1,2,3,7,8-PeCDF	3770	1959.880	52		24-185	1.62	1.171
13C-2,3,4,7,8-PeCDF	3920	1861.775	47		21-178	1.60	1.209
13C-1,2,3,4,7,8-HxCDF	3770	1553.475	41		26-152	0.52	0.968
13C-1,2,3,6,7,8-HxCDF	3920	1729.030	44		26-123	0.50	0.971
13C-1,2,3,7,8,9-HxCDF	4260	1619.304	38		29-147	0.50	1.008
13C-2,3,4,6,7,8-HxCDF	3850	1686.301	44		28-136	0.50	0.986
13C-1,2,3,4,6,7,8-HpCDF	5560	1911.257	34		28-143	0.45	1.047
13C-1,2,3,4,7,8,9-HpCDF	7140	1812.398	25	**Y**	26-138	0.45	1.087
37Cl-2,3,7,8-TCDD	80.0	53.549	67		35-197	NA	1.027

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/05/18 13:44
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0054	**Units:**	ng/Kg
Lab Code:	E1801094-012	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**361**	0.867	0.867	1	1	361
1,2,3,7,8-PeCDD	**12.1**	2.63	3.59	1	1	12.1
1,2,3,4,7,8-HxCDD	**14.4**	2.09	3.59	1	0.1	1.44
1,2,3,6,7,8-HxCDD	**107**	2.37	3.59	1	0.1	10.7
1,2,3,7,8,9-HxCDD	**39.0**	2.17	3.59	1	0.1	3.90
1,2,3,4,6,7,8-HpCDD	**2730**	0.389	3.59	1	0.01	27.3
OCDD	**58200**	1.53	7.18	1	0.0003	17.5
OCDD	**185000**	49.5	71.8	10	0.0003	55.5
2,3,7,8-TCDF	**783**	0.565	0.718	1	0.1	78.3
2,3,7,8-TCDF	**1010**	48.9	48.9	10	0.1	101
1,2,3,7,8-PeCDF	**31.5**	0.717	3.59	1	0.03	0.945
2,3,4,7,8-PeCDF	**51.0**	0.725	3.59	1	0.3	15.3
1,2,3,4,7,8-HxCDF	**99.9**	1.34	3.59	1	0.1	9.99
1,2,3,6,7,8-HxCDF	**43.3**	1.40	3.59	1	0.1	4.33
1,2,3,7,8,9-HxCDF	**11.5**	1.92	3.59	1	0.1	1.15
2,3,4,6,7,8-HxCDF	**58.0**	1.50	3.59	1	0.1	5.80
1,2,3,4,6,7,8-HpCDF	**434**	4.10	4.10	1	0.01	4.34
1,2,3,4,7,8,9-HpCDF	**25.8**	7.35	7.35	1	0.01	0.258
OCDF	**414**	1.67	7.18	1	0.0003	0.124
		Total TEQ				615
		Total TEQ				615

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/05/18 13:44
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0054	**Units:**	Percent
Lab Code:	E1801094-012	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/14/18 15:24
	5.609g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	65.5		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/05/18 13:51
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0055	**Units:**	ng/Kg
Lab Code:	E1801094-013	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/19/18 09:06
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.762g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519487	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519479

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	14.0		0.619	0.736	0.81	1.001	1
1,2,3,7,8-PeCDD	0.994**JK**		0.658	3.68	4.38	1.001	1
1,2,3,4,7,8-HxCDD	5.84**K**		0.914	3.68	1.03	1.000	1
1,2,3,6,7,8-HxCDD	31.0		1.02	3.68	1.23	1.000	1
1,2,3,7,8,9-HxCDD	13.5		0.939	3.68	1.21	1.007	1
1,2,3,4,6,7,8-HpCDD	854		0.433	3.68	1.05	1.000	1
OCDD	19200**E**		2.40	7.36	0.90	1.000	1
2,3,7,8-TCDF	38.4		0.405	0.736	0.74	1.001	1
1,2,3,7,8-PeCDF	3.10**J**		1.30	3.68	1.33	1.001	1
2,3,4,7,8-PeCDF	16.2		1.40	3.68	1.45	1.001	1
1,2,3,4,7,8-HxCDF	11.6		0.590	3.68	1.39	1.000	1
1,2,3,6,7,8-HxCDF	17.1**P**		0.581	3.68	1.28	1.000	1
1,2,3,7,8,9-HxCDF	ND	U	0.874	3.68			1
2,3,4,6,7,8-HxCDF	21.0		0.655	3.68	1.09	1.000	1
1,2,3,4,6,7,8-HpCDF	89.9		0.196	3.68	1.11	1.000	1
1,2,3,4,7,8,9-HpCDF	2.58**JK**		0.374	3.68	0.64	1.000	1
OCDF	44.4		1.58	7.36	0.90	1.004	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/05/18 13:51
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0055	**Units:**	ng/Kg
Lab Code:	E1801094-013	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/19/18 09:06
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.762g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519487	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519479

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	35.9		0.619	0.736	0.80		1
Total Penta-Dioxins	42.5		0.658	3.68	1.35		1
Total Hexa-Dioxins	366		0.954	3.68	1.30		1
Total Hepta-Dioxins	2470		0.433	3.68	1.03		1
Total Tetra-Furans	120		0.405	0.736	0.66		1
Total Penta-Furans	139		0.0922	3.68	1.62		1
Total Hexa-Furans	242		0.659	3.68	1.10		1
Total Hepta-Furans	170		0.265	3.68	1.11		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/05/18 13:51
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0055	**Units:**	Percent
Lab Code:	E1801094-013	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/19/18 09:06
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.762g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519487	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519479

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	886.236	44		25-164	0.80	1.023
13C-1,2,3,7,8-PeCDD	2000	1253.247	63		25-181	1.60	1.209
13C-1,2,3,4,7,8-HxCDD	2000	1327.756	66		32-141	1.30	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1248.731	62		28-130	1.26	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	925.339	46		23-140	1.08	1.072
13C-OCDD	4000	817.313	20		17-157	0.91	1.152
13C-2,3,7,8-TCDF	2000	1147.203	57		24-169	0.79	0.990
13C-1,2,3,7,8-PeCDF	2000	1226.980	61		24-185	1.58	1.162
13C-2,3,4,7,8-PeCDF	2000	1138.842	57		21-178	1.60	1.198
13C-1,2,3,4,7,8-HxCDF	2000	1194.508	60		26-152	0.51	0.968
13C-1,2,3,6,7,8-HxCDF	2000	1242.295	62		26-123	0.51	0.972
13C-1,2,3,7,8,9-HxCDF	2000	1043.372	52		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1184.923	59		28-136	0.51	0.986
13C-1,2,3,4,6,7,8-HpCDF	2000	802.549	40		28-143	0.44	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	626.099	31		26-138	0.46	1.085
37Cl-2,3,7,8-TCDD	800	504.092	63		35-197	NA	1.025

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/05/18 13:51
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0055	**Units:**	ng/Kg
Lab Code:	E1801094-013	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**14.0**	0.619	0.736	1	1	14.0
1,2,3,7,8-PeCDD	**0.994**	0.658	3.68	1	1	0.994
1,2,3,4,7,8-HxCDD	**5.84**	0.914	3.68	1	0.1	0.584
1,2,3,6,7,8-HxCDD	**31.0**	1.02	3.68	1	0.1	3.10
1,2,3,7,8,9-HxCDD	**13.5**	0.939	3.68	1	0.1	1.35
1,2,3,4,6,7,8-HpCDD	**854**	0.433	3.68	1	0.01	8.54
OCDD	**19200**	2.40	7.36	1	0.0003	5.76
2,3,7,8-TCDF	**38.4**	0.405	0.736	1	0.1	3.84
1,2,3,7,8-PeCDF	**3.10**	1.30	3.68	1	0.03	0.0930
2,3,4,7,8-PeCDF	**16.2**	1.40	3.68	1	0.3	4.86
1,2,3,4,7,8-HxCDF	**11.6**	0.590	3.68	1	0.1	1.16
1,2,3,6,7,8-HxCDF	**17.1**	0.581	3.68	1	0.1	1.71
1,2,3,7,8,9-HxCDF	ND	0.874	3.68	1	0.1	
2,3,4,6,7,8-HxCDF	**21.0**	0.655	3.68	1	0.1	2.10
1,2,3,4,6,7,8-HpCDF	**89.9**	0.196	3.68	1	0.01	0.899
1,2,3,4,7,8,9-HpCDF	**2.58**	0.374	3.68	1	0.01	0.0258
OCDF	**44.4**	1.58	7.36	1	0.0003	0.0133
		Total TEQ				49.0

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/05/18 13:51
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0055	**Units:**	Percent
Lab Code:	E1801094-013	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/14/18 15:24
	6.564g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	63.1		-	1

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/05/18 13:57
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0056	**Units:**	ng/Kg
Lab Code:	E1801094-014	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/24/18 15:35
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.442g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519595	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519587

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	175000		4450	4450	0.73	1.001	500
1,2,3,7,8-PeCDD	ND	U	900	2420			500
1,2,3,4,7,8-HxCDD	ND	U	778	2420			500
1,2,3,6,7,8-HxCDD	ND	U	795	2420			500
1,2,3,7,8,9-HxCDD	ND	U	768	2420			500
1,2,3,4,6,7,8-HpCDD	4700**K**		1780	2420	0.64	1.000	500
OCDD	279000		4850	4850	0.99	1.000	500
2,3,7,8-TCDF	277000		2130	2130	0.79	1.001	500
1,2,3,7,8-PeCDF	10300		1020	2420	1.43	1.001	500
2,3,4,7,8-PeCDF	7730**K**		1060	2420	1.82	1.001	500
1,2,3,4,7,8-HxCDF	13600		708	2420	1.28	1.000	500
1,2,3,6,7,8-HxCDF	2870		675	2420	1.37	1.000	500
1,2,3,7,8,9-HxCDF	ND	U	986	2420			500
2,3,4,6,7,8-HxCDF	ND	U	750	2420			500
1,2,3,4,6,7,8-HpCDF	6790		1140	2420	1.07	1.000	500
1,2,3,4,7,8,9-HpCDF	2520		1860	2420	1.10	1.000	500
OCDF	ND	U	12900	12900			500

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/05/18 13:57
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0056	**Units:**	ng/Kg
Lab Code:	E1801094-014	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/24/18 15:35
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.442g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519595	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519587

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	175000		4450	4450	0.73		500
Total Penta-Dioxins	ND	U	900	2420			500
Total Hexa-Dioxins	ND	U	769	2420			500
Total Hepta-Dioxins	6230		1780	2420	1.10		500
Total Tetra-Furans	493000		2130	2130	0.80		500
Total Penta-Furans	16100		1060	2420	1.72		500
Total Hexa-Furans	19100		818	2420	1.23		500
Total Hepta-Furans	10800		1650	2420	1.07		500

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/05/18 13:57
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0056	**Units:**	ng/Kg
Lab Code:	E1801094-014	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/19/18 09:54
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.442g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519488	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519479

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	72600**E**		1.45	1.45	0.79	1.001	1
1,2,3,7,8-PeCDD	493		1.76	4.85	1.59	1.001	1
1,2,3,4,7,8-HxCDD	7.03		1.79	4.85	1.40	1.000	1
1,2,3,6,7,8-HxCDD	73.7		2.02	4.85	1.20	1.000	1
1,2,3,7,8,9-HxCDD	19.7		1.86	4.85	1.27	1.007	1
1,2,3,4,6,7,8-HpCDD	2680		1.65	4.85	1.07	1.000	1
OCDD	48500**E**		4.89	9.69	0.89	1.000	1
2,3,7,8-TCDF	140000**E**		2.95	2.95	0.81	1.001	1
1,2,3,7,8-PeCDF	4860**E**		4.24	4.85	1.55	1.001	1
2,3,4,7,8-PeCDF	4220**E**		3.46	4.85	1.56	1.000	1
1,2,3,4,7,8-HxCDF	8070**E**		3.86	4.85	1.23	1.000	1
1,2,3,6,7,8-HxCDF	2040		3.69	4.85	1.13	1.000	1
1,2,3,7,8,9-HxCDF	628		6.14	6.14	1.23	1.001	1
2,3,4,6,7,8-HxCDF	360		4.36	4.85	1.22	1.000	1
1,2,3,4,6,7,8-HpCDF	2440		1.97	4.85	1.02	1.000	1
1,2,3,4,7,8,9-HpCDF	820		3.97	4.85	1.00	1.000	1
OCDF	2020		4.05	9.69	0.91	1.004	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/05/18 13:57
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0056	**Units:**	ng/Kg
Lab Code:	E1801094-014	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/19/18 09:54
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.442g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519488	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519479

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	79800		1.45	1.45	0.81		1
Total Penta-Dioxins	645		1.76	4.85	1.61		1
Total Hexa-Dioxins	501		1.89	4.85	1.19		1
Total Hepta-Dioxins	5210		1.65	4.85	1.03		1
Total Tetra-Furans	253000		2.95	2.95	0.76		1
Total Penta-Furans	14200		0.122	4.85	1.71		1
Total Hexa-Furans	12300		4.36	4.85	1.16		1
Total Hepta-Furans	4520		2.74	4.85	1.02		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/05/18 13:57
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0056	**Units:**	Percent
Lab Code:	E1801094-014	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/19/18 09:54
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.442g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519488	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519479

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	892.745	45		25-164	0.79	1.019
13C-1,2,3,7,8-PeCDD	2000	1045.412	52		25-181	1.62	1.197
13C-1,2,3,4,7,8-HxCDD	2000	1291.948	65		32-141	1.25	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1254.168	63		28-130	1.26	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	767.217	38		23-140	1.03	1.071
13C-OCDD	4000	615.957	15	**Y**	17-157	0.96	1.151
13C-2,3,7,8-TCDF	2000	1241.583	62		24-169	0.81	0.988
13C-1,2,3,7,8-PeCDF	2000	1021.869	51		24-185	1.59	1.152
13C-2,3,4,7,8-PeCDF	2000	980.364	49		21-178	1.63	1.187
13C-1,2,3,4,7,8-HxCDF	2000	1283.357	64		26-152	0.53	0.969
13C-1,2,3,6,7,8-HxCDF	2000	1264.775	63		26-123	0.54	0.972
13C-1,2,3,7,8,9-HxCDF	2000	1039.720	52		29-147	0.53	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1246.315	62		28-136	0.54	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	676.796	34		28-143	0.44	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	523.249	26		26-138	0.47	1.084
37Cl-2,3,7,8-TCDD	800	1330.132	166		35-197	NA	1.019

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/05/18 13:57
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0056	**Units:**	Percent
Lab Code:	E1801094-014	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/24/18 15:35
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.442g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519595	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519587

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	4440	1292.750	29		25-164	0.76	1.025
13C-1,2,3,7,8-PeCDD	3850	1975.340	51		25-181	1.56	1.221
13C-1,2,3,4,7,8-HxCDD	3080	1703.465	55		32-141	1.29	0.991
13C-1,2,3,6,7,8-HxCDD	3170	1934.162	61		28-130	1.32	0.994
13C-1,2,3,4,6,7,8-HpCDD	5260	2322.340	44		23-140	1.05	1.074
13C-OCDD	26700	3953.275	15	**Y**	17-157	0.90	1.155
13C-2,3,7,8-TCDF	3230	1724.439	53		24-169	0.80	0.989
13C-1,2,3,7,8-PeCDF	3920	1895.024	48		24-185	1.62	1.171
13C-2,3,4,7,8-PeCDF	4080	1838.817	45		21-178	1.61	1.209
13C-1,2,3,4,7,8-HxCDF	3130	1484.769	48		26-152	0.52	0.968
13C-1,2,3,6,7,8-HxCDF	3170	1714.955	54		26-123	0.52	0.971
13C-1,2,3,7,8,9-HxCDF	3850	1554.174	40		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	3230	1639.509	51		28-136	0.53	0.986
13C-1,2,3,4,6,7,8-HpCDF	5880	1849.660	31		28-143	0.43	1.047
13C-1,2,3,4,7,8,9-HpCDF	7690	1823.172	24	**Y**	26-138	0.44	1.087
37Cl-2,3,7,8-TCDD	1.60	3.843	240	**Y**	35-197	NA	1.028

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/05/18 13:57
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0056	**Units:**	ng/Kg
Lab Code:	E1801094-014	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**72600**	1.45	1.45	1	1	72600
2,3,7,8-TCDD	**175000**	4450	4450	500	1	175000
1,2,3,7,8-PeCDD	**493**	1.76	4.85	1	1	493
1,2,3,4,7,8-HxCDD	**7.03**	1.79	4.85	1	0.1	0.703
1,2,3,6,7,8-HxCDD	**73.7**	2.02	4.85	1	0.1	7.37
1,2,3,7,8,9-HxCDD	**19.7**	1.86	4.85	1	0.1	1.97
1,2,3,4,6,7,8-HpCDD	**2680**	1.65	4.85	1	0.01	26.8
OCDD	**48500**	4.89	9.69	1	0.0003	14.6
OCDD	**279000**	4850	4850	500	0.0003	83.7
2,3,7,8-TCDF	**140000**	2.95	2.95	1	0.1	14000
2,3,7,8-TCDF	**277000**	2130	2130	500	0.1	27700
1,2,3,7,8-PeCDF	**4860**	4.24	4.85	1	0.03	146
1,2,3,7,8-PeCDF	**10300**	1020	2420	500	0.03	309
2,3,4,7,8-PeCDF	**4220**	3.46	4.85	1	0.3	1270
2,3,4,7,8-PeCDF	**7730**	1060	2420	500	0.3	2320
1,2,3,4,7,8-HxCDF	**8070**	3.86	4.85	1	0.1	807
1,2,3,4,7,8-HxCDF	**13600**	708	2420	500	0.1	1360
1,2,3,6,7,8-HxCDF	**2040**	3.69	4.85	1	0.1	204
1,2,3,7,8,9-HxCDF	**628**	6.14	6.14	1	0.1	62.8
2,3,4,6,7,8-HxCDF	**360**	4.36	4.85	1	0.1	36.0
1,2,3,4,6,7,8-HpCDF	**2440**	1.97	4.85	1	0.01	24.4
1,2,3,4,7,8,9-HpCDF	**820**	3.97	4.85	1	0.01	8.20
OCDF	**2020**	4.05	9.69	1	0.0003	0.606
		Total TEQ				208000
		Total TEQ				208000

2005 WHO TEFs, ND = 0

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/05/18 13:57
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0056	**Units:**	Percent
Lab Code:	E1801094-014	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/14/18 15:24
	5.477g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	49.4		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/05/18 14:02
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0057	**Units:**	ng/Kg
Lab Code:	E1801094-015	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/24/18 16:24
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.936g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519596	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519587

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	14700		860	860	0.68	1.001	100
1,2,3,7,8-PeCDD	ND	U	112	396			100
1,2,3,4,7,8-HxCDD	ND	U	107	396			100
1,2,3,6,7,8-HxCDD	ND	U	113	396			100
1,2,3,7,8,9-HxCDD	ND	U	107	396			100
1,2,3,4,6,7,8-HpCDD	1030		201	396	0.94	1.000	100
OCDD	40600		717	792	0.84	1.001	100
2,3,7,8-TCDF	26900		349	349	0.83	1.001	100
1,2,3,7,8-PeCDF	743**K**		193	396	1.14	1.001	100
2,3,4,7,8-PeCDF	823		201	396	1.62	1.000	100
1,2,3,4,7,8-HxCDF	1150		108	396	1.18	1.000	100
1,2,3,6,7,8-HxCDF	435		96.3	396	1.09	1.000	100
1,2,3,7,8,9-HxCDF	ND	U	139	396			100
2,3,4,6,7,8-HxCDF	ND	U	110	396			100
1,2,3,4,6,7,8-HpCDF	1150		235	396	0.96	1.000	100
1,2,3,4,7,8,9-HpCDF	ND	U	388	396			100
OCDF	45200		1670	1670	0.81	1.004	100

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/05/18 14:02
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0057	**Units:**	ng/Kg
Lab Code:	E1801094-015	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/24/18 16:24
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.936g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519596	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519587

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	16500		860	860	0.68		100
Total Penta-Dioxins	ND	U	112	396			100
Total Hexa-Dioxins	ND	U	104	396			100
Total Hepta-Dioxins	2400		201	396	1.02		100
Total Tetra-Furans	41500		349	349	0.84		100
Total Penta-Furans	1350		226	396	1.45		100
Total Hexa-Furans	1740		118	396	1.25		100
Total Hepta-Furans	2330		319	396	0.96		100

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/05/18 14:02
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0057	**Units:**	ng/Kg
Lab Code:	E1801094-015	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/19/18 10:43
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.936g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519489	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519479

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	7350	**E**	1.21	1.21	0.79	1.000	1
1,2,3,7,8-PeCDD	59.4		1.80	3.96	1.72	1.001	1
1,2,3,4,7,8-HxCDD	3.75	**JK**	1.72	3.96	2.03	1.001	1
1,2,3,6,7,8-HxCDD	26.6	**K**	1.90	3.96	1.46	1.000	1
1,2,3,7,8,9-HxCDD	10.8	**K**	1.76	3.96	1.63	1.007	1
1,2,3,4,6,7,8-HpCDD	542		1.68	3.96	1.01	1.000	1
OCDD	11100	**E**	4.46	7.92	0.90	1.000	1
2,3,7,8-TCDF	18000	**E**	1.42	1.42	0.78	1.001	1
1,2,3,7,8-PeCDF	476		1.31	3.96	1.54	1.000	1
2,3,4,7,8-PeCDF	436		2.00	3.96	1.60	1.001	1
1,2,3,4,7,8-HxCDF	879		2.45	3.96	1.20	1.001	1
1,2,3,6,7,8-HxCDF	223	**P**	2.40	3.96	1.21	1.000	1
1,2,3,7,8,9-HxCDF	66.1		3.46	3.96	1.18	1.001	1
2,3,4,6,7,8-HxCDF	45.3		2.77	3.96	1.35	1.000	1
1,2,3,4,6,7,8-HpCDF	503		2.41	3.96	1.01	1.000	1
1,2,3,4,7,8,9-HpCDF	98.4		3.88	3.96	0.96	1.000	1
OCDF	12500	**E**	2.51	7.92	0.88	1.005	1

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/05/18 14:02
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0057	**Units:**	ng/Kg
Lab Code:	E1801094-015	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/19/18 10:43
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.936g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519489	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519479

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	8170		1.21	1.21	0.81		1
Total Penta-Dioxins	118		1.80	3.96	1.59		1
Total Hexa-Dioxins	263		1.79	3.96	1.32		1
Total Hepta-Dioxins	1370		1.68	3.96	1.05		1
Total Tetra-Furans	32800		1.42	1.42	0.75		1
Total Penta-Furans	1610		0.0993	3.96	1.54		1
Total Hexa-Furans	1520		2.72	3.96	1.12		1
Total Hepta-Furans	977		3.03	3.96	1.01		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/05/18 14:02
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0057	**Units:**	Percent
Lab Code:	E1801094-015	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/19/18 10:43
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.936g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519489	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519479

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	857.595	43		25-164	0.81	1.023
13C-1,2,3,7,8-PeCDD	2000	1099.777	55		25-181	1.62	1.207
13C-1,2,3,4,7,8-HxCDD	2000	1282.217	64		32-141	1.25	0.990
13C-1,2,3,6,7,8-HxCDD	2000	1173.660	59		28-130	1.24	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	828.093	41		23-140	1.10	1.072
13C-OCDD	4000	735.145	18		17-157	0.94	1.151
13C-2,3,7,8-TCDF	2000	1128.899	56		24-169	0.81	0.990
13C-1,2,3,7,8-PeCDF	2000	1079.407	54		24-185	1.56	1.160
13C-2,3,4,7,8-PeCDF	2000	787.875	39		21-178	1.58	1.196
13C-1,2,3,4,7,8-HxCDF	2000	1199.366	60		26-152	0.52	0.968
13C-1,2,3,6,7,8-HxCDF	2000	1156.561	58		26-123	0.51	0.972
13C-1,2,3,7,8,9-HxCDF	2000	1041.867	52		29-147	0.54	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1142.076	57		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	686.426	34		28-143	0.44	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	607.939	30		26-138	0.46	1.084
37Cl-2,3,7,8-TCDD	800	587.213	73		35-197	NA	1.023

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/05/18 14:02
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0057	**Units:**	Percent
Lab Code:	E1801094-015	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/24/18 16:24
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.936g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519596	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519587

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	4650	1331.591	29		25-164	0.77	1.025
13C-1,2,3,7,8-PeCDD	3640	2073.217	57		25-181	1.61	1.220
13C-1,2,3,4,7,8-HxCDD	3130	1844.097	59		32-141	1.38	0.991
13C-1,2,3,6,7,8-HxCDD	3390	2132.303	63		28-130	1.19	0.993
13C-1,2,3,4,6,7,8-HpCDD	4880	2596.633	53		23-140	1.10	1.074
13C-OCDD	22200	4499.742	20		17-157	0.96	1.155
13C-2,3,7,8-TCDF	3570	1813.713	51		24-169	0.78	0.989
13C-1,2,3,7,8-PeCDF	3700	2005.888	54		24-185	1.54	1.171
13C-2,3,4,7,8-PeCDF	5130	1928.187	38		21-178	1.61	1.209
13C-1,2,3,4,7,8-HxCDF	3330	1674.230	50		26-152	0.55	0.968
13C-1,2,3,6,7,8-HxCDF	3450	1900.115	55		26-123	0.54	0.971
13C-1,2,3,7,8,9-HxCDF	3850	1772.036	46		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	3510	1817.592	52		28-136	0.53	0.986
13C-1,2,3,4,6,7,8-HpCDF	5880	2035.500	35		28-143	0.43	1.047
13C-1,2,3,4,7,8,9-HpCDF	6670	1916.731	29		26-138	0.44	1.087
37Cl-2,3,7,8-TCDD		*			35-197	NA	

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/05/18 14:02
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0057	**Units:**	ng/Kg
Lab Code:	E1801094-015	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**7350**	1.21	1.21	1	1	7350
2,3,7,8-TCDD	**14700**	860	860	100	1	14700
1,2,3,7,8-PeCDD	**59.4**	1.80	3.96	1	1	59.4
1,2,3,4,7,8-HxCDD	**3.75**	1.72	3.96	1	0.1	0.375
1,2,3,6,7,8-HxCDD	**26.6**	1.90	3.96	1	0.1	2.66
1,2,3,7,8,9-HxCDD	**10.8**	1.76	3.96	1	0.1	1.08
1,2,3,4,6,7,8-HpCDD	**542**	1.68	3.96	1	0.01	5.42
OCDD	**11100**	4.46	7.92	1	0.0003	3.33
OCDD	**40600**	717	792	100	0.0003	12.2
2,3,7,8-TCDF	**18000**	1.42	1.42	1	0.1	1800
2,3,7,8-TCDF	**26900**	349	349	100	0.1	2690
1,2,3,7,8-PeCDF	**476**	1.31	3.96	1	0.03	14.3
2,3,4,7,8-PeCDF	**436**	2.00	3.96	1	0.3	131
1,2,3,4,7,8-HxCDF	**879**	2.45	3.96	1	0.1	87.9
1,2,3,6,7,8-HxCDF	**223**	2.40	3.96	1	0.1	22.3
1,2,3,7,8,9-HxCDF	**66.1**	3.46	3.96	1	0.1	6.61
2,3,4,6,7,8-HxCDF	**45.3**	2.77	3.96	1	0.1	4.53
1,2,3,4,6,7,8-HpCDF	**503**	2.41	3.96	1	0.01	5.03
1,2,3,4,7,8,9-HpCDF	**98.4**	3.88	3.96	1	0.01	0.984
OCDF	**12500**	2.51	7.92	1	0.0003	3.75
OCDF	**45200**	1670	1670	100	0.0003	13.6
		Total TEQ				17800
		Total TEQ				17800

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/05/18 14:02
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0057	**Units:**	Percent
Lab Code:	E1801094-015	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/14/18 15:24
	6.114g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	57.7		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/03/18 14:00
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0012	**Units:**	ng/Kg
Lab Code:	E1801094-016	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/19/18 11:32
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.593g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519490	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519479

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	15.8		0.601	0.601	0.74	1.001	1
1,2,3,7,8-PeCDD	0.486	**JK**	0.155	2.70	3.80	1.001	1
1,2,3,4,7,8-HxCDD	1.41	**JK**	0.178	2.70	1.57	1.000	1
1,2,3,6,7,8-HxCDD	4.46		0.201	2.70	1.12	1.000	1
1,2,3,7,8,9-HxCDD	2.69	**J**	0.185	2.70	1.25	1.007	1
1,2,3,4,6,7,8-HpCDD	123		0.234	2.70	1.05	1.000	1
OCDD	2240		1.55	5.39	0.87	1.000	1
2,3,7,8-TCDF	45.3		0.671	0.671	0.74	1.001	1
1,2,3,7,8-PeCDF	2.61	**J**	0.191	2.70	1.55	1.001	1
2,3,4,7,8-PeCDF	3.91		0.210	2.70	1.59	1.001	1
1,2,3,4,7,8-HxCDF	4.89		0.297	2.70	1.18	1.000	1
1,2,3,6,7,8-HxCDF	2.44	**J**	0.297	2.70	1.38	1.000	1
1,2,3,7,8,9-HxCDF	0.536	**BJK**	0.432	2.70	0.74	1.001	1
2,3,4,6,7,8-HxCDF	2.19	**J**	0.340	2.70	1.31	1.001	1
1,2,3,4,6,7,8-HpCDF	25.3		0.818	2.70	1.04	1.000	1
1,2,3,4,7,8,9-HpCDF	2.14	**J**	1.45	2.70	1.15	1.000	1
OCDF	79.2		1.13	5.39	0.78	1.004	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/03/18 14:00
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0012	**Units:**	ng/Kg
Lab Code:	E1801094-016	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/19/18 11:32
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.593g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519490	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519479

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	18.6		0.601	0.601	0.69		1
Total Penta-Dioxins	1.18	**J**	0.155	2.70	1.49		1
Total Hexa-Dioxins	52.1		0.188	2.70	1.26		1
Total Hepta-Dioxins	356		0.234	2.70	1.08		1
Total Tetra-Furans	78.8		0.671	0.671	0.66		1
Total Penta-Furans	24.5		0.0676	2.70	1.64		1
Total Hexa-Furans	41.8		0.334	2.70	1.27		1
Total Hepta-Furans	73.7		1.07	2.70	1.04		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/03/18 14:00
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0012	**Units:**	Percent
Lab Code:	E1801094-016	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/19/18 11:32
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.593g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519490	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519479

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	832.598	42		25-164	0.85	1.024
13C-1,2,3,7,8-PeCDD	2000	1161.917	58		25-181	1.61	1.209
13C-1,2,3,4,7,8-HxCDD	2000	1325.644	66		32-141	1.33	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1259.215	63		28-130	1.22	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	958.046	48		23-140	1.06	1.072
13C-OCDD	4000	820.047	21		17-157	0.88	1.152
13C-2,3,7,8-TCDF	2000	1063.916	53		24-169	0.79	0.991
13C-1,2,3,7,8-PeCDF	2000	1126.288	56		24-185	1.60	1.163
13C-2,3,4,7,8-PeCDF	2000	1018.123	51		21-178	1.57	1.198
13C-1,2,3,4,7,8-HxCDF	2000	1235.422	62		26-152	0.52	0.969
13C-1,2,3,6,7,8-HxCDF	2000	1272.937	64		26-123	0.50	0.972
13C-1,2,3,7,8,9-HxCDF	2000	1096.064	55		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1215.100	61		28-136	0.52	0.986
13C-1,2,3,4,6,7,8-HpCDF	2000	795.794	40		28-143	0.44	1.046
13C-1,2,3,4,7,8,9-HpCDF	2000	649.381	32		26-138	0.42	1.085
37Cl-2,3,7,8-TCDD	800	485.855	61		35-197	NA	1.025

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/03/18 14:00
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0012	**Units:**	ng/Kg
Lab Code:	E1801094-016	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**15.8**	0.601	0.601	1	1	15.8
1,2,3,7,8-PeCDD	**0.486**	0.155	2.70	1	1	0.486
1,2,3,4,7,8-HxCDD	**1.41**	0.178	2.70	1	0.1	0.141
1,2,3,6,7,8-HxCDD	**4.46**	0.201	2.70	1	0.1	0.446
1,2,3,7,8,9-HxCDD	**2.69**	0.185	2.70	1	0.1	0.269
1,2,3,4,6,7,8-HpCDD	**123**	0.234	2.70	1	0.01	1.23
OCDD	**2240**	1.55	5.39	1	0.0003	0.672
2,3,7,8-TCDF	**45.3**	0.671	0.671	1	0.1	4.53
1,2,3,7,8-PeCDF	**2.61**	0.191	2.70	1	0.03	0.0783
2,3,4,7,8-PeCDF	**3.91**	0.210	2.70	1	0.3	1.17
1,2,3,4,7,8-HxCDF	**4.89**	0.297	2.70	1	0.1	0.489
1,2,3,6,7,8-HxCDF	**2.44**	0.297	2.70	1	0.1	0.244
1,2,3,7,8,9-HxCDF	**0.536**	0.432	2.70	1	0.1	0.0536
2,3,4,6,7,8-HxCDF	**2.19**	0.340	2.70	1	0.1	0.219
1,2,3,4,6,7,8-HpCDF	**25.3**	0.818	2.70	1	0.01	0.253
1,2,3,4,7,8,9-HpCDF	**2.14**	1.45	2.70	1	0.01	0.0214
OCDF	**79.2**	1.13	5.39	1	0.0003	0.0238
		Total TEQ				26.1

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/03/18 14:00
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0012	**Units:**	Percent
Lab Code:	E1801094-016	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/14/18 15:24
	7.837g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	87.5		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/03/18 14:05
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0013	**Units:**	ng/Kg
Lab Code:	E1801094-017	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/19/18 12:20
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.752g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519491	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519479

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	8.05		0.641	0.641	0.73	1.002	1
1,2,3,7,8-PeCDD	2.63**J**		0.443	3.18	1.46	1.001	1
1,2,3,4,7,8-HxCDD	3.88**K**		0.825	3.18	1.01	1.000	1
1,2,3,6,7,8-HxCDD	28.7		0.906	3.18	1.24	1.000	1
1,2,3,7,8,9-HxCDD	12.1		0.847	3.18	1.24	1.007	1
1,2,3,4,6,7,8-HpCDD	792		0.394	3.18	1.04	1.000	1
OCDD	53600**E**		1.32	6.36	0.90	1.000	1
2,3,7,8-TCDF	18.7		0.544	0.636	0.77	1.001	1
1,2,3,7,8-PeCDF	ND	U	1.18	3.18			1
2,3,4,7,8-PeCDF	7.27		1.29	3.18	1.52	1.001	1
1,2,3,4,7,8-HxCDF	8.39		0.686	3.18	1.12	1.000	1
1,2,3,6,7,8-HxCDF	7.77		0.681	3.18	1.16	1.000	1
1,2,3,7,8,9-HxCDF	ND	U	0.974	3.18			1
2,3,4,6,7,8-HxCDF	9.28		0.762	3.18	1.20	1.001	1
1,2,3,4,6,7,8-HpCDF	145		0.186	3.18	0.97	1.000	1
1,2,3,4,7,8,9-HpCDF	9.63		0.347	3.18	0.91	1.000	1
OCDF	298		1.25	6.36	0.86	1.004	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/03/18 14:05
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0013	**Units:**	ng/Kg
Lab Code:	E1801094-017	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/19/18 12:20
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.752g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519491	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519479

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	8.05		0.641	0.641	0.73		1
Total Penta-Dioxins	7.22		0.443	3.18	1.49		1
Total Hexa-Dioxins	263		0.860	3.18	1.32		1
Total Hepta-Dioxins	1990		0.394	3.18	1.03		1
Total Tetra-Furans	49.9		0.544	0.636	0.80		1
Total Penta-Furans	64.2		0.0797	3.18	1.76		1
Total Hexa-Furans	215		0.761	3.18	1.08		1
Total Hepta-Furans	495		0.249	3.18	0.97		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/03/18 14:05
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0013	**Units:**	Percent
Lab Code:	E1801094-017	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/19/18 12:20
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.752g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519491	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519479

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	839.178	42		25-164	0.79	1.024
13C-1,2,3,7,8-PeCDD	2000	1130.881	57		25-181	1.59	1.209
13C-1,2,3,4,7,8-HxCDD	2000	1238.977	62		32-141	1.27	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1287.334	64		28-130	1.28	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	985.652	49		23-140	1.09	1.072
13C-OCDD	4000	1004.540	25		17-157	0.92	1.152
13C-2,3,7,8-TCDF	2000	1058.368	53		24-169	0.80	0.991
13C-1,2,3,7,8-PeCDF	2000	1117.450	56		24-185	1.56	1.163
13C-2,3,4,7,8-PeCDF	2000	1011.110	51		21-178	1.63	1.198
13C-1,2,3,4,7,8-HxCDF	2000	1186.085	59		26-152	0.50	0.969
13C-1,2,3,6,7,8-HxCDF	2000	1231.377	62		26-123	0.53	0.972
13C-1,2,3,7,8,9-HxCDF	2000	1078.379	54		29-147	0.50	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1186.683	59		28-136	0.51	0.986
13C-1,2,3,4,6,7,8-HpCDF	2000	801.126	40		28-143	0.44	1.046
13C-1,2,3,4,7,8,9-HpCDF	2000	641.505	32		26-138	0.42	1.085
37Cl-2,3,7,8-TCDD	800	470.326	59		35-197	NA	1.025

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/03/18 14:05
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0013	**Units:**	ng/Kg
Lab Code:	E1801094-017	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**8.05**	0.641	0.641	1	1	8.05
1,2,3,7,8-PeCDD	**2.63**	0.443	3.18	1	1	2.63
1,2,3,4,7,8-HxCDD	**3.88**	0.825	3.18	1	0.1	0.388
1,2,3,6,7,8-HxCDD	**28.7**	0.906	3.18	1	0.1	2.87
1,2,3,7,8,9-HxCDD	**12.1**	0.847	3.18	1	0.1	1.21
1,2,3,4,6,7,8-HpCDD	**792**	0.394	3.18	1	0.01	7.92
OCDD	**53600**	1.32	6.36	1	0.0003	16.1
2,3,7,8-TCDF	**18.7**	0.544	0.636	1	0.1	1.87
1,2,3,7,8-PeCDF	ND	1.18	3.18	1	0.03	
2,3,4,7,8-PeCDF	**7.27**	1.29	3.18	1	0.3	2.18
1,2,3,4,7,8-HxCDF	**8.39**	0.686	3.18	1	0.1	0.839
1,2,3,6,7,8-HxCDF	**7.77**	0.681	3.18	1	0.1	0.777
1,2,3,7,8,9-HxCDF	ND	0.974	3.18	1	0.1	
2,3,4,6,7,8-HxCDF	**9.28**	0.762	3.18	1	0.1	0.928
1,2,3,4,6,7,8-HpCDF	**145**	0.186	3.18	1	0.01	1.45
1,2,3,4,7,8,9-HpCDF	**9.63**	0.347	3.18	1	0.01	0.0963
OCDF	**298**	1.25	6.36	1	0.0003	0.0894
		Total TEQ				47.4

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/03/18 14:05
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0013	**Units:**	Percent
Lab Code:	E1801094-017	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/14/18 15:24
	5.511g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	73.1		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/03/18 14:11
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0014	**Units:**	ng/Kg
Lab Code:	E1801094-018	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/24/18 17:13
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.514g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519597	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519587

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	4060		336	336	0.84	1.001	50
1,2,3,7,8-PeCDD	ND	U	65.9	153			50
1,2,3,4,7,8-HxCDD	ND	U	66.1	153			50
1,2,3,6,7,8-HxCDD	ND	U	67.7	153			50
1,2,3,7,8,9-HxCDD	ND	U	65.4	153			50
1,2,3,4,6,7,8-HpCDD	3910		75.3	153	1.09	1.000	50
OCDD	185000		275	306	0.83	1.000	50
2,3,7,8-TCDF	7420		128	128	0.77	1.001	50
1,2,3,7,8-PeCDF	221		80.6	153	1.46	1.001	50
2,3,4,7,8-PeCDF	193**K**		81.1	153	1.22	1.001	50
1,2,3,4,7,8-HxCDF	360		59.1	153	1.11	1.000	50
1,2,3,6,7,8-HxCDF	148**JK**		56.3	153	1.63	1.000	50
1,2,3,7,8,9-HxCDF	ND	U	81.3	153			50
2,3,4,6,7,8-HxCDF	ND	U	61.6	153			50
1,2,3,4,6,7,8-HpCDF	1020		169	169	1.14	1.000	50
1,2,3,4,7,8,9-HpCDF	ND	U	277	277			50
OCDF	3010**K**		438	438	1.12	1.005	50

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/03/18 14:11
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0014	**Units:**	ng/Kg
Lab Code:	E1801094-018	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/24/18 17:13
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.514g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519597	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519587

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	4060		336	336	0.84		50
Total Penta-Dioxins	ND	U	65.9	153			50
Total Hexa-Dioxins	653		65.2	153	1.09		50
Total Hepta-Dioxins	8720		75.3	153	0.93		50
Total Tetra-Furans	12300		128	128	0.71		50
Total Penta-Furans	416		84.4	153	1.46		50
Total Hexa-Furans	1130		67.3	153	1.09		50
Total Hepta-Furans	3750		238	238	1.14		50

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/03/18 14:11
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0014	**Units:**	ng/Kg
Lab Code:	E1801094-018	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/19/18 13:09
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.514g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519492	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519479

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	2110	**E**	0.814	0.814	0.78	1.001	1
1,2,3,7,8-PeCDD	25.3		2.19	3.06	1.77	1.001	1
1,2,3,4,7,8-HxCDD	10.1	**K**	2.56	3.06	1.46	1.000	1
1,2,3,6,7,8-HxCDD	80.6		2.89	3.06	1.27	1.000	1
1,2,3,7,8,9-HxCDD	32.7		2.66	3.06	1.18	1.007	1
1,2,3,4,6,7,8-HpCDD	1980		2.04	3.06	1.05	1.000	1
OCDD	54500	**E**	4.52	6.12	0.89	1.000	1
2,3,7,8-TCDF	4590	**E**	0.906	0.906	0.78	1.001	1
1,2,3,7,8-PeCDF	154		5.36	5.36	1.60	1.001	1
2,3,4,7,8-PeCDF	135		5.95	5.95	1.50	1.001	1
1,2,3,4,7,8-HxCDF	260		2.23	3.06	1.21	1.000	1
1,2,3,6,7,8-HxCDF	111	**P**	2.11	3.06	1.22	1.000	1
1,2,3,7,8,9-HxCDF	24.0		3.37	3.37	1.42	1.001	1
2,3,4,6,7,8-HxCDF	39.5		2.49	3.06	1.16	1.000	1
1,2,3,4,6,7,8-HpCDF	451		0.548	3.06	0.99	1.000	1
1,2,3,4,7,8,9-HpCDF	52.7		1.03	3.06	0.92	1.000	1
OCDF	933		2.84	6.12	0.85	1.004	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/03/18 14:11
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0014	**Units:**	ng/Kg
Lab Code:	E1801094-018	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/19/18 13:09
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.514g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519492	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519479

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	2380		0.814	0.814	0.81		1
Total Penta-Dioxins	40.7		2.19	3.06	1.78		1
Total Hexa-Dioxins	714		2.70	3.06	1.20		1
Total Hepta-Dioxins	4820		2.04	3.06	1.04		1
Total Tetra-Furans	8370		0.906	0.906	0.74		1
Total Penta-Furans	440		0.0767	3.06	1.46		1
Total Hexa-Furans	1060		2.47	3.06	1.22		1
Total Hepta-Furans	1520		0.737	3.06	0.99		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/03/18 14:11
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0014	**Units:**	Percent
Lab Code:	E1801094-018	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/19/18 13:09
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.514g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519492	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519479

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	761.969	38		25-164	0.79	1.023
13C-1,2,3,7,8-PeCDD	2000	958.465	48		25-181	1.55	1.208
13C-1,2,3,4,7,8-HxCDD	2000	1129.064	56		32-141	1.31	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1096.696	55		28-130	1.26	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	754.341	38		23-140	1.09	1.072
13C-OCDD	4000	734.313	18		17-157	0.91	1.153
13C-2,3,7,8-TCDF	2000	986.597	49		24-169	0.79	0.990
13C-1,2,3,7,8-PeCDF	2000	952.448	48		24-185	1.59	1.161
13C-2,3,4,7,8-PeCDF	2000	861.440	43		21-178	1.59	1.197
13C-1,2,3,4,7,8-HxCDF	2000	1094.967	55		26-152	0.50	0.969
13C-1,2,3,6,7,8-HxCDF	2000	1144.277	57		26-123	0.51	0.972
13C-1,2,3,7,8,9-HxCDF	2000	904.389	45		29-147	0.54	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1046.708	52		28-136	0.51	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	648.351	32		28-143	0.44	1.046
13C-1,2,3,4,7,8,9-HpCDF	2000	526.236	26		26-138	0.48	1.085
37Cl-2,3,7,8-TCDD	800	466.949	58		35-197	NA	1.025

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/03/18 14:11
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0014	**Units:**	Percent
Lab Code:	E1801094-018	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/24/18 17:13
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.514g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519597	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519587

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	5260	1372.389	26		25-164	0.75	1.026
13C-1,2,3,7,8-PeCDD	4170	2153.300	52		25-181	1.61	1.221
13C-1,2,3,4,7,8-HxCDD	3570	1764.149	49		32-141	1.23	0.991
13C-1,2,3,6,7,8-HxCDD	3640	2090.430	57		28-130	1.31	0.994
13C-1,2,3,4,6,7,8-HpCDD	5260	2393.227	45		23-140	1.11	1.074
13C-OCDD	22200	4475.821	20		17-157	0.90	1.155
13C-2,3,7,8-TCDF	4080	1747.790	43		24-169	0.76	0.989
13C-1,2,3,7,8-PeCDF	4170	2088.385	50		24-185	1.59	1.171
13C-2,3,4,7,8-PeCDF	4650	1964.987	42		21-178	1.57	1.209
13C-1,2,3,4,7,8-HxCDF	3640	1589.772	44		26-152	0.52	0.968
13C-1,2,3,6,7,8-HxCDF	3510	1865.591	53		26-123	0.51	0.971
13C-1,2,3,7,8,9-HxCDF	4440	1726.876	39		29-147	0.48	1.008
13C-2,3,4,6,7,8-HxCDF	3850	1782.913	46		28-136	0.49	0.986
13C-1,2,3,4,6,7,8-HpCDF	6250	1967.785	31		28-143	0.44	1.047
13C-1,2,3,4,7,8,9-HpCDF	7690	1856.893	24	**Y**	26-138	0.43	1.087
37Cl-2,3,7,8-TCDD	16.0	15.311	96		35-197	NA	1.026

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/03/18 14:11
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0014	**Units:**	ng/Kg
Lab Code:	E1801094-018	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**2110**	0.814	0.814	1	1	2110
2,3,7,8-TCDD	**4060**	336	336	50	1	4060
1,2,3,7,8-PeCDD	**25.3**	2.19	3.06	1	1	25.3
1,2,3,4,7,8-HxCDD	**10.1**	2.56	3.06	1	0.1	1.01
1,2,3,6,7,8-HxCDD	**80.6**	2.89	3.06	1	0.1	8.06
1,2,3,7,8,9-HxCDD	**32.7**	2.66	3.06	1	0.1	3.27
1,2,3,4,6,7,8-HpCDD	**1980**	2.04	3.06	1	0.01	19.8
OCDD	**54500**	4.52	6.12	1	0.0003	16.4
OCDD	**185000**	275	306	50	0.0003	55.5
2,3,7,8-TCDF	**4590**	0.906	0.906	1	0.1	459
2,3,7,8-TCDF	**7420**	128	128	50	0.1	742
1,2,3,7,8-PeCDF	**154**	5.36	5.36	1	0.03	4.62
2,3,4,7,8-PeCDF	**135**	5.95	5.95	1	0.3	40.5
1,2,3,4,7,8-HxCDF	**260**	2.23	3.06	1	0.1	26.0
1,2,3,6,7,8-HxCDF	**111**	2.11	3.06	1	0.1	11.1
1,2,3,7,8,9-HxCDF	**24.0**	3.37	3.37	1	0.1	2.40
2,3,4,6,7,8-HxCDF	**39.5**	2.49	3.06	1	0.1	3.95
1,2,3,4,6,7,8-HpCDF	**451**	0.548	3.06	1	0.01	4.51
1,2,3,4,7,8,9-HpCDF	**52.7**	1.03	3.06	1	0.01	0.527
OCDF	**933**	2.84	6.12	1	0.0003	0.280
		Total TEQ				5010
		Total TEQ				5010

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/03/18 14:11
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0014	**Units:**	Percent
Lab Code:	E1801094-018	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/14/18 15:24
	5.606g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	77.7		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/03/18 14:17
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0015	**Units:**	ng/Kg
Lab Code:	E1801094-019	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/19/18 21:17
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.784g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519501	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519494

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	13.1		0.919	0.919	0.76	1.001	1
1,2,3,7,8-PeCDD	ND	U	0.315	2.78			1
1,2,3,4,7,8-HxCDD	ND	U	0.571	2.78			1
1,2,3,6,7,8-HxCDD	0.782**JK**		0.646	2.78	1.70	1.001	1
1,2,3,7,8,9-HxCDD	1.53**JK**		0.595	2.78	1.56	1.007	1
1,2,3,4,6,7,8-HpCDD	23.0		0.698	2.78	0.88	1.000	1
OCDD	801		1.45	5.56	0.90	1.000	1
2,3,7,8-TCDF	26.4		0.329	0.556	0.66	1.001	1
1,2,3,7,8-PeCDF	0.773**JK**		0.263	2.78	1.24	1.001	1
2,3,4,7,8-PeCDF	0.376**JK**		0.292	2.78	1.88	1.000	1
1,2,3,4,7,8-HxCDF	1.24**JK**		0.262	2.78	1.44	1.000	1
1,2,3,6,7,8-HxCDF	0.607**J**		0.250	2.78	1.18	1.000	1
1,2,3,7,8,9-HxCDF	ND	U	0.388	2.78			1
2,3,4,6,7,8-HxCDF	ND	U	0.275	2.78			1
1,2,3,4,6,7,8-HpCDF	1.25**JK**		0.340	2.78	0.64	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.576	2.78			1
OCDF	4.13**JK**		1.54	5.56	0.74	1.004	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/03/18 14:17
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0015	**Units:**	ng/Kg
Lab Code:	E1801094-019	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/19/18 21:17
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.784g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519501	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519494

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	27.7		0.919	0.919	0.69		1
Total Penta-Dioxins	ND	U	0.315	2.78			1
Total Hexa-Dioxins	39.3		0.605	2.78	1.18		1
Total Hepta-Dioxins	62.6		0.698	2.78	1.06		1
Total Tetra-Furans	41.1		0.329	0.556	0.81		1
Total Penta-Furans	ND	U	0.277	2.78			1
Total Hexa-Furans	1.17**J**		0.286	2.78	1.10		1
Total Hepta-Furans	ND	U	0.436	2.78			1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/03/18 14:17
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0015	**Units:**	Percent
Lab Code:	E1801094-019	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/19/18 21:17
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.784g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519501	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519494

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	604.599	30		25-164	0.80	1.023
13C-1,2,3,7,8-PeCDD	2000	900.154	45		25-181	1.60	1.209
13C-1,2,3,4,7,8-HxCDD	2000	1080.279	54		32-141	1.28	0.990
13C-1,2,3,6,7,8-HxCDD	2000	1115.005	56		28-130	1.25	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	956.712	48		23-140	1.05	1.073
13C-OCDD	4000	1007.426	25		17-157	0.87	1.154
13C-2,3,7,8-TCDF	2000	775.657	39		24-169	0.79	0.990
13C-1,2,3,7,8-PeCDF	2000	907.934	45		24-185	1.57	1.161
13C-2,3,4,7,8-PeCDF	2000	835.034	42		21-178	1.61	1.197
13C-1,2,3,4,7,8-HxCDF	2000	1020.192	51		26-152	0.54	0.968
13C-1,2,3,6,7,8-HxCDF	2000	1068.462	53		26-123	0.52	0.972
13C-1,2,3,7,8,9-HxCDF	2000	887.607	44		29-147	0.55	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1045.568	52		28-136	0.52	0.986
13C-1,2,3,4,6,7,8-HpCDF	2000	813.439	41		28-143	0.48	1.046
13C-1,2,3,4,7,8,9-HpCDF	2000	689.370	34		26-138	0.44	1.085
37Cl-2,3,7,8-TCDD	800	338.904	42		35-197	NA	1.025

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/03/18 14:17
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0015	**Units:**	ng/Kg
Lab Code:	E1801094-019	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**13.1**	0.919	0.919	1	1	13.1
1,2,3,7,8-PeCDD	ND	0.315	2.78	1	1	
1,2,3,4,7,8-HxCDD	ND	0.571	2.78	1	0.1	
1,2,3,6,7,8-HxCDD	**0.782**	0.646	2.78	1	0.1	0.0782
1,2,3,7,8,9-HxCDD	**1.53**	0.595	2.78	1	0.1	0.153
1,2,3,4,6,7,8-HpCDD	**23.0**	0.698	2.78	1	0.01	0.230
OCDD	**801**	1.45	5.56	1	0.0003	0.240
2,3,7,8-TCDF	**26.4**	0.329	0.556	1	0.1	2.64
1,2,3,7,8-PeCDF	**0.773**	0.263	2.78	1	0.03	0.0232
2,3,4,7,8-PeCDF	**0.376**	0.292	2.78	1	0.3	0.113
1,2,3,4,7,8-HxCDF	**1.24**	0.262	2.78	1	0.1	0.124
1,2,3,6,7,8-HxCDF	**0.607**	0.250	2.78	1	0.1	0.0607
1,2,3,7,8,9-HxCDF	ND	0.388	2.78	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.275	2.78	1	0.1	
1,2,3,4,6,7,8-HpCDF	**1.25**	0.340	2.78	1	0.01	0.0125
1,2,3,4,7,8,9-HpCDF	ND	0.576	2.78	1	0.01	
OCDF	**4.13**	1.54	5.56	1	0.0003	0.00124
		Total TEQ				16.8

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/03/18 14:17
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0015	**Units:**	Percent
Lab Code:	E1801094-019	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/14/18 15:24
	5.701g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	83.4		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/03/18 14:24
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0016	**Units:**	ng/Kg
Lab Code:	E1801094-020	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/19/18 22:06
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.205g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519502	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519494

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	6.20		1.19	1.19	0.78	1.001	1
1,2,3,7,8-PeCDD	ND	U	0.402	3.09			1
1,2,3,4,7,8-HxCDD	ND	U	0.532	3.09			1
1,2,3,6,7,8-HxCDD	ND	U	0.598	3.09			1
1,2,3,7,8,9-HxCDD	ND	U	0.552	3.09			1
1,2,3,4,6,7,8-HpCDD	19.7		1.21	3.09	1.08	1.000	1
OCDD	571		1.04	6.18	0.92	1.000	1
2,3,7,8-TCDF	13.5		0.588	0.618	0.71	1.001	1
1,2,3,7,8-PeCDF	ND	U	0.280	3.09			1
2,3,4,7,8-PeCDF	ND	U	0.293	3.09			1
1,2,3,4,7,8-HxCDF	0.424**JK**		0.192	3.09	1.69	1.000	1
1,2,3,6,7,8-HxCDF	ND	U	0.178	3.09			1
1,2,3,7,8,9-HxCDF	ND	U	0.248	3.09			1
2,3,4,6,7,8-HxCDF	ND	U	0.195	3.09			1
1,2,3,4,6,7,8-HpCDF	ND	U	0.435	3.09			1
1,2,3,4,7,8,9-HpCDF	ND	U	0.698	3.09			1
OCDF	ND	U	1.11	6.18			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/03/18 14:24
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0016	**Units:**	ng/Kg
Lab Code:	E1801094-020	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/19/18 22:06
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.205g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519502	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519494

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	14.0		1.19	1.19	0.79		1
Total Penta-Dioxins	2.97**J**		0.402	3.09	1.72		1
Total Hexa-Dioxins	24.4		0.560	3.09	1.08		1
Total Hepta-Dioxins	64.0		1.21	3.09	0.92		1
Total Tetra-Furans	23.1		0.588	0.618	0.68		1
Total Penta-Furans	ND	U	0.286	3.09			1
Total Hexa-Furans	ND	U	0.200	3.09			1
Total Hepta-Furans	ND	U	0.547	3.09			1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/03/18 14:24
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0016	**Units:**	Percent
Lab Code:	E1801094-020	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/19/18 22:06
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.205g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519502	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519494

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	519.303	26		25-164	0.81	1.024
13C-1,2,3,7,8-PeCDD	2000	903.093	45		25-181	1.66	1.209
13C-1,2,3,4,7,8-HxCDD	2000	1034.793	52		32-141	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2000	999.216	50		28-130	1.29	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1010.620	51		23-140	1.13	1.073
13C-OCDD	4000	1204.183	30		17-157	0.91	1.154
13C-2,3,7,8-TCDF	2000	692.831	35		24-169	0.80	0.991
13C-1,2,3,7,8-PeCDF	2000	860.947	43		24-185	1.60	1.162
13C-2,3,4,7,8-PeCDF	2000	810.746	41		21-178	1.59	1.198
13C-1,2,3,4,7,8-HxCDF	2000	926.618	46		26-152	0.52	0.969
13C-1,2,3,6,7,8-HxCDF	2000	962.145	48		26-123	0.51	0.972
13C-1,2,3,7,8,9-HxCDF	2000	901.022	45		29-147	0.53	1.008
13C-2,3,4,6,7,8-HxCDF	2000	960.592	48		28-136	0.51	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	762.228	38		28-143	0.42	1.046
13C-1,2,3,4,7,8,9-HpCDF	2000	709.599	35		26-138	0.43	1.086
37Cl-2,3,7,8-TCDD	800	298.641	37		35-197	NA	1.025

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/03/18 14:24
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0016	**Units:**	ng/Kg
Lab Code:	E1801094-020	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**6.20**	1.19	1.19	1	1	6.20
1,2,3,7,8-PeCDD	ND	0.402	3.09	1	1	
1,2,3,4,7,8-HxCDD	ND	0.532	3.09	1	0.1	
1,2,3,6,7,8-HxCDD	ND	0.598	3.09	1	0.1	
1,2,3,7,8,9-HxCDD	ND	0.552	3.09	1	0.1	
1,2,3,4,6,7,8-HpCDD	**19.7**	1.21	3.09	1	0.01	0.197
OCDD	**571**	1.04	6.18	1	0.0003	0.171
2,3,7,8-TCDF	**13.5**	0.588	0.618	1	0.1	1.35
1,2,3,7,8-PeCDF	ND	0.280	3.09	1	0.03	
2,3,4,7,8-PeCDF	ND	0.293	3.09	1	0.3	
1,2,3,4,7,8-HxCDF	**0.424**	0.192	3.09	1	0.1	0.0424
1,2,3,6,7,8-HxCDF	ND	0.178	3.09	1	0.1	
1,2,3,7,8,9-HxCDF	ND	0.248	3.09	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.195	3.09	1	0.1	
1,2,3,4,6,7,8-HpCDF	ND	0.435	3.09	1	0.01	
1,2,3,4,7,8,9-HpCDF	ND	0.698	3.09	1	0.01	
OCDF	ND	1.11	6.18	1	0.0003	
		Total TEQ				7.96

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	11/03/18 14:24
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:42
Sample Name:	SL0016	**Units:**	Percent
Lab Code:	E1801094-020	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/14/18 15:24
	7.303g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	79.3		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1800510-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/18/18 16:38
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.384g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519467	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519465

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.769	0.769			1
1,2,3,7,8-PeCDD	ND	U	0.0910	2.41			1
1,2,3,4,7,8-HxCDD	ND	U	0.0806	2.41			1
1,2,3,6,7,8-HxCDD	ND	U	0.0866	2.41			1
1,2,3,7,8,9-HxCDD	0.0979**JK**		0.0818	2.41	0.86	1.006	1
1,2,3,4,6,7,8-HpCDD	0.0812**JK**		0.0570	2.41	0.49	1.000	1
OCDD	0.212**JK**		0.115	4.82	1.05	1.001	1
2,3,7,8-TCDF	ND	U	0.299	0.482			1
1,2,3,7,8-PeCDF	ND	U	0.118	2.41			1
2,3,4,7,8-PeCDF	ND	U	0.115	2.41			1
1,2,3,4,7,8-HxCDF	ND	U	0.0682	2.41			1
1,2,3,6,7,8-HxCDF	ND	U	0.0652	2.41			1
1,2,3,7,8,9-HxCDF	0.112**JK**		0.0784	2.41	2.52	1.001	1
2,3,4,6,7,8-HxCDF	ND	U	0.0661	2.41			1
1,2,3,4,6,7,8-HpCDF	0.101**J**		0.0449	2.41	1.06	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.0642	2.41			1
OCDF	ND	U	0.232	4.82			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1800510-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/18/18 16:38
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.384g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519467	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519465

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.769	0.769			1
Total Penta-Dioxins	ND	U	0.0910	2.41			1
Total Hexa-Dioxins	ND	U	0.0831	2.41			1
Total Hepta-Dioxins	ND	U	0.0570	2.41			1
Total Tetra-Furans	ND	U	0.299	0.482			1
Total Penta-Furans	ND	U	0.117	2.41			1
Total Hexa-Furans	ND	U	0.0691	2.41			1
Total Hepta-Furans	0.101**J**		0.0534	2.41	1.06		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	Percent
Lab Code:	EQ1800510-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/18/18 16:38
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.384g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519467	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519465

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	600.291	30		25-164	0.77	1.023
13C-1,2,3,7,8-PeCDD	2000	1517.063	76		25-181	1.59	1.209
13C-1,2,3,4,7,8-HxCDD	2000	1416.516	71		32-141	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1524.414	76		28-130	1.28	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	2057.198	103		23-140	1.05	1.072
13C-OCDD	4000	3273.539	82		17-157	0.90	1.151
13C-2,3,7,8-TCDF	2000	778.968	39		24-169	0.79	0.990
13C-1,2,3,7,8-PeCDF	2000	1323.700	66		24-185	1.54	1.162
13C-2,3,4,7,8-PeCDF	2000	1362.080	68		21-178	1.57	1.198
13C-1,2,3,4,7,8-HxCDF	2000	1154.321	58		26-152	0.52	0.969
13C-1,2,3,6,7,8-HxCDF	2000	1288.528	64		26-123	0.53	0.972
13C-1,2,3,7,8,9-HxCDF	2000	1372.248	69		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1355.504	68		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1490.530	75		28-143	0.45	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	1491.806	75		26-138	0.45	1.084
37Cl-2,3,7,8-TCDD	800	320.991	40		35-197	NA	1.024

Accuracy & Precision

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QA/QC Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Analyzed:**	12/18/18 - 12/20/18
Sample Matrix:	Sediment	**Date Extracted:**	12/12/18

Duplicate Lab Control Sample Summary
Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Units:**	ng/Kg
Prep Method:	Method Soxhlet	**Basis:**	Dry
		Analysis Lot:	619681

	Lab Control Sample EQ1800510-02			Duplicate Lab Control Sample EQ1800510-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
1,2,3,4,6,7,8-HpCDD	72.9	98.0	74	76.6	95.9	80	70-140	5	50
1,2,3,4,7,8-HxCDD	88.7	98.0	90	89.0	95.9	93	70-164	<1	50
1,2,3,6,7,8-HxCDD	96.4	98.0	98	100	95.9	104	76-134	4	50
1,2,3,7,8,9-HxCDD	90.6	98.0	92	96.1	95.9	100	64-162	6	50
1,2,3,7,8-PeCDD	96.8	98.0	99	98.3	95.9	103	70-142	2	50
2,3,7,8-TCDD	30.6	19.6	156	31.2	19.2	163 *	67-158	2	50
OCDD	211	196	108	206	192	107	78-144	3	50
1,2,3,4,6,7,8-HpCDF	90.6	98.0	92	99.3	95.9	104	82-122	9	50
1,2,3,4,7,8,9-HpCDF	91.3	98.0	93	96.5	95.9	101	78-138	6	50
1,2,3,4,7,8-HxCDF	92.0	98.0	94	95.0	95.9	99	72-134	3	50
1,2,3,6,7,8-HxCDF	93.0	98.0	95	96.2	95.9	100	84-130	3	50
1,2,3,7,8,9-HxCDF	88.6	98.0	90	92.6	95.9	97	78-130	4	50
1,2,3,7,8-PeCDF	90.9	98.0	93	90.1	95.9	94	80-134	<1	50
2,3,4,6,7,8-HxCDF	93.7	98.0	96	98.3	95.9	103	70-156	5	50
2,3,4,7,8-PeCDF	95.5	98.0	97	95.7	95.9	100	68-160	<1	50
2,3,7,8-TCDF	21.0	19.6	107	27.9	19.2	145	75-158	28	50
OCDF	205	196	105	197	192	103	63-170	4	50

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800510-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/18/18 23:56
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.203g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519476	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519465

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	30.6		0.850	0.850	0.77	1.001	1
1,2,3,7,8-PeCDD	96.8		0.165	2.45	1.60	1.001	1
1,2,3,4,7,8-HxCDD	88.7		0.190	2.45	1.28	1.000	1
1,2,3,6,7,8-HxCDD	96.4		0.209	2.45	1.26	1.000	1
1,2,3,7,8,9-HxCDD	90.6		0.195	2.45	1.17	1.007	1
1,2,3,4,6,7,8-HpCDD	72.9		0.216	2.45	1.03	1.000	1
OCDD	211		0.700	4.90	0.87	1.000	1
2,3,7,8-TCDF	21.0		0.392	0.490	0.76	1.001	1
1,2,3,7,8-PeCDF	90.9		0.110	2.45	1.52	1.001	1
2,3,4,7,8-PeCDF	95.5		0.120	2.45	1.51	1.001	1
1,2,3,4,7,8-HxCDF	92.0		0.122	2.45	1.23	1.000	1
1,2,3,6,7,8-HxCDF	93.0		0.115	2.45	1.15	1.000	1
1,2,3,7,8,9-HxCDF	88.6		0.160	2.45	1.24	1.000	1
2,3,4,6,7,8-HxCDF	93.7		0.129	2.45	1.23	1.000	1
1,2,3,4,6,7,8-HpCDF	90.6		0.291	2.45	1.00	1.000	1
1,2,3,4,7,8,9-HpCDF	91.3		0.442	2.45	0.98	1.000	1
OCDF	205		0.911	4.90	0.84	1.004	1

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800510-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/18/18 23:56
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.203g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519476	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519465

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	30.6		0.850	0.850	0.77		1
Total Penta-Dioxins	96.8		0.165	2.45	1.60		1
Total Hexa-Dioxins	276		0.198	2.45	1.28		1
Total Hepta-Dioxins	72.9		0.216	2.45	1.03		1
Total Tetra-Furans	21.2		0.392	0.490	0.80		1
Total Penta-Furans	186		0.115	2.45	1.52		1
Total Hexa-Furans	367		0.130	2.45	1.23		1
Total Hepta-Furans	182		0.356	2.45	1.00		1

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1800510-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/18/18 23:56
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.203g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519476	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519465

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	571.534	29		25-164	0.79	1.023
13C-1,2,3,7,8-PeCDD	2000	981.898	49		25-181	1.60	1.209
13C-1,2,3,4,7,8-HxCDD	2000	922.952	46		32-141	1.27	0.991
13C-1,2,3,6,7,8-HxCDD	2000	915.158	46		28-130	1.28	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	981.911	49		23-140	1.09	1.072
13C-OCDD	4000	1189.209	30		17-157	0.87	1.152
13C-2,3,7,8-TCDF	2000	756.459	38		24-169	0.80	0.990
13C-1,2,3,7,8-PeCDF	2000	948.265	47		24-185	1.62	1.161
13C-2,3,4,7,8-PeCDF	2000	865.757	43		21-178	1.62	1.197
13C-1,2,3,4,7,8-HxCDF	2000	832.362	42		26-152	0.52	0.969
13C-1,2,3,6,7,8-HxCDF	2000	895.784	45		26-123	0.52	0.972
13C-1,2,3,7,8,9-HxCDF	2000	832.278	42		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	850.935	43		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	790.913	40		28-143	0.45	1.046
13C-1,2,3,4,7,8,9-HpCDF	2000	740.616	37		26-138	0.45	1.085
37Cl-2,3,7,8-TCDD	800	326.969	41		35-197	NA	1.024

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800510-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/20/18 02:09
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.426g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519507	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519494

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	31.2		0.686	0.686	0.75	1.001	1
1,2,3,7,8-PeCDD	98.3		0.141	2.40	1.61	1.001	1
1,2,3,4,7,8-HxCDD	89.0		0.176	2.40	1.25	1.000	1
1,2,3,6,7,8-HxCDD	100		0.202	2.40	1.26	1.000	1
1,2,3,7,8,9-HxCDD	96.1		0.184	2.40	1.25	1.007	1
1,2,3,4,6,7,8-HpCDD	76.6		0.339	2.40	1.04	1.000	1
OCDD	206		2.00	4.80	0.90	1.001	1
2,3,7,8-TCDF	27.9		0.436	0.480	0.76	1.001	1
1,2,3,7,8-PeCDF	90.1		0.0877	2.40	1.49	1.001	1
2,3,4,7,8-PeCDF	95.7		0.0896	2.40	1.51	1.001	1
1,2,3,4,7,8-HxCDF	95.0		0.105	2.40	1.20	1.000	1
1,2,3,6,7,8-HxCDF	96.2		0.101	2.40	1.22	1.000	1
1,2,3,7,8,9-HxCDF	92.6		0.149	2.40	1.18	1.000	1
2,3,4,6,7,8-HxCDF	98.3		0.107	2.40	1.21	1.000	1
1,2,3,4,6,7,8-HpCDF	99.3		0.313	2.40	0.96	1.000	1
1,2,3,4,7,8,9-HpCDF	96.5		0.514	2.40	1.07	1.000	1
OCDF	197		1.44	4.80	0.93	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800510-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/20/18 02:09
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.426g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519507	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519494

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	31.4		0.686	0.686	0.75		1
Total Penta-Dioxins	99.9		0.141	2.40	1.61		1
Total Hexa-Dioxins	285		0.187	2.40	1.25		1
Total Hepta-Dioxins	76.6		0.339	2.40	1.04		1
Total Tetra-Furans	33.4		0.436	0.480	0.75		1
Total Penta-Furans	187		0.0887	2.40	1.34		1
Total Hexa-Furans	383		0.113	2.40	1.06		1
Total Hepta-Furans	196		0.398	2.40	0.96		1

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801094
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1800510-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/20/18 02:09
Prep Method:	Method Soxhlet	**Date Extracted:**	12/12/18
Sample Amount:	10.426g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519507	**Blank File Name:**	P519467
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519494

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	513.879	26		25-164	0.80	1.024
13C-1,2,3,7,8-PeCDD	2000	930.503	47		25-181	1.65	1.209
13C-1,2,3,4,7,8-HxCDD	2000	1108.623	55		32-141	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1082.642	54		28-130	1.26	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	888.595	44		23-140	1.06	1.073
13C-OCDD	4000	972.766	24		17-157	0.92	1.155
13C-2,3,7,8-TCDF	2000	712.915	36		24-169	0.82	0.991
13C-1,2,3,7,8-PeCDF	2000	867.670	43		24-185	1.59	1.162
13C-2,3,4,7,8-PeCDF	2000	831.005	42		21-178	1.62	1.198
13C-1,2,3,4,7,8-HxCDF	2000	1000.157	50		26-152	0.51	0.969
13C-1,2,3,6,7,8-HxCDF	2000	1053.257	53		26-123	0.52	0.972
13C-1,2,3,7,8,9-HxCDF	2000	928.636	46		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1050.350	53		28-136	0.53	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	699.615	35		28-143	0.43	1.046
13C-1,2,3,4,7,8,9-HpCDF	2000	648.756	32		26-138	0.46	1.086
37Cl-2,3,7,8-TCDD	800	303.093	38		35-197	NA	1.025

Chromatograms and Selected Ion Monitoring

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Sample Response Summary

CLIENT ID.
SL0028

Run #10 Filename P519469 Samp: 1 Inj: 1 Acquired: 18-DEC-18 18:15:42
Processed: 19-DEC-18 14:32:36 Sample ID: E1801094-001

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:47	7.305e+02	9.195e+02	0.79	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	31:25	3.015e+02	2.209e+02	1.36	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	32:25	1.242e+03	7.866e+02	1.58	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:14	7.963e+02	7.150e+02	1.11	yes	yes	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:21	7.214e+02	6.154e+02	1.17	yes	yes	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:53	8.824e+02	7.359e+02	1.20	yes	yes	1.110
7	Unk	1,2,3,7,8,9-HxCDF	36:42	1.434e+02	8.825e+01	1.63	no	yes	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:01	5.816e+03	5.682e+03	1.02	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:26	1.851e+02	1.887e+02	0.98	yes	no	1.258
10	Unk	OCDF	42:02	1.795e+03	2.158e+03	0.83	yes	no	1.359
11	Unk	2,3,7,8-TCDD	27:41	7.654e+01	1.360e+02	0.56	no	no	1.085
12	Unk	1,2,3,7,8-PeCDD	32:42	3.007e+02	1.463e+02	2.06	no	yes	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:02	4.175e+02	3.388e+02	1.23	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:08	2.814e+03	2.220e+03	1.27	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:22	1.087e+03	8.062e+02	1.35	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:59	7.131e+04	6.866e+04	1.04	yes	no	1.025
17	Unk	OCDD	41:52	3.078e+05	3.451e+05	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	26:46	1.228e+04	1.553e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	31:24	1.962e+04	1.224e+04	1.60	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	32:23	1.842e+04	1.170e+04	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:13	7.351e+03	1.410e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:20	8.527e+03	1.674e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:52	7.379e+03	1.432e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	36:39	6.717e+03	1.312e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:01	4.642e+03	1.037e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:25	3.500e+03	8.082e+03	0.43	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	27:40	5.679e+03	7.287e+03	0.78	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:41	1.374e+04	8.428e+03	1.63	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:02	1.045e+04	8.179e+03	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:07	1.056e+04	8.301e+03	1.27	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:58	8.702e+03	8.390e+03	1.04	yes	no	0.858
32	IS	13C-OCDD	41:51	5.207e+03	5.813e+03	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:01	1.418e+04	1.765e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:22	1.686e+04	1.409e+04	1.20	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:41	8.528e+03				no	1.014

$$\text{OCDD} = \frac{(3.078e{+}05 + 3.451e{+}05) \times 4000\ \text{pg} \times 1}{(5.207e{+}03 + 5.813e{+}03) \times 10.175\ \text{g} \times 73.8 / 100 \times 1.118} = 28200\ \text{ng/kg}$$

kw 12/20/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0028

Run #10 Filename P519469 Samp: 1 Inj: 1 Acquired: 18-DEC-18 18:15:42
Processed: 19-DEC-18 14:32:36 LAB. ID: E1801094-001

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.14e+05	6.12e+02	1.9e+02	1.53e+05	1.93e+03	8.0e+01
2	1,2,3,7,8-PeCDF	5.84e+04	1.84e+04	3.2e+00	4.29e+04	5.48e+03	7.8e+00
3	2,3,4,7,8-PeCDF	1.59e+05	1.84e+04	8.6e+00	9.39e+04	5.48e+03	1.7e+01
4	1,2,3,4,7,8-HxCDF	1.64e+05	1.53e+03	1.1e+02	1.47e+05	4.97e+03	3.0e+01
5	1,2,3,6,7,8-HxCDF	1.41e+05	1.53e+03	9.2e+01	1.18e+05	4.97e+03	2.4e+01
6	2,3,4,6,7,8-HxCDF	1.88e+05	1.53e+03	1.2e+02	1.52e+05	4.97e+03	3.1e+01
7	1,2,3,7,8,9-HxCDF	2.48e+04	1.53e+03	1.6e+01	1.75e+04	4.97e+03	3.5e+00
8	1,2,3,4,6,7,8-HpCDF	1.13e+06	3.62e+03	3.1e+02	1.09e+06	3.02e+03	3.6e+02
9	1,2,3,4,7,8,9-HpCDF	3.06e+04	3.62e+03	8.5e+00	3.18e+04	3.02e+03	1.1e+01
10	OCDF	2.21e+05	3.40e+02	6.5e+02	2.81e+05	9.00e+02	3.1e+02
11	2,3,7,8-TCDD	1.50e+04	2.18e+03	6.8e+00	2.65e+04	9.00e+02	2.9e+01
12	1,2,3,7,8-PeCDD	5.62e+04	6.20e+02	9.1e+01	3.49e+04	4.64e+02	7.5e+01
13	1,2,3,4,7,8-HxCDD	9.47e+04	2.28e+02	4.2e+02	6.93e+04	3.09e+03	2.2e+01
14	1,2,3,6,7,8-HxCDD	5.54e+05	2.28e+02	2.4e+03	4.33e+05	3.09e+03	1.4e+02
15	1,2,3,7,8,9-HxCDD	1.84e+05	2.28e+02	8.1e+02	1.46e+05	3.09e+03	4.7e+01
16	1,2,3,4,6,7,8-HpCDD	1.25e+07	5.36e+02	2.3e+04	1.20e+07	3.88e+02	3.1e+04
17	OCDD	3.92e+07	3.44e+02	1.1e+05	4.36e+07	4.68e+02	9.3e+04
18	13C-2,3,7,8-TCDF	1.98e+06	7.01e+03	2.8e+02	2.49e+06	3.76e+03	6.6e+02
19	13C-1,2,3,7,8-PeCDF	3.46e+06	3.96e+02	8.7e+03	2.14e+06	4.00e+02	5.4e+03
20	13C-2,3,4,7,8-PeCDF	3.37e+06	3.96e+02	8.5e+03	2.12e+06	4.00e+02	5.3e+03
21	13C-1,2,3,4,7,8-HxCDF	1.48e+06	5.56e+02	2.7e+03	2.87e+06	8.52e+02	3.4e+03
22	13C-1,2,3,6,7,8-HxCDF	1.58e+06	5.56e+02	2.8e+03	3.22e+06	8.52e+02	3.8e+03
23	13C-2,3,4,6,7,8-HxCDF	1.48e+06	5.56e+02	2.7e+03	2.91e+06	8.52e+02	3.4e+03
24	13C-1,2,3,7,8,9-HxCDF	1.28e+06	5.56e+02	2.3e+03	2.48e+06	8.52e+02	2.9e+03
25	13C-1,2,3,4,6,7,8-HpCDF	9.03e+05	2.04e+03	4.4e+02	1.92e+06	2.98e+03	6.4e+02
26	13C-1,2,3,4,7,8,9-HpCDF	5.93e+05	2.04e+03	2.9e+02	1.33e+06	2.98e+03	4.5e+02
27	13C-2,3,7,8-TCDD	9.87e+05	3.89e+03	2.5e+02	1.27e+06	1.88e+03	6.7e+02
28	13C-1,2,3,7,8-PeCDD	2.48e+06	5.76e+02	4.3e+03	1.53e+06	7.12e+02	2.1e+03
29	13C-1,2,3,4,7,8-HxCDD	2.18e+06	6.96e+02	3.1e+03	1.75e+06	5.28e+02	3.3e+03
30	13C-1,2,3,6,7,8-HxCDD	1.99e+06	6.96e+02	2.9e+03	1.56e+06	5.28e+02	3.0e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.53e+06	2.92e+02	5.2e+03	1.43e+06	3.28e+02	4.4e+03
32	13C-OCDD	6.86e+05	7.24e+02	9.5e+02	7.24e+05	5.56e+02	1.3e+03
33	13C-1,2,3,4-TCDD	2.41e+06	3.89e+03	6.2e+02	2.98e+06	1.88e+03	1.6e+03
34	13C-1,2,3,7,8,9-HxCDD	3.22e+06	6.96e+02	4.6e+03	2.56e+06	5.28e+02	4.8e+03
35	37Cl-2,3,7,8-TCDD	1.47e+06	1.19e+03	1.2e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (2.184e{+}03 + 9.000e{+}02) \times 2000}{(9.865e{+}05 + 1.266e{+}06) \times (\quad) \times 1.085} =$$

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0028

Entry: 36 Totals Name: Total Tetra-Furans

Run: 10 File: P519469 Sample:1 Injection:1 Function:1

Acquired: 18-DEC-18 18:15:42 Processed: 19-DEC-18 14:32:36

Mass: 303.9020 305.8990 Tot Response: 1.09e+04 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	22:36	1.98e+02	2.59e+02	0.77	yes	4.57e+02		n	n
2	23:05	7.20e+02	9.59e+02	0.75	yes	1.68e+03		n	n
3	23:32	5.27e+02	7.20e+02	0.73	yes	1.25e+03		n	n
4	23:52	5.79e+02	7.25e+02	0.80	yes	1.30e+03		n	n
5	24:58	8.27e+01	1.24e+02	0.67	yes	2.07e+02		n	n
6	25:13	6.13e+02	8.11e+02	0.76	yes	1.42e+03		n	n
7	25:23	2.02e+02	2.91e+02	0.69	yes	4.93e+02		n	n
8	25:51	3.41e+02	4.59e+02	0.74	yes	8.00e+02		n	n
9	26:34	1.27e+02	1.75e+02	0.73	yes	3.02e+02		n	n
10	26:47	7.31e+02	9.19e+02	0.79	yes	1.65e+03	2,3,7,8-TCDF	n	n
11	27:09	5.17e+02	6.57e+02	0.79	yes	1.17e+03		n	n
12	28:16	5.68e+01	7.15e+01	0.79	yes	1.28e+02		n	n
13	28:27	2.01e+01	2.83e+01	0.71	yes	4.84e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0028

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 10 File: P519469 Sample:1 Injection:1 Function:1

Acquired: 18-DEC-18 18:15:42 Processed: 19-DEC-18 14:32:36

Mass: 319.8970 321.8940 Tot Response: 1.50e+03 RRF: 1.085

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	23:52	3.57e+02	4.42e+02	0.81	yes	8.00e+02	n	n
2	24:14	9.55e+01	1.31e+02	0.73	yes	2.26e+02	n	n
3	24:39	7.81e+01	9.38e+01	0.83	yes	1.72e+02	n	n
4	27:24	4.94e+01	5.77e+01	0.86	yes	1.07e+02	n	n
5	28:00	4.62e+01	5.85e+01	0.79	yes	1.05e+02	n	n
6	28:06	1.98e+01	2.24e+01	0.88	yes	4.22e+01	n	n
7	28:40	1.92e+01	2.41e+01	0.80	yes	4.33e+01	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0028

Entry: 38 Totals Name: Total Penta-Furans1

Run: 10 File: P519469 Sample:1 Injection:1 Function:1

Acquired: 18-DEC-18 18:15:42 Processed: 19-DEC-18 14:32:36

Mass: 339.8600 341.8570 Tot Response: 8.21e+03 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	28:49	5.02e+03	3.18e+03 1.58	yes	8.21e+03		n	n

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Peak List Summary

CLIENT ID.
SL0028

Entry: 39 Totals Name: Total Penta-Furans2

Run: 10 File: P519469 Sample:1 Injection:1 Function:2

Acquired: 18-DEC-18 18:15:42 Processed: 19-DEC-18 14:32:36

Mass: 339.8600 341.8570 Tot Response: 1.16e+04 RRF: 0.9857

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:17	7.97e+02	6.03e+02	1.32	yes	1.40e+03		n	n
2	30:25	3.13e+03	2.25e+03	1.39	yes	5.38e+03		n	n
3	31:00	1.09e+03	7.61e+02	1.43	yes	1.85e+03		n	n
4	31:25	3.01e+02	2.21e+02	1.36	yes	5.22e+02	1,2,3,7,8-PeCDF	n	n
5	32:17	2.61e+02	1.77e+02	1.47	yes	4.38e+02		n	n
6	32:25	1.24e+03	7.87e+02	1.58	yes	2.03e+03	2,3,4,7,8-PeCDF	n	n

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Peak List Summary

CLIENT ID.
SL0028

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 10 File: P519469 Sample:1 Injection:1 Function:2

Acquired: 18-DEC-18 18:15:42 Processed: 19-DEC-18 14:32:36

Mass: 355.8550 357.8520 Tot Response: 8.60e+03 RRF: 0.9565

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:27	1.19e+03	7.58e+02 1.57	yes	1.95e+03		n	n
2	30:57	1.45e+03	1.04e+03 1.40	yes	2.49e+03		n	n
3	31:27	4.37e+02	2.83e+02 1.54	yes	7.20e+02		n	n
4	31:37	4.28e+02	2.51e+02 1.70	yes	6.79e+02		n	n
5	31:43	2.12e+02	1.54e+02 1.38	yes	3.66e+02		n	n
6	31:56	5.65e+02	3.64e+02 1.55	yes	9.30e+02		n	n
7	32:04	3.44e+00	2.05e+00 1.68	yes	5.50e+00		n	n
8	32:16	7.10e+02	4.74e+02 1.50	yes	1.18e+03		n	n
9	32:47	8.03e+01	5.39e+01 1.49	yes	1.34e+02		n	n
10	33:05	9.24e+01	5.59e+01 1.65	yes	1.48e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0028

Entry: 41 Totals Name: Total Hexa-Furans

Run: 10 File: P519469 Sample:1 Injection:1 Function:3

Acquired: 18-DEC-18 18:15:42 Processed: 19-DEC-18 14:32:36

Mass: 373.8210 375.8180 Tot Response: 2.84e+04 RRF: 1.141

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:04	1.09e+03	9.31e+02	1.17	yes	2.03e+03		n	n
2	34:14	5.65e+03	4.66e+03	1.21	yes	1.03e+04		n	n
3	34:36	2.91e+02	2.25e+02	1.29	yes	5.16e+02		y	y
4	34:47	5.84e+03	4.77e+03	1.22	yes	1.06e+04		n	n
5	35:08	2.93e+02	2.34e+02	1.25	yes	5.27e+02		y	y
6	35:14	7.96e+02	7.15e+02	1.11	yes	1.51e+03	1,2,3,4,7,8-HxCDF	y	y
7	35:21	7.21e+02	6.15e+02	1.17	yes	1.34e+03	1,2,3,6,7,8-HxCDF	y	y
8	35:53	8.82e+02	7.36e+02	1.20	yes	1.62e+03	2,3,4,6,7,8-HxCDF	n	y

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0028

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 10 File: P519469 Sample:1 Injection:1 Function:3

Acquired: 18-DEC-18 18:15:42 Processed: 19-DEC-18 14:32:36

Mass: 389.8160 391.8130 Tot Response: 5.94e+04 RRF: 1.047

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:38	1.19e+04	9.50e+03	1.25	yes	2.14e+04		n	n
2	35:10	1.35e+03	1.11e+03	1.21	yes	2.46e+03		n	n
3	35:25	1.39e+04	1.10e+04	1.27	yes	2.48e+04		n	n
4	35:32	1.27e+03	1.20e+03	1.06	yes	2.46e+03		n	n
5	36:02	4.18e+02	3.39e+02	1.23	yes	7.56e+02	1,2,3,4,7,8-HxCDD	n	n
6	36:08	2.81e+03	2.22e+03	1.27	yes	5.03e+03	1,2,3,6,7,8-HxCDD	n	n
7	36:18	3.23e+02	2.57e+02	1.26	yes	5.80e+02		n	n
8	36:22	1.09e+03	8.06e+02	1.35	yes	1.89e+03	1,2,3,7,8,9-HxCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0028

Entry: 43 Totals Name: Total Hepta-Furans

Run: 10 File: P519469 Sample:1 Injection:1 Function:4

Acquired: 18-DEC-18 18:15:42 Processed: 19-DEC-18 14:32:36

Mass: 407.7820 409.7790 Tot Response: 2.51e+04 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:01	5.82e+03	5.68e+03 1.02	yes	1.15e+04	1,2,3,4,6,7,8-HpCDF	n	n
2	38:26	6.65e+03	6.57e+03 1.01	yes	1.32e+04		n	n
3	39:26	1.85e+02	1.89e+02 0.98	yes	3.74e+02	1,2,3,4,7,8,9-HpCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0028

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 10 File: P519469 Sample:1 Injection:1 Function:4

Acquired: 18-DEC-18 18:15:42 Processed: 19-DEC-18 14:32:36

Mass: 423.7770 425.7740 Tot Response: 3.17e+05 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:18	9.02e+04	8.71e+04 1.03	yes	1.77e+05		n	n
2	38:59	7.13e+04	6.87e+04 1.04	yes	1.40e+05	1,2,3,4,6,7,8-HpCDD	n	n

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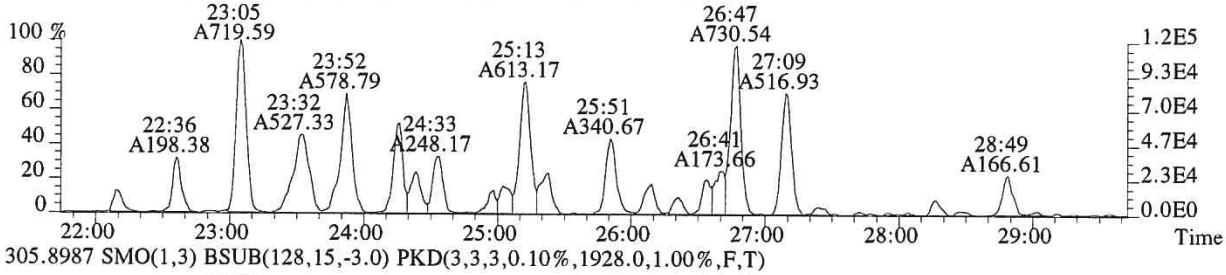
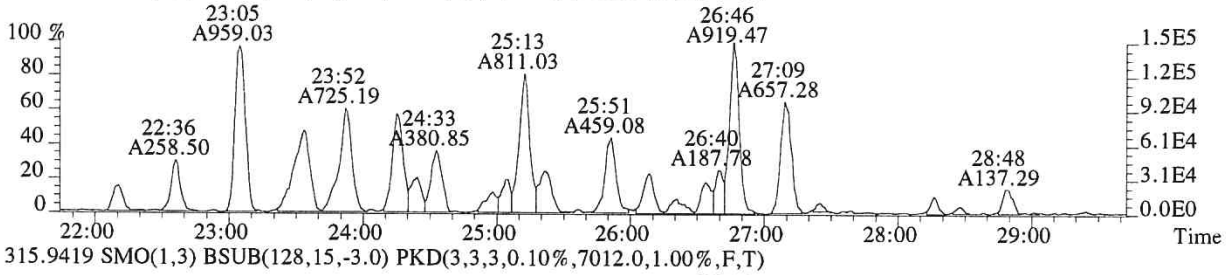
File:P519469 #1-566 Acq:18-DEC-2018 18:15:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-001

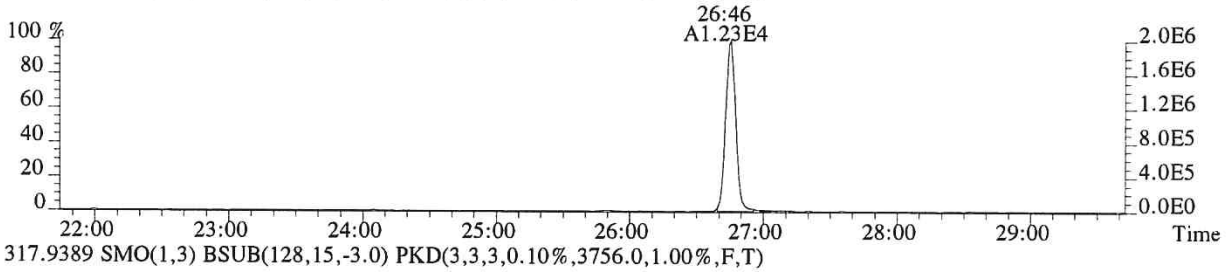
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,612.0,1.00%,F,T)



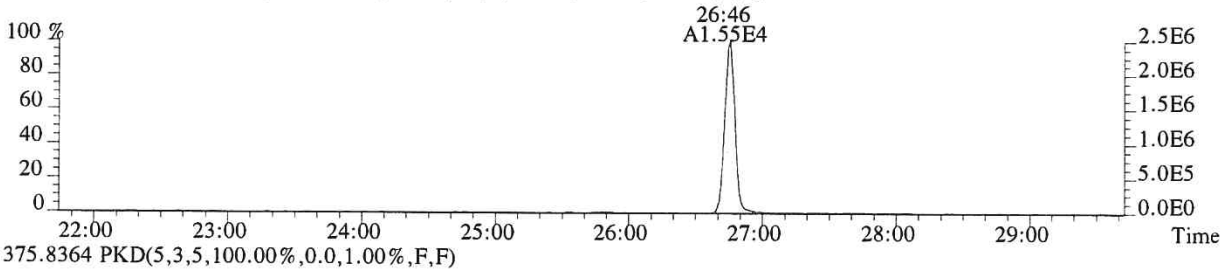
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1928.0,1.00%,F,T)



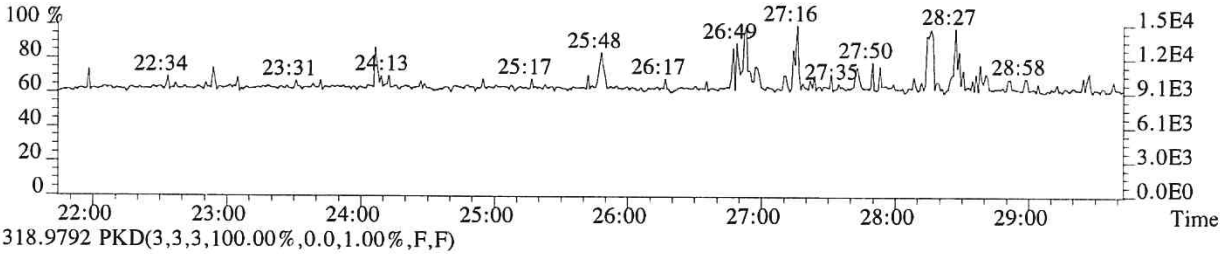
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7012.0,1.00%,F,T)



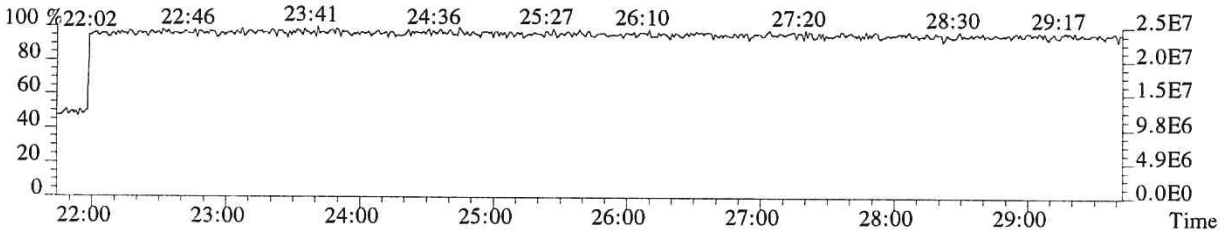
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3756.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



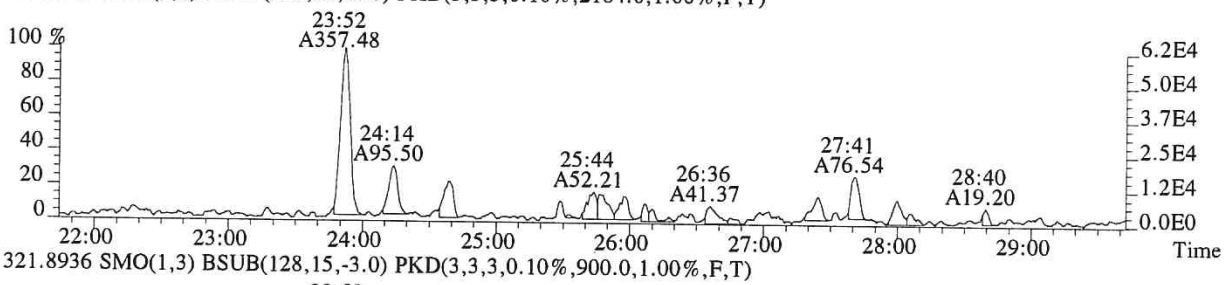
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



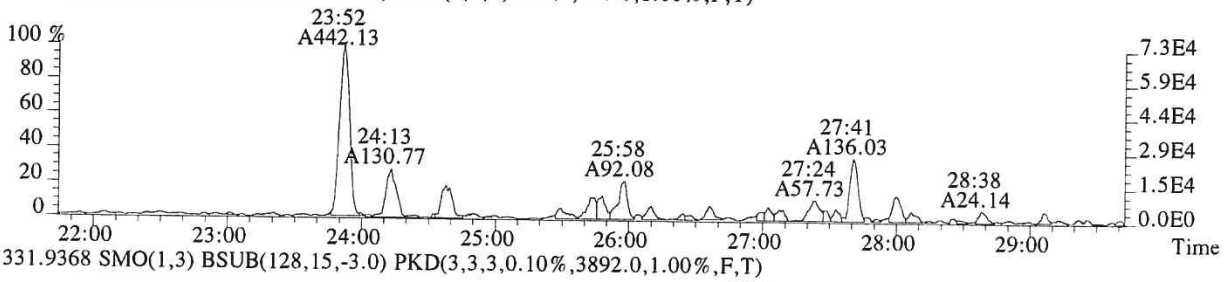
015163

File:P519469 #1-566 Acq:18-DEC-2018 18:15:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-001

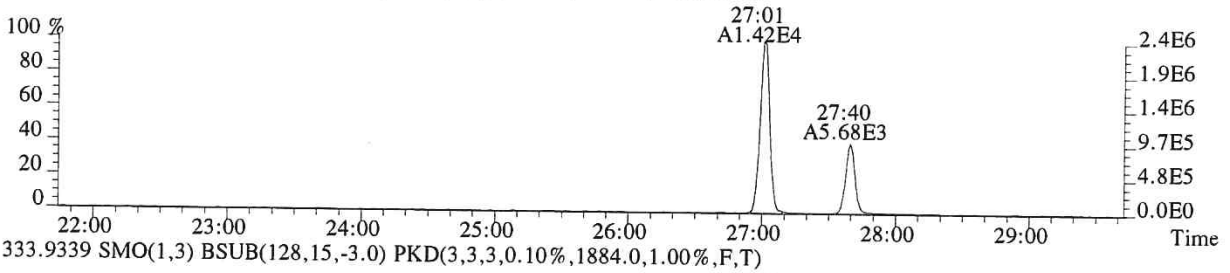
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2184.0,1.00%,F,T)



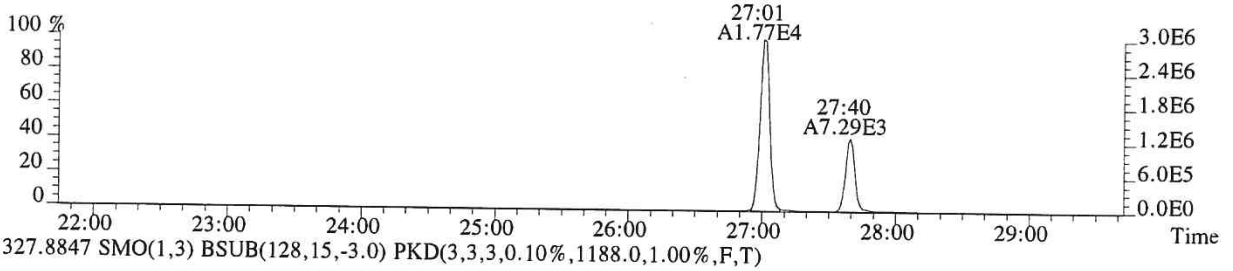
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,900.0,1.00%,F,T)



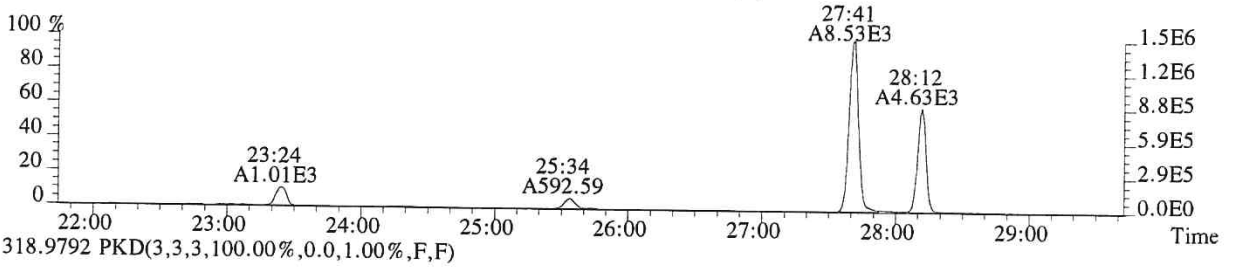
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3892.0,1.00%,F,T)



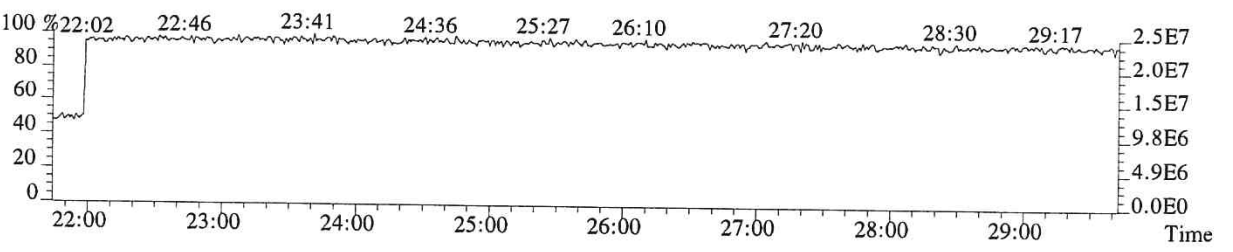
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1884.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1188.0,1.00%,F,T)

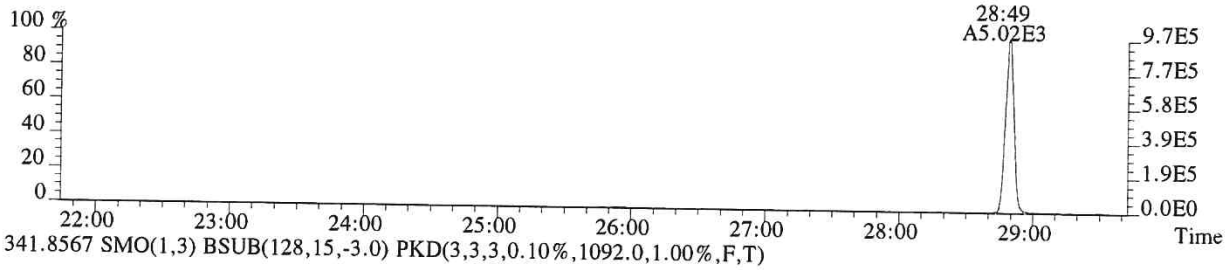


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

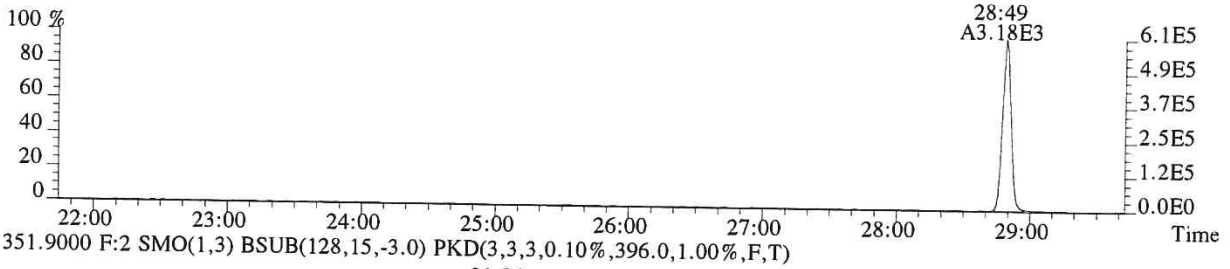


015164

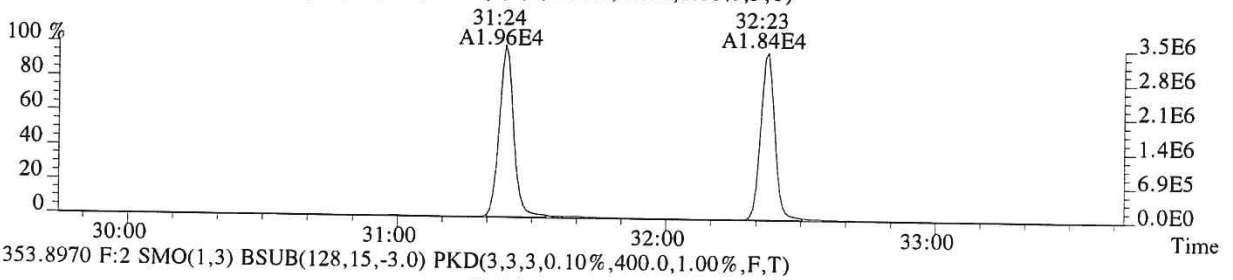
File:P519469 #1-566 Acq:18-DEC-2018 18:15:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-001
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,480.0,1.00%,F,T)



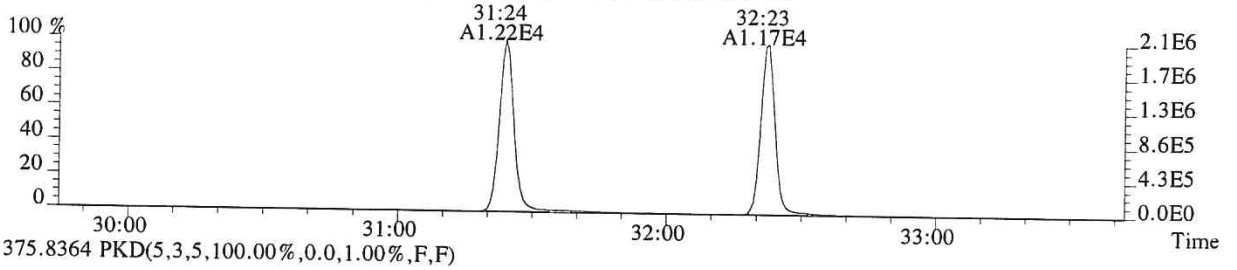
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1092.0,1.00%,F,T)



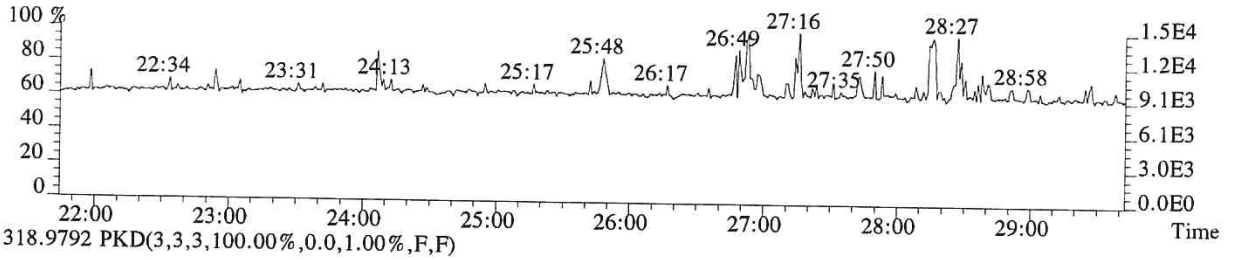
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,396.0,1.00%,F,T)



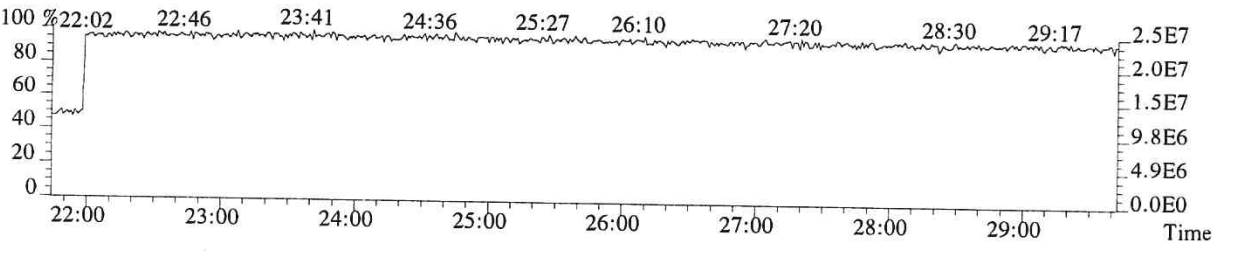
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,400.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



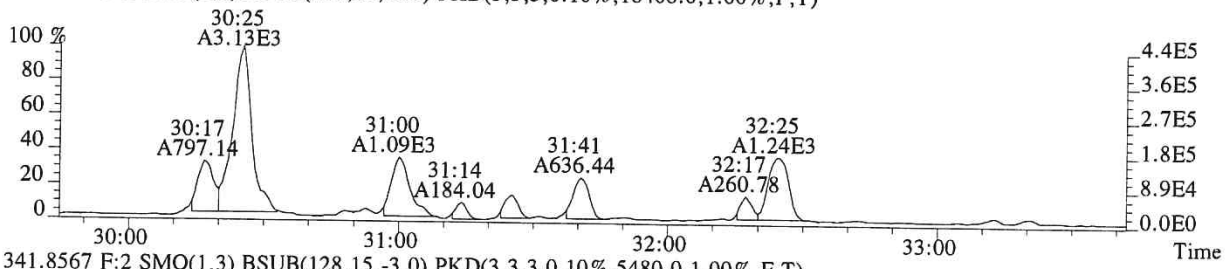
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



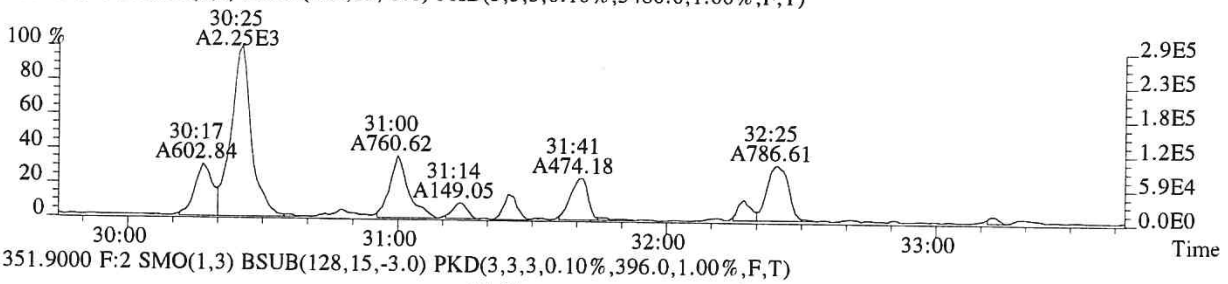
015165

File:P519469 #1-357 Acq:18-DEC-2018 18:15:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-001

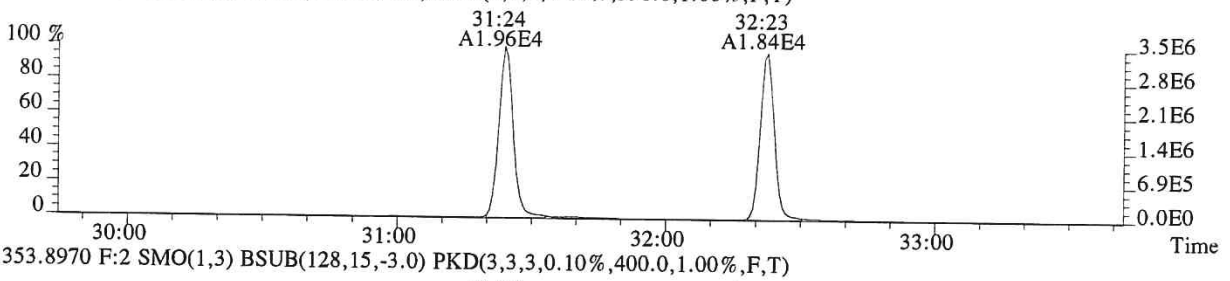
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,18408.0,1.00%,F,T)



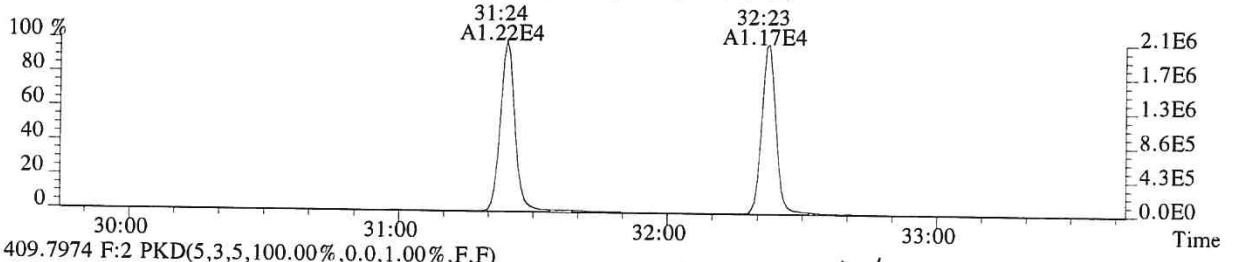
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5480.0,1.00%,F,T)



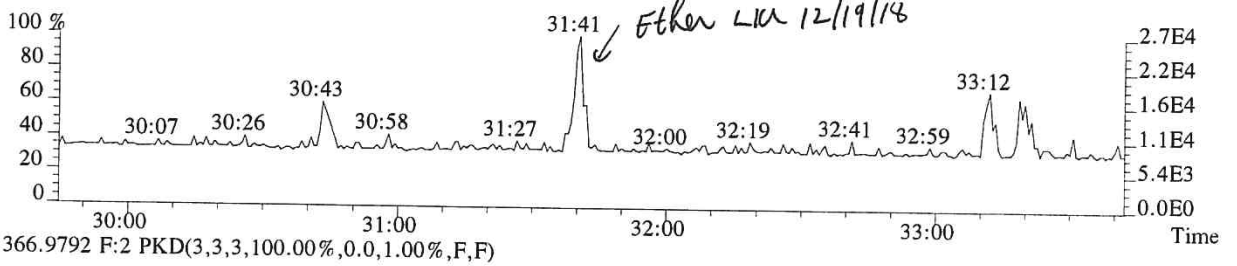
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,396.0,1.00%,F,T)



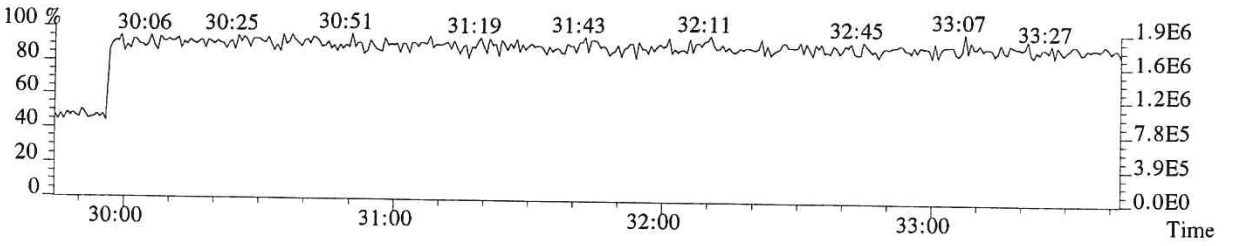
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,400.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

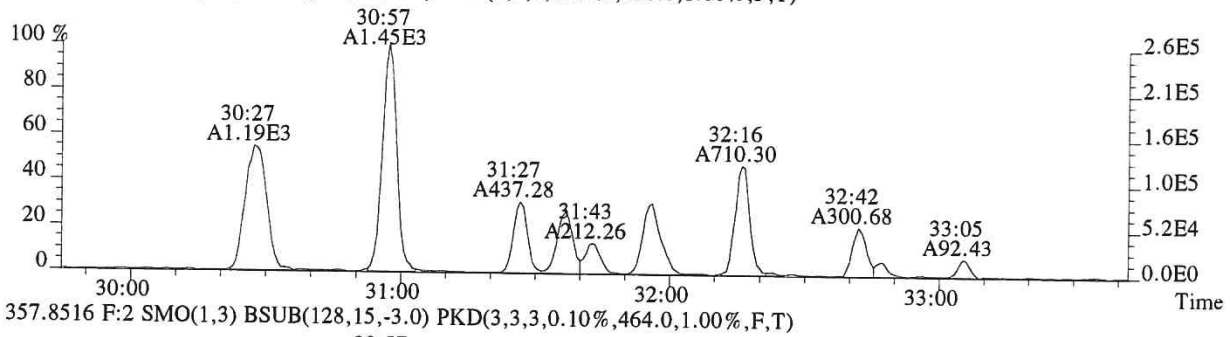


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

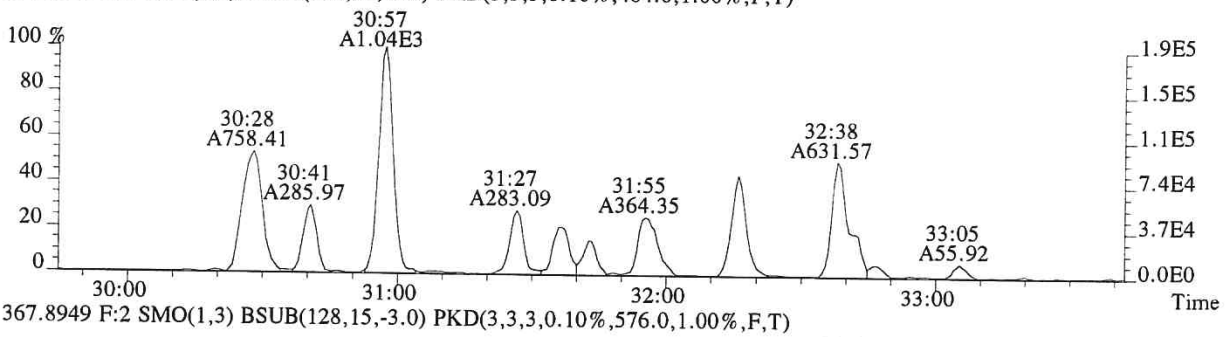


015166

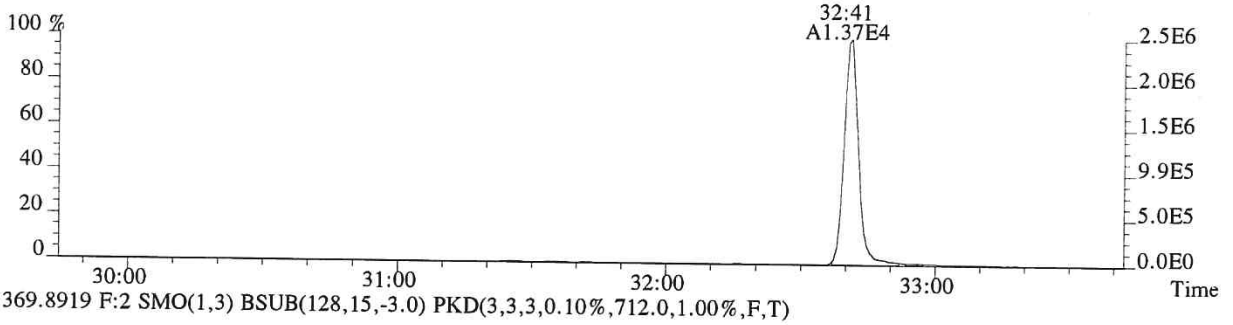
File:P519469 #1-357 Acq:18-DEC-2018 18:15:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-001
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,620.0,1.00%,F,T)



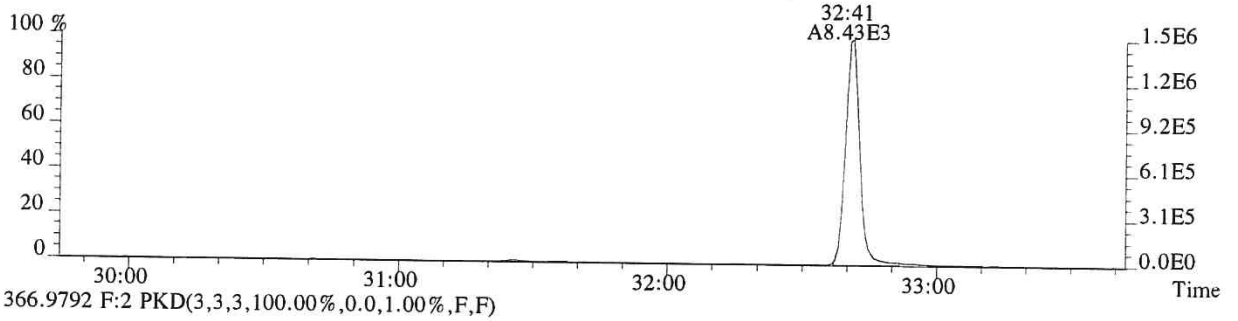
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,464.0,1.00%,F,T)



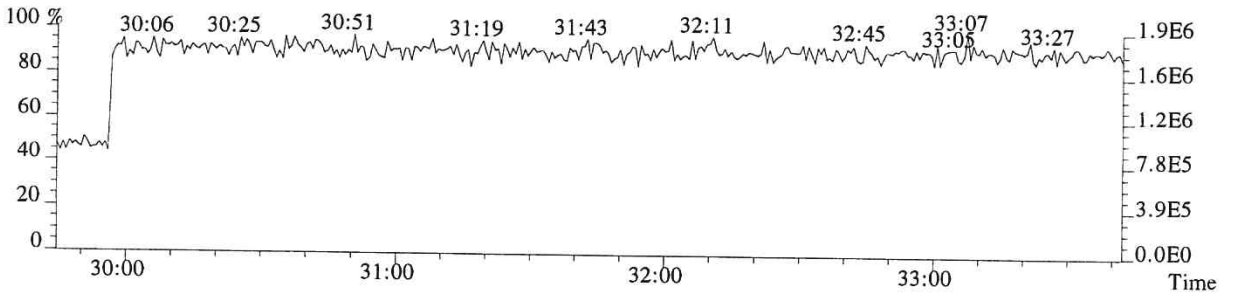
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,576.0,1.00%,F,T)



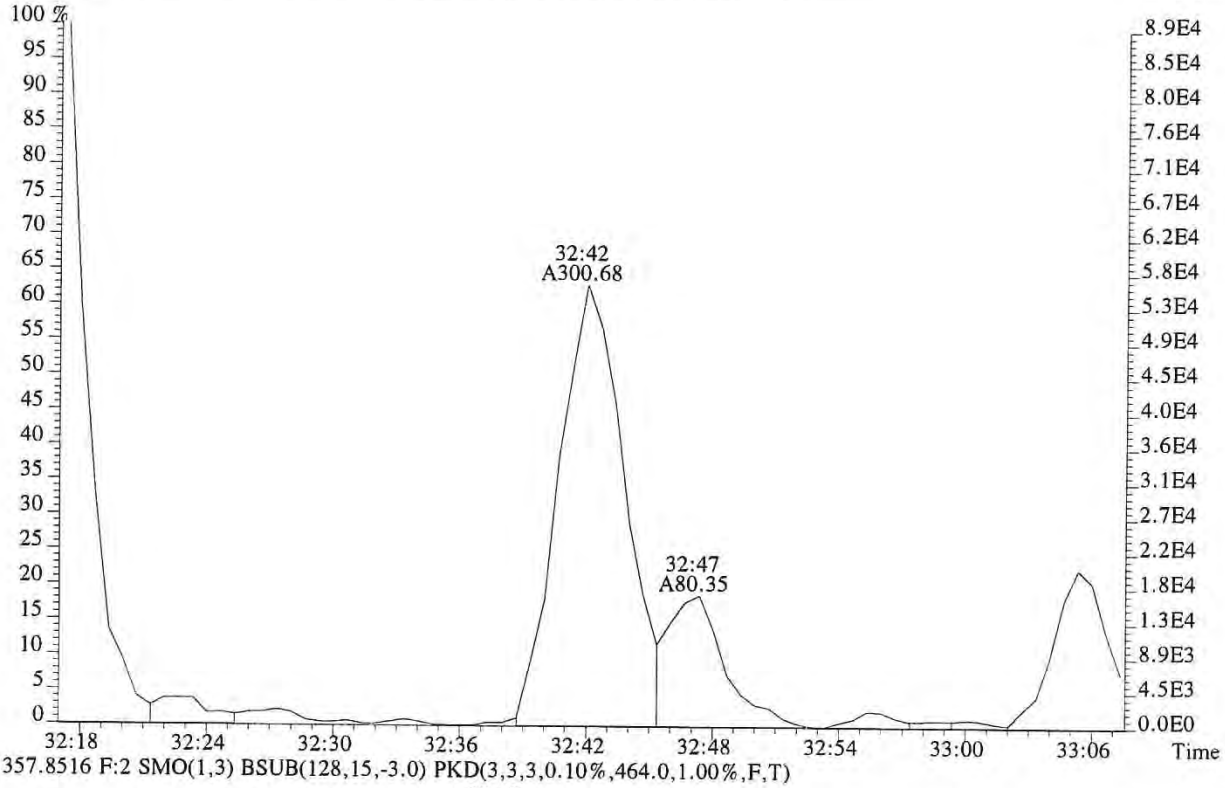
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



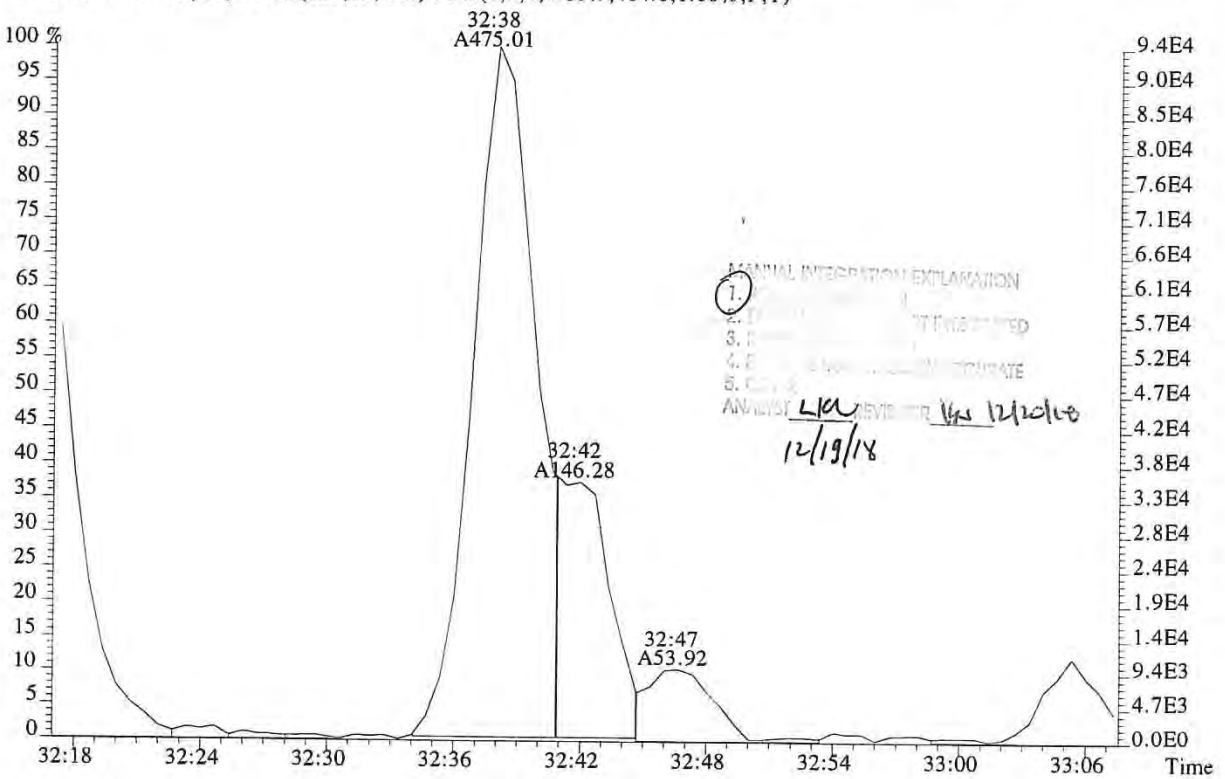
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P519469 #1-357 Acq:18-DEC-2018 18:15:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-001
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,620.0,1.00%,F,T)

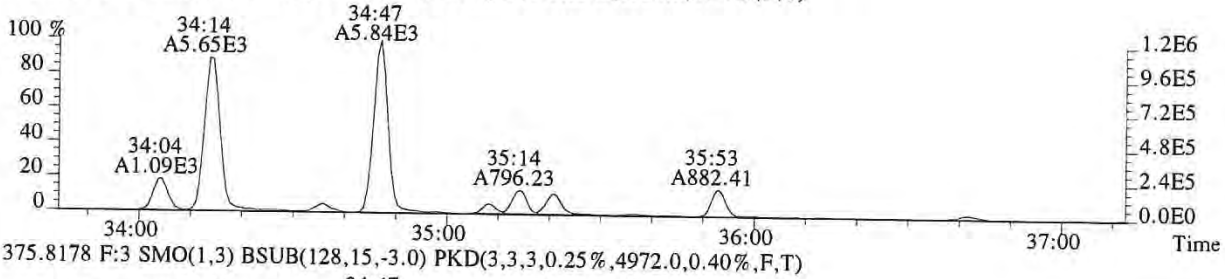


357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,464.0,1.00%,F,T)

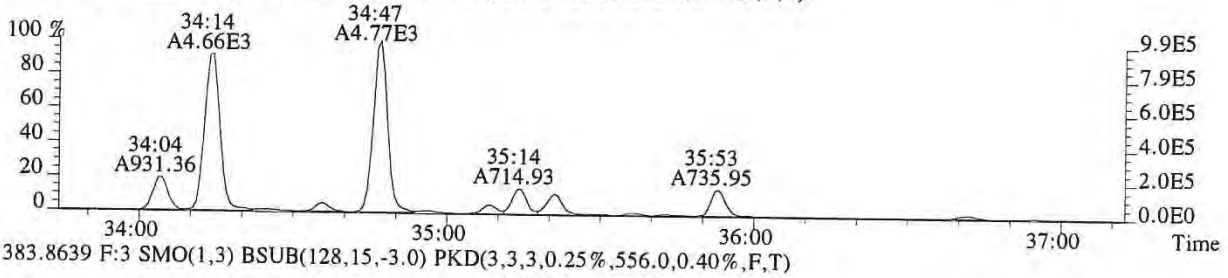


MANUAL INTEGRATION EXPLANATION
1.
ANALYST LKW REVIEWER VK 12/20/18
12/19/18

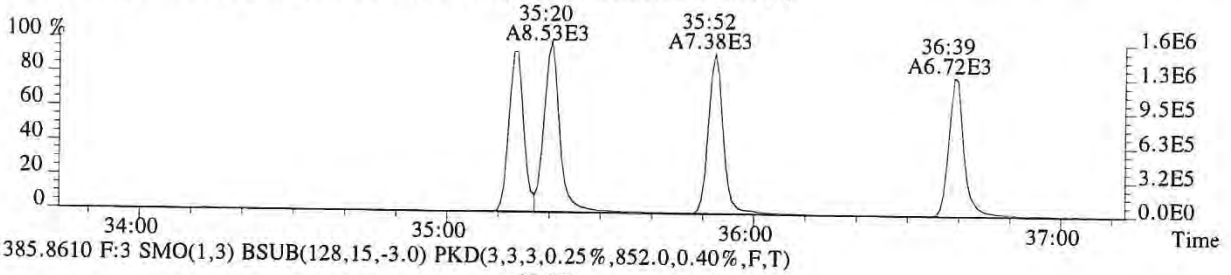
File:P519469 #1-313 Acq:18-DEC-2018 18:15:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-001
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1528.0,0.40%,F,T)



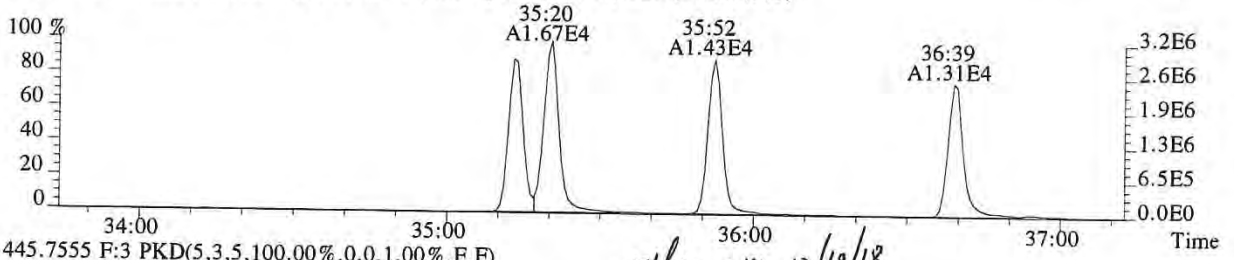
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4972.0,0.40%,F,T)



383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,556.0,0.40%,F,T)

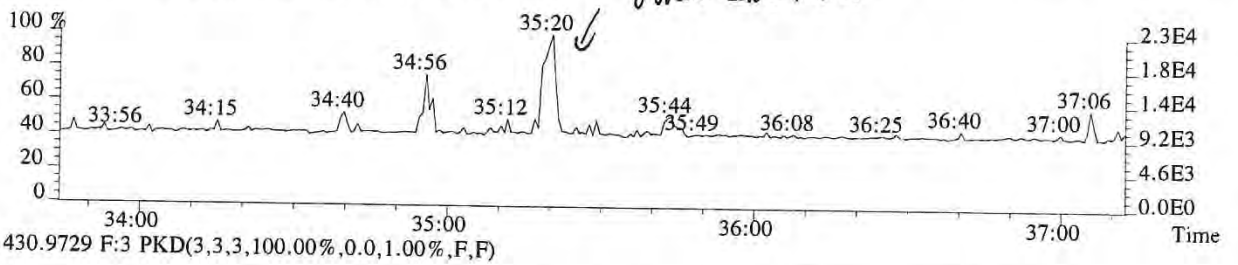


385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,852.0,0.40%,F,T)

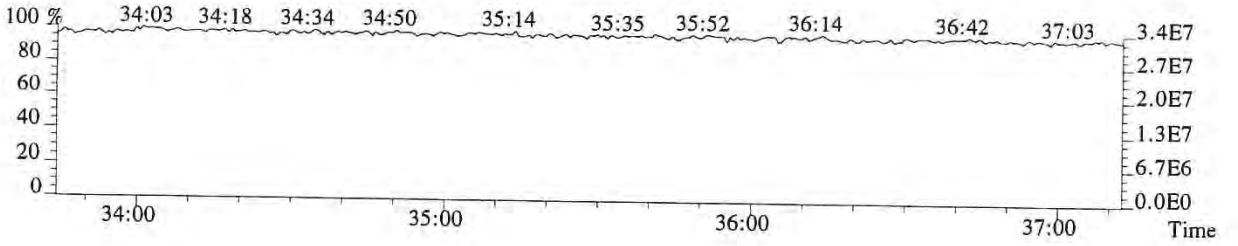


445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

Ether LIA 12/19/18

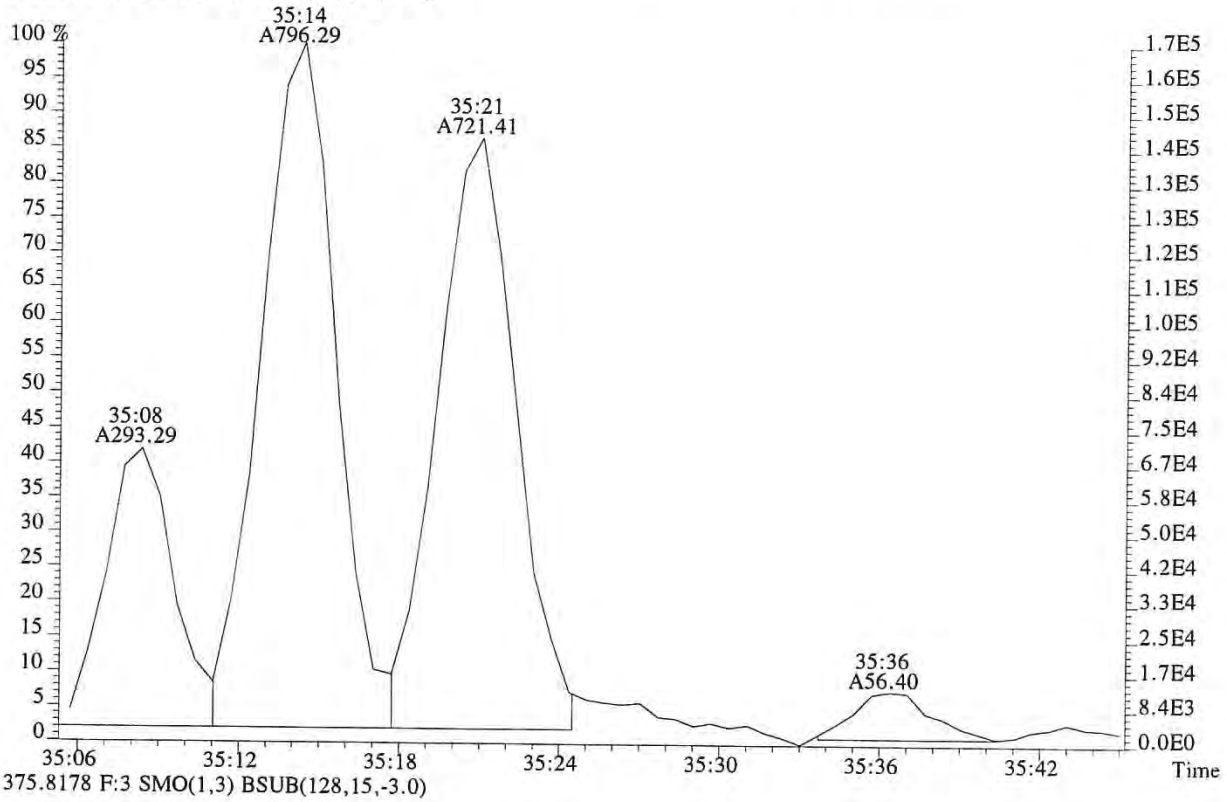


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

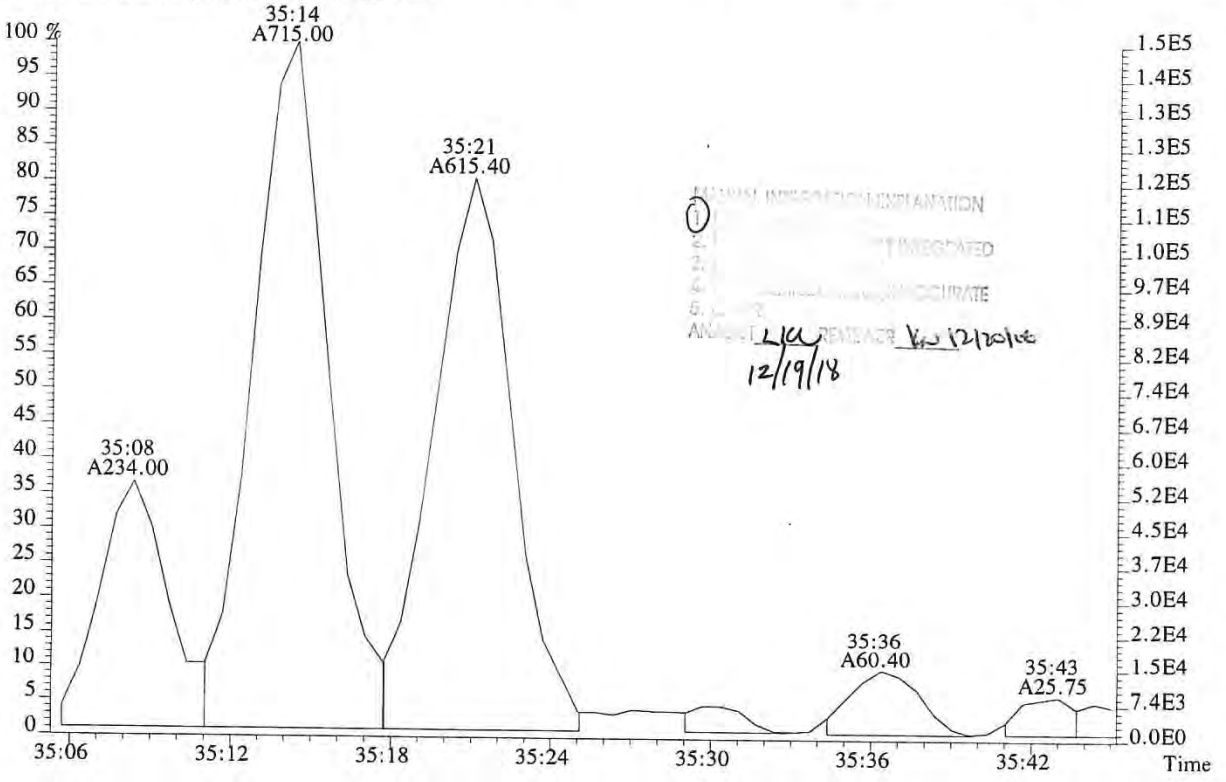


015169

File:P519469 #1-313 Acq:18-DEC-2018 18:15:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-001
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0)



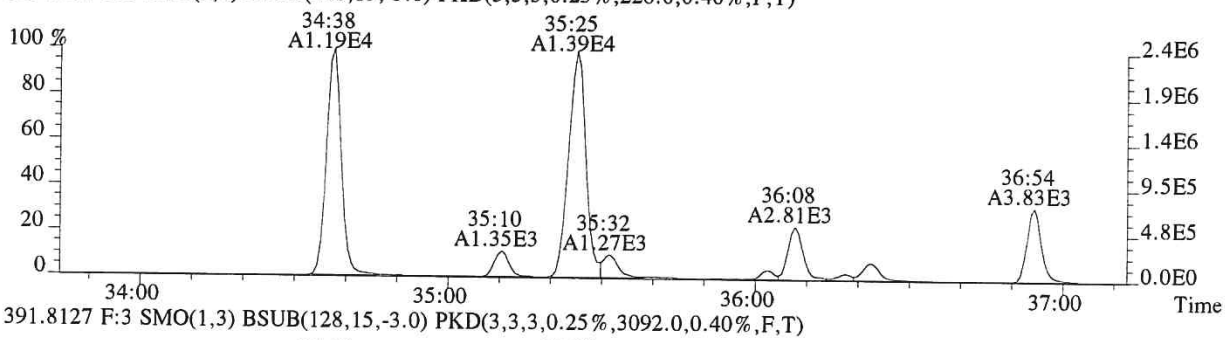
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0)



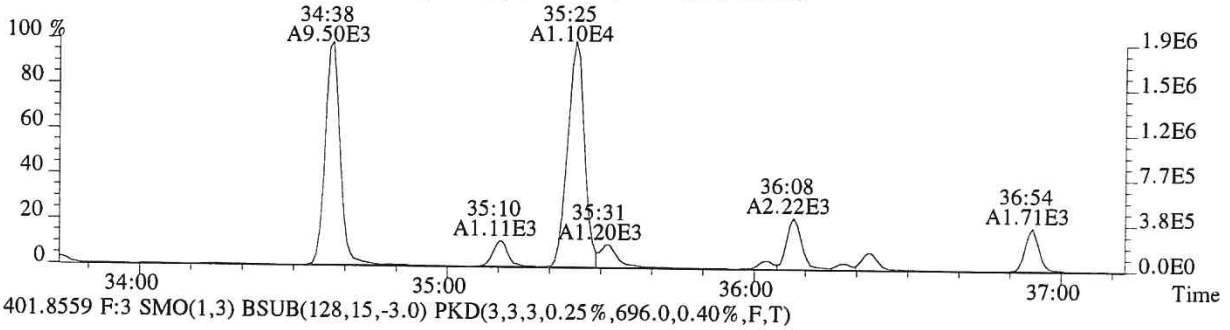
12/19/18

File:P519469 #1-313 Acq:18-DEC-2018 18:15:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-001

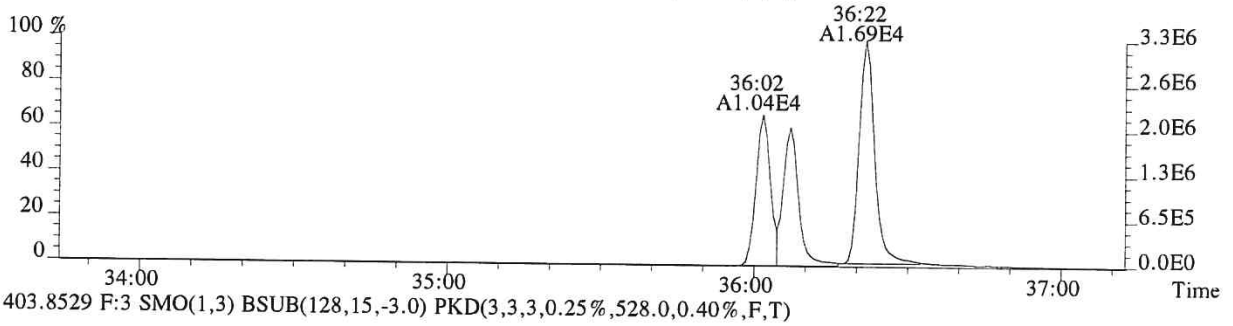
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,228.0,0.40%,F,T)



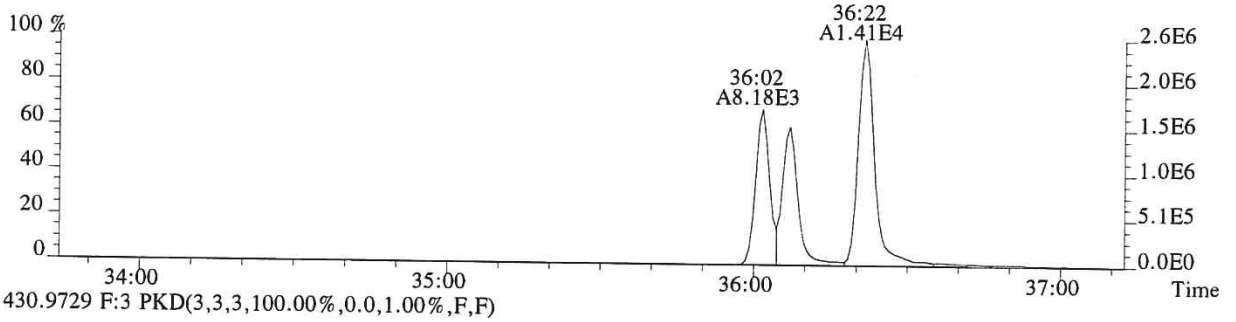
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3092.0,0.40%,F,T)



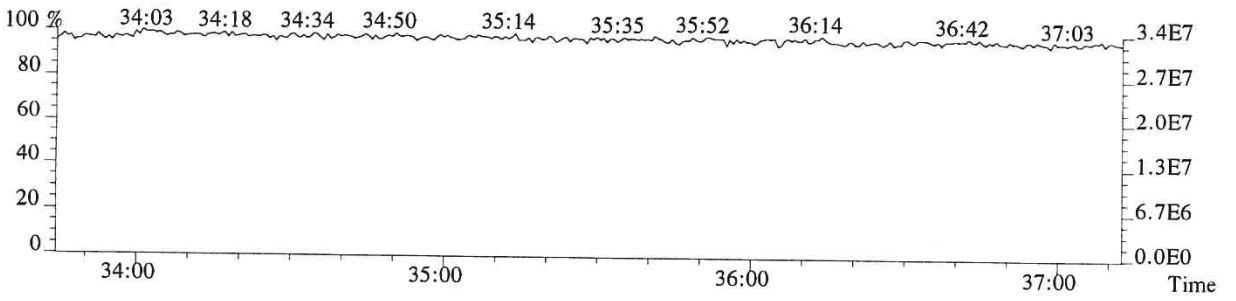
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,696.0,0.40%,F,T)



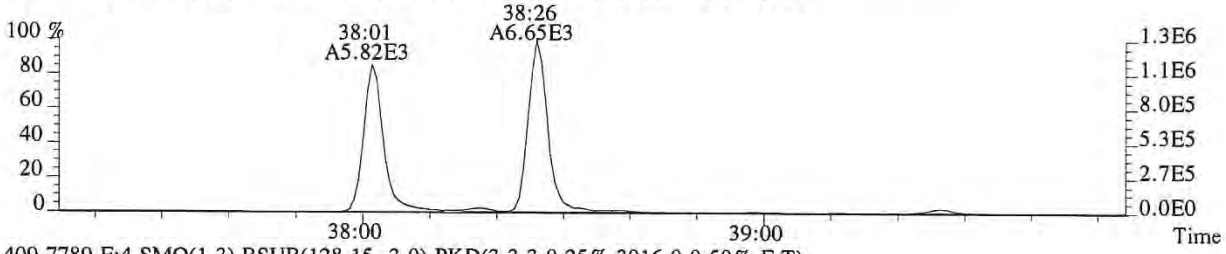
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,528.0,0.40%,F,T)



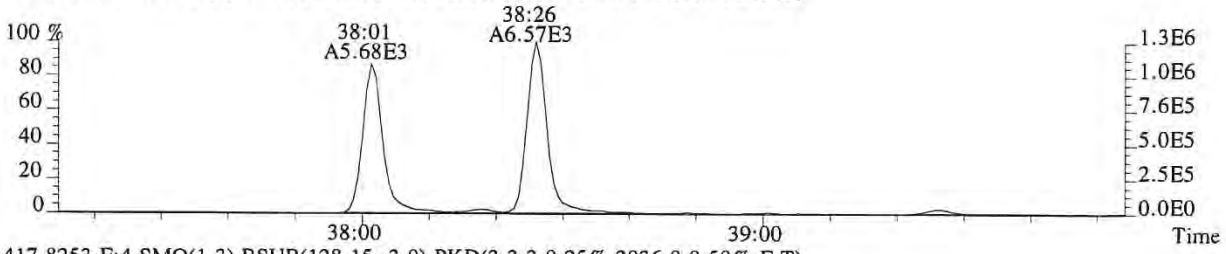
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



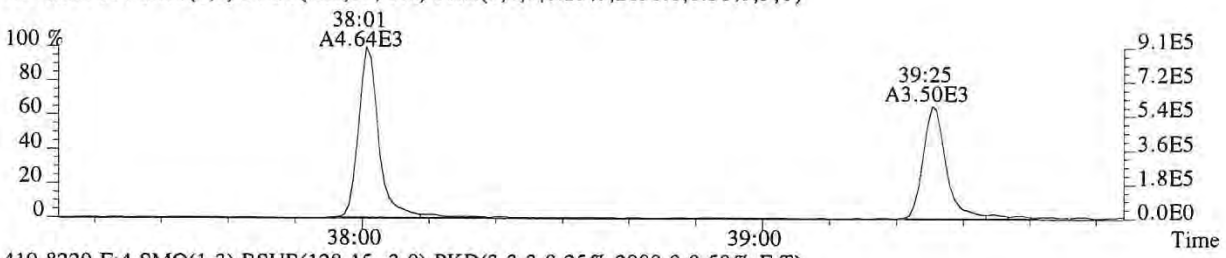
File:P519469 #1-240 Acq:18-DEC-2018 18:15:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-001
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3616.0,0.50%,F,T)



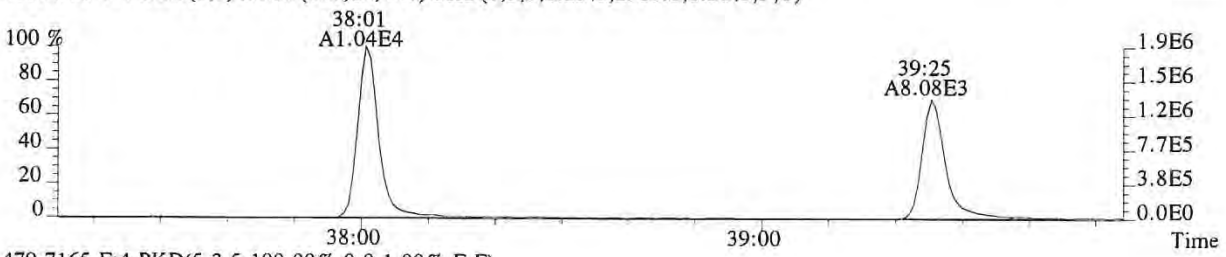
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3016.0,0.50%,F,T)



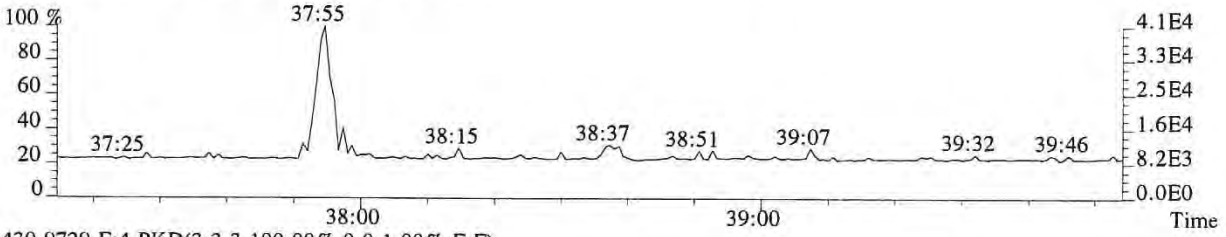
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2036.0,0.50%,F,T)



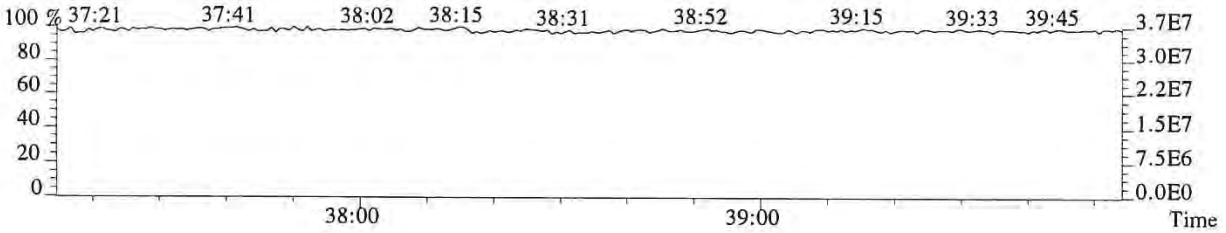
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2980.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

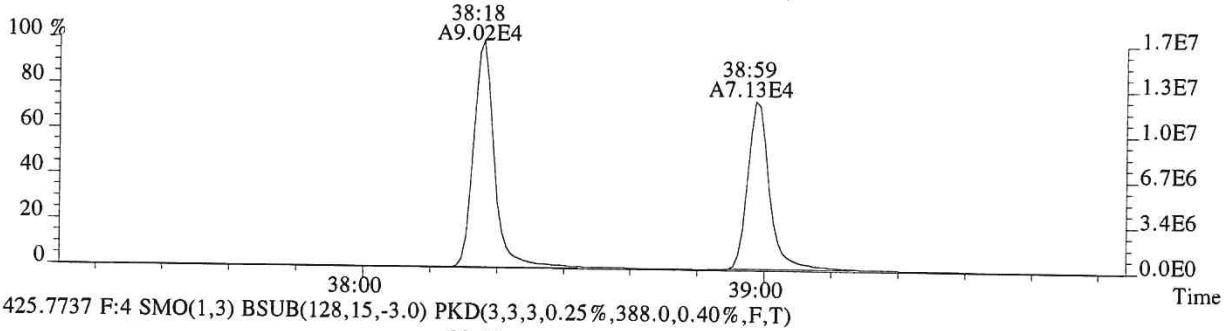


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

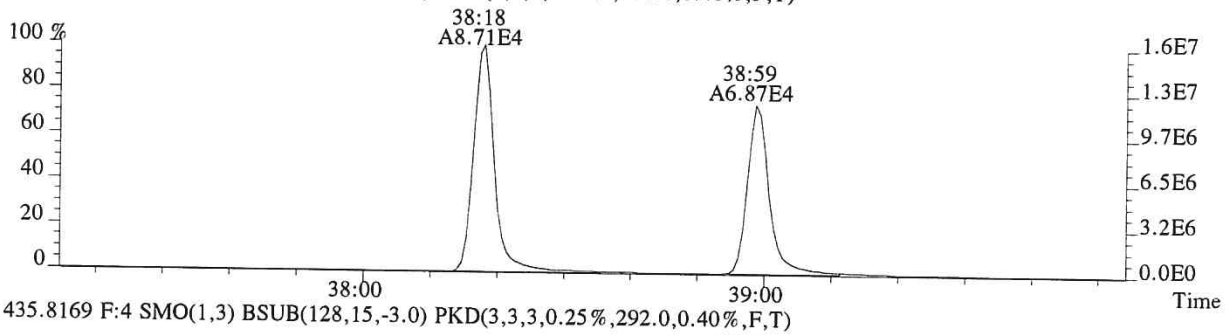


015172

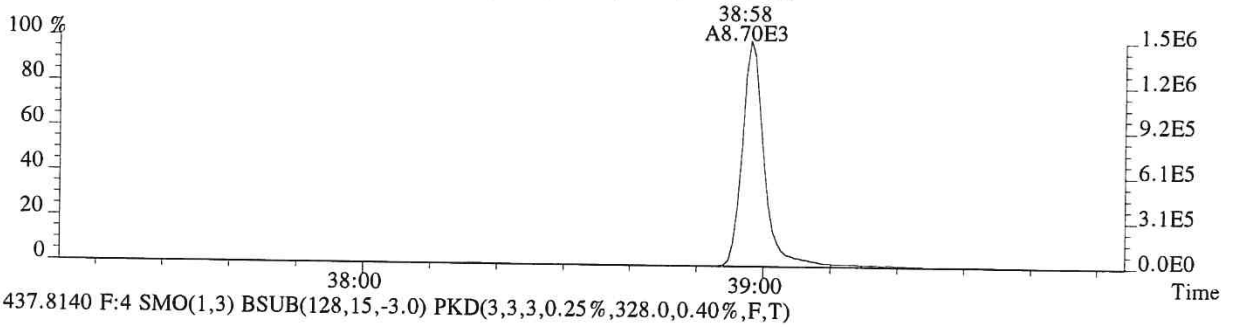
File:P519469 #1-240 Acq:18-DEC-2018 18:15:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-001
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,536.0,0.40%,F,T)



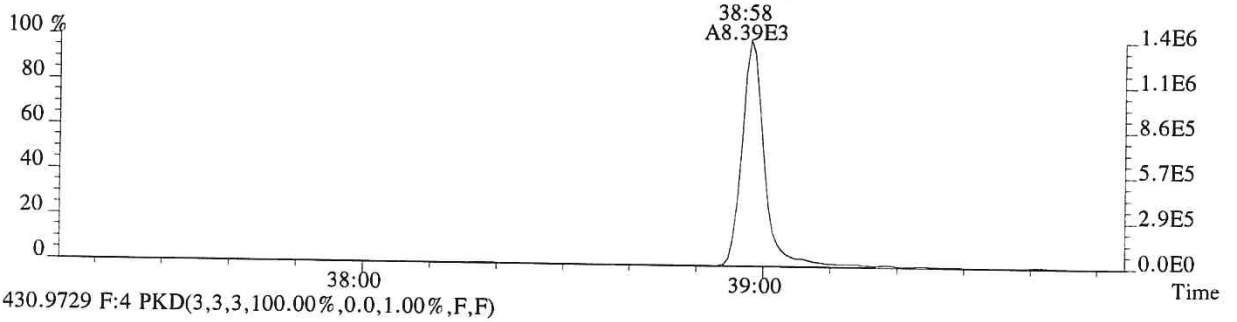
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,388.0,0.40%,F,T)



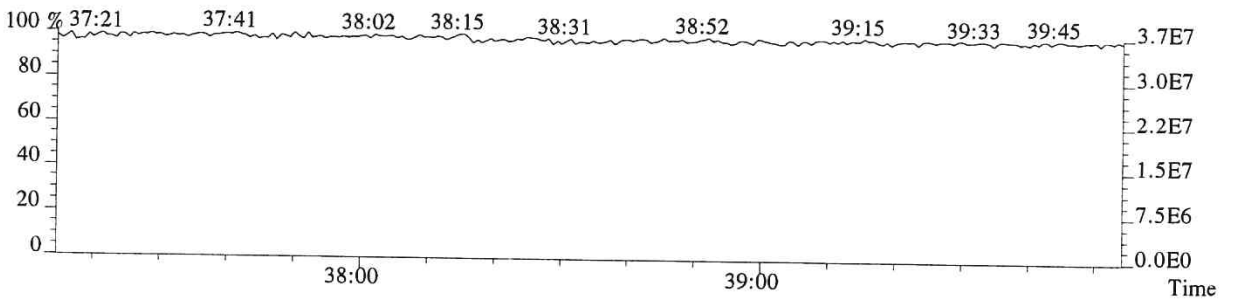
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,292.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,328.0,0.40%,F,T)

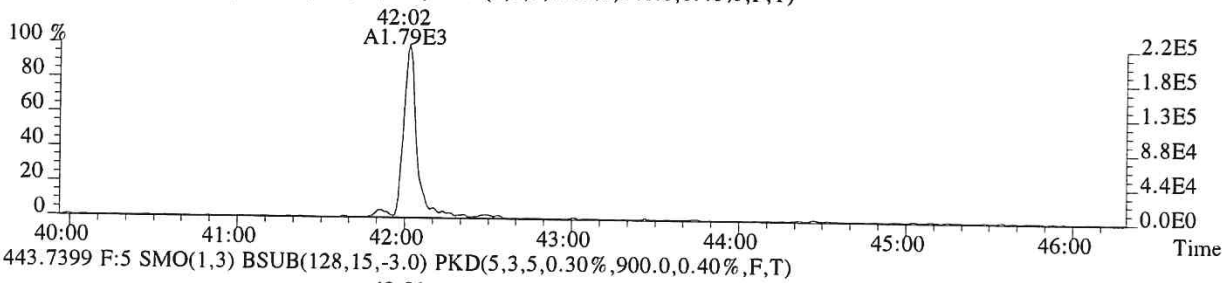


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

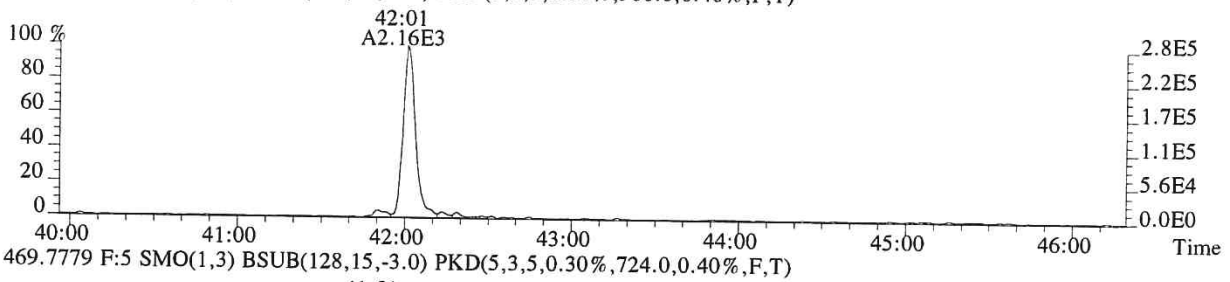


File:P519469 #1-575 Acq:18-DEC-2018 18:15:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-001

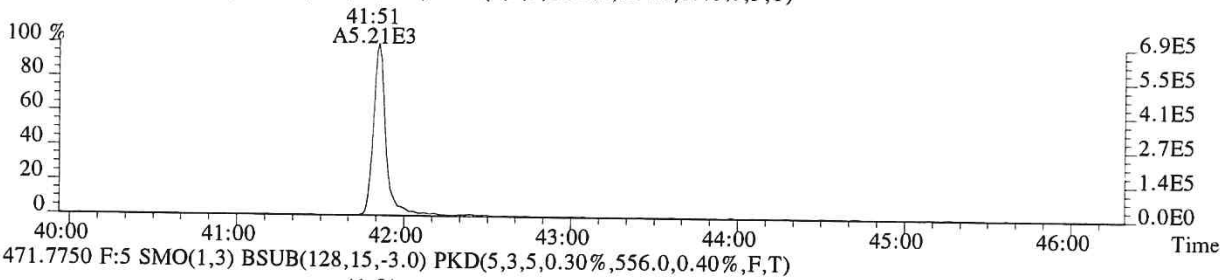
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,340.0,0.40%,F,T)



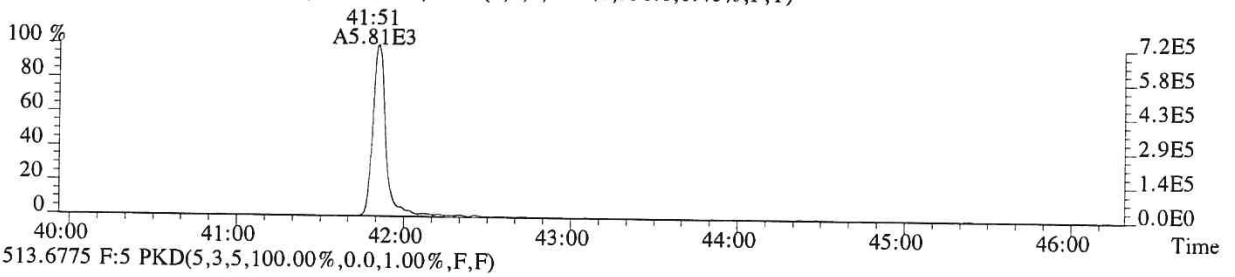
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,900.0,0.40%,F,T)



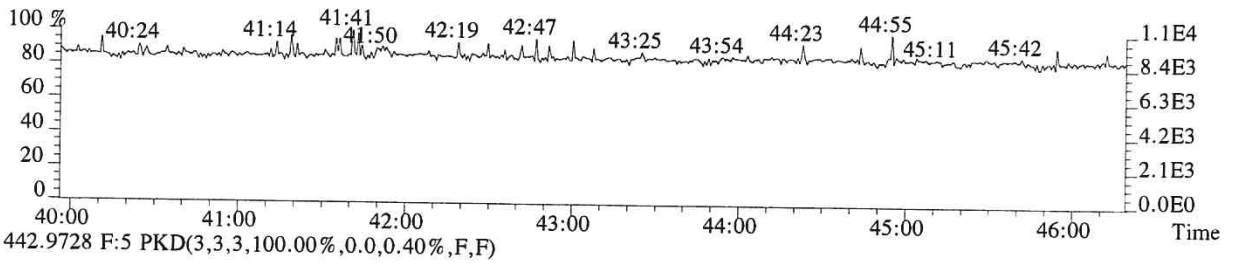
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,724.0,0.40%,F,T)



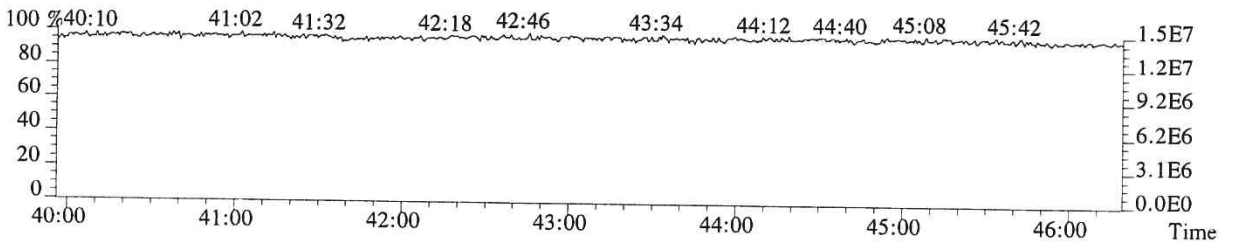
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,556.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

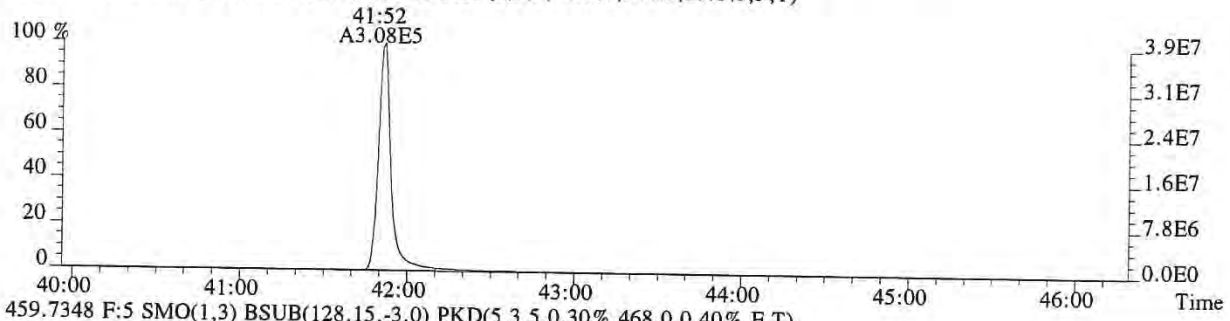


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

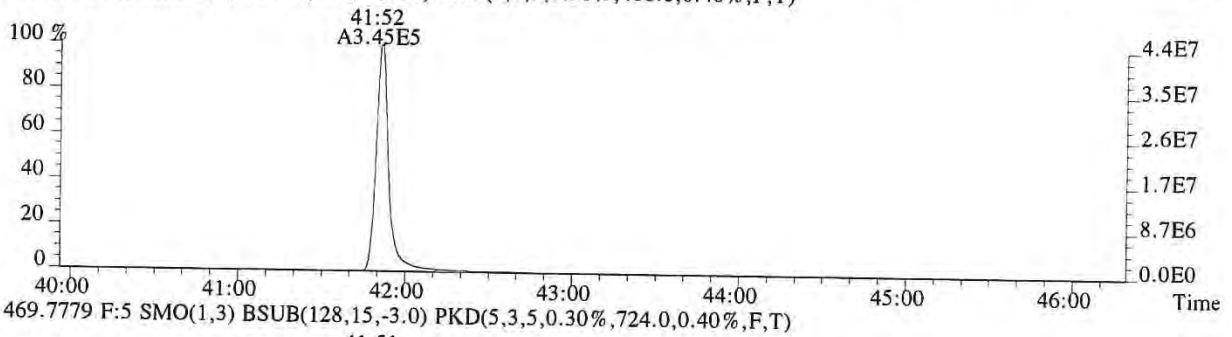


015174

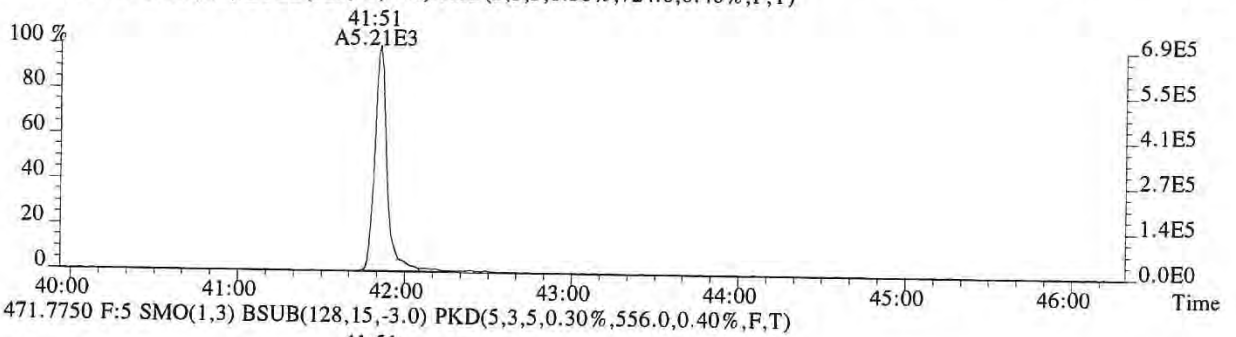
File:P519469 #1-575 Acq:18-DEC-2018 18:15:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-001
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,344.0,0.40%,F,T)



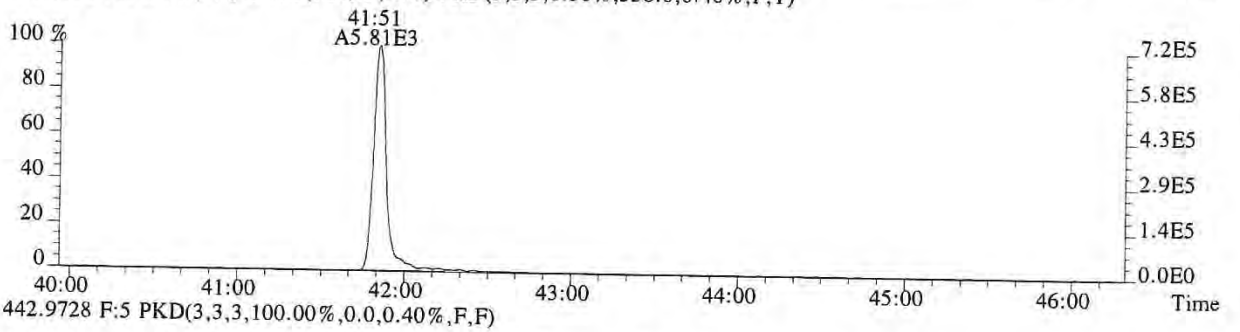
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,468.0,0.40%,F,T)



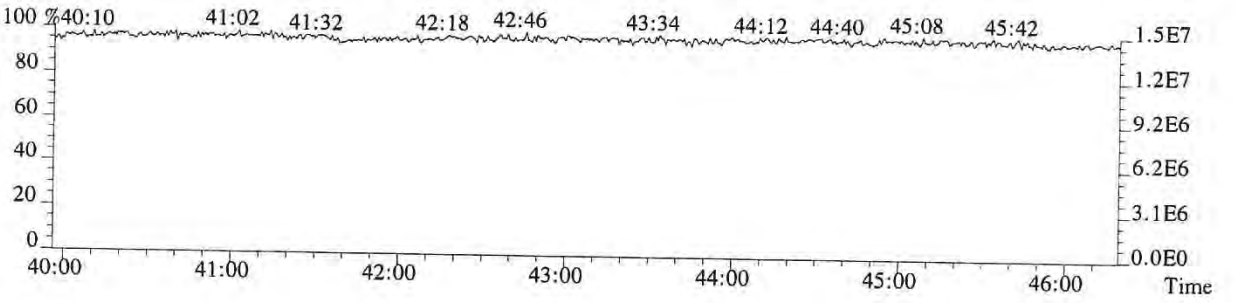
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,724.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,556.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0029

Run #11 Filename P519470 Samp: 1 Inj: 1 Acquired: 18-DEC-18 19:04:21
Processed: 19-DEC-18 14:33:49 Sample ID: E1801094-002

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:51	8.315e+05	1.073e+06	0.78	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	31:27	3.589e+04	2.324e+04	1.54	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	32:25	2.710e+04	1.743e+04	1.55	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:15	3.584e+04	3.026e+04	1.18	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:22	1.025e+04	8.208e+03	1.25	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:54	1.771e+03	1.629e+03	1.09	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	36:42	1.985e+03	1.874e+03	1.06	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:02	7.168e+03	7.317e+03	0.98	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:27	1.556e+03	1.540e+03	1.01	yes	no	1.258
10	Unk	OCDF	42:02	3.444e+03	3.933e+03	0.88	yes	no	1.359
11	Unk	2,3,7,8-TCDD	27:44	2.070e+05	2.601e+05	0.80	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	32:43	2.585e+03	1.635e+03	1.58	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:03	1.498e+02	1.221e+02	1.23	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:08	1.931e+03	1.648e+03	1.17	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:23	8.116e+02	6.105e+02	1.33	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:59	6.559e+04	6.324e+04	1.04	yes	no	1.025
17	Unk	OCDD	41:52	2.168e+05	2.401e+05	0.90	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	26:50	8.587e+03	1.054e+04	0.81	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	31:27	1.110e+04	6.924e+03	1.60	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	32:25	9.972e+03	6.344e+03	1.57	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:14	3.317e+03	6.143e+03	0.54	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:21	3.634e+03	7.139e+03	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:53	3.216e+03	6.308e+03	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	36:40	2.638e+03	5.170e+03	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:01	1.566e+03	3.603e+03	0.43	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:26	1.105e+03	2.669e+03	0.41	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	27:43	3.861e+03	4.829e+03	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:43	7.100e+03	4.653e+03	1.53	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:02	4.291e+03	3.323e+03	1.29	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:08	4.073e+03	3.221e+03	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:59	2.961e+03	2.754e+03	1.08	yes	no	0.858
32	IS	13C-OCDD	41:52	1.875e+03	2.108e+03	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:06	1.269e+04	1.605e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:22	9.970e+03	7.742e+03	1.29	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:44	7.533e+03				no	1.014

$$\text{OCDD} = \frac{(2.168e+05 + 2.401e+05) \times 4000 \text{ pg} \times 1}{(1.875e+03 + 2.108e+03) \times 10.1e7 \text{ g} \times 55.1 / 100 \times 1.118} = 70500 \text{ ng/kg}$$

bw 12/20/18

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0029

Run #11 Filename P519470 Samp: 1 Inj: 1 Acquired: 18-DEC-18 19:04:21
Processed: 19-DEC-18 14:33:49 LAB. ID: E1801094-002

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.26e+08	1.98e+03	6.4e+04	1.62e+08	1.21e+03	1.3e+05
2	1,2,3,7,8-PeCDF	6.49e+06	5.56e+03	1.2e+03	4.14e+06	3.43e+03	1.2e+03
3	2,3,4,7,8-PeCDF	4.21e+06	5.56e+03	7.6e+02	2.64e+06	3.43e+03	7.7e+02
4	1,2,3,4,7,8-HxCDF	7.43e+06	4.30e+03	1.7e+03	6.20e+06	5.63e+03	1.1e+03
5	1,2,3,6,7,8-HxCDF	1.83e+06	4.30e+03	4.3e+02	1.47e+06	5.63e+03	2.6e+02
6	2,3,4,6,7,8-HxCDF	3.59e+05	4.30e+03	8.4e+01	3.20e+05	5.63e+03	5.7e+01
7	1,2,3,7,8,9-HxCDF	3.74e+05	4.30e+03	8.7e+01	3.30e+05	5.63e+03	5.9e+01
8	1,2,3,4,6,7,8-HpCDF	1.35e+06	3.78e+03	3.6e+02	1.37e+06	4.34e+03	3.2e+02
9	1,2,3,4,7,8,9-HpCDF	2.73e+05	3.78e+03	7.2e+01	2.73e+05	4.34e+03	6.3e+01
10	OCDF	4.12e+05	4.24e+02	9.7e+02	4.96e+05	7.68e+02	6.5e+02
11	2,3,7,8-TCDD	3.63e+07	2.48e+03	1.5e+04	4.58e+07	1.22e+03	3.8e+04
12	1,2,3,7,8-PeCDD	4.28e+05	1.49e+03	2.9e+02	2.63e+05	2.71e+03	9.7e+01
13	1,2,3,4,7,8-HxCDD	3.34e+04	1.46e+03	2.3e+01	3.16e+04	2.10e+03	1.5e+01
14	1,2,3,6,7,8-HxCDD	3.88e+05	1.46e+03	2.7e+02	3.16e+05	2.10e+03	1.5e+02
15	1,2,3,7,8,9-HxCDD	1.43e+05	1.46e+03	9.8e+01	1.19e+05	2.10e+03	5.7e+01
16	1,2,3,4,6,7,8-HpCDD	1.14e+07	8.20e+02	1.4e+04	1.10e+07	6.36e+02	1.7e+04
17	OCDD	2.68e+07	5.20e+02	5.2e+04	3.01e+07	6.68e+02	4.5e+04
18	13C-2,3,7,8-TCDF	1.41e+06	6.76e+03	2.1e+02	1.72e+06	4.30e+03	4.0e+02
19	13C-1,2,3,7,8-PeCDF	1.95e+06	8.84e+02	2.2e+03	1.24e+06	1.07e+03	1.2e+03
20	13C-2,3,4,7,8-PeCDF	1.84e+06	8.84e+02	2.1e+03	1.18e+06	1.07e+03	1.1e+03
21	13C-1,2,3,4,7,8-HxCDF	6.86e+05	1.36e+03	5.0e+02	1.27e+06	1.37e+03	9.3e+02
22	13C-1,2,3,6,7,8-HxCDF	6.89e+05	1.36e+03	5.1e+02	1.38e+06	1.37e+03	1.0e+03
23	13C-2,3,4,6,7,8-HxCDF	6.42e+05	1.36e+03	4.7e+02	1.24e+06	1.37e+03	9.1e+02
24	13C-1,2,3,7,8,9-HxCDF	4.90e+05	1.36e+03	3.6e+02	9.72e+05	1.37e+03	7.1e+02
25	13C-1,2,3,4,6,7,8-HpCDF	2.84e+05	8.60e+02	3.3e+02	6.75e+05	1.57e+03	4.3e+02
26	13C-1,2,3,4,7,8,9-HpCDF	1.86e+05	8.60e+02	2.2e+02	4.33e+05	1.57e+03	2.8e+02
27	13C-2,3,7,8-TCDD	6.66e+05	5.43e+03	1.2e+02	8.20e+05	2.60e+03	3.1e+02
28	13C-1,2,3,7,8-PeCDD	1.39e+06	8.28e+02	1.7e+03	9.25e+05	7.64e+02	1.2e+03
29	13C-1,2,3,4,7,8-HxCDD	8.95e+05	8.68e+02	1.0e+03	6.78e+05	6.84e+02	9.9e+02
30	13C-1,2,3,6,7,8-HxCDD	7.78e+05	8.68e+02	9.0e+02	6.09e+05	6.84e+02	8.9e+02
31	13C-1,2,3,4,6,7,8-HpCDD	5.15e+05	2.56e+02	2.0e+03	4.82e+05	1.76e+02	2.7e+03
32	13C-OCDD	2.48e+05	5.88e+02	4.2e+02	2.80e+05	3.32e+02	8.4e+02
33	13C-1,2,3,4-TCDD	2.06e+06	5.43e+03	3.8e+02	2.64e+06	2.60e+03	1.0e+03
34	13C-1,2,3,7,8,9-HxCDD	1.91e+06	8.68e+02	2.2e+03	1.50e+06	6.84e+02	2.2e+03
35	37Cl-2,3,7,8-TCDD	1.31e+06	2.90e+03	4.5e+02			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (2.480e{+}03 + 1.216e{+}03) \times 2000}{(6.662e{+}05 + 8.202e{+}05) \times (\quad) \times 1.085} =$$

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Peak List Summary

CLIENT ID.
SL0029

Entry: 36 Totals Name: Total Tetra-Furans

Run: 11 File: P519470 Sample:1 Injection:1 Function:1

Acquired: 18-DEC-18 19:04:21 Processed: 19-DEC-18 14:33:49

Mass: 303.9020 305.8990 Tot Response: 3.38e+06 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	23:40	7.30e+03	1.03e+04	0.71	yes	1.76e+04		n	n
2	23:57	3.72e+04	4.89e+04	0.76	yes	8.61e+04		n	n
3	24:20	1.03e+04	1.37e+04	0.75	yes	2.40e+04		n	n
4	24:38	3.06e+04	3.75e+04	0.81	yes	6.81e+04		n	n
5	25:02	6.36e+03	7.81e+03	0.81	yes	1.42e+04		n	n
6	25:17	2.10e+04	2.55e+04	0.82	yes	4.66e+04		n	n
7	25:25	3.88e+04	4.80e+04	0.81	yes	8.68e+04		n	n
8	25:55	3.62e+05	4.69e+05	0.77	yes	8.31e+05		n	n
9	26:13	1.69e+04	2.10e+04	0.81	yes	3.78e+04		n	n
10	26:51	8.32e+05	1.07e+06	0.78	yes	1.90e+06	2,3,7,8-TCDF	n	n
11	27:14	5.94e+04	7.61e+04	0.78	yes	1.36e+05		n	n
12	28:52	5.76e+04	7.40e+04	0.78	yes	1.32e+05		n	n

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SL0029

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 11 File: P519470 Sample:1 Injection:1 Function:1

Acquired: 18-DEC-18 19:04:21 Processed: 19-DEC-18 14:33:49

Mass: 319.8970 321.8940 Tot Response: 5.20e+05 RRF: 1.085

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	23:57	7.95e+02	1.02e+03	0.78	yes	1.81e+03		n	n
2	27:26	2.80e+03	3.61e+03	0.78	yes	6.41e+03		n	n
3	27:44	2.07e+05	2.60e+05	0.80	yes	4.67e+05	2,3,7,8-TCDD	n	n
4	28:03	1.94e+04	2.51e+04	0.77	yes	4.45e+04		n	n

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CLIENT ID.
SL0029

Entry: 38 Totals Name: Total Penta-Furans1

Run: 11 File: P519470 Sample:1 Injection:1 Function:1

Acquired: 18-DEC-18 19:04:21 Processed: 19-DEC-18 14:33:49

Mass: 339.8600 341.8570 Tot Response: 6.58e+03 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	28:53	4.11e+03	2.46e+03 1.67	yes	6.58e+03		n	n

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Entry: 39 Totals Name: Total Penta-Furans2

Run: 11 File: P519470 Sample:1 Injection:1 Function:2

Acquired: 18-DEC-18 19:04:21 Processed: 19-DEC-18 14:33:49

Mass: 339.8600 341.8570 Tot Response: 1.64e+05 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:20	1.18e+03	1.35	yes	2.04e+03		n	n
2	30:29	1.93e+04	1.53	yes	3.18e+04		n	n
3	30:49	2.09e+02	1.48	yes	3.51e+02		n	n
4	31:03	1.54e+03	1.55	yes	2.53e+03		n	n
5	31:08	8.41e+02	1.58	yes	1.37e+03		n	n
6	31:27	3.59e+04	1.54	yes	5.91e+04	1,2,3,7,8-PeCDF	n	n
7	31:43	1.15e+04	1.52	yes	1.91e+04		n	n
8	32:13	8.23e+01	1.71	yes	1.30e+02		n	n
9	32:20	6.18e+02	1.48	yes	1.04e+03		n	n
10	32:25	2.71e+04	1.55	yes	4.45e+04	2,3,4,7,8-PeCDF	n	n
11	33:22	1.23e+03	1.48	yes	2.07e+03		n	n

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CLIENT ID.
SL0029

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 11 File: P519470 Sample:1 Injection:1 Function:2

Acquired: 18-DEC-18 19:04:21 Processed: 19-DEC-18 14:33:49

Mass: 355.8550 357.8520 Tot Response: 1.16e+04 RRF: 0.9565

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:32	1.58e+03	9.99e+02	1.58	yes	2.58e+03		n	n
2	31:29	9.79e+02	5.77e+02	1.70	yes	1.56e+03		n	n
3	31:39	3.07e+02	2.25e+02	1.36	yes	5.32e+02		n	n
4	31:45	3.87e+02	2.34e+02	1.65	yes	6.21e+02		n	n
5	31:58	5.40e+02	3.49e+02	1.55	yes	8.88e+02		n	n
6	32:19	7.57e+02	4.73e+02	1.60	yes	1.23e+03		n	n
7	32:43	2.58e+03	1.63e+03	1.58	yes	4.22e+03	1,2,3,7,8-PeCDD	n	n

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Entry: 41 Totals Name: Total Hexa-Furans

Run: 11 File: P519470 Sample:1 Injection:1 Function:3

Acquired: 18-DEC-18 19:04:21 Processed: 19-DEC-18 14:33:49

Mass: 373.8210 375.8180 Tot Response: 1.09e+05 RRF: 1.141

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:06	7.45e+02	5.65e+02	1.32	yes	1.31e+03		n	n
2	34:15	4.85e+03	4.06e+03	1.20	yes	8.91e+03		n	n
3	34:48	3.80e+03	3.09e+03	1.23	yes	6.89e+03		n	n
4	35:09	2.72e+02	1.92e+02	1.42	yes	4.64e+02		n	n
5	35:15	3.58e+04	3.03e+04	1.18	yes	6.61e+04	1,2,3,4,7,8-HxCDF	n	n
6	35:22	1.02e+04	8.21e+03	1.25	yes	1.85e+04	1,2,3,6,7,8-HxCDF	n	n
7	35:54	1.77e+03	1.63e+03	1.09	yes	3.40e+03	2,3,4,6,7,8-HxCDF	n	n
8	36:42	1.99e+03	1.87e+03	1.06	yes	3.86e+03	1,2,3,7,8,9-HxCDF	n	n

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Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 11 File: P519470 Sample:1 Injection:1 Function:3

Acquired: 18-DEC-18 19:04:21 Processed: 19-DEC-18 14:33:49

Mass: 389.8160 391.8130 Tot Response: 4.13e+04 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:38	6.72e+03	5.51e+03	1.22	yes	1.22e+04		n	n
2	35:11	7.77e+02	5.84e+02	1.33	yes	1.36e+03		n	n
3	35:26	1.22e+04	9.63e+03	1.27	yes	2.18e+04		n	n
4	36:03	1.50e+02	1.22e+02	1.23	yes	2.72e+02	1,2,3,4,7,8-HxCDD	n	n
5	36:08	1.93e+03	1.65e+03	1.17	yes	3.58e+03	1,2,3,6,7,8-HxCDD	n	n
6	36:18	3.42e+02	2.60e+02	1.32	yes	6.02e+02		n	n
7	36:23	8.12e+02	6.11e+02	1.33	yes	1.42e+03	1,2,3,7,8,9-HxCDD	n	n

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Entry: 43 Totals Name: Total Hepta-Furans

Run: 11 File: P519470 Sample:1 Injection:1 Function:4

Acquired: 18-DEC-18 19:04:21 Processed: 19-DEC-18 14:33:49

Mass: 407.7820 409.7790 Tot Response: 3.11e+04 RRF: 1.308

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:02	7.17e+03	7.32e+03	0.98	yes	1.45e+04	1,2,3,4,6,7,8-HpCDF	n	n
2	38:19	1.69e+02	1.73e+02	0.98	yes	3.42e+02		n	n
3	38:27	6.51e+03	6.66e+03	0.98	yes	1.32e+04		n	n
4	39:27	1.56e+03	1.54e+03	1.01	yes	3.10e+03	1,2,3,4,7,8,9-HpCDF	n	n

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SL0029

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 11 File: P519470 Sample:1 Injection:1 Function:4

Acquired: 18-DEC-18 19:04:21 Processed: 19-DEC-18 14:33:49

Mass: 423.7770 425.7740 Tot Response: 2.35e+05 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:18	5.43e+04	5.20e+04 1.04	yes	1.06e+05		n	n
2	38:59	6.56e+04	6.32e+04 1.04	yes	1.29e+05	1,2,3,4,6,7,8-HpCDD	n	n

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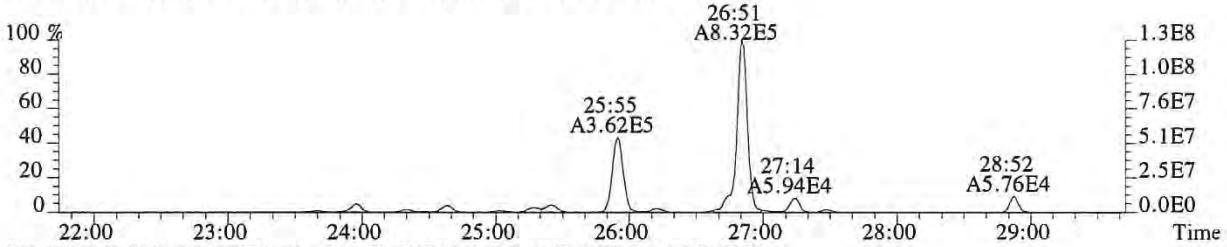
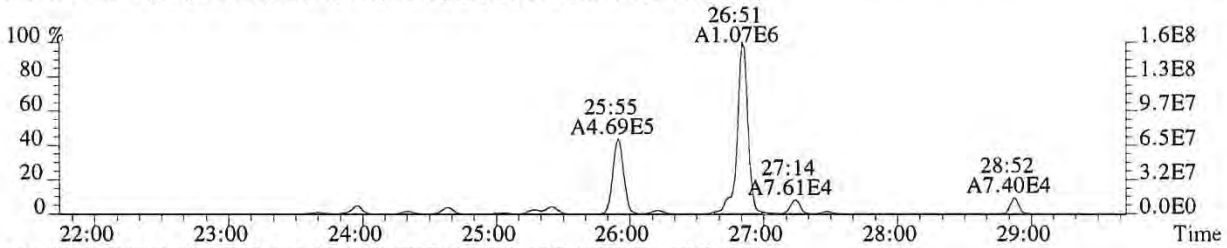
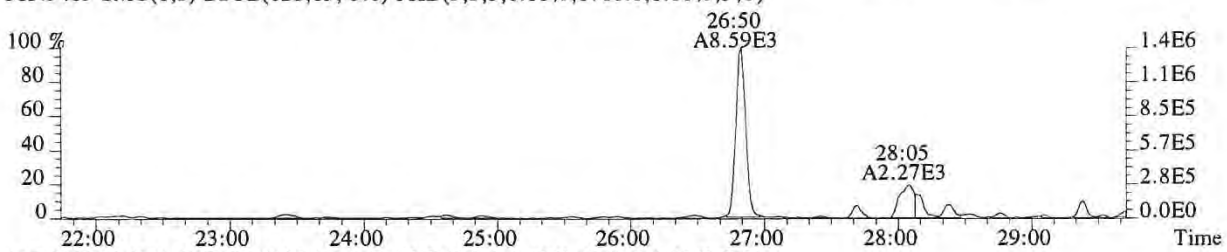
File:P519470 #1-566 Acq:18-DEC-2018 19:04:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-002
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1984.0,1.00%,F,T)



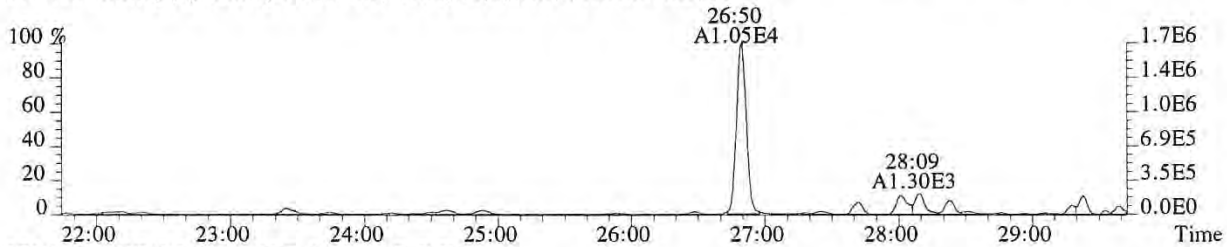
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1208.0,1.00%,F,T)



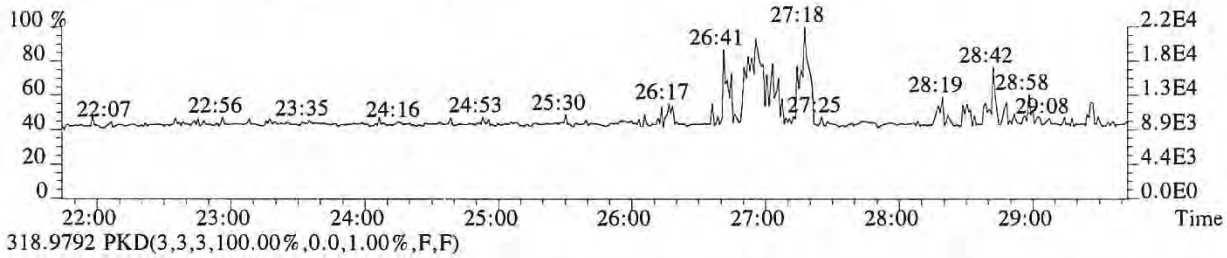
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6760.0,1.00%,F,T)



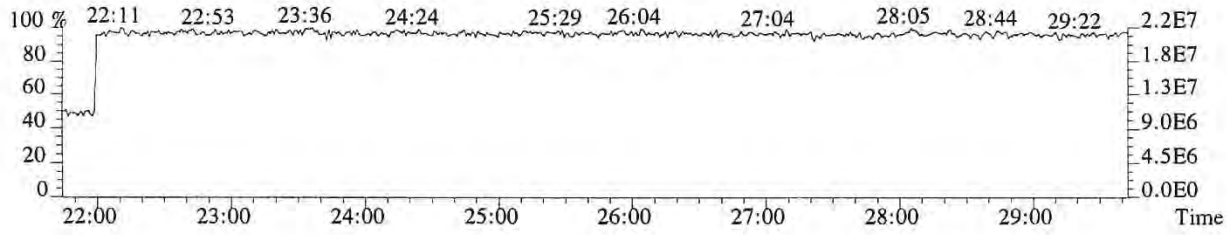
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4304.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

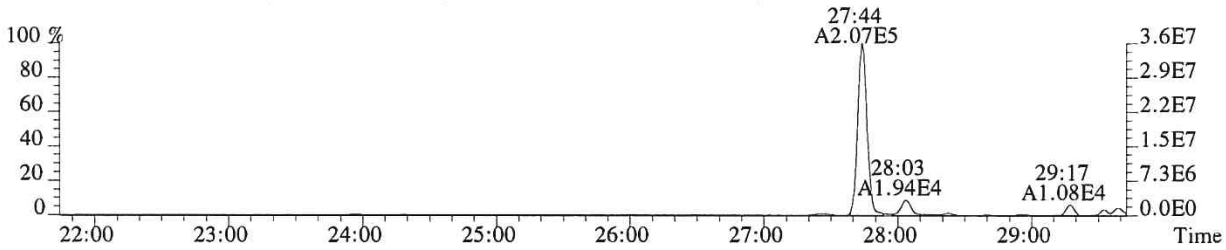


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

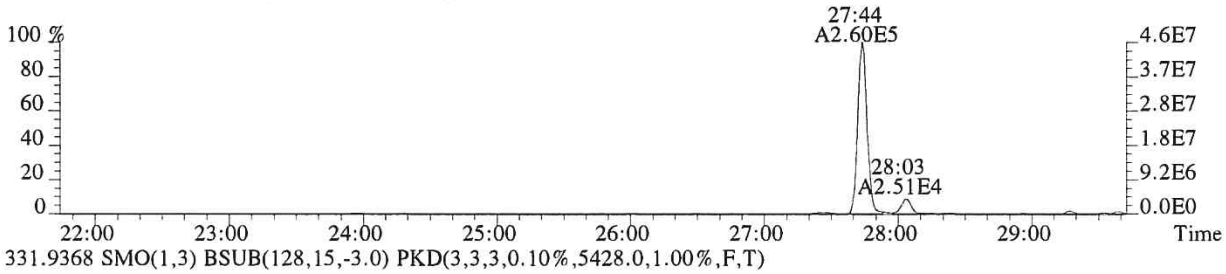


File:P519470 #1-566 Acq:18-DEC-2018 19:04:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-002

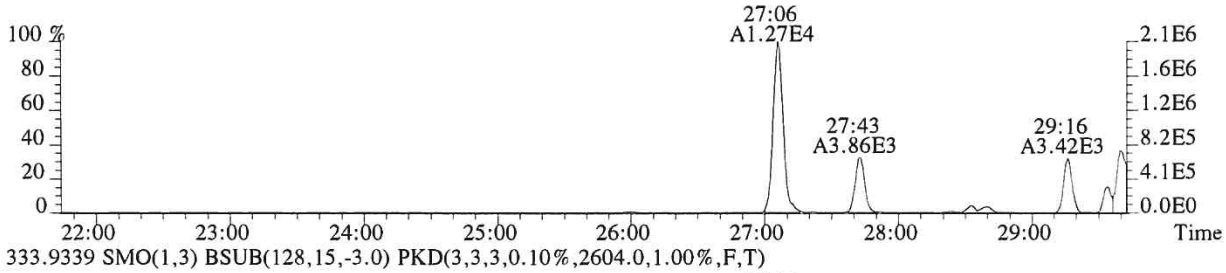
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2480.0,1.00%,F,T)



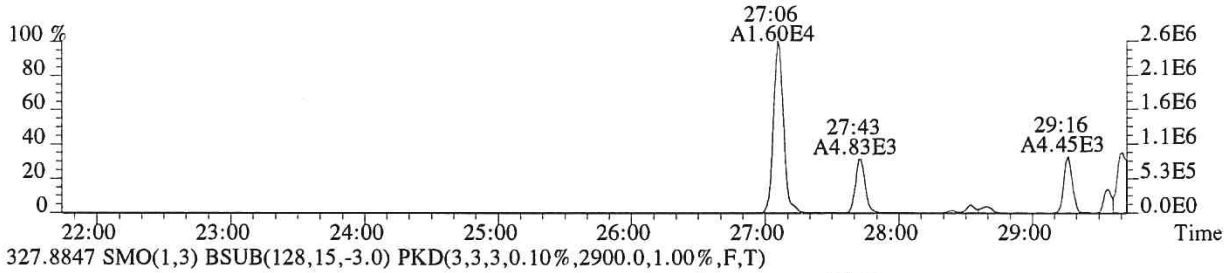
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1216.0,1.00%,F,T)



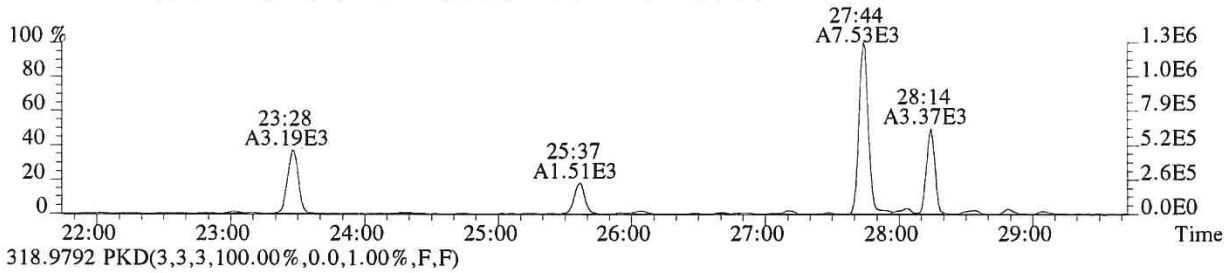
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5428.0,1.00%,F,T)



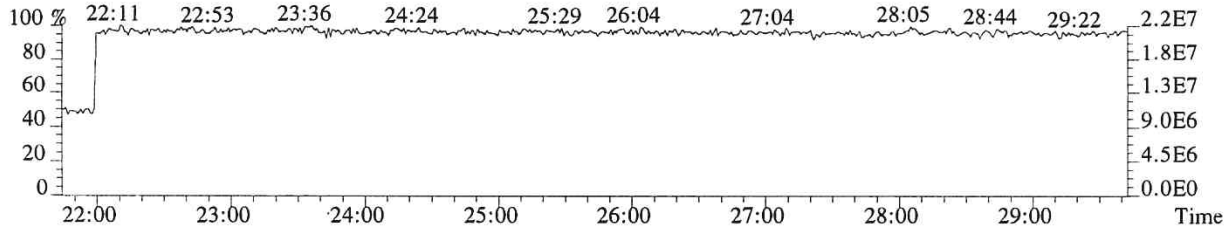
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2604.0,1.00%,F,T)



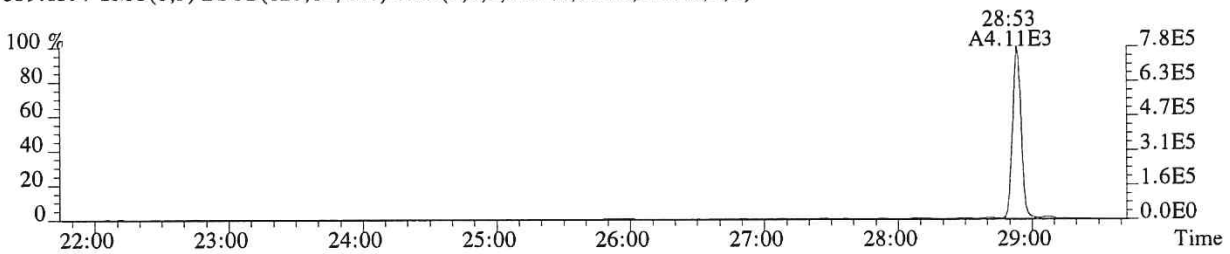
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2900.0,1.00%,F,T)



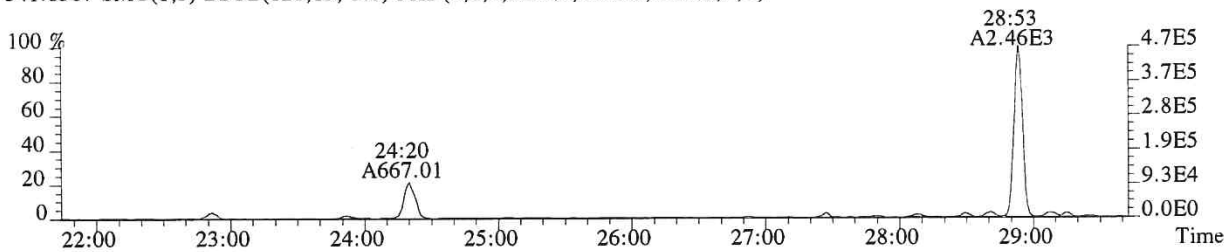
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



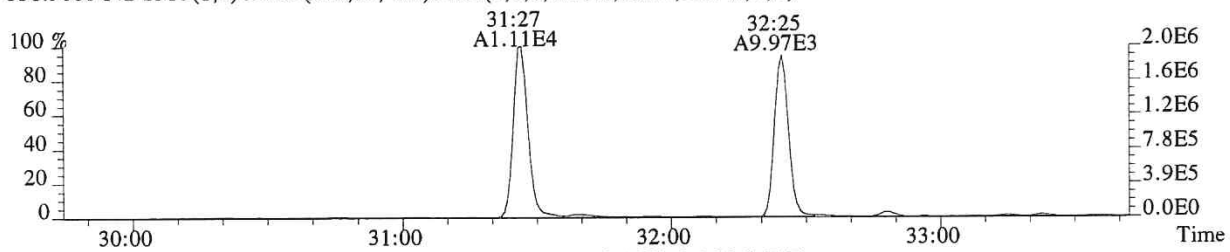
File:P519470 #1-566 Acq:18-DEC-2018 19:04:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-002
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,652.0,1.00%,F,T)



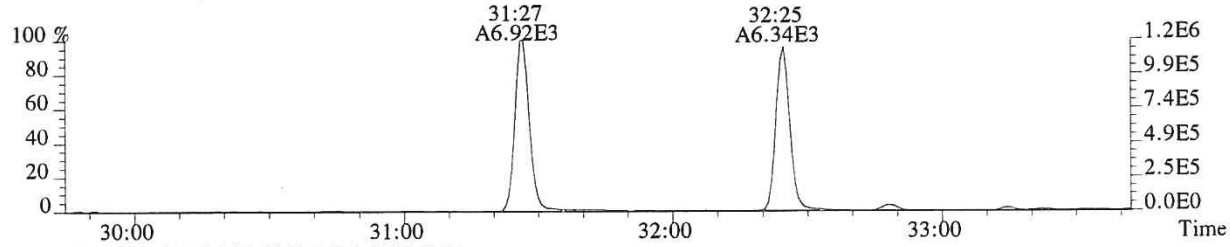
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1072.0,1.00%,F,T)



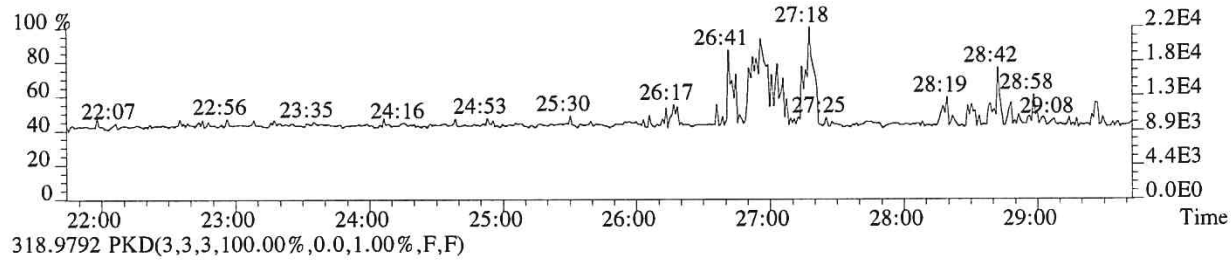
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,884.0,1.00%,F,T)



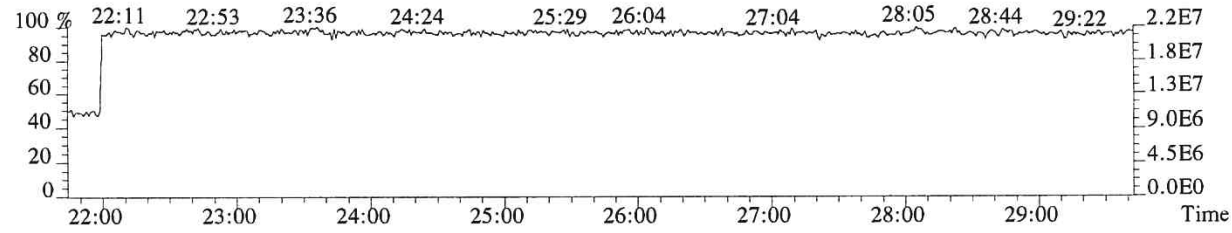
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1072.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



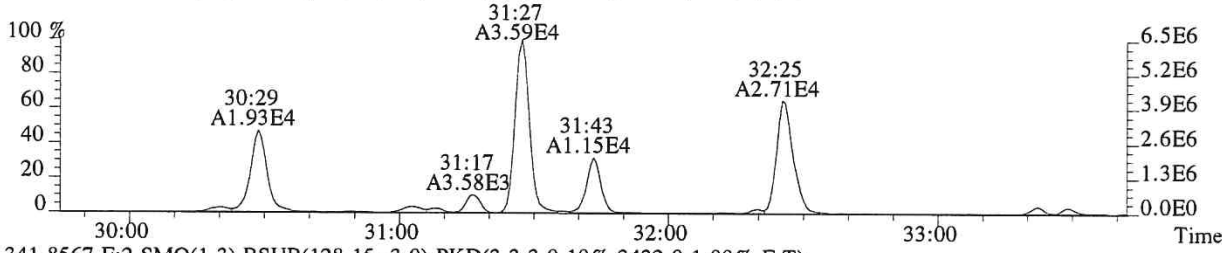
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



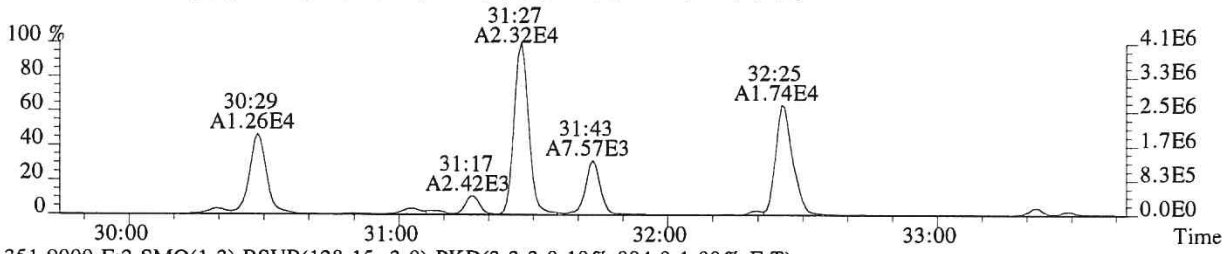
015189

File:P519470 #1-357 Acq:18-DEC-2018 19:04:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-002

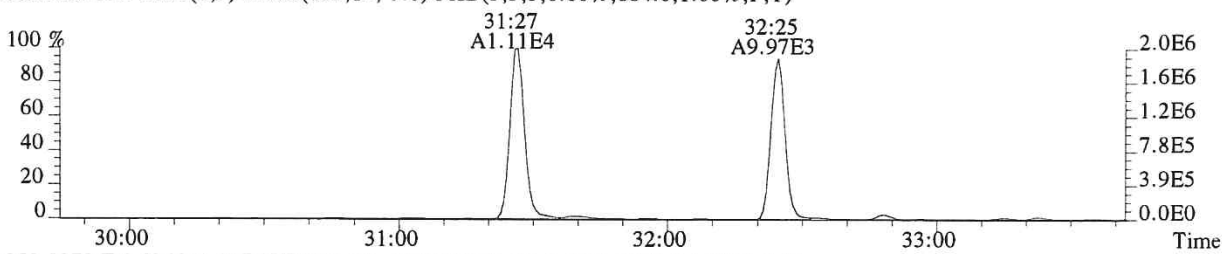
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5560.0,1.00%,F,T)



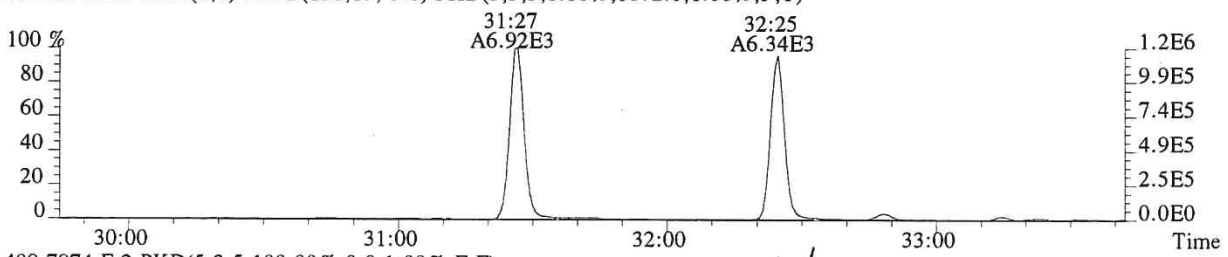
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3432.0,1.00%,F,T)



351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,884.0,1.00%,F,T)

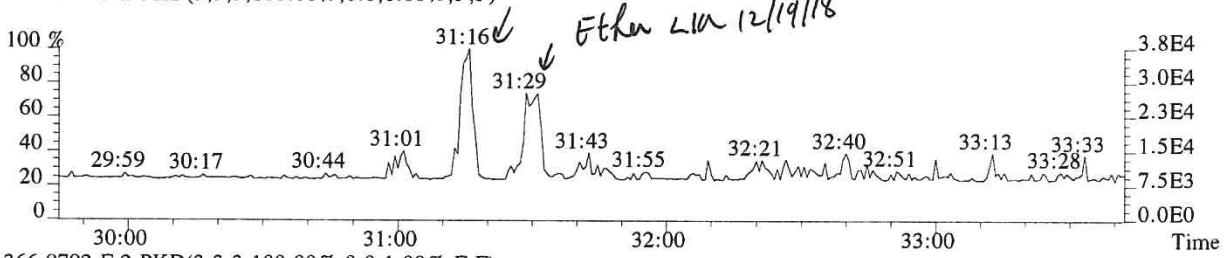


353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1072.0,1.00%,F,T)

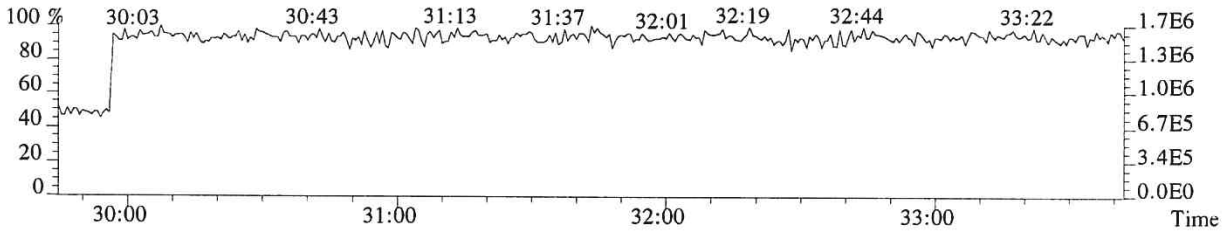


409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

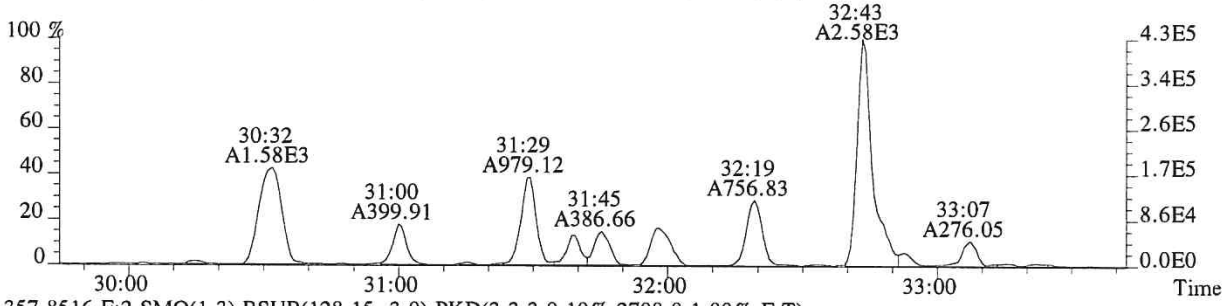
Ether LOA 12/19/18



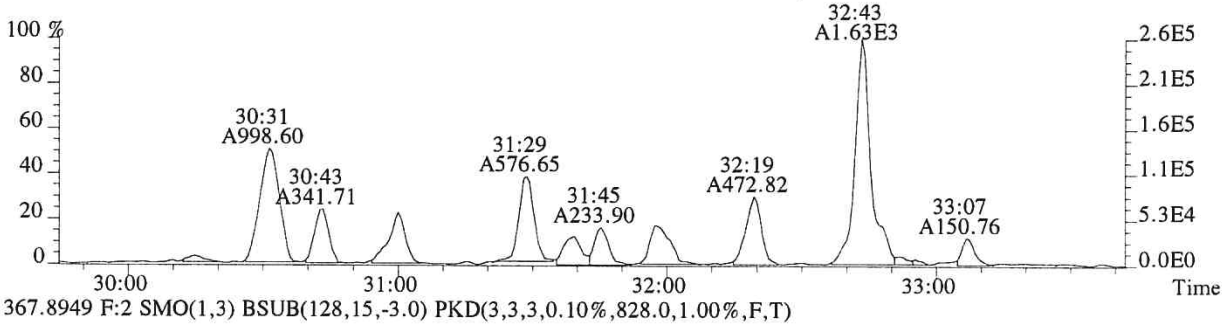
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



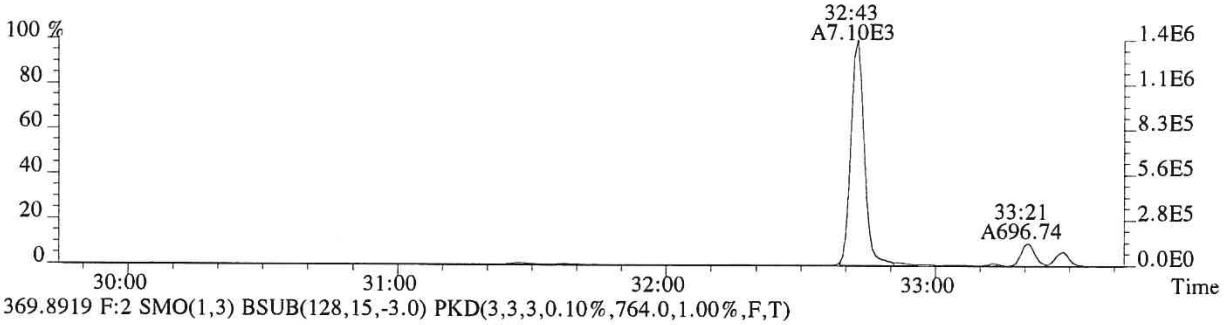
File:P519470 #1-357 Acq:18-DEC-2018 19:04:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-002
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1488.0,1.00%,F,T)



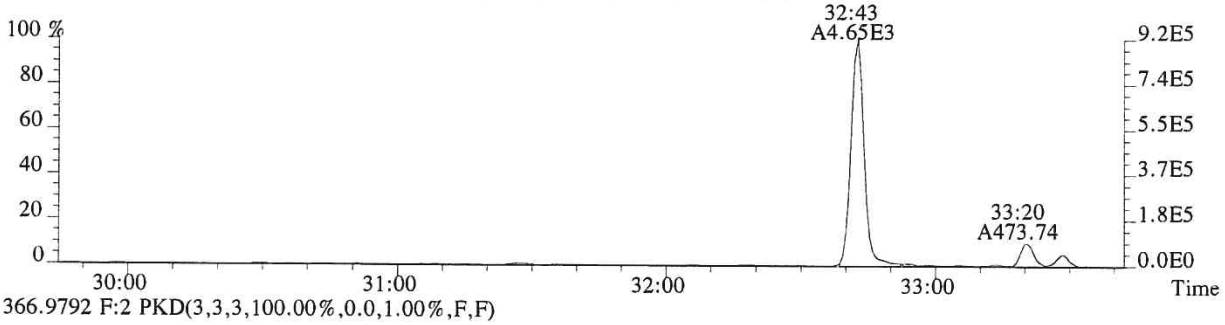
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2708.0,1.00%,F,T)



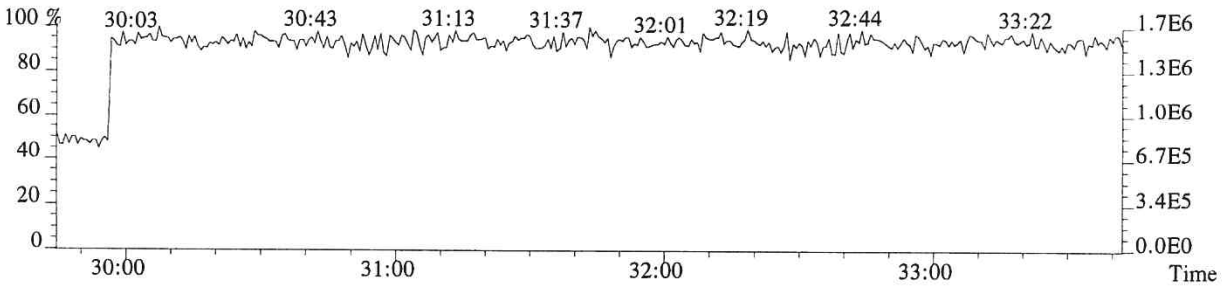
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,828.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,764.0,1.00%,F,T)

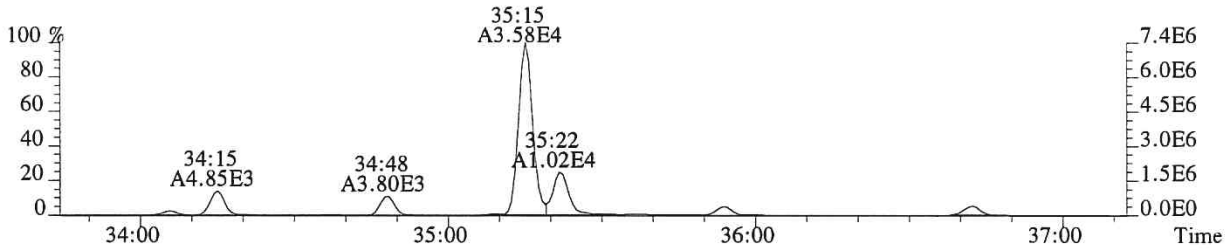


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

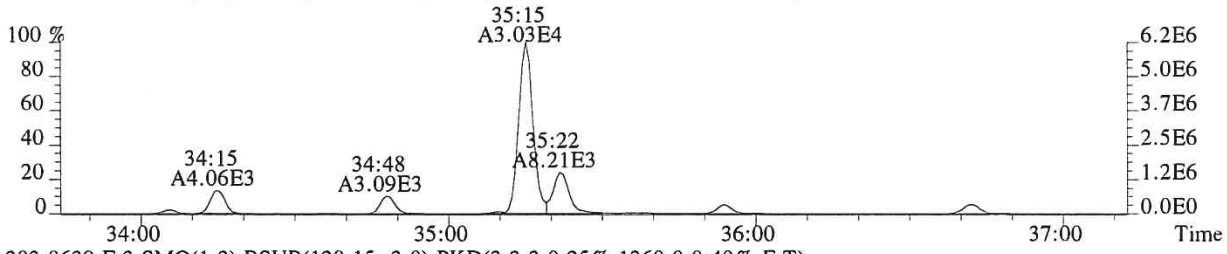


File:P519470 #1-313 Acq:18-DEC-2018 19:04:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-002

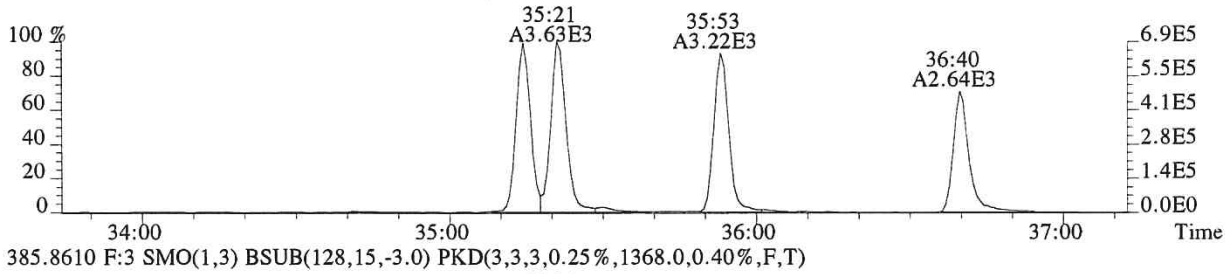
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4296.0,0.40%,F,T)



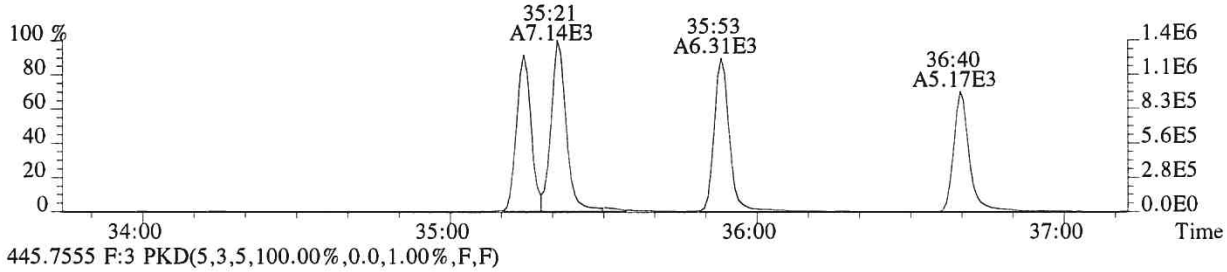
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5628.0,0.40%,F,T)



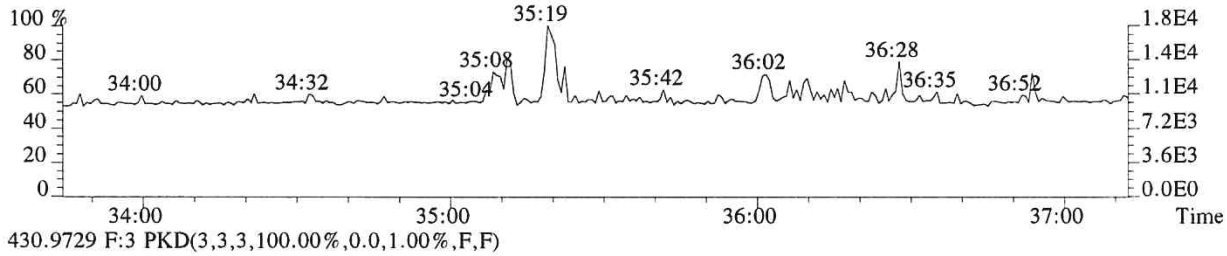
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1360.0,0.40%,F,T)



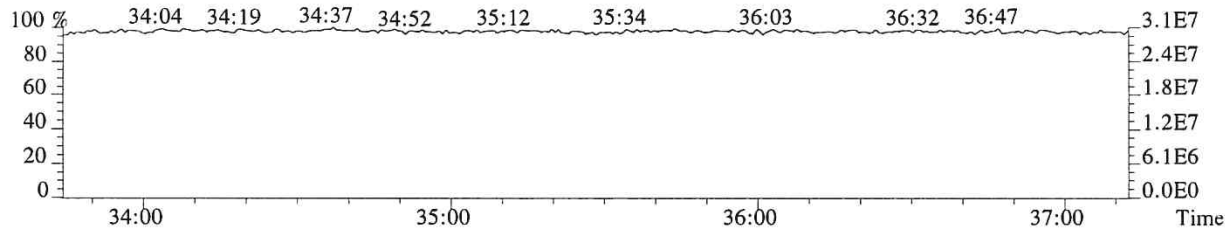
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1368.0,0.40%,F,T)



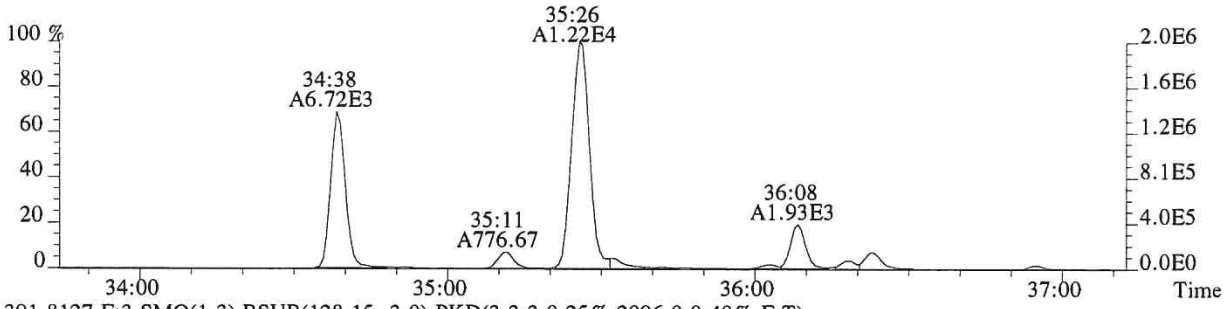
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



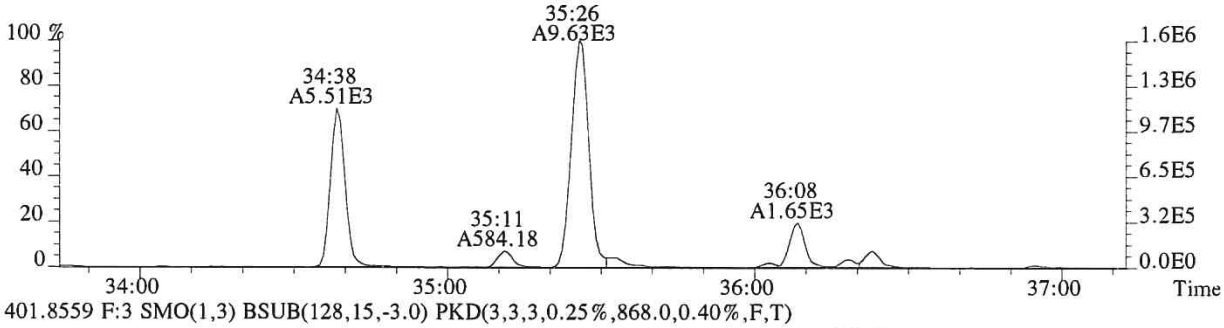
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



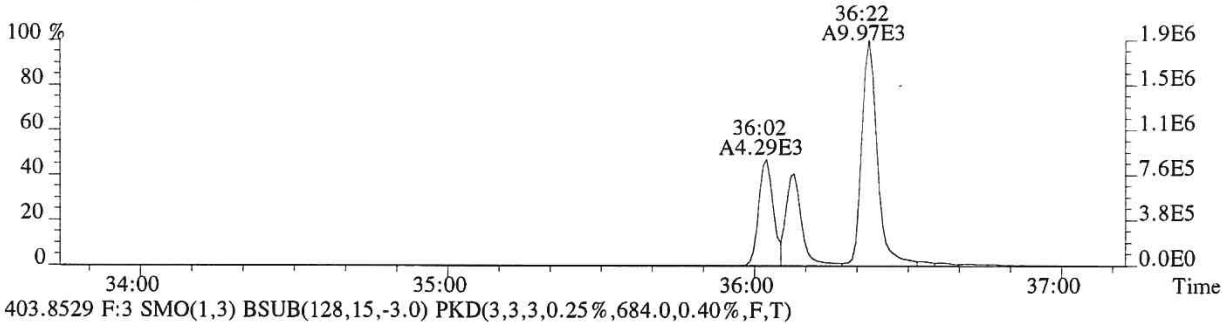
File:P519470 #1-313 Acq:18-DEC-2018 19:04:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-002
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1460.0,0.40%,F,T)



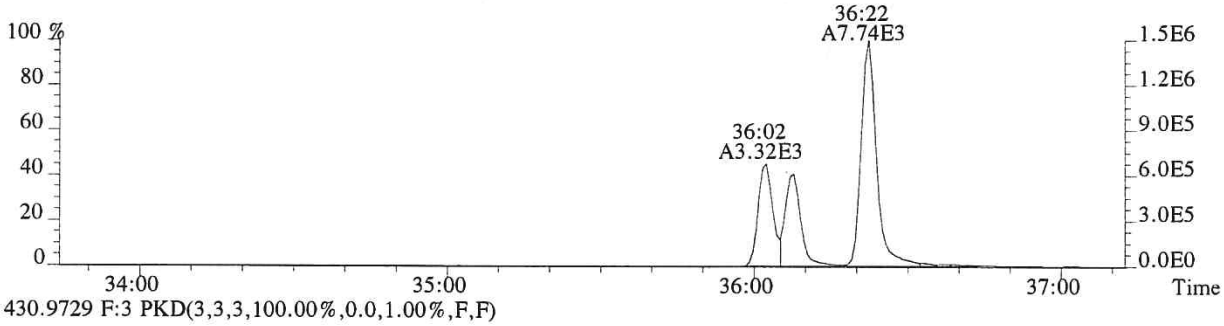
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2096.0,0.40%,F,T)



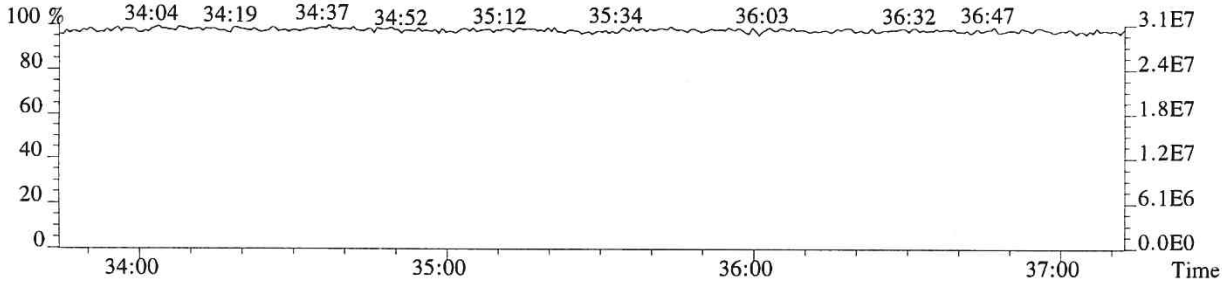
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,868.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,684.0,0.40%,F,T)

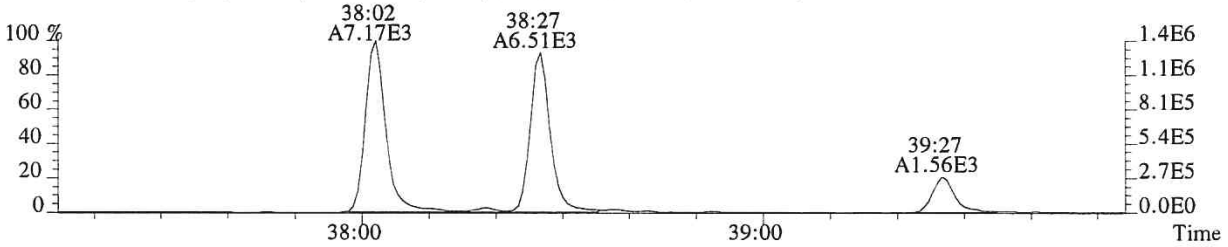


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

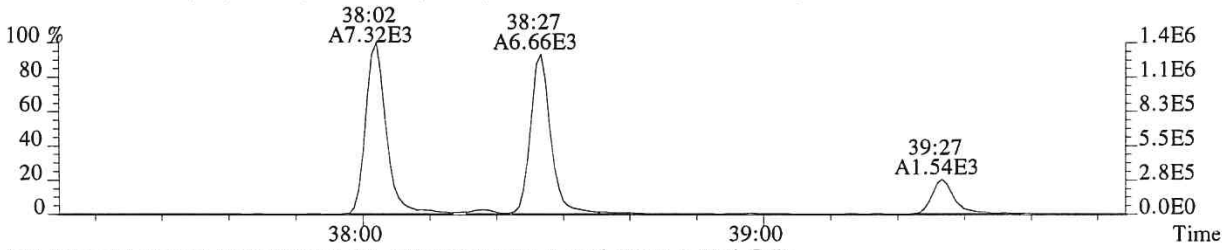


File:P519470 #1-240 Acq:18-DEC-2018 19:04:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-002

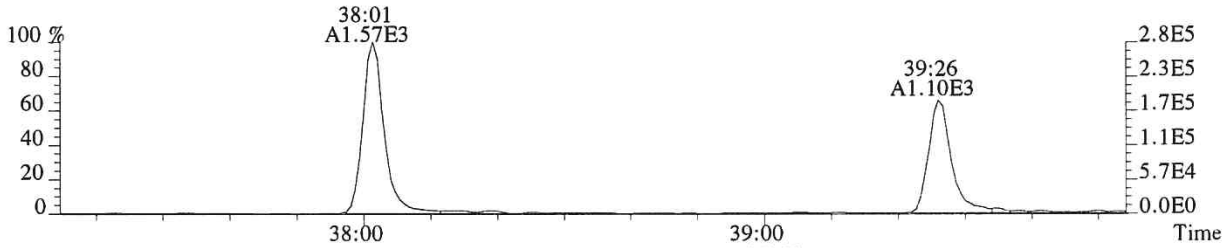
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3776.0,0.50%,F,T)



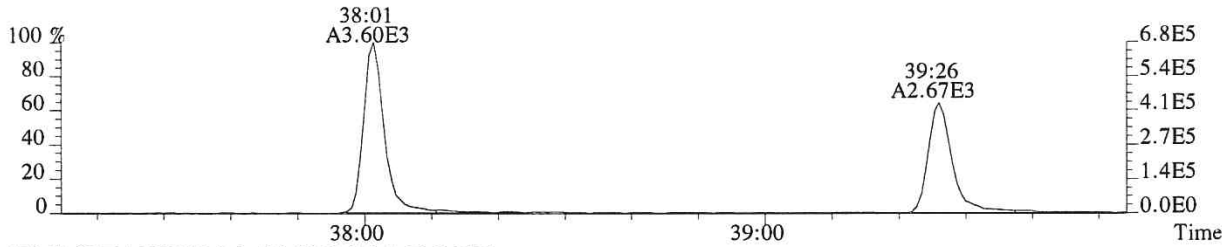
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4344.0,0.50%,F,T)



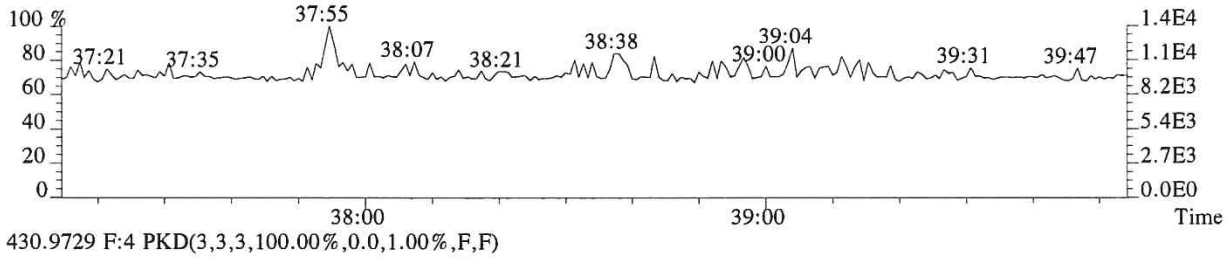
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,860.0,0.50%,F,T)



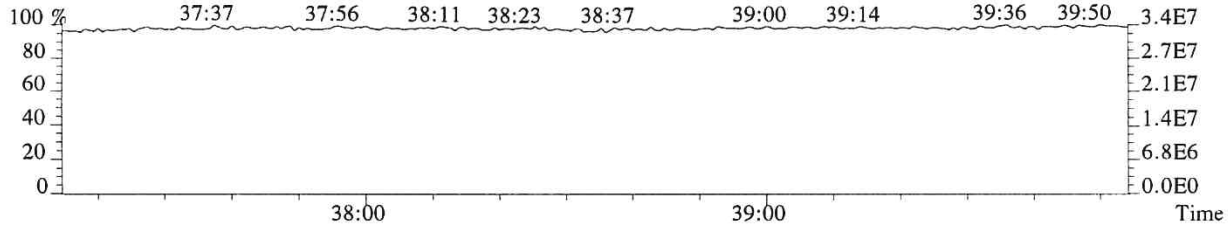
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1572.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



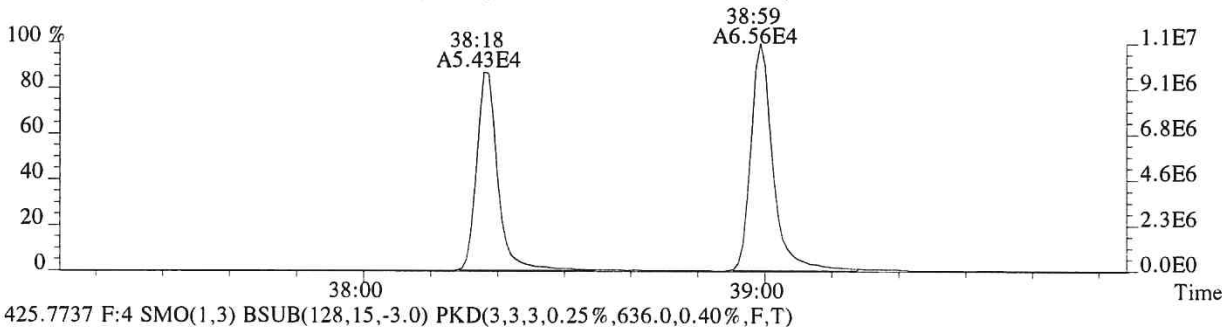
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



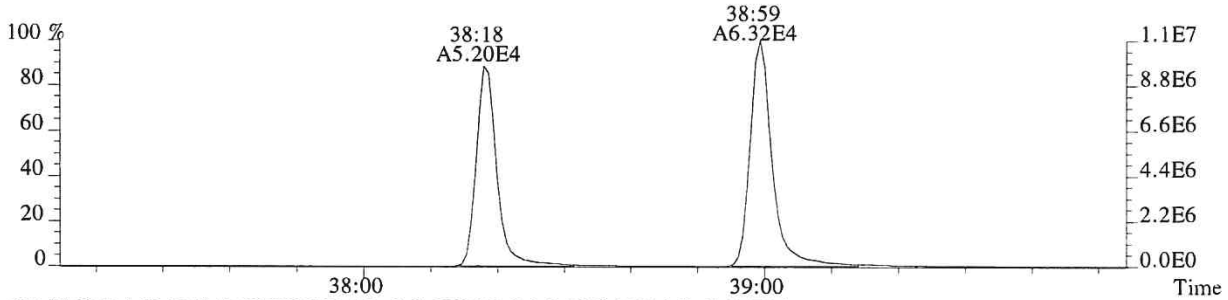
015194

File:P519470 #1-240 Acq:18-DEC-2018 19:04:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-002

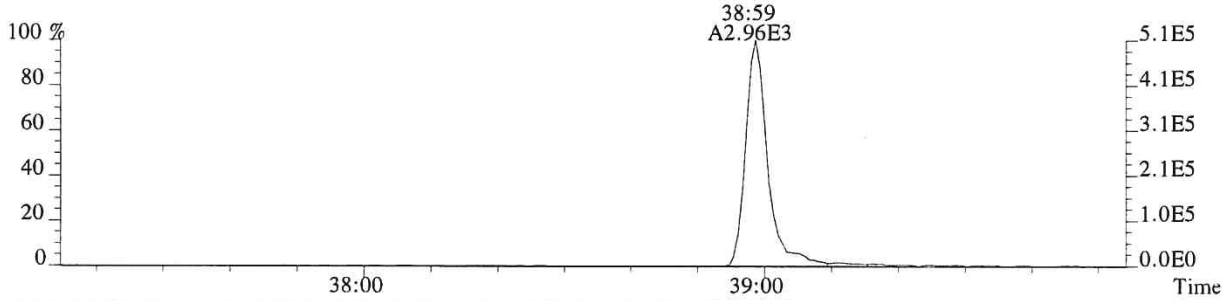
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,820.0,0.40%,F,T)



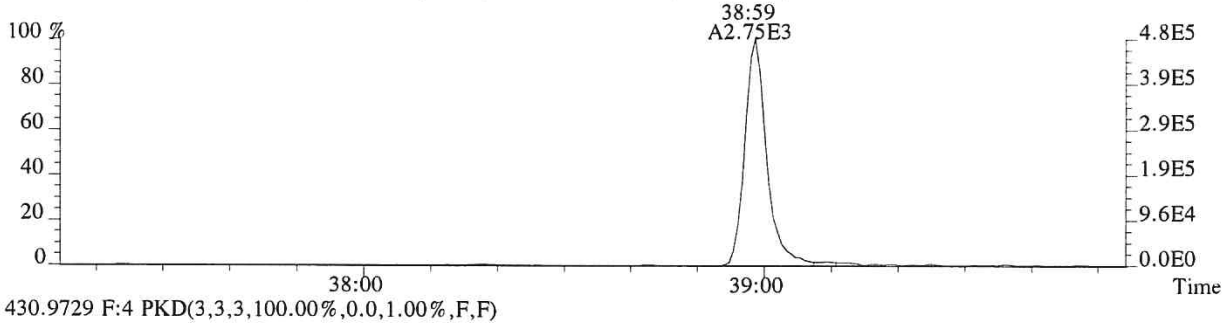
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,636.0,0.40%,F,T)



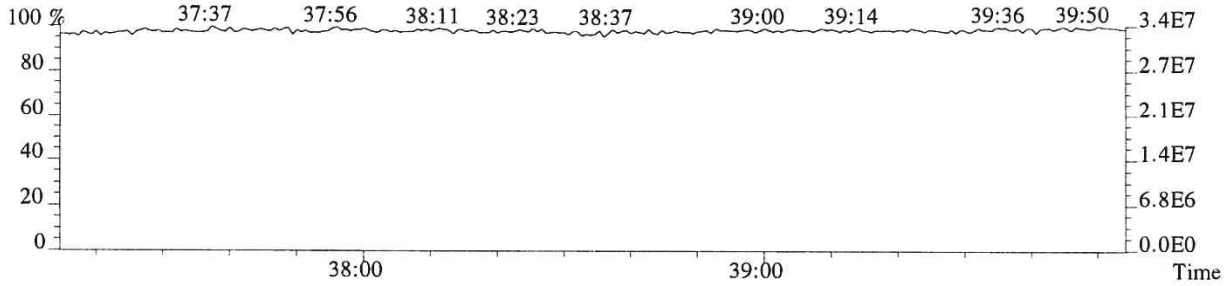
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,256.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,176.0,0.40%,F,T)

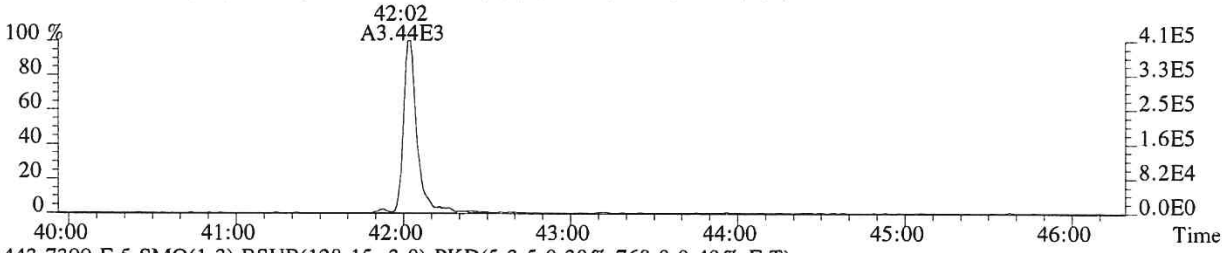


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

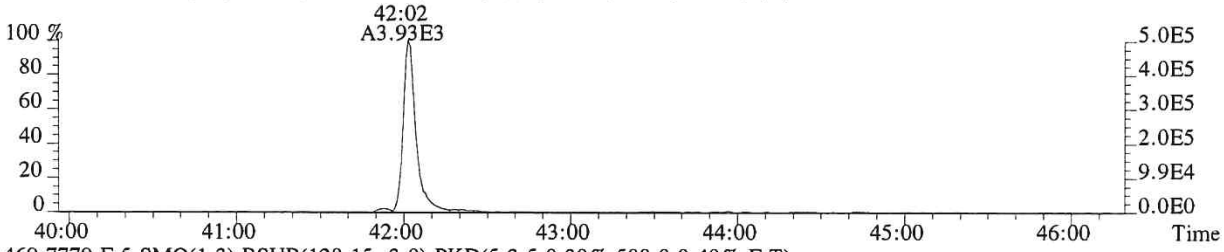


File:P519470 #1-575 Acq:18-DEC-2018 19:04:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-002

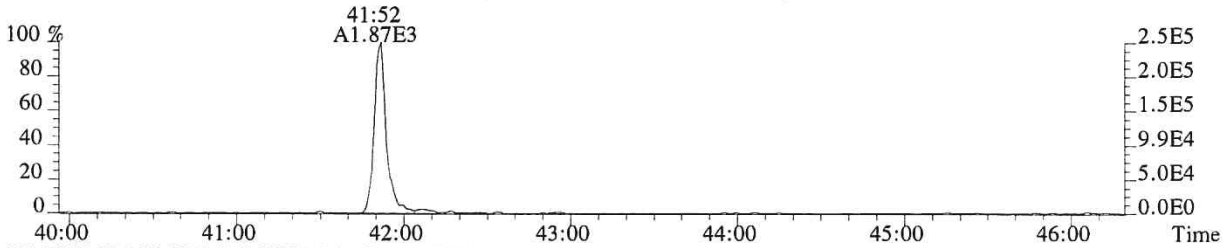
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,424.0,0.40%,F,T)



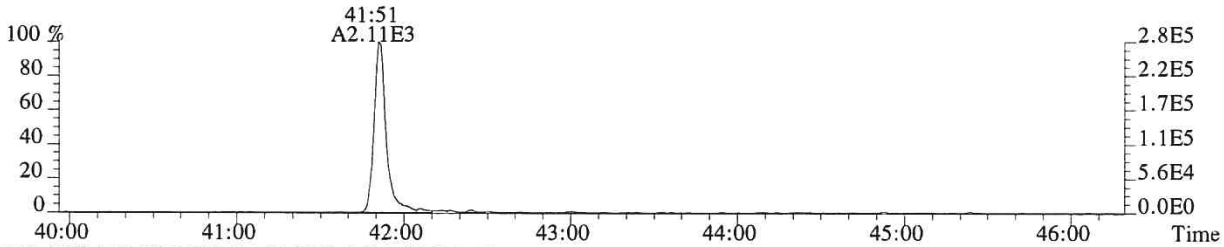
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,768.0,0.40%,F,T)



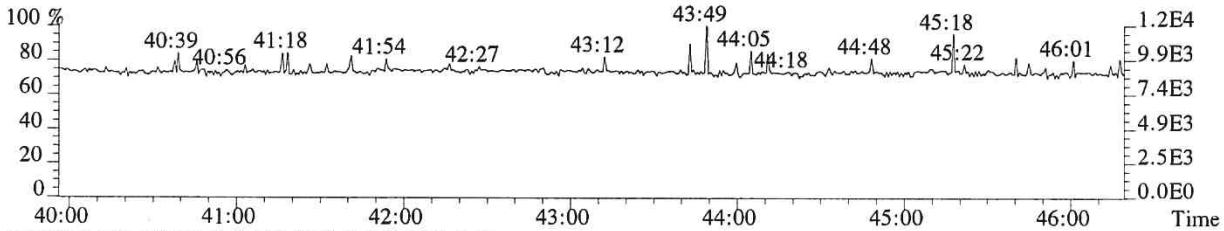
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,588.0,0.40%,F,T)



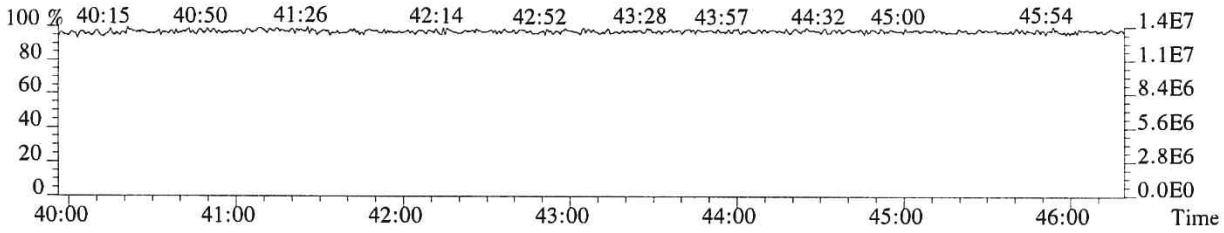
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,332.0,0.40%,F,T)



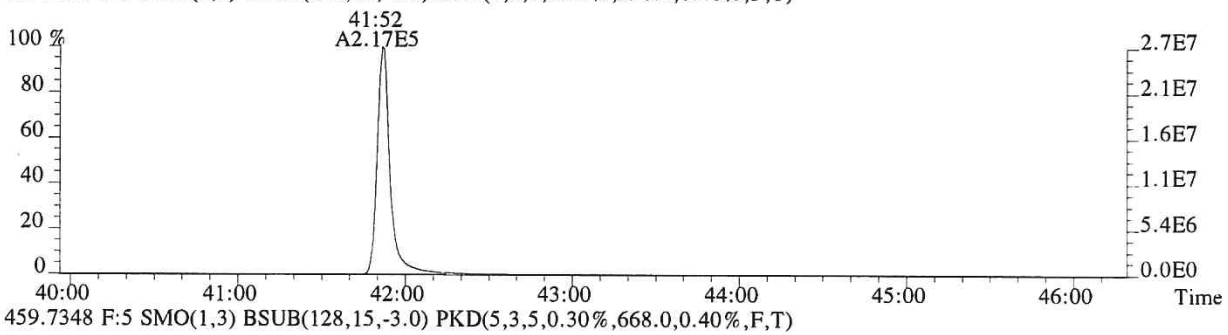
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



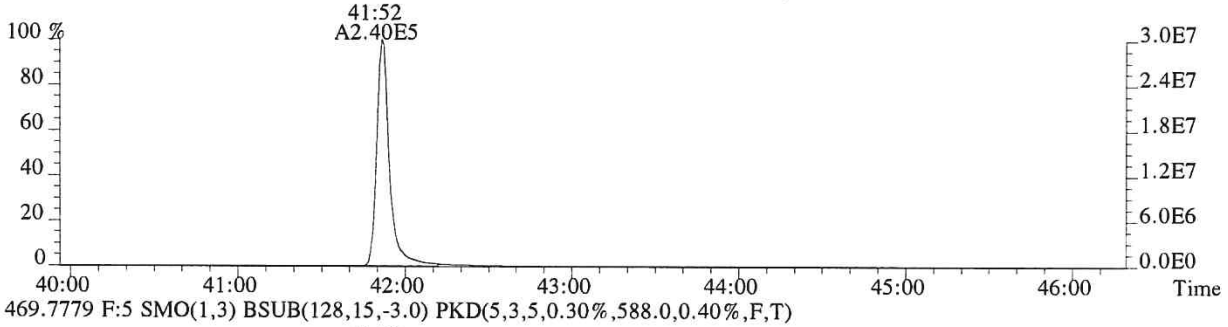
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



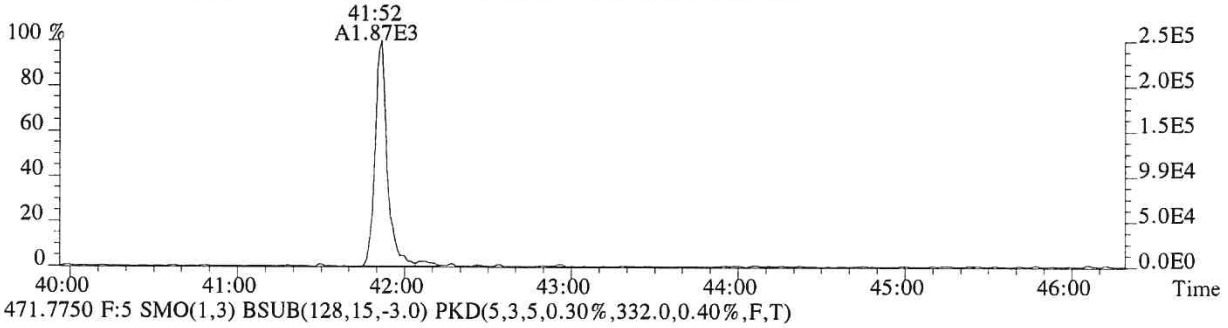
File:P519470 #1-575 Acq:18-DEC-2018 19:04:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-002
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,520.0,0.40%,F,T)



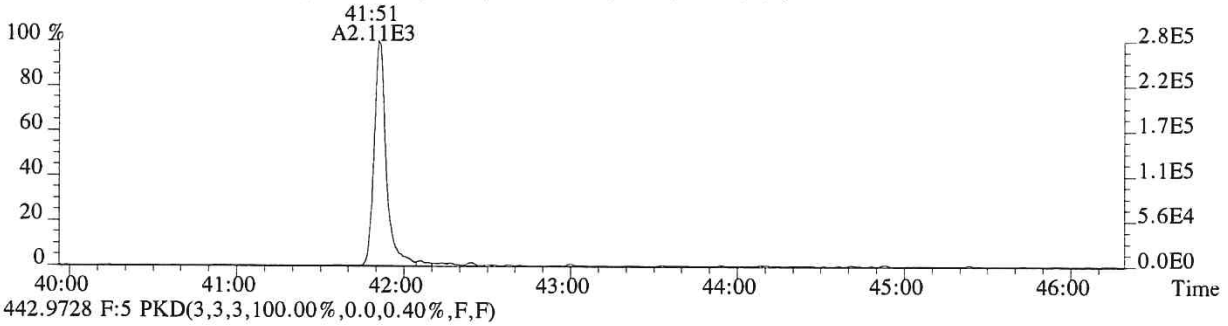
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,668.0,0.40%,F,T)



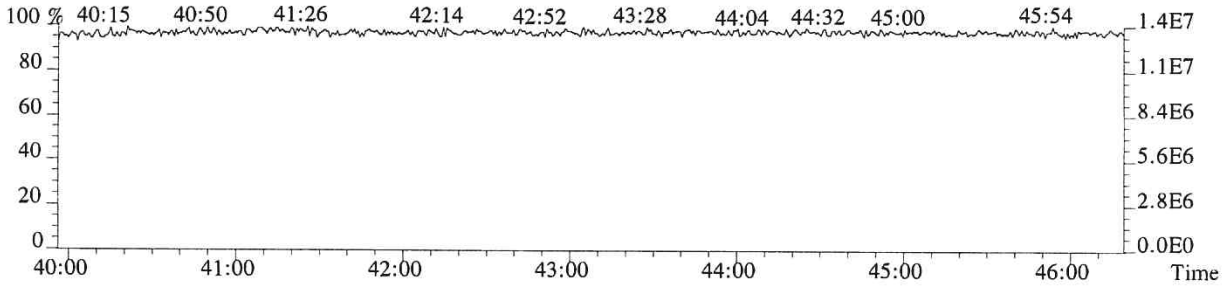
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,588.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,332.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



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Sample Response Summary

CLIENT ID.
SL0029

Run #13 Filename P519539 Samp: 1 Inj: 1 Acquired: 21-DEC-18 08:12:22
Processed: 24-DEC-18 08:09:45 Sample ID: E1801094-002DL

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:49	2.370e+03	3.027e+03	0.78	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	31:28	1.242e+02	9.519e+01	1.31	no	no	1.012
3	Unk	2,3,4,7,8-PeCDF	32:25	9.831e+01	4.969e+01	1.98	no	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:18	1.230e+02	1.157e+02	1.06	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:23	5.695e+01	2.566e+01	2.22	no	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:07	3.399e+01	3.950e+01	0.86	no	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	yes	1.258
10	Unk	OCDF	42:16	4.318e+01	3.968e+01	1.09	no	no	1.359
11	Unk	2,3,7,8-TCDD	27:43	5.930e+02	7.681e+02	0.77	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	32:45	9.269e+00	1.078e+01	0.86	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:05	3.828e+02	3.966e+02	0.97	yes	no	1.025
17	Unk	OCDD	42:05	2.142e+03	2.376e+03	0.90	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	26:47	7.092e+03	8.907e+03	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	31:27	1.101e+04	7.008e+03	1.57	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	32:25	1.033e+04	6.523e+03	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:17	3.310e+03	6.760e+03	0.49	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:23	4.516e+03	8.499e+03	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:56	3.821e+03	7.690e+03	0.50	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	36:43	3.290e+03	6.425e+03	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:06	3.125e+03	6.965e+03	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:33	2.446e+03	5.790e+03	0.42	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	27:41	3.350e+03	4.310e+03	0.78	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:44	7.809e+03	4.762e+03	1.64	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:05	4.745e+03	3.641e+03	1.30	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:10	5.357e+03	4.225e+03	1.27	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:04	5.618e+03	4.979e+03	1.13	yes	no	0.858
32	IS	13C-OCDD	42:04	6.317e+03	7.125e+03	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:03	5.063e+03	6.213e+03	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:25	5.344e+03	4.126e+03	1.30	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:44	1.396e+01				no	1.014

$$\text{OCDD} = \frac{(2.142e+03 + 2.376e+03) \times 4000 \text{ pg} \times 100}{(6.317e+03 + 7.125e+03) \times 10.467 \text{ g} \times 55.6 / 100 \times 1.118} = 108755.1687 \text{ ng/kg}$$

LG 12/21/18

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Signal/Noise Height Ratio Summary

CLIENT ID.
SL0029

Run #13 Filename P519539 Samp: 1 Inj: 1 Acquired: 21-DEC-18 08:12:22
Processed: 24-DEC-18 08:09:45 LAB. ID: E1801094-002DL

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	3.28e+05	4.80e+02	6.8e+02	4.47e+05	8.44e+02	5.3e+02
2	1,2,3,7,8-PeCDF	2.14e+04	3.00e+02	7.1e+01	1.74e+04	6.36e+02	2.7e+01
3	2,3,4,7,8-PeCDF	1.54e+04	3.00e+02	5.1e+01	7.29e+03	6.36e+02	1.1e+01
4	1,2,3,4,7,8-HxCDF	2.18e+04	1.78e+03	1.2e+01	2.25e+04	1.18e+03	1.9e+01
5	1,2,3,6,7,8-HxCDF	9.27e+03	1.78e+03	5.2e+00	5.85e+03	1.18e+03	4.9e+00
6	2,3,4,6,7,8-HxCDF	*	1.78e+03	*	*	1.18e+03	*
7	1,2,3,7,8,9-HxCDF	*	1.78e+03	*	*	1.18e+03	*
8	1,2,3,4,6,7,8-HpCDF	7.16e+03	8.84e+02	8.1e+00	9.07e+03	1.11e+03	8.2e+00
9	1,2,3,4,7,8,9-HpCDF	*	8.84e+02	*	*	1.11e+03	*
10	OCDF	5.87e+03	5.76e+02	1.0e+01	7.78e+03	2.13e+03	3.6e+00
11	2,3,7,8-TCDD	1.01e+05	1.48e+03	6.9e+01	1.22e+05	4.00e+02	3.1e+02
12	1,2,3,7,8-PeCDD	2.45e+03	4.12e+02	5.9e+00	1.90e+03	2.60e+02	7.3e+00
13	1,2,3,4,7,8-HxCDD	*	8.08e+02	*	*	1.08e+03	*
14	1,2,3,6,7,8-HxCDD	*	8.08e+02	*	*	1.08e+03	*
15	1,2,3,7,8,9-HxCDD	*	8.08e+02	*	*	1.08e+03	*
16	1,2,3,4,6,7,8-HpCDD	6.09e+04	1.08e+03	5.7e+01	5.51e+04	7.32e+02	7.5e+01
17	OCDD	2.16e+05	5.32e+02	4.1e+02	2.35e+05	6.52e+02	3.6e+02
18	13C-2,3,7,8-TCDF	1.10e+06	2.97e+03	3.7e+02	1.36e+06	1.66e+03	8.2e+02
19	13C-1,2,3,7,8-PeCDF	1.92e+06	5.60e+02	3.4e+03	1.23e+06	4.92e+02	2.5e+03
20	13C-2,3,4,7,8-PeCDF	1.77e+06	5.60e+02	3.2e+03	1.12e+06	4.92e+02	2.3e+03
21	13C-1,2,3,4,7,8-HxCDF	6.39e+05	1.22e+03	5.3e+02	1.33e+06	2.18e+03	6.1e+02
22	13C-1,2,3,6,7,8-HxCDF	8.33e+05	1.22e+03	6.8e+02	1.56e+06	2.18e+03	7.2e+02
23	13C-2,3,4,6,7,8-HxCDF	7.00e+05	1.22e+03	5.8e+02	1.39e+06	2.18e+03	6.3e+02
24	13C-1,2,3,7,8,9-HxCDF	5.69e+05	1.22e+03	4.7e+02	1.14e+06	2.18e+03	5.2e+02
25	13C-1,2,3,4,6,7,8-HpCDF	5.06e+05	1.94e+03	2.6e+02	1.12e+06	2.69e+03	4.1e+02
26	13C-1,2,3,4,7,8,9-HpCDF	3.52e+05	1.94e+03	1.8e+02	8.13e+05	2.69e+03	3.0e+02
27	13C-2,3,7,8-TCDD	5.54e+05	3.18e+03	1.7e+02	7.01e+05	9.96e+02	7.0e+02
28	13C-1,2,3,7,8-PeCDD	1.35e+06	3.40e+02	4.0e+03	7.84e+05	4.68e+02	1.7e+03
29	13C-1,2,3,4,7,8-HxCDD	9.75e+05	6.36e+02	1.5e+03	7.35e+05	8.68e+02	8.5e+02
30	13C-1,2,3,6,7,8-HxCDD	1.01e+06	6.36e+02	1.6e+03	7.82e+05	8.68e+02	9.0e+02
31	13C-1,2,3,4,6,7,8-HpCDD	7.51e+05	1.53e+03	4.9e+02	7.02e+05	9.20e+02	7.6e+02
32	13C-OCDD	6.05e+05	8.72e+02	6.9e+02	6.90e+05	3.00e+02	2.3e+03
33	13C-1,2,3,4-TCDD	8.25e+05	3.18e+03	2.6e+02	1.03e+06	9.96e+02	1.0e+03
34	13C-1,2,3,7,8,9-HxCDD	8.41e+05	6.36e+02	1.3e+03	6.26e+05	8.68e+02	7.2e+02
35	37Cl-2,3,7,8-TCDD	3.15e+03	4.72e+02	6.7e+00			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.476e+03 + 4.000e+02) \times 2000}{(5.544e+05 + 7.011e+05) \times (\quad) \times 1.085} =$$

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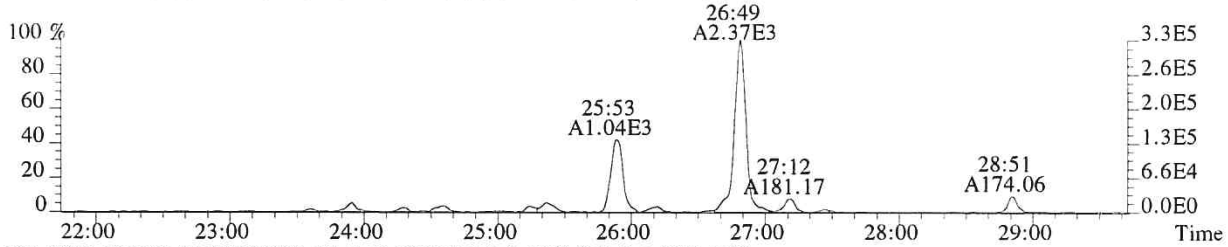
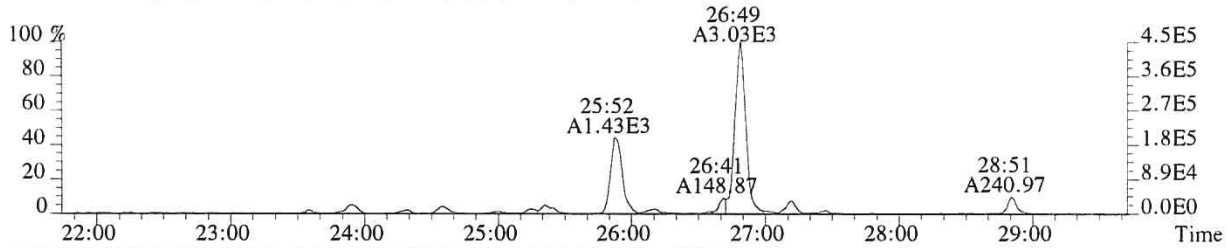
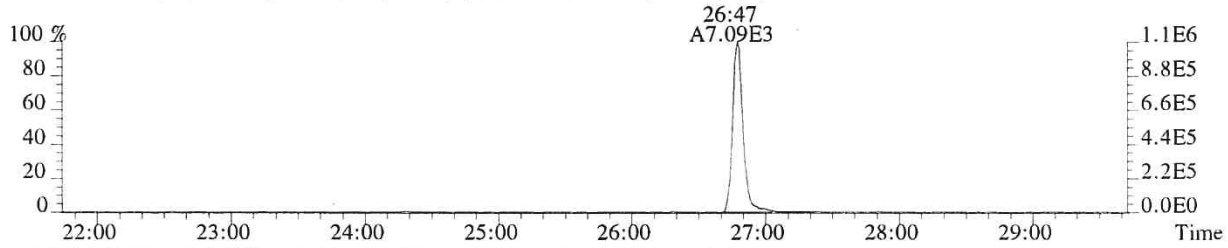
File:P519539 #1-566 Acq:21-DEC-2018 08:12:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-002DL
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,480.0,1.00%,F,T)



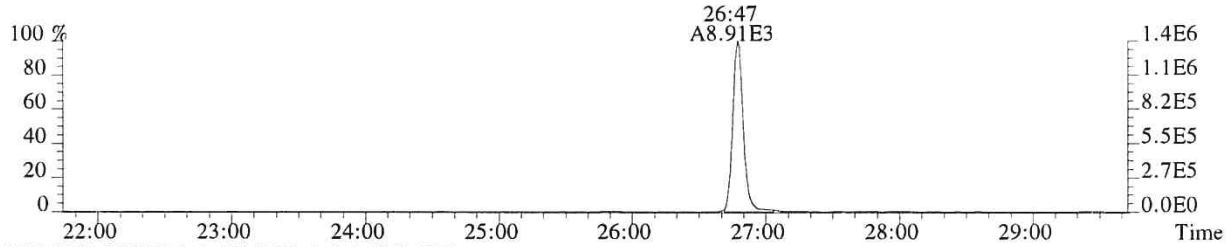
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,844.0,1.00%,F,T)



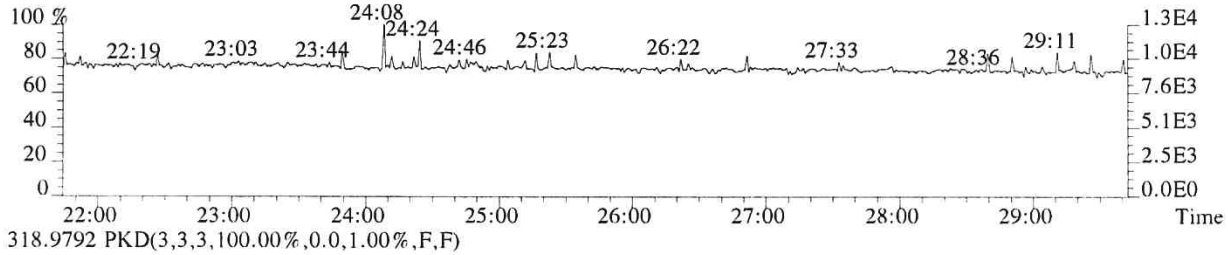
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2968.0,1.00%,F,T)



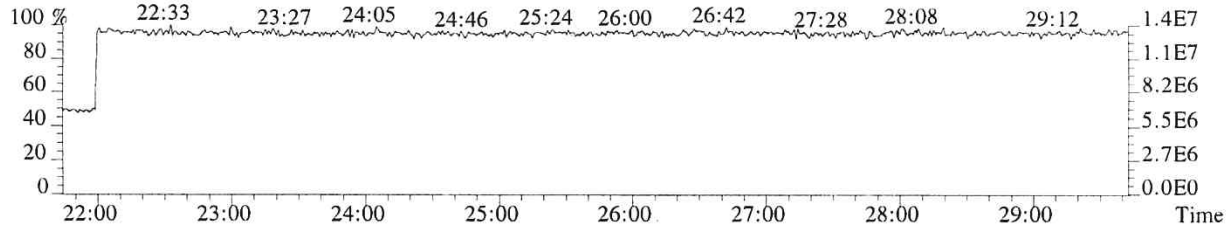
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1656.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



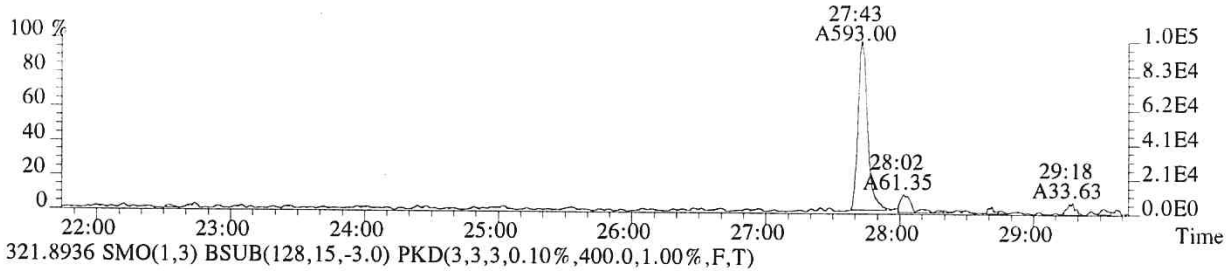
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



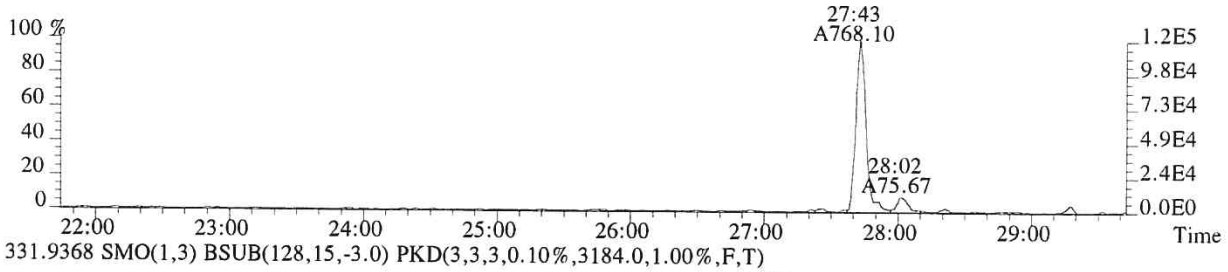
015200

File:P519539 #1-566 Acq:21-DEC-2018 08:12:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-002DL

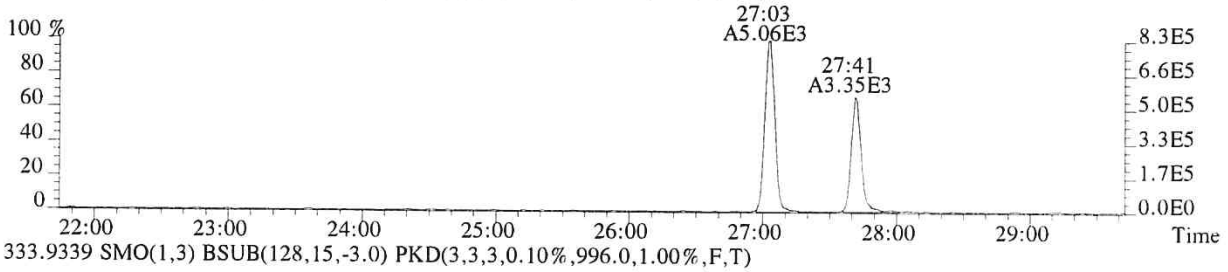
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1476.0,1.00%,F,T)



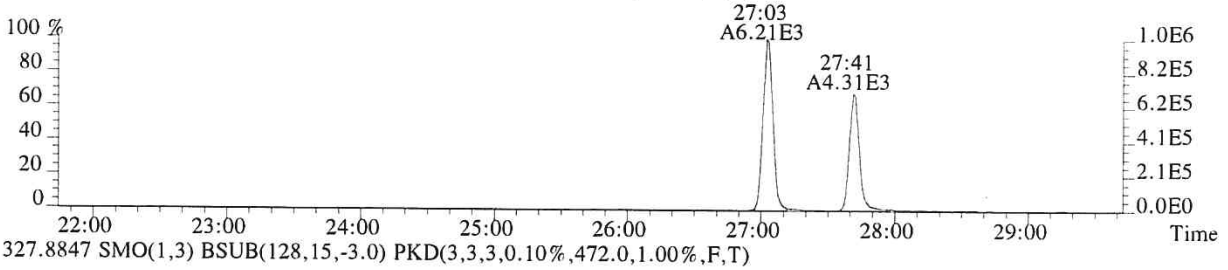
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,400.0,1.00%,F,T)



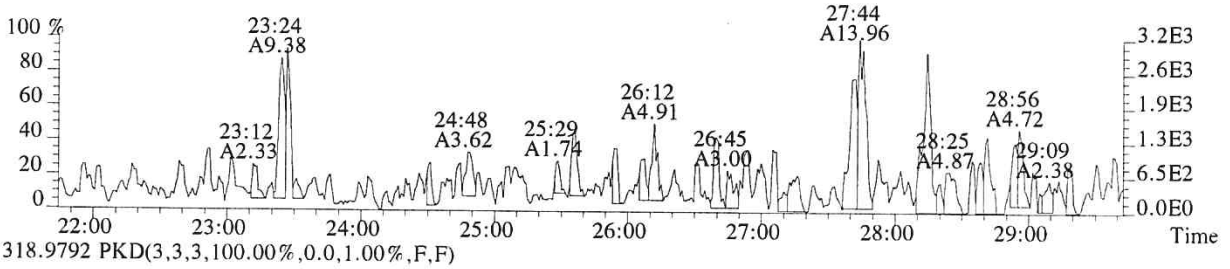
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3184.0,1.00%,F,T)



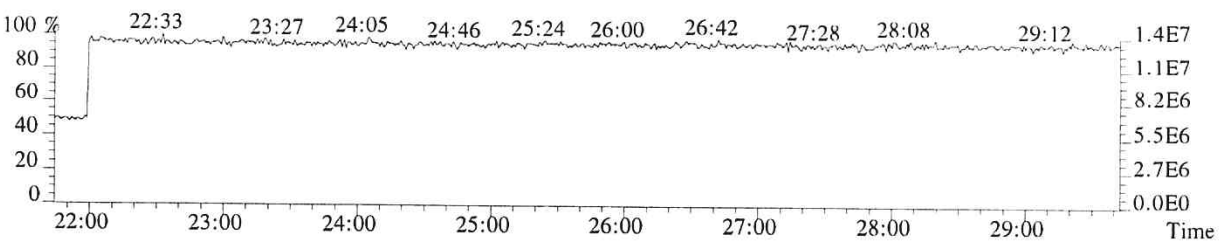
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,996.0,1.00%,F,T)



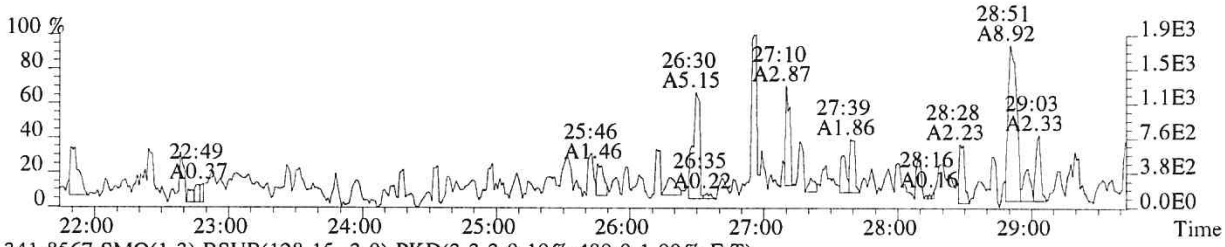
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,472.0,1.00%,F,T)



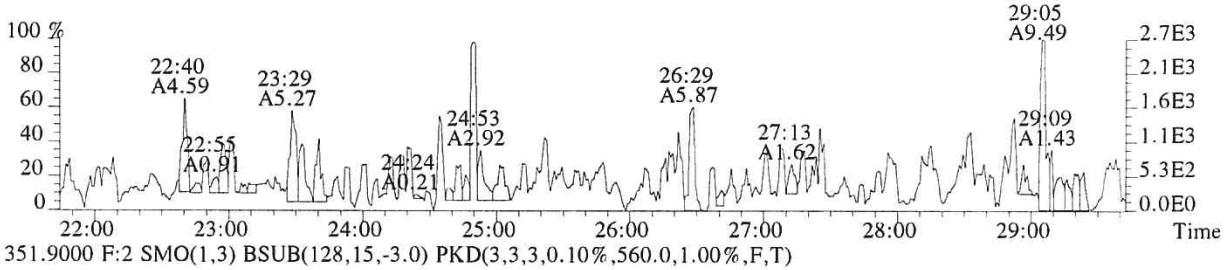
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



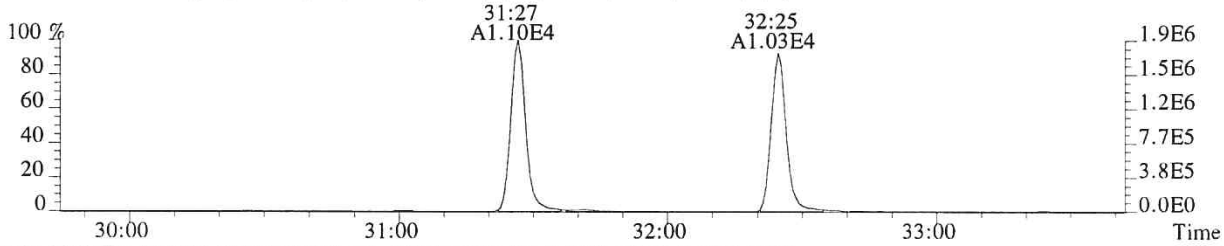
File:P519539 #1-566 Acq:21-DEC-2018 08:12:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-002DL
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,284.0,1.00%,F,T)



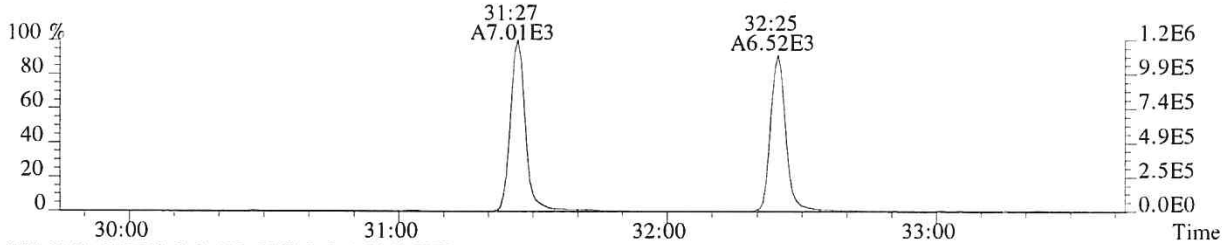
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,480.0,1.00%,F,T)



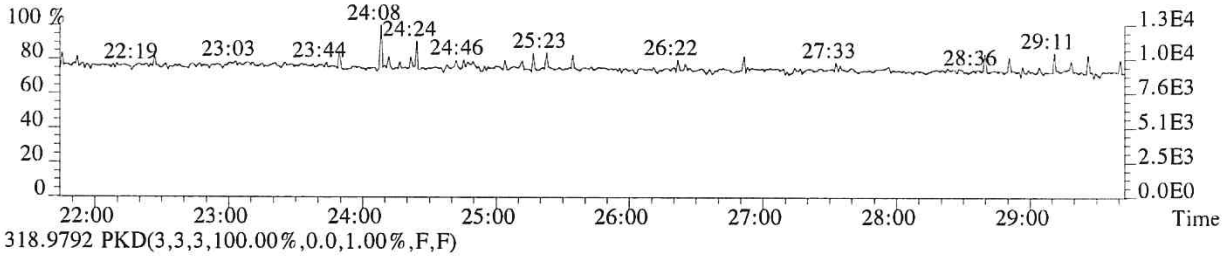
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,560.0,1.00%,F,T)



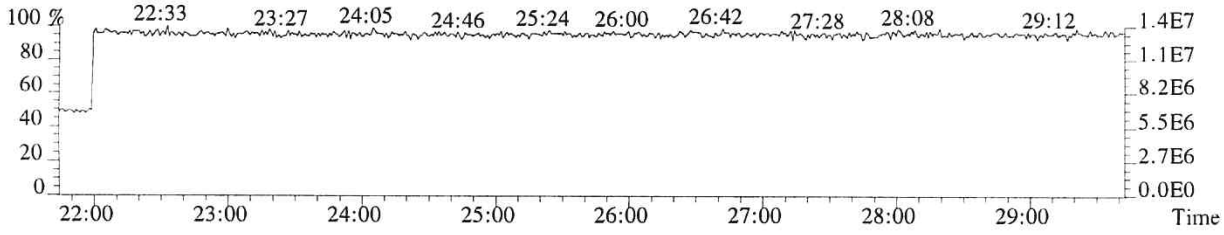
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,492.0,1.00%,F,T)



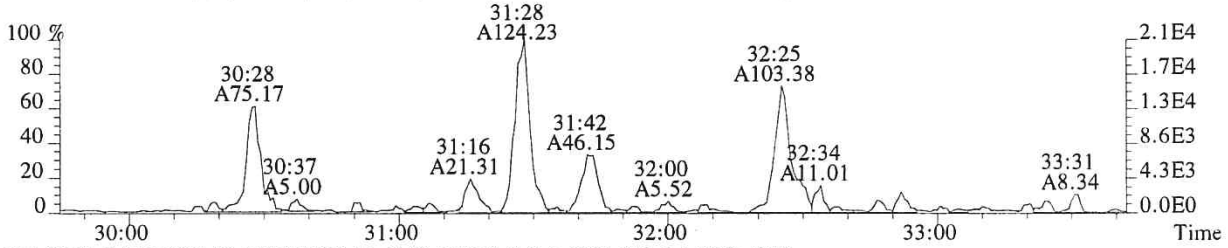
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



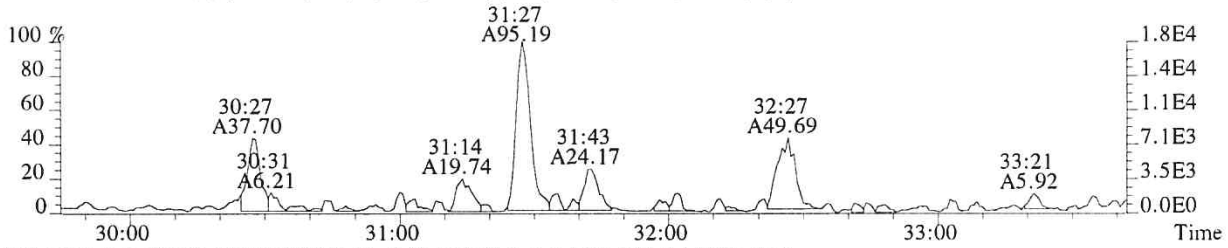
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



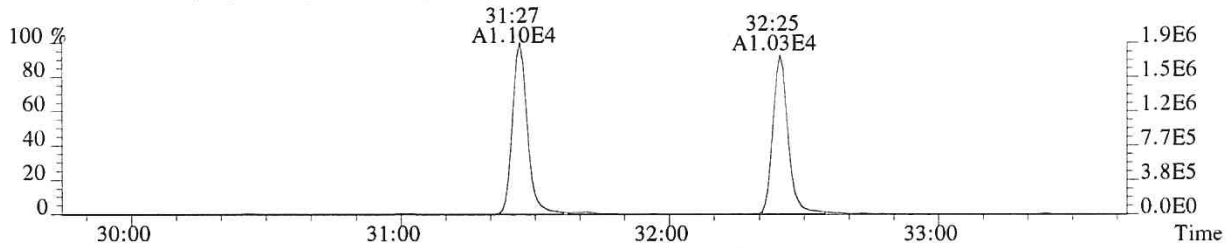
File:P519539 #1-357 Acq:21-DEC-2018 08:12:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-002DL
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,300.0,1.00%,F,T)



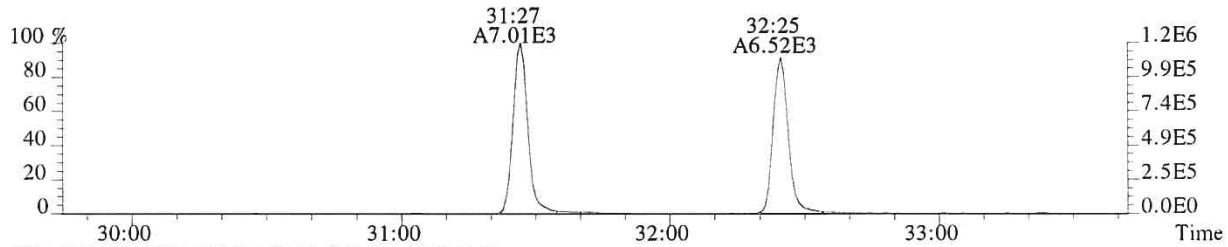
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)



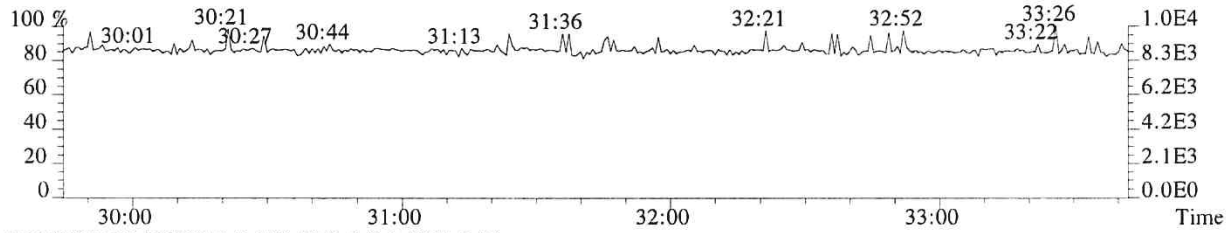
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,560.0,1.00%,F,T)



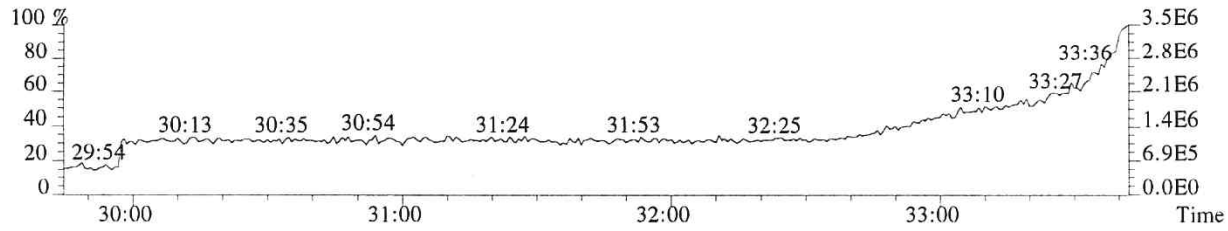
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,492.0,1.00%,F,T)



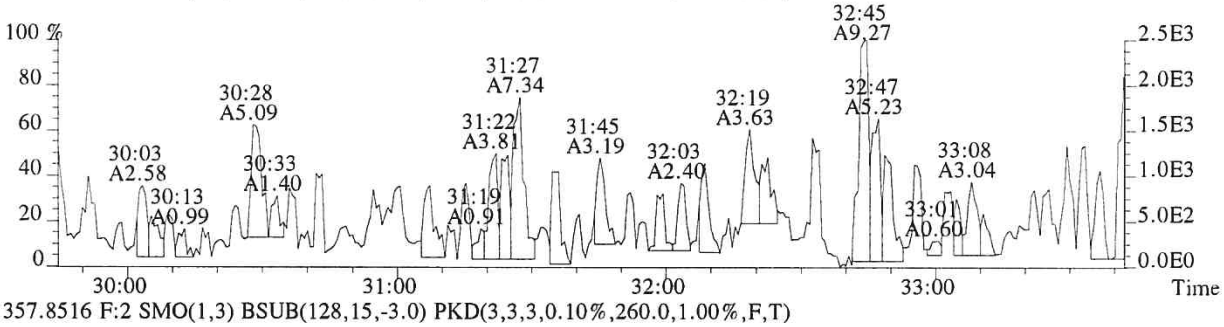
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



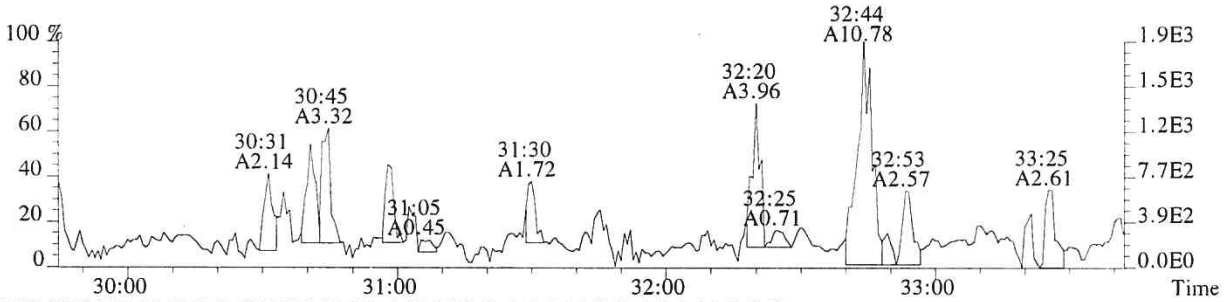
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



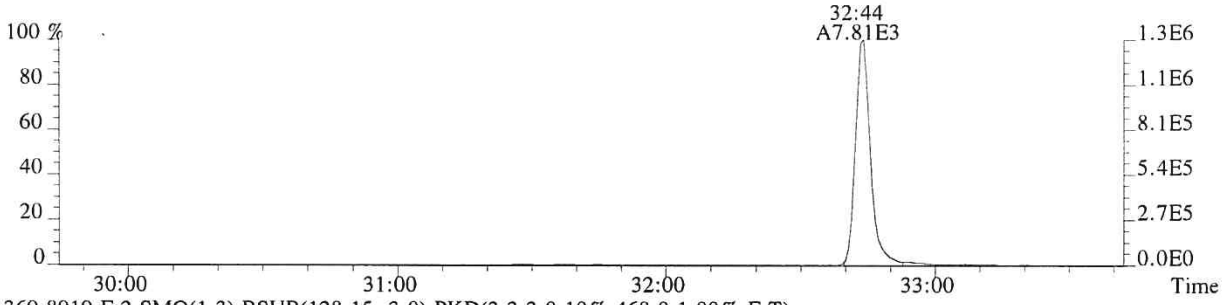
File:P519539 #1-357 Acq:21-DEC-2018 08:12:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-002DL
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,412.0,1.00%,F,T)



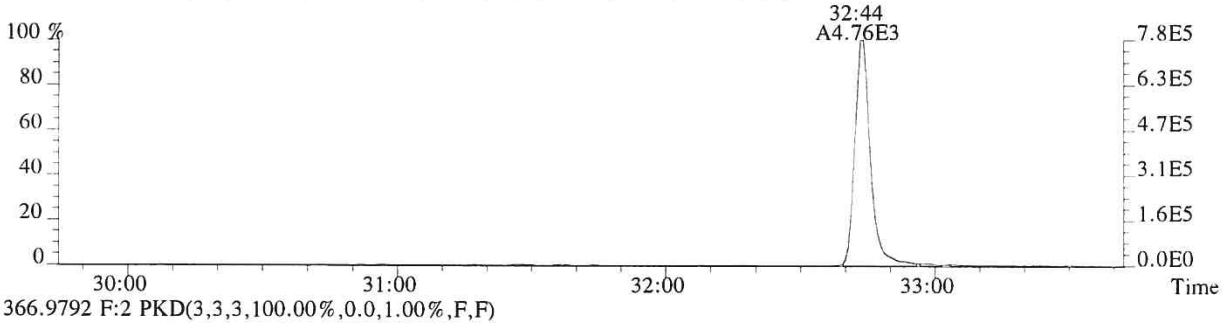
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,260.0,1.00%,F,T)



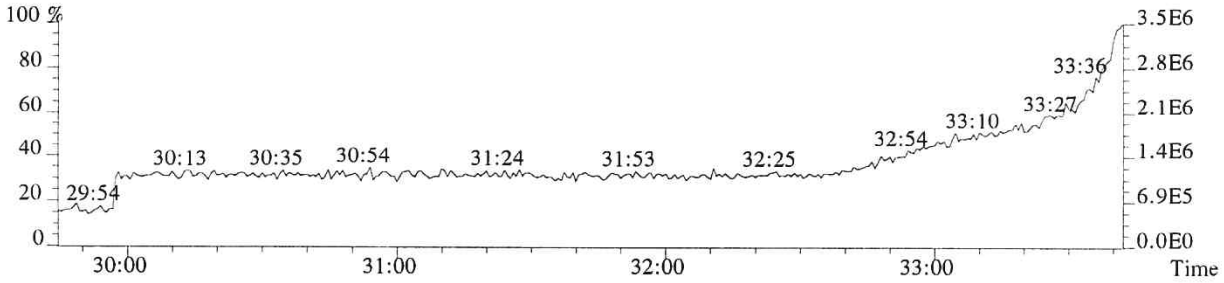
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,340.0,1.00%,F,T)



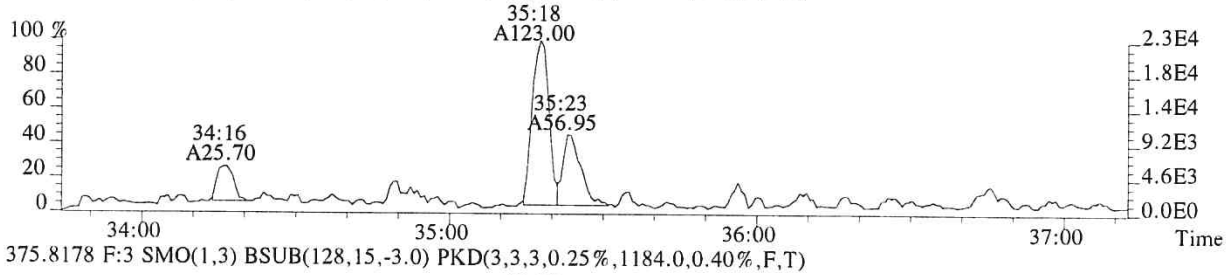
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,468.0,1.00%,F,T)



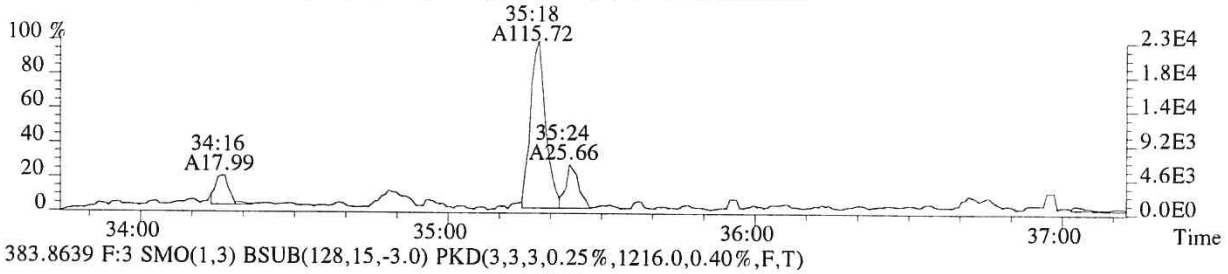
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



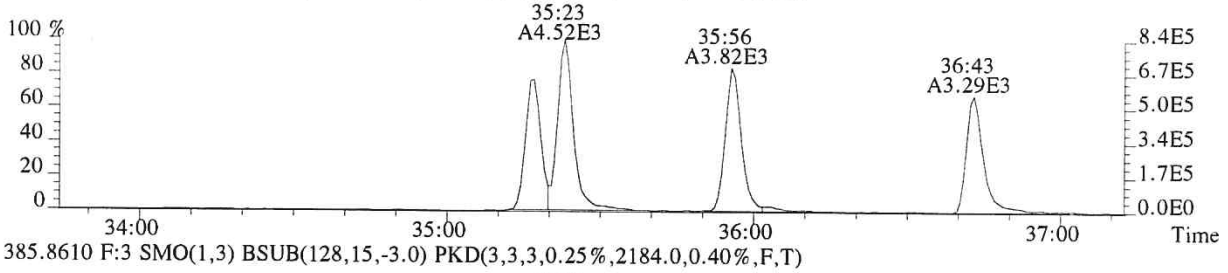
File:P519539 #1-313 Acq:21-DEC-2018 08:12:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-002DL
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1784.0,0.40%,F,T)



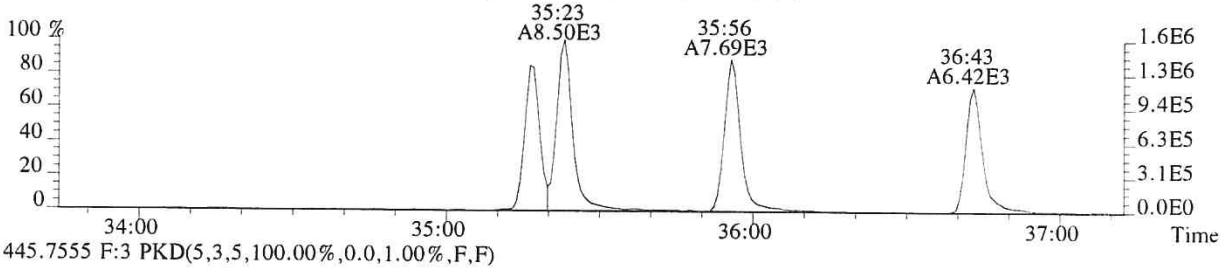
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1184.0,0.40%,F,T)



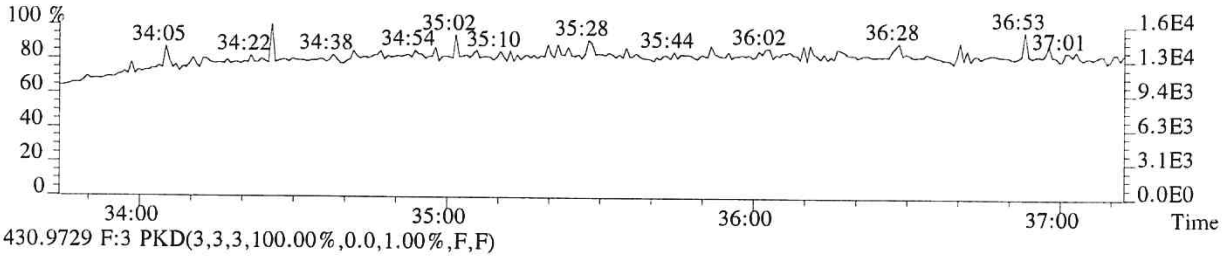
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1216.0,0.40%,F,T)



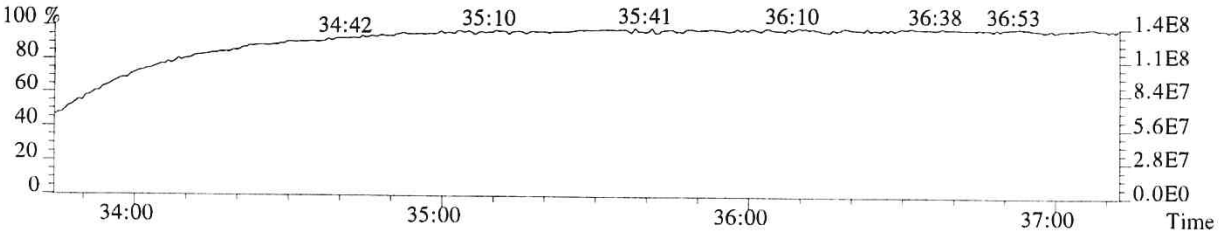
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2184.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

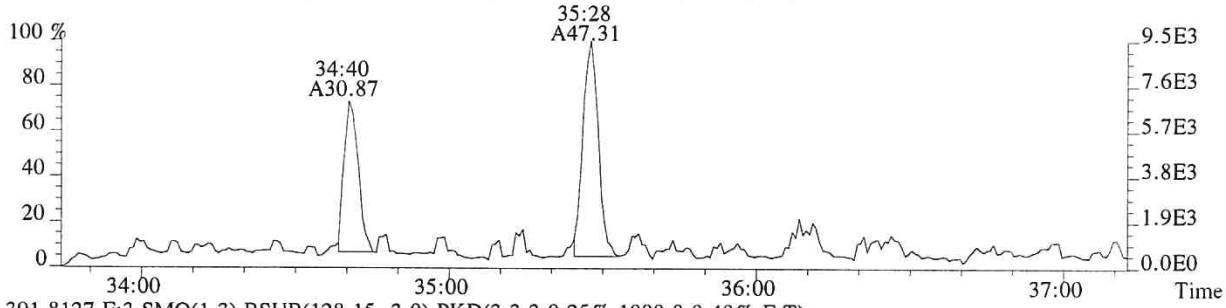


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

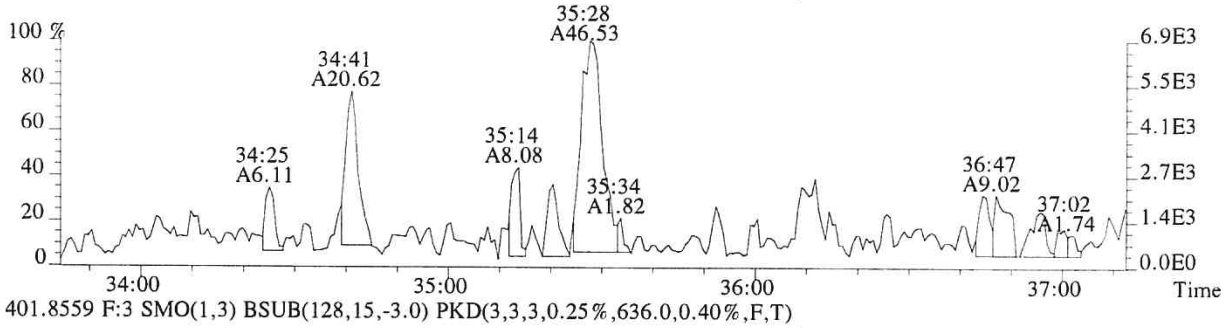


015205

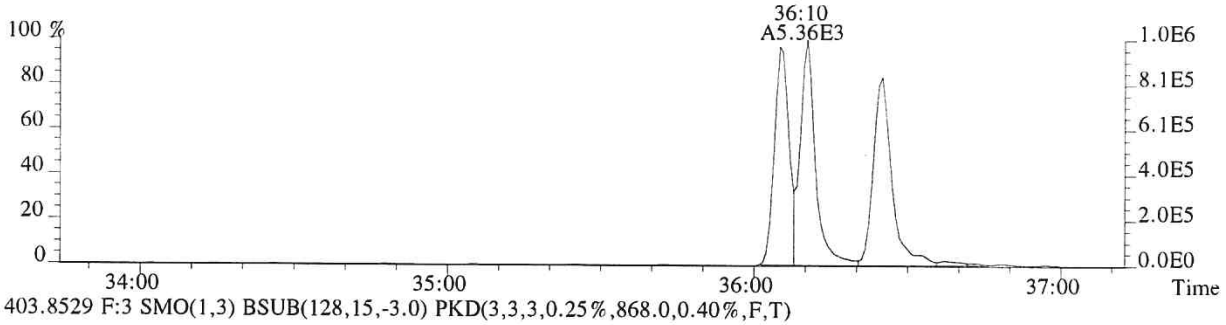
File:P519539 #1-313 Acq:21-DEC-2018 08:12:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-002DL
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,808.0,0.40%,F,T)



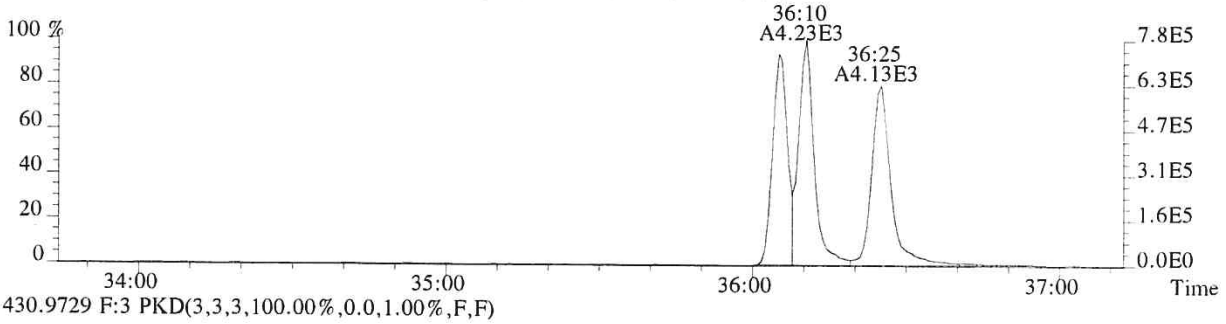
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1080.0,0.40%,F,T)



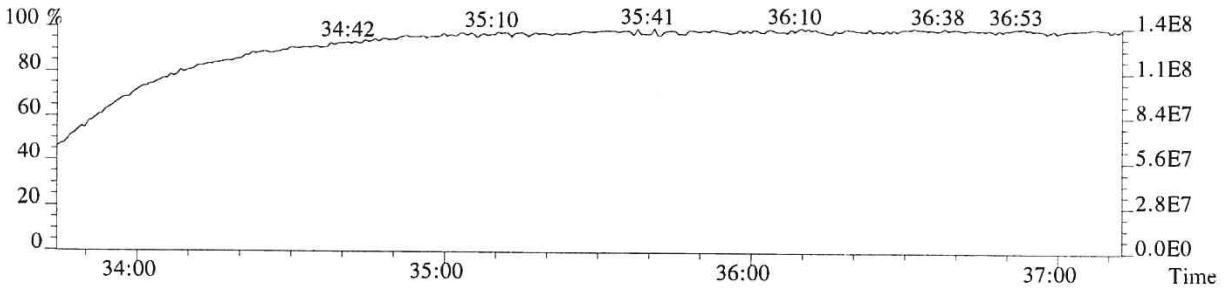
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,636.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,868.0,0.40%,F,T)

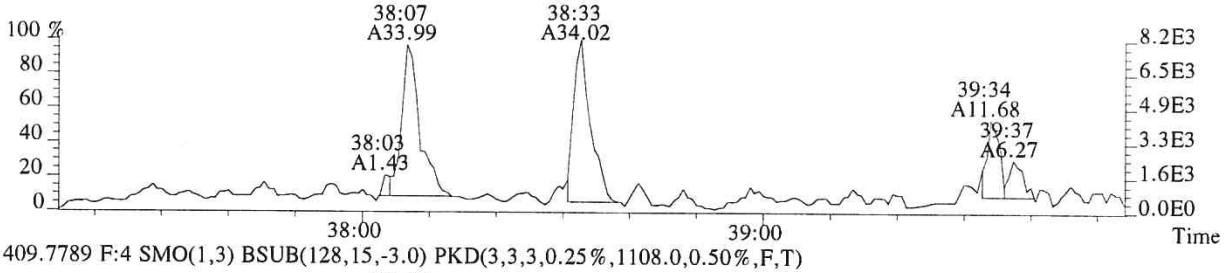


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

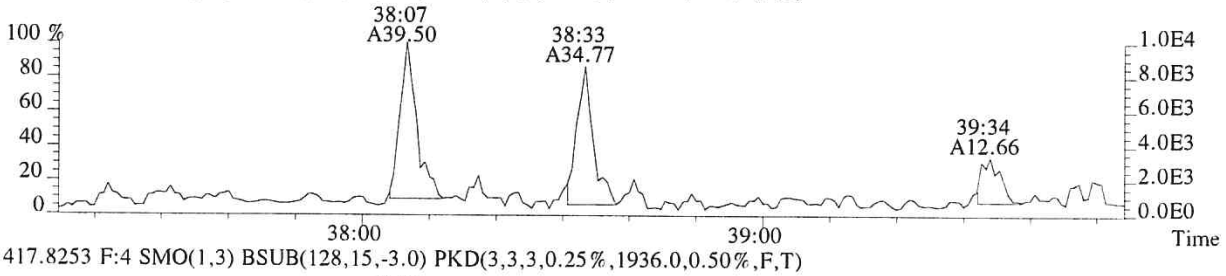


015206

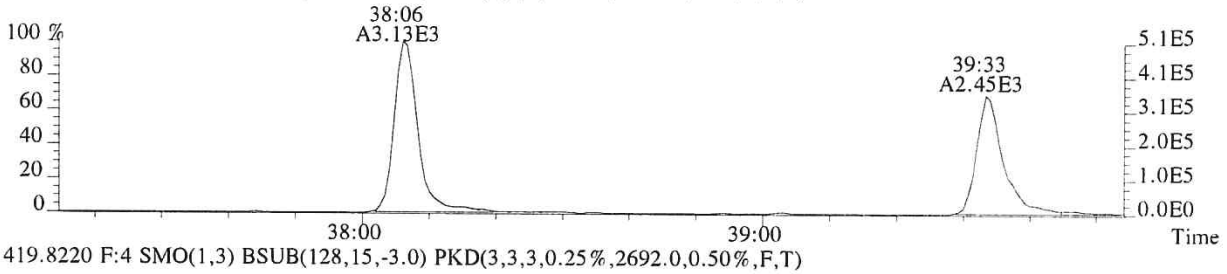
File:P519539 #1-240 Acq:21-DEC-2018 08:12:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-002DL
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,884.0,0.50%,F,T)



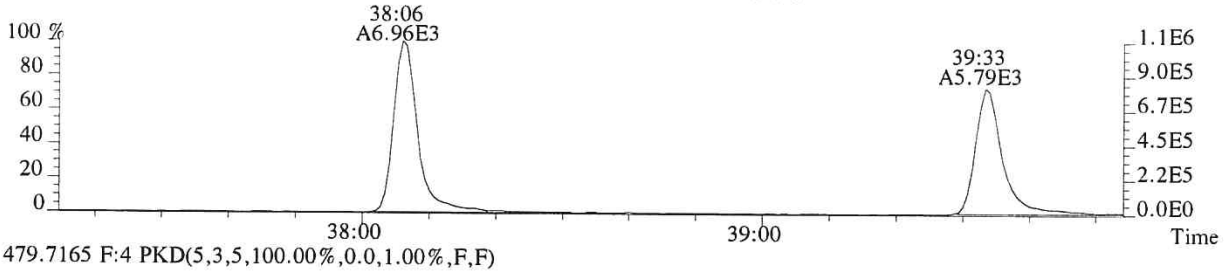
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1108.0,0.50%,F,T)



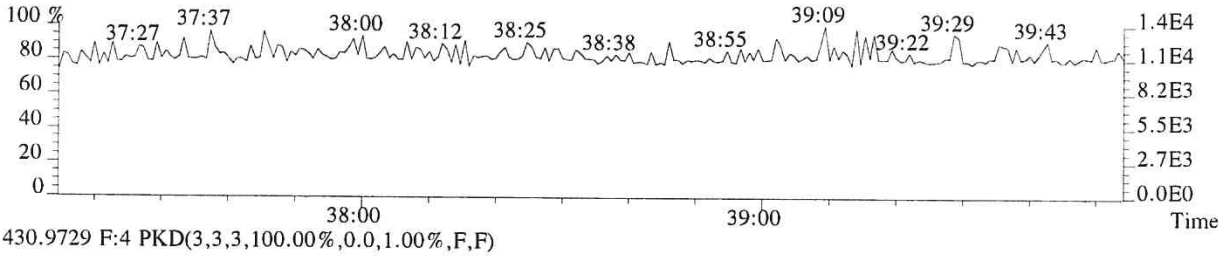
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1936.0,0.50%,F,T)



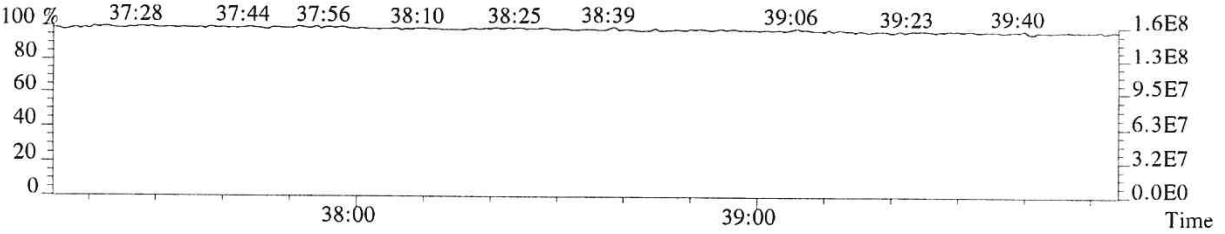
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2692.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

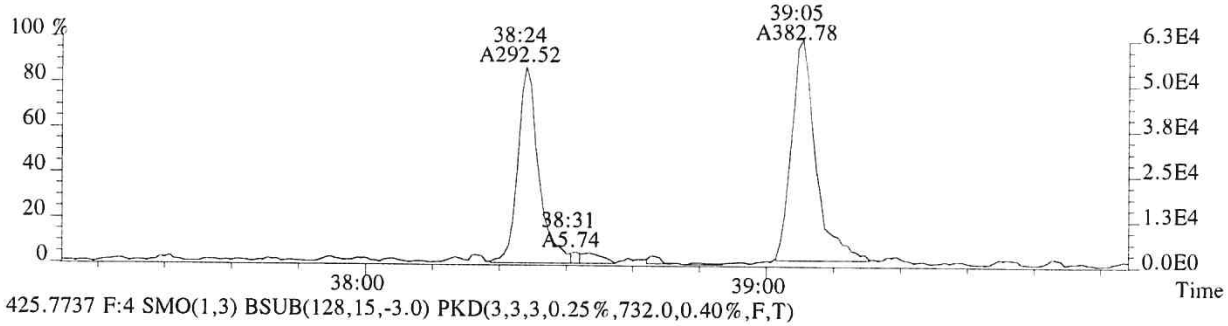


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

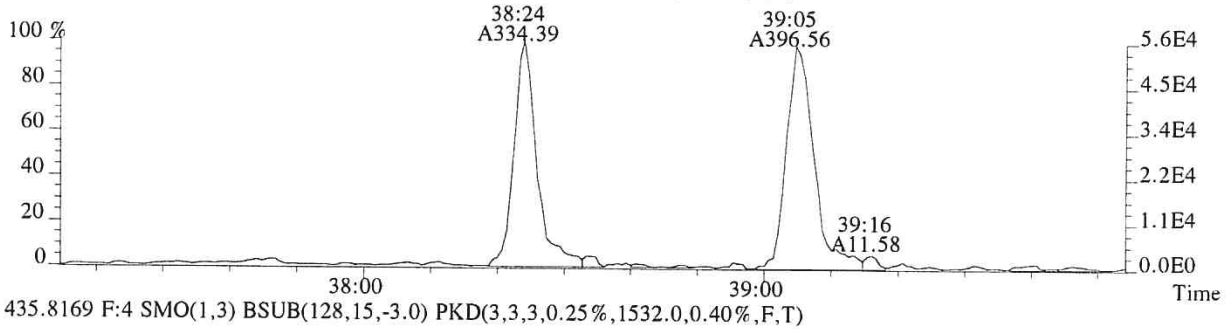


015207

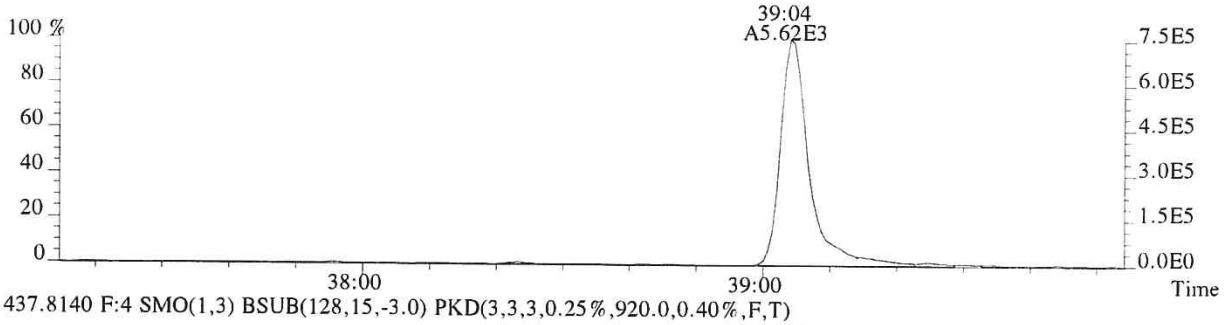
File:P519539 #1-240 Acq:21-DEC-2018 08:12:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-002DL
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1076.0,0.40%,F,T)



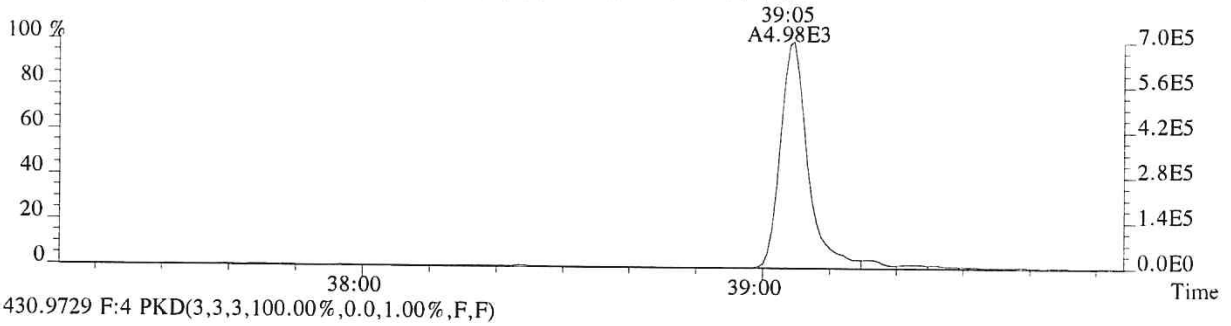
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,732.0,0.40%,F,T)



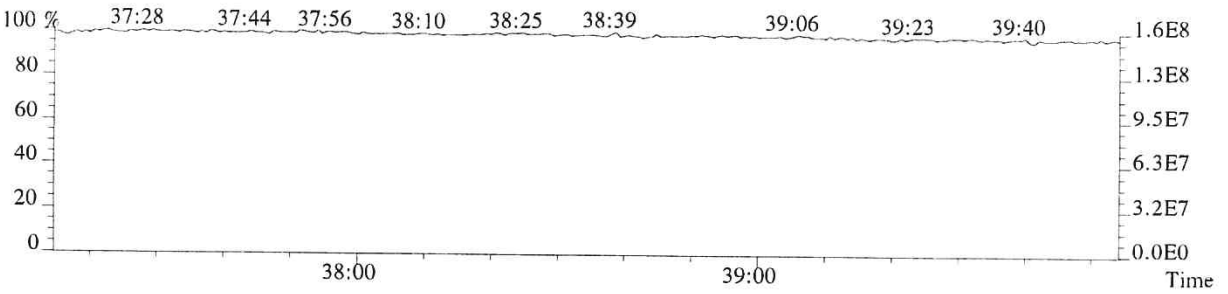
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1532.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,920.0,0.40%,F,T)

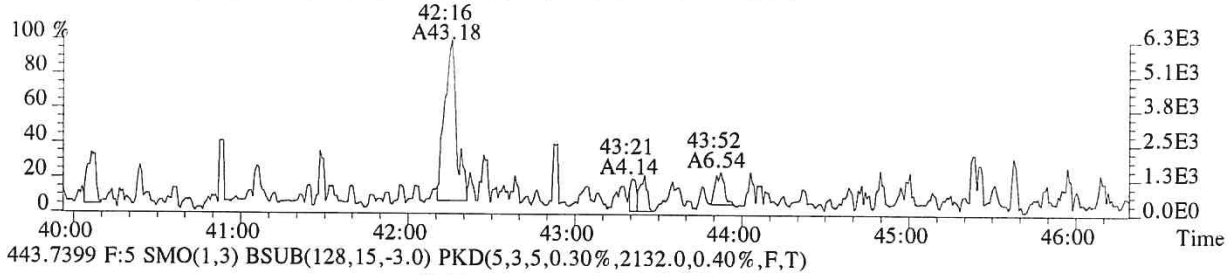


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

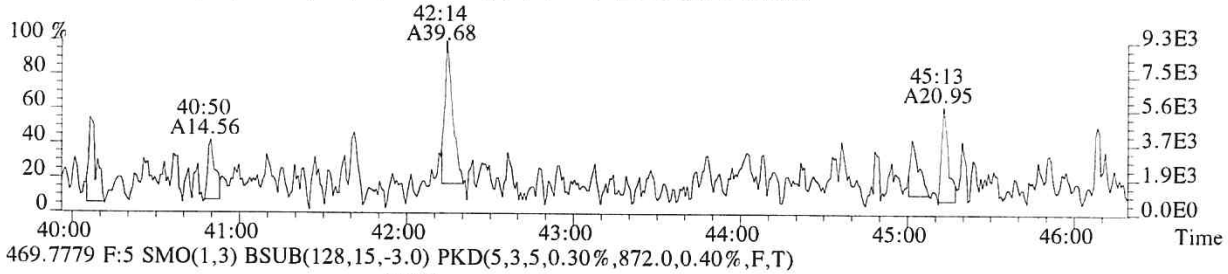


File:P519539 #1-575 Acq:21-DEC-2018 08:12:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-002DL

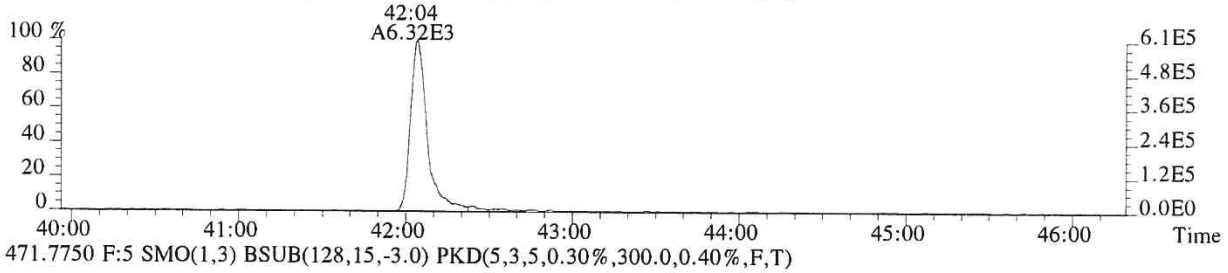
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,576.0,0.40%,F,T)



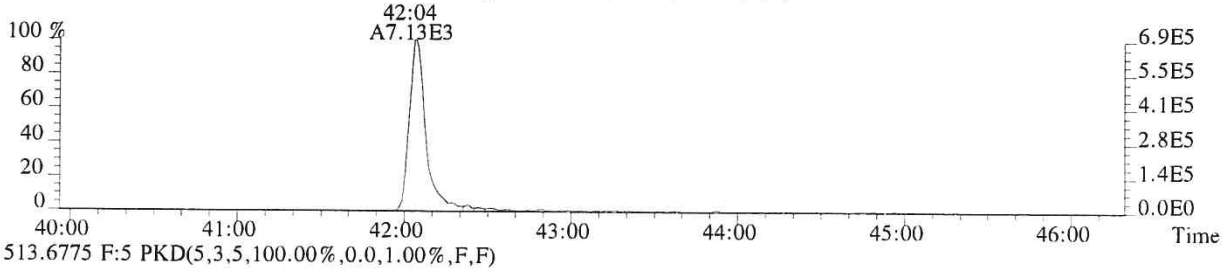
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2132.0,0.40%,F,T)



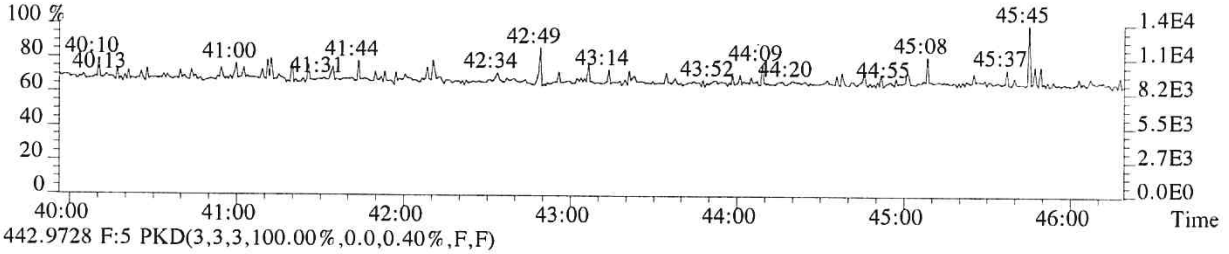
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,872.0,0.40%,F,T)



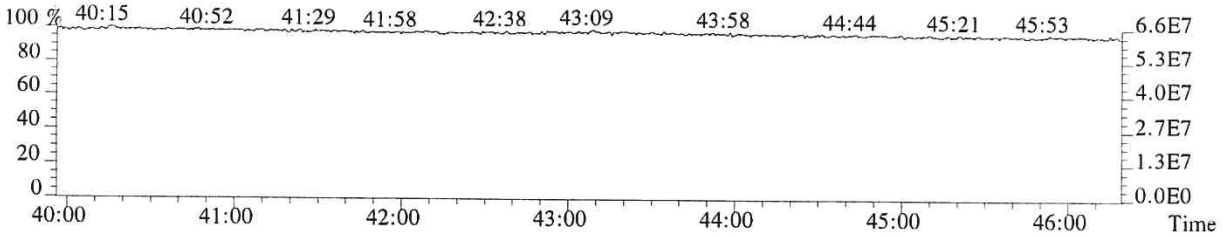
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,300.0,0.40%,F,T)



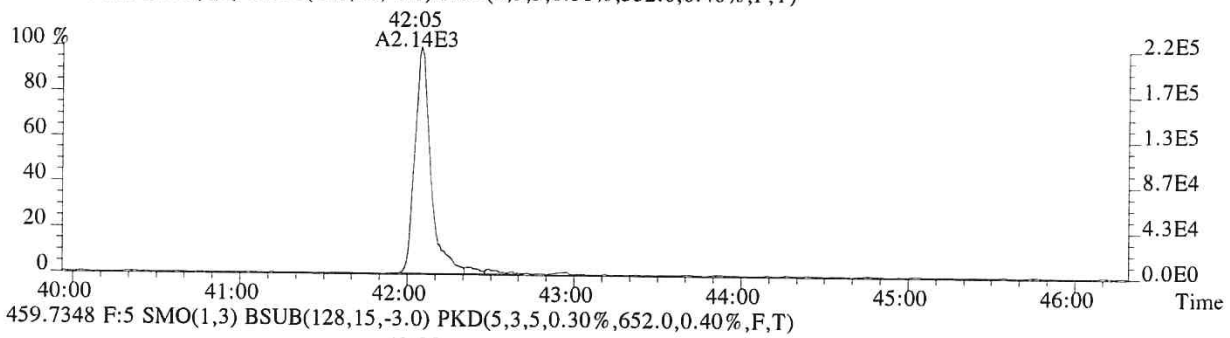
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



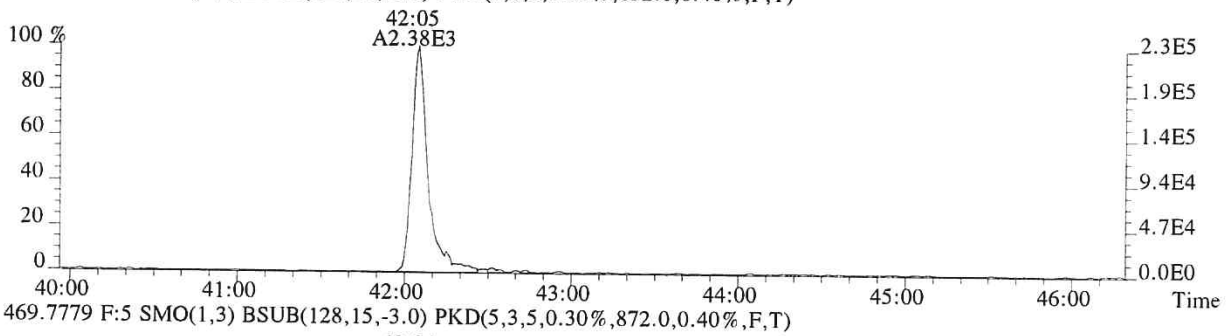
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



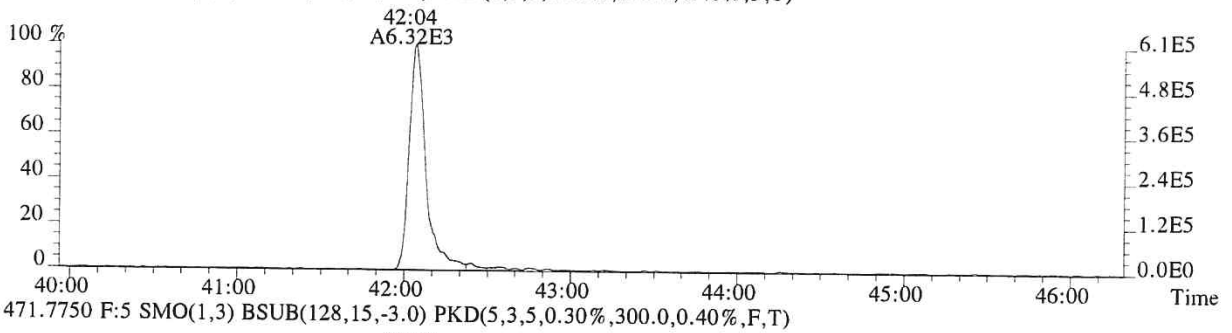
File:P519539 #1-575 Acq:21-DEC-2018 08:12:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-002DL
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,532.0,0.40%,F,T)



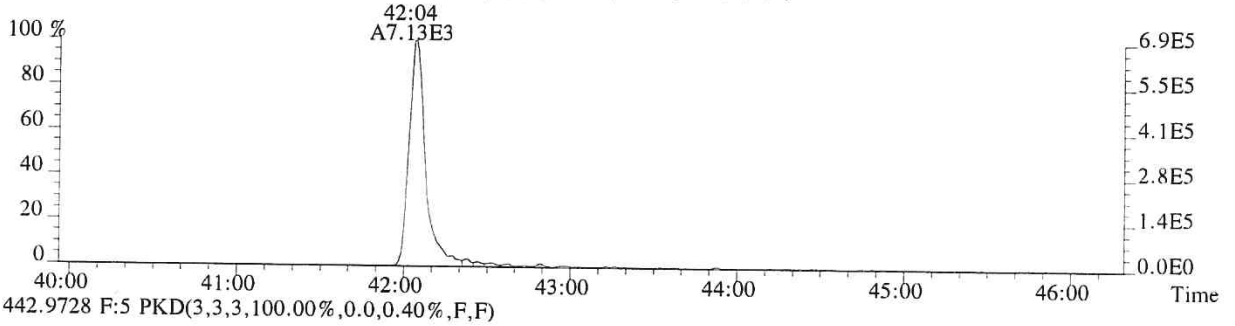
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,652.0,0.40%,F,T)



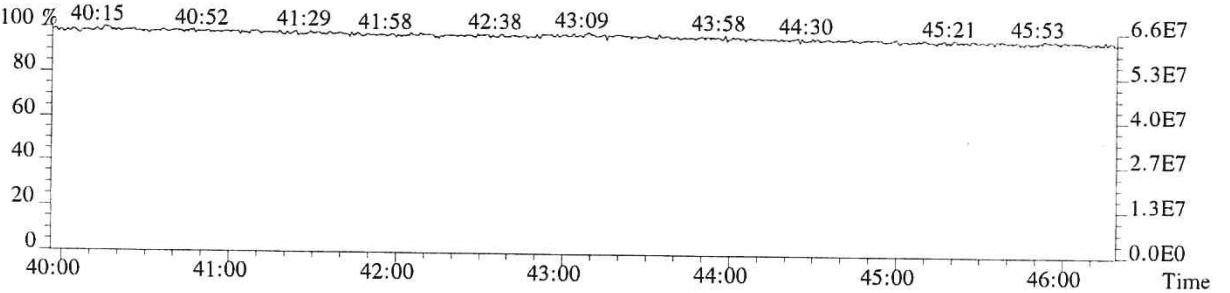
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,872.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,300.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0030

Run #12 Filename P519471 Samp: 1 Inj: 1 Acquired: 18-DEC-18 19:52:59
Processed: 19-DEC-18 14:45:47 Sample ID: E1801094-003

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:58	3.885e+06	4.944e+06	0.79	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	31:33	1.903e+05	1.229e+05	1.55	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	32:30	1.283e+05	8.390e+04	1.53	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:18	2.098e+05	1.714e+05	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:25	5.627e+04	4.463e+04	1.26	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:56	8.230e+03	6.817e+03	1.21	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	36:44	1.257e+04	1.021e+04	1.23	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:03	3.421e+04	3.368e+04	1.02	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:28	9.052e+03	8.717e+03	1.04	yes	no	1.258
10	Unk	OCDF	42:04	4.576e+04	5.273e+04	0.87	yes	no	1.359
11	Unk	2,3,7,8-TCDD	27:51	1.057e+06	1.334e+06	0.79	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	32:48	1.333e+04	7.830e+03	1.70	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:05	1.390e+02	1.318e+02	1.05	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:10	8.982e+02	7.075e+02	1.27	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:26	3.231e+02	2.621e+02	1.23	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:01	1.668e+04	1.593e+04	1.05	yes	no	1.025
17	Unk	OCDD	41:54	1.152e+05	1.266e+05	0.91	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	26:57	1.310e+04	1.601e+04	0.82	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	31:32	1.817e+04	1.152e+04	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	32:29	1.682e+04	1.040e+04	1.62	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:17	5.783e+03	1.084e+04	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:24	6.163e+03	1.259e+04	0.49	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:56	5.896e+03	1.111e+04	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	36:42	4.799e+03	9.079e+03	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:03	2.854e+03	6.726e+03	0.42	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:28	2.181e+03	5.192e+03	0.42	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	27:49	6.007e+03	7.409e+03	0.81	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:47	1.226e+04	7.730e+03	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:04	7.618e+03	5.854e+03	1.30	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:10	7.452e+03	5.863e+03	1.27	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:00	5.390e+03	4.931e+03	1.09	yes	no	0.858
32	IS	13C-OCDD	41:52	3.310e+03	3.606e+03	0.92	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:15	1.656e+04	2.075e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:25	1.287e+04	1.045e+04	1.23	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:51	1.983e+04				no	1.014

$$\text{OCDD} = \frac{(1.152e+05 + 1.266e+05) \times 4000\ \text{pg} \times 1}{(3.310e+03 + 3.606e+03) \times 10.084\ \text{g} \times 51.0 / 100 \times 1.118} = 24300\ \text{ng/kg}$$

kw 12/20/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0030

Run #12 Filename P519471 Samp: 1 Inj: 1 Acquired: 18-DEC-18 19:52:59
Processed: 19-DEC-18 14:45:47 LAB. ID: E1801094-003

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.56e+08	2.72e+03	2.0e+05	7.04e+08	3.58e+03	2.0e+05
2	1,2,3,7,8-PeCDF	3.23e+07	1.13e+04	2.9e+03	2.08e+07	7.87e+03	2.6e+03
3	2,3,4,7,8-PeCDF	1.96e+07	1.13e+04	1.7e+03	1.28e+07	7.87e+03	1.6e+03
4	1,2,3,4,7,8-HxCDF	4.15e+07	2.43e+04	1.7e+03	3.46e+07	8.94e+03	3.9e+03
5	1,2,3,6,7,8-HxCDF	1.02e+07	2.43e+04	4.2e+02	8.33e+06	8.94e+03	9.3e+02
6	2,3,4,6,7,8-HxCDF	1.77e+06	2.43e+04	7.3e+01	1.48e+06	8.94e+03	1.7e+02
7	1,2,3,7,8,9-HxCDF	2.43e+06	2.43e+04	1.0e+02	1.98e+06	8.94e+03	2.2e+02
8	1,2,3,4,6,7,8-HpCDF	6.50e+06	4.28e+02	1.5e+04	6.50e+06	7.44e+02	8.7e+03
9	1,2,3,4,7,8,9-HpCDF	1.51e+06	4.28e+02	3.5e+03	1.51e+06	7.44e+02	2.0e+03
10	OCDF	5.90e+06	3.00e+02	2.0e+04	6.73e+06	6.28e+02	1.1e+04
11	2,3,7,8-TCDD	2.03e+08	1.25e+03	1.6e+05	2.54e+08	1.16e+03	2.2e+05
12	1,2,3,7,8-PeCDD	2.25e+06	2.42e+03	9.3e+02	1.37e+06	2.22e+03	6.2e+02
13	1,2,3,4,7,8-HxCDD	2.98e+04	1.32e+03	2.3e+01	2.68e+04	1.44e+03	1.9e+01
14	1,2,3,6,7,8-HxCDD	1.85e+05	1.32e+03	1.4e+02	1.42e+05	1.44e+03	9.9e+01
15	1,2,3,7,8,9-HxCDD	5.95e+04	1.32e+03	4.5e+01	5.06e+04	1.44e+03	3.5e+01
16	1,2,3,4,6,7,8-HpCDD	2.93e+06	7.28e+02	4.0e+03	2.78e+06	1.52e+03	1.8e+03
17	OCDD	1.44e+07	7.44e+02	1.9e+04	1.59e+07	8.12e+02	2.0e+04
18	13C-2,3,7,8-TCDF	1.91e+06	5.28e+03	3.6e+02	2.35e+06	6.91e+03	3.4e+02
19	13C-1,2,3,7,8-PeCDF	3.19e+06	6.14e+03	5.2e+02	2.02e+06	6.03e+03	3.4e+02
20	13C-2,3,4,7,8-PeCDF	3.30e+06	6.14e+03	5.4e+02	2.08e+06	6.03e+03	3.5e+02
21	13C-1,2,3,4,7,8-HxCDF	1.13e+06	2.51e+03	4.5e+02	2.22e+06	4.70e+03	4.7e+02
22	13C-1,2,3,6,7,8-HxCDF	1.21e+06	2.51e+03	4.8e+02	2.44e+06	4.70e+03	5.2e+02
23	13C-2,3,4,6,7,8-HxCDF	1.18e+06	2.51e+03	4.7e+02	2.20e+06	4.70e+03	4.7e+02
24	13C-1,2,3,7,8,9-HxCDF	8.90e+05	2.51e+03	3.6e+02	1.74e+06	4.70e+03	3.7e+02
25	13C-1,2,3,4,6,7,8-HpCDF	5.42e+05	2.28e+03	2.4e+02	1.25e+06	2.13e+03	5.9e+02
26	13C-1,2,3,4,7,8,9-HpCDF	3.60e+05	2.28e+03	1.6e+02	8.58e+05	2.13e+03	4.0e+02
27	13C-2,3,7,8-TCDD	1.12e+06	4.16e+03	2.7e+02	1.42e+06	3.69e+03	3.8e+02
28	13C-1,2,3,7,8-PeCDD	2.31e+06	6.52e+02	3.5e+03	1.46e+06	1.34e+03	1.1e+03
29	13C-1,2,3,4,7,8-HxCDD	1.69e+06	5.44e+02	3.1e+03	1.31e+06	8.80e+02	1.5e+03
30	13C-1,2,3,6,7,8-HxCDD	1.46e+06	5.44e+02	2.7e+03	1.15e+06	8.80e+02	1.3e+03
31	13C-1,2,3,4,6,7,8-HpCDD	9.09e+05	1.16e+03	7.8e+02	8.83e+05	4.24e+02	2.1e+03
32	13C-OCDD	4.12e+05	7.44e+02	5.5e+02	4.44e+05	4.28e+02	1.0e+03
33	13C-1,2,3,4-TCDD	2.30e+06	4.16e+03	5.5e+02	2.86e+06	3.69e+03	7.8e+02
34	13C-1,2,3,7,8,9-HxCDD	2.46e+06	5.44e+02	4.5e+03	1.97e+06	8.80e+02	2.2e+03
35	37Cl-2,3,7,8-TCDD	3.75e+06	2.54e+03	1.5e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.252e{+}03 + 1.164e{+}03) \times 2000}{(1.120e{+}06 + 1.416e{+}06) \times (\quad) \times 1.085} =$$

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0030

Entry: 36 Totals Name: Total Tetra-Furans

Run: 12 File: P519471 Sample:1 Injection:1 Function:1

Acquired: 18-DEC-18 19:52:59 Processed: 19-DEC-18 14:45:47

Mass: 303.9020 305.8990 Tot Response: 1.56e+07 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	23:49	2.50e+04	3.53e+04	0.71	yes	6.03e+04		n	n
2	24:07	1.38e+05	1.82e+05	0.76	yes	3.20e+05		n	n
3	24:27	3.49e+04	4.66e+04	0.75	yes	8.14e+04		n	n
4	24:46	1.24e+05	1.60e+05	0.77	yes	2.84e+05		n	n
5	25:10	2.98e+04	3.89e+04	0.77	yes	6.87e+04		n	n
6	25:25	7.50e+04	9.76e+04	0.77	yes	1.73e+05		n	n
7	25:33	1.71e+05	2.21e+05	0.77	yes	3.92e+05		n	n
8	26:01	1.69e+06	2.17e+06	0.78	yes	3.86e+06		n	n
9	26:19	8.03e+04	1.04e+05	0.77	yes	1.85e+05		n	n
10	26:58	3.88e+06	4.94e+06	0.79	yes	8.83e+06	2,3,7,8-TCDF	n	n
11	27:24	2.65e+05	3.42e+05	0.77	yes	6.07e+05		n	n
12	27:36	4.38e+04	5.70e+04	0.77	yes	1.01e+05		n	n
13	29:00	2.94e+05	3.80e+05	0.77	yes	6.74e+05		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0030

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 12 File: P519471 Sample:1 Injection:1 Function:1

Acquired: 18-DEC-18 19:52:59 Processed: 19-DEC-18 14:45:47

Mass: 319.8970 321.8940 Tot Response: 2.65e+06 RRF: 1.085

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	27:33	1.33e+04	1.65e+04 0.80	yes	2.98e+04		n	n
2	27:51	1.06e+06	1.33e+06 0.79	yes	2.39e+06	2,3,7,8-TCDD	n	n
3	28:09	1.01e+05	1.29e+05 0.78	yes	2.30e+05		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0030

Entry: 38 Totals Name: Total Penta-Furans1

Run: 12 File: P519471 Sample:1 Injection:1 Function:1

Acquired: 18-DEC-18 19:52:59 Processed: 19-DEC-18 14:45:47

Mass: 339.8600 341.8570 Tot Response: 6.61e+03 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:02	4.18e+03	2.43e+03 1.72	yes	6.61e+03		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0030

Entry: 39 Totals Name: Total Penta-Furans2

Run: 12 File: P519471 Sample:1 Injection:1 Function:2

Acquired: 18-DEC-18 19:52:59 Processed: 19-DEC-18 14:45:47

Mass: 339.8600 341.8570 Tot Response: 8.07e+05 RRF: 0.9857

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:27	1.60e+03	1.07e+03	1.49	yes	2.67e+03		n	n
2	30:35	8.42e+04	5.46e+04	1.54	yes	1.39e+05		n	n
3	31:09	2.88e+03	1.77e+03	1.63	yes	4.65e+03		n	n
4	31:14	3.07e+03	1.86e+03	1.65	yes	4.93e+03		n	n
5	31:23	1.64e+04	1.07e+04	1.54	yes	2.71e+04		n	n
6	31:33	1.90e+05	1.23e+05	1.55	yes	3.13e+05	1,2,3,7,8-PeCDF	n	n
7	31:49	5.50e+04	3.55e+04	1.55	yes	9.05e+04		n	n
8	32:25	1.48e+03	1.01e+03	1.46	yes	2.49e+03		n	n
9	32:30	1.28e+05	8.39e+04	1.53	yes	2.12e+05	2,3,4,7,8-PeCDF	n	n
10	33:26	6.22e+03	4.02e+03	1.55	yes	1.02e+04		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0030

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 12 File: P519471 Sample:1 Injection:1 Function:2

Acquired: 18-DEC-18 19:52:59 Processed: 19-DEC-18 14:45:47

Mass: 355.8550 357.8520 Tot Response: 2.53e+04 RRF: 0.9565

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:37	4.92e+02	3.47e+02	1.42	yes	8.39e+02		n	n
2	31:35	7.68e+02	5.11e+02	1.50	yes	1.28e+03		n	n
3	31:45	7.58e+02	4.28e+02	1.77	yes	1.19e+03		n	n
4	31:51	2.61e+02	1.92e+02	1.36	yes	4.53e+02		n	n
5	32:03	2.50e+02	1.69e+02	1.48	yes	4.19e+02		n	n
6	32:48	1.33e+04	7.83e+03	1.70	yes	2.12e+04	1,2,3,7,8-PeCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0030

Entry: 41 Totals Name: Total Hexa-Furans

Run: 12 File: P519471 Sample:1 Injection:1 Function:3

Acquired: 18-DEC-18 19:52:59 Processed: 19-DEC-18 14:45:47

Mass: 373.8210 375.8180 Tot Response: 5.70e+05 RRF: 1.141

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:10	1.64e+03	1.44e+03	1.14	yes	3.08e+03		n	n
2	34:20	1.65e+04	1.38e+04	1.19	yes	3.03e+04		n	n
3	34:52	9.29e+03	7.82e+03	1.19	yes	1.71e+04		n	n
4	35:18	2.10e+05	1.71e+05	1.22	yes	3.81e+05	1,2,3,4,7,8-HxCDF	n	n
5	35:25	5.63e+04	4.46e+04	1.26	yes	1.01e+05	1,2,3,6,7,8-HxCDF	n	n
6	35:56	8.23e+03	6.82e+03	1.21	yes	1.50e+04	2,3,4,6,7,8-HxCDF	n	n
7	36:44	1.26e+04	1.02e+04	1.23	yes	2.28e+04	1,2,3,7,8,9-HxCDF	n	n

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Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0030

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 12 File: P519471 Sample:1 Injection:1 Function:3

Acquired: 18-DEC-18 19:52:59 Processed: 19-DEC-18 14:45:47

Mass: 389.8160 391.8130 Tot Response: 1.25e+04 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:42	2.59e+03	2.03e+03	1.28	yes	4.62e+03		n	n
2	35:14	3.48e+02	2.95e+02	1.18	yes	6.43e+02		n	n
3	35:28	2.58e+03	2.01e+03	1.29	yes	4.59e+03		n	n
4	35:35	1.16e+02	1.02e+02	1.15	yes	2.18e+02		n	n
5	36:05	1.39e+02	1.32e+02	1.05	yes	2.71e+02	1,2,3,4,7,8-HxCDD	n	n
6	36:10	8.98e+02	7.07e+02	1.27	yes	1.61e+03	1,2,3,6,7,8-HxCDD	n	n
7	36:26	3.23e+02	2.62e+02	1.23	yes	5.85e+02	1,2,3,7,8,9-HxCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0030

Entry: 43 Totals Name: Total Hepta-Furans

Run: 12 File: P519471 Sample:1 Injection:1 Function:4

Acquired: 18-DEC-18 19:52:59 Processed: 19-DEC-18 14:45:47

Mass: 407.7820 409.7790 Tot Response: 1.13e+05 RRF: 1.308

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:03	3.42e+04	3.37e+04	1.02	yes	6.79e+04	1,2,3,4,6,7,8-HpCDF	n	n
2	38:20	3.22e+02	3.35e+02	0.96	yes	6.58e+02		n	n
3	38:28	1.38e+04	1.33e+04	1.03	yes	2.71e+04		n	n
4	39:28	9.05e+03	8.72e+03	1.04	yes	1.78e+04	1,2,3,4,7,8,9-HpCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0030

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 12 File: P519471 Sample:1 Injection:1 Function:4

Acquired: 18-DEC-18 19:52:59 Processed: 19-DEC-18 14:45:47

Mass: 423.7770 425.7740 Tot Response: 7.52e+04 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:20	2.16e+04	2.09e+04 1.04	yes	4.26e+04		n	n
2	39:01	1.67e+04	1.59e+04 1.05	yes	3.26e+04	1,2,3,4,6,7,8-HpCDD	n	n

ALS ENVIRONMENTAL
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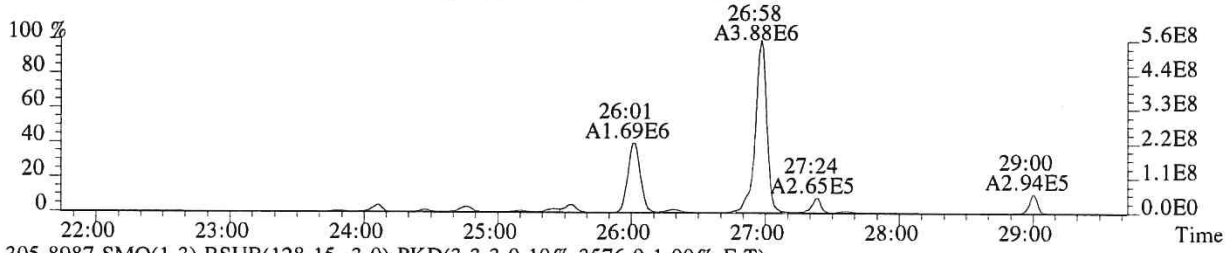
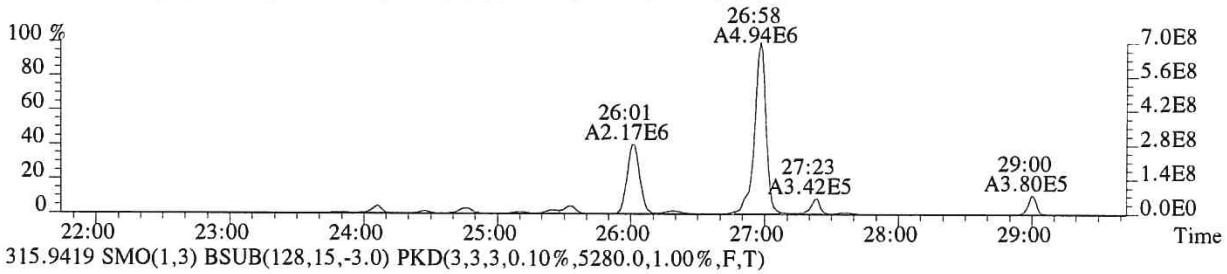
File:P519471 #1-566 Acq:18-DEC-2018 19:52:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-003

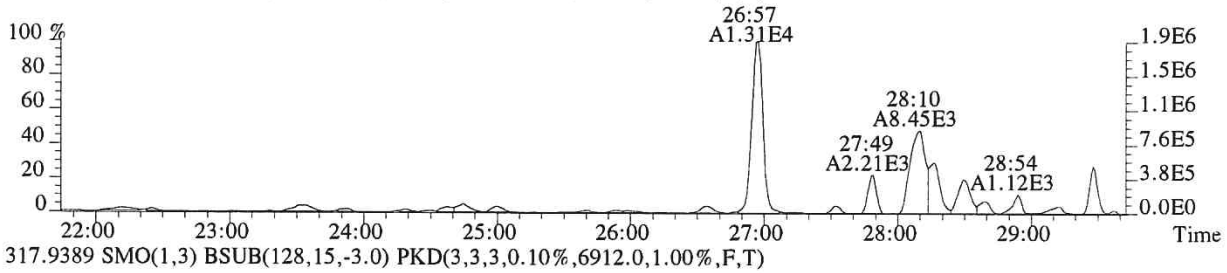
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2716.0,1.00%,F,T)



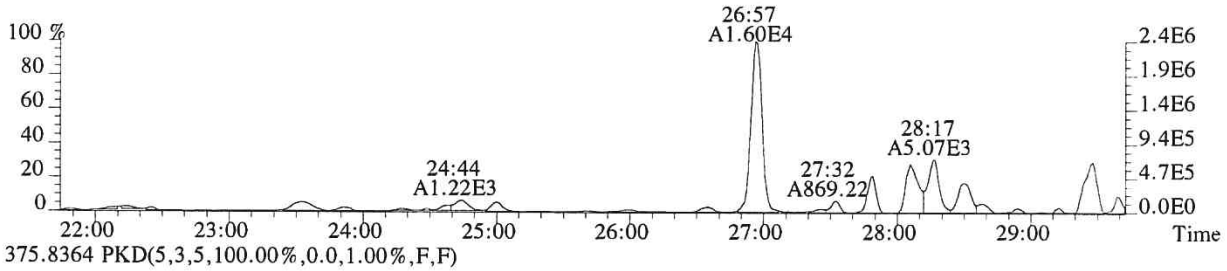
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3576.0,1.00%,F,T)



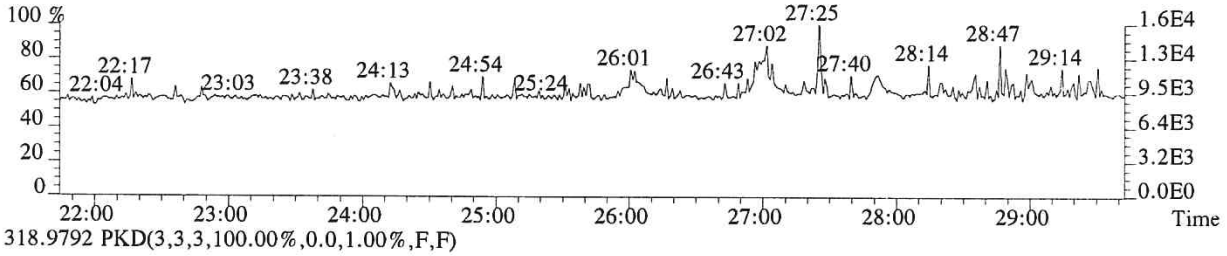
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5280.0,1.00%,F,T)



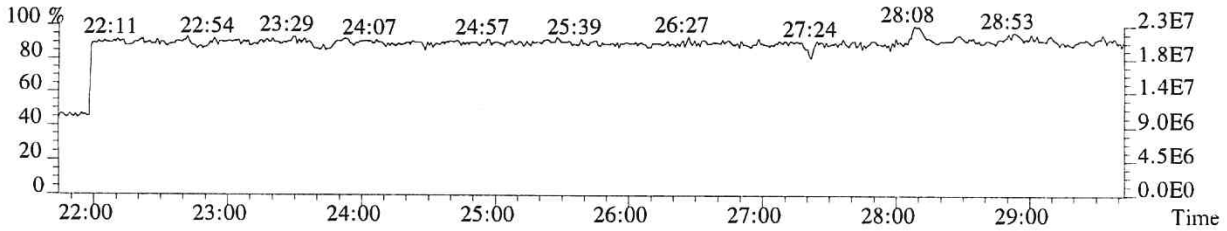
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6912.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

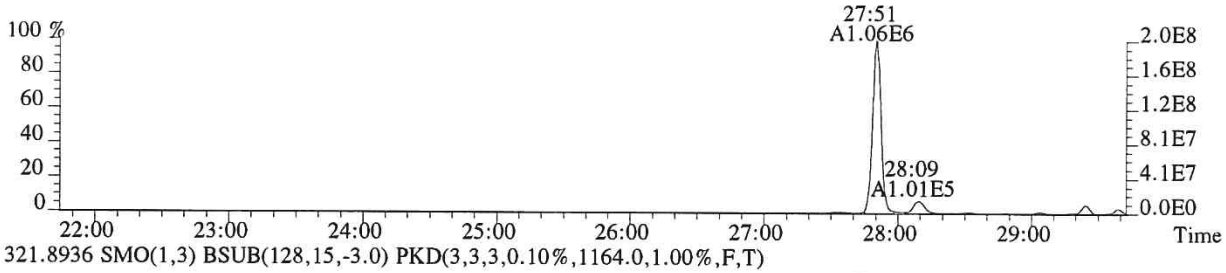


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

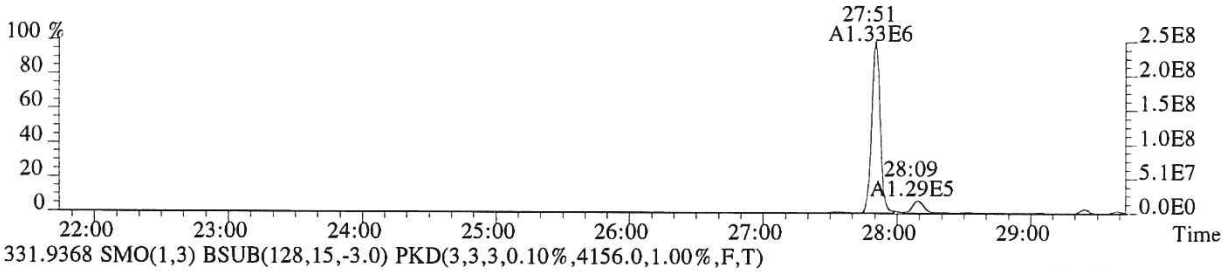


015222

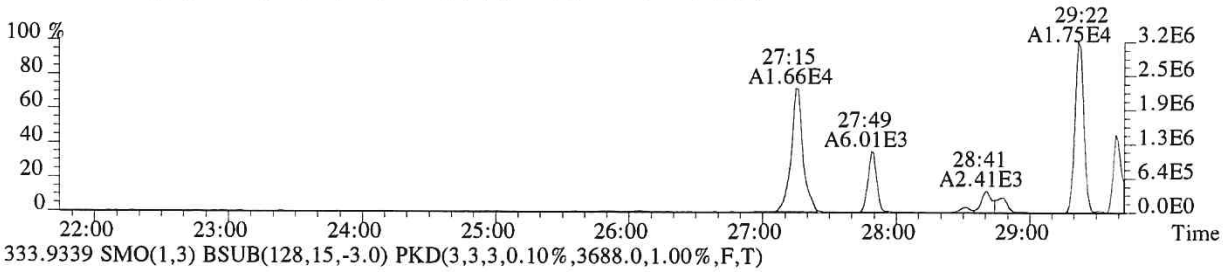
File:P519471 #1-566 Acq:18-DEC-2018 19:52:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-003
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1252.0,1.00%,F,T)



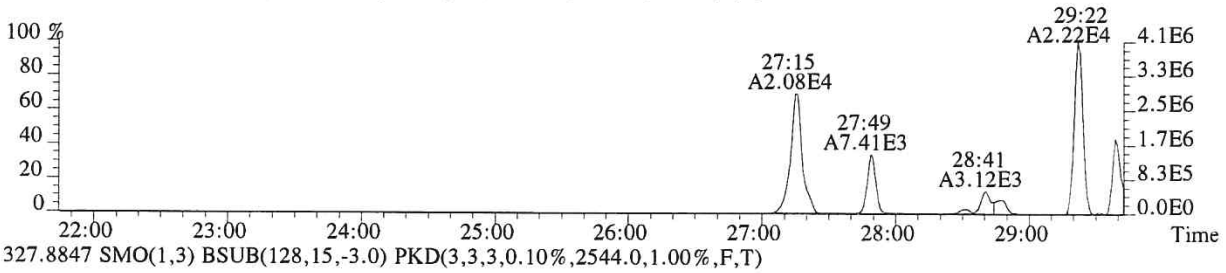
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1164.0,1.00%,F,T)



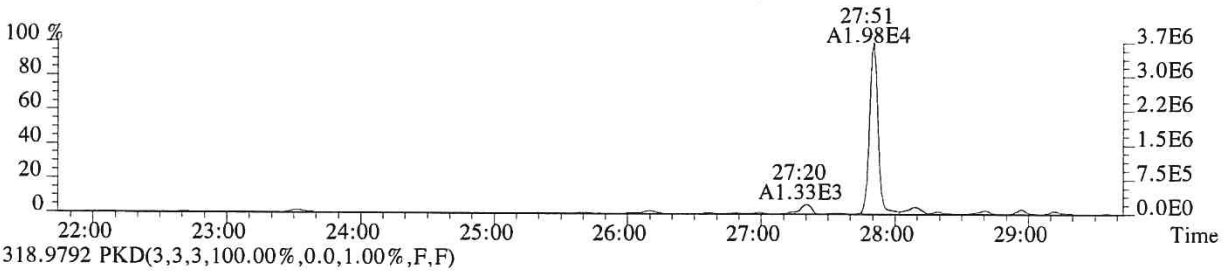
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4156.0,1.00%,F,T)



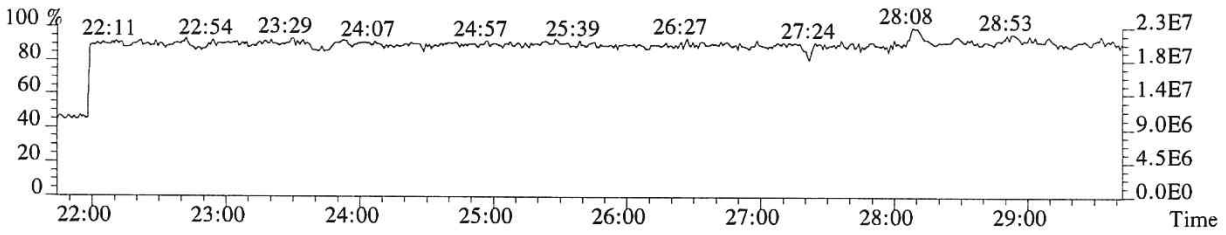
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3688.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2544.0,1.00%,F,T)

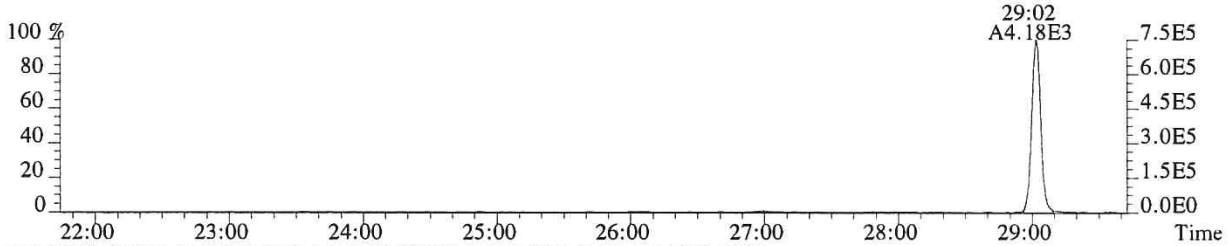


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

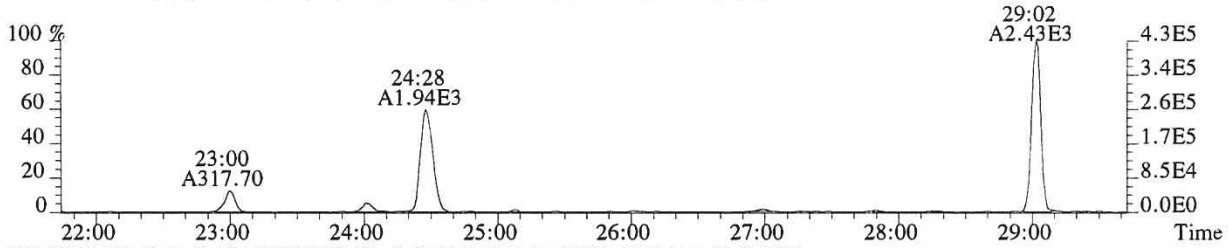


015223

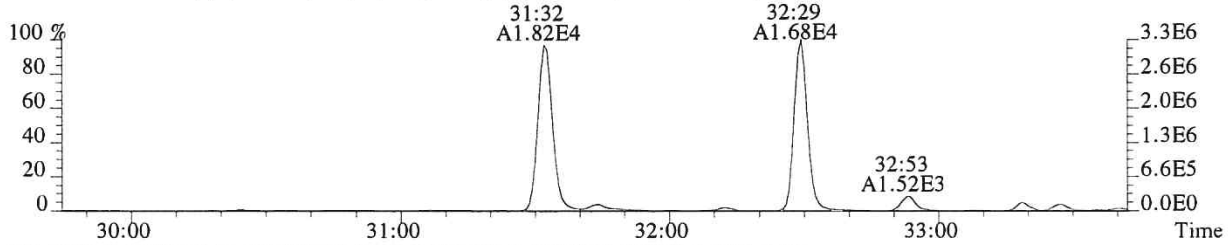
File:P519471 #1-566 Acq:18-DEC-2018 19:52:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-003
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,752.0,1.00%,F,T)



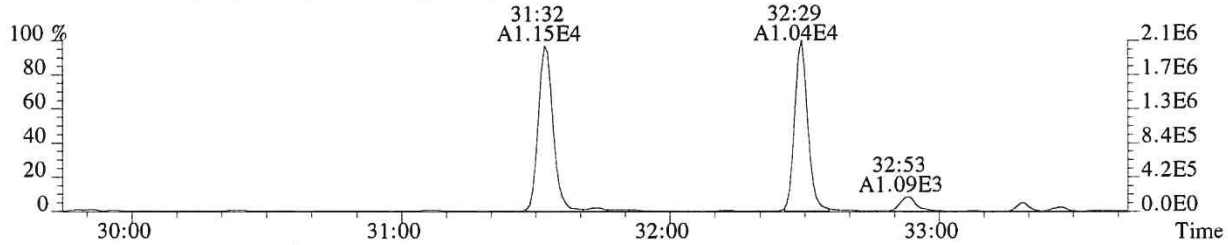
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1740.0,1.00%,F,T)



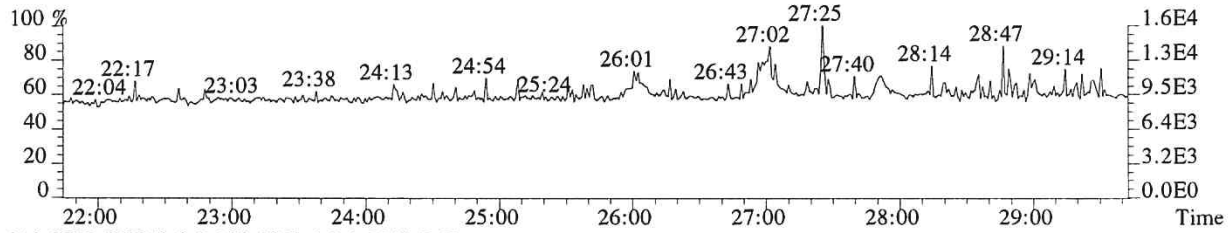
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6144.0,1.00%,F,T)



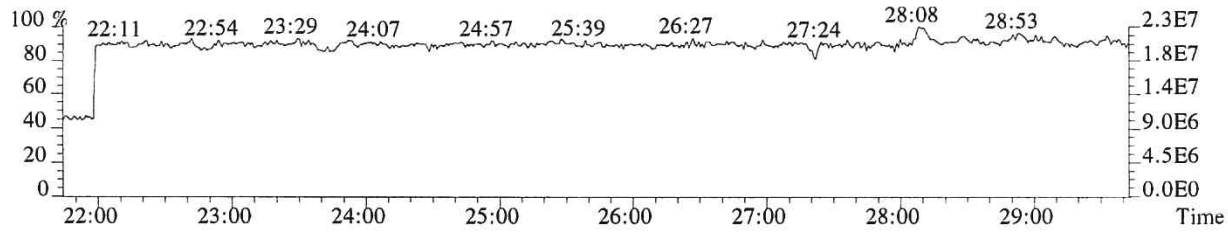
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6028.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

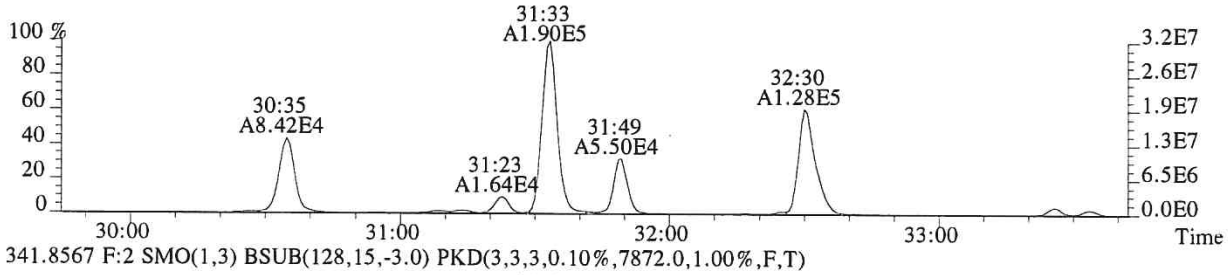


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

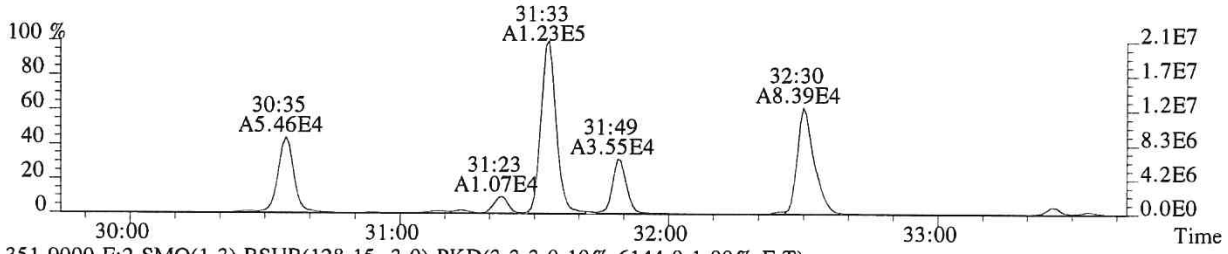


File:P519471 #1-357 Acq:18-DEC-2018 19:52:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-003

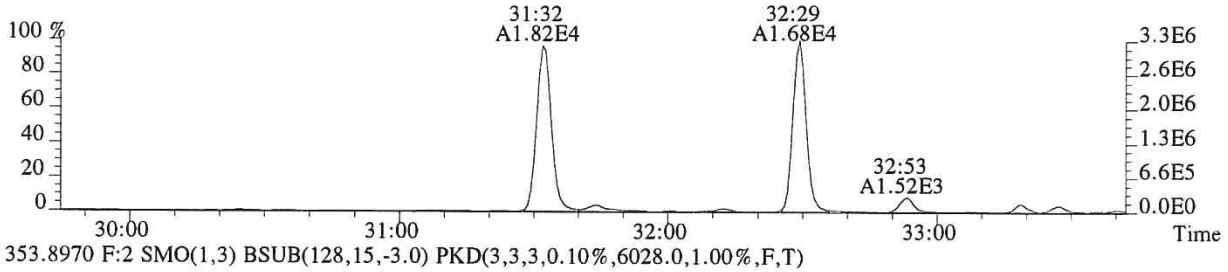
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,11296.0,1.00%,F,T)



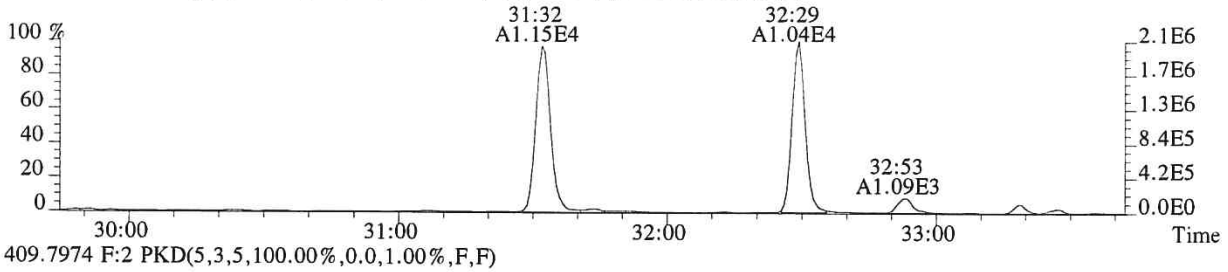
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7872.0,1.00%,F,T)



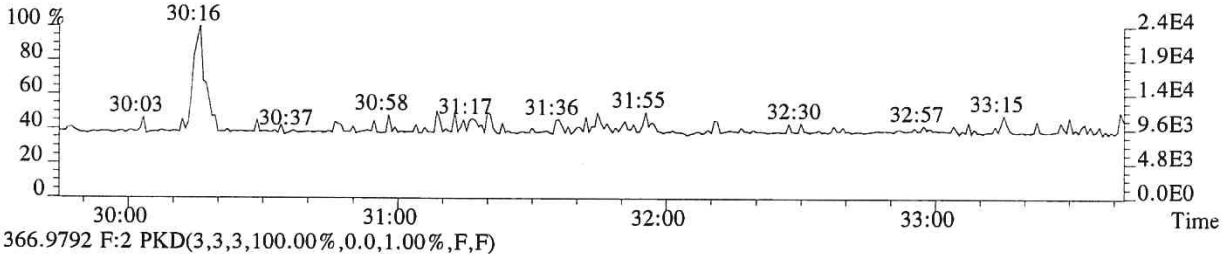
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6144.0,1.00%,F,T)



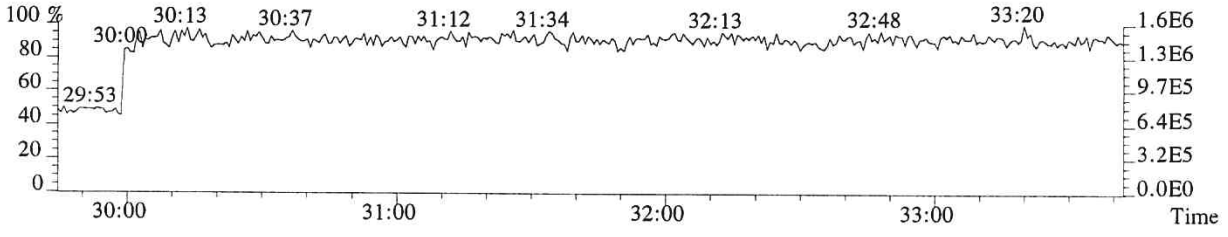
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6028.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

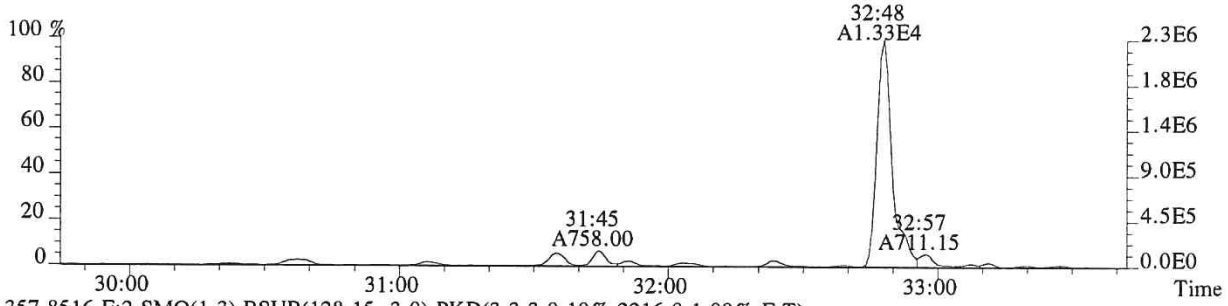


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

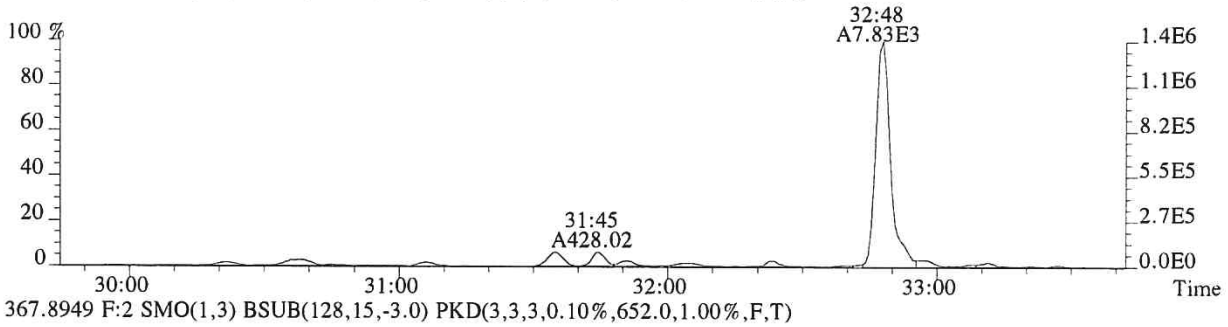


015225

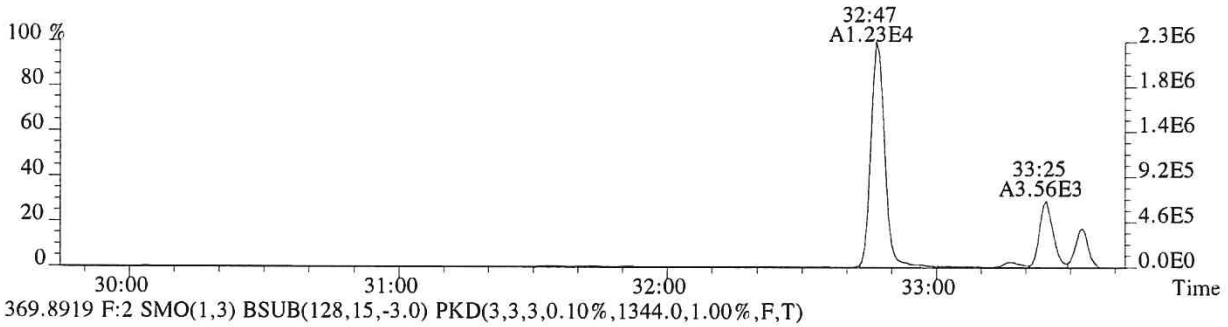
File:P519471 #1-357 Acq:18-DEC-2018 19:52:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-003
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2420.0,1.00%,F,T)



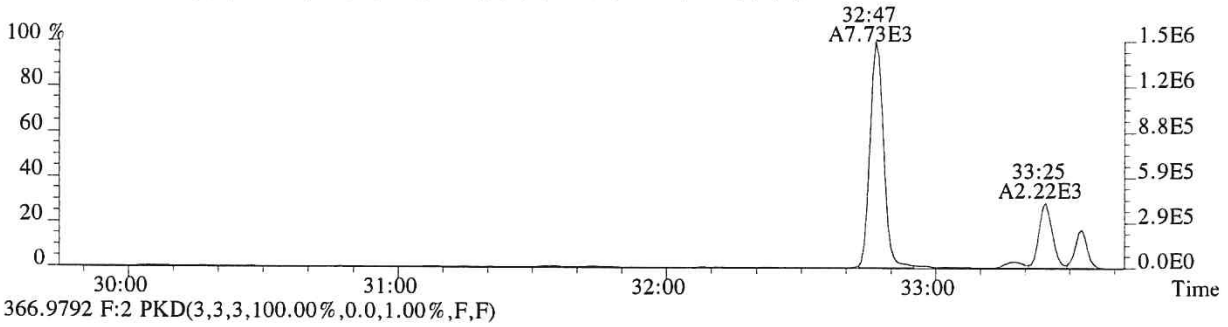
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2216.0,1.00%,F,T)



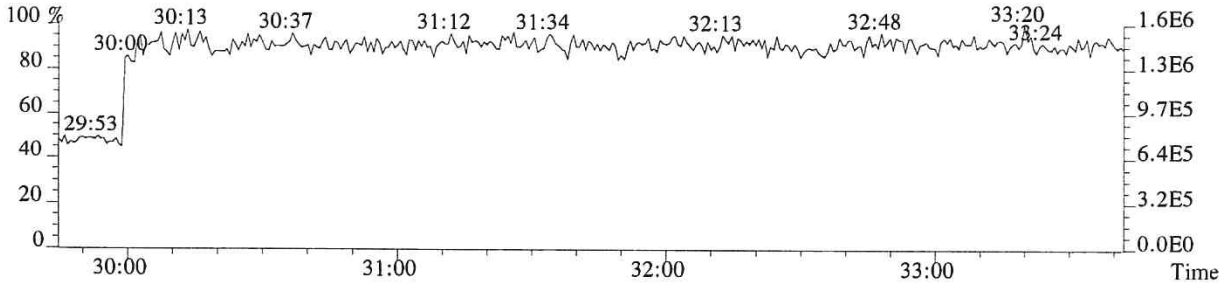
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,652.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1344.0,1.00%,F,T)



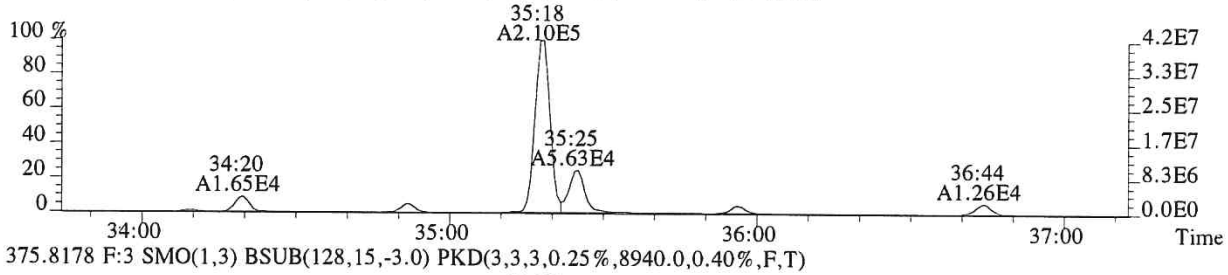
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



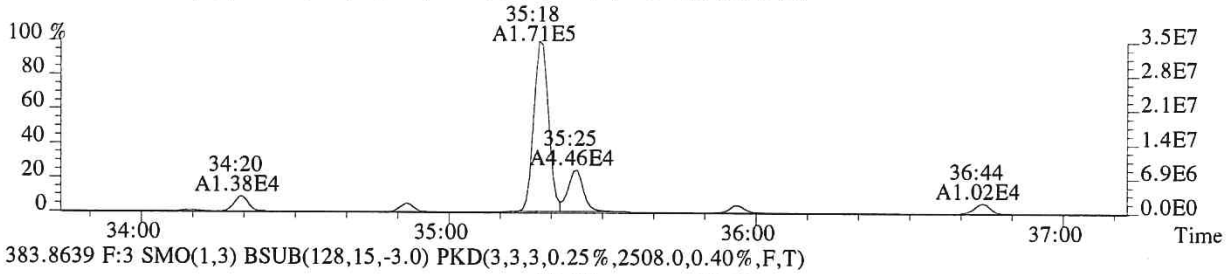
015226

File:P519471 #1-313 Acq:18-DEC-2018 19:52:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-003

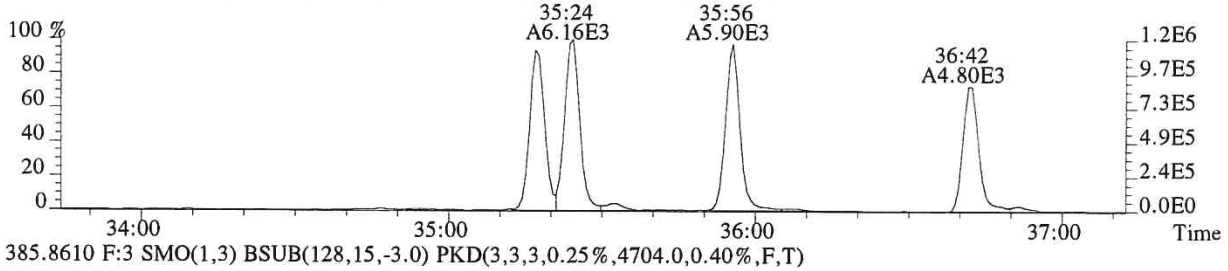
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,24260.0,0.40%,F,T)



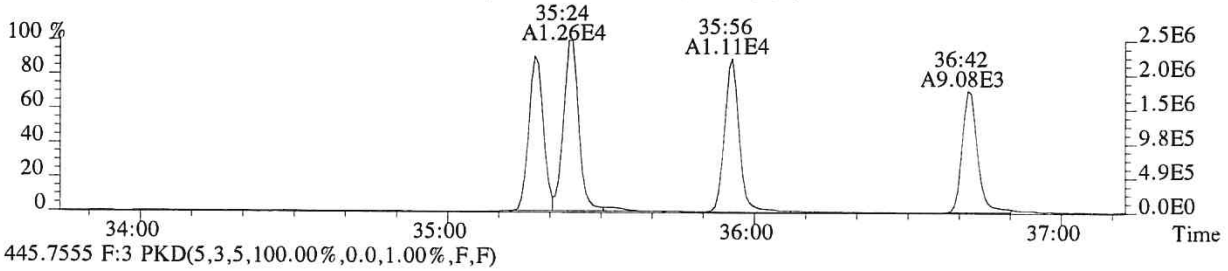
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8940.0,0.40%,F,T)



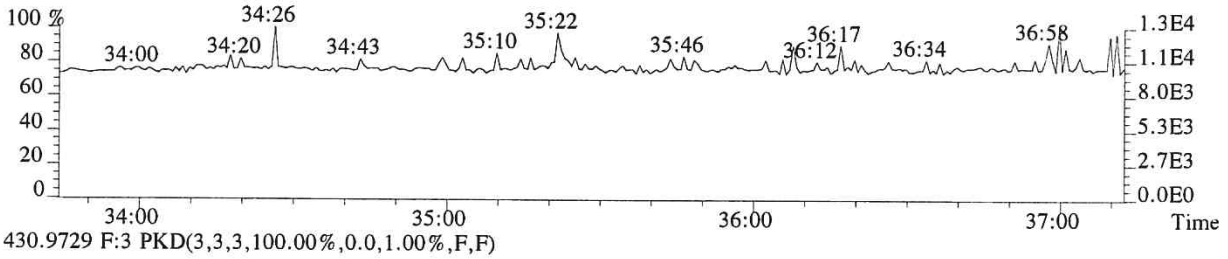
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2508.0,0.40%,F,T)



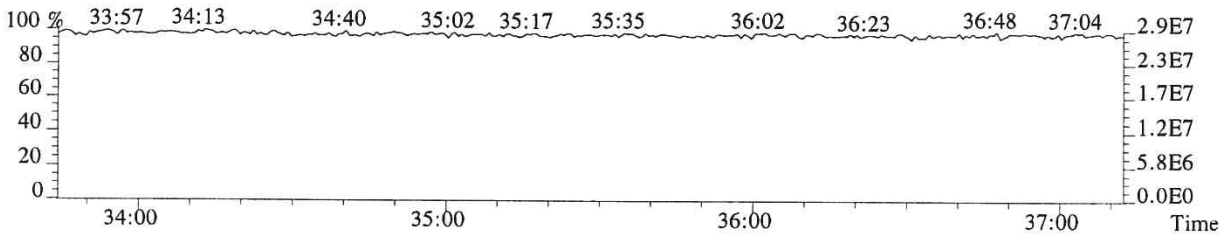
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4704.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

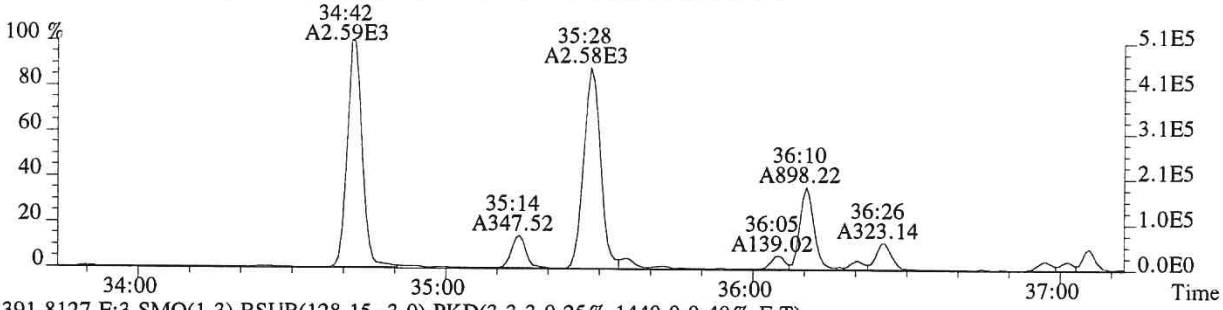


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

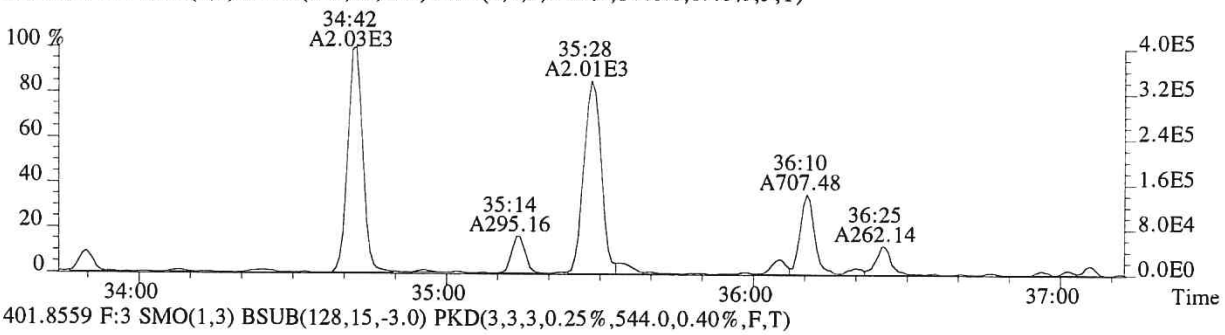


015227

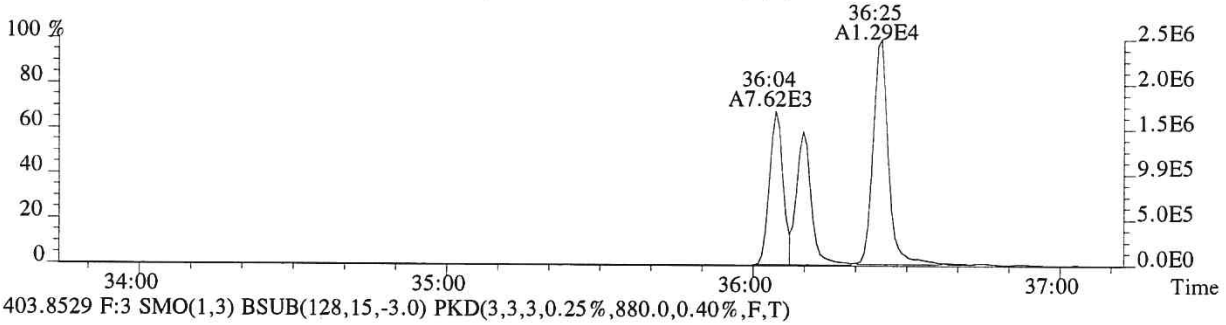
File:P519471 #1-313 Acq:18-DEC-2018 19:52:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-003
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1320.0,0.40%,F,T)



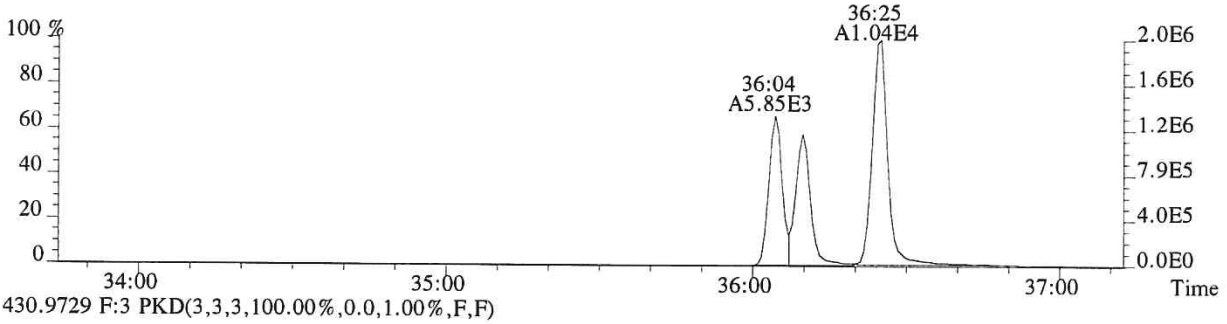
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1440.0,0.40%,F,T)



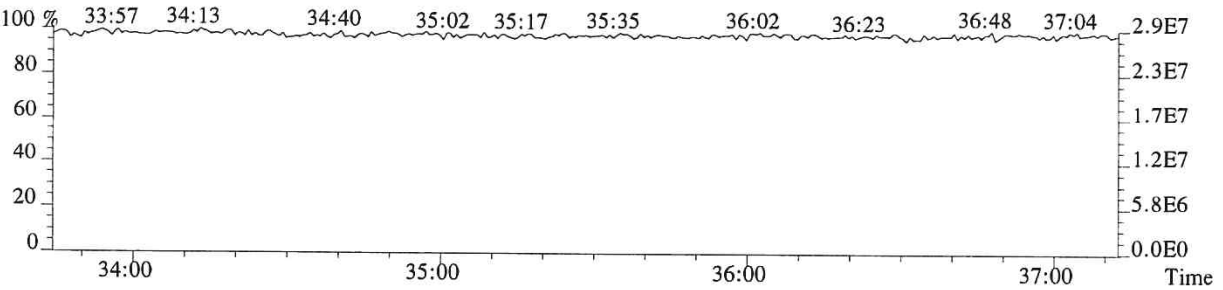
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,544.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,880.0,0.40%,F,T)

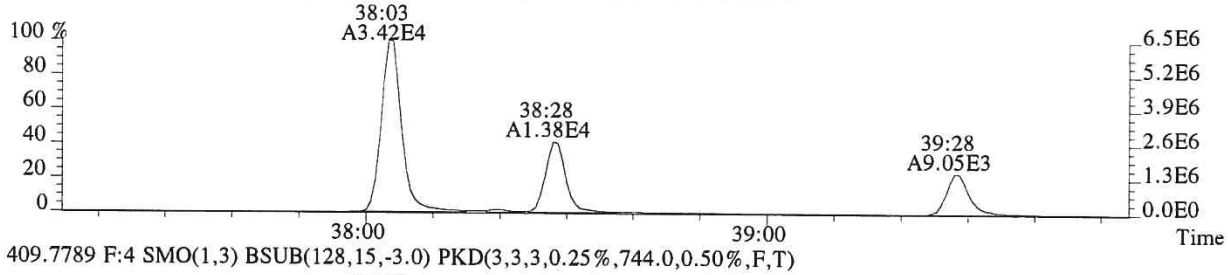


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

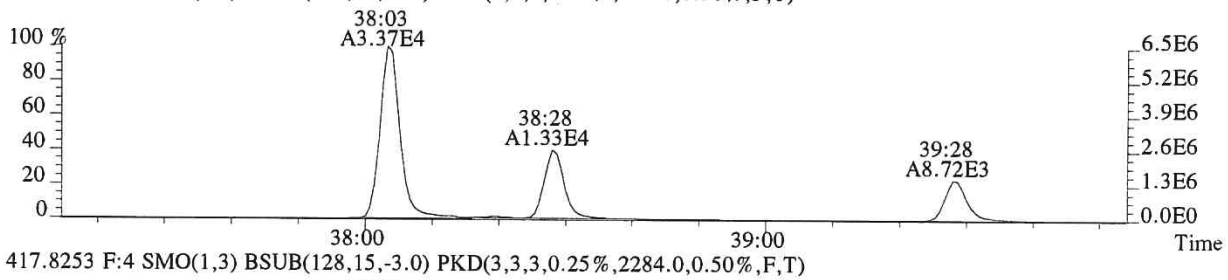


File:P519471 #1-240 Acq:18-DEC-2018 19:52:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-003

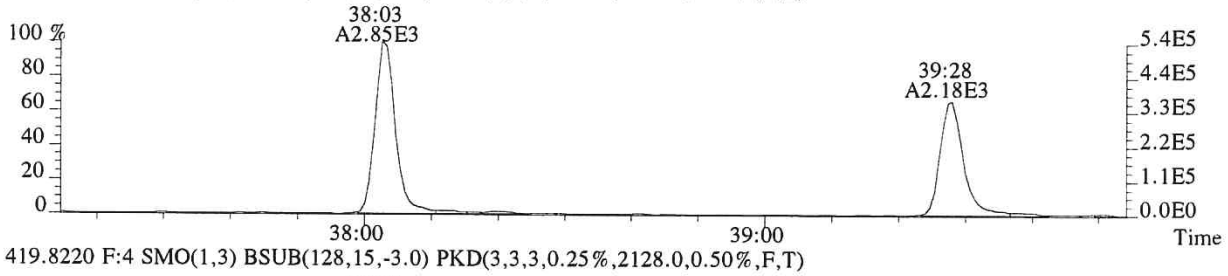
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,428.0,0.50%,F,T)



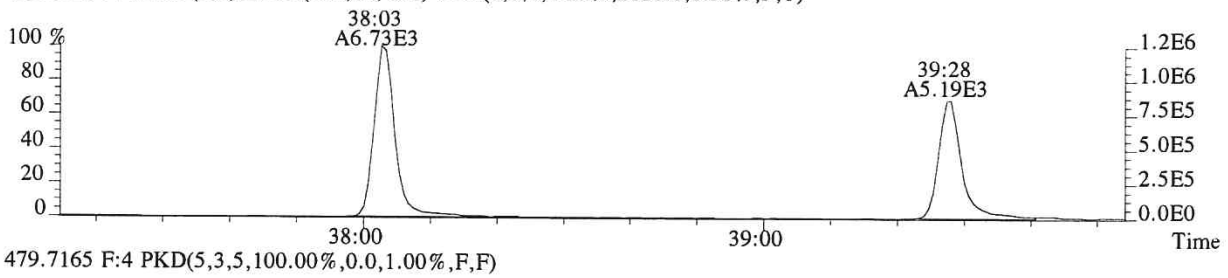
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,744.0,0.50%,F,T)



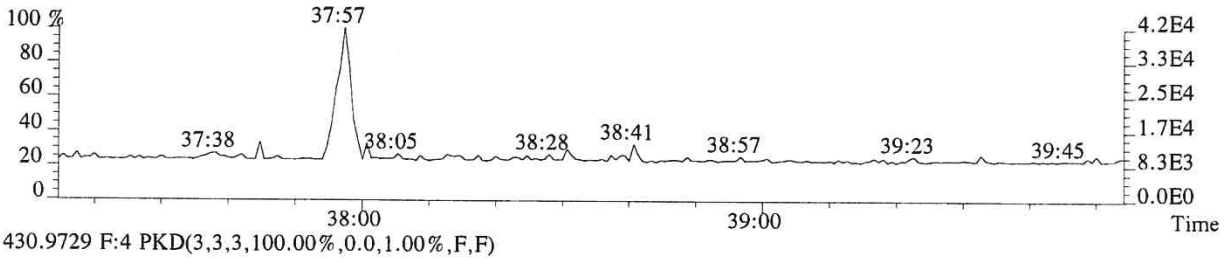
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2284.0,0.50%,F,T)



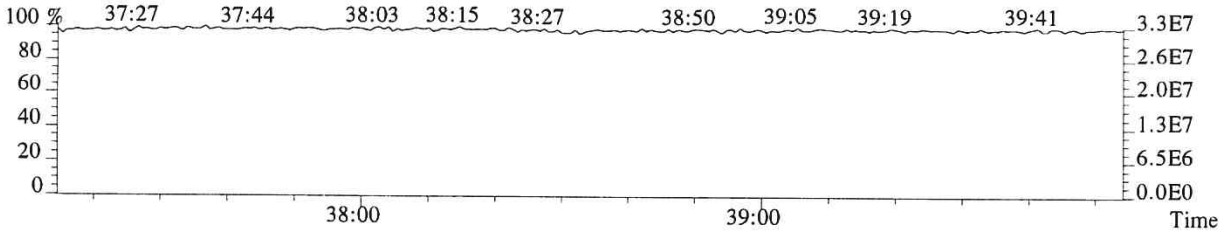
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2128.0,0.50%,F,T)



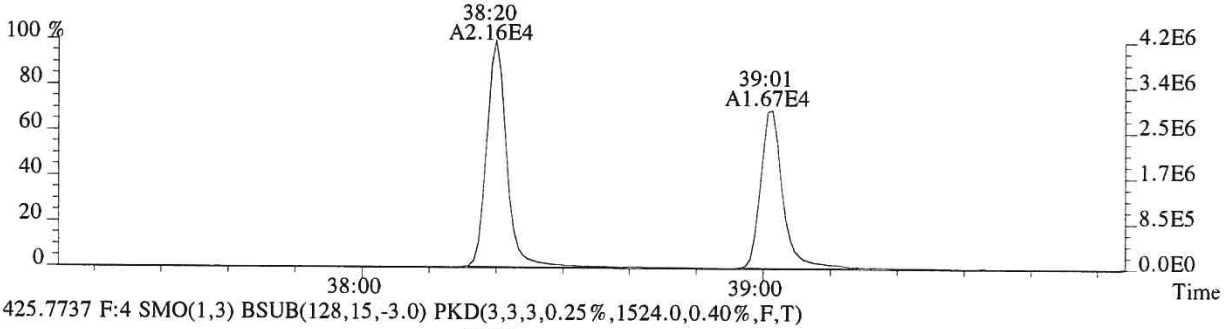
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



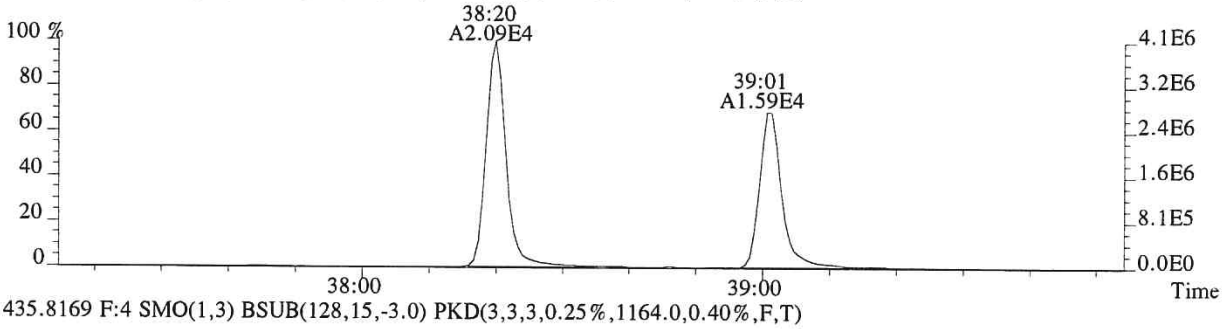
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



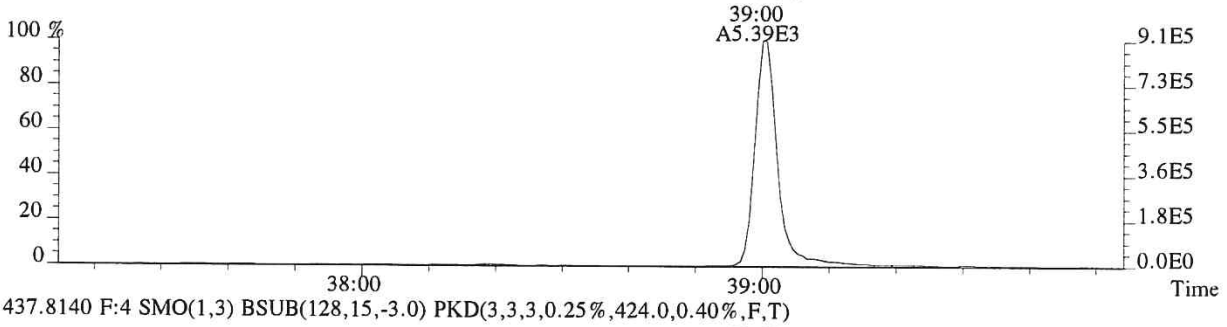
File:P519471 #1-240 Acq:18-DEC-2018 19:52:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-003
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,728.0,0.40%,F,T)



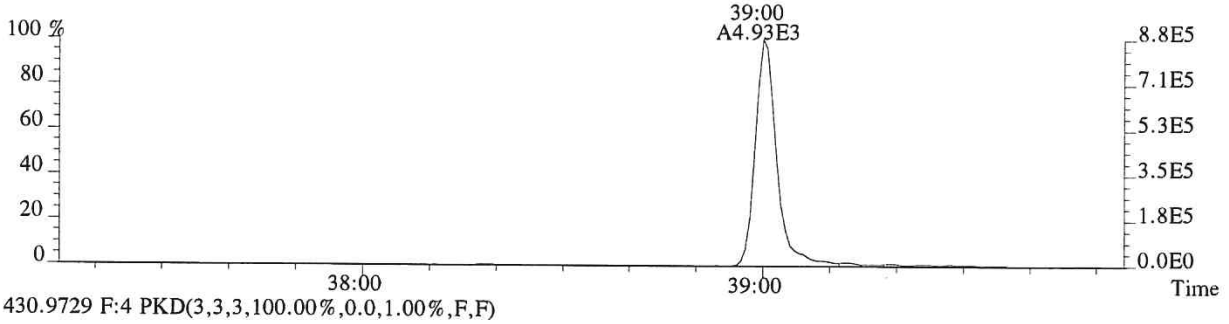
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1524.0,0.40%,F,T)



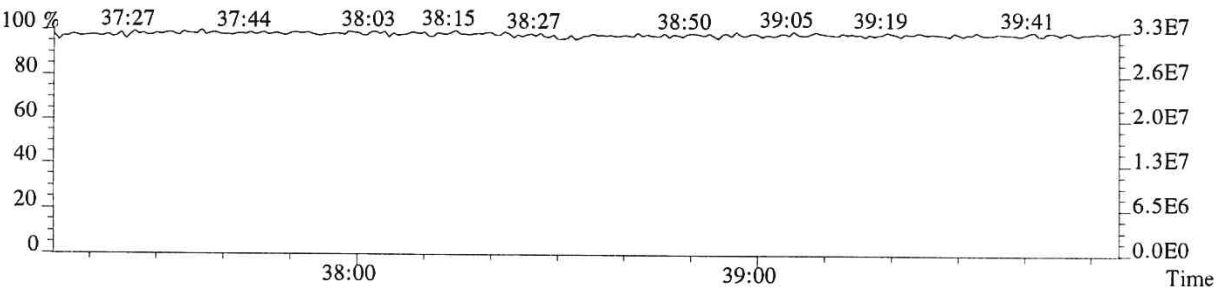
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1164.0,0.40%,F,T)



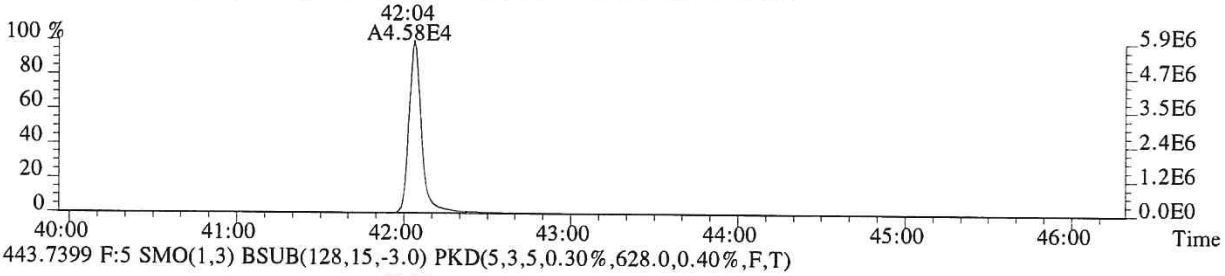
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,424.0,0.40%,F,T)



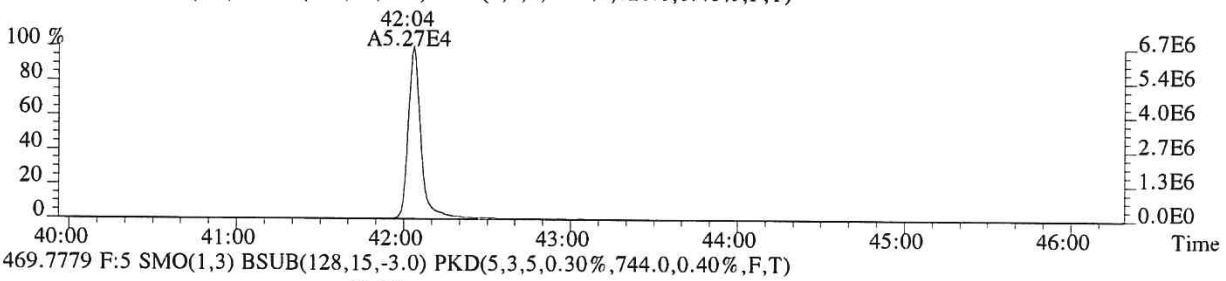
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



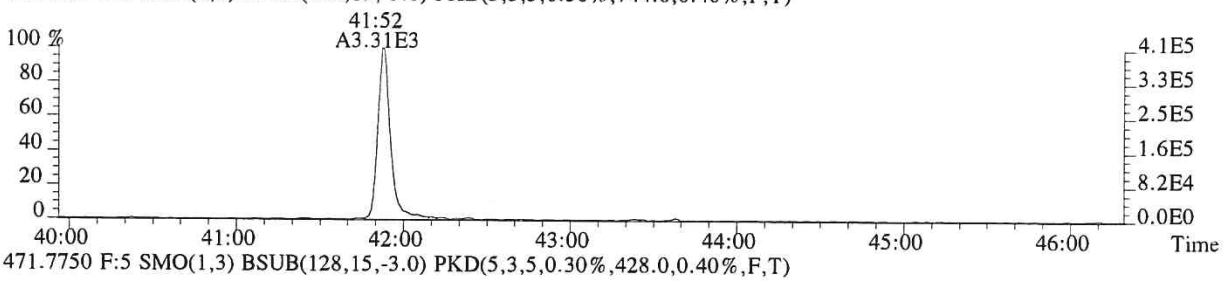
File:P519471 #1-575 Acq:18-DEC-2018 19:52:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-003
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,300.0,0.40%,F,T)



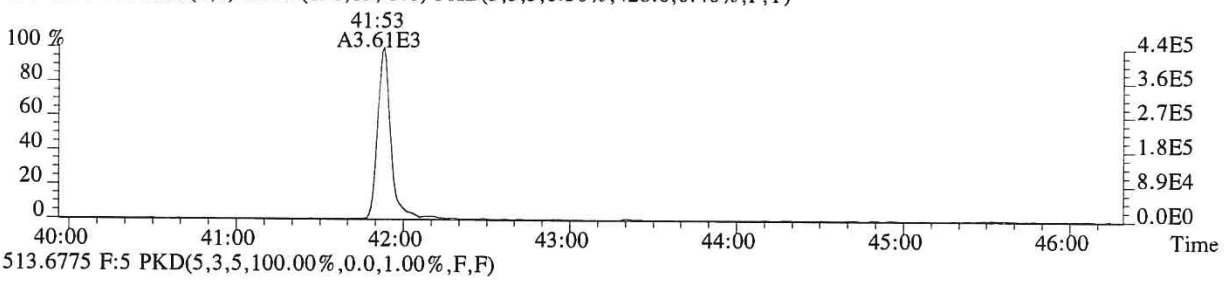
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,628.0,0.40%,F,T)



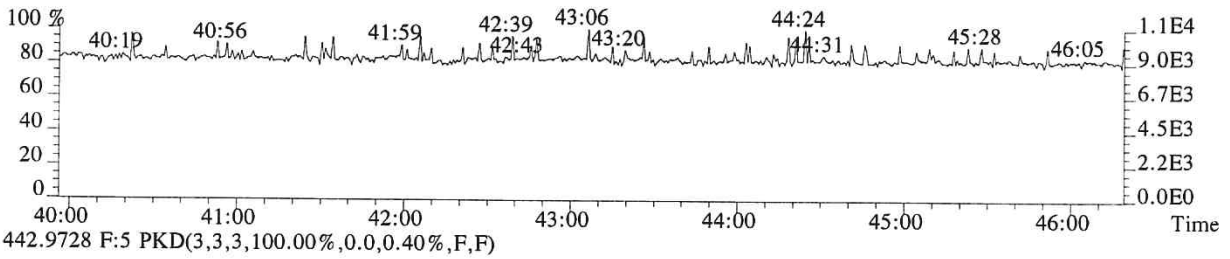
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,744.0,0.40%,F,T)



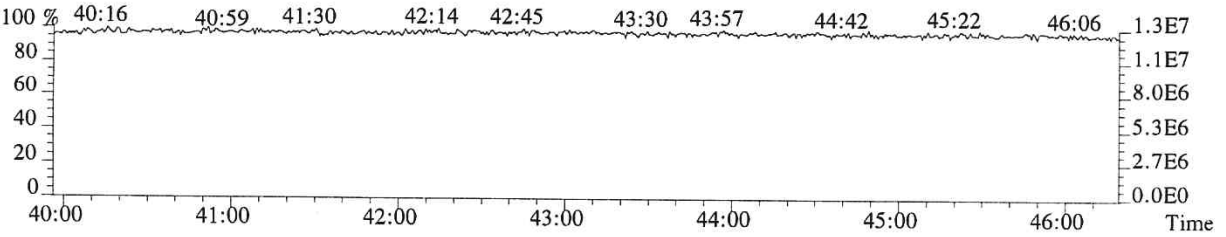
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,428.0,0.40%,F,T)



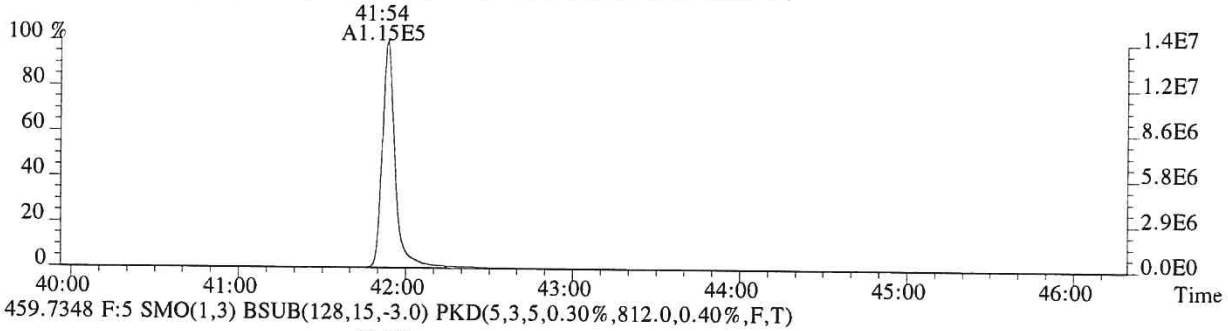
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



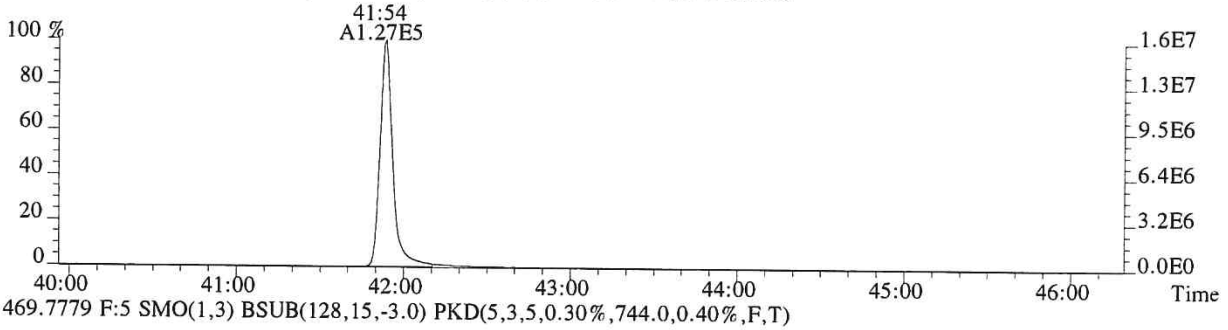
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



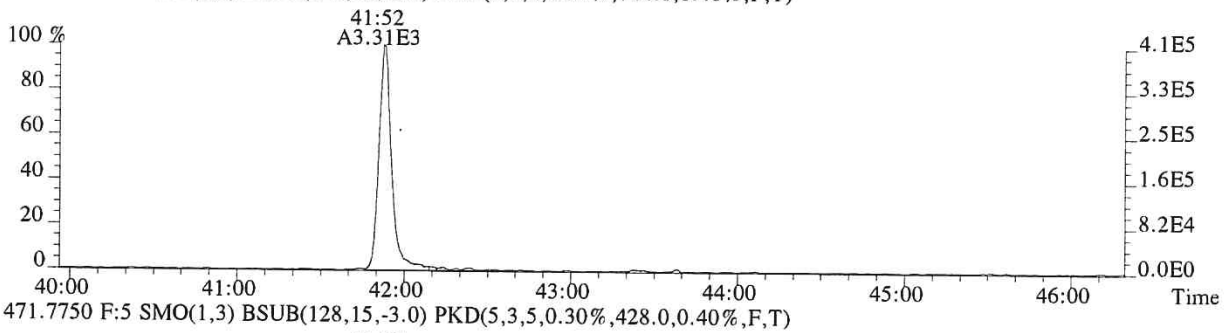
File:P519471 #1-575 Acq:18-DEC-2018 19:52:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-003
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,744.0,0.40%,F,T)



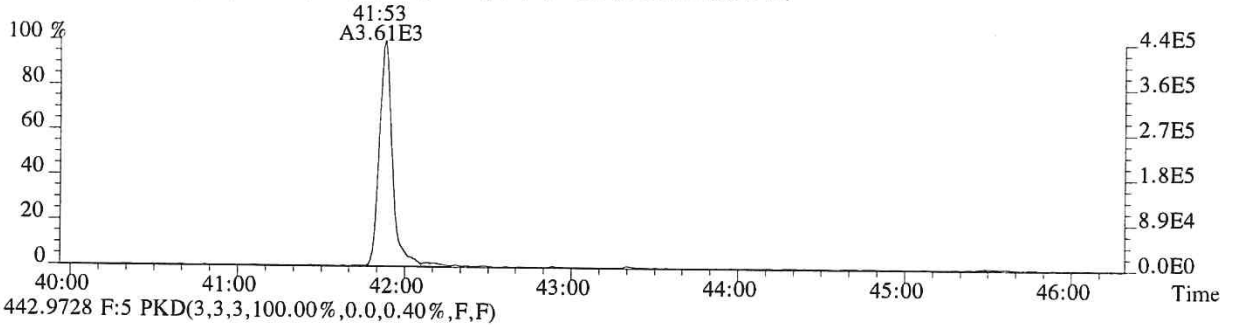
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,812.0,0.40%,F,T)



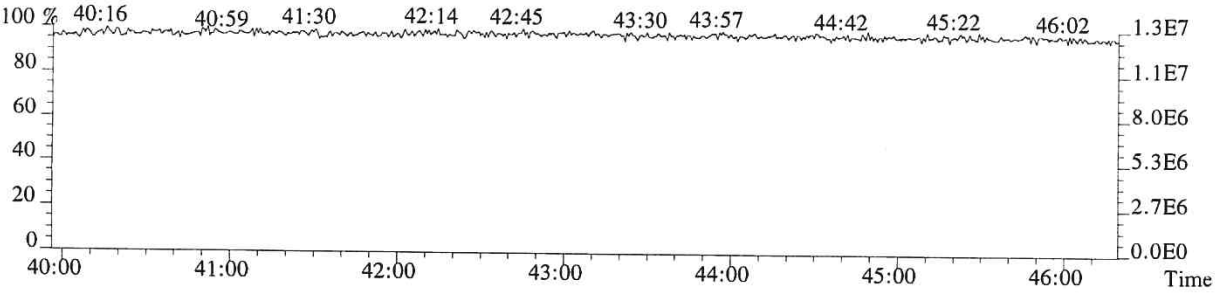
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,744.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,428.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0030

Run #14 Filename P519540 Samp: 1 Inj: 1 Acquired: 21-DEC-18 09:00:59
Processed: 24-DEC-18 08:15:11 Sample ID: E1801094-003DL

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:49	2.186e+03	2.787e+03	0.78	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	31:27	1.510e+02	1.082e+02	1.40	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	32:27	8.452e+01	6.092e+01	1.39	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:18	1.740e+02	1.408e+02	1.24	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:24	3.964e+01	3.865e+01	1.03	no	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:09	3.722e+01	4.531e+01	0.82	no	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	yes	1.258
10	Unk	OCDF	42:14	7.077e+01	9.370e+01	0.76	no	yes	1.359
11	Unk	2,3,7,8-TCDD	27:43	5.682e+02	7.548e+02	0.75	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:05	1.869e+01	1.852e+01	1.01	yes	no	1.025
17	Unk	OCDD	42:06	2.343e+02	2.327e+02	1.01	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	26:47	6.003e+03	7.246e+03	0.83	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	31:27	9.641e+03	6.050e+03	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	32:25	9.112e+03	5.764e+03	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:17	3.571e+03	6.911e+03	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:24	4.750e+03	8.959e+03	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:56	4.182e+03	7.863e+03	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	36:44	3.064e+03	6.493e+03	0.47	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:07	3.187e+03	6.948e+03	0.46	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:34	2.560e+03	5.809e+03	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	27:41	2.735e+03	3.479e+03	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:43	6.371e+03	3.915e+03	1.63	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:06	4.793e+03	3.710e+03	1.29	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:11	5.583e+03	4.323e+03	1.29	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:06	5.442e+03	5.057e+03	1.08	yes	no	0.858
32	IS	13C-OCDD	42:04	6.099e+03	6.627e+03	0.92	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:03	4.405e+03	5.477e+03	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:26	5.676e+03	4.489e+03	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	NotFnd	*				no	1.014

$$OCDD = \frac{(2.343e+02 + 2.327e+02) \times 4000\ pg \times 500}{(6.099e+03 + 6.627e+03) \times 10.084\ g \times 51 / 100 \times 1.118} = 51058.7445\ ng/kg$$

LG 12/24/18

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0030

Run #14 Filename P519540 Samp: 1 Inj: 1 Acquired: 21-DEC-18 09:00:59
Processed: 24-DEC-18 08:15:11 LAB. ID: E1801094-003DL

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	3.11e+05	1.15e+03	2.7e+02	4.23e+05	4.02e+03	1.1e+02
2	1,2,3,7,8-PeCDF	2.53e+04	5.32e+02	4.8e+01	1.53e+04	2.47e+03	6.2e+00
3	2,3,4,7,8-PeCDF	1.42e+04	5.32e+02	2.7e+01	1.27e+04	2.47e+03	5.1e+00
4	1,2,3,4,7,8-HxCDF	3.21e+04	1.54e+03	2.1e+01	2.48e+04	8.08e+02	3.1e+01
5	1,2,3,6,7,8-HxCDF	6.19e+03	1.54e+03	4.0e+00	9.39e+03	8.08e+02	1.2e+01
6	2,3,4,6,7,8-HxCDF	*	1.54e+03	*	*	8.08e+02	*
7	1,2,3,7,8,9-HxCDF	*	1.54e+03	*	*	8.08e+02	*
8	1,2,3,4,6,7,8-HpCDF	7.29e+03	8.04e+02	9.1e+00	6.85e+03	8.64e+02	7.9e+00
9	1,2,3,4,7,8,9-HpCDF	*	8.04e+02	*	*	8.64e+02	*
10	OCDF	9.24e+03	5.08e+02	1.8e+01	8.70e+03	2.38e+03	3.7e+00
11	2,3,7,8-TCDD	8.53e+04	4.00e+03	2.1e+01	1.21e+05	1.84e+03	6.5e+01
12	1,2,3,7,8-PeCDD	*	1.43e+03	*	*	4.92e+02	*
13	1,2,3,4,7,8-HxCDD	*	6.68e+02	*	*	7.80e+02	*
14	1,2,3,6,7,8-HxCDD	*	6.68e+02	*	*	7.80e+02	*
15	1,2,3,7,8,9-HxCDD	*	6.68e+02	*	*	7.80e+02	*
16	1,2,3,4,6,7,8-HpCDD	4.75e+03	8.08e+02	5.9e+00	3.18e+03	5.52e+02	5.8e+00
17	OCDD	2.26e+04	3.28e+02	6.9e+01	2.41e+04	5.32e+02	4.5e+01
18	13C-2,3,7,8-TCDF	9.24e+05	1.46e+04	6.3e+01	1.14e+06	1.15e+04	1.0e+02
19	13C-1,2,3,7,8-PeCDF	1.49e+06	1.09e+03	1.4e+03	9.35e+05	6.80e+02	1.4e+03
20	13C-2,3,4,7,8-PeCDF	1.55e+06	1.09e+03	1.4e+03	9.89e+05	6.80e+02	1.5e+03
21	13C-1,2,3,4,7,8-HxCDF	6.81e+05	1.36e+03	5.0e+02	1.34e+06	2.02e+03	6.6e+02
22	13C-1,2,3,6,7,8-HxCDF	7.66e+05	1.36e+03	5.6e+02	1.48e+06	2.02e+03	7.3e+02
23	13C-2,3,4,6,7,8-HxCDF	7.20e+05	1.36e+03	5.3e+02	1.32e+06	2.02e+03	6.5e+02
24	13C-1,2,3,7,8,9-HxCDF	4.99e+05	1.36e+03	3.7e+02	1.01e+06	2.02e+03	5.0e+02
25	13C-1,2,3,4,6,7,8-HpCDF	4.88e+05	1.42e+03	3.4e+02	1.08e+06	1.74e+03	6.2e+02
26	13C-1,2,3,4,7,8,9-HpCDF	3.40e+05	1.42e+03	2.4e+02	7.36e+05	1.74e+03	4.2e+02
27	13C-2,3,7,8-TCDD	4.71e+05	1.04e+04	4.5e+01	5.31e+05	3.56e+03	1.5e+02
28	13C-1,2,3,7,8-PeCDD	1.03e+06	2.23e+03	4.6e+02	6.23e+05	2.64e+03	2.4e+02
29	13C-1,2,3,4,7,8-HxCDD	9.35e+05	2.34e+03	4.0e+02	7.06e+05	9.64e+02	7.3e+02
30	13C-1,2,3,6,7,8-HxCDD	9.22e+05	2.34e+03	3.9e+02	7.26e+05	9.64e+02	7.5e+02
31	13C-1,2,3,4,6,7,8-HpCDD	7.46e+05	1.37e+03	5.5e+02	6.76e+05	6.88e+02	9.8e+02
32	13C-OCDD	5.58e+05	1.04e+03	5.4e+02	6.17e+05	5.08e+02	1.2e+03
33	13C-1,2,3,4-TCDD	7.24e+05	1.04e+04	7.0e+01	9.05e+05	3.56e+03	2.5e+02
34	13C-1,2,3,7,8,9-HxCDD	8.43e+05	2.34e+03	3.6e+02	6.84e+05	9.64e+02	7.1e+02
35	37Cl-2,3,7,8-TCDD	*	2.74e+03	*			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (3.996e{+}03 + 1.844e{+}03) \times 2000}{(4.709e{+}05 + 5.308e{+}05) \times (\quad) \times 1.085} =$$

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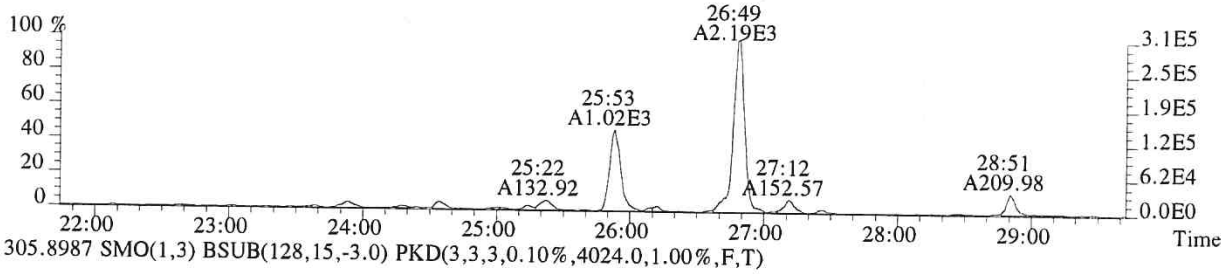
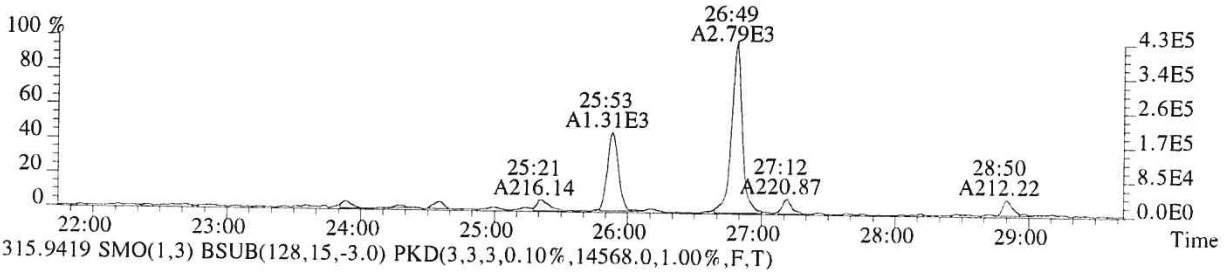
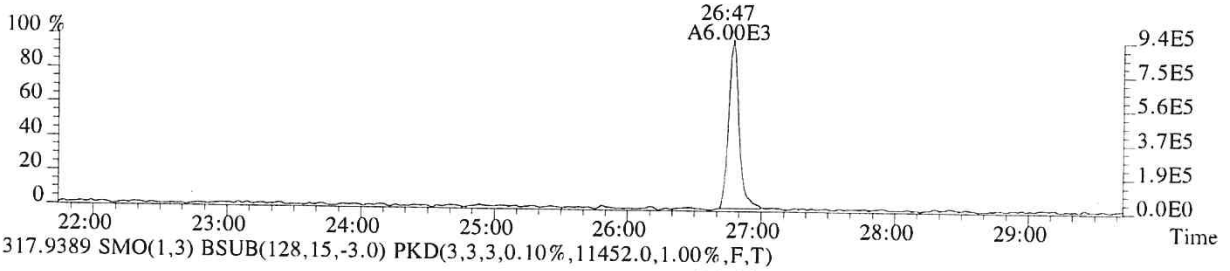
File:P519540 #1-566 Acq:21-DEC-2018 09:00:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-003DL
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1148.0,1.00%,F,T)



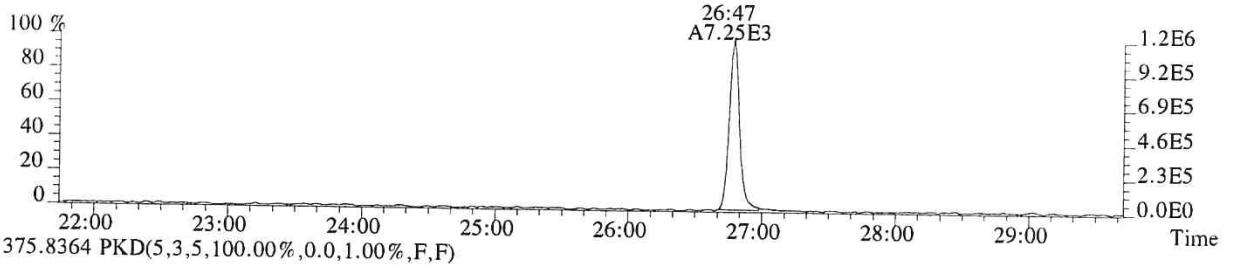
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4024.0,1.00%,F,T)



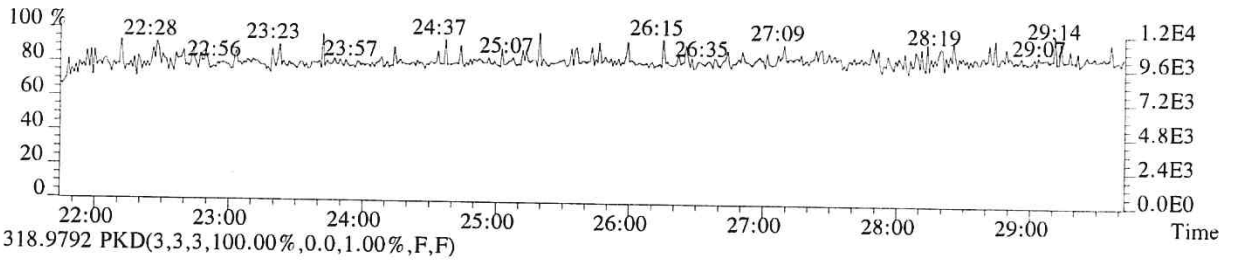
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,14568.0,1.00%,F,T)



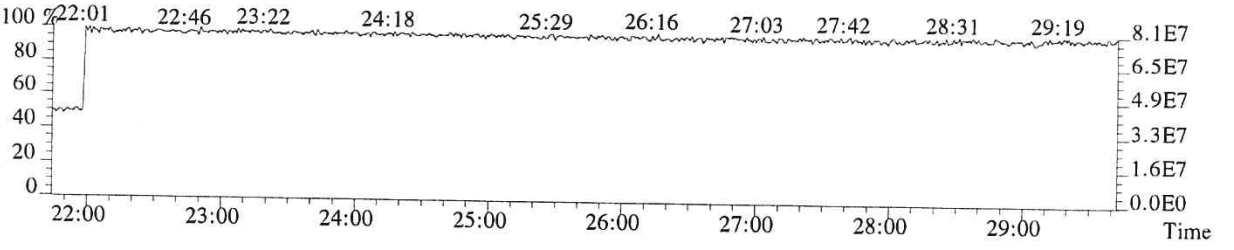
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,11452.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

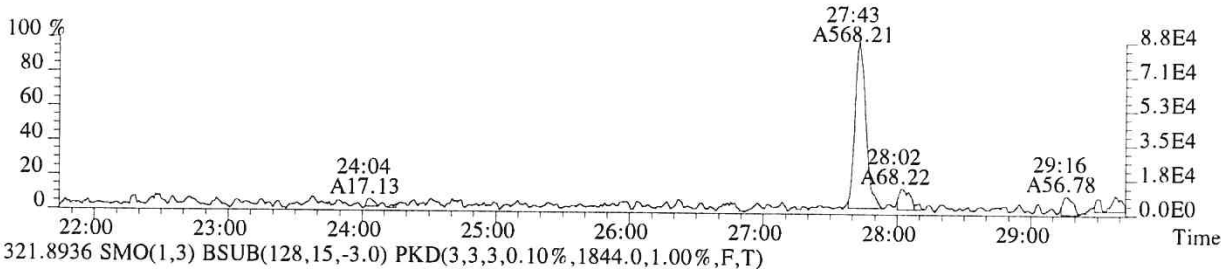


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

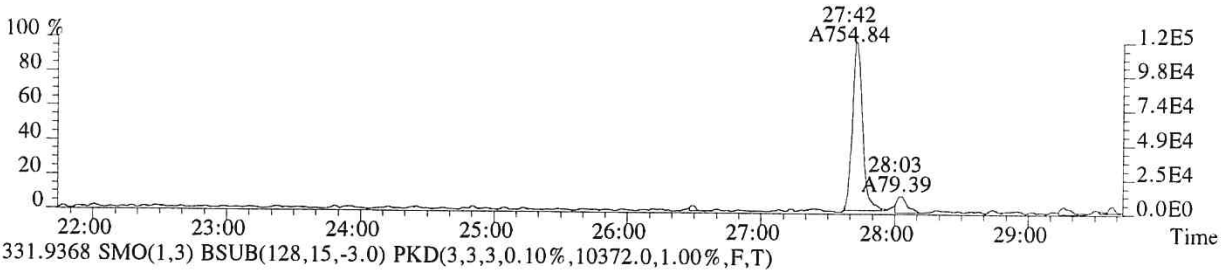


015235

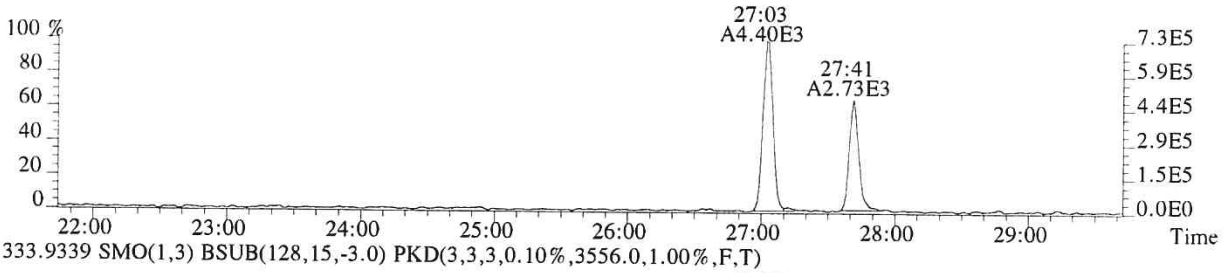
File:P519540 #1-566 Acq:21-DEC-2018 09:00:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-003DL
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3996.0,1.00%,F,T)



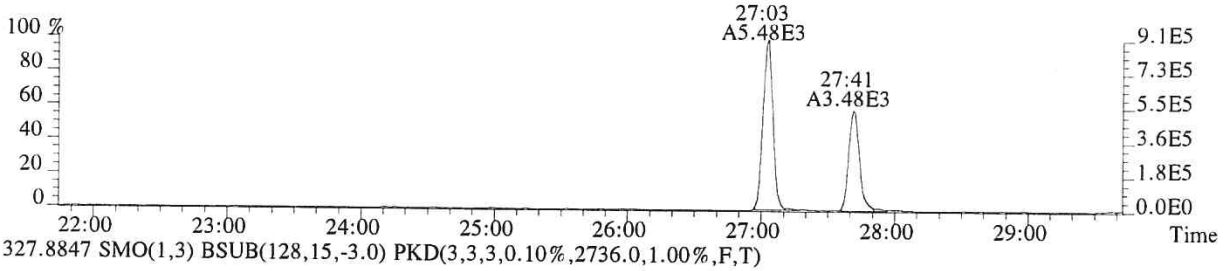
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1844.0,1.00%,F,T)



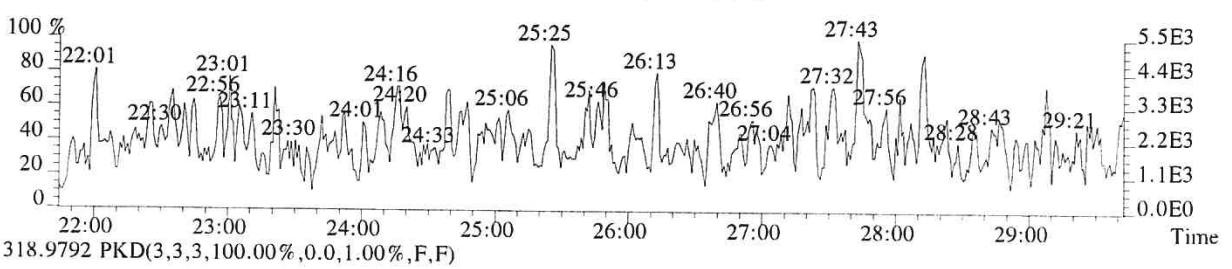
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10372.0,1.00%,F,T)



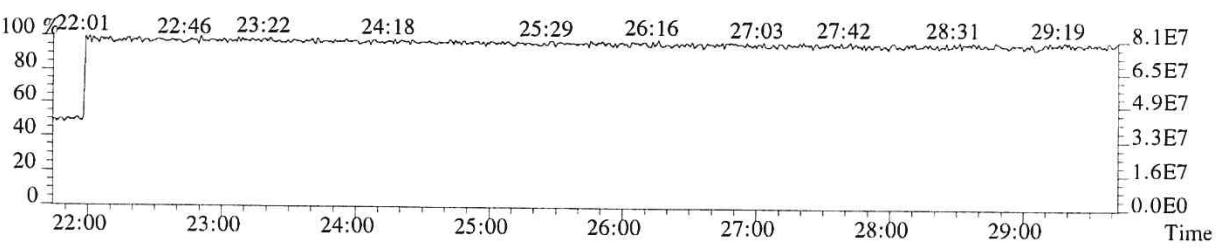
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3556.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2736.0,1.00%,F,T)

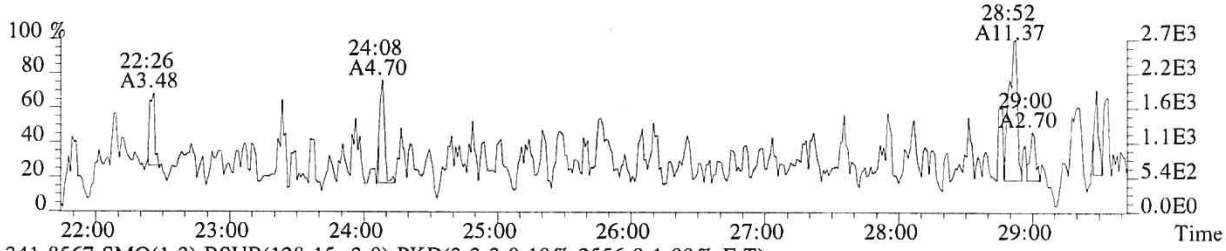


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

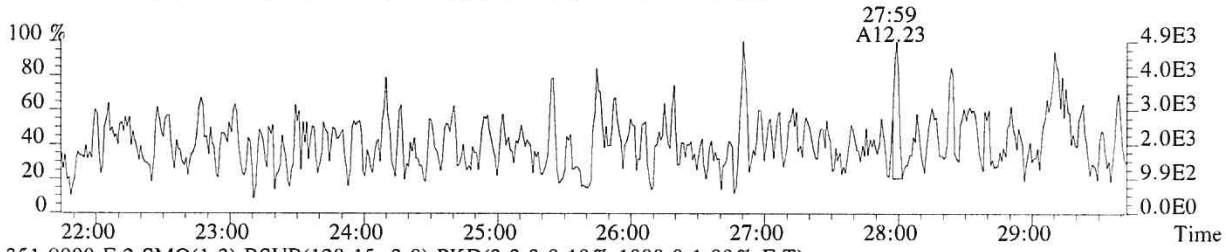


015236

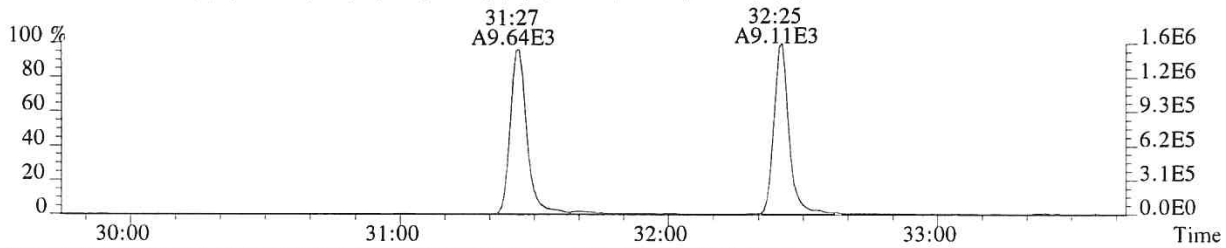
File:P519540 #1-566 Acq:21-DEC-2018 09:00:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-003DL
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,956.0,1.00%,F,T)



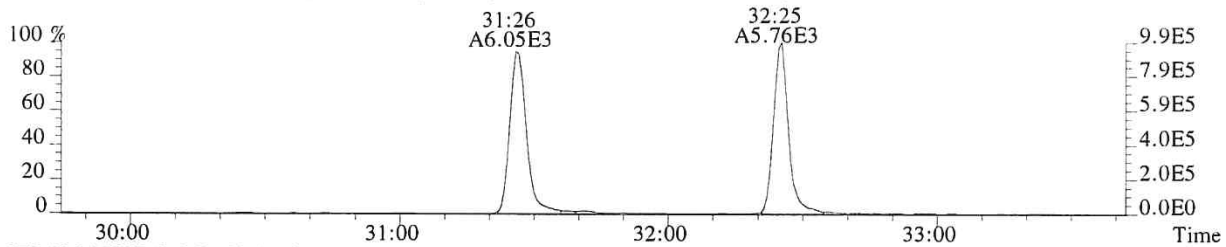
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2556.0,1.00%,F,T)



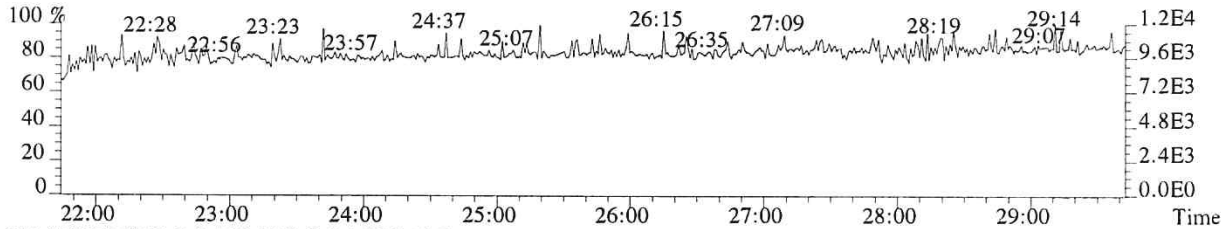
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1088.0,1.00%,F,T)



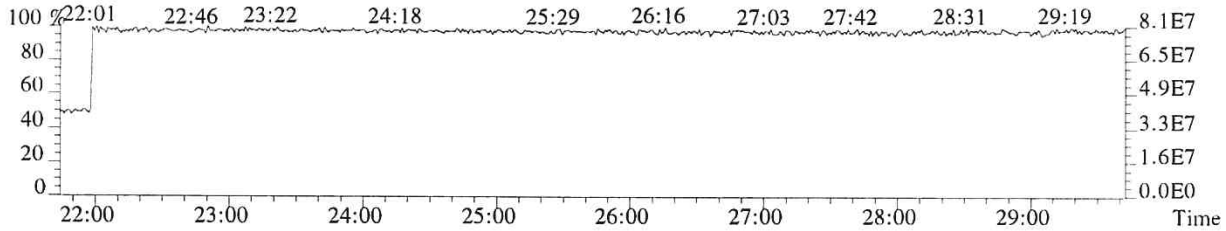
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,680.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

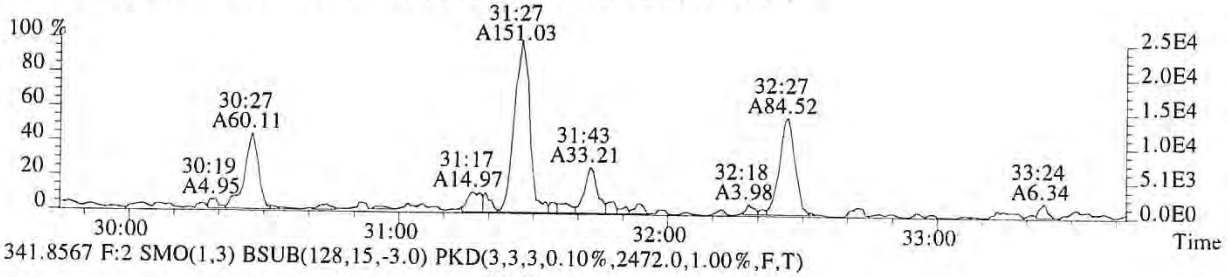


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

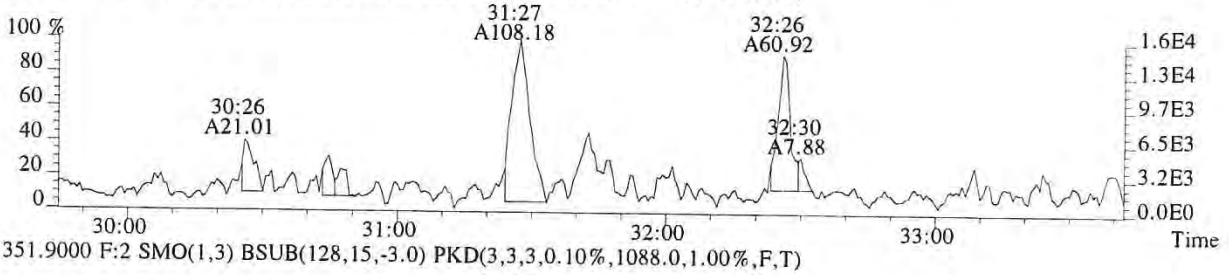


015237

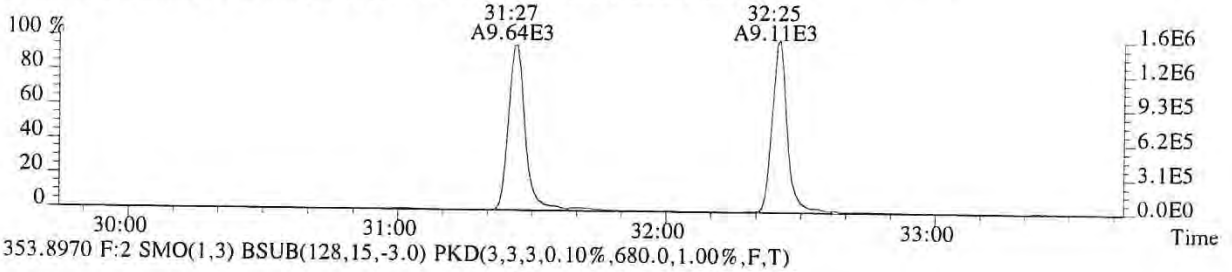
File:P519540 #1-357 Acq:21-DEC-2018 09:00:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-003DL
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,532.0,1.00%,F,T)



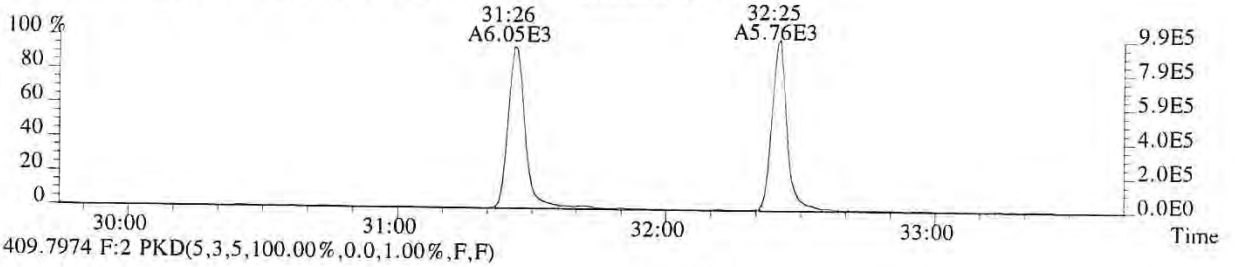
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2472.0,1.00%,F,T)



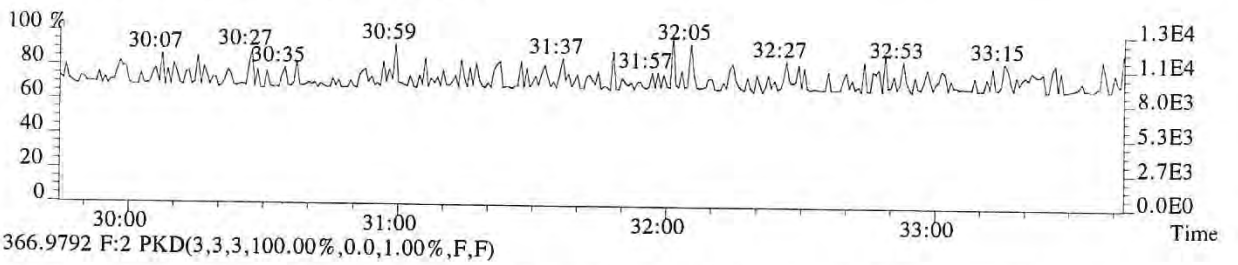
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1088.0,1.00%,F,T)



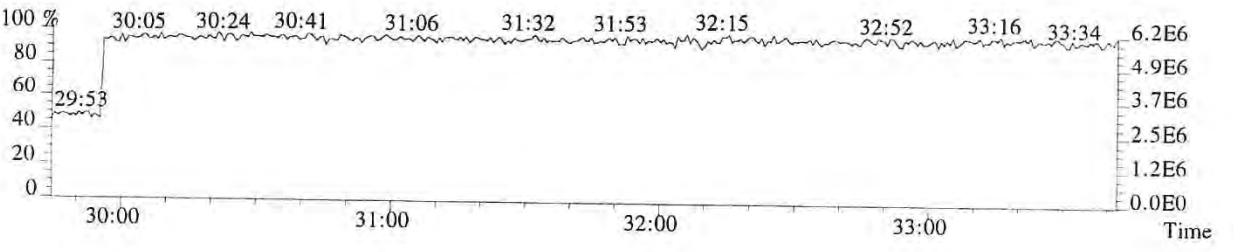
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,680.0,1.00%,F,T)



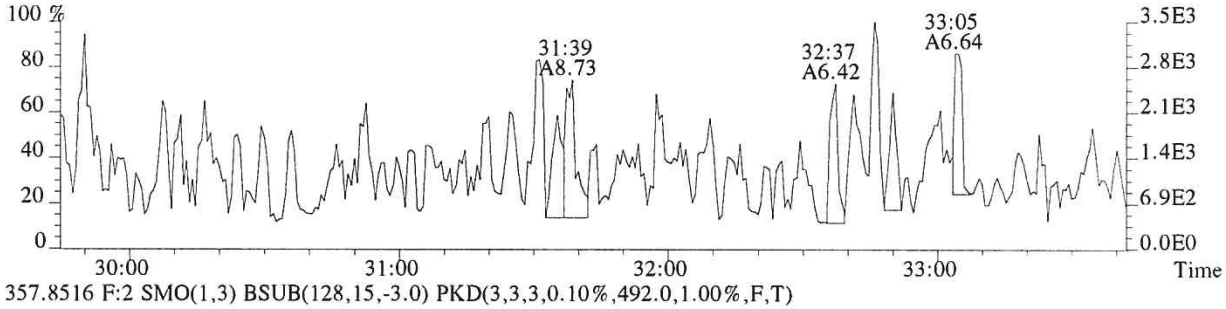
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



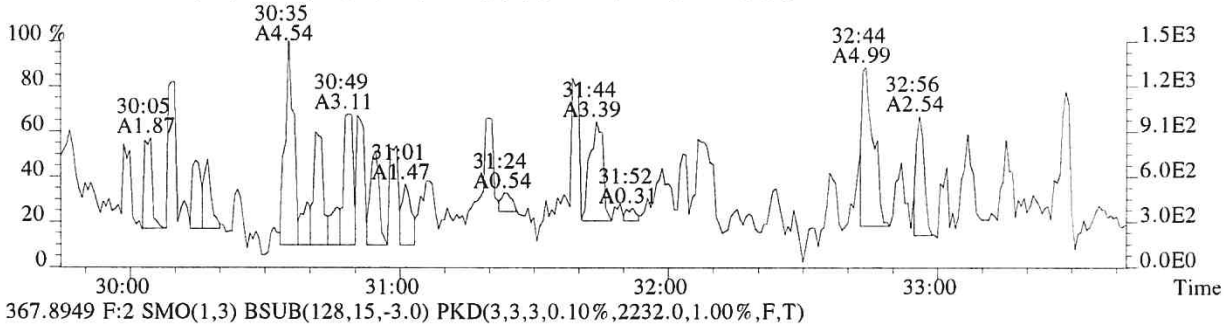
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



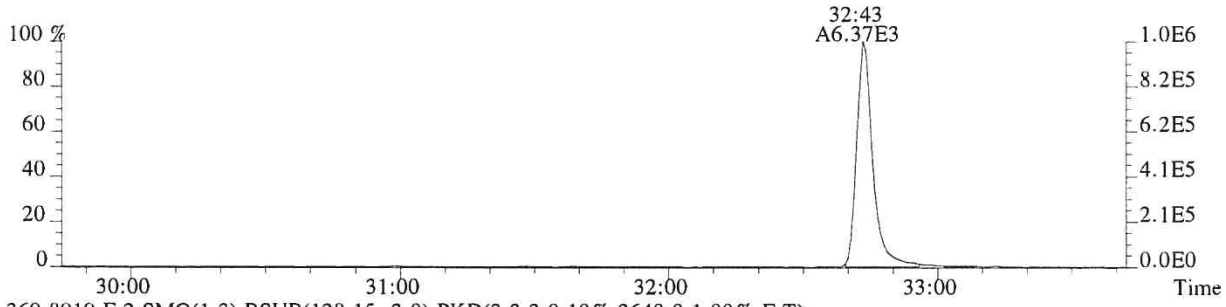
File:P519540 #1-357 Acq:21-DEC-2018 09:00:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-003DL
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1428.0,1.00%,F,T)



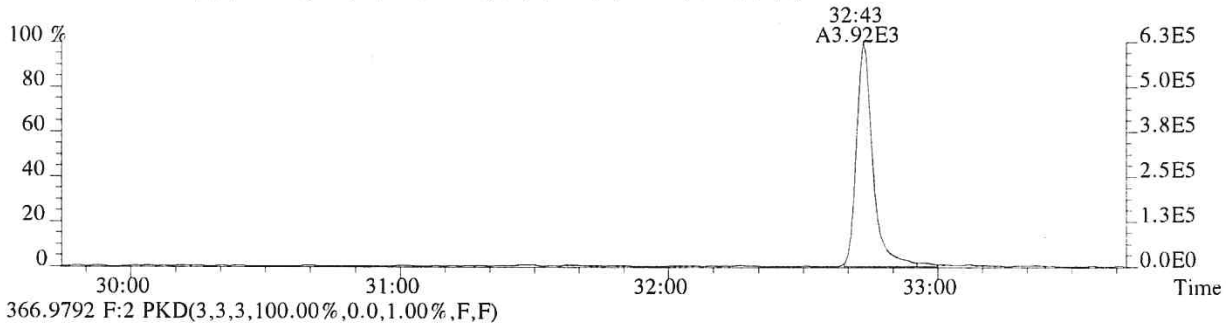
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,492.0,1.00%,F,T)



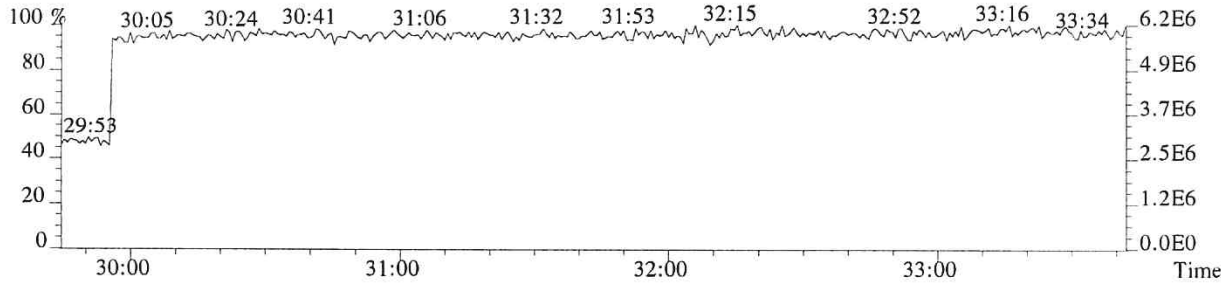
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2232.0,1.00%,F,T)



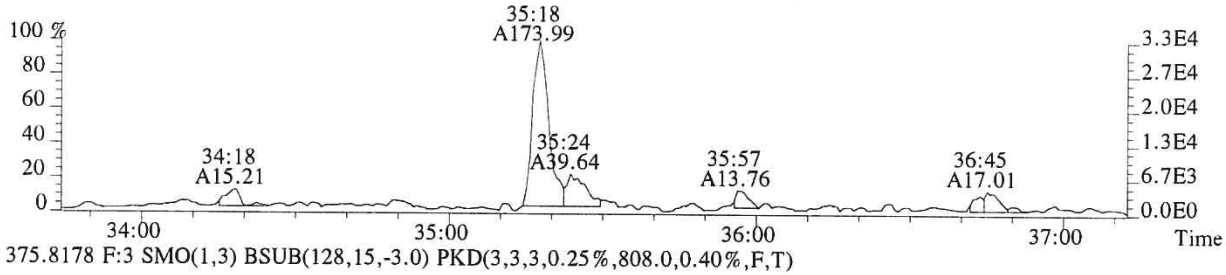
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2640.0,1.00%,F,T)



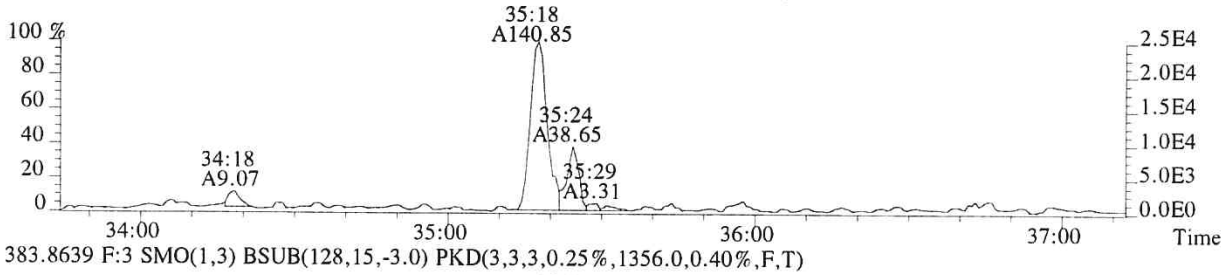
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



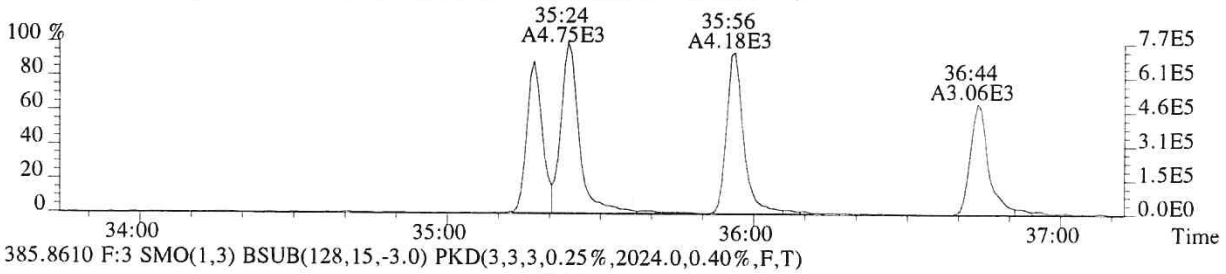
File:P519540 #1-313 Acq:21-DEC-2018 09:00:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-003DL
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1544.0,0.40%,F,T)



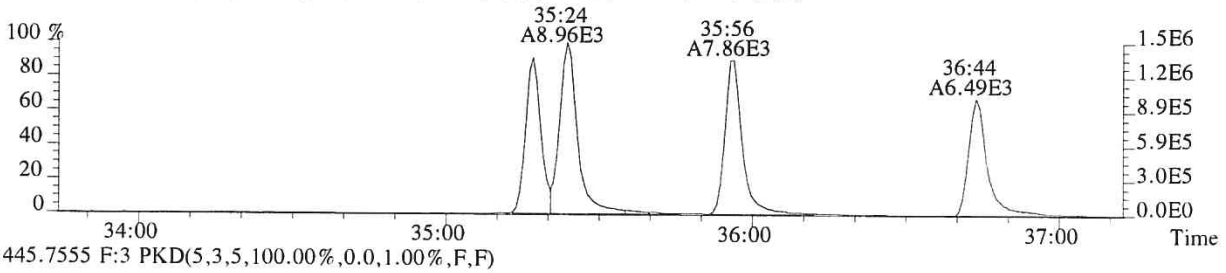
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,808.0,0.40%,F,T)



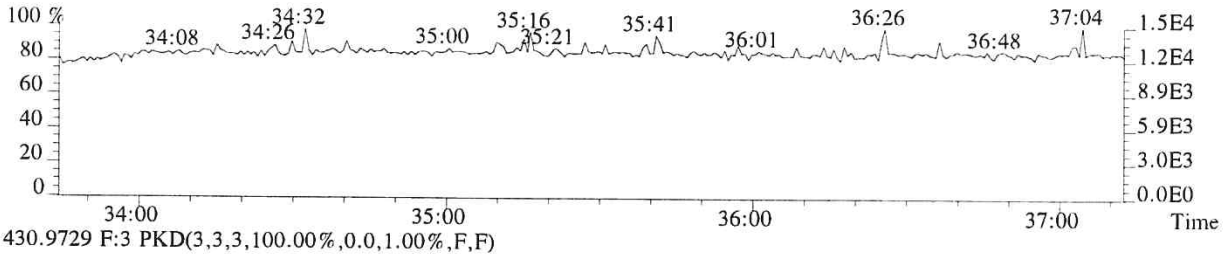
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1356.0,0.40%,F,T)



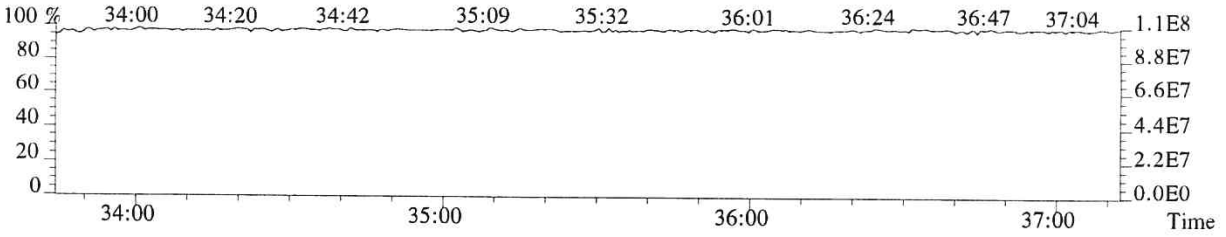
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2024.0,0.40%,F,T)



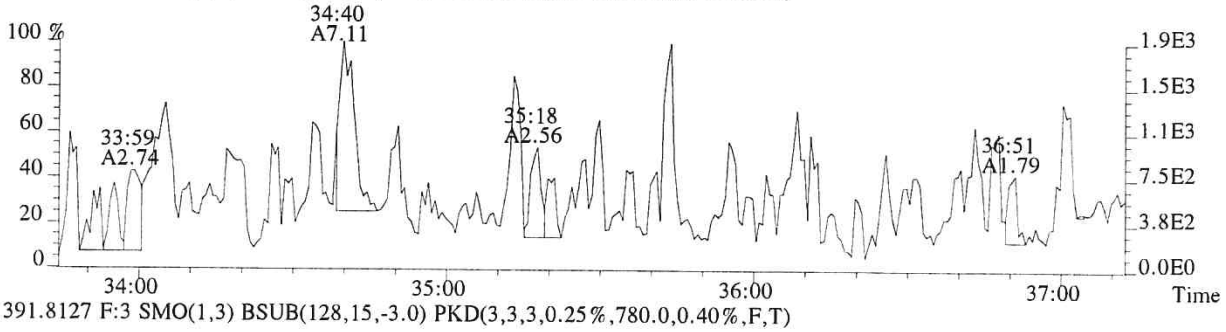
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



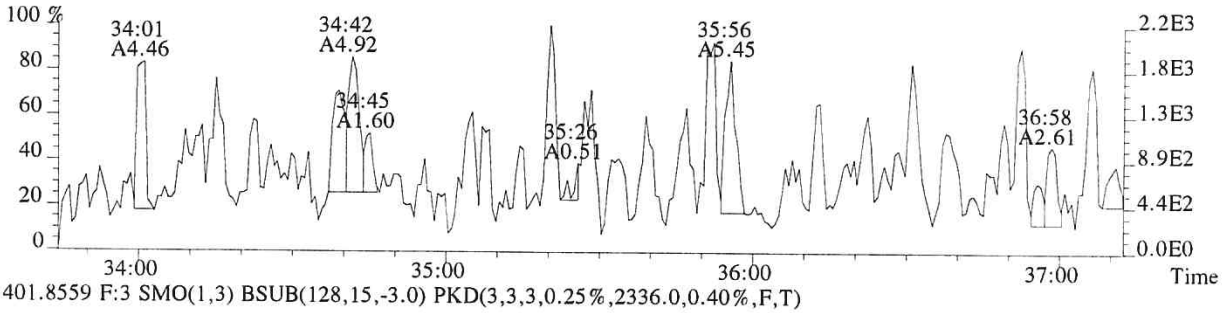
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



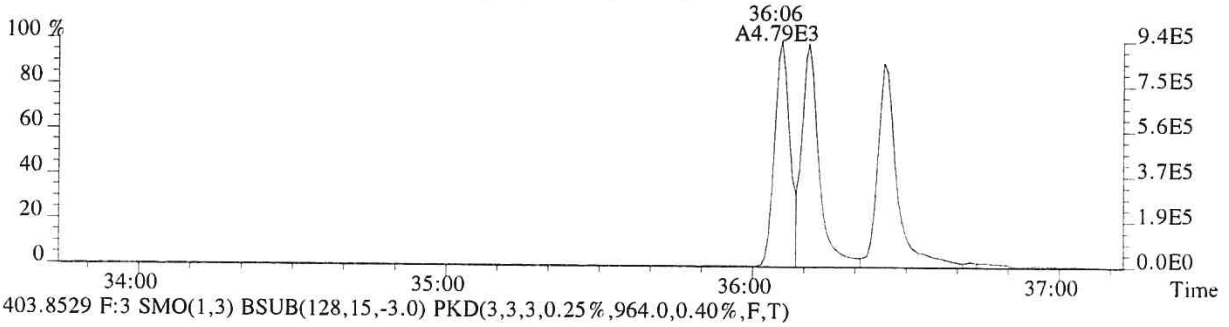
File:P519540 #1-313 Acq:21-DEC-2018 09:00:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-003DL
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,668.0,0.40%,F,T)



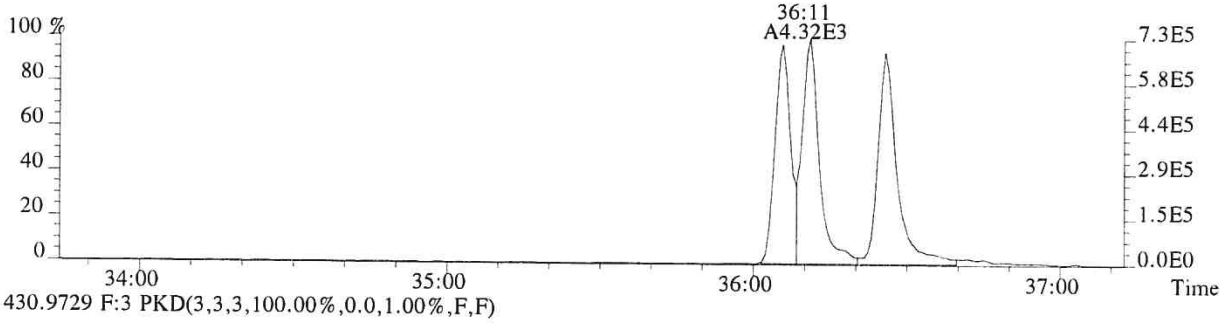
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,780.0,0.40%,F,T)



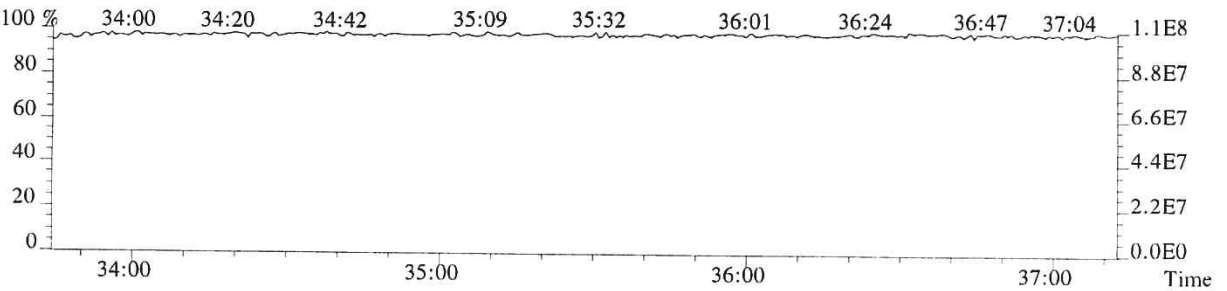
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2336.0,0.40%,F,T)



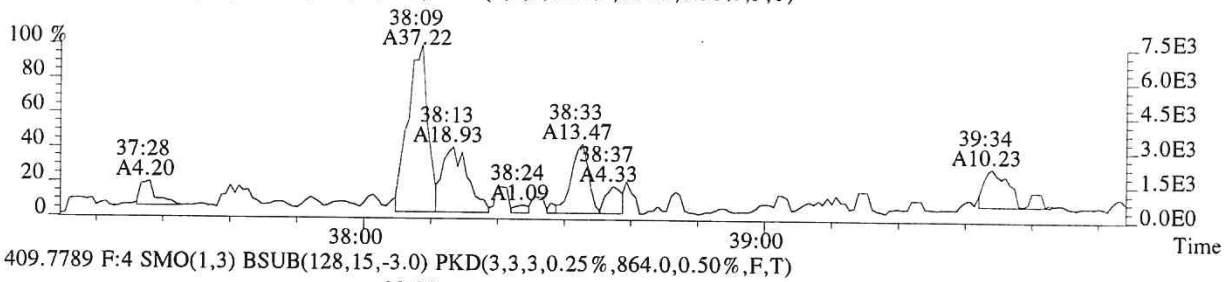
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,964.0,0.40%,F,T)



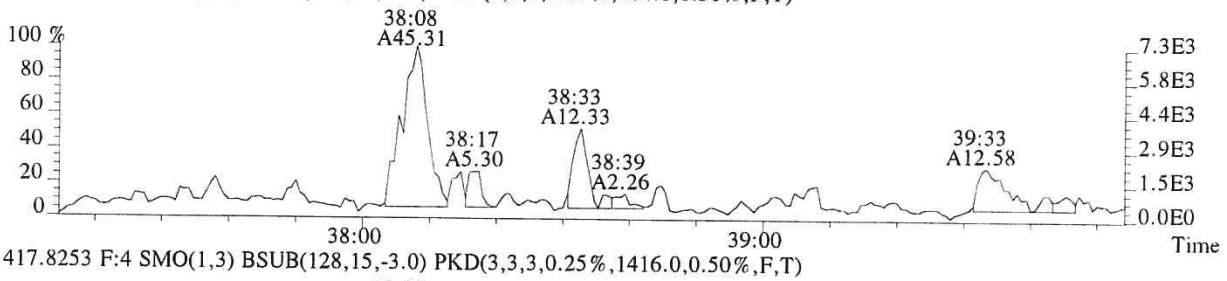
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



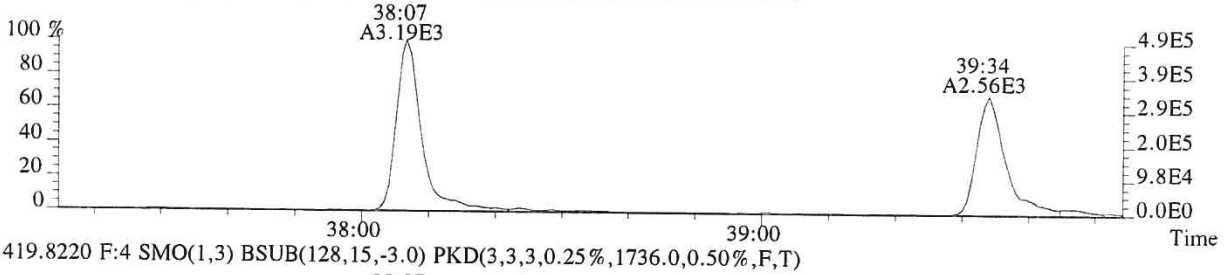
File:P519540 #1-240 Acq:21-DEC-2018 09:00:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-003DL
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,804.0,0.50%,F,T)



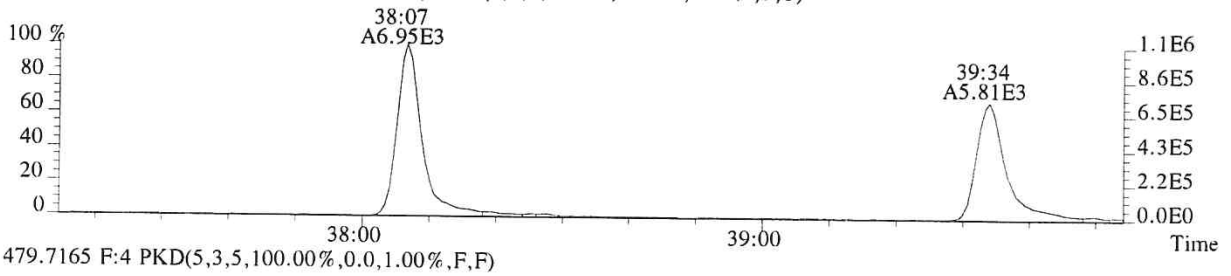
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,864.0,0.50%,F,T)



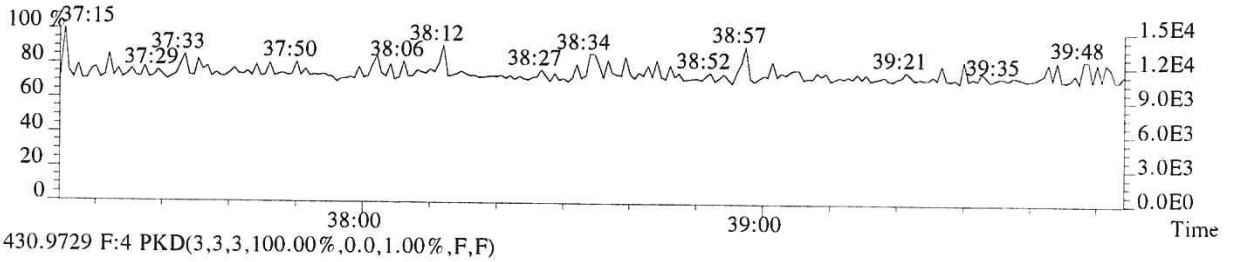
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1416.0,0.50%,F,T)



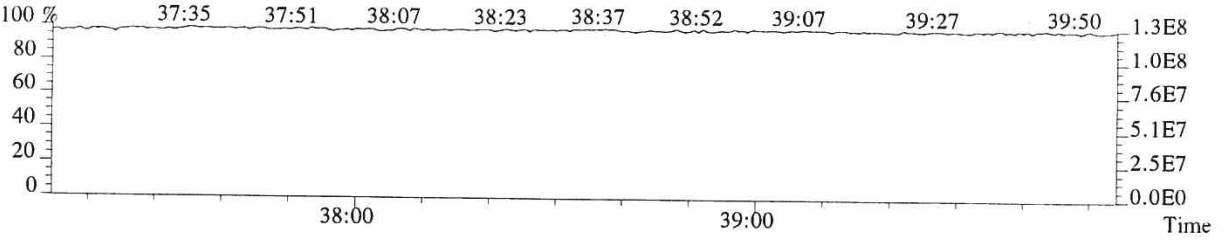
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1736.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

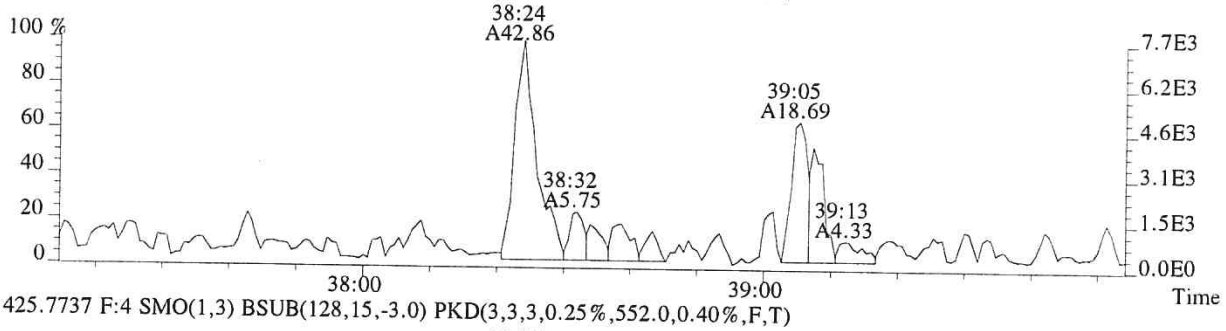


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

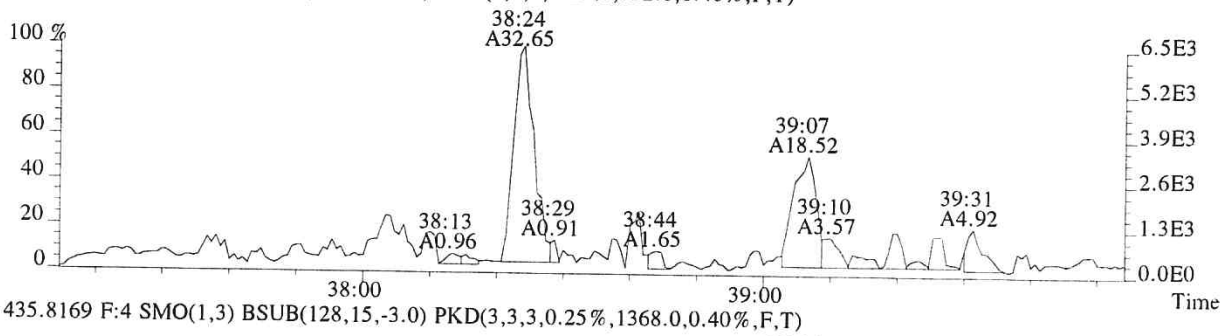


015242

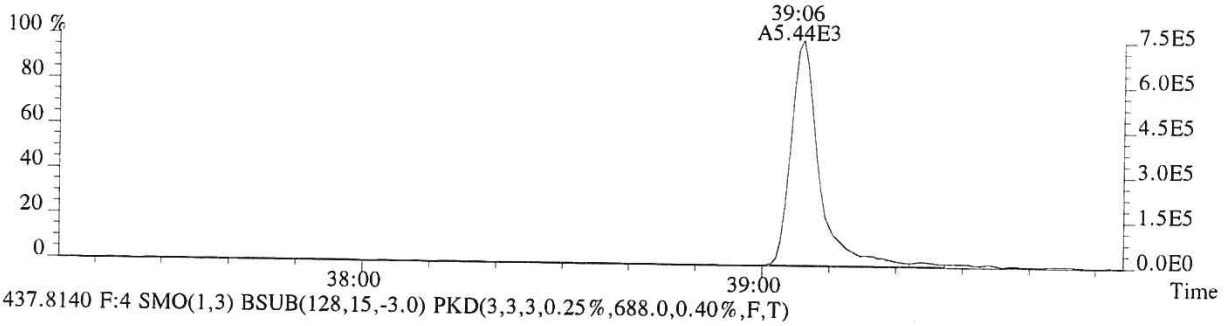
File:P519540 #1-240 Acq:21-DEC-2018 09:00:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-003DL
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,808.0,0.40%,F,T)



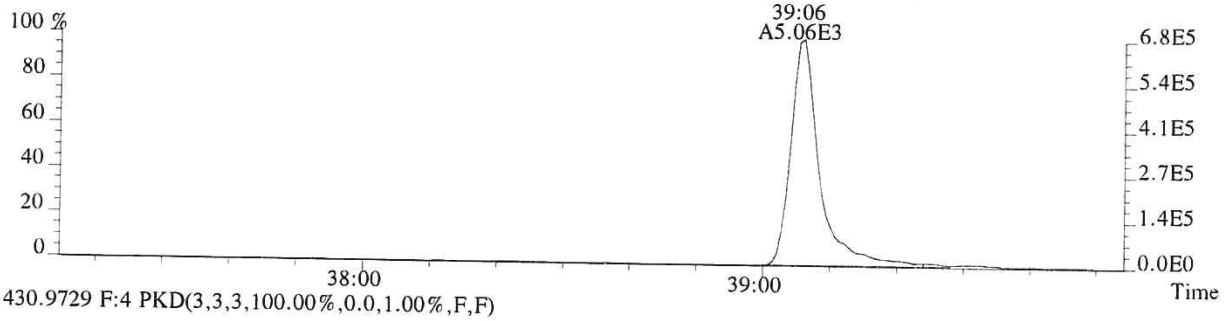
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,552.0,0.40%,F,T)



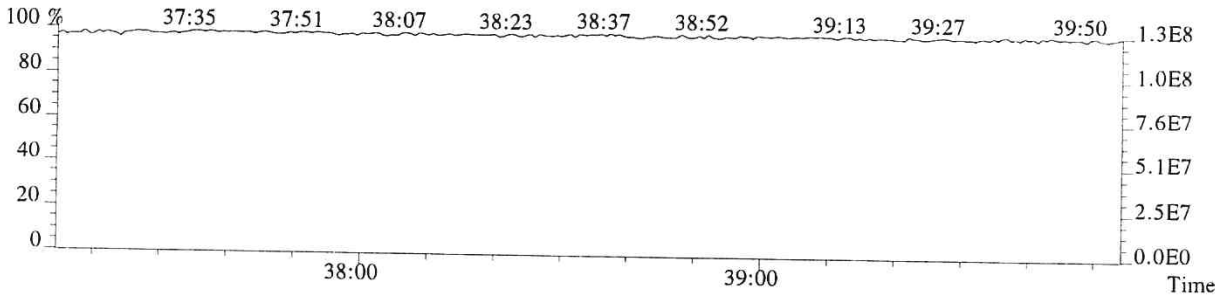
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1368.0,0.40%,F,T)



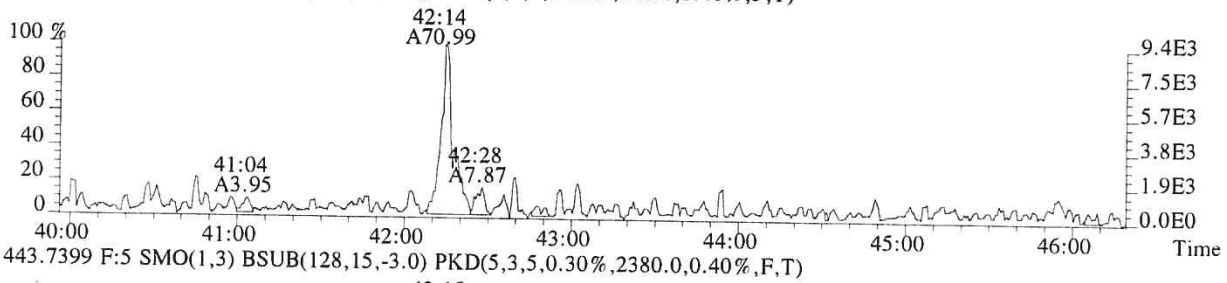
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,688.0,0.40%,F,T)



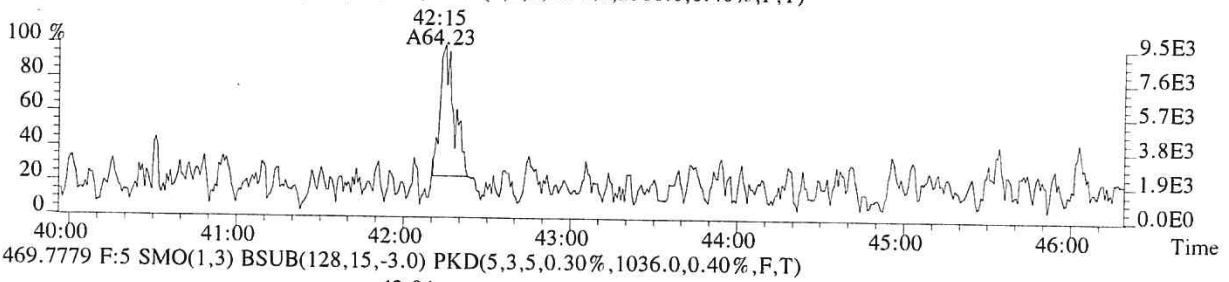
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



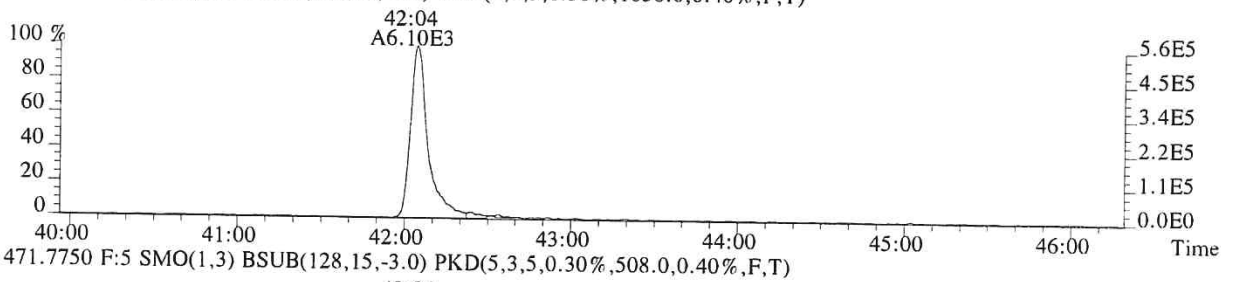
File:P519540 #1-575 Acq:21-DEC-2018 09:00:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-003DL
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,508.0,0.40%,F,T)



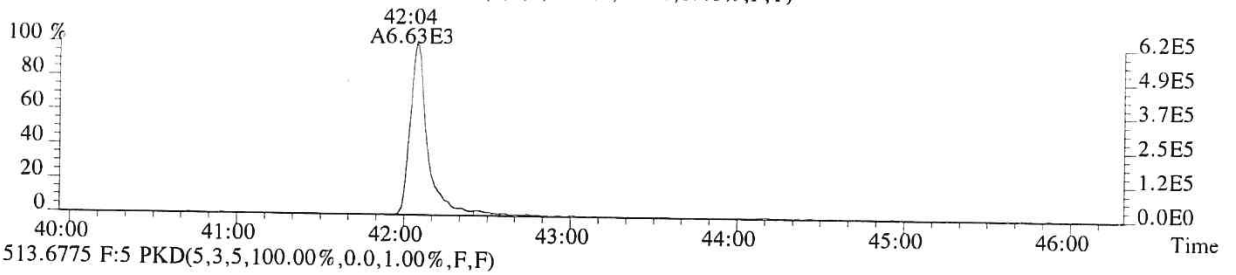
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2380.0,0.40%,F,T)



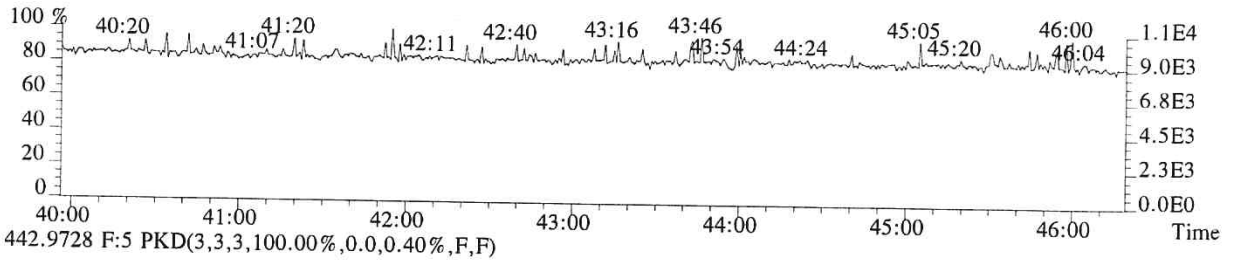
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1036.0,0.40%,F,T)



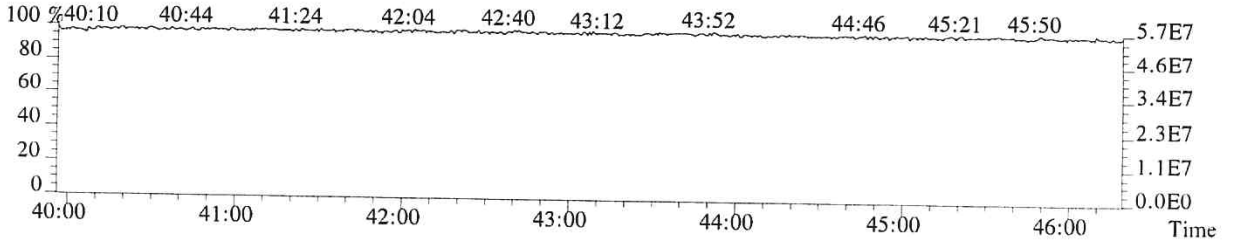
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,508.0,0.40%,F,T)



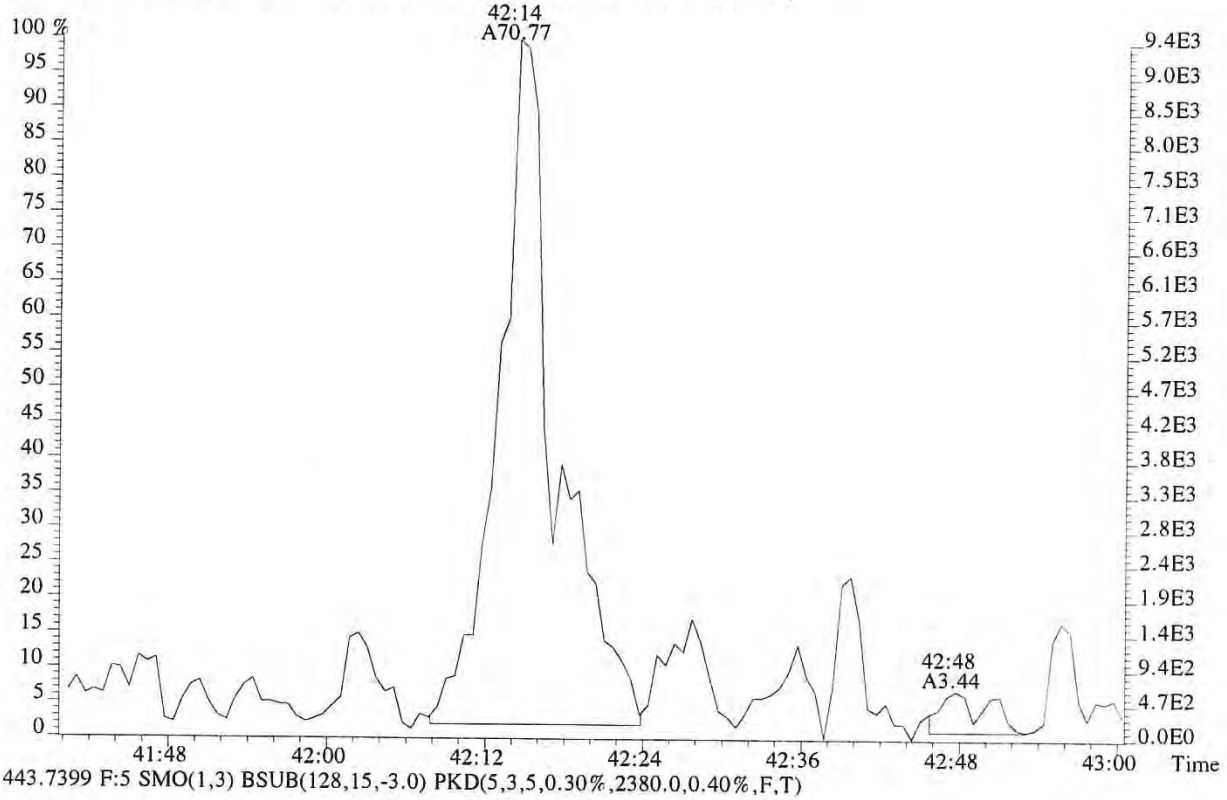
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



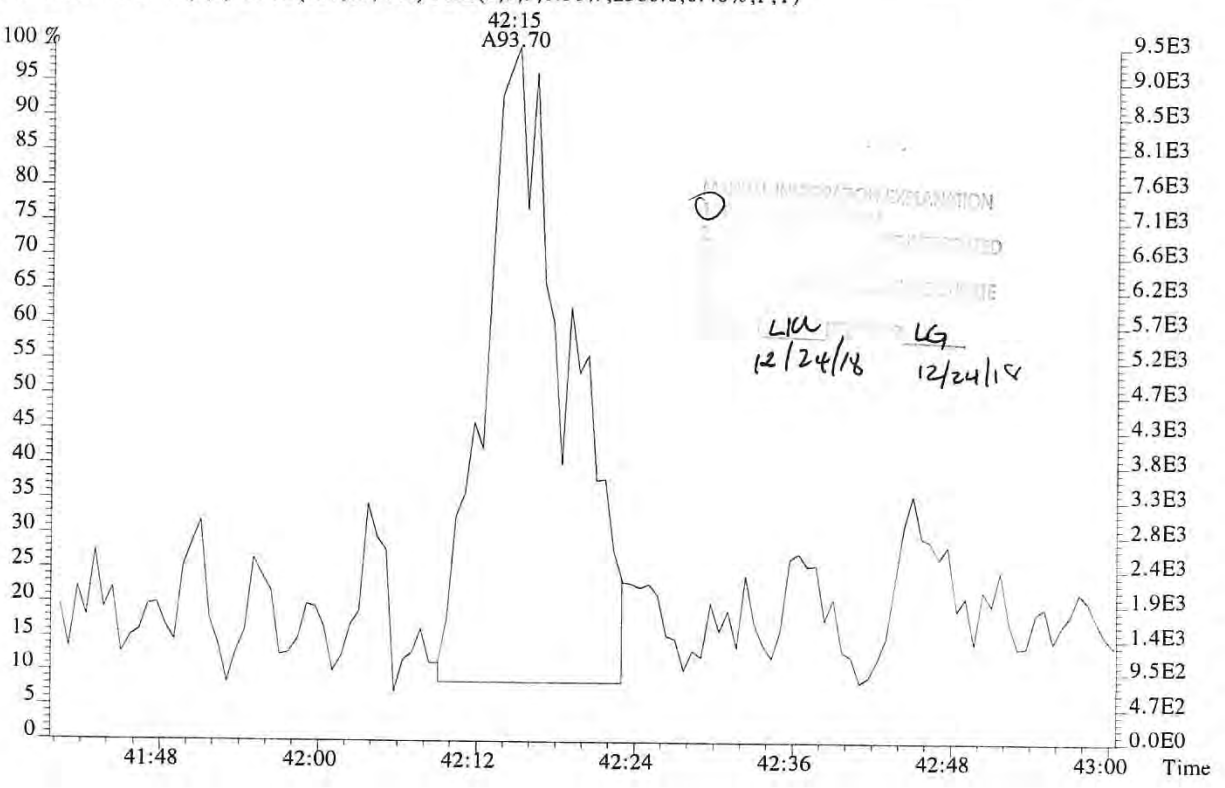
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



File:P519540 #1-575 Acq:21-DEC-2018 09:00:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-003DL
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,508.0,0.40%,F,T)

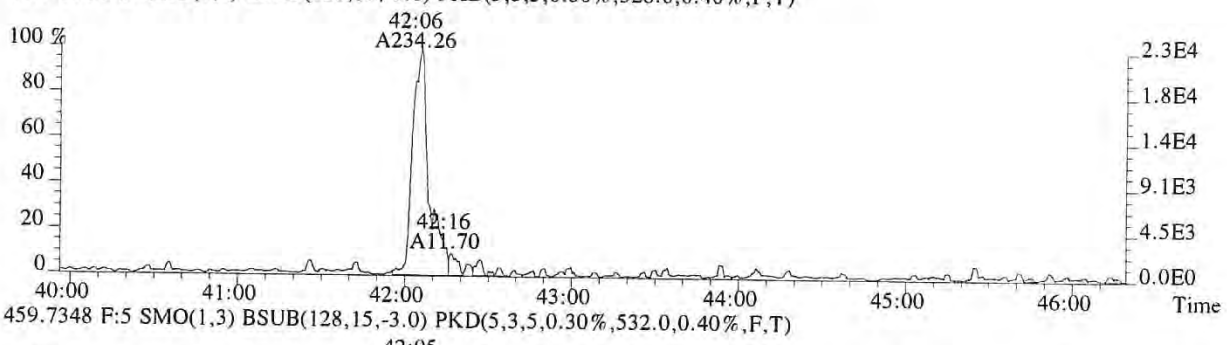


443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2380.0,0.40%,F,T)

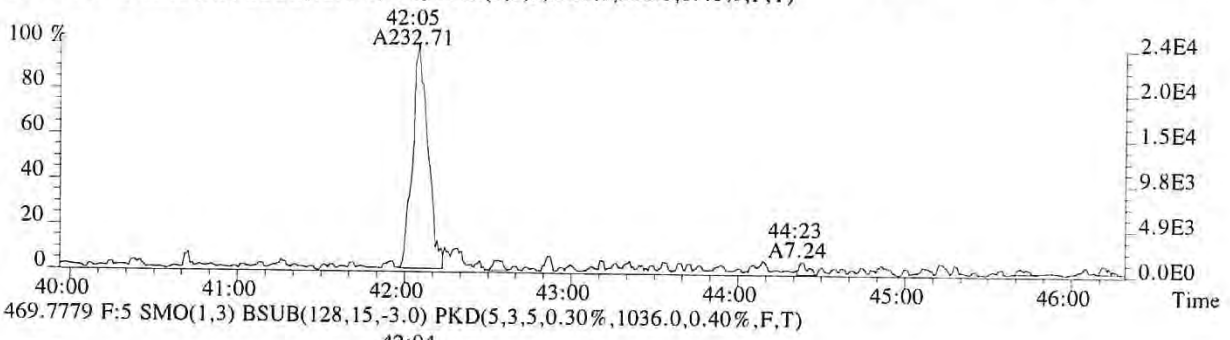


EXAMINATION
12/24/18
12/24/18

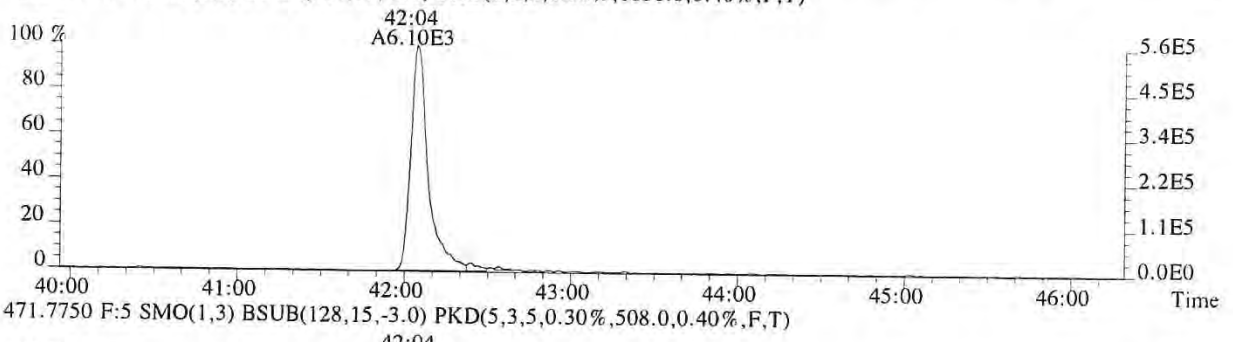
File:P519540 #1-575 Acq:21-DEC-2018 09:00:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-003DL
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,328.0,0.40%,F,T)



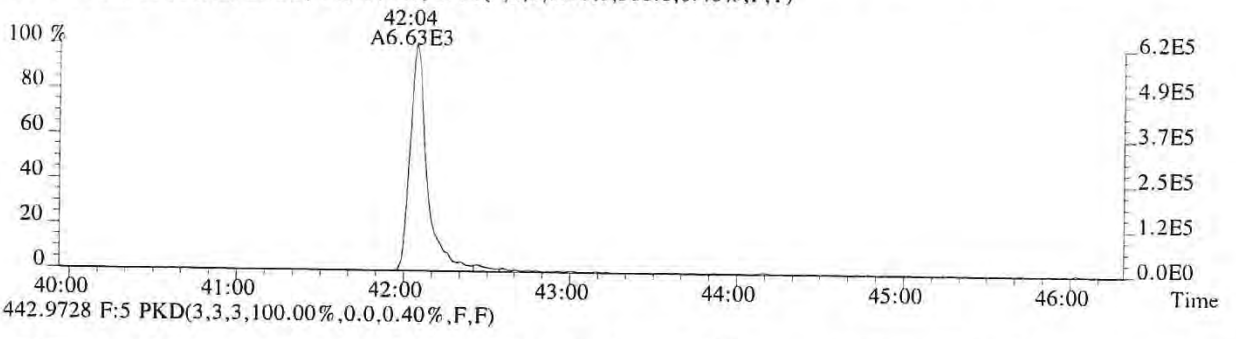
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,532.0,0.40%,F,T)



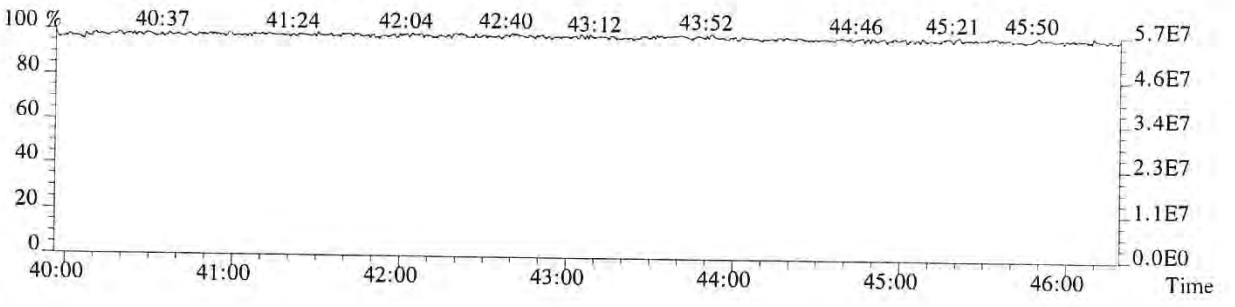
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1036.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,508.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



015246

ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0031

Run #13 Filename P519472 Samp: 1 Inj: 1 Acquired: 18-DEC-18 20:41:36
Processed: 19-DEC-18 15:21:11 Sample ID: E1801094-004

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:48	7.832e+04	1.021e+05	0.77	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	31:25	2.980e+03	2.067e+03	1.44	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	32:24	2.341e+03	1.662e+03	1.41	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:14	3.207e+03	2.650e+03	1.21	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:21	9.242e+02	8.533e+02	1.08	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:54	2.370e+02	1.696e+02	1.40	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	36:42	2.193e+02	1.872e+02	1.17	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:02	1.614e+03	1.603e+03	1.01	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:27	2.044e+02	1.841e+02	1.11	yes	no	1.258
10	Unk	OCDF	42:02	1.723e+04	2.009e+04	0.86	yes	no	1.359
11	Unk	2,3,7,8-TCDD	27:41	1.935e+04	2.474e+04	0.78	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	32:43	3.091e+02	2.014e+02	1.53	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:03	4.823e+01	3.953e+01	1.22	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:08	1.530e+02	1.188e+02	1.29	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:23	1.149e+02	8.071e+01	1.42	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:59	2.844e+03	2.692e+03	1.06	yes	no	1.025
17	Unk	OCDD	41:52	2.141e+04	2.445e+04	0.88	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	26:46	1.188e+04	1.479e+04	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	31:25	1.755e+04	1.116e+04	1.57	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	32:23	1.641e+04	1.016e+04	1.62	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:14	5.858e+03	1.138e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:20	7.066e+03	1.357e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:52	6.116e+03	1.181e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	36:40	4.992e+03	9.837e+03	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:01	3.491e+03	7.812e+03	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:26	2.532e+03	5.700e+03	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	27:41	5.413e+03	6.919e+03	0.78	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:41	1.223e+04	7.631e+03	1.60	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:02	8.045e+03	6.374e+03	1.26	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:07	8.404e+03	6.520e+03	1.29	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:59	6.502e+03	6.103e+03	1.07	yes	no	0.858
32	IS	13C-OCDD	41:52	4.286e+03	4.680e+03	0.92	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:03	1.325e+04	1.650e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:22	1.326e+04	1.003e+04	1.32	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:41	7.815e+03				no	1.014

$$\text{OCDD} = \frac{(2.141e+04 + 2.445e+04) \times 4000 \text{ pg} \times 1}{(4.286e+03 + 4.680e+03) \times 10.077 \text{ g} \times 73.9 / 100 \times 1.118} = 2320 \text{ ng/kg}$$

VW 12/20/18

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0031

Run #13 Filename P519472 Samp: 1 Inj: 1 Acquired: 18-DEC-18 20:41:36
Processed: 19-DEC-18 15:21:11 LAB. ID: E1801094-004

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.18e+07	2.96e+03	4.0e+03	1.52e+07	2.68e+03	5.7e+03
2	1,2,3,7,8-PeCDF	5.29e+05	2.27e+03	2.3e+02	3.60e+05	2.13e+03	1.7e+02
3	2,3,4,7,8-PeCDF	3.67e+05	2.27e+03	1.6e+02	2.57e+05	2.13e+03	1.2e+02
4	1,2,3,4,7,8-HxCDF	6.54e+05	1.55e+03	4.2e+02	5.34e+05	1.12e+03	4.8e+02
5	1,2,3,6,7,8-HxCDF	1.60e+05	1.55e+03	1.0e+02	1.56e+05	1.12e+03	1.4e+02
6	2,3,4,6,7,8-HxCDF	4.81e+04	1.55e+03	3.1e+01	3.20e+04	1.12e+03	2.9e+01
7	1,2,3,7,8,9-HxCDF	3.90e+04	1.55e+03	2.5e+01	3.42e+04	1.12e+03	3.1e+01
8	1,2,3,4,6,7,8-HpCDF	2.92e+05	1.15e+03	2.5e+02	2.98e+05	8.60e+02	3.5e+02
9	1,2,3,4,7,8,9-HpCDF	3.46e+04	1.15e+03	3.0e+01	3.06e+04	8.60e+02	3.6e+01
10	OCDF	2.03e+06	4.00e+02	5.1e+03	2.39e+06	6.72e+02	3.6e+03
11	2,3,7,8-TCDD	3.37e+06	2.32e+03	1.5e+03	4.30e+06	1.66e+03	2.6e+03
12	1,2,3,7,8-PeCDD	4.88e+04	7.60e+02	6.4e+01	2.99e+04	1.21e+03	2.5e+01
13	1,2,3,4,7,8-HxCDD	1.05e+04	8.68e+02	1.2e+01	9.96e+03	1.47e+03	6.8e+00
14	1,2,3,6,7,8-HxCDD	3.09e+04	8.68e+02	3.6e+01	2.26e+04	1.47e+03	1.5e+01
15	1,2,3,7,8,9-HxCDD	2.17e+04	8.68e+02	2.5e+01	1.45e+04	1.47e+03	9.9e+00
16	1,2,3,4,6,7,8-HpCDD	5.08e+05	7.56e+02	6.7e+02	4.44e+05	1.13e+03	3.9e+02
17	OCDD	2.46e+06	4.08e+02	6.0e+03	2.78e+06	6.68e+02	4.2e+03
18	13C-2,3,7,8-TCDF	1.94e+06	5.90e+03	3.3e+02	2.37e+06	3.68e+03	6.5e+02
19	13C-1,2,3,7,8-PeCDF	3.13e+06	1.74e+03	1.8e+03	1.96e+06	2.07e+03	9.5e+02
20	13C-2,3,4,7,8-PeCDF	3.02e+06	1.74e+03	1.7e+03	1.89e+06	2.07e+03	9.1e+02
21	13C-1,2,3,4,7,8-HxCDF	1.22e+06	4.64e+02	2.6e+03	2.37e+06	1.38e+03	1.7e+03
22	13C-1,2,3,6,7,8-HxCDF	1.36e+06	4.64e+02	2.9e+03	2.57e+06	1.38e+03	1.9e+03
23	13C-2,3,4,6,7,8-HxCDF	1.20e+06	4.64e+02	2.6e+03	2.34e+06	1.38e+03	1.7e+03
24	13C-1,2,3,7,8,9-HxCDF	9.25e+05	4.64e+02	2.0e+03	1.77e+06	1.38e+03	1.3e+03
25	13C-1,2,3,4,6,7,8-HpCDF	6.42e+05	2.92e+03	2.2e+02	1.41e+06	2.71e+03	5.2e+02
26	13C-1,2,3,4,7,8,9-HpCDF	4.04e+05	2.92e+03	1.4e+02	9.34e+05	2.71e+03	3.4e+02
27	13C-2,3,7,8-TCDD	9.81e+05	5.20e+03	1.9e+02	1.21e+06	4.87e+03	2.5e+02
28	13C-1,2,3,7,8-PeCDD	2.24e+06	1.56e+03	1.4e+03	1.42e+06	1.21e+03	1.2e+03
29	13C-1,2,3,4,7,8-HxCDD	1.69e+06	1.06e+03	1.6e+03	1.33e+06	7.92e+02	1.7e+03
30	13C-1,2,3,6,7,8-HxCDD	1.58e+06	1.06e+03	1.5e+03	1.22e+06	7.92e+02	1.5e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.10e+06	5.44e+02	2.0e+03	1.03e+06	3.64e+02	2.8e+03
32	13C-OCDD	4.82e+05	3.72e+02	1.3e+03	5.46e+05	4.00e+02	1.4e+03
33	13C-1,2,3,4-TCDD	2.27e+06	5.20e+03	4.4e+02	2.79e+06	4.87e+03	5.7e+02
34	13C-1,2,3,7,8,9-HxCDD	2.41e+06	1.06e+03	2.3e+03	1.85e+06	7.92e+02	2.3e+03
35	37Cl-2,3,7,8-TCDD	1.37e+06	5.92e+02	2.3e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (2.320e{+}03 + 1.656e{+}03) \times 2000}{(9.806e{+}05 + 1.211e{+}06) \times (\quad) \times 1.085} =$$

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Peak List Summary

CLIENT ID.
SL0031

Entry: 36 Totals Name: Total Tetra-Furans

Run: 13 File: P519472 Sample:1 Injection:1 Function:1

Acquired: 18-DEC-18 20:41:36 Processed: 19-DEC-18 15:21:11

Mass: 303.9020 305.8990 Tot Response: 3.14e+05 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	23:35	6.51e+02	8.88e+02	0.73	yes	1.54e+03		n	n
2	23:54	3.10e+03	4.23e+03	0.73	yes	7.33e+03		n	n
3	24:17	9.55e+02	1.18e+03	0.81	yes	2.13e+03		n	n
4	24:35	2.81e+03	3.65e+03	0.77	yes	6.46e+03		n	n
5	24:58	5.65e+02	6.78e+02	0.83	yes	1.24e+03		n	n
6	25:13	1.89e+03	2.50e+03	0.75	yes	4.39e+03		n	n
7	25:21	3.01e+03	4.06e+03	0.74	yes	7.07e+03		n	n
8	25:52	3.07e+04	4.10e+04	0.75	yes	7.18e+04		n	n
9	26:09	1.63e+03	2.02e+03	0.81	yes	3.65e+03		n	n
10	26:48	7.83e+04	1.02e+05	0.77	yes	1.80e+05	2,3,7,8-TCDF	n	n
11	27:10	5.54e+03	7.23e+03	0.77	yes	1.28e+04		n	n
12	27:26	9.61e+02	1.11e+03	0.87	yes	2.07e+03		n	n
13	28:50	5.56e+03	7.34e+03	0.76	yes	1.29e+04		n	n

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SL0031

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 13 File: P519472 Sample:1 Injection:1 Function:1

Acquired: 18-DEC-18 20:41:36 Processed: 19-DEC-18 15:21:11

Mass: 319.8970 321.8940 Tot Response: 4.85e+04 RRF: 1.085

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	25:30	1.26e+02	1.61e+02	0.78	yes	2.87e+02		n	n
2	27:41	1.93e+04	2.47e+04	0.78	yes	4.41e+04	2,3,7,8-TCDD	n	n
3	28:01	1.80e+03	2.29e+03	0.79	yes	4.09e+03		n	n

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SL0031

Entry: 38 Totals Name: Total Penta-Furans1

Run: 13 File: P519472 Sample:1 Injection:1 Function:1

Acquired: 18-DEC-18 20:41:36 Processed: 19-DEC-18 15:21:11

Mass: 339.8600 341.8570 Tot Response: 8.84e+02 RRF: 0.9857

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	28:50	5.31e+02	3.37e+02	1.58	yes	8.67e+02		n	n
2	29:10	1.05e+01	6.01e+00	1.75	yes	1.65e+01		n	n

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SL0031

Entry: 39 Totals Name: Total Penta-Furans2

Run: 13 File: P519472 Sample:1 Injection:1 Function:2

Acquired: 18-DEC-18 20:41:36 Processed: 19-DEC-18 15:21:11

Mass: 339.8600 341.8570 Tot Response: 1.45e+04 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:17	1.16e+02	1.46	yes	1.95e+02		n	n
2	30:26	1.58e+03	1.46	yes	2.66e+03		n	n
3	31:01	2.06e+02	1.67	yes	3.30e+02		n	n
4	31:14	3.11e+02	1.32	yes	5.46e+02		n	n
5	31:25	2.98e+03	1.44	yes	5.05e+03	1,2,3,7,8-PeCDF	n	n
6	31:41	1.01e+03	1.67	yes	1.62e+03		n	n
7	32:18	4.52e+01	1.60	yes	7.35e+01		n	n
8	32:24	2.34e+03	1.41	yes	4.00e+03	2,3,4,7,8-PeCDF	n	n

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Peak List Summary

CLIENT ID.
SL0031

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 13 File: P519472 Sample:1 Injection:1 Function:2

Acquired: 18-DEC-18 20:41:36 Processed: 19-DEC-18 15:21:11

Mass: 355.8550 357.8520 Tot Response: 1.30e+03 RRF: 0.9565

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:29	1.71e+02	1.04e+02	1.64	yes	2.76e+02		n	n
2	30:58	1.74e+02	1.27e+02	1.37	yes	3.01e+02		n	n
3	31:37	6.45e+01	3.91e+01	1.65	yes	1.04e+02		n	n
4	31:43	4.57e+01	3.08e+01	1.48	yes	7.65e+01		n	n
5	32:43	3.09e+02	2.01e+02	1.53	yes	5.10e+02	1,2,3,7,8-PeCDD	n	n
6	33:06	1.90e+01	1.15e+01	1.66	yes	3.05e+01		n	n

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Peak List Summary

CLIENT ID.
SL0031

Entry: 41 Totals Name: Total Hexa-Furans

Run: 13 File: P519472 Sample:1 Injection:1 Function:3

Acquired: 18-DEC-18 20:41:36 Processed: 19-DEC-18 15:21:11

Mass: 373.8210 375.8180 Tot Response: 1.10e+04 RRF: 1.141

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:04	1.57e+02	1.35	yes	2.72e+02		n	n
2	34:14	6.33e+02	1.23	yes	1.15e+03		n	n
3	34:47	6.20e+02	1.27	yes	1.11e+03		n	n
4	35:14	3.21e+03	1.21	yes	5.86e+03	1,2,3,4,7,8-HxCDF	n	n
5	35:21	9.24e+02	1.08	yes	1.78e+03	1,2,3,6,7,8-HxCDF	n	n
6	35:54	2.37e+02	1.40	yes	4.07e+02	2,3,4,6,7,8-HxCDF	n	n
7	36:42	2.19e+02	1.17	yes	4.07e+02	1,2,3,7,8,9-HxCDF	n	n

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SL0031

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 13 File: P519472 Sample:1 Injection:1 Function:3

Acquired: 18-DEC-18 20:41:36 Processed: 19-DEC-18 15:21:11

Mass: 389.8160 391.8130 Tot Response: 4.37e+03 RRF: 1.047

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:38	1.32e+03	1.26	yes	2.38e+03		n	n
2	35:11	1.09e+02	1.15	yes	2.03e+02		n	n
3	35:26	6.48e+02	1.25	yes	1.17e+03		n	n
4	36:03	4.82e+01	1.22	yes	8.78e+01	1,2,3,4,7,8-HxCDD	n	n
5	36:08	1.53e+02	1.29	yes	2.72e+02	1,2,3,6,7,8-HxCDD	n	n
6	36:18	3.89e+01	1.20	yes	7.14e+01		n	n
7	36:23	1.15e+02	1.42	yes	1.96e+02	1,2,3,7,8,9-HxCDD	n	n

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Peak List Summary

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SL0031

Entry: 43 Totals Name: Total Hepta-Furans

Run: 13 File: P519472 Sample:1 Injection:1 Function:4

Acquired: 18-DEC-18 20:41:36 Processed: 19-DEC-18 15:21:11

Mass: 407.7820 409.7790 Tot Response: 6.35e+03 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:02	1.61e+03	1.01	yes	3.22e+03	1,2,3,4,6,7,8-HpCDF	n	n
2	38:26	1.34e+03	1.00	yes	2.67e+03		n	n
3	38:33	3.47e+01	0.99	yes	6.96e+01		n	n
4	39:27	2.04e+02	1.11	yes	3.89e+02	1,2,3,4,7,8,9-HpCDF	n	n

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SL0031

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 13 File: P519472 Sample:1 Injection:1 Function:4

Acquired: 18-DEC-18 20:41:36 Processed: 19-DEC-18 15:21:11

Mass: 423.7770 425.7740 Tot Response: 1.47e+04 RRF: 1.025

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:18	4.65e+03	4.47e+03	1.04	yes	9.12e+03		n	n
2	38:59	2.84e+03	2.69e+03	1.06	yes	5.54e+03	1,2,3,4,6,7,8-HpCDD	n	n

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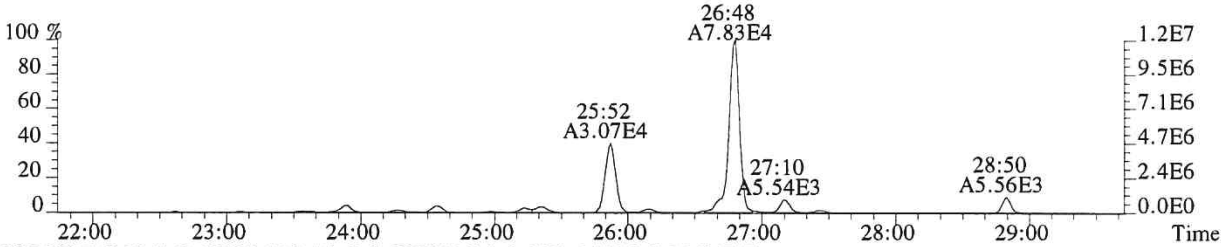
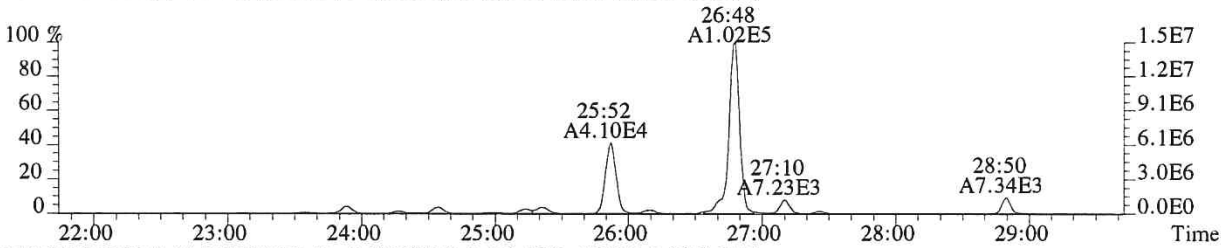
File:P519472 #1-566 Acq:18-DEC-2018 20:41:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-004

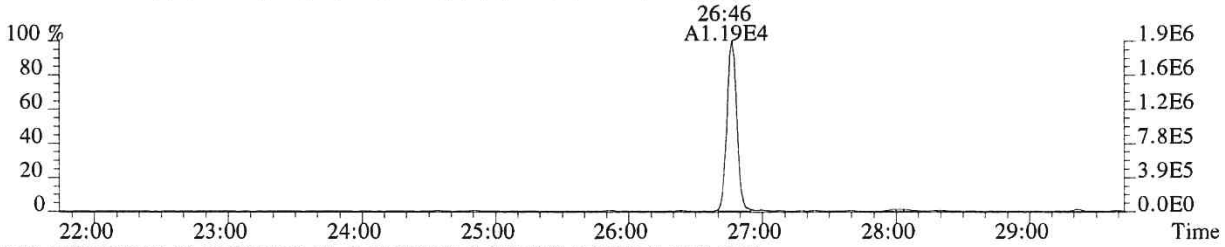
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2956.0,1.00%,F,T)



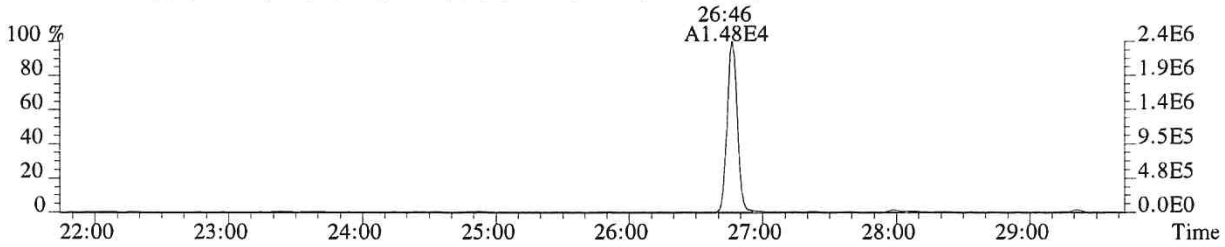
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2676.0,1.00%,F,T)



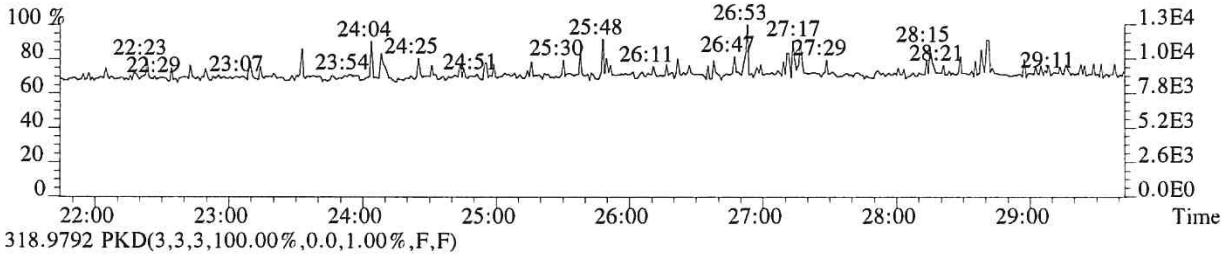
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5896.0,1.00%,F,T)



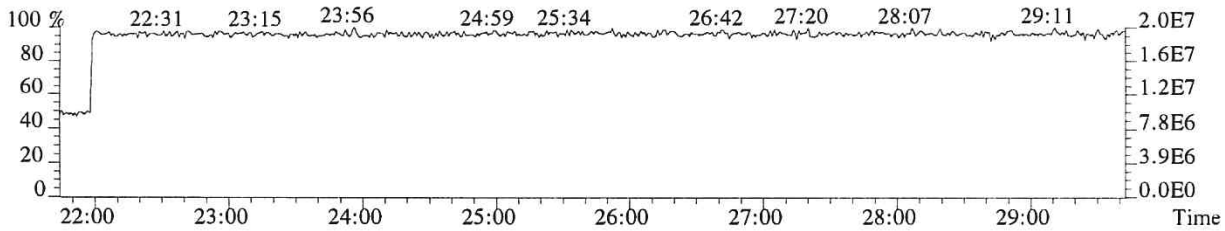
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3676.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

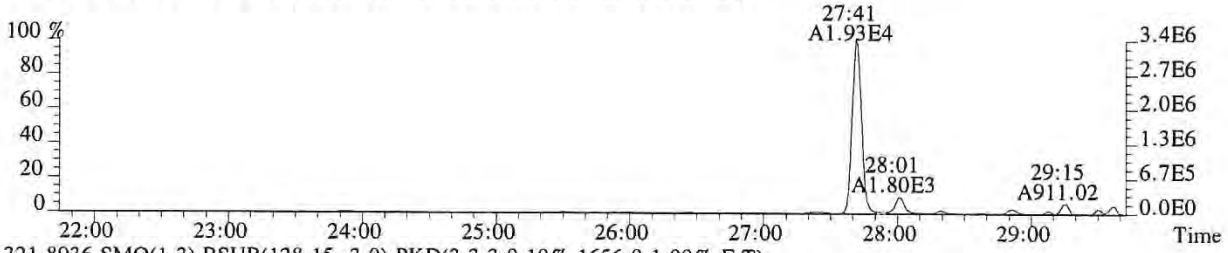


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

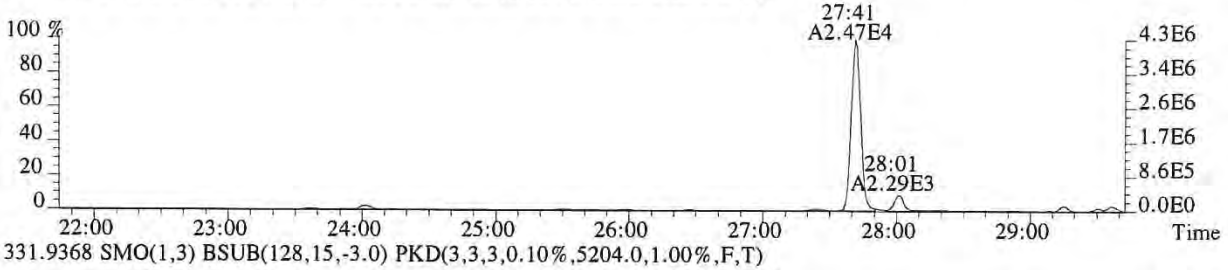


015258

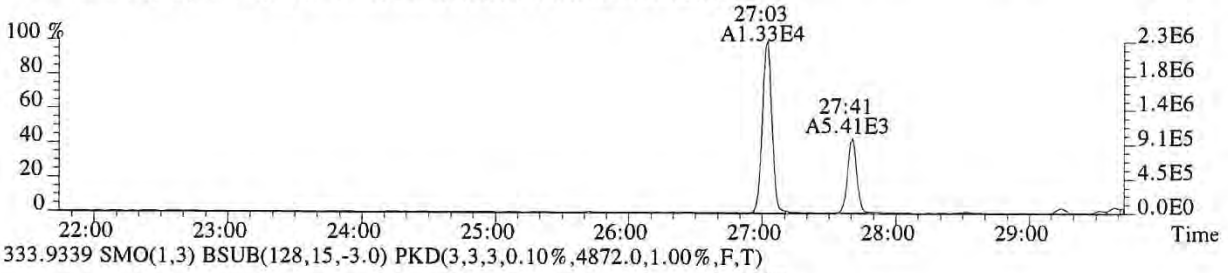
File:P519472 #1-566 Acq:18-DEC-2018 20:41:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-004
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2320.0,1.00%,F,T)



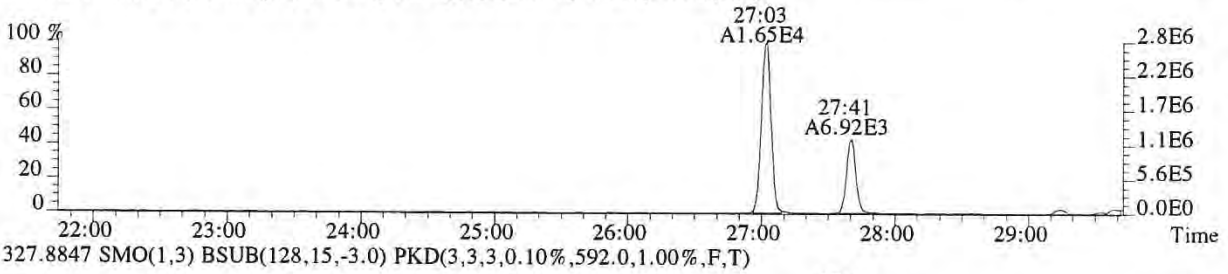
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1656.0,1.00%,F,T)



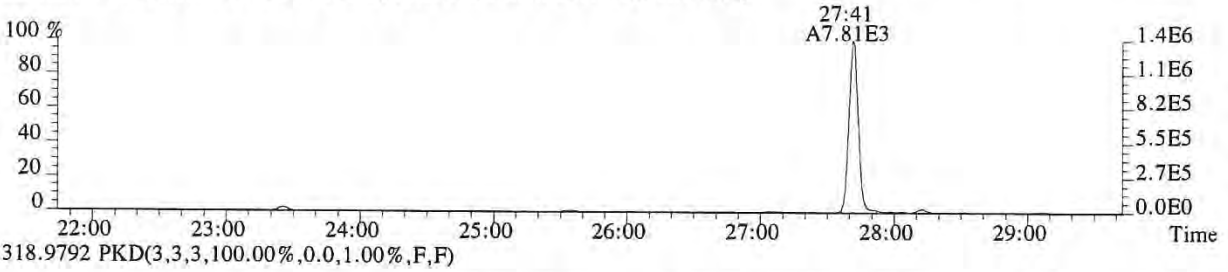
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5204.0,1.00%,F,T)



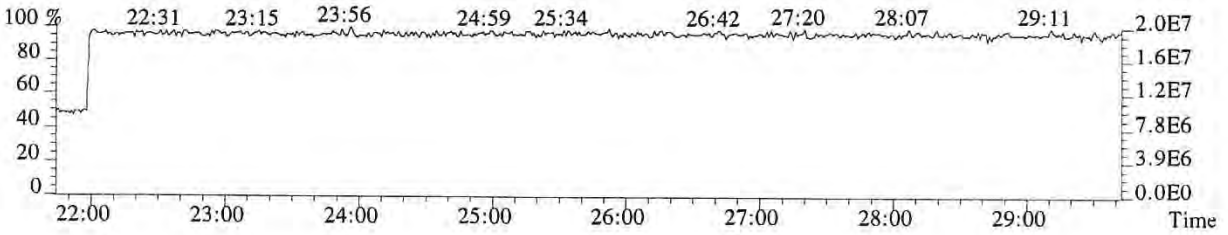
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4872.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,592.0,1.00%,F,T)

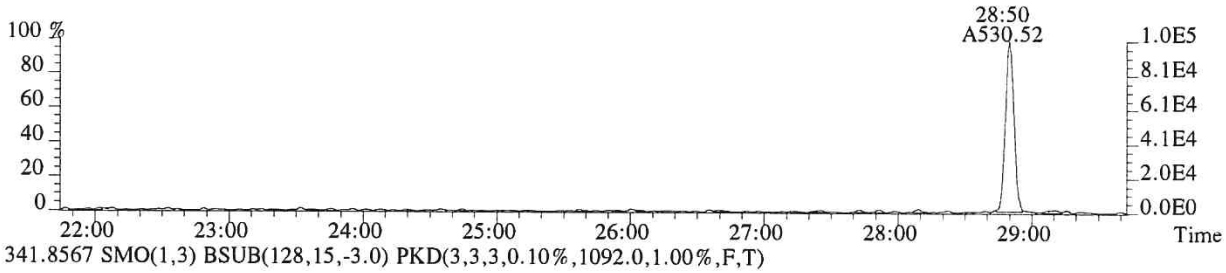


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

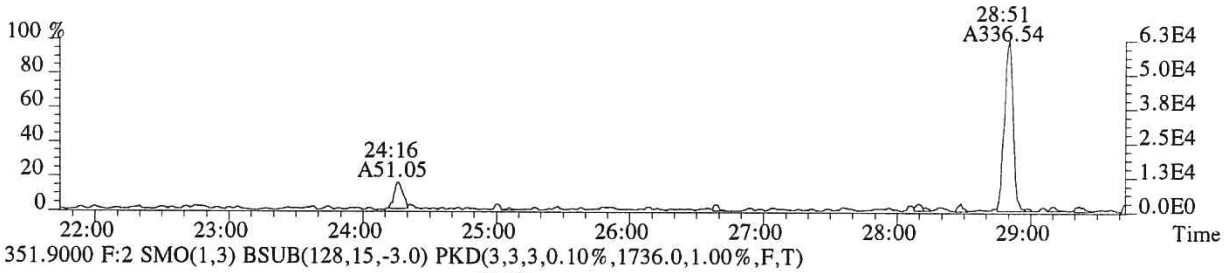


015259

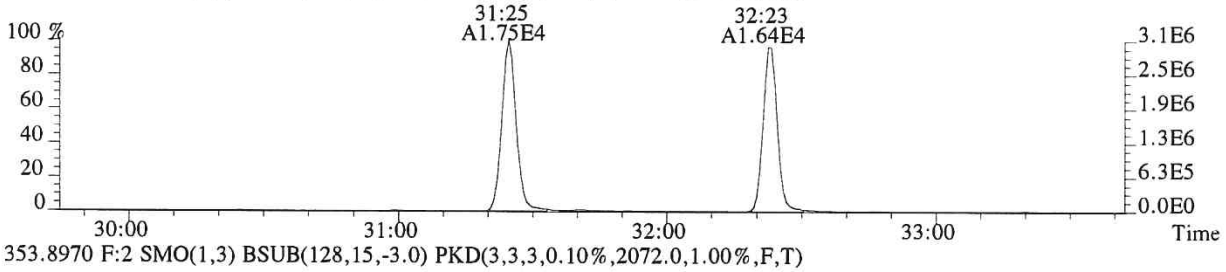
File:P519472 #1-566 Acq:18-DEC-2018 20:41:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-004
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)



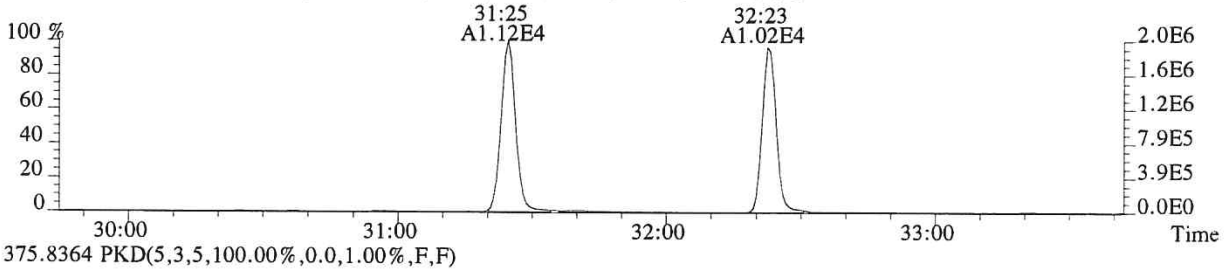
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1092.0,1.00%,F,T)



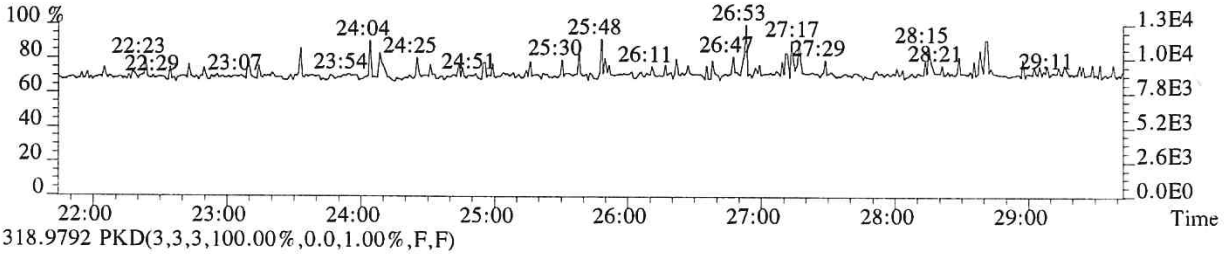
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1736.0,1.00%,F,T)



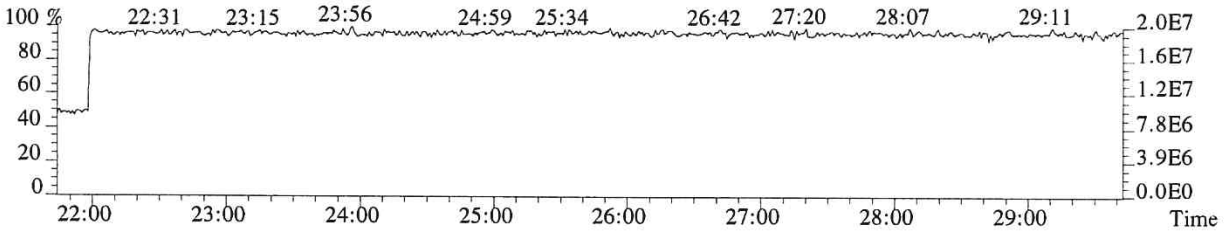
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2072.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



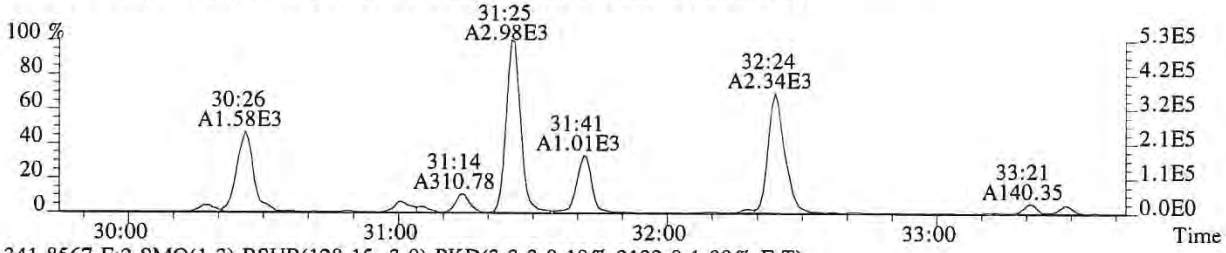
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



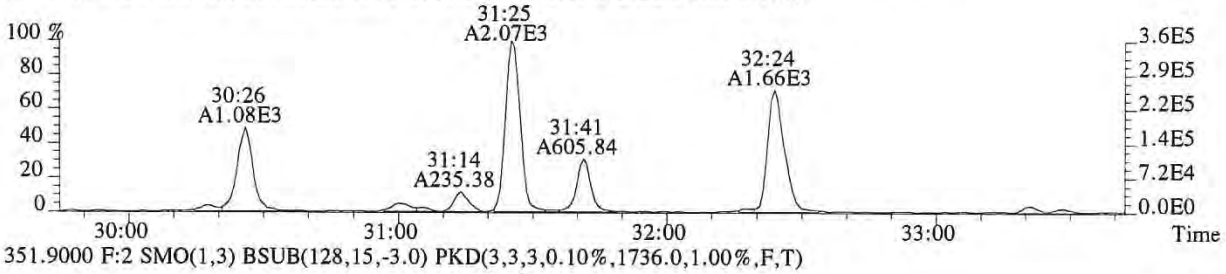
015260

File:P519472 #1-357 Acq:18-DEC-2018 20:41:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-004

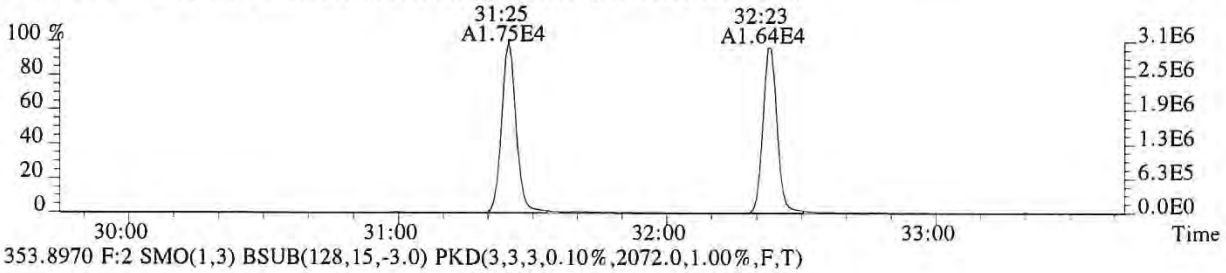
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2268.0,1.00%,F,T)



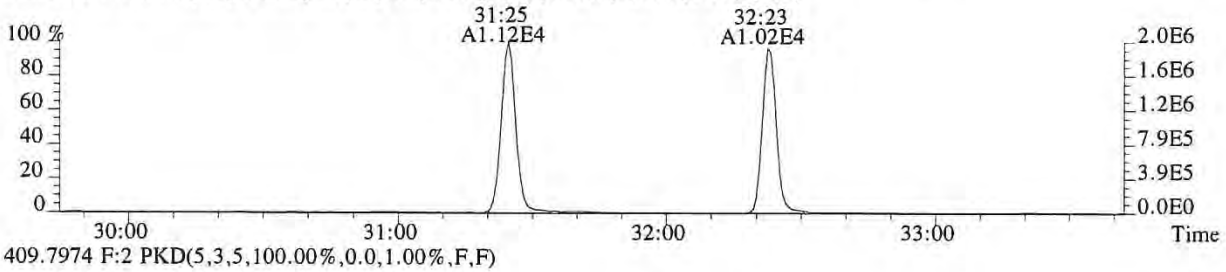
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2132.0,1.00%,F,T)



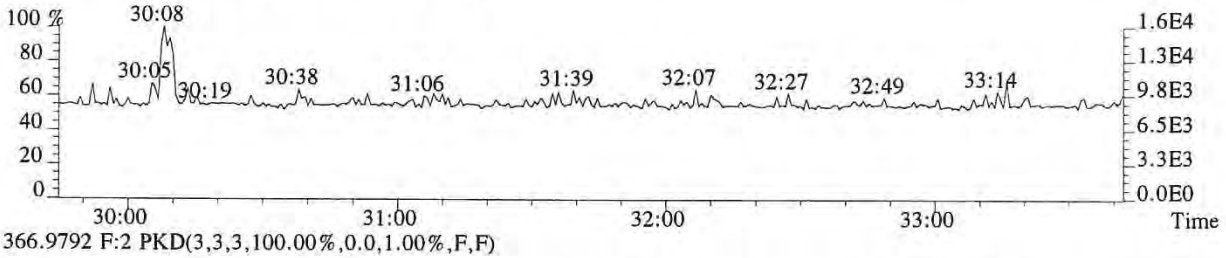
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1736.0,1.00%,F,T)



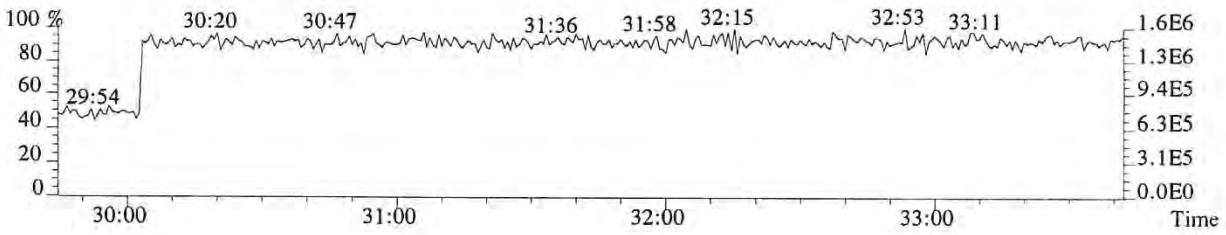
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2072.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

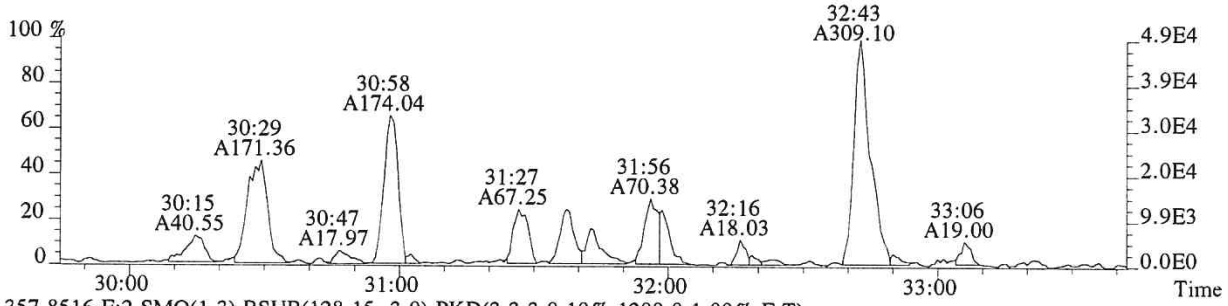


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

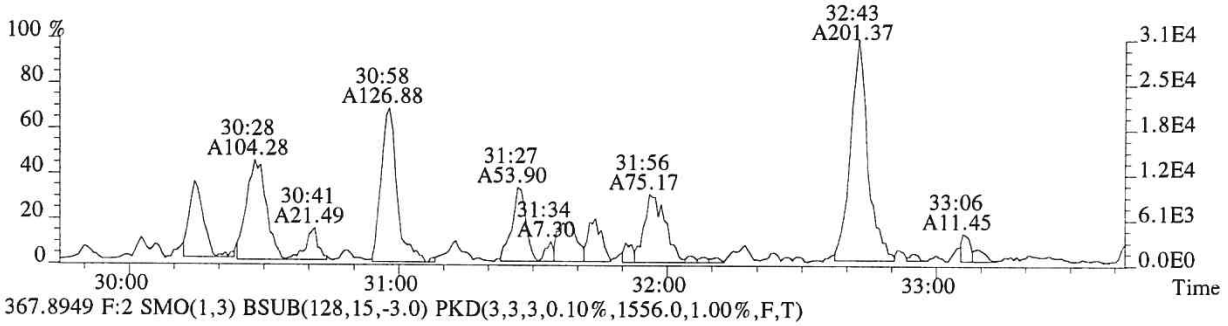


015261

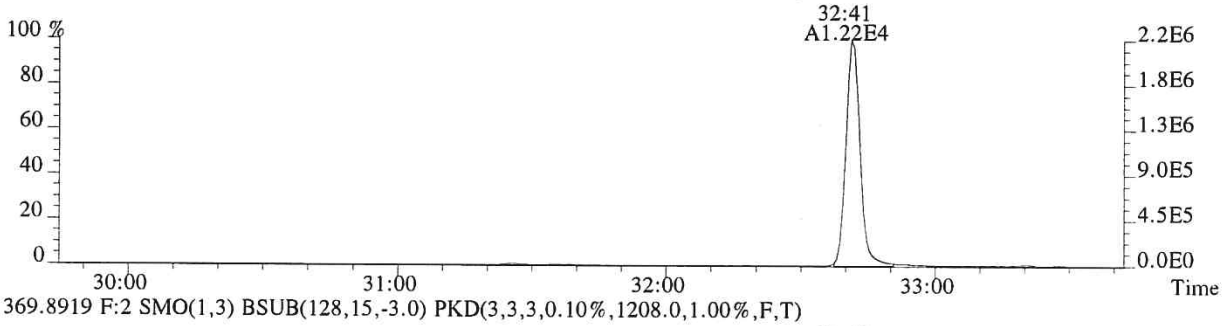
File:P519472 #1-357 Acq:18-DEC-2018 20:41:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-004
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,760.0,1.00%,F,T)



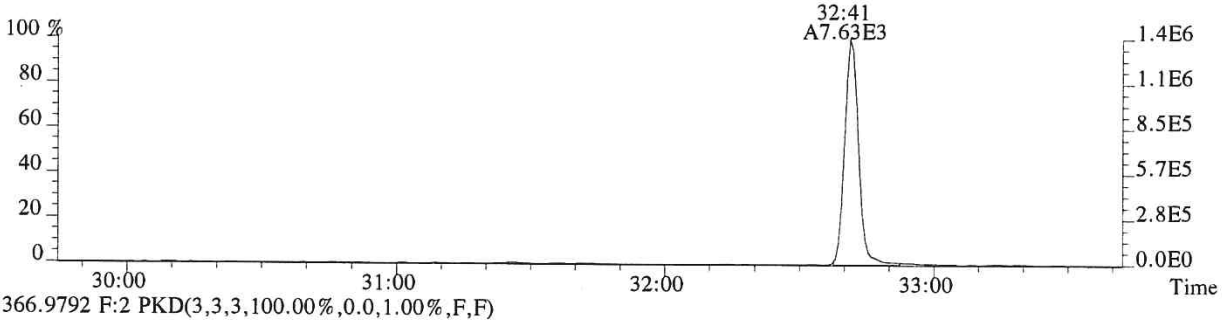
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1208.0,1.00%,F,T)



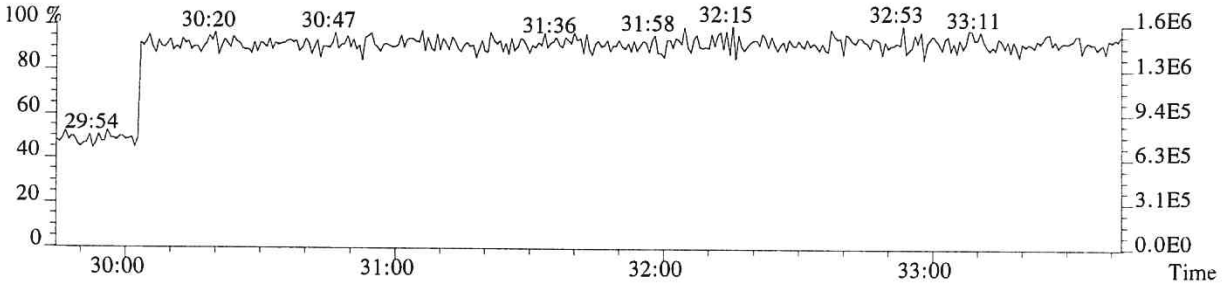
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1556.0,1.00%,F,T)



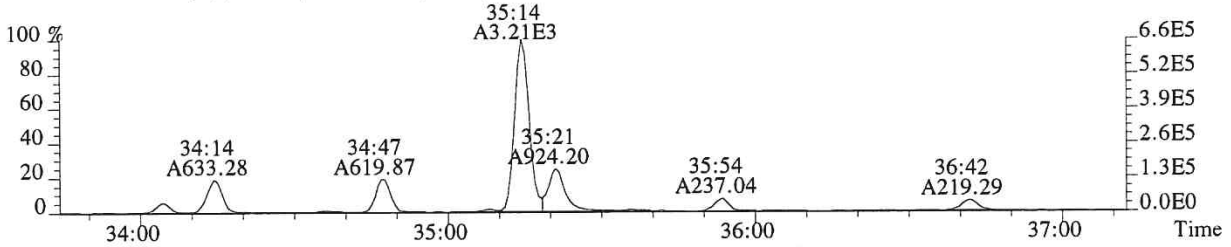
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1208.0,1.00%,F,T)



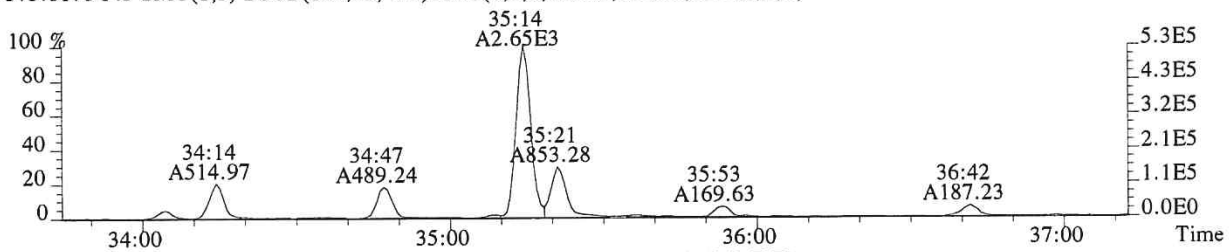
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



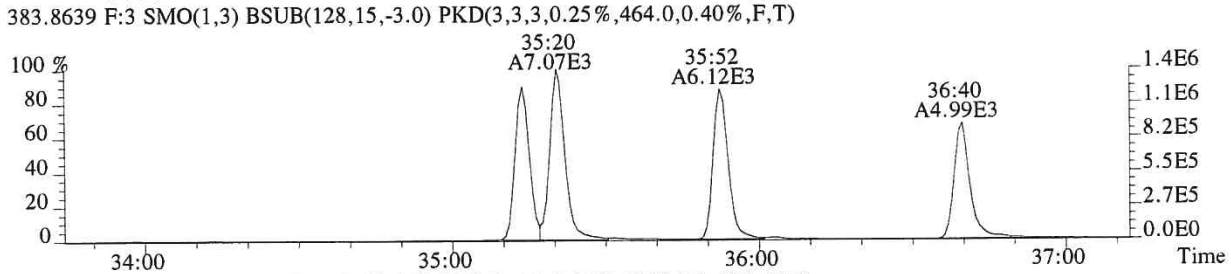
File:P519472 #1-313 Acq:18-DEC-2018 20:41:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-004
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1548.0,0.40%,F,T)



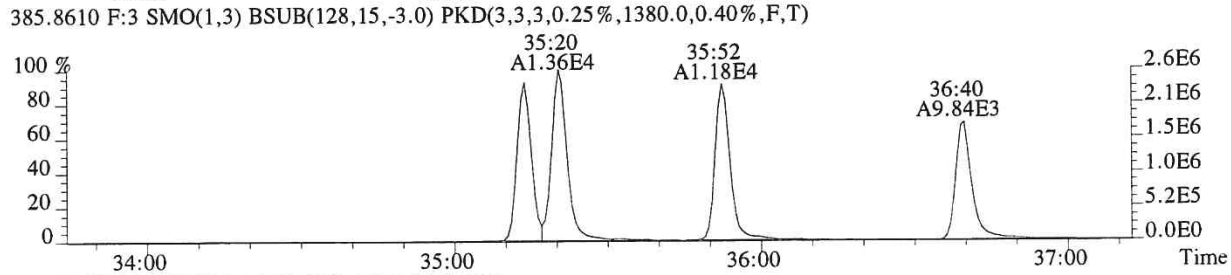
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1120.0,0.40%,F,T)



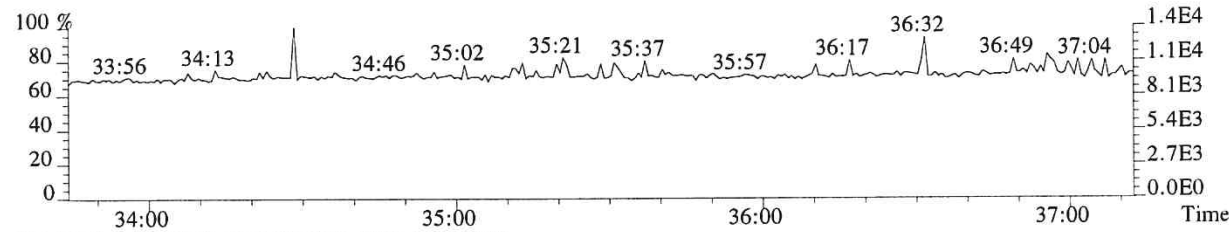
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,464.0,0.40%,F,T)



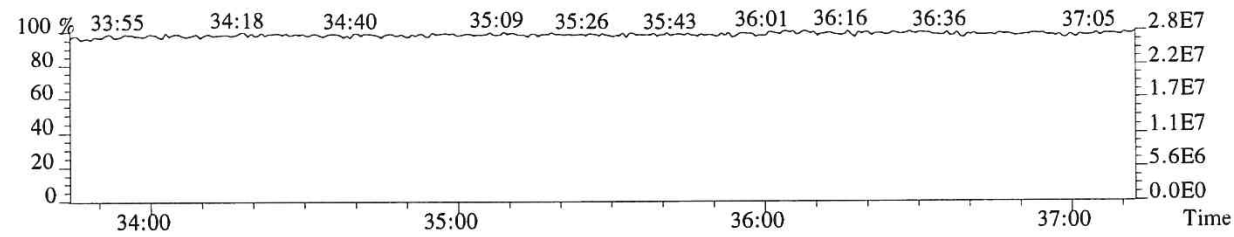
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1380.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

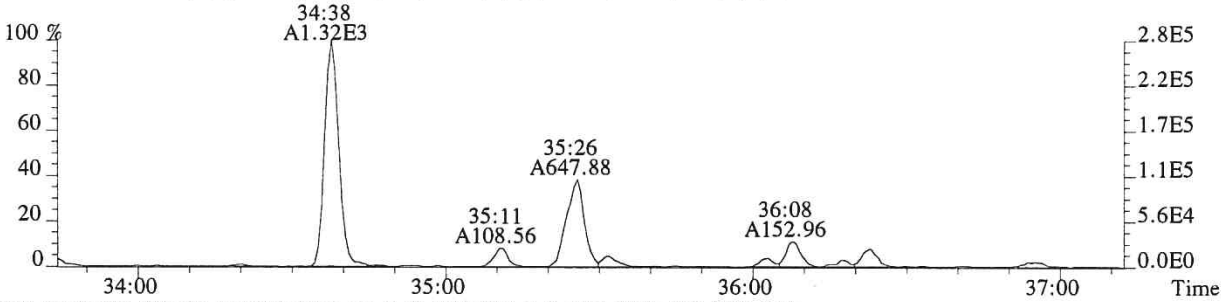


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

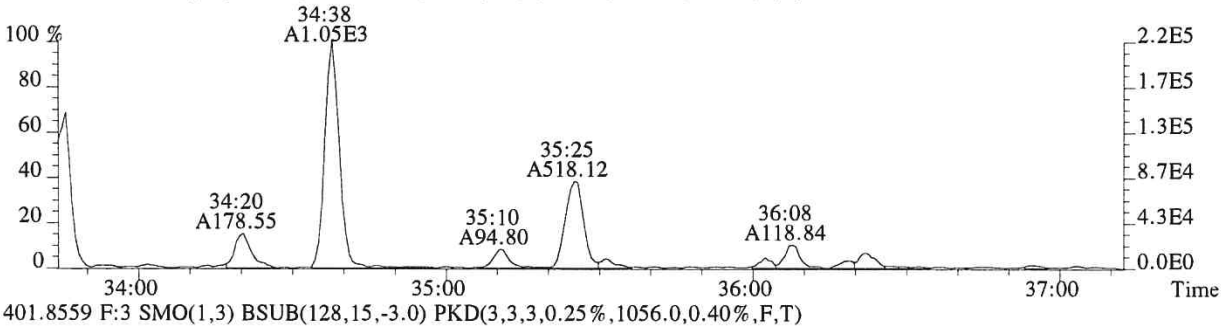


015263

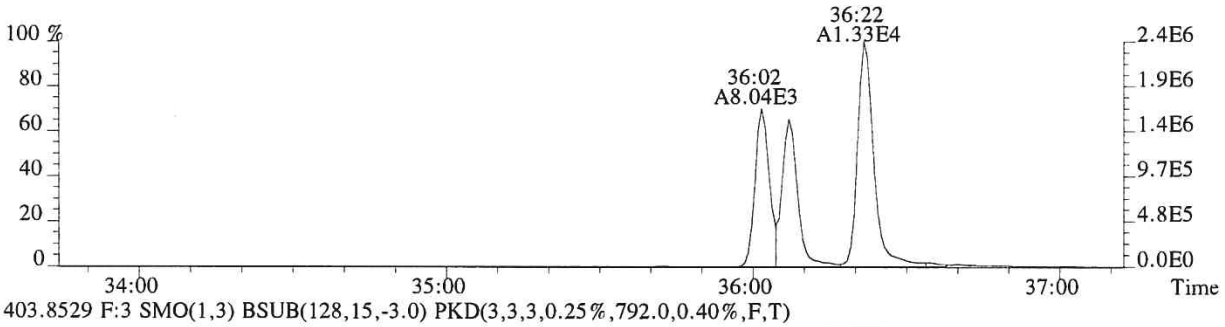
File:P519472 #1-313 Acq:18-DEC-2018 20:41:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-004
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,868.0,0.40%,F,T)



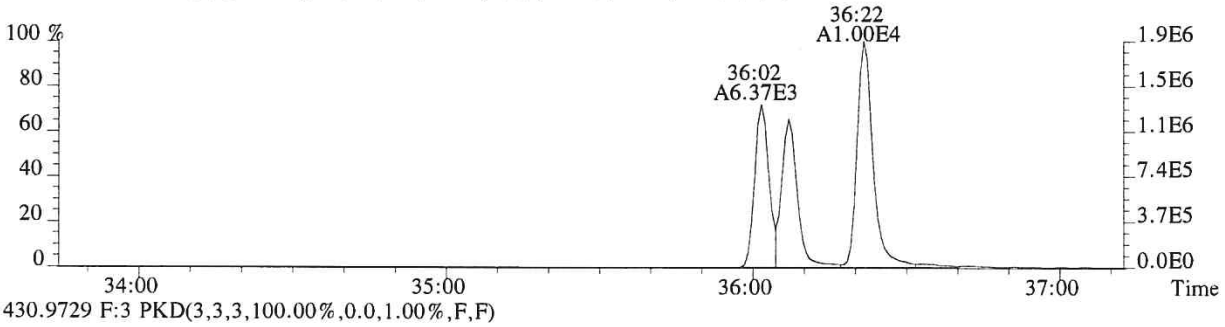
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1472.0,0.40%,F,T)



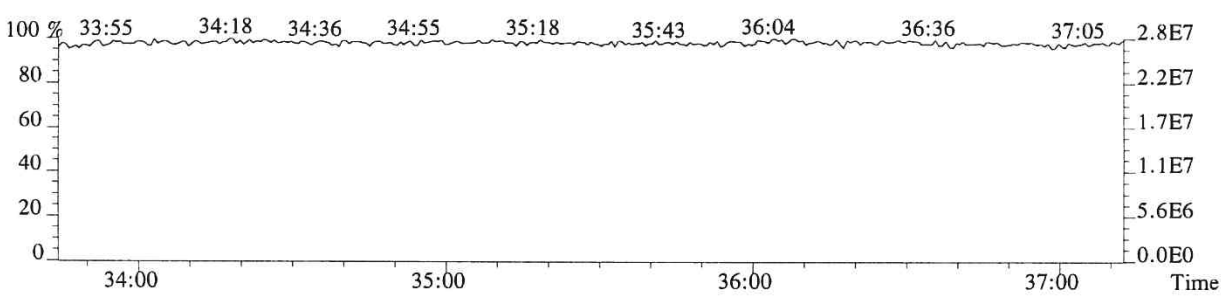
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1056.0,0.40%,F,T)



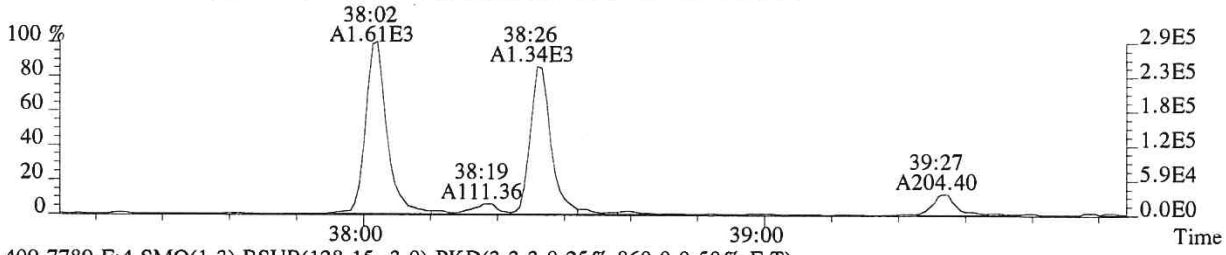
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,792.0,0.40%,F,T)



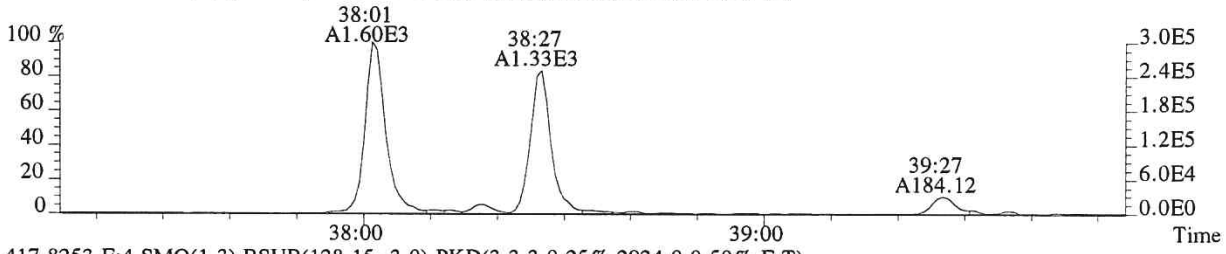
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



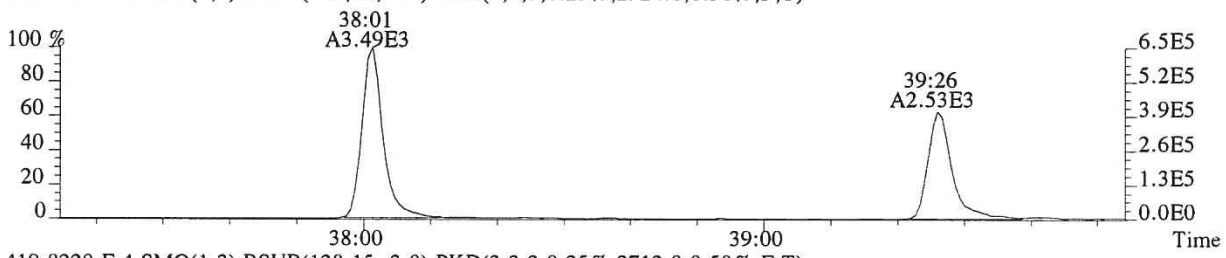
File:P519472 #1-240 Acq:18-DEC-2018 20:41:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-004
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1148.0,0.50%,F,T)



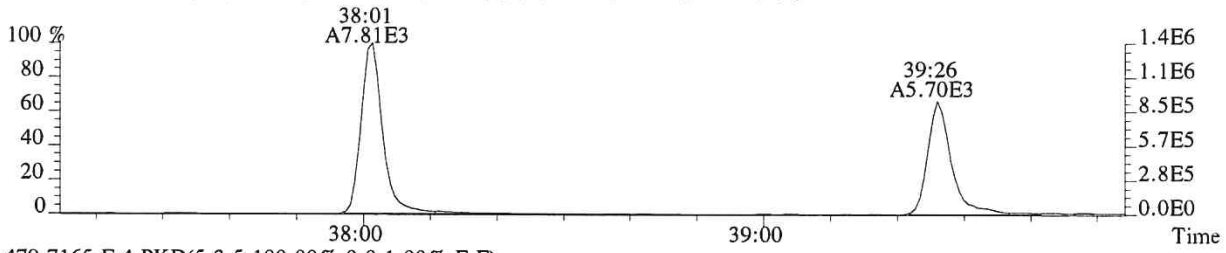
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,860.0,0.50%,F,T)



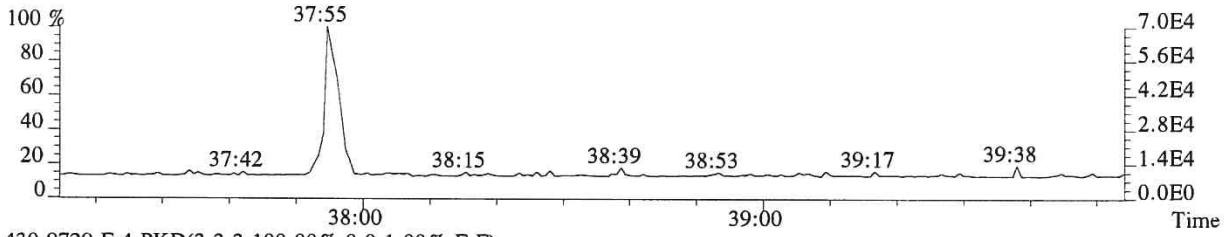
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2924.0,0.50%,F,T)



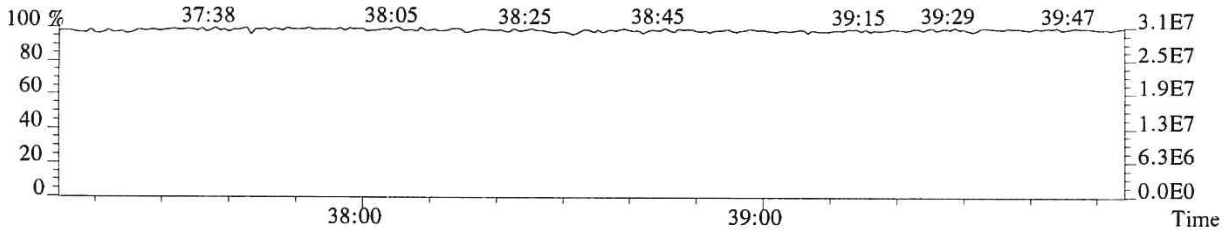
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2712.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

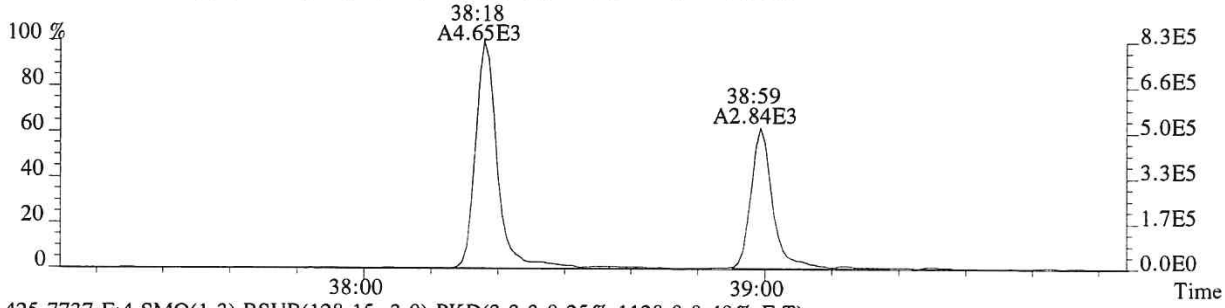


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

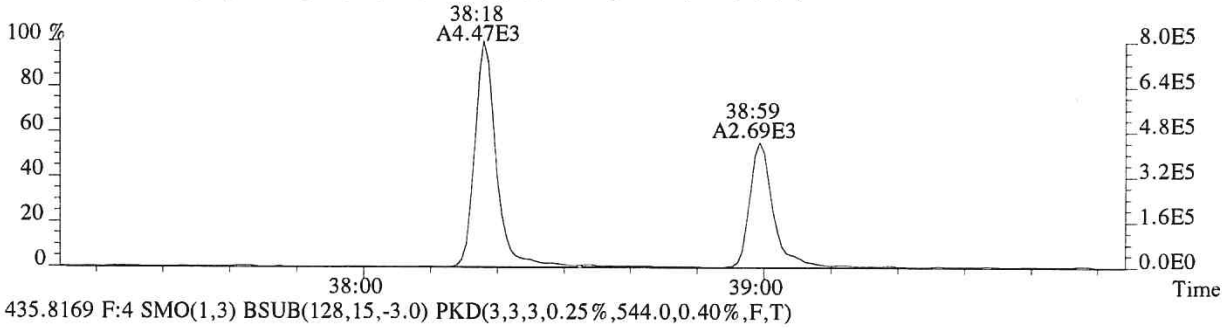


015265

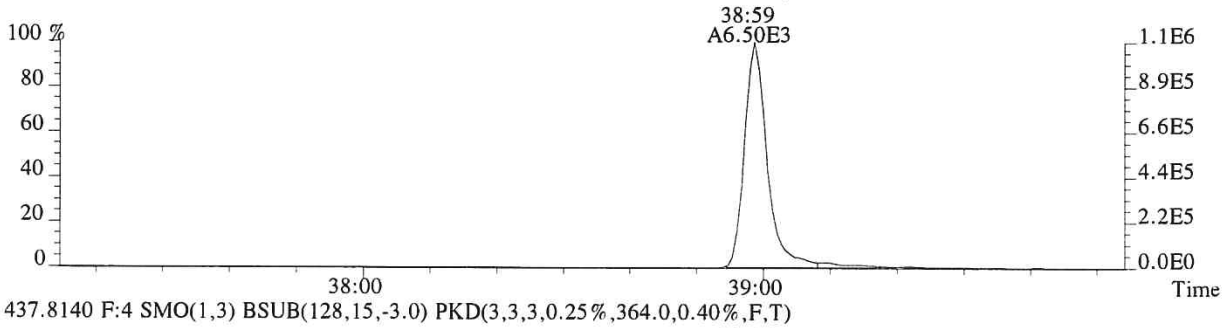
File:P519472 #1-240 Acq:18-DEC-2018 20:41:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-004
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,756.0,0.40%,F,T)



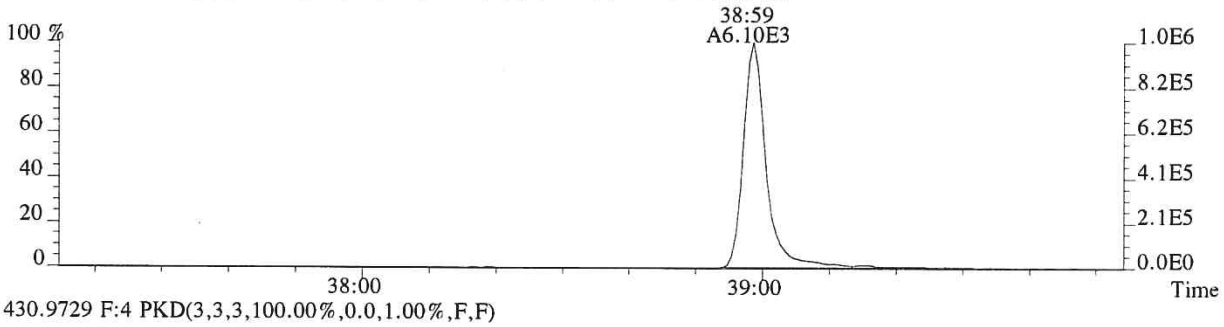
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1128.0,0.40%,F,T)



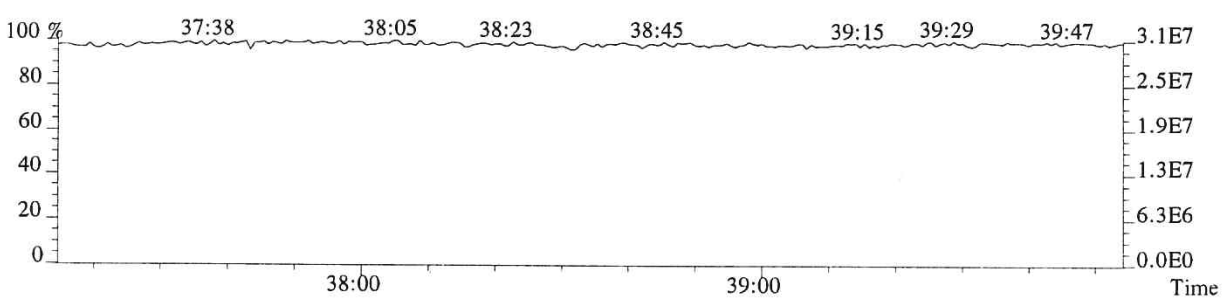
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,544.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,364.0,0.40%,F,T)



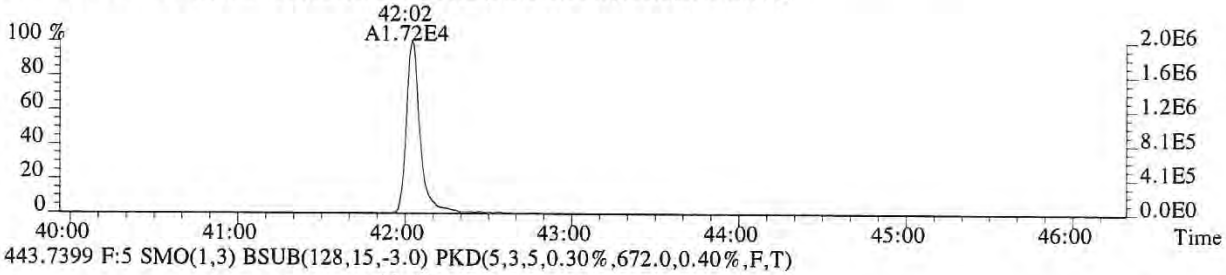
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



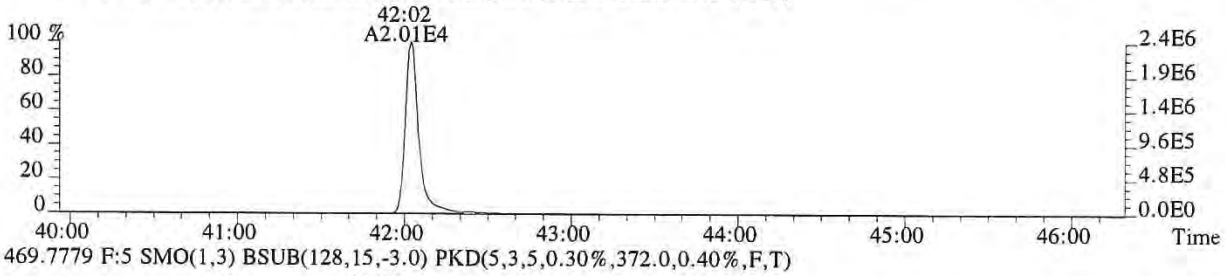
015266

File:P519472 #1-575 Acq:18-DEC-2018 20:41:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-004

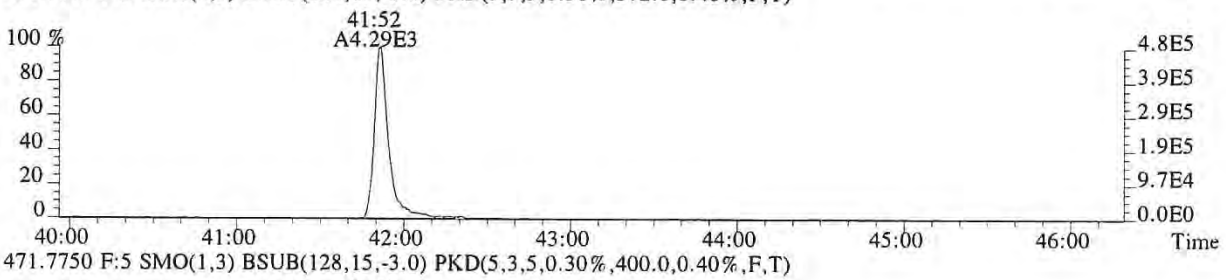
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,400.0,0.40%,F,T)



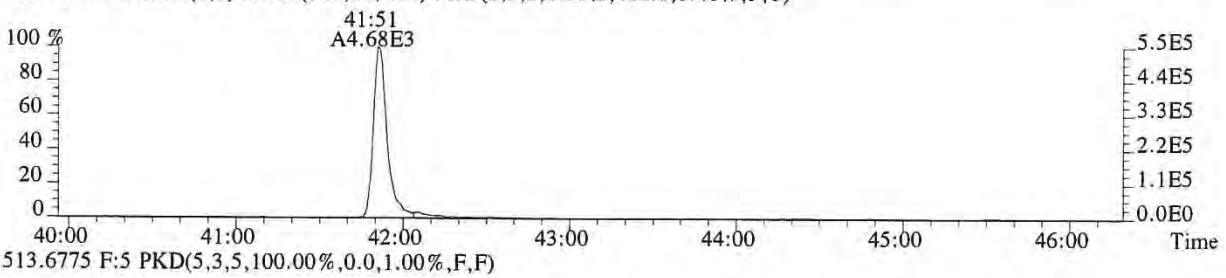
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,672.0,0.40%,F,T)



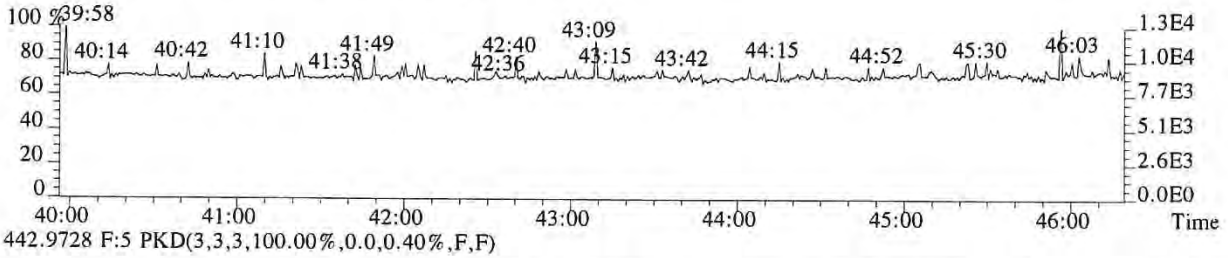
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,372.0,0.40%,F,T)



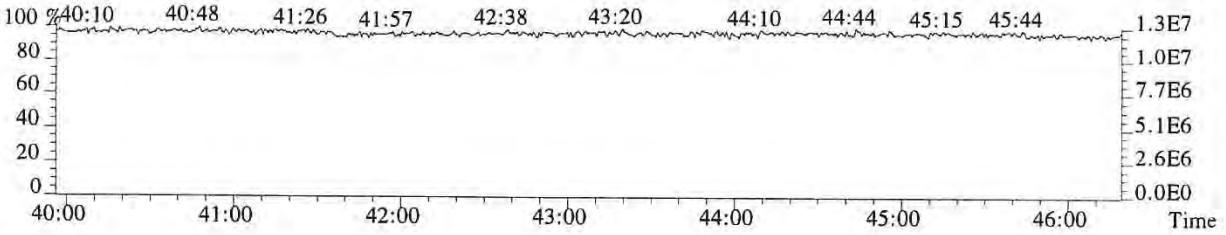
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,400.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

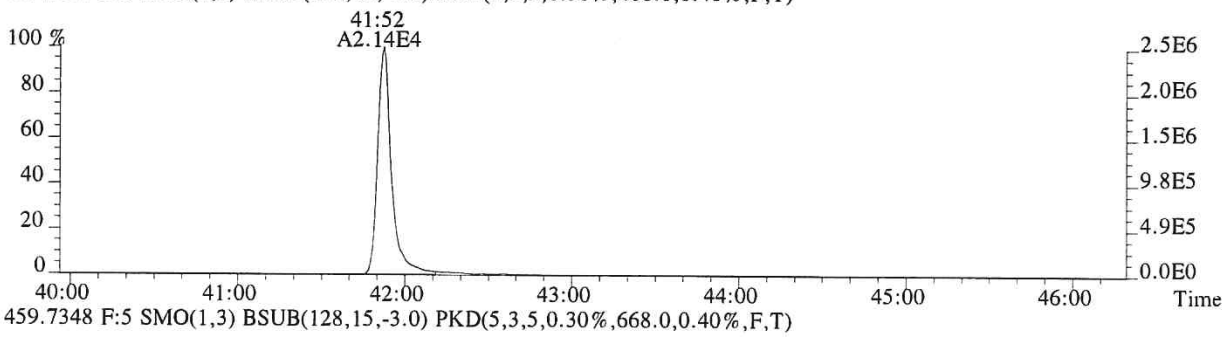


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

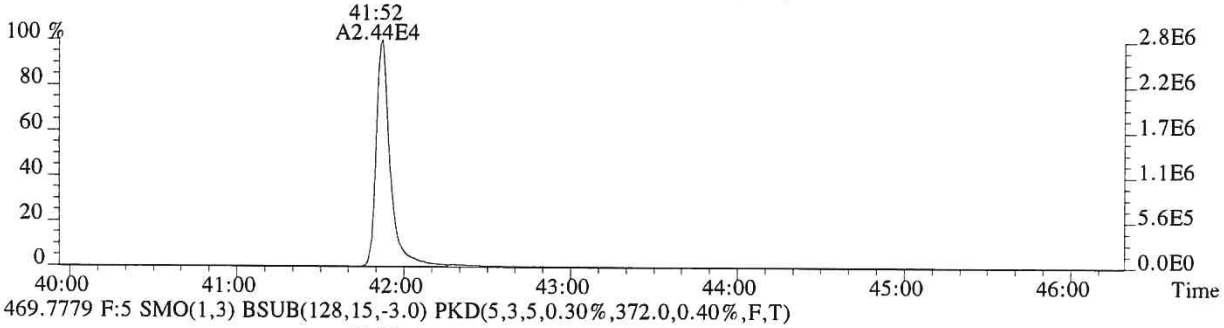


015267

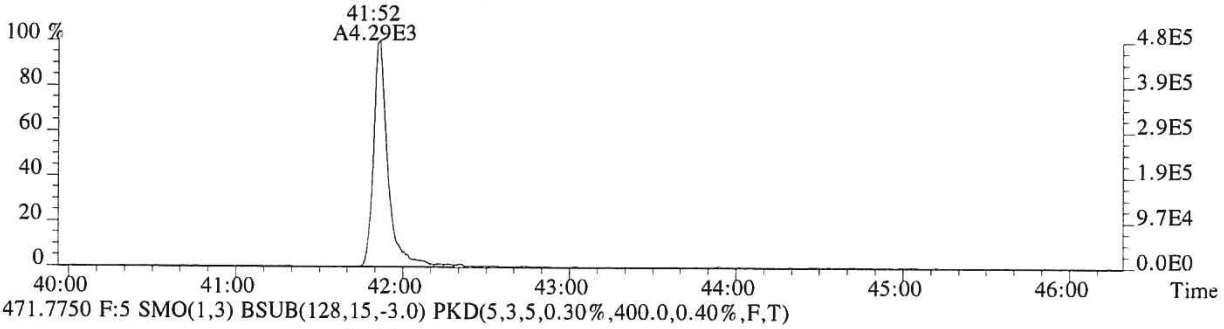
File:P519472 #1-575 Acq:18-DEC-2018 20:41:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-004
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,408.0,0.40%,F,T)



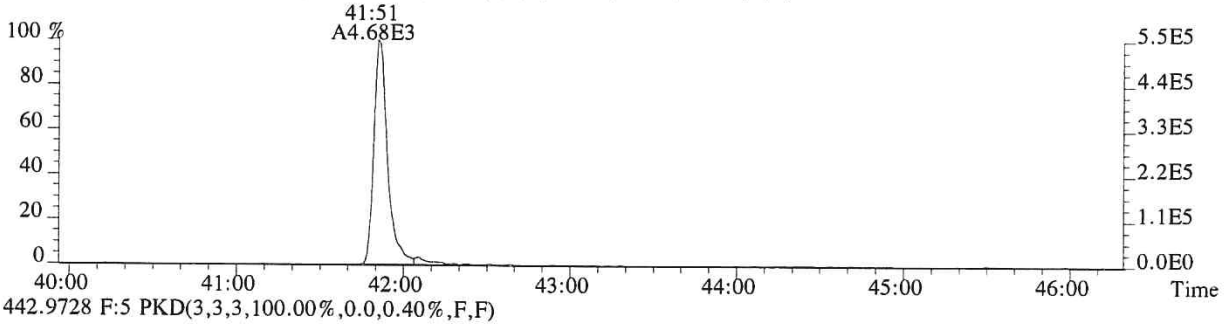
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,668.0,0.40%,F,T)



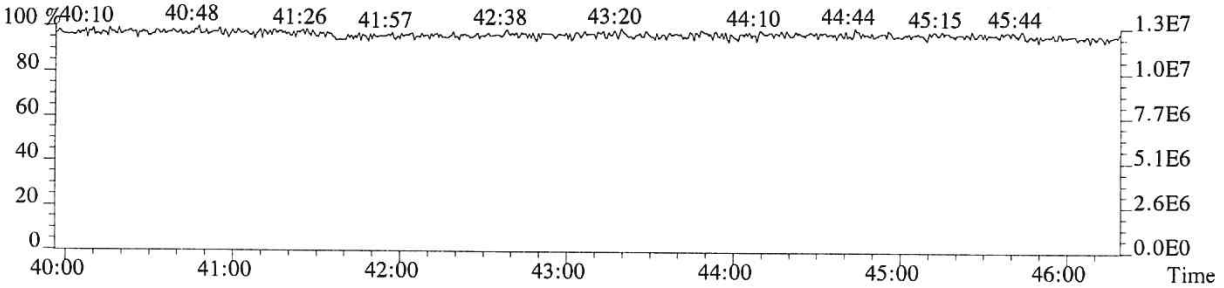
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,372.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,400.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



015268

ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0030

Run #15 Filename P519541 Samp: 1 Inj: 1 Acquired: 21-DEC-18 09:49:36
Processed: 24-DEC-18 08:17:22 Sample ID: E1801094-004DL

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:50	9.156e+02	9.916e+02	0.92	no	no	0.942
2	Unk	1,2,3,7,8-PeCDF	31:28	4.064e+01	3.582e+01	1.13	no	no	1.012
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:19	6.295e+01	4.043e+01	1.56	no	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:24	2.139e+01	2.564e+01	0.83	no	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:09	2.351e+01	3.339e+01	0.70	no	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	yes	1.258
10	Unk	OCDF	42:17	4.634e+02	5.230e+02	0.89	yes	no	1.359
11	Unk	2,3,7,8-TCDD	27:43	2.337e+02	2.863e+02	0.82	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:07	5.636e+01	4.057e+01	1.39	no	no	1.025
17	Unk	OCDD	42:06	6.495e+02	6.736e+02	0.96	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	26:48	4.671e+03	5.673e+03	0.82	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	31:27	7.672e+03	4.783e+03	1.60	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	32:25	7.277e+03	4.532e+03	1.61	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:17	2.892e+03	5.354e+03	0.54	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:24	3.832e+03	7.673e+03	0.50	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:56	3.269e+03	6.394e+03	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	36:44	2.457e+03	4.881e+03	0.50	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:07	2.370e+03	5.525e+03	0.43	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:35	1.810e+03	4.138e+03	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	27:42	2.271e+03	2.856e+03	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:44	5.288e+03	3.073e+03	1.72	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:05	3.742e+03	2.841e+03	1.32	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:11	4.472e+03	3.572e+03	1.25	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:07	3.932e+03	3.664e+03	1.07	yes	no	0.858
32	IS	13C-OCDD	42:06	4.142e+03	4.986e+03	0.83	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:03	3.873e+03	5.038e+03	0.77	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:26	4.638e+03	3.608e+03	1.29	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:43	8.355e+01				no	1.014

$$\text{OCDD} = \frac{(6.495e{+}02 + 6.736e{+}02) \times 4000\ \text{pg} \times 20}{(4.142e{+}03 + 4.986e{+}03) \times 10.677\text{g} \times 73.9 / 100 \times 1.118} = 3983.4338\ \text{ng/kg}$$

LG 12/21/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0030

Run #15 Filename P519541 Samp: 1 Inj: 1 Acquired: 21-DEC-18 09:49:36
Processed: 24-DEC-18 08:17:22 LAB. ID: E1801094-004DL

	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+05	1.48e+03	8.1e+01	1.56e+05	5.36e+03	2.9e+01
2	1,2,3,7,8-PeCDF	7.12e+03	9.96e+02	7.1e+00	7.52e+03	2.77e+03	2.7e+00
3	2,3,4,7,8-PeCDF	*	9.96e+02	*	*	2.77e+03	*
4	1,2,3,4,7,8-HxCDF	1.13e+04	1.32e+03	8.6e+00	7.89e+03	5.96e+02	1.3e+01
5	1,2,3,6,7,8-HxCDF	3.96e+03	1.32e+03	3.0e+00	4.22e+03	5.96e+02	7.1e+00
6	2,3,4,6,7,8-HxCDF	*	1.32e+03	*	*	5.96e+02	*
7	1,2,3,7,8,9-HxCDF	*	1.32e+03	*	*	5.96e+02	*
8	1,2,3,4,6,7,8-HpCDF	5.08e+03	7.36e+02	6.9e+00	8.07e+03	8.04e+02	1.0e+01
9	1,2,3,4,7,8,9-HpCDF	*	7.36e+02	*	*	8.04e+02	*
10	OCDF	4.48e+04	5.96e+02	7.5e+01	5.05e+04	1.86e+03	2.7e+01
11	2,3,7,8-TCDD	3.71e+04	3.21e+03	1.2e+01	4.45e+04	1.77e+03	2.5e+01
12	1,2,3,7,8-PeCDD	*	1.41e+03	*	*	4.04e+02	*
13	1,2,3,4,7,8-HxCDD	*	1.26e+03	*	*	1.29e+03	*
14	1,2,3,6,7,8-HxCDD	*	1.26e+03	*	*	1.29e+03	*
15	1,2,3,7,8,9-HxCDD	*	1.26e+03	*	*	1.29e+03	*
16	1,2,3,4,6,7,8-HpCDD	8.35e+03	6.48e+02	1.3e+01	5.86e+03	9.80e+02	6.0e+00
17	OCDD	5.84e+04	4.96e+02	1.2e+02	6.30e+04	3.16e+02	2.0e+02
18	13C-2,3,7,8-TCDF	6.59e+05	1.08e+04	6.1e+01	8.31e+05	1.19e+04	7.0e+01
19	13C-1,2,3,7,8-PeCDF	1.22e+06	1.01e+03	1.2e+03	7.44e+05	8.60e+02	8.7e+02
20	13C-2,3,4,7,8-PeCDF	1.15e+06	1.01e+03	1.1e+03	6.99e+05	8.60e+02	8.1e+02
21	13C-1,2,3,4,7,8-HxCDF	5.42e+05	1.41e+03	3.9e+02	9.75e+05	2.02e+03	4.8e+02
22	13C-1,2,3,6,7,8-HxCDF	6.36e+05	1.41e+03	4.5e+02	1.18e+06	2.02e+03	5.8e+02
23	13C-2,3,4,6,7,8-HxCDF	5.84e+05	1.41e+03	4.1e+02	1.17e+06	2.02e+03	5.8e+02
24	13C-1,2,3,7,8,9-HxCDF	3.54e+05	1.41e+03	2.5e+02	7.06e+05	2.02e+03	3.5e+02
25	13C-1,2,3,4,6,7,8-HpCDF	3.58e+05	1.30e+03	2.8e+02	7.95e+05	2.21e+03	3.6e+02
26	13C-1,2,3,4,7,8,9-HpCDF	2.47e+05	1.30e+03	1.9e+02	5.02e+05	2.21e+03	2.3e+02
27	13C-2,3,7,8-TCDD	3.47e+05	9.71e+03	3.6e+01	4.32e+05	3.28e+03	1.3e+02
28	13C-1,2,3,7,8-PeCDD	8.19e+05	1.92e+03	4.3e+02	4.99e+05	2.41e+03	2.1e+02
29	13C-1,2,3,4,7,8-HxCDD	7.10e+05	2.08e+03	3.4e+02	5.32e+05	1.26e+03	4.2e+02
30	13C-1,2,3,6,7,8-HxCDD	6.48e+05	2.08e+03	3.1e+02	4.96e+05	1.26e+03	3.9e+02
31	13C-1,2,3,4,6,7,8-HpCDD	5.30e+05	8.92e+02	5.9e+02	4.92e+05	7.44e+02	6.6e+02
32	13C-OCDD	3.77e+05	1.06e+03	3.5e+02	4.38e+05	4.20e+02	1.0e+03
33	13C-1,2,3,4-TCDD	6.25e+05	9.71e+03	6.4e+01	8.00e+05	3.28e+03	2.4e+02
34	13C-1,2,3,7,8,9-HxCDD	6.36e+05	2.08e+03	3.1e+02	5.15e+05	1.26e+03	4.1e+02
35	37Cl-2,3,7,8-TCDD	1.33e+04	2.51e+03	5.3e+00			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (3.208e+03 + 1.768e+03) \times 2000}{(3.467e+05 + 4.324e+05) \times (\quad) \times 1.085} =$$

ALS ENVIRONMENTAL
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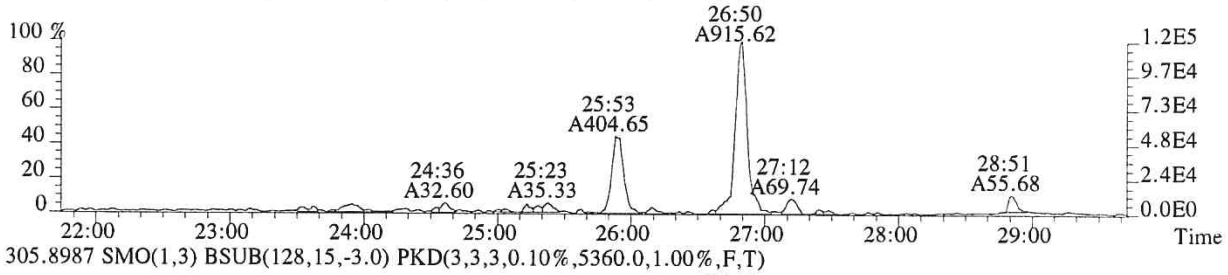
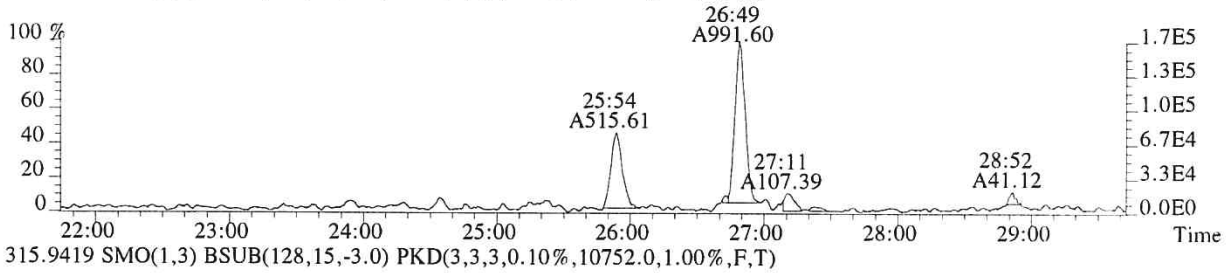
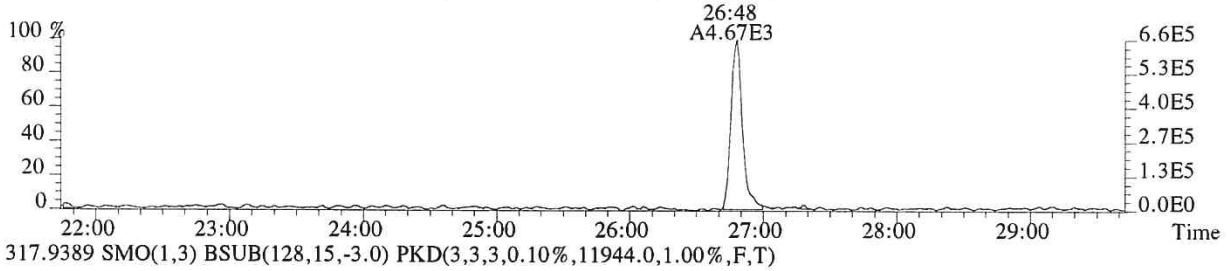
File:P519541 #1-566 Acq:21-DEC-2018 09:49:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-004DL
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1484.0,1.00%,F,T)



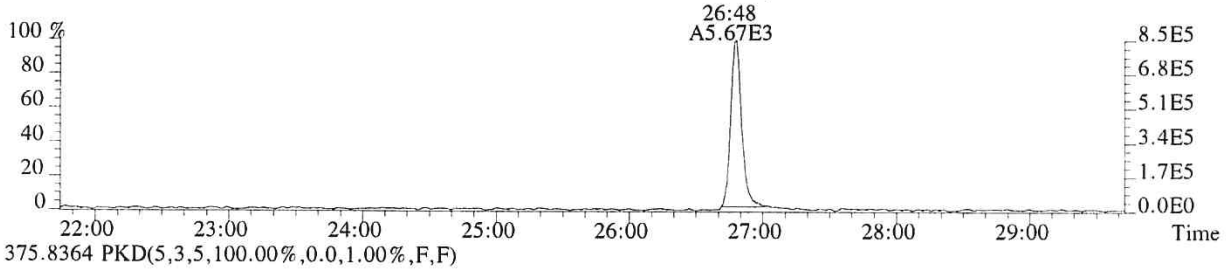
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5360.0,1.00%,F,T)



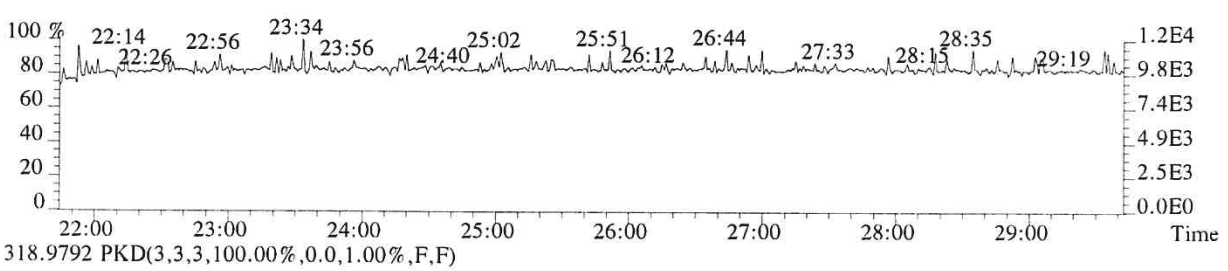
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10752.0,1.00%,F,T)



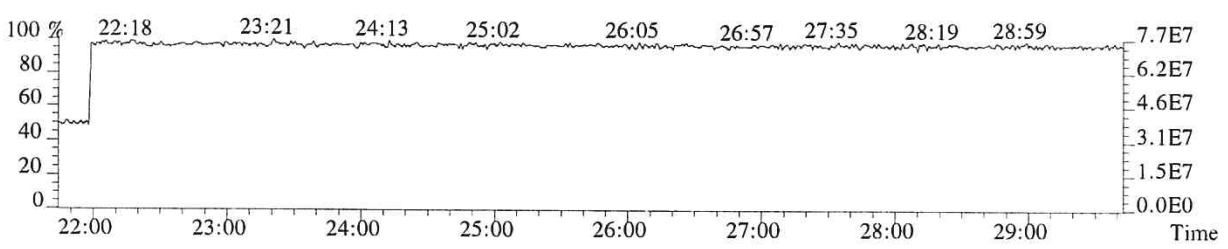
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,11944.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

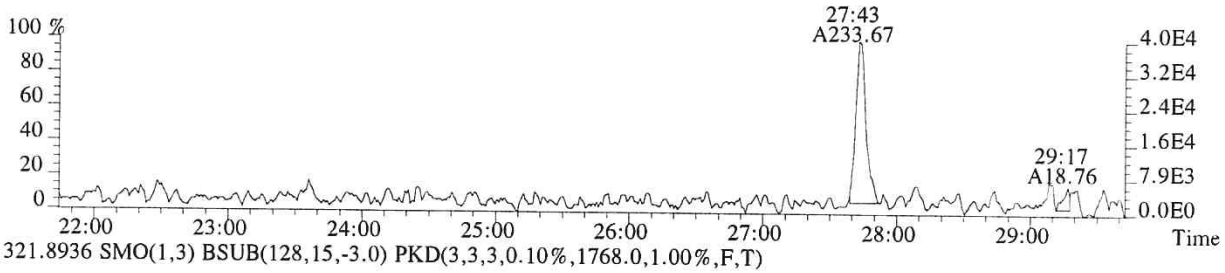


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

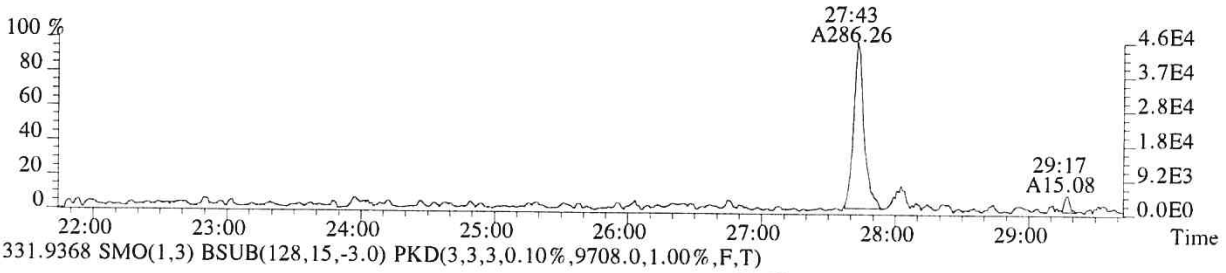


File:P519541 #1-566 Acq:21-DEC-2018 09:49:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-004DL

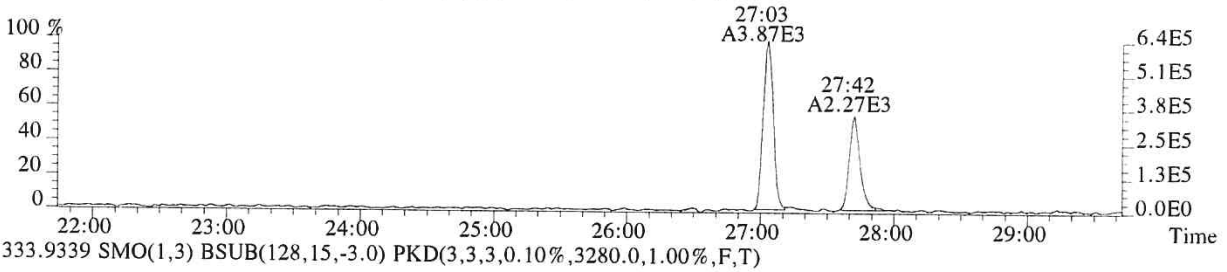
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3208.0,1.00%,F,T)



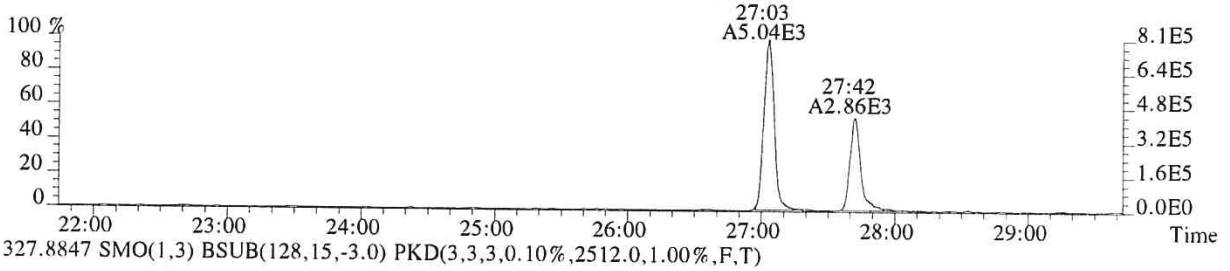
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1768.0,1.00%,F,T)



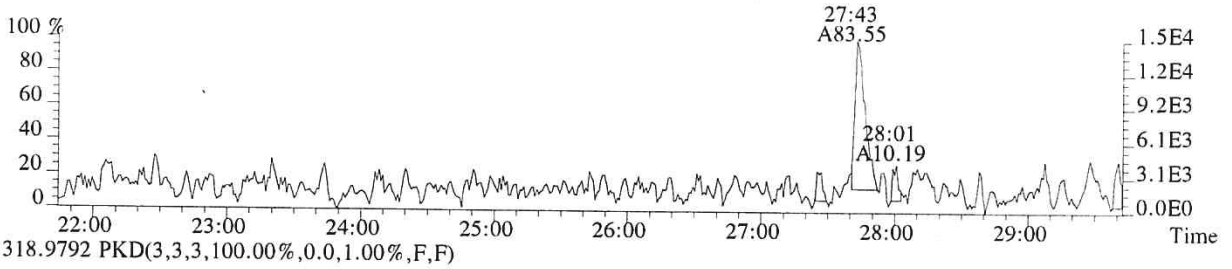
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9708.0,1.00%,F,T)



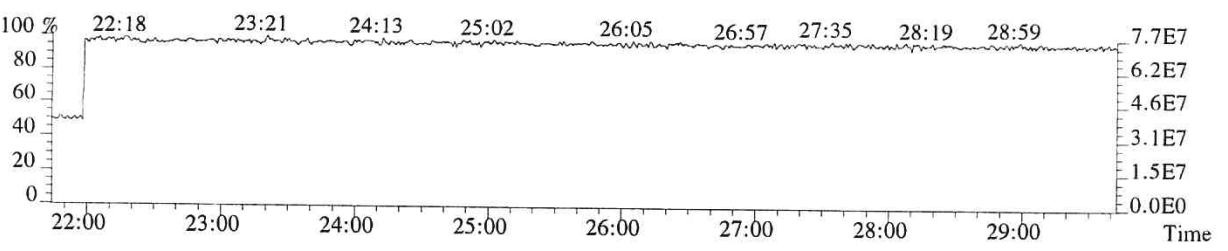
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3280.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2512.0,1.00%,F,T)

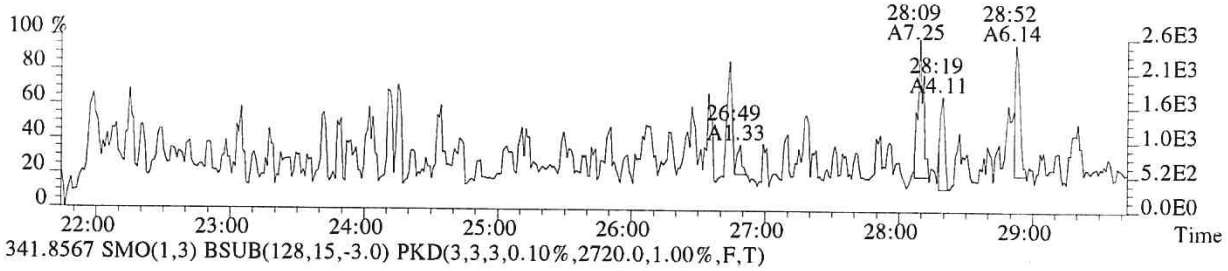


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

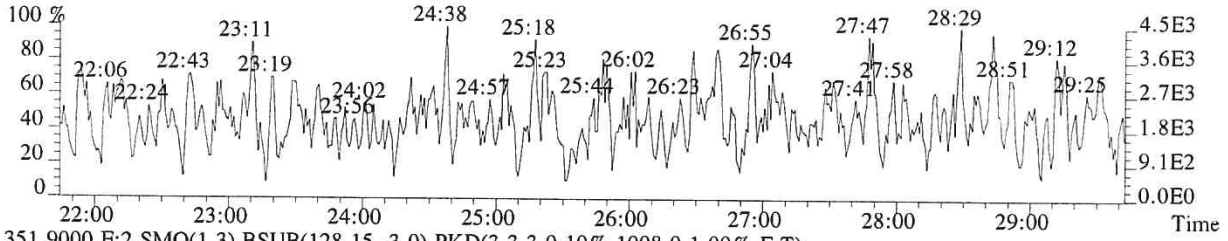


015272

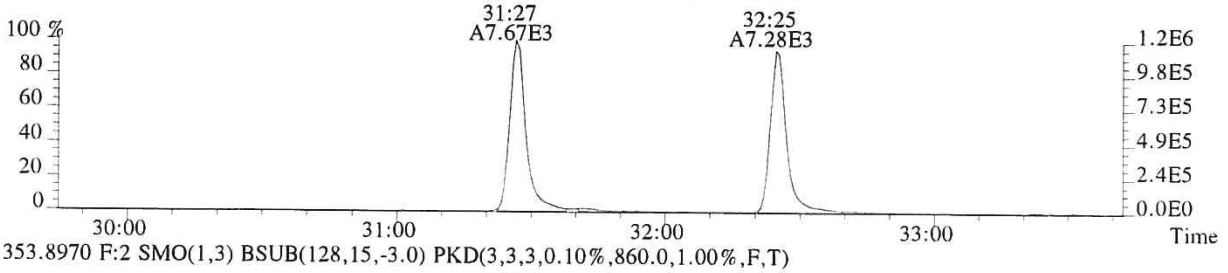
File:P519541 #1-566 Acq:21-DEC-2018 09:49:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-004DL
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,908.0,1.00%,F,T)



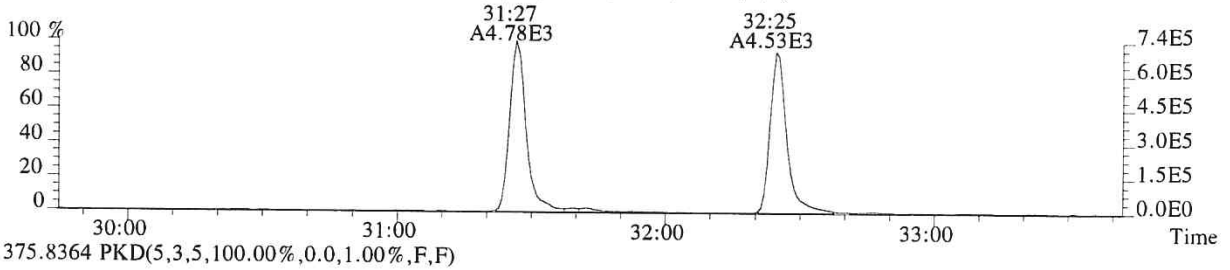
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2720.0,1.00%,F,T)



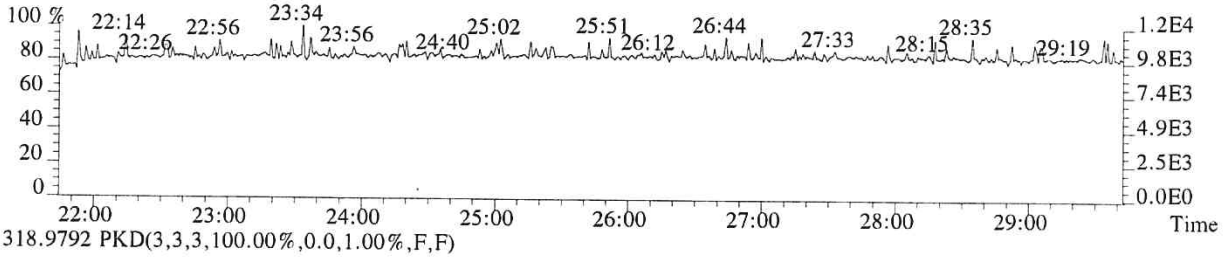
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1008.0,1.00%,F,T)



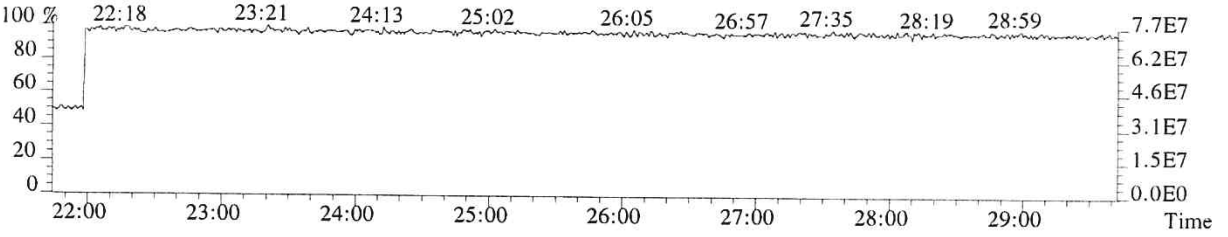
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,860.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

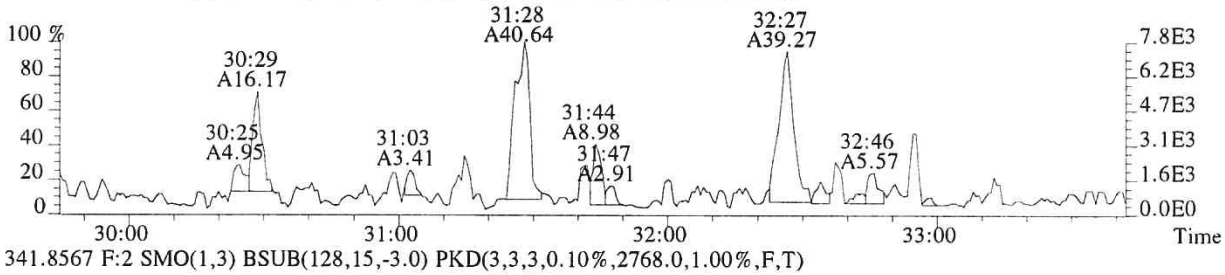


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

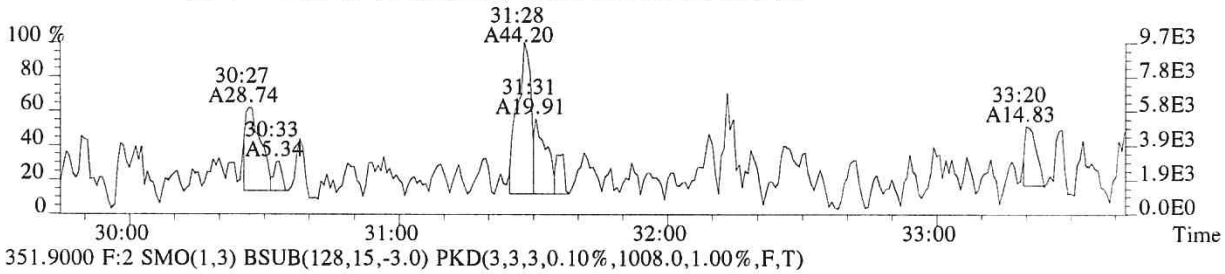


015273

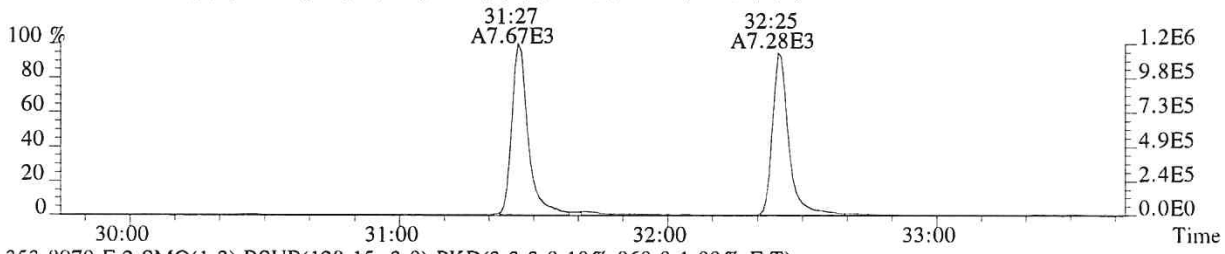
File:P519541 #1-357 Acq:21-DEC-2018 09:49:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-004DL
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,996.0,1.00%,F,T)



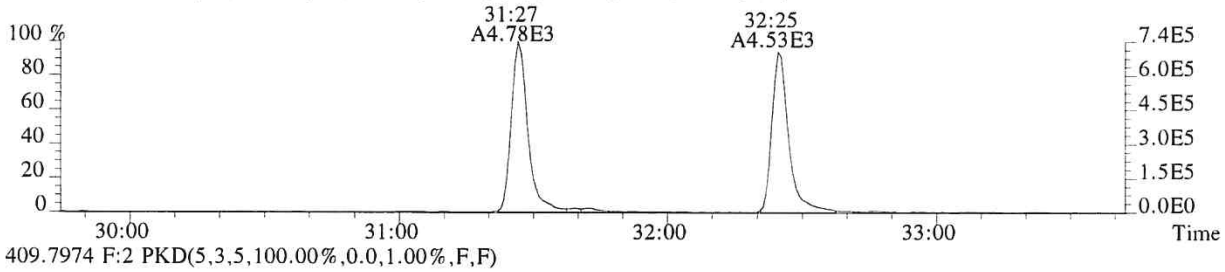
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2768.0,1.00%,F,T)



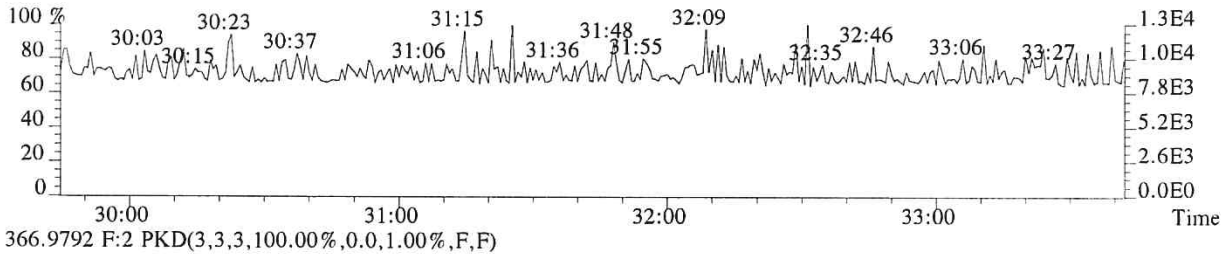
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1008.0,1.00%,F,T)



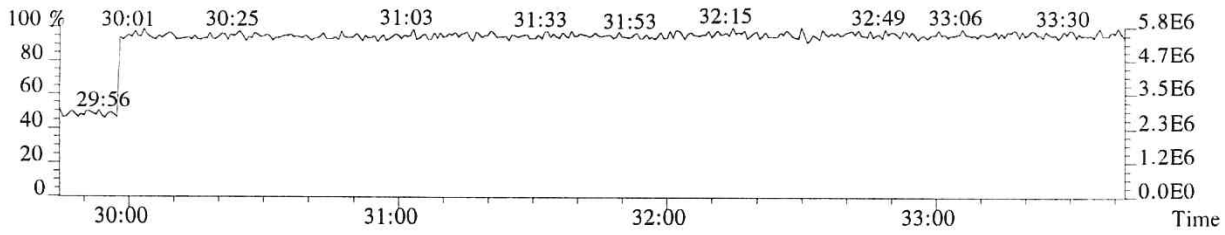
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,860.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

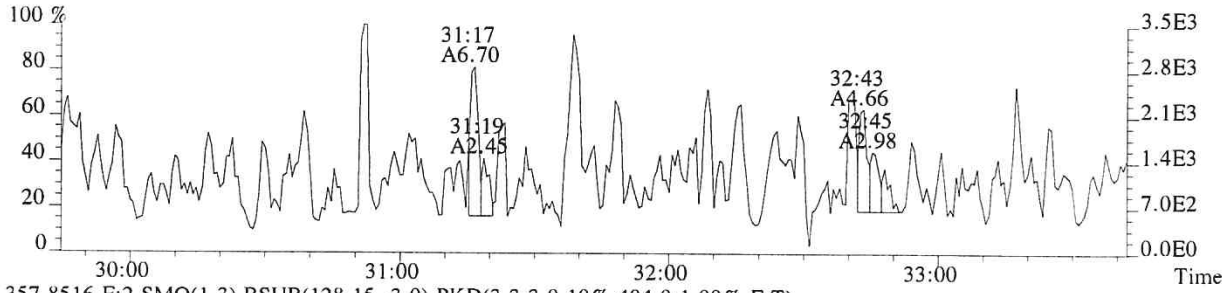


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

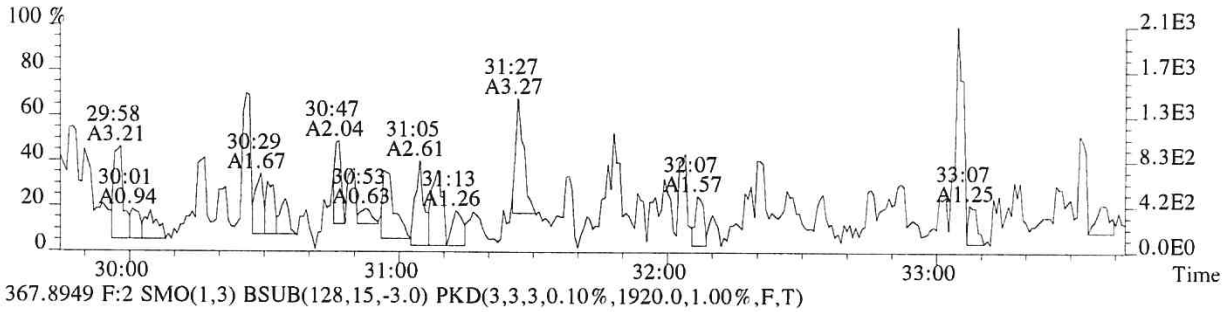


015274

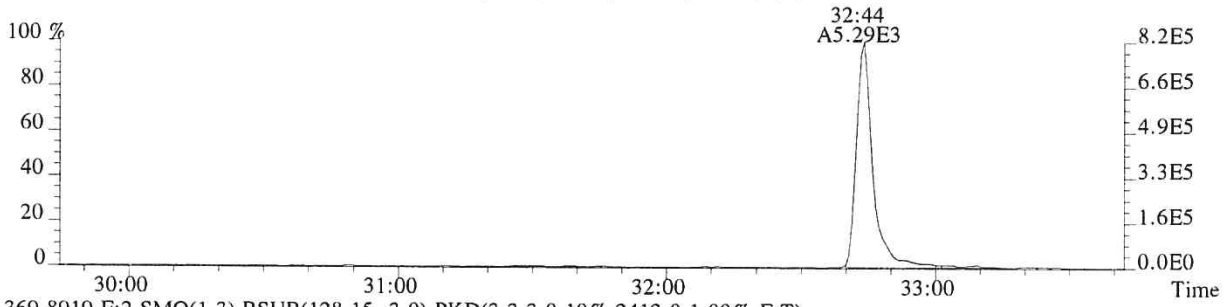
File:P519541 #1-357 Acq:21-DEC-2018 09:49:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-004DL
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1408.0,1.00%,F,T)



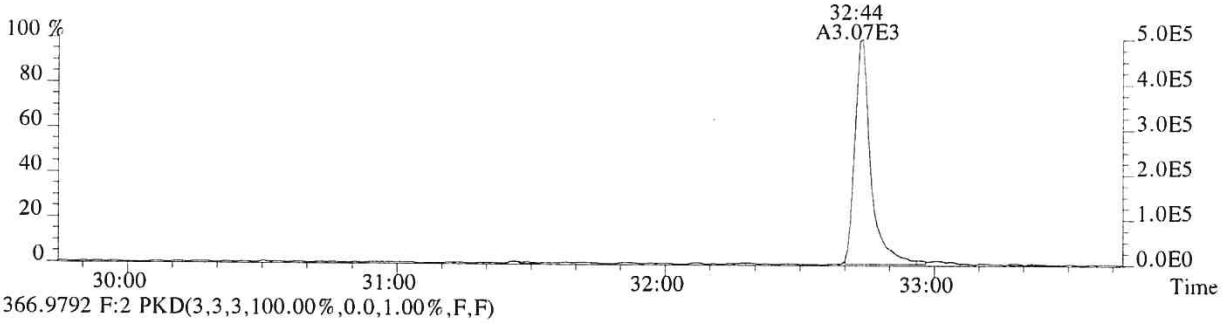
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,404.0,1.00%,F,T)



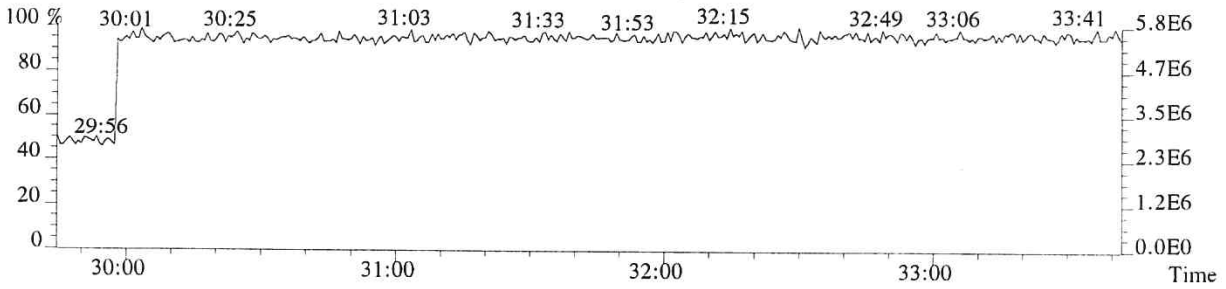
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1920.0,1.00%,F,T)



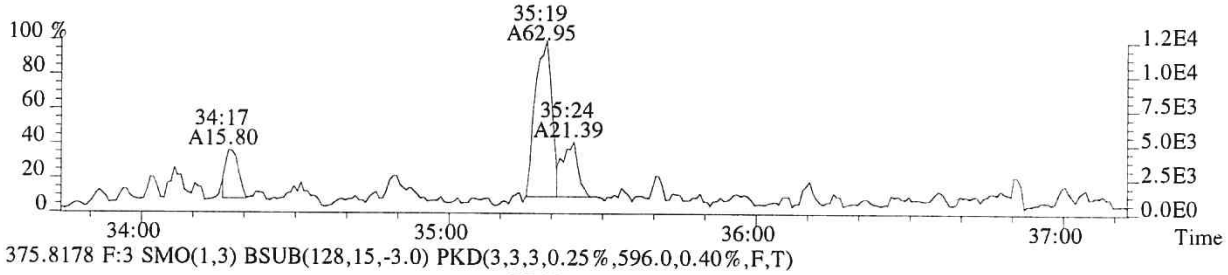
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2412.0,1.00%,F,T)



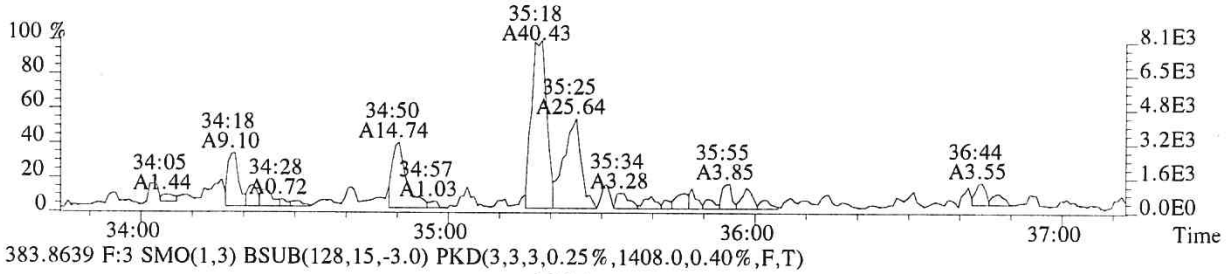
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



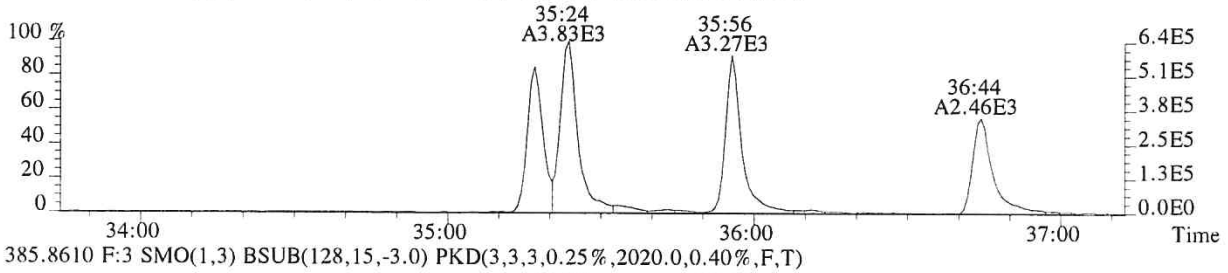
File:P519541 #1-313 Acq:21-DEC-2018 09:49:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-004DL
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1324.0,0.40%,F,T)



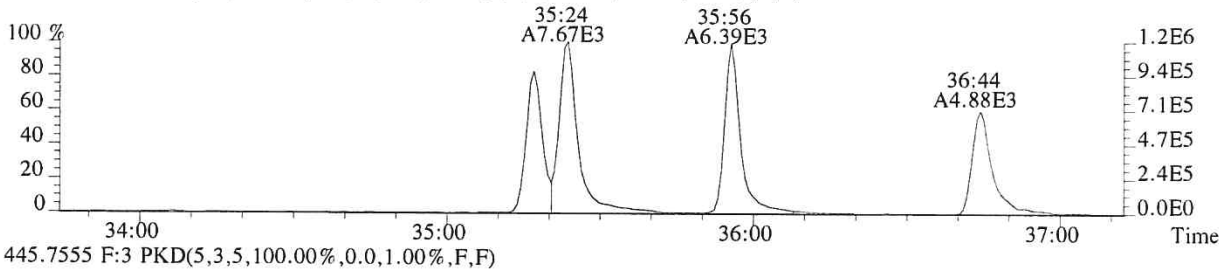
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,596.0,0.40%,F,T)



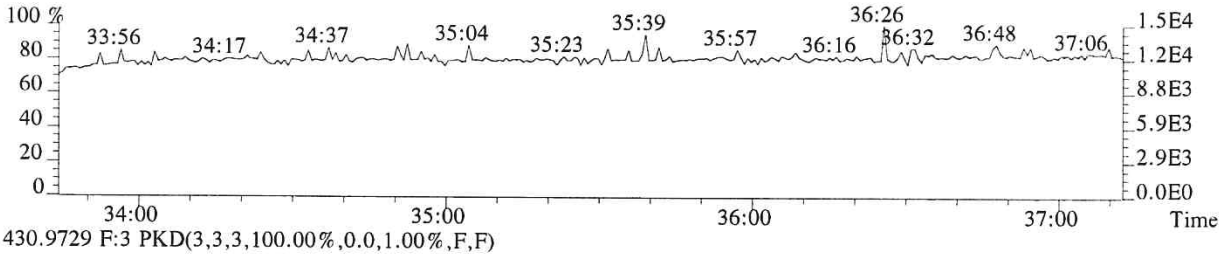
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1408.0,0.40%,F,T)



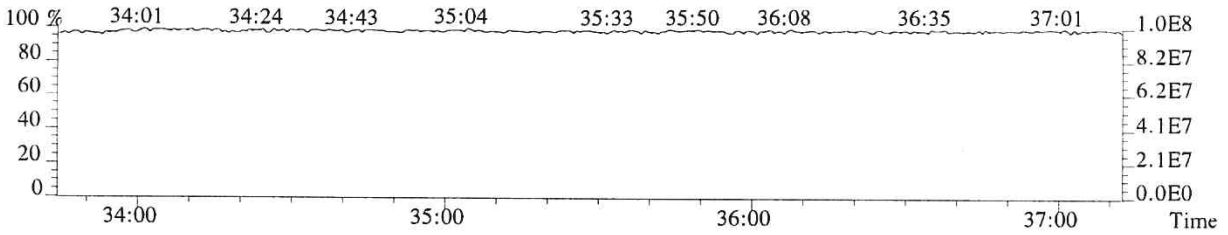
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2020.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

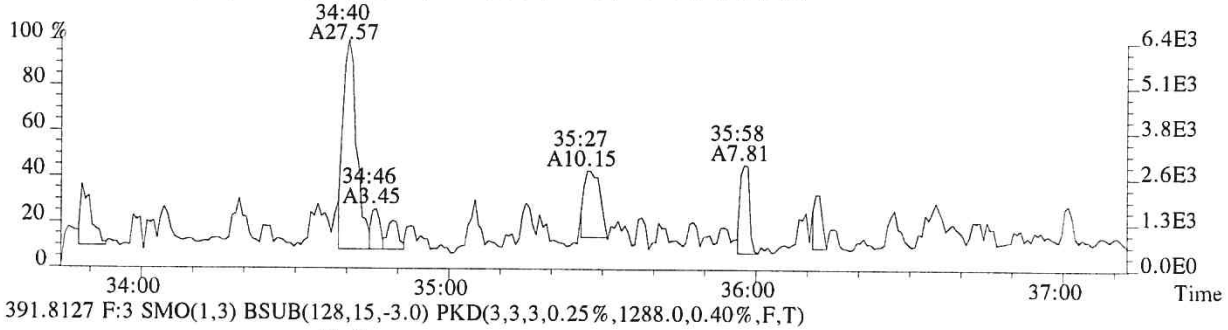


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

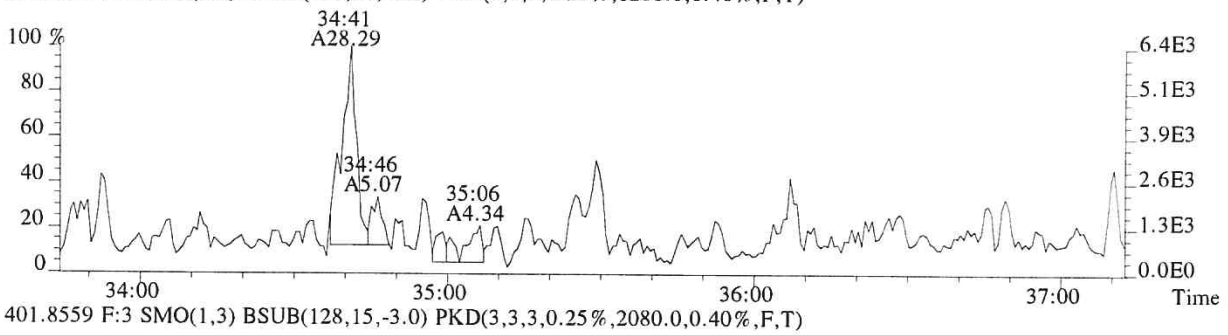


015276

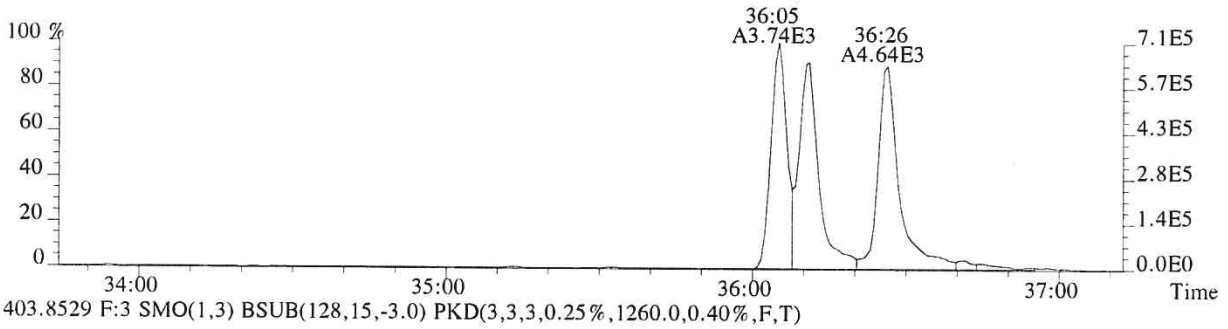
File:P519541 #1-313 Acq:21-DEC-2018 09:49:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-004DL
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1260.0,0.40%,F,T)



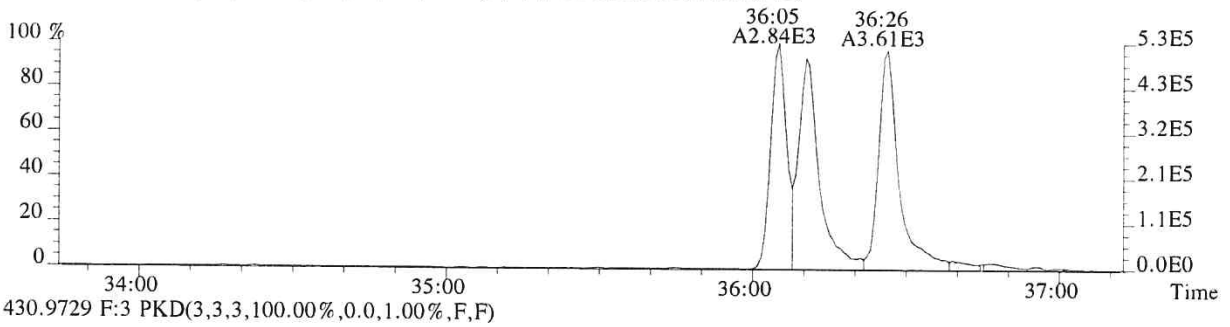
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1288.0,0.40%,F,T)



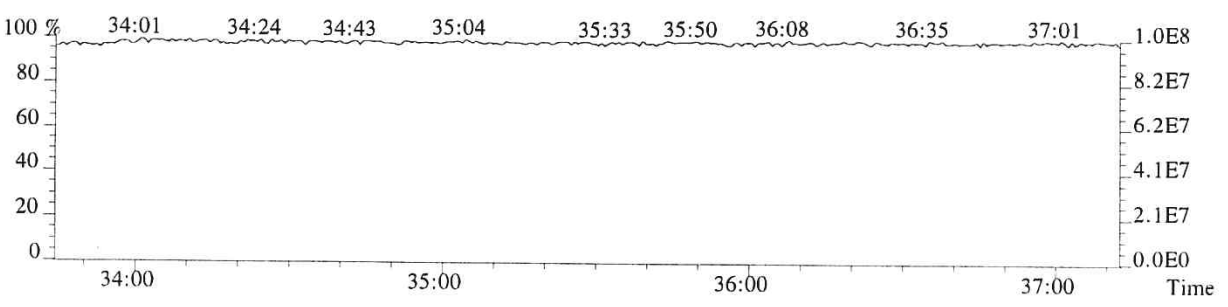
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2080.0,0.40%,F,T)



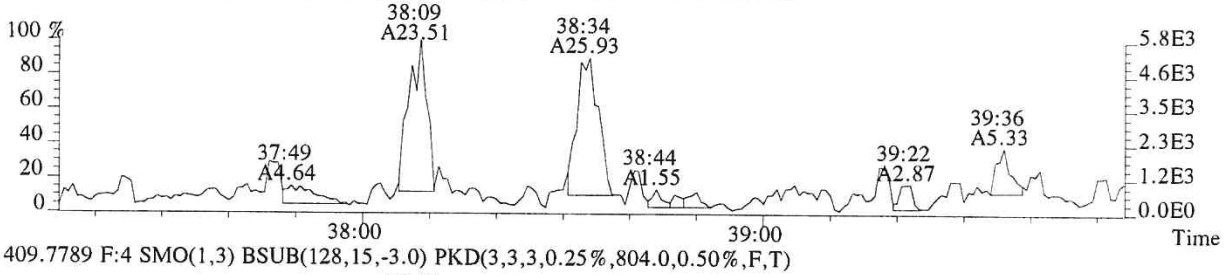
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1260.0,0.40%,F,T)



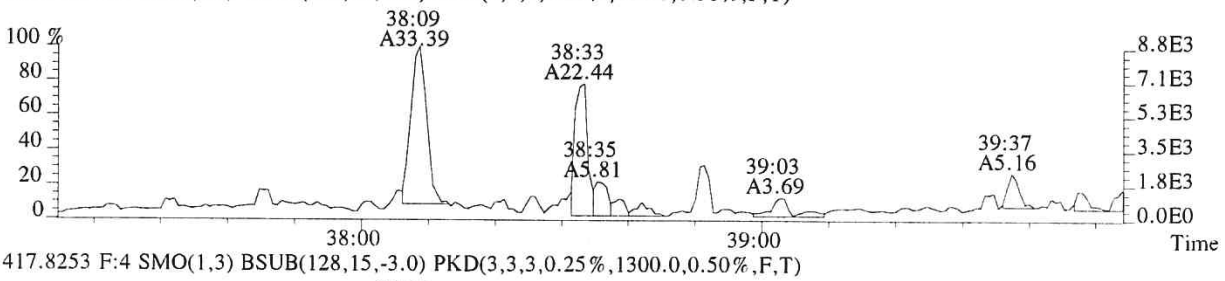
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



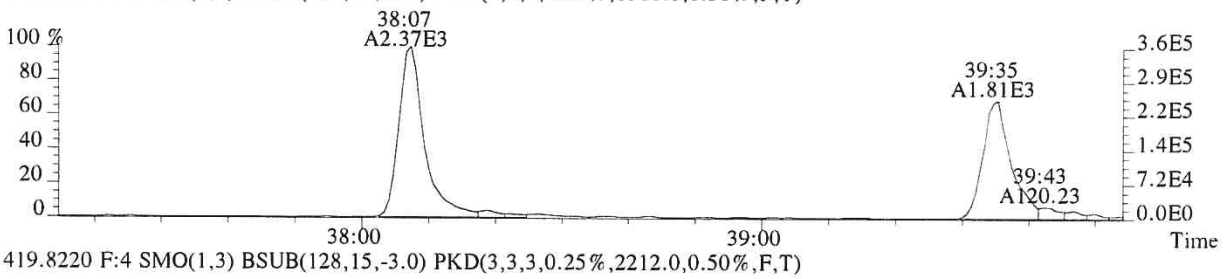
File:P519541 #1-240 Acq:21-DEC-2018 09:49:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-004DL
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,736.0,0.50%,F,T)



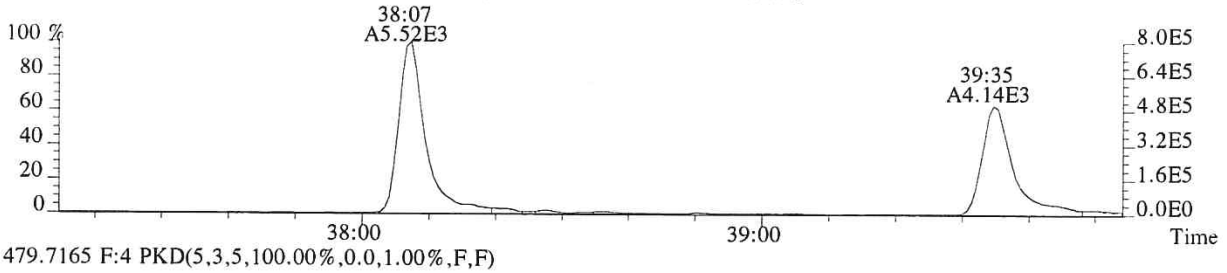
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,804.0,0.50%,F,T)



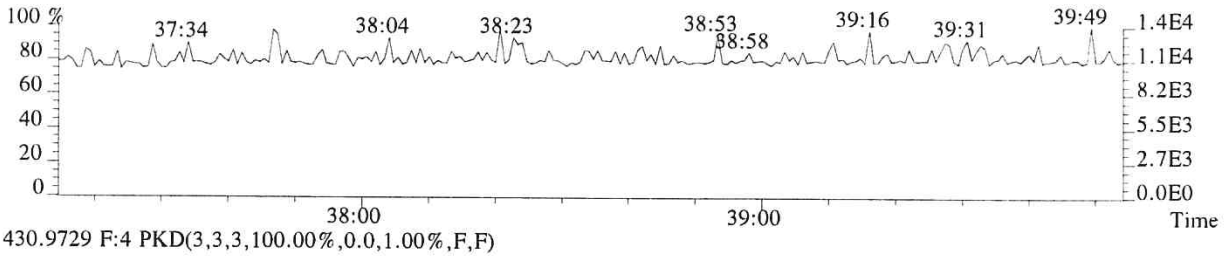
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1300.0,0.50%,F,T)



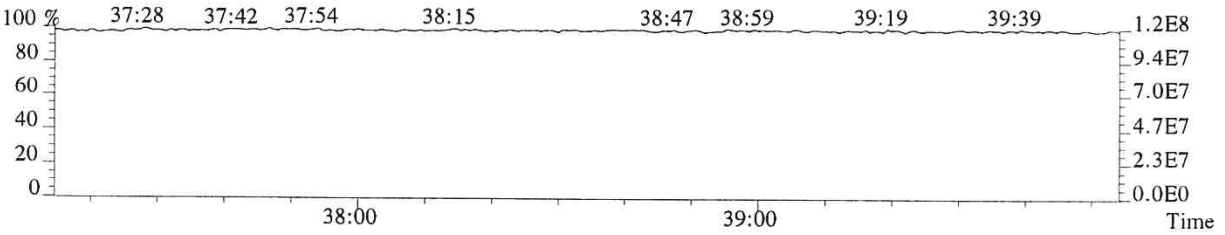
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2212.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

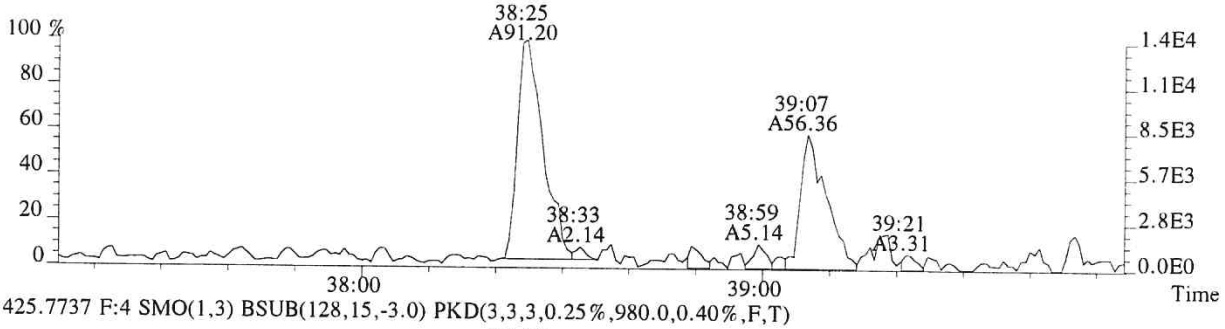


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

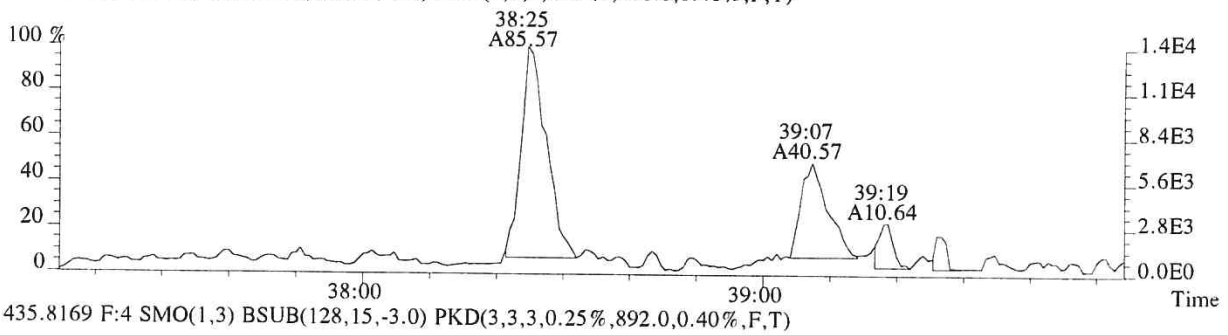


015278

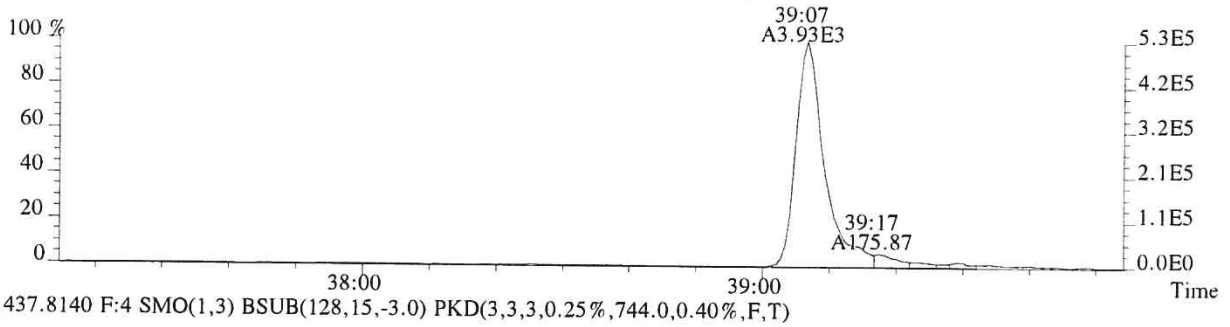
File:P519541 #1-240 Acq:21-DEC-2018 09:49:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-004DL
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,648.0,0.40%,F,T)



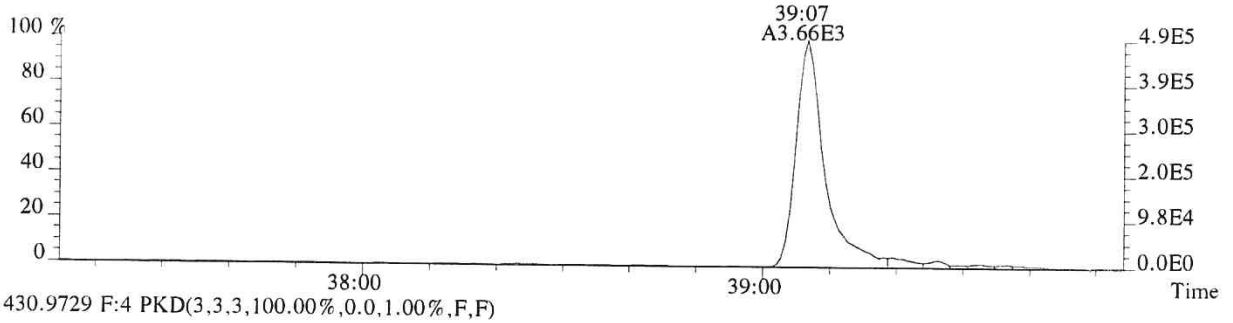
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,980.0,0.40%,F,T)



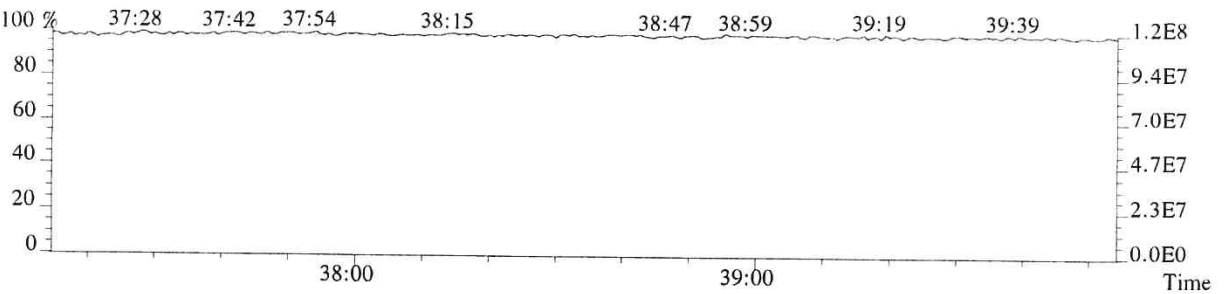
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,892.0,0.40%,F,T)



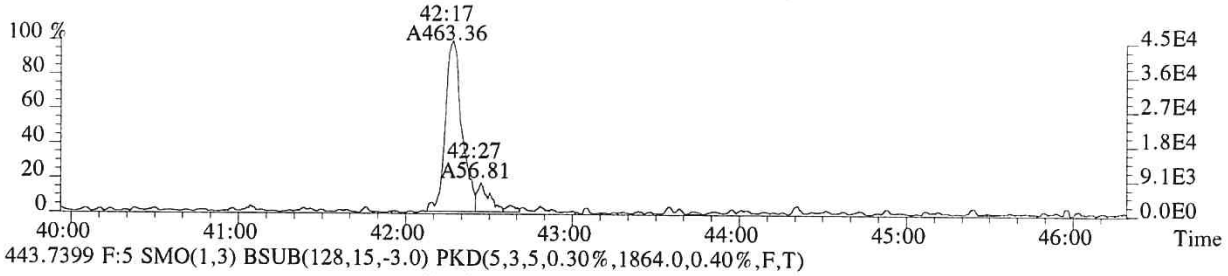
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,744.0,0.40%,F,T)



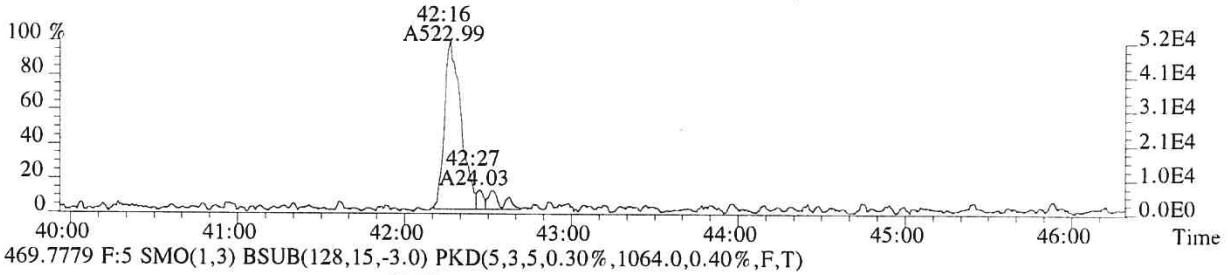
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



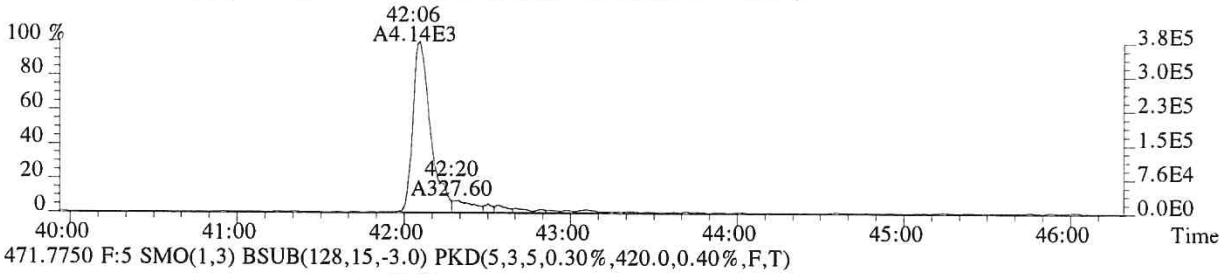
File:P519541 #1-575 Acq:21-DEC-2018 09:49:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-004DL
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,596.0,0.40%,F,T)



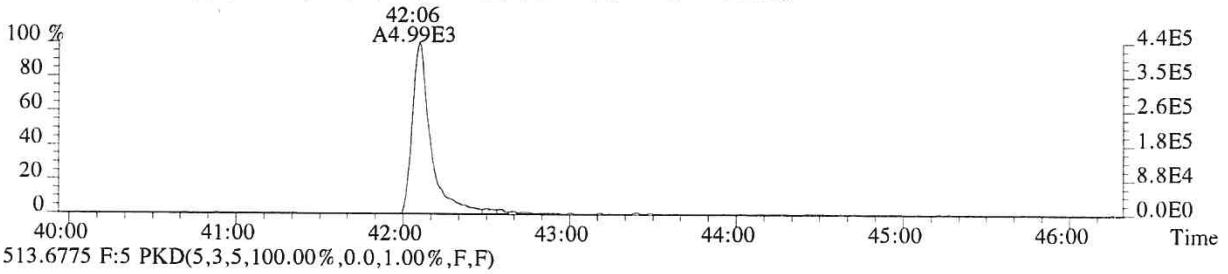
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1864.0,0.40%,F,T)



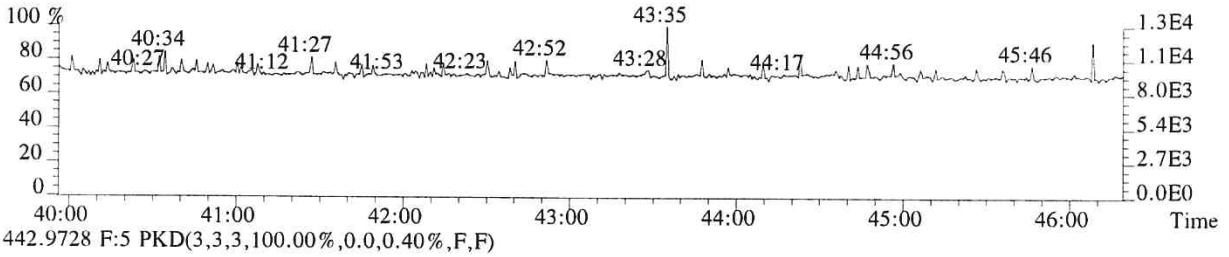
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1064.0,0.40%,F,T)



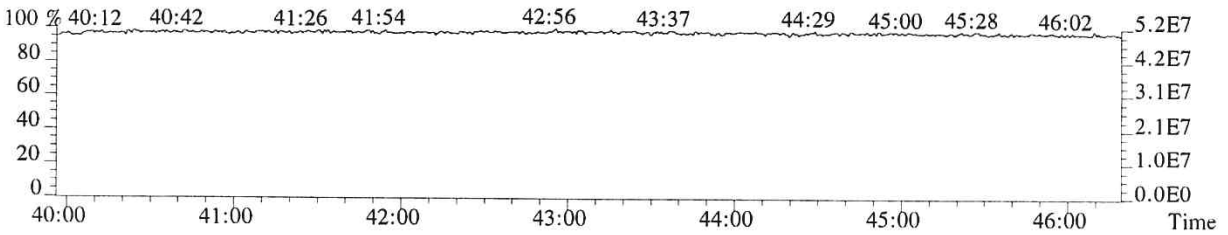
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,420.0,0.40%,F,T)



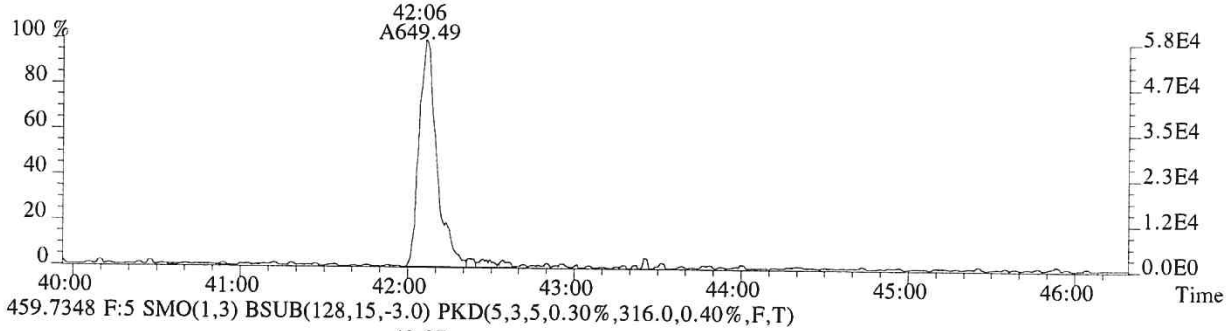
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



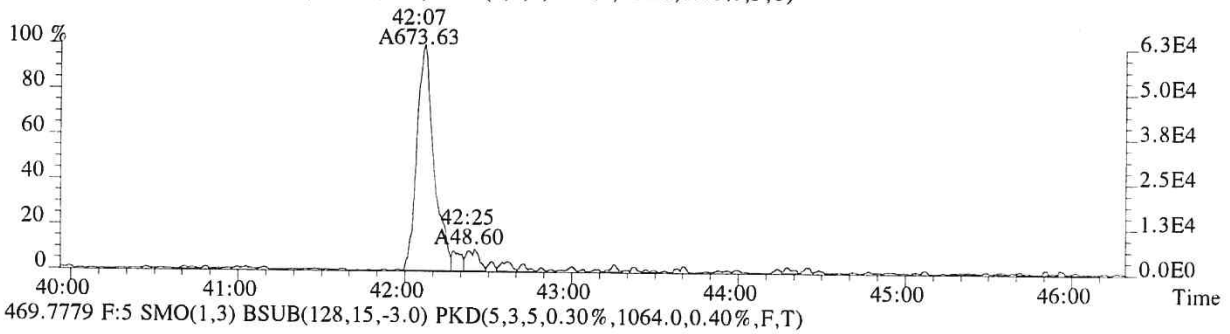
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



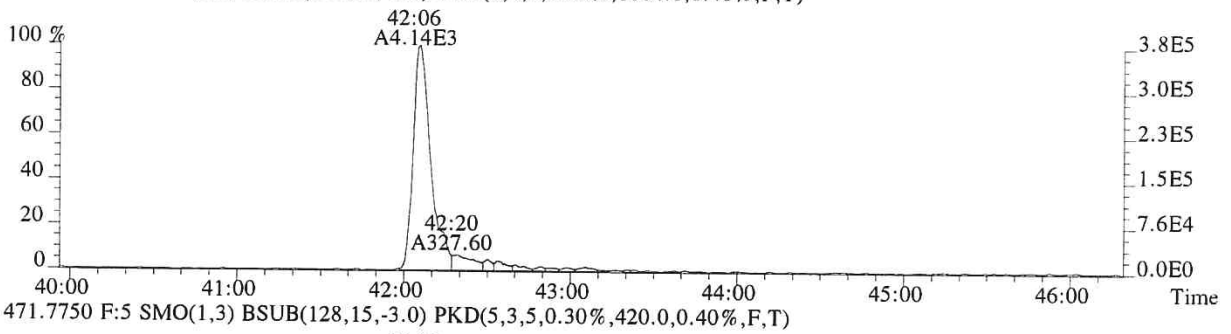
File:P519541 #1-575 Acq:21-DEC-2018 09:49:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-004DL
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,496.0,0.40%,F,T)



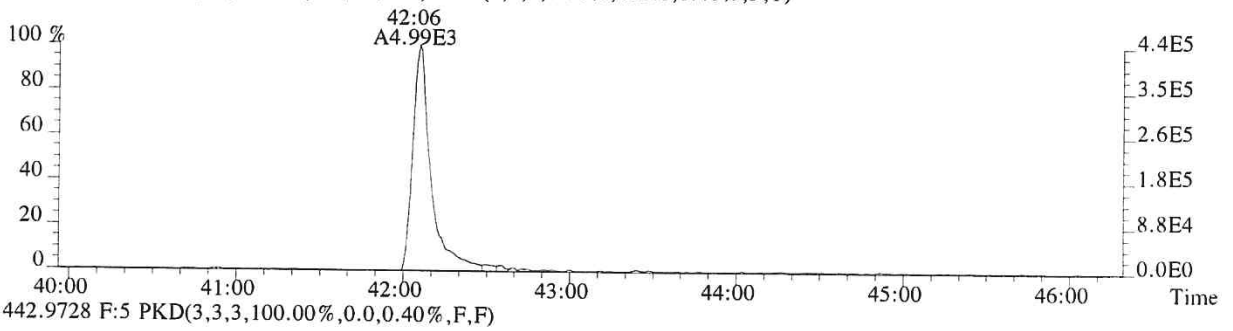
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,316.0,0.40%,F,T)



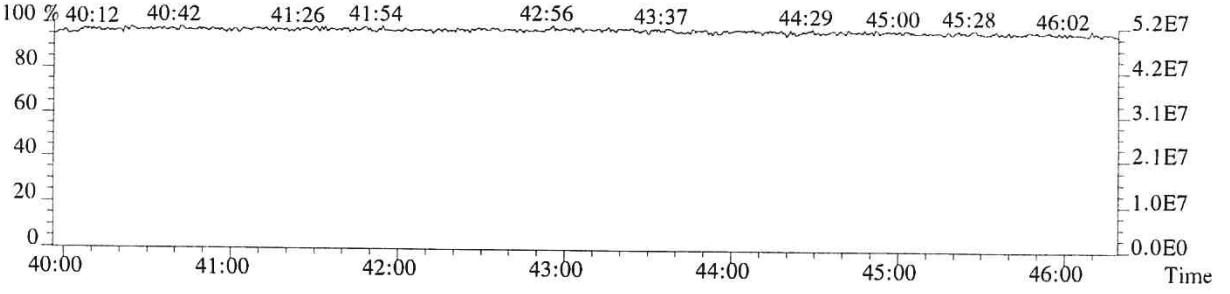
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1064.0,0.40%,F,T)



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)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0032

Run #14 Filename P519473 Samp: 1 Inj: 1 Acquired: 18-DEC-18 21:30:22
Processed: 19-DEC-18 15:22:23 Sample ID: E1801094-005

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:49	1.193e+03	1.502e+03	0.79	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	31:27	5.696e+01	4.131e+01	1.38	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	32:25	3.494e+01	4.075e+01	0.86	no	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:15	7.943e+01	4.445e+01	1.79	no	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:22	2.173e+01	2.164e+01	1.00	no	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.110
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	yes	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:02	1.705e+01	2.099e+01	0.81	no	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.258
10	Unk	OCDF	42:04	3.922e+01	3.926e+01	1.00	yes	no	1.359
11	Unk	2,3,7,8-TCDD	27:43	3.176e+02	3.570e+02	0.89	no	no	1.085
12	Unk	1,2,3,7,8-PeCDD	32:43	1.826e+01	6.989e+00	2.61	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.038
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:24	5.912e+01	3.786e+01	1.56	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:00	4.846e+02	4.934e+02	0.98	yes	no	1.025
17	Unk	OCDD	41:53	4.815e+03	5.221e+03	0.92	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	26:47	1.030e+04	1.307e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	31:26	1.664e+04	1.038e+04	1.60	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	32:24	1.538e+04	9.682e+03	1.59	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:14	5.671e+03	1.082e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:22	6.858e+03	1.367e+04	0.50	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:53	6.026e+03	1.145e+04	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	36:40	4.584e+03	9.166e+03	0.50	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:02	3.499e+03	7.919e+03	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:27	2.511e+03	5.939e+03	0.42	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	27:41	4.727e+03	6.077e+03	0.78	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:43	1.135e+04	7.086e+03	1.60	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:02	7.815e+03	5.971e+03	1.31	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:08	8.202e+03	6.362e+03	1.29	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:59	6.356e+03	6.060e+03	1.05	yes	no	0.858
32	IS	13C-OCDD	41:52	4.277e+03	4.623e+03	0.93	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:03	1.312e+04	1.642e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:23	1.354e+04	1.020e+04	1.33	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:43	7.014e+03				no	1.014

$$OCDD = \frac{(4.815e+03 + 5.221e+03) \times 4000\ pg \times 1}{(4.277e+03 + 4.623e+03) \times 10.053\ g \times 98.2 / 100 \times 1.118} = 513\ ng/kg$$

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kw 12/20/18

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0032

un #14 Filename P519473 Samp: 1 Inj: 1 Acquired: 18-DEC-18 21:30:22
rocessed: 19-DEC-18 15:22:23 LAB. ID: E1801094-005

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
	2,3,7,8-TCDF	1.77e+05	1.14e+03	1.5e+02	2.41e+05	2.28e+03	1.1e+02
	1,2,3,7,8-PeCDF	1.01e+04	5.20e+02	1.9e+01	7.80e+03	9.00e+02	8.7e+00
	2,3,4,7,8-PeCDF	4.62e+03	5.20e+02	8.9e+00	9.69e+03	9.00e+02	1.1e+01
	1,2,3,4,7,8-HxCDF	1.44e+04	3.48e+02	4.1e+01	8.07e+03	3.32e+02	2.4e+01
	1,2,3,6,7,8-HxCDF	3.30e+03	3.48e+02	9.5e+00	3.17e+03	3.32e+02	9.6e+00
	2,3,4,6,7,8-HxCDF	*	3.48e+02	*	*	3.32e+02	*
	1,2,3,7,8,9-HxCDF	*	3.48e+02	*	*	3.32e+02	*
	1,2,3,4,6,7,8-HpCDF	3.41e+03	3.64e+02	9.4e+00	4.90e+03	2.80e+02	1.7e+01
	1,2,3,4,7,8,9-HpCDF	*	3.64e+02	*	*	2.80e+02	*
0	OCDF	4.62e+03	3.24e+02	1.4e+01	5.41e+03	7.12e+02	7.6e+00
1	2,3,7,8-TCDD	5.11e+04	2.42e+03	2.1e+01	5.83e+04	1.21e+03	4.8e+01
2	1,2,3,7,8-PeCDD	3.75e+03	3.92e+02	9.6e+00	1.60e+03	2.80e+02	5.7e+00
3	1,2,3,4,7,8-HxCDD	*	9.24e+02	*	*	1.02e+03	*
4	1,2,3,6,7,8-HxCDD	*	9.24e+02	*	*	1.02e+03	*
5	1,2,3,7,8,9-HxCDD	9.41e+03	9.24e+02	1.0e+01	6.23e+03	1.02e+03	6.1e+00
6	1,2,3,4,6,7,8-HpCDD	7.40e+04	2.52e+02	2.9e+02	8.13e+04	7.24e+02	1.1e+02
7	OCDD	5.62e+05	3.20e+02	1.8e+03	5.74e+05	4.16e+02	1.4e+03
8	13C-2,3,7,8-TCDF	1.66e+06	5.46e+03	3.0e+02	2.10e+06	3.08e+03	6.8e+02
9	13C-1,2,3,7,8-PeCDF	2.90e+06	3.80e+02	7.6e+03	1.79e+06	5.08e+02	3.5e+03
0	13C-2,3,4,7,8-PeCDF	2.66e+06	3.80e+02	7.0e+03	1.67e+06	5.08e+02	3.3e+03
1	13C-1,2,3,4,7,8-HxCDF	1.08e+06	4.08e+02	2.7e+03	2.16e+06	5.76e+02	3.7e+03
2	13C-1,2,3,6,7,8-HxCDF	1.25e+06	4.08e+02	3.1e+03	2.42e+06	5.76e+02	4.2e+03
3	13C-2,3,4,6,7,8-HxCDF	1.18e+06	4.08e+02	2.9e+03	2.19e+06	5.76e+02	3.8e+03
4	13C-1,2,3,7,8,9-HxCDF	8.21e+05	4.08e+02	2.0e+03	1.63e+06	5.76e+02	2.8e+03
5	13C-1,2,3,4,6,7,8-HpCDF	6.12e+05	8.64e+02	7.1e+02	1.37e+06	3.72e+03	3.7e+02
6	13C-1,2,3,4,7,8,9-HpCDF	3.98e+05	8.64e+02	4.6e+02	9.26e+05	3.72e+03	2.5e+02
7	13C-2,3,7,8-TCDD	8.12e+05	5.60e+03	1.4e+02	9.99e+05	3.77e+03	2.6e+02
8	13C-1,2,3,7,8-PeCDD	2.10e+06	7.92e+02	2.6e+03	1.28e+06	8.20e+02	1.6e+03
9	13C-1,2,3,4,7,8-HxCDD	1.67e+06	6.92e+02	2.4e+03	1.23e+06	4.56e+02	2.7e+03
0	13C-1,2,3,6,7,8-HxCDD	1.45e+06	6.92e+02	2.1e+03	1.13e+06	4.56e+02	2.5e+03
1	13C-1,2,3,4,6,7,8-HpCDD	1.08e+06	2.80e+02	3.9e+03	1.00e+06	3.24e+02	3.1e+03
2	13C-OCDD	4.90e+05	3.72e+02	1.3e+03	5.41e+05	3.84e+02	1.4e+03
3	13C-1,2,3,4-TCDD	2.21e+06	5.60e+03	3.9e+02	2.76e+06	3.77e+03	7.3e+02
4	13C-1,2,3,7,8,9-HxCDD	2.30e+06	6.92e+02	3.3e+03	1.86e+06	4.56e+02	4.1e+03
5	37Cl-2,3,7,8-TCDD	1.17e+06	8.24e+02	1.4e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (2.420e+03 + 1.212e+03) \times 2000}{(8.123e+05 + 9.994e+05) \times (\quad) \times 1.085} =$$

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Peak List Summary

CLIENT ID.
SL0032

Entry: 36 Totals Name: Total Tetra-Furans

Run: 14 File: P519473 Sample:1 Injection:1 Function:1

Acquired: 18-DEC-18 21:30:22 Processed: 19-DEC-18 15:22:23

Mass: 303.9020 305.8990 Tot Response: 3.91e+03 RRF: 0.9417

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:37	2.79e+01	4.02e+01 0.69	yes	6.81e+01		n	n
2	25:53	3.90e+02	5.58e+02 0.70	yes	9.48e+02		n	n
3	26:49	1.19e+03	1.50e+03 0.79	yes	2.70e+03	2,3,7,8-TCDF	n	n
4	27:12	8.71e+01	1.15e+02 0.76	yes	2.02e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0032

Entry: 39 Totals Name: Total Penta-Furans2

Run: 14 File: P519473 Sample:1 Injection:1 Function:2

Acquired: 18-DEC-18 21:30:22 Processed: 19-DEC-18 15:22:23

Mass: 339.8600 341.8570 Tot Response: 9.83e+01 RRF: 0.9857

	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
	31:27	5.70e+01	4.13e+01 1.38	yes	9.83e+01	1,2,3,7,8-PeCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0032

ntry: 42 Totals Name: Total Hexa-Dioxins

un: 14 File: P519473 Sample:1 Injection:1 Function:3

cquired: 18-DEC-18 21:30:22 Processed: 19-DEC-18 15:22:23

lass: 389.8160 391.8130 Tot Response: 8.37e+02 RRF: 1.047

	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
	34:38	4.39e+02	3.55e+02 1.24	yes	7.93e+02		n	n
	35:10	2.34e+01	2.00e+01 1.17	yes	4.34e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0032

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 14 File: P519473 Sample:1 Injection:1 Function:4

Acquired: 18-DEC-18 21:30:22 Processed: 19-DEC-18 15:22:23

Mass: 423.7770 425.7740 Tot Response: 3.09e+03 RRF: 1.025

	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
	38:19	1.09e+03	1.02e+03 1.06	yes	2.11e+03		n	n
	39:00	4.85e+02	4.93e+02 0.98	yes	9.78e+02	1,2,3,4,6,7,8-HpCDD	n	n

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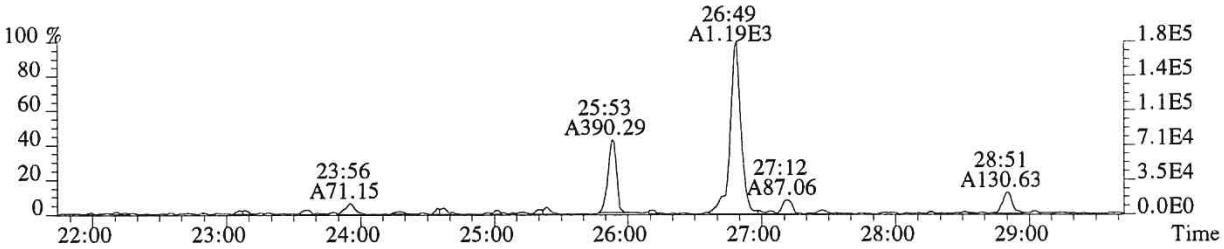
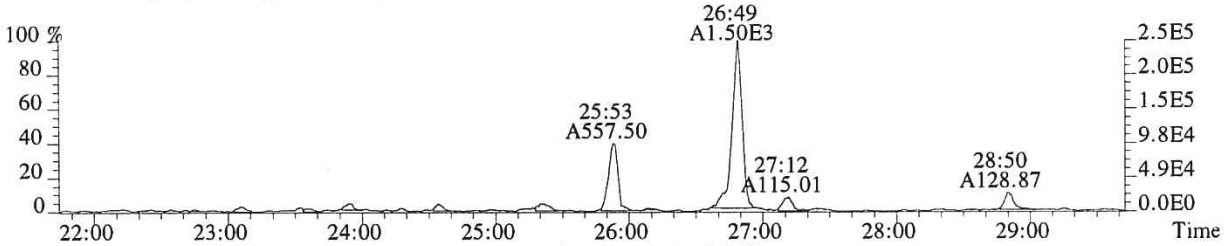
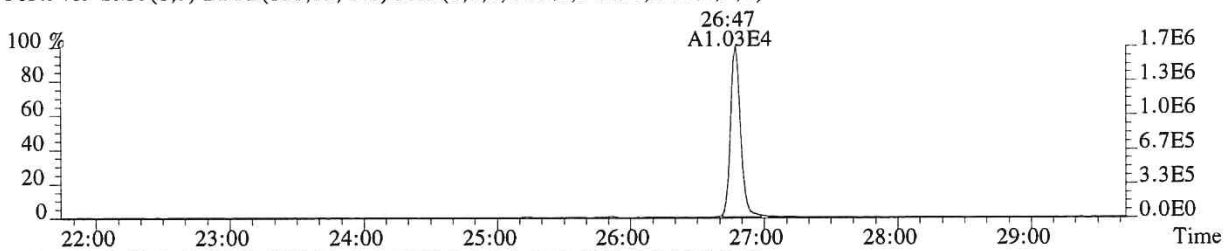
File:P519473 #1-566 Acq:18-DEC-2018 21:30:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-005
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1144.0,1.00%,F,T)



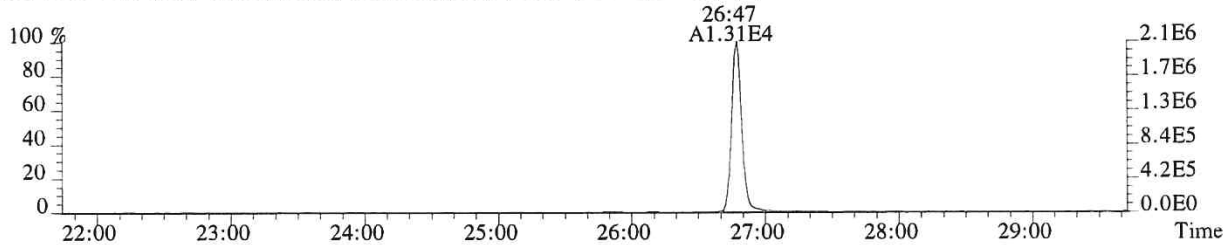
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2280.0,1.00%,F,T)



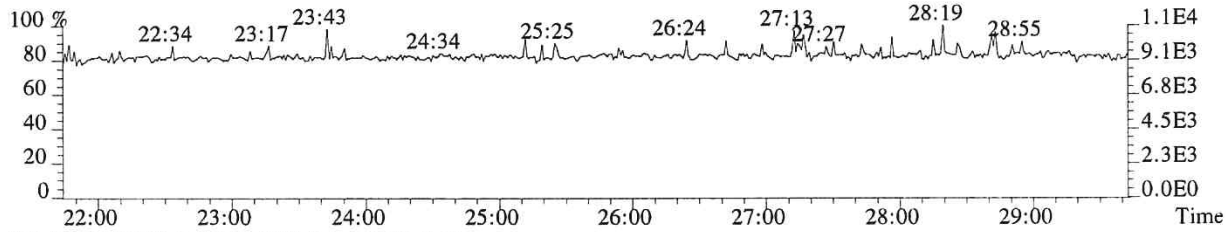
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5460.0,1.00%,F,T)



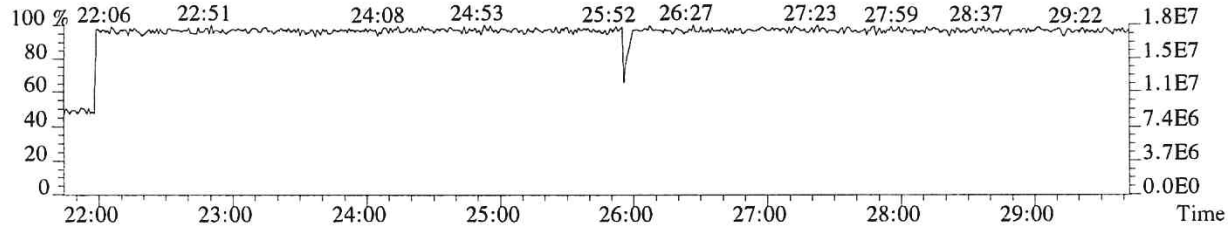
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3080.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

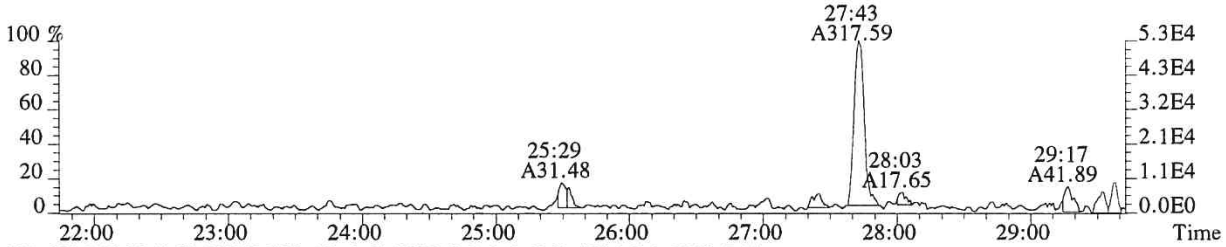


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

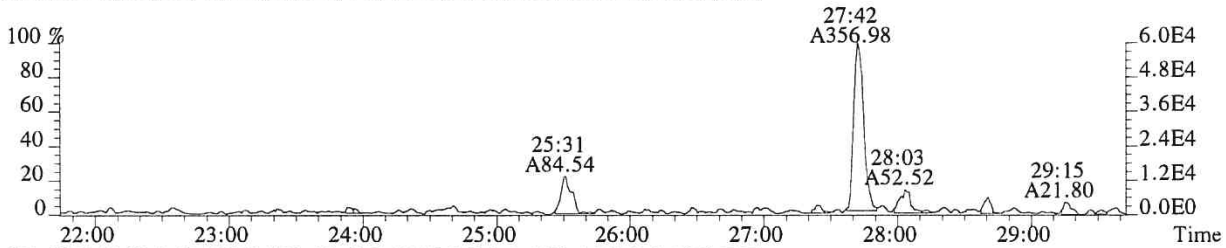


015288

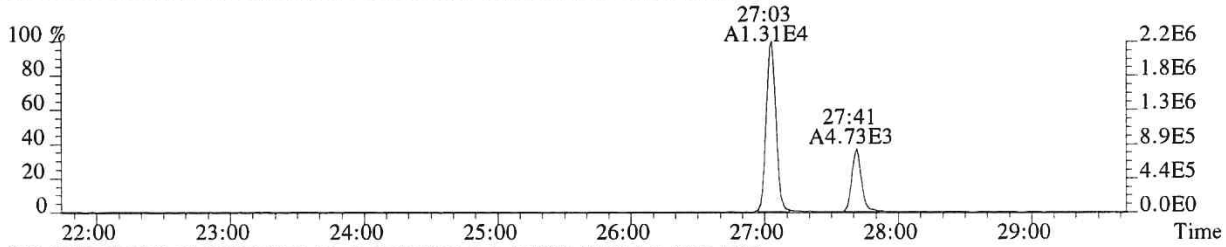
File:P519473 #1-566 Acq:18-DEC-2018 21:30:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-005
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2420.0,1.00%,F,T)



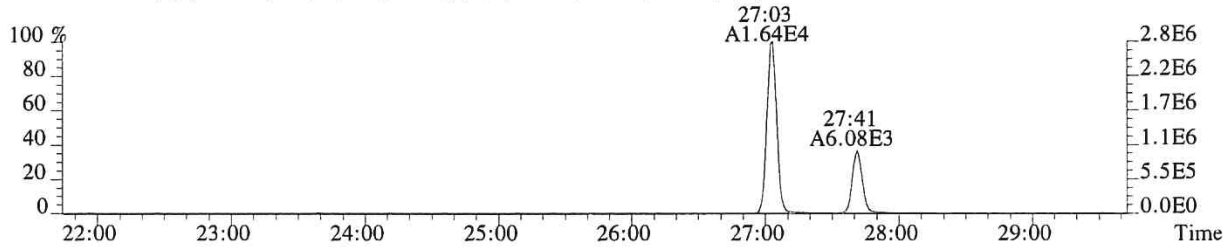
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1212.0,1.00%,F,T)



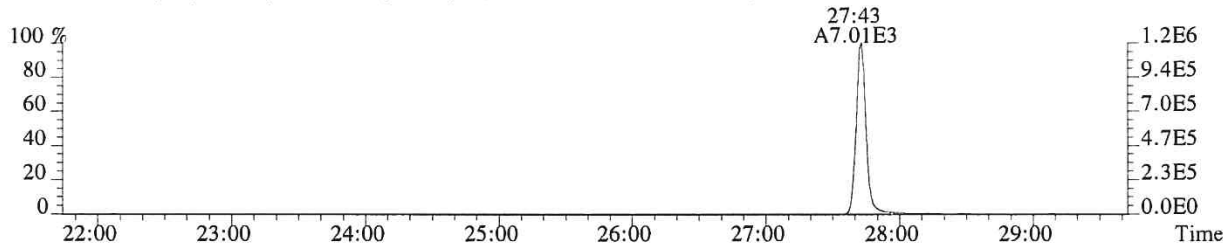
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5604.0,1.00%,F,T)



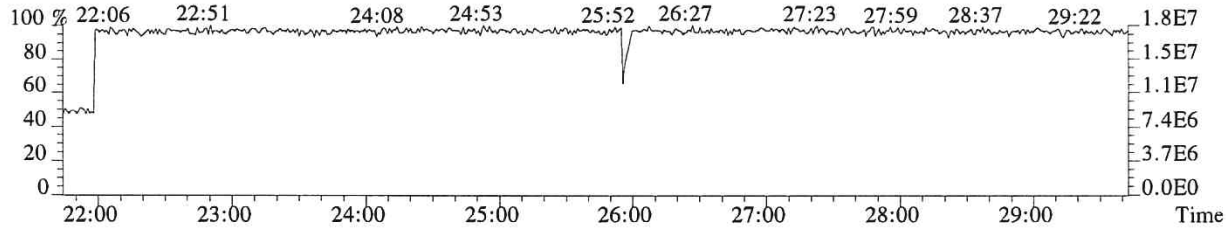
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3772.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,824.0,1.00%,F,T)



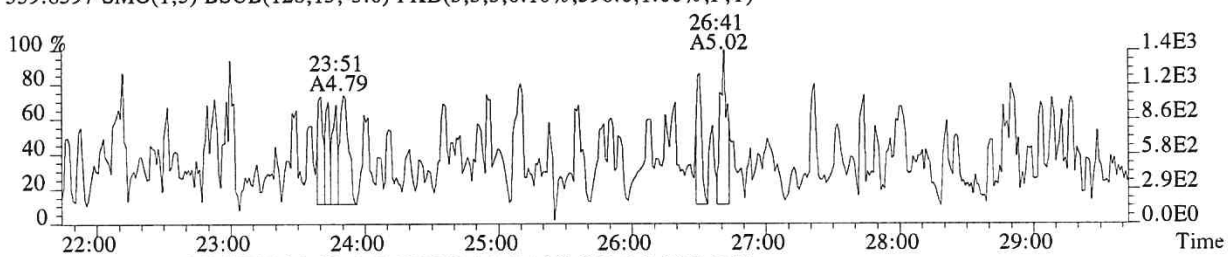
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



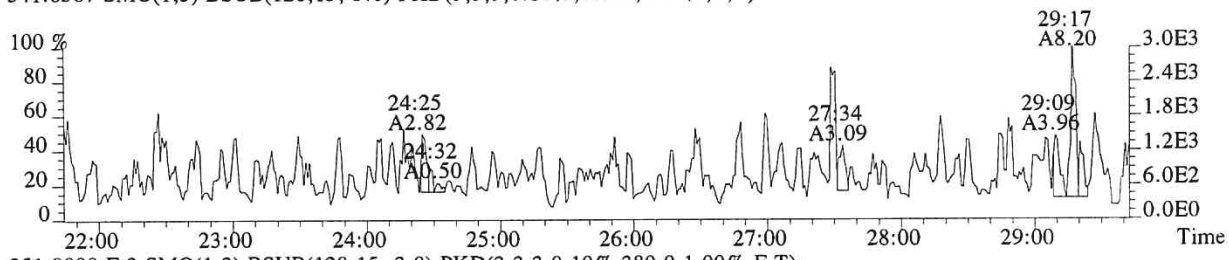
015289

File:P519473 #1-566 Acq:18-DEC-2018 21:30:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-005

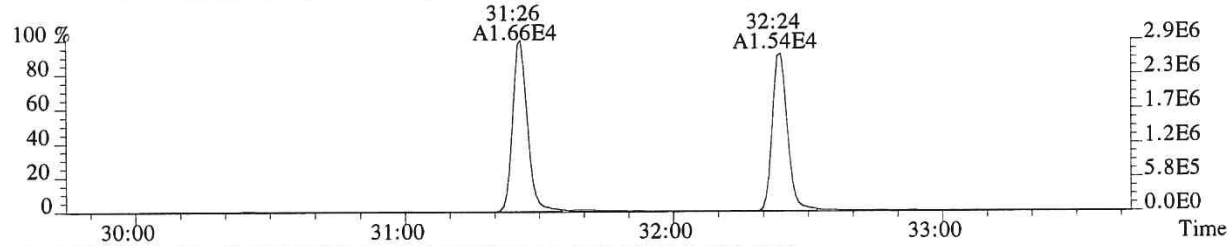
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,596.0,1.00%,F,T)



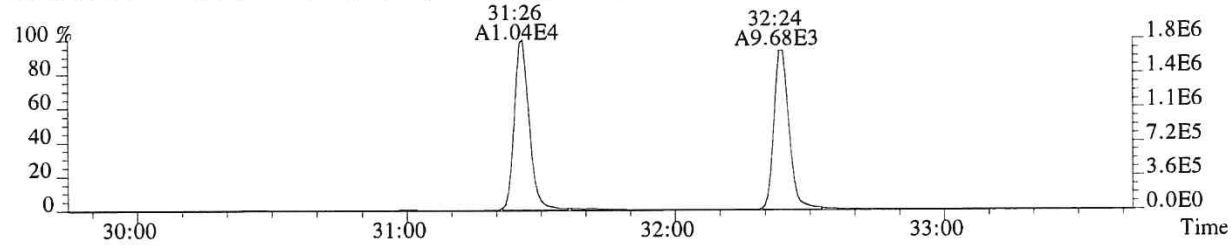
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,872.0,1.00%,F,T)



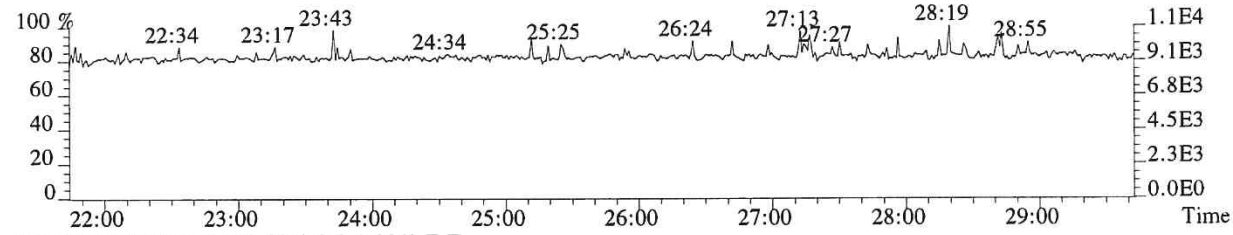
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,380.0,1.00%,F,T)



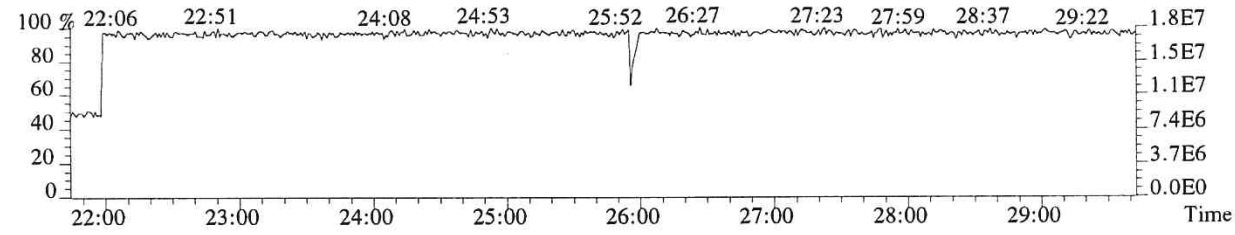
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,508.0,1.00%,F,T)



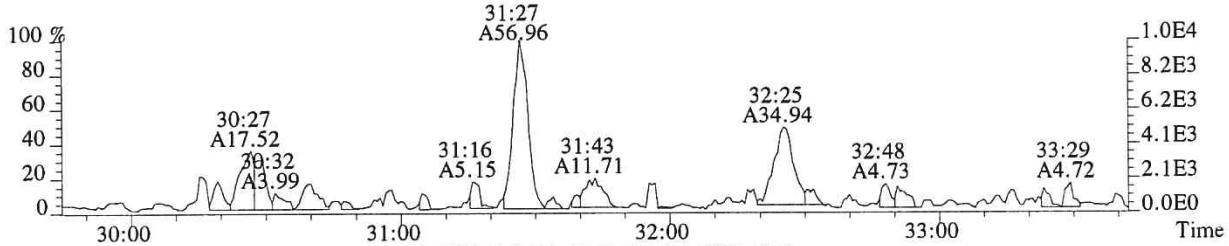
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



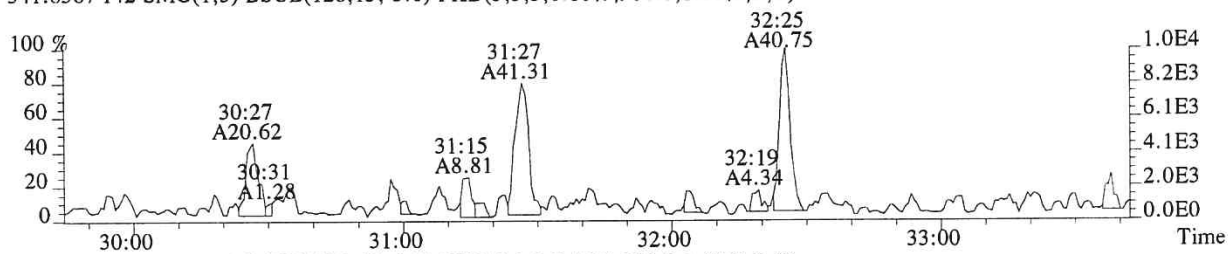
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



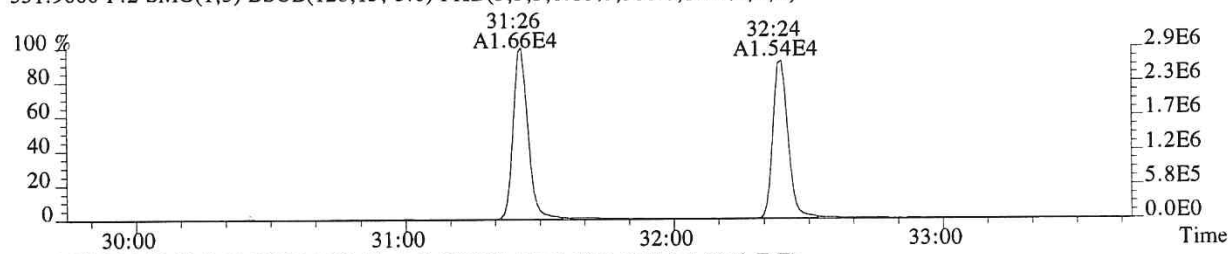
File:P519473 #1-357 Acq:18-DEC-2018 21:30:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-005
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,520.0,1.00%,F,T)



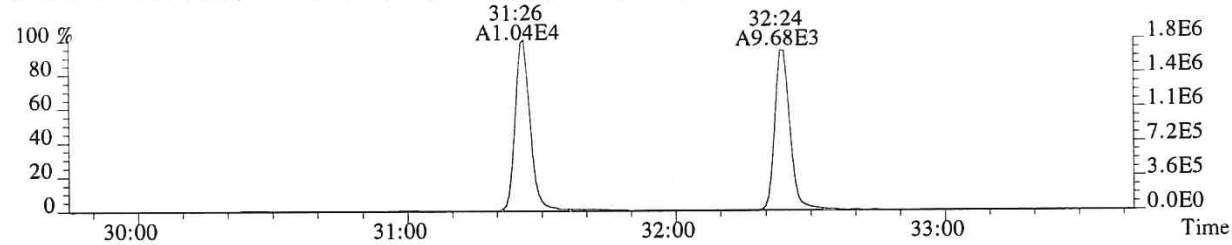
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,900.0,1.00%,F,T)



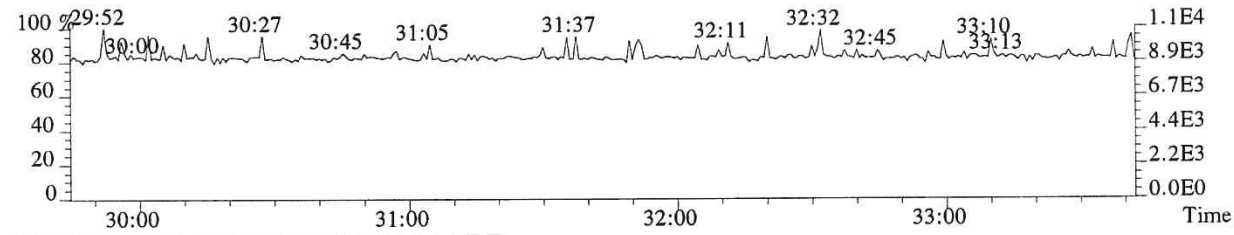
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,380.0,1.00%,F,T)



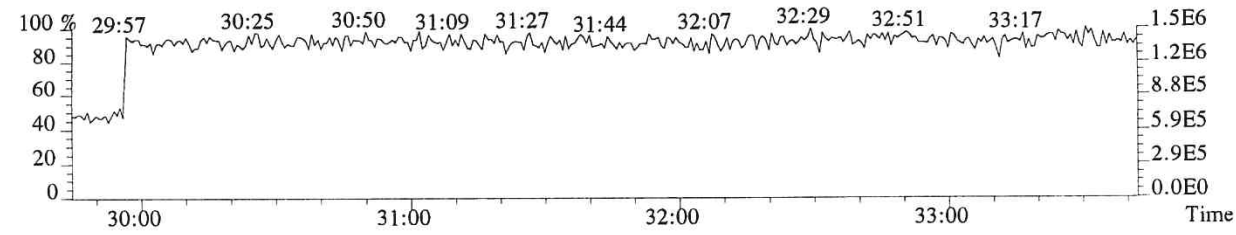
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,508.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

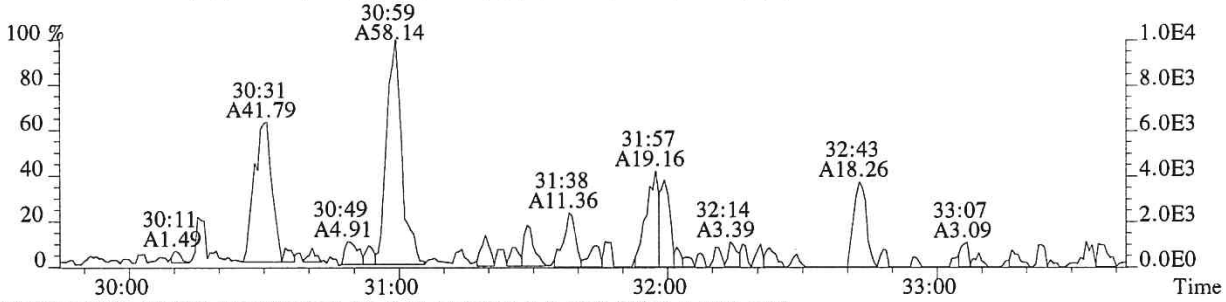


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

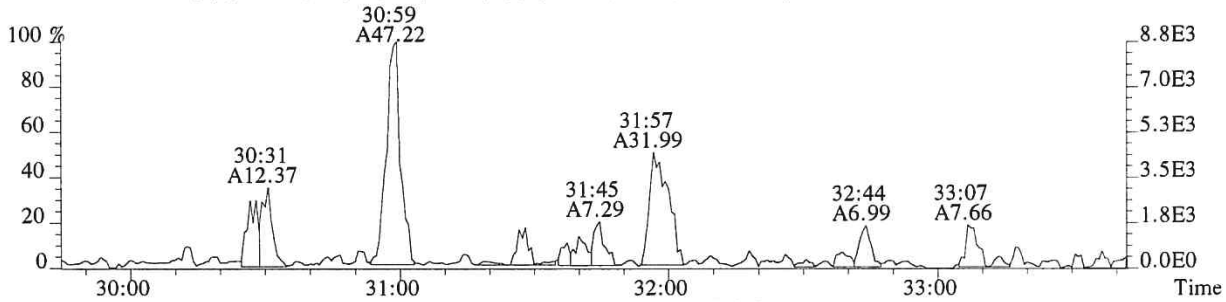


015291

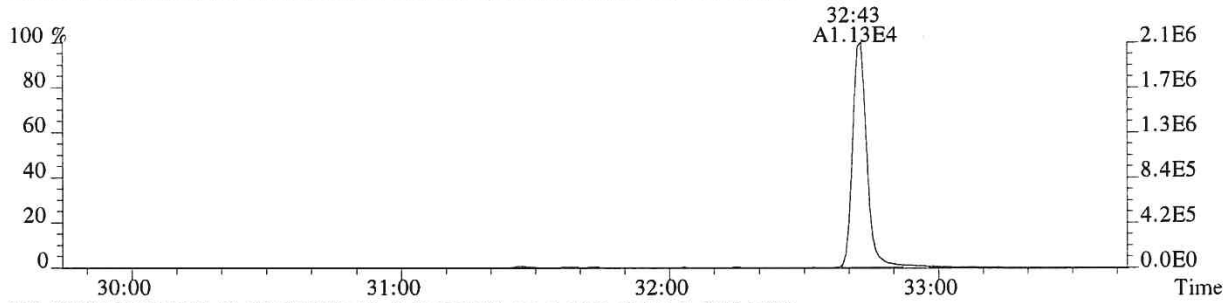
File:P519473 #1-357 Acq:18-DEC-2018 21:30:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-005
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,392.0,1.00%,F,T)



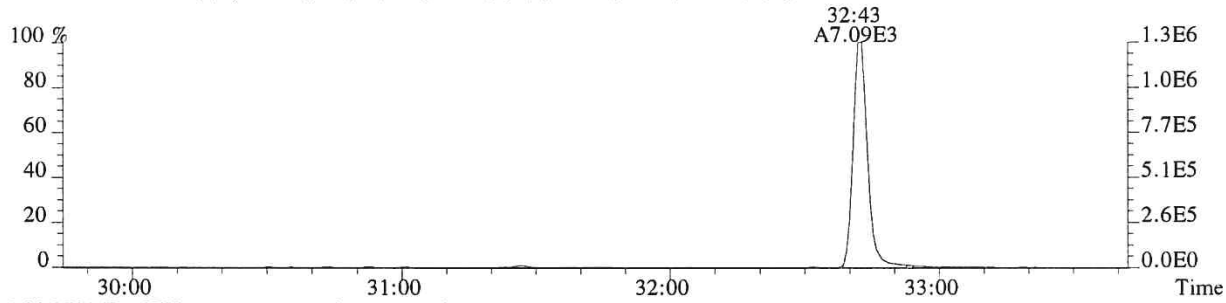
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,280.0,1.00%,F,T)



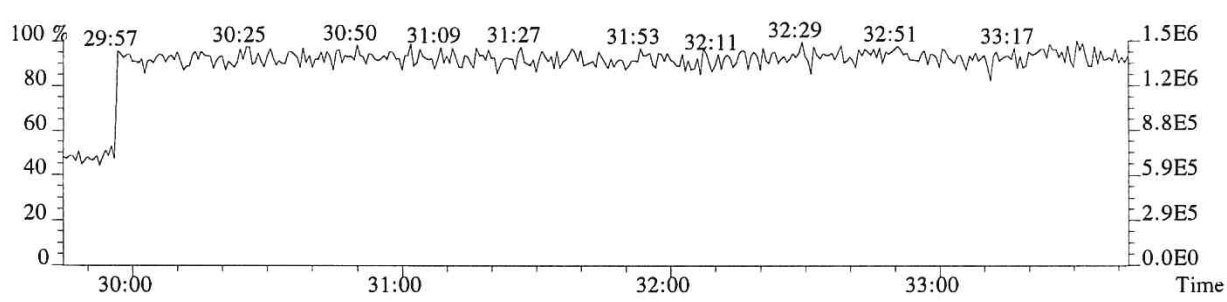
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,792.0,1.00%,F,T)



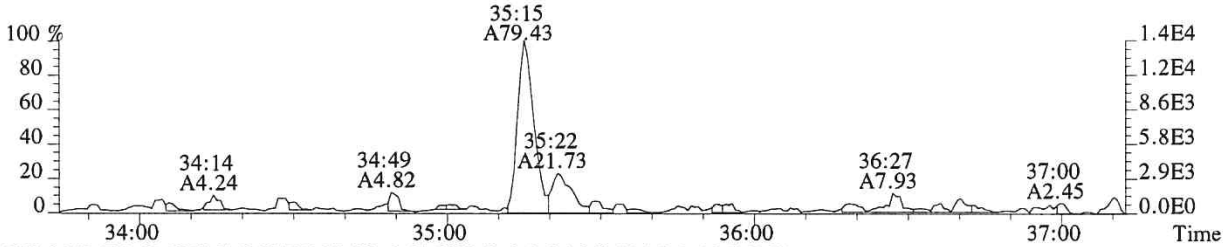
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,820.0,1.00%,F,T)



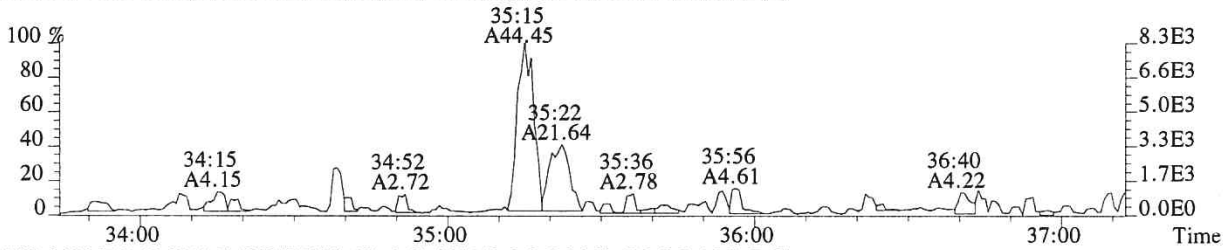
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



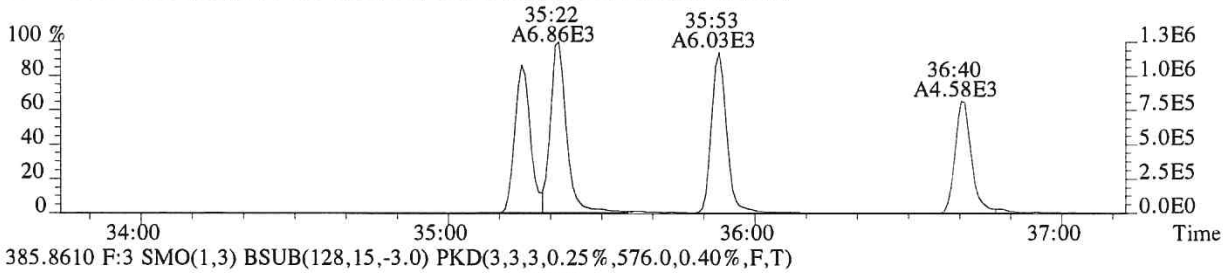
File:P519473 #1-313 Acq:18-DEC-2018 21:30:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-005
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,348.0,0.40%,F,T)



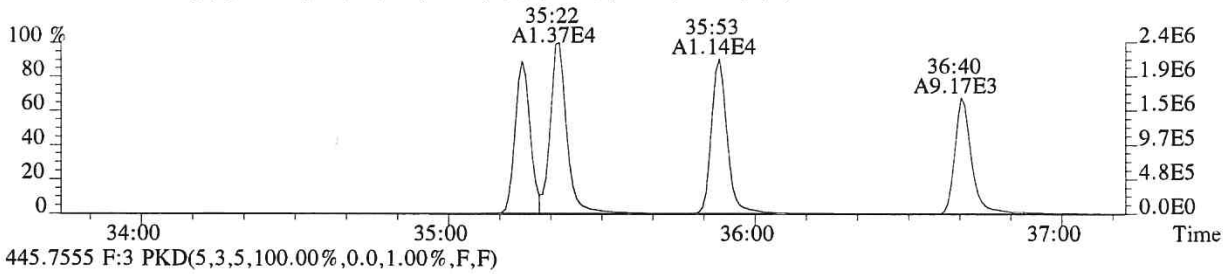
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,332.0,0.40%,F,T)



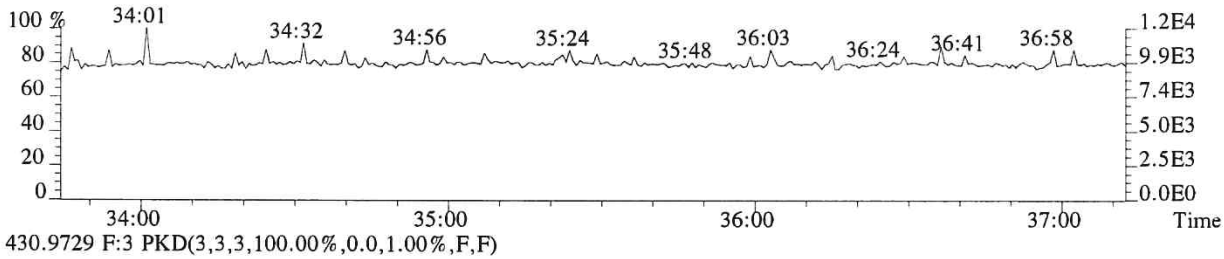
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,408.0,0.40%,F,T)



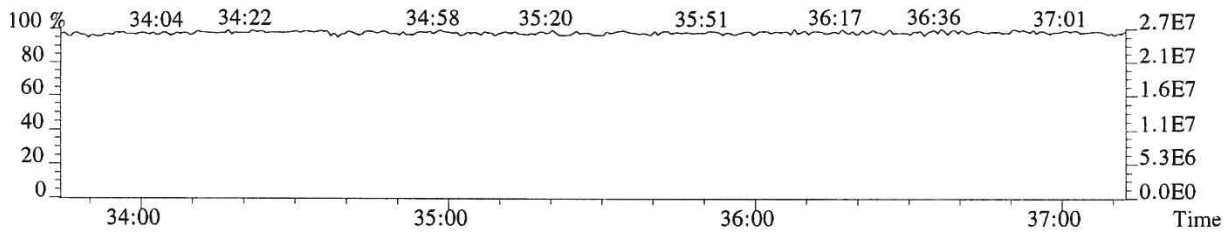
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,576.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

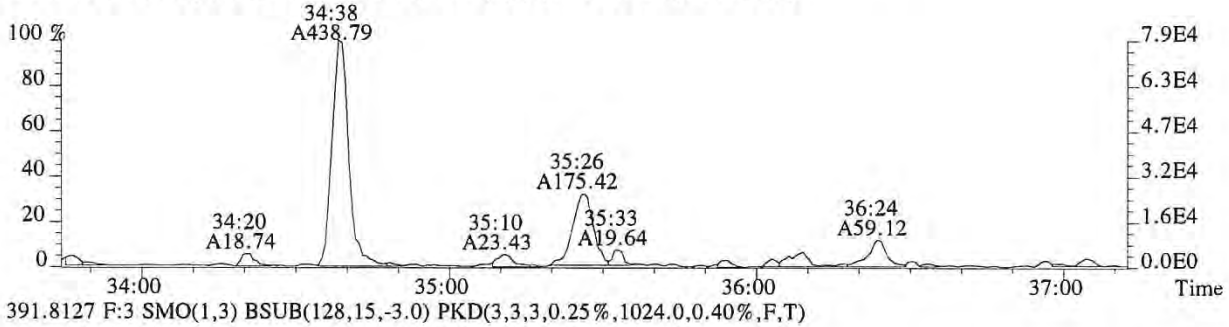


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

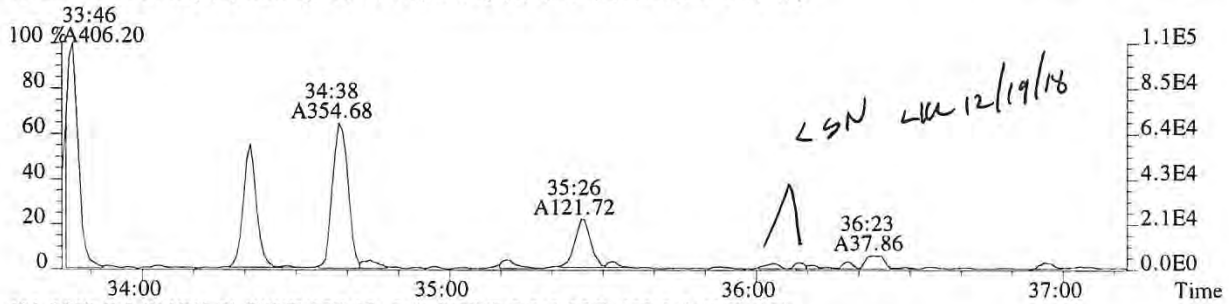


015293

File:P519473 #1-313 Acq:18-DEC-2018 21:30:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-005
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,924.0,0.40%,F,T)

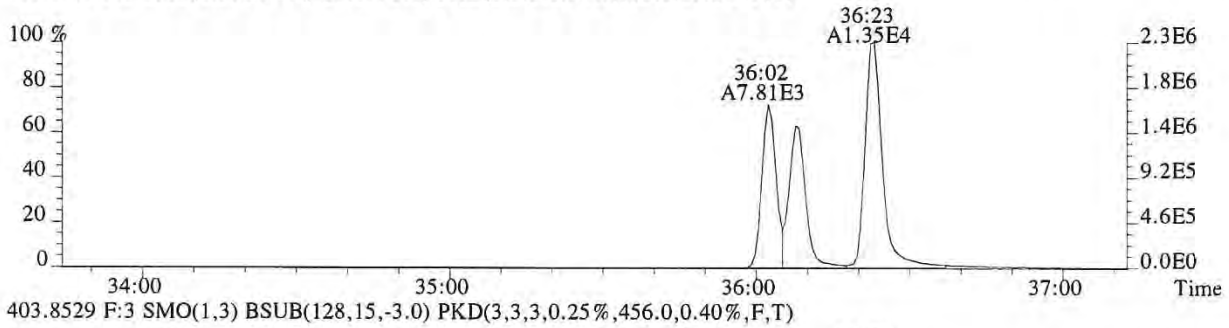


391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1024.0,0.40%,F,T)

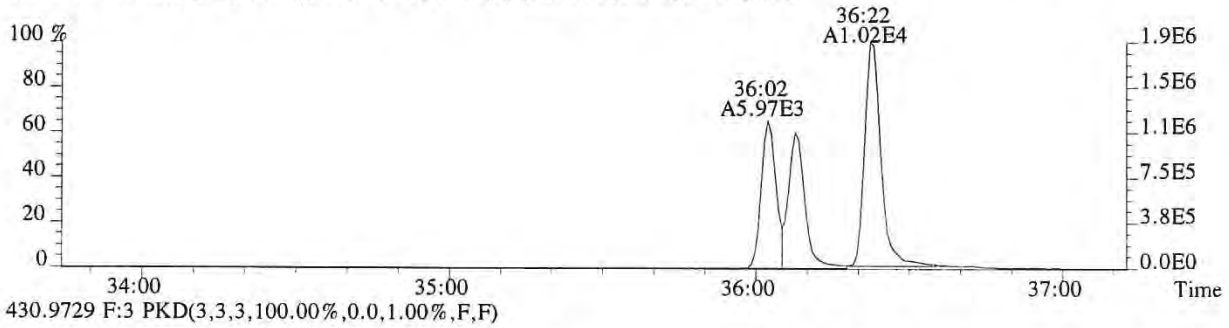


LSN LW 12/19/18

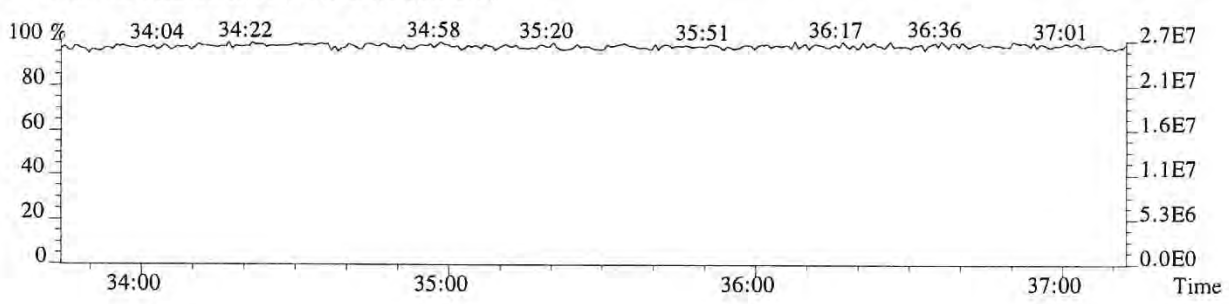
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,692.0,0.40%,F,T)



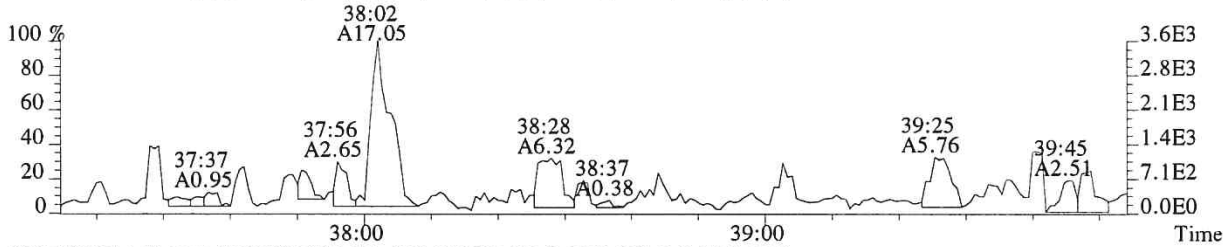
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,456.0,0.40%,F,T)



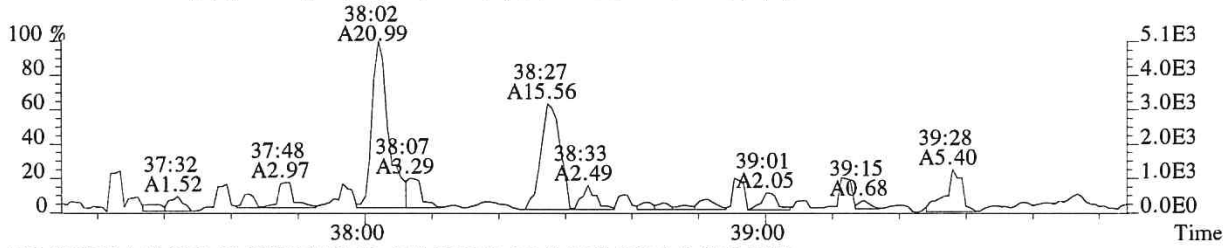
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



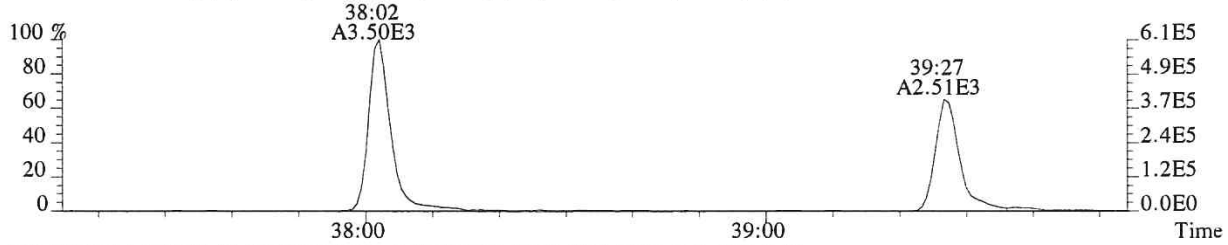
File:P519473 #1-240 Acq:18-DEC-2018 21:30:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-005
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,364.0,0.50%,F,T)



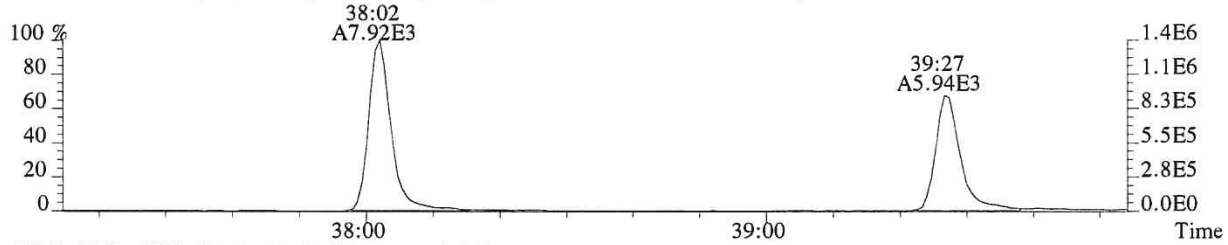
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,280.0,0.50%,F,T)



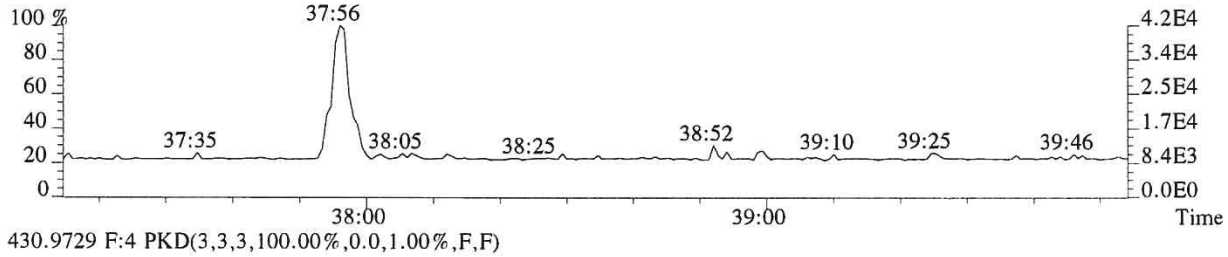
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,864.0,0.50%,F,T)



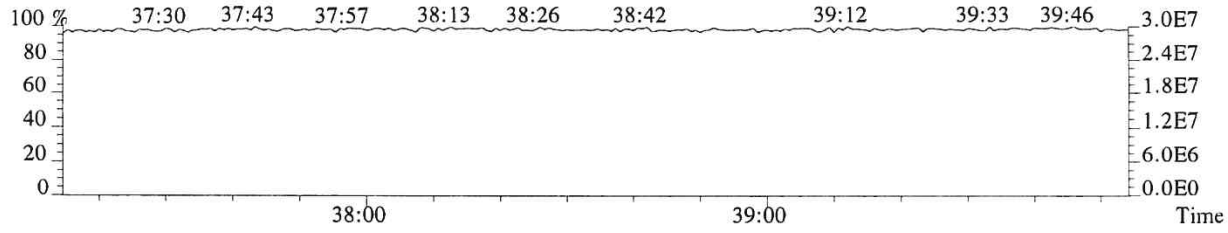
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3716.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

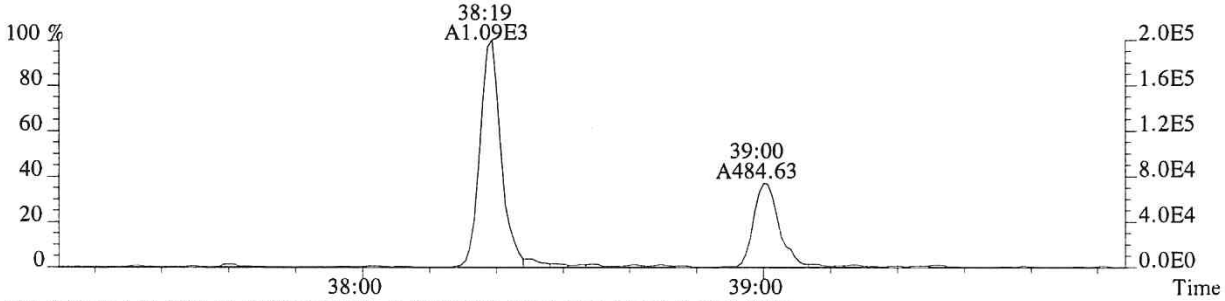


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

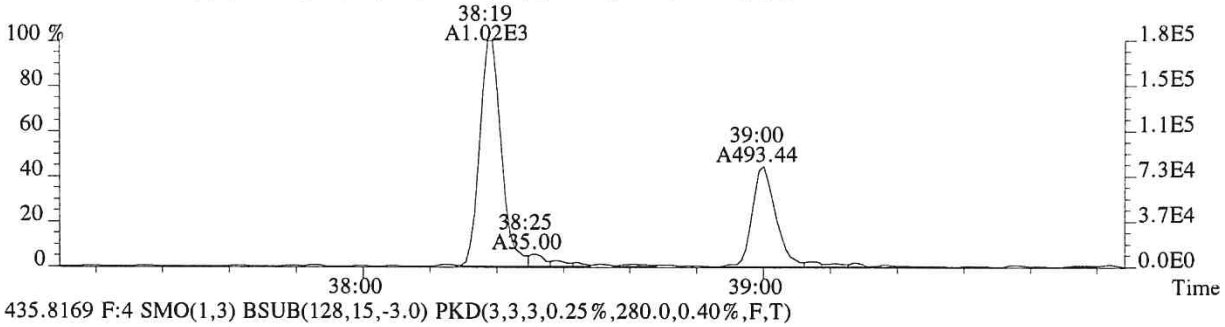


015295

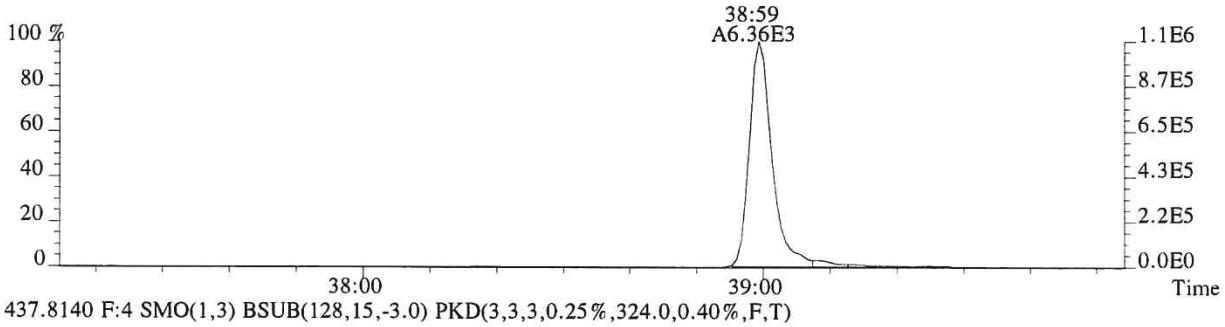
File:P519473 #1-240 Acq:18-DEC-2018 21:30:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-005
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,252.0,0.40%,F,T)



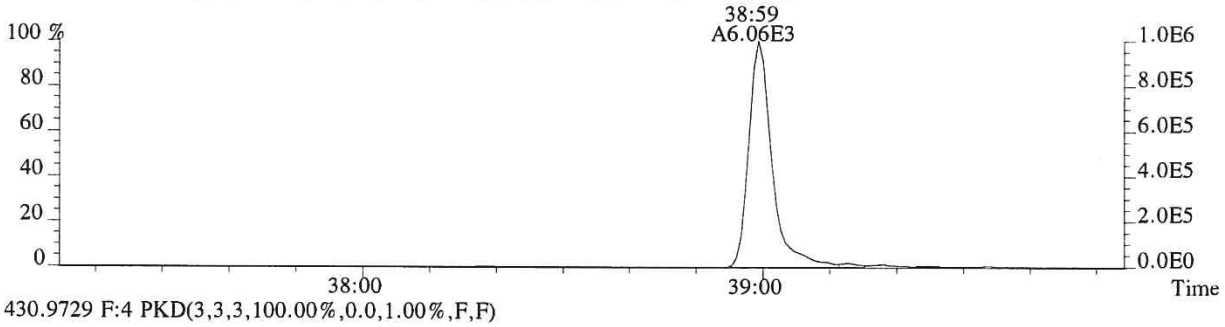
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,724.0,0.40%,F,T)



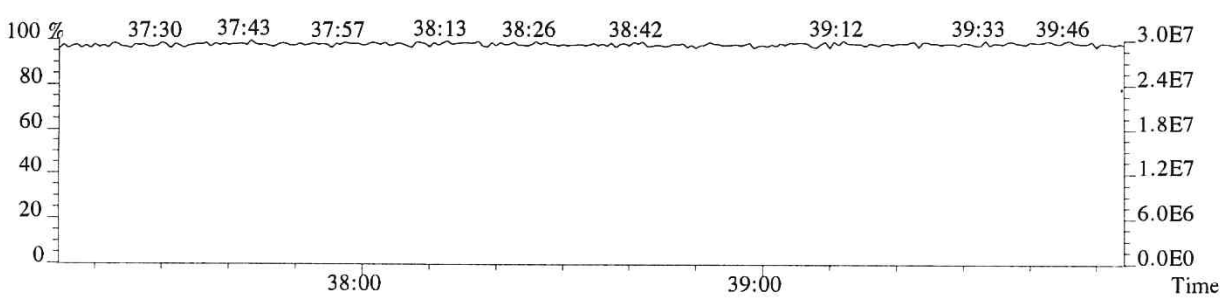
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,280.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,324.0,0.40%,F,T)



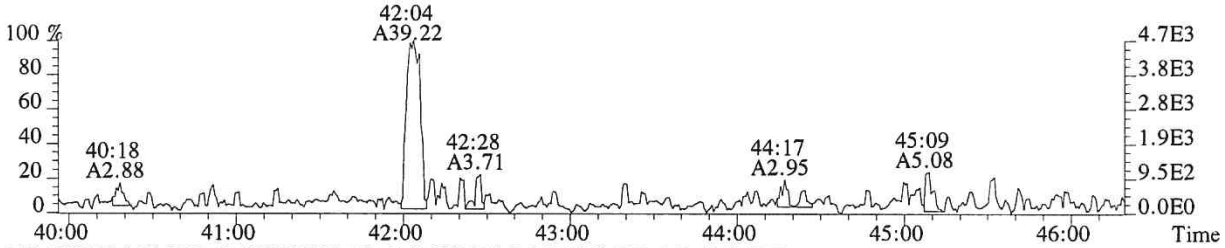
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



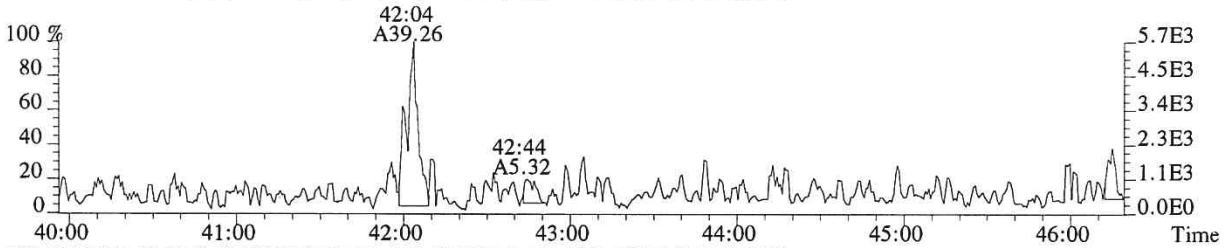
015296

File:P519473 #1-575 Acq:18-DEC-2018 21:30:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-005

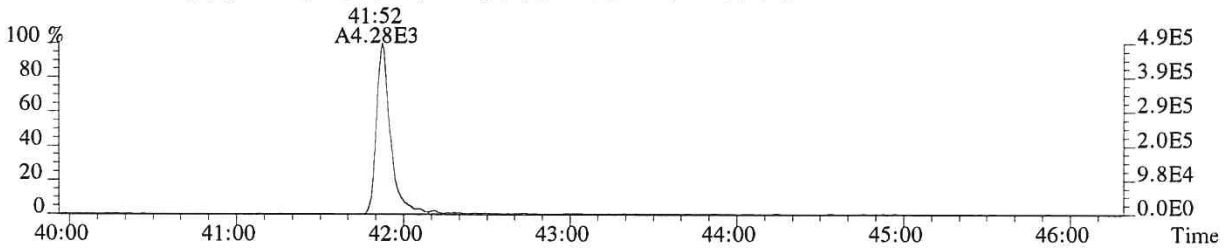
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,324.0,0.40%,F,T)



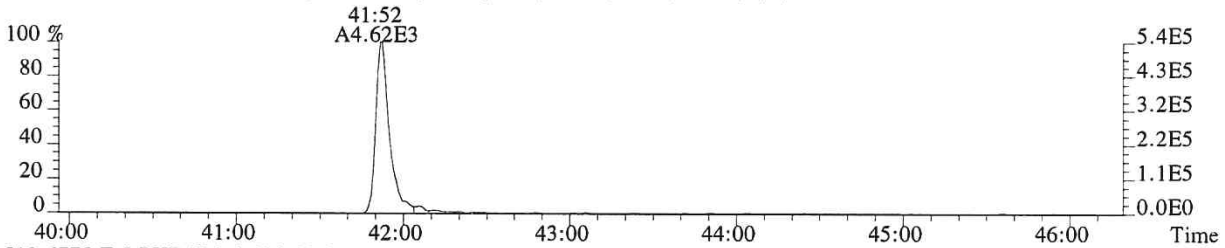
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,712.0,0.40%,F,T)



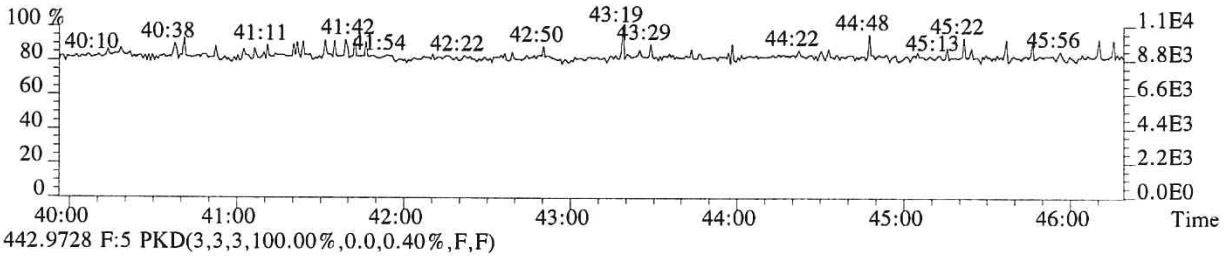
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,372.0,0.40%,F,T)



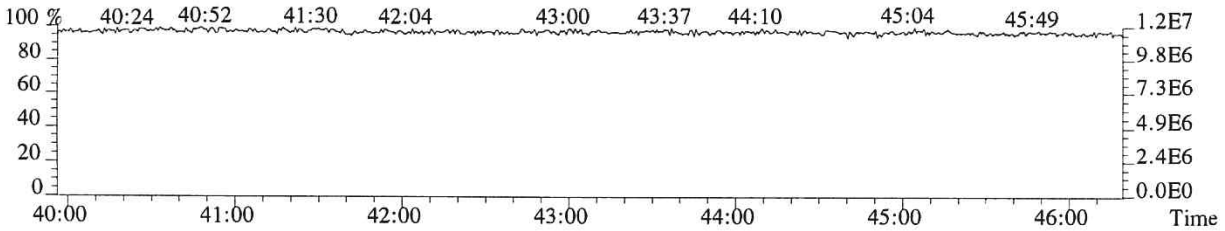
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,384.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

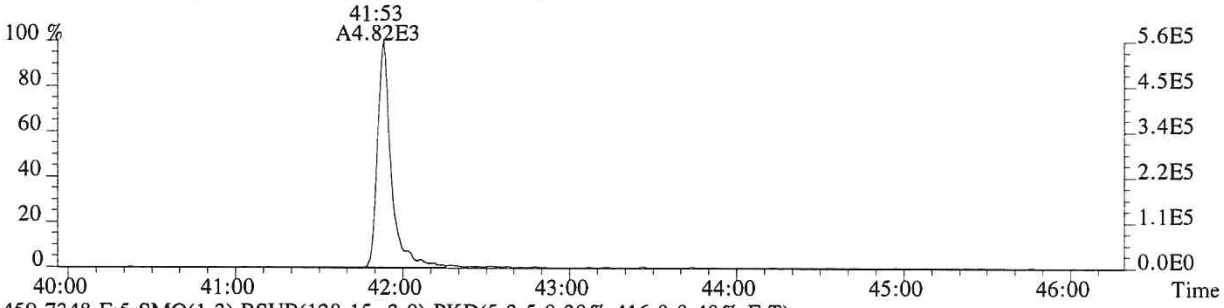


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

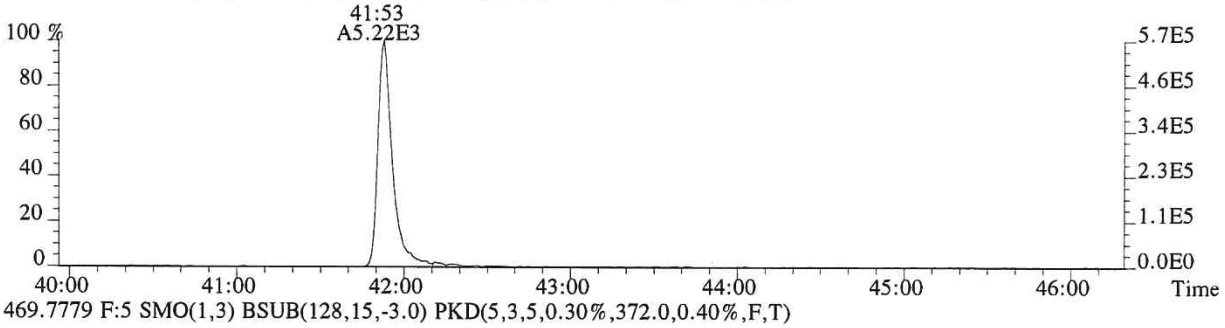


015297

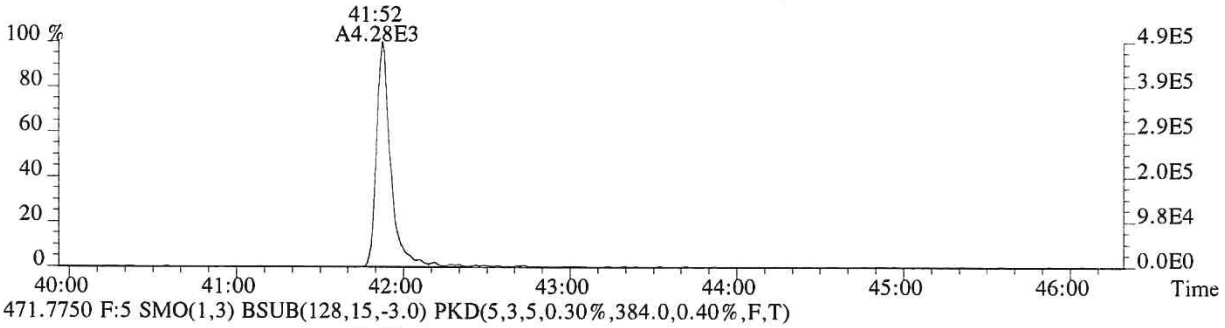
File:P519473 #1-575 Acq:18-DEC-2018 21:30:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-005
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,320.0,0.40%,F,T)



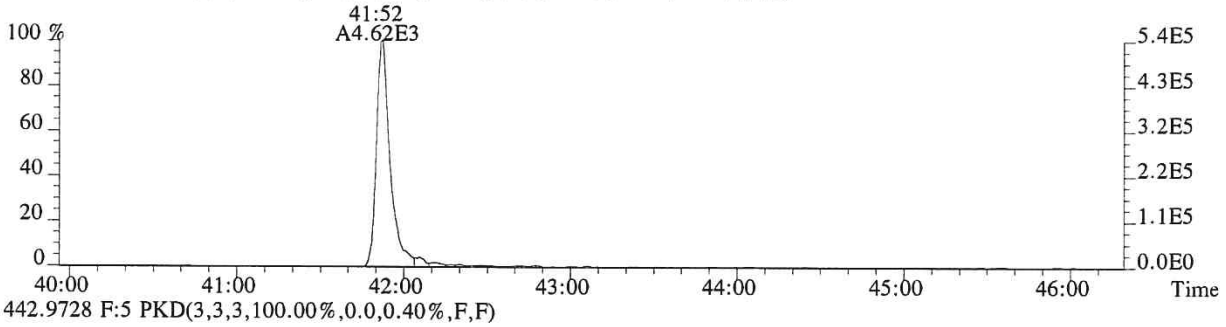
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,416.0,0.40%,F,T)



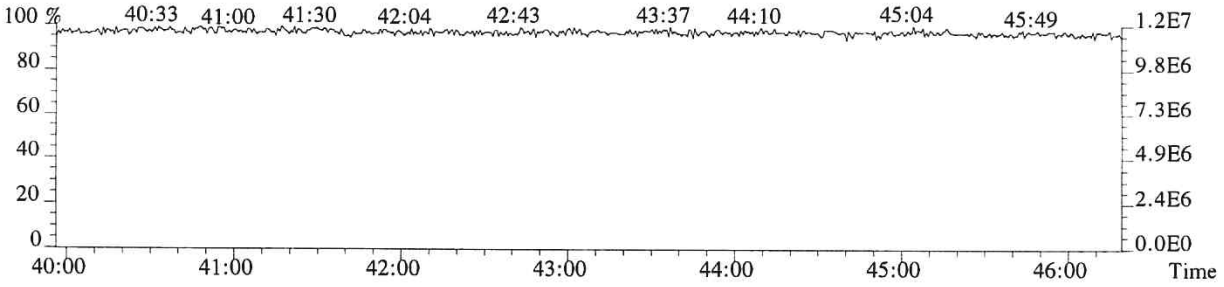
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,372.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,384.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0035

Run #15 Filename P519474 Samp: 1 Inj: 1 Acquired: 18-DEC-18 22:18:58
Processed: 19-DEC-18 15:23:16 Sample ID: E1801094-006

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:49	5.193e+02	7.500e+02	0.69	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	31:26	1.742e+02	1.071e+02	1.63	yes	yes	1.012
3	Unk	2,3,4,7,8-PeCDF	32:19	1.353e+02	6.296e+01	2.15	no	yes	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:15	3.940e+02	3.212e+02	1.23	yes	yes	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:22	7.797e+02	6.277e+02	1.24	yes	yes	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:54	4.045e+02	3.244e+02	1.25	yes	yes	1.110
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	yes	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:03	2.906e+03	2.807e+03	1.04	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:27	1.330e+02	1.465e+02	0.91	yes	no	1.258
10	Unk	OCDF	42:04	1.618e+03	1.854e+03	0.87	yes	no	1.359
11	Unk	2,3,7,8-TCDD	27:42	1.306e+02	1.526e+02	0.86	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	32:43	9.860e+01	6.158e+01	1.60	yes	yes	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:03	2.927e+02	2.430e+02	1.20	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:08	5.907e+02	4.524e+02	1.31	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:23	2.751e+02	1.871e+02	1.47	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:00	8.947e+03	8.436e+03	1.06	yes	no	1.025
17	Unk	OCDD	41:54	5.994e+04	6.580e+04	0.91	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	26:47	3.246e+03	3.827e+03	0.85	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	31:25	5.299e+03	3.378e+03	1.57	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	32:22	2.189e+03	1.460e+03	1.50	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:14	1.935e+03	3.757e+03	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:21	2.448e+03	4.562e+03	0.54	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:53	2.020e+03	3.942e+03	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	36:40	1.612e+03	3.031e+03	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:02	1.238e+03	2.790e+03	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:27	9.680e+02	2.074e+03	0.47	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	27:41	1.393e+03	1.975e+03	0.71	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:42	3.748e+03	2.323e+03	1.61	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:02	2.760e+03	2.106e+03	1.31	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:08	2.647e+03	2.125e+03	1.25	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:59	2.332e+03	2.179e+03	1.07	yes	no	0.858
32	IS	13C-OCDD	41:52	1.622e+03	1.796e+03	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:03	1.079e+04	1.344e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:22	1.142e+04	9.009e+03	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:42	2.155e+03				no	1.014

$$OCDD = \frac{(5.994e+04 + 6.580e+04) \times 4000\ pg \times 1}{(1.622e+03 + 1.796e+03) \times 10.542\ g \times 79.9 / 100 \times 1.118} = 152\ pg/kg$$

ks 12/20/18

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0035

Run #15 Filename P519474 Samp: 1 Inj: 1 Acquired: 18-DEC-18 22:18:58
Processed: 19-DEC-18 15:23:16 LAB. ID: E1801094-006

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	8.15e+04	1.63e+03	5.0e+01	1.09e+05	2.44e+03	4.5e+01
2	1,2,3,7,8-PeCDF	3.36e+04	2.55e+03	1.3e+01	1.72e+04	2.56e+03	6.7e+00
3	2,3,4,7,8-PeCDF	2.60e+04	2.55e+03	1.0e+01	8.87e+03	2.56e+03	3.5e+00
4	1,2,3,4,7,8-HxCDF	8.39e+04	2.40e+03	3.5e+01	6.57e+04	3.78e+03	1.7e+01
5	1,2,3,6,7,8-HxCDF	1.66e+05	2.40e+03	6.9e+01	1.26e+05	2.78e+03	4.5e+01
6	2,3,4,6,7,8-HxCDF	8.15e+04	2.40e+03	3.4e+01	7.10e+04	3.78e+03	1.9e+01
7	1,2,3,7,8,9-HxCDF	*	2.40e+03	*	*	3.78e+03	*
8	1,2,3,4,6,7,8-HpCDF	5.15e+05	1.66e+03	3.1e+02	5.30e+05	5.44e+02	9.7e+02
9	1,2,3,4,7,8,9-HpCDF	2.58e+04	1.66e+03	1.6e+01	2.21e+04	5.44e+02	4.1e+01
10	OCDF	2.11e+05	4.28e+02	4.9e+02	2.32e+05	8.80e+02	2.6e+02
11	2,3,7,8-TCDD	2.14e+04	1.56e+03	1.4e+01	2.55e+04	5.64e+02	4.5e+01
12	1,2,3,7,8-PeCDD	1.59e+04	1.28e+03	1.2e+01	1.69e+04	7.20e+02	2.3e+01
13	1,2,3,4,7,8-HxCDD	6.01e+04	1.22e+03	4.9e+01	5.27e+04	1.25e+03	4.2e+01
14	1,2,3,6,7,8-HxCDD	1.13e+05	1.22e+03	9.3e+01	8.86e+04	1.25e+03	7.1e+01
15	1,2,3,7,8,9-HxCDD	4.62e+04	1.22e+03	3.8e+01	3.46e+04	1.25e+03	2.8e+01
16	1,2,3,4,6,7,8-HpCDD	1.54e+06	1.80e+02	8.6e+03	1.47e+06	4.80e+02	3.1e+03
17	OCDD	7.19e+06	3.00e+02	2.4e+04	7.94e+06	3.72e+02	2.1e+04
18	13C-2,3,7,8-TCDF	4.84e+05	3.80e+03	1.3e+02	5.92e+05	1.80e+03	3.3e+02
19	13C-1,2,3,7,8-PeCDF	9.41e+05	4.44e+02	2.1e+03	5.79e+05	6.20e+02	9.3e+02
20	13C-2,3,4,7,8-PeCDF	4.60e+05	4.44e+02	1.0e+03	3.26e+05	6.20e+02	5.3e+02
21	13C-1,2,3,4,7,8-HxCDF	3.86e+05	2.96e+02	1.3e+03	7.70e+05	2.40e+02	3.2e+03
22	13C-1,2,3,6,7,8-HxCDF	4.77e+05	2.96e+02	1.6e+03	8.63e+05	2.40e+02	3.6e+03
23	13C-2,3,4,6,7,8-HxCDF	3.92e+05	2.96e+02	1.3e+03	7.92e+05	2.40e+02	3.3e+03
24	13C-1,2,3,7,8,9-HxCDF	3.01e+05	2.96e+02	1.0e+03	5.57e+05	2.40e+02	2.3e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.33e+05	7.28e+02	3.2e+02	5.10e+05	1.68e+03	3.0e+02
26	13C-1,2,3,4,7,8,9-HpCDF	1.63e+05	7.28e+02	2.2e+02	3.19e+05	1.68e+03	1.9e+02
27	13C-2,3,7,8-TCDD	2.34e+05	4.78e+03	4.9e+01	3.42e+05	3.45e+03	9.9e+01
28	13C-1,2,3,7,8-PeCDD	6.65e+05	6.36e+02	1.0e+03	4.16e+05	1.07e+03	3.9e+02
29	13C-1,2,3,4,7,8-HxCDD	5.84e+05	5.68e+02	1.0e+03	4.43e+05	6.84e+02	6.5e+02
30	13C-1,2,3,6,7,8-HxCDD	4.97e+05	5.68e+02	8.7e+02	4.08e+05	6.84e+02	6.0e+02
31	13C-1,2,3,4,6,7,8-HpCDD	4.06e+05	6.00e+02	6.8e+02	3.85e+05	4.56e+02	8.4e+02
32	13C-OCDD	1.95e+05	3.40e+02	5.7e+02	2.16e+05	3.64e+02	5.9e+02
33	13C-1,2,3,4-TCDD	1.86e+06	4.78e+03	3.9e+02	2.28e+06	3.45e+03	6.6e+02
34	13C-1,2,3,7,8,9-HxCDD	2.18e+06	5.68e+02	3.8e+03	1.77e+06	6.84e+02	2.6e+03
35	37Cl-2,3,7,8-TCDD	3.64e+05	8.28e+02	4.4e+02			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.556e{+}03 + 5.640e{+}02) \times 2000}{(2.340e{+}05 + 3.423e{+}05) \times (\qquad) \times 1.085} =$$

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Peak List Summary

CLIENT ID.
SL0035

Entry: 36 Totals Name: Total Tetra-Furans

Run: 15 File: P519474 Sample:1 Injection:1 Function:1

Acquired: 18-DEC-18 22:18:58 Processed: 19-DEC-18 15:23:16

Mass: 303.9020 305.8990 Tot Response: 4.21e+03 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	22:37	8.63e+01	1.26e+02	0.68	yes	2.13e+02		y	y
2	23:07	3.63e+02	4.88e+02	0.74	yes	8.52e+02		n	n
3	24:17	1.14e+02	1.55e+02	0.73	yes	2.69e+02		n	y
4	24:36	3.26e+01	4.62e+01	0.71	yes	7.87e+01		y	y
5	25:14	2.54e+02	3.67e+02	0.69	yes	6.21e+02		n	y
6	25:52	2.27e+02	3.03e+02	0.75	yes	5.30e+02		n	n
7	26:36	2.17e+01	2.60e+01	0.84	yes	4.77e+01		y	y
8	26:49	5.19e+02	7.50e+02	0.69	yes	1.27e+03	2,3,7,8-TCDF	y	y
9	28:17	1.40e+02	1.91e+02	0.73	yes	3.31e+02		y	n

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Peak List Summary

CLIENT ID.
SL0035

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 15 File: P519474 Sample:1 Injection:1 Function:1

Acquired: 18-DEC-18 22:18:58 Processed: 19-DEC-18 15:23:16

Mass: 319.8970 321.8940 Tot Response: 3.14e+02 RRF: 1.085

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	27:02	1.23e+01	1.88e+01 0.65	yes	3.12e+01		n	n
2	27:42	1.31e+02	1.53e+02 0.86	yes	2.83e+02	2,3,7,8-TCDD	n	n

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Peak List Summary

CLIENT ID.
SL0035

Entry: 38 Totals Name: Total Penta-Furans1

Run: 15 File: P519474 Sample:1 Injection:1 Function:1

Acquired: 18-DEC-18 22:18:58 Processed: 19-DEC-18 15:23:16

Mass: 339.8600 341.8570 Tot Response: 5.34e+03 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	28:51	3.32e+03	2.02e+03 1.64	yes	5.34e+03		n	n

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Peak List Summary

CLIENT ID.
SL0035

Entry: 39 Totals Name: Total Penta-Furans2

Run: 15 File: P519474 Sample:1 Injection:1 Function:2

Acquired: 18-DEC-18 22:18:58 Processed: 19-DEC-18 15:23:16

Mass: 339.8600 341.8570 Tot Response: 6.07e+03 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:18	3.11e+02	2.17e+02 1.44	yes	5.28e+02		n	n
2	30:27	1.75e+03	1.21e+03 1.45	yes	2.97e+03		n	n
3	30:51	8.53e+01	5.03e+01 1.70	yes	1.36e+02		n	n
4	31:01	6.54e+02	4.13e+02 1.58	yes	1.07e+03		n	n
5	31:17	9.30e+01	7.01e+01 1.33	yes	1.63e+02		n	n
6	31:26	1.74e+02	1.07e+02 1.63	yes	2.81e+02	1,2,3,7,8-PeCDF	n	n
7	31:55	8.18e+01	5.60e+01 1.46	yes	1.38e+02		n	n
8	32:27	3.05e+02	2.23e+02 1.37	yes	5.28e+02		y	y
9	33:13	1.49e+02	1.09e+02 1.36	yes	2.58e+02		n	n

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Peak List Summary

CLIENT ID.
SL0035

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 15 File: P519474 Sample:1 Injection:1 Function:2

Acquired: 18-DEC-18 22:18:58 Processed: 19-DEC-18 15:23:16

Mass: 355.8550 357.8520 Tot Response: 6.90e+02 RRF: 0.9565

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:27	2.86e+01	1.68e+01	1.70	yes	4.54e+01		n	n
2	31:38	1.98e+02	1.50e+02	1.32	yes	3.48e+02		n	n
3	31:57	8.43e+01	5.29e+01	1.59	yes	1.37e+02		n	n
4	32:43	9.86e+01	6.16e+01	1.60	yes	1.60e+02	1,2,3,7,8-PeCDD	n	y

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Peak List Summary

CLIENT ID.
SL0035

Entry: 41 Totals Name: Total Hexa-Furans

Run: 15 File: P519474 Sample:1 Injection:1 Function:3

Acquired: 18-DEC-18 22:18:58 Processed: 19-DEC-18 15:23:16

Mass: 373.8210 375.8180 Tot Response: 1.46e+04 RRF: 1.141

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:05	6.31e+02	5.11e+02	1.23	yes	1.14e+03		n	n
2	34:15	2.94e+03	2.43e+03	1.21	yes	5.37e+03		n	n
3	34:48	2.44e+03	2.05e+03	1.19	yes	4.49e+03		n	n
4	34:58	3.76e+02	3.17e+02	1.19	yes	6.94e+02		n	n
5	35:15	3.94e+02	3.21e+02	1.23	yes	7.15e+02	1,2,3,4,7,8-HxCDF	n	n
6	35:22	7.80e+02	6.28e+02	1.24	yes	1.41e+03	1,2,3,6,7,8-HxCDF	n	n
7	35:54	4.04e+02	3.24e+02	1.25	yes	7.29e+02	2,3,4,6,7,8-HxCDF	n	n

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Peak List Summary

CLIENT ID.
SL0035

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 15 File: P519474 Sample:1 Injection:1 Function:3

Acquired: 18-DEC-18 22:18:58 Processed: 19-DEC-18 15:23:16

Mass: 389.8160 391.8130 Tot Response: 7.68e+03 RRF: 1.047

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:38	1.33e+03	1.07e+03 1.25	yes	2.40e+03		n	n
2	35:12	1.70e+02	1.27e+02 1.33	yes	2.97e+02		n	n
3	35:26	1.80e+03	1.61e+03 1.12	yes	3.40e+03		n	n
4	36:03	2.93e+02	2.43e+02 1.20	yes	5.36e+02	1,2,3,4,7,8-HxCDD	n	n
5	36:08	5.91e+02	4.52e+02 1.31	yes	1.04e+03	1,2,3,6,7,8-HxCDD	n	n

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Peak List Summary

CLIENT ID.
SL0035

Entry: 43 Totals Name: Total Hepta-Furans

Run: 15 File: P519474 Sample:1 Injection:1 Function:4

Acquired: 18-DEC-18 22:18:58 Processed: 19-DEC-18 15:23:16

Mass: 407.7820 409.7790 Tot Response: 1.40e+04 RRF: 1.308

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:03	2.91e+03	2.81e+03	1.04	yes	5.71e+03	1,2,3,4,6,7,8-HpCDF	n	n
2	38:27	3.96e+03	3.86e+03	1.03	yes	7.82e+03		n	n
3	38:40	1.08e+02	1.05e+02	1.02	yes	2.13e+02		n	n
4	39:27	1.33e+02	1.47e+02	0.91	yes	2.80e+02	1,2,3,4,7,8,9-HpCDF	n	n

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SL0035

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 15 File: P519474 Sample:1 Injection:1 Function:4

Acquired: 18-DEC-18 22:18:58 Processed: 19-DEC-18 15:23:16

Mass: 423.7770 425.7740 Tot Response: 4.07e+04 RRF: 1.025

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:19	1.20e+04	1.13e+04	1.07	yes	2.33e+04		n	n
2	39:00	8.95e+03	8.44e+03	1.06	yes	1.74e+04	1,2,3,4,6,7,8-HpCDD	n	n

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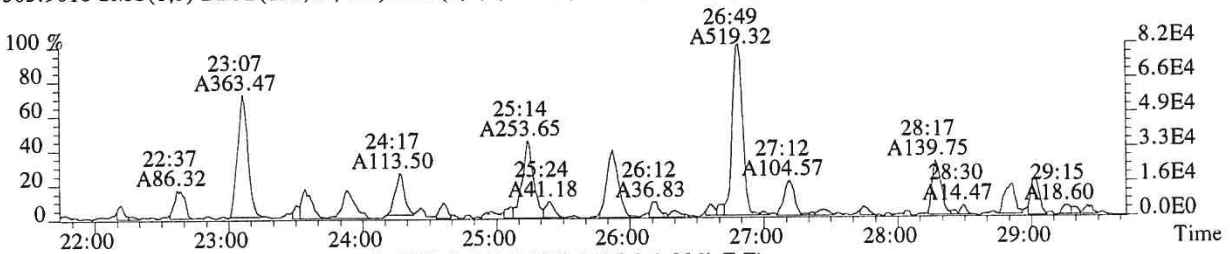
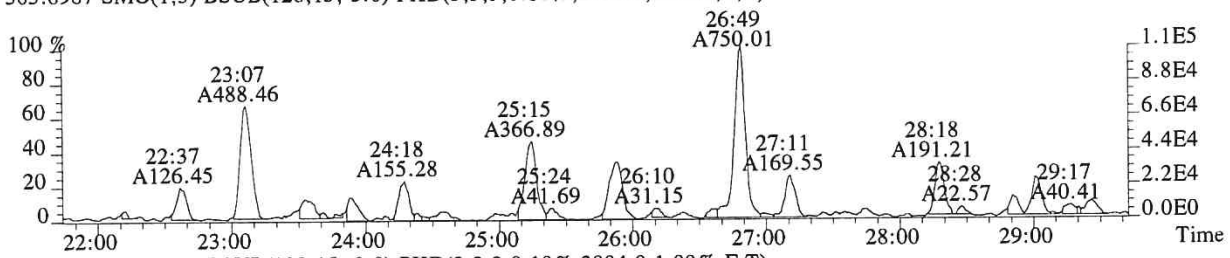
File:P519474 #1-566 Acq:18-DEC-2018 22:18:58 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:E1801094-006

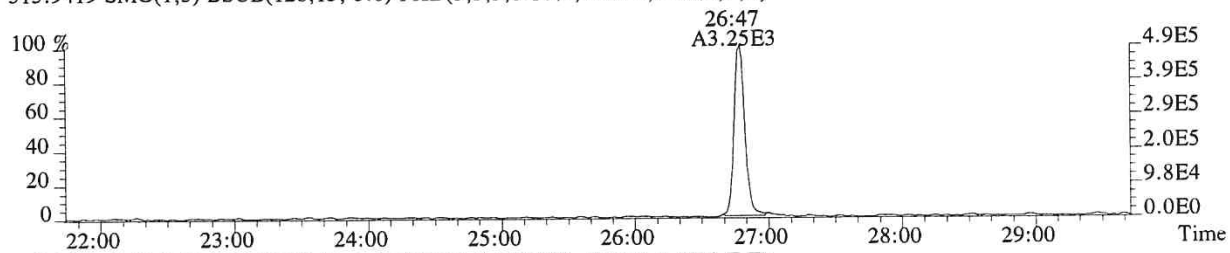
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1632.0,1.00%,F,T)



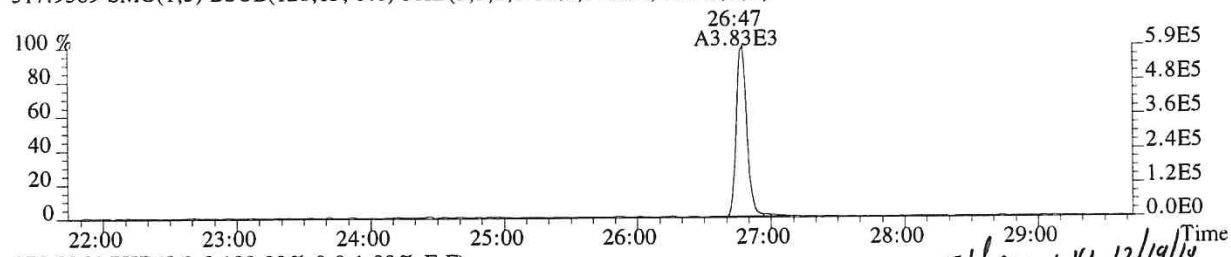
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2436.0,1.00%,F,T)



315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3804.0,1.00%,F,T)

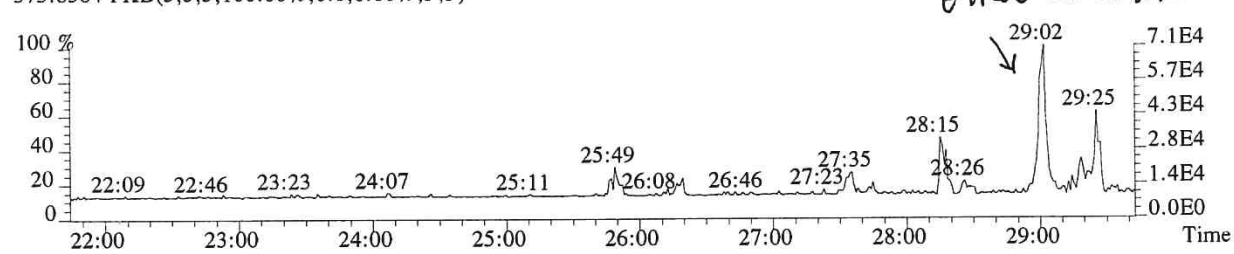


317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1796.0,1.00%,F,T)

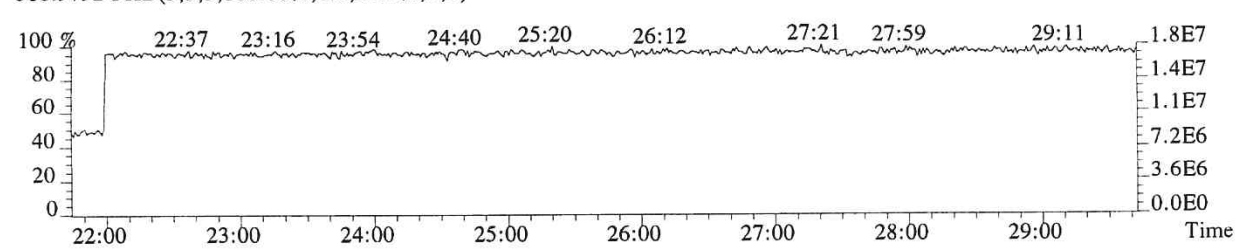


375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

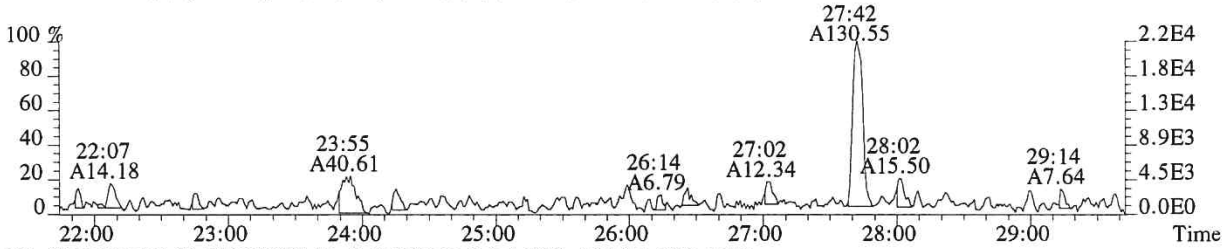
Ether LM 12/19/18



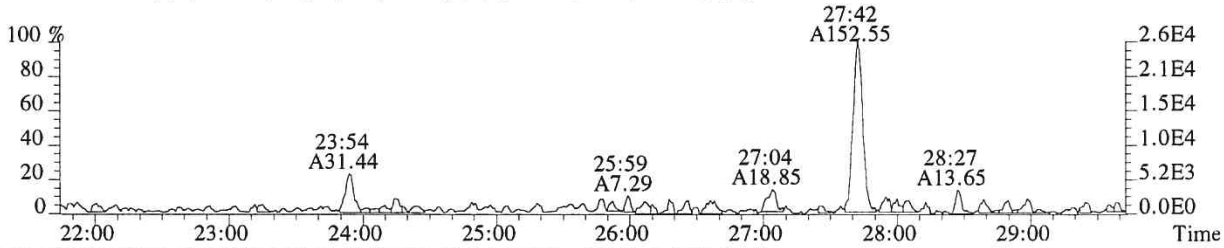
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



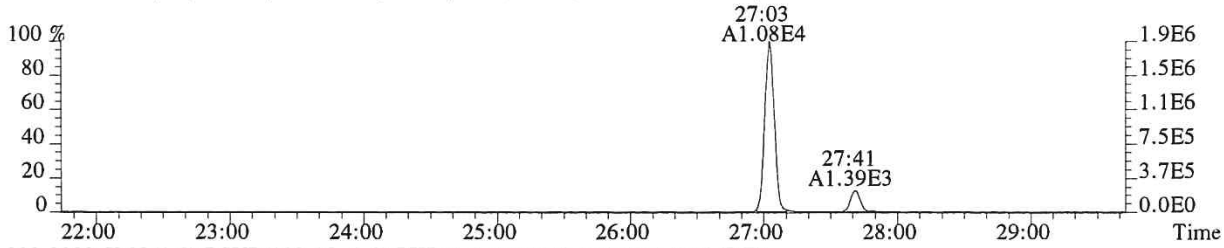
File:P519474 #1-566 Acq:18-DEC-2018 22:18:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-006
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1556.0,1.00%,F,T)



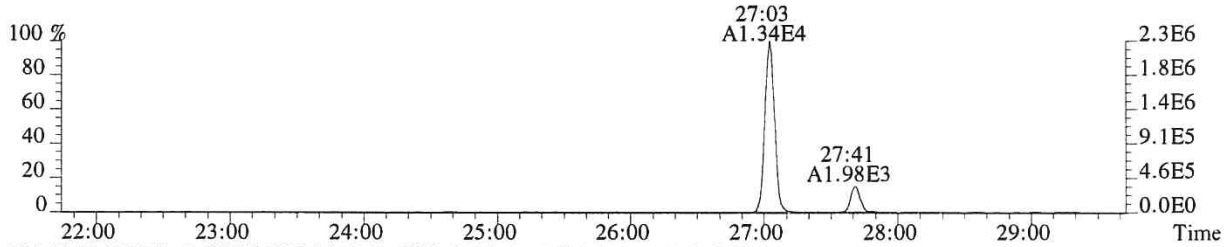
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,564.0,1.00%,F,T)



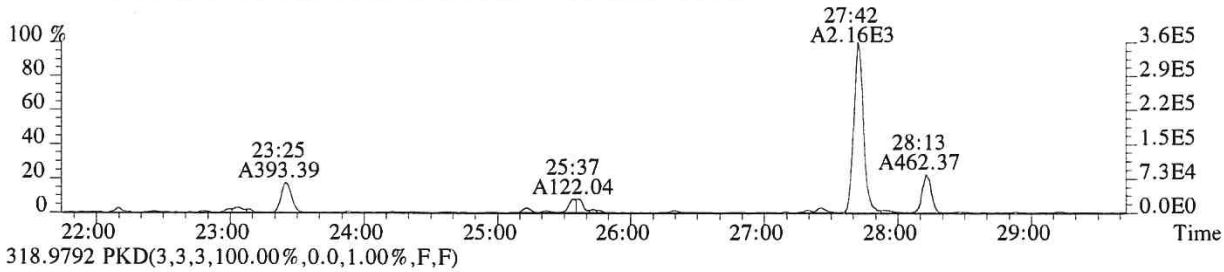
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4776.0,1.00%,F,T)



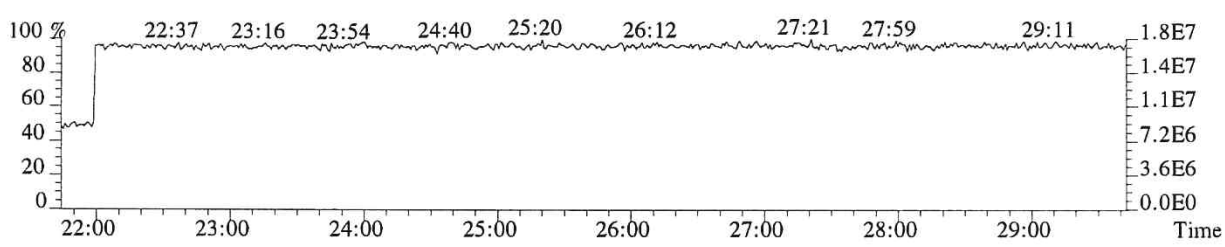
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3448.0,1.00%,F,T)



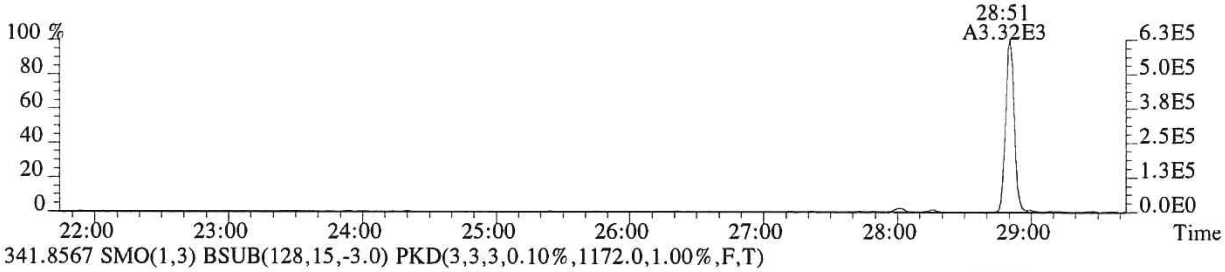
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,828.0,1.00%,F,T)



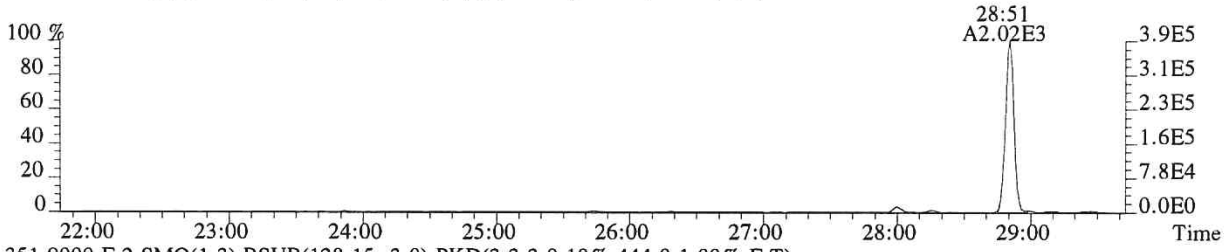
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



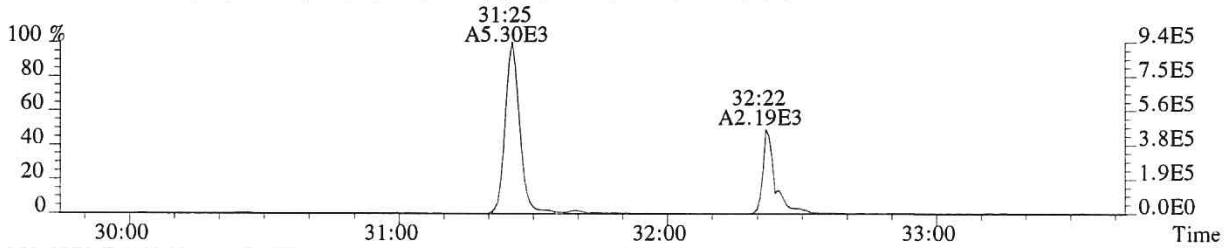
File:P519474 #1-566 Acq:18-DEC-2018 22:18:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-006
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,764.0,1.00%,F,T)



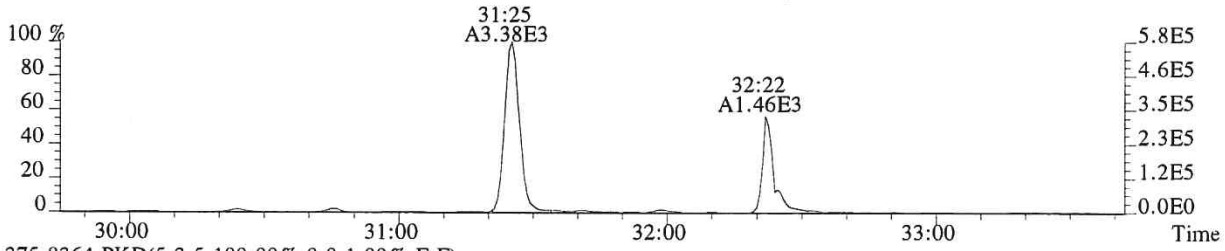
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1172.0,1.00%,F,T)



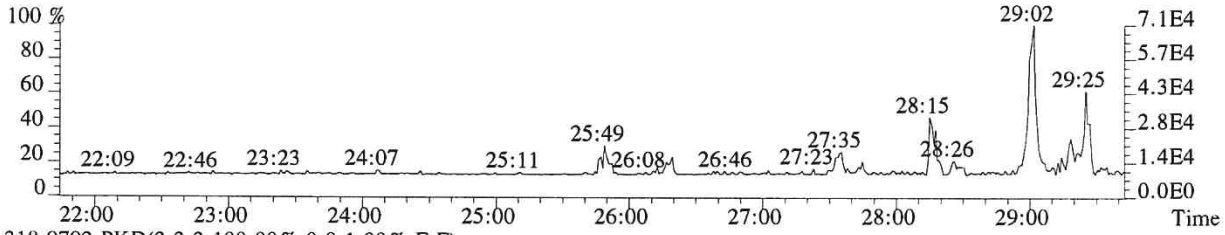
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,444.0,1.00%,F,T)



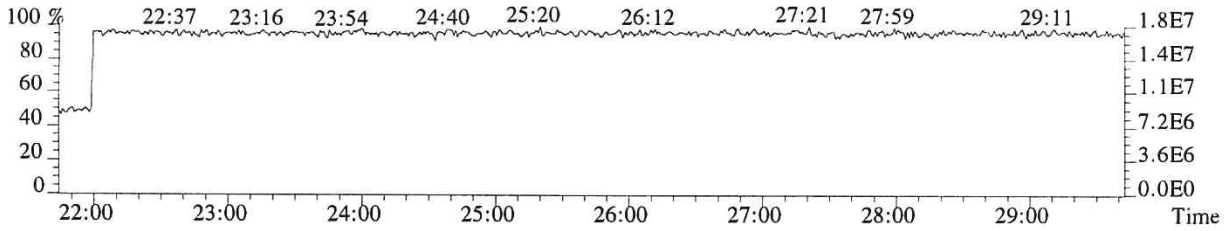
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,620.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

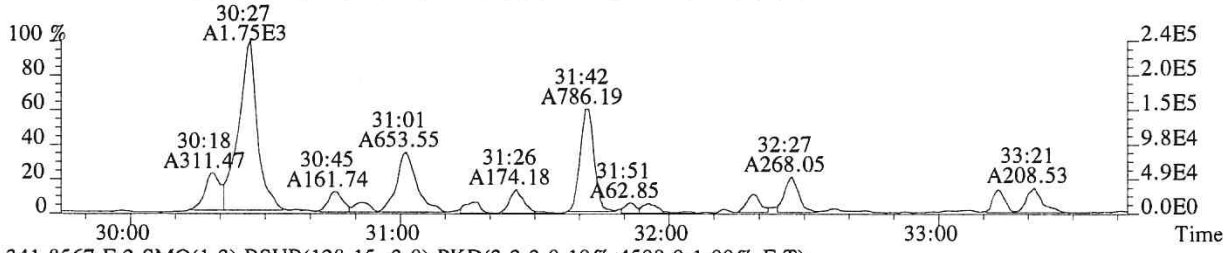


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

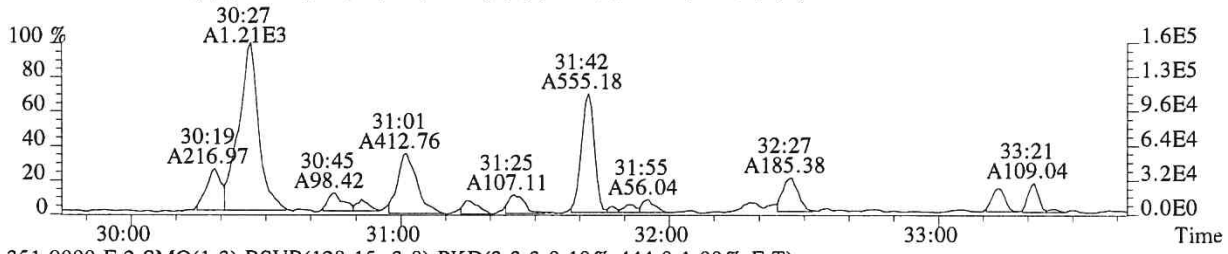


File:P519474 #1-357 Acq:18-DEC-2018 22:18:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-006

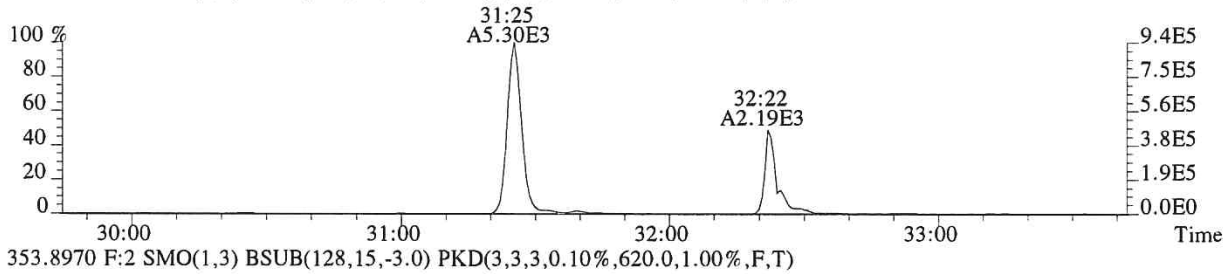
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3188.0,1.00%,F,T)



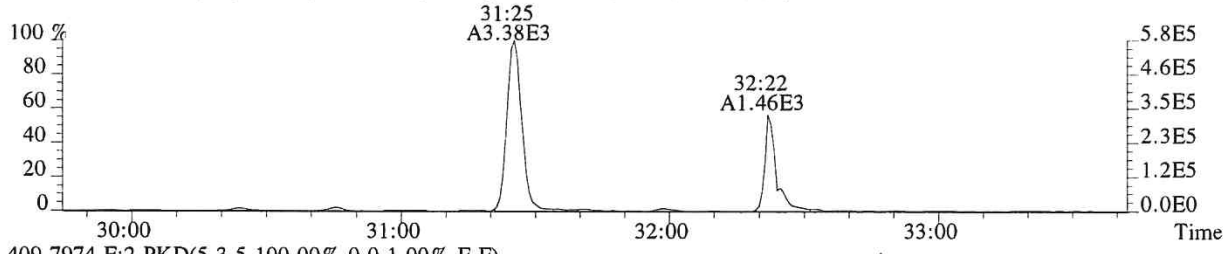
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4508.0,1.00%,F,T)



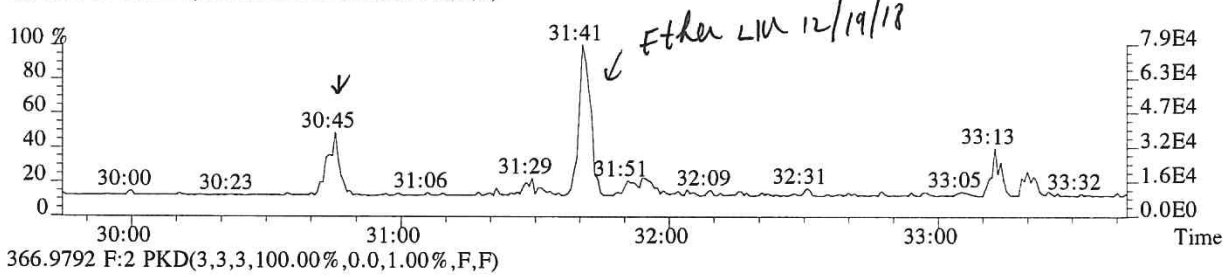
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,444.0,1.00%,F,T)



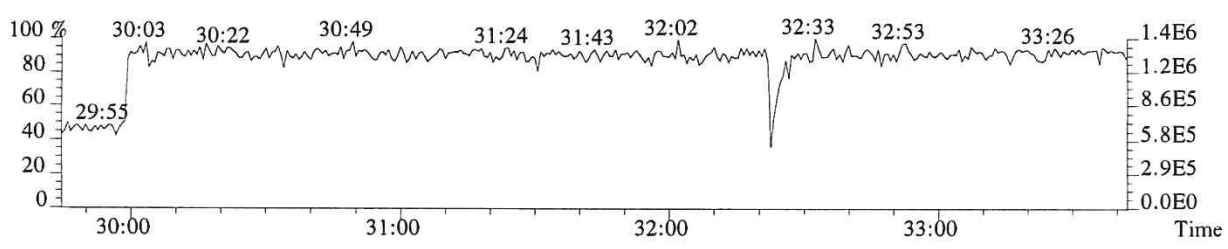
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,620.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

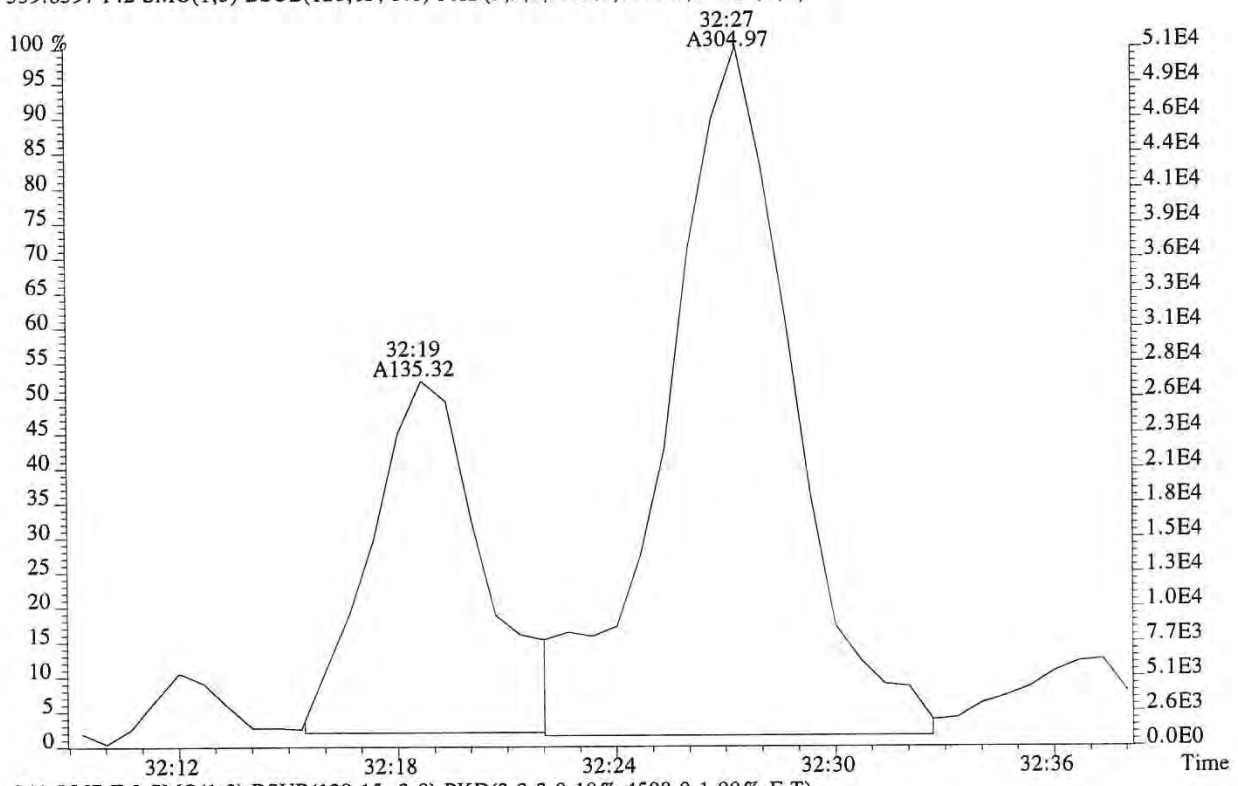


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

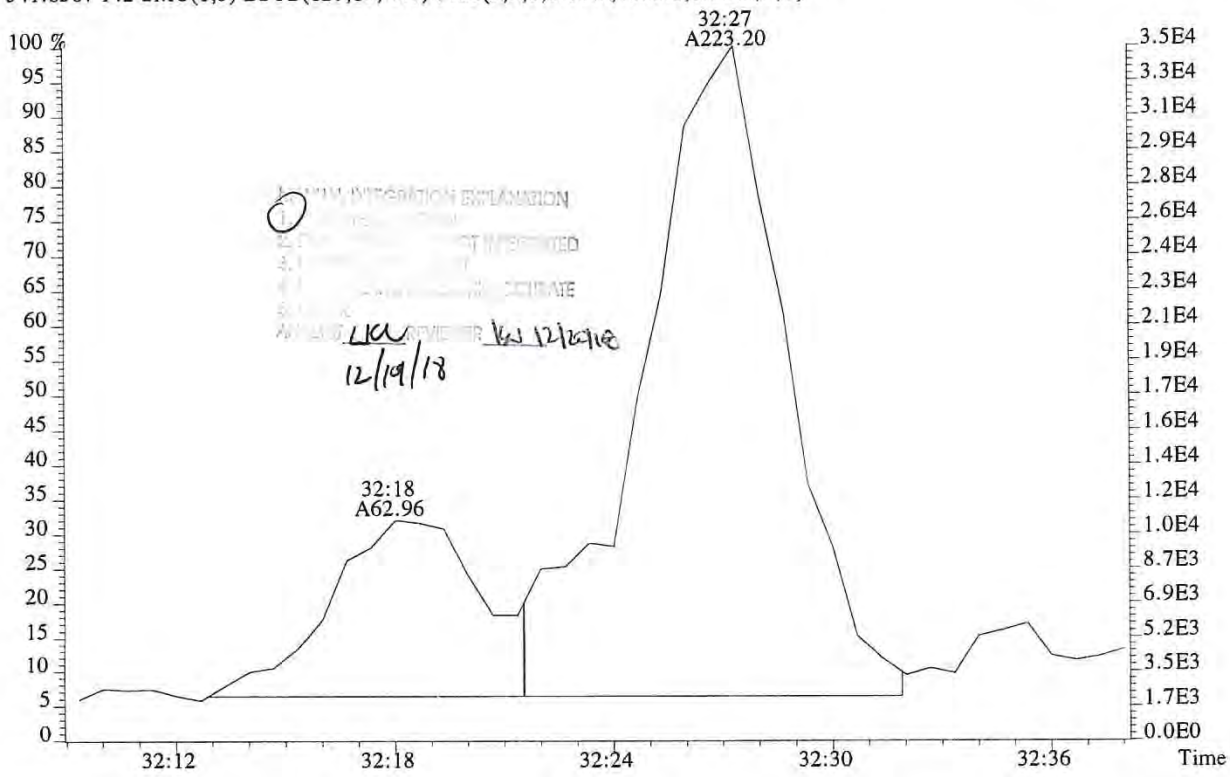


015313

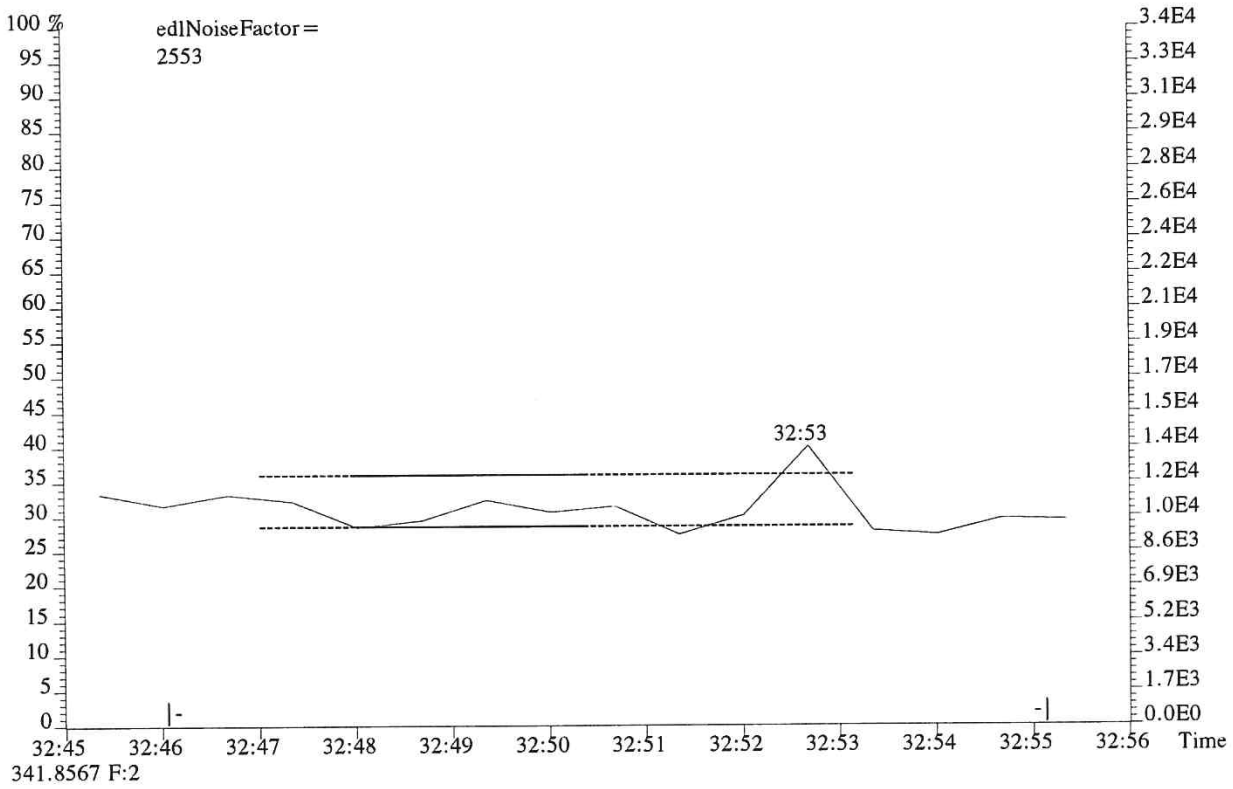
File:P519474 #1-357 Acq:18-DEC-2018 22:18:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-006
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3188.0,1.00%,F,T)



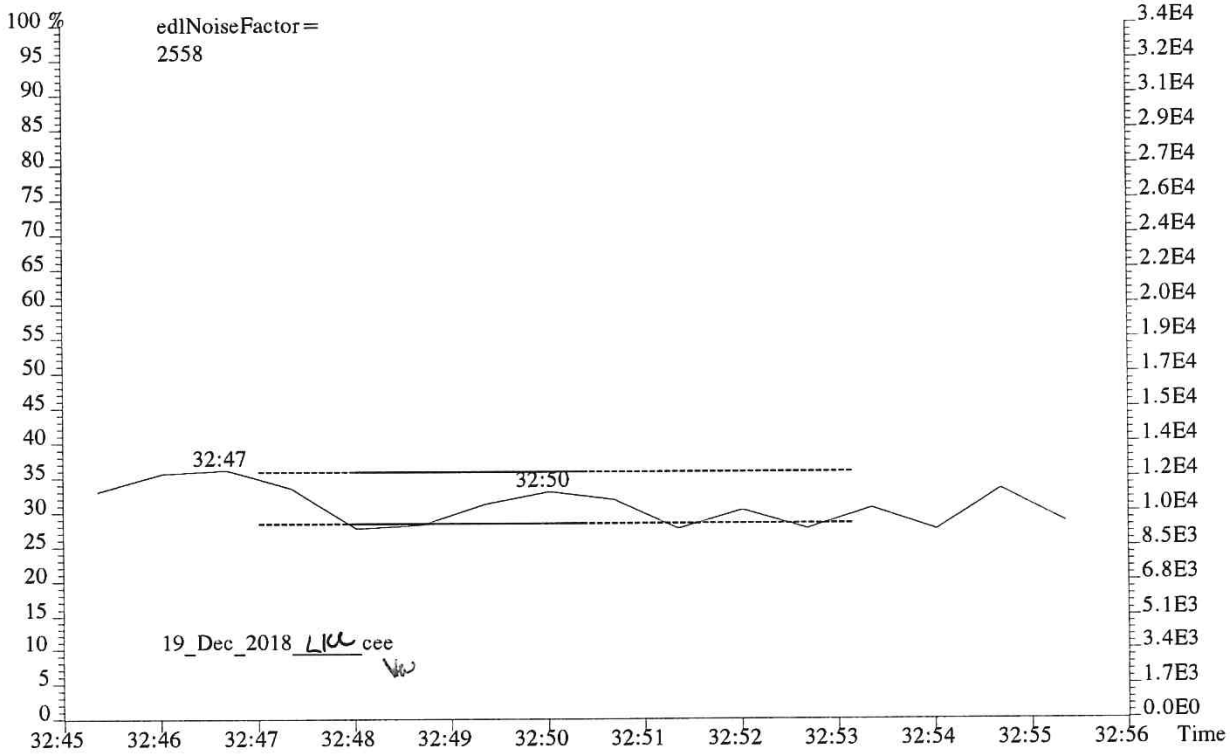
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4508.0,1.00%,F,T)



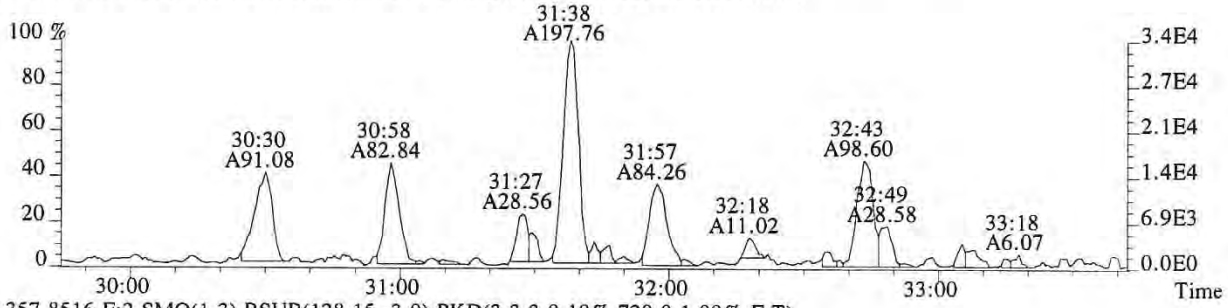
File:P519474 #1-357 Acq:18-DEC-2018 22:18:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-006
339.8597 F:2



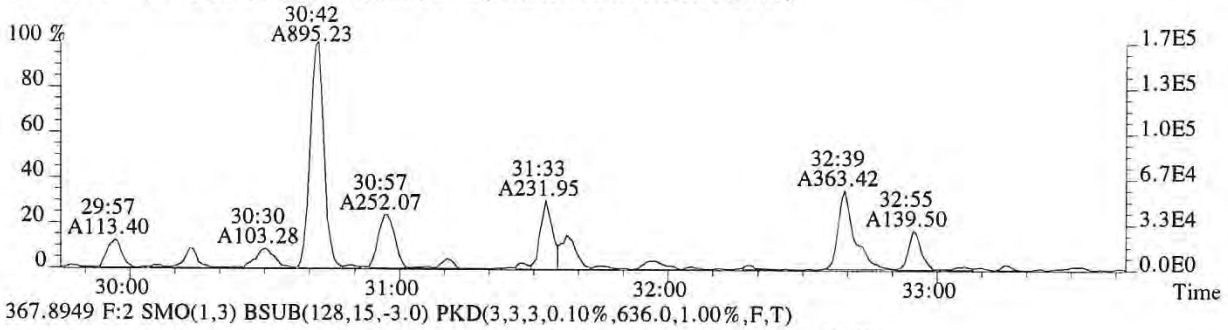
341.8567 F:2



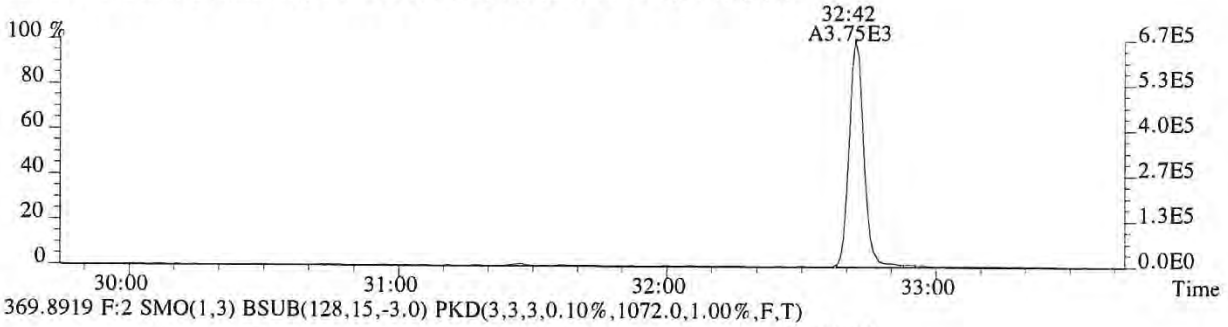
File:P519474 #1-357 Acq:18-DEC-2018 22:18:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-006
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1276.0,1.00%,F,T)



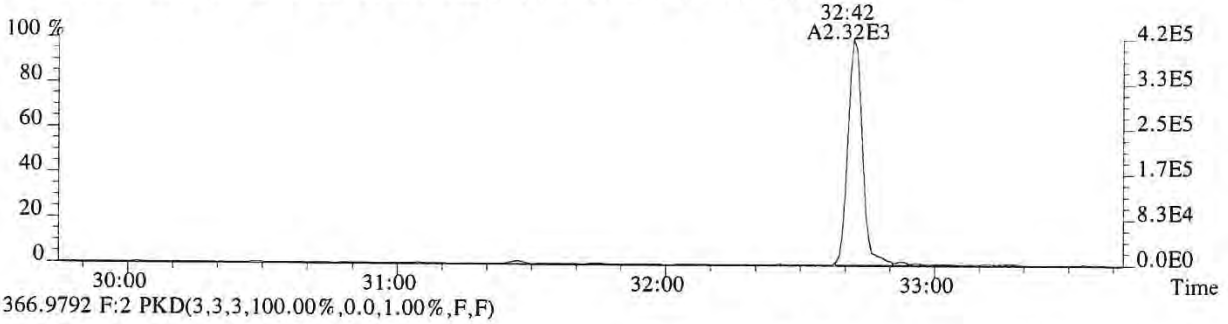
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,720.0,1.00%,F,T)



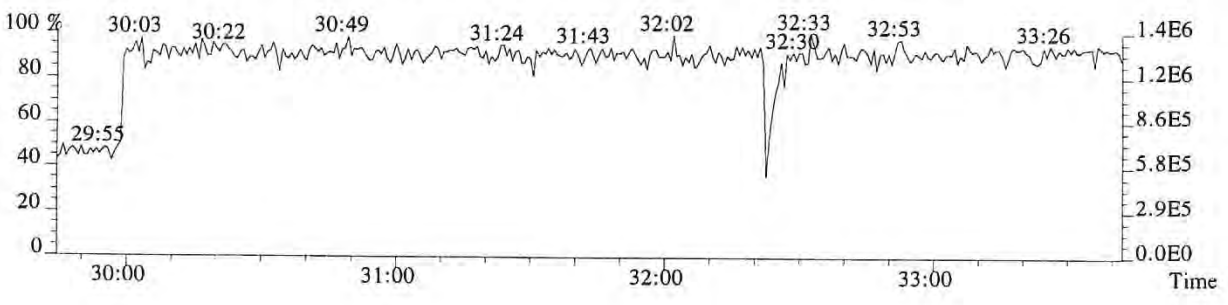
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)



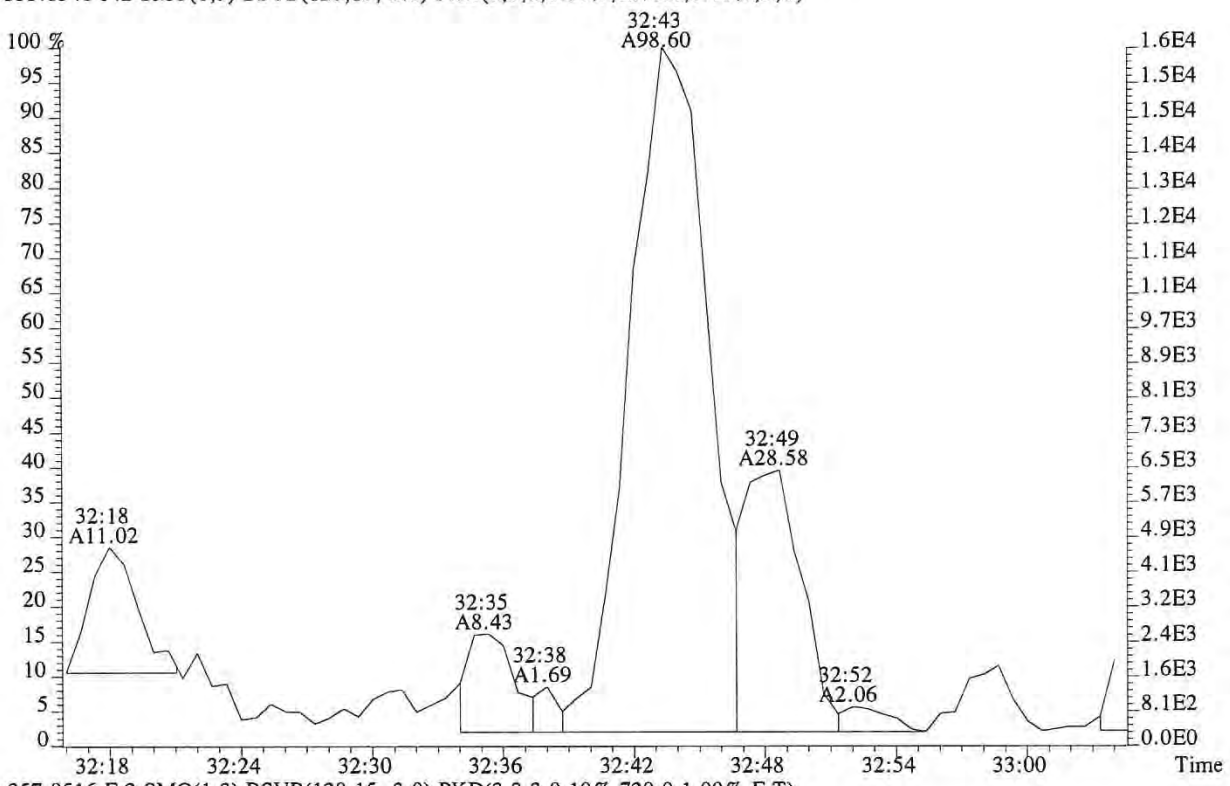
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1072.0,1.00%,F,T)



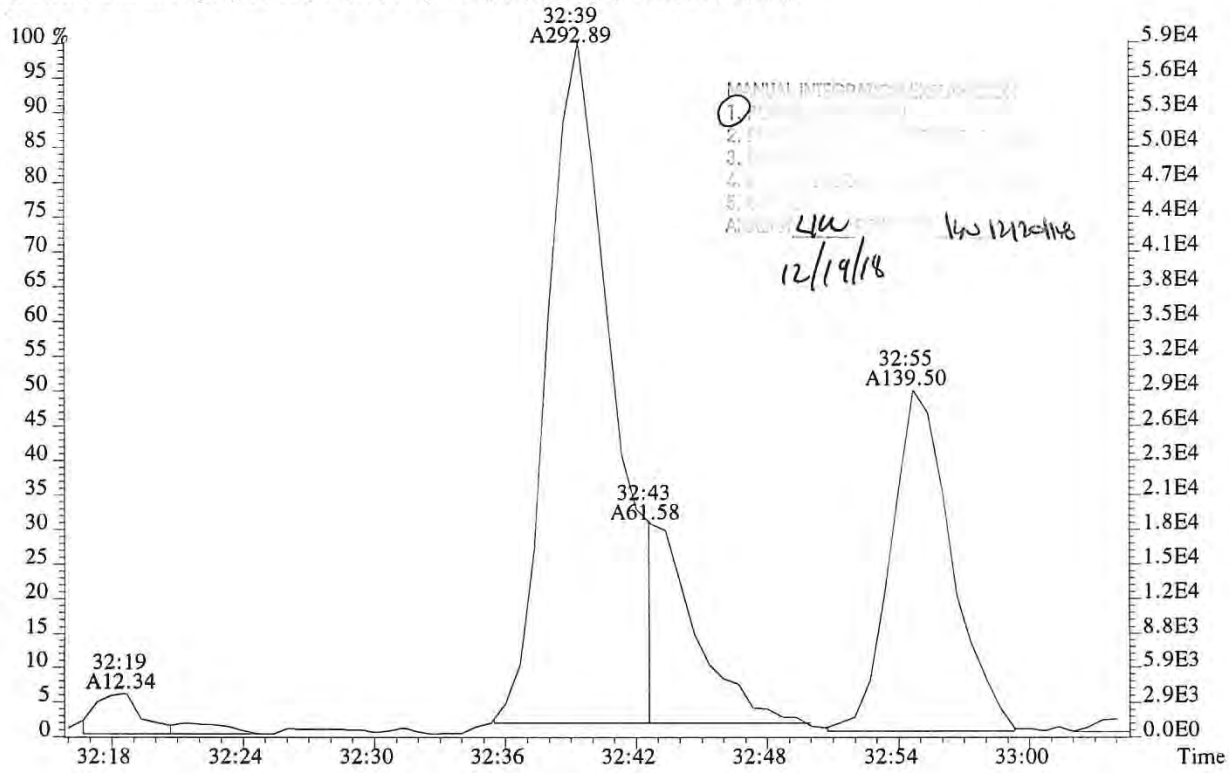
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



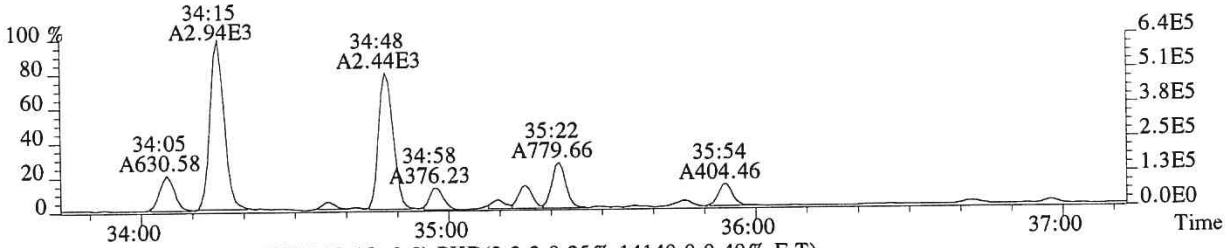
File:P519474 #1-357 Acq:18-DEC-2018 22:18:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-006
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1276.0,1.00%,F,T)



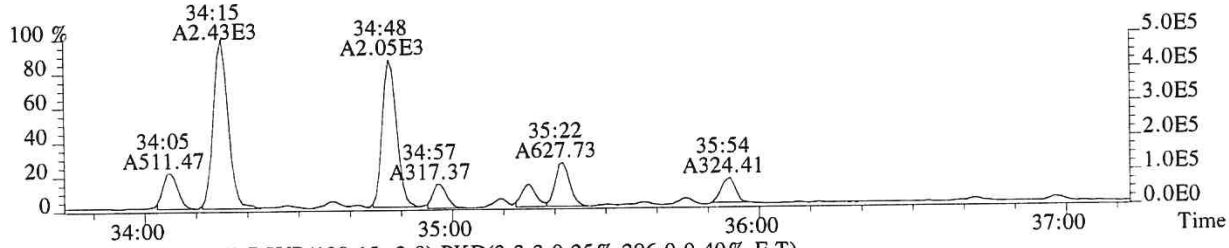
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,720.0,1.00%,F,T)



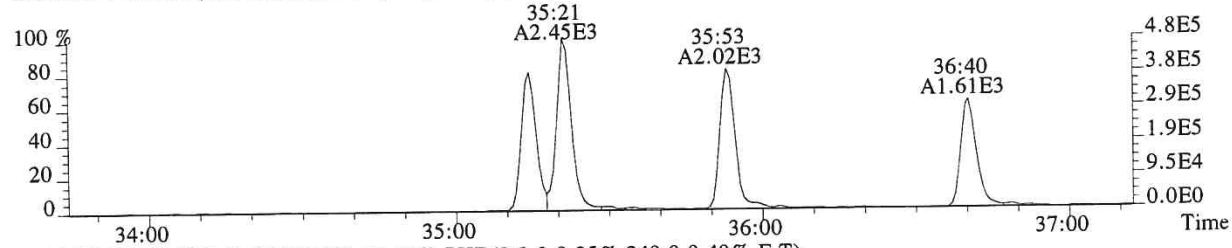
File:P519474 #1-313 Acq:18-DEC-2018 22:18:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-006
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11032.0,0.40%,F,T)



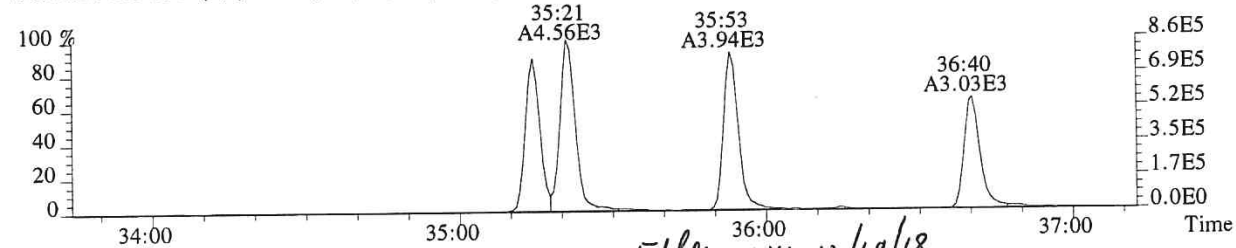
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,14140.0,0.40%,F,T)



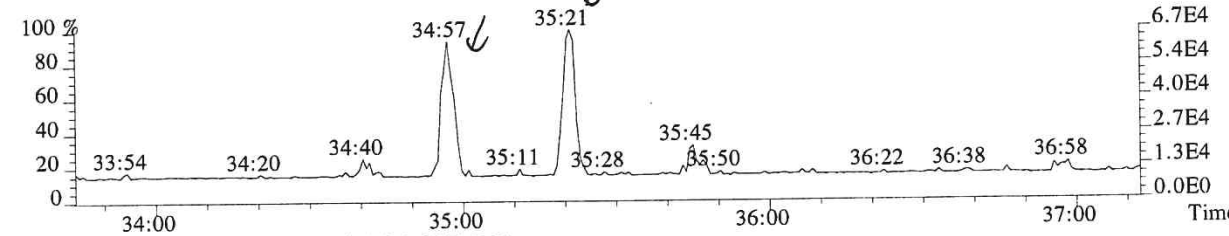
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,296.0,0.40%,F,T)



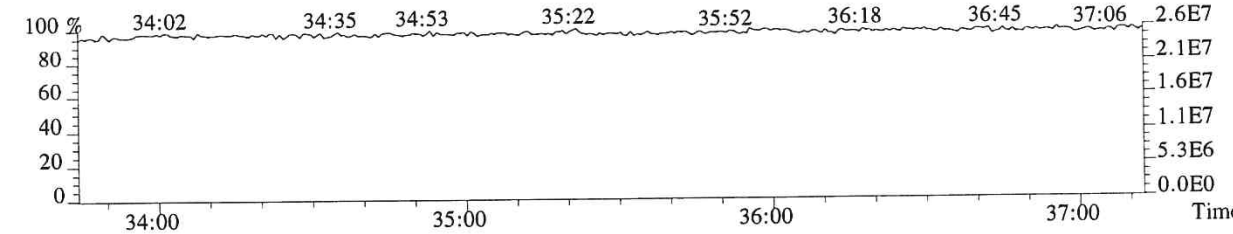
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,240.0,0.40%,F,T)



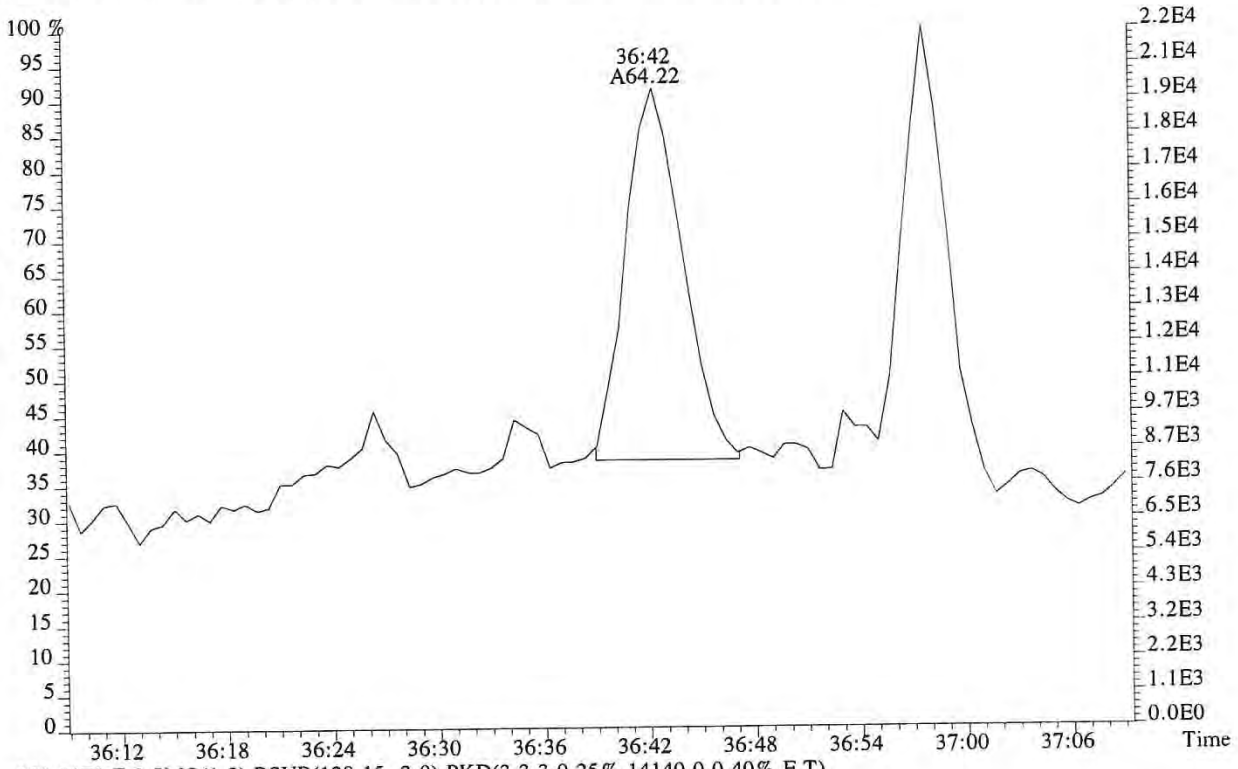
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F) Ether LM 12/19/18



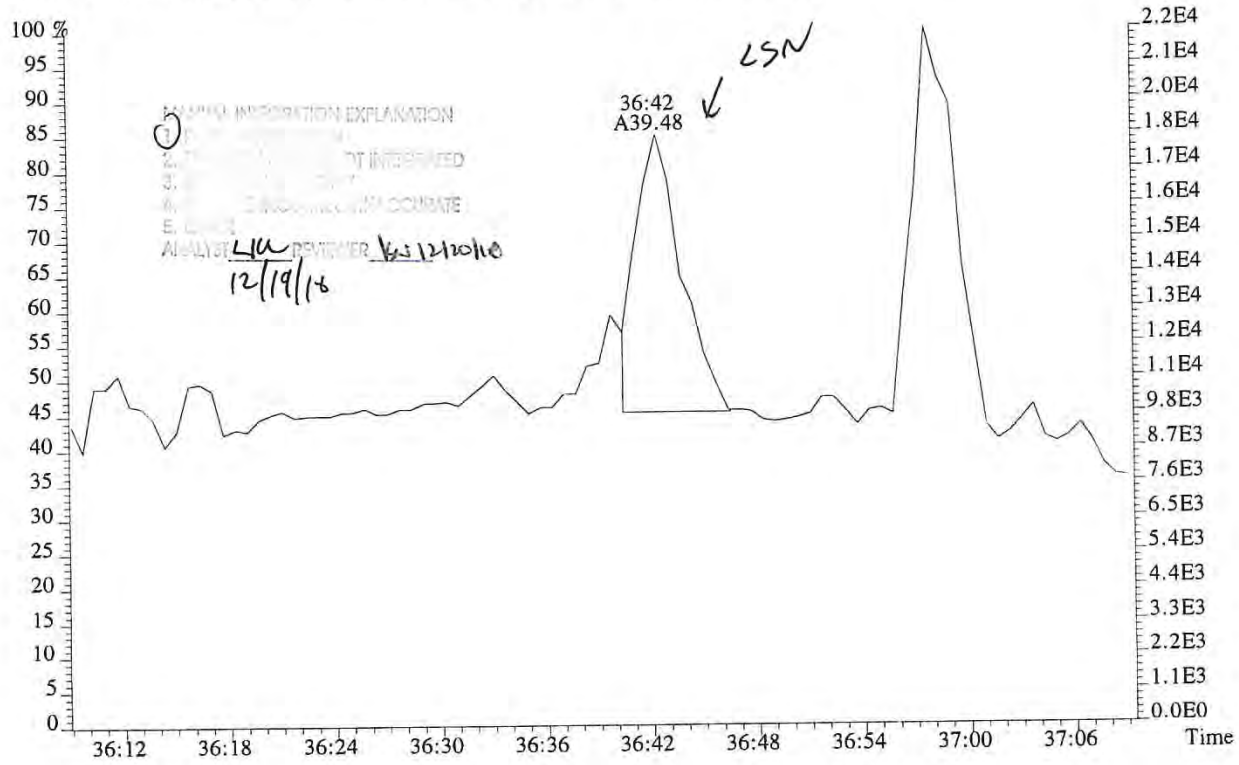
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



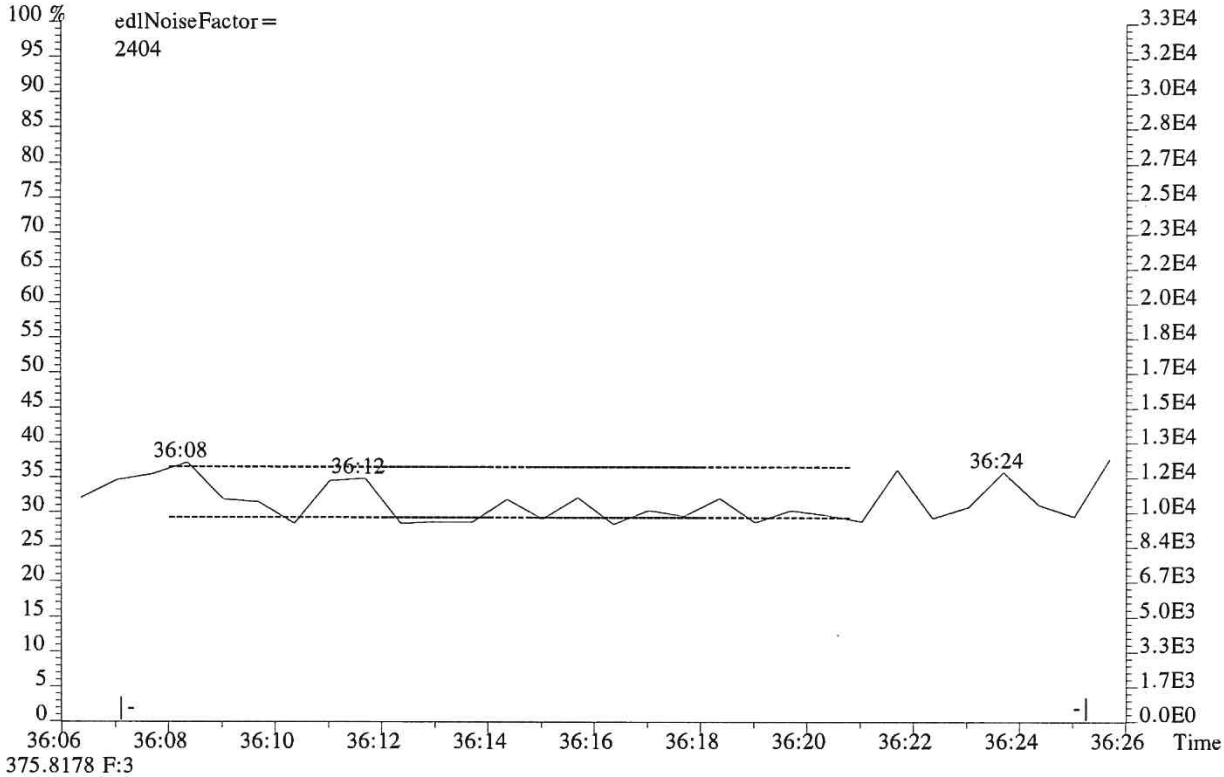
File:P519474 #1-313 Acq:18-DEC-2018 22:18:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-006
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11032.0,0.40%,F,T)



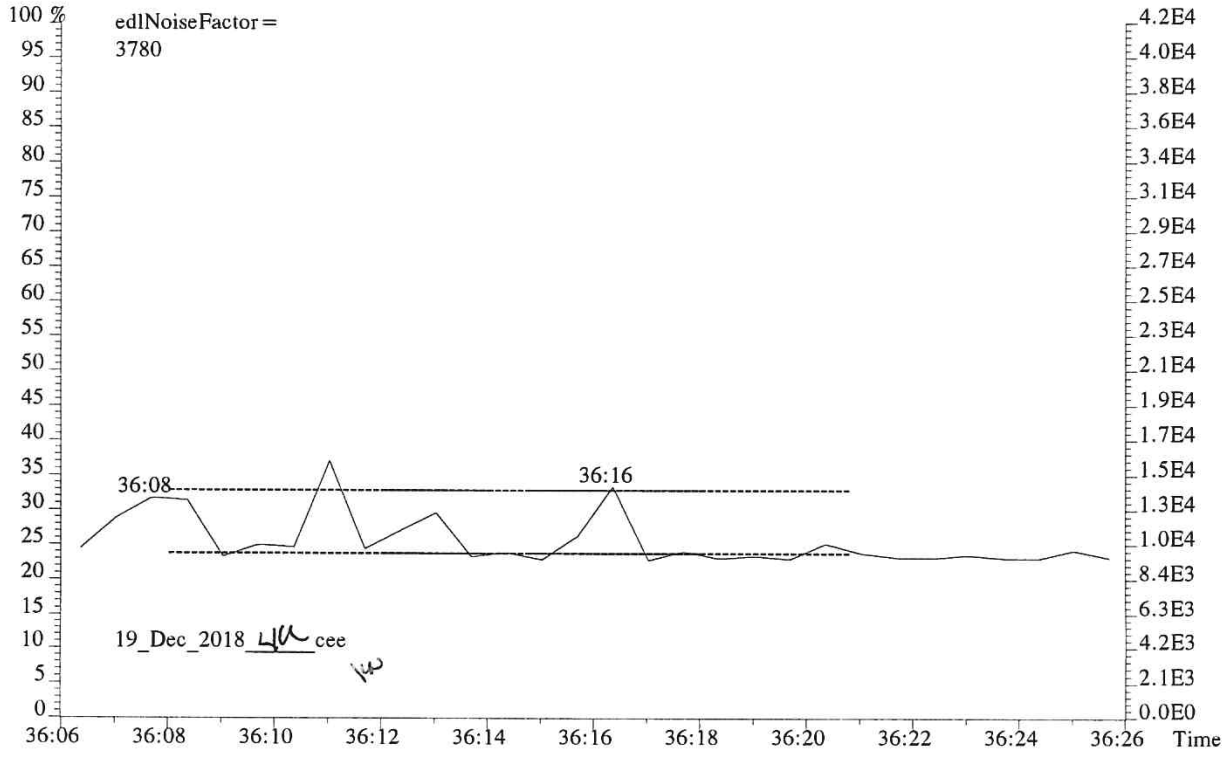
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,14140.0,0.40%,F,T)



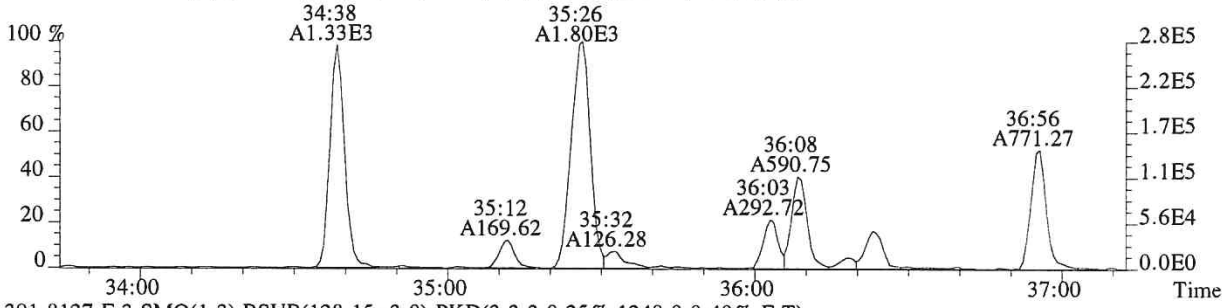
File:P519474 #1-313 Acq:18-DEC-2018 22:18:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-006
373.8208 F:3



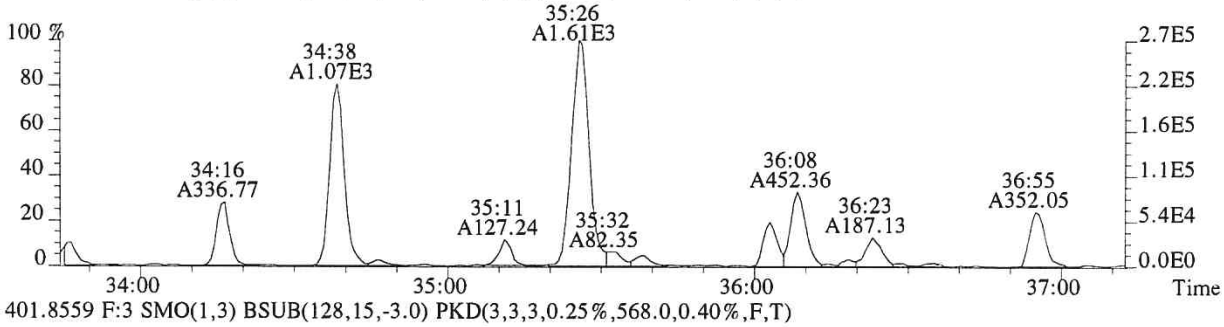
375.8178 F:3



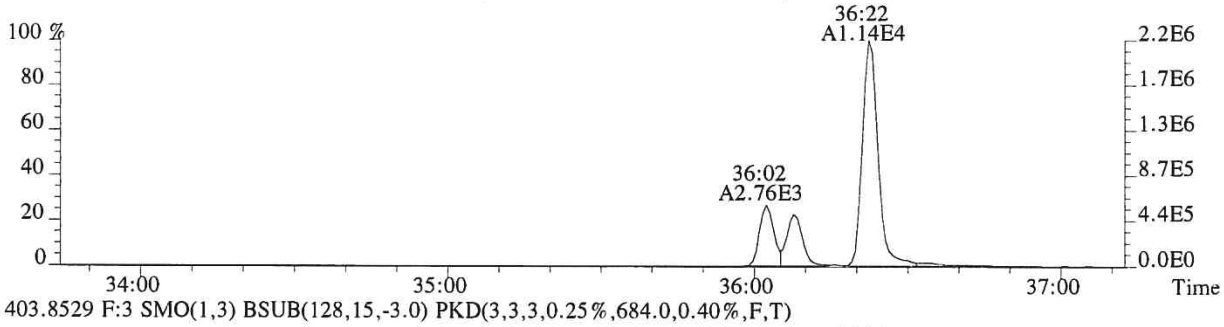
File:P519474 #1-313 Acq:18-DEC-2018 22:18:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-006
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1216.0,0.40%,F,T)



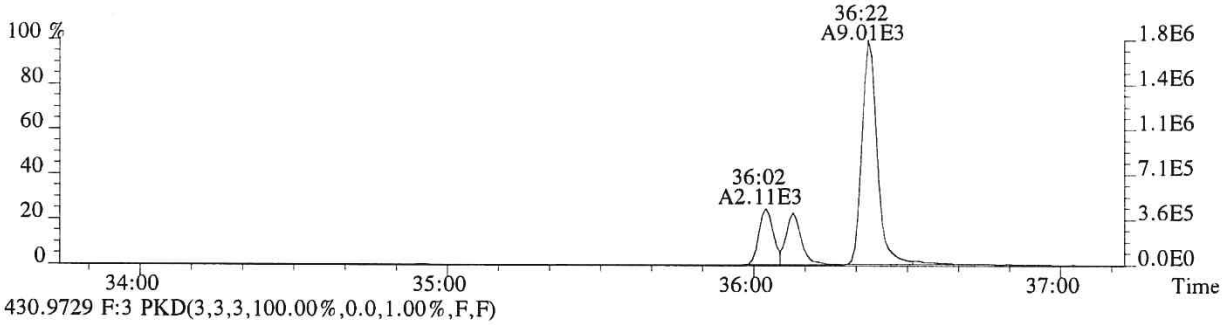
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1248.0,0.40%,F,T)



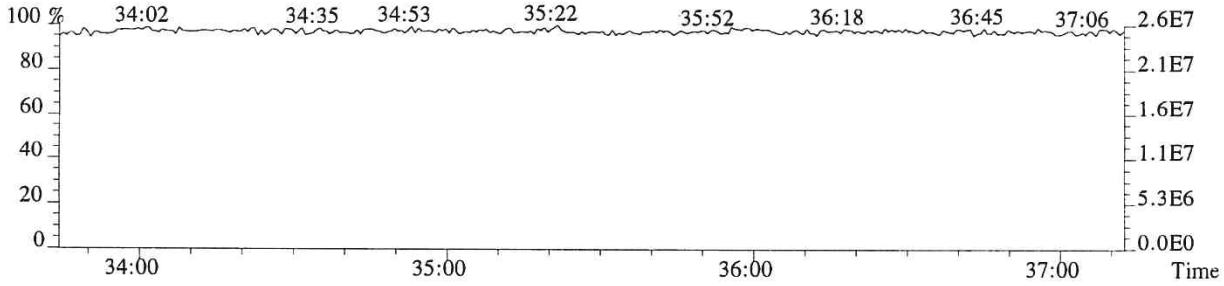
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,568.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,684.0,0.40%,F,T)

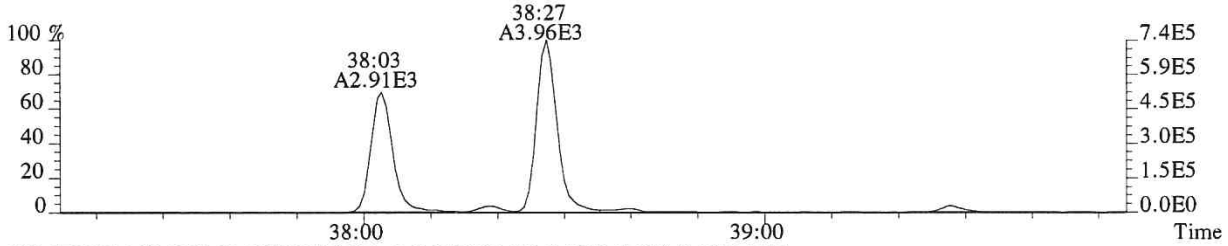


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

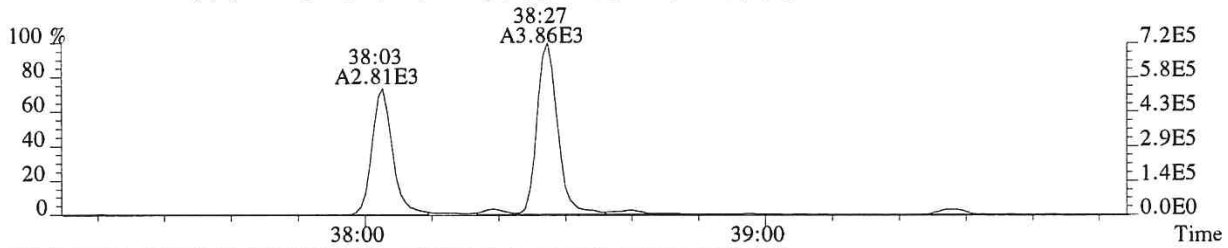


File:P519474 #1-240 Acq:18-DEC-2018 22:18:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-006

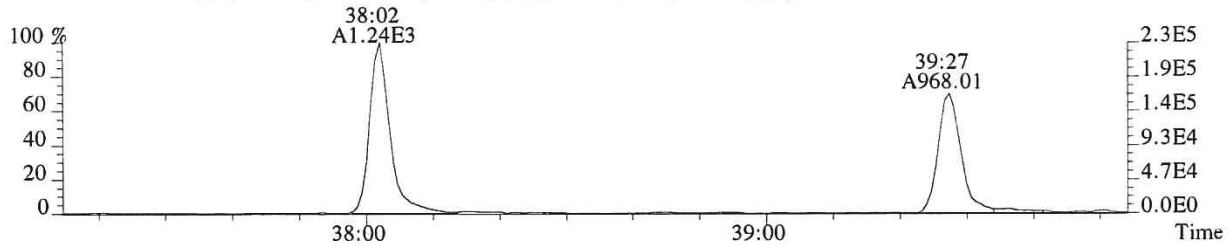
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1660.0,0.50%,F,T)



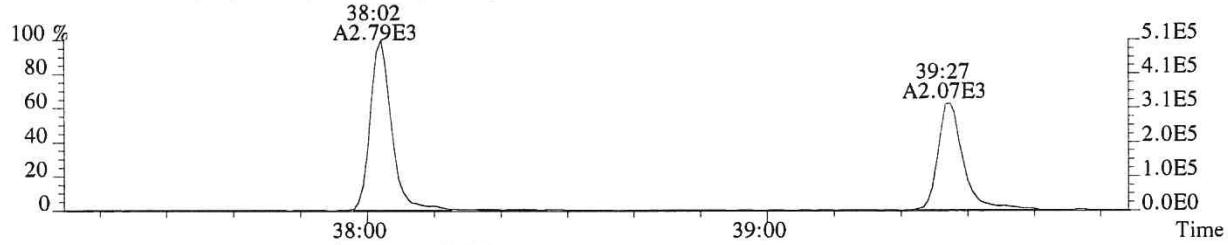
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,544.0,0.50%,F,T)



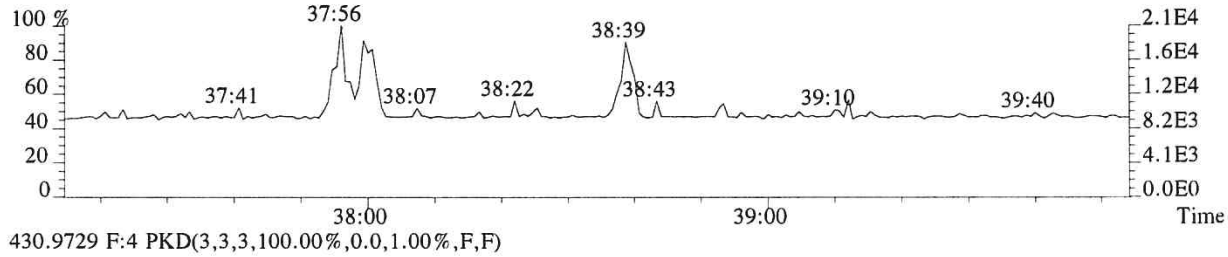
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,728.0,0.50%,F,T)



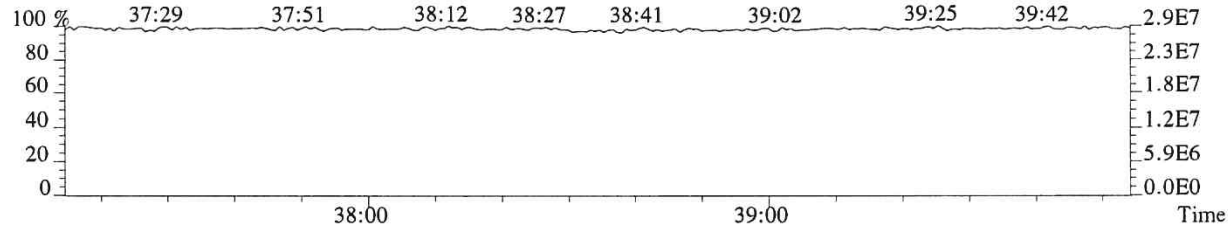
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1680.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

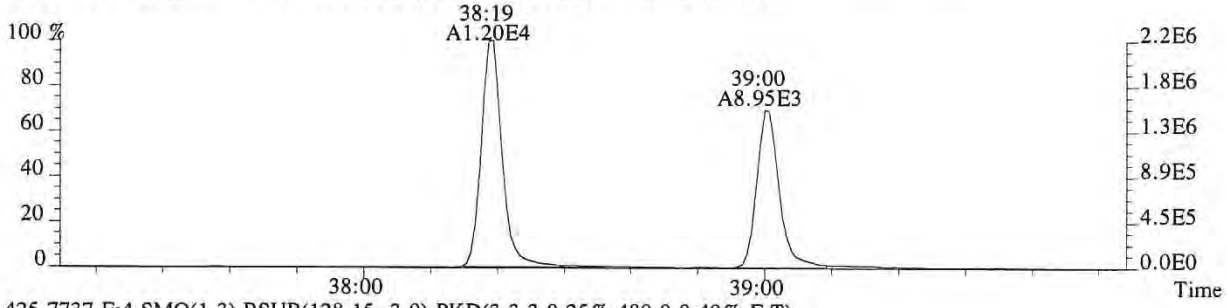


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

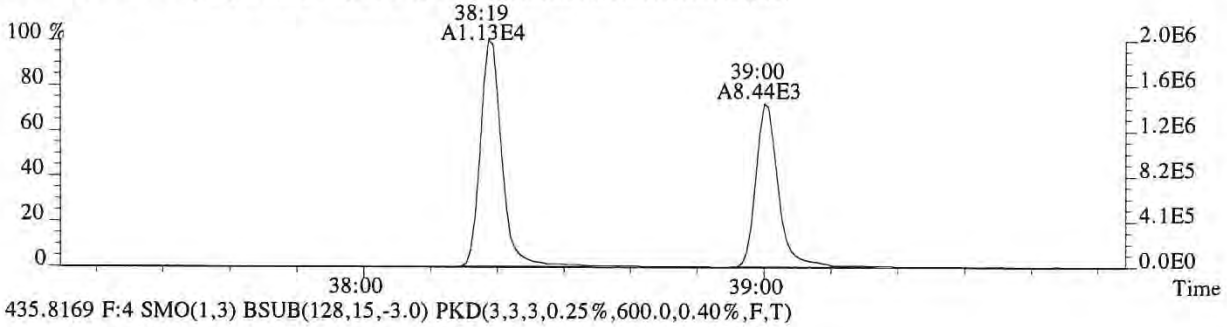


015322

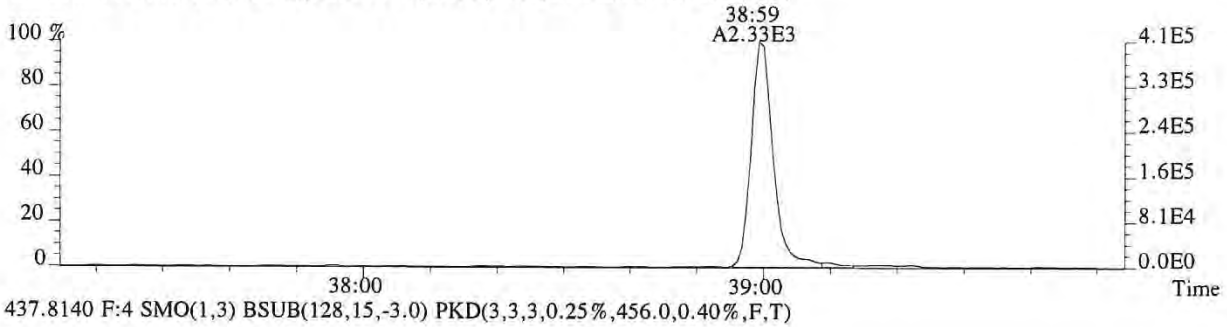
File:P519474 #1-240 Acq:18-DEC-2018 22:18:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-006
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,180.0,0.40%,F,T)



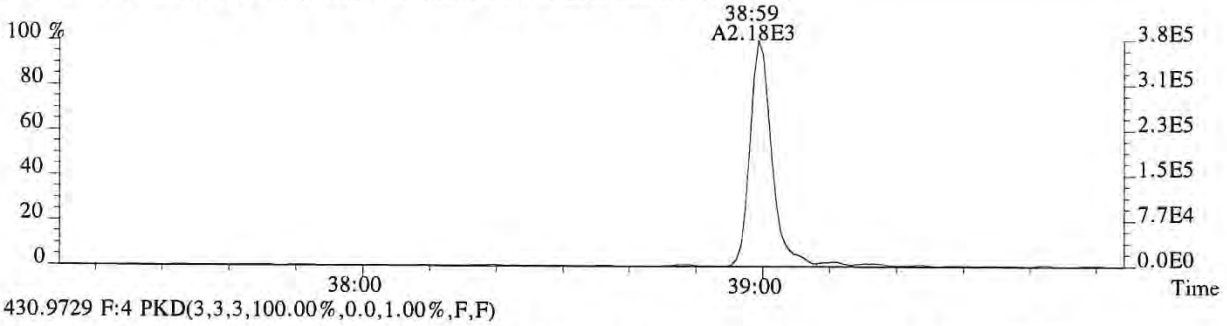
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,480.0,0.40%,F,T)



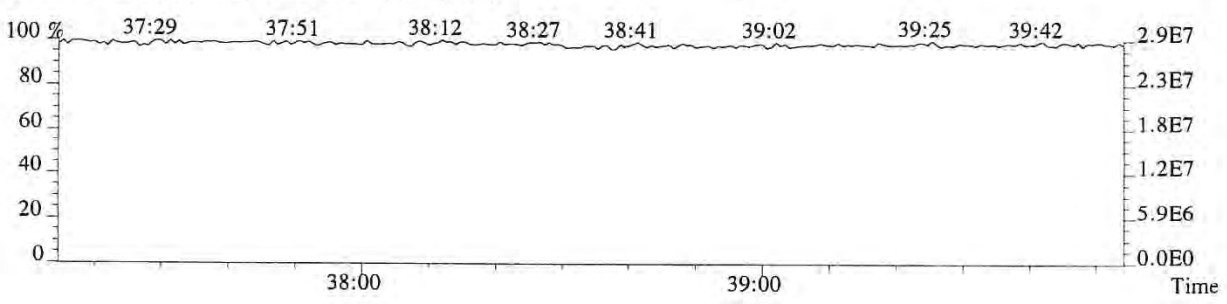
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,600.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,456.0,0.40%,F,T)

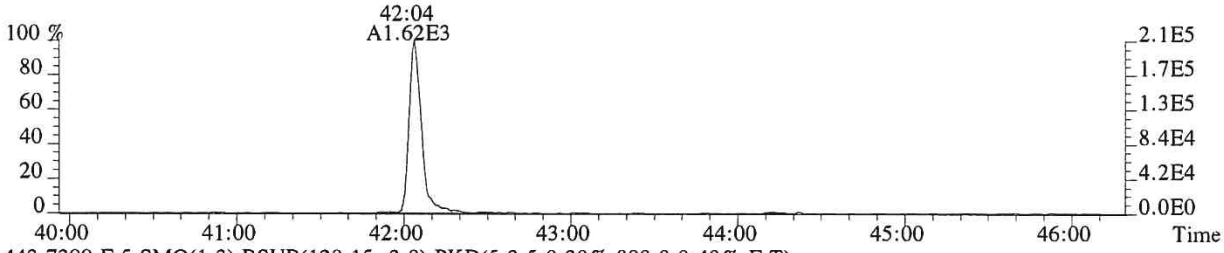


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

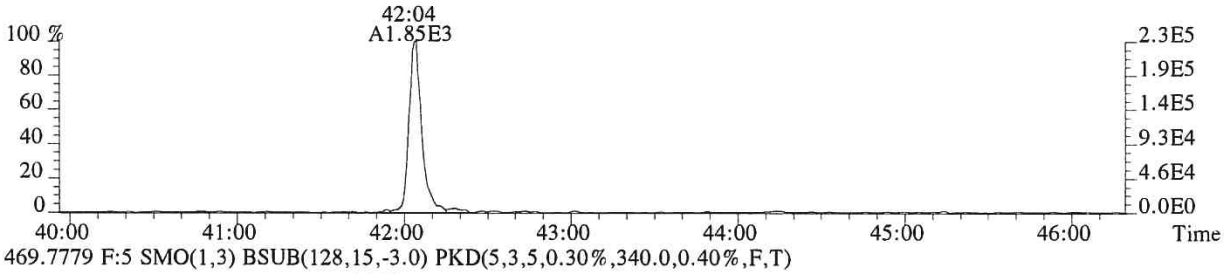


File:P519474 #1-575 Acq:18-DEC-2018 22:18:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-006

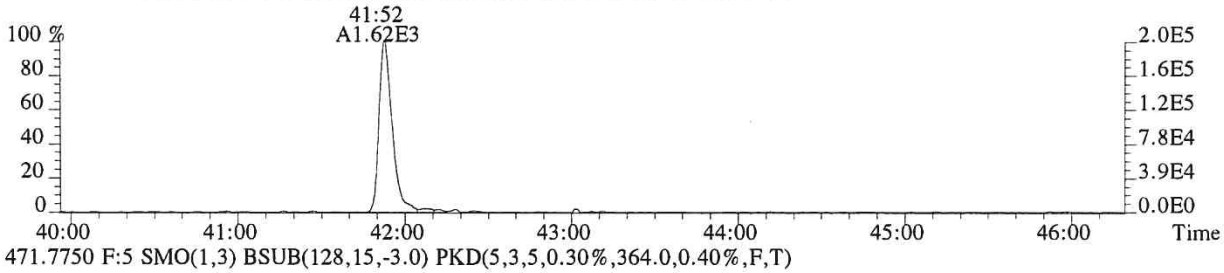
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,428.0,0.40%,F,T)



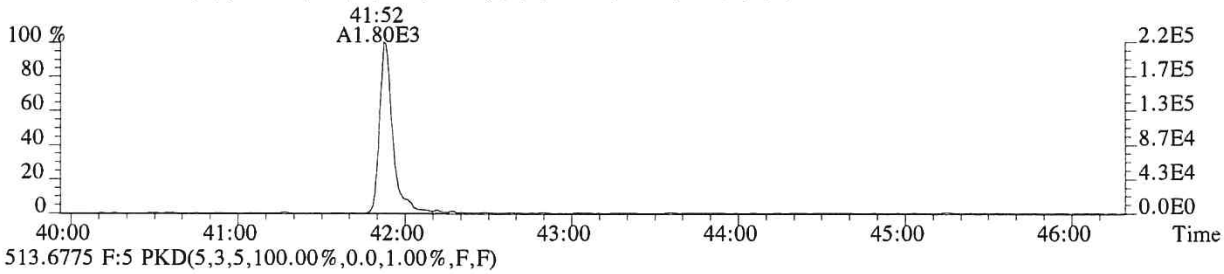
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,880.0,0.40%,F,T)



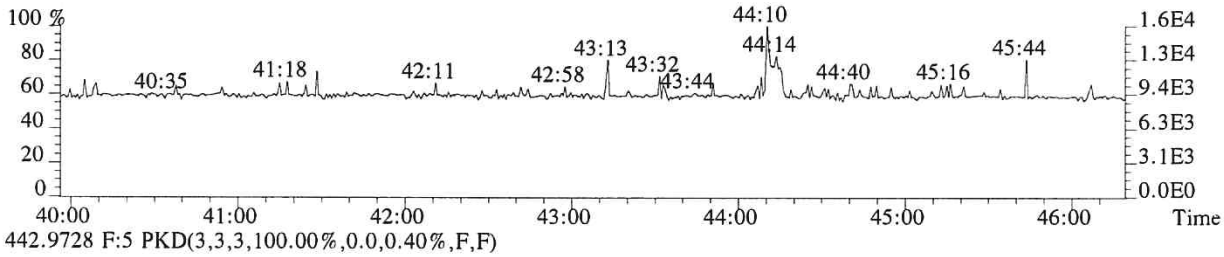
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,340.0,0.40%,F,T)



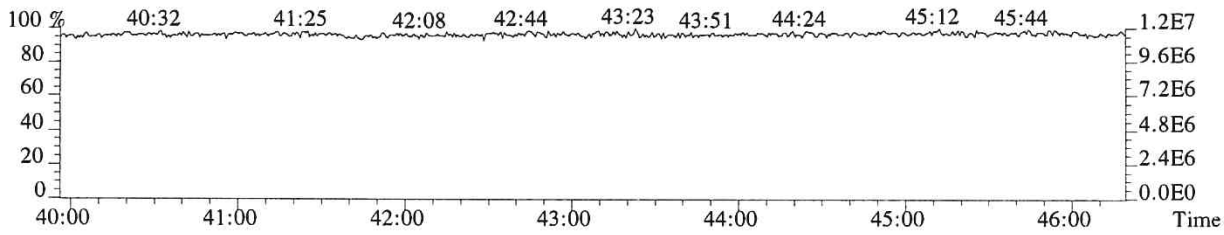
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,364.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

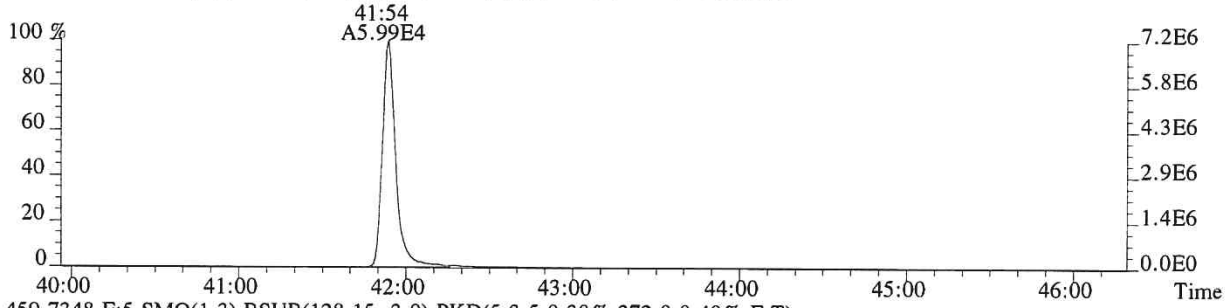


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

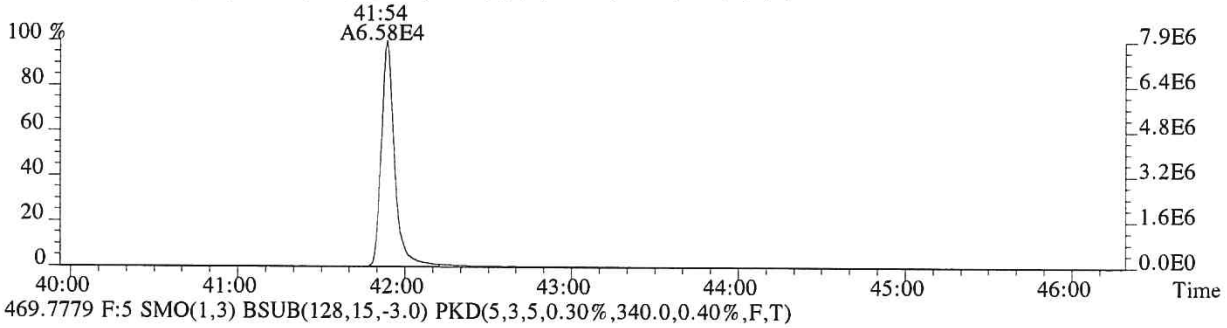


015324

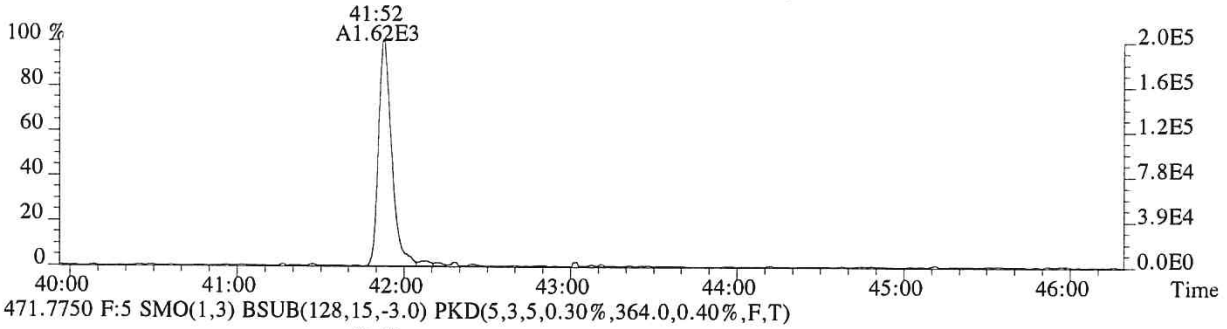
File:P519474 #1-575 Acq:18-DEC-2018 22:18:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-006
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,300.0,0.40%,F,T)



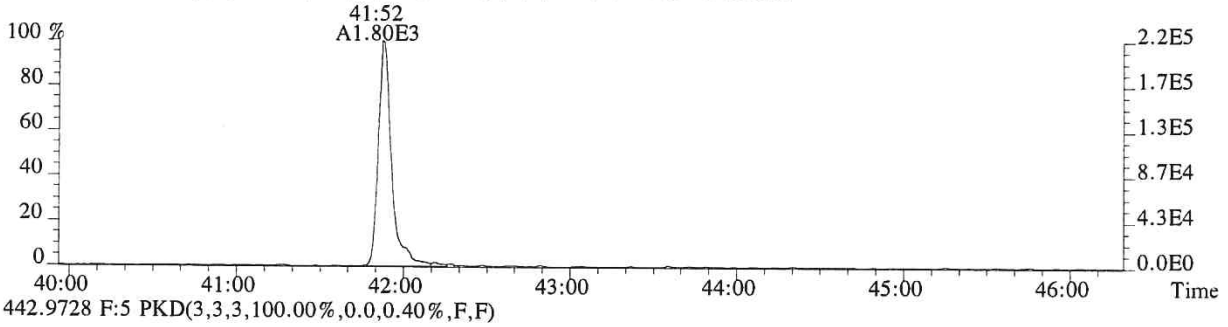
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,372.0,0.40%,F,T)



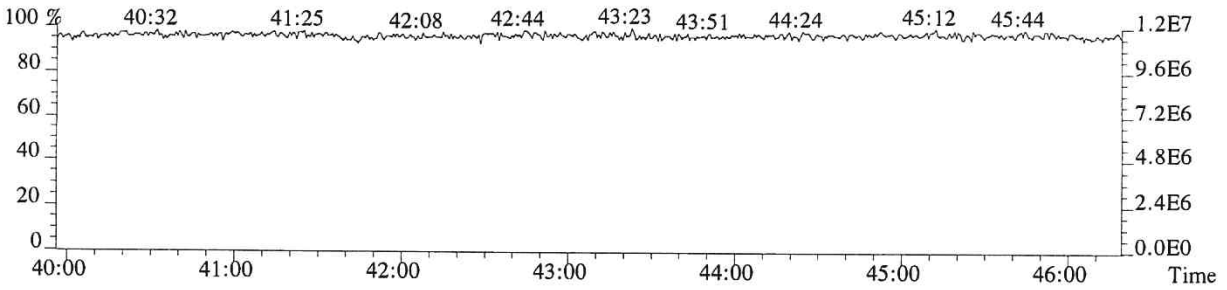
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,340.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,364.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



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Sample Response Summary

CLIENT ID.
SL0036

Run #16 Filename P519475 Samp: 1 Inj: 1 Acquired: 18-DEC-18 23:07:36
Processed: 19-DEC-18 15:24:53 Sample ID: E1801094-007

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:48	6.571e+02	9.594e+02	0.68	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	31:26	3.967e+01	3.659e+01	1.08	no	no	1.012
3	Unk	2,3,4,7,8-PeCDF	32:25	6.299e+01	5.628e+01	1.12	no	yes	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:15	6.221e+01	5.947e+01	1.05	no	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:22	3.587e+01	4.391e+01	0.82	no	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:52	2.771e+01	3.238e+01	0.86	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	36:43	6.201e+00	1.188e+01	0.52	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:03	2.731e+02	2.363e+02	1.16	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.258
10	Unk	OCDF	42:04	1.156e+02	1.811e+02	0.64	no	no	1.359
11	Unk	2,3,7,8-TCDD	27:41	1.799e+02	2.544e+02	0.71	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	32:42	2.841e+01	1.424e+01	1.99	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:04	1.583e+01	2.136e+01	0.74	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:08	8.432e+01	6.775e+01	1.24	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:23	5.106e+01	5.662e+01	0.90	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:01	1.367e+03	1.154e+03	1.18	yes	no	1.025
17	Unk	OCDD	41:54	1.129e+04	1.237e+04	0.91	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	26:46	9.705e+03	1.245e+04	0.78	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	31:25	1.548e+04	9.645e+03	1.60	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	32:23	1.387e+04	8.993e+03	1.54	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:14	5.588e+03	1.070e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:21	6.536e+03	1.260e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:53	5.655e+03	1.114e+04	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	36:40	4.572e+03	9.006e+03	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:02	3.217e+03	7.282e+03	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:27	2.455e+03	5.415e+03	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	27:41	4.588e+03	5.665e+03	0.81	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:42	1.081e+04	6.682e+03	1.62	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:02	7.662e+03	5.967e+03	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:08	7.496e+03	5.869e+03	1.28	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:59	6.079e+03	5.598e+03	1.09	yes	no	0.858
32	IS	13C-OCDD	41:53	3.801e+03	4.219e+03	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:03	1.198e+04	1.504e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:22	1.236e+04	9.880e+03	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:42	6.841e+03				no	1.014

$$\text{OCDD} = \frac{(1.129e+04 + 1.237e+04) \times 4000\ \text{pg} \times 1}{(3.801e+03 + 4.219e+03) \times 10.554\ \text{g} \times 71.7 / 100 \times 1.118} = 1390\ \text{ng/kg}$$

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kw 12/20/18

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0036

Run #16 Filename P519475 Samp: 1 Inj: 1 Acquired: 18-DEC-18 23:07:36
Processed: 19-DEC-18 15:24:53 LAB. ID: E1801094-007

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.01e+05	8.40e+02	1.2e+02	1.55e+05	1.56e+03	9.9e+01
2	1,2,3,7,8-PeCDF	7.45e+03	1.21e+03	6.2e+00	6.51e+03	6.88e+02	9.5e+00
3	2,3,4,7,8-PeCDF	7.34e+03	1.21e+03	6.1e+00	7.54e+03	6.88e+02	1.1e+01
4	1,2,3,4,7,8-HxCDF	1.26e+04	4.00e+02	3.2e+01	1.37e+04	2.80e+02	4.9e+01
5	1,2,3,6,7,8-HxCDF	7.49e+03	4.00e+02	1.9e+01	6.81e+03	2.80e+02	2.4e+01
6	2,3,4,6,7,8-HxCDF	5.13e+03	4.00e+02	1.3e+01	5.42e+03	2.80e+02	1.9e+01
7	1,2,3,7,8,9-HxCDF	1.81e+03	4.00e+02	4.5e+00	3.19e+03	2.80e+02	1.1e+01
8	1,2,3,4,6,7,8-HpCDF	5.22e+04	1.18e+03	4.4e+01	4.17e+04	8.32e+02	5.0e+01
9	1,2,3,4,7,8,9-HpCDF	*	1.18e+03	*	*	8.32e+02	*
10	OCDF	1.36e+04	3.52e+02	3.9e+01	2.29e+04	3.52e+02	6.5e+01
11	2,3,7,8-TCDD	2.99e+04	2.00e+03	1.5e+01	4.17e+04	9.44e+02	4.4e+01
12	1,2,3,7,8-PeCDD	4.98e+03	6.80e+02	7.3e+00	2.24e+03	4.92e+02	4.5e+00
13	1,2,3,4,7,8-HxCDD	4.53e+03	1.04e+03	4.4e+00	4.96e+03	8.48e+02	5.8e+00
14	1,2,3,6,7,8-HxCDD	1.87e+04	1.04e+03	1.8e+01	1.43e+04	8.48e+02	1.7e+01
15	1,2,3,7,8,9-HxCDD	9.09e+03	1.04e+03	8.8e+00	1.19e+04	8.48e+02	1.4e+01
16	1,2,3,4,6,7,8-HpCDD	2.26e+05	4.52e+02	5.0e+02	2.01e+05	4.40e+02	4.6e+02
17	OCDD	1.30e+06	4.52e+02	2.9e+03	1.43e+06	2.52e+02	5.7e+03
18	13C-2,3,7,8-TCDF	1.51e+06	5.31e+03	2.8e+02	1.93e+06	3.06e+03	6.3e+02
19	13C-1,2,3,7,8-PeCDF	2.64e+06	4.40e+02	6.0e+03	1.64e+06	6.52e+02	2.5e+03
20	13C-2,3,4,7,8-PeCDF	2.58e+06	4.40e+02	5.9e+03	1.62e+06	6.52e+02	2.5e+03
21	13C-1,2,3,4,7,8-HxCDF	1.11e+06	4.88e+02	2.3e+03	2.13e+06	6.04e+02	3.5e+03
22	13C-1,2,3,6,7,8-HxCDF	1.20e+06	4.88e+02	2.5e+03	2.38e+06	6.04e+02	3.9e+03
23	13C-2,3,4,6,7,8-HxCDF	1.14e+06	4.88e+02	2.3e+03	2.23e+06	6.04e+02	3.7e+03
24	13C-1,2,3,7,8,9-HxCDF	8.38e+05	4.88e+02	1.7e+03	1.66e+06	6.04e+02	2.8e+03
25	13C-1,2,3,4,6,7,8-HpCDF	5.78e+05	1.00e+03	5.8e+02	1.29e+06	5.00e+02	2.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.91e+05	1.00e+03	3.9e+02	8.90e+05	5.00e+02	1.8e+03
27	13C-2,3,7,8-TCDD	7.92e+05	4.37e+03	1.8e+02	9.84e+05	1.92e+03	5.1e+02
28	13C-1,2,3,7,8-PeCDD	1.92e+06	7.68e+02	2.5e+03	1.21e+06	9.76e+02	1.2e+03
29	13C-1,2,3,4,7,8-HxCDD	1.63e+06	5.16e+02	3.2e+03	1.27e+06	5.60e+02	2.3e+03
30	13C-1,2,3,6,7,8-HxCDD	1.43e+06	5.16e+02	2.8e+03	1.12e+06	5.60e+02	2.0e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.01e+06	5.20e+02	1.9e+03	9.37e+05	4.16e+02	2.3e+03
32	13C-OCDD	4.35e+05	1.76e+02	2.5e+03	4.65e+05	3.36e+02	1.4e+03
33	13C-1,2,3,4-TCDD	2.00e+06	4.37e+03	4.6e+02	2.52e+06	1.92e+03	1.3e+03
34	13C-1,2,3,7,8,9-HxCDD	2.30e+06	5.16e+02	4.5e+03	1.83e+06	5.60e+02	3.3e+03
35	37Cl-2,3,7,8-TCDD	1.17e+06	7.88e+02	1.5e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.996e+03 + 9.440e+02) \times 2000}{(7.921e+05 + 9.844e+05) \times (\quad) \times 1.085} =$$

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0036

Entry: 36 Totals Name: Total Tetra-Furans

Run: 16 File: P519475 Sample:1 Injection:1 Function:1

Acquired: 18-DEC-18 23:07:36 Processed: 19-DEC-18 15:24:53

Mass: 303.9020 305.8990 Tot Response: 2.32e+03 RRF: 0.9417

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	25:53	2.32e+02	0.78	yes	5.29e+02		n	n
2	26:48	6.57e+02	0.68	yes	1.62e+03	2,3,7,8-TCDF	n	n
3	27:10	7.28e+01	0.68	yes	1.79e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0036

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 16 File: P519475 Sample:1 Injection:1 Function:1

Acquired: 18-DEC-18 23:07:36 Processed: 19-DEC-18 15:24:53

Mass: 319.8970 321.8940 Tot Response: 6.76e+02 RRF: 1.085

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	25:31	1.05e+02	1.36e+02 0.77	yes	2.41e+02		n	n
2	27:41	1.80e+02	2.54e+02 0.71	yes	4.34e+02	2,3,7,8-TCDD	n	n

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Peak List Summary

CLIENT ID.
SL0036

Entry: 38 Totals Name: Total Penta-Furans1

Run: 16 File: P519475 Sample:1 Injection:1 Function:1

Acquired: 18-DEC-18 23:07:36 Processed: 19-DEC-18 15:24:53

Mass: 339.8600 341.8570 Tot Response: 3.89e+02 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	28:50	2.38e+02	1.51e+02 1.58	yes	3.89e+02		n	n

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Peak List Summary

CLIENT ID.
SL0036

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 16 File: P519475 Sample:1 Injection:1 Function:2

Acquired: 18-DEC-18 23:07:36 Processed: 19-DEC-18 15:24:53

Mass: 355.8550 357.8520 Tot Response: 4.19e+01 RRF: 0.9565

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:37	1.40e+01	9.93e+00	1.41	yes	2.39e+01		n	n
2	32:17	1.04e+01	7.51e+00	1.39	yes	1.79e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0036

Entry: 41 Totals Name: Total Hexa-Furans

Run: 16 File: P519475 Sample:1 Injection:1 Function:3

Acquired: 18-DEC-18 23:07:36 Processed: 19-DEC-18 15:24:53

Mass: 373.8210 375.8180 Tot Response: 9.84e+02 RRF: 1.141

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:05	5.05e+01	4.06e+01	1.25	yes	9.11e+01		n	n
2	34:14	2.24e+02	1.87e+02	1.20	yes	4.11e+02		n	n
3	34:48	2.71e+02	2.10e+02	1.29	yes	4.82e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0036

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 16 File: P519475 Sample:1 Injection:1 Function:3

Acquired: 18-DEC-18 23:07:36 Processed: 19-DEC-18 15:24:53

Mass: 389.8160 391.8130 Tot Response: 2.22e+03 RRF: 1.047

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:38	1.15e+03	8.47e+02 1.36	yes	2.00e+03		n	n
2	35:11	3.83e+01	3.20e+01 1.20	yes	7.03e+01		n	n
3	36:08	8.43e+01	6.78e+01 1.24	yes	1.52e+02	1,2,3,6,7,8-HxCDD	n	n

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Peak List Summary

CLIENT ID.
SL0036

Entry: 43 Totals Name: Total Hepta-Furans

Run: 16 File: P519475 Sample:1 Injection:1 Function:4

Acquired: 18-DEC-18 23:07:36 Processed: 19-DEC-18 15:24:53

Mass: 407.7820 409.7790 Tot Response: 1.07e+03 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:03	2.73e+02	2.36e+02 1.16	yes	5.09e+02	1,2,3,4,6,7,8-HpCDF	n	n
2	38:27	2.82e+02	2.82e+02 1.00	yes	5.64e+02		n	n

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0036

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 16 File: P519475 Sample:1 Injection:1 Function:4

Acquired: 18-DEC-18 23:07:36 Processed: 19-DEC-18 15:24:53

Mass: 423.7770 425.7740 Tot Response: 6.89e+03 RRF: 1.025

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:19	2.26e+03	2.11e+03	1.07	yes	4.37e+03		n	n
2	39:01	1.37e+03	1.15e+03	1.18	yes	2.52e+03	1,2,3,4,6,7,8-HpCDD	n	n

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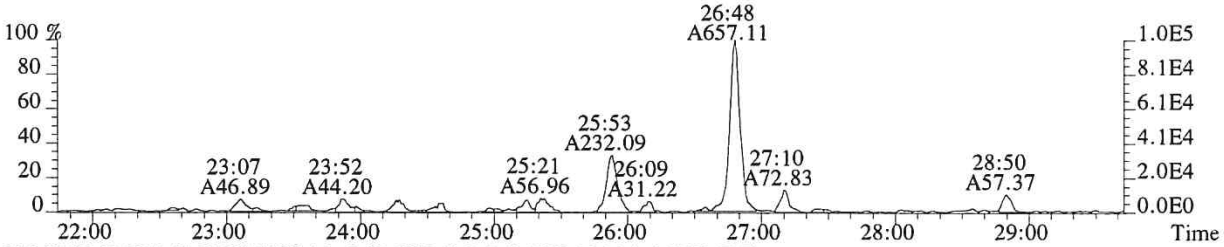
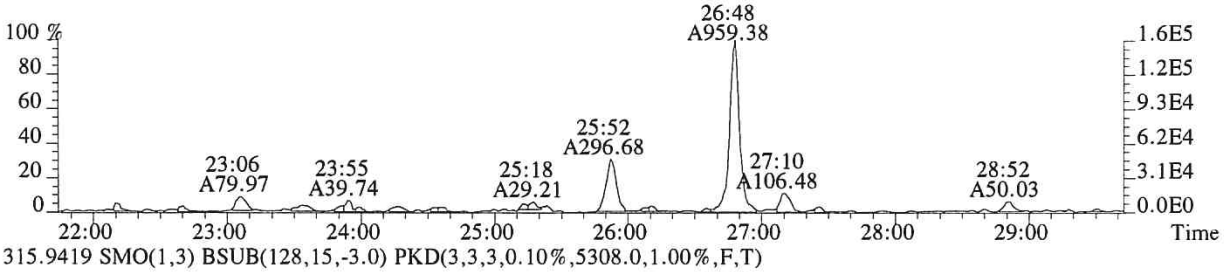
File:P519475 #1-566 Acq:18-DEC-2018 23:07:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-007

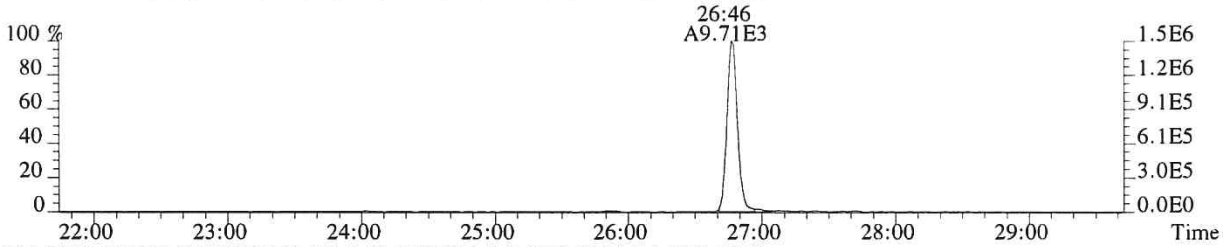
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,840.0,1.00%,F,T)



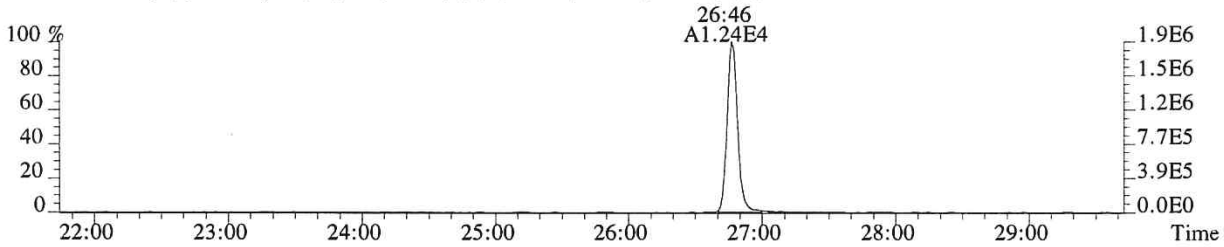
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1564.0,1.00%,F,T)



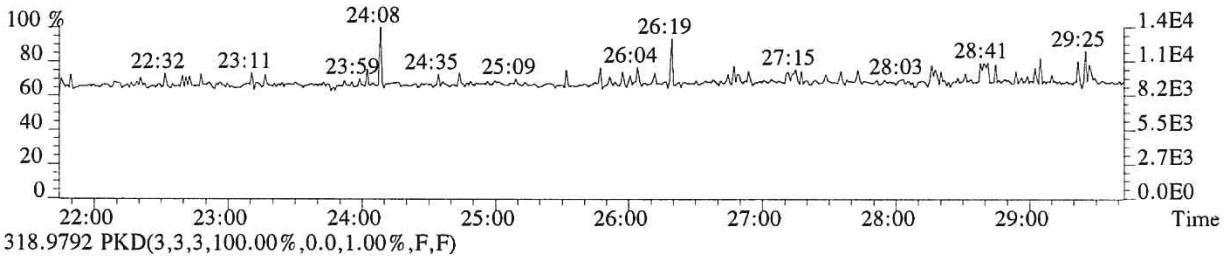
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5308.0,1.00%,F,T)



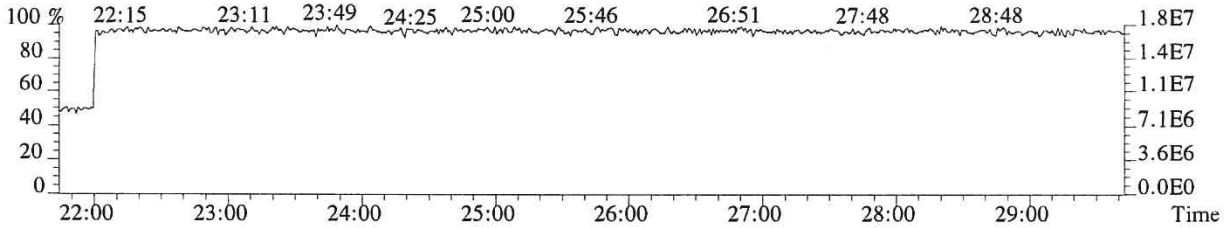
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3064.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



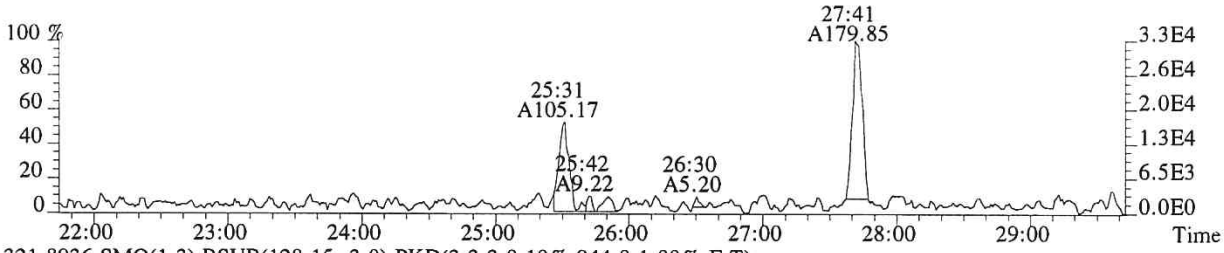
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



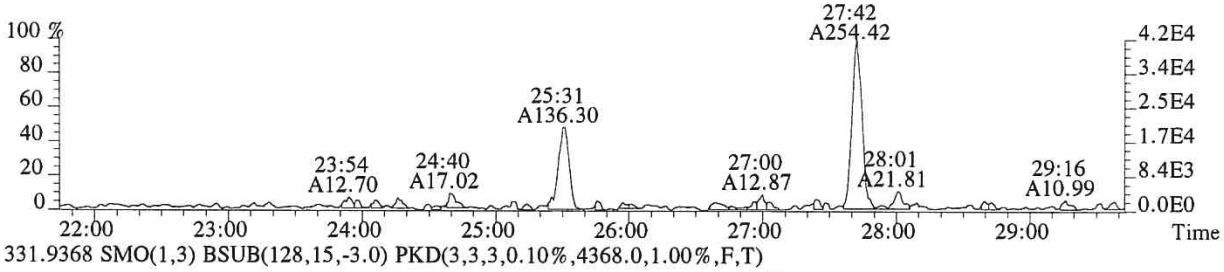
015336

File:P519475 #1-566 Acq:18-DEC-2018 23:07:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-007

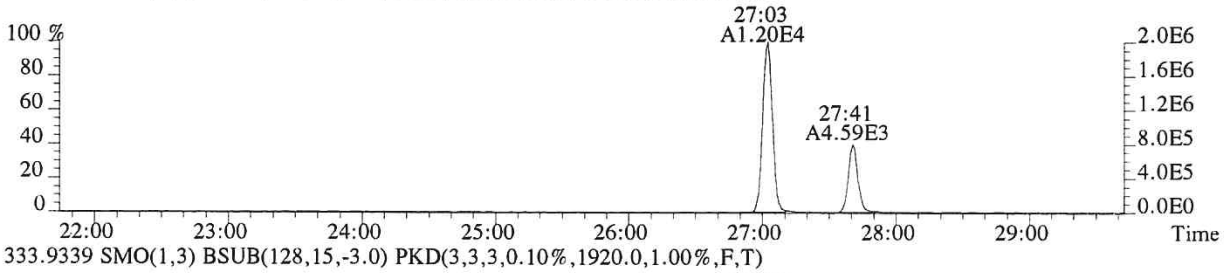
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1996.0,1.00%,F,T)



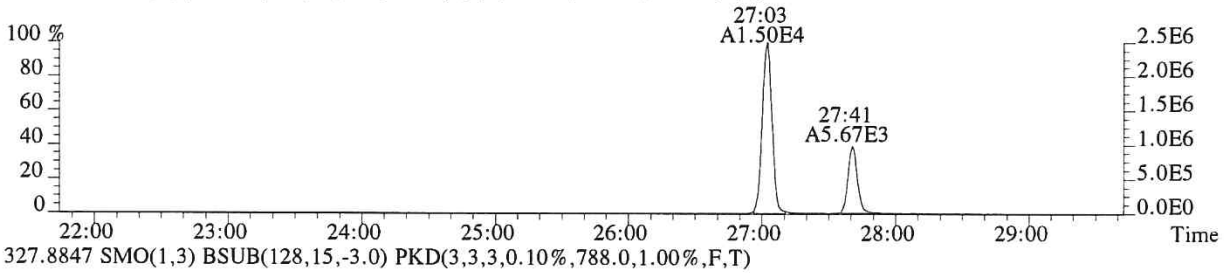
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,944.0,1.00%,F,T)



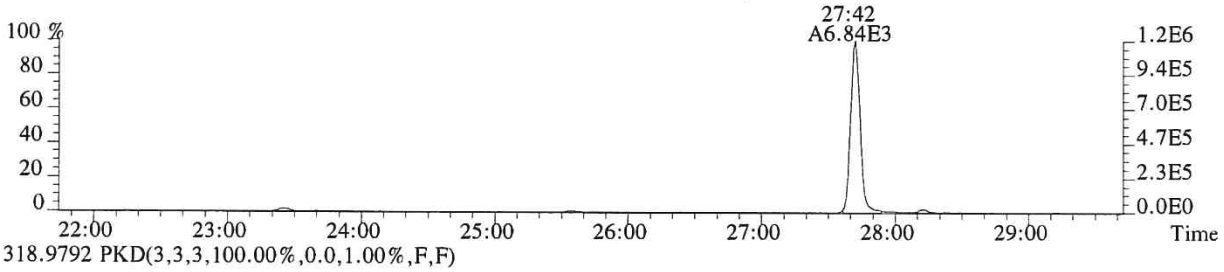
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4368.0,1.00%,F,T)



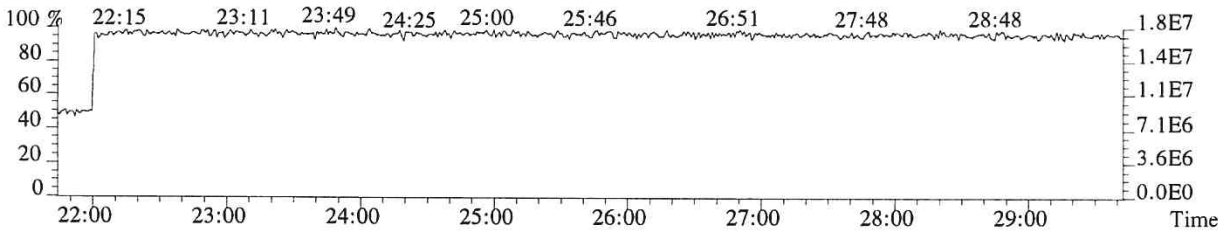
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1920.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,788.0,1.00%,F,T)



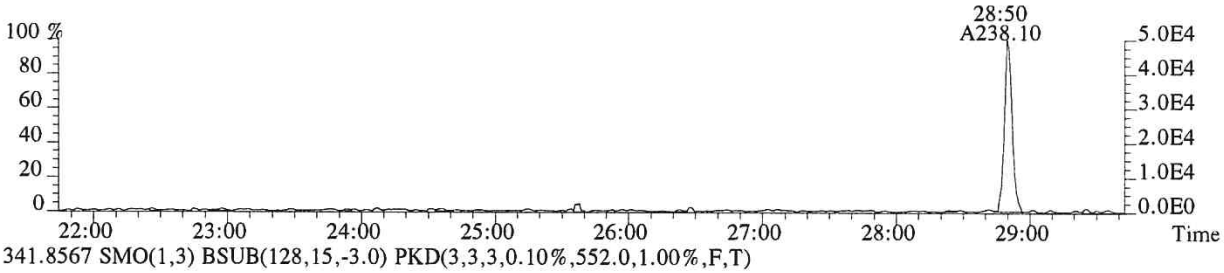
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



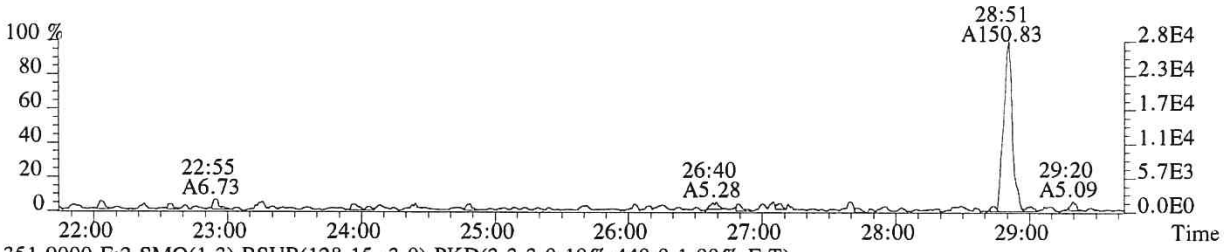
015337

File:P519475 #1-566 Acq:18-DEC-2018 23:07:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-007

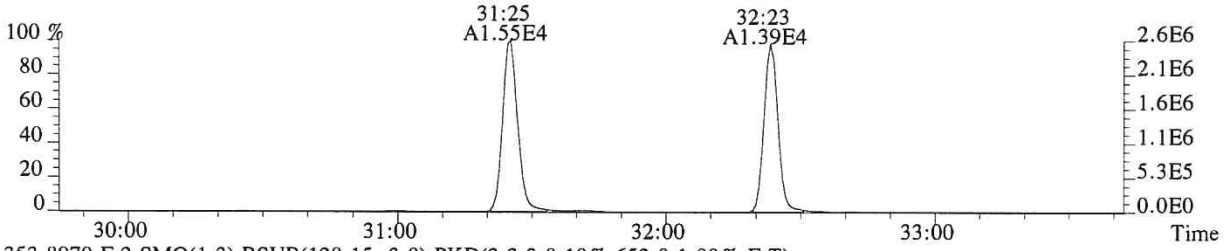
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,428.0,1.00%,F,T)



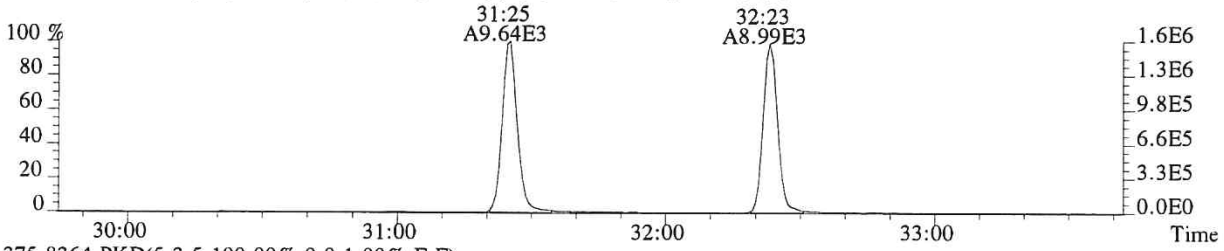
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,552.0,1.00%,F,T)



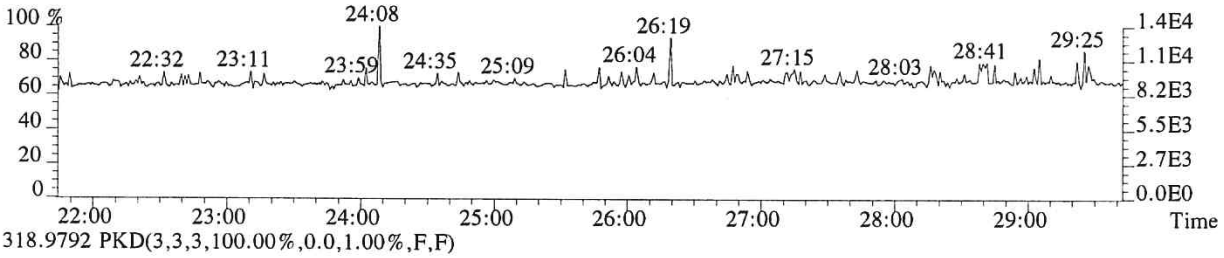
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,440.0,1.00%,F,T)



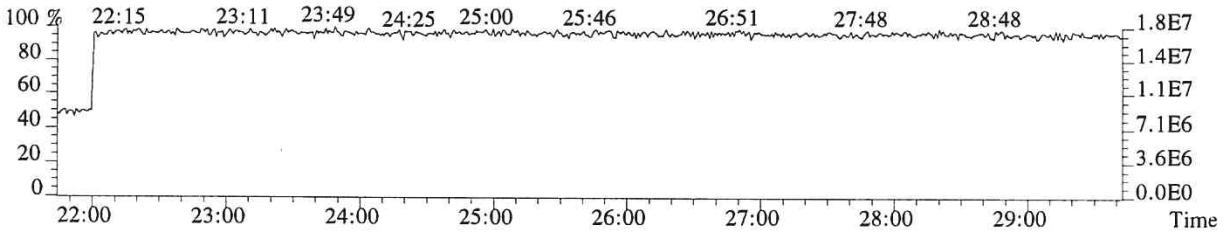
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,652.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

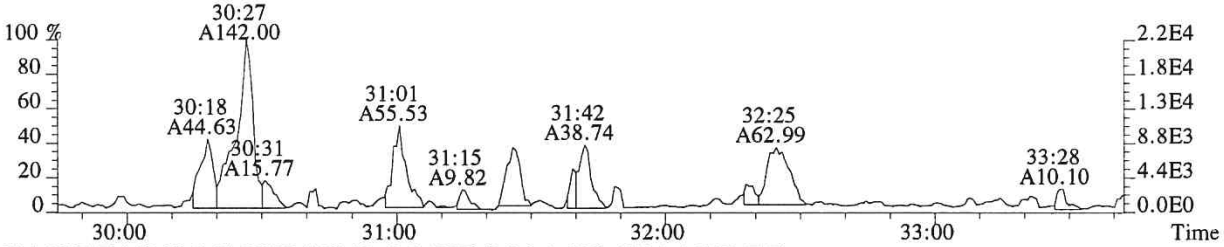


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

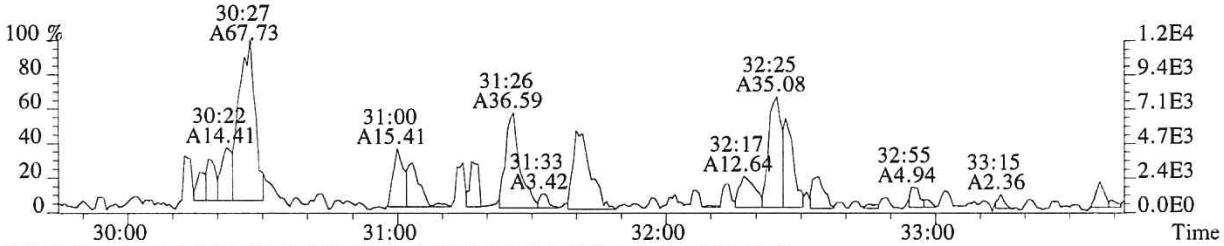


015338

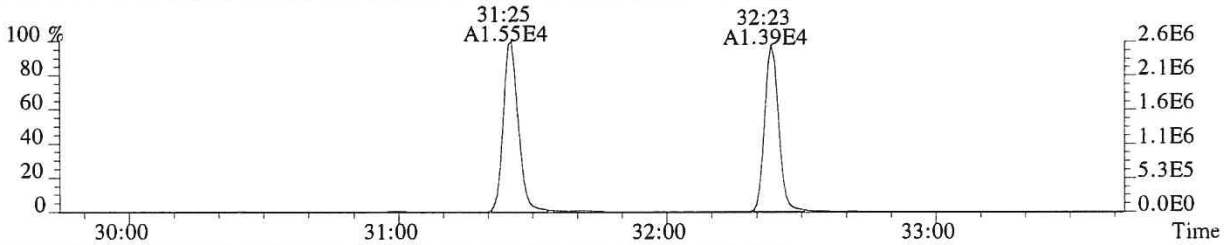
File:P519475 #1-357 Acq:18-DEC-2018 23:07:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-007
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1208.0,1.00%,F,T)



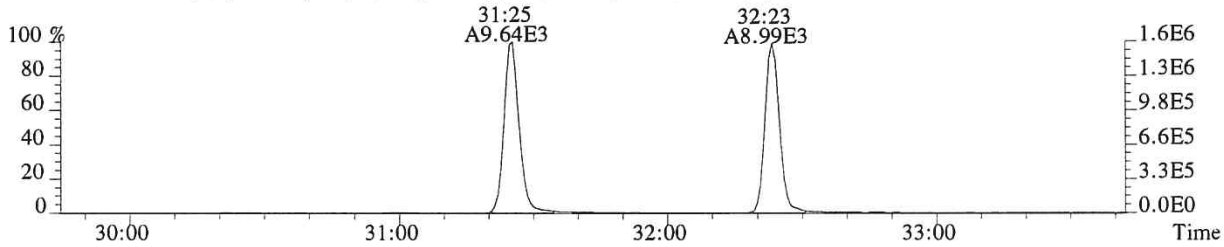
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,688.0,1.00%,F,T)



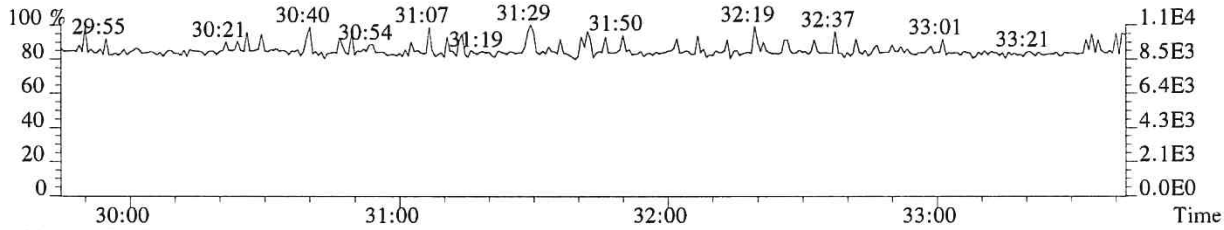
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,440.0,1.00%,F,T)



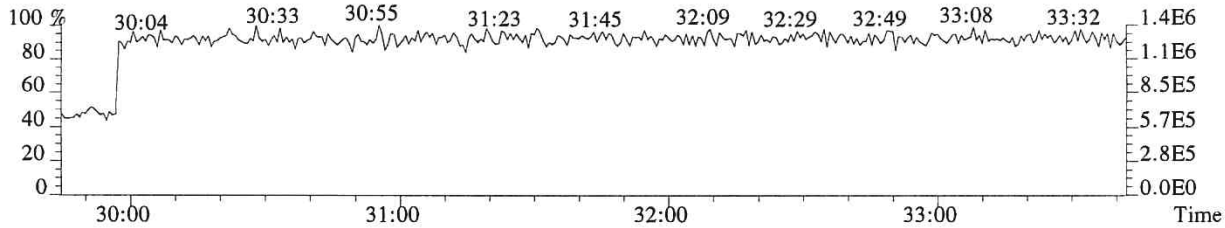
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,652.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

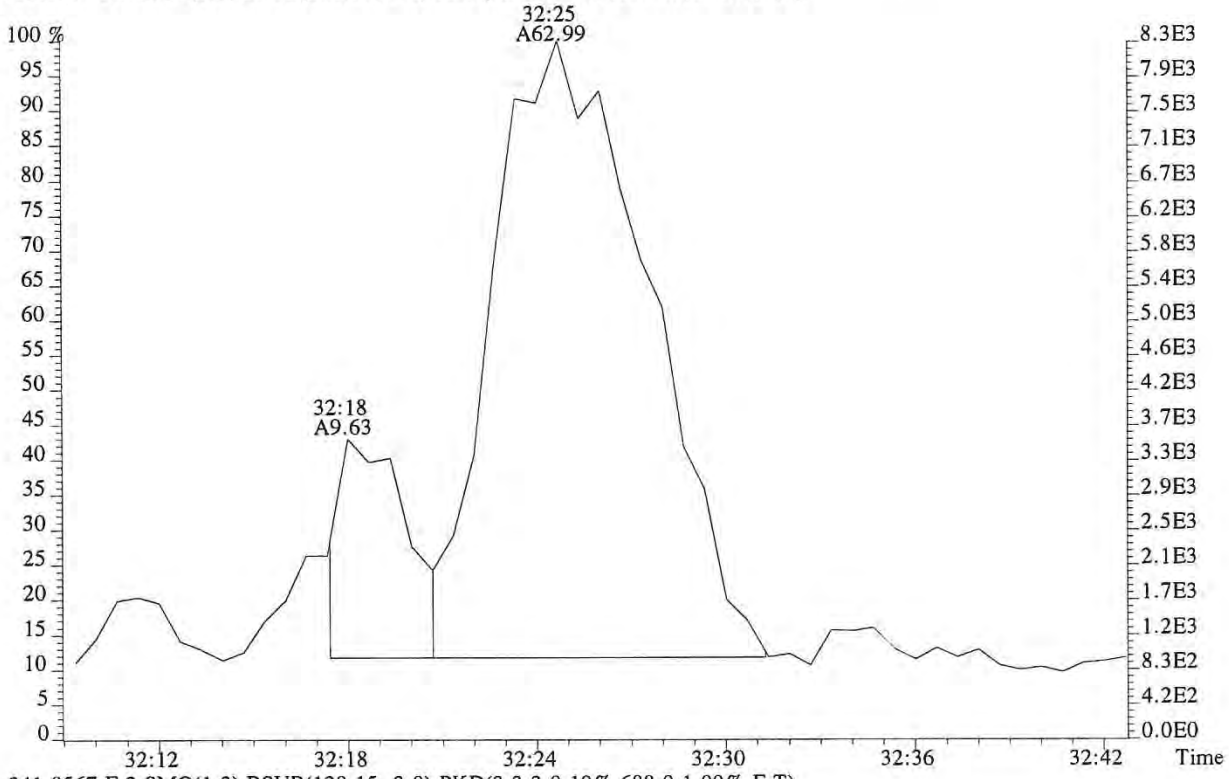


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

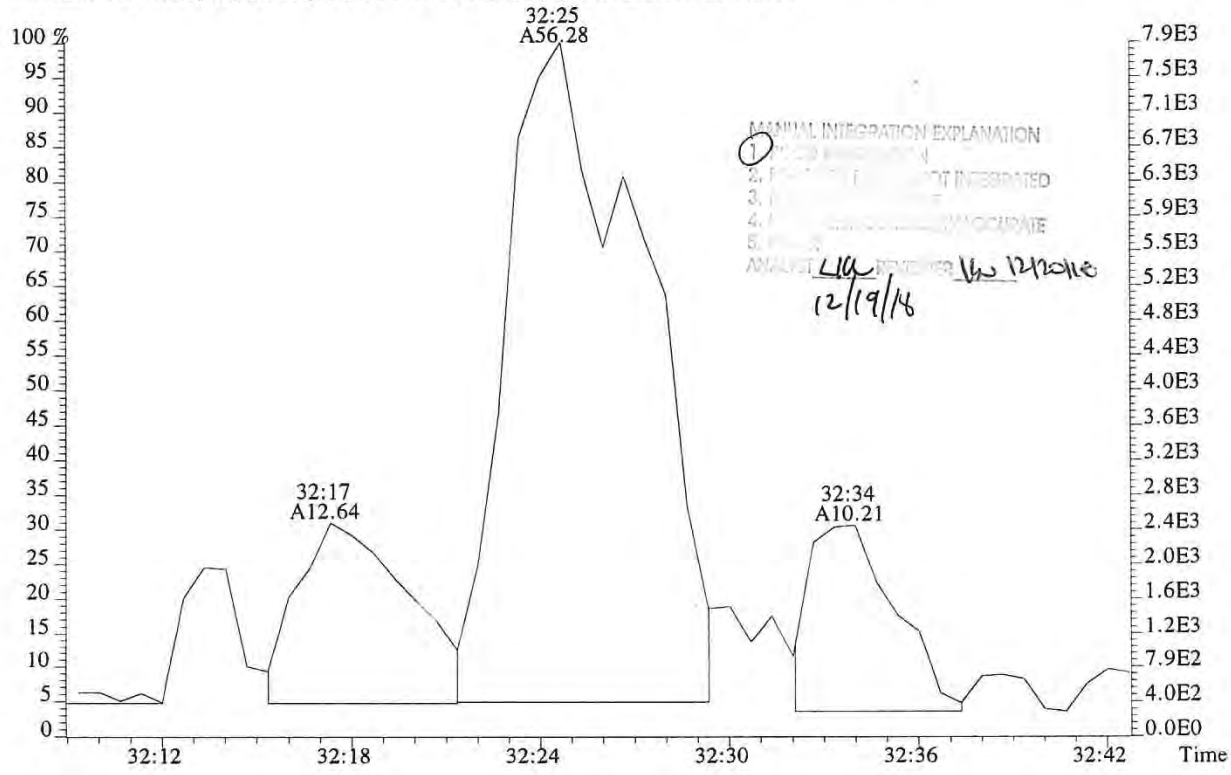


015339

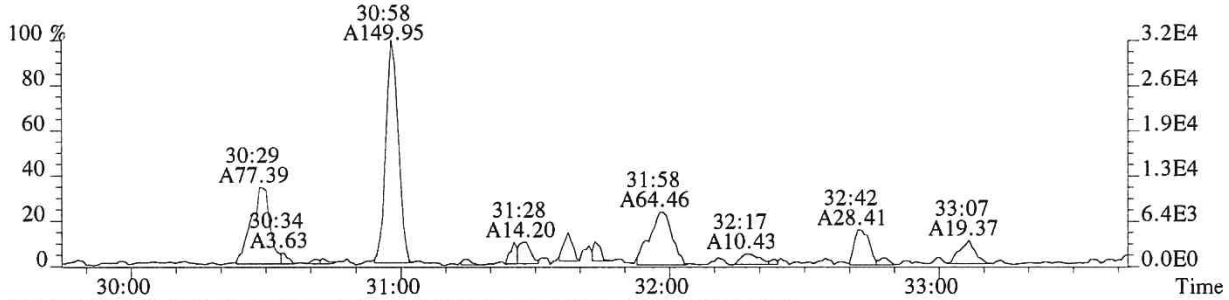
File:P519475 #1-357 Acq:18-DEC-2018 23:07:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-007
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1208.0,1.00%,F,T)



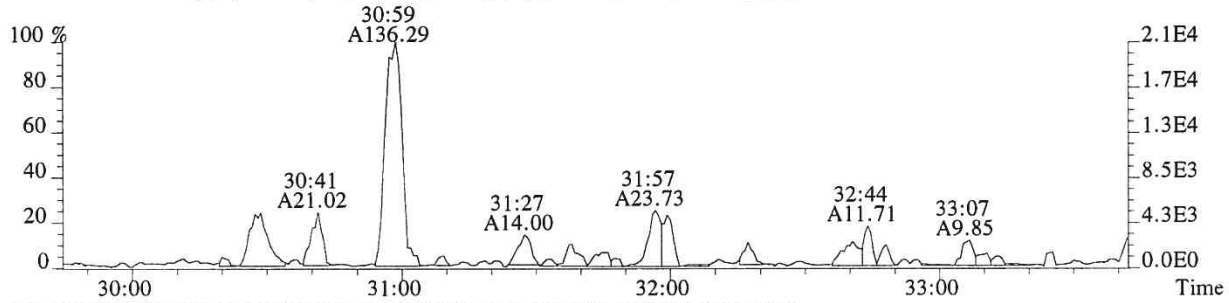
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,688.0,1.00%,F,T)



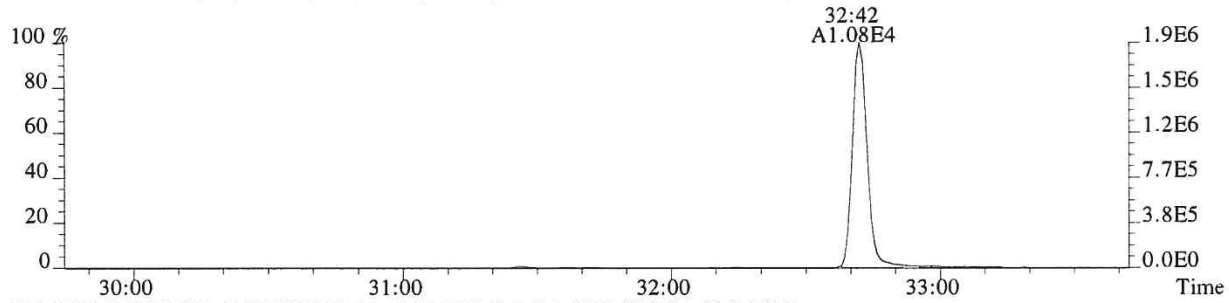
File:P519475 #1-357 Acq:18-DEC-2018 23:07:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-007
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,680.0,1.00%,F,T)



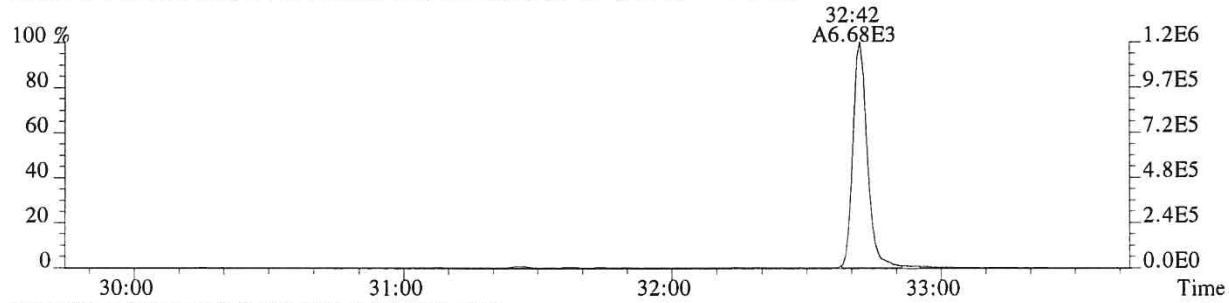
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,492.0,1.00%,F,T)



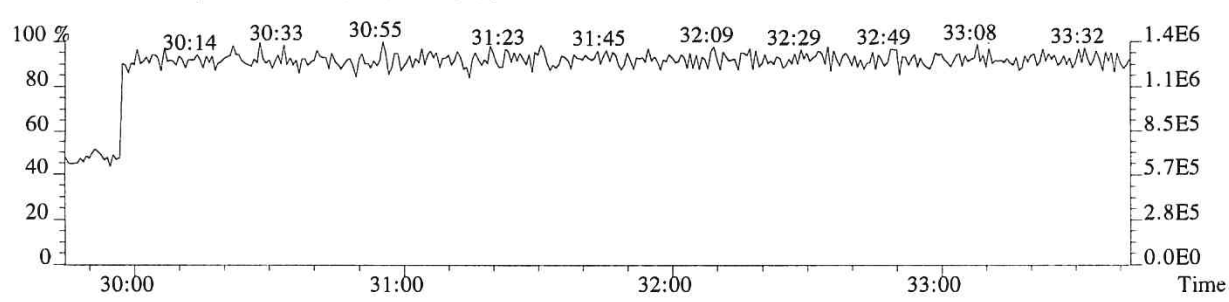
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,768.0,1.00%,F,T)



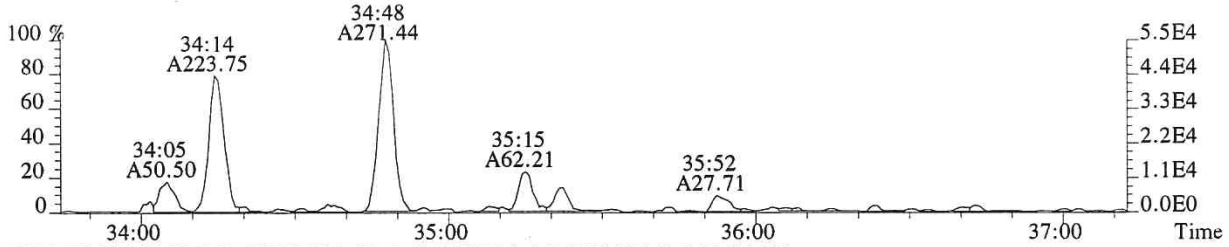
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,976.0,1.00%,F,T)



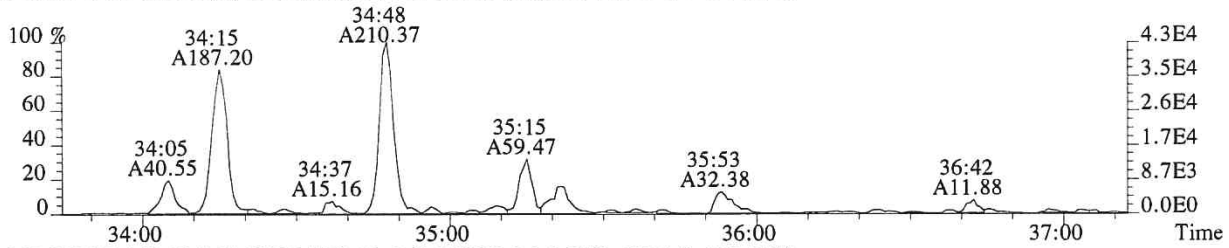
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



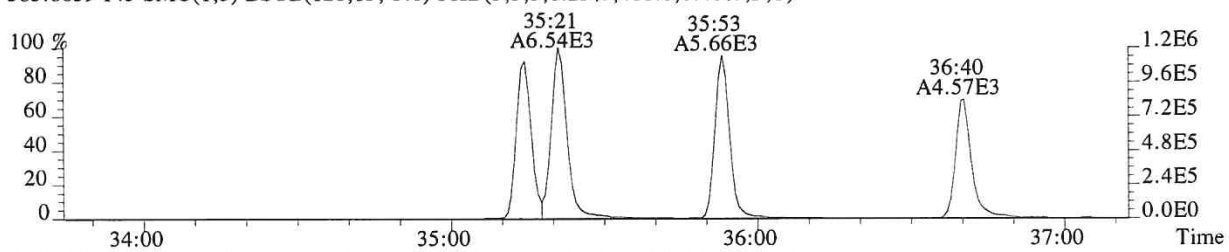
File:P519475 #1-313 Acq:18-DEC-2018 23:07:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-007
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,400.0,0.40%,F,T)



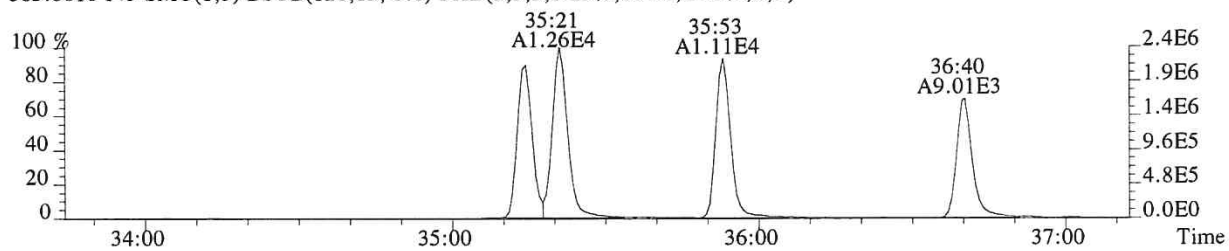
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,280.0,0.40%,F,T)



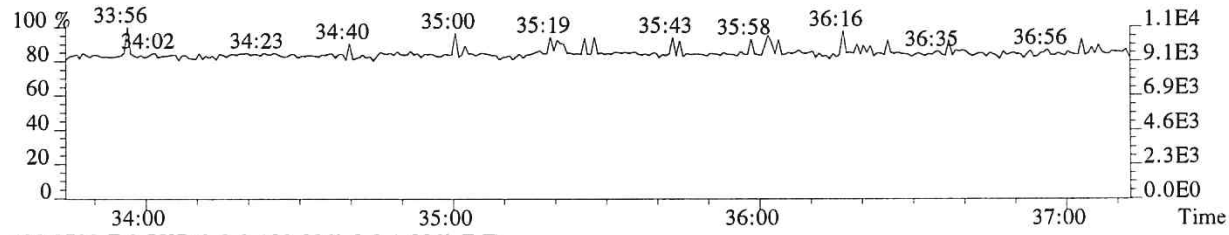
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,488.0,0.40%,F,T)



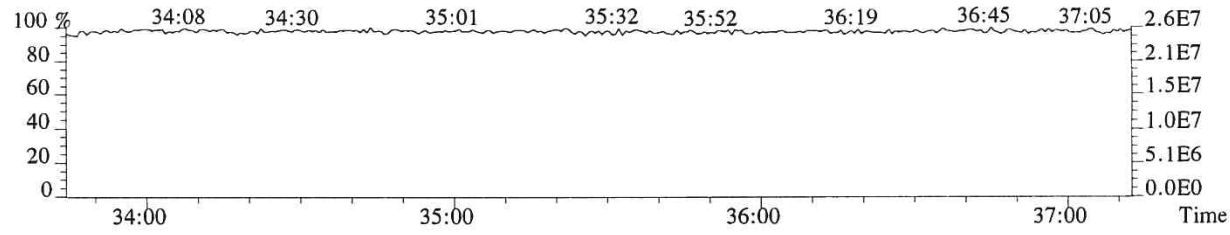
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,604.0,0.40%,F,T)



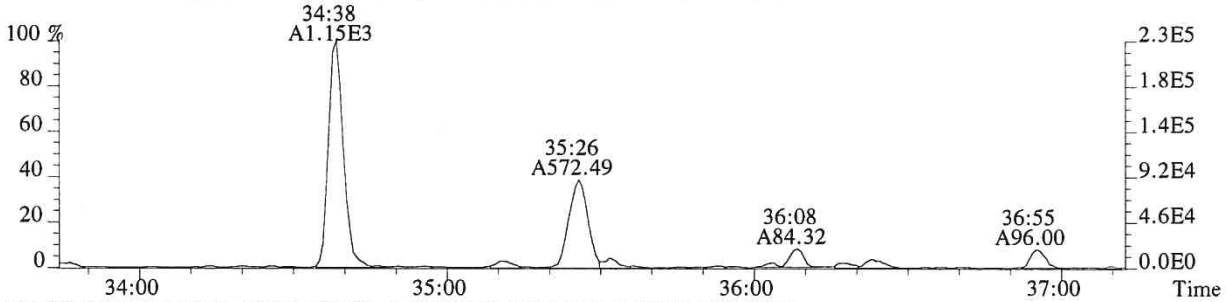
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



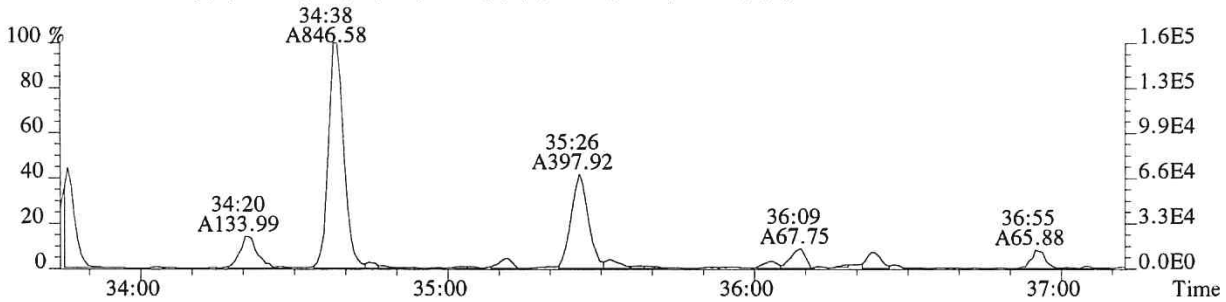
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



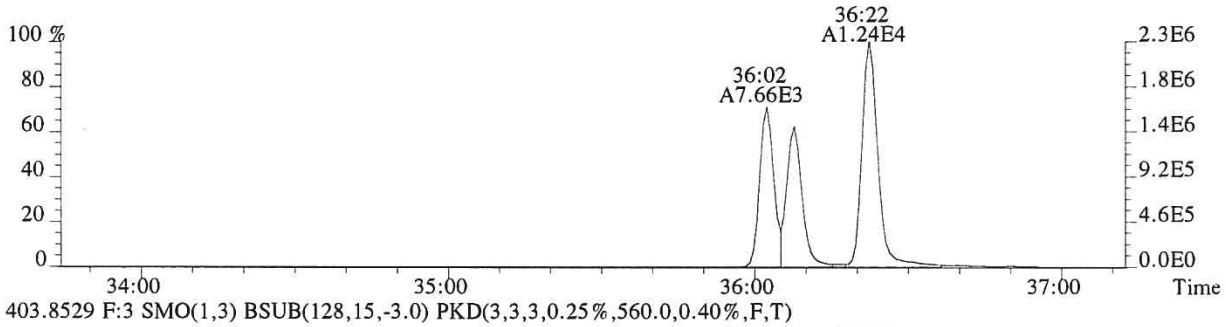
File:P519475 #1-313 Acq:18-DEC-2018 23:07:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-007
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1036.0,0.40%,F,T)



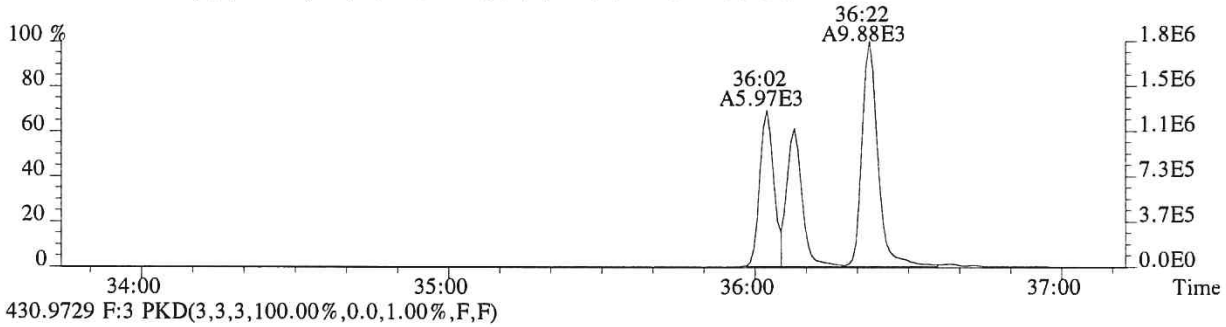
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,848.0,0.40%,F,T)



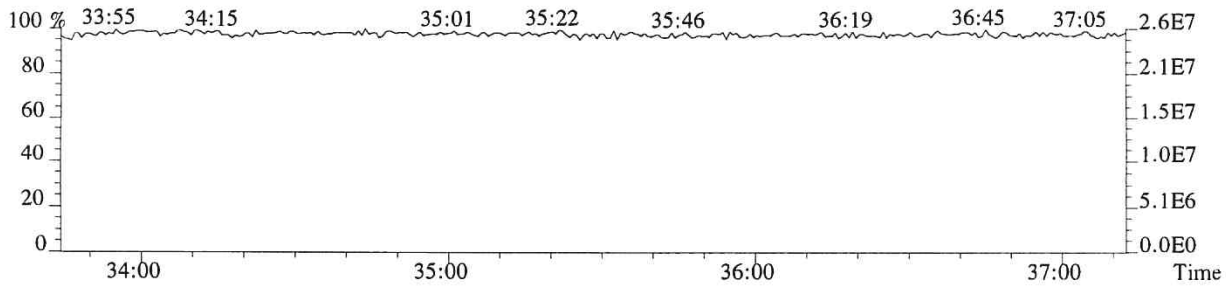
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,516.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,560.0,0.40%,F,T)

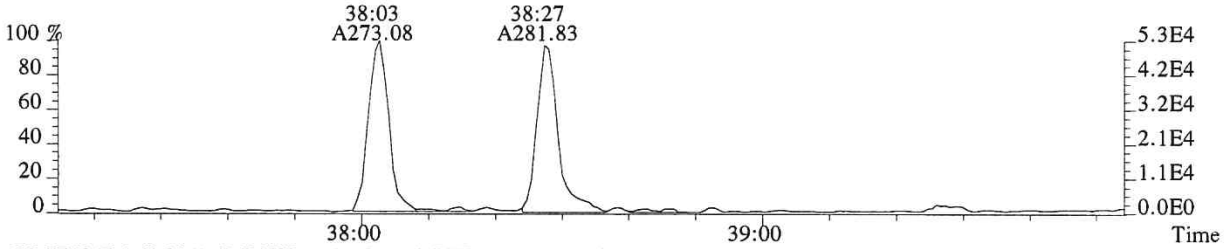


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

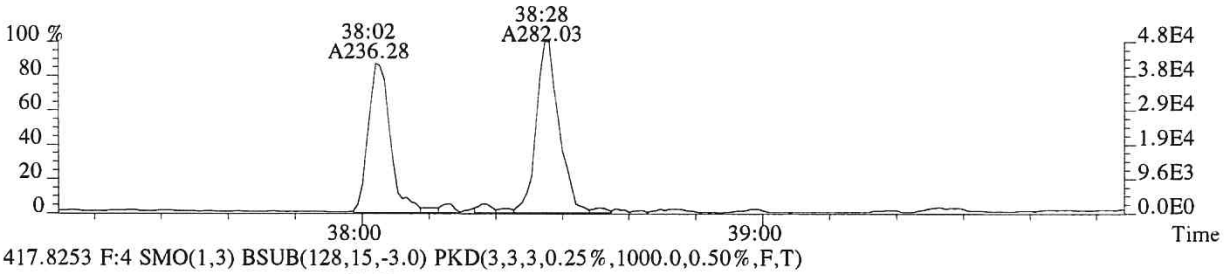


File:P519475 #1-240 Acq:18-DEC-2018 23:07:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-007

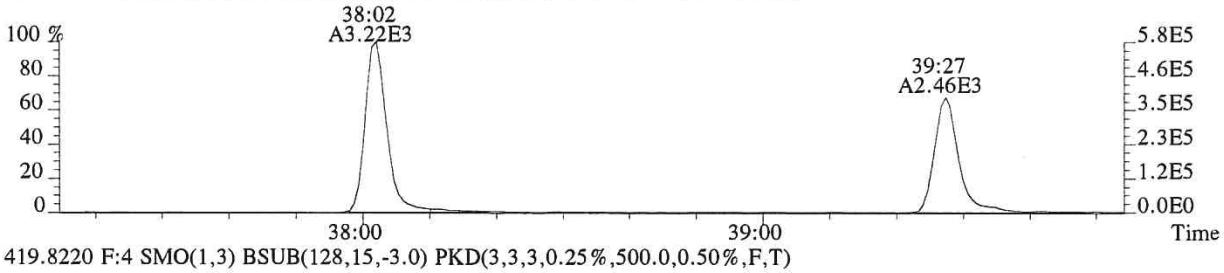
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1180.0,0.50%,F,T)



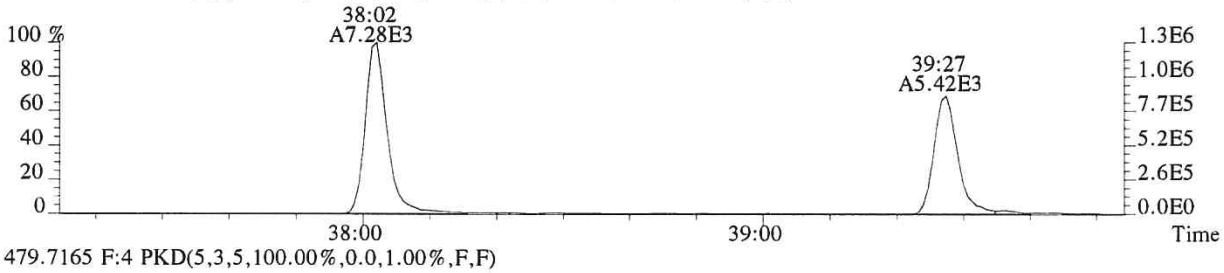
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,832.0,0.50%,F,T)



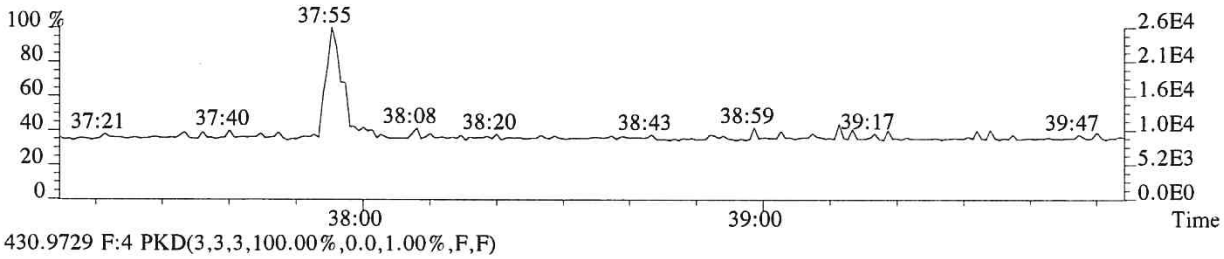
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1000.0,0.50%,F,T)



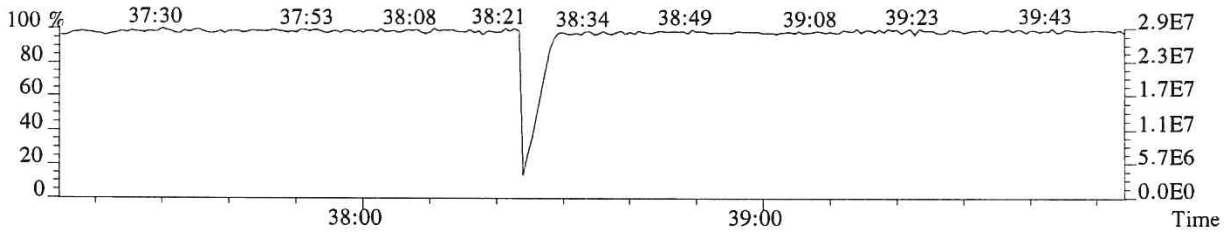
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,500.0,0.50%,F,T)



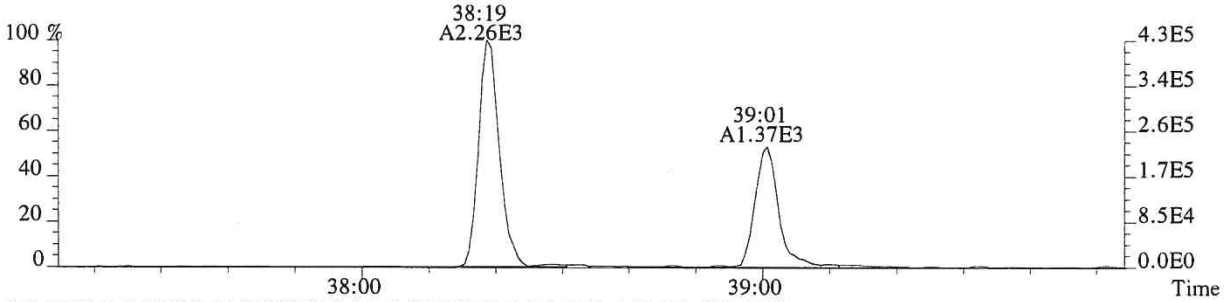
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



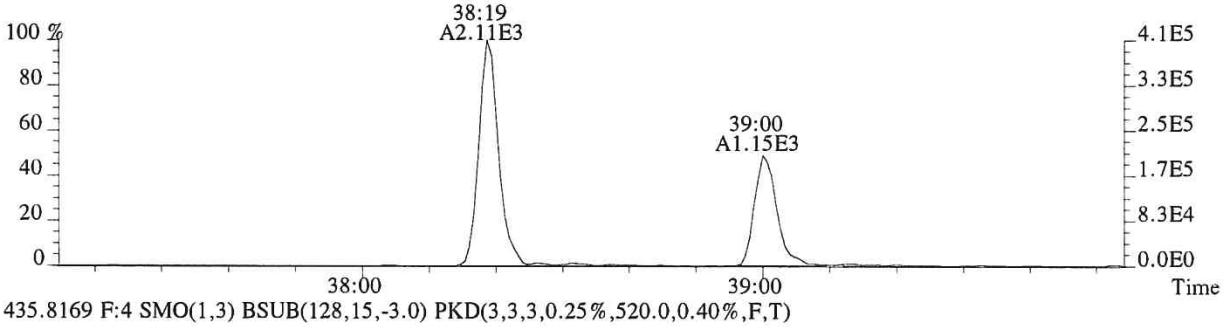
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



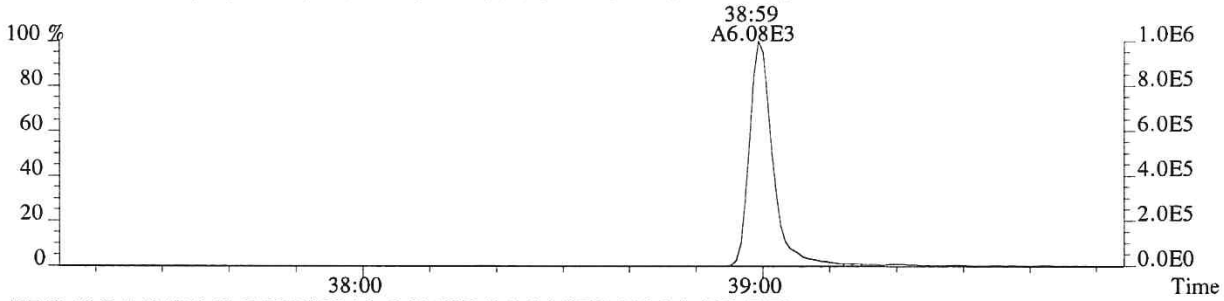
File:P519475 #1-240 Acq:18-DEC-2018 23:07:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-007
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,452.0,0.40%,F,T)



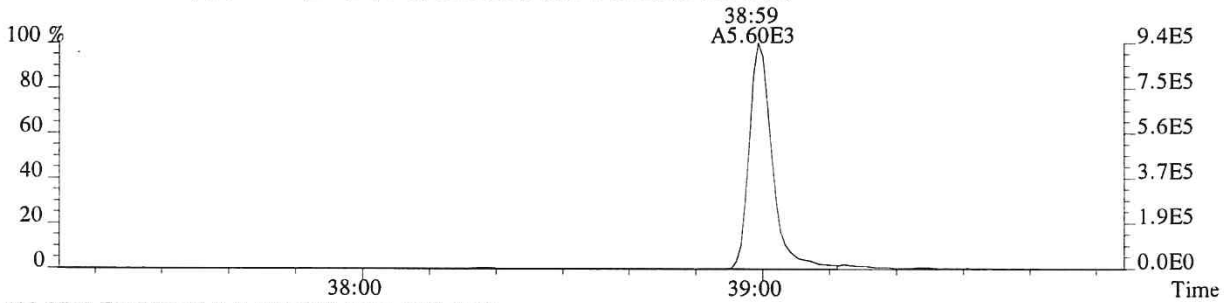
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,440.0,0.40%,F,T)



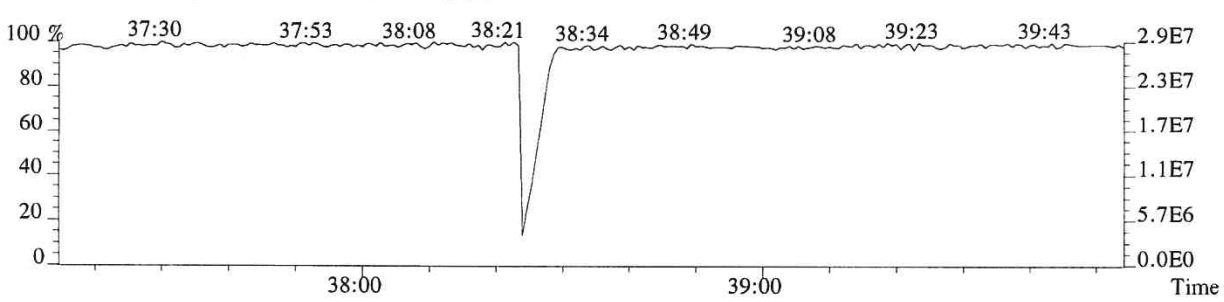
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,520.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,416.0,0.40%,F,T)

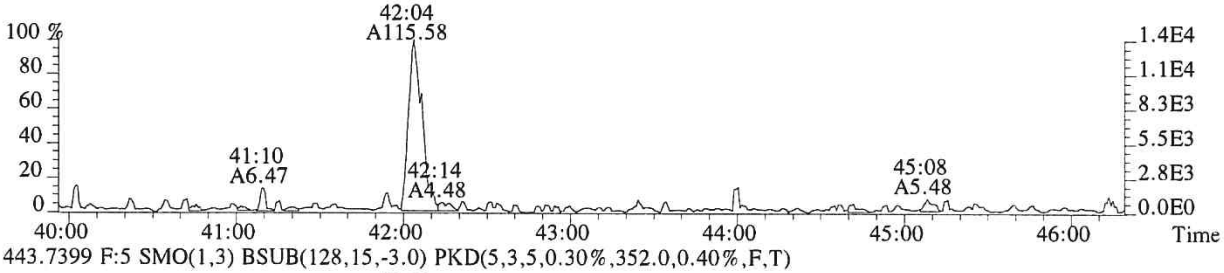


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

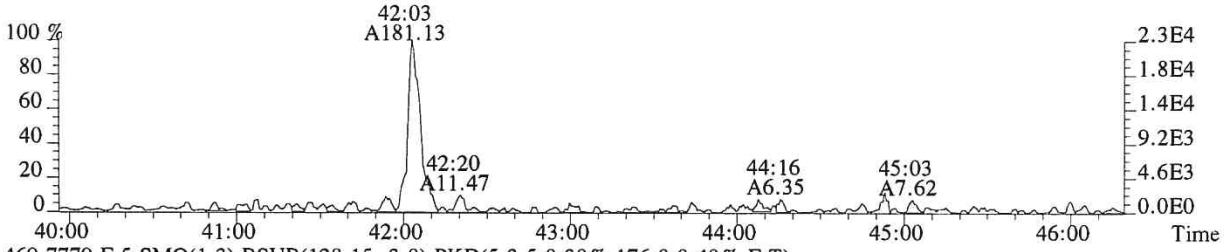


File:P519475 #1-575 Acq:18-DEC-2018 23:07:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-007

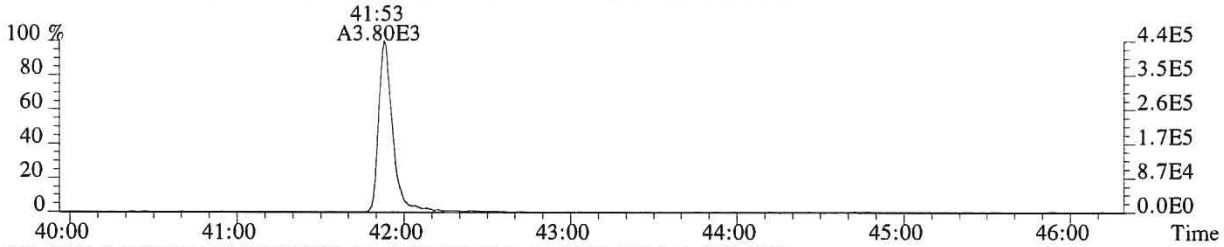
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,352.0,0.40%,F,T)



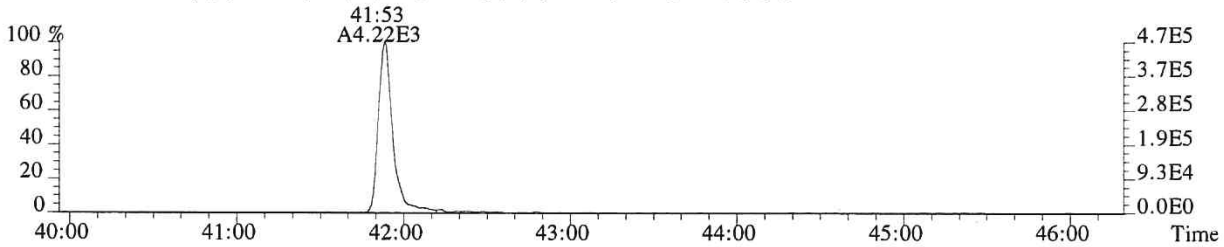
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,352.0,0.40%,F,T)



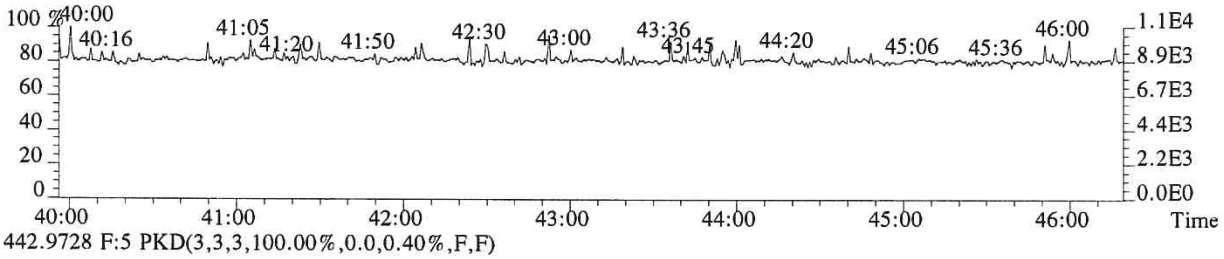
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,176.0,0.40%,F,T)



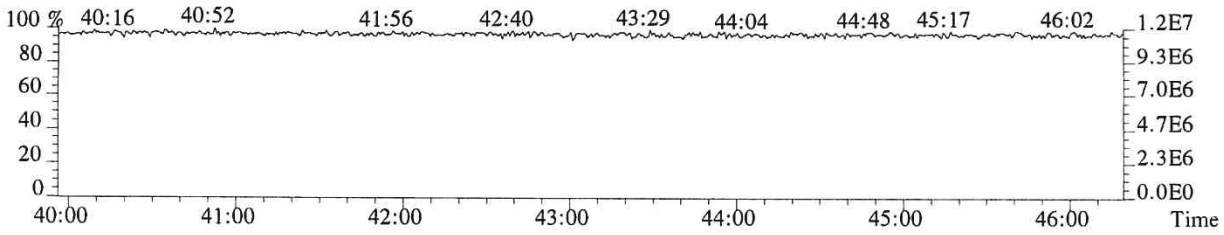
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,336.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

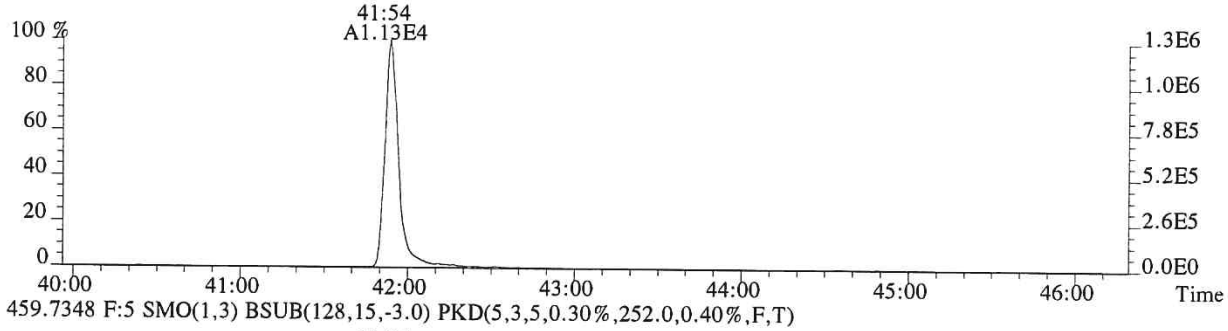


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

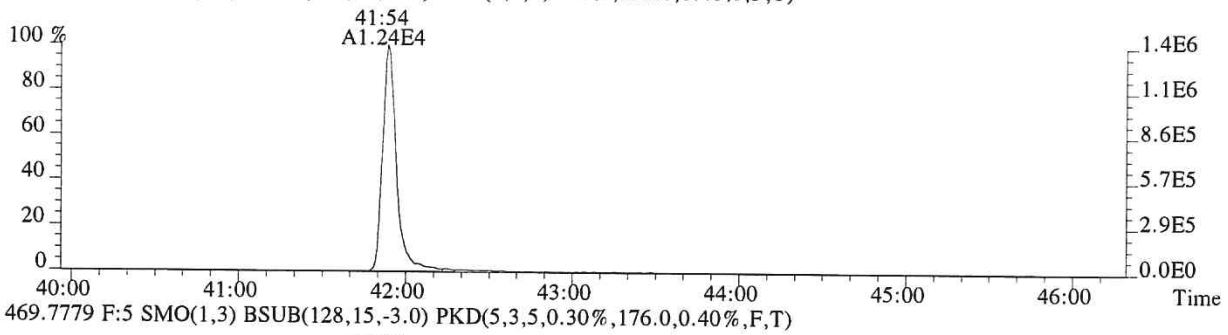


015346

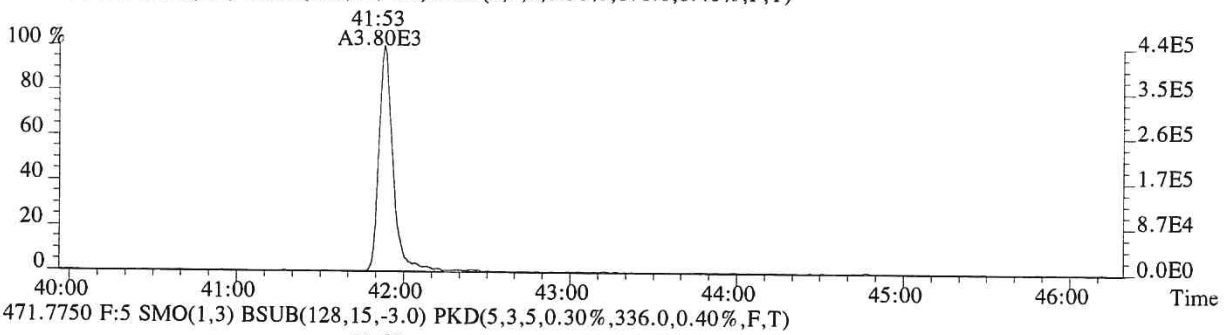
File:P519475 #1-575 Acq:18-DEC-2018 23:07:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-007
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,452.0,0.40%,F,T)



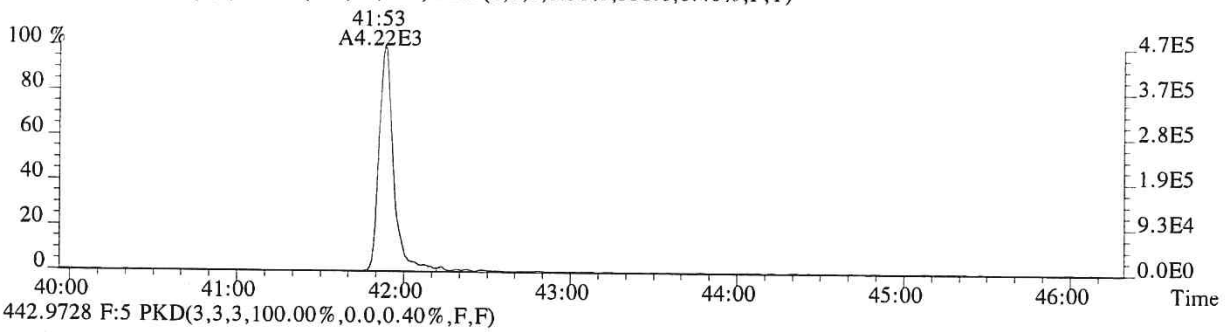
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,252.0,0.40%,F,T)



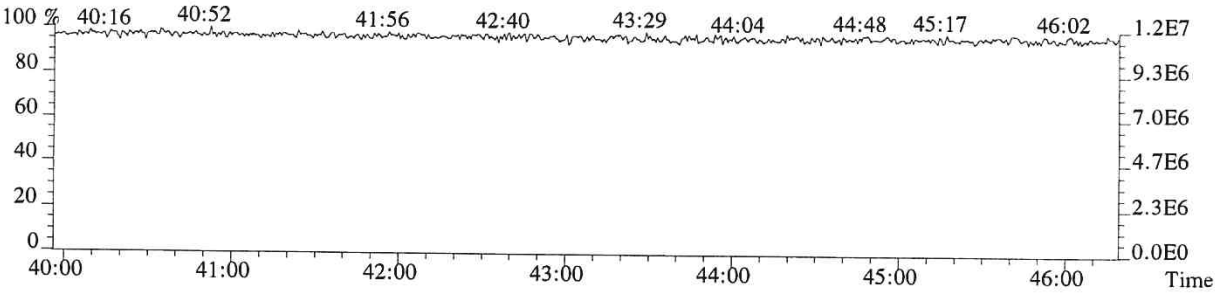
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,176.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,336.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0037

Run #9 Filename P519482 Samp: 1 Inj: 1 Acquired: 19-DEC-18 05:02:46
Processed: 20-DEC-18 15:32:37 Sample ID: E1801094-008

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:48	1.165e+02	1.420e+02	0.82	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	31:25	1.469e+01	9.906e+00	1.48	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	32:24	8.749e+00	4.976e+00	1.76	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:16	5.893e+00	1.172e+01	0.50	no	yes	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:22	9.283e+00	1.121e+01	0.83	no	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	yes	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:03	1.581e+01	1.440e+01	1.10	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.258
10	Unk	OCDF	42:05	1.274e+01	1.798e+01	0.71	no	yes	1.359
11	Unk	2,3,7,8-TCDD	27:41	4.392e+01	4.650e+01	0.94	no	no	1.085
12	Unk	1,2,3,7,8-PeCDD	32:43	1.583e+01	1.425e+01	1.11	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:10	1.470e+01	1.106e+01	1.33	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:24	2.976e+01	1.489e+01	2.00	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:01	3.152e+02	2.967e+02	1.06	yes	no	1.025
17	Unk	OCDD	41:56	3.505e+03	4.002e+03	0.88	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	26:47	9.723e+03	1.212e+04	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	31:25	1.613e+04	1.011e+04	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	32:24	1.597e+04	9.969e+03	1.60	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:15	6.231e+03	1.200e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:22	7.400e+03	1.459e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:54	6.615e+03	1.286e+04	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	36:41	5.372e+03	1.027e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:03	3.785e+03	8.411e+03	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:29	2.742e+03	6.552e+03	0.42	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	27:41	4.172e+03	5.345e+03	0.78	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:43	1.211e+04	7.582e+03	1.60	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:03	8.872e+03	6.828e+03	1.30	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:08	8.997e+03	7.004e+03	1.28	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:01	7.222e+03	6.647e+03	1.09	yes	no	0.858
32	IS	13C-OCDD	41:55	5.060e+03	5.580e+03	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:03	1.382e+04	1.699e+04	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:23	1.620e+04	1.213e+04	1.34	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:42	6.043e+03				no	1.014

$$\text{OCDD} = \frac{(3.505e+03 + 4.002e+03) \times 4000\ \text{pg} \times 1}{(5.060e+03 + 5.580e+03) \times 10.180\ \text{g} \times 79.3 / 100 \times 1.118} = 314\ \text{ng/kg}$$

KJ 12/21/18

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0037

Run #9 Filename P519482 Samp: 1 Inj: 1 Acquired: 19-DEC-18 05:02:46
Processed: 20-DEC-18 15:32:37 LAB. ID: E1801094-008

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.89e+04	6.92e+02	2.7e+01	1.96e+04	9.12e+02	2.1e+01
2	1,2,3,7,8-PeCDF	2.41e+03	3.52e+02	6.9e+00	2.31e+03	5.00e+02	4.6e+00
3	2,3,4,7,8-PeCDF	1.72e+03	3.52e+02	4.9e+00	1.59e+03	5.00e+02	3.2e+00
4	1,2,3,4,7,8-HxCDF	1.40e+03	4.44e+02	3.1e+00	2.77e+03	3.56e+02	7.8e+00
5	1,2,3,6,7,8-HxCDF	1.68e+03	4.44e+02	3.8e+00	1.75e+03	3.56e+02	4.9e+00
6	2,3,4,6,7,8-HxCDF	*	4.44e+02	*	*	3.56e+02	*
7	1,2,3,7,8,9-HxCDF	*	4.44e+02	*	*	3.56e+02	*
8	1,2,3,4,6,7,8-HpCDF	3.09e+03	3.24e+02	9.5e+00	3.24e+03	2.96e+02	1.1e+01
9	1,2,3,4,7,8,9-HpCDF	*	3.24e+02	*	*	2.96e+02	*
10	OCDF	3.09e+03	4.88e+02	6.3e+00	3.99e+03	4.08e+02	9.8e+00
11	2,3,7,8-TCDD	7.89e+03	1.42e+03	5.6e+00	7.08e+03	1.01e+03	7.0e+00
12	1,2,3,7,8-PeCDD	4.12e+03	5.68e+02	7.3e+00	3.17e+03	3.08e+02	1.0e+01
13	1,2,3,4,7,8-HxCDD	*	4.72e+02	*	*	5.08e+02	*
14	1,2,3,6,7,8-HxCDD	3.52e+03	4.72e+02	7.5e+00	2.26e+03	5.08e+02	4.4e+00
15	1,2,3,7,8,9-HxCDD	7.24e+03	4.72e+02	1.5e+01	2.77e+03	5.08e+02	5.5e+00
16	1,2,3,4,6,7,8-HpCDD	5.52e+04	8.68e+02	6.4e+01	4.73e+04	4.20e+02	1.1e+02
17	OCDD	3.93e+05	3.68e+02	1.1e+03	4.45e+05	4.28e+02	1.0e+03
18	13C-2,3,7,8-TCDF	1.52e+06	3.32e+03	4.6e+02	1.89e+06	2.12e+03	8.9e+02
19	13C-1,2,3,7,8-PeCDF	2.76e+06	2.88e+02	9.6e+03	1.71e+06	4.76e+02	3.6e+03
20	13C-2,3,4,7,8-PeCDF	2.99e+06	2.88e+02	1.0e+04	1.81e+06	4.76e+02	3.8e+03
21	13C-1,2,3,4,7,8-HxCDF	1.26e+06	4.52e+02	2.8e+03	2.44e+06	7.16e+02	3.4e+03
22	13C-1,2,3,6,7,8-HxCDF	1.36e+06	4.52e+02	3.0e+03	2.73e+06	7.16e+02	3.8e+03
23	13C-2,3,4,6,7,8-HxCDF	1.31e+06	4.52e+02	2.9e+03	2.55e+06	7.16e+02	3.6e+03
24	13C-1,2,3,7,8,9-HxCDF	9.66e+05	4.52e+02	2.1e+03	1.85e+06	7.16e+02	2.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	6.76e+05	1.18e+03	5.7e+02	1.49e+06	1.26e+03	1.2e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.34e+05	1.18e+03	3.7e+02	1.01e+06	1.26e+03	8.1e+02
27	13C-2,3,7,8-TCDD	7.12e+05	3.50e+03	2.0e+02	8.95e+05	1.34e+03	6.7e+02
28	13C-1,2,3,7,8-PeCDD	2.23e+06	3.80e+02	5.9e+03	1.36e+06	5.80e+02	2.4e+03
29	13C-1,2,3,4,7,8-HxCDD	1.86e+06	4.84e+02	3.8e+03	1.41e+06	3.92e+02	3.6e+03
30	13C-1,2,3,6,7,8-HxCDD	1.68e+06	4.84e+02	3.5e+03	1.31e+06	3.92e+02	3.4e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.21e+06	4.36e+02	2.8e+03	1.10e+06	3.44e+02	3.2e+03
32	13C-OCDD	5.51e+05	3.64e+02	1.5e+03	6.34e+05	3.60e+02	1.8e+03
33	13C-1,2,3,4-TCDD	2.36e+06	3.50e+03	6.7e+02	2.92e+06	1.34e+03	2.2e+03
34	13C-1,2,3,7,8,9-HxCDD	2.95e+06	4.84e+02	6.1e+03	2.18e+06	3.92e+02	5.6e+03
35	37Cl-2,3,7,8-TCDD	1.04e+06	6.40e+02	1.6e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.420e+03 + 1.008e+03) \times 2000}{(7.121e+05 + 8.946e+05) \times (\quad) \times 1.085} =$$

ALS ENVIRONMENTAL
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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0037

Entry: 36 Totals Name: Total Tetra-Furans

Run: 9 File: P519482 Sample:1 Injection:1 Function:1

Acquired: 19-DEC-18 05:02:46 Processed: 20-DEC-18 15:32:37

Mass: 303.9020 305.8990 Tot Response: 2.91e+02 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	26:48	1.17e+02	1.42e+02	0.82	yes	2.58e+02	2,3,7,8-TCDF	n	n
2	27:13	1.50e+01	1.78e+01	0.84	yes	3.29e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0037

Entry: 39 Totals Name: Total Penta-Furans2

Run: 9 File: P519482 Sample:1 Injection:1 Function:2

Acquired: 19-DEC-18 05:02:46 Processed: 20-DEC-18 15:32:37

Mass: 339.8600 341.8570 Tot Response: 3.83e+01 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:25	1.47e+01	9.91e+00 1.48	yes	2.46e+01	1,2,3,7,8-PeCDF	n	n
2	32:24	8.75e+00	4.98e+00 1.76	yes	1.37e+01	2,3,4,7,8-PeCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0037

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 9 File: P519482 Sample:1 Injection:1 Function:3

Acquired: 19-DEC-18 05:02:46 Processed: 20-DEC-18 15:32:37

Mass: 389.8160 391.8130 Tot Response: 6.71e+02 RRF: 1.047

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:39	3.57e+02	2.58e+02 1.38	yes	6.15e+02		n	n
2	35:34	1.69e+01	1.34e+01 1.26	yes	3.03e+01		n	n
3	36:10	1.47e+01	1.11e+01 1.33	yes	2.58e+01	1,2,3,6,7,8-HxCDD	n	n

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Peak List Summary

CLIENT ID.
SL0037

Entry: 43 Totals Name: Total Hepta-Furans

Run: 9 File: P519482 Sample:1 Injection:1 Function:4

Acquired: 19-DEC-18 05:02:46 Processed: 20-DEC-18 15:32:37

Mass: 407.7820 409.7790 Tot Response: 3.02e+01 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:03	1.58e+01	1.44e+01 1.10	yes	3.02e+01	1,2,3,4,6,7,8-HpCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0037

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 9 File: P519482 Sample:1 Injection:1 Function:4

Acquired: 19-DEC-18 05:02:46 Processed: 20-DEC-18 15:32:37

Mass: 423.7770 425.7740 Tot Response: 2.19e+03 RRF: 1.025

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:20	8.17e+02	7.61e+02	1.07	yes	1.58e+03		n	n
2	39:01	3.15e+02	2.97e+02	1.06	yes	6.12e+02	1,2,3,4,6,7,8-HpCDD	n	n

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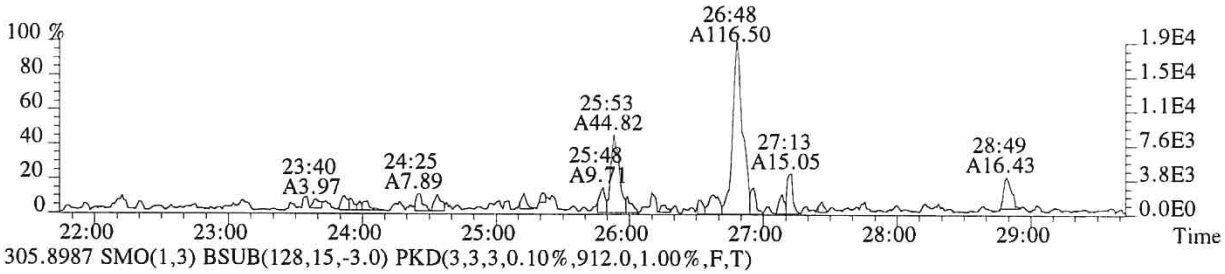
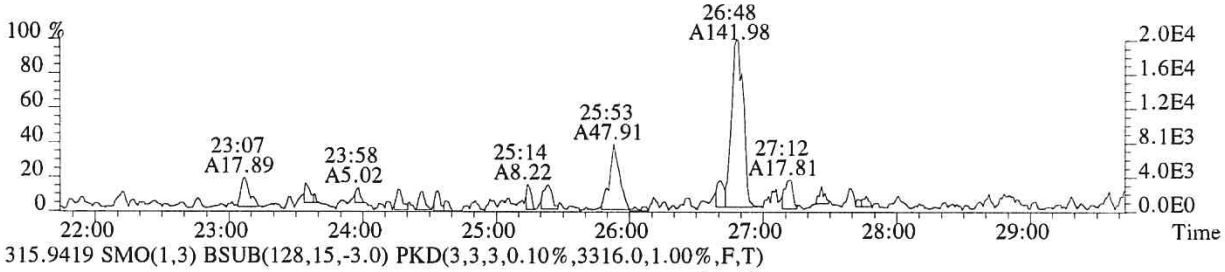
File:P519482 #1-566 Acq:19-DEC-2018 05:02:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-008

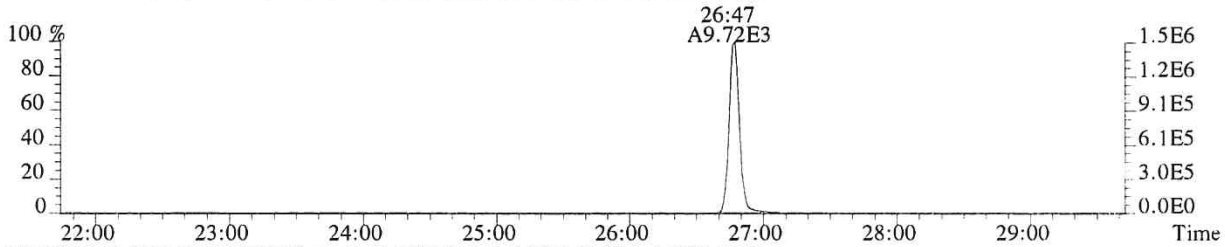
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,692.0,1.00%,F,T)



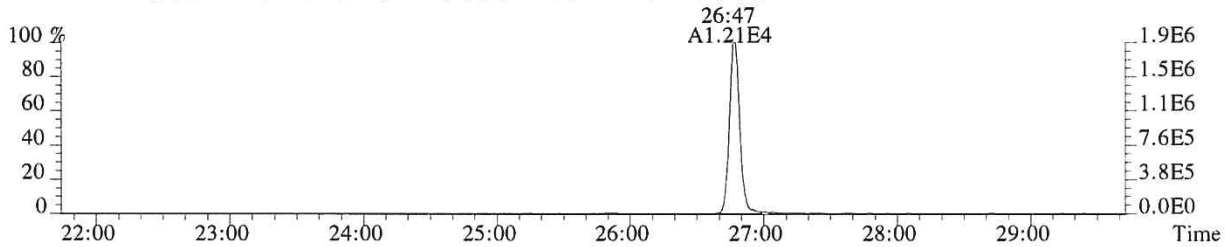
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,912.0,1.00%,F,T)



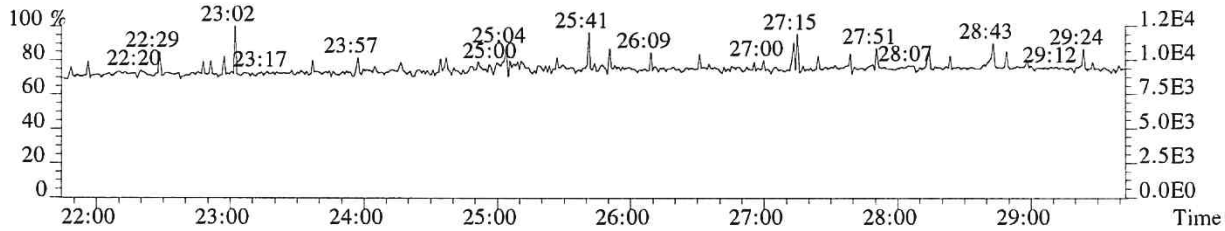
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3316.0,1.00%,F,T)



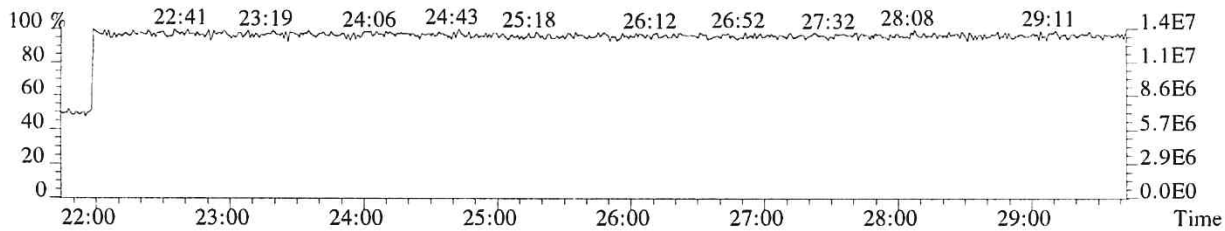
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2116.0,1.00%,F,T)



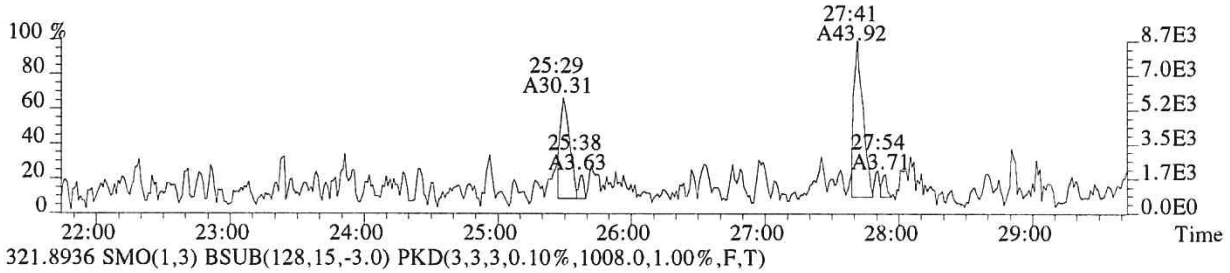
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



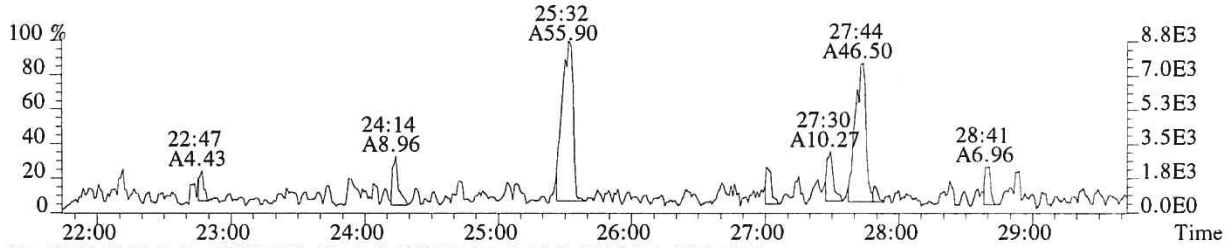
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



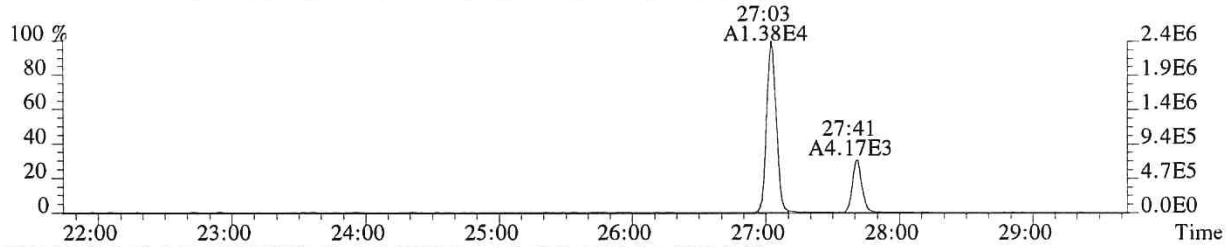
File:P519482 #1-566 Acq:19-DEC-2018 05:02:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-008
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1420.0,1.00%,F,T)



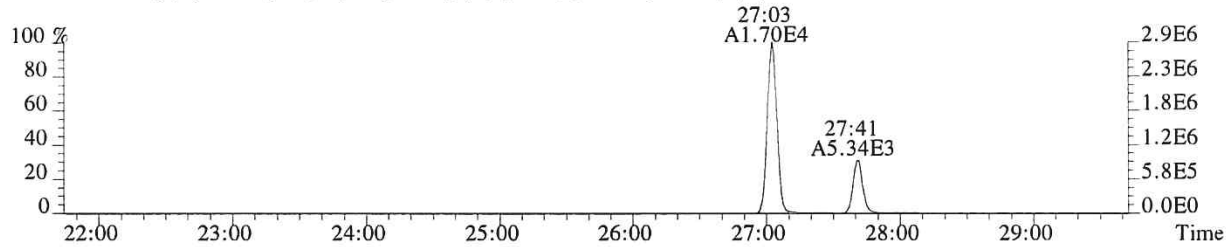
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1008.0,1.00%,F,T)



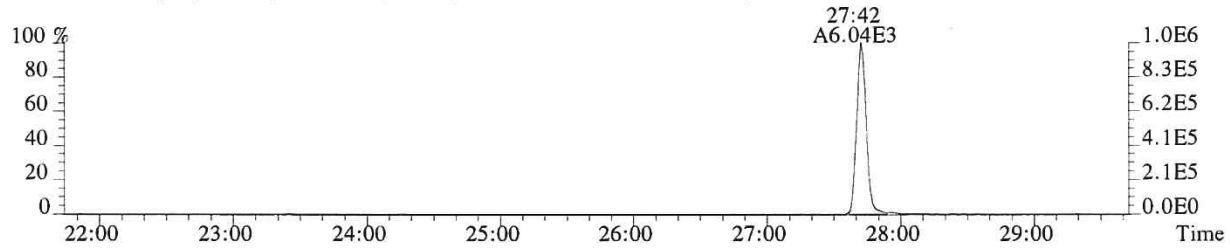
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3500.0,1.00%,F,T)



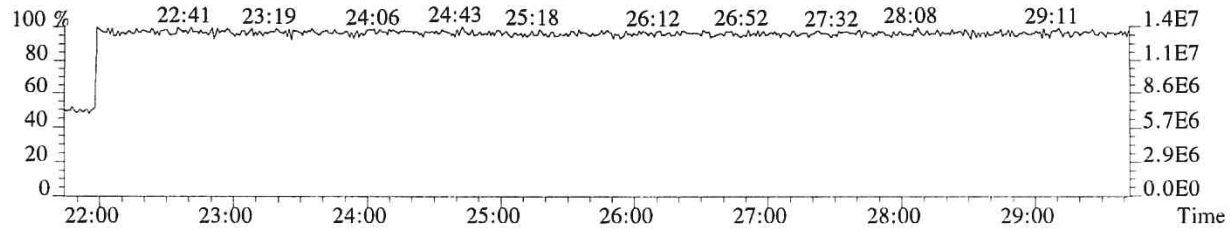
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1340.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,640.0,1.00%,F,T)



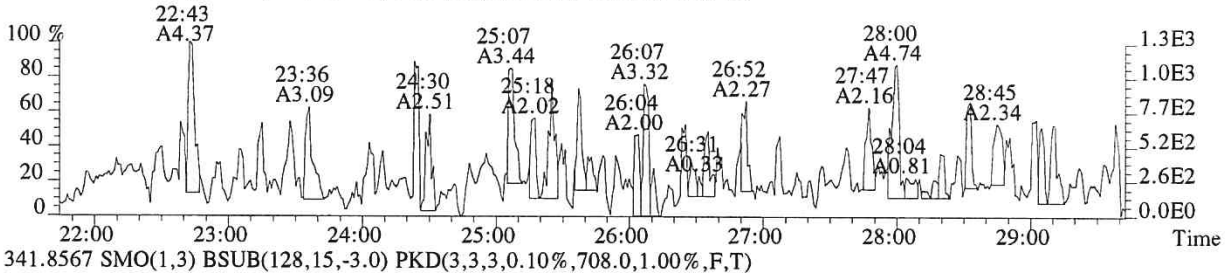
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



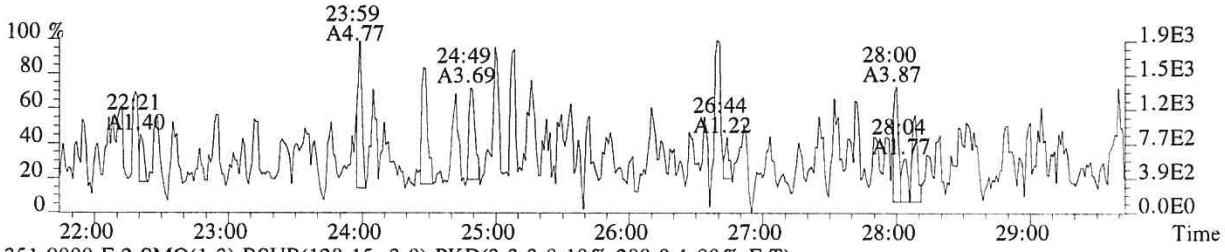
015356

File:P519482 #1-566 Acq:19-DEC-2018 05:02:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-008

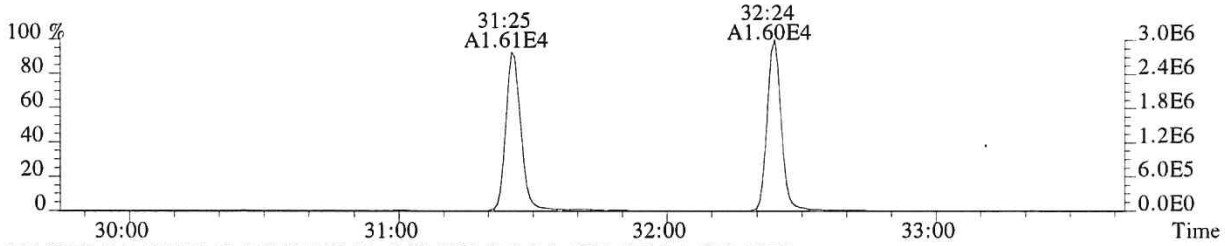
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,312.0,1.00%,F,T)



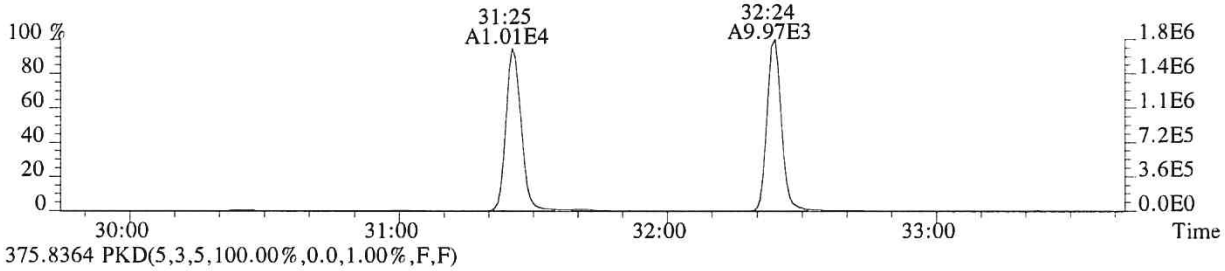
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,708.0,1.00%,F,T)



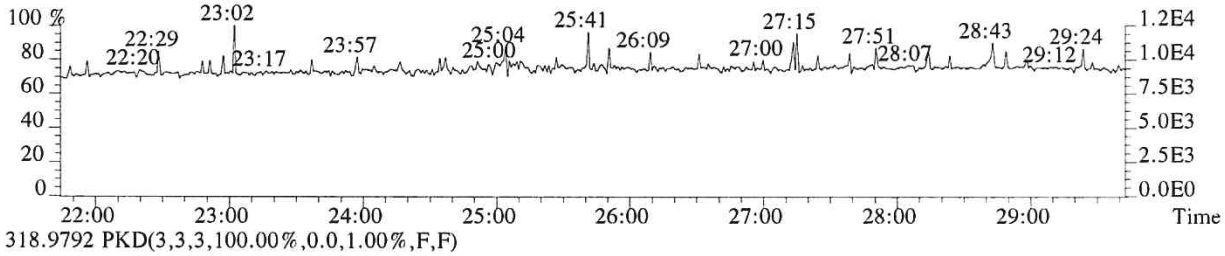
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,288.0,1.00%,F,T)



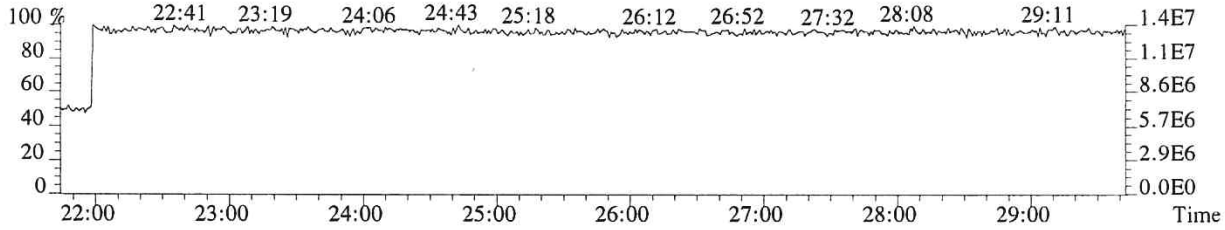
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,476.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

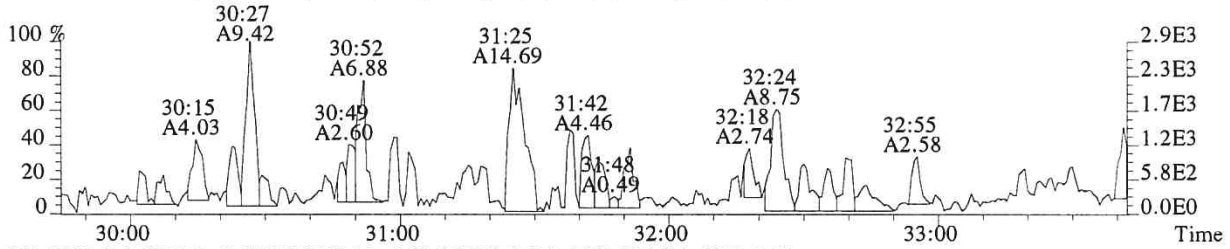


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

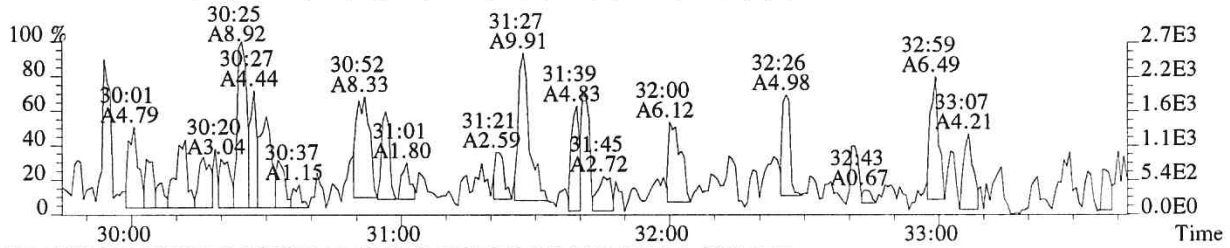


015357

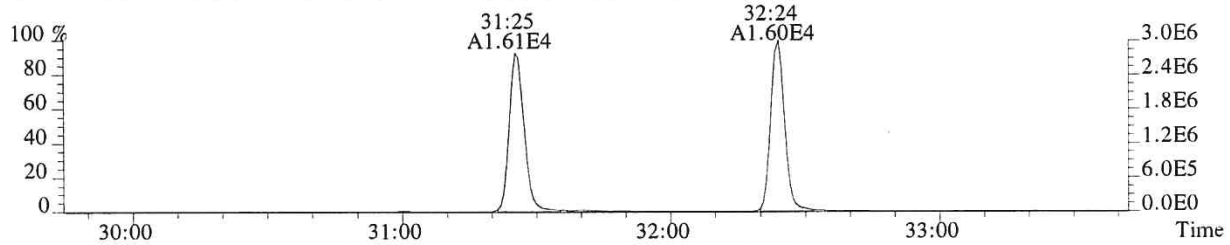
File:P519482 #1-357 Acq:19-DEC-2018 05:02:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-008
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,352.0,1.00%,F,T)



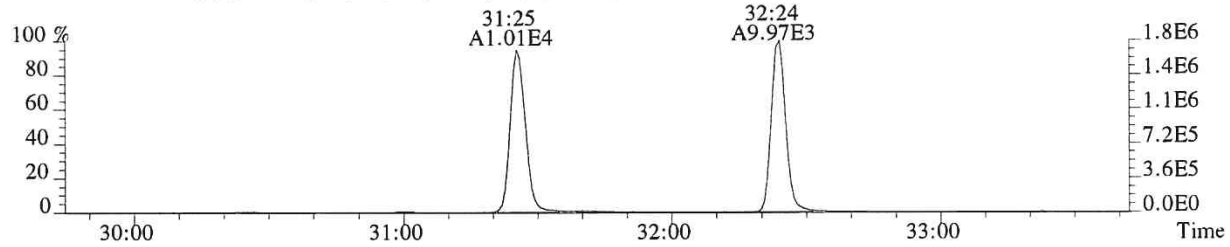
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,500.0,1.00%,F,T)



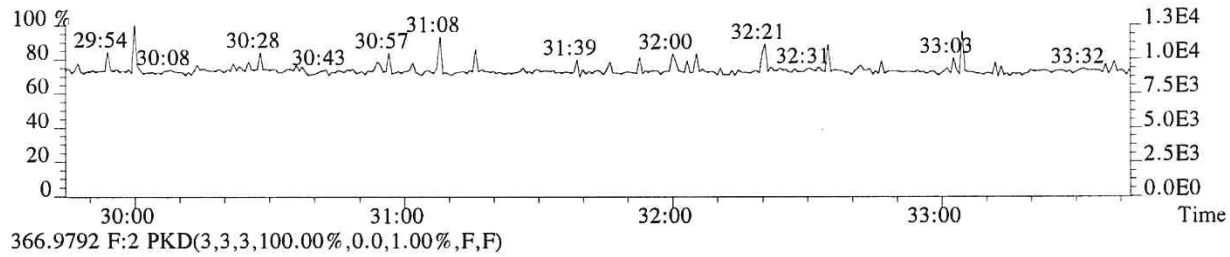
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,288.0,1.00%,F,T)



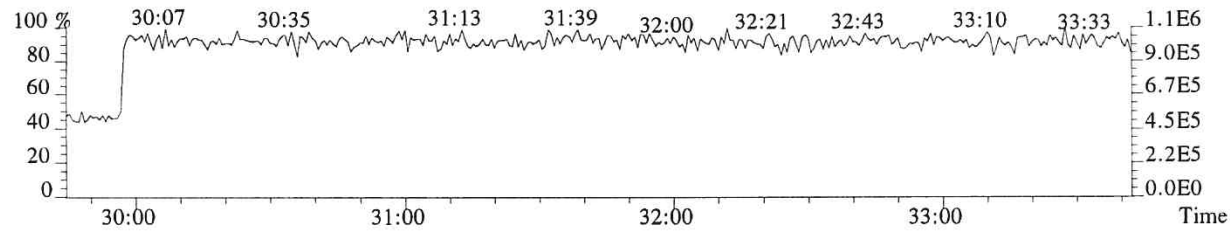
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,476.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

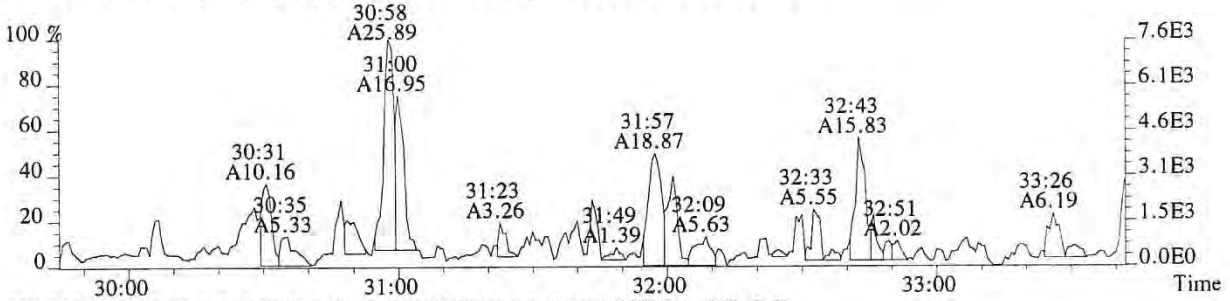


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

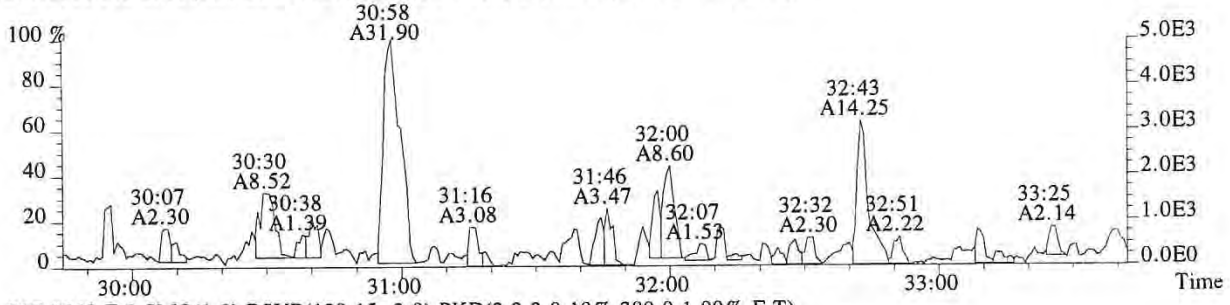


015358

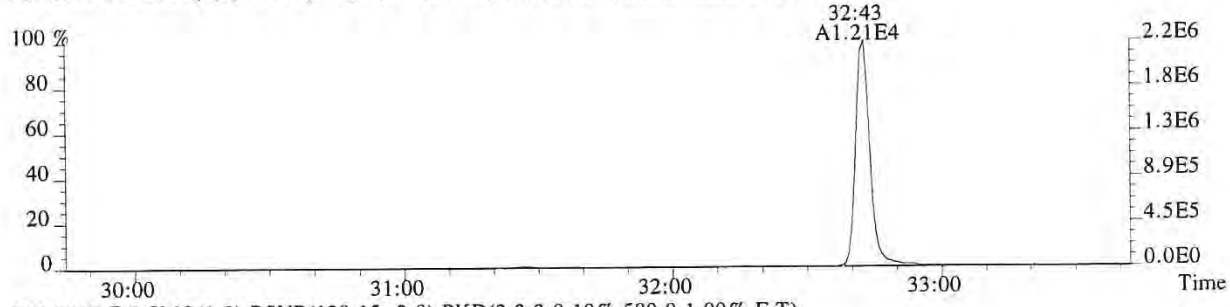
File:P519482 #1-357 Acq:19-DEC-2018 05:02:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-008
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,568.0,1.00%,F,T)



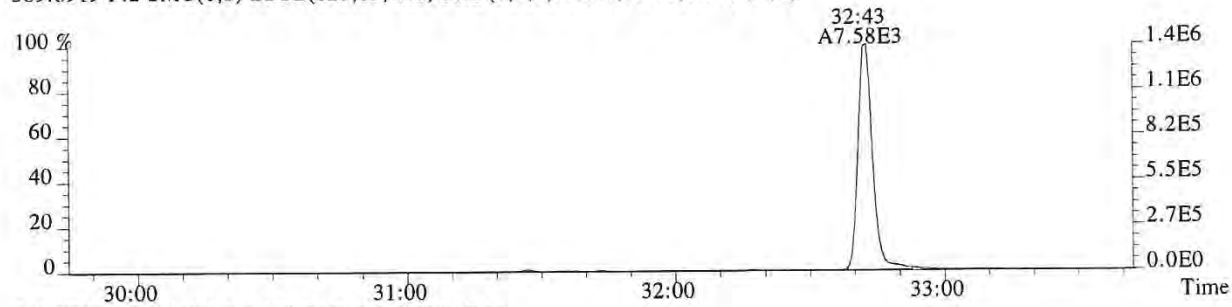
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,308.0,1.00%,F,T)



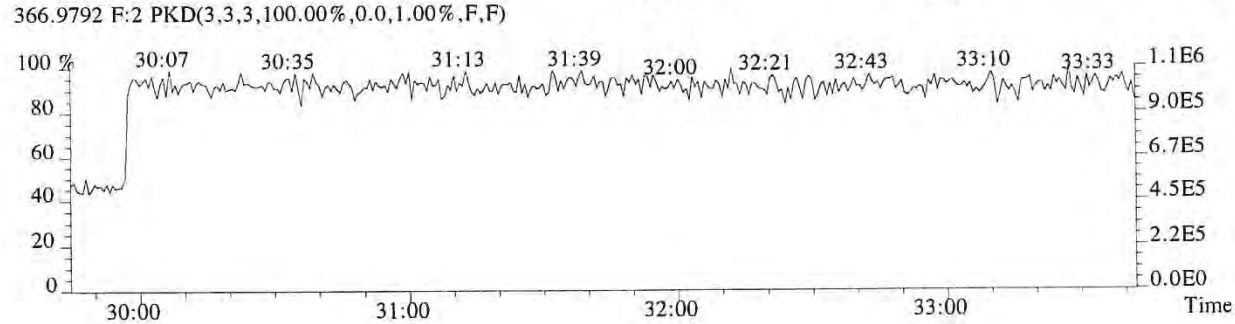
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,380.0,1.00%,F,T)



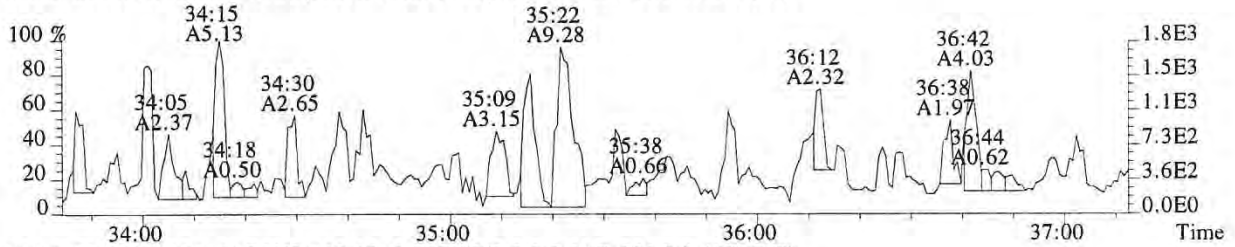
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,580.0,1.00%,F,T)



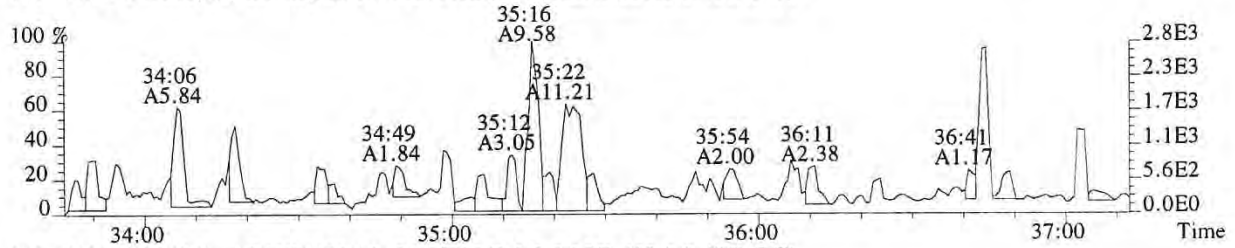
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



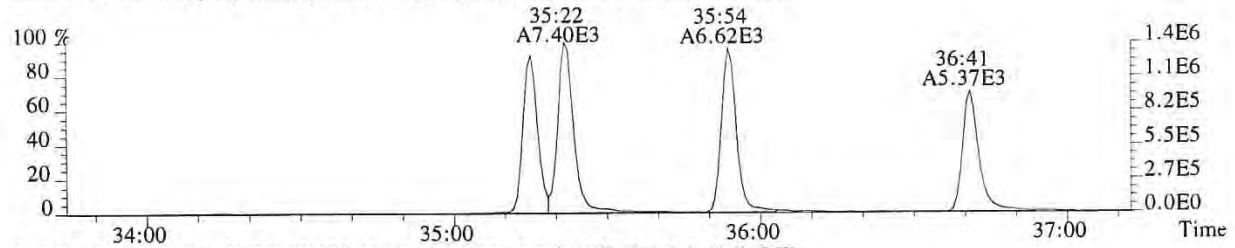
File:P519482 #1-313 Acq:19-DEC-2018 05:02:46 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801094-008
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,444.0,0.40%,F,T)



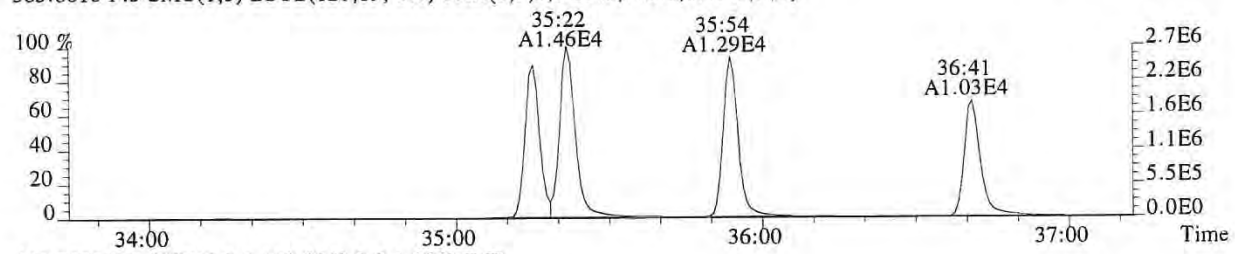
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,356.0,0.40%,F,T)



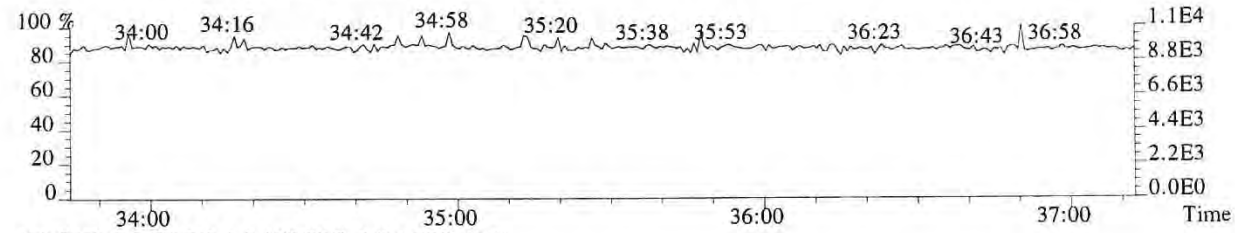
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,452.0,0.40%,F,T)



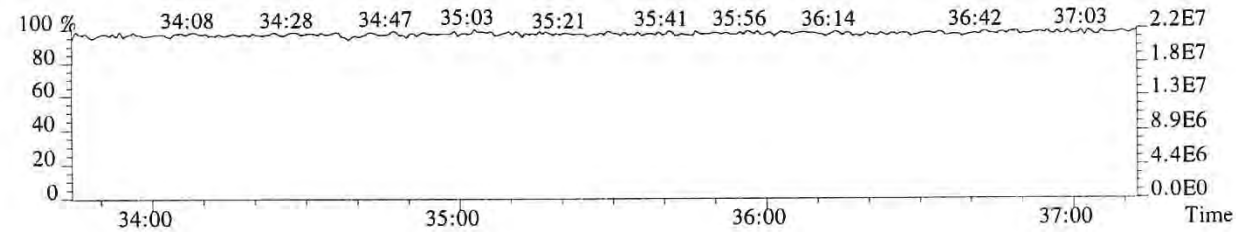
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,716.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

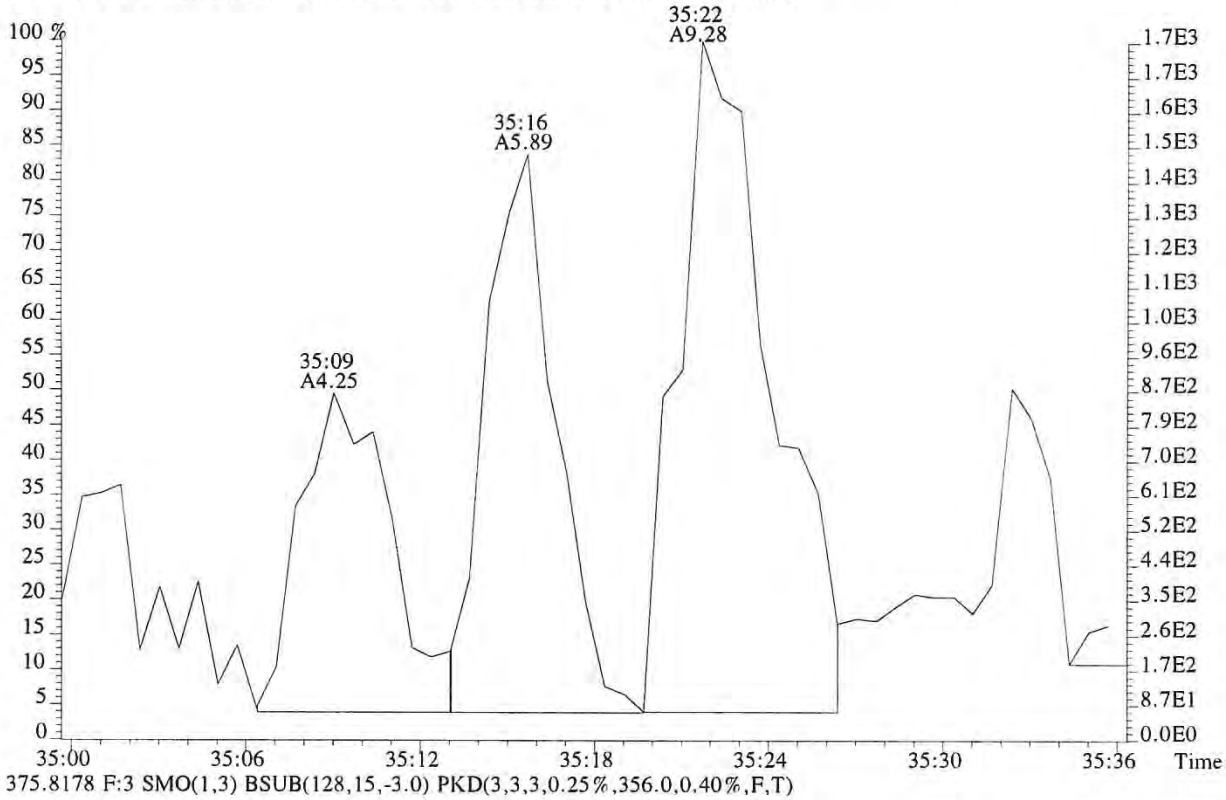


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

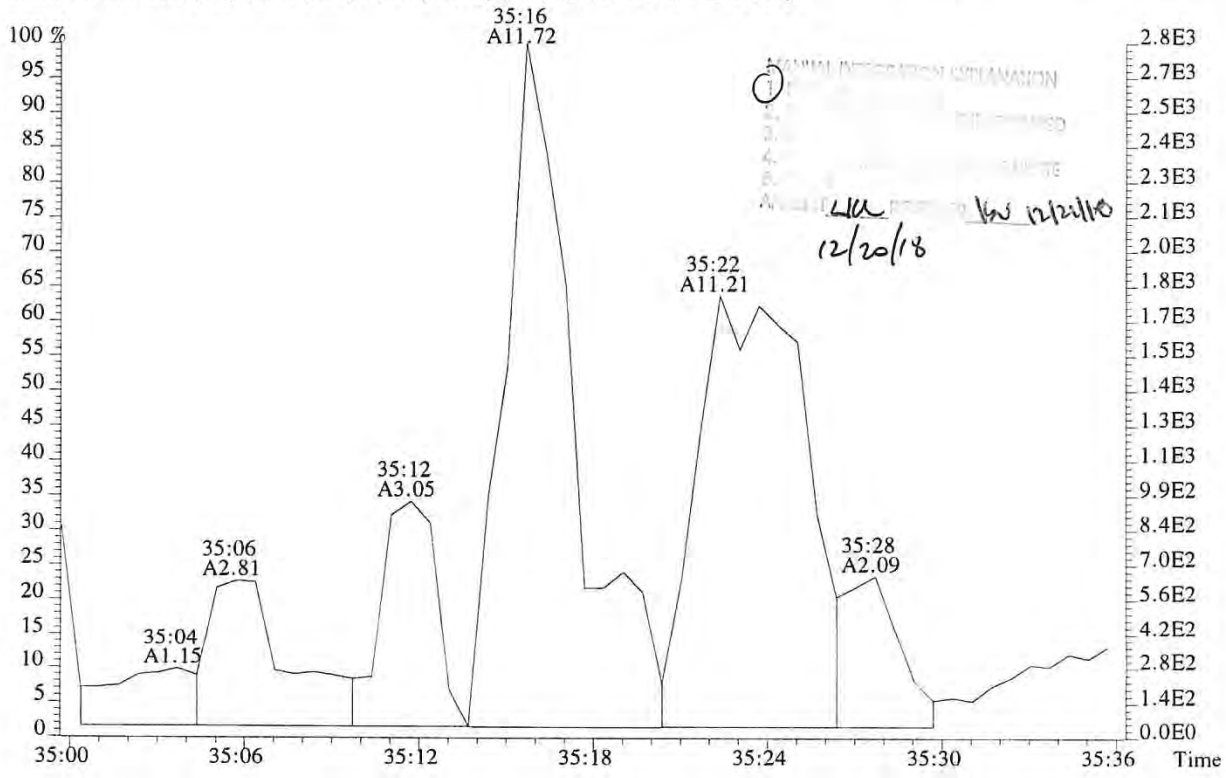


015360

File:P519482 #1-313 Acq:19-DEC-2018 05:02:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-008
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,444.0,0.40%,F,T)

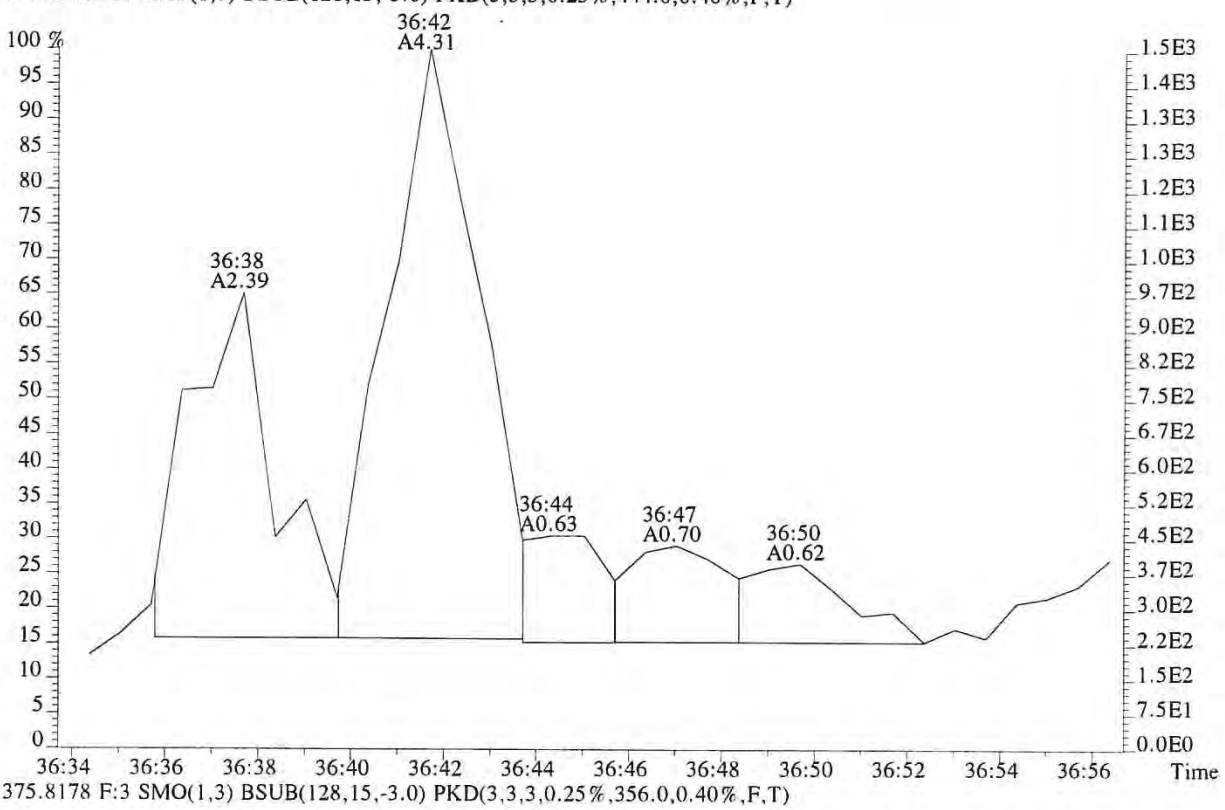


375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,356.0,0.40%,F,T)

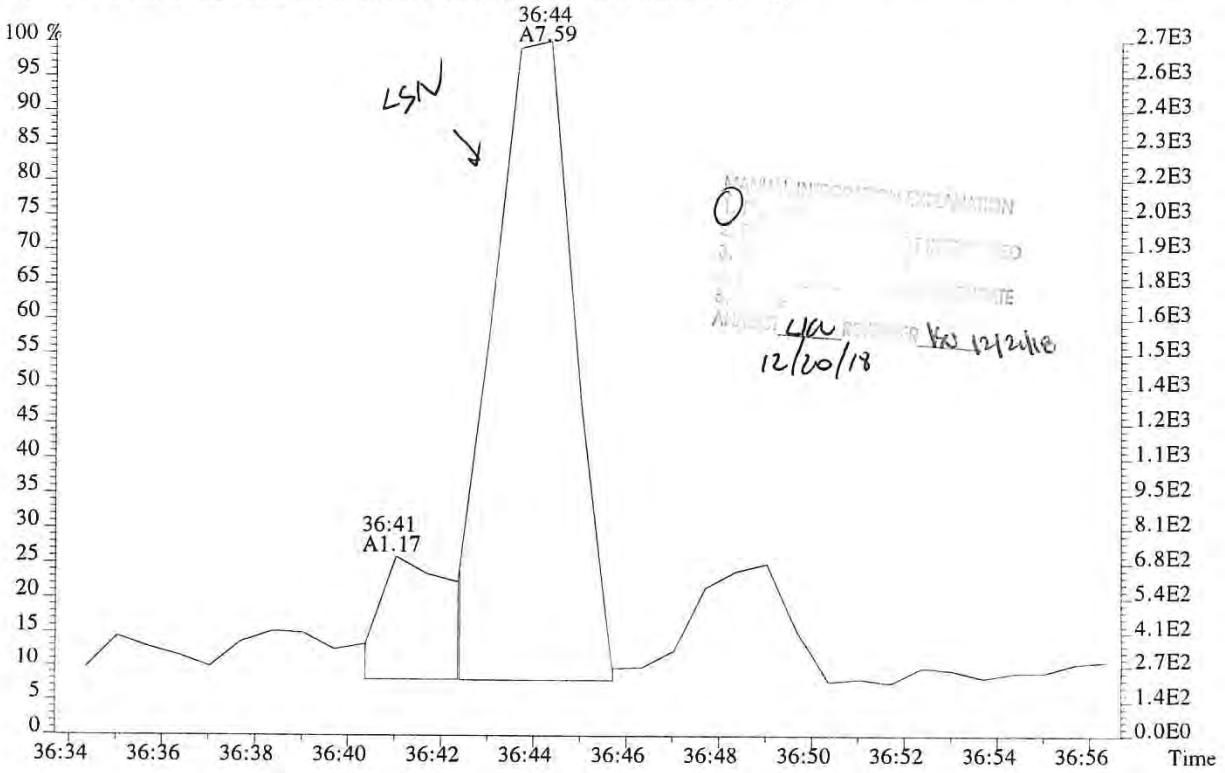


12/20/18

File:P519482 #1-313 Acq:19-DEC-2018 05:02:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-008
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,444.0,0.40%,F,T)

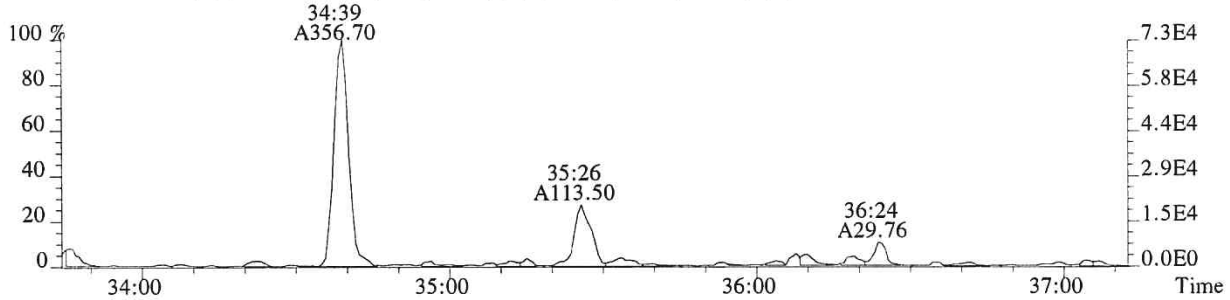


375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,356.0,0.40%,F,T)

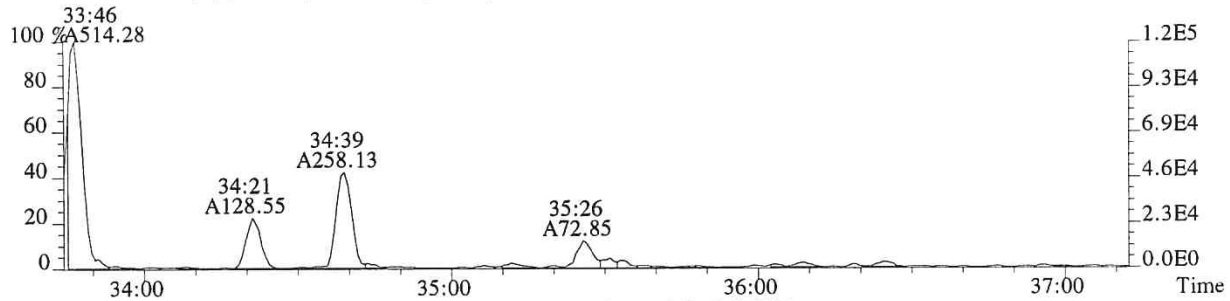


12/20/18 12/21/18

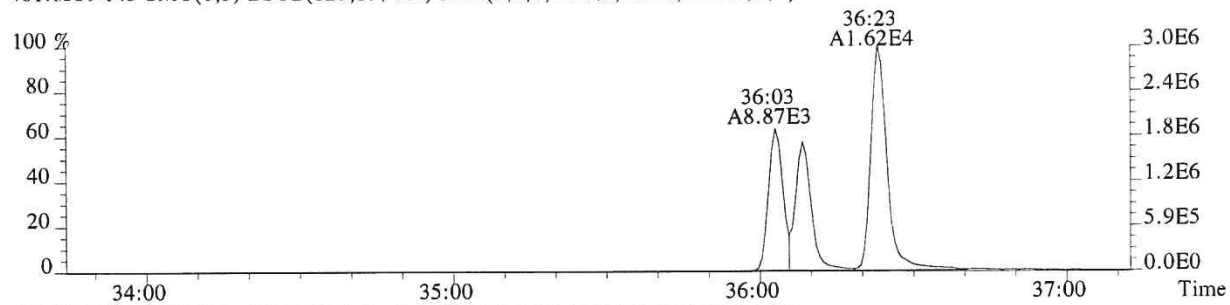
File:P519482 #1-313 Acq:19-DEC-2018 05:02:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-008
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,472.0,0.40%,F,T)



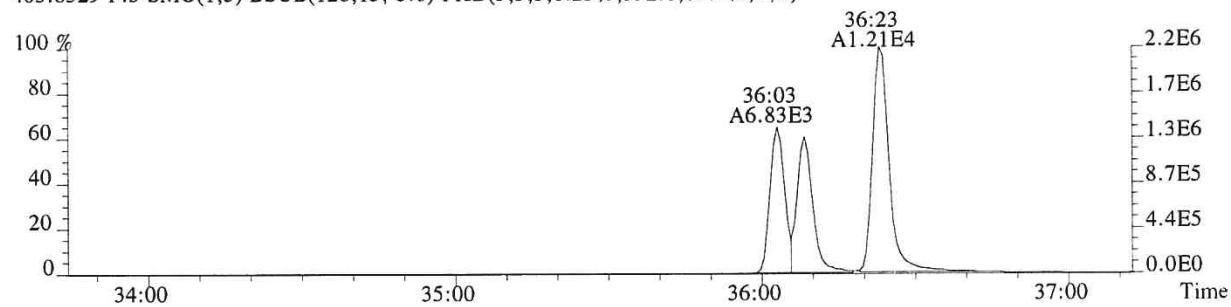
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,508.0,0.40%,F,T)



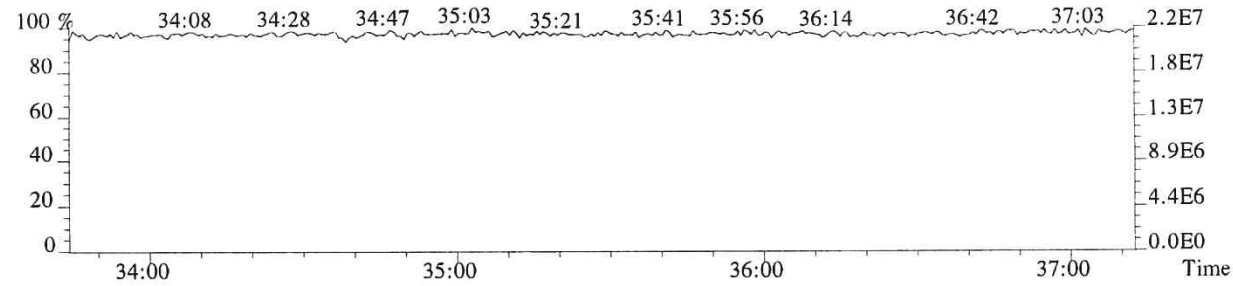
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,484.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,392.0,0.40%,F,T)



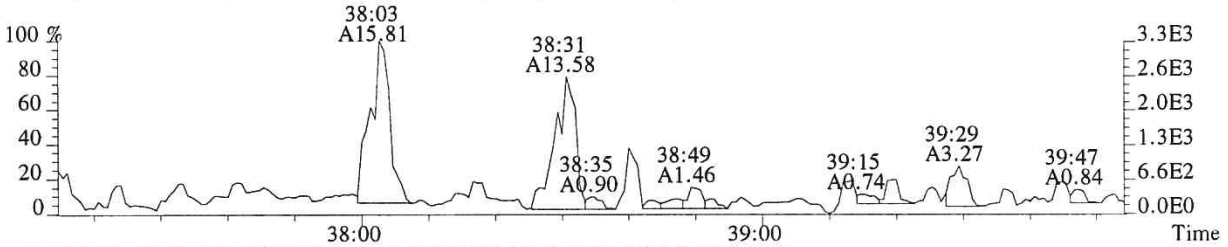
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



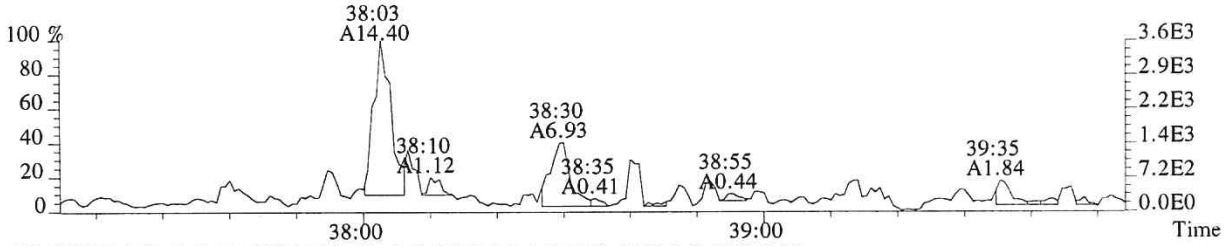
015363

File:P519482 #1-240 Acq:19-DEC-2018 05:02:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-008

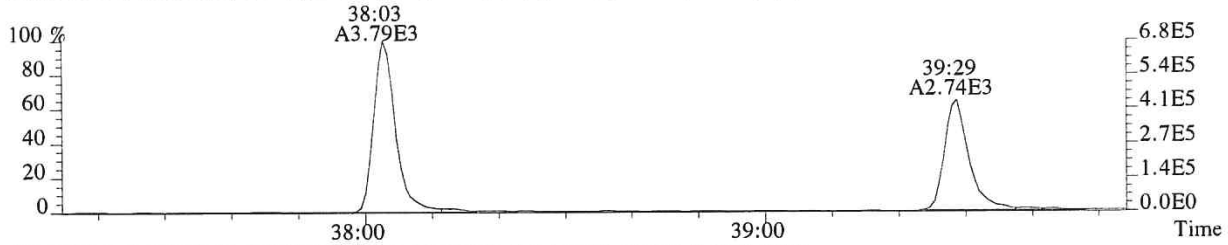
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,324.0,0.50%,F,T)



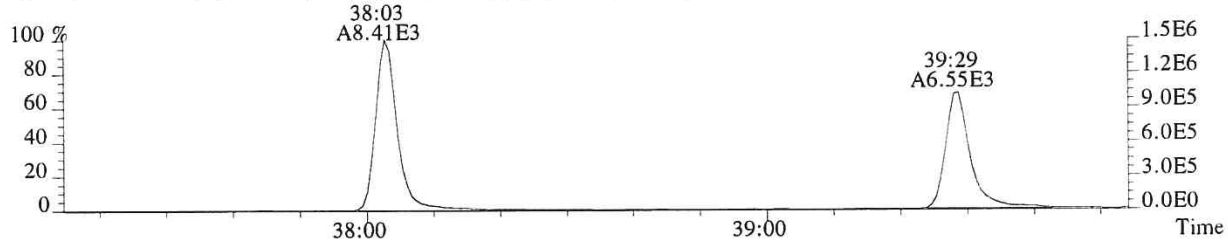
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,296.0,0.50%,F,T)



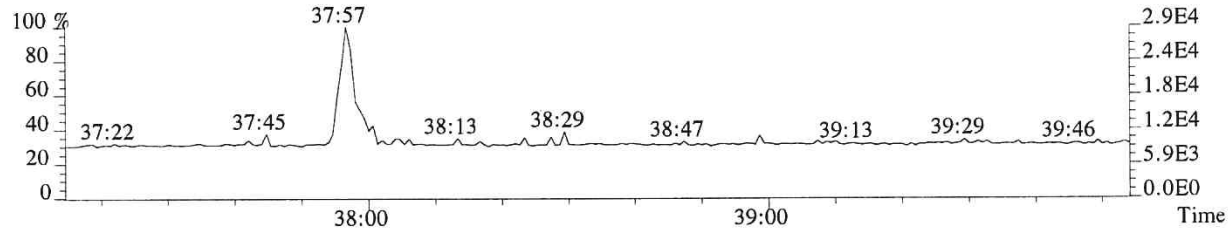
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1176.0,0.50%,F,T)



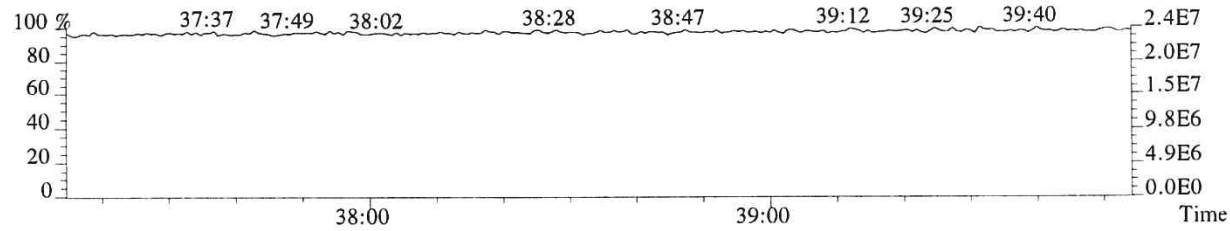
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1256.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

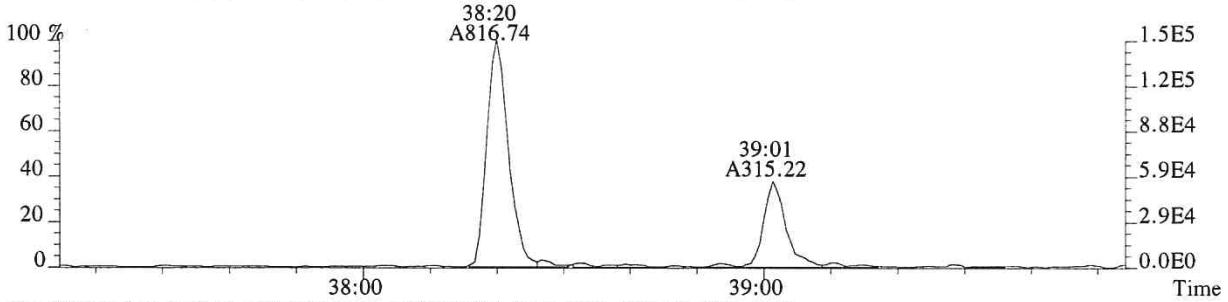


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

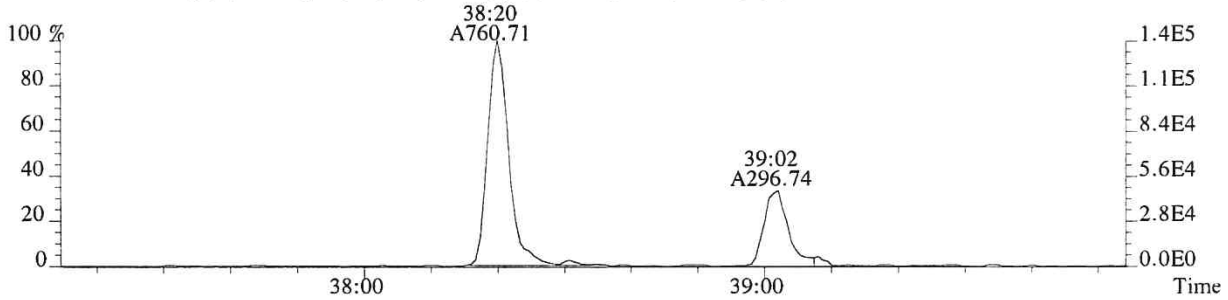


015364

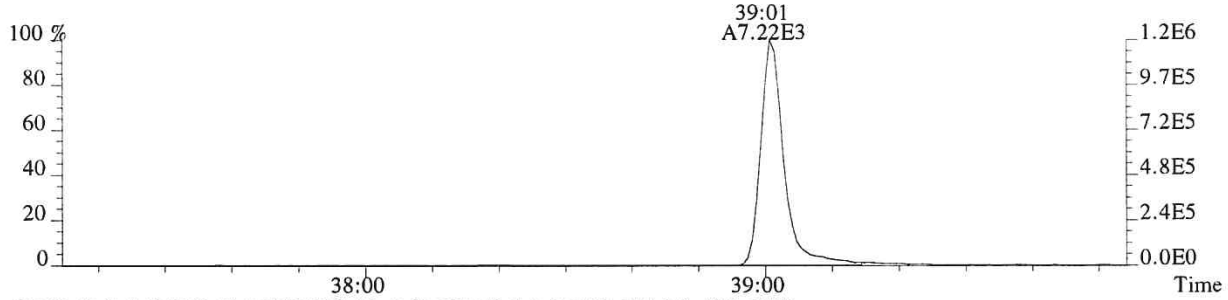
File:P519482 #1-240 Acq:19-DEC-2018 05:02:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-008
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,868.0,0.40%,F,T)



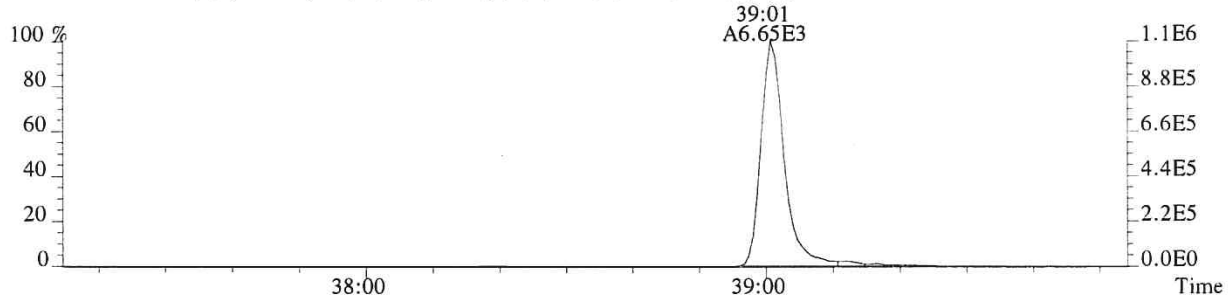
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,420.0,0.40%,F,T)



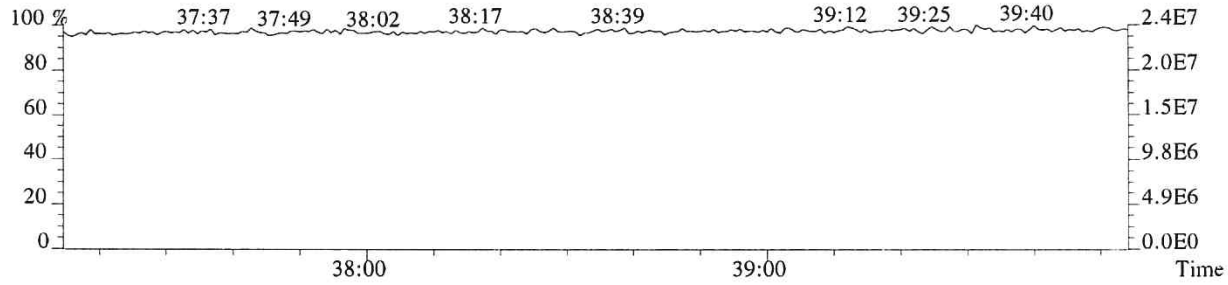
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,436.0,0.40%,F,T)



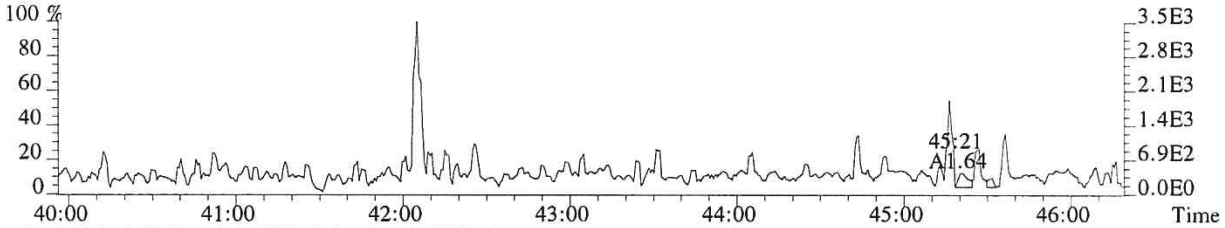
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,344.0,0.40%,F,T)



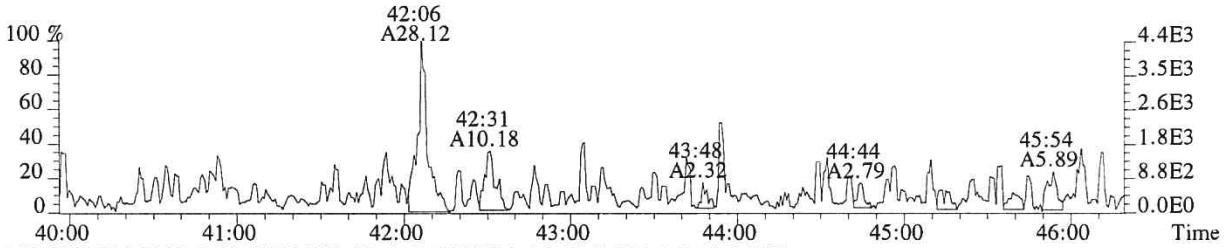
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



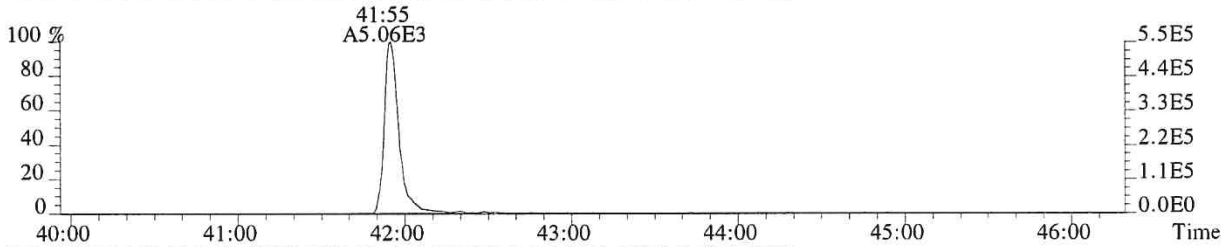
File:P519482 #1-575 Acq:19-DEC-2018 05:02:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-008
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,488.0,0.40%,F,T)



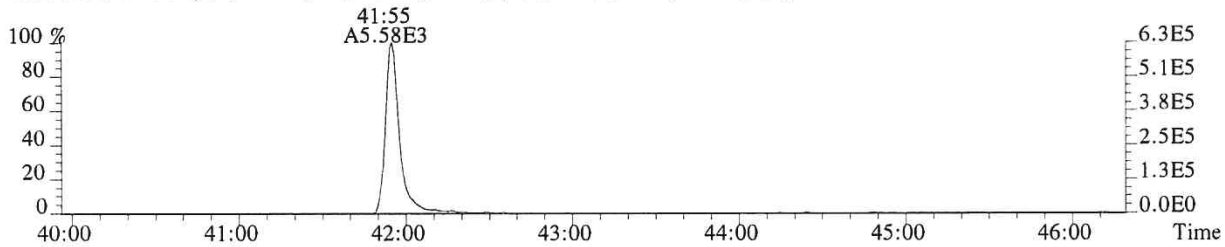
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,408.0,0.40%,F,T)



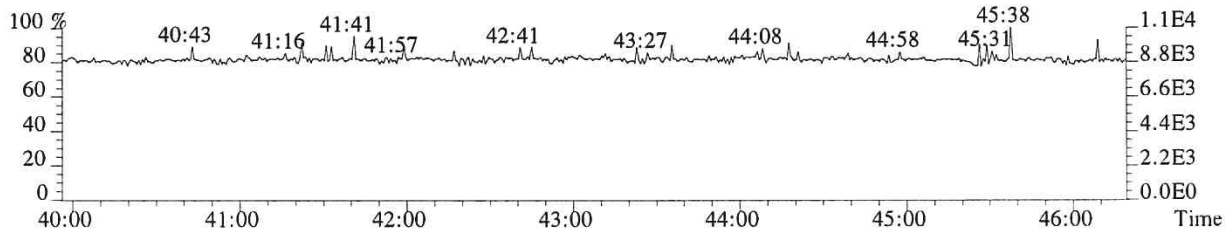
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,364.0,0.40%,F,T)



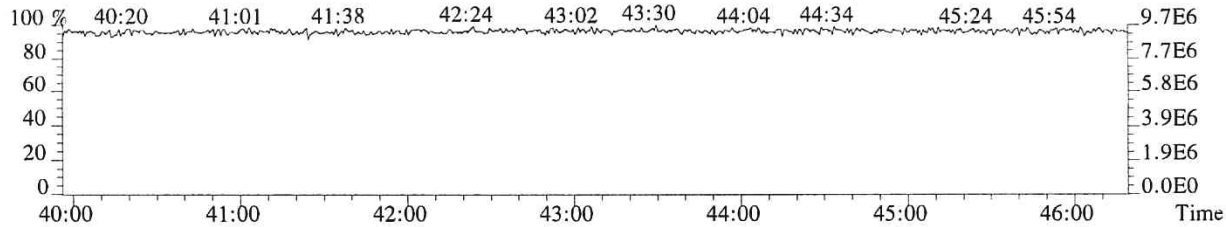
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,360.0,0.40%,F,T)



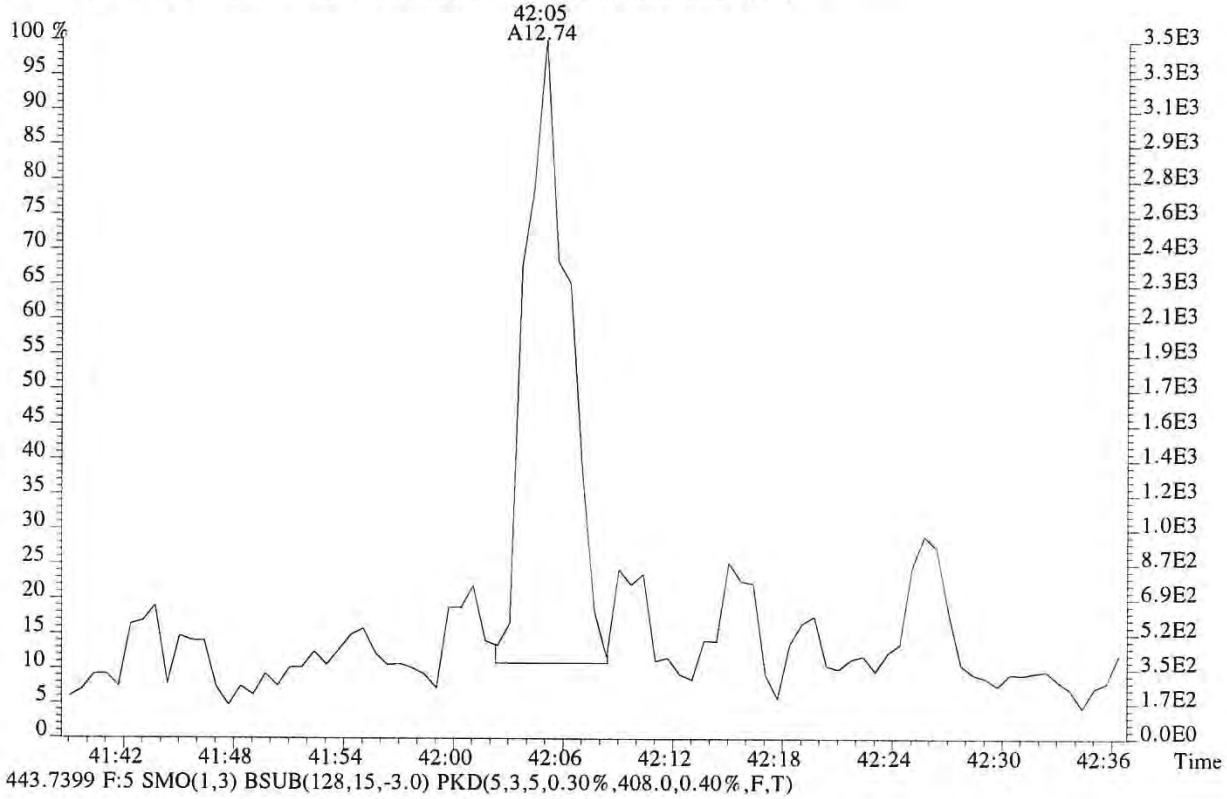
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



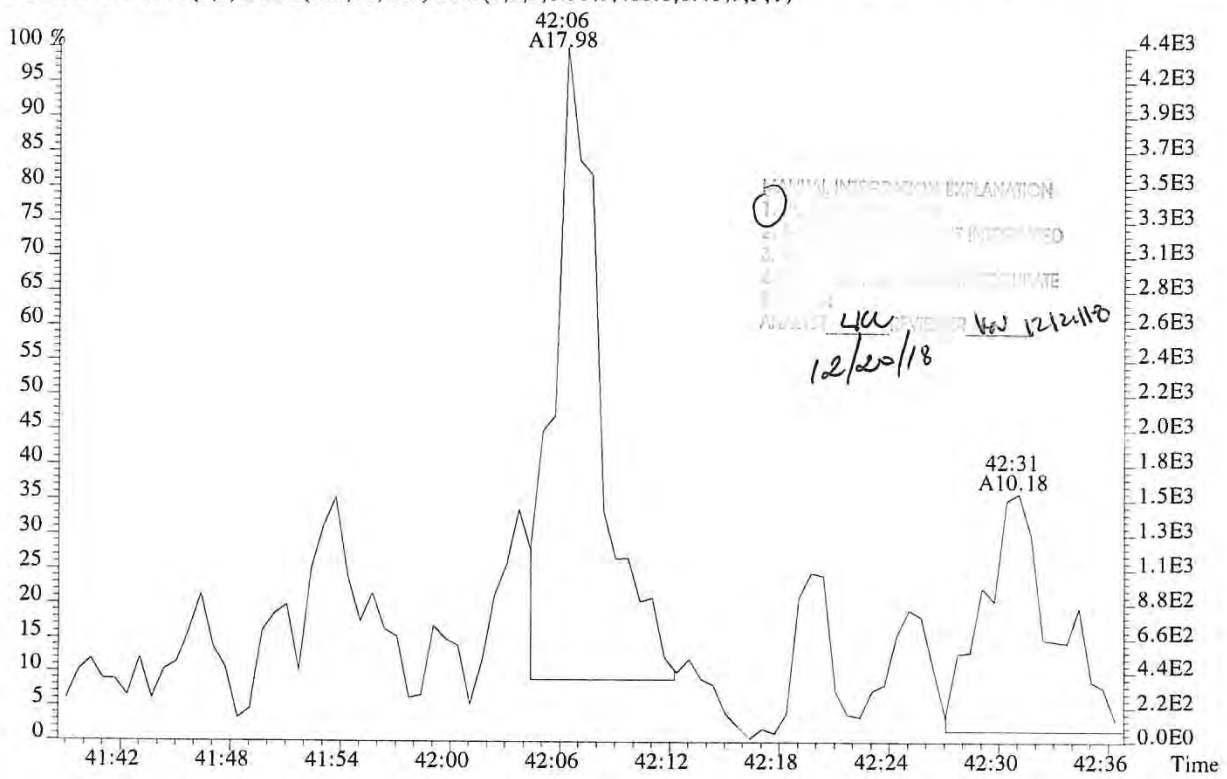
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



File:P519482 #1-575 Acq:19-DEC-2018 05:02:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-008
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,488.0,0.40%,F,T)



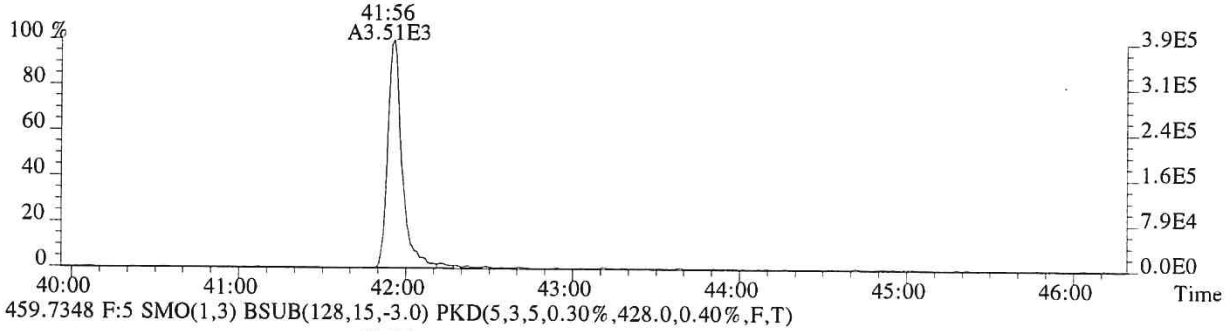
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,408.0,0.40%,F,T)



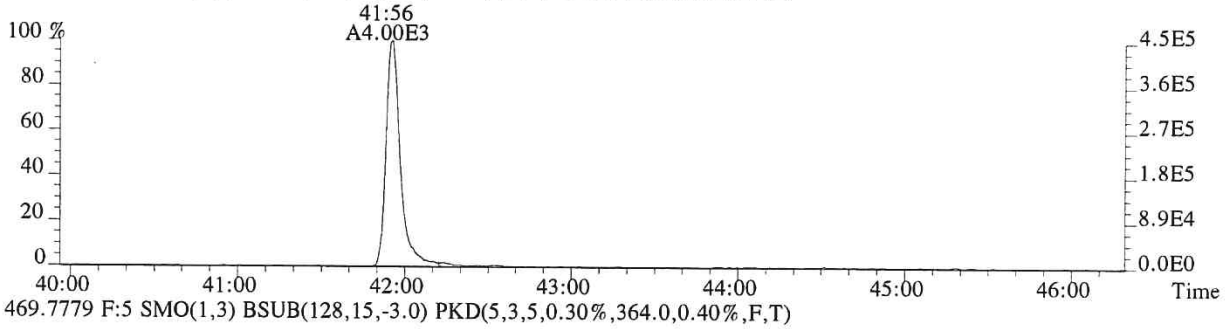
12/20/18

015367

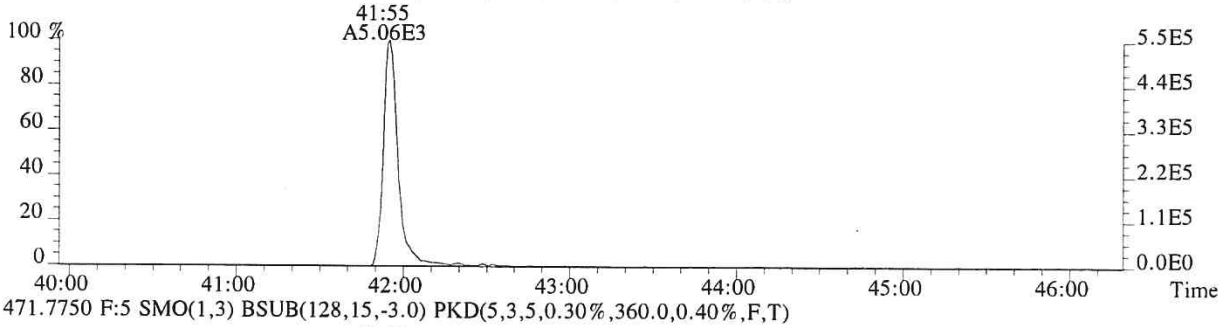
File:P519482 #1-575 Acq:19-DEC-2018 05:02:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-008
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,368.0,0.40%,F,T)



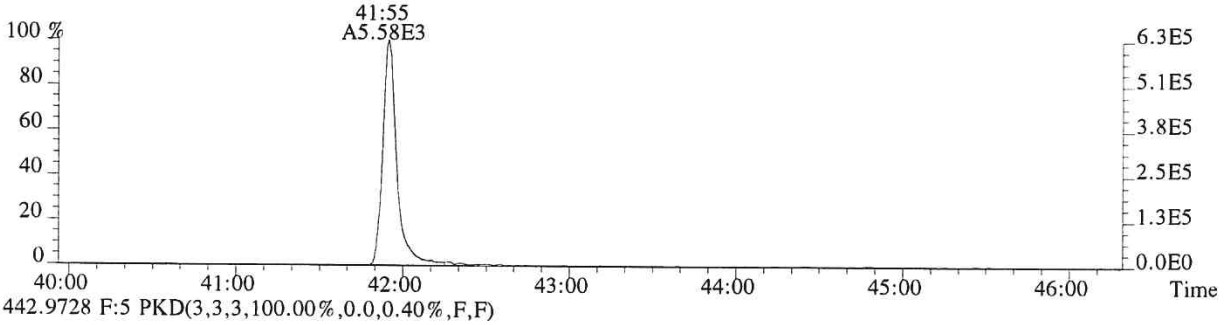
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,428.0,0.40%,F,T)



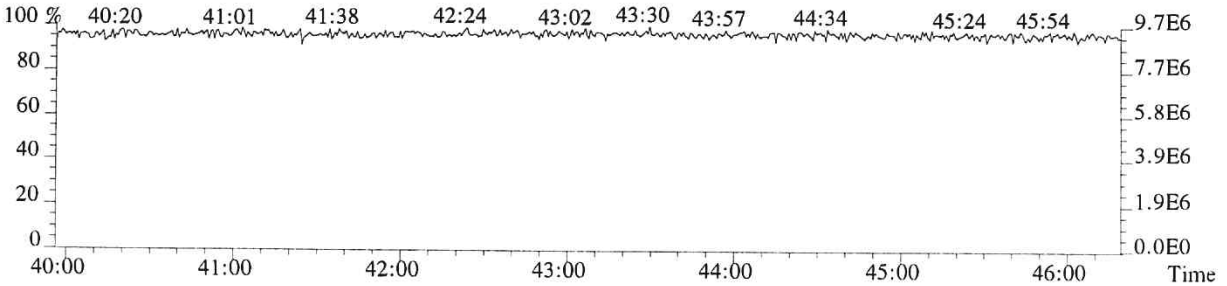
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,364.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,360.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



015368

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0038

Run #18 Filename P519637 Samp: 1 Inj: 1 Acquired: 26-DEC-18 21:33:41
Processed: 27-DEC-18 08:08:40 Sample ID: E1801094-009

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:16	1.214e+02	1.609e+02	0.75	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	yes	1.012
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.190
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	37:50	1.817e+01	2.722e+01	0.67	no	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.258
10	Unk	OCDF	NotFnd	*	*	*	no	no	1.359
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	yes	1.085
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	35:49	1.797e+01	2.198e+01	0.82	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	35:54	5.424e+01	4.221e+01	1.29	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:09	5.924e+01	5.662e+01	1.05	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:50	1.209e+03	1.101e+03	1.10	yes	no	1.025
17	Unk	OCDD	41:45	1.849e+04	2.085e+04	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	26:15	7.736e+03	1.021e+04	0.76	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	31:04	1.748e+04	1.105e+04	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	32:04	1.795e+04	1.121e+04	1.60	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	34:59	8.555e+03	1.653e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:06	9.848e+03	1.897e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:39	9.400e+03	1.799e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	36:27	8.711e+03	1.637e+04	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:50	6.685e+03	1.596e+04	0.42	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:16	6.295e+03	1.464e+04	0.43	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	27:12	4.076e+03	5.083e+03	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:24	1.438e+04	9.018e+03	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:48	1.363e+04	1.044e+04	1.31	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:53	1.362e+04	1.079e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:49	1.595e+04	1.471e+04	1.08	yes	no	0.858
32	IS	13C-OCDD	41:45	1.640e+04	1.843e+04	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	26:32	4.475e+04	5.554e+04	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:08	6.361e+04	4.993e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:14	5.967e+03				no	1.014

$$\text{OCDD} = \frac{(1.849e+04 + 2.085e+04) \times 4000\ \text{pg} \times 1}{(1.640e+04 + 1.843e+04) \times 10.582\ \text{g} \times 83.2 / 100 \times 1.118} = 458.9083\ \text{ng/kg}$$

LG 12/27/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0038

Run #18 Filename P519637 Samp: 1 Inj: 1 Acquired: 26-DEC-18 21:33:41
Processed: 27-DEC-18 08:08:40 LAB. ID: E1801094-009

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.17e+04	8.68e+02	2.5e+01	2.53e+04	1.58e+03	1.6e+01
2	1,2,3,7,8-PeCDF	*	6.16e+02	*	*	7.36e+02	*
3	2,3,4,7,8-PeCDF	*	6.16e+02	*	*	7.36e+02	*
4	1,2,3,4,7,8-HxCDF	*	9.68e+02	*	*	6.36e+02	*
5	1,2,3,6,7,8-HxCDF	*	9.68e+02	*	*	6.36e+02	*
6	2,3,4,6,7,8-HxCDF	*	9.68e+02	*	*	6.36e+02	*
7	1,2,3,7,8,9-HxCDF	*	9.68e+02	*	*	6.36e+02	*
8	1,2,3,4,6,7,8-HpCDF	3.43e+03	5.80e+02	5.9e+00	4.57e+03	5.72e+02	8.0e+00
9	1,2,3,4,7,8,9-HpCDF	*	5.80e+02	*	*	5.72e+02	*
10	OCDF	*	5.64e+02	*	*	1.27e+03	*
11	2,3,7,8-TCDD	*	2.94e+03	*	*	1.05e+03	*
12	1,2,3,7,8-PeCDD	*	8.84e+02	*	*	5.80e+02	*
13	1,2,3,4,7,8-HxCDD	3.85e+03	6.44e+02	6.0e+00	3.71e+03	7.04e+02	5.3e+00
14	1,2,3,6,7,8-HxCDD	8.98e+03	6.44e+02	1.4e+01	7.48e+03	7.04e+02	1.1e+01
15	1,2,3,7,8,9-HxCDD	1.10e+04	6.44e+02	1.7e+01	8.81e+03	7.04e+02	1.3e+01
16	1,2,3,4,6,7,8-HpCDD	1.63e+05	7.36e+02	2.2e+02	1.58e+05	8.40e+02	1.9e+02
17	OCDD	1.41e+06	5.52e+02	2.6e+03	1.63e+06	1.21e+03	1.4e+03
18	13C-2,3,7,8-TCDF	1.14e+06	7.27e+03	1.6e+02	1.47e+06	5.80e+03	2.5e+02
19	13C-1,2,3,7,8-PeCDF	3.01e+06	1.12e+03	2.7e+03	1.91e+06	4.80e+02	4.0e+03
20	13C-2,3,4,7,8-PeCDF	3.13e+06	1.12e+03	2.8e+03	1.96e+06	4.80e+02	4.1e+03
21	13C-1,2,3,4,7,8-HxCDF	1.61e+06	5.56e+02	2.9e+03	3.08e+06	9.76e+02	3.2e+03
22	13C-1,2,3,6,7,8-HxCDF	1.74e+06	5.56e+02	3.1e+03	3.29e+06	9.76e+02	3.4e+03
23	13C-2,3,4,6,7,8-HxCDF	1.75e+06	5.56e+02	3.1e+03	3.29e+06	9.76e+02	3.4e+03
24	13C-1,2,3,7,8,9-HxCDF	1.44e+06	5.56e+02	2.6e+03	2.61e+06	9.76e+02	2.7e+03
25	13C-1,2,3,4,6,7,8-HpCDF	9.81e+05	3.97e+03	2.5e+02	2.31e+06	2.77e+03	8.3e+02
26	13C-1,2,3,4,7,8,9-HpCDF	7.97e+05	3.97e+03	2.0e+02	1.81e+06	2.77e+03	6.5e+02
27	13C-2,3,7,8-TCDD	6.70e+05	5.16e+03	1.3e+02	8.39e+05	1.91e+03	4.4e+02
28	13C-1,2,3,7,8-PeCDD	2.41e+06	1.12e+03	2.2e+03	1.51e+06	1.04e+03	1.5e+03
29	13C-1,2,3,4,7,8-HxCDD	2.47e+06	1.38e+03	1.8e+03	1.85e+06	1.11e+03	1.7e+03
30	13C-1,2,3,6,7,8-HxCDD	2.32e+06	1.38e+03	1.7e+03	1.82e+06	1.11e+03	1.6e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.11e+06	4.20e+02	5.0e+03	1.95e+06	5.24e+02	3.7e+03
32	13C-OCDD	1.24e+06	8.16e+02	1.5e+03	1.41e+06	5.24e+02	2.7e+03
33	13C-1,2,3,4-TCDD	7.40e+06	5.16e+03	1.4e+03	9.14e+06	1.91e+03	4.8e+03
34	13C-1,2,3,7,8,9-HxCDD	1.07e+07	1.38e+03	7.7e+03	8.32e+06	1.11e+03	7.5e+03
35	37Cl-2,3,7,8-TCDD	9.46e+05	1.58e+03	6.0e+02			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0038

Entry: 36 Totals Name: Total Tetra-Furans

Run: 18 File: P519637 Sample:1 Injection:1 Function:1

Acquired: 26-DEC-18 21:33:41 Processed: 27-DEC-18 08:08:40

Mass: 303.9020 305.8990 Tot Response: 2.82e+02 RRF: 0.9417

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	26:16	1.21e+02	1.61e+02 0.75	yes	2.82e+02	2,3,7,8-TCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0038

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 18 File: P519637 Sample:1 Injection:1 Function:1

Acquired: 26-DEC-18 21:33:41 Processed: 27-DEC-18 08:08:40

Mass: 319.8970 321.8940 Tot Response: 1.07e+02 RRF: 1.085

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:56	4.50e+01	6.19e+01	0.73	yes	1.07e+02	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0038

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 18 File: P519637 Sample:1 Injection:1 Function:2

Acquired: 26-DEC-18 21:33:41 Processed: 27-DEC-18 08:08:40

Mass: 355.8550 357.8520 Tot Response: 1.28e+02 RRF: 0.9565

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:38	5.77e+01	3.94e+01 1.47	yes	9.71e+01		n	n
2	31:36	1.90e+01	1.17e+01 1.63	yes	3.07e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0038

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 18 File: P519637 Sample:1 Injection:1 Function:3

Acquired: 26-DEC-18 21:33:41 Processed: 27-DEC-18 08:08:40

Mass: 389.8160 391.8130 Tot Response: 1.82e+03 RRF: 1.047

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:23	6.59e+02	5.38e+02 1.23	yes	1.20e+03		n	n
2	35:11	2.78e+02	2.02e+02 1.37	yes	4.80e+02		n	n
3	35:54	5.42e+01	4.22e+01 1.29	yes	9.64e+01	1,2,3,6,7,8-HxCDD	n	n
4	36:04	2.14e+01	2.00e+01 1.07	yes	4.14e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0038

Entry: 43 Totals Name: Total Hepta-Furans

Run: 18 File: P519637 Sample:1 Injection:1 Function:4

Acquired: 26-DEC-18 21:33:41 Processed: 27-DEC-18 08:08:40

Mass: 407.7820 409.7790 Tot Response: 5.67e+01 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:16	2.85e+01	2.81e+01 1.01	yes	5.67e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0038

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 18 File: P519637 Sample:1 Injection:1 Function:4

Acquired: 26-DEC-18 21:33:41 Processed: 27-DEC-18 08:08:40

Mass: 423.7770 425.7740 Tot Response: 7.12e+03 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:08	2.37e+03	2.44e+03 0.97	yes	4.81e+03		n	n
2	38:50	1.21e+03	1.10e+03 1.10	yes	2.31e+03	1,2,3,4,6,7,8-HpCDD	n	n

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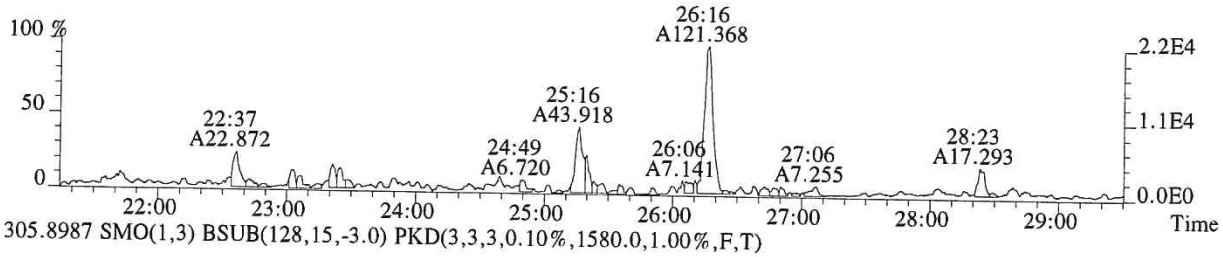
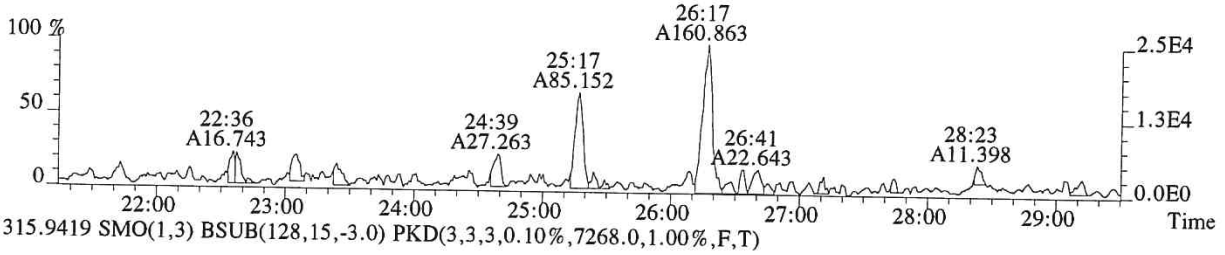
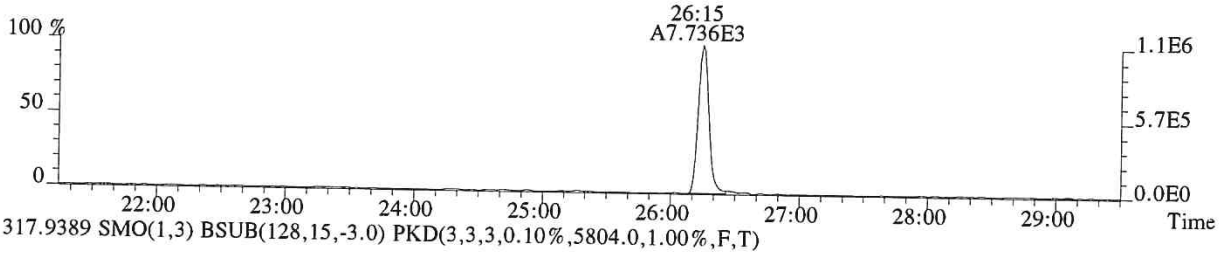
File:P519637 #1-587 Acq:26-DEC-2018 21:33:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-009
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,868.0,1.00%,F,T)



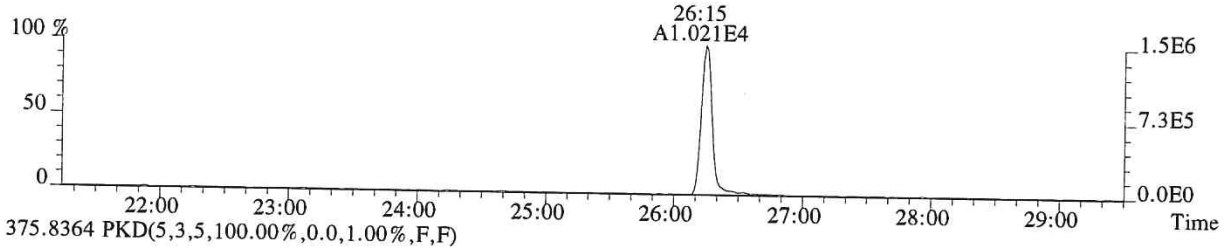
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1580.0,1.00%,F,T)



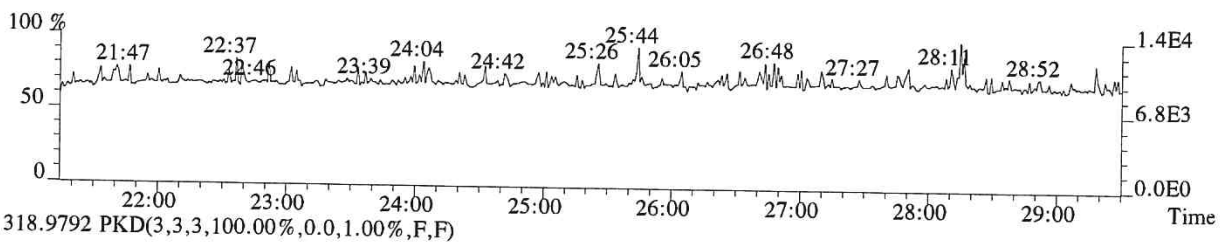
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7268.0,1.00%,F,T)



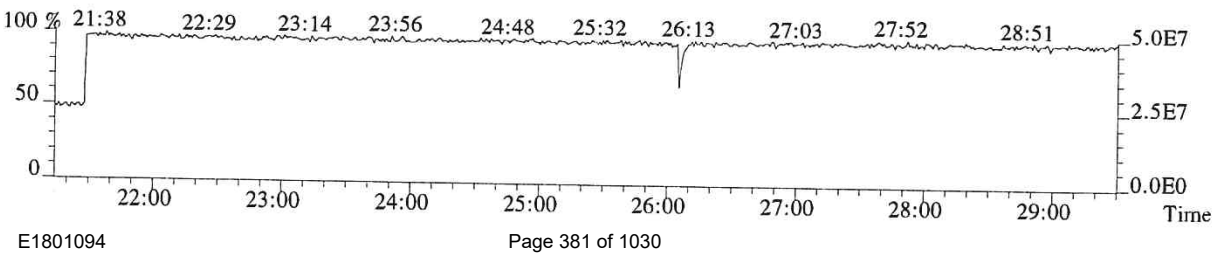
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5804.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

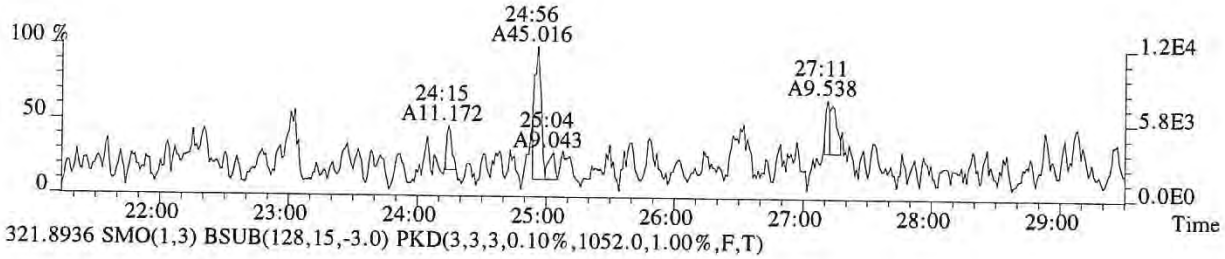


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

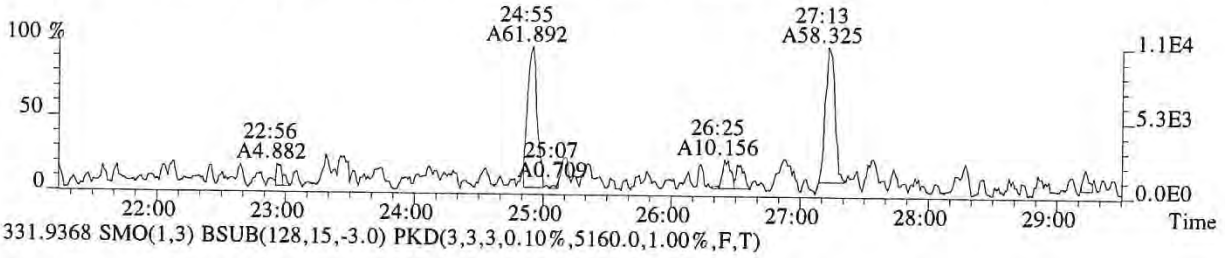


015377

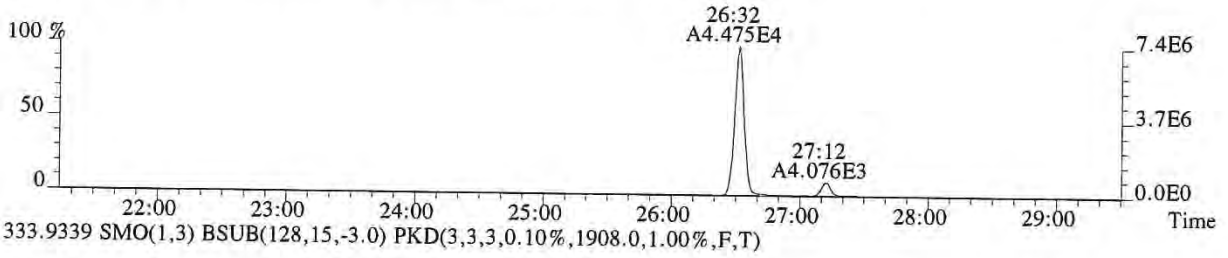
File:P519637 #1-587 Acq:26-DEC-2018 21:33:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-009
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2940.0,1.00%,F,T)



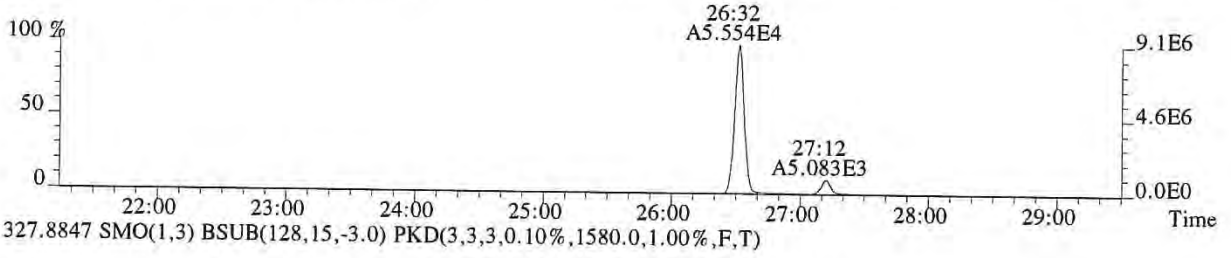
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1052.0,1.00%,F,T)



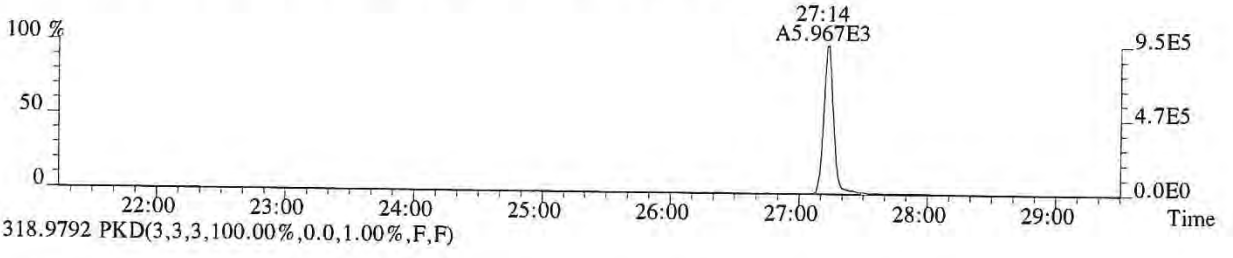
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5160.0,1.00%,F,T)



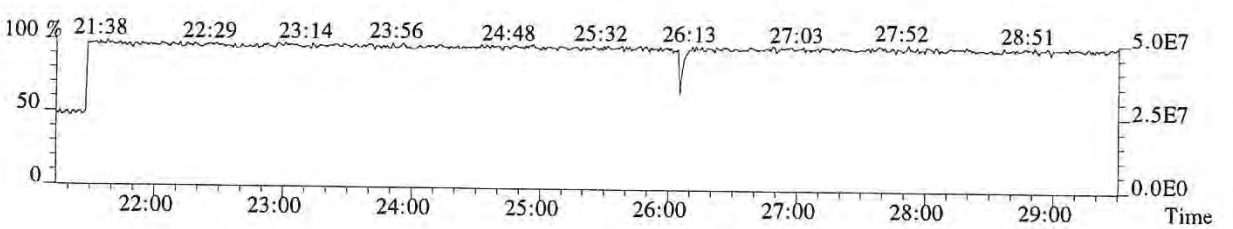
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1908.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1580.0,1.00%,F,T)

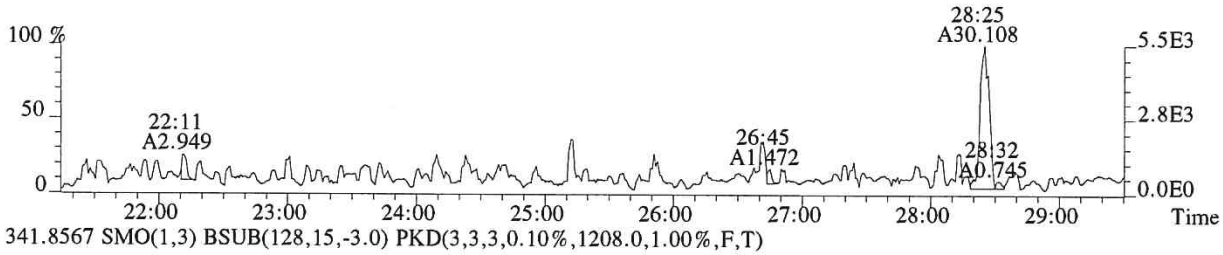


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

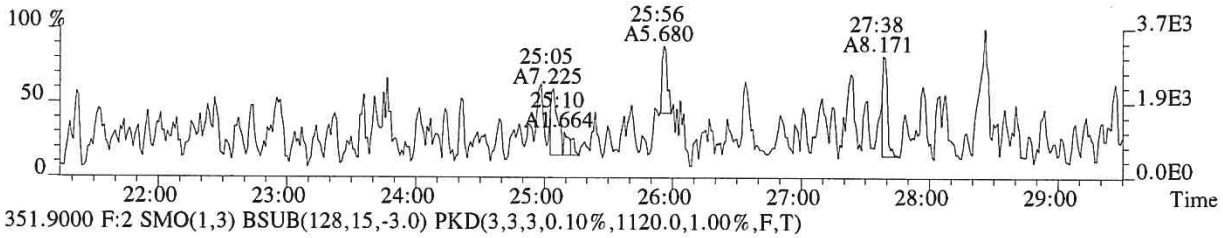


015378

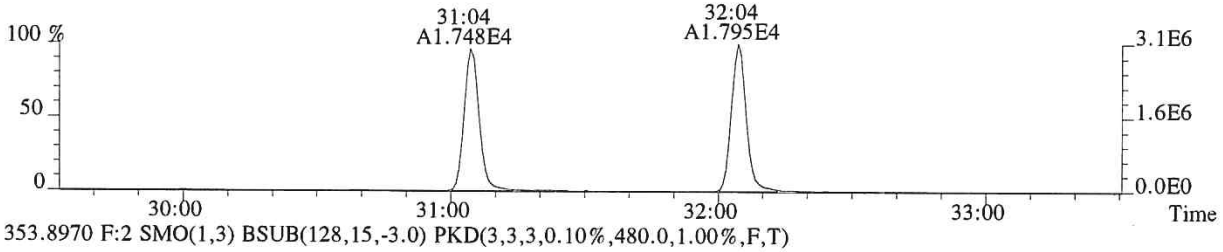
File:P519637 #1-587 Acq:26-DEC-2018 21:33:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-009
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,752.0,1.00%,F,T)



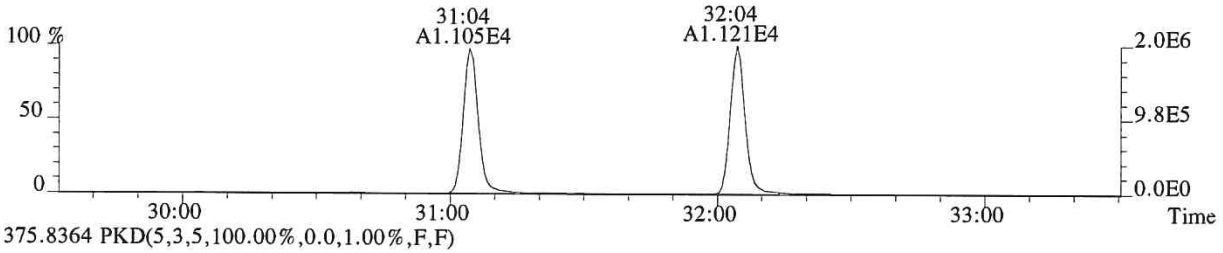
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1208.0,1.00%,F,T)



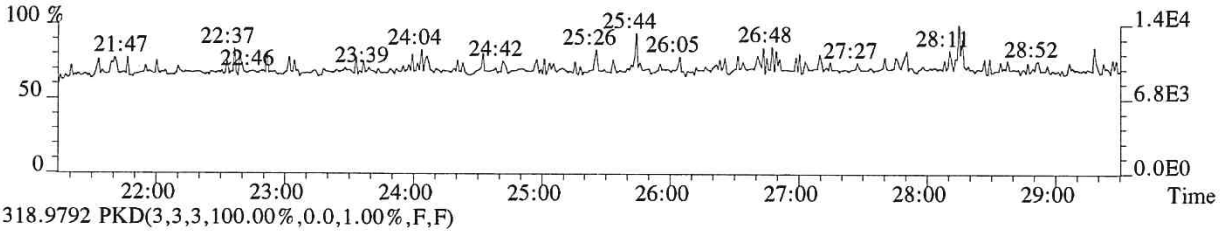
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1120.0,1.00%,F,T)



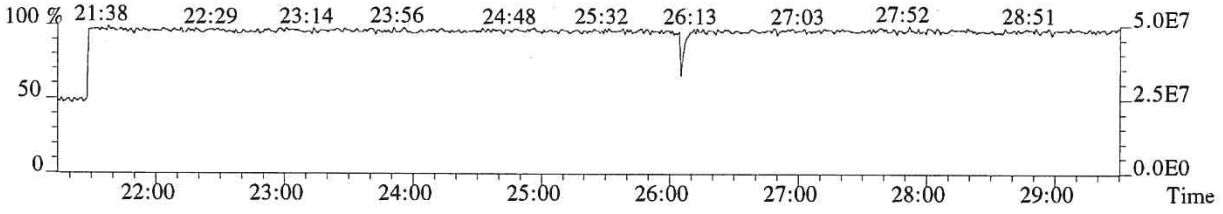
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,480.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

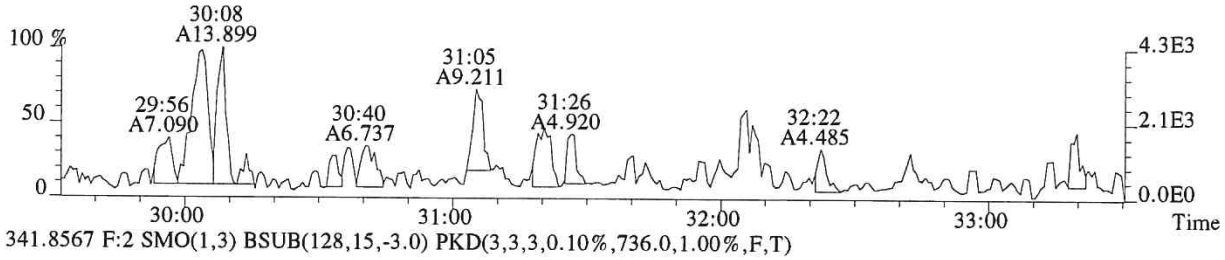


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

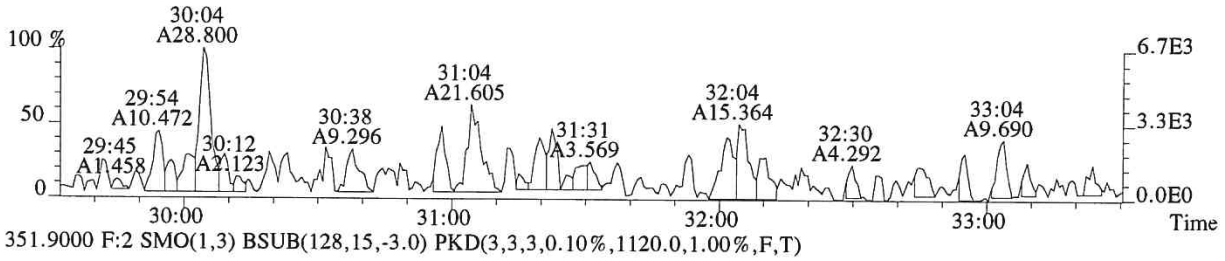


015379

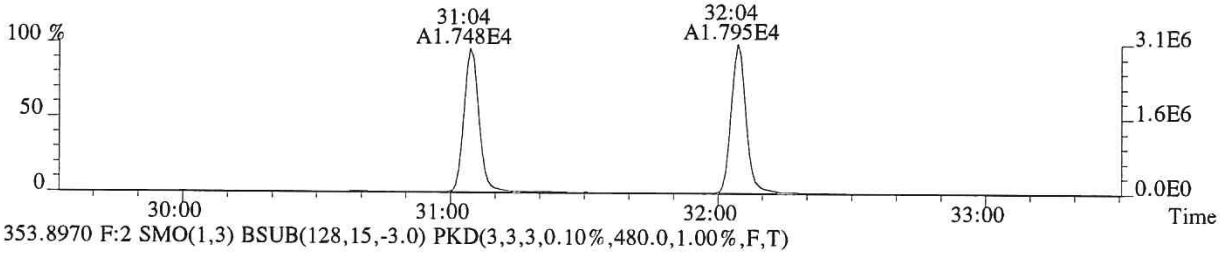
File:P519637 #1-358 Acq:26-DEC-2018 21:33:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-009
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,616.0,1.00%,F,T)



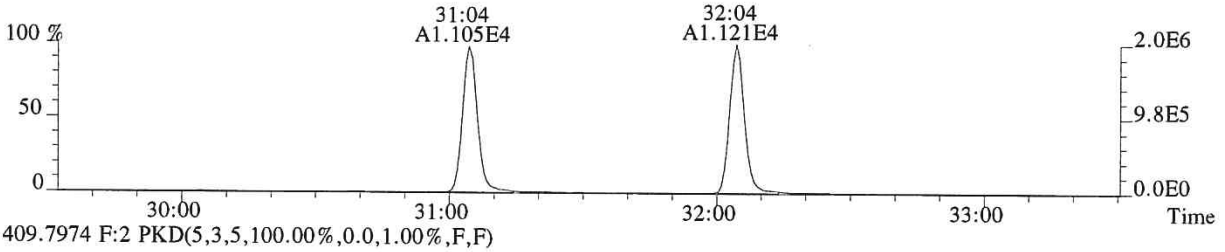
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,736.0,1.00%,F,T)



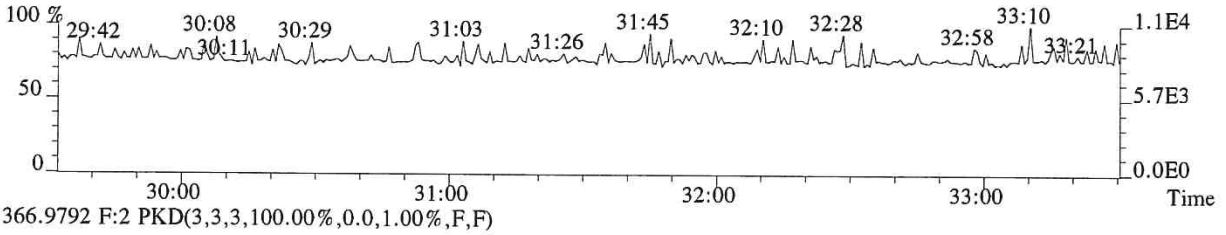
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1120.0,1.00%,F,T)



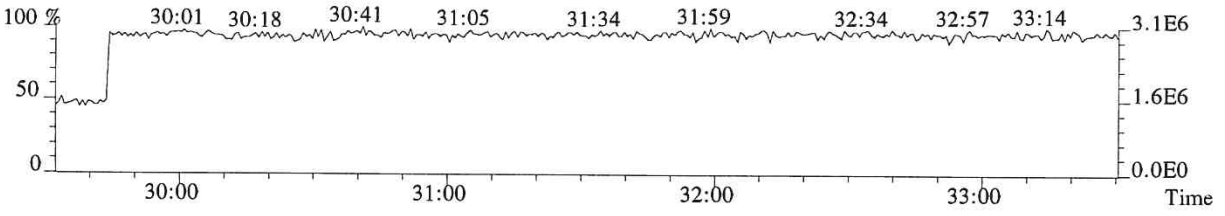
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,480.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

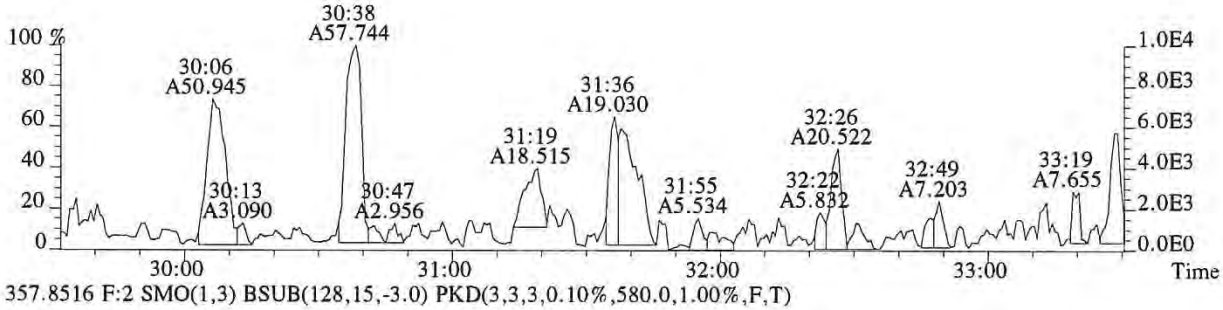


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

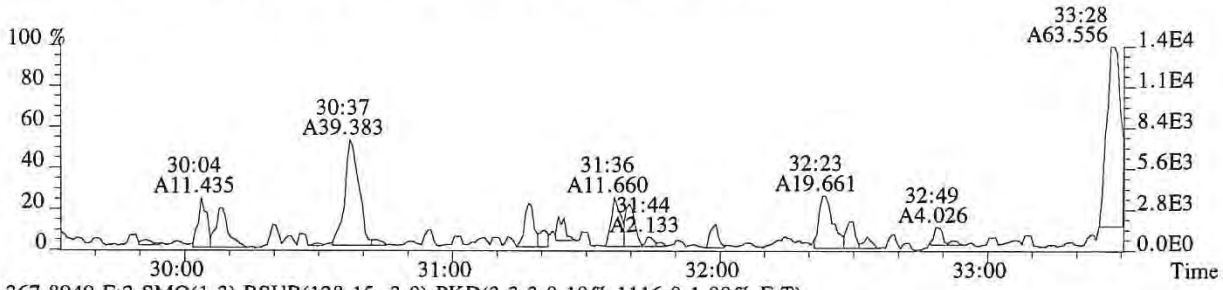


015380

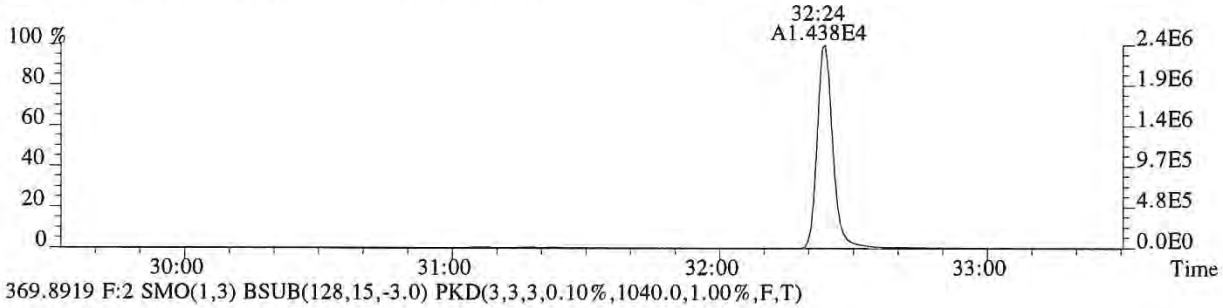
File:P519637 #1-358 Acq:26-DEC-2018 21:33:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-009
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,884.0,1.00%,F,T)



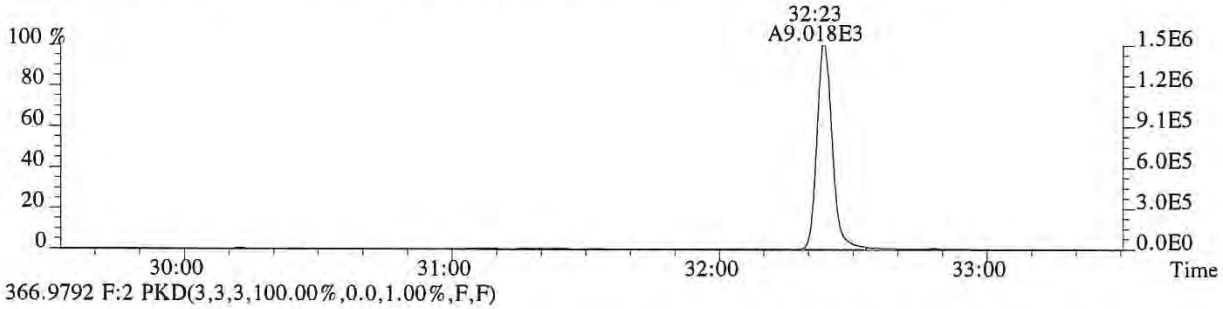
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,580.0,1.00%,F,T)



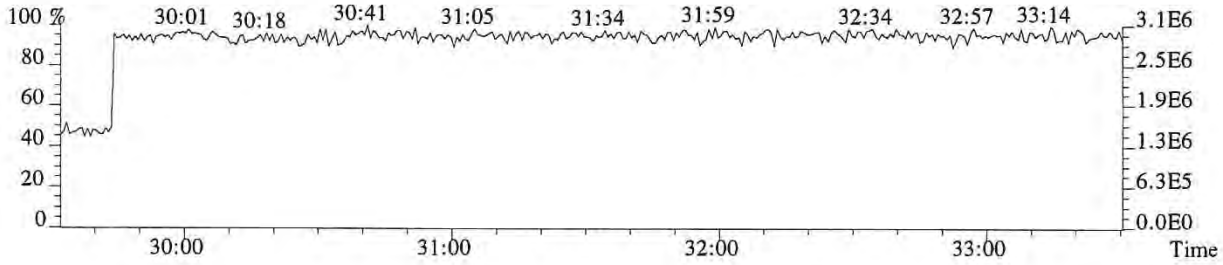
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1116.0,1.00%,F,T)



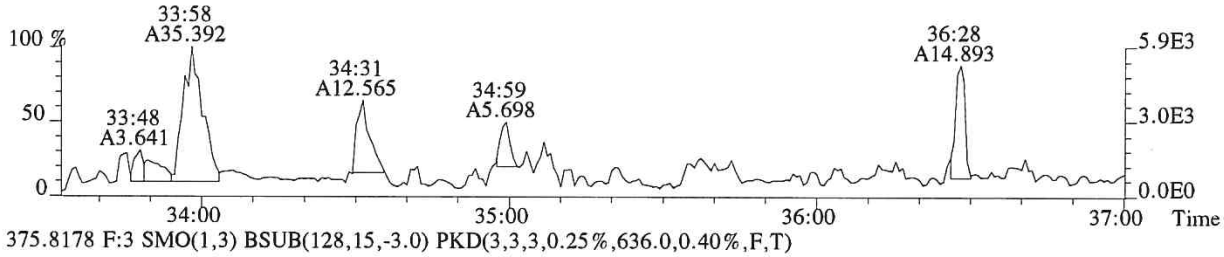
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1040.0,1.00%,F,T)



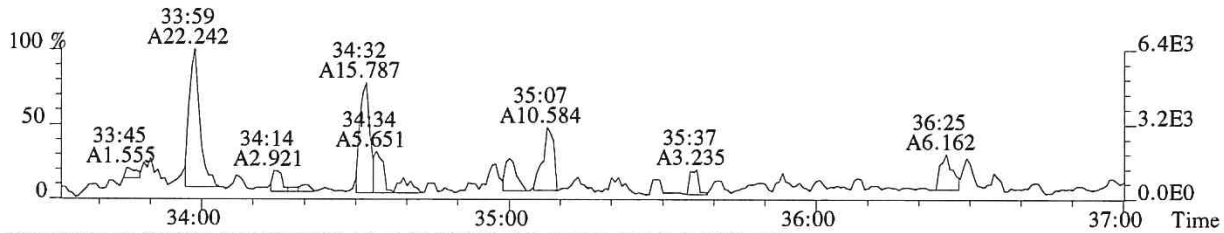
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



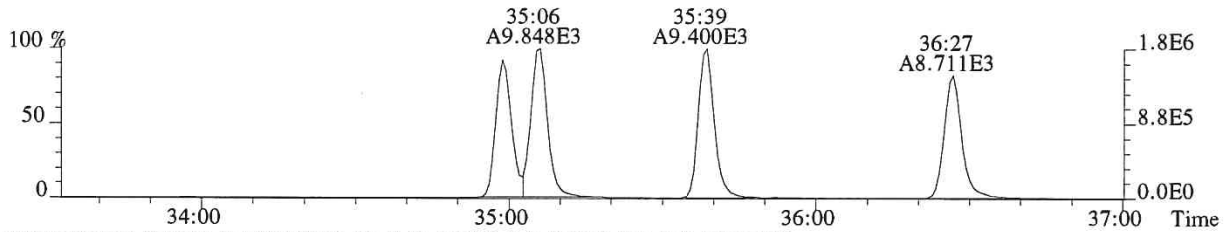
File:P519637 #1-312 Acq:26-DEC-2018 21:33:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-009
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,968.0,0.40%,F,T)



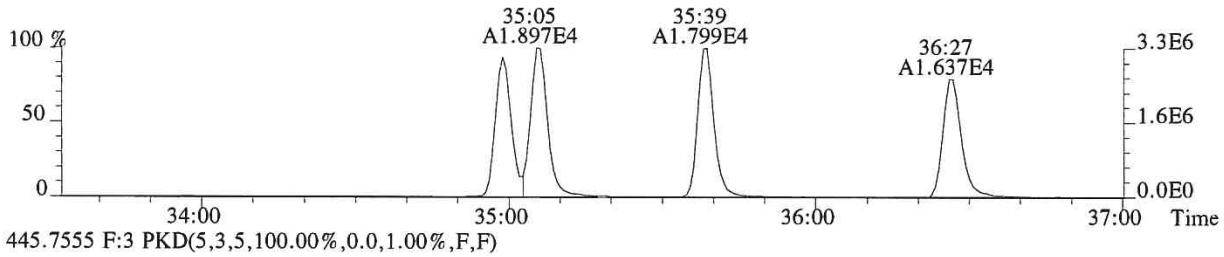
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,636.0,0.40%,F,T)



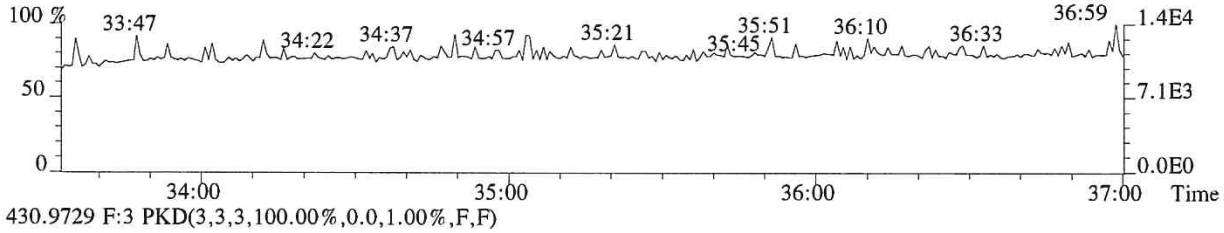
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,556.0,0.40%,F,T)



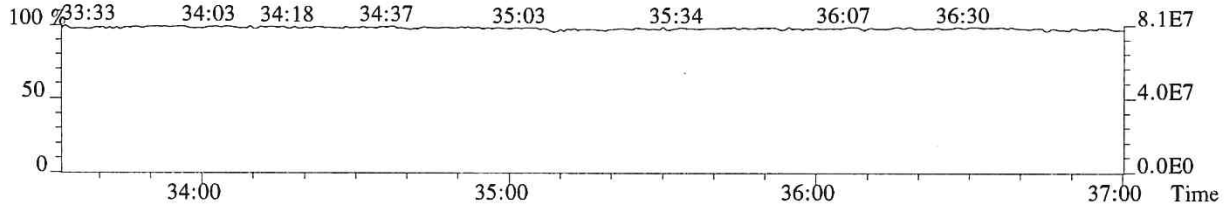
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,976.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

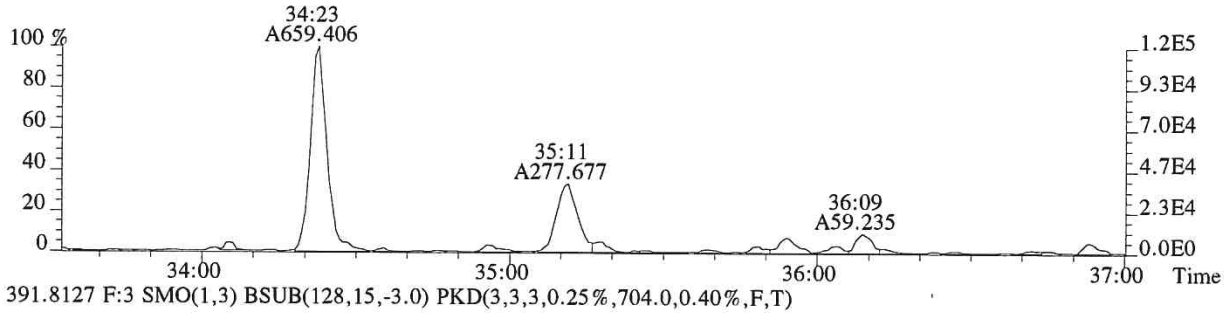


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

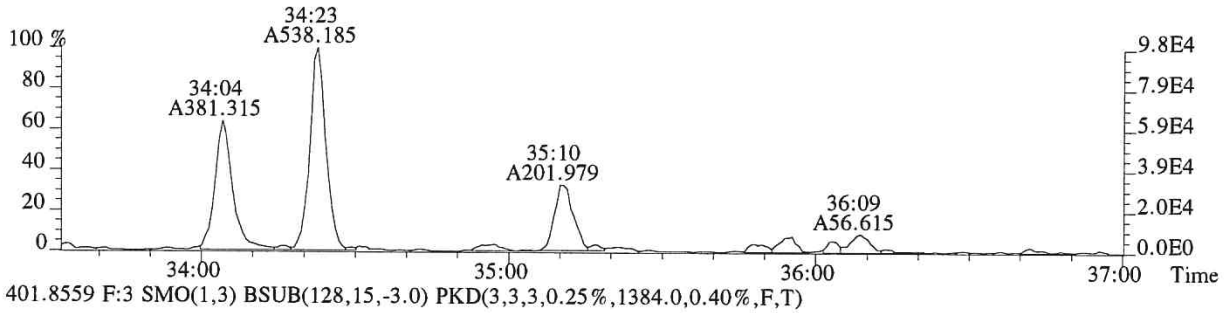


015382

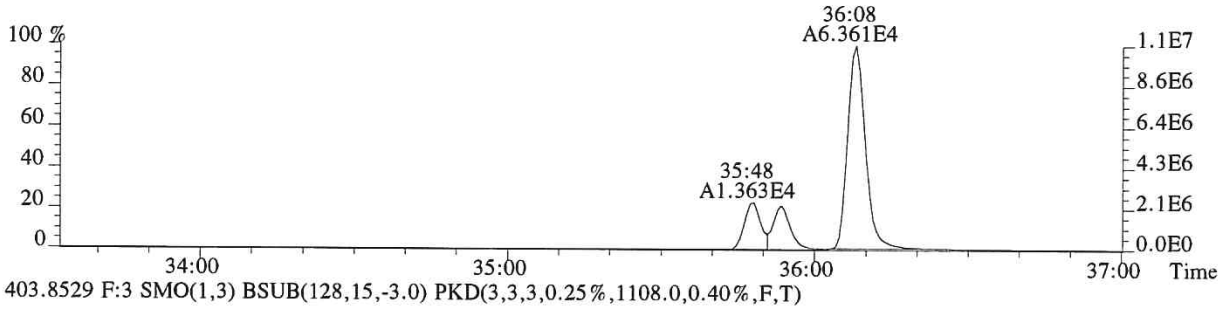
File:P519637 #1-312 Acq:26-DEC-2018 21:33:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-009
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,644.0,0.40%,F,T)



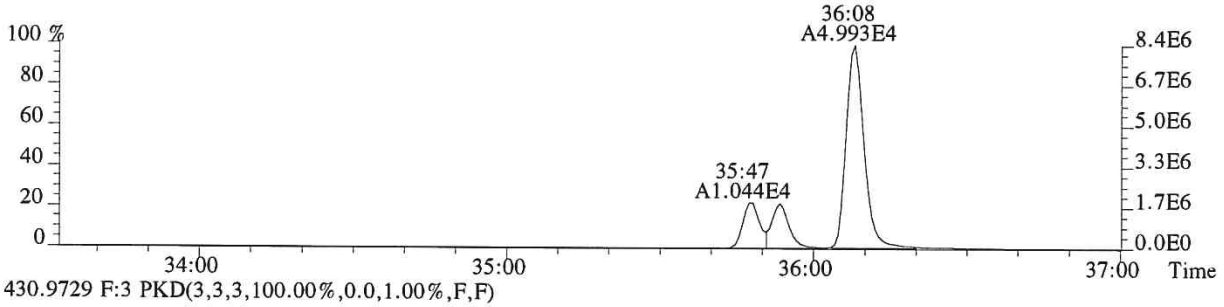
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,704.0,0.40%,F,T)



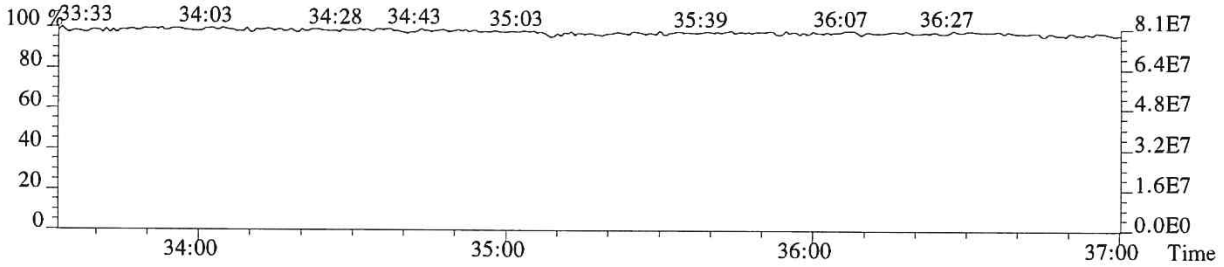
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1384.0,0.40%,F,T)



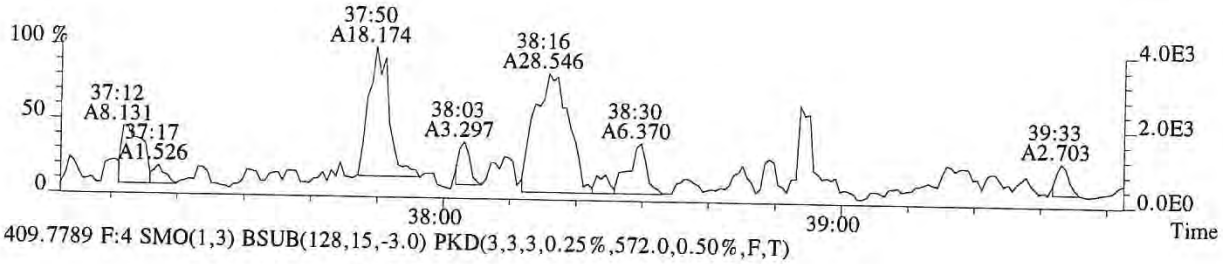
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1108.0,0.40%,F,T)



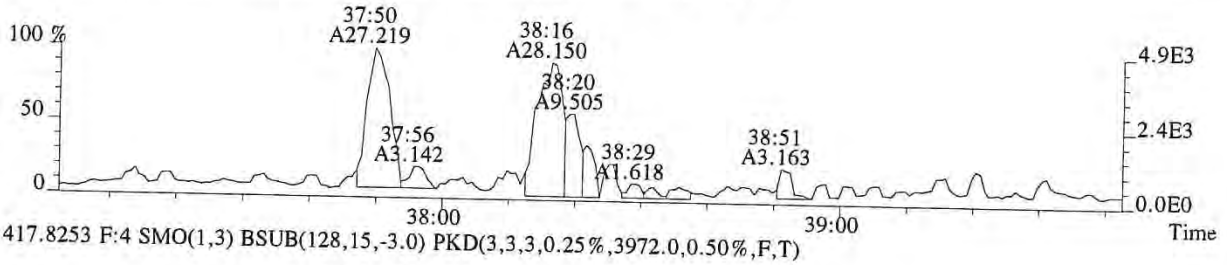
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



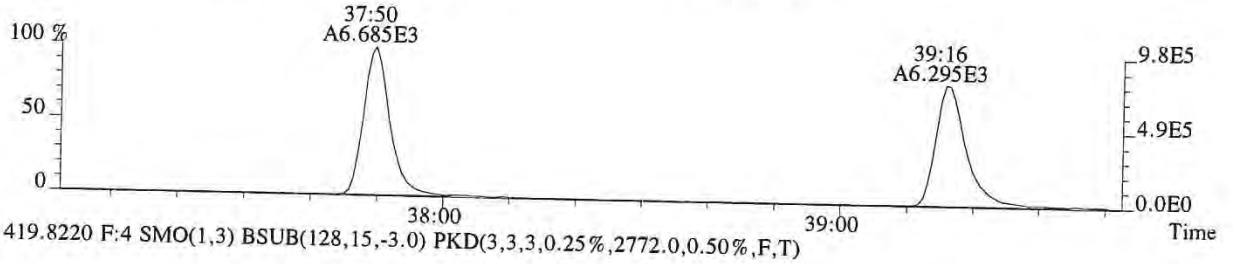
File:P519637 #1-241 Acq:26-DEC-2018 21:33:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-009
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,580.0,0.50%,F,T)



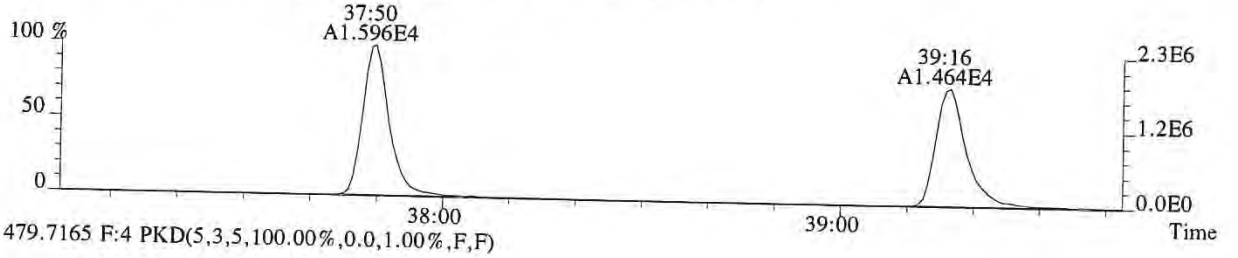
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,572.0,0.50%,F,T)



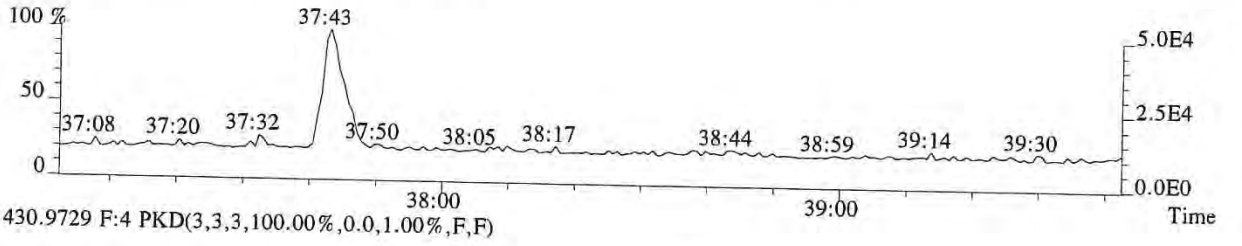
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3972.0,0.50%,F,T)



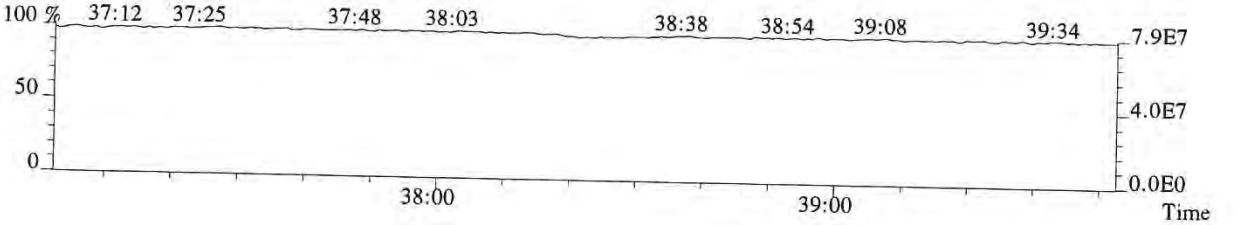
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2772.0,0.50%,F,T)



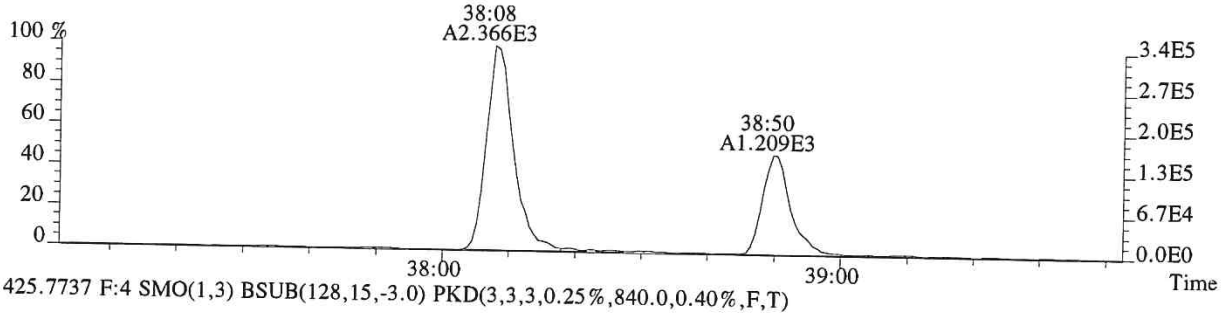
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



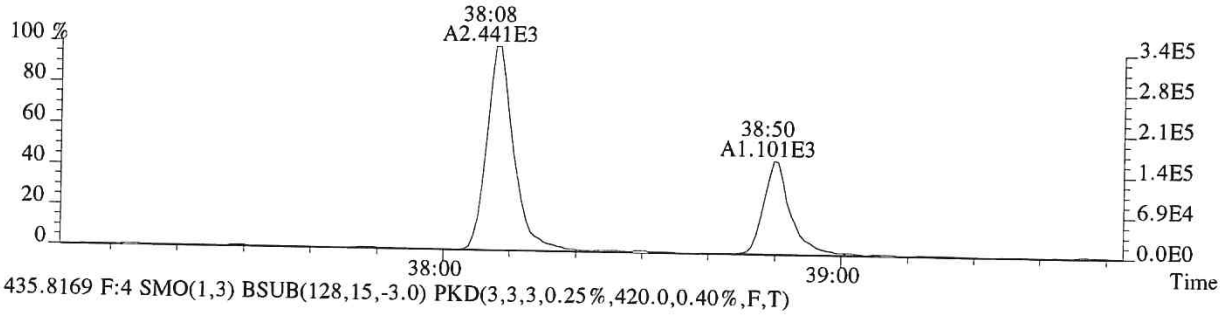
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



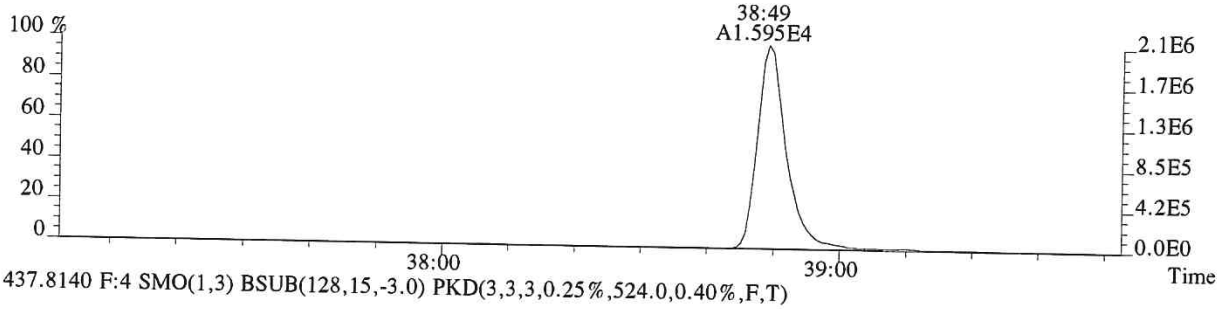
File:P519637 #1-241 Acq:26-DEC-2018 21:33:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-009
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,736.0,0.40%,F,T)



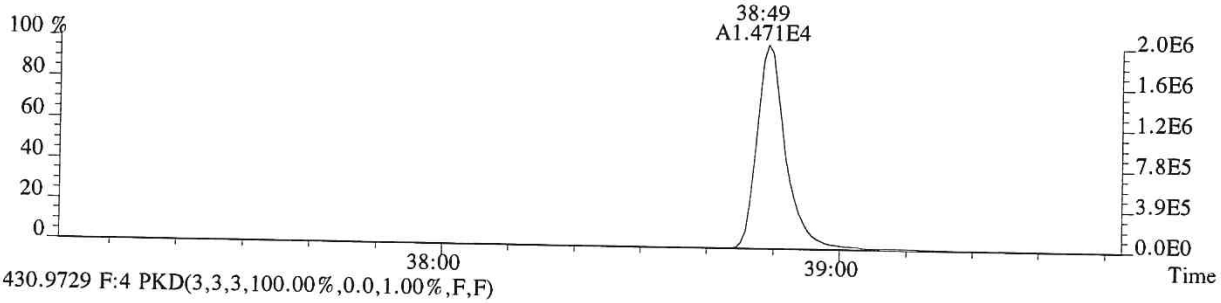
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,840.0,0.40%,F,T)



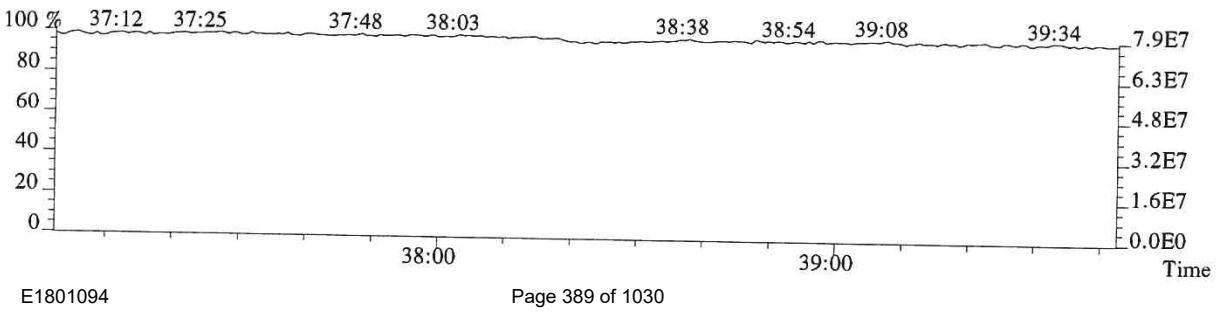
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,420.0,0.40%,F,T)



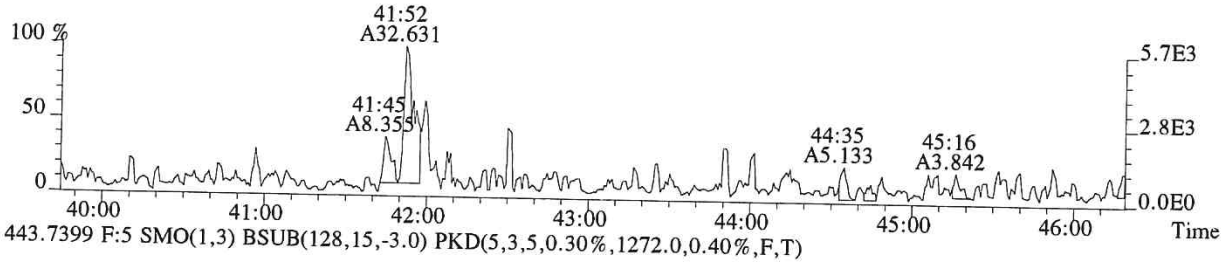
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,524.0,0.40%,F,T)



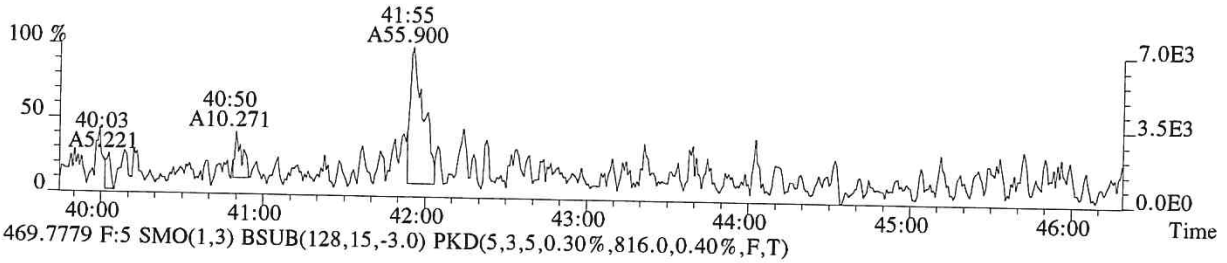
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



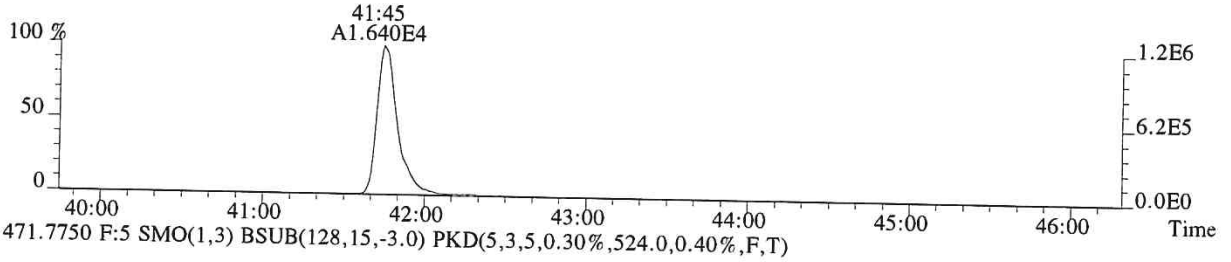
File:P519637 #1-592 Acq:26-DEC-2018 21:33:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-009
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,564.0,0.40%,F,T)



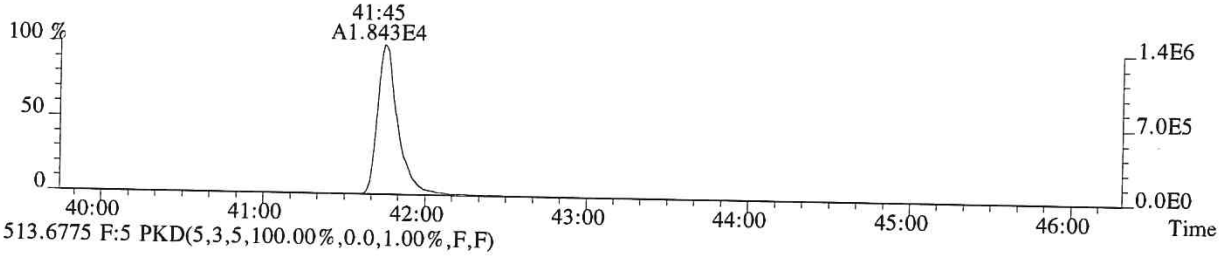
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1272.0,0.40%,F,T)



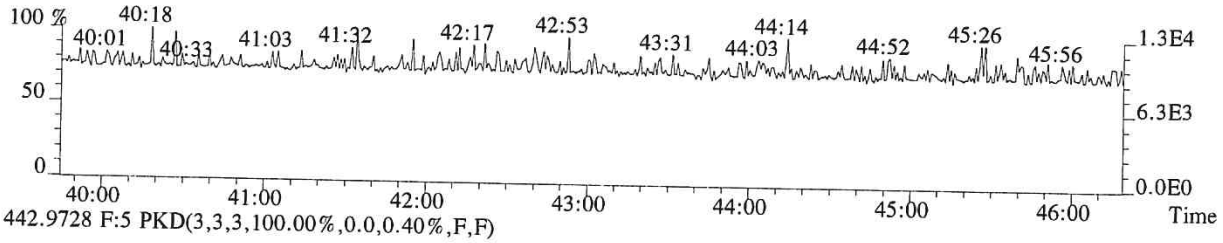
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,816.0,0.40%,F,T)



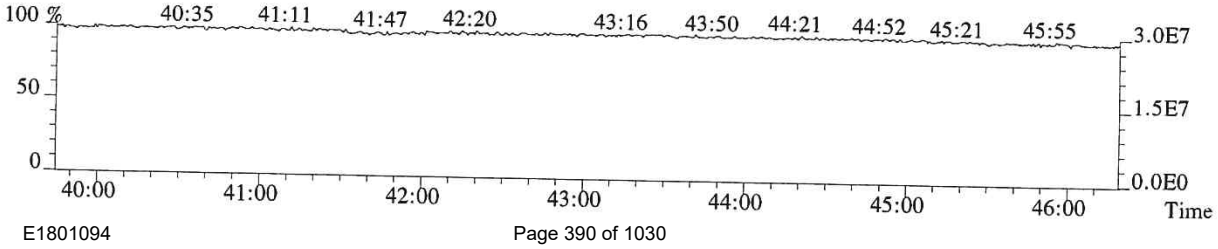
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,524.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

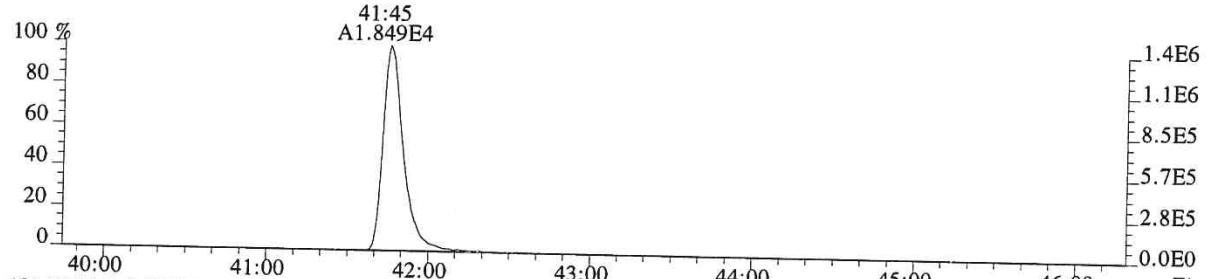


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

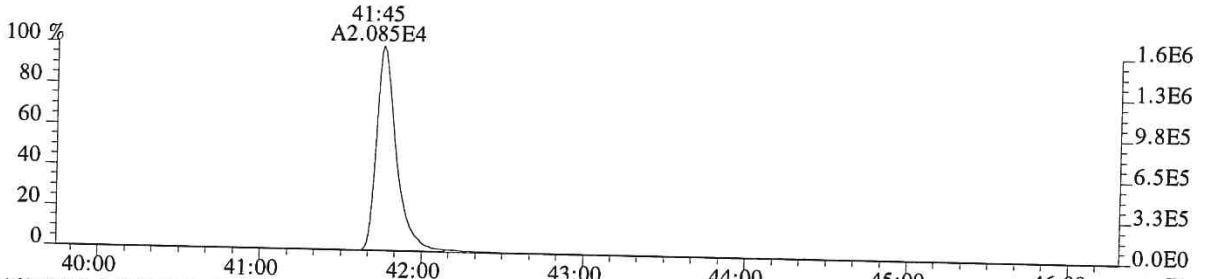


015386

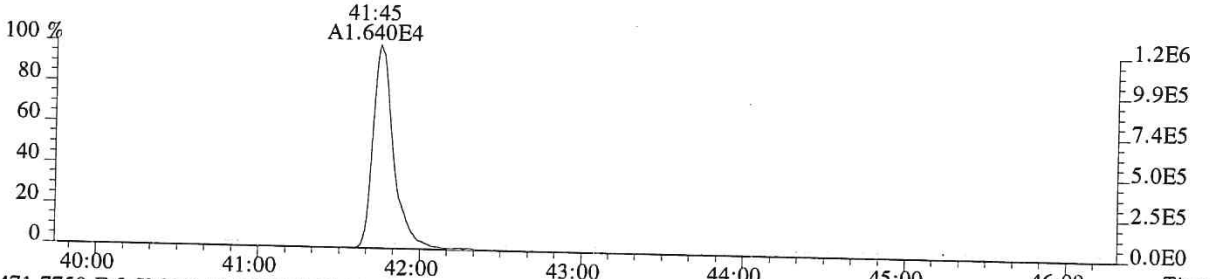
File:P519637 #1-592 Acq:26-DEC-2018 21:33:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-009
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,552.0,0.40%,F,T)



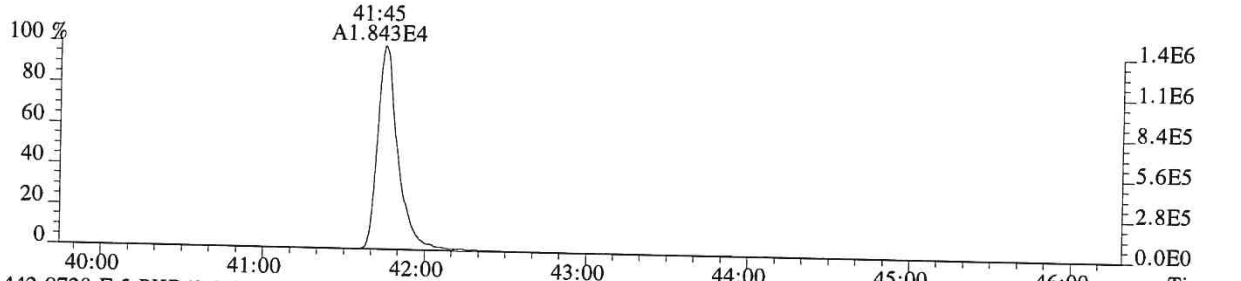
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1208.0,0.40%,F,T)



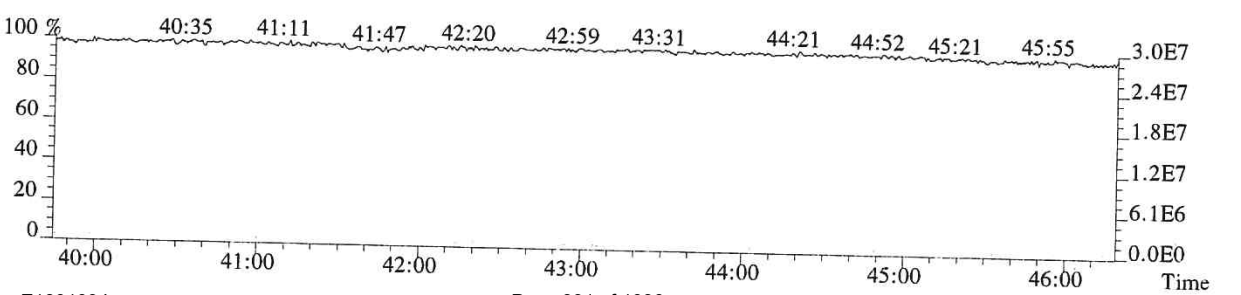
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,816.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,524.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0039

Run #11 Filename P519484 Samp: 1 Inj: 1 Acquired: 19-DEC-18 06:40:11
Processed: 20-DEC-18 15:34:07 Sample ID: E1801094-010

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:49	1.562e+02	1.867e+02	0.84	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	31:27	4.892e+01	1.797e+01	2.72	no	no	1.012
3	Unk	2,3,4,7,8-PeCDF	32:25	2.829e+01	1.316e+01	2.15	no	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.190
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.123
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.110
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	NotFnd	*	*	*	no	yes	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.258
10	Unk	OCDF	NotFnd	*	*	*	no	no	1.359
11	Unk	2,3,7,8-TCDD	27:42	1.890e+01	5.046e+01	0.37	no	no	1.085
12	Unk	1,2,3,7,8-PeCDD	32:45	2.948e+01	1.460e+01	2.02	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:09	2.631e+01	3.110e+01	0.85	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:24	6.425e+01	5.131e+01	1.25	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:02	7.043e+02	6.934e+02	1.02	yes	no	1.025
17	Unk	OCDD	41:56	8.434e+03	9.654e+03	0.87	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	26:47	9.411e+03	1.199e+04	0.78	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	31:26	1.567e+04	1.016e+04	1.54	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	32:24	1.466e+04	9.193e+03	1.60	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:15	5.883e+03	1.106e+04	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:22	7.573e+03	1.405e+04	0.54	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:54	6.158e+03	1.195e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	36:41	5.059e+03	1.006e+04	0.50	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:03	3.810e+03	8.711e+03	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:29	3.116e+03	6.396e+03	0.49	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	27:41	4.342e+03	5.602e+03	0.78	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:43	1.110e+04	6.817e+03	1.63	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:03	8.302e+03	6.462e+03	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:08	8.848e+03	6.958e+03	1.27	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:01	7.374e+03	6.990e+03	1.05	yes	no	0.858
32	IS	13C-OCDD	41:55	5.476e+03	5.847e+03	0.94	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:03	1.434e+04	1.777e+04	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:24	1.614e+04	1.235e+04	1.31	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:42	6.391e+03				no	1.014

$$\text{OCDD} = \frac{(8.434e+03 + 9.654e+03) \times 4000\ \text{pg} \times 1}{(5.476e+03 + 5.847e+03) \times 10.497\ \text{g} \times 79.7 / 100 \times 1.118} = 6083\ \text{ng/kg}$$

KW 12/20/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0039

Run #11 Filename P519484 Samp: 1 Inj: 1 Acquired: 19-DEC-18 06:40:11
Processed: 20-DEC-18 15:34:07 LAB. ID: E1801094-010

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.37e+04	5.16e+02	4.6e+01	2.95e+04	1.56e+03	1.9e+01
2	1,2,3,7,8-PeCDF	1.00e+04	8.32e+02	1.2e+01	3.60e+03	5.84e+02	6.2e+00
3	2,3,4,7,8-PeCDF	5.90e+03	8.32e+02	7.1e+00	3.00e+03	5.84e+02	5.1e+00
4	1,2,3,4,7,8-HxCDF	*	5.52e+02	*	*	4.12e+02	*
5	1,2,3,6,7,8-HxCDF	*	5.52e+02	*	*	4.12e+02	*
6	2,3,4,6,7,8-HxCDF	*	5.52e+02	*	*	4.12e+02	*
7	1,2,3,7,8,9-HxCDF	*	5.52e+02	*	*	4.12e+02	*
8	1,2,3,4,6,7,8-HpCDF	*	3.96e+02	*	*	3.28e+02	*
9	1,2,3,4,7,8,9-HpCDF	*	3.96e+02	*	*	3.28e+02	*
10	OCDF	*	6.00e+02	*	*	5.28e+02	*
11	2,3,7,8-TCDD	5.69e+03	1.45e+03	3.9e+00	8.01e+03	9.40e+02	8.5e+00
12	1,2,3,7,8-PeCDD	4.79e+03	4.52e+02	1.1e+01	3.70e+03	5.48e+02	6.8e+00
13	1,2,3,4,7,8-HxCDD	*	6.80e+02	*	*	1.25e+03	*
14	1,2,3,6,7,8-HxCDD	7.26e+03	6.80e+02	1.1e+01	5.62e+03	1.25e+03	4.5e+00
15	1,2,3,7,8,9-HxCDD	1.25e+04	6.80e+02	1.8e+01	9.63e+03	1.25e+03	7.7e+00
16	1,2,3,4,6,7,8-HpCDD	1.29e+05	5.80e+02	2.2e+02	1.11e+05	4.48e+02	2.5e+02
17	OCDD	9.29e+05	9.60e+02	9.7e+02	1.07e+06	7.44e+02	1.4e+03
18	13C-2,3,7,8-TCDF	1.46e+06	2.98e+03	4.9e+02	1.91e+06	1.53e+03	1.2e+03
19	13C-1,2,3,7,8-PeCDF	2.63e+06	5.48e+02	4.8e+03	1.69e+06	5.80e+02	2.9e+03
20	13C-2,3,4,7,8-PeCDF	2.66e+06	5.48e+02	4.9e+03	1.65e+06	5.80e+02	2.8e+03
21	13C-1,2,3,4,7,8-HxCDF	1.18e+06	7.12e+02	1.7e+03	2.28e+06	8.04e+02	2.8e+03
22	13C-1,2,3,6,7,8-HxCDF	1.34e+06	7.12e+02	1.9e+03	2.50e+06	8.04e+02	3.1e+03
23	13C-2,3,4,6,7,8-HxCDF	1.19e+06	7.12e+02	1.7e+03	2.30e+06	8.04e+02	2.9e+03
24	13C-1,2,3,7,8,9-HxCDF	8.96e+05	7.12e+02	1.3e+03	1.77e+06	8.04e+02	2.2e+03
25	13C-1,2,3,4,6,7,8-HpCDF	6.97e+05	9.04e+02	7.7e+02	1.51e+06	3.60e+03	4.2e+02
26	13C-1,2,3,4,7,8,9-HpCDF	4.73e+05	9.04e+02	5.2e+02	9.89e+05	3.60e+03	2.7e+02
27	13C-2,3,7,8-TCDD	7.12e+05	3.45e+03	2.1e+02	9.02e+05	1.56e+03	5.8e+02
28	13C-1,2,3,7,8-PeCDD	1.96e+06	3.60e+02	5.4e+03	1.20e+06	4.60e+02	2.6e+03
29	13C-1,2,3,4,7,8-HxCDD	1.75e+06	1.09e+03	1.6e+03	1.35e+06	9.28e+02	1.5e+03
30	13C-1,2,3,6,7,8-HxCDD	1.56e+06	1.09e+03	1.4e+03	1.27e+06	9.28e+02	1.4e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.19e+06	5.80e+02	2.0e+03	1.09e+06	7.40e+02	1.5e+03
32	13C-OCDD	6.12e+05	7.64e+02	8.0e+02	6.43e+05	4.84e+02	1.3e+03
33	13C-1,2,3,4-TCDD	2.37e+06	3.45e+03	6.9e+02	2.96e+06	1.56e+03	1.9e+03
34	13C-1,2,3,7,8,9-HxCDD	2.82e+06	1.09e+03	2.6e+03	2.21e+06	9.28e+02	2.4e+03
35	37Cl-2,3,7,8-TCDD	1.07e+06	7.76e+02	1.4e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.452e{+}03 + 9.400e{+}02\ ) \times 2000}{(7.122e{+}05 + 9.021e{+}05\ ) \times (\qquad\qquad) \times 1.085} =$$

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0039

Entry: 36 Totals Name: Total Tetra-Furans

Run: 11 File: P519484 Sample:1 Injection:1 Function:1

Acquired: 19-DEC-18 06:40:11 Processed: 20-DEC-18 15:34:07

Mass: 303.9020 305.8990 Tot Response: 1.35e+03 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	22:12	3.95e+01	5.78e+01	0.68	yes	9.72e+01		n	n
2	23:07	4.99e+01	6.03e+01	0.83	yes	1.10e+02		n	n
3	24:17	2.76e+01	3.61e+01	0.76	yes	6.37e+01		n	n
4	25:15	4.32e+01	5.75e+01	0.75	yes	1.01e+02		n	n
5	25:24	5.39e+01	8.07e+01	0.67	yes	1.35e+02		n	n
6	25:52	1.21e+02	1.51e+02	0.80	yes	2.71e+02		n	n
7	26:36	2.90e+01	3.86e+01	0.75	yes	6.76e+01		n	n
8	26:49	1.56e+02	1.87e+02	0.84	yes	3.43e+02	2,3,7,8-TCDF	n	n
9	27:11	7.42e+01	8.68e+01	0.86	yes	1.61e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0039

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 11 File: P519484 Sample:1 Injection:1 Function:1

Acquired: 19-DEC-18 06:40:11 Processed: 20-DEC-18 15:34:07

Mass: 319.8970 321.8940 Tot Response: 2.53e+02 RRF: 1.085

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	25:31	8.76e+01	1.25e+02 0.70	yes	2.13e+02		n	n
2	27:24	1.63e+01	2.41e+01 0.68	yes	4.03e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0039

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 11 File: P519484 Sample:1 Injection:1 Function:2

Acquired: 19-DEC-18 06:40:11 Processed: 20-DEC-18 15:34:07

Mass: 355.8550 357.8520 Tot Response: 1.84e+02 RRF: 0.9565

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:59	1.05e+02	7.89e+01 1.33	yes	1.84e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0039

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 11 File: P519484 Sample:1 Injection:1 Function:3

Acquired: 19-DEC-18 06:40:11 Processed: 20-DEC-18 15:34:07

Mass: 389.8160 391.8130 Tot Response: 1.62e+03 RRF: 1.047

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:39	6.31e+02	5.19e+02 1.22	yes	1.15e+03		n	n
2	35:26	1.93e+02	1.58e+02 1.22	yes	3.51e+02		n	n
3	36:24	6.43e+01	5.13e+01 1.25	yes	1.16e+02	1,2,3,7,8,9-HxCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0039

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 11 File: P519484 Sample:1 Injection:1 Function:4

Acquired: 19-DEC-18 06:40:11 Processed: 20-DEC-18 15:34:07

Mass: 423.7770 425.7740 Tot Response: 4.77e+03 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:20	1.68e+03	1.69e+03 0.99	yes	3.37e+03		n	n
2	39:02	7.04e+02	6.93e+02 1.02	yes	1.40e+03	1,2,3,4,6,7,8-HpCDD	n	n

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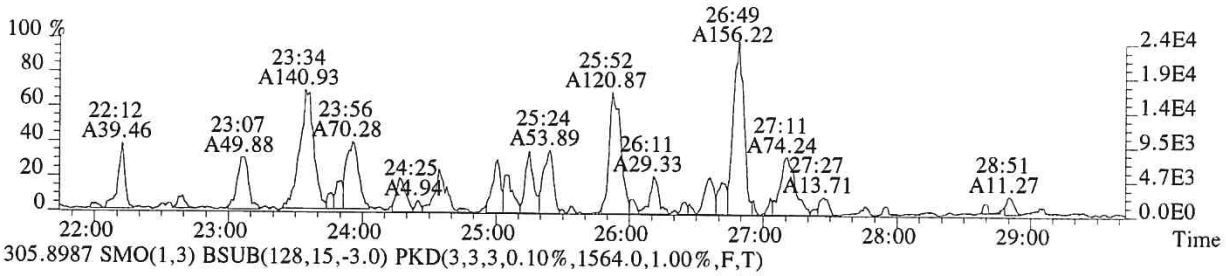
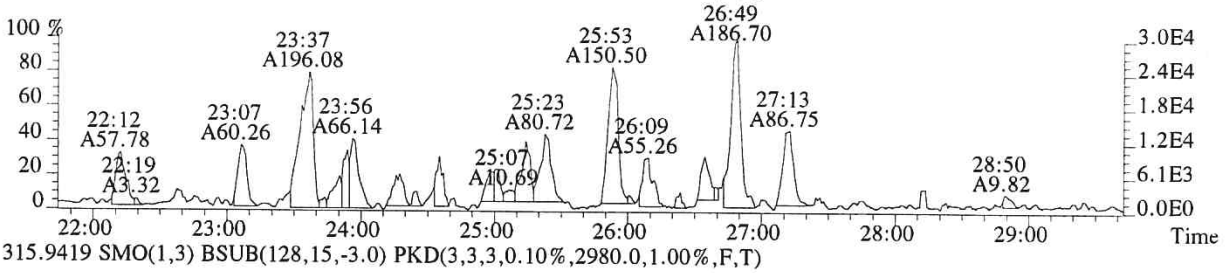
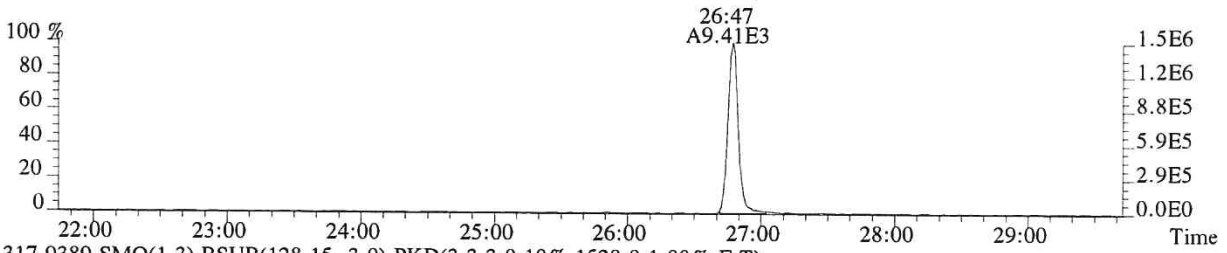
File:P519484 #1-566 Acq:19-DEC-2018 06:40:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-010
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,516.0,1.00%,F,T)



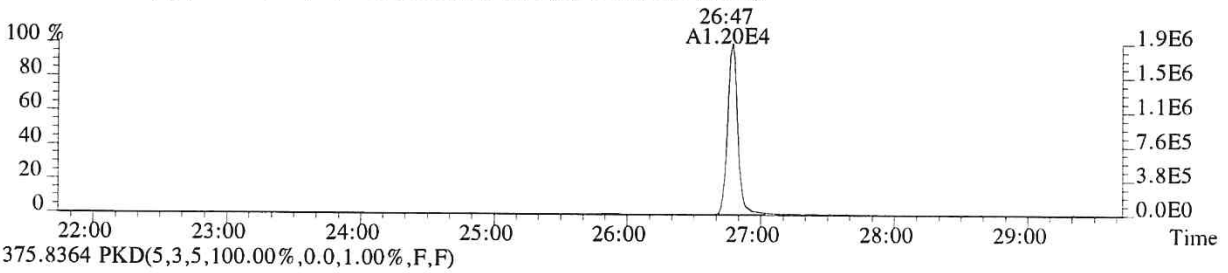
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1564.0,1.00%,F,T)



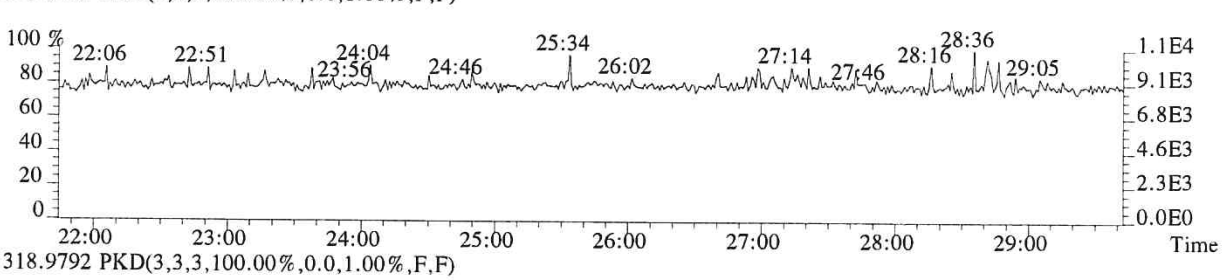
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2980.0,1.00%,F,T)



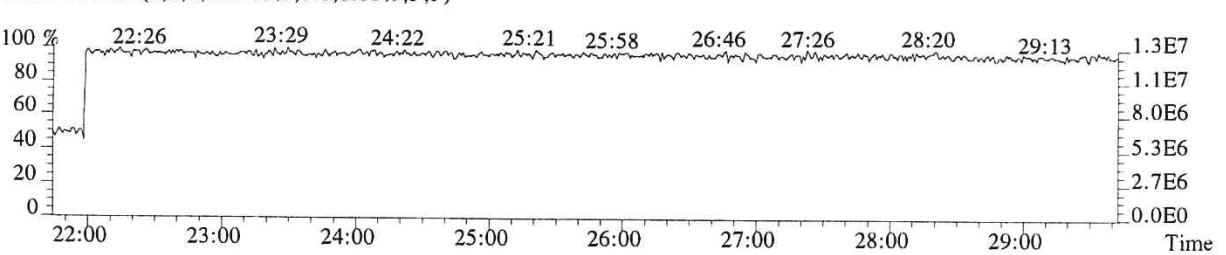
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1528.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

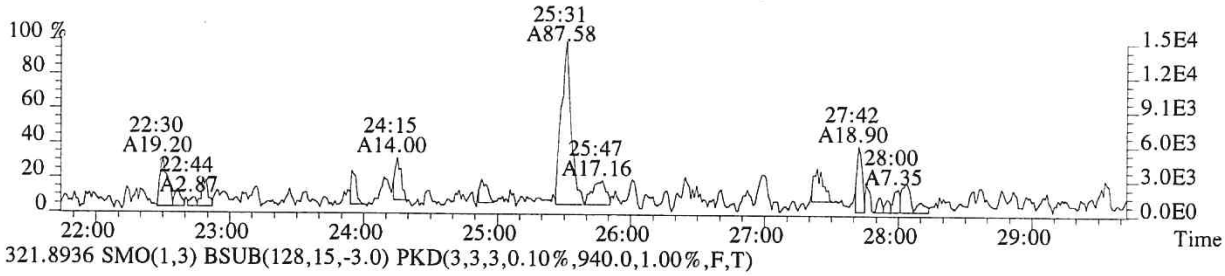


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

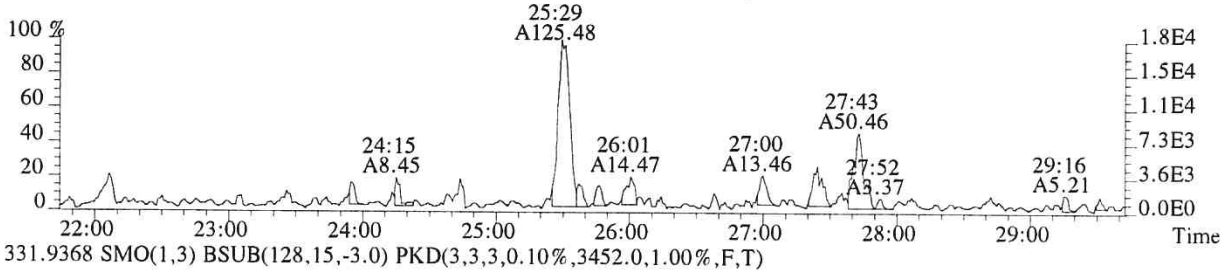


015395

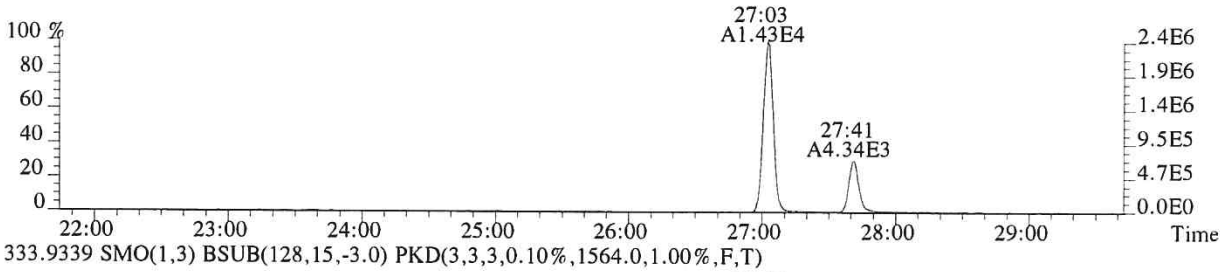
File:P519484 #1-566 Acq:19-DEC-2018 06:40:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-010
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1452.0,1.00%,F,T)



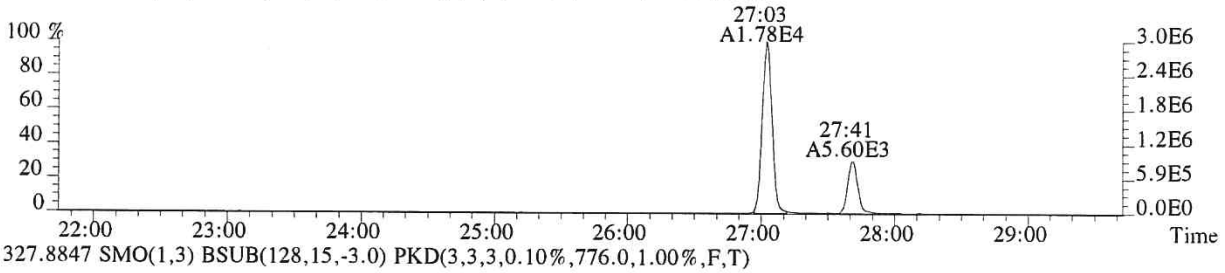
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,940.0,1.00%,F,T)



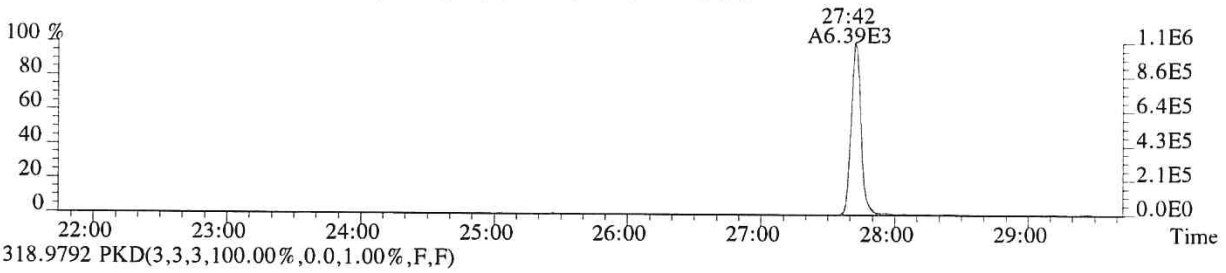
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3452.0,1.00%,F,T)



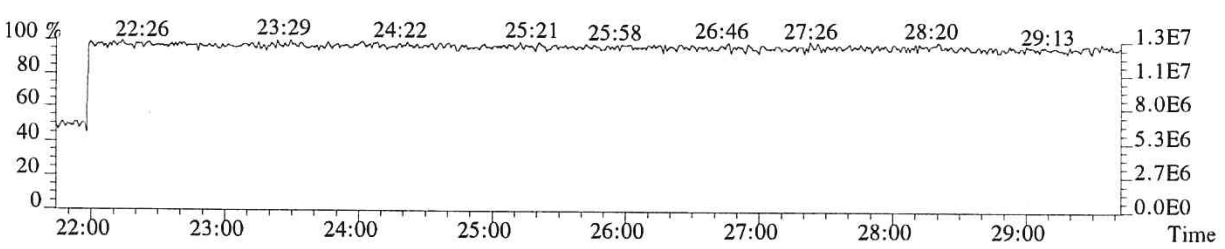
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1564.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)

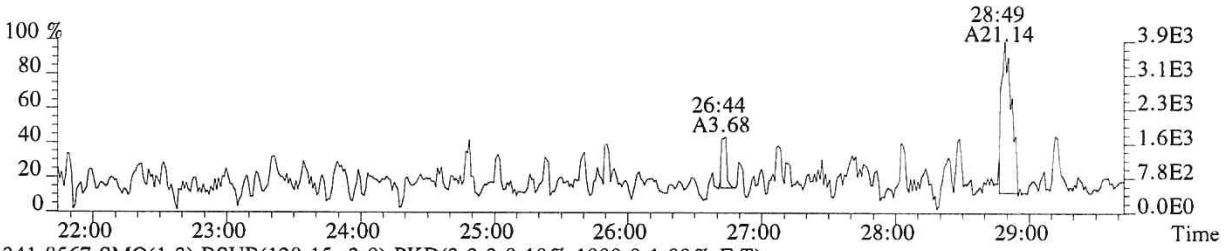


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

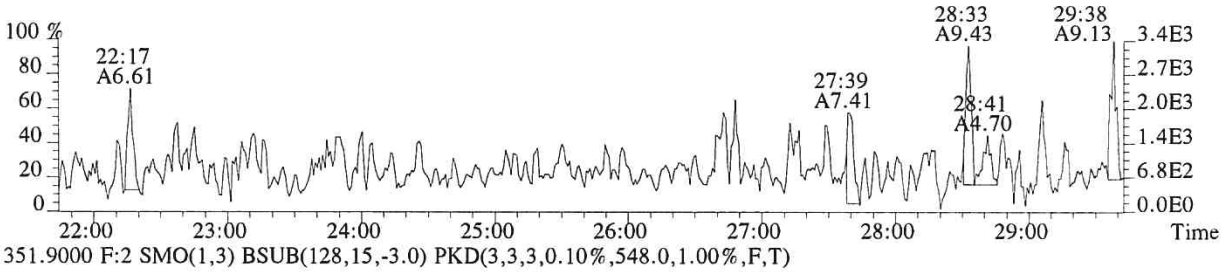


015396

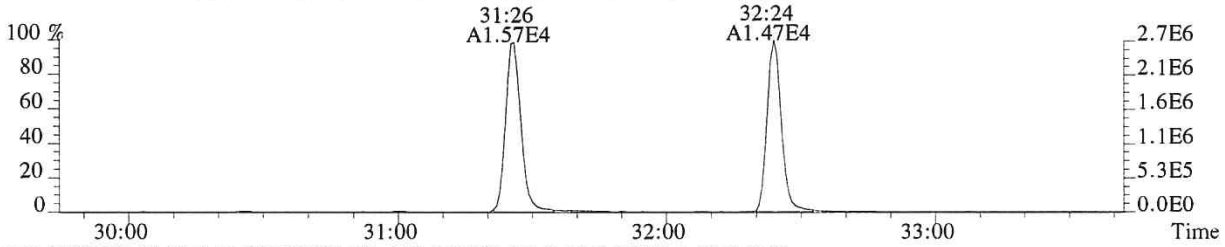
File:P519484 #1-566 Acq:19-DEC-2018 06:40:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-010
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,844.0,1.00%,F,T)



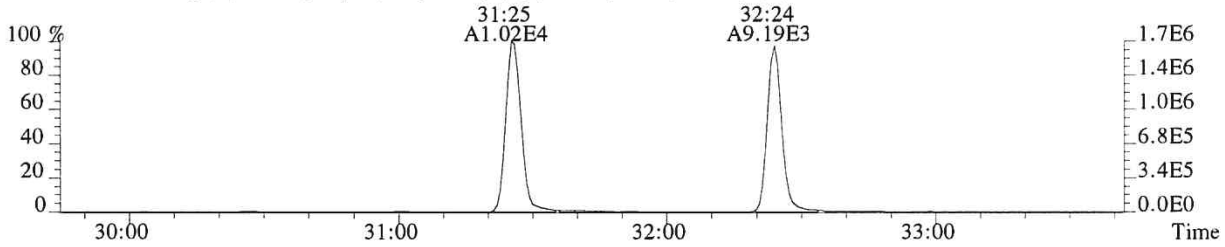
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1000.0,1.00%,F,T)



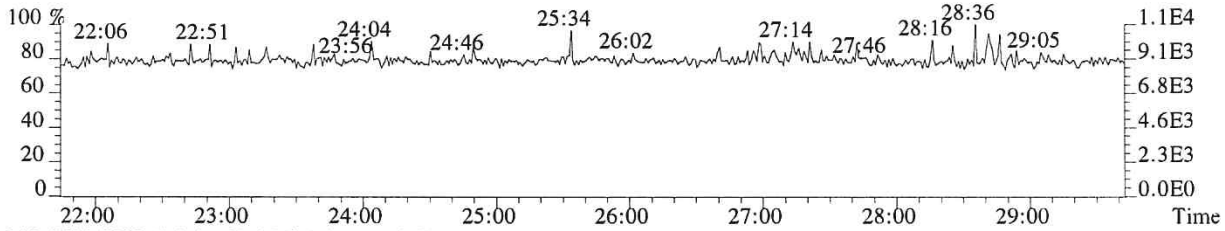
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,548.0,1.00%,F,T)



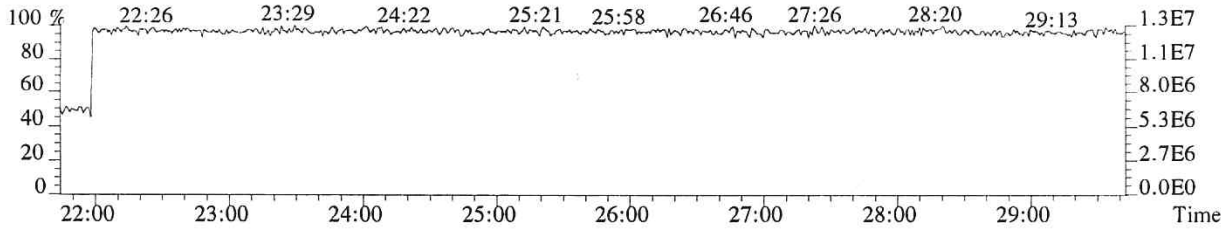
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,580.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

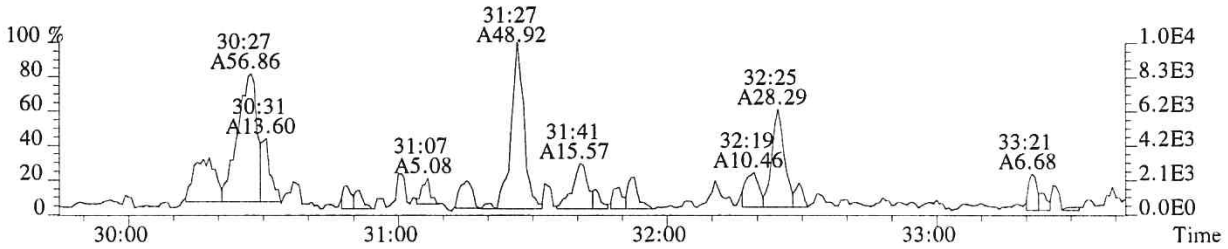


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

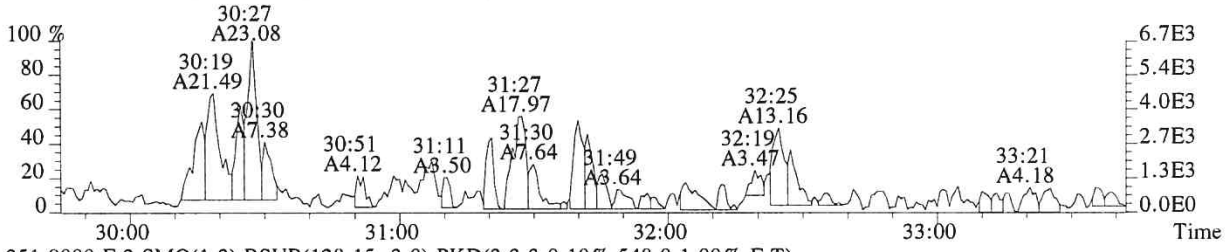


015397

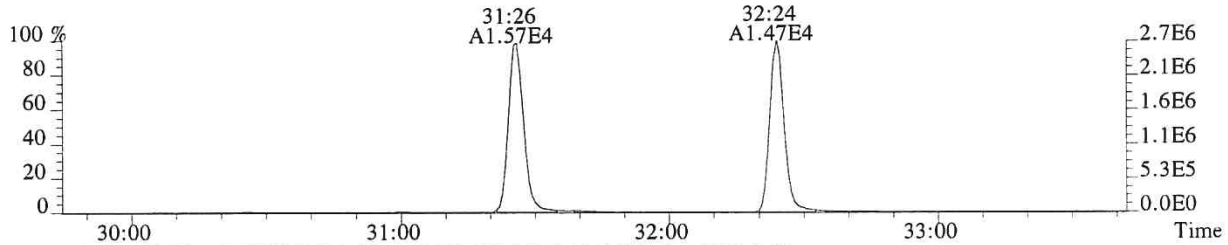
File:P519484 #1-357 Acq:19-DEC-2018 06:40:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-010
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,832.0,1.00%,F,T)



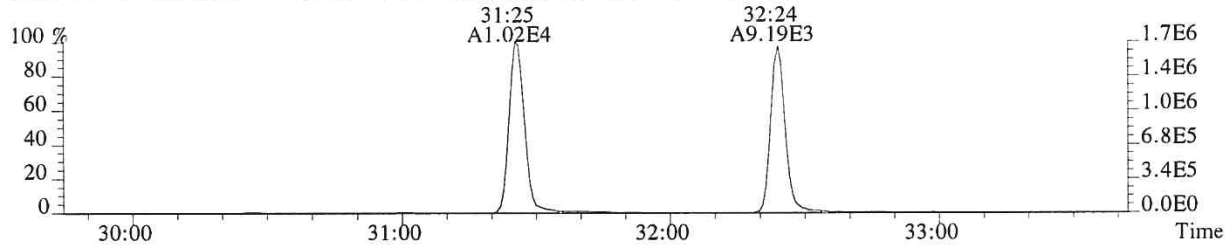
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,584.0,1.00%,F,T)



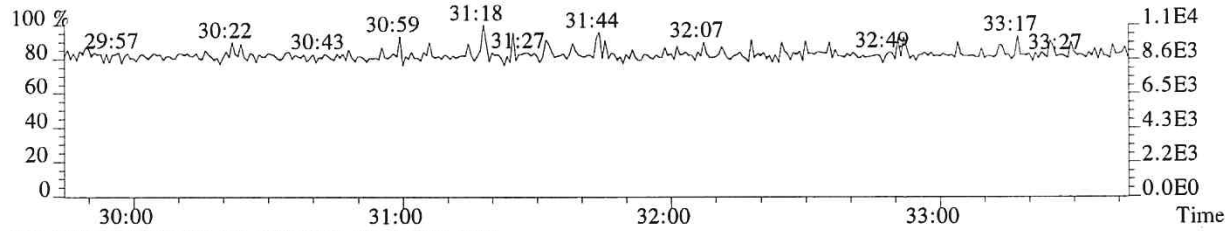
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,548.0,1.00%,F,T)



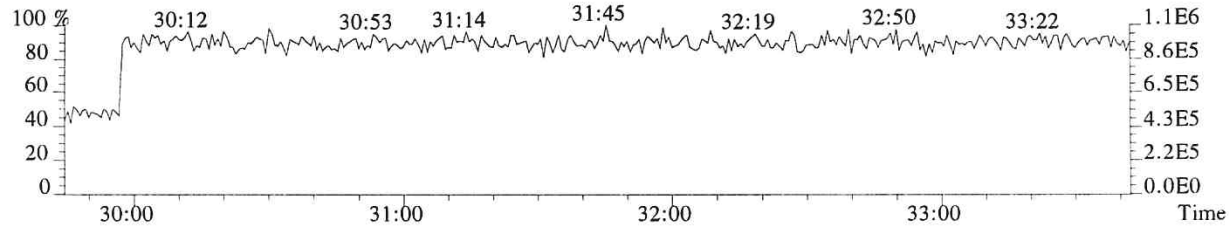
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,580.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

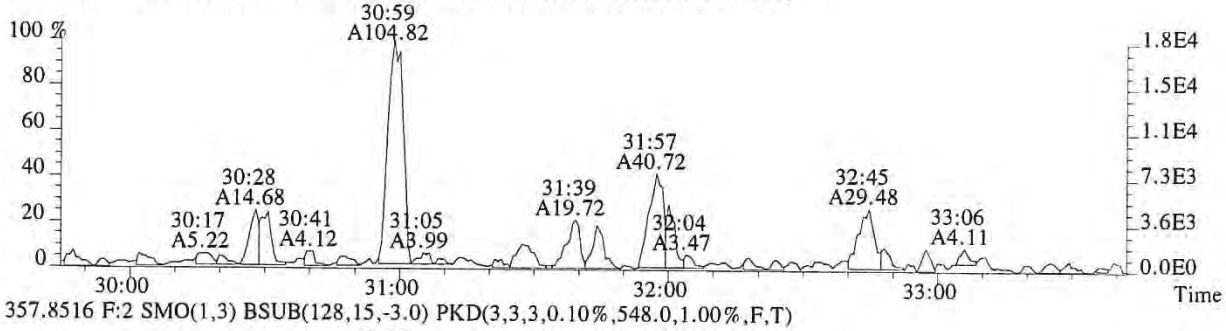


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

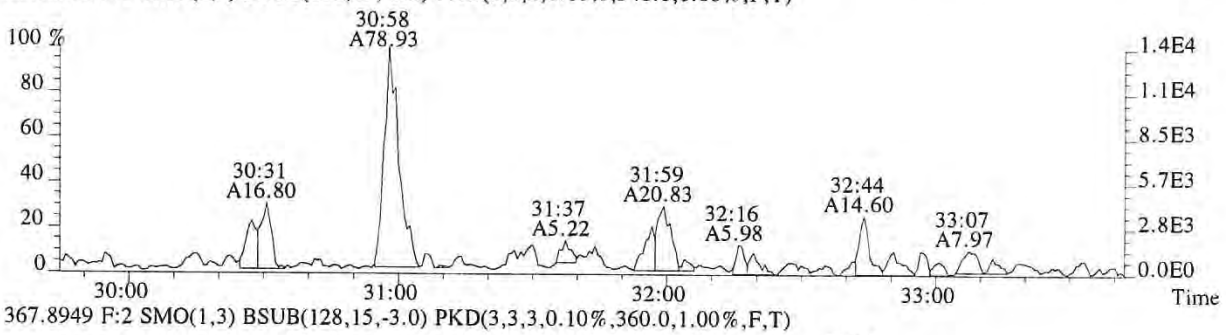


015398

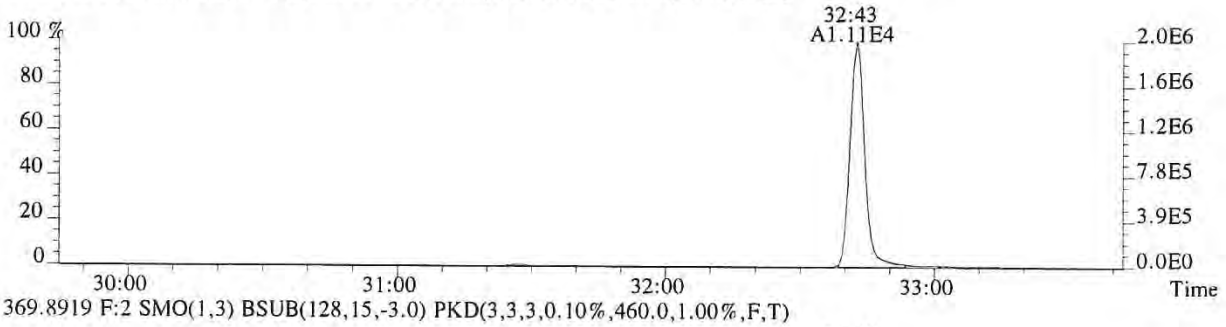
File:P519484 #1-357 Acq:19-DEC-2018 06:40:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-010
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,452.0,1.00%,F,T)



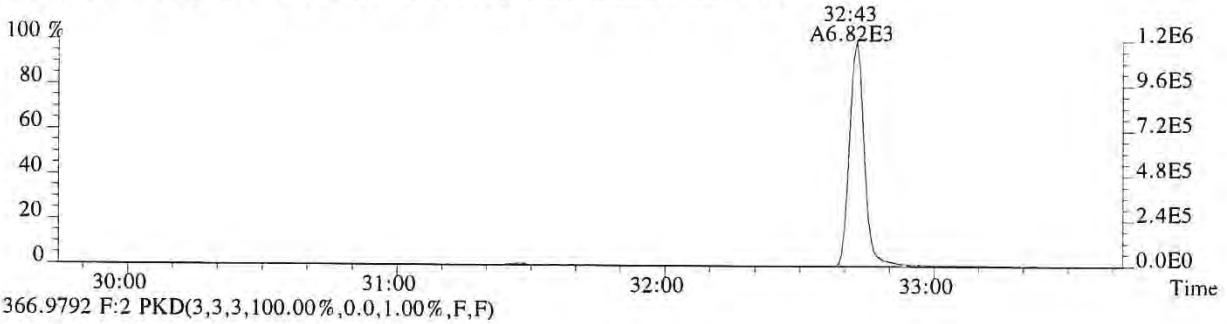
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,548.0,1.00%,F,T)



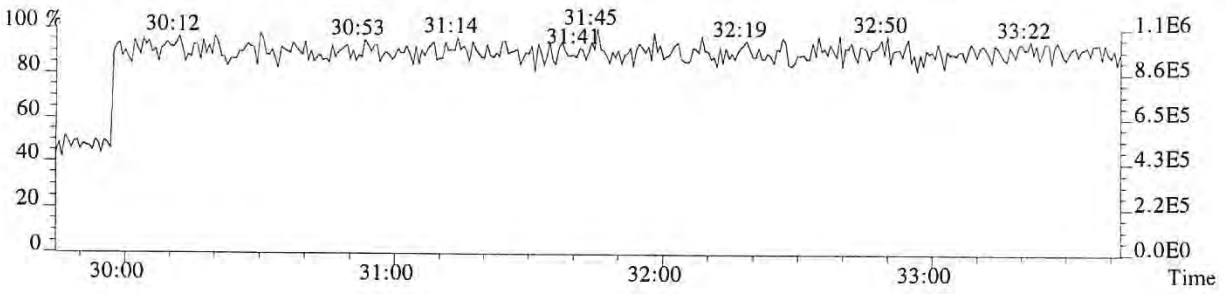
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,360.0,1.00%,F,T)



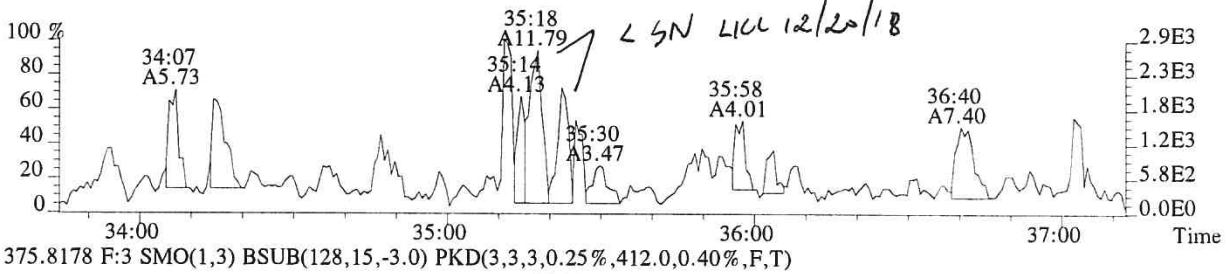
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,460.0,1.00%,F,T)



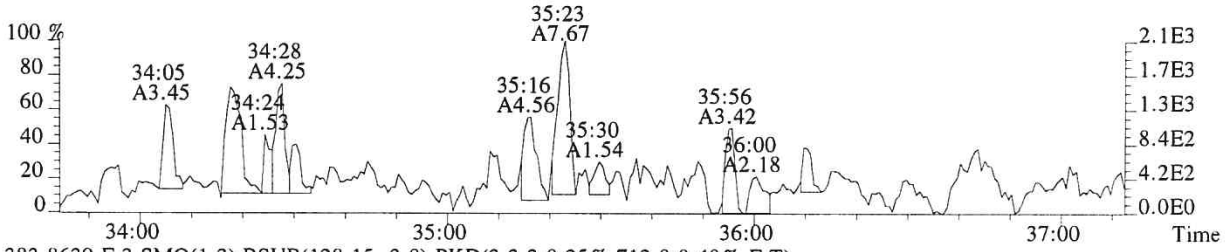
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



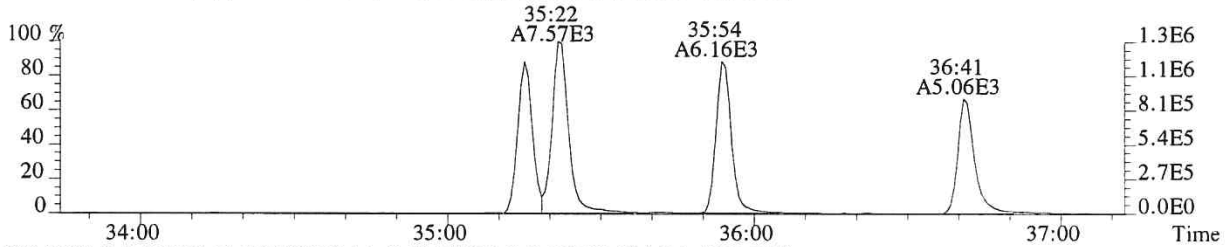
File:P519484 #1-313 Acq:19-DEC-2018 06:40:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-010
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,552.0,0.40%,F,T)



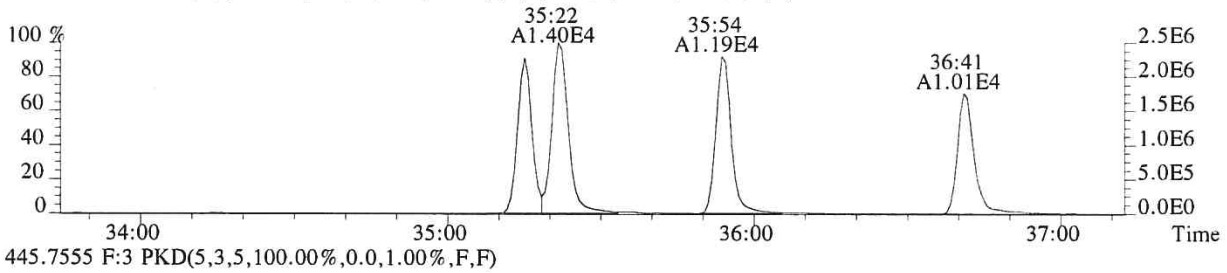
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,412.0,0.40%,F,T)



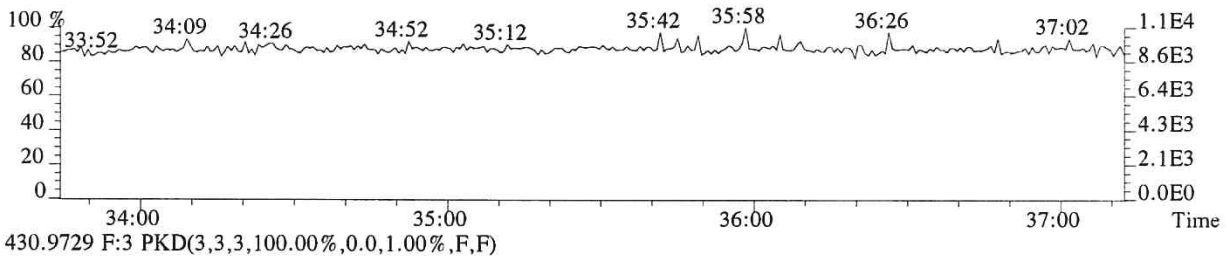
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,712.0,0.40%,F,T)



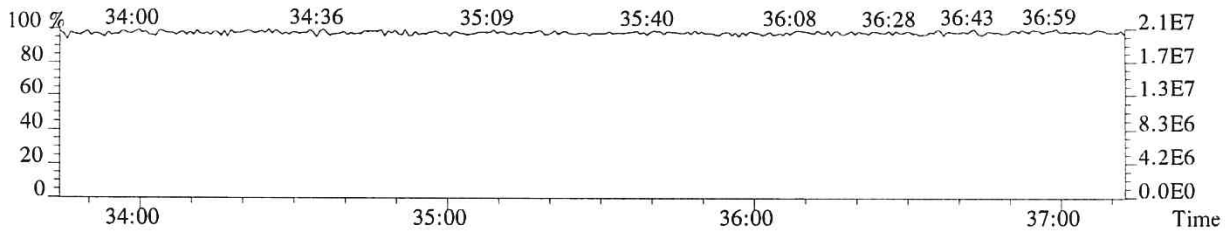
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,804.0,0.40%,F,T)



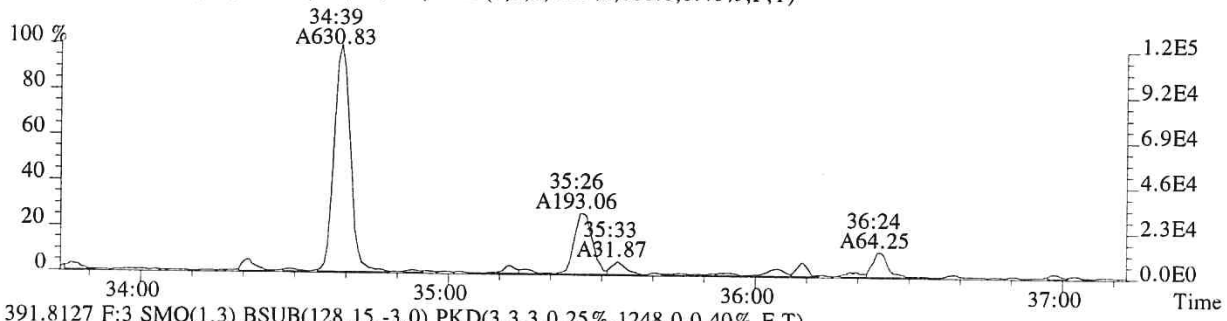
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



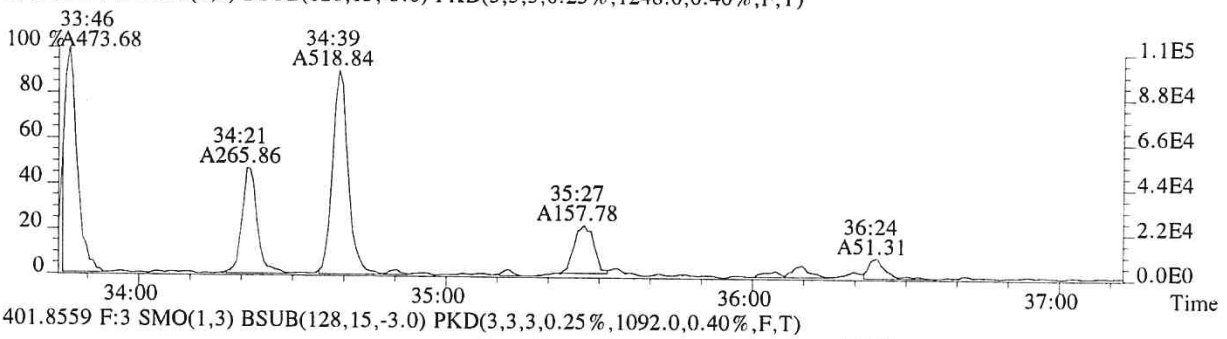
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



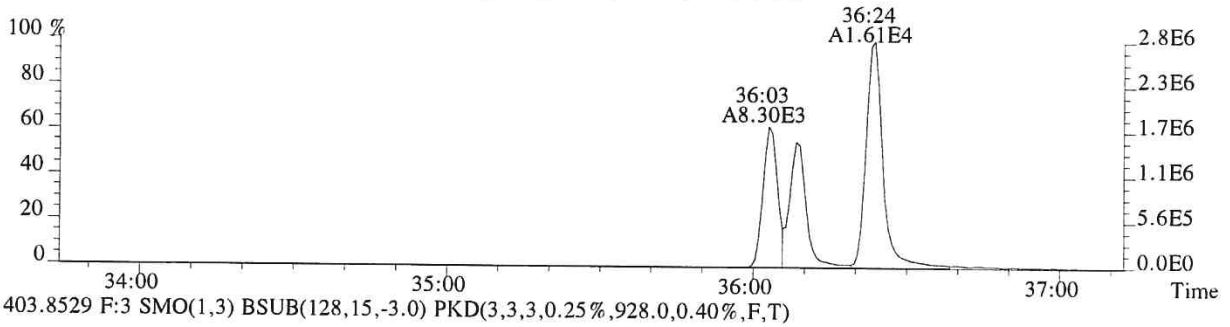
File:P519484 #1-313 Acq:19-DEC-2018 06:40:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-010
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,680.0,0.40%,F,T)



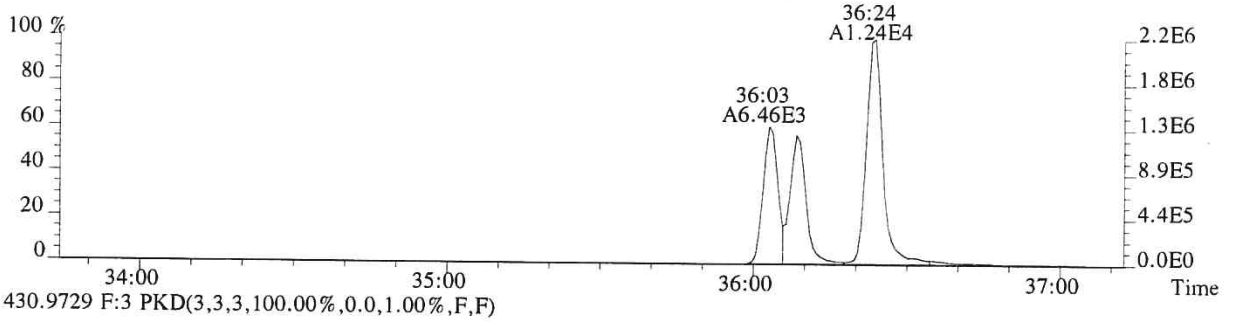
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1248.0,0.40%,F,T)



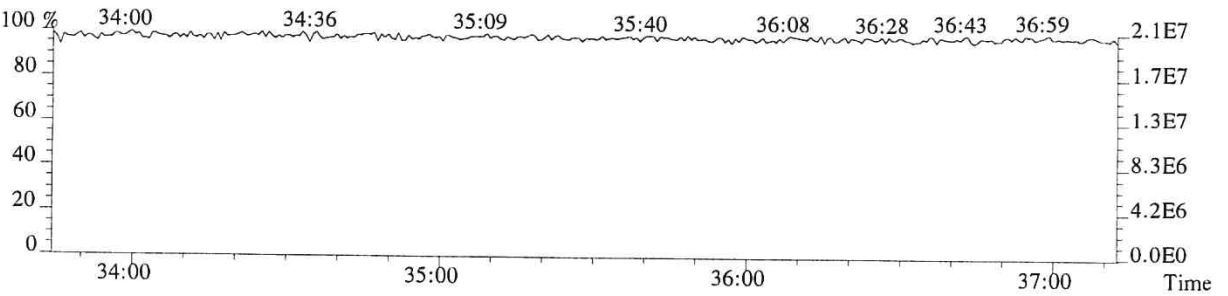
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1092.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,928.0,0.40%,F,T)

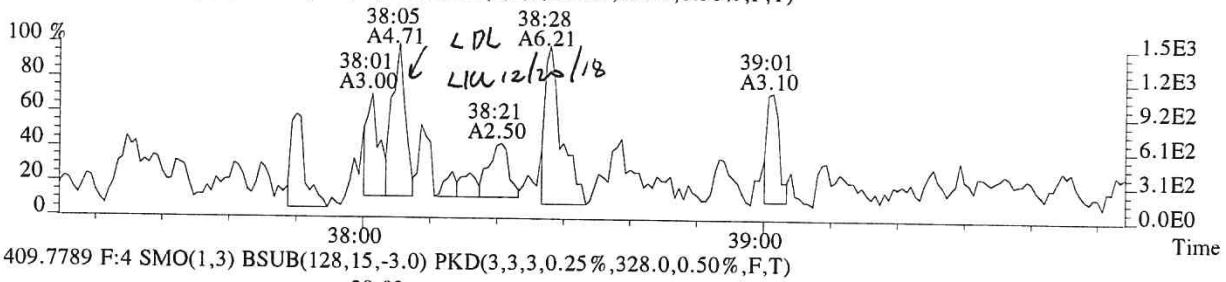


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

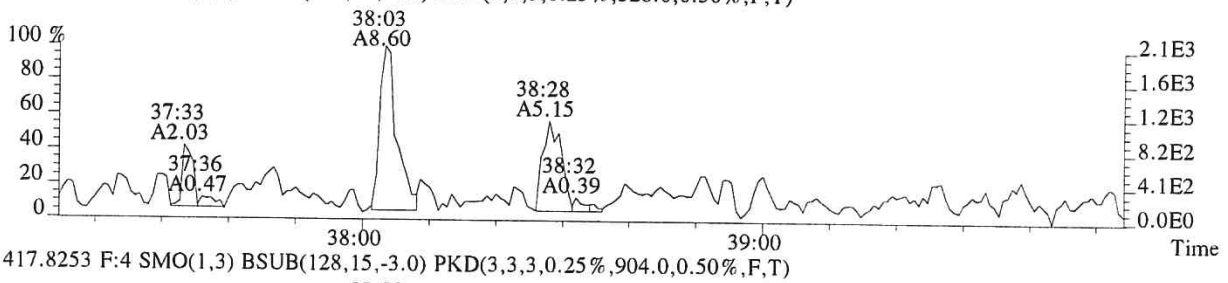


File:P519484 #1-240 Acq:19-DEC-2018 06:40:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-010

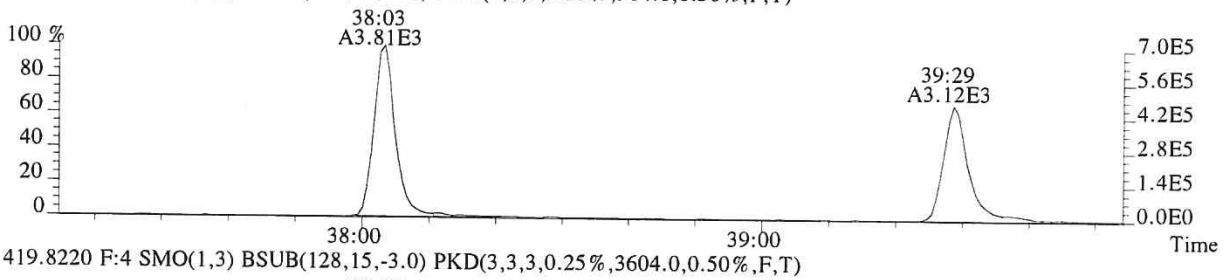
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,396.0,0.50%,F,T)



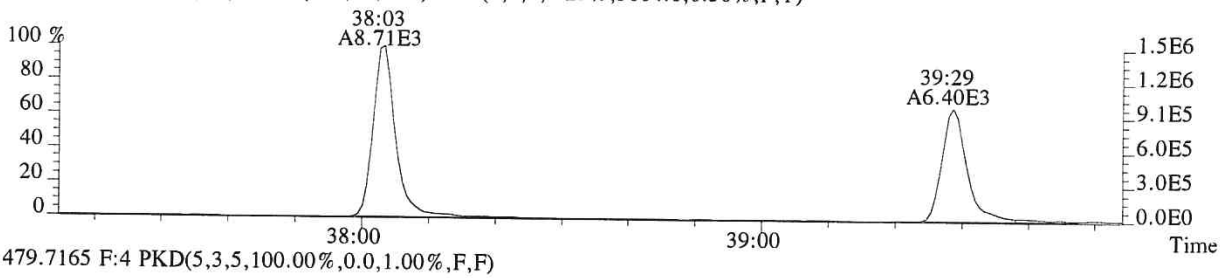
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,328.0,0.50%,F,T)



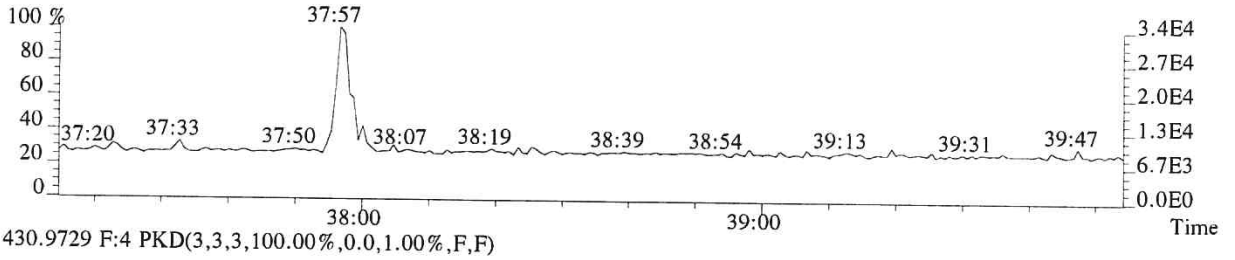
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,904.0,0.50%,F,T)



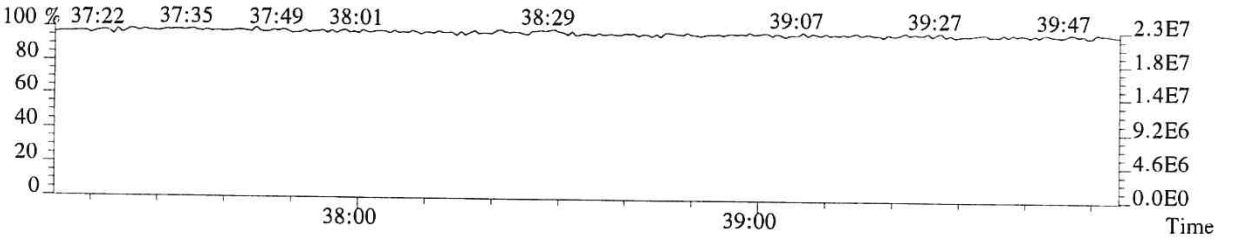
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3604.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

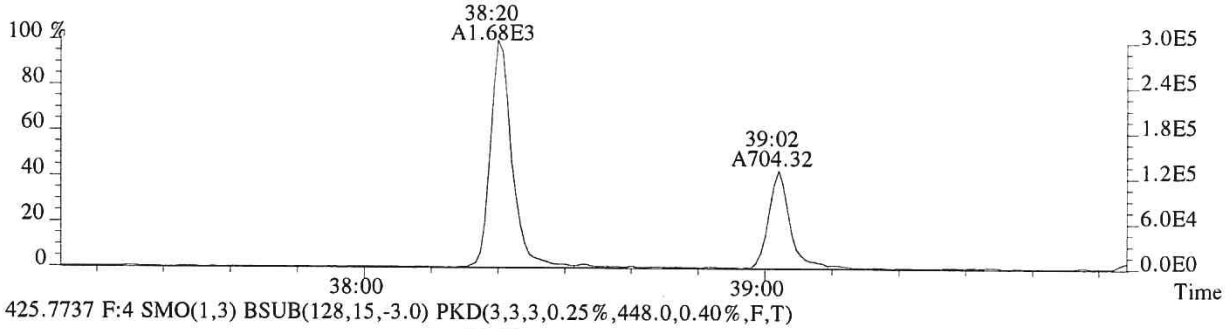


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

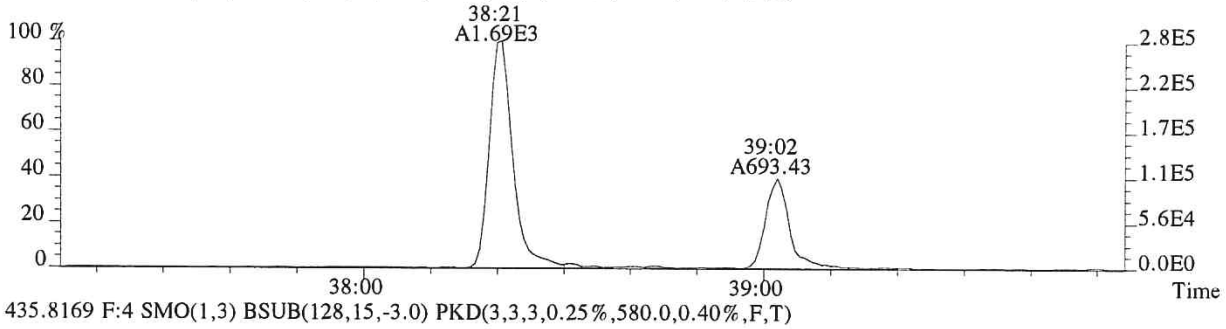


015402

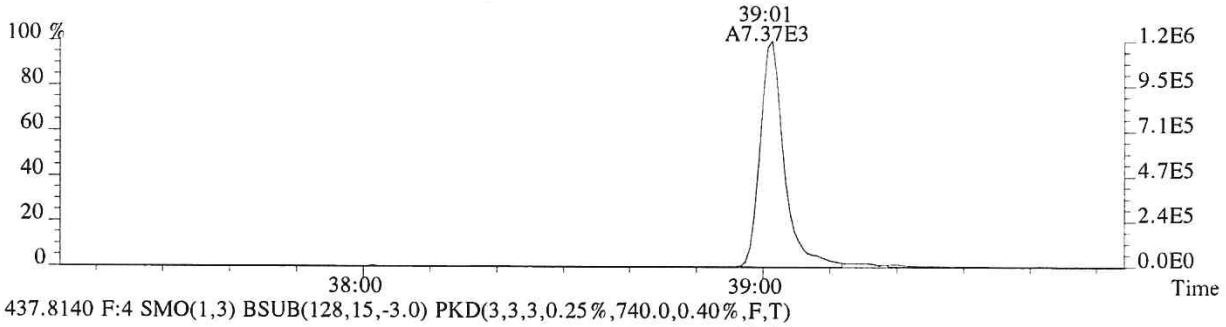
File:P519484 #1-240 Acq:19-DEC-2018 06:40:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-010
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,580.0,0.40%,F,T)



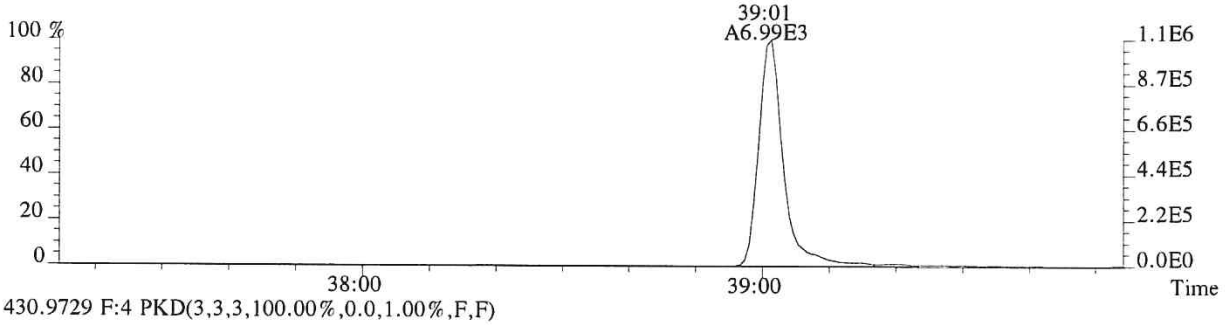
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,448.0,0.40%,F,T)



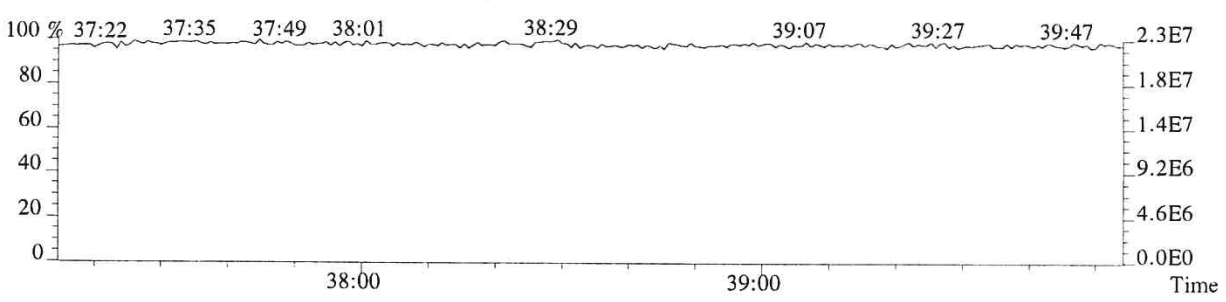
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,580.0,0.40%,F,T)



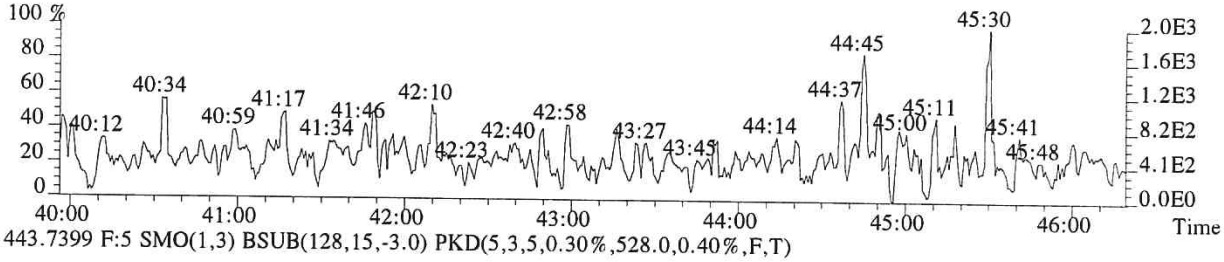
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,740.0,0.40%,F,T)



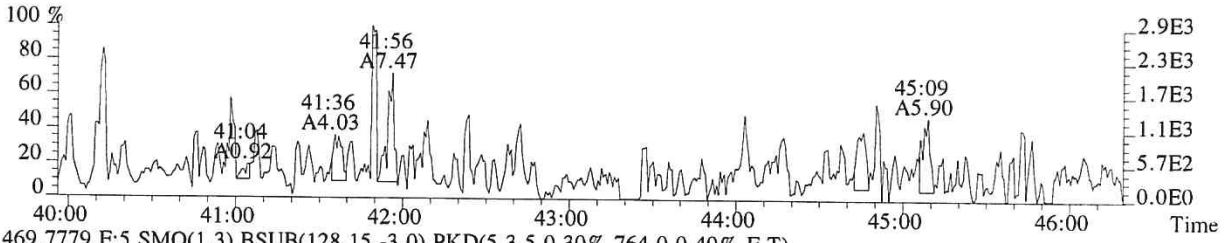
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



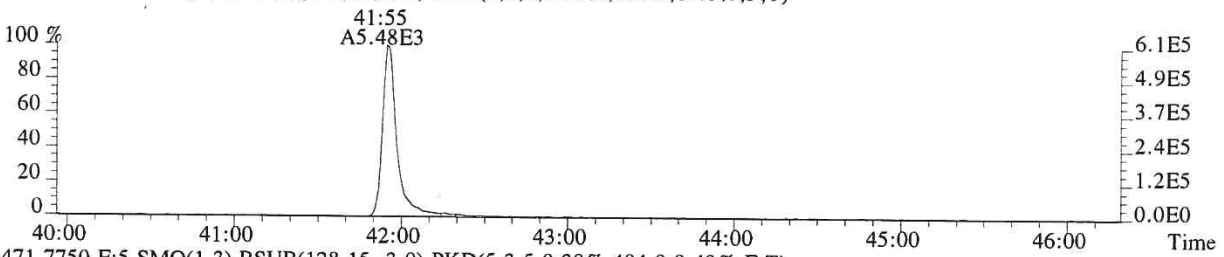
File:P519484 #1-575 Acq:19-DEC-2018 06:40:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-010
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,600.0,0.40%,F,T)



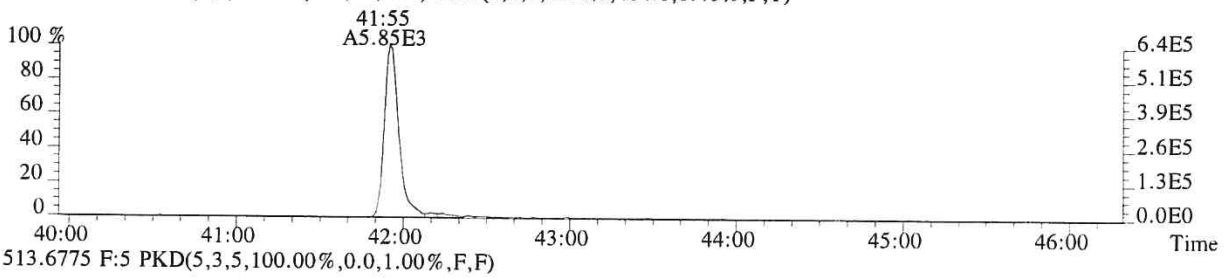
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,528.0,0.40%,F,T)



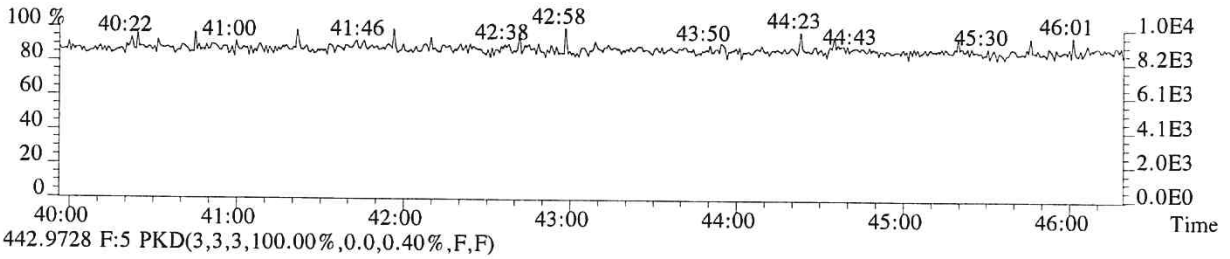
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,764.0,0.40%,F,T)



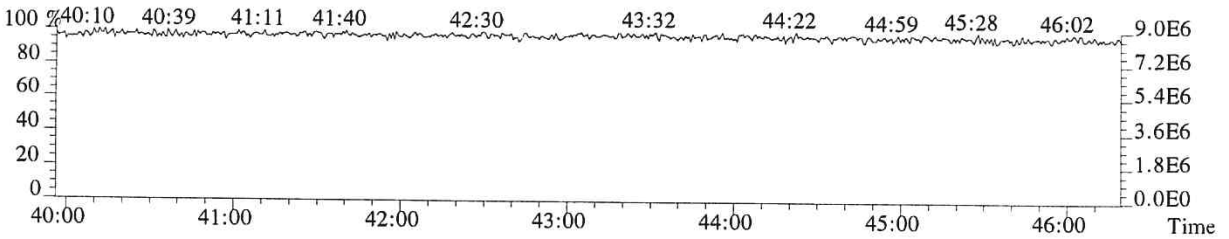
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,484.0,0.40%,F,T)



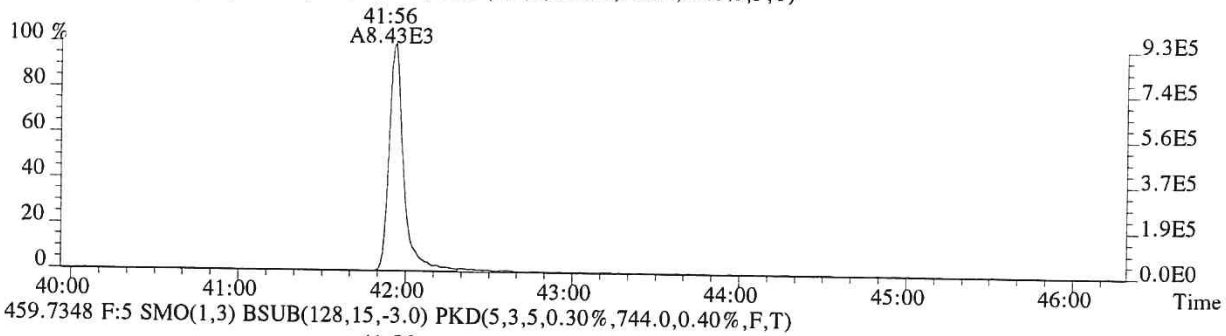
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



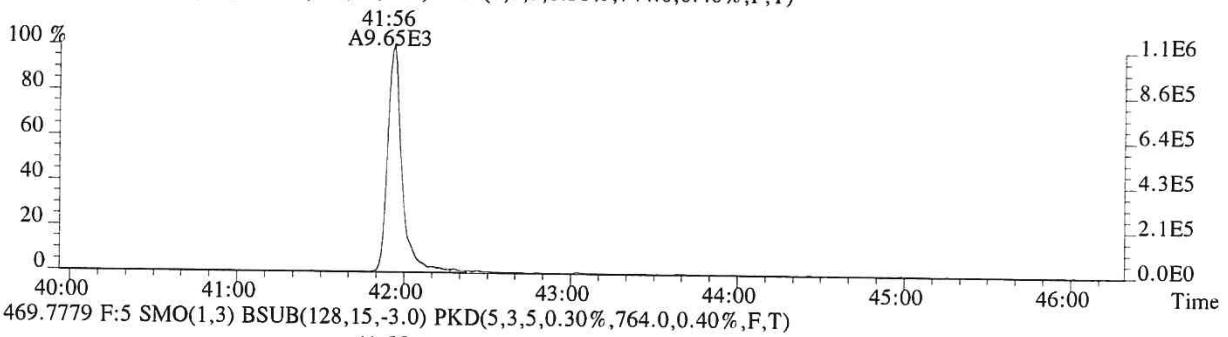
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



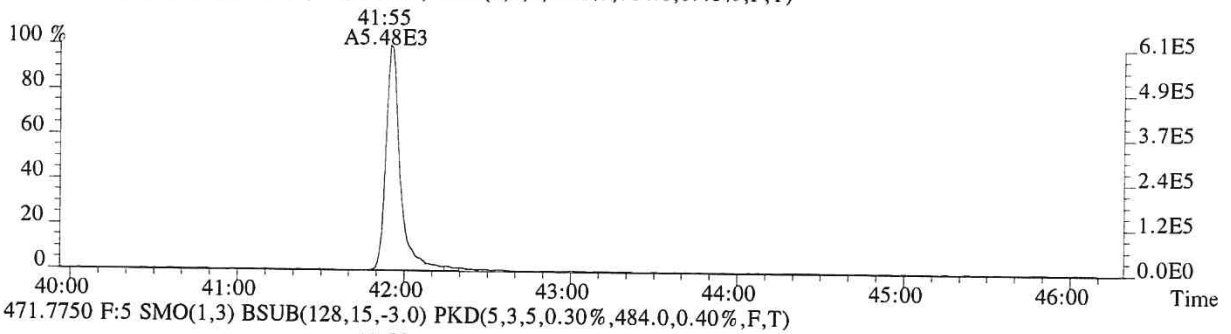
File:P519484 #1-575 Acq:19-DEC-2018 06:40:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-010
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,960.0,0.40%,F,T)



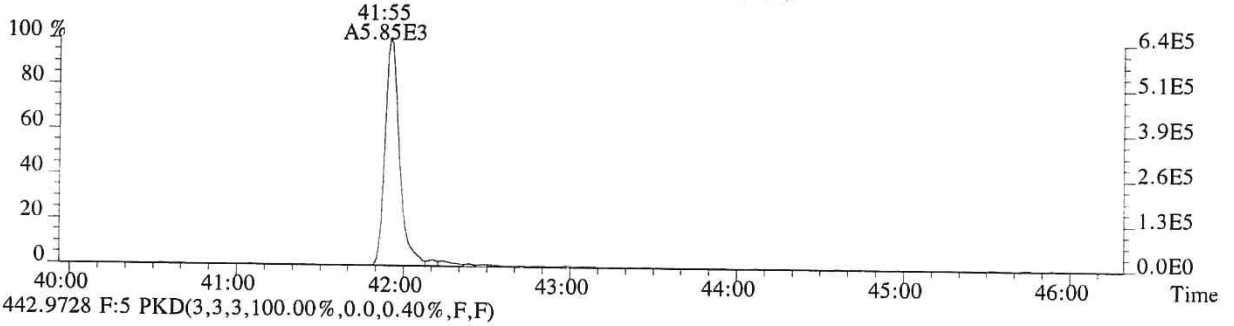
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,744.0,0.40%,F,T)



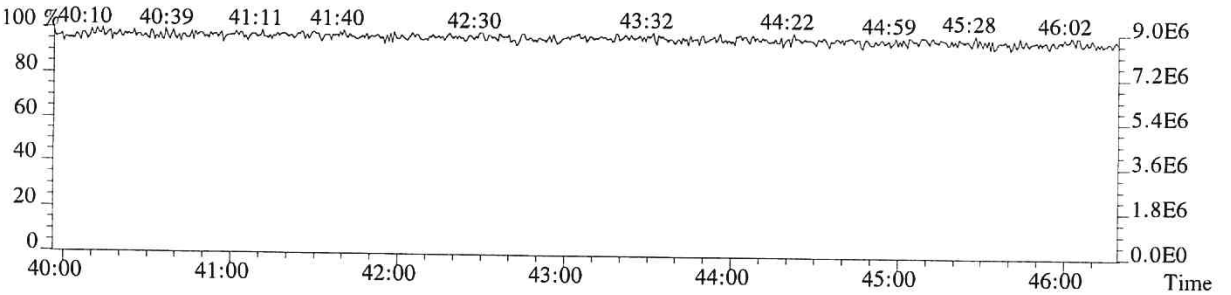
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,764.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,484.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0053

Run #12 Filename P519485 Samp: 1 Inj: 1 Acquired: 19-DEC-18 07:28:49
Processed: 20-DEC-18 15:34:47 Sample ID: E1801094-011

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:47	4.807e+02	7.612e+02	0.63	no	no	0.942
2	Unk	1,2,3,7,8-PeCDF	31:27	6.877e+01	3.638e+01	1.89	no	no	1.012
3	Unk	2,3,4,7,8-PeCDF	32:24	1.134e+02	8.345e+01	1.36	yes	yes	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:16	1.017e+02	9.184e+01	1.11	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:22	9.896e+01	6.395e+01	1.55	no	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:54	1.343e+02	8.951e+01	1.50	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	yes	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:03	7.942e+02	8.218e+02	0.97	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	yes	1.258
10	Unk	OCDF	42:07	5.600e+02	6.382e+02	0.88	yes	no	1.359
11	Unk	2,3,7,8-TCDD	27:42	9.885e+01	1.579e+02	0.63	no	no	1.085
12	Unk	1,2,3,7,8-PeCDD	32:43	4.688e+01	1.040e+02	0.45	no	yes	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:04	5.217e+01	4.440e+01	1.18	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:09	1.595e+02	1.167e+02	1.37	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:24	1.135e+02	7.222e+01	1.57	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:01	2.802e+03	2.652e+03	1.06	yes	no	1.025
17	Unk	OCDD	41:56	2.060e+04	2.278e+04	0.90	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	26:46	1.045e+04	1.350e+04	0.77	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	31:25	1.620e+04	1.016e+04	1.60	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	32:23	1.453e+04	9.348e+03	1.55	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:14	5.681e+03	1.082e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:22	6.674e+03	1.299e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:54	5.541e+03	1.075e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	36:41	4.581e+03	8.785e+03	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:03	3.076e+03	6.981e+03	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:28	2.187e+03	4.886e+03	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	27:41	5.078e+03	6.313e+03	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:42	1.094e+04	7.015e+03	1.56	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:03	7.667e+03	6.084e+03	1.26	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:08	7.506e+03	5.831e+03	1.29	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:01	5.608e+03	5.252e+03	1.07	yes	no	0.858
32	IS	13C-OCDD	41:56	3.087e+03	3.552e+03	0.87	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:03	1.374e+04	1.734e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:23	1.406e+04	1.129e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:42	7.208e+03				no	1.014

$$\text{OCDD} = \frac{(2.060e{+}04 + 2.278e{+}04) \times 4000\ \text{pg} \times 1}{(3.087e{+}03 + 3.552e{+}03) \times 10.403\ \text{g} \times 82.2 / 100 \times 1.118} = 2720\ \text{ng/kg}$$

KW 12/24/18

ALS ENVIRONMENTAL -- HOUSTON HRMS
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Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0053

Run #12 Filename P519485 Samp: 1 Inj: 1 Acquired: 19-DEC-18 07:28:49
Processed: 20-DEC-18 15:34:47 LAB. ID: E1801094-011

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	7.20e+04	8.88e+02	8.1e+01	1.15e+05	9.24e+02	1.2e+02
2	1,2,3,7,8-PeCDF	1.30e+04	1.91e+03	6.8e+00	8.84e+03	1.51e+03	5.9e+00
3	2,3,4,7,8-PeCDF	1.39e+04	1.91e+03	7.3e+00	1.22e+04	1.51e+03	8.1e+00
4	1,2,3,4,7,8-HxCDF	1.81e+04	7.48e+02	2.4e+01	1.58e+04	1.77e+03	8.9e+00
5	1,2,3,6,7,8-HxCDF	1.76e+04	7.48e+02	2.4e+01	1.39e+04	1.77e+03	7.9e+00
6	2,3,4,6,7,8-HxCDF	2.83e+04	7.48e+02	3.8e+01	2.13e+04	1.77e+03	1.2e+01
7	1,2,3,7,8,9-HxCDF	*	7.48e+02	*	*	1.77e+03	*
8	1,2,3,4,6,7,8-HpCDF	1.47e+05	2.42e+03	6.1e+01	1.60e+05	5.92e+02	2.7e+02
9	1,2,3,4,7,8,9-HpCDF	*	2.42e+03	*	*	5.92e+02	*
10	OCDF	7.12e+04	3.24e+02	2.2e+02	7.84e+04	4.00e+02	2.0e+02
11	2,3,7,8-TCDD	1.79e+04	1.38e+03	1.3e+01	2.45e+04	8.16e+02	3.0e+01
12	1,2,3,7,8-PeCDD	1.02e+04	5.36e+02	1.9e+01	1.72e+04	4.64e+02	3.7e+01
13	1,2,3,4,7,8-HxCDD	9.58e+03	2.92e+02	3.3e+01	1.11e+04	4.52e+02	2.4e+01
14	1,2,3,6,7,8-HxCDD	3.25e+04	2.92e+02	1.1e+02	2.09e+04	4.52e+02	4.6e+01
15	1,2,3,7,8,9-HxCDD	2.01e+04	2.92e+02	6.9e+01	1.72e+04	4.52e+02	3.8e+01
16	1,2,3,4,6,7,8-HpCDD	4.80e+05	3.48e+02	1.4e+03	4.50e+05	3.64e+02	1.2e+03
17	OCDD	2.35e+06	4.24e+02	5.5e+03	2.57e+06	4.08e+02	6.3e+03
18	13C-2,3,7,8-TCDF	1.71e+06	2.88e+03	5.9e+02	2.20e+06	1.63e+03	1.4e+03
19	13C-1,2,3,7,8-PeCDF	2.85e+06	4.48e+02	6.4e+03	1.80e+06	4.76e+02	3.8e+03
20	13C-2,3,4,7,8-PeCDF	2.61e+06	4.48e+02	5.8e+03	1.73e+06	4.76e+02	3.6e+03
21	13C-1,2,3,4,7,8-HxCDF	1.13e+06	3.44e+02	3.3e+03	2.16e+06	3.48e+02	6.2e+03
22	13C-1,2,3,6,7,8-HxCDF	1.24e+06	3.44e+02	3.6e+03	2.49e+06	3.48e+02	7.1e+03
23	13C-2,3,4,6,7,8-HxCDF	1.10e+06	3.44e+02	3.2e+03	2.14e+06	3.48e+02	6.1e+03
24	13C-1,2,3,7,8,9-HxCDF	8.48e+05	3.44e+02	2.5e+03	1.68e+06	3.48e+02	4.8e+03
25	13C-1,2,3,4,6,7,8-HpCDF	5.86e+05	6.36e+02	9.2e+02	1.31e+06	1.06e+03	1.2e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.45e+05	6.36e+02	5.4e+02	7.76e+05	1.06e+03	7.3e+02
27	13C-2,3,7,8-TCDD	8.84e+05	3.22e+03	2.7e+02	1.07e+06	1.15e+03	9.3e+02
28	13C-1,2,3,7,8-PeCDD	1.99e+06	6.92e+02	2.9e+03	1.31e+06	5.68e+02	2.3e+03
29	13C-1,2,3,4,7,8-HxCDD	1.63e+06	5.04e+02	3.2e+03	1.26e+06	3.12e+02	4.0e+03
30	13C-1,2,3,6,7,8-HxCDD	1.43e+06	5.04e+02	2.8e+03	1.09e+06	3.12e+02	3.5e+03
31	13C-1,2,3,4,6,7,8-HpCDD	9.39e+05	4.32e+02	2.2e+03	8.89e+05	3.12e+02	2.8e+03
32	13C-OCDD	3.47e+05	3.40e+02	1.0e+03	4.00e+05	3.16e+02	1.3e+03
33	13C-1,2,3,4-TCDD	2.34e+06	3.22e+03	7.3e+02	2.97e+06	1.15e+03	2.6e+03
34	13C-1,2,3,7,8,9-HxCDD	2.67e+06	5.04e+02	5.3e+03	2.11e+06	3.12e+02	6.8e+03
35	37Cl-2,3,7,8-TCDD	1.32e+06	5.28e+02	2.5e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.380e{+}03 + 8.160e{+}02) \times 2000}{(8.836e{+}05 + 1.068e{+}06) \times (\quad) \times 1.085} =$$

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Peak List Summary

CLIENT ID.
SL0053

Entry: 36 Totals Name: Total Tetra-Furans

Run: 12 File: P519485 Sample:1 Injection:1 Function:1

Acquired: 19-DEC-18 07:28:49 Processed: 20-DEC-18 15:34:47

Mass: 303.9020 305.8990 Tot Response: 4.57e+02 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	22:13	1.22e+01	1.78e+01	0.68	yes	2.99e+01		n	n
2	22:38	1.66e+01	2.50e+01	0.67	yes	4.16e+01		n	n
3	23:07	7.83e+01	1.14e+02	0.69	yes	1.93e+02		n	n
4	23:35	1.92e+01	2.19e+01	0.88	yes	4.11e+01		n	n
5	27:11	6.47e+01	8.68e+01	0.75	yes	1.51e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0053

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 12 File: P519485 Sample:1 Injection:1 Function:1

Acquired: 19-DEC-18 07:28:49 Processed: 20-DEC-18 15:34:47

Mass: 319.8970 321.8940 Tot Response: 2.38e+01 RRF: 1.085

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	27:24	1.06e+01	1.32e+01	0.81	yes	2.38e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0053

Entry: 38 Totals Name: Total Penta-Furans1

Run: 12 File: P519485 Sample:1 Injection:1 Function:1

Acquired: 19-DEC-18 07:28:49 Processed: 20-DEC-18 15:34:47

Mass: 339.8600 341.8570 Tot Response: 1.13e+03 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	28:51	6.50e+02	4.84e+02 1.34	yes	1.13e+03		n	n

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Peak List Summary

CLIENT ID.
SL0053

Entry: 39 Totals Name: Total Penta-Furans2

Run: 12 File: P519485 Sample:1 Injection:1 Function:2

Acquired: 19-DEC-18 07:28:49 Processed: 20-DEC-18 15:34:47

Mass: 339.8600 341.8570 Tot Response: 1.27e+03 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:19	6.03e+01	4.41e+01	1.37	yes	1.04e+02		n n
2	30:27	3.43e+02	2.54e+02	1.35	yes	5.97e+02		n n
3	31:01	1.36e+02	8.43e+01	1.61	yes	2.20e+02		n n
4	31:41	5.71e+01	3.74e+01	1.52	yes	9.45e+01		n n
5	32:18	3.27e+01	2.05e+01	1.60	yes	5.32e+01		n n
6	32:24	1.13e+02	8.35e+01	1.36	yes	1.97e+02	2,3,4,7,8-PeCDF	y n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0053

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 12 File: P519485 Sample:1 Injection:1 Function:2

Acquired: 19-DEC-18 07:28:49 Processed: 20-DEC-18 15:34:47

Mass: 355.8550 357.8520 Tot Response: 4.48e+01 RRF: 0.9565

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	32:47	1.36e+01	9.40e+00 1.45	yes	2.30e+01		y	n
2	33:07	1.34e+01	8.39e+00 1.60	yes	2.18e+01		n	n

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Peak List Summary

CLIENT ID.
SL0053

Entry: 41 Totals Name: Total Hexa-Furans

Run: 12 File: P519485 Sample:1 Injection:1 Function:3

Acquired: 19-DEC-18 07:28:49 Processed: 20-DEC-18 15:34:47

Mass: 373.8210 375.8180 Tot Response: 3.43e+03 RRF: 1.141

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:06	2.22e+02	1.98e+02 1.12	yes	4.20e+02		n	n
2	34:16	8.68e+02	7.41e+02 1.17	yes	1.61e+03		n	n
3	34:48	6.75e+02	5.37e+02 1.26	yes	1.21e+03		n	n
4	35:16	1.02e+02	9.18e+01 1.11	yes	1.94e+02	1,2,3,4,7,8-HxCDF	n	n

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Peak List Summary

CLIENT ID.
SL0053

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 12 File: P519485 Sample:1 Injection:1 Function:3

Acquired: 19-DEC-18 07:28:49 Processed: 20-DEC-18 15:34:47

Mass: 389.8160 391.8130 Tot Response: 2.85e+03 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:38	6.34e+02	5.18e+02	1.22	yes	1.15e+03		n	n
2	35:27	6.32e+02	4.89e+02	1.29	yes	1.12e+03		n	n
3	35:32	7.86e+01	7.32e+01	1.07	yes	1.52e+02		n	n
4	36:04	5.22e+01	4.44e+01	1.18	yes	9.66e+01	1,2,3,4,7,8-HxCDD	n	n
5	36:09	1.60e+02	1.17e+02	1.37	yes	2.76e+02	1,2,3,6,7,8-HxCDD	n	n
6	36:18	3.20e+01	2.28e+01	1.40	yes	5.48e+01		n	n

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Peak List Summary

CLIENT ID.
SL0053

Entry: 43 Totals Name: Total Hepta-Furans

Run: 12 File: P519485 Sample:1 Injection:1 Function:4

Acquired: 19-DEC-18 07:28:49 Processed: 20-DEC-18 15:34:47

Mass: 407.7820 409.7790 Tot Response: 4.16e+03 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:03	7.94e+02	8.22e+02 0.97	yes	1.62e+03	1,2,3,4,6,7,8-HpCDF	n	n
2	38:28	1.24e+03	1.30e+03 0.95	yes	2.54e+03		n	n

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Peak List Summary

CLIENT ID.
SL0053

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 12 File: P519485 Sample:1 Injection:1 Function:4

Acquired: 19-DEC-18 07:28:49 Processed: 20-DEC-18 15:34:47

Mass: 423.7770 425.7740 Tot Response: 1.46e+04 RRF: 1.025

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:20	4.72e+03	4.40e+03	1.07	yes	9.12e+03		n	n
2	39:01	2.80e+03	2.65e+03	1.06	yes	5.45e+03	1,2,3,4,6,7,8-HpCDD	n	n

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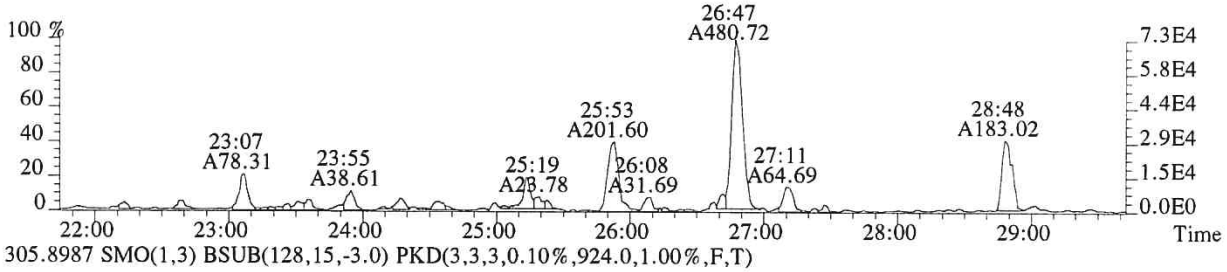
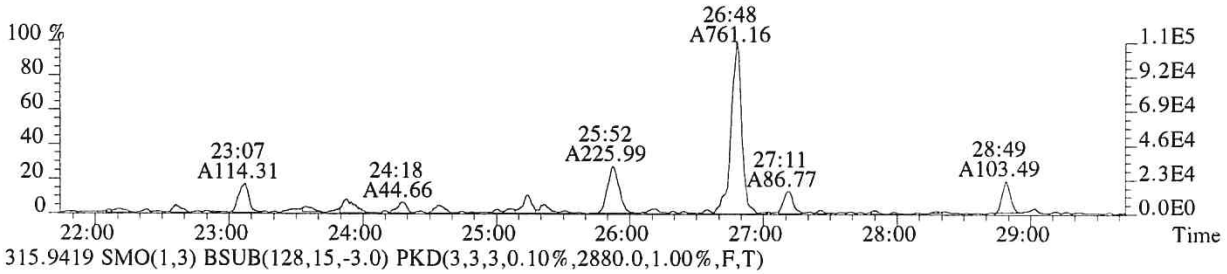
File:P519485 #1-566 Acq:19-DEC-2018 07:28:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-011

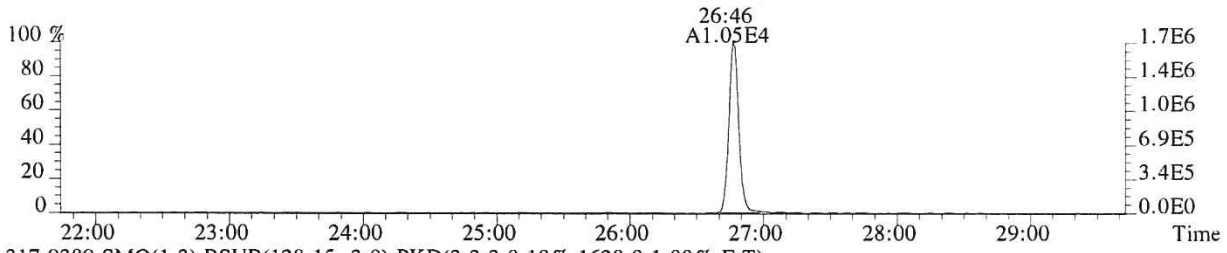
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,888.0,1.00%,F,T)



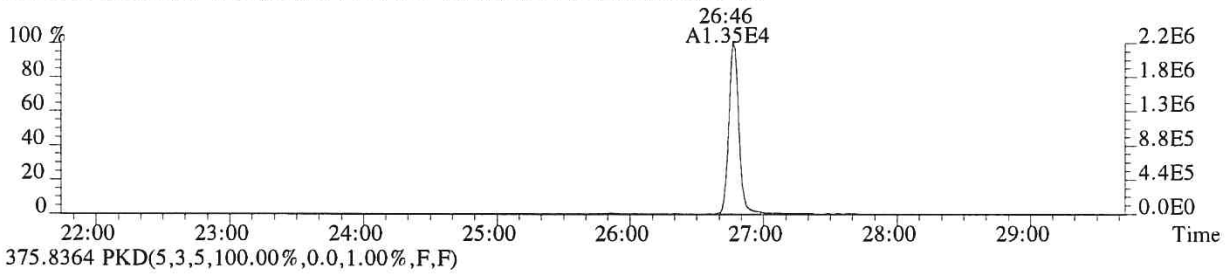
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,924.0,1.00%,F,T)



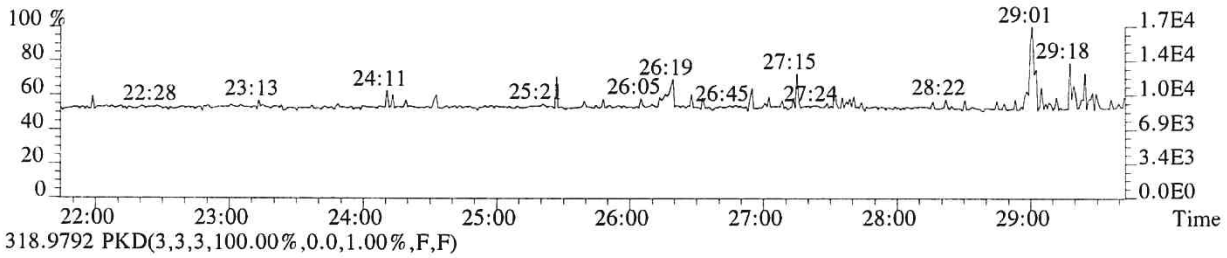
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2880.0,1.00%,F,T)



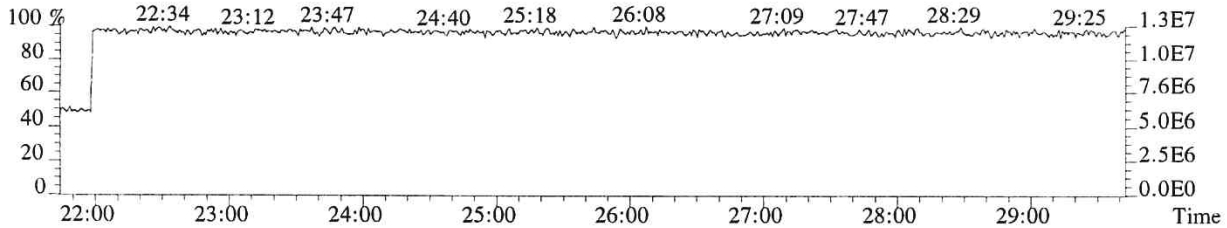
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1628.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



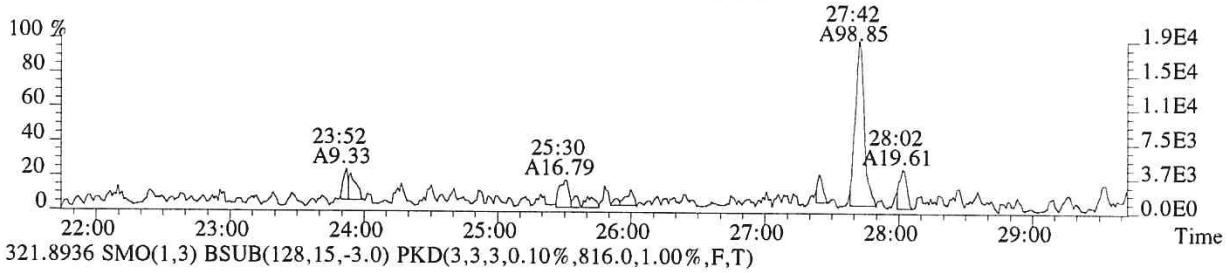
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



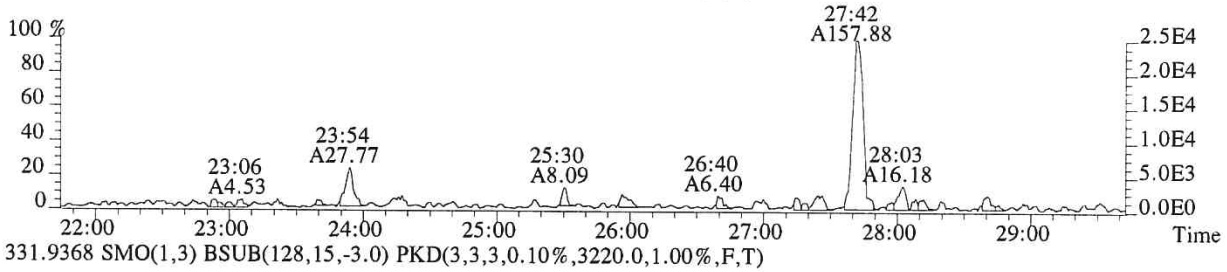
015417

File:P519485 #1-566 Acq:19-DEC-2018 07:28:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-011

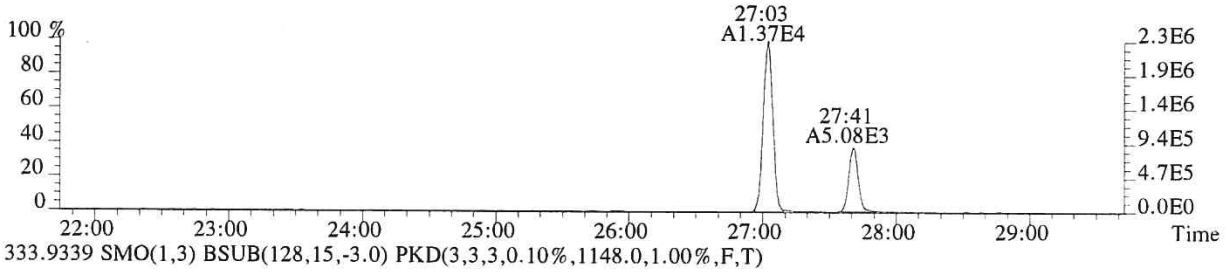
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1380.0,1.00%,F,T)



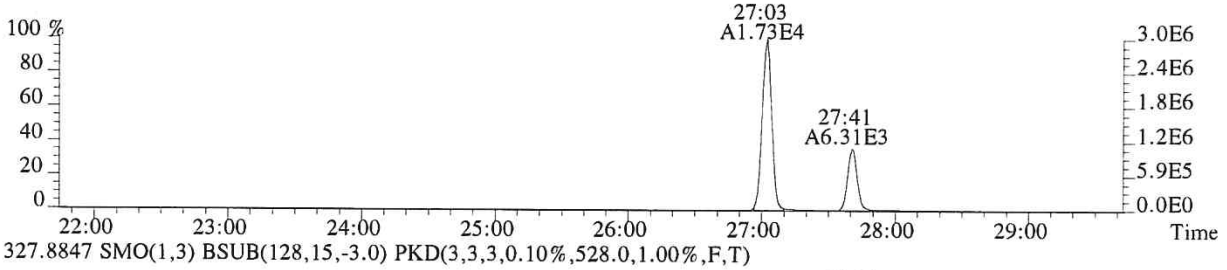
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,816.0,1.00%,F,T)



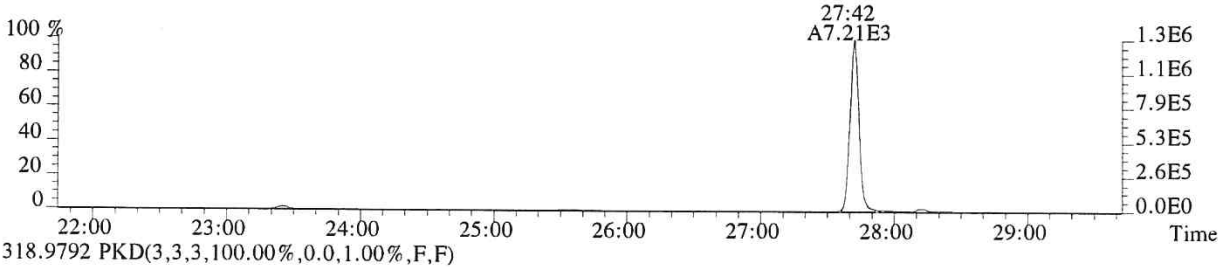
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3220.0,1.00%,F,T)



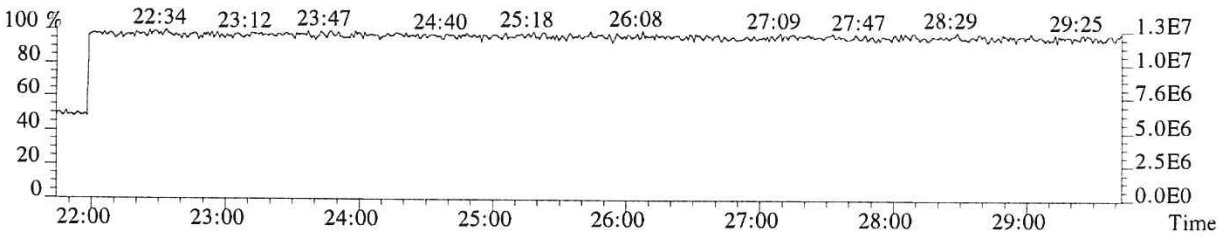
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1148.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,528.0,1.00%,F,T)

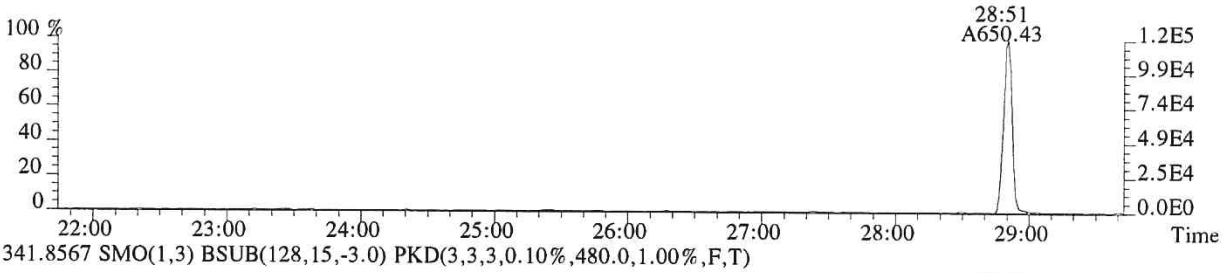


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

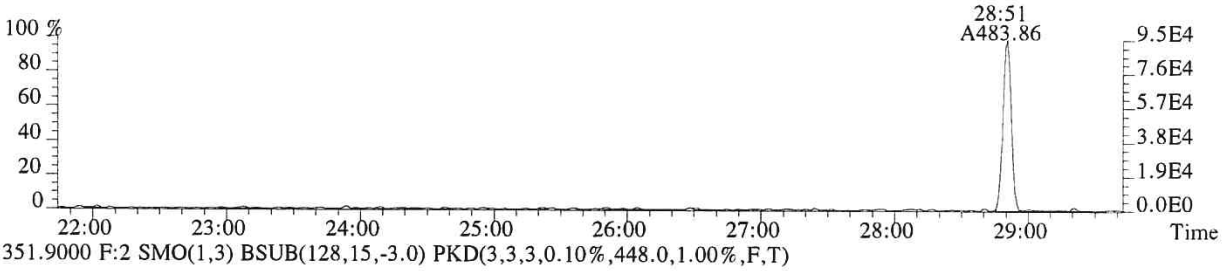


015418

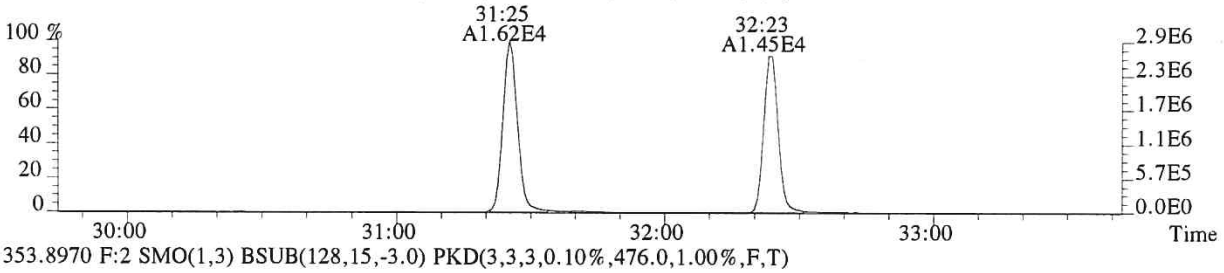
File:P519485 #1-566 Acq:19-DEC-2018 07:28:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-011
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,356.0,1.00%,F,T)



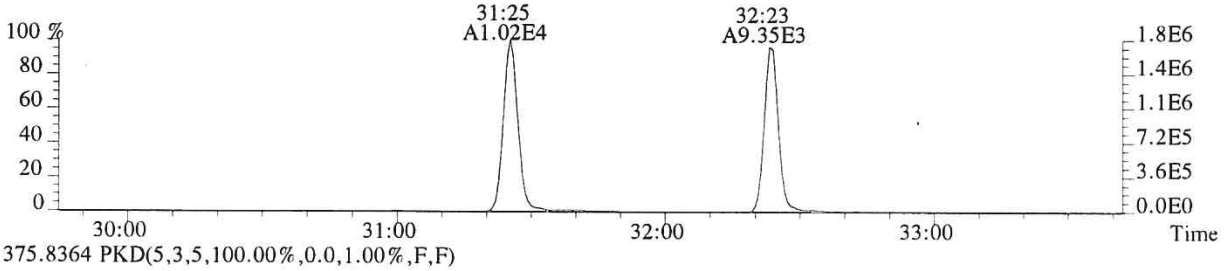
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,480.0,1.00%,F,T)



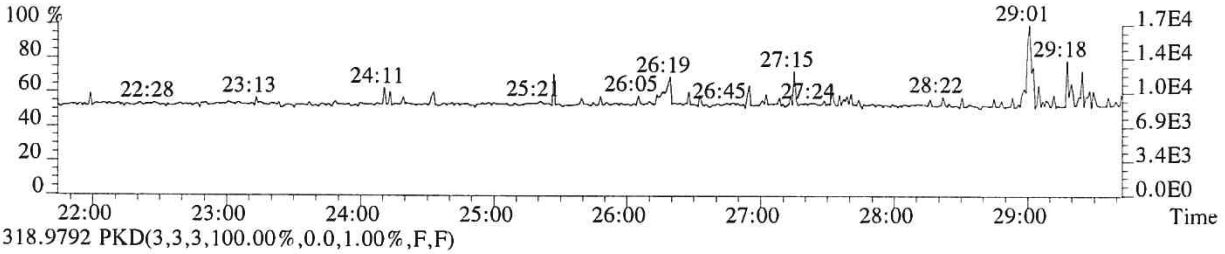
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,448.0,1.00%,F,T)



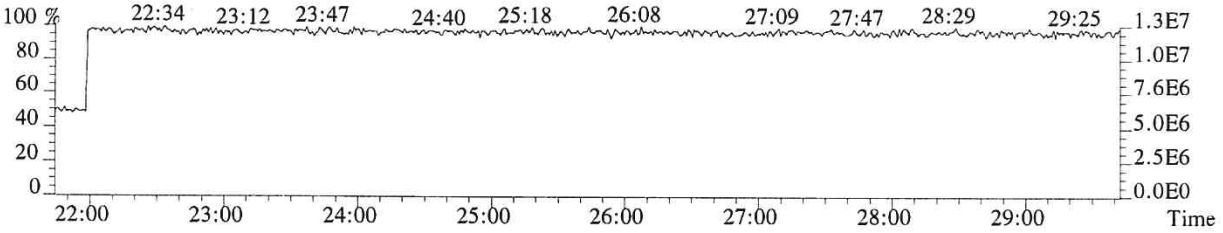
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,476.0,1.00%,F,T)



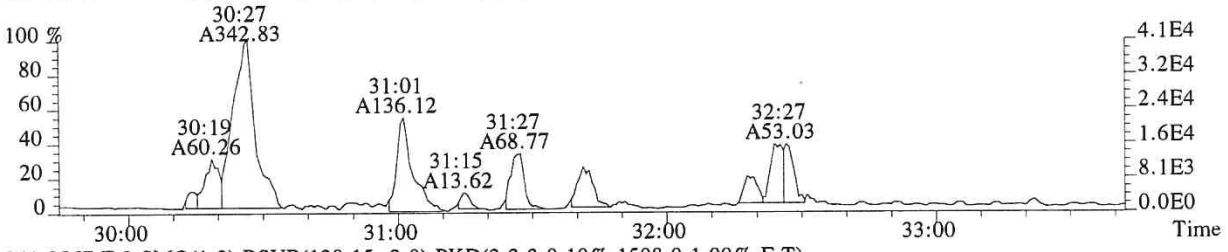
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



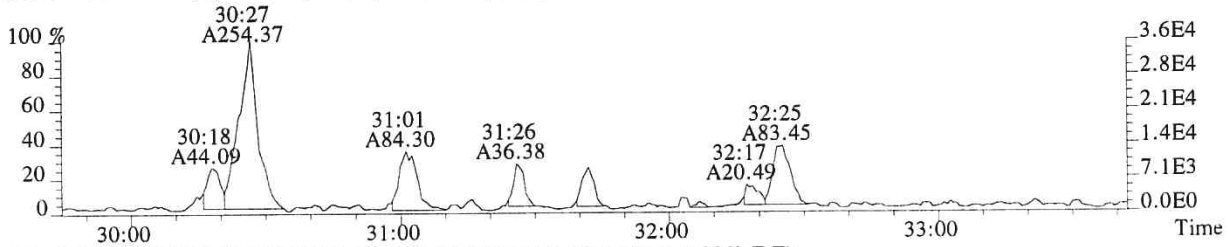
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



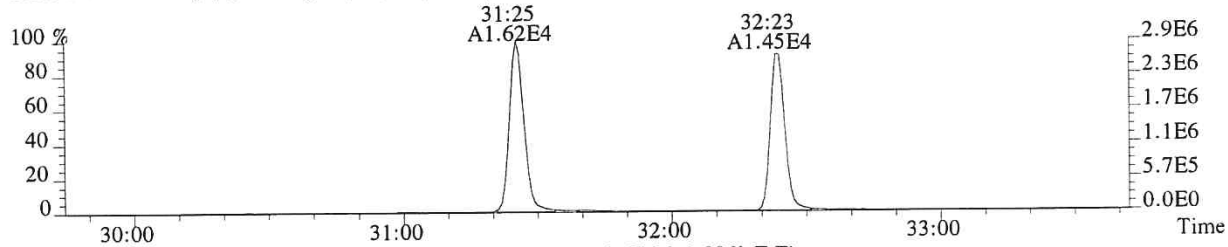
File:P519485 #1-357 Acq:19-DEC-2018 07:28:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-011
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1912.0,1.00%,F,T)



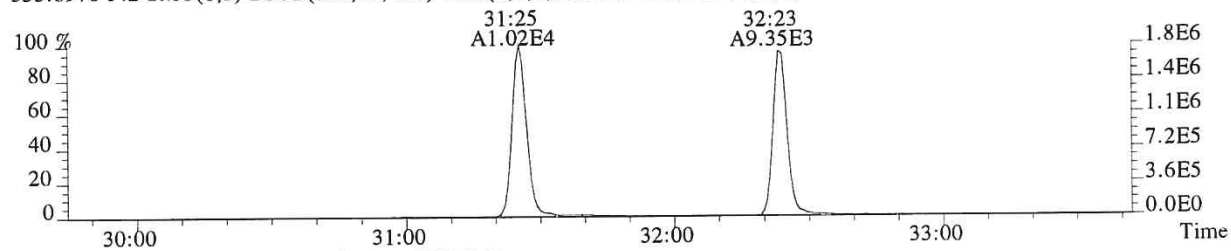
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1508.0,1.00%,F,T)



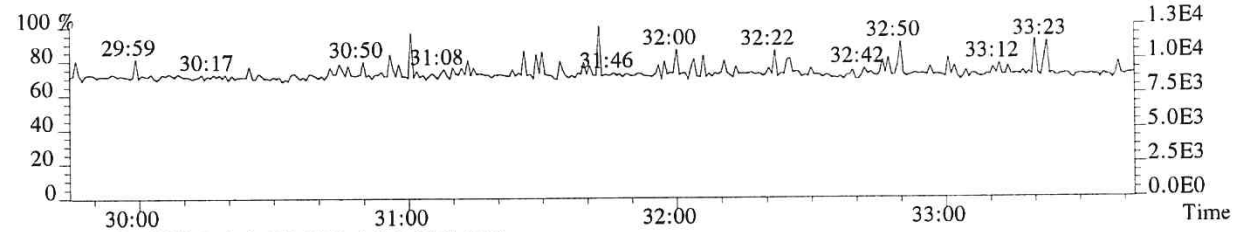
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,448.0,1.00%,F,T)



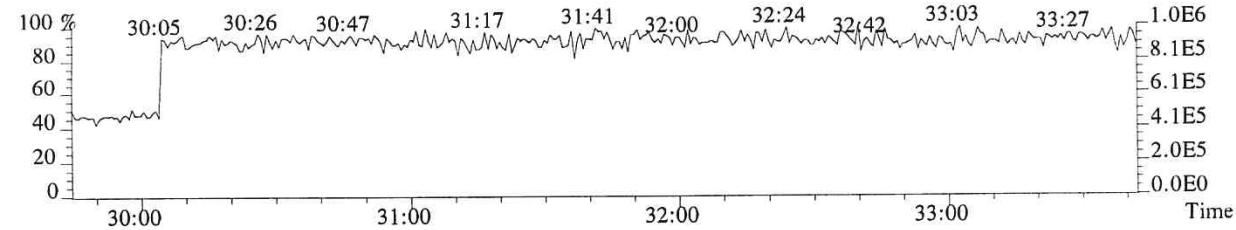
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,476.0,1.00%,F,T)



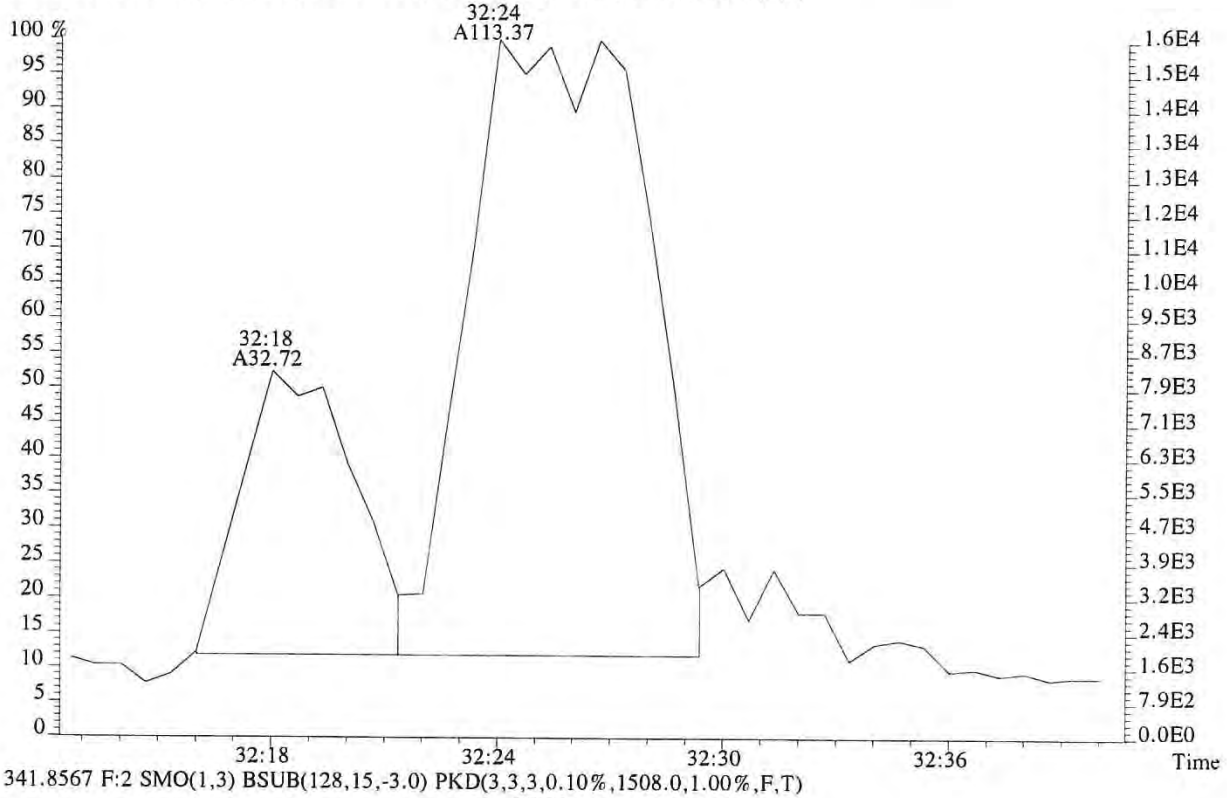
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



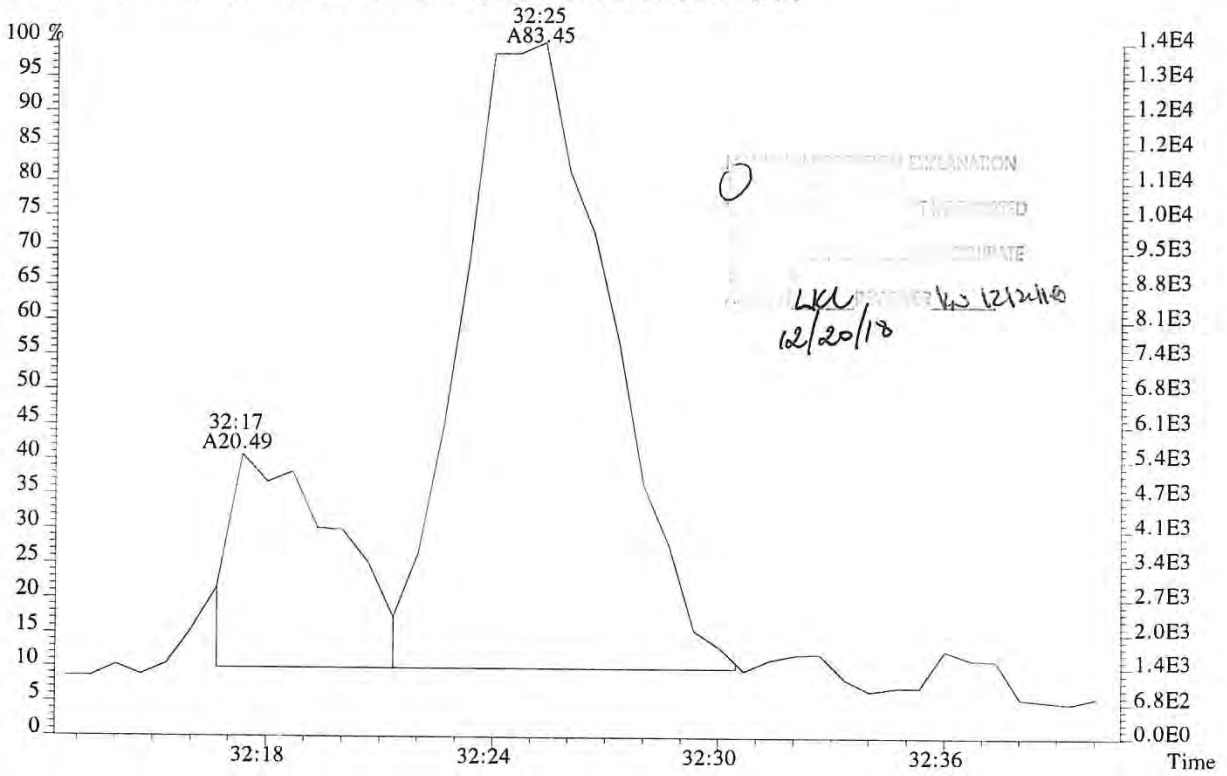
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



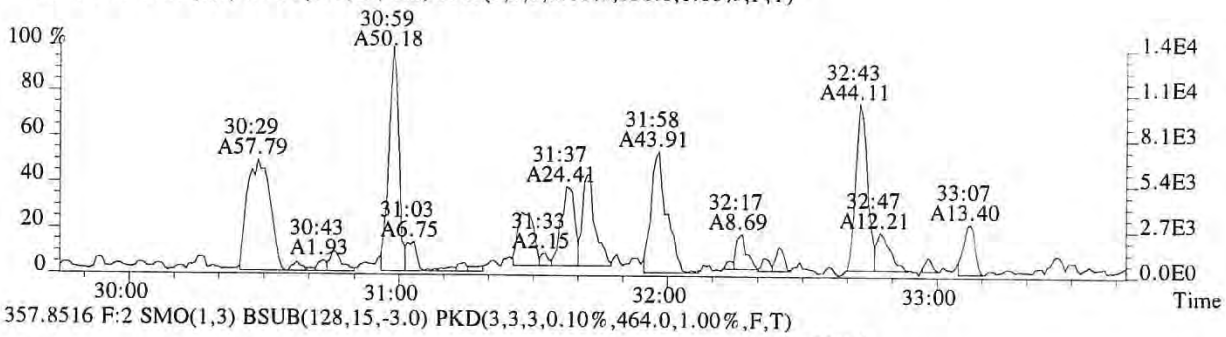
File:P519485 #1-357 Acq:19-DEC-2018 07:28:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-011
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1912.0,1.00%,F,T)



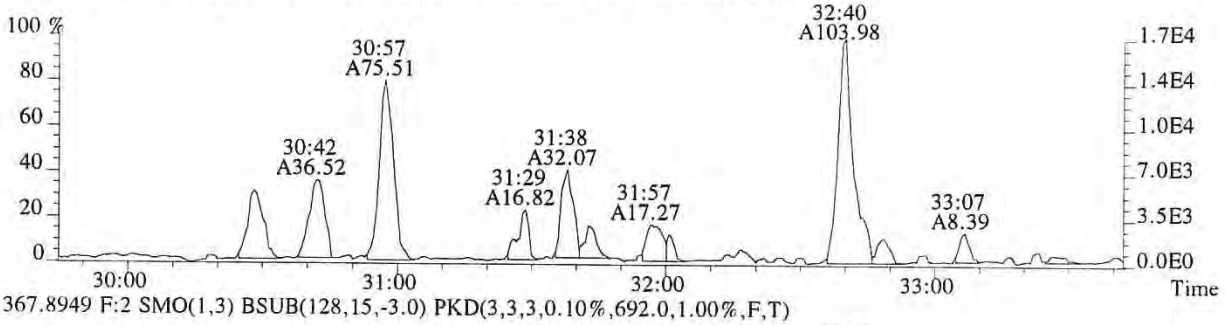
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1508.0,1.00%,F,T)



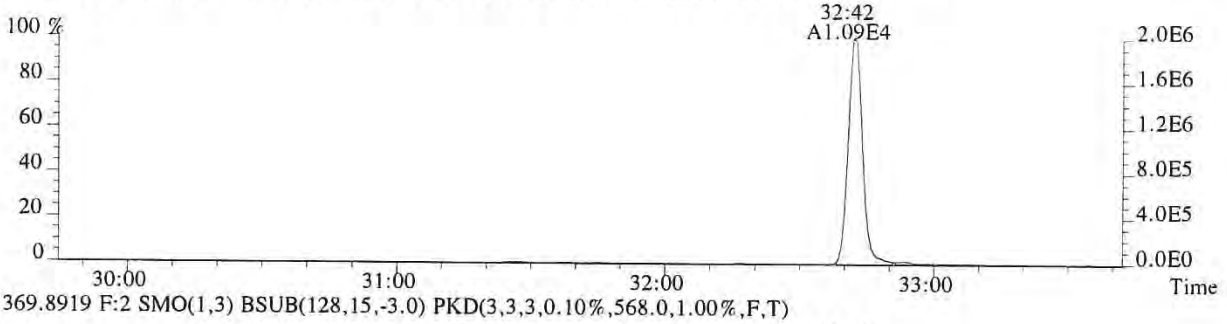
File:P519485 #1-357 Acq:19-DEC-2018 07:28:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-011
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,536.0,1.00%,F,T)



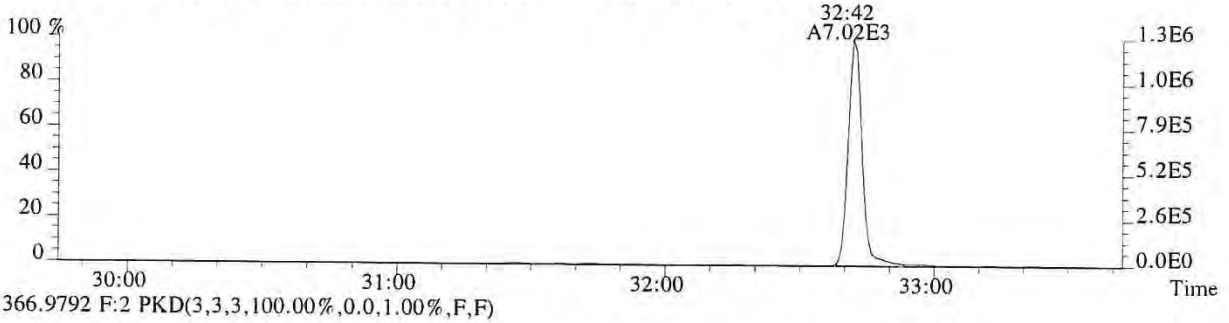
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,464.0,1.00%,F,T)



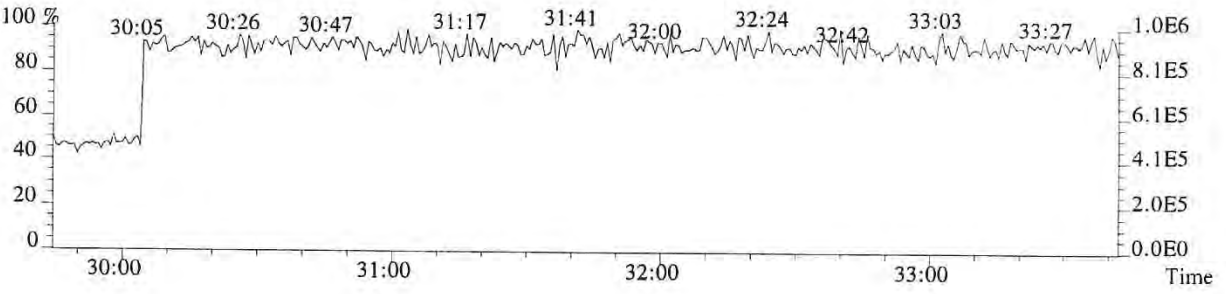
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,692.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,568.0,1.00%,F,T)

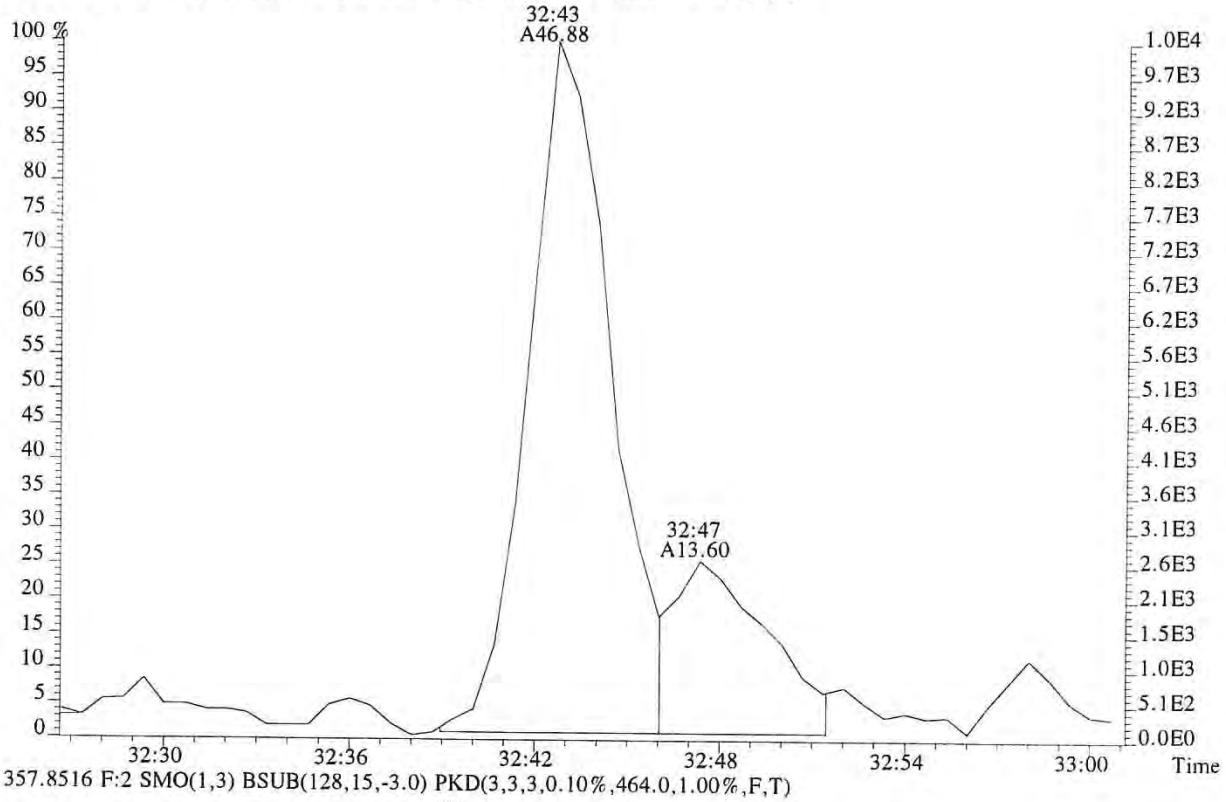


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

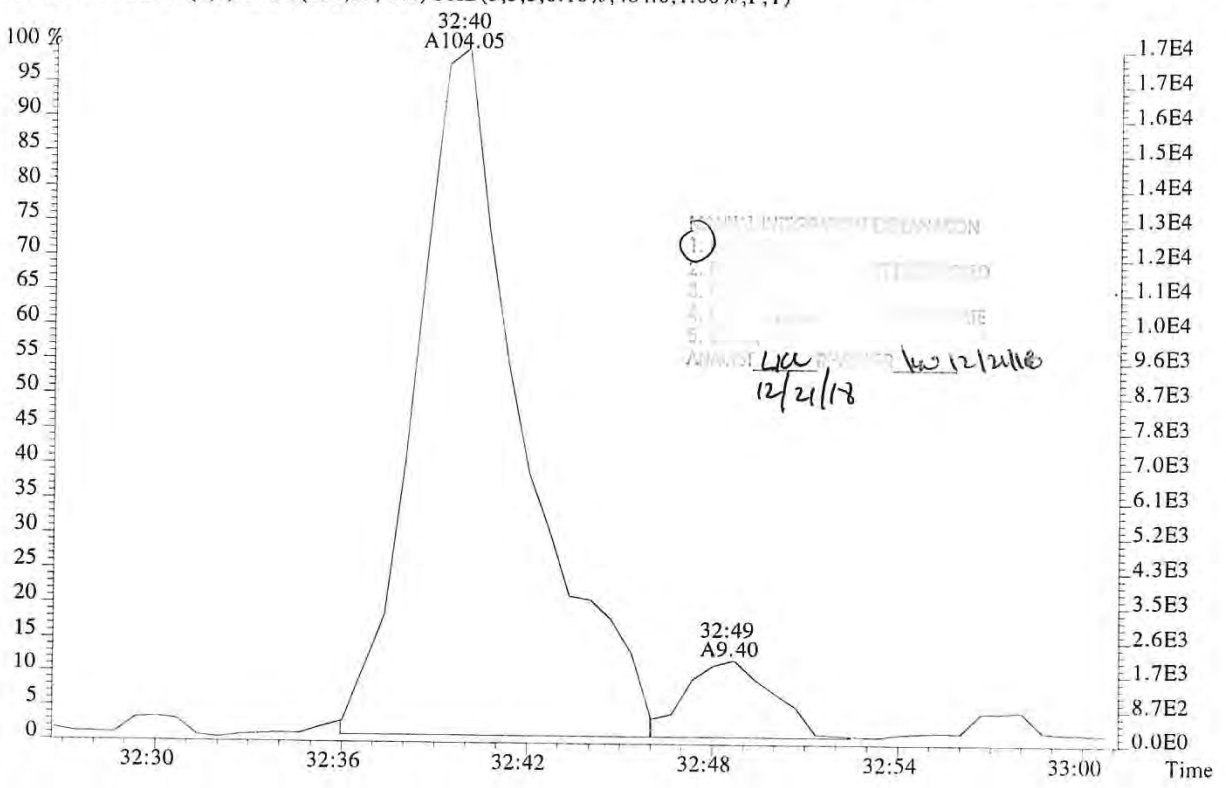


015422

File:P519485 #1-357 Acq:19-DEC-2018 07:28:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-011
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,536.0,1.00%,F,T)

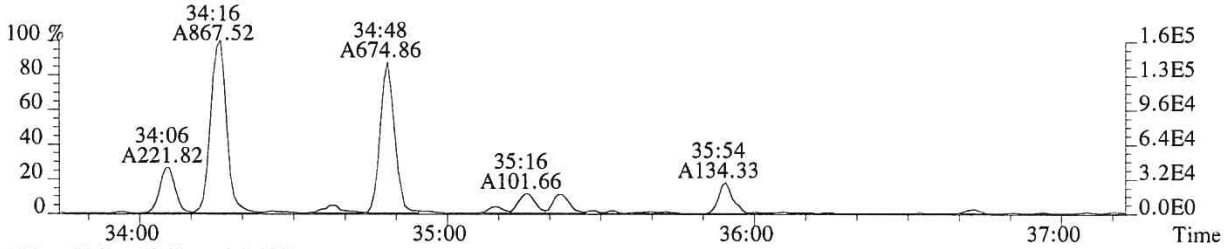


357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,464.0,1.00%,F,T)

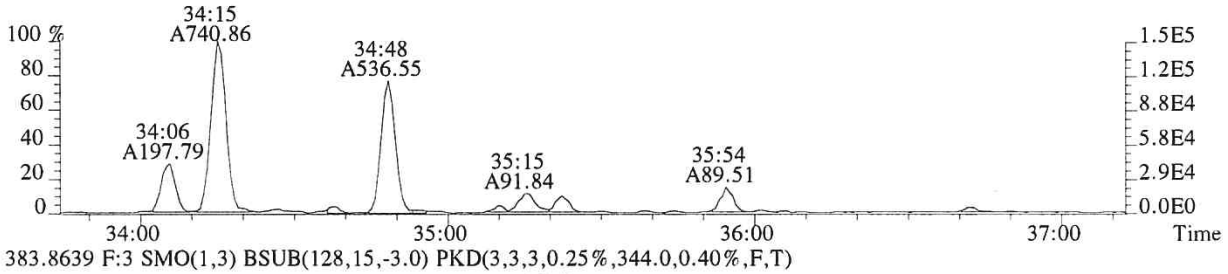


12/21/18

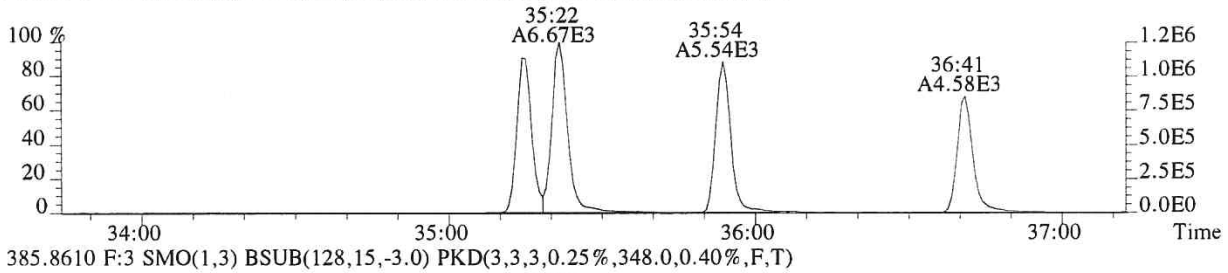
File:P519485 #1-313 Acq:19-DEC-2018 07:28:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-011
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,748.0,0.40%,F,T)



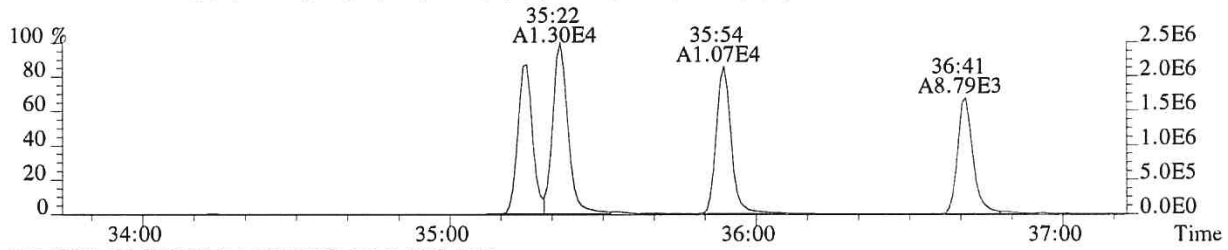
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1768.0,0.40%,F,T)



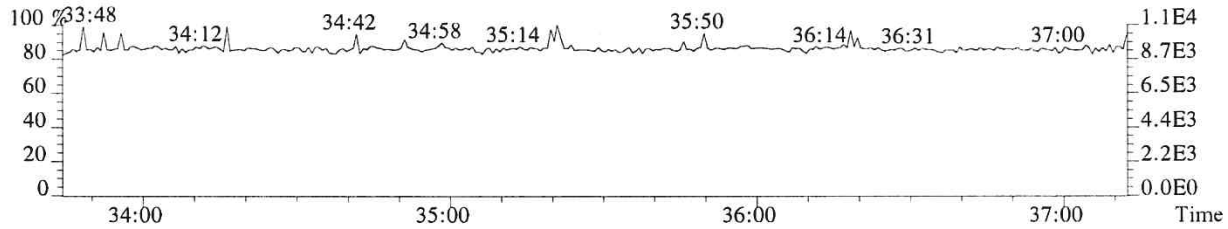
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,344.0,0.40%,F,T)



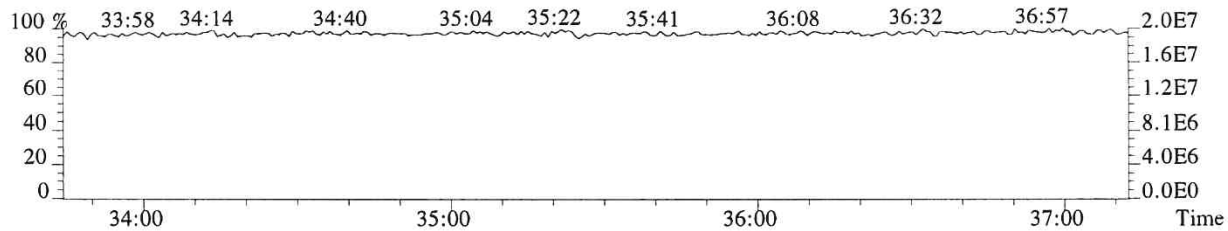
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,348.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

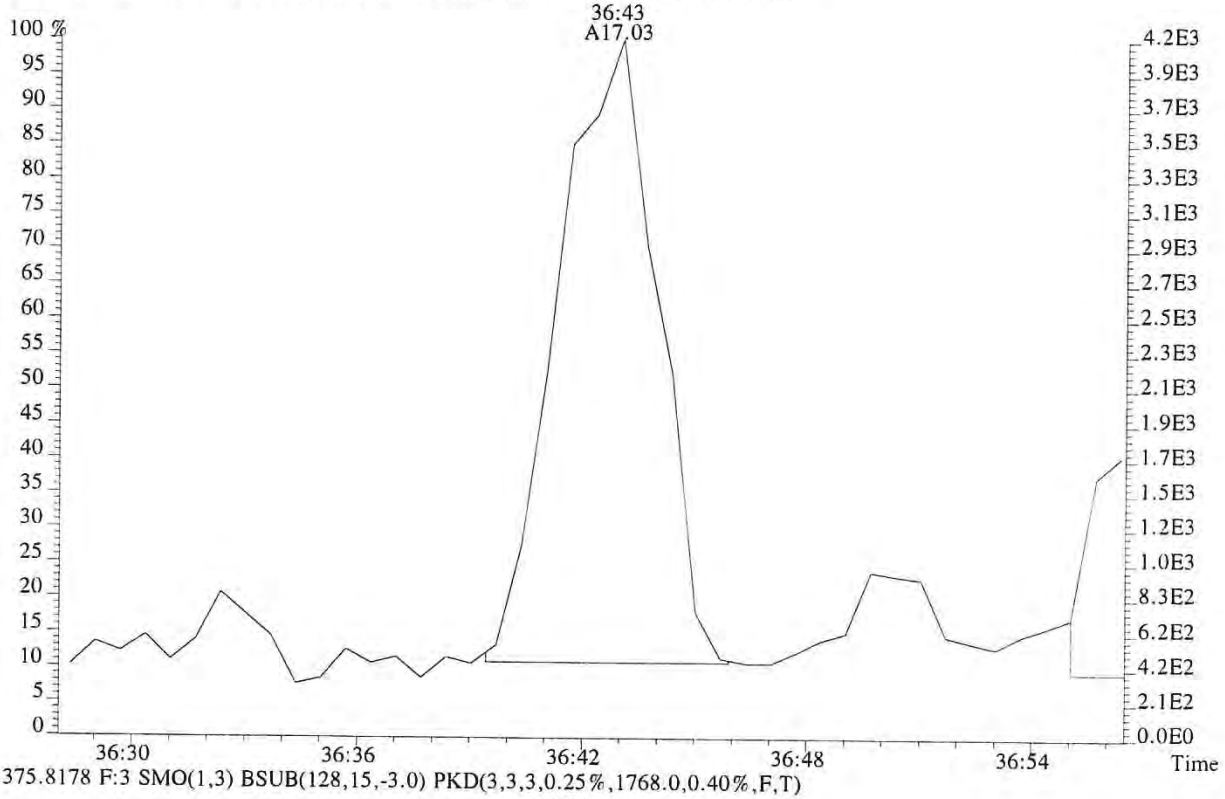


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

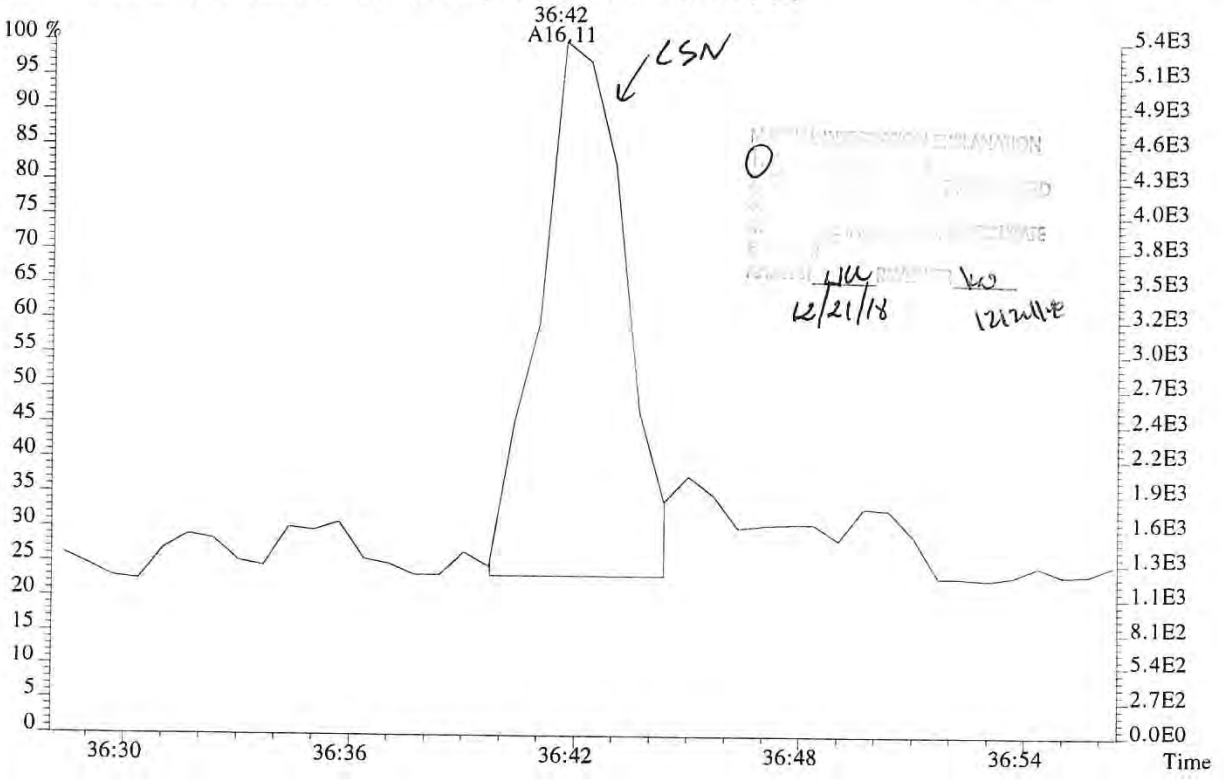


015424

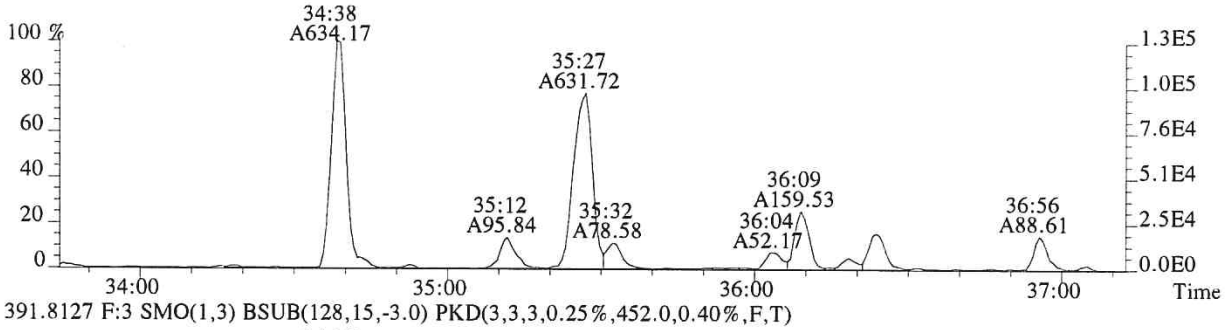
File:P519485 #1-313 Acq:19-DEC-2018 07:28:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-011
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,748.0,0.40%,F,T)



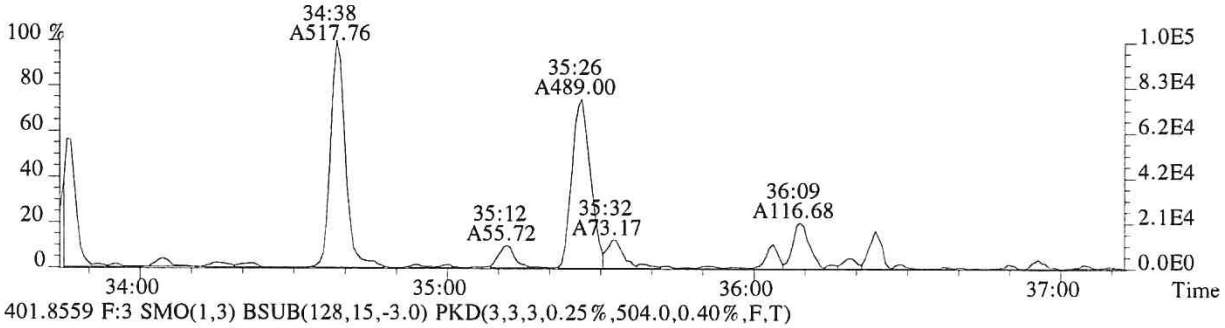
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1768.0,0.40%,F,T)



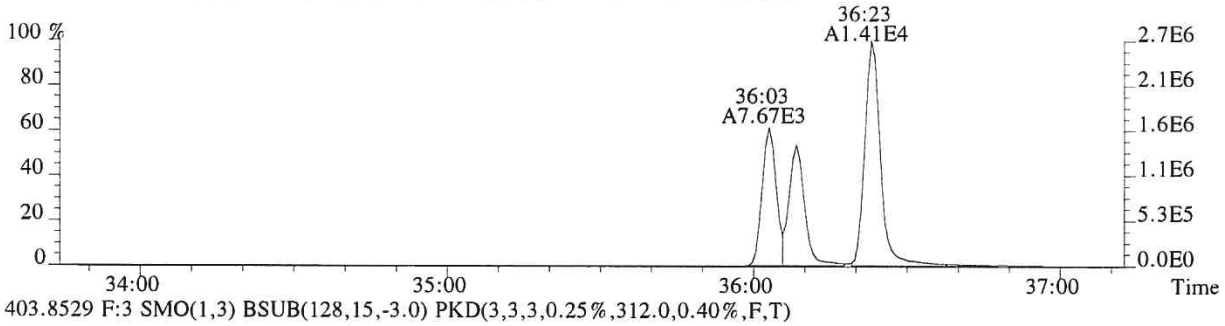
File:P519485 #1-313 Acq:19-DEC-2018 07:28:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-011
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,292.0,0.40%,F,T)



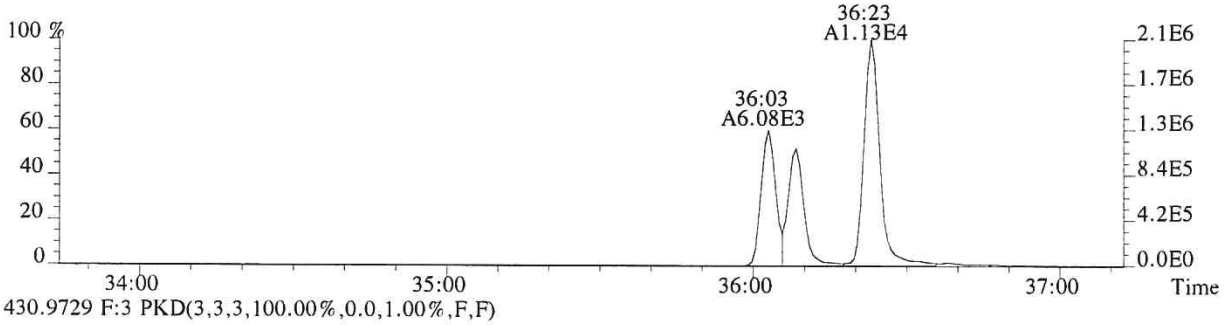
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,452.0,0.40%,F,T)



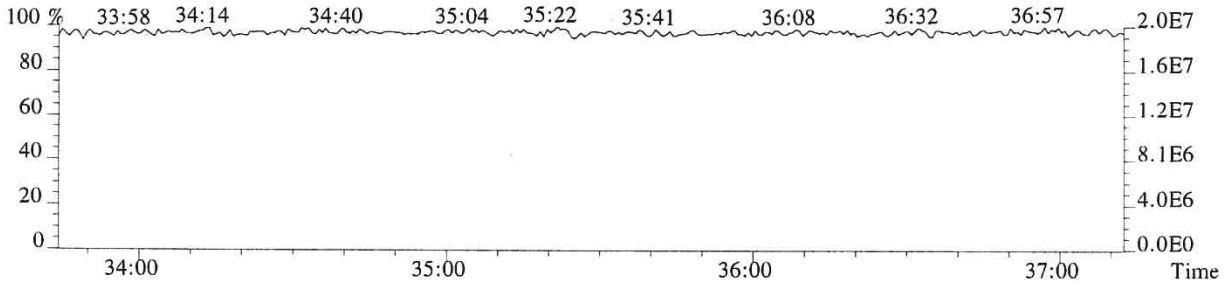
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,504.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,312.0,0.40%,F,T)

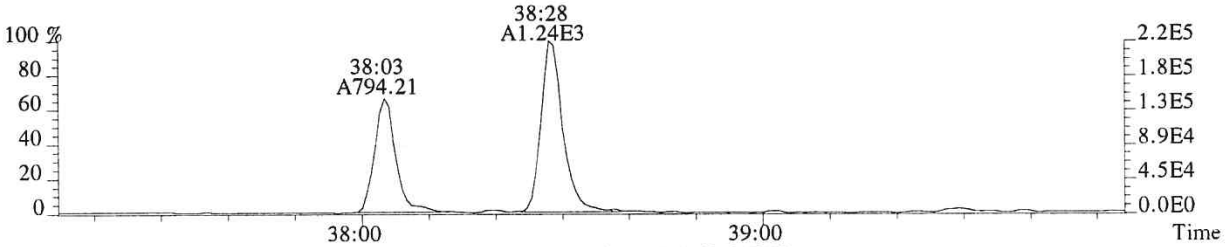


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

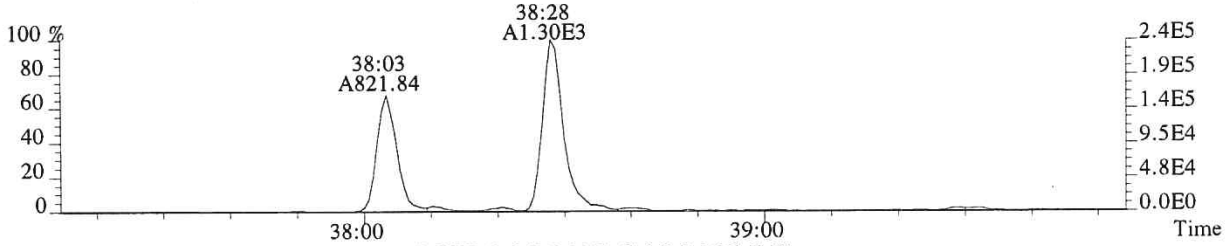


015426

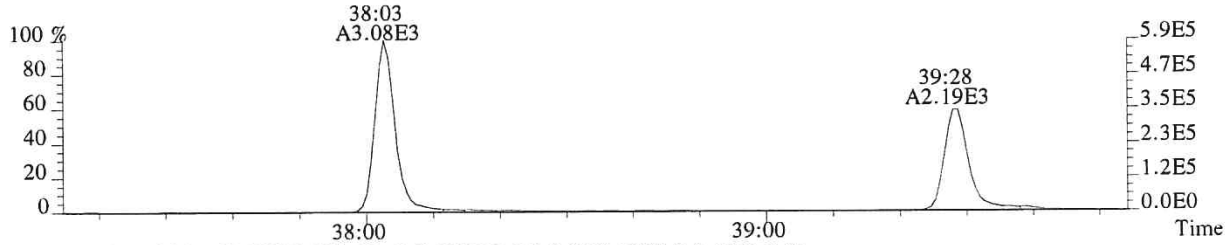
File:P519485 #1-240 Acq:19-DEC-2018 07:28:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-011
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2420.0,0.50%,F,T)



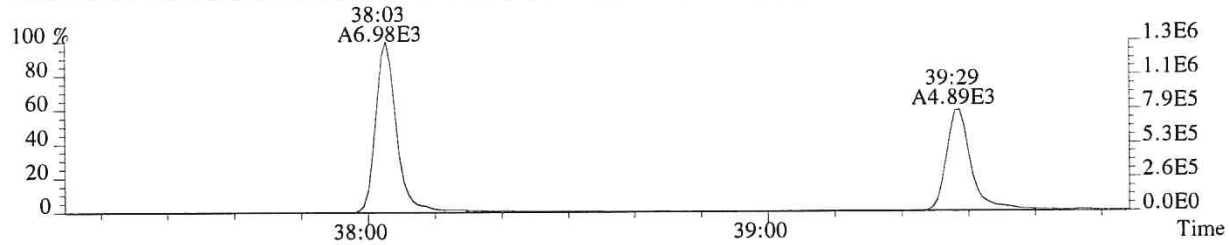
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,592.0,0.50%,F,T)



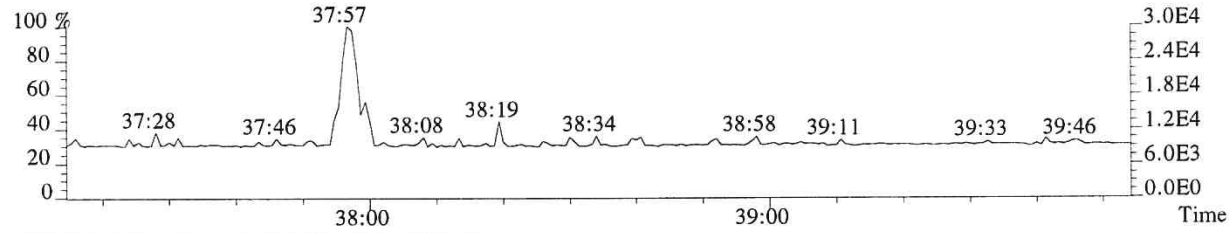
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,636.0,0.50%,F,T)



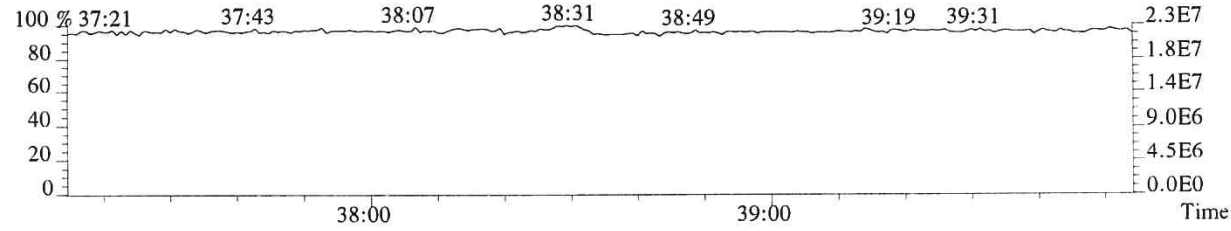
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1060.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

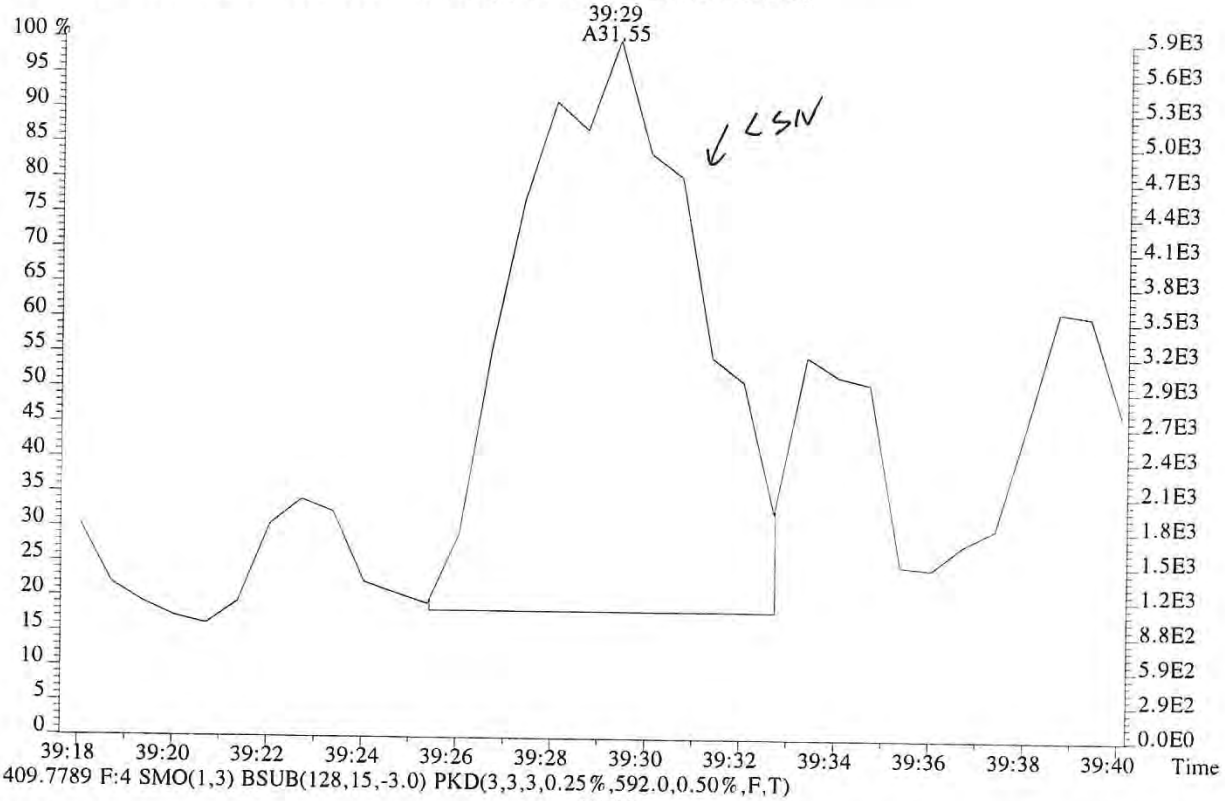


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

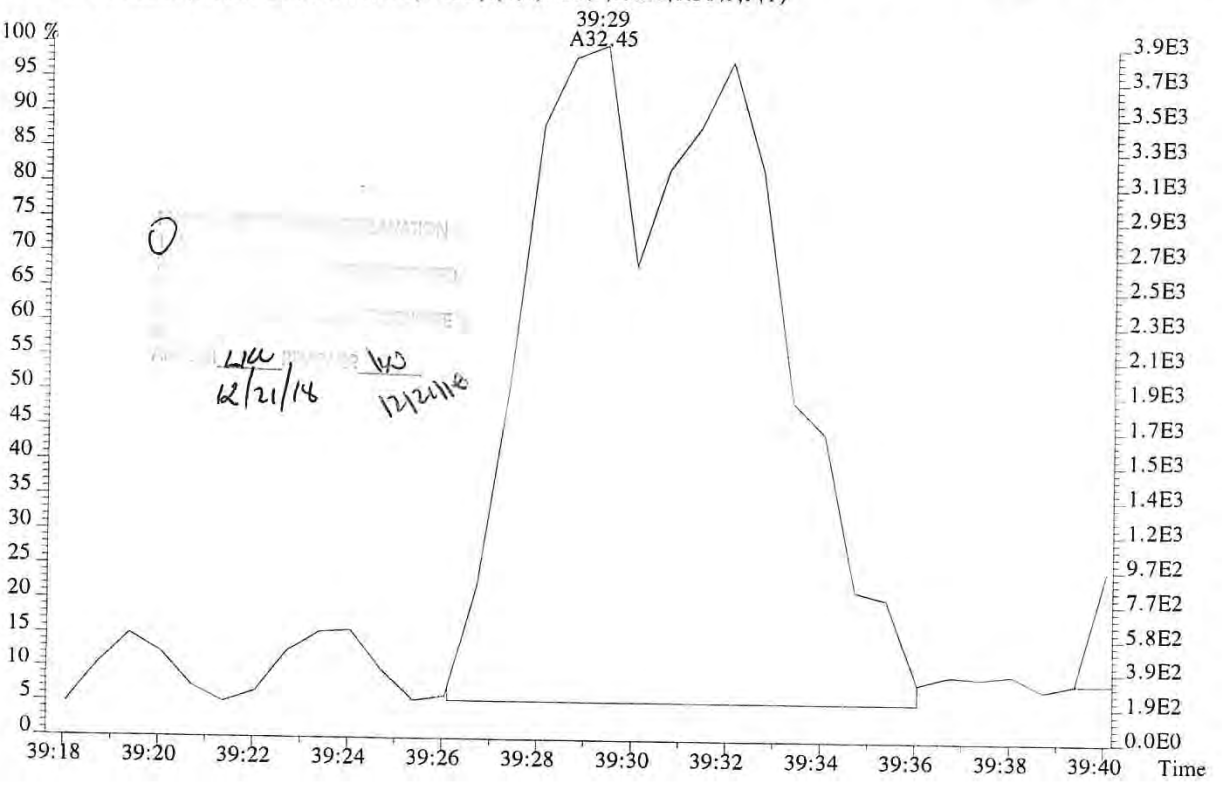


015427

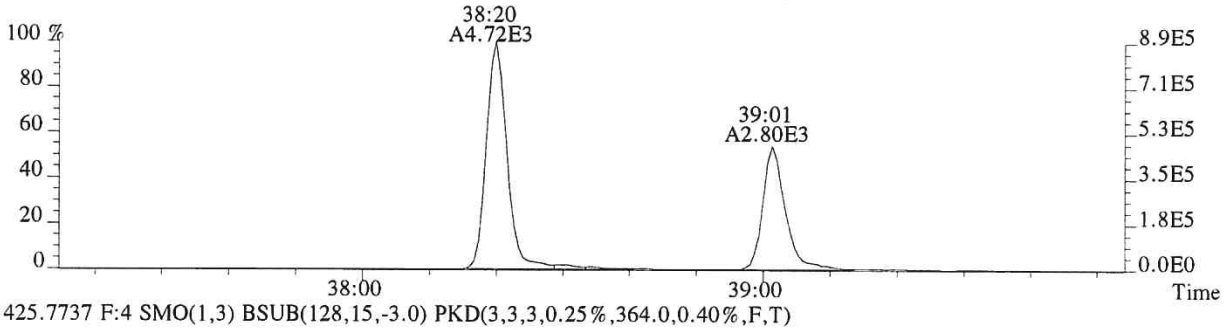
File:P519485 #1-240 Acq:19-DEC-2018 07:28:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-011
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2420.0,0.50%,F,T)



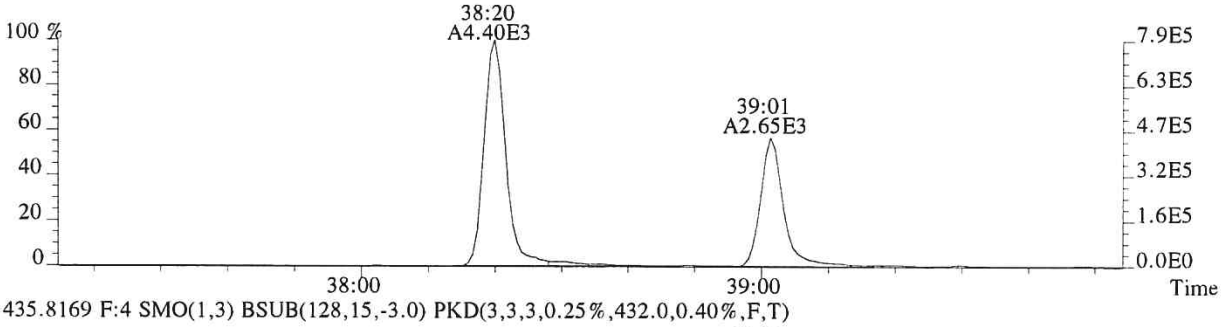
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,592.0,0.50%,F,T)



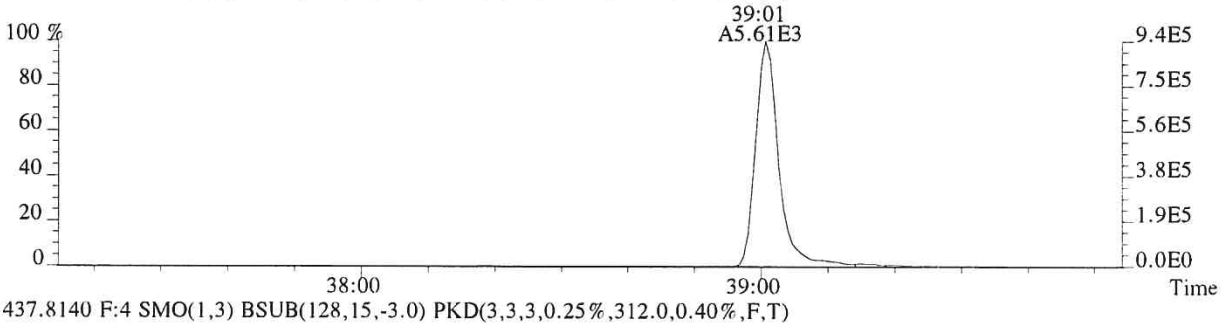
File:P519485 #1-240 Acq:19-DEC-2018 07:28:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-011
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,348.0,0.40%,F,T)



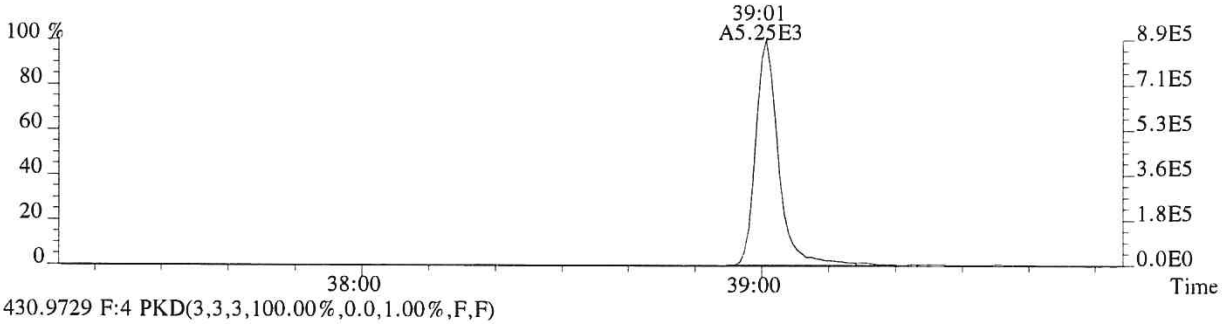
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,364.0,0.40%,F,T)



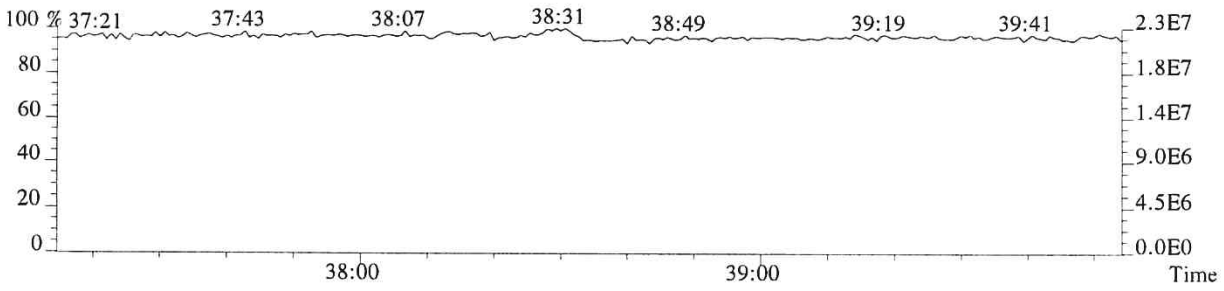
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,432.0,0.40%,F,T)



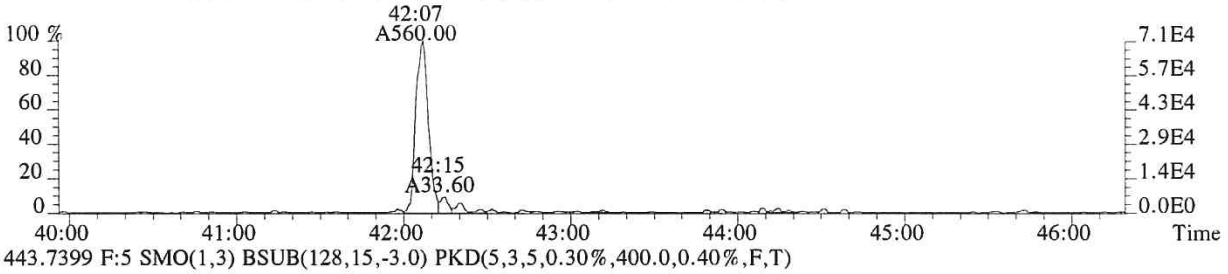
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,312.0,0.40%,F,T)



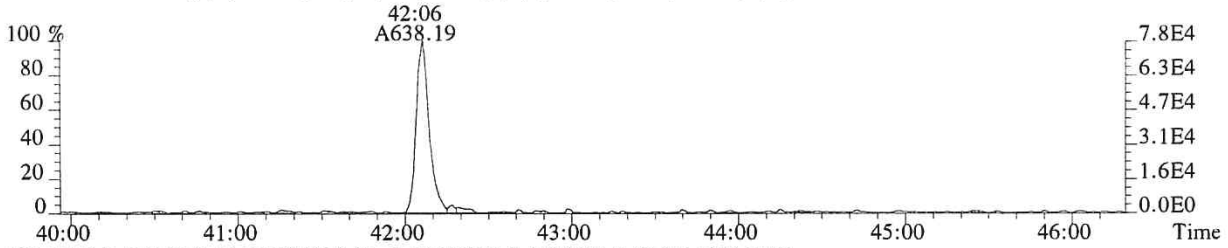
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



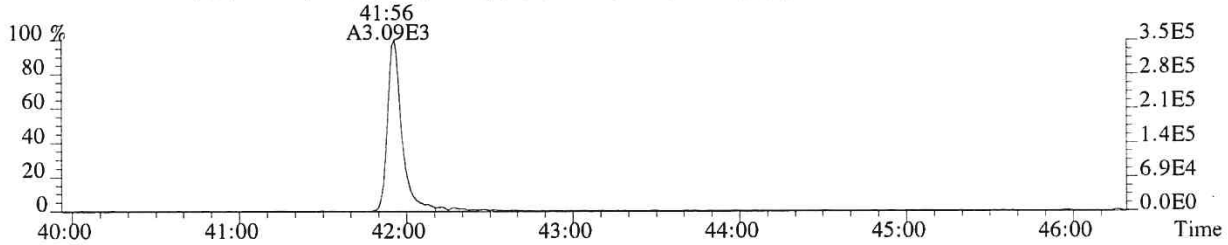
File:P519485 #1-575 Acq:19-DEC-2018 07:28:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-011
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,324.0,0.40%,F,T)



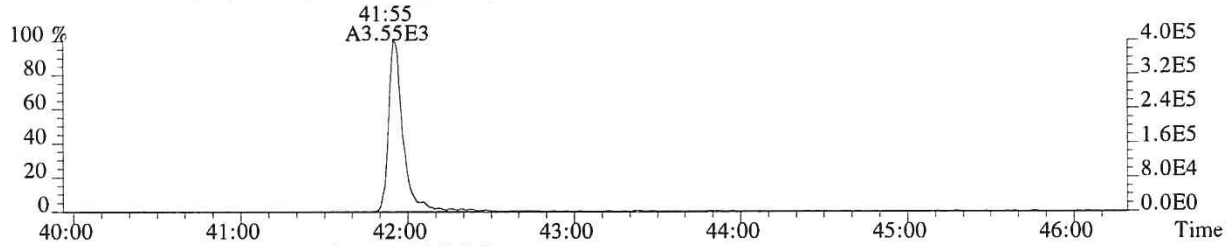
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,400.0,0.40%,F,T)



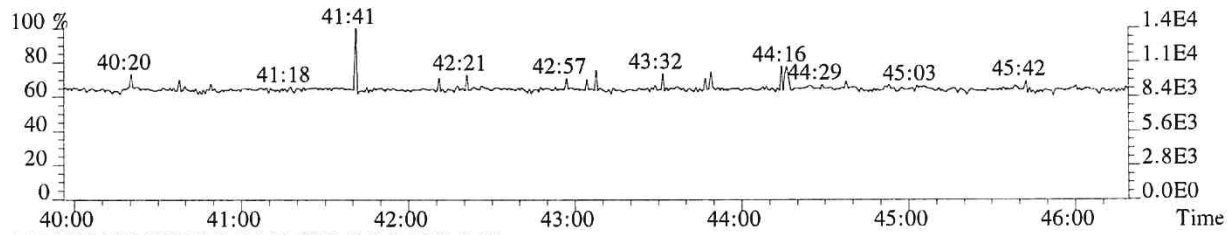
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,340.0,0.40%,F,T)



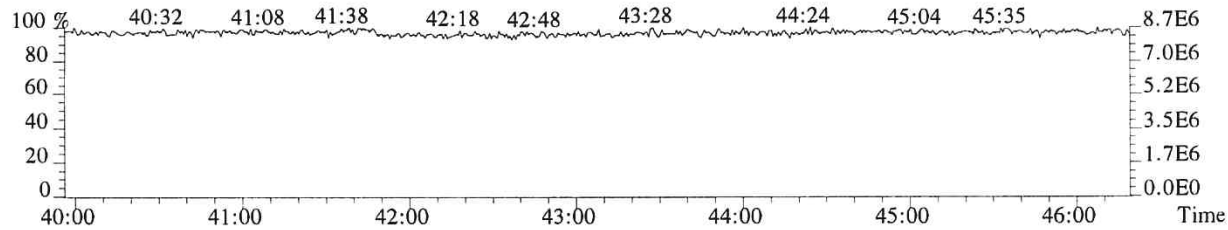
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,316.0,0.40%,F,T)



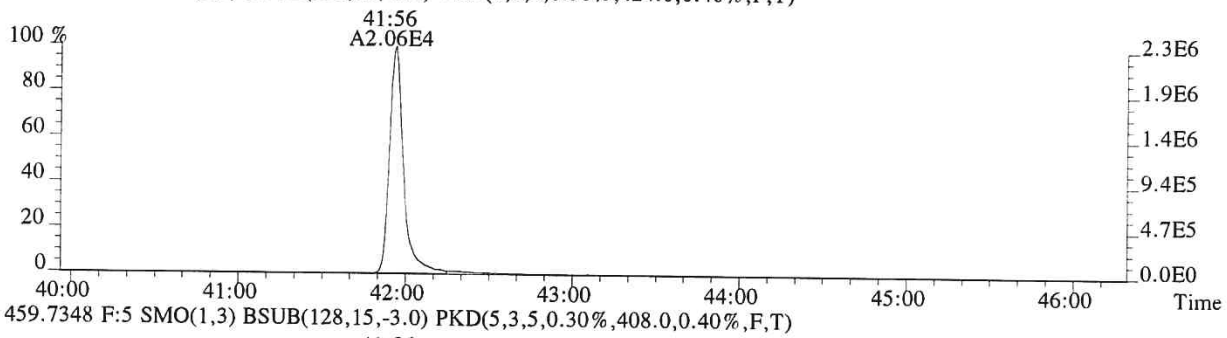
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



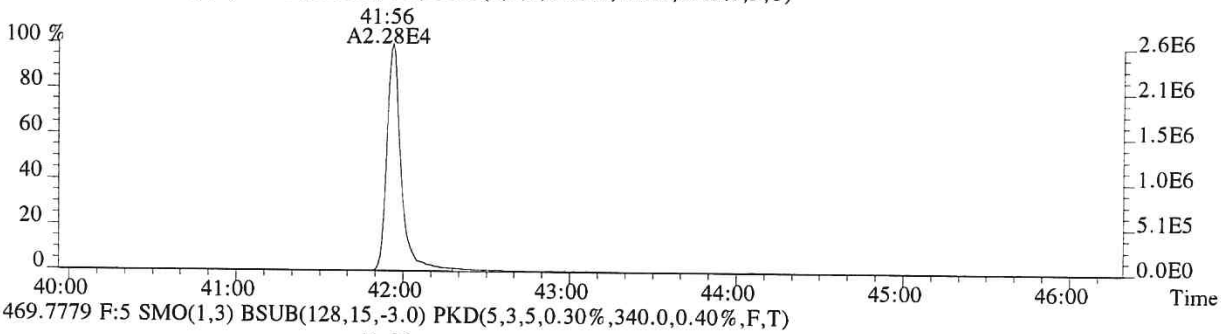
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



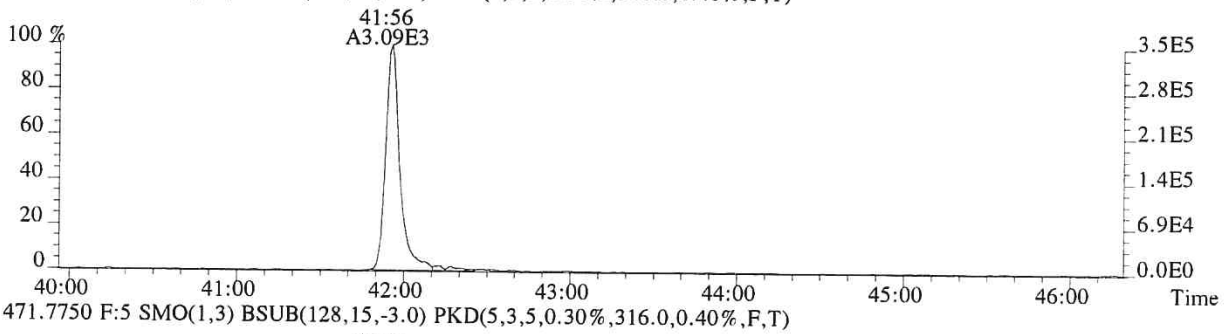
File:P519485 #1-575 Acq:19-DEC-2018 07:28:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-011
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,424.0,0.40%,F,T)



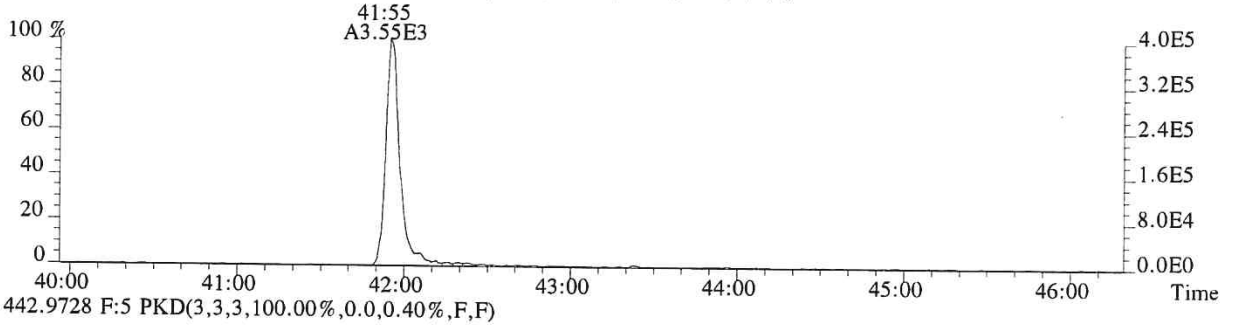
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,408.0,0.40%,F,T)



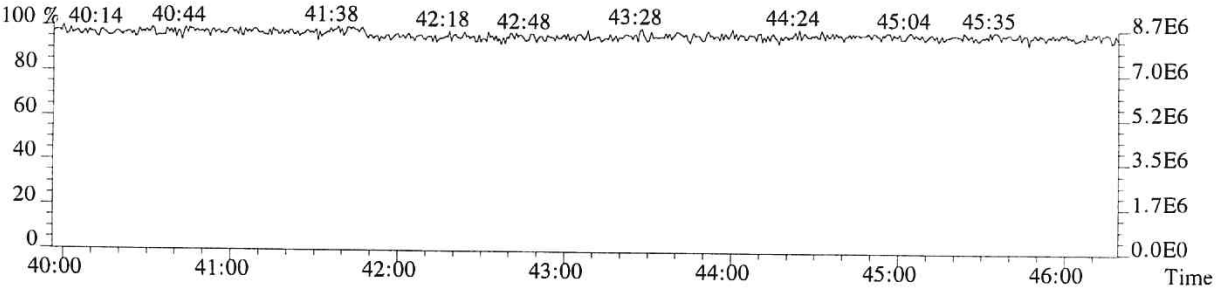
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,340.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,316.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0054

Run #13 Filename P519486 Samp: 1 Inj: 1 Acquired: 19-DEC-18 08:17:35
Processed: 20-DEC-18 15:35:33 Sample ID: E1801094-012

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:48	2.798e+04	3.682e+04	0.76	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	31:27	1.703e+03	1.094e+03	1.56	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	32:25	2.497e+03	1.631e+03	1.53	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:16	3.127e+03	2.748e+03	1.14	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:22	1.437e+03	1.226e+03	1.17	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:55	1.764e+03	1.441e+03	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	36:44	2.786e+02	2.289e+02	1.22	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:04	7.735e+03	7.797e+03	0.99	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:29	3.443e+02	2.817e+02	1.22	no	no	1.258
10	Unk	OCDF	42:06	2.373e+03	2.633e+03	0.90	yes	no	1.359
11	Unk	2,3,7,8-TCDD	27:42	6.828e+03	8.899e+03	0.77	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	32:43	4.310e+02	1.666e+03	0.26	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:04	3.525e+02	2.734e+02	1.29	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:09	2.365e+03	1.891e+03	1.25	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:24	9.457e+02	7.185e+02	1.32	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:02	4.041e+04	3.932e+04	1.03	yes	no	1.025
17	Unk	OCDD	41:56	2.740e+05	3.054e+05	0.90	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	26:47	1.121e+04	1.404e+04	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	31:26	1.550e+04	9.718e+03	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	32:24	1.488e+04	9.371e+03	1.59	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:15	4.871e+03	9.323e+03	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:22	5.504e+03	1.024e+04	0.54	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:54	4.854e+03	9.443e+03	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	36:41	3.708e+03	7.419e+03	0.50	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:03	2.321e+03	5.295e+03	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:29	1.524e+03	3.559e+03	0.43	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	27:41	5.161e+03	6.371e+03	0.81	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:43	1.081e+04	6.827e+03	1.58	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:03	6.723e+03	5.274e+03	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:08	6.135e+03	4.919e+03	1.25	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:01	4.259e+03	3.947e+03	1.08	yes	no	0.858
32	IS	13C-OCDD	41:56	2.380e+03	2.739e+03	0.87	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:03	1.454e+04	1.809e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:24	1.221e+04	9.648e+03	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:42	7.325e+03				no	1.014

$$OCDD = \frac{(2.740e+05 + 3.054e+05) \times 4000\ pg \times 1}{(2.380e+03 + 2.739e+03) \times 10.025\ g \times 105.5 / 100 \times 1.118} = 58200\ ng/kg$$

VN 12/21/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0054

Run #13 Filename P519486 Samp: 1 Inj: 1 Acquired: 19-DEC-18 08:17:35
Processed: 20-DEC-18 15:35:33 LAB. ID: E1801094-012

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	4.17e+06	1.00e+03	4.2e+03	5.49e+06	2.10e+03	2.6e+03
2	1,2,3,7,8-PeCDF	3.04e+05	2.52e+03	1.2e+02	2.04e+05	1.93e+03	1.1e+02
3	2,3,4,7,8-PeCDF	3.27e+05	2.52e+03	1.3e+02	2.06e+05	1.93e+03	1.1e+02
4	1,2,3,4,7,8-HxCDF	6.54e+05	5.39e+03	1.2e+02	5.59e+05	1.13e+03	4.9e+02
5	1,2,3,6,7,8-HxCDF	2.76e+05	5.39e+03	5.1e+01	2.22e+05	1.13e+03	2.0e+02
6	2,3,4,6,7,8-HxCDF	3.43e+05	5.39e+03	6.4e+01	2.81e+05	1.13e+03	2.5e+02
7	1,2,3,7,8,9-HxCDF	4.65e+04	5.39e+03	8.6e+00	3.91e+04	1.13e+03	3.5e+01
8	1,2,3,4,6,7,8-HpCDF	1.46e+06	5.28e+03	2.8e+02	1.40e+06	5.41e+03	2.6e+02
9	1,2,3,4,7,8,9-HpCDF	5.54e+04	5.28e+03	1.0e+01	4.82e+04	5.41e+03	8.9e+00
10	OCDF	2.69e+05	3.20e+02	8.4e+02	3.09e+05	6.56e+02	4.7e+02
11	2,3,7,8-TCDD	1.18e+06	1.42e+03	8.3e+02	1.52e+06	1.14e+03	1.3e+03
12	1,2,3,7,8-PeCDD	7.74e+04	3.74e+03	2.1e+01	2.96e+05	7.71e+03	3.8e+01
13	1,2,3,4,7,8-HxCDD	8.27e+04	3.08e+03	2.7e+01	6.44e+04	4.23e+03	1.5e+01
14	1,2,3,6,7,8-HxCDD	4.59e+05	3.08e+03	1.5e+02	3.60e+05	4.23e+03	8.5e+01
15	1,2,3,7,8,9-HxCDD	1.79e+05	3.08e+03	5.8e+01	1.50e+05	4.23e+03	3.6e+01
16	1,2,3,4,6,7,8-HpCDD	6.71e+06	4.40e+02	1.5e+04	6.65e+06	3.08e+02	2.2e+04
17	OCDD	3.31e+07	3.48e+02	9.5e+04	3.65e+07	3.88e+02	9.4e+04
18	13C-2,3,7,8-TCDF	1.85e+06	3.31e+03	5.6e+02	2.32e+06	2.22e+03	1.0e+03
19	13C-1,2,3,7,8-PeCDF	2.69e+06	6.80e+02	3.9e+03	1.70e+06	6.72e+02	2.5e+03
20	13C-2,3,4,7,8-PeCDF	2.83e+06	6.80e+02	4.2e+03	1.76e+06	6.72e+02	2.6e+03
21	13C-1,2,3,4,7,8-HxCDF	9.95e+05	3.92e+02	2.5e+03	1.96e+06	6.64e+02	2.9e+03
22	13C-1,2,3,6,7,8-HxCDF	1.03e+06	3.92e+02	2.6e+03	1.96e+06	6.64e+02	3.0e+03
23	13C-2,3,4,6,7,8-HxCDF	9.55e+05	3.92e+02	2.4e+03	1.86e+06	6.64e+02	2.8e+03
24	13C-1,2,3,7,8,9-HxCDF	7.05e+05	3.92e+02	1.8e+03	1.42e+06	6.64e+02	2.1e+03
25	13C-1,2,3,4,6,7,8-HpCDF	4.29e+05	2.05e+03	2.1e+02	9.45e+05	2.52e+03	3.8e+02
26	13C-1,2,3,4,7,8,9-HpCDF	2.52e+05	2.05e+03	1.2e+02	5.71e+05	2.52e+03	2.3e+02
27	13C-2,3,7,8-TCDD	8.85e+05	3.62e+03	2.4e+02	1.06e+06	1.50e+03	7.1e+02
28	13C-1,2,3,7,8-PeCDD	2.02e+06	2.96e+02	6.8e+03	1.25e+06	7.28e+02	1.7e+03
29	13C-1,2,3,4,7,8-HxCDD	1.36e+06	5.60e+02	2.4e+03	1.06e+06	3.28e+02	3.2e+03
30	13C-1,2,3,6,7,8-HxCDD	1.18e+06	5.60e+02	2.1e+03	9.46e+05	3.28e+02	2.9e+03
31	13C-1,2,3,4,6,7,8-HpCDD	7.03e+05	3.36e+02	2.1e+03	6.41e+05	3.68e+02	1.7e+03
32	13C-OCDD	2.95e+05	4.88e+02	6.0e+02	3.24e+05	5.36e+02	6.0e+02
33	13C-1,2,3,4-TCDD	2.47e+06	3.62e+03	6.8e+02	3.07e+06	1.50e+03	2.1e+03
34	13C-1,2,3,7,8,9-HxCDD	2.33e+06	5.60e+02	4.2e+03	1.79e+06	3.28e+02	5.5e+03
35	37Cl-2,3,7,8-TCDD	1.25e+06	1.19e+03	1.0e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.424e{+}03 + 1.140e{+}03) \times 2000}{(8.845e{+}05 + 1.064e{+}06) \times (\quad) \times 1.085} =$$

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0054

Entry: 36 Totals Name: Total Tetra-Furans

Run: 13 File: P519486 Sample:1 Injection:1 Function:1

Acquired: 19-DEC-18 08:17:35 Processed: 20-DEC-18 15:35:33

Mass: 303.9020 305.8990 Tot Response: 1.17e+05 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	22:12	7.21e+01	8.81e+01	0.82	yes	1.60e+02		n	n
2	23:07	1.03e+03	1.37e+03	0.75	yes	2.40e+03		n	n
3	23:31	2.60e+02	3.31e+02	0.79	yes	5.91e+02		n	n
4	23:35	4.86e+02	6.88e+02	0.71	yes	1.17e+03		n	n
5	23:54	1.61e+03	2.18e+03	0.74	yes	3.79e+03		n	n
6	24:18	7.72e+02	9.33e+02	0.83	yes	1.70e+03		n	n
7	24:35	1.17e+03	1.32e+03	0.89	yes	2.50e+03		n	n
8	25:15	1.67e+03	1.92e+03	0.87	yes	3.59e+03		n	n
9	25:22	1.21e+03	1.48e+03	0.81	yes	2.69e+03		n	n
10	25:53	1.20e+04	1.56e+04	0.77	yes	2.75e+04		n	n
11	26:48	2.80e+04	3.68e+04	0.76	yes	6.48e+04	2,3,7,8-TCDF	n	n
12	27:11	2.35e+03	3.22e+03	0.73	yes	5.56e+03		n	n
13	27:27	3.59e+02	4.30e+02	0.84	yes	7.89e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0054

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 13 File: P519486 Sample:1 Injection:1 Function:1

Acquired: 19-DEC-18 08:17:35 Processed: 20-DEC-18 15:35:33

Mass: 319.8970 321.8940 Tot Response: 1.81e+04 RRF: 1.085

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	23:54	3.16e+02	3.73e+02	0.85	yes	6.90e+02		n	n
2	25:30	3.26e+01	4.07e+01	0.80	yes	7.33e+01		n	n
3	25:46	3.00e+01	3.73e+01	0.80	yes	6.73e+01		n	n
4	26:28	2.17e+01	3.10e+01	0.70	yes	5.27e+01		n	n
5	27:42	6.83e+03	8.90e+03	0.77	yes	1.57e+04	2,3,7,8-TCDD	n	n
6	28:02	6.61e+02	7.85e+02	0.84	yes	1.45e+03		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0054

Entry: 38 Totals Name: Total Penta-Furans1

Run: 13 File: P519486 Sample:1 Injection:1 Function:1

Acquired: 19-DEC-18 08:17:35 Processed: 20-DEC-18 15:35:33

Mass: 339.8600 341.8570 Tot Response: 1.31e+04 RRF: 0.9857

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	28:51	8.08e+03	5.05e+03	1.60	yes	1.31e+04		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0054

Entry: 39 Totals Name: Total Penta-Furans2

Run: 13 File: P519486 Sample:1 Injection:1 Function:2

Acquired: 19-DEC-18 08:17:35 Processed: 20-DEC-18 15:35:33

Mass: 339.8600 341.8570 Tot Response: 2.50e+04 RRF: 0.9857

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:19	1.32e+03	9.13e+02	1.44	yes	2.23e+03		n	n
2	30:27	4.91e+03	3.32e+03	1.48	yes	8.23e+03		n	n
3	30:45	2.43e+02	1.80e+02	1.35	yes	4.23e+02		n	n
4	31:02	1.87e+03	1.30e+03	1.44	yes	3.18e+03		n	n
5	31:15	3.61e+02	2.37e+02	1.52	yes	5.98e+02		n	n
6	31:27	1.70e+03	1.09e+03	1.56	yes	2.80e+03	1,2,3,7,8-PeCDF	n	n
7	31:42	1.53e+03	1.02e+03	1.50	yes	2.54e+03		n	n
8	32:19	2.71e+02	1.92e+02	1.42	yes	4.63e+02		n	n
9	32:25	2.50e+03	1.63e+03	1.53	yes	4.13e+03	2,3,4,7,8-PeCDF	n	n
10	33:14	8.37e+01	5.75e+01	1.46	yes	1.41e+02		n	n
11	33:22	1.70e+02	9.85e+01	1.73	yes	2.68e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0054

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 13 File: P519486 Sample:1 Injection:1 Function:2

Acquired: 19-DEC-18 08:17:35 Processed: 20-DEC-18 15:35:33

Mass: 355.8550 357.8520 Tot Response: 3.23e+03 RRF: 0.9565

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:30	4.54e+02	3.14e+02	1.44	yes	7.68e+02		n	n
2	30:59	1.46e+03	9.94e+02	1.47	yes	2.46e+03		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0054

ntry: 41 Totals Name: Total Hexa-Furans

un: 13 File: P519486 Sample:1 Injection:1 Function:3

cquired: 19-DEC-18 08:17:35 Processed: 20-DEC-18 15:35:33

lass: 373.8210 375.8180 Tot Response: 5.27e+04 RRF: 1.141

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:06	1.65e+03	1.45e+03	1.14	yes	3.10e+03		n	n
2	34:15	9.58e+03	7.92e+03	1.21	yes	1.75e+04		n	n
3	34:37	3.62e+02	2.85e+02	1.27	yes	6.47e+02		n	n
4	34:48	1.02e+04	8.45e+03	1.21	yes	1.87e+04		n	n
5	35:10	2.62e+02	2.41e+02	1.08	yes	5.03e+02		n	n
6	35:16	3.13e+03	2.75e+03	1.14	yes	5.87e+03	1,2,3,4,7,8-HxCDF	n	n
7	35:22	1.44e+03	1.23e+03	1.17	yes	2.66e+03	1,2,3,6,7,8-HxCDF	n	n
8	35:55	1.76e+03	1.44e+03	1.22	yes	3.20e+03	2,3,4,6,7,8-HxCDF	n	n
9	36:44	2.79e+02	2.29e+02	1.22	yes	5.07e+02	1,2,3,7,8,9-HxCDF	n	n

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0054

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 13 File: P519486 Sample:1 Injection:1 Function:3

Acquired: 19-DEC-18 08:17:35 Processed: 20-DEC-18 15:35:33

Mass: 389.8160 391.8130 Tot Response: 4.42e+04 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:39	8.61e+03	6.74e+03	1.28	yes	1.54e+04		n	n
2	35:12	9.23e+02	7.22e+02	1.28	yes	1.64e+03		n	n
3	35:27	9.41e+03	7.38e+03	1.28	yes	1.68e+04		n	n
4	35:33	1.95e+03	1.50e+03	1.31	yes	3.45e+03		n	n
5	36:04	3.52e+02	2.73e+02	1.29	yes	6.26e+02	1,2,3,4,7,8-HxCDD	n	n
6	36:09	2.37e+03	1.89e+03	1.25	yes	4.26e+03	1,2,3,6,7,8-HxCDD	n	n
7	36:19	2.24e+02	1.81e+02	1.24	yes	4.05e+02		n	n
8	36:24	9.46e+02	7.19e+02	1.32	yes	1.66e+03	1,2,3,7,8,9-HxCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0054

Entry: 43 Totals Name: Total Hepta-Furans

Run: 13 File: P519486 Sample:1 Injection:1 Function:4

Acquired: 19-DEC-18 08:17:35 Processed: 20-DEC-18 15:35:33

Mass: 407.7820 409.7790 Tot Response: 3.63e+04 RRF: 1.308

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:04	7.74e+03	7.80e+03	0.99	yes	1.55e+04	1,2,3,4,6,7,8-HpCDF	n	n
2	38:29	1.03e+04	1.04e+04	1.00	yes	2.07e+04		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0054

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 13 File: P519486 Sample:1 Injection:1 Function:4

Acquired: 19-DEC-18 08:17:35 Processed: 20-DEC-18 15:35:33

Mass: 423.7770 425.7740 Tot Response: 2.14e+05 RRF: 1.025

	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
.	38:20	6.85e+04	6.59e+04 1.04	yes	1.34e+05		n	n
:	39:02	4.04e+04	3.93e+04 1.03	yes	7.97e+04	1,2,3,4,6,7,8-HpCDD	n	n

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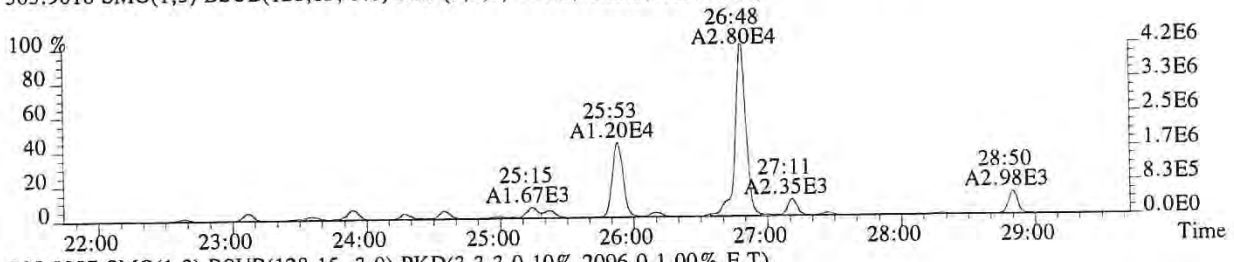
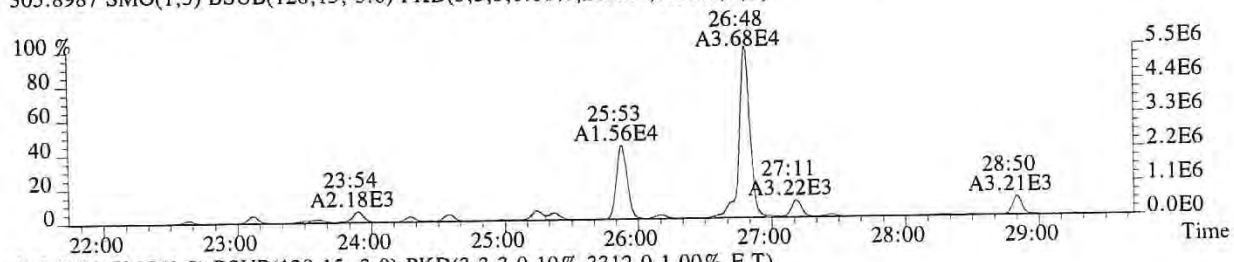
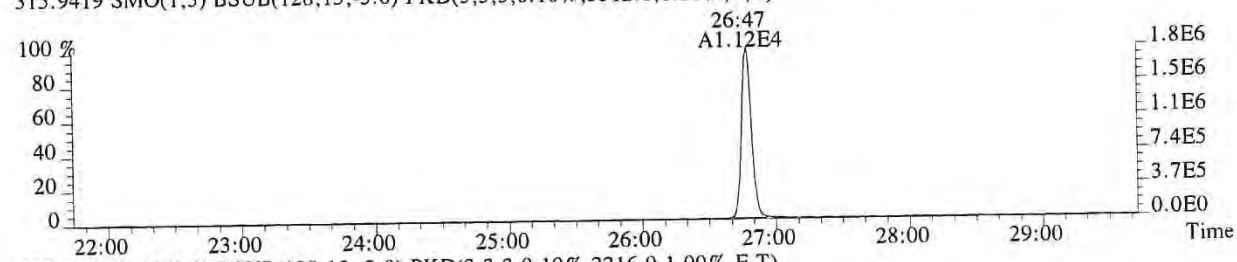
File:P519486 #1-566 Acq:19-DEC-2018 08:17:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-012
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1000.0,1.00%,F,T)



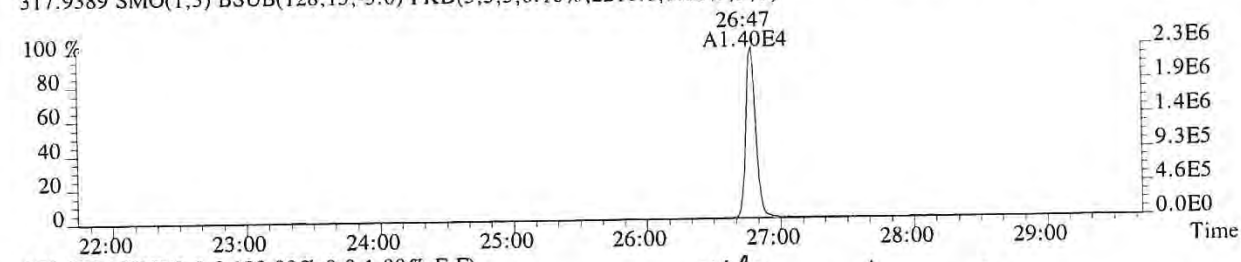
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2096.0,1.00%,F,T)



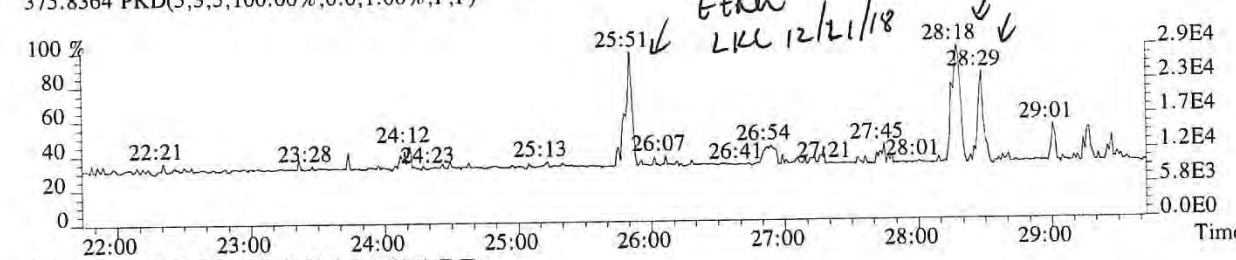
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3312.0,1.00%,F,T)



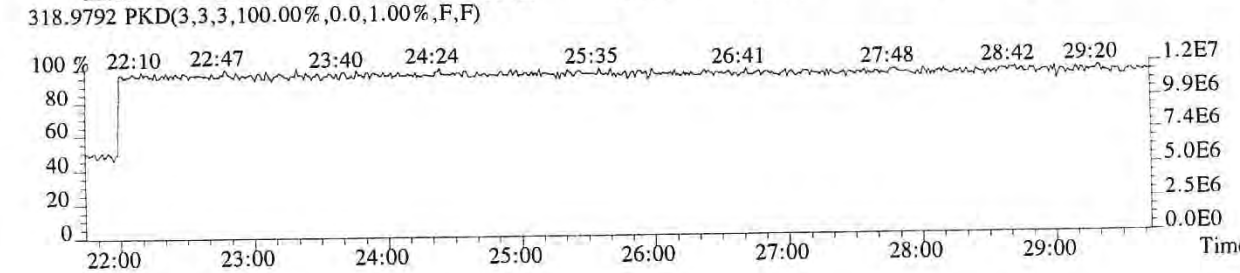
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2216.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



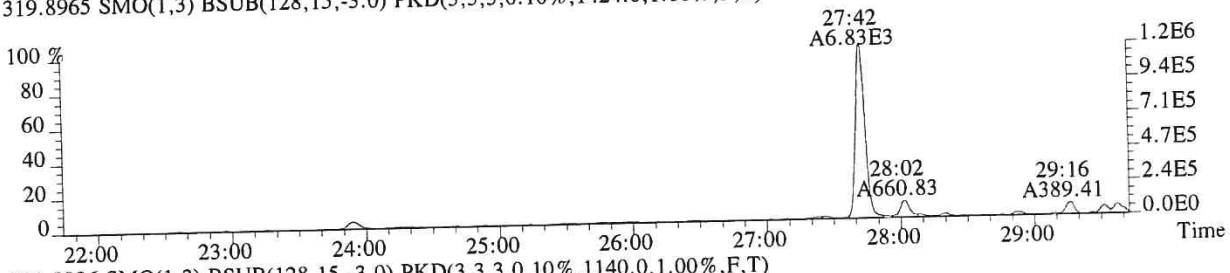
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



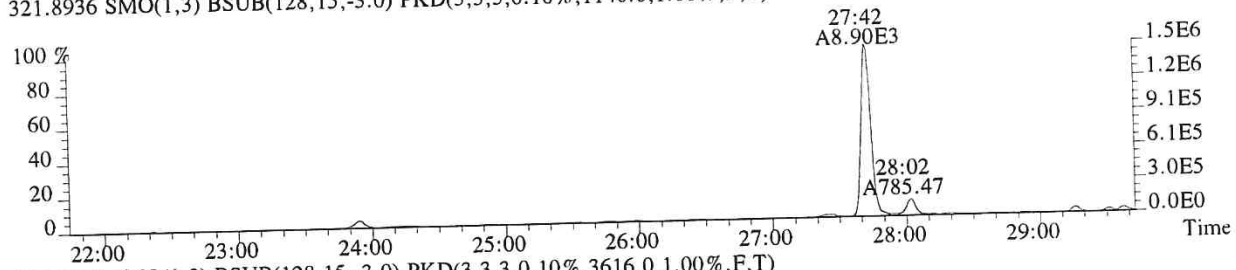
015443

File:P519486 #1-566 Acq:19-DEC-2018 08:17:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-012

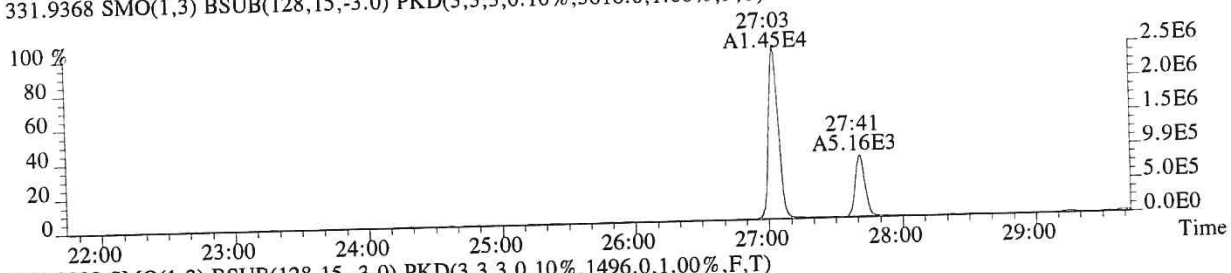
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1424.0,1.00%,F,T)



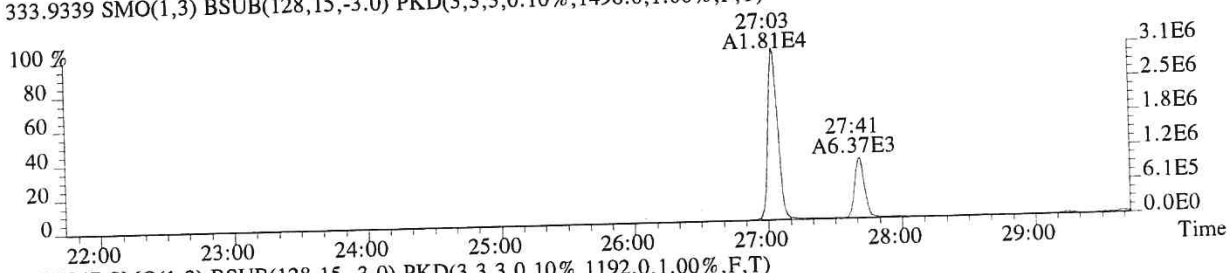
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1140.0,1.00%,F,T)



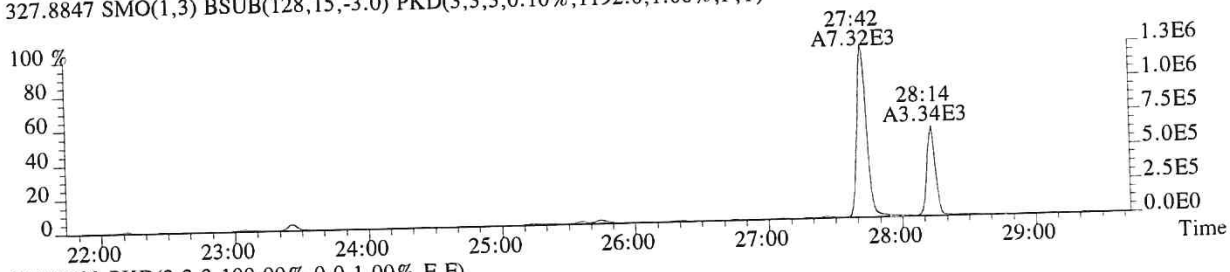
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3616.0,1.00%,F,T)



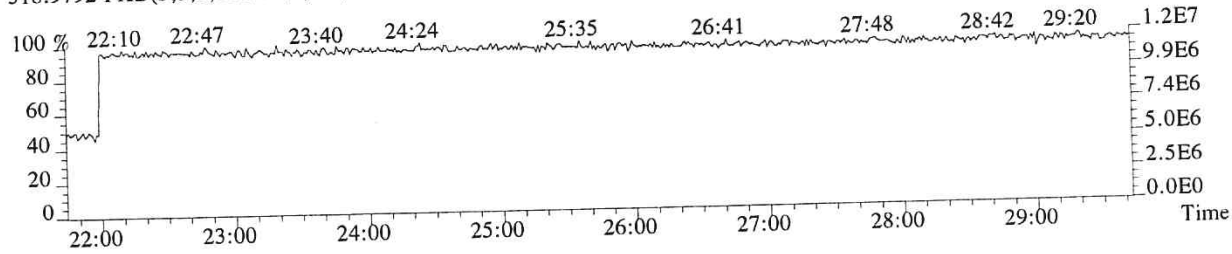
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1496.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1192.0,1.00%,F,T)

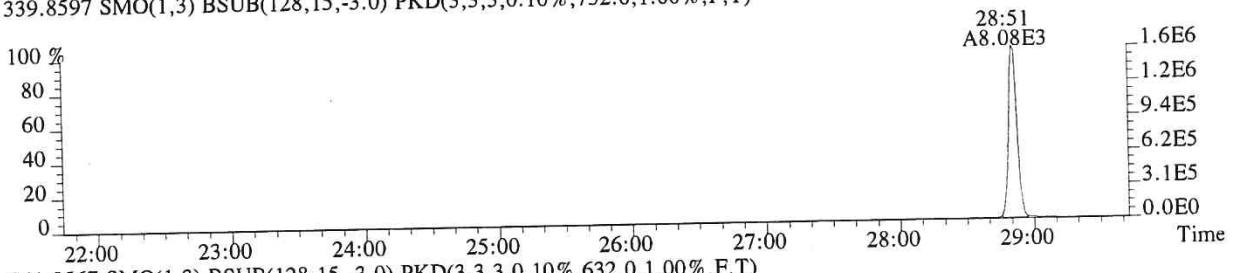


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

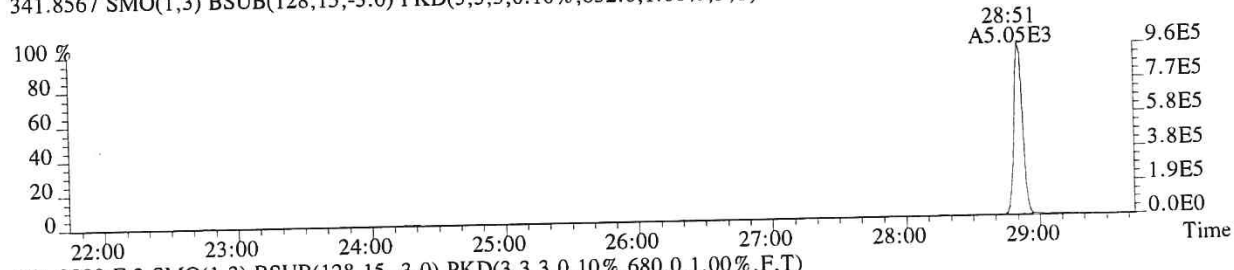


015444

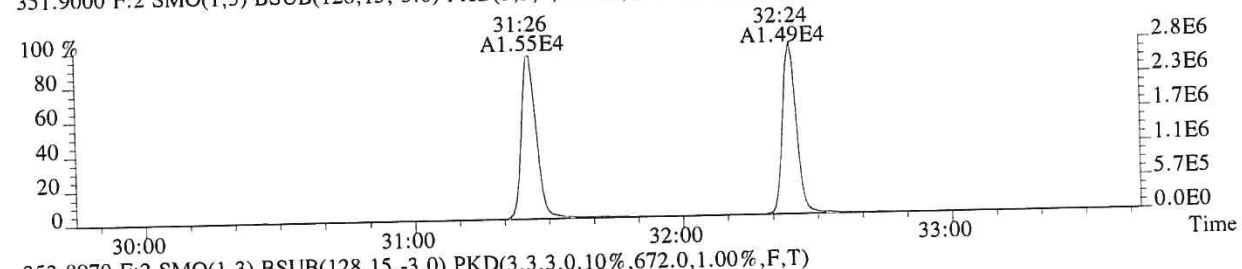
File:P519486 #1-566 Acq:19-DEC-2018 08:17:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-012
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,732.0,1.00%,F,T)



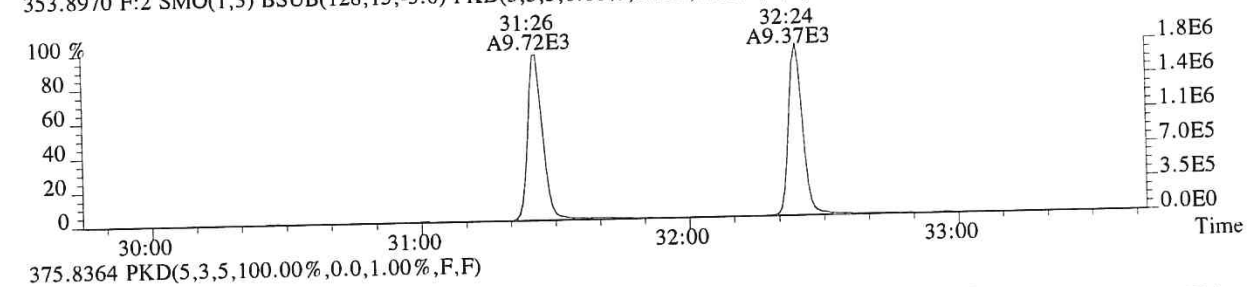
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,632.0,1.00%,F,T)



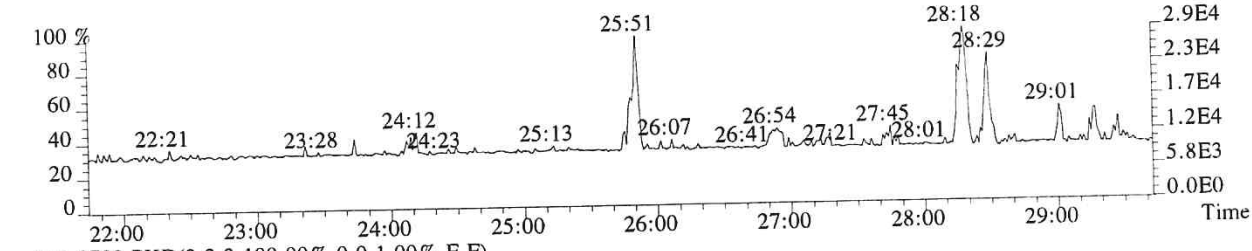
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,680.0,1.00%,F,T)



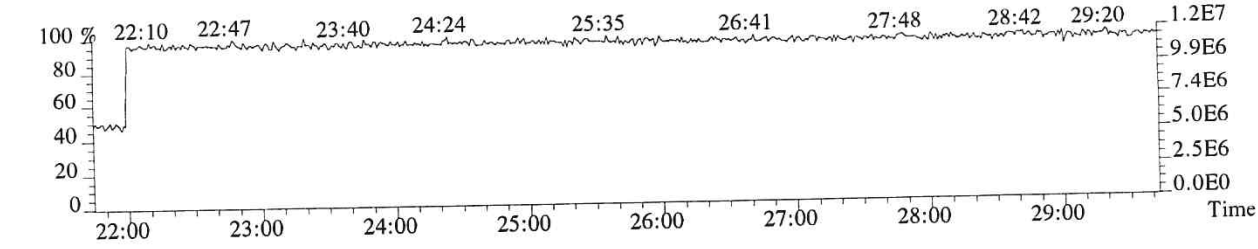
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,672.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

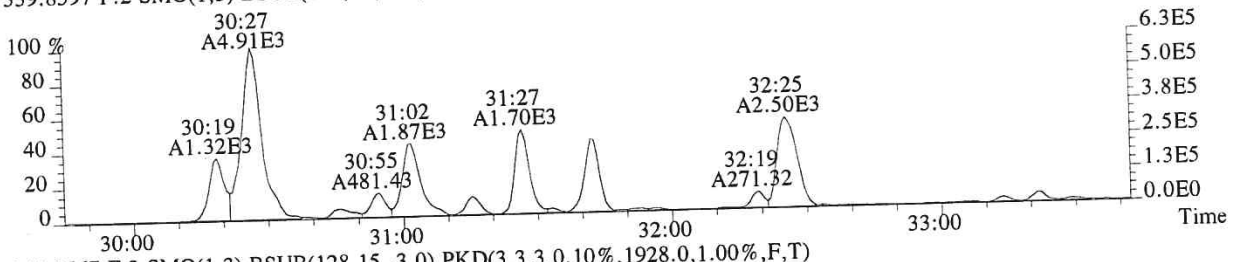


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

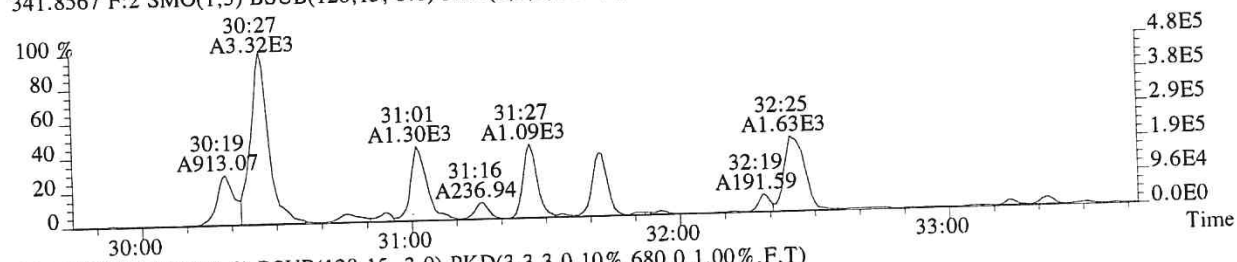


015445

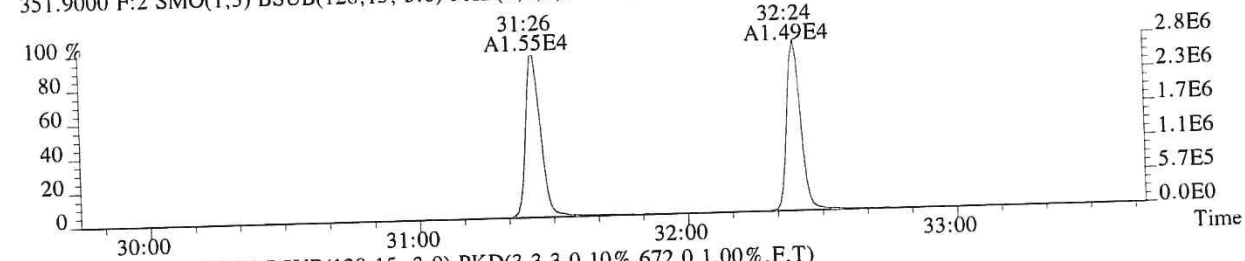
File:P519486 #1-357 Acq:19-DEC-2018 08:17:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-012
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2520.0,1.00%,F,T)



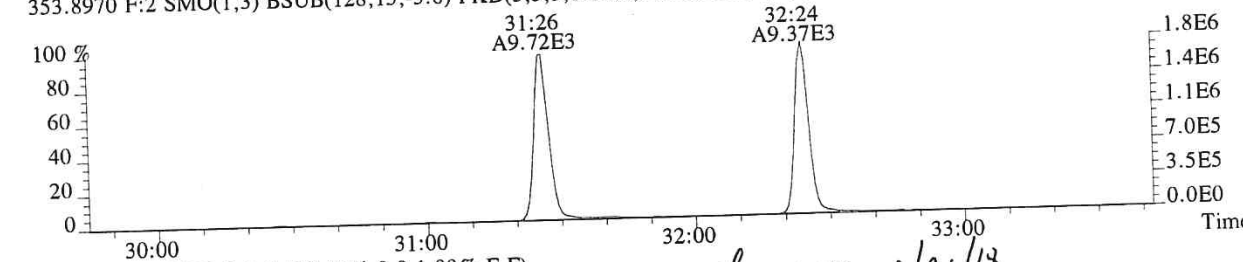
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1928.0,1.00%,F,T)



351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,680.0,1.00%,F,T)

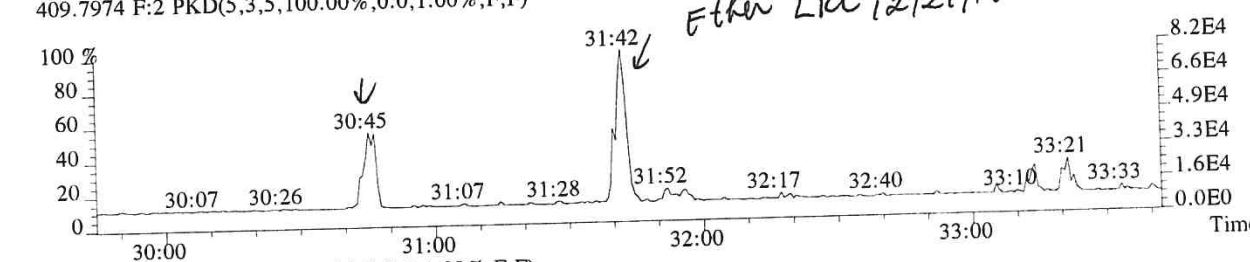


353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,672.0,1.00%,F,T)

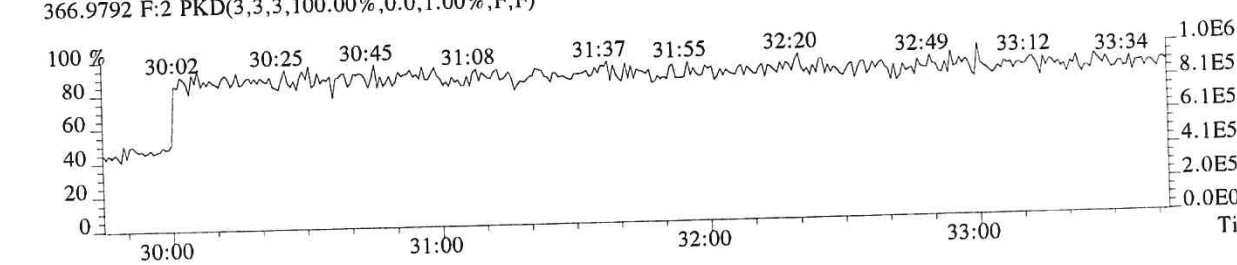


409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

Ether LKU 12/21/18

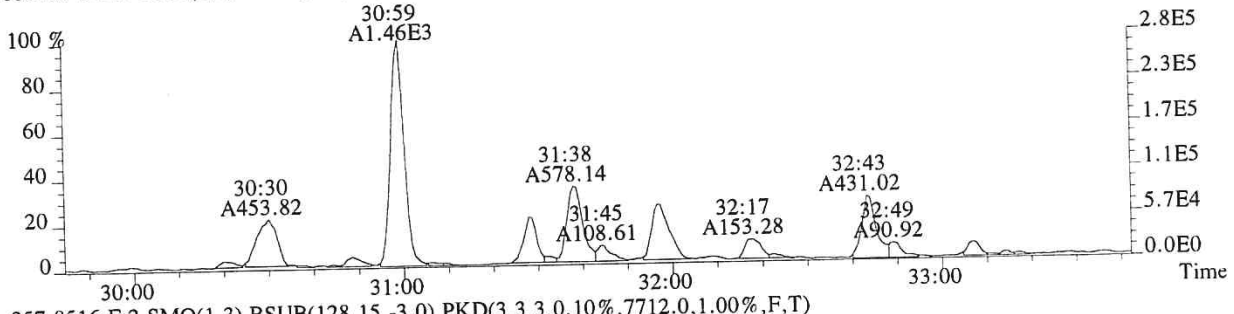


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

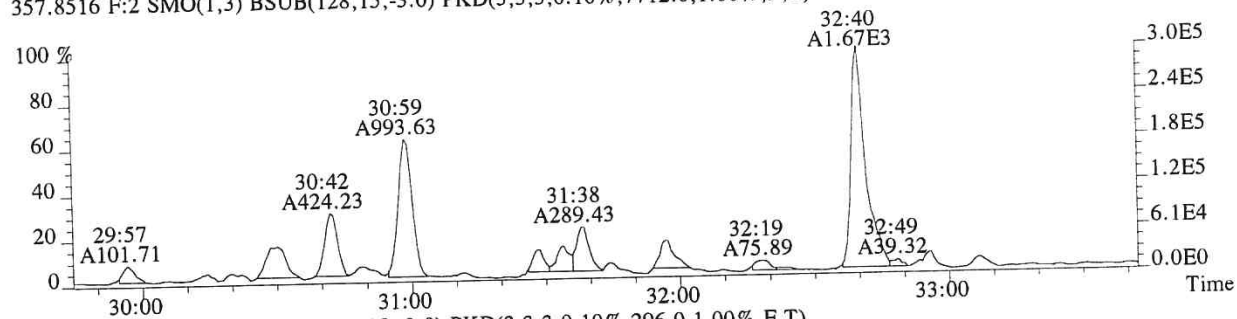


015446

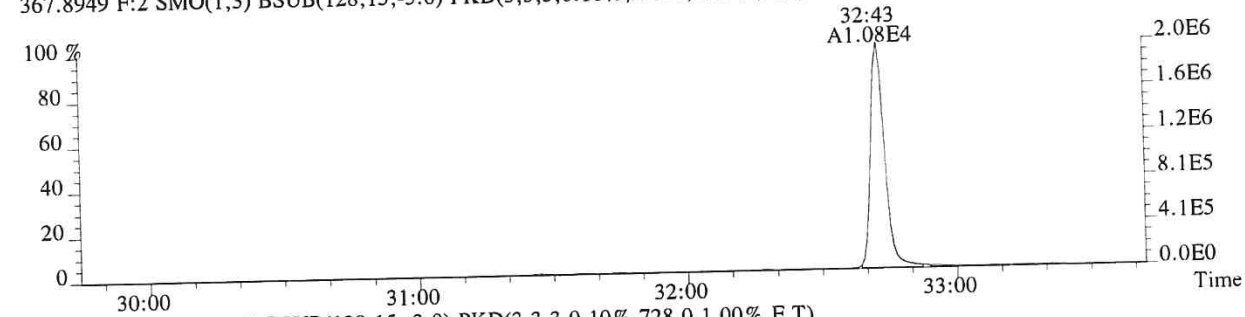
File:P519486 #1-357 Acq:19-DEC-2018 08:17:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-012
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3736.0,1.00%,F,T)



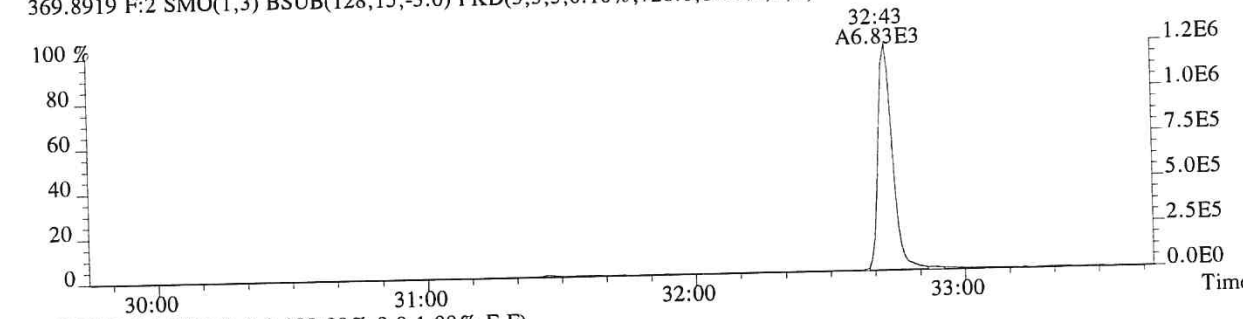
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7712.0,1.00%,F,T)



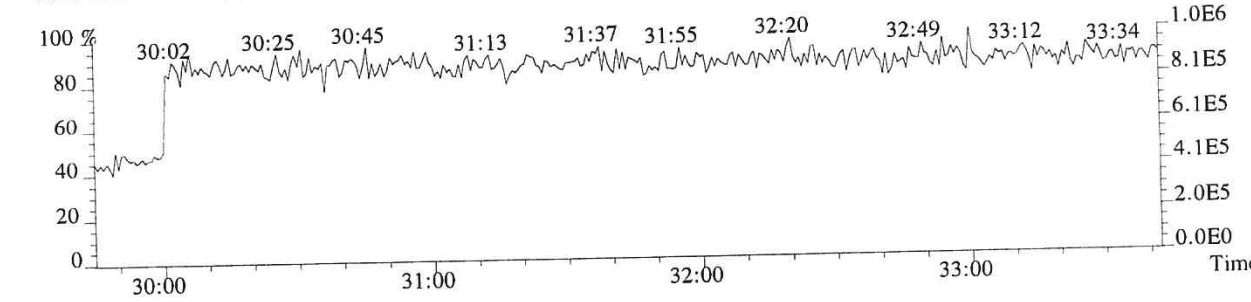
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,296.0,1.00%,F,T)



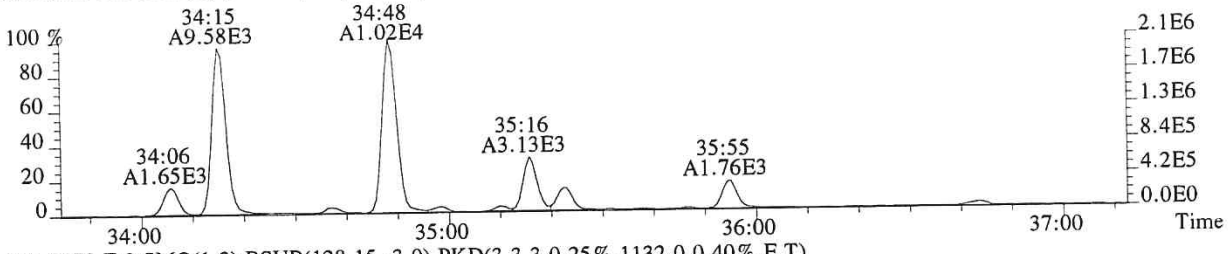
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,728.0,1.00%,F,T)



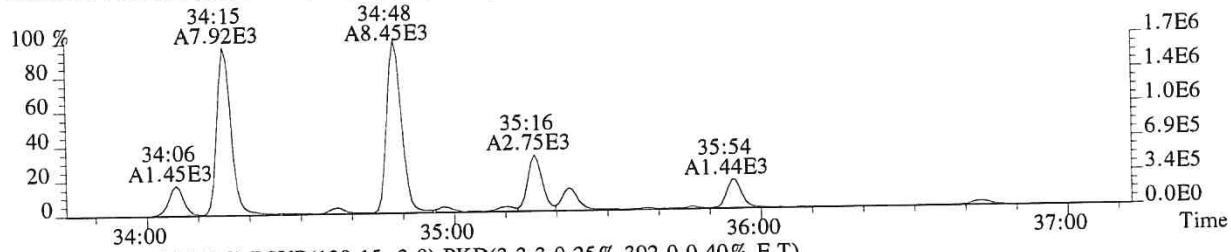
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



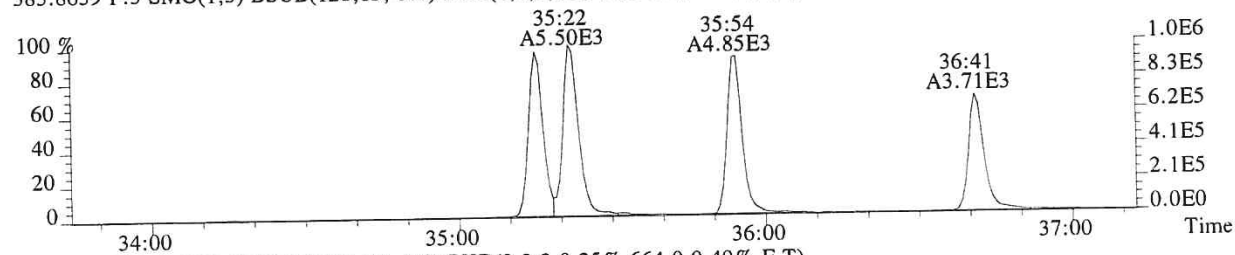
File:P519486 #1-313 Acq:19-DEC-2018 08:17:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-012
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5388.0,0.40%,F,T)



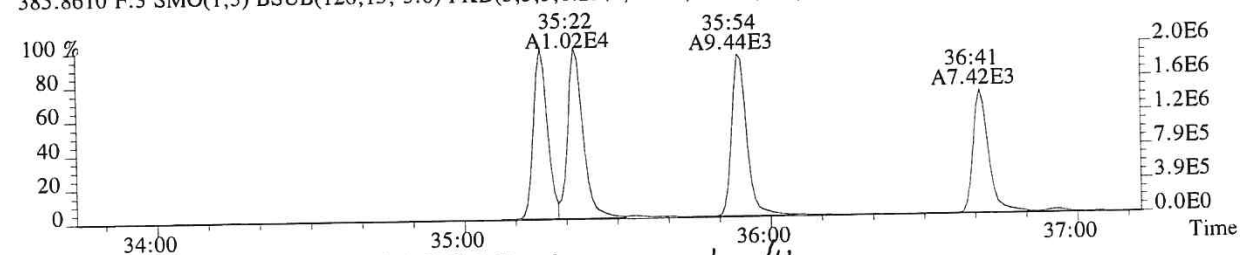
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1132.0,0.40%,F,T)



383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,392.0,0.40%,F,T)

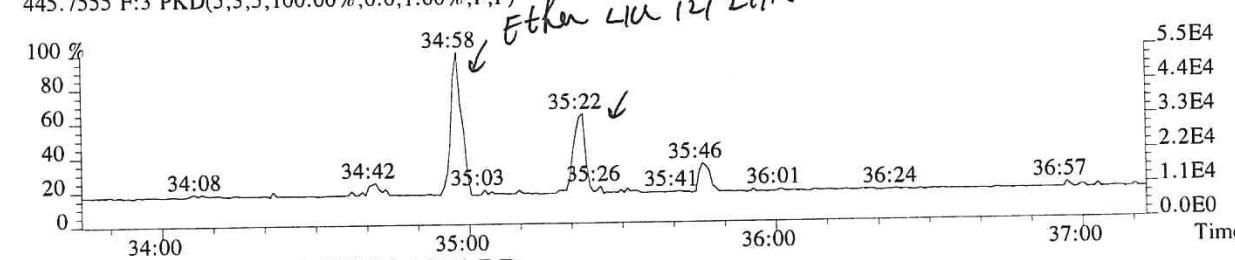


385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,664.0,0.40%,F,T)

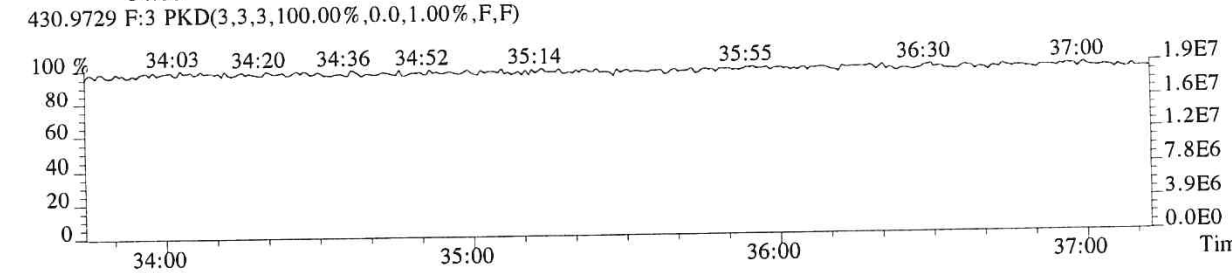


445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

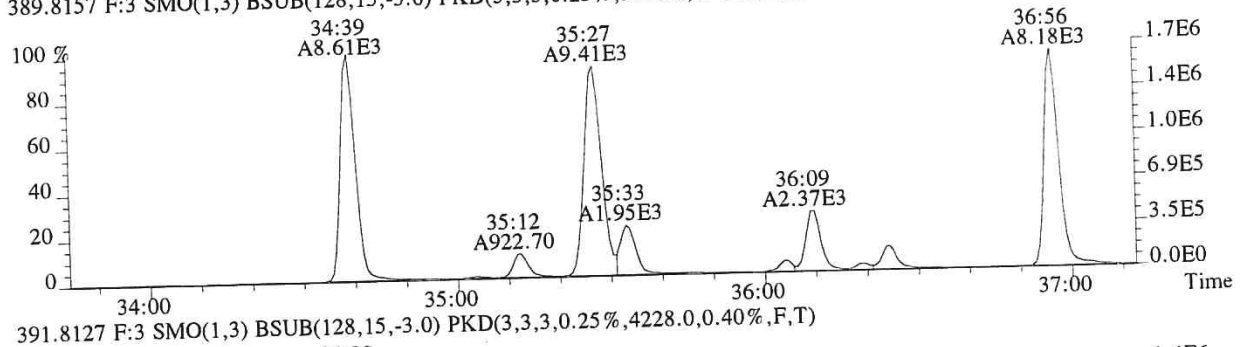
Ether LLL 12/21/18



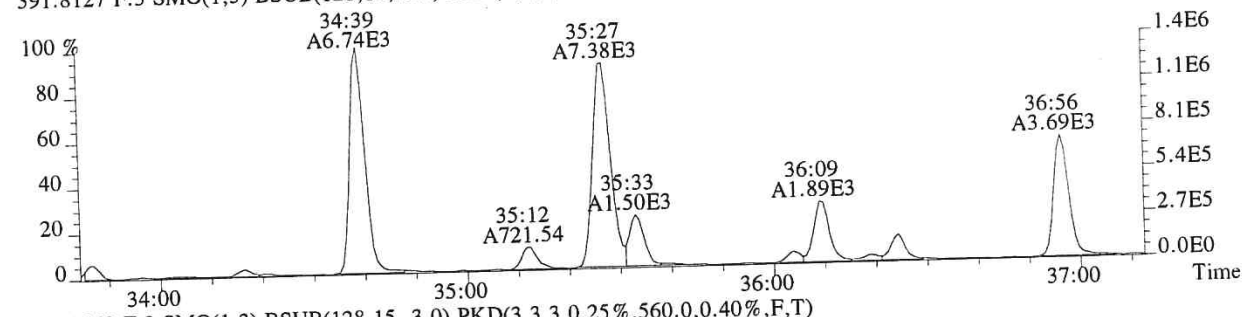
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



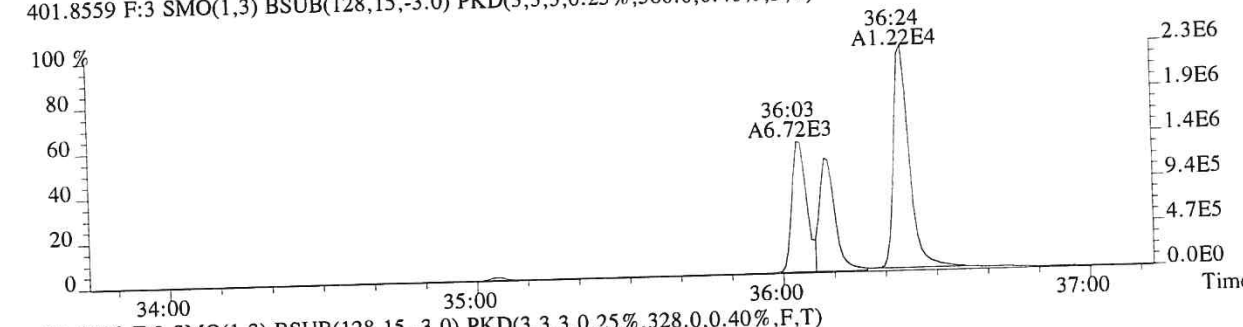
File:P519486 #1-313 Acq:19-DEC-2018 08:17:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-012
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3076.0,0.40%,F,T)



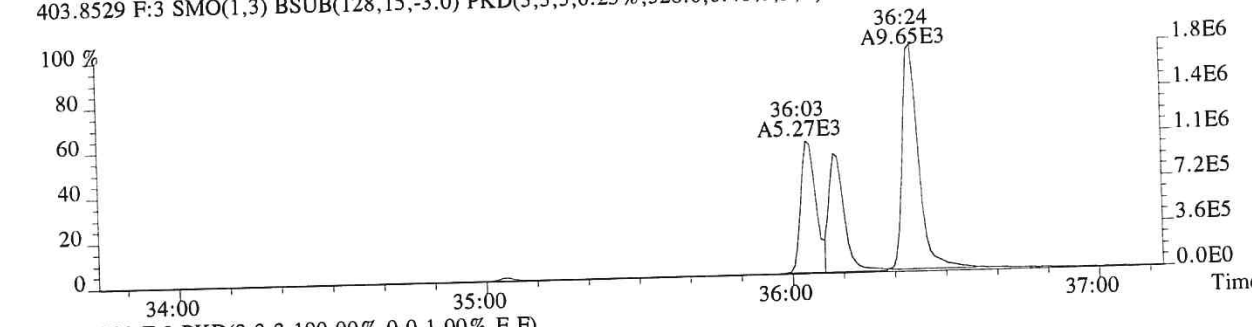
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4228.0,0.40%,F,T)



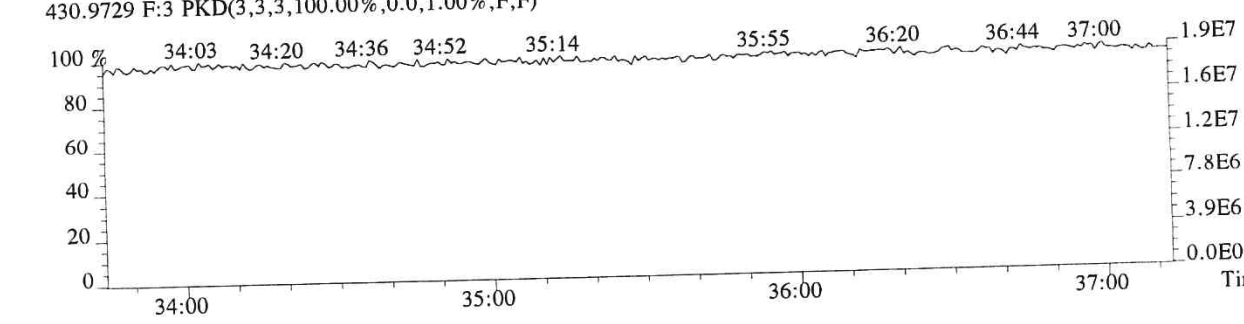
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,560.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,328.0,0.40%,F,T)

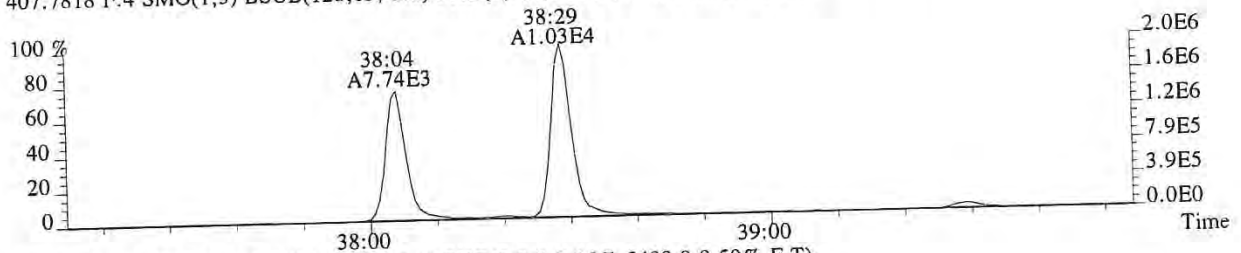


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

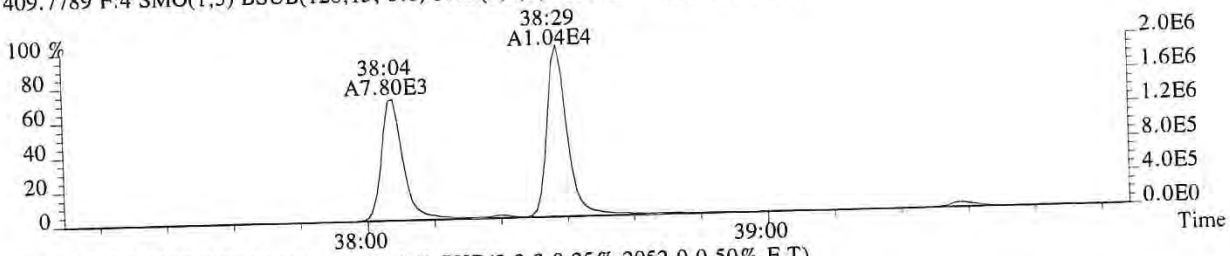


015449

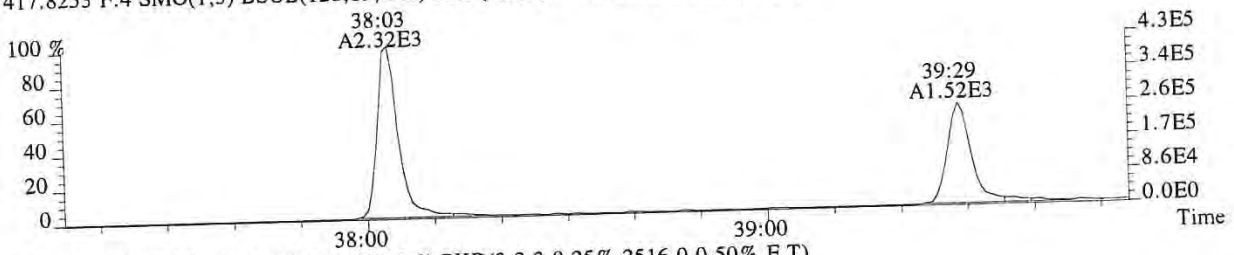
File:P519486 #1-240 Acq:19-DEC-2018 08:17:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-012
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5276.0,0.50%,F,T)



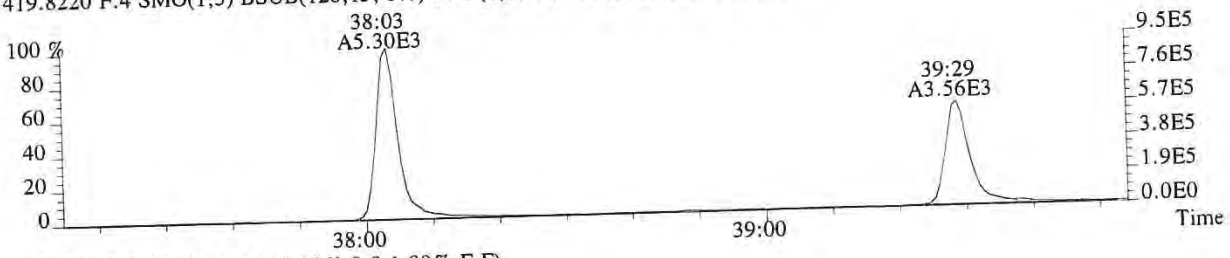
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5408.0,0.50%,F,T)



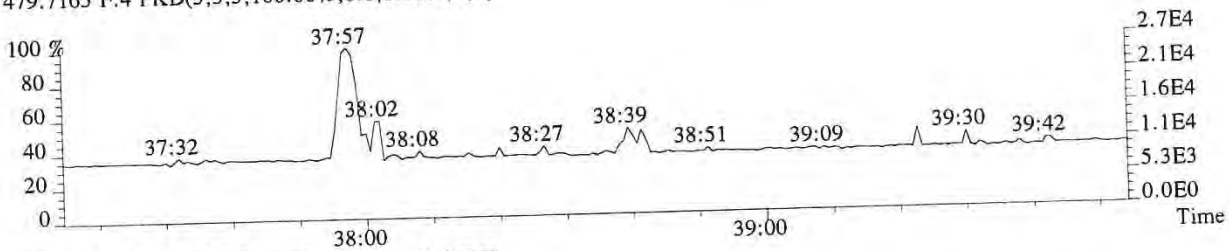
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2052.0,0.50%,F,T)



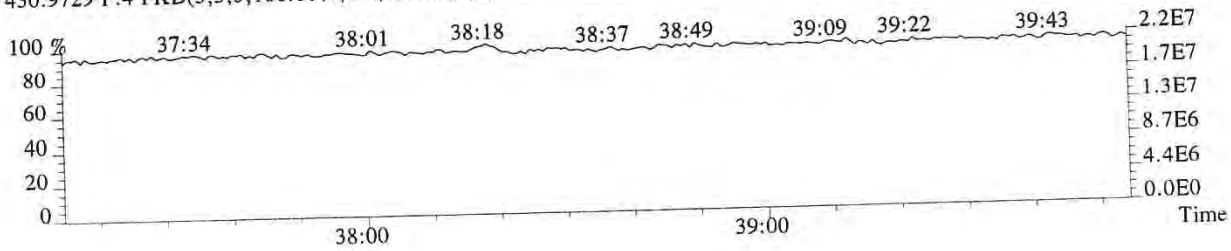
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2516.0,0.50%,F,T)



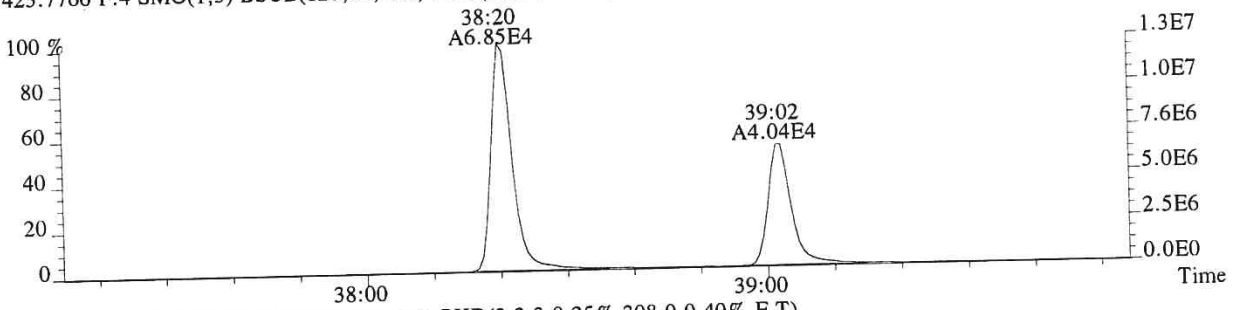
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



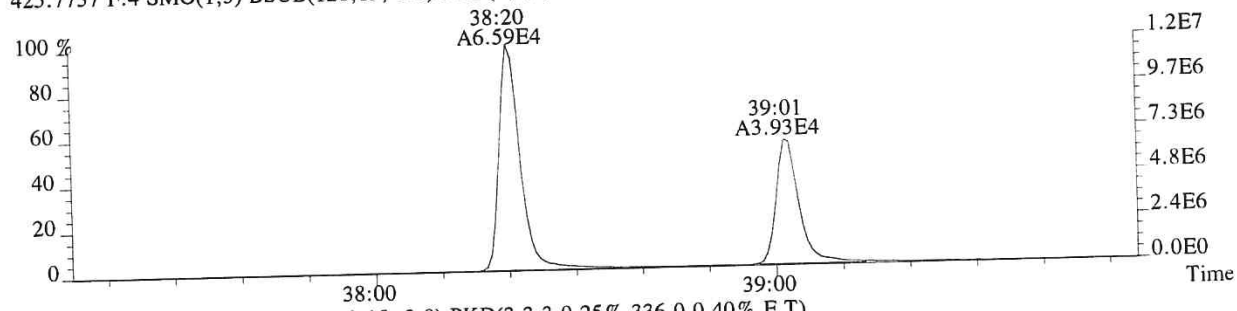
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



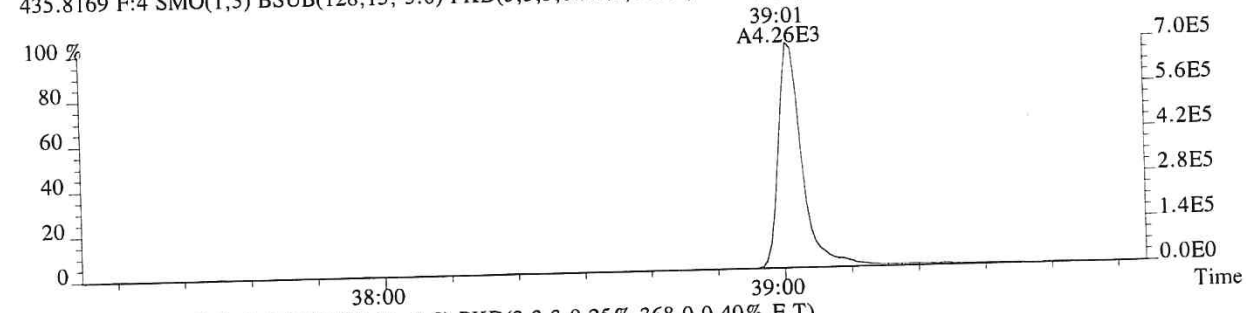
File:P519486 #1-240 Acq:19-DEC-2018 08:17:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-012
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,440.0,0.40%,F,T)



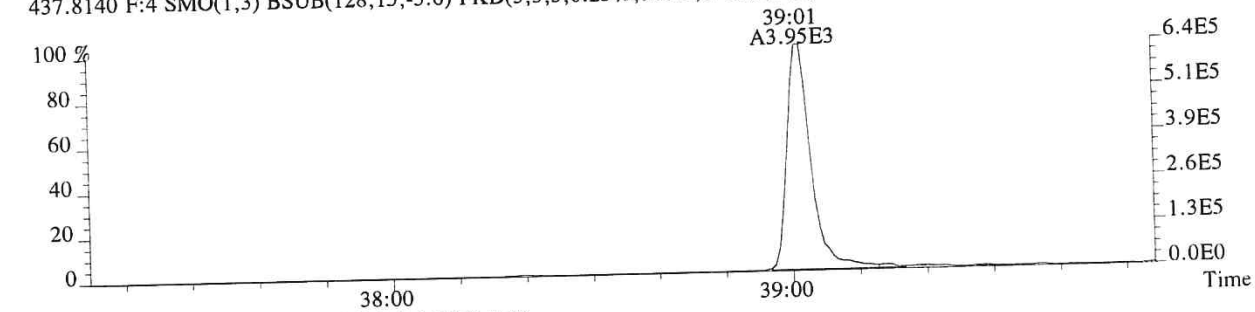
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,308.0,0.40%,F,T)



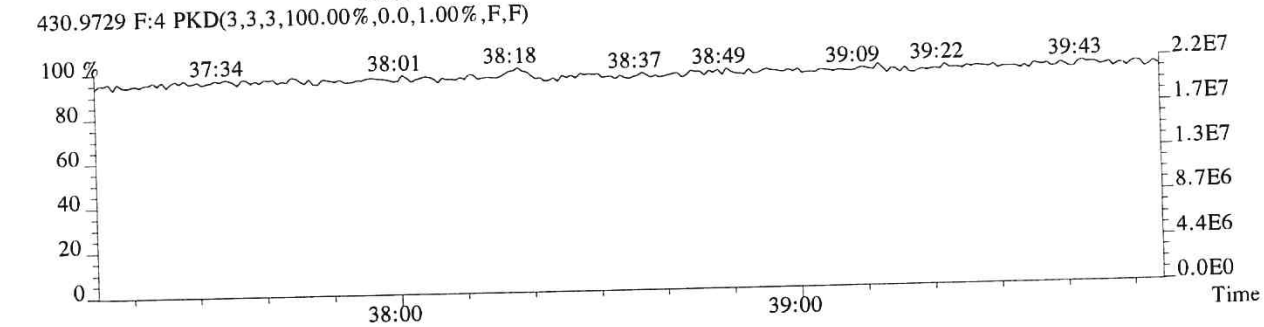
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,336.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,368.0,0.40%,F,T)

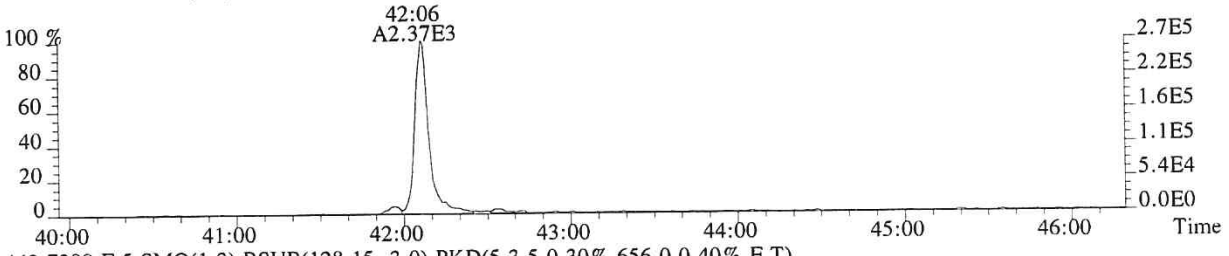


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

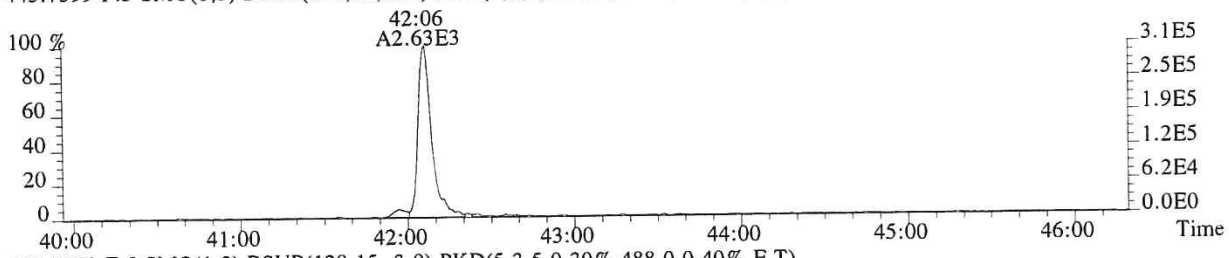


File:P519486 #1-575 Acq:19-DEC-2018 08:17:35 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:E1801094-012

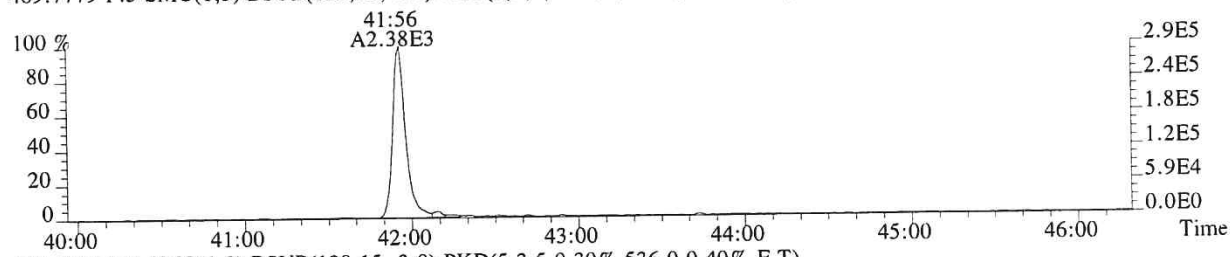
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,320.0,0.40%,F,T)



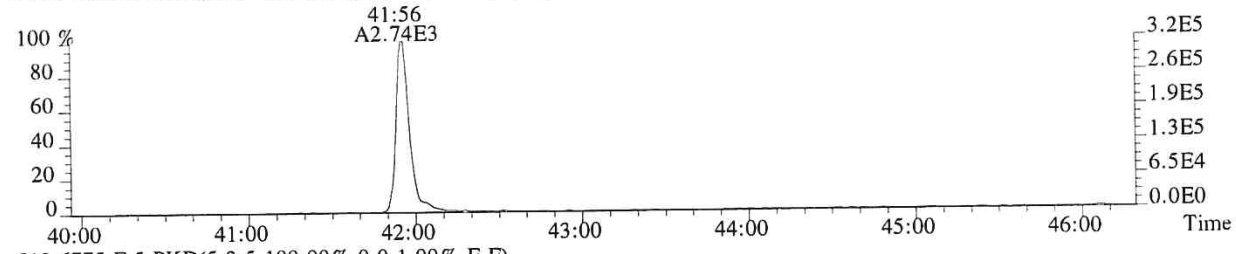
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,656.0,0.40%,F,T)



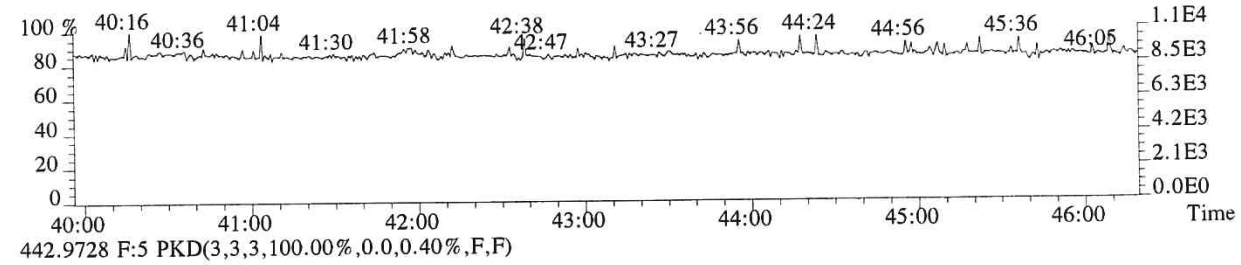
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,488.0,0.40%,F,T)



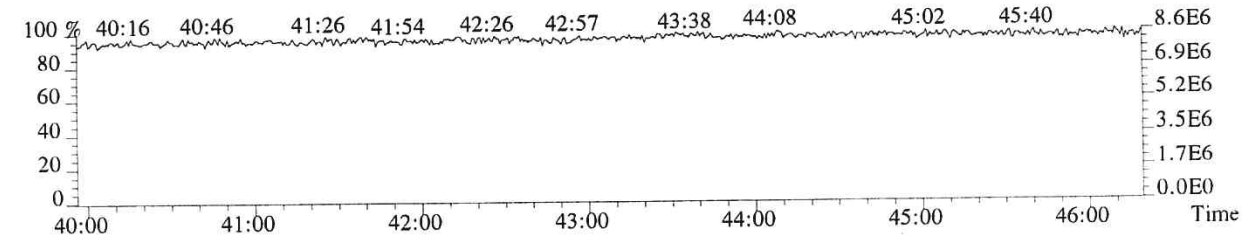
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,536.0,0.40%,F,T)



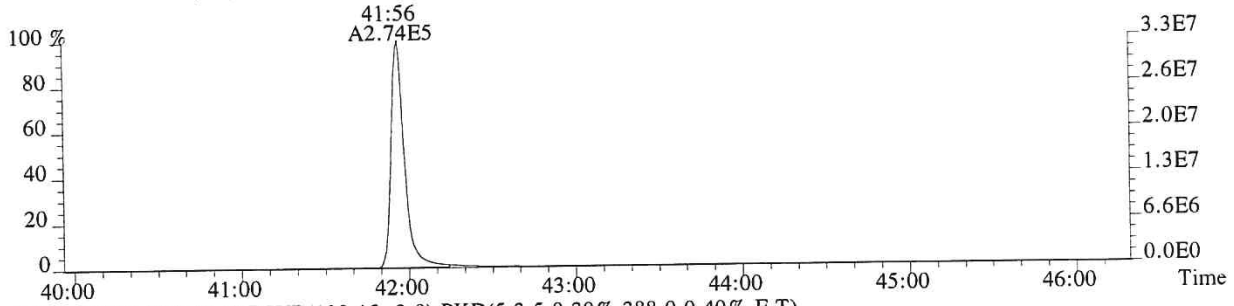
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



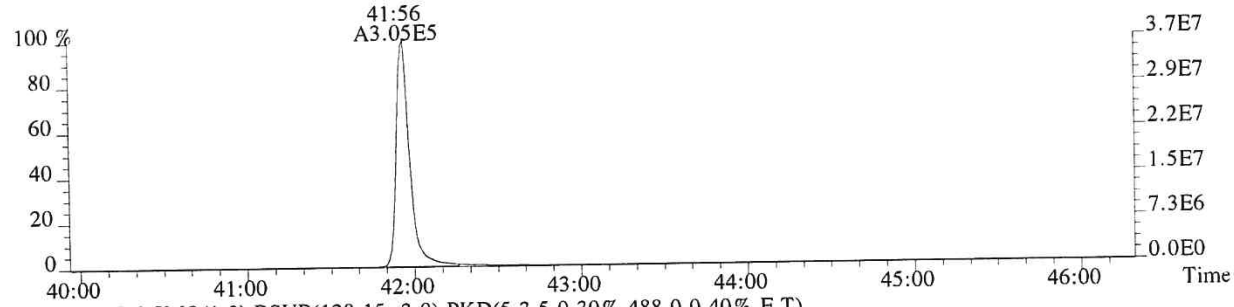
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



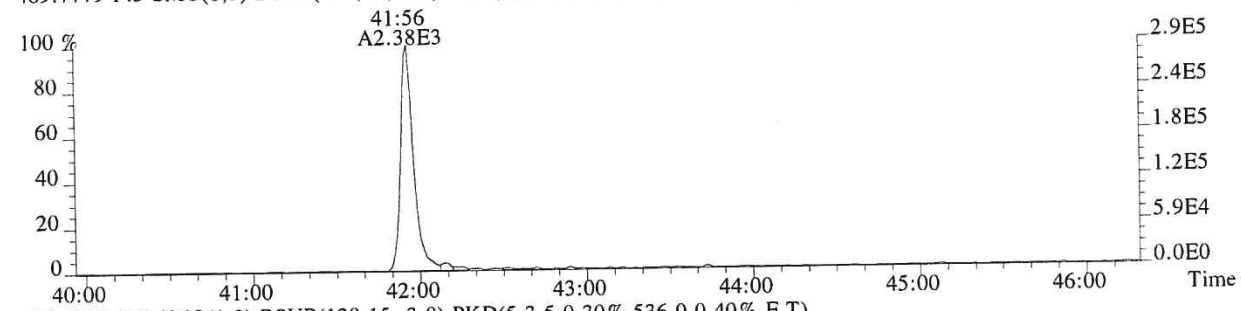
File:P519486 #1-575 Acq:19-DEC-2018 08:17:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-012
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,348.0,0.40%,F,T)



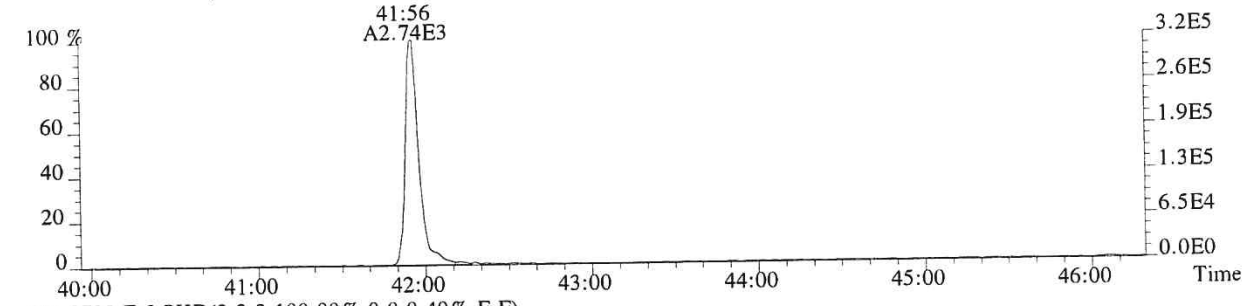
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,388.0,0.40%,F,T)



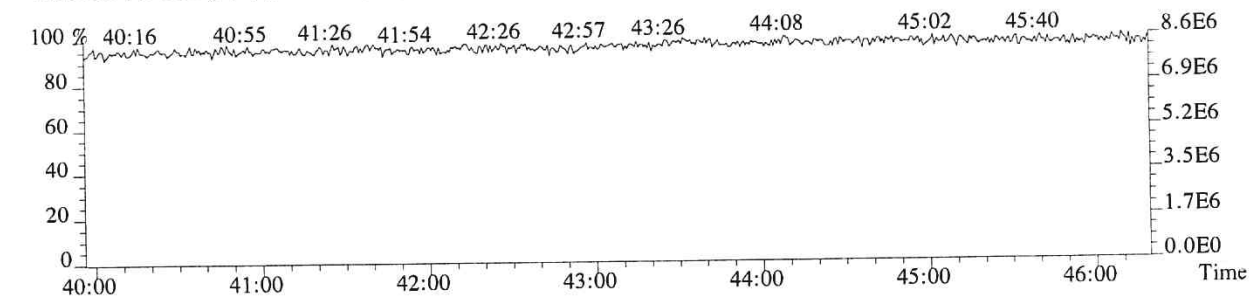
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,488.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,536.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



015453

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0054

un #13 Filename P519594 Samp: 1 Inj: 1 Acquired: 24-DEC-18 14:47:58
rocessed: 26-DEC-18 13:33:41 Sample ID: E1801094-012DL

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:18	8.387e+02	1.025e+03	0.82	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	31:07	6.730e+01	6.731e+01	1.00	no	no	1.012
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	yes	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:00	1.401e+02	1.135e+02	1.23	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:07	7.116e+01	7.563e+01	0.94	no	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:40	1.057e+02	5.817e+01	1.82	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	37:52	5.056e+02	5.727e+02	0.88	no	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:16	5.017e+01	2.595e+01	1.93	no	no	1.258
10	Unk	OCDF	41:57	3.941e+02	3.918e+02	1.01	yes	no	1.359
11	Unk	2,3,7,8-TCDD	27:16	2.246e+02	3.043e+02	0.74	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	yes	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.038
14	Unk	1,2,3,6,7,8-HxCDD	35:55	1.274e+02	9.356e+01	1.36	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:50	3.031e+03	3.107e+03	0.98	yes	no	1.025
17	Unk	OCDD	41:45	4.080e+04	4.555e+04	0.90	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	26:17	4.816e+03	6.241e+03	0.77	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	31:06	7.743e+03	4.772e+03	1.62	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	32:06	7.245e+03	4.525e+03	1.60	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	34:59	2.959e+03	5.687e+03	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:07	3.633e+03	7.273e+03	0.50	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:39	3.191e+03	6.365e+03	0.50	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	36:27	2.655e+03	5.274e+03	0.50	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:50	2.586e+03	5.743e+03	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:17	2.077e+03	4.626e+03	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	27:14	2.241e+03	2.770e+03	0.81	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:25	5.269e+03	3.301e+03	1.60	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:49	3.844e+03	3.079e+03	1.25	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:54	4.777e+03	3.866e+03	1.24	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:50	4.654e+03	4.451e+03	1.05	yes	no	0.858
32	IS	13C-OCDD	41:44	5.785e+03	6.191e+03	0.93	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	26:33	3.820e+03	4.861e+03	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:09	5.112e+03	3.907e+03	1.31	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:16	2.356e+02				no	1.014

$$\text{OCDD} = \frac{(4.080e+04 + 4.555e+04) \times 4000 \text{ pg} \times 10}{(5.785e+03 + 6.191e+03) \times 10.625 \text{ g} \times 65.5/100 \times 1.118} = 185339.7223 \text{ ng/kg}$$

LG 12/27/18

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0054

Run #13 Filename P519594 Samp: 1 Inj: 1 Acquired: 24-DEC-18 14:47:58
Processed: 26-DEC-18 13:33:41 LAB. ID: E1801094-012DL

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.28e+05	1.82e+03	7.0e+01	1.75e+05	3.80e+03	4.6e+01
2	1,2,3,7,8-PeCDF	1.40e+04	1.52e+03	9.2e+00	9.73e+03	2.59e+03	3.8e+00
3	2,3,4,7,8-PeCDF	*	1.52e+03	*	*	2.59e+03	*
4	1,2,3,4,7,8-HxCDF	2.35e+04	2.52e+03	9.3e+00	2.19e+04	1.88e+03	1.2e+01
5	1,2,3,6,7,8-HxCDF	1.45e+04	2.52e+03	5.7e+00	1.37e+04	1.88e+03	7.3e+00
6	2,3,4,6,7,8-HxCDF	1.74e+04	2.52e+03	6.9e+00	1.38e+04	1.88e+03	7.3e+00
7	1,2,3,7,8,9-HxCDF	*	2.52e+03	*	*	1.88e+03	*
8	1,2,3,4,6,7,8-HpCDF	7.32e+04	6.60e+02	1.1e+02	7.99e+04	4.32e+02	1.8e+02
9	1,2,3,4,7,8,9-HpCDF	7.79e+03	6.60e+02	1.2e+01	5.38e+03	4.32e+02	1.2e+01
10	OCDF	2.54e+04	4.08e+02	6.2e+01	2.76e+04	2.37e+03	1.2e+01
11	2,3,7,8-TCDD	3.54e+04	4.72e+03	7.5e+00	4.89e+04	1.57e+03	3.1e+01
12	1,2,3,7,8-PeCDD	*	1.19e+03	*	*	7.52e+02	*
13	1,2,3,4,7,8-HxCDD	*	9.96e+02	*	*	9.96e+02	*
14	1,2,3,6,7,8-HxCDD	1.65e+04	9.96e+02	1.7e+01	1.33e+04	9.96e+02	1.3e+01
15	1,2,3,7,8,9-HxCDD	*	9.96e+02	*	*	9.96e+02	*
16	1,2,3,4,6,7,8-HpCDD	3.75e+05	6.72e+02	5.6e+02	3.59e+05	3.28e+02	1.1e+03
17	OCDD	2.80e+06	3.32e+02	8.4e+03	3.13e+06	3.08e+02	1.0e+04
18	13C-2,3,7,8-TCDF	7.36e+05	1.05e+04	7.0e+01	9.83e+05	9.05e+03	1.1e+02
19	13C-1,2,3,7,8-PeCDF	1.21e+06	6.12e+02	2.0e+03	7.69e+05	7.40e+02	1.0e+03
20	13C-2,3,4,7,8-PeCDF	1.24e+06	6.12e+02	2.0e+03	7.57e+05	7.40e+02	1.0e+03
21	13C-1,2,3,4,7,8-HxCDF	5.09e+05	8.40e+02	6.1e+02	1.01e+06	1.29e+03	7.8e+02
22	13C-1,2,3,6,7,8-HxCDF	5.70e+05	8.40e+02	6.8e+02	1.12e+06	1.29e+03	8.7e+02
23	13C-2,3,4,6,7,8-HxCDF	5.16e+05	8.40e+02	6.1e+02	1.03e+06	1.29e+03	8.0e+02
24	13C-1,2,3,7,8,9-HxCDF	3.85e+05	8.40e+02	4.6e+02	7.68e+05	1.29e+03	5.9e+02
25	13C-1,2,3,4,6,7,8-HpCDF	3.51e+05	8.80e+02	4.0e+02	7.68e+05	1.64e+03	4.7e+02
26	13C-1,2,3,4,7,8,9-HpCDF	2.31e+05	8.80e+02	2.6e+02	5.25e+05	1.64e+03	3.2e+02
27	13C-2,3,7,8-TCDD	3.58e+05	6.62e+03	5.4e+01	4.66e+05	2.36e+03	2.0e+02
28	13C-1,2,3,7,8-PeCDD	8.69e+05	1.70e+03	5.1e+02	5.64e+05	1.76e+03	3.2e+02
29	13C-1,2,3,4,7,8-HxCDD	7.41e+05	1.16e+03	6.4e+02	5.80e+05	9.56e+02	6.1e+02
30	13C-1,2,3,6,7,8-HxCDD	6.64e+05	1.16e+03	5.7e+02	5.44e+05	9.56e+02	5.7e+02
31	13C-1,2,3,4,6,7,8-HpCDD	5.38e+05	6.92e+02	7.8e+02	5.13e+05	4.92e+02	1.0e+03
32	13C-OCDD	3.93e+05	8.40e+02	4.7e+02	4.37e+05	4.40e+02	9.9e+02
33	13C-1,2,3,4-TCDD	6.08e+05	6.62e+03	9.2e+01	8.09e+05	2.36e+03	3.4e+02
34	13C-1,2,3,7,8,9-HxCDD	7.16e+05	1.16e+03	6.2e+02	5.62e+05	9.56e+02	5.9e+02
35	37Cl-2,3,7,8-TCDD	3.99e+04	2.32e+03	1.7e+01			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (4.716e{+}03 + 1.568e{+}03\ ) \times 2000}{(3.582e{+}05 + 4.655e{+}05\ ) \times (\qquad\qquad) \times 1.085} =$$

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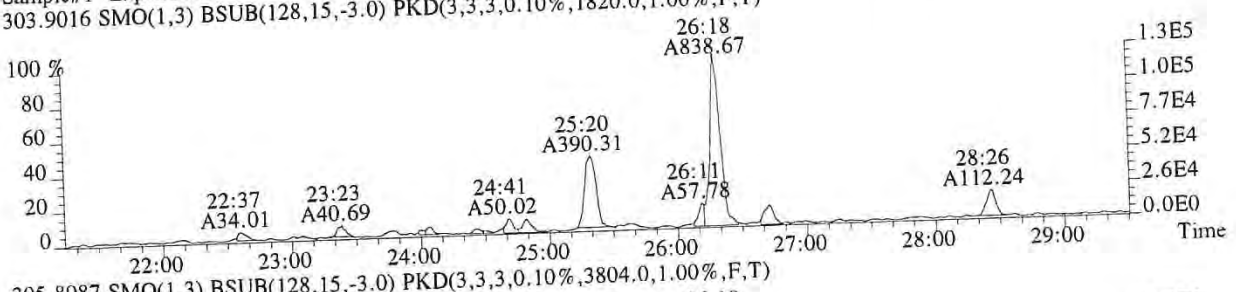
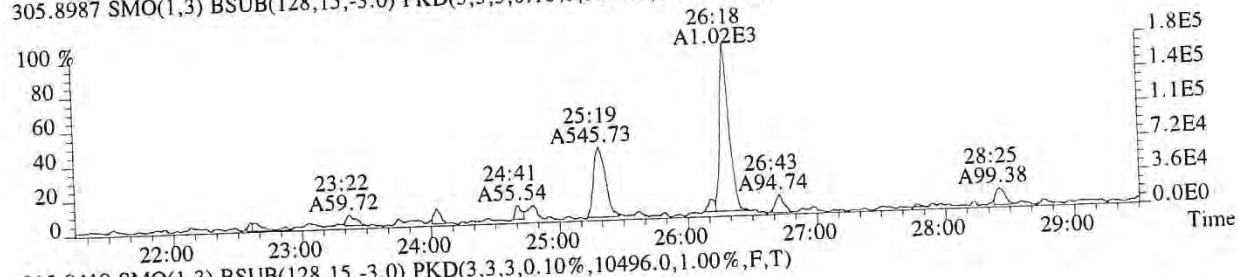
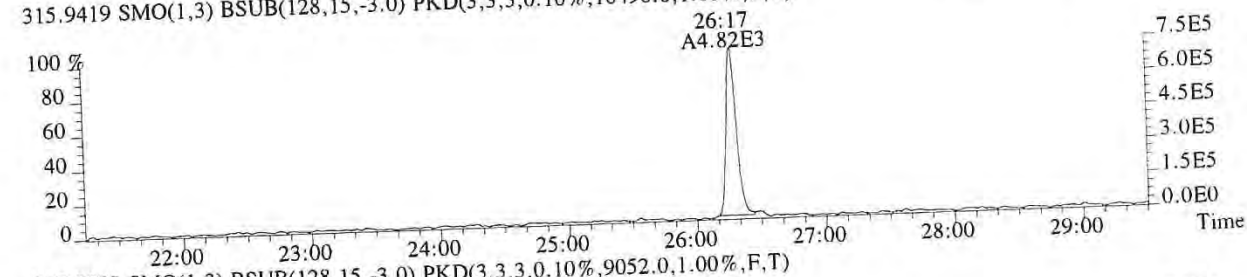
File:P519594 #1-587 Acq:24-DEC-2018 14:47:58 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801094-012DL
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1820.0,1.00%,F,T)



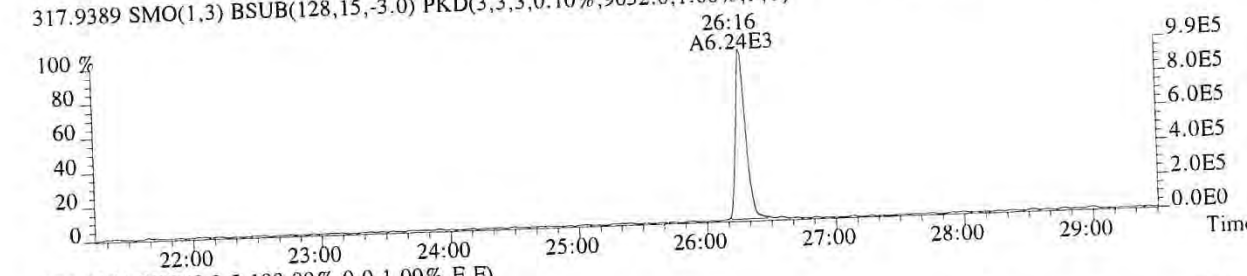
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3804.0,1.00%,F,T)



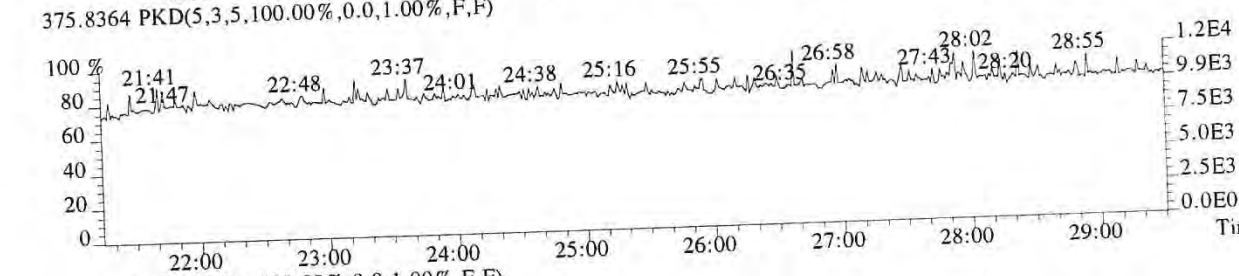
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10496.0,1.00%,F,T)



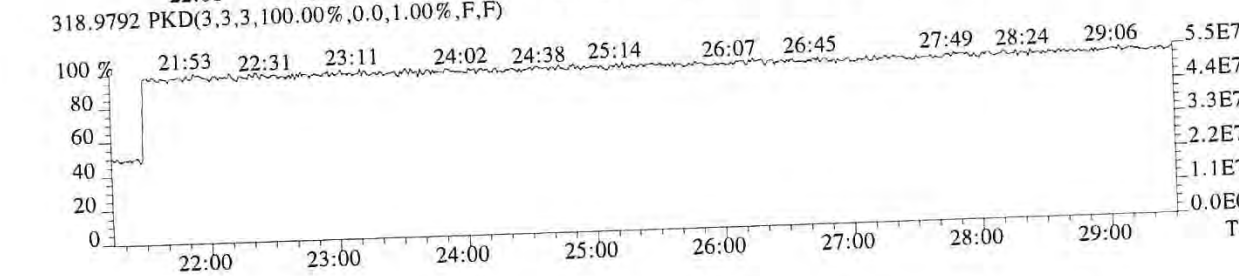
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9052.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

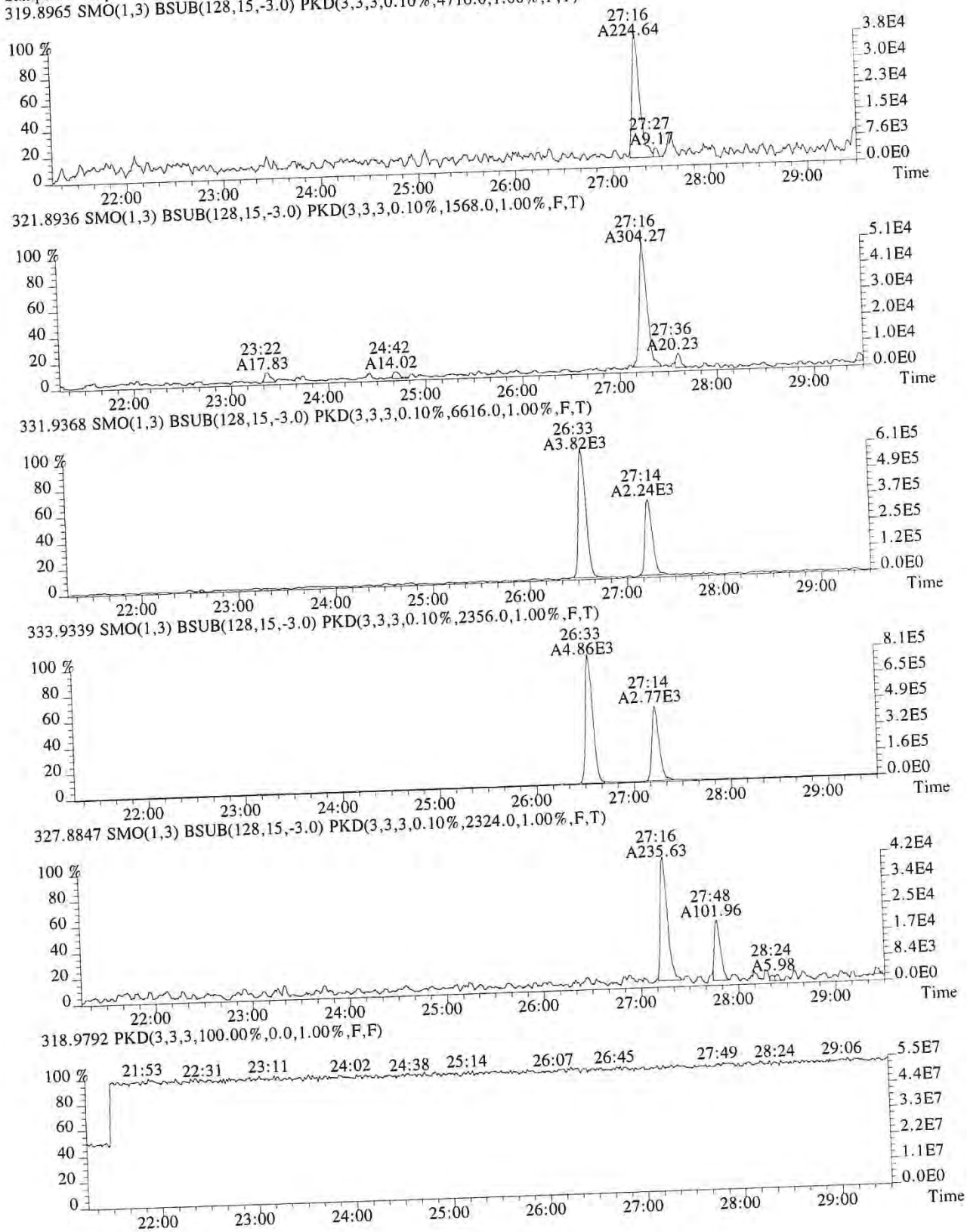


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



015456

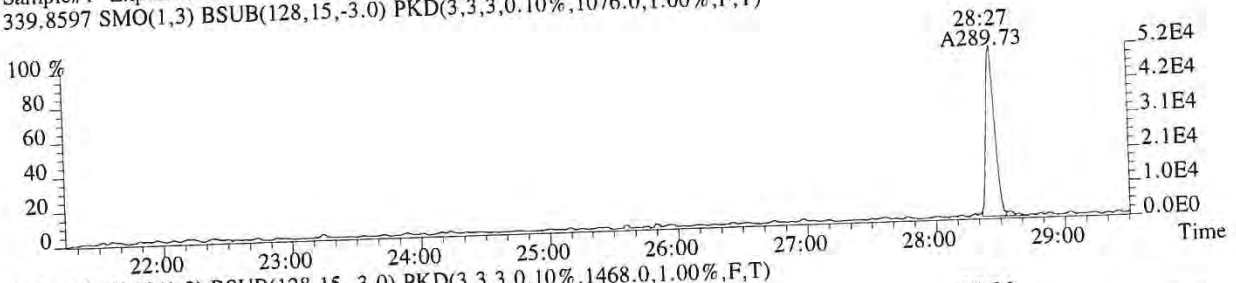
File:P519594 #1-587 Acq:24-DEC-2018 14:47:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-012DL



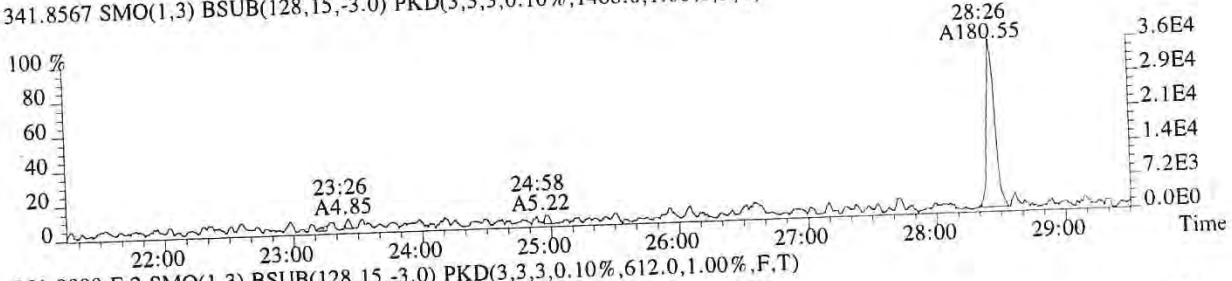
015457

File:P519594 #1-587 Acq:24-DEC-2018 14:47:58 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801094-012DL

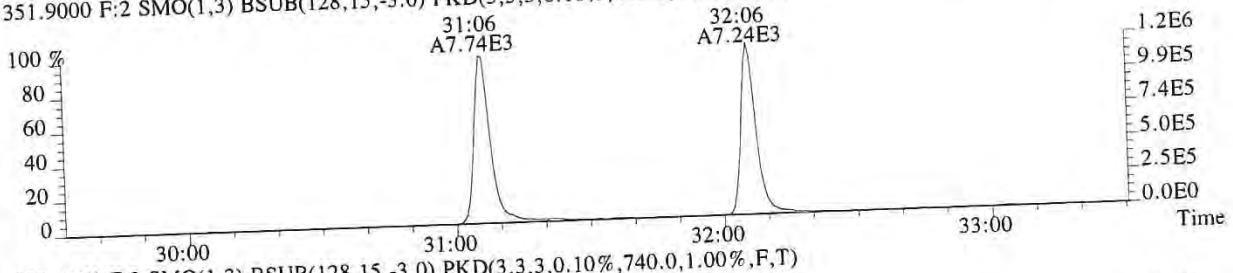
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1076.0,1.00%,F,T)



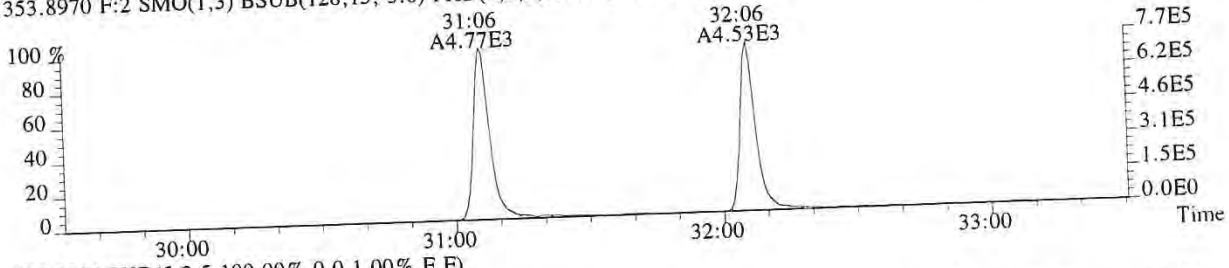
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1468.0,1.00%,F,T)



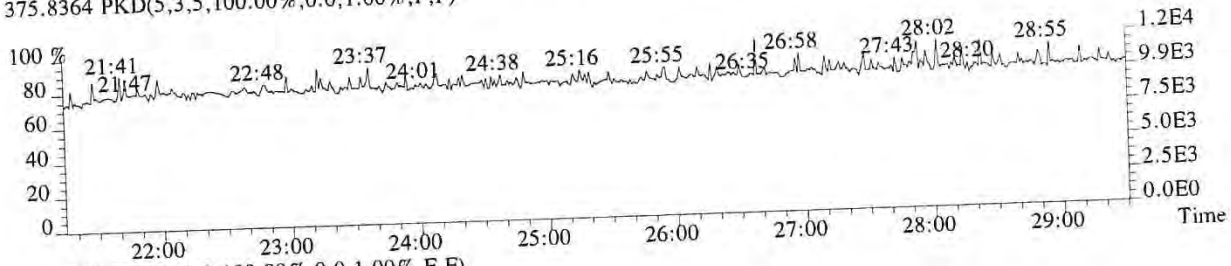
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,612.0,1.00%,F,T)



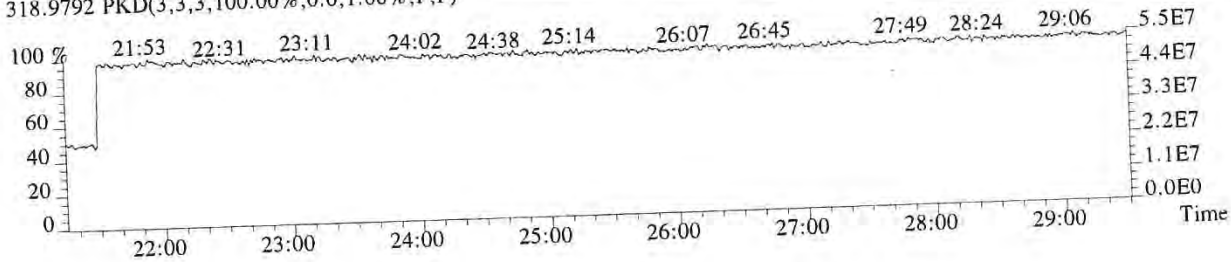
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,740.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

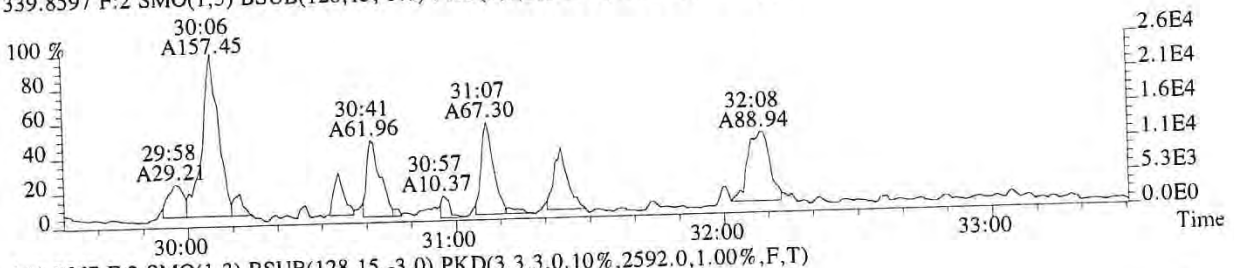


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

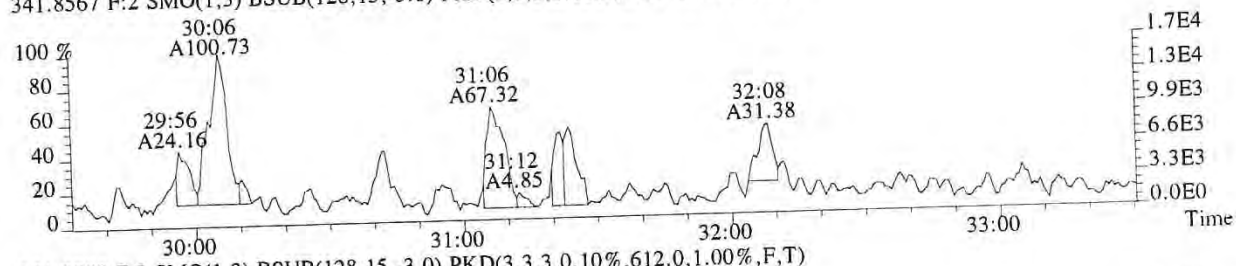


015458

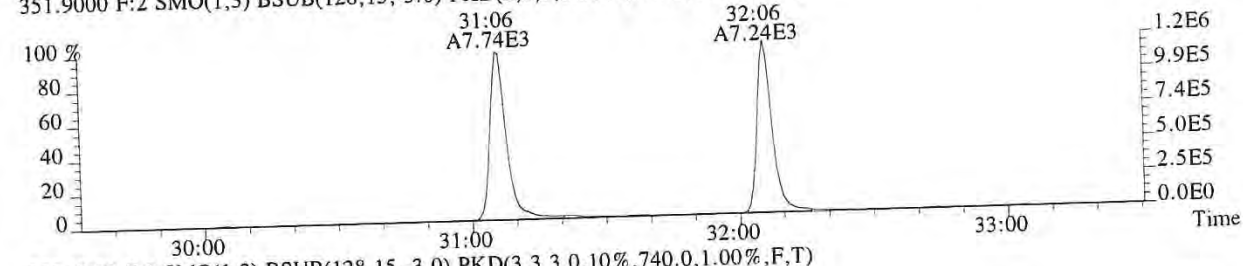
File:P519594 #1-358 Acq:24-DEC-2018 14:47:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-012DL
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1524.0,1.00%,F,T)



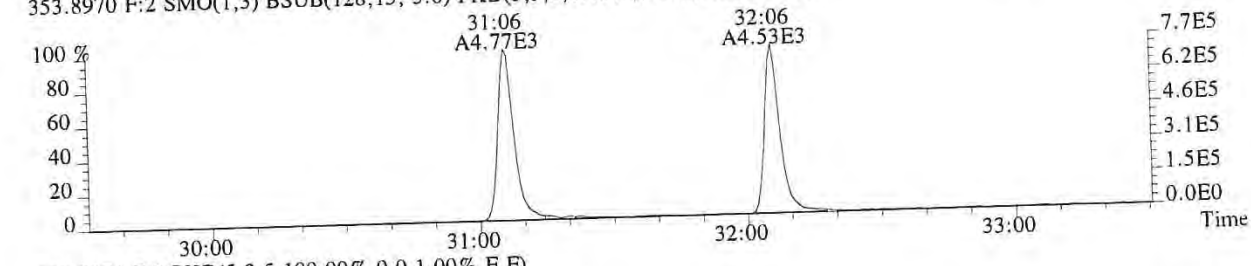
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2592.0,1.00%,F,T)



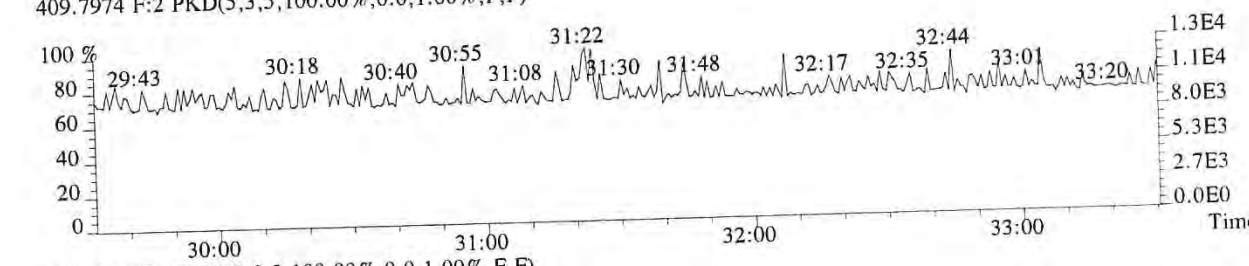
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,612.0,1.00%,F,T)



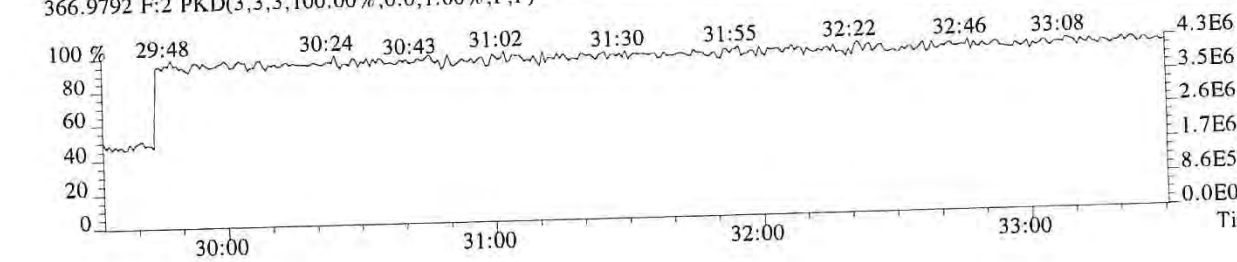
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,740.0,1.00%,F,T)



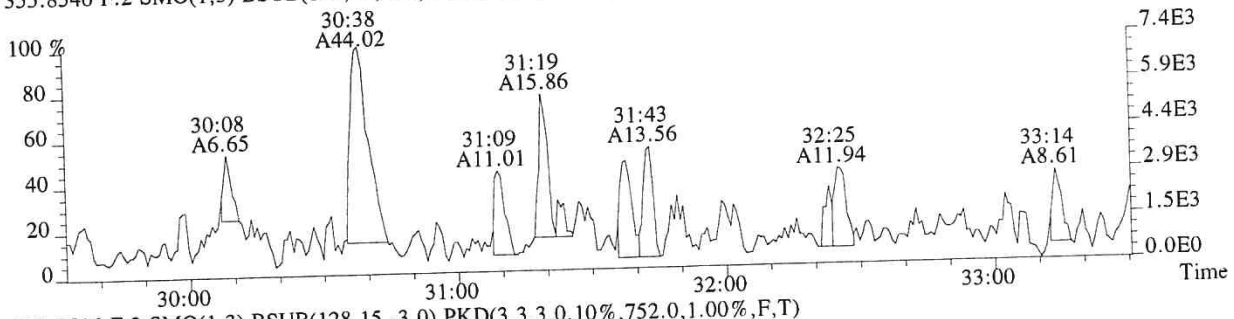
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



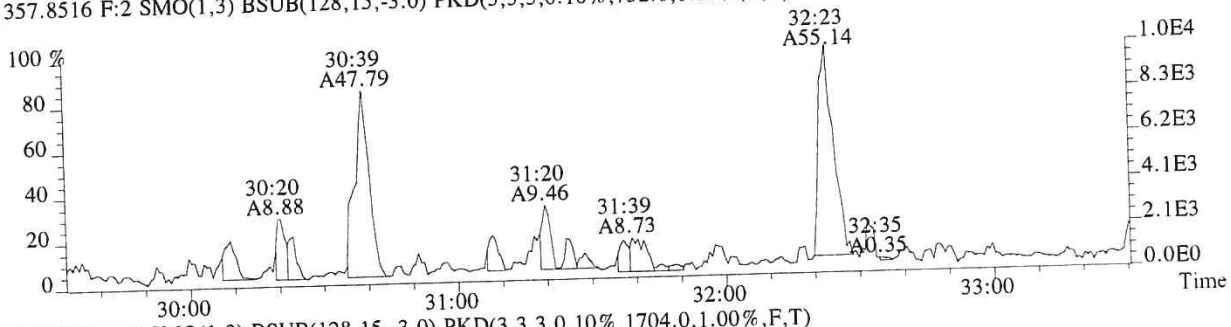
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



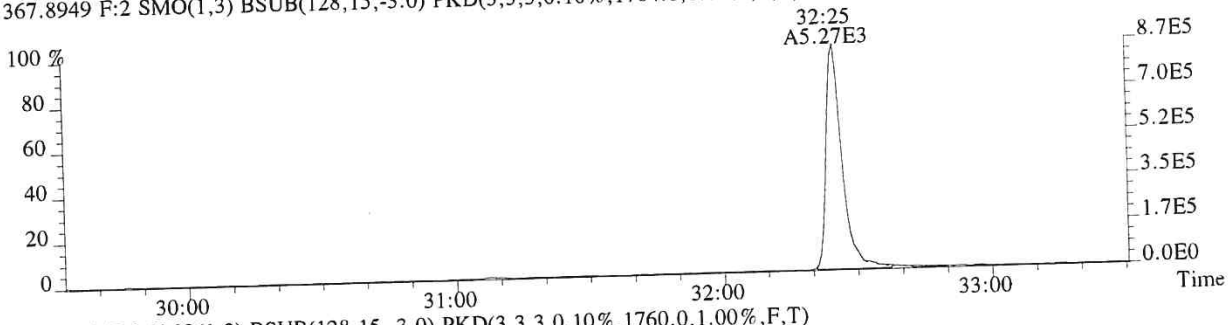
File:P519594 #1-358 Acq:24-DEC-2018 14:47:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-012DL
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1192.0,1.00%,F,T)



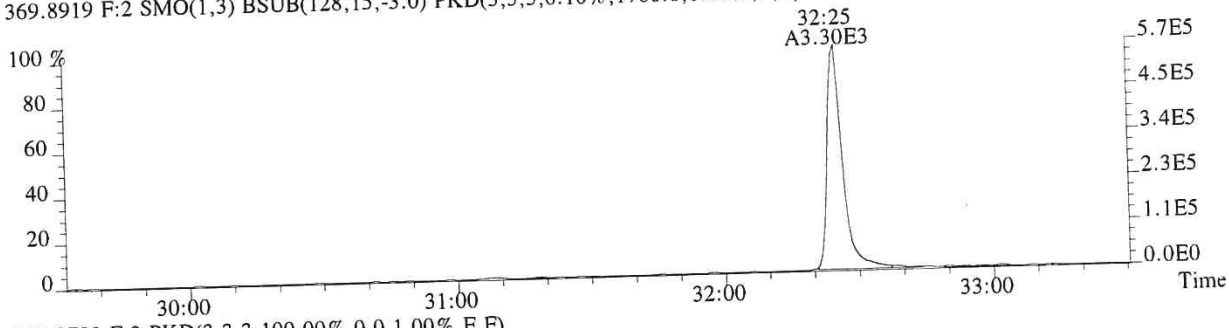
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,752.0,1.00%,F,T)



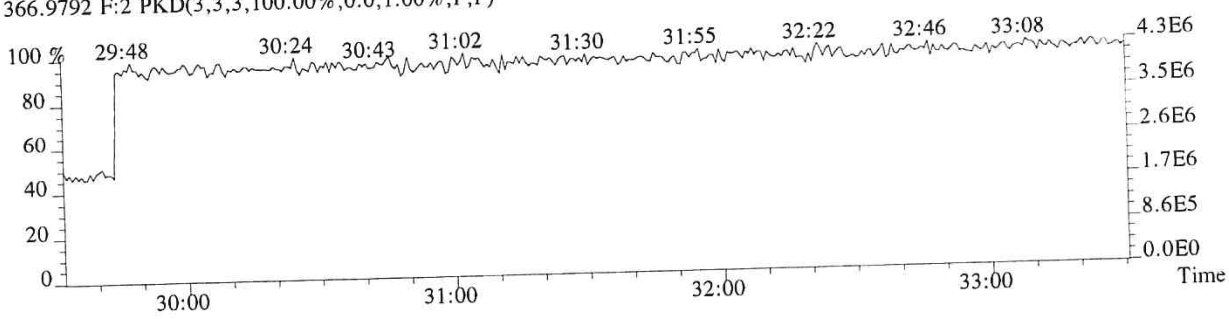
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1704.0,1.00%,F,T)



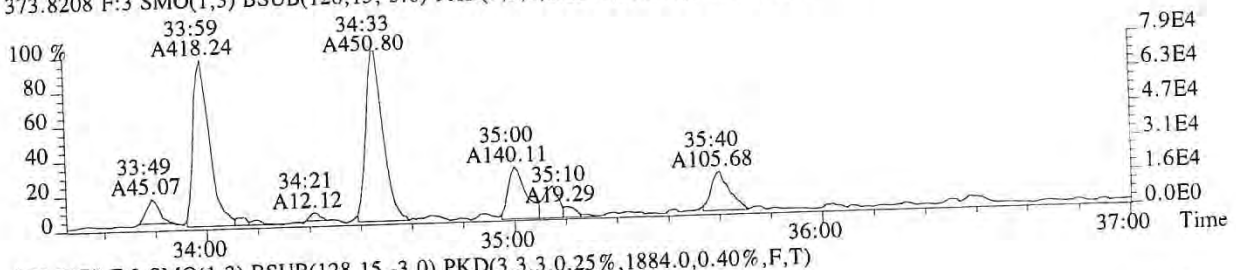
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1760.0,1.00%,F,T)



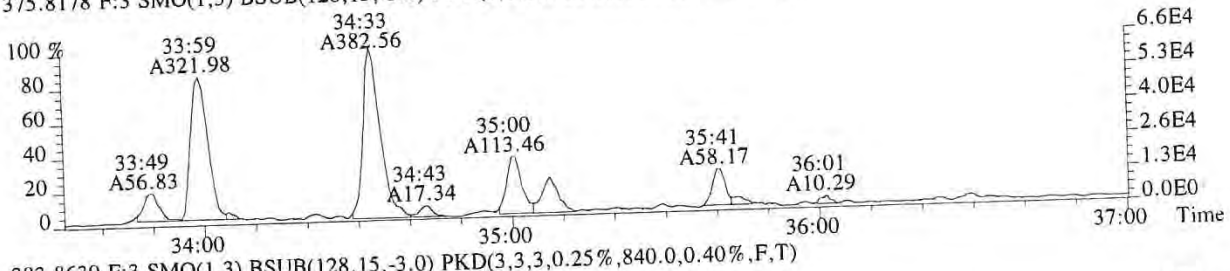
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



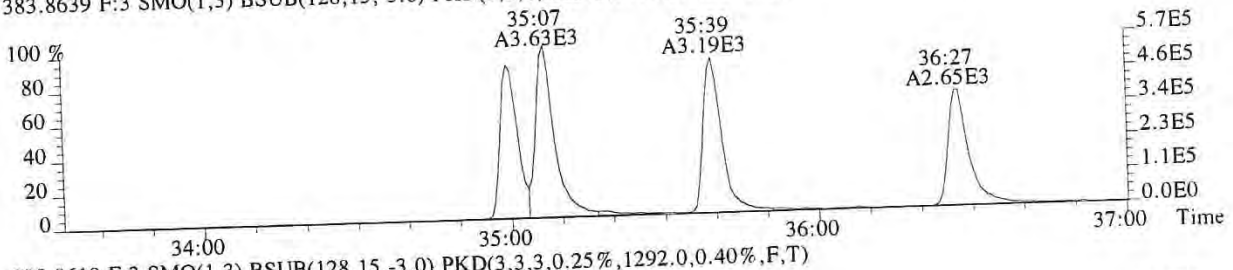
File:P519594 #1-312 Acq:24-DEC-2018 14:47:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-012DL
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2524.0,0.40%,F,T)



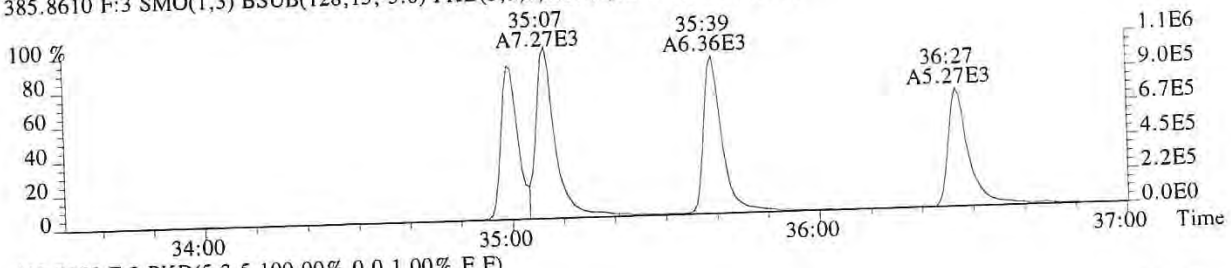
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1884.0,0.40%,F,T)



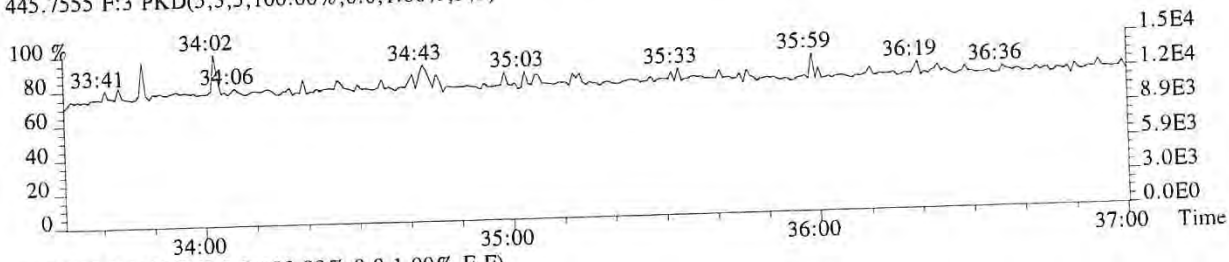
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,840.0,0.40%,F,T)



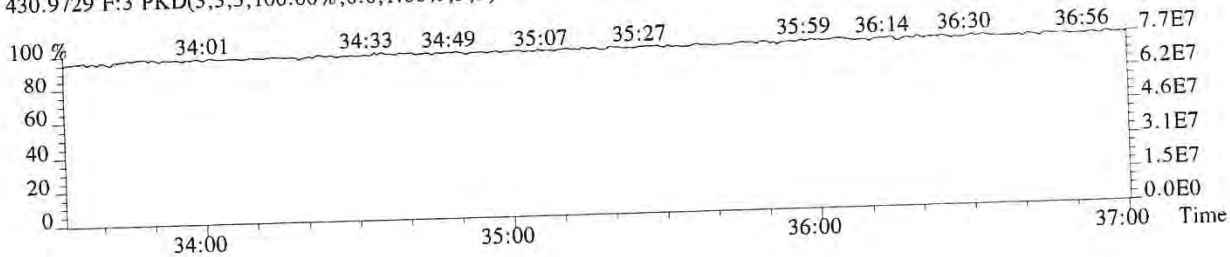
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1292.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

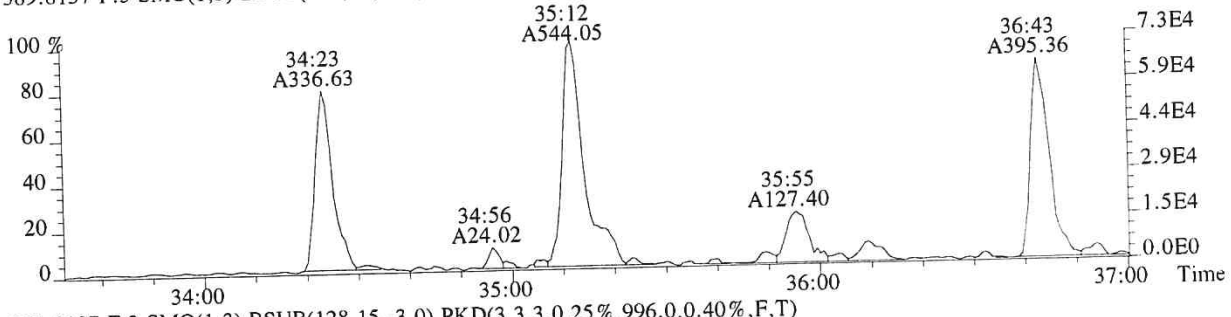


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

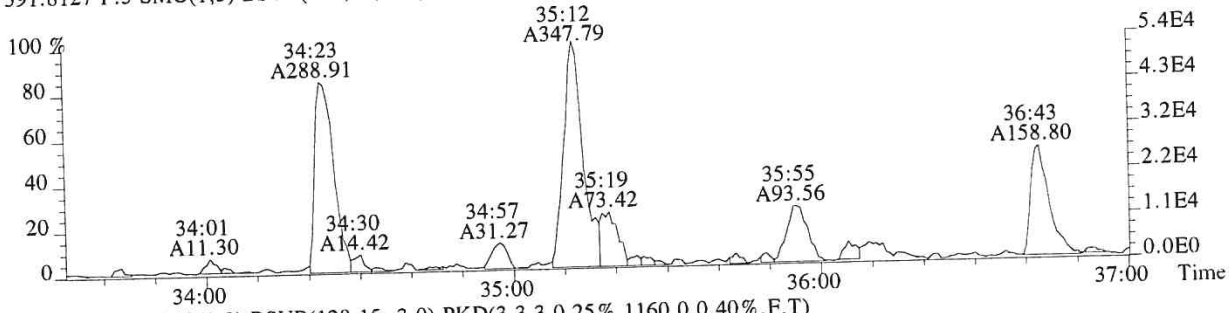


015461

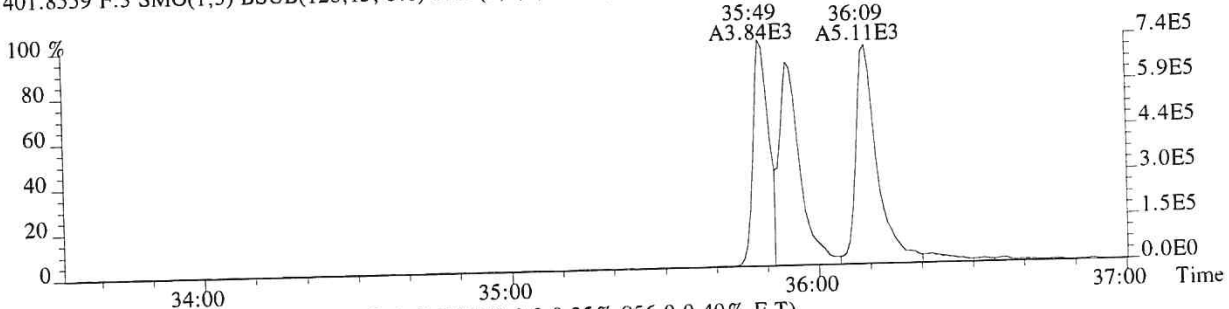
File:P519594 #1-312 Acq:24-DEC-2018 14:47:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-012DL
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,996.0,0.40%,F,T)



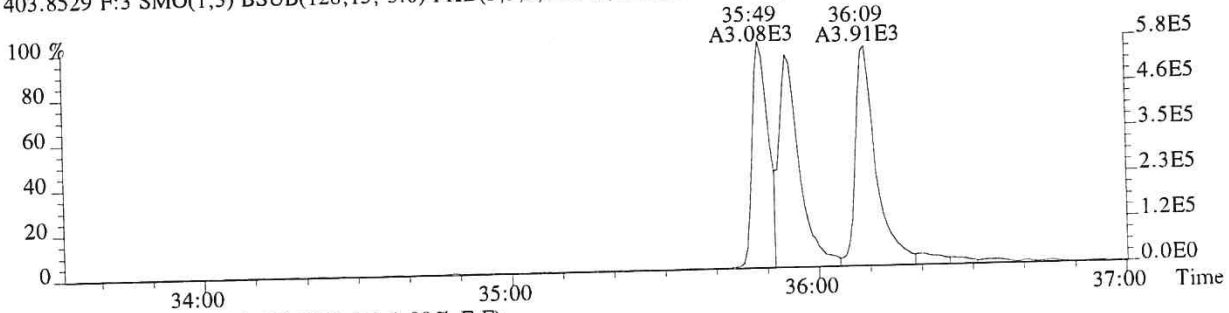
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,996.0,0.40%,F,T)



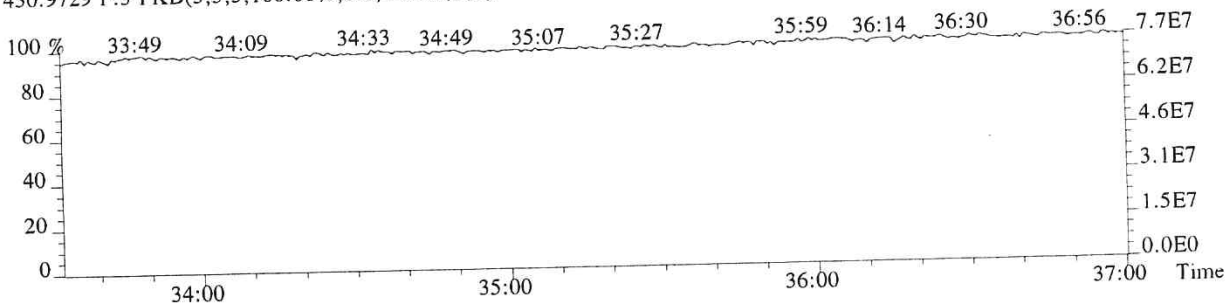
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1160.0,0.40%,F,T)



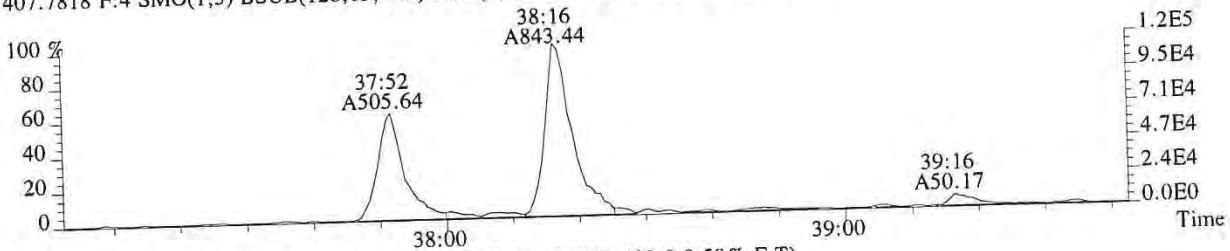
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,956.0,0.40%,F,T)



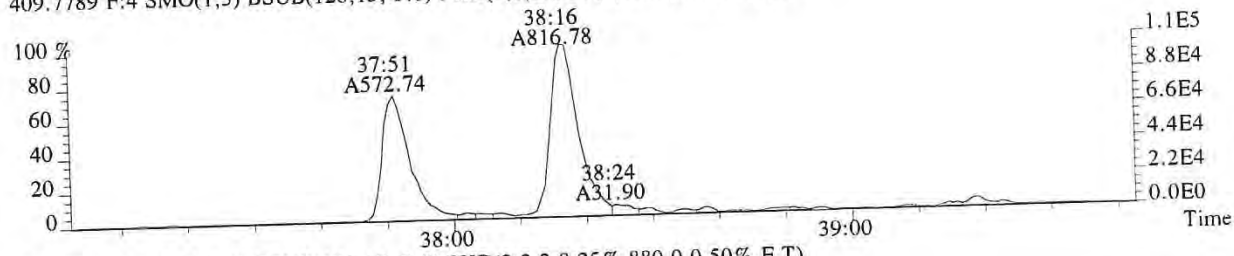
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



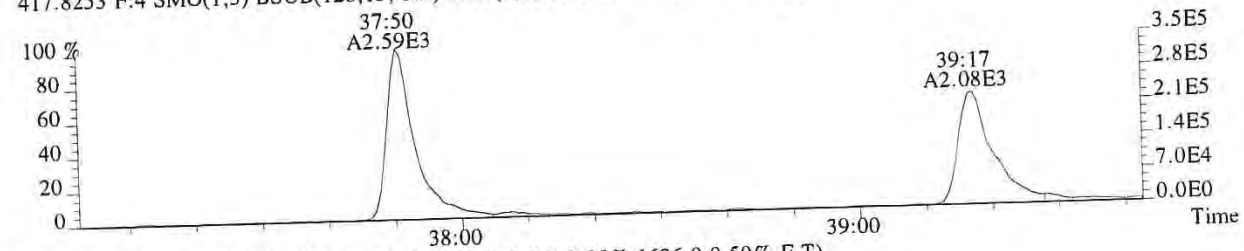
File:P519594 #1-241 Acq:24-DEC-2018 14:47:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-012DL
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,660.0,0.50%,F,T)



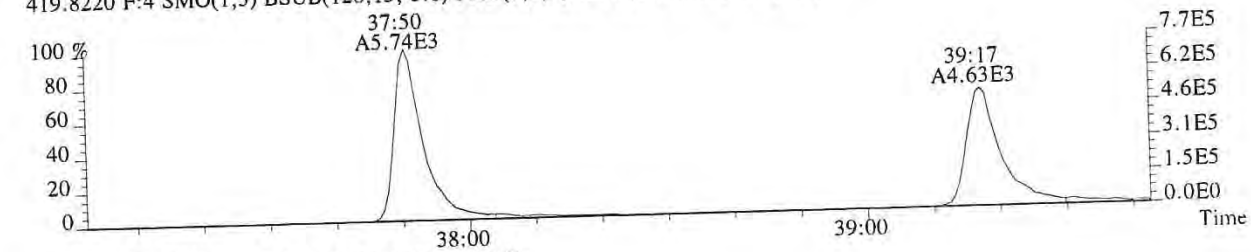
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,432.0,0.50%,F,T)



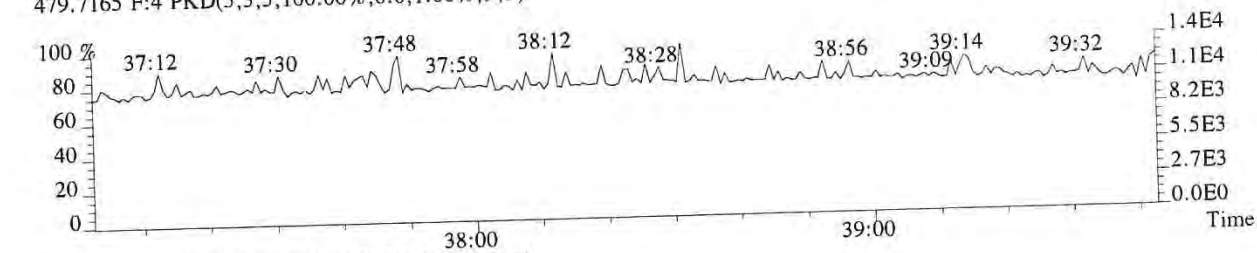
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,880.0,0.50%,F,T)



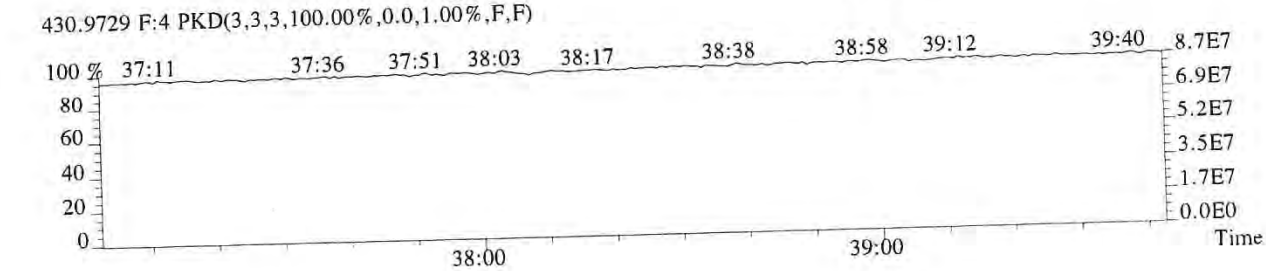
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1636.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

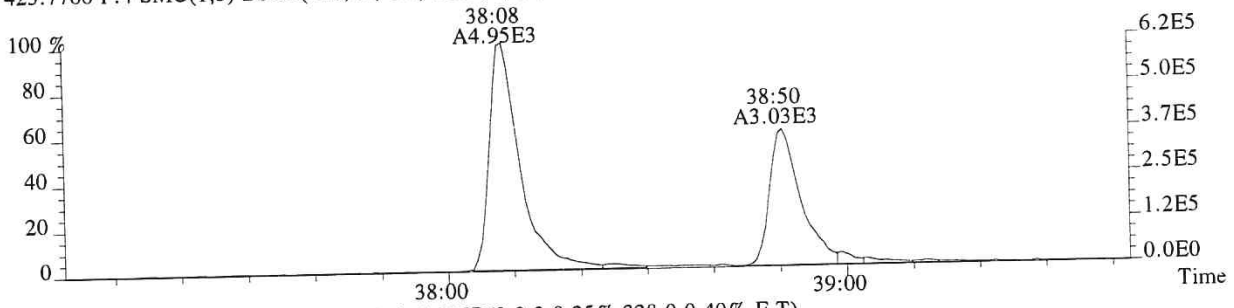


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

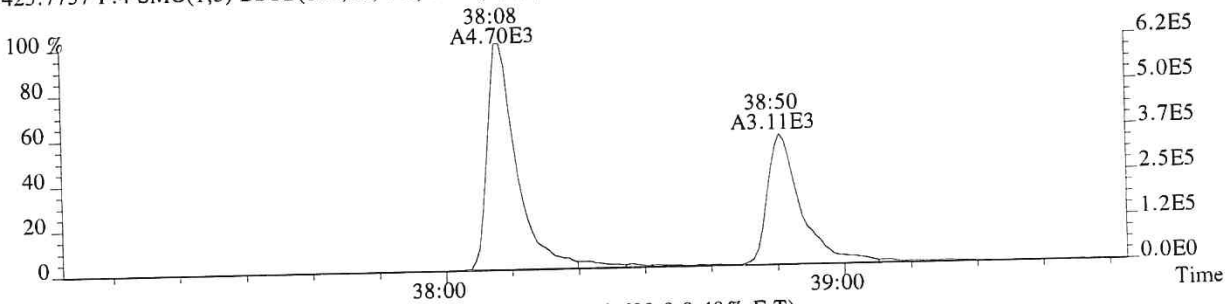


015463

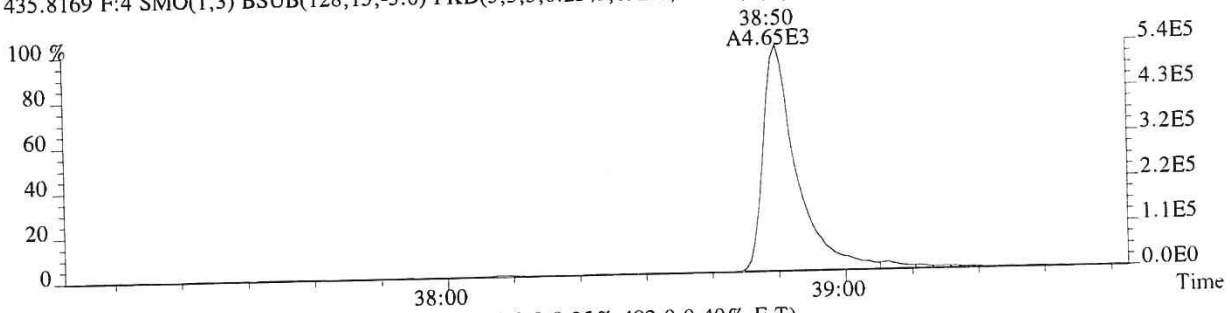
File:P519594 #1-241 Acq:24-DEC-2018 14:47:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-012DL
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,672.0,0.40%,F,T)



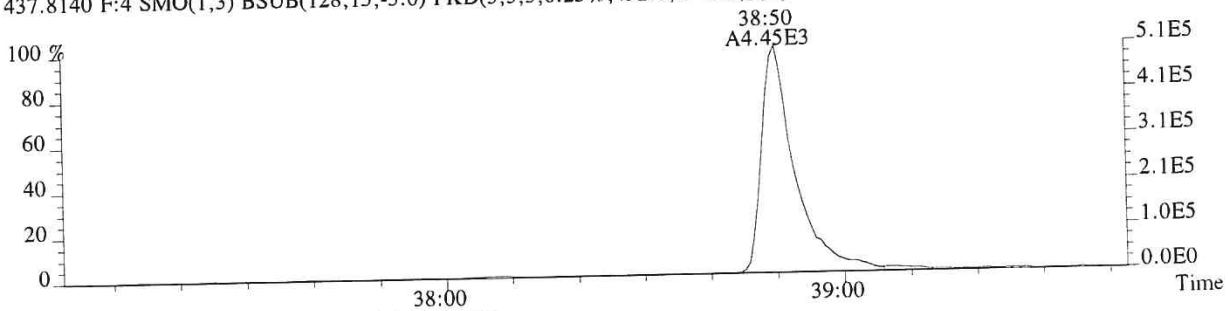
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,328.0,0.40%,F,T)



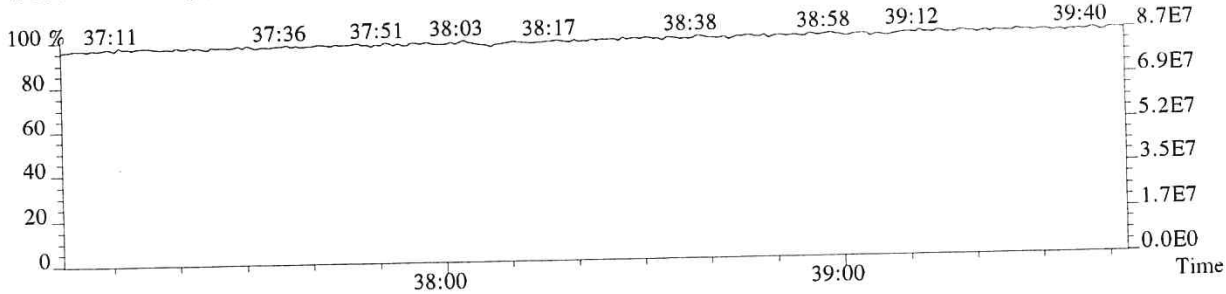
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,692.0,0.40%,F,T)



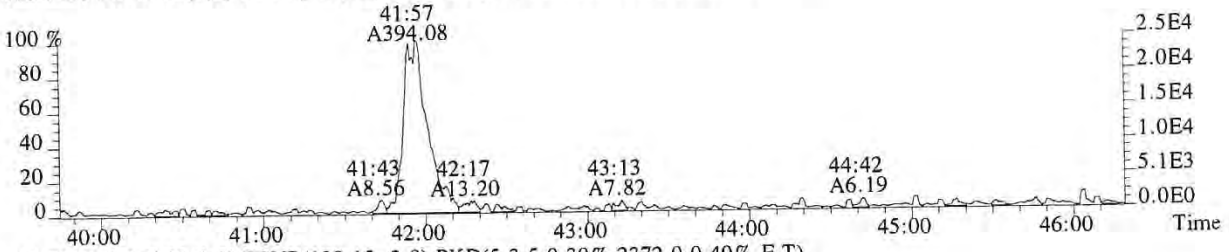
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,492.0,0.40%,F,T)



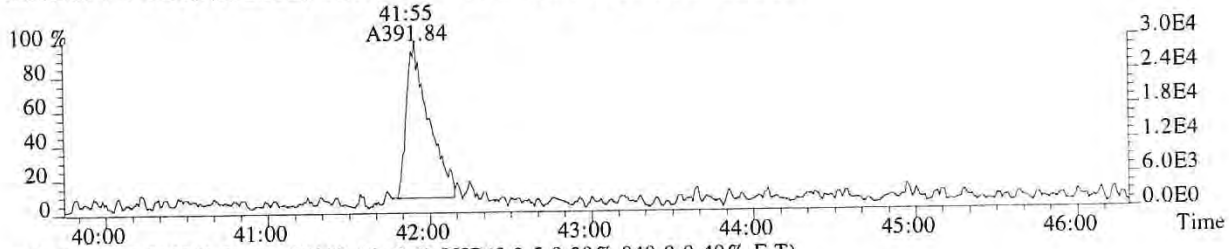
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



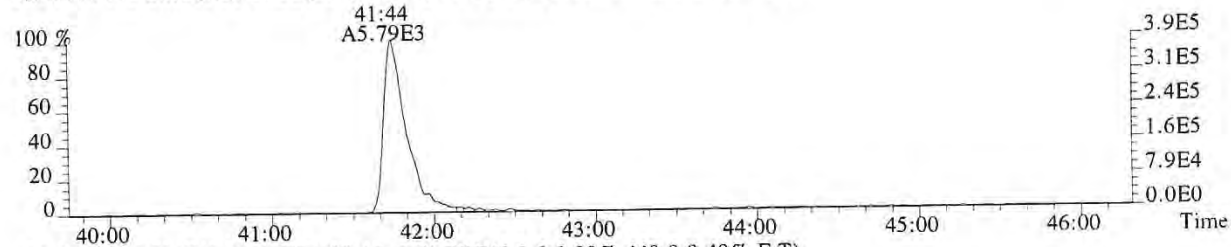
File:P519594 #1-592 Acq:24-DEC-2018 14:47:58 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:E1801094-012DL
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,408.0,0.40%,F,T)



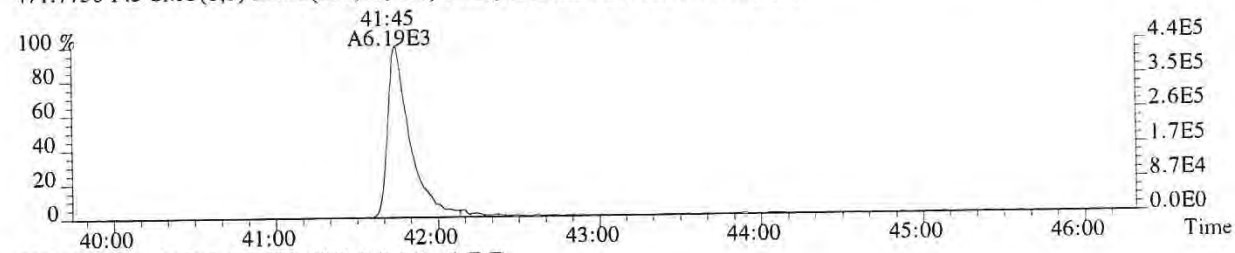
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2372.0,0.40%,F,T)



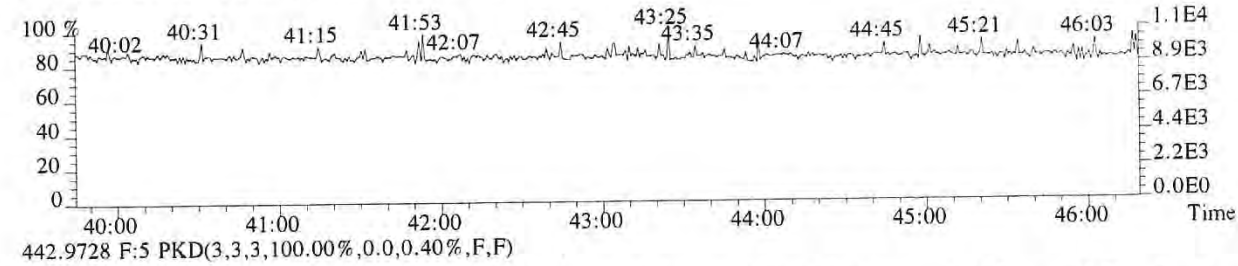
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,840.0,0.40%,F,T)



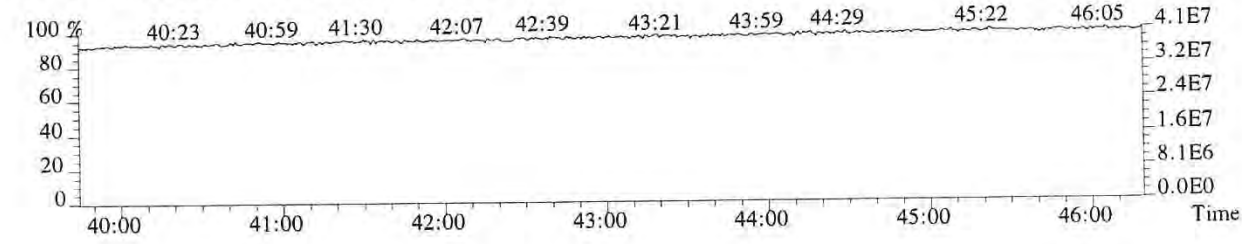
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,440.0,0.40%,F,T)



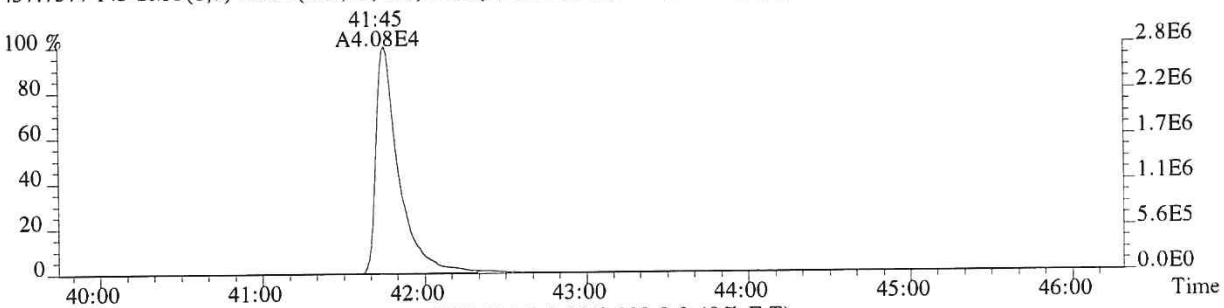
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



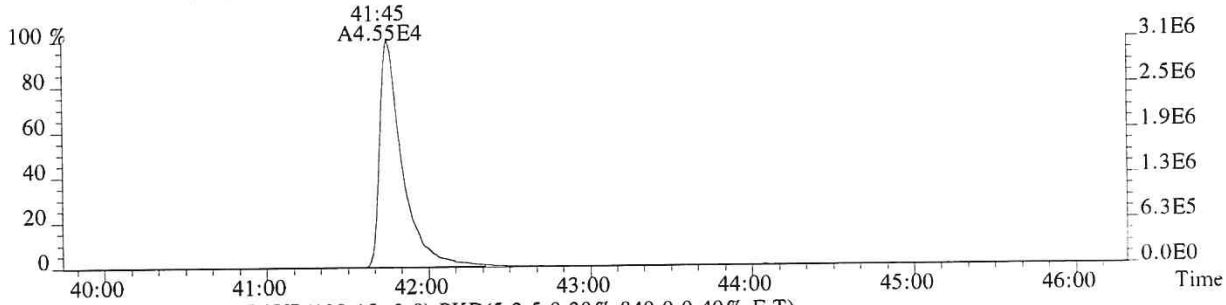
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



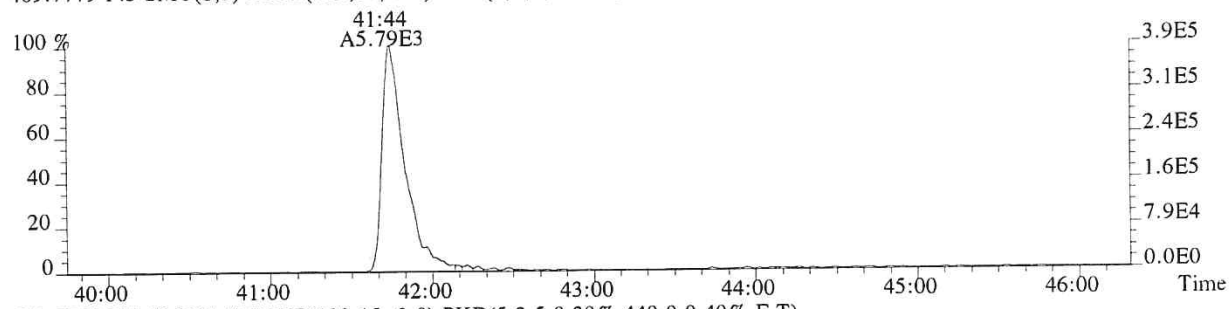
File:P519594 #1-592 Acq:24-DEC-2018 14:47:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-012DL
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,332.0,0.40%,F,T)



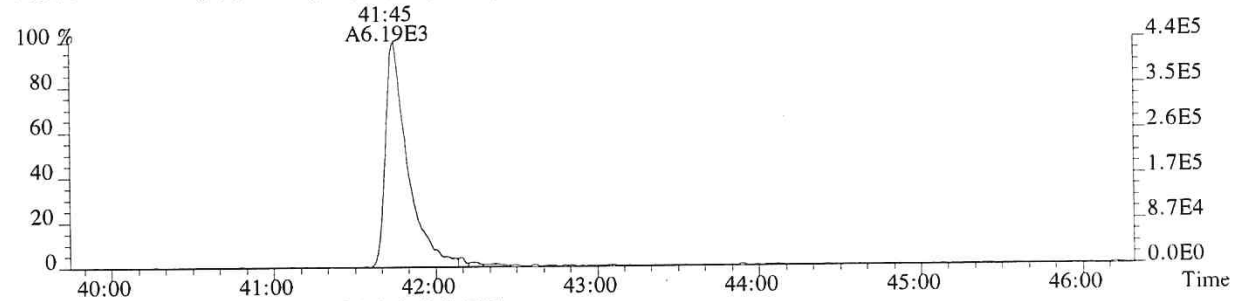
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,308.0,0.40%,F,T)



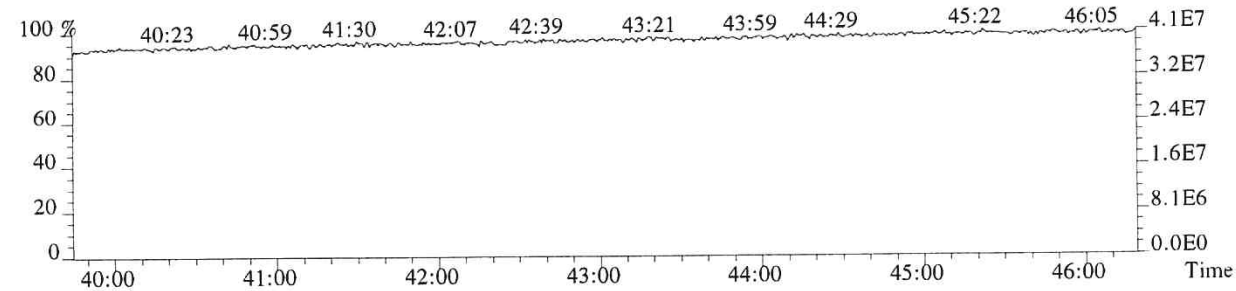
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,840.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,440.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0055

Run #14 Filename P519487 Samp: 1 Inj: 1 Acquired: 19-DEC-18 09:06:12
Processed: 20-DEC-18 15:37:41 Sample ID: E1801094-013

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:49	1.542e+03	2.087e+03	0.74	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	31:27	1.877e+02	1.407e+02	1.33	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	32:25	8.848e+02	6.109e+02	1.45	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:16	4.471e+02	3.226e+02	1.39	yes	yes	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:22	7.080e+02	5.529e+02	1.28	yes	yes	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:54	6.843e+02	6.270e+02	1.09	yes	yes	1.110
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	yes	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:04	1.871e+03	1.685e+03	1.11	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:29	3.206e+01	4.993e+01	0.64	no	no	1.258
10	Unk	OCDF	42:06	2.563e+02	2.849e+02	0.90	yes	no	1.359
11	Unk	2,3,7,8-TCDD	27:42	3.231e+02	3.982e+02	0.81	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	32:44	1.156e+02	2.638e+01	4.38	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:04	1.555e+02	1.513e+02	1.03	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:10	7.941e+02	6.441e+02	1.23	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:24	3.582e+02	2.968e+02	1.21	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:02	1.341e+04	1.280e+04	1.05	yes	no	1.025
17	Unk	OCDD	41:56	9.086e+04	1.015e+05	0.90	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	26:47	1.303e+04	1.657e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	31:26	1.884e+04	1.194e+04	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	32:24	1.741e+04	1.087e+04	1.60	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:15	5.560e+03	1.082e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:22	6.536e+03	1.277e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:54	5.619e+03	1.093e+04	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	36:41	4.284e+03	8.305e+03	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:03	2.634e+03	5.984e+03	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:29	1.797e+03	3.909e+03	0.46	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	27:41	6.204e+03	7.755e+03	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:43	1.284e+04	8.001e+03	1.60	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:04	7.721e+03	5.921e+03	1.30	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:09	7.347e+03	5.821e+03	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:01	4.577e+03	4.241e+03	1.08	yes	no	0.858
32	IS	13C-OCDD	41:55	2.515e+03	2.775e+03	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:03	1.515e+04	1.895e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:24	1.239e+04	9.832e+03	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:43	8.714e+03				no	1.014

$$\text{OCDD} = \frac{(9.086e+04 + 1.015e+05) \times 4000\ \text{pg} \times 1}{(2.515e+03 + 2.775e+03) \times 10.762\ \text{g} \times 103.1 / 100 \times 1.118} = 19200\ \text{ng/kg}$$

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Houston, TX 77099
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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0055

Run #14 Filename P519487 Samp: 1 Inj: 1 Acquired: 19-DEC-18 09:06:12
Processed: 20-DEC-18 15:37:41 LAB. ID: E1801094-013

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.48e+05	1.30e+03	1.9e+02	3.04e+05	1.18e+03	2.6e+02
2	1,2,3,7,8-PeCDF	3.10e+04	1.12e+03	2.8e+01	2.32e+04	8.58e+03	2.7e+00
3	2,3,4,7,8-PeCDF	1.12e+05	1.12e+03	1.0e+02	8.28e+04	8.58e+03	9.7e+00
4	1,2,3,4,7,8-HxCDF	9.65e+04	1.83e+03	5.3e+01	6.32e+04	1.39e+03	4.6e+01
5	1,2,3,6,7,8-HxCDF	1.45e+05	1.83e+03	7.9e+01	1.07e+05	1.39e+03	7.7e+01
6	2,3,4,6,7,8-HxCDF	1.46e+05	1.83e+03	8.0e+01	1.37e+05	1.39e+03	9.9e+01
7	1,2,3,7,8,9-HxCDF	*	1.83e+03	*	*	1.39e+03	*
8	1,2,3,4,6,7,8-HpCDF	3.41e+05	2.12e+02	1.6e+03	3.10e+05	3.52e+02	8.8e+02
9	1,2,3,4,7,8,9-HpCDF	5.79e+03	2.12e+02	2.7e+01	8.07e+03	3.52e+02	2.3e+01
10	OCDF	3.62e+04	3.16e+02	1.1e+02	3.65e+04	5.68e+02	6.4e+01
11	2,3,7,8-TCDD	5.71e+04	1.54e+03	3.7e+01	6.84e+04	6.84e+02	1.0e+02
12	1,2,3,7,8-PeCDD	2.10e+04	1.36e+03	1.5e+01	6.26e+03	1.96e+03	3.2e+00
13	1,2,3,4,7,8-HxCDD	3.16e+04	1.99e+03	1.6e+01	2.90e+04	1.53e+03	1.9e+01
14	1,2,3,6,7,8-HxCDD	1.58e+05	1.99e+03	7.9e+01	1.19e+05	1.53e+03	7.8e+01
15	1,2,3,7,8,9-HxCDD	6.72e+04	1.99e+03	3.4e+01	5.24e+04	1.53e+03	3.4e+01
16	1,2,3,4,6,7,8-HpCDD	2.27e+06	3.96e+02	5.7e+03	2.16e+06	4.84e+02	4.5e+03
17	OCDD	1.07e+07	6.28e+02	1.7e+04	1.18e+07	4.80e+02	2.5e+04
18	13C-2,3,7,8-TCDF	2.12e+06	3.62e+03	5.9e+02	2.67e+06	1.75e+03	1.5e+03
19	13C-1,2,3,7,8-PeCDF	3.34e+06	9.08e+02	3.7e+03	2.10e+06	5.76e+02	3.6e+03
20	13C-2,3,4,7,8-PeCDF	3.27e+06	9.08e+02	3.6e+03	2.04e+06	5.76e+02	3.5e+03
21	13C-1,2,3,4,7,8-HxCDF	1.14e+06	6.16e+02	1.8e+03	2.23e+06	5.80e+02	3.8e+03
22	13C-1,2,3,6,7,8-HxCDF	1.23e+06	6.16e+02	2.0e+03	2.39e+06	5.80e+02	4.1e+03
23	13C-2,3,4,6,7,8-HxCDF	1.11e+06	6.16e+02	1.8e+03	2.13e+06	5.80e+02	3.7e+03
24	13C-1,2,3,7,8,9-HxCDF	8.13e+05	6.16e+02	1.3e+03	1.54e+06	5.80e+02	2.7e+03
25	13C-1,2,3,4,6,7,8-HpCDF	4.75e+05	1.34e+03	3.5e+02	1.10e+06	1.54e+03	7.1e+02
26	13C-1,2,3,4,7,8,9-HpCDF	2.75e+05	1.34e+03	2.1e+02	6.09e+05	1.54e+03	4.0e+02
27	13C-2,3,7,8-TCDD	1.08e+06	3.88e+03	2.8e+02	1.34e+06	1.38e+03	9.8e+02
28	13C-1,2,3,7,8-PeCDD	2.40e+06	4.72e+02	5.1e+03	1.47e+06	5.68e+02	2.6e+03
29	13C-1,2,3,4,7,8-HxCDD	1.55e+06	3.48e+02	4.4e+03	1.18e+06	5.56e+02	2.1e+03
30	13C-1,2,3,6,7,8-HxCDD	1.38e+06	3.48e+02	4.0e+03	1.08e+06	5.56e+02	1.9e+03
31	13C-1,2,3,4,6,7,8-HpCDD	7.61e+05	3.48e+02	2.2e+03	6.97e+05	2.36e+02	3.0e+03
32	13C-OCDD	2.78e+05	4.32e+02	6.4e+02	3.30e+05	4.52e+02	7.3e+02
33	13C-1,2,3,4-TCDD	2.58e+06	3.88e+03	6.7e+02	3.15e+06	1.38e+03	2.3e+03
34	13C-1,2,3,7,8,9-HxCDD	2.30e+06	3.48e+02	6.6e+03	1.76e+06	5.56e+02	3.2e+03
35	37Cl-2,3,7,8-TCDD	1.46e+06	7.96e+02	1.8e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.536e{+}03 + 6.840e{+}02) \times 2000}{(1.083e{+}06 + 1.342e{+}06) \times (\quad) \times 1.085} =$$

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Peak List Summary

CLIENT ID.
SL0055

Entry: 36 Totals Name: Total Tetra-Furans

Run: 14 File: P519487 Sample:1 Injection:1 Function:1

Acquired: 19-DEC-18 09:06:12 Processed: 20-DEC-18 15:37:41

Mass: 303.9020 305.8990 Tot Response: 1.14e+04 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	22:12	5.42e+01	8.17e+01	0.66	yes	1.36e+02		y	n
2	22:38	1.18e+02	1.54e+02	0.77	yes	2.72e+02		y	n
3	23:07	5.08e+02	7.72e+02	0.66	yes	1.28e+03		n	n
4	23:55	3.99e+02	5.25e+02	0.76	yes	9.24e+02		n	n
5	24:18	3.04e+02	3.89e+02	0.78	yes	6.92e+02		n	n
6	24:35	1.89e+02	2.29e+02	0.83	yes	4.18e+02		n	n
7	25:15	4.58e+02	6.20e+02	0.74	yes	1.08e+03		y	n
8	25:24	1.01e+02	1.49e+02	0.68	yes	2.50e+02		y	n
9	25:53	6.43e+02	8.17e+02	0.79	yes	1.46e+03		n	n
10	26:10	1.05e+02	1.20e+02	0.88	yes	2.25e+02		y	n
11	26:36	4.46e+01	5.85e+01	0.76	yes	1.03e+02		y	n
12	26:49	1.54e+03	2.09e+03	0.74	yes	3.63e+03	2,3,7,8-TCDF	n	n
13	27:12	3.83e+02	4.55e+02	0.84	yes	8.39e+02		n	n
14	27:27	2.99e+01	4.23e+01	0.71	yes	7.22e+01		n	n

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CLIENT ID.
SL0055

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 14 File: P519487 Sample:1 Injection:1 Function:1

Acquired: 19-DEC-18 09:06:12 Processed: 20-DEC-18 15:37:41

Mass: 319.8970 321.8940 Tot Response: 1.84e+03 RRF: 1.085

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	23:55	3.09e+02	3.88e+02	0.80	yes	6.97e+02		n	n
2	24:16	8.90e+01	1.06e+02	0.84	yes	1.95e+02		n	n
3	25:59	3.26e+01	3.77e+01	0.86	yes	7.04e+01		n	n
4	27:26	2.62e+01	3.35e+01	0.78	yes	5.97e+01		n	n
5	27:42	3.23e+02	3.98e+02	0.81	yes	7.21e+02	2,3,7,8-TCDD	n	n
6	28:03	4.57e+01	5.52e+01	0.83	yes	1.01e+02		n	n

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Peak List Summary

CLIENT ID.
SL0055

Entry: 38 Totals Name: Total Penta-Furans1

Run: 14 File: P519487 Sample:1 Injection:1 Function:1

Acquired: 19-DEC-18 09:06:12 Processed: 20-DEC-18 15:37:41

Mass: 339.8600 341.8570 Tot Response: 5.55e+03 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	28:51	3.47e+03	2.08e+03 1.67	yes	5.55e+03		n	n

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Peak List Summary

CLIENT ID.
SL0055

Entry: 39 Totals Name: Total Penta-Furans2

Run: 14 File: P519487 Sample:1 Injection:1 Function:2

Acquired: 19-DEC-18 09:06:12 Processed: 20-DEC-18 15:37:41

Mass: 339.8600 341.8570 Tot Response: 8.11e+03 RRF: 0.9857

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:19	5.07e+02	3.14e+02	1.62	yes	8.20e+02		n	n
2	30:27	2.06e+03	1.33e+03	1.54	yes	3.39e+03		n	n
3	31:02	1.00e+03	6.41e+02	1.56	yes	1.64e+03		n	n
4	31:27	1.88e+02	1.41e+02	1.33	yes	3.28e+02	1,2,3,7,8-PeCDF	n	n
5	32:25	8.85e+02	6.11e+02	1.45	yes	1.50e+03	2,3,4,7,8-PeCDF	n	n
6	33:14	2.66e+02	1.66e+02	1.61	yes	4.32e+02		n	n

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Peak List Summary

CLIENT ID.
SL0055

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 14 File: P519487 Sample:1 Injection:1 Function:2

Acquired: 19-DEC-18 09:06:12 Processed: 20-DEC-18 15:37:41

Mass: 355.8550 357.8520 Tot Response: 2.87e+03 RRF: 0.9565

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:30	4.03e+02	2.98e+02	1.35	yes	7.00e+02		n	n
2	30:59	7.42e+02	5.24e+02	1.41	yes	1.27e+03		n	n
3	31:28	1.69e+02	1.08e+02	1.56	yes	2.77e+02		n	n
4	31:39	2.05e+02	1.44e+02	1.43	yes	3.49e+02		n	n
5	31:45	7.92e+01	5.88e+01	1.35	yes	1.38e+02		n	n
6	32:18	8.90e+01	5.50e+01	1.62	yes	1.44e+02		n	n

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Peak List Summary

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SL0055

Entry: 41 Totals Name: Total Hexa-Furans

Run: 14 File: P519487 Sample:1 Injection:1 Function:3

Acquired: 19-DEC-18 09:06:12 Processed: 20-DEC-18 15:37:41

Mass: 373.8210 375.8180 Tot Response: 1.54e+04 RRF: 1.141

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:06	4.99e+02	4.54e+02 1.10	yes	9.53e+02		n	n
2	34:16	3.19e+03	2.56e+03 1.25	yes	5.75e+03		n	n
3	34:48	2.87e+03	2.36e+03 1.21	yes	5.23e+03		n	n
4	35:10	7.81e+01	5.91e+01 1.32	yes	1.37e+02		n	n
5	35:16	4.47e+02	3.23e+02 1.39	yes	7.70e+02	1,2,3,4,7,8-HxCDF	n	n
6	35:22	7.08e+02	5.53e+02 1.28	yes	1.26e+03	1,2,3,6,7,8-HxCDF	n	n
7	35:54	6.84e+02	6.27e+02 1.09	yes	1.31e+03	2,3,4,6,7,8-HxCDF	n	n

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CLIENT ID.
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Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 14 File: P519487 Sample:1 Injection:1 Function:3

Acquired: 19-DEC-18 09:06:12 Processed: 20-DEC-18 15:37:41

Mass: 389.8160 391.8130 Tot Response: 1.74e+04 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:39	3.79e+03	2.92e+03	1.30	yes	6.71e+03		n	n
2	35:12	3.79e+02	3.29e+02	1.15	yes	7.09e+02		n	n
3	35:27	3.56e+03	2.77e+03	1.29	yes	6.33e+03		n	n
4	35:33	8.42e+02	7.32e+02	1.15	yes	1.57e+03		n	n
5	36:10	7.94e+02	6.44e+02	1.23	yes	1.44e+03	1,2,3,6,7,8-HxCDD	n	n
6	36:24	3.58e+02	2.97e+02	1.21	yes	6.55e+02	1,2,3,7,8,9-HxCDD	n	n

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CLIENT ID.
SL0055

Entry: 43 Totals Name: Total Hepta-Furans

Run: 14 File: P519487 Sample:1 Injection:1 Function:4

Acquired: 19-DEC-18 09:06:12 Processed: 20-DEC-18 15:37:41

Mass: 407.7820 409.7790 Tot Response: 6.09e+03 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:04	1.87e+03	1.68e+03 1.11	yes	3.56e+03	1,2,3,4,6,7,8-HpCDF	n	n
2	38:29	1.28e+03	1.25e+03 1.02	yes	2.53e+03		n	n

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Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 14 File: P519487 Sample:1 Injection:1 Function:4

Acquired: 19-DEC-18 09:06:12 Processed: 20-DEC-18 15:37:41

Mass: 423.7770 425.7740 Tot Response: 7.56e+04 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:21	2.50e+04	2.44e+04 1.03	yes	4.94e+04		n	n
2	39:02	1.34e+04	1.28e+04 1.05	yes	2.62e+04	1,2,3,4,6,7,8-HpCDD	n	n

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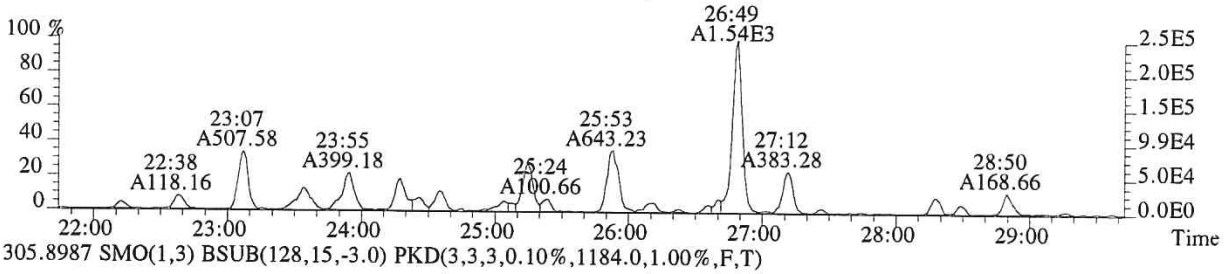
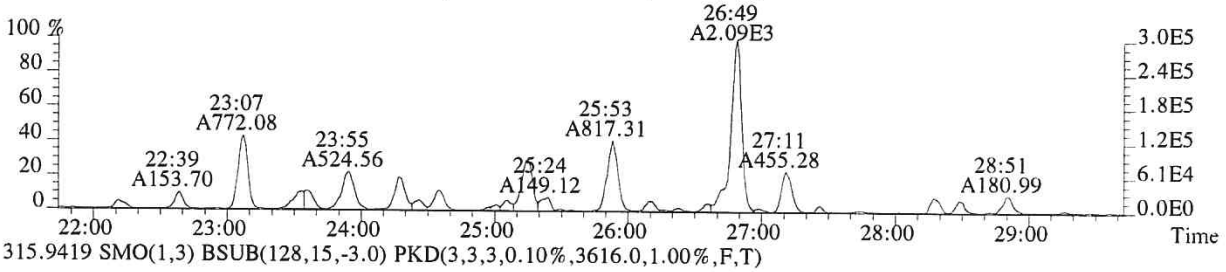
File:P519487 #1-566 Acq:19-DEC-2018 09:06:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-013

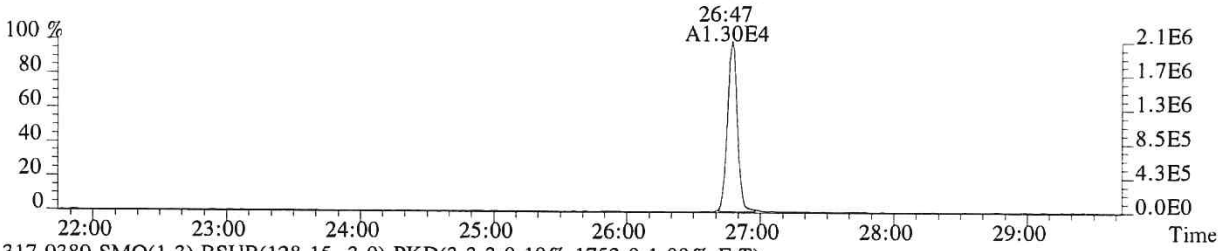
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1304.0,1.00%,F,T)



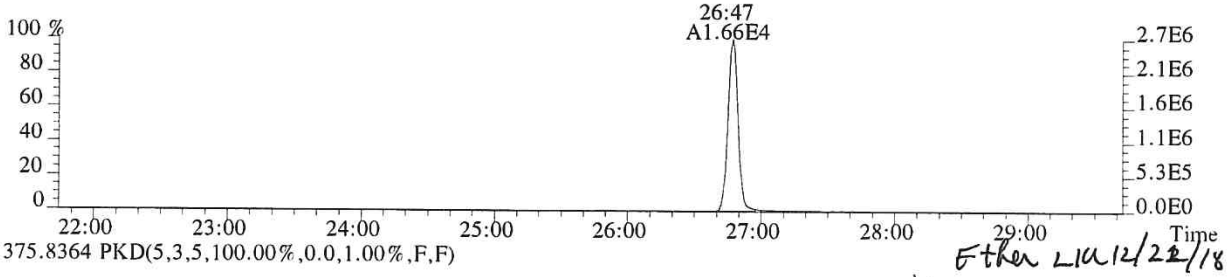
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1184.0,1.00%,F,T)



315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3616.0,1.00%,F,T)

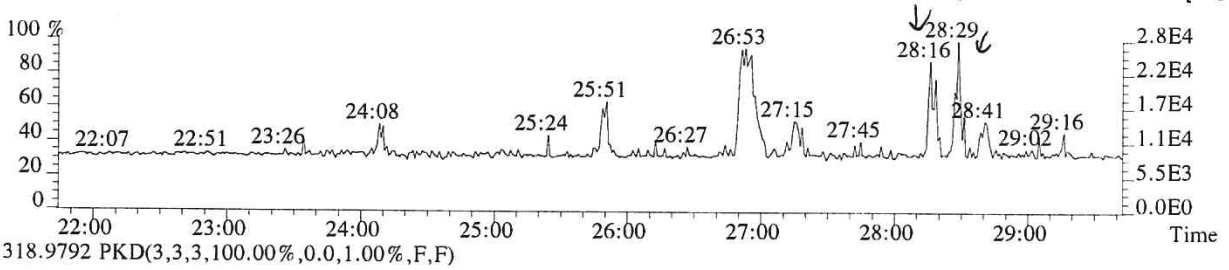


317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1752.0,1.00%,F,T)

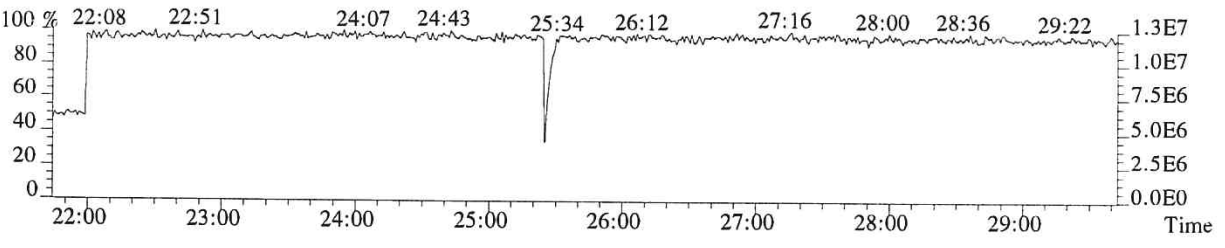


375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

Ether LIA 12/22/18

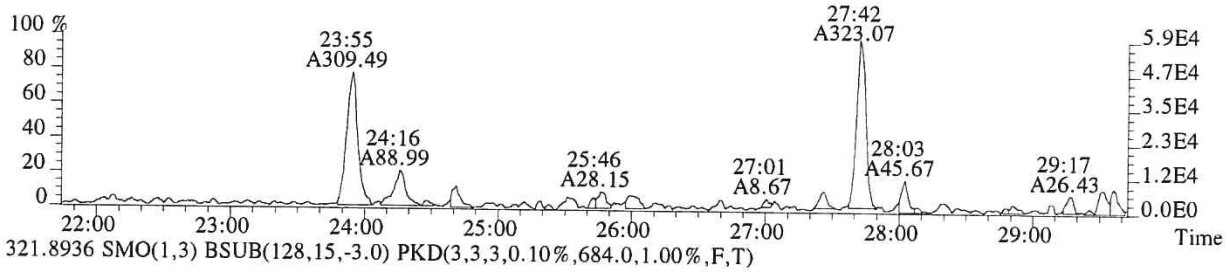


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

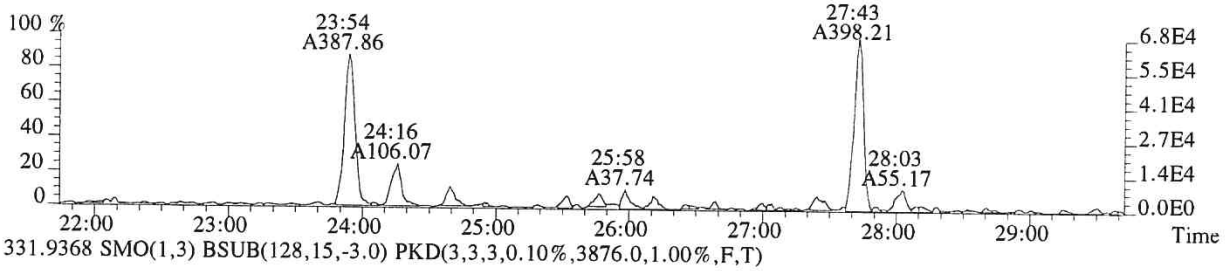


015478

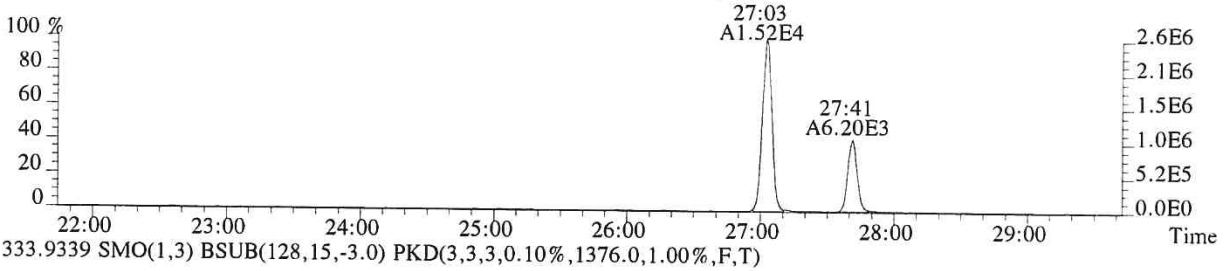
File:P519487 #1-566 Acq:19-DEC-2018 09:06:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-013
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1536.0,1.00%,F,T)



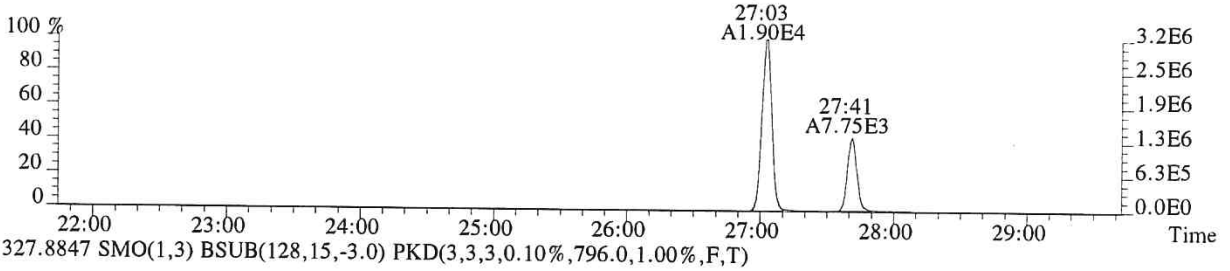
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,684.0,1.00%,F,T)



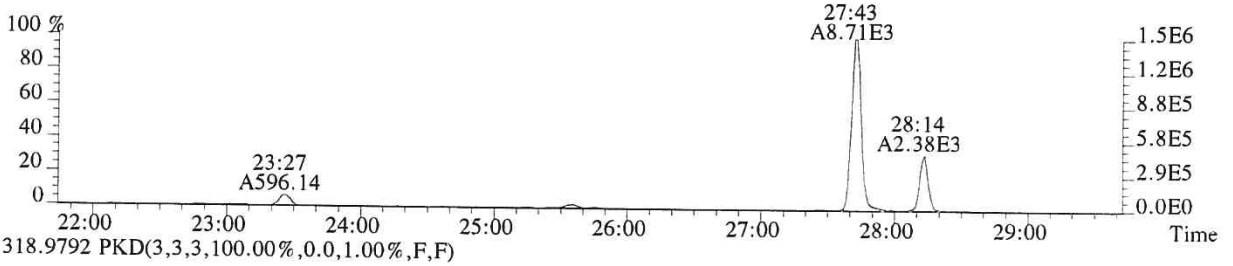
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3876.0,1.00%,F,T)



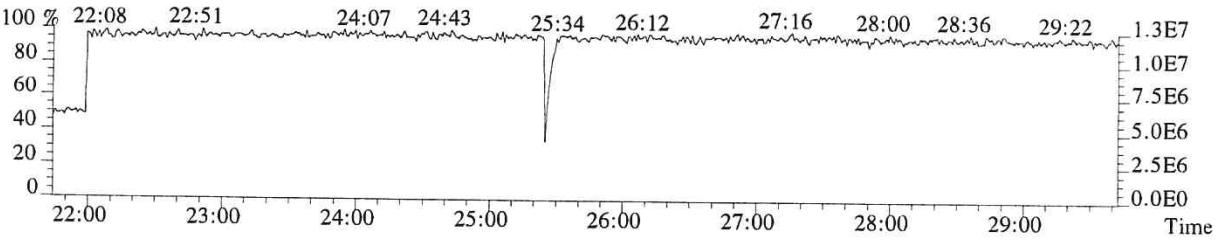
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1376.0,1.00%,F,T)



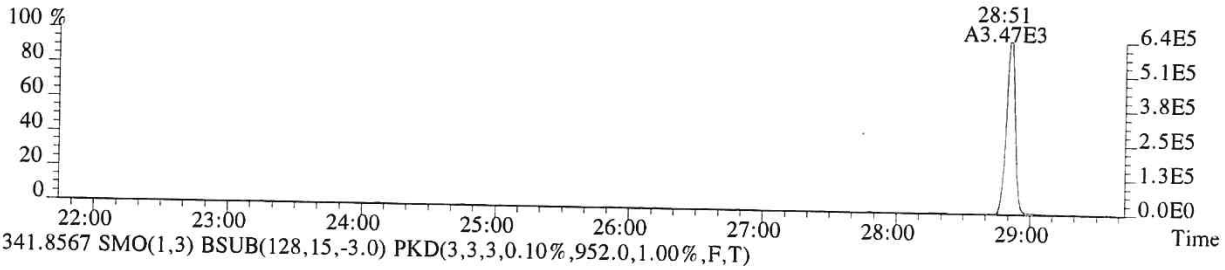
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,796.0,1.00%,F,T)



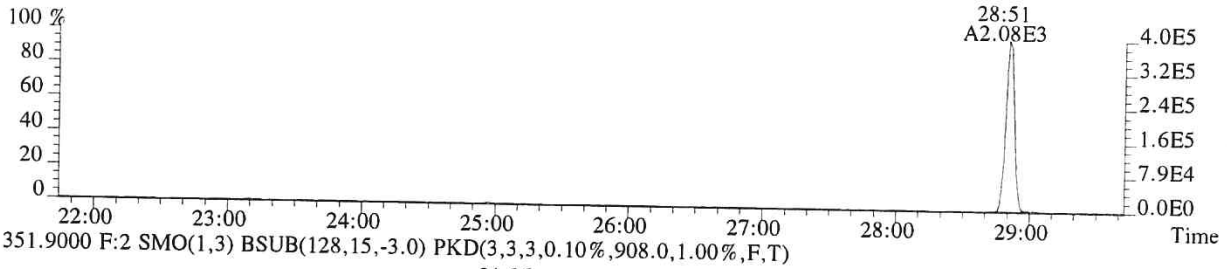
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



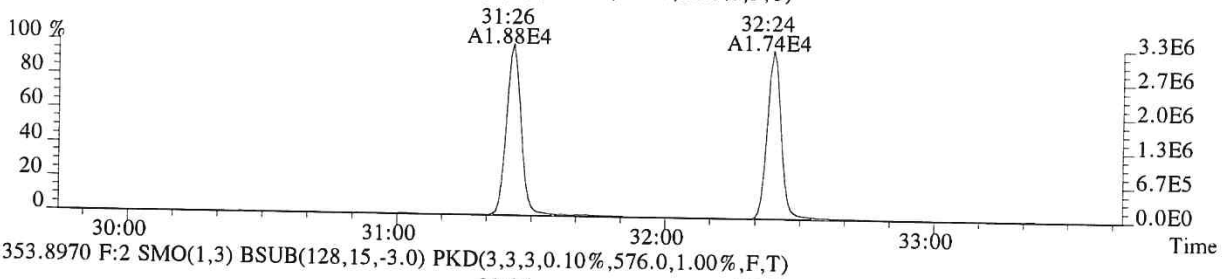
File:P519487 #1-566 Acq:19-DEC-2018 09:06:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-013
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,784.0,1.00%,F,T)



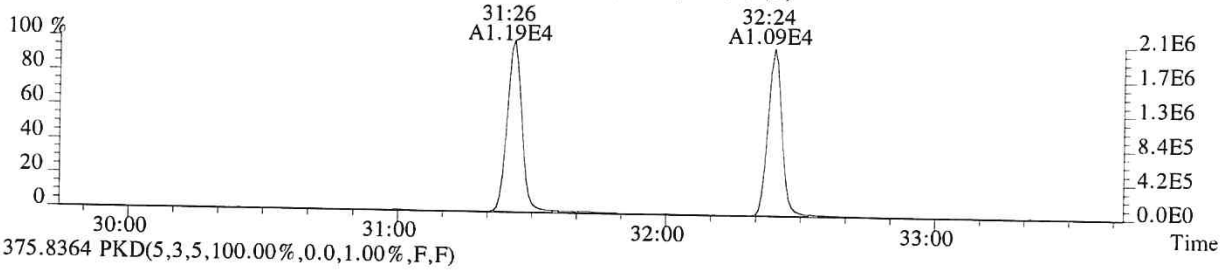
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,952.0,1.00%,F,T)



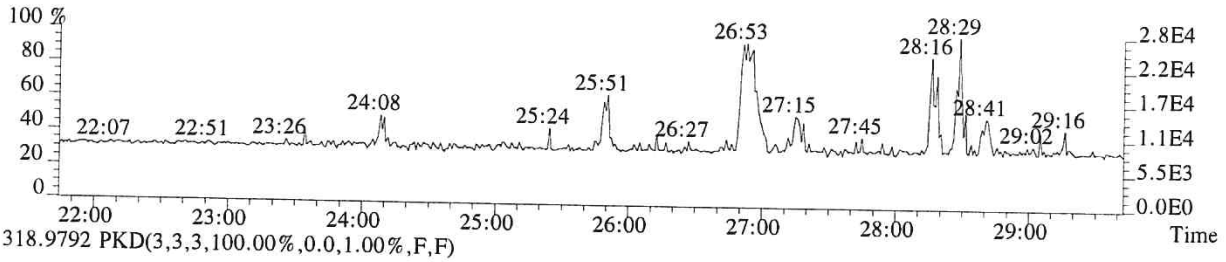
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,908.0,1.00%,F,T)



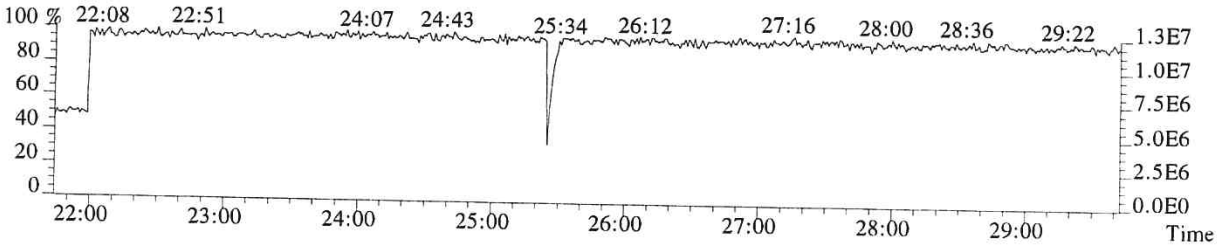
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,576.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



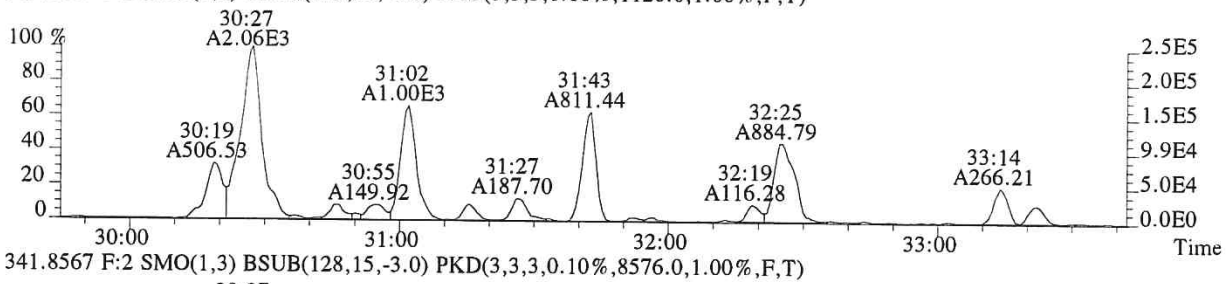
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



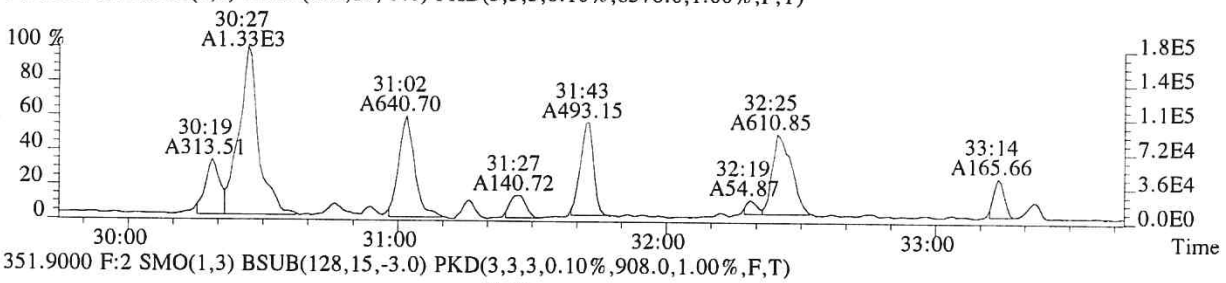
015480

File:P519487 #1-357 Acq:19-DEC-2018 09:06:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-013

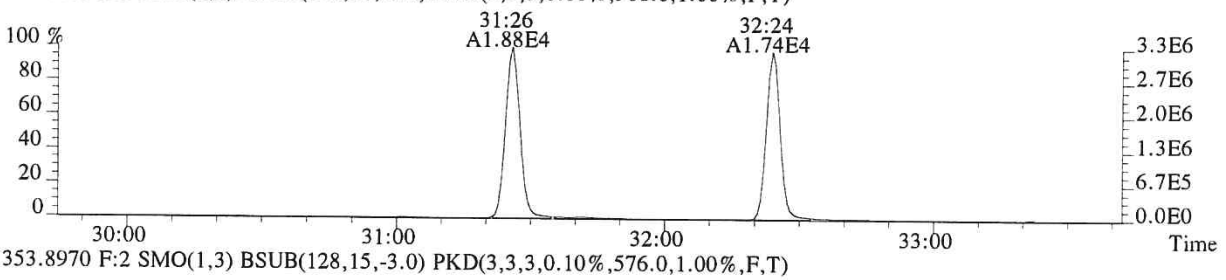
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1120.0,1.00%,F,T)



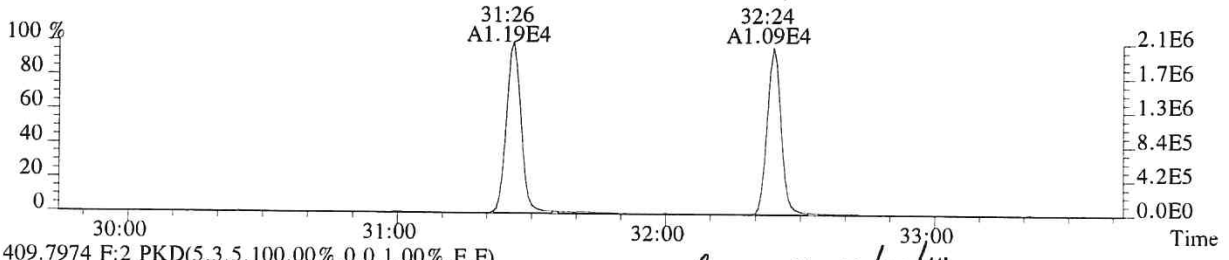
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8576.0,1.00%,F,T)



351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,908.0,1.00%,F,T)

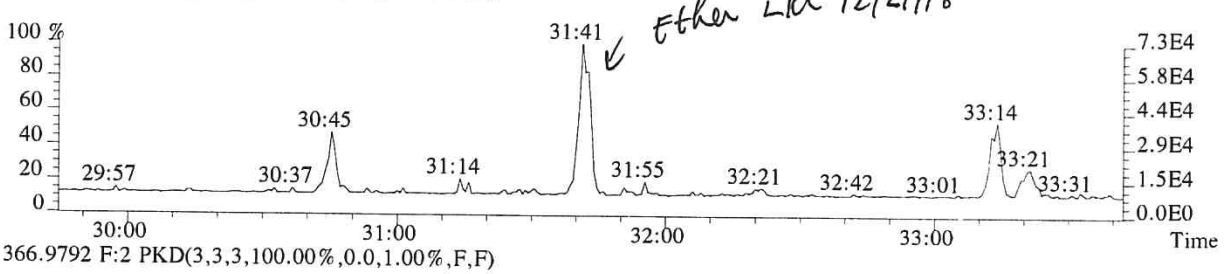


353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,576.0,1.00%,F,T)

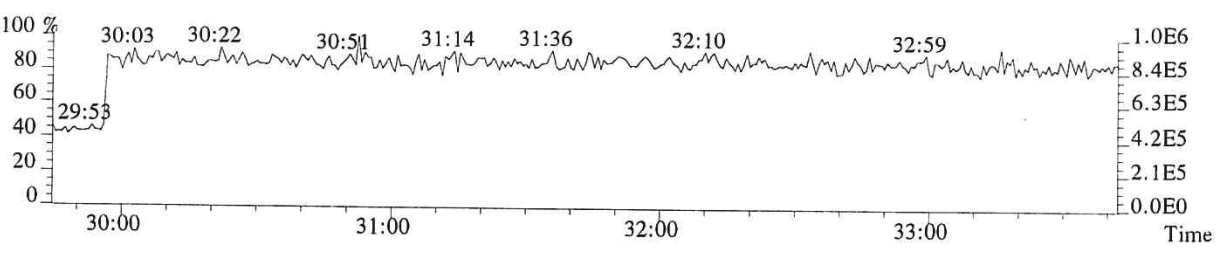


409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

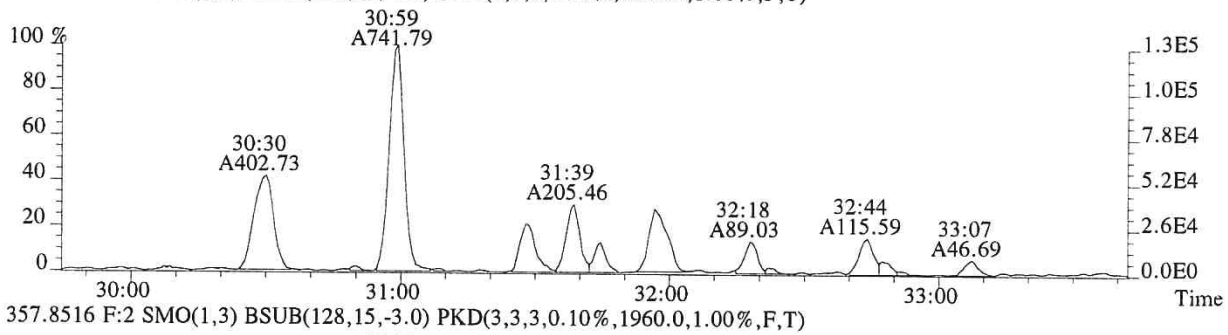
Ether LKA 12/21/18



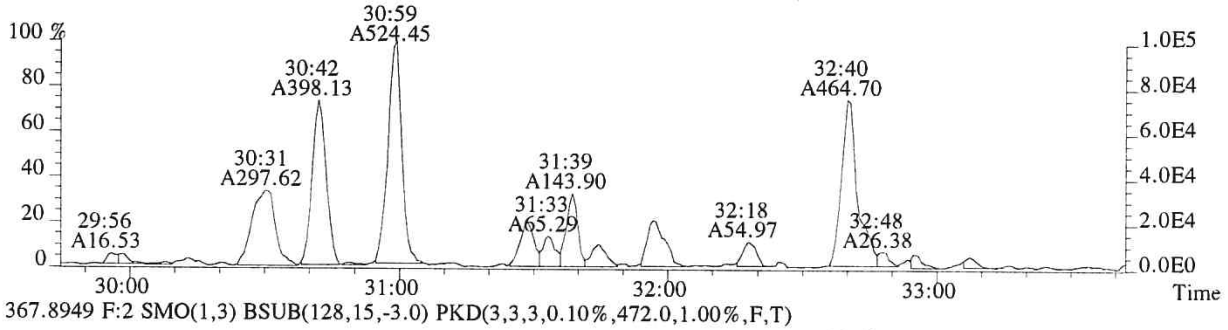
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



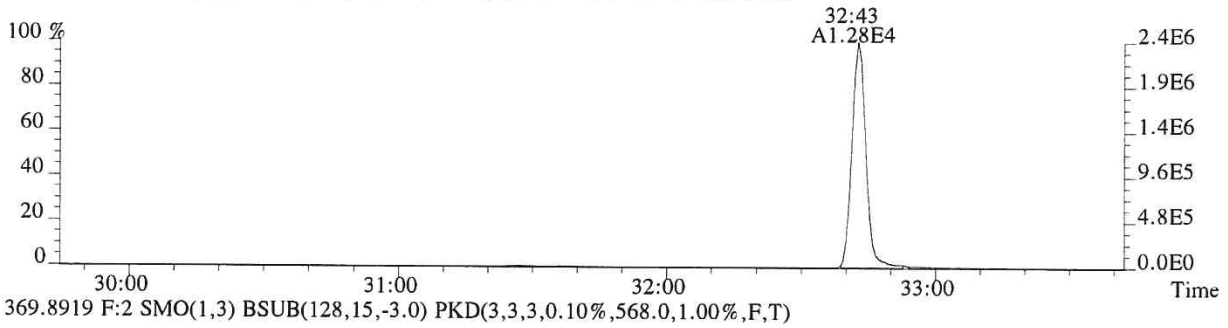
File:P519487 #1-357 Acq:19-DEC-2018 09:06:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-013
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1356.0,1.00%,F,T)



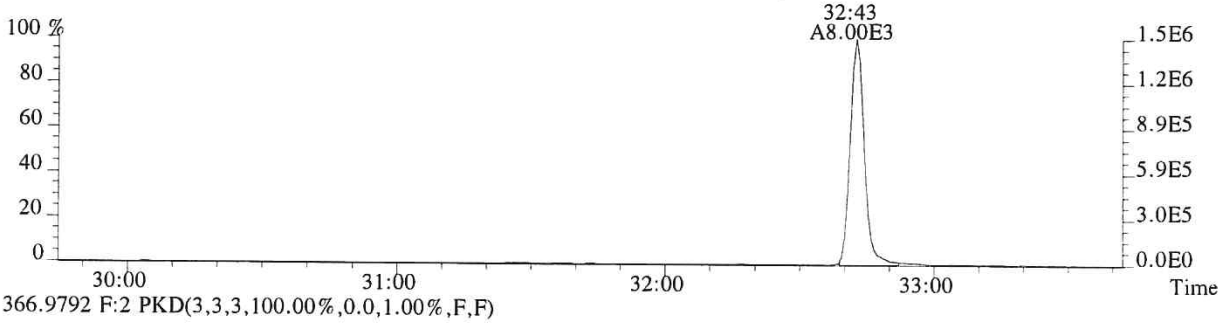
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1960.0,1.00%,F,T)



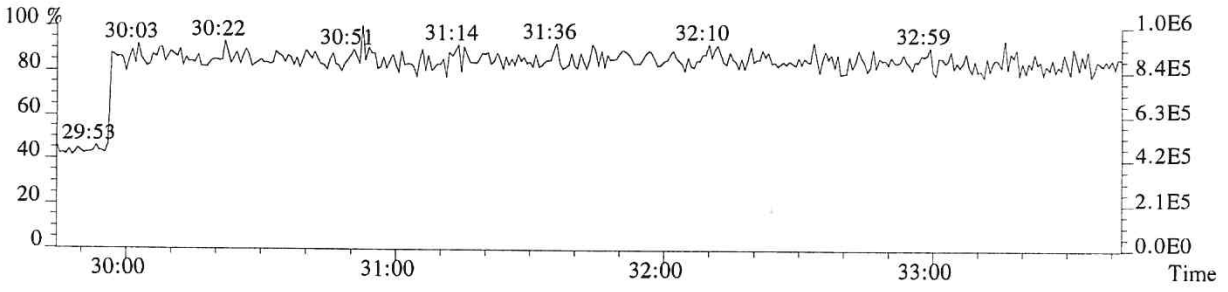
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,472.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,568.0,1.00%,F,T)

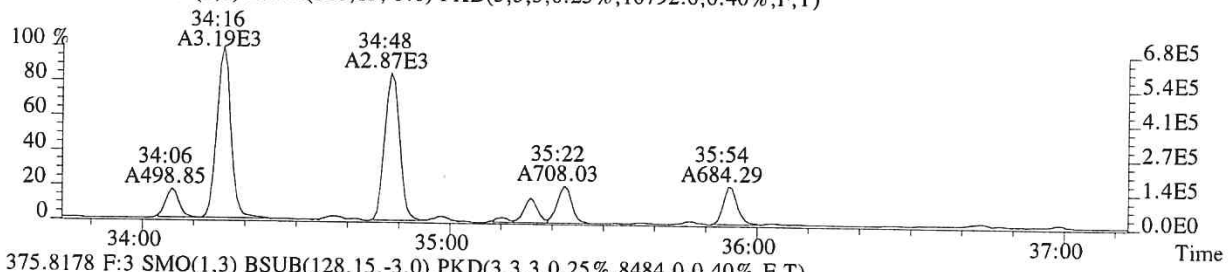


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

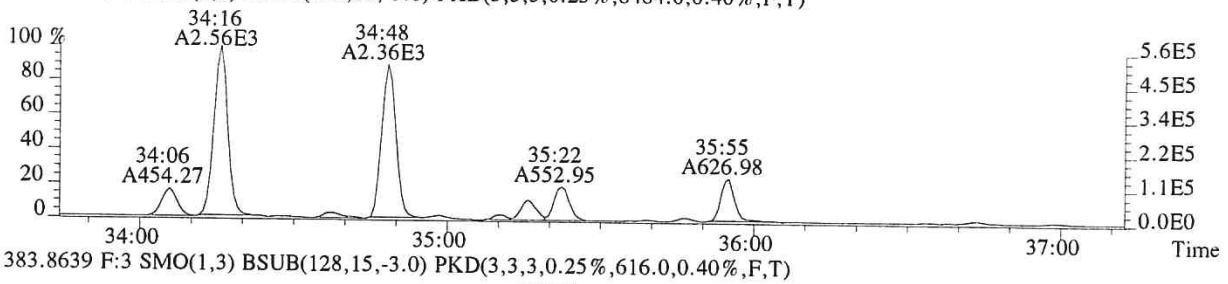


File:P519487 #1-313 Acq:19-DEC-2018 09:06:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-013

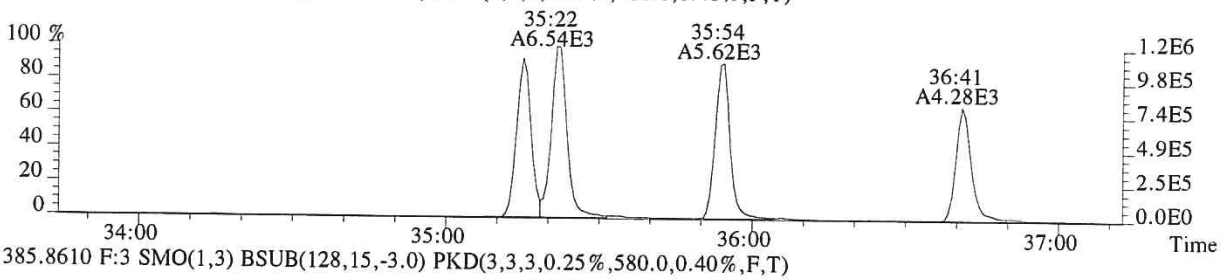
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,10792.0,0.40%,F,T)



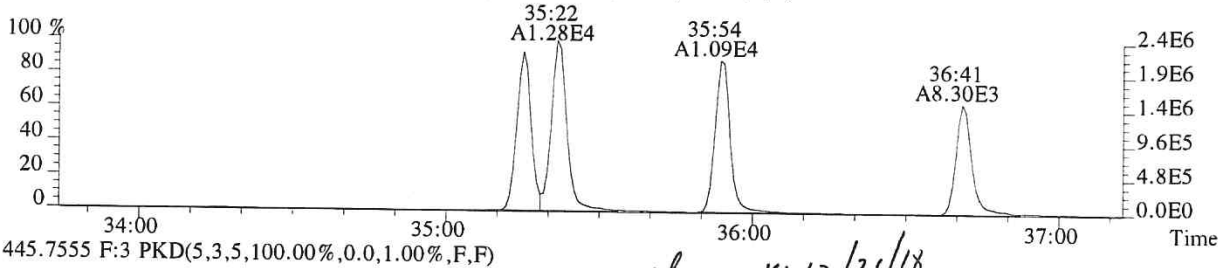
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8484.0,0.40%,F,T)



383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,616.0,0.40%,F,T)

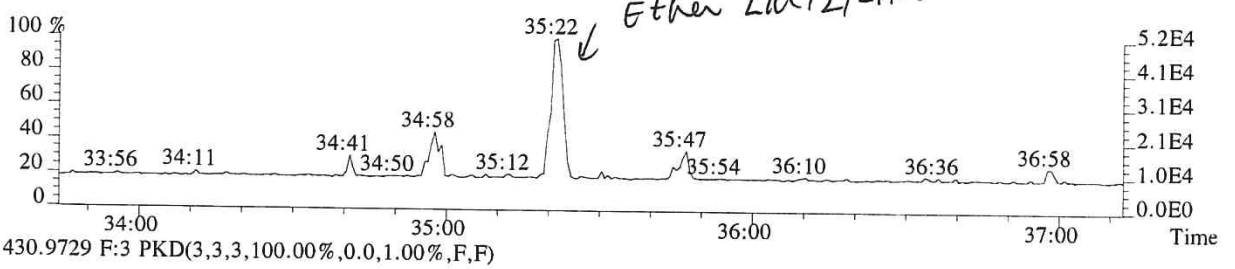


385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,580.0,0.40%,F,T)

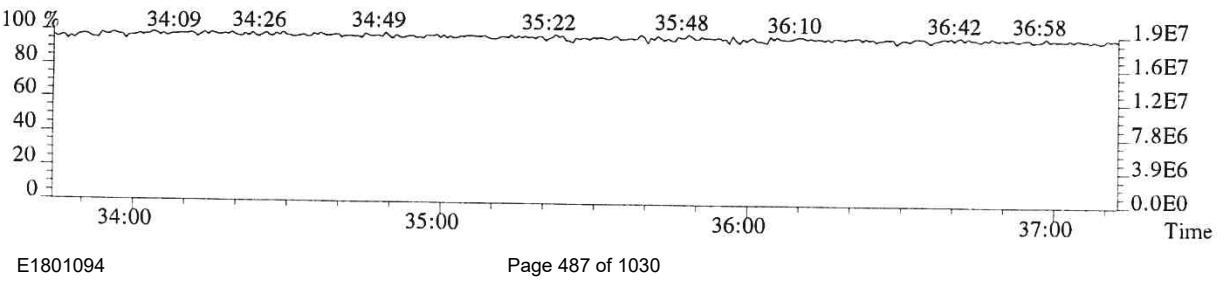


445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

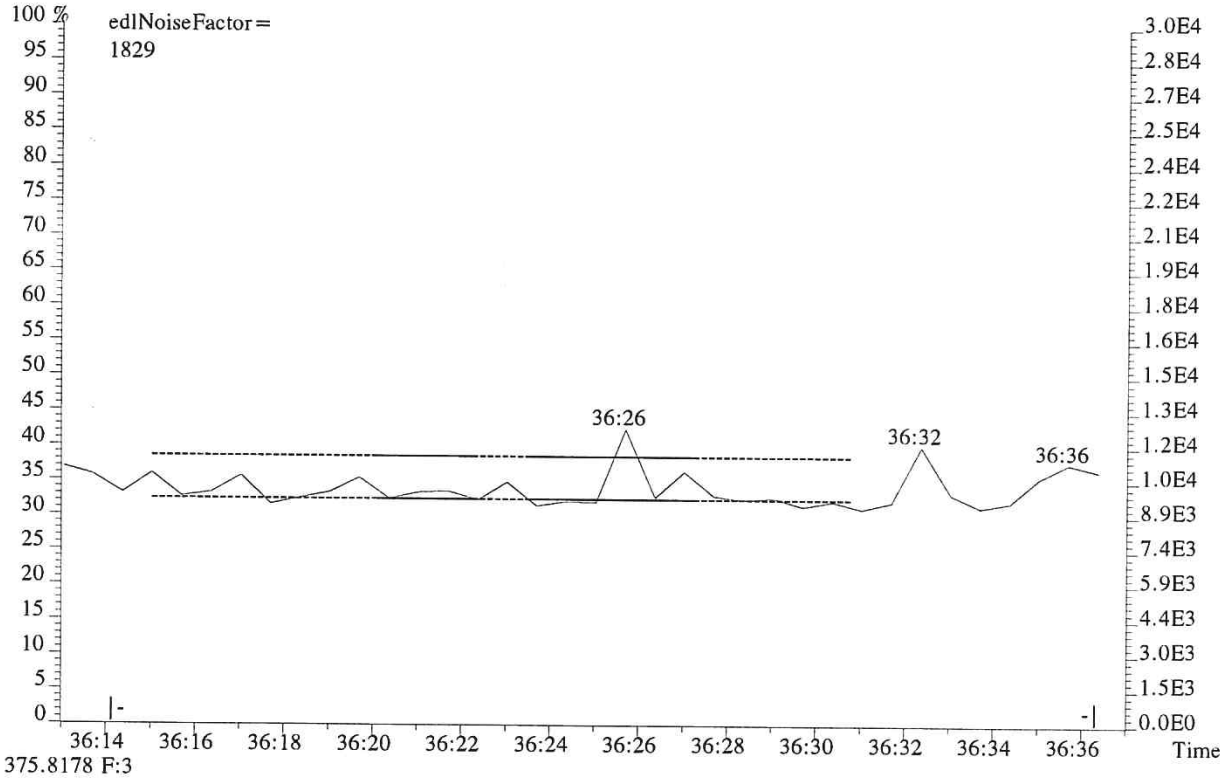
Ether LLM 12/21/18



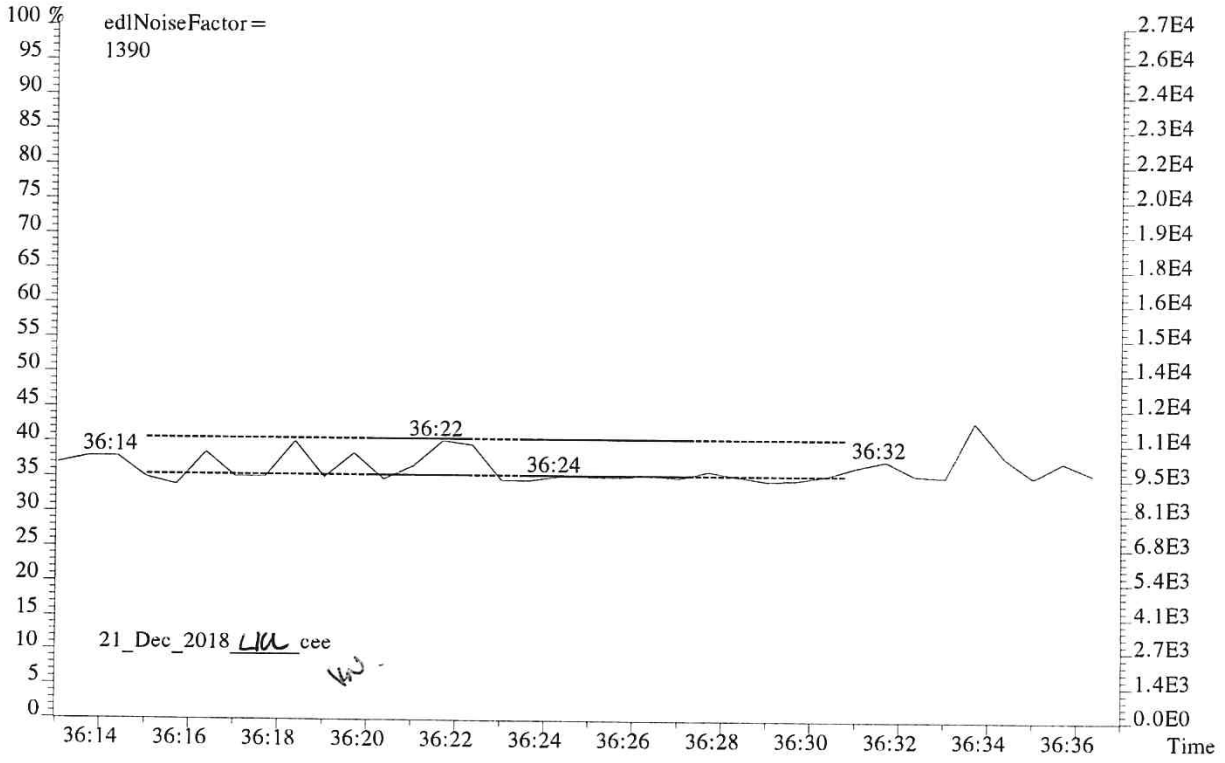
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P519487 #1-313 Acq:19-DEC-2018 09:06:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-013
373.8208 F:3

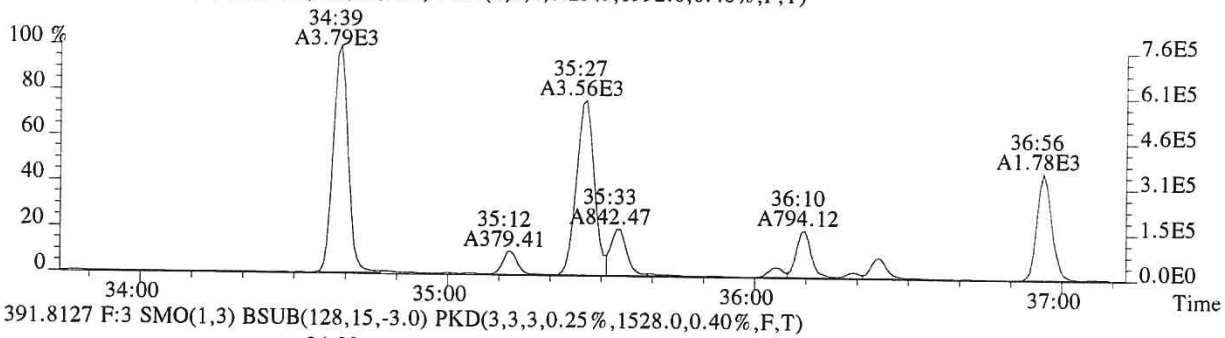


375.8178 F:3

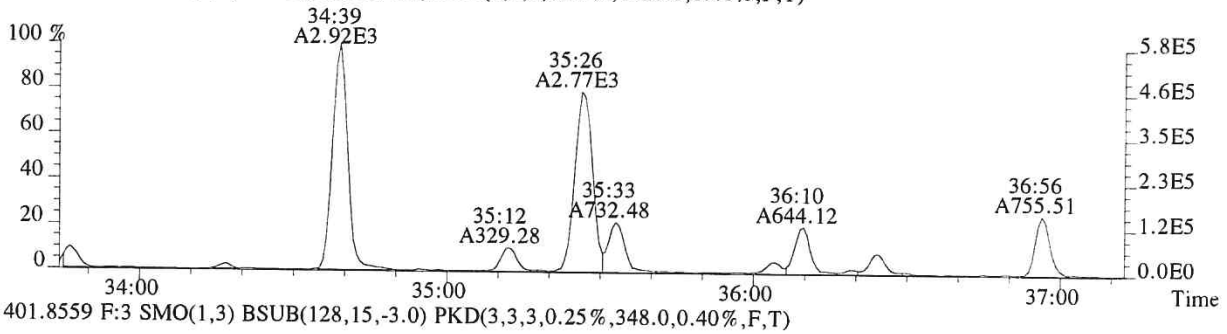


015484

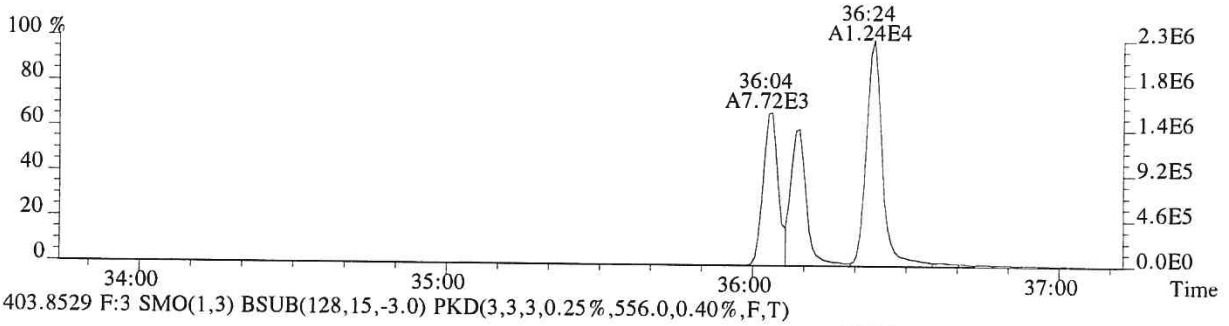
File:P519487 #1-313 Acq:19-DEC-2018 09:06:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-013
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1992.0,0.40%,F,T)



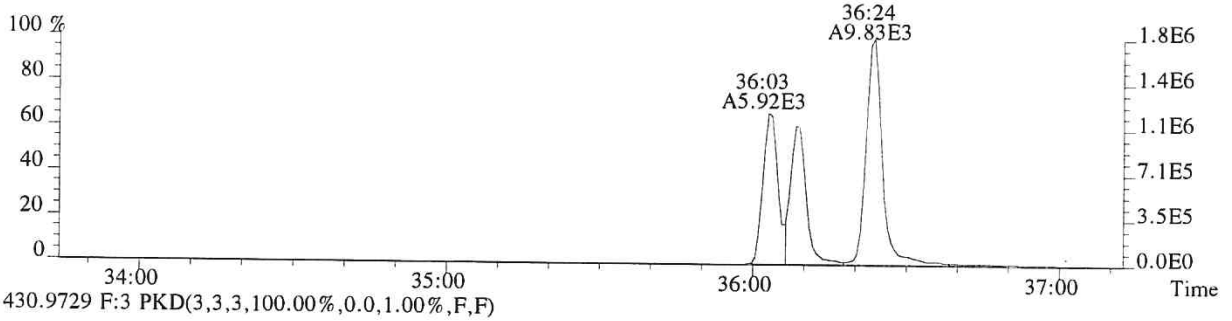
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1528.0,0.40%,F,T)



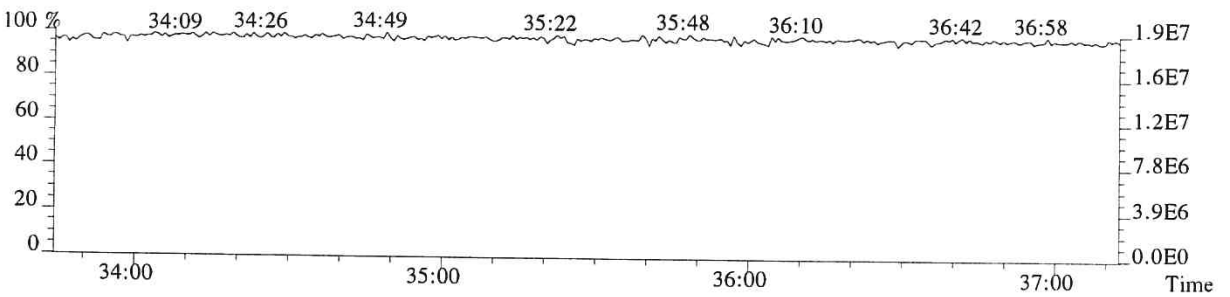
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,348.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,556.0,0.40%,F,T)

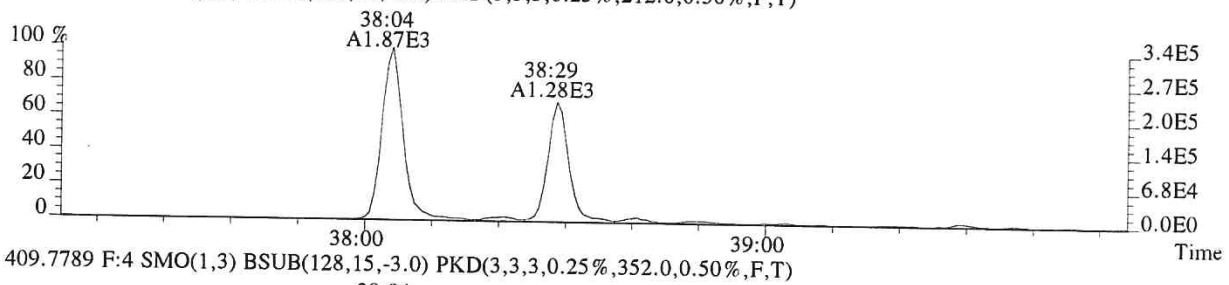


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

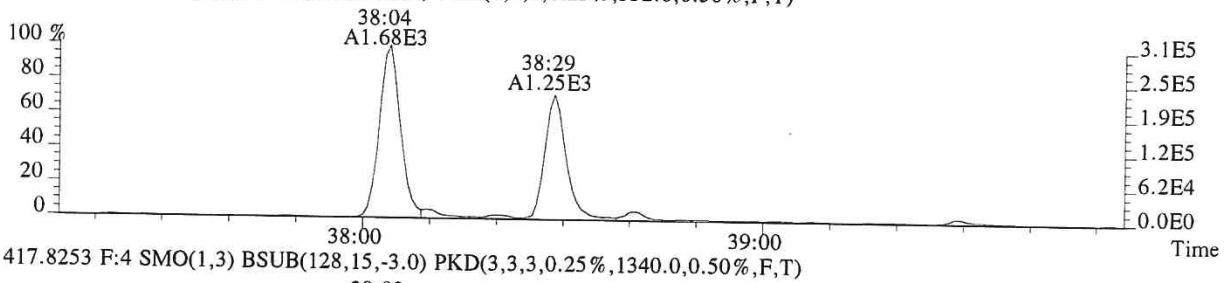


File:P519487 #1-240 Acq:19-DEC-2018 09:06:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-013

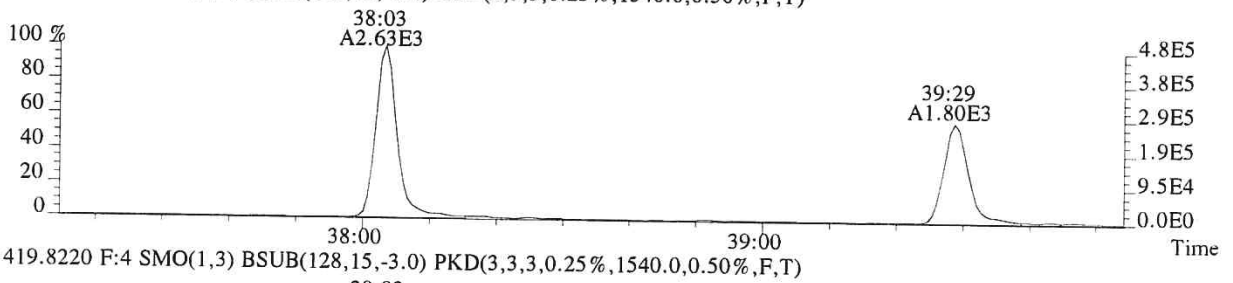
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,212.0,0.50%,F,T)



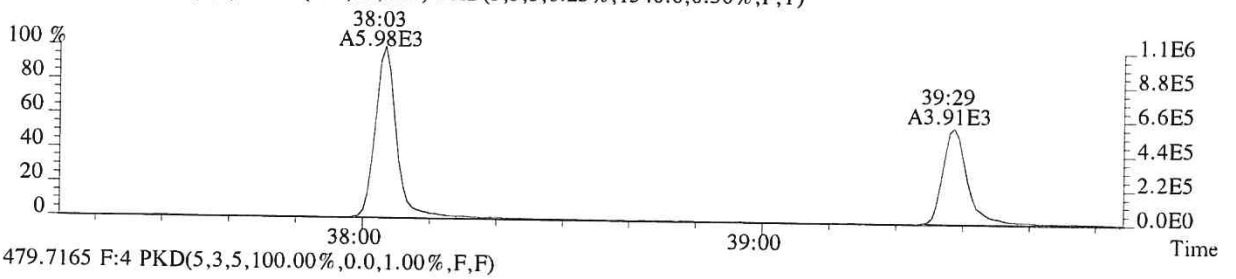
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,352.0,0.50%,F,T)



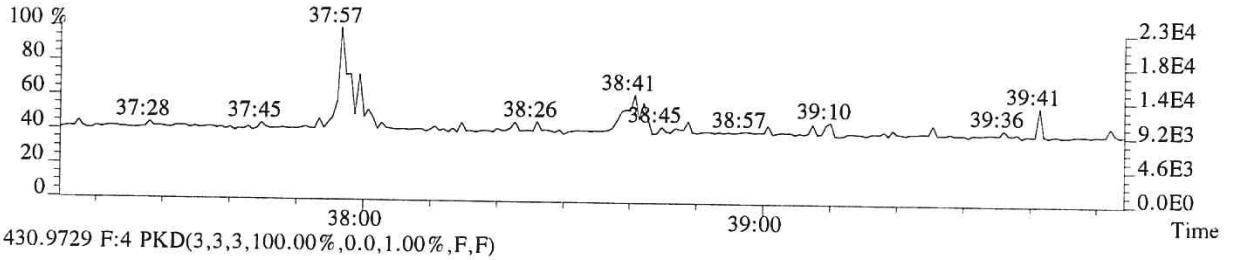
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1340.0,0.50%,F,T)



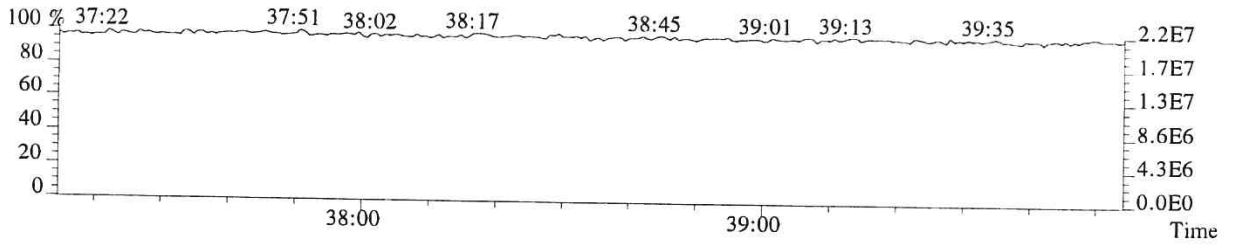
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1540.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

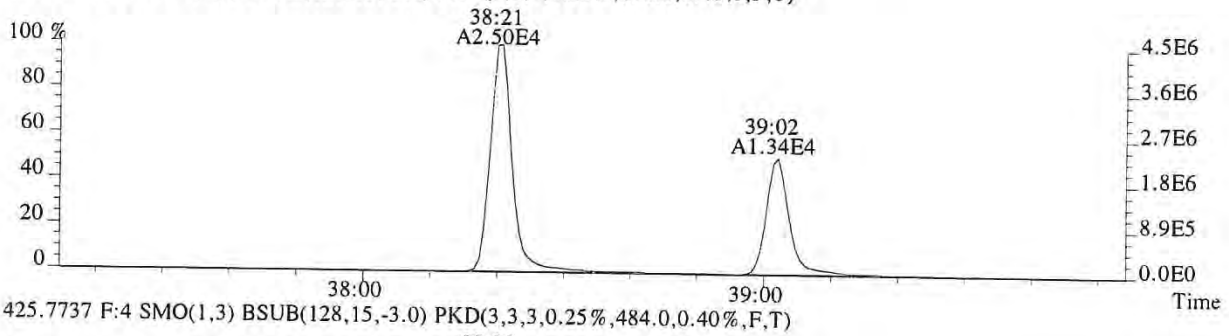


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

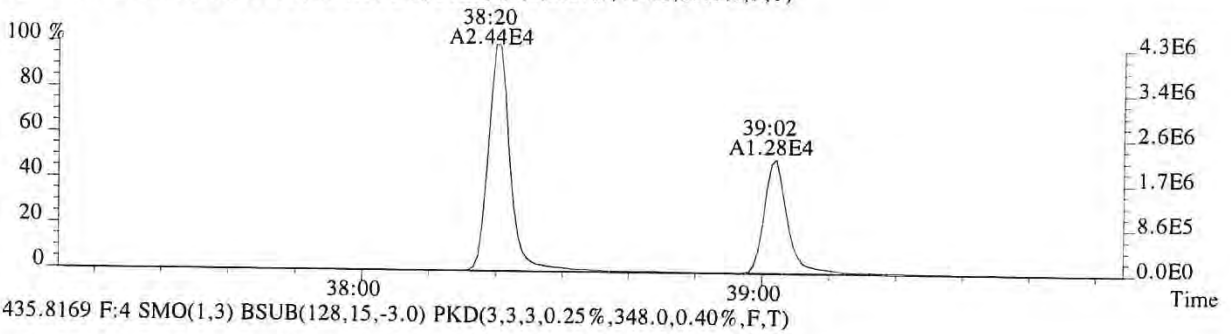


015486

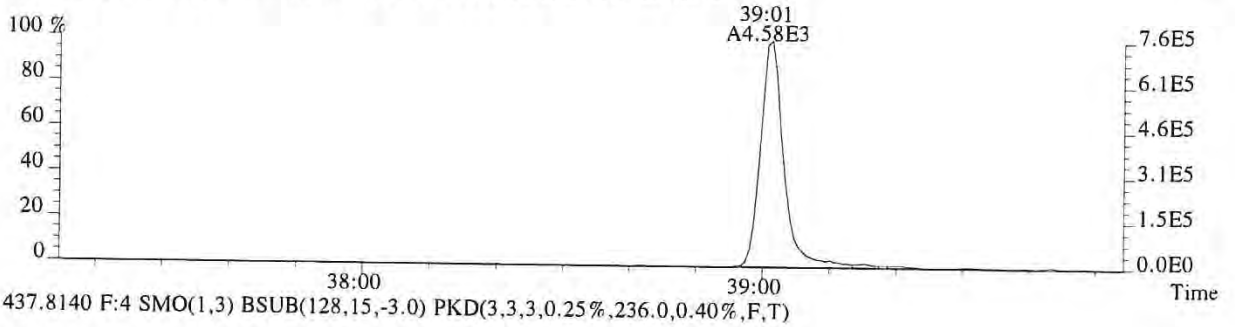
File:P519487 #1-240 Acq:19-DEC-2018 09:06:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-013
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,396.0,0.40%,F,T)



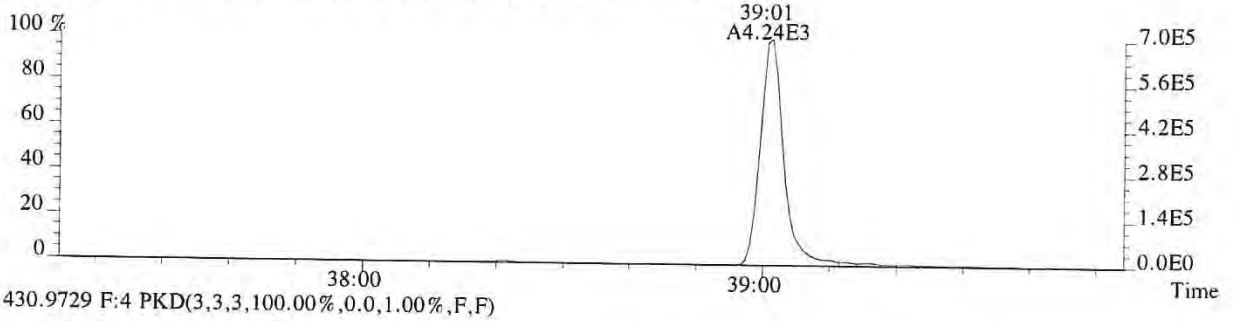
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,484.0,0.40%,F,T)



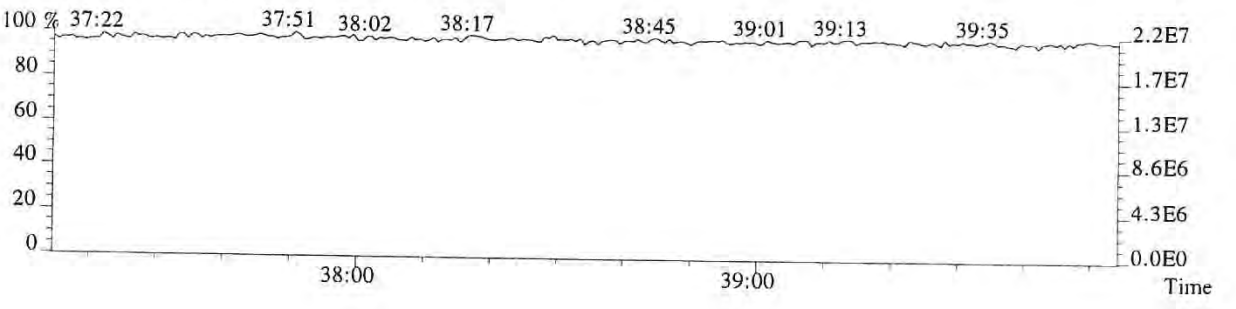
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,348.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,236.0,0.40%,F,T)

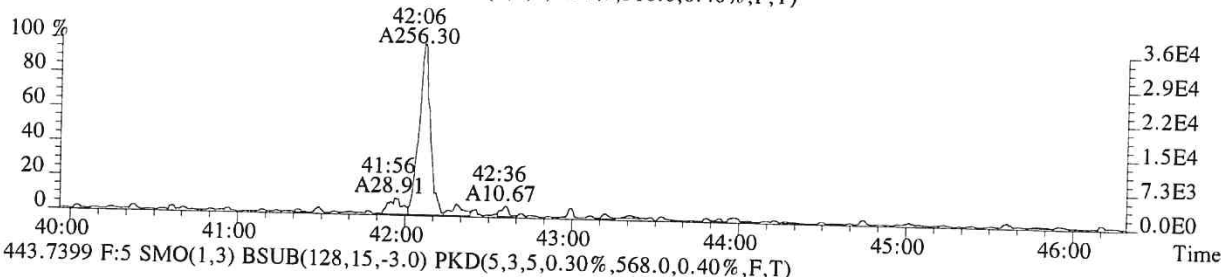


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

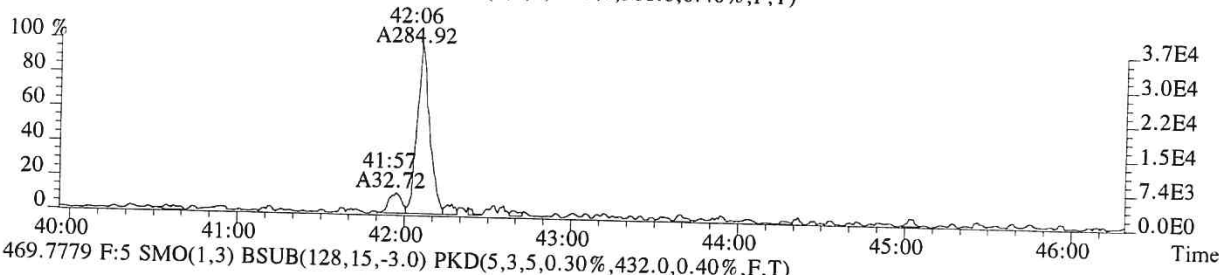


File:P519487 #1-575 Acq:19-DEC-2018 09:06:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-013

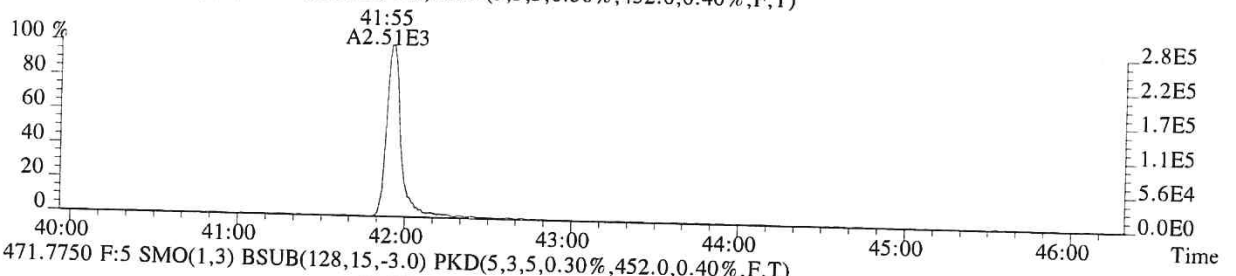
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,316.0,0.40%,F,T)



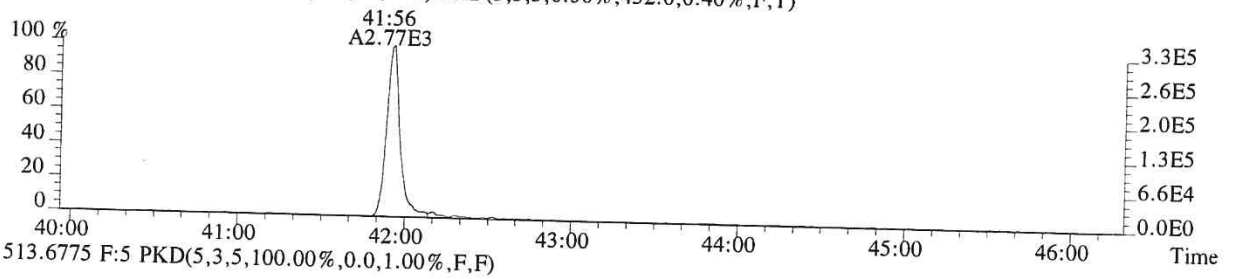
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,568.0,0.40%,F,T)



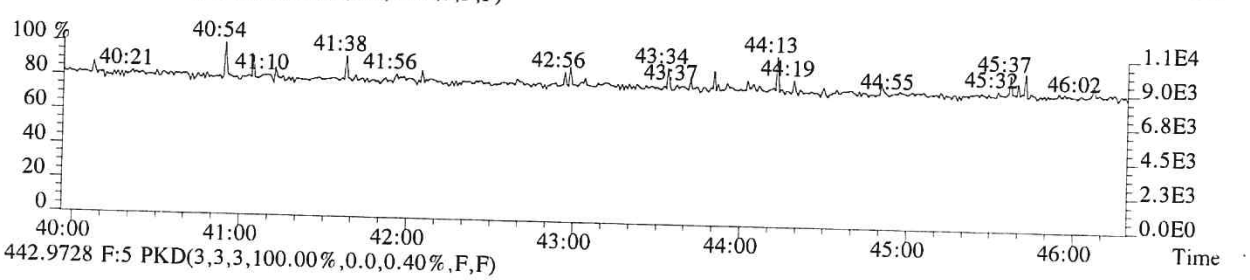
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,432.0,0.40%,F,T)



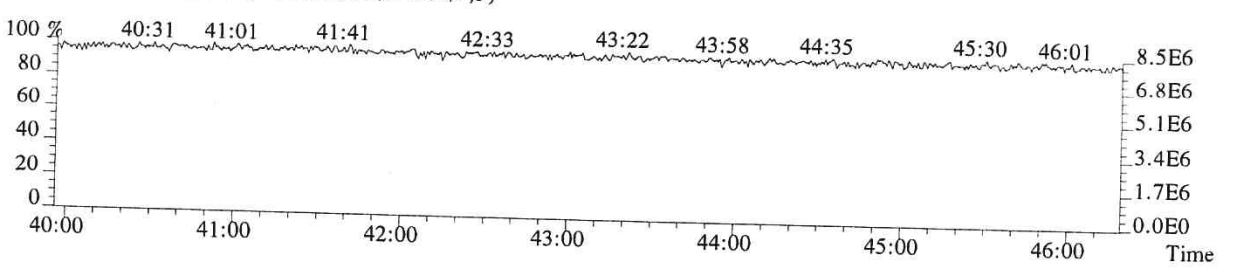
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,452.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

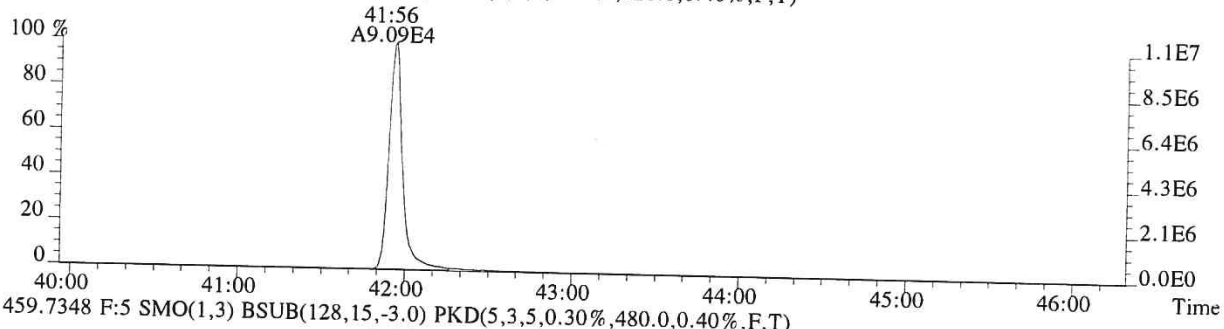


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

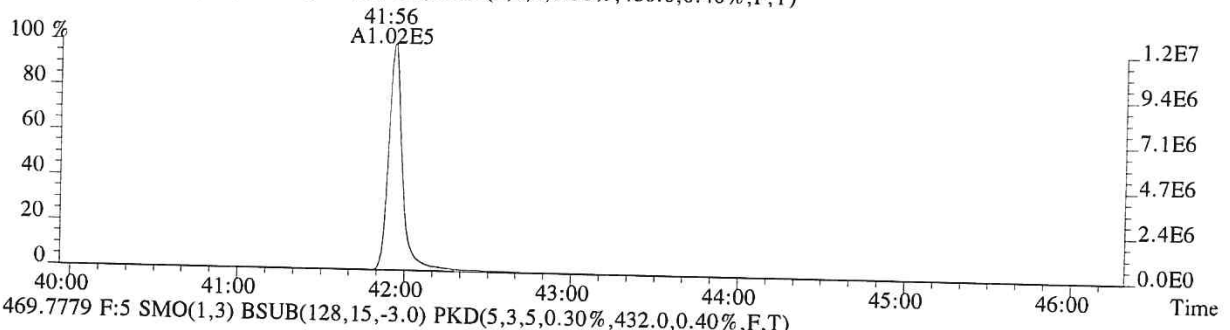


File:P519487 #1-575 Acq:19-DEC-2018 09:06:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-013

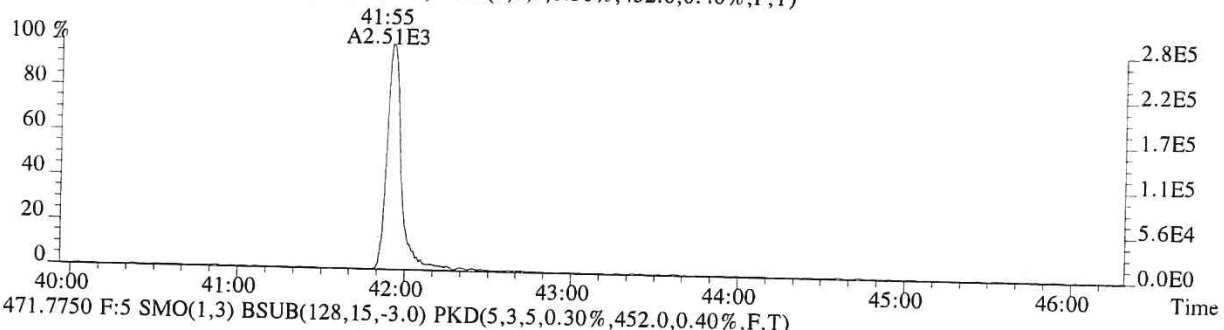
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,628.0,0.40%,F,T)



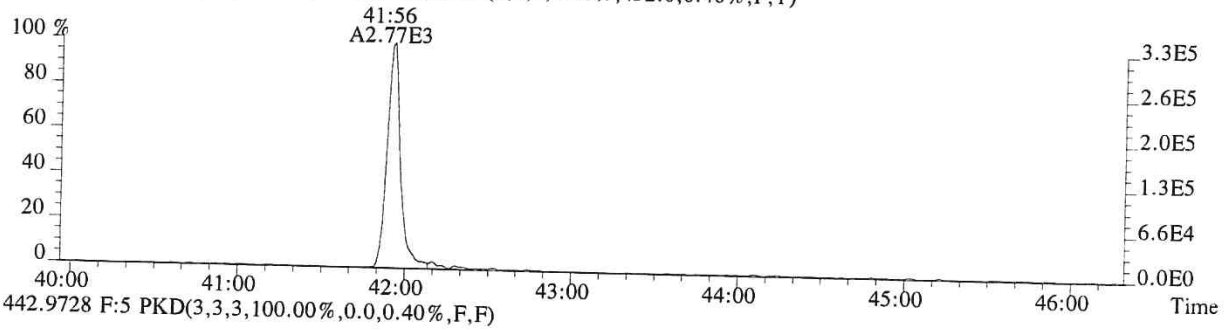
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,480.0,0.40%,F,T)



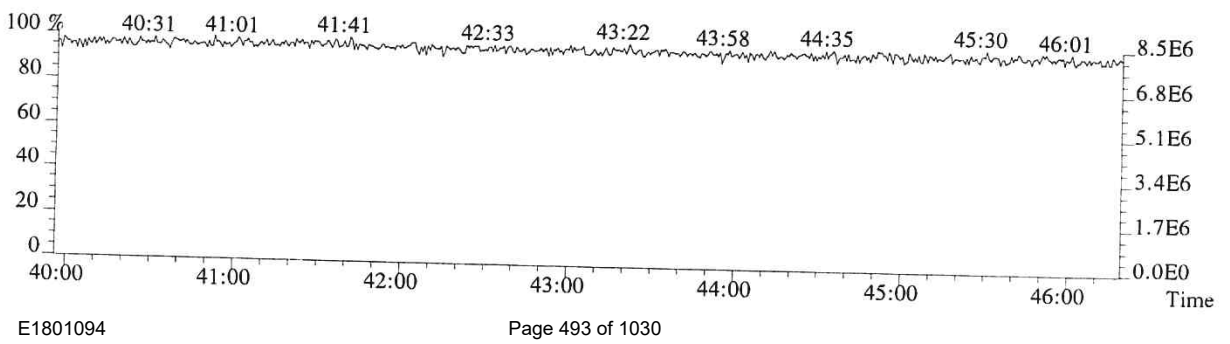
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,432.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,452.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0056

Run #15 Filename P519488 Samp: 1 Inj: 1 Acquired: 19-DEC-18 09:54:48
Processed: 20-DEC-18 15:53:44 Sample ID: E1801094-014

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:08	5.989e+06	7.403e+06	0.81	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	31:38	2.429e+05	1.566e+05	1.55	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	32:33	1.903e+05	1.221e+05	1.56	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:20	2.074e+05	1.685e+05	1.23	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:26	5.314e+04	4.700e+04	1.13	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:58	8.486e+03	6.956e+03	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	36:46	1.106e+04	8.971e+03	1.23	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:05	2.684e+04	2.633e+04	1.02	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:29	5.468e+03	5.466e+03	1.00	yes	no	1.258
10	Unk	OCDF	42:07	5.787e+03	6.370e+03	0.91	yes	no	1.359
11	Unk	2,3,7,8-TCDD	27:58	1.550e+06	1.961e+06	0.79	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	32:51	1.593e+04	1.005e+04	1.59	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:06	1.255e+02	8.963e+01	1.40	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:12	1.227e+03	1.023e+03	1.20	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:27	3.456e+02	2.719e+02	1.27	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:02	2.303e+04	2.161e+04	1.07	yes	no	1.025
17	Unk	OCDD	41:56	1.132e+05	1.269e+05	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:06	1.760e+04	2.178e+04	0.81	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	31:37	1.935e+04	1.217e+04	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	32:33	1.853e+04	1.140e+04	1.63	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:19	5.242e+03	9.923e+03	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:25	5.917e+03	1.102e+04	0.54	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:57	5.269e+03	9.726e+03	0.54	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	36:43	3.733e+03	7.076e+03	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:04	1.920e+03	4.341e+03	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:29	1.313e+03	2.796e+03	0.47	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	27:57	7.619e+03	9.667e+03	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:50	1.321e+04	8.156e+03	1.62	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:06	6.364e+03	5.073e+03	1.25	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:11	6.363e+03	5.032e+03	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:01	3.197e+03	3.103e+03	1.03	yes	no	0.858
32	IS	13C-OCDD	41:56	1.680e+03	1.754e+03	0.96	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:26	1.863e+04	2.329e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:26	1.078e+04	8.372e+03	1.29	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:58	2.827e+04				no	1.014

$$\text{OCDD} = \frac{(1.132e+05 + 1.269e+05) \times 4000\ \text{pg} \times 1}{(1.680e+03 + 1.754e+03) \times 10.442\ \text{g} \times 49.4 / 100 \times 1.118} = 46500\ \text{ng/kg}$$

MW 424.76

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0056

Run #15 : Filename P519488 Samp: 1 Inj: 1 Acquired: 19-DEC-18 09:54:48
Processed: 20-DEC-18 15:53:44 LAB. ID: E1801094-014

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	8.69e+08	7.14e+03	1.2e+05	1.03e+09	1.03e+04	9.9e+04
2	1,2,3,7,8-PeCDF	3.69e+07	1.28e+04	2.9e+03	2.34e+07	9.95e+03	2.3e+03
3	2,3,4,7,8-PeCDF	3.17e+07	1.28e+04	2.5e+03	2.08e+07	9.95e+03	2.1e+03
4	1,2,3,4,7,8-HxCDF	4.35e+07	1.05e+04	4.2e+03	3.56e+07	4.26e+03	8.4e+03
5	1,2,3,6,7,8-HxCDF	1.01e+07	1.05e+04	9.6e+02	8.56e+06	4.26e+03	2.0e+03
6	2,3,4,6,7,8-HxCDF	1.82e+06	1.05e+04	1.7e+02	1.46e+06	4.26e+03	3.4e+02
7	1,2,3,7,8,9-HxCDF	2.13e+06	1.05e+04	2.0e+02	1.72e+06	4.26e+03	4.0e+02
8	1,2,3,4,6,7,8-HpCDF	5.21e+06	2.00e+03	2.6e+03	5.07e+06	1.34e+03	3.8e+03
9	1,2,3,4,7,8,9-HpCDF	9.11e+05	2.00e+03	4.6e+02	9.40e+05	1.34e+03	7.0e+02
10	OCDF	6.97e+05	4.56e+02	1.5e+03	8.00e+05	6.64e+02	1.2e+03
11	2,3,7,8-TCDD	2.96e+08	2.63e+03	1.1e+05	3.71e+08	2.64e+03	1.4e+05
12	1,2,3,7,8-PeCDD	2.61e+06	2.96e+03	8.8e+02	1.71e+06	4.07e+03	4.2e+02
13	1,2,3,4,7,8-HxCDD	3.09e+04	2.13e+03	1.5e+01	2.22e+04	2.68e+03	8.3e+00
14	1,2,3,6,7,8-HxCDD	2.53e+05	2.13e+03	1.2e+02	2.18e+05	2.68e+03	8.2e+01
15	1,2,3,7,8,9-HxCDD	6.71e+04	2.13e+03	3.2e+01	5.33e+04	2.68e+03	2.0e+01
16	1,2,3,4,6,7,8-HpCDD	4.10e+06	4.56e+02	9.0e+03	3.78e+06	1.44e+03	2.6e+03
17	OCDD	1.36e+07	6.16e+02	2.2e+04	1.53e+07	4.96e+02	3.1e+04
18	13C-2,3,7,8-TCDF	2.71e+06	1.73e+04	1.6e+02	3.36e+06	2.74e+04	1.2e+02
19	13C-1,2,3,7,8-PeCDF	3.15e+06	1.16e+04	2.7e+02	1.97e+06	5.30e+03	3.7e+02
20	13C-2,3,4,7,8-PeCDF	4.12e+06	1.16e+04	3.5e+02	2.52e+06	5.30e+03	4.8e+02
21	13C-1,2,3,4,7,8-HxCDF	1.05e+06	3.17e+03	3.3e+02	2.07e+06	2.79e+03	7.4e+02
22	13C-1,2,3,6,7,8-HxCDF	1.20e+06	3.17e+03	3.8e+02	2.24e+06	2.79e+03	8.0e+02
23	13C-2,3,4,6,7,8-HxCDF	1.03e+06	3.17e+03	3.2e+02	1.93e+06	2.79e+03	6.9e+02
24	13C-1,2,3,7,8,9-HxCDF	6.95e+05	3.17e+03	2.2e+02	1.34e+06	2.79e+03	4.8e+02
25	13C-1,2,3,4,6,7,8-HpCDF	3.71e+05	1.66e+03	2.2e+02	8.40e+05	1.80e+03	4.7e+02
26	13C-1,2,3,4,7,8,9-HpCDF	2.01e+05	1.66e+03	1.2e+02	4.51e+05	1.80e+03	2.5e+02
27	13C-2,3,7,8-TCDD	1.42e+06	3.95e+03	3.6e+02	1.82e+06	2.49e+03	7.3e+02
28	13C-1,2,3,7,8-PeCDD	2.51e+06	1.14e+03	2.2e+03	1.53e+06	8.16e+02	1.9e+03
29	13C-1,2,3,4,7,8-HxCDD	1.40e+06	1.04e+03	1.3e+03	1.11e+06	7.28e+02	1.5e+03
30	13C-1,2,3,6,7,8-HxCDD	1.23e+06	1.04e+03	1.2e+03	9.90e+05	7.28e+02	1.4e+03
31	13C-1,2,3,4,6,7,8-HpCDD	5.53e+05	2.04e+02	2.7e+03	5.31e+05	4.04e+02	1.3e+03
32	13C-OCDD	1.85e+05	4.28e+02	4.3e+02	2.10e+05	5.32e+02	3.9e+02
33	13C-1,2,3,4-TCDD	2.44e+06	3.95e+03	6.2e+02	2.98e+06	2.49e+03	1.2e+03
34	13C-1,2,3,7,8,9-HxCDD	2.09e+06	1.04e+03	2.0e+03	1.61e+06	7.28e+02	2.2e+03
35	37Cl-2,3,7,8-TCDD	5.25e+06	1.15e+04	4.6e+02			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (2.632e{+}03 + 2.644e{+}03) \times 2000}{(1.423e{+}06 + 1.815e{+}06) \times (\quad) \times 1.085} =$$

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0056

Entry: 36 Totals Name: Total Tetra-Furans

Run: 15 File: P519488 Sample:1 Injection:1 Function:1

Acquired: 19-DEC-18 09:54:48 Processed: 20-DEC-18 15:53:44

Mass: 303.9020 305.8990 Tot Response: 2.42e+07 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:02	4.69e+04	6.19e+04	0.76	yes	1.09e+05		n	n
2	24:18	2.66e+05	3.44e+05	0.77	yes	6.10e+05		n	n
3	24:39	7.65e+04	9.94e+04	0.77	yes	1.76e+05		n	n
4	24:57	2.32e+05	3.00e+05	0.77	yes	5.31e+05		n	n
5	25:21	4.65e+04	6.77e+04	0.69	yes	1.14e+05		n	n
6	25:37	1.59e+05	2.06e+05	0.77	yes	3.65e+05		n	n
7	25:44	2.86e+05	3.68e+05	0.78	yes	6.55e+05		n	n
8	26:10	2.62e+06	3.35e+06	0.78	yes	5.97e+06		n	n
9	26:29	1.33e+05	1.71e+05	0.78	yes	3.04e+05		n	n
10	27:08	5.99e+06	7.40e+06	0.81	yes	1.34e+07	2,3,7,8-TCDF	n	n
11	27:33	3.82e+05	4.90e+05	0.78	yes	8.71e+05		n	n
12	27:44	7.72e+04	1.00e+05	0.77	yes	1.77e+05		n	n
13	29:08	4.11e+05	5.30e+05	0.78	yes	9.41e+05		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0056

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 15 File: P519488 Sample:1 Injection:1 Function:1

Acquired: 19-DEC-18 09:54:48 Processed: 20-DEC-18 15:53:44

Mass: 319.8970 321.8940 Tot Response: 3.86e+06 RRF: 1.085

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	27:41	2.20e+04	2.71e+04	0.81	yes	4.91e+04		n	n
2	27:58	1.55e+06	1.96e+06	0.79	yes	3.51e+06	2,3,7,8-TCDD	n	n
3	28:17	1.32e+05	1.70e+05	0.77	yes	3.01e+05		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0056

Entry: 38 Totals Name: Total Penta-Furans1

Run: 15 File: P519488 Sample:1 Injection:1 Function:1

Acquired: 19-DEC-18 09:54:48 Processed: 20-DEC-18 15:53:44

Mass: 339.8600 341.8570 Tot Response: 8.03e+03 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:10	5.14e+03	2.89e+03 1.78	yes	8.03e+03		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0056

Entry: 39 Totals Name: Total Penta-Furans2

Run: 15 File: P519488 Sample:1 Injection:1 Function:2

Acquired: 19-DEC-18 09:54:48 Processed: 20-DEC-18 15:53:44

Mass: 339.8600 341.8570 Tot Response: 1.11e+06 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:32	2.64e+03	1.54e+03	1.71	yes	4.18e+03	n	n
2	30:40	1.17e+05	7.40e+04	1.58	yes	1.91e+05	n	n
3	30:59	9.68e+02	6.10e+02	1.59	yes	1.58e+03	n	n
4	31:13	4.67e+03	3.24e+03	1.44	yes	7.91e+03	n	n
5	31:19	5.15e+03	3.38e+03	1.52	yes	8.53e+03	n	n
6	31:27	2.66e+04	1.66e+04	1.60	yes	4.32e+04	n	n
7	31:38	2.43e+05	1.57e+05	1.55	yes	4.00e+05	1,2,3,7,8-PeCDF	n	n
8	31:53	7.52e+04	4.94e+04	1.52	yes	1.25e+05	n	n
9	32:33	1.90e+05	1.22e+05	1.56	yes	3.12e+05	2,3,4,7,8-PeCDF	n	n
10	33:29	8.25e+03	5.62e+03	1.47	yes	1.39e+04	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0056

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 15 File: P519488 Sample:1 Injection:1 Function:2

Acquired: 19-DEC-18 09:54:48 Processed: 20-DEC-18 15:53:44

Mass: 355.8550 357.8520 Tot Response: 3.40e+04 RRF: 0.9565

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:43	9.79e+02	6.08e+02	1.61	yes	1.59e+03		n	n
2	31:39	1.95e+03	1.24e+03	1.58	yes	3.19e+03		n	n
3	31:49	8.47e+02	5.20e+02	1.63	yes	1.37e+03		n	n
4	31:55	6.08e+02	3.84e+02	1.58	yes	9.92e+02		n	n
5	32:27	4.39e+02	2.53e+02	1.73	yes	6.91e+02		n	n
6	32:51	1.59e+04	1.00e+04	1.59	yes	2.60e+04	1,2,3,7,8-PeCDD	n	n
7	33:23	1.21e+02	6.77e+01	1.78	yes	1.88e+02		n	n

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Peak List Summary

CLIENT ID.
SL0056

Entry: 41 Totals Name: Total Hexa-Furans

Run: 15 File: P519488 Sample:1 Injection:1 Function:3

Acquired: 19-DEC-18 09:54:48 Processed: 20-DEC-18 15:53:44

Mass: 373.8210 375.8180 Tot Response: 5.64e+05 RRF: 1.141

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:12	1.88e+03	1.61e+03	1.16	yes	3.49e+03		n	n
2	34:22	1.72e+04	1.41e+04	1.22	yes	3.13e+04		n	n
3	34:54	9.49e+03	8.01e+03	1.18	yes	1.75e+04		n	n
4	35:14	3.65e+02	3.09e+02	1.18	yes	6.75e+02		n	n
5	35:20	2.07e+05	1.68e+05	1.23	yes	3.76e+05	1,2,3,4,7,8-HxCDF	n	n
6	35:26	5.31e+04	4.70e+04	1.13	yes	1.00e+05	1,2,3,6,7,8-HxCDF	n	n
7	35:58	8.49e+03	6.96e+03	1.22	yes	1.54e+04	2,3,4,6,7,8-HxCDF	n	n
8	36:46	1.11e+04	8.97e+03	1.23	yes	2.00e+04	1,2,3,7,8,9-HxCDF	n	n

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Peak List Summary

CLIENT ID.
SL0056

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 15 File: P519488 Sample:1 Injection:1 Function:3

Acquired: 19-DEC-18 09:54:48 Processed: 20-DEC-18 15:53:44

Mass: 389.8160 391.8130 Tot Response: 1.54e+04 RRF: 1.047

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:44	2.74e+03	2.30e+03 1.19	yes	5.04e+03		n	n
2	35:16	4.11e+02	3.60e+02 1.14	yes	7.70e+02		n	n
3	35:30	3.57e+03	2.97e+03 1.21	yes	6.54e+03		n	n
4	36:06	1.26e+02	8.96e+01 1.40	yes	2.15e+02	1,2,3,4,7,8-HxCDD	n	n
5	36:12	1.23e+03	1.02e+03 1.20	yes	2.25e+03	1,2,3,6,7,8-HxCDD	n	n
6	36:27	3.46e+02	2.72e+02 1.27	yes	6.18e+02	1,2,3,7,8,9-HxCDD	n	n

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Peak List Summary

CLIENT ID.
SL0056

Entry: 43 Totals Name: Total Hepta-Furans

Run: 15 File: P519488 Sample:1 Injection:1 Function:4

Acquired: 19-DEC-18 09:54:48 Processed: 20-DEC-18 15:53:44

Mass: 407.7820 409.7790 Tot Response: 8.63e+04 RRF: 1.308

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:05	2.68e+04	2.63e+04	1.02	yes	5.32e+04	1,2,3,4,6,7,8-HpCDF	n	n
2	38:29	1.12e+04	1.10e+04	1.02	yes	2.22e+04		n	n
3	39:29	5.47e+03	5.47e+03	1.00	yes	1.09e+04	1,2,3,4,7,8,9-HpCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0056

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 15 File: P519488 Sample:1 Injection:1 Function:4

Acquired: 19-DEC-18 09:54:48 Processed: 20-DEC-18 15:53:44

Mass: 423.7770 425.7740 Tot Response: 8.67e+04 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:21	2.13e+04	2.07e+04 1.03	yes	4.21e+04		n	n
2	39:02	2.30e+04	2.16e+04 1.07	yes	4.46e+04	1,2,3,4,6,7,8-HpCDD	n	n

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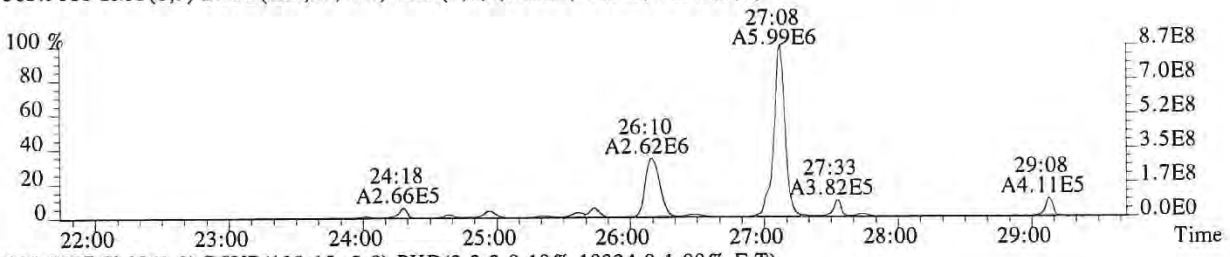
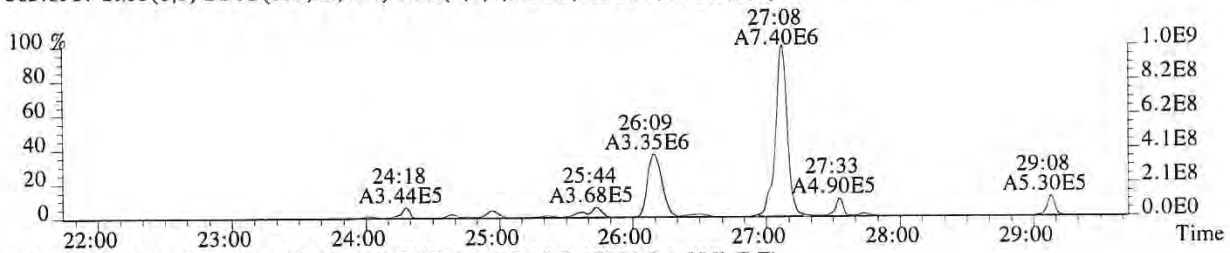
File:P519488 #1-566 Acq:19-DEC-2018 09:54:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-014

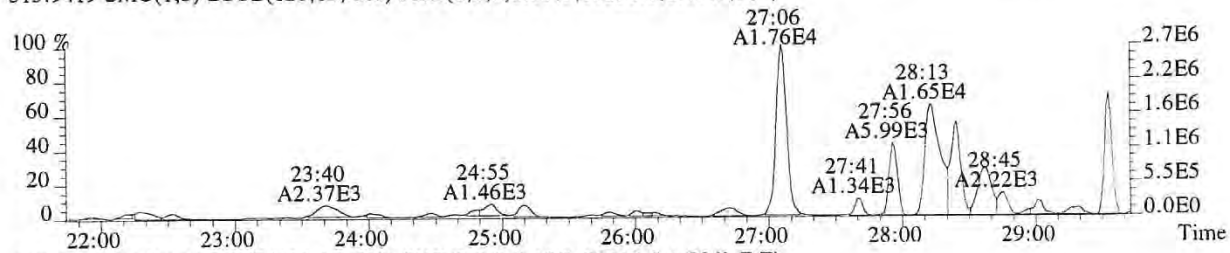
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7140.0,1.00%,F,T)



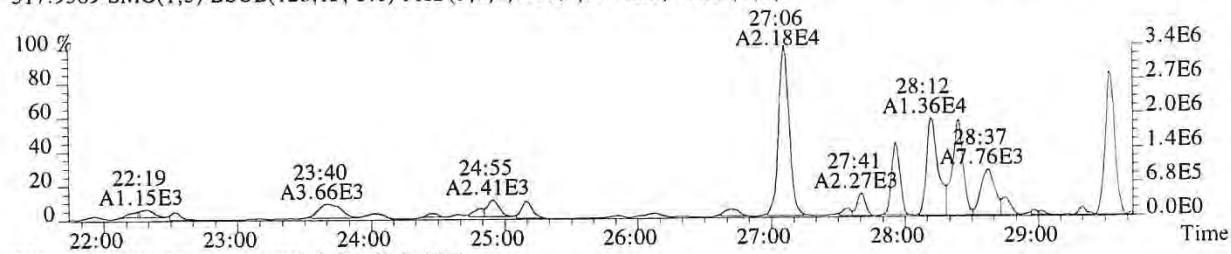
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10324.0,1.00%,F,T)



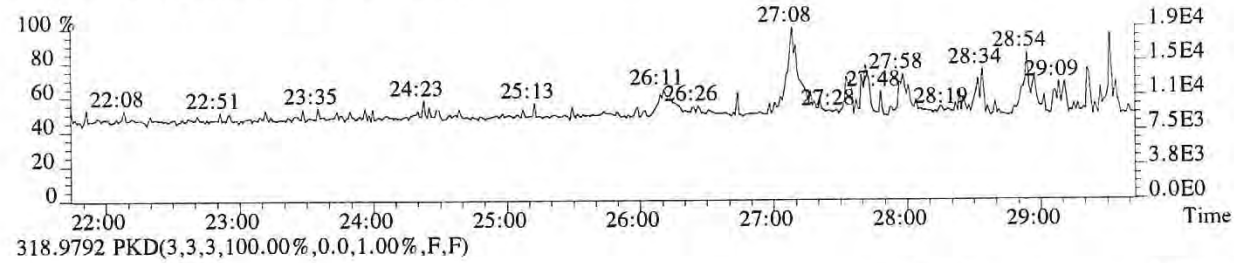
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,17256.0,1.00%,F,T)



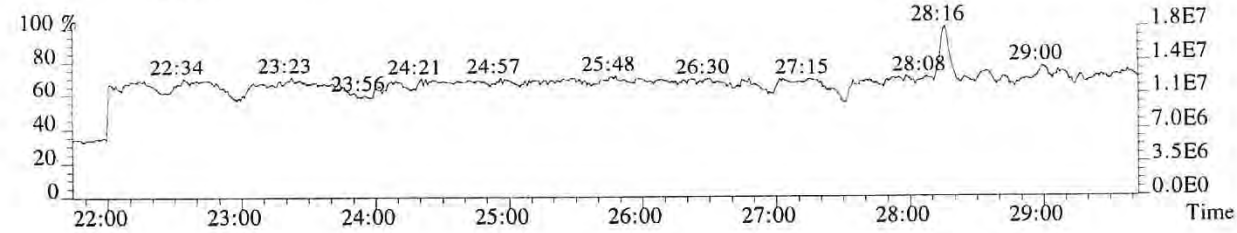
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,27412.0,1.00%,F,T)



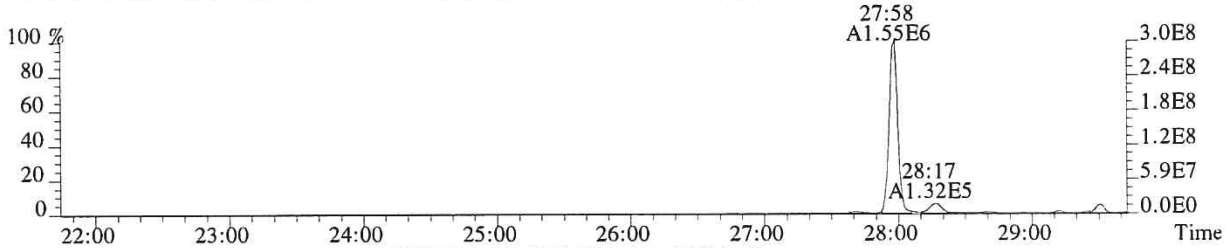
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



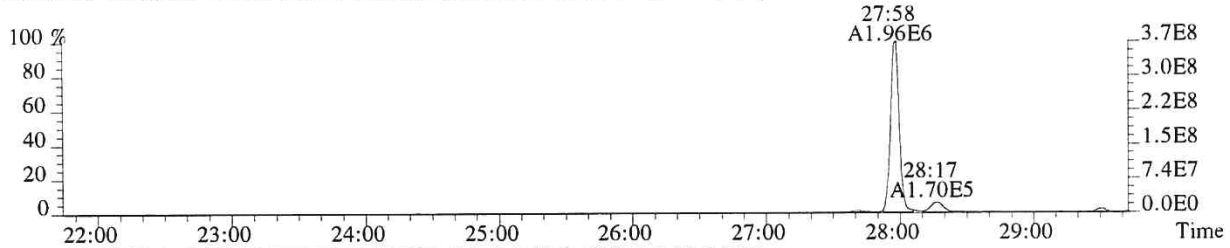
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



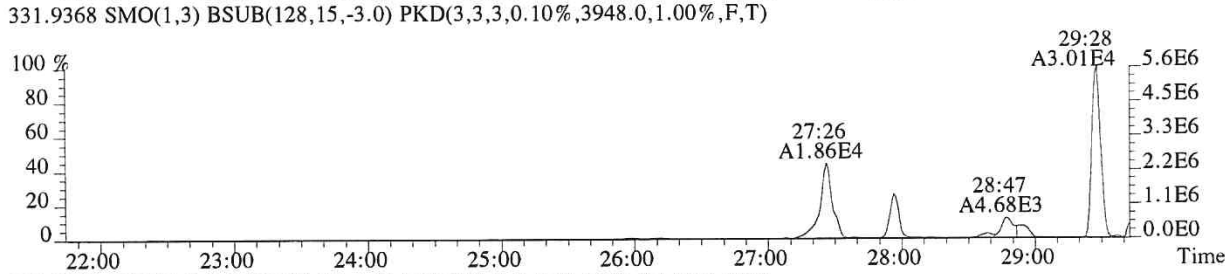
File:P519488 #1-566 Acq:19-DEC-2018 09:54:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-014
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2632.0,1.00%,F,T)



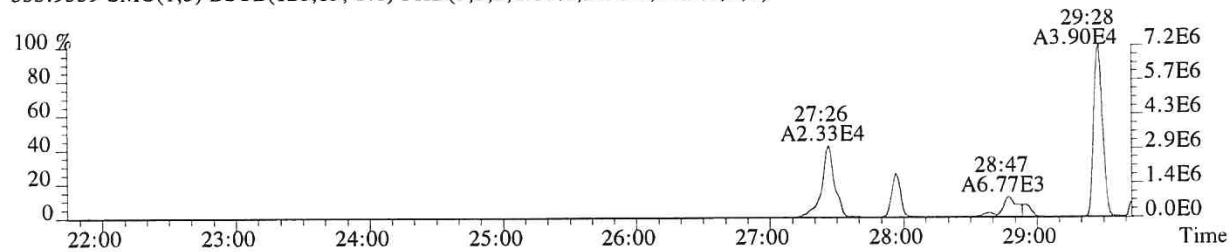
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2644.0,1.00%,F,T)



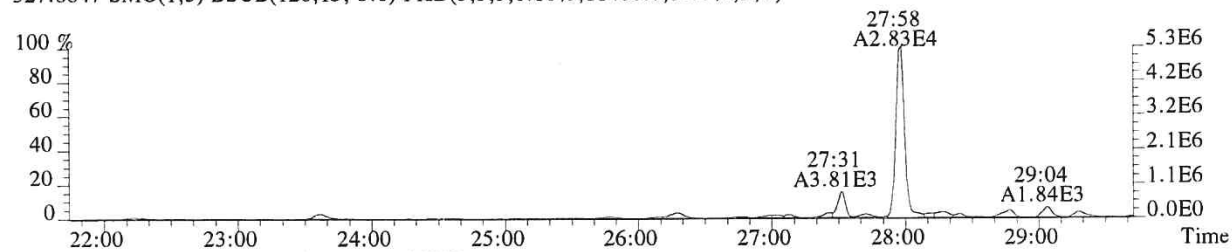
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3948.0,1.00%,F,T)



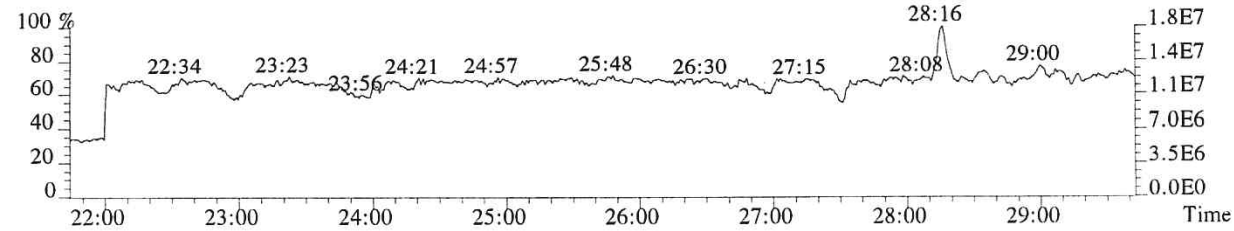
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2492.0,1.00%,F,T)



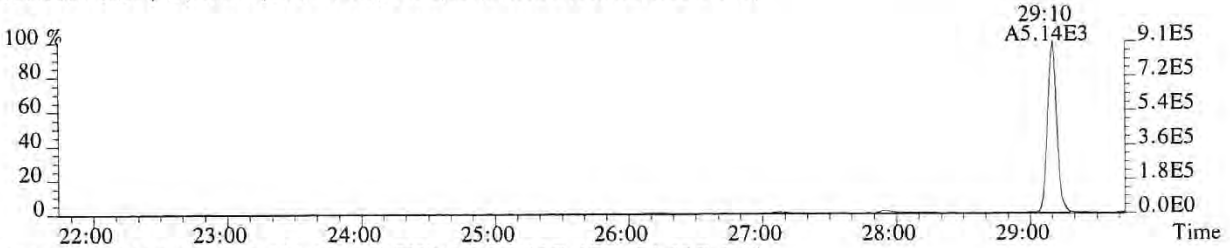
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,11480.0,1.00%,F,T)



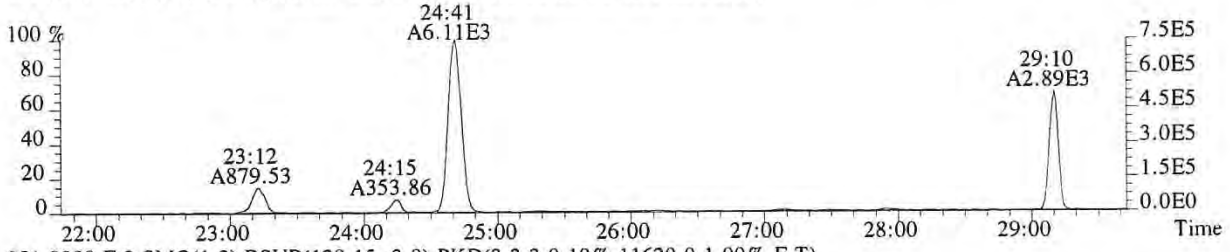
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



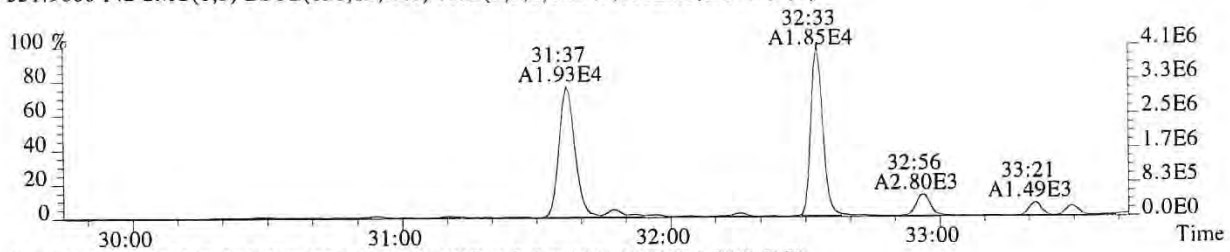
File:P519488 #1-566 Acq:19-DEC-2018 09:54:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-014
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1184.0,1.00%,F,T)



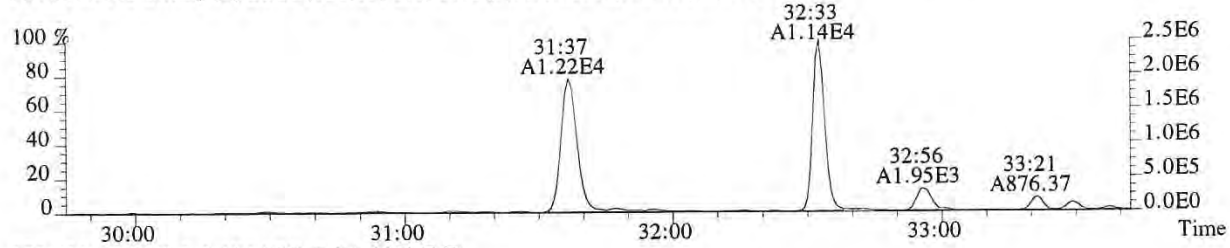
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1764.0,1.00%,F,T)



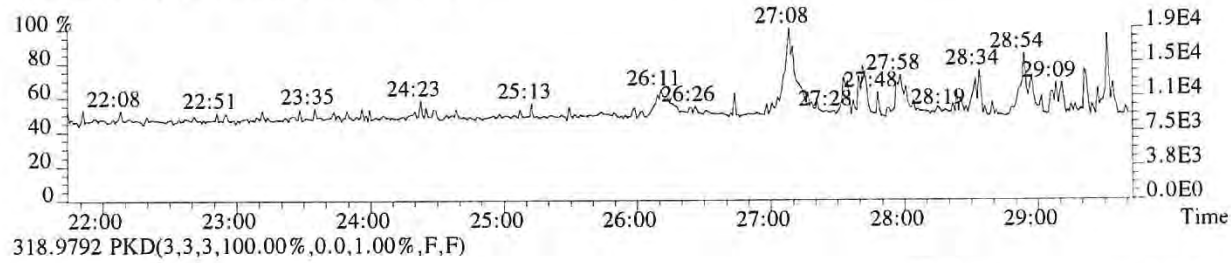
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,11620.0,1.00%,F,T)



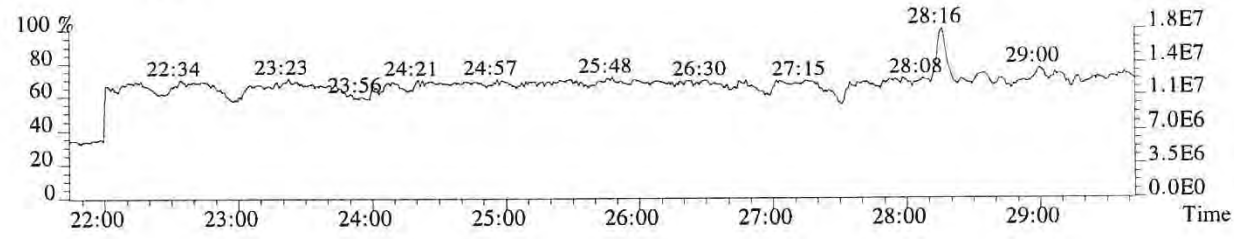
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5296.0,1.00%,F,T)



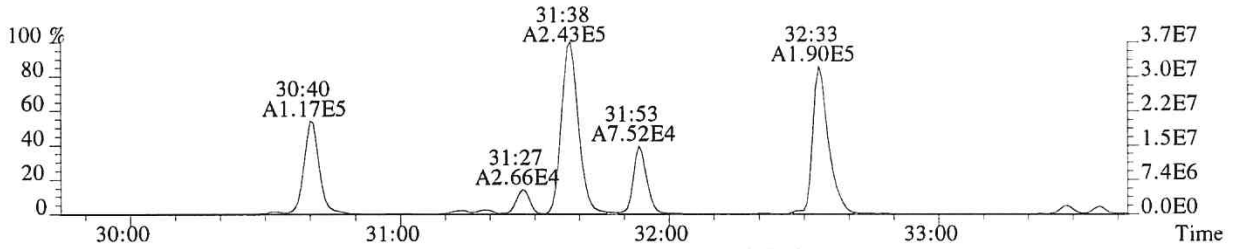
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



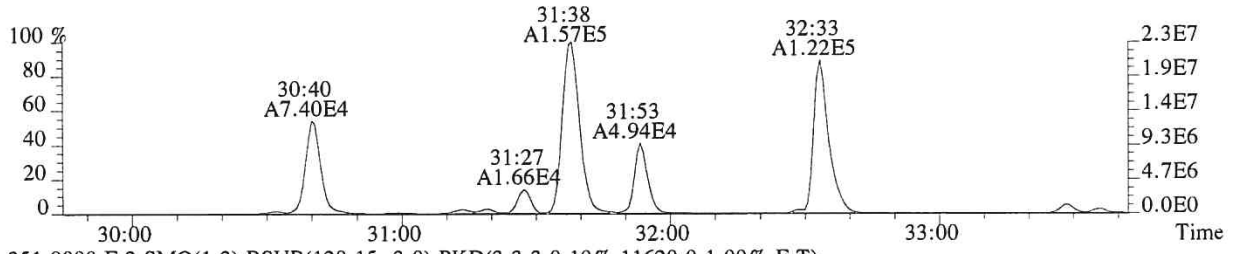
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



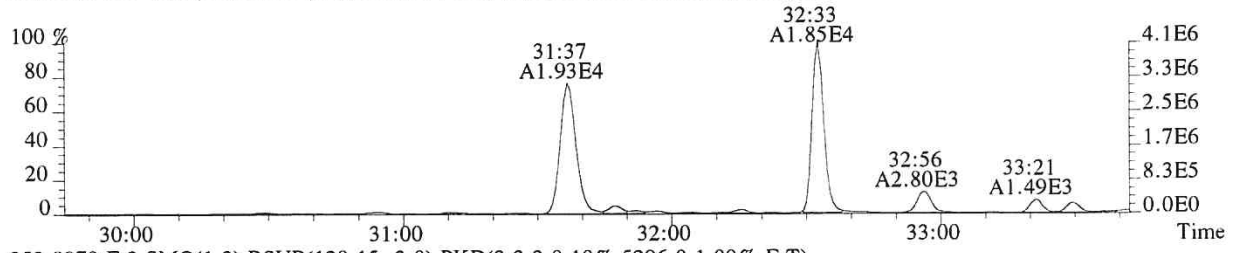
File:P519488 #1-357 Acq:19-DEC-2018 09:54:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-014
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,12780.0,1.00%,F,T)



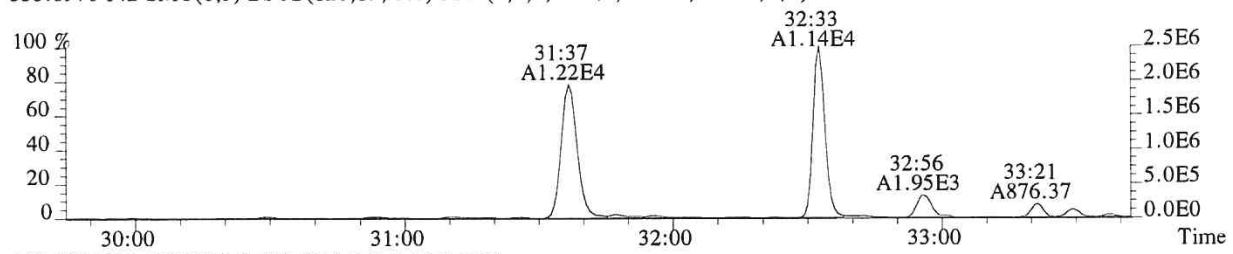
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9952.0,1.00%,F,T)



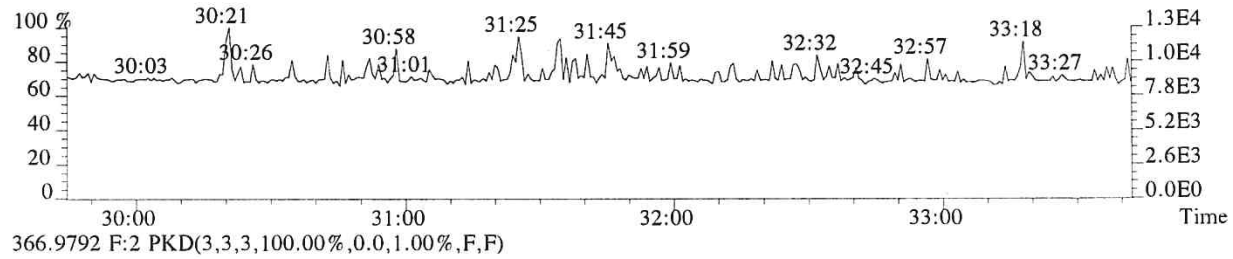
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,11620.0,1.00%,F,T)



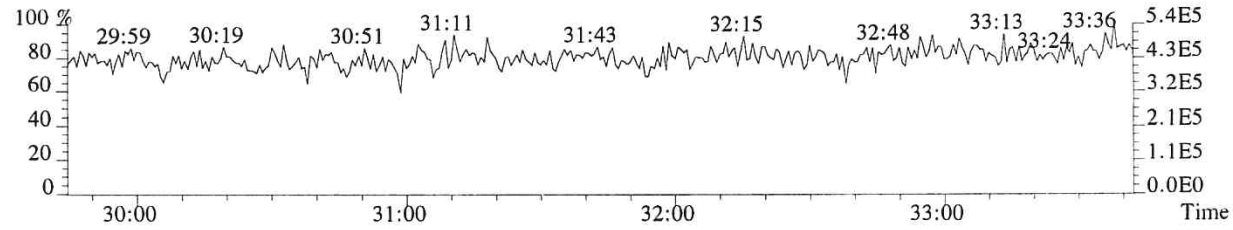
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5296.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

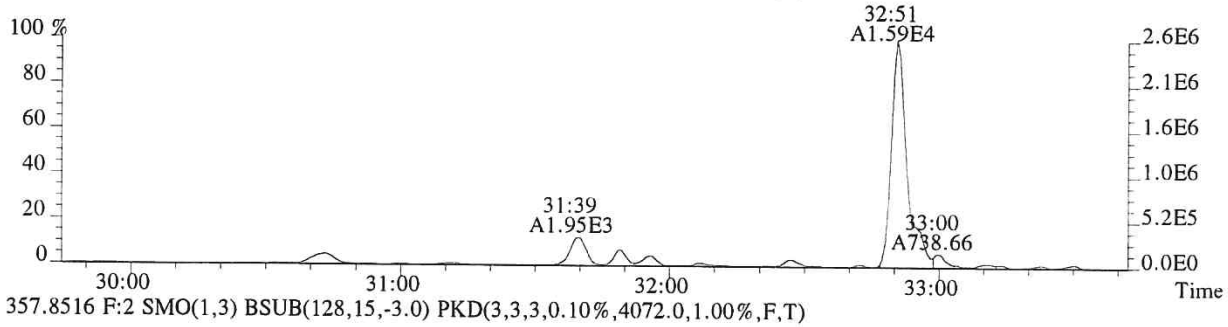


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

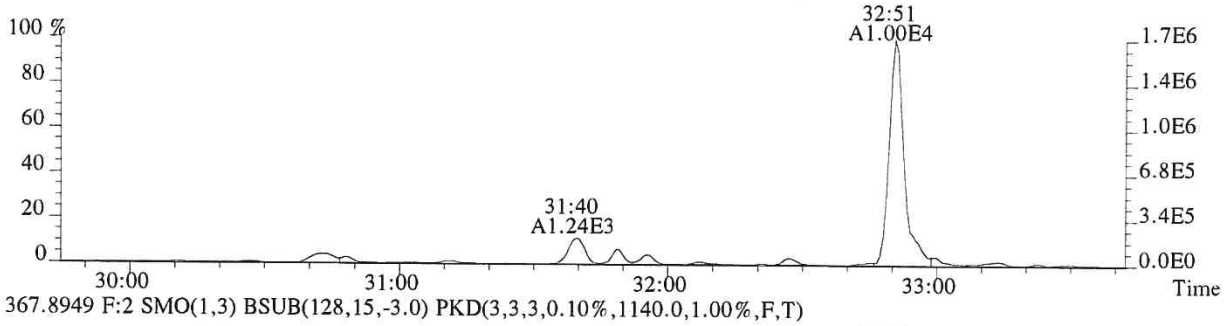


File:P519488 #1-357 Acq:19-DEC-2018 09:54:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-014

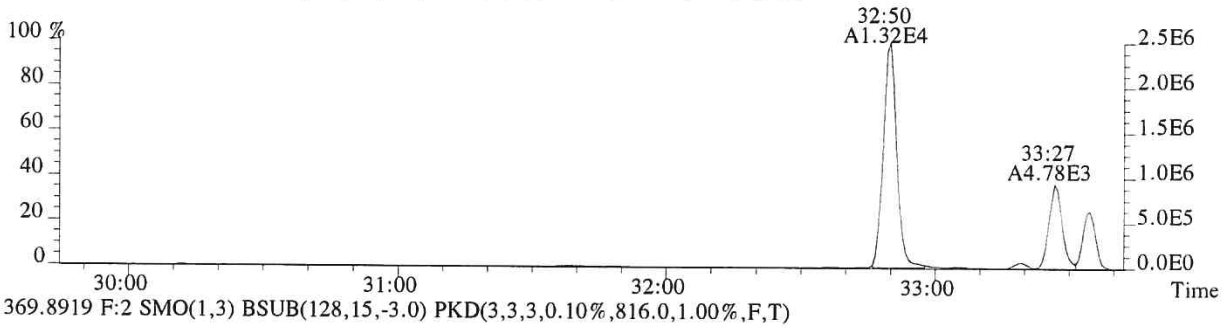
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2956.0,1.00%,F,T)



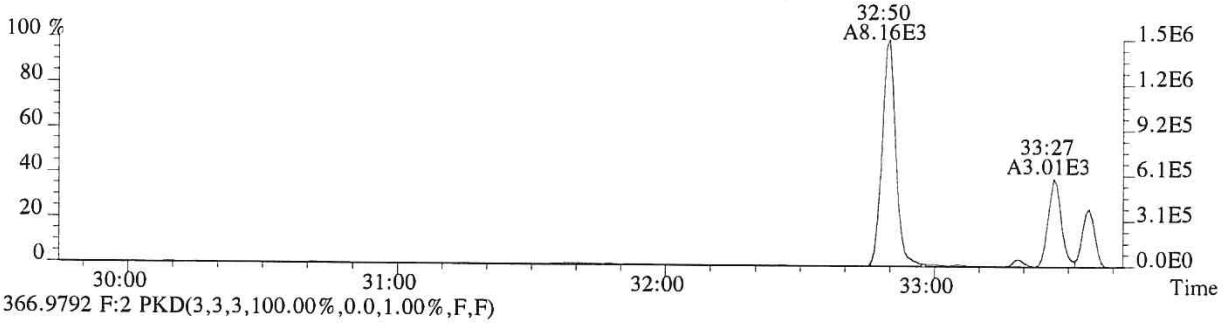
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4072.0,1.00%,F,T)



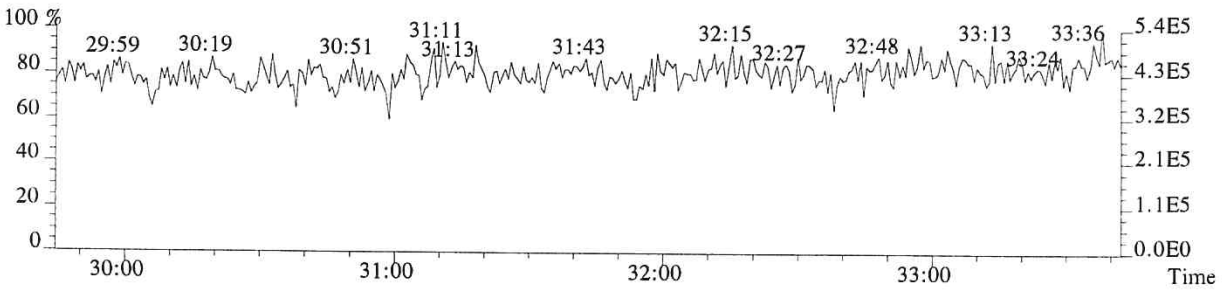
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1140.0,1.00%,F,T)



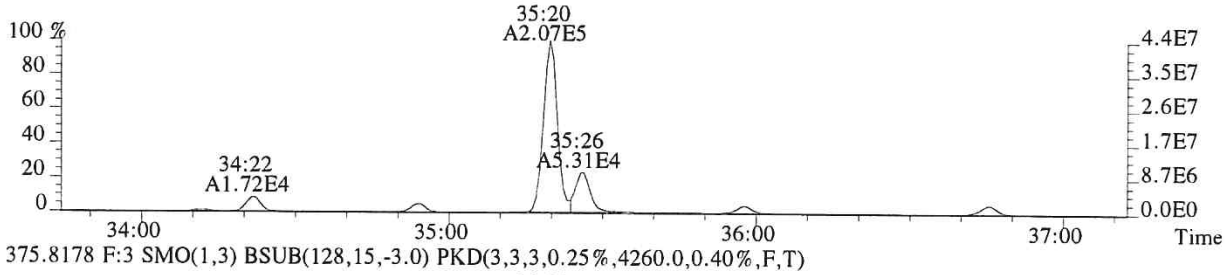
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,816.0,1.00%,F,T)



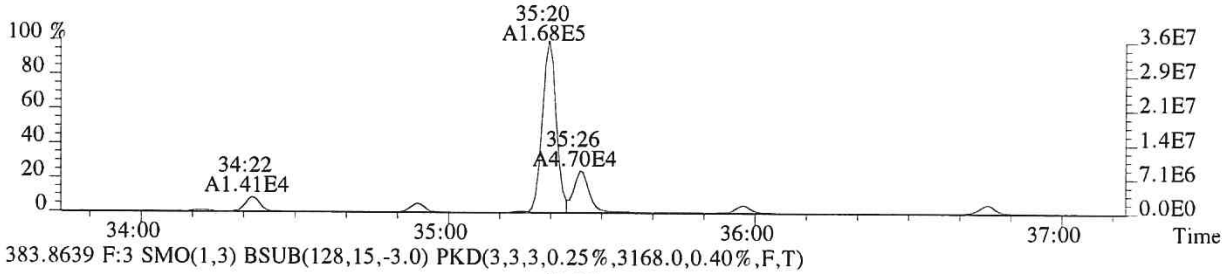
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



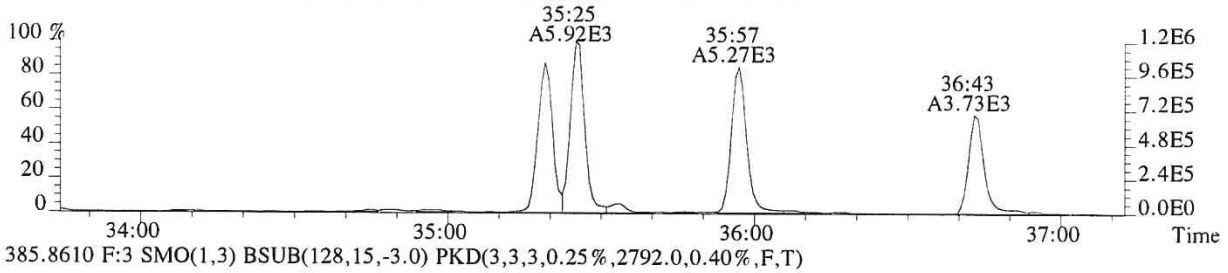
File:P519488 #1-313 Acq:19-DEC-2018 09:54:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-014
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,10480.0,0.40%,F,T)



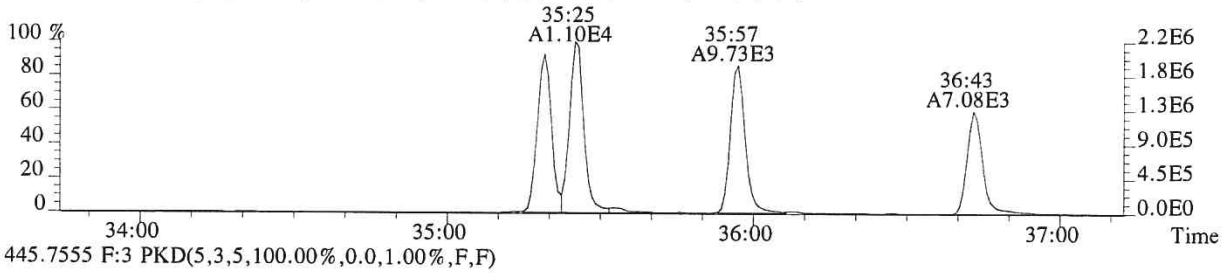
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4260.0,0.40%,F,T)



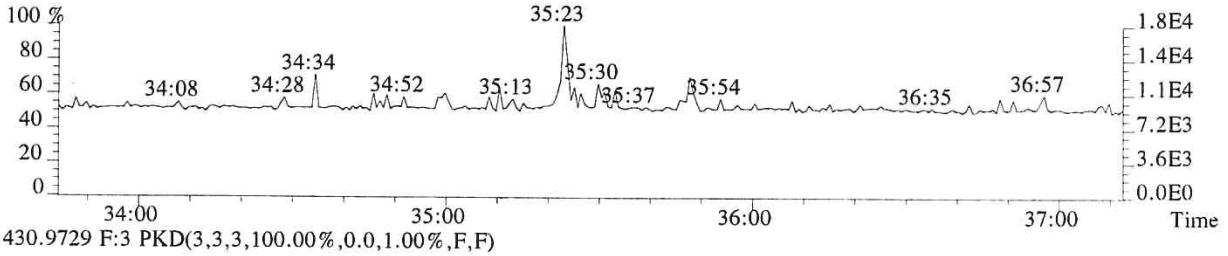
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3168.0,0.40%,F,T)



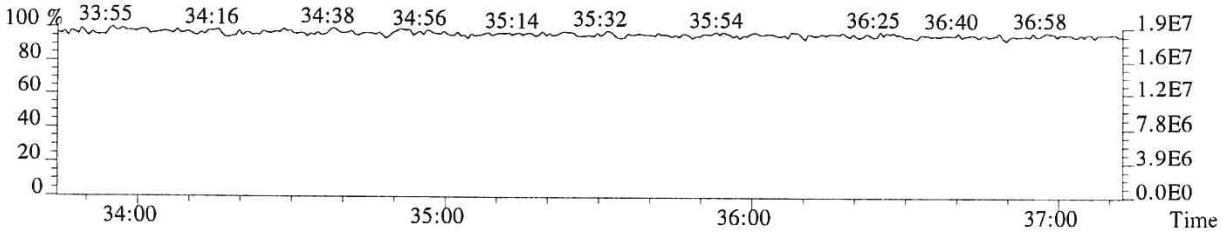
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2792.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

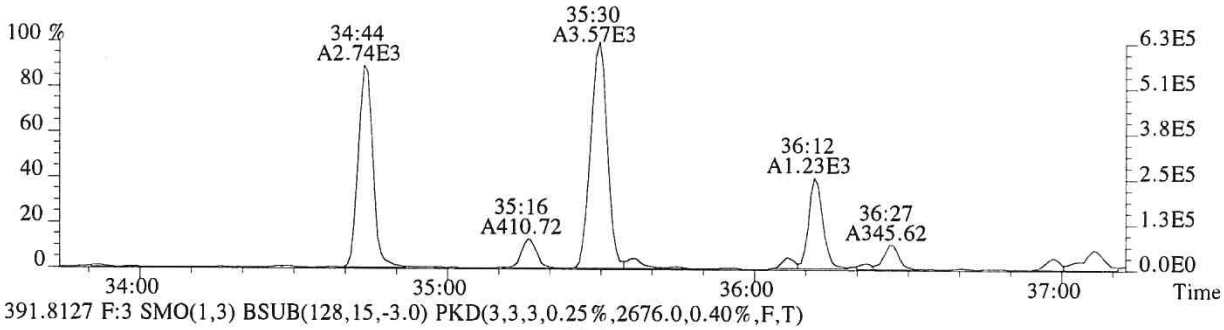


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

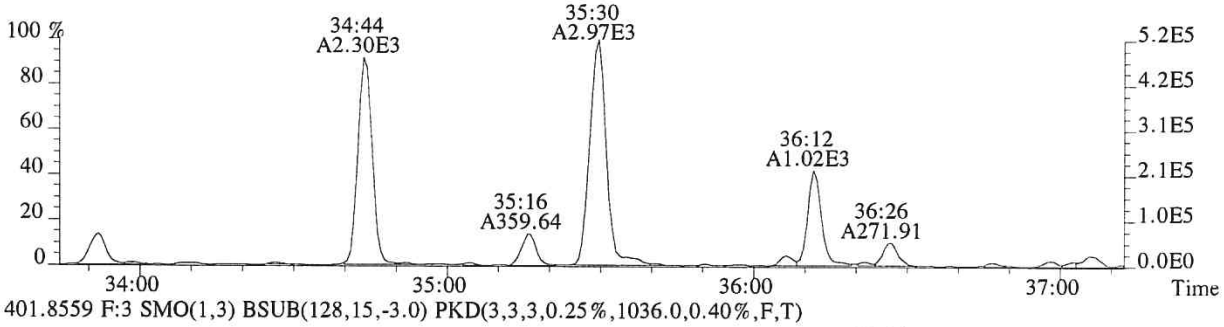


015506

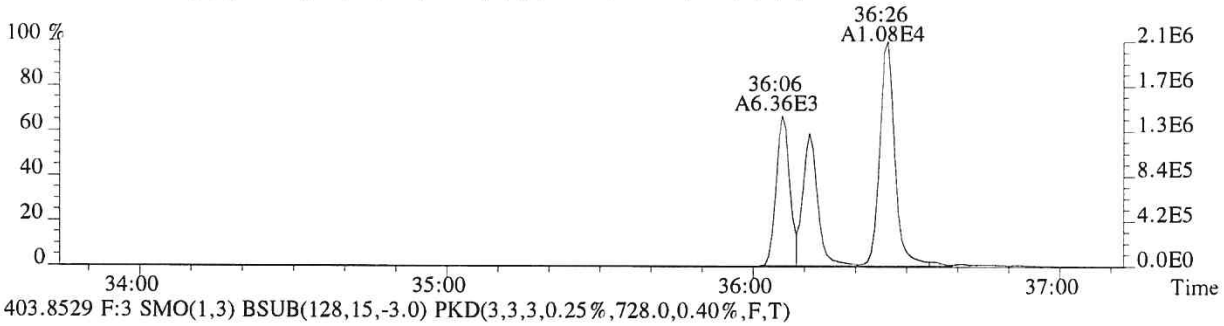
File:P519488 #1-313 Acq:19-DEC-2018 09:54:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-014
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2128.0,0.40%,F,T)



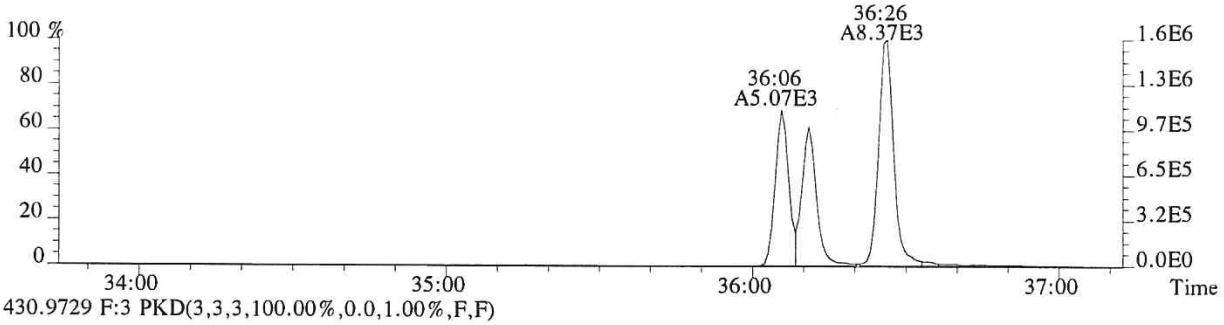
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2676.0,0.40%,F,T)



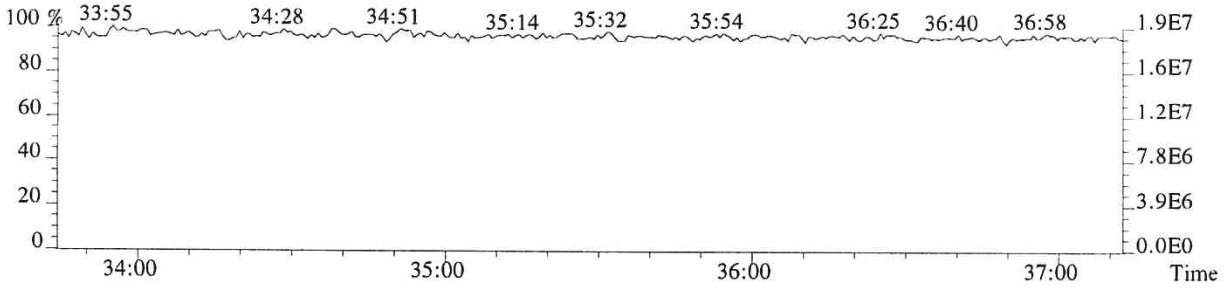
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1036.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,728.0,0.40%,F,T)

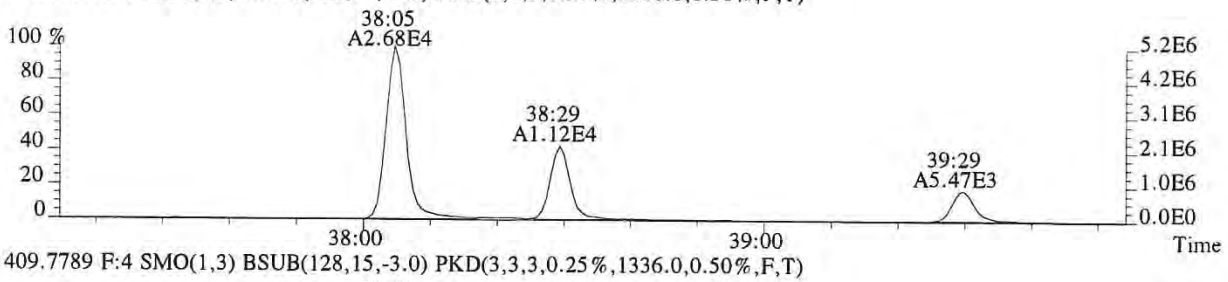


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

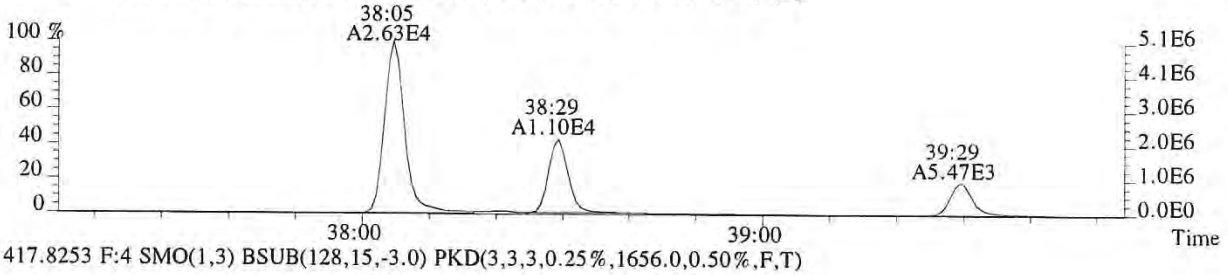


File:P519488 #1-240 Acq:19-DEC-2018 09:54:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-014

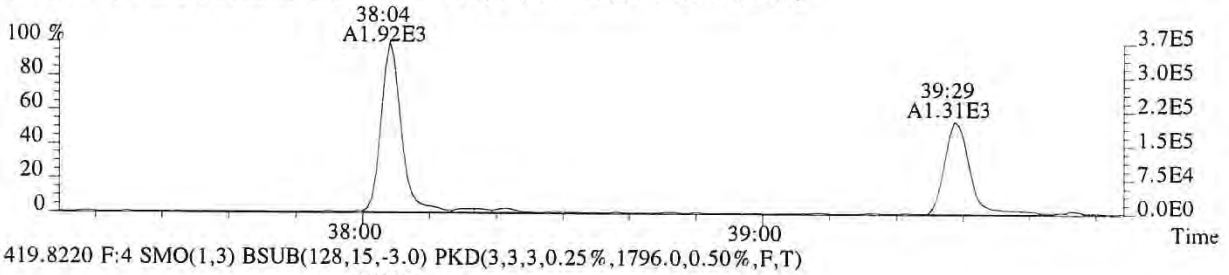
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2000.0,0.50%,F,T)



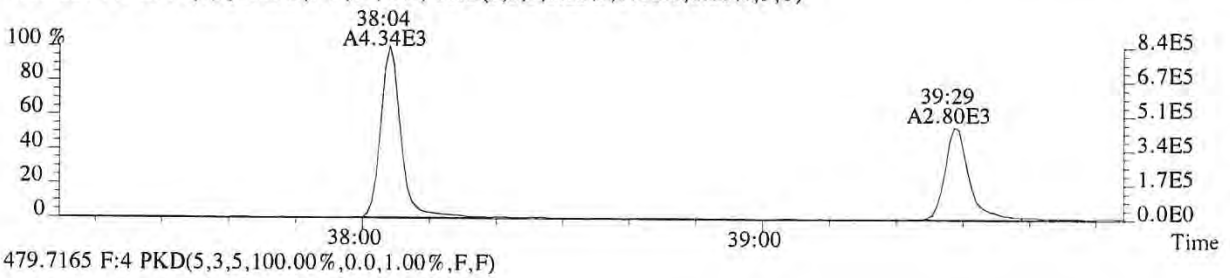
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1336.0,0.50%,F,T)



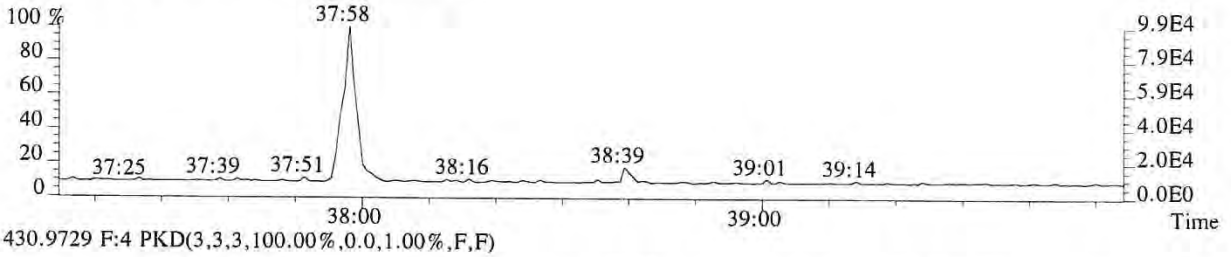
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1656.0,0.50%,F,T)



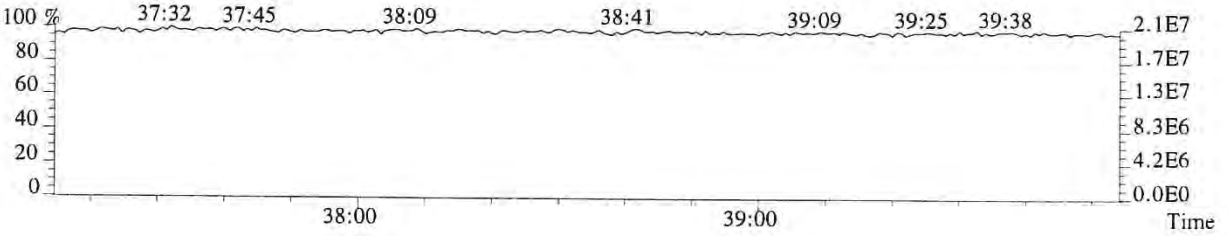
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1796.0,0.50%,F,T)



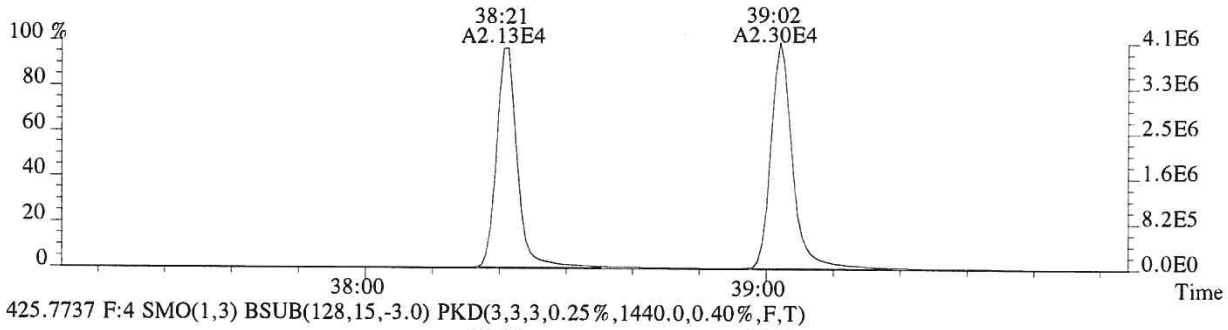
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



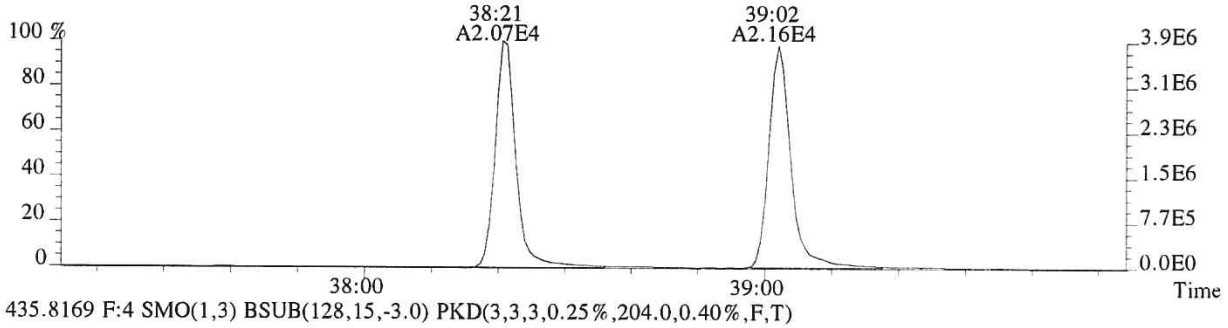
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



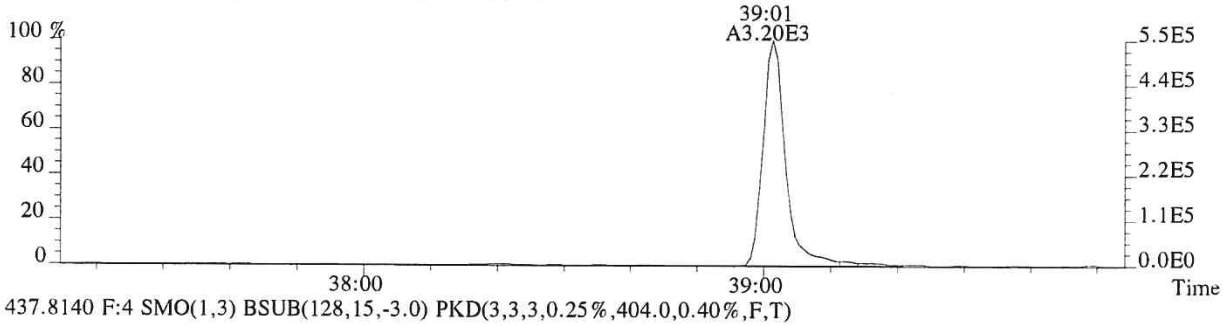
File:P519488 #1-240 Acq:19-DEC-2018 09:54:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-014
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,456.0,0.40%,F,T)



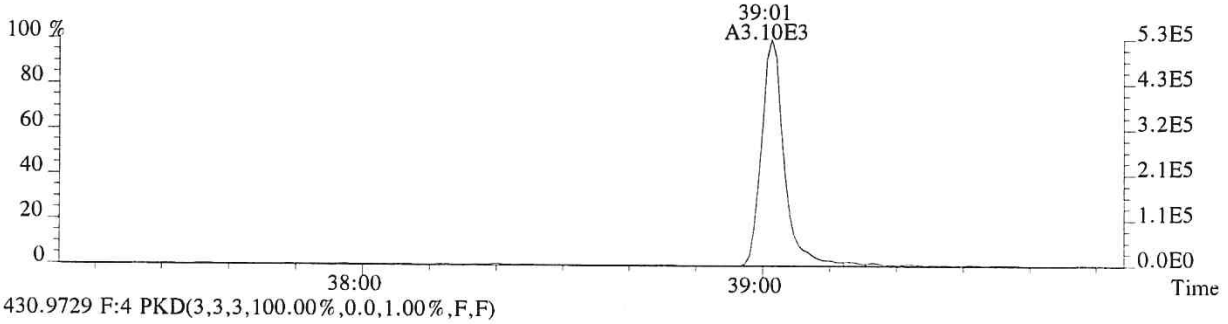
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1440.0,0.40%,F,T)



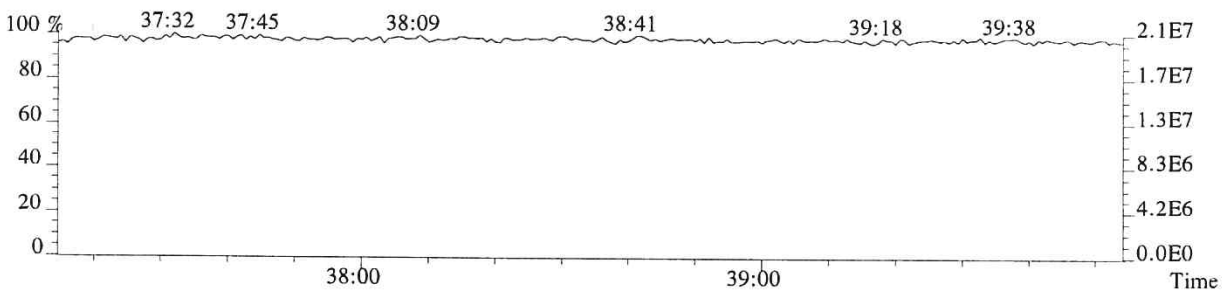
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,204.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,404.0,0.40%,F,T)

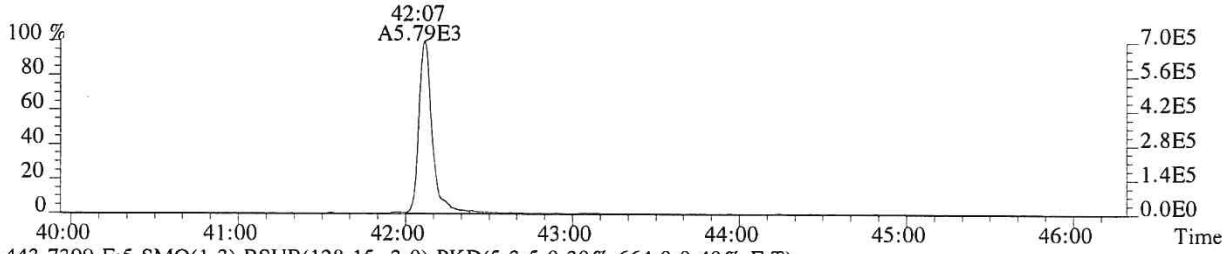


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

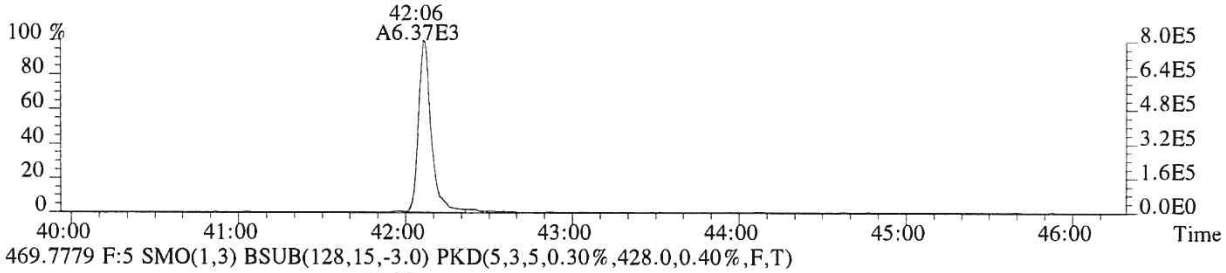


File:P519488 #1-575 Acq:19-DEC-2018 09:54:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-014

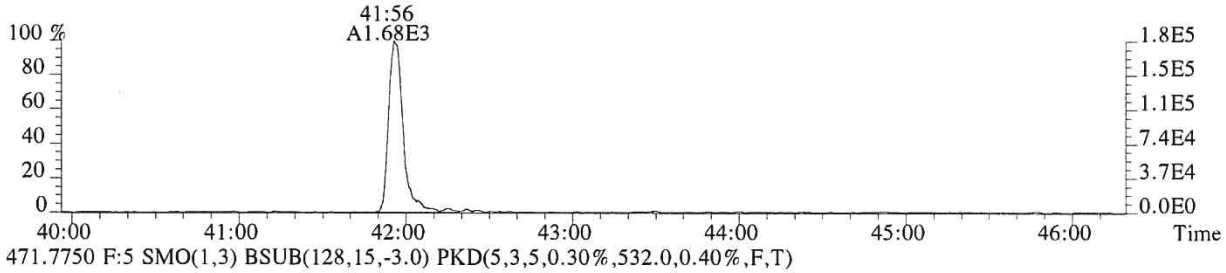
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,456.0,0.40%,F,T)



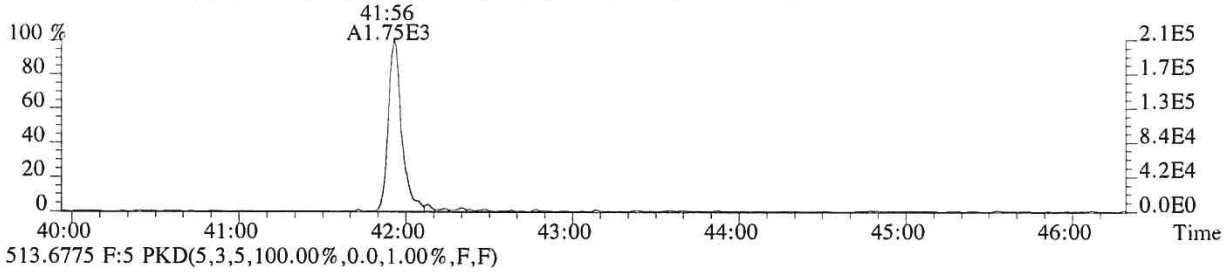
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,664.0,0.40%,F,T)



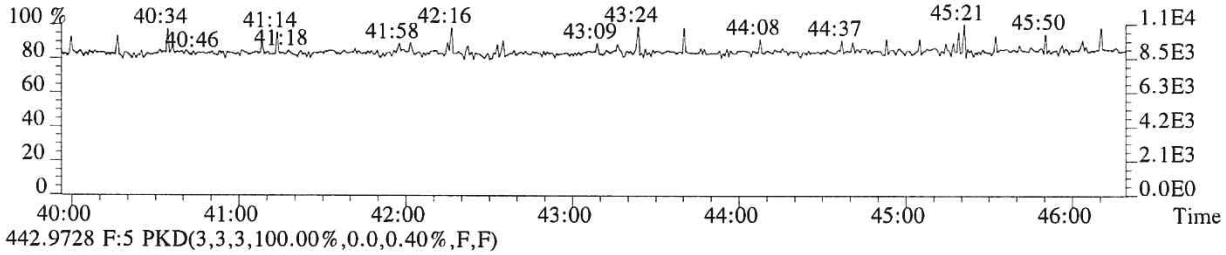
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,428.0,0.40%,F,T)



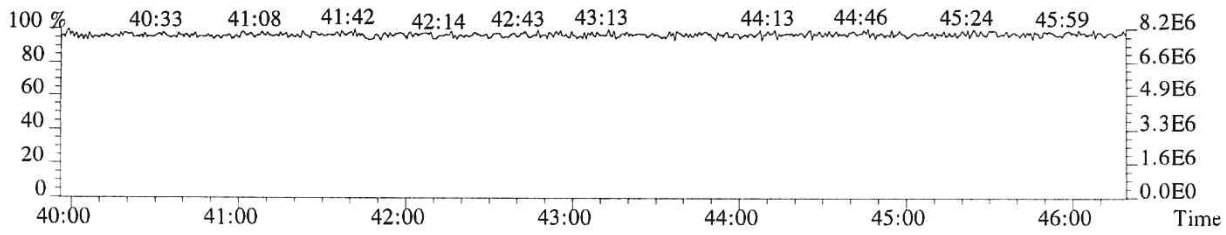
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,532.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

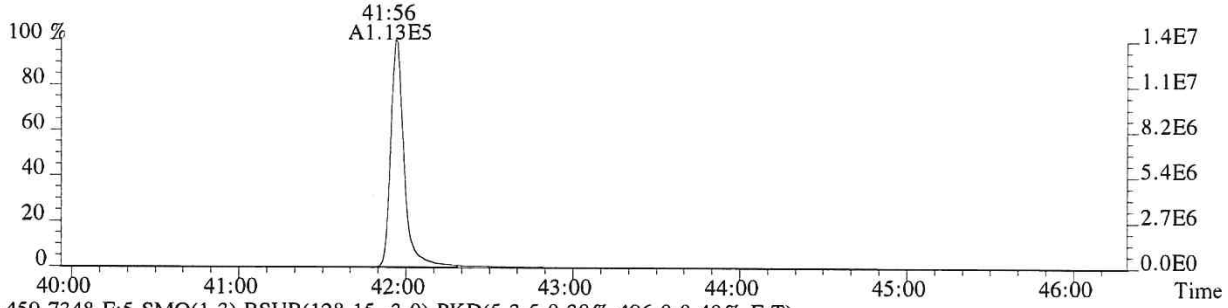


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

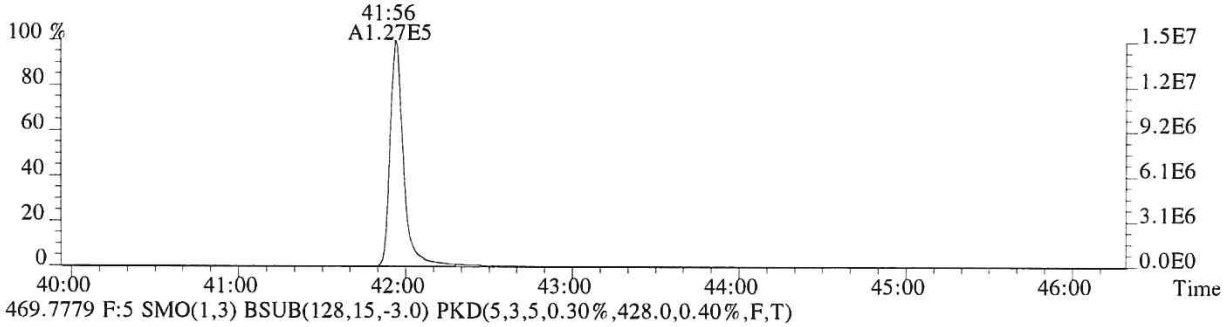


File:P519488 #1-575 Acq:19-DEC-2018 09:54:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-014

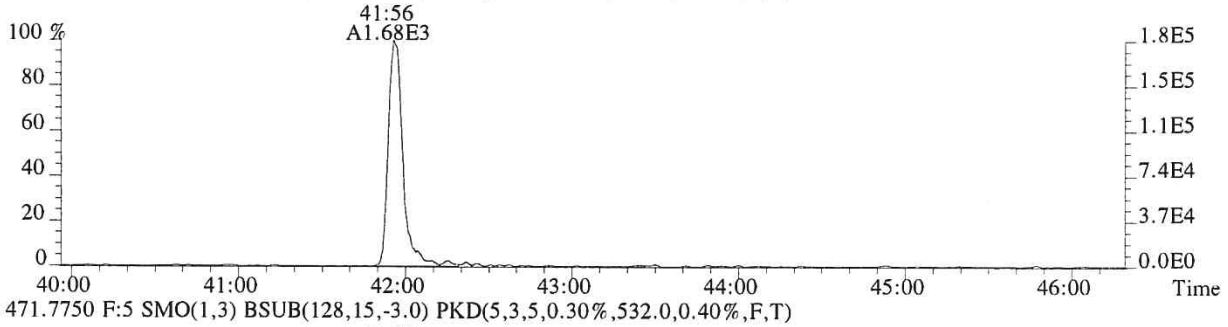
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,616.0,0.40%,F,T)



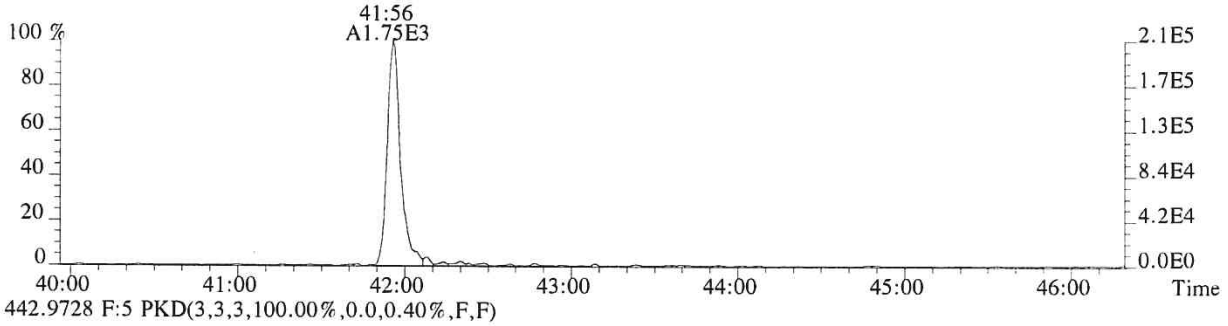
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,496.0,0.40%,F,T)



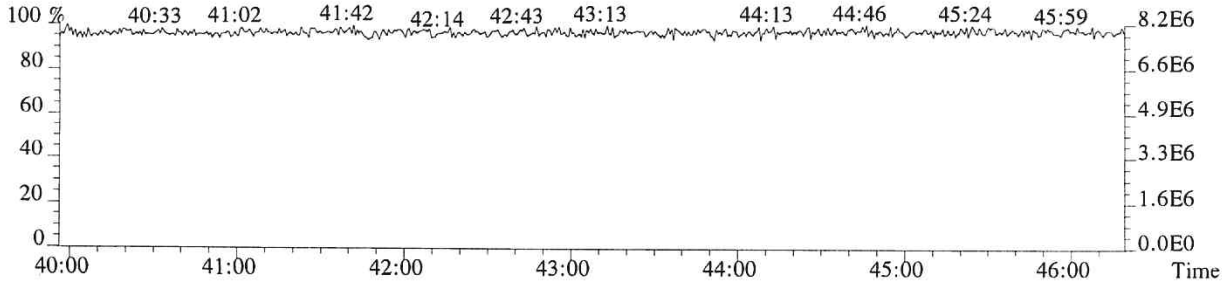
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,428.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,532.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0056

Run #14 Filename P519595 Samp: 1 Inj: 1 Acquired: 24-DEC-18 15:35:46
Processed: 26-DEC-18 13:34:52 Sample ID: E1801094-014DL

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:18	4.078e+03	5.180e+03	0.79	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	31:07	1.905e+02	1.332e+02	1.43	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	32:07	1.580e+02	8.698e+01	1.82	no	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:01	2.442e+02	1.906e+02	1.28	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:07	6.556e+01	4.796e+01	1.37	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.110
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	yes	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	37:51	6.586e+01	6.179e+01	1.07	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:18	1.937e+01	1.755e+01	1.10	yes	no	1.258
10	Unk	OCDF	NotFnd	*	*	*	no	no	1.359
11	Unk	2,3,7,8-TCDD	27:15	9.449e+02	1.293e+03	0.73	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	yes	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:50	4.260e+01	6.613e+01	0.64	no	no	1.025
17	Unk	OCDD	41:46	6.143e+02	6.181e+02	0.99	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	26:16	4.939e+03	6.141e+03	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	31:06	7.318e+03	4.519e+03	1.62	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	32:06	7.019e+03	4.353e+03	1.61	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:00	2.794e+03	5.345e+03	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:07	3.647e+03	7.005e+03	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:39	3.171e+03	5.979e+03	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	36:27	2.519e+03	4.976e+03	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:51	2.401e+03	5.536e+03	0.43	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:18	2.026e+03	4.615e+03	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	27:13	2.189e+03	2.882e+03	0.76	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:25	4.986e+03	3.192e+03	1.56	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:49	3.940e+03	3.055e+03	1.29	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:55	4.638e+03	3.513e+03	1.32	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:50	4.534e+03	4.312e+03	1.05	yes	no	0.858
32	IS	13C-OCDD	41:46	4.840e+03	5.386e+03	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	26:33	3.737e+03	4.755e+03	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:09	5.042e+03	3.840e+03	1.31	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:18	1.654e+01				no	1.014

$$\text{OCDD} = \frac{(6.143e{+}02 + 6.181e{+}02) \times 4000\ \text{pg} \times 500}{(4.840e{+}03 + 5.386e{+}03) \times 10.442\text{g} \times 49.4 / 100 \times 1.118} = 2178032.772\text{ng/kg}$$

LG 12/27/18

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0056

Run #14 Filename P519595 Samp: 1 Inj: 1 Acquired: 24-DEC-18 15:35:46
Processed: 26-DEC-18 13:34:52 LAB. ID: E1801094-014DL

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.75e+05	1.26e+03	4.6e+02	7.45e+05	3.07e+03	2.4e+02
2	1,2,3,7,8-PeCDF	3.22e+04	5.16e+02	6.2e+01	2.15e+04	1.55e+03	1.4e+01
3	2,3,4,7,8-PeCDF	2.10e+04	5.16e+02	4.1e+01	1.36e+04	1.55e+03	8.8e+00
4	1,2,3,4,7,8-HxCDF	3.95e+04	8.64e+02	4.6e+01	3.21e+04	7.80e+02	4.1e+01
5	1,2,3,6,7,8-HxCDF	1.17e+04	8.64e+02	1.4e+01	7.10e+03	7.80e+02	9.1e+00
6	2,3,4,6,7,8-HxCDF	*	8.64e+02	*	*	7.80e+02	*
7	1,2,3,7,8,9-HxCDF	*	8.64e+02	*	*	7.80e+02	*
8	1,2,3,4,6,7,8-HpCDF	1.45e+04	6.48e+02	2.2e+01	6.77e+03	4.92e+02	1.4e+01
9	1,2,3,4,7,8,9-HpCDF	3.08e+03	6.48e+02	4.7e+00	3.05e+03	4.92e+02	6.2e+00
10	OCDF	*	5.08e+02	*	*	1.49e+03	*
11	2,3,7,8-TCDD	1.55e+05	2.49e+03	6.2e+01	2.10e+05	1.18e+03	1.8e+02
12	1,2,3,7,8-PeCDD	*	8.16e+02	*	*	4.24e+02	*
13	1,2,3,4,7,8-HxCDD	*	5.04e+02	*	*	7.84e+02	*
14	1,2,3,6,7,8-HxCDD	*	5.04e+02	*	*	7.84e+02	*
15	1,2,3,7,8,9-HxCDD	*	5.04e+02	*	*	7.84e+02	*
16	1,2,3,4,6,7,8-HpCDD	8.64e+03	1.13e+03	7.7e+00	8.58e+03	3.32e+02	2.6e+01
17	OCDD	4.73e+04	3.36e+02	1.4e+02	5.29e+04	2.84e+02	1.9e+02
18	13C-2,3,7,8-TCDF	7.46e+05	1.18e+04	6.3e+01	9.43e+05	8.83e+03	1.1e+02
19	13C-1,2,3,7,8-PeCDF	1.16e+06	7.20e+02	1.6e+03	7.41e+05	5.16e+02	1.4e+03
20	13C-2,3,4,7,8-PeCDF	1.18e+06	7.20e+02	1.6e+03	7.49e+05	5.16e+02	1.5e+03
21	13C-1,2,3,4,7,8-HxCDF	5.09e+05	1.39e+03	3.7e+02	9.60e+05	1.41e+03	6.8e+02
22	13C-1,2,3,6,7,8-HxCDF	5.59e+05	1.39e+03	4.0e+02	1.08e+06	1.41e+03	7.7e+02
23	13C-2,3,4,6,7,8-HxCDF	5.09e+05	1.39e+03	3.7e+02	9.87e+05	1.41e+03	7.0e+02
24	13C-1,2,3,7,8,9-HxCDF	3.77e+05	1.39e+03	2.7e+02	7.16e+05	1.41e+03	5.1e+02
25	13C-1,2,3,4,6,7,8-HpCDF	3.21e+05	1.31e+03	2.4e+02	7.35e+05	1.62e+03	4.5e+02
26	13C-1,2,3,4,7,8,9-HpCDF	2.18e+05	1.31e+03	1.7e+02	4.67e+05	1.62e+03	2.9e+02
27	13C-2,3,7,8-TCDD	3.59e+05	7.81e+03	4.6e+01	4.55e+05	2.53e+03	1.8e+02
28	13C-1,2,3,7,8-PeCDD	8.30e+05	1.85e+03	4.5e+02	5.13e+05	1.56e+03	3.3e+02
29	13C-1,2,3,4,7,8-HxCDD	6.97e+05	1.33e+03	5.2e+02	5.28e+05	1.04e+03	5.1e+02
30	13C-1,2,3,6,7,8-HxCDD	6.87e+05	1.33e+03	5.2e+02	5.12e+05	1.04e+03	4.9e+02
31	13C-1,2,3,4,6,7,8-HpCDD	5.35e+05	6.16e+02	8.7e+02	4.86e+05	5.52e+02	8.8e+02
32	13C-OCDD	3.54e+05	1.05e+03	3.4e+02	3.82e+05	3.68e+02	1.0e+03
33	13C-1,2,3,4-TCDD	6.05e+05	7.81e+03	7.7e+01	7.45e+05	2.53e+03	2.9e+02
34	13C-1,2,3,7,8,9-HxCDD	6.95e+05	1.33e+03	5.2e+02	5.53e+05	1.04e+03	5.3e+02
35	37Cl-2,3,7,8-TCDD	4.36e+03	1.55e+03	2.8e+00			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (2.488e{+}03 + 1.180e{+}03) \times 2000}{(3.588e{+}05 + 4.553e{+}05) \times (\quad) \times 1.085} =$$

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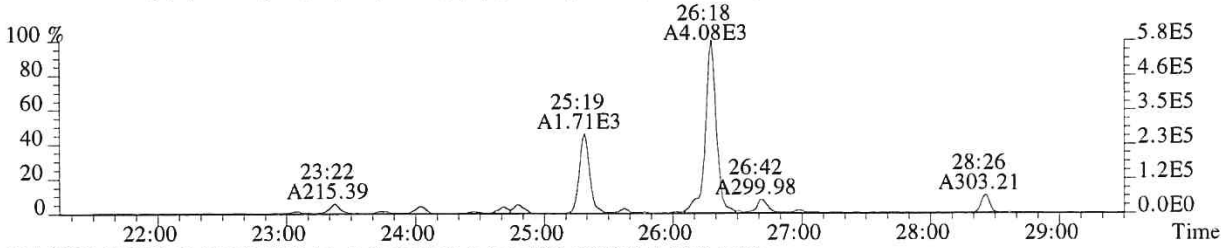
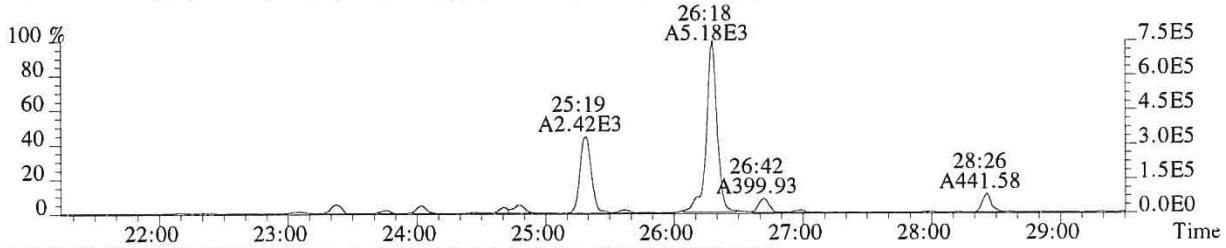
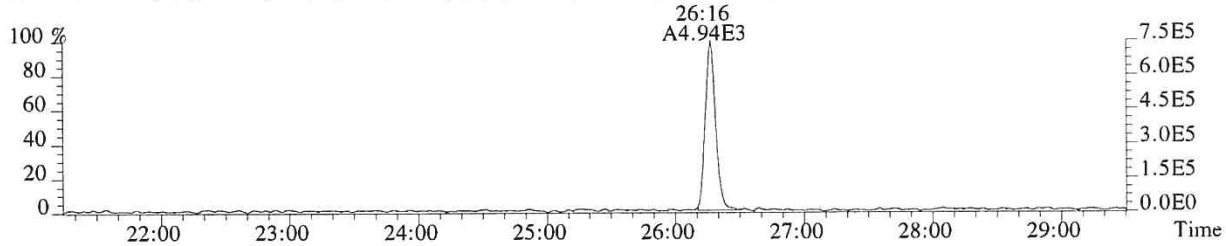
File:P519595 #1-587 Acq:24-DEC-2018 15:35:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-014DL
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1264.0,1.00%,F,T)



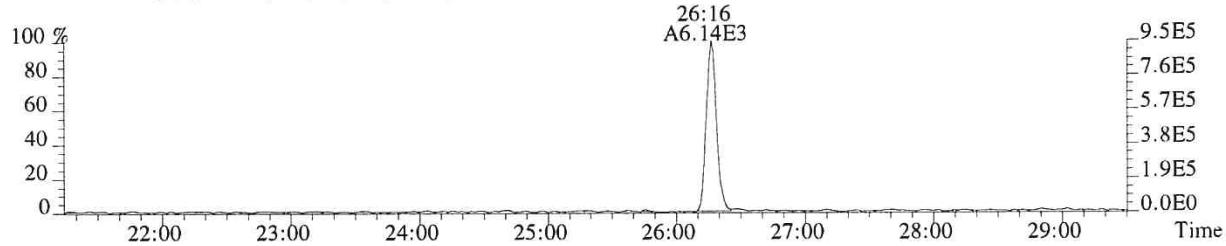
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3072.0,1.00%,F,T)



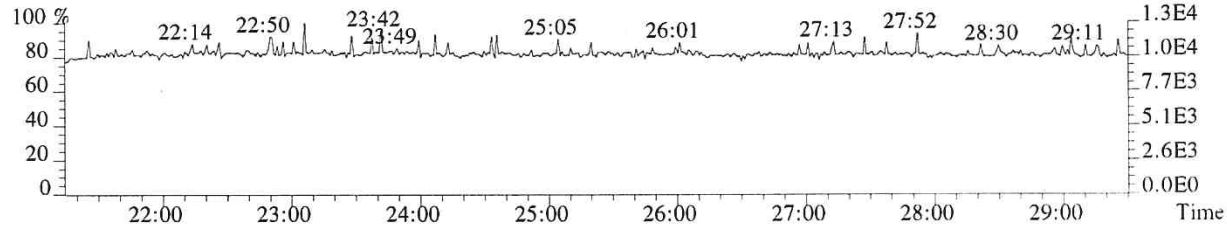
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,11780.0,1.00%,F,T)



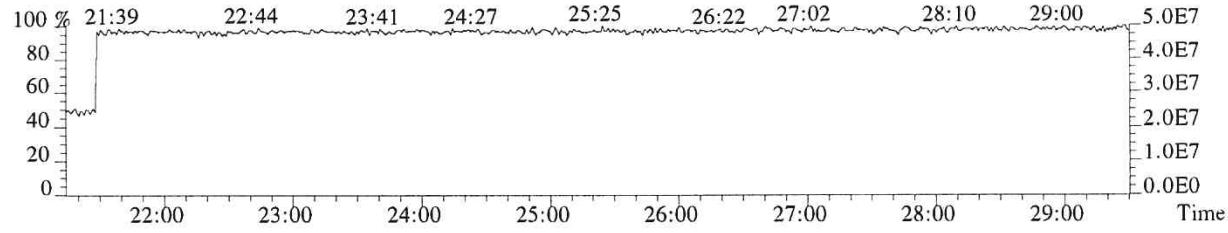
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8828.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

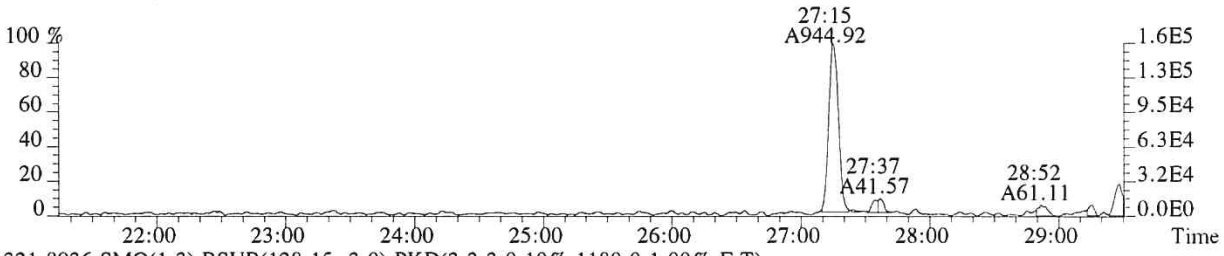


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

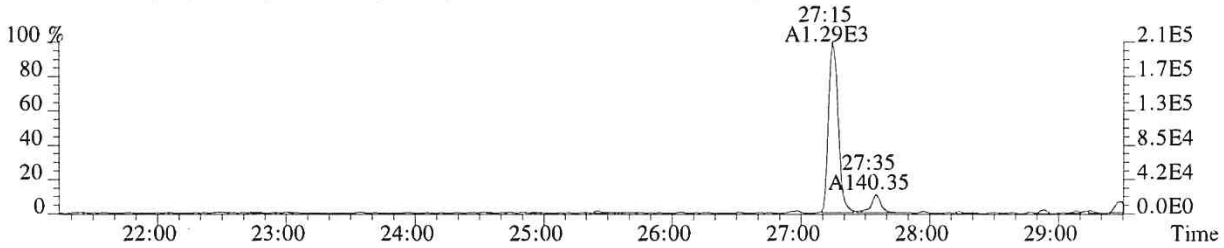


File:P519595 #1-587 Acq:24-DEC-2018 15:35:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-014DL

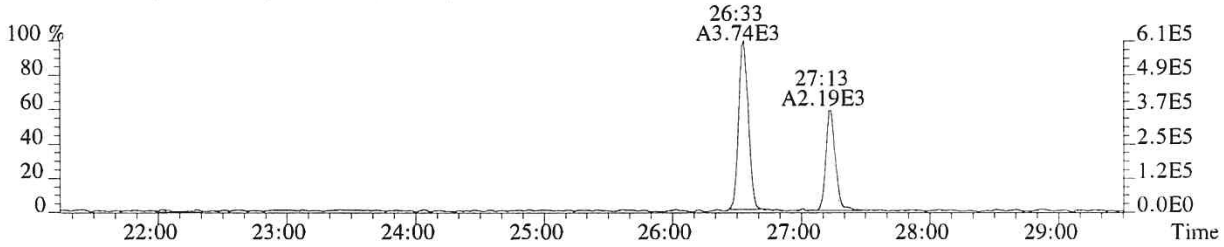
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2488.0,1.00%,F,T)



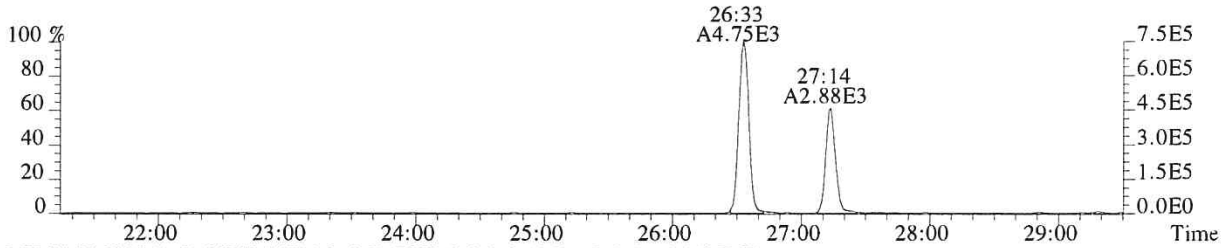
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1180.0,1.00%,F,T)



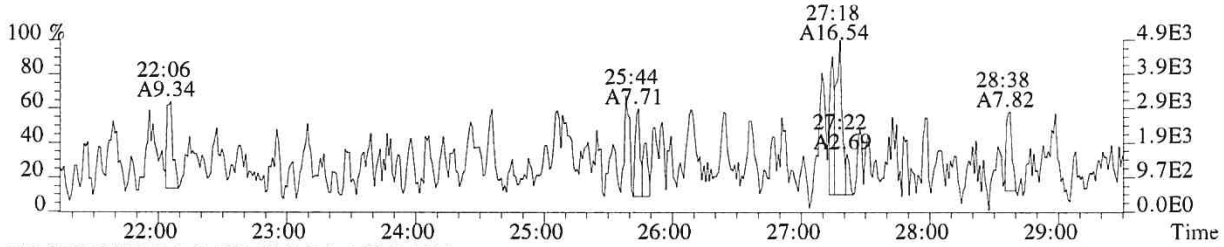
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7812.0,1.00%,F,T)



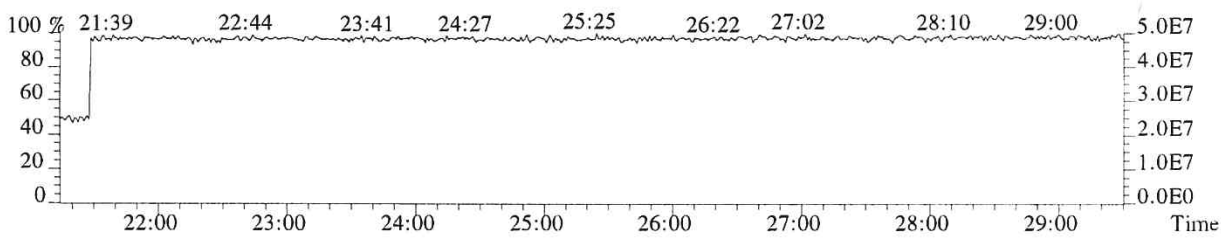
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2528.0,1.00%,F,T)



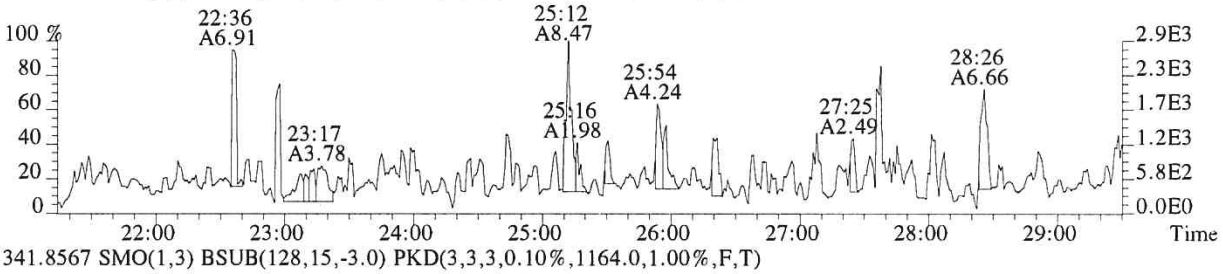
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1548.0,1.00%,F,T)



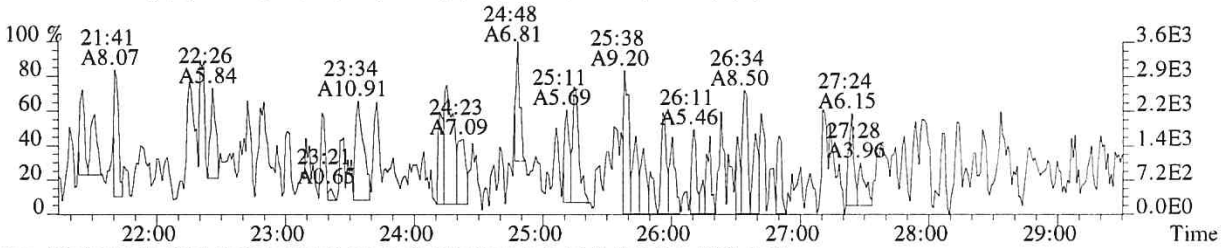
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



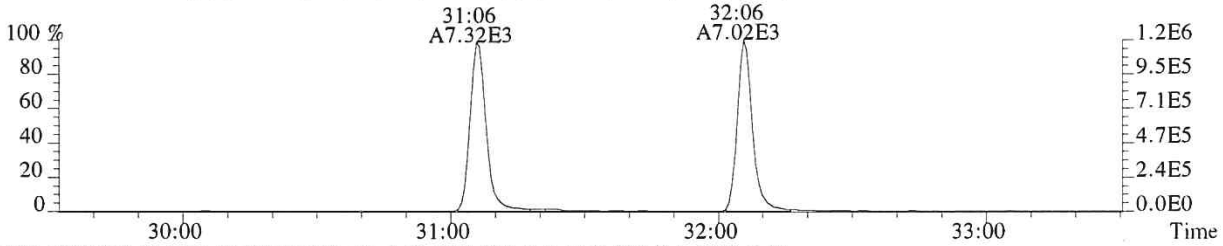
File:P519595 #1-587 Acq:24-DEC-2018 15:35:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-014DL
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



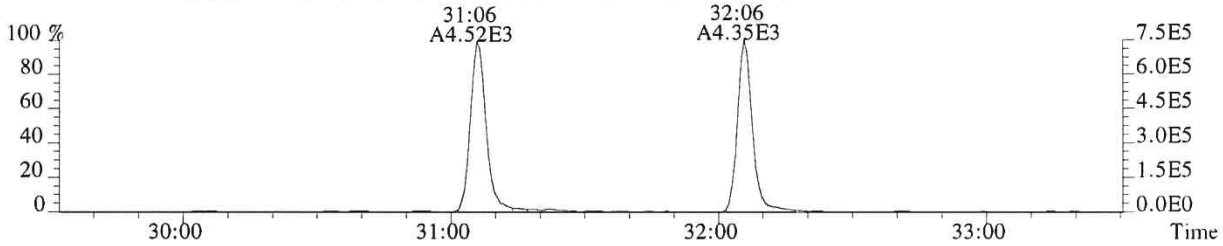
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1164.0,1.00%,F,T)



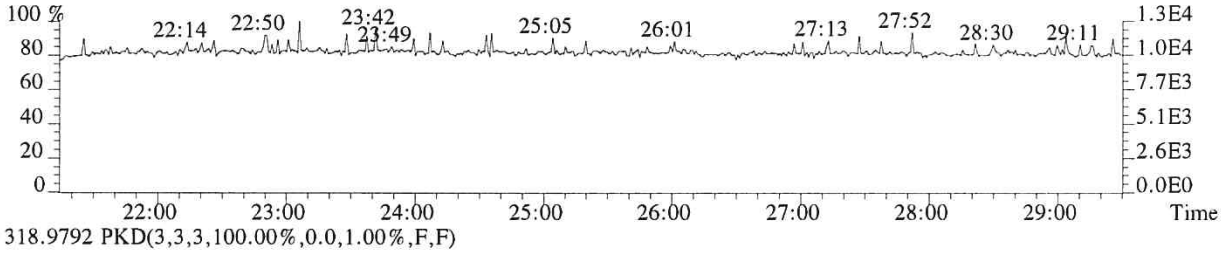
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,720.0,1.00%,F,T)



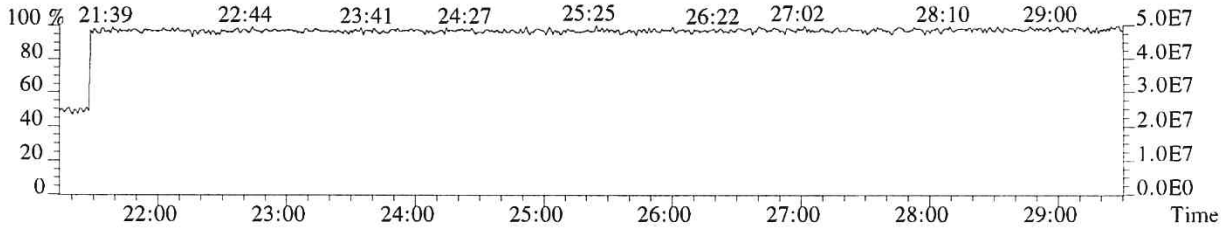
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,516.0,1.00%,F,T)



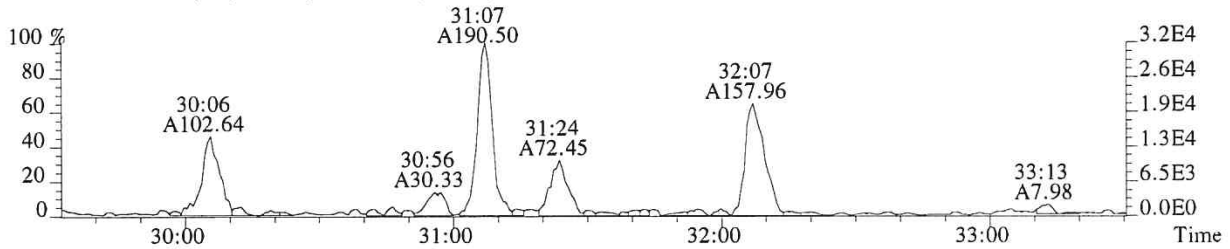
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



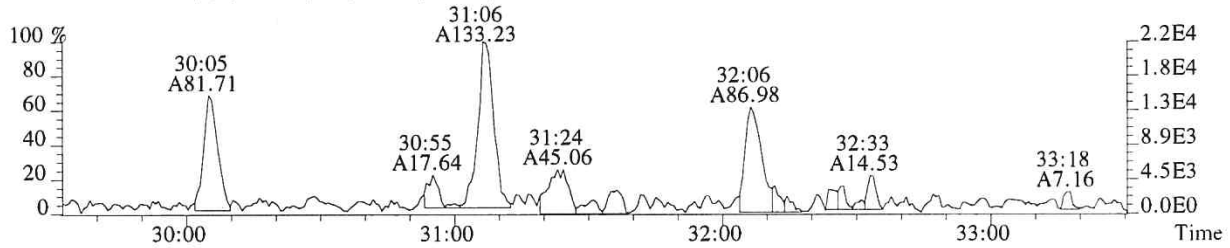
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



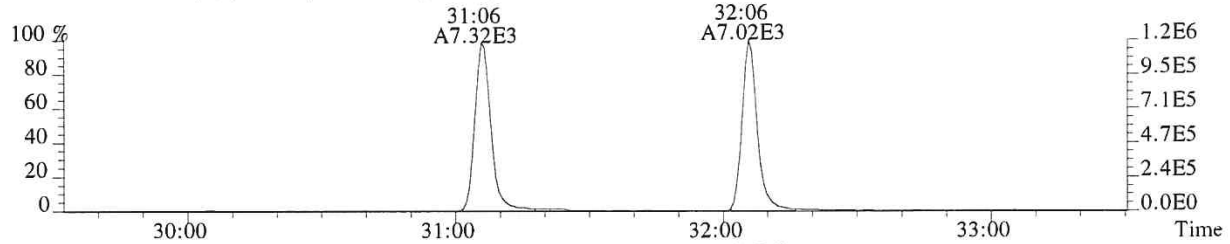
File:P519595 #1-358 Acq:24-DEC-2018 15:35:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-014DL
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,516.0,1.00%,F,T)



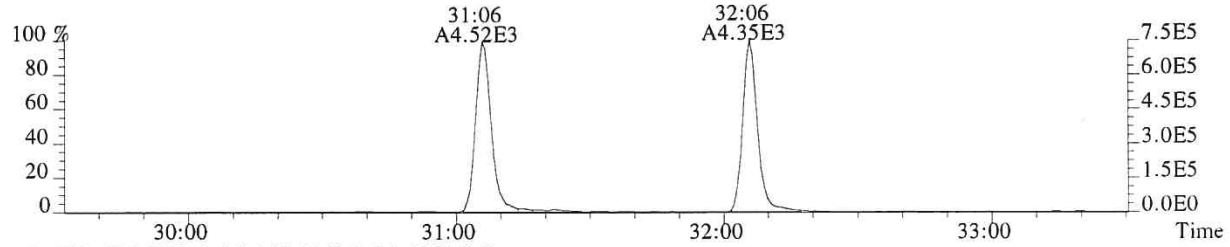
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1552.0,1.00%,F,T)



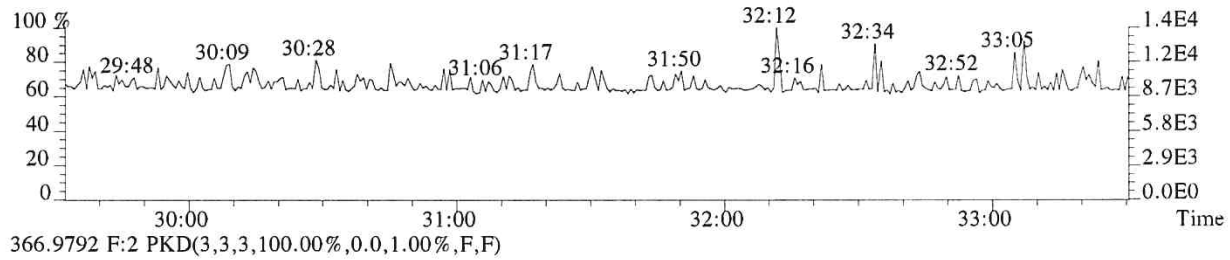
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,720.0,1.00%,F,T)



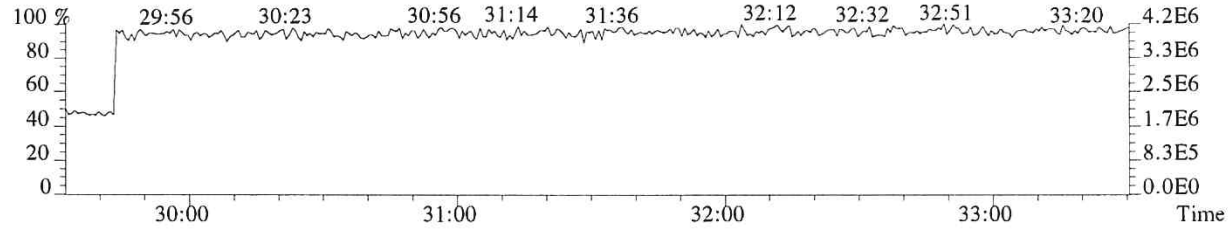
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,516.0,1.00%,F,T)



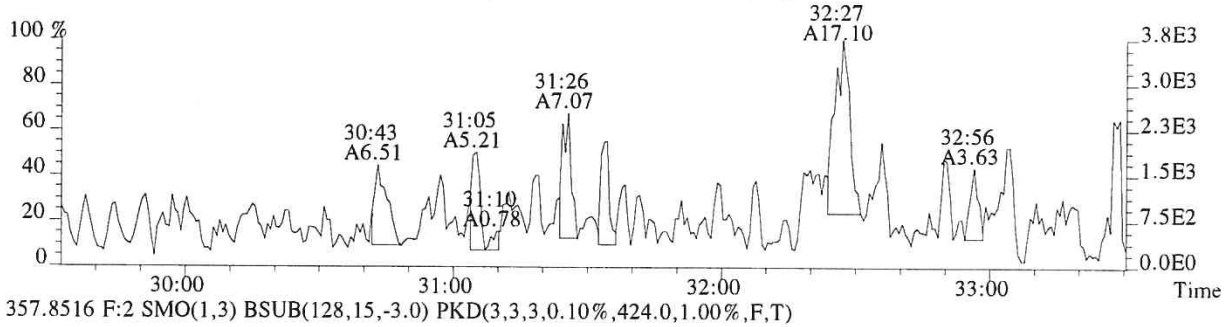
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



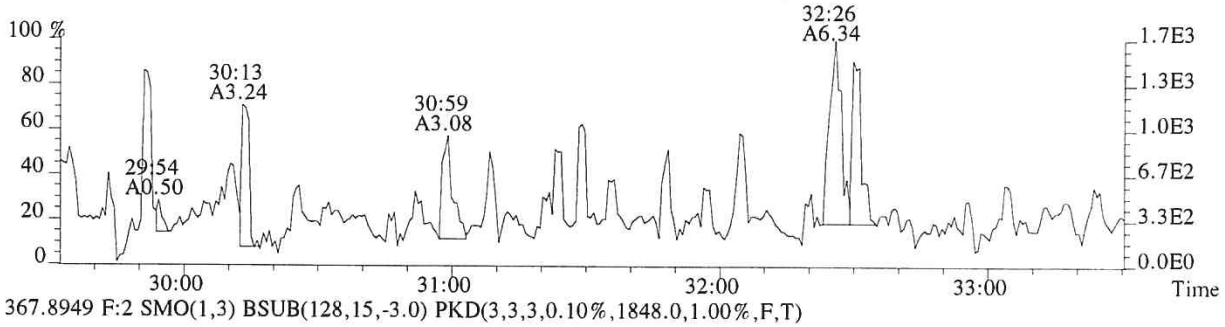
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



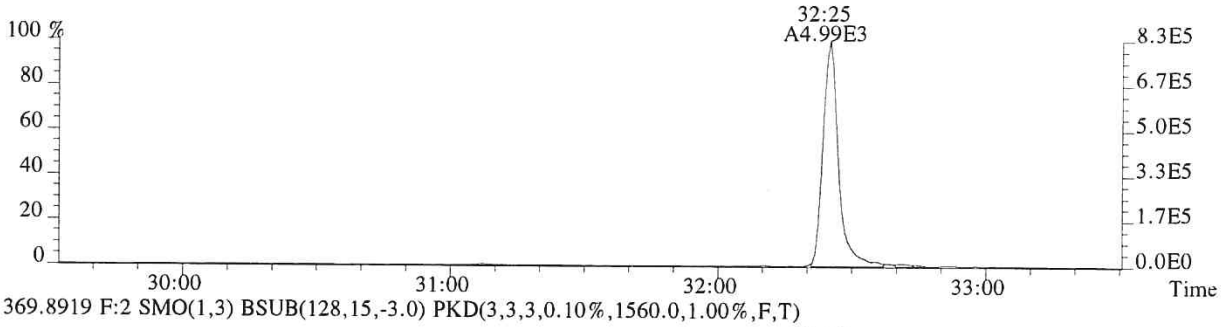
File:P519595 #1-358 Acq:24-DEC-2018 15:35:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-014DL
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,816.0,1.00%,F,T)



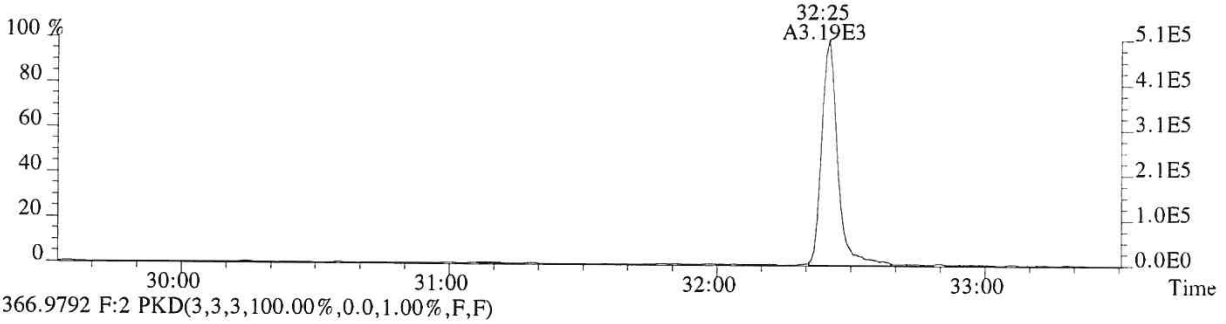
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,424.0,1.00%,F,T)



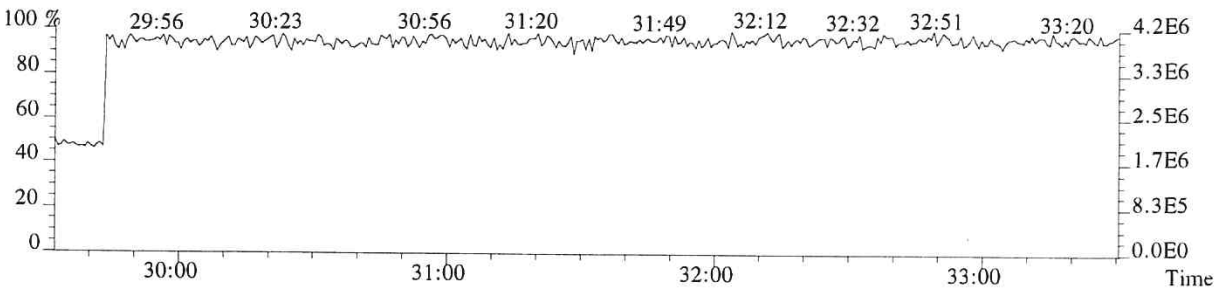
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1848.0,1.00%,F,T)



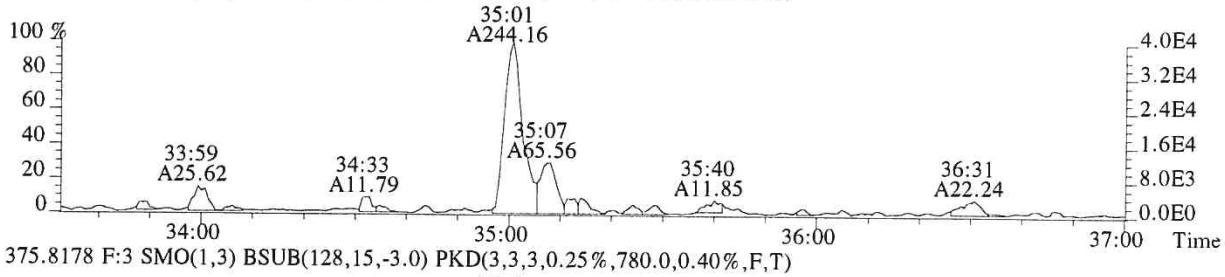
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1560.0,1.00%,F,T)



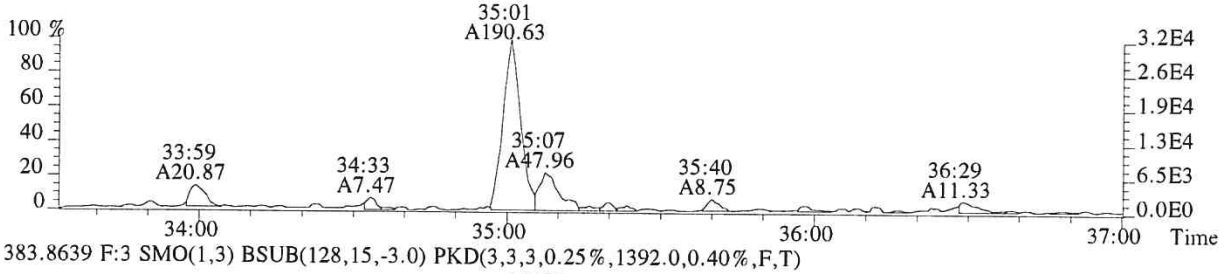
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



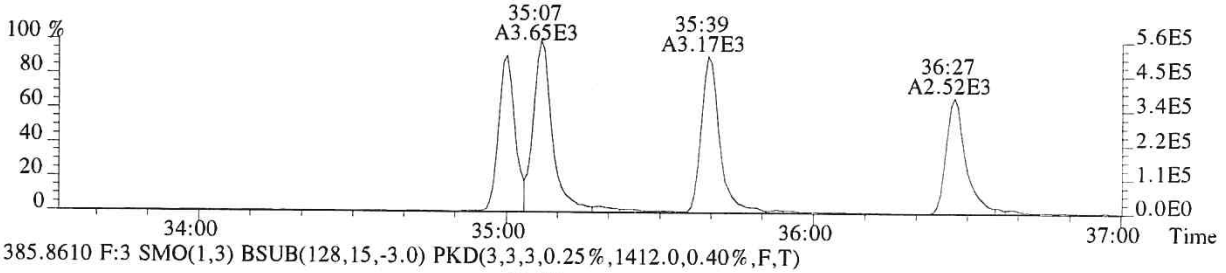
File:P519595 #1-312 Acq:24-DEC-2018 15:35:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-014DL
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,864.0,0.40%,F,T)



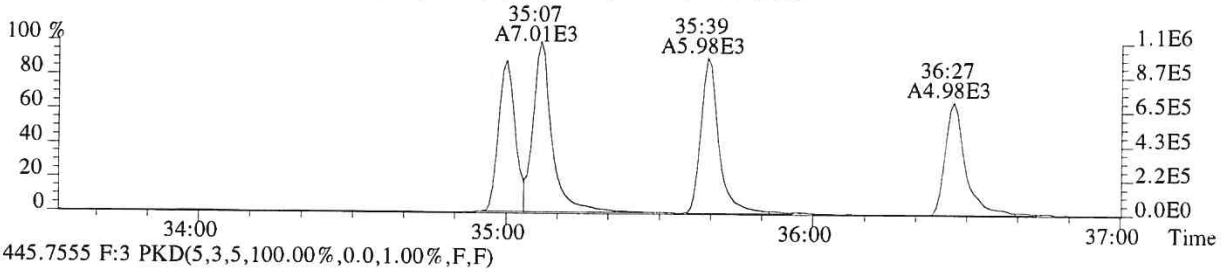
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,780.0,0.40%,F,T)



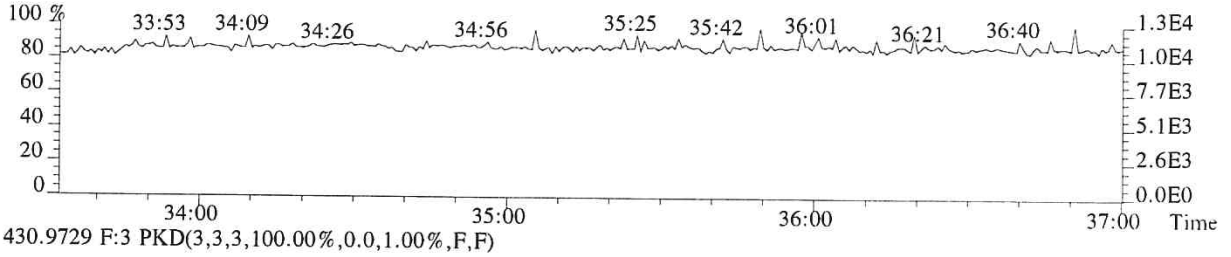
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1392.0,0.40%,F,T)



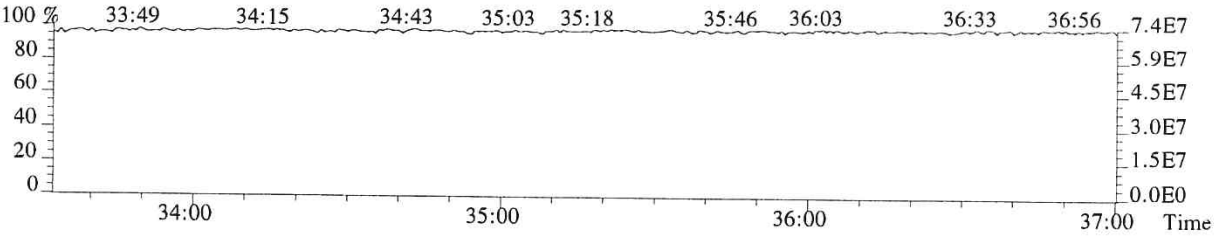
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1412.0,0.40%,F,T)



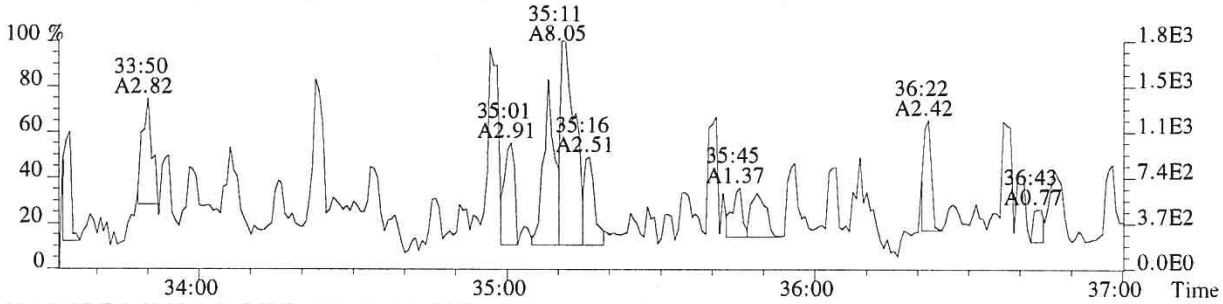
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



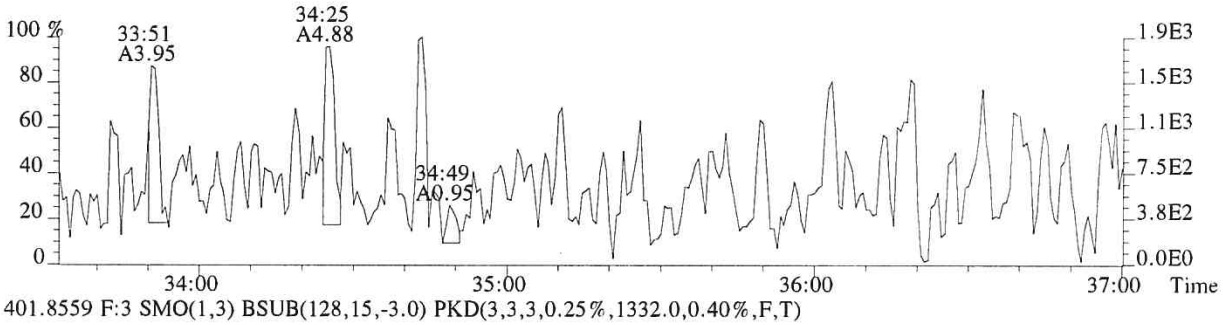
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



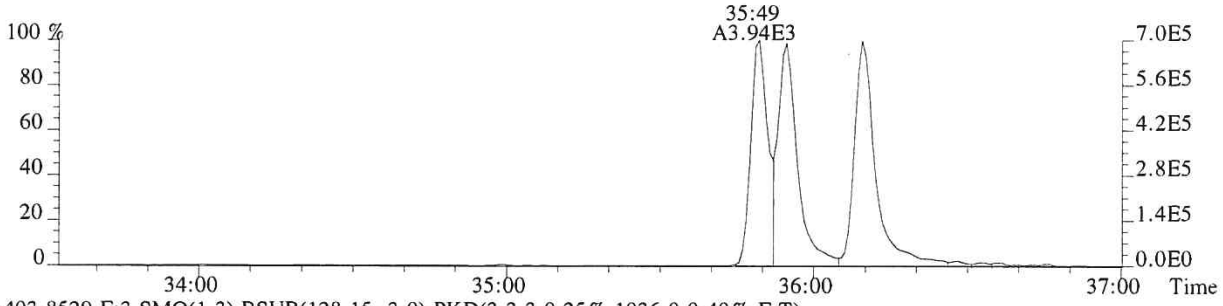
File:P519595 #1-312 Acq:24-DEC-2018 15:35:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-014DL
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,504.0,0.40%,F,T)



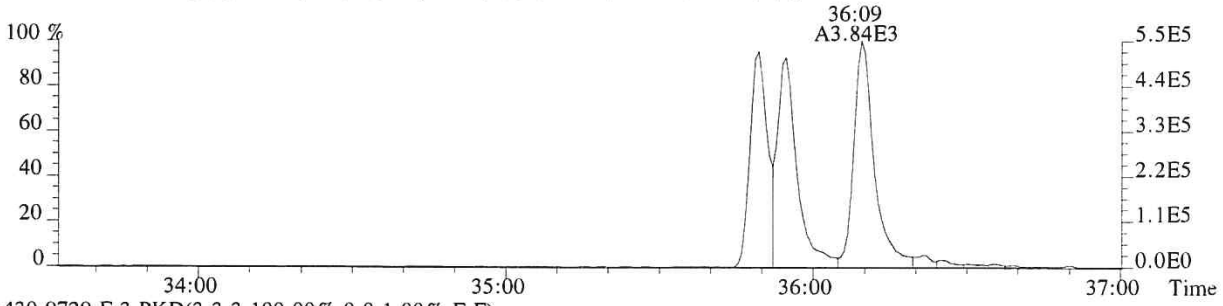
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,784.0,0.40%,F,T)



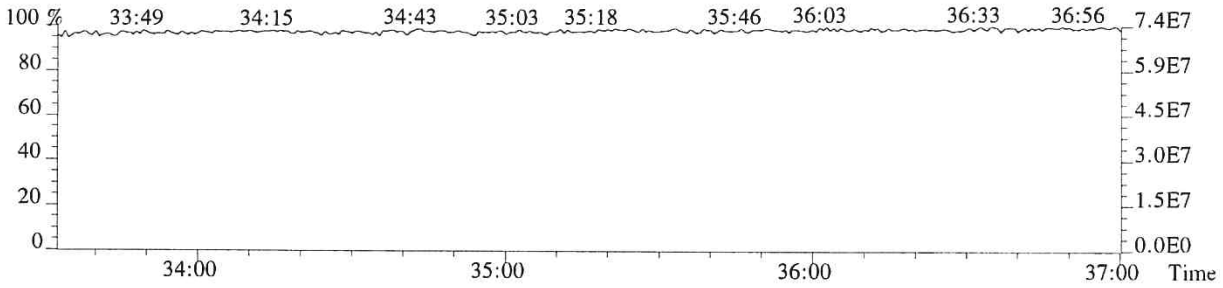
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1332.0,0.40%,F,T)



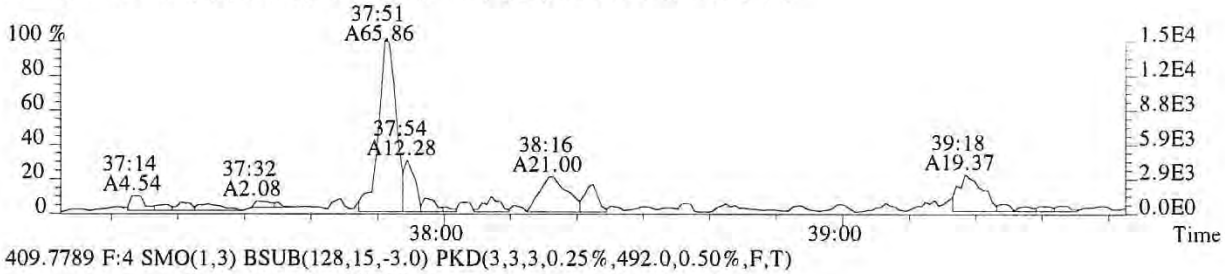
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1036.0,0.40%,F,T)



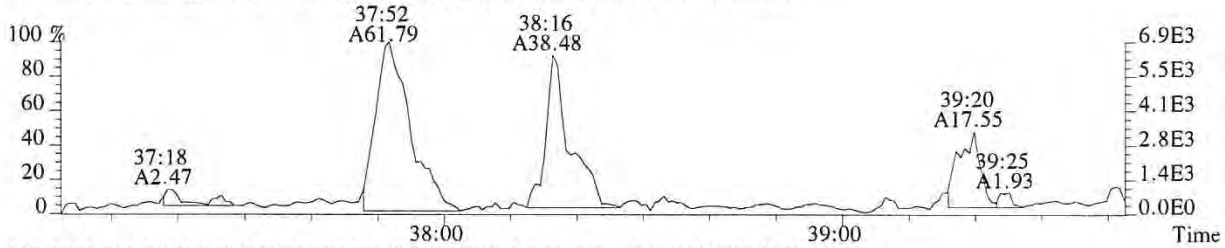
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P519595 #1-241 Acq:24-DEC-2018 15:35:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-014DL
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,648.0,0.50%,F,T)



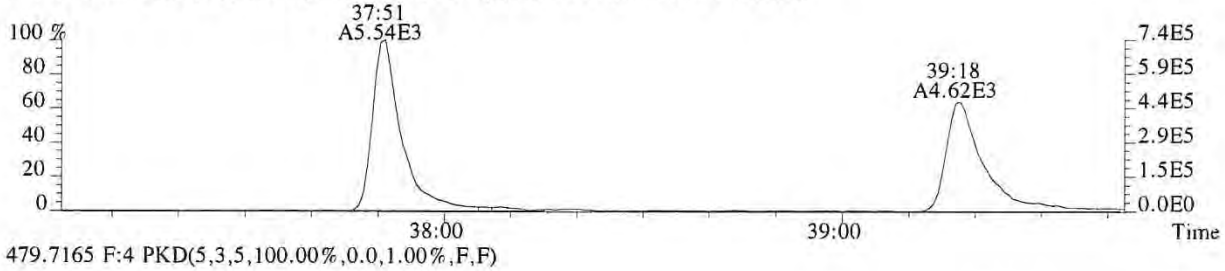
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,492.0,0.50%,F,T)



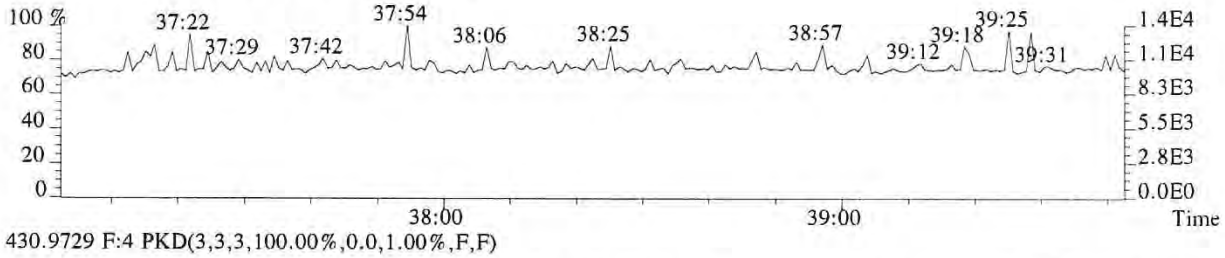
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1312.0,0.50%,F,T)



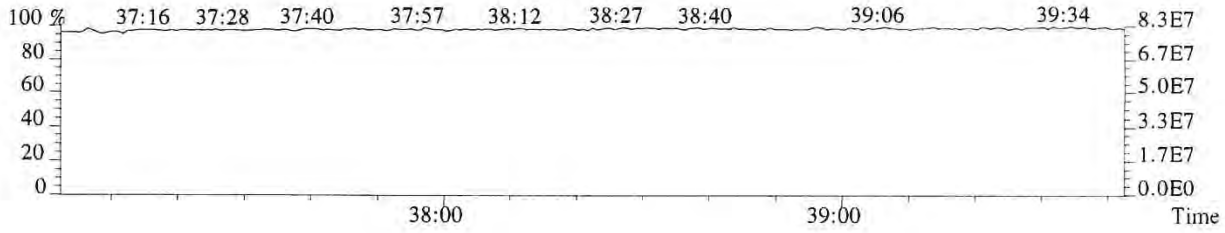
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1624.0,0.50%,F,T)



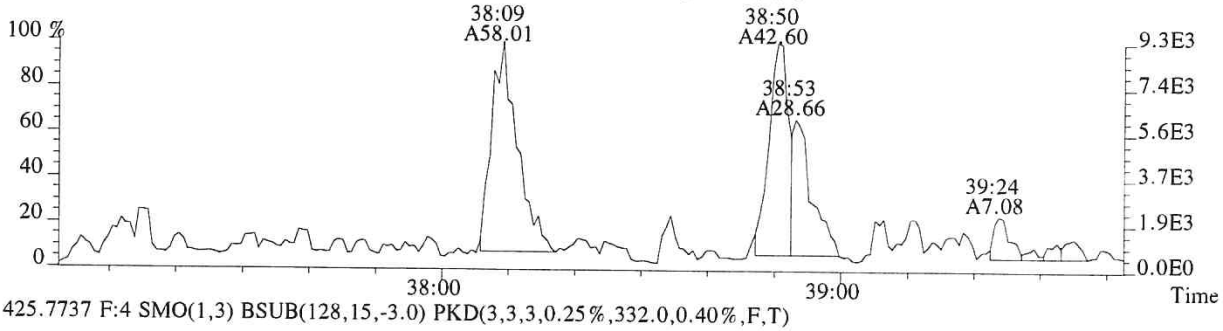
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



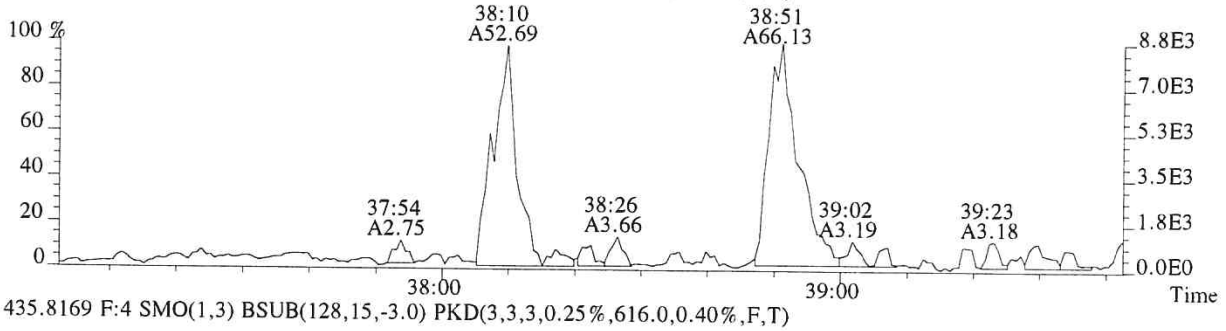
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



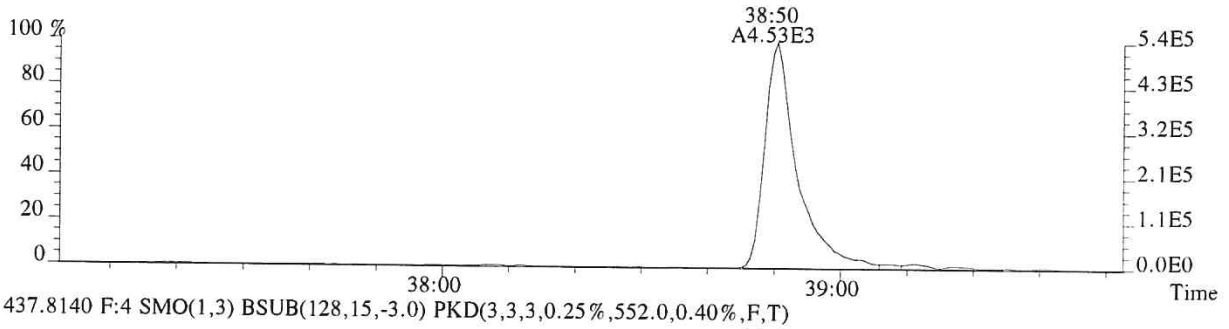
File:P519595 #1-241 Acq:24-DEC-2018 15:35:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-014DL
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1128.0,0.40%,F,T)



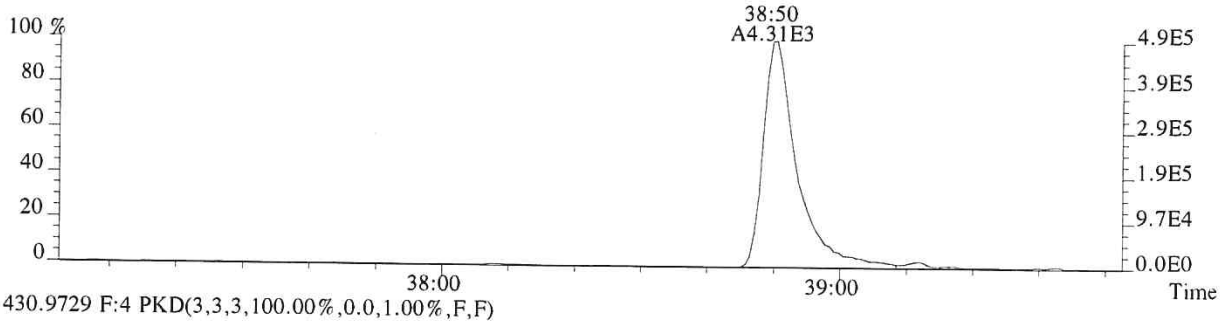
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,332.0,0.40%,F,T)



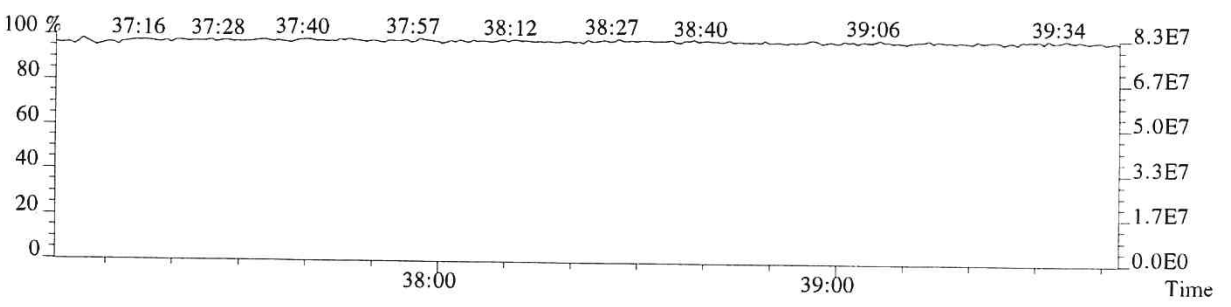
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,616.0,0.40%,F,T)



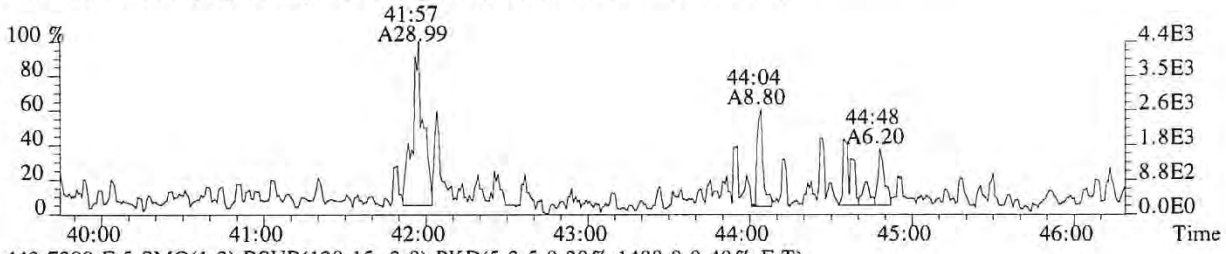
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,552.0,0.40%,F,T)



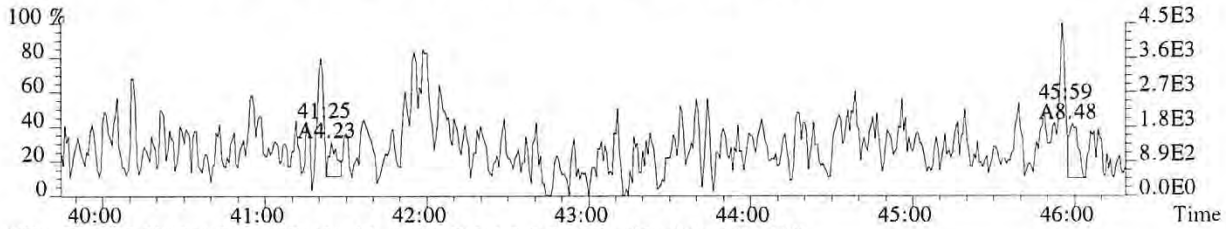
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



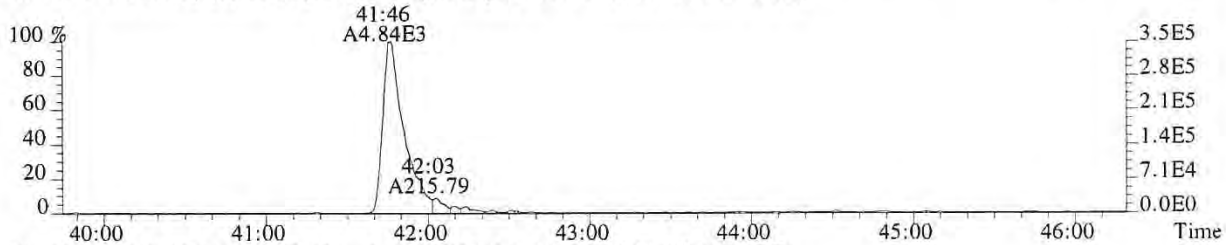
File:P519595 #1-592 Acq:24-DEC-2018 15:35:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-014DL
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,508.0,0.40%,F,T)



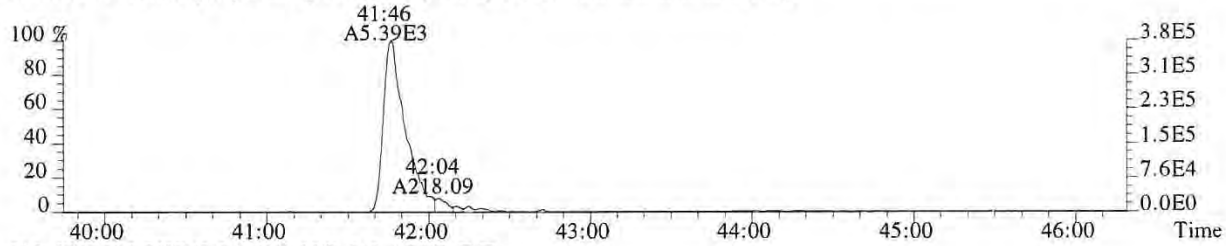
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1488.0,0.40%,F,T)



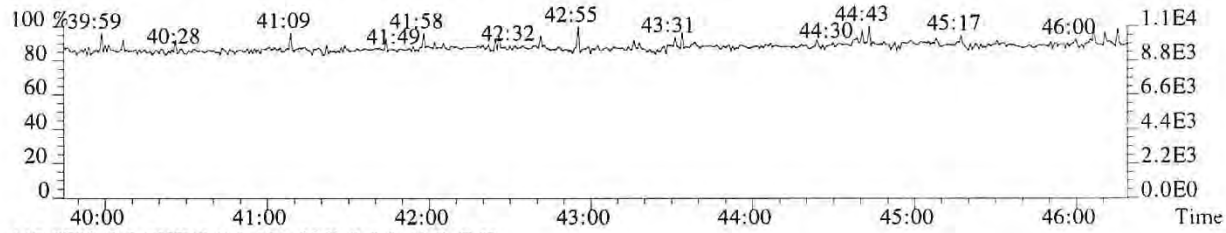
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1052.0,0.40%,F,T)



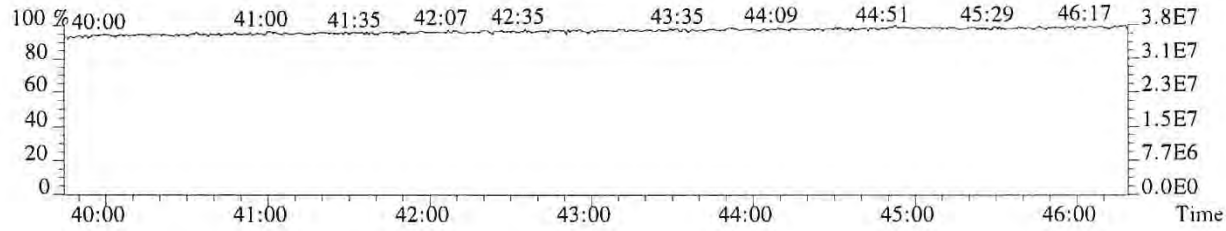
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,368.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

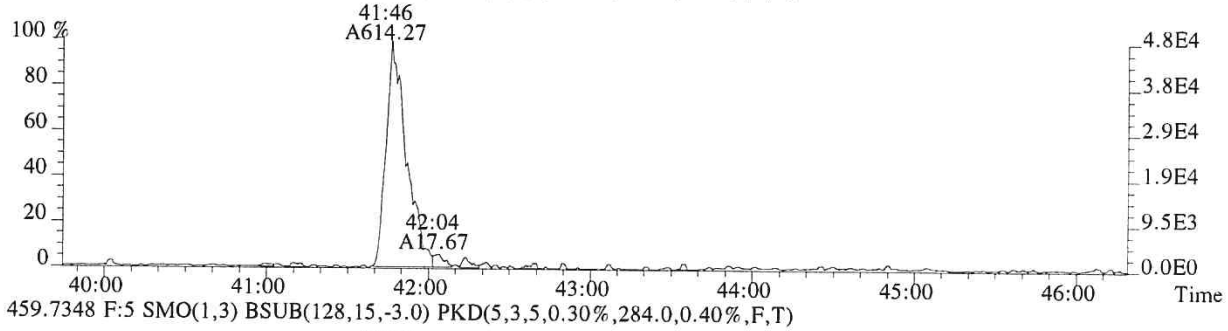


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

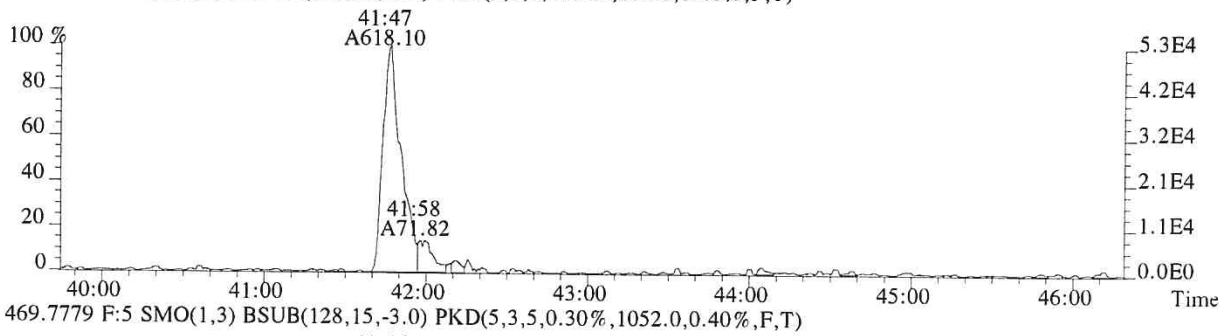


015523

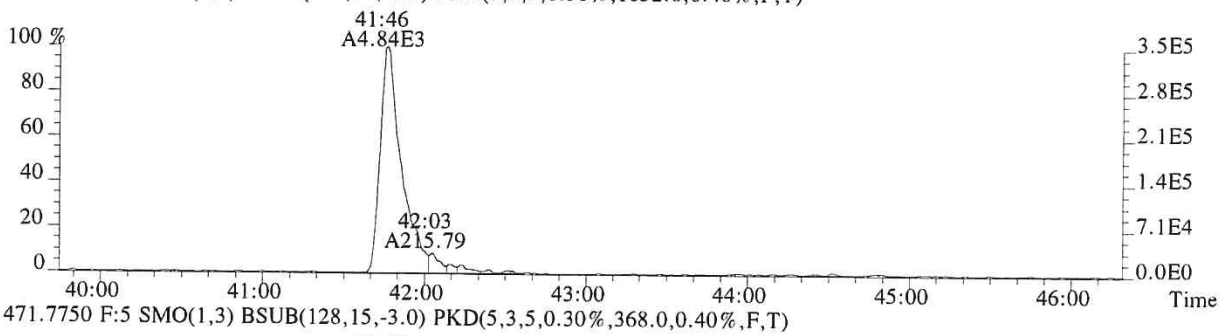
File:P519595 #1-592 Acq:24-DEC-2018 15:35:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-014DL
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,336.0,0.40%,F,T)



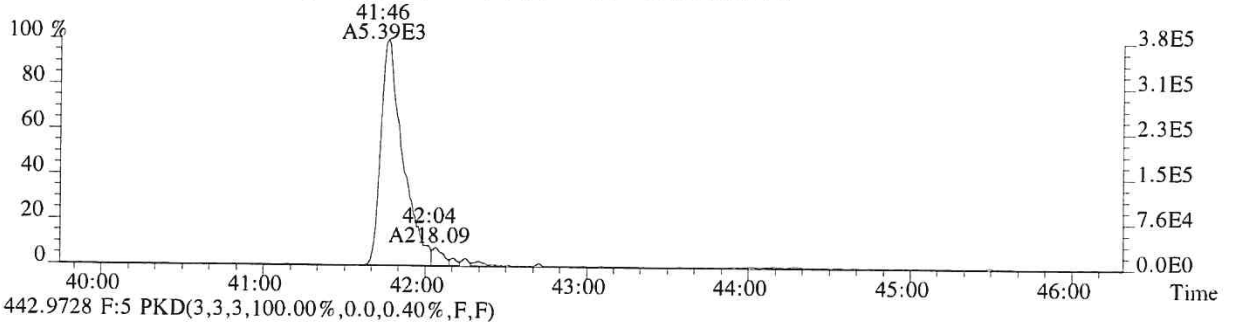
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,284.0,0.40%,F,T)



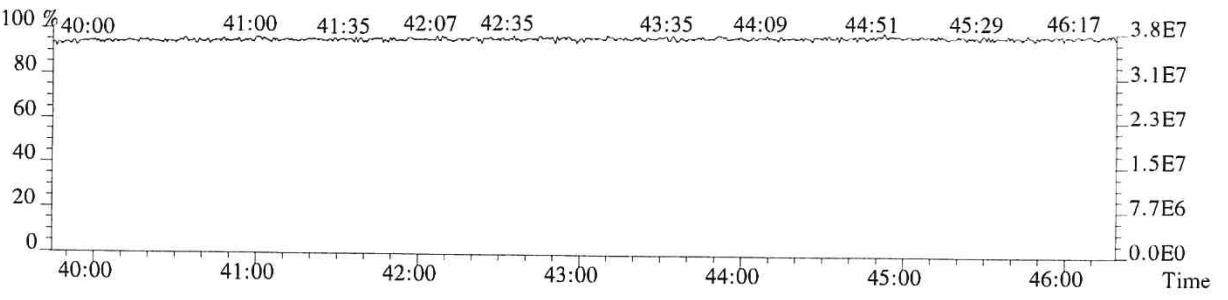
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1052.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,368.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0057

Run #16 Filename P519489 Samp: 1 Inj: 1 Acquired: 19-DEC-18 10:43:27
Processed: 20-DEC-18 16:11:18 Sample ID: E1801094-015

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:53	7.297e+05	9.360e+05	0.78	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	31:29	2.674e+04	1.737e+04	1.54	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	32:28	1.700e+04	1.064e+04	1.60	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:18	2.632e+04	2.189e+04	1.20	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:24	6.914e+03	5.704e+03	1.21	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:56	1.287e+03	9.564e+02	1.35	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	36:45	1.441e+03	1.222e+03	1.18	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:05	7.065e+03	6.969e+03	1.01	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:30	9.416e+02	9.791e+02	0.96	yes	no	1.258
10	Unk	OCDF	42:08	5.287e+04	6.003e+04	0.88	yes	no	1.359
11	Unk	2,3,7,8-TCDD	27:46	1.605e+05	2.039e+05	0.79	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	32:46	2.221e+03	1.292e+03	1.72	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:06	1.301e+02	6.406e+01	2.03	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:10	6.223e+02	4.274e+02	1.46	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:25	2.983e+02	1.829e+02	1.63	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:03	6.177e+03	6.100e+03	1.01	yes	no	1.025
17	Unk	OCDD	41:57	3.907e+04	4.331e+04	0.90	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	26:52	1.395e+04	1.727e+04	0.81	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	31:29	1.769e+04	1.132e+04	1.56	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	32:27	1.284e+04	8.125e+03	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:16	4.965e+03	9.638e+03	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:24	5.412e+03	1.055e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:56	4.841e+03	9.317e+03	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	36:42	3.920e+03	7.241e+03	0.54	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:04	1.997e+03	4.547e+03	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:29	1.547e+03	3.372e+03	0.46	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	27:46	6.463e+03	8.013e+03	0.81	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:45	1.212e+04	7.474e+03	1.62	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:04	6.493e+03	5.203e+03	1.25	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:10	6.082e+03	4.906e+03	1.24	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:02	3.666e+03	3.340e+03	1.10	yes	no	0.858
32	IS	13C-OCDD	41:56	2.044e+03	2.180e+03	0.94	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:08	1.598e+04	2.056e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:25	1.078e+04	8.952e+03	1.20	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:46	1.088e+04				no	1.014

$$\text{OCDD} = \frac{(3.907e+04 + 4.331e+04) \times 4000\ \text{pg} \times 1}{(2.044e+03 + 2.180e+03) \times 10.93\text{g} \times 57.7 / 100 \times 1.118} = 11100\ \text{ng/kg}$$

LW 12/24/18

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Houston, TX 77099
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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0057

Run #16 : Filename P519489 Samp: 1 Inj: 1 Acquired: 19-DEC-18 10:43:27
Processed: 20-DEC-18 16:11:18 LAB. ID: E1801094-015

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.07e+08	4.49e+03	2.4e+04	1.36e+08	3.80e+03	3.6e+04
2	1,2,3,7,8-PeCDF	4.94e+06	5.54e+03	8.9e+02	3.22e+06	3.52e+03	9.2e+02
3	2,3,4,7,8-PeCDF	2.59e+06	5.54e+03	4.7e+02	1.61e+06	3.52e+03	4.6e+02
4	1,2,3,4,7,8-HxCDF	5.28e+06	4.32e+03	1.2e+03	4.37e+06	6.46e+03	6.8e+02
5	1,2,3,6,7,8-HxCDF	1.33e+06	4.32e+03	3.1e+02	1.09e+06	6.46e+03	1.7e+02
6	2,3,4,6,7,8-HxCDF	2.73e+05	4.32e+03	6.3e+01	2.10e+05	6.46e+03	3.2e+01
7	1,2,3,7,8,9-HxCDF	2.57e+05	4.32e+03	6.0e+01	2.41e+05	6.46e+03	3.7e+01
8	1,2,3,4,6,7,8-HpCDF	1.34e+06	1.91e+03	7.0e+02	1.32e+06	3.12e+03	4.2e+02
9	1,2,3,4,7,8,9-HpCDF	1.54e+05	1.91e+03	8.1e+01	1.66e+05	3.12e+03	5.3e+01
10	OCDF	6.29e+06	4.56e+02	1.4e+04	7.18e+06	6.24e+02	1.2e+04
11	2,3,7,8-TCDD	3.14e+07	2.57e+03	1.2e+04	3.99e+07	2.25e+03	1.8e+04
12	1,2,3,7,8-PeCDD	3.62e+05	2.38e+03	1.5e+02	2.09e+05	5.52e+03	3.8e+01
13	1,2,3,4,7,8-HxCDD	2.72e+04	1.17e+03	2.3e+01	1.53e+04	4.17e+03	3.7e+00
14	1,2,3,6,7,8-HxCDD	1.17e+05	1.17e+03	1.0e+02	8.52e+04	4.17e+03	2.0e+01
15	1,2,3,7,8,9-HxCDD	5.22e+04	1.17e+03	4.5e+01	3.72e+04	4.17e+03	8.9e+00
16	1,2,3,4,6,7,8-HpCDD	1.06e+06	6.72e+02	1.6e+03	1.03e+06	1.84e+03	5.6e+02
17	OCDD	4.53e+06	6.64e+02	6.8e+03	5.18e+06	9.16e+02	5.7e+03
18	13C-2,3,7,8-TCDF	2.19e+06	6.29e+03	3.5e+02	2.71e+06	4.87e+03	5.6e+02
19	13C-1,2,3,7,8-PeCDF	3.30e+06	1.64e+04	2.0e+02	2.11e+06	1.52e+04	1.4e+02
20	13C-2,3,4,7,8-PeCDF	2.27e+06	1.64e+04	1.4e+02	1.45e+06	1.52e+04	9.6e+01
21	13C-1,2,3,4,7,8-HxCDF	9.88e+05	1.69e+03	5.9e+02	1.95e+06	9.01e+03	2.2e+02
22	13C-1,2,3,6,7,8-HxCDF	1.08e+06	1.69e+03	6.4e+02	2.08e+06	9.01e+03	2.3e+02
23	13C-2,3,4,6,7,8-HxCDF	9.53e+05	1.69e+03	5.6e+02	1.82e+06	9.01e+03	2.0e+02
24	13C-1,2,3,7,8,9-HxCDF	7.46e+05	1.69e+03	4.4e+02	1.41e+06	9.01e+03	1.6e+02
25	13C-1,2,3,4,6,7,8-HpCDF	3.74e+05	3.63e+03	1.0e+02	8.42e+05	2.27e+03	3.7e+02
26	13C-1,2,3,4,7,8,9-HpCDF	2.59e+05	3.63e+03	7.1e+01	5.50e+05	2.27e+03	2.4e+02
27	13C-2,3,7,8-TCDD	1.31e+06	6.12e+03	2.1e+02	1.60e+06	5.62e+03	2.8e+02
28	13C-1,2,3,7,8-PeCDD	2.23e+06	2.21e+03	1.0e+03	1.39e+06	1.84e+03	7.5e+02
29	13C-1,2,3,4,7,8-HxCDD	1.30e+06	1.07e+03	1.2e+03	1.07e+06	5.76e+02	1.9e+03
30	13C-1,2,3,6,7,8-HxCDD	1.21e+06	1.07e+03	1.1e+03	9.46e+05	5.76e+02	1.6e+03
31	13C-1,2,3,4,6,7,8-HpCDD	6.10e+05	7.56e+02	8.1e+02	5.48e+05	7.40e+02	7.4e+02
32	13C-OCDD	2.40e+05	5.64e+02	4.3e+02	2.60e+05	9.20e+02	2.8e+02
33	13C-1,2,3,4-TCDD	2.67e+06	6.12e+03	4.4e+02	3.46e+06	5.62e+03	6.2e+02
34	13C-1,2,3,7,8,9-HxCDD	2.03e+06	1.07e+03	1.9e+03	1.65e+06	5.76e+02	2.9e+03
35	37Cl-2,3,7,8-TCDD	2.14e+06	1.87e+03	1.1e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (2.568e{+}03 + 2.252e{+}03) \times 2000}{(1.312e{+}06 + 1.596e{+}06) \times (\quad) \times 1.085} =$$

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Peak List Summary

CLIENT ID.
SL0057

Entry: 36 Totals Name: Total Tetra-Furans

Run: 16 File: P519489 Sample:1 Injection:1 Function:1

Acquired: 19-DEC-18 10:43:27 Processed: 20-DEC-18 16:11:18

Mass: 303.9020 305.8990 Tot Response: 3.04e+06 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	23:42	6.34e+03	8.41e+03	0.75	yes	1.48e+04		n	n
2	24:00	3.47e+04	4.56e+04	0.76	yes	8.03e+04		n	n
3	24:23	1.02e+04	1.44e+04	0.71	yes	2.46e+04		n	n
4	24:30	1.31e+03	1.60e+03	0.82	yes	2.92e+03		n	n
5	24:41	2.84e+04	3.74e+04	0.76	yes	6.59e+04		n	n
6	25:05	6.04e+03	7.72e+03	0.78	yes	1.38e+04		n	n
7	25:19	1.80e+04	2.41e+04	0.75	yes	4.22e+04		n	n
8	25:28	3.43e+04	4.49e+04	0.76	yes	7.91e+04		n	n
9	25:57	3.25e+05	4.23e+05	0.77	yes	7.48e+05		n	n
10	26:15	1.61e+04	2.12e+04	0.76	yes	3.72e+04		n	n
11	26:53	7.30e+05	9.36e+05	0.78	yes	1.67e+06	2,3,7,8-TCDF	n	n
12	27:16	5.38e+04	7.06e+04	0.76	yes	1.24e+05		n	n
13	27:32	9.20e+03	1.20e+04	0.77	yes	2.12e+04		n	n
14	28:55	5.39e+04	6.98e+04	0.77	yes	1.24e+05		n	n

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Peak List Summary

CLIENT ID.
SL0057

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 16 File: P519489 Sample:1 Injection:1 Function:1

Acquired: 19-DEC-18 10:43:27 Processed: 20-DEC-18 16:11:18

Mass: 319.8970 321.8940 Tot Response: 4.05e+05 RRF: 1.085

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	27:30	2.38e+03	2.94e+03	0.81	yes	5.32e+03		n	n
2	27:46	1.60e+05	2.04e+05	0.79	yes	3.64e+05	2,3,7,8-TCDD	n	n
3	28:06	1.56e+04	1.95e+04	0.80	yes	3.51e+04		n	n

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Peak List Summary

CLIENT ID.
SL0057

Entry: 38 Totals Name: Total Penta-Furans1

Run: 16 File: P519489 Sample:1 Injection:1 Function:1

Acquired: 19-DEC-18 10:43:27 Processed: 20-DEC-18 16:11:18

Mass: 339.8600 341.8570 Tot Response: 6.52e+03 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	28:56	4.00e+03	2.52e+03 1.59	yes	6.52e+03		n	n

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Entry: 39 Totals Name: Total Penta-Furans2

Run: 16 File: P519489 Sample:1 Injection:1 Function:2

Acquired: 19-DEC-18 10:43:27 Processed: 20-DEC-18 16:11:18

Mass: 339.8600 341.8570 Tot Response: 1.20e+05 RRF: 0.9857

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:23	5.82e+02	3.78e+02	1.54	yes	9.61e+02		n	n
2	30:31	1.48e+04	9.53e+03	1.56	yes	2.43e+04		n	n
3	30:51	1.74e+02	1.11e+02	1.56	yes	2.85e+02		n	n
4	31:05	1.19e+03	7.74e+02	1.54	yes	1.97e+03		n	n
5	31:19	2.73e+03	1.88e+03	1.46	yes	4.61e+03		n	n
6	31:29	2.67e+04	1.74e+04	1.54	yes	4.41e+04	1,2,3,7,8-PeCDF	n	n
7	31:45	8.60e+03	5.72e+03	1.50	yes	1.43e+04		n	n
8	32:28	1.70e+04	1.06e+04	1.60	yes	2.76e+04	2,3,4,7,8-PeCDF	n	n
9	33:25	9.85e+02	6.21e+02	1.59	yes	1.61e+03		n	n

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Peak List Summary

CLIENT ID.
SL0057

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 16 File: P519489 Sample:1 Injection:1 Function:2

Acquired: 19-DEC-18 10:43:27 Processed: 20-DEC-18 16:11:18

Mass: 355.8550 357.8520 Tot Response: 6.99e+03 RRF: 0.9565

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:33	7.12e+02	4.49e+02	1.59	yes	1.16e+03		n	n
2	31:03	3.45e+02	2.45e+02	1.41	yes	5.90e+02		n	n
3	31:31	5.17e+02	3.12e+02	1.66	yes	8.29e+02		n	n
4	31:47	2.03e+02	1.16e+02	1.74	yes	3.19e+02		n	n
5	32:00	3.44e+02	2.33e+02	1.48	yes	5.77e+02		n	n
6	32:46	2.22e+03	1.29e+03	1.72	yes	3.51e+03	1,2,3,7,8-PeCDD	n	n

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Peak List Summary

CLIENT ID.
SL0057

Entry: 41 Totals Name: Total Hexa-Furans

Run: 16 File: P519489 Sample:1 Injection:1 Function:3

Acquired: 19-DEC-18 10:43:27 Processed: 20-DEC-18 16:11:18

Mass: 373.8210 375.8180 Tot Response: 8.11e+04 RRF: 1.141

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:08	8.31e+02	7.40e+02	1.12	yes	1.57e+03		n	n
2	34:18	4.14e+03	3.53e+03	1.17	yes	7.67e+03		n	n
3	34:39	1.42e+02	1.04e+02	1.37	yes	2.46e+02		n	n
4	34:50	3.24e+03	2.69e+03	1.21	yes	5.93e+03		n	n
5	35:18	2.63e+04	2.19e+04	1.20	yes	4.82e+04	1,2,3,4,7,8-HxCDF	n	n
6	35:24	6.91e+03	5.70e+03	1.21	yes	1.26e+04	1,2,3,6,7,8-HxCDF	n	n
7	35:56	1.29e+03	9.56e+02	1.35	yes	2.24e+03	2,3,4,6,7,8-HxCDF	n	n
8	36:45	1.44e+03	1.22e+03	1.18	yes	2.66e+03	1,2,3,7,8,9-HxCDF	n	n

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SL0057

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 16 File: P519489 Sample:1 Injection:1 Function:3

Acquired: 19-DEC-18 10:43:27 Processed: 20-DEC-18 16:11:18

Mass: 389.8160 391.8130 Tot Response: 9.84e+03 RRF: 1.047

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:41	3.01e+03	2.28e+03	1.32	yes	5.28e+03	n	n
2	35:14	4.30e+02	3.26e+02	1.32	yes	7.56e+02	n	n
3	35:28	2.07e+03	1.73e+03	1.20	yes	3.80e+03	n	n

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Peak List Summary

CLIENT ID.
SL0057

Entry: 43 Totals Name: Total Hepta-Furans

Run: 16 File: P519489 Sample:1 Injection:1 Function:4

Acquired: 19-DEC-18 10:43:27 Processed: 20-DEC-18 16:11:18

Mass: 407.7820 409.7790 Tot Response: 2.48e+04 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:05	7.07e+03	1.01	yes	1.40e+04	1,2,3,4,6,7,8-HpCDF	n	n
2	38:29	4.40e+03	0.98	yes	8.88e+03		n	n
3	39:30	9.42e+02	0.96	yes	1.92e+03	1,2,3,4,7,8,9-HpCDF	n	n

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CLIENT ID.
SL0057

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 16 File: P519489 Sample:1 Injection:1 Function:4

Acquired: 19-DEC-18 10:43:27 Processed: 20-DEC-18 16:11:18

Mass: 423.7770 425.7740 Tot Response: 3.10e+04 RRF: 1.025

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:21	9.56e+03	9.11e+03	1.05	yes	1.87e+04		n	n
2	39:03	6.18e+03	6.10e+03	1.01	yes	1.23e+04	1,2,3,4,6,7,8-HpCDD	n	n

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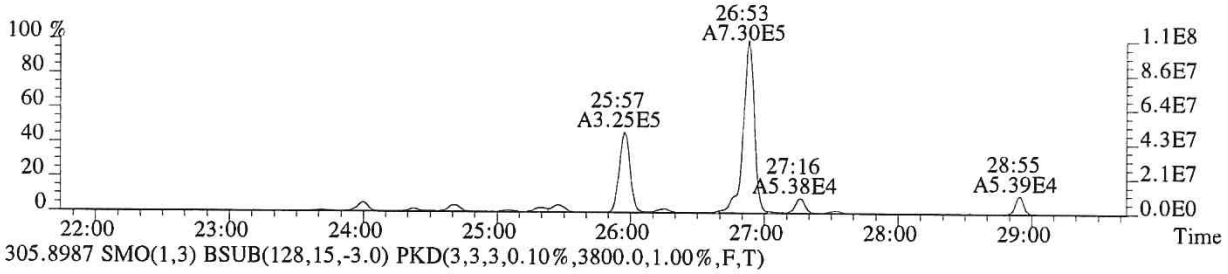
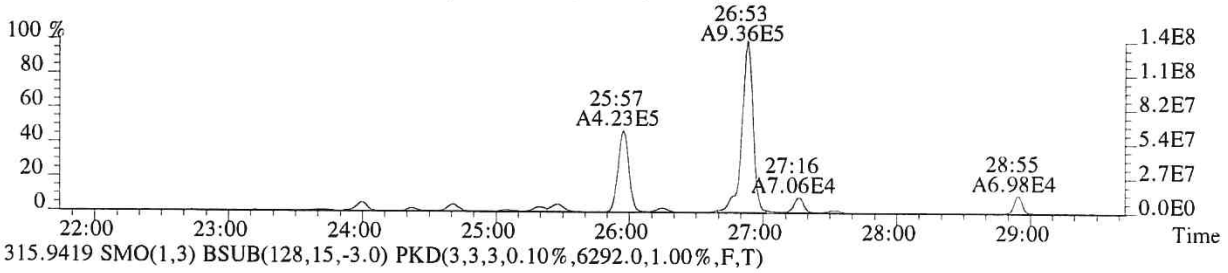
File:P519489 #1-566 Acq:19-DEC-2018 10:43:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-015

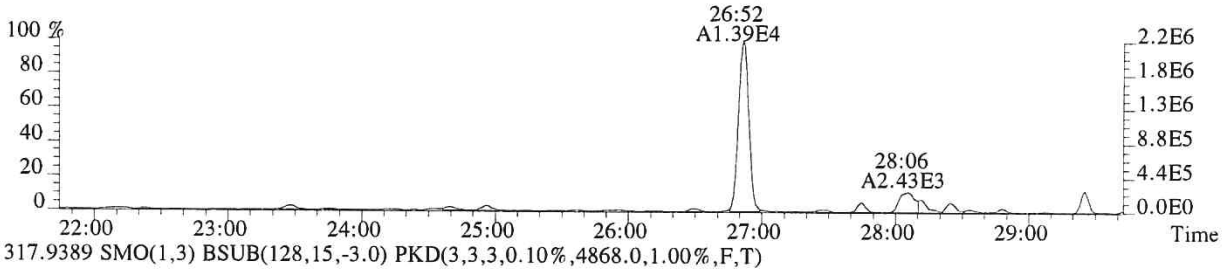
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4488.0,1.00%,F,T)



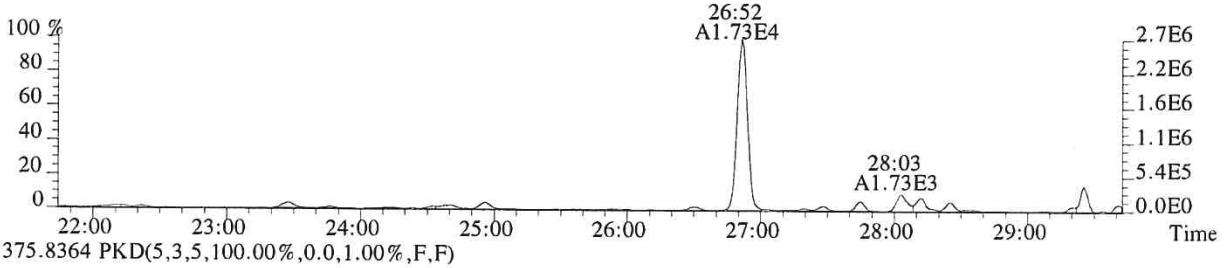
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3800.0,1.00%,F,T)



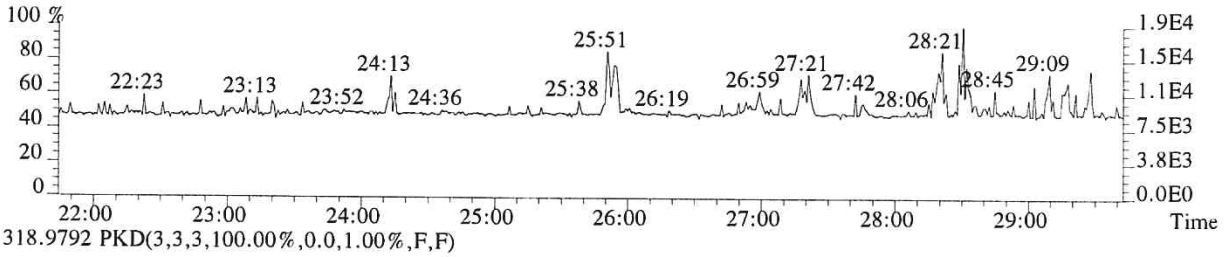
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6292.0,1.00%,F,T)



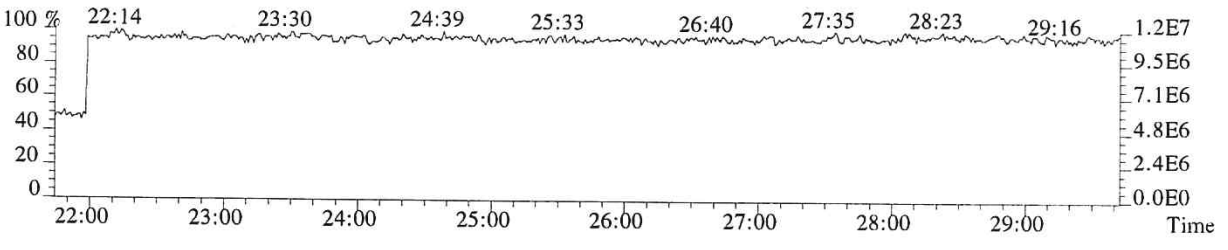
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4868.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



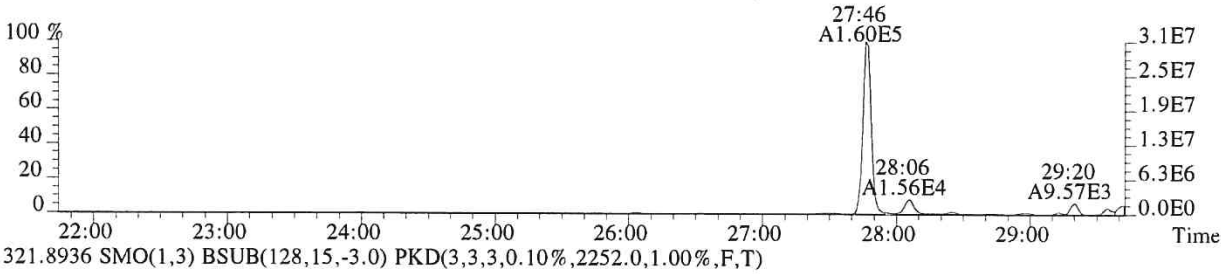
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



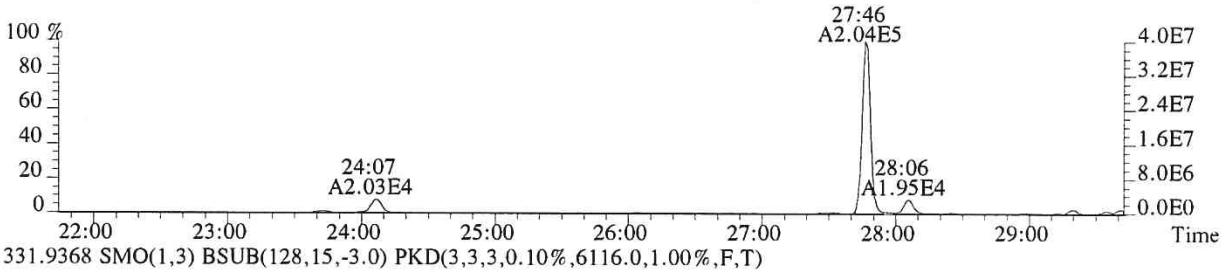
015536

File:P519489 #1-566 Acq:19-DEC-2018 10:43:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-015

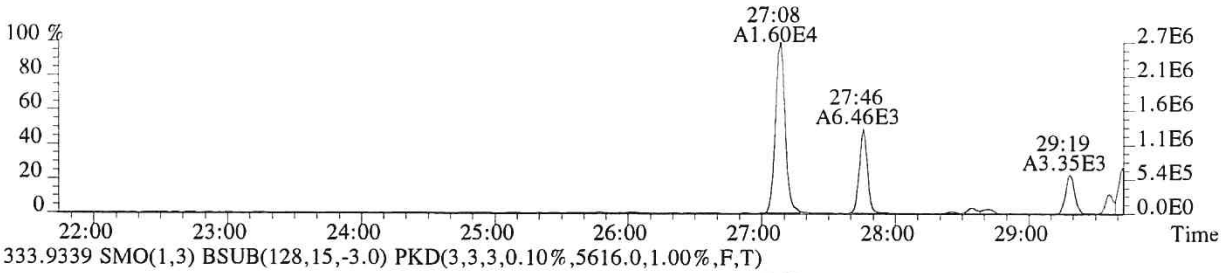
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2568.0,1.00%,F,T)



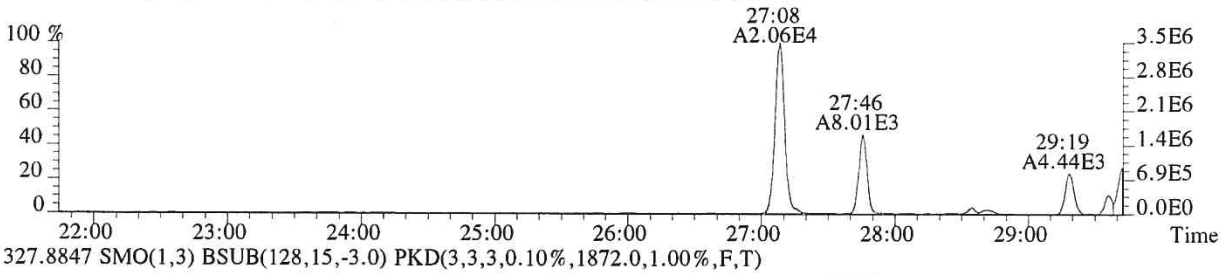
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2252.0,1.00%,F,T)



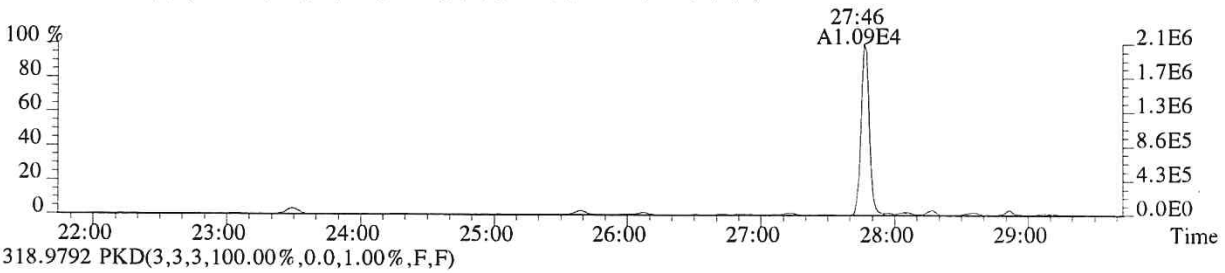
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6116.0,1.00%,F,T)



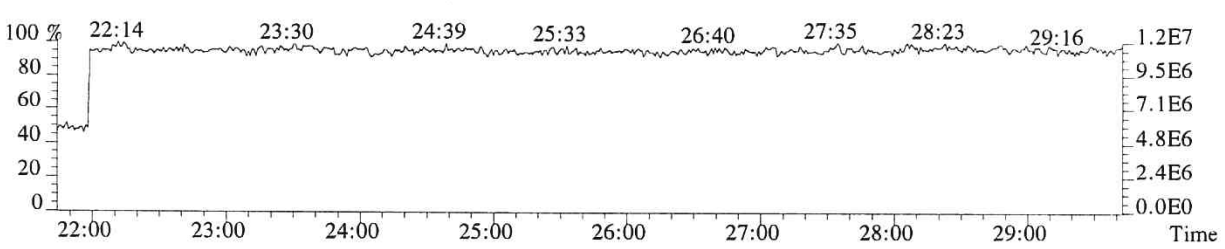
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5616.0,1.00%,F,T)



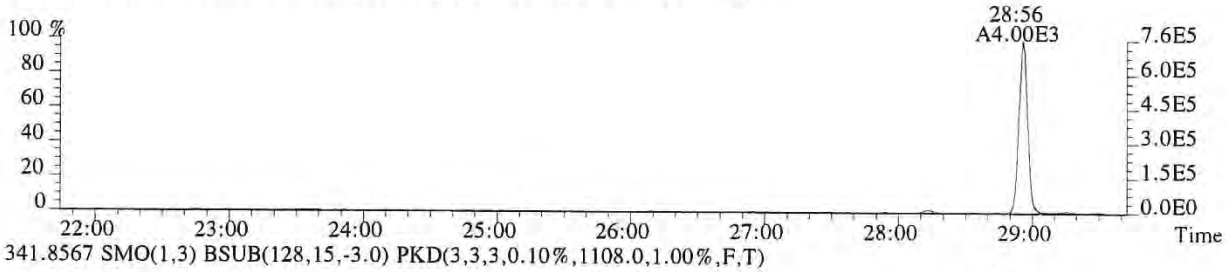
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1872.0,1.00%,F,T)



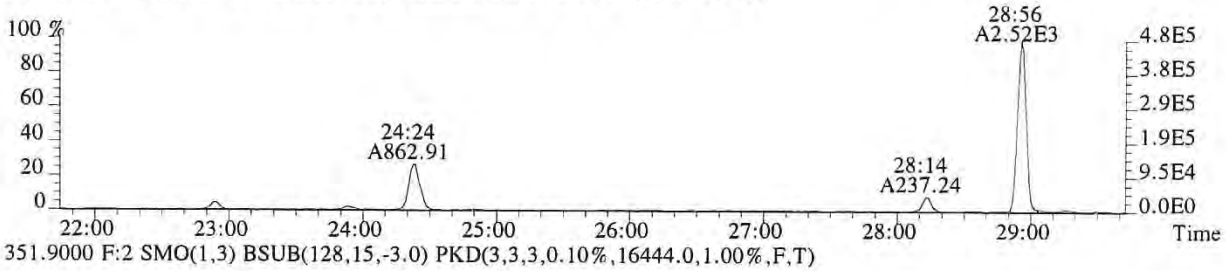
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



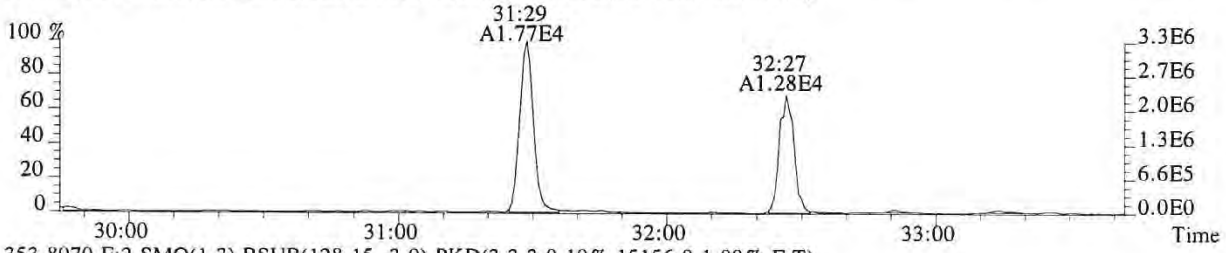
File:P519489 #1-566 Acq:19-DEC-2018 10:43:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-015
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,600.0,1.00%,F,T)



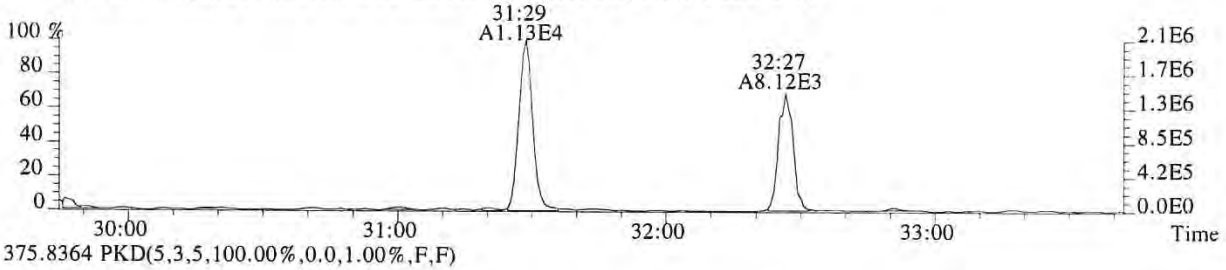
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1108.0,1.00%,F,T)



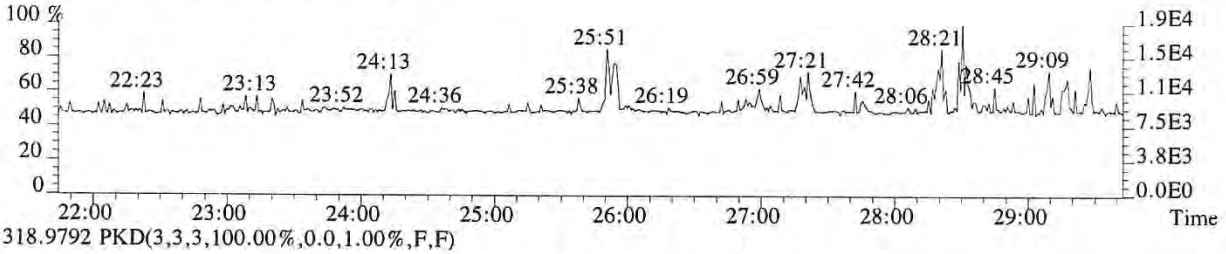
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,16444.0,1.00%,F,T)



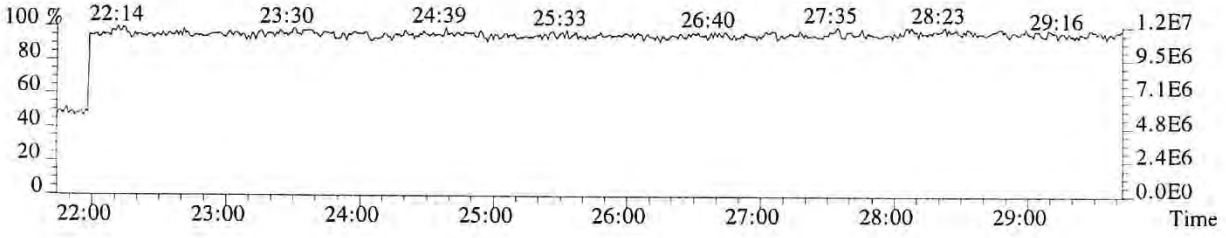
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15156.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



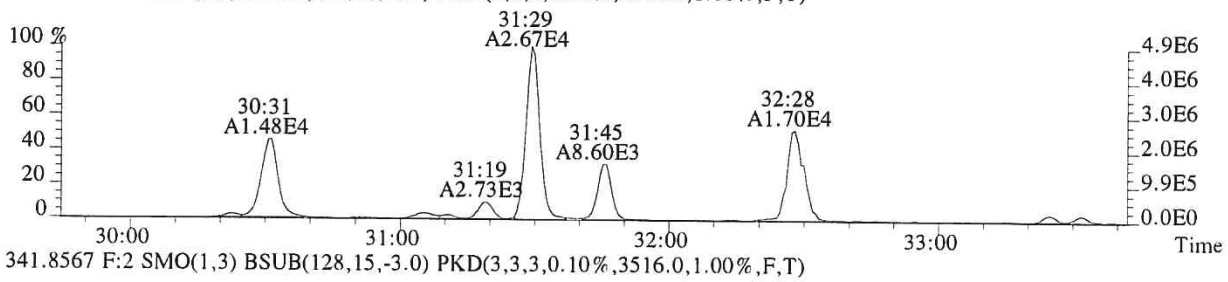
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



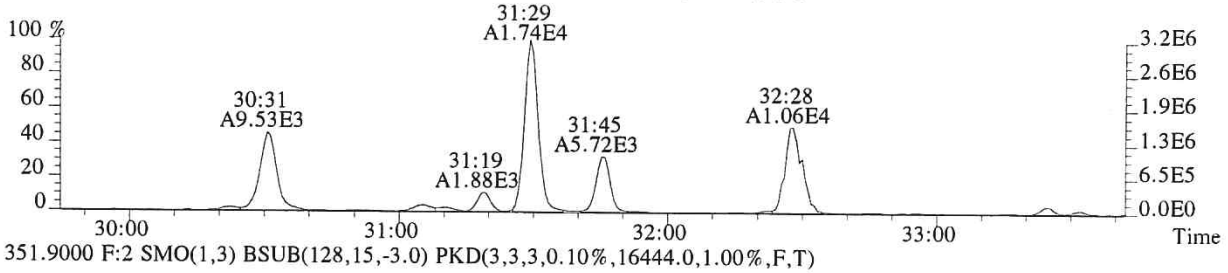
015538

File:P519489 #1-357 Acq:19-DEC-2018 10:43:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-015

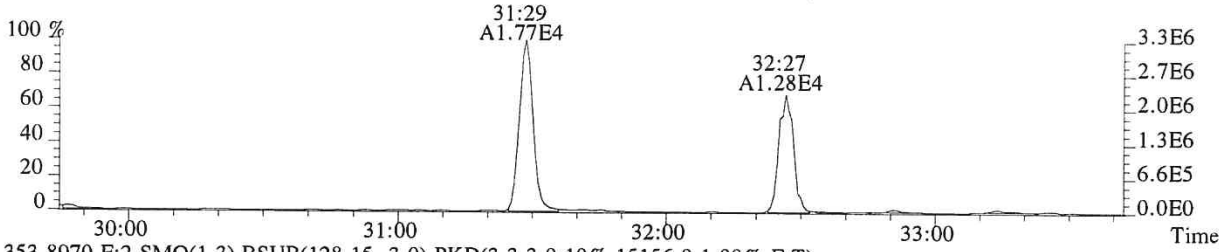
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5540.0,1.00%,F,T)



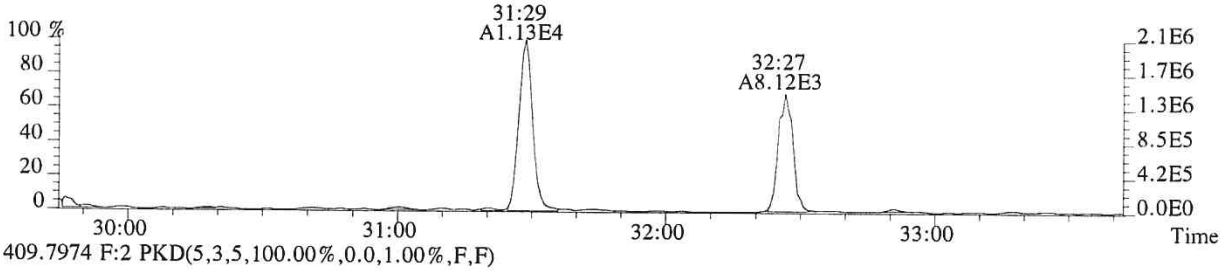
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3516.0,1.00%,F,T)



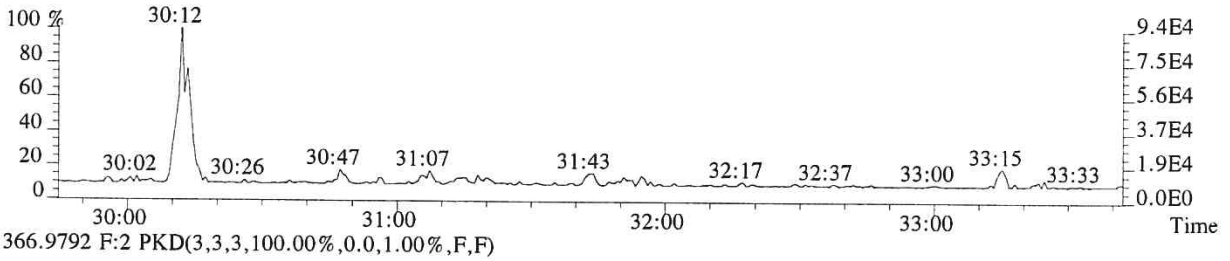
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,16444.0,1.00%,F,T)



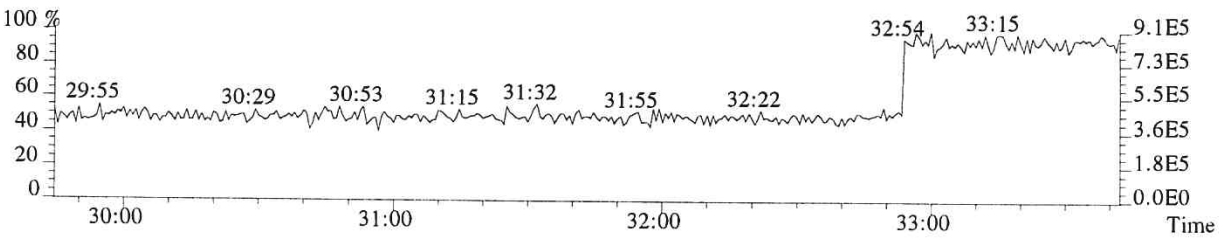
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15156.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

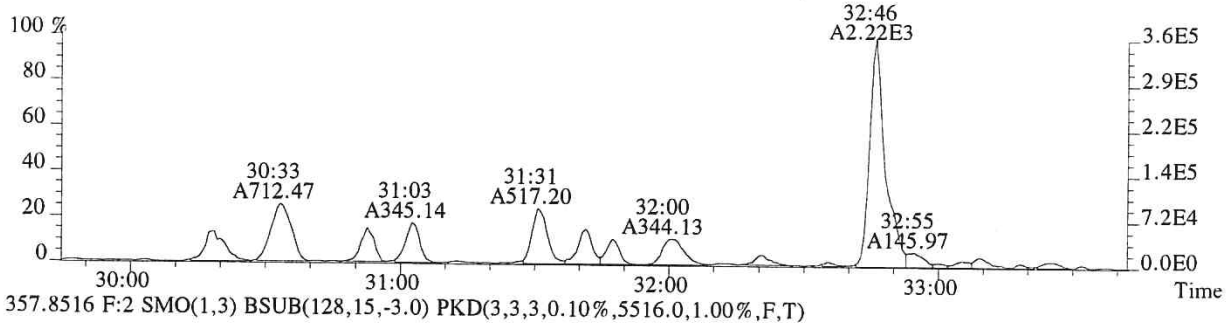


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

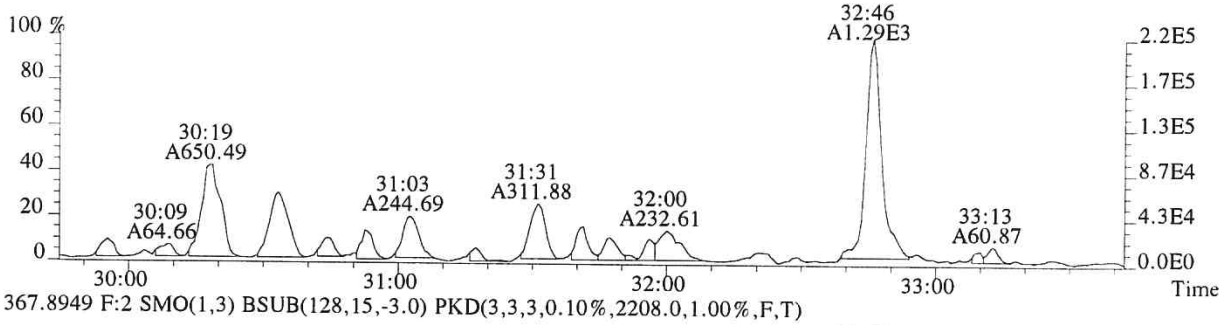


015539

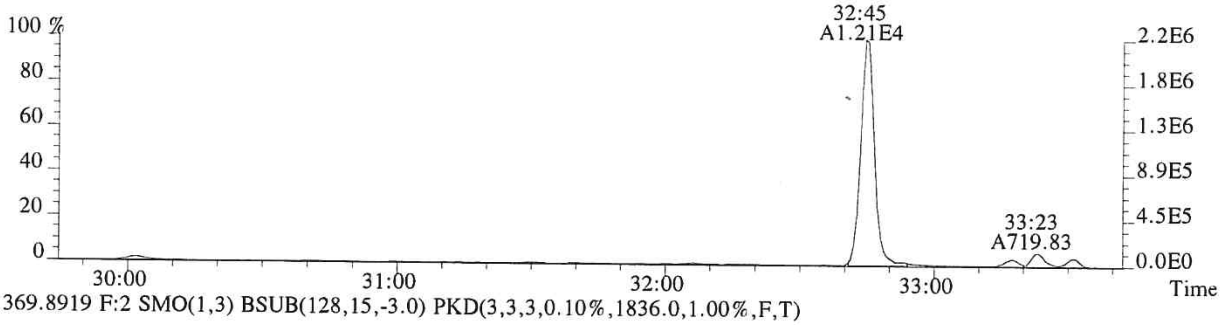
File:P519489 #1-357 Acq:19-DEC-2018 10:43:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-015
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2376.0,1.00%,F,T)



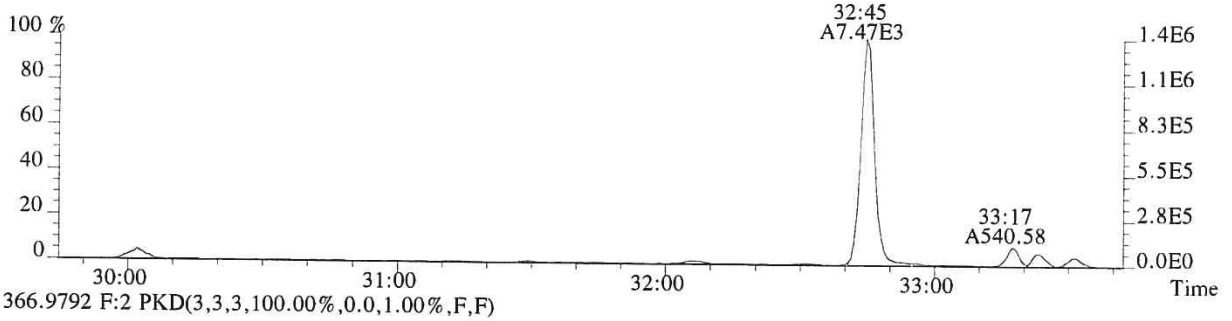
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5516.0,1.00%,F,T)



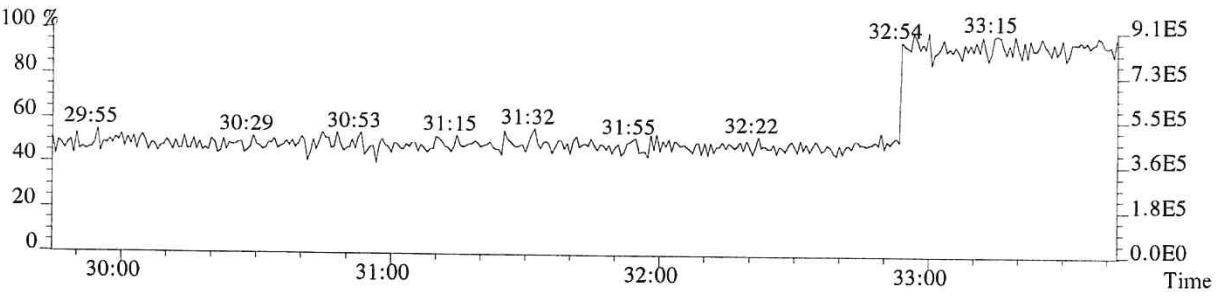
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2208.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1836.0,1.00%,F,T)



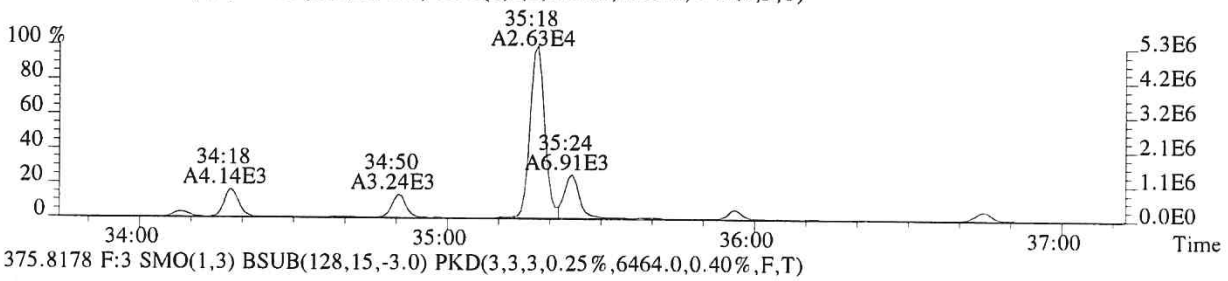
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



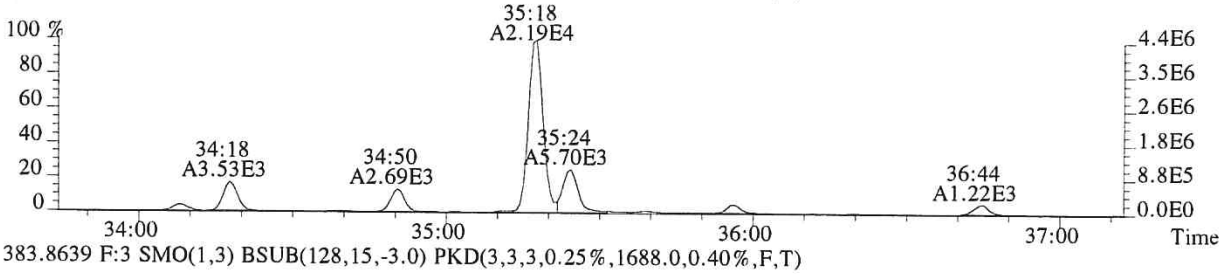
015540

File:P519489 #1-313 Acq:19-DEC-2018 10:43:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-015

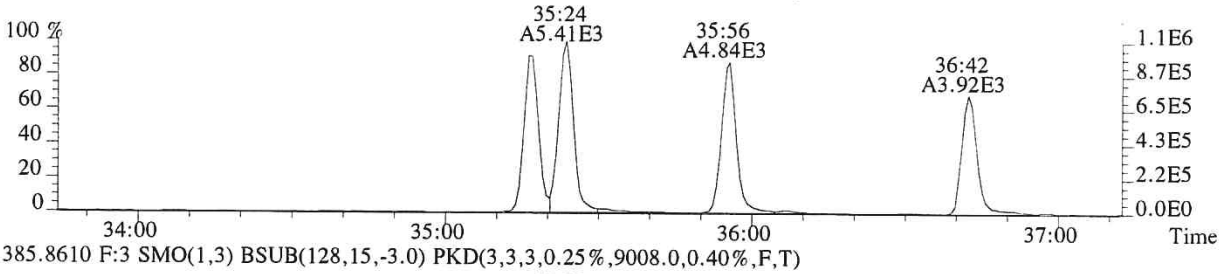
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4316.0,0.40%,F,T)



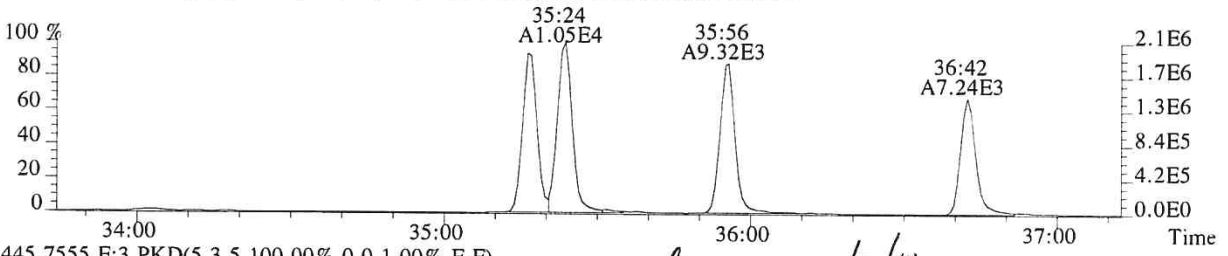
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6464.0,0.40%,F,T)



383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1688.0,0.40%,F,T)

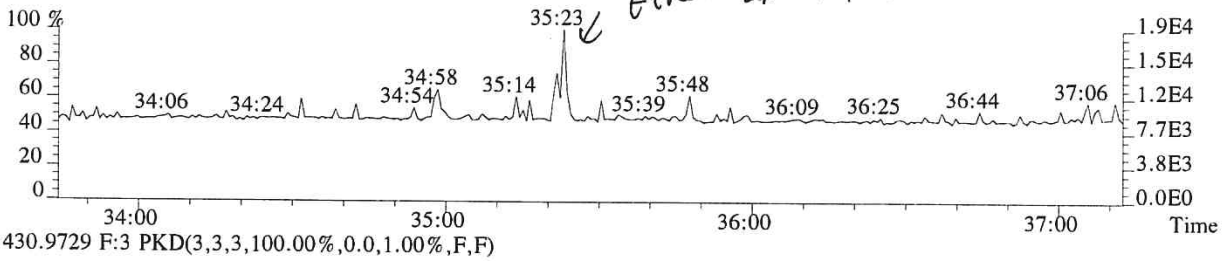


385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,9008.0,0.40%,F,T)

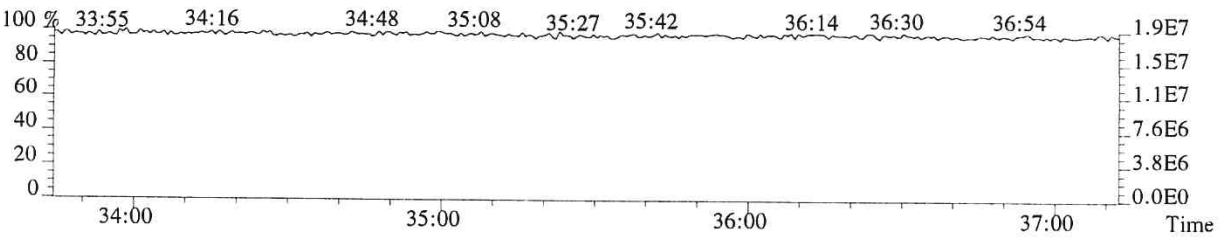


445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

Ether LM 12/21/18

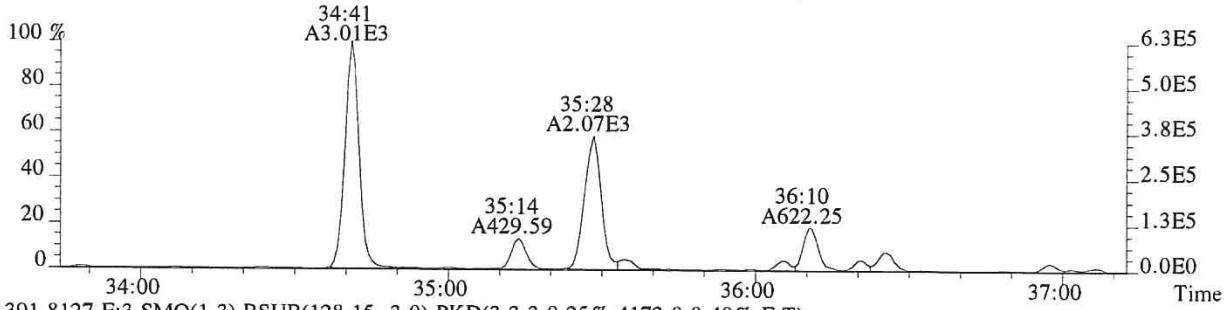


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

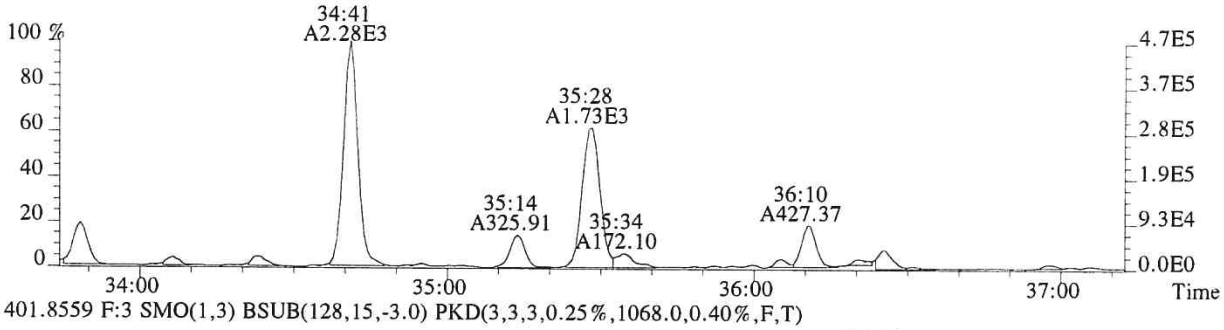


015541

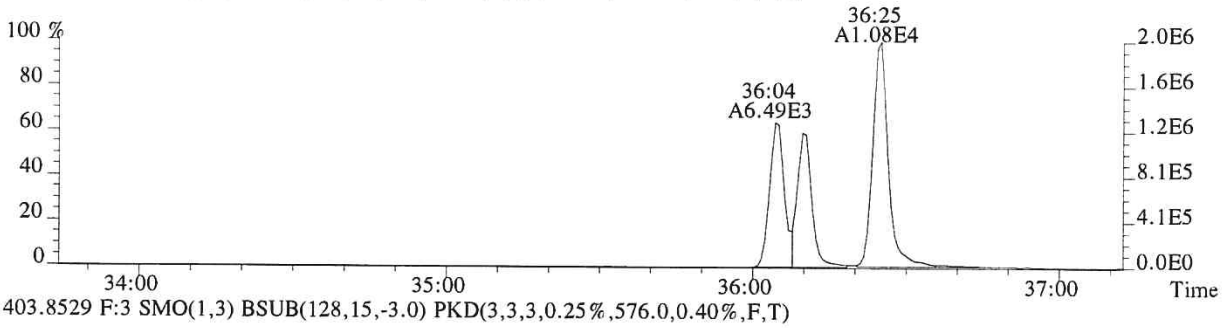
File:P519489 #1-313 Acq:19-DEC-2018 10:43:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-015
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1172.0,0.40%,F,T)



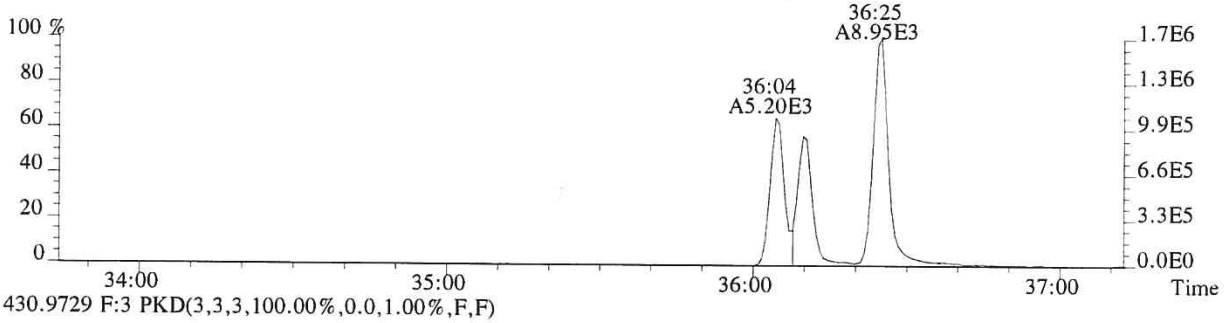
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4172.0,0.40%,F,T)



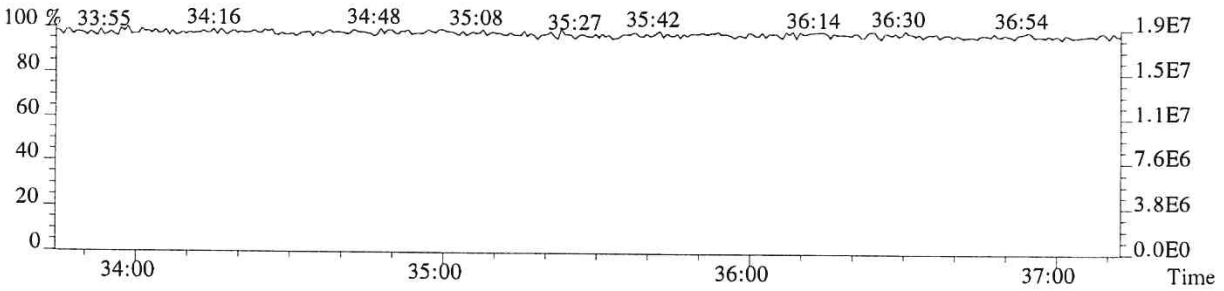
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1068.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,576.0,0.40%,F,T)

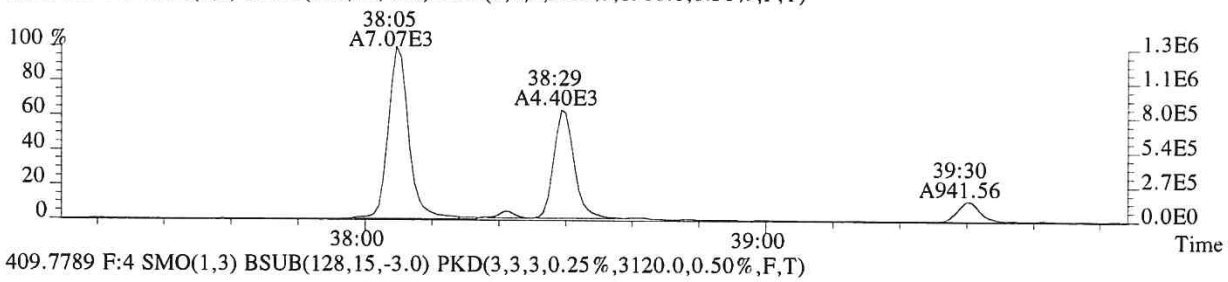


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

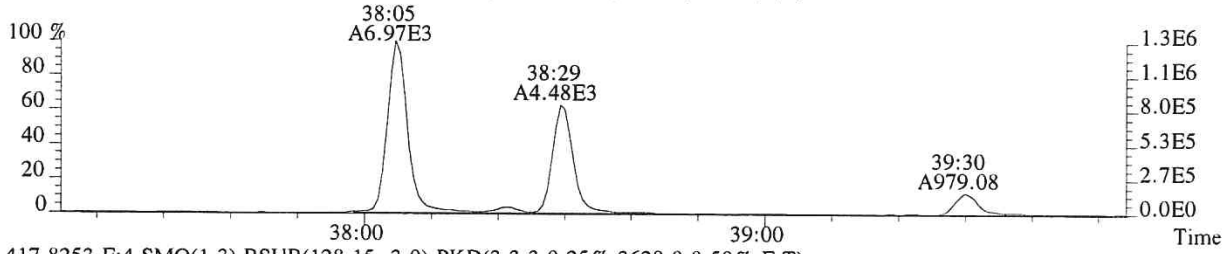


File:P519489 #1-240 Acq:19-DEC-2018 10:43:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-015

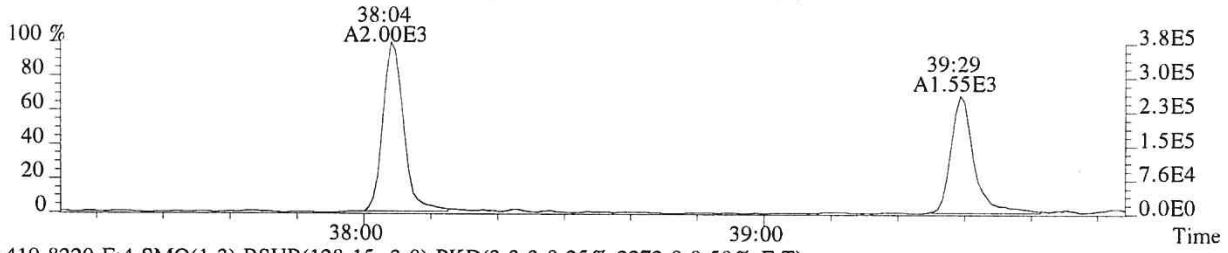
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1908.0,0.50%,F,T)



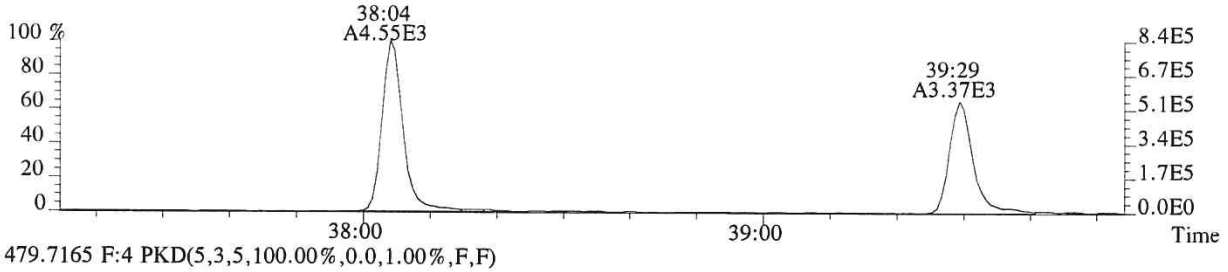
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3120.0,0.50%,F,T)



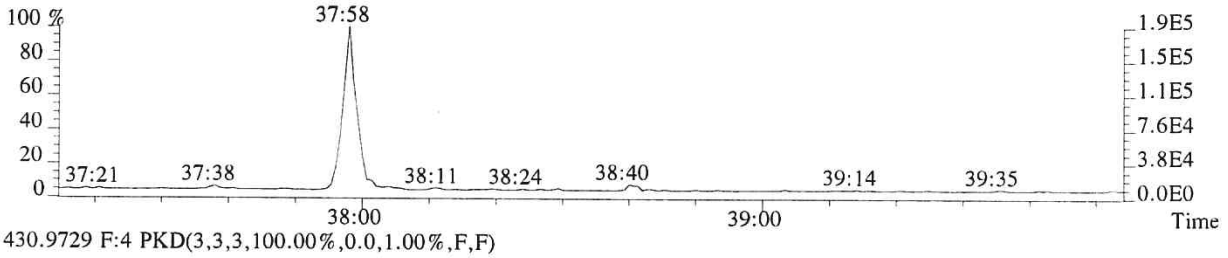
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3628.0,0.50%,F,T)



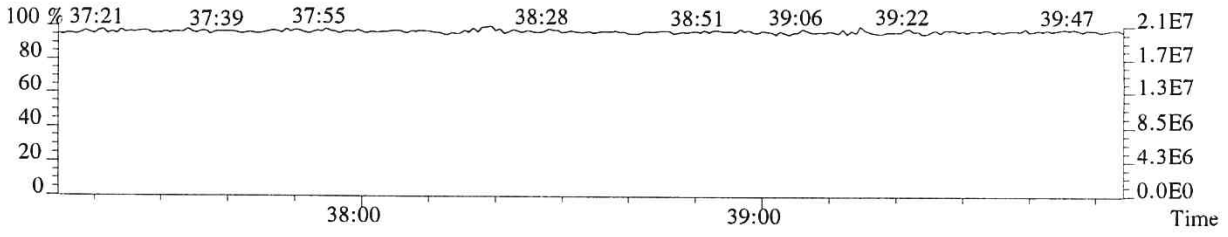
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2272.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

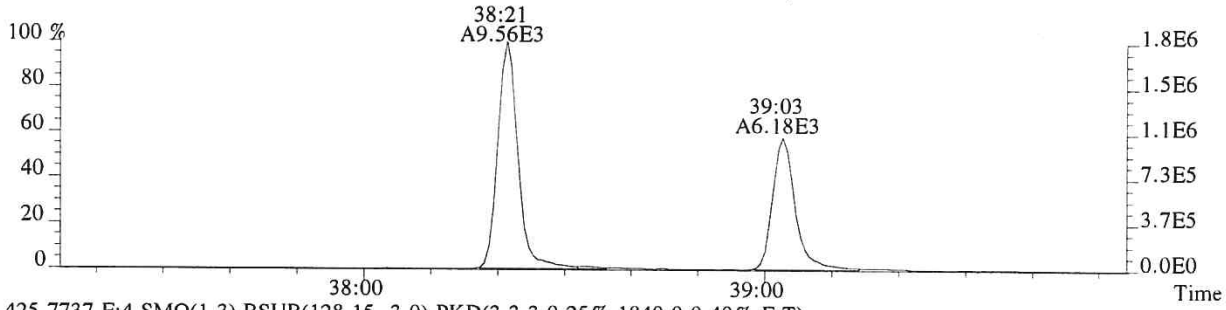


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

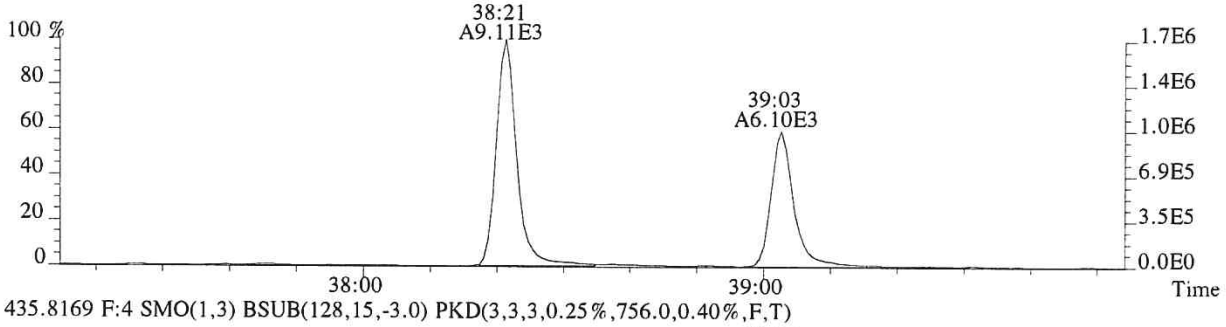


015543

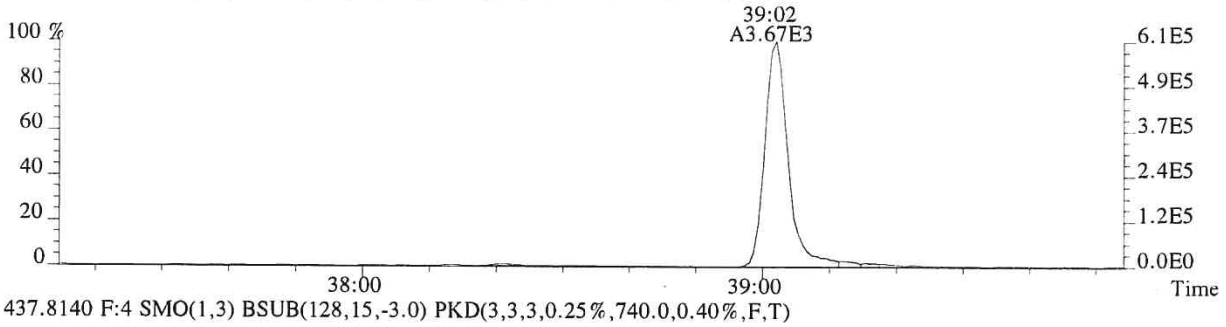
File:P519489 #1-240 Acq:19-DEC-2018 10:43:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-015
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,672.0,0.40%,F,T)



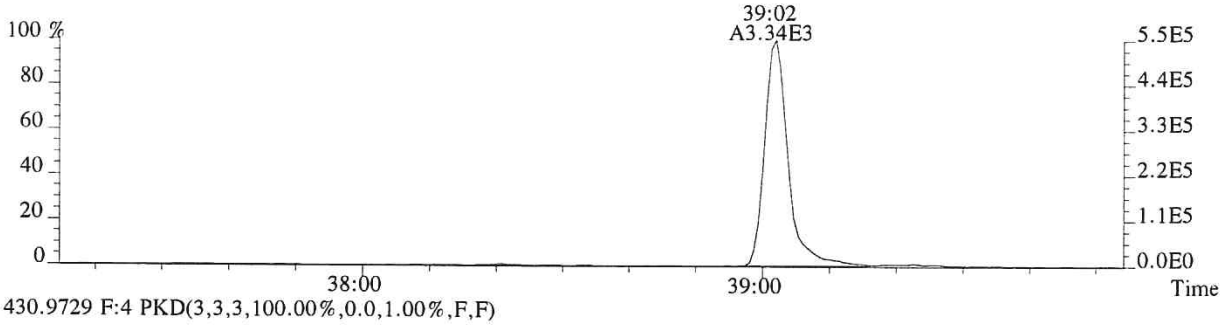
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1840.0,0.40%,F,T)



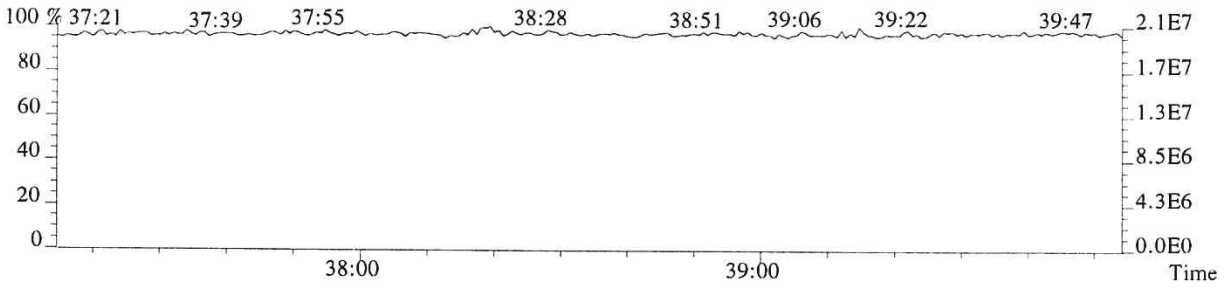
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,756.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,740.0,0.40%,F,T)

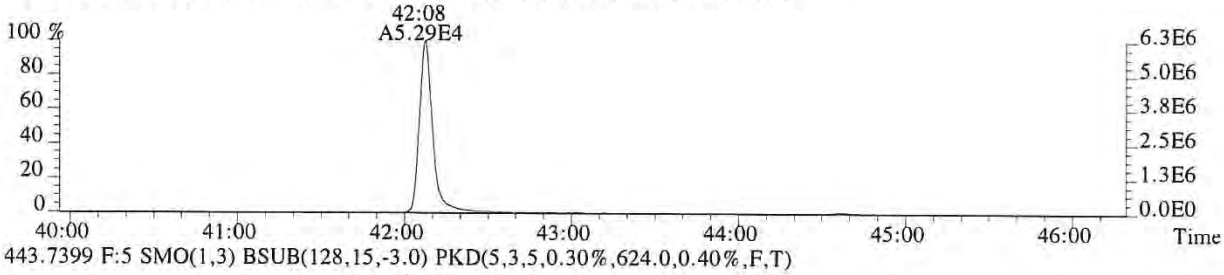


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

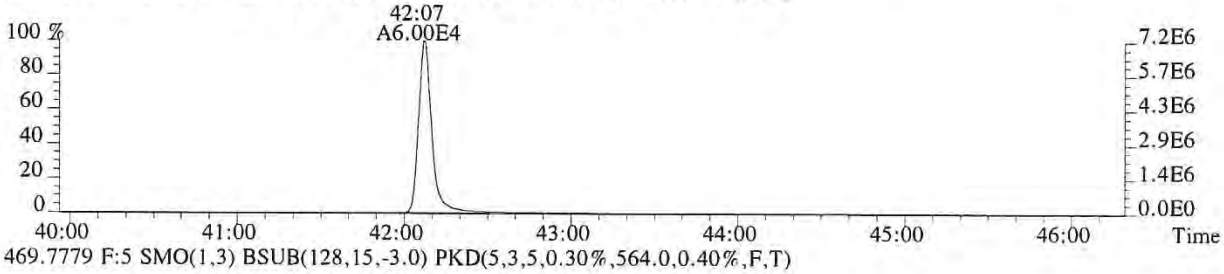


File:P519489 #1-575 Acq:19-DEC-2018 10:43:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-015

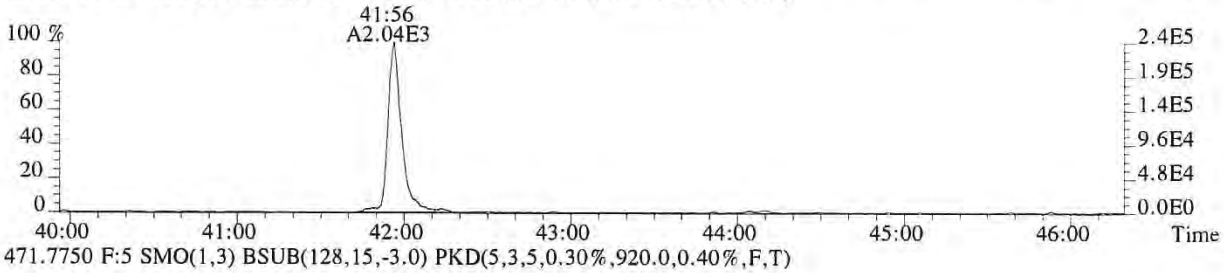
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,456.0,0.40%,F,T)



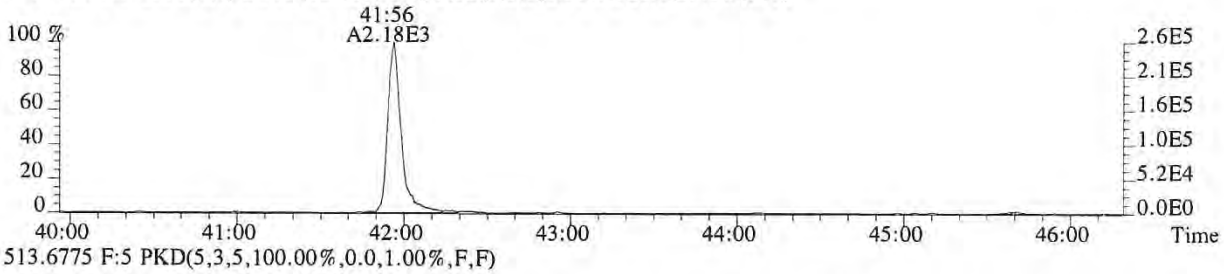
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,624.0,0.40%,F,T)



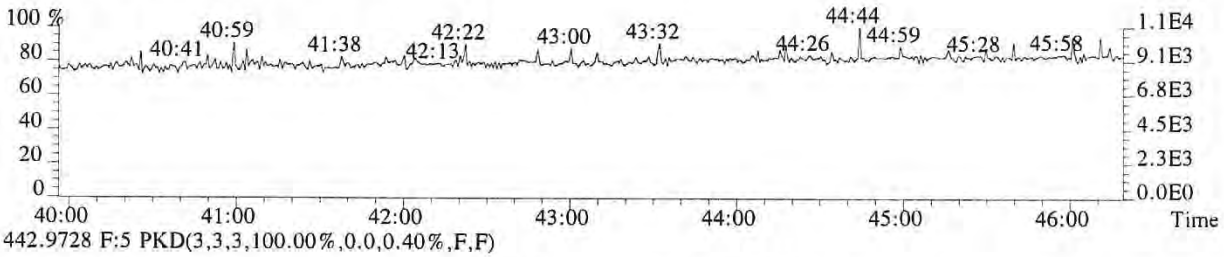
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,564.0,0.40%,F,T)



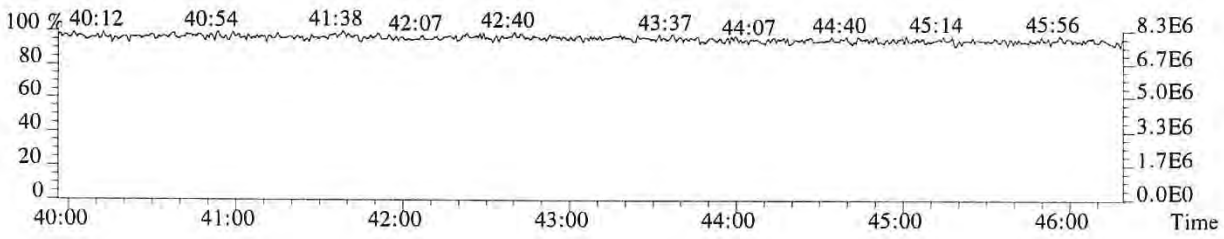
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,920.0,0.40%,F,T)



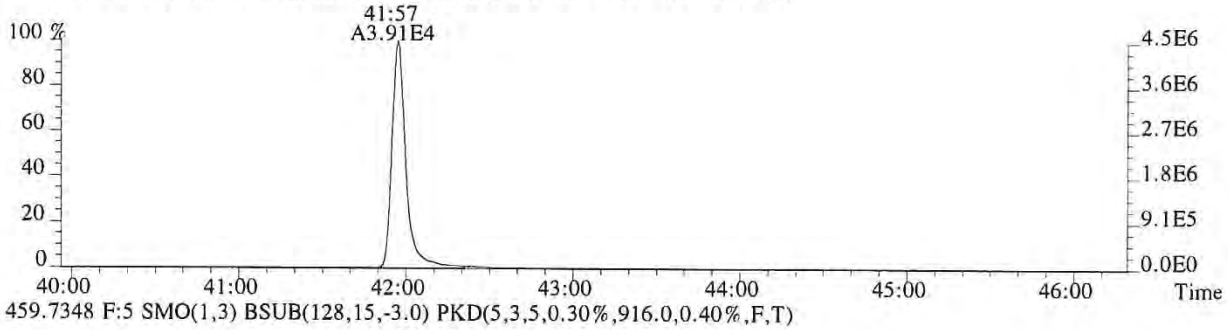
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



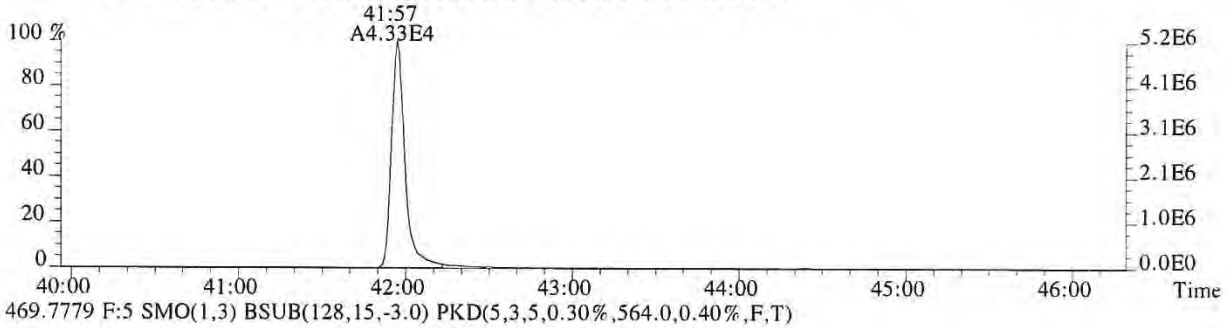
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



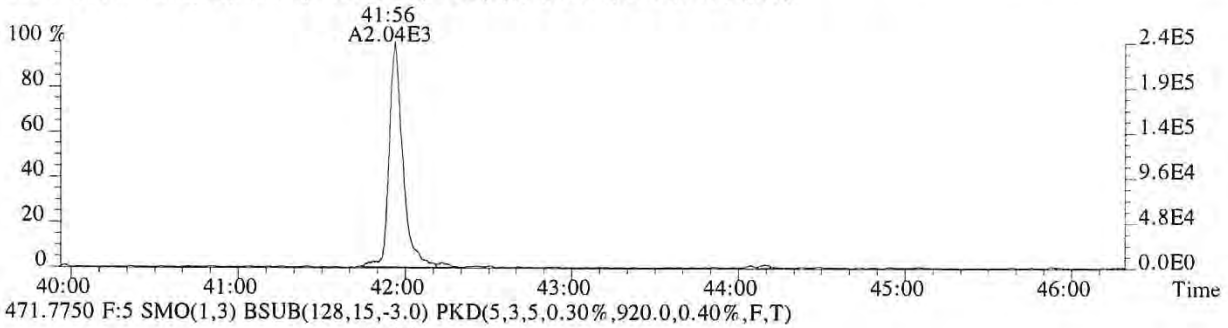
File:P519489 #1-575 Acq:19-DEC-2018 10:43:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-015
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,664.0,0.40%,F,T)



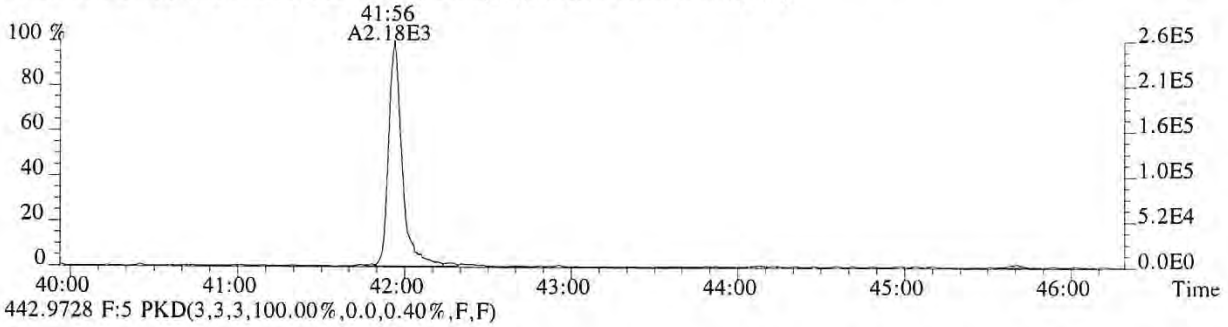
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,916.0,0.40%,F,T)



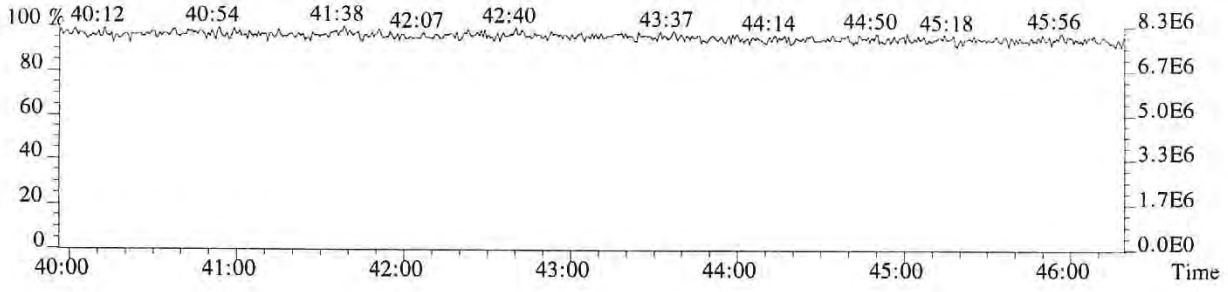
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,564.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,920.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0057

Run #15 Filename P519596 Samp: 1 Inj: 1 Acquired: 24-DEC-18 16:24:25
Processed: 26-DEC-18 13:36:14 Sample ID: E1801094-015DL

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:18	2.381e+03	2.883e+03	0.83	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	31:07	9.855e+01	8.614e+01	1.14	no	no	1.012
3	Unk	2,3,4,7,8-PeCDF	32:06	9.996e+01	6.171e+01	1.62	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:01	1.202e+02	1.021e+02	1.18	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:07	5.311e+01	4.891e+01	1.09	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.110
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	yes	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	37:50	6.641e+01	6.929e+01	0.96	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	yes	1.258
10	Unk	OCDF	41:55	8.484e+02	1.050e+03	0.81	yes	no	1.359
11	Unk	2,3,7,8-TCDD	27:15	4.604e+02	6.809e+02	0.68	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	yes	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.038
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	yes	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:51	6.097e+01	6.517e+01	0.94	yes	no	1.025
17	Unk	OCDD	41:48	6.402e+02	7.611e+02	0.84	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	26:16	5.139e+03	6.618e+03	0.78	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	31:06	7.670e+03	4.972e+03	1.54	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	32:06	7.414e+03	4.617e+03	1.61	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:00	3.035e+03	5.539e+03	0.55	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:07	3.847e+03	7.180e+03	0.54	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:39	3.292e+03	6.185e+03	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	36:27	2.693e+03	5.291e+03	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:50	2.436e+03	5.726e+03	0.43	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:18	1.990e+03	4.533e+03	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	27:13	2.294e+03	2.976e+03	0.77	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:24	5.348e+03	3.312e+03	1.61	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:49	4.106e+03	2.968e+03	1.38	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:54	4.555e+03	3.841e+03	1.19	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:50	4.834e+03	4.406e+03	1.10	yes	no	0.858
32	IS	13C-OCDD	41:45	5.314e+03	5.560e+03	0.96	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	26:33	3.881e+03	4.686e+03	0.83	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:09	4.735e+03	3.564e+03	1.33	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	NotFnd	*				no	1.014

$$\text{OCDD} = \frac{(6.402e{+}02 + 7.611e{+}02) \times 4000\ \text{pg} \times 100}{(5.314e{+}03 + 5.560e{+}03) \times 10.936\ \text{g} \times 57.7 / 100 \times 1.118} = 40593.1881\ \text{ng/kg}$$

LG 12/27/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0057

Run #15 Filename P519596 Samp: 1 Inj: 1 Acquired: 24-DEC-18 16:24:25
Processed: 26-DEC-18 13:36:14 LAB. ID: E1801094-015DL

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	3.17e+05	1.15e+03	2.8e+02	4.04e+05	3.01e+03	1.3e+02
2	1,2,3,7,8-PeCDF	1.59e+04	6.04e+02	2.6e+01	1.34e+04	2.05e+03	6.5e+00
3	2,3,4,7,8-PeCDF	1.46e+04	6.04e+02	2.4e+01	1.21e+04	2.05e+03	5.9e+00
4	1,2,3,4,7,8-HxCDF	2.06e+04	8.20e+02	2.5e+01	1.83e+04	6.04e+02	3.0e+01
5	1,2,3,6,7,8-HxCDF	8.52e+03	8.20e+02	1.0e+01	8.24e+03	6.04e+02	1.4e+01
6	2,3,4,6,7,8-HxCDF	*	8.20e+02	*	*	6.04e+02	*
7	1,2,3,7,8,9-HxCDF	*	8.20e+02	*	*	6.04e+02	*
8	1,2,3,4,6,7,8-HpCDF	8.57e+03	7.68e+02	1.1e+01	1.17e+04	6.88e+02	1.7e+01
9	1,2,3,4,7,8,9-HpCDF	*	7.68e+02	*	*	6.88e+02	*
10	OCDF	7.65e+04	5.56e+02	1.4e+02	7.41e+04	1.40e+03	5.3e+01
11	2,3,7,8-TCDD	8.14e+04	3.15e+03	2.6e+01	1.05e+05	1.20e+03	8.8e+01
12	1,2,3,7,8-PeCDD	*	6.20e+02	*	*	4.24e+02	*
13	1,2,3,4,7,8-HxCDD	*	5.56e+02	*	*	5.08e+02	*
14	1,2,3,6,7,8-HxCDD	*	5.56e+02	*	*	5.08e+02	*
15	1,2,3,7,8,9-HxCDD	*	5.56e+02	*	*	5.08e+02	*
16	1,2,3,4,6,7,8-HpCDD	8.01e+03	6.76e+02	1.2e+01	8.07e+03	4.28e+02	1.9e+01
17	OCDD	3.93e+04	3.28e+02	1.2e+02	5.50e+04	3.64e+02	1.5e+02
18	13C-2,3,7,8-TCDF	7.96e+05	1.30e+04	6.1e+01	9.89e+05	9.08e+03	1.1e+02
19	13C-1,2,3,7,8-PeCDF	1.22e+06	9.52e+02	1.3e+03	7.70e+05	5.20e+02	1.5e+03
20	13C-2,3,4,7,8-PeCDF	1.28e+06	9.52e+02	1.3e+03	7.50e+05	5.20e+02	1.4e+03
21	13C-1,2,3,4,7,8-HxCDF	5.09e+05	5.80e+02	8.8e+02	9.59e+05	1.26e+03	7.6e+02
22	13C-1,2,3,6,7,8-HxCDF	6.06e+05	5.80e+02	1.0e+03	1.13e+06	1.26e+03	8.9e+02
23	13C-2,3,4,6,7,8-HxCDF	5.37e+05	5.80e+02	9.3e+02	1.00e+06	1.26e+03	7.9e+02
24	13C-1,2,3,7,8,9-HxCDF	3.99e+05	5.80e+02	6.9e+02	7.82e+05	1.26e+03	6.2e+02
25	13C-1,2,3,4,6,7,8-HpCDF	3.17e+05	1.33e+03	2.4e+02	7.50e+05	2.71e+03	2.8e+02
26	13C-1,2,3,4,7,8,9-HpCDF	2.09e+05	1.33e+03	1.6e+02	4.88e+05	2.71e+03	1.8e+02
27	13C-2,3,7,8-TCDD	3.75e+05	7.04e+03	5.3e+01	4.80e+05	2.42e+03	2.0e+02
28	13C-1,2,3,7,8-PeCDD	8.61e+05	1.24e+03	6.9e+02	5.41e+05	9.84e+02	5.5e+02
29	13C-1,2,3,4,7,8-HxCDD	7.31e+05	1.05e+03	7.0e+02	5.56e+05	7.24e+02	7.7e+02
30	13C-1,2,3,6,7,8-HxCDD	6.97e+05	1.05e+03	6.6e+02	5.31e+05	7.24e+02	7.3e+02
31	13C-1,2,3,4,6,7,8-HpCDD	5.41e+05	6.40e+02	8.5e+02	4.92e+05	5.56e+02	8.9e+02
32	13C-OCDD	3.62e+05	9.12e+02	4.0e+02	3.96e+05	3.16e+02	1.3e+03
33	13C-1,2,3,4-TCDD	6.24e+05	7.04e+03	8.9e+01	7.37e+05	2.42e+03	3.0e+02
34	13C-1,2,3,7,8,9-HxCDD	6.71e+05	1.05e+03	6.4e+02	5.19e+05	7.24e+02	7.2e+02
35	37Cl-2,3,7,8-TCDD	*	1.95e+03	*			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (3.152e{+}03 + 1.196e{+}03) \times 2000}{(3.752e{+}05 + 4.798e{+}05) \times (\quad) \times 1.085} =$$

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
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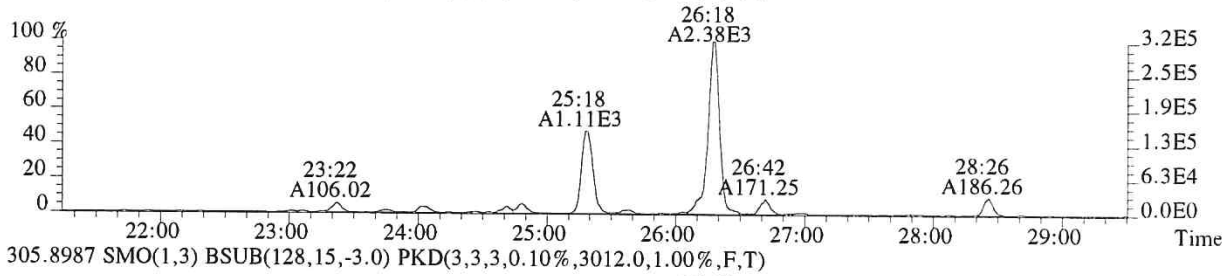
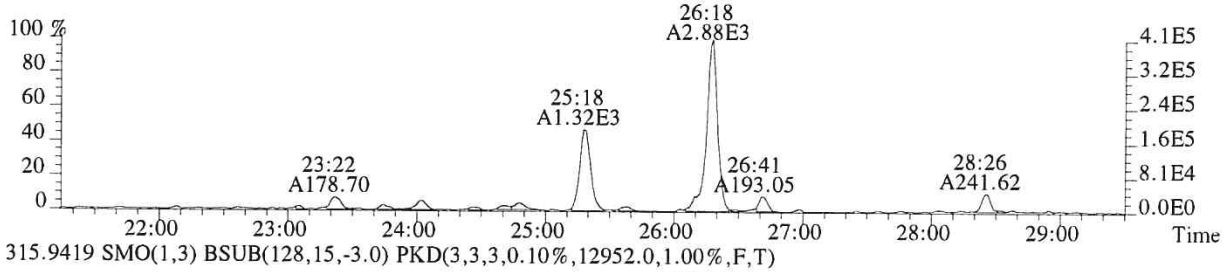
Office:(281)530-5656. Fax:(281)530-5887

File:P519596 #1-587 Acq:24-DEC-2018 16:24:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-015DL

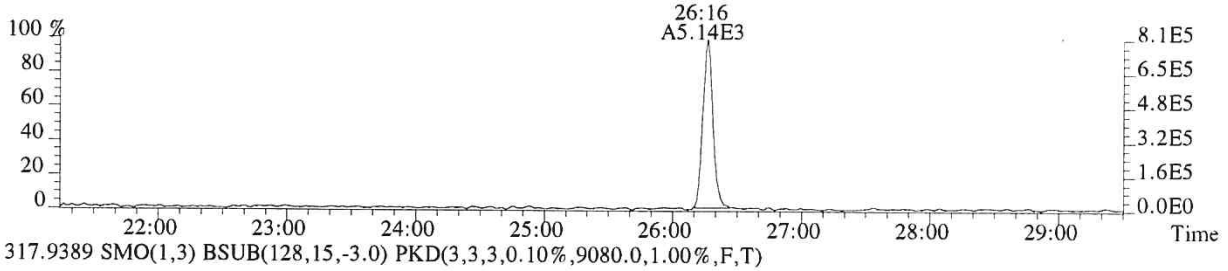
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1148.0,1.00%,F,T)



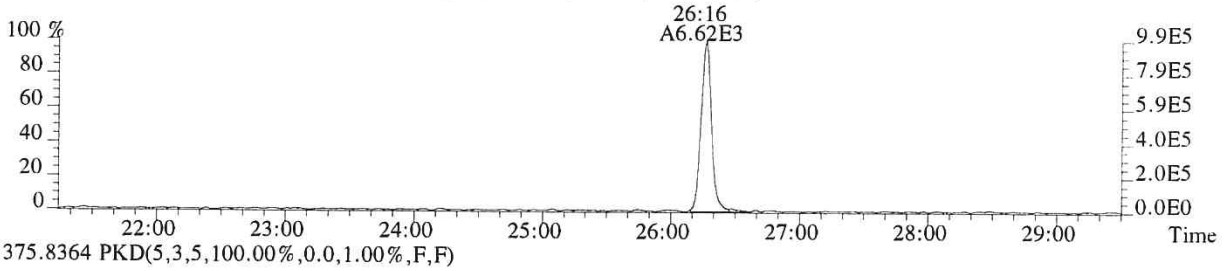
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3012.0,1.00%,F,T)



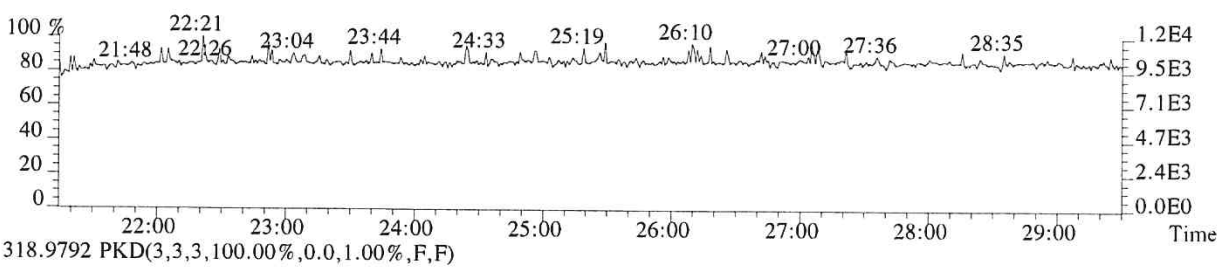
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,12952.0,1.00%,F,T)



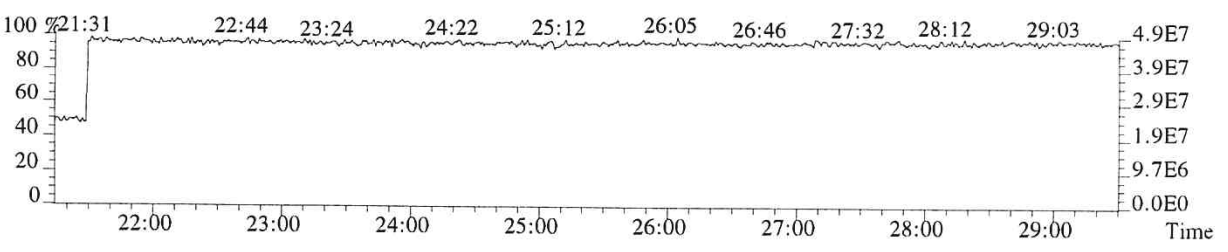
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9080.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



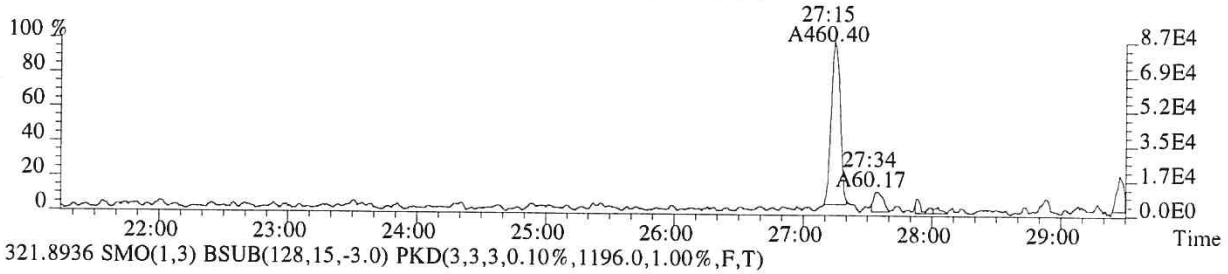
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



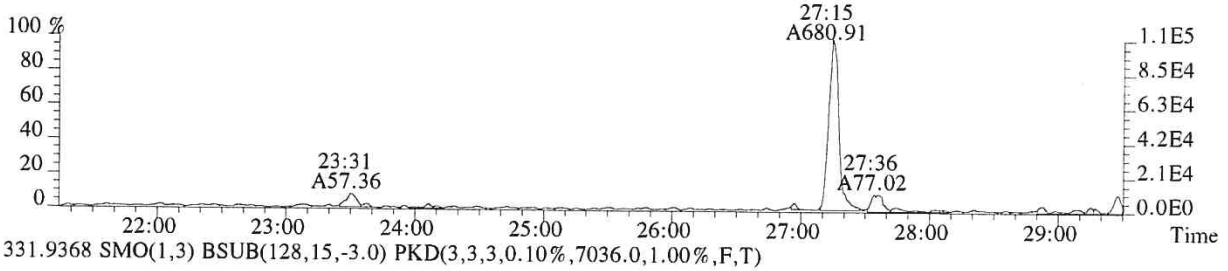
015549

File:P519596 #1-587 Acq:24-DEC-2018 16:24:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-015DL

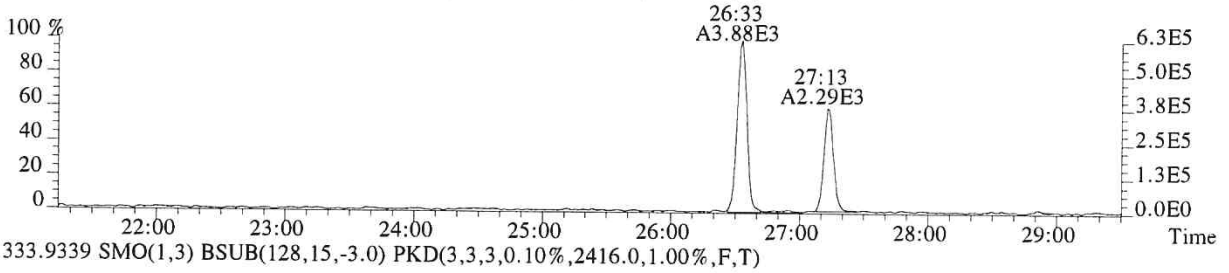
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3152.0,1.00%,F,T)



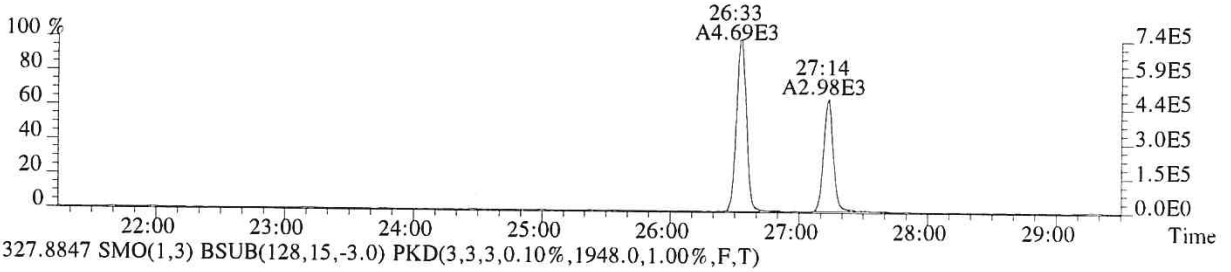
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1196.0,1.00%,F,T)



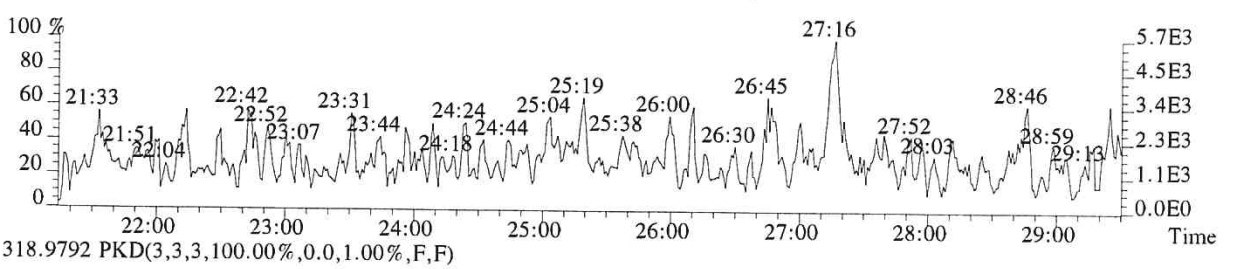
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7036.0,1.00%,F,T)



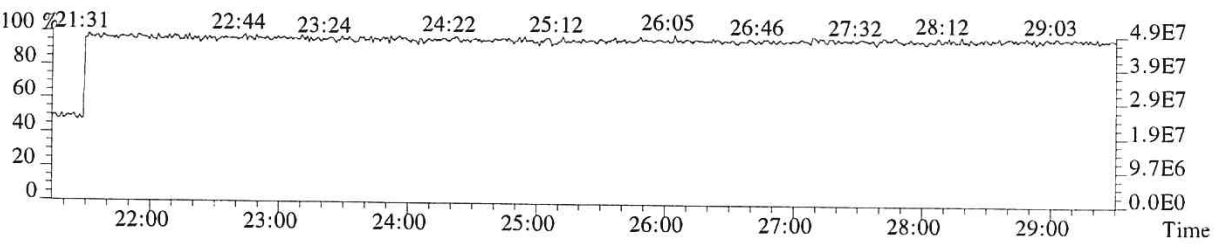
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2416.0,1.00%,F,T)



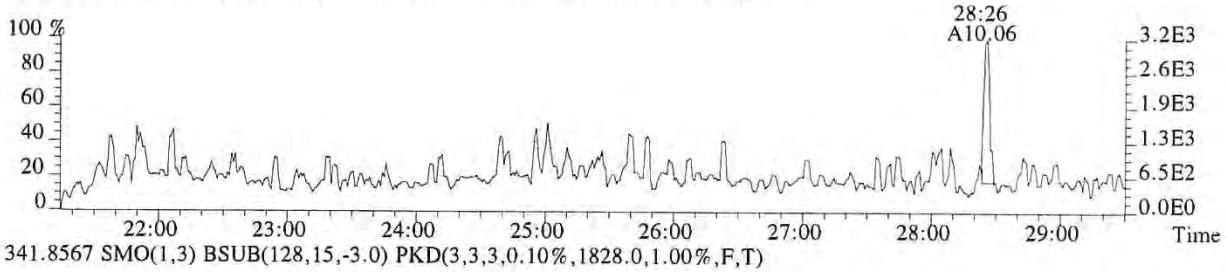
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1948.0,1.00%,F,T)



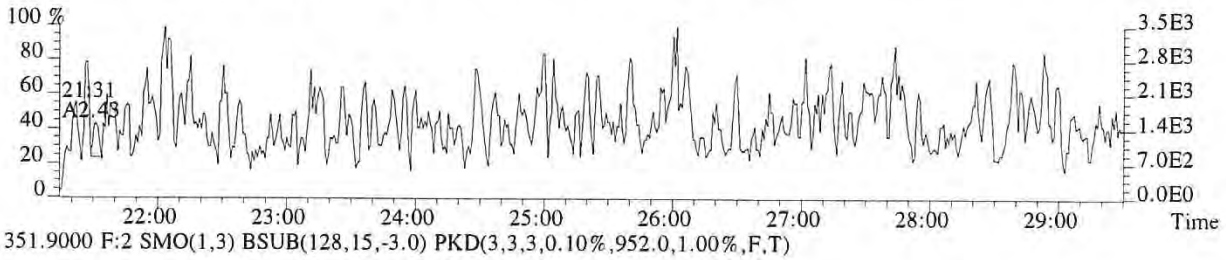
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



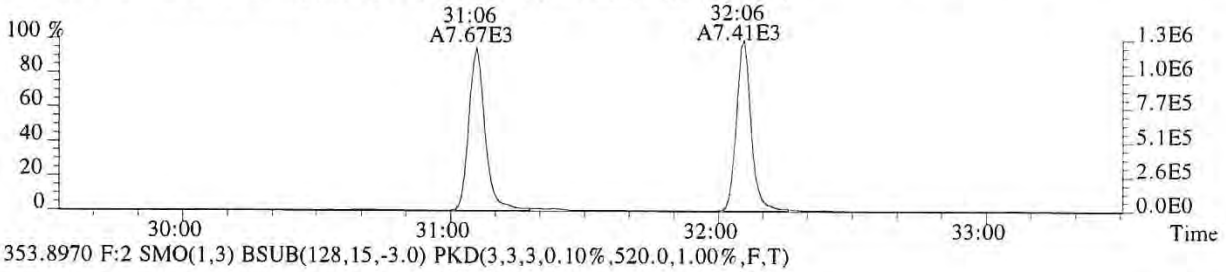
File:P519596 #1-587 Acq:24-DEC-2018 16:24:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-015DL
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,804.0,1.00%,F,T)



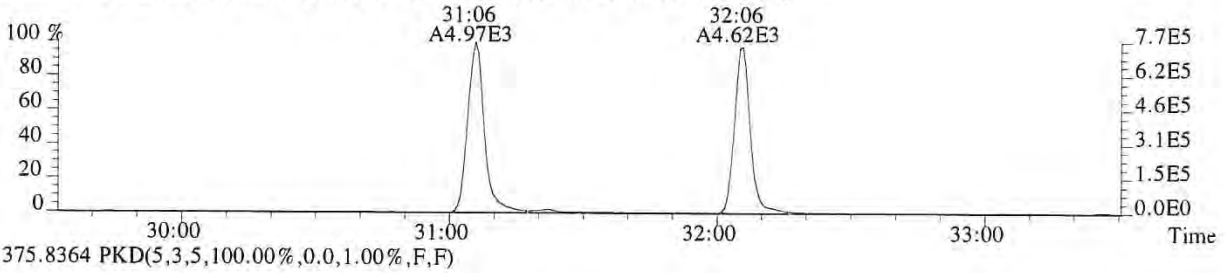
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1828.0,1.00%,F,T)



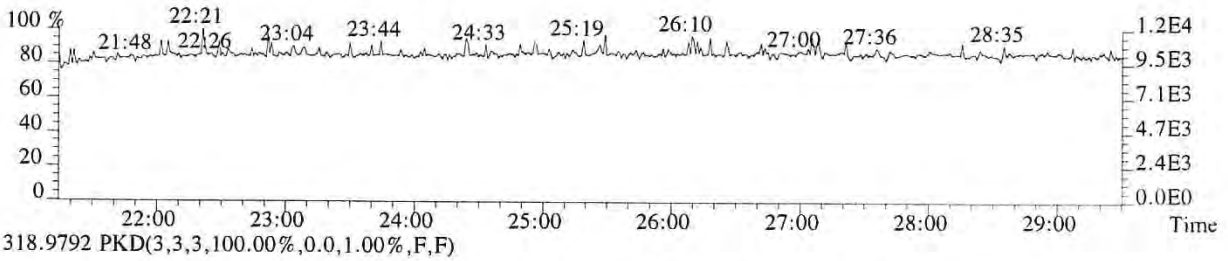
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,952.0,1.00%,F,T)



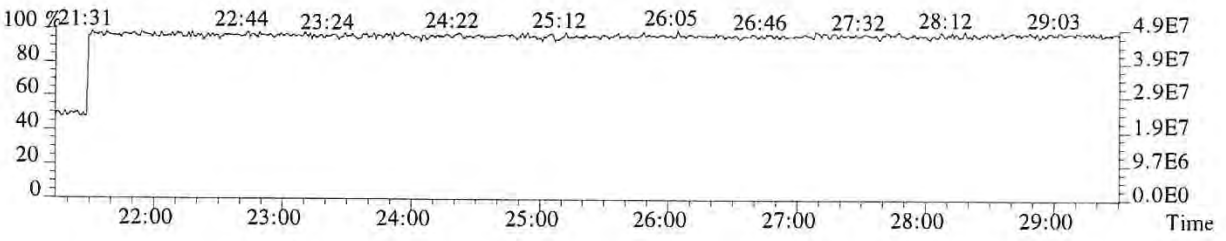
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,520.0,1.00%,F,T)



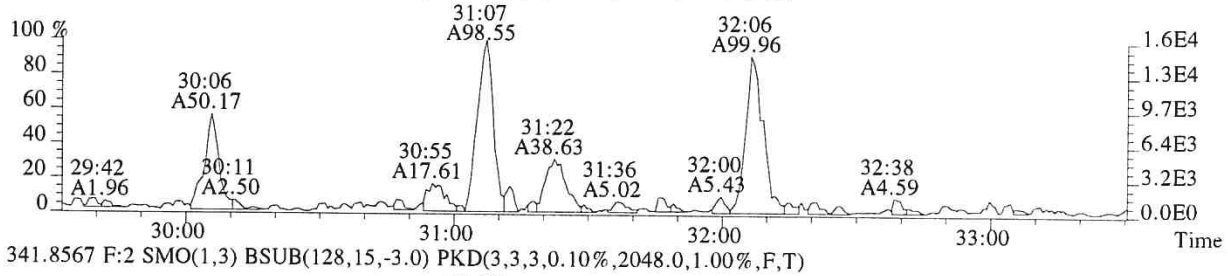
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



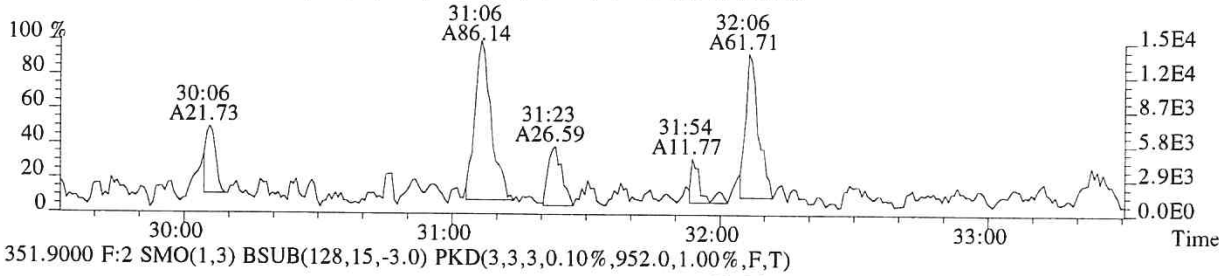
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



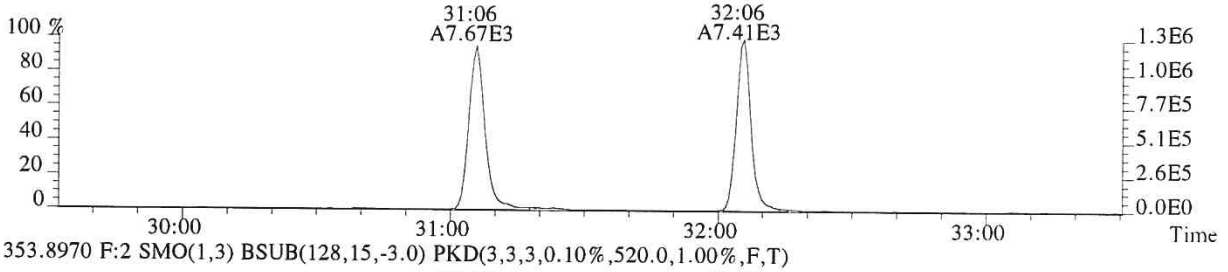
File:P519596 #1-358 Acq:24-DEC-2018 16:24:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-015DL
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



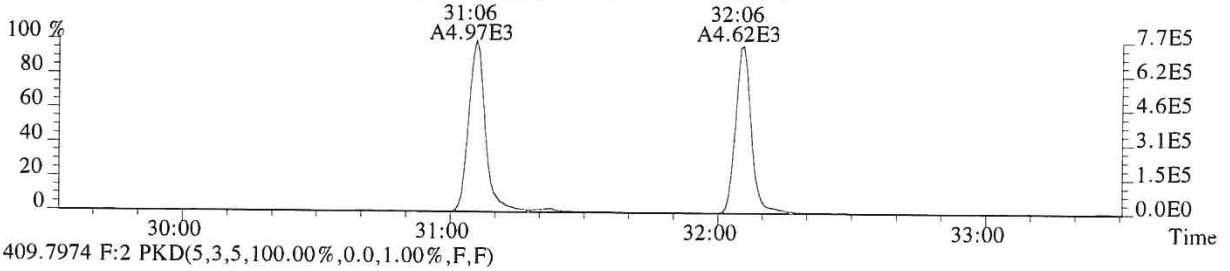
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2048.0,1.00%,F,T)



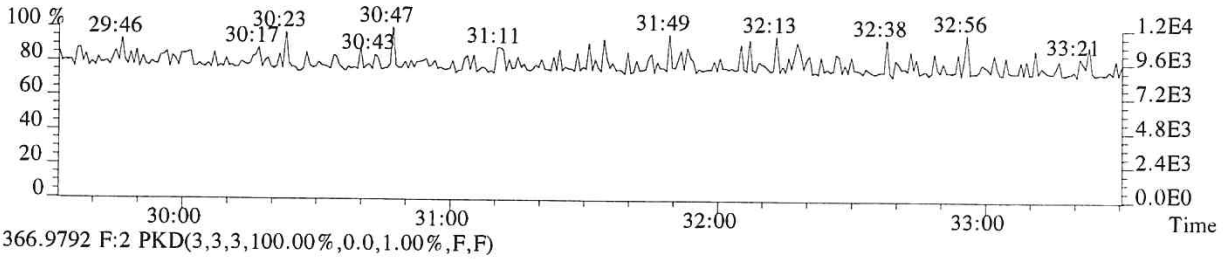
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,952.0,1.00%,F,T)



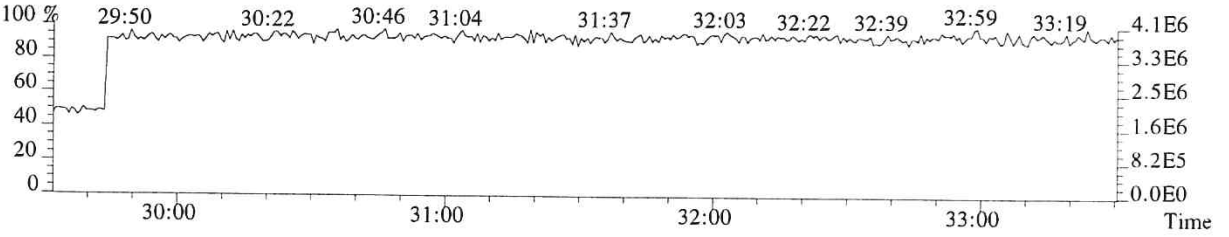
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,520.0,1.00%,F,T)



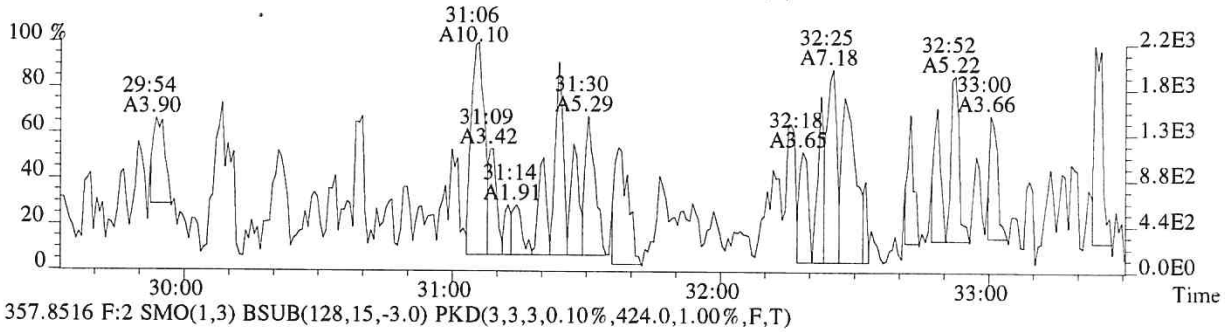
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



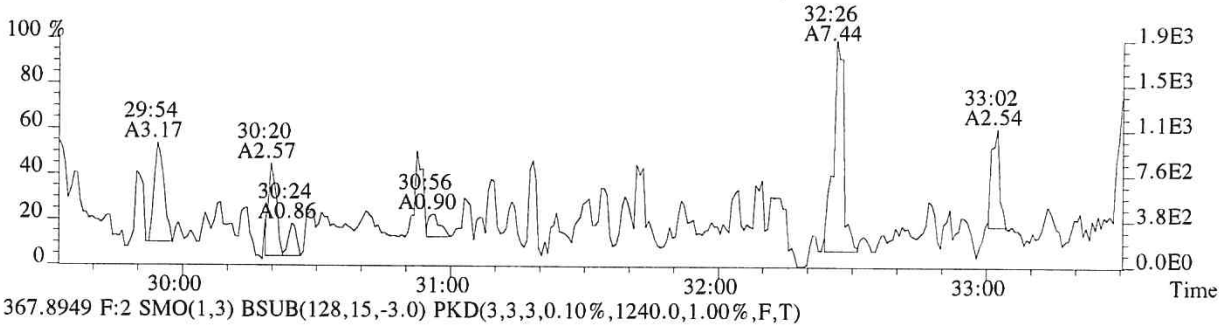
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



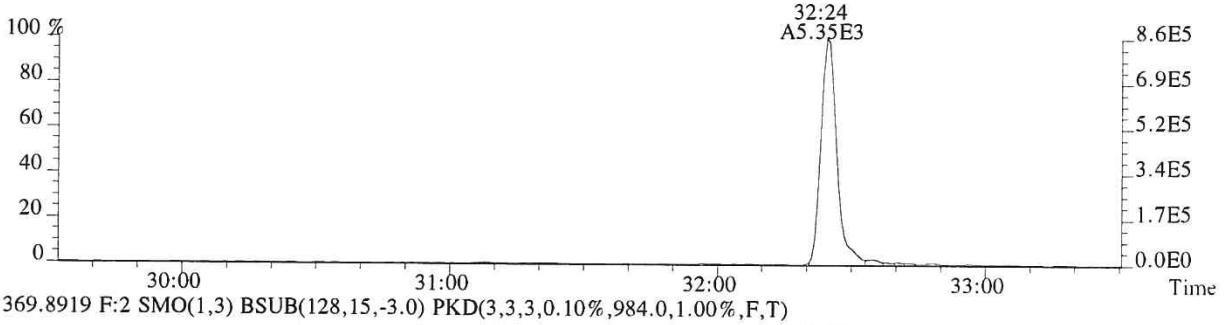
File:P519596 #1-358 Acq:24-DEC-2018 16:24:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-015DL
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,620.0,1.00%,F,T)



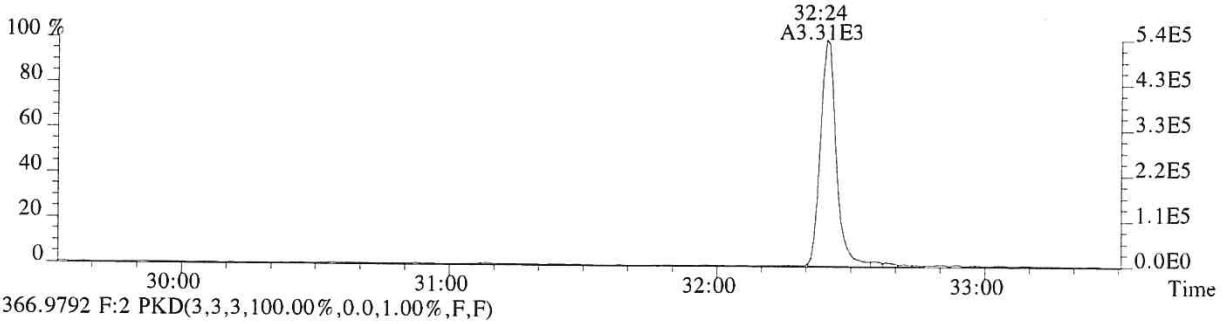
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,424.0,1.00%,F,T)



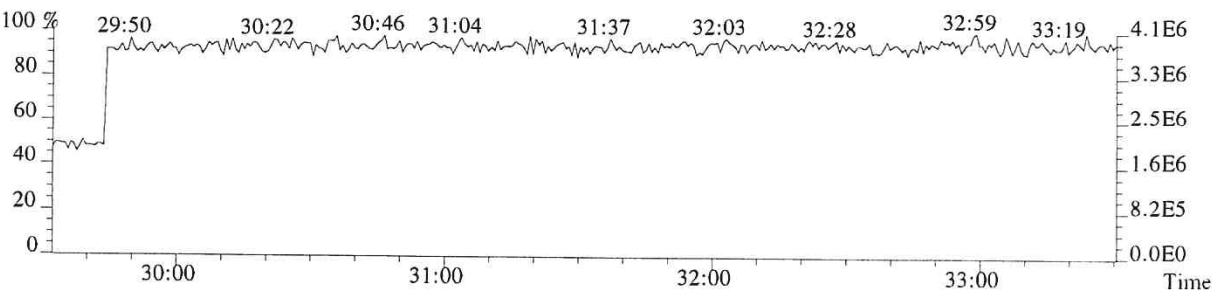
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1240.0,1.00%,F,T)



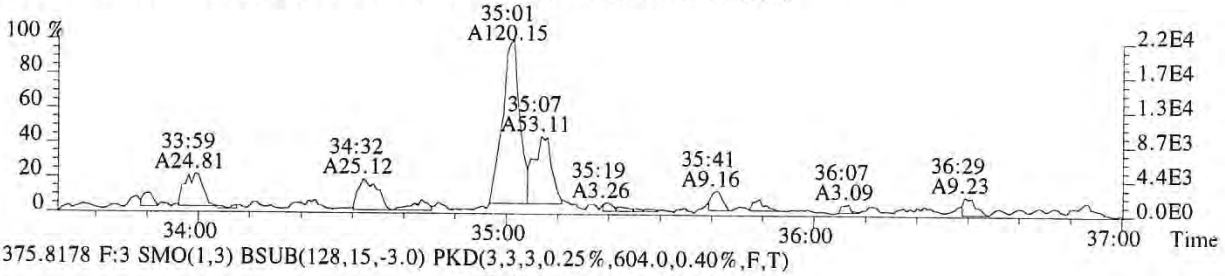
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,984.0,1.00%,F,T)



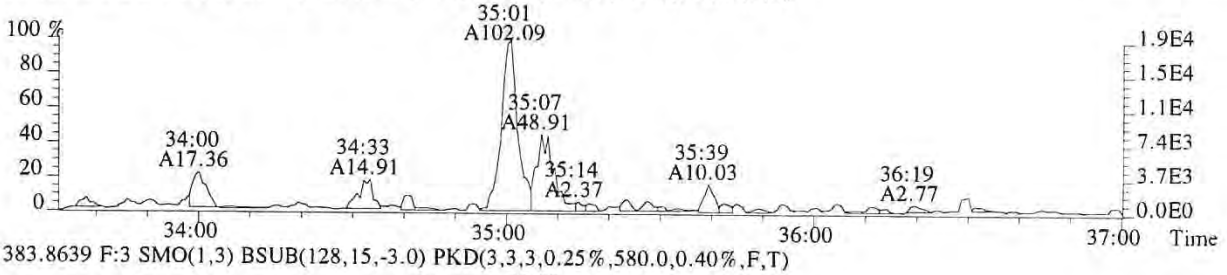
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



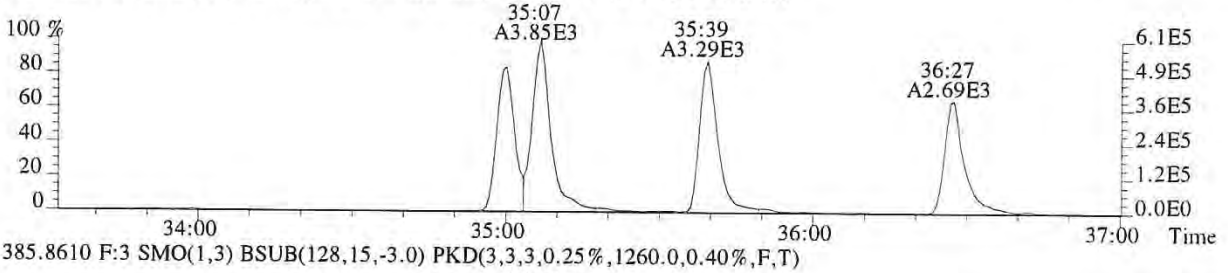
File:P519596 #1-312 Acq:24-DEC-2018 16:24:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-015DL
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,820.0,0.40%,F,T)



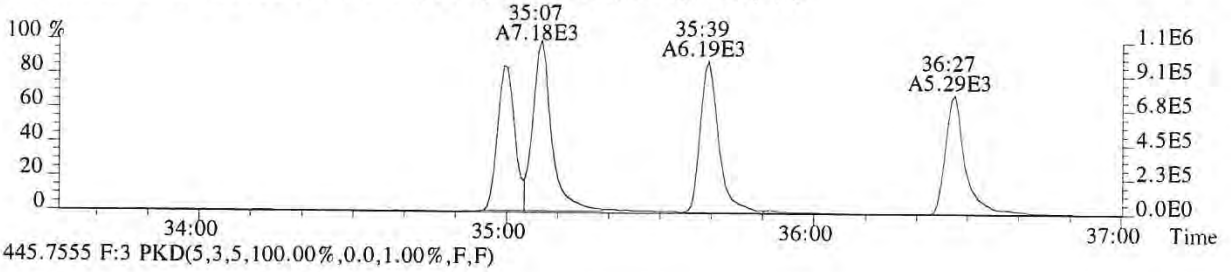
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,604.0,0.40%,F,T)



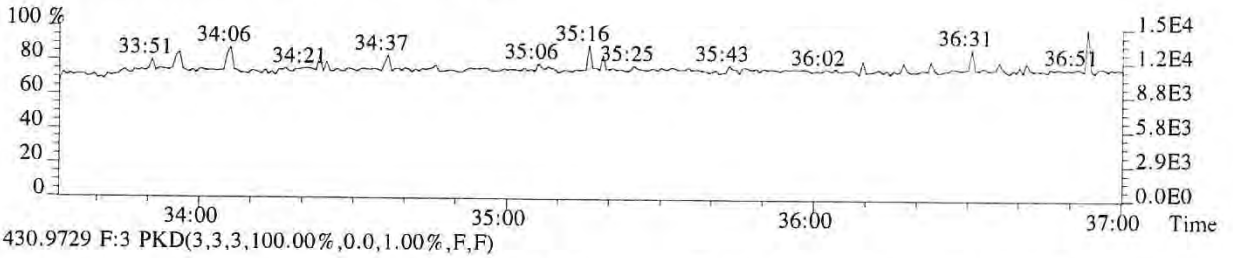
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,580.0,0.40%,F,T)



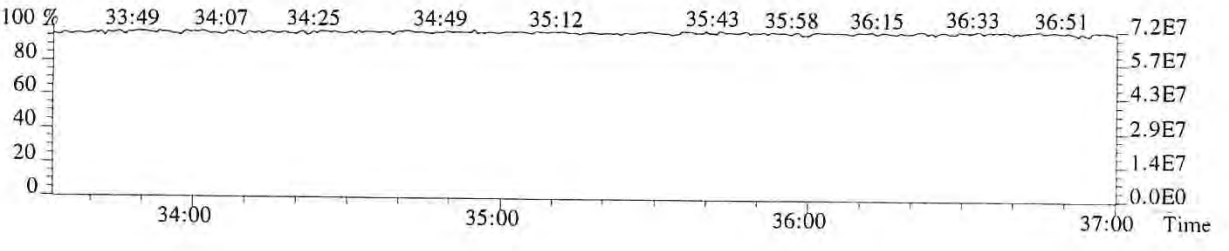
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1260.0,0.40%,F,T)



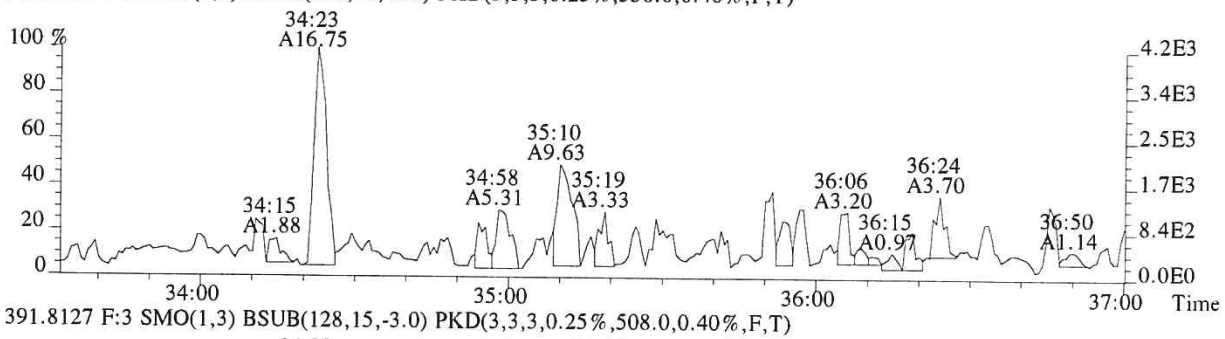
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



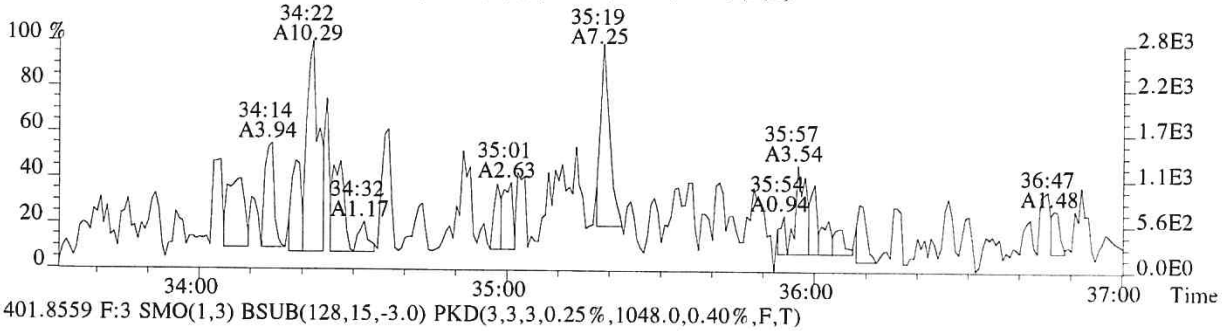
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



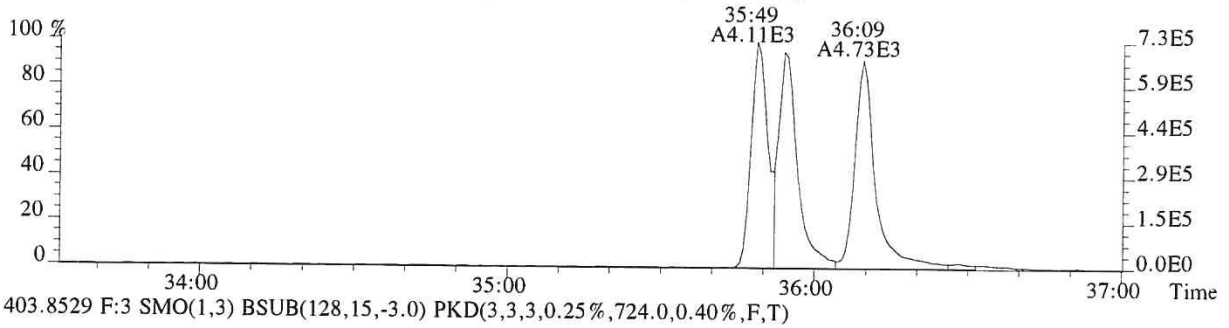
File:P519596 #1-312 Acq:24-DEC-2018 16:24:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-015DL
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,556.0,0.40%,F,T)



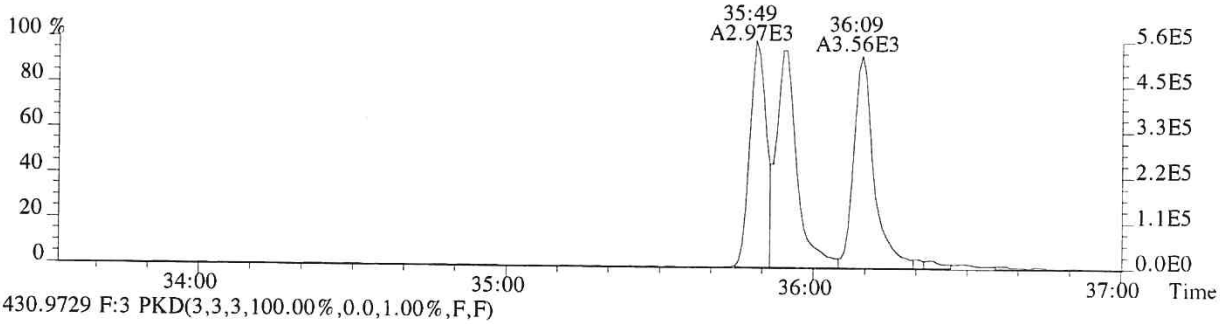
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,508.0,0.40%,F,T)



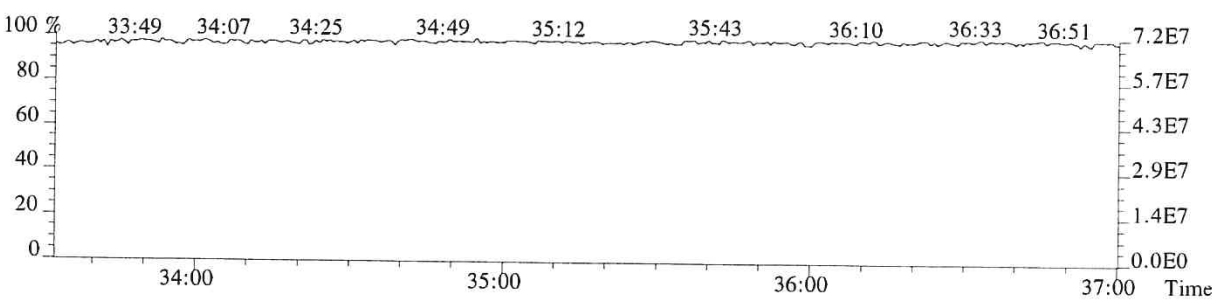
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1048.0,0.40%,F,T)



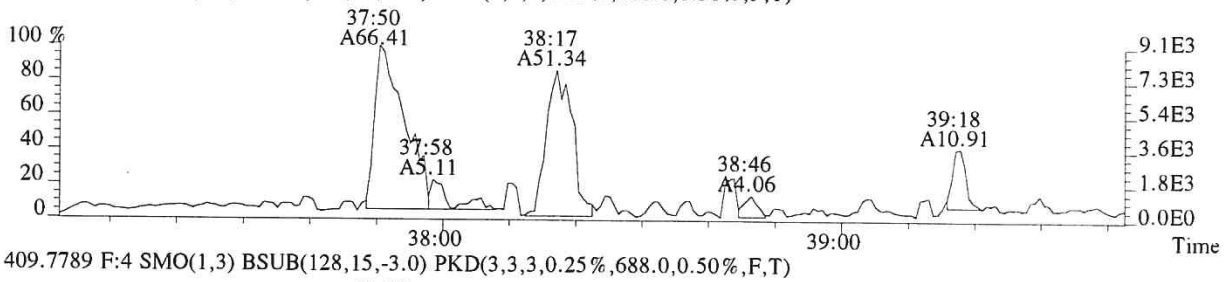
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,724.0,0.40%,F,T)



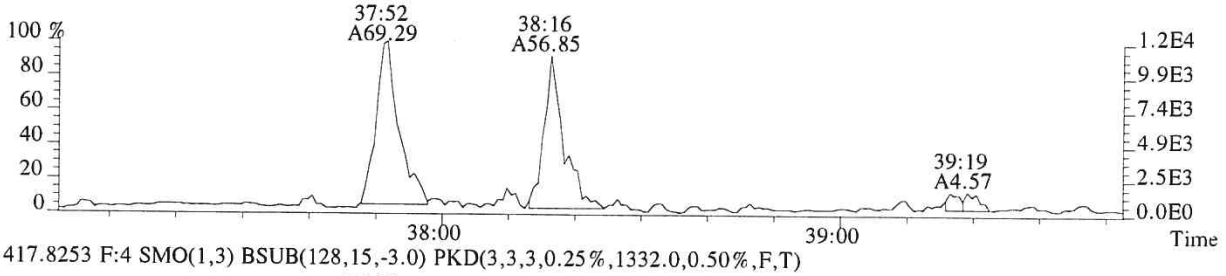
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



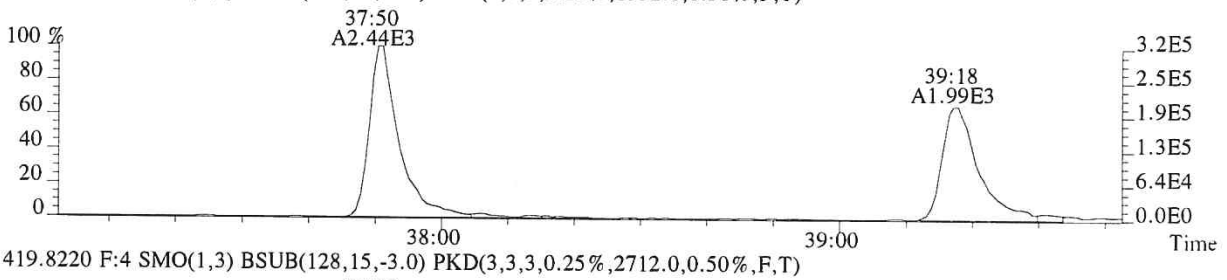
File:P519596 #1-241 Acq:24-DEC-2018 16:24:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-015DL
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,768.0,0.50%,F,T)



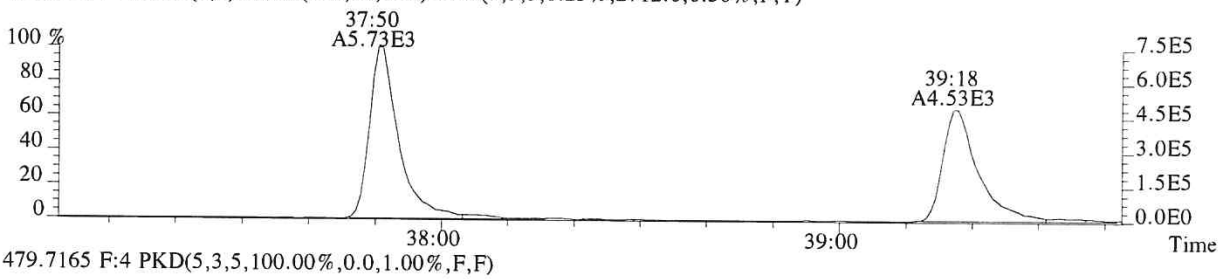
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,688.0,0.50%,F,T)



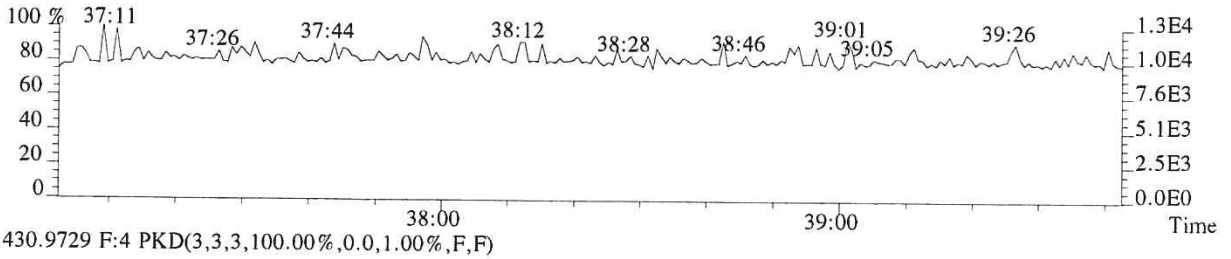
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1332.0,0.50%,F,T)



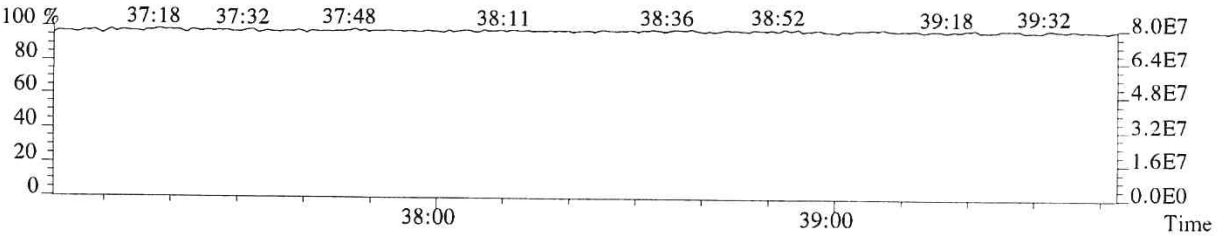
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2712.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

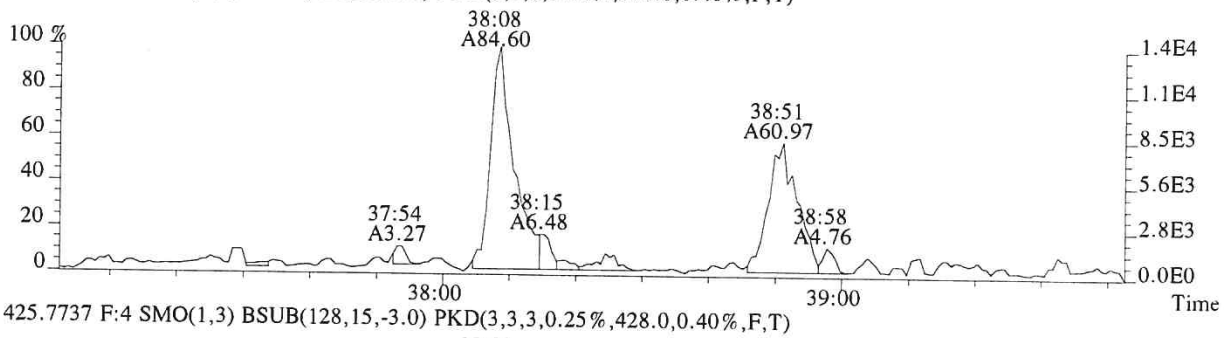


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

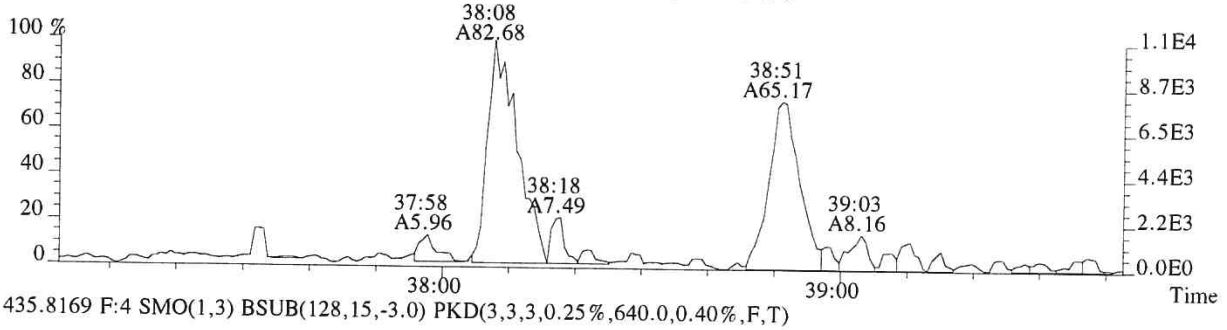


015556

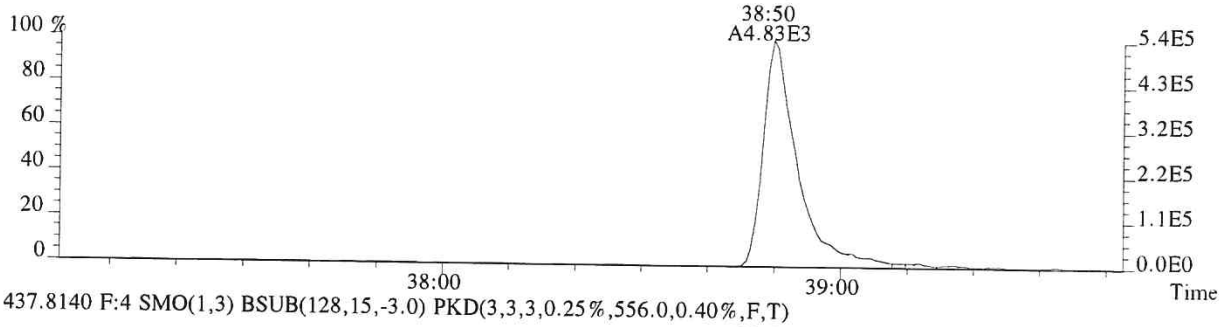
File:P519596 #1-241 Acq:24-DEC-2018 16:24:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-015DL
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,676.0,0.40%,F,T)



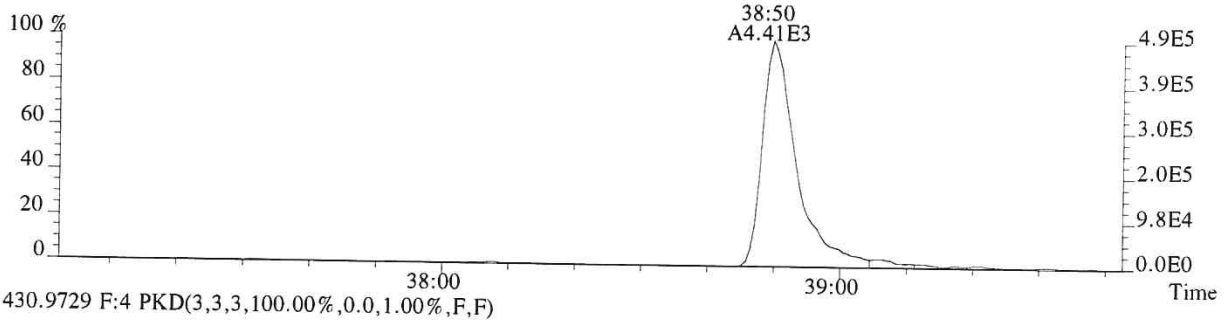
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,428.0,0.40%,F,T)



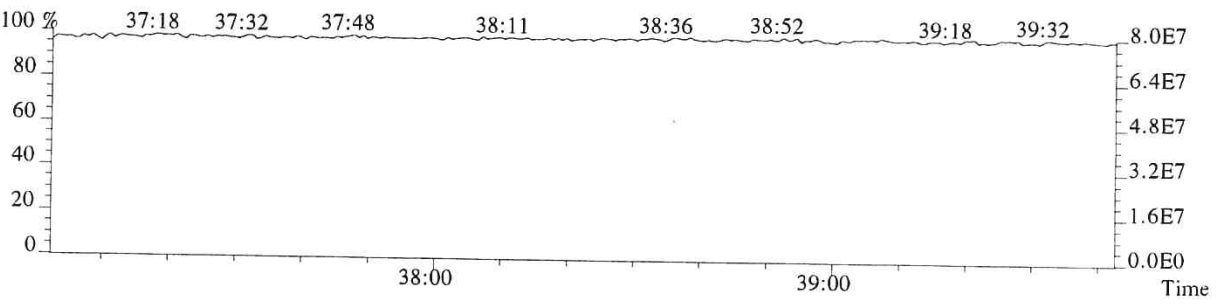
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,640.0,0.40%,F,T)



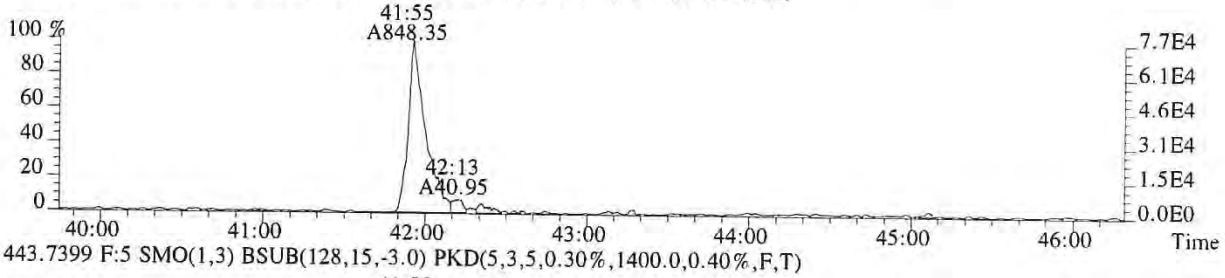
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,556.0,0.40%,F,T)



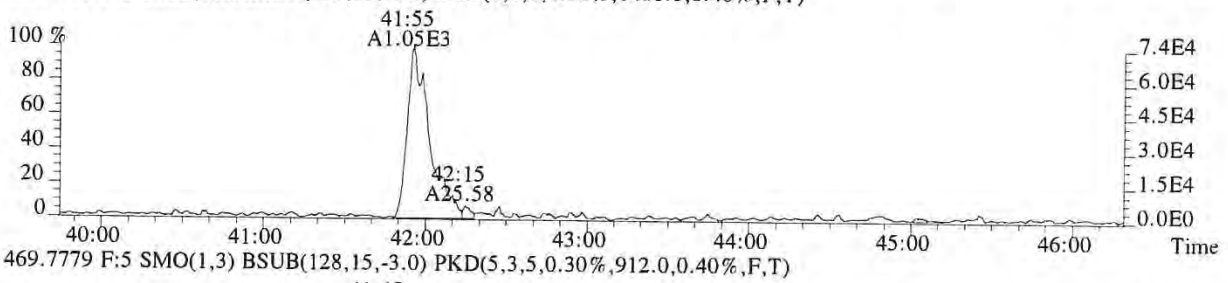
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



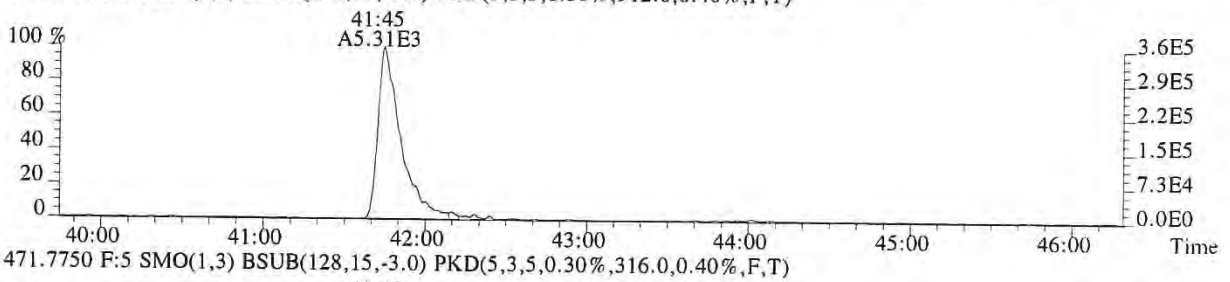
File:P519596 #1-592 Acq:24-DEC-2018 16:24:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-015DL
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,556.0,0.40%,F,T)



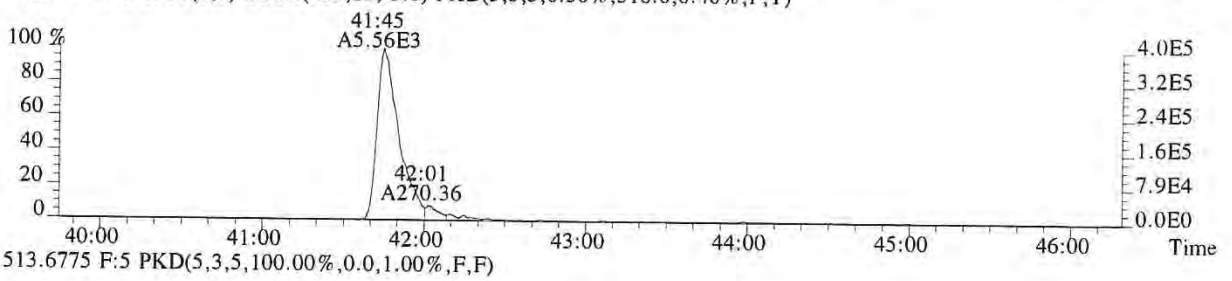
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1400.0,0.40%,F,T)



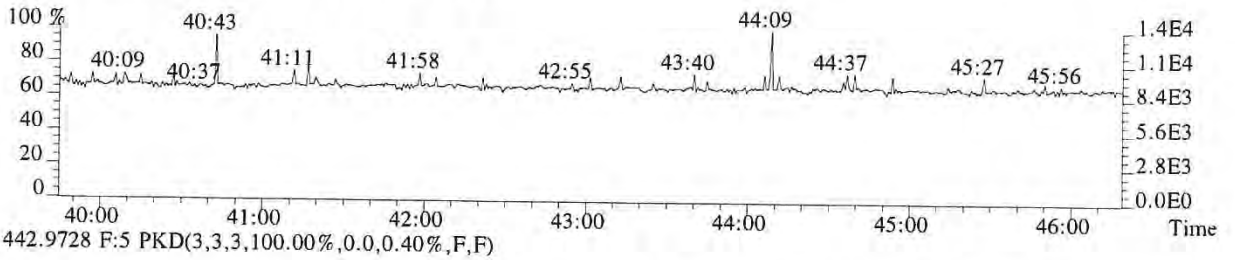
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,912.0,0.40%,F,T)



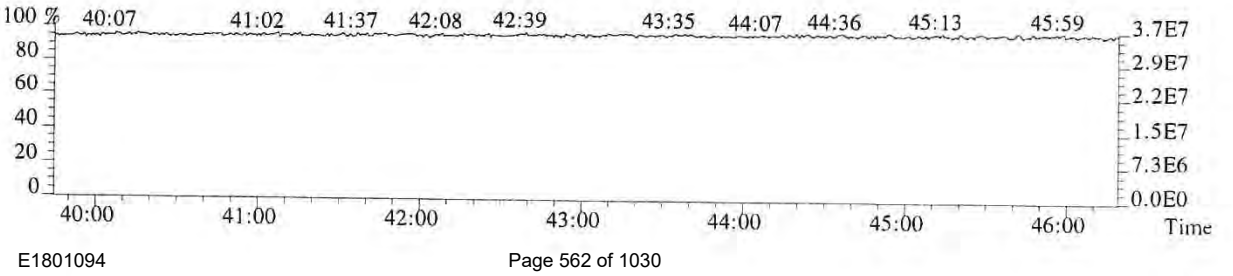
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,316.0,0.40%,F,T)



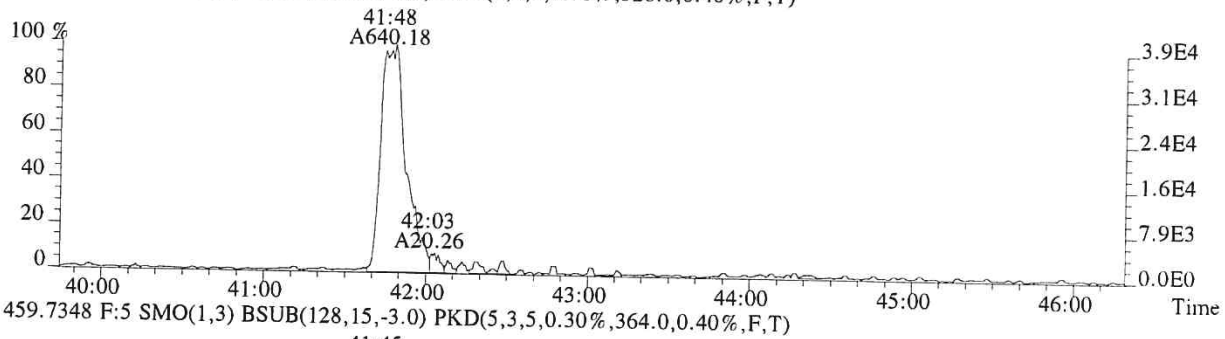
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



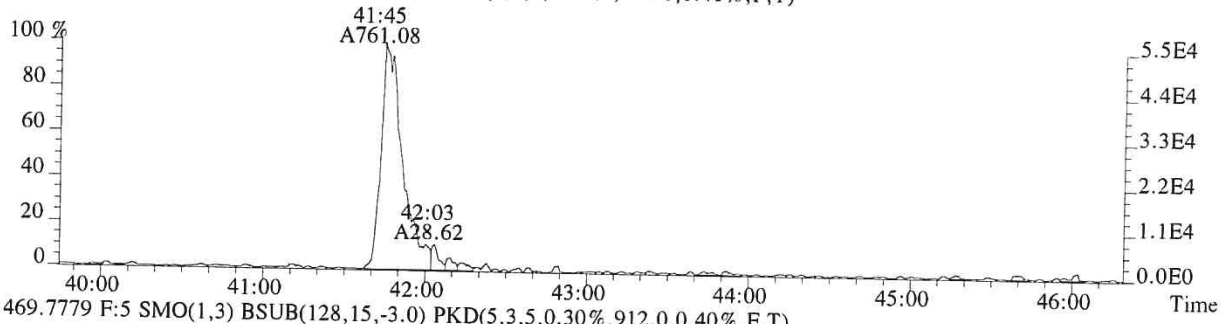
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



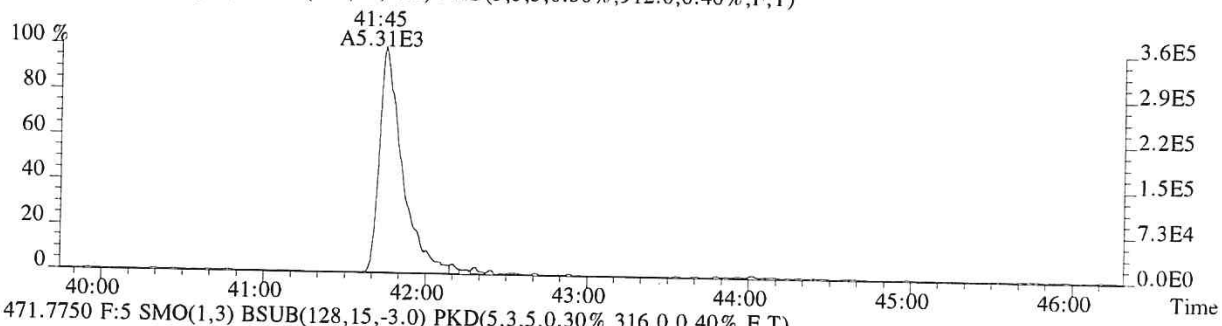
File:P519596 #1-592 Acq:24-DEC-2018 16:24:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-015DL
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,328.0,0.40%,F,T)



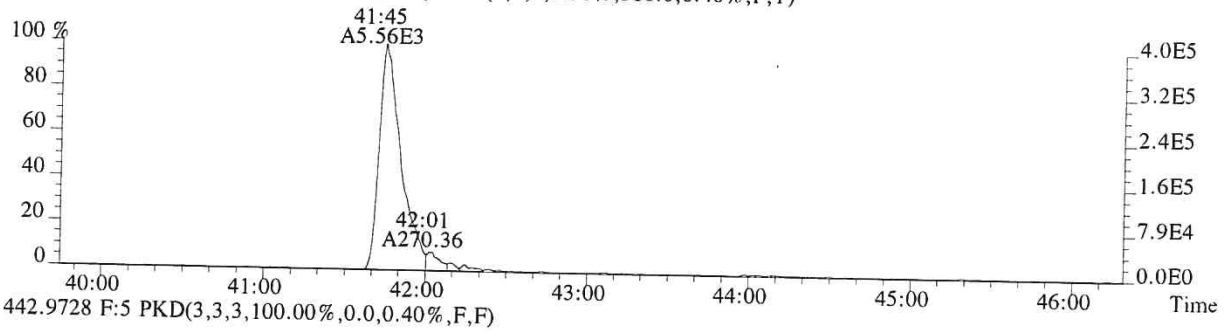
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,364.0,0.40%,F,T)



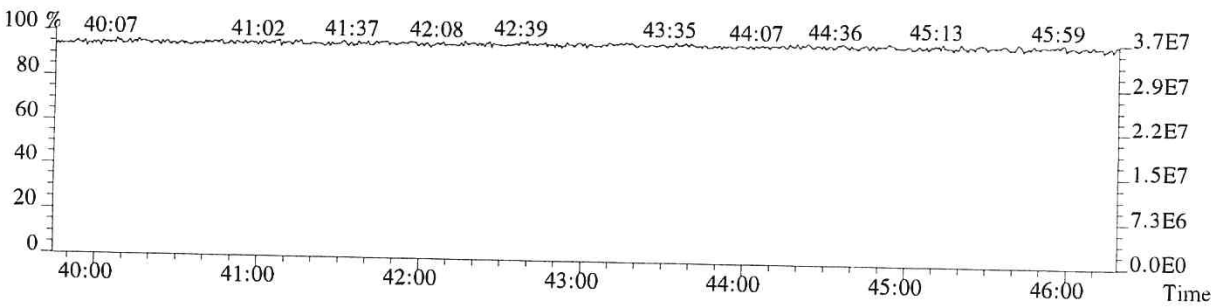
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,912.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,316.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



015559

ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0012

Run #17 Filename P519490 Samp: 1 Inj: 1 Acquired: 19-DEC-18 11:32:03
Processed: 20-DEC-18 16:12:58 Sample ID: E1801094-016

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:50	2.290e+03	3.103e+03	0.74	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	31:28	2.088e+02	1.348e+02	1.55	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	32:26	2.678e+02	1.685e+02	1.59	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:16	2.245e+02	1.907e+02	1.18	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:23	1.325e+02	9.630e+01	1.38	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:56	9.875e+01	7.531e+01	1.31	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	36:44	1.890e+01	2.569e+01	0.74	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:05	6.280e+02	6.014e+02	1.04	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:29	3.591e+01	3.119e+01	1.15	yes	no	1.258
10	Unk	OCDF	42:08	5.284e+02	6.742e+02	0.78	yes	no	1.359
11	Unk	2,3,7,8-TCDD	27:44	4.416e+02	5.947e+02	0.74	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	32:45	6.166e+01	1.623e+01	3.80	no	yes	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:05	5.872e+01	3.752e+01	1.57	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:10	1.369e+02	1.221e+02	1.12	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:25	9.014e+01	7.186e+01	1.25	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:03	2.482e+03	2.370e+03	1.05	yes	no	1.025
17	Unk	OCDD	41:57	1.301e+04	1.501e+04	0.87	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	26:48	1.204e+04	1.526e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	31:27	1.728e+04	1.081e+04	1.60	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	32:25	1.537e+04	9.778e+03	1.57	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:16	5.288e+03	1.011e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:22	5.968e+03	1.202e+04	0.50	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:54	5.261e+03	1.016e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	36:42	4.107e+03	7.915e+03	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:04	2.376e+03	5.392e+03	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:29	1.585e+03	3.796e+03	0.42	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	27:42	5.978e+03	7.062e+03	0.85	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:43	1.185e+04	7.359e+03	1.61	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:04	7.070e+03	5.312e+03	1.33	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:09	6.631e+03	5.440e+03	1.22	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:02	4.276e+03	4.024e+03	1.06	yes	no	0.858
32	IS	13C-OCDD	41:57	2.264e+03	2.561e+03	0.88	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:03	1.499e+04	1.892e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:24	1.121e+04	8.993e+03	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:43	8.351e+03				no	1.014

$$OCDD = \frac{(1.301e+04 + 1.501e+04) \times 4000\ pg \times 1}{(2.264e+03 + 2.561e+03) \times 10593\ g \times 875 / 100 \times 1.118} = 2240\ ng/kg$$

12/24/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0012

Run #17 : Filename P519490 Samp: 1 Inj: 1 Acquired: 19-DEC-18 11:32:03
Processed: 20-DEC-18 16:12:58 LAB. ID: E1801094-016

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	3.49e+05	1.89e+03	1.8e+02	5.02e+05	3.30e+03	1.5e+02
2	1,2,3,7,8-PeCDF	3.80e+04	1.02e+03	3.7e+01	2.53e+04	7.36e+02	3.4e+01
3	2,3,4,7,8-PeCDF	3.58e+04	1.02e+03	3.5e+01	2.39e+04	7.36e+02	3.2e+01
4	1,2,3,4,7,8-HxCDF	4.85e+04	1.10e+03	4.4e+01	4.31e+04	1.00e+03	4.3e+01
5	1,2,3,6,7,8-HxCDF	2.57e+04	1.10e+03	2.3e+01	2.01e+04	1.00e+03	2.0e+01
6	2,3,4,6,7,8-HxCDF	2.18e+04	1.10e+03	2.0e+01	1.50e+04	1.00e+03	1.5e+01
7	1,2,3,7,8,9-HxCDF	5.68e+03	1.10e+03	5.2e+00	5.22e+03	1.00e+03	5.2e+00
8	1,2,3,4,6,7,8-HpCDF	1.22e+05	1.41e+03	8.7e+01	1.14e+05	1.54e+03	7.4e+01
9	1,2,3,4,7,8,9-HpCDF	5.50e+03	1.41e+03	3.9e+00	6.31e+03	1.54e+03	4.1e+00
10	OCDF	6.73e+04	2.72e+02	2.5e+02	8.59e+04	5.40e+02	1.6e+02
11	2,3,7,8-TCDD	7.15e+04	1.80e+03	4.0e+01	1.01e+05	9.84e+02	1.0e+02
12	1,2,3,7,8-PeCDD	1.03e+04	4.80e+02	2.2e+01	5.19e+03	5.08e+02	1.0e+01
13	1,2,3,4,7,8-HxCDD	1.44e+04	2.92e+02	4.9e+01	7.68e+03	5.84e+02	1.3e+01
14	1,2,3,6,7,8-HxCDD	2.53e+04	2.92e+02	8.7e+01	2.28e+04	5.84e+02	3.9e+01
15	1,2,3,7,8,9-HxCDD	1.64e+04	2.92e+02	5.6e+01	1.35e+04	5.84e+02	2.3e+01
16	1,2,3,4,6,7,8-HpCDD	4.23e+05	1.56e+02	2.7e+03	4.09e+05	4.64e+02	8.8e+02
17	OCDD	1.55e+06	3.92e+02	4.0e+03	1.75e+06	5.24e+02	3.3e+03
18	13C-2,3,7,8-TCDF	1.93e+06	3.02e+03	6.4e+02	2.49e+06	1.98e+03	1.3e+03
19	13C-1,2,3,7,8-PeCDF	3.01e+06	4.32e+02	7.0e+03	1.88e+06	2.88e+02	6.5e+03
20	13C-2,3,4,7,8-PeCDF	2.87e+06	4.32e+02	6.6e+03	1.84e+06	2.88e+02	6.4e+03
21	13C-1,2,3,4,7,8-HxCDF	1.09e+06	7.16e+02	1.5e+03	2.11e+06	3.84e+02	5.5e+03
22	13C-1,2,3,6,7,8-HxCDF	1.11e+06	7.16e+02	1.6e+03	2.28e+06	3.84e+02	5.9e+03
23	13C-2,3,4,6,7,8-HxCDF	1.01e+06	7.16e+02	1.4e+03	1.98e+06	3.84e+02	5.2e+03
24	13C-1,2,3,7,8,9-HxCDF	7.73e+05	7.16e+02	1.1e+03	1.52e+06	3.84e+02	4.0e+03
25	13C-1,2,3,4,6,7,8-HpCDF	4.41e+05	1.08e+03	4.1e+02	9.90e+05	8.04e+02	1.2e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.56e+05	1.08e+03	2.4e+02	6.17e+05	8.04e+02	7.7e+02
27	13C-2,3,7,8-TCDD	1.05e+06	4.12e+03	2.6e+02	1.24e+06	4.80e+03	2.6e+02
28	13C-1,2,3,7,8-PeCDD	2.23e+06	7.84e+02	2.9e+03	1.37e+06	4.36e+02	3.1e+03
29	13C-1,2,3,4,7,8-HxCDD	1.41e+06	5.84e+02	2.4e+03	1.14e+06	3.80e+02	3.0e+03
30	13C-1,2,3,6,7,8-HxCDD	1.26e+06	5.84e+02	2.2e+03	1.01e+06	3.80e+02	2.6e+03
31	13C-1,2,3,4,6,7,8-HpCDD	7.30e+05	3.96e+02	1.8e+03	6.62e+05	4.08e+02	1.6e+03
32	13C-OCDD	2.64e+05	2.32e+02	1.1e+03	3.06e+05	2.68e+02	1.1e+03
33	13C-1,2,3,4-TCDD	2.56e+06	4.12e+03	6.2e+02	3.20e+06	4.80e+03	6.7e+02
34	13C-1,2,3,7,8,9-HxCDD	2.13e+06	5.84e+02	3.6e+03	1.63e+06	3.80e+02	4.3e+03
35	37Cl-2,3,7,8-TCDD	1.43e+06	4.36e+02	3.3e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.796e{+}03 + 9.840e{+}02) \times 2000}{(1.052e{+}06 + 1.238e{+}06) \times (\quad) \times 1.085} =$$

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0012

Entry: 36 Totals Name: Total Tetra-Furans

Run: 17 File: P519490 Sample:1 Injection:1 Function:1

Acquired: 19-DEC-18 11:32:03 Processed: 20-DEC-18 16:12:58

Mass: 303.9020 305.8990 Tot Response: 9.38e+03 RRF: 0.9417

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	23:07	7.75e+01	1.17e+02	0.66	yes	1.94e+02		n	n
2	23:56	1.37e+02	1.83e+02	0.75	yes	3.21e+02		n	n
3	24:36	1.03e+02	1.47e+02	0.70	yes	2.50e+02		n	n
4	25:16	1.52e+02	1.86e+02	0.82	yes	3.38e+02		n	n
5	25:24	1.30e+02	1.88e+02	0.69	yes	3.18e+02		n	n
6	25:54	8.22e+02	1.06e+03	0.77	yes	1.88e+03		n	n
7	26:50	2.29e+03	3.10e+03	0.74	yes	5.39e+03	2,3,7,8-TCDF	n	n
8	27:12	2.85e+02	3.99e+02	0.71	yes	6.85e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0012

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 17 File: P519490 Sample:1 Injection:1 Function:1

Acquired: 19-DEC-18 11:32:03 Processed: 20-DEC-18 16:12:58

Mass: 319.8970 321.8940 Tot Response: 1.22e+03 RRF: 1.085

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	25:31	2.15e+01	3.11e+01	0.69	yes	5.27e+01		n	n
2	27:44	4.42e+02	5.95e+02	0.74	yes	1.04e+03	2,3,7,8-TCDD	n	n
3	28:03	5.41e+01	7.49e+01	0.72	yes	1.29e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0012

Entry: 38 Totals Name: Total Penta-Furans1

Run: 17 File: P519490 Sample:1 Injection:1 Function:1

Acquired: 19-DEC-18 11:32:03 Processed: 20-DEC-18 16:12:58

Mass: 339.8600 341.8570 Tot Response: 9.91e+02 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	28:52	6.11e+02	3.80e+02 1.61	yes	9.91e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0012

Entry: 39 Totals Name: Total Penta-Furans2

Run: 17 File: P519490 Sample:1 Injection:1 Function:2

Acquired: 19-DEC-18 11:32:03 Processed: 20-DEC-18 16:12:58

Mass: 339.8600 341.8570 Tot Response: 1.97e+03 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:28	4.26e+02	2.59e+02	1.64	yes	6.86e+02		n	n
2	31:02	1.48e+02	8.65e+01	1.72	yes	2.35e+02		n	n
3	31:28	2.09e+02	1.35e+02	1.55	yes	3.44e+02	1,2,3,7,8-PeCDF	n	n
4	31:43	1.23e+02	9.16e+01	1.34	yes	2.15e+02		n	n
5	32:19	3.46e+01	2.10e+01	1.65	yes	5.56e+01		n	n
6	32:26	2.68e+02	1.69e+02	1.59	yes	4.36e+02	2,3,4,7,8-PeCDF	n	n

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Peak List Summary

CLIENT ID.
SL0012

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 17 File: P519490 Sample:1 Injection:1 Function:2

Acquired: 19-DEC-18 11:32:03 Processed: 20-DEC-18 16:12:58

Mass: 355.8550 357.8520 Tot Response: 1.01e+02 RRF: 0.9565

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:39	6.01e+01	4.04e+01	1.49	yes	1.01e+02	n	y

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Peak List Summary

CLIENT ID.
SL0012

Entry: 41 Totals Name: Total Hexa-Furans

Run: 17 File: P519490 Sample:1 Injection:1 Function:3

Acquired: 19-DEC-18 11:32:03 Processed: 20-DEC-18 16:12:58

Mass: 373.8210 375.8180 Tot Response: 3.42e+03 RRF: 1.141

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:06	1.58e+02	1.24e+02	1.27	yes	2.82e+02		n	n
2	34:16	6.60e+02	5.55e+02	1.19	yes	1.22e+03		n	n
3	34:49	6.12e+02	4.90e+02	1.25	yes	1.10e+03		n	n
4	35:16	2.25e+02	1.91e+02	1.18	yes	4.15e+02	1,2,3,4,7,8-HxCDF	n	n
5	35:23	1.33e+02	9.63e+01	1.38	yes	2.29e+02	1,2,3,6,7,8-HxCDF	n	n
6	35:56	9.88e+01	7.53e+01	1.31	yes	1.74e+02	2,3,4,6,7,8-HxCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0012

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 17 File: P519490 Sample:1 Injection:1 Function:3

Acquired: 19-DEC-18 11:32:03 Processed: 20-DEC-18 16:12:58

Mass: 389.8160 391.8130 Tot Response: 3.08e+03 RRF: 1.047

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:40	7.24e+02	5.76e+02 1.26	yes	1.30e+03		n	n
2	35:13	6.98e+01	5.89e+01 1.18	yes	1.29e+02		n	n
3	35:27	5.99e+02	5.06e+02 1.18	yes	1.11e+03		n	n
4	35:34	7.09e+01	5.76e+01 1.23	yes	1.29e+02		n	n
5	36:10	1.37e+02	1.22e+02 1.12	yes	2.59e+02	1,2,3,6,7,8-HxCDD	n	n
6	36:25	9.01e+01	7.19e+01 1.25	yes	1.62e+02	1,2,3,7,8,9-HxCDD	n	n

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Peak List Summary

CLIENT ID.
SL0012

Entry: 43 Totals Name: Total Hepta-Furans

Run: 17 File: P519490 Sample:1 Injection:1 Function:4

Acquired: 19-DEC-18 11:32:03 Processed: 20-DEC-18 16:12:58

Mass: 407.7820 409.7790 Tot Response: 3.14e+03 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:05	6.28e+02	6.01e+02 1.04	yes	1.23e+03	1,2,3,4,6,7,8-HpCDF	n	n
2	38:30	9.89e+02	8.56e+02 1.16	yes	1.84e+03		n	n
3	39:29	3.59e+01	3.12e+01 1.15	yes	6.71e+01	1,2,3,4,7,8,9-HpCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0012

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 17 File: P519490 Sample:1 Injection:1 Function:4

Acquired: 19-DEC-18 11:32:03 Processed: 20-DEC-18 16:12:58

Mass: 423.7770 425.7740 Tot Response: 1.40e+04 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:21	4.77e+03	4.40e+03 1.08	yes	9.17e+03		n	n
2	39:03	2.48e+03	2.37e+03 1.05	yes	4.85e+03	1,2,3,4,6,7,8-HpCDD	n	n

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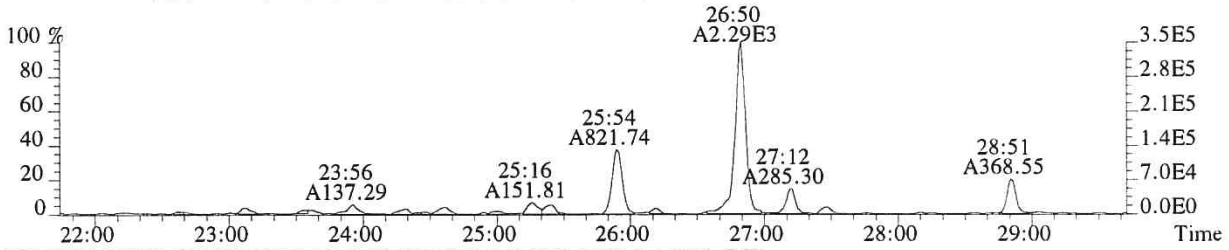
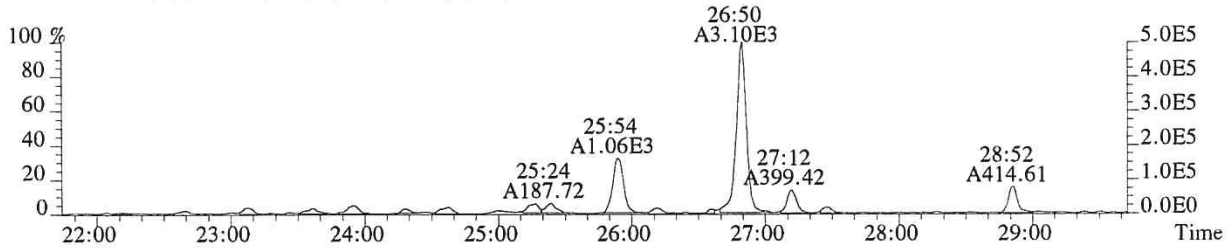
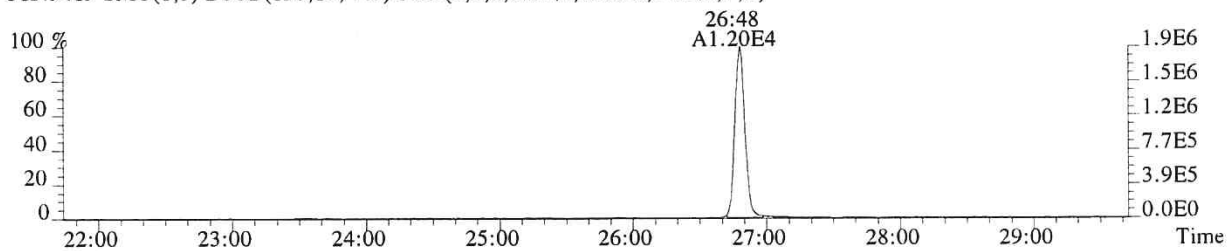
File:P519490 #1-566 Acq:19-DEC-2018 11:32:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-016
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1892.0,1.00%,F,T)



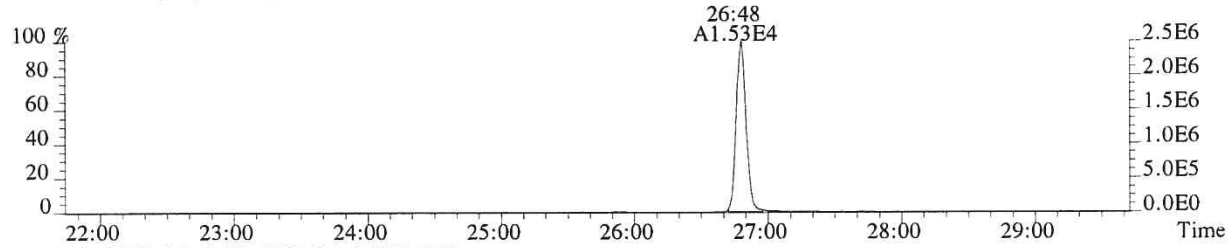
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3300.0,1.00%,F,T)



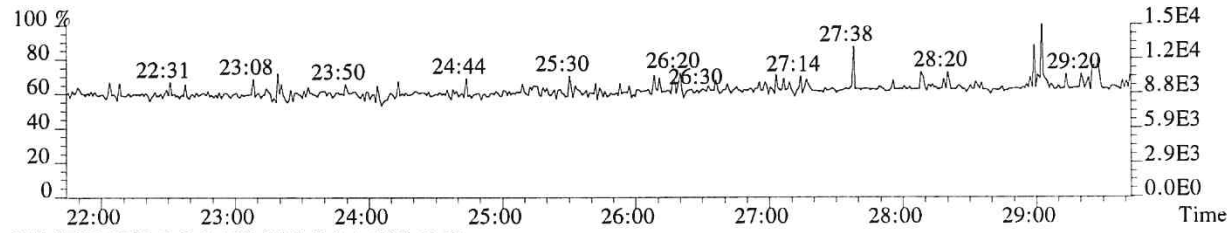
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3016.0,1.00%,F,T)



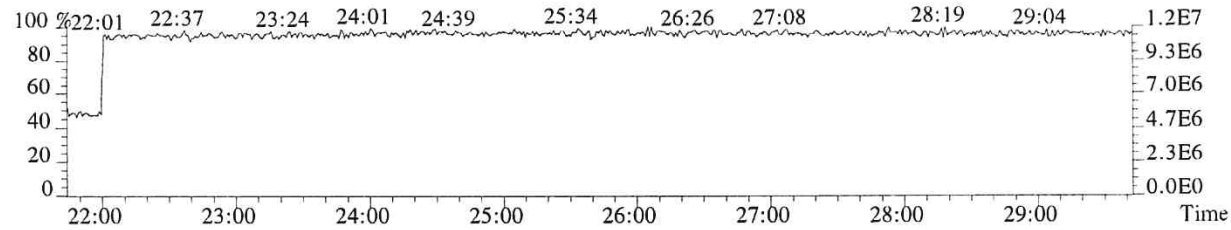
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1980.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

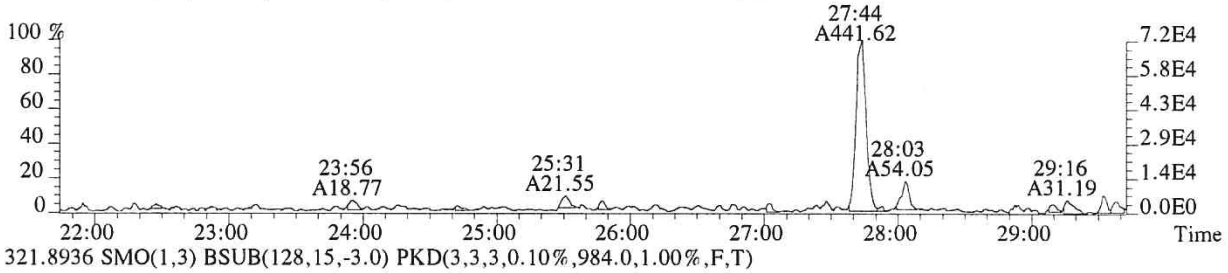


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

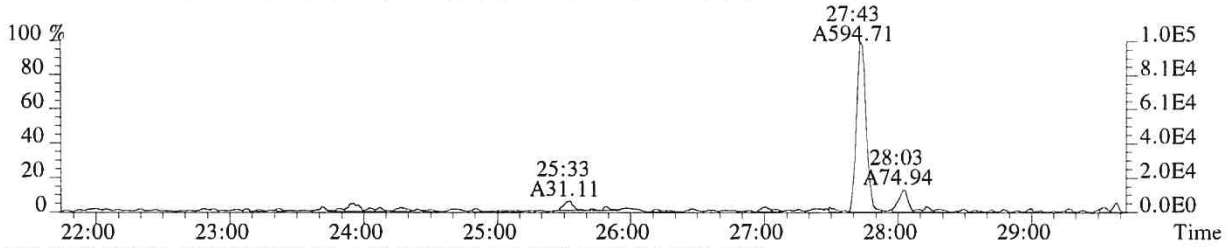


015571

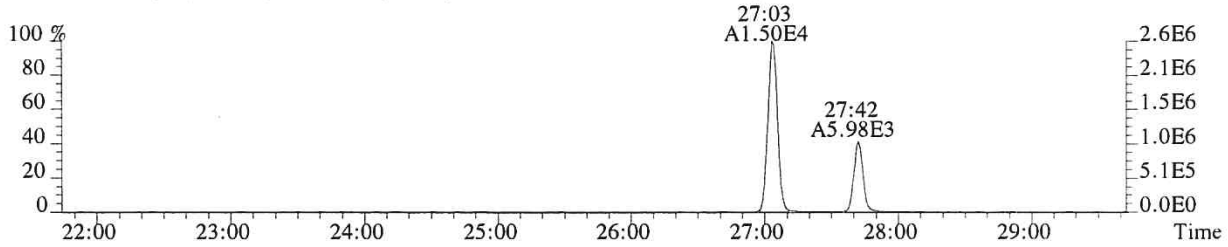
File:P519490 #1-566 Acq:19-DEC-2018 11:32:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-016
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1796.0,1.00%,F,T)



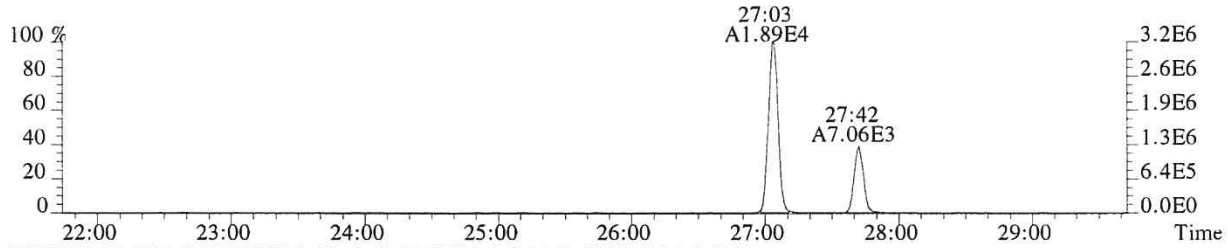
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,984.0,1.00%,F,T)



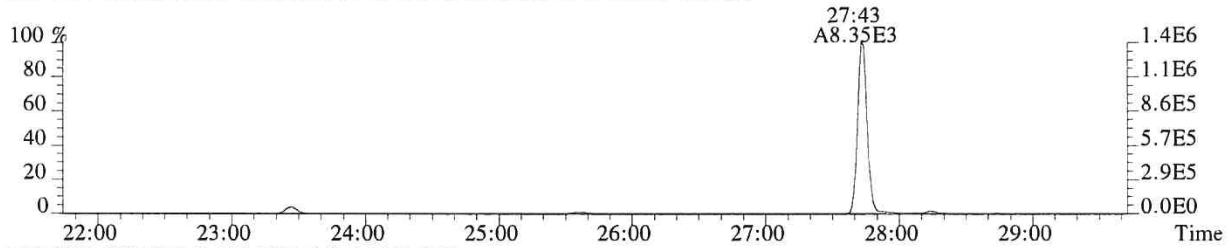
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4116.0,1.00%,F,T)



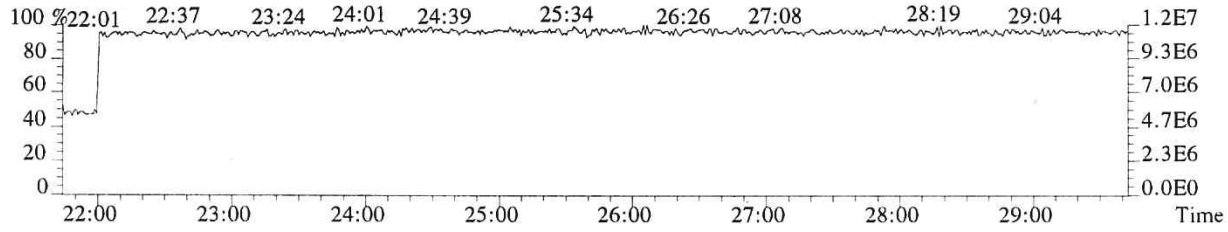
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4804.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,436.0,1.00%,F,T)



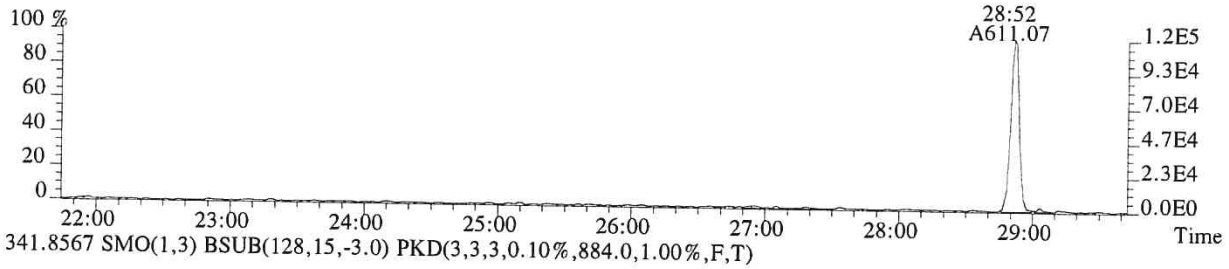
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



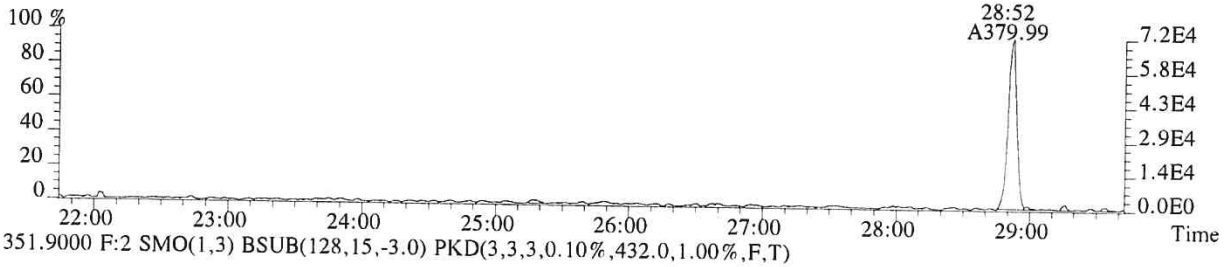
015572

File:P519490 #1-566 Acq:19-DEC-2018 11:32:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-016

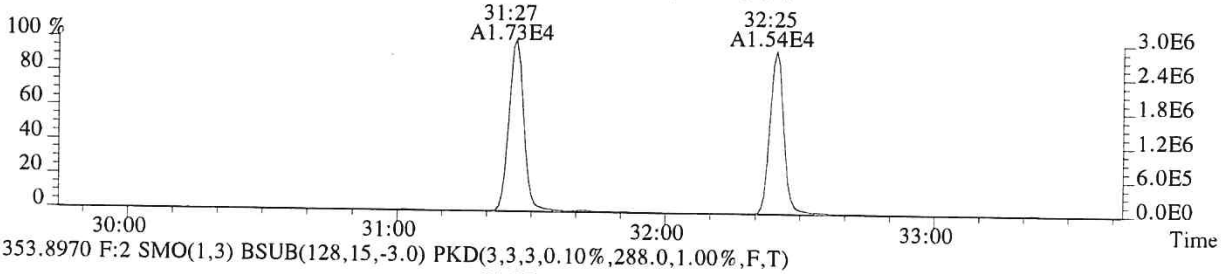
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,784.0,1.00%,F,T)



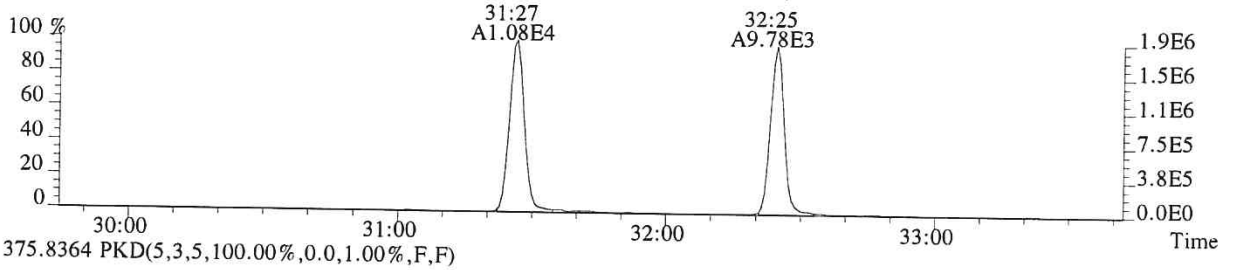
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,884.0,1.00%,F,T)



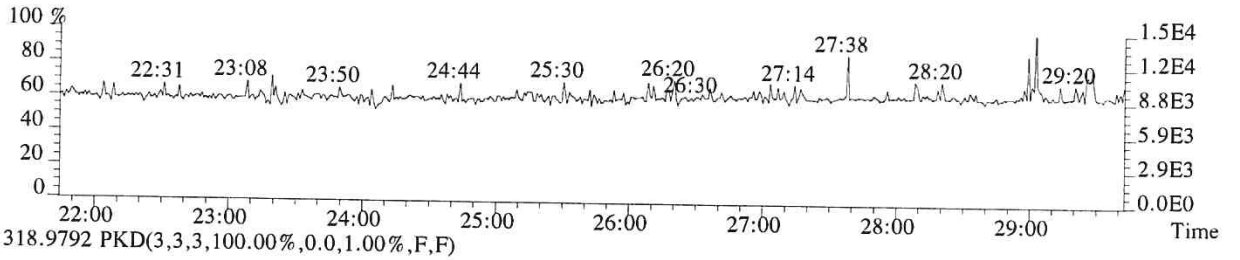
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,432.0,1.00%,F,F,T)



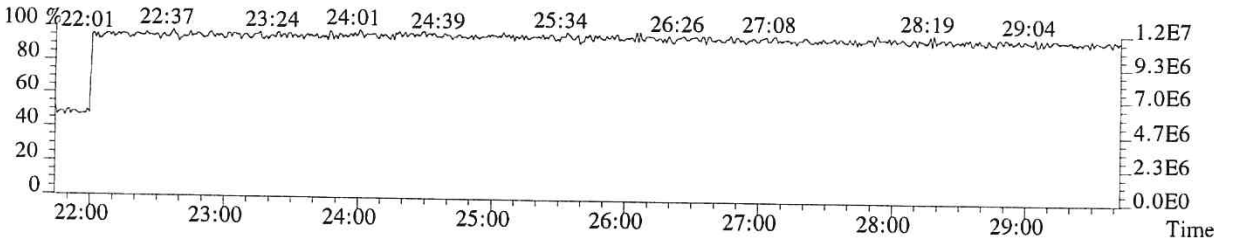
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,288.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



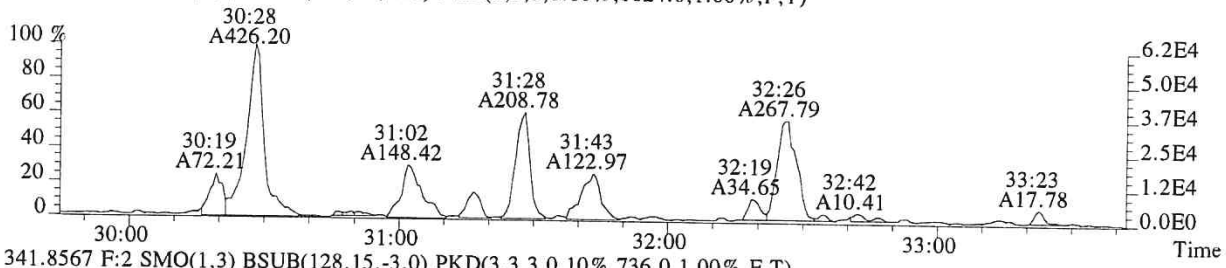
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



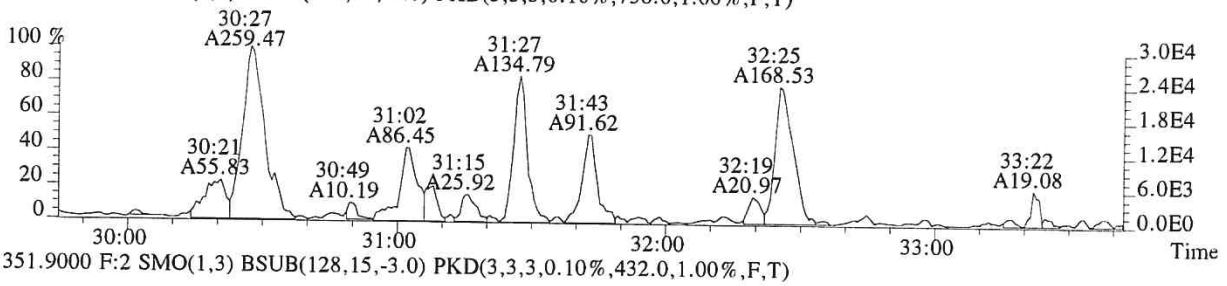
015573

File:P519490 #1-357 Acq:19-DEC-2018 11:32:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-016

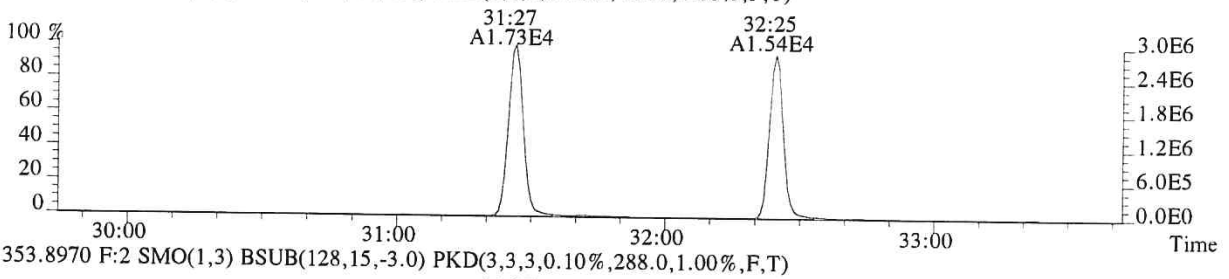
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1024.0,1.00%,F,T)



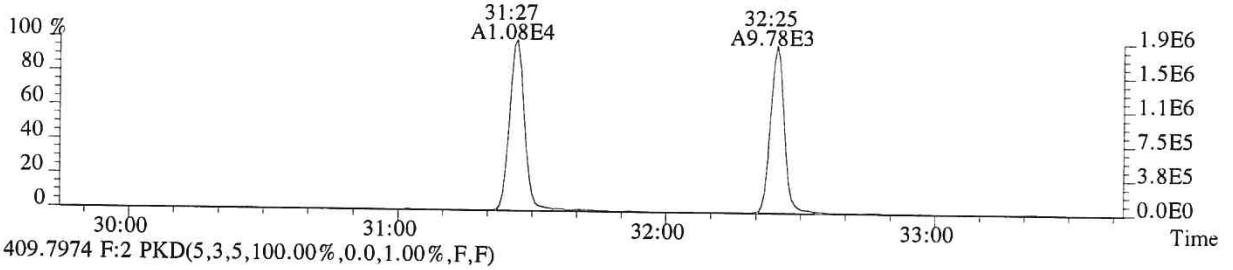
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,736.0,1.00%,F,T)



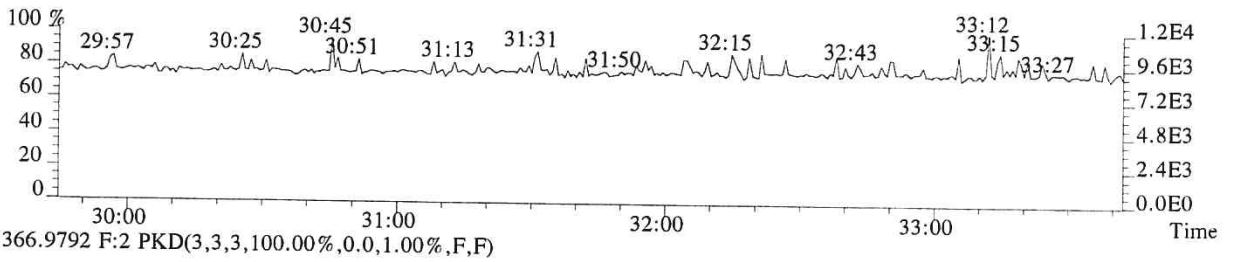
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,432.0,1.00%,F,T)



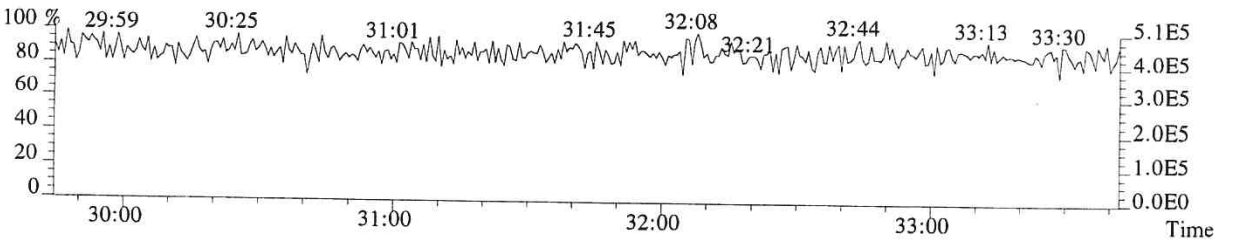
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,288.0,1.00%,F,T)



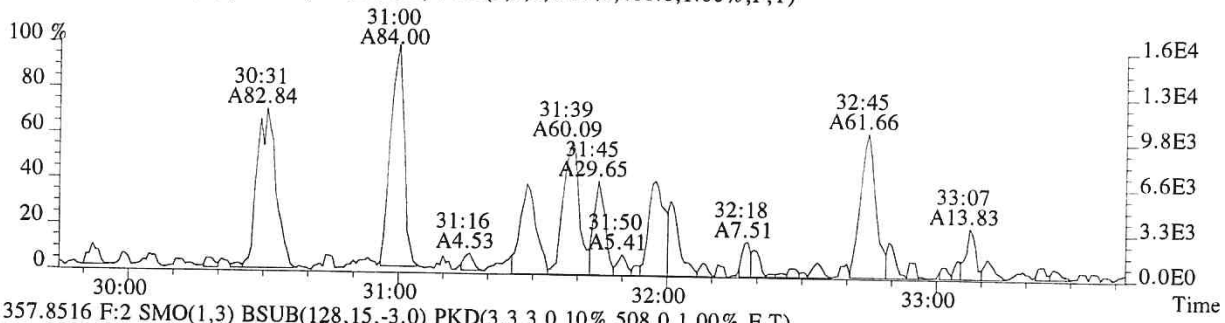
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



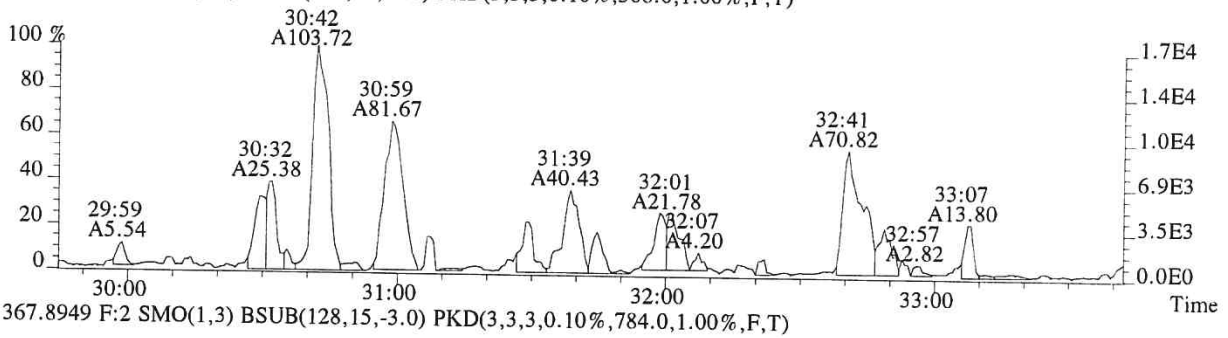
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



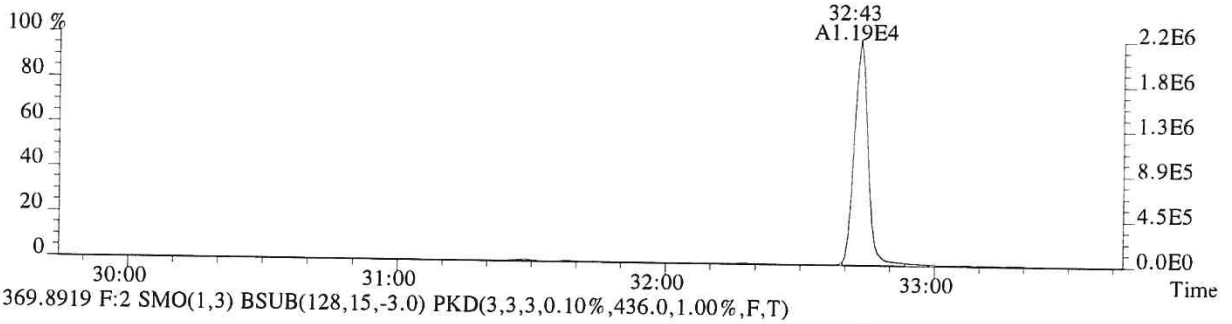
File:P519490 #1-357 Acq:19-DEC-2018 11:32:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-016
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,480.0,1.00%,F,T)



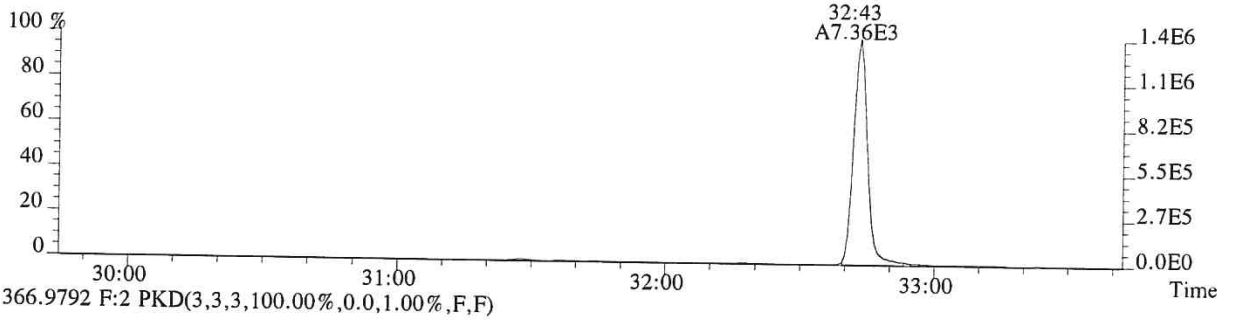
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,508.0,1.00%,F,T)



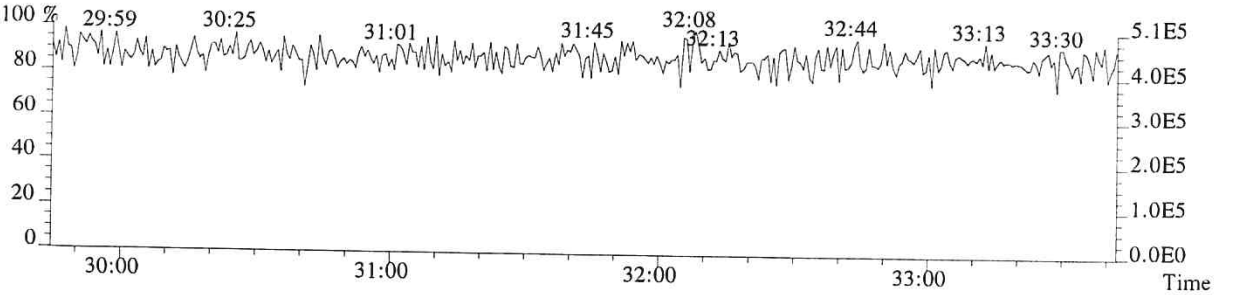
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,784.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,436.0,1.00%,F,T)

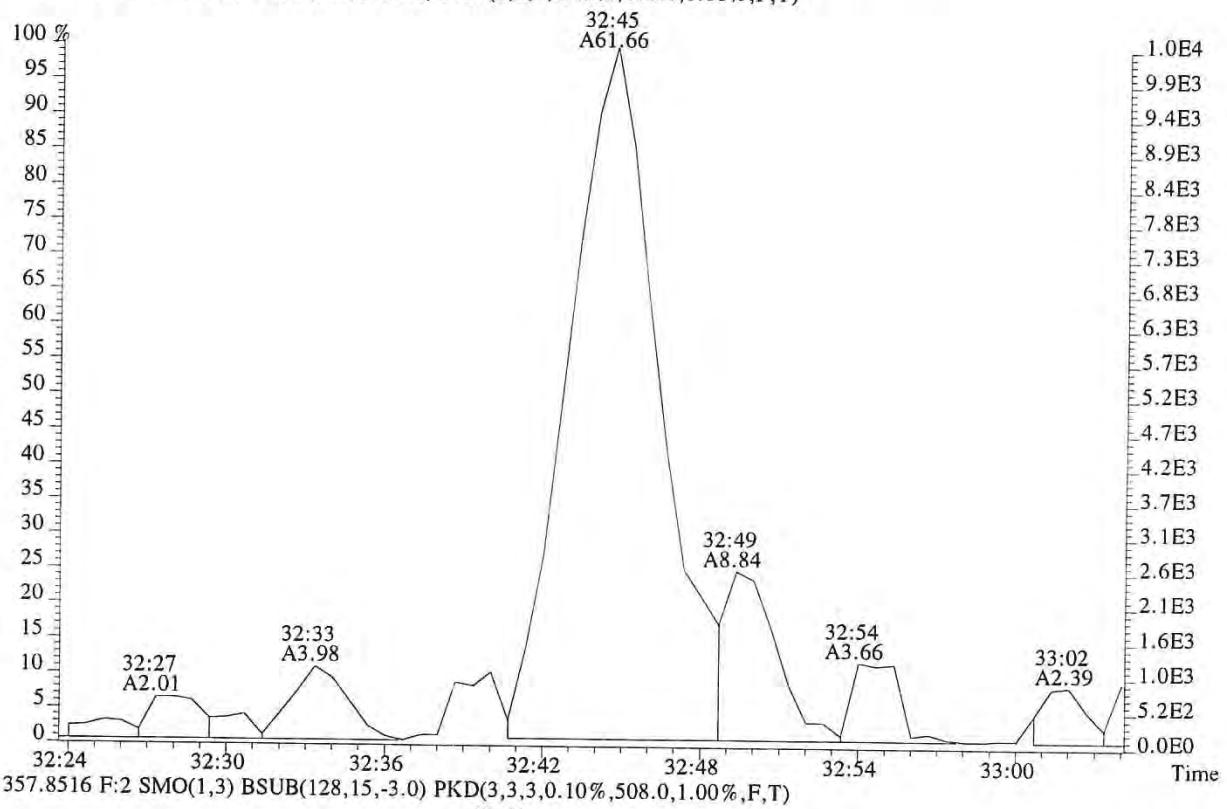


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

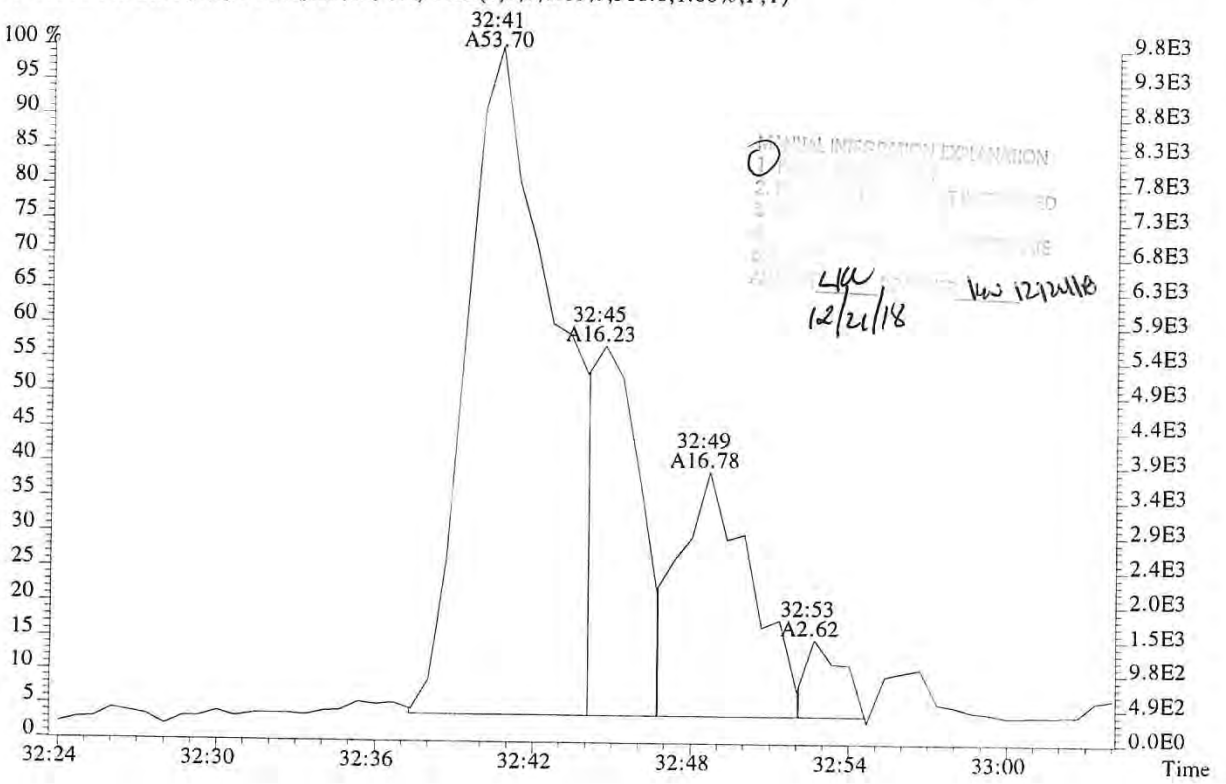


015575

File:P519490 #1-357 Acq:19-DEC-2018 11:32:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-016
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,480.0,1.00%,F,T)

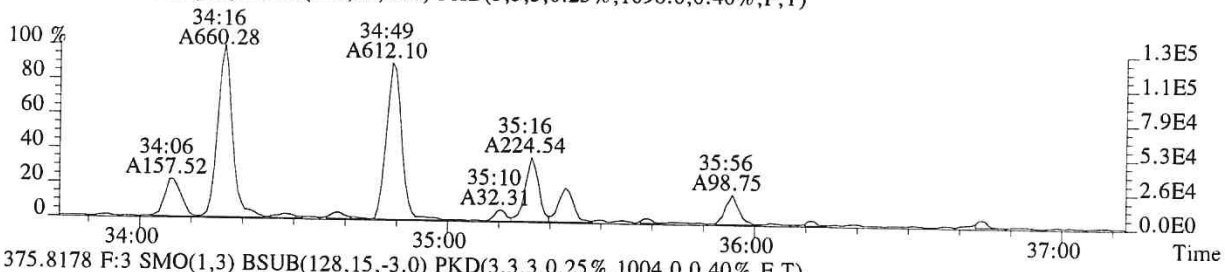


357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,508.0,1.00%,F,T)

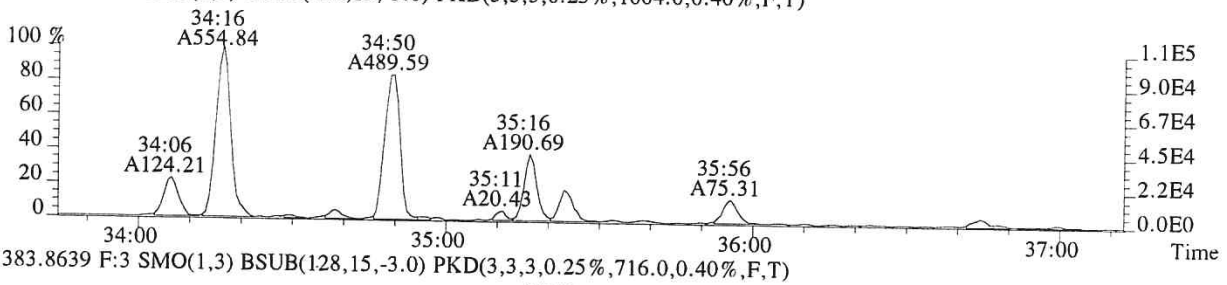


File:P519490 #1-313 Acq:19-DEC-2018 11:32:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-016

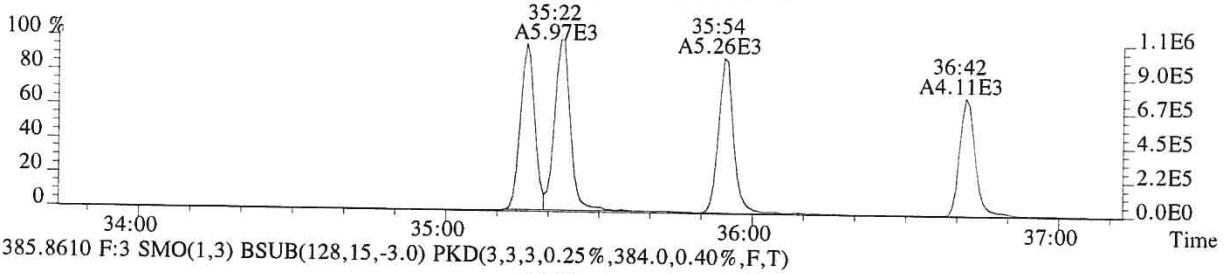
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1096.0,0.40%,F,T)



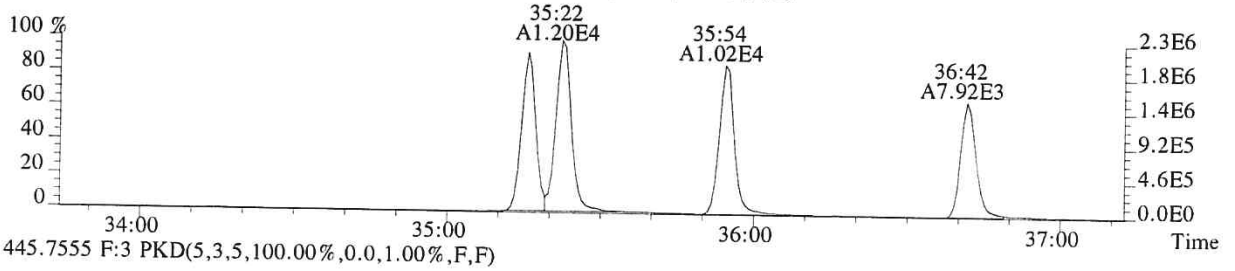
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1004.0,0.40%,F,T)



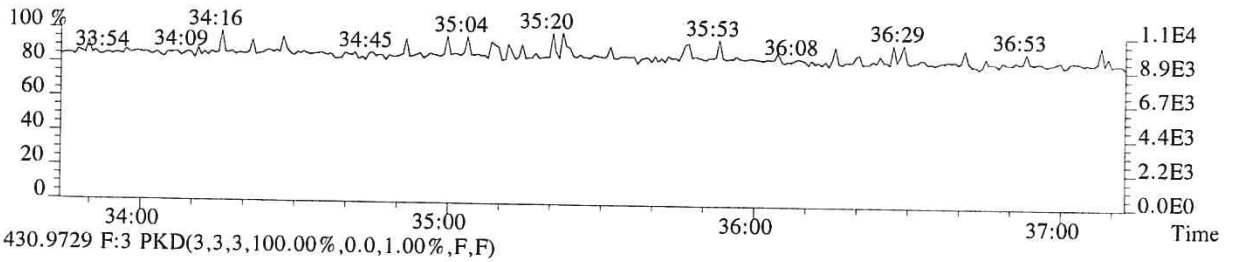
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,716.0,0.40%,F,T)



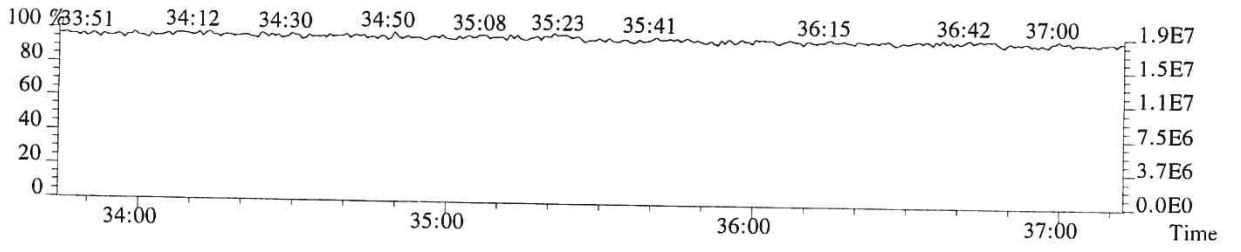
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,384.0,0.40%,F,T)



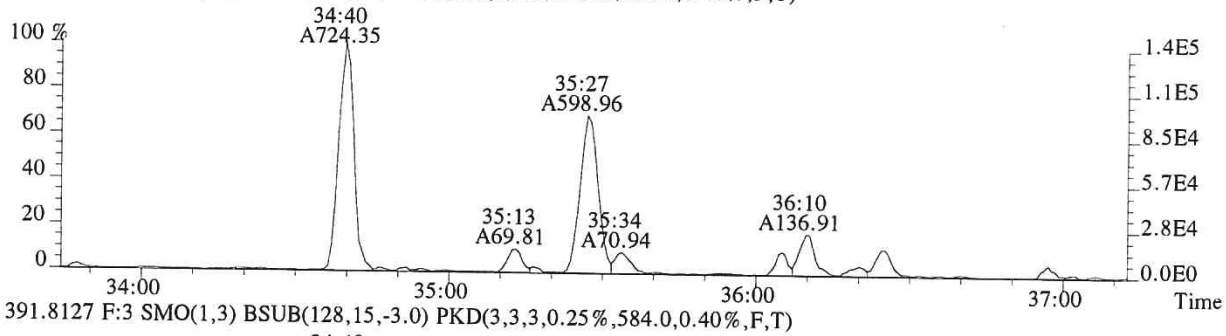
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



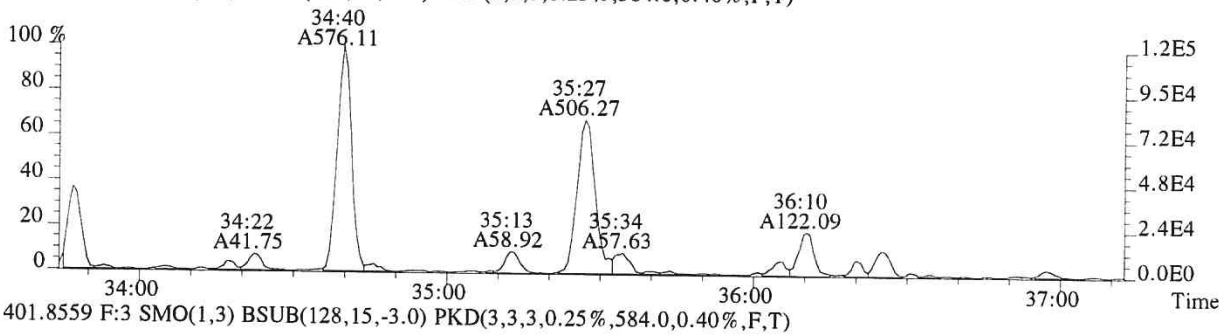
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



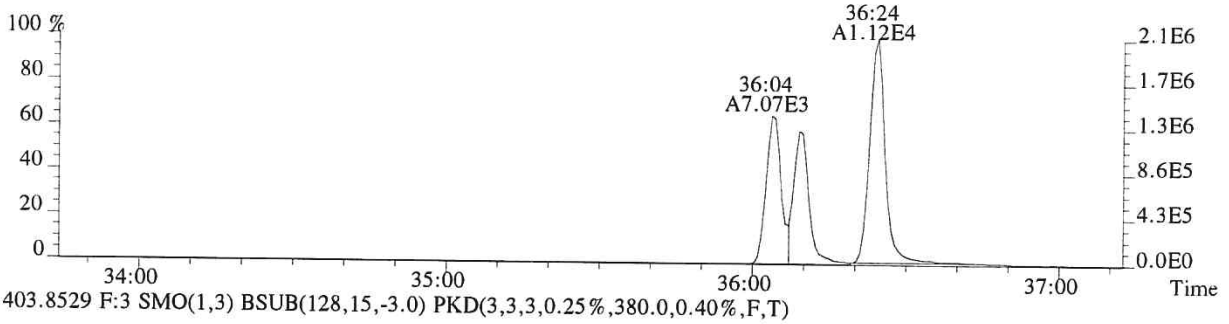
File:P519490 #1-313 Acq:19-DEC-2018 11:32:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-016
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,292.0,0.40%,F,T)



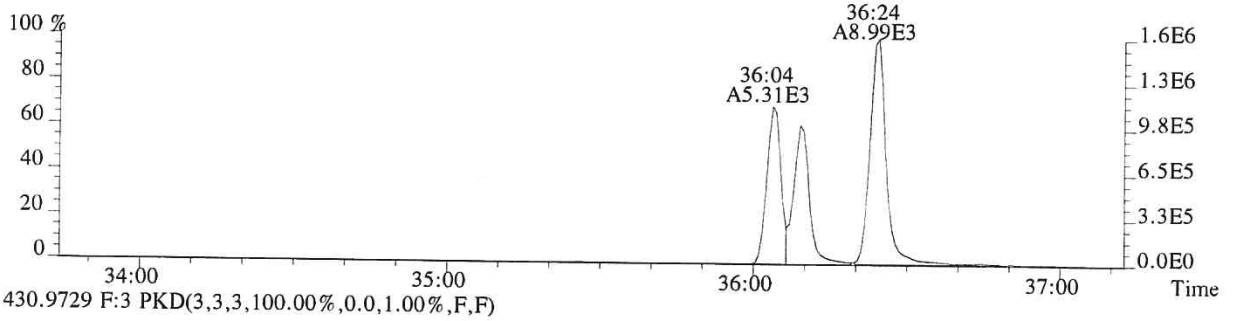
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,584.0,0.40%,F,T)



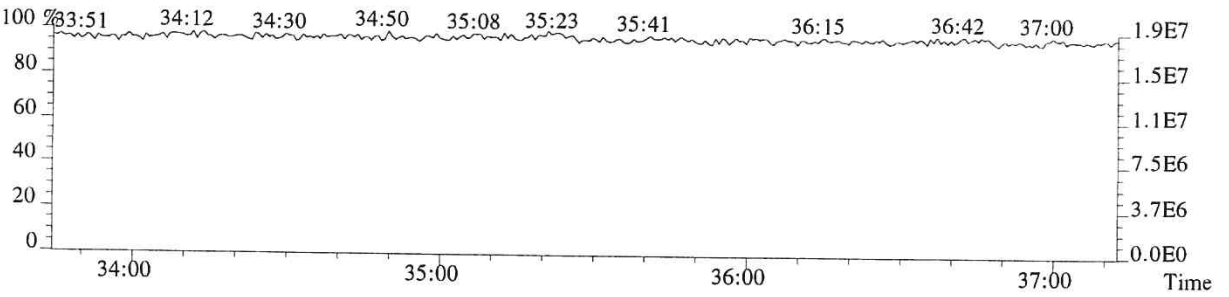
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,584.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,380.0,0.40%,F,T)



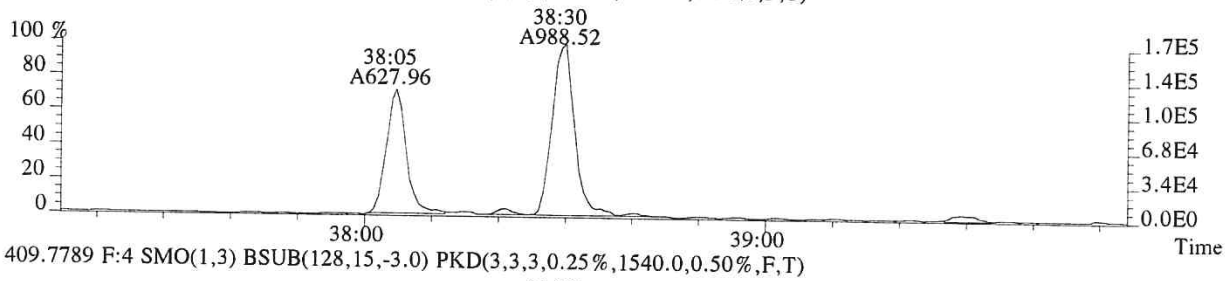
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



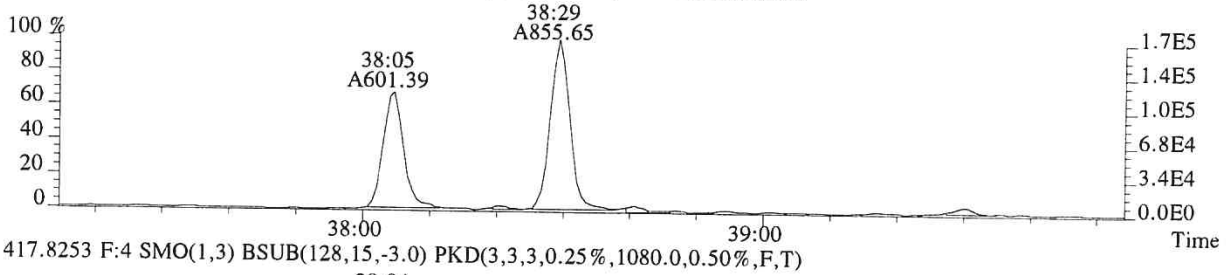
015578

File:P519490 #1-240 Acq:19-DEC-2018 11:32:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-016

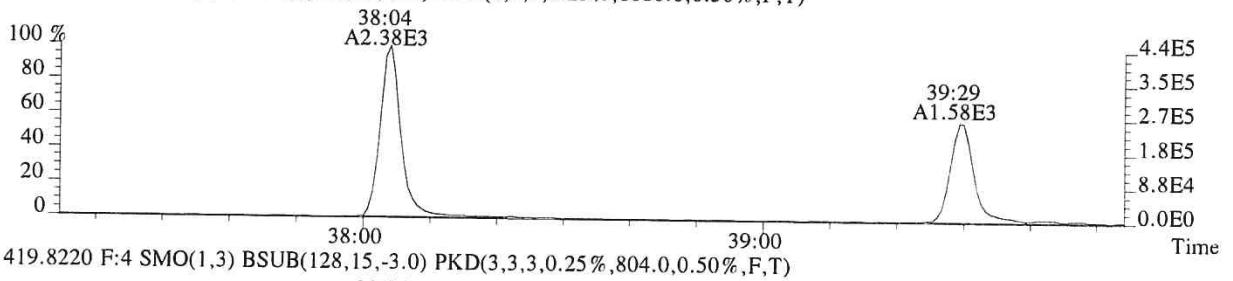
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1408.0,0.50%,F,T)



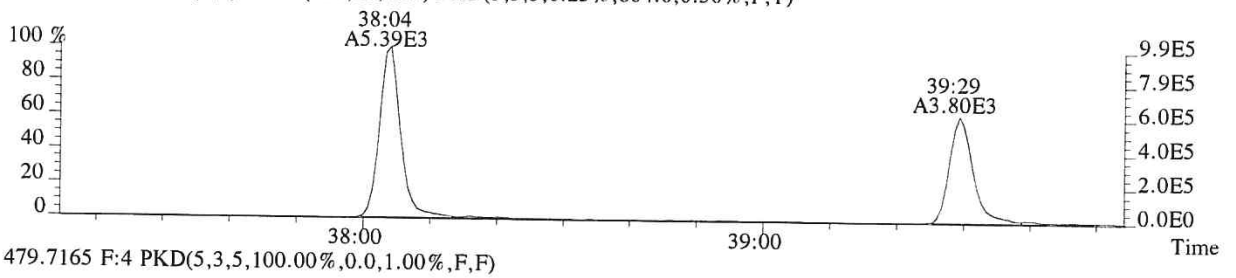
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1540.0,0.50%,F,T)



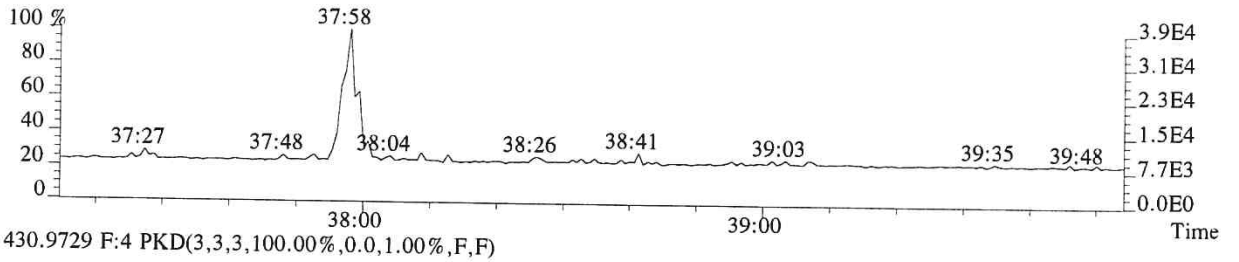
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1080.0,0.50%,F,T)



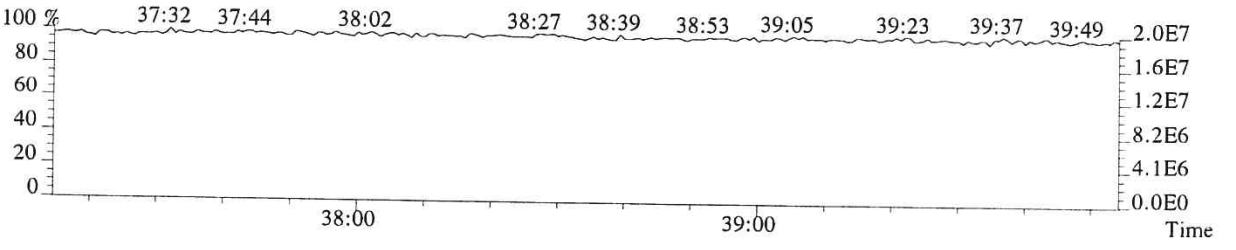
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,804.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

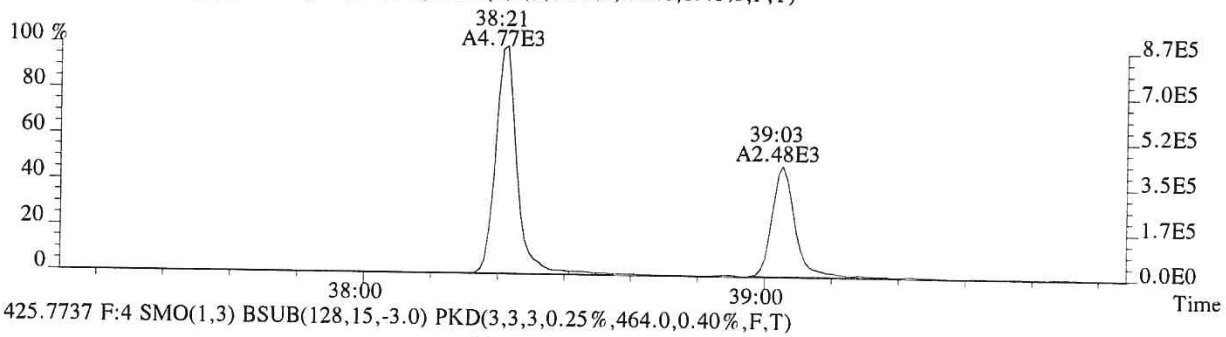


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

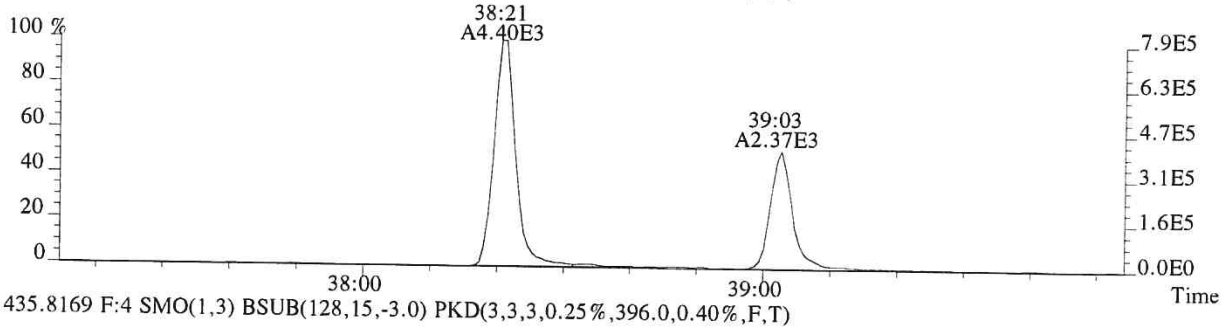


015579

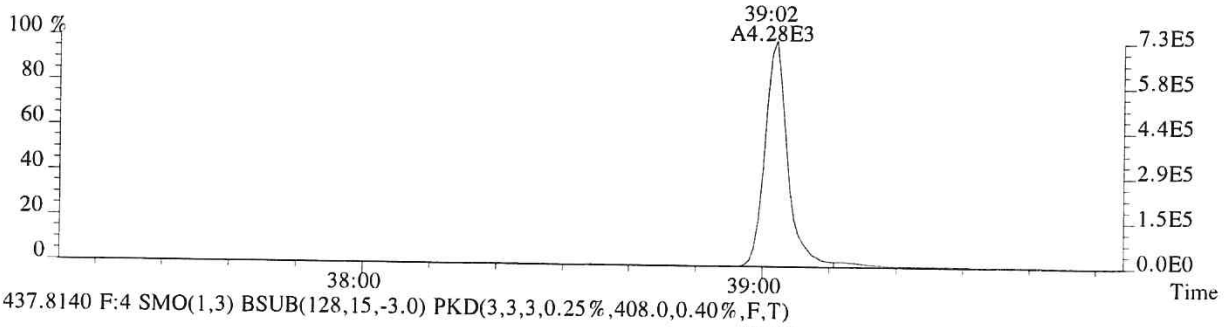
File:P519490 #1-240 Acq:19-DEC-2018 11:32:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-016
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,156.0,0.40%,F,T)



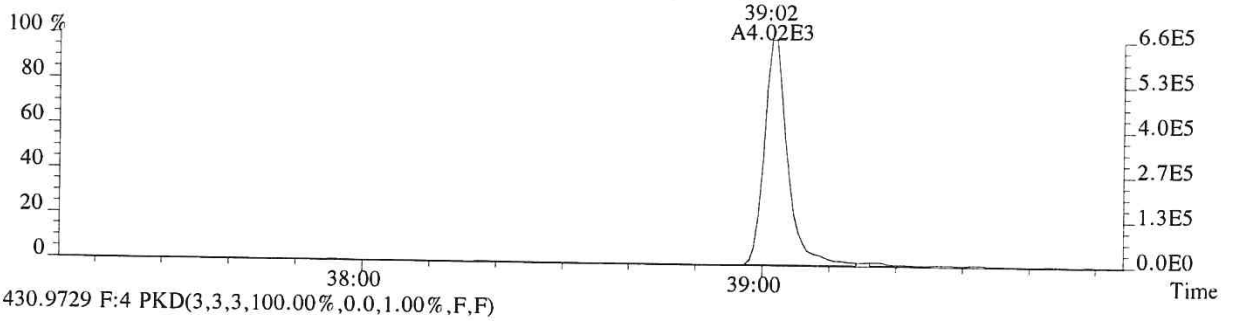
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,464.0,0.40%,F,T)



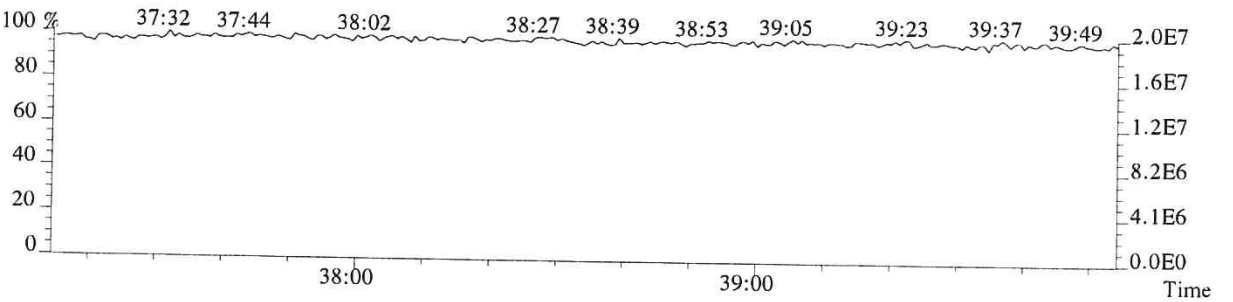
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,396.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,408.0,0.40%,F,T)

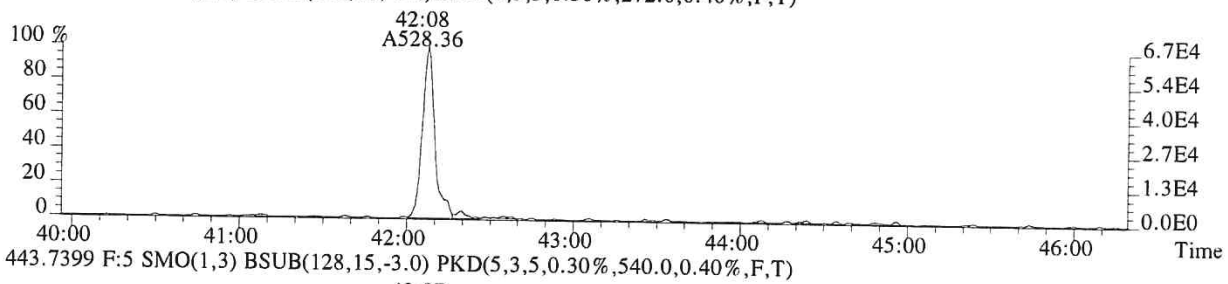


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

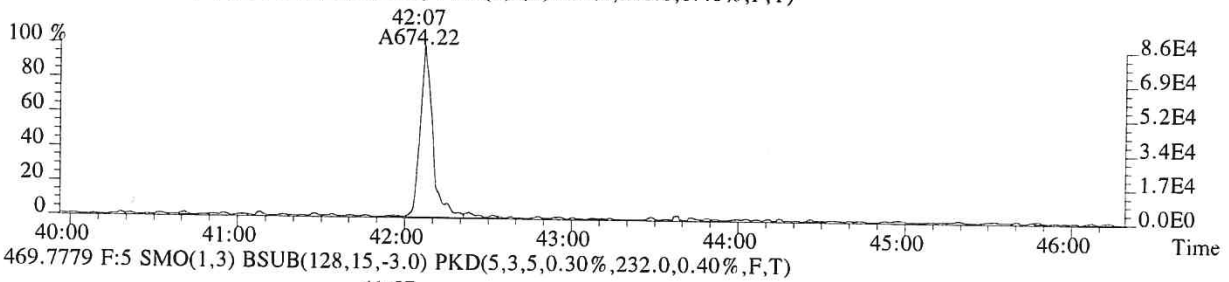


File:P519490 #1-575 Acq:19-DEC-2018 11:32:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-016

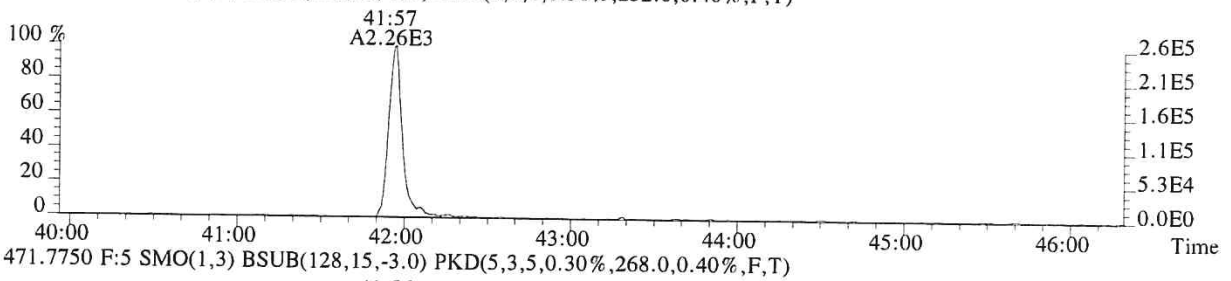
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,272.0,0.40%,F,T)



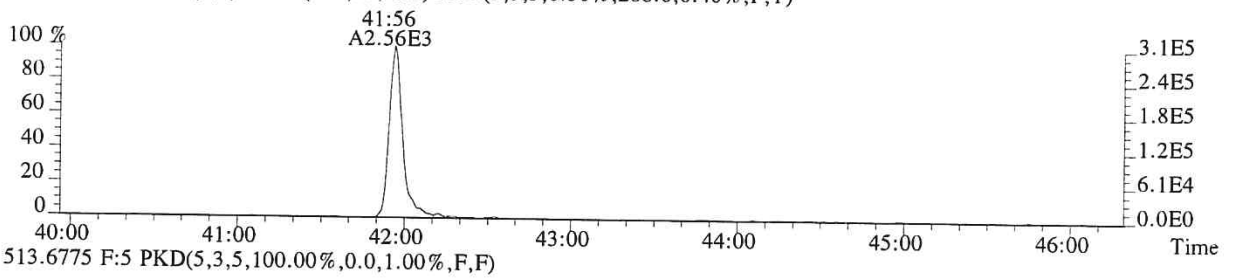
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,540.0,0.40%,F,T)



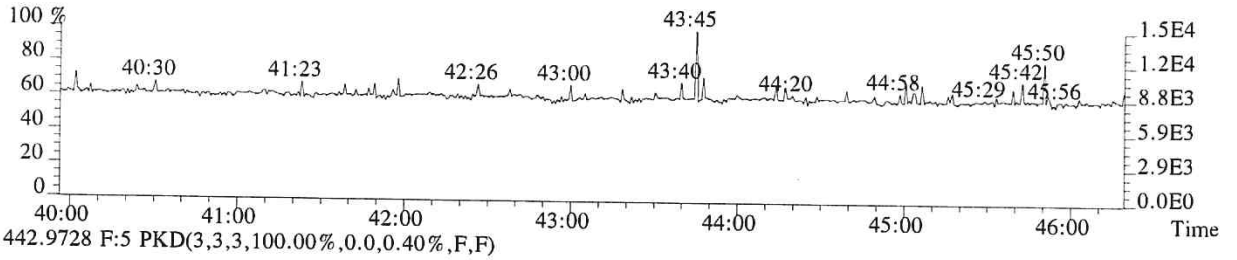
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,232.0,0.40%,F,T)



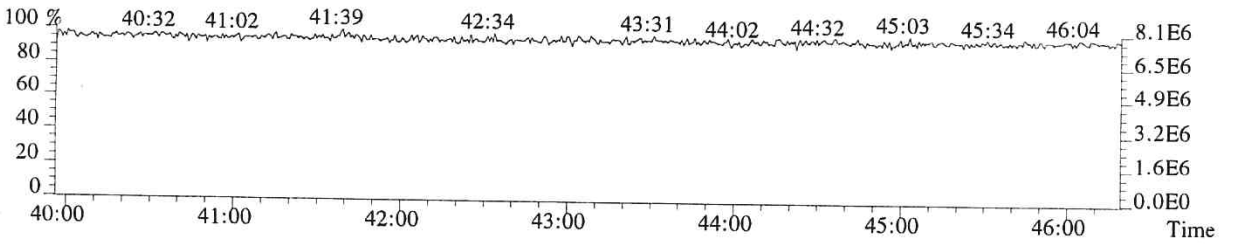
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,268.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

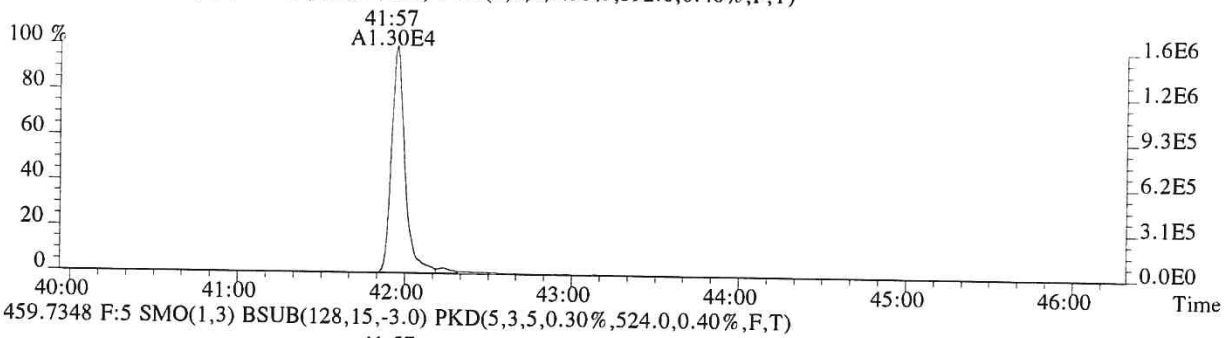


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

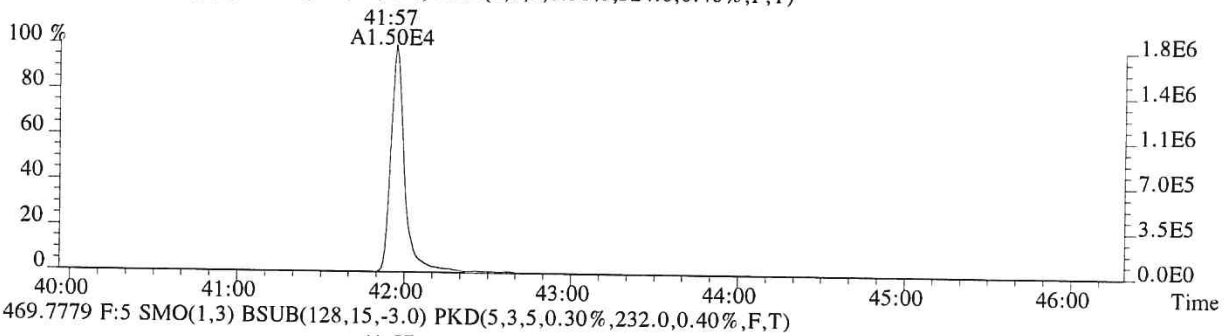


015581

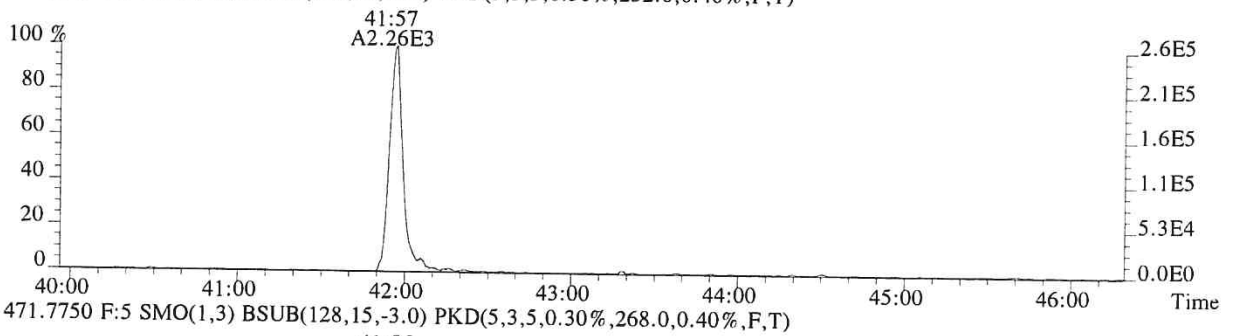
File:P519490 #1-575 Acq:19-DEC-2018 11:32:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-016
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,392.0,0.40%,F,T)



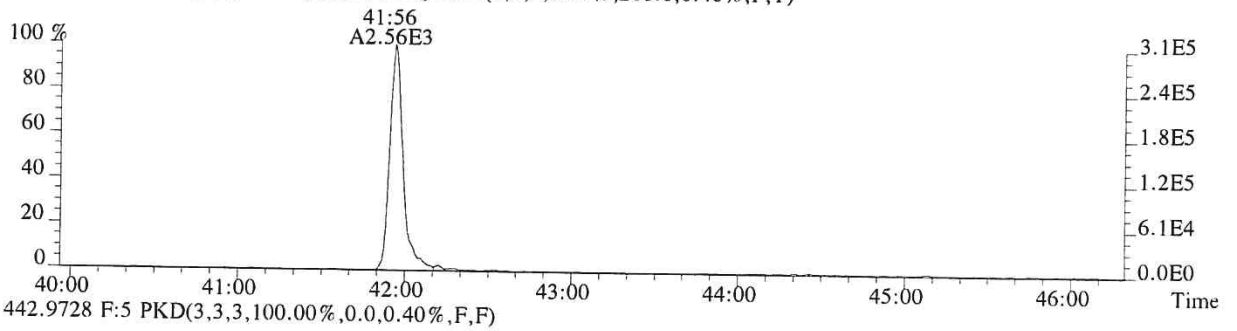
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,524.0,0.40%,F,T)



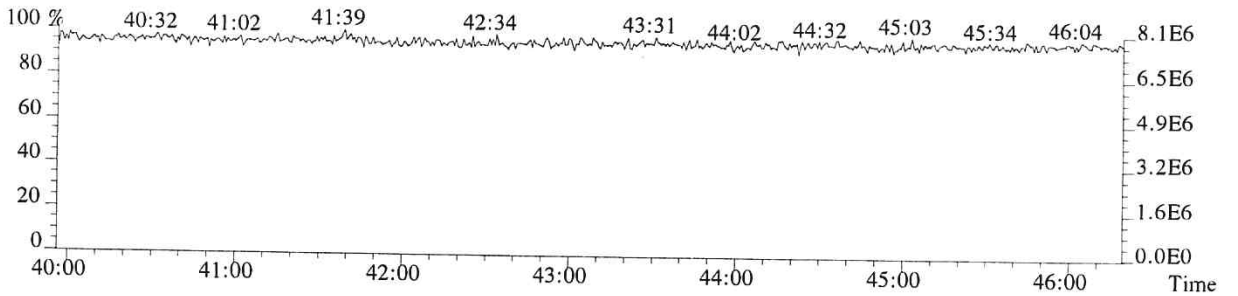
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,232.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,268.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



015582

ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0013

Run #18 Filename P519491 Samp: 1 Inj: 1 Acquired: 19-DEC-18 12:20:40
Processed: 20-DEC-18 16:13:49 Sample ID: E1801094-017

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:50	7.796e+02	1.014e+03	0.77	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	yes	1.012
3	Unk	2,3,4,7,8-PeCDF	32:27	3.945e+02	2.597e+02	1.52	yes	yes	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:16	2.933e+02	2.616e+02	1.12	yes	yes	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:23	3.063e+02	2.642e+02	1.16	yes	yes	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:56	3.178e+02	2.650e+02	1.20	yes	yes	1.110
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	yes	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:05	2.833e+03	2.913e+03	0.97	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:30	1.153e+02	1.264e+02	0.91	yes	no	1.258
10	Unk	OCDF	42:08	2.079e+03	2.420e+03	0.86	yes	no	1.359
11	Unk	2,3,7,8-TCDD	27:45	1.826e+02	2.492e+02	0.73	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	32:44	1.051e+02	7.202e+01	1.46	yes	yes	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:04	9.700e+01	9.616e+01	1.01	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:10	7.654e+02	6.165e+02	1.24	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:24	3.205e+02	2.575e+02	1.24	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:03	1.326e+04	1.277e+04	1.04	yes	no	1.025
17	Unk	OCDD	41:58	3.148e+05	3.510e+05	0.90	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	26:48	1.152e+04	1.447e+04	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	31:27	1.625e+04	1.043e+04	1.56	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	32:25	1.483e+04	9.072e+03	1.63	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:16	4.704e+03	9.429e+03	0.50	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:22	5.731e+03	1.090e+04	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:54	4.832e+03	9.566e+03	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	36:42	3.789e+03	7.516e+03	0.50	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:04	2.296e+03	5.178e+03	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:29	1.509e+03	3.571e+03	0.42	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	27:42	5.536e+03	7.044e+03	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:43	1.098e+04	6.910e+03	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:04	6.186e+03	4.874e+03	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:09	6.622e+03	5.173e+03	1.28	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:02	4.262e+03	3.899e+03	1.09	yes	no	0.858
32	IS	13C-OCDD	41:57	2.700e+03	2.949e+03	0.92	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:03	1.453e+04	1.792e+04	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:24	1.099e+04	8.317e+03	1.32	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:44	7.738e+03				no	1.014

$$OCDD = \frac{(3.148e+05 + 3.510e+05) \times 4000\ pg \times 1}{(2.700e+03 + 2.949e+03) \times 10.152\ g \times 13.1 / 100 \times 1.118} = 53000\ ng/kg$$

VW 12/24/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0013

Run #18 Filename P519491 Samp: 1 Inj: 1 Acquired: 19-DEC-18 12:20:40
Processed: 20-DEC-18 16:13:49 LAB. ID: E1801094-017

	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+05	1.63e+03	7.0e+01	1.72e+05	1.81e+03	9.5e+01
2	1,2,3,7,8-PeCDF	*	1.14e+03	*	*	7.62e+03	*
3	2,3,4,7,8-PeCDF	4.85e+04	1.14e+03	4.3e+01	3.51e+04	7.62e+03	4.6e+00
4	1,2,3,4,7,8-HxCDF	6.69e+04	2.25e+03	3.0e+01	5.09e+04	1.52e+03	3.3e+01
5	1,2,3,6,7,8-HxCDF	6.77e+04	2.25e+03	3.0e+01	5.51e+04	1.52e+03	3.6e+01
6	2,3,4,6,7,8-HxCDF	6.00e+04	2.25e+03	2.7e+01	5.47e+04	1.52e+03	3.6e+01
7	1,2,3,7,8,9-HxCDF	*	2.25e+03	*	*	1.52e+03	*
8	1,2,3,4,6,7,8-HpCDF	5.33e+05	2.52e+02	2.1e+03	5.39e+05	3.04e+02	1.8e+03
9	1,2,3,4,7,8,9-HpCDF	2.03e+04	2.52e+02	8.1e+01	2.17e+04	3.04e+02	7.1e+01
10	OCDF	2.35e+05	4.08e+02	5.8e+02	2.94e+05	4.72e+02	6.2e+02
11	2,3,7,8-TCDD	3.01e+04	1.48e+03	2.0e+01	3.89e+04	9.08e+02	4.3e+01
12	1,2,3,7,8-PeCDD	2.07e+04	1.38e+03	1.5e+01	1.94e+04	8.12e+02	2.4e+01
13	1,2,3,4,7,8-HxCDD	2.07e+04	1.15e+03	1.8e+01	2.10e+04	2.04e+03	1.0e+01
14	1,2,3,6,7,8-HxCDD	1.52e+05	1.15e+03	1.3e+02	1.22e+05	2.04e+03	6.0e+01
15	1,2,3,7,8,9-HxCDD	6.34e+04	1.15e+03	5.5e+01	4.83e+04	2.04e+03	2.4e+01
16	1,2,3,4,6,7,8-HpCDD	2.32e+06	4.96e+02	4.7e+03	2.23e+06	3.84e+02	5.8e+03
17	OCDD	3.83e+07	3.16e+02	1.2e+05	4.28e+07	4.48e+02	9.6e+04
18	13C-2,3,7,8-TCDF	1.88e+06	3.66e+03	5.1e+02	2.37e+06	1.68e+03	1.4e+03
19	13C-1,2,3,7,8-PeCDF	2.85e+06	7.96e+02	3.6e+03	1.81e+06	3.48e+02	5.2e+03
20	13C-2,3,4,7,8-PeCDF	2.76e+06	7.96e+02	3.5e+03	1.72e+06	3.48e+02	4.9e+03
21	13C-1,2,3,4,7,8-HxCDF	9.76e+05	2.76e+02	3.5e+03	1.94e+06	6.04e+02	3.2e+03
22	13C-1,2,3,6,7,8-HxCDF	1.05e+06	2.76e+02	3.8e+03	2.10e+06	6.04e+02	3.5e+03
23	13C-2,3,4,6,7,8-HxCDF	9.45e+05	2.76e+02	3.4e+03	1.88e+06	6.04e+02	3.1e+03
24	13C-1,2,3,7,8,9-HxCDF	7.12e+05	2.76e+02	2.6e+03	1.44e+06	6.04e+02	2.4e+03
25	13C-1,2,3,4,6,7,8-HpCDF	4.29e+05	1.12e+03	3.8e+02	9.83e+05	1.51e+03	6.5e+02
26	13C-1,2,3,4,7,8,9-HpCDF	2.45e+05	1.12e+03	2.2e+02	5.56e+05	1.51e+03	3.7e+02
27	13C-2,3,7,8-TCDD	9.56e+05	3.77e+03	2.5e+02	1.23e+06	2.30e+03	5.3e+02
28	13C-1,2,3,7,8-PeCDD	2.04e+06	5.16e+02	3.9e+03	1.26e+06	8.48e+02	1.5e+03
29	13C-1,2,3,4,7,8-HxCDD	1.34e+06	3.16e+02	4.2e+03	1.03e+06	3.36e+02	3.1e+03
30	13C-1,2,3,6,7,8-HxCDD	1.22e+06	3.16e+02	3.9e+03	9.36e+05	3.36e+02	2.8e+03
31	13C-1,2,3,4,6,7,8-HpCDD	7.30e+05	4.76e+02	1.5e+03	6.54e+05	3.36e+02	1.9e+03
32	13C-OCDD	3.15e+05	4.64e+02	6.8e+02	3.44e+05	3.04e+02	1.1e+03
33	13C-1,2,3,4-TCDD	2.54e+06	3.77e+03	6.7e+02	3.11e+06	2.30e+03	1.4e+03
34	13C-1,2,3,7,8,9-HxCDD	2.01e+06	3.16e+02	6.3e+03	1.54e+06	3.36e+02	4.6e+03
35	37Cl-2,3,7,8-TCDD	1.29e+06	9.12e+02	1.4e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.484e{+}03 + 9.080e{+}02) \times 2000}{(9.556e{+}05 + 1.225e{+}06) \times (\quad) \times 1.085} =$$

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0013

Entry: 36 Totals Name: Total Tetra-Furans

Run: 18 File: P519491 Sample:1 Injection:1 Function:1

Acquired: 19-DEC-18 12:20:40 Processed: 20-DEC-18 16:13:49

Mass: 303.9020 305.8990 Tot Response: 4.80e+03 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	22:40	9.14e+01	1.15e+02	0.80	yes	2.06e+02		n	n
2	23:07	2.86e+02	3.91e+02	0.73	yes	6.77e+02		n	n
3	23:36	1.03e+02	1.45e+02	0.71	yes	2.48e+02		n	n
4	23:55	1.54e+02	2.34e+02	0.66	yes	3.89e+02		n	n
5	24:18	9.14e+01	1.23e+02	0.74	yes	2.14e+02		n	n
6	24:26	3.27e+01	4.40e+01	0.74	yes	7.67e+01		n	n
7	25:16	2.56e+02	3.44e+02	0.74	yes	6.00e+02		n	n
8	25:54	2.24e+02	2.79e+02	0.80	yes	5.03e+02		n	n
9	26:12	3.87e+01	5.62e+01	0.69	yes	9.49e+01		n	n
10	26:50	7.80e+02	1.01e+03	0.77	yes	1.79e+03	2,3,7,8-TCDF	n	n

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Peak List Summary

CLIENT ID.
SL0013

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 18 File: P519491 Sample:1 Injection:1 Function:1

Acquired: 19-DEC-18 12:20:40 Processed: 20-DEC-18 16:13:49

Mass: 319.8970 321.8940 Tot Response: 4.32e+02 RRF: 1.085

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	27:45	1.83e+02	2.49e+02 0.73	yes	4.32e+02	2,3,7,8-TCDD	n	n

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Peak List Summary

CLIENT ID.
SL0013

Entry: 38 Totals Name: Total Penta-Furans1

Run: 18 File: P519491 Sample:1 Injection:1 Function:1

Acquired: 19-DEC-18 12:20:40 Processed: 20-DEC-18 16:13:49

Mass: 339.8600 341.8570 Tot Response: 4.13e+03 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	28:52	2.52e+03	1.59e+03 1.59	yes	4.11e+03		n	n
2	29:01	1.23e+01	7.39e+00 1.67	yes	1.97e+01		n	n

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Peak List Summary

CLIENT ID.
SL0013

Entry: 39 Totals Name: Total Penta-Furans2

Run: 18 File: P519491 Sample:1 Injection:1 Function:2

Acquired: 19-DEC-18 12:20:40 Processed: 20-DEC-18 16:13:49

Mass: 339.8600 341.8570 Tot Response: 2.10e+03 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:19	4.21e+02	2.39e+02 1.76	yes	6.60e+02		n	n
2	31:03	4.18e+02	2.53e+02 1.65	yes	6.72e+02		n	n
3	31:17	6.57e+01	4.48e+01 1.47	yes	1.11e+02		n	y
4	32:27	3.95e+02	2.60e+02 1.52	yes	6.54e+02	2,3,4,7,8-PeCDF	n	y

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0013

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 18 File: P519491 Sample:1 Injection:1 Function:2

Acquired: 19-DEC-18 12:20:40 Processed: 20-DEC-18 16:13:49

Mass: 355.8550 357.8520 Tot Response: 4.85e+02 RRF: 0.9565

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:39	1.85e+02	1.24e+02 1.49	yes	3.08e+02		n	n
2	32:44	1.05e+02	7.20e+01 1.46	yes	1.77e+02	1,2,3,7,8-PeCDD	y	y

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0013

Entry: 41 Totals Name: Total Hexa-Furans

Run: 18 File: P519491 Sample:1 Injection:1 Function:3

Acquired: 19-DEC-18 12:20:40 Processed: 20-DEC-18 16:13:49

Mass: 373.8210 375.8180 Tot Response: 1.37e+04 RRF: 1.141

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:06	5.42e+02	5.03e+02 1.08	yes	1.05e+03		n	n
2	34:16	2.67e+03	2.23e+03 1.19	yes	4.90e+03		n	n
3	34:38	1.22e+02	1.04e+02 1.17	yes	2.25e+02		n	n
4	34:49	3.20e+03	2.60e+03 1.23	yes	5.80e+03		n	n
5	35:16	2.93e+02	2.62e+02 1.12	yes	5.55e+02	1,2,3,4,7,8-HxCDF	n	n
6	35:23	3.06e+02	2.64e+02 1.16	yes	5.70e+02	1,2,3,6,7,8-HxCDF	n	n
7	35:56	3.18e+02	2.65e+02 1.20	yes	5.83e+02	2,3,4,6,7,8-HxCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0013

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 18 File: P519491 Sample:1 Injection:1 Function:3

Acquired: 19-DEC-18 12:20:40 Processed: 20-DEC-18 16:13:49

Mass: 389.8160 391.8130 Tot Response: 1.24e+04 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:40	2.69e+03	2.04e+03	1.32	yes	4.73e+03		n	n
2	35:28	2.79e+03	2.22e+03	1.26	yes	5.01e+03		n	n
3	35:34	2.97e+02	2.35e+02	1.26	yes	5.32e+02		n	n
4	36:10	7.65e+02	6.17e+02	1.24	yes	1.38e+03	1,2,3,6,7,8-HxCDD	n	n
5	36:20	8.94e+01	8.10e+01	1.10	yes	1.70e+02		n	n
6	36:24	3.21e+02	2.57e+02	1.24	yes	5.78e+02	1,2,3,7,8,9-HxCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0013

Entry: 43 Totals Name: Total Hepta-Furans

Run: 18 File: P519491 Sample:1 Injection:1 Function:4

Acquired: 19-DEC-18 12:20:40 Processed: 20-DEC-18 16:13:49

Mass: 407.7820 409.7790 Tot Response: 1.70e+04 RRF: 1.308

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:05	2.83e+03	2.91e+03	0.97	yes	5.75e+03	1,2,3,4,6,7,8-HpCDF	n	n
2	38:15	2.98e+01	2.92e+01	1.02	yes	5.90e+01		n	n
3	38:29	5.50e+03	5.42e+03	1.02	yes	1.09e+04		n	n
4	39:30	1.15e+02	1.26e+02	0.91	yes	2.42e+02	1,2,3,4,7,8,9-HpCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0013

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 18 File: P519491 Sample:1 Injection:1 Function:4

Acquired: 19-DEC-18 12:20:40 Processed: 20-DEC-18 16:13:49

Mass: 423.7770 425.7740 Tot Response: 6.53e+04 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:21	1.99e+04	1.03	yes	3.92e+04		n	n
2	39:03	1.33e+04	1.04	yes	2.60e+04	1,2,3,4,6,7,8-HpCDD	n	n

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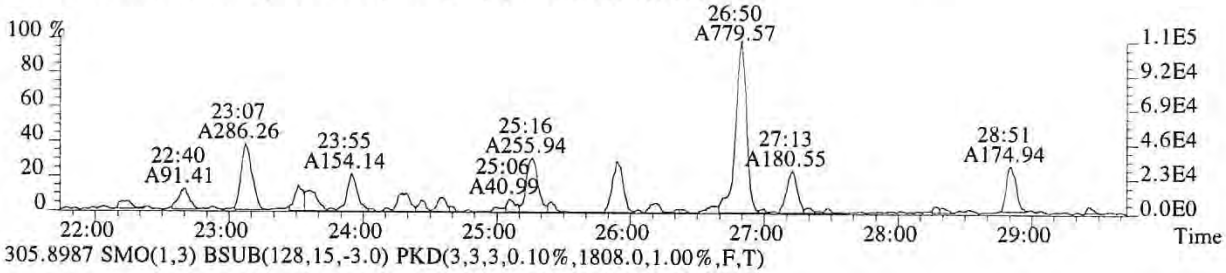
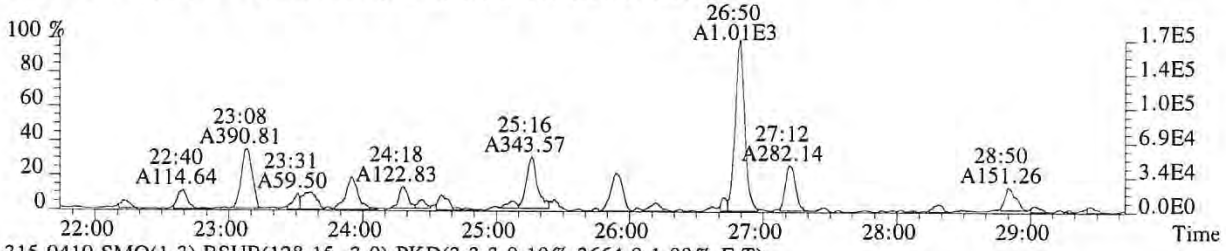
File:P519491 #1-566 Acq:19-DEC-2018 12:20:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-017

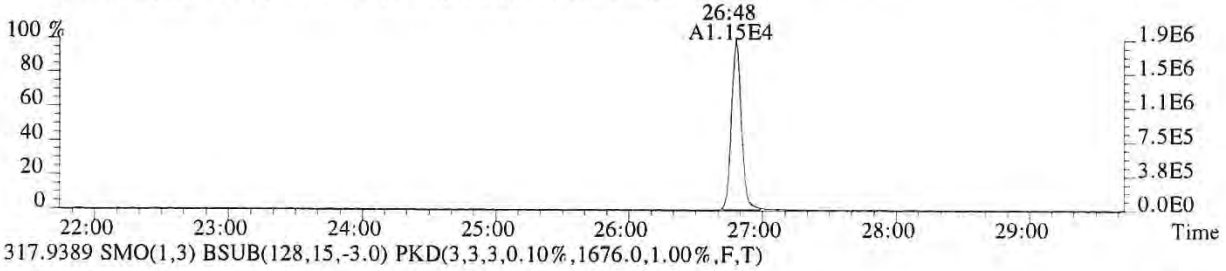
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1628.0,1.00%,F,T)



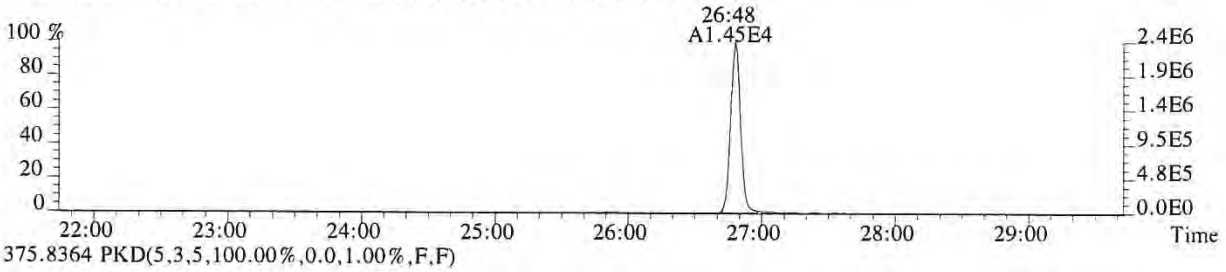
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1808.0,1.00%,F,T)



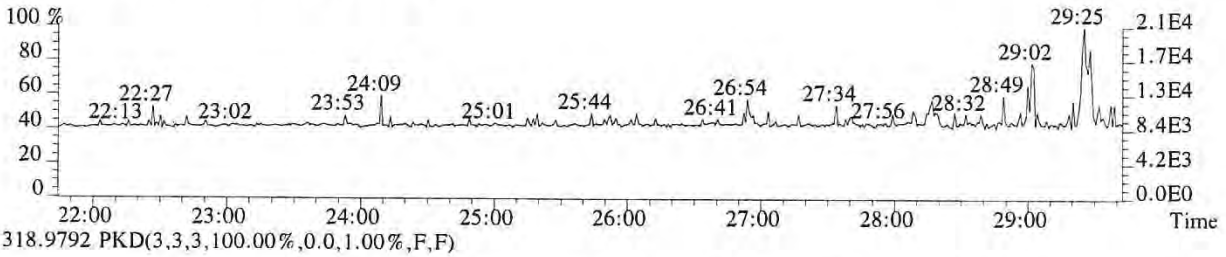
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3664.0,1.00%,F,T)



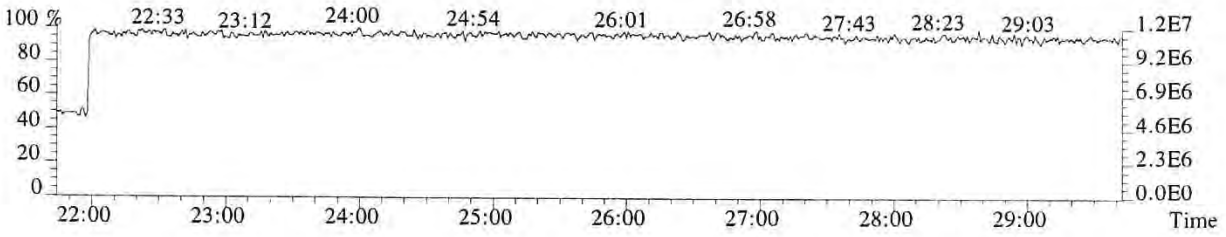
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1676.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

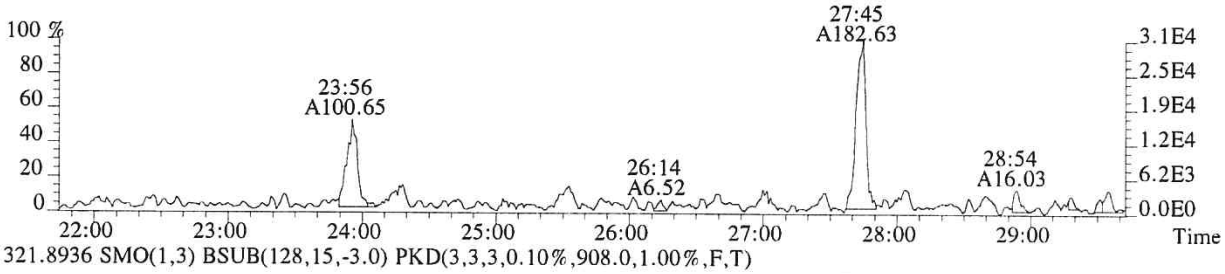


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

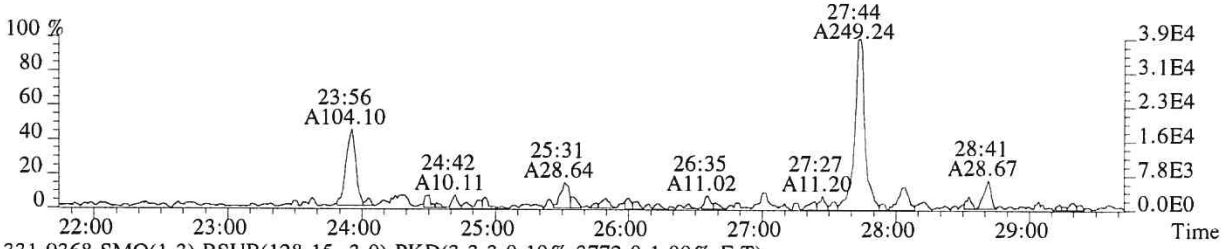


015594

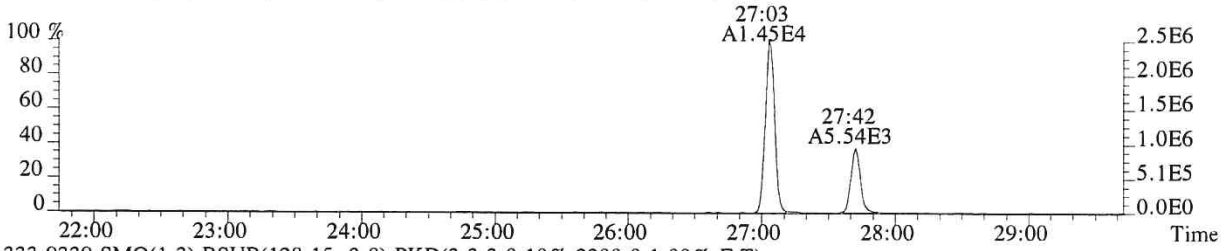
File:P519491 #1-566 Acq:19-DEC-2018 12:20:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-017
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1484.0,1.00%,F,T)



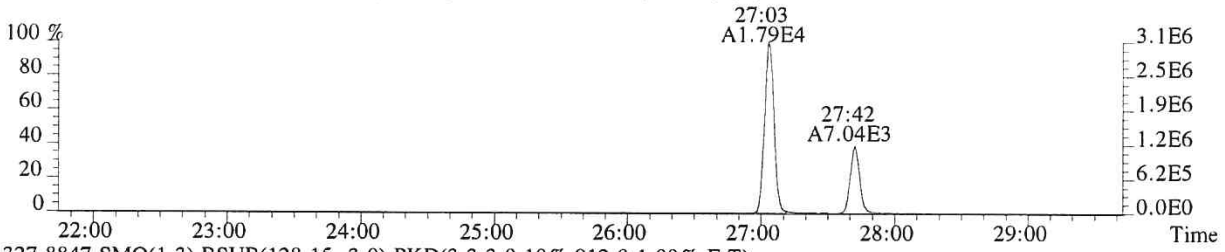
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,908.0,1.00%,F,T)



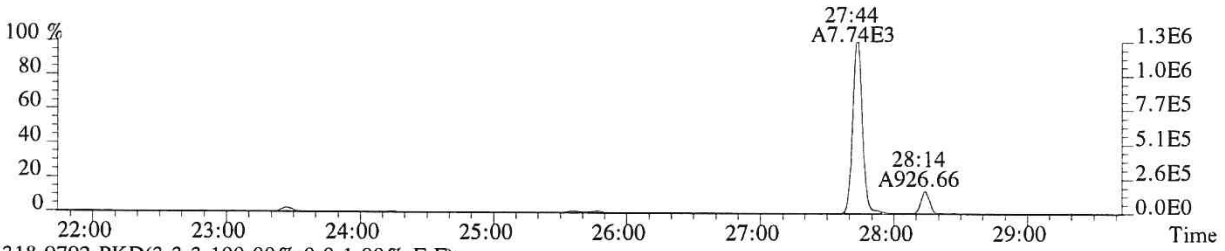
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3772.0,1.00%,F,T)



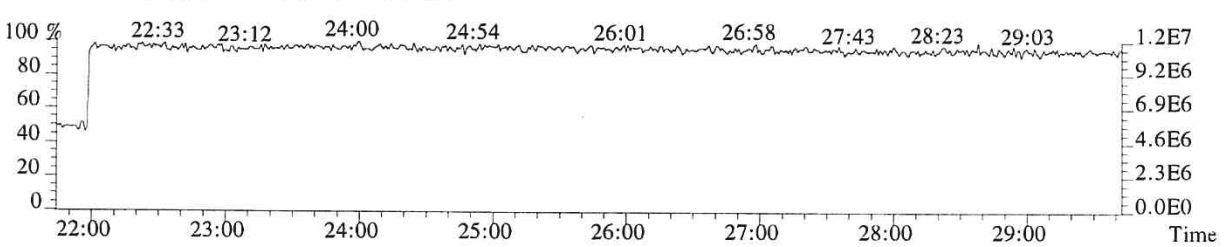
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2300.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,912.0,1.00%,F,T)

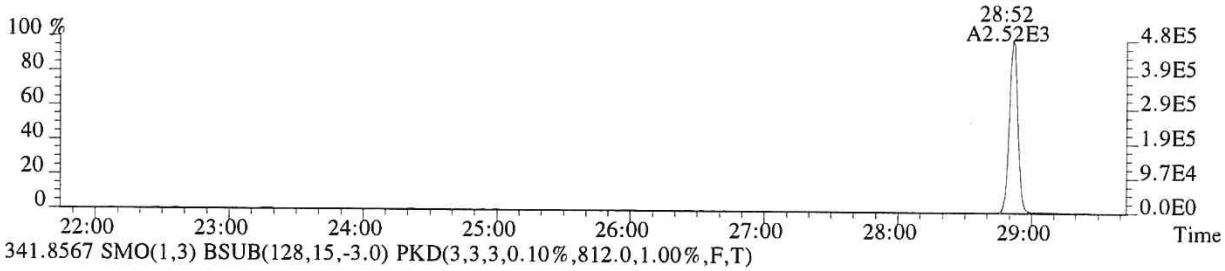


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

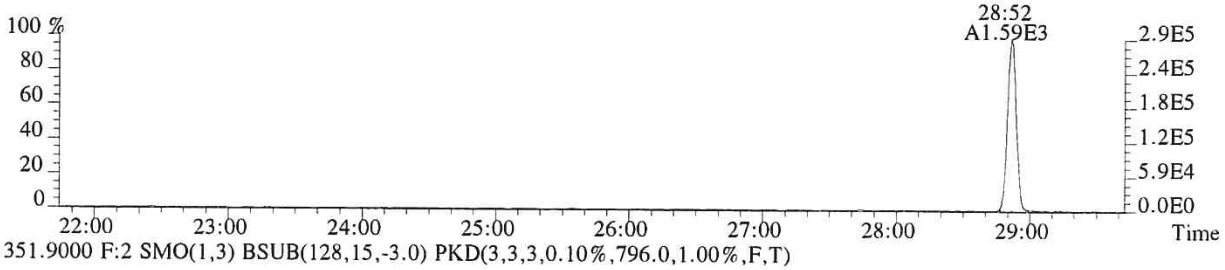


File:P519491 #1-566 Acq:19-DEC-2018 12:20:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-017

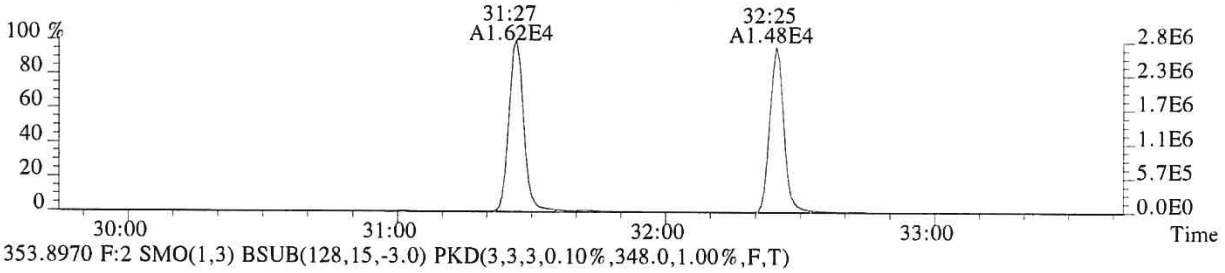
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,416.0,1.00%,F,T)



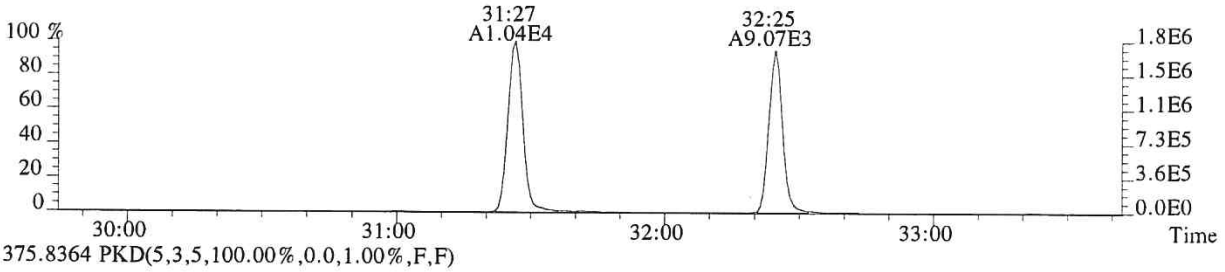
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,812.0,1.00%,F,T)



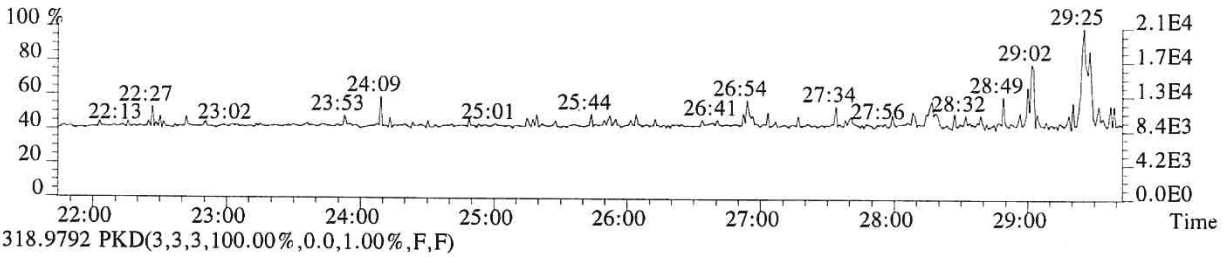
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,796.0,1.00%,F,T)



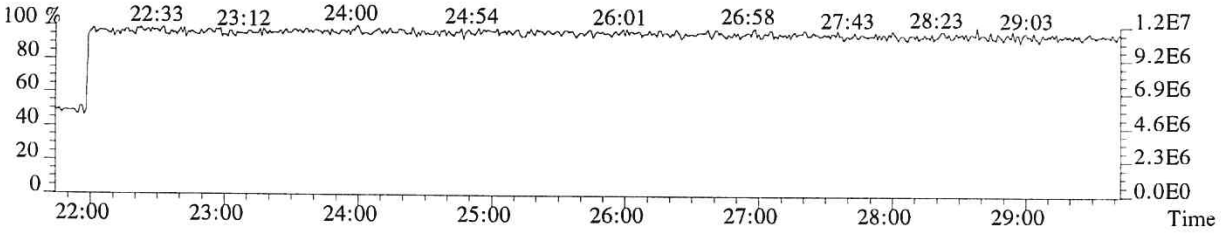
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,348.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



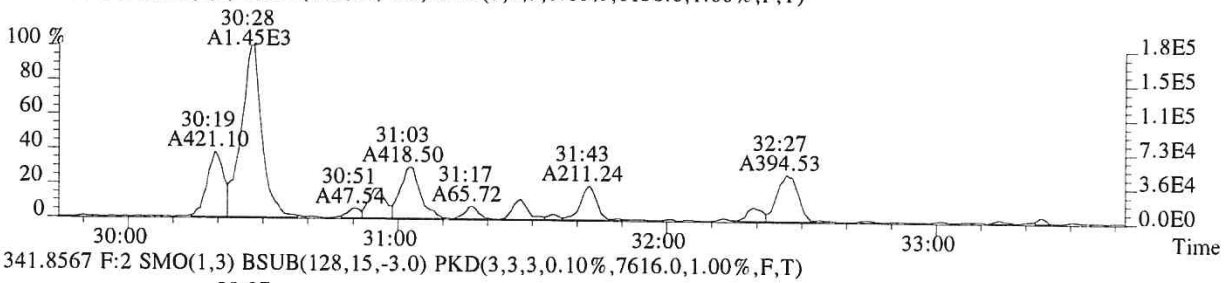
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



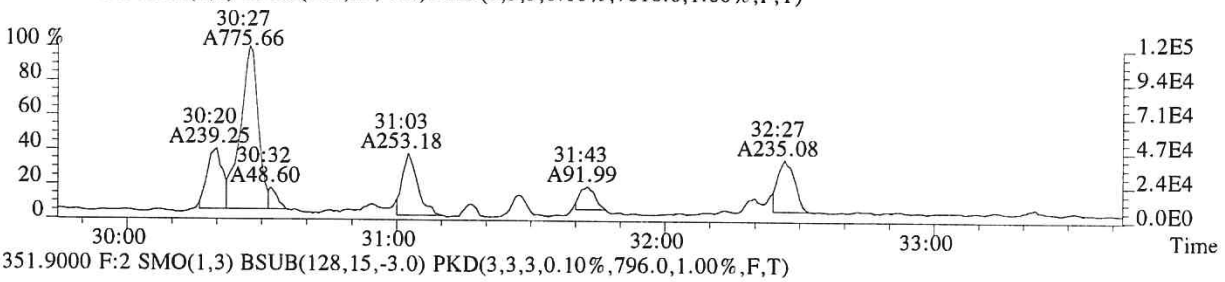
015596

File:P519491 #1-357 Acq:19-DEC-2018 12:20:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-017

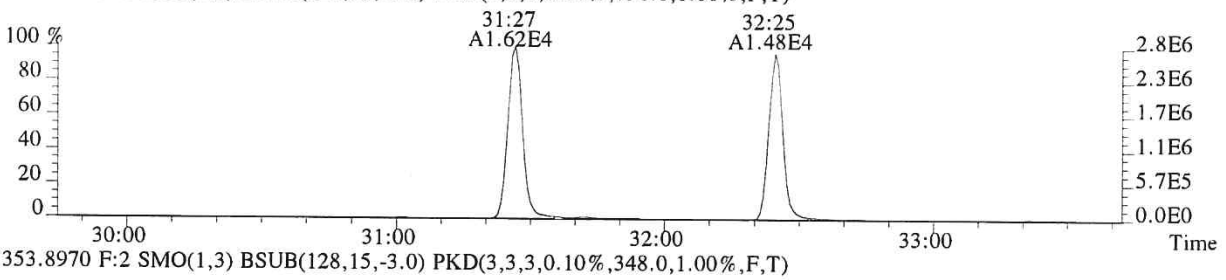
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1136.0,1.00%,F,T)



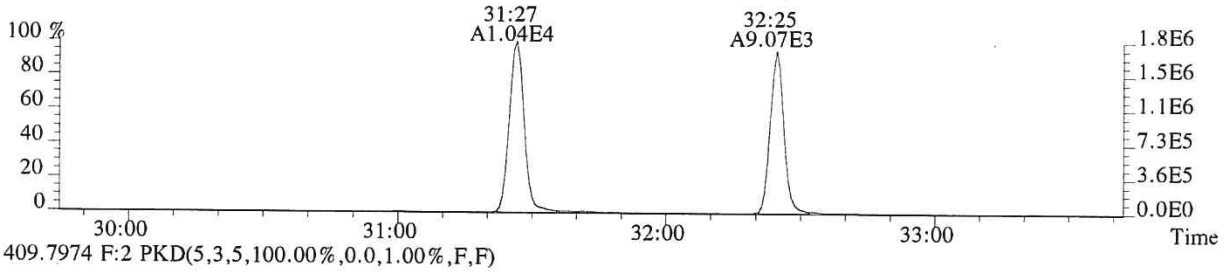
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7616.0,1.00%,F,T)



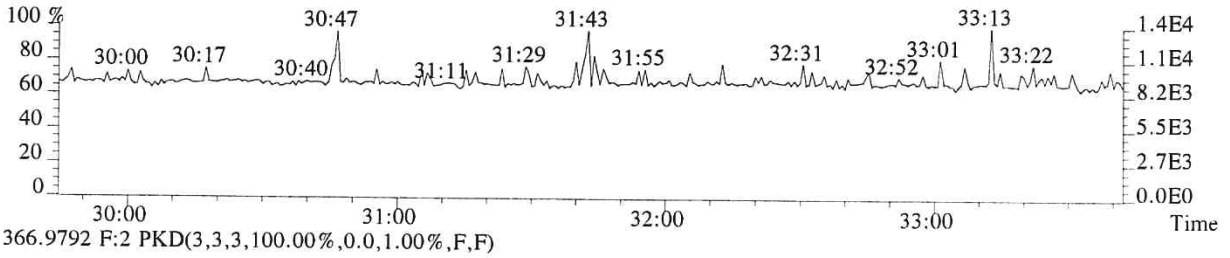
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,796.0,1.00%,F,T)



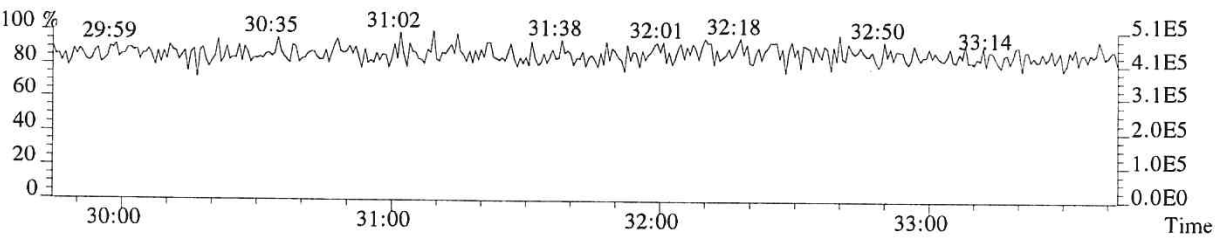
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,348.0,1.00%,F,T)



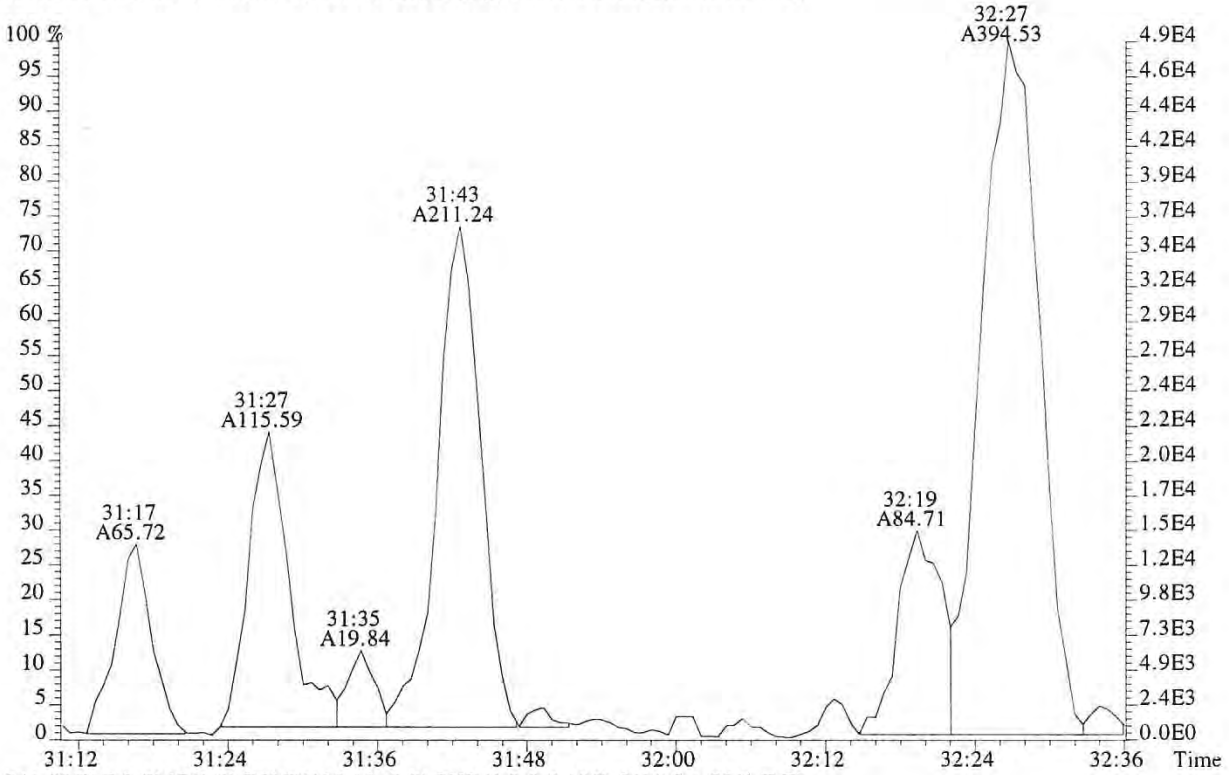
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



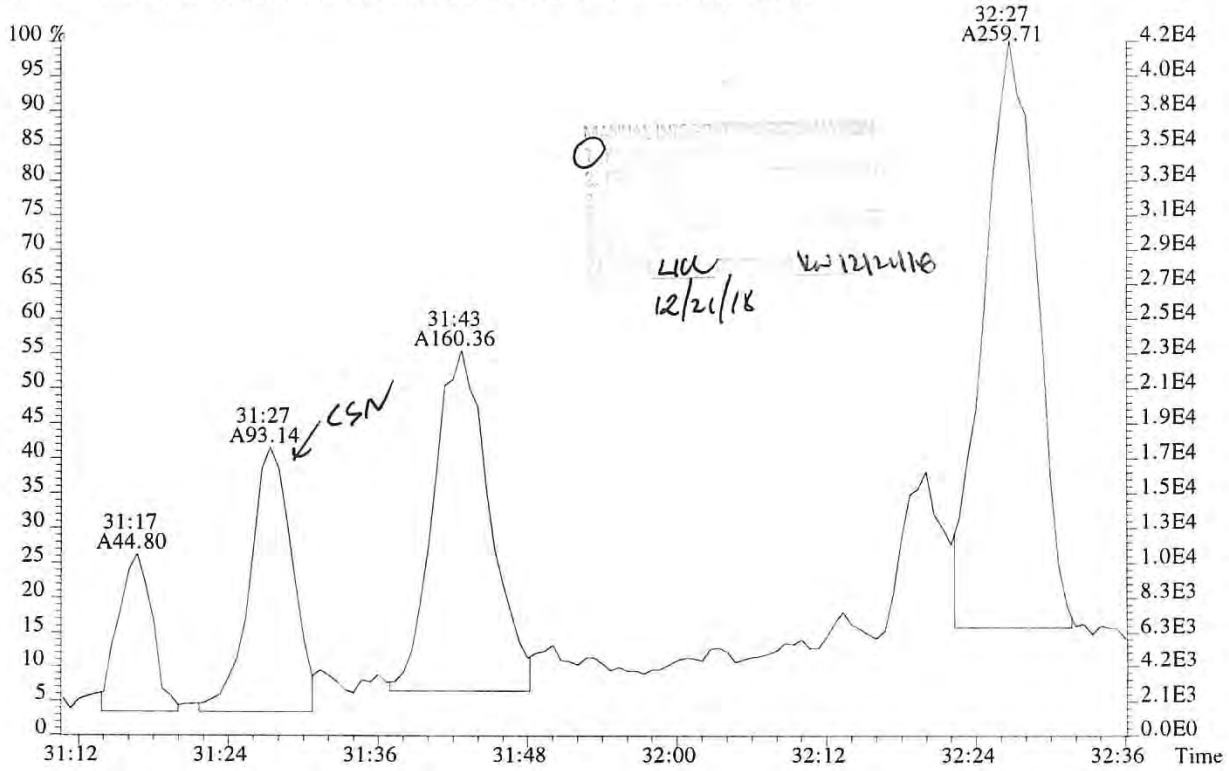
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



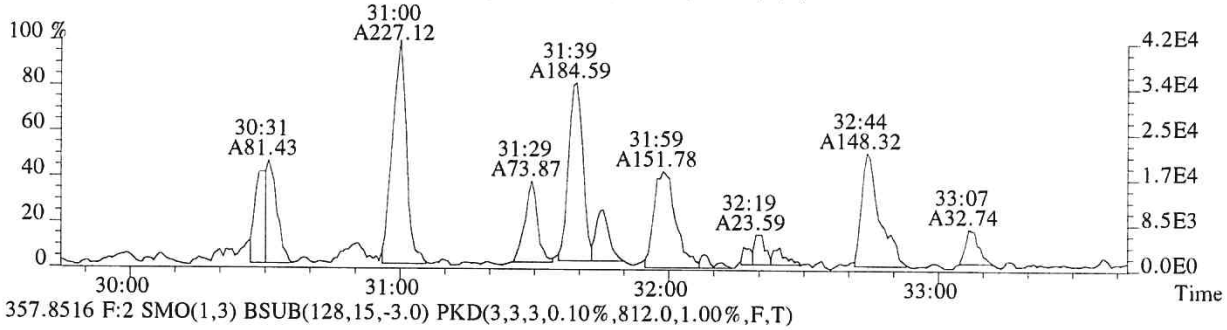
File:P519491 #1-357 Acq:19-DEC-2018 12:20:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-017
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1136.0,1.00%,F,T)



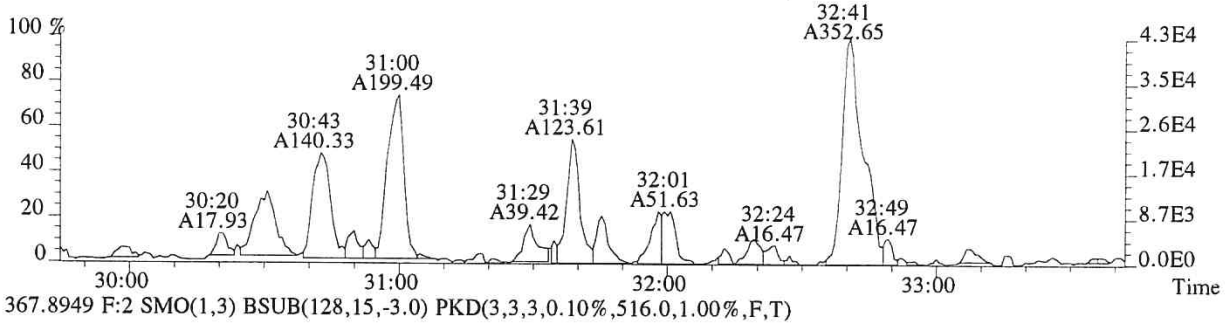
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7616.0,1.00%,F,T)



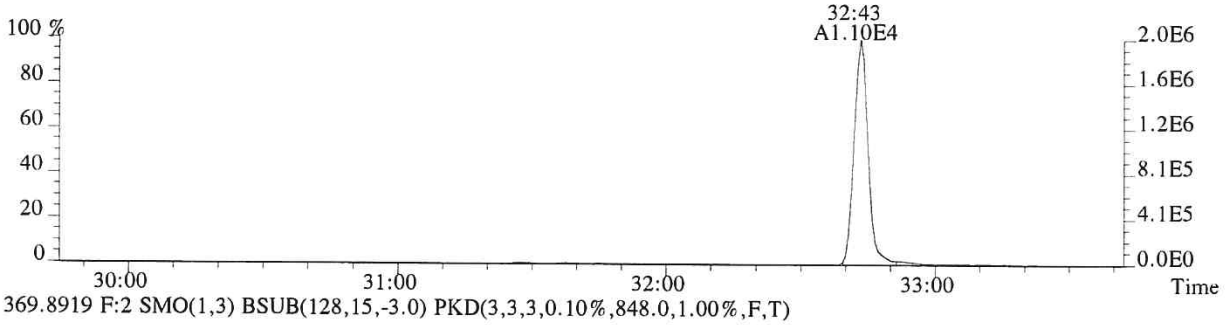
File:P519491 #1-357 Acq:19-DEC-2018 12:20:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-017
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1380.0,1.00%,F,T)



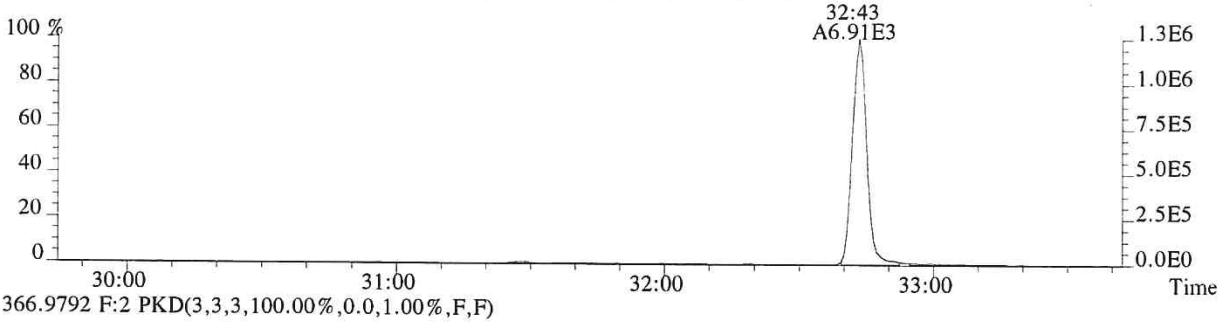
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,812.0,1.00%,F,T)



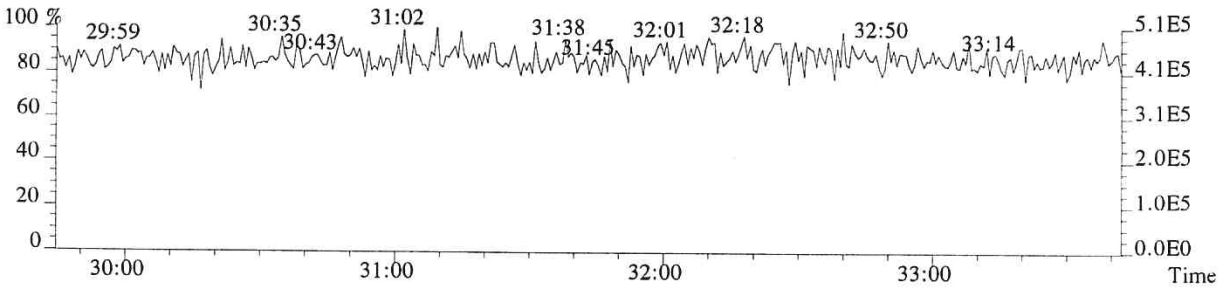
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,516.0,1.00%,F,T)



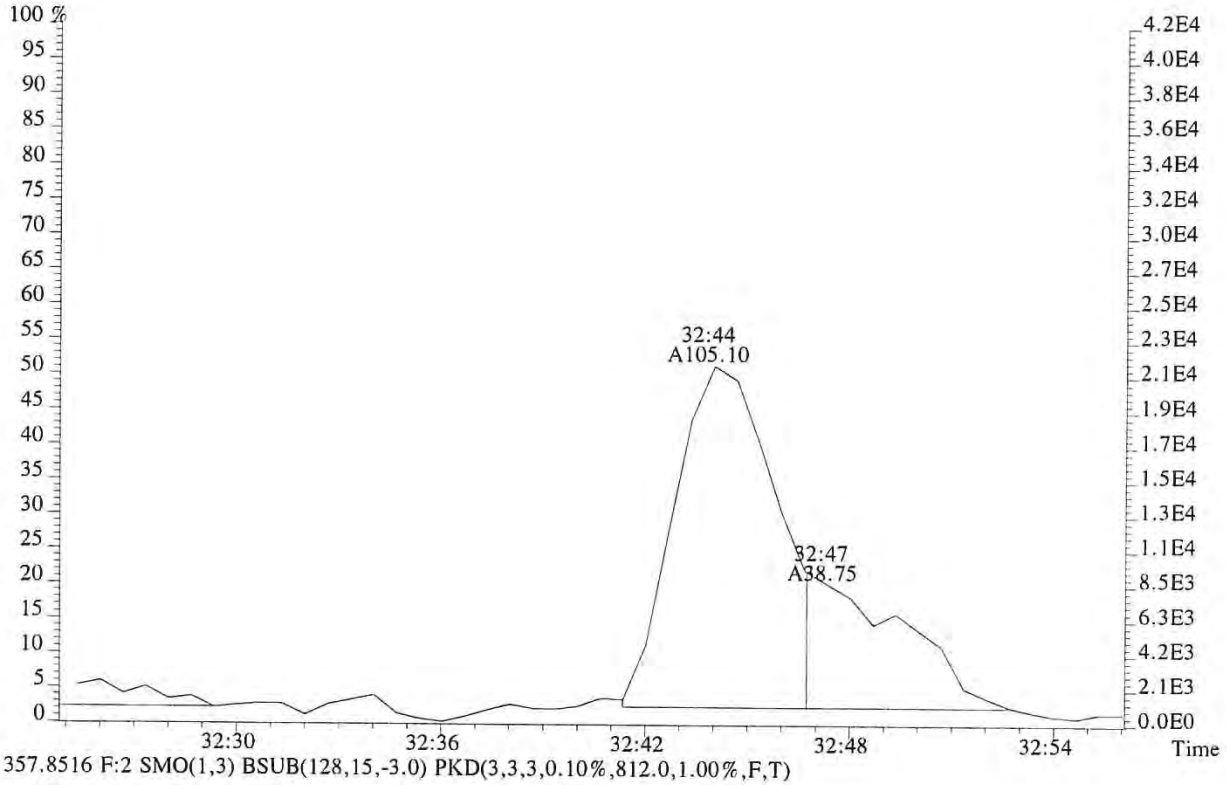
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,848.0,1.00%,F,T)



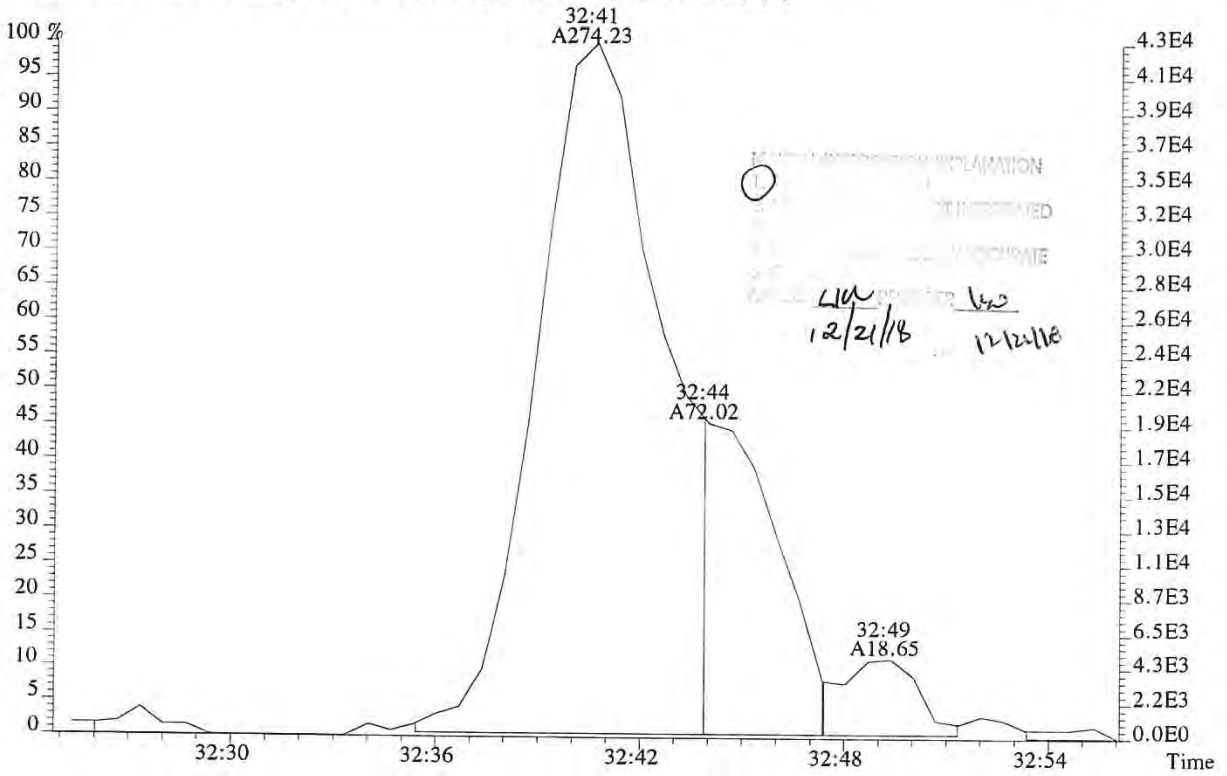
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P519491 #1-357 Acq:19-DEC-2018 12:20:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-017
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1380.0,1.00%,F,T)

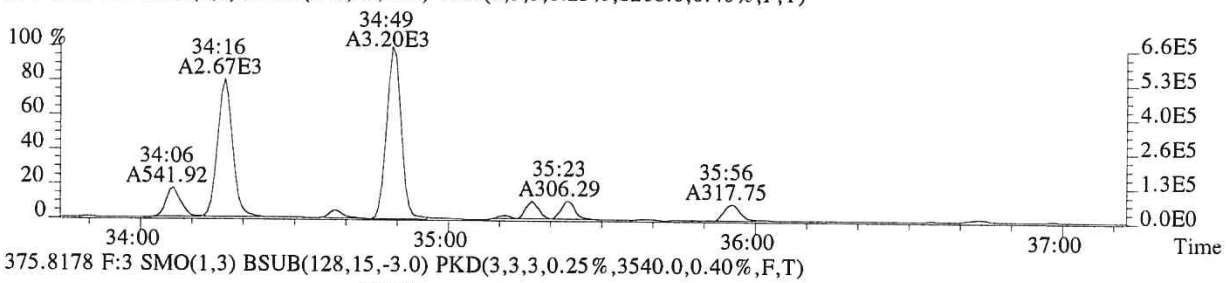


357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,812.0,1.00%,F,T)

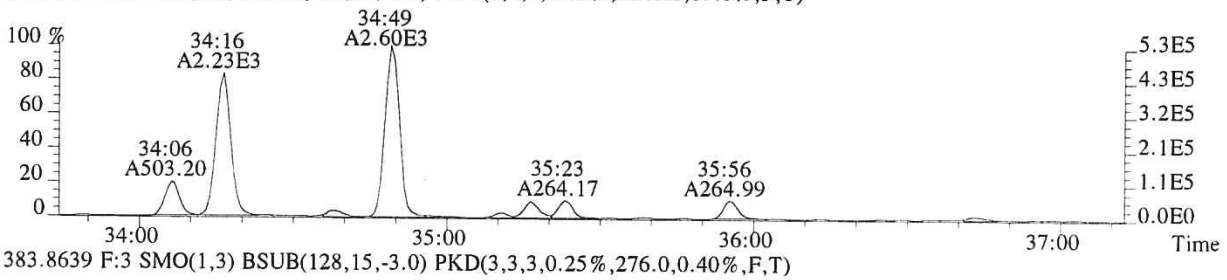


File:P519491 #1-313 Acq:19-DEC-2018 12:20:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-017

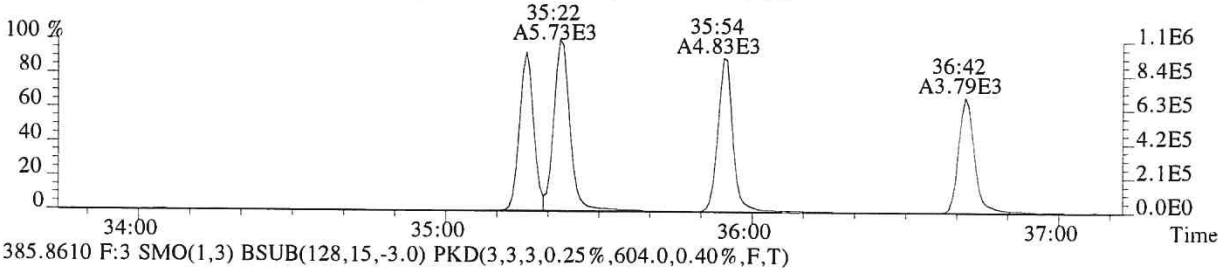
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6208.0,0.40%,F,T)



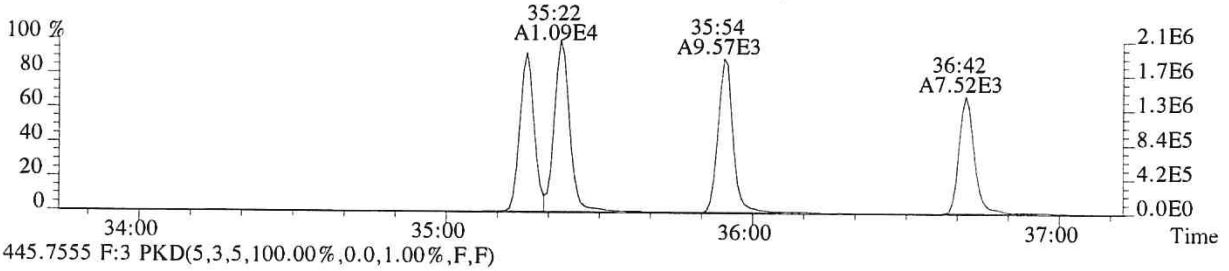
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3540.0,0.40%,F,T)



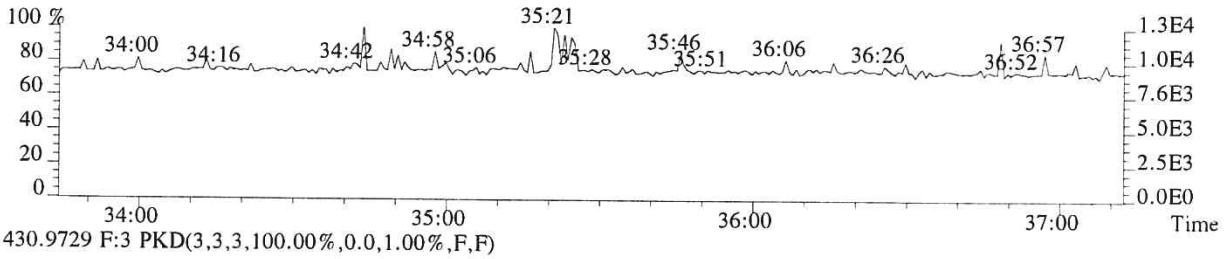
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,276.0,0.40%,F,T)



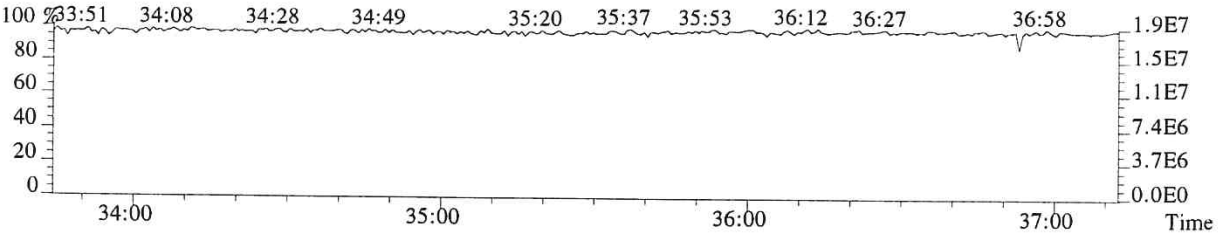
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,604.0,0.40%,F,T)



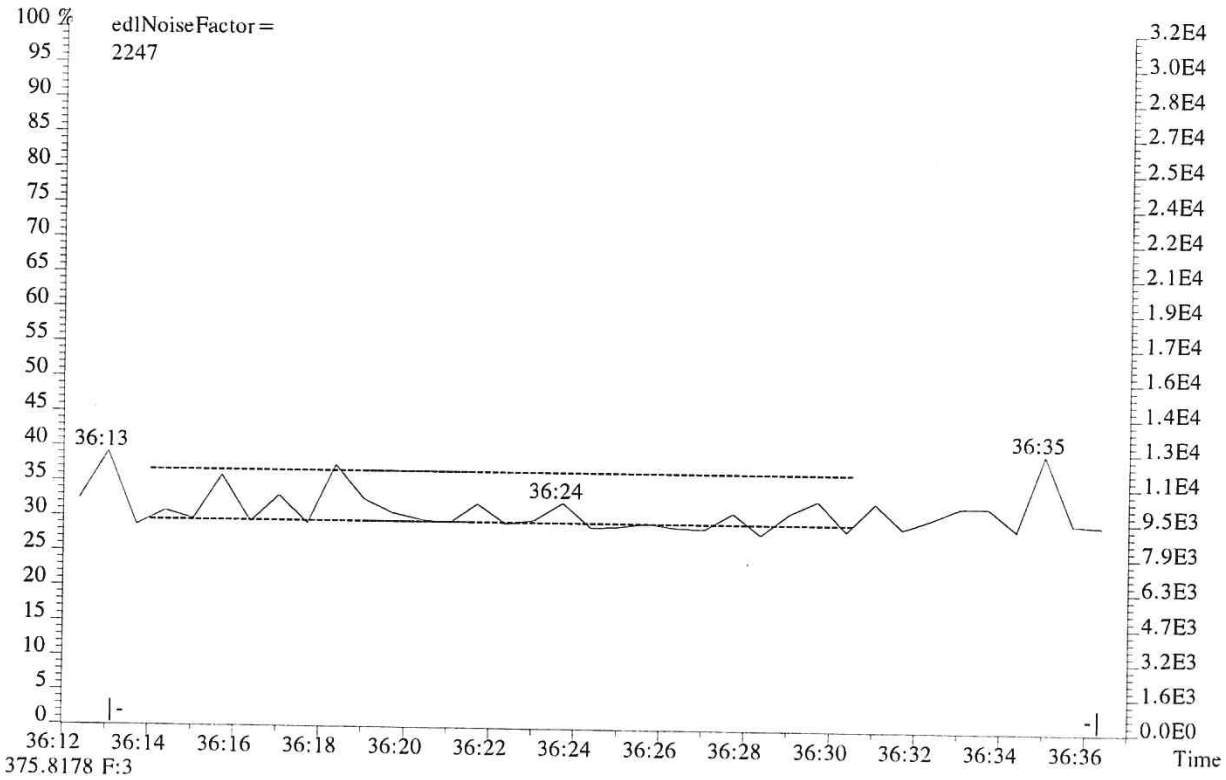
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



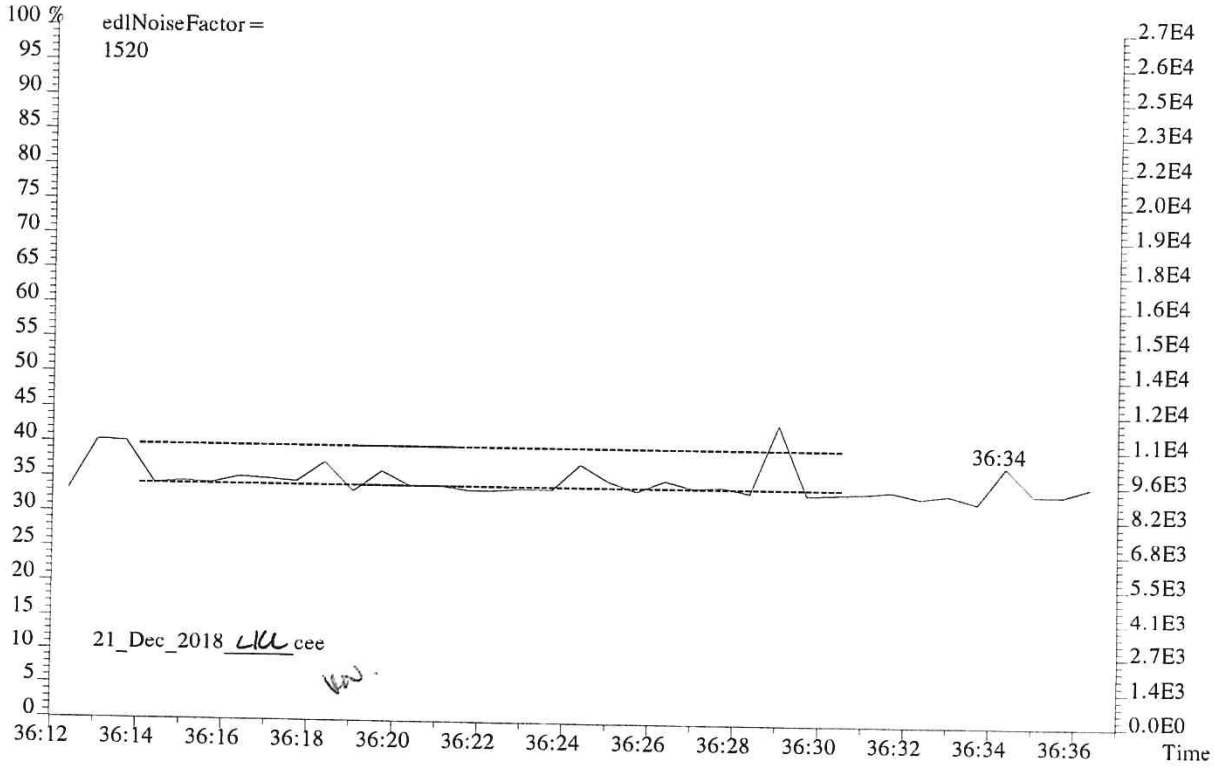
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P519491 #1-313 Acq:19-DEC-2018 12:20:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-017
373.8208 F:3

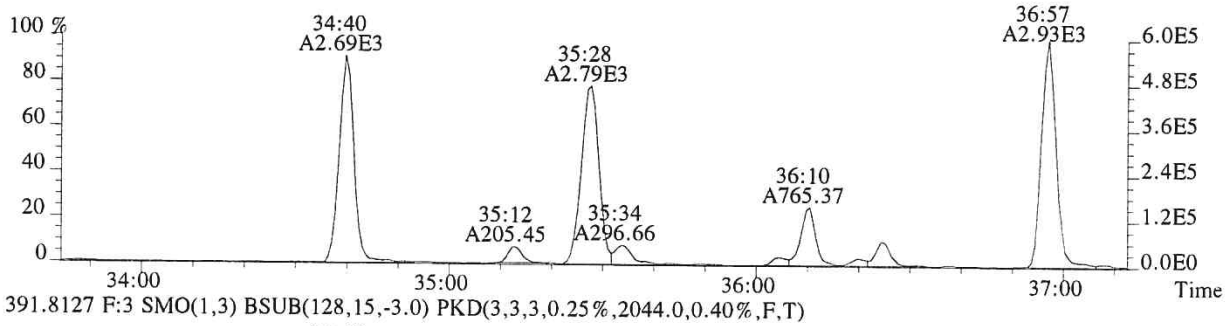


375.8178 F:3

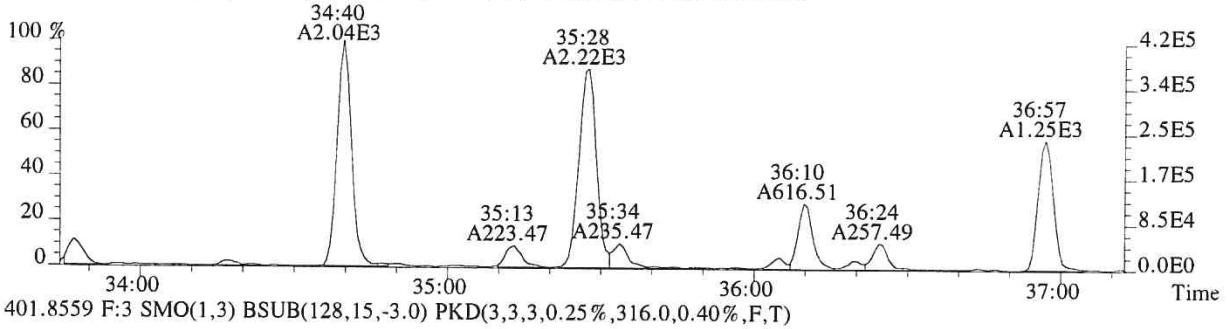


015602

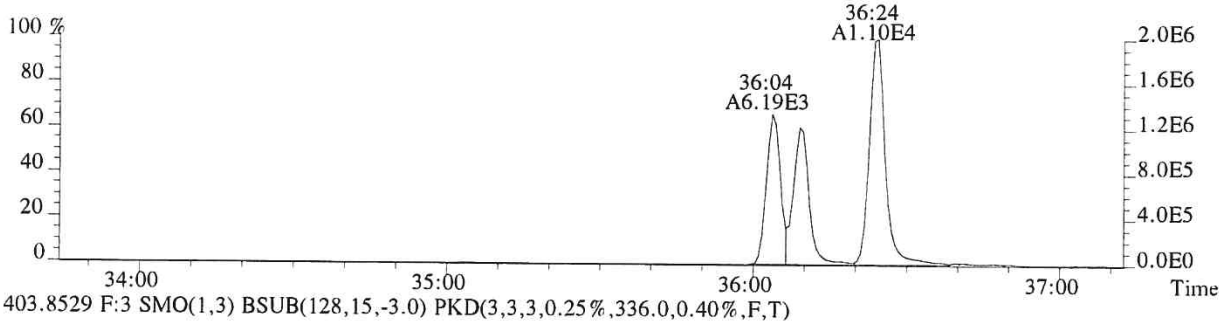
File:P519491 #1-313 Acq:19-DEC-2018 12:20:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-017
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1152.0,0.40%,F,T)



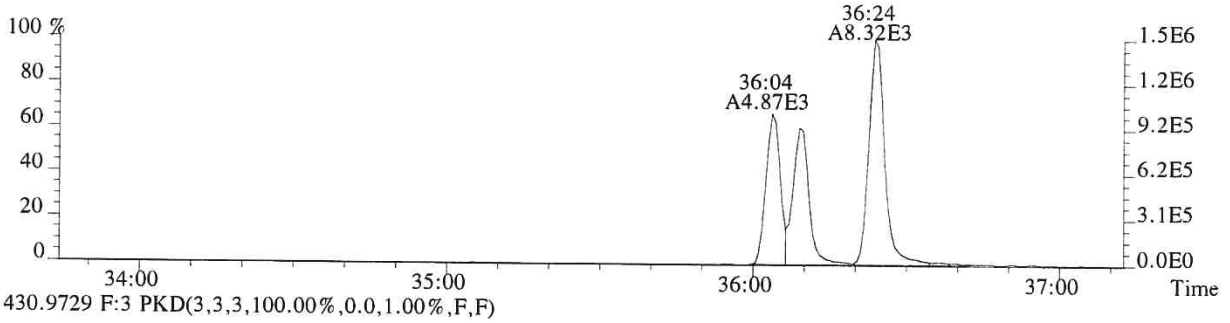
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2044.0,0.40%,F,T)



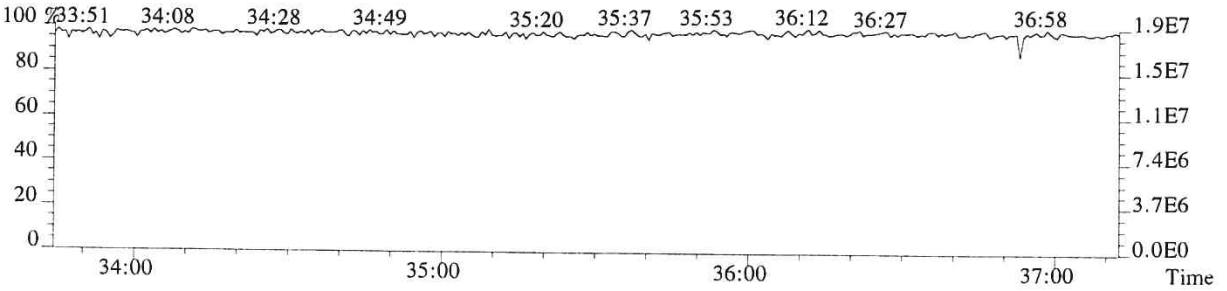
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,316.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,336.0,0.40%,F,T)

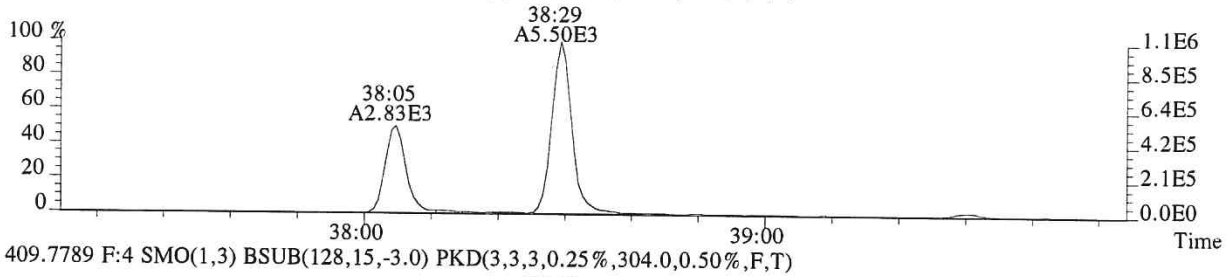


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

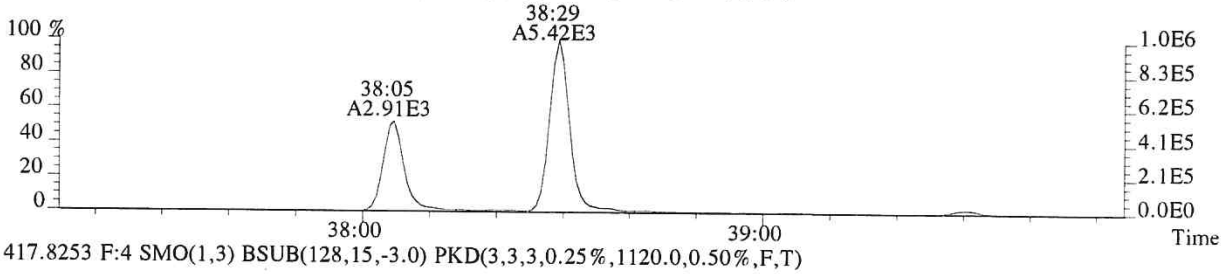


File:P519491 #1-240 Acq:19-DEC-2018 12:20:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-017

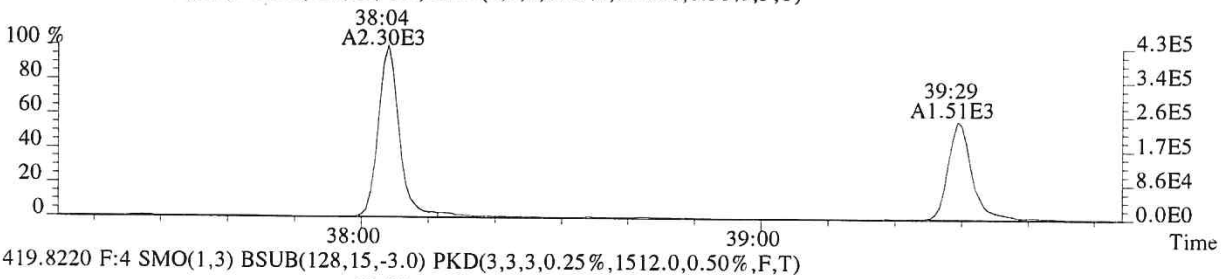
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,252.0,0.50%,F,T)



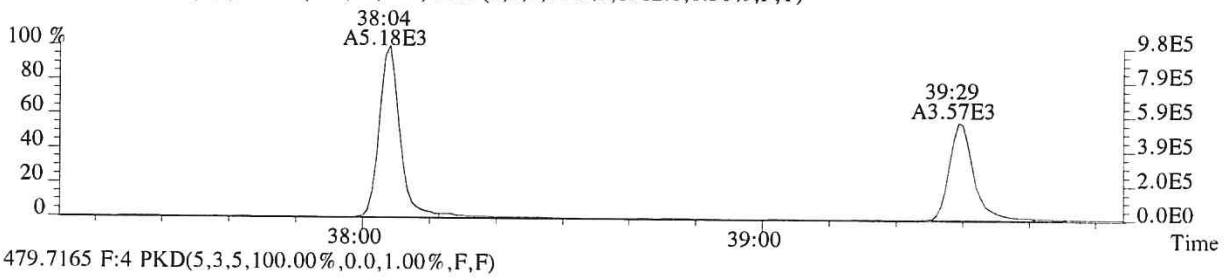
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,304.0,0.50%,F,T)



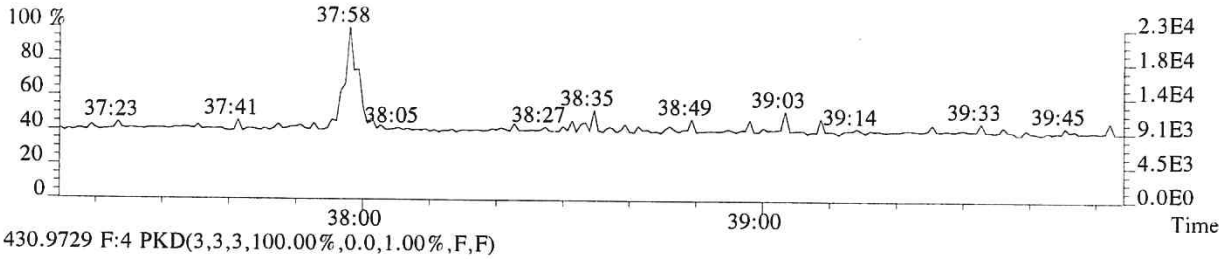
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1120.0,0.50%,F,T)



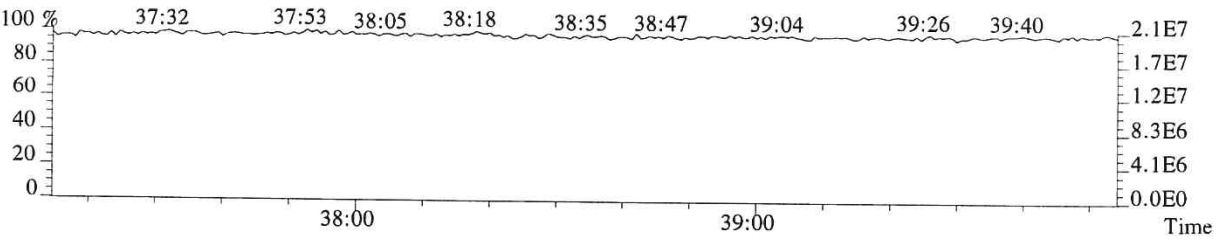
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1512.0,0.50%,F,T)



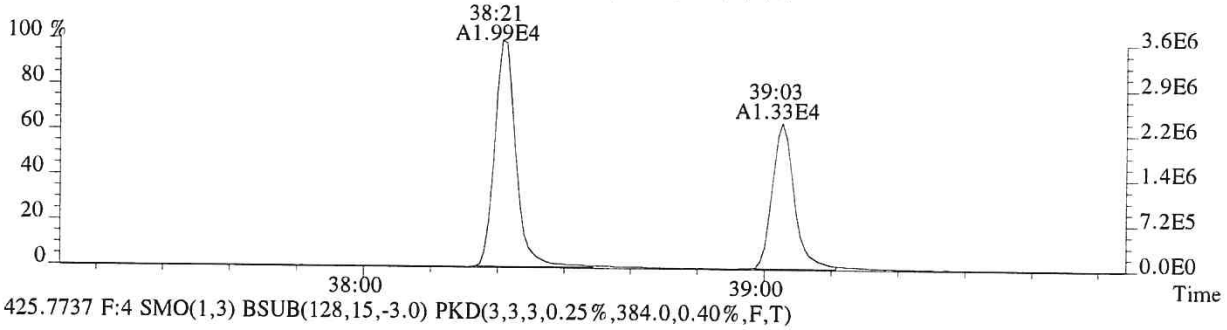
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



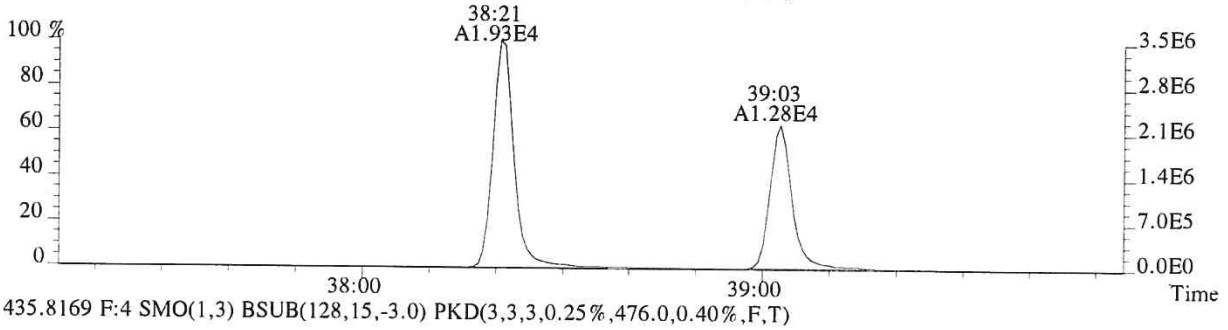
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



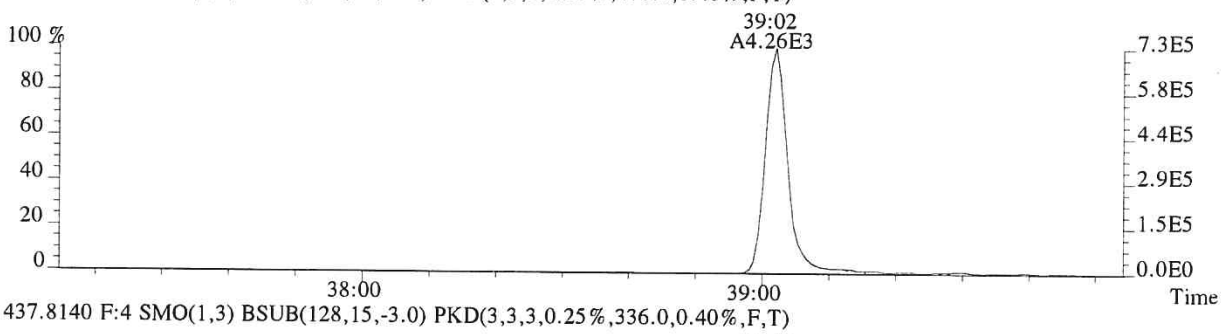
File:P519491 #1-240 Acq:19-DEC-2018 12:20:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-017
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,496.0,0.40%,F,T)



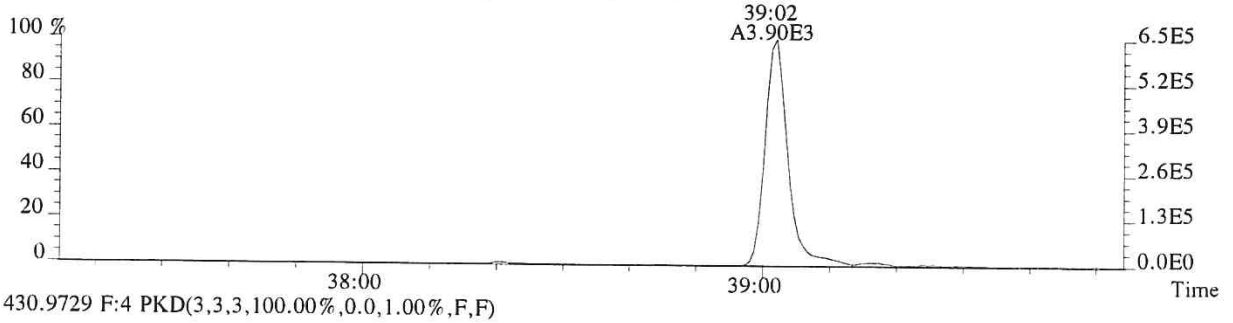
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,384.0,0.40%,F,T)



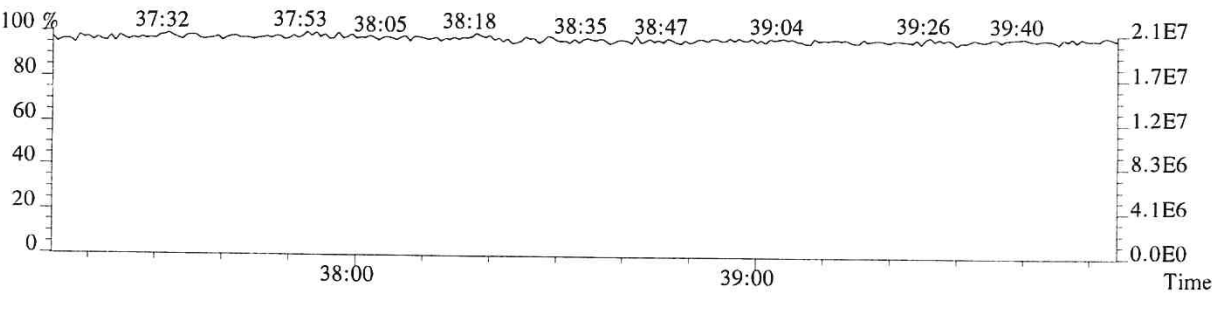
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,476.0,0.40%,F,T)



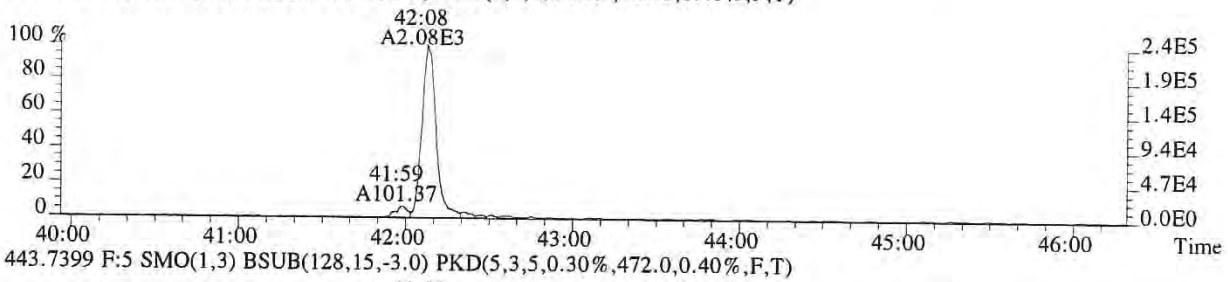
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,336.0,0.40%,F,T)



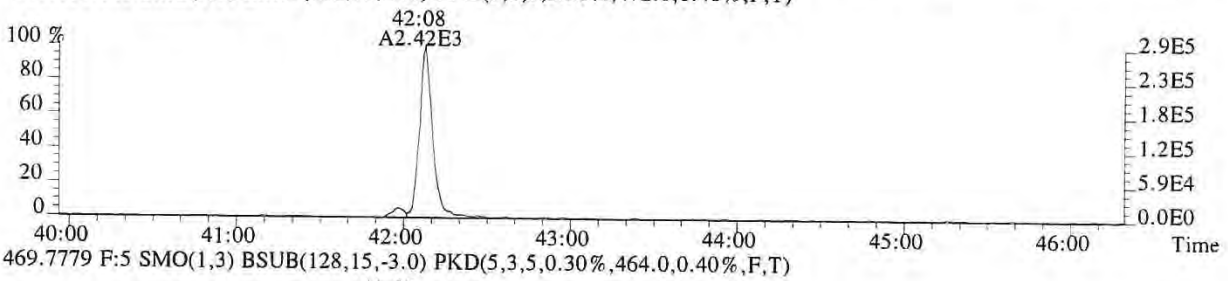
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



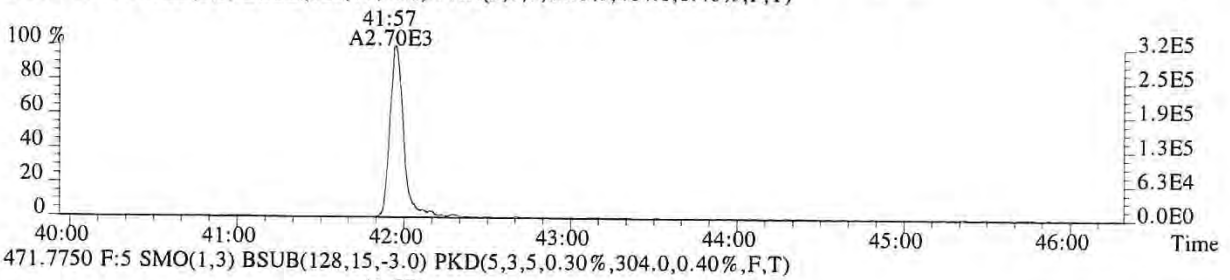
File:P519491 #1-575 Acq:19-DEC-2018 12:20:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-017
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,408.0,0.40%,F,T)



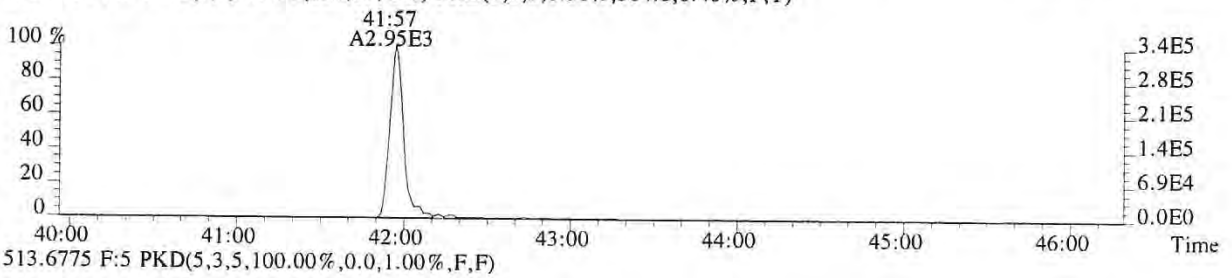
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,472.0,0.40%,F,T)



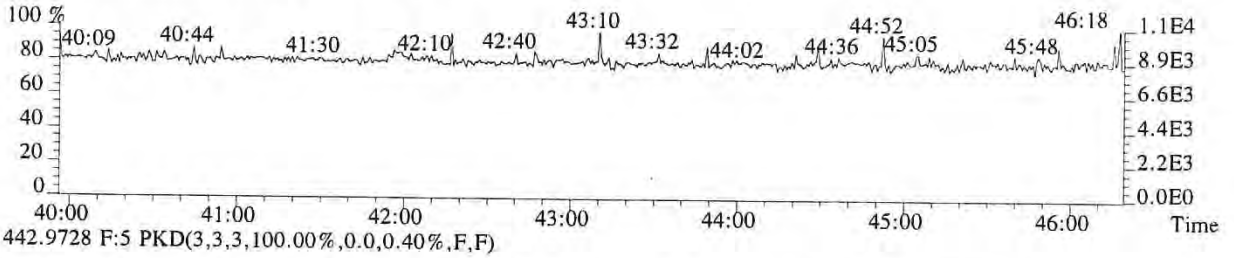
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,464.0,0.40%,F,T)



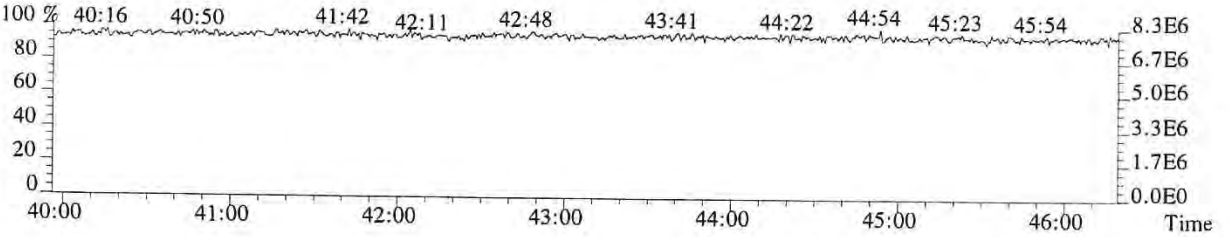
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,304.0,0.40%,F,T)



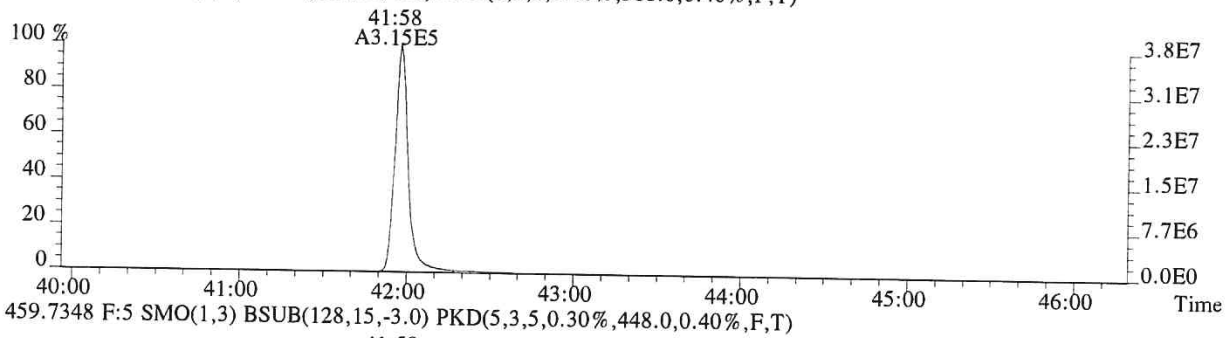
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



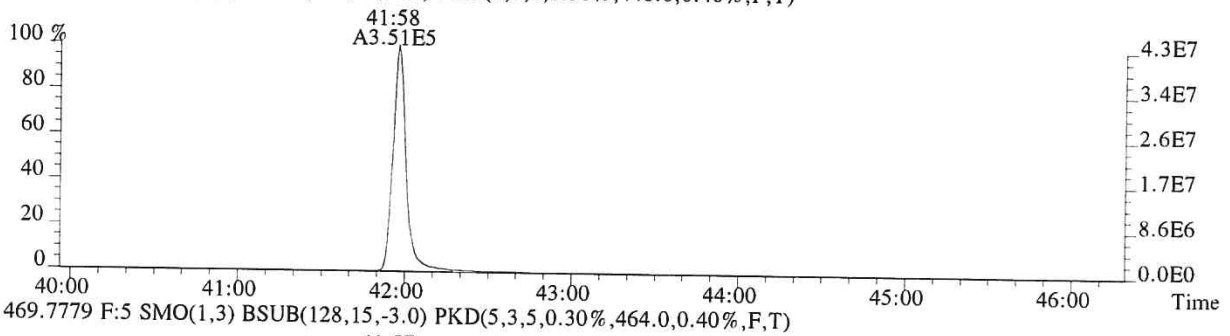
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



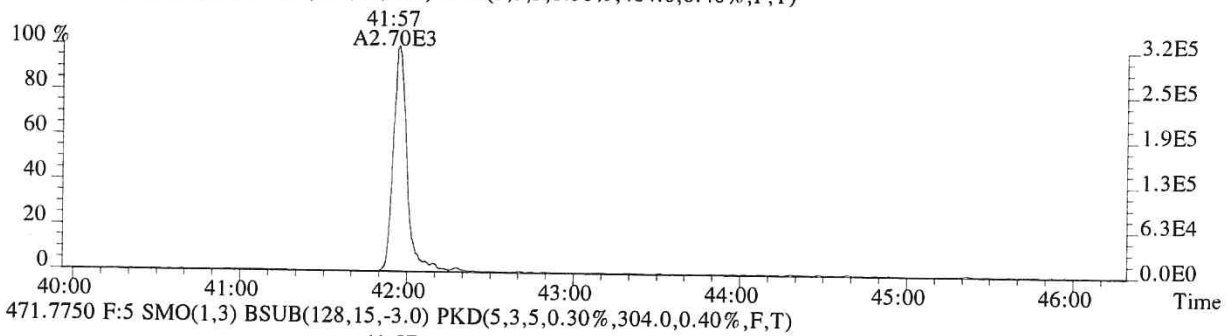
File:P519491 #1-575 Acq:19-DEC-2018 12:20:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-017
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,316.0,0.40%,F,T)



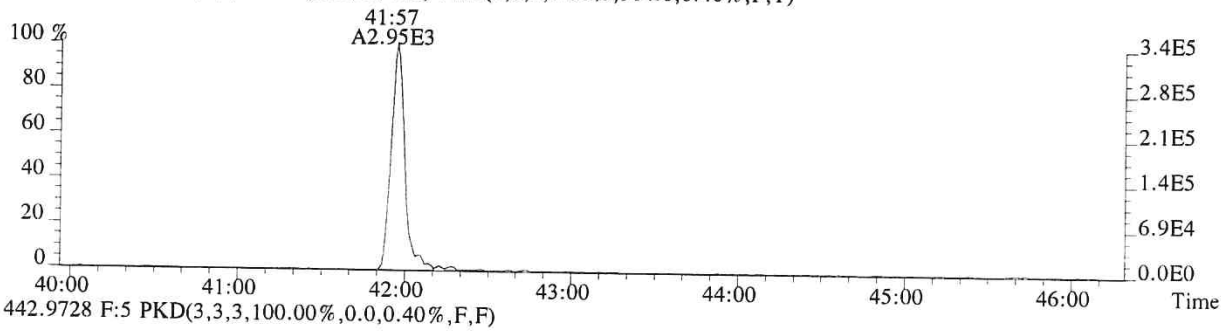
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,448.0,0.40%,F,T)



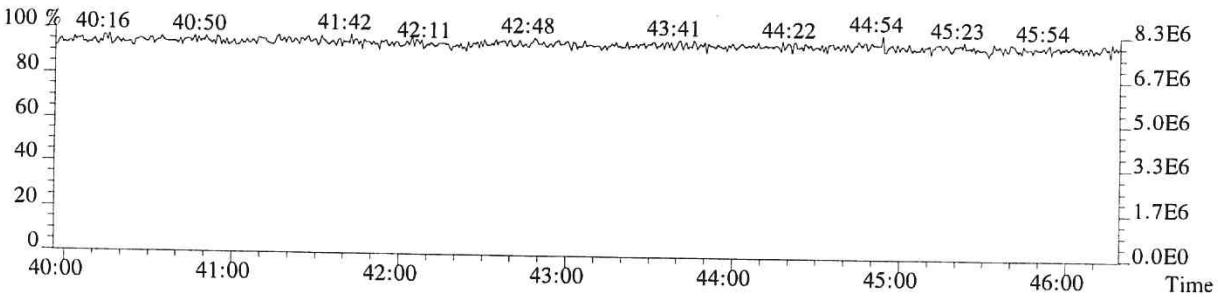
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,464.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,304.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0014

Run #19 Filename P519492 Samp: 1 Inj: 1 Acquired: 19-DEC-18 13:09:18
Processed: 20-DEC-18 16:28:21 Sample ID: E1801094-018

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:52	2.092e+05	2.699e+05	0.78	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	31:29	9.969e+03	6.248e+03	1.60	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	32:27	7.227e+03	4.810e+03	1.50	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:18	8.595e+03	7.105e+03	1.21	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:24	4.117e+03	3.369e+03	1.22	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:56	1.164e+03	1.002e+03	1.16	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	36:45	5.952e+02	4.179e+02	1.42	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:06	7.135e+03	7.207e+03	0.99	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:32	5.154e+02	5.612e+02	0.92	yes	no	1.258
10	Unk	OCDF	42:10	4.682e+03	5.515e+03	0.85	yes	no	1.359
11	Unk	2,3,7,8-TCDD	27:46	5.260e+04	6.702e+04	0.78	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	32:46	1.072e+03	6.064e+02	1.77	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:06	2.671e+02	1.832e+02	1.46	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:11	1.834e+03	1.442e+03	1.27	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:26	7.360e+02	6.251e+02	1.18	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:04	2.522e+04	2.404e+04	1.05	yes	no	1.025
17	Unk	OCDD	42:00	2.314e+05	2.588e+05	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	26:50	1.197e+04	1.517e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	31:28	1.565e+04	9.829e+03	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	32:26	1.400e+04	8.809e+03	1.59	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:17	4.142e+03	8.298e+03	0.50	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:24	4.977e+03	9.756e+03	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:56	4.115e+03	7.993e+03	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	36:43	3.157e+03	5.883e+03	0.54	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:05	1.757e+03	4.011e+03	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:31	1.282e+03	2.691e+03	0.48	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	27:44	5.640e+03	7.158e+03	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:45	1.032e+04	6.668e+03	1.55	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:05	5.451e+03	4.160e+03	1.31	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:10	5.340e+03	4.240e+03	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:03	3.106e+03	2.849e+03	1.09	yes	no	0.858
32	IS	13C-OCDD	42:00	1.872e+03	2.065e+03	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:06	1.611e+04	2.025e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:25	1.028e+04	8.133e+03	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:46	8.607e+03				no	1.014

$$OCDD = \frac{(2.314e+05 + 2.588e+05) \times 4000\ pg \times 1}{(1.872e+03 + 2.065e+03) \times 10.5\ g \times 77.7 / 100 \times 1.118} = 54500\ ng/kg$$

KW 12/24/18

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Houston, TX 77099
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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0014

Run #19 Filename P519492 Samp: 1 Inj: 1 Acquired: 19-DEC-18 13:09:18
Processed: 20-DEC-18 16:28:21 LAB. ID: E1801094-018

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	3.20e+07	2.37e+03	1.3e+04	4.08e+07	3.79e+03	1.1e+04
2	1,2,3,7,8-PeCDF	1.75e+06	1.20e+04	1.5e+02	1.13e+06	2.90e+04	3.9e+01
3	2,3,4,7,8-PeCDF	1.10e+06	1.20e+04	9.2e+01	7.24e+05	2.90e+04	2.5e+01
4	1,2,3,4,7,8-HxCDF	1.76e+06	2.27e+03	7.8e+02	1.50e+06	8.77e+03	1.7e+02
5	1,2,3,6,7,8-HxCDF	8.04e+05	2.27e+03	3.5e+02	6.46e+05	8.77e+03	7.4e+01
6	2,3,4,6,7,8-HxCDF	2.29e+05	2.27e+03	1.0e+02	2.00e+05	8.77e+03	2.3e+01
7	1,2,3,7,8,9-HxCDF	1.01e+05	2.27e+03	4.5e+01	8.20e+04	8.77e+03	9.3e+00
8	1,2,3,4,6,7,8-HpCDF	1.35e+06	6.48e+02	2.1e+03	1.31e+06	6.64e+02	2.0e+03
9	1,2,3,4,7,8,9-HpCDF	8.58e+04	6.48e+02	1.3e+02	9.34e+04	6.64e+02	1.4e+02
10	OCDF	5.64e+05	5.56e+02	1.0e+03	6.55e+05	9.28e+02	7.1e+02
11	2,3,7,8-TCDD	9.18e+06	1.89e+03	4.9e+03	1.16e+07	1.37e+03	8.5e+03
12	1,2,3,7,8-PeCDD	1.70e+05	3.06e+03	5.6e+01	1.08e+05	7.94e+03	1.4e+01
13	1,2,3,4,7,8-HxCDD	5.94e+04	3.45e+03	1.7e+01	4.74e+04	5.48e+03	8.6e+00
14	1,2,3,6,7,8-HxCDD	3.63e+05	3.45e+03	1.1e+02	3.02e+05	5.48e+03	5.5e+01
15	1,2,3,7,8,9-HxCDD	1.37e+05	3.45e+03	4.0e+01	1.18e+05	5.48e+03	2.1e+01
16	1,2,3,4,6,7,8-HpCDD	4.37e+06	2.20e+03	2.0e+03	4.17e+06	1.22e+03	3.4e+03
17	OCDD	2.75e+07	8.76e+02	3.1e+04	3.08e+07	1.07e+03	2.9e+04
18	13C-2,3,7,8-TCDF	1.97e+06	3.74e+03	5.3e+02	2.44e+06	2.99e+03	8.1e+02
19	13C-1,2,3,7,8-PeCDF	2.83e+06	1.62e+03	1.7e+03	1.77e+06	1.94e+03	9.1e+02
20	13C-2,3,4,7,8-PeCDF	2.73e+06	1.62e+03	1.7e+03	1.67e+06	1.94e+03	8.6e+02
21	13C-1,2,3,4,7,8-HxCDF	8.65e+05	1.37e+03	6.3e+02	1.67e+06	1.38e+03	1.2e+03
22	13C-1,2,3,6,7,8-HxCDF	9.81e+05	1.37e+03	7.2e+02	1.85e+06	1.38e+03	1.3e+03
23	13C-2,3,4,6,7,8-HxCDF	8.30e+05	1.37e+03	6.0e+02	1.62e+06	1.38e+03	1.2e+03
24	13C-1,2,3,7,8,9-HxCDF	6.15e+05	1.37e+03	4.5e+02	1.13e+06	1.38e+03	8.2e+02
25	13C-1,2,3,4,6,7,8-HpCDF	3.32e+05	1.03e+03	3.2e+02	7.45e+05	1.06e+03	7.0e+02
26	13C-1,2,3,4,7,8,9-HpCDF	1.98e+05	1.03e+03	1.9e+02	4.26e+05	1.06e+03	4.0e+02
27	13C-2,3,7,8-TCDD	9.77e+05	4.75e+03	2.1e+02	1.28e+06	2.27e+03	5.6e+02
28	13C-1,2,3,7,8-PeCDD	1.94e+06	1.16e+03	1.7e+03	1.26e+06	1.06e+03	1.2e+03
29	13C-1,2,3,4,7,8-HxCDD	1.18e+06	8.88e+02	1.3e+03	8.76e+05	8.68e+02	1.0e+03
30	13C-1,2,3,6,7,8-HxCDD	1.01e+06	8.88e+02	1.1e+03	8.04e+05	8.68e+02	9.3e+02
31	13C-1,2,3,4,6,7,8-HpCDD	5.37e+05	4.56e+02	1.2e+03	4.67e+05	6.32e+02	7.4e+02
32	13C-OCDD	2.22e+05	5.52e+02	4.0e+02	2.47e+05	5.56e+02	4.4e+02
33	13C-1,2,3,4-TCDD	2.71e+06	4.75e+03	5.7e+02	3.39e+06	2.27e+03	1.5e+03
34	13C-1,2,3,7,8,9-HxCDD	1.95e+06	8.88e+02	2.2e+03	1.55e+06	8.68e+02	1.8e+03
35	37Cl-2,3,7,8-TCDD	1.48e+06	1.76e+03	8.4e+02			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.888e{+}03 + 1.368e{+}03\ ) \times 2000}{(9.771e{+}05 + 1.275e{+}06\ ) \times (\qquad\qquad) \times 1.085} =$$

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0014

Entry: 36 Totals Name: Total Tetra-Furans

Run: 19 File: P519492 Sample:1 Injection:1 Function:1

Acquired: 19-DEC-18 13:09:18 Processed: 20-DEC-18 16:28:21

Mass: 303.9020 305.8990 Tot Response: 8.74e+05 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	23:10	1.10e+03	1.48e+03	0.74	yes	2.58e+03		n	n
2	23:40	2.49e+03	3.24e+03	0.77	yes	5.74e+03		n	n
3	23:57	1.05e+04	1.39e+04	0.76	yes	2.43e+04		n	n
4	24:21	3.23e+03	4.80e+03	0.67	yes	8.02e+03		n	n
5	24:38	7.85e+03	1.08e+04	0.73	yes	1.87e+04		n	n
6	25:02	1.70e+03	2.29e+03	0.75	yes	3.99e+03		n	n
7	25:18	5.57e+03	7.97e+03	0.70	yes	1.35e+04		n	n
8	25:25	8.87e+03	1.24e+04	0.72	yes	2.12e+04		n	n
9	25:56	9.23e+04	1.21e+05	0.76	yes	2.13e+05		n	n
10	26:13	4.10e+03	5.91e+03	0.69	yes	1.00e+04		n	n
11	26:52	2.09e+05	2.70e+05	0.78	yes	4.79e+05	2,3,7,8-TCDF	n	n
12	27:14	1.48e+04	1.91e+04	0.78	yes	3.39e+04		n	n
13	27:30	2.41e+03	3.18e+03	0.76	yes	5.59e+03		n	n
14	28:53	1.47e+04	1.92e+04	0.76	yes	3.39e+04		n	n

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Peak List Summary

CLIENT ID.
SL0014

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 19 File: P519492 Sample:1 Injection:1 Function:1

Acquired: 19-DEC-18 13:09:18 Processed: 20-DEC-18 16:28:21

Mass: 319.8970 321.8940 Tot Response: 1.35e+05 RRF: 1.085

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	23:57	9.38e+02	1.15e+03	0.81	yes	2.09e+03		n	n
2	24:18	2.38e+02	3.17e+02	0.75	yes	5.55e+02		n	n
3	27:28	8.52e+02	1.01e+03	0.84	yes	1.86e+03		n	n
4	27:46	5.26e+04	6.70e+04	0.78	yes	1.20e+05	2,3,7,8-TCDD	n	n
5	28:04	4.95e+03	6.01e+03	0.82	yes	1.10e+04		n	n

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Peak List Summary

CLIENT ID.
SL0014

Entry: 38 Totals Name: Total Penta-Furans1

Run: 19 File: P519492 Sample:1 Injection:1 Function:1

Acquired: 19-DEC-18 13:09:18 Processed: 20-DEC-18 16:28:21

Mass: 339.8600 341.8570 Tot Response: 1.24e+04 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	28:54	7.66e+03	4.73e+03 1.62	yes	1.24e+04		n	n

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Peak List Summary

CLIENT ID.
SL0014

Entry: 39 Totals Name: Total Penta-Furans2

Run: 19 File: P519492 Sample:1 Injection:1 Function:2

Acquired: 19-DEC-18 13:09:18 Processed: 20-DEC-18 16:28:21

Mass: 339.8600 341.8570 Tot Response: 3.05e+04 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:18	9.83e+02	6.76e+02 1.46	yes	1.66e+03		n	n
2	31:29	9.97e+03	6.25e+03 1.60	yes	1.62e+04	1,2,3,7,8-PeCDF	n	n
3	32:27	7.23e+03	4.81e+03 1.50	yes	1.20e+04	2,3,4,7,8-PeCDF	n	n
4	33:16	3.87e+02	2.46e+02 1.57	yes	6.33e+02		n	n

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Peak List Summary

CLIENT ID.
SL0014

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 19 File: P519492 Sample:1 Injection:1 Function:2

Acquired: 19-DEC-18 13:09:18 Processed: 20-DEC-18 16:28:21

Mass: 355.8550 357.8520 Tot Response: 2.70e+03 RRF: 0.9565

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:41	6.53e+02	3.67e+02 1.78	yes	1.02e+03		n	n
2	32:46	1.07e+03	6.06e+02 1.77	yes	1.68e+03	1,2,3,7,8-PeCDD	n	n

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Peak List Summary

CLIENT ID.
SL0014

Entry: 41 Totals Name: Total Hexa-Furans

Run: 19 File: P519492 Sample:1 Injection:1 Function:3

Acquired: 19-DEC-18 13:09:18 Processed: 20-DEC-18 16:28:21

Mass: 373.8210 375.8180 Tot Response: 6.14e+04 RRF: 1.141

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:08	1.52e+03	1.24e+03	1.22	yes	2.76e+03		n	n
2	34:18	8.06e+03	6.67e+03	1.21	yes	1.47e+04		n	n
3	34:39	3.19e+02	2.71e+02	1.18	yes	5.90e+02		n	n
4	34:44	6.37e+01	5.09e+01	1.25	yes	1.15e+02		n	n
5	34:50	8.58e+03	7.12e+03	1.21	yes	1.57e+04		n	n
6	35:00	6.09e+02	5.20e+02	1.17	yes	1.13e+03		n	n
7	35:18	8.60e+03	7.10e+03	1.21	yes	1.57e+04	1,2,3,4,7,8-HxCDF	n	n
8	35:24	4.12e+03	3.37e+03	1.22	yes	7.49e+03	1,2,3,6,7,8-HxCDF	n	n
9	35:56	1.16e+03	1.00e+03	1.16	yes	2.17e+03	2,3,4,6,7,8-HxCDF	n	n
10	36:45	5.95e+02	4.18e+02	1.42	yes	1.01e+03	1,2,3,7,8,9-HxCDF	n	n

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Peak List Summary

CLIENT ID.
SL0014

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 19 File: P519492 Sample:1 Injection:1 Function:3

Acquired: 19-DEC-18 13:09:18 Processed: 20-DEC-18 16:28:21

Mass: 389.8160 391.8130 Tot Response: 2.93e+04 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:41	6.26e+03	5.21e+03	1.20	yes	1.15e+04		n	n
2	35:29	6.98e+03	5.86e+03	1.19	yes	1.28e+04		n	n
3	36:11	1.83e+03	1.44e+03	1.27	yes	3.28e+03	1,2,3,6,7,8-HxCDD	n	n
4	36:20	1.77e+02	1.64e+02	1.08	yes	3.41e+02		n	n
5	36:26	7.36e+02	6.25e+02	1.18	yes	1.36e+03	1,2,3,7,8,9-HxCDD	n	n

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CLIENT ID.
SL0014

Entry: 43 Totals Name: Total Hepta-Furans

Run: 19 File: P519492 Sample:1 Injection:1 Function:4

Acquired: 19-DEC-18 13:09:18 Processed: 20-DEC-18 16:28:21

Mass: 407.7820 409.7790 Tot Response: 4.19e+04 RRF: 1.308

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:06	7.13e+03	7.21e+03	0.99	yes	1.43e+04	1,2,3,4,6,7,8-HpCDF	n	n
2	38:31	1.34e+04	1.31e+04	1.02	yes	2.65e+04		n	n
3	39:32	5.15e+02	5.61e+02	0.92	yes	1.08e+03	1,2,3,4,7,8,9-HpCDF	n	n

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Peak List Summary

CLIENT ID.
SL0014

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 19 File: P519492 Sample:1 Injection:1 Function:4

Acquired: 19-DEC-18 13:09:18 Processed: 20-DEC-18 16:28:21

Mass: 423.7770 425.7740 Tot Response: 1.20e+05 RRF: 1.025

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:23	3.62e+04	3.47e+04	1.04	yes	7.10e+04		n	n
2	39:04	2.52e+04	2.40e+04	1.05	yes	4.93e+04	1,2,3,4,6,7,8-HpCDD	n	n

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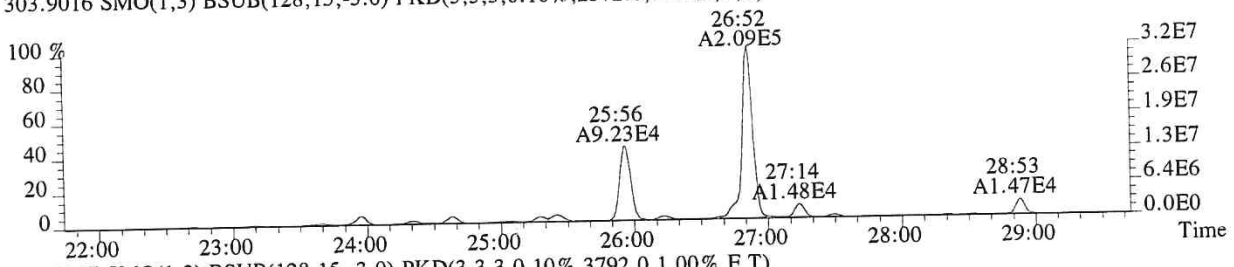
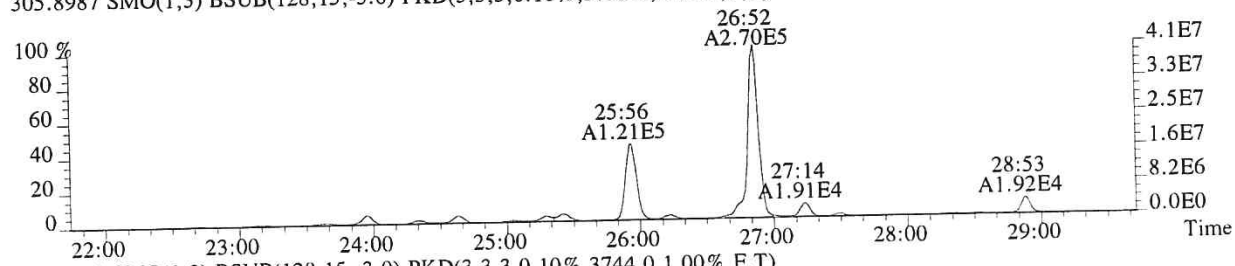
File:P519492 #1-566 Acq:19-DEC-2018 13:09:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-018

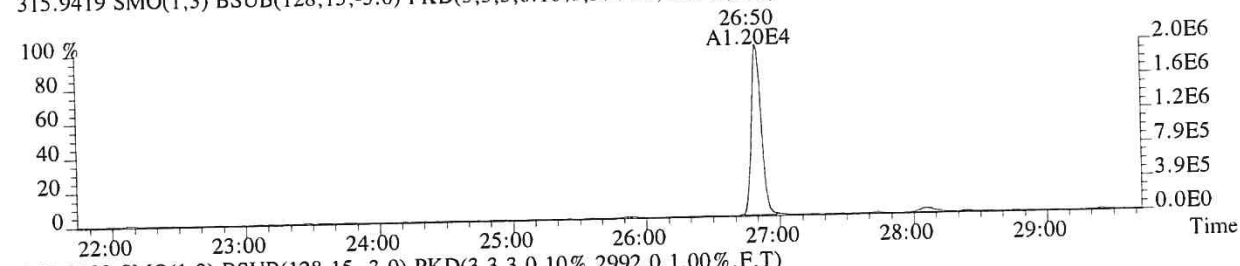
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2372.0,1.00%,F,T)



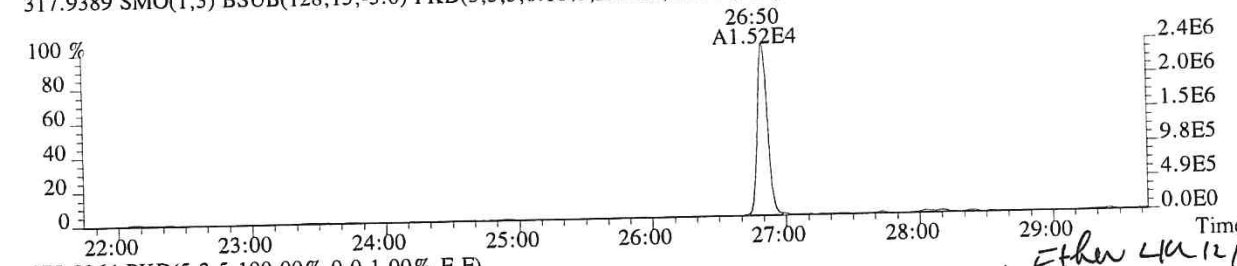
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3792.0,1.00%,F,T)



315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3744.0,1.00%,F,T)

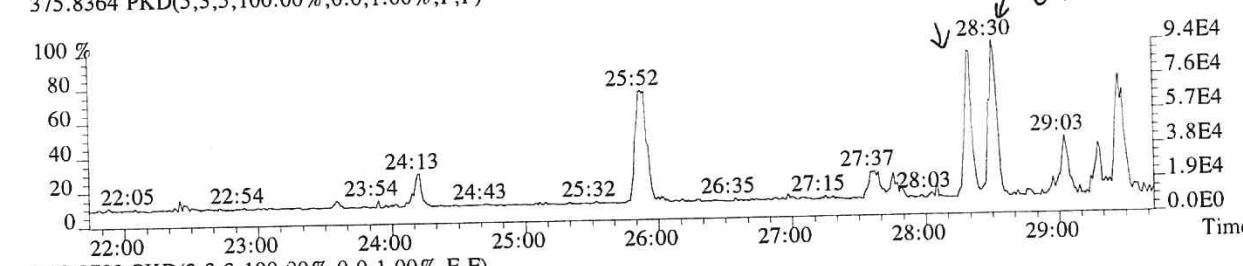


317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2992.0,1.00%,F,T)

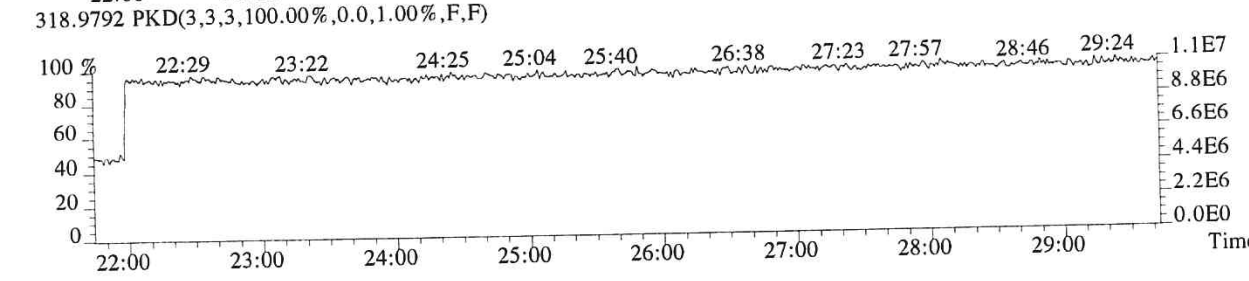


375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

Ether 4th 12/21/18



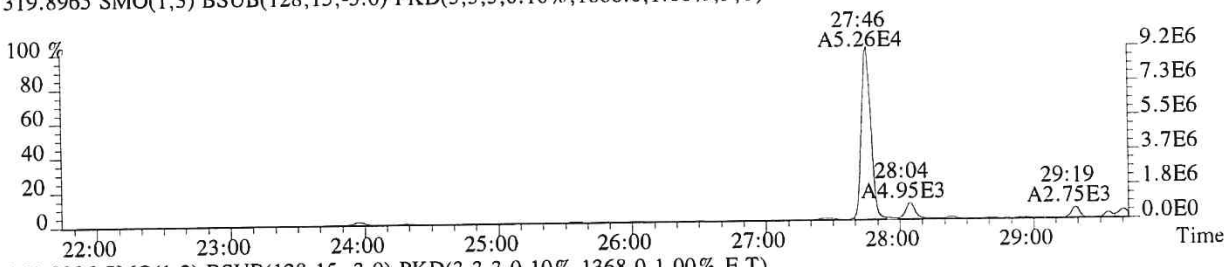
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



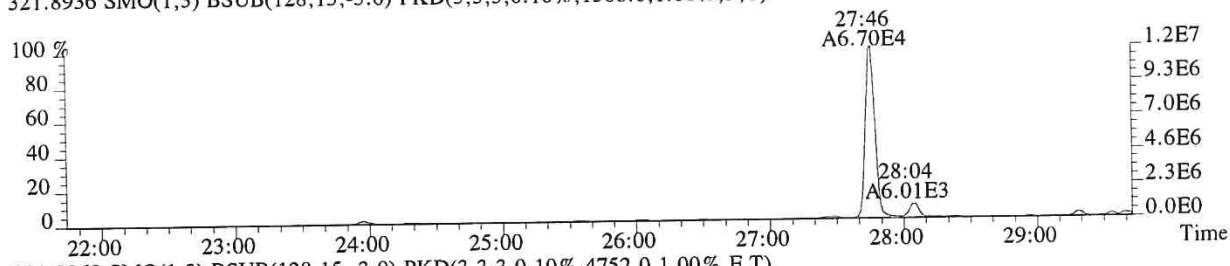
015619

File:P519492 #1-566 Acq:19-DEC-2018 13:09:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-018

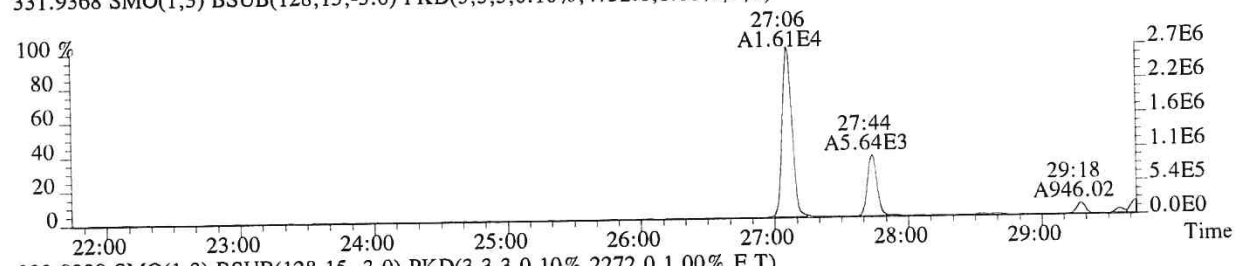
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1888.0,1.00%,F,T)



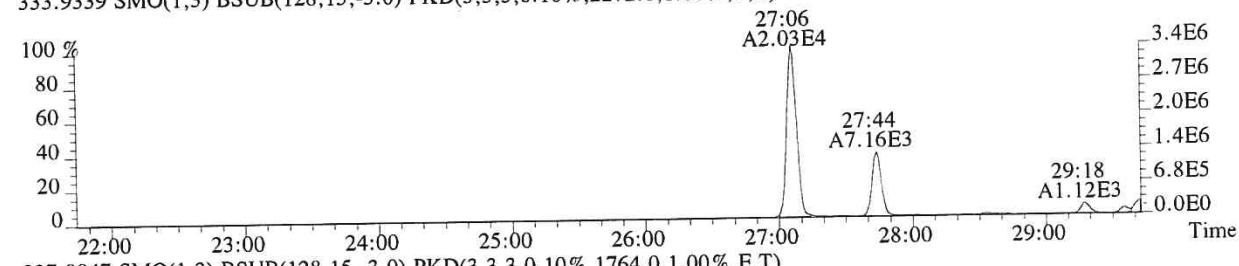
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1368.0,1.00%,F,T)



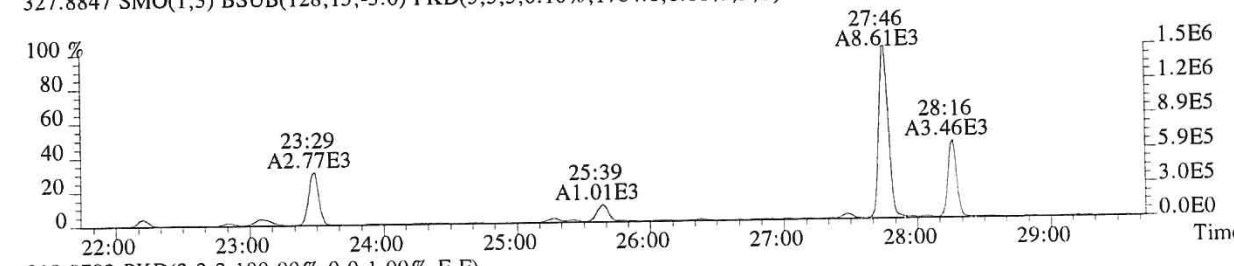
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4752.0,1.00%,F,T)



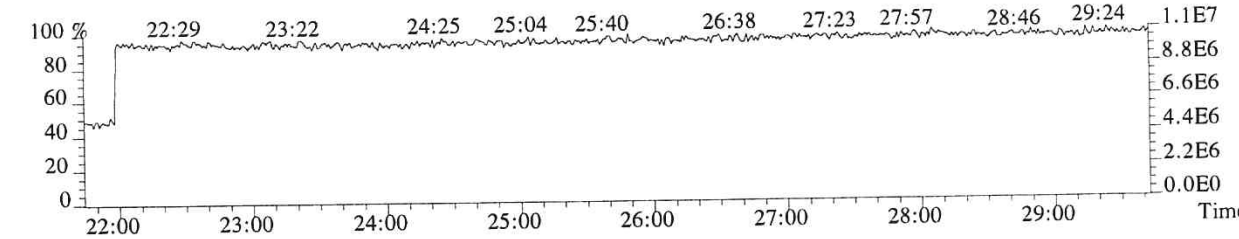
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2272.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1764.0,1.00%,F,T)

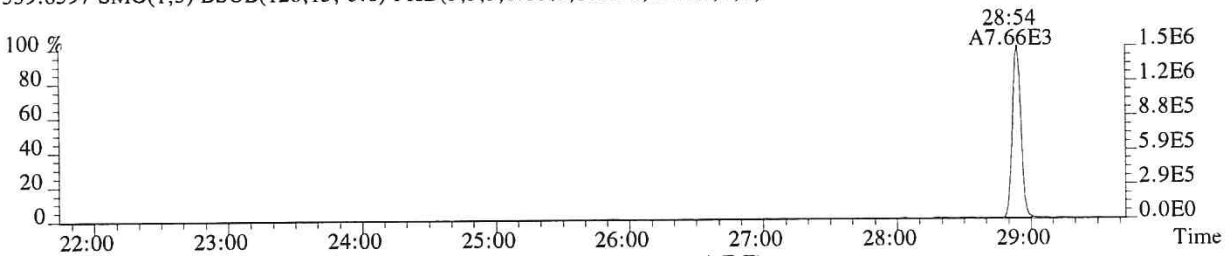


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

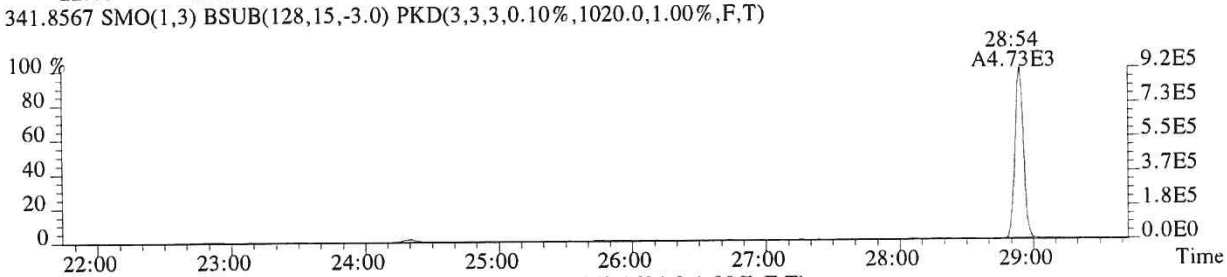


015620

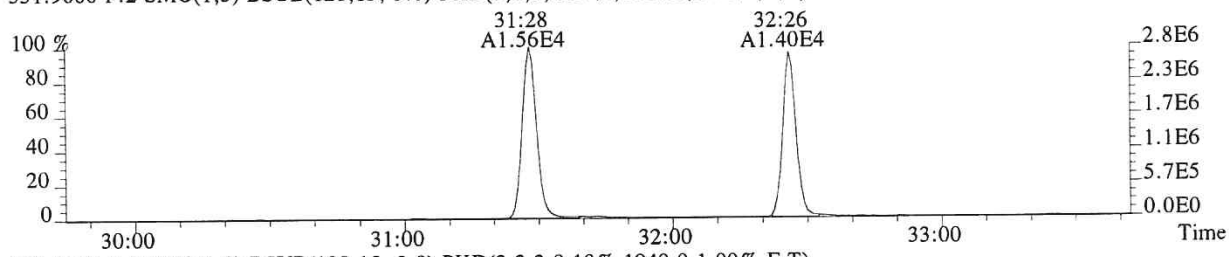
File:P519492 #1-566 Acq:19-DEC-2018 13:09:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-018
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1012.0,1.00%,F,T)



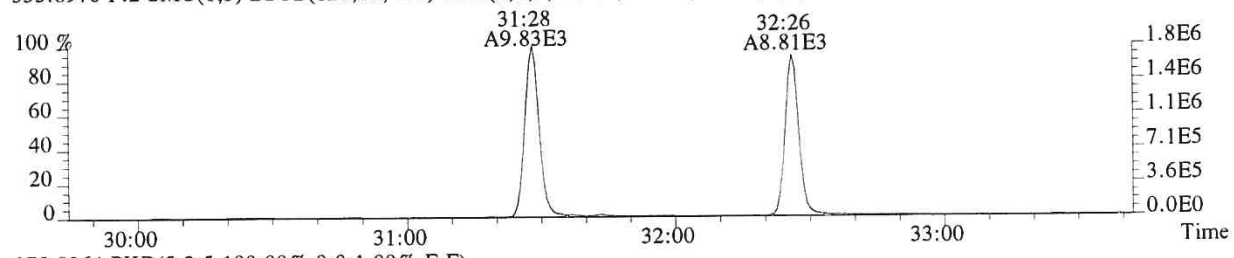
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1020.0,1.00%,F,T)



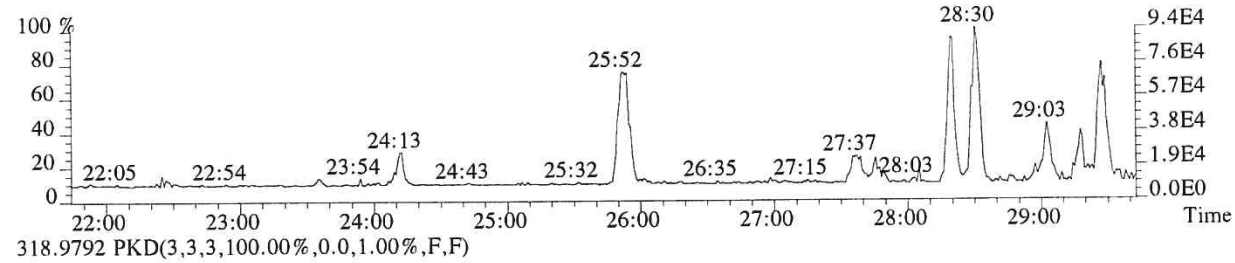
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1624.0,1.00%,F,T)



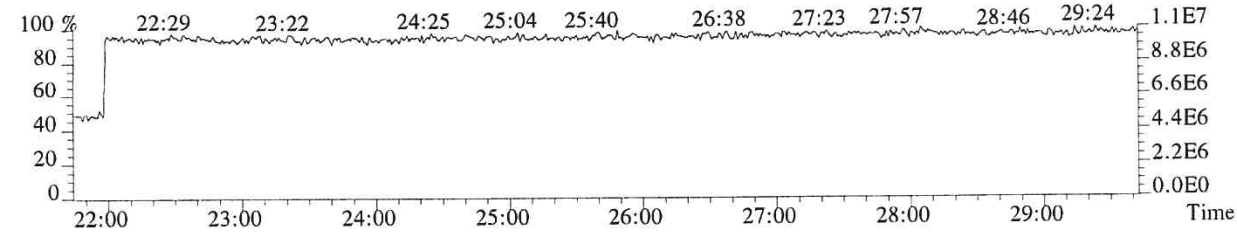
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1940.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

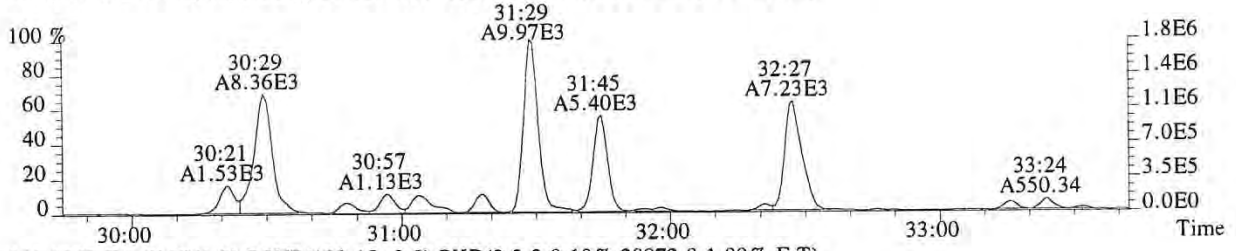


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

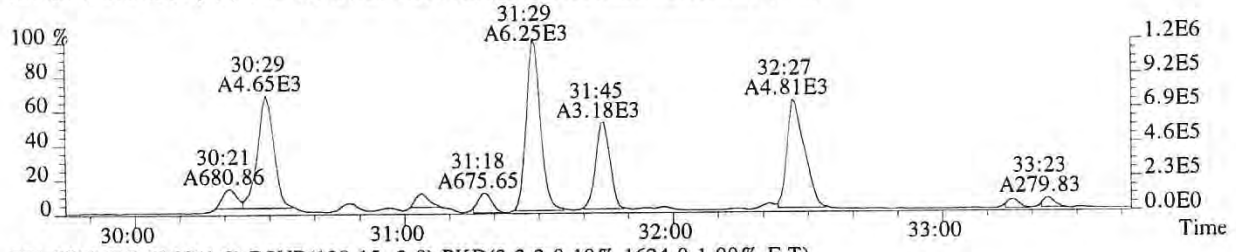


File:P519492 #1-357 Acq:19-DEC-2018 13:09:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-018

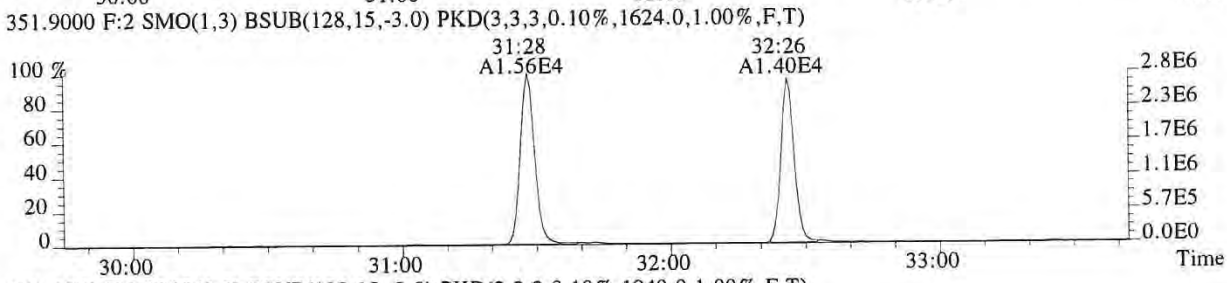
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,11956.0,1.00%,F,T)



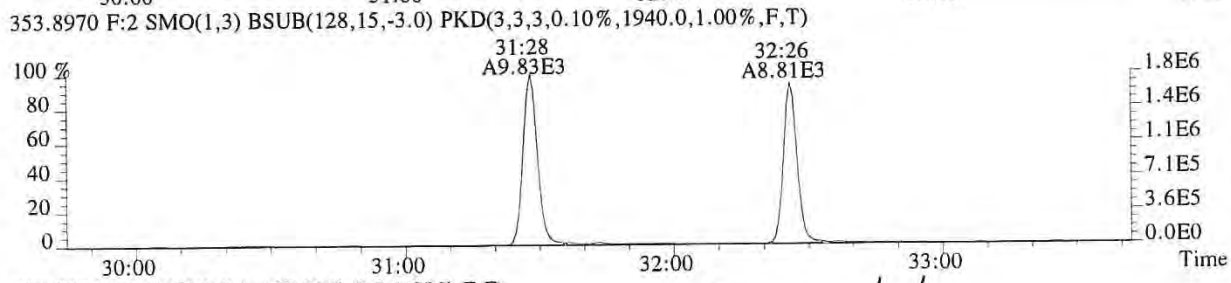
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,28972.0,1.00%,F,T)



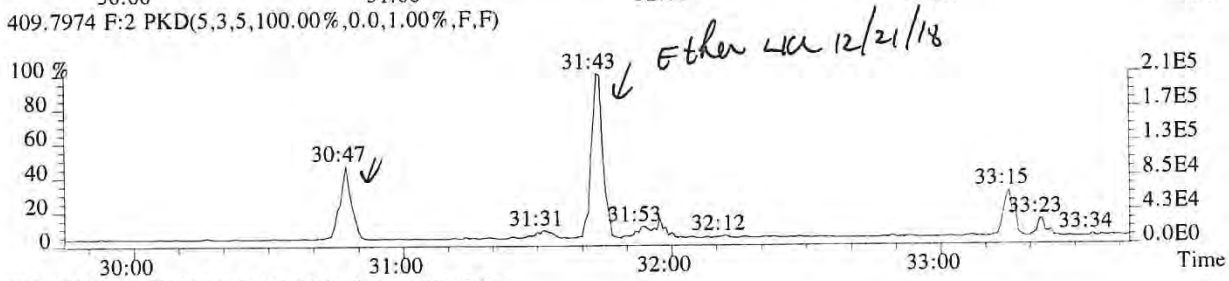
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1624.0,1.00%,F,T)



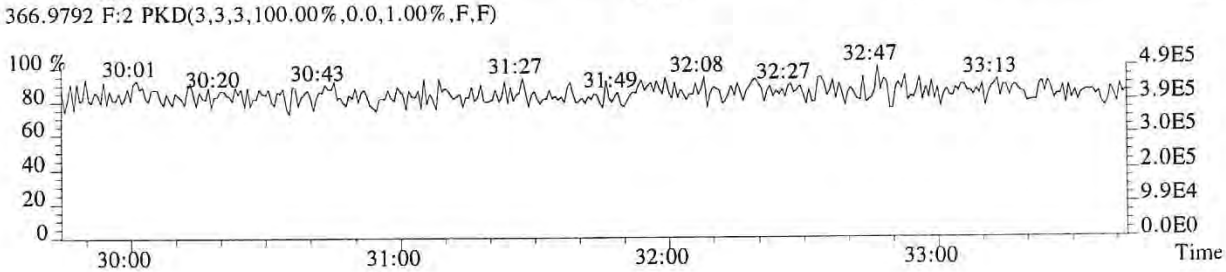
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1940.0,1.00%,F,T)



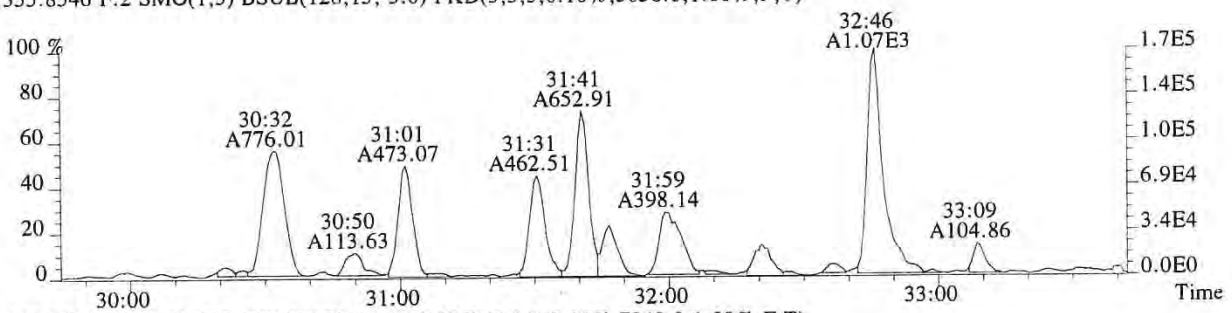
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



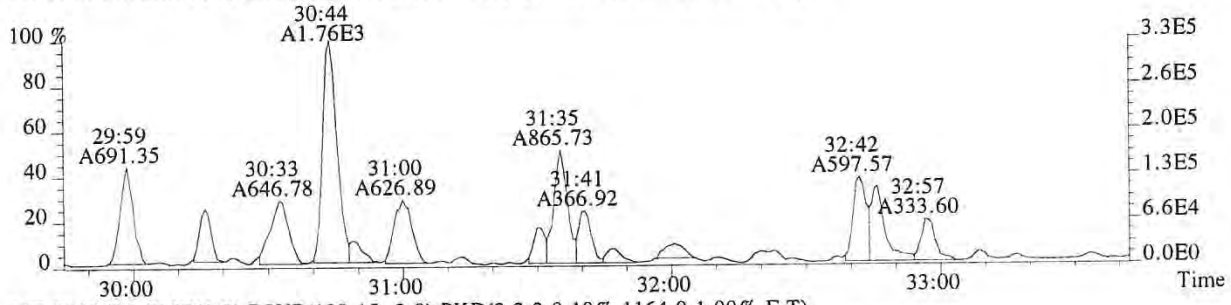
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



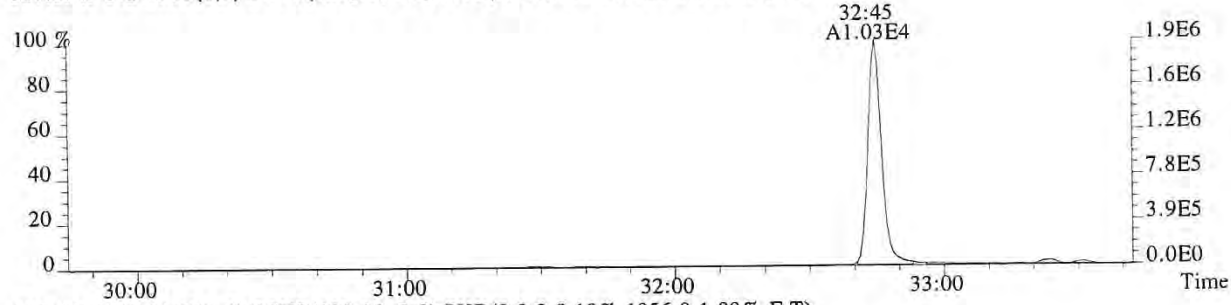
File:P519492 #1-357 Acq:19-DEC-2018 13:09:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-018
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3056.0,1.00%,F,T)



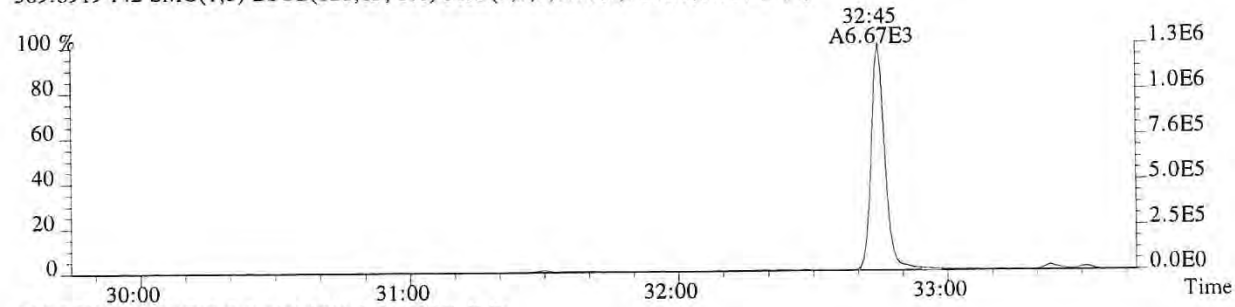
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7940.0,1.00%,F,T)



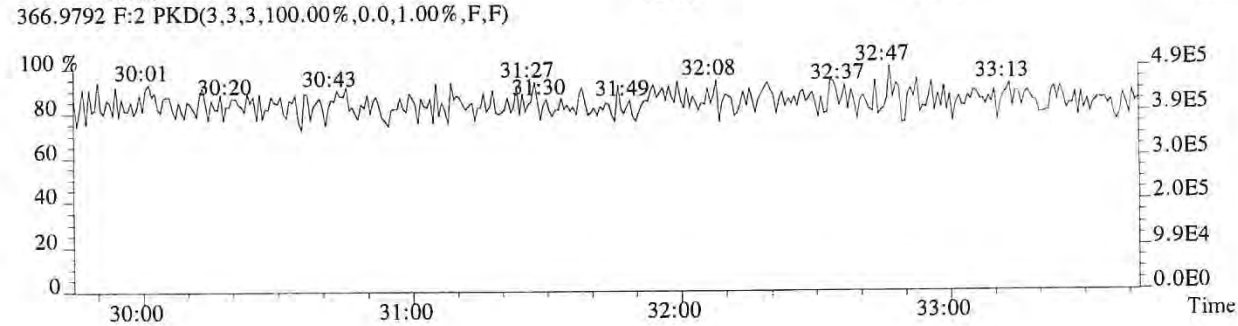
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1164.0,1.00%,F,T)



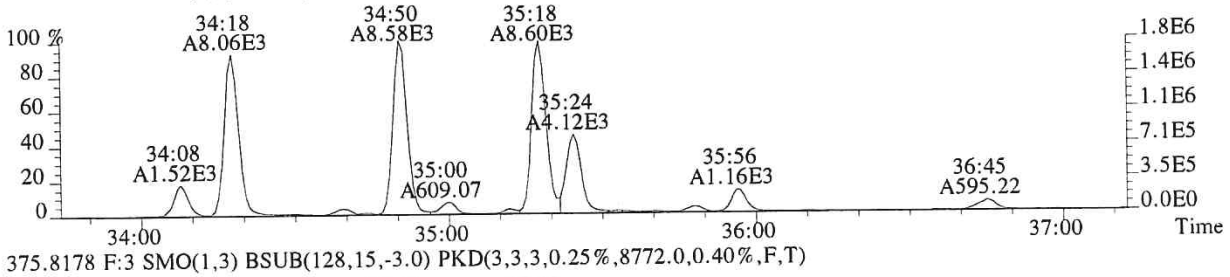
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1056.0,1.00%,F,T)



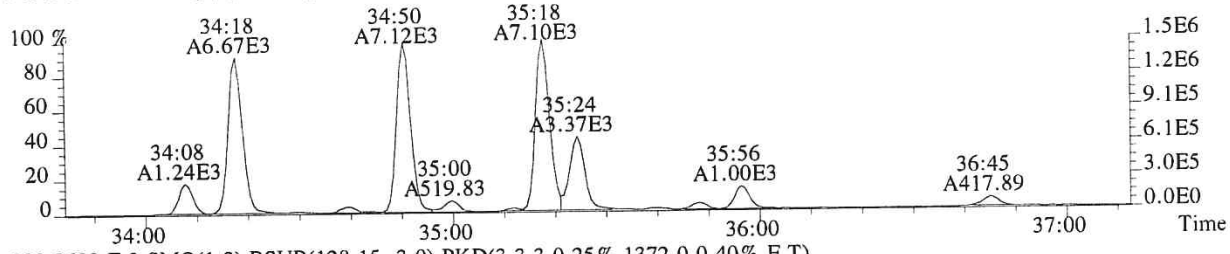
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



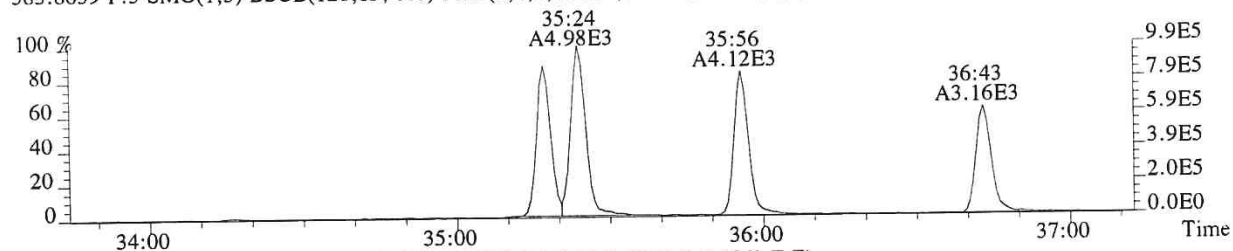
File:P519492 #1-313 Acq:19-DEC-2018 13:09:18 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:E1801094-018
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2268.0,0.40%,F,T)



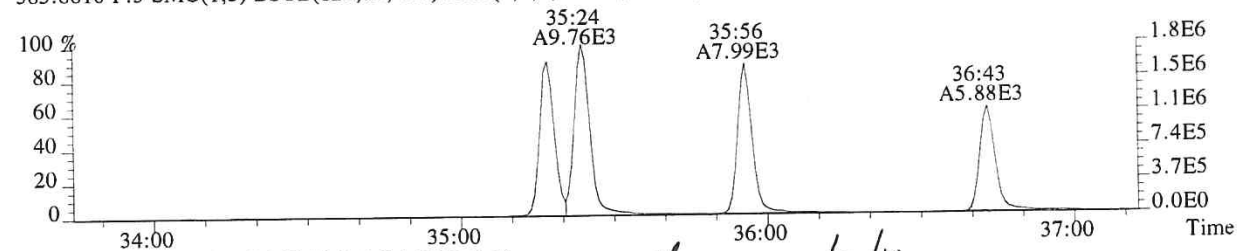
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8772.0,0.40%,F,T)



383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1372.0,0.40%,F,T)

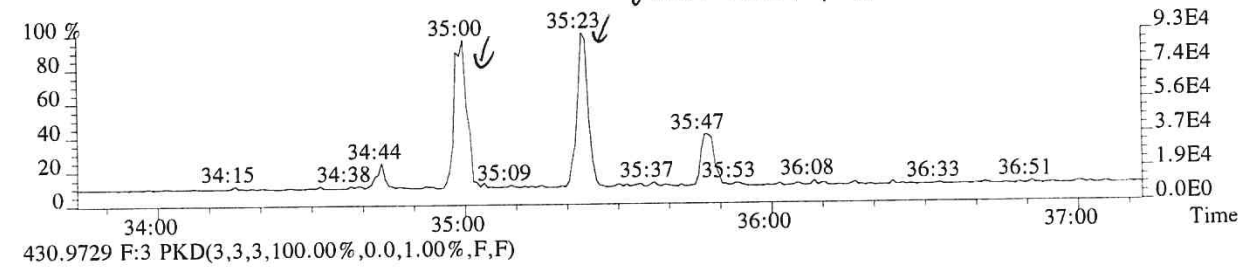


385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1376.0,0.40%,F,T)

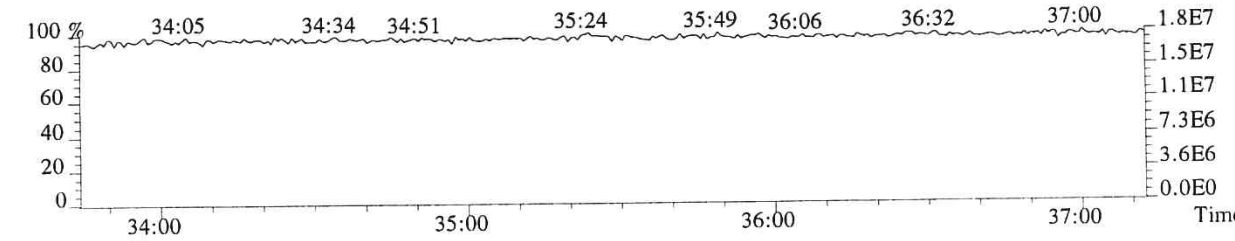


445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

Ether LLL 12/21/18

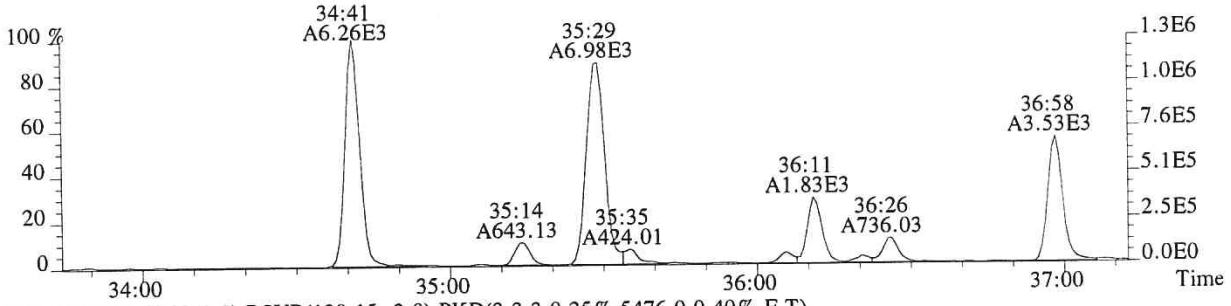


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

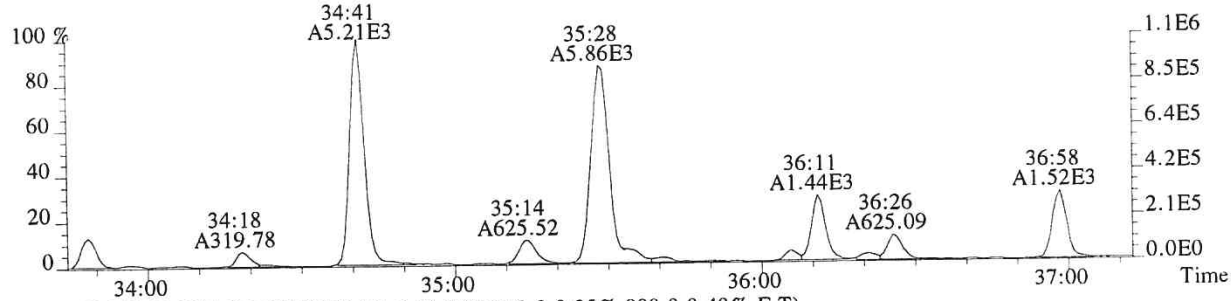


015624

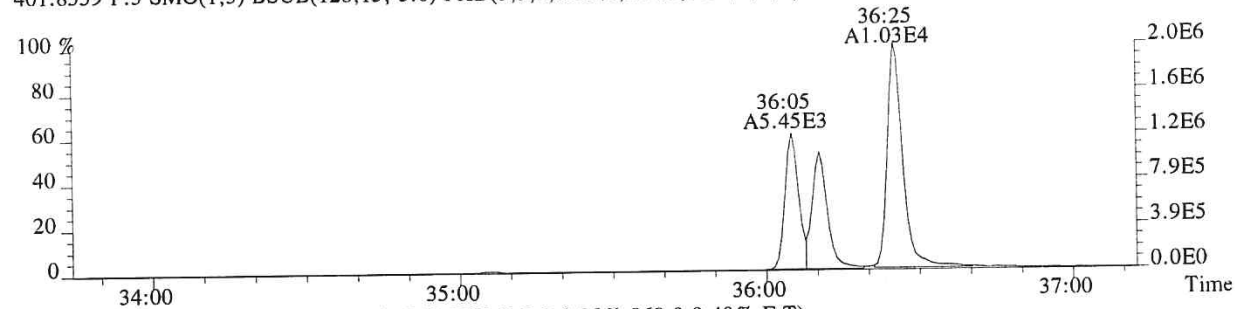
File:P519492 #1-313 Acq:19-DEC-2018 13:09:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-018
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3448.0,0.40%,F,T)



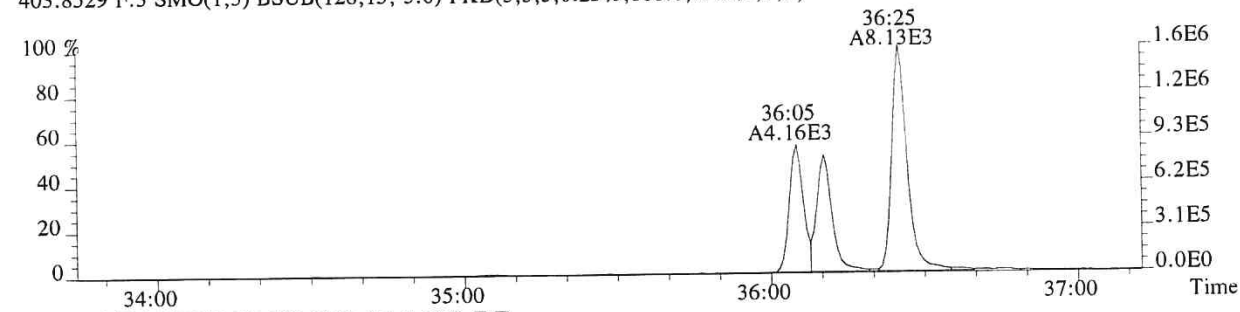
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5476.0,0.40%,F,T)



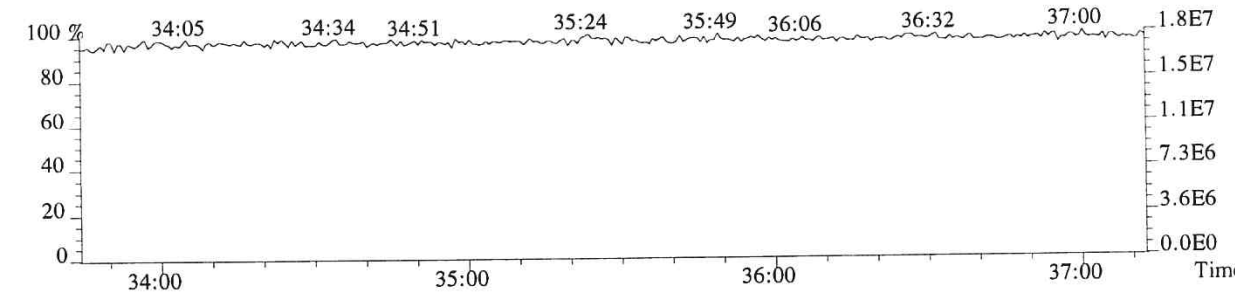
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,888.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,868.0,0.40%,F,T)



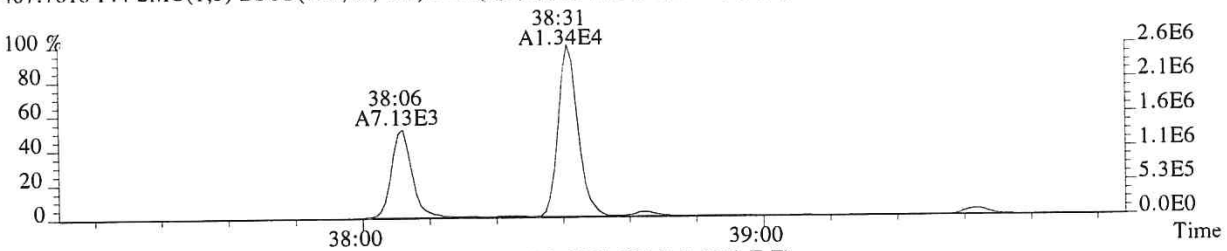
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



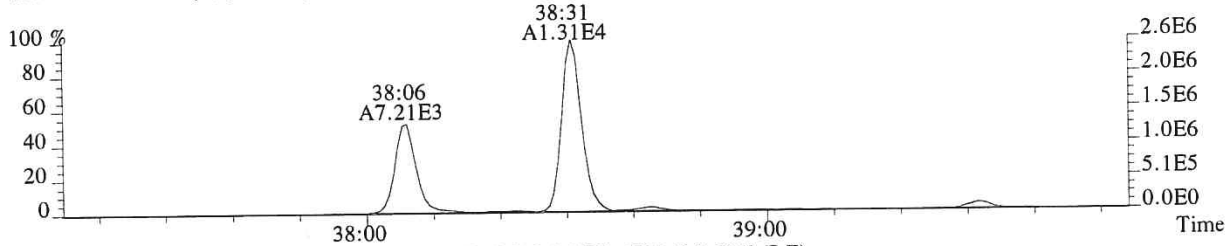
015625

File:P519492 #1-240 Acq:19-DEC-2018 13:09:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-018

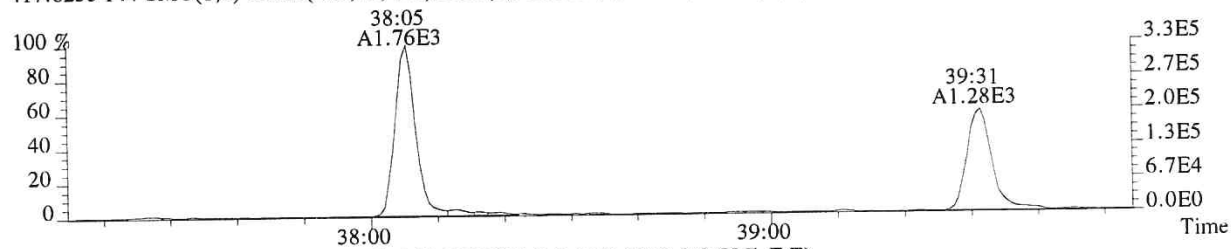
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,648.0,0.50%,F,T)



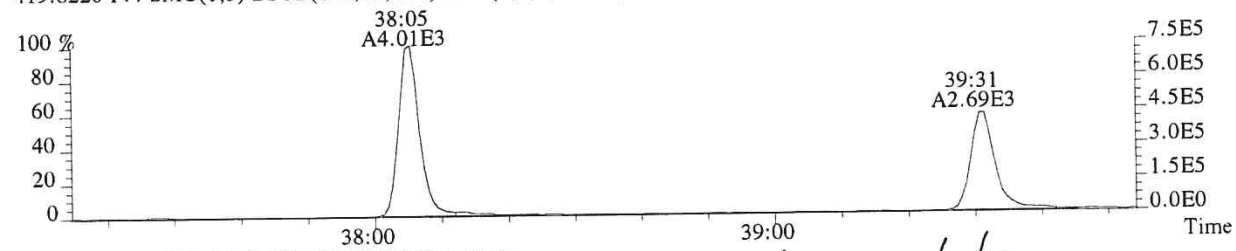
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,664.0,0.50%,F,T)



417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1032.0,0.50%,F,T)

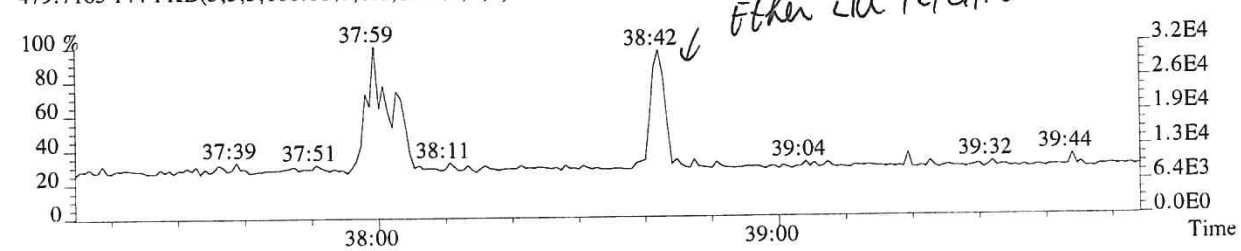


419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1060.0,0.50%,F,T)

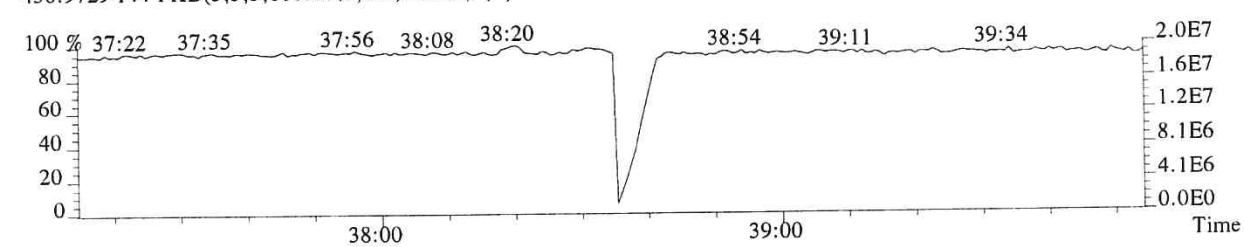


479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

Ether LLL 12/21/18

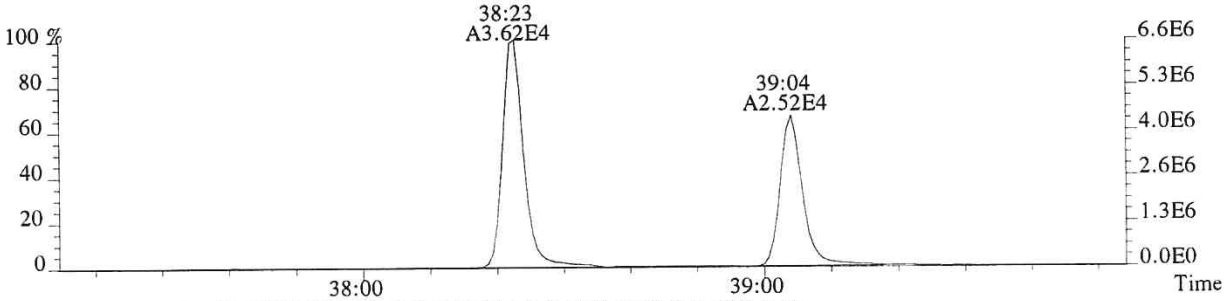


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

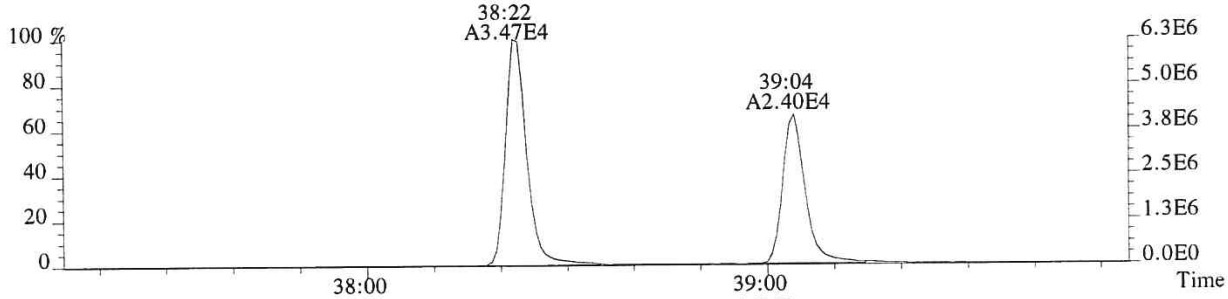


015626

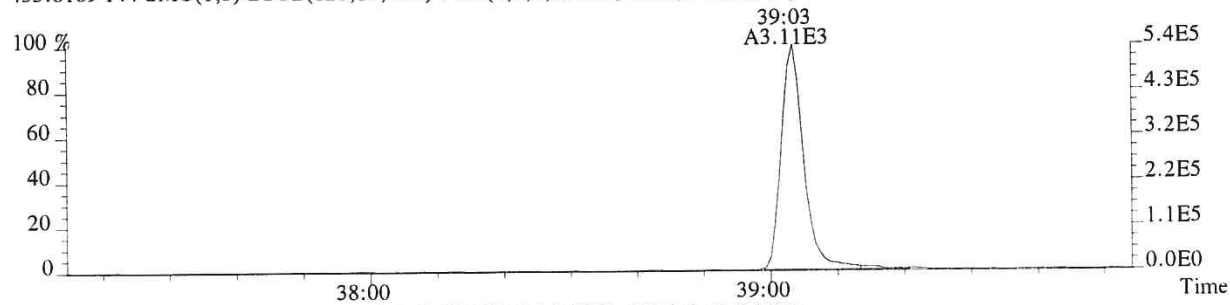
File:P519492 #1-240 Acq:19-DEC-2018 13:09:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-018
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2204.0,0.40%,F,T)



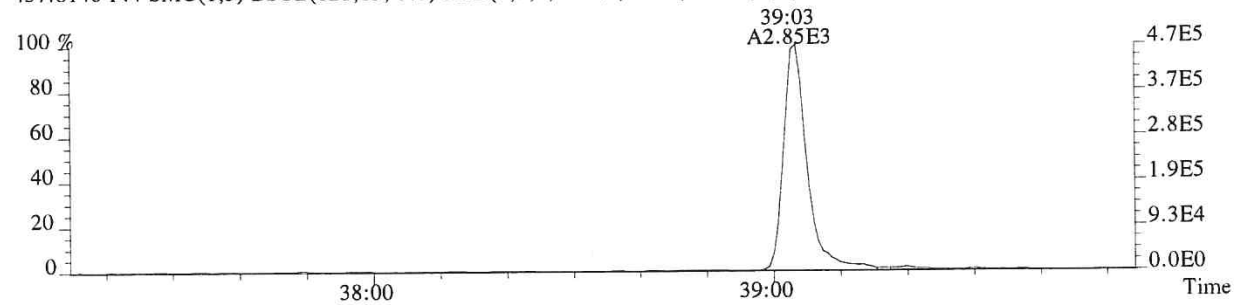
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1220.0,0.40%,F,T)



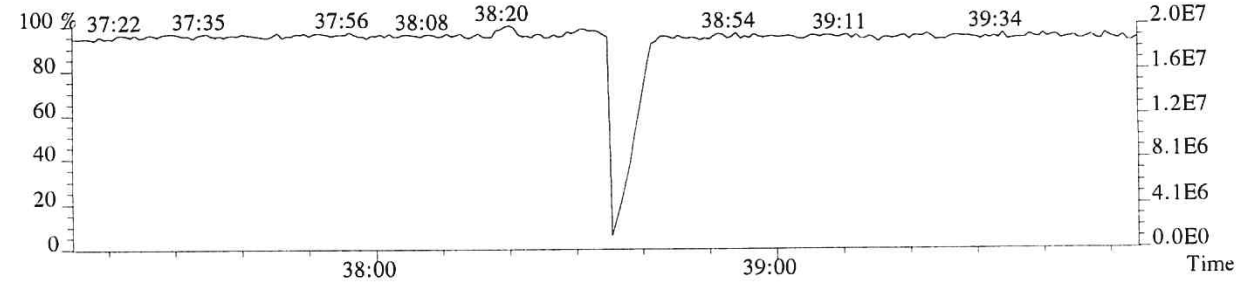
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,456.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,632.0,0.40%,F,T)

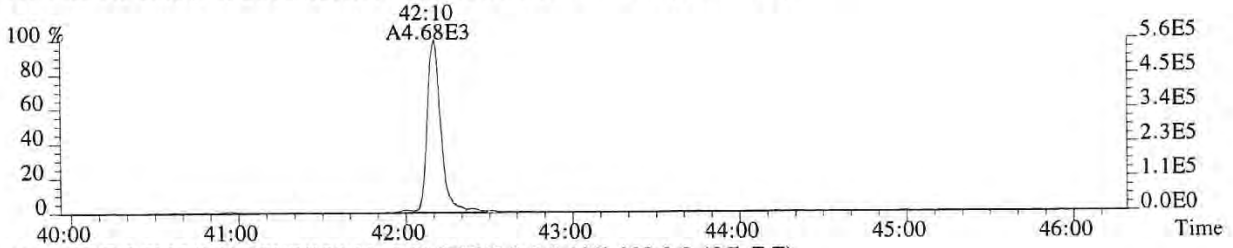


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

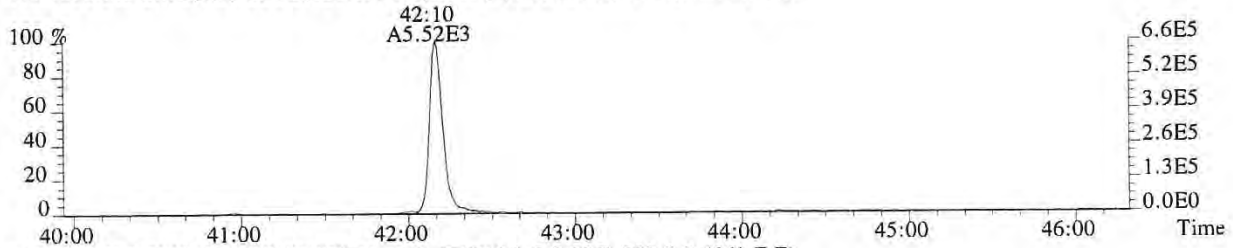


015627

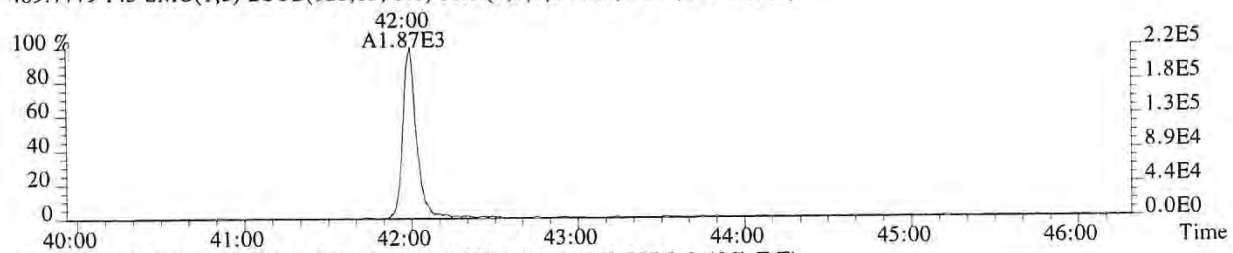
File:P519492 #1-575 Acq:19-DEC-2018 13:09:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-018
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,556.0,0.40%,F,T)



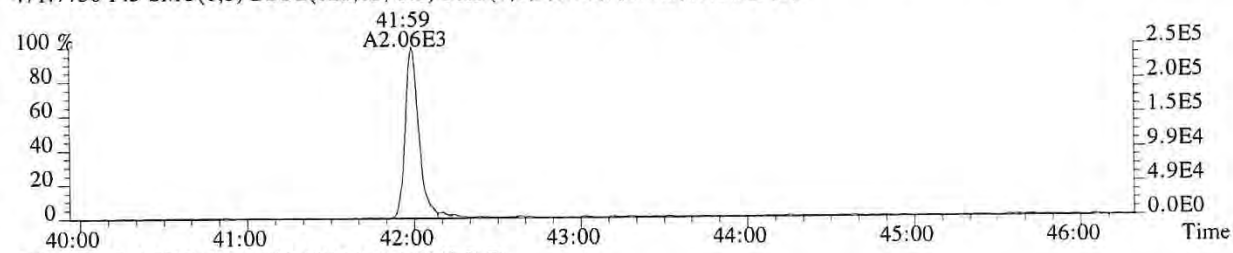
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,928.0,0.40%,F,T)



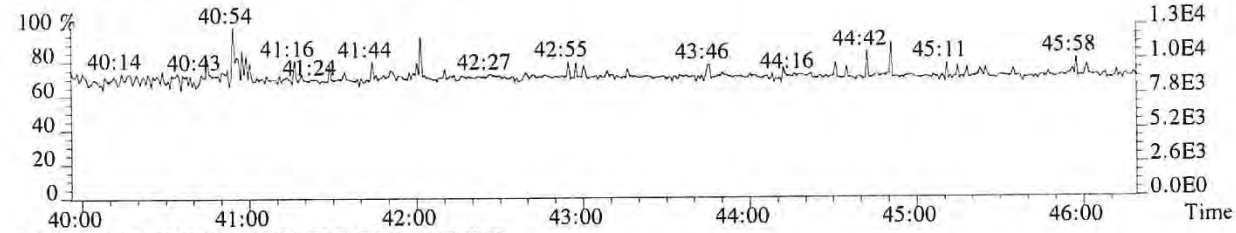
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,552.0,0.40%,F,T)



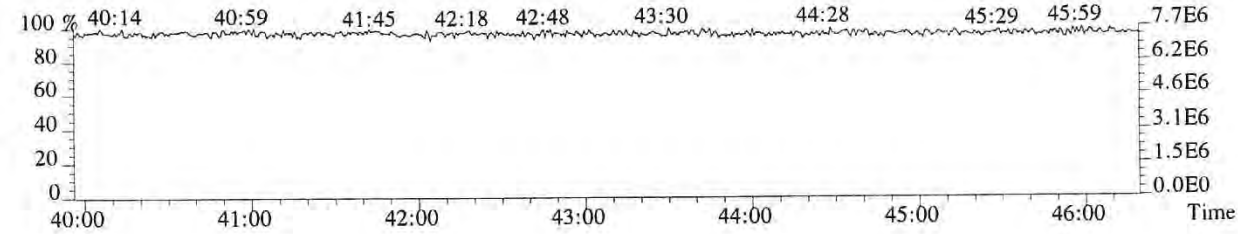
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,556.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

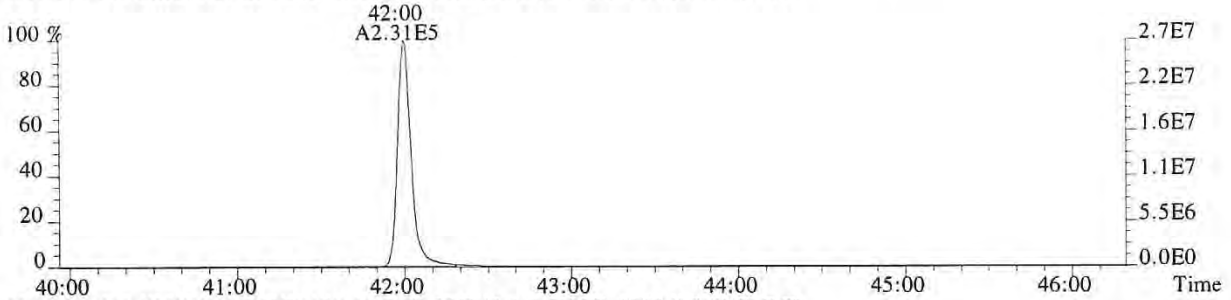


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

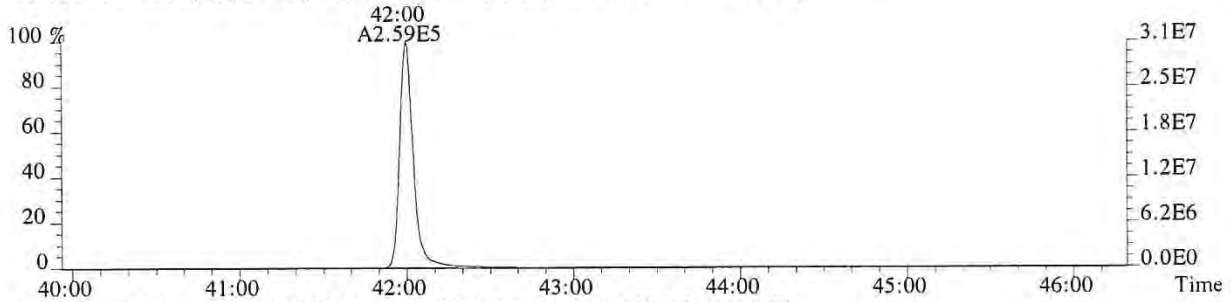


015628

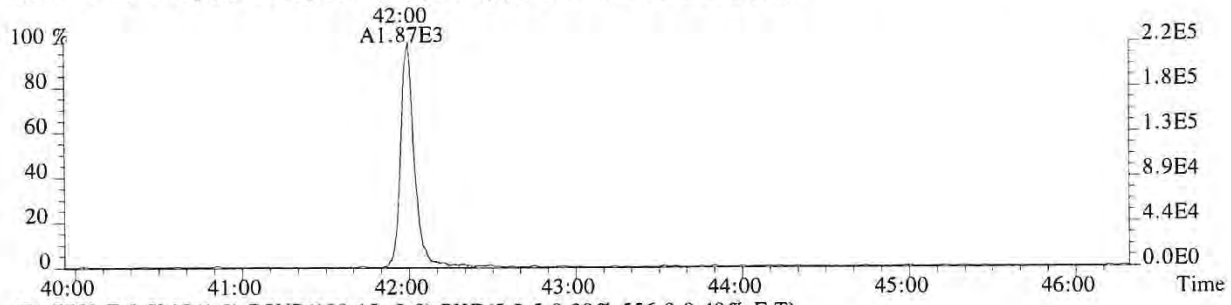
File:P519492 #1-575 Acq:19-DEC-2018 13:09:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-018
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,876.0,0.40%,F,T)



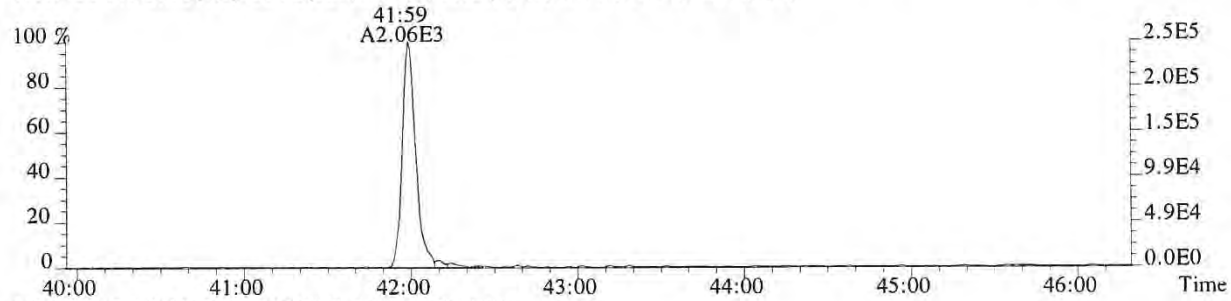
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1068.0,0.40%,F,T)



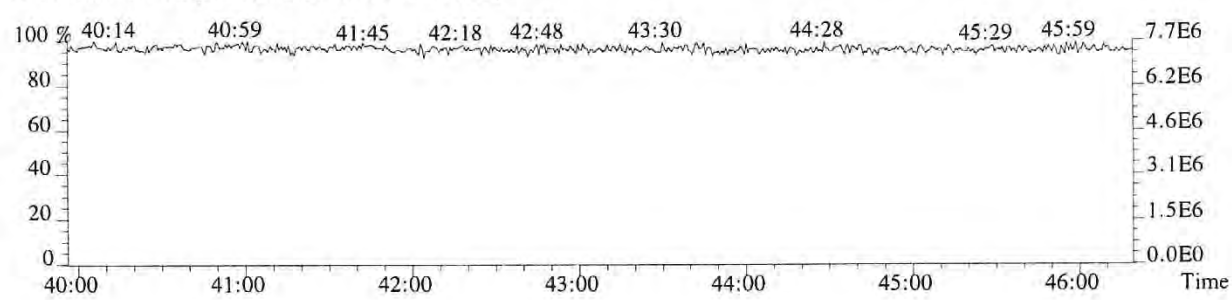
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,552.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,556.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0014

Run #16 Filename P519597 Samp: 1 Inj: 1 Acquired: 24-DEC-18 17:13:04
Processed: 26-DEC-18 13:39:00 Sample ID: E1801094-018DL

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:18	1.439e+03	1.876e+03	0.77	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	31:08	7.163e+01	4.901e+01	1.46	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	32:08	5.657e+01	4.627e+01	1.22	no	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:01	9.464e+01	8.537e+01	1.11	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:08	6.791e+01	4.159e+01	1.63	no	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.110
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	37:52	1.734e+02	1.525e+02	1.14	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.258
10	Unk	OCDF	41:57	2.223e+02	1.981e+02	1.12	no	no	1.359
11	Unk	2,3,7,8-TCDD	27:16	3.536e+02	4.233e+02	0.84	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.038
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	yes	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:51	6.334e+02	5.833e+02	1.09	yes	no	1.025
17	Unk	OCDD	41:46	8.576e+03	1.035e+04	0.83	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	26:16	5.123e+03	6.735e+03	0.76	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	31:06	8.457e+03	5.318e+03	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	32:06	7.832e+03	5.000e+03	1.57	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:00	3.210e+03	6.150e+03	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:07	4.202e+03	8.246e+03	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:39	3.521e+03	7.167e+03	0.49	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	36:27	2.896e+03	6.049e+03	0.48	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:51	2.750e+03	6.321e+03	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:18	2.195e+03	5.070e+03	0.43	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	27:14	2.430e+03	3.254e+03	0.75	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:25	5.811e+03	3.603e+03	1.61	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:49	4.288e+03	3.493e+03	1.23	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:55	5.364e+03	4.100e+03	1.31	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:50	5.151e+03	4.640e+03	1.11	yes	no	0.858
32	IS	13C-OCDD	41:45	5.891e+03	6.545e+03	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	26:33	4.032e+03	4.935e+03	0.82	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:09	5.161e+03	4.380e+03	1.18	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:15	6.960e+01				no	1.014

$$\text{OCDD} = \frac{(8.576e+03 + 1.035e+04) \times 4000 \text{ pg} \times 50}{(5.891e+03 + 6.545e+03) \times 10.514 \text{ g} \times 77.7 / 100 \times 1.118} = 185141.9433 \text{ ng/kg}$$

LG 12/27/18

ALS ENVIRONMENTAL -- HOUSTON HRMS
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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0014

Run #16 Filename P519597 Samp: 1 Inj: 1 Acquired: 24-DEC-18 17:13:04
Processed: 26-DEC-18 13:39:00 LAB. ID: E1801094-018DL

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.96e+05	1.08e+03	1.8e+02	2.61e+05	2.41e+03	1.1e+02
2	1,2,3,7,8-PeCDF	1.13e+04	1.13e+03	1.0e+01	9.39e+03	1.56e+03	6.0e+00
3	2,3,4,7,8-PeCDF	8.03e+03	1.13e+03	7.1e+00	7.21e+03	1.56e+03	4.6e+00
4	1,2,3,4,7,8-HxCDF	1.68e+04	1.55e+03	1.1e+01	1.44e+04	6.00e+02	2.4e+01
5	1,2,3,6,7,8-HxCDF	9.04e+03	1.55e+03	5.8e+00	6.93e+03	6.00e+02	1.2e+01
6	2,3,4,6,7,8-HxCDF	*	1.55e+03	*	*	6.00e+02	*
7	1,2,3,7,8,9-HxCDF	*	1.55e+03	*	*	6.00e+02	*
8	1,2,3,4,6,7,8-HpCDF	2.32e+04	1.00e+03	2.3e+01	2.78e+04	1.82e+03	1.5e+01
9	1,2,3,4,7,8,9-HpCDF	*	1.00e+03	*	*	1.82e+03	*
10	OCDF	1.64e+04	3.84e+02	4.3e+01	1.60e+04	1.15e+03	1.4e+01
11	2,3,7,8-TCDD	5.65e+04	2.59e+03	2.2e+01	6.72e+04	1.50e+03	4.5e+01
12	1,2,3,7,8-PeCDD	*	1.13e+03	*	*	3.52e+02	*
13	1,2,3,4,7,8-HxCDD	*	8.84e+02	*	*	8.56e+02	*
14	1,2,3,6,7,8-HxCDD	*	8.84e+02	*	*	8.56e+02	*
15	1,2,3,7,8,9-HxCDD	*	8.84e+02	*	*	8.56e+02	*
16	1,2,3,4,6,7,8-HpCDD	7.55e+04	5.12e+02	1.5e+02	6.48e+04	5.96e+02	1.1e+02
17	OCDD	6.11e+05	4.00e+02	1.5e+03	7.04e+05	3.92e+02	1.8e+03
18	13C-2,3,7,8-TCDF	7.88e+05	1.22e+04	6.5e+01	1.01e+06	9.74e+03	1.0e+02
19	13C-1,2,3,7,8-PeCDF	1.29e+06	2.64e+02	4.9e+03	8.09e+05	1.00e+03	8.1e+02
20	13C-2,3,4,7,8-PeCDF	1.36e+06	2.64e+02	5.1e+03	8.49e+05	1.00e+03	8.5e+02
21	13C-1,2,3,4,7,8-HxCDF	5.90e+05	6.48e+02	9.1e+02	1.09e+06	1.42e+03	7.7e+02
22	13C-1,2,3,6,7,8-HxCDF	6.28e+05	6.48e+02	9.7e+02	1.27e+06	1.42e+03	8.9e+02
23	13C-2,3,4,6,7,8-HxCDF	5.70e+05	6.48e+02	8.8e+02	1.18e+06	1.42e+03	8.3e+02
24	13C-1,2,3,7,8,9-HxCDF	4.19e+05	6.48e+02	6.5e+02	8.59e+05	1.42e+03	6.0e+02
25	13C-1,2,3,4,6,7,8-HpCDF	3.62e+05	8.48e+02	4.3e+02	8.21e+05	3.51e+03	2.3e+02
26	13C-1,2,3,4,7,8,9-HpCDF	2.30e+05	8.48e+02	2.7e+02	5.48e+05	3.51e+03	1.6e+02
27	13C-2,3,7,8-TCDD	3.88e+05	7.56e+03	5.1e+01	5.12e+05	2.45e+03	2.1e+02
28	13C-1,2,3,7,8-PeCDD	9.27e+05	1.25e+03	7.4e+02	5.66e+05	1.57e+03	3.6e+02
29	13C-1,2,3,4,7,8-HxCDD	7.85e+05	7.72e+02	1.0e+03	6.24e+05	5.96e+02	1.0e+03
30	13C-1,2,3,6,7,8-HxCDD	7.91e+05	7.72e+02	1.0e+03	5.85e+05	5.96e+02	9.8e+02
31	13C-1,2,3,4,6,7,8-HpCDD	5.98e+05	6.56e+02	9.1e+02	5.54e+05	6.76e+02	8.2e+02
32	13C-OCDD	4.00e+05	1.07e+03	3.7e+02	4.75e+05	3.68e+02	1.3e+03
33	13C-1,2,3,4-TCDD	6.48e+05	7.56e+03	8.6e+01	7.82e+05	2.45e+03	3.2e+02
34	13C-1,2,3,7,8,9-HxCDD	7.31e+05	7.72e+02	9.5e+02	6.26e+05	5.96e+02	1.1e+03
35	37Cl-2,3,7,8-TCDD	9.34e+03	1.10e+03	8.5e+00			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (2.588e{+}03 + 1.500e{+}03) \times 2000}{(3.884e{+}05 + 5.117e{+}05) \times (\qquad) \times 1.085} =$$

ALS ENVIRONMENTAL
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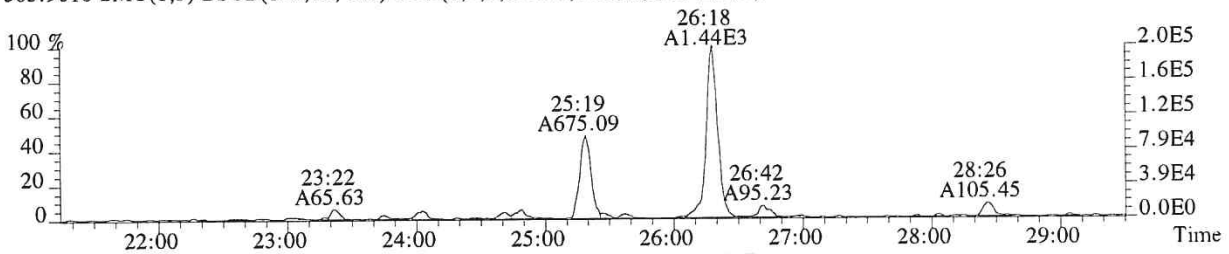
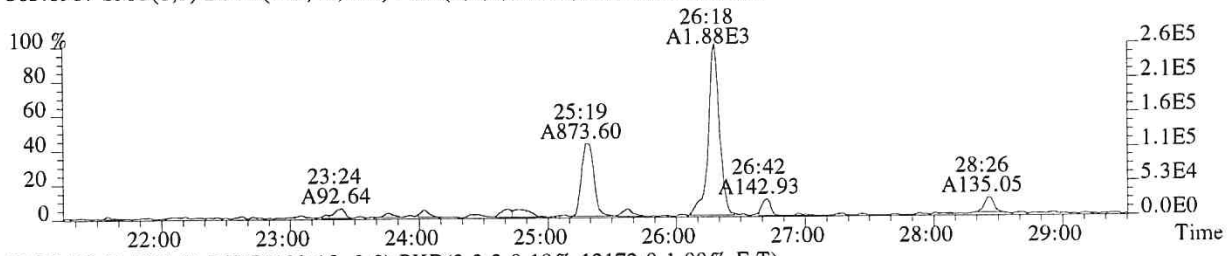
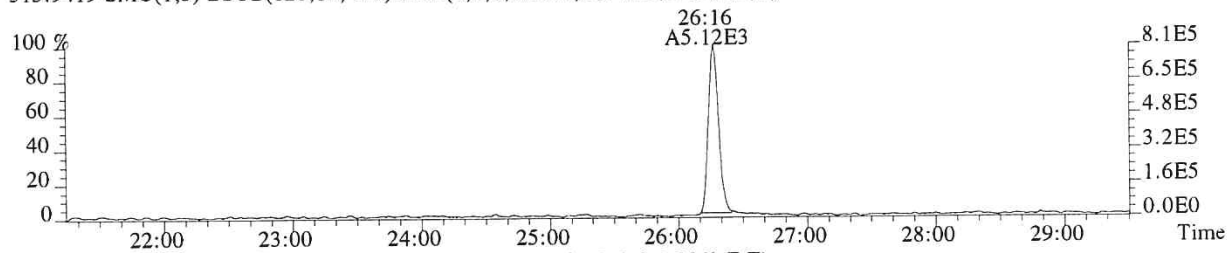
File:P519597 #1-587 Acq:24-DEC-2018 17:13:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-018DL
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1080.0,1.00%,F,T)



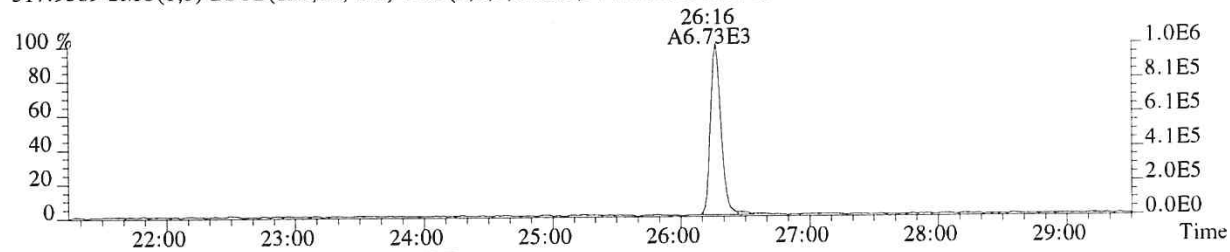
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2408.0,1.00%,F,T)



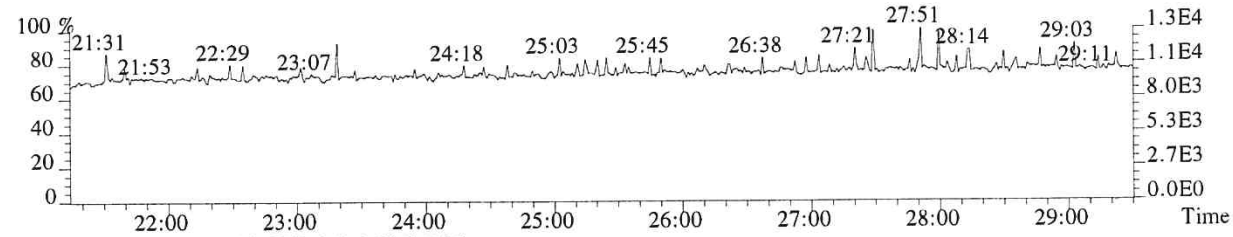
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,12172.0,1.00%,F,T)



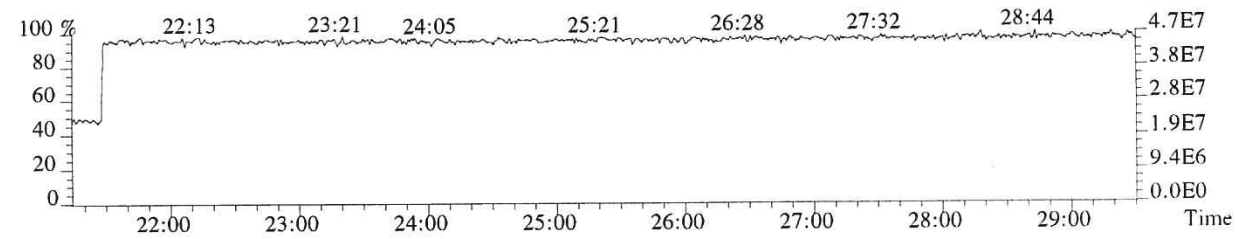
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9740.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

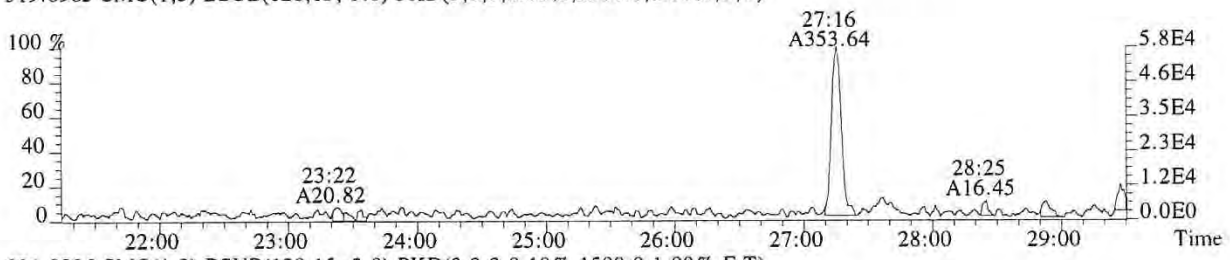


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

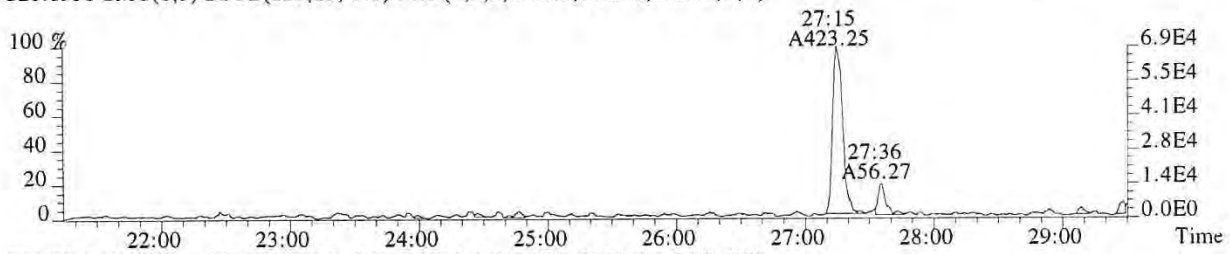


015632

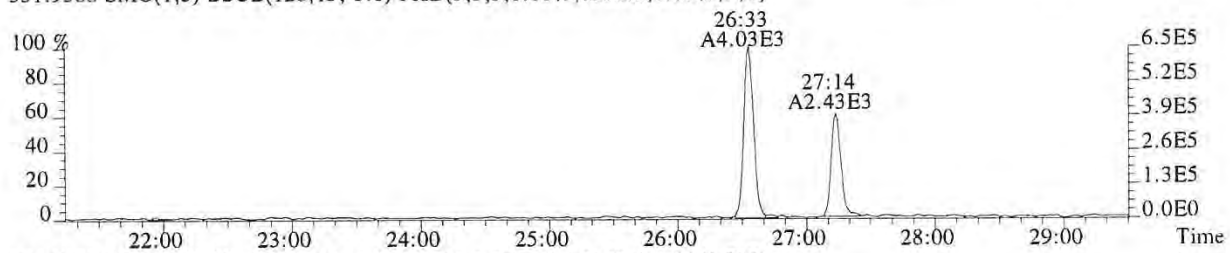
File:P519597 #1-587 Acq:24-DEC-2018 17:13:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-018DL
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2588.0,1.00%,F,T)



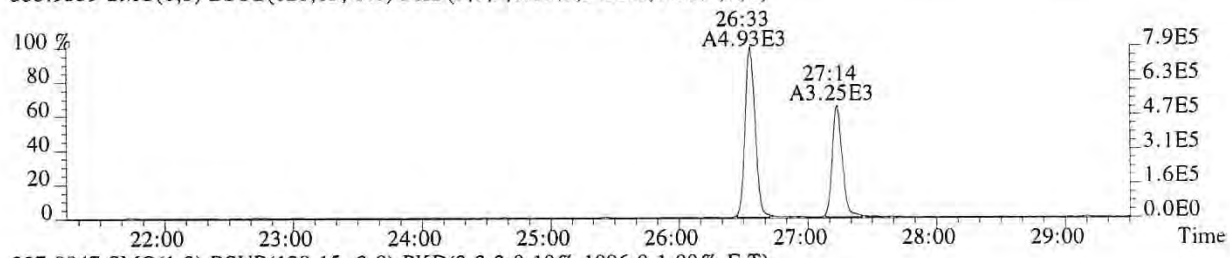
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1500.0,1.00%,F,T)



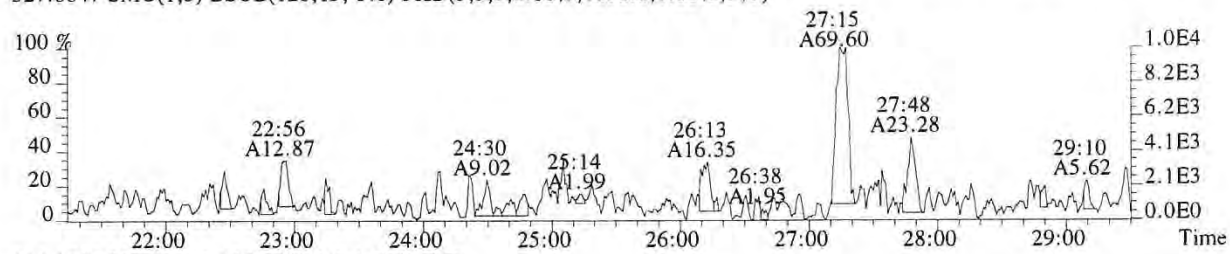
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7556.0,1.00%,F,T)



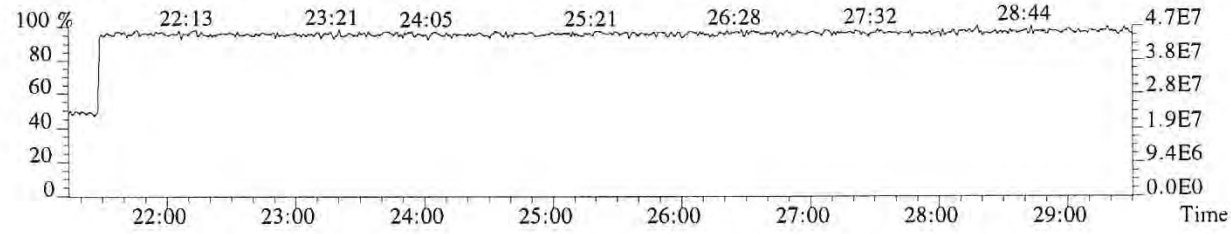
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2452.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1096.0,1.00%,F,T)

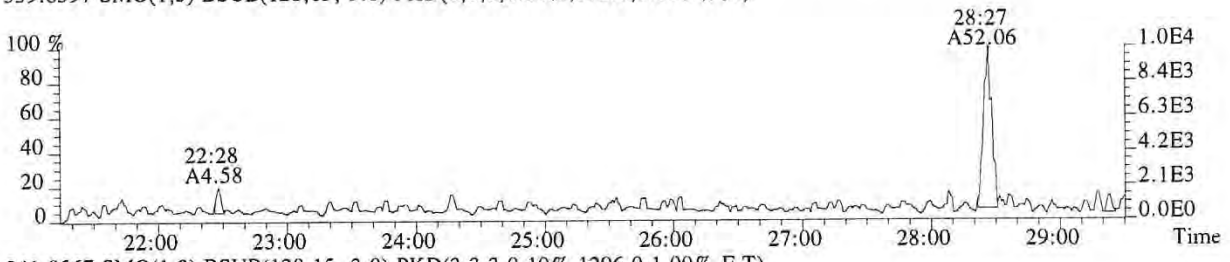


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

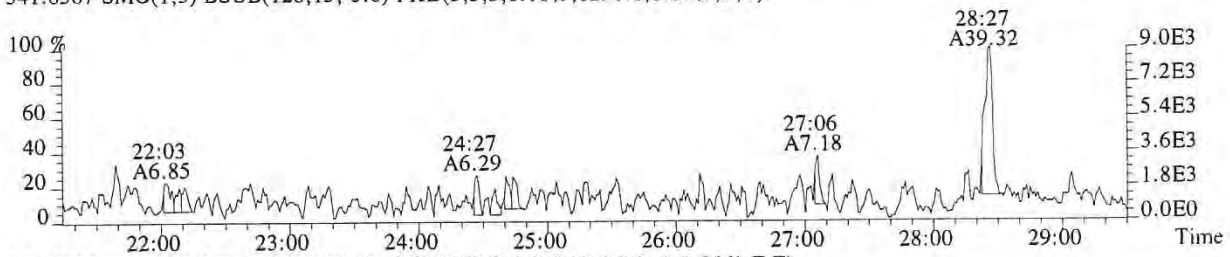


015633

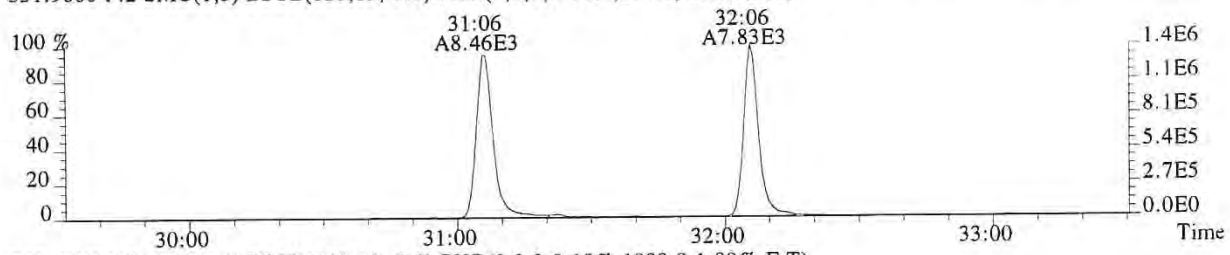
File:P519597 #1-587 Acq:24-DEC-2018 17:13:04 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801094-018DL
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,872.0,1.00%,F,T)



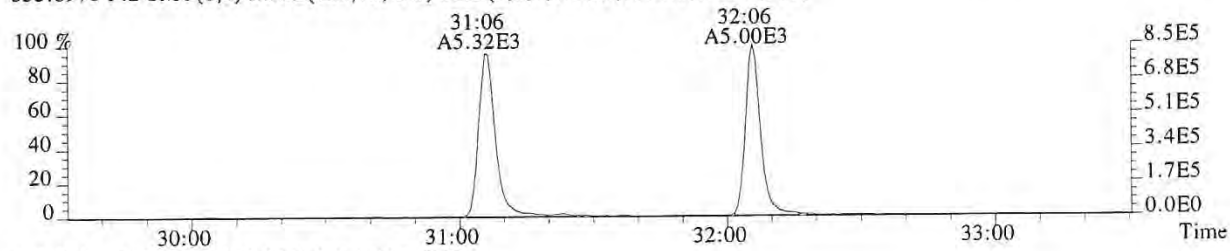
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1296.0,1.00%,F,T)



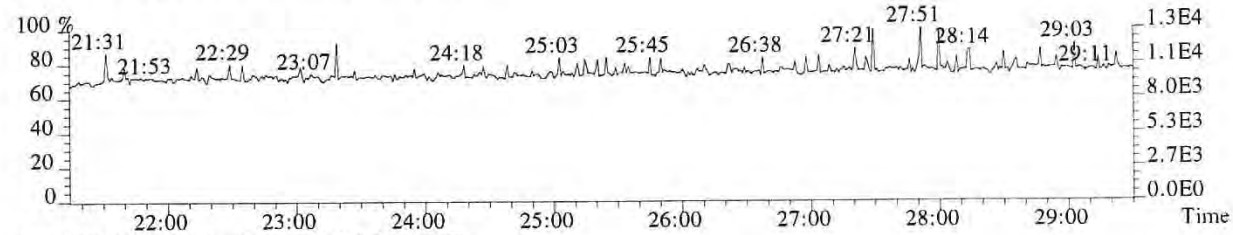
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,264.0,1.00%,F,T)



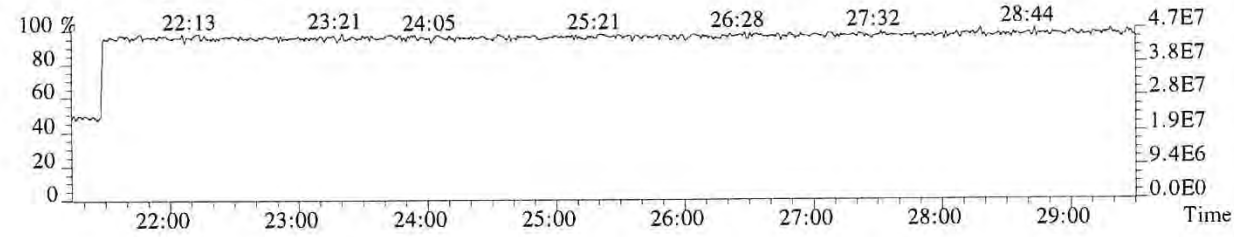
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1000.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

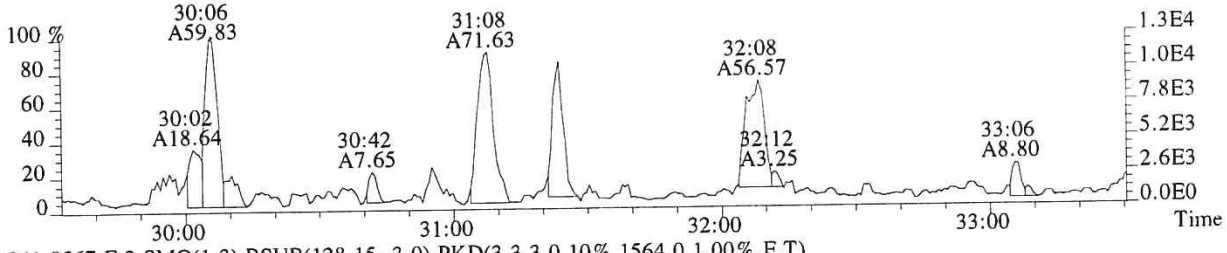


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

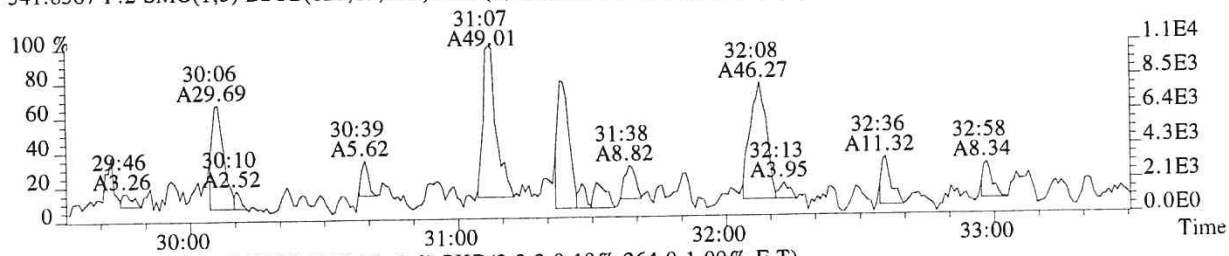


015634

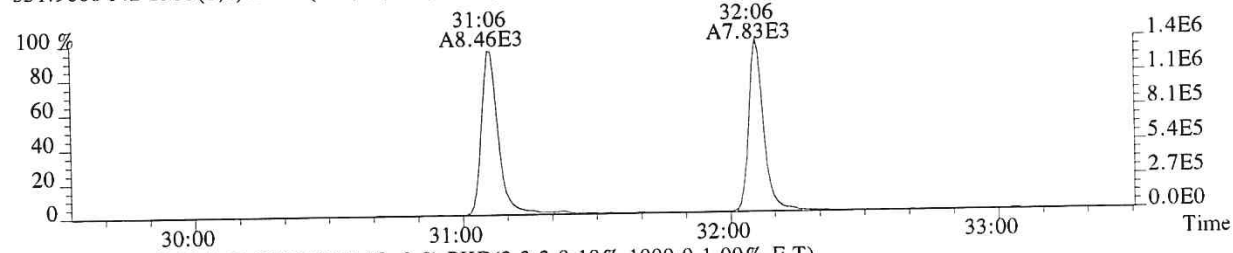
File:P519597 #1-358 Acq:24-DEC-2018 17:13:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-018DL
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1128.0,1.00%,F,T)



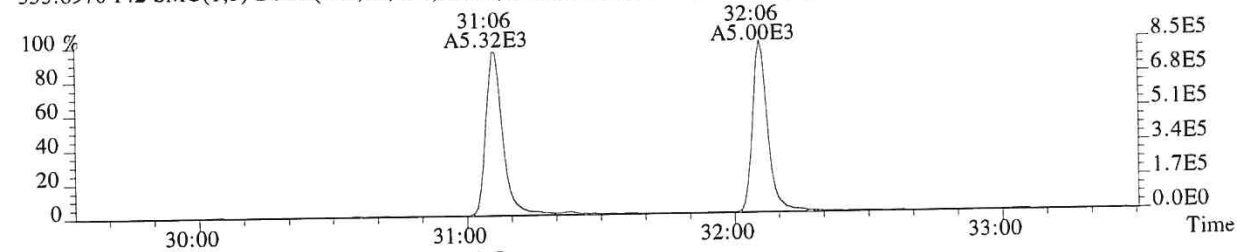
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1564.0,1.00%,F,T)



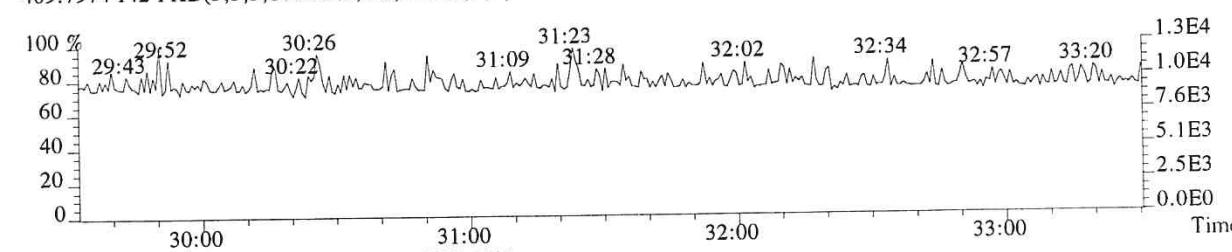
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,264.0,1.00%,F,T)



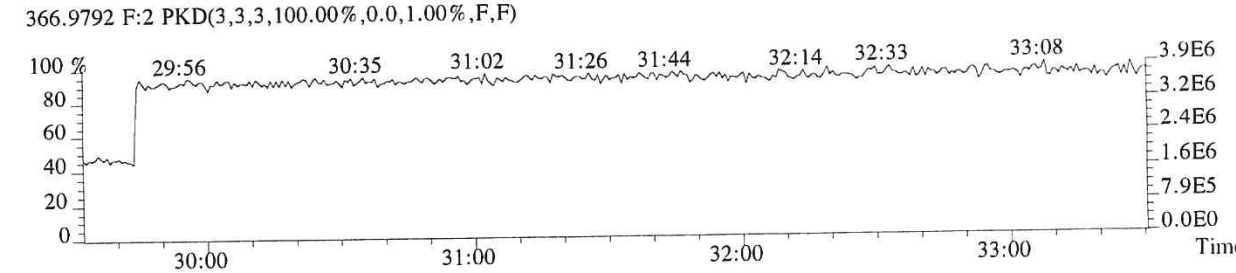
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1000.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

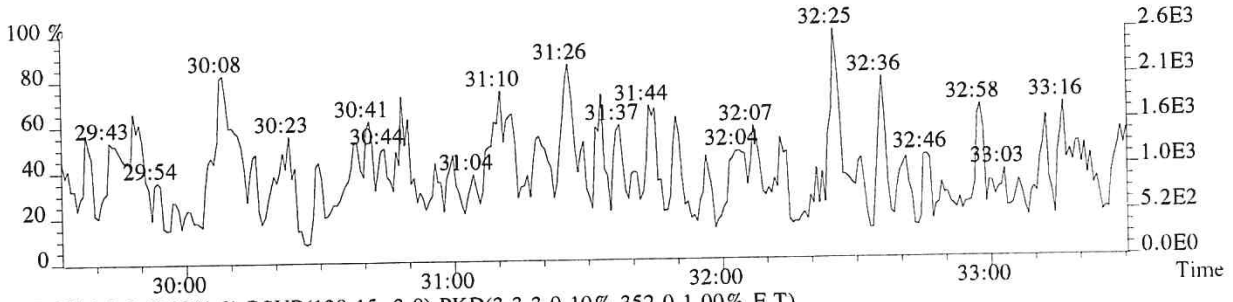


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

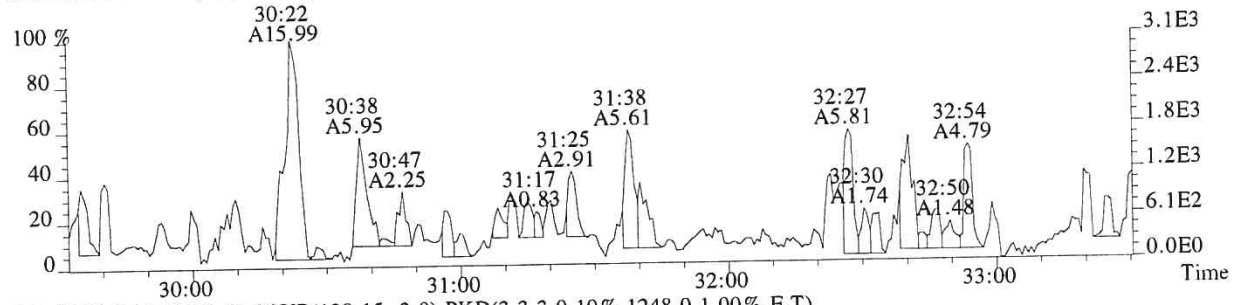


015635

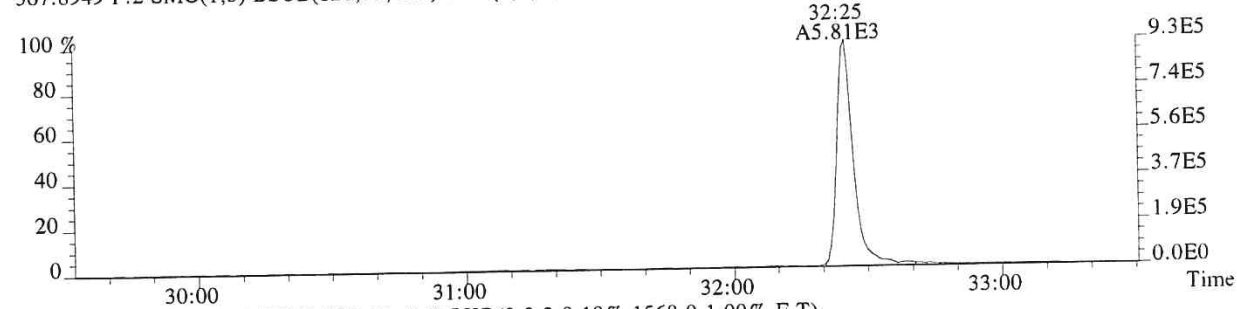
File:P519597 #1-358 Acq:24-DEC-2018 17:13:04 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:E1801094-018DL
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1128.0,1.00%,F,T)



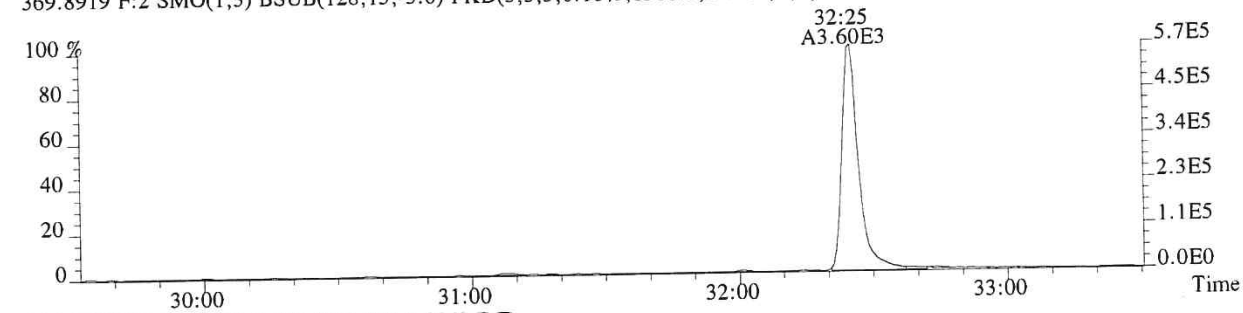
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,352.0,1.00%,F,T)



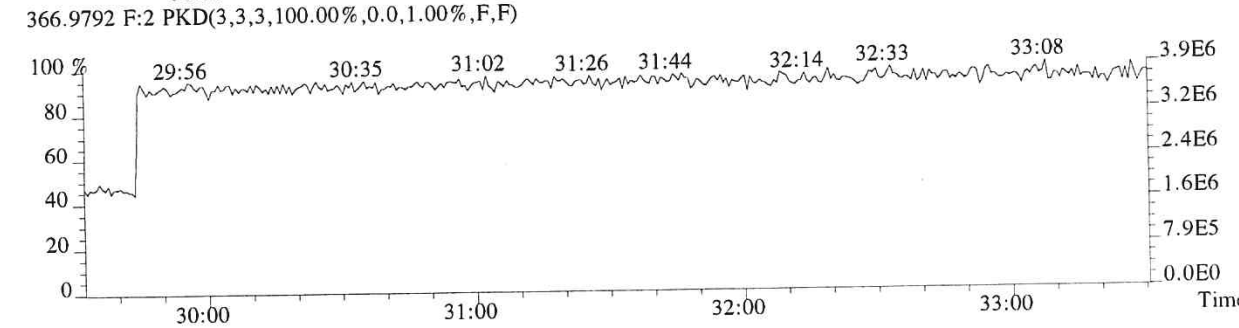
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1248.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1568.0,1.00%,F,T)

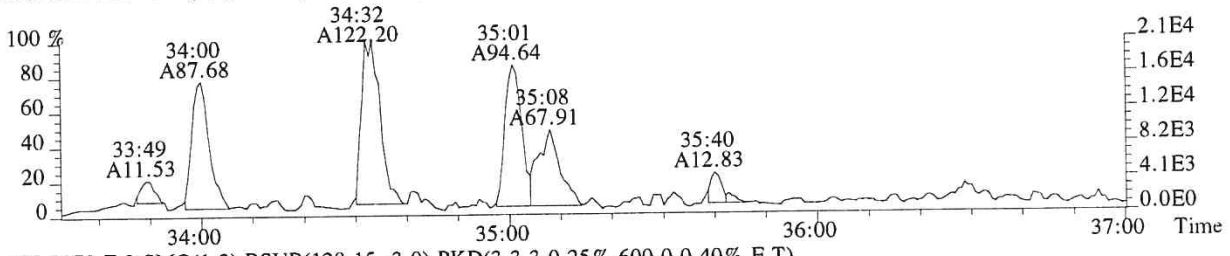


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

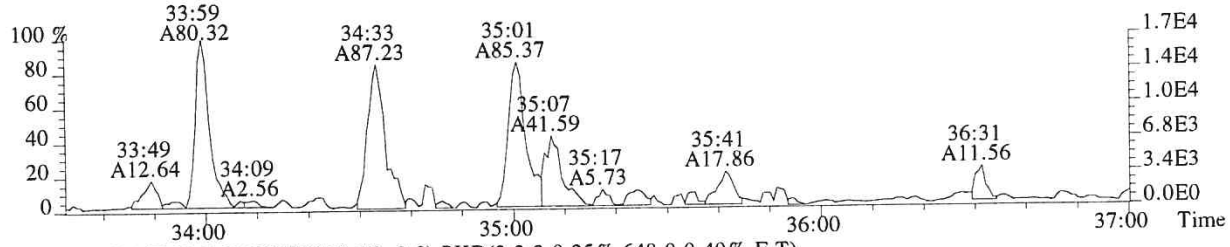


015636

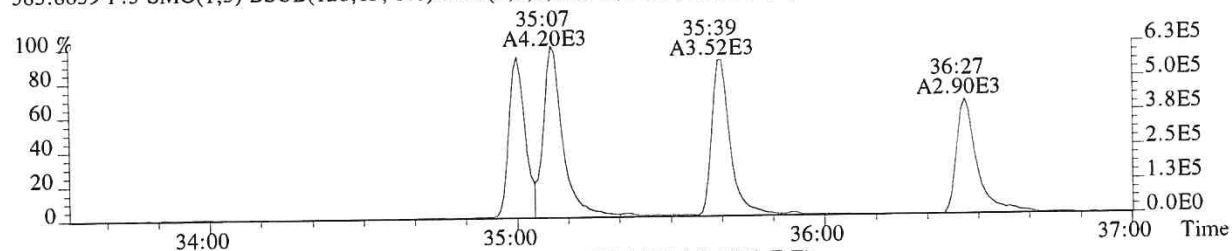
File:P519597 #1-312 Acq:24-DEC-2018 17:13:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-018DL
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1548.0,0.40%,F,T)



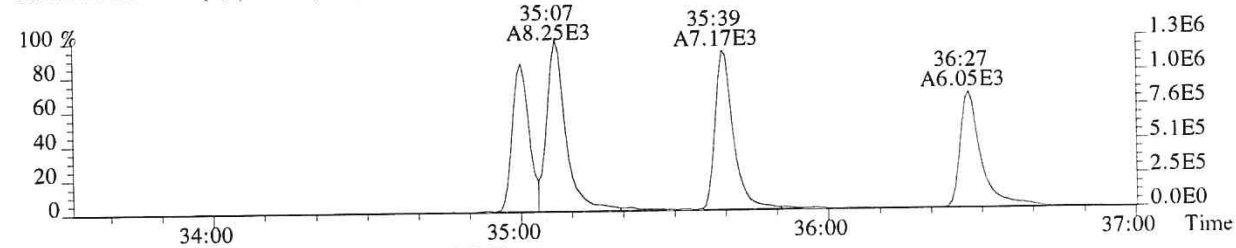
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,600.0,0.40%,F,T)



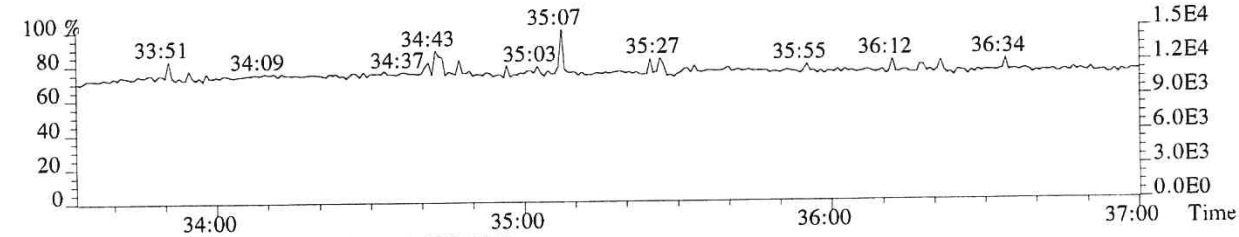
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,648.0,0.40%,F,T)



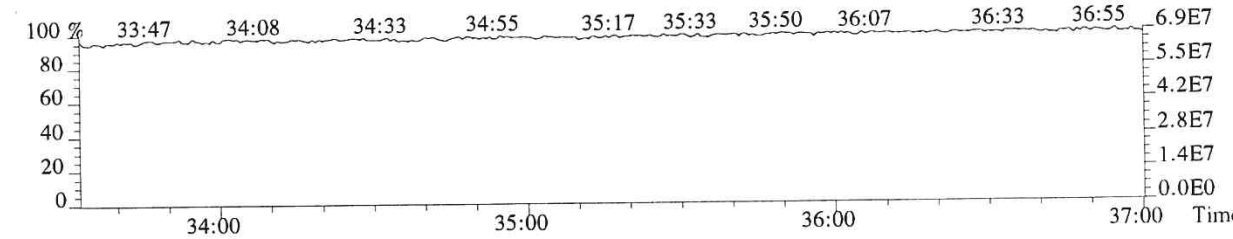
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1424.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

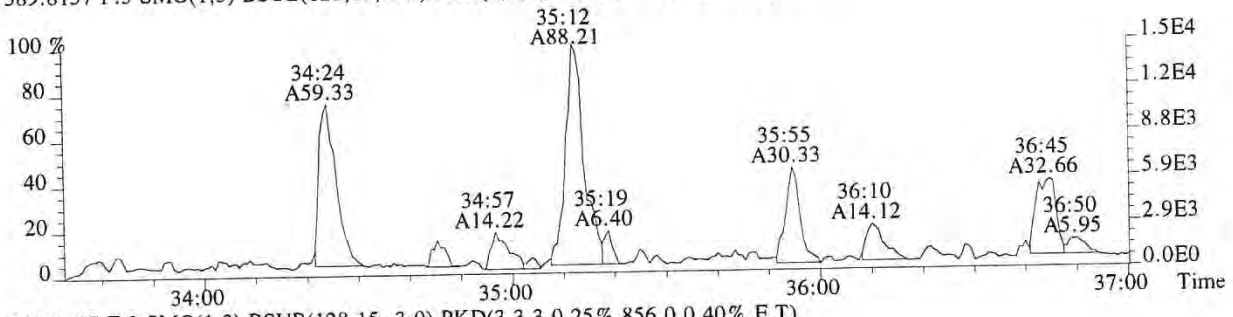


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

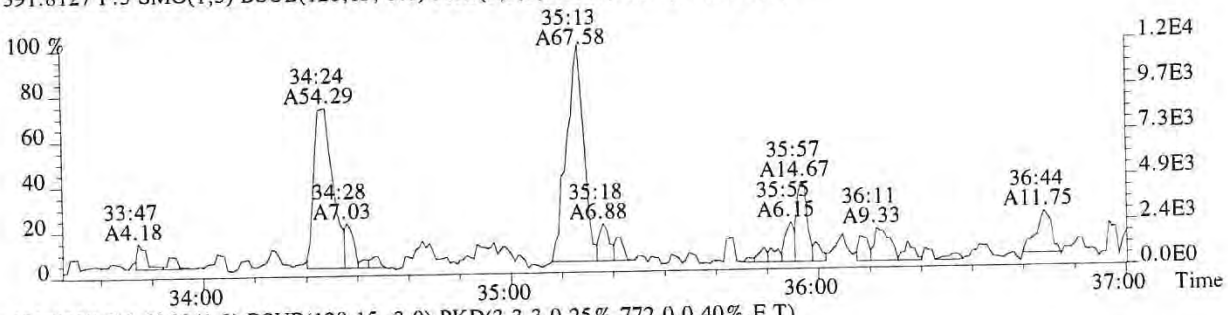


015637

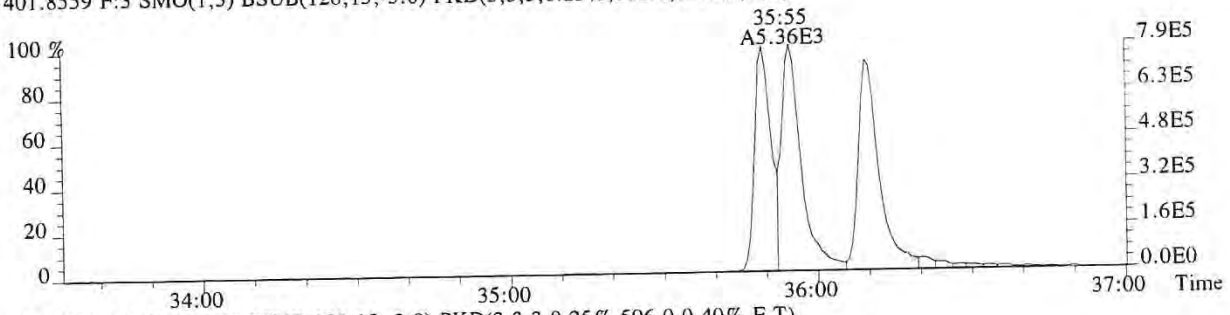
File:P519597 #1-312 Acq:24-DEC-2018 17:13:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-018DL
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,884.0,0.40%,F,T)



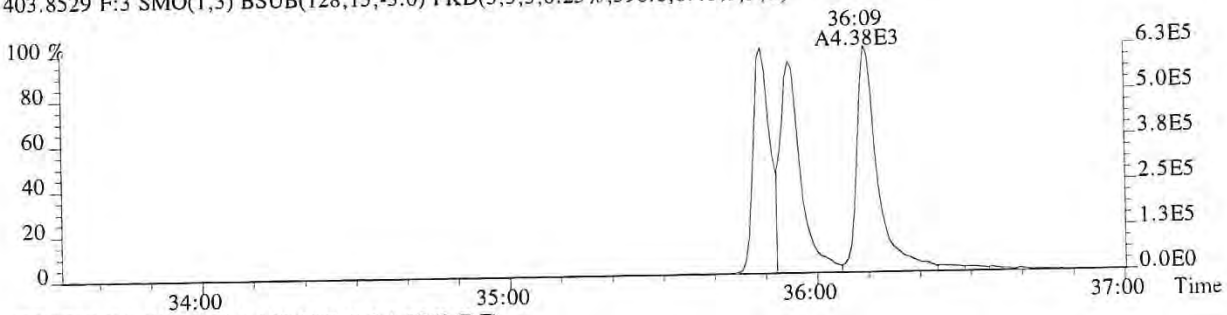
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,856.0,0.40%,F,T)



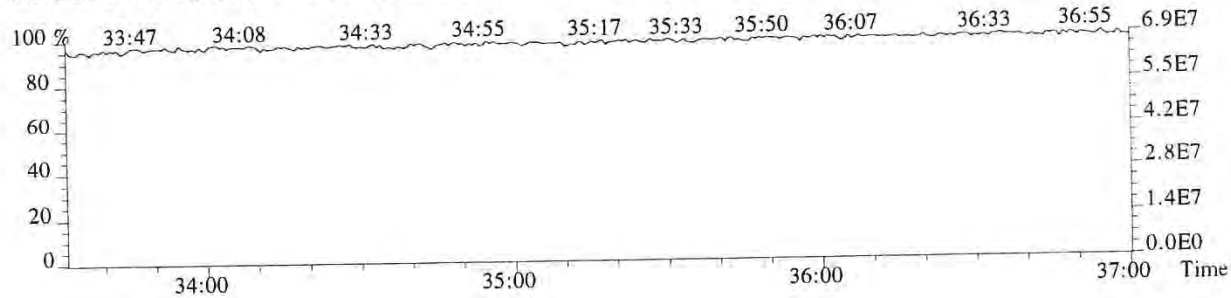
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,772.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,596.0,0.40%,F,T)

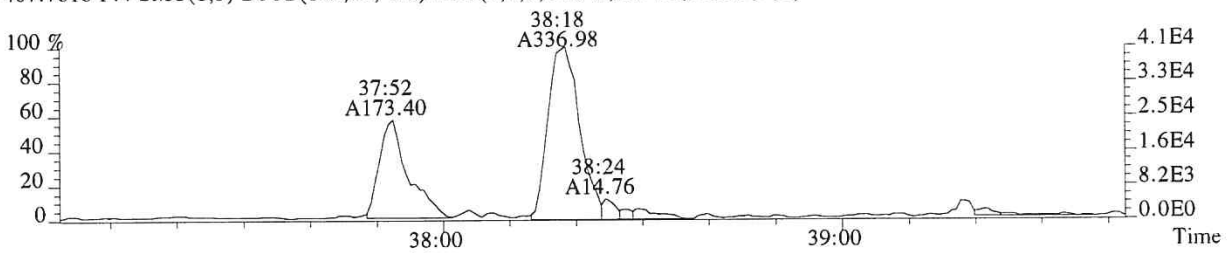


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

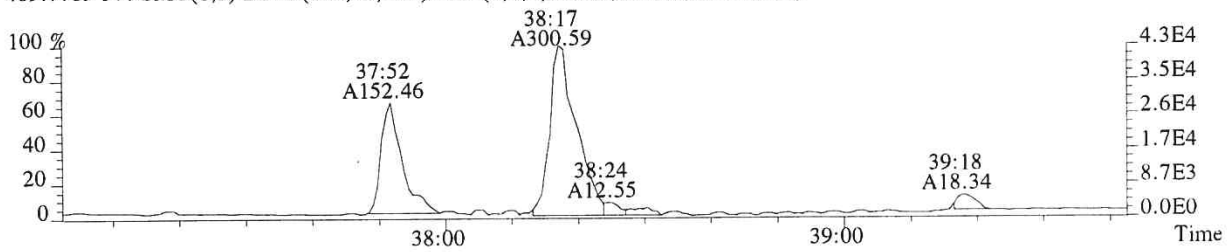


015638

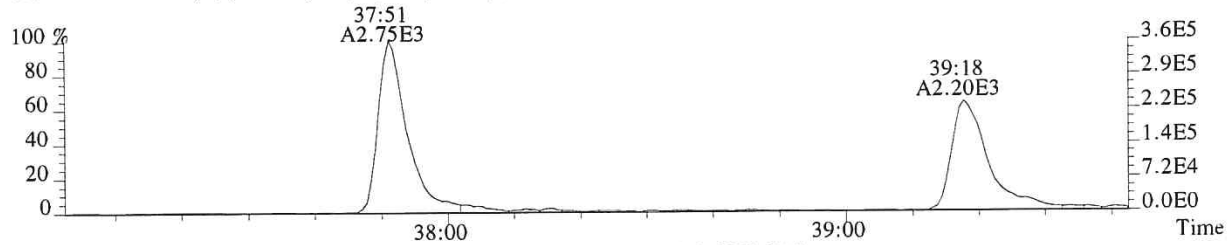
File:P519597 #1-241 Acq:24-DEC-2018 17:13:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-018DL
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1004.0,0.50%,F,T)



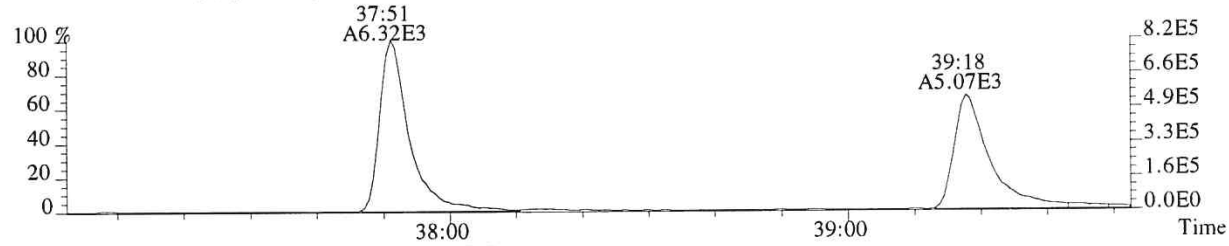
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1824.0,0.50%,F,T)



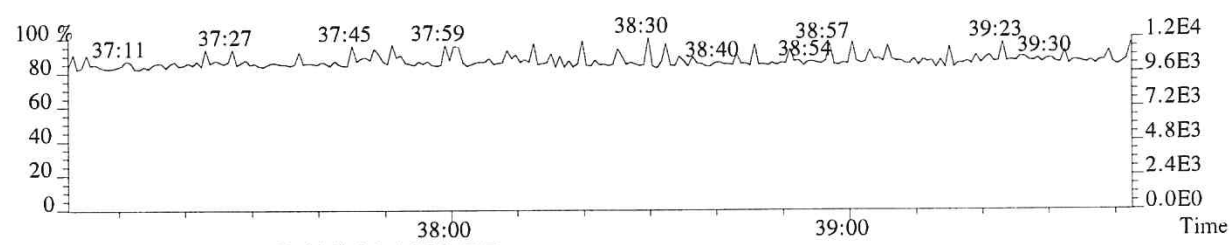
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,848.0,0.50%,F,T)



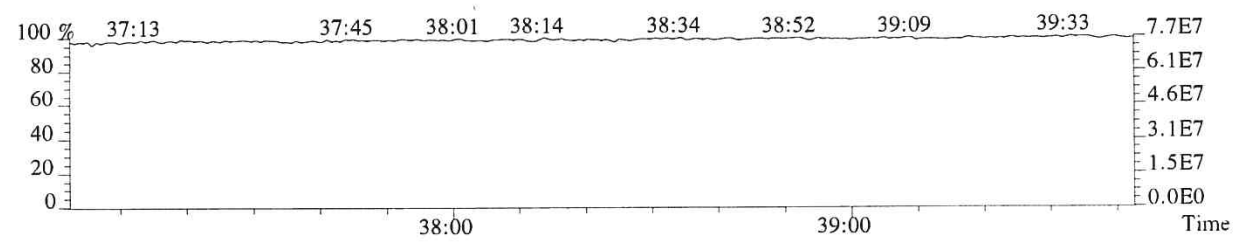
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3512.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

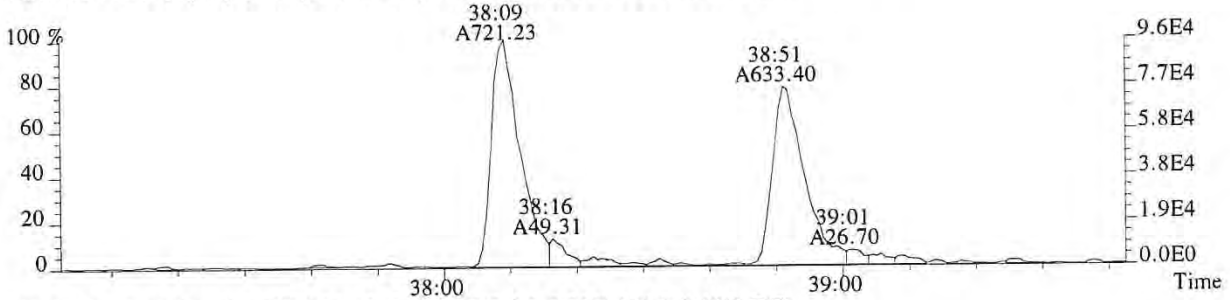


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

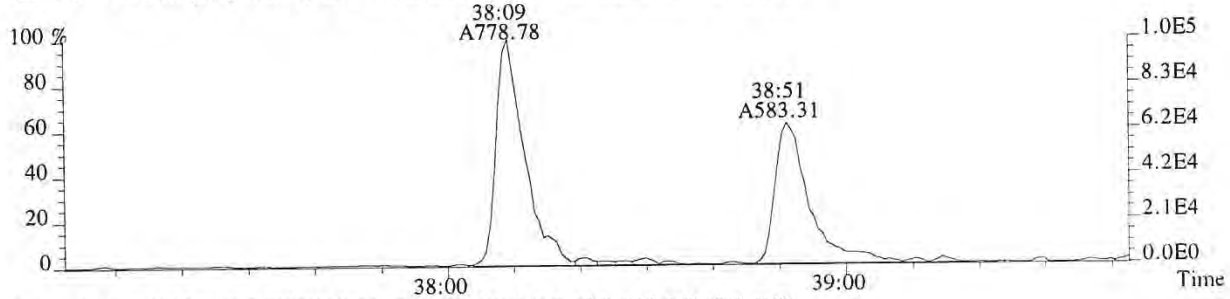


015639

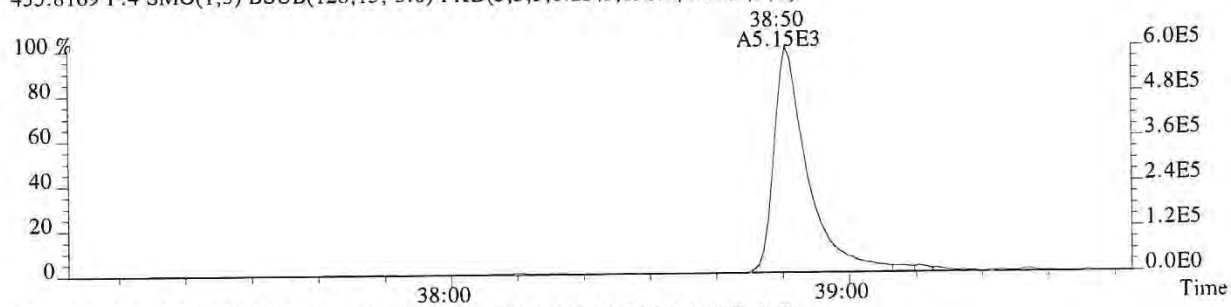
File:P519597 #1-241 Acq:24-DEC-2018 17:13:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-018DL
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,512.0,0.40%,F,T)



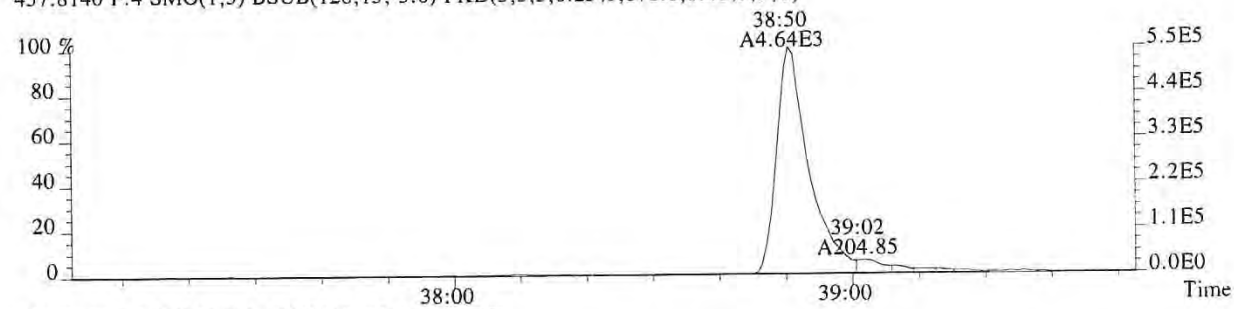
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,596.0,0.40%,F,T)



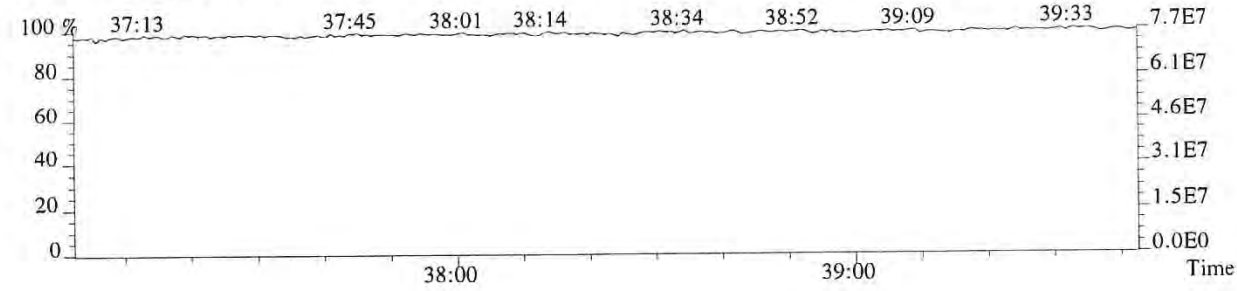
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,656.0,0.40%,F,T)



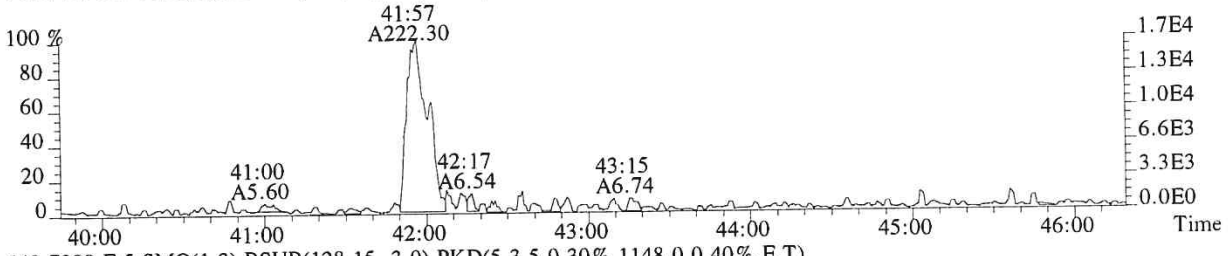
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,676.0,0.40%,F,T)



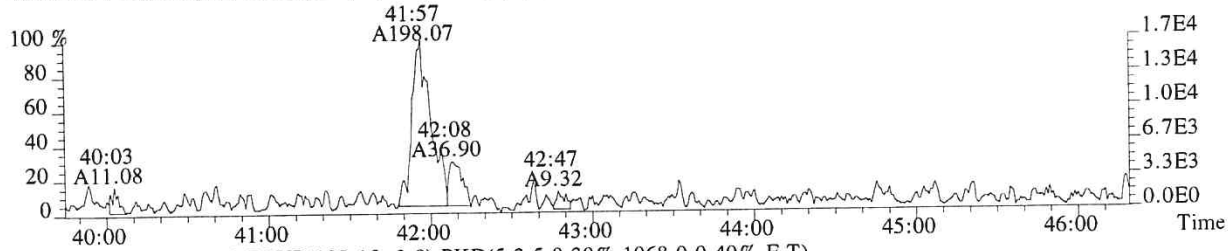
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



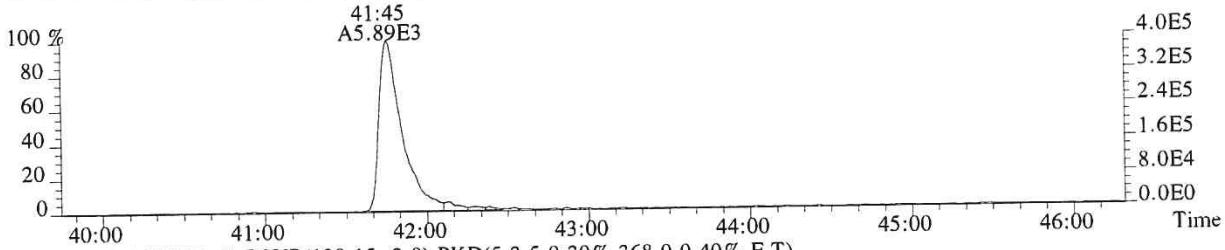
File:P519597 #1-592 Acq:24-DEC-2018 17:13:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-018DL
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,384.0,0.40%,F,T)



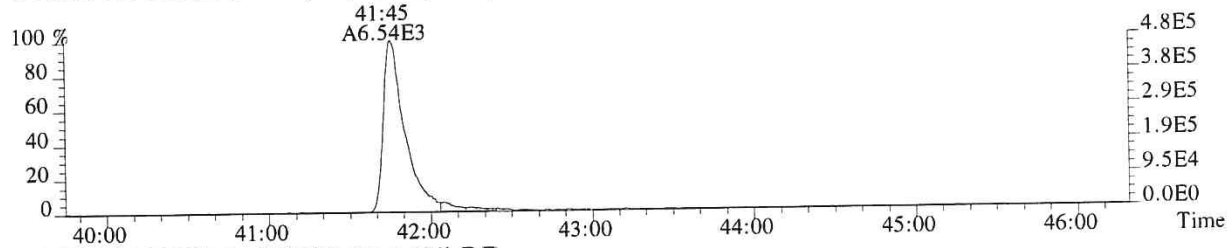
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1148.0,0.40%,F,T)



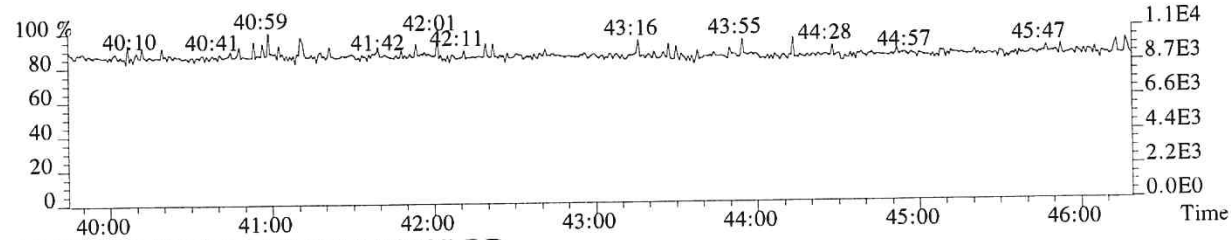
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1068.0,0.40%,F,T)



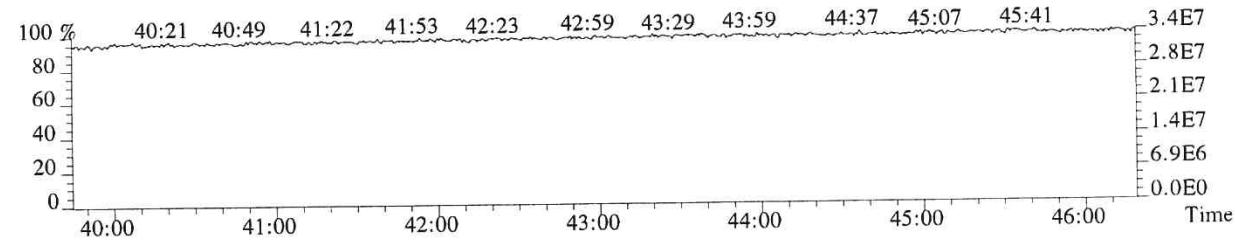
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,368.0,0.40%,F,T)



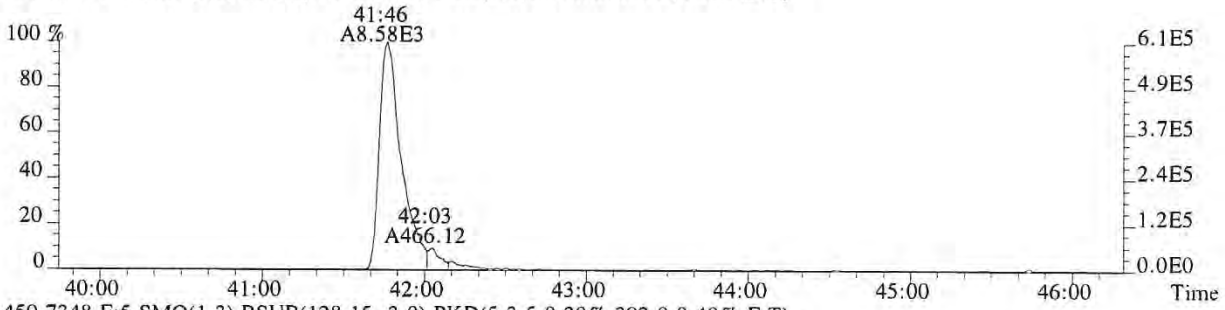
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



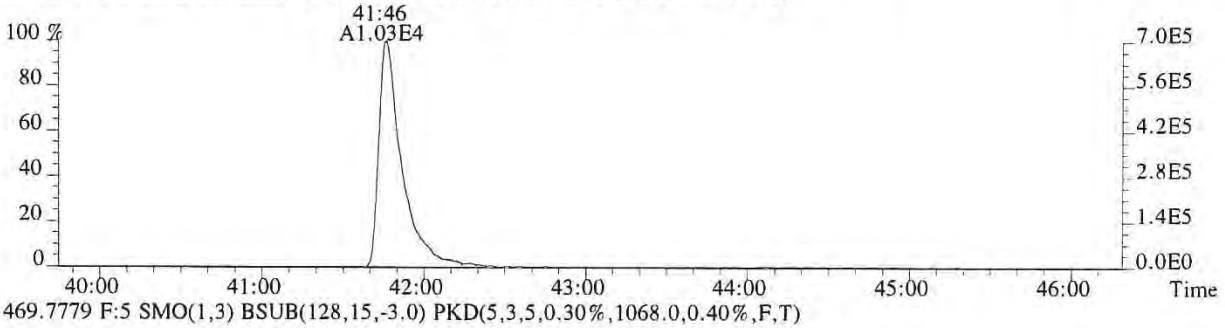
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



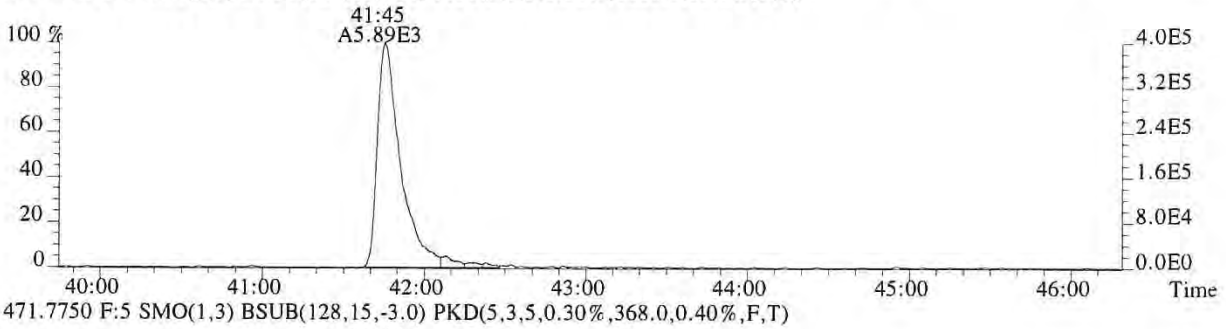
File:P519597 #1-592 Acq:24-DEC-2018 17:13:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-018DL
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,400.0,0.40%,F,T)



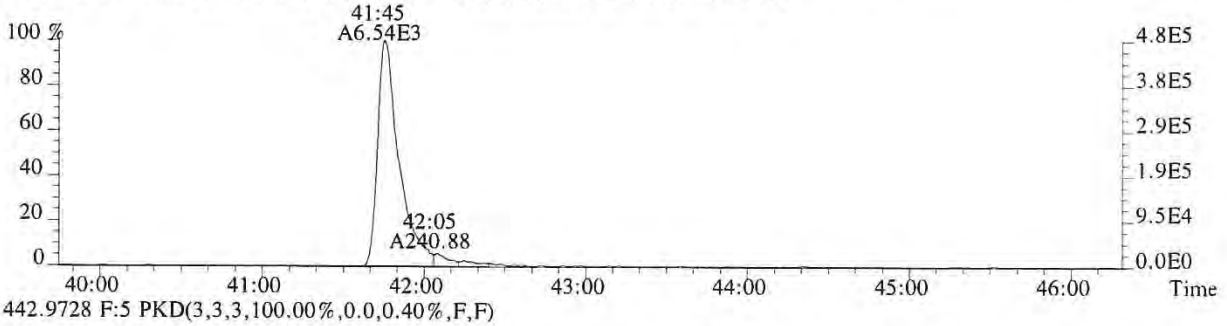
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,392.0,0.40%,F,T)



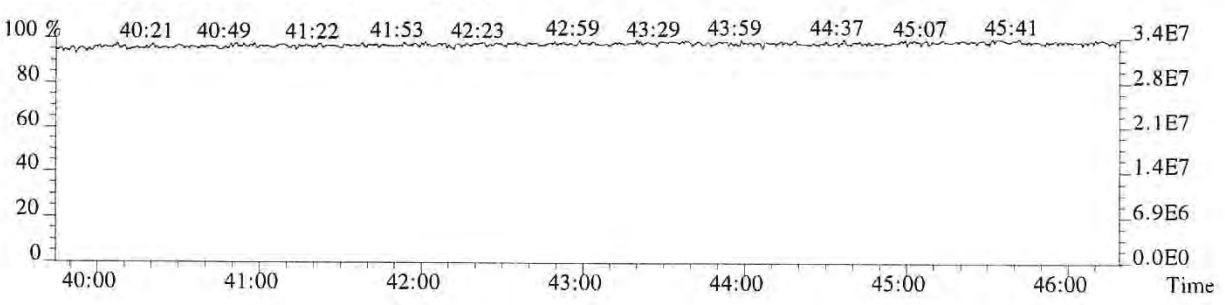
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1068.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,368.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0015

Run #13 Filename P519501 Samp: 1 Inj: 1 Acquired: 19-DEC-18 21:17:37
Processed: 20-DEC-18 11:32:31 Sample ID: E1801094-019

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:51	6.991e+02	1.060e+03	0.66	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	31:28	3.823e+01	3.084e+01	1.24	no	no	1.012
3	Unk	2,3,4,7,8-PeCDF	32:25	1.949e+01	1.036e+01	1.88	no	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:17	4.067e+01	2.816e+01	1.44	no	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:24	1.877e+01	1.594e+01	1.18	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:07	2.299e+01	3.603e+01	0.64	no	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.258
10	Unk	OCDF	42:12	2.640e+01	3.560e+01	0.74	no	no	1.359
11	Unk	2,3,7,8-TCDD	27:45	2.069e+02	2.706e+02	0.76	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	yes	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:12	2.222e+01	1.306e+01	1.70	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:26	3.993e+01	2.552e+01	1.56	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:05	3.358e+02	3.803e+02	0.88	no	no	1.025
17	Unk	OCDD	42:02	4.246e+03	4.705e+03	0.90	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	26:49	6.947e+03	8.762e+03	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	31:27	1.091e+04	6.965e+03	1.57	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	32:25	1.003e+04	6.246e+03	1.61	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:17	3.339e+03	6.200e+03	0.54	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:24	3.890e+03	7.432e+03	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:56	3.411e+03	6.543e+03	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	36:43	2.597e+03	4.705e+03	0.55	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:06	1.938e+03	4.017e+03	0.48	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:32	1.307e+03	2.976e+03	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	27:43	3.313e+03	4.162e+03	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:44	7.226e+03	4.522e+03	1.60	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:05	4.254e+03	3.313e+03	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:10	4.459e+03	3.557e+03	1.25	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:05	3.178e+03	3.038e+03	1.05	yes	no	0.858
32	IS	13C-OCDD	42:02	2.072e+03	2.374e+03	0.87	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:05	1.200e+04	1.477e+04	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:26	8.396e+03	6.756e+03	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:45	4.599e+03				no	1.014

$$OCDD = \frac{(4.246e+03 + 4.705e+03) \times 4000\ pg \times 1}{(2.072e+03 + 2.374e+03) \times 10.784\ g \times 83.4 / 100 \times 1.118} = 801\ ng/kg$$

lw 12/21/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0015

Run #13 Filename P519501 Samp: 1 Inj: 1 Acquired: 19-DEC-18 21:17:37
Processed: 20-DEC-18 11:32:31 LAB. ID: E1801094-019

	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	6.56e+02	1.7e+02	1.48e+05	6.96e+02	2.1e+02
2	1,2,3,7,8-PeCDF	6.40e+03	5.72e+02	1.1e+01	6.07e+03	8.88e+02	6.8e+00
3	2,3,4,7,8-PeCDF	5.04e+03	5.72e+02	8.8e+00	2.83e+03	8.88e+02	3.2e+00
4	1,2,3,4,7,8-HxCDF	8.07e+03	5.12e+02	1.6e+01	6.99e+03	5.44e+02	1.3e+01
5	1,2,3,6,7,8-HxCDF	4.51e+03	5.12e+02	8.8e+00	3.20e+03	5.44e+02	5.9e+00
6	2,3,4,6,7,8-HxCDF	*	5.12e+02	*	*	5.44e+02	*
7	1,2,3,7,8,9-HxCDF	*	5.12e+02	*	*	5.44e+02	*
8	1,2,3,4,6,7,8-HpCDF	5.70e+03	4.44e+02	1.3e+01	6.89e+03	4.00e+02	1.7e+01
9	1,2,3,4,7,8,9-HpCDF	*	4.44e+02	*	*	4.00e+02	*
10	OCDF	3.60e+03	2.68e+02	1.3e+01	4.91e+03	6.64e+02	7.4e+00
11	2,3,7,8-TCDD	3.97e+04	1.32e+03	3.0e+01	4.29e+04	9.76e+02	4.4e+01
12	1,2,3,7,8-PeCDD	*	4.60e+02	*	*	6.48e+02	*
13	1,2,3,4,7,8-HxCDD	*	8.04e+02	*	*	8.84e+02	*
14	1,2,3,6,7,8-HxCDD	3.75e+03	8.04e+02	4.7e+00	3.82e+03	8.84e+02	4.3e+00
15	1,2,3,7,8,9-HxCDD	6.49e+03	8.04e+02	8.1e+00	5.09e+03	8.84e+02	5.8e+00
16	1,2,3,4,6,7,8-HpCDD	5.05e+04	8.48e+02	6.0e+01	5.74e+04	4.36e+02	1.3e+02
17	OCDD	4.55e+05	3.88e+02	1.2e+03	5.00e+05	3.32e+02	1.5e+03
18	13C-2,3,7,8-TCDF	1.06e+06	4.84e+03	2.2e+02	1.36e+06	2.37e+03	5.7e+02
19	13C-1,2,3,7,8-PeCDF	1.87e+06	3.84e+02	4.9e+03	1.18e+06	2.84e+02	4.2e+03
20	13C-2,3,4,7,8-PeCDF	1.78e+06	3.84e+02	4.6e+03	1.11e+06	2.84e+02	3.9e+03
21	13C-1,2,3,4,7,8-HxCDF	6.44e+05	6.24e+02	1.0e+03	1.25e+06	4.04e+02	3.1e+03
22	13C-1,2,3,6,7,8-HxCDF	6.99e+05	6.24e+02	1.1e+03	1.41e+06	4.04e+02	3.5e+03
23	13C-2,3,4,6,7,8-HxCDF	6.58e+05	6.24e+02	1.1e+03	1.26e+06	4.04e+02	3.1e+03
24	13C-1,2,3,7,8,9-HxCDF	4.72e+05	6.24e+02	7.6e+02	8.44e+05	4.04e+02	2.1e+03
25	13C-1,2,3,4,6,7,8-HpCDF	3.22e+05	9.04e+02	3.6e+02	7.07e+05	8.04e+02	8.8e+02
26	13C-1,2,3,4,7,8,9-HpCDF	1.89e+05	9.04e+02	2.1e+02	4.69e+05	8.04e+02	5.8e+02
27	13C-2,3,7,8-TCDD	5.74e+05	3.70e+03	1.5e+02	6.97e+05	1.95e+03	3.6e+02
28	13C-1,2,3,7,8-PeCDD	1.25e+06	6.16e+02	2.0e+03	7.87e+05	9.16e+02	8.6e+02
29	13C-1,2,3,4,7,8-HxCDD	8.99e+05	4.52e+02	2.0e+03	6.82e+05	5.48e+02	1.2e+03
30	13C-1,2,3,6,7,8-HxCDD	7.87e+05	4.52e+02	1.7e+03	6.11e+05	5.48e+02	1.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	5.13e+05	4.72e+02	1.1e+03	4.82e+05	3.16e+02	1.5e+03
32	13C-OCDD	2.29e+05	4.44e+02	5.2e+02	2.65e+05	4.64e+02	5.7e+02
33	13C-1,2,3,4-TCDD	1.99e+06	3.70e+03	5.4e+02	2.49e+06	1.95e+03	1.3e+03
34	13C-1,2,3,7,8,9-HxCDD	1.47e+06	4.52e+02	3.3e+03	1.17e+06	5.48e+02	2.1e+03
35	37Cl-2,3,7,8-TCDD	7.74e+05	3.84e+02	2.0e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.316e{+}03 + 9.760e{+}02) \times 2000}{(5.740e{+}05 + 6.971e{+}05) \times (\qquad) \times 1.085} =$$

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0015

Entry: 36 Totals Name: Total Tetra-Furans

Run: 13 File: P519501 Sample:1 Injection:1 Function:1

Acquired: 19-DEC-18 21:17:37 Processed: 20-DEC-18 11:32:31

Mass: 303.9020 305.8990 Tot Response: 2.74e+03 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	23:56	4.25e+01	5.26e+01	0.81	yes	9.51e+01		n	n
2	25:26	4.34e+01	5.23e+01	0.83	yes	9.57e+01		n	n
3	25:56	3.16e+02	4.49e+02	0.70	yes	7.65e+02		n	n
4	26:51	6.99e+02	1.06e+03	0.66	yes	1.76e+03	2,3,7,8-TCDF	n	n
5	27:29	9.81e+00	1.16e+01	0.84	yes	2.15e+01		n	n

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Peak List Summary

CLIENT ID.
SL0015

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 13 File: P519501 Sample:1 Injection:1 Function:1

Acquired: 19-DEC-18 21:17:37 Processed: 20-DEC-18 11:32:31

Mass: 319.8970 321.8940 Tot Response: 1.01e+03 RRF: 1.085

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	25:33	2.18e+02	3.14e+02	0.69	yes	5.32e+02		n	n
2	27:45	2.07e+02	2.71e+02	0.76	yes	4.77e+02	2,3,7,8-TCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0015

Entry: 41 Totals Name: Total Hexa-Furans

Run: 13 File: P519501 Sample:1 Injection:1 Function:3

Acquired: 19-DEC-18 21:17:37 Processed: 20-DEC-18 11:32:31

Mass: 373.8210 375.8180 Tot Response: 6.23e+01 RRF: 1.141

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:50	1.44e+01	1.10	yes	2.76e+01		n	n
2	35:24	1.88e+01	1.18	yes	3.47e+01	1,2,3,6,7,8-HxCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0015

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 13 File: P519501 Sample:1 Injection:1 Function:3

Acquired: 19-DEC-18 21:17:37 Processed: 20-DEC-18 11:32:31

Mass: 389.8160 391.8130 Tot Response: 1.44e+03 RRF: 1.047

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:41	6.67e+02	5.66e+02 1.18	yes	1.23e+03		n	n
2	35:28	1.21e+02	8.89e+01 1.37	yes	2.10e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0015

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 13 File: P519501 Sample:1 Injection:1 Function:4

Acquired: 19-DEC-18 21:17:37 Processed: 20-DEC-18 11:32:31

Mass: 423.7770 425.7740 Tot Response: 1.79e+03 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:23	9.24e+02	8.68e+02 1.06	yes	1.79e+03		n	n

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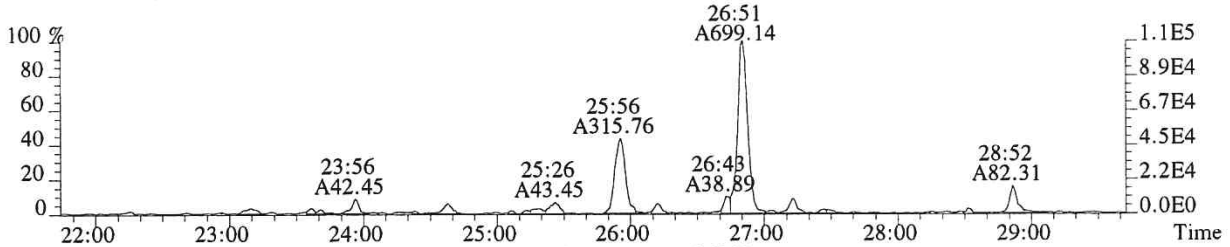
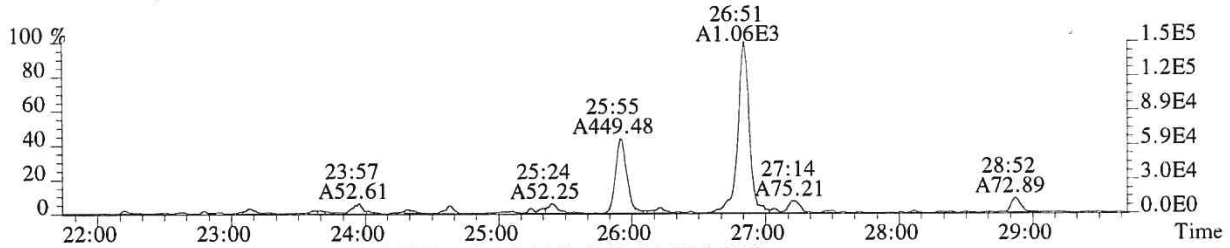
File:P519501 #1-566 Acq:19-DEC-2018 21:17:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-019

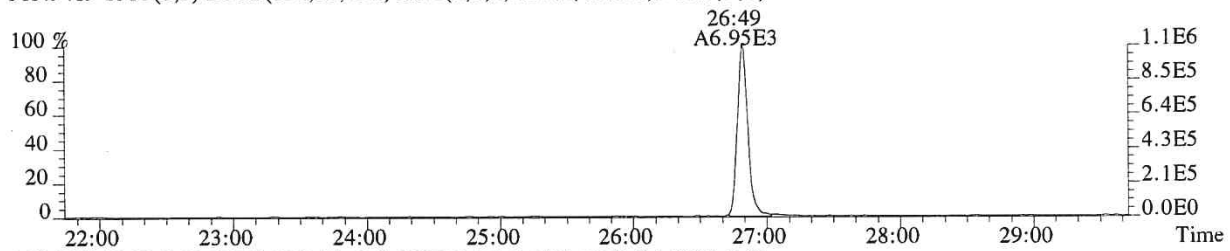
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,656.0,1.00%,F,T)



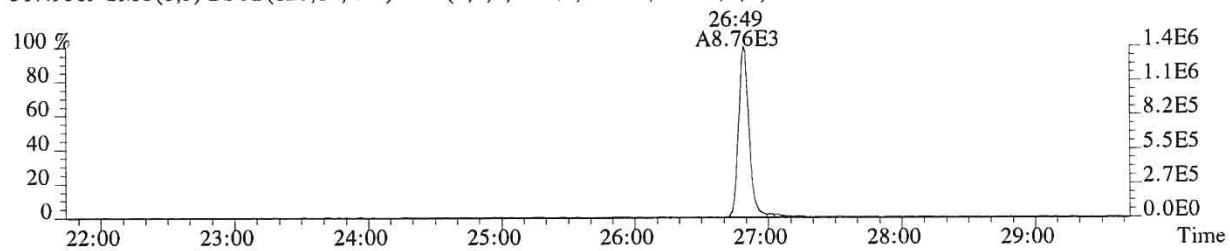
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



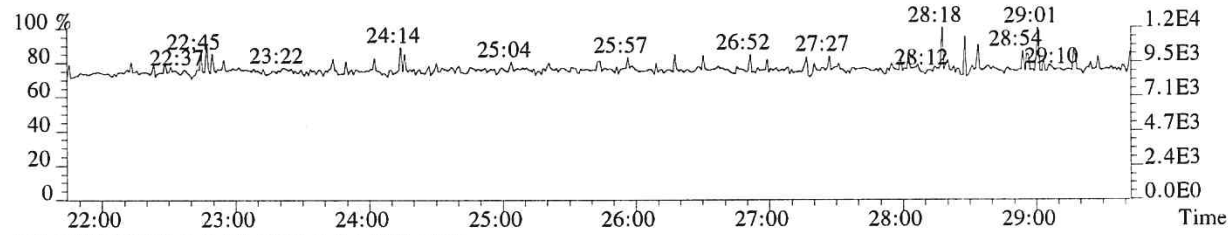
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4840.0,1.00%,F,T)



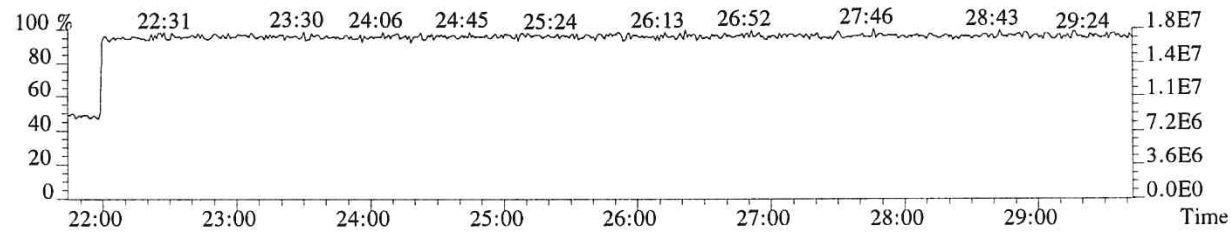
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2372.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

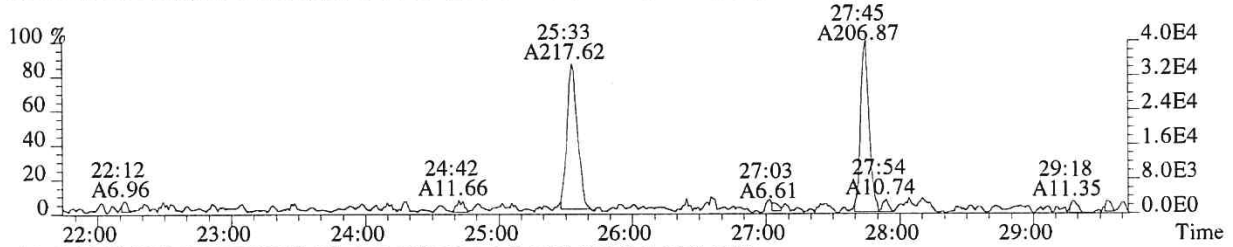


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

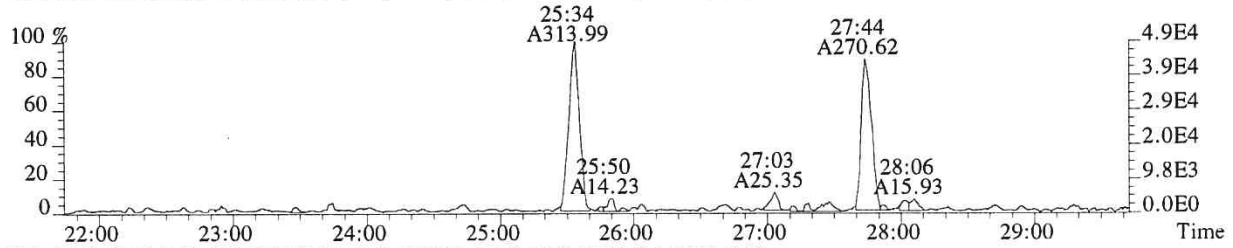


015650

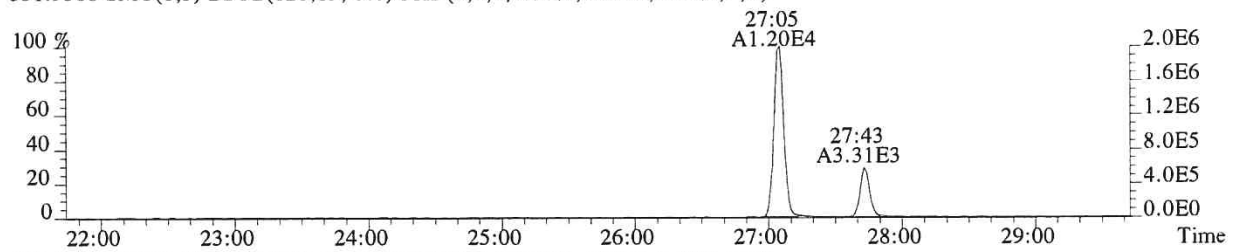
File:P519501 #1-566 Acq:19-DEC-2018 21:17:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-019
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1316.0,1.00%,F,T)



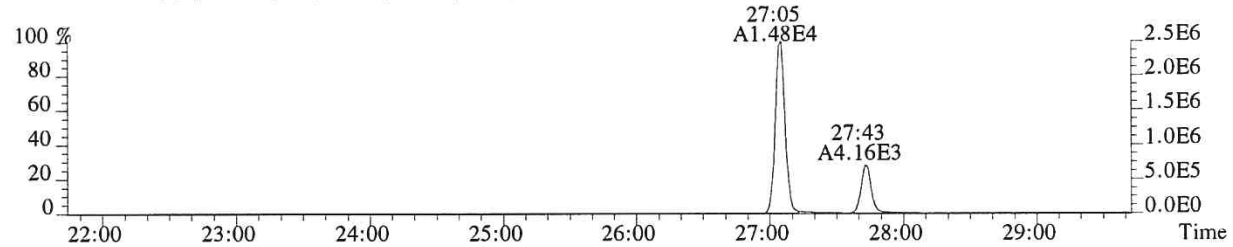
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,976.0,1.00%,F,T)



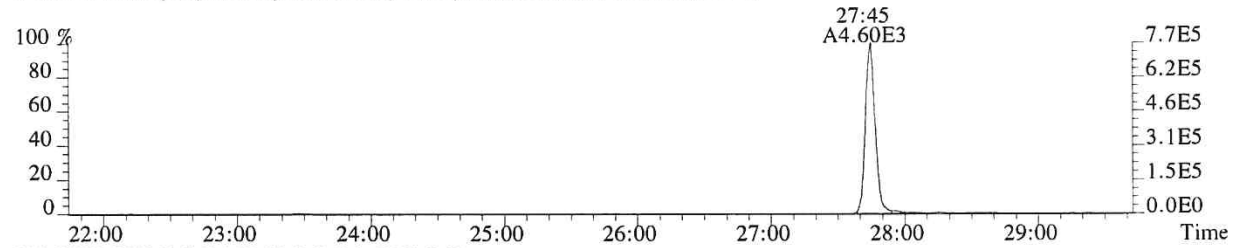
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3704.0,1.00%,F,T)



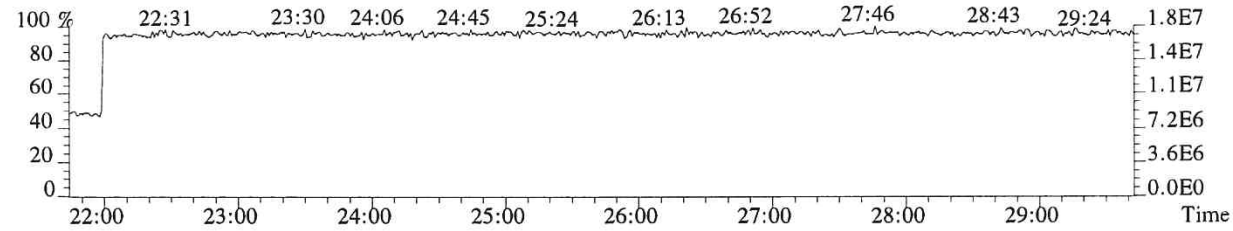
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1948.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,384.0,1.00%,F,T)

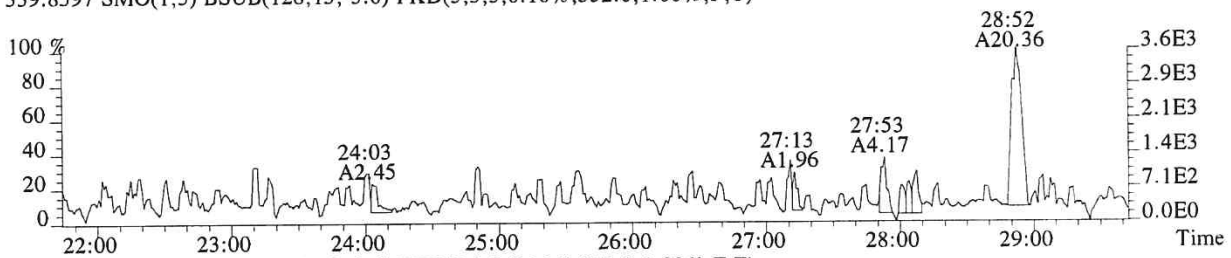


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

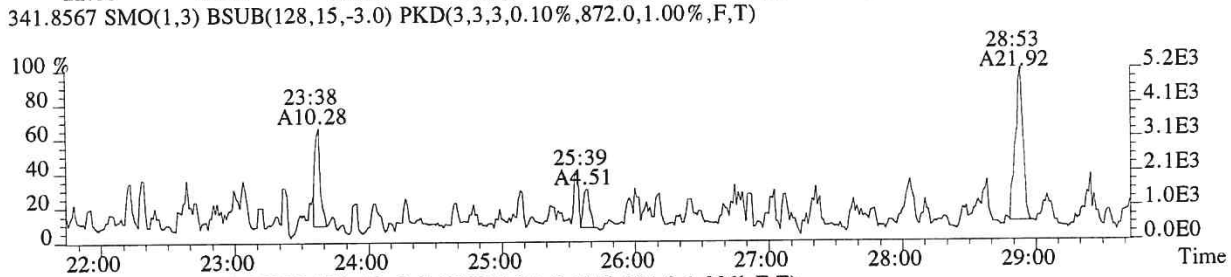


015651

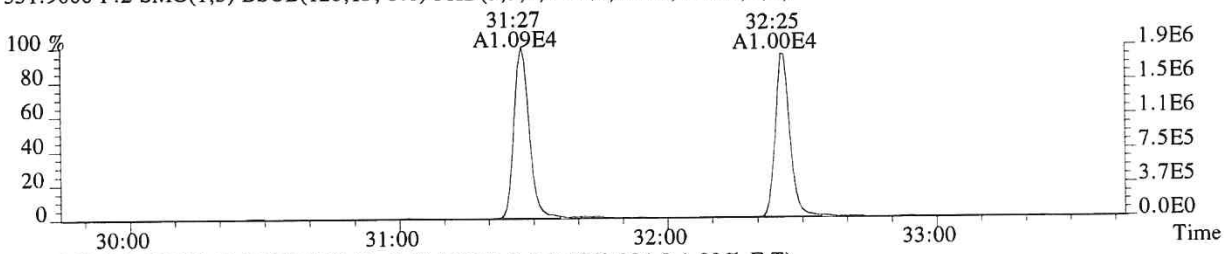
File:P519501 #1-566 Acq:19-DEC-2018 21:17:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-019
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,532.0,1.00%,F,T)



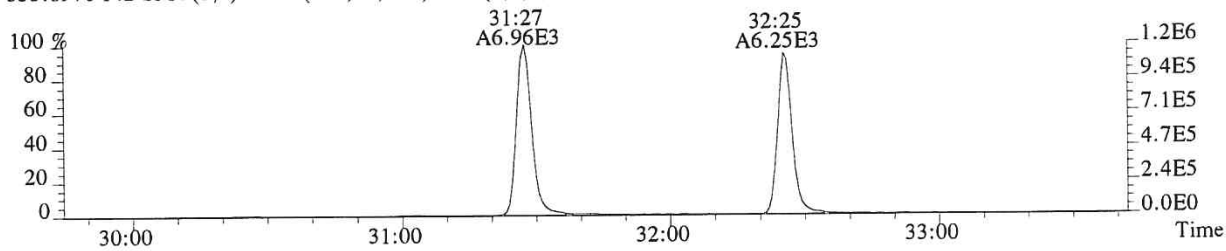
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,872.0,1.00%,F,T)



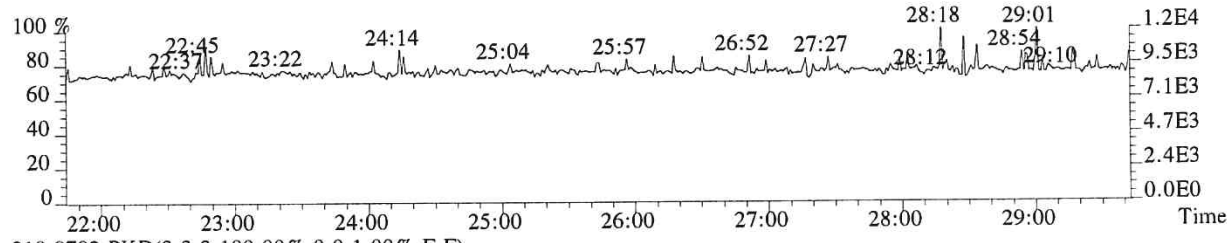
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,384.0,1.00%,F,T)



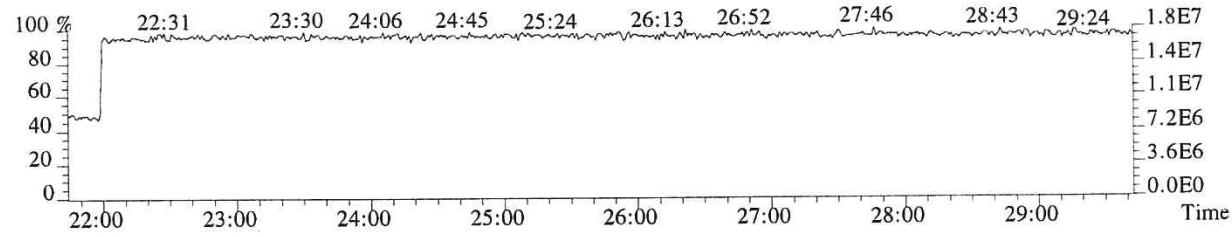
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,284.0,1.00%,F,T)



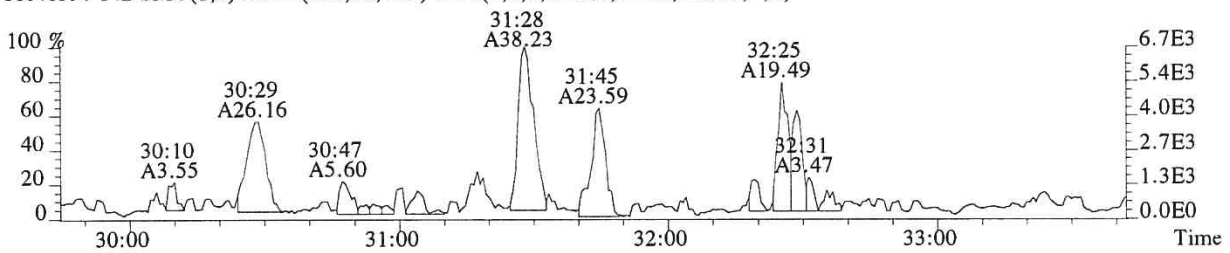
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



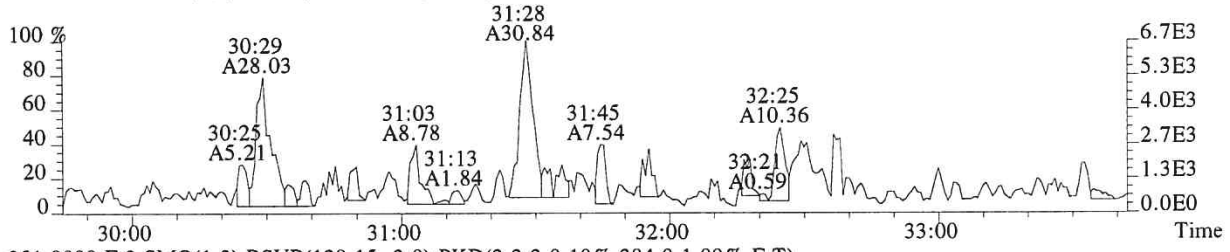
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



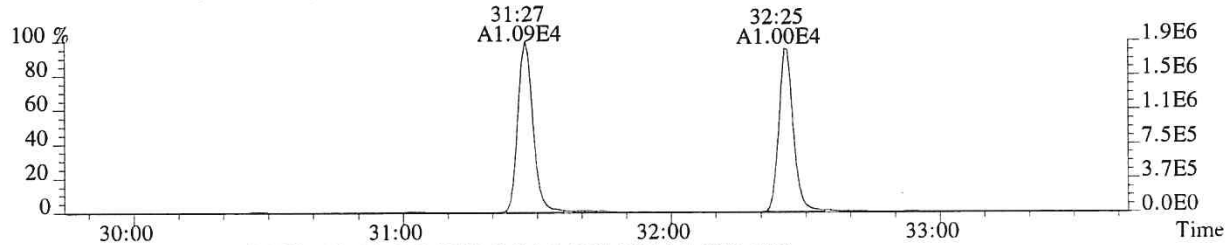
File:P519501 #1-357 Acq:19-DEC-2018 21:17:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-019
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,572.0,1.00%,F,T)



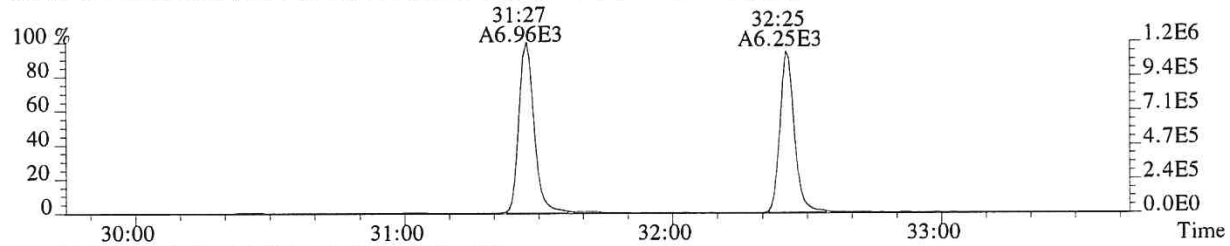
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,888.0,1.00%,F,T)



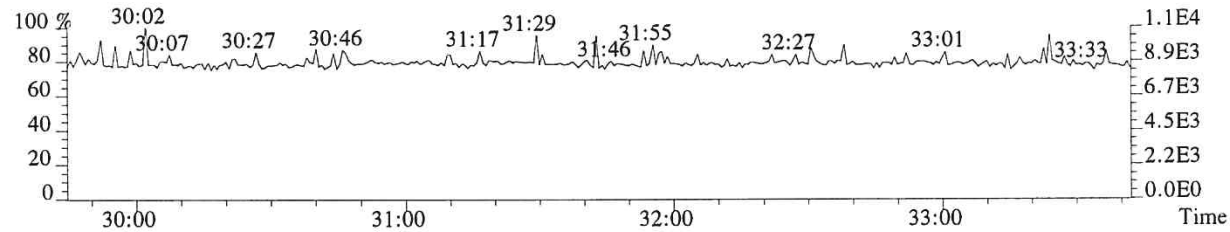
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,384.0,1.00%,F,T)



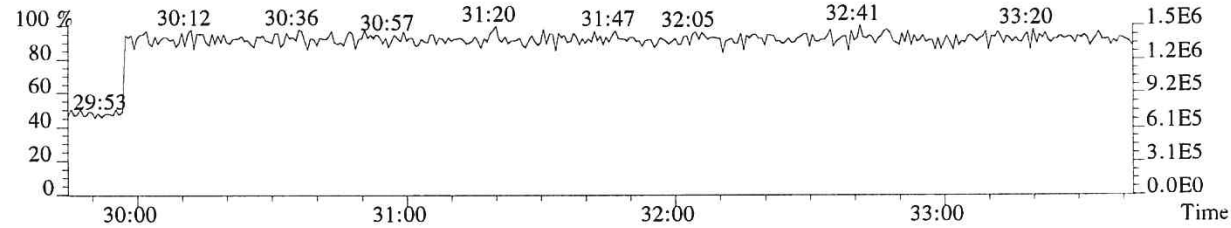
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,284.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

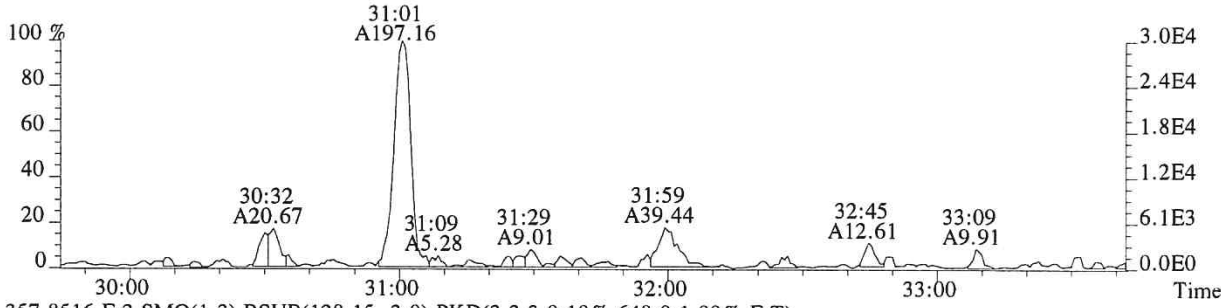


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

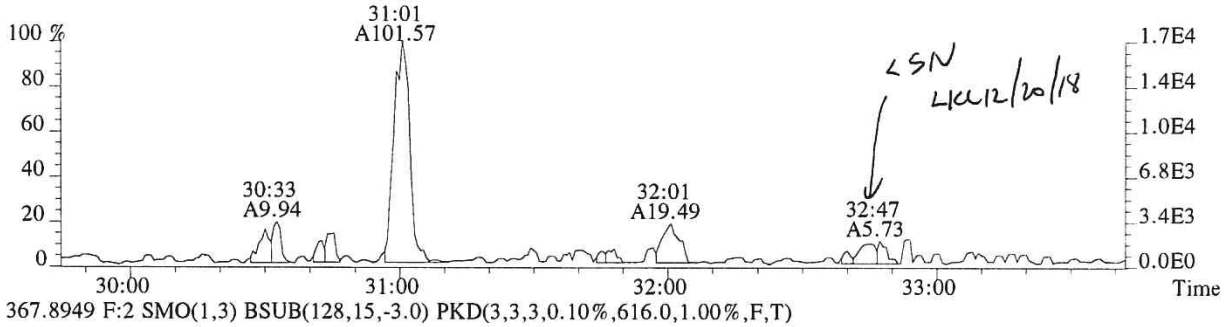


015653

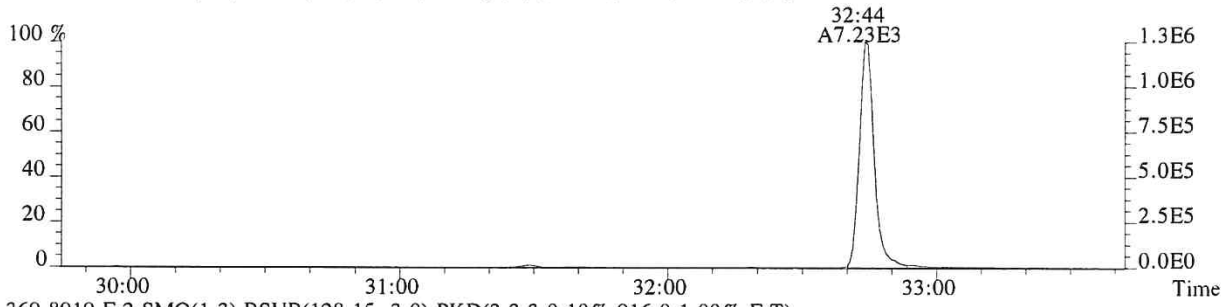
File:P519501 #1-357 Acq:19-DEC-2018 21:17:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-019
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,460.0,1.00%,F,T)



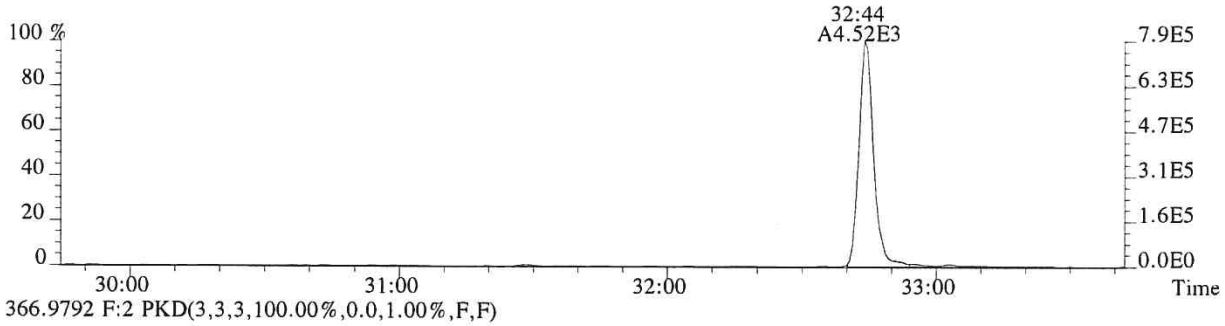
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



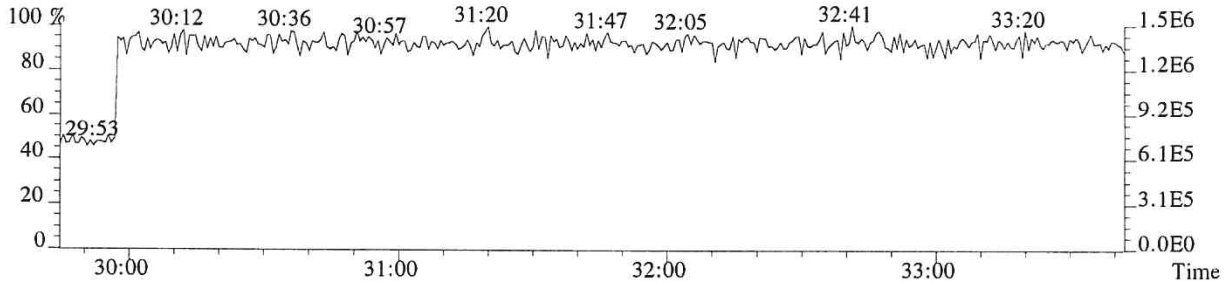
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,616.0,1.00%,F,T)



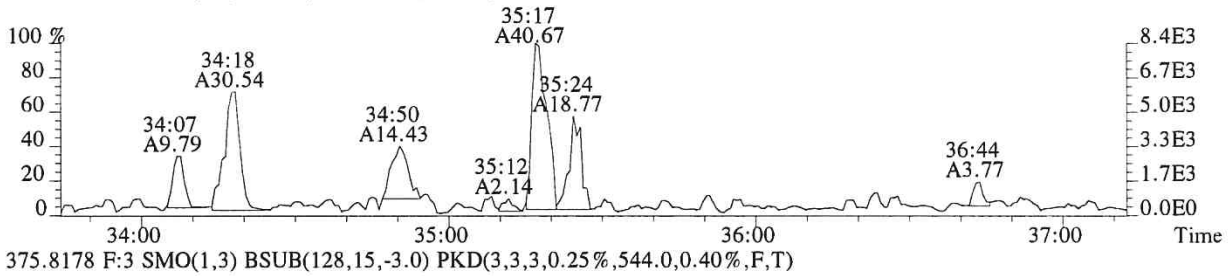
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,916.0,1.00%,F,T)



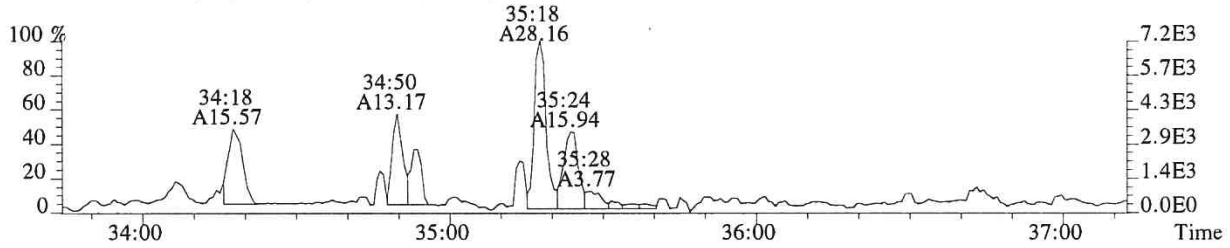
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



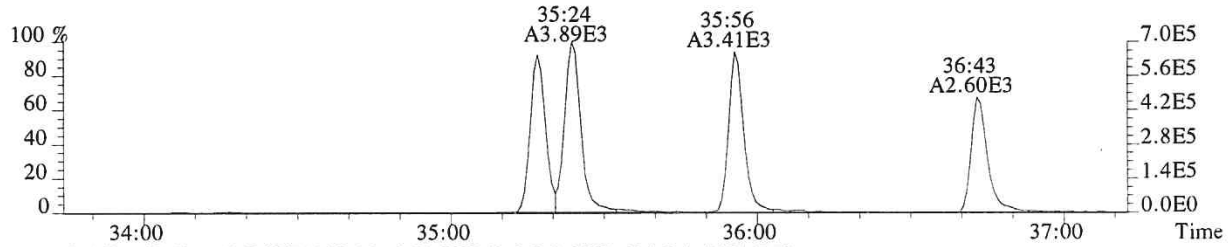
File:P519501 #1-313 Acq:19-DEC-2018 21:17:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-019
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,512.0,0.40%,F,T)



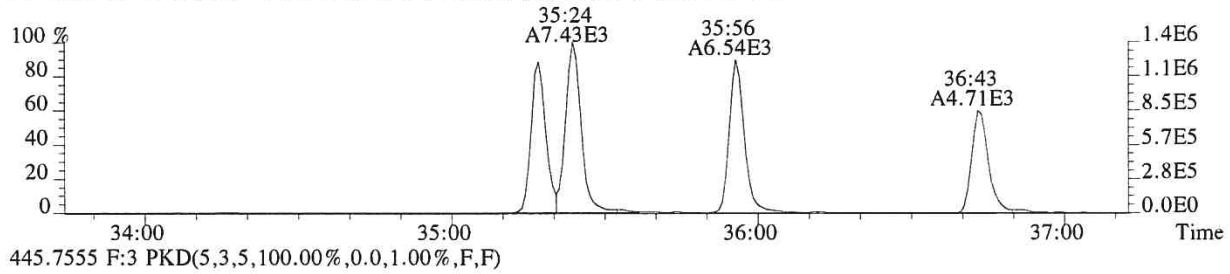
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,544.0,0.40%,F,T)



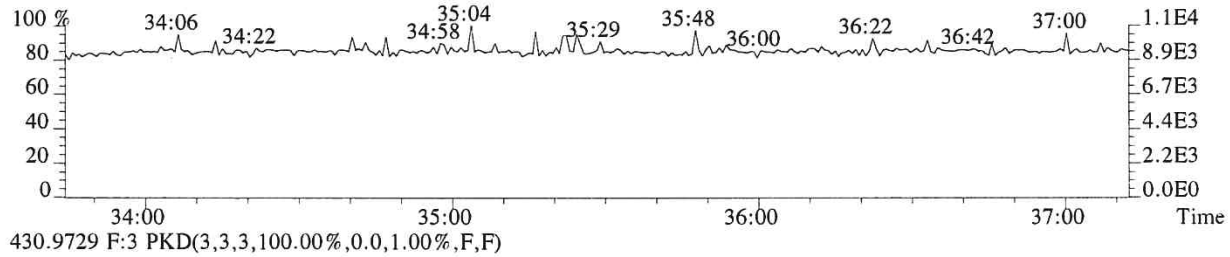
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,624.0,0.40%,F,T)



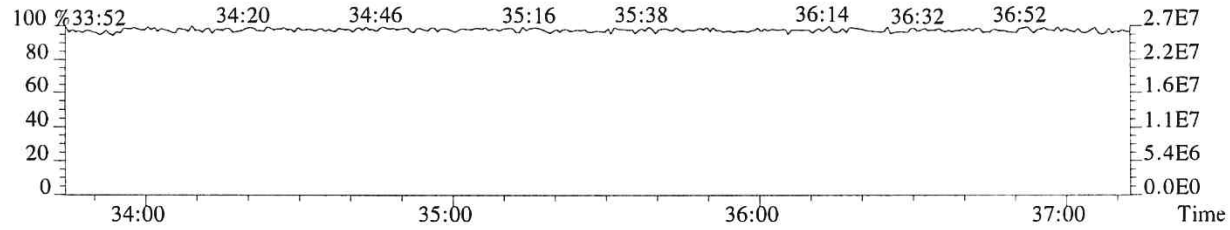
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,404.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

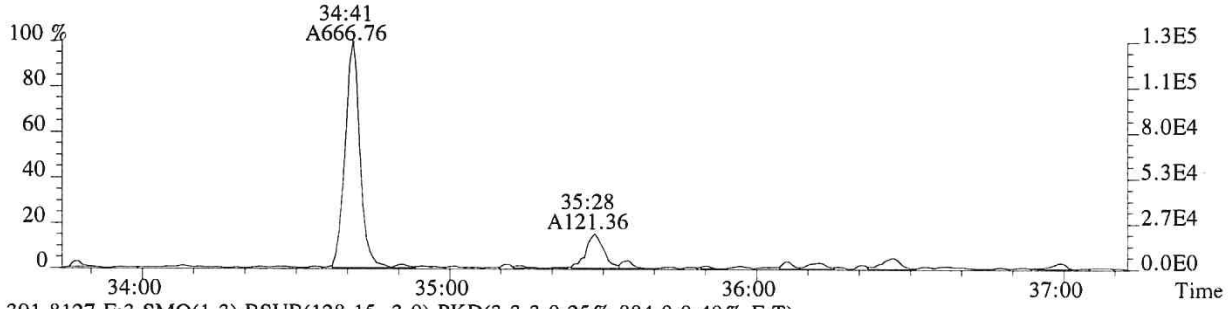


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

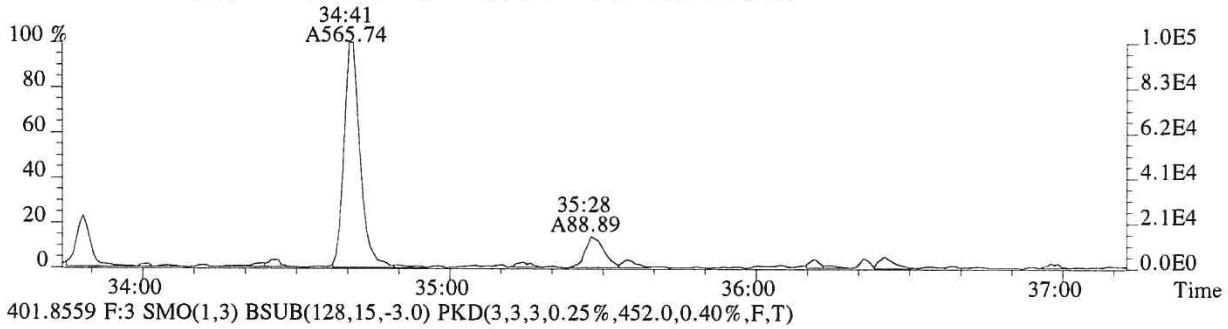


015655

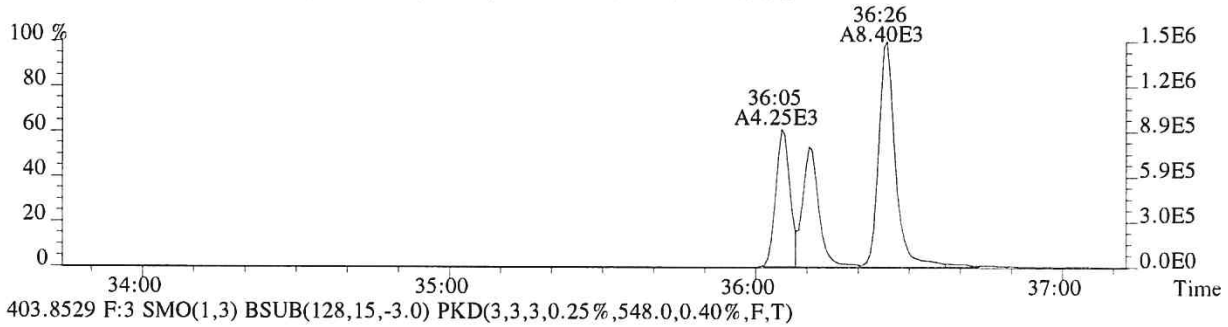
File:P519501 #1-313 Acq:19-DEC-2018 21:17:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-019
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,804.0,0.40%,F,T)



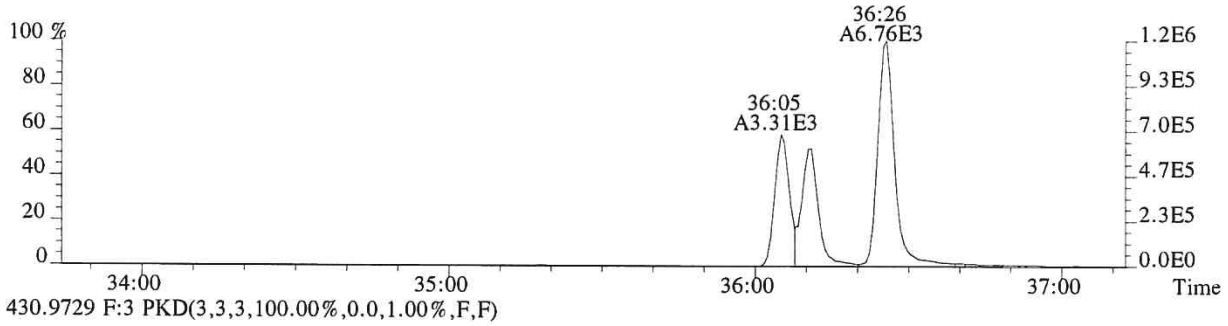
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,884.0,0.40%,F,T)



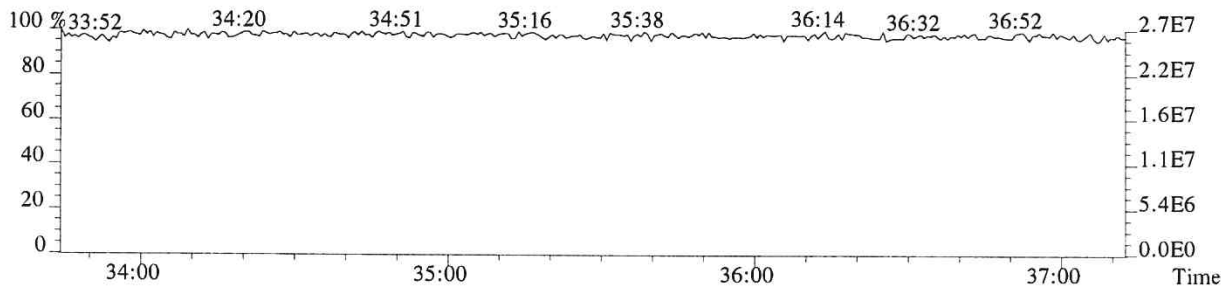
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,452.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,548.0,0.40%,F,T)



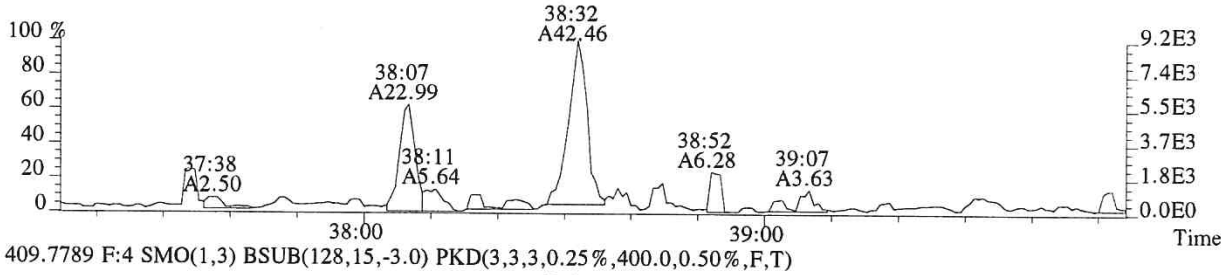
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



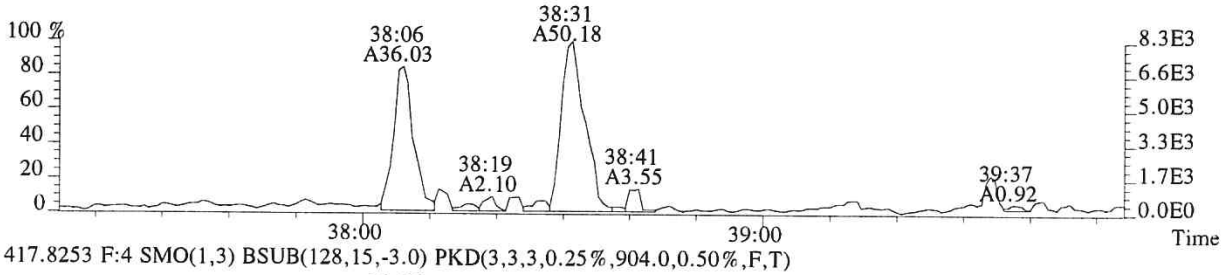
015656

File:P519501 #1-240 Acq:19-DEC-2018 21:17:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-019

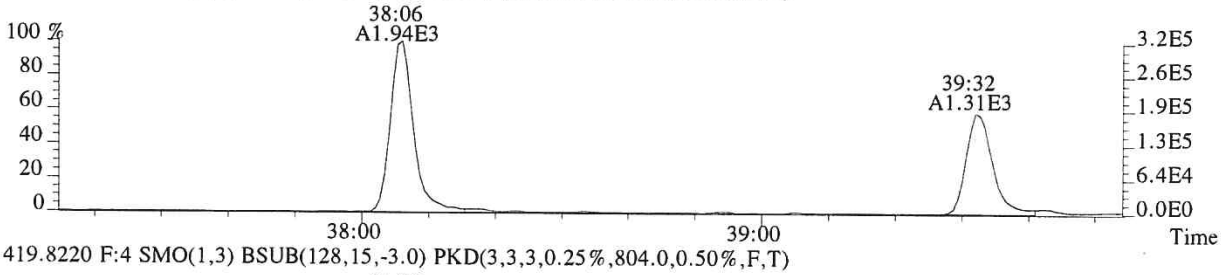
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,444.0,0.50%,F,T)



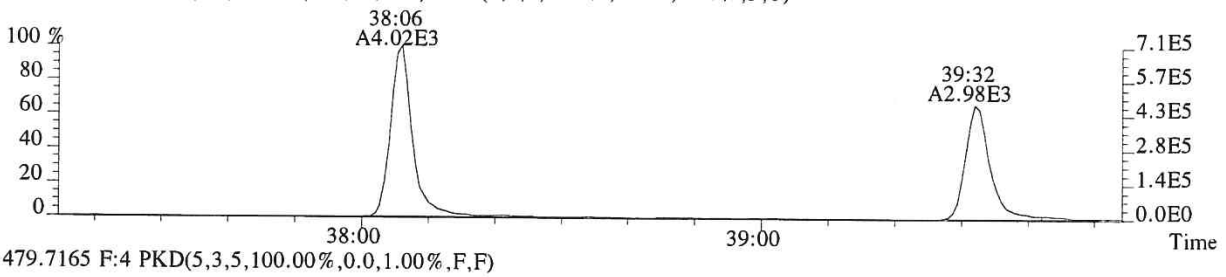
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,400.0,0.50%,F,T)



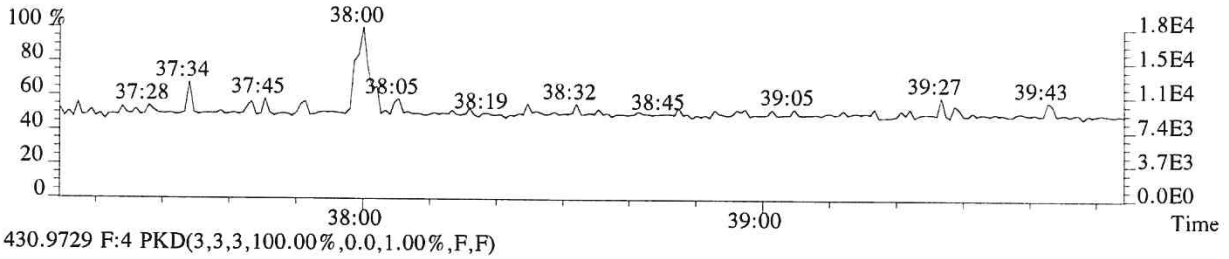
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,904.0,0.50%,F,T)



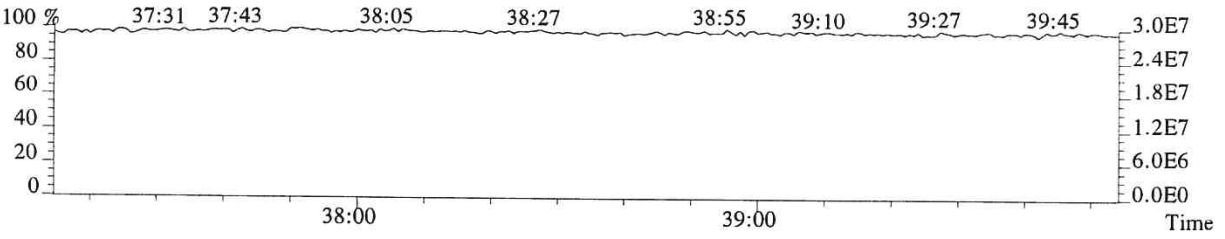
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,804.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

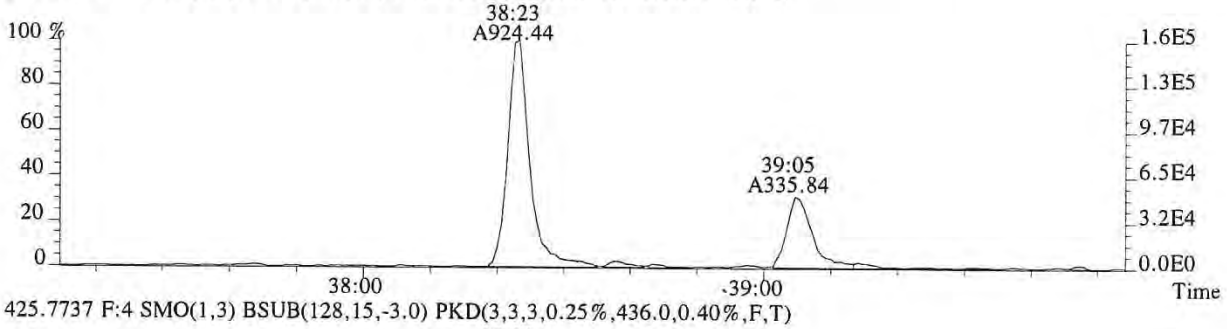


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

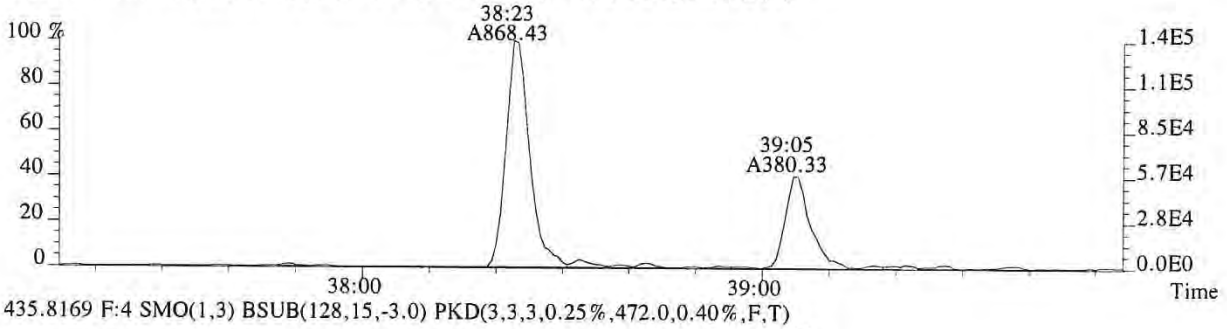


015657

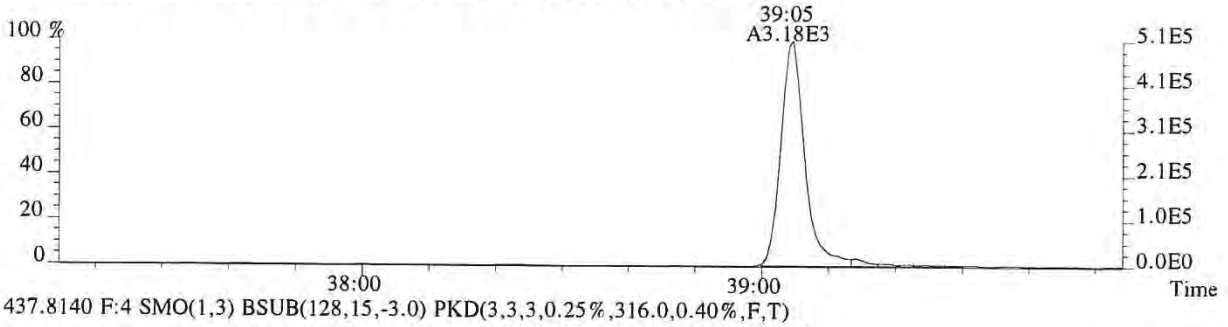
File:P519501 #1-240 Acq:19-DEC-2018 21:17:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-019
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,848.0,0.40%,F,T)



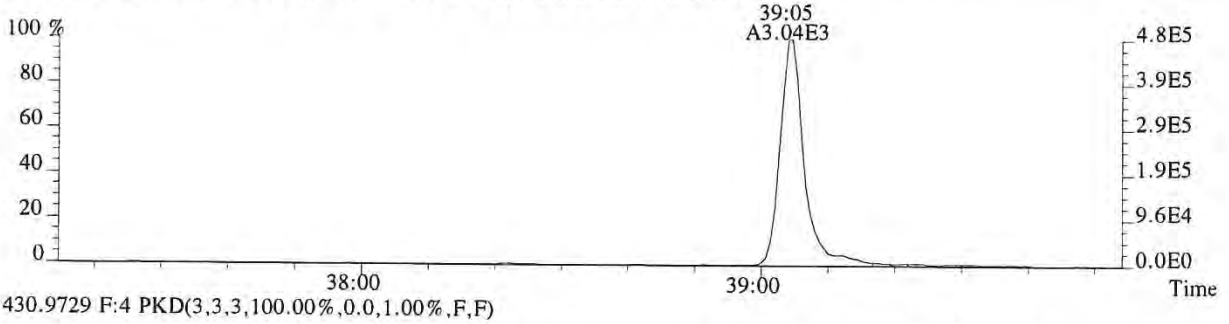
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,436.0,0.40%,F,T)



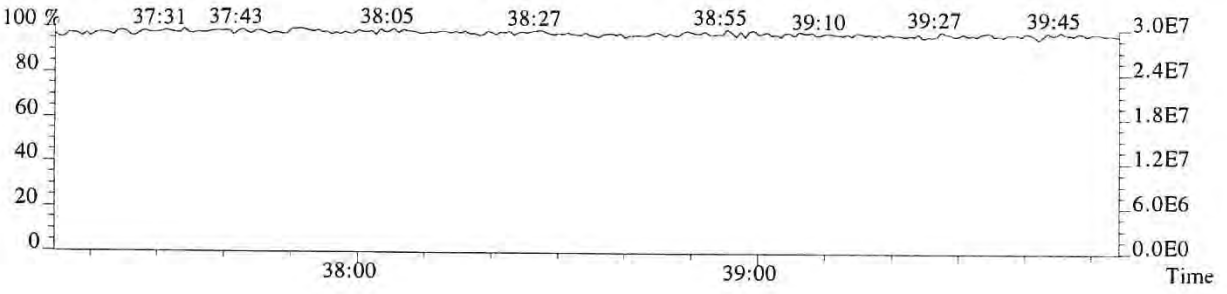
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,472.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,316.0,0.40%,F,T)



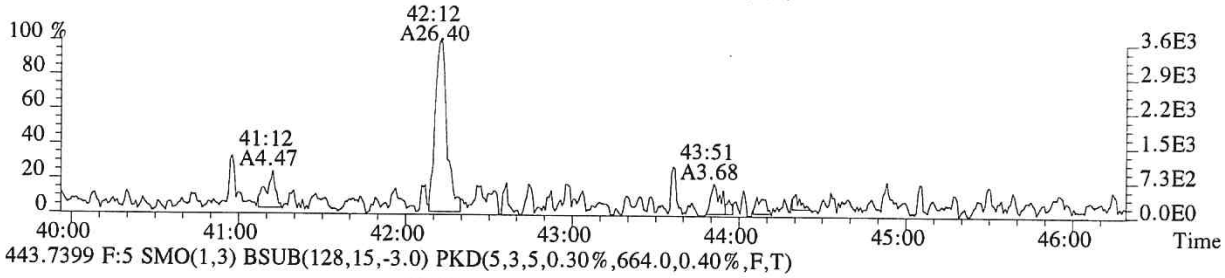
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



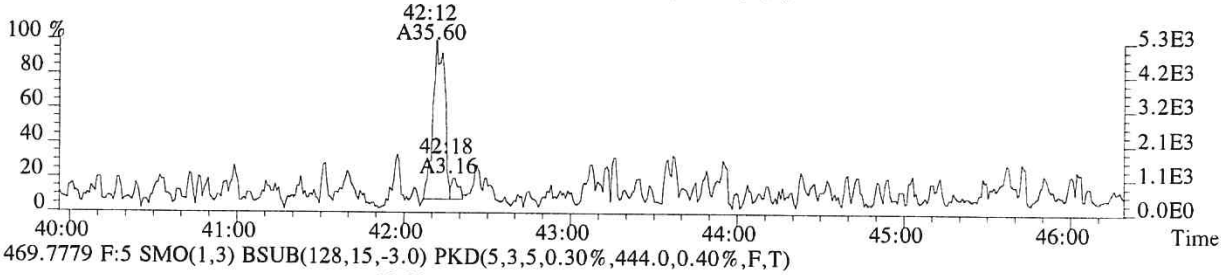
015658

File:P519501 #1-575 Acq:19-DEC-2018 21:17:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-019

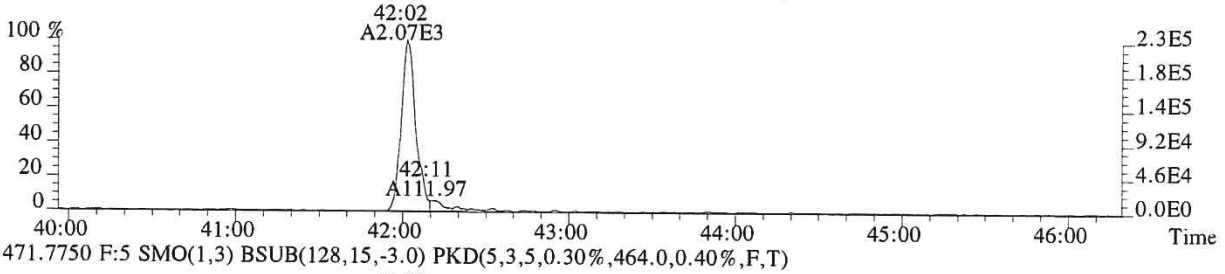
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,268.0,0.40%,F,T)



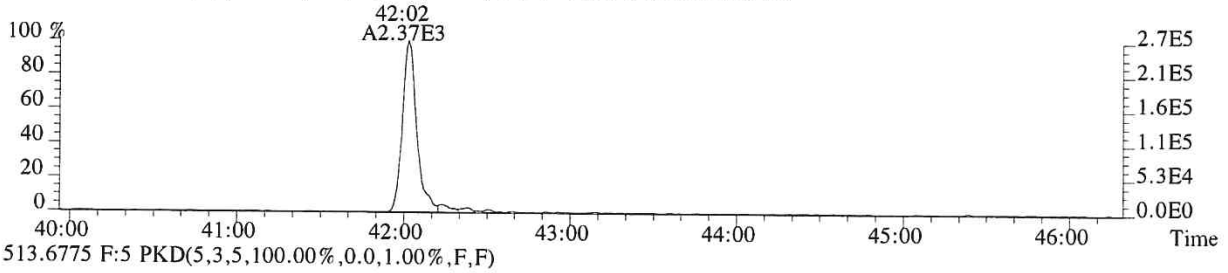
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,664.0,0.40%,F,T)



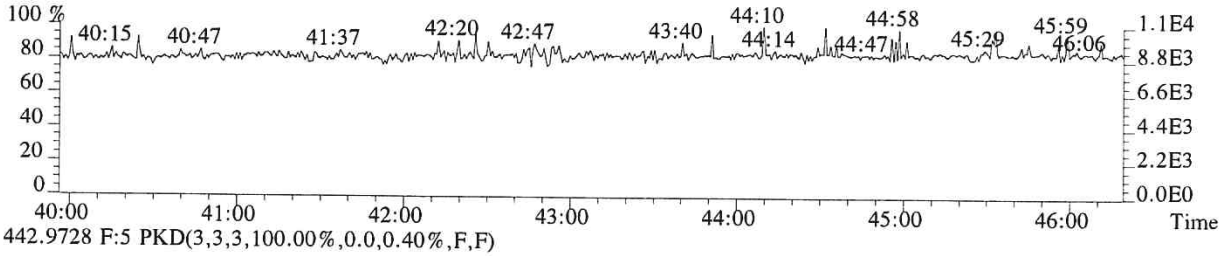
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,444.0,0.40%,F,T)



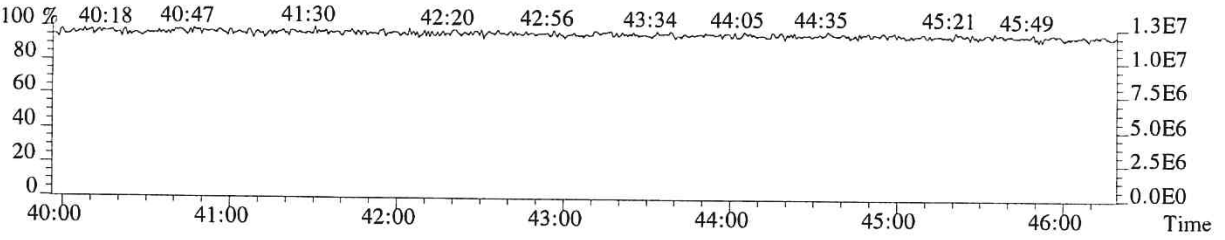
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,464.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

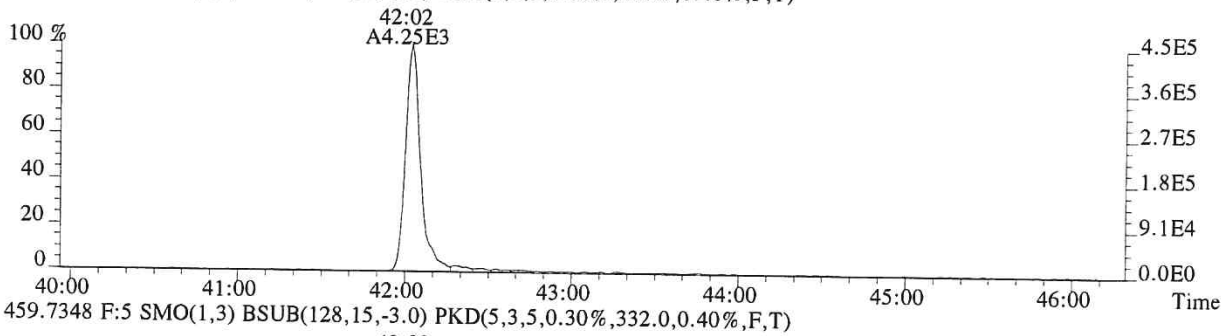


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

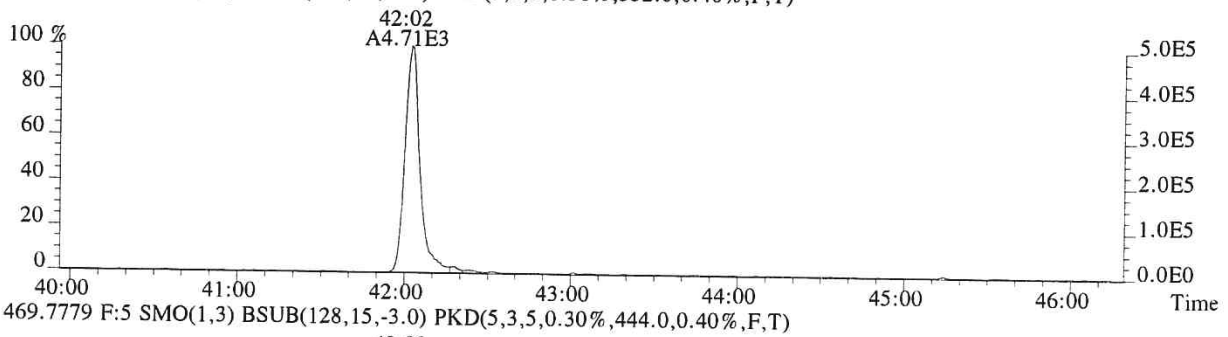


015659

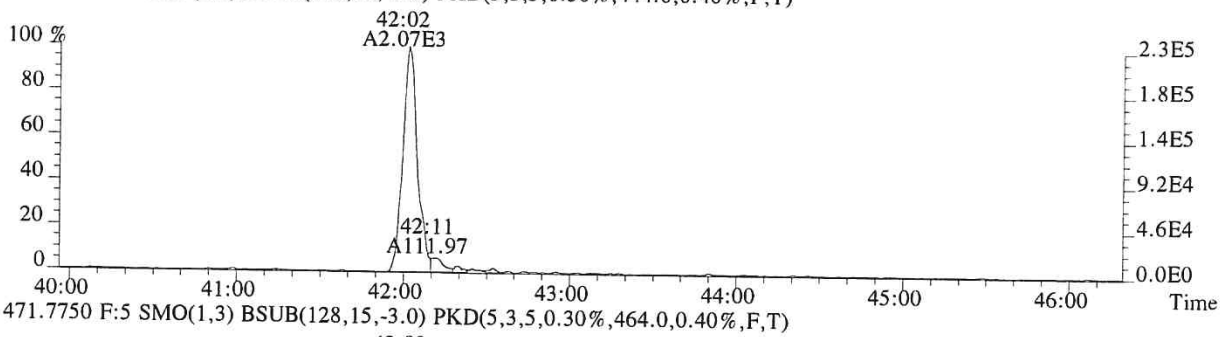
File:P519501 #1-575 Acq:19-DEC-2018 21:17:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-019
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,388.0,0.40%,F,T)



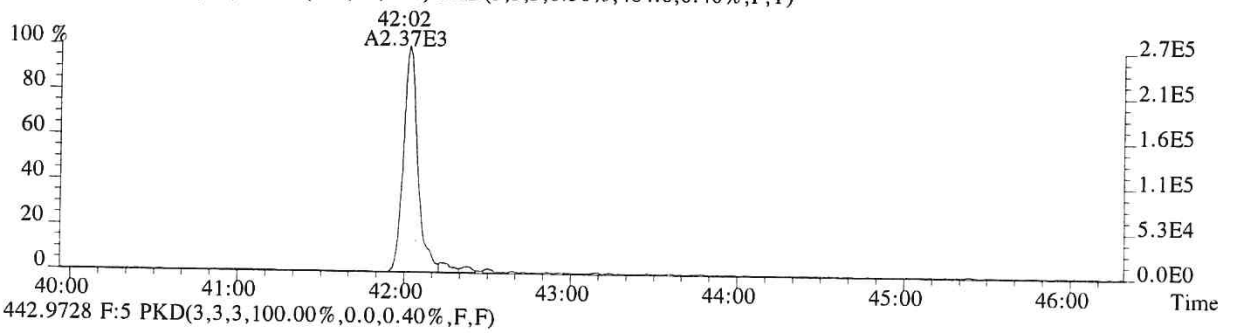
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,332.0,0.40%,F,T)



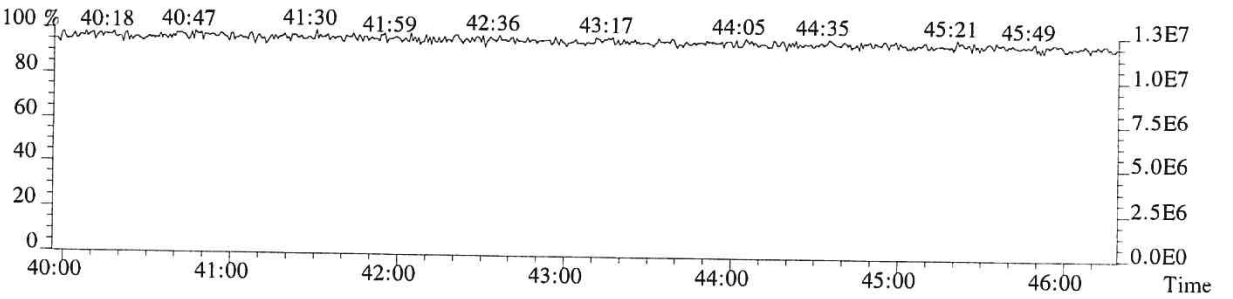
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,444.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,464.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



015660

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0016

Run #14 Filename P519502 Samp: 1 Inj: 1 Acquired: 19-DEC-18 22:06:15
Processed: 20-DEC-18 11:33:31 Sample ID: E1801094-020

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:51	3.155e+02	4.438e+02	0.71	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	1.012
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:17	1.626e+01	9.608e+00	1.69	no	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	NotFnd	*	*	*	no	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	yes	1.258
10	Unk	OCDF	NotFnd	*	*	*	no	yes	1.359
11	Unk	2,3,7,8-TCDD	27:45	8.086e+01	1.037e+02	0.78	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	yes	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:05	3.396e+02	3.137e+02	1.08	yes	no	1.025
17	Unk	OCDD	42:03	4.001e+03	4.349e+03	0.92	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	26:49	6.582e+03	8.230e+03	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	31:27	1.101e+04	6.888e+03	1.60	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	32:25	1.024e+04	6.444e+03	1.59	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:17	3.592e+03	6.953e+03	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:24	4.189e+03	8.219e+03	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:56	3.741e+03	7.389e+03	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	36:43	3.125e+03	5.895e+03	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:06	2.000e+03	4.791e+03	0.42	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:33	1.620e+03	3.746e+03	0.43	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	27:43	3.027e+03	3.751e+03	0.81	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:44	7.771e+03	4.669e+03	1.66	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:05	4.944e+03	3.878e+03	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:10	4.920e+03	3.823e+03	1.29	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:05	4.235e+03	3.757e+03	1.13	yes	no	0.858
32	IS	13C-OCDD	42:02	3.079e+03	3.388e+03	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:04	1.256e+04	1.570e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:25	1.030e+04	8.140e+03	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:44	4.277e+03				no	1.014

$$\text{OCDD} = \frac{(4.001e+03 + 4.349e+03) \times 4000 \text{ pg} \times 1}{(3.079e+03 + 3.388e+03) \times 10.205 \text{ g} \times 79.3 / 100 \times 1.118} = 571 \text{ ng/kg}$$

ks 12/21/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0016

Run #14 Filename P519502 Samp: 1 Inj: 1 Acquired: 19-DEC-18 22:06:15
Processed: 20-DEC-18 11:33:31 LAB. ID: E1801094-020

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	4.41e+04	8.20e+02	5.4e+01	7.02e+04	1.27e+03	5.5e+01
2	1,2,3,7,8-PeCDF	*	5.84e+02	*	*	7.96e+02	*
3	2,3,4,7,8-PeCDF	*	5.84e+02	*	*	7.96e+02	*
4	1,2,3,4,7,8-HxCDF	2.90e+03	3.44e+02	8.4e+00	2.24e+03	4.04e+02	5.6e+00
5	1,2,3,6,7,8-HxCDF	*	3.44e+02	*	*	4.04e+02	*
6	2,3,4,6,7,8-HxCDF	*	3.44e+02	*	*	4.04e+02	*
7	1,2,3,7,8,9-HxCDF	*	3.44e+02	*	*	4.04e+02	*
8	1,2,3,4,6,7,8-HpCDF	*	6.72e+02	*	*	4.72e+02	*
9	1,2,3,4,7,8,9-HpCDF	*	6.72e+02	*	*	4.72e+02	*
10	OCDF	*	3.04e+02	*	*	5.16e+02	*
11	2,3,7,8-TCDD	1.27e+04	1.59e+03	8.0e+00	1.92e+04	8.20e+02	2.3e+01
12	1,2,3,7,8-PeCDD	*	9.08e+02	*	*	4.96e+02	*
13	1,2,3,4,7,8-HxCDD	*	4.96e+02	*	*	1.13e+03	*
14	1,2,3,6,7,8-HxCDD	*	4.96e+02	*	*	1.13e+03	*
15	1,2,3,7,8,9-HxCDD	*	4.96e+02	*	*	1.13e+03	*
16	1,2,3,4,6,7,8-HpCDD	5.72e+04	1.46e+03	3.9e+01	5.31e+04	1.12e+03	4.7e+01
17	OCDD	4.04e+05	2.52e+02	1.6e+03	4.68e+05	3.80e+02	1.2e+03
18	13C-2,3,7,8-TCDF	1.04e+06	4.46e+03	2.3e+02	1.28e+06	2.71e+03	4.7e+02
19	13C-1,2,3,7,8-PeCDF	1.87e+06	4.28e+02	4.4e+03	1.14e+06	6.64e+02	1.7e+03
20	13C-2,3,4,7,8-PeCDF	1.88e+06	4.28e+02	4.4e+03	1.16e+06	6.64e+02	1.7e+03
21	13C-1,2,3,4,7,8-HxCDF	6.78e+05	6.60e+02	1.0e+03	1.35e+06	5.88e+02	2.3e+03
22	13C-1,2,3,6,7,8-HxCDF	7.73e+05	6.60e+02	1.2e+03	1.53e+06	5.88e+02	2.6e+03
23	13C-2,3,4,6,7,8-HxCDF	7.17e+05	6.60e+02	1.1e+03	1.42e+06	5.88e+02	2.4e+03
24	13C-1,2,3,7,8,9-HxCDF	5.54e+05	6.60e+02	8.4e+02	1.08e+06	5.88e+02	1.8e+03
25	13C-1,2,3,4,6,7,8-HpCDF	3.47e+05	7.16e+02	4.8e+02	8.62e+05	3.60e+03	2.4e+02
26	13C-1,2,3,4,7,8,9-HpCDF	2.42e+05	7.16e+02	3.4e+02	5.60e+05	3.60e+03	1.6e+02
27	13C-2,3,7,8-TCDD	5.14e+05	4.02e+03	1.3e+02	6.40e+05	2.12e+03	3.0e+02
28	13C-1,2,3,7,8-PeCDD	1.39e+06	6.04e+02	2.3e+03	8.54e+05	6.76e+02	1.3e+03
29	13C-1,2,3,4,7,8-HxCDD	1.01e+06	4.60e+02	2.2e+03	8.02e+05	4.48e+02	1.8e+03
30	13C-1,2,3,6,7,8-HxCDD	9.17e+05	4.60e+02	2.0e+03	6.98e+05	4.48e+02	1.6e+03
31	13C-1,2,3,4,6,7,8-HpCDD	6.72e+05	8.52e+02	7.9e+02	6.16e+05	8.20e+02	7.5e+02
32	13C-OCDD	3.14e+05	3.32e+02	9.4e+02	3.61e+05	3.92e+02	9.2e+02
33	13C-1,2,3,4-TCDD	2.14e+06	4.02e+03	5.3e+02	2.69e+06	2.12e+03	1.3e+03
34	13C-1,2,3,7,8,9-HxCDD	1.82e+06	4.60e+02	4.0e+03	1.47e+06	4.48e+02	3.3e+03
35	37Cl-2,3,7,8-TCDD	7.26e+05	4.12e+02	1.8e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.592e{+}03 + 8.200e{+}02) \times 2000}{(5.137e{+}05 + 6.401e{+}05) \times (\quad) \times 1.085} =$$

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0016

Entry: 36 Totals Name: Total Tetra-Furans

Run: 14 File: P519502 Sample:1 Injection:1 Function:1

Acquired: 19-DEC-18 22:06:15 Processed: 20-DEC-18 11:33:31

Mass: 303.9020 305.8990 Tot Response: 1.31e+03 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	23:09	3.59e+01	5.31e+01	0.68	yes	8.89e+01		n	n
2	24:37	2.10e+01	2.79e+01	0.75	yes	4.89e+01		n	n
3	25:55	1.80e+02	2.30e+02	0.78	yes	4.09e+02		n	n
4	26:51	3.15e+02	4.44e+02	0.71	yes	7.59e+02	2,3,7,8-TCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0016

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 14 File: P519502 Sample:1 Injection:1 Function:1

Acquired: 19-DEC-18 22:06:15 Processed: 20-DEC-18 11:33:31

Mass: 319.8970 321.8940 Tot Response: 4.16e+02 RRF: 1.085

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	25:33	1.02e+02	1.29e+02 0.79	yes	2.32e+02		n	n
2	27:45	8.09e+01	1.04e+02 0.78	yes	1.85e+02	2,3,7,8-TCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0016

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 14 File: P519502 Sample:1 Injection:1 Function:2

Acquired: 19-DEC-18 22:06:15 Processed: 20-DEC-18 11:33:31

Mass: 355.8550 357.8520 Tot Response: 1.43e+02 RRF: 0.9565

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:00	9.04e+01	5.24e+01 1.72	yes	1.43e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0016

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 14 File: P519502 Sample:1 Injection:1 Function:3

Acquired: 19-DEC-18 22:06:15 Processed: 20-DEC-18 11:33:31

Mass: 389.8160 391.8130 Tot Response: 9.07e+02 RRF: 1.047

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:40	3.59e+02	1.08	yes	6.91e+02		n	n
2	35:28	1.24e+02	9.23e+01	1.34	yes	2.16e+02	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0016

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 14 File: P519502 Sample:1 Injection:1 Function:4

Acquired: 19-DEC-18 22:06:15 Processed: 20-DEC-18 11:33:31

Mass: 423.7770 425.7740 Tot Response: 2.12e+03 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:23	7.02e+02	0.92	yes	1.47e+03		n	n
2	39:05	3.40e+02	1.08	yes	6.53e+02	1,2,3,4,6,7,8-HpCDD	n	n

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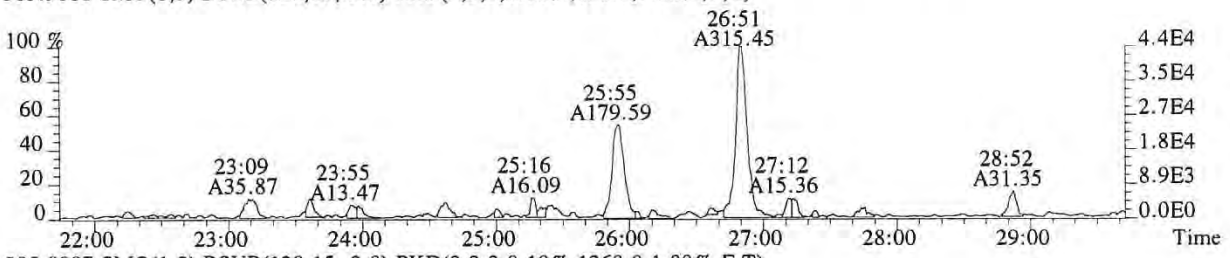
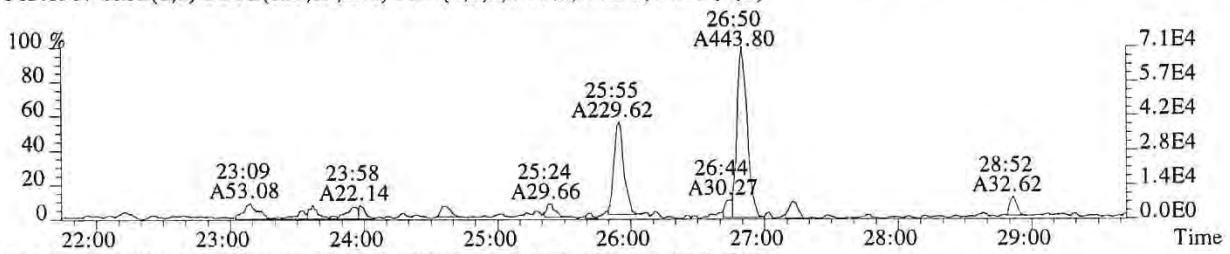
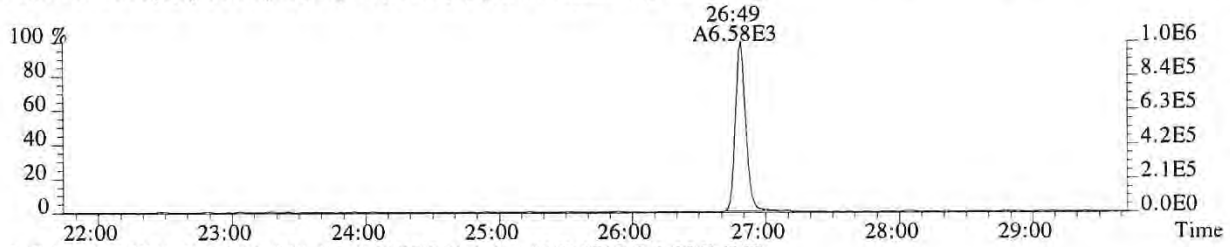
File:P519502 #1-566 Acq:19-DEC-2018 22:06:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-020
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,820.0,1.00%,F,T)



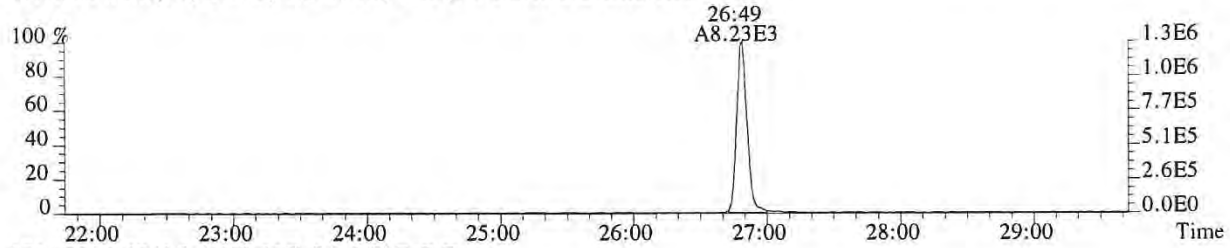
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1268.0,1.00%,F,T)



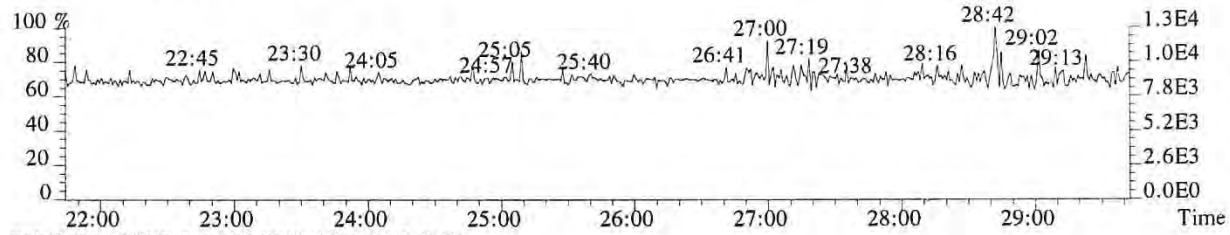
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4464.0,1.00%,F,T)



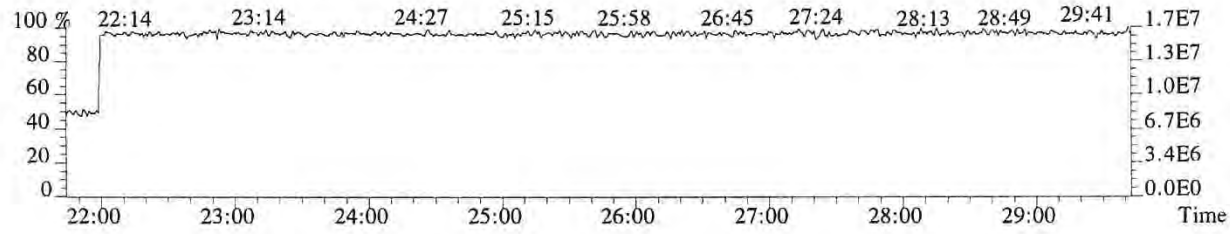
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2708.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

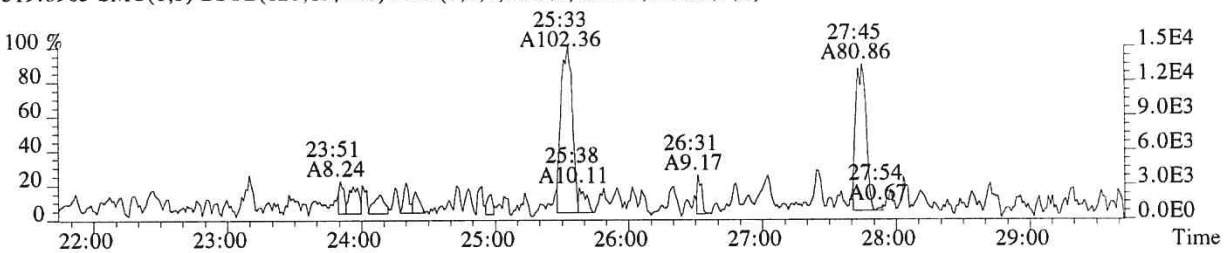


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

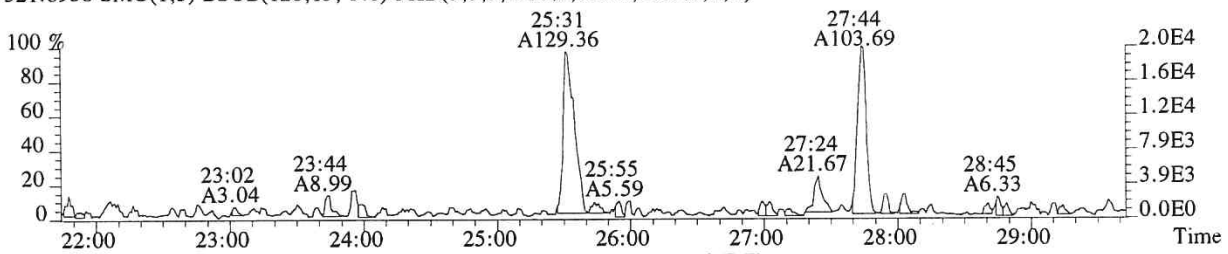


015668

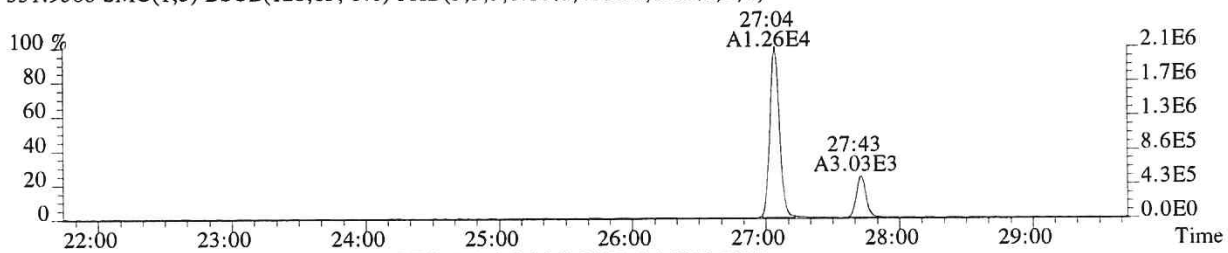
File:P519502 #1-566 Acq:19-DEC-2018 22:06:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-020
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1592.0,1.00%,F,T)



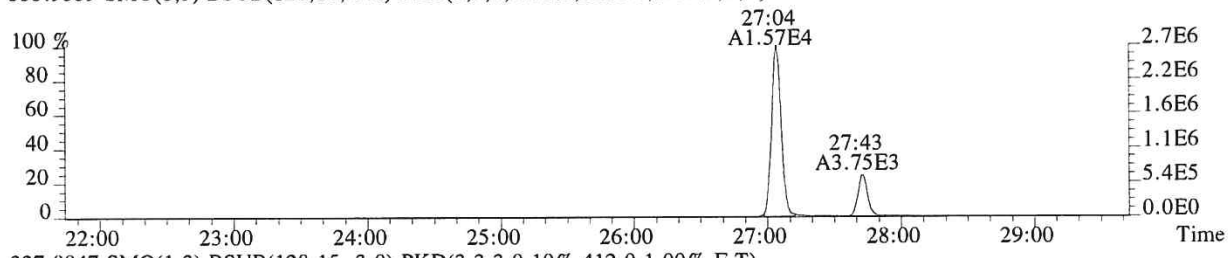
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,820.0,1.00%,F,T)



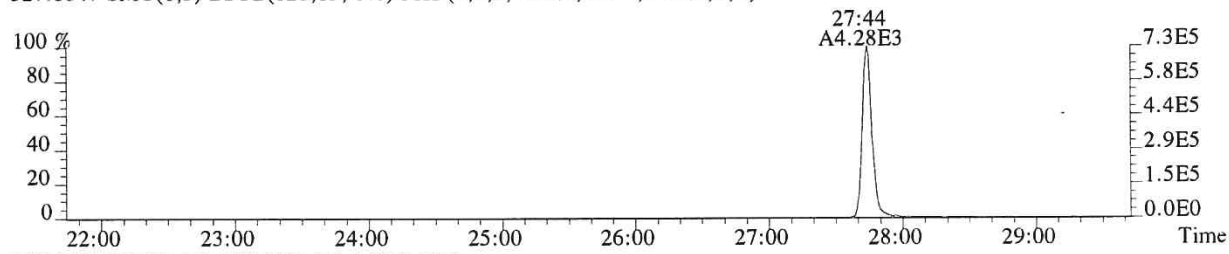
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4016.0,1.00%,F,T)



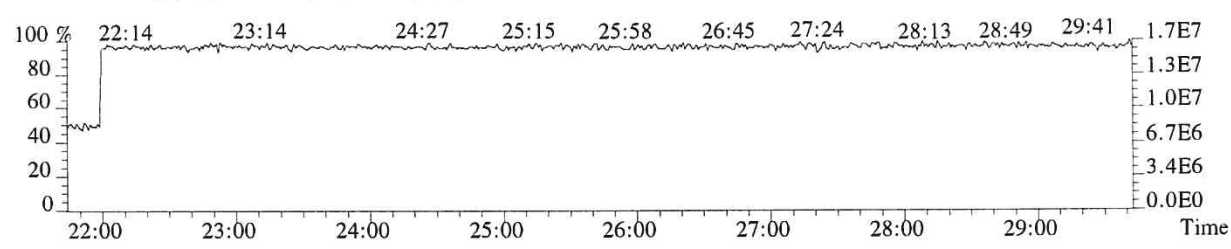
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2120.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,412.0,1.00%,F,T)

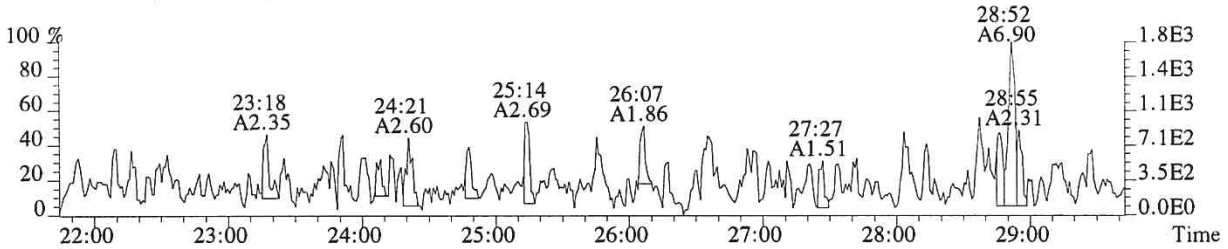


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

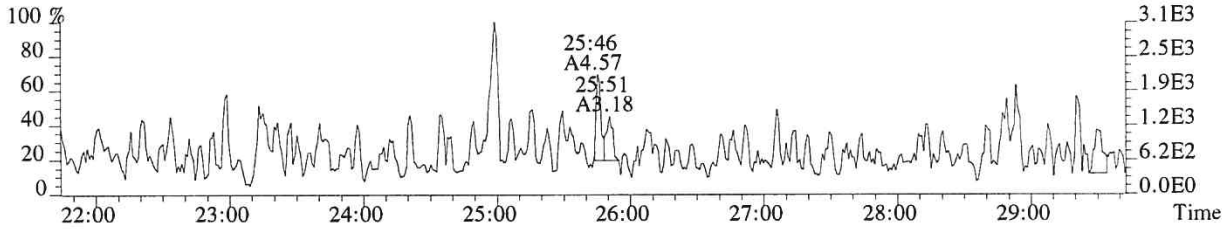


015669

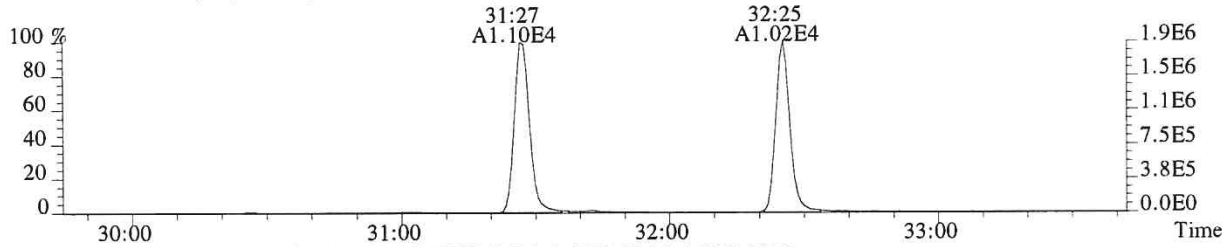
File:P519502 #1-566 Acq:19-DEC-2018 22:06:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-020
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,360.0,1.00%,F,T)



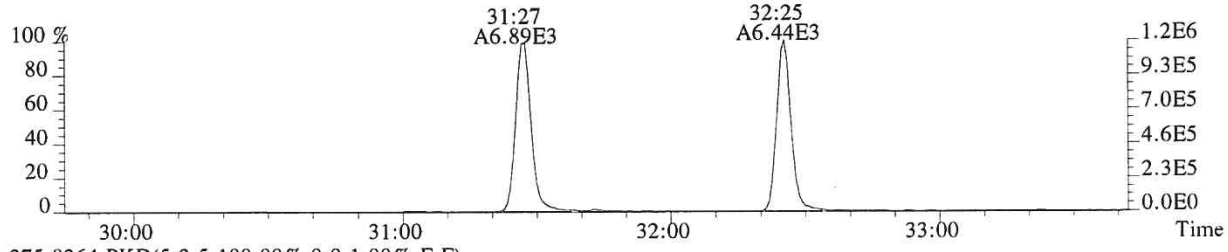
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,868.0,1.00%,F,T)



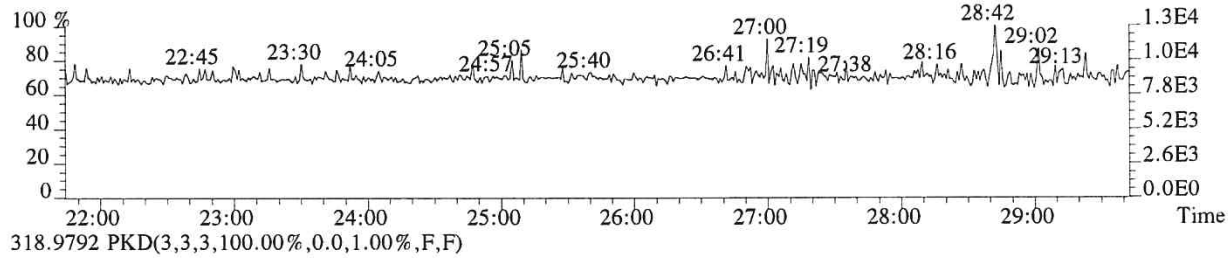
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,428.0,1.00%,F,T)



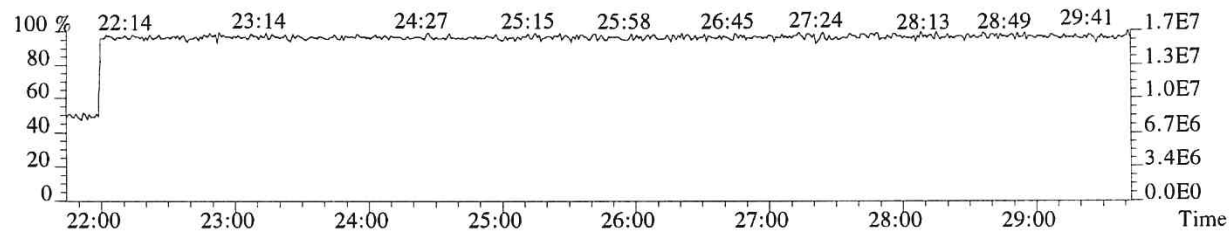
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,664.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

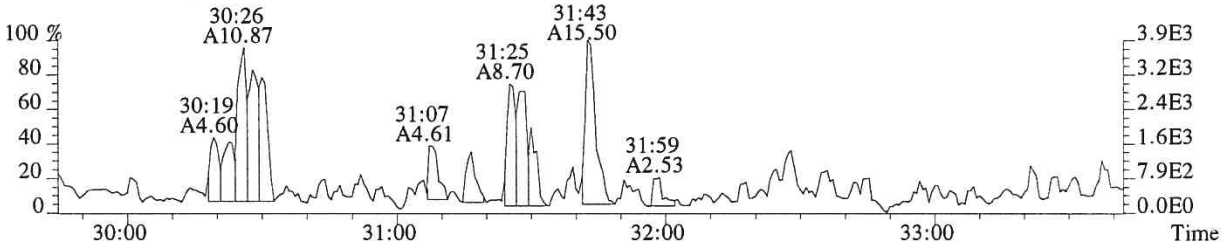


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

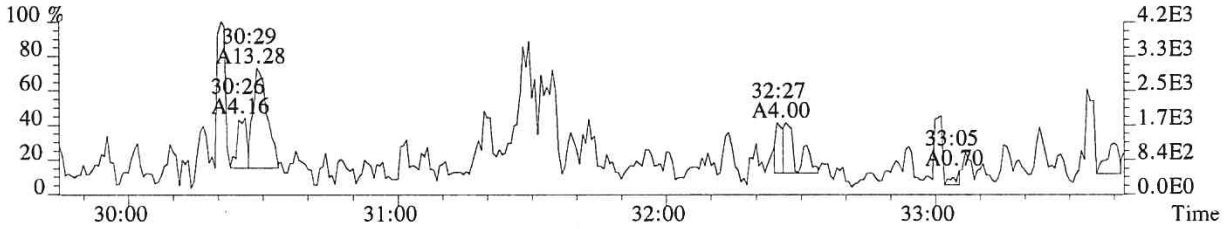


015670

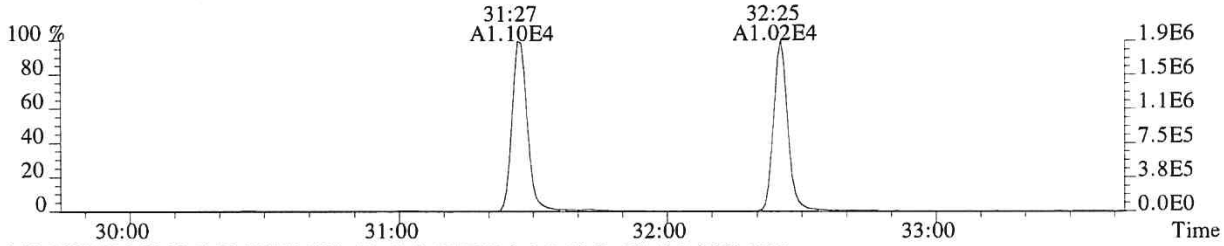
File:P519502 #1-357 Acq:19-DEC-2018 22:06:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-020
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,584.0,1.00%,F,T)



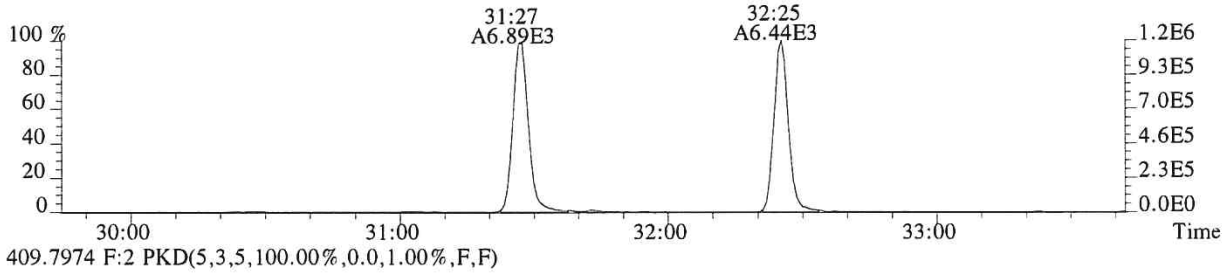
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,796.0,1.00%,F,T)



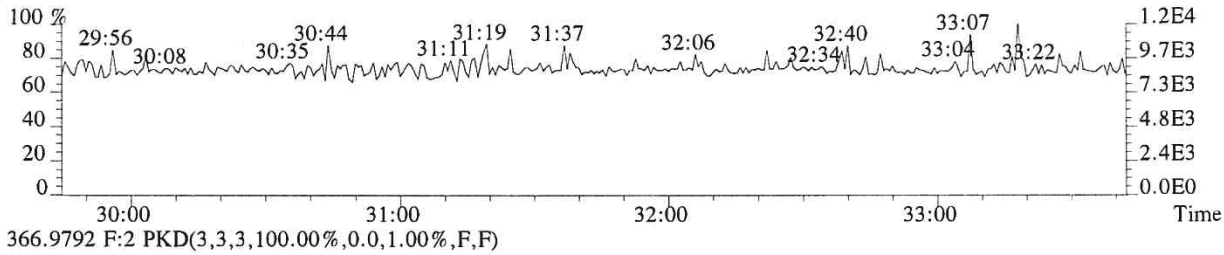
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,428.0,1.00%,F,T)



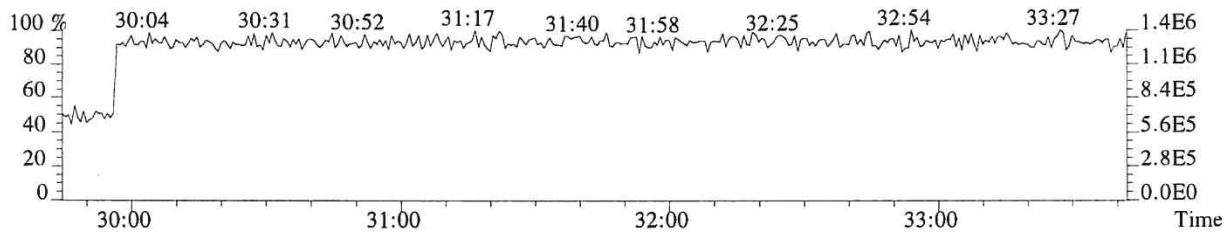
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,664.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

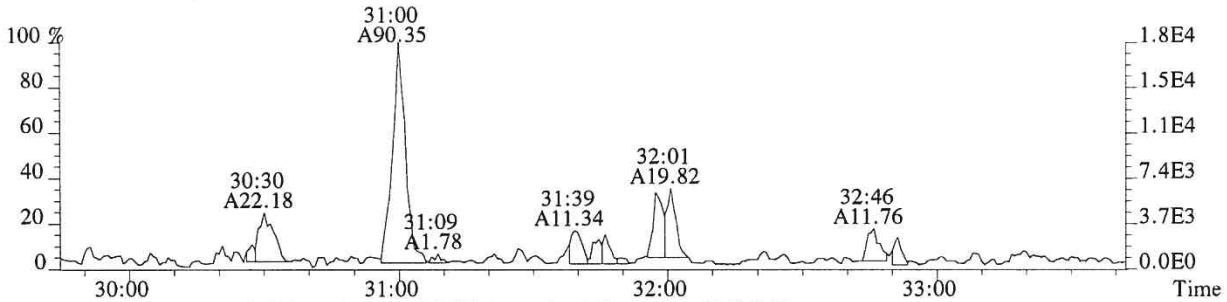


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

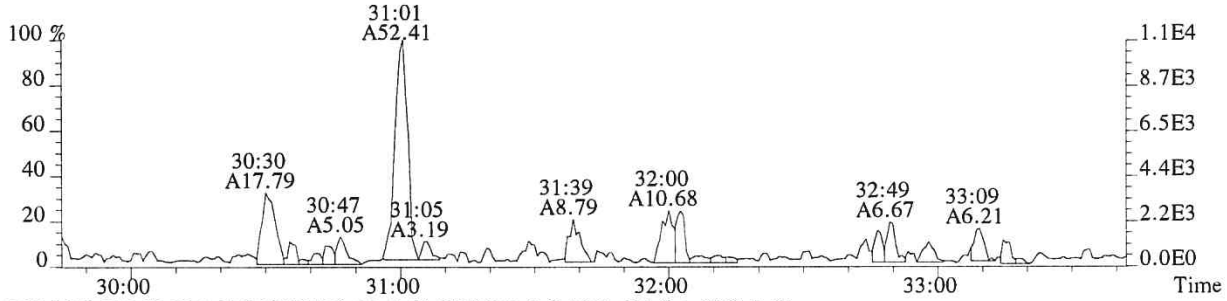


015671

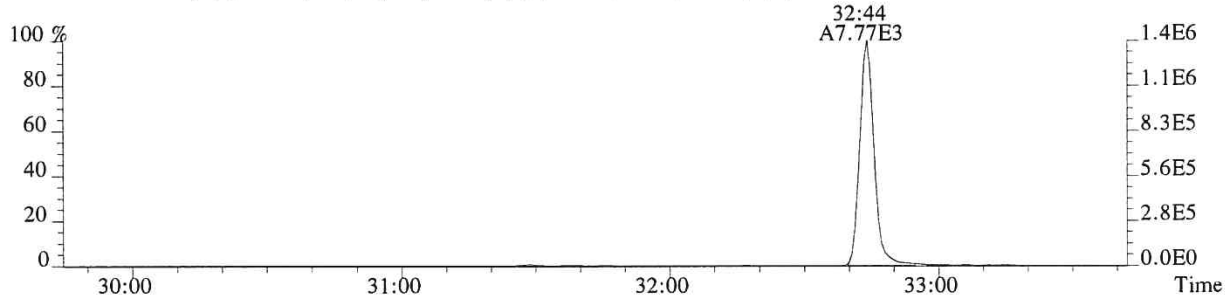
File:P519502 #1-357 Acq:19-DEC-2018 22:06:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-020
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,908.0,1.00%,F,T)



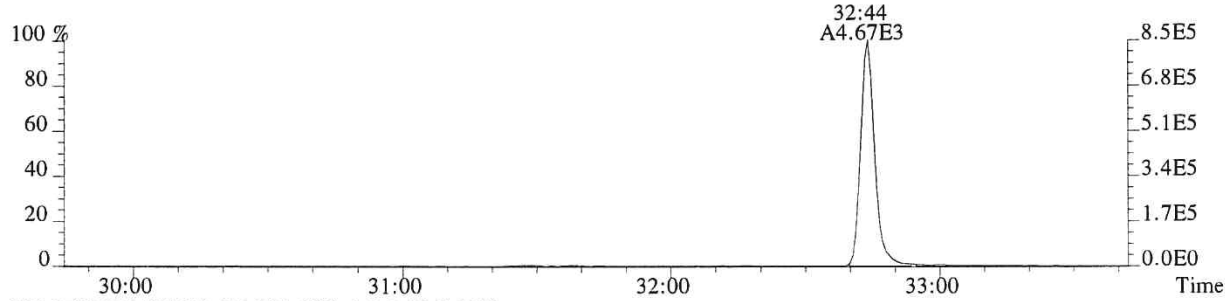
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,496.0,1.00%,F,T)



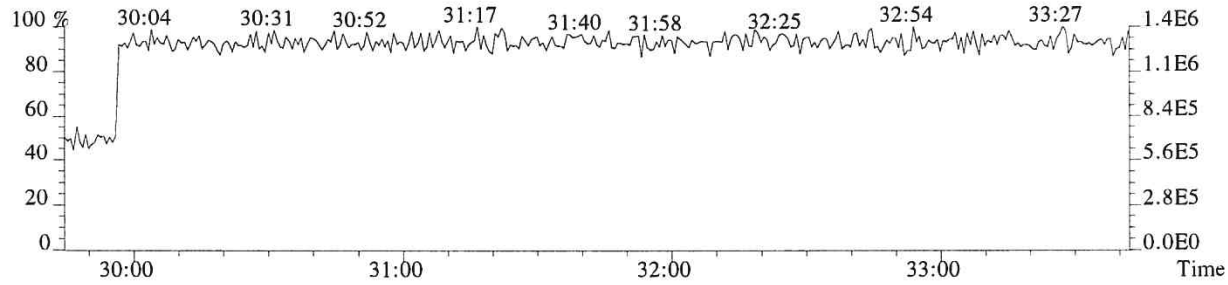
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,676.0,1.00%,F,T)

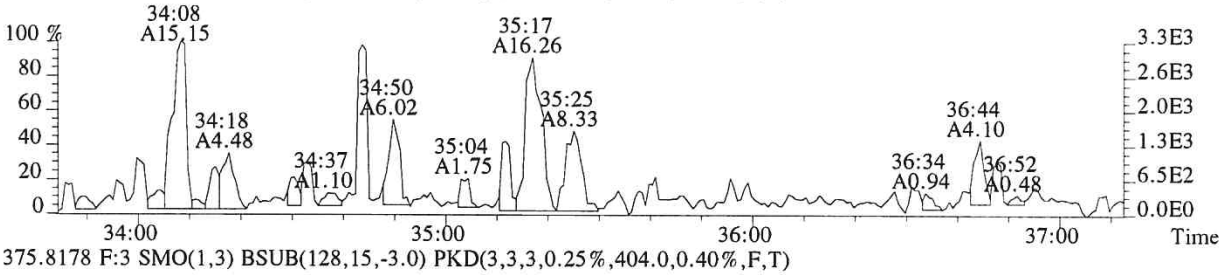


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

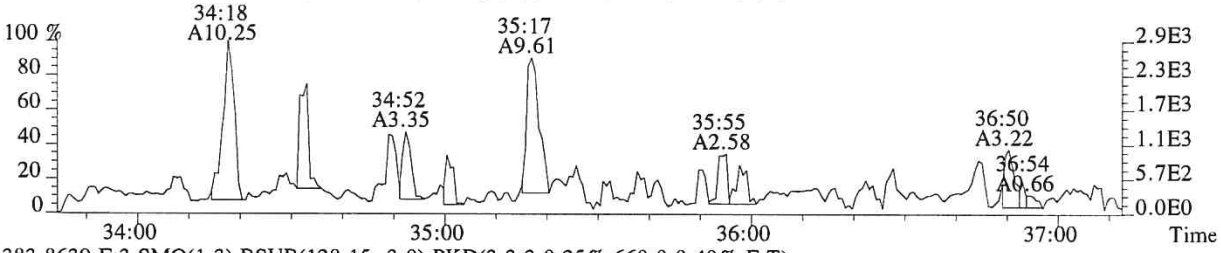


File:P519502 #1-313 Acq:19-DEC-2018 22:06:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-020

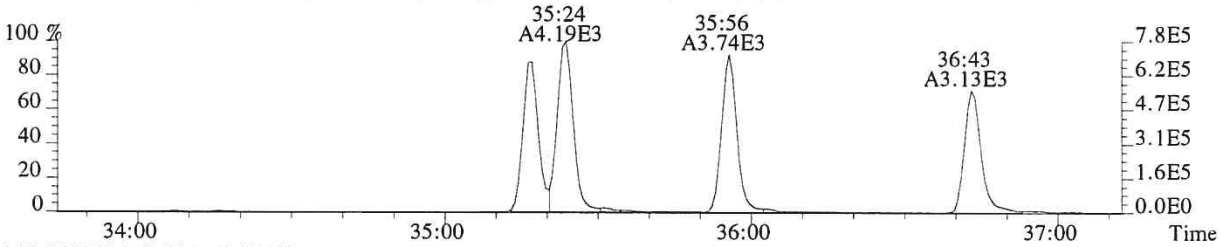
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,344.0,0.40%,F,T)



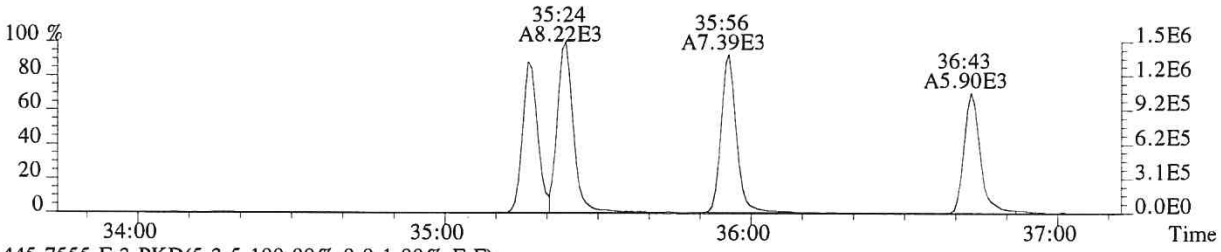
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,404.0,0.40%,F,T)



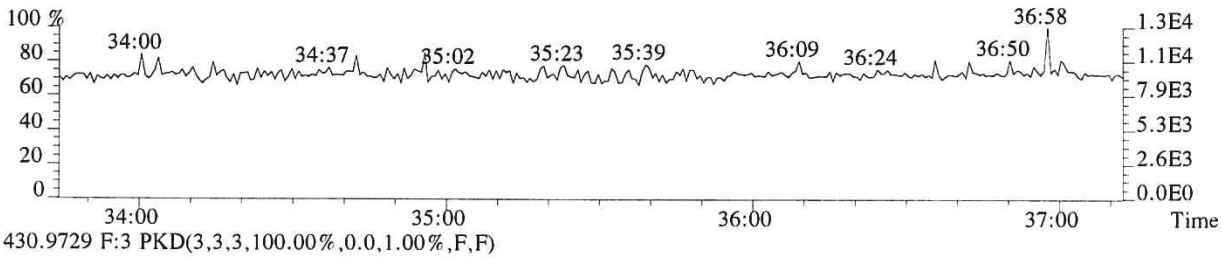
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,660.0,0.40%,F,T)



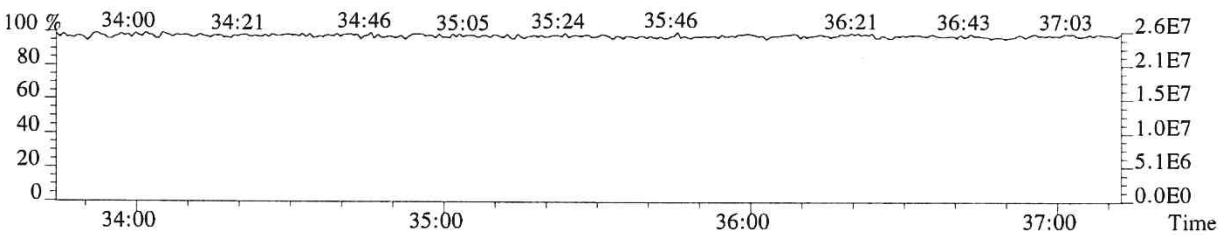
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,588.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

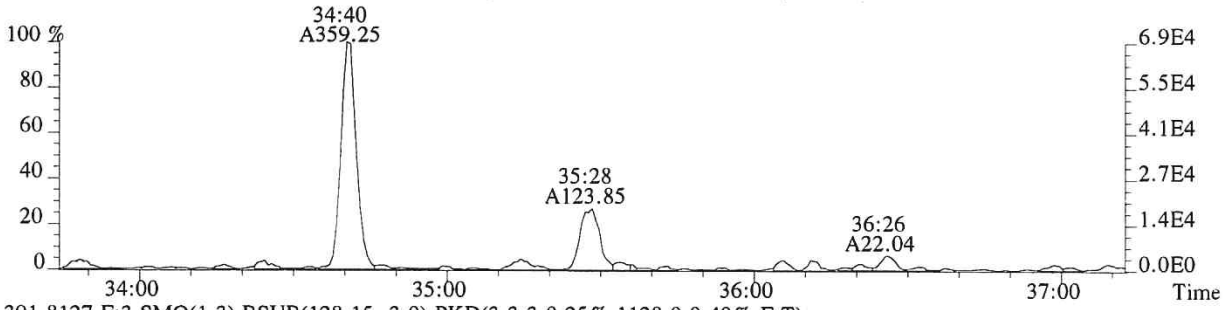


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

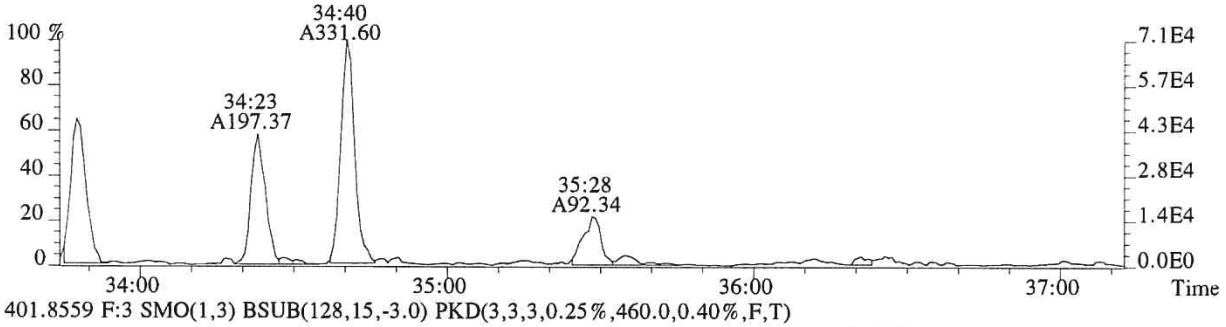


015673

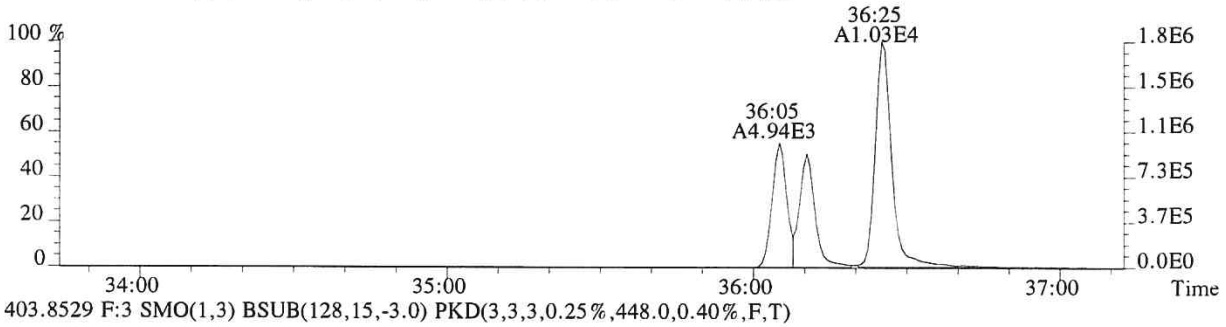
File:P519502 #1-313 Acq:19-DEC-2018 22:06:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-020
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,496.0,0.40%,F,T)



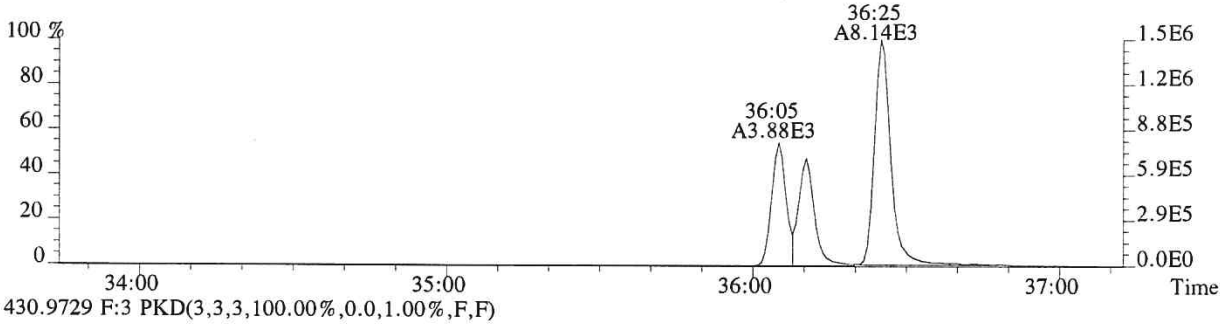
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1128.0,0.40%,F,T)



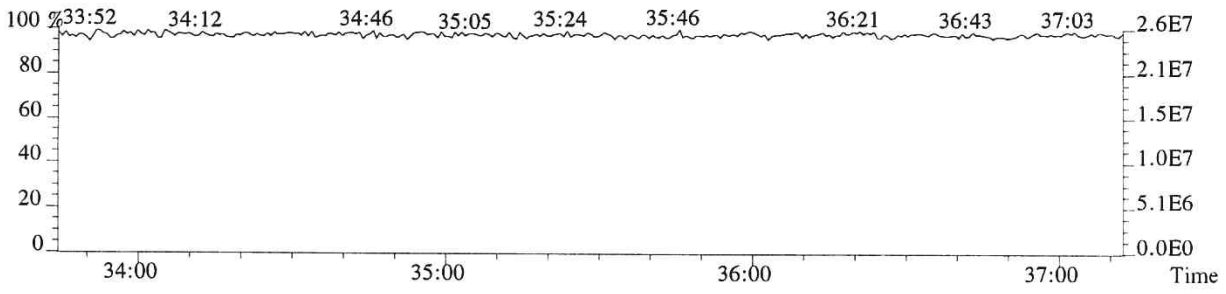
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,460.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,448.0,0.40%,F,T)

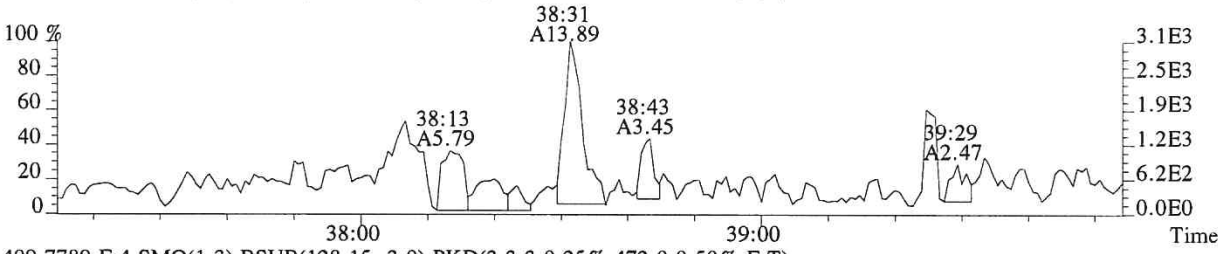


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

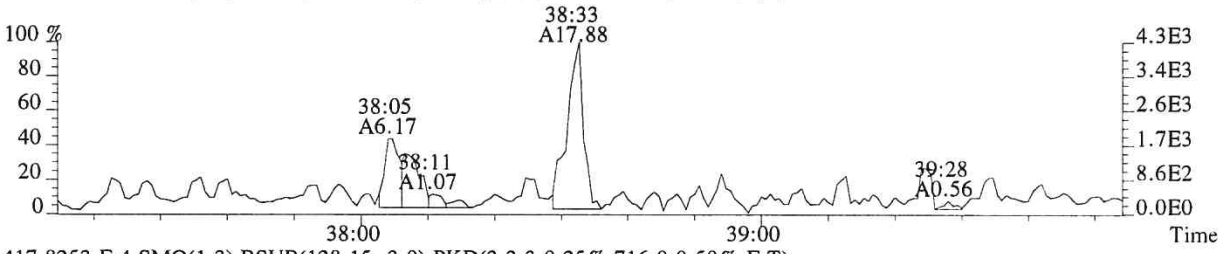


File:P519502 #1-240 Acq:19-DEC-2018 22:06:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-020

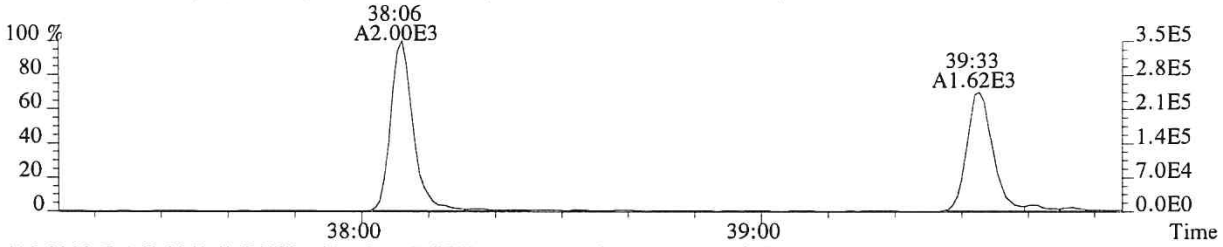
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,672.0,0.50%,F,T)



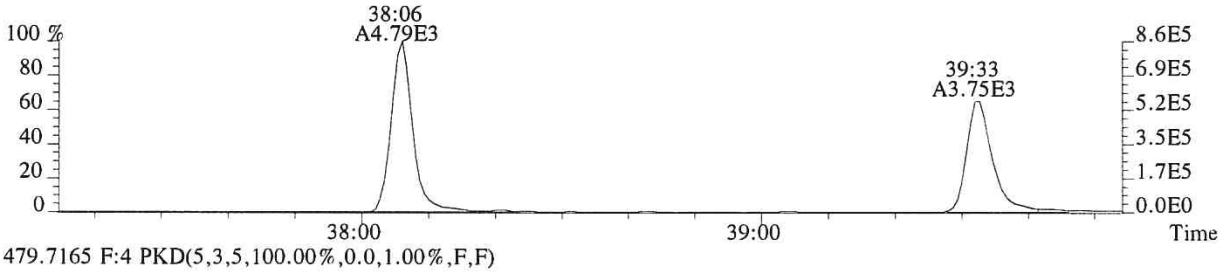
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,472.0,0.50%,F,T)



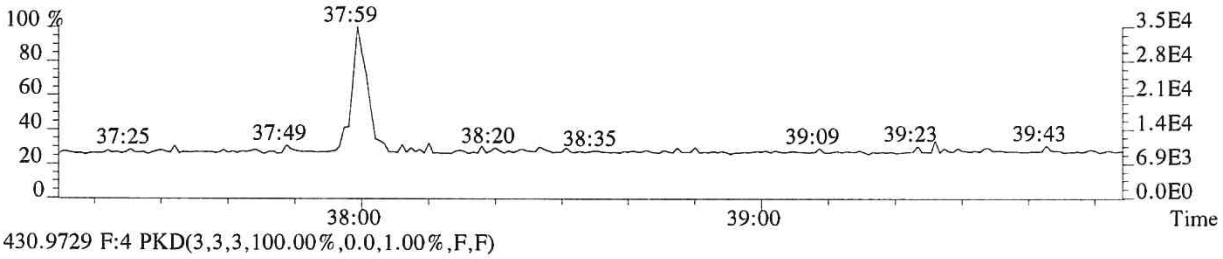
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,716.0,0.50%,F,T)



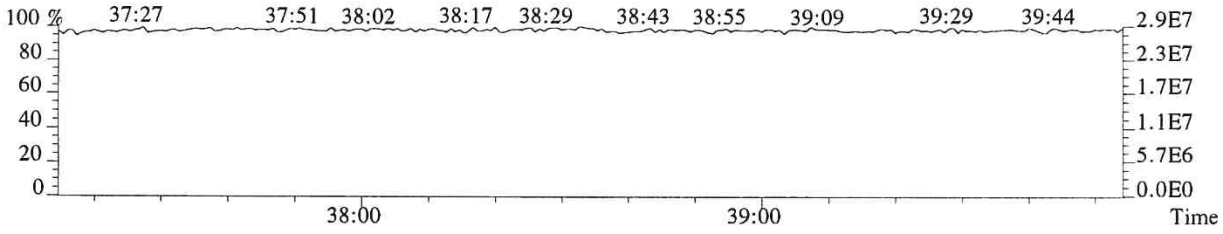
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3604.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

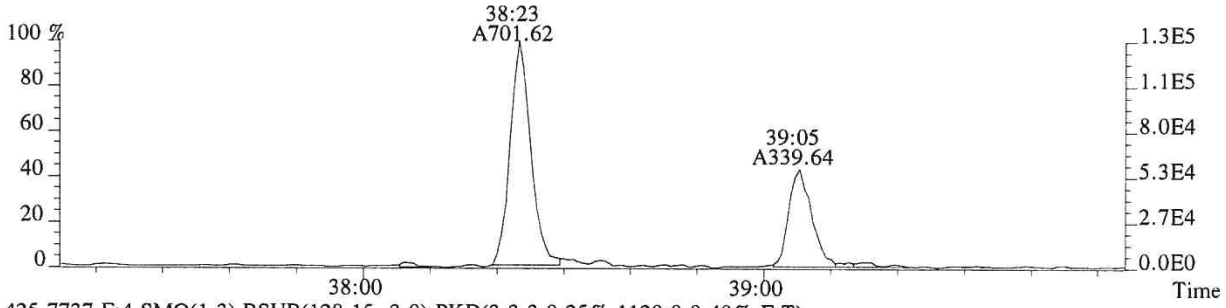


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

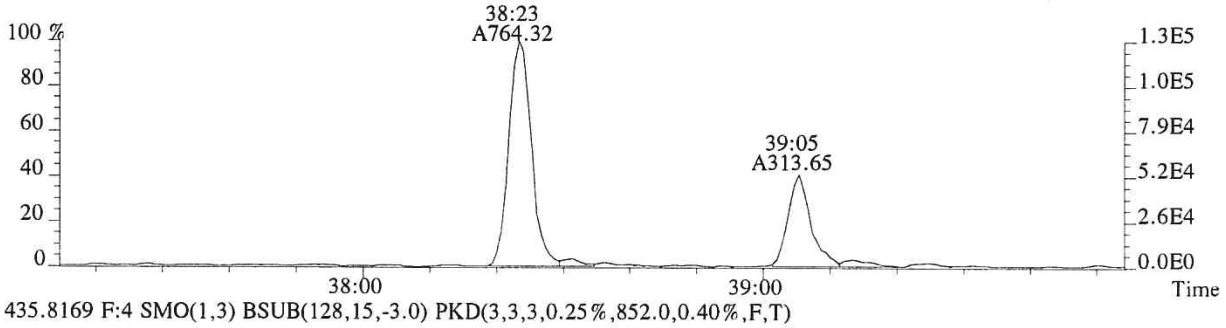


015675

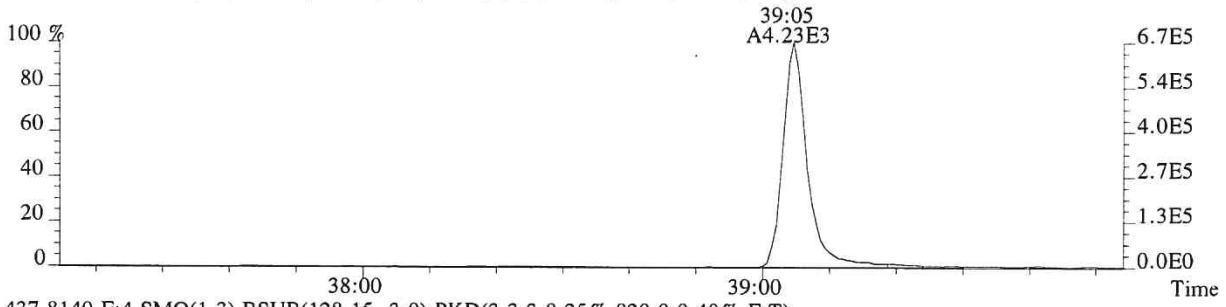
File:P519502 #1-240 Acq:19-DEC-2018 22:06:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-020
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1456.0,0.40%,F,T)



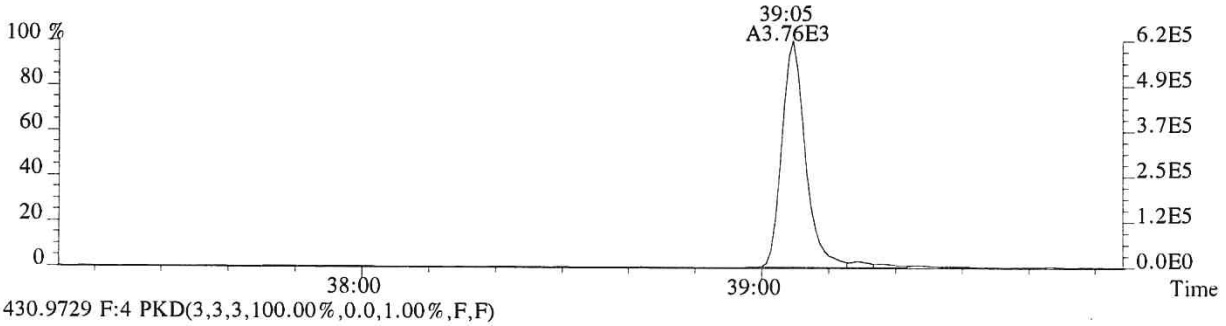
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1120.0,0.40%,F,T)



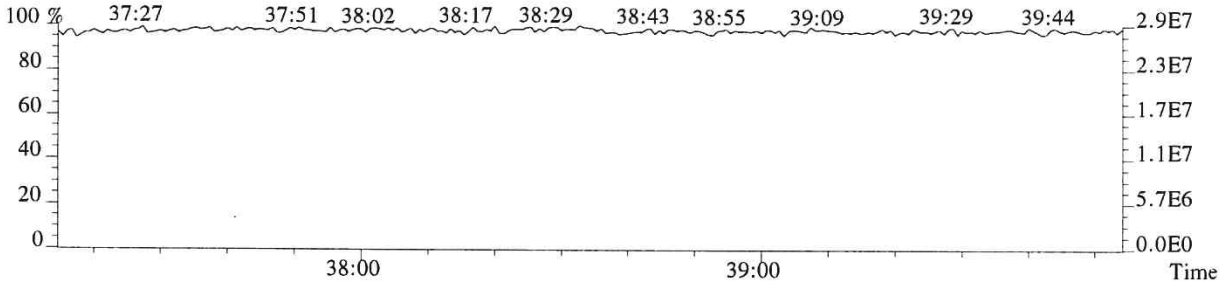
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,852.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,820.0,0.40%,F,T)



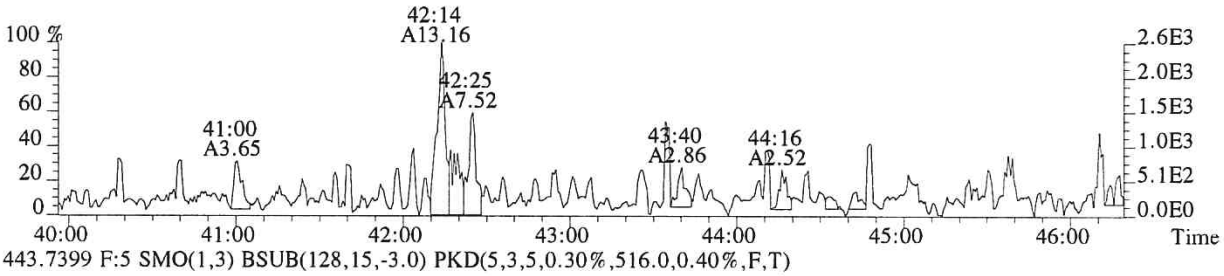
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



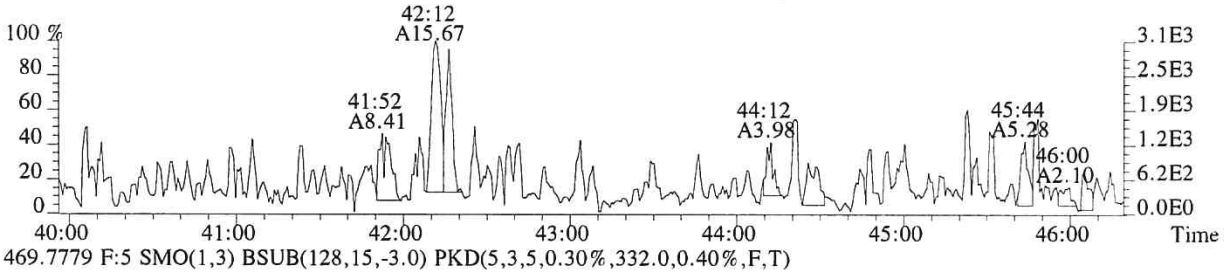
015676

File:P519502 #1-575 Acq:19-DEC-2018 22:06:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-020

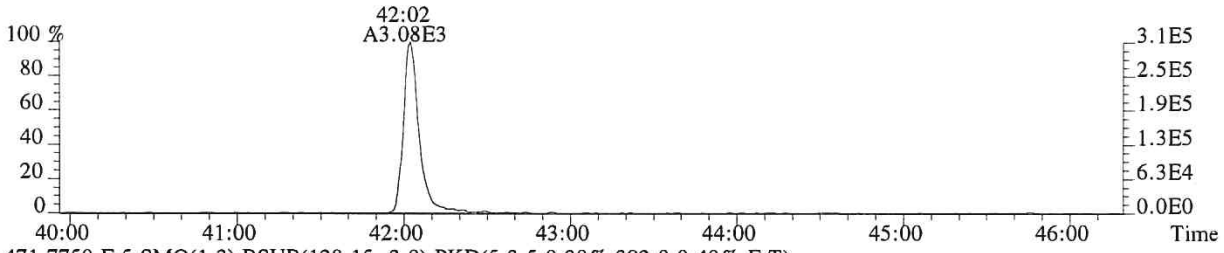
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,304.0,0.40%,F,T)



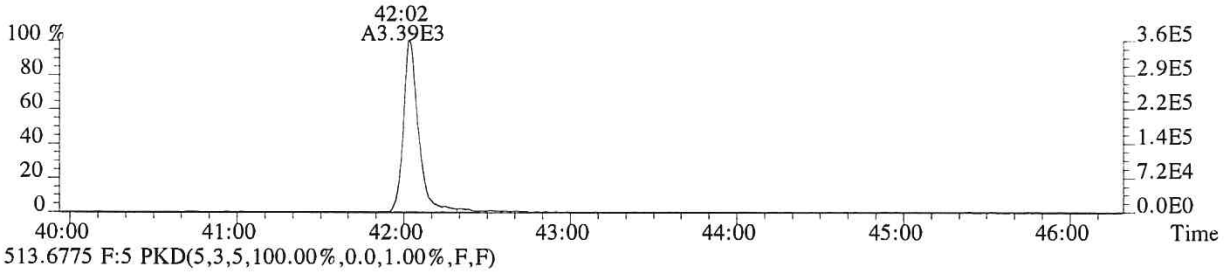
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,516.0,0.40%,F,T)



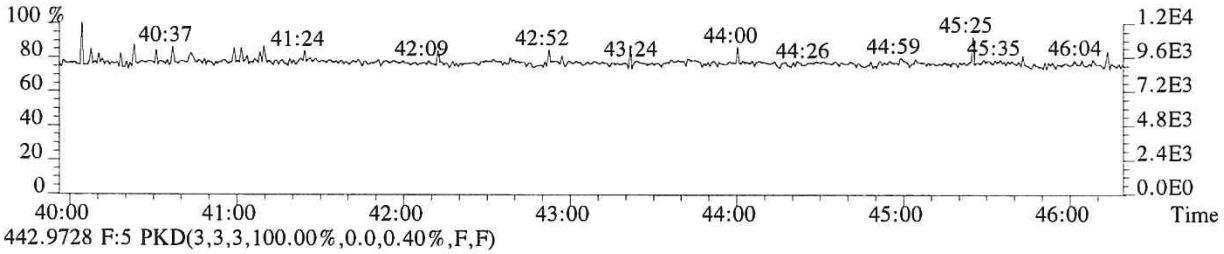
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,332.0,0.40%,F,T)



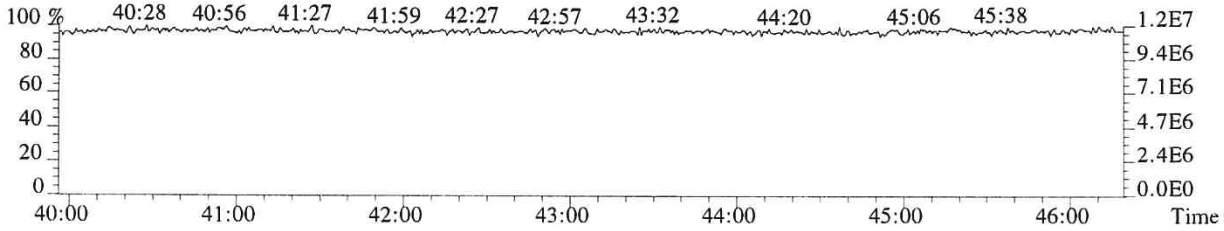
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,392.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

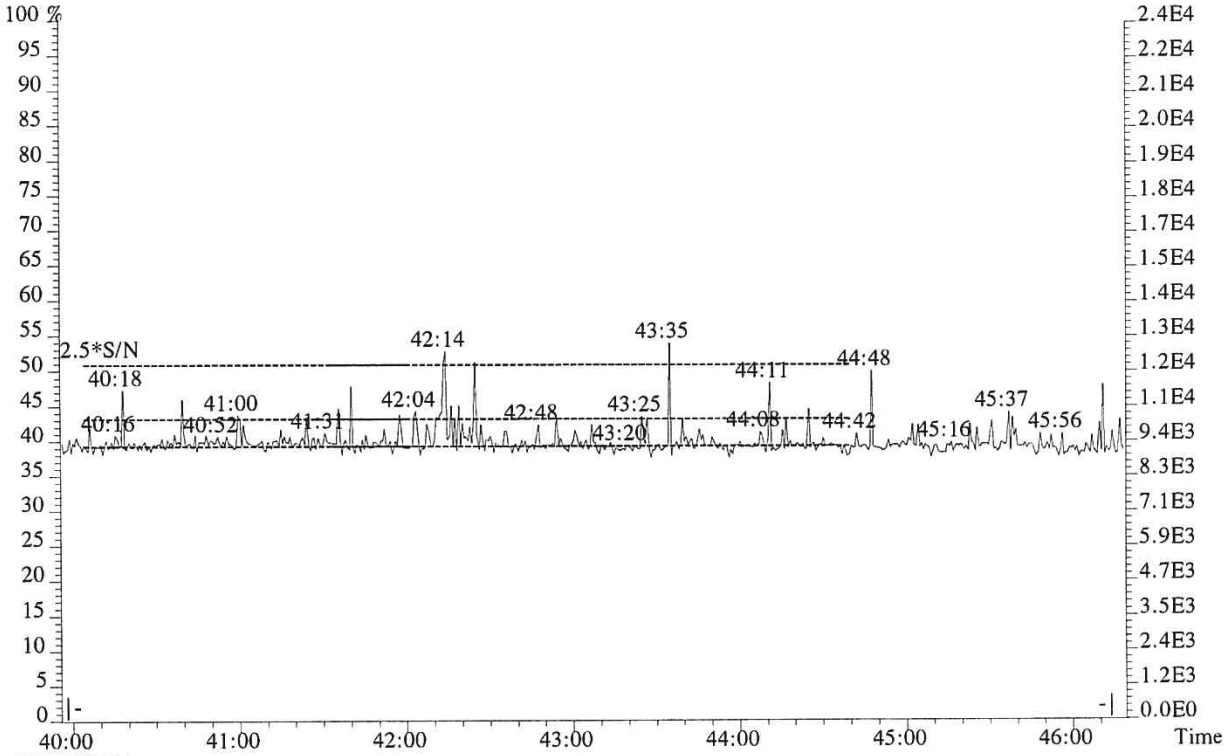


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

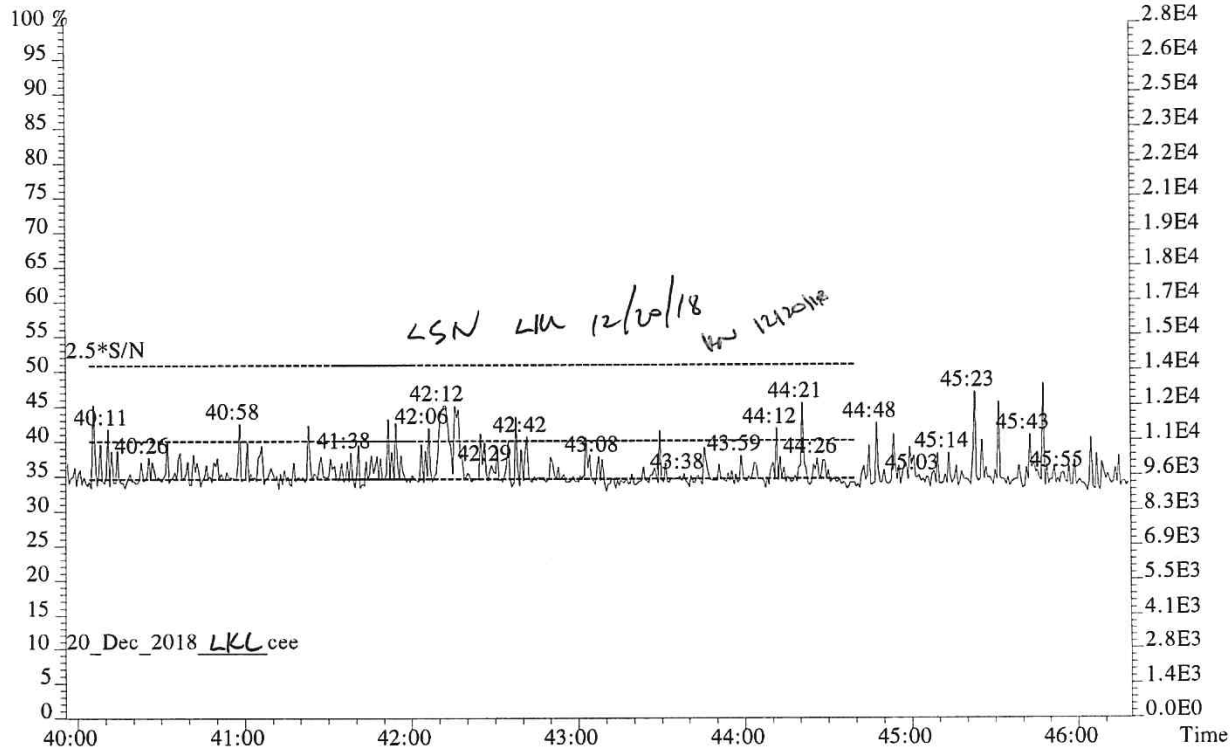


015677

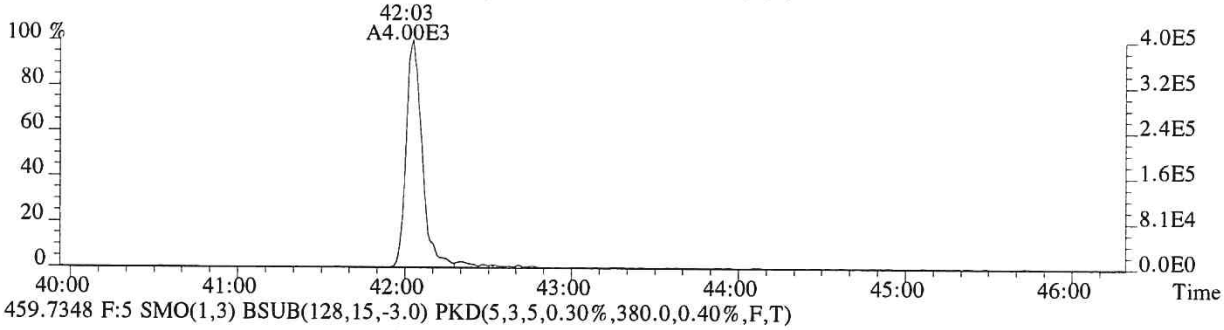
File:P519502 #1-575 Acq:19-DEC-2018 22:06:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-020
441.7428 F:5



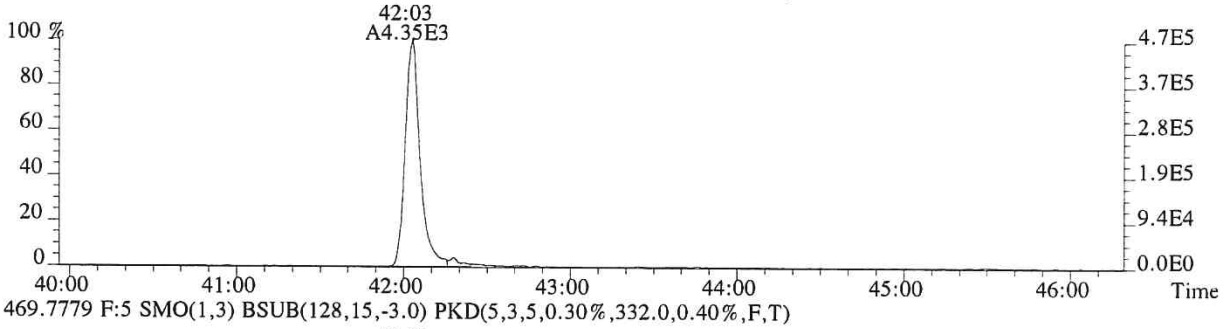
443.7399 F:5



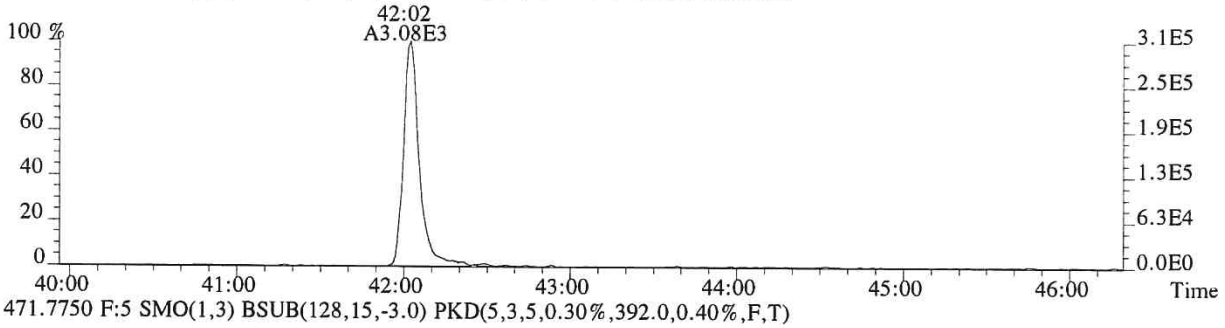
File:P519502 #1-575 Acq:19-DEC-2018 22:06:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801094-020
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,252.0,0.40%,F,T)



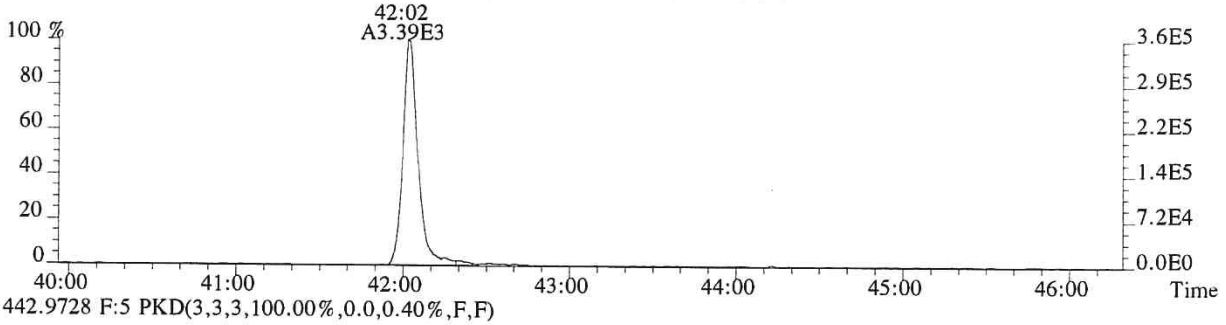
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,380.0,0.40%,F,T)



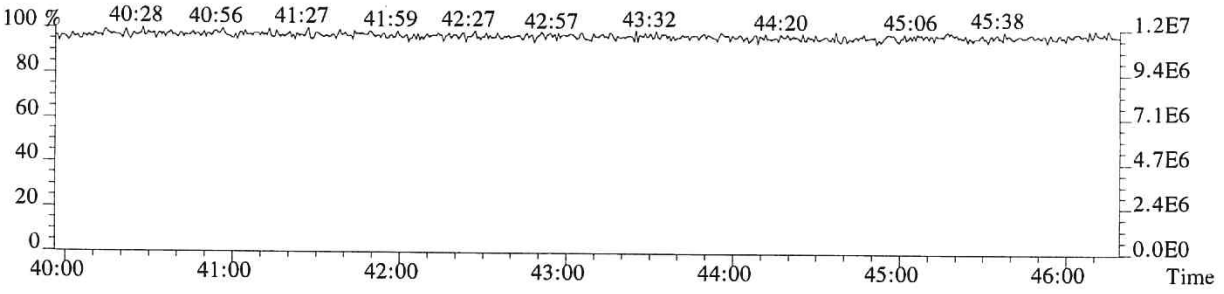
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,332.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,392.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



015679

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
METHOD BLANK

Run #8 Filename P519467 Samp: 1 Inj: 1 Acquired: 18-DEC-18 16:38:29
Processed: 19-DEC-18 14:30:51 Sample ID: EQ1800510-01

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	yes	0.942
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	yes	1.012
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	yes	0.959
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.190
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	36:43	2.353e+01	9.330e+00	2.52	no	yes	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:01	1.103e+01	1.037e+01	1.06	yes	yes	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	yes	1.258
10	Unk	OCDF	NotFnd	*	*	*	no	no	1.359
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.085
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	yes	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.038
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:20	8.697e+00	1.008e+01	0.86	no	yes	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:00	8.191e+00	1.674e+01	0.49	no	no	1.025
17	Unk	OCDD	41:54	1.377e+01	1.308e+01	1.05	no	no	1.118
18	IS	13C-2,3,7,8-TCDF	26:46	9.705e+03	1.235e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	31:25	2.209e+04	1.434e+04	1.54	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	32:23	2.270e+04	1.442e+04	1.57	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:14	1.032e+04	1.971e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:20	1.315e+04	2.484e+04	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:53	1.224e+04	2.367e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	36:40	1.071e+04	2.070e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:01	9.393e+03	2.097e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:26	7.959e+03	1.783e+04	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	27:40	4.503e+03	5.873e+03	0.77	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:41	1.701e+04	1.067e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:02	1.551e+04	1.210e+04	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:07	1.711e+04	1.339e+04	1.28	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:59	1.905e+04	1.814e+04	1.05	yes	no	0.858
32	IS	13C-OCDD	41:51	1.907e+04	2.112e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:02	1.668e+04	2.074e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:22	2.344e+04	1.872e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:41	6.089e+03				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
METHOD BLANK

Run #8 Filename P519467 Samp: 1 Inj: 1 Acquired: 18-DEC-18 16:38:29
Processed: 19-DEC-18 14:30:51 LAB. ID: EQ1800510-01

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	5.52e+02	*	*	1.42e+03	*
2	1,2,3,7,8-PeCDF	*	3.20e+02	*	*	1.17e+03	*
3	2,3,4,7,8-PeCDF	*	3.20e+02	*	*	1.17e+03	*
4	1,2,3,4,7,8-HxCDF	*	5.56e+02	*	*	4.52e+02	*
5	1,2,3,6,7,8-HxCDF	*	5.56e+02	*	*	4.52e+02	*
6	2,3,4,6,7,8-HxCDF	*	5.56e+02	*	*	4.52e+02	*
7	1,2,3,7,8,9-HxCDF	4.15e+03	5.56e+02	7.5e+00	1.88e+03	4.52e+02	4.2e+00
8	1,2,3,4,6,7,8-HpCDF	2.32e+03	3.44e+02	6.7e+00	1.88e+03	3.08e+02	6.1e+00
9	1,2,3,4,7,8,9-HpCDF	*	3.44e+02	*	*	3.08e+02	*
10	OCDF	*	3.32e+02	*	*	1.08e+03	*
11	2,3,7,8-TCDD	*	2.02e+03	*	*	1.05e+03	*
12	1,2,3,7,8-PeCDD	*	5.00e+02	*	*	3.52e+02	*
13	1,2,3,4,7,8-HxCDD	*	5.36e+02	*	*	4.56e+02	*
14	1,2,3,6,7,8-HxCDD	*	5.36e+02	*	*	4.56e+02	*
15	1,2,3,7,8,9-HxCDD	2.41e+03	5.36e+02	4.5e+00	2.28e+03	4.56e+02	5.0e+00
16	1,2,3,4,6,7,8-HpCDD	1.69e+03	4.00e+02	4.2e+00	4.20e+03	3.20e+02	1.3e+01
17	OCDD	2.31e+03	2.84e+02	8.1e+00	2.73e+03	2.92e+02	9.4e+00
18	13C-2,3,7,8-TCDF	1.48e+06	5.61e+03	2.6e+02	1.88e+06	3.76e+03	5.0e+02
19	13C-1,2,3,7,8-PeCDF	3.67e+06	3.28e+02	1.1e+04	2.33e+06	4.84e+02	4.8e+03
20	13C-2,3,4,7,8-PeCDF	4.00e+06	3.28e+02	1.2e+04	2.52e+06	4.84e+02	5.2e+03
21	13C-1,2,3,4,7,8-HxCDF	2.03e+06	4.92e+02	4.1e+03	3.94e+06	8.76e+02	4.5e+03
22	13C-1,2,3,6,7,8-HxCDF	2.28e+06	4.92e+02	4.6e+03	4.35e+06	8.76e+02	5.0e+03
23	13C-2,3,4,6,7,8-HxCDF	2.26e+06	4.92e+02	4.6e+03	4.32e+06	8.76e+02	4.9e+03
24	13C-1,2,3,7,8,9-HxCDF	1.84e+06	4.92e+02	3.7e+03	3.55e+06	8.76e+02	4.1e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.60e+06	8.84e+02	1.8e+03	3.55e+06	1.56e+03	2.3e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.20e+06	8.84e+02	1.4e+03	2.68e+06	1.56e+03	1.7e+03
27	13C-2,3,7,8-TCDD	7.58e+05	5.29e+03	1.4e+02	1.01e+06	2.01e+03	5.0e+02
28	13C-1,2,3,7,8-PeCDD	2.88e+06	8.40e+02	3.4e+03	1.81e+06	8.00e+02	2.3e+03
29	13C-1,2,3,4,7,8-HxCDD	3.22e+06	7.28e+02	4.4e+03	2.48e+06	7.64e+02	3.2e+03
30	13C-1,2,3,6,7,8-HxCDD	2.95e+06	7.28e+02	4.1e+03	2.33e+06	7.64e+02	3.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.01e+06	4.92e+02	6.1e+03	2.90e+06	3.76e+02	7.7e+03
32	13C-OCDD	2.04e+06	4.24e+02	4.8e+03	2.27e+06	3.32e+02	6.8e+03
33	13C-1,2,3,4-TCDD	2.79e+06	5.29e+03	5.3e+02	3.45e+06	2.01e+03	1.7e+03
34	13C-1,2,3,7,8,9-HxCDD	3.95e+06	7.28e+02	5.4e+03	3.19e+06	7.64e+02	4.2e+03
35	37Cl-2,3,7,8-TCDD	1.02e+06	1.19e+03	8.6e+02			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (2.016e{+}03 + 1.048e{+}03) \times 2000}{(7.581e{+}05 + 1.005e{+}06) \times (\quad) \times 1.085} =$$

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
METHOD BLANK

Entry: 43 Totals Name: Total Hepta-Furans

Run: 8 File: P519467 Sample:1 Injection:1 Function:4

Acquired: 18-DEC-18 16:38:29 Processed: 19-DEC-18 14:30:51

Mass: 407.7820 409.7790 Tot Response: 2.14e+01 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:01	1.10e+01	1.04e+01 1.06	yes	2.14e+01	1,2,3,4,6,7,8-HpCDF	y	y

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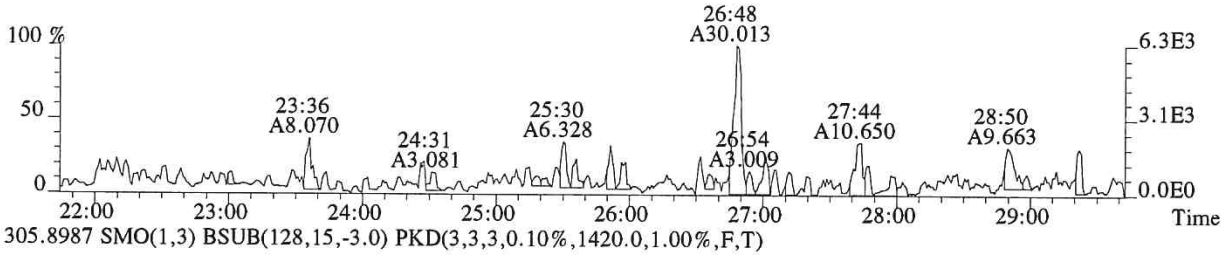
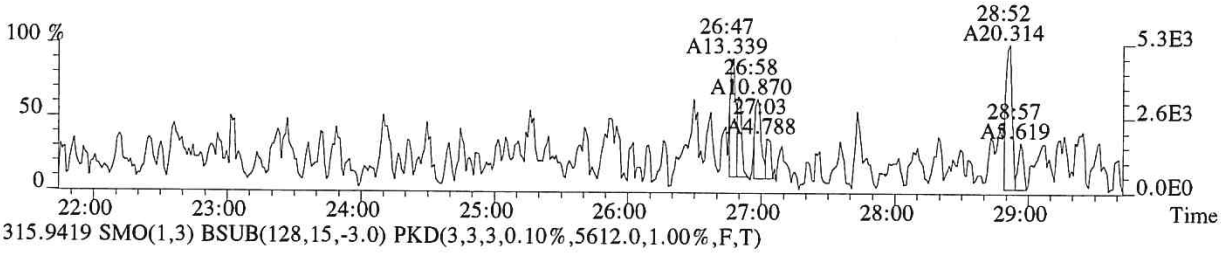
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

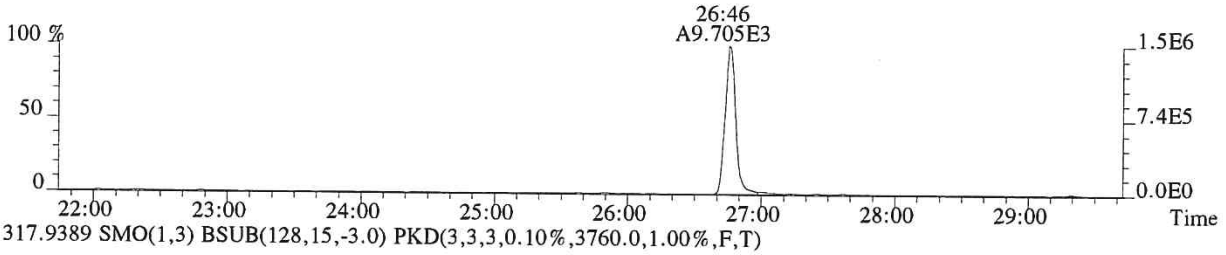
File:P519467 #1-566 Acq:18-DEC-2018 16:38:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800510-01
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,552.0,1.00%,F,T)



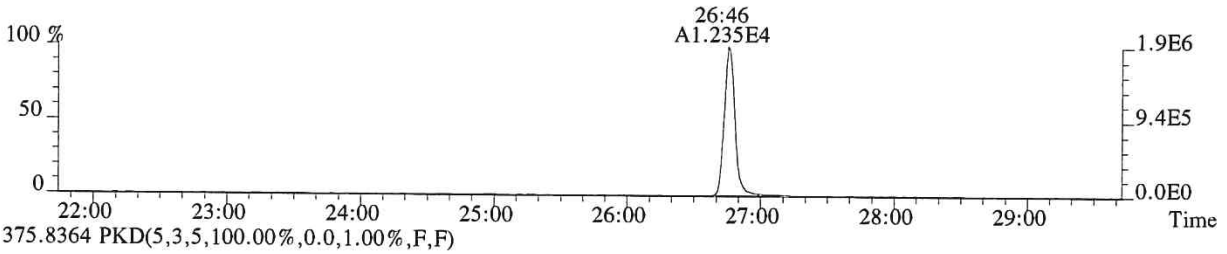
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1420.0,1.00%,F,T)



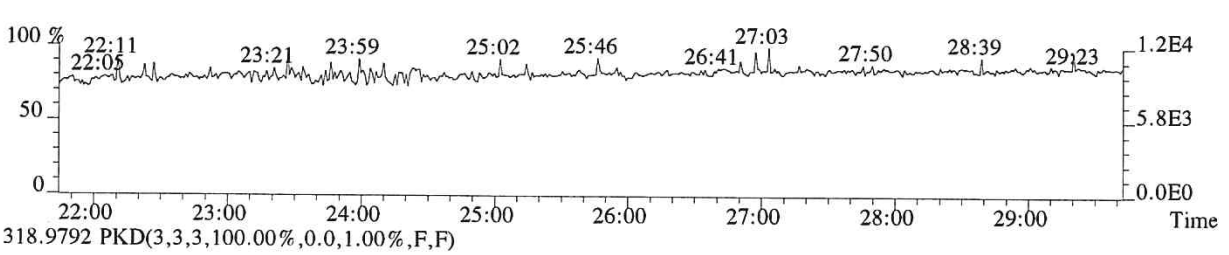
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5612.0,1.00%,F,T)



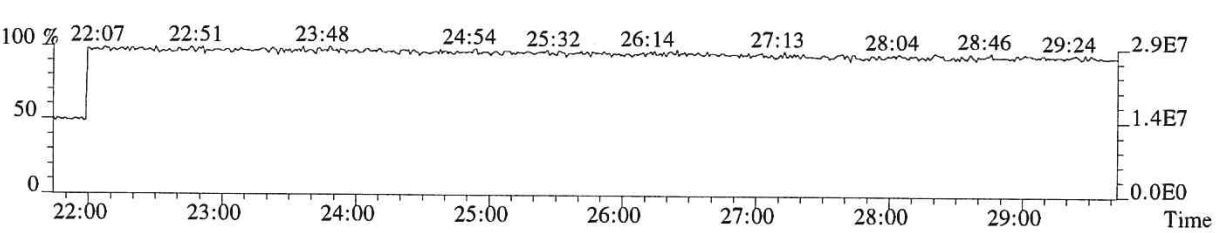
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3760.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

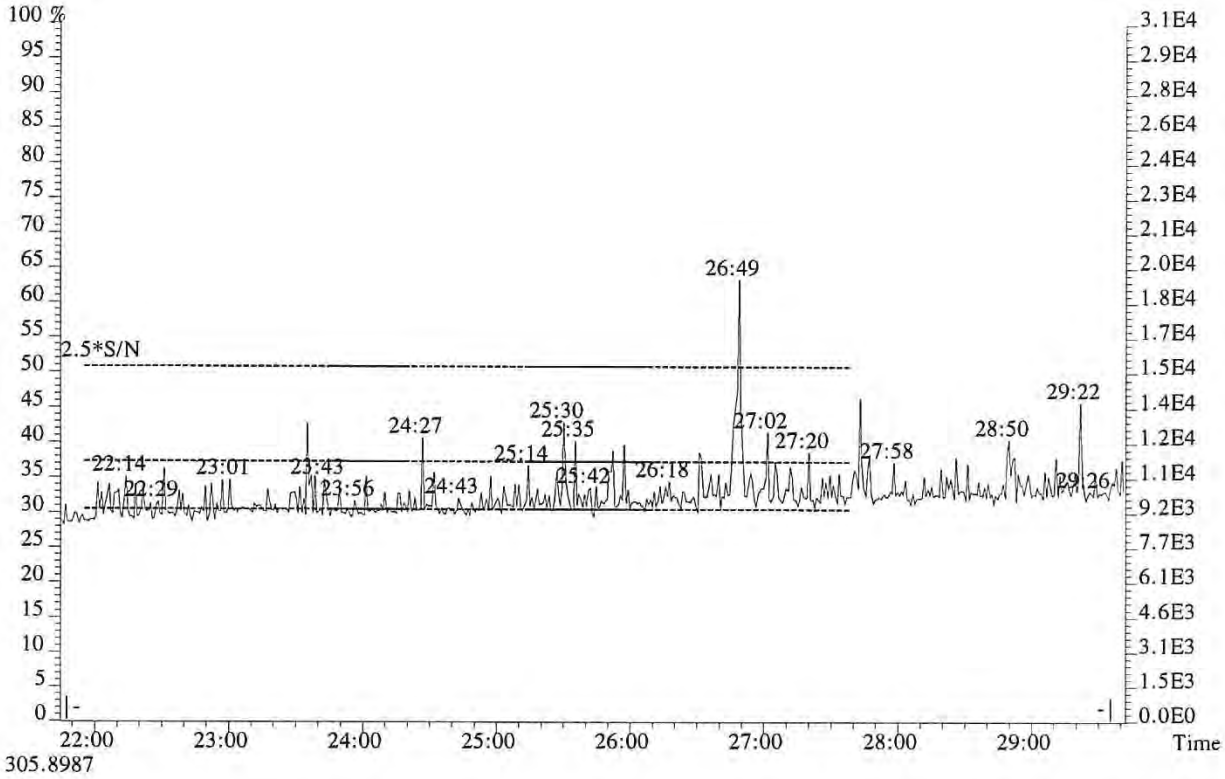


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

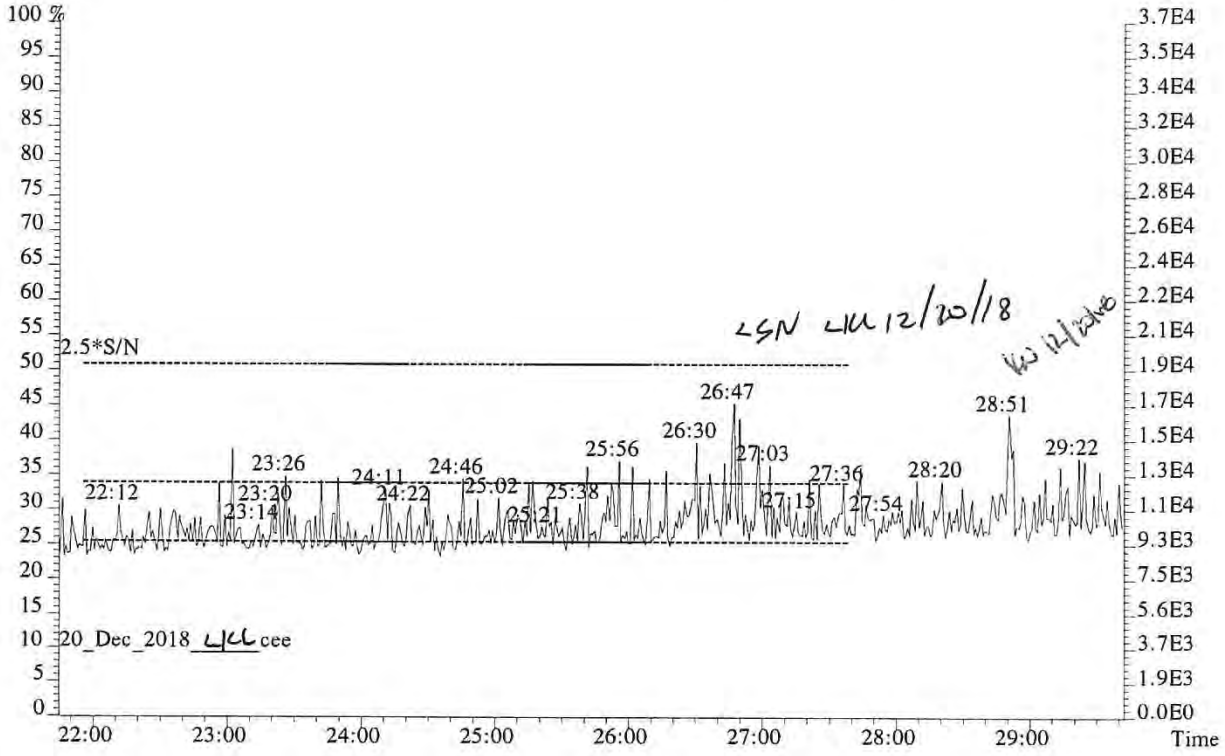


015683

File:P519467 #1-566 Acq:18-DEC-2018 16:38:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800508-01
303.9016

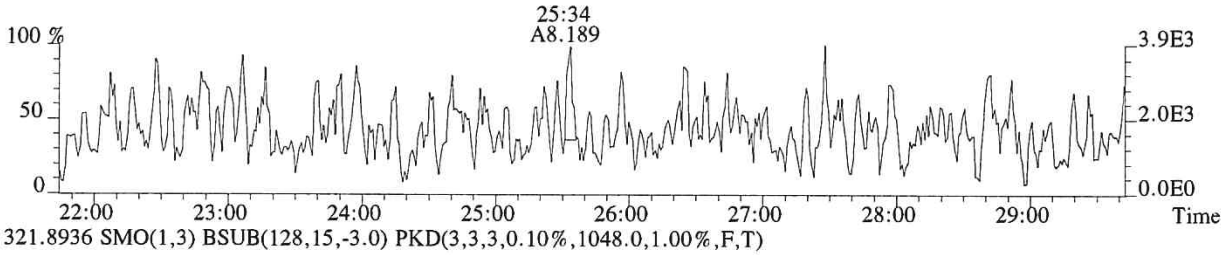


305.8987

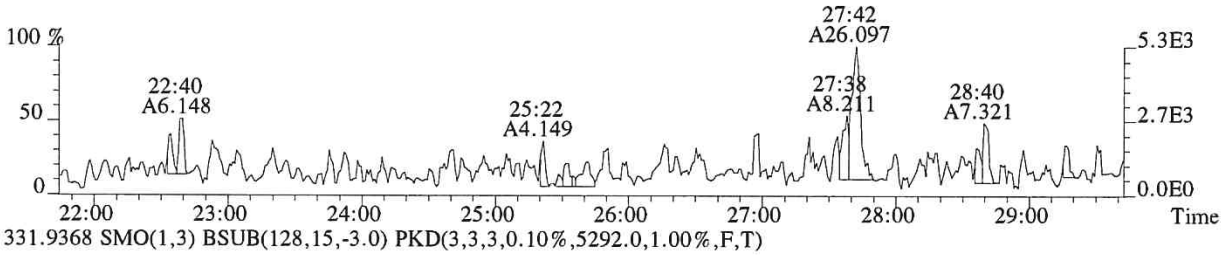


015684

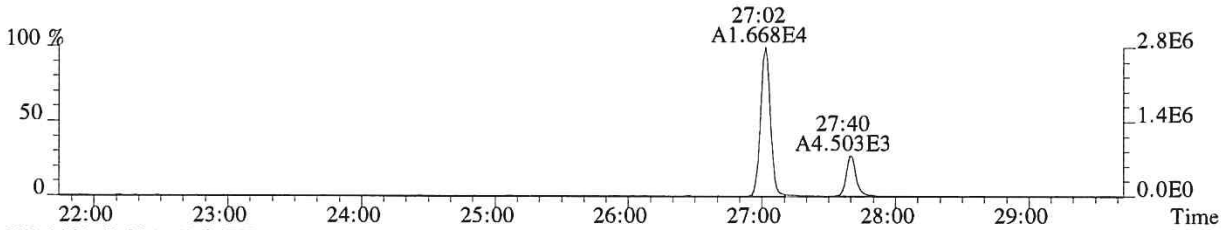
File:P519467 #1-566 Acq:18-DEC-2018 16:38:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800510-01
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2016.0,1.00%,F,T)



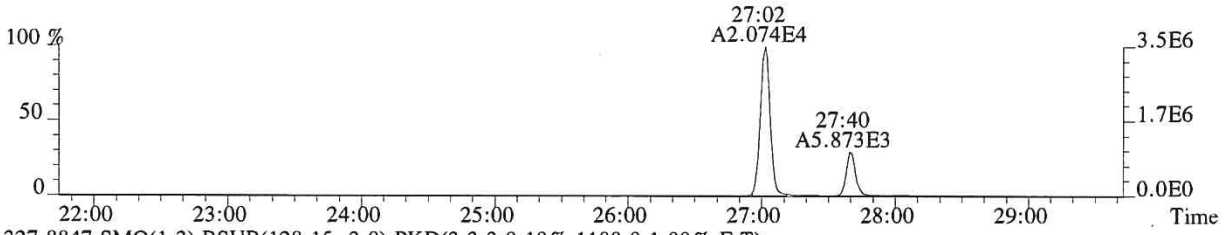
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1048.0,1.00%,F,T)



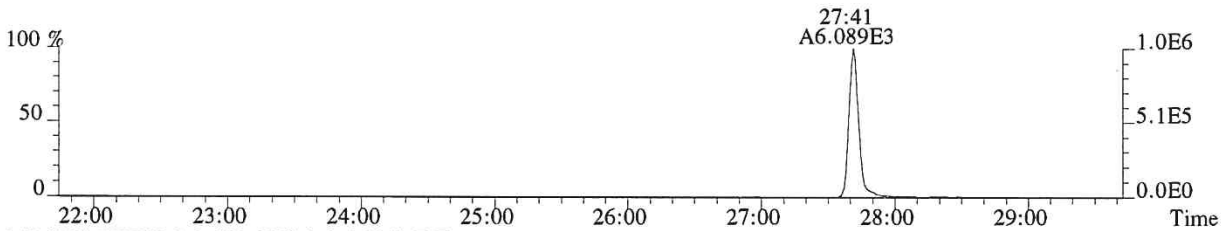
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5292.0,1.00%,F,T)



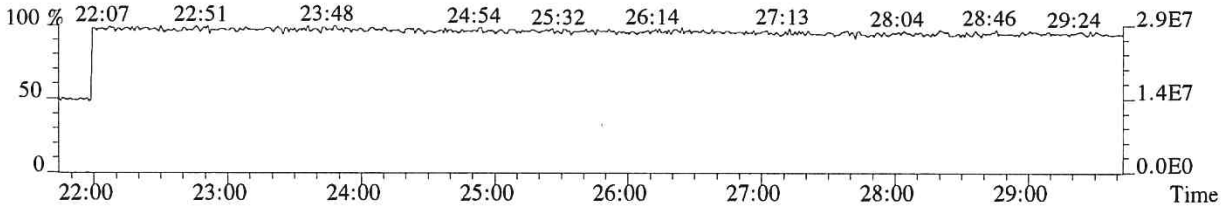
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2008.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1188.0,1.00%,F,T)

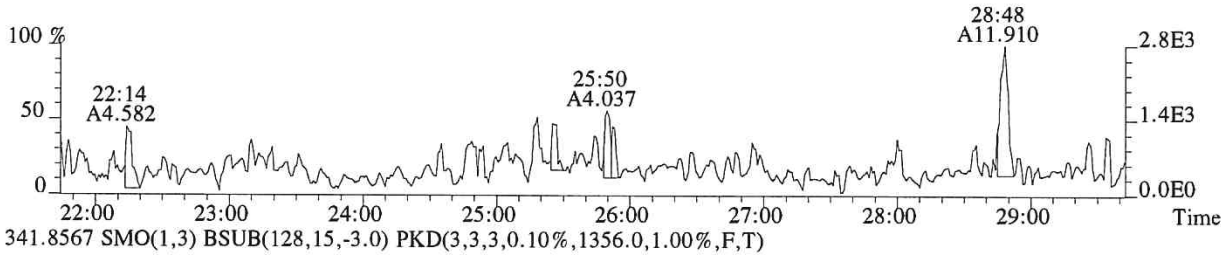


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

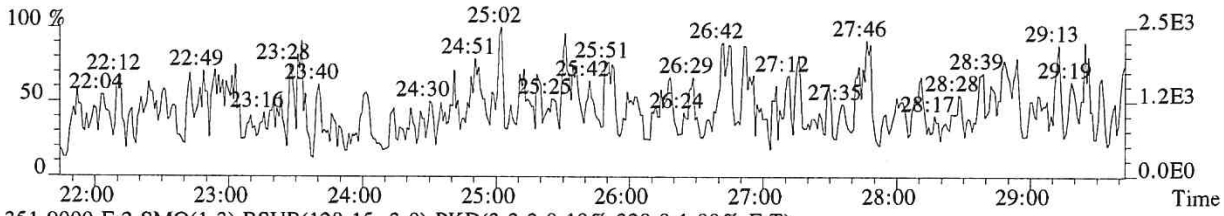


015685

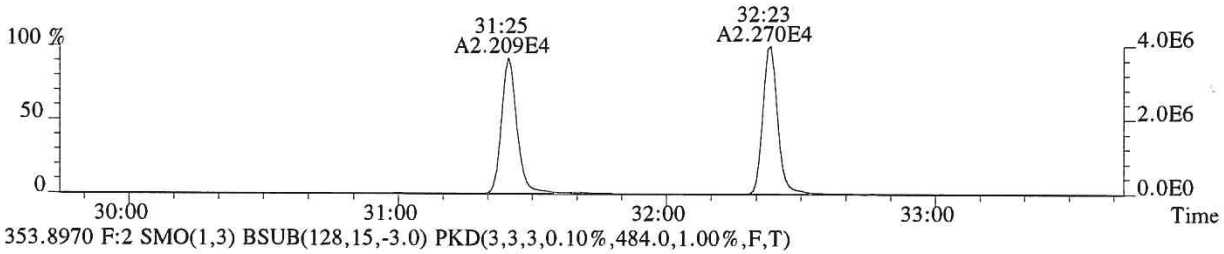
File:P519467 #1-566 Acq:18-DEC-2018 16:38:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800510-01
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,564.0,1.00%,F,T)



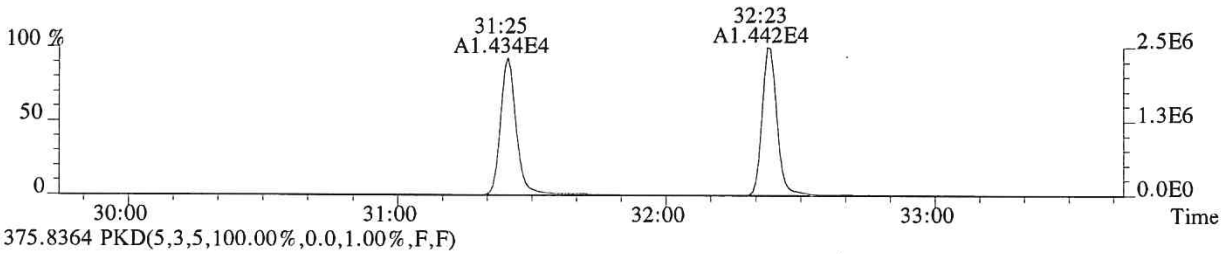
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1356.0,1.00%,F,T)



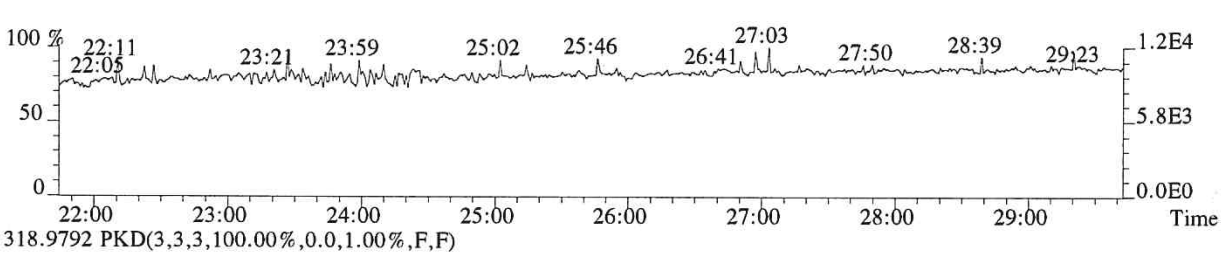
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,328.0,1.00%,F,T)



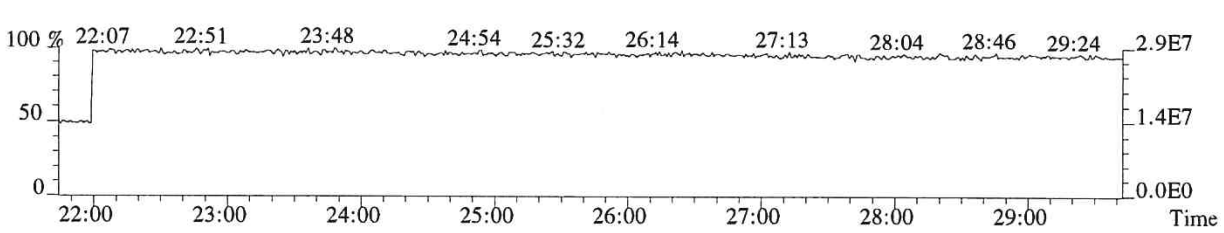
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,484.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

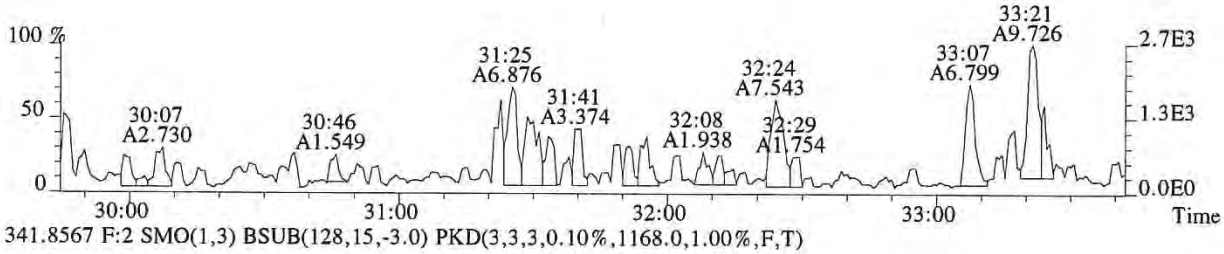


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

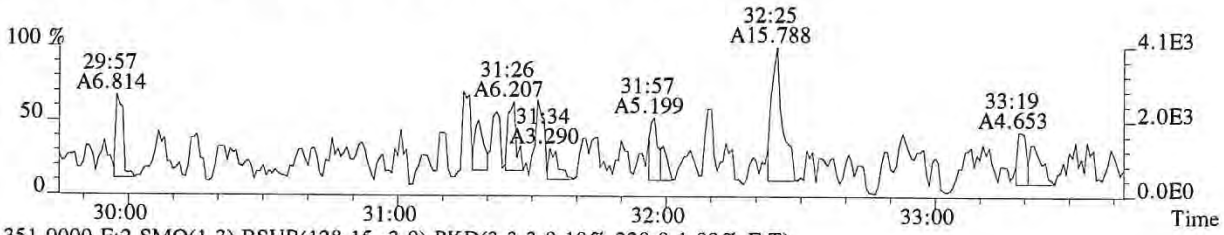


015686

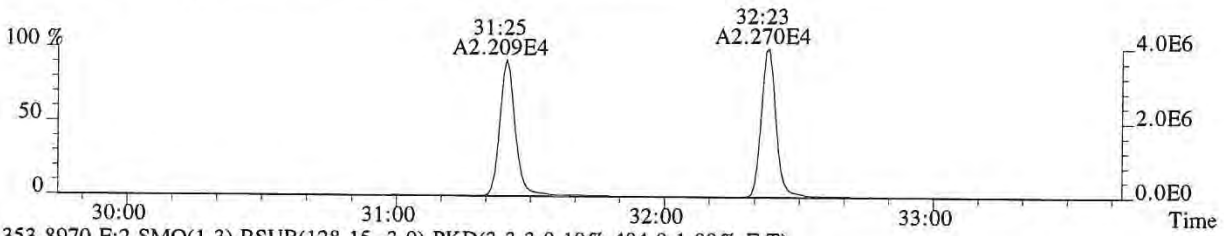
File:P519467 #1-357 Acq:18-DEC-2018 16:38:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800510-01
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,320.0,1.00%,F,T)



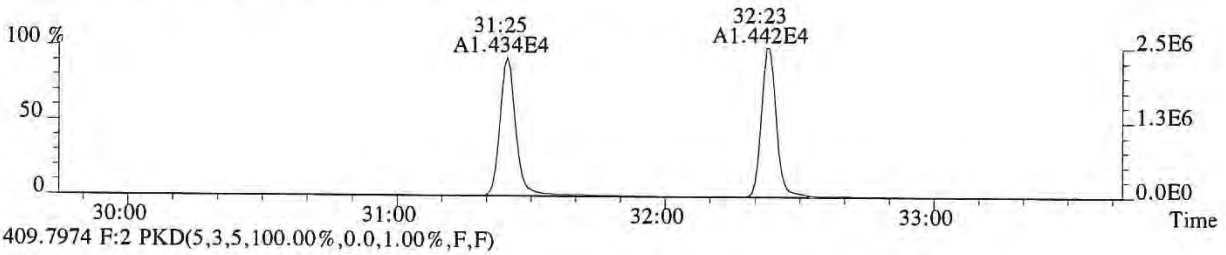
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1168.0,1.00%,F,T)



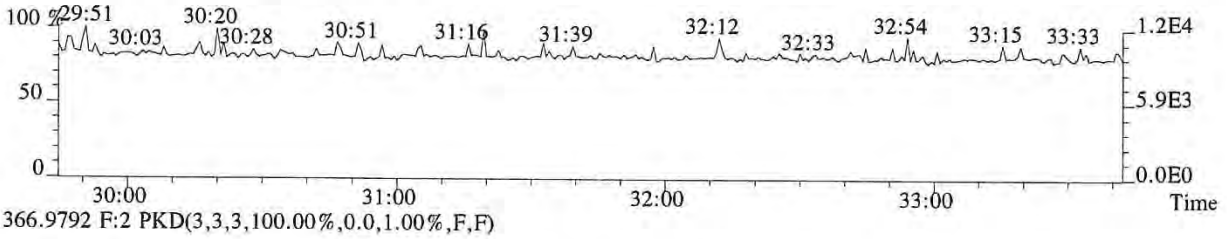
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,328.0,1.00%,F,T)



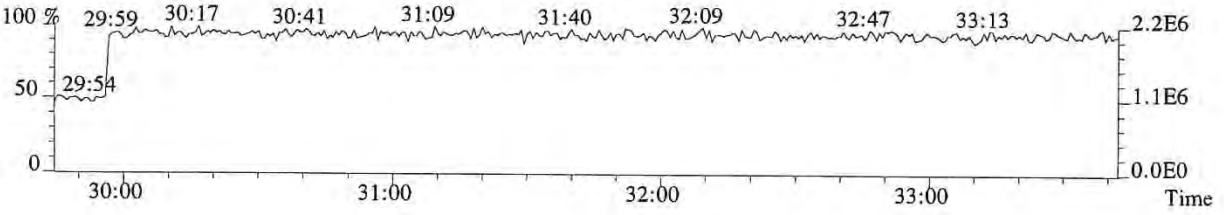
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,484.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

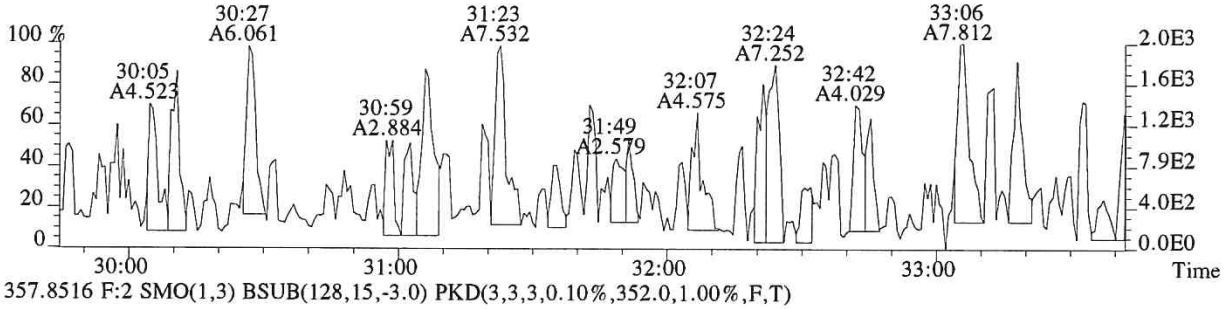


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

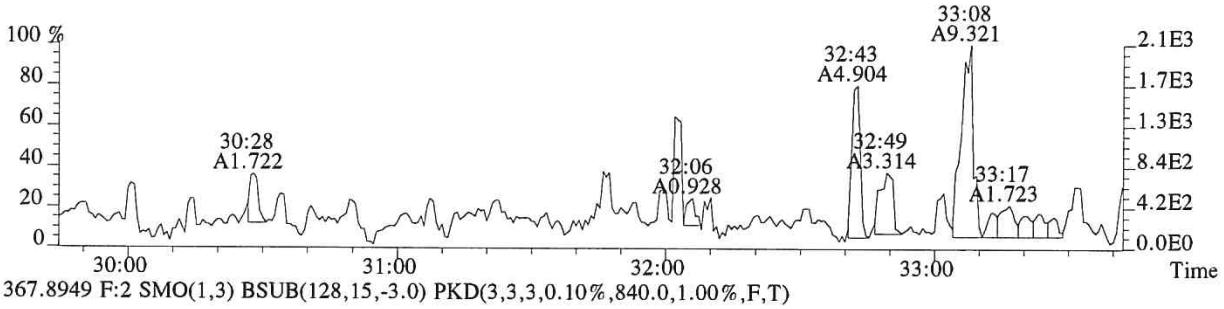


015687

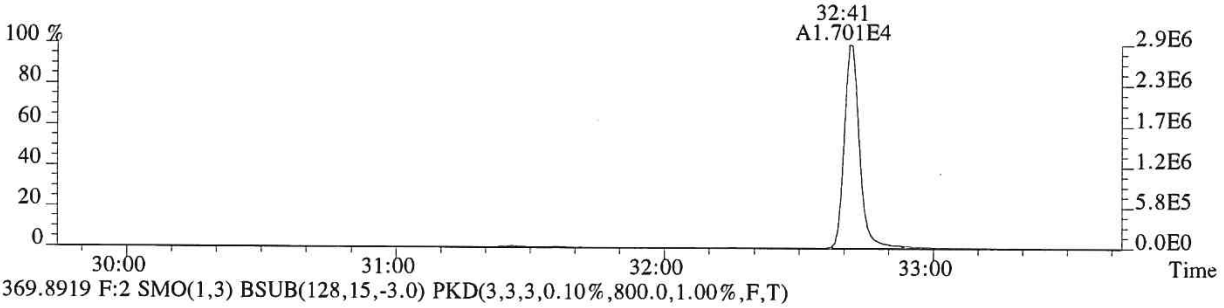
File:P519467 #1-357 Acq:18-DEC-2018 16:38:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800510-01
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,500.0,1.00%,F,T)



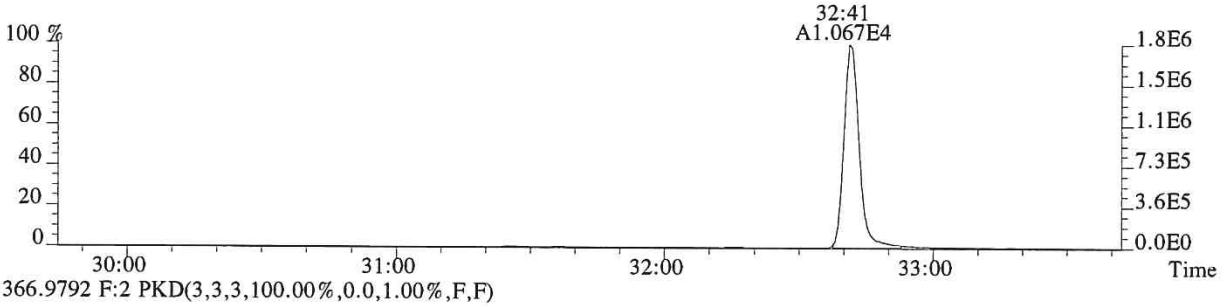
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,352.0,1.00%,F,T)



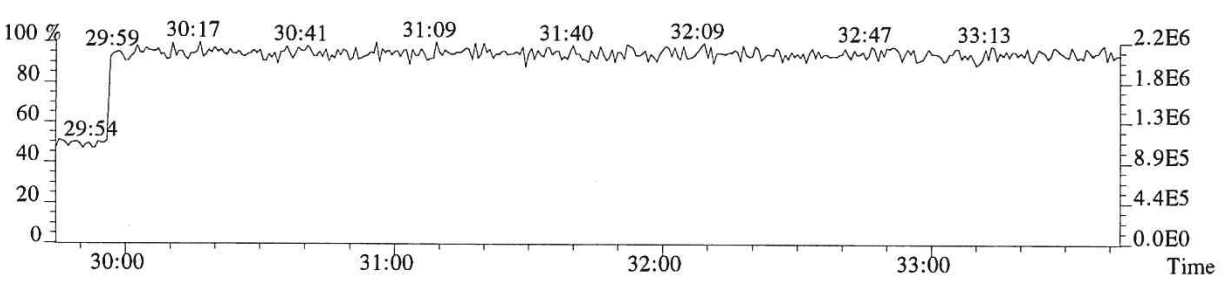
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,840.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,800.0,1.00%,F,T)

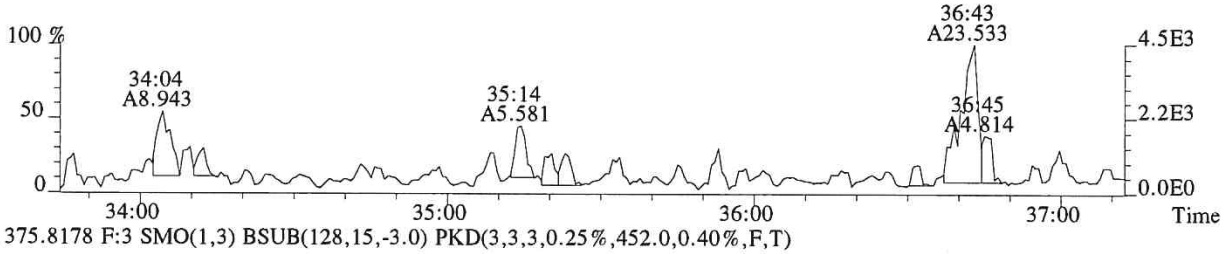


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

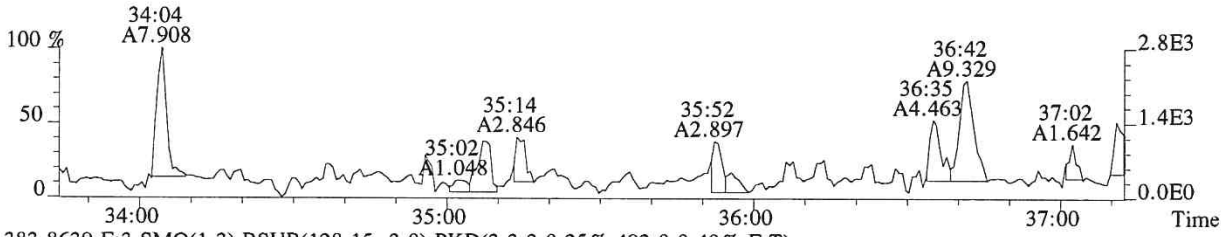


015688

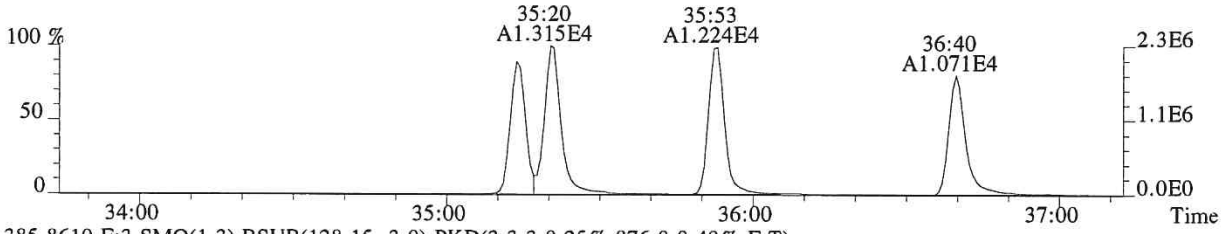
File:P519467 #1-313 Acq:18-DEC-2018 16:38:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800510-01
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,556.0,0.40%,F,T)



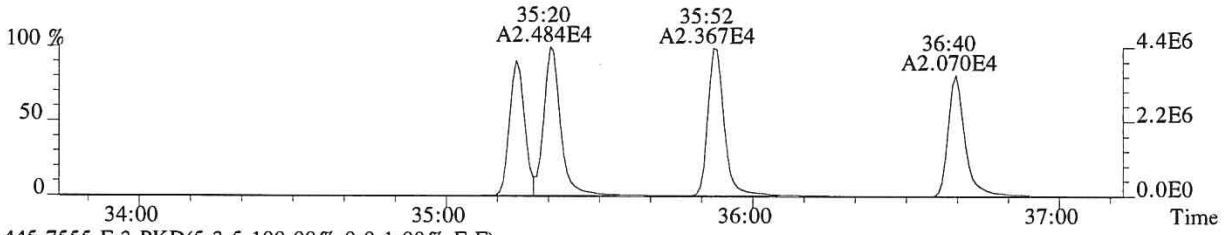
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,452.0,0.40%,F,T)



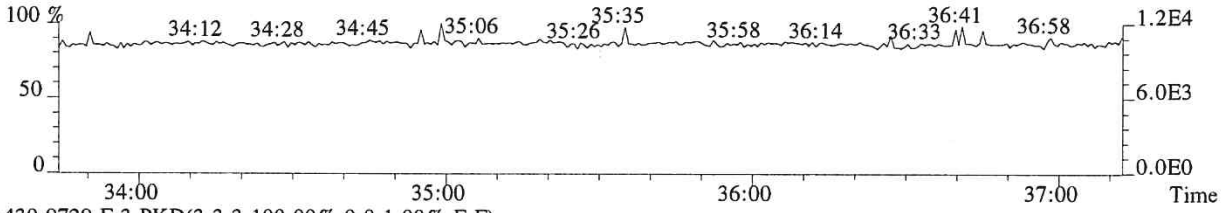
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,492.0,0.40%,F,T)



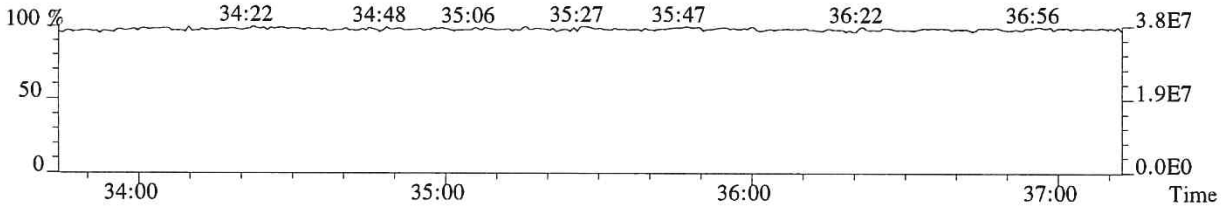
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,876.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

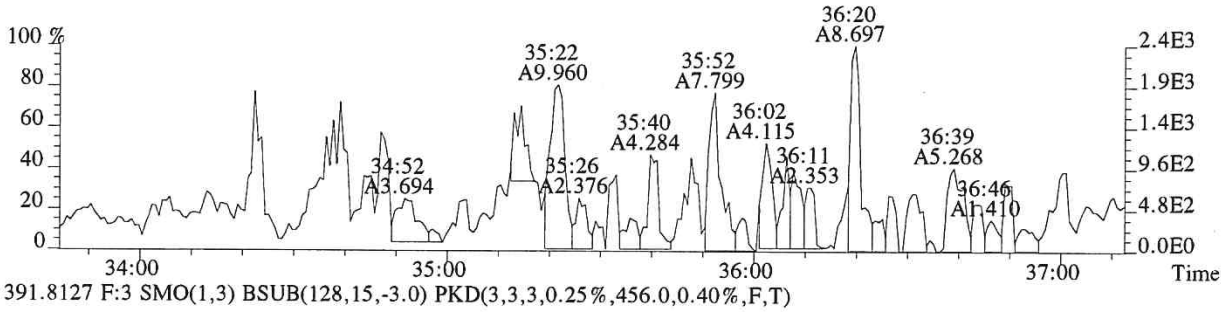


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

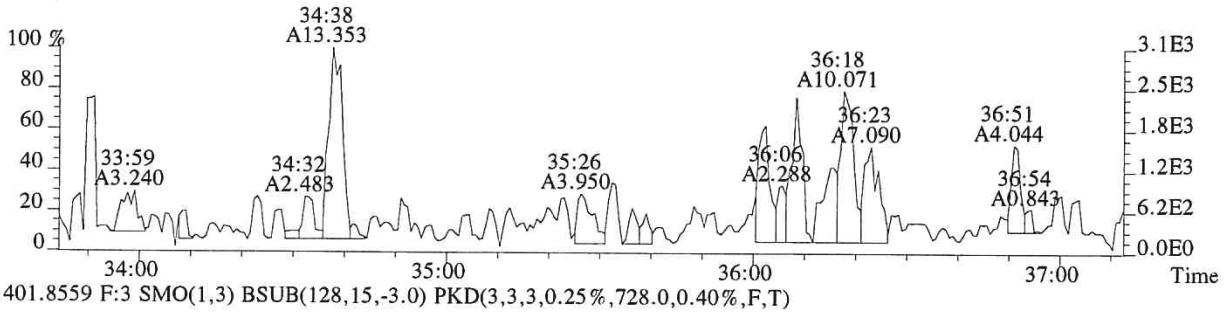


015689

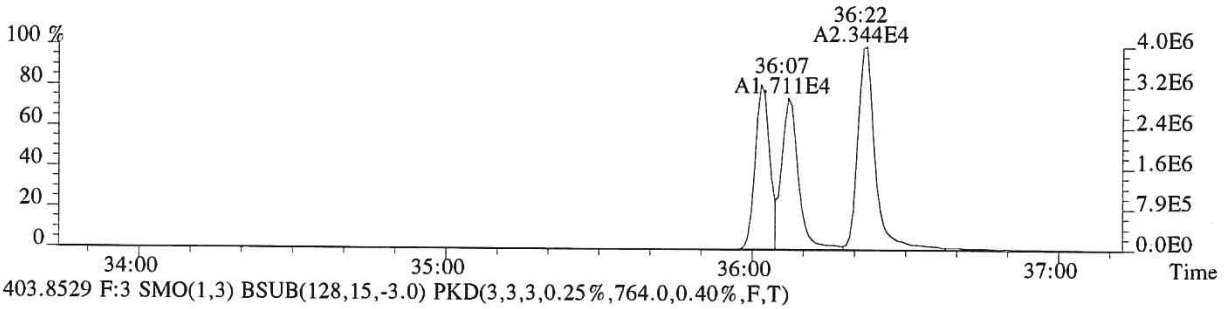
File:P519467 #1-313 Acq:18-DEC-2018 16:38:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800510-01
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,536.0,0.40%,F,T)



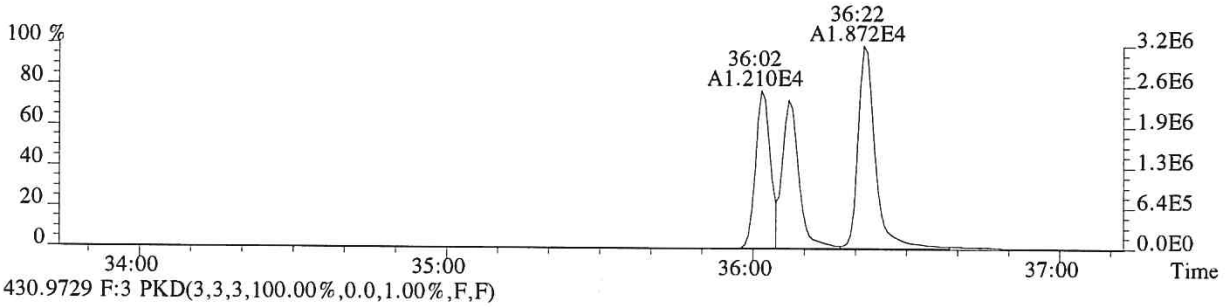
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,456.0,0.40%,F,T)



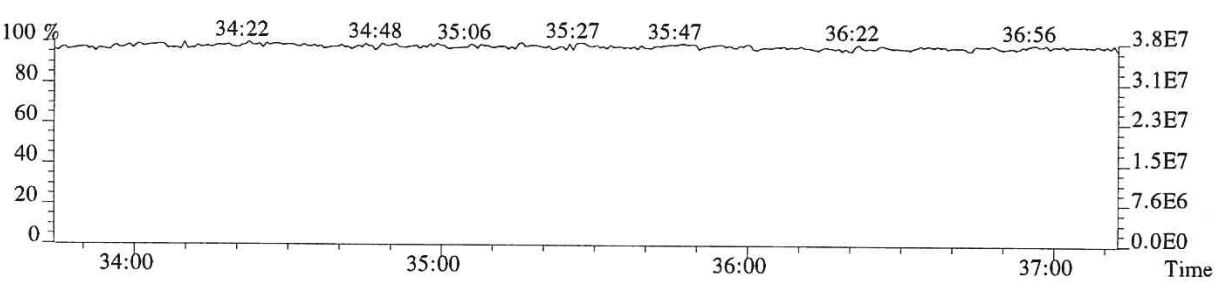
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,728.0,0.40%,F,T)



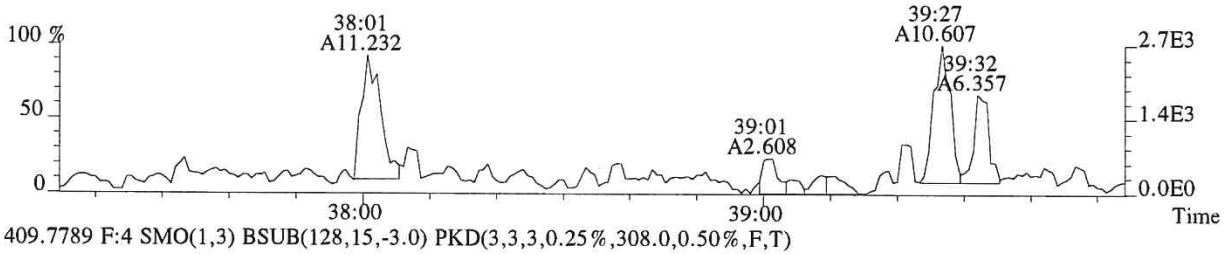
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,764.0,0.40%,F,T)



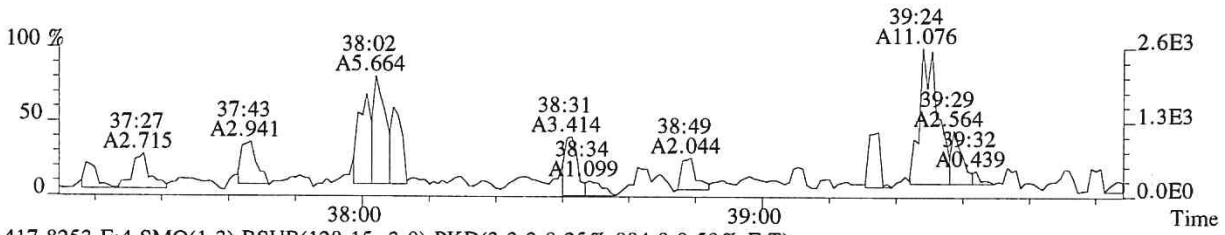
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



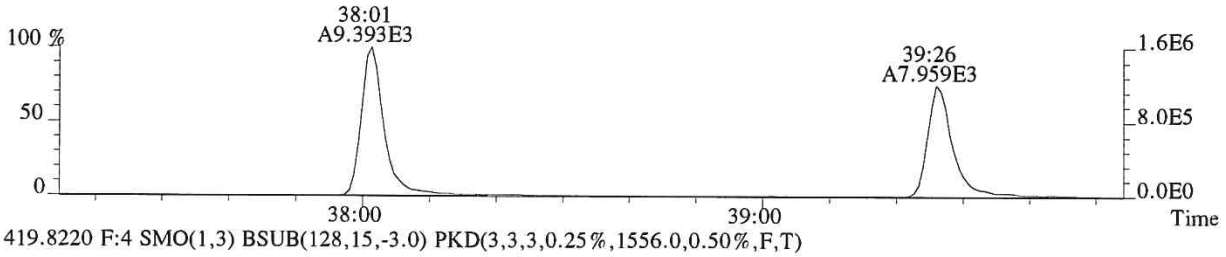
File:P519467 #1-240 Acq:18-DEC-2018 16:38:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800510-01
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,344.0,0.50%,F,T)



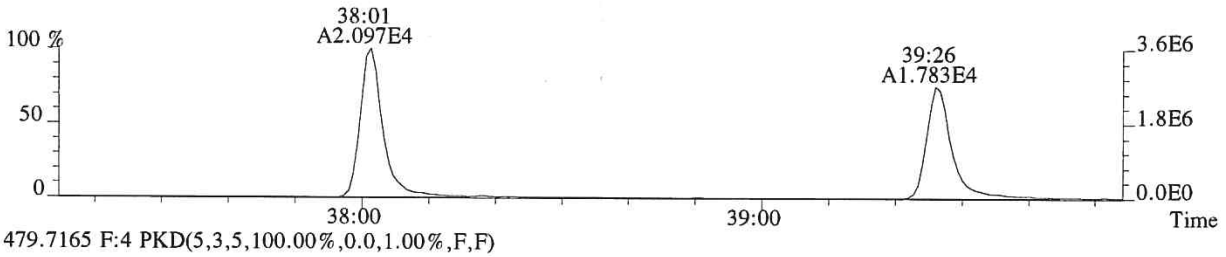
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,308.0,0.50%,F,T)



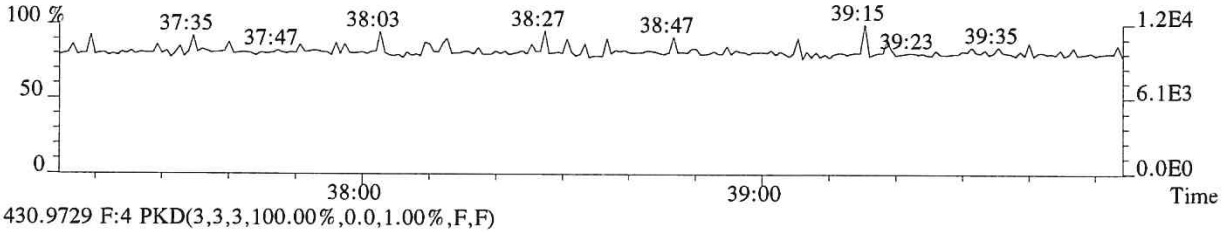
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,884.0,0.50%,F,T)



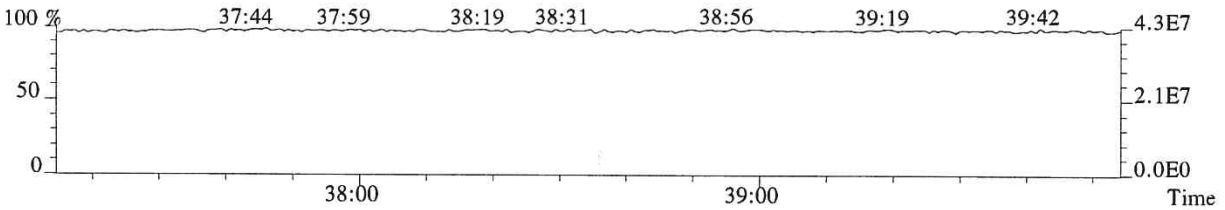
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1556.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

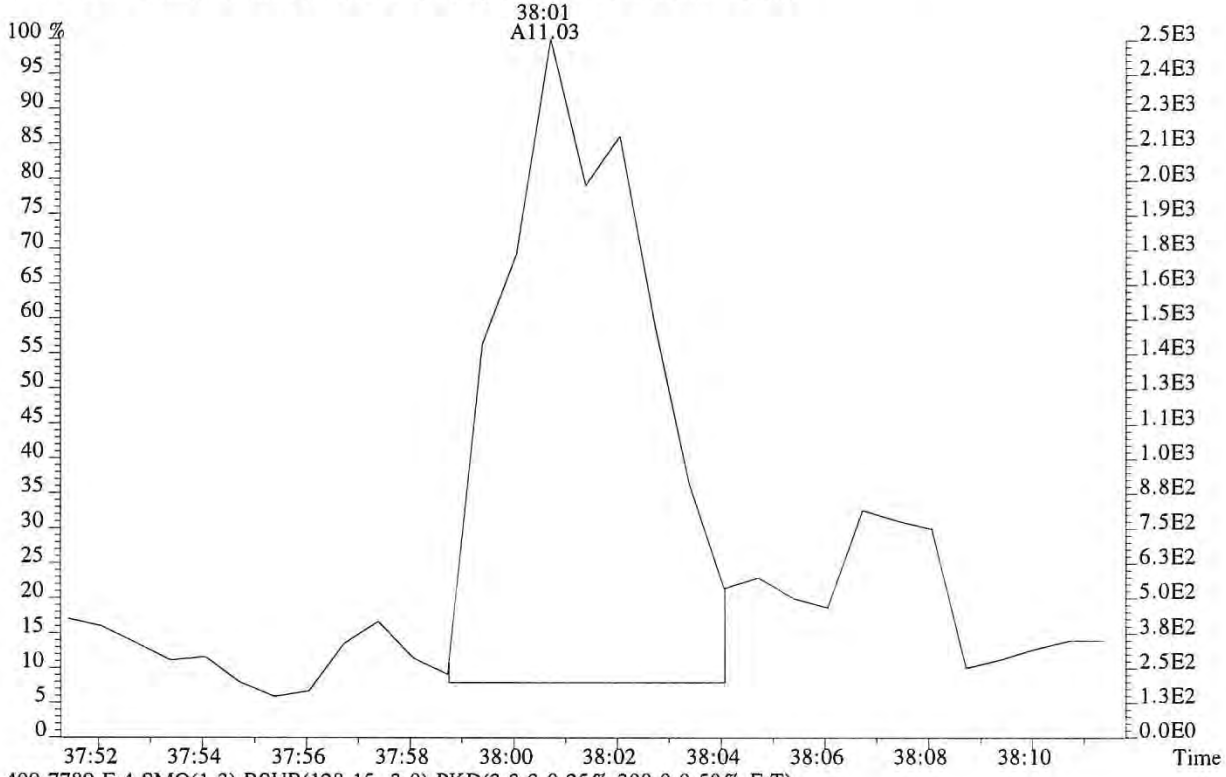


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

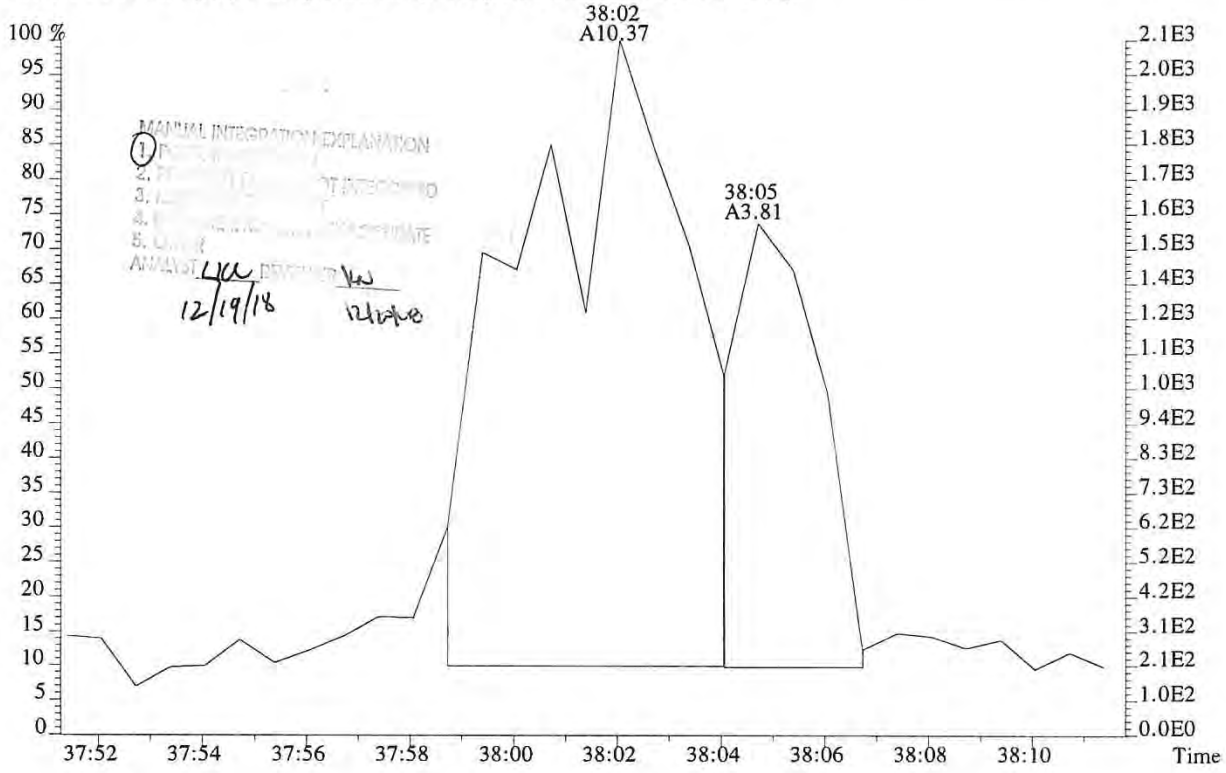


015691

File:P519467 #1-240 Acq:18-DEC-2018 16:38:29 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:EQ1800508-01
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,344.0,0.50%,F,T)



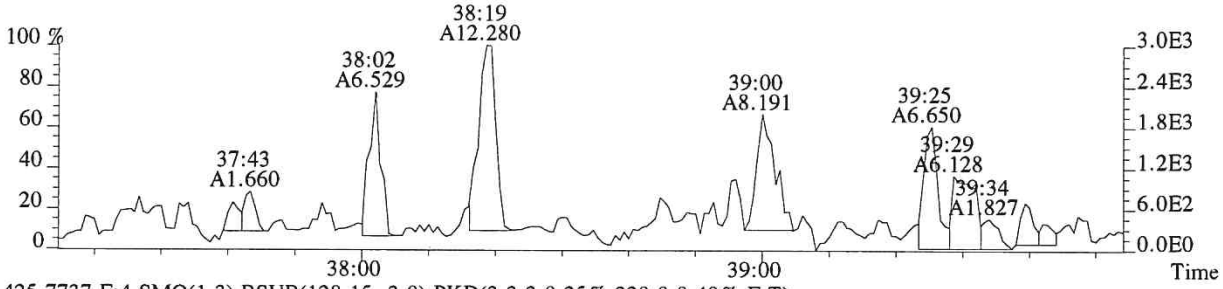
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,308.0,0.50%,F,T)



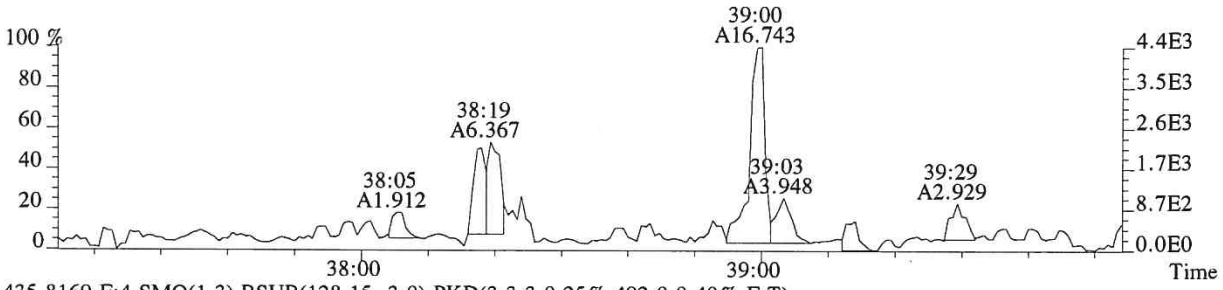
MANUAL INTEGRATION EXPLANATION
1.
2.
3.
4.
5.
ANALYST
12/19/18

015692

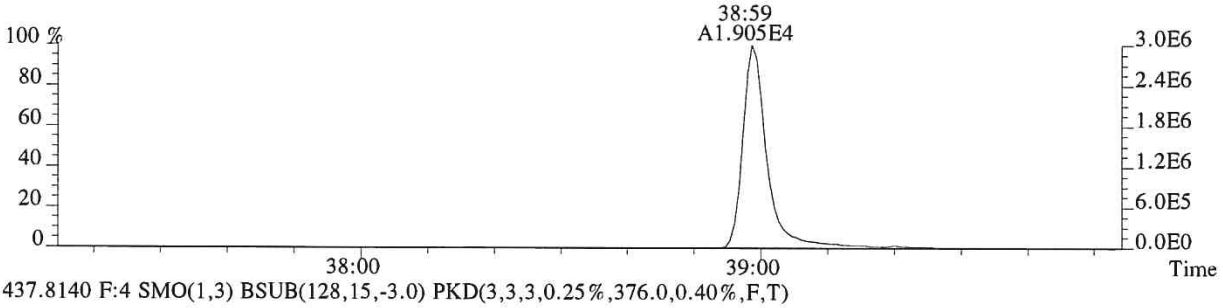
File:P519467 #1-240 Acq:18-DEC-2018 16:38:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800510-01
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,400.0,0.40%,F,T)



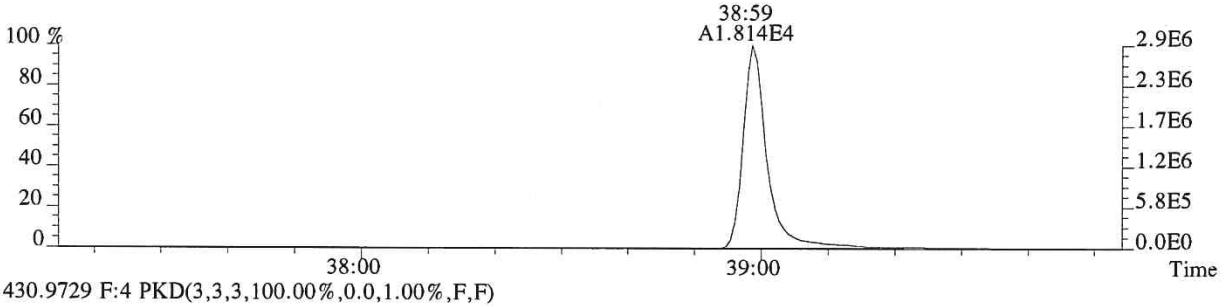
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,320.0,0.40%,F,T)



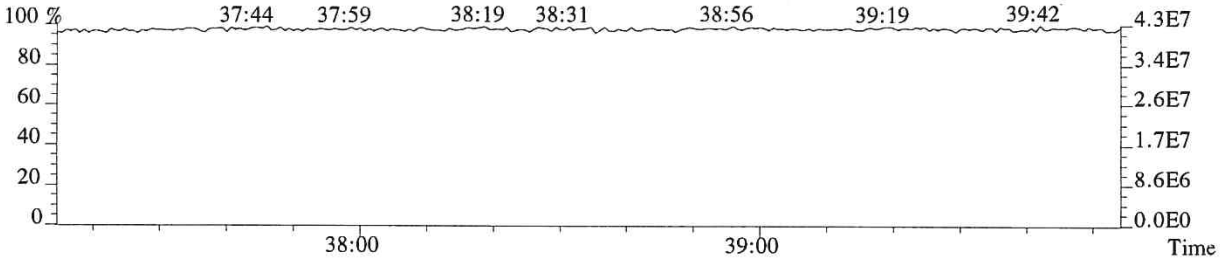
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,492.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,376.0,0.40%,F,T)

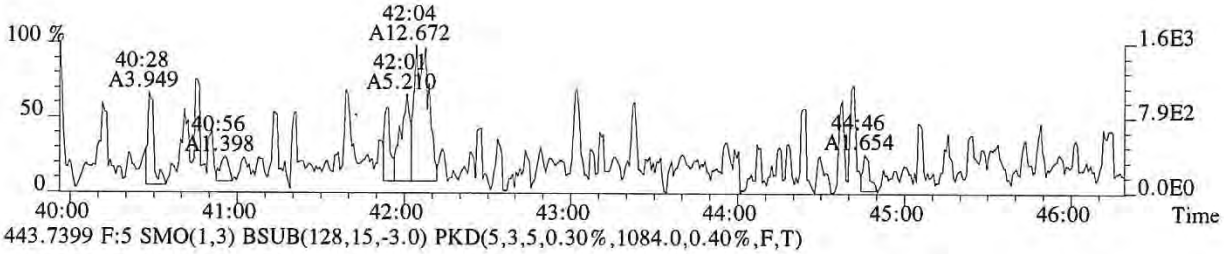


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

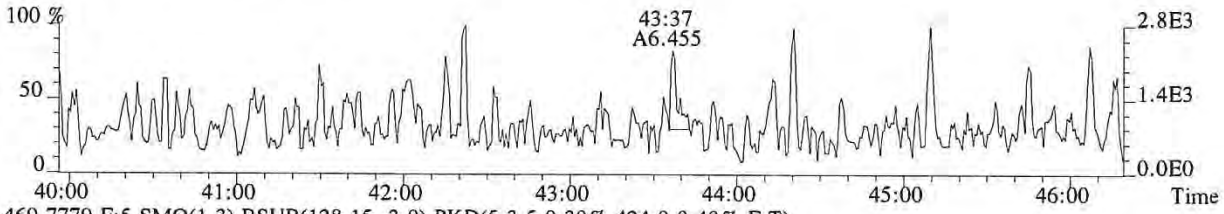


015693

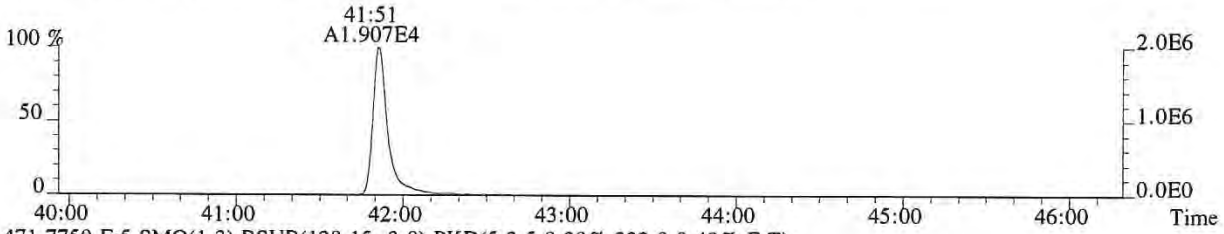
File:P519467 #1-575 Acq:18-DEC-2018 16:38:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800510-01
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,332.0,0.40%,F,T)



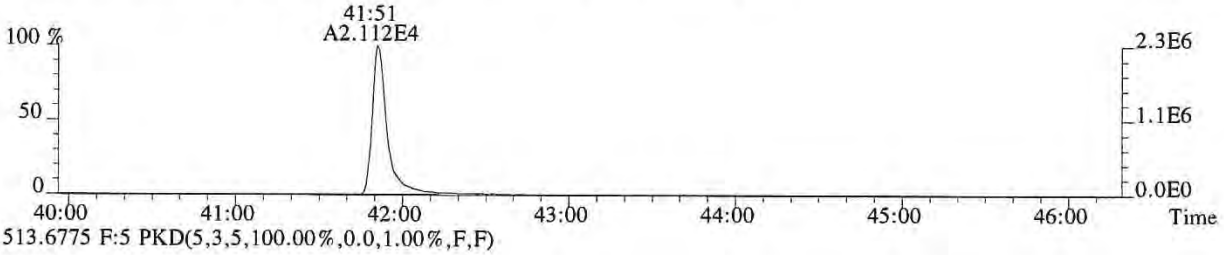
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1084.0,0.40%,F,T)



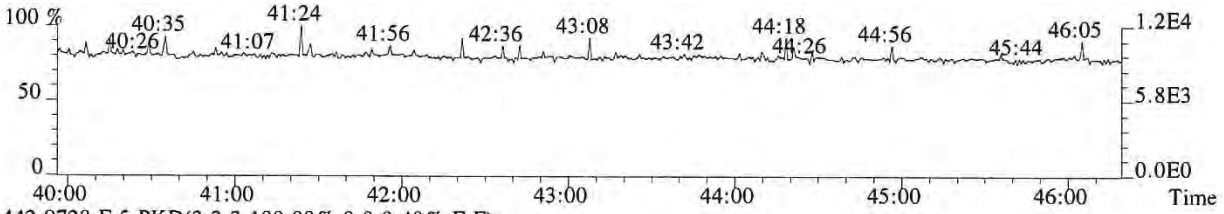
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,424.0,0.40%,F,T)



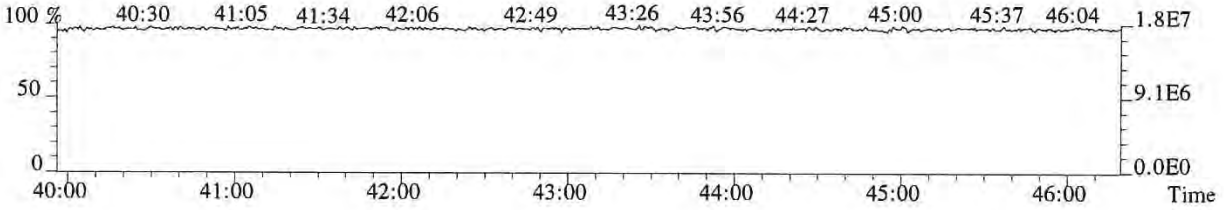
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,332.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

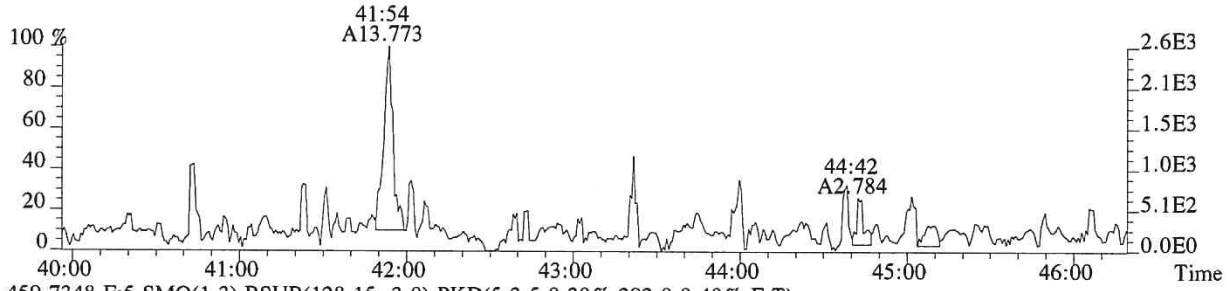


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

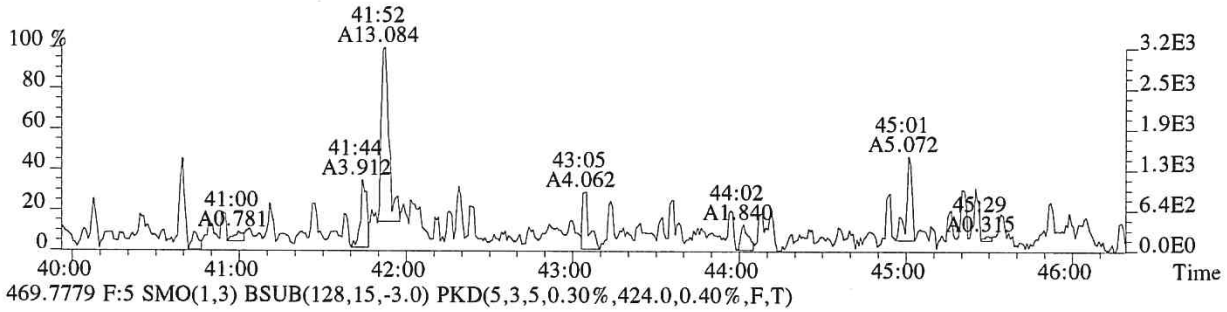


015694

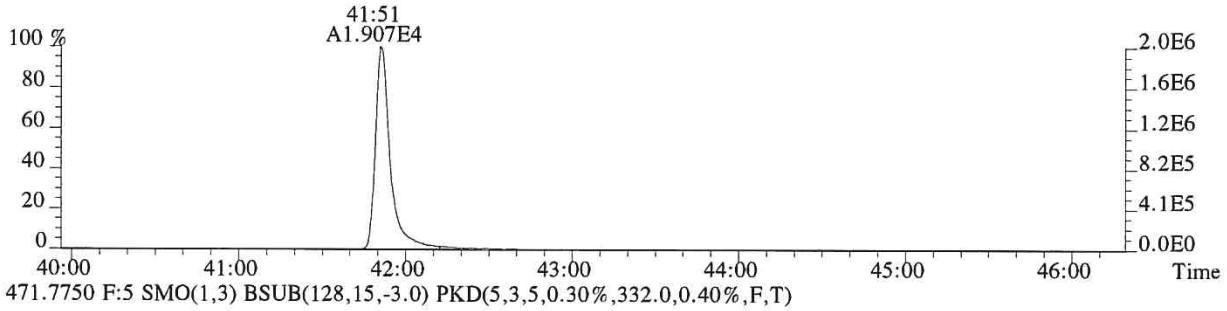
File:P519467 #1-575 Acq:18-DEC-2018 16:38:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800510-01
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,284.0,0.40%,F,T)



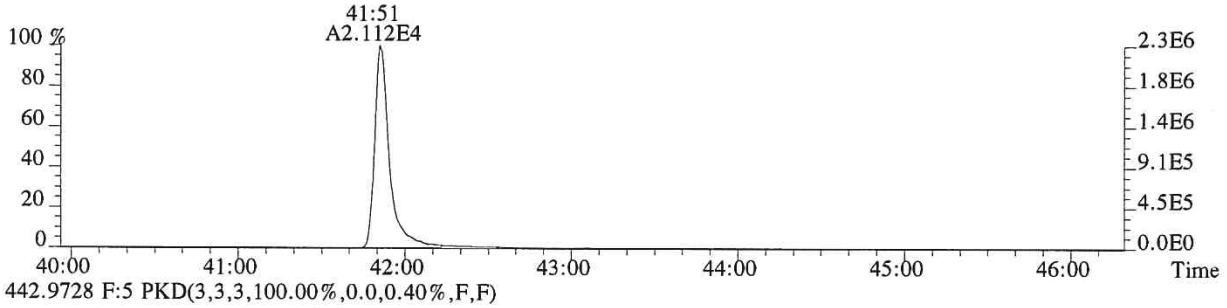
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,292.0,0.40%,F,T)



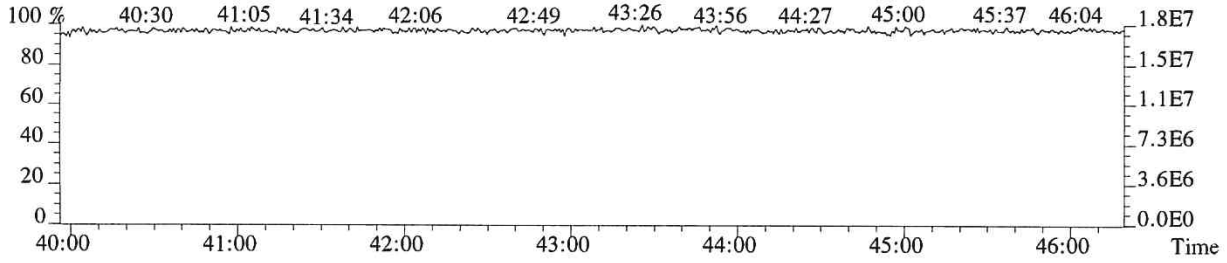
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,424.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,332.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



015695

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
LCS

Run #17 Filename P519476 Samp: 1 Inj: 1 Acquired: 18-DEC-18 23:56:15
Processed: 19-DEC-18 15:25:47 Sample ID: EQ1800510-02

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:48	7.156e+02	9.431e+02	0.76	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	31:26	5.682e+03	3.747e+03	1.52	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	32:24	5.102e+03	3.370e+03	1.51	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:15	4.113e+03	3.352e+03	1.23	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:22	4.644e+03	4.036e+03	1.15	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:54	4.065e+03	3.314e+03	1.23	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	36:41	3.362e+03	2.713e+03	1.24	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:03	3.108e+03	3.097e+03	1.00	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:28	2.295e+03	2.334e+03	0.98	yes	no	1.258
10	Unk	OCDF	42:04	2.919e+03	3.491e+03	0.84	yes	no	1.359
11	Unk	2,3,7,8-TCDD	27:42	5.605e+02	7.265e+02	0.77	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	32:43	4.002e+03	2.504e+03	1.60	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:03	2.923e+03	2.290e+03	1.28	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:08	3.212e+03	2.551e+03	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:23	2.969e+03	2.534e+03	1.17	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:01	2.113e+03	2.061e+03	1.03	yes	no	1.025
17	Unk	OCDD	41:54	2.522e+03	2.906e+03	0.87	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	26:46	7.322e+03	9.150e+03	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	31:25	1.241e+04	7.660e+03	1.62	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	32:23	1.123e+04	6.917e+03	1.62	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:14	4.542e+03	8.816e+03	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:21	5.595e+03	1.070e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:53	4.787e+03	9.118e+03	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	36:40	3.993e+03	7.758e+03	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:02	3.072e+03	6.866e+03	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:27	2.433e+03	5.466e+03	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	27:41	3.345e+03	4.252e+03	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:42	8.486e+03	5.291e+03	1.60	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:02	6.214e+03	4.883e+03	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:08	6.333e+03	4.960e+03	1.28	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:00	5.708e+03	5.242e+03	1.09	yes	no	0.858
32	IS	13C-OCDD	41:54	4.190e+03	4.817e+03	0.87	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:03	1.279e+04	1.599e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:22	1.471e+04	1.129e+04	1.30	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:42	4.770e+03				no	1.014

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
LCS

Run #17 Filename P519476 Samp: 1 Inj: 1 Acquired: 18-DEC-18 23:56:15
Processed: 19-DEC-18 15:25:47 LAB. ID: EQ1800510-02

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.16e+05	7.40e+02	1.6e+02	1.50e+05	1.18e+03	1.3e+02
2	1,2,3,7,8-PeCDF	9.72e+05	4.36e+02	2.2e+03	6.49e+05	3.36e+02	1.9e+03
3	2,3,4,7,8-PeCDF	8.94e+05	4.36e+02	2.1e+03	6.03e+05	3.36e+02	1.8e+03
4	1,2,3,4,7,8-HxCDF	8.48e+05	3.36e+02	2.5e+03	6.85e+05	4.60e+02	1.5e+03
5	1,2,3,6,7,8-HxCDF	8.50e+05	3.36e+02	2.5e+03	7.28e+05	4.60e+02	1.6e+03
6	2,3,4,6,7,8-HxCDF	7.72e+05	3.36e+02	2.3e+03	6.67e+05	4.60e+02	1.5e+03
7	1,2,3,7,8,9-HxCDF	6.24e+05	3.36e+02	1.9e+03	5.08e+05	4.60e+02	1.1e+03
8	1,2,3,4,6,7,8-HpCDF	5.66e+05	5.24e+02	1.1e+03	5.56e+05	8.80e+02	6.3e+02
9	1,2,3,4,7,8,9-HpCDF	3.65e+05	5.24e+02	7.0e+02	3.91e+05	8.80e+02	4.4e+02
10	OCDF	3.48e+05	3.96e+02	8.8e+02	4.10e+05	8.88e+02	4.6e+02
11	2,3,7,8-TCDD	9.94e+04	1.50e+03	6.6e+01	1.17e+05	8.60e+02	1.4e+02
12	1,2,3,7,8-PeCDD	7.24e+05	3.80e+02	1.9e+03	4.46e+05	4.28e+02	1.0e+03
13	1,2,3,4,7,8-HxCDD	6.13e+05	4.56e+02	1.3e+03	4.84e+05	4.76e+02	1.0e+03
14	1,2,3,6,7,8-HxCDD	5.87e+05	4.56e+02	1.3e+03	4.69e+05	4.76e+02	9.9e+02
15	1,2,3,7,8,9-HxCDD	5.43e+05	4.56e+02	1.2e+03	4.87e+05	4.76e+02	1.0e+03
16	1,2,3,4,6,7,8-HpCDD	3.57e+05	4.32e+02	8.3e+02	3.26e+05	3.88e+02	8.4e+02
17	OCDD	3.08e+05	4.08e+02	7.5e+02	3.33e+05	4.04e+02	8.2e+02
18	13C-2,3,7,8-TCDF	1.13e+06	3.64e+03	3.1e+02	1.41e+06	2.44e+03	5.8e+02
19	13C-1,2,3,7,8-PeCDF	2.12e+06	5.40e+02	3.9e+03	1.29e+06	3.64e+02	3.6e+03
20	13C-2,3,4,7,8-PeCDF	2.05e+06	5.40e+02	3.8e+03	1.23e+06	3.64e+02	3.4e+03
21	13C-1,2,3,4,7,8-HxCDF	9.04e+05	5.76e+02	1.6e+03	1.78e+06	9.12e+02	2.0e+03
22	13C-1,2,3,6,7,8-HxCDF	1.04e+06	5.76e+02	1.8e+03	1.98e+06	9.12e+02	2.2e+03
23	13C-2,3,4,6,7,8-HxCDF	9.42e+05	5.76e+02	1.6e+03	1.78e+06	9.12e+02	2.0e+03
24	13C-1,2,3,7,8,9-HxCDF	7.17e+05	5.76e+02	1.2e+03	1.41e+06	9.12e+02	1.5e+03
25	13C-1,2,3,4,6,7,8-HpCDF	5.30e+05	8.52e+02	6.2e+02	1.23e+06	1.10e+03	1.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.82e+05	8.52e+02	4.5e+02	8.51e+05	1.10e+03	7.7e+02
27	13C-2,3,7,8-TCDD	5.49e+05	4.58e+03	1.2e+02	7.01e+05	1.52e+03	4.6e+02
28	13C-1,2,3,7,8-PeCDD	1.54e+06	6.12e+02	2.5e+03	9.65e+05	7.80e+02	1.2e+03
29	13C-1,2,3,4,7,8-HxCDD	1.30e+06	6.60e+02	2.0e+03	1.02e+06	6.32e+02	1.6e+03
30	13C-1,2,3,6,7,8-HxCDD	1.17e+06	6.60e+02	1.8e+03	9.27e+05	6.32e+02	1.5e+03
31	13C-1,2,3,4,6,7,8-HpCDD	9.57e+05	3.00e+02	3.2e+03	8.60e+05	5.52e+02	1.6e+03
32	13C-OCDD	4.75e+05	4.48e+02	1.1e+03	5.38e+05	4.20e+02	1.3e+03
33	13C-1,2,3,4-TCDD	2.15e+06	4.58e+03	4.7e+02	2.63e+06	1.52e+03	1.7e+03
34	13C-1,2,3,7,8,9-HxCDD	2.69e+06	6.60e+02	4.1e+03	2.07e+06	6.32e+02	3.3e+03
35	37Cl-2,3,7,8-TCDD	8.04e+05	6.28e+02	1.3e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.500e{+}03 + 8.600e{+}02) \times 2000}{(5.488e{+}05 + 7.013e{+}05) \times (\quad) \times 1.085} =$$

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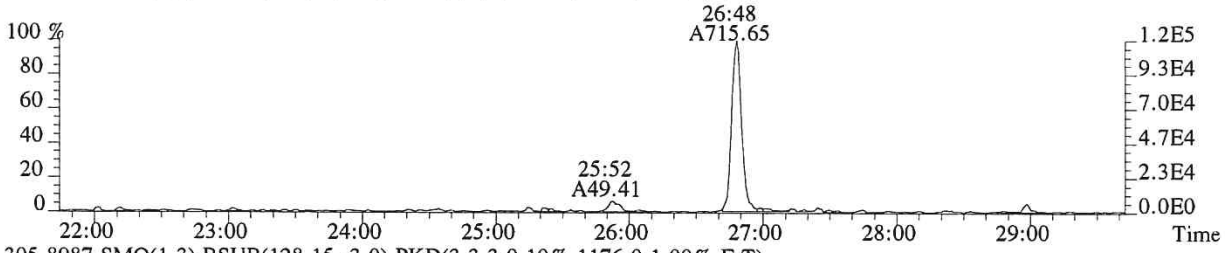
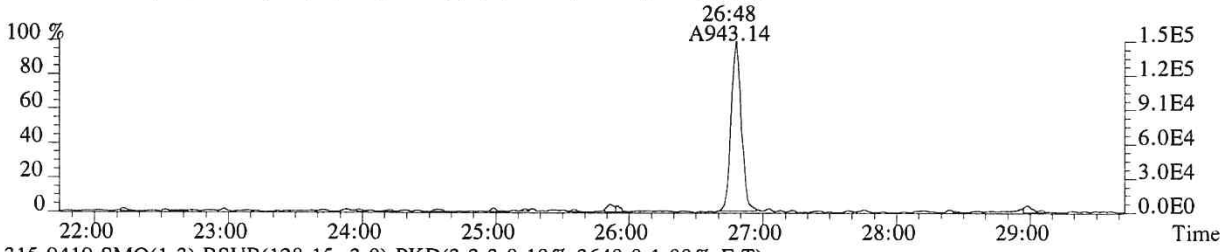
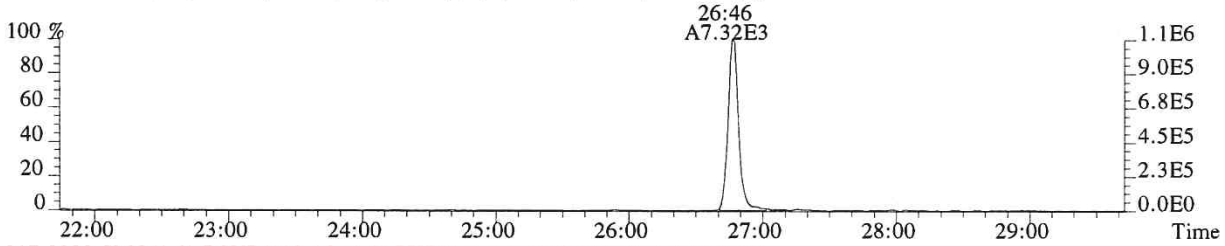
File:P519476 #1-566 Acq:18-DEC-2018 23:56:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800510-02
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,740.0,1.00%,F,T)



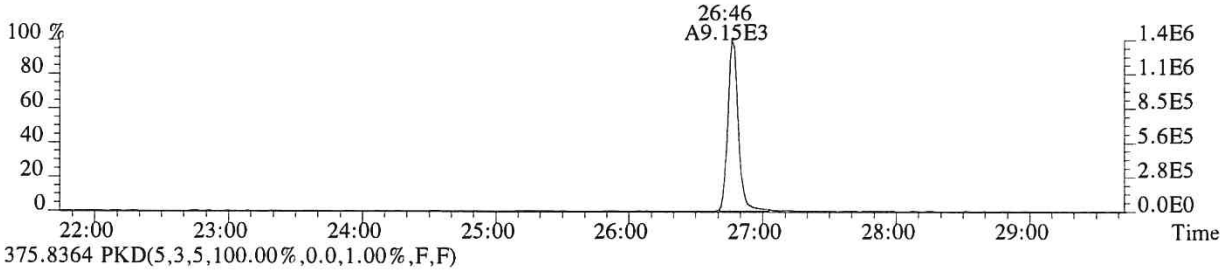
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1176.0,1.00%,F,T)



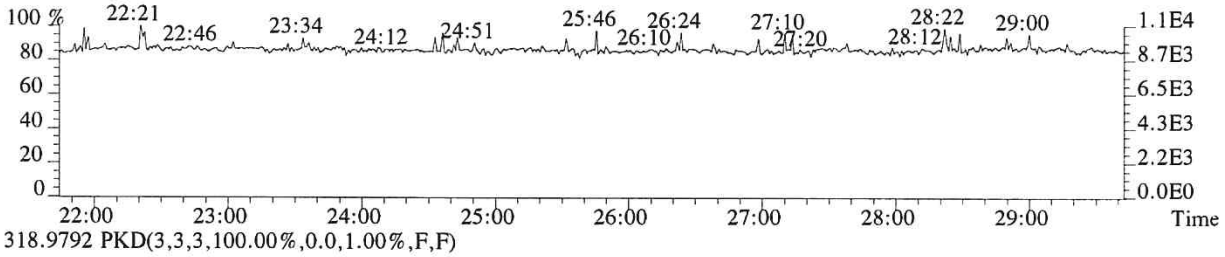
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3640.0,1.00%,F,T)



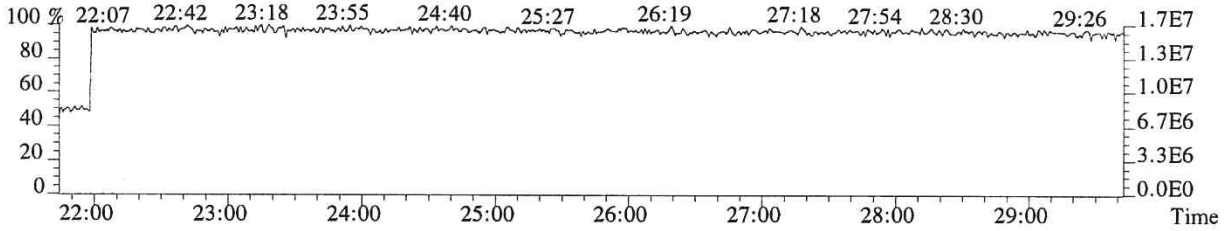
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2444.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



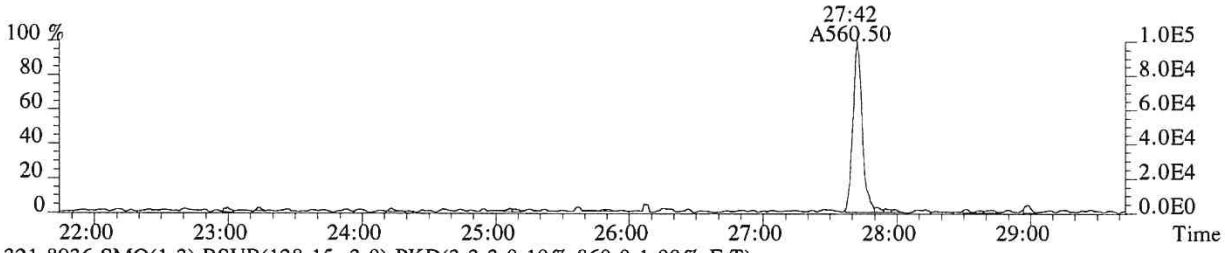
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



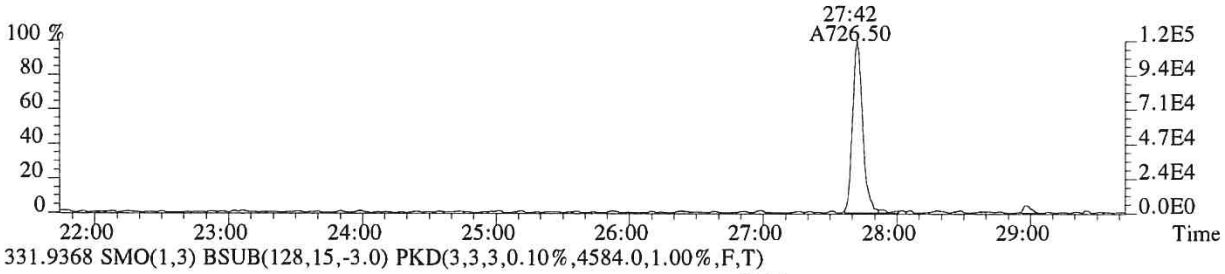
015698

File:P519476 #1-566 Acq:18-DEC-2018 23:56:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800510-02

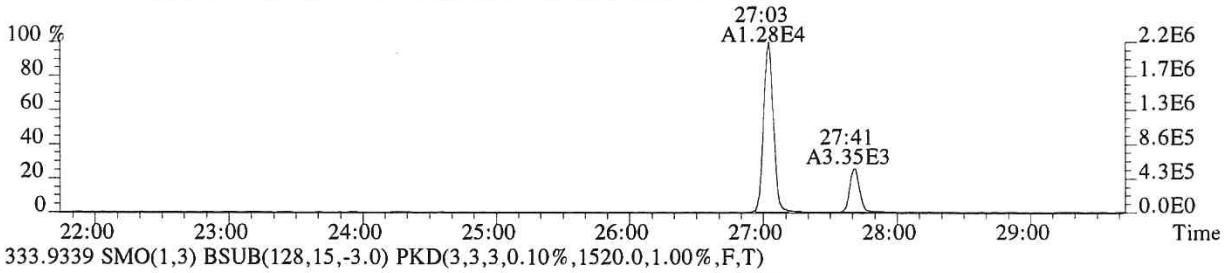
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1500.0,1.00%,F,T)



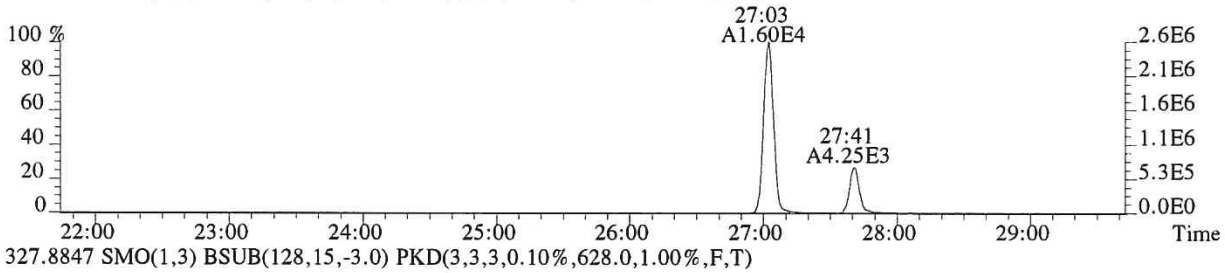
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,860.0,1.00%,F,T)



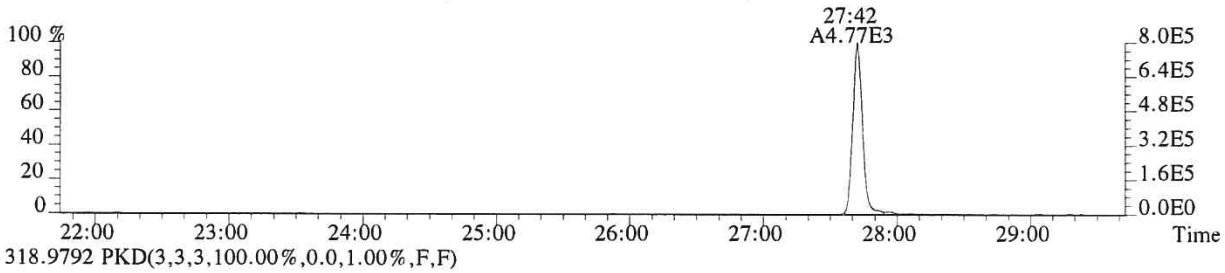
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4584.0,1.00%,F,T)



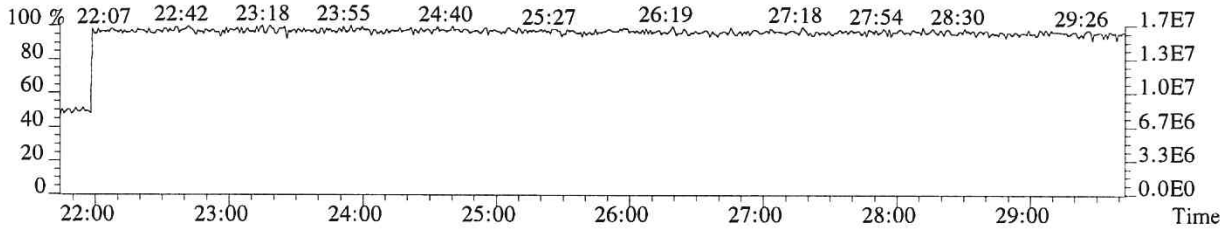
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1520.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,628.0,1.00%,F,T)

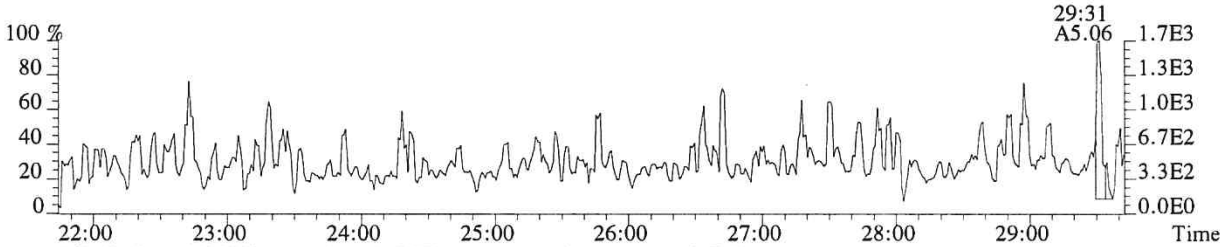


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

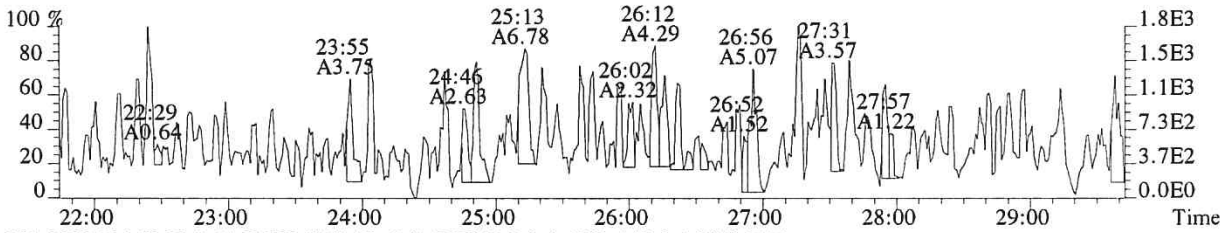


015699

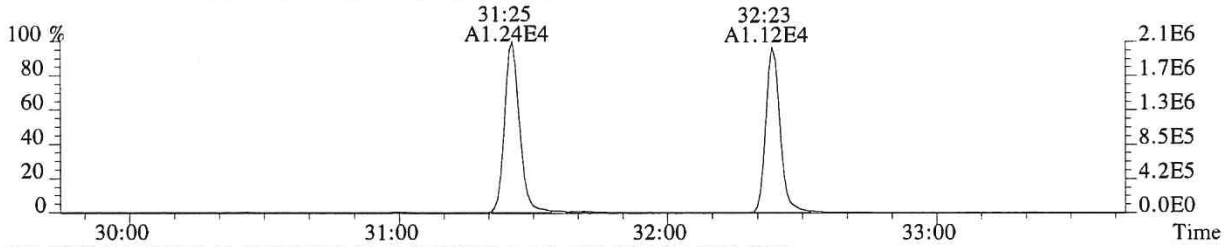
File:P519476 #1-566 Acq:18-DEC-2018 23:56:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800510-02
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,628.0,1.00%,F,T)



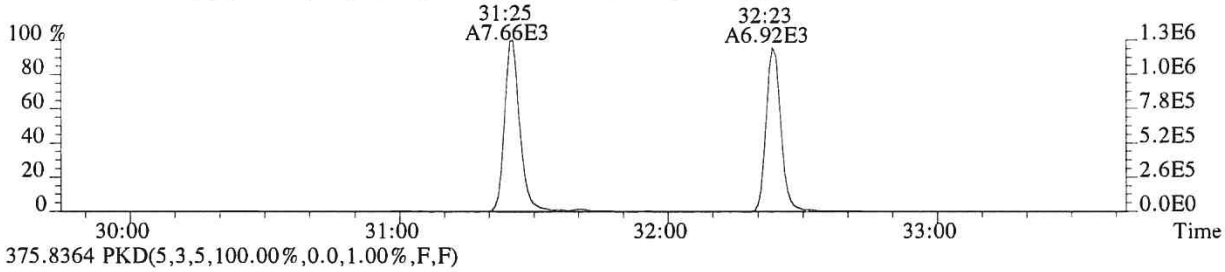
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,628.0,1.00%,F,T)



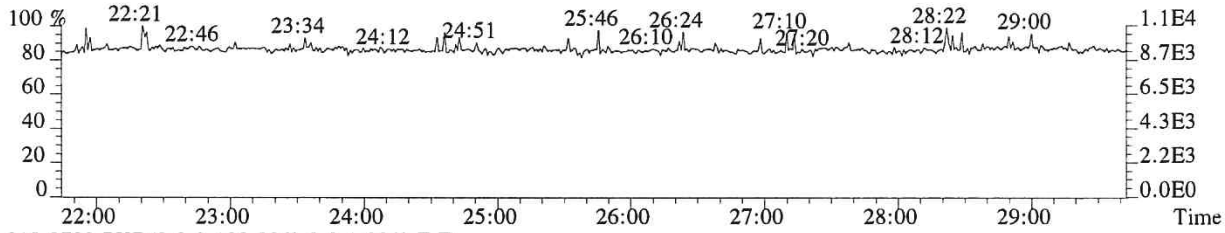
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,540.0,1.00%,F,T)



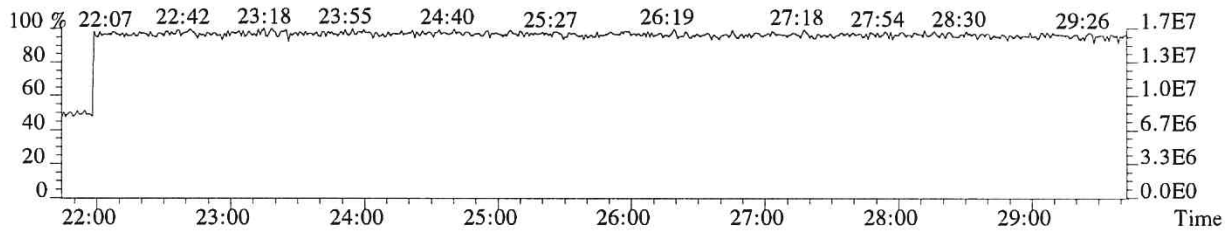
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,364.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

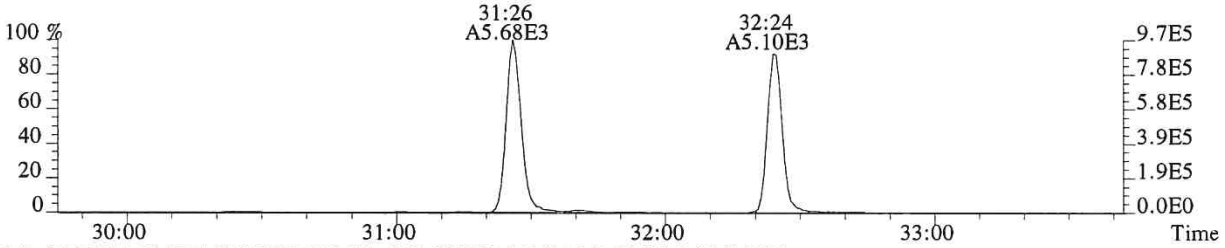


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

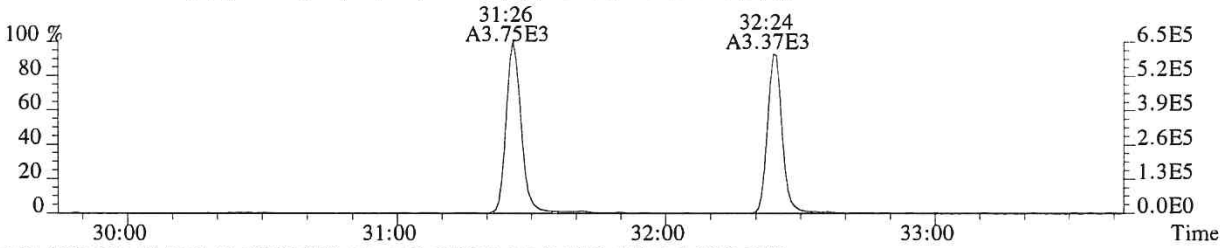


015700

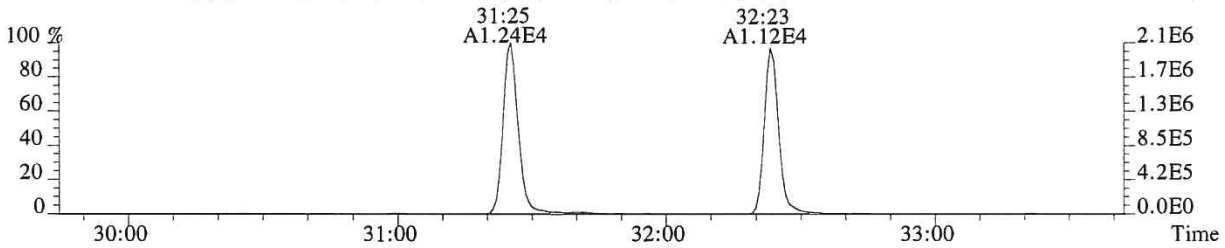
File:P519476 #1-357 Acq:18-DEC-2018 23:56:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800510-02
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,436.0,1.00%,F,T)



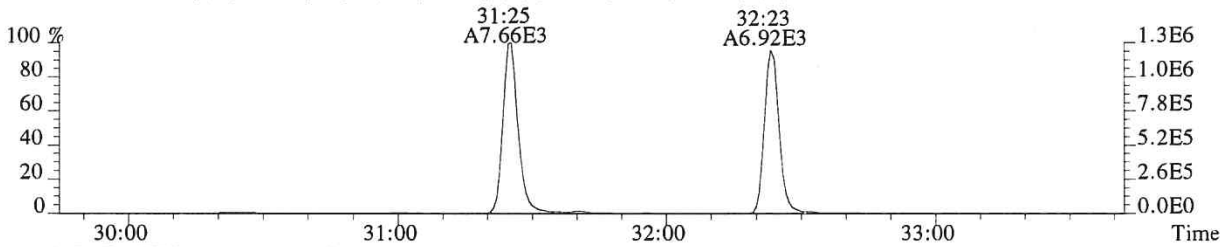
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,336.0,1.00%,F,T)



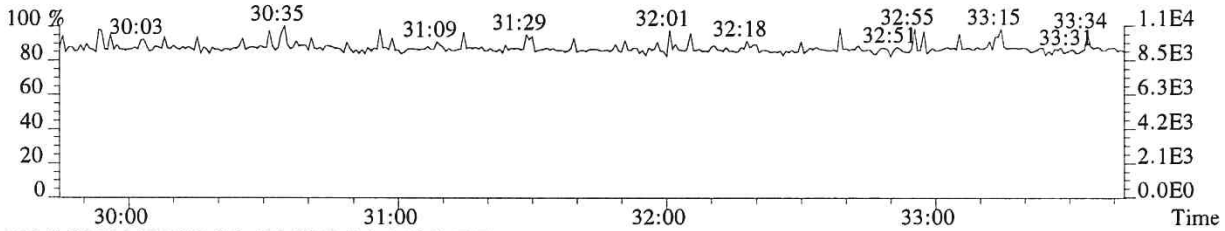
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,540.0,1.00%,F,T)



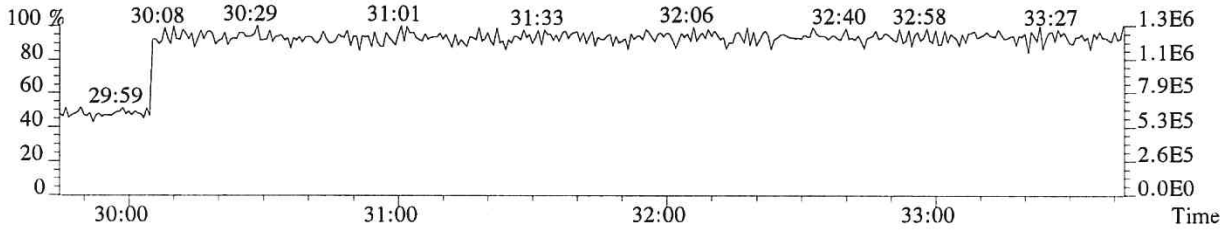
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,364.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

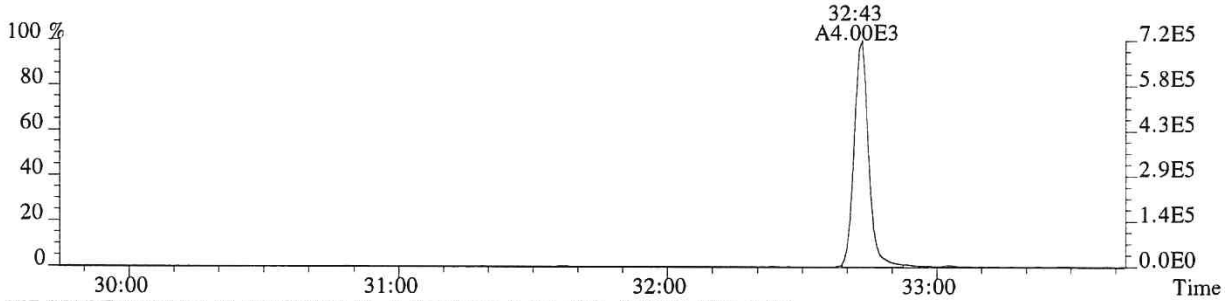


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

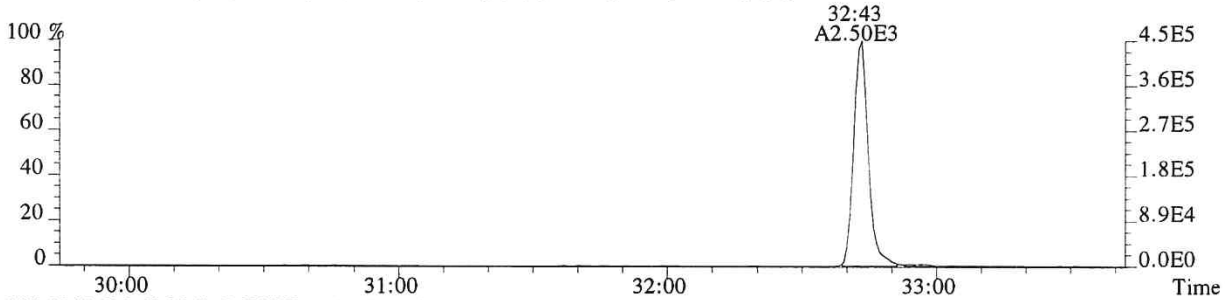


015701

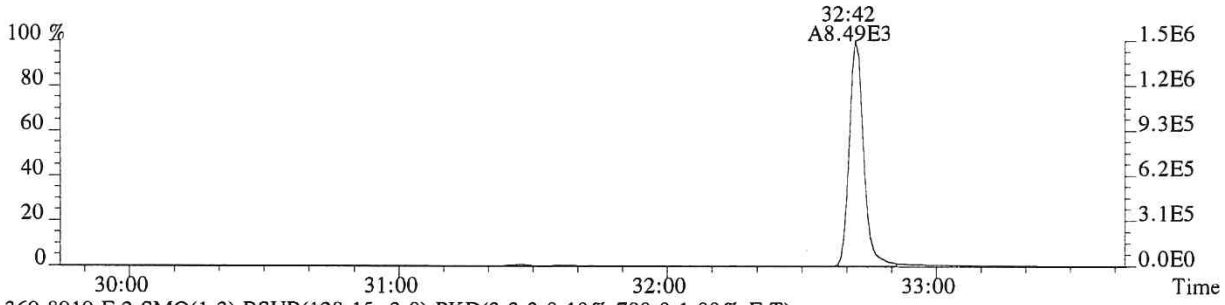
File:P519476 #1-357 Acq:18-DEC-2018 23:56:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800510-02
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,380.0,1.00%,F,T)



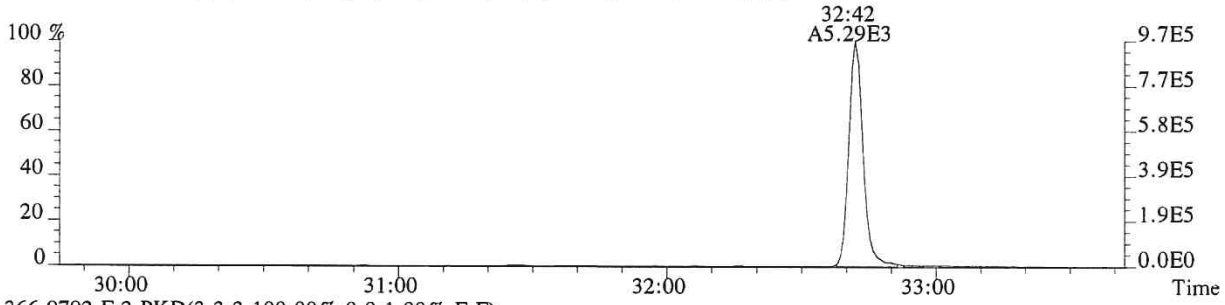
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,428.0,1.00%,F,T)



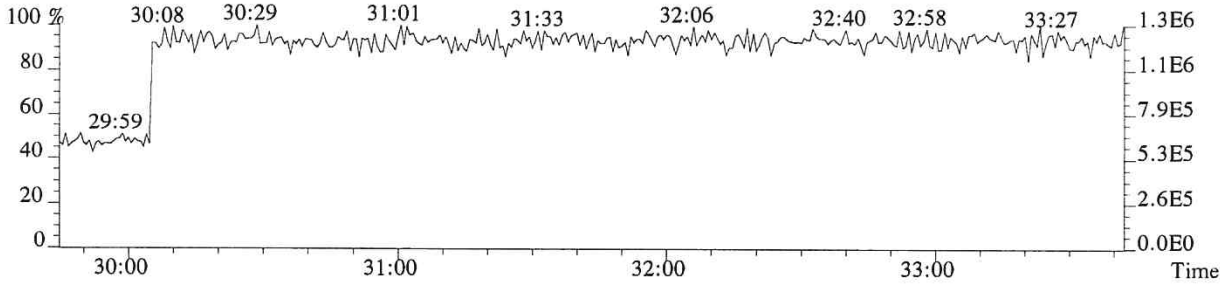
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,612.0,1.00%,F,T)



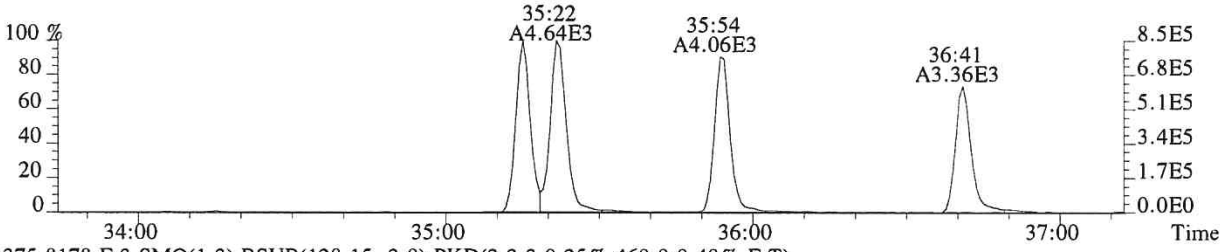
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,780.0,1.00%,F,T)



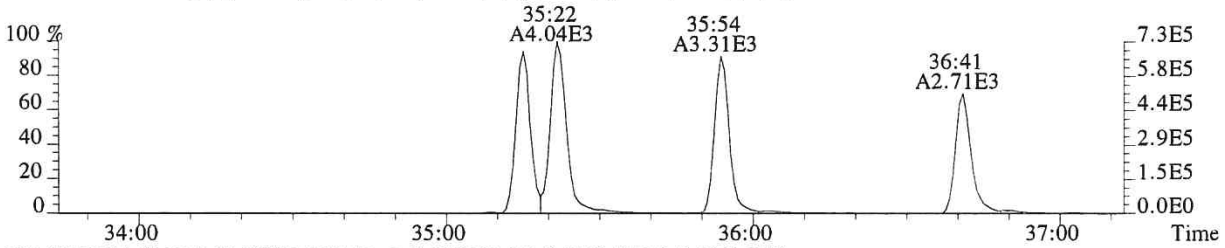
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



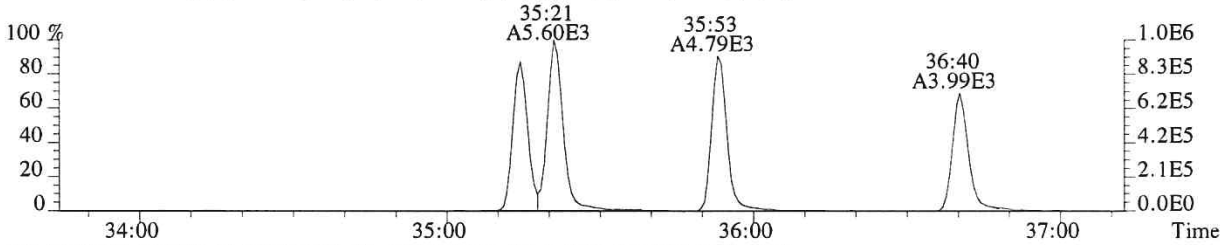
File:P519476 #1-313 Acq:18-DEC-2018 23:56:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800510-02
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,336.0,0.40%,F,T)



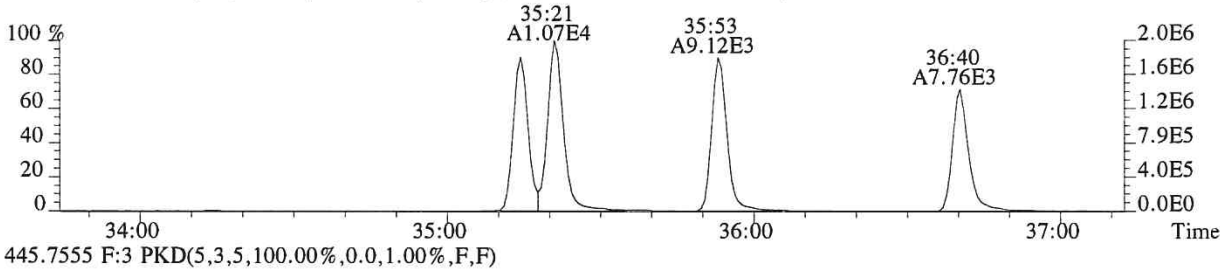
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,460.0,0.40%,F,T)



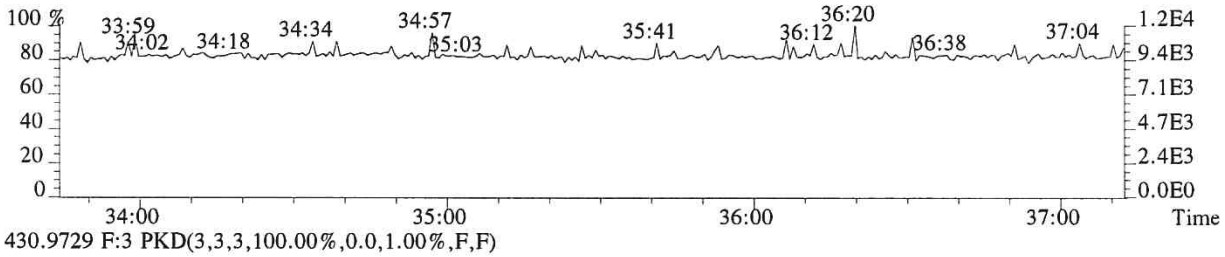
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,576.0,0.40%,F,T)



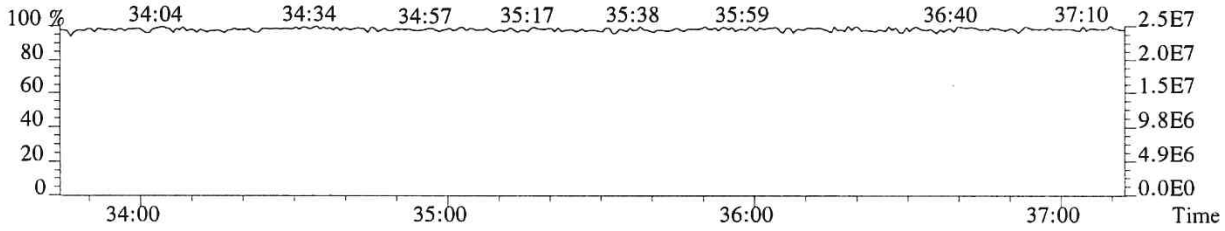
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,912.0,0.40%,F,T)



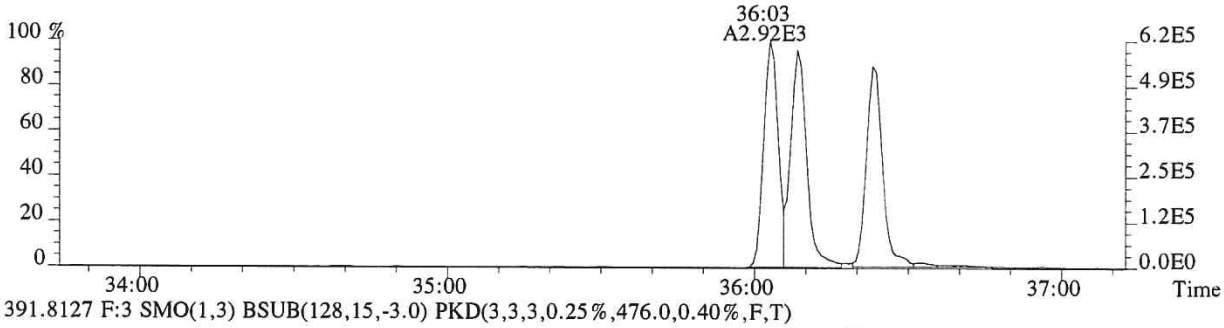
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



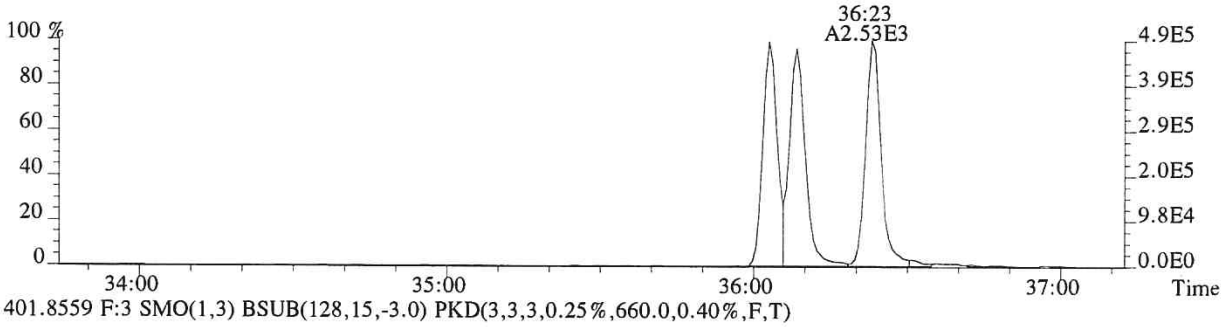
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



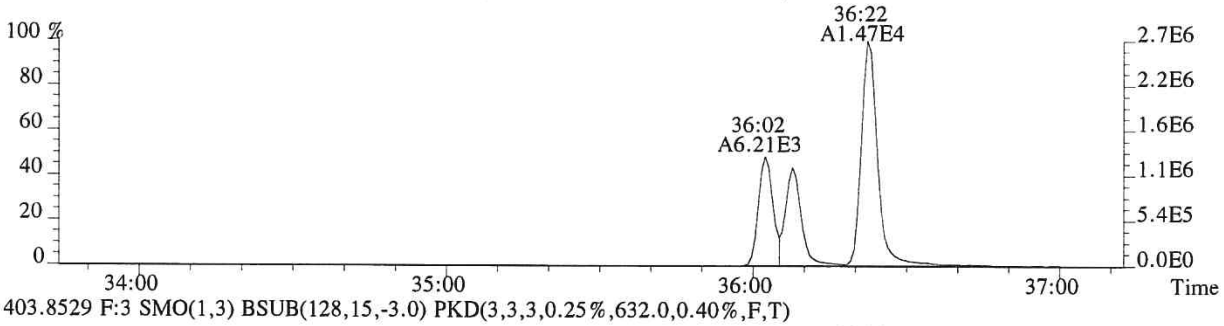
File:P519476 #1-313 Acq:18-DEC-2018 23:56:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800510-02
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,456.0,0.40%,F,T)



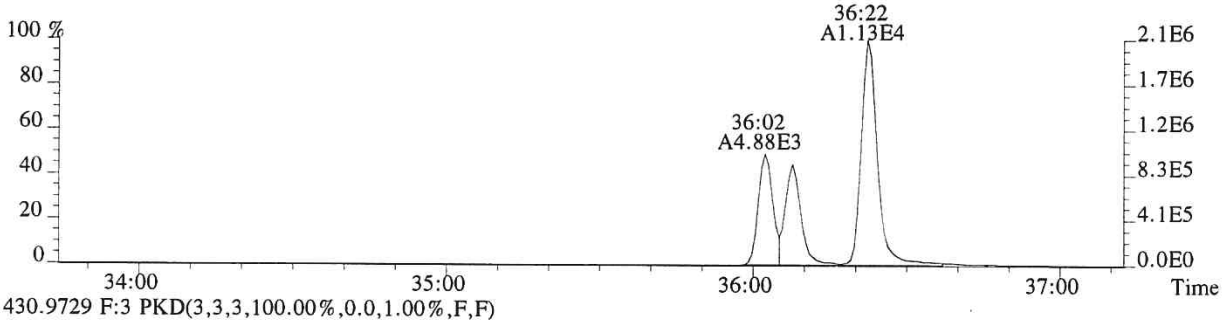
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,476.0,0.40%,F,T)



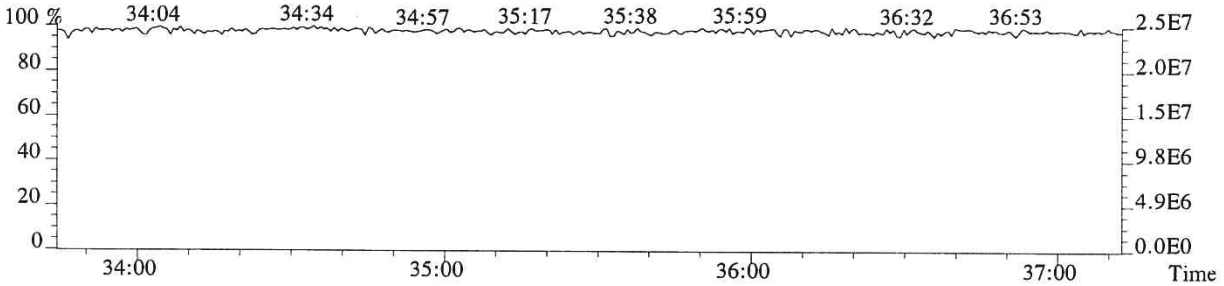
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,660.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,632.0,0.40%,F,T)



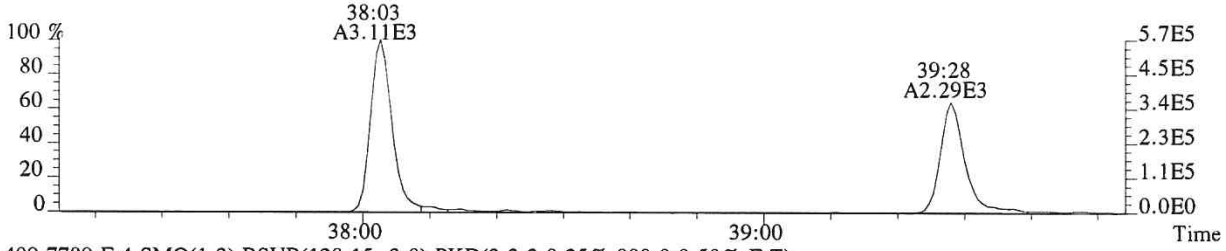
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



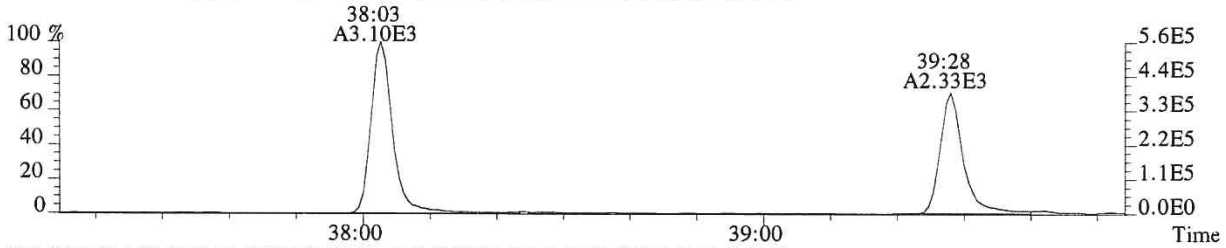
015704

File:P519476 #1-240 Acq:18-DEC-2018 23:56:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800510-02

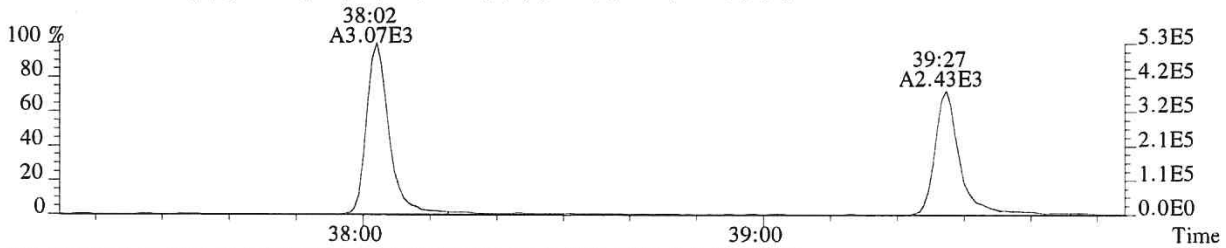
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,524.0,0.50%,F,T)



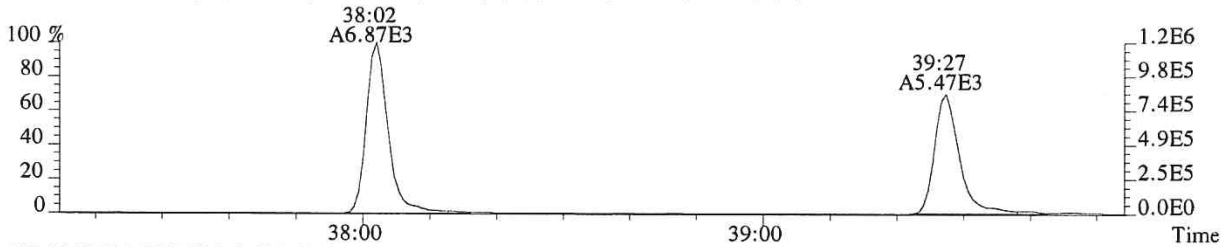
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,880.0,0.50%,F,T)



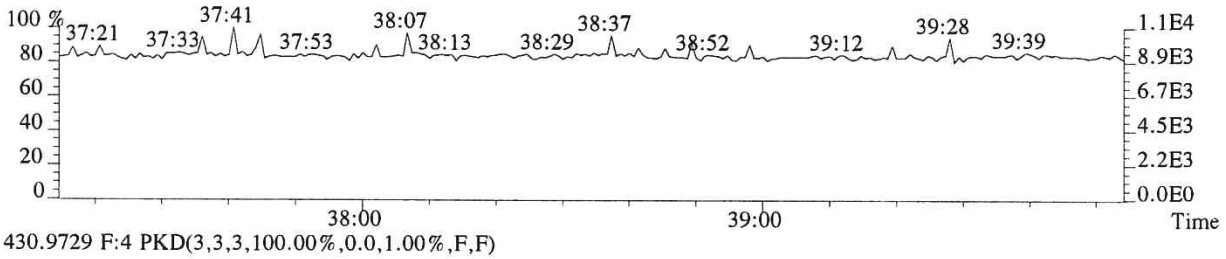
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,852.0,0.50%,F,T)



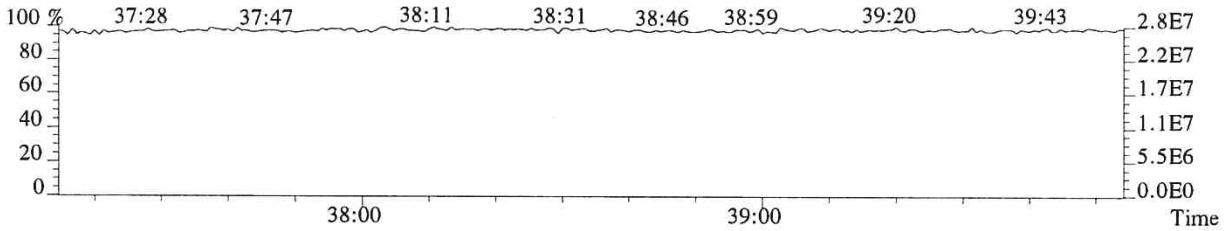
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1104.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

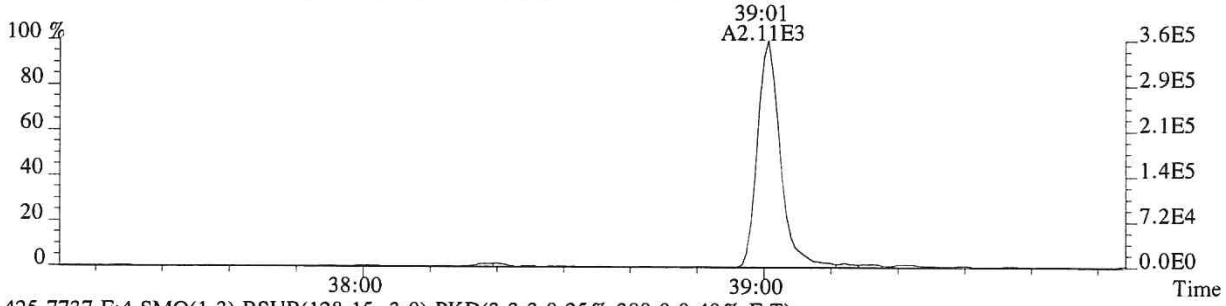


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

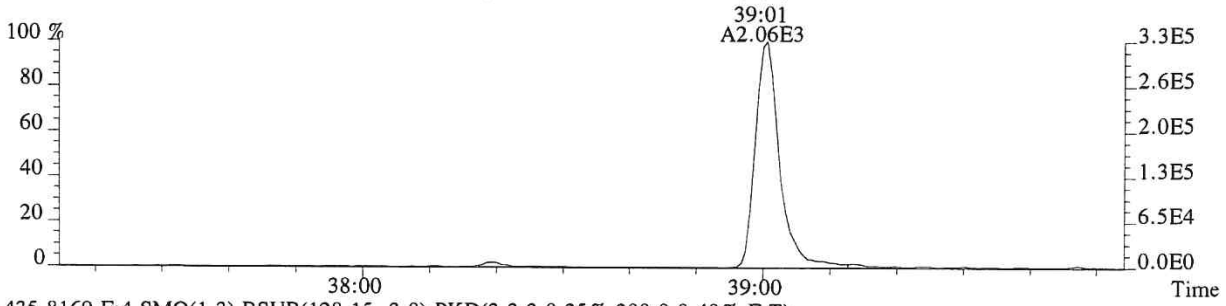


015705

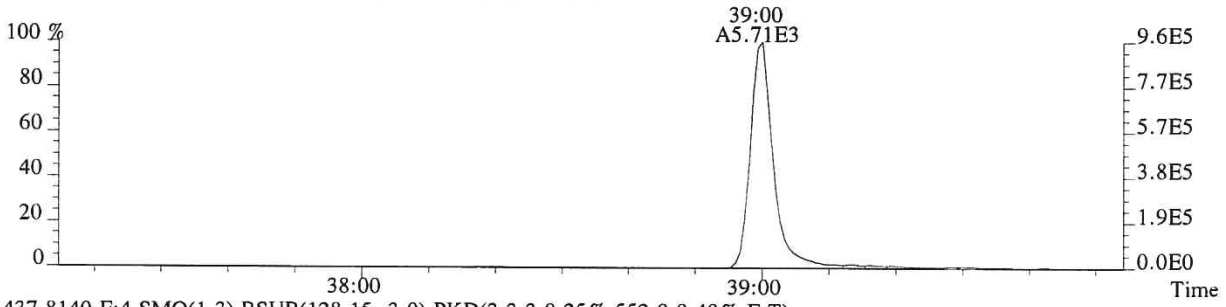
File:P519476 #1-240 Acq:18-DEC-2018 23:56:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800510-02
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,432.0,0.40%,F,T)



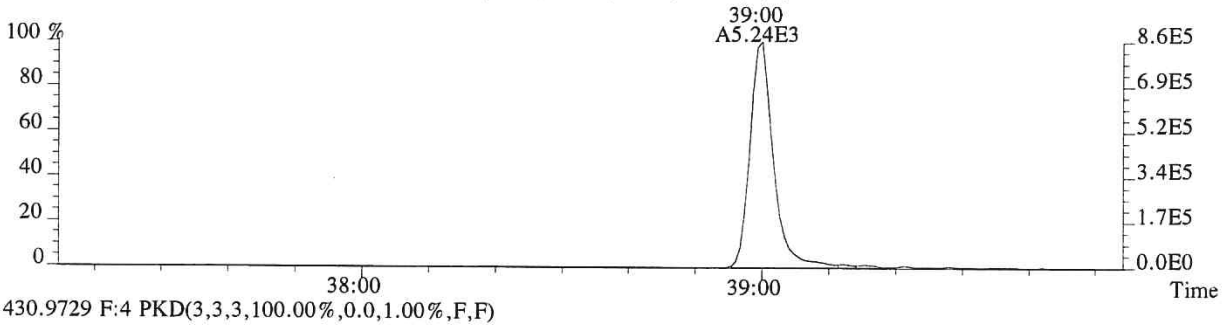
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,388.0,0.40%,F,T)



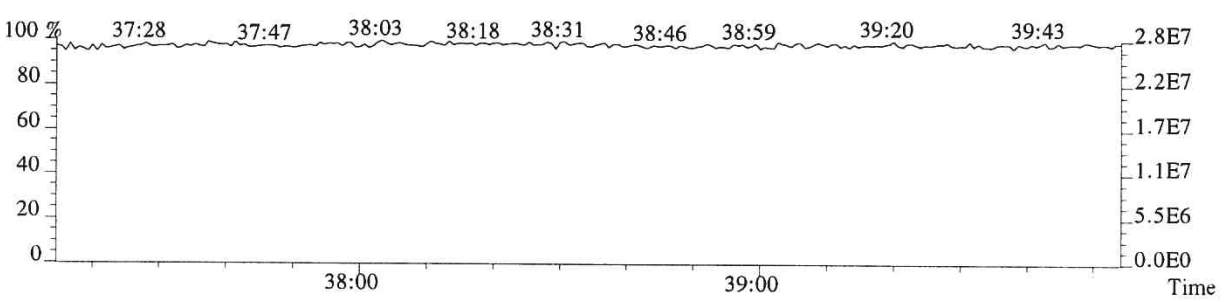
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,300.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,552.0,0.40%,F,T)



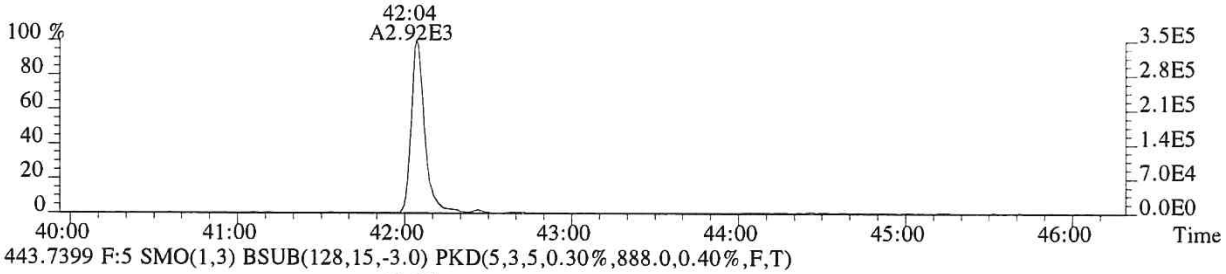
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



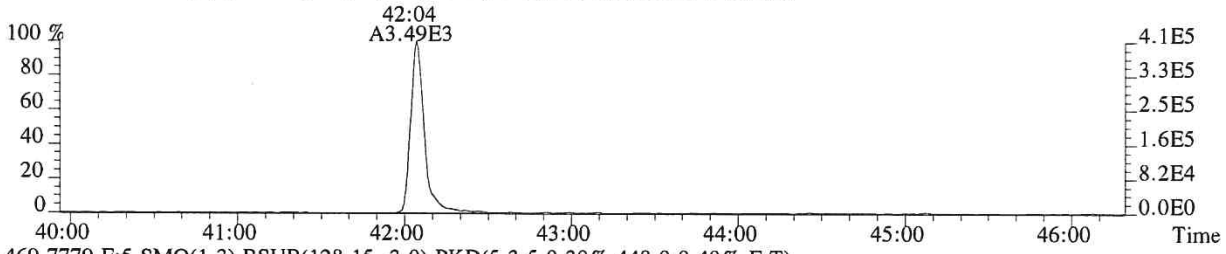
015706

File:P519476 #1-575 Acq:18-DEC-2018 23:56:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800510-02

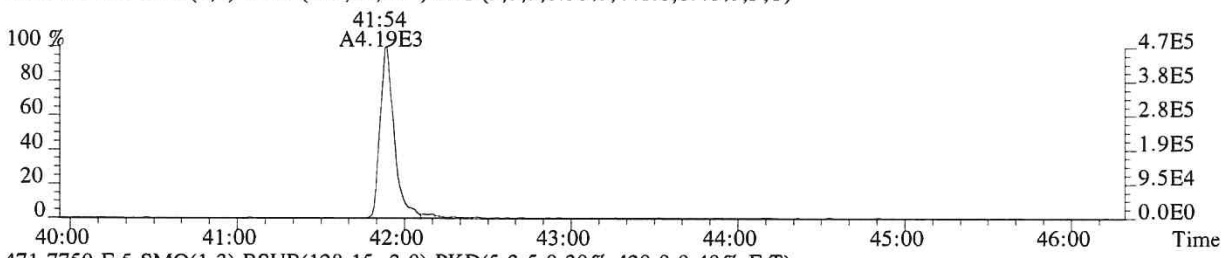
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,396.0,0.40%,F,T)



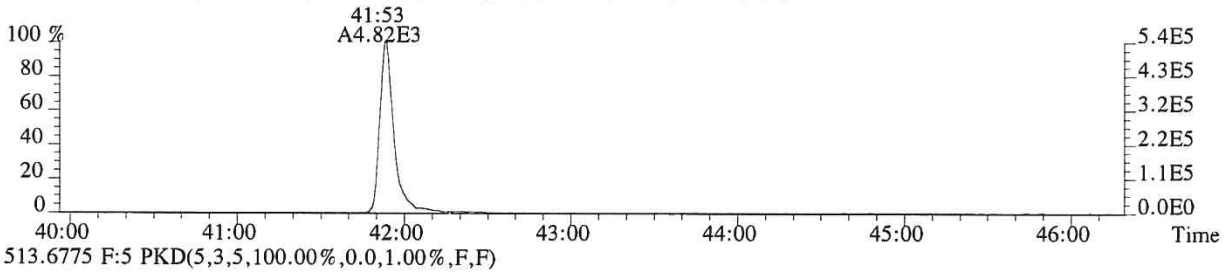
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,888.0,0.40%,F,T)



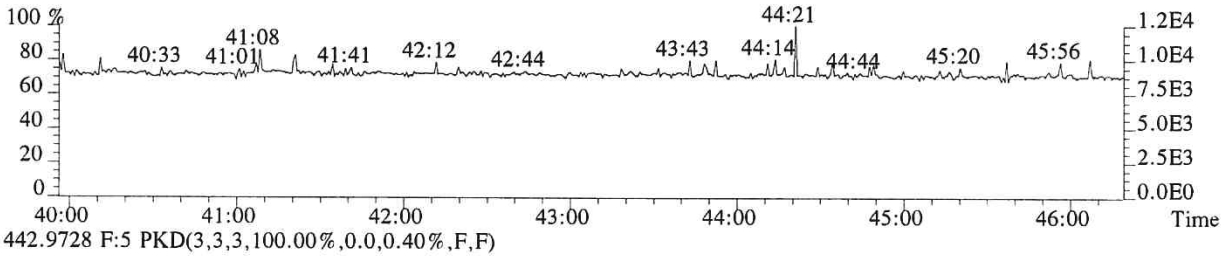
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,448.0,0.40%,F,T)



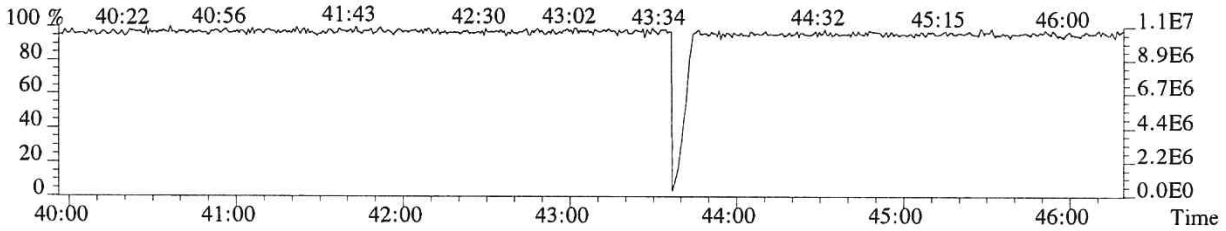
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,420.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

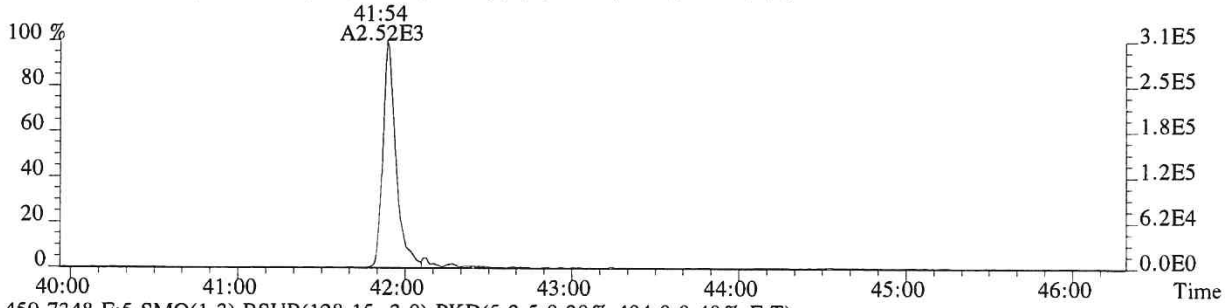


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

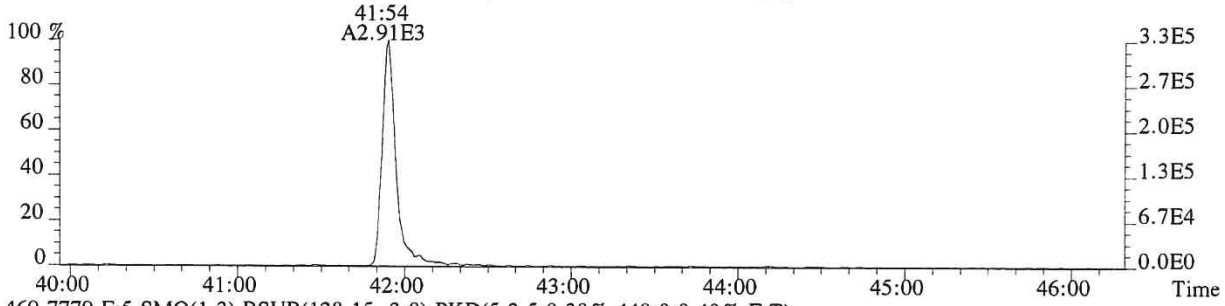


015707

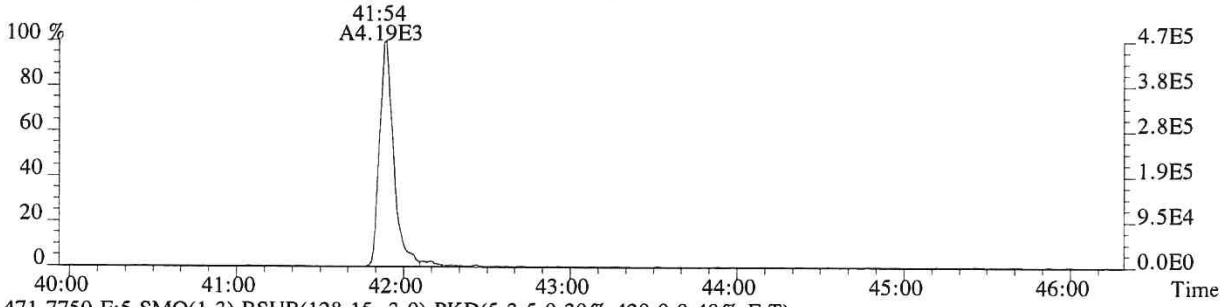
File:P519476 #1-575 Acq:18-DEC-2018 23:56:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800510-02
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,408.0,0.40%,F,T)



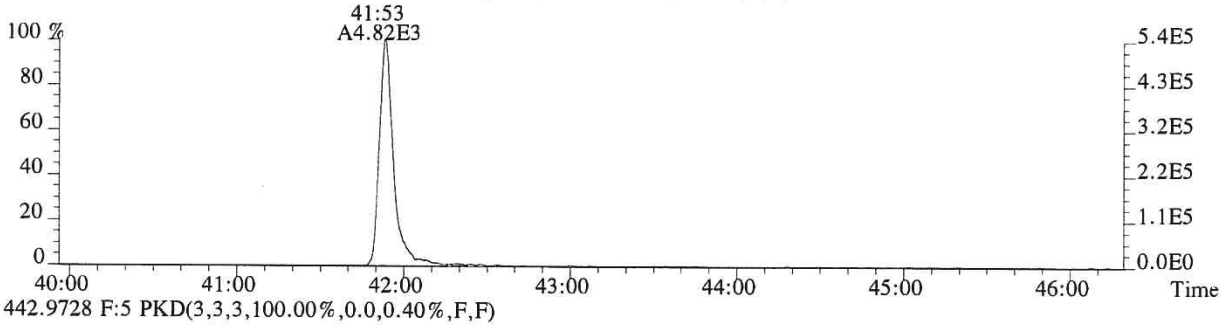
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,404.0,0.40%,F,T)



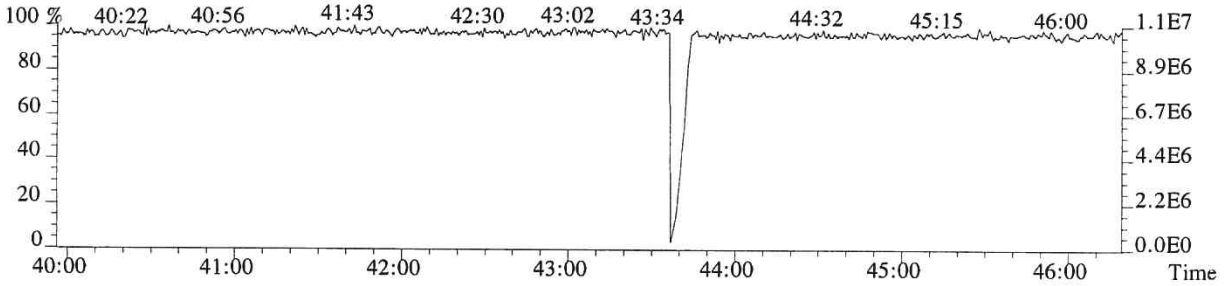
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,448.0,0.40%,F,T)



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)



015708

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
DLCS

Run #19 Filename P519507 Samp: 1 Inj: 1 Acquired: 20-DEC-18 02:09:25
Processed: 20-DEC-18 11:50:50 Sample ID: EQ1800510-03

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:52	1.097e+03	1.442e+03	0.76	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	31:29	6.253e+03	4.190e+03	1.49	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	32:27	5.987e+03	3.976e+03	1.51	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:18	3.782e+03	3.164e+03	1.20	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:26	4.358e+03	3.570e+03	1.22	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:58	3.925e+03	3.249e+03	1.21	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	36:45	2.880e+03	2.439e+03	1.18	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:08	2.213e+03	2.303e+03	0.96	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:35	1.663e+03	1.554e+03	1.07	yes	no	1.258
10	Unk	OCDF	42:16	1.816e+03	1.953e+03	0.93	yes	no	1.359
11	Unk	2,3,7,8-TCDD	27:45	6.173e+02	8.237e+02	0.75	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	32:46	4.721e+03	2.934e+03	1.61	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:07	2.616e+03	2.099e+03	1.25	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:12	2.965e+03	2.346e+03	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:27	2.899e+03	2.325e+03	1.25	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:07	1.521e+03	1.459e+03	1.04	yes	no	1.025
17	Unk	OCDD	42:06	1.533e+03	1.712e+03	0.90	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	26:50	8.342e+03	1.023e+04	0.82	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	31:28	1.349e+04	8.478e+03	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	32:26	1.287e+04	7.961e+03	1.62	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:18	4.007e+03	7.785e+03	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:25	4.789e+03	9.284e+03	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:57	4.350e+03	8.258e+03	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	36:44	3.296e+03	6.337e+03	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:07	1.953e+03	4.505e+03	0.43	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:34	1.591e+03	3.492e+03	0.46	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	27:44	3.621e+03	4.549e+03	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:45	9.714e+03	5.902e+03	1.65	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:06	5.495e+03	4.297e+03	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:12	5.481e+03	4.333e+03	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:06	3.753e+03	3.527e+03	1.06	yes	no	0.858
32	IS	13C-OCDD	42:04	2.594e+03	2.818e+03	0.92	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:05	1.512e+04	1.930e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:26	1.082e+04	8.281e+03	1.31	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:45	5.289e+03				no	1.014

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
DLCS

Run #19 Filename P519507 Samp: 1 Inj: 1 Acquired: 20-DEC-18 02:09:25
Processed: 20-DEC-18 11:50:50 LAB. ID: EQ1800510-03

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.71e+05	7.76e+02	2.2e+02	2.15e+05	1.68e+03	1.3e+02
2	1,2,3,7,8-PeCDF	1.09e+06	3.88e+02	2.8e+03	7.51e+05	3.08e+02	2.4e+03
3	2,3,4,7,8-PeCDF	1.07e+06	3.88e+02	2.8e+03	7.24e+05	3.08e+02	2.3e+03
4	1,2,3,4,7,8-HxCDF	7.26e+05	3.60e+02	2.0e+03	6.27e+05	2.44e+02	2.6e+03
5	1,2,3,6,7,8-HxCDF	7.91e+05	3.60e+02	2.2e+03	6.51e+05	2.44e+02	2.7e+03
6	2,3,4,6,7,8-HxCDF	7.72e+05	3.60e+02	2.1e+03	6.19e+05	2.44e+02	2.5e+03
7	1,2,3,7,8,9-HxCDF	4.91e+05	3.60e+02	1.4e+03	4.28e+05	2.44e+02	1.8e+03
8	1,2,3,4,6,7,8-HpCDF	3.81e+05	3.96e+02	9.6e+02	3.89e+05	6.08e+02	6.4e+02
9	1,2,3,4,7,8,9-HpCDF	2.48e+05	3.96e+02	6.3e+02	2.24e+05	6.08e+02	3.7e+02
10	OCDF	1.85e+05	6.52e+02	2.8e+02	2.11e+05	4.72e+02	4.5e+02
11	2,3,7,8-TCDD	1.09e+05	1.48e+03	7.4e+01	1.44e+05	6.88e+02	2.1e+02
12	1,2,3,7,8-PeCDD	8.50e+05	3.88e+02	2.2e+03	5.38e+05	4.04e+02	1.3e+03
13	1,2,3,4,7,8-HxCDD	5.33e+05	3.24e+02	1.6e+03	4.21e+05	4.56e+02	9.2e+02
14	1,2,3,6,7,8-HxCDD	5.15e+05	3.24e+02	1.6e+03	4.19e+05	4.56e+02	9.2e+02
15	1,2,3,7,8,9-HxCDD	5.02e+05	3.24e+02	1.6e+03	4.03e+05	4.56e+02	8.8e+02
16	1,2,3,4,6,7,8-HpCDD	2.30e+05	3.72e+02	6.2e+02	2.30e+05	4.56e+02	5.0e+02
17	OCDD	1.65e+05	5.56e+02	3.0e+02	1.72e+05	7.36e+02	2.3e+02
18	13C-2,3,7,8-TCDF	1.27e+06	3.01e+03	4.2e+02	1.59e+06	2.45e+03	6.5e+02
19	13C-1,2,3,7,8-PeCDF	2.31e+06	8.20e+02	2.8e+03	1.44e+06	8.08e+02	1.8e+03
20	13C-2,3,4,7,8-PeCDF	2.39e+06	8.20e+02	2.9e+03	1.48e+06	8.08e+02	1.8e+03
21	13C-1,2,3,4,7,8-HxCDF	7.73e+05	3.96e+02	2.0e+03	1.56e+06	8.08e+02	1.9e+03
22	13C-1,2,3,6,7,8-HxCDF	8.73e+05	3.96e+02	2.2e+03	1.67e+06	8.08e+02	2.1e+03
23	13C-2,3,4,6,7,8-HxCDF	8.42e+05	3.96e+02	2.1e+03	1.60e+06	8.08e+02	2.0e+03
24	13C-1,2,3,7,8,9-HxCDF	5.77e+05	3.96e+02	1.5e+03	1.12e+06	8.08e+02	1.4e+03
25	13C-1,2,3,4,6,7,8-HpCDF	3.41e+05	1.30e+03	2.6e+02	8.01e+05	7.88e+02	1.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.30e+05	1.30e+03	1.8e+02	5.16e+05	7.88e+02	6.6e+02
27	13C-2,3,7,8-TCDD	6.19e+05	4.07e+03	1.5e+02	7.70e+05	2.47e+03	3.1e+02
28	13C-1,2,3,7,8-PeCDD	1.73e+06	6.20e+02	2.8e+03	1.07e+06	5.68e+02	1.9e+03
29	13C-1,2,3,4,7,8-HxCDD	1.13e+06	3.80e+02	3.0e+03	9.05e+05	3.92e+02	2.3e+03
30	13C-1,2,3,6,7,8-HxCDD	9.90e+05	3.80e+02	2.6e+03	7.94e+05	3.92e+02	2.0e+03
31	13C-1,2,3,4,6,7,8-HpCDD	5.89e+05	4.16e+02	1.4e+03	5.53e+05	3.12e+02	1.8e+03
32	13C-OCDD	2.64e+05	5.32e+02	5.0e+02	2.88e+05	4.84e+02	5.9e+02
33	13C-1,2,3,4-TCDD	2.58e+06	4.07e+03	6.3e+02	3.27e+06	2.47e+03	1.3e+03
34	13C-1,2,3,7,8,9-HxCDD	1.85e+06	3.80e+02	4.9e+03	1.42e+06	3.92e+02	3.6e+03
35	37Cl-2,3,7,8-TCDD	8.93e+05	4.72e+02	1.9e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.476e+03 + 6.880e+02) \times 2000}{(6.194e+05 + 7.701e+05) \times (\quad) \times 1.085} =$$

ALS ENVIRONMENTAL
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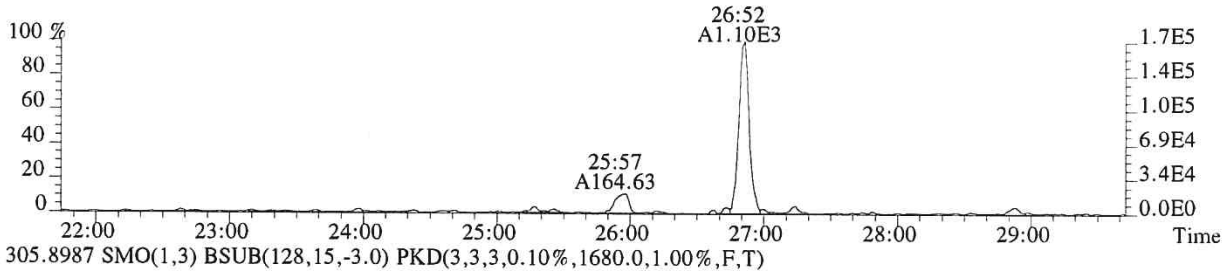
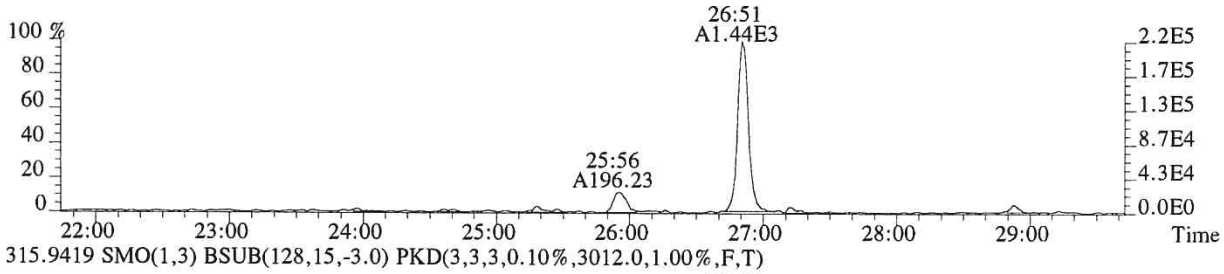
Office:(281)530-5656. Fax:(281)530-5887

File:P519507 #1-566 Acq:20-DEC-2018 02:09:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800510-03

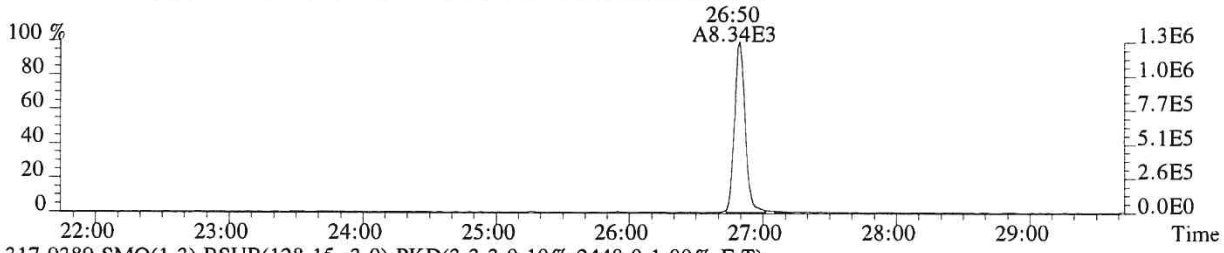
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)



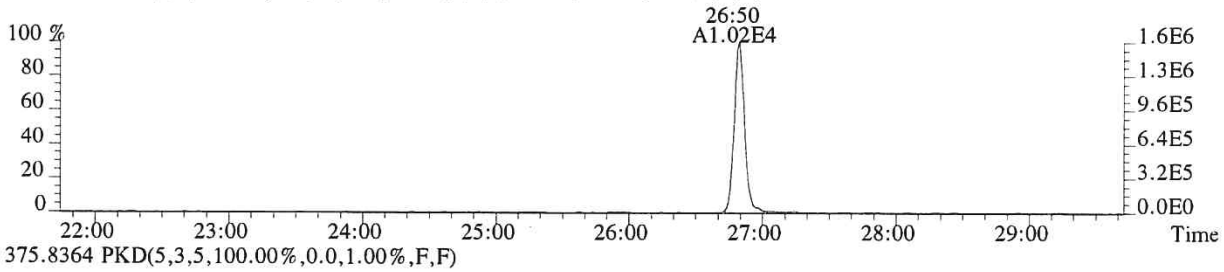
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1680.0,1.00%,F,T)



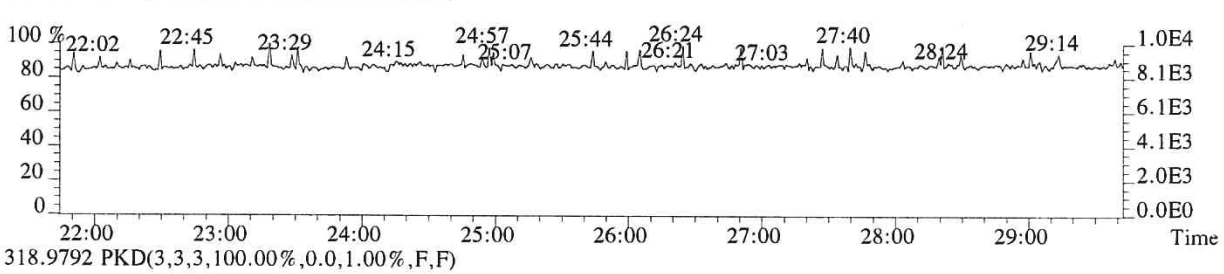
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3012.0,1.00%,F,T)



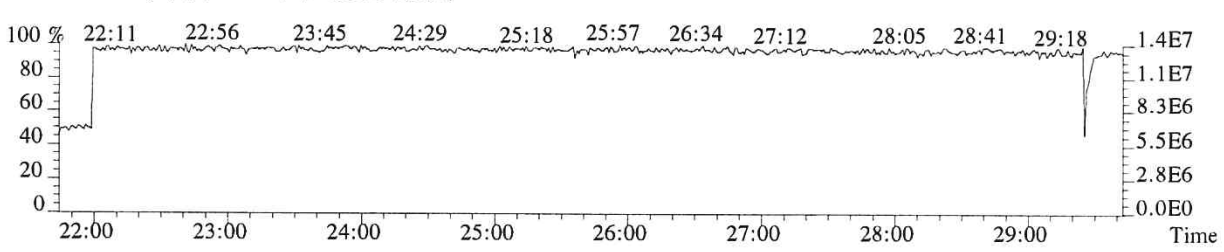
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2448.0,1.00%,F,T)



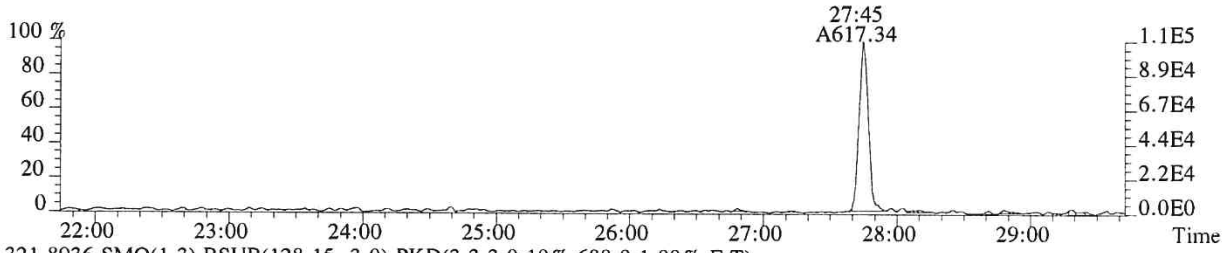
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



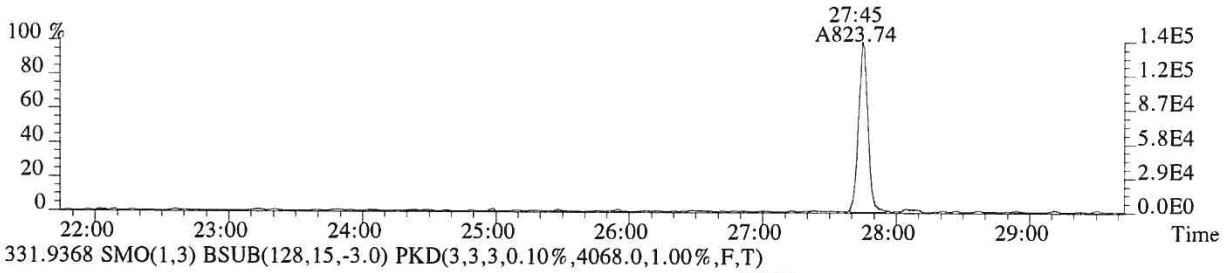
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



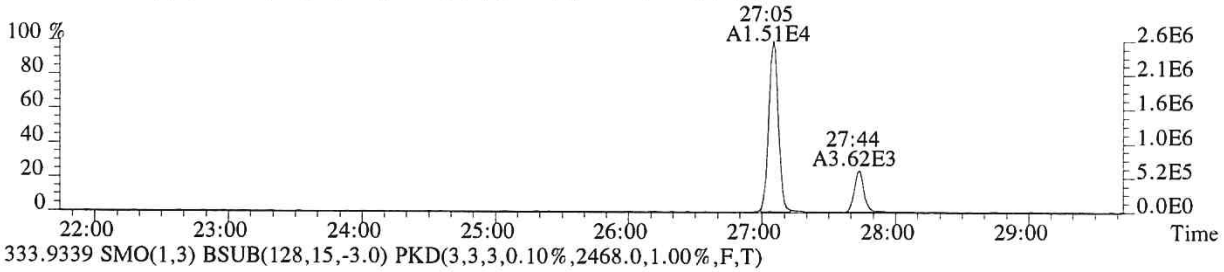
File:P519507 #1-566 Acq:20-DEC-2018 02:09:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800510-03
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1476.0,1.00%,F,T)



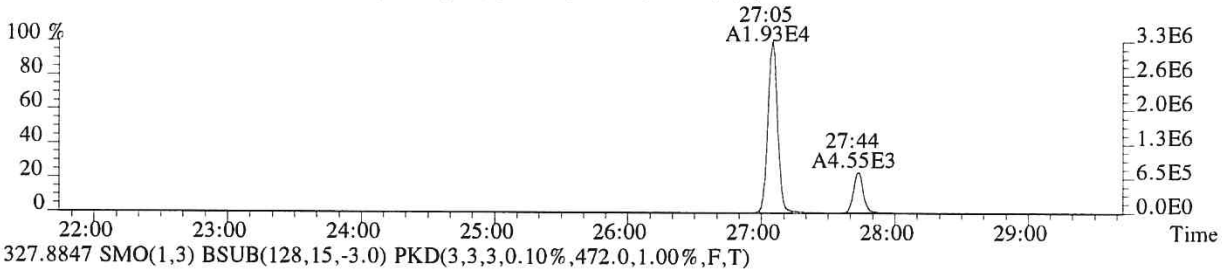
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,688.0,1.00%,F,T)



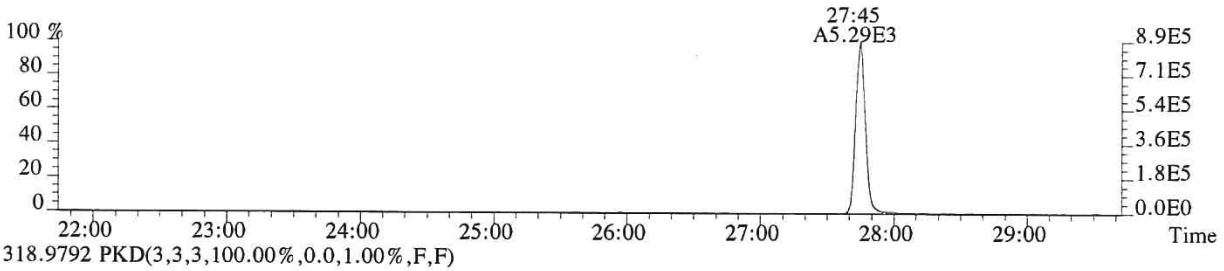
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4068.0,1.00%,F,T)



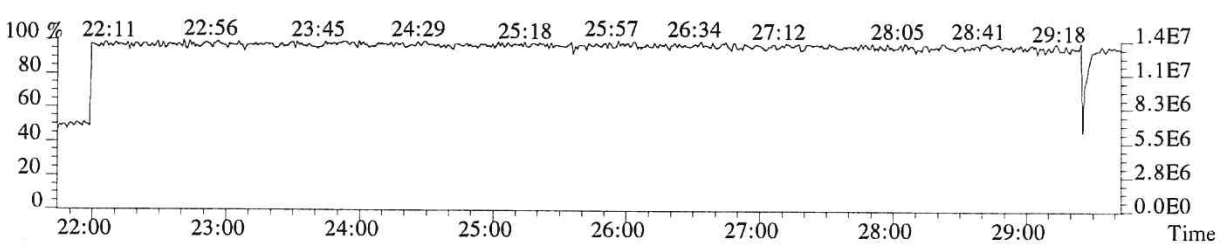
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2468.0,1.00%,F,T)



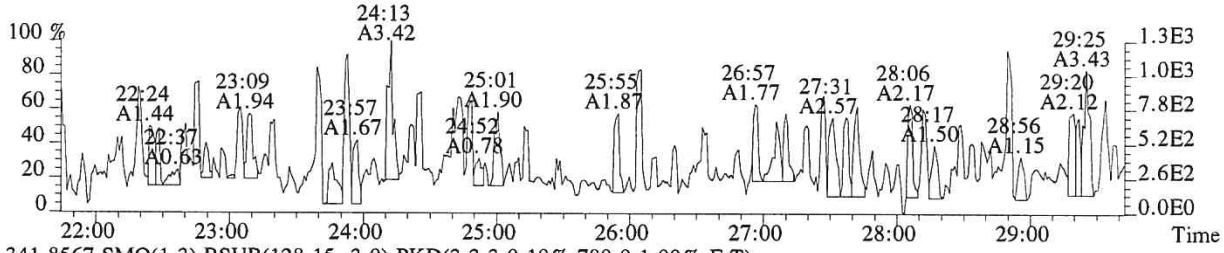
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,472.0,1.00%,F,T)



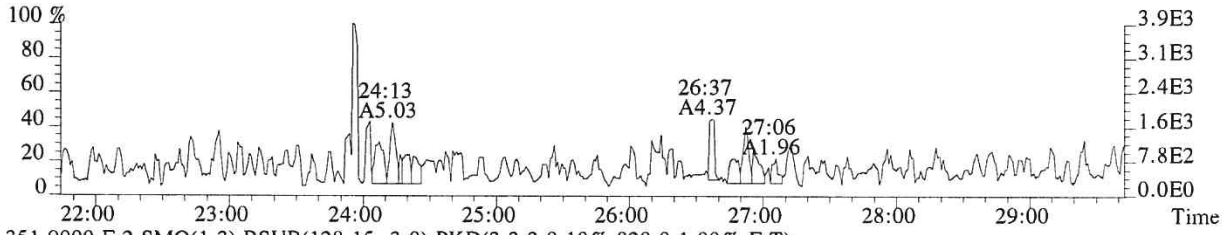
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



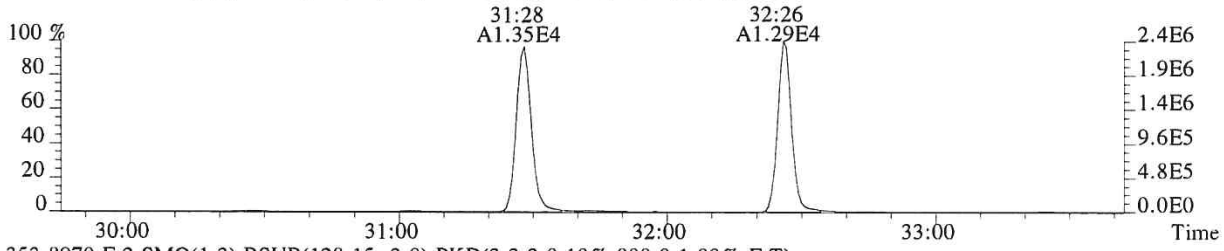
File:P519507 #1-566 Acq:20-DEC-2018 02:09:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800510-03
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,388.0,1.00%,F,T)



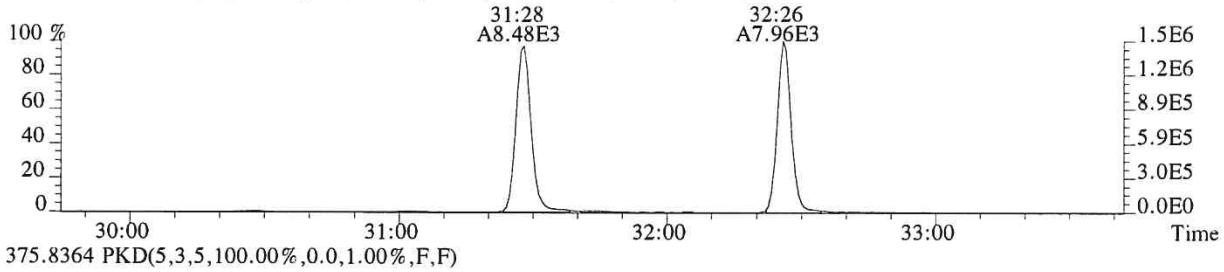
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,780.0,1.00%,F,T)



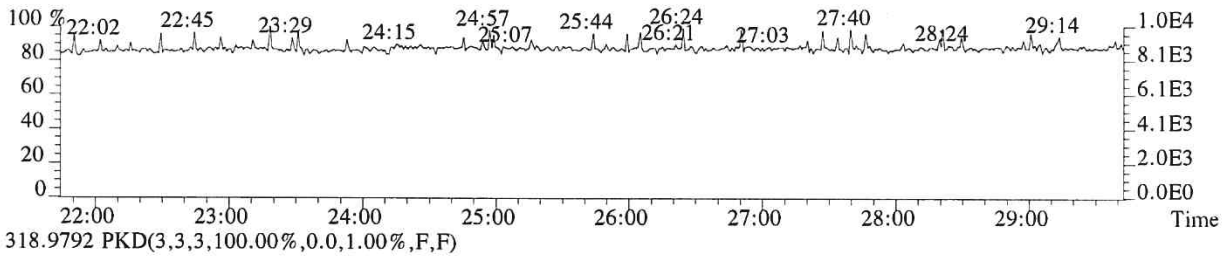
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,820.0,1.00%,F,T)



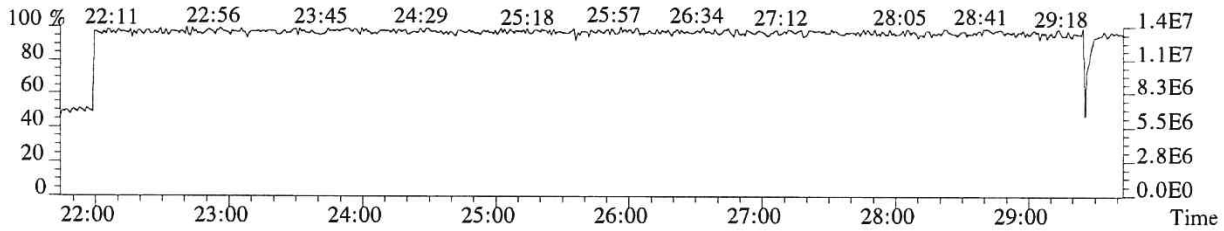
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,808.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

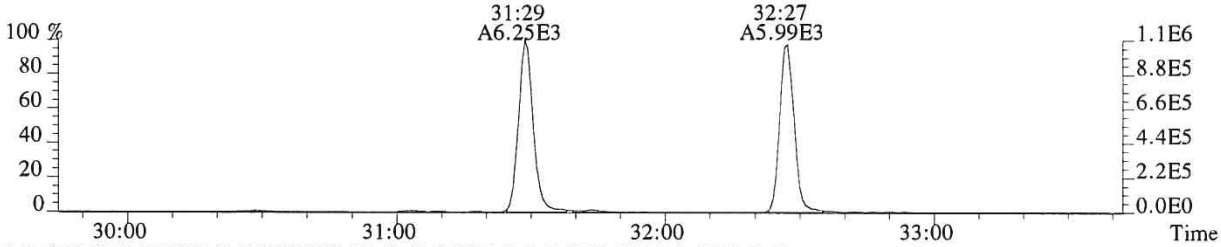


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

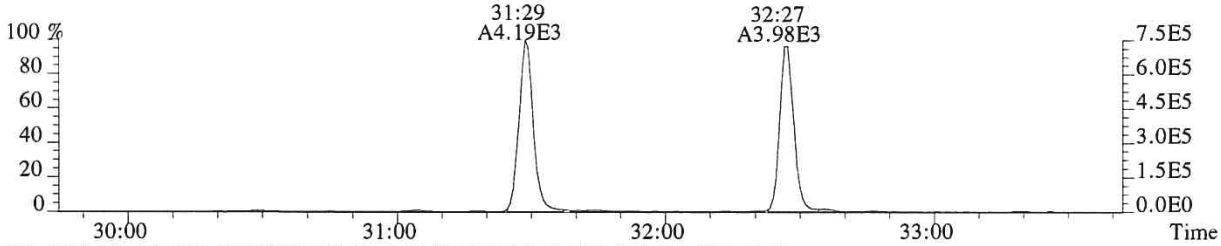


File:P519507 #1-357 Acq:20-DEC-2018 02:09:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800510-03

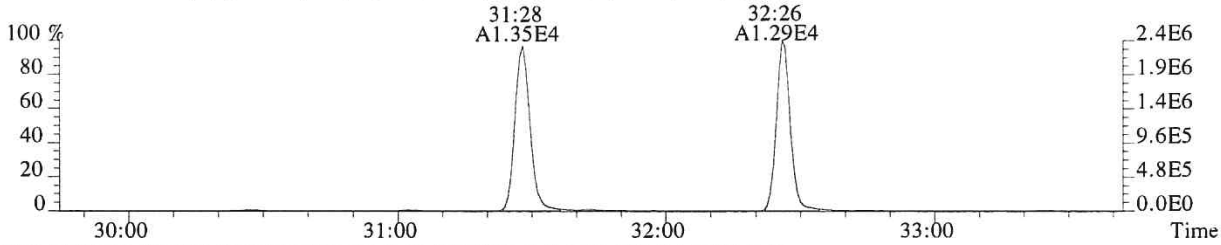
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,388.0,1.00%,F,T)



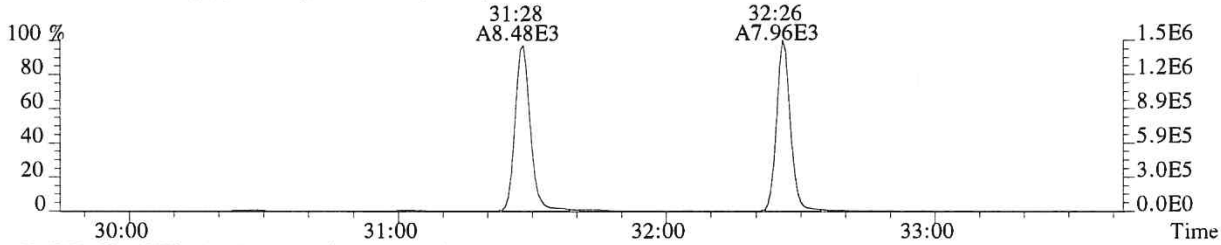
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,308.0,1.00%,F,T)



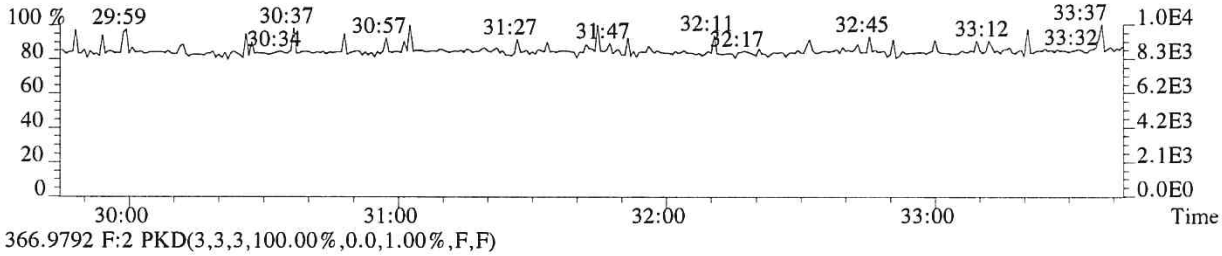
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,820.0,1.00%,F,T)



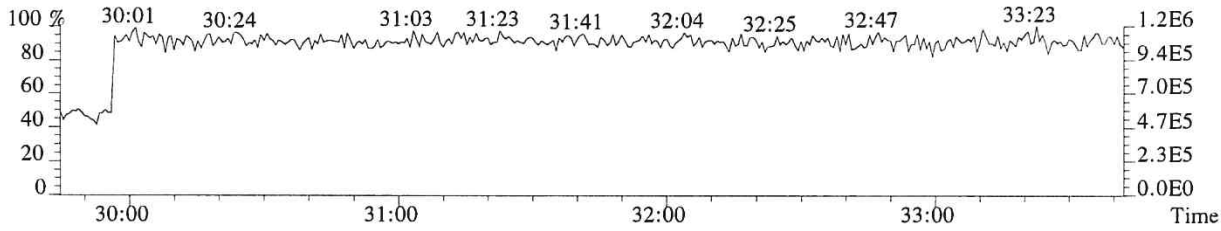
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,808.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

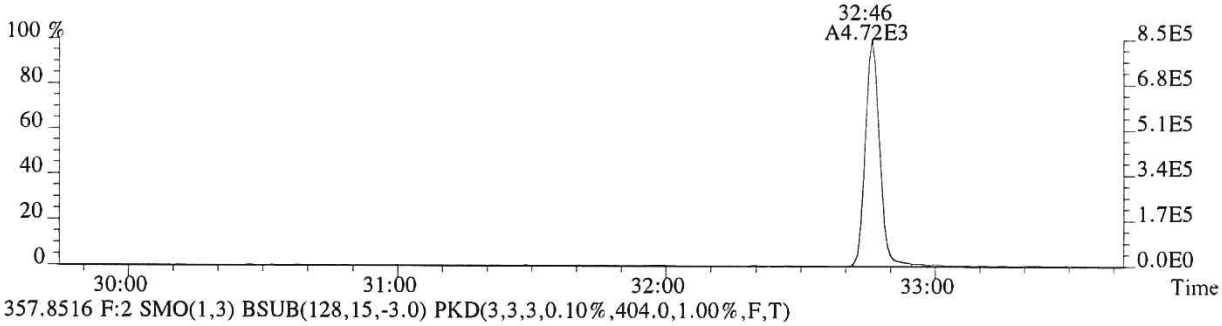


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

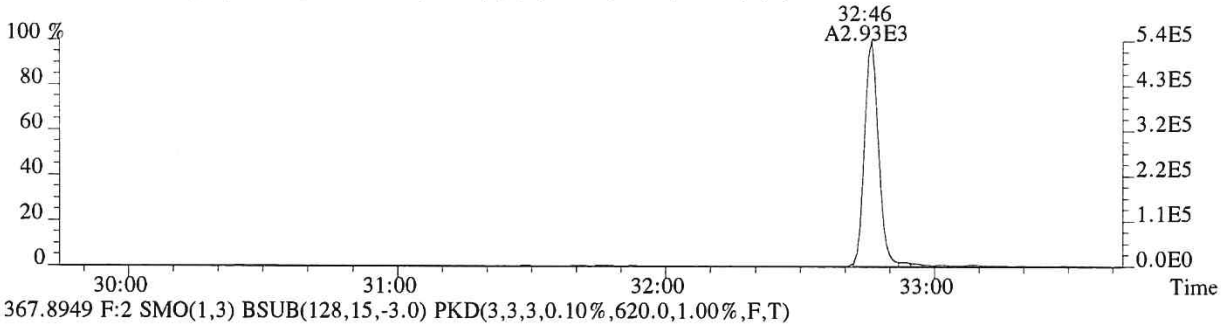


015714

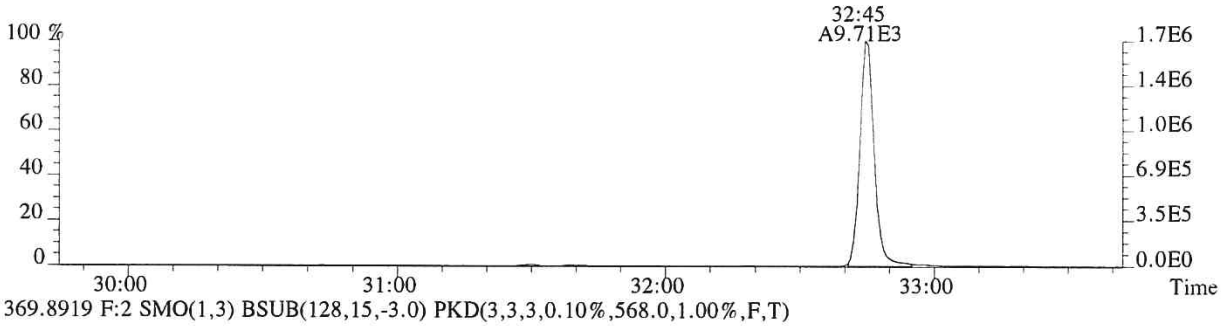
File:P519507 #1-357 Acq:20-DEC-2018 02:09:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800510-03
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,388.0,1.00%,F,T)



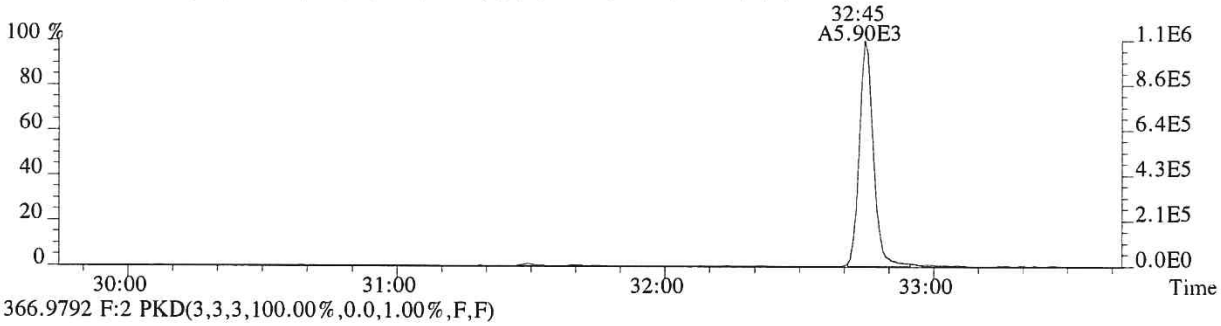
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,404.0,1.00%,F,T)



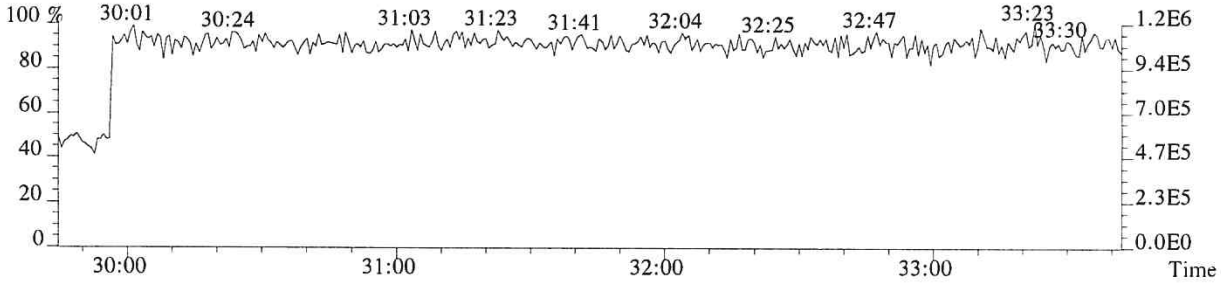
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,620.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,568.0,1.00%,F,T)

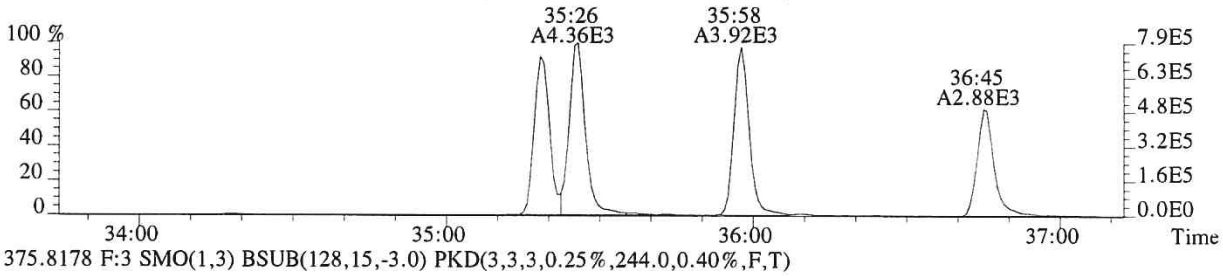


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

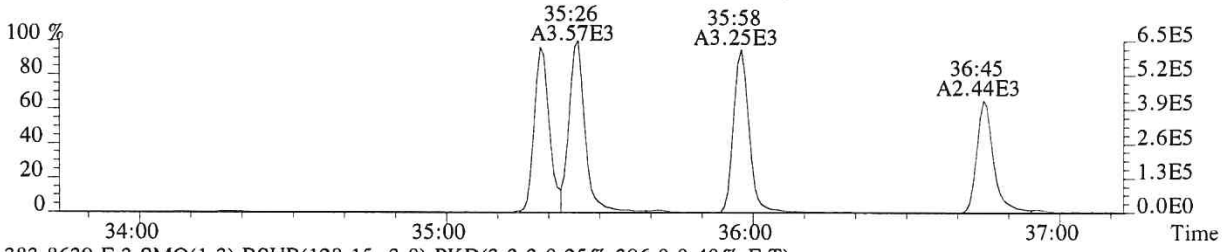


File:P519507 #1-313 Acq:20-DEC-2018 02:09:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800510-03

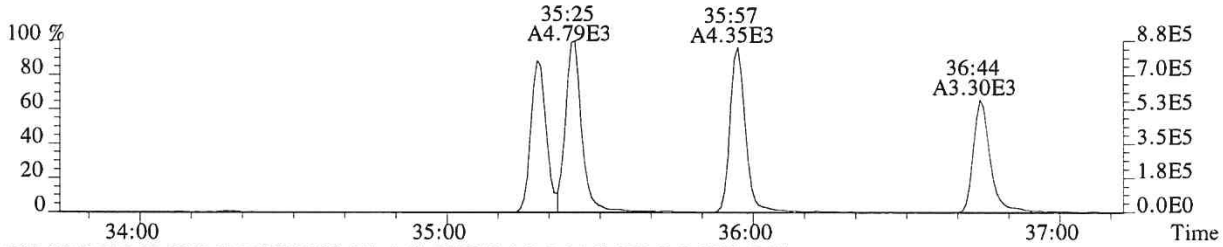
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,360.0,0.40%,F,T)



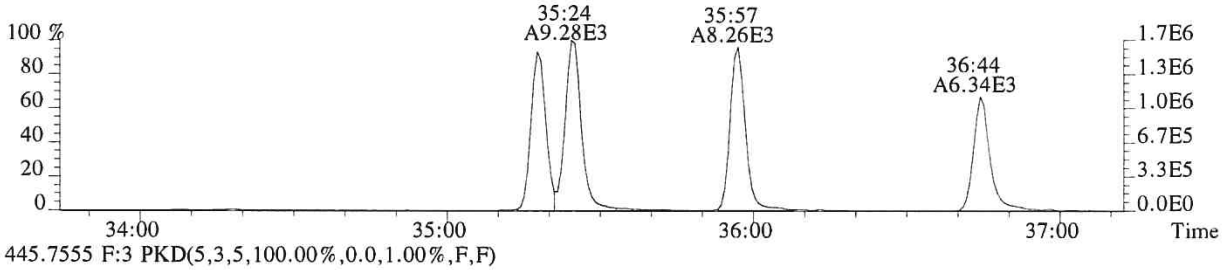
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,244.0,0.40%,F,T)



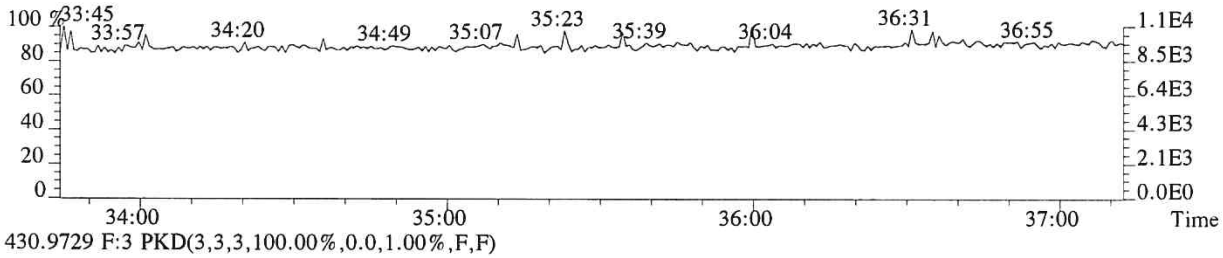
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,396.0,0.40%,F,T)



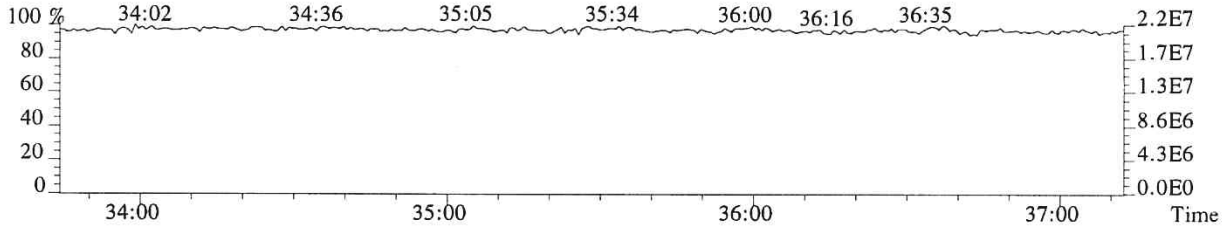
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,808.0,0.40%,F,T)



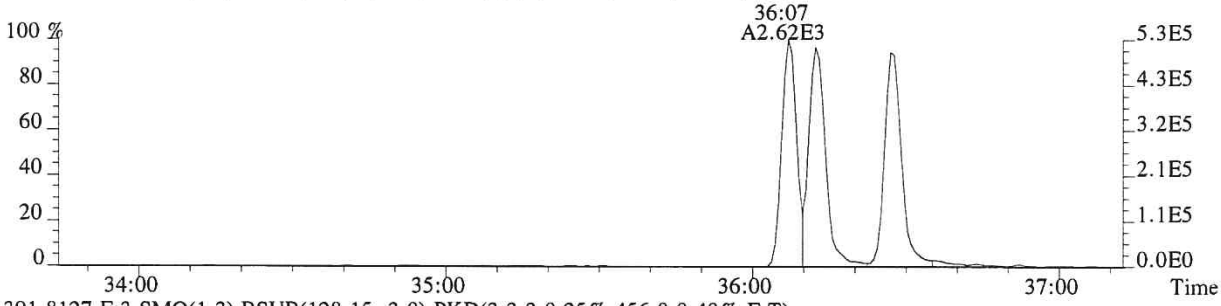
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



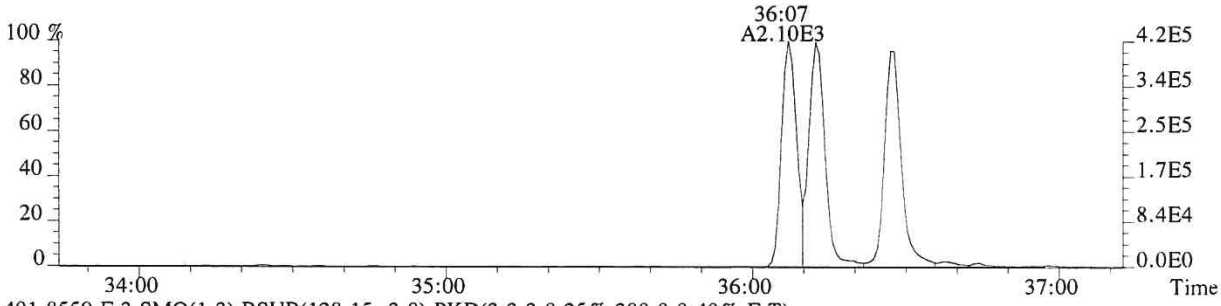
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



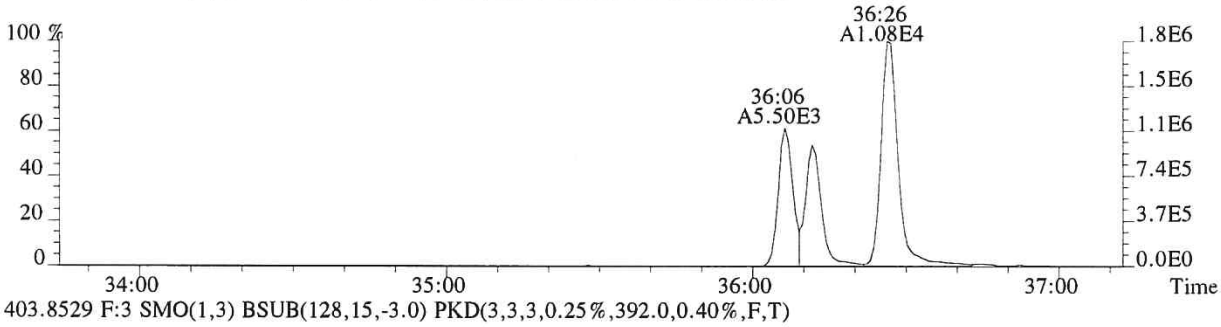
File:P519507 #1-313 Acq:20-DEC-2018 02:09:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800510-03
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,324.0,0.40%,F,T)



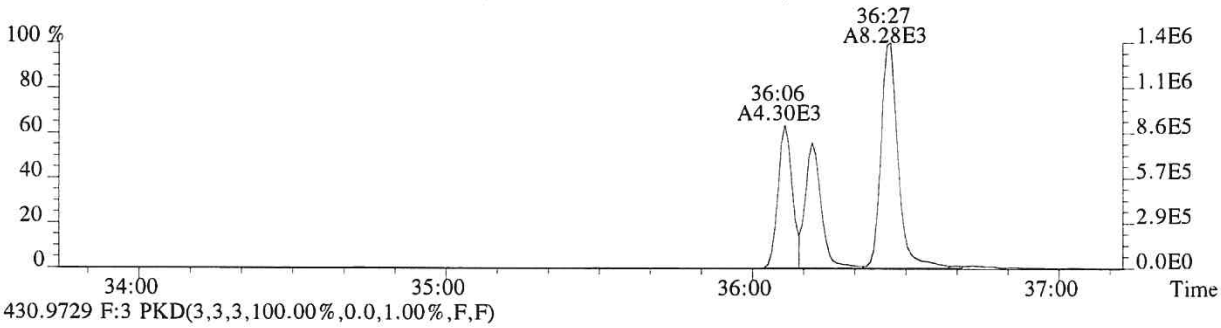
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,456.0,0.40%,F,T)



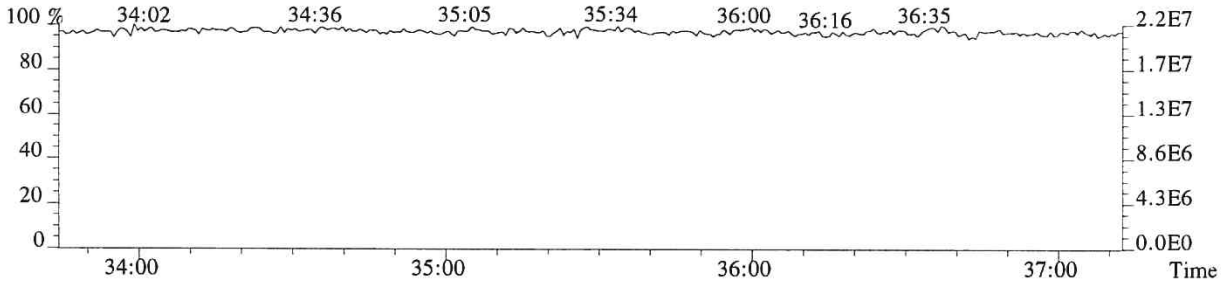
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,380.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,392.0,0.40%,F,T)

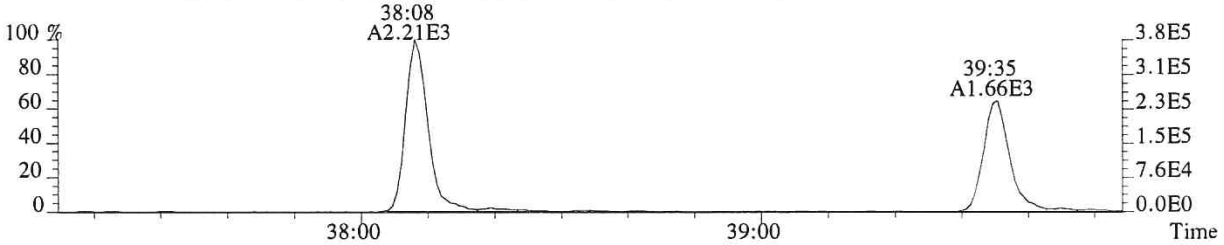


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

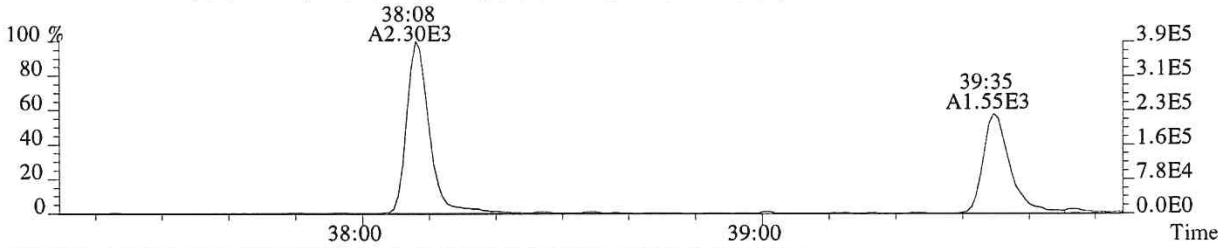


File:P519507 #1-240 Acq:20-DEC-2018 02:09:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800510-03

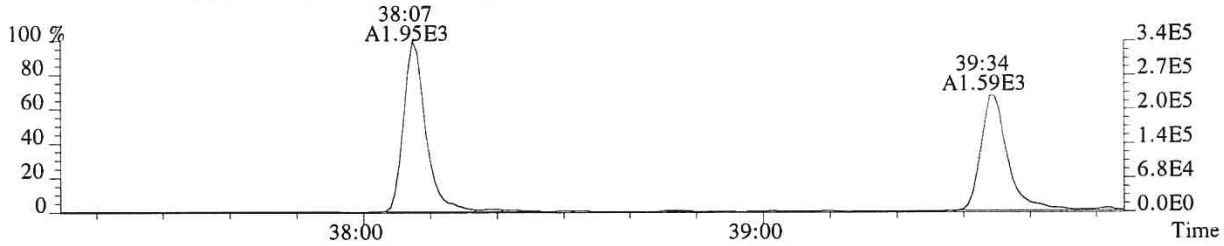
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,396.0,0.50%,F,T)



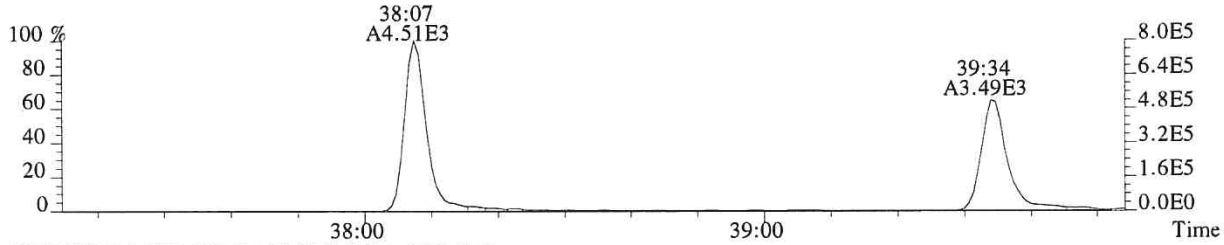
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,608.0,0.50%,F,T)



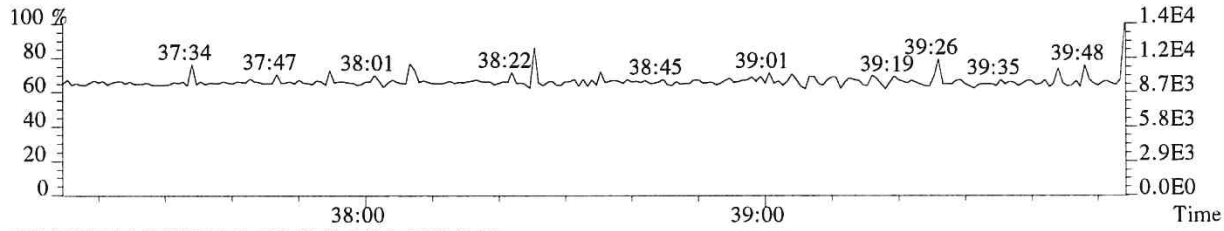
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1296.0,0.50%,F,T)



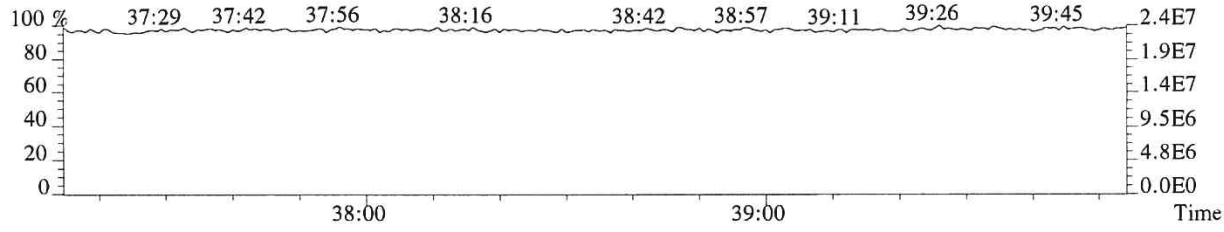
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,788.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

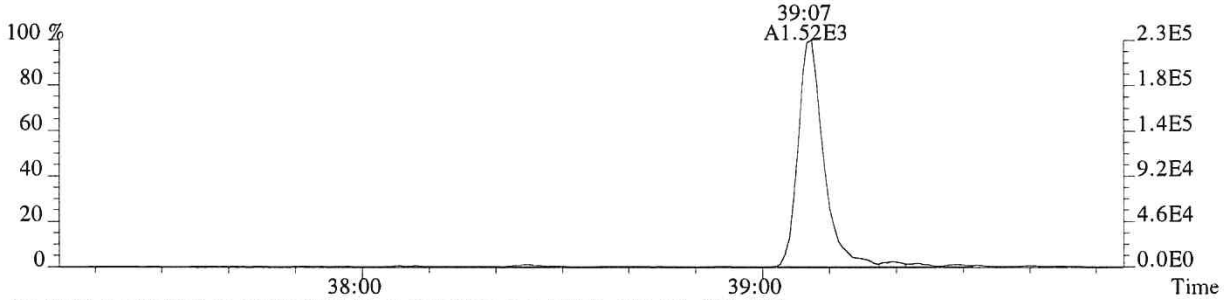


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

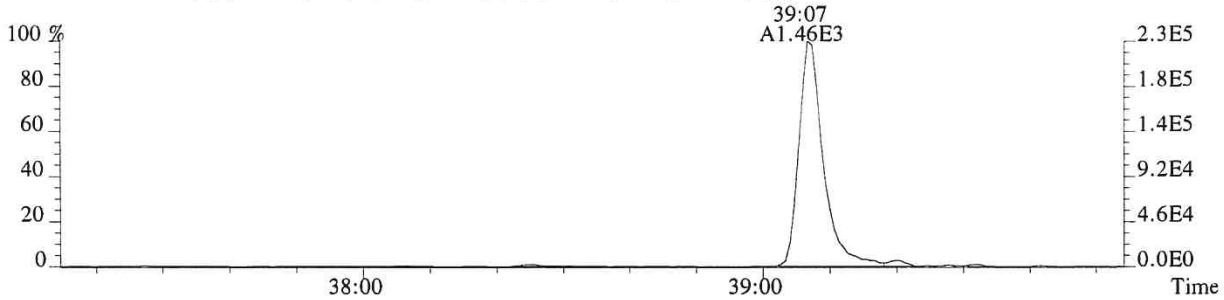


015718

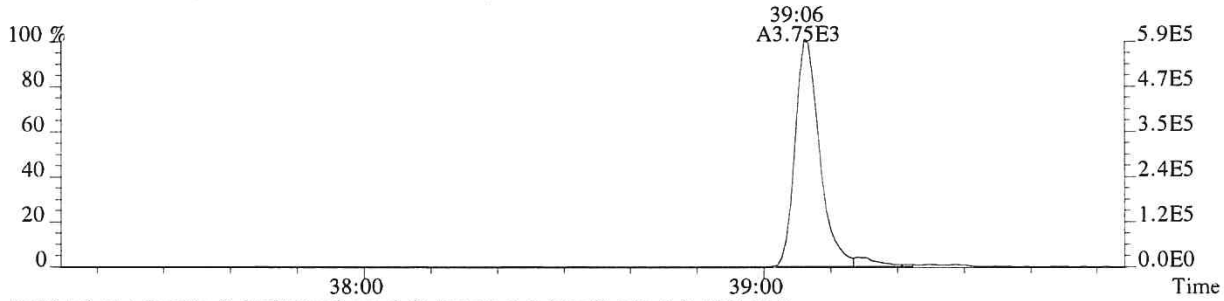
File:P519507 #1-240 Acq:20-DEC-2018 02:09:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800510-03
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,372.0,0.40%,F,T)



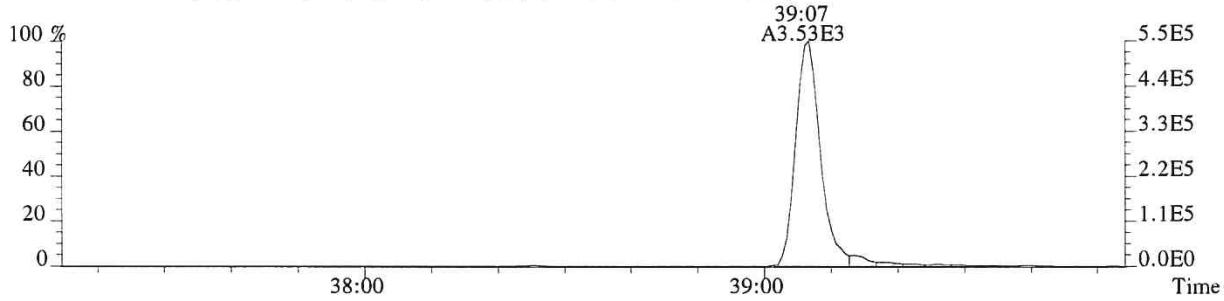
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,456.0,0.40%,F,T)



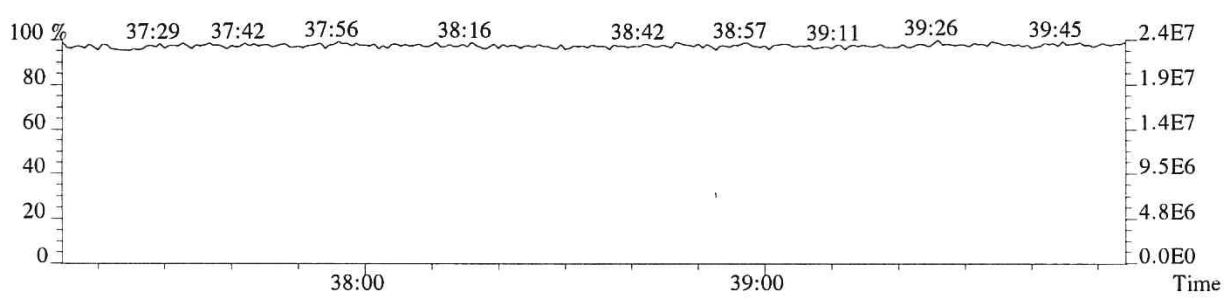
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,416.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,312.0,0.40%,F,T)



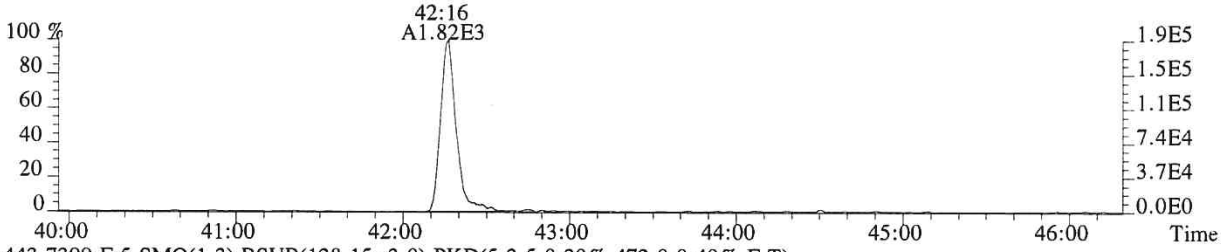
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



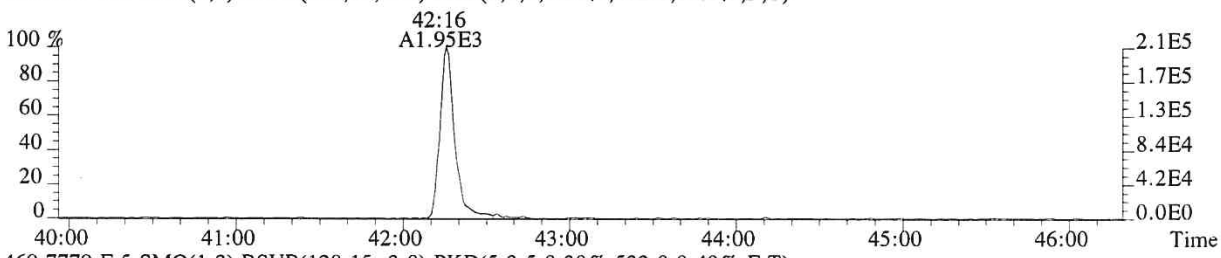
015719

File:P519507 #1-575 Acq:20-DEC-2018 02:09:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800510-03

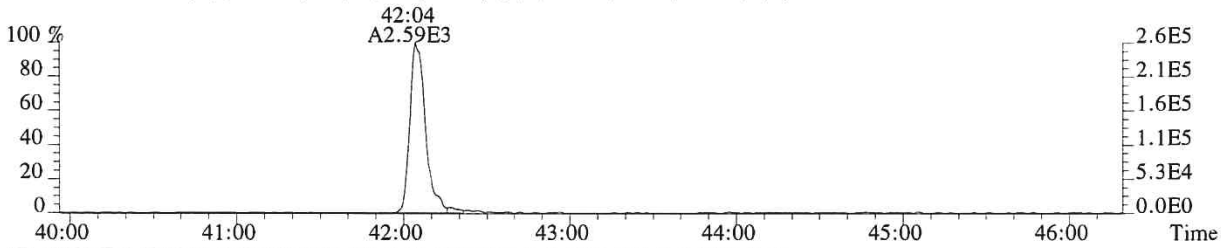
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,652.0,0.40%,F,T)



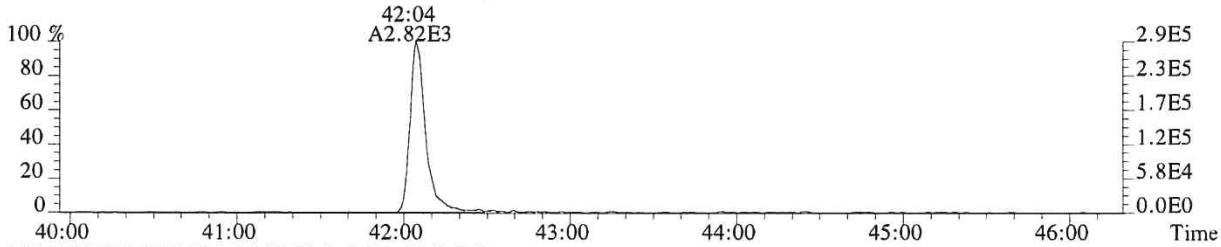
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,472.0,0.40%,F,T)



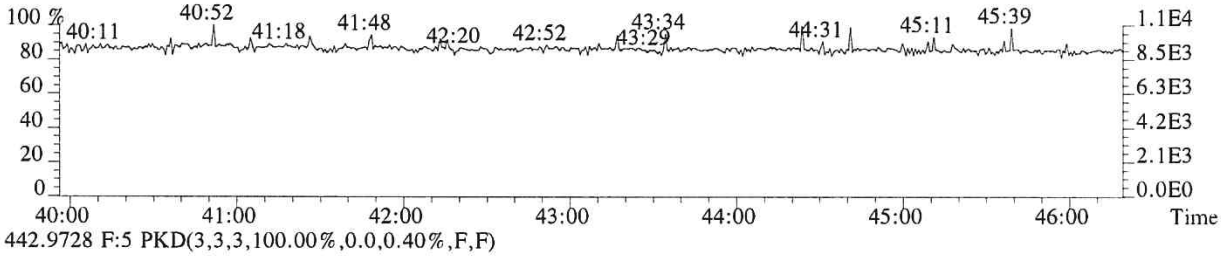
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,532.0,0.40%,F,T)



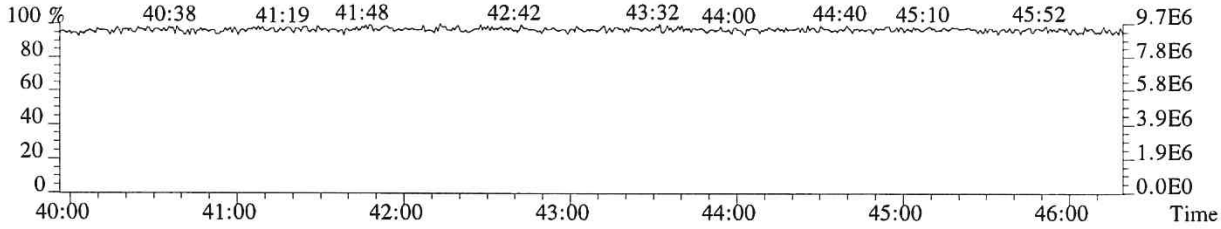
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,484.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

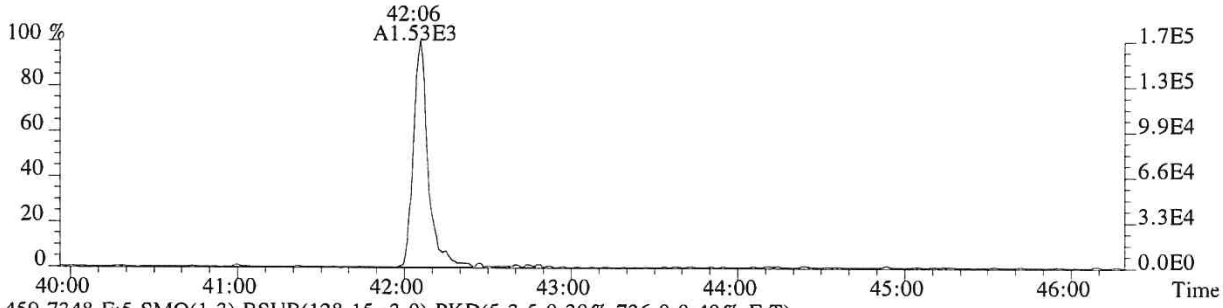


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

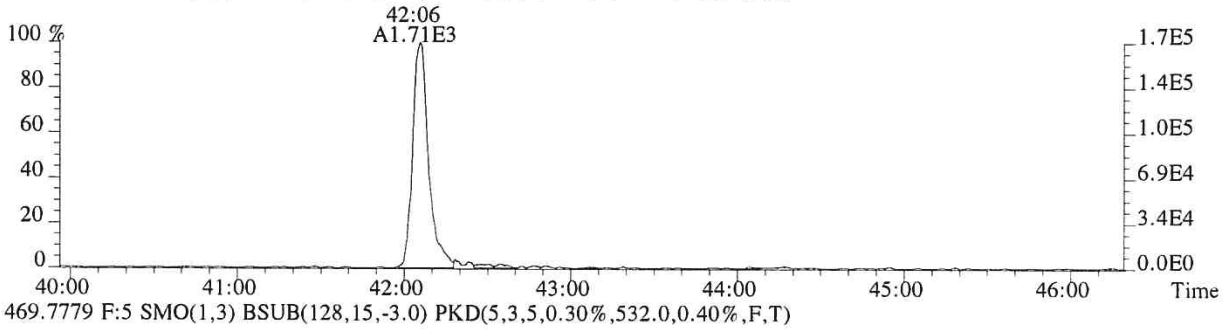


015720

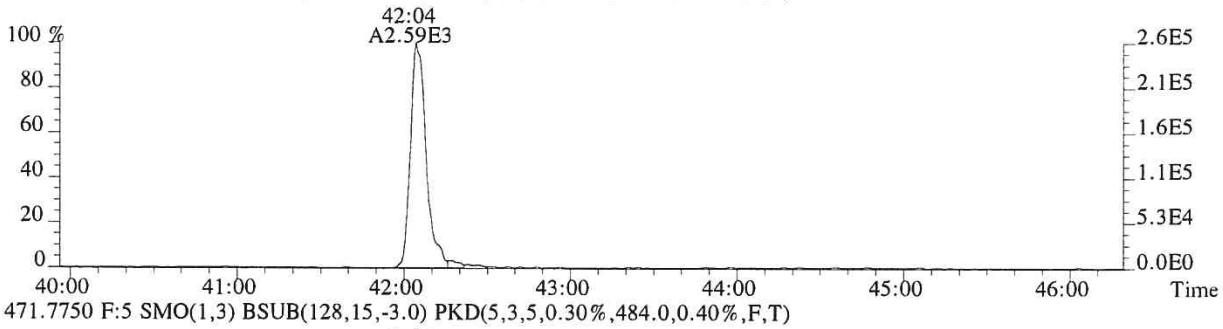
File:P519507 #1-575 Acq:20-DEC-2018 02:09:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800510-03
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,556.0,0.40%,F,T)



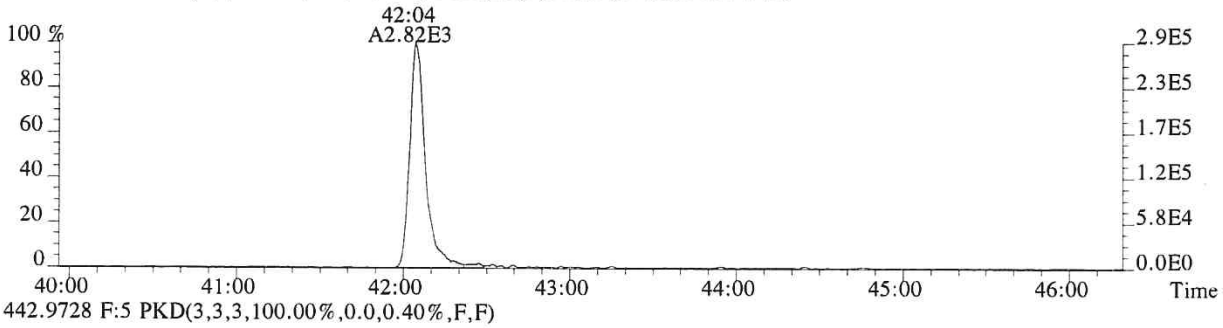
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,736.0,0.40%,F,T)



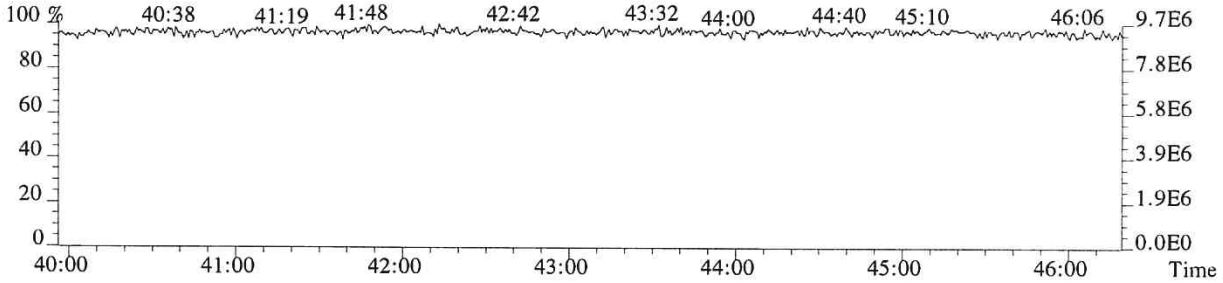
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,532.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,484.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



Continuing Calibration

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P519465

Date: 12/18 - 12/19/18

Circle one: (Beginning) / Ending

Method: (1613) / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: LKL

Second QC: [illegible]

ccalqc.xls 07/17/12

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

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
192977	WINDOW DEFINE	P519466	18-DEC-18	15:50:41
194503	CS3	P519465	18-DEC-18	14:50:19
METHOD BLANK	EQ1800510-01	P519467	18-DEC-18	16:38:29
METHOD BLANK	EQ1800508-01	P519468	18-DEC-18	17:27:07
SL0028	E1801094-001	P519469	18-DEC-18	18:15:42
SL0029	E1801094-002	P519470	18-DEC-18	19:04:21
SL0030	E1801094-003	P519471	18-DEC-18	19:52:59
SL0031	E1801094-004	P519472	18-DEC-18	20:41:36
SL0032	E1801094-005	P519473	18-DEC-18	21:30:22
SL0035	E1801094-006	P519474	18-DEC-18	22:18:58
SL0036	E1801094-007	P519475	18-DEC-18	23:07:36
LCS	EQ1800510-02	P519476	18-DEC-18	23:56:15
DLCS	EQ1800510-03	P519477	19-DEC-18	00:44:52

Sample List Report — **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20181218B.SPL
Last Modified: Thursday, December 20, 2018 11:12:27 Central Standard Time
Printed: Thursday, December 20, 2018 11:12:38 Central Standard Time

Page Position (1, 1)

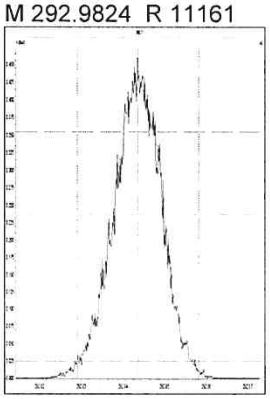
OPUS 5 NET: P519465 RES

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	12/18/18	14:50	P519465	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2	LKL	HRMS check 15:45
2		15:50	P519466	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:1		
3		16:38	P519467	MB	EQ1800510-01	EPA1613_ALS	Dioxin_ALS	Tray1:3		
4		17:27	P519468	MB	EQ1800508-01	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		18:15	P519469	E1801094-001	E1801094-001	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		19:04	P519470	E1801094-002	E1801094-002	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		19:52	P519471	E1801094-003	E1801094-003	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		20:41	P519472	E1801094-004	E1801094-004	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		21:30	P519473	E1801094-005	E1801094-005	EPA1613_ALS	Dioxin_ALS	Tray1:2		
10		22:18	P519474	E1801094-006	E1801094-006	EPA1613_ALS	Dioxin_ALS	Tray1:1		
11		23:07	P519475	E1801094-007	E1801094-007	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		23:56	P519476	LCS	EQ1800510-02	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13	12/19/18	00:44	P519477	DLCS	EQ1800510-03	EPA1613_ALS	Dioxin_ALS	Tray1:13		Needs Re-injection
14		01:41	P519478	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2		HRMS check 01:41
15			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:15		
16			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:16		
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:17	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:18	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---
22	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
23	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
24	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1	---	---
25	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:25	---	---
26	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:26	---	---
27	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:27	---	---
28	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:28	---	---
29	---	LKL 12/19/18	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:29	---	---
30	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:30	---	---
31	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:31	---	---
32	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:32	---	---
33	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:33	---	---
34	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:34	---	---
35	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:35	---	---
36	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:36	---	---
37	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
38	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:38	---	---
39	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:39	---	---

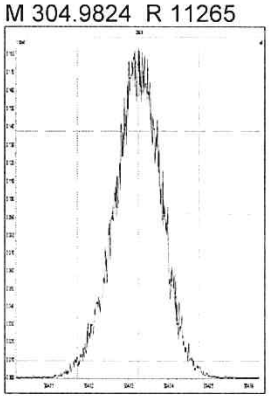
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Tuesday, December 18, 2018 15:45:26 Central Standard Time

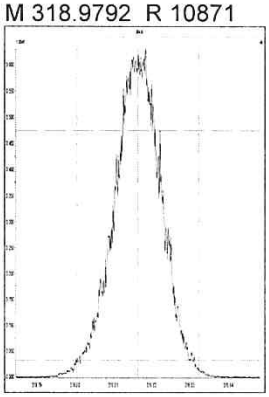
M 292.9824 R 11161



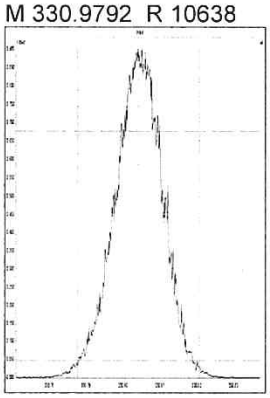
M 304.9824 R 11265



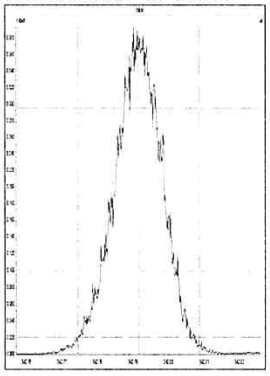
M 318.9792 R 10871



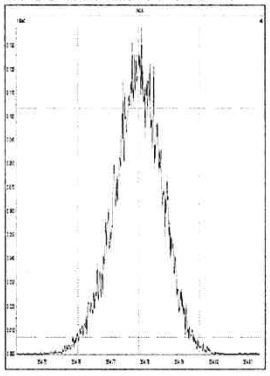
M 330.9792 R 10638



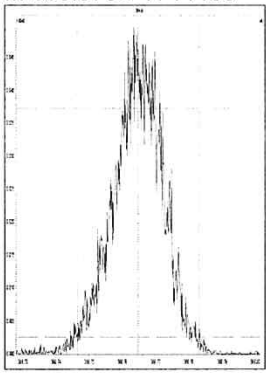
M 342.9792 R 10867



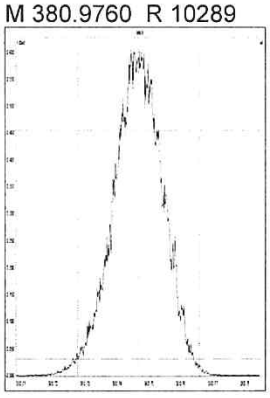
M 354.9792 R 10684



M 366.9792 R 11109



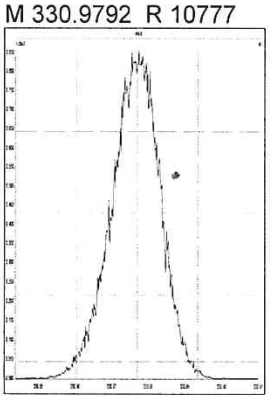
M 380.9760 R 10289



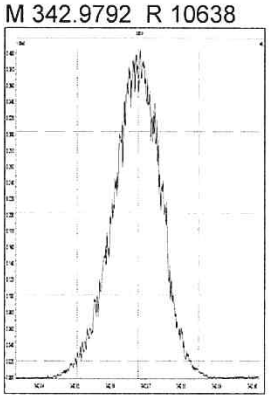
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Tuesday, December 18, 2018 15:46:35 Central Standard Time

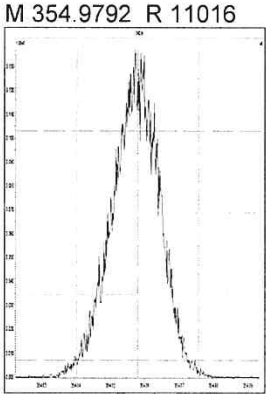
M 330.9792 R 10777



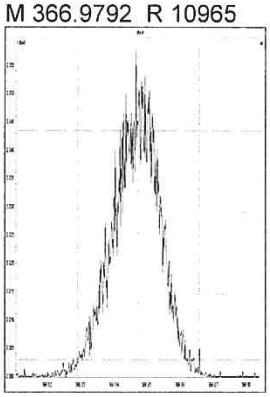
M 342.9792 R 10638



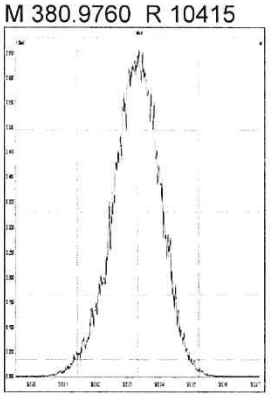
M 354.9792 R 11016



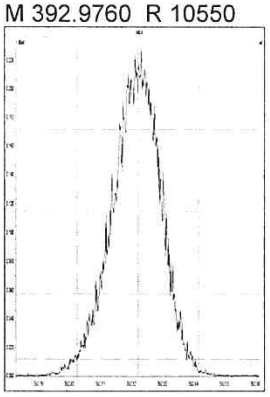
M 366.9792 R 10965



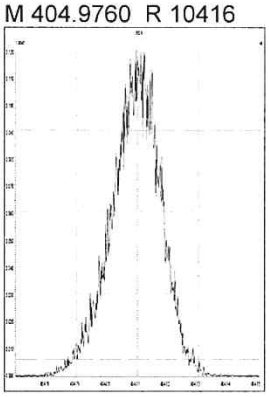
M 380.9760 R 10415



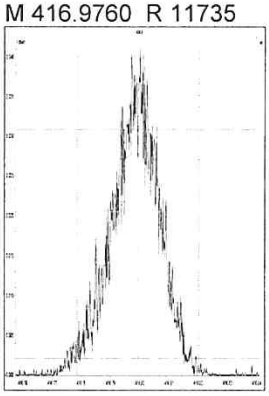
M 392.9760 R 10550



M 404.9760 R 10416



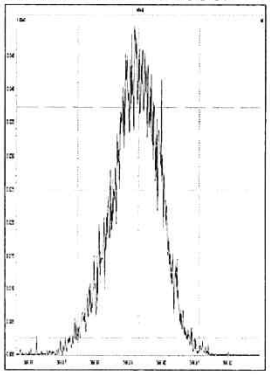
M 416.9760 R 11735



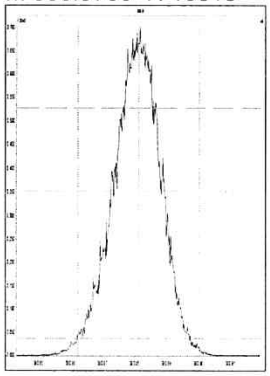
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Tuesday, December 18, 2018 15:47:39 Central Standard Time

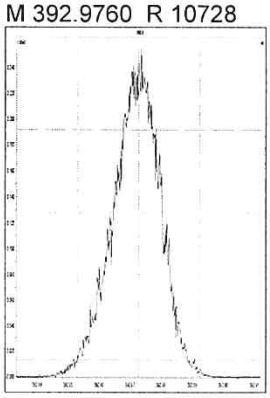
M 366.9792 R 10962



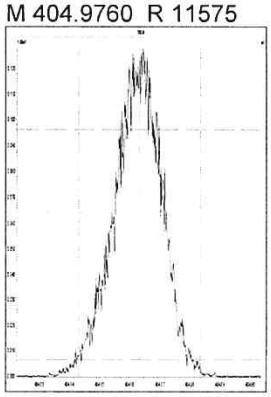
M 380.9760 R 10818



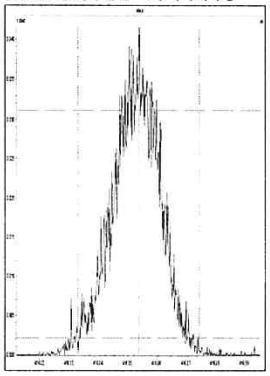
M 392.9760 R 10728



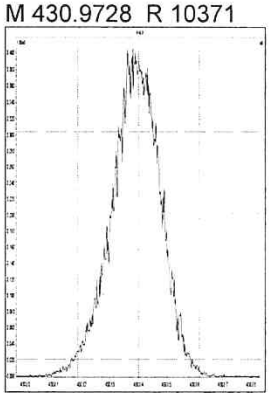
M 404.9760 R 11575



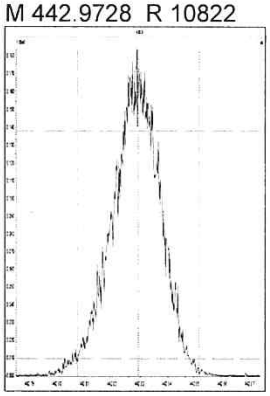
M 416.9760 R 11415



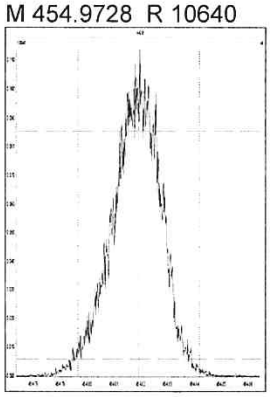
M 430.9728 R 10371



M 442.9728 R 10822



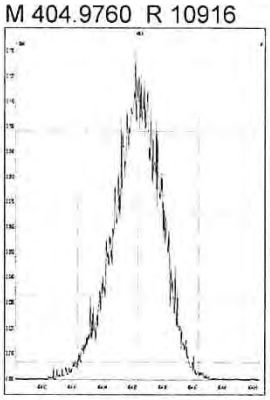
M 454.9728 R 10640



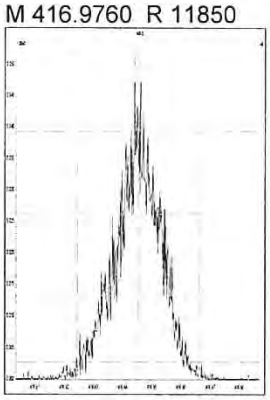
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Tuesday, December 18, 2018 15:48:42 Central Standard Time

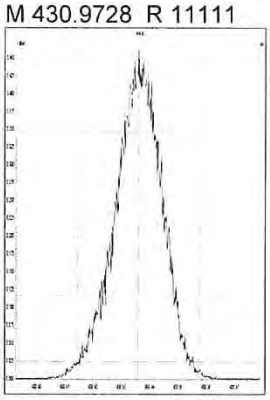
M 404.9760 R 10916



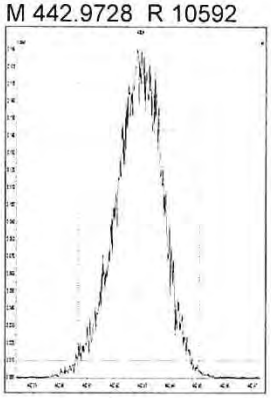
M 416.9760 R 11850



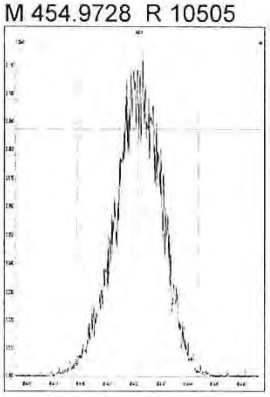
M 430.9728 R 11111



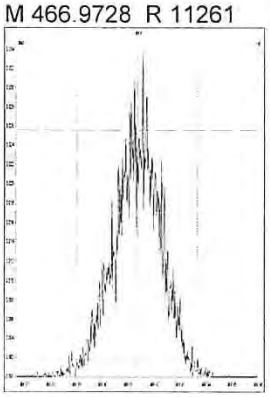
M 442.9728 R 10592



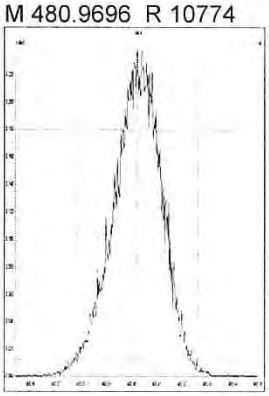
M 454.9728 R 10505



M 466.9728 R 11261



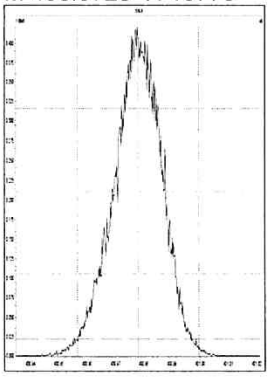
M 480.9696 R 10774



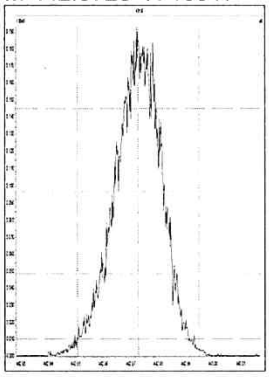
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Tuesday, December 18, 2018 15:49:53 Central Standard Time

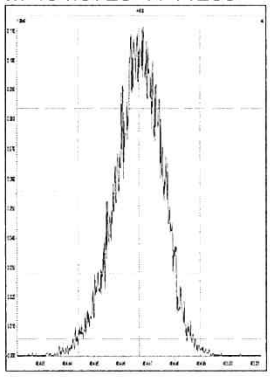
M 430.9728 R 10773



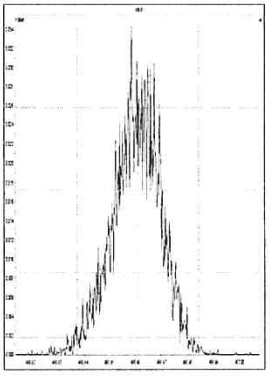
M 442.9728 R 10917



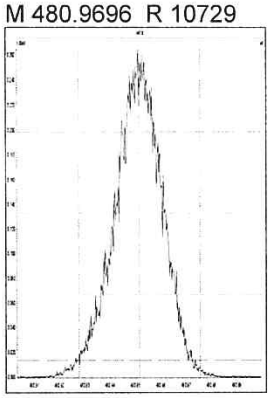
M 454.9728 R 11209



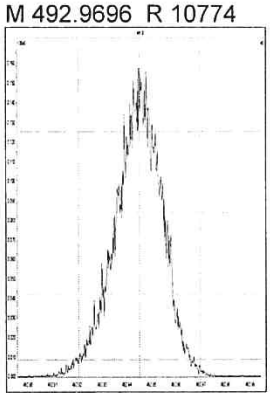
M 466.9728 R 12377



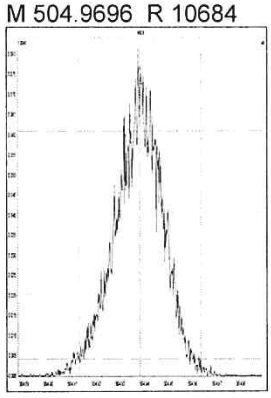
M 480.9696 R 10729



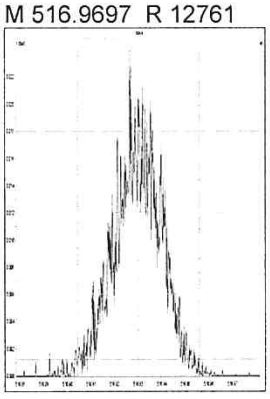
M 492.9696 R 10774



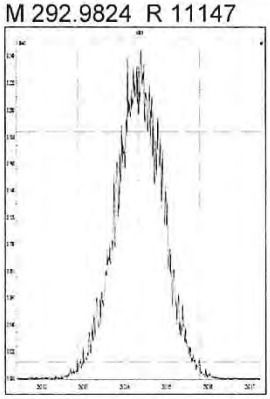
M 504.9696 R 10684



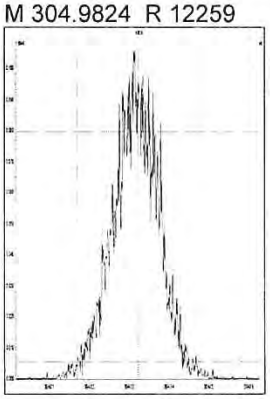
M 516.9697 R 12761



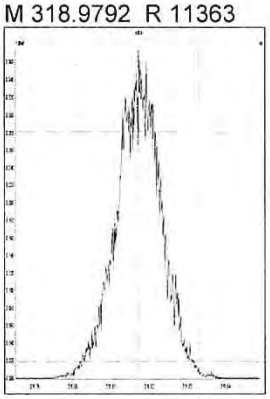
M 292.9824 R 11147



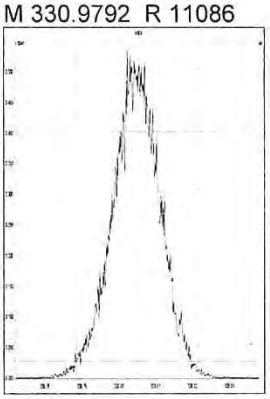
M 304.9824 R 12259



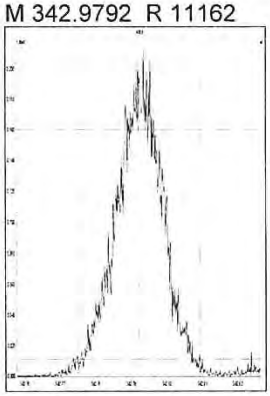
M 318.9792 R 11363



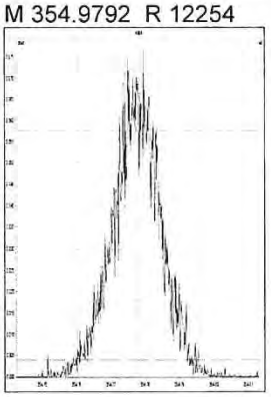
M 330.9792 R 11086



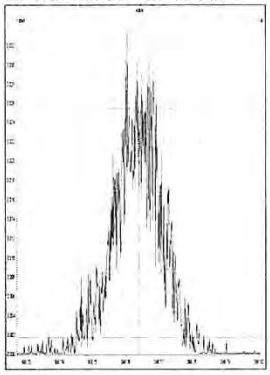
M 342.9792 R 11162



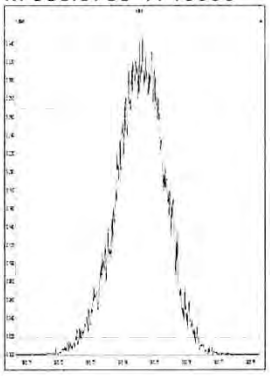
M 354.9792 R 12254



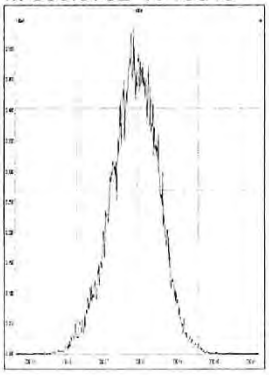
M 366.9792 R 12724



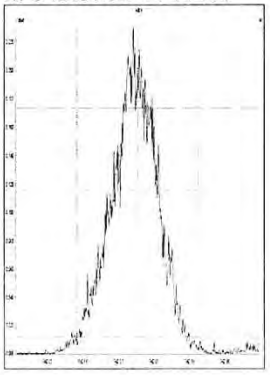
M 380.9760 R 10593



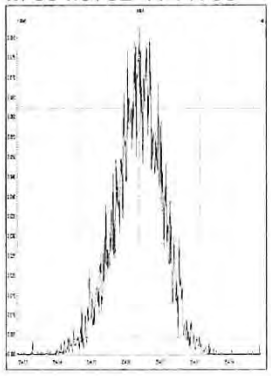
M 330.9792 R 10616



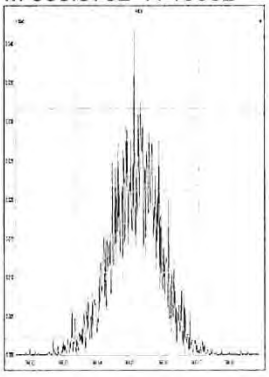
M 342.9792 R 11467



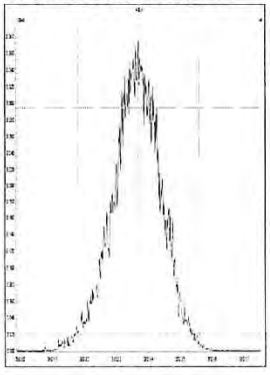
M 354.9792 R 11798



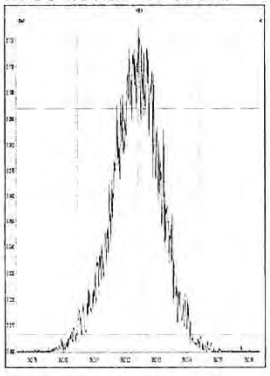
M 366.9792 R 13552



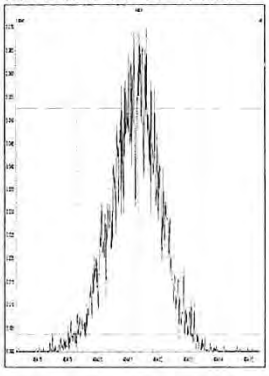
M 380.9760 R 10203



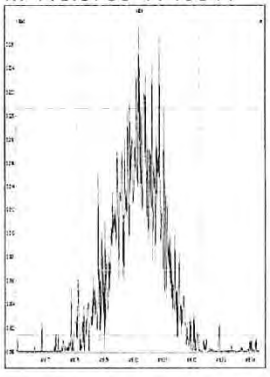
M 392.9760 R 10897



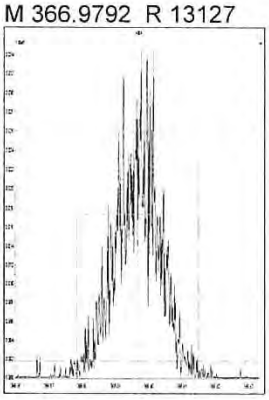
M 404.9760 R 11198



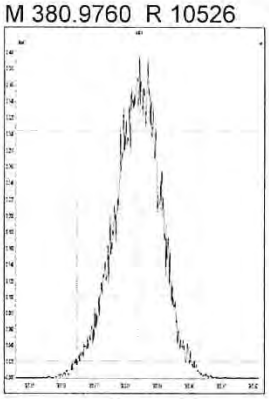
M 416.9760 R 15841



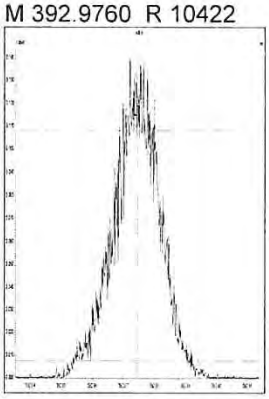
M 366.9792 R 13127



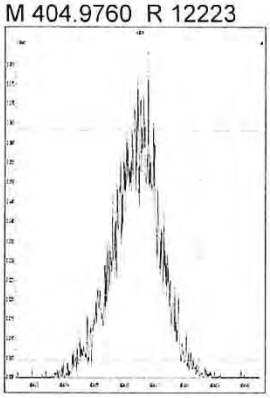
M 380.9760 R 10526



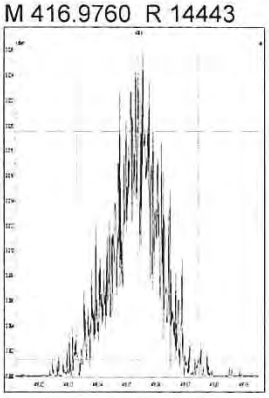
M 392.9760 R 10422



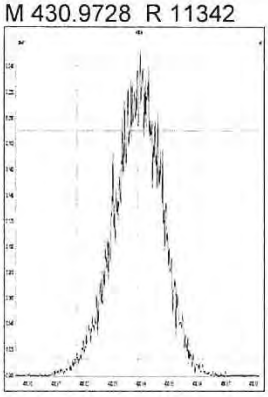
M 404.9760 R 12223



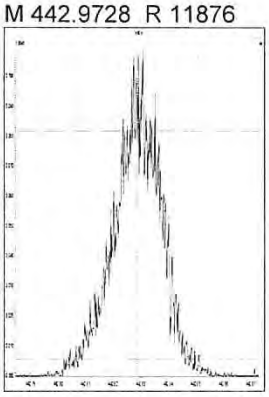
M 416.9760 R 14443



M 430.9728 R 11342



M 442.9728 R 11876



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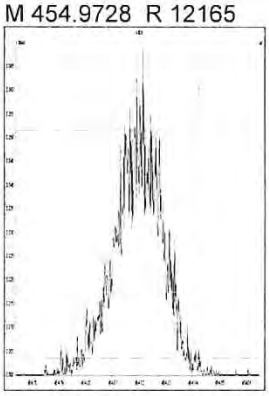
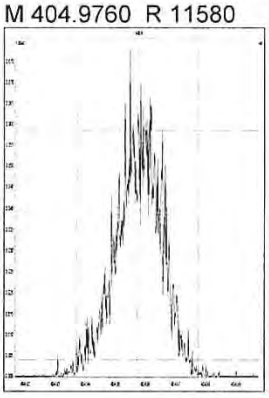
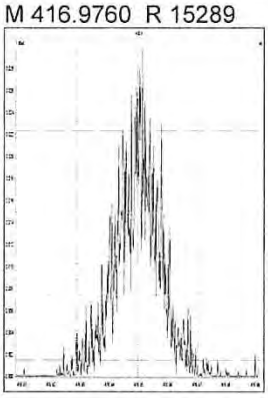


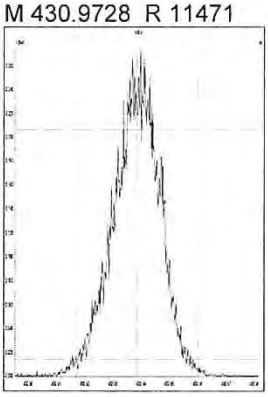
M 404.9760 R 11580



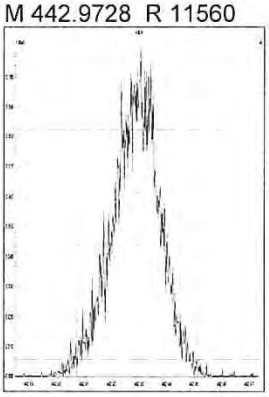
M 416.9760 R 15289



M 430.9728 R 11471



M 442.9728 R 11560



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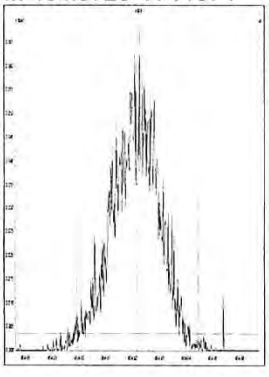

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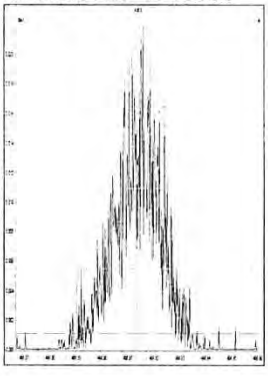
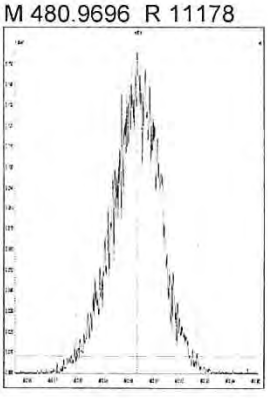
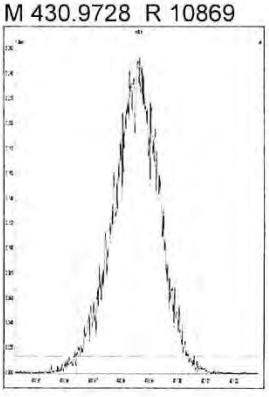


M 480.9696 R 11178

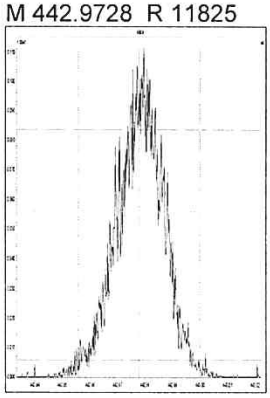


M 430.9728 R 10869



Printed: Wednesday, December 19, 2018 01:41:42 Central Standard Time

M 442.9728 R 11825



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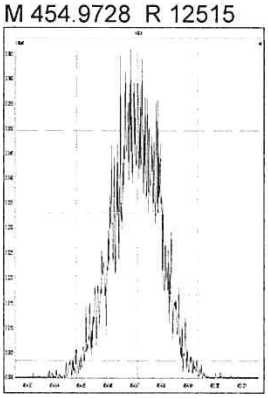

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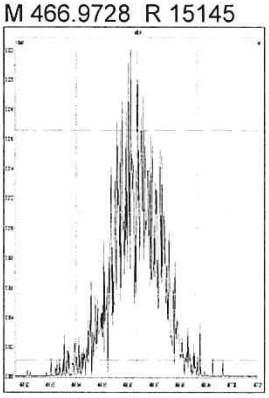
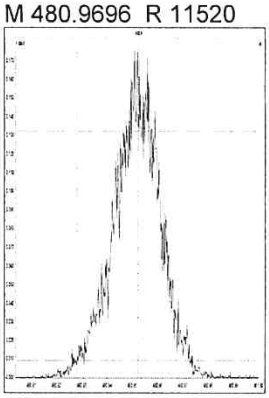
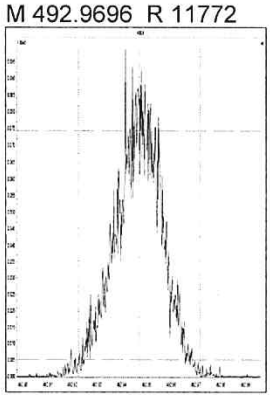


M 480.9696 R 11520



M 492.9696 R 11772



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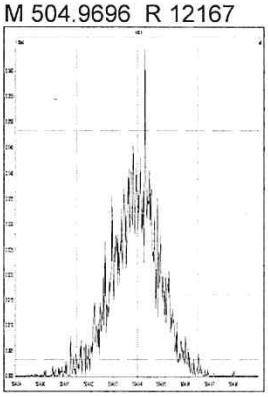
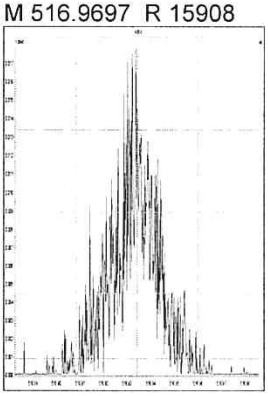


M 516.9697 R 15908



WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

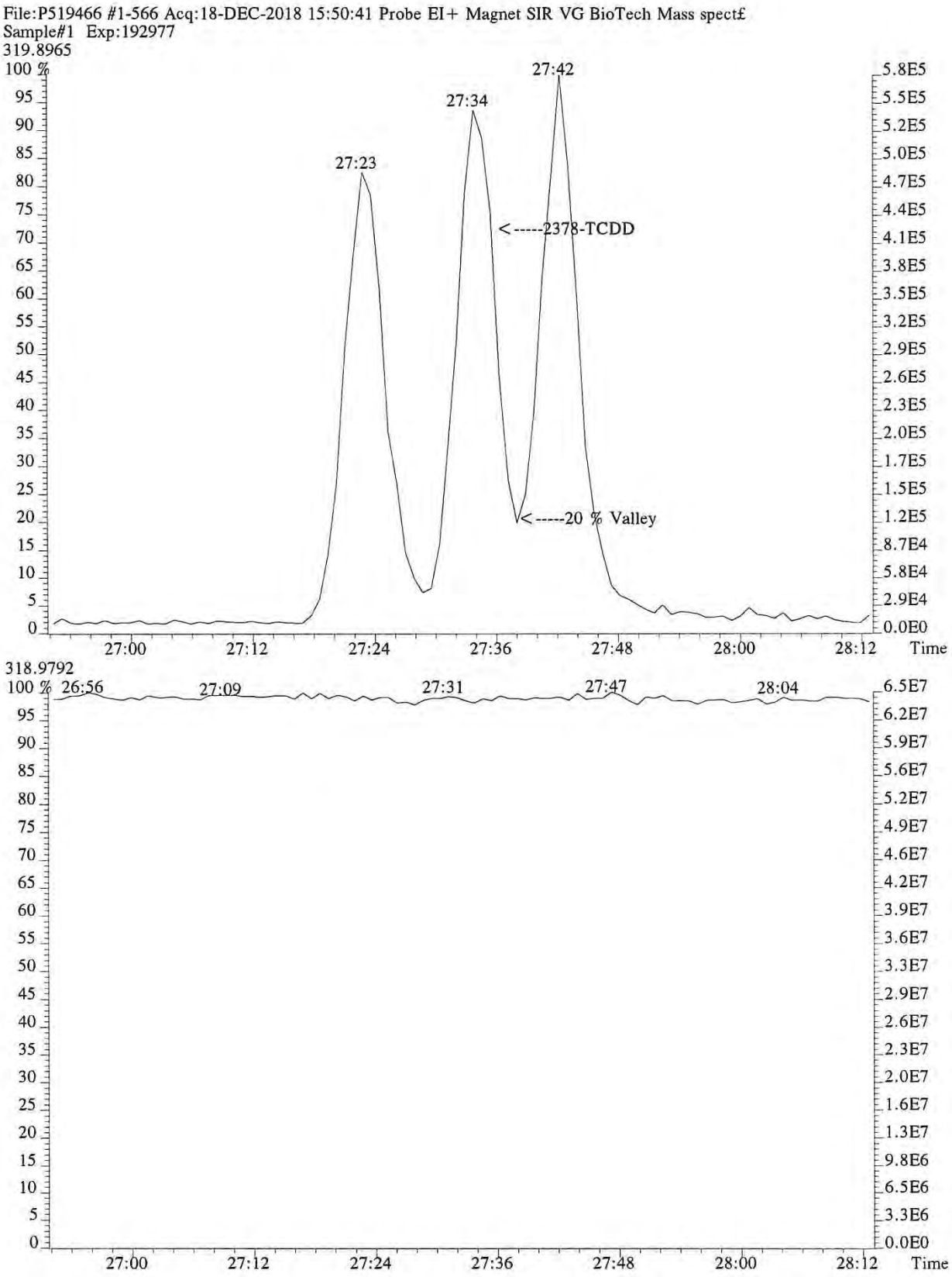
Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

Case No.: _____ SDG No.:
ID: 0.25 (mm)

Lab File ID: P519466
Date Analyzed: 18-DEC-18
Time Analyzed: 15:50:41

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	22:12	28:50
TCDD	23:54	28:41
PeCDF	28:49	33:21
PeCDD	30:29	33:07
HxCDF	34:05	36:42
HxCDD	34:38	36:18
HpCDF	38:02	39:27
HpCDD	38:19	38:59

% Valley 2378-TCDD: 20 %


File:P519466 #1-566 Acq:18-DEC-2018 15:50:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
319.8965
27:42
27:34
27:23
<-----2378-TCDD
<-----20 % Valley
Time
318.9792
26:56
27:09
27:31
27:47
28:04
Time

File:P519466 #1-566 Acq:18-DEC-2018 15:50:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
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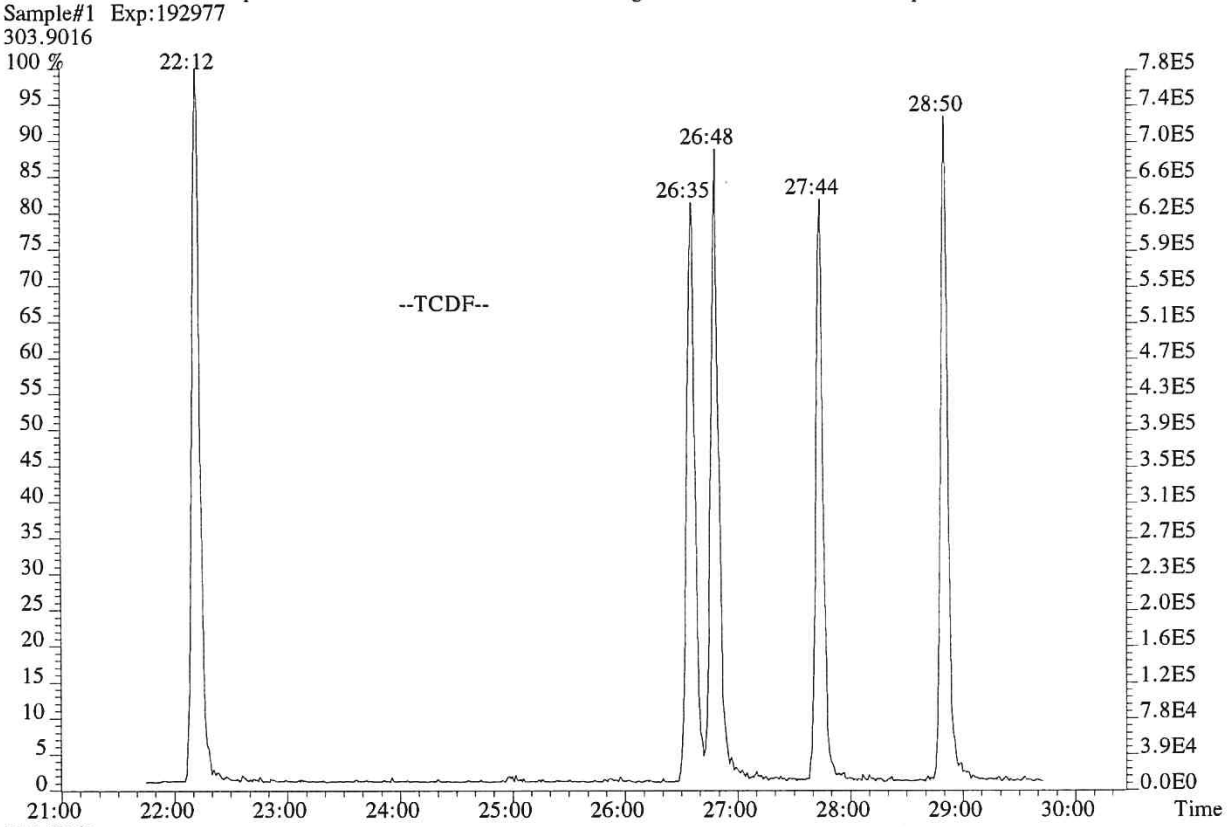

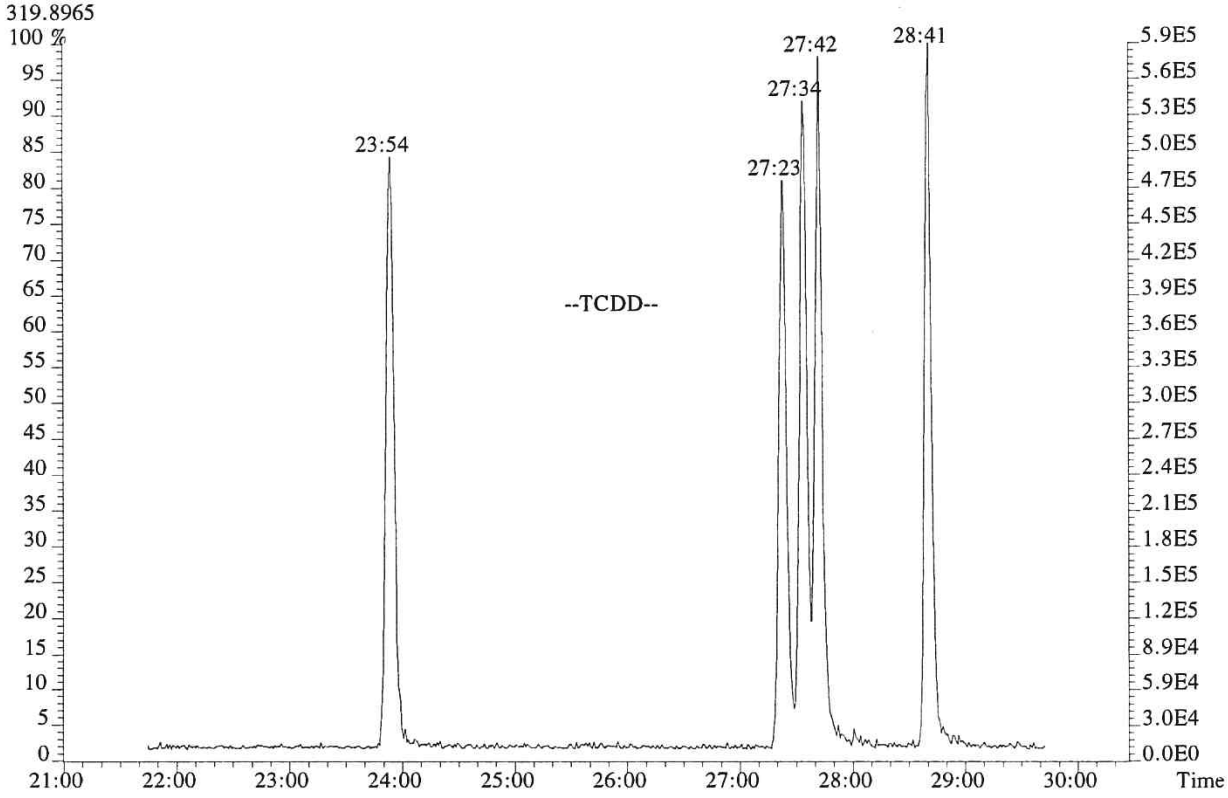

015736

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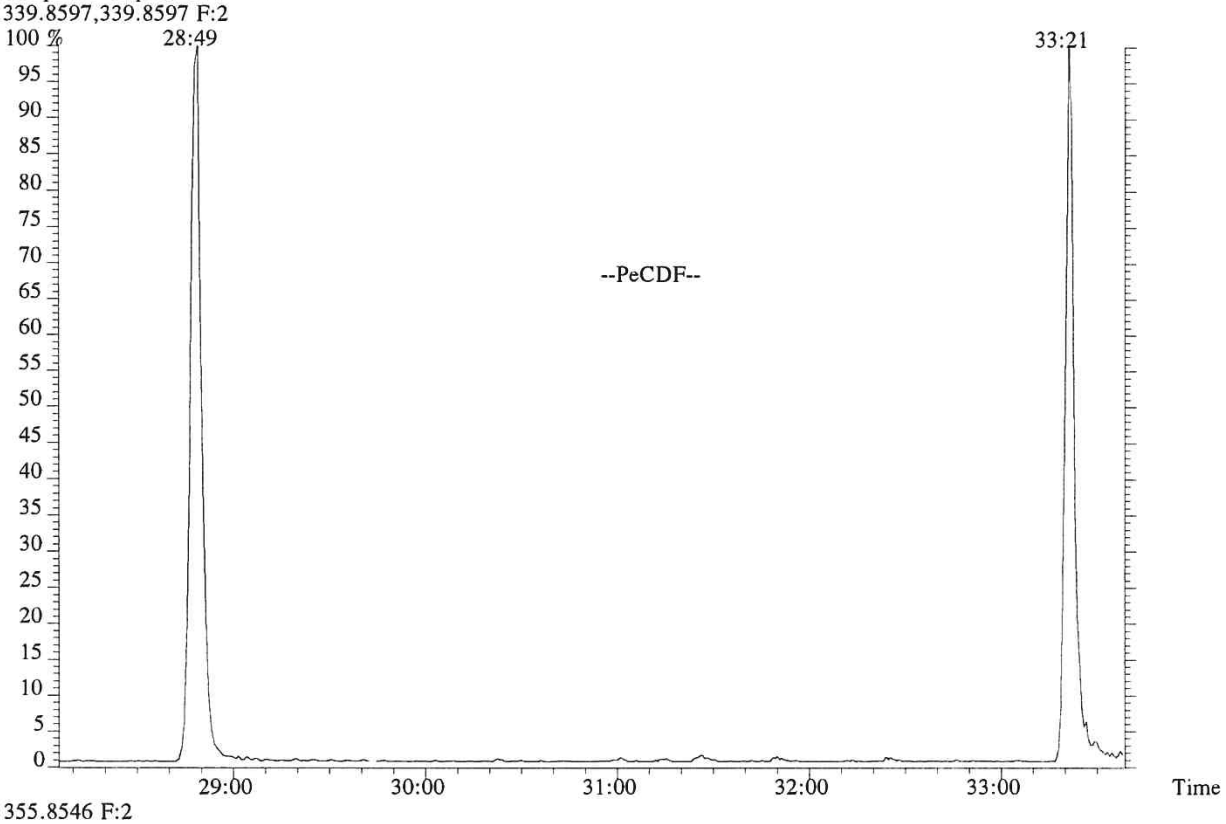
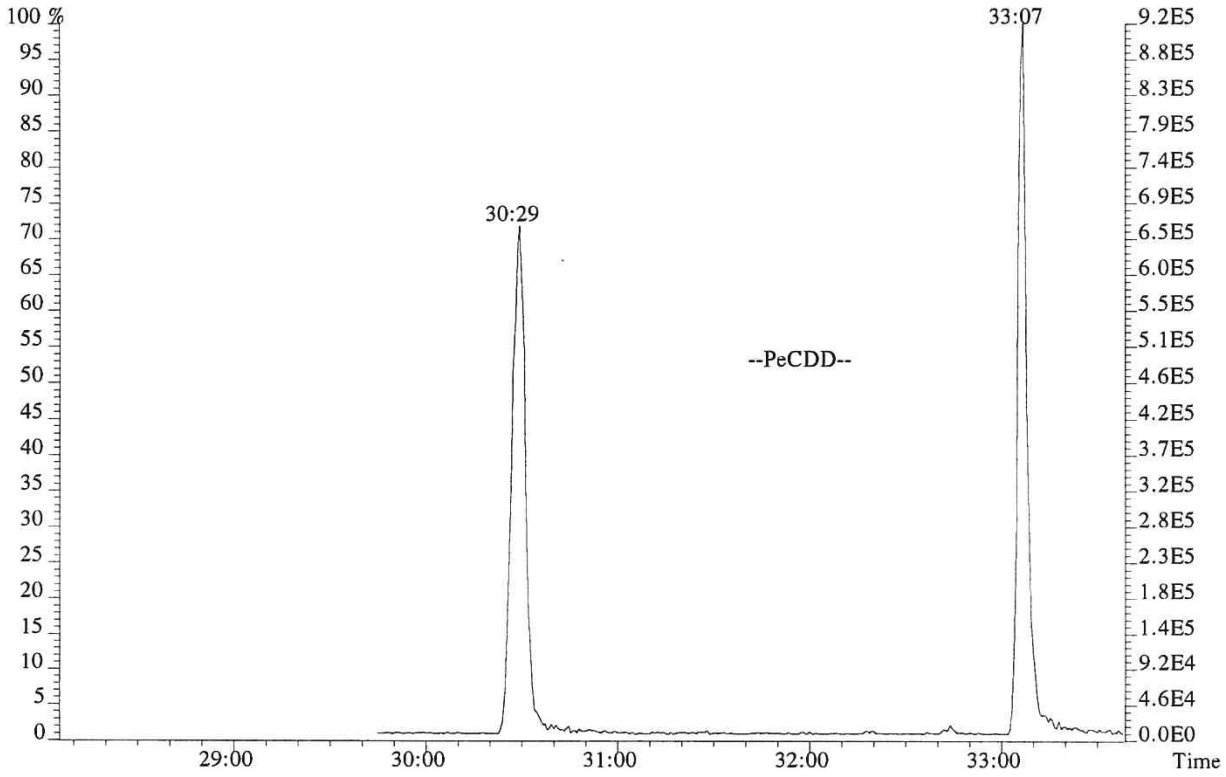
339.8597,339.8597 F:2



355.8546 F:2



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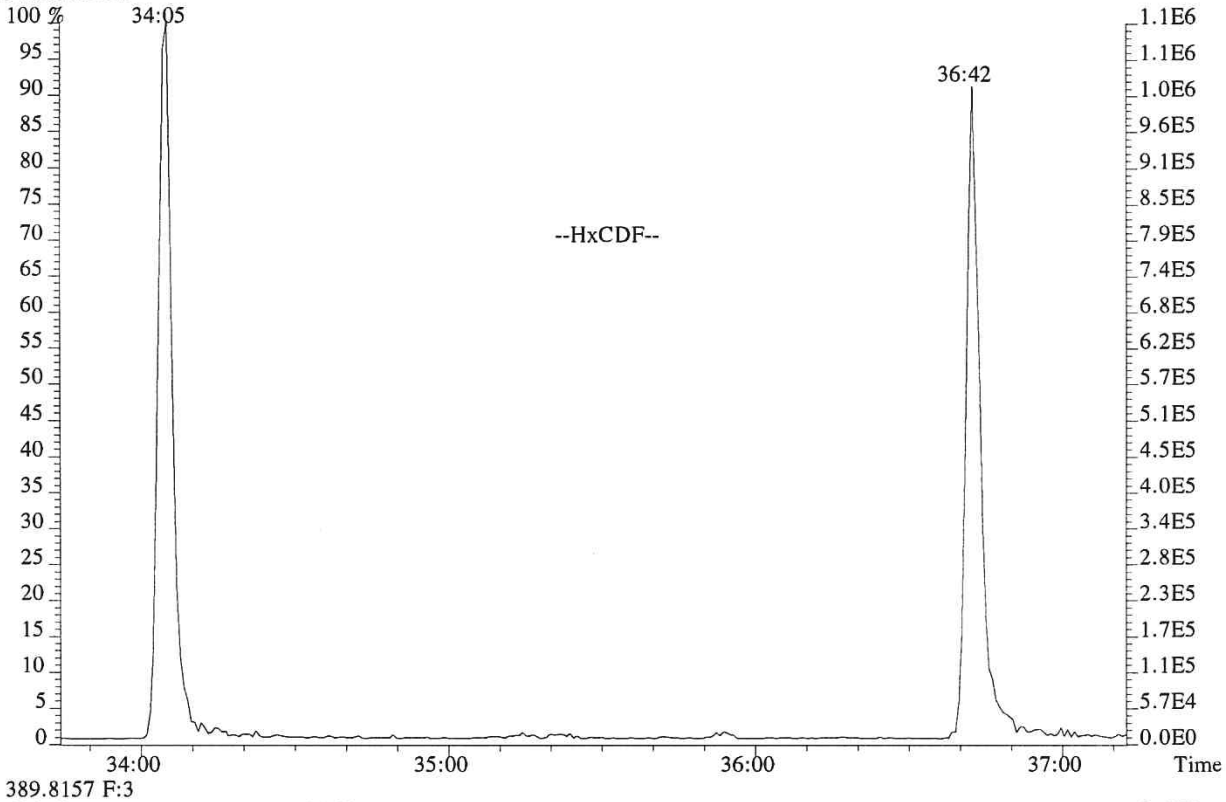
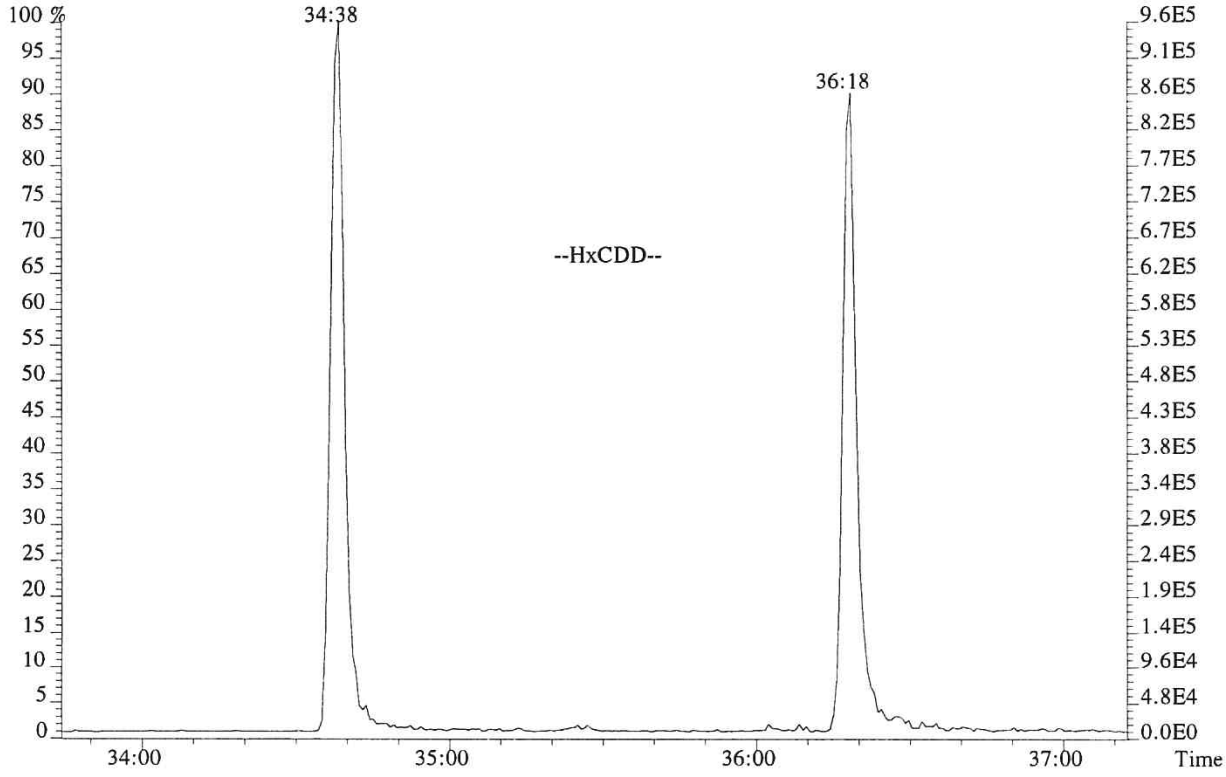
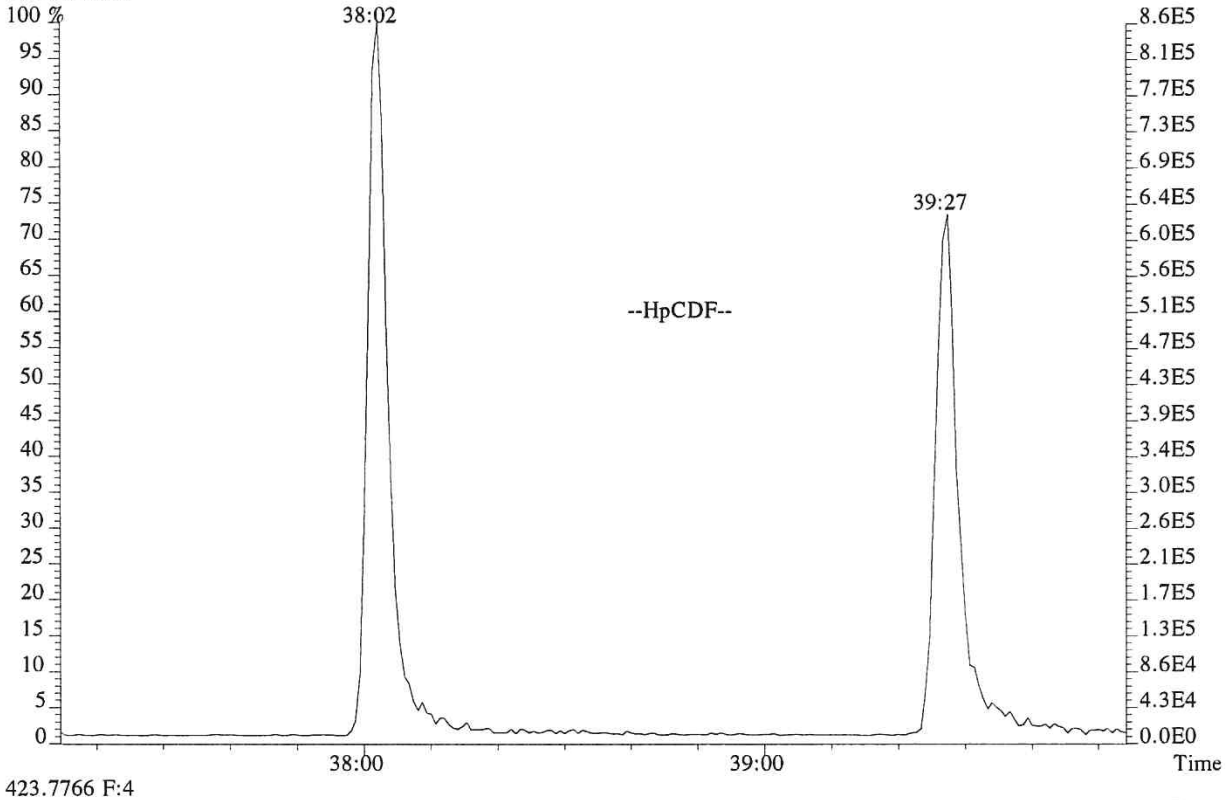
Sample#1 Exp:192977
373.8208 F:3



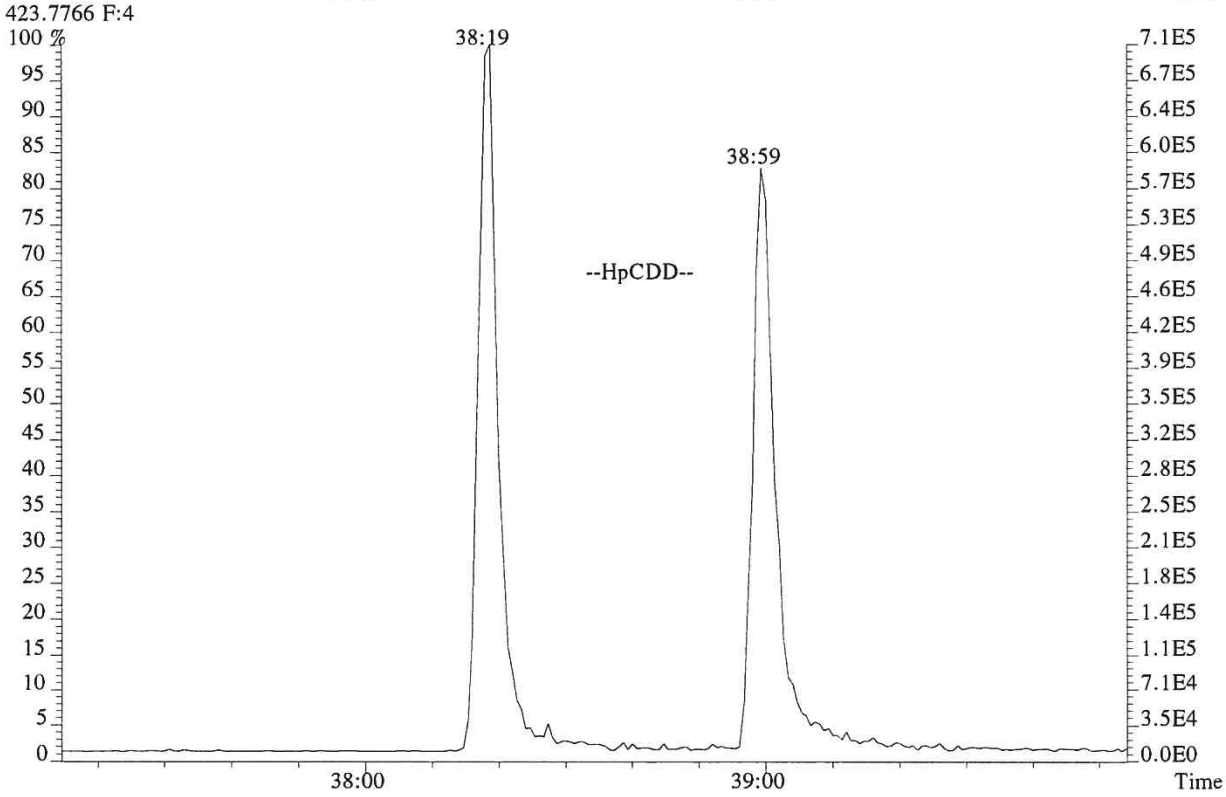
389.8157 F:3



File:P519466 #1-566 Acq:18-DEC-2018 15:50:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
407.7818 F:4



423.7766 F:4



015739

USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519465 Analysis Date: 18-DEC-18 Time: 14:50:19

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.84	0.65-0.89	9.9	7.8 - 12.9	-1.3
1,2,3,7,8-PeCDD	M+2/M+4	1.49	1.32-1.78	51	39 - 65	2.3
1,2,3,4,7,8-HxCDD	M+2/M+4	1.33	1.05-1.43	50	39 - 64	0.2
1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	50	39 - 64	0.8
1,2,3,7,8,9-HxCDD	M+2/M+4	1.24	1.05-1.43	52	41 - 61	3.4
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.10	0.88-1.20	51	43 - 58	1.0
OCDD	M+2/M+4	0.89	0.76-1.02	99	79 - 126	-1.3
2,3,7,8-TCDF	M/M+2	0.72	0.65-0.89	10.1	8.4 - 12.0	1.1
1,2,3,7,8-PeCDF	M+2/M+4	1.51	1.32-1.78	48	41 - 60	-3.3
2,3,4,7,8-PeCDF	M+2/M+4	1.54	1.32-1.78	49	41 - 61	-1.6
1,2,3,4,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	51	45 - 56	2.6
1,2,3,6,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	50	44 - 57	0.3
1,2,3,7,8,9-HxCDF	M+2/M+4	1.15	1.05-1.43	50	45 - 56	0.4
2,3,4,6,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	51	44 - 57	2.5
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.01	0.88-1.20	49	45 - 55	-2.9
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.05	0.88-1.20	51	43 - 58	1.6
OCDF	M+2/M+4	0.86	0.76-1.02	95	63 - 159	-5.4

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519465 Analysis Date: 18-DEC-18 Time: 14:50:19

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.76	0.65-0.89	97	82 - 121	-3.2
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.57	1.32-1.78	115	62 - 160	14.8
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	96	85 - 117	-3.9
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	100	85 - 118	0.5
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	109	72 - 138	8.5
13C-OCDD	M+2/M+4	0.89	0.76-1.02	240	96 - 415	19.8
13C-2,3,7,8-TCDF	M/M+2	0.77	0.65-0.89	86	71 - 140	-14.1
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	109	76 - 130	8.7
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	109	77 - 130	9.1
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	85	76 - 131	-15.2
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	93	70 - 143	-7.4
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	91	74 - 135	-8.7
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	94	73 - 137	-6.2
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.44	0.37-0.51	105	78 - 129	4.9
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.44	0.37-0.51	105	77 - 129	4.6
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD	M+2/M+4			9.3	7.8 - 12.7	-6.6

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #7 Filename P519465 Samp: 1 Inj: 1 Acquired: 18-DEC-18 14:50:19
Processed: 19-DEC-18 13:36:09 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:46	9.096e+02	1.258e+03	0.72	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	31:25	8.234e+03	5.455e+03	1.51	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	32:23	7.949e+03	5.175e+03	1.54	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:14	7.521e+03	6.035e+03	1.25	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:20	8.520e+03	6.970e+03	1.22	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:52	7.894e+03	6.337e+03	1.25	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	36:39	6.473e+03	5.617e+03	1.15	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:01	7.102e+03	7.013e+03	1.01	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:25	5.959e+03	5.676e+03	1.05	yes	no	1.258
10	Unk	OCDF	41:60	8.793e+03	1.024e+04	0.86	yes	no	1.359
11	Unk	2,3,7,8-TCDD	27:41	7.665e+02	9.101e+02	0.84	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	32:42	5.737e+03	3.847e+03	1.49	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:02	5.598e+03	4.214e+03	1.33	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:07	5.936e+03	4.656e+03	1.27	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:22	5.945e+03	4.798e+03	1.24	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:58	5.351e+03	4.870e+03	1.10	yes	no	1.025
17	Unk	OCDD	41:50	7.716e+03	8.626e+03	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	26:46	9.930e+03	1.283e+04	0.77	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	31:24	1.712e+04	1.086e+04	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	32:22	1.713e+04	1.068e+04	1.60	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:13	7.580e+03	1.463e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:20	9.464e+03	1.803e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:52	8.552e+03	1.647e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	36:39	7.209e+03	1.383e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:00	6.541e+03	1.498e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:25	5.545e+03	1.267e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	27:40	6.763e+03	8.884e+03	0.76	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:41	1.197e+04	7.613e+03	1.57	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:01	1.051e+04	8.346e+03	1.26	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:06	1.141e+04	8.825e+03	1.29	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:57	1.017e+04	9.582e+03	1.06	yes	no	0.858
32	IS	13C-OCDD	41:49	1.398e+04	1.563e+04	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:01	7.831e+03	9.670e+03	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:21	1.169e+04	9.529e+03	1.23	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:41	1.657e+03				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #7 Filename P519465 Samp: 1 Inj: 1 Acquired: 18-DEC-18 14:50:19
Processed: 19-DEC-18 13:36:09 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	1.30e+05	7.96e+02	1.6e+02	1.97e+05	1.68e+03	1.2e+02
2	1,2,3,7,8-PeCDF	1.35e+06	7.56e+02	1.8e+03	9.01e+05	1.81e+03	5.0e+02
3	2,3,4,7,8-PeCDF	1.40e+06	7.56e+02	1.8e+03	9.11e+05	1.81e+03	5.0e+02
4	1,2,3,4,7,8-HxCDF	1.56e+06	5.20e+02	3.0e+03	1.21e+06	4.32e+02	2.8e+03
5	1,2,3,6,7,8-HxCDF	1.53e+06	5.20e+02	2.9e+03	1.28e+06	4.32e+02	3.0e+03
6	2,3,4,6,7,8-HxCDF	1.51e+06	5.20e+02	2.9e+03	1.23e+06	4.32e+02	2.9e+03
7	1,2,3,7,8,9-HxCDF	1.14e+06	5.20e+02	2.2e+03	9.66e+05	4.32e+02	2.2e+03
8	1,2,3,4,6,7,8-HpCDF	1.26e+06	3.64e+02	3.4e+03	1.23e+06	1.13e+03	1.1e+03
9	1,2,3,4,7,8,9-HpCDF	9.30e+05	3.64e+02	2.6e+03	8.82e+05	1.13e+03	7.8e+02
10	OCDF	1.03e+06	3.36e+02	3.1e+03	1.18e+06	9.80e+02	1.2e+03
11	2,3,7,8-TCDD	1.27e+05	2.40e+03	5.3e+01	1.51e+05	8.80e+02	1.7e+02
12	1,2,3,7,8-PeCDD	1.01e+06	9.64e+02	1.0e+03	6.64e+05	6.72e+02	9.9e+02
13	1,2,3,4,7,8-HxCDD	1.15e+06	5.04e+02	2.3e+03	8.65e+05	6.60e+02	1.3e+03
14	1,2,3,6,7,8-HxCDD	1.10e+06	5.04e+02	2.2e+03	8.67e+05	6.60e+02	1.3e+03
15	1,2,3,7,8,9-HxCDD	1.07e+06	5.04e+02	2.1e+03	8.31e+05	6.60e+02	1.3e+03
16	1,2,3,4,6,7,8-HpCDD	8.64e+05	4.28e+02	2.0e+03	8.05e+05	3.20e+02	2.5e+03
17	OCDD	8.68e+05	2.84e+02	3.1e+03	9.75e+05	3.64e+02	2.7e+03
18	13C-2,3,7,8-TCDF	1.52e+06	7.70e+03	2.0e+02	1.92e+06	5.25e+03	3.7e+02
19	13C-1,2,3,7,8-PeCDF	2.83e+06	7.48e+02	3.8e+03	1.81e+06	1.49e+03	1.2e+03
20	13C-2,3,4,7,8-PeCDF	3.03e+06	7.48e+02	4.0e+03	1.91e+06	1.49e+03	1.3e+03
21	13C-1,2,3,4,7,8-HxCDF	1.48e+06	6.88e+02	2.2e+03	2.92e+06	9.12e+02	3.2e+03
22	13C-1,2,3,6,7,8-HxCDF	1.73e+06	6.88e+02	2.5e+03	3.32e+06	9.12e+02	3.6e+03
23	13C-2,3,4,6,7,8-HxCDF	1.66e+06	6.88e+02	2.4e+03	3.20e+06	9.12e+02	3.5e+03
24	13C-1,2,3,7,8,9-HxCDF	1.26e+06	6.88e+02	1.8e+03	2.45e+06	9.12e+02	2.7e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.17e+06	1.59e+03	7.4e+02	2.62e+06	4.11e+03	6.4e+02
26	13C-1,2,3,4,7,8,9-HpCDF	9.01e+05	1.59e+03	5.7e+02	1.96e+06	4.11e+03	4.8e+02
27	13C-2,3,7,8-TCDD	1.10e+06	5.65e+03	2.0e+02	1.48e+06	2.05e+03	7.2e+02
28	13C-1,2,3,7,8-PeCDD	2.13e+06	7.60e+02	2.8e+03	1.30e+06	1.30e+03	1.0e+03
29	13C-1,2,3,4,7,8-HxCDD	2.12e+06	7.40e+02	2.9e+03	1.68e+06	4.20e+02	4.0e+03
30	13C-1,2,3,6,7,8-HxCDD	2.10e+06	7.40e+02	2.8e+03	1.62e+06	4.20e+02	3.9e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.71e+06	5.00e+02	3.4e+03	1.61e+06	4.20e+02	3.8e+03
32	13C-OCDD	1.60e+06	5.24e+02	3.1e+03	1.78e+06	3.64e+02	4.9e+03
33	13C-1,2,3,4-TCDD	1.28e+06	5.65e+03	2.3e+02	1.56e+06	2.05e+03	7.6e+02
34	13C-1,2,3,7,8,9-HxCDD	2.14e+06	7.40e+02	2.9e+03	1.72e+06	4.20e+02	4.1e+03
35	37Cl-2,3,7,8-TCDD	2.66e+05	1.44e+03	1.8e+02			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (2.396e{+}03 + 8.800e{+}02) \times 100}{(1.105e{+}06 + 1.475e{+}06) \times (\quad) \times 1.085} =$$

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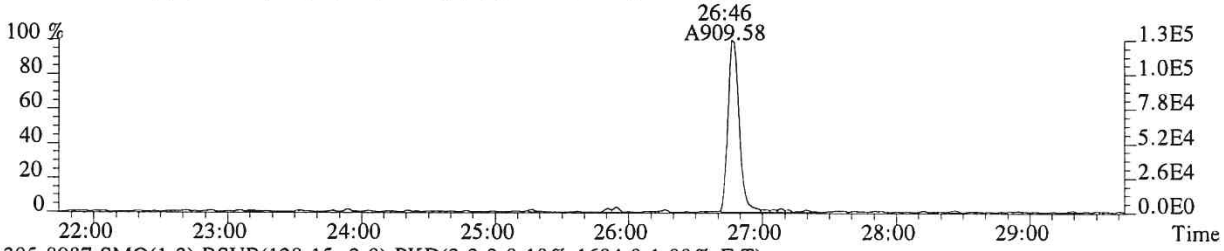
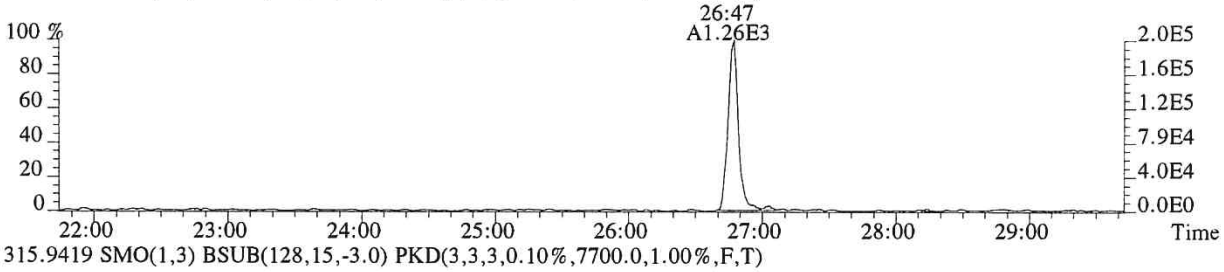
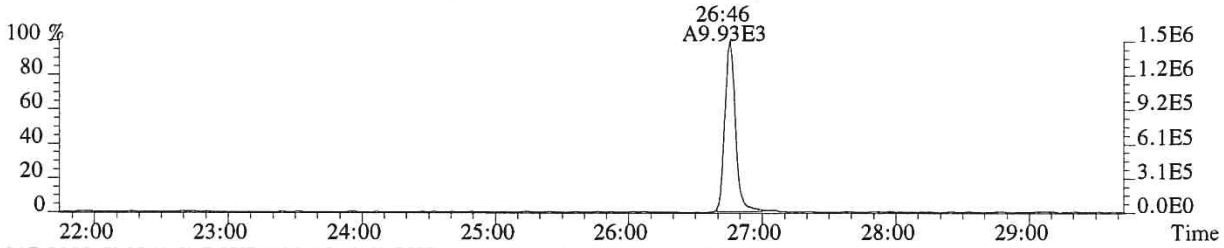
File:P519465 #1-566 Acq:18-DEC-2018 14:50:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,796.0,1.00%,F,T)



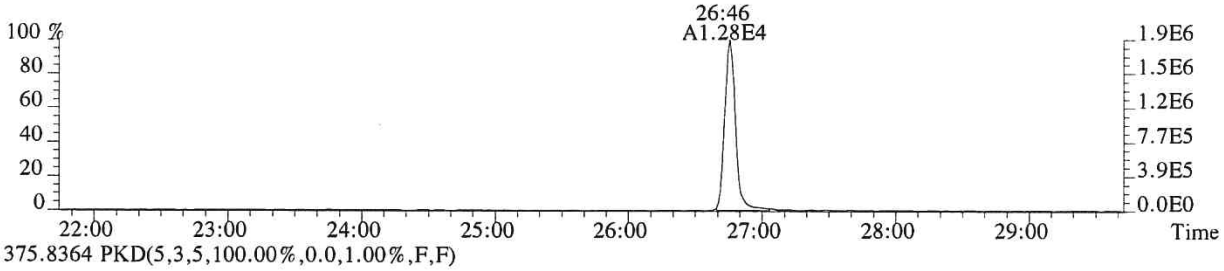
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1684.0,1.00%,F,T)



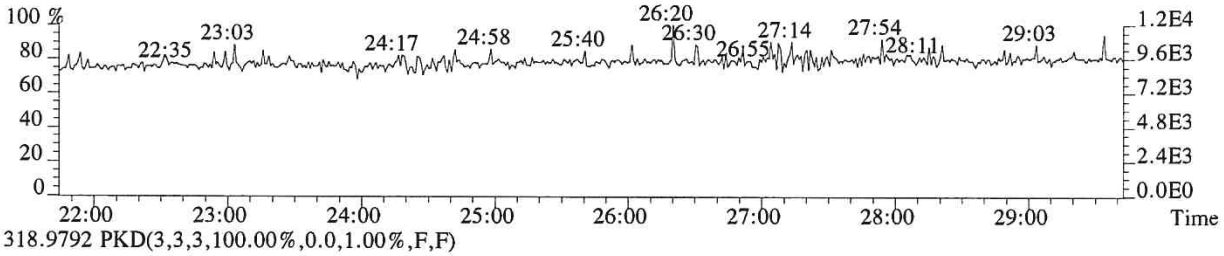
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7700.0,1.00%,F,T)



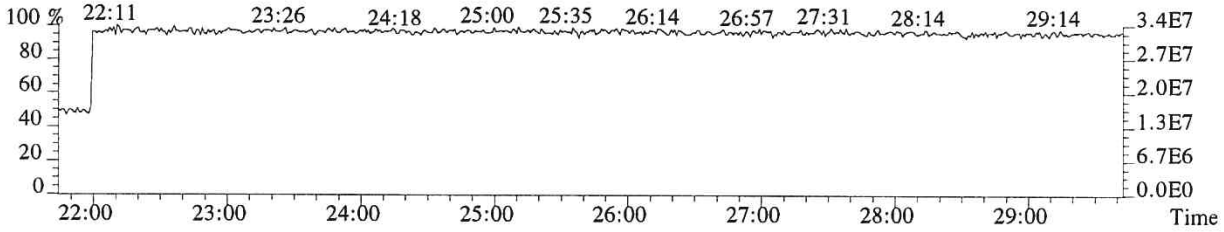
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5248.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

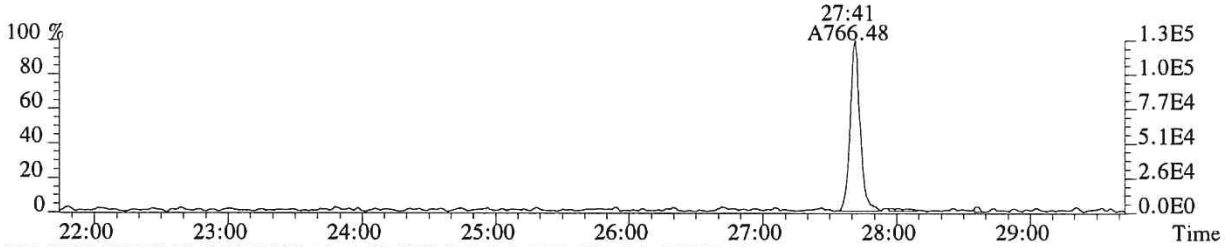


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

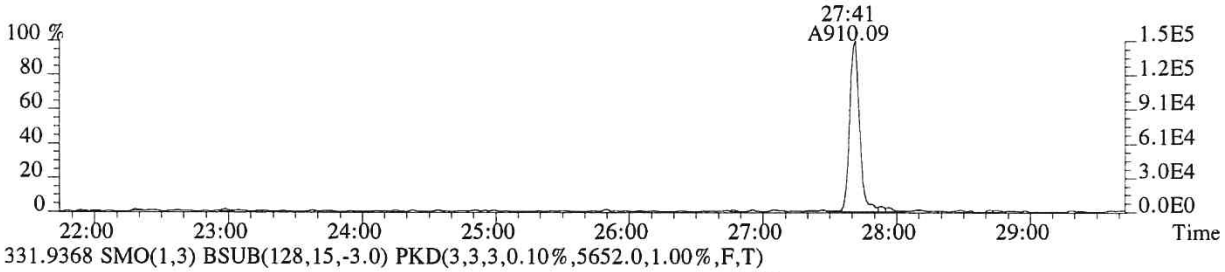


015744

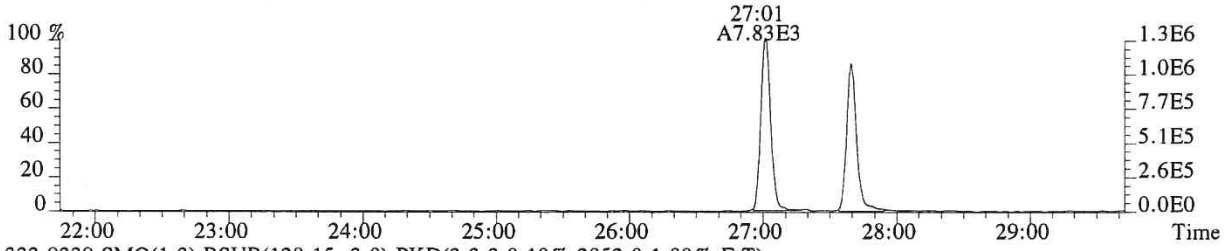
File:P519465 #1-566 Acq:18-DEC-2018 14:50:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2396.0,1.00%,F,T)



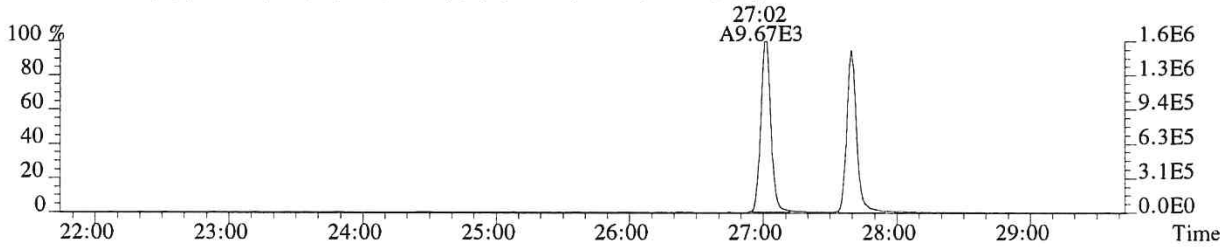
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,880.0,1.00%,F,T)



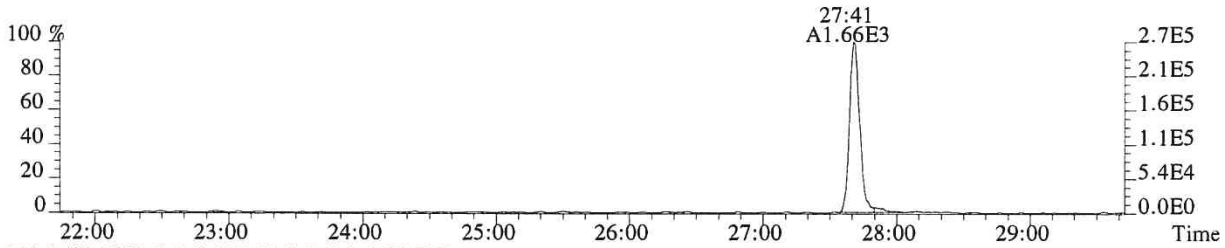
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5652.0,1.00%,F,T)



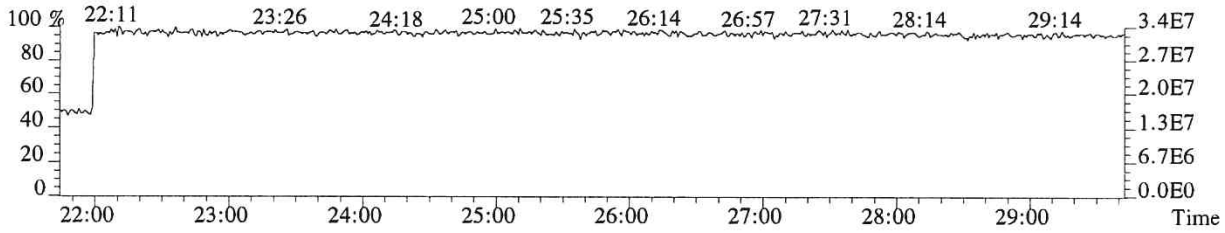
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2052.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1440.0,1.00%,F,T)

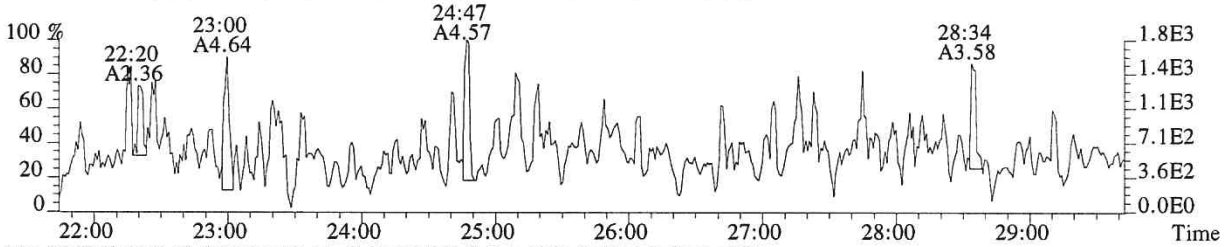


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

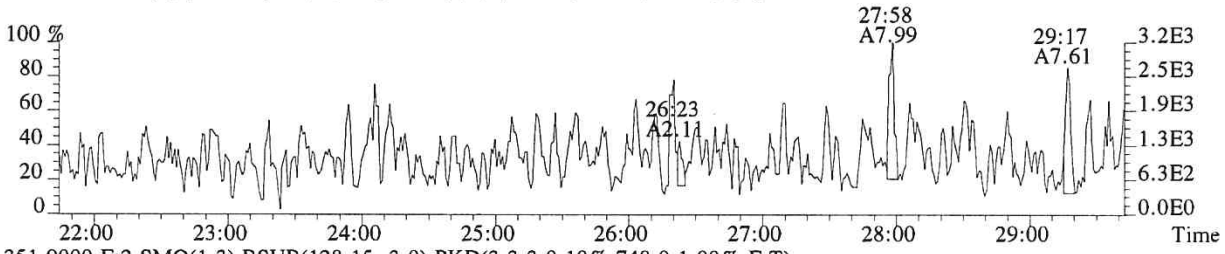


015745

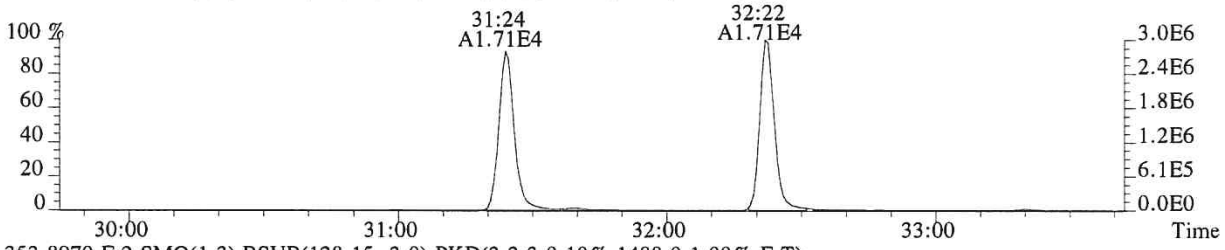
File:P519465 #1-566 Acq:18-DEC-2018 14:50:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,760.0,1.00%,F,T)



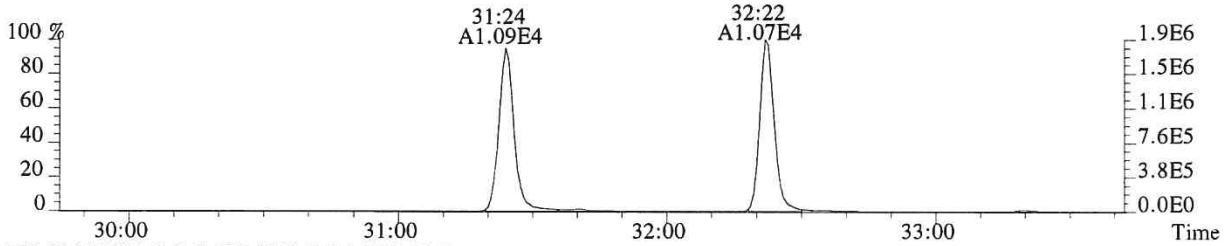
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1272.0,1.00%,F,T)



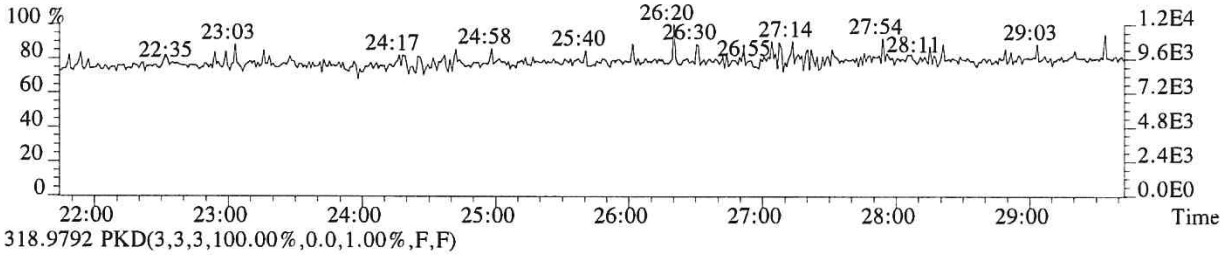
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,748.0,1.00%,F,T)



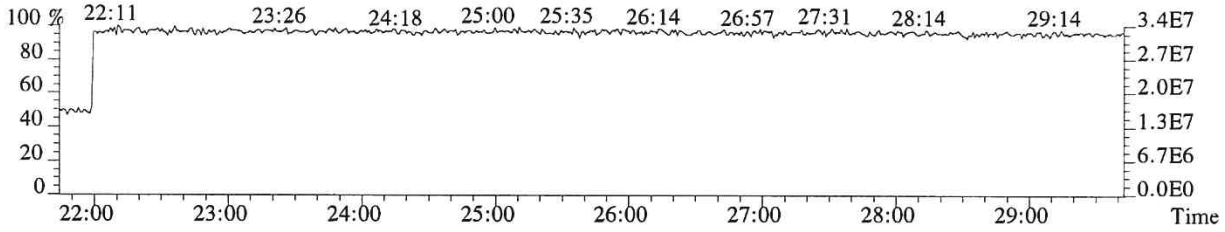
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1488.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

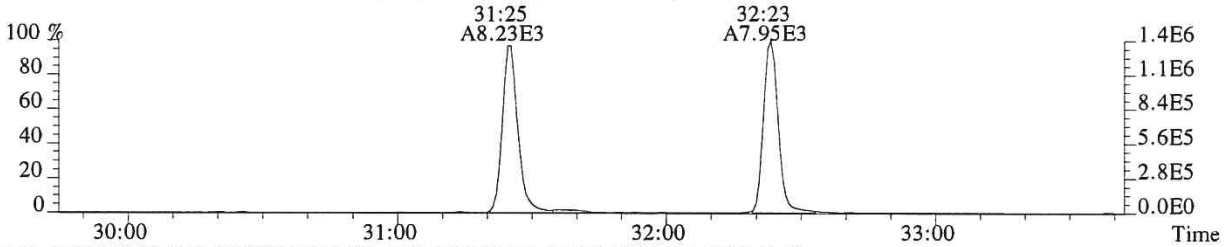


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

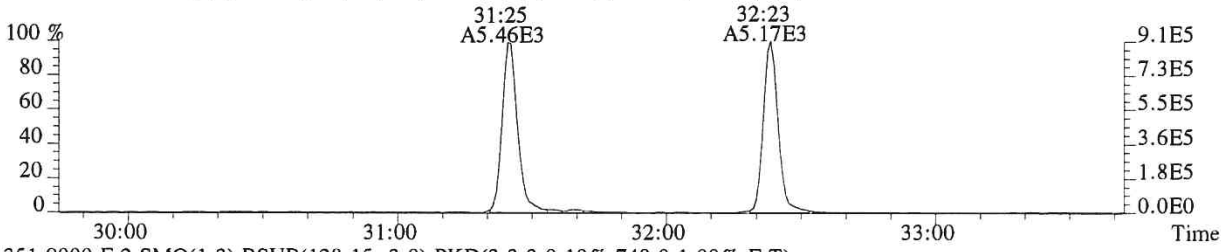


015746

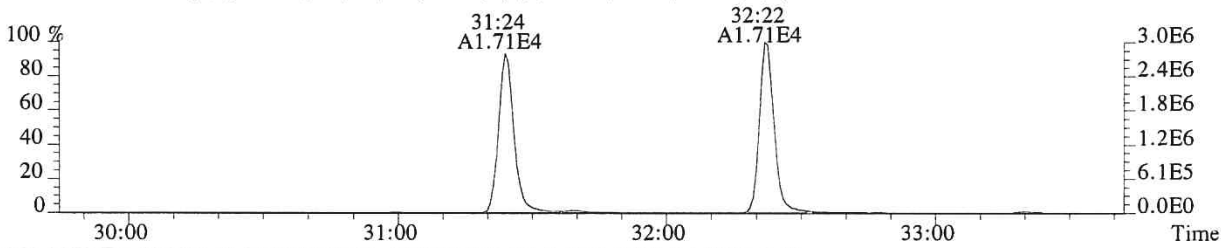
File:P519465 #1-357 Acq:18-DEC-2018 14:50:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,756.0,1.00%,F,T)



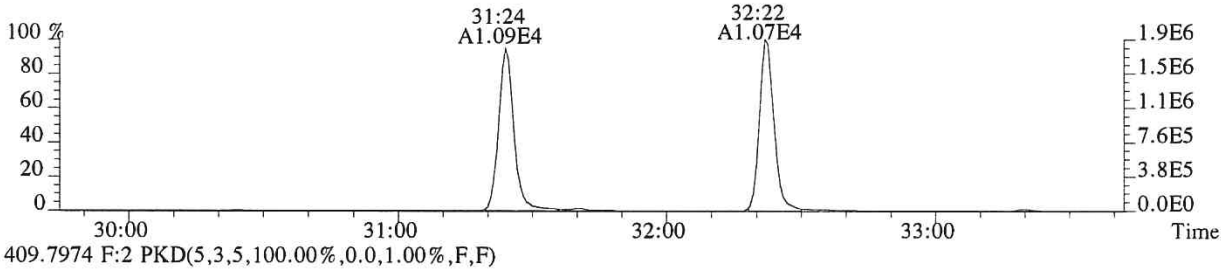
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1812.0,1.00%,F,T)



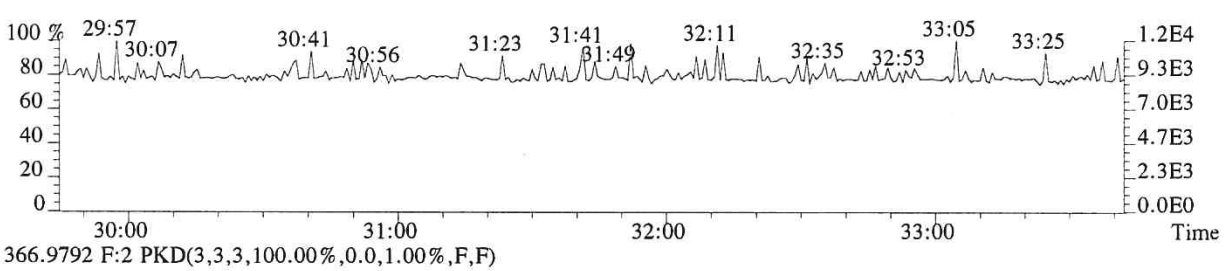
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,748.0,1.00%,F,T)



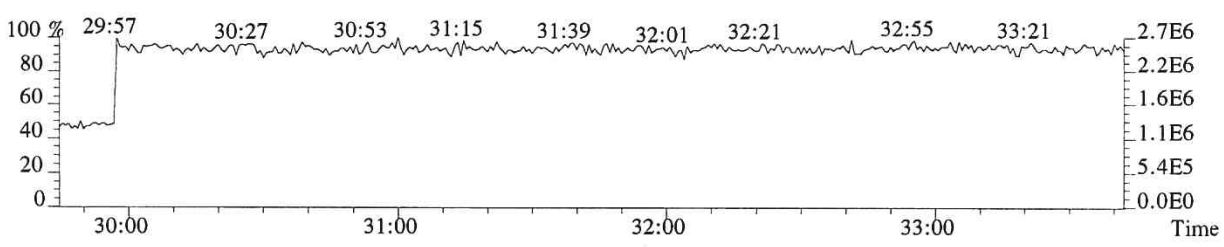
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1488.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

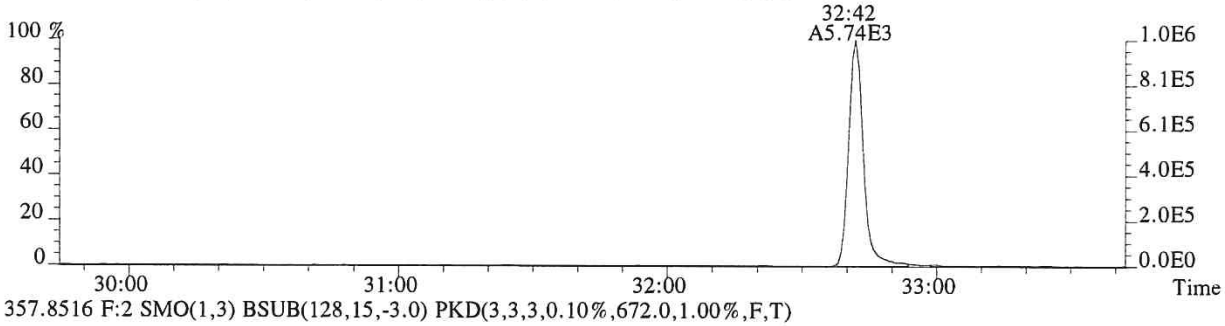


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

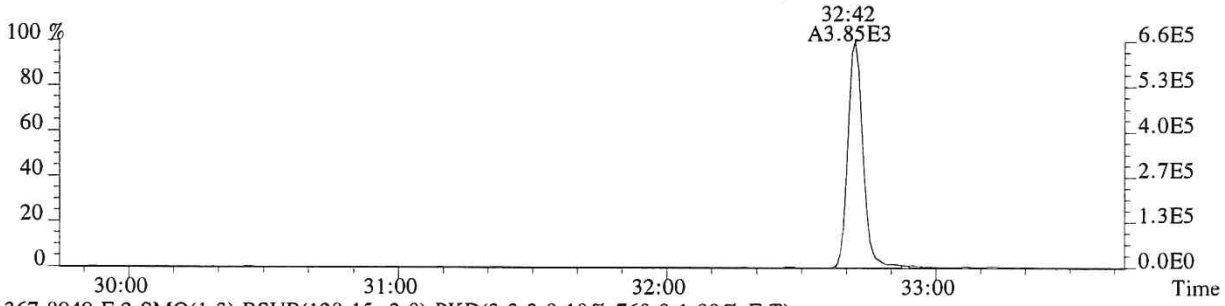


015747

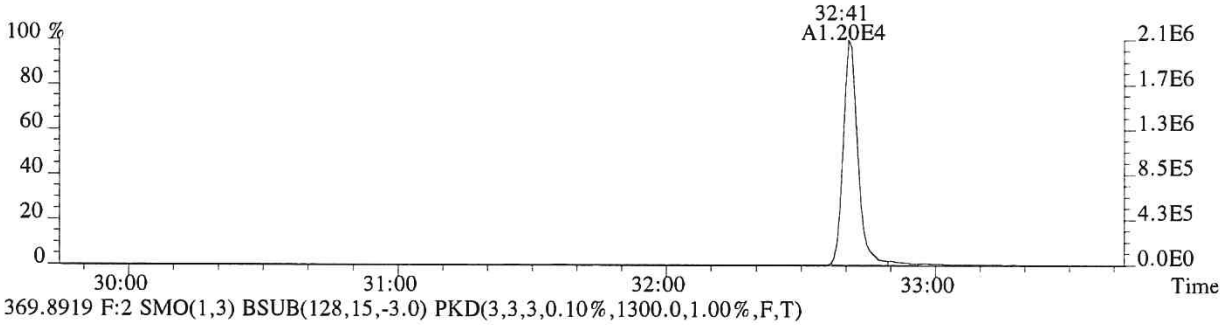
File:P519465 #1-357 Acq:18-DEC-2018 14:50:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,964.0,1.00%,F,T)



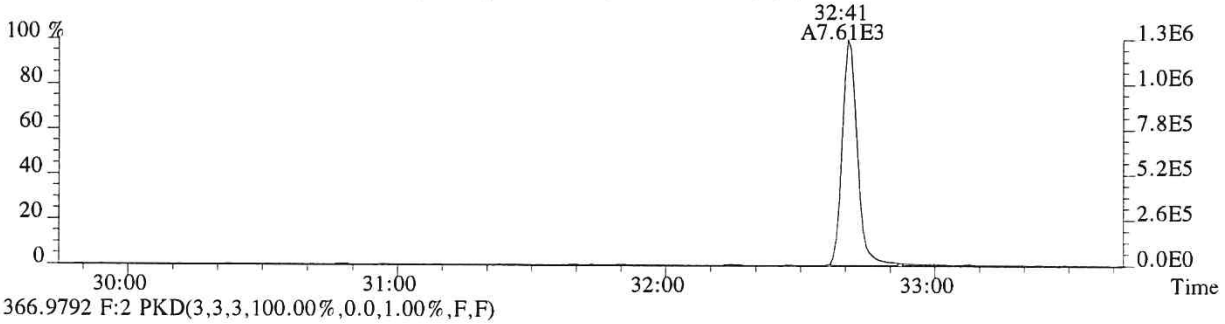
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,672.0,1.00%,F,T)



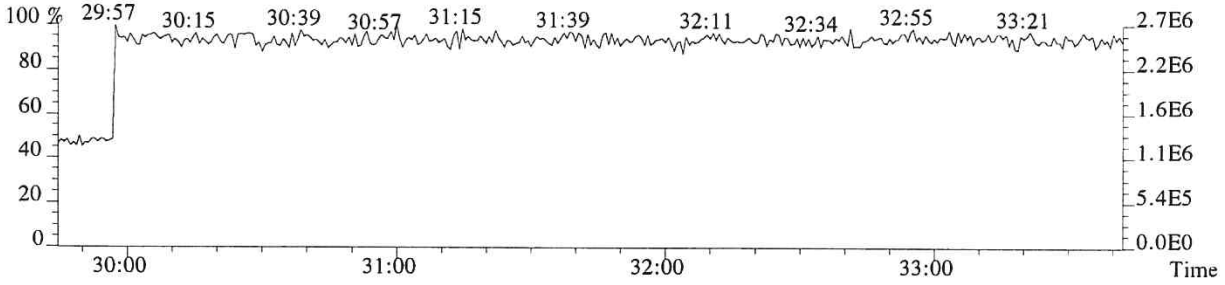
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,760.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1300.0,1.00%,F,T)

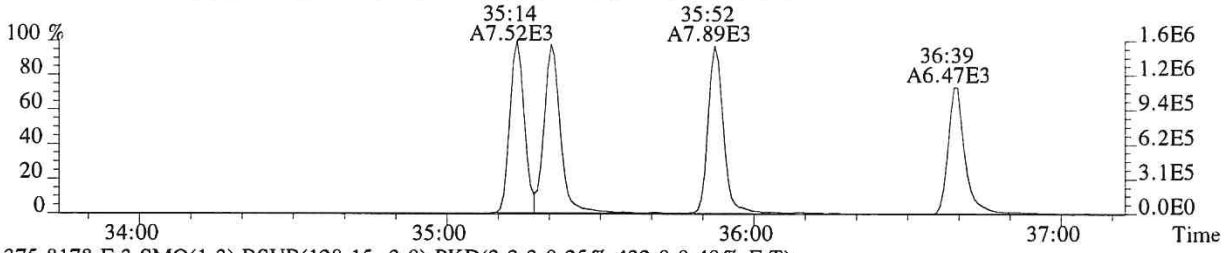


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

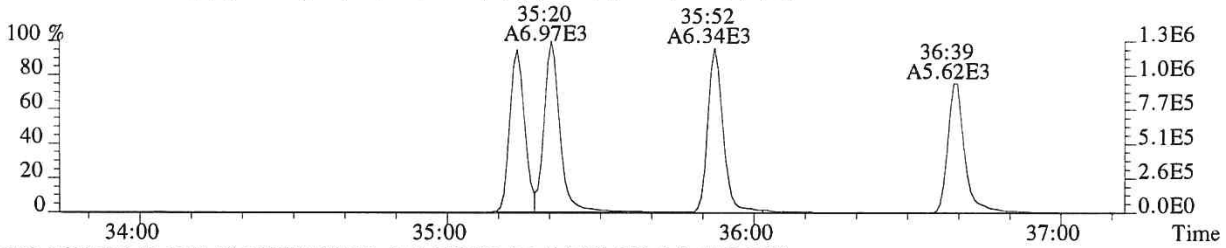


015748

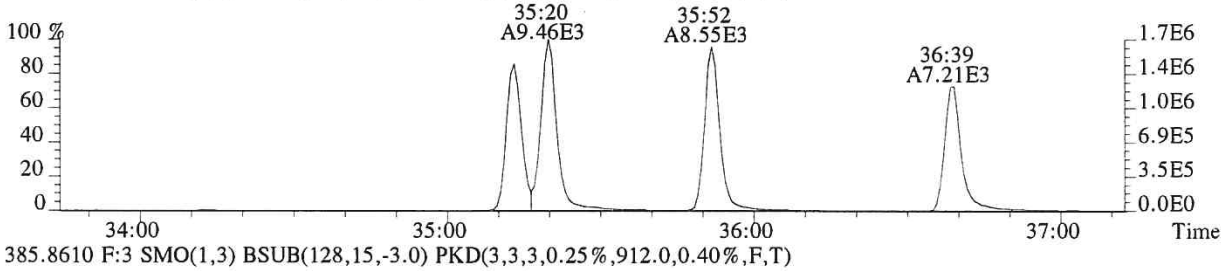
File:P519465 #1-313 Acq:18-DEC-2018 14:50:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,520.0,0.40%,F,T)



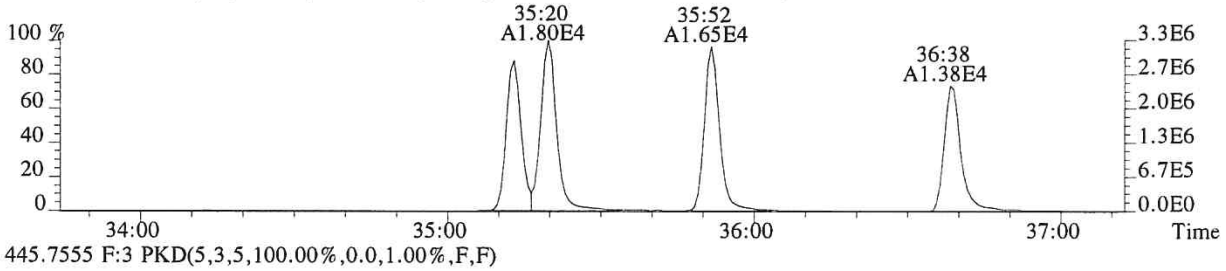
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,432.0,0.40%,F,T)



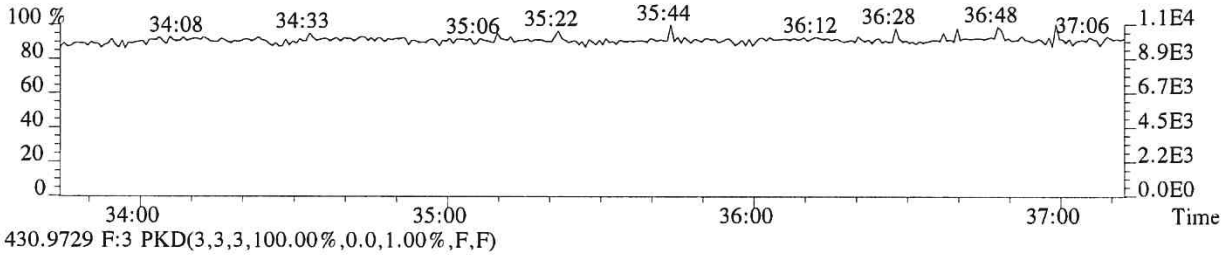
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,688.0,0.40%,F,T)



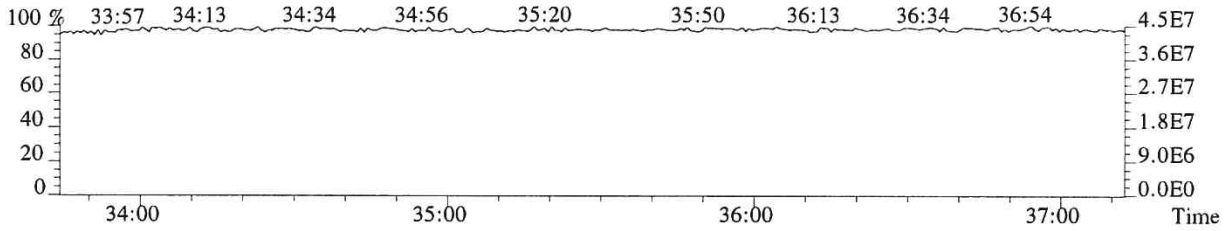
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,912.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

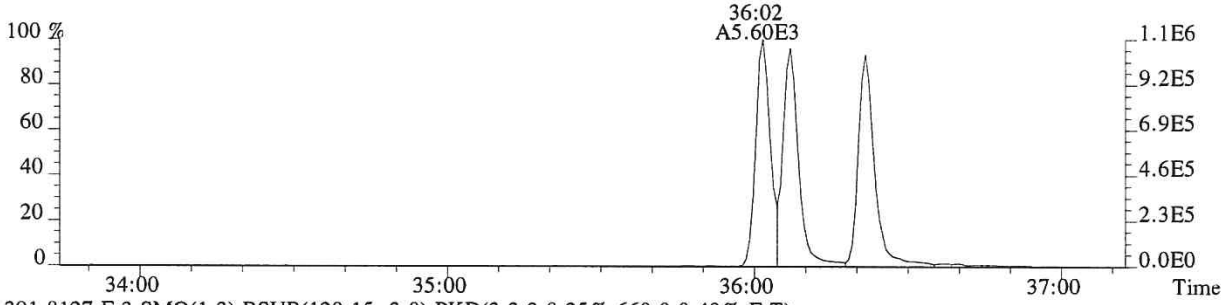


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

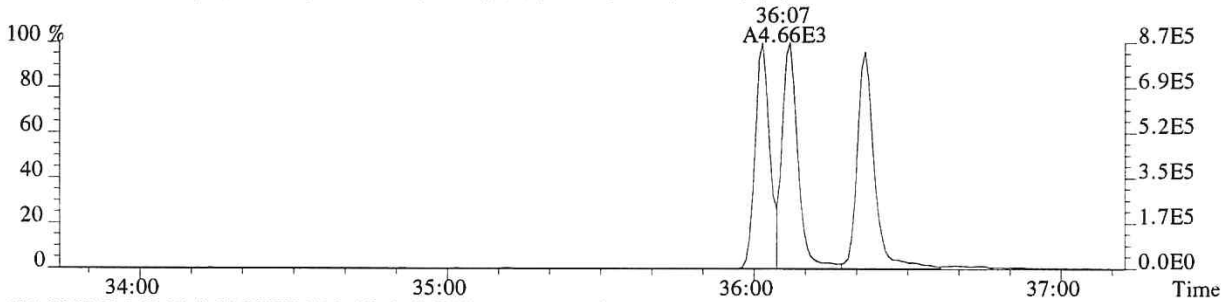


015749

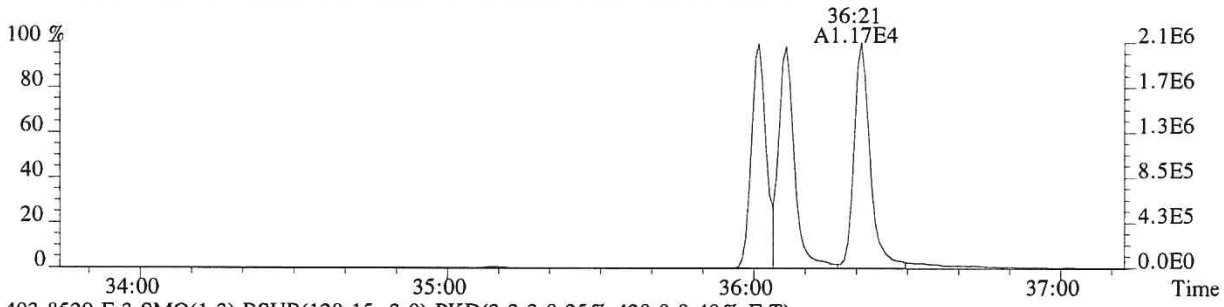
File:P519465 #1-313 Acq:18-DEC-2018 14:50:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,504.0,0.40%,F,T)



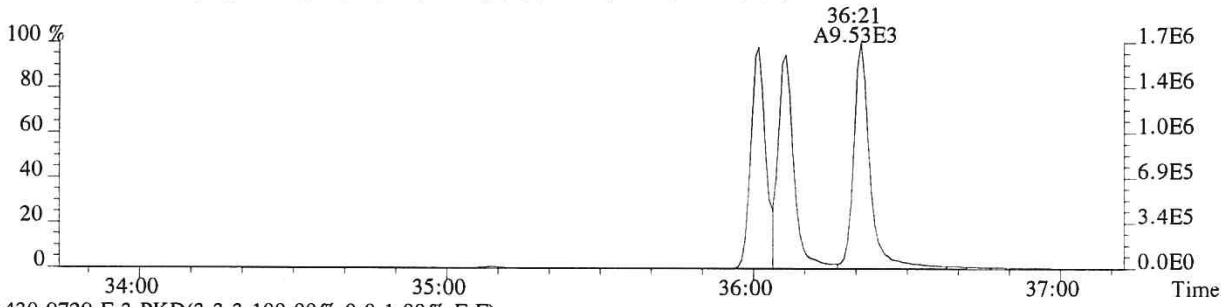
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,660.0,0.40%,F,T)



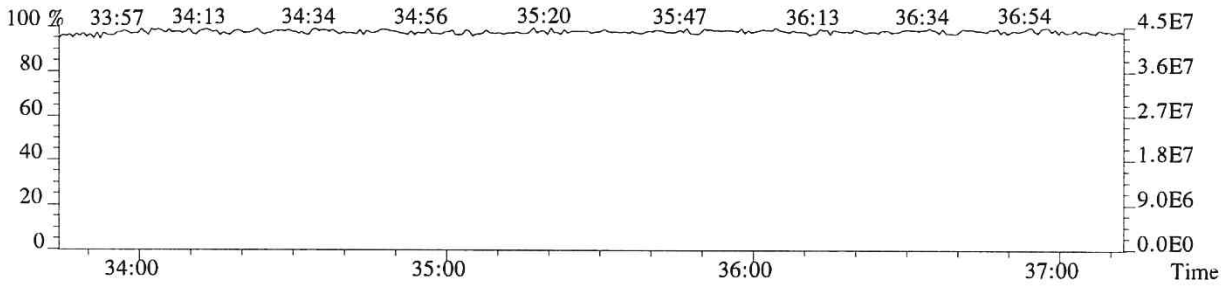
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,740.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,420.0,0.40%,F,T)



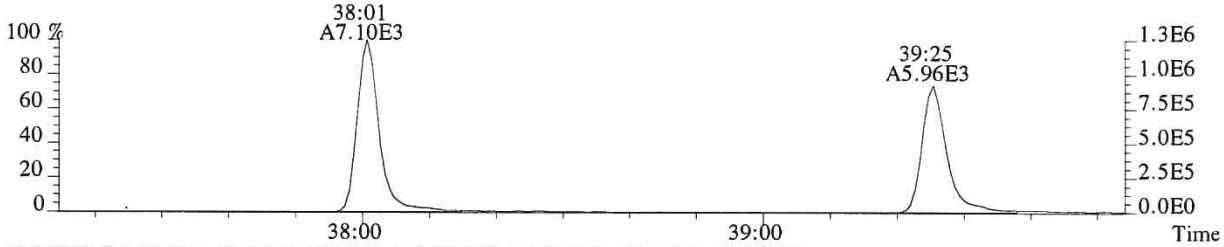
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



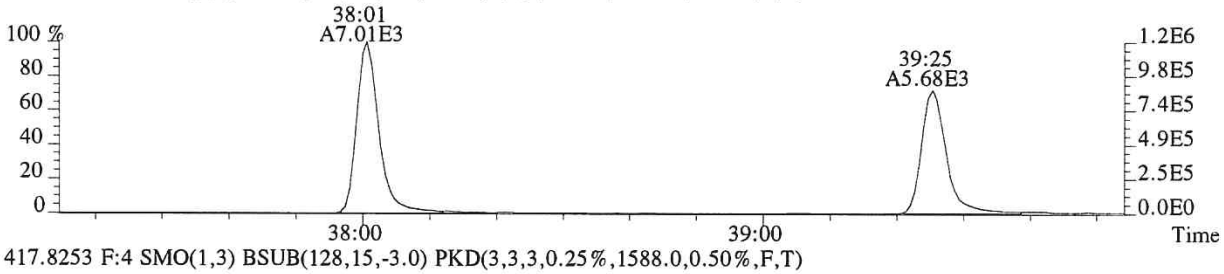
015750

File:P519465 #1-240 Acq:18-DEC-2018 14:50:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

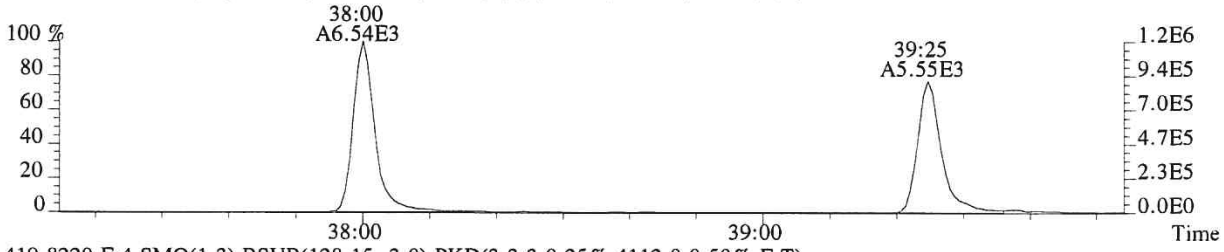
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,364.0,0.50%,F,T)



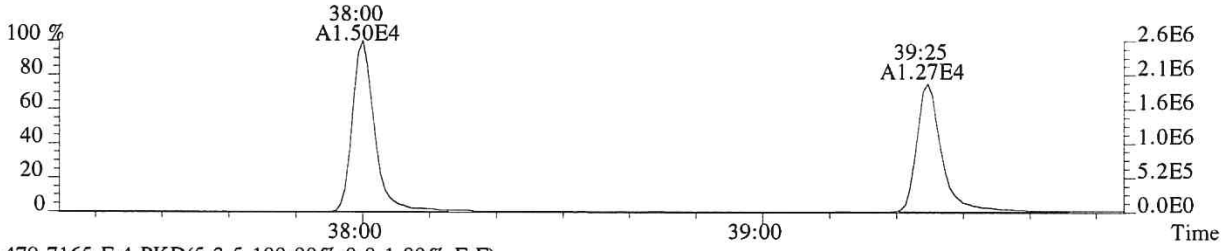
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1128.0,0.50%,F,T)



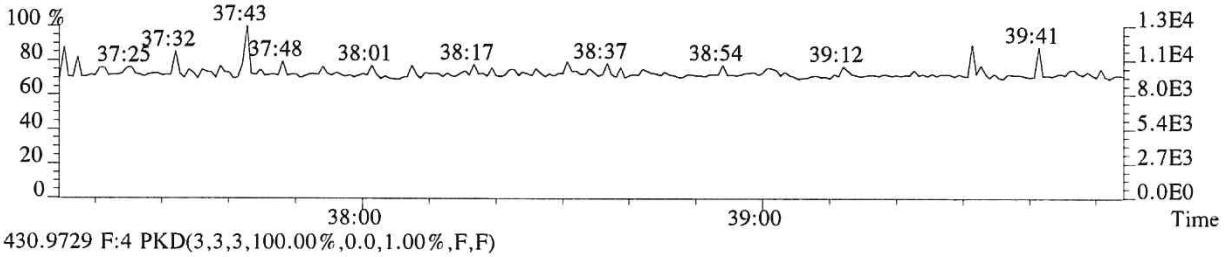
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1588.0,0.50%,F,T)



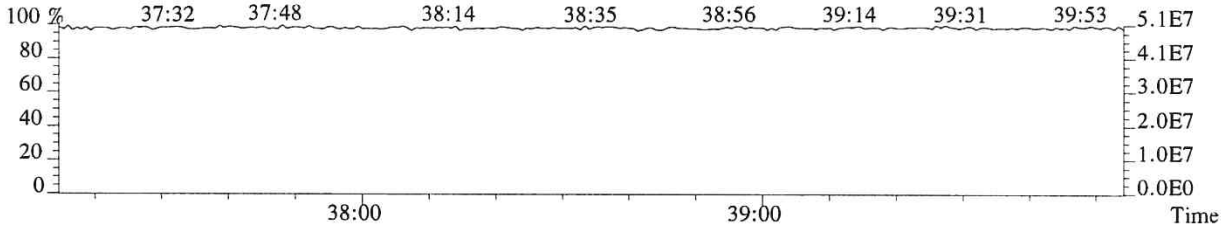
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4112.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

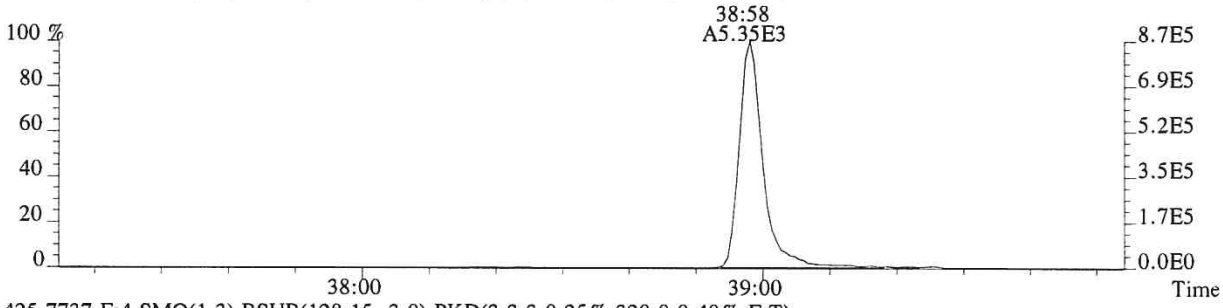


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

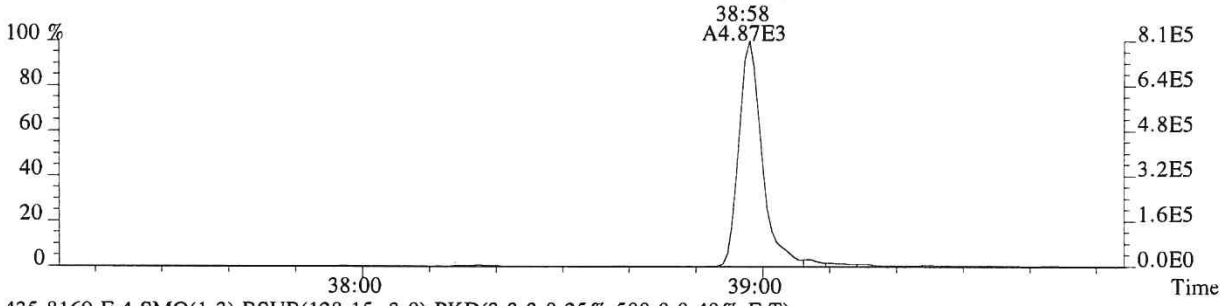


015751

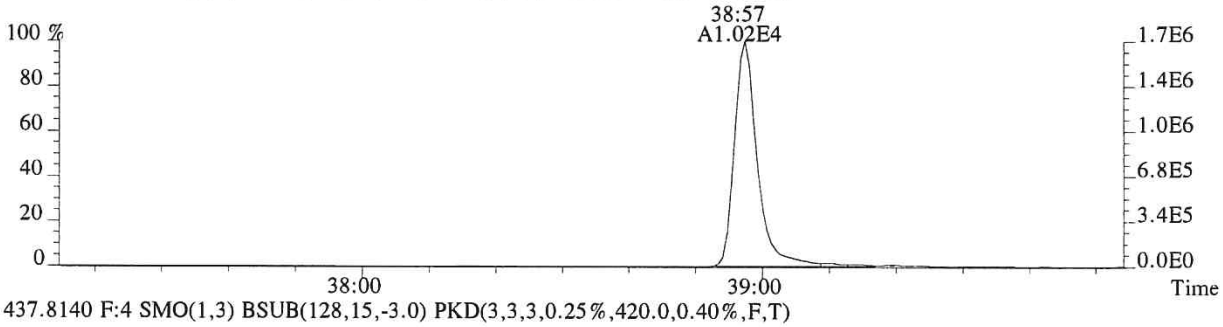
File:P519465 #1-240 Acq:18-DEC-2018 14:50:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,428.0,0.40%,F,T)



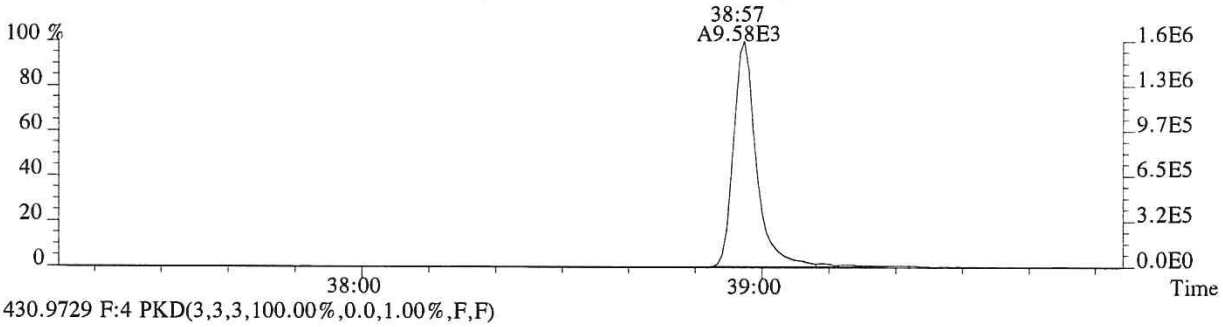
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,320.0,0.40%,F,T)



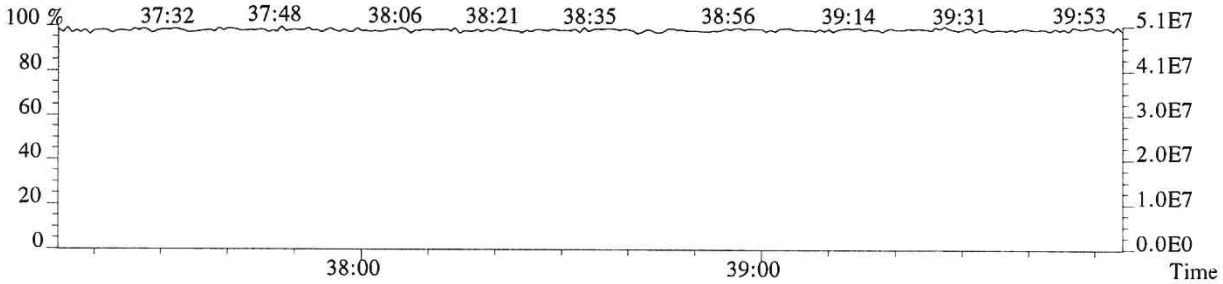
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,500.0,0.40%,F,T)



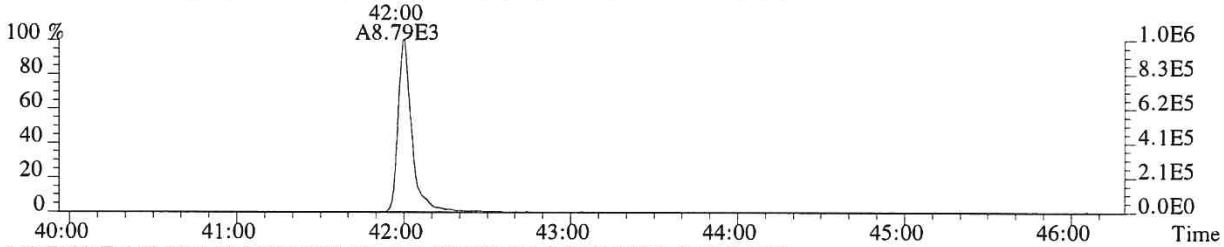
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,420.0,0.40%,F,T)



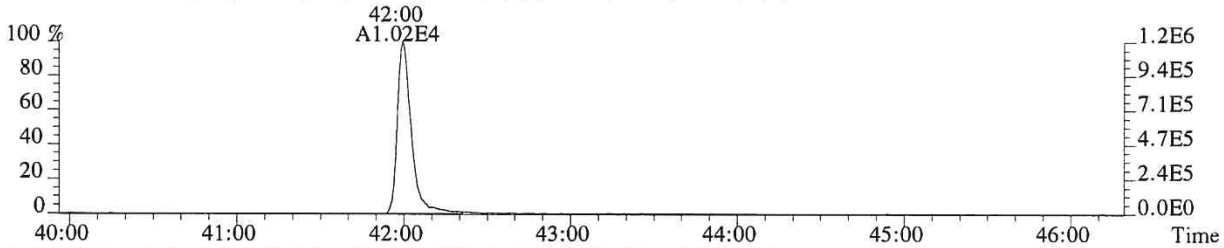
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



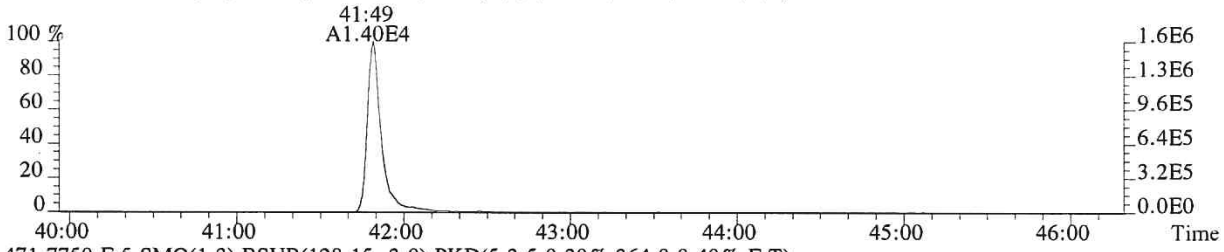
File:P519465 #1-575 Acq:18-DEC-2018 14:50:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,336.0,0.40%,F,T)



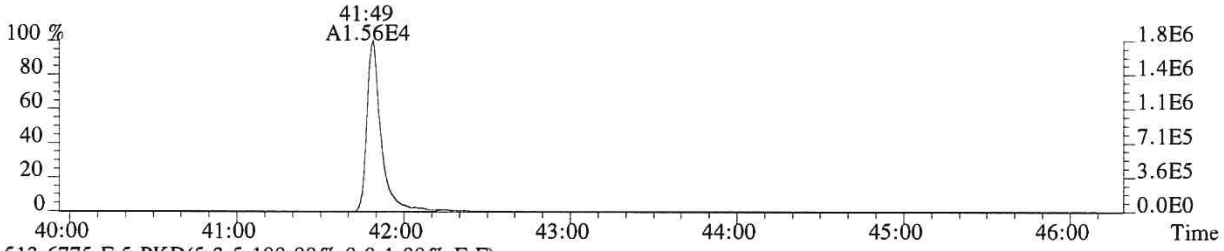
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,980.0,0.40%,F,T)



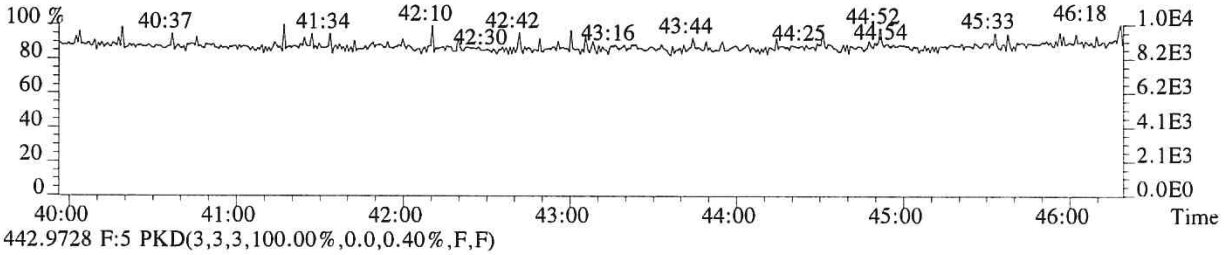
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,524.0,0.40%,F,T)



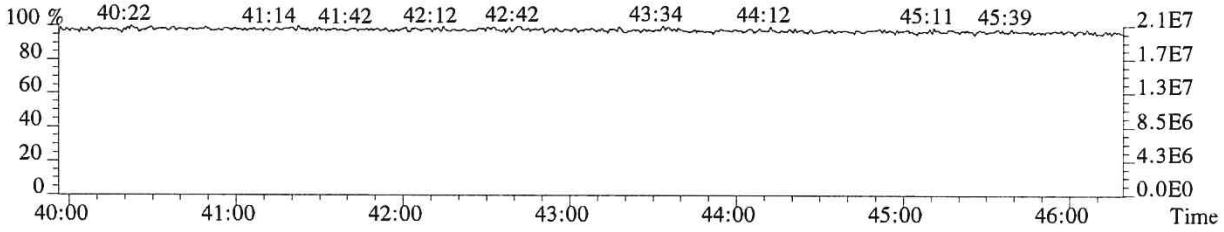
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,364.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

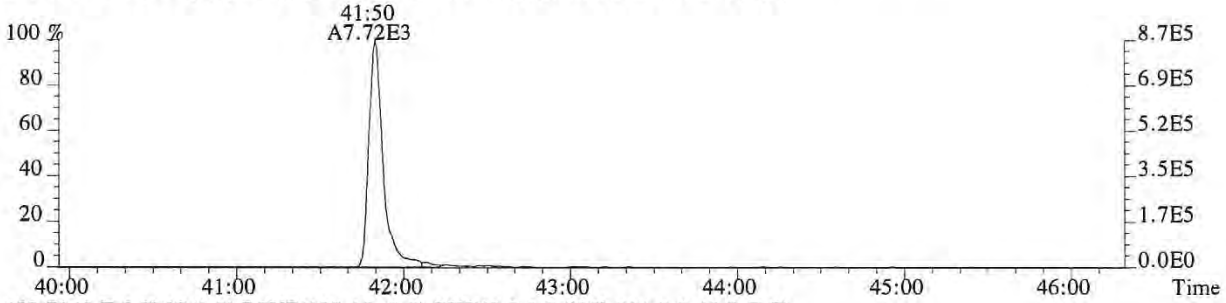


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

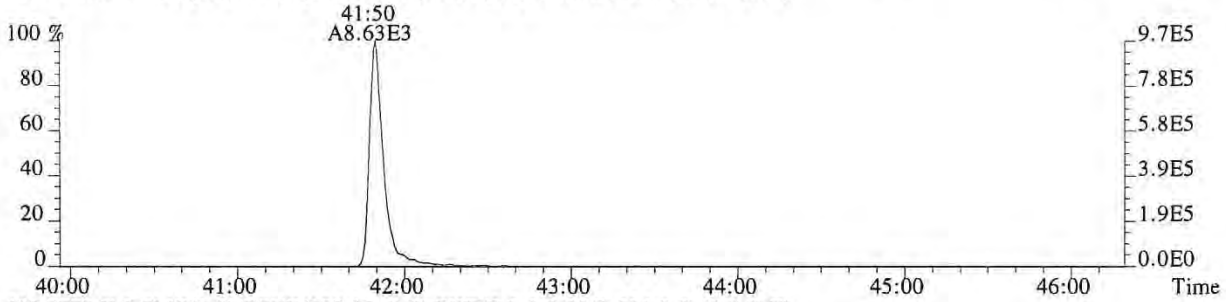


015753

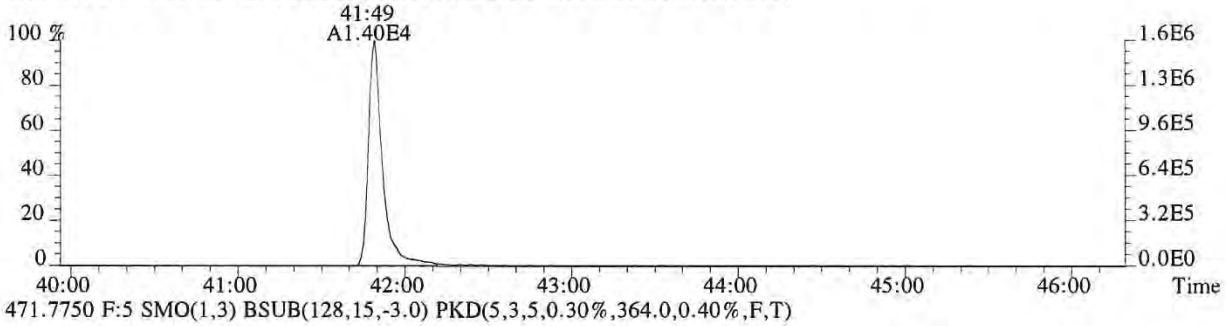
File:P519465 #1-575 Acq:18-DEC-2018 14:50:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,284.0,0.40%,F,T)



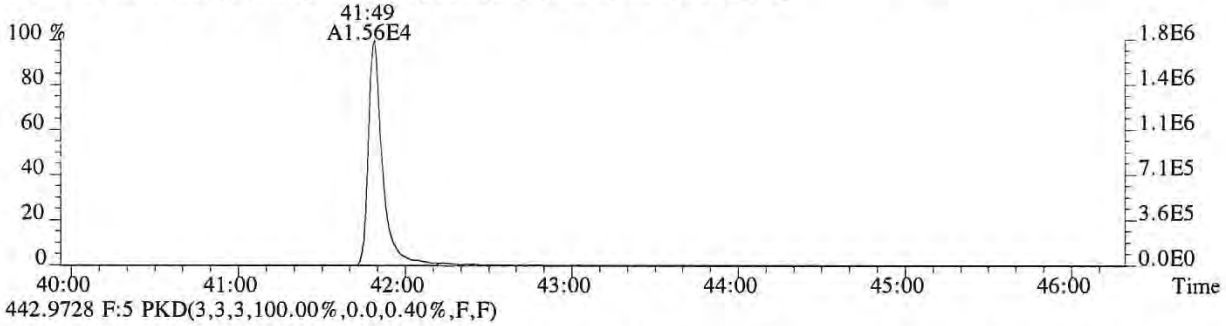
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,364.0,0.40%,F,T)



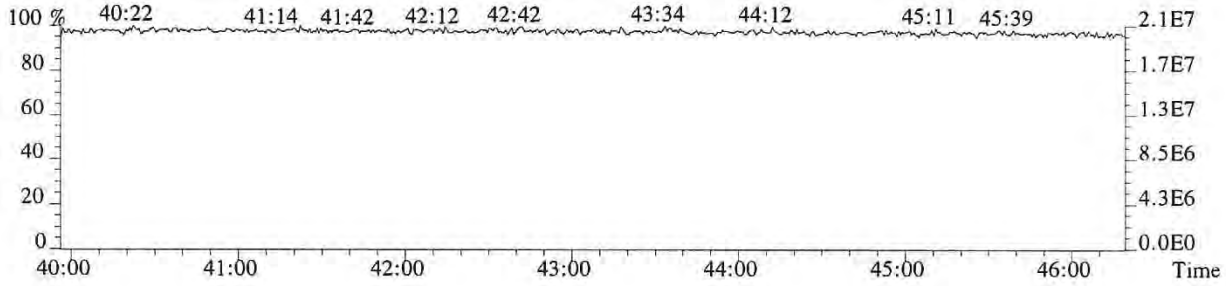
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,524.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,364.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



015754

CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: B519479

Date: 12/19/18

Circle one: (Beginning) / Ending

Method: (1613) 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: LKL

Second QC: KW.

ccalqc.xls 07/17/12

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

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
192977	WINDOW DEFINE	P519480	19-DEC-18	03:25:32
194503	CS3	P519479	19-DEC-18	02:37:43
METHOD BLANK	EQ1800507-01	P519481	19-DEC-18	04:14:09
SL0037	E1801094-008	P519482	19-DEC-18	05:02:46
SL0038	E1801094-009	P519483	19-DEC-18	05:51:33
SL0039	E1801094-010	P519484	19-DEC-18	06:40:11
SL0053	E1801094-011	P519485	19-DEC-18	07:28:49
SL0054	E1801094-012	P519486	19-DEC-18	08:17:35
SL0055	E1801094-013	P519487	19-DEC-18	09:06:12
SL0056	E1801094-014	P519488	19-DEC-18	09:54:48
SL0057	E1801094-015	P519489	19-DEC-18	10:43:27
SL0012	E1801094-016	P519490	19-DEC-18	11:32:03
SL0013	E1801094-017	P519491	19-DEC-18	12:20:40
SL0014	E1801094-018	P519492	19-DEC-18	13:09:18

Sample List Report — **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20181219.SPL
Last Modified: Wednesday, December 19, 2018 15:15:40 Central Standard Time
Printed: Wednesday, December 19, 2018 15:16:01 Central Standard Time

Page Position (1, 1)

OPUS5NET: P519479 RES

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	12/19/18	02:37	P519479	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2	LKL	HRMS check 02:37
2		03:25	P519480	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:1		
3		04:14	P519481	MB	EQ1800507-01	EPA1613_ALS	Dioxin_ALS	Tray1:3		
4		05:02	P519482	E1801094-008	E1801094-008	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		05:51	P519483	E1801094-009	E1801094-009	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		06:40	P519484	E1801094-010	E1801094-010	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		07:28	P519485	E1801094-011	E1801094-011	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		08:17	P519486	E1801094-012	E1801094-012	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		09:06	P519487	E1801094-013	E1801094-013	EPA1613_ALS	Dioxin_ALS	Tray1:2		
10		09:54	P519488	E1801094-014	E1801094-014	EPA1613_ALS	Dioxin_ALS	Tray1:1		
11		10:43	P519489	E1801094-015	E1801094-015	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		11:32	P519490	E1801094-016	E1801094-016	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13		12:20	P519491	E1801094-017	E1801094-017	EPA1613_ALS	Dioxin_ALS	Tray1:13		
14		13:09	P519492	E1801094-018	E1801094-018	EPA1613_ALS	Dioxin_ALS	Tray1:14		
15		14:06	P519493	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:15		HRMS check 14:06
16			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:16		
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:17	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:18	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---
22	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
23	---	LKL 12/21/18	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
24	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1	---	---
25	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:25	---	---
26	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:26	---	---
27	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:27	---	---
28	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:28	---	---
29	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:29	---	---
30	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:30	---	---
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32	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:32	---	---
33	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:33	---	---
34	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:34	---	---
35	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:35	---	---
36	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:36	---	---
37	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
38	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:38	---	---
39	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:39	---	---

Printed: Wednesday, December 19, 2018 02:37:41 Central Standard Time

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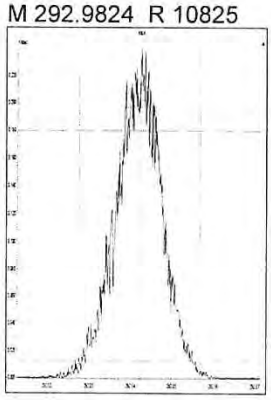

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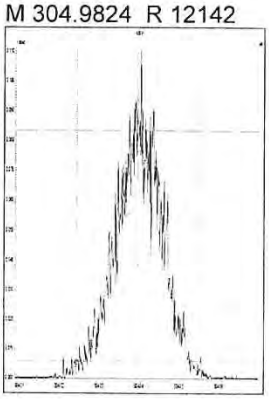

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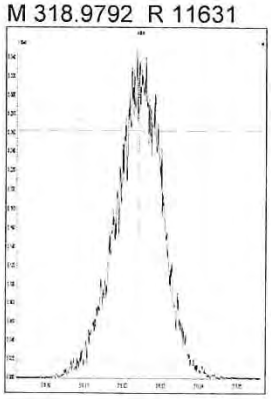

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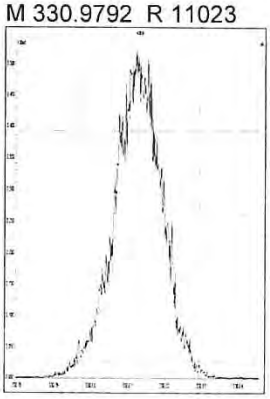

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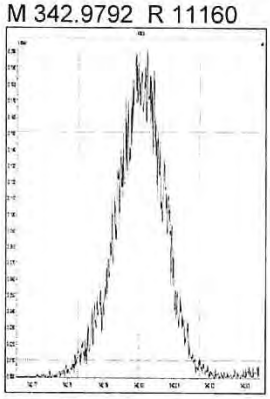

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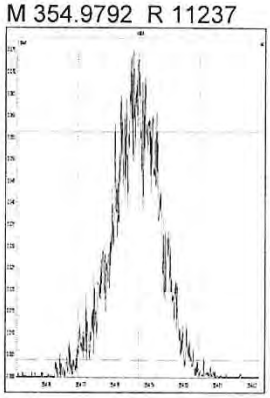

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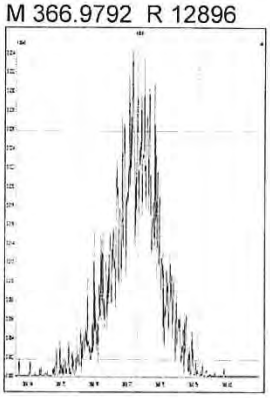

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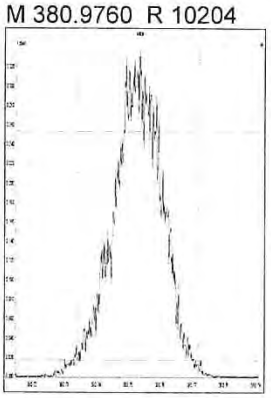

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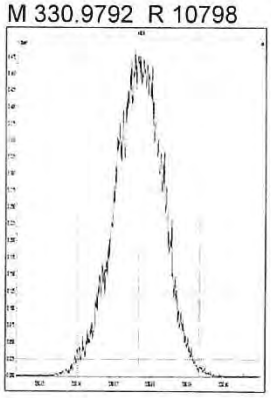

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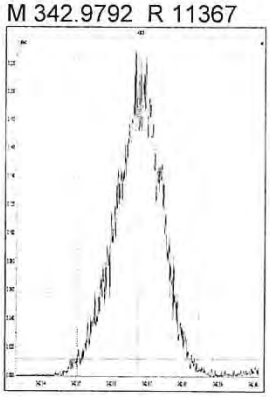

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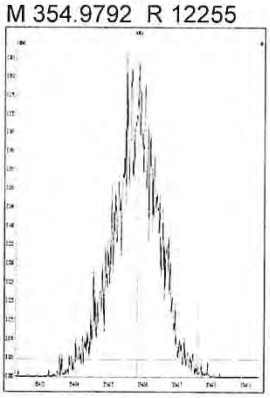

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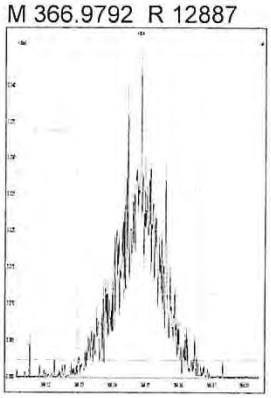

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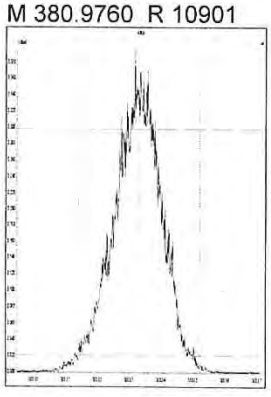

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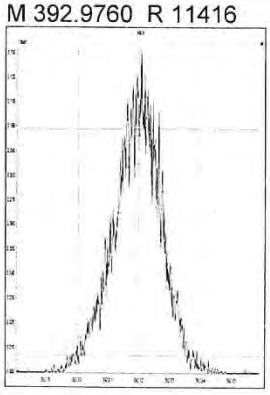

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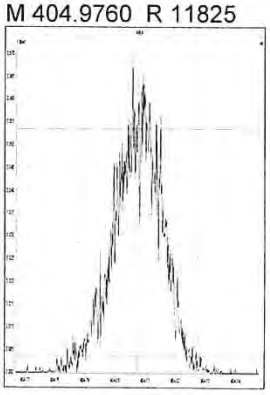

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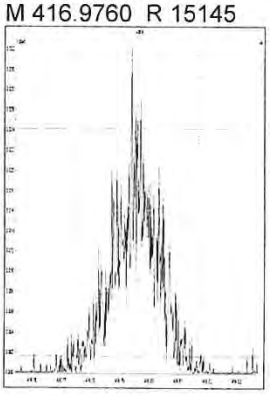

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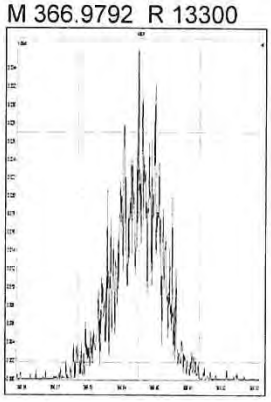

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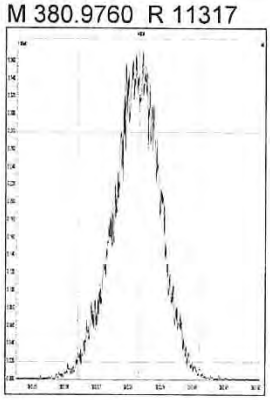

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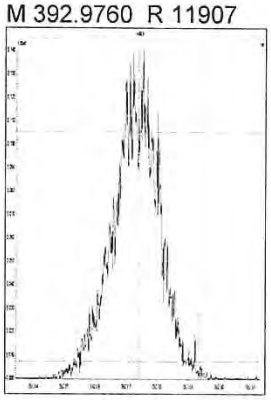

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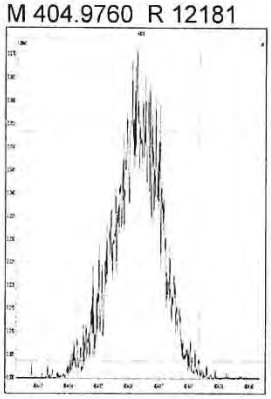

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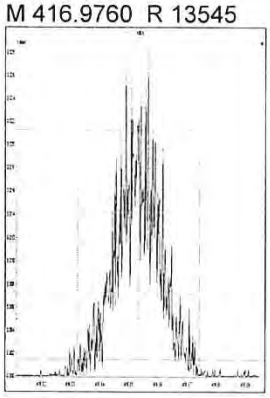

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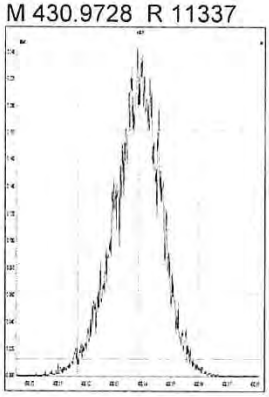

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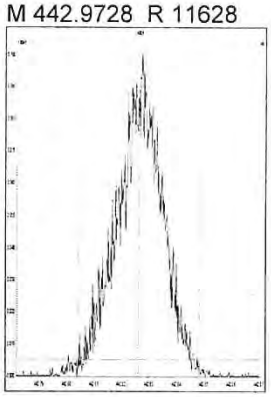

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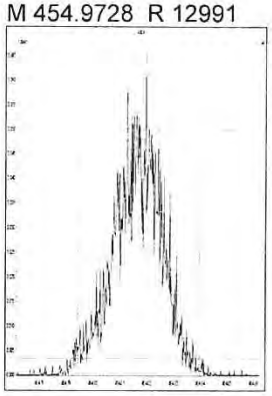

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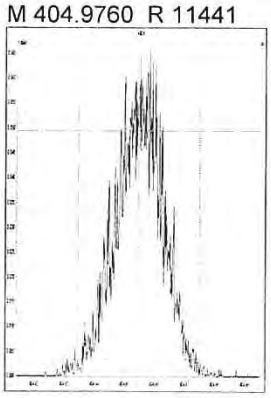

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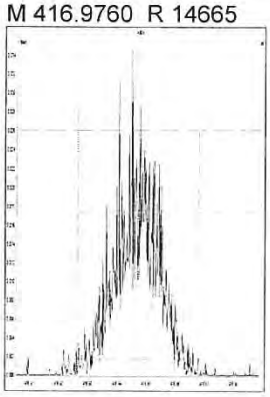

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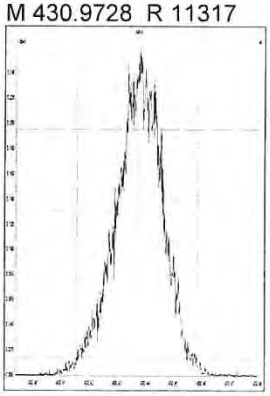

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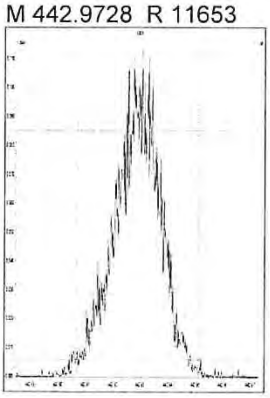

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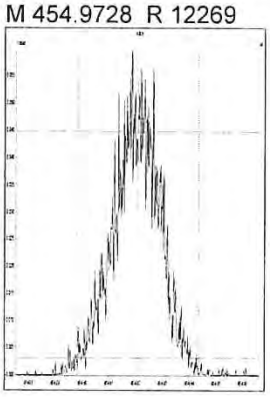

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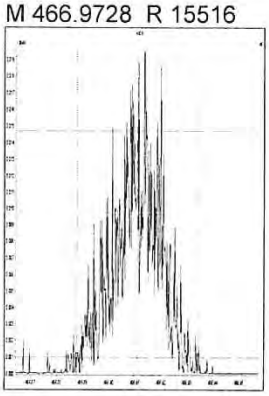

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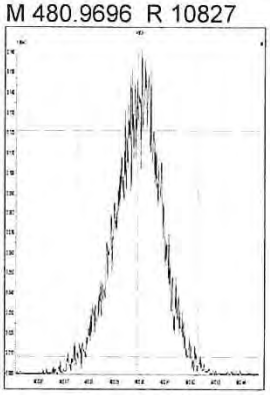

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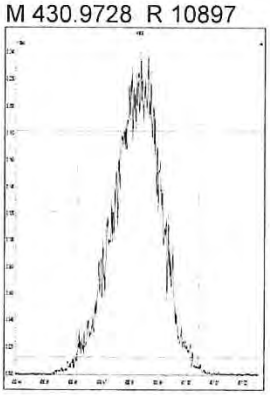

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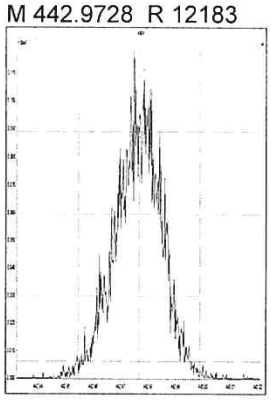

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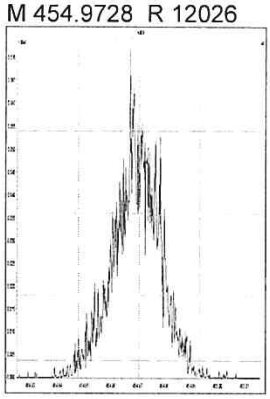

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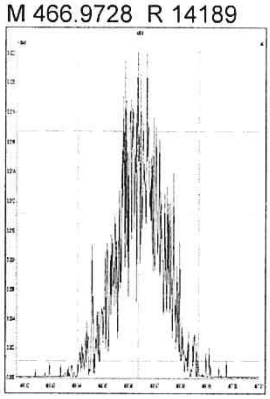

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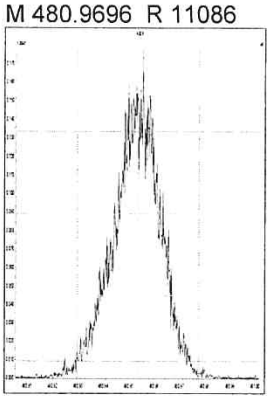

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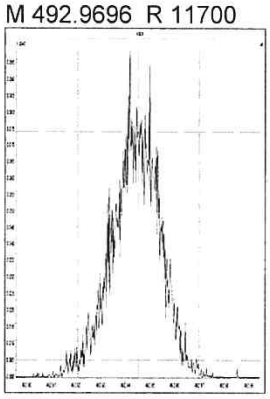

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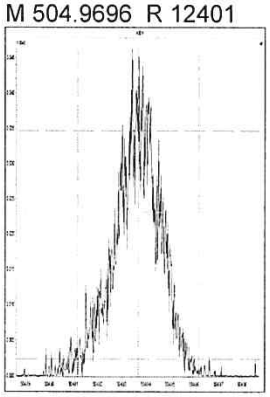

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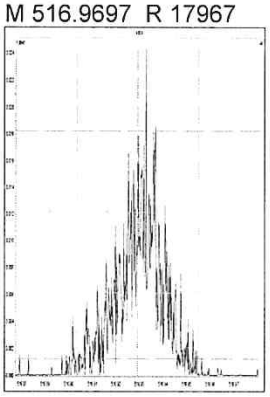

Printed: Wednesday, December 19, 2018 14:06:05 Central Standard Time

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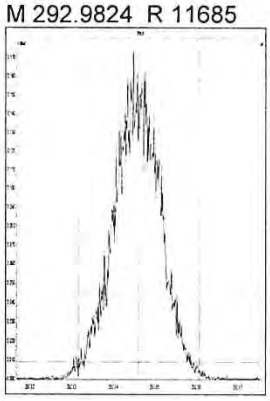

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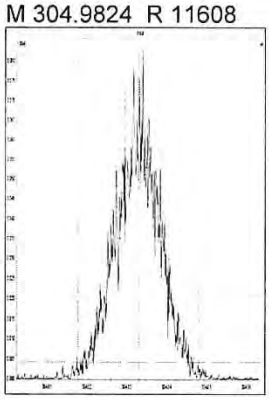

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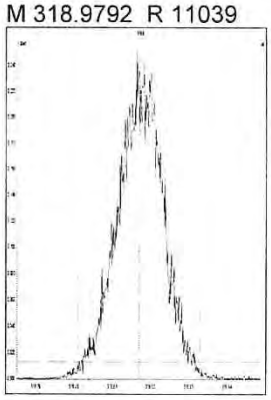

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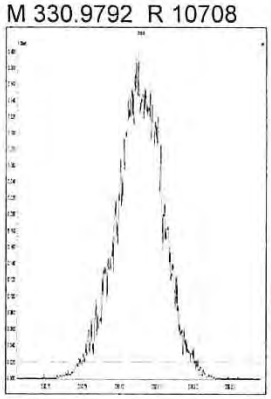

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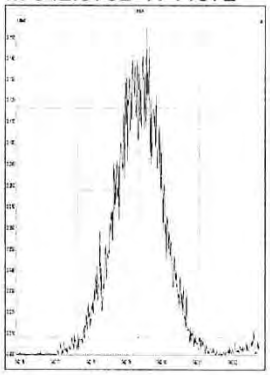

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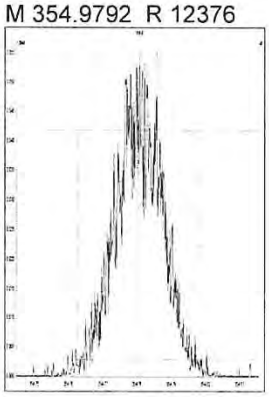

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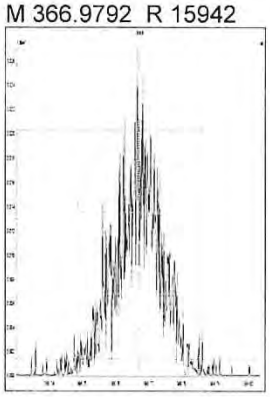

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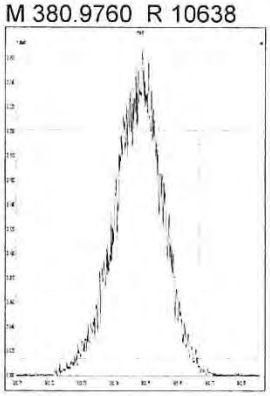

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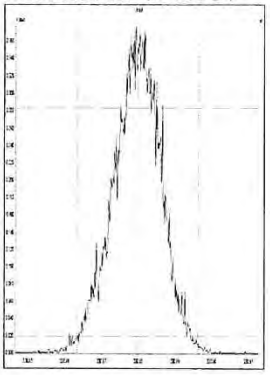

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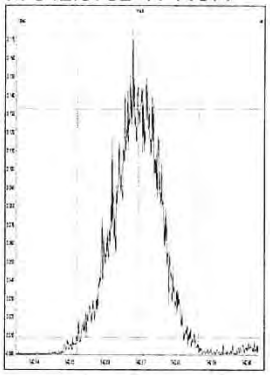

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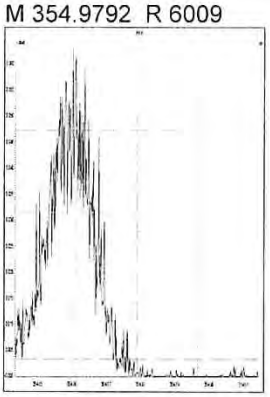

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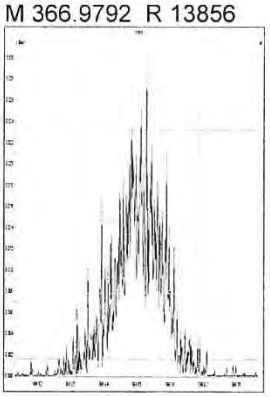

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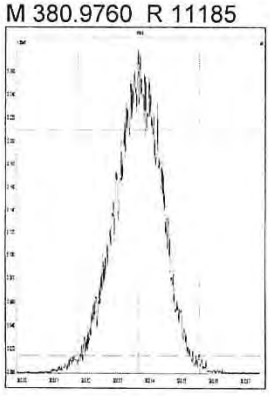

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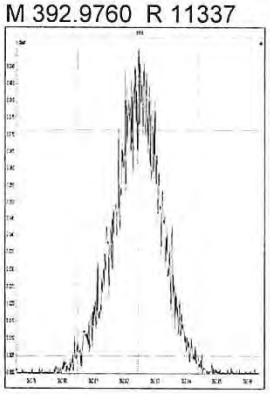

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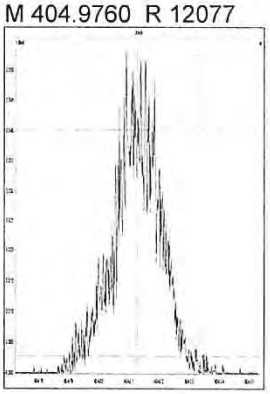

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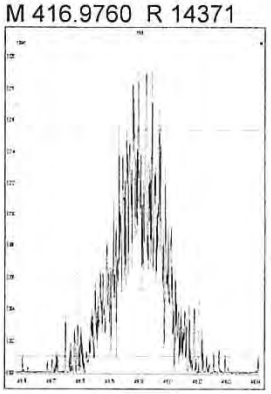

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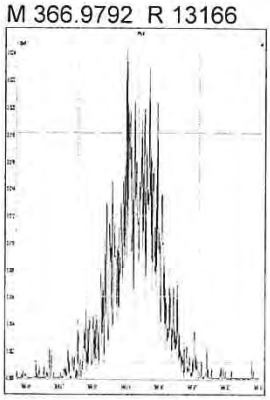

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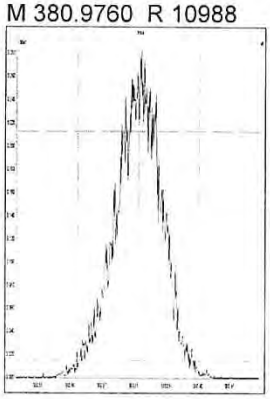

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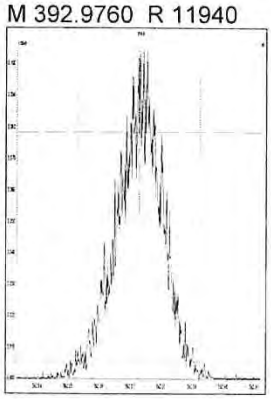

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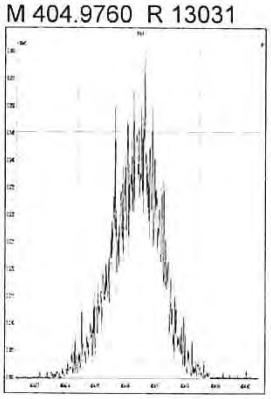

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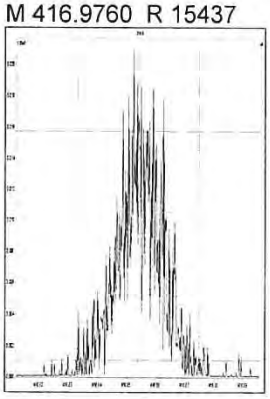

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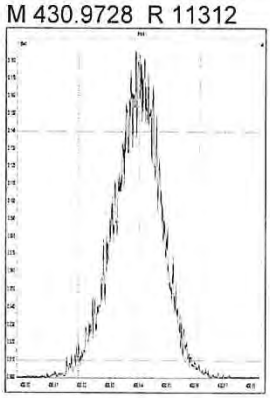

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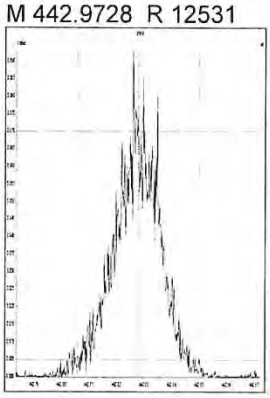

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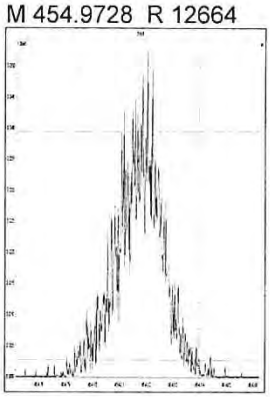

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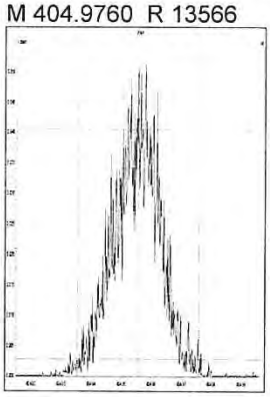

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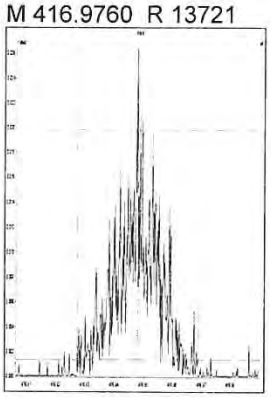

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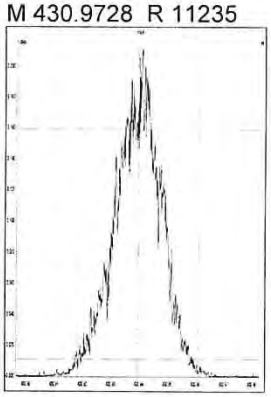

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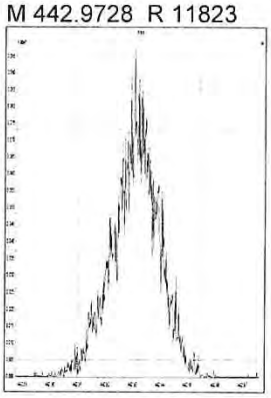

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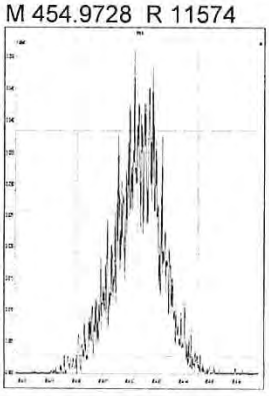

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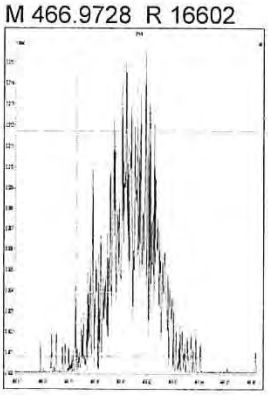

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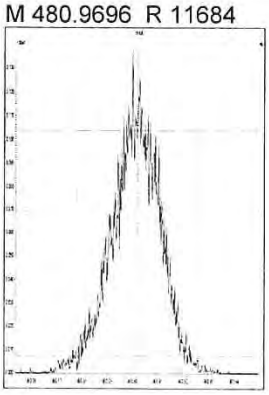

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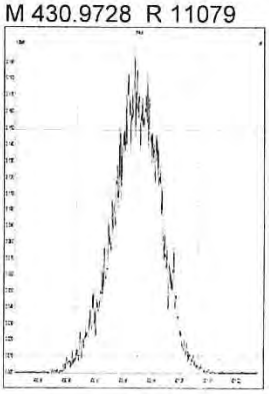

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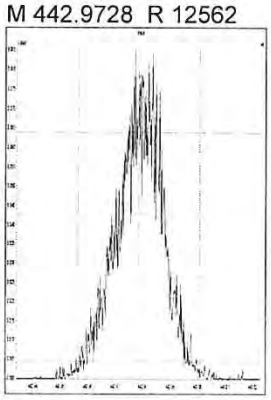

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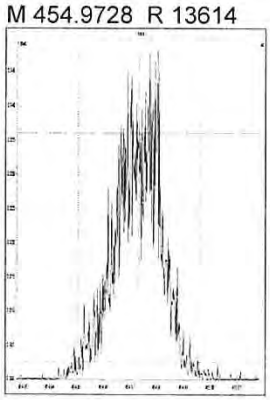

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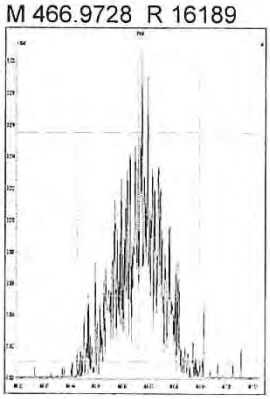

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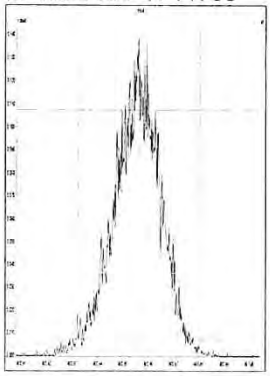

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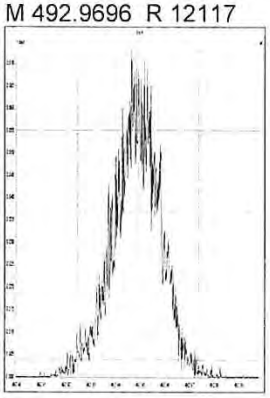

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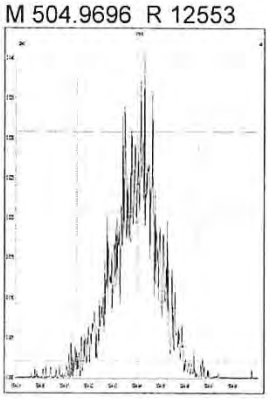

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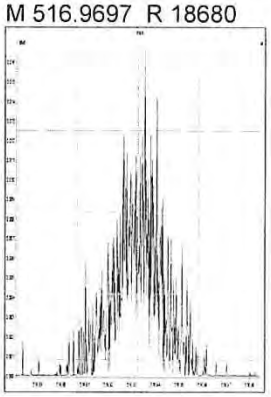


WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

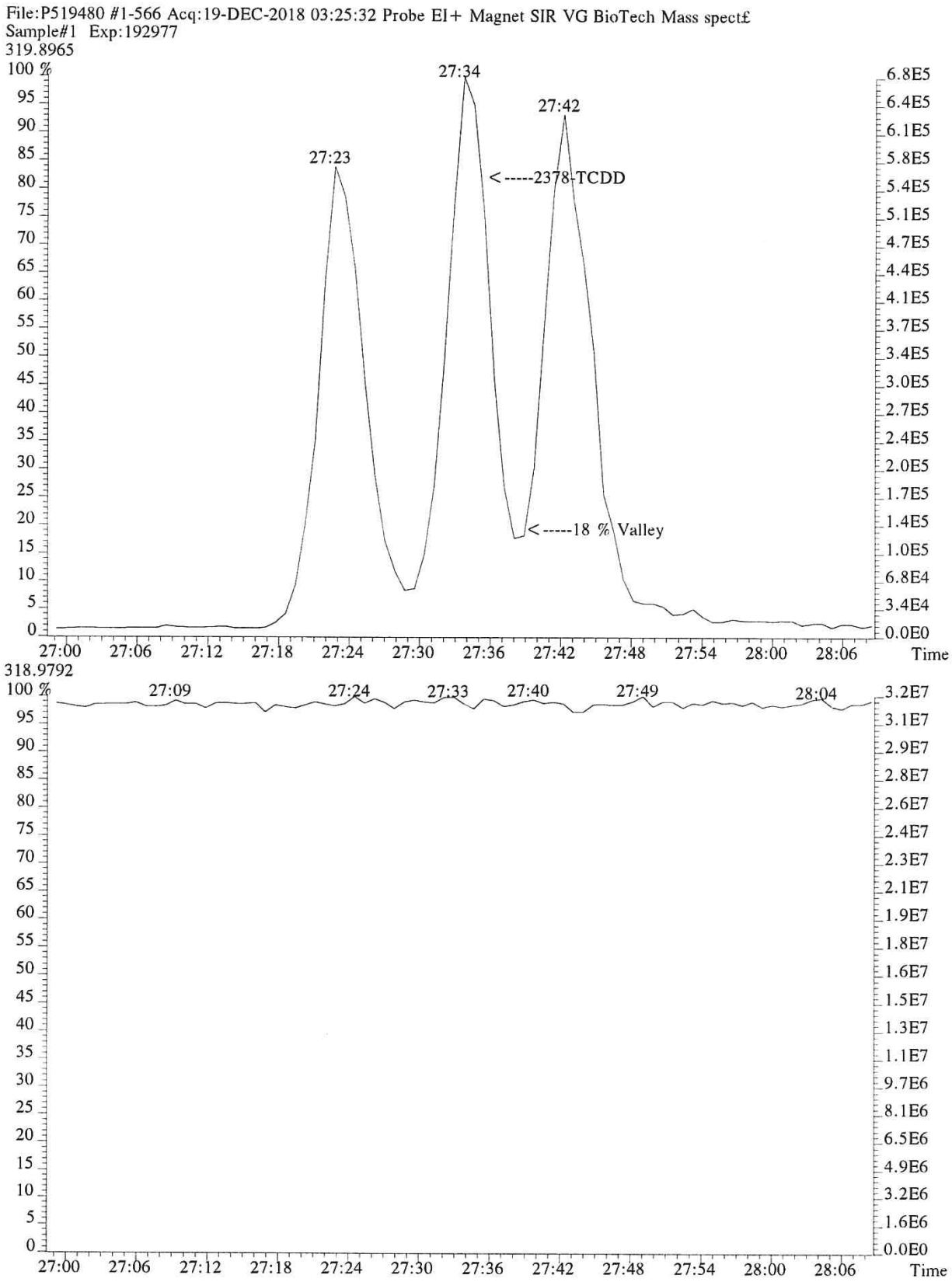
Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

Case No.: _____ SDG No.:
ID: 0.25 (mm) Lab File ID: P519480
Date Analyzed: 19-DEC-18
Time Analyzed: 03:25:32

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	22:12	28:51
TCDD	23:54	28:41
PeCDF	28:49	33:22
PeCDD	30:30	33:07
HxCDF	34:05	36:43
HxCDD	34:38	36:19
HpCDF	38:03	39:29
HpCDD	38:20	39:01

% Valley 2378-TCDD: 18 %

015764


File:P519480 #1-566 Acq:19-DEC-2018 03:25:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
319.8965
27:34
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27:23
<-----2378-TCDD
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318.9792
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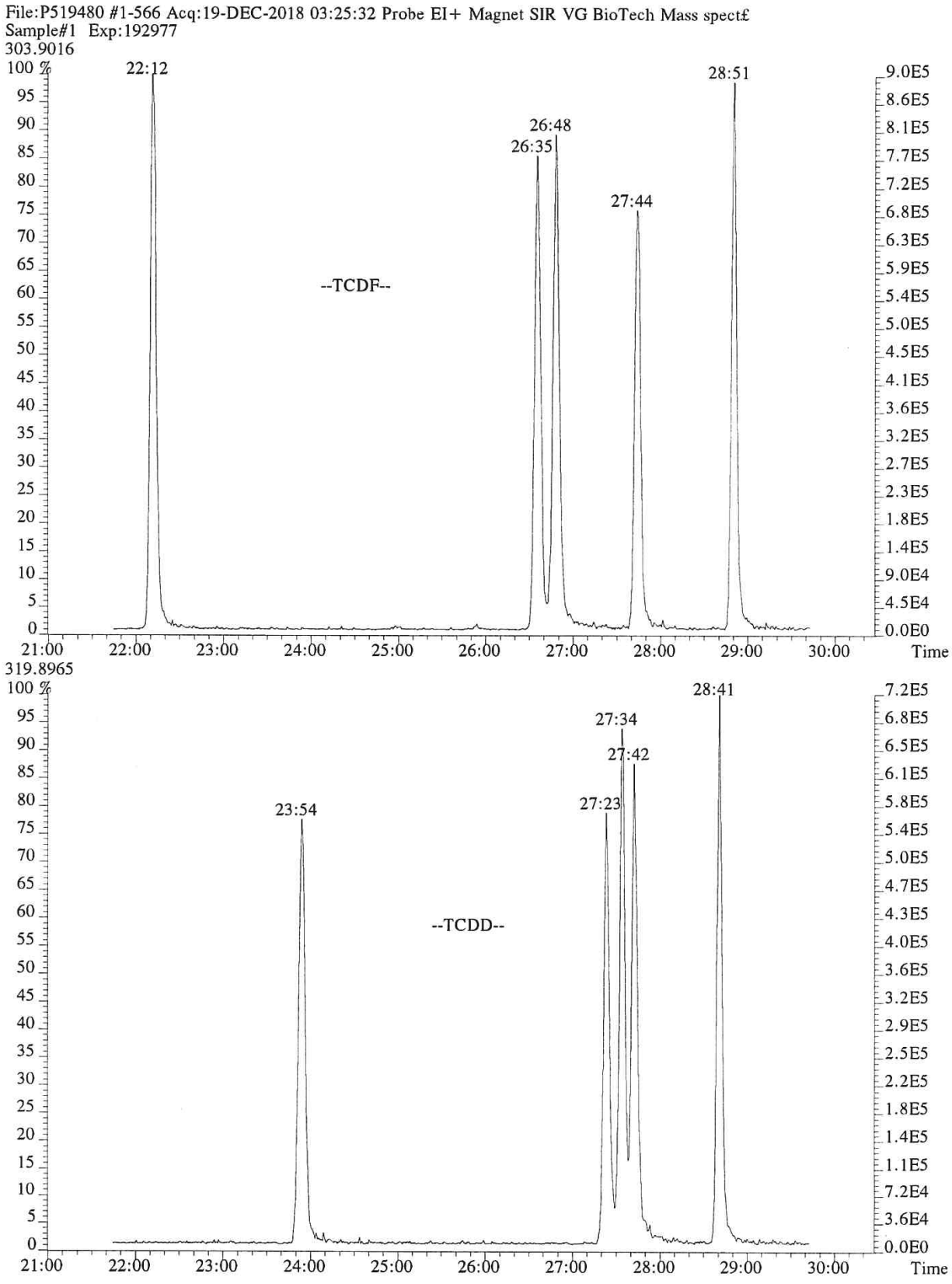
Time

015765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100 %
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--TCDF--
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8.6E5
8.1E5
7.7E5
7.2E5
6.8E5
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Time
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6.8E5
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4.3E5
4.0E5
3.6E5
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015766

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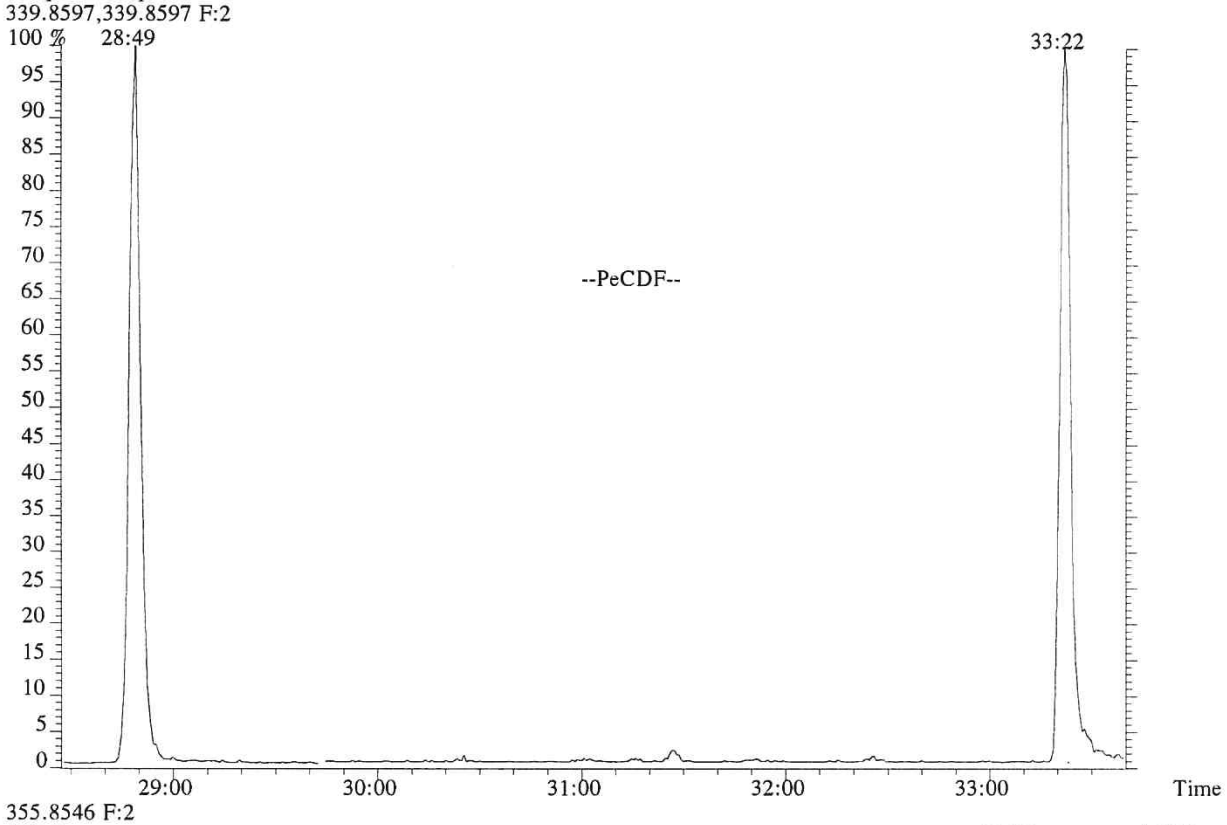

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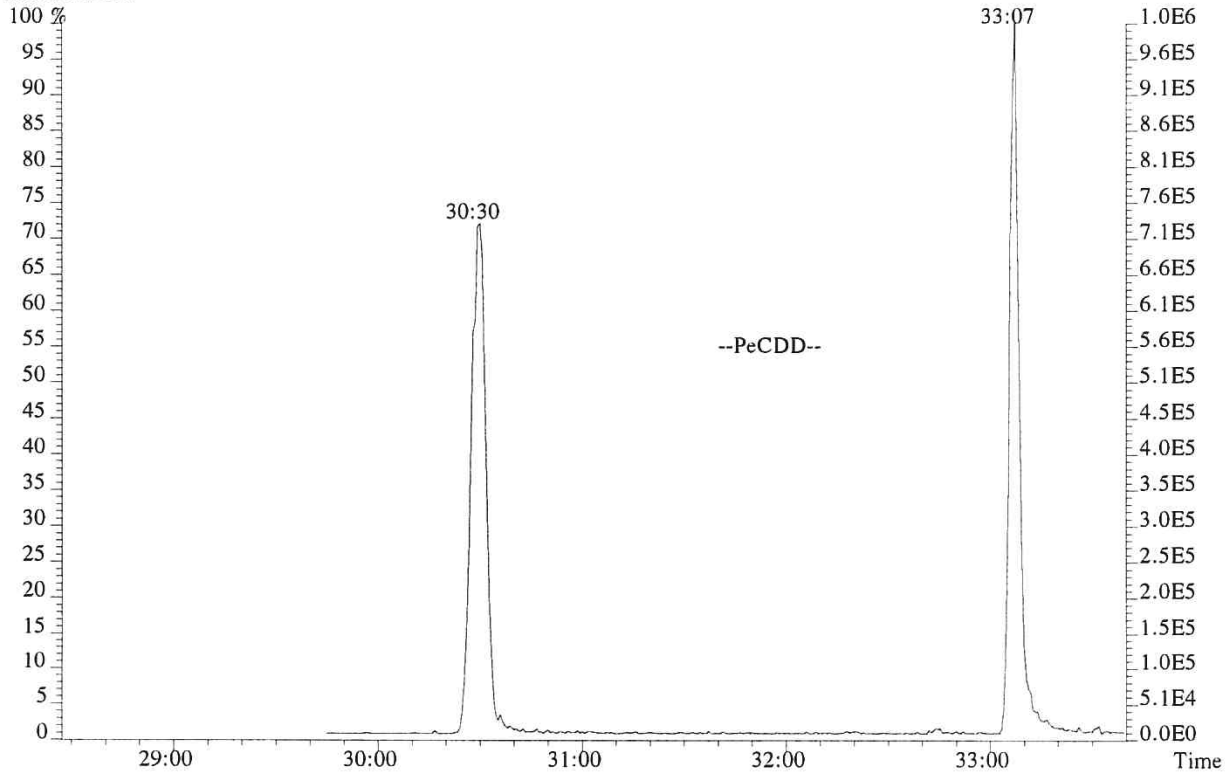

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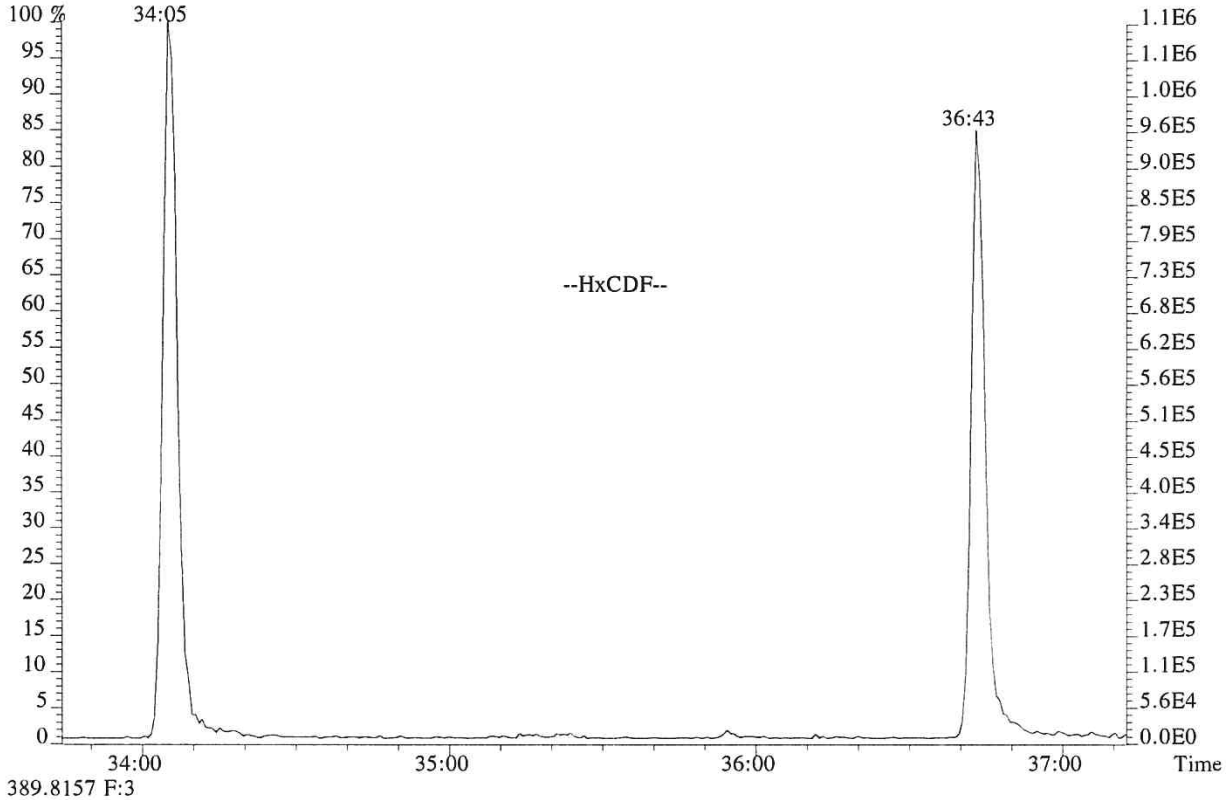

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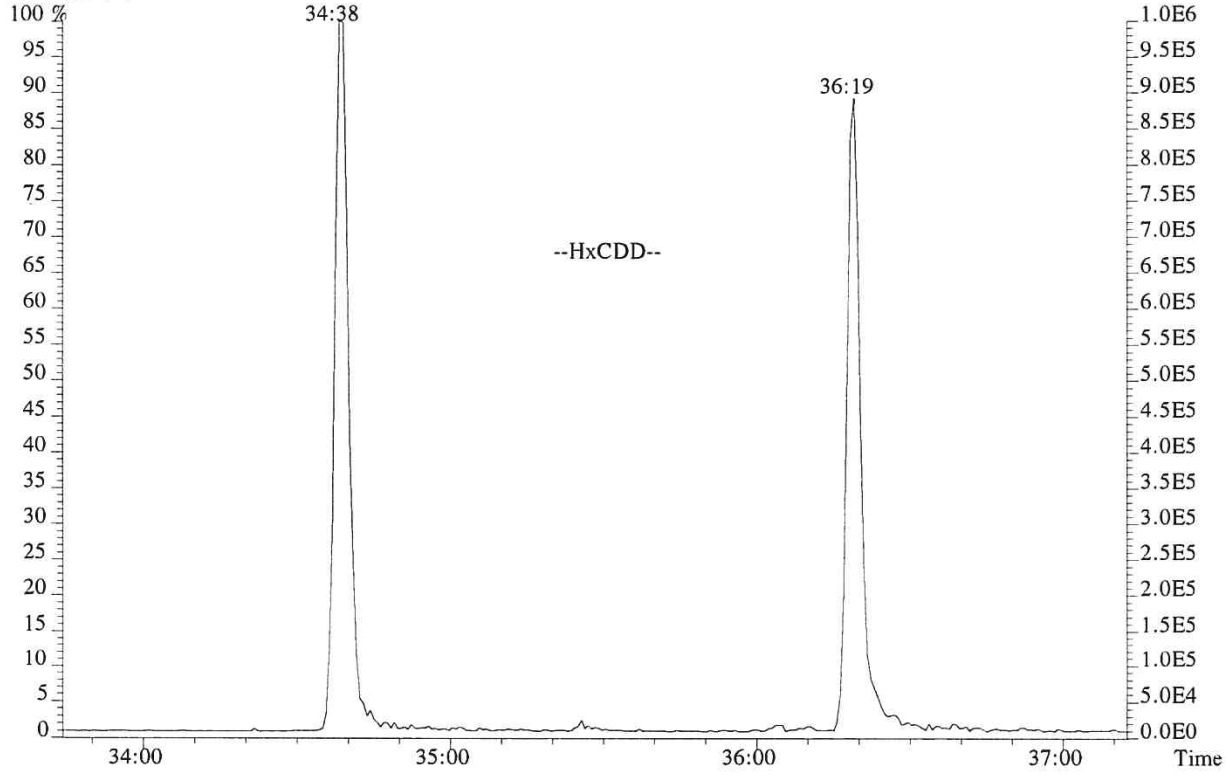

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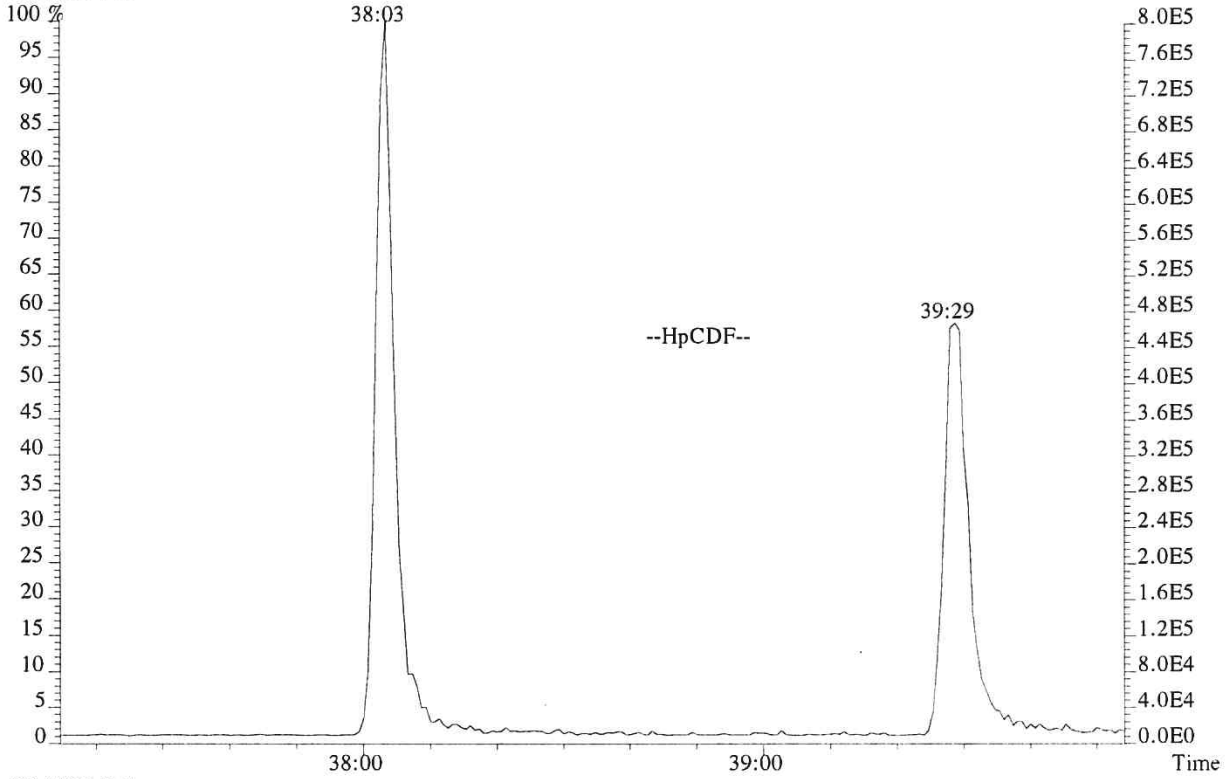
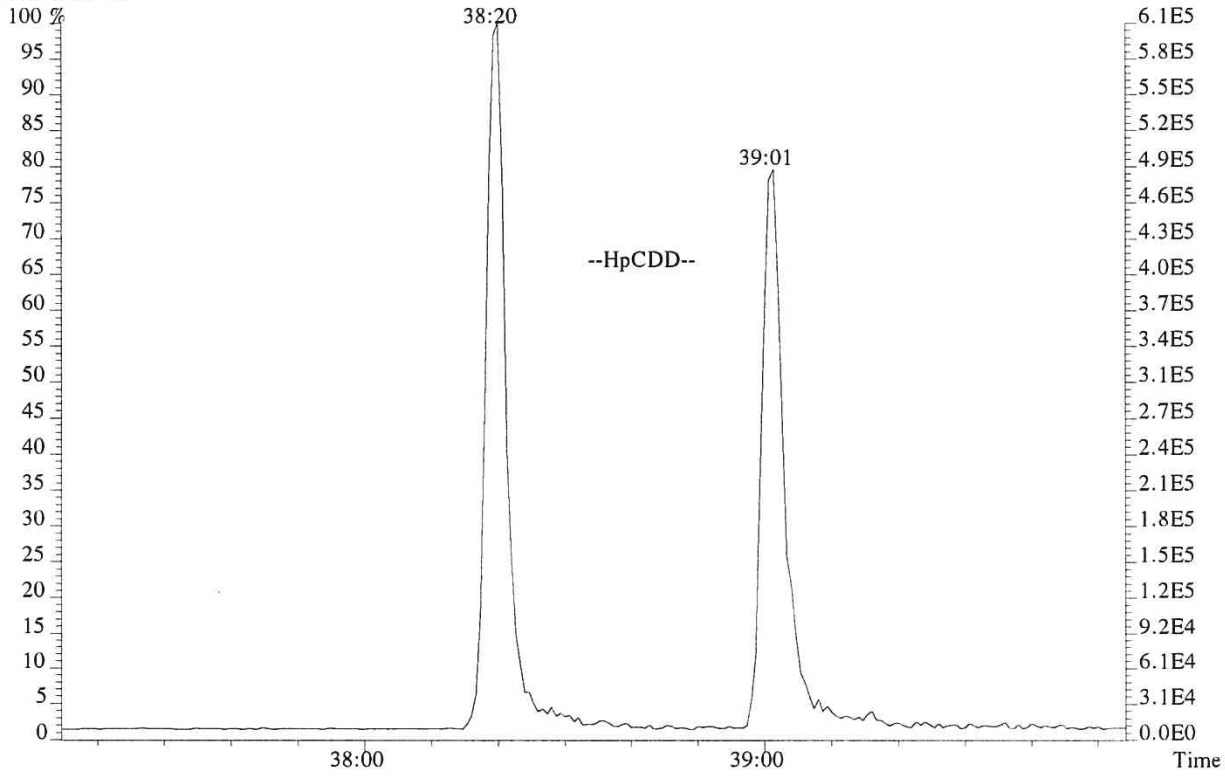
Sample#1 Exp:192977
407.7818 F:4



423.7766 F:4



015769

USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519479 Analysis Date: 19-DEC-18 Time: 02:37:43

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.76	0.65-0.89	10.3	7.8 - 12.9	2.8
1,2,3,7,8-PeCDD	M+2/M+4	1.54	1.32-1.78	50	39 - 65	-0.6
1,2,3,4,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	51	39 - 64	1.3
1,2,3,6,7,8-HxCDD	M+2/M+4	1.30	1.05-1.43	50	39 - 64	-0.8
1,2,3,7,8,9-HxCDD	M+2/M+4	1.20	1.05-1.43	50	41 - 61	0.8
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.03	0.88-1.20	52	43 - 58	4.7
OCDD	M+2/M+4	0.91	0.76-1.02	98	79 - 126	-1.5
2,3,7,8-TCDF	M/M+2	0.74	0.65-0.89	10.0	8.4 - 12.0	0.4
1,2,3,7,8-PeCDF	M+2/M+4	1.50	1.32-1.78	48	41 - 60	-3.2
2,3,4,7,8-PeCDF	M+2/M+4	1.61	1.32-1.78	48	41 - 61	-4.9
1,2,3,4,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	51	45 - 56	2.9
1,2,3,6,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	49	44 - 57	-2.5
1,2,3,7,8,9-HxCDF	M+2/M+4	1.21	1.05-1.43	49	45 - 56	-1.4
2,3,4,6,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	51	44 - 57	1.7
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.00	0.88-1.20	48	45 - 55	-3.4
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.02	0.88-1.20	49	43 - 58	-2.2
OCDF	M+2/M+4	0.87	0.76-1.02	94	63 - 159	-5.6

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519479 Analysis Date: 19-DEC-18 Time: 02:37:43

LABELED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
13C-2,3,7,8-TCDD	M/M+2	0.76	0.65-0.89	98	82 - 121	-2.1
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	116	62 - 160	16.3
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	95	85 - 117	-5.1
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	95	85 - 118	-5.0
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	94	72 - 138	-6.2
13C-OCDD	M+2/M+4	0.93	0.76-1.02	203	96 - 415	1.5
13C-2,3,7,8-TCDF	M/M+2	0.77	0.65-0.89	87	71 - 140	-13.2
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	108	76 - 130	8.4
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	112	77 - 130	11.7
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.54	0.43-0.59	84	76 - 131	-16.2
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.51	0.43-0.59	89	70 - 143	-11.2
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	88	74 - 135	-12.3
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	91	73 - 137	-8.8
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.44	0.37-0.51	95	78 - 129	-5.2
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.43	0.37-0.51	92	77 - 129	-8.0
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD	M+2/M+4			9.1	7.8 - 12.7	-9.2

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #7 Filename P519479 Samp: 1 Inj: 1 Acquired: 19-DEC-18 02:37:43
Processed: 20-DEC-18 15:16:23 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:48	1.035e+03	1.400e+03	0.74	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	31:27	9.190e+03	6.134e+03	1.50	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	32:25	8.974e+03	5.571e+03	1.61	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:15	8.028e+03	6.490e+03	1.24	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:22	8.624e+03	6.950e+03	1.24	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:54	8.100e+03	6.714e+03	1.21	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	36:41	6.735e+03	5.579e+03	1.21	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:03	6.847e+03	6.852e+03	1.00	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:29	5.369e+03	5.265e+03	1.02	yes	no	1.258
10	Unk	OCDF	42:05	8.098e+03	9.270e+03	0.87	yes	no	1.359
11	Unk	2,3,7,8-TCDD	27:42	8.512e+02	1.127e+03	0.76	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	32:43	6.411e+03	4.154e+03	1.54	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:04	5.869e+03	4.711e+03	1.25	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:09	6.010e+03	4.632e+03	1.30	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:24	5.967e+03	4.958e+03	1.20	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:01	5.012e+03	4.884e+03	1.03	yes	no	1.025
17	Unk	OCDD	41:55	7.092e+03	7.822e+03	0.91	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	26:47	1.118e+04	1.456e+04	0.77	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	31:25	1.926e+04	1.201e+04	1.60	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	32:23	1.965e+04	1.226e+04	1.60	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:14	8.291e+03	1.542e+04	0.54	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:21	9.621e+03	1.883e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:54	8.943e+03	1.731e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	36:40	7.478e+03	1.435e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:03	6.424e+03	1.456e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:28	5.237e+03	1.206e+04	0.43	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	27:41	7.660e+03	1.007e+04	0.76	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:42	1.364e+04	8.589e+03	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:02	1.125e+04	8.858e+03	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:08	1.155e+04	9.112e+03	1.27	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:00	9.496e+03	8.947e+03	1.06	yes	no	0.858
32	IS	13C-OCDD	41:54	1.303e+04	1.406e+04	0.93	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:03	8.676e+03	1.093e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:23	1.289e+04	1.003e+04	1.29	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:42	1.805e+03				no	1.014

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #7 Filename P519479 Samp: 1 Inj: 1 Acquired: 19-DEC-18 02:37:43
Processed: 20-DEC-18 15:16:23 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	1.57e+05	6.60e+02	2.4e+02	2.12e+05	9.44e+02	2.2e+02
2	1,2,3,7,8-PeCDF	1.51e+06	4.08e+02	3.7e+03	9.99e+05	4.92e+02	2.0e+03
3	2,3,4,7,8-PeCDF	1.61e+06	4.08e+02	3.9e+03	1.02e+06	4.92e+02	2.1e+03
4	1,2,3,4,7,8-HxCDF	1.61e+06	4.36e+02	3.7e+03	1.30e+06	4.48e+02	2.9e+03
5	1,2,3,6,7,8-HxCDF	1.59e+06	4.36e+02	3.6e+03	1.31e+06	4.48e+02	2.9e+03
6	2,3,4,6,7,8-HxCDF	1.54e+06	4.36e+02	3.5e+03	1.30e+06	4.48e+02	2.9e+03
7	1,2,3,7,8,9-HxCDF	1.18e+06	4.36e+02	2.7e+03	9.92e+05	4.48e+02	2.2e+03
8	1,2,3,4,6,7,8-HpCDF	1.23e+06	6.60e+02	1.9e+03	1.23e+06	9.60e+02	1.3e+03
9	1,2,3,4,7,8,9-HpCDF	8.34e+05	6.60e+02	1.3e+03	8.17e+05	9.60e+02	8.5e+02
10	OCDF	9.28e+05	4.20e+02	2.2e+03	1.08e+06	6.80e+02	1.6e+03
11	2,3,7,8-TCDD	1.30e+05	1.59e+03	8.2e+01	1.74e+05	6.40e+02	2.7e+02
12	1,2,3,7,8-PeCDD	1.12e+06	6.88e+02	1.6e+03	7.14e+05	4.00e+02	1.8e+03
13	1,2,3,4,7,8-HxCDD	1.17e+06	3.92e+02	3.0e+03	9.41e+05	3.68e+02	2.6e+03
14	1,2,3,6,7,8-HxCDD	1.14e+06	3.92e+02	2.9e+03	8.57e+05	3.68e+02	2.3e+03
15	1,2,3,7,8,9-HxCDD	1.13e+06	3.92e+02	2.9e+03	8.88e+05	3.68e+02	2.4e+03
16	1,2,3,4,6,7,8-HpCDD	8.10e+05	3.08e+02	2.6e+03	8.11e+05	3.08e+02	2.6e+03
17	OCDD	8.10e+05	3.72e+02	2.2e+03	9.02e+05	3.80e+02	2.4e+03
18	13C-2,3,7,8-TCDF	1.72e+06	4.44e+03	3.9e+02	2.15e+06	2.00e+03	1.1e+03
19	13C-1,2,3,7,8-PeCDF	3.15e+06	4.56e+02	6.9e+03	2.00e+06	4.36e+02	4.6e+03
20	13C-2,3,4,7,8-PeCDF	3.47e+06	4.56e+02	7.6e+03	2.14e+06	4.36e+02	4.9e+03
21	13C-1,2,3,4,7,8-HxCDF	1.66e+06	2.92e+02	5.7e+03	3.16e+06	3.44e+02	9.2e+03
22	13C-1,2,3,6,7,8-HxCDF	1.77e+06	2.92e+02	6.1e+03	3.44e+06	3.44e+02	1.0e+04
23	13C-2,3,4,6,7,8-HxCDF	1.73e+06	2.92e+02	5.9e+03	3.37e+06	3.44e+02	9.8e+03
24	13C-1,2,3,7,8,9-HxCDF	1.34e+06	2.92e+02	4.6e+03	2.58e+06	3.44e+02	7.5e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.12e+06	1.13e+03	9.9e+02	2.56e+06	3.44e+03	7.5e+02
26	13C-1,2,3,4,7,8,9-HpCDF	8.40e+05	1.13e+03	7.4e+02	1.93e+06	3.44e+03	5.6e+02
27	13C-2,3,7,8-TCDD	1.26e+06	4.14e+03	3.1e+02	1.65e+06	1.62e+03	1.0e+03
28	13C-1,2,3,7,8-PeCDD	2.36e+06	4.28e+02	5.5e+03	1.52e+06	6.32e+02	2.4e+03
29	13C-1,2,3,4,7,8-HxCDD	2.19e+06	2.96e+02	7.4e+03	1.74e+06	5.08e+02	3.4e+03
30	13C-1,2,3,6,7,8-HxCDD	2.16e+06	2.96e+02	7.3e+03	1.75e+06	5.08e+02	3.4e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.60e+06	5.04e+02	3.2e+03	1.49e+06	3.80e+02	3.9e+03
32	13C-OCDD	1.48e+06	3.32e+02	4.5e+03	1.63e+06	2.96e+02	5.5e+03
33	13C-1,2,3,4-TCDD	1.40e+06	4.14e+03	3.4e+02	1.76e+06	1.62e+03	1.1e+03
34	13C-1,2,3,7,8,9-HxCDD	2.32e+06	2.96e+02	7.8e+03	1.82e+06	5.08e+02	3.6e+03
35	37Cl-2,3,7,8-TCDD	2.88e+05	7.16e+02	4.0e+02			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.592e{+}03 + 6.400e{+}02) \times 100}{(1.264e{+}06 + 1.652e{+}06) \times (\quad) \times 1.085} =$$

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
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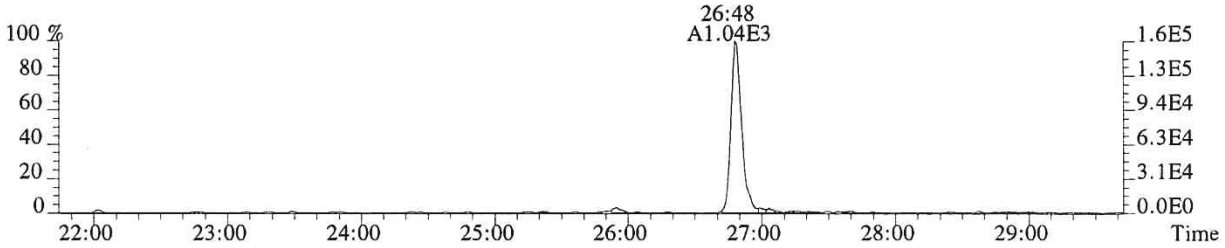
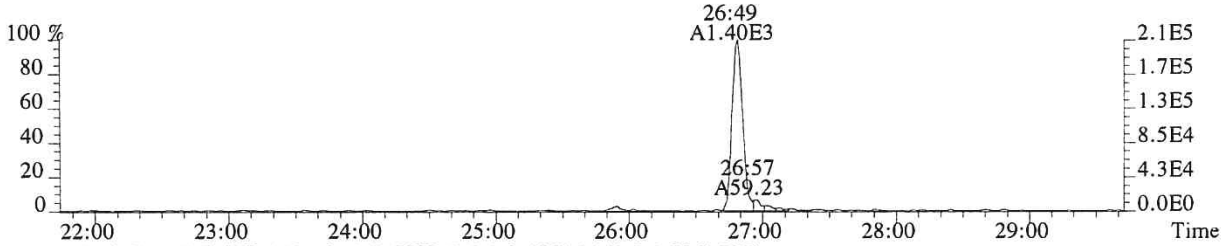
Office:(281)530-5656. Fax:(281)530-5887

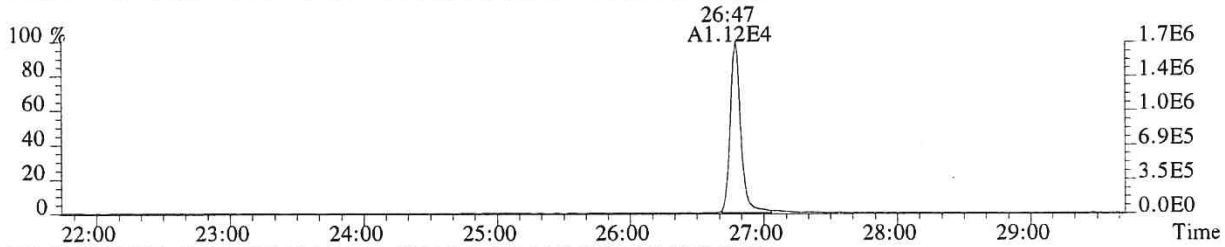
File:P519479 #1-566 Acq:19-DEC-2018 02:37:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,660.0,1.00%,F,T)



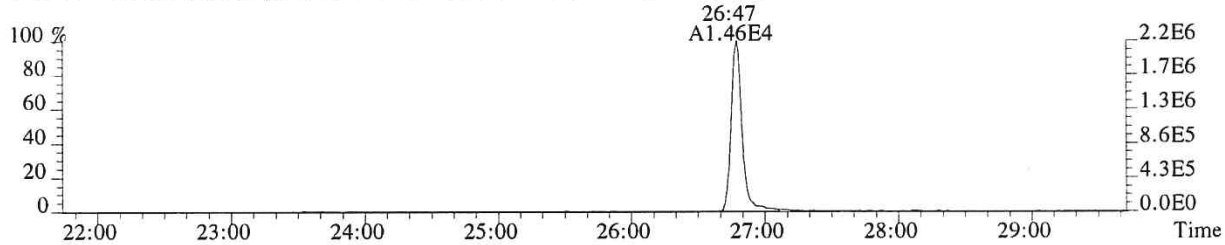
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,944.0,1.00%,F,T)



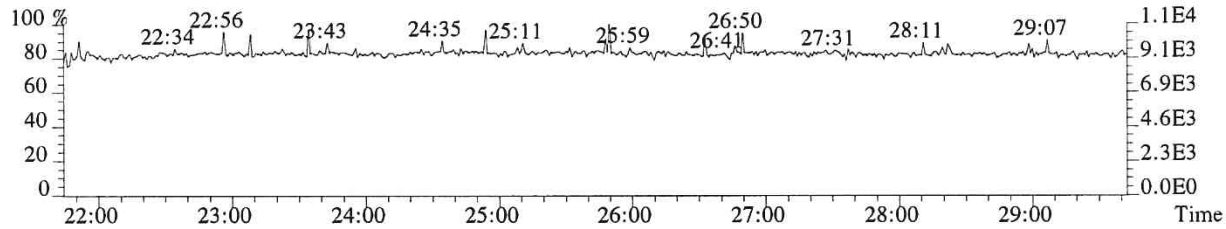
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4444.0,1.00%,F,T)



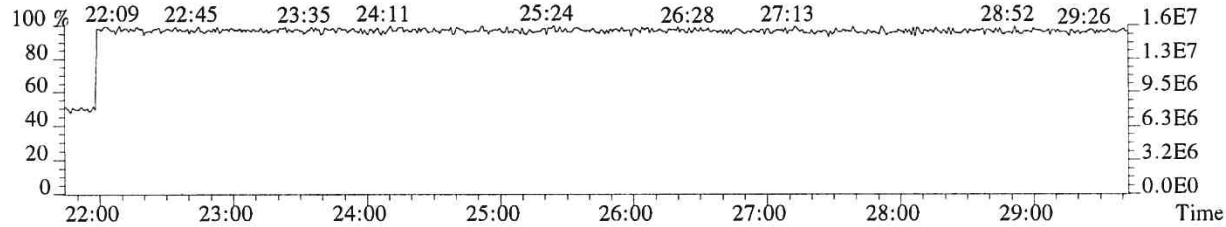
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1996.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

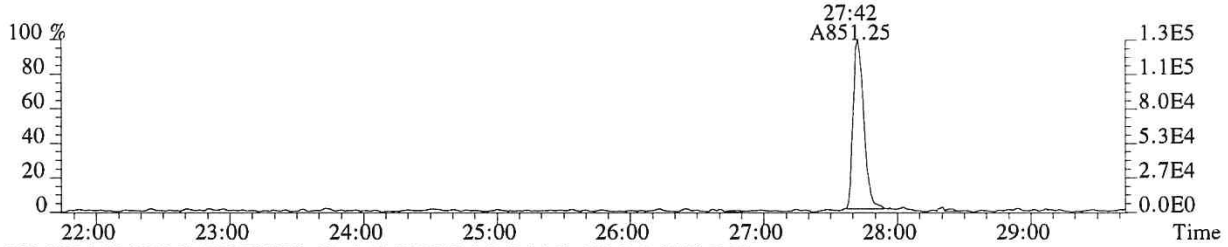


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

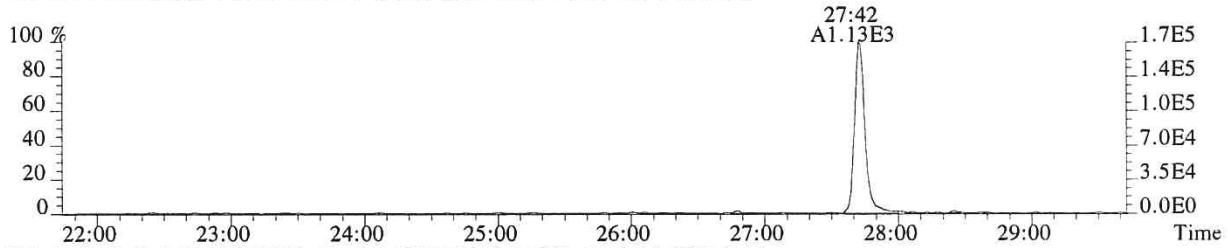


015774

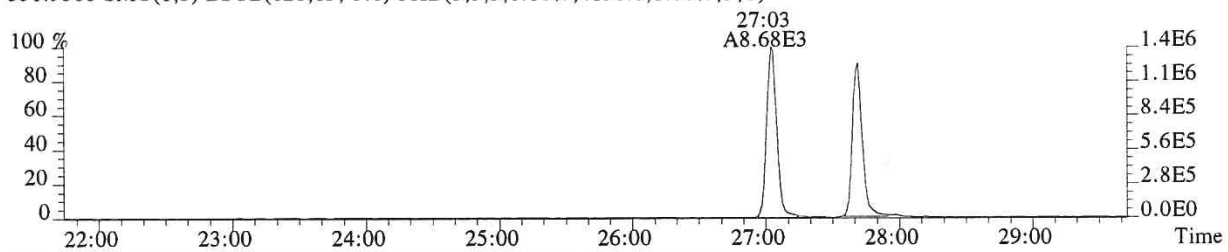
File:P519479 #1-566 Acq:19-DEC-2018 02:37:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1592.0,1.00%,F,T)



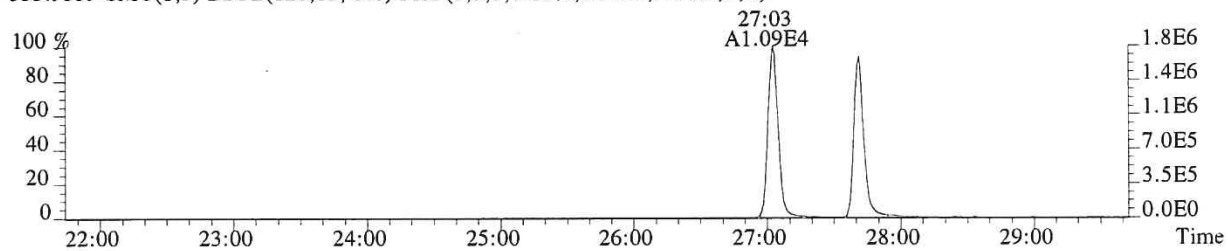
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,640.0,1.00%,F,T)



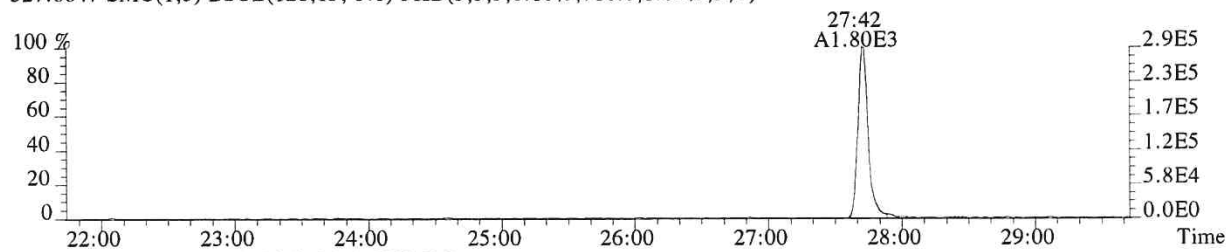
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4136.0,1.00%,F,T)



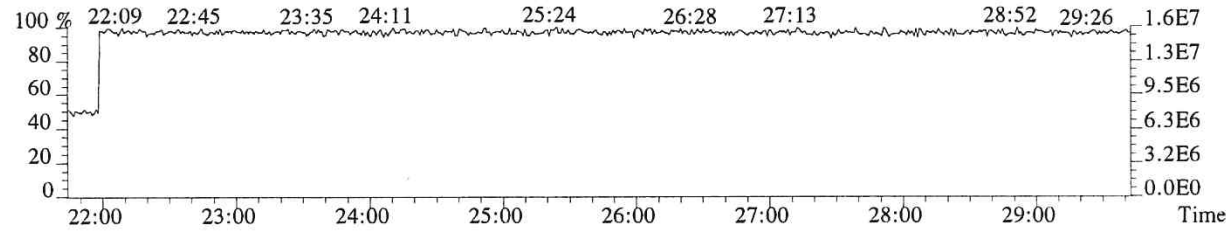
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1624.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,716.0,1.00%,F,T)

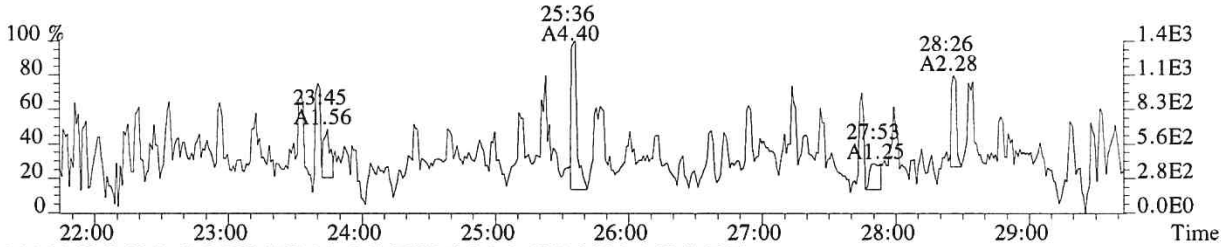


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

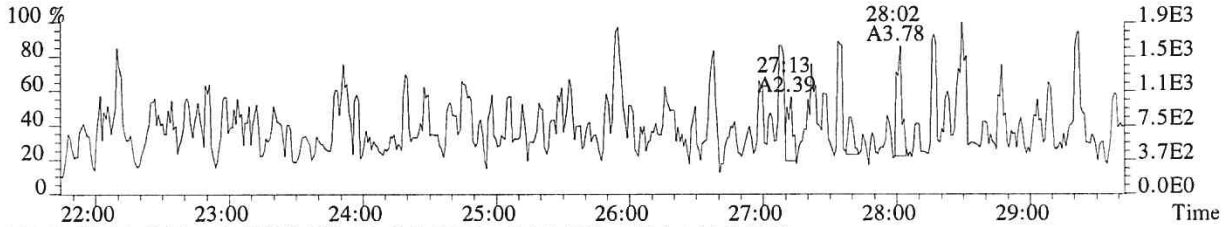


015775

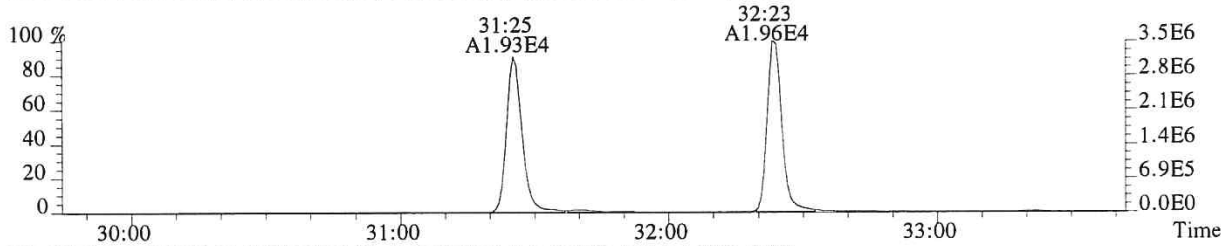
File:P519479 #1-566 Acq:19-DEC-2018 02:37:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,584.0,1.00%,F,T)



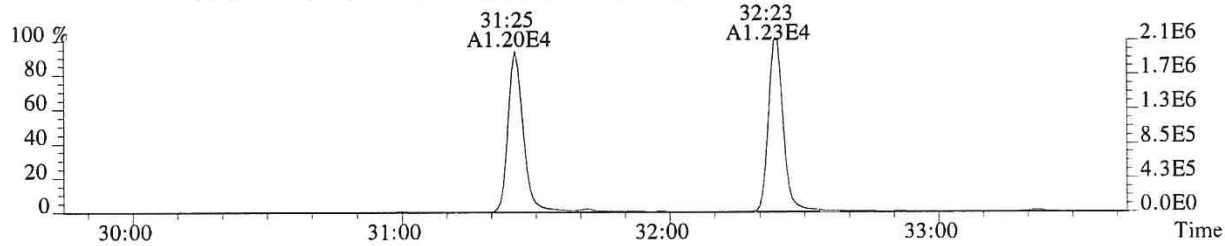
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,868.0,1.00%,F,T)



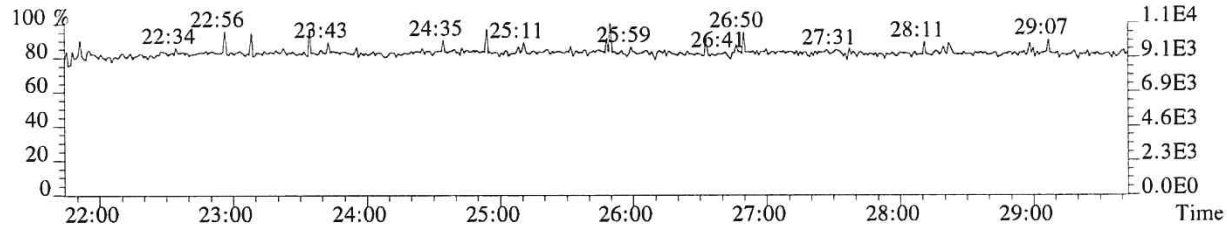
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,456.0,1.00%,F,T)



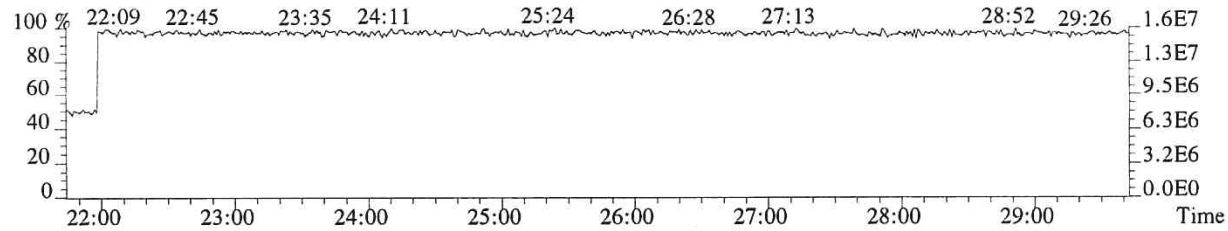
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,436.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

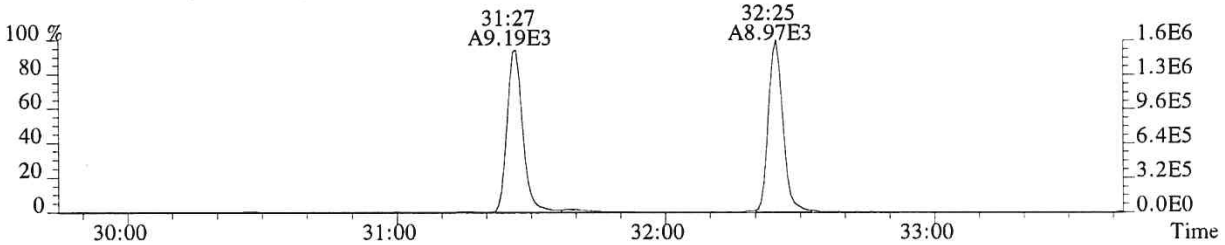


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

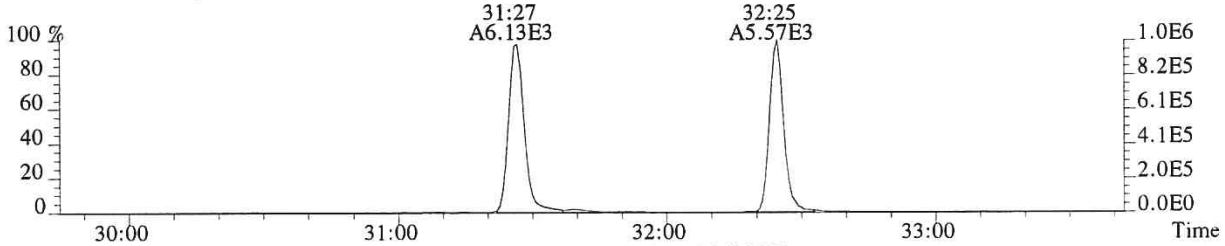


015776

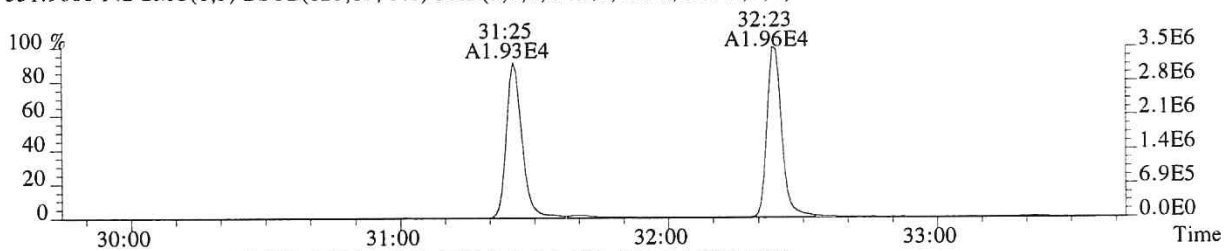
File:P519479 #1-357 Acq:19-DEC-2018 02:37:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,408.0,1.00%,F,T)



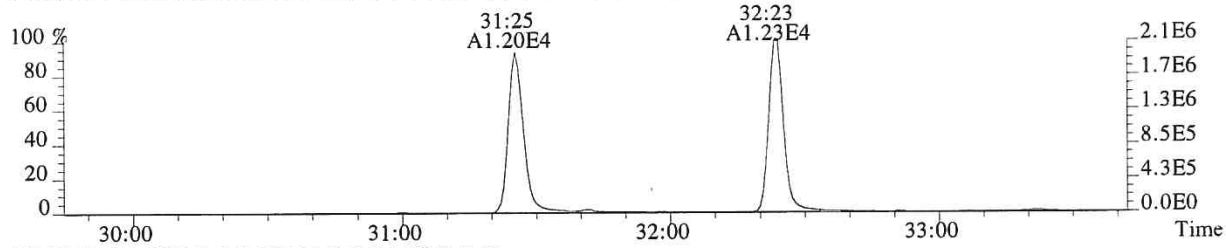
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,492.0,1.00%,F,T)



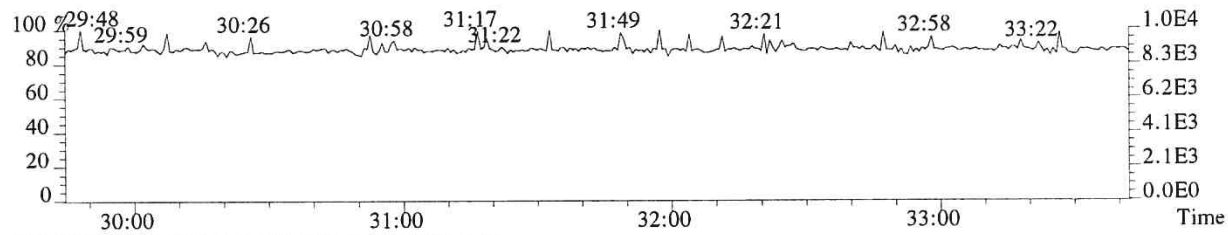
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,456.0,1.00%,F,T)



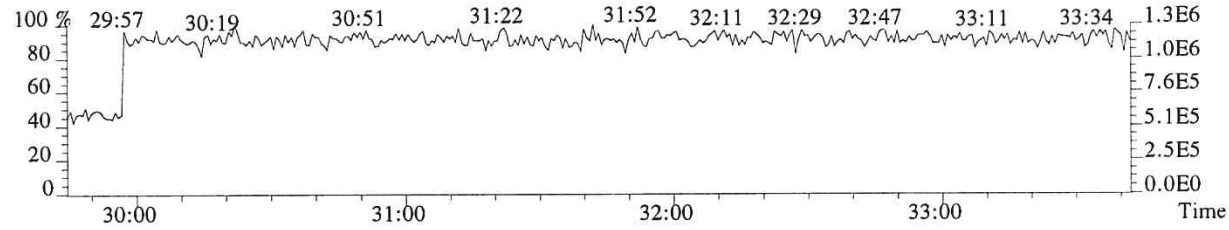
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,436.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

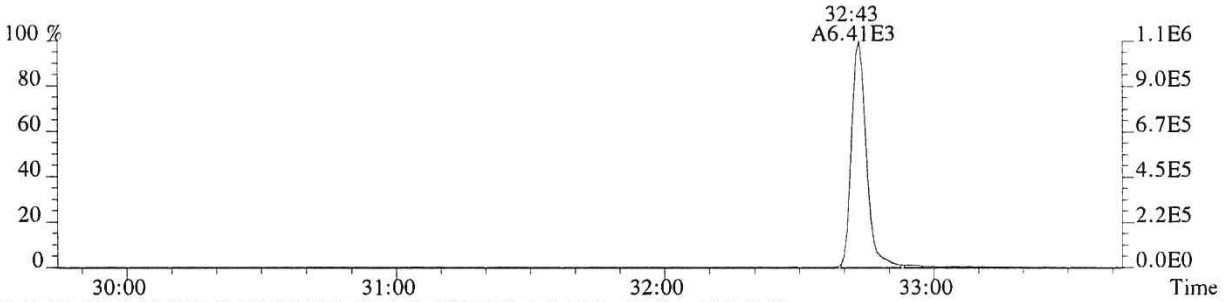


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

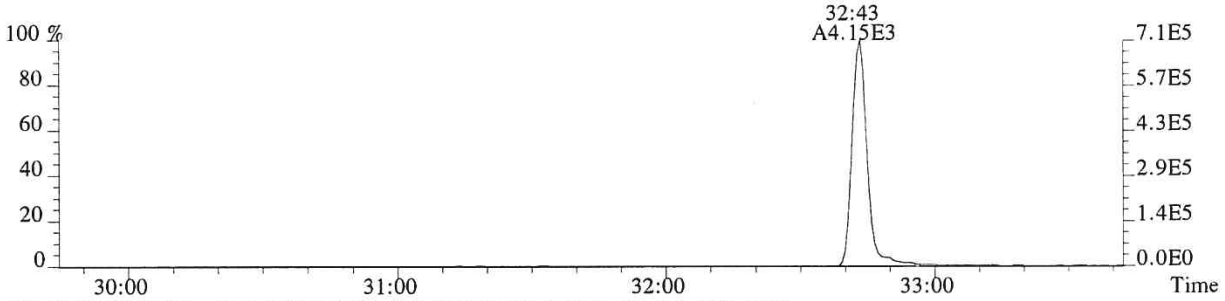


015777

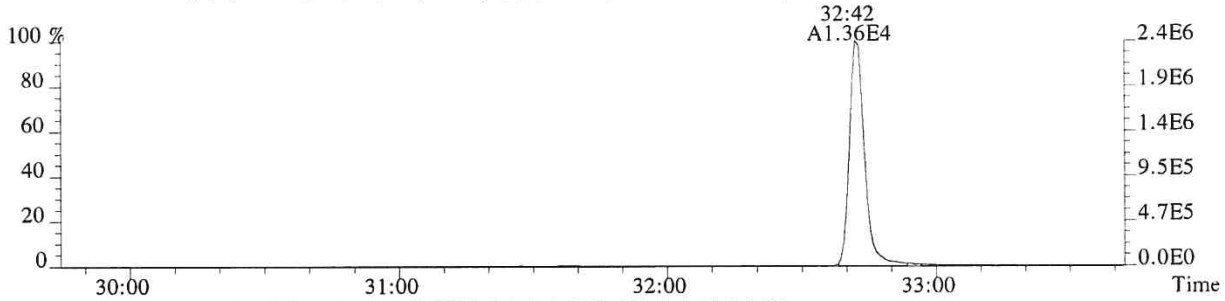
File:P519479 #1-357 Acq:19-DEC-2018 02:37:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,688.0,1.00%,F,T)



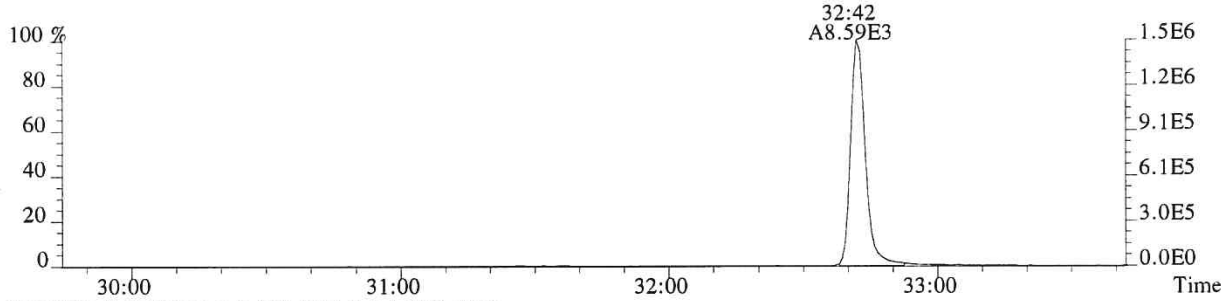
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,400.0,1.00%,F,T)



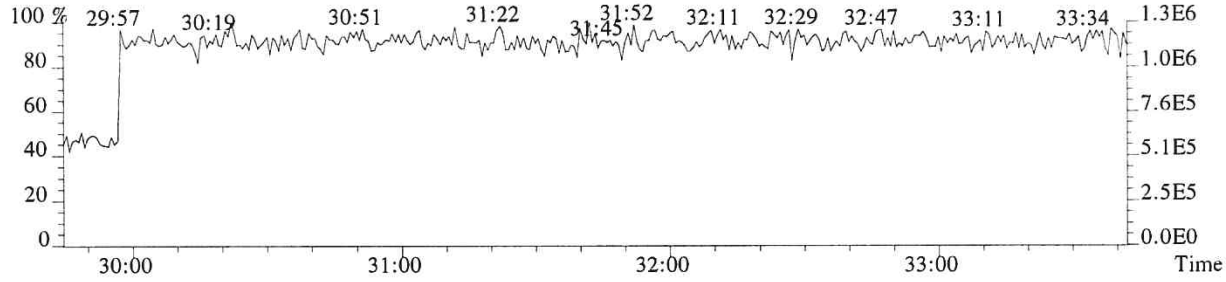
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,428.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,632.0,1.00%,F,T)

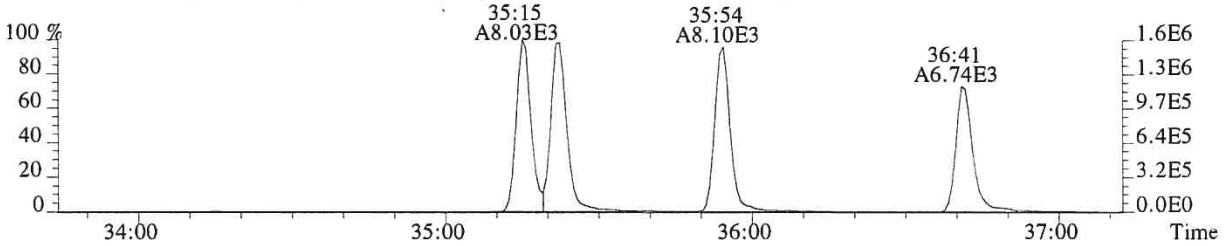


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

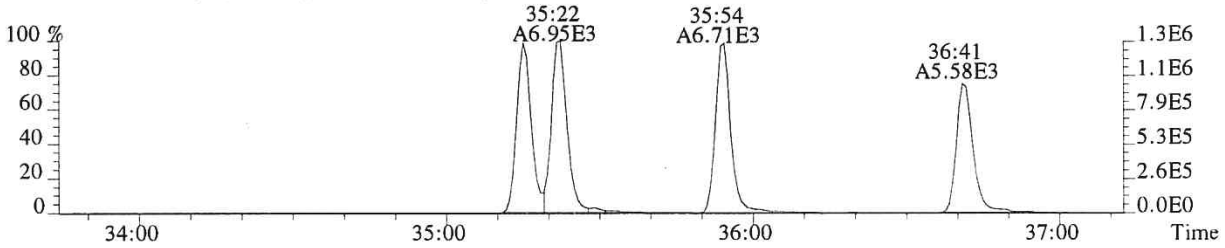


015778

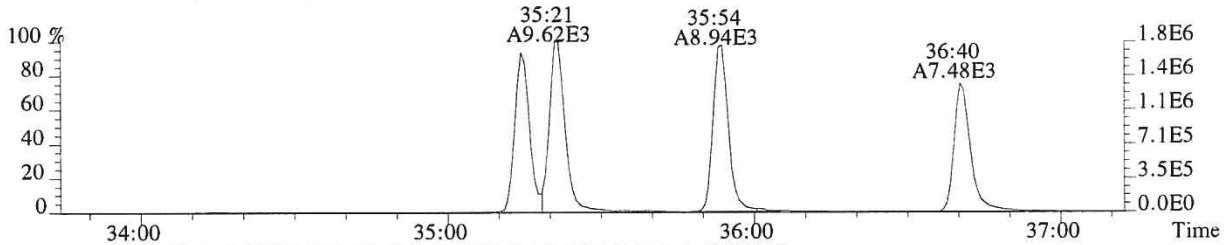
File:P519479 #1-313 Acq:19-DEC-2018 02:37:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,436.0,0.40%,F,T)



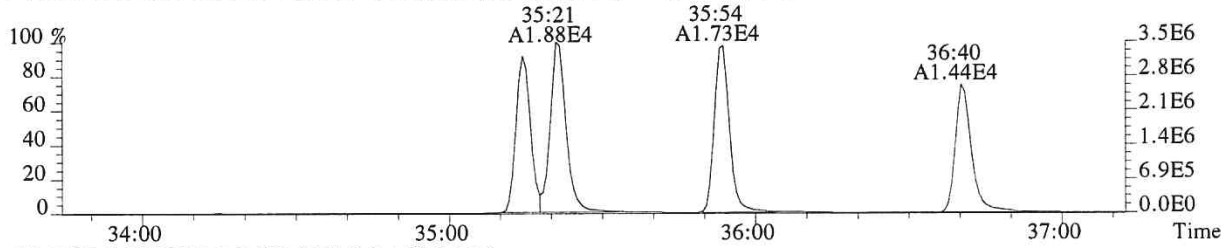
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,448.0,0.40%,F,T)



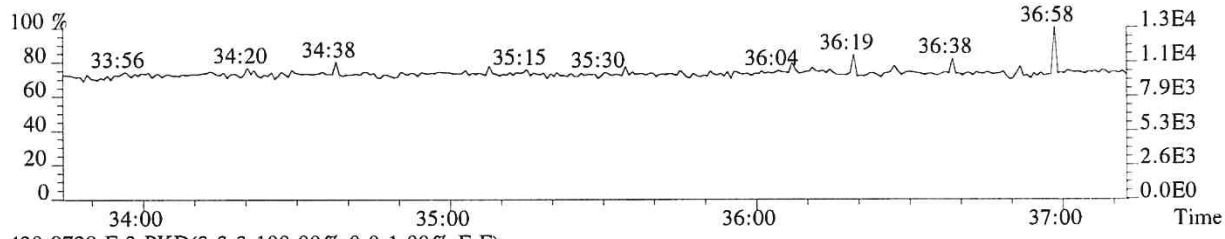
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,292.0,0.40%,F,T)



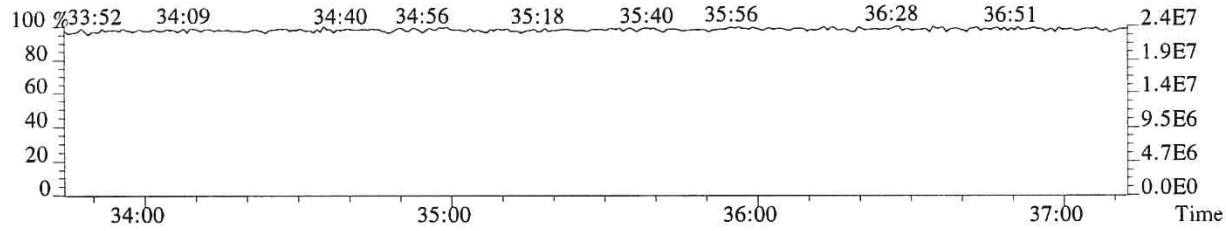
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,344.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

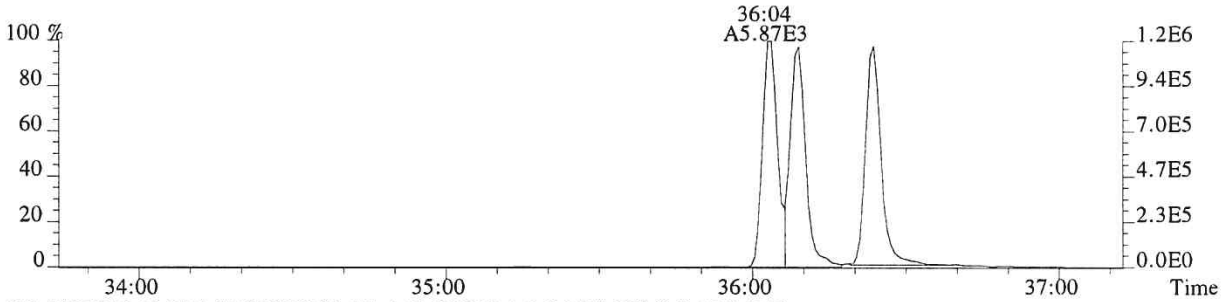


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

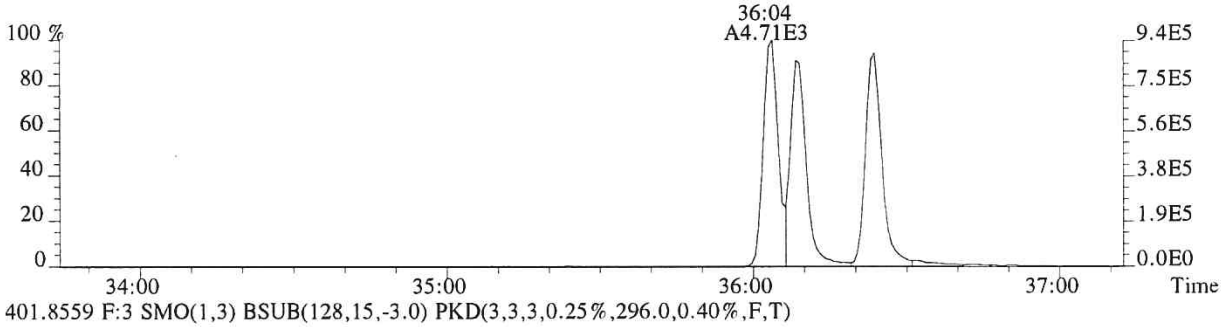


015779

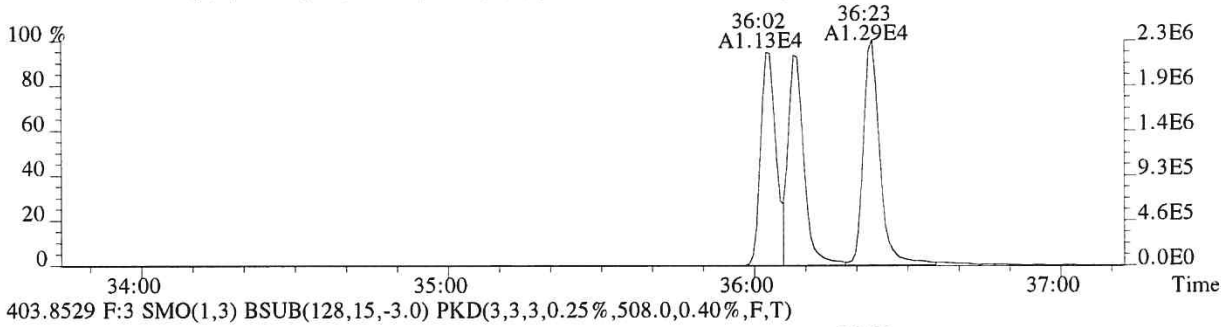
File:P519479 #1-313 Acq:19-DEC-2018 02:37:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,392.0,0.40%,F,T)



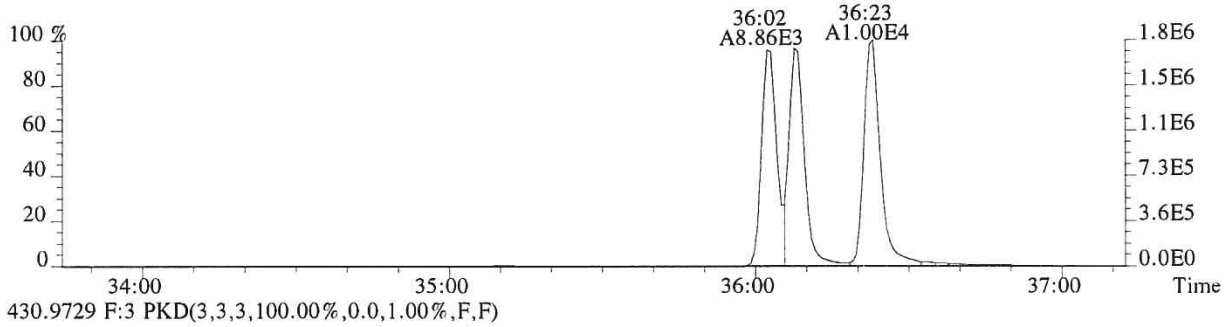
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,368.0,0.40%,F,T)



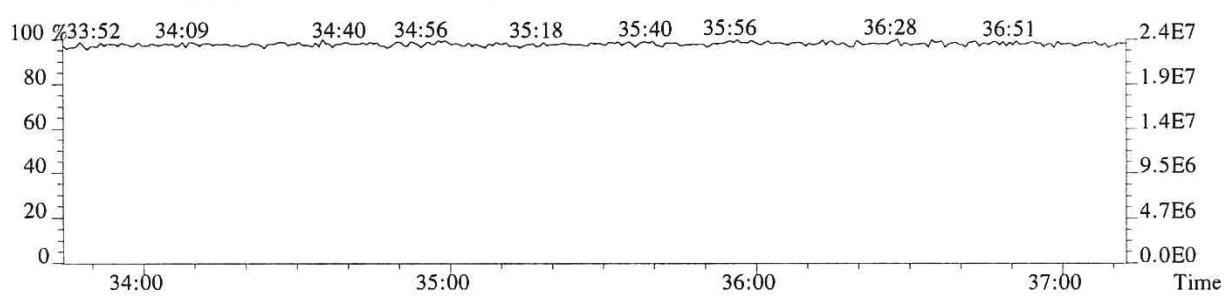
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,296.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,508.0,0.40%,F,T)



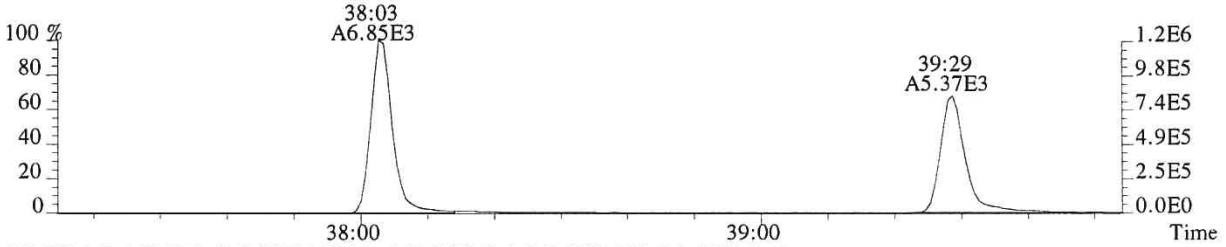
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



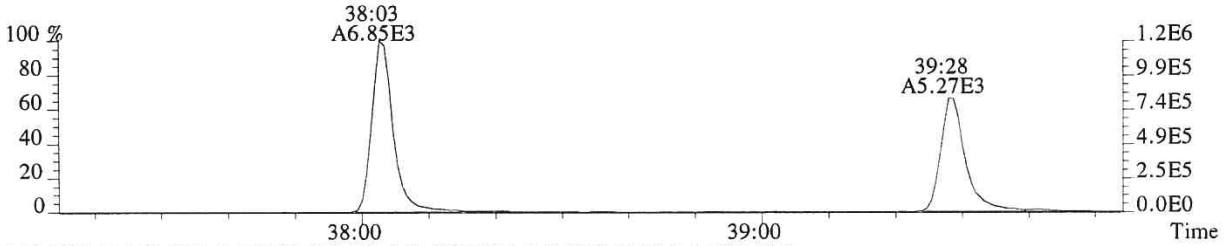
015780

File:P519479 #1-240 Acq:19-DEC-2018 02:37:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

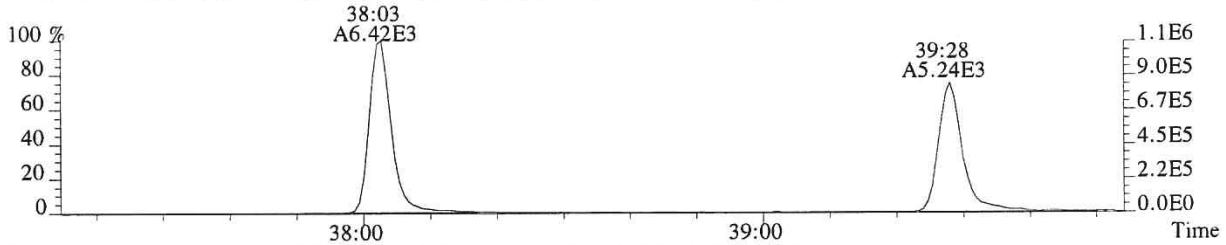
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,660.0,0.50%,F,T)



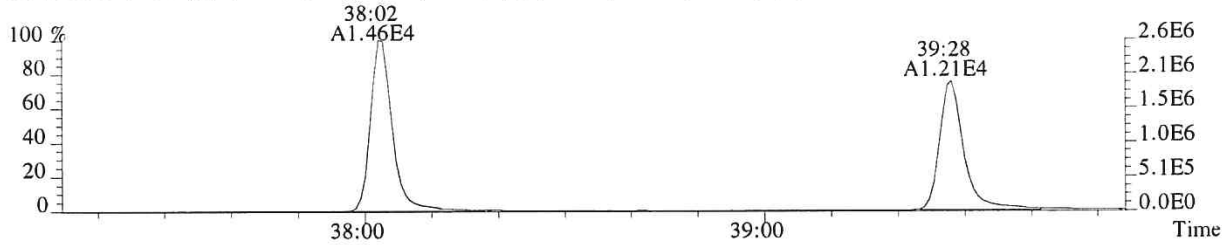
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,960.0,0.50%,F,T)



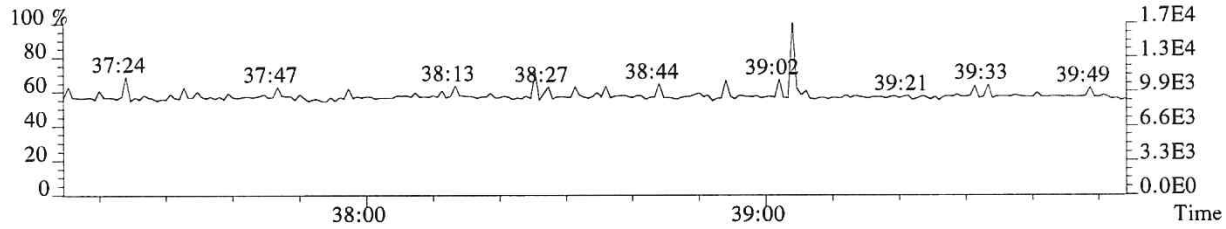
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1128.0,0.50%,F,T)



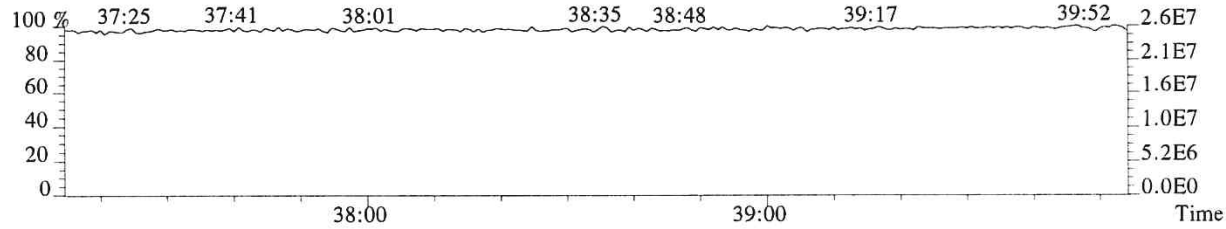
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3440.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

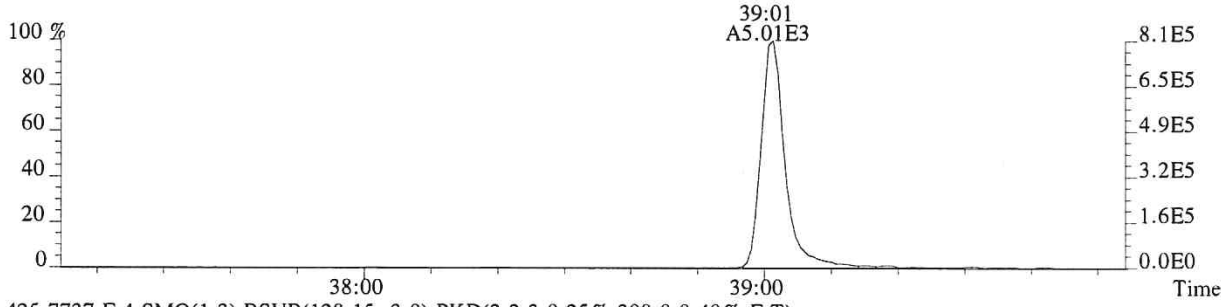


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

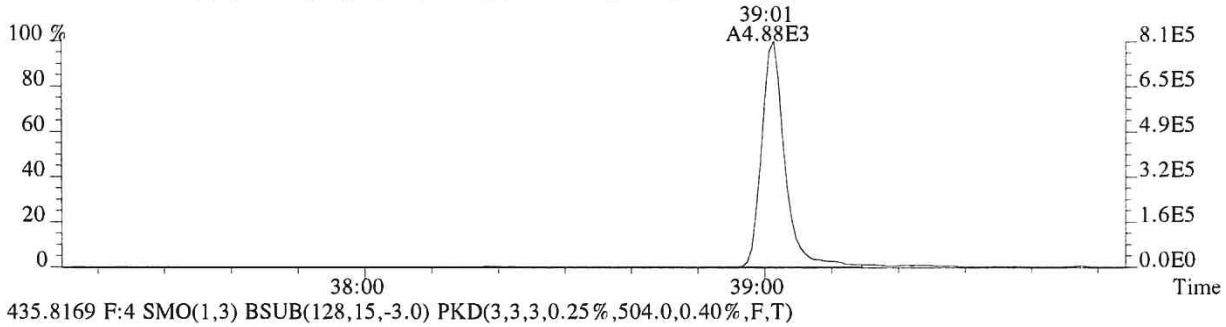


015781

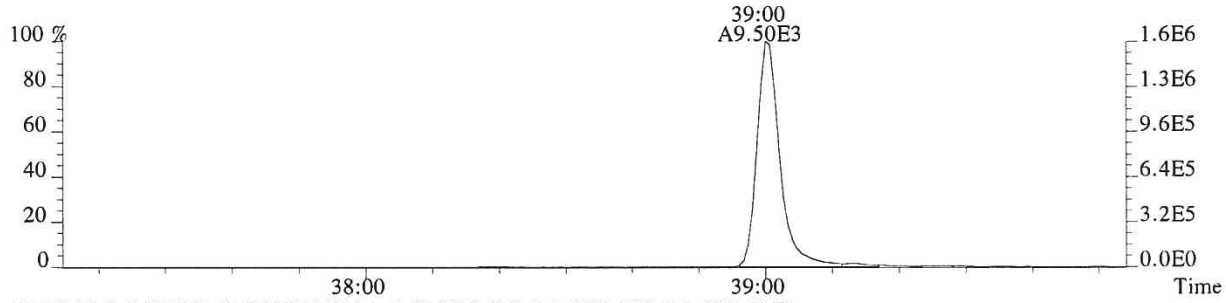
File:P519479 #1-240 Acq:19-DEC-2018 02:37:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,308.0,0.40%,F,T)



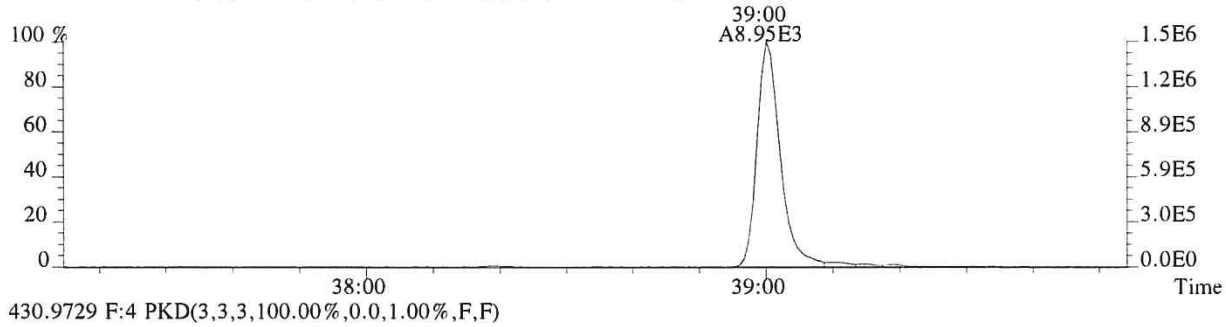
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,308.0,0.40%,F,T)



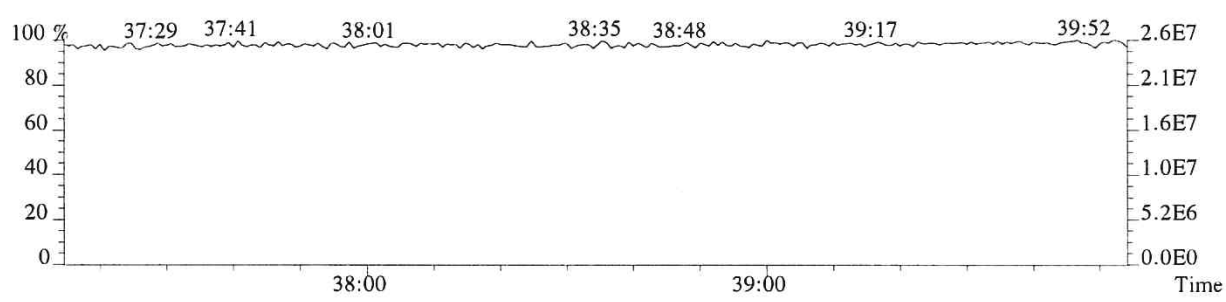
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,504.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,380.0,0.40%,F,T)



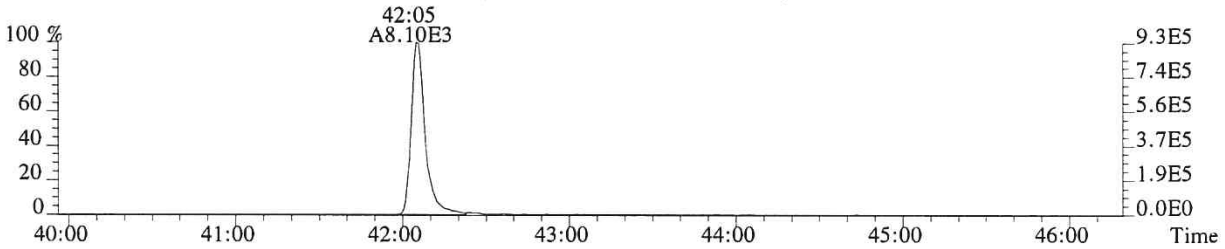
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



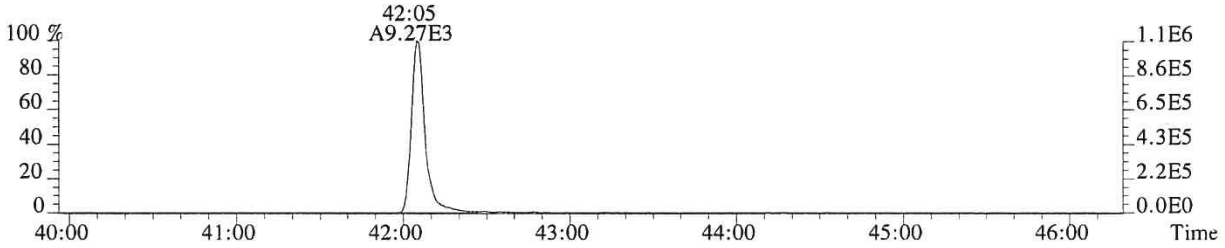
015782

File:P519479 #1-575 Acq:19-DEC-2018 02:37:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

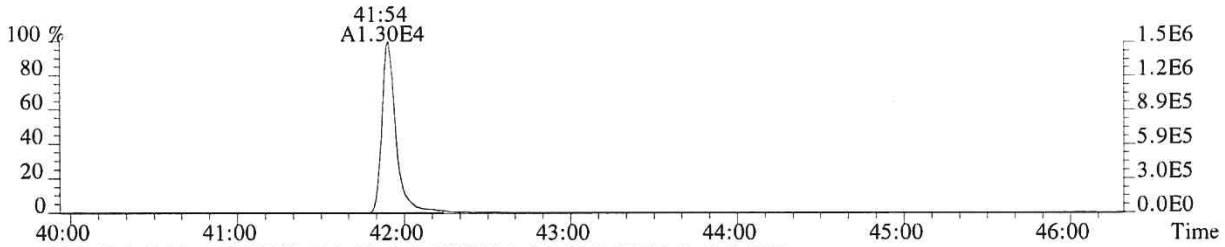
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,420.0,0.40%,F,T)



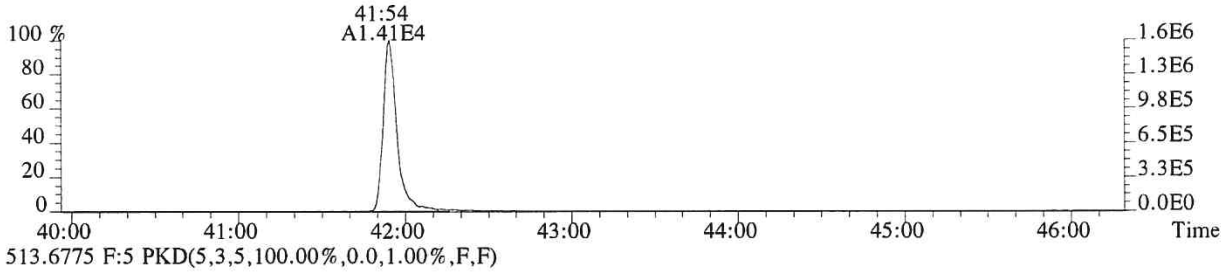
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,680.0,0.40%,F,T)



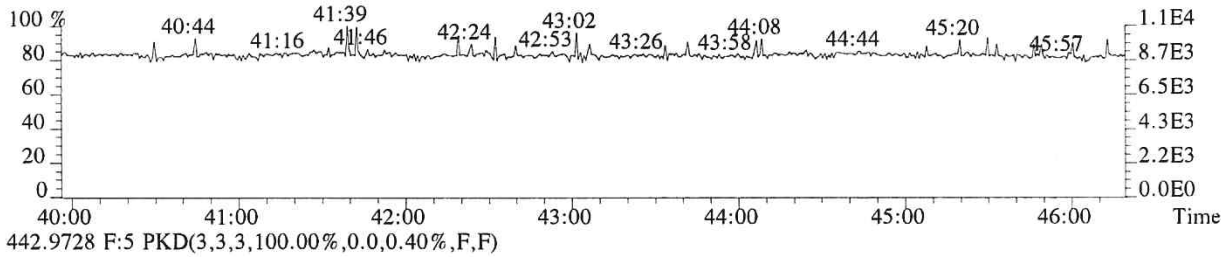
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,332.0,0.40%,F,T)



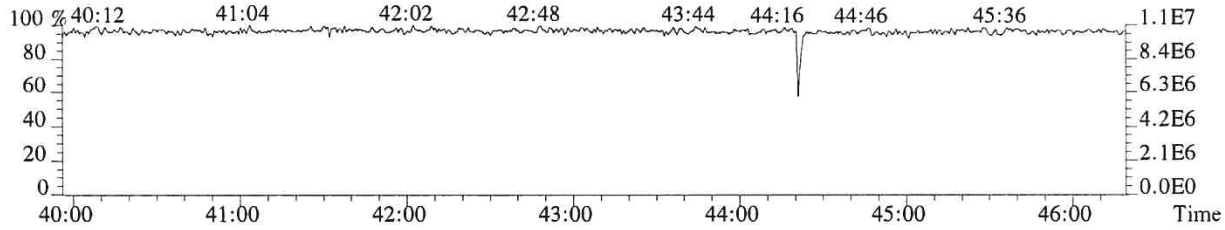
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,296.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

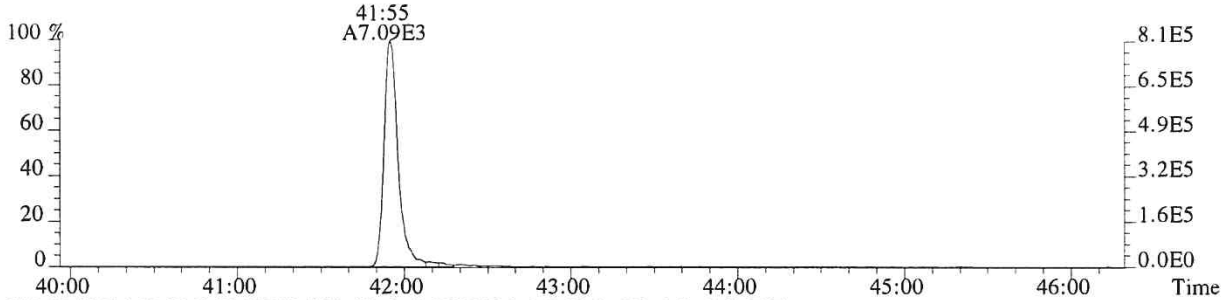


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

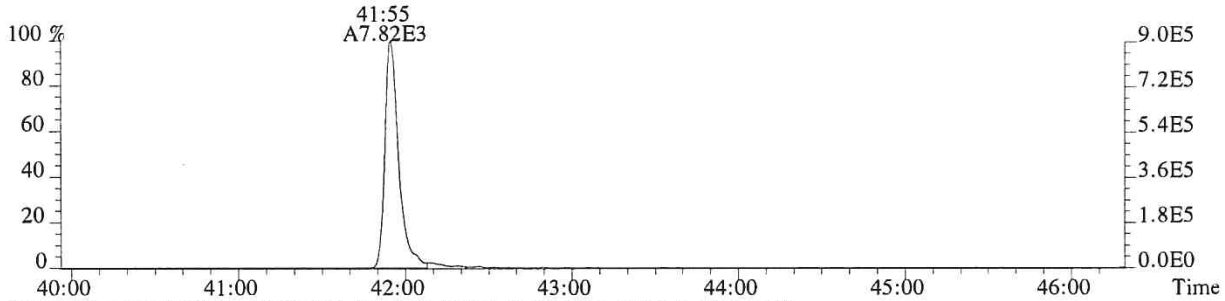


015783

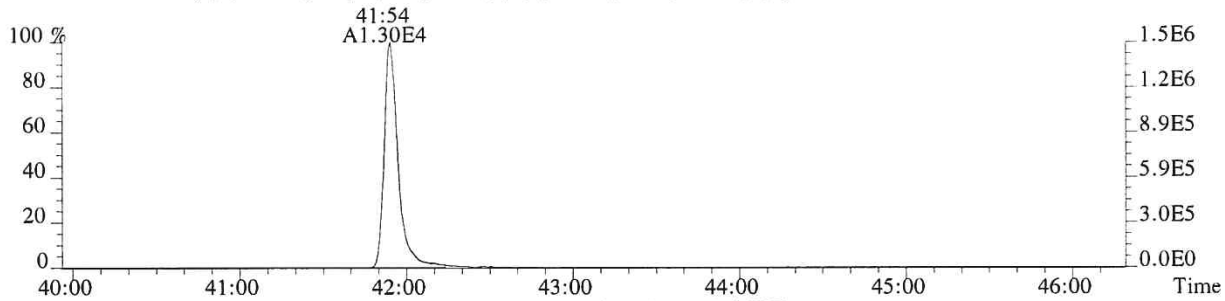
File:P519479 #1-575 Acq:19-DEC-2018 02:37:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,372.0,0.40%,F,T)



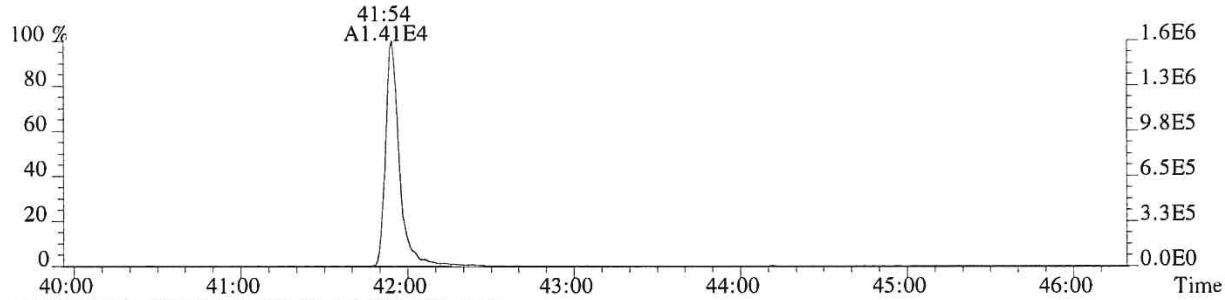
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,380.0,0.40%,F,T)



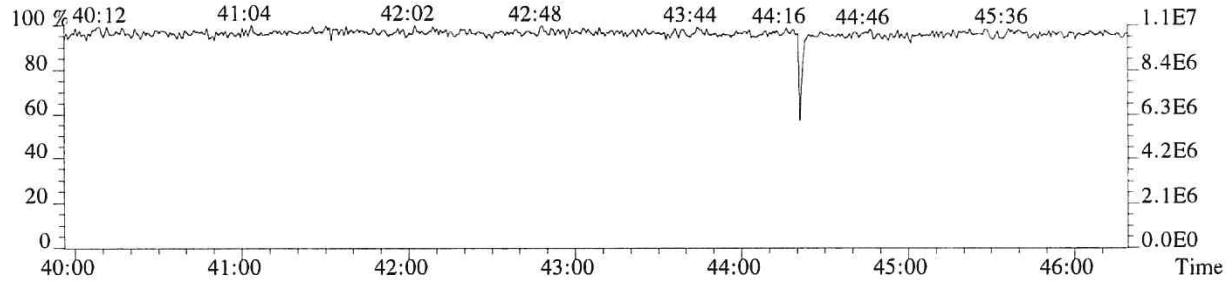
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,332.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,296.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



015784

CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: I519494

Date: 12/19 - 12/20/18

Circle one: (Beginning) / Ending

Method: (1613) / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: LKL

Second QC: WW

ccalqc.xls 07/17/12

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

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
192977	WINDOW DEFINE	P519495	19-DEC-18	16:26:45
194503	CS3	P519494	19-DEC-18	15:32:52
METHOD BLANK	EQ1800507-01	P519496	19-DEC-18	17:14:34
METHOD BLANK	EQ1800510-01	P519497	19-DEC-18	18:03:10
SL0023	E1801093-006	P519498	19-DEC-18	18:51:45
SL001	E1801093-016	P519499	19-DEC-18	19:40:23
SL0035	E1801094-006	P519500	19-DEC-18	20:28:59
SL0015	E1801094-019	P519501	19-DEC-18	21:17:37
SL0016	E1801094-020	P519502	19-DEC-18	22:06:15
SL0209	E1801096-009	P519503	19-DEC-18	22:54:52
SL0210	E1801096-010	P519504	19-DEC-18	23:43:31
SL0066	E1801096-011	P519505	20-DEC-18	00:32:08
SL0067	E1801096-012	P519506	20-DEC-18	01:20:46
DLCS	EQ1800510-03	P519507	20-DEC-18	02:09:25

Sample List Report — **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20181219C.SPL
Last Modified: Thursday, December 20, 2018 08:45:54 Central Standard Time
Printed: Thursday, December 20, 2018 08:45:55 Central Standard Time

OPUS 5 NET: P519494 RES

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	12/19/18	15:32	P519494	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2	LKL	#RMS check 15:27
2		16:26	P519495	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:1		
3		17:14	P519496	MB	EQ1800507-01	EPA1613_ALS	Dioxin_ALS	Tray1:3		
4		18:03	P519497	MB	EQ1800510-01	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		18:51	P519498	E1801093-006	E1801093-006	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		19:40	P519499	E1801093-016	E1801093-016	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		20:28	P519500	E1801094-006	E1801094-006	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		21:17	P519501	E1801094-019	E1801094-019	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		22:06	P519502	E1801094-020	E1801094-020	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		22:54	P519503	E1801096-009	E1801096-009	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		23:43	P519504	E1801096-010	E1801096-010	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12	12/20/18	00:32	P519505	E1801096-011	E1801096-011	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13		01:20	P519506	E1801096-012	E1801096-012	EPA1613_ALS	Dioxin_ALS	Tray1:13		
14		02:09	P519507	DLCS	EQ1800510-03	EPA1613_ALS	Dioxin_ALS	Tray1:14		
15		03:06	P519508	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2		#RMS check 03:06
16			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2		
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:18	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---
22	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---
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30	---	---	---	---	---	---	---	---	---	---
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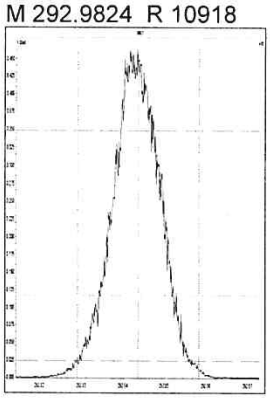
37	---	---	---	---	---	---	---	---	---	---
38	---	---	---	---	---	---	---	---	---	---
39	---	---	---	---	---	---	---	---	---	---

LKL 12/20/18

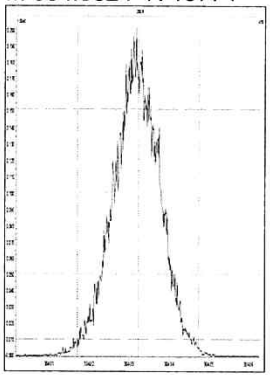
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Wednesday, December 19, 2018 15:27:44 Central Standard Time

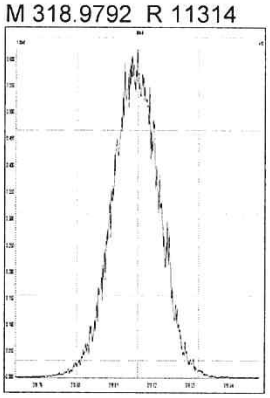
M 292.9824 R 10918



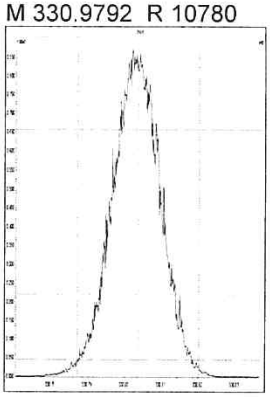
M 304.9824 R 10774



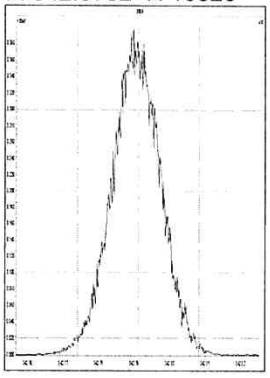
M 318.9792 R 11314



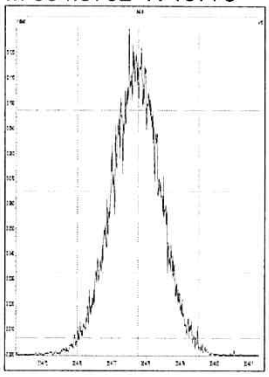
M 330.9792 R 10780



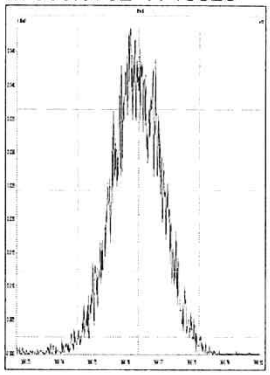
M 342.9792 R 10820



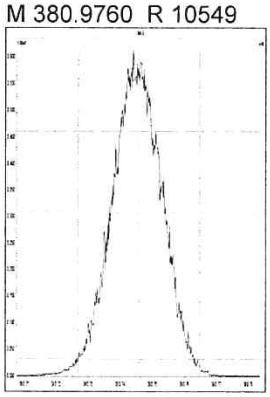
M 354.9792 R 10776



M 366.9792 R 10820



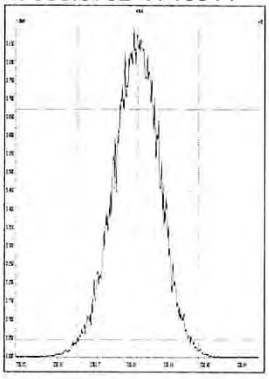
M 380.9760 R 10549



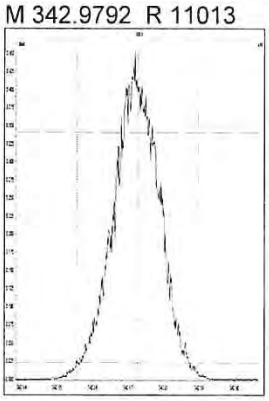
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Wednesday, December 19, 2018 15:28:49 Central Standard Time

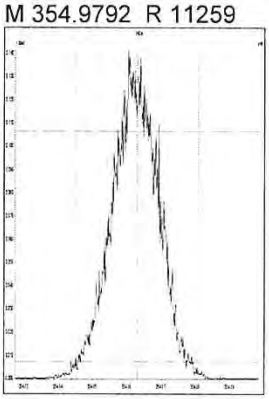
M 330.9792 R 10914



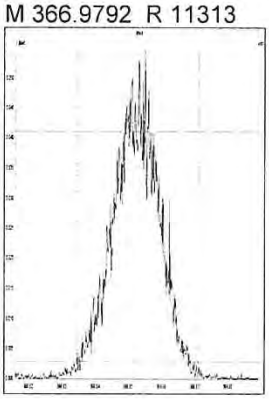
M 342.9792 R 11013



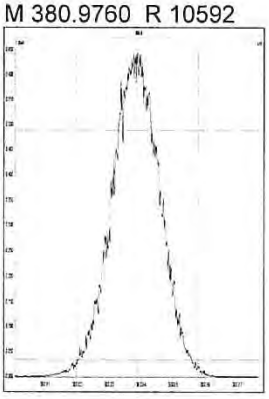
M 354.9792 R 11259



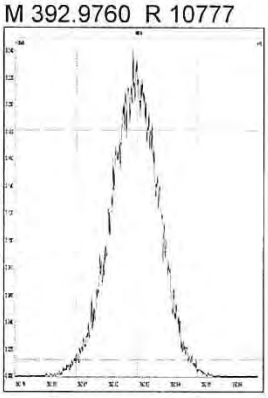
M 366.9792 R 11313



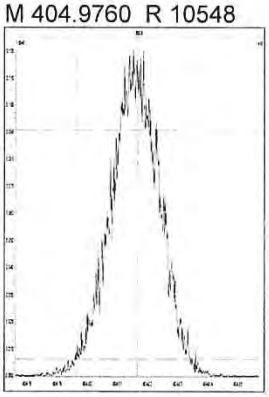
M 380.9760 R 10592



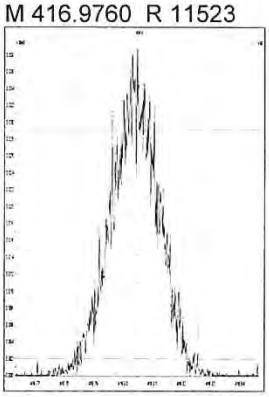
M 392.9760 R 10777



M 404.9760 R 10548



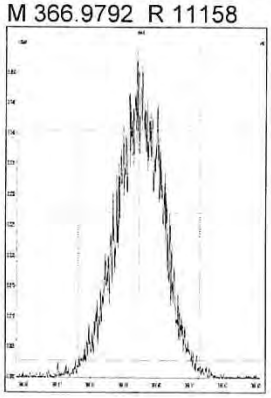
M 416.9760 R 11523



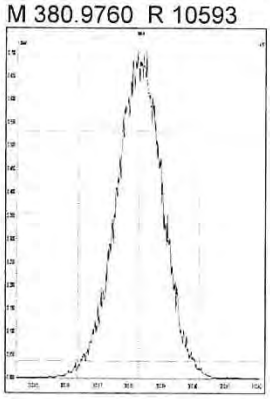
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Wednesday, December 19, 2018 15:29:53 Central Standard Time

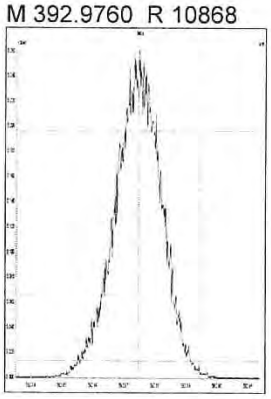
M 366.9792 R 11158



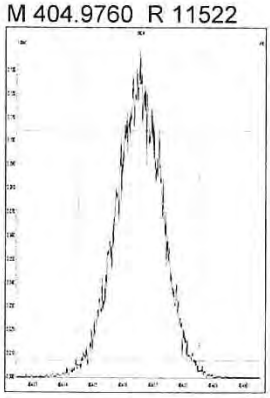
M 380.9760 R 10593



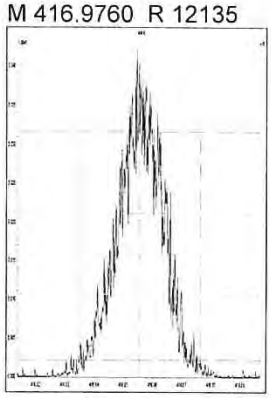
M 392.9760 R 10868



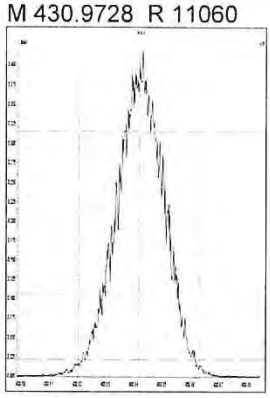
M 404.9760 R 11522



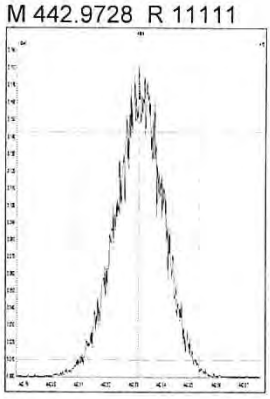
M 416.9760 R 12135



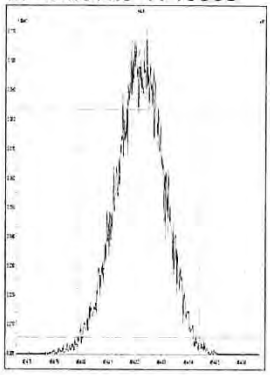
M 430.9728 R 11060



M 442.9728 R 11111



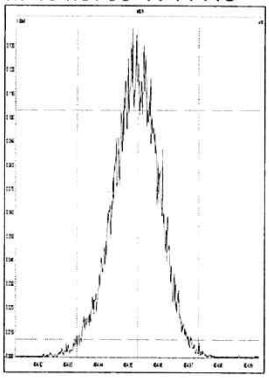
M 454.9728 R 10868



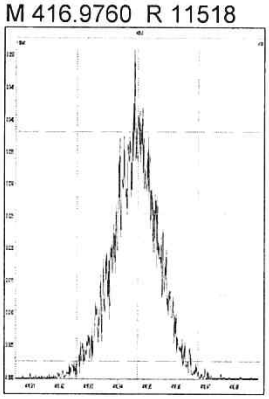
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Wednesday, December 19, 2018 15:31:00 Central Standard Time

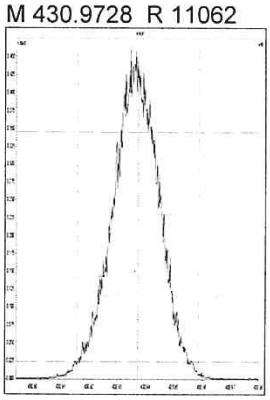
M 404.9760 R 11415



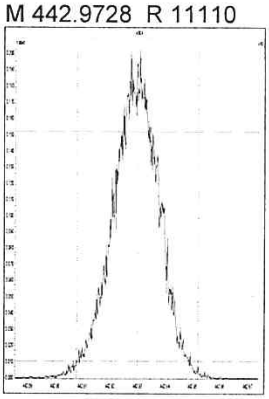
M 416.9760 R 11518



M 430.9728 R 11062



M 442.9728 R 11110



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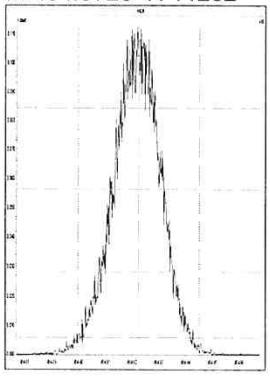
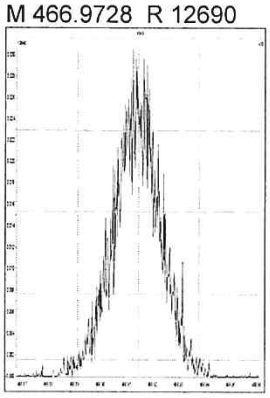
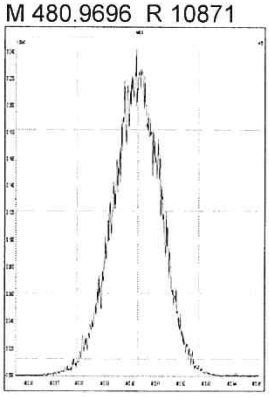


M 466.9728 R 12690



M 480.9696 R 10871



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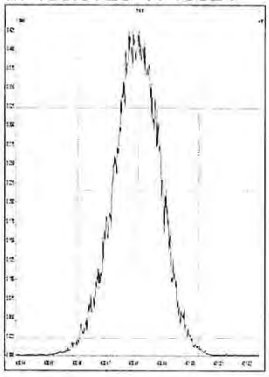
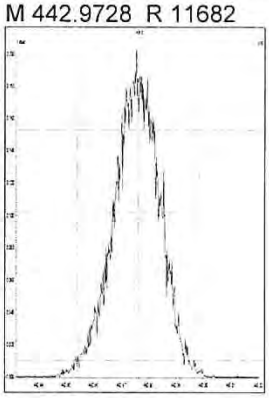
Printed: Wednesday, December 19, 2018 15:32:06 Central Standard Time

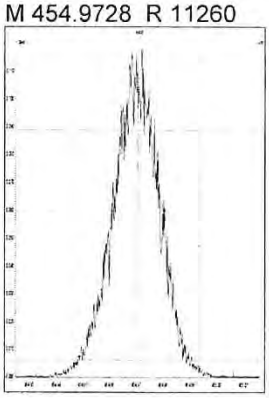
M 430.9728 R 10824



M 442.9728 R 11682



M 454.9728 R 11260



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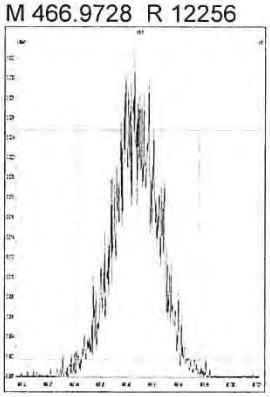
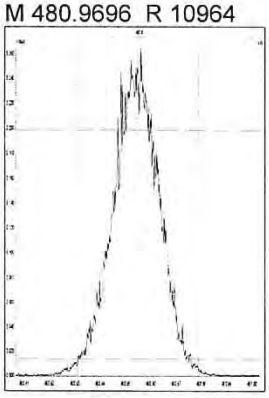
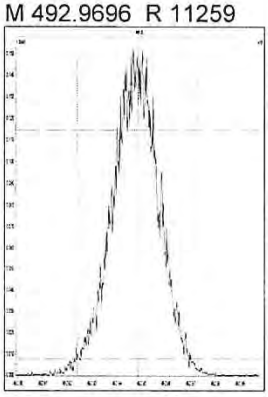


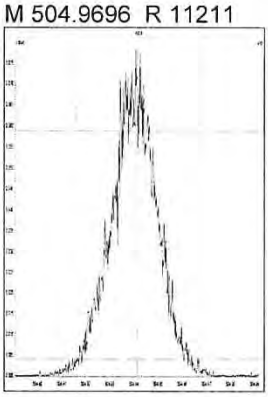
M 480.9696 R 10964



M 492.9696 R 11259



M 504.9696 R 11211



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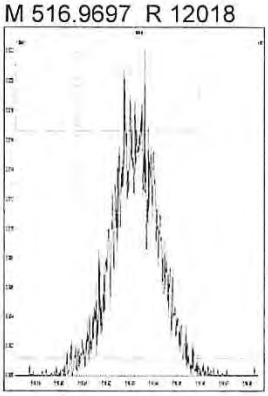
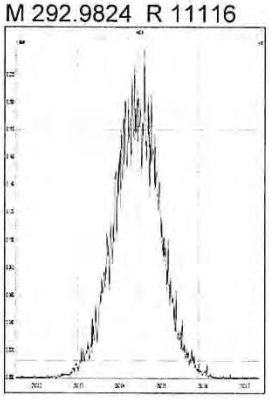
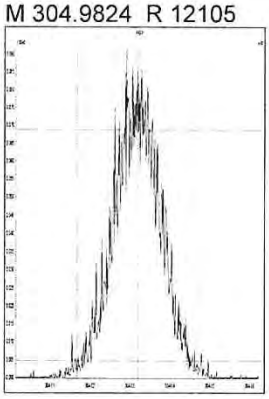


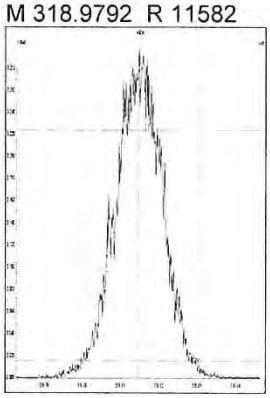
M 292.9824 R 11116



M 304.9824 R 12105



M 318.9792 R 11582



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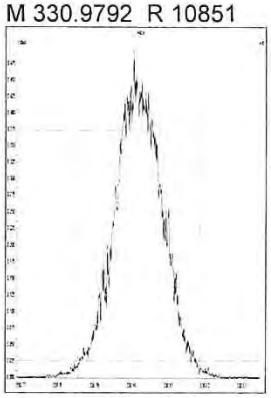
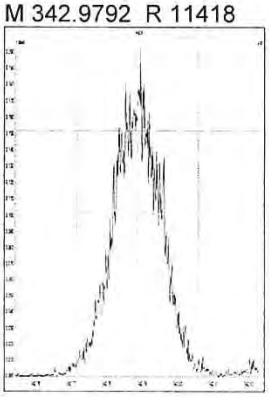


M 342.9792 R 11418



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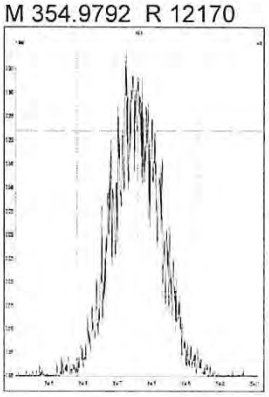

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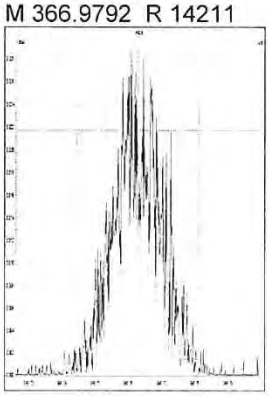
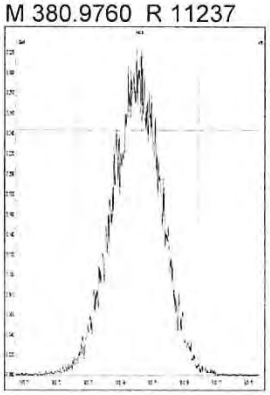


M 380.9760 R 11237



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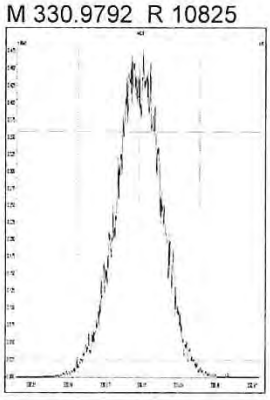
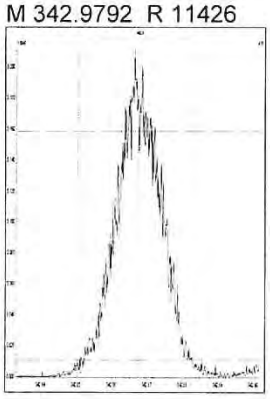
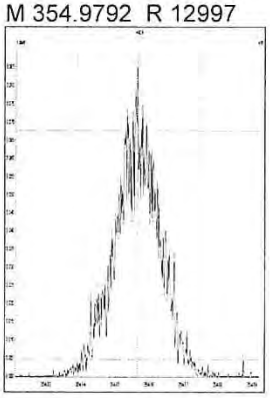


M 342.9792 R 11426



M 354.9792 R 12997



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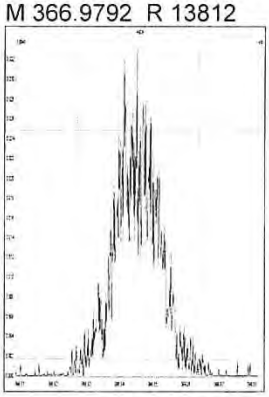
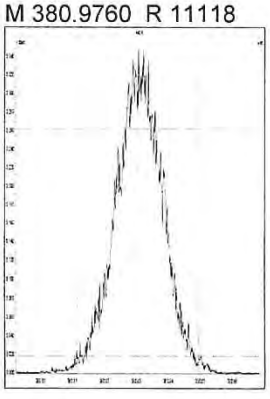
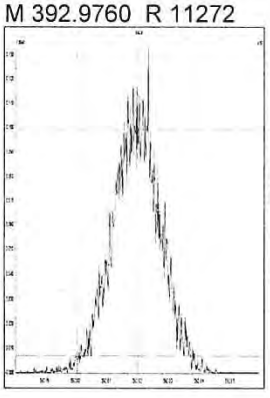


M 380.9760 R 11118



M 392.9760 R 11272



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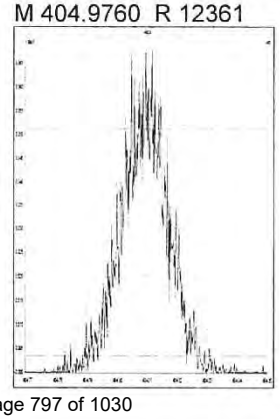
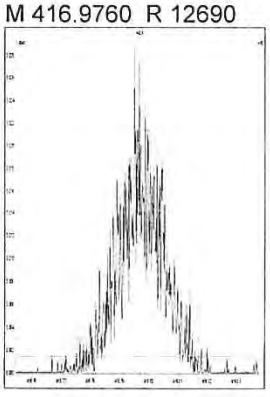


M 416.9760 R 12690



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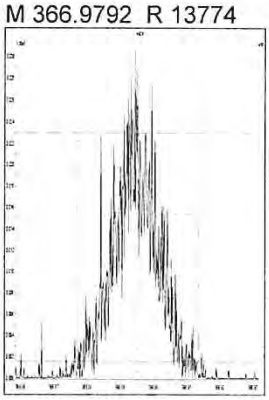

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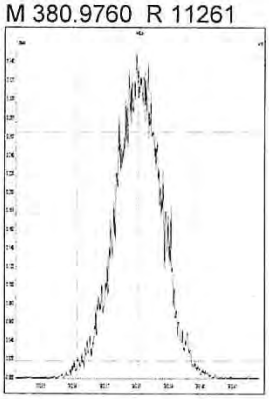
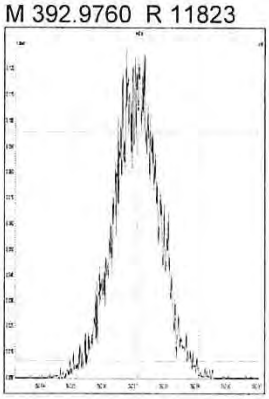


M 392.9760 R 11823



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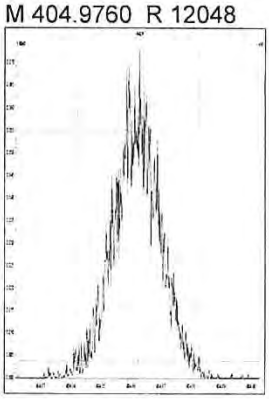
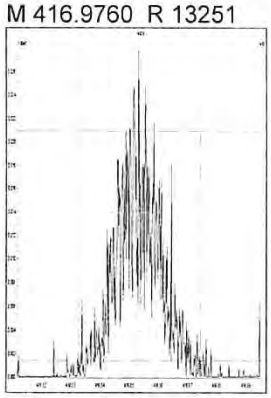
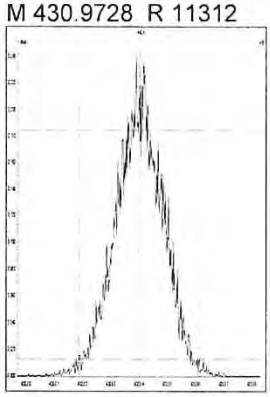


M 416.9760 R 13251



M 430.9728 R 11312



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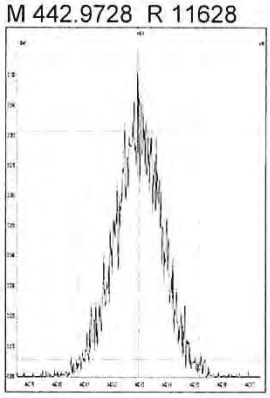
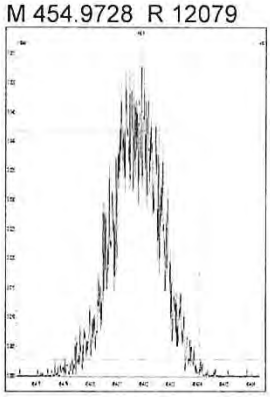
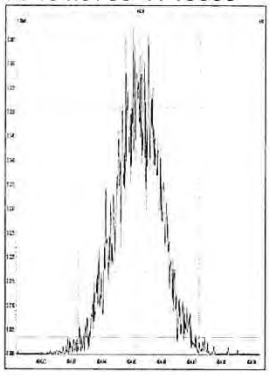


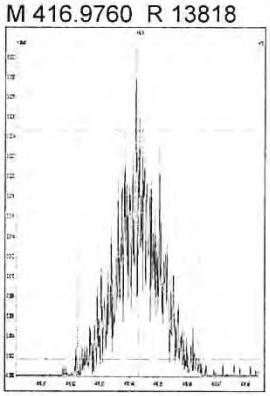
M 454.9728 R 12079



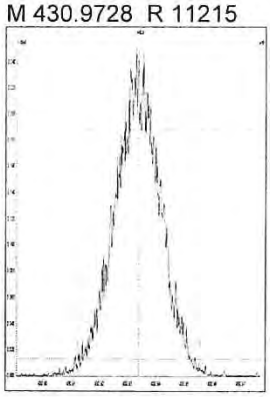
M 404.9760 R 13033



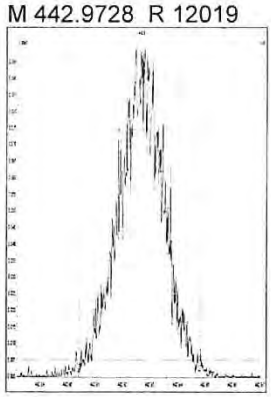
M 416.9760 R 13818



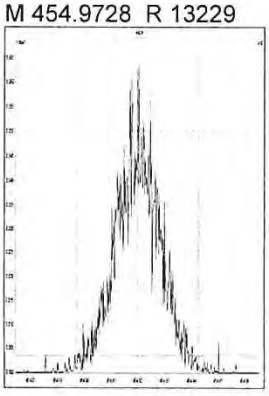
M 430.9728 R 11215



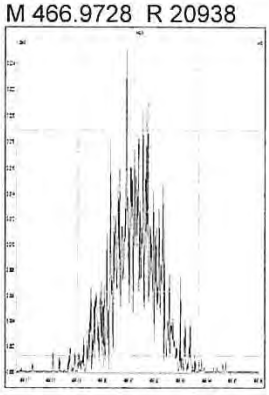
M 442.9728 R 12019



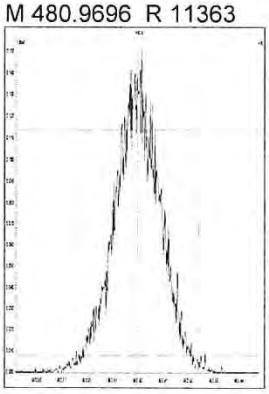
M 454.9728 R 13229



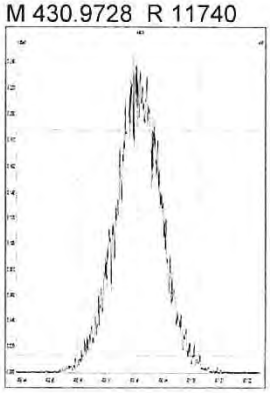
M 466.9728 R 20938



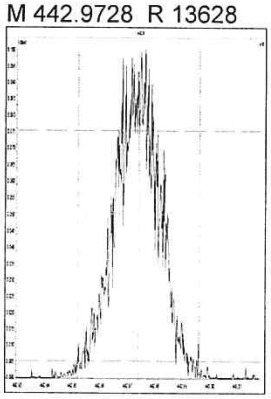
M 480.9696 R 11363



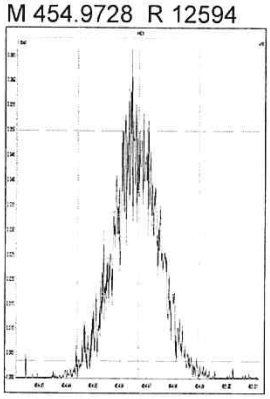
M 430.9728 R 11740



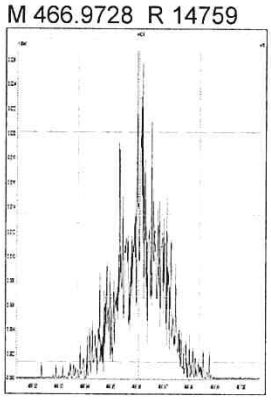
M 442.9728 R 13628



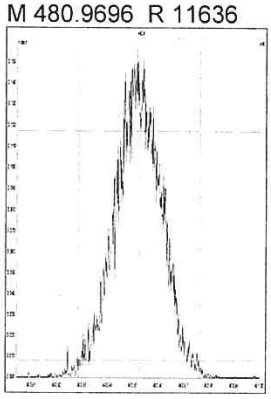
M 454.9728 R 12594



M 466.9728 R 14759



M 480.9696 R 11636



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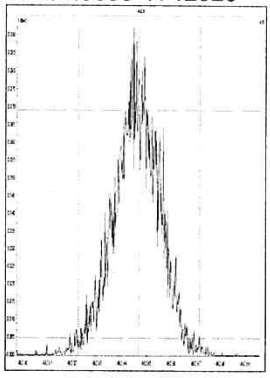
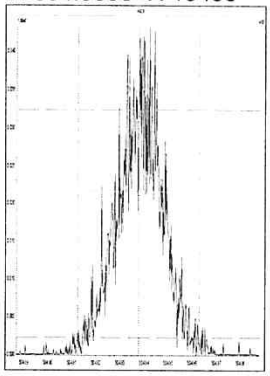
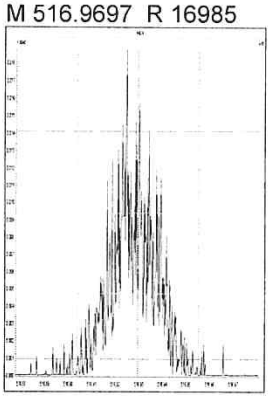


M 504.9696 R 13436



M 516.9697 R 16985



WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

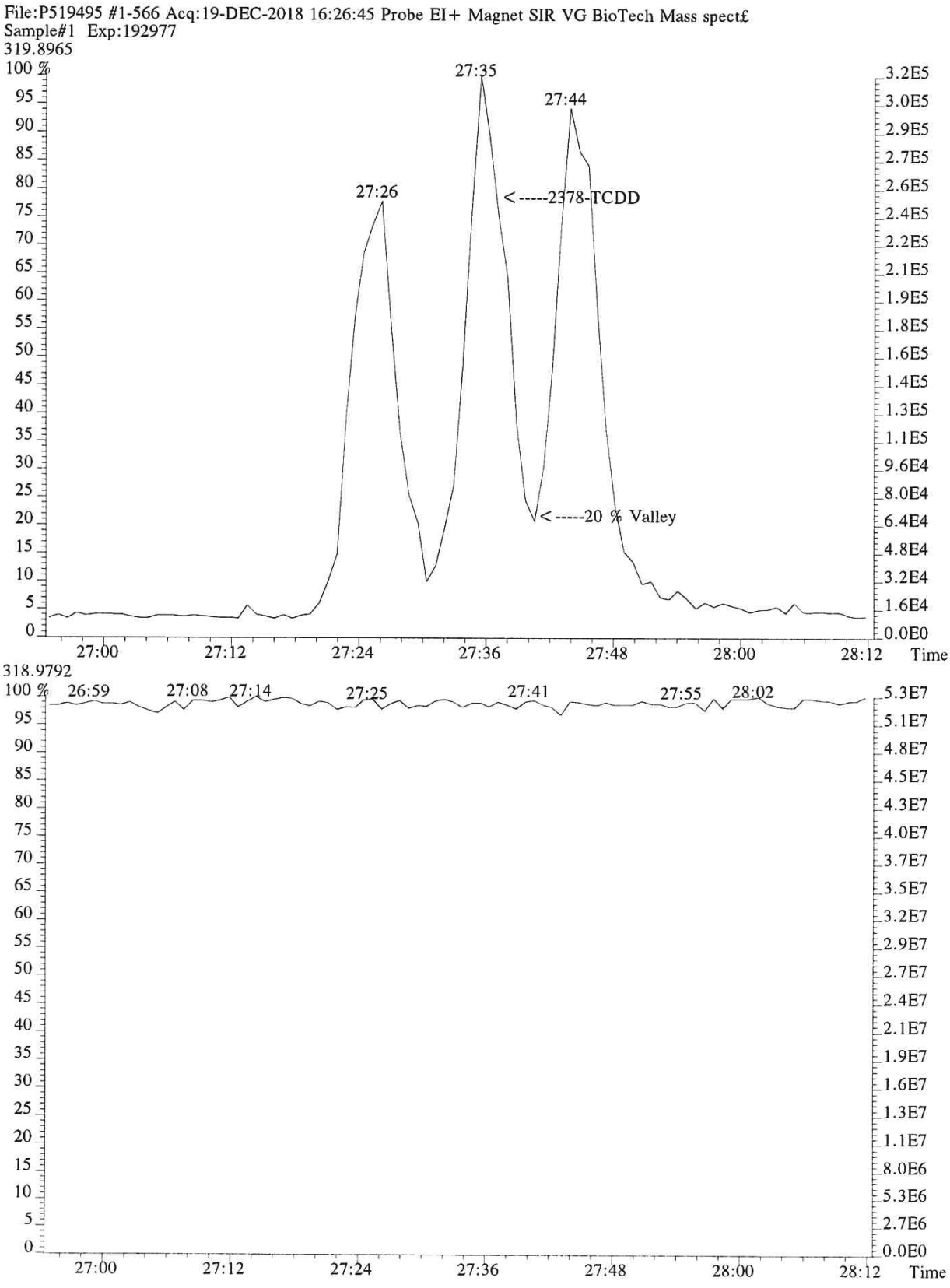
Case No.: _____ SDG No.:
ID: 0.25 (mm)

Lab File ID: P519495
Date Analyzed: 19-DEC-18
Time Analyzed: 16:26:45

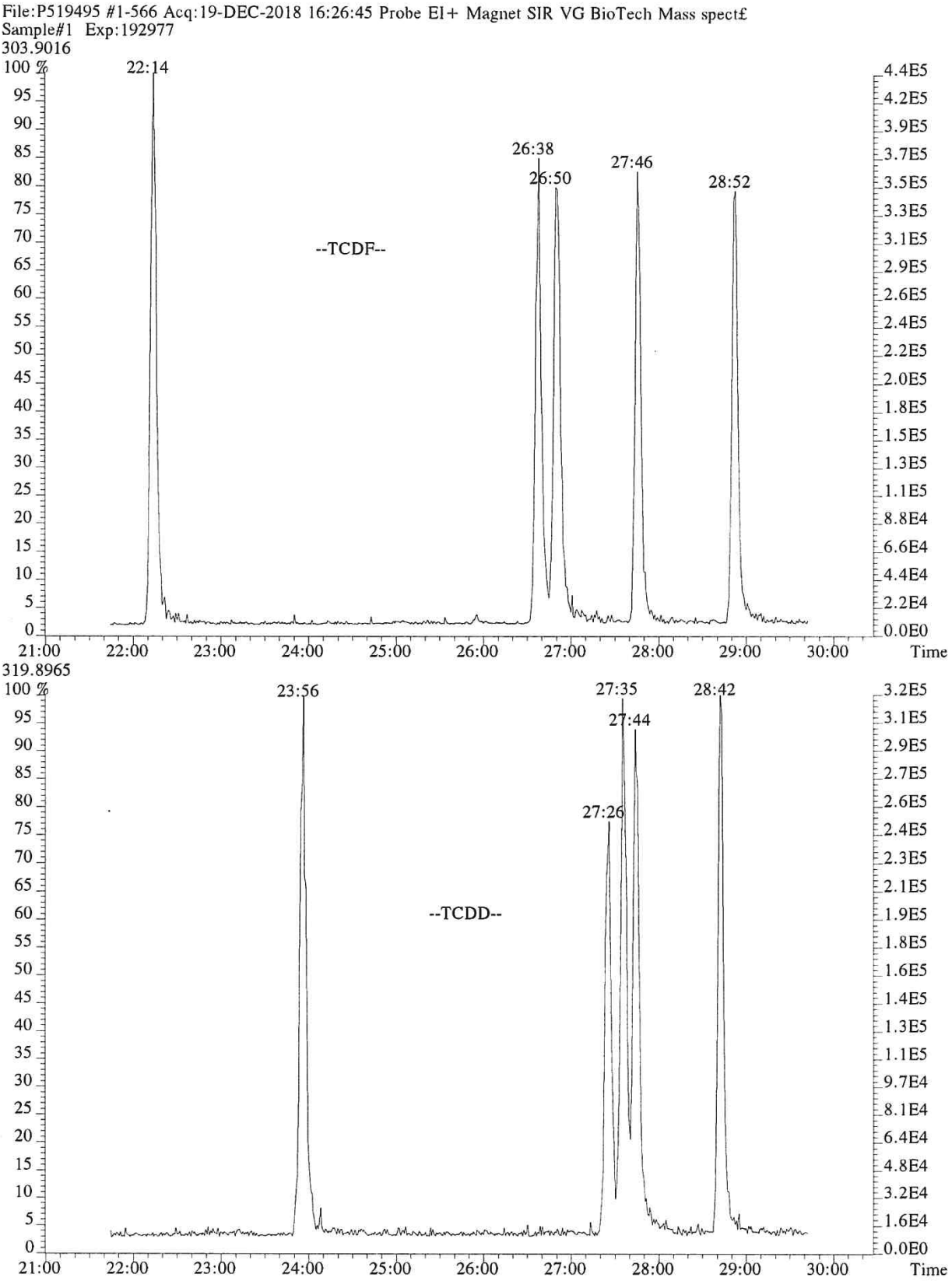
Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	22:14	28:52
TCDD	23:56	28:42
PeCDF	28:51	33:24
PeCDD	30:31	33:08
HxCDF	34:07	36:45
HxCDD	34:40	36:20
HpCDF	38:05	39:31
HpCDD	38:22	39:04

% Valley 2378-TCDD: 20 %

015796

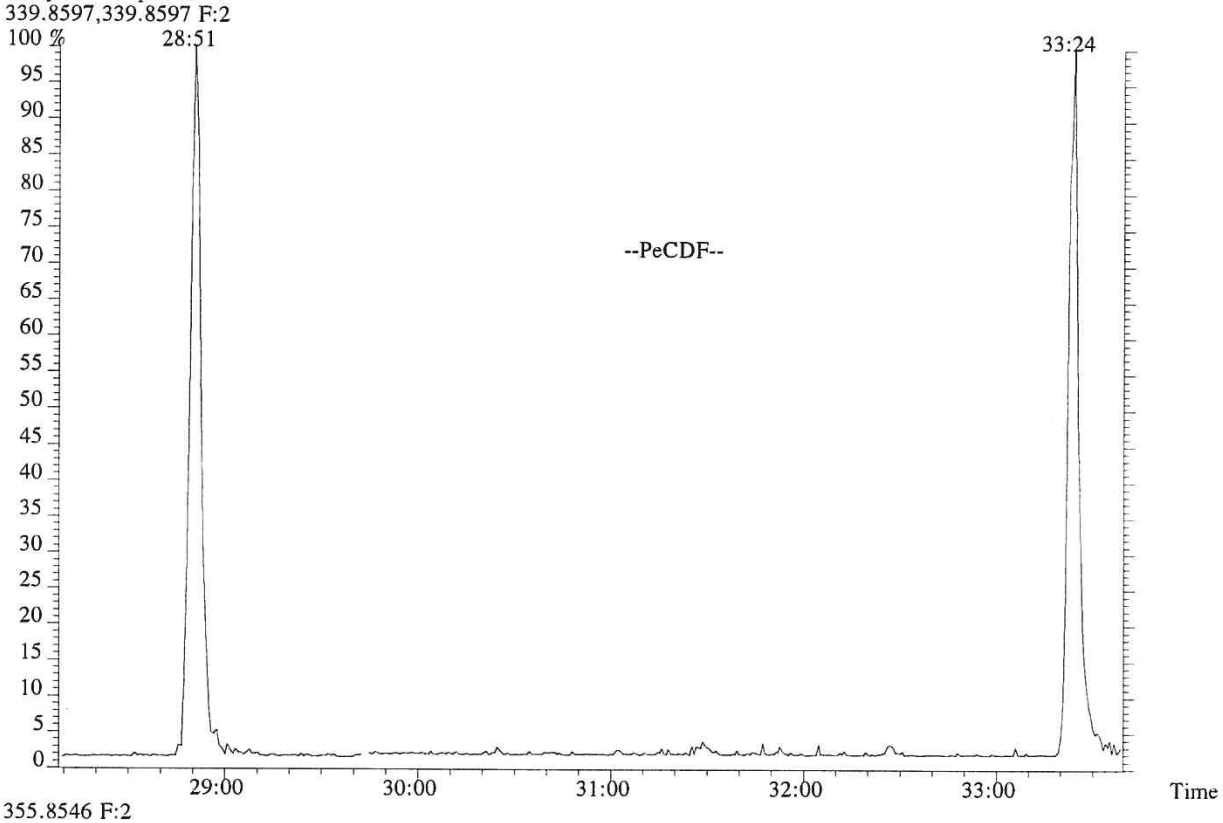

File:P519495 #1-566 Acq:19-DEC-2018 16:26:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
319.8965
27:35
27:44
27:26
<-----2378-TCDD
<-----20 % Valley
Time
318.9792
26:59
27:08
27:14
27:25
27:41
27:55
28:02
Time

015797

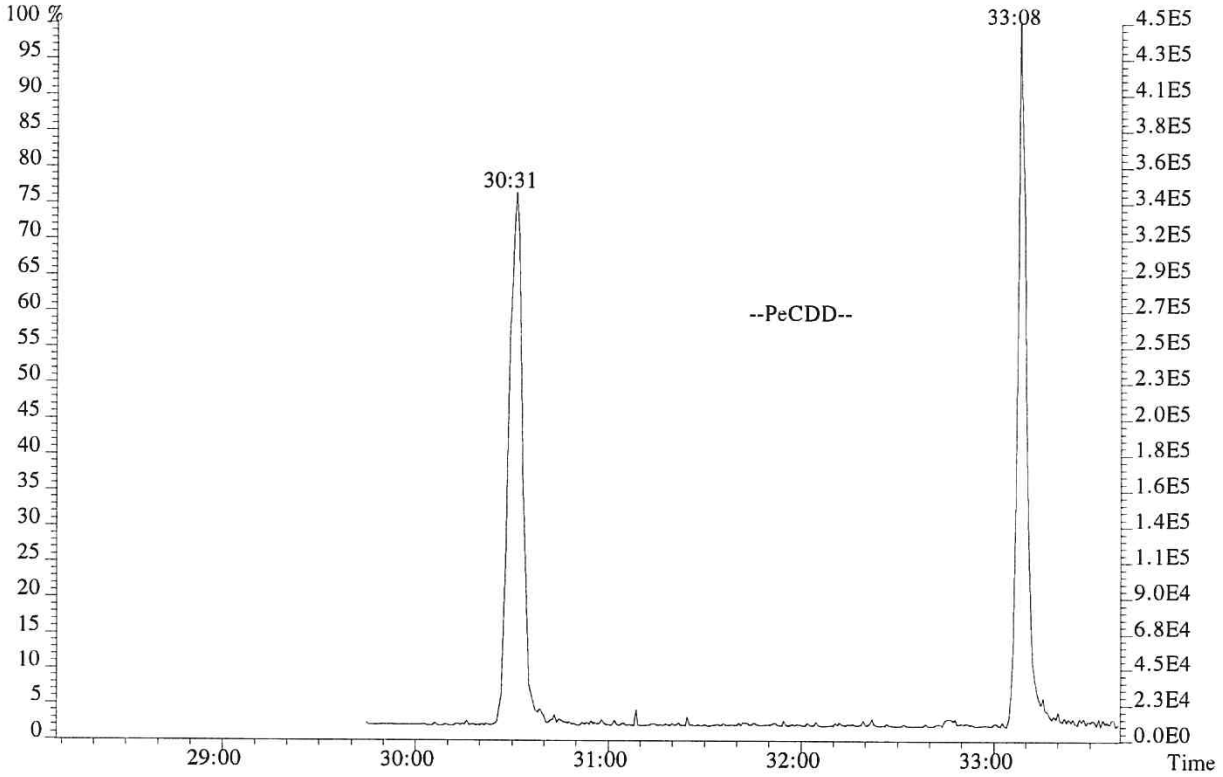

File:P519495 #1-566 Acq:19-DEC-2018 16:26:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
303.9016
22:14
26:38
26:50
27:46
28:52
--TCDF--
319.8965
23:56
27:26
27:35
27:44
28:42
--TCDD--
Time

015798

File:P519495 #1-566 Acq:19-DEC-2018 16:26:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
339.8597,339.8597 F:2



355.8546 F:2



015799

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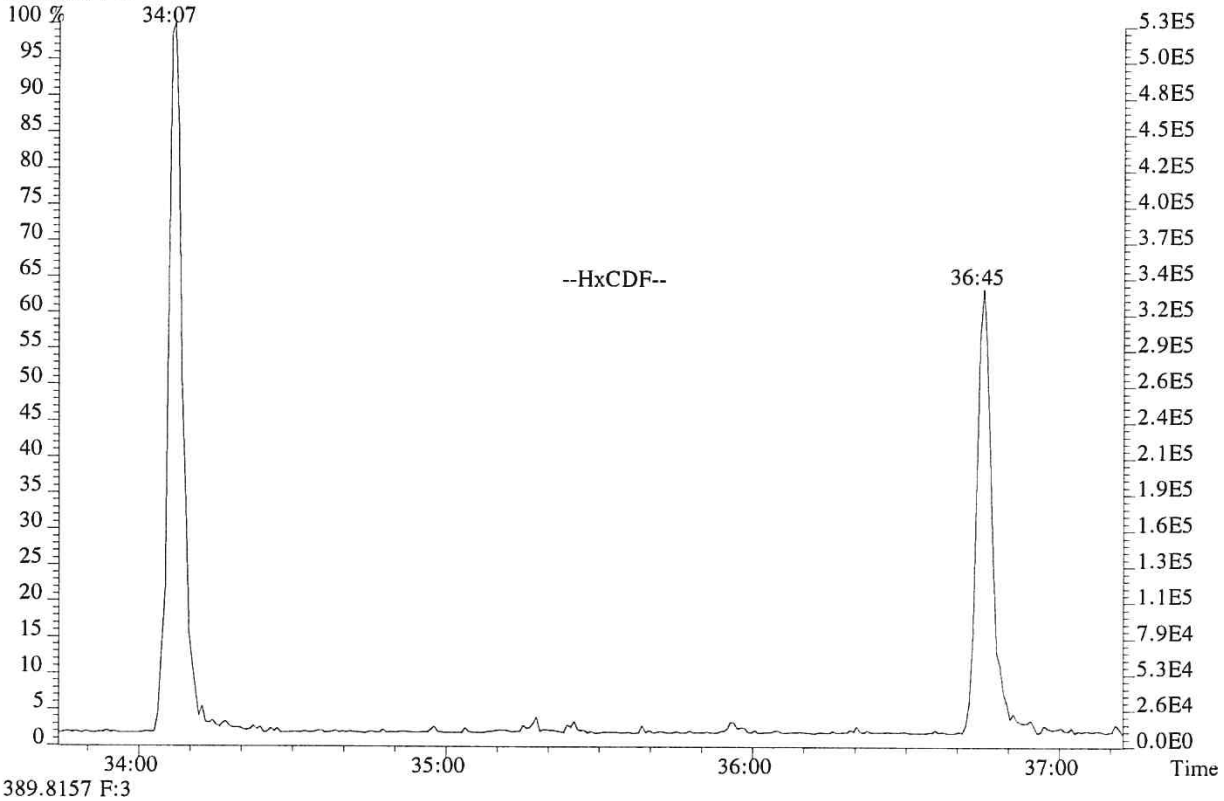
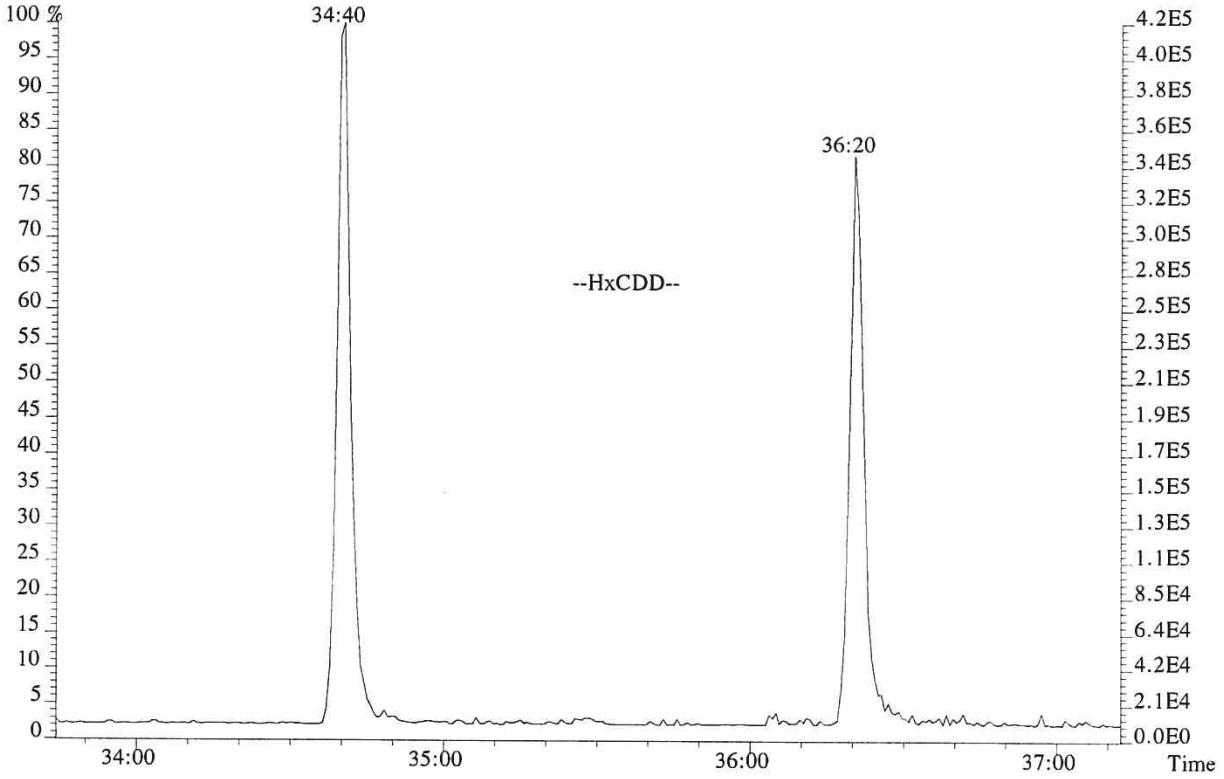
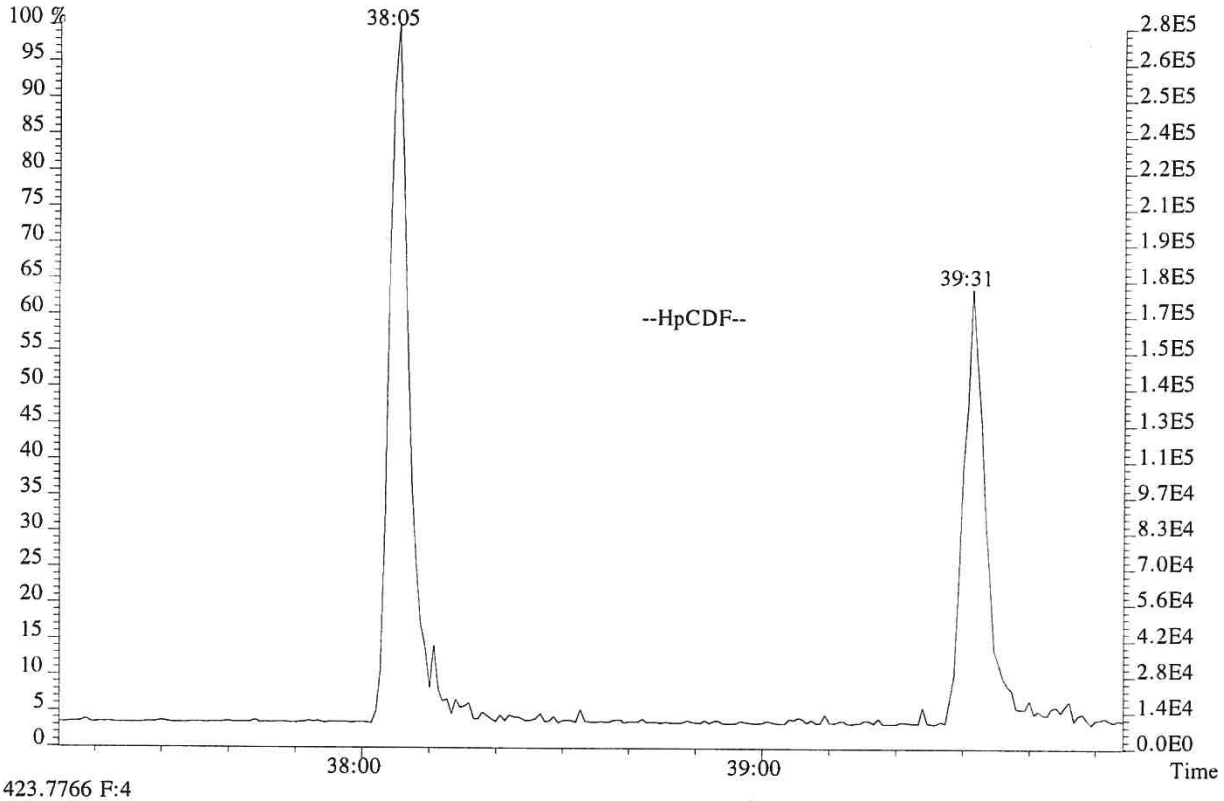
Sample#1 Exp:192977
373.8208 F:3



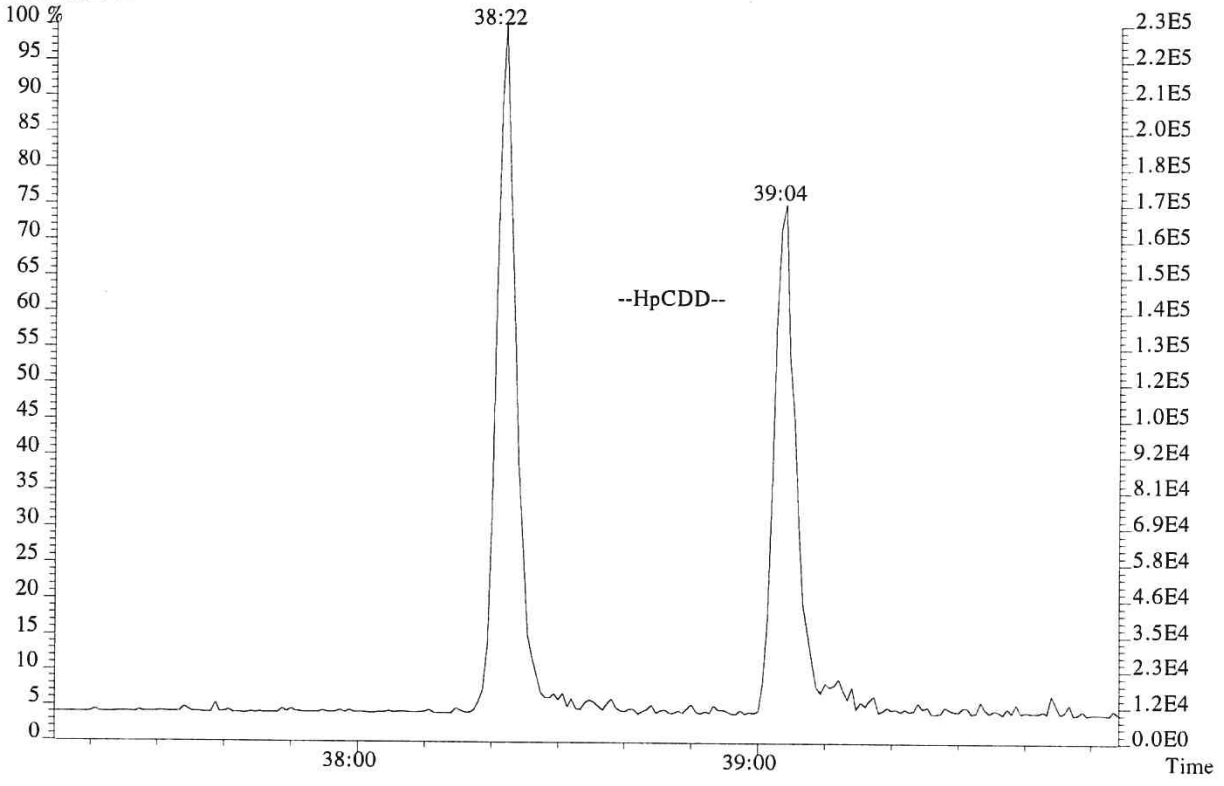
389.8157 F:3



File:P519495 #1-566 Acq:19-DEC-2018 16:26:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
407.7818 F:4



423.7766 F:4



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519494 Analysis Date: 19-DEC-18 Time: 15:32:52

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	10.5	7.8 - 12.9	4.6
1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	51	39 - 65	1.9
1,2,3,4,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	49	39 - 64	-2.7
1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	51	39 - 64	1.6
1,2,3,7,8,9-HxCDD	M+2/M+4	1.27	1.05-1.43	52	41 - 61	5.0
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.03	0.88-1.20	51	43 - 58	1.1
OCDD	M+2/M+4	0.87	0.76-1.02	101	79 - 126	0.9
2,3,7,8-TCDF	M/M+2	0.75	0.65-0.89	10.8	8.4 - 12.0	8.0
1,2,3,7,8-PeCDF	M+2/M+4	1.55	1.32-1.78	50	41 - 60	-0.7
2,3,4,7,8-PeCDF	M+2/M+4	1.53	1.32-1.78	50	41 - 61	-0.3
1,2,3,4,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	51	45 - 56	2.8
1,2,3,6,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	50	44 - 57	-0.8
1,2,3,7,8,9-HxCDF	M+2/M+4	1.30	1.05-1.43	51	45 - 56	1.3
2,3,4,6,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	51	44 - 57	2.0
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.06	0.88-1.20	48	45 - 55	-3.5
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.01	0.88-1.20	51	43 - 58	1.3
OCDF	M+2/M+4	0.86	0.76-1.02	95	63 - 159	-5.0

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519494 Analysis Date: 19-DEC-18 Time: 15:32:52

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	98	82 - 121	-2.3
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.61	1.32-1.78	112	62 - 160	12.1
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	97	85 - 117	-2.7
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.30	1.05-1.43	101	85 - 118	0.5
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.08	0.88-1.20	91	72 - 138	-9.4
13C-OCDD	M+2/M+4	0.91	0.76-1.02	173	96 - 415	-13.4
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	89	71 - 140	-11.2
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.61	1.32-1.78	108	76 - 130	8.1
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	109	77 - 130	9.4
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.51	0.43-0.59	90	76 - 131	-9.9
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	96	70 - 143	-4.1
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.51	0.43-0.59	90	74 - 135	-9.8
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	97	73 - 137	-2.9
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.43	0.37-0.51	92	78 - 129	-8.0
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.42	0.37-0.51	86	77 - 129	-14.3
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD	M+2/M+4			9.5	7.8 - 12.7	-5.0

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #7 Filename P519494 Samp: 1 Inj: 1 Acquired: 19-DEC-18 15:32:52
Processed: 20-DEC-18 10:33:29 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:51	1.254e+03	1.663e+03	0.75	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	31:28	1.038e+04	6.690e+03	1.55	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	32:26	9.828e+03	6.445e+03	1.53	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:17	8.047e+03	6.535e+03	1.23	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:24	8.781e+03	7.222e+03	1.22	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:56	8.144e+03	6.651e+03	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	36:43	6.863e+03	5.288e+03	1.30	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:05	6.388e+03	6.031e+03	1.06	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:31	4.823e+03	4.768e+03	1.01	yes	no	1.258
10	Unk	OCDF	42:09	6.432e+03	7.515e+03	0.86	yes	no	1.359
11	Unk	2,3,7,8-TCDD	27:44	9.688e+02	1.218e+03	0.80	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	32:45	6.988e+03	4.384e+03	1.59	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:05	5.396e+03	4.341e+03	1.24	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:10	6.019e+03	4.766e+03	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:25	6.211e+03	4.874e+03	1.27	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:03	4.370e+03	4.260e+03	1.03	yes	no	1.025
17	Unk	OCDD	41:59	5.680e+03	6.513e+03	0.87	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	26:49	1.269e+04	1.599e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	31:27	2.093e+04	1.302e+04	1.61	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	32:25	2.075e+04	1.329e+04	1.56	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:16	8.045e+03	1.580e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:23	9.835e+03	1.890e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:55	8.915e+03	1.723e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	36:42	7.083e+03	1.390e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:05	5.770e+03	1.329e+04	0.43	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:30	4.492e+03	1.057e+04	0.42	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	27:43	8.479e+03	1.079e+04	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:44	1.441e+04	8.931e+03	1.61	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:04	1.082e+04	8.466e+03	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:10	1.157e+04	8.876e+03	1.30	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:03	8.627e+03	8.025e+03	1.08	yes	no	0.858
32	IS	13C-OCDD	41:58	1.031e+04	1.131e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:04	9.528e+03	1.183e+04	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:24	1.192e+04	9.513e+03	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:44	2.057e+03				no	1.014

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #7 Filename P519494 Samp: 1 Inj: 1 Acquired: 19-DEC-18 15:32:52
Processed: 20-DEC-18 10:33:29 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	1.87e+05	7.92e+02	2.4e+02	2.57e+05	1.80e+03	1.4e+02
2	1,2,3,7,8-PeCDF	1.78e+06	6.84e+02	2.6e+03	1.13e+06	1.04e+03	1.1e+03
3	2,3,4,7,8-PeCDF	1.80e+06	6.84e+02	2.6e+03	1.15e+06	1.04e+03	1.1e+03
4	1,2,3,4,7,8-HxCDF	1.62e+06	6.28e+02	2.6e+03	1.31e+06	5.52e+02	2.4e+03
5	1,2,3,6,7,8-HxCDF	1.67e+06	6.28e+02	2.7e+03	1.39e+06	5.52e+02	2.5e+03
6	2,3,4,6,7,8-HxCDF	1.58e+06	6.28e+02	2.5e+03	1.31e+06	5.52e+02	2.4e+03
7	1,2,3,7,8,9-HxCDF	1.24e+06	6.28e+02	2.0e+03	9.77e+05	5.52e+02	1.8e+03
8	1,2,3,4,6,7,8-HpCDF	1.15e+06	6.96e+02	1.7e+03	1.12e+06	3.76e+02	3.0e+03
9	1,2,3,4,7,8,9-HpCDF	7.75e+05	6.96e+02	1.1e+03	7.46e+05	3.76e+02	2.0e+03
10	OCDF	7.22e+05	4.24e+02	1.7e+03	8.51e+05	1.08e+03	7.9e+02
11	2,3,7,8-TCDD	1.56e+05	2.02e+03	7.7e+01	1.88e+05	6.72e+02	2.8e+02
12	1,2,3,7,8-PeCDD	1.24e+06	3.00e+02	4.1e+03	7.94e+05	4.60e+02	1.7e+03
13	1,2,3,4,7,8-HxCDD	1.13e+06	3.48e+02	3.3e+03	8.86e+05	7.84e+02	1.1e+03
14	1,2,3,6,7,8-HxCDD	1.14e+06	3.48e+02	3.3e+03	9.13e+05	7.84e+02	1.2e+03
15	1,2,3,7,8,9-HxCDD	1.16e+06	3.48e+02	3.3e+03	9.30e+05	7.84e+02	1.2e+03
16	1,2,3,4,6,7,8-HpCDD	7.27e+05	5.32e+02	1.4e+03	7.05e+05	3.88e+02	1.8e+03
17	OCDD	6.65e+05	3.84e+02	1.7e+03	7.62e+05	6.72e+02	1.1e+03
18	13C-2,3,7,8-TCDF	1.97e+06	7.67e+03	2.6e+02	2.43e+06	5.20e+03	4.7e+02
19	13C-1,2,3,7,8-PeCDF	3.51e+06	5.84e+02	6.0e+03	2.19e+06	6.16e+02	3.6e+03
20	13C-2,3,4,7,8-PeCDF	3.69e+06	5.84e+02	6.3e+03	2.35e+06	6.16e+02	3.8e+03
21	13C-1,2,3,4,7,8-HxCDF	1.59e+06	9.12e+02	1.7e+03	3.11e+06	9.56e+02	3.3e+03
22	13C-1,2,3,6,7,8-HxCDF	1.90e+06	9.12e+02	2.1e+03	3.60e+06	9.56e+02	3.8e+03
23	13C-2,3,4,6,7,8-HxCDF	1.69e+06	9.12e+02	1.9e+03	3.32e+06	9.56e+02	3.5e+03
24	13C-1,2,3,7,8,9-HxCDF	1.30e+06	9.12e+02	1.4e+03	2.50e+06	9.56e+02	2.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.03e+06	1.15e+03	8.9e+02	2.33e+06	2.88e+03	8.1e+02
26	13C-1,2,3,4,7,8,9-HpCDF	7.21e+05	1.15e+03	6.3e+02	1.61e+06	2.88e+03	5.6e+02
27	13C-2,3,7,8-TCDD	1.39e+06	5.33e+03	2.6e+02	1.72e+06	2.48e+03	6.9e+02
28	13C-1,2,3,7,8-PeCDD	2.57e+06	1.00e+03	2.6e+03	1.56e+06	7.52e+02	2.1e+03
29	13C-1,2,3,4,7,8-HxCDD	2.27e+06	6.68e+02	3.4e+03	1.75e+06	7.84e+02	2.2e+03
30	13C-1,2,3,6,7,8-HxCDD	2.20e+06	6.68e+02	3.3e+03	1.71e+06	7.84e+02	2.2e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.38e+06	5.32e+02	2.6e+03	1.32e+06	4.48e+02	2.9e+03
32	13C-OCDD	1.15e+06	6.64e+02	1.7e+03	1.28e+06	4.68e+02	2.7e+03
33	13C-1,2,3,4-TCDD	1.52e+06	5.33e+03	2.9e+02	1.91e+06	2.48e+03	7.7e+02
34	13C-1,2,3,7,8,9-HxCDD	2.29e+06	6.68e+02	3.4e+03	1.73e+06	7.84e+02	2.2e+03
35	37Cl-2,3,7,8-TCDD	3.28e+05	9.12e+02	3.6e+02			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (2.024e+03 + 6.720e+02) \times 100}{(1.389e+06 + 1.724e+06) \times (\quad) \times 1.085} =$$

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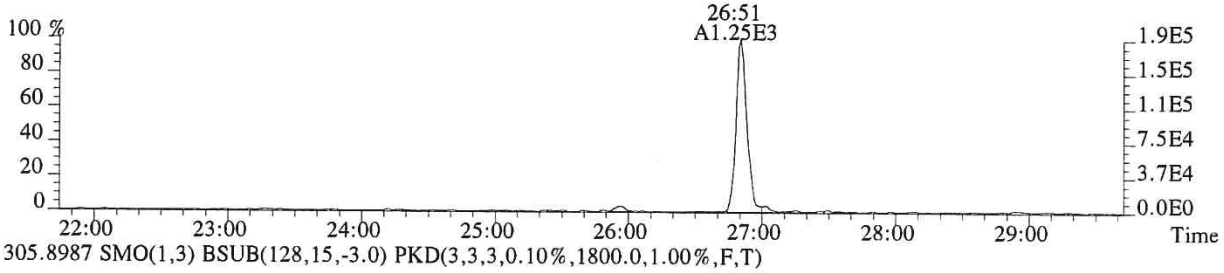
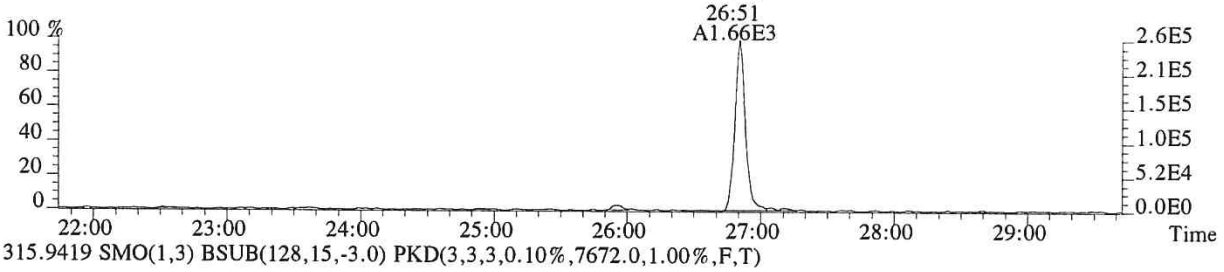
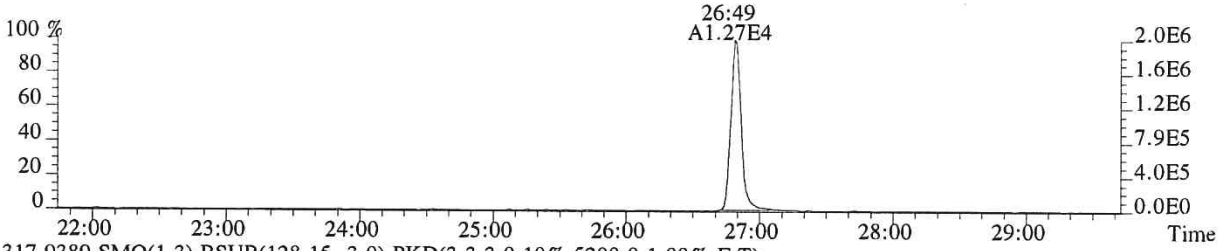
File:P519494 #1-566 Acq:19-DEC-2018 15:32:52 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,792.0,1.00%,F,T)



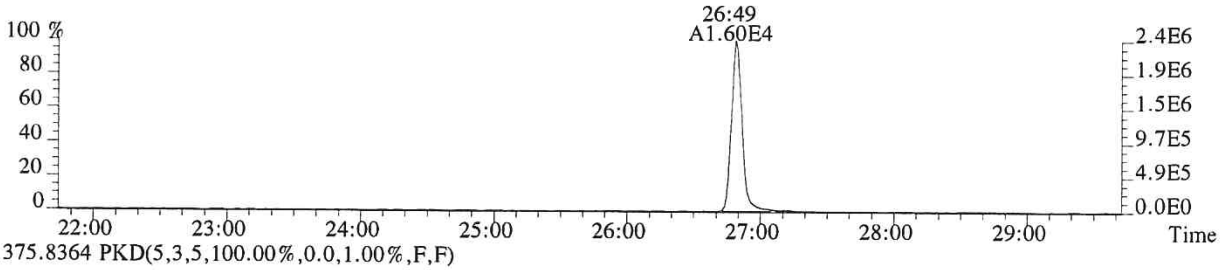
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1800.0,1.00%,F,T)



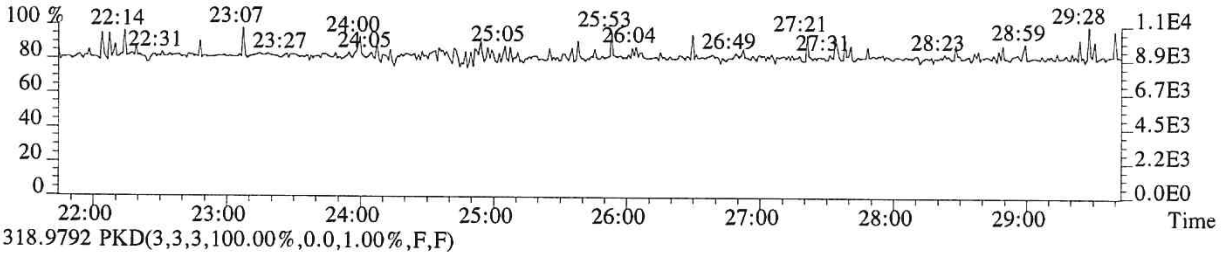
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7672.0,1.00%,F,T)



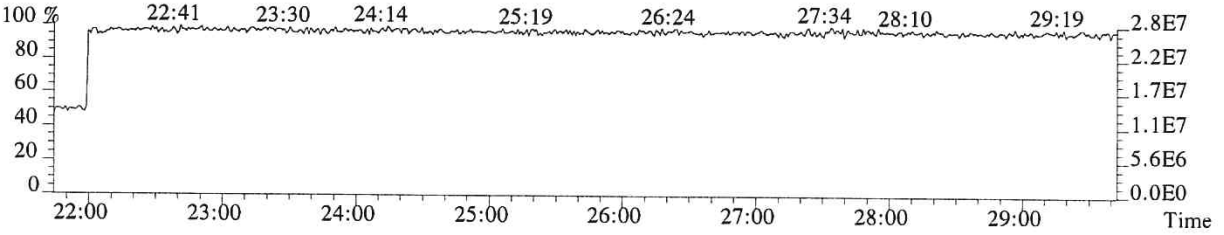
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5200.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

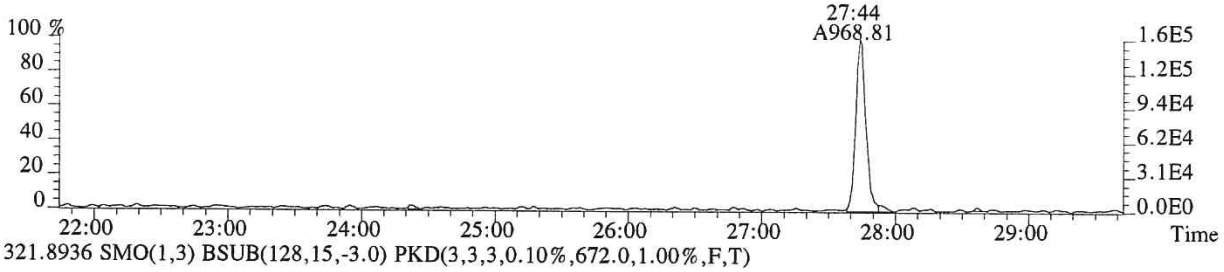


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

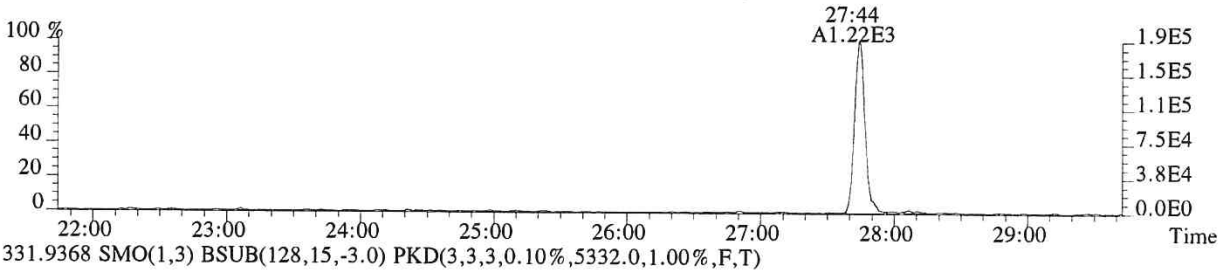


015806

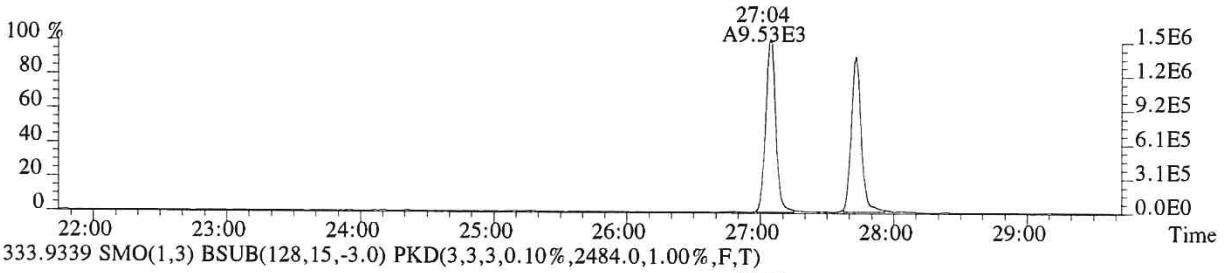
File:P519494 #1-566 Acq:19-DEC-2018 15:32:52 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2024.0,1.00%,F,T)



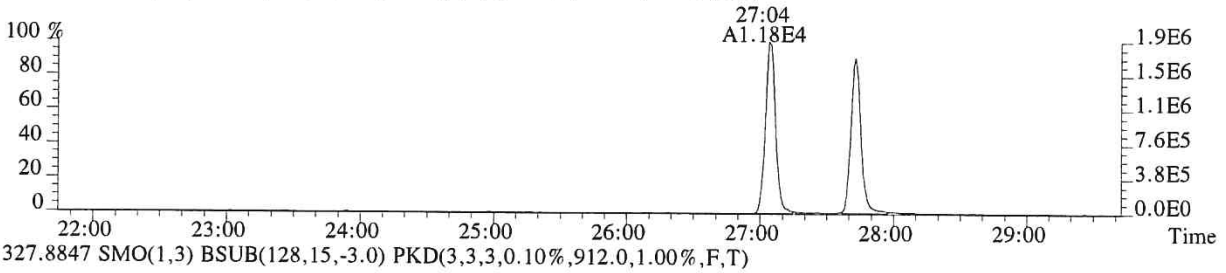
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,672.0,1.00%,F,T)



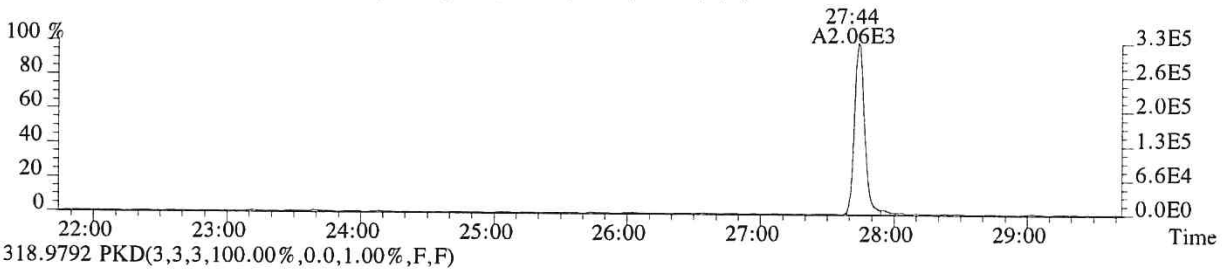
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5332.0,1.00%,F,T)



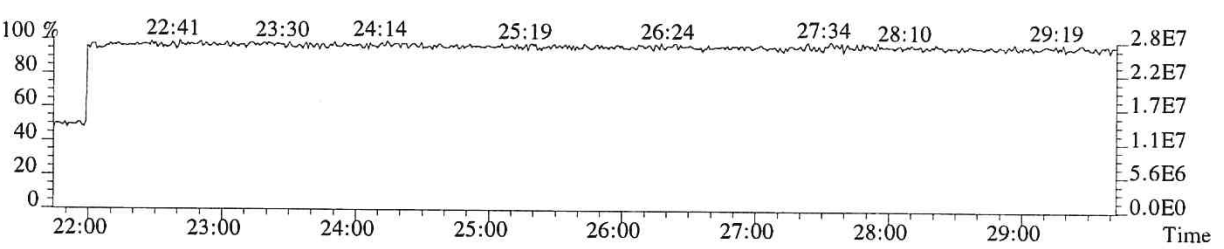
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2484.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,912.0,1.00%,F,T)

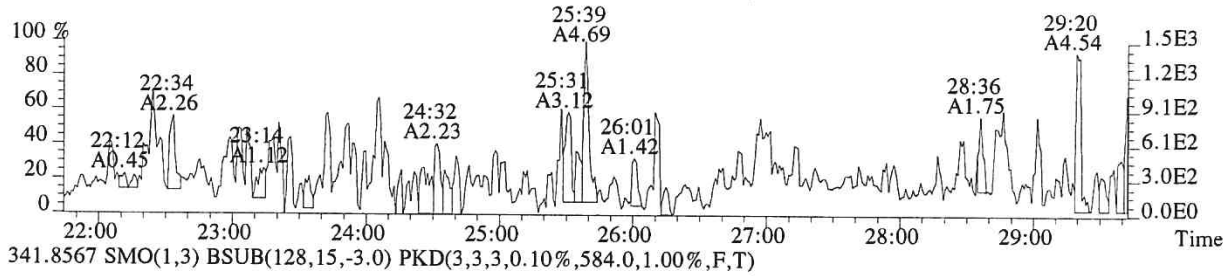


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

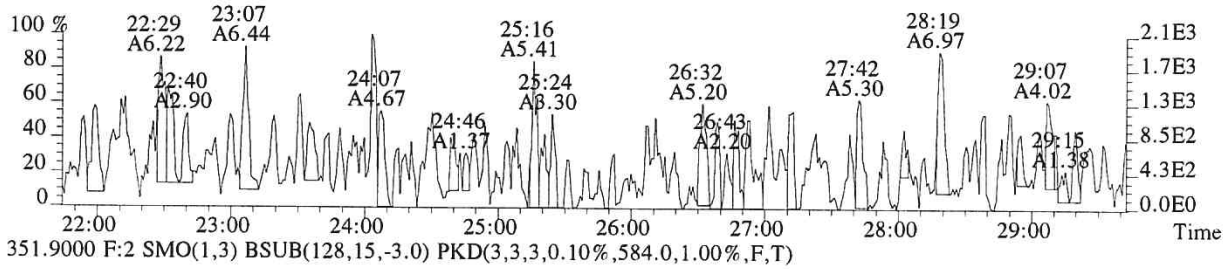


015807

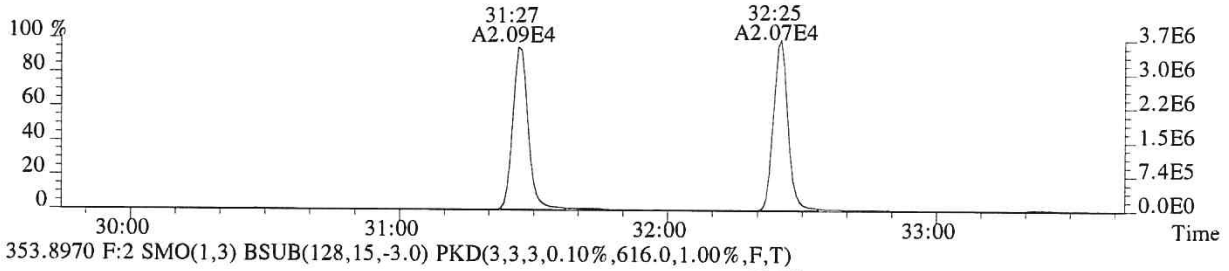
File:P519494 #1-566 Acq:19-DEC-2018 15:32:52 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,356.0,1.00%,F,T)



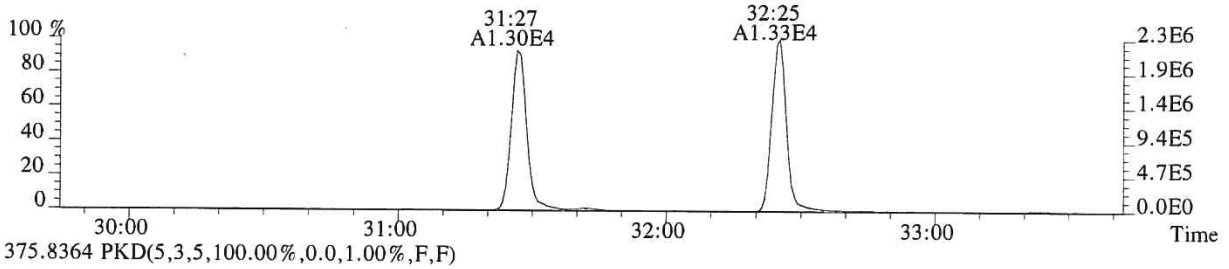
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,584.0,1.00%,F,T)



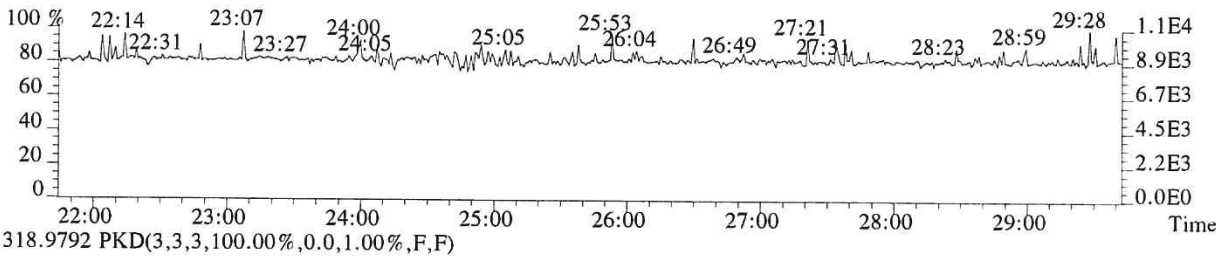
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,584.0,1.00%,F,T)



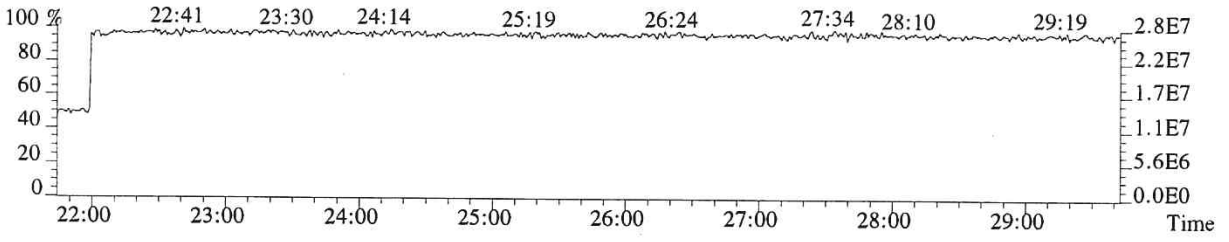
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,616.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

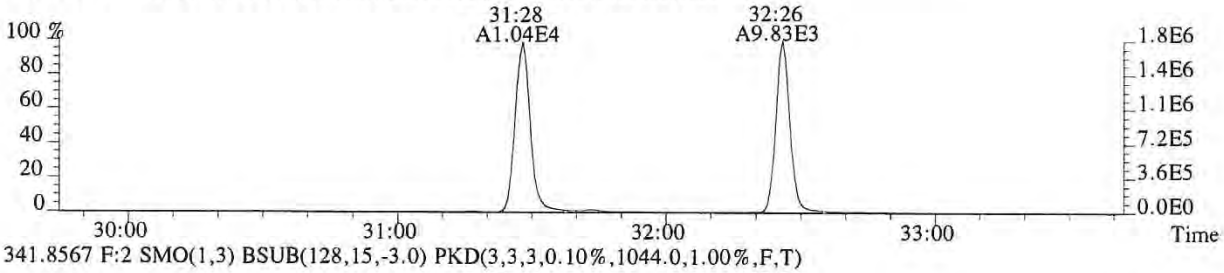


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

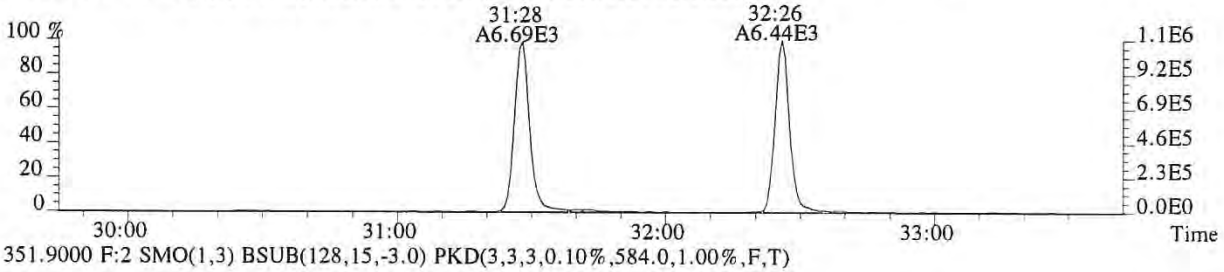


015808

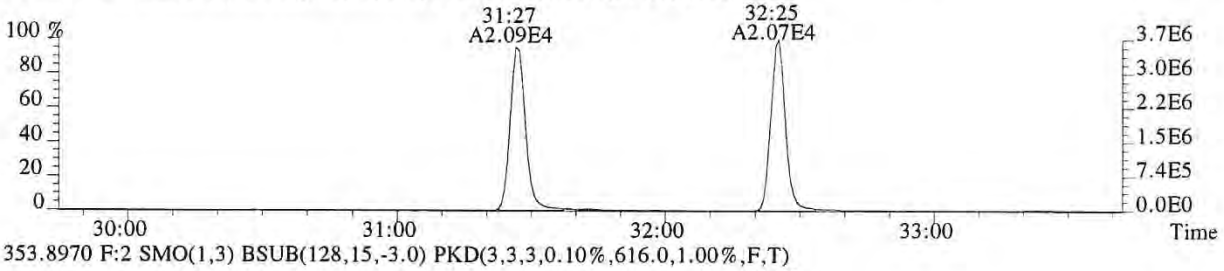
File:P519494 #1-357 Acq:19-DEC-2018 15:32:52 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,684.0,1.00%,F,T)



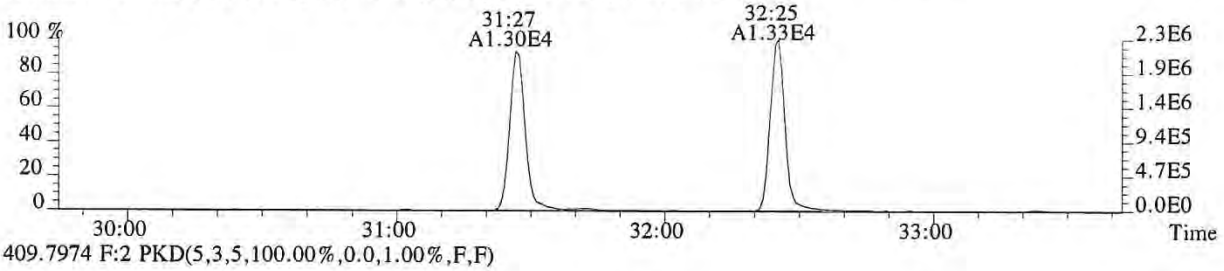
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1044.0,1.00%,F,T)



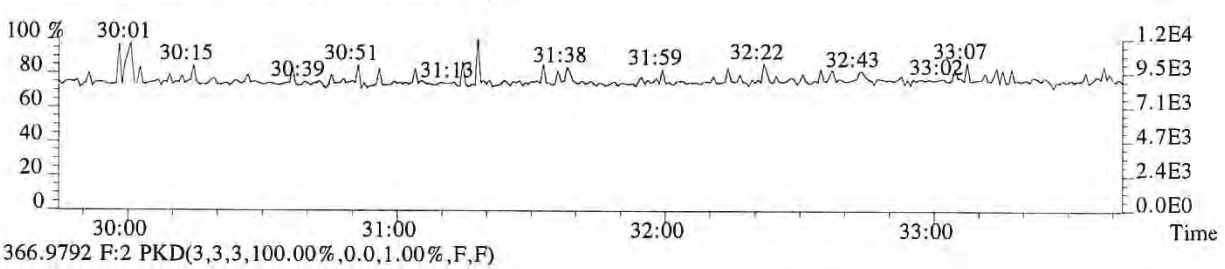
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,584.0,1.00%,F,T)



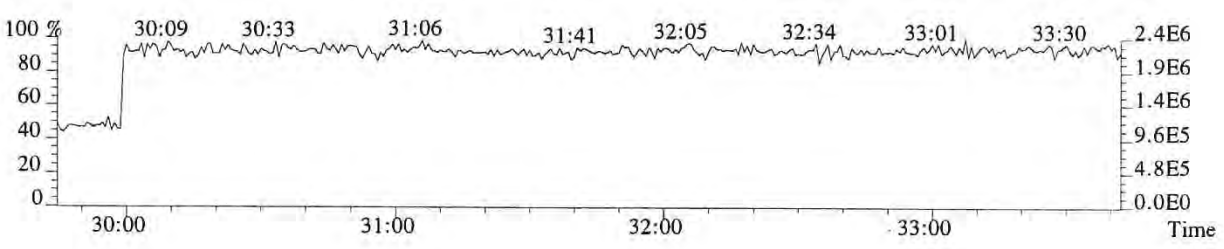
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,616.0,1.00%,F,T)



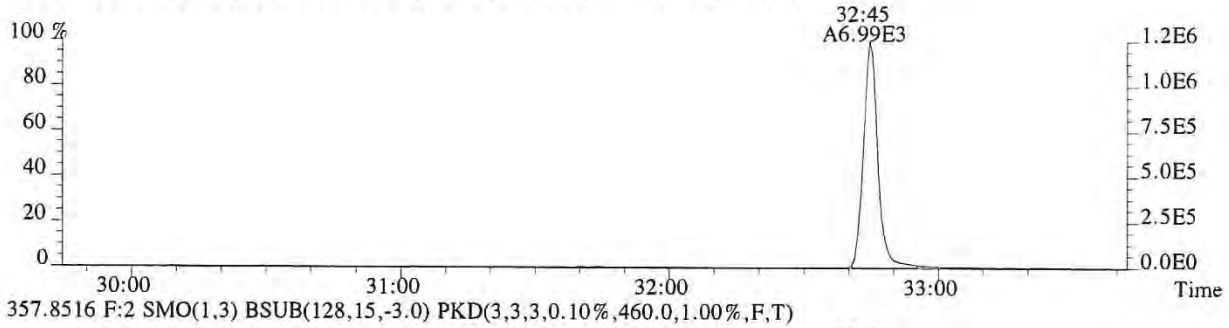
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



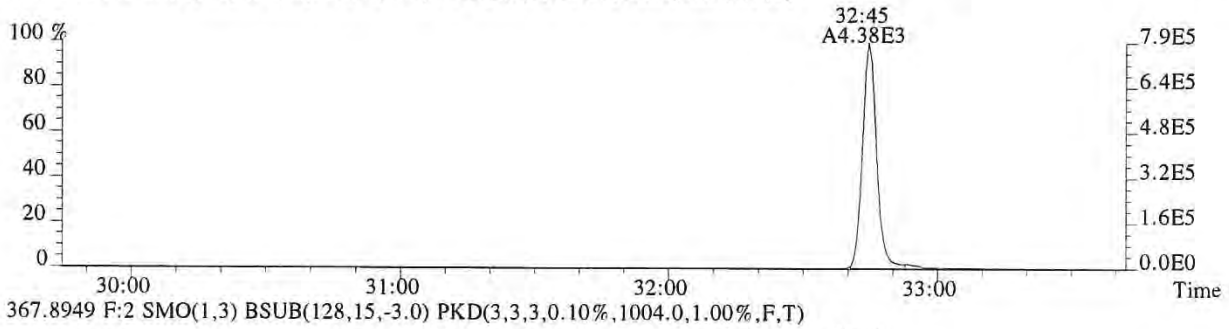
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



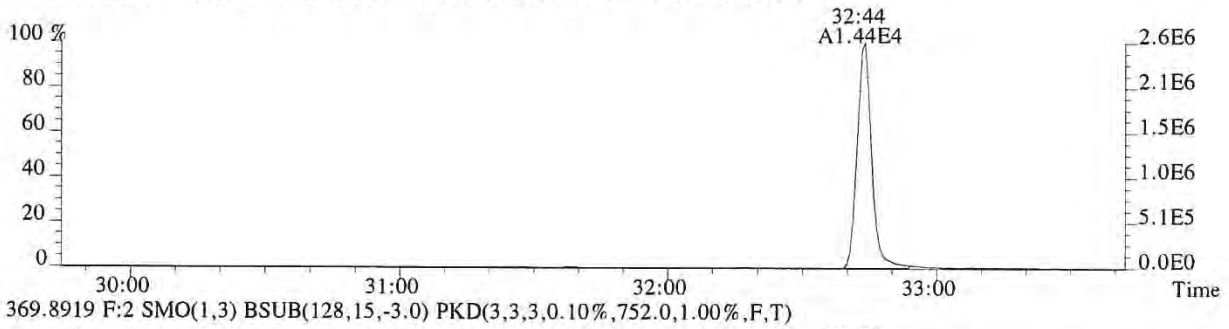
File:P519494 #1-357 Acq:19-DEC-2018 15:32:52 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,300.0,1.00%,F,T)



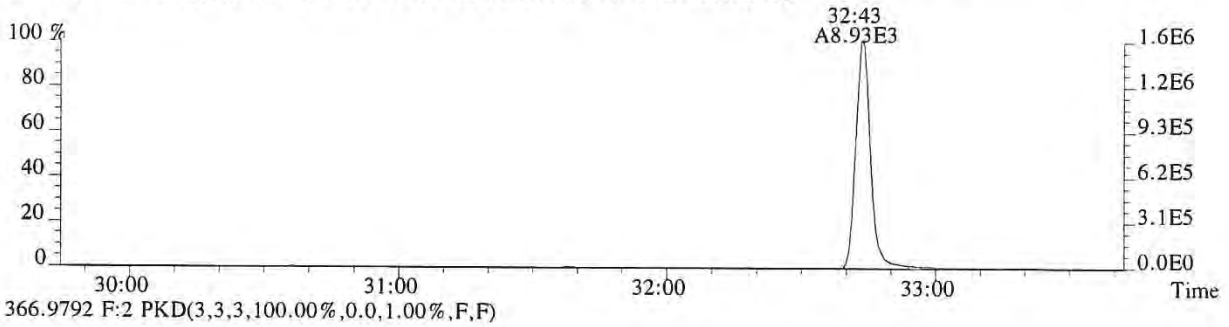
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,460.0,1.00%,F,T)



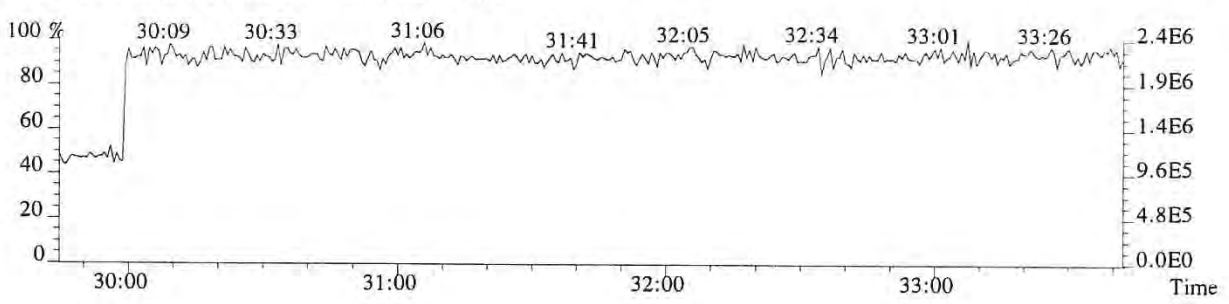
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)



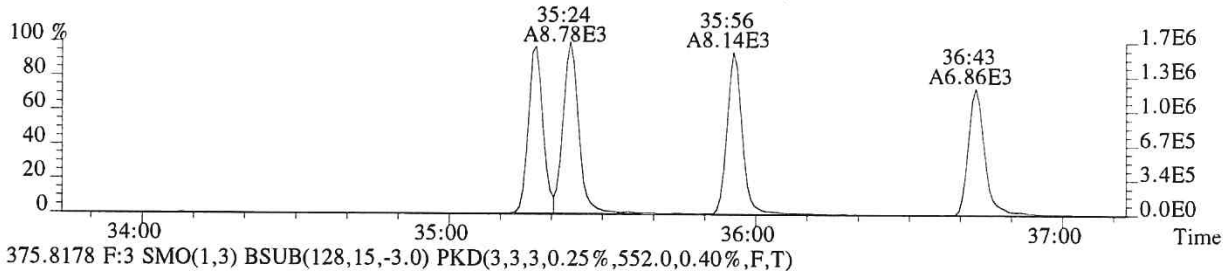
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,752.0,1.00%,F,T)



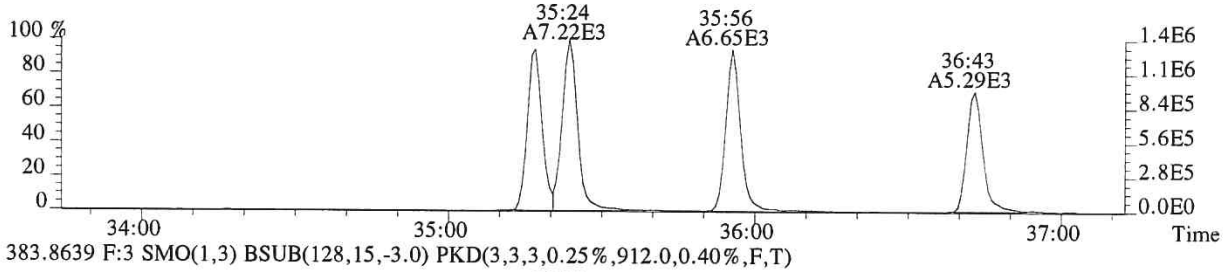
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



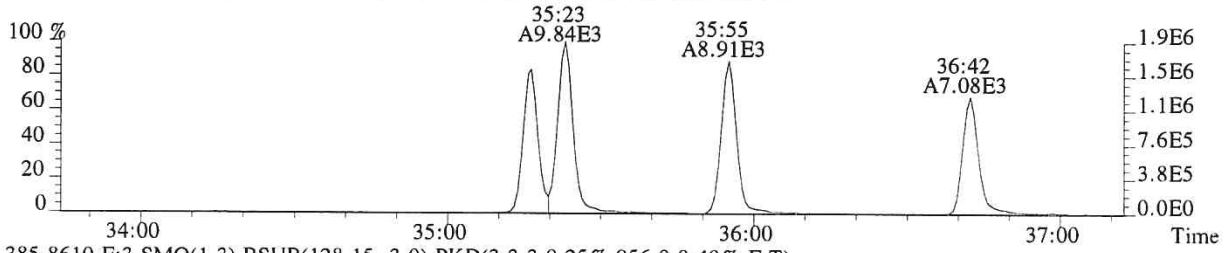
File:P519494 #1-313 Acq:19-DEC-2018 15:32:52 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,628.0,0.40%,F,T)



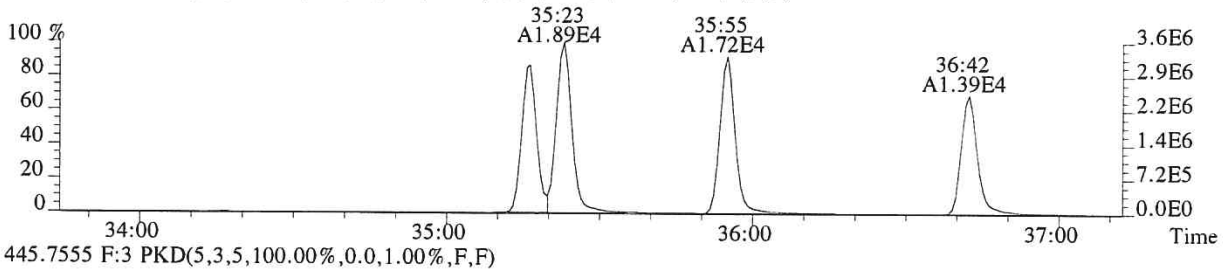
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,552.0,0.40%,F,T)



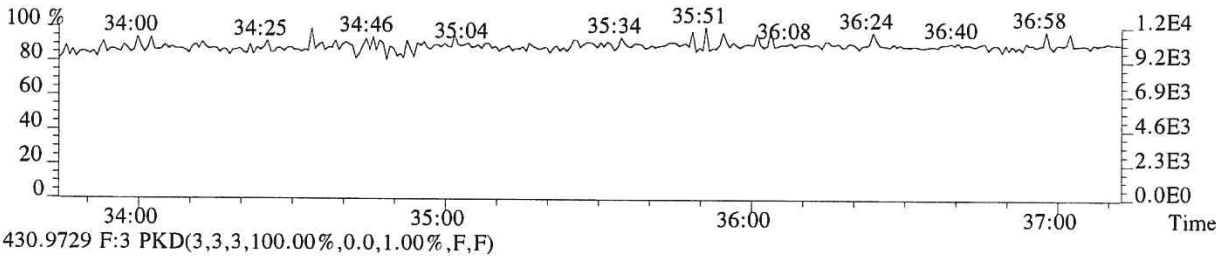
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,912.0,0.40%,F,T)



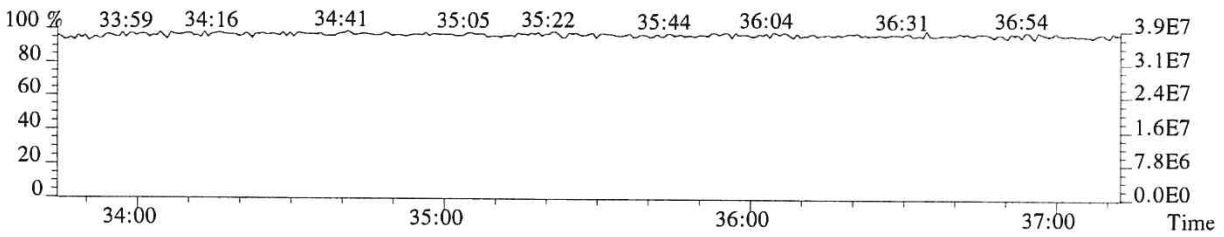
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,956.0,0.40%,F,T)



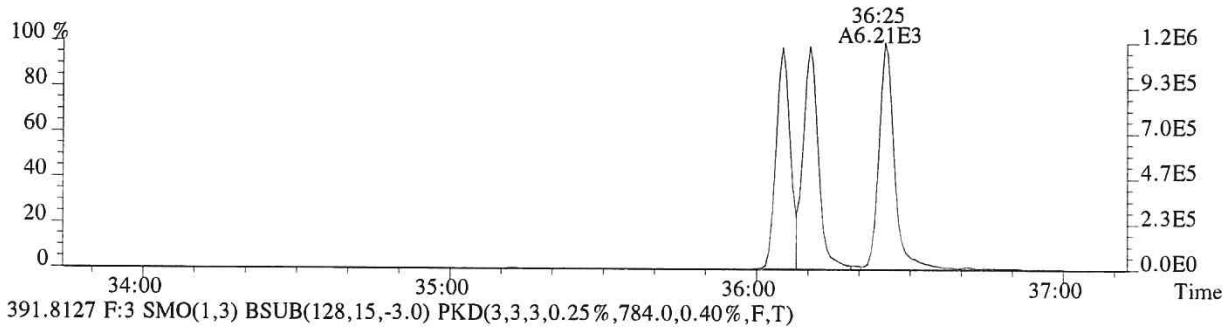
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



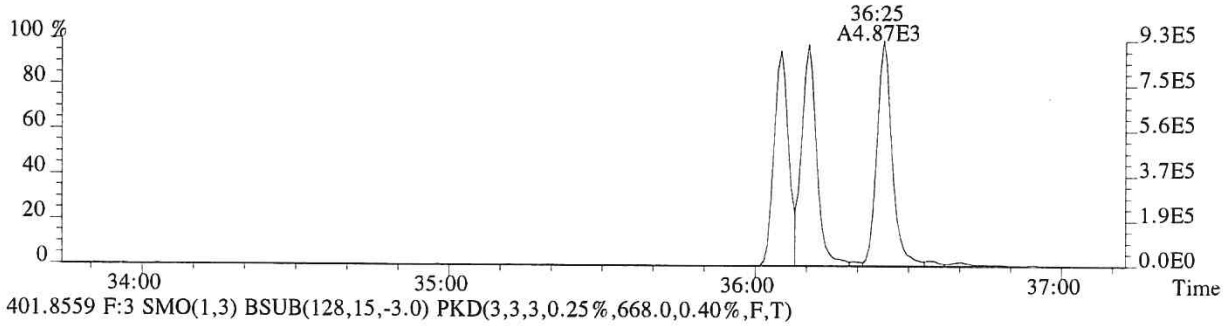
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



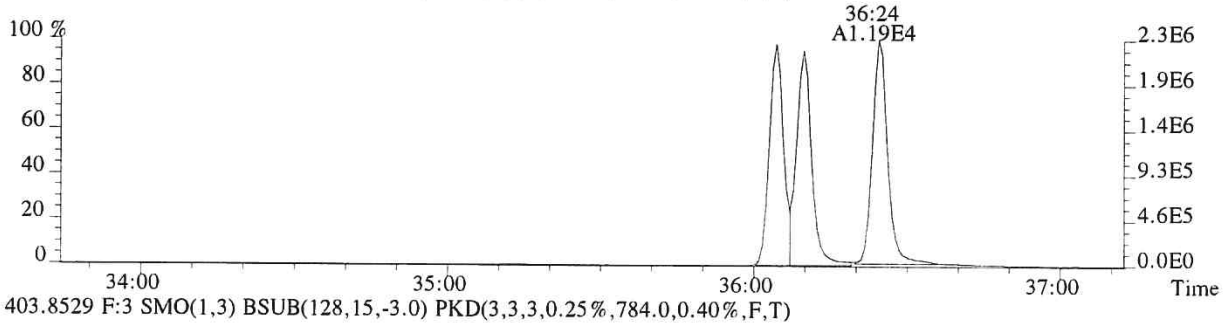
File:P519494 #1-313 Acq:19-DEC-2018 15:32:52 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,348.0,0.40%,F,T)



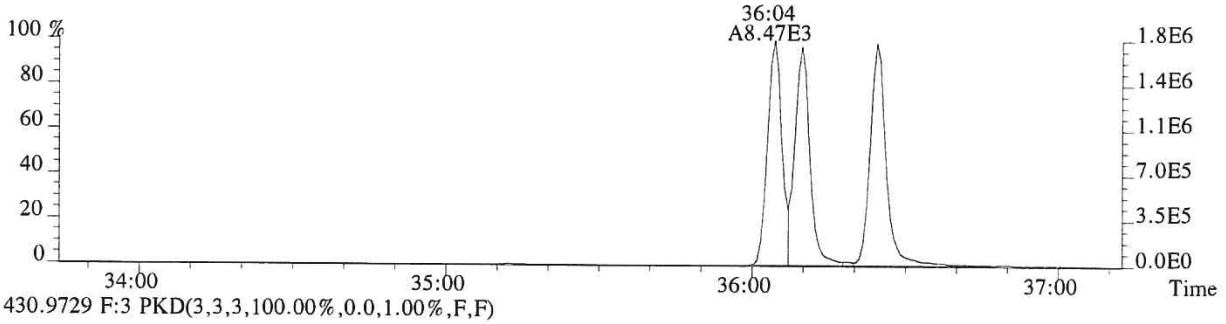
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,784.0,0.40%,F,T)



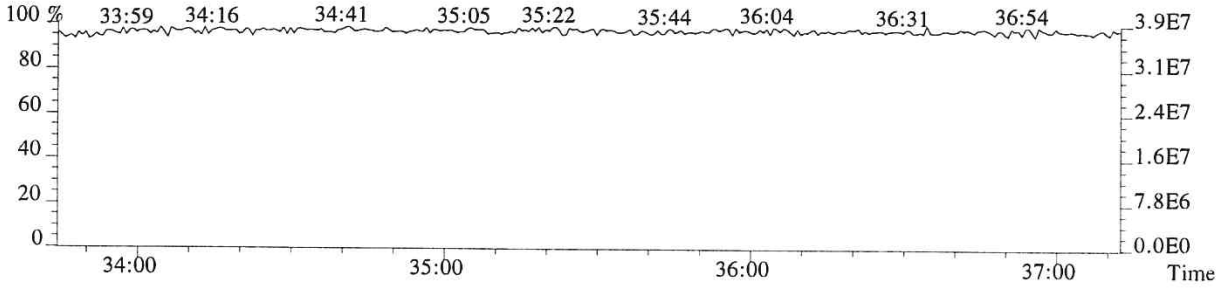
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,668.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,784.0,0.40%,F,T)

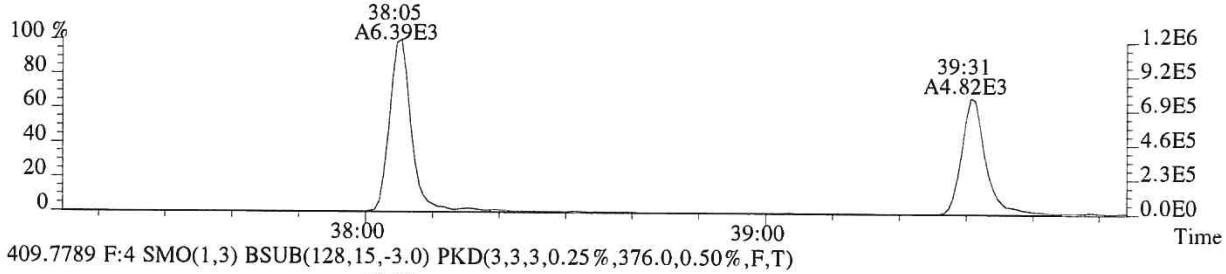


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

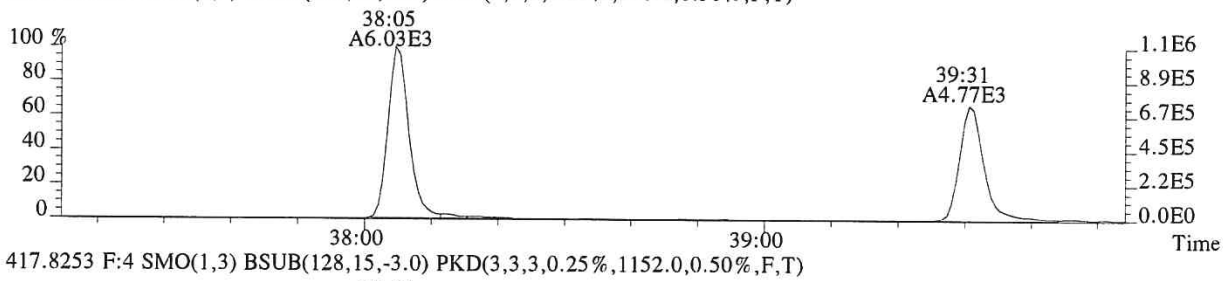


File:P519494 #1-240 Acq:19-DEC-2018 15:32:52 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

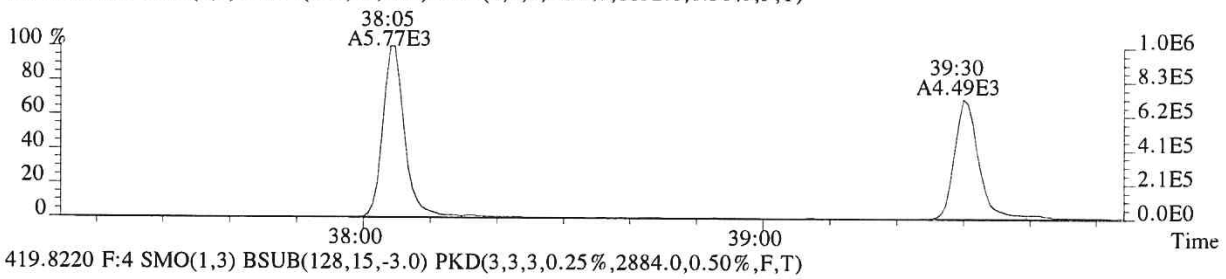
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,696.0,0.50%,F,T)



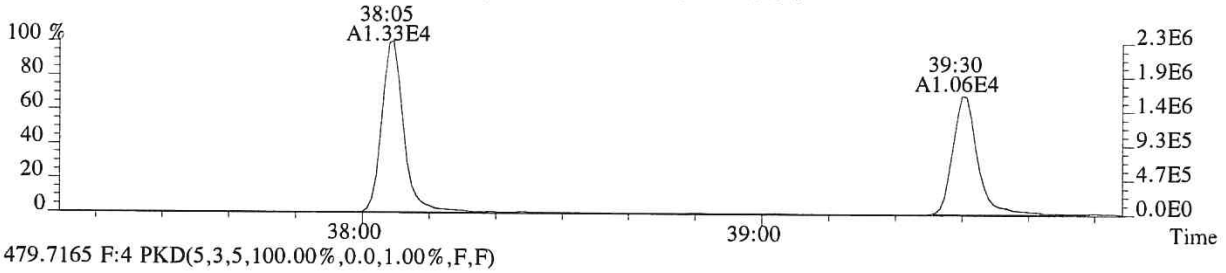
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,376.0,0.50%,F,T)



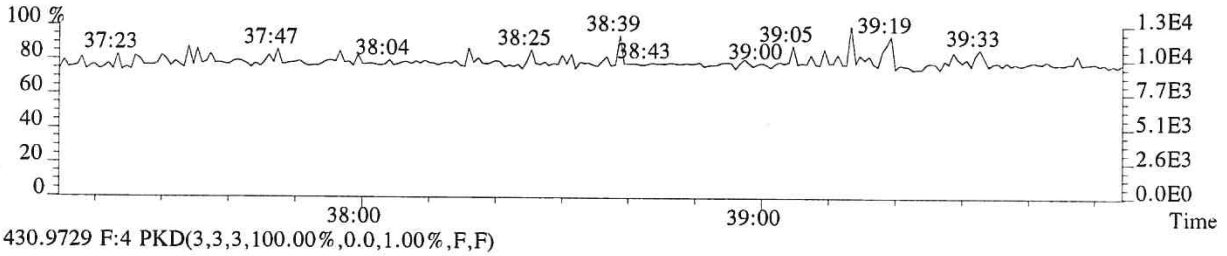
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1152.0,0.50%,F,T)



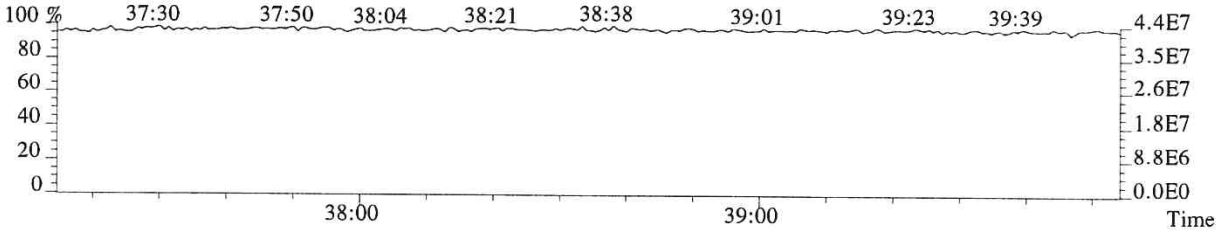
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2884.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

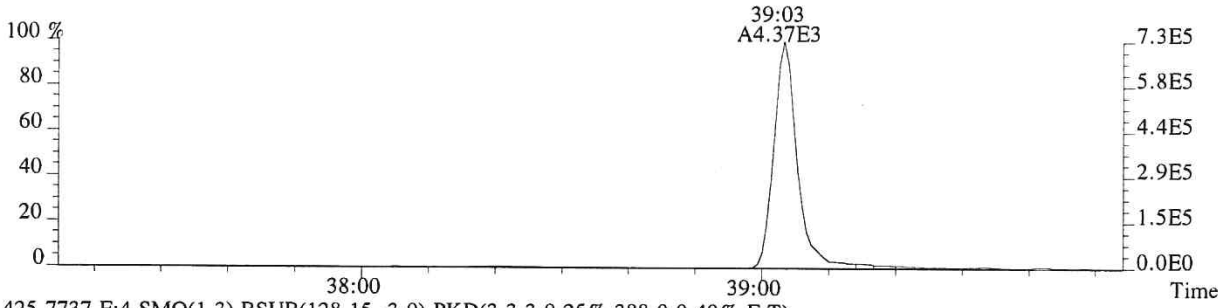


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

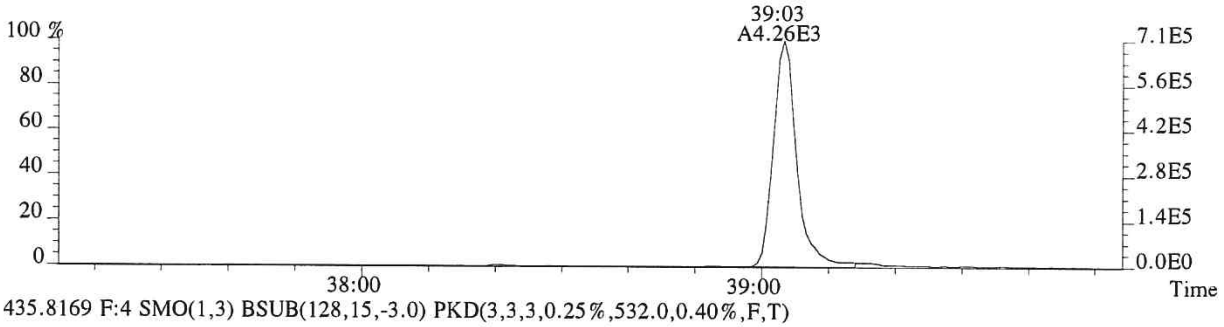


015813

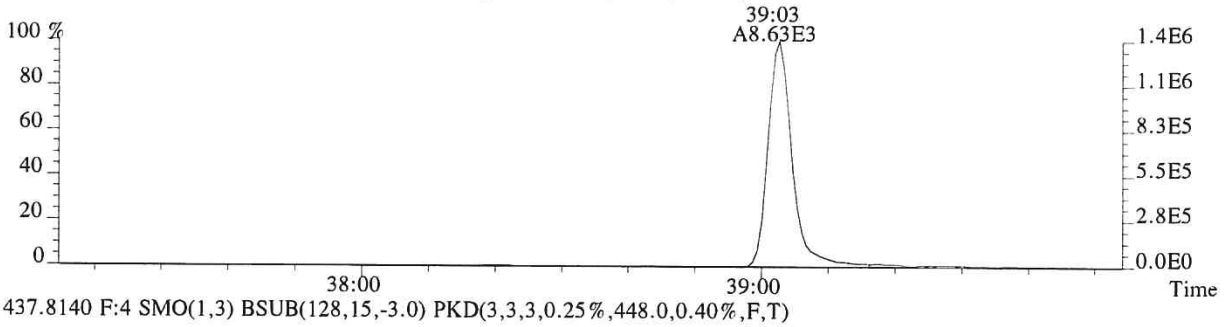
File:P519494 #1-240 Acq:19-DEC-2018 15:32:52 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,532.0,0.40%,F,T)



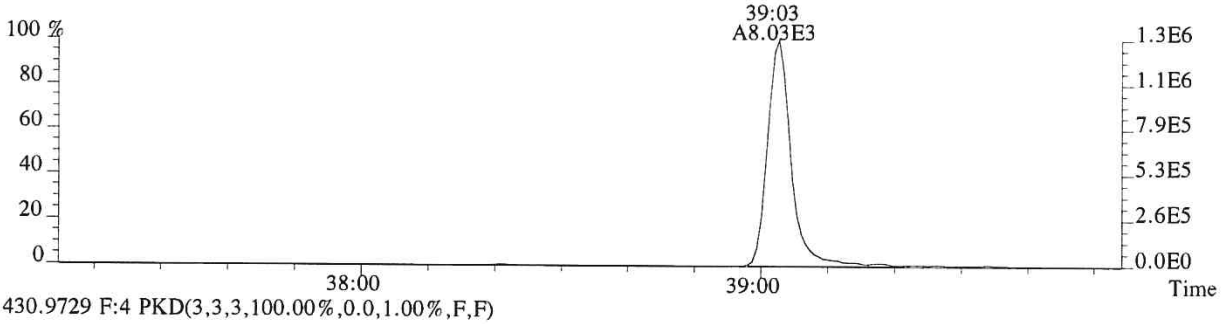
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,388.0,0.40%,F,T)



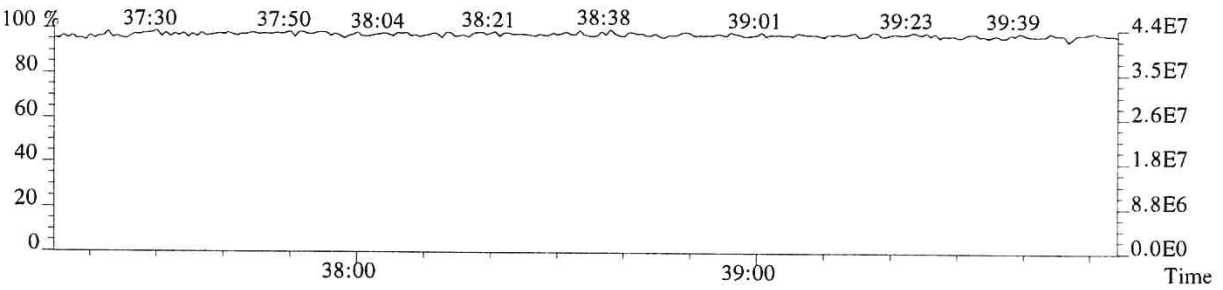
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,532.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,448.0,0.40%,F,T)

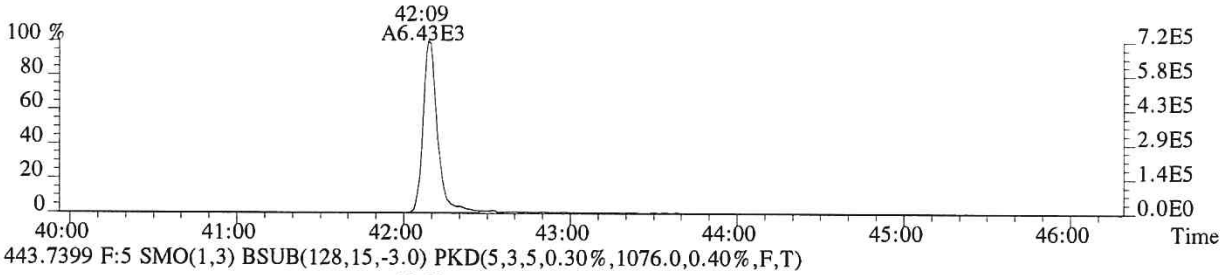


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

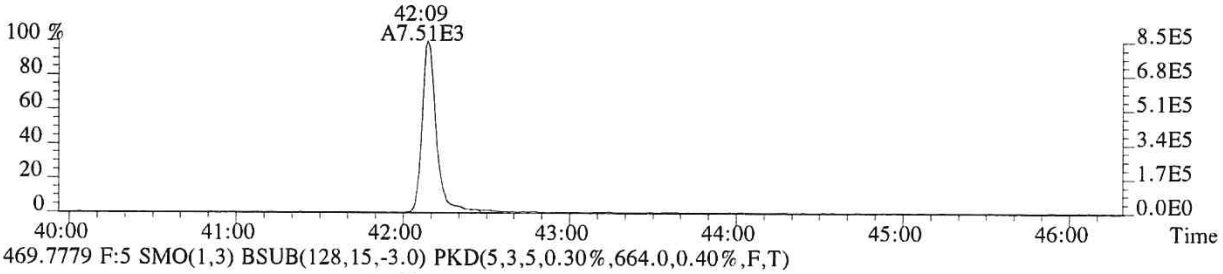


File:P519494 #1-575 Acq:19-DEC-2018 15:32:52 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

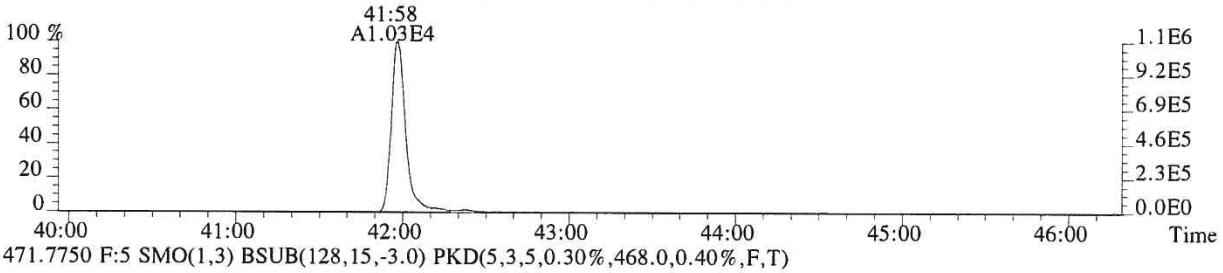
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,424.0,0.40%,F,T)



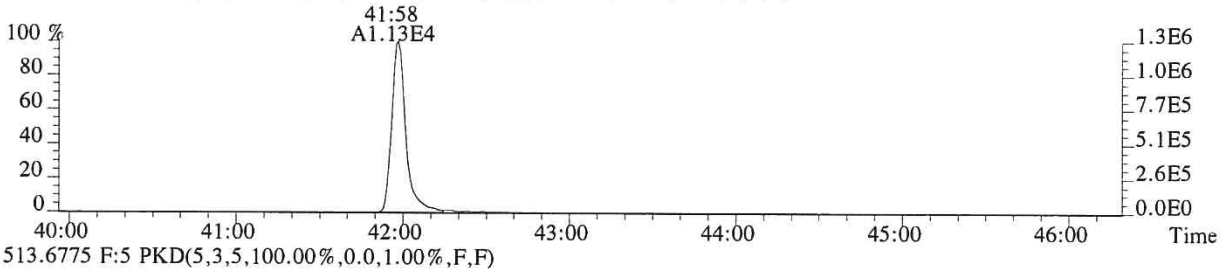
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1076.0,0.40%,F,T)



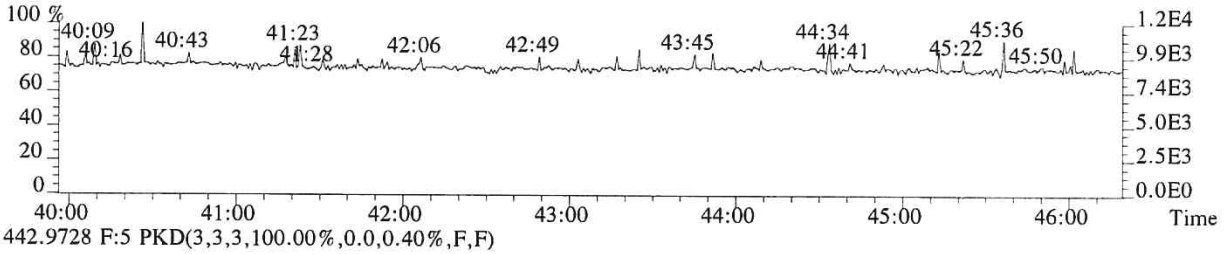
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,664.0,0.40%,F,T)



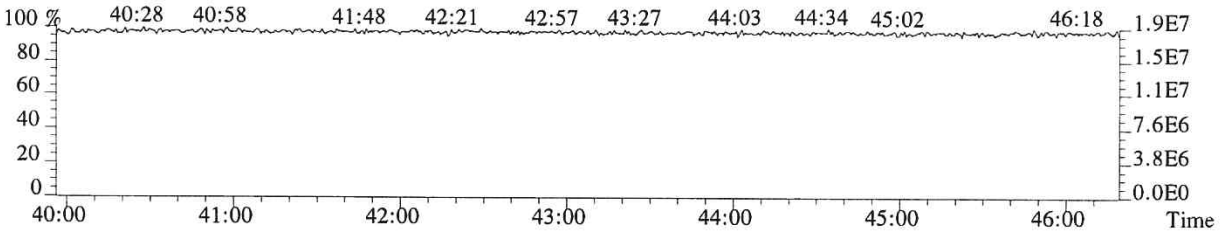
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,468.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

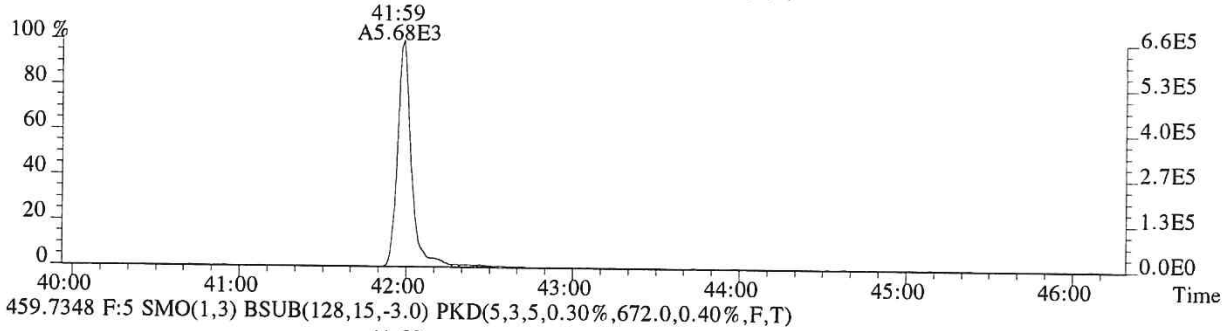


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

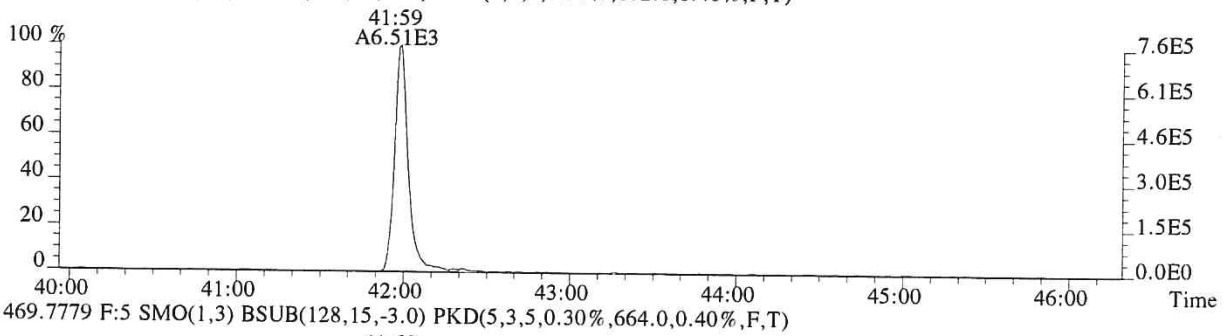


015815

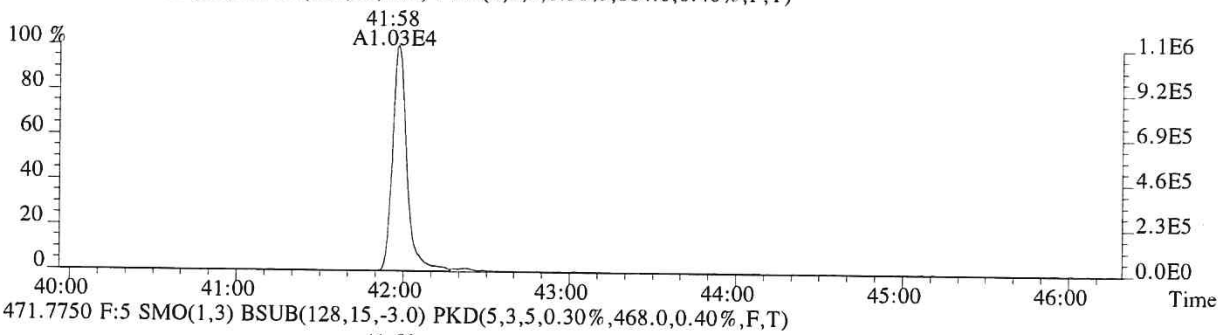
File:P519494 #1-575 Acq:19-DEC-2018 15:32:52 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,384.0,0.40%,F,T)



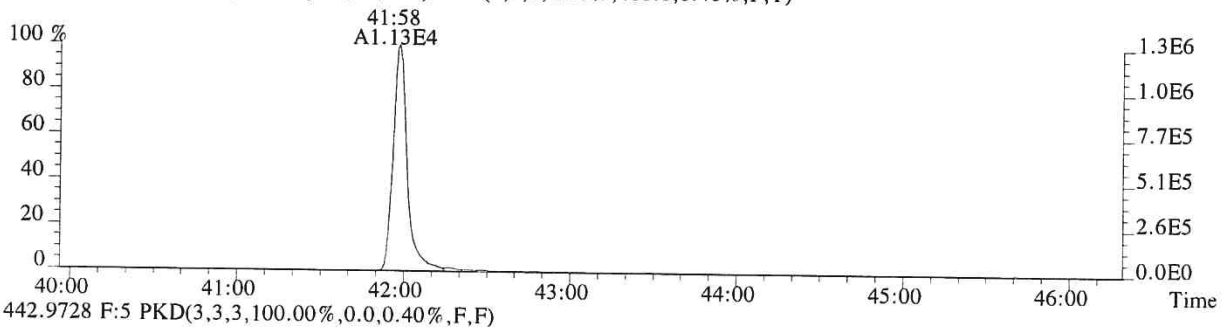
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,672.0,0.40%,F,T)



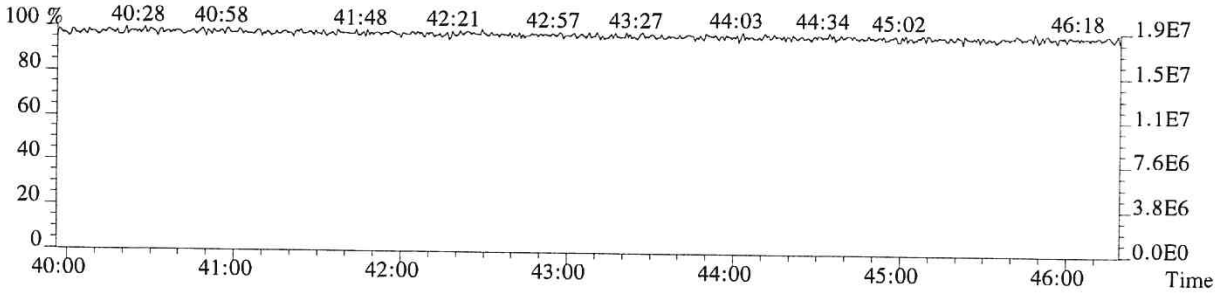
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,664.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,468.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



015816

CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P519532

Date: 12/21/18

Circle one: (Beginning) / Ending

Method: (1613) / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: LKL Second QC: LG

ccalqc.xls 07/17/12

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

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
192977	WINDOW DEFINE	P519533	21-DEC-18	03:20:28
194503	CS3	P519532	21-DEC-18	02:32:41
METHOD BLANK	EQ1800510-01	P519534	21-DEC-18	04:09:06
SL0008	E1801093-013DL	P519535	21-DEC-18	04:57:52
SL0009	E1801093-014DL	P519536	21-DEC-18	05:46:29
SL0010	E1801093-015DL	P519537	21-DEC-18	06:35:07
SL0001	E1801093-016DL	P519538	21-DEC-18	07:23:44
SL0029	E1801094-002DL	P519539	21-DEC-18	08:12:22
SL0030	E1801094-003DL	P519540	21-DEC-18	09:00:59
SL0030	E1801094-004DL	P519541	21-DEC-18	09:49:36
SL0066	E1801096-011DL	P519542	21-DEC-18	10:38:15
SL0067	E1801096-012DL	P519543	21-DEC-18	11:26:53

Sample List Report **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20181221A.SPL
Last Modified: Friday, December 21, 2018 08:23:10 Central Standard Time
Printed: Friday, December 21, 2018 08:23:42 Central Standard Time

Page Position (1, 1)

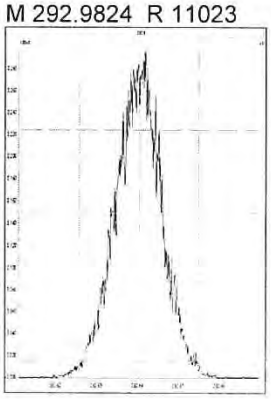
OPUS 5 NET: P519532.RES

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	12/21/18	02:32	P519532	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2	T	HRMS CHECK 02:32
2		03:20	P519533	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:1		
3		04:09	P519534	MB	EQ1800510-01	EPA1613_ALS	Dioxin_ALS	Tray1:16		
4		04:57	P519535	E1801093-013DL	E1801093-013DL	EPA1613_ALS	Dioxin_ALS	Tray1:17		
5		05:46	P519536	E1801093-014DL	E1801093-014DL	EPA1613_ALS	Dioxin_ALS	Tray1:18		
6		06:35	P519537	E1801093-015DL	E1801093-015DL	EPA1613_ALS	Dioxin_ALS	Tray1:19		
7		07:23	P519538	E1801093-016DL	E1801093-016DL	EPA1613_ALS	Dioxin_ALS	Tray1:20		
8		08:12	P519539	E1801094-002DL	E1801094-002DL	EPA1613_ALS	Dioxin_ALS	Tray1:21		
9		09:00	P519540	E1801094-003DL	E1801094-003DL	EPA1613_ALS	Dioxin_ALS	Tray1:22		
10		09:49	P519541	E1801094-004DL	E1801094-004DL	EPA1613_ALS	Dioxin_ALS	Tray1:23		
11		10:38	P519542	E1801096-011DL	E1801096-011DL	EPA1613_ALS	Dioxin_ALS	Tray1:24		
12		11:26	P519543	E1801096-012DL	E1801096-012DL	EPA1613_ALS	Dioxin_ALS	Tray1:25		
13		12:23	P519544	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2		HRMS CHECK 12:23

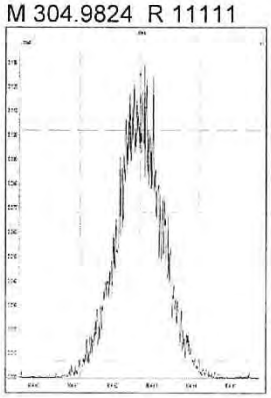
LKL 12/24/18

Printed: Friday, December 21, 2018 02:32:40 Central Standard Time

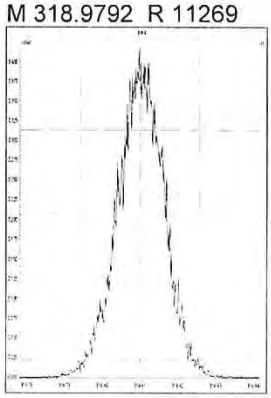
M 292.9824 R 11023



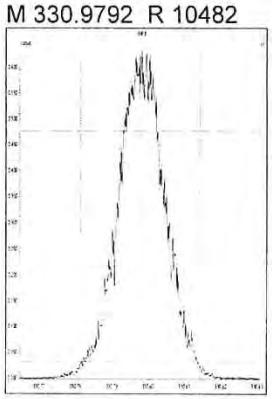
M 304.9824 R 11111



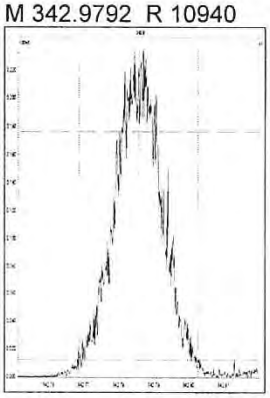
M 318.9792 R 11269



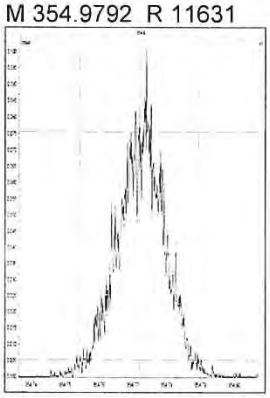
M 330.9792 R 10482



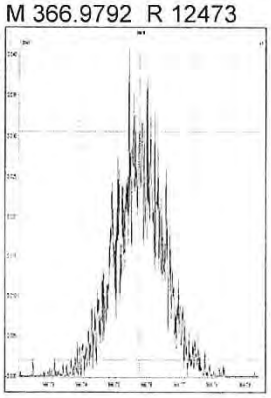
M 342.9792 R 10940



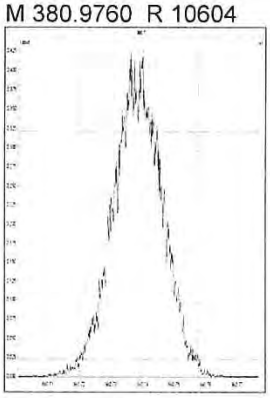
M 354.9792 R 11631



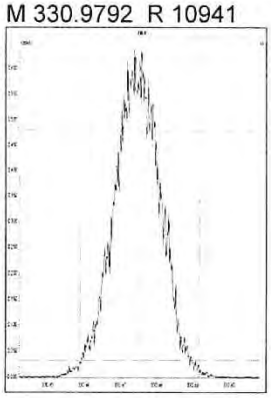
M 366.9792 R 12473



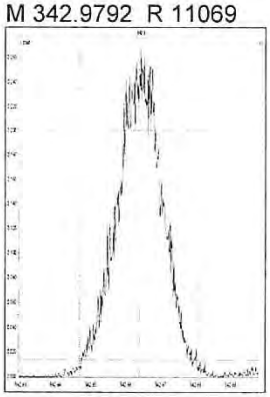
M 380.9760 R 10604



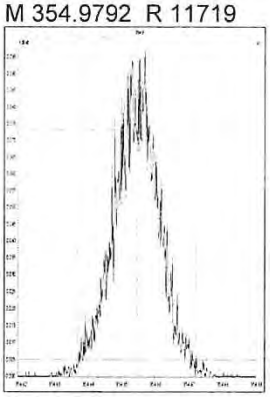
M 330.9792 R 10941



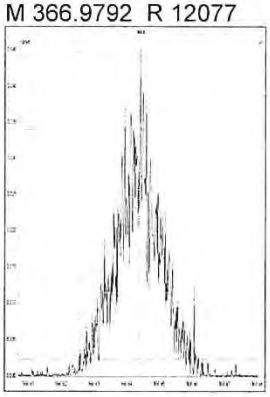
M 342.9792 R 11069



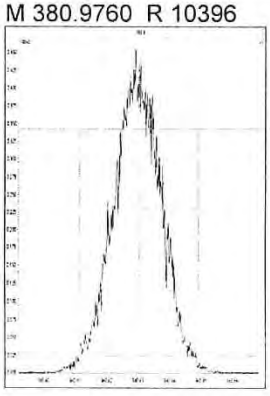
M 354.9792 R 11719



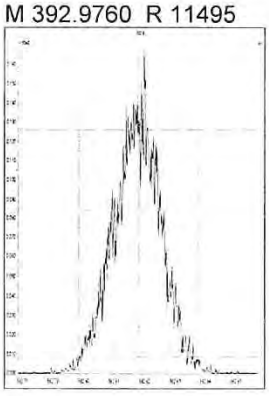
M 366.9792 R 12077



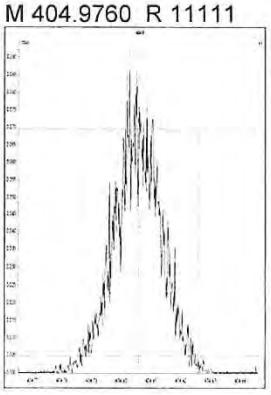
M 380.9760 R 10396



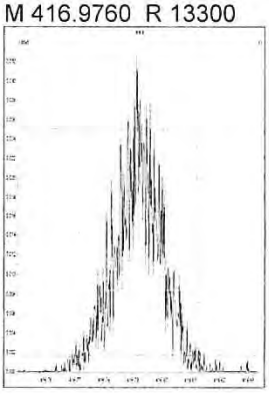
M 392.9760 R 11495



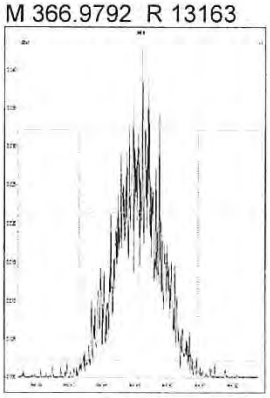
M 404.9760 R 11111



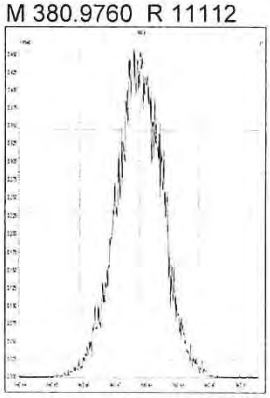
M 416.9760 R 13300



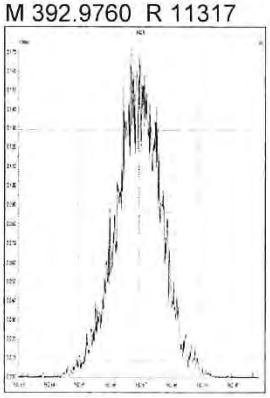
M 366.9792 R 13163



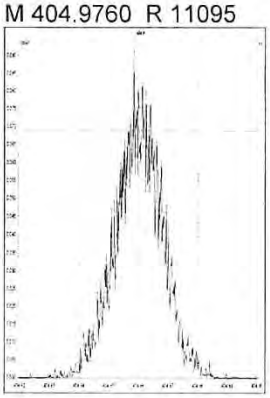
M 380.9760 R 11112



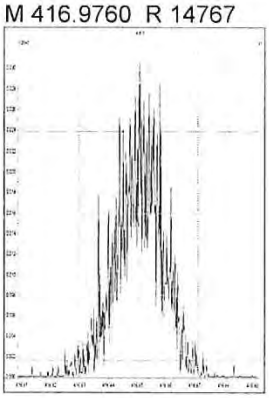
M 392.9760 R 11317



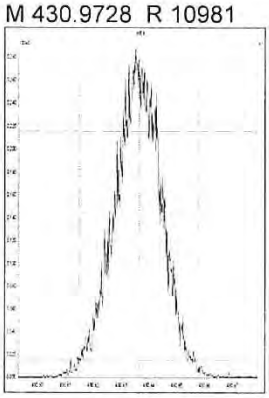
M 404.9760 R 11095



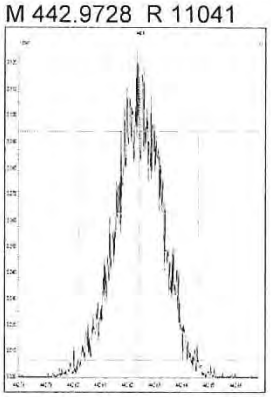
M 416.9760 R 14767



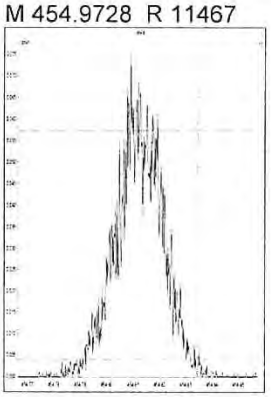
M 430.9728 R 10981



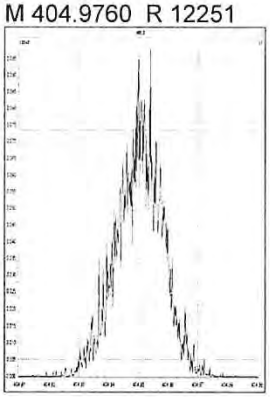
M 442.9728 R 11041



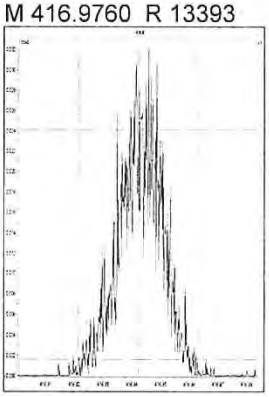
M 454.9728 R 11467



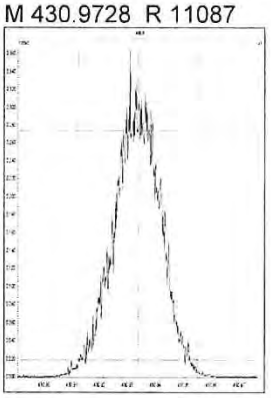
M 404.9760 R 12251



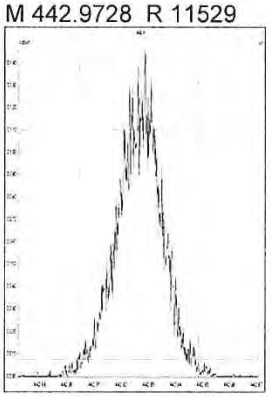
M 416.9760 R 13393



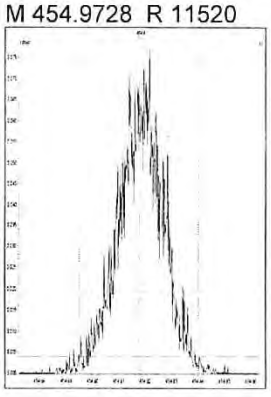
M 430.9728 R 11087



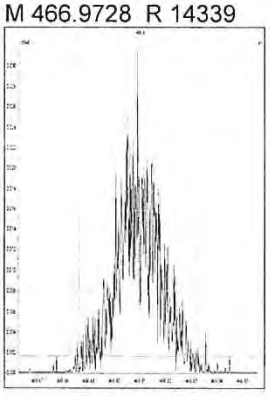
M 442.9728 R 11529



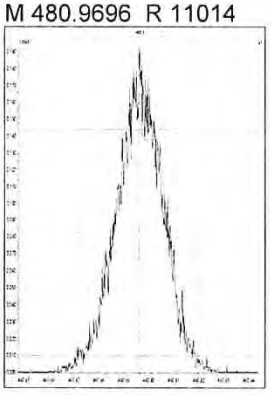
M 454.9728 R 11520



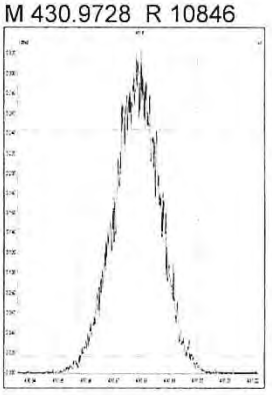
M 466.9728 R 14339



M 480.9696 R 11014



M 430.9728 R 10846



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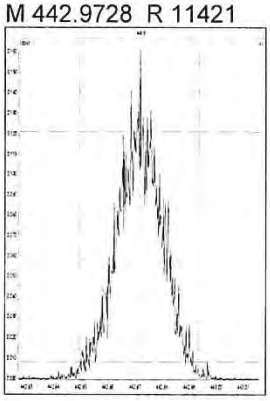
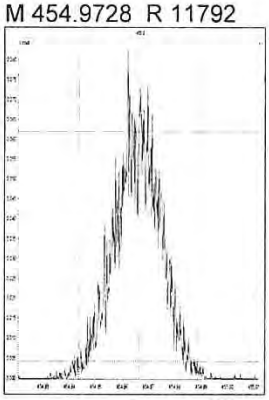
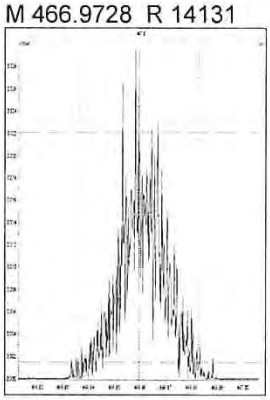
M 442.9728 R 11421



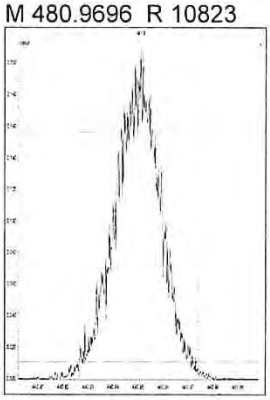
M 454.9728 R 11792



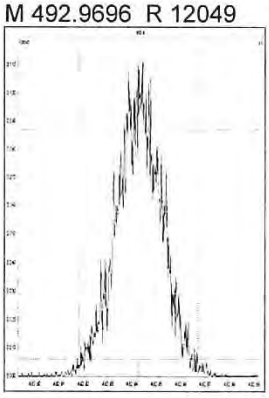
M 466.9728 R 14131



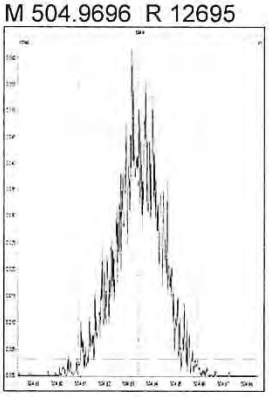
M 480.9696 R 10823



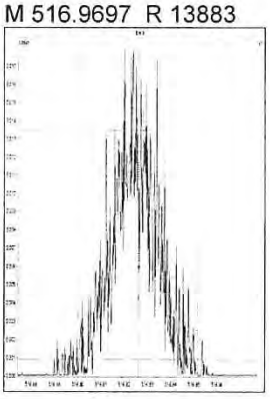
M 492.9696 R 12049



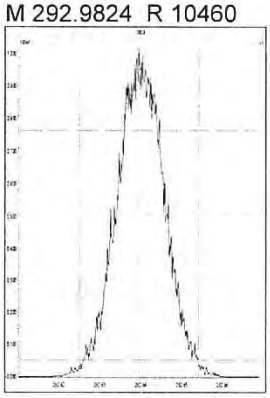
M 504.9696 R 12695



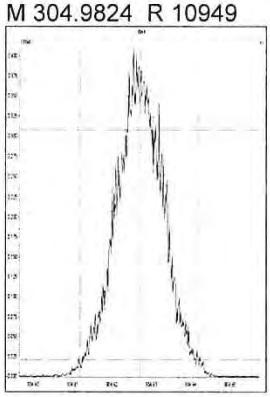
M 516.9697 R 13883



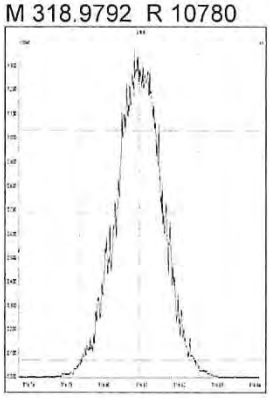
M 292.9824 R 10460



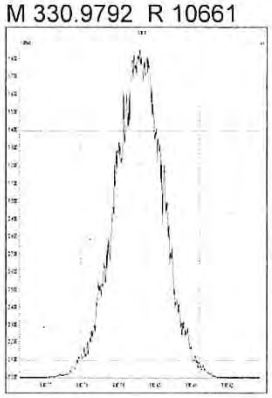
M 304.9824 R 10949



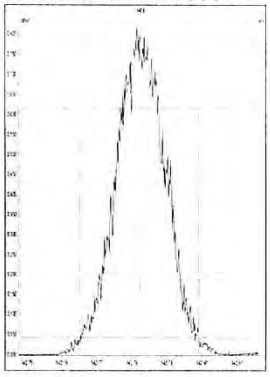
M 318.9792 R 10780



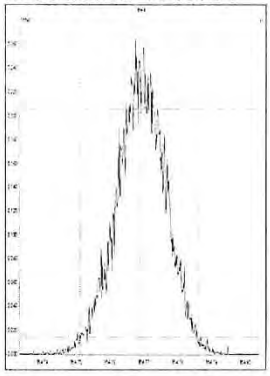
M 330.9792 R 10661



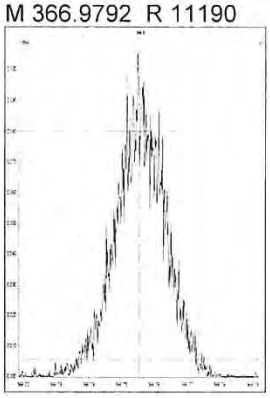
M 342.9792 R 10594



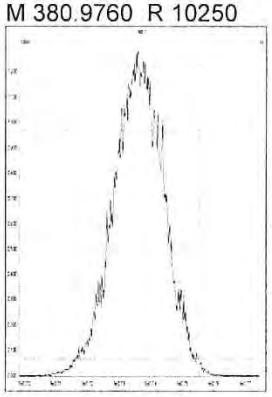
M 354.9792 R 10731



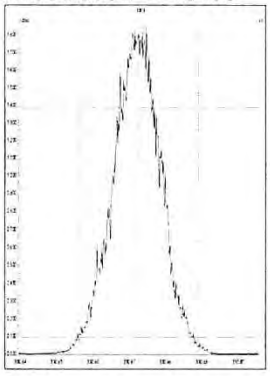
M 366.9792 R 11190



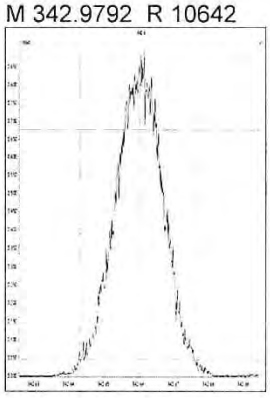
M 380.9760 R 10250



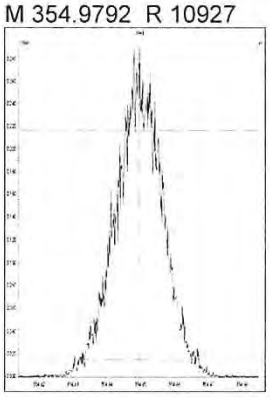
M 330.9792 R 10438



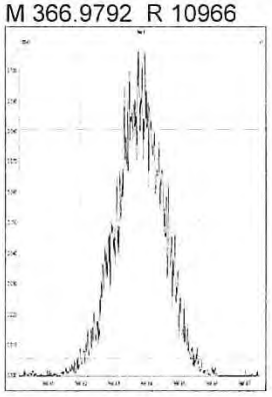
M 342.9792 R 10642



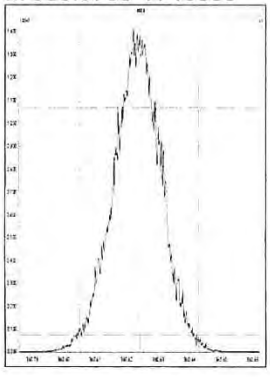
M 354.9792 R 10927



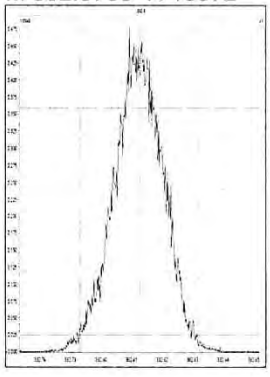
M 366.9792 R 10966



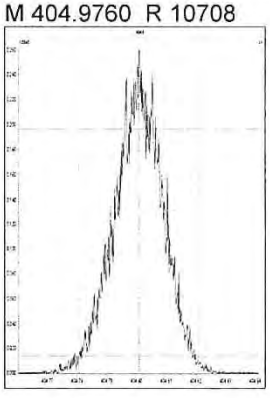
M 380.9760 R 10685



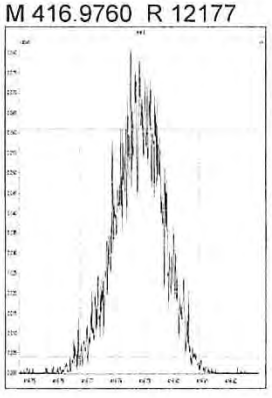
M 392.9760 R 10572



M 404.9760 R 10708

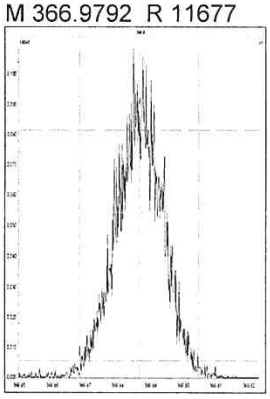


M 416.9760 R 12177

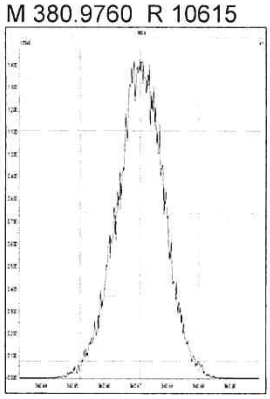


015823

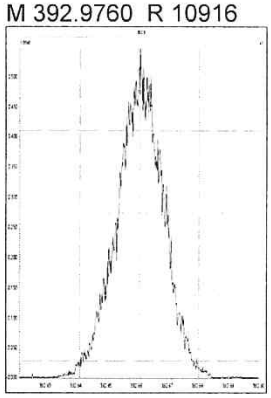
M 366.9792 R 11677



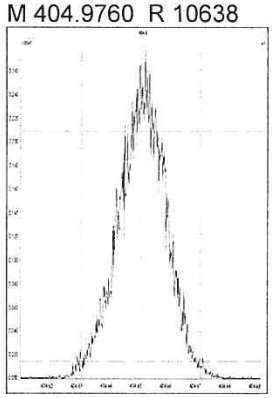
M 380.9760 R 10615



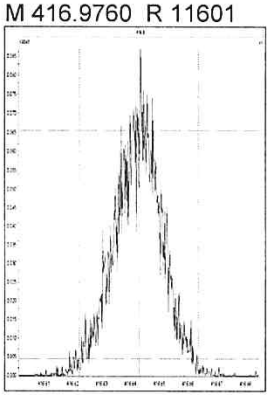
M 392.9760 R 10916



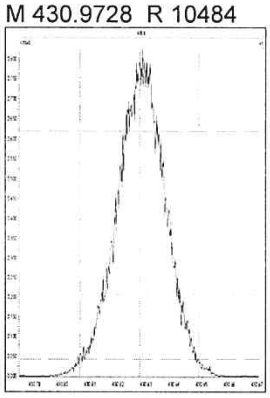
M 404.9760 R 10638



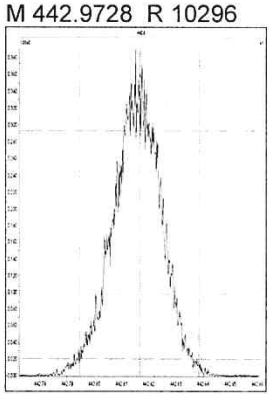
M 416.9760 R 11601



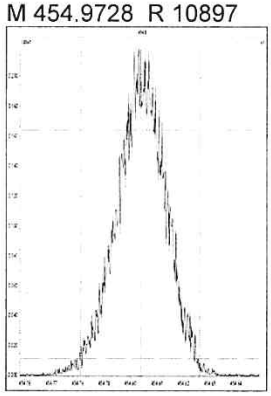
M 430.9728 R 10484



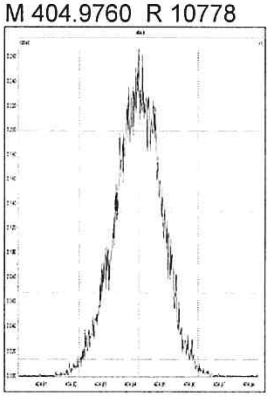
M 442.9728 R 10296



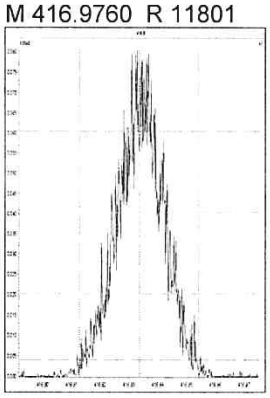
M 454.9728 R 10897



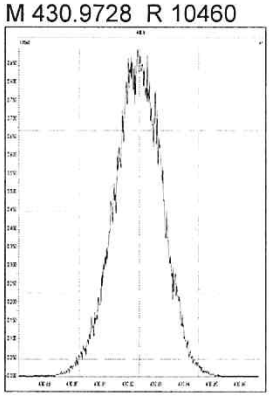
M 404.9760 R 10778



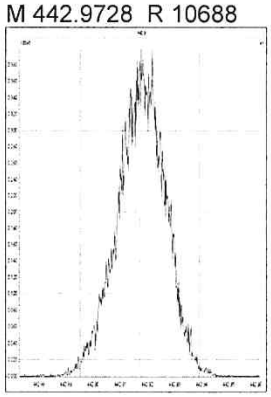
M 416.9760 R 11801



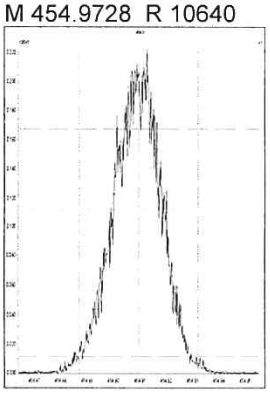
M 430.9728 R 10460



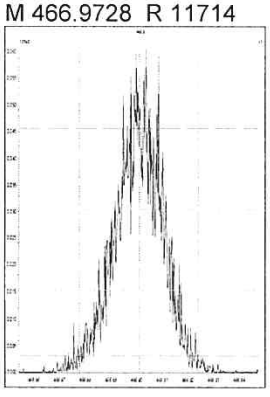
M 442.9728 R 10688



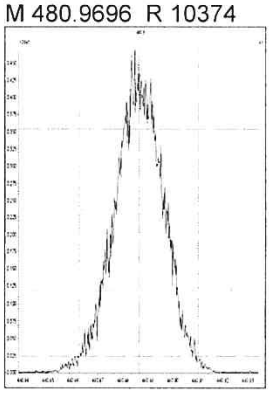
M 454.9728 R 10640



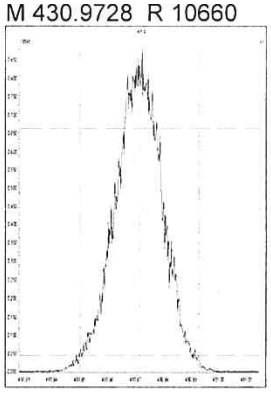
M 466.9728 R 11714



M 480.9696 R 10374

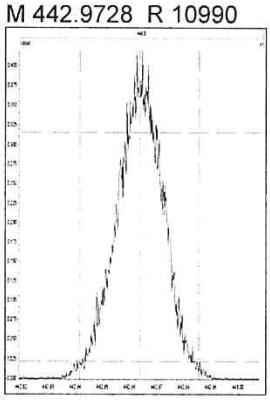


M 430.9728 R 10660

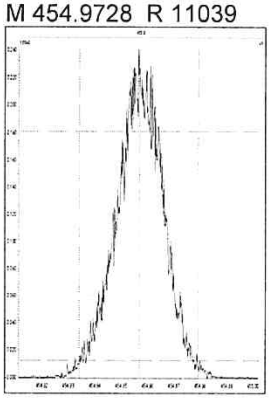


Printed: Friday, December 21, 2018 12:23:41 Central Standard Time

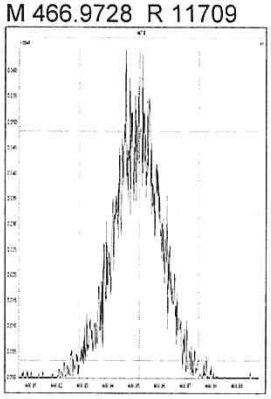
M 442.9728 R 10990



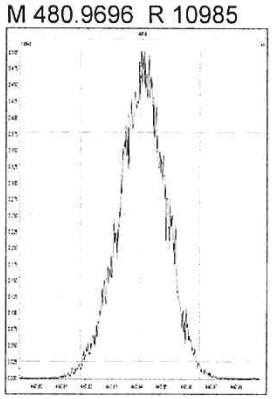
M 454.9728 R 11039



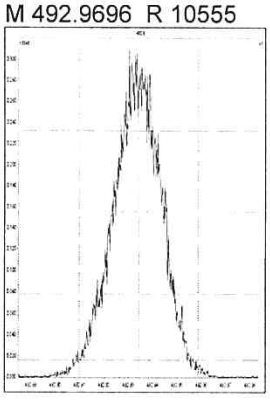
M 466.9728 R 11709



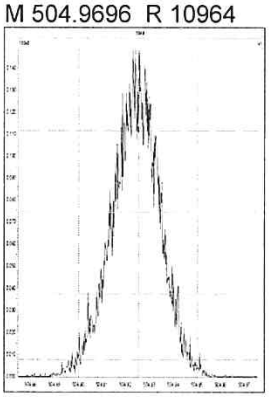
M 480.9696 R 10985



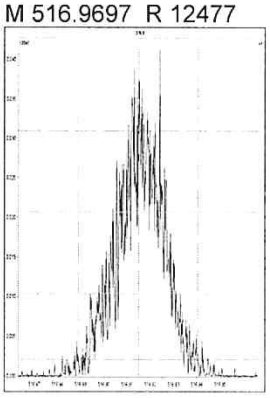
M 492.9696 R 10555



M 504.9696 R 10964



M 516.9697 R 12477



WINDOW DEFINING MIX SUMMARY

CLIENT ID:

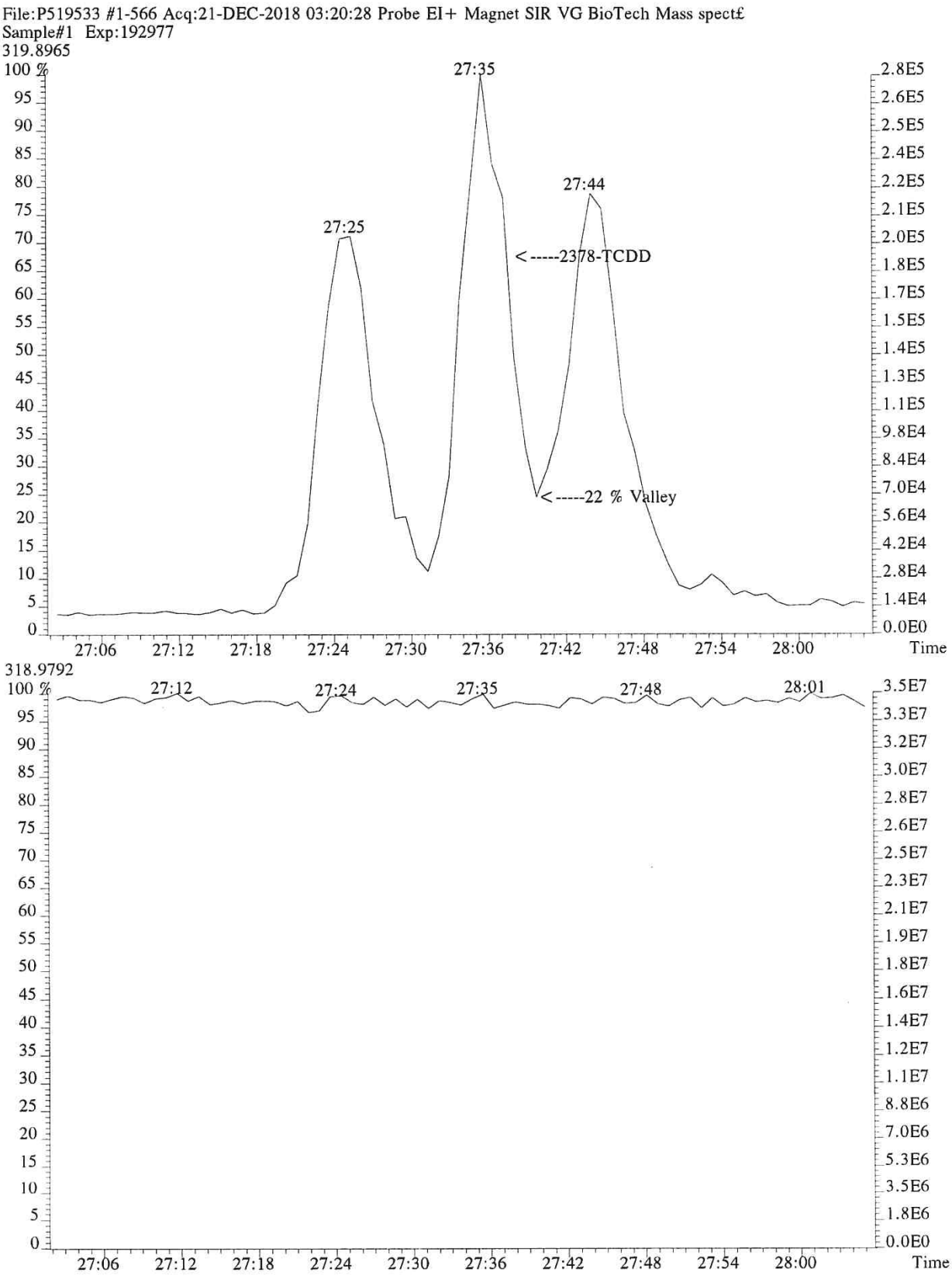
WDM

Lab Name: ALS Environmental
Lab Code: ALSTX Case No.: _____ SDG No.:
GC Column: DB-5MSUI ID: 0.25 (mm) Lab File ID: P519533
Date Analyzed: 21-DEC-18
Time Analyzed: 03:20:28

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	22:14	28:52
TCDD	23:55	28:43
PeCDF	28:51	33:24
PeCDD	30:32	33:09
HxCDF	34:08	36:47
HxCDD	34:42	36:23
HpCDF	38:09	39:36
HpCDD	38:26	39:08

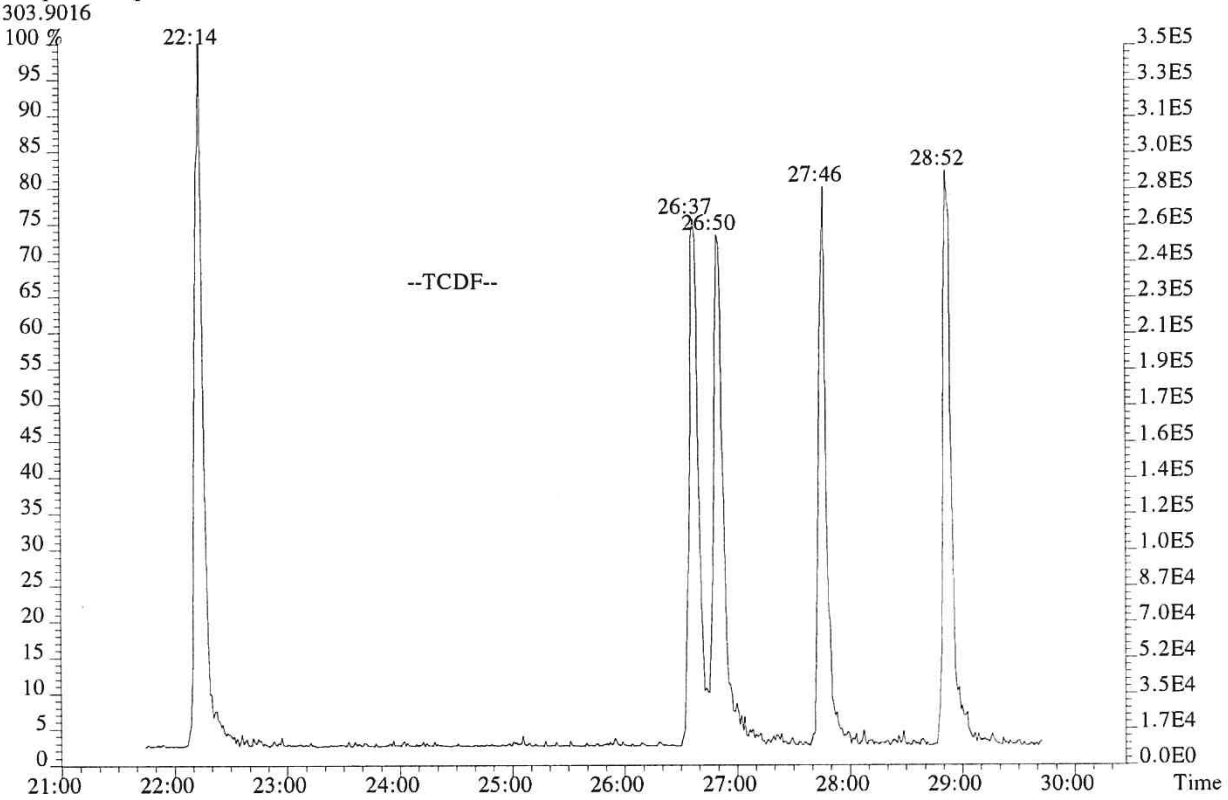
% Valley 2378-TCDD: 22 %

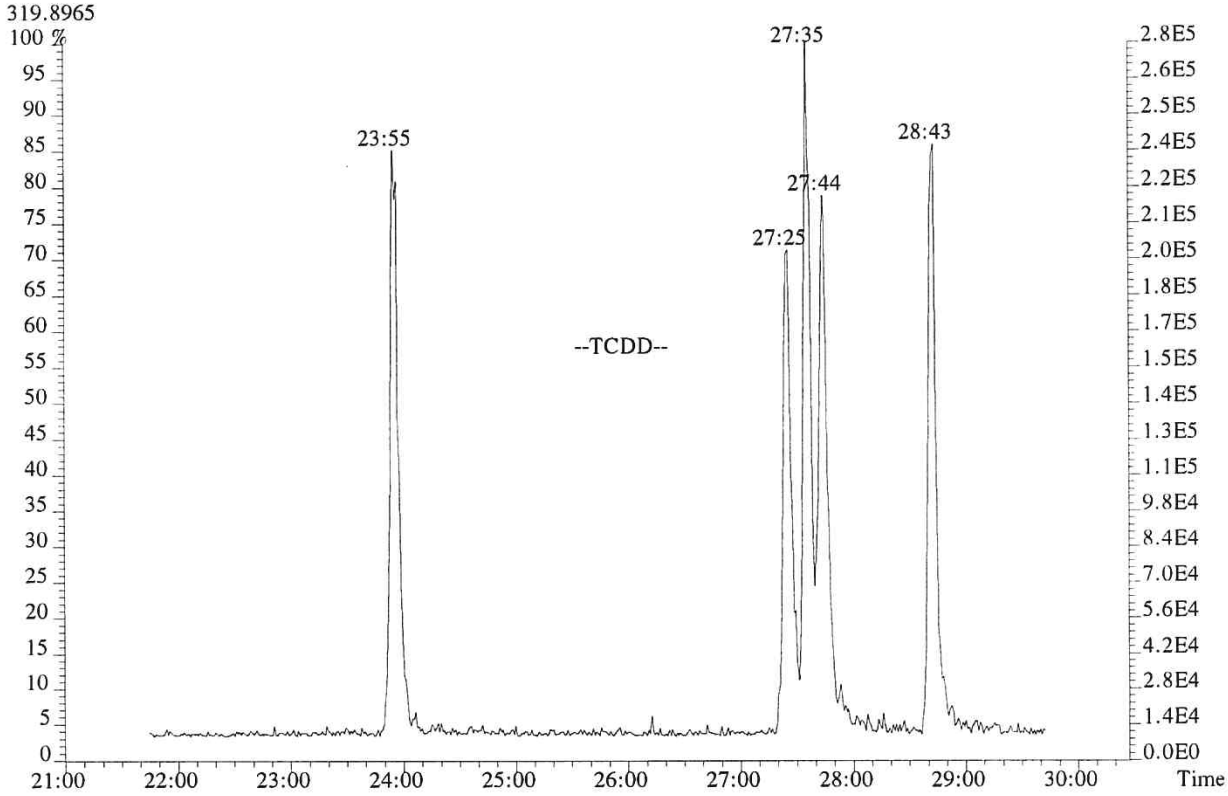
015826


File:P519533 #1-566 Acq:21-DEC-2018 03:20:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
319.8965
27:35
27:44
27:25
<-----2378-TCDD
<-----22 % Valley
Time
318.9792
27:12
27:24
27:35
27:48
28:01
Time

015827

File:P519533 #1-566 Acq:21-DEC-2018 03:20:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977





015828

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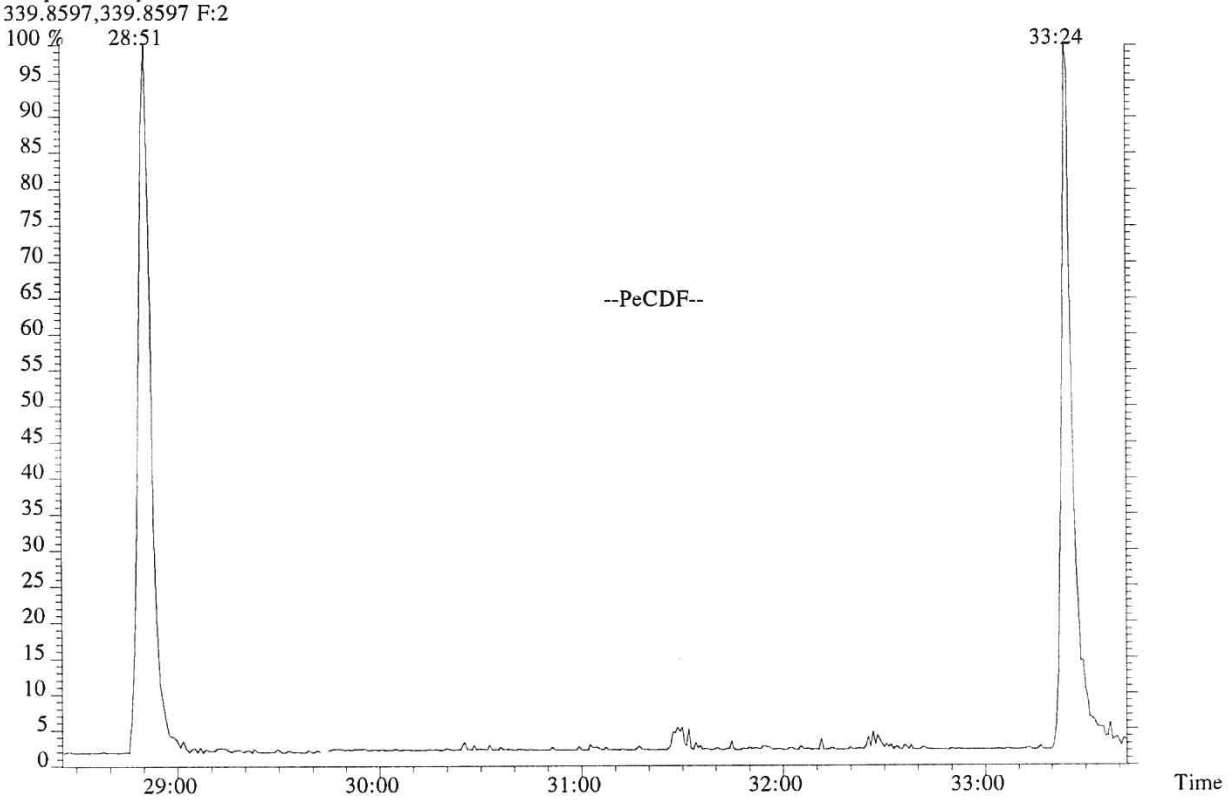
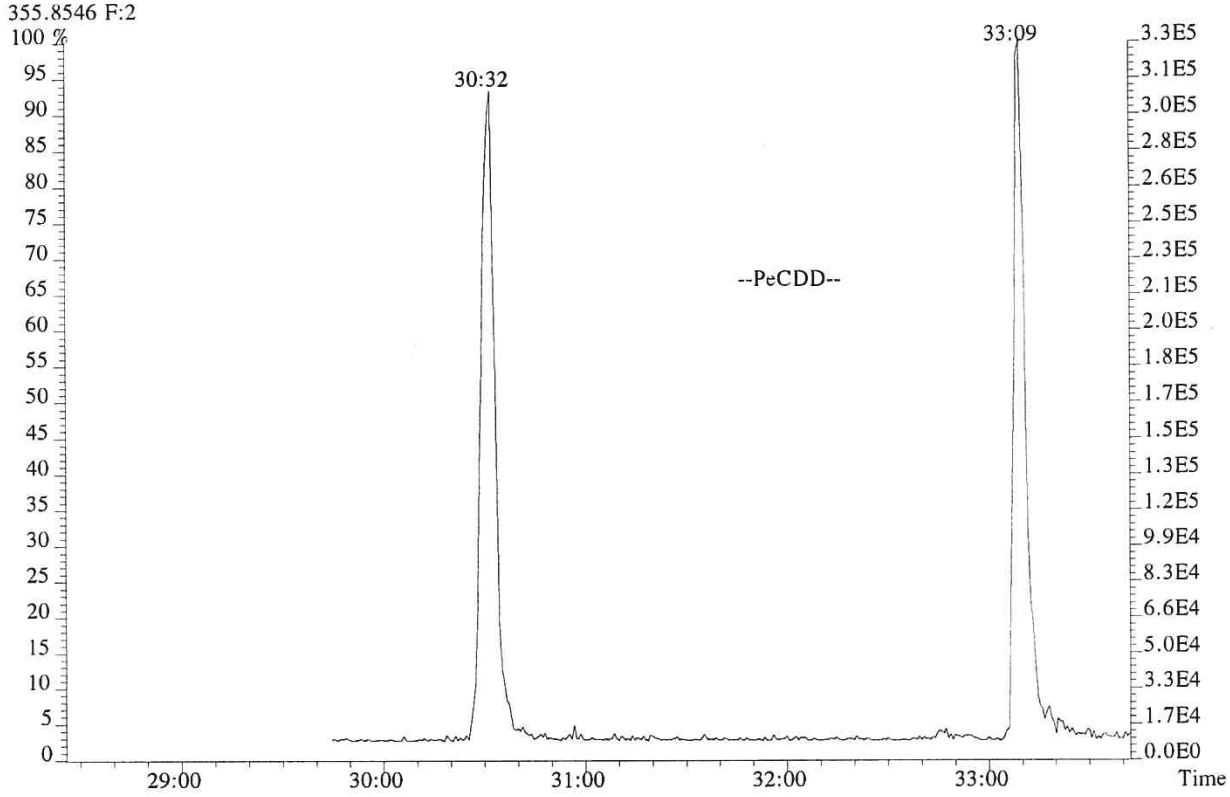
339.8597,339.8597 F:2



355.8546 F:2



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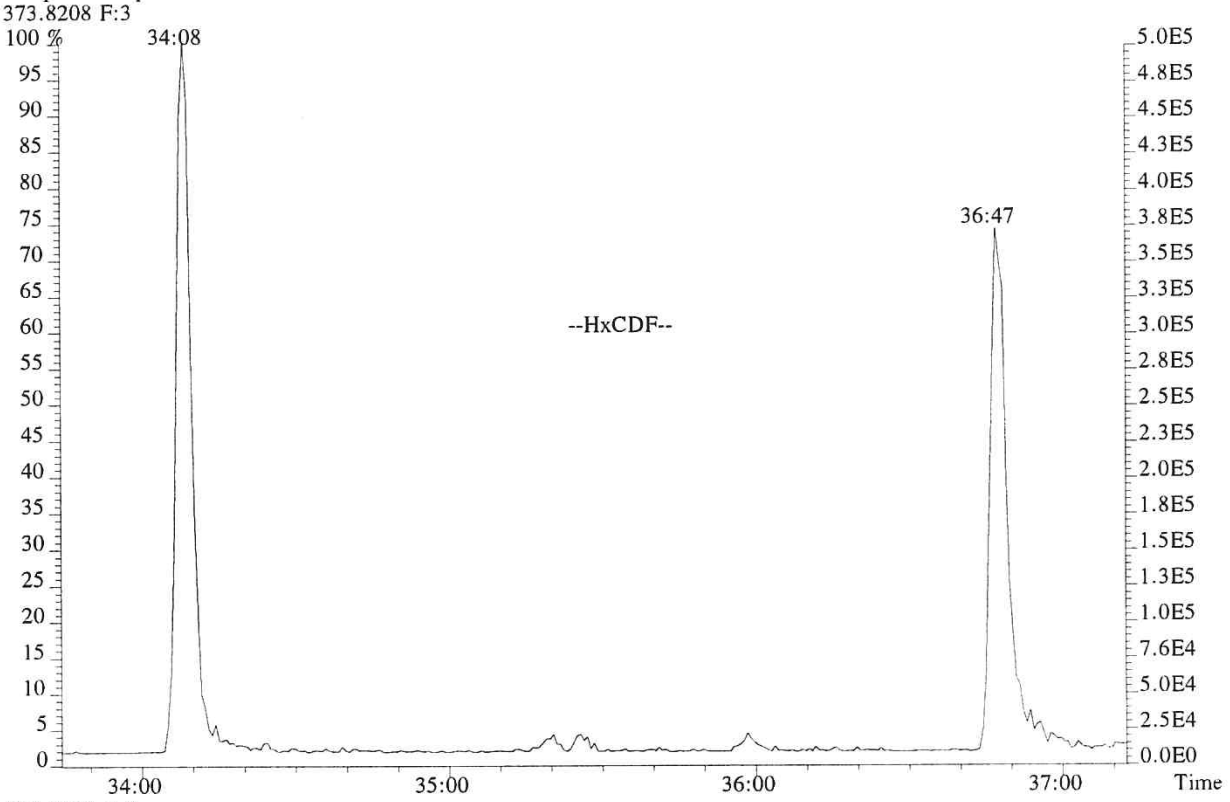
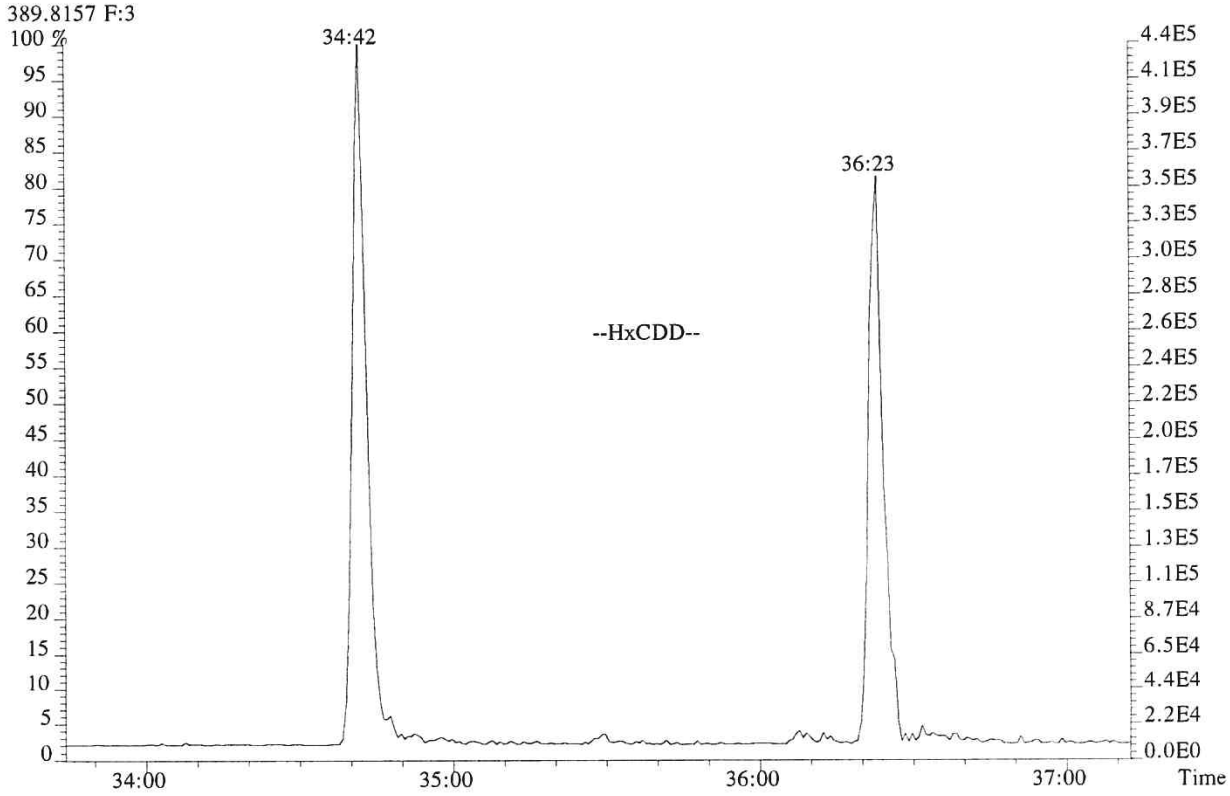
Sample#1 Exp:192977
373.8208 F:3



389.8157 F:3



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Sample#1 Exp:192977
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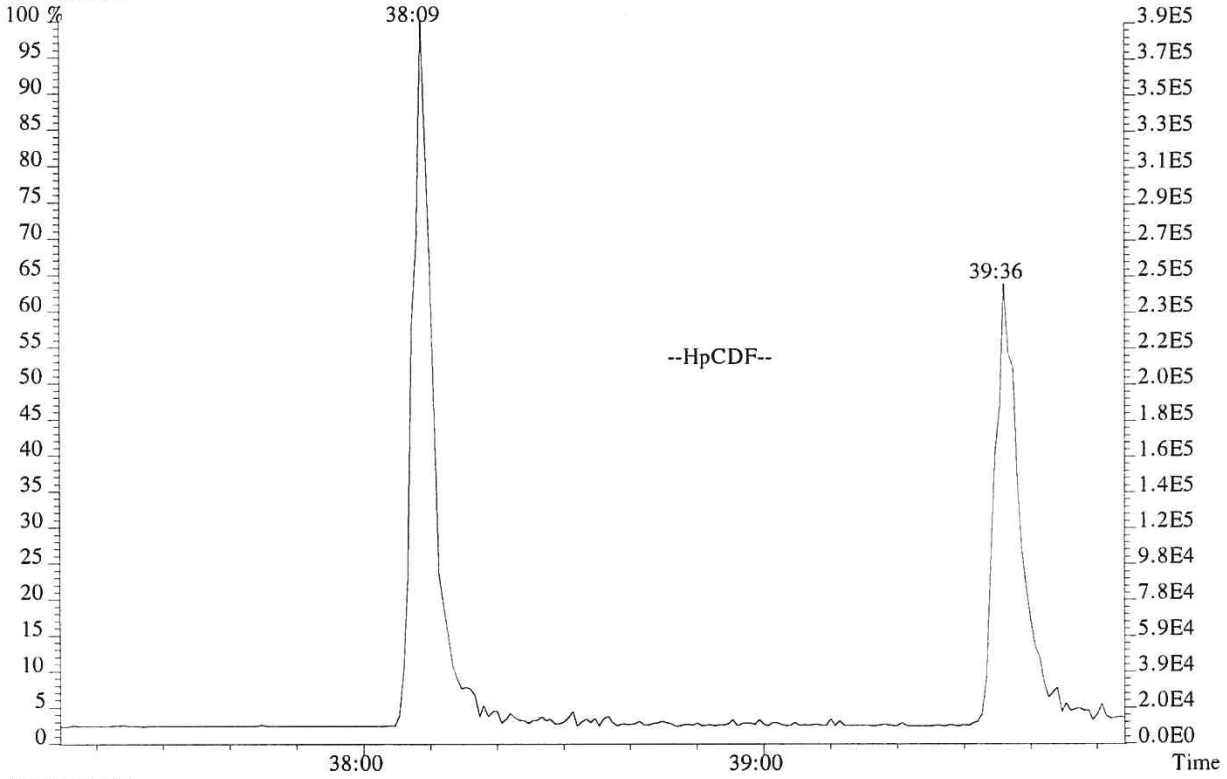
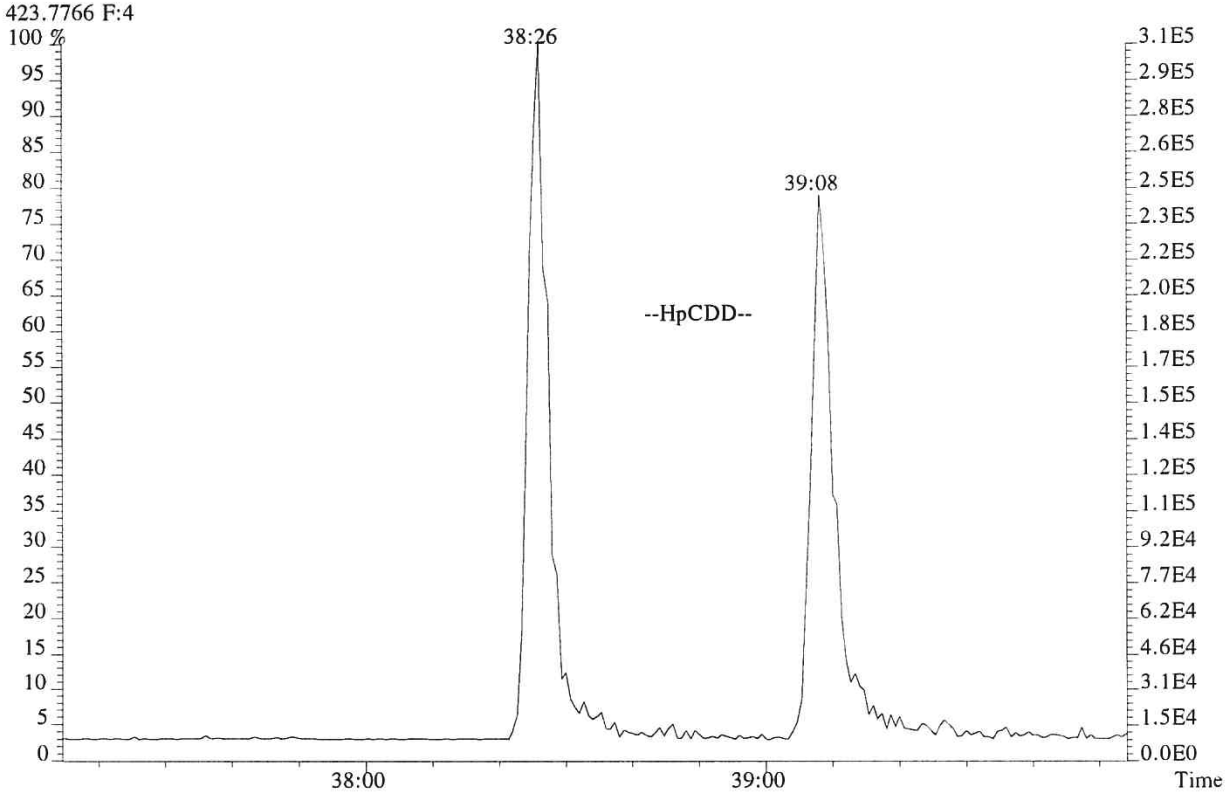


423.7766 F:4



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519532 Analysis Date: 21-DEC-18 Time: 02:32:41

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.82	0.65-0.89	9.9	7.8 - 12.9	-1.3
1,2,3,7,8-PeCDD	M+2/M+4	1.61	1.32-1.78	51	39 - 65	2.4
1,2,3,4,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	52	39 - 64	4.9
1,2,3,6,7,8-HxCDD	M+2/M+4	1.31	1.05-1.43	49	39 - 64	-2.9
1,2,3,7,8,9-HxCDD	M+2/M+4	1.24	1.05-1.43	52	41 - 61	4.4
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.04	0.88-1.20	49	43 - 58	-1.5
OCDD	M+2/M+4	0.88	0.76-1.02	100	79 - 126	-0.1
2,3,7,8-TCDF	M/M+2	0.76	0.65-0.89	10.1	8.4 - 12.0	0.8
1,2,3,7,8-PeCDF	M+2/M+4	1.49	1.32-1.78	51	41 - 60	1.8
2,3,4,7,8-PeCDF	M+2/M+4	1.49	1.32-1.78	50	41 - 61	-0.2
1,2,3,4,7,8-HxCDF	M+2/M+4	1.19	1.05-1.43	52	45 - 56	5.0
1,2,3,6,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	51	44 - 57	2.0
1,2,3,7,8,9-HxCDF	M+2/M+4	1.25	1.05-1.43	50	45 - 56	1.0
2,3,4,6,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	51	44 - 57	1.7
1,2,3,4,6,7,8-HpCDF	M+2/M+4	0.99	0.88-1.20	51	45 - 55	1.2
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.01	0.88-1.20	50	43 - 58	-0.3
OCDF	M+2/M+4	0.88	0.76-1.02	98	63 - 159	-2.5

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519532 Analysis Date: 21-DEC-18 Time: 02:32:41

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	98	82 - 121	-2.5
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.60	1.32-1.78	109	62 - 160	8.8
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	93	85 - 117	-7.3
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	102	85 - 118	1.9
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.09	0.88-1.20	105	72 - 138	4.8
13C-OCDD	M+2/M+4	0.90	0.76-1.02	253	96 - 415	26.6
13C-2,3,7,8-TCDF	M/M+2	0.77	0.65-0.89	90	71 - 140	-10.1
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	105	76 - 130	5.1
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	108	77 - 130	7.7
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.51	0.43-0.59	87	76 - 131	-12.7
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.51	0.43-0.59	96	70 - 143	-3.6
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.51	0.43-0.59	92	74 - 135	-7.8
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.51	0.43-0.59	96	73 - 137	-4.3
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	101	78 - 129	1.5
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.44	0.37-0.51	102	77 - 129	1.7
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD	M+2/M+4			10.1	7.8 - 12.7	1.2

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #7 Filename P519532 Samp: 1 Inj: 1 Acquired: 21-DEC-18 02:32:41
Processed: 24-DEC-18 07:59:54 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:50	1.617e+03	2.136e+03	0.76	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	31:29	1.386e+04	9.286e+03	1.49	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	32:27	1.303e+04	8.762e+03	1.49	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:18	1.129e+04	9.472e+03	1.19	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:25	1.309e+04	1.071e+04	1.22	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:56	1.162e+04	9.309e+03	1.25	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	36:45	9.906e+03	7.933e+03	1.25	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:08	1.030e+04	1.039e+04	0.99	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:35	8.112e+03	8.009e+03	1.01	yes	no	1.258
10	Unk	OCDF	42:18	1.410e+04	1.605e+04	0.88	yes	no	1.359
11	Unk	2,3,7,8-TCDD	27:44	1.262e+03	1.540e+03	0.82	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	32:45	9.314e+03	5.771e+03	1.61	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:06	8.032e+03	6.373e+03	1.26	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:12	8.519e+03	6.524e+03	1.31	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:27	8.646e+03	6.977e+03	1.24	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:07	7.143e+03	6.850e+03	1.04	yes	no	1.025
17	Unk	OCDD	42:07	1.189e+04	1.352e+04	0.88	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	26:49	1.722e+04	2.231e+04	0.77	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	31:27	2.747e+04	1.743e+04	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	32:26	2.800e+04	1.756e+04	1.59	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:18	1.126e+04	2.198e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:24	1.400e+04	2.758e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:56	1.248e+04	2.461e+04	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	36:44	1.045e+04	2.043e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:07	9.352e+03	2.090e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:35	7.883e+03	1.784e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	27:42	1.153e+04	1.464e+04	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:44	1.897e+04	1.185e+04	1.60	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:05	1.480e+04	1.164e+04	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:11	1.676e+04	1.308e+04	1.28	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:07	1.449e+04	1.323e+04	1.09	yes	no	0.858
32	IS	13C-OCDD	42:06	2.159e+04	2.392e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:04	1.283e+04	1.622e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:26	1.723e+04	1.362e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:44	2.979e+03				no	1.014

ALS ENVIRONMENTAL
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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #7 Filename P519532 Samp: 1 Inj: 1 Acquired: 21-DEC-18 02:32:41
Processed: 24-DEC-18 07:59:54 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.51e+05	5.00e+02	5.0e+02	3.28e+05	1.02e+03	3.2e+02
2	1,2,3,7,8-PeCDF	2.22e+06	3.80e+02	5.8e+03	1.49e+06	5.88e+02	2.5e+03
3	2,3,4,7,8-PeCDF	2.46e+06	3.80e+02	6.5e+03	1.60e+06	5.88e+02	2.7e+03
4	1,2,3,4,7,8-HxCDF	2.28e+06	3.88e+02	5.9e+03	1.92e+06	2.28e+02	8.4e+03
5	1,2,3,6,7,8-HxCDF	2.38e+06	3.88e+02	6.1e+03	1.94e+06	2.28e+02	8.5e+03
6	2,3,4,6,7,8-HxCDF	2.28e+06	3.88e+02	5.9e+03	1.80e+06	2.28e+02	7.9e+03
7	1,2,3,7,8,9-HxCDF	1.70e+06	3.88e+02	4.4e+03	1.37e+06	2.28e+02	6.0e+03
8	1,2,3,4,6,7,8-HpCDF	1.73e+06	4.84e+02	3.6e+03	1.76e+06	2.52e+02	7.0e+03
9	1,2,3,4,7,8,9-HpCDF	1.16e+06	4.84e+02	2.4e+03	1.14e+06	2.52e+02	4.5e+03
10	OCDF	1.42e+06	4.08e+02	3.5e+03	1.65e+06	5.92e+02	2.8e+03
11	2,3,7,8-TCDD	2.20e+05	1.64e+03	1.3e+02	2.50e+05	3.84e+02	6.5e+02
12	1,2,3,7,8-PeCDD	1.61e+06	4.52e+02	3.6e+03	9.97e+05	2.96e+02	3.4e+03
13	1,2,3,4,7,8-HxCDD	1.56e+06	4.08e+02	3.8e+03	1.27e+06	2.84e+02	4.5e+03
14	1,2,3,6,7,8-HxCDD	1.55e+06	4.08e+02	3.8e+03	1.17e+06	2.84e+02	4.1e+03
15	1,2,3,7,8,9-HxCDD	1.53e+06	4.08e+02	3.8e+03	1.21e+06	2.84e+02	4.3e+03
16	1,2,3,4,6,7,8-HpCDD	1.09e+06	2.44e+02	4.5e+03	1.03e+06	2.88e+02	3.6e+03
17	OCDD	1.20e+06	4.72e+02	2.5e+03	1.36e+06	2.76e+02	4.9e+03
18	13C-2,3,7,8-TCDF	2.58e+06	3.56e+03	7.3e+02	3.36e+06	2.49e+03	1.4e+03
19	13C-1,2,3,7,8-PeCDF	4.45e+06	5.20e+02	8.6e+03	2.87e+06	8.52e+02	3.4e+03
20	13C-2,3,4,7,8-PeCDF	5.13e+06	5.20e+02	9.9e+03	3.21e+06	8.52e+02	3.8e+03
21	13C-1,2,3,4,7,8-HxCDF	2.24e+06	4.16e+02	5.4e+03	4.41e+06	3.08e+02	1.4e+04
22	13C-1,2,3,6,7,8-HxCDF	2.57e+06	4.16e+02	6.2e+03	5.00e+06	3.08e+02	1.6e+04
23	13C-2,3,4,6,7,8-HxCDF	2.49e+06	4.16e+02	6.0e+03	4.88e+06	3.08e+02	1.6e+04
24	13C-1,2,3,7,8,9-HxCDF	1.81e+06	4.16e+02	4.4e+03	3.61e+06	3.08e+02	1.2e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.58e+06	2.80e+02	5.6e+03	3.53e+06	3.96e+03	8.9e+02
26	13C-1,2,3,4,7,8,9-HpCDF	1.12e+06	2.80e+02	4.0e+03	2.52e+06	3.96e+03	6.4e+02
27	13C-2,3,7,8-TCDD	1.90e+06	3.69e+03	5.1e+02	2.40e+06	1.27e+03	1.9e+03
28	13C-1,2,3,7,8-PeCDD	3.27e+06	3.16e+02	1.0e+04	2.04e+06	5.92e+02	3.4e+03
29	13C-1,2,3,4,7,8-HxCDD	3.01e+06	5.84e+02	5.2e+03	2.40e+06	4.44e+02	5.4e+03
30	13C-1,2,3,6,7,8-HxCDD	2.84e+06	5.84e+02	4.9e+03	2.22e+06	4.44e+02	5.0e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.20e+06	4.12e+02	5.3e+03	2.04e+06	3.20e+02	6.4e+03
32	13C-OCDD	2.10e+06	4.92e+02	4.3e+03	2.37e+06	3.76e+02	6.3e+03
33	13C-1,2,3,4-TCDD	2.14e+06	3.69e+03	5.8e+02	2.71e+06	1.27e+03	2.1e+03
34	13C-1,2,3,7,8,9-HxCDD	3.00e+06	5.84e+02	5.1e+03	2.34e+06	4.44e+02	5.3e+03
35	37Cl-2,3,7,8-TCDD	4.82e+05	5.04e+02	9.6e+02			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.636e{+}03 + 3.840e{+}02) \times 100}{(1.898e{+}06 + 2.399e{+}06) \times (\quad) \times 1.085} =$$

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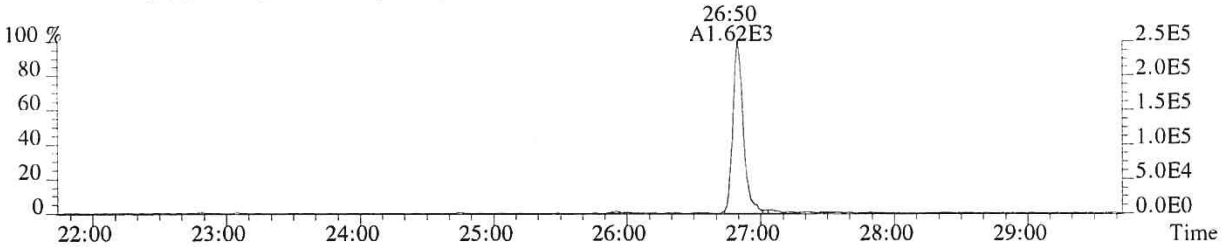
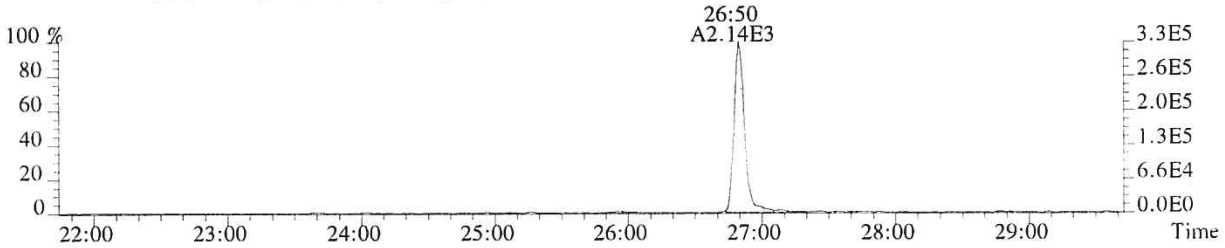
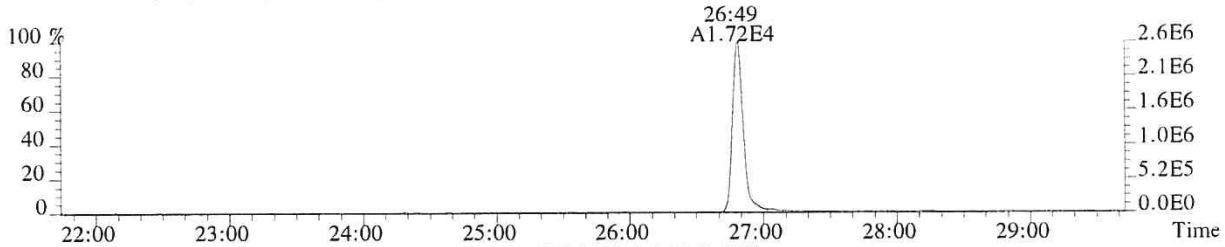
File:P519532 #1-566 Acq:21-DEC-2018 02:32:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,500.0,1.00%,F,T)



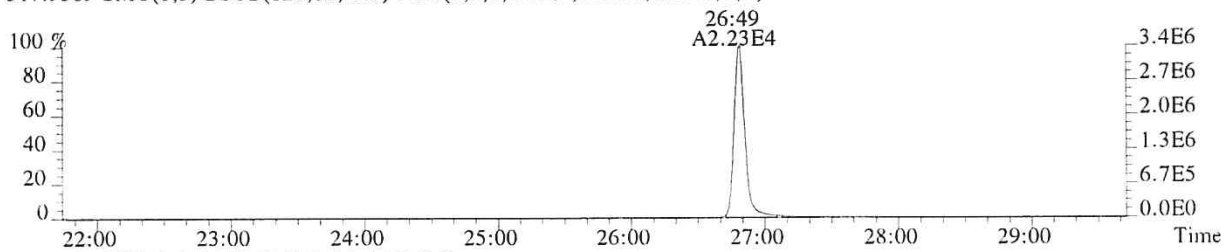
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1024.0,1.00%,F,T)



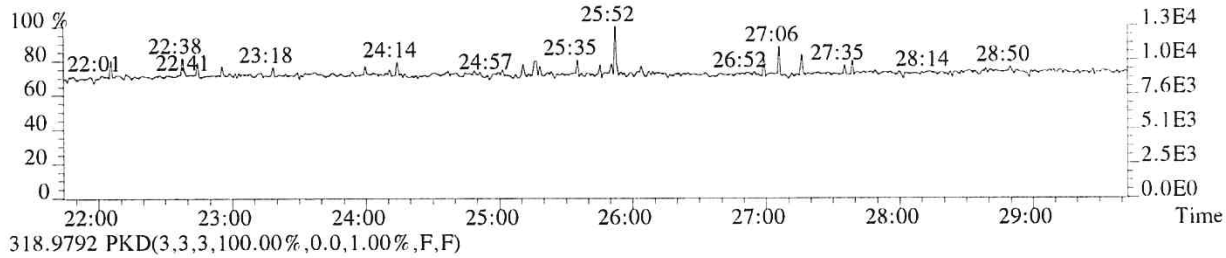
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3556.0,1.00%,F,T)



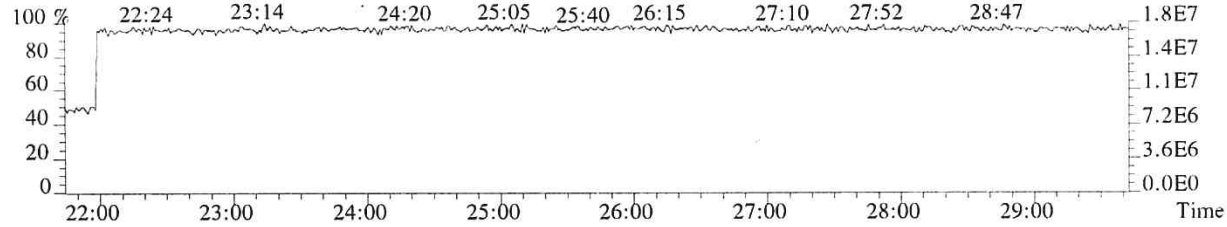
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2488.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

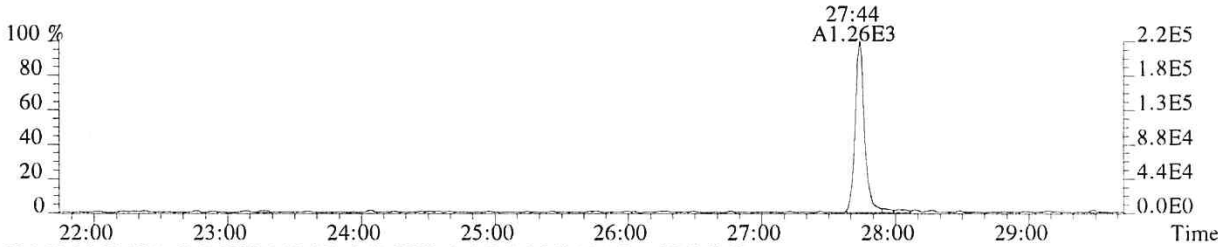


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

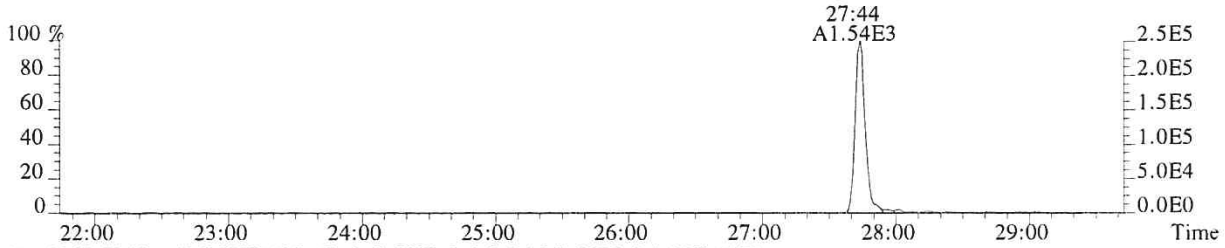


015836

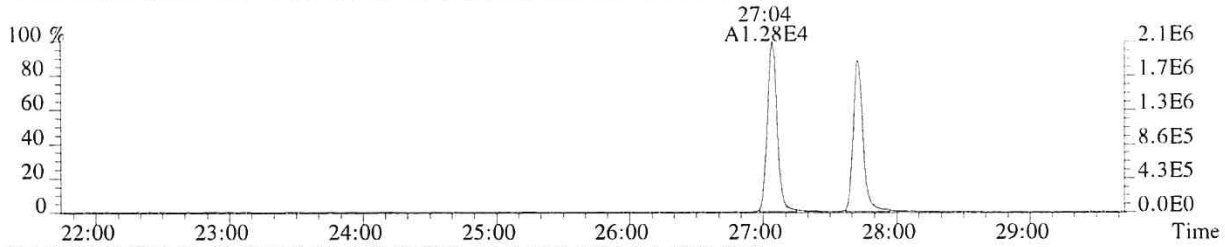
File:P519532 #1-566 Acq:21-DEC-2018 02:32:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1636.0,1.00%,F,T)



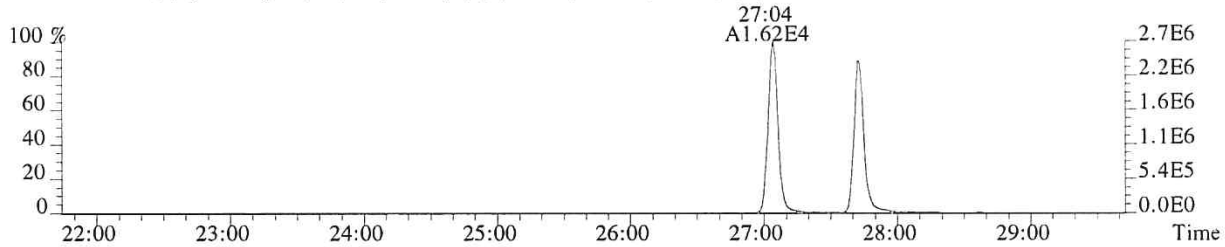
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,384.0,1.00%,F,T)



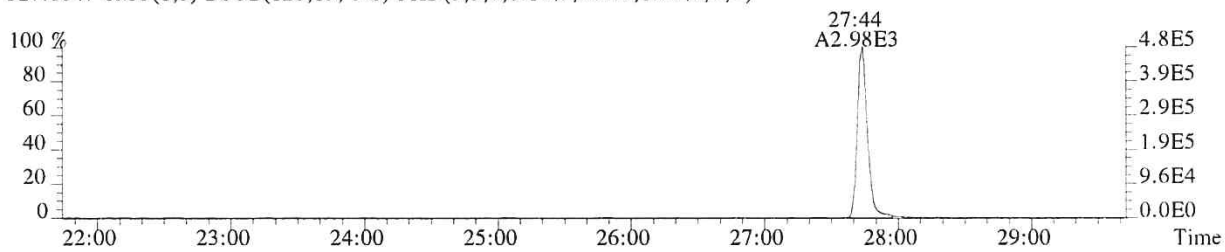
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3692.0,1.00%,F,T)



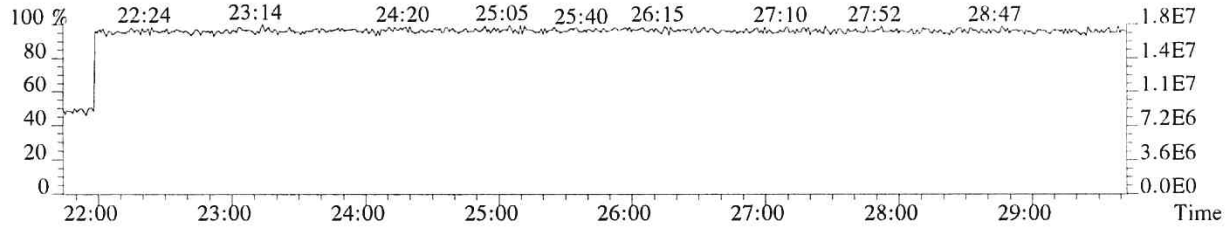
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1268.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,504.0,1.00%,F,T)

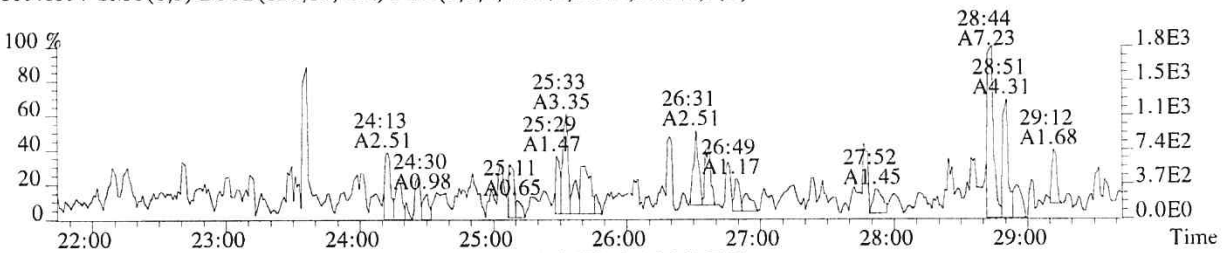


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

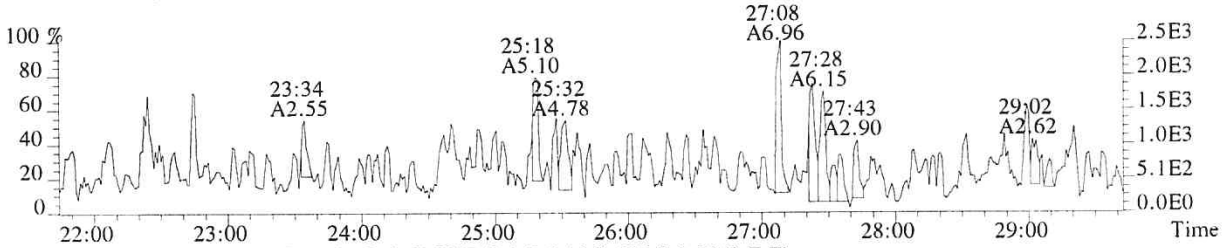


015837

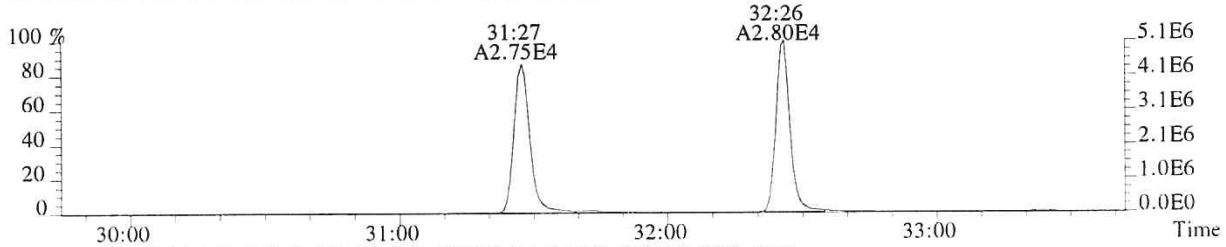
File:P519532 #1-566 Acq:21-DEC-2018 02:32:41 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:194503
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,288.0,1.00%,F,T)



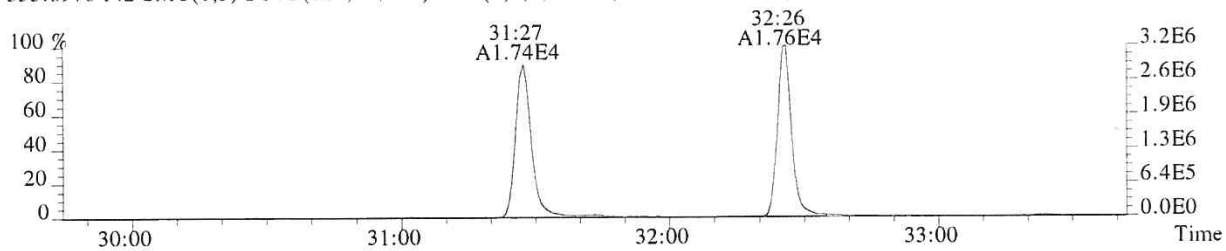
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,772.0,1.00%,F,T)



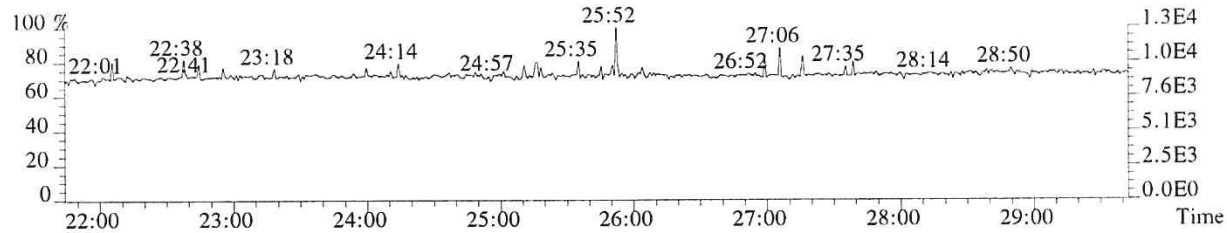
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,520.0,1.00%,F,T)



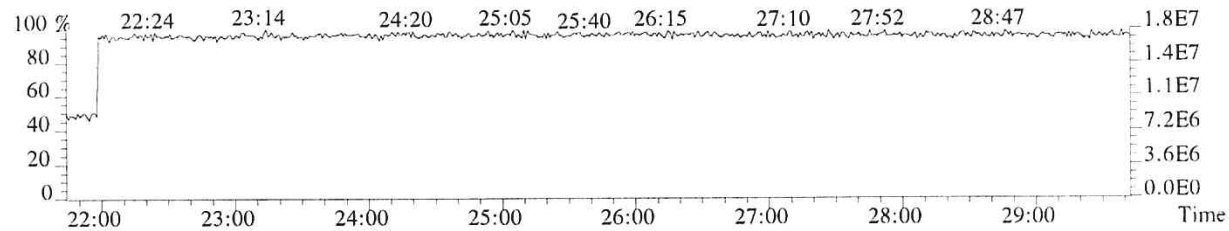
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,852.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

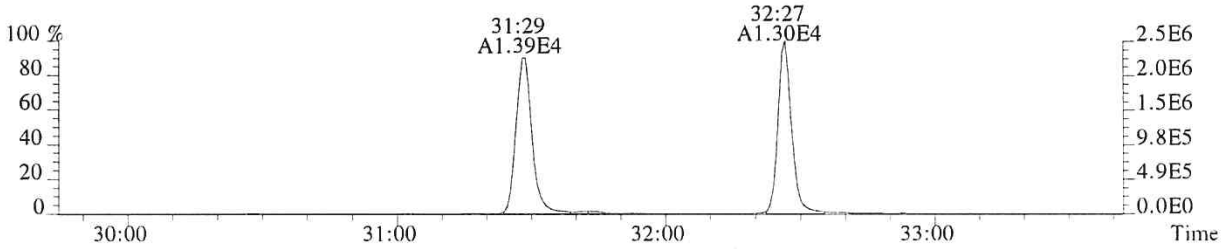


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

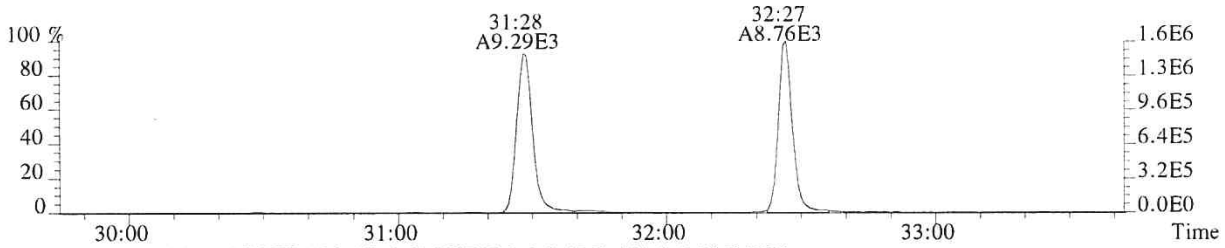


015838

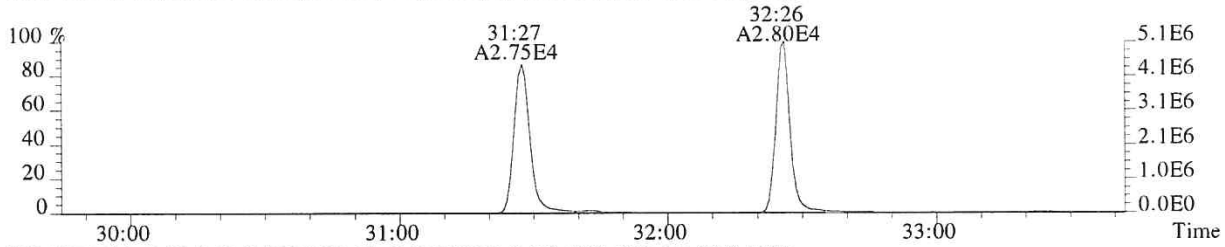
File:P519532 #1-357 Acq:21-DEC-2018 02:32:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,380.0,1.00%,F,T)



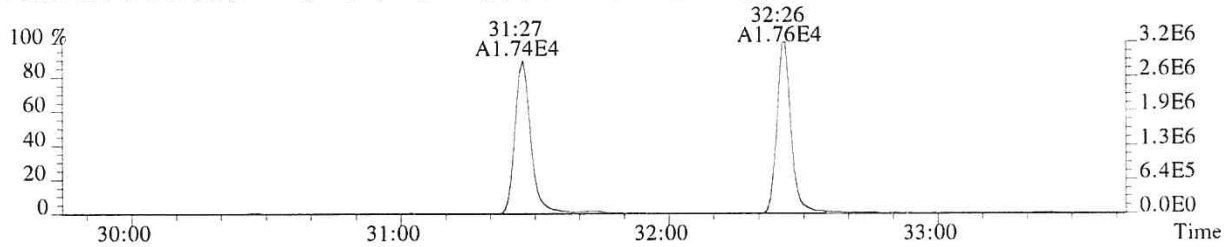
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,588.0,1.00%,F,T)



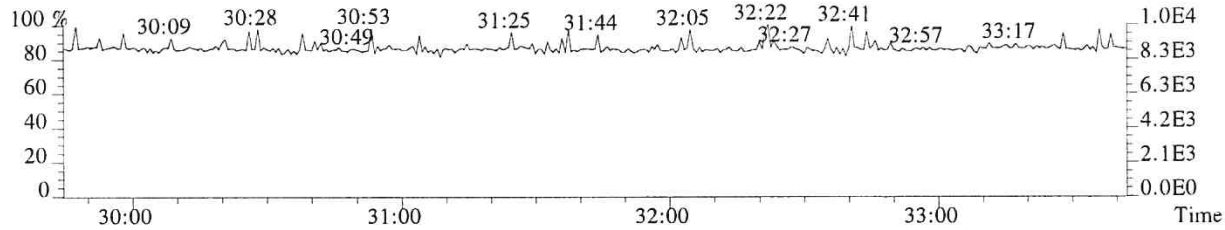
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,520.0,1.00%,F,T)



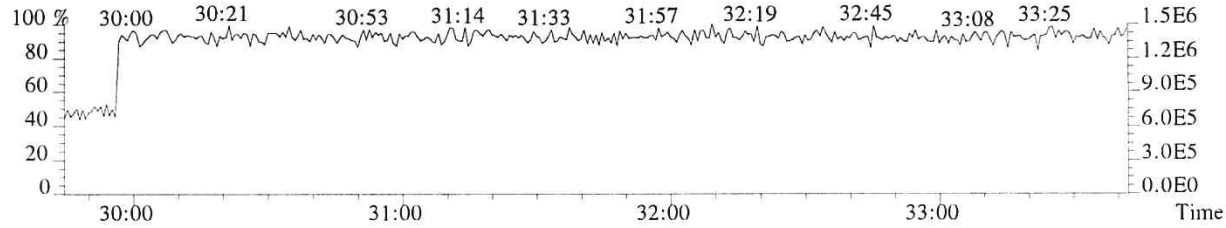
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,852.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

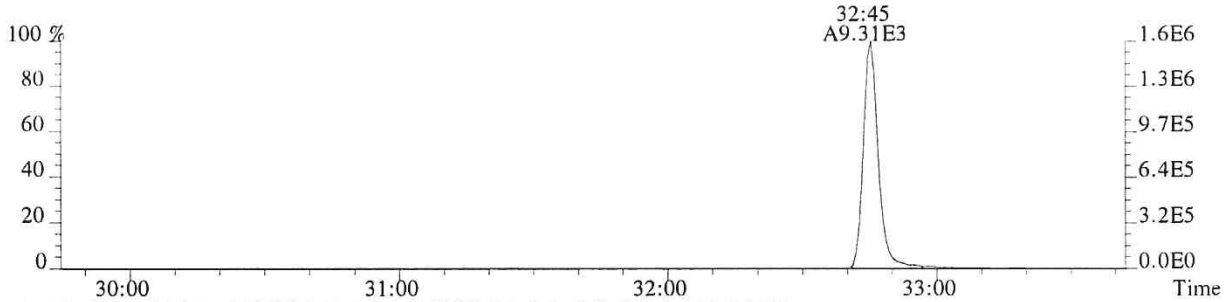


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

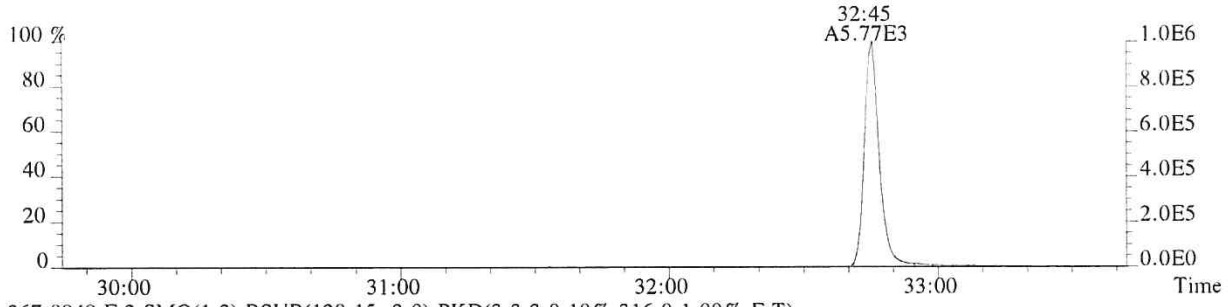


015839

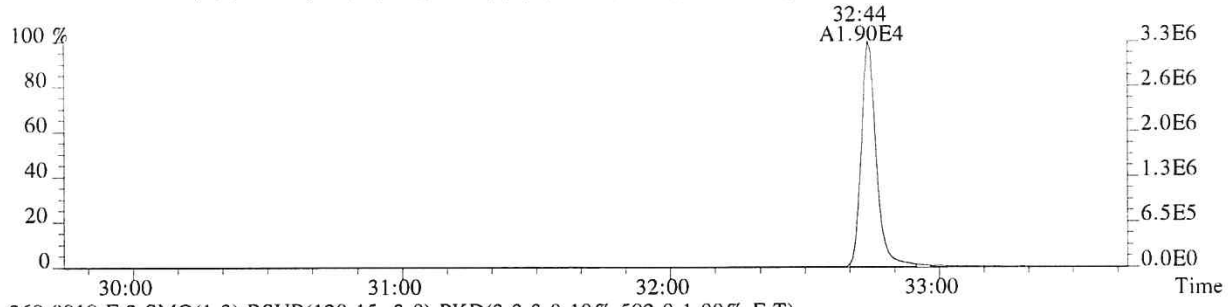
File:P519532 #1-357 Acq:21-DEC-2018 02:32:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,452.0,1.00%,F,T)



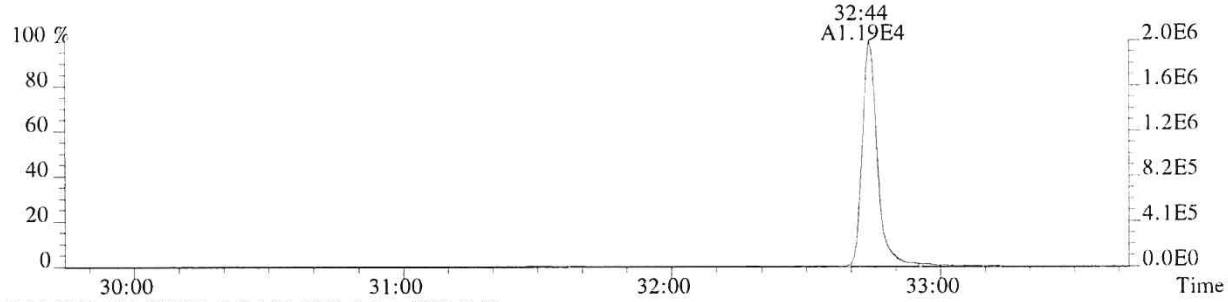
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,296.0,1.00%,F,T)



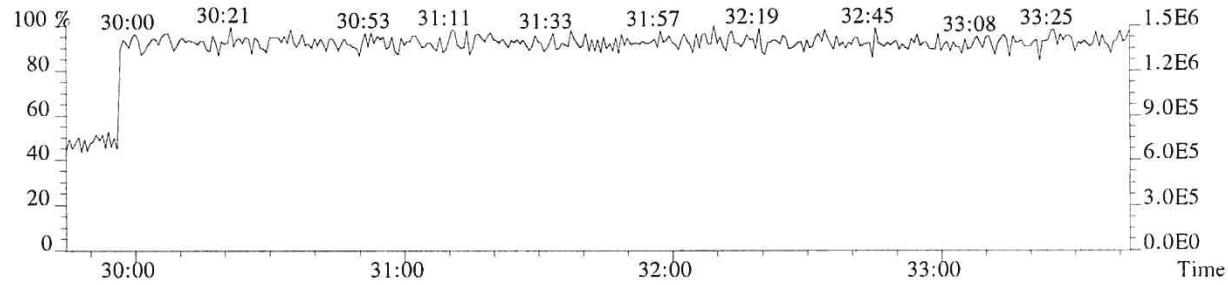
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,316.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,592.0,1.00%,F,T)

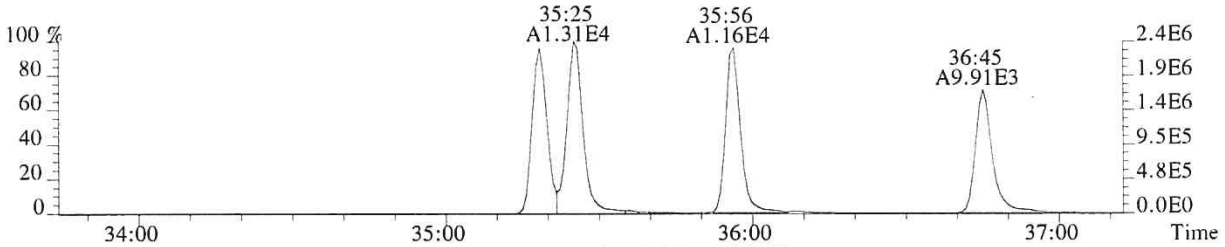


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

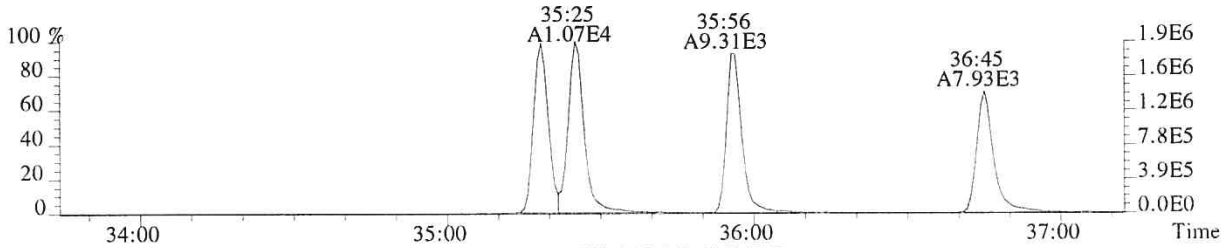


File:P519532 #1-313 Acq:21-DEC-2018 02:32:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

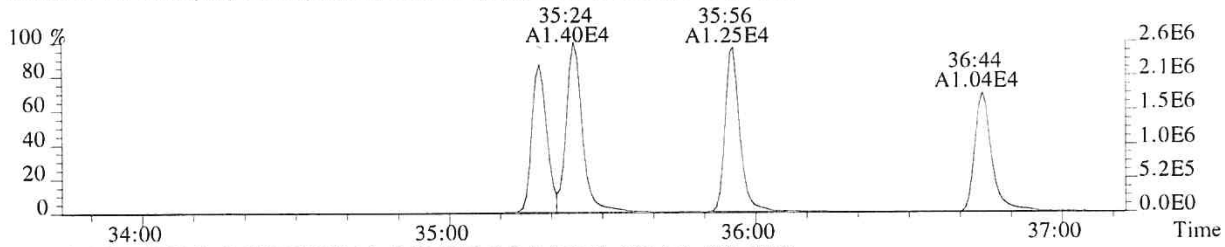
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,388.0,0.40%,F,T)



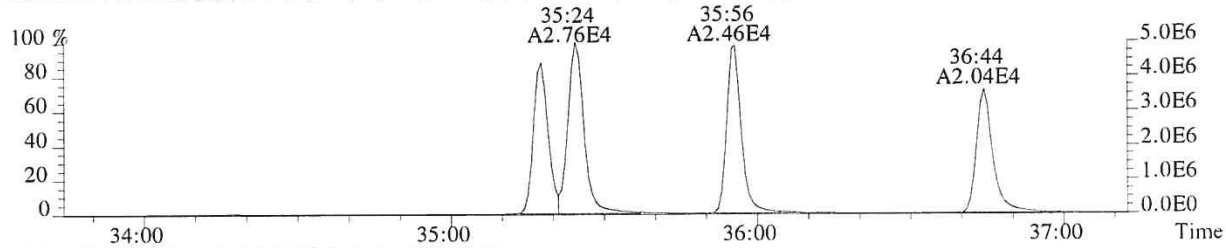
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,228.0,0.40%,F,T)



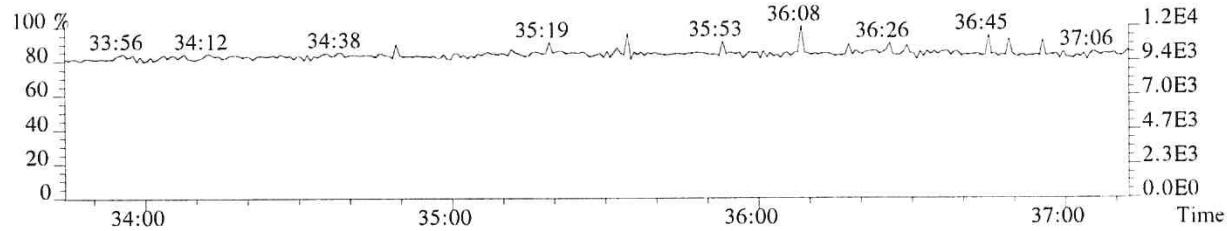
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,416.0,0.40%,F,T)



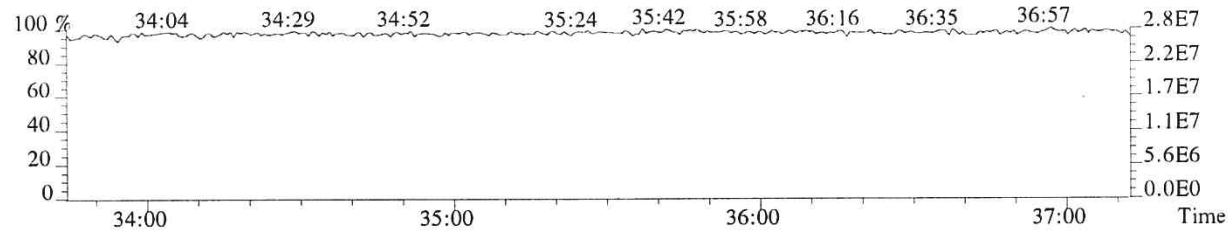
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,308.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

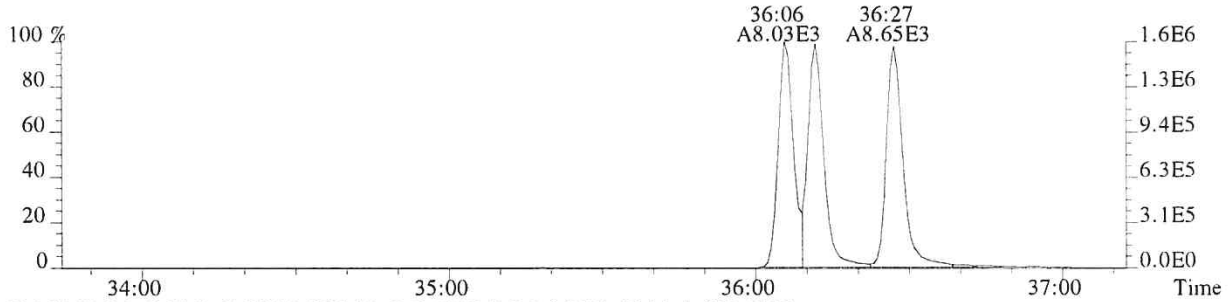


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

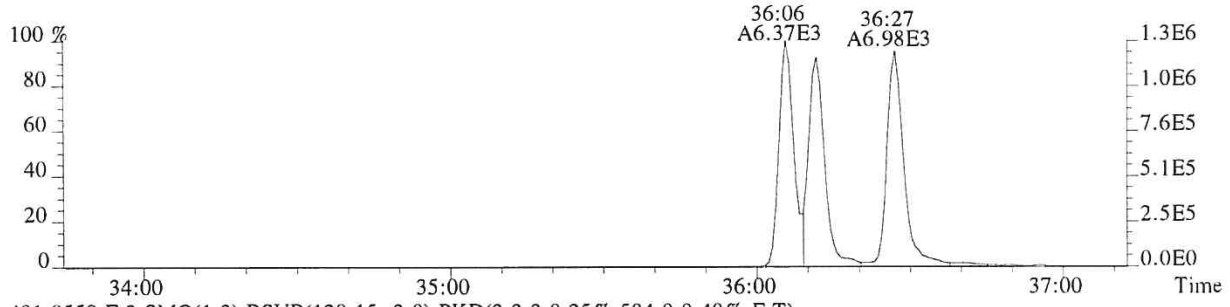


015841

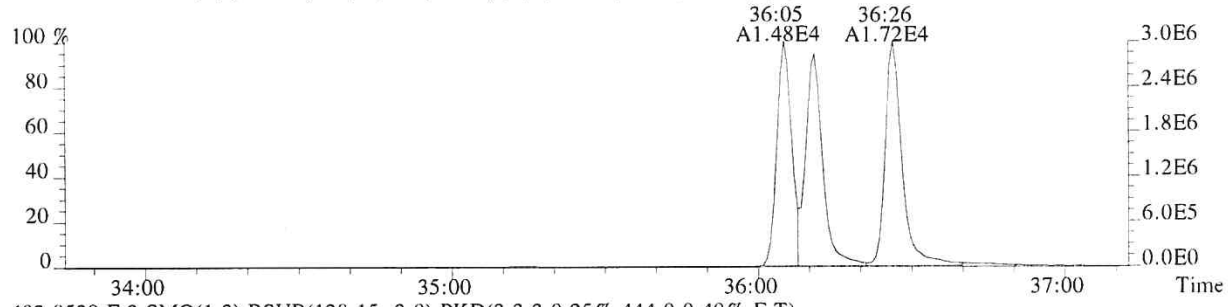
File:P519532 #1-313 Acq:21-DEC-2018 02:32:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,408.0,0.40%,F,T)



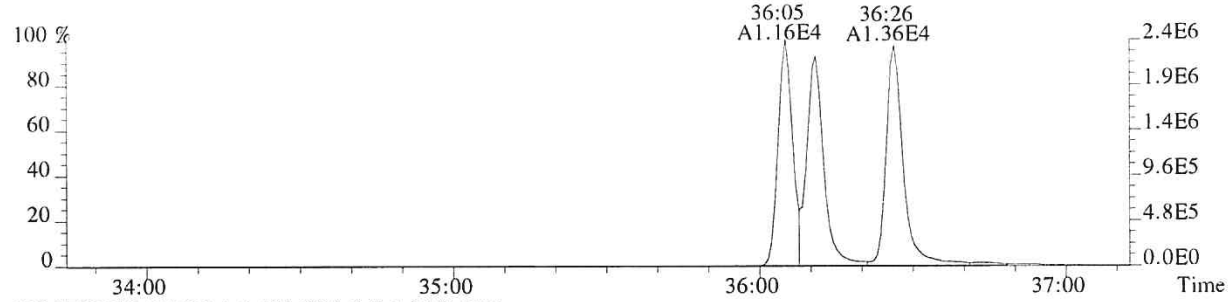
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,284.0,0.40%,F,T)



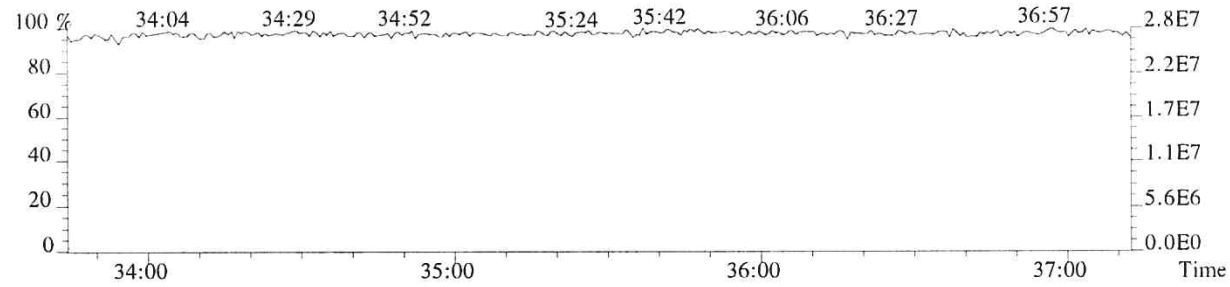
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,584.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,444.0,0.40%,F,T)

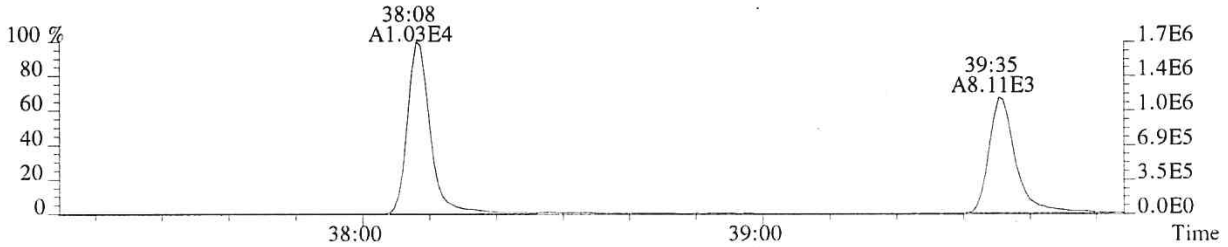


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

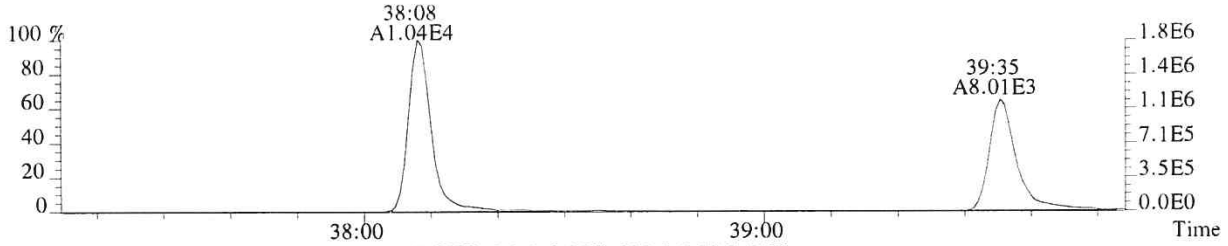


File:P519532 #1-240 Acq:21-DEC-2018 02:32:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

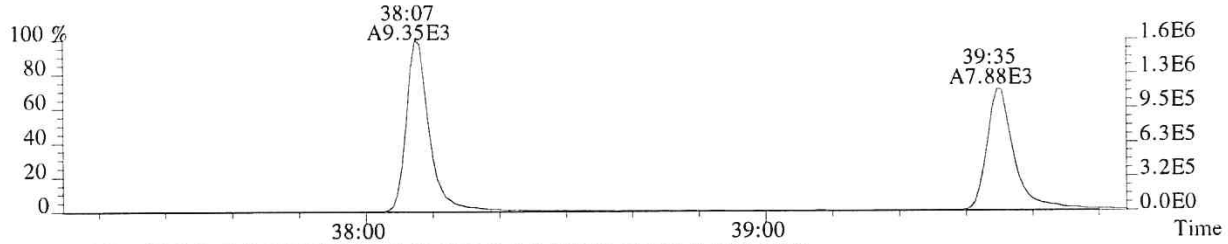
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,484.0,0.50%,F,T)



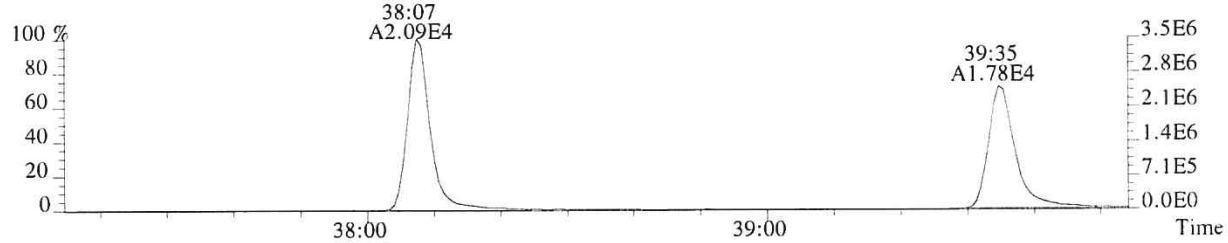
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,252.0,0.50%,F,T)



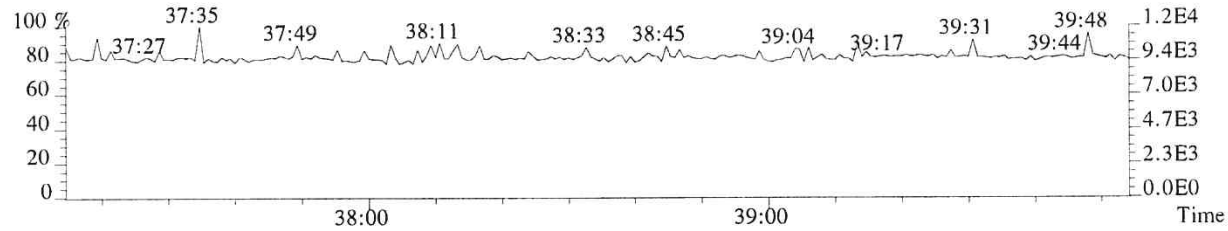
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,280.0,0.50%,F,T)



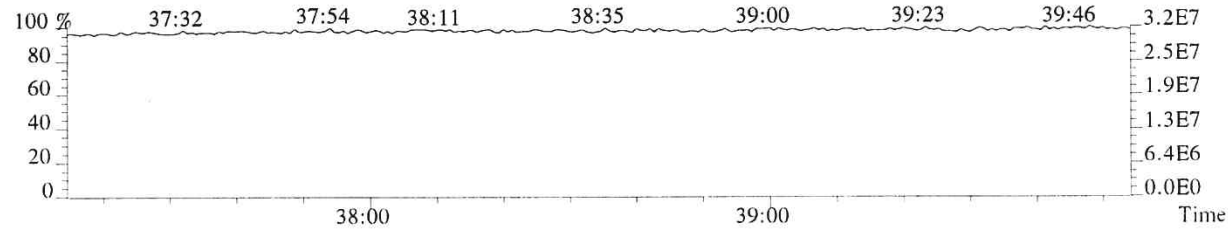
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3956.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

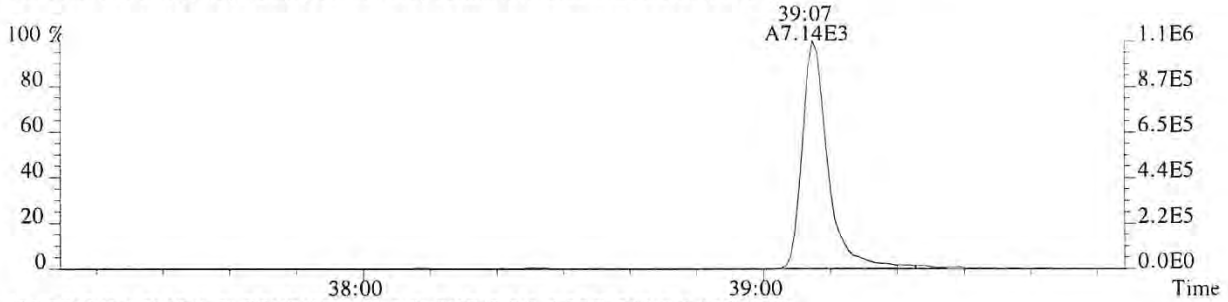


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

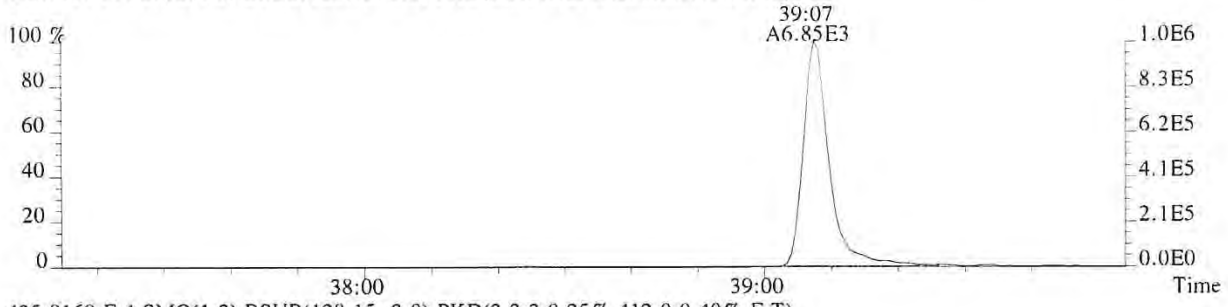


015843

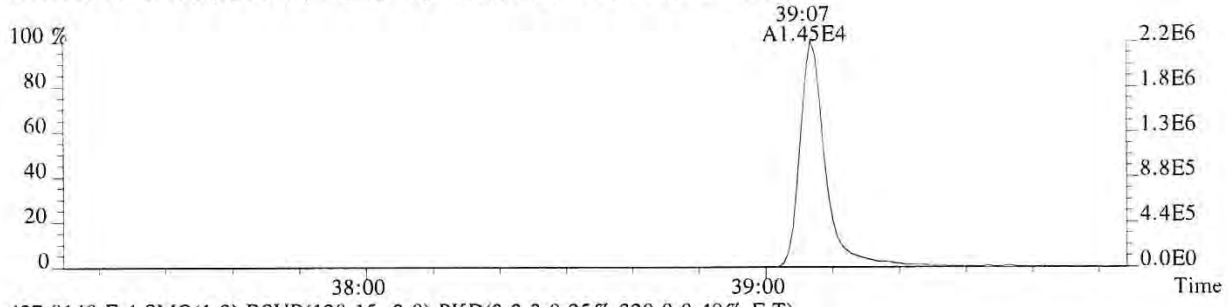
File:P519532 #1-240 Acq:21-DEC-2018 02:32:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,244.0,0.40%,F,T)



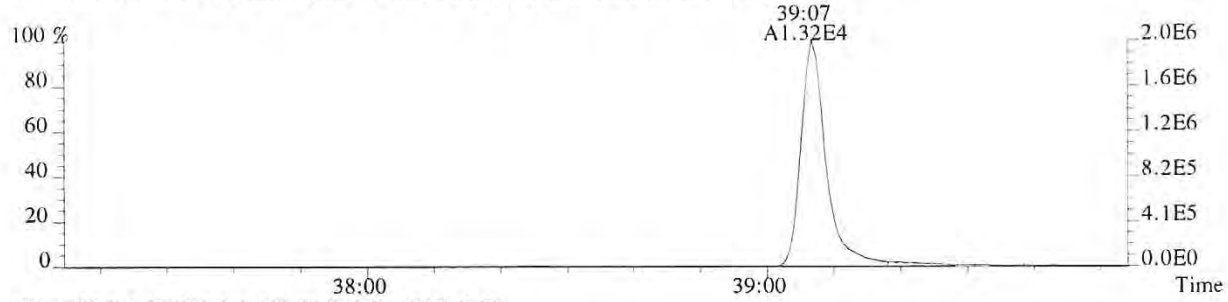
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,288.0,0.40%,F,T)



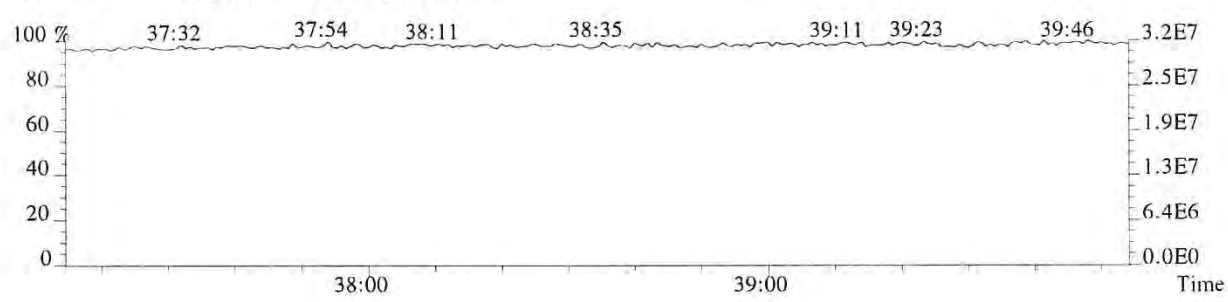
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,412.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,320.0,0.40%,F,T)

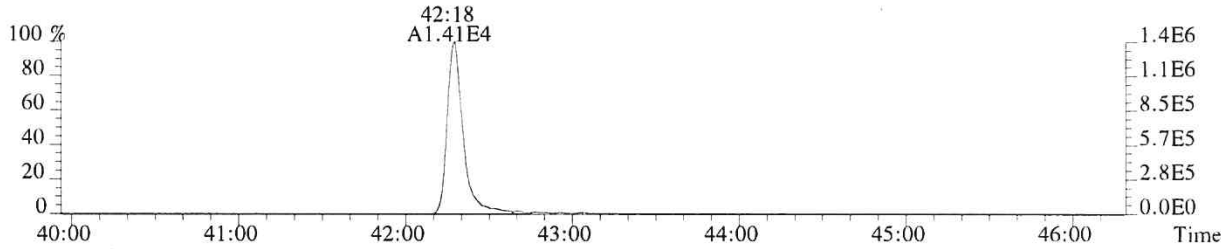


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

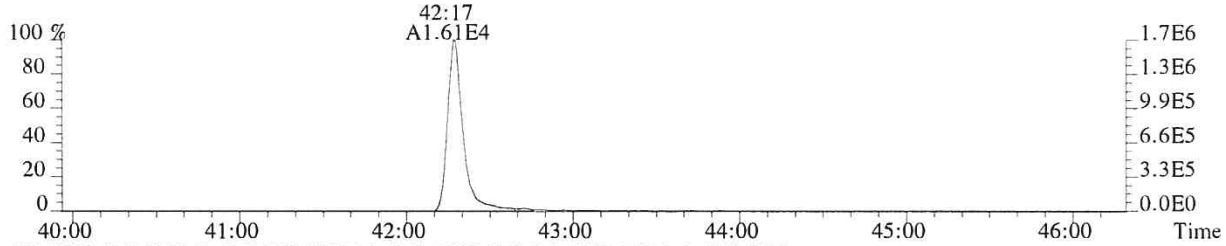


File:P519532 #1-575 Acq:21-DEC-2018 02:32:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

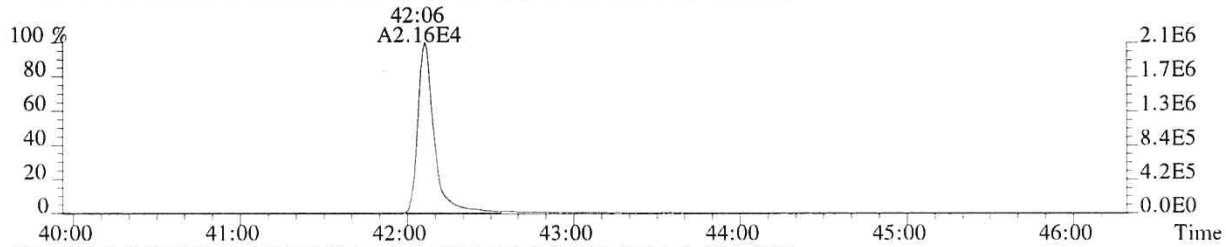
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,408.0,0.40%,F,T)



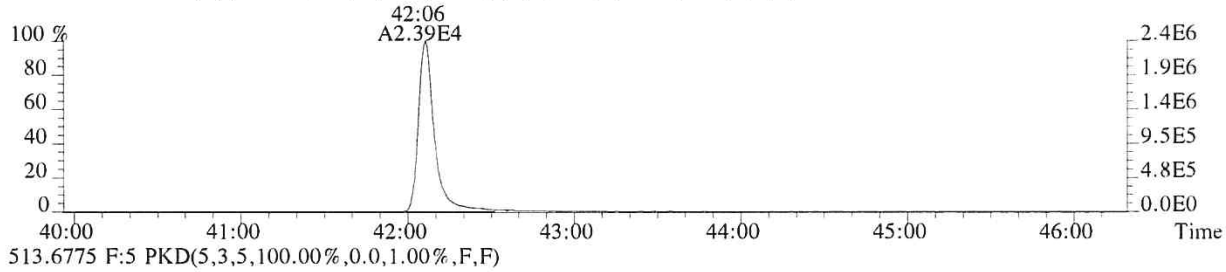
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,592.0,0.40%,F,T)



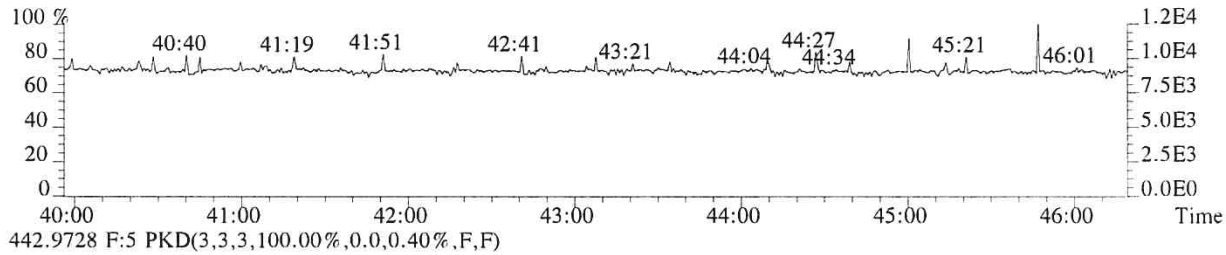
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,492.0,0.40%,F,T)



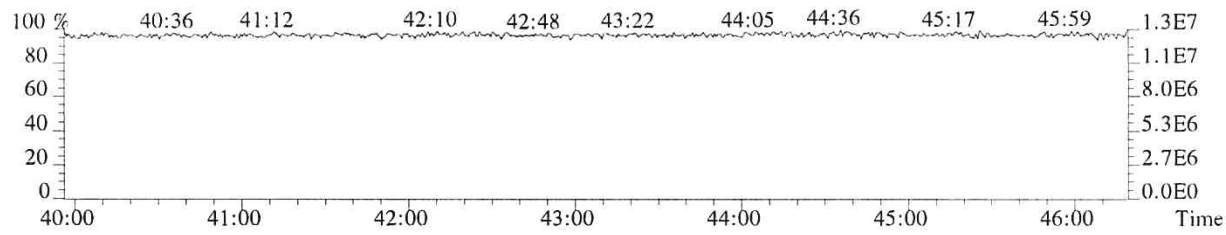
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,376.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

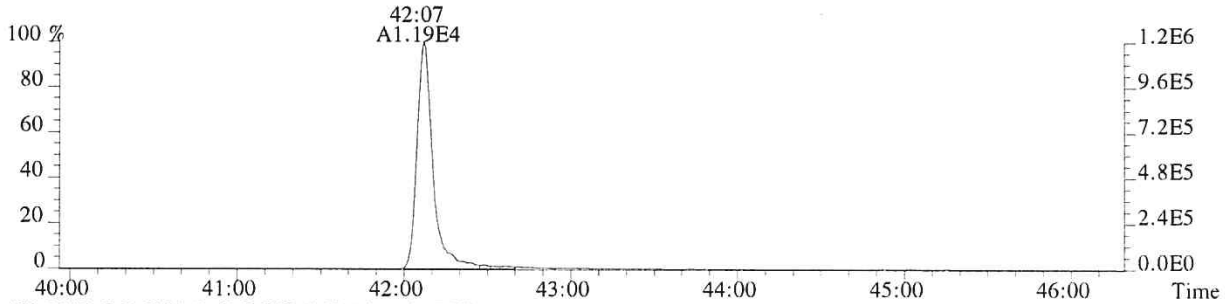


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

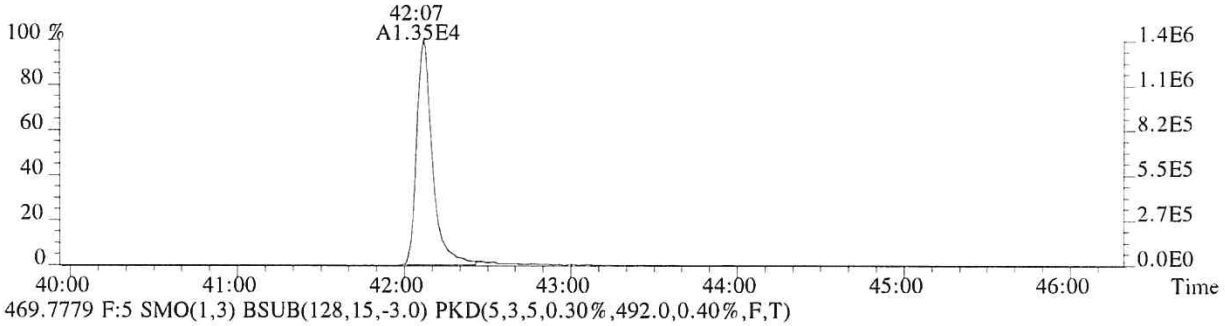


015845

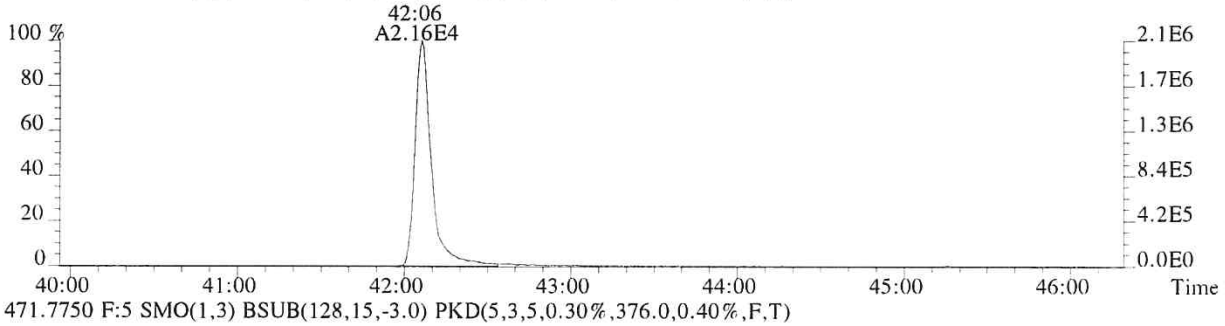
File:P519532 #1-575 Acq:21-DEC-2018 02:32:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,472.0,0.40%,F,T)



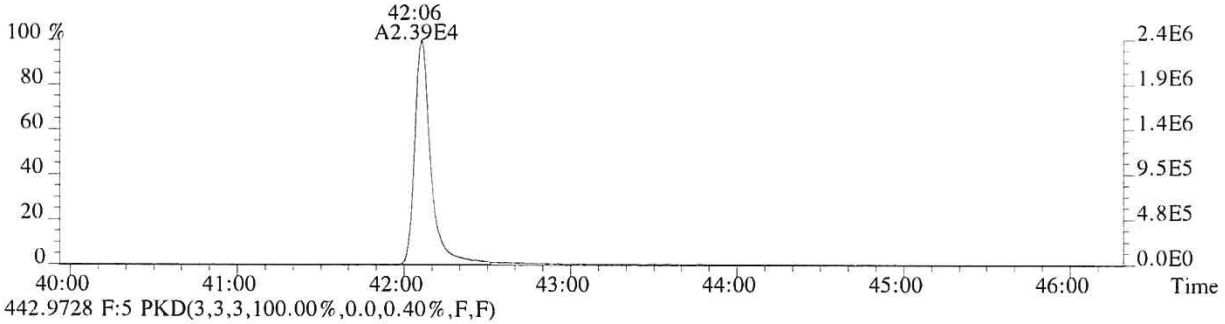
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,276.0,0.40%,F,T)



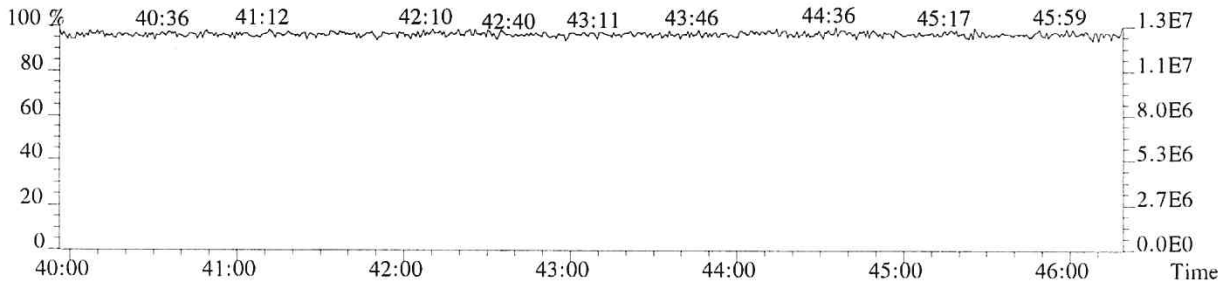
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,492.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,376.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P519587

Date: 12/24/18

Circle one: (Beginning) / Ending

Method: (1613) 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: LKL

Second QC: _____

ccalqc.xls 07/17/12

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

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
192977	WINDOW DEFINE	P519588	24-DEC-18	09:43:57
194503	CS3	P519587	24-DEC-18	08:52:29
METHOD BLANK	EQ1800508-01	P519589	24-DEC-18	10:32:52
METHOD BLANK	EQ1800512-01	P519590	24-DEC-18	11:25:10
SL0060	E1801096-002DL	P519591	24-DEC-18	12:13:07
SL0061	E1801096-003DL	P519592	24-DEC-18	13:01:37
SL0062	E1801096-004DL	P519593	24-DEC-18	13:50:17
SL0054	E1801094-012DL	P519594	24-DEC-18	14:47:58
SL0056	E1801094-014DL	P519595	24-DEC-18	15:35:46
SL0057	E1801094-015DL	P519596	24-DEC-18	16:24:25
SL0014	E1801094-018DL	P519597	24-DEC-18	17:13:04
SL0038	E1801094-009	P519598	24-DEC-18	18:01:43
19-01413	E1801097-001	P519599	24-DEC-18	18:50:23
19-01413	E1801097-002	P519600	24-DEC-18	19:39:03
LCS	EQ1800512-03	P519601	24-DEC-18	20:27:40

E1801094

Sample List Report — **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20181224A.SPL
Last Modified: Wednesday, December 26, 2018 07:45:31 Central Standard Time
Printed: Wednesday, December 26, 2018 07:45:32 Central Standard Time

Page Position (1, 1)

OPUS 5NET: P519587 RES

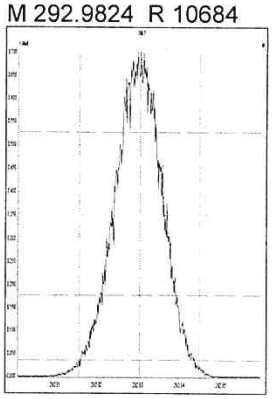
	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	12/24/18	08:52	P519587	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2	LG	HRMS check 08:49
2		09:43	P519588	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:1		
3		10:32	P519589	MB	EQ1800508-01	EPA1613_ALS	Dioxin_ALS	Tray1:3		
4		11:25	P519590	MB	EQ1800512-01	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		12:13	P519591	E1801096-002DL	E1801096-002DL	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		13:01	P519592	E1801096-003DL	E1801096-003DL	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		13:50	P519593	E1801096-004DL	E1801096-004DL	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		14:47	P519594	E1801094-012DL	E1801094-012DL	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		15:35	P519595	E1801094-014DL	E1801094-014DL	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		16:24	P519596	E1801094-015DL	E1801094-015DL	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		17:13	P519597	E1801094-018DL	E1801094-018DL	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		18:01	P519598	E1801094-009	E1801094-009	EPA1613_ALS	Dioxin_ALS	Tray1:12		Needs Reinjection
13		18:50	P519599	E1801097-001	E1801097-001	EPA1613_ALS	Dioxin_ALS	Tray1:13		
14		19:39	P519600	E1801097-002	E1801097-002	EPA1613_ALS	Dioxin_ALS	Tray1:14		
15		20:27	P519601	DLCS	EQ1800512-03	EPA1613_ALS	Dioxin_ALS	Tray1:15		
16	√	21:24	P519602	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2	√	HRMS check 21:24
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

LKL 12/26/18

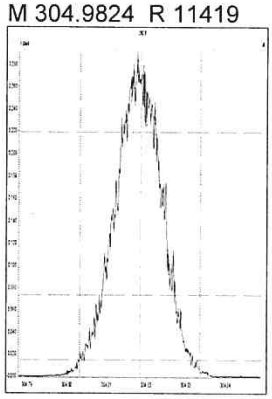
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Monday, December 24, 2018 08:49:04 Central Standard Time

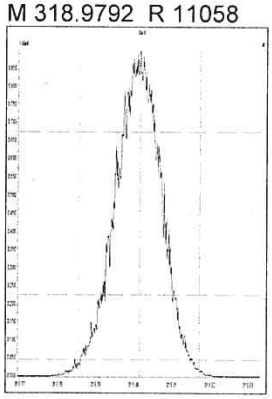
M 292.9824 R 10684



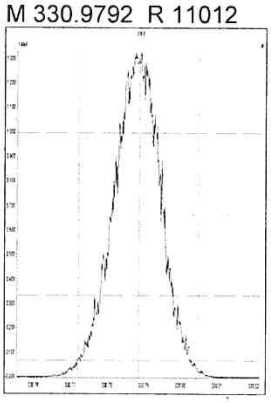
M 304.9824 R 11419



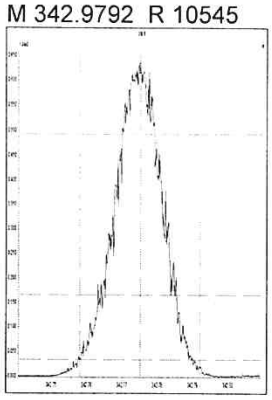
M 318.9792 R 11058



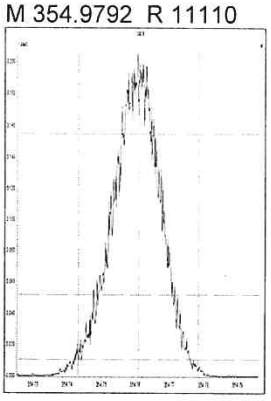
M 330.9792 R 11012



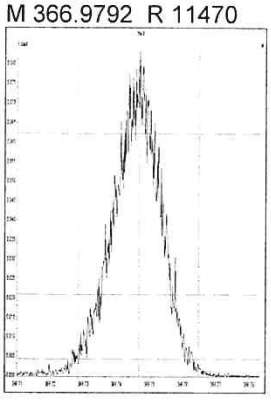
M 342.9792 R 10545



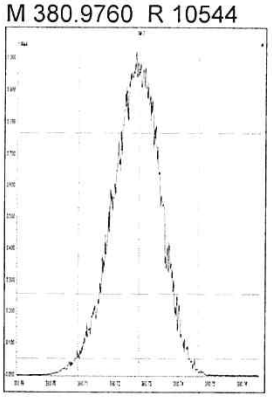
M 354.9792 R 11110



M 366.9792 R 11470



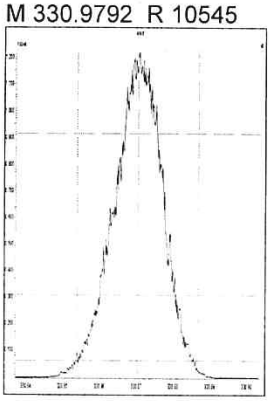
M 380.9760 R 10544



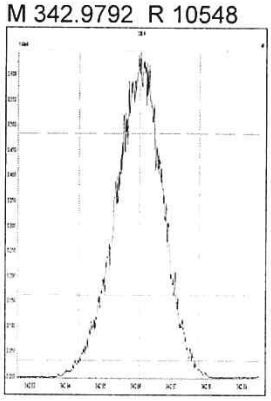
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Monday, December 24, 2018 08:49:43 Central Standard Time

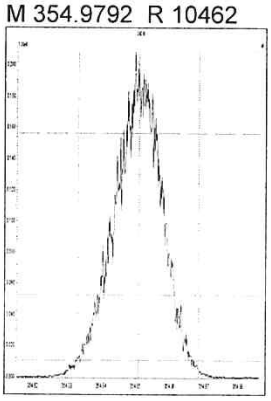
M 330.9792 R 10545



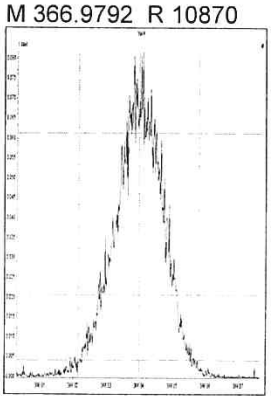
M 342.9792 R 10548



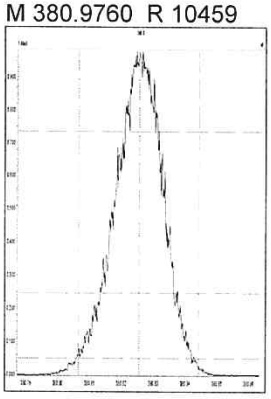
M 354.9792 R 10462



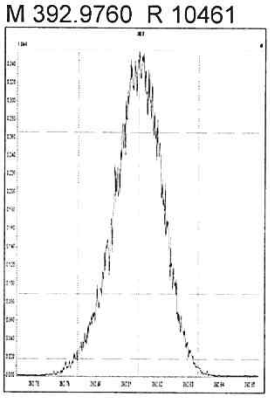
M 366.9792 R 10870



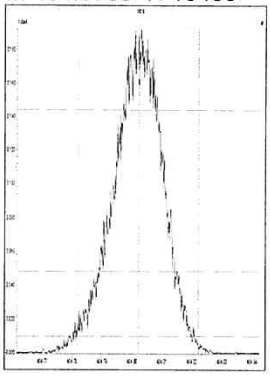
M 380.9760 R 10459



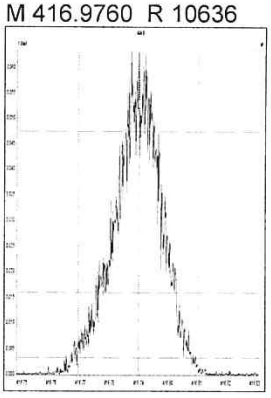
M 392.9760 R 10461



M 404.9760 R 10459



M 416.9760 R 10636



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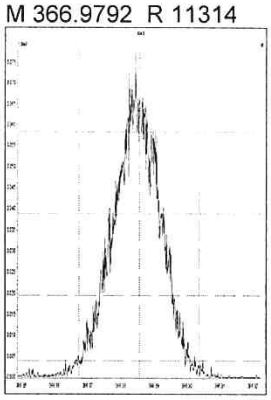
Printed: Monday, December 24, 2018 08:50:27 Central Standard Time

M 366.9792 R 11314



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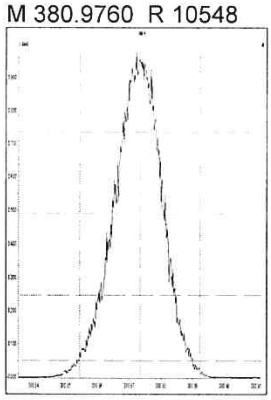
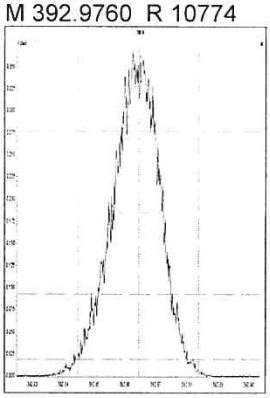


M 392.9760 R 10774



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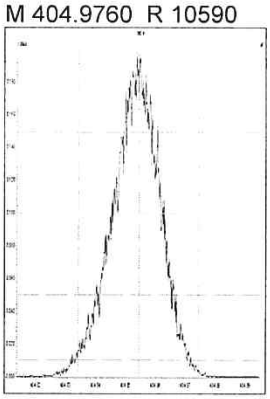

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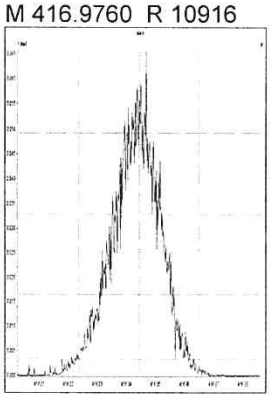
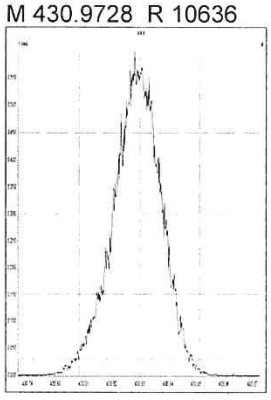
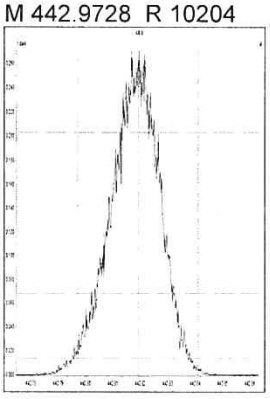


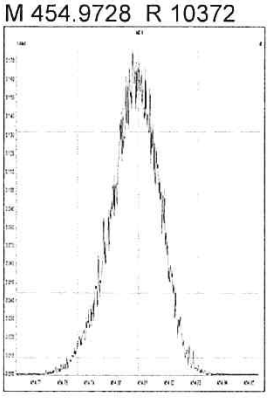
M 430.9728 R 10636



M 442.9728 R 10204



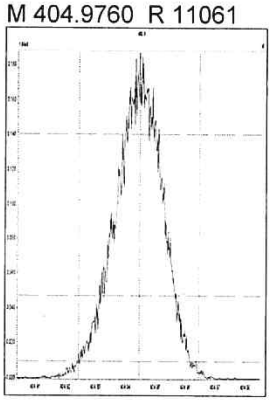
M 454.9728 R 10372



File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Monday, December 24, 2018 08:51:11 Central Standard Time

M 404.9760 R 11061



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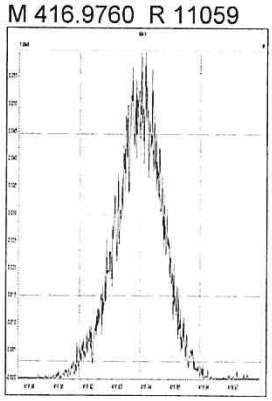

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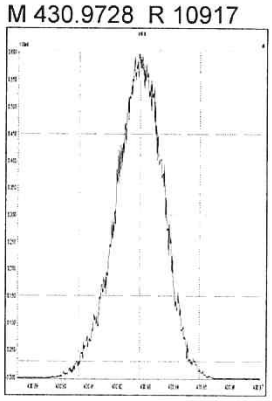

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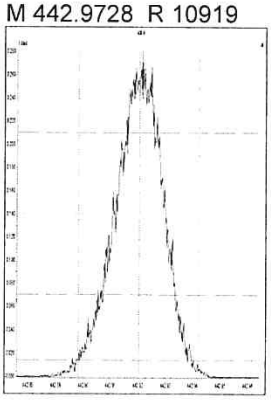

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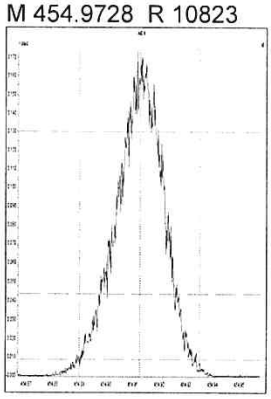

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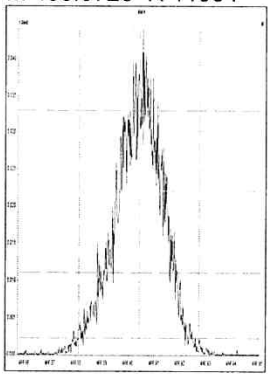

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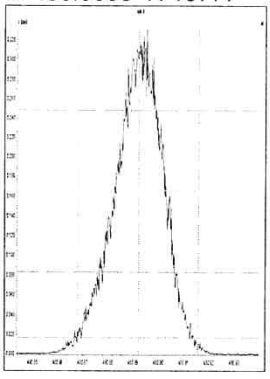
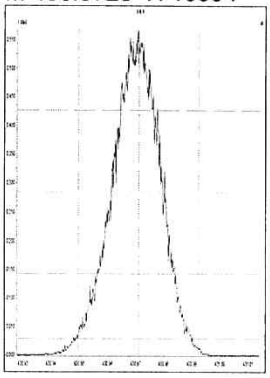


File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Monday, December 24, 2018 08:51:50 Central Standard Time

M 430.9728 R 10594



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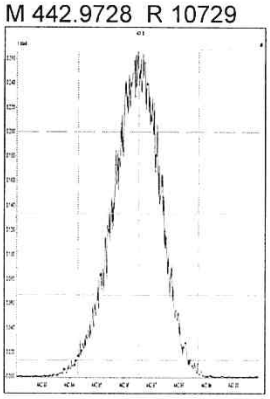

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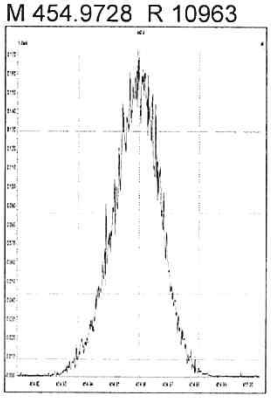

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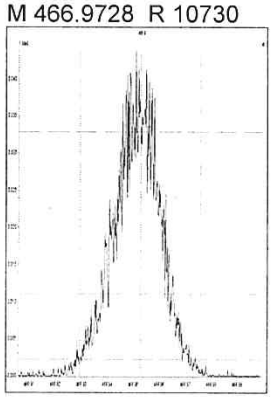

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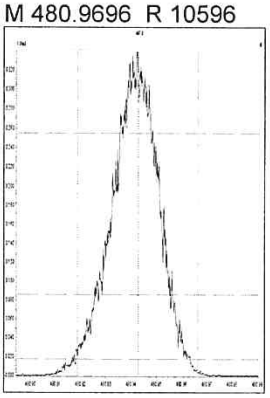

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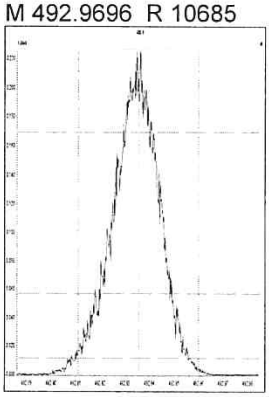

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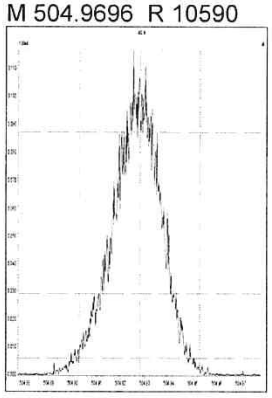

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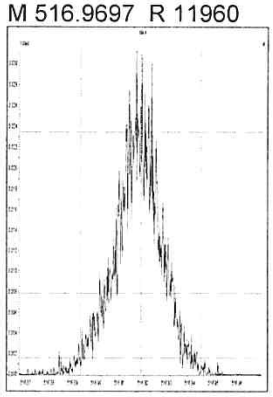

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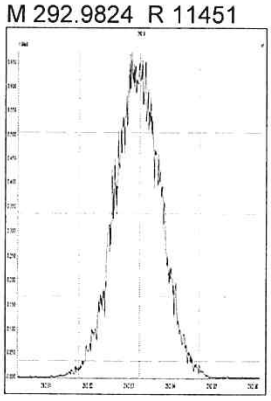

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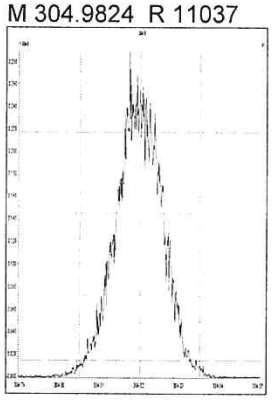

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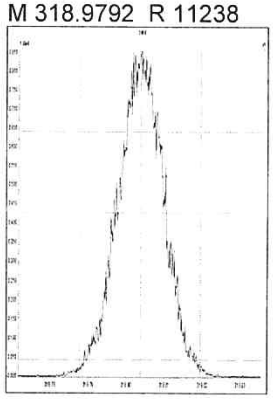

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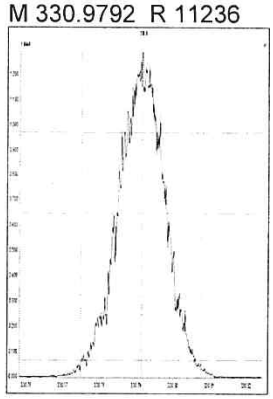

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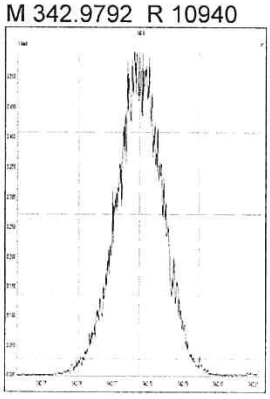
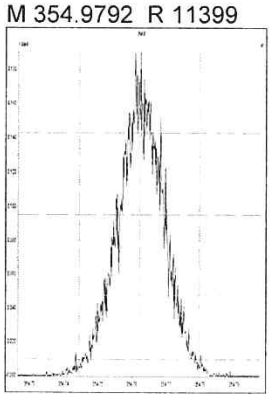
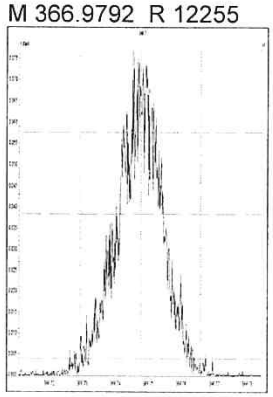


M 354.9792 R 11399



M 366.9792 R 12255



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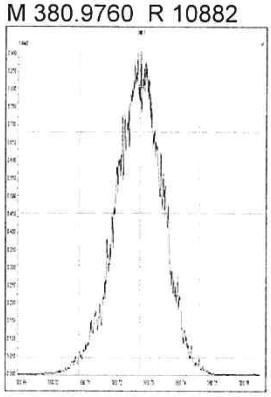
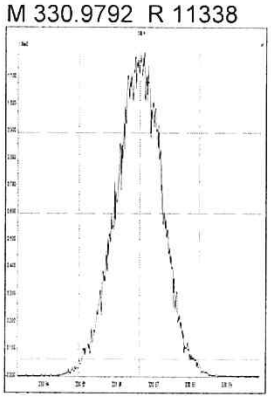


M 330.9792 R 11338



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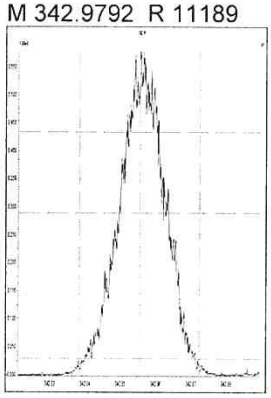

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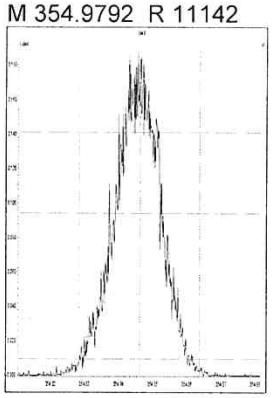

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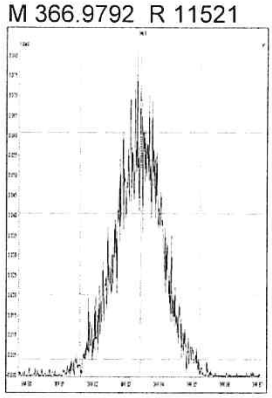

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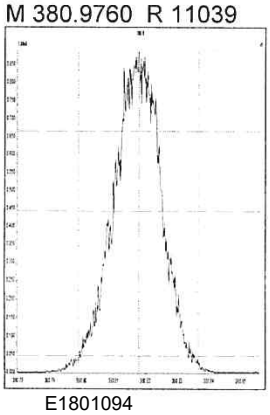
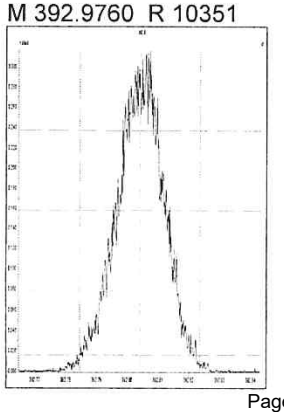
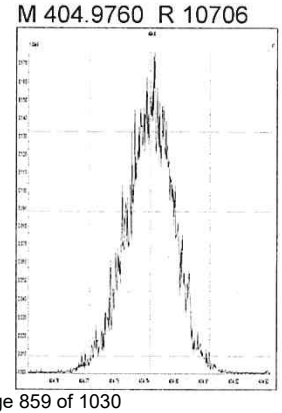


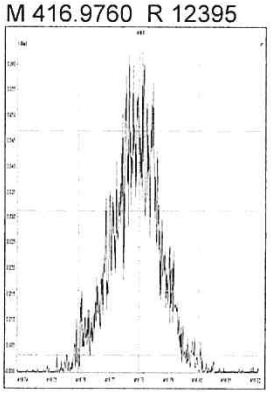
M 392.9760 R 10351



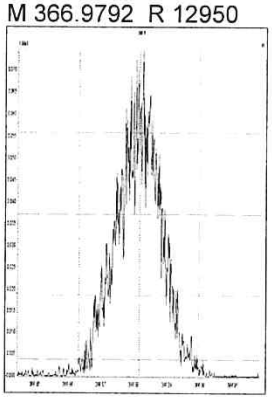
M 404.9760 R 10706



M 416.9760 R 12395



M 366.9792 R 12950



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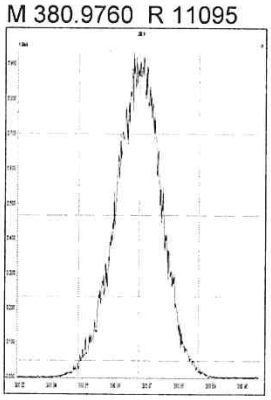

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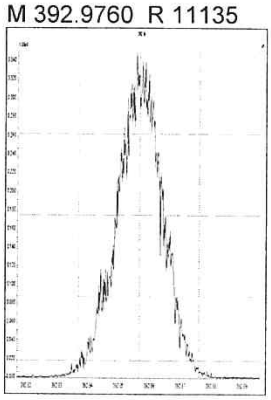
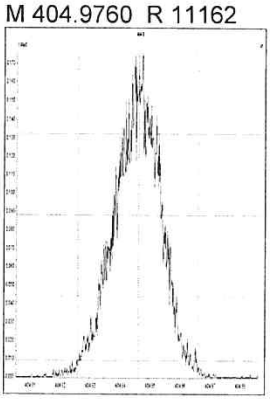
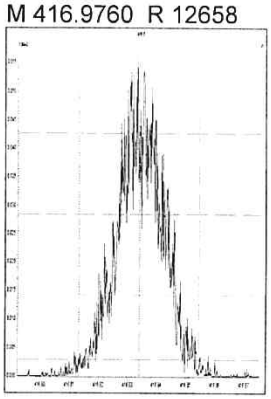


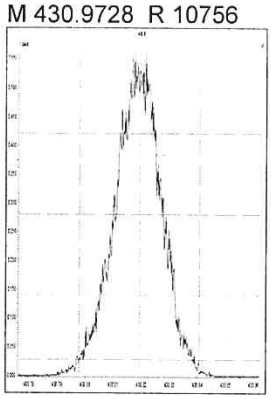
M 404.9760 R 11162



M 416.9760 R 12658



M 430.9728 R 10756



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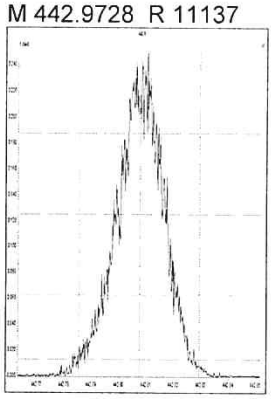

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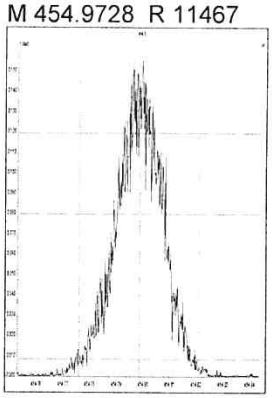

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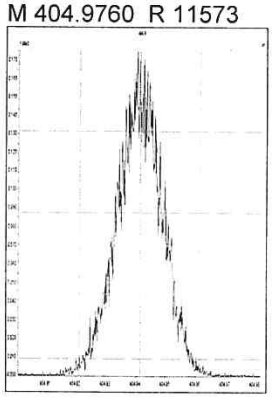

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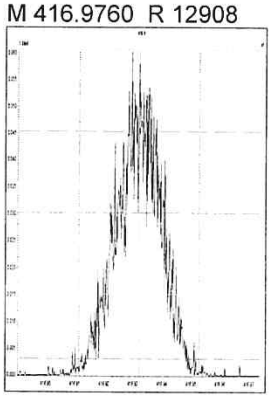
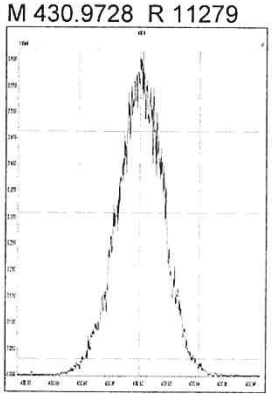


M 430.9728 R 11279



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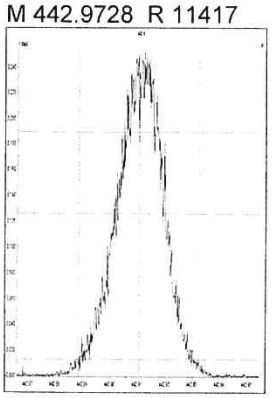

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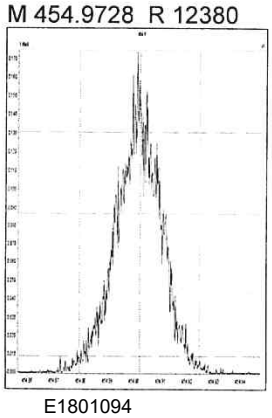

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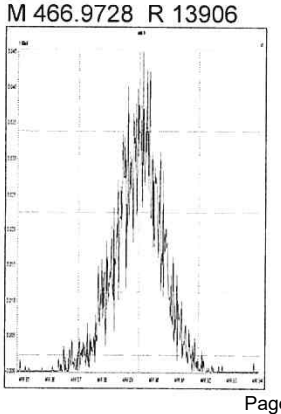
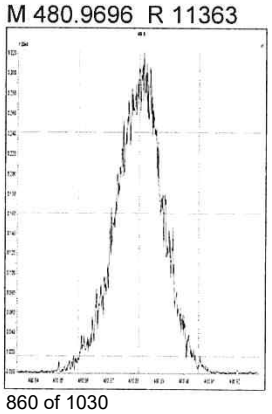
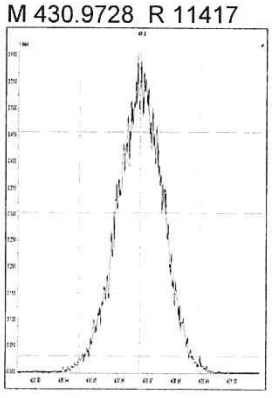


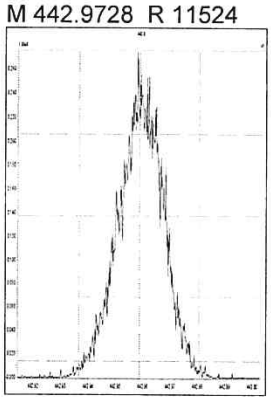
M 480.9696 R 11363



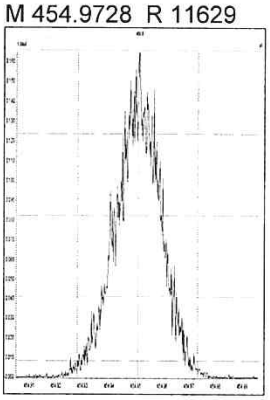
M 430.9728 R 11417



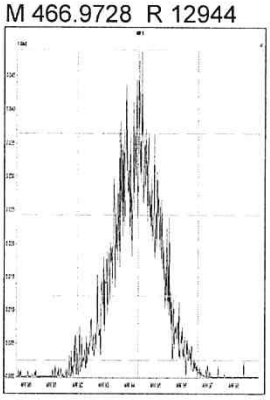
M 442.9728 R 11524



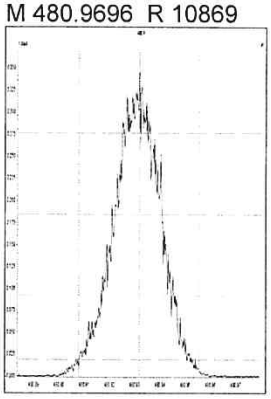
M 454.9728 R 11629



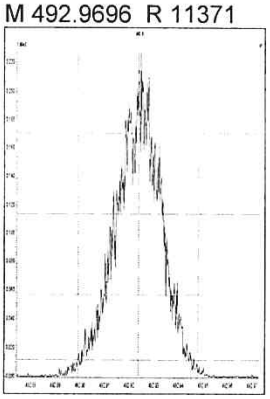
M 466.9728 R 12944



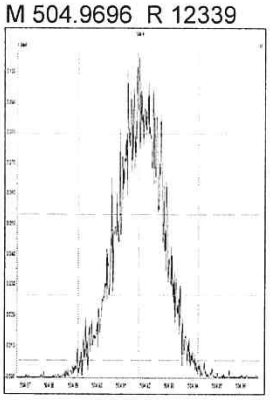
M 480.9696 R 10869



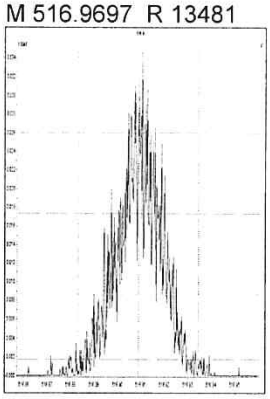
M 492.9696 R 11371



M 504.9696 R 12339



M 516.9697 R 13481



WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

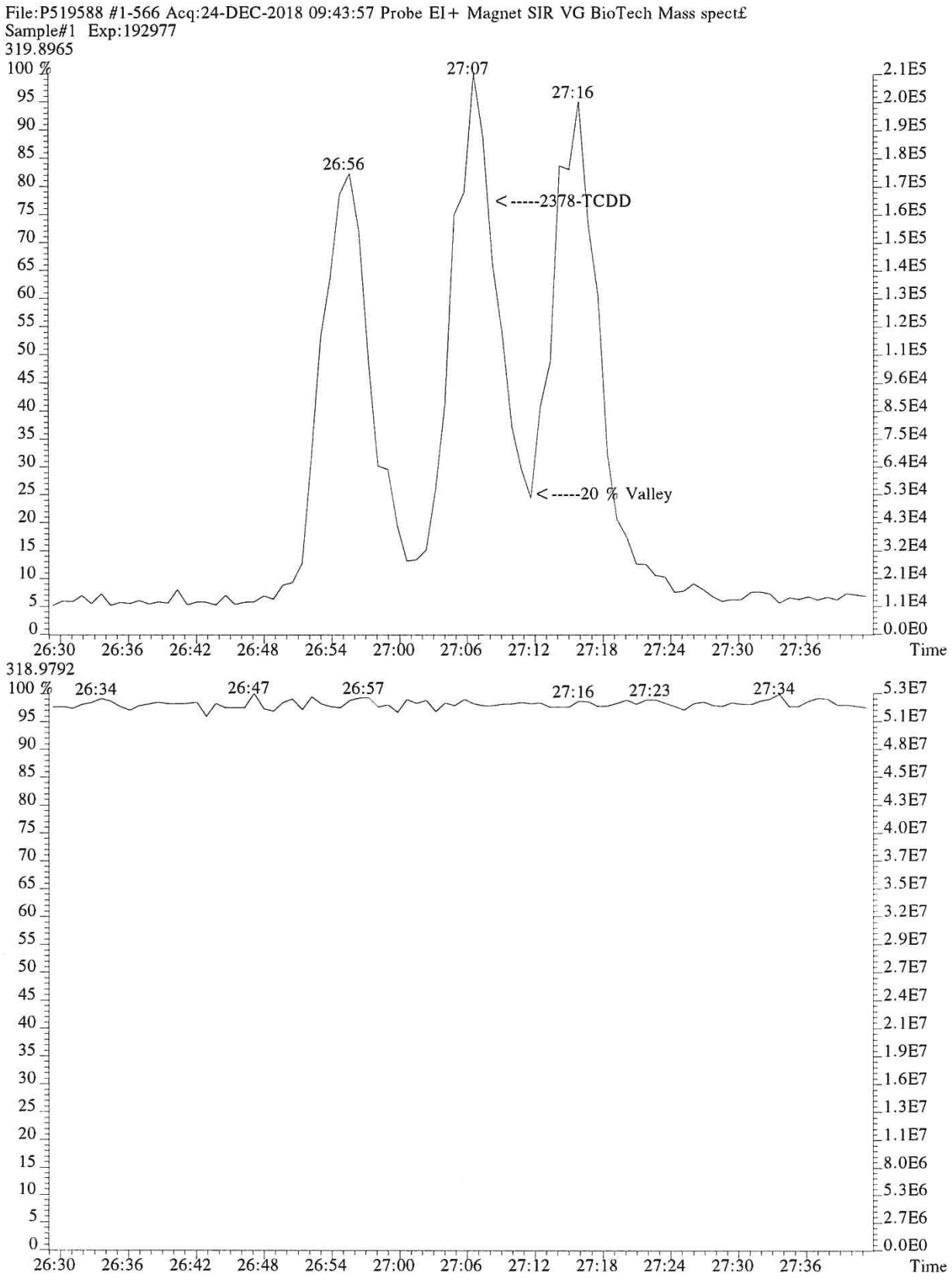
Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

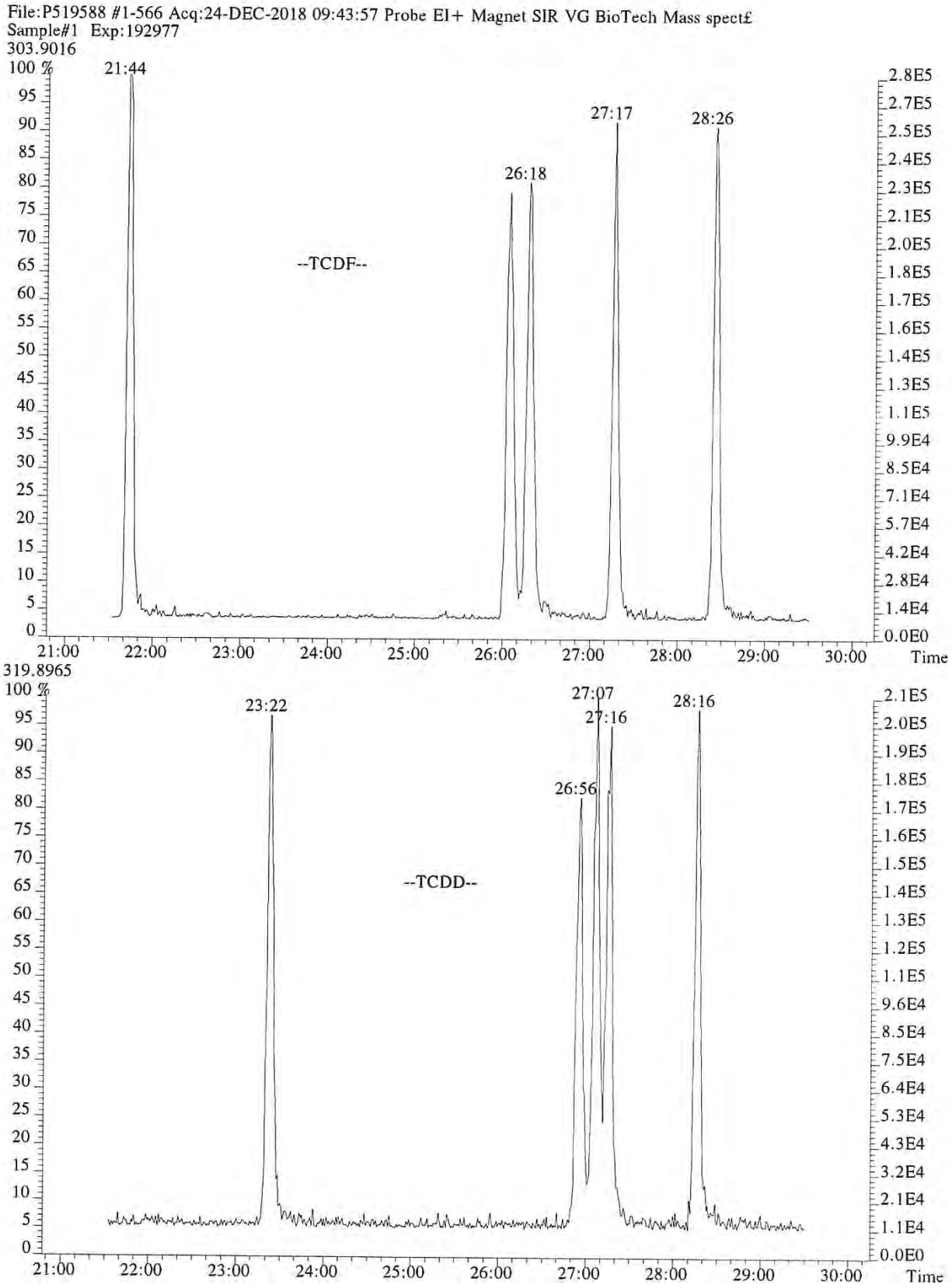
Case No.: _____ SDG No.:
ID: 0.25 (mm)
Lab File ID: P519588
Date Analyzed: 24-DEC-18
Time Analyzed: 09:43:57

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	21:44	28:26
TCDD	23:22	28:16
PeCDF	28:24	33:05
PeCDD	30:09	32:50
HxCDF	33:49	36:30
HxCDD	34:24	36:06
HpCDF	37:52	39:18
HpCDD	38:09	38:51

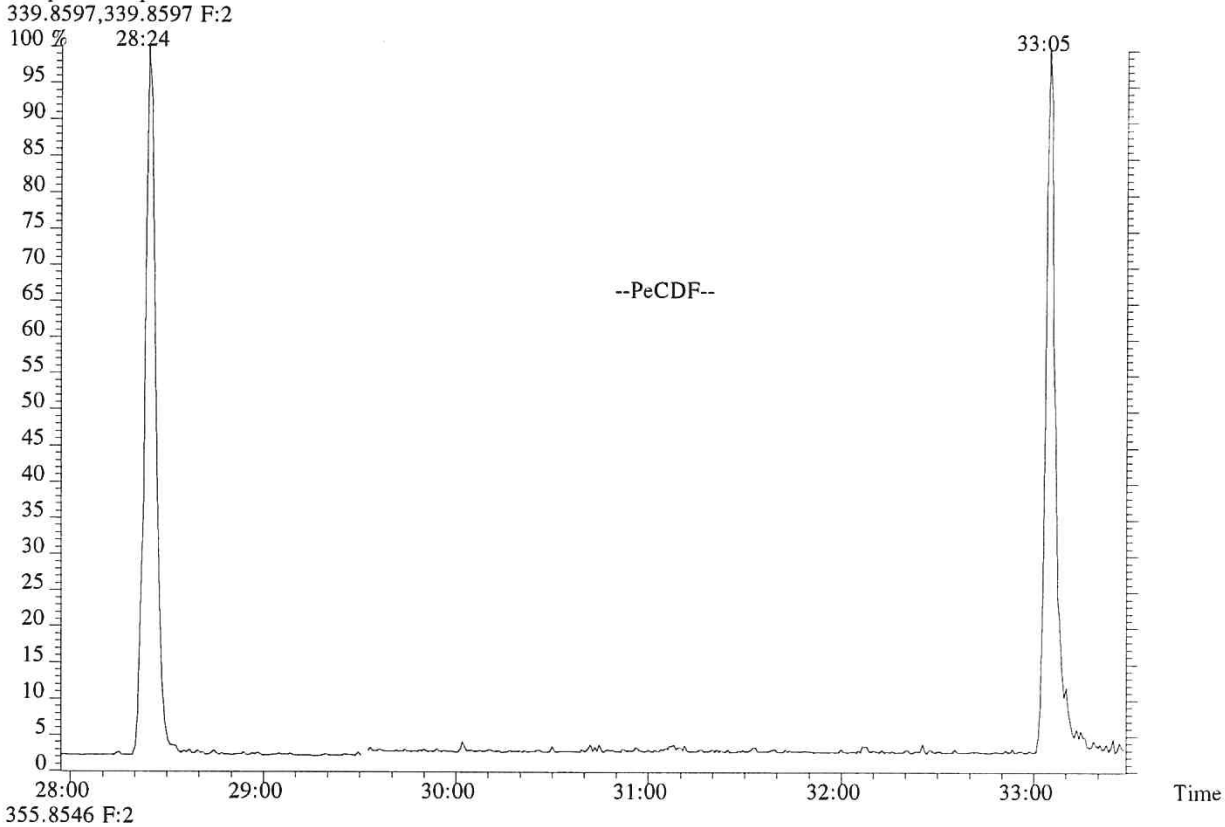
% Valley 2378-TCDD: 20 %

015858

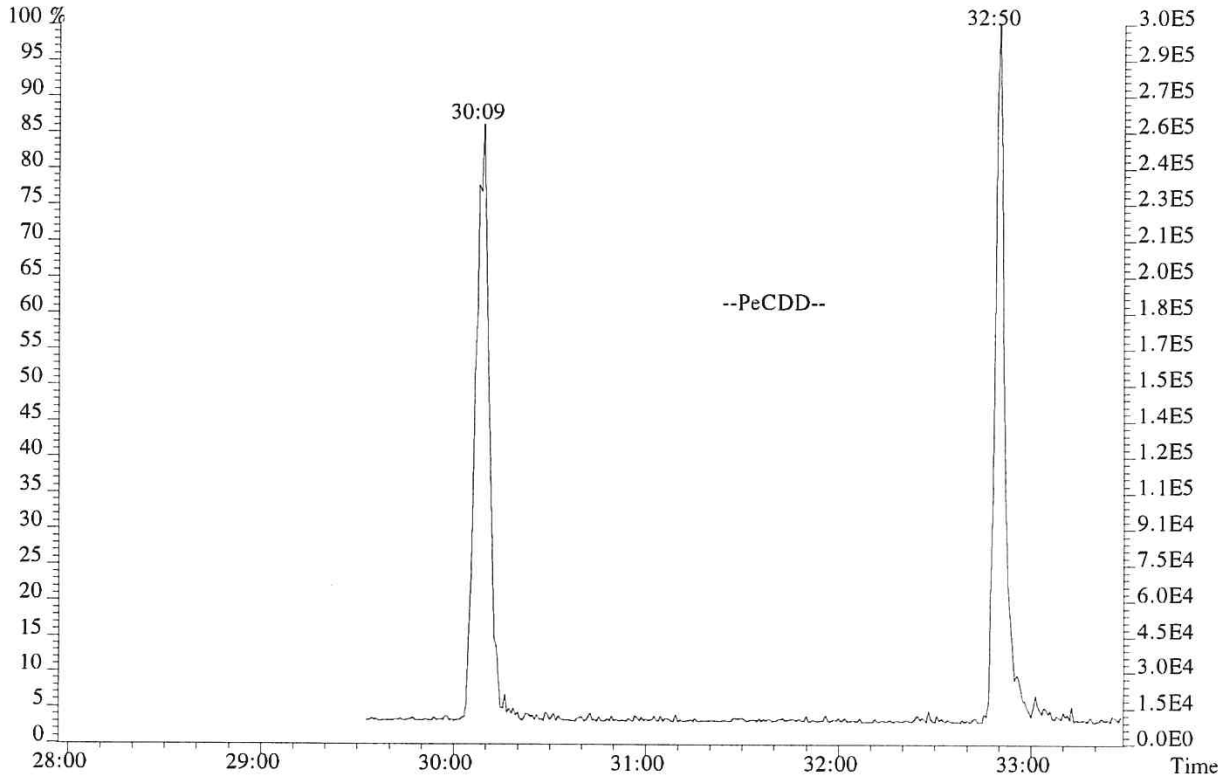

File:P519588 #1-566 Acq:24-DEC-2018 09:43:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
319.8965
100 %
27:07
27:16
26:56
<-----2378-TCDD
<-----20 % Valley
26:30 26:36 26:42 26:48 26:54 27:00 27:06 27:12 27:18 27:24 27:30 27:36
Time
318.9792
100 %
26:34
26:47
26:57
27:16
27:23
27:34
26:30 26:36 26:42 26:48 26:54 27:00 27:06 27:12 27:18 27:24 27:30 27:36
Time


File:P519588 #1-566 Acq:24-DEC-2018 09:43:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
303.9016
100 %
21:44
26:18
27:17
28:26
--TCDF--
2.8E5
2.7E5
2.5E5
2.4E5
2.3E5
2.1E5
2.0E5
1.8E5
1.7E5
1.6E5
1.4E5
1.3E5
1.1E5
9.9E4
8.5E4
7.1E4
5.7E4
4.2E4
2.8E4
1.4E4
0.0E0
21:00
22:00
23:00
24:00
25:00
26:00
27:00
28:00
29:00
30:00
Time
319.8965
100 %
23:22
26:56
27:07
27:16
28:16
--TCDD--
2.1E5
2.0E5
1.9E5
1.8E5
1.7E5
1.6E5
1.5E5
1.4E5
1.3E5
1.2E5
1.1E5
9.6E4
8.5E4
7.5E4
6.4E4
5.3E4
4.3E4
3.2E4
2.1E4
1.1E4
0.0E0
21:00
22:00
23:00
24:00
25:00
26:00
27:00
28:00
29:00
30:00
Time

File:P519588 #1-566 Acq:24-DEC-2018 09:43:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
339.8597,339.8597 F:2



355.8546 F:2



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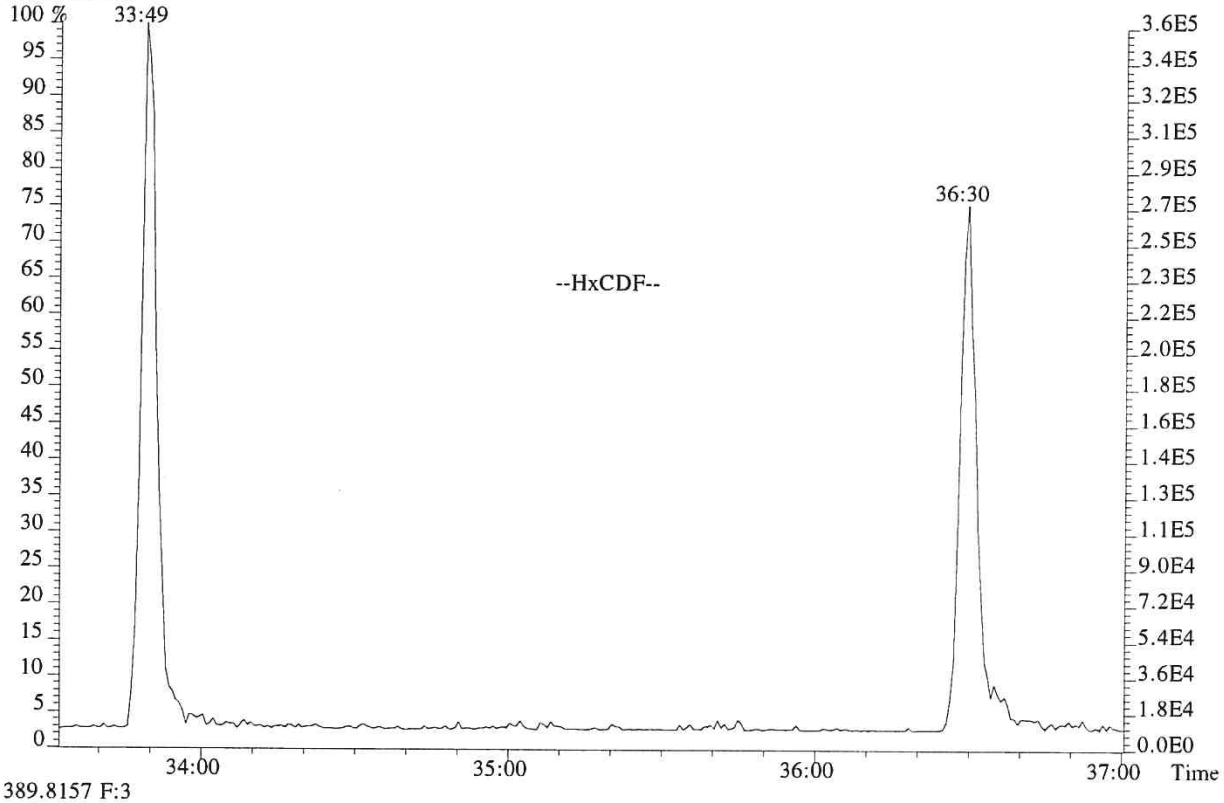
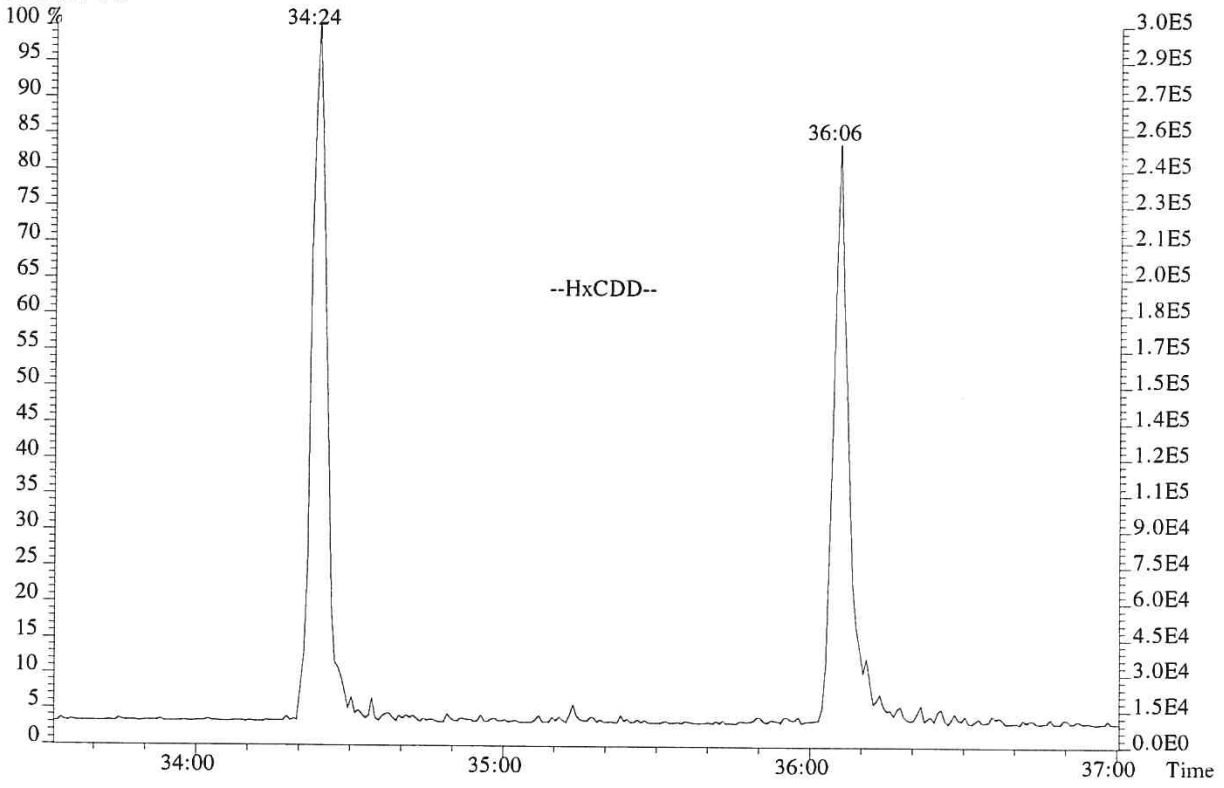
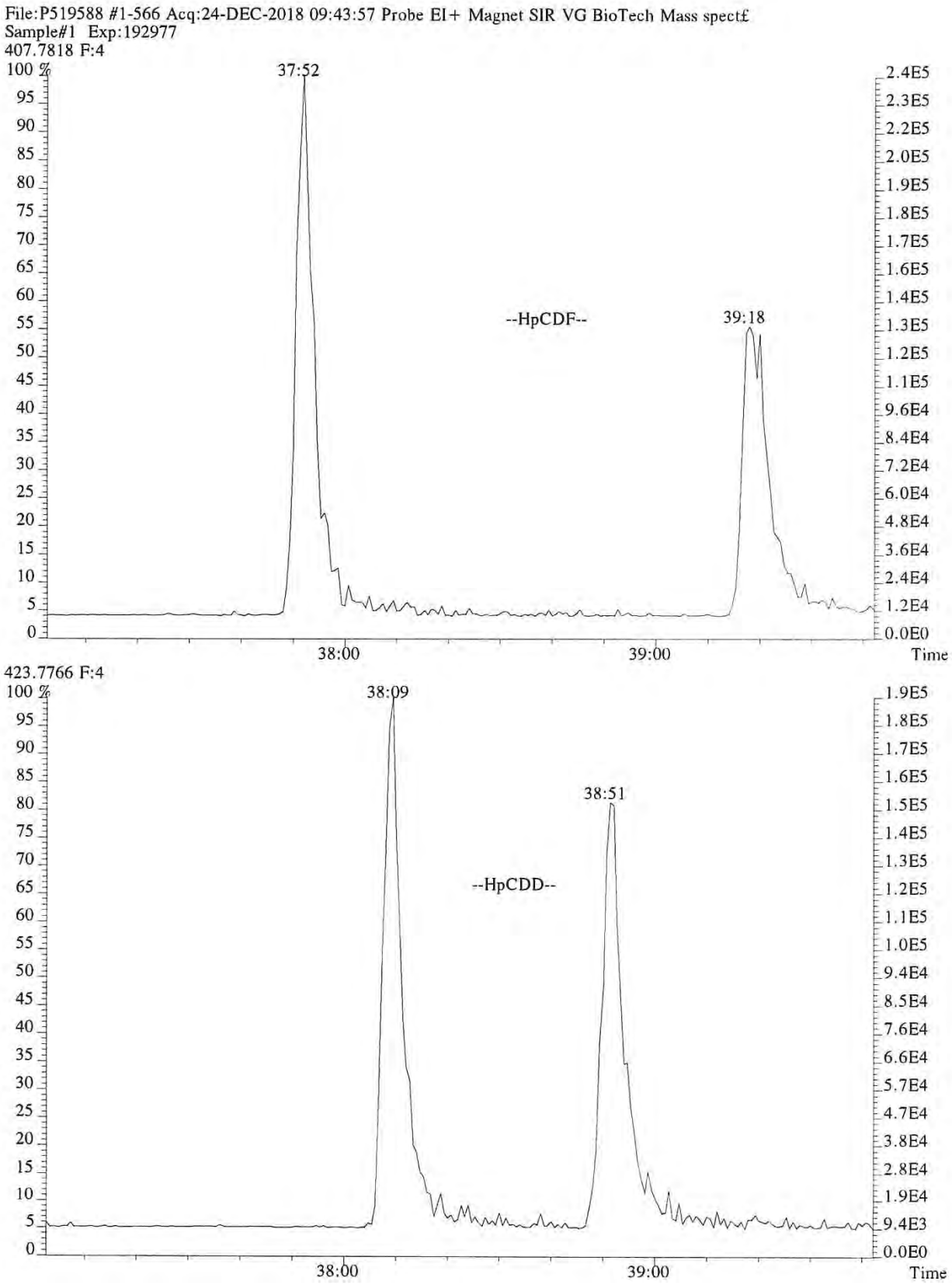
373.8208 F:3



389.8157 F:3



015862


File:P519588 #1-566 Acq:24-DEC-2018 09:43:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
407.7818 F:4
37:52
--HpCDF--
39:18
423.7766 F:4
38:09
38:51
--HpCDD--
38:00
39:00
Time

015863

USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519587 Analysis Date: 24-DEC-18 Time: 08:52:29

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.84	0.65-0.89	9.1	7.8 - 12.9	-9.2
1,2,3,7,8-PeCDD	M+2/M+4	1.61	1.32-1.78	50	39 - 65	-0.9
1,2,3,4,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	48	39 - 64	-3.7
1,2,3,6,7,8-HxCDD	M+2/M+4	1.20	1.05-1.43	49	39 - 64	-3.0
1,2,3,7,8,9-HxCDD	M+2/M+4	1.21	1.05-1.43	49	41 - 61	-1.1
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.02	0.88-1.20	50	43 - 58	0.7
OCDD	M+2/M+4	0.86	0.76-1.02	100	79 - 126	-0.4
2,3,7,8-TCDF	M/M+2	0.77	0.65-0.89	9.4	8.4 - 12.0	-6.4
1,2,3,7,8-PeCDF	M+2/M+4	1.50	1.32-1.78	48	41 - 60	-3.8
2,3,4,7,8-PeCDF	M+2/M+4	1.54	1.32-1.78	49	41 - 61	-1.8
1,2,3,4,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	52	45 - 56	4.1
1,2,3,6,7,8-HxCDF	M+2/M+4	1.16	1.05-1.43	49	44 - 57	-1.4
1,2,3,7,8,9-HxCDF	M+2/M+4	1.18	1.05-1.43	49	45 - 56	-1.4
2,3,4,6,7,8-HxCDF	M+2/M+4	1.26	1.05-1.43	50	44 - 57	-0.6
1,2,3,4,6,7,8-HpCDF	M+2/M+4	0.98	0.88-1.20	50	45 - 55	-0.2
1,2,3,4,7,8,9-HpCDF	M+2/M+4	0.98	0.88-1.20	52	43 - 58	3.6
OCDF	M+2/M+4	0.88	0.76-1.02	100	63 - 159	0.0

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519587 Analysis Date: 24-DEC-18 Time: 08:52:29

LABELED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
13C-2,3,7,8-TCDD	M/M+2	0.77	0.65-0.89	100	82 - 121	-0.4
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.66	1.32-1.78	96	62 - 160	-3.6
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	91	85 - 117	-9.3
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	109	85 - 118	9.1
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.07	0.88-1.20	91	72 - 138	-8.9
13C-OCDD	M+2/M+4	0.95	0.76-1.02	200	96 - 415	0.1
13C-2,3,7,8-TCDF	M/M+2	0.78	0.65-0.89	86	71 - 140	-13.9
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	92	76 - 130	-7.9
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	92	77 - 130	-8.0
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.51	0.43-0.59	82	76 - 131	-17.8
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	98	70 - 143	-1.7
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	84	74 - 135	-15.6
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.50	0.43-0.59	94	73 - 137	-5.5
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.43	0.37-0.51	93	78 - 129	-7.0
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.43	0.37-0.51	83	77 - 129	-16.9
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD	M+2/M+4			9.5	7.8 - 12.7	-4.6

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #7 Filename P519587 Samp: 1 Inj: 1 Acquired: 24-DEC-18 08:52:29
Processed: 26-DEC-18 13:22:34 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:18	7.974e+02	1.030e+03	0.77	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	31:07	6.291e+03	4.207e+03	1.50	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	32:06	6.075e+03	3.958e+03	1.54	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:00	4.488e+03	3.707e+03	1.21	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:07	5.326e+03	4.603e+03	1.16	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:39	4.765e+03	3.776e+03	1.26	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	36:26	3.649e+03	3.095e+03	1.18	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	37:51	3.906e+03	3.995e+03	0.98	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:15	2.873e+03	2.921e+03	0.98	yes	no	1.258
10	Unk	OCDF	41:53	4.841e+03	5.489e+03	0.88	yes	no	1.359
11	Unk	2,3,7,8-TCDD	27:16	6.599e+02	7.837e+02	0.84	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	32:25	4.374e+03	2.711e+03	1.61	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	35:50	3.075e+03	2.393e+03	1.28	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	35:55	3.711e+03	3.088e+03	1.20	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:10	3.517e+03	2.909e+03	1.21	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:51	2.661e+03	2.598e+03	1.02	yes	no	1.025
17	Unk	OCDD	41:44	3.920e+03	4.552e+03	0.86	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	26:17	9.092e+03	1.165e+04	0.78	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	31:05	1.321e+04	8.341e+03	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	32:05	1.307e+04	8.245e+03	1.59	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	34:60	4.492e+03	8.741e+03	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:06	6.145e+03	1.180e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:38	5.146e+03	1.034e+04	0.50	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	36:26	4.137e+03	7.817e+03	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:50	3.521e+03	8.199e+03	0.43	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:14	2.690e+03	6.203e+03	0.43	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	27:14	6.372e+03	8.271e+03	0.77	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:24	9.337e+03	5.618e+03	1.66	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:48	6.149e+03	4.789e+03	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:54	7.499e+03	6.000e+03	1.25	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:50	5.266e+03	4.925e+03	1.07	yes	no	0.858
32	IS	13C-OCDD	41:43	7.393e+03	7.818e+03	0.95	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	26:34	6.983e+03	8.929e+03	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:09	7.364e+03	5.679e+03	1.30	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:16	1.538e+03				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #7 Filename P519587 Samp: 1 Inj: 1 Acquired: 24-DEC-18 08:52:29
Processed: 26-DEC-18 13:22:34 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.12e+05	6.96e+02	1.6e+02	1.51e+05	2.39e+03	6.3e+01
2	1,2,3,7,8-PeCDF	9.46e+05	5.80e+02	1.6e+03	6.30e+05	1.67e+03	3.8e+02
3	2,3,4,7,8-PeCDF	1.04e+06	5.80e+02	1.8e+03	6.91e+05	1.67e+03	4.1e+02
4	1,2,3,4,7,8-HxCDF	7.90e+05	6.32e+02	1.3e+03	6.64e+05	3.92e+02	1.7e+03
5	1,2,3,6,7,8-HxCDF	7.89e+05	6.32e+02	1.2e+03	6.78e+05	3.92e+02	1.7e+03
6	2,3,4,6,7,8-HxCDF	7.22e+05	6.32e+02	1.1e+03	5.71e+05	3.92e+02	1.5e+03
7	1,2,3,7,8,9-HxCDF	5.09e+05	6.32e+02	8.1e+02	4.17e+05	3.92e+02	1.1e+03
8	1,2,3,4,6,7,8-HpCDF	5.68e+05	2.56e+02	2.2e+03	5.63e+05	4.32e+02	1.3e+03
9	1,2,3,4,7,8,9-HpCDF	3.32e+05	2.56e+02	1.3e+03	3.46e+05	4.32e+02	8.0e+02
10	OCDF	3.52e+05	3.76e+02	9.4e+02	4.21e+05	6.08e+02	6.9e+02
11	2,3,7,8-TCDD	9.83e+04	2.09e+03	4.7e+01	1.11e+05	1.08e+03	1.0e+02
12	1,2,3,7,8-PeCDD	6.78e+05	6.60e+02	1.0e+03	4.32e+05	2.56e+02	1.7e+03
13	1,2,3,4,7,8-HxCDD	5.39e+05	3.60e+02	1.5e+03	4.21e+05	5.56e+02	7.6e+02
14	1,2,3,6,7,8-HxCDD	5.60e+05	3.60e+02	1.6e+03	4.63e+05	5.56e+02	8.3e+02
15	1,2,3,7,8,9-HxCDD	5.37e+05	3.60e+02	1.5e+03	4.07e+05	5.56e+02	7.3e+02
16	1,2,3,4,6,7,8-HpCDD	3.30e+05	6.00e+02	5.5e+02	3.33e+05	3.64e+02	9.1e+02
17	OCDD	3.10e+05	3.00e+02	1.0e+03	3.53e+05	2.92e+02	1.2e+03
18	13C-2,3,7,8-TCDF	1.32e+06	6.77e+03	2.0e+02	1.69e+06	6.71e+03	2.5e+02
19	13C-1,2,3,7,8-PeCDF	1.99e+06	8.20e+02	2.4e+03	1.27e+06	5.20e+02	2.4e+03
20	13C-2,3,4,7,8-PeCDF	2.29e+06	8.20e+02	2.8e+03	1.45e+06	5.20e+02	2.8e+03
21	13C-1,2,3,4,7,8-HxCDF	8.13e+05	8.16e+02	1.0e+03	1.58e+06	1.56e+03	1.0e+03
22	13C-1,2,3,6,7,8-HxCDF	9.22e+05	8.16e+02	1.1e+03	1.74e+06	1.56e+03	1.1e+03
23	13C-2,3,4,6,7,8-HxCDF	8.31e+05	8.16e+02	1.0e+03	1.64e+06	1.56e+03	1.0e+03
24	13C-1,2,3,7,8,9-HxCDF	5.88e+05	8.16e+02	7.2e+02	1.10e+06	1.56e+03	7.1e+02
25	13C-1,2,3,4,6,7,8-HpCDF	4.99e+05	9.84e+02	5.1e+02	1.16e+06	2.02e+03	5.7e+02
26	13C-1,2,3,4,7,8,9-HpCDF	3.15e+05	9.84e+02	3.2e+02	7.02e+05	2.02e+03	3.5e+02
27	13C-2,3,7,8-TCDD	1.02e+06	8.42e+03	1.2e+02	1.24e+06	2.46e+03	5.0e+02
28	13C-1,2,3,7,8-PeCDD	1.44e+06	9.32e+02	1.5e+03	8.75e+05	9.48e+02	9.2e+02
29	13C-1,2,3,4,7,8-HxCDD	1.09e+06	1.10e+03	9.9e+02	8.25e+05	3.96e+02	2.1e+03
30	13C-1,2,3,6,7,8-HxCDD	1.11e+06	1.10e+03	1.0e+03	8.85e+05	3.96e+02	2.2e+03
31	13C-1,2,3,4,6,7,8-HpCDD	6.15e+05	5.60e+02	1.1e+03	5.80e+05	5.00e+02	1.2e+03
32	13C-OCDD	5.52e+05	4.88e+02	1.1e+03	6.04e+05	3.64e+02	1.7e+03
33	13C-1,2,3,4-TCDD	1.10e+06	8.42e+03	1.3e+02	1.41e+06	2.46e+03	5.7e+02
34	13C-1,2,3,7,8,9-HxCDD	1.10e+06	1.10e+03	1.0e+03	8.82e+05	3.96e+02	2.2e+03
35	37Cl-2,3,7,8-TCDD	2.36e+05	1.33e+03	1.8e+02			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (2.088e+03 + 1.076e+03) \times 100}{(1.021e+06 + 1.236e+06) \times (\quad) \times 1.085} =$$

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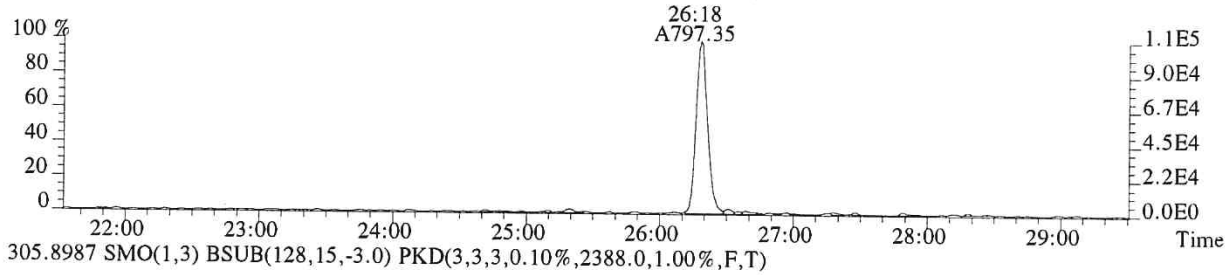
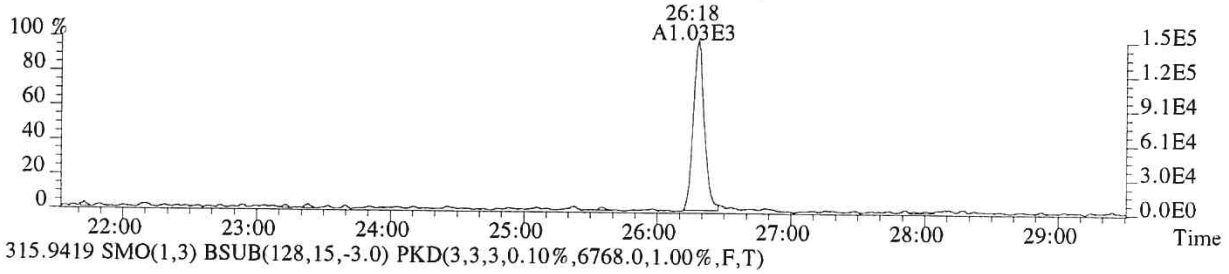
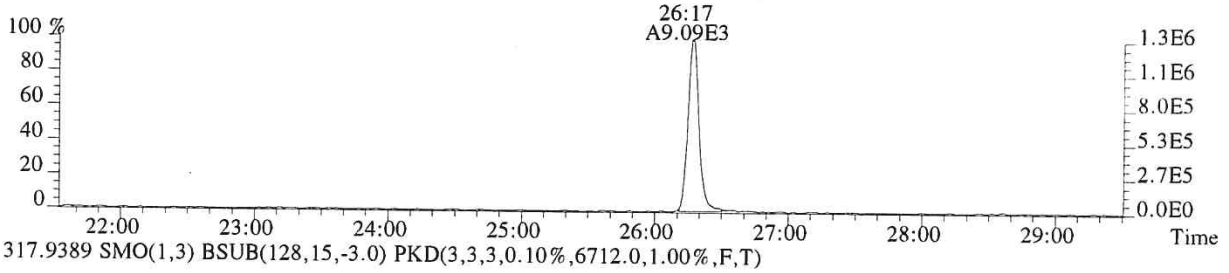
File:P519587 #1-566 Acq:24-DEC-2018 08:52:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



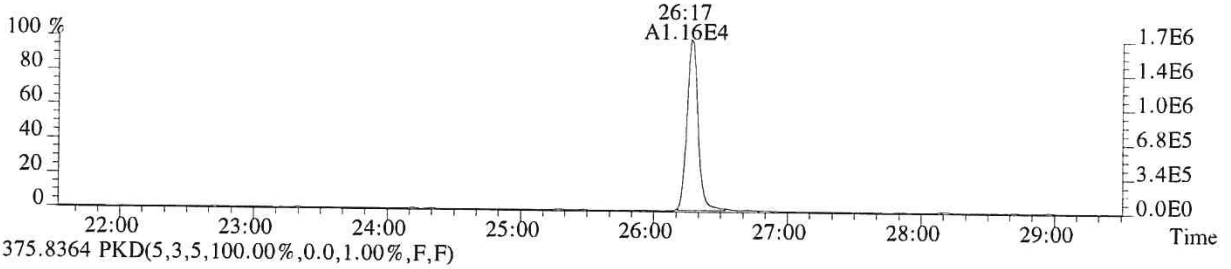
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2388.0,1.00%,F,T)



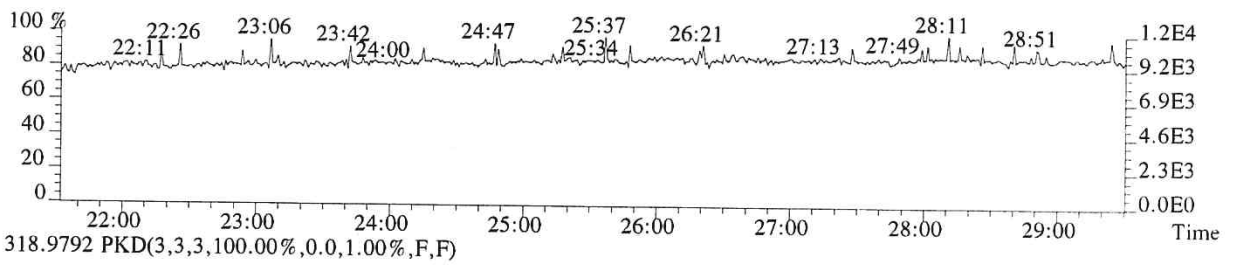
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6768.0,1.00%,F,T)



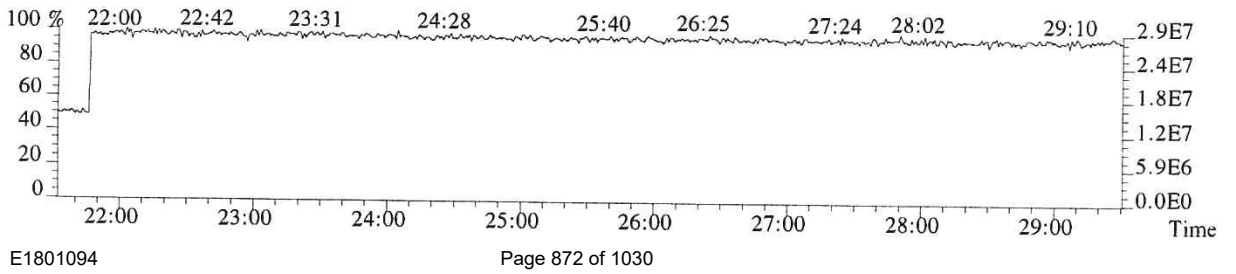
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6712.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

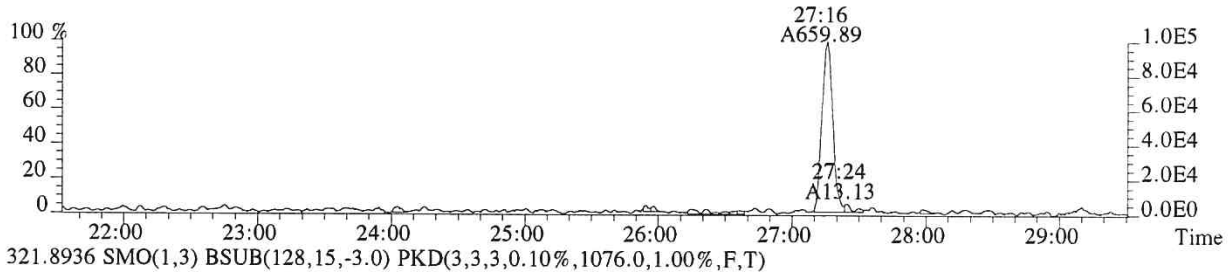


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

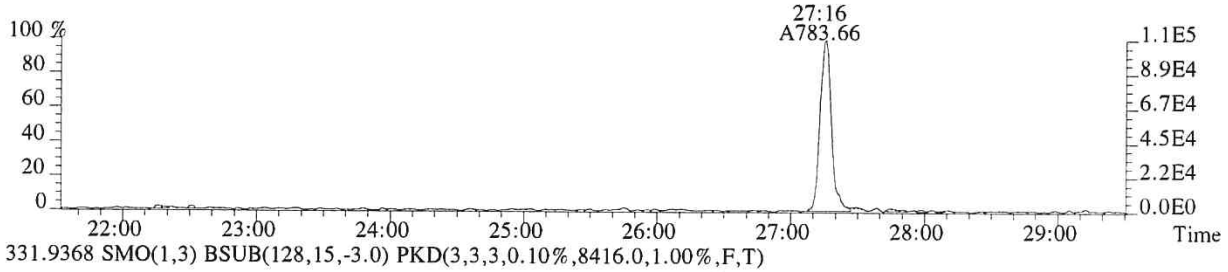


015868

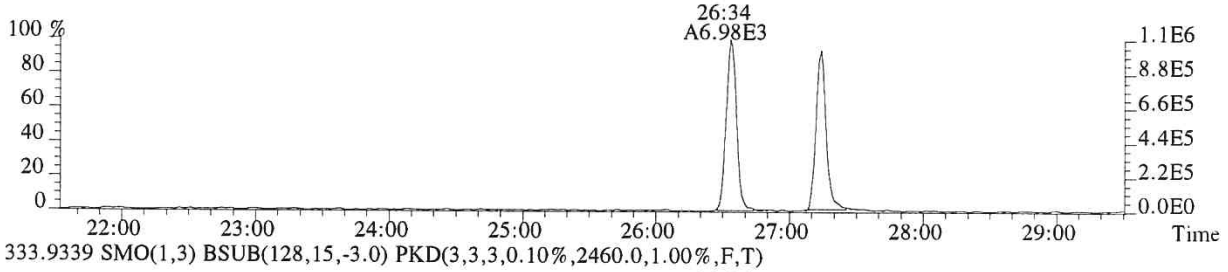
File:P519587 #1-566 Acq:24-DEC-2018 08:52:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2088.0,1.00%,F,T)



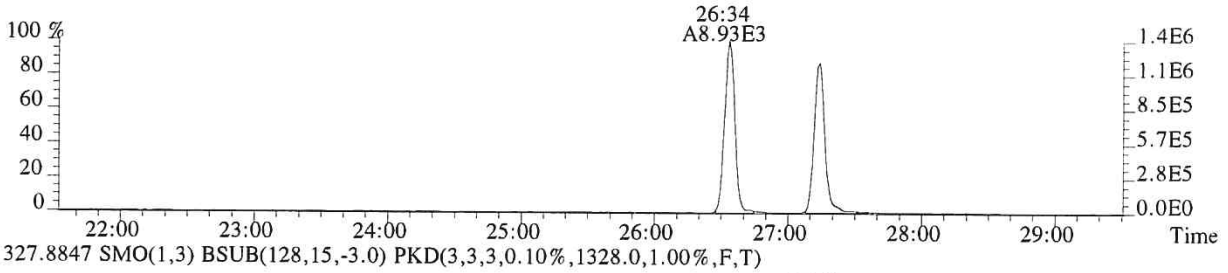
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1076.0,1.00%,F,T)



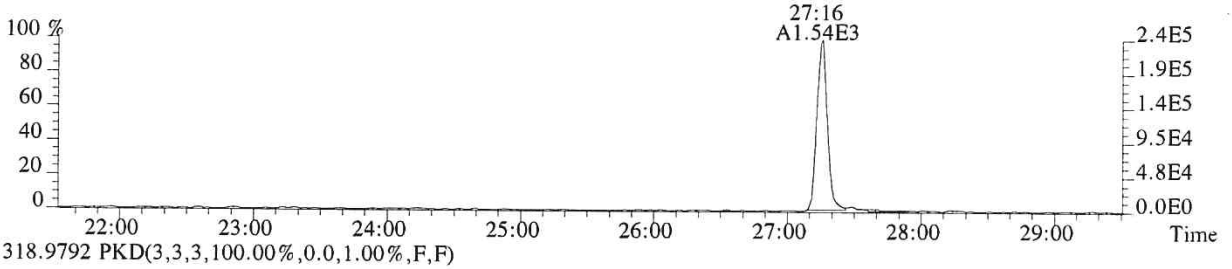
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8416.0,1.00%,F,T)



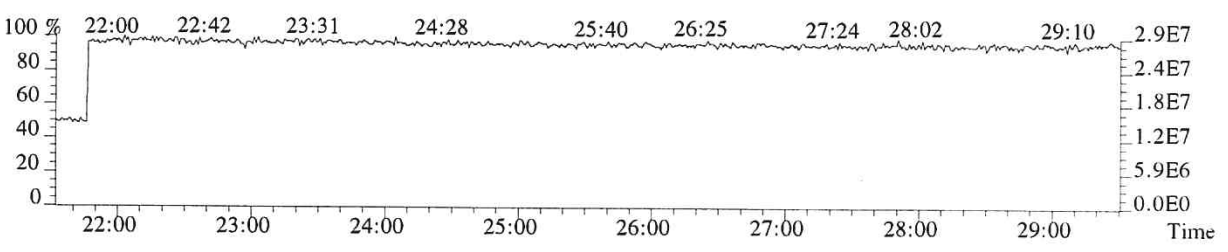
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2460.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1328.0,1.00%,F,T)

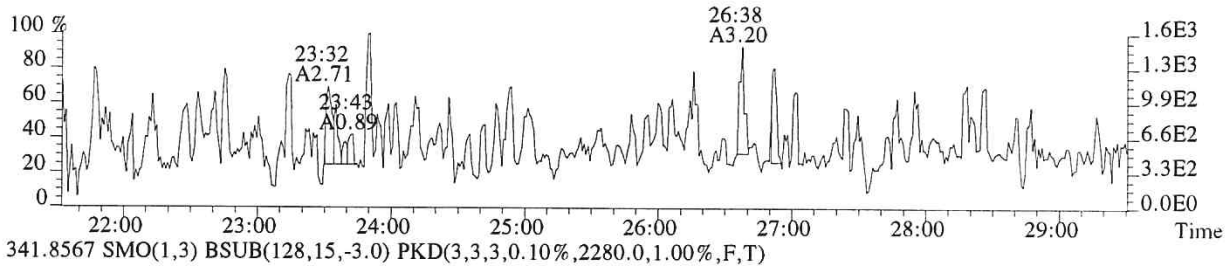


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

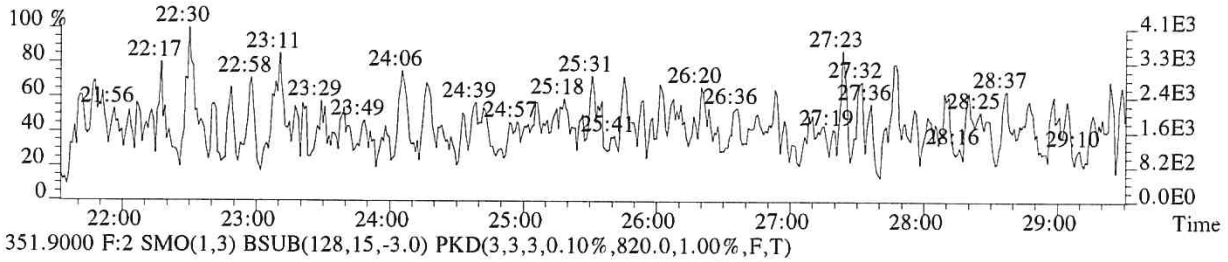


015869

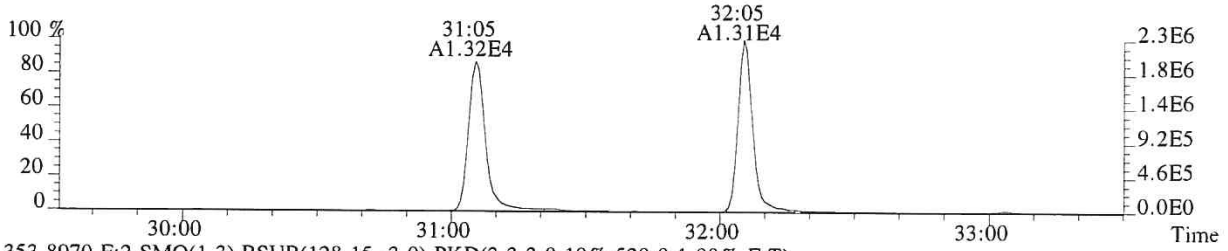
File:P519587 #1-566 Acq:24-DEC-2018 08:52:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



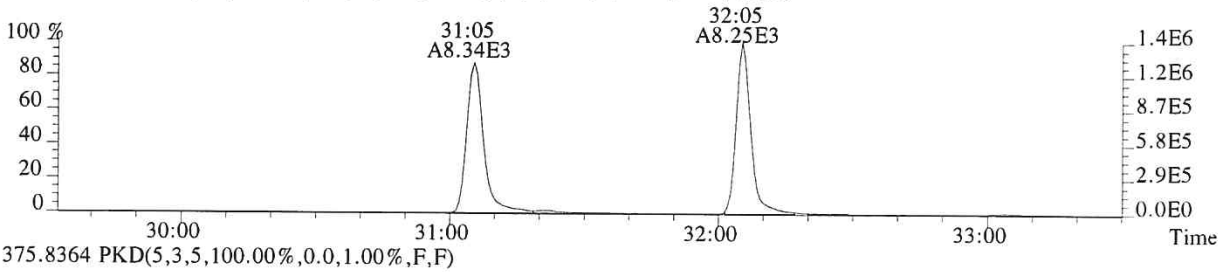
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2280.0,1.00%,F,T)



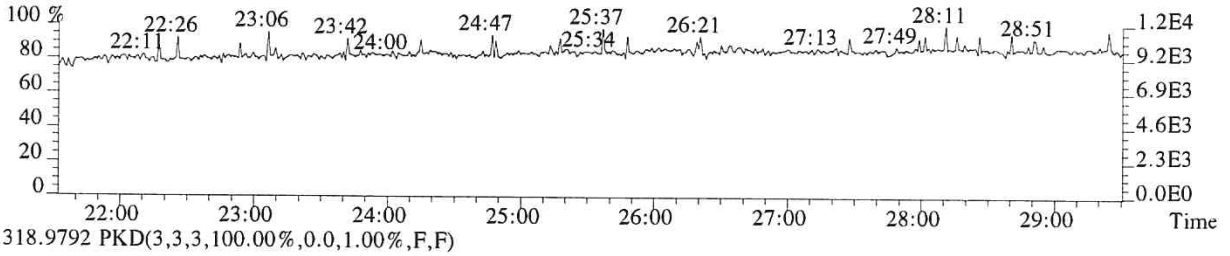
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,820.0,1.00%,F,T)



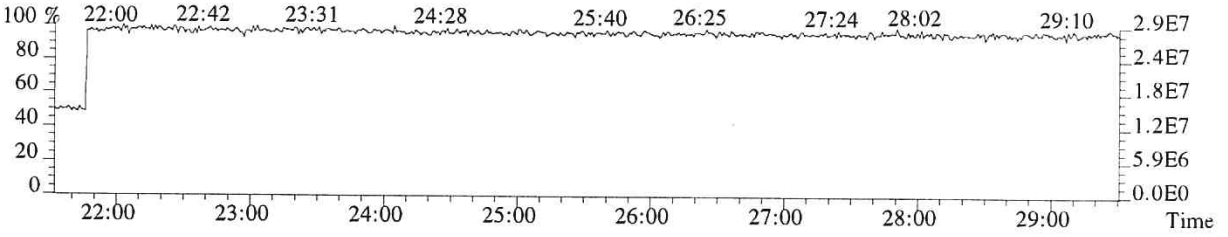
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,520.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



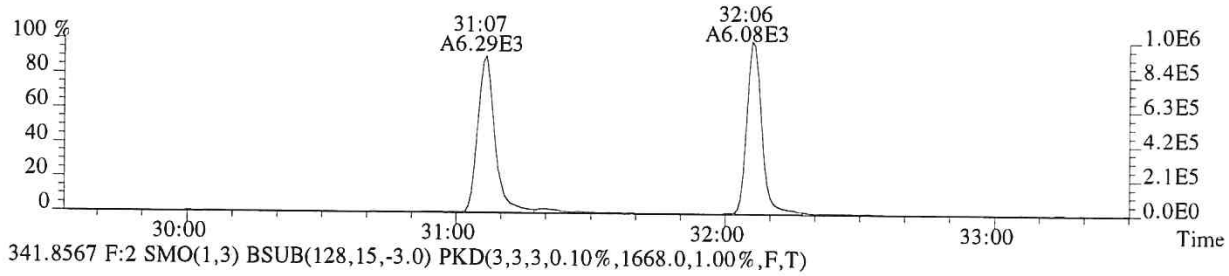
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



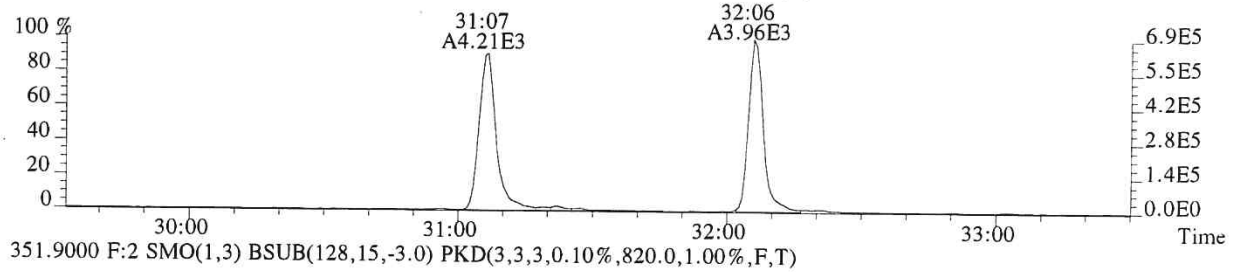
015870

File:P519587 #1-357 Acq:24-DEC-2018 08:52:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

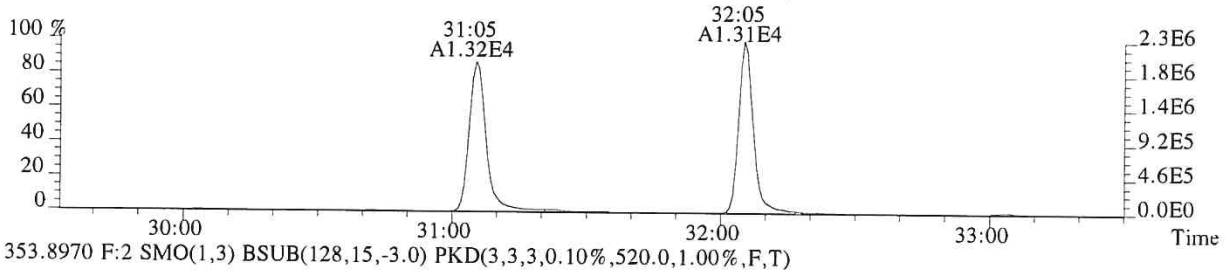
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,580.0,1.00%,F,T)



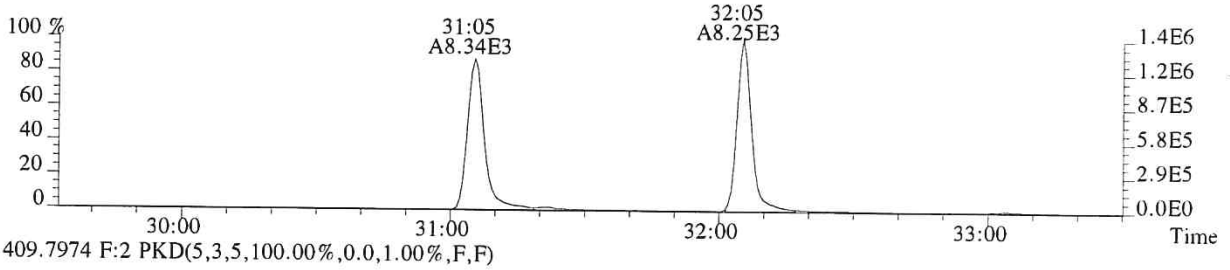
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1668.0,1.00%,F,T)



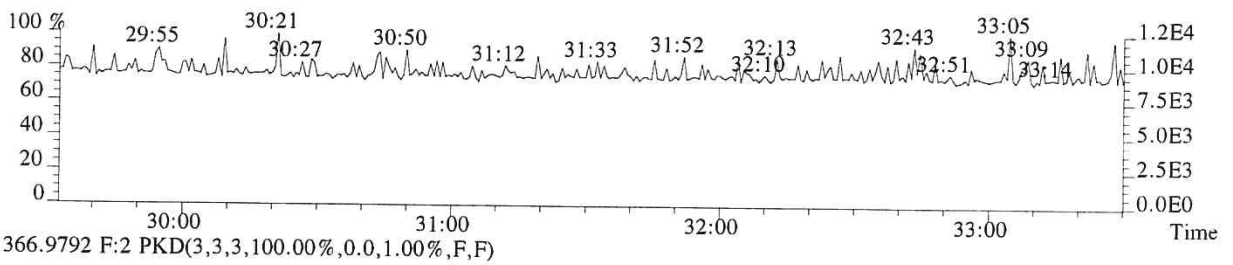
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,820.0,1.00%,F,T)



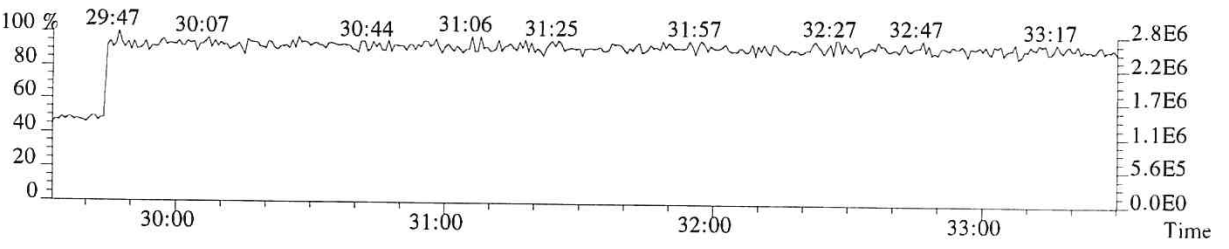
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,520.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

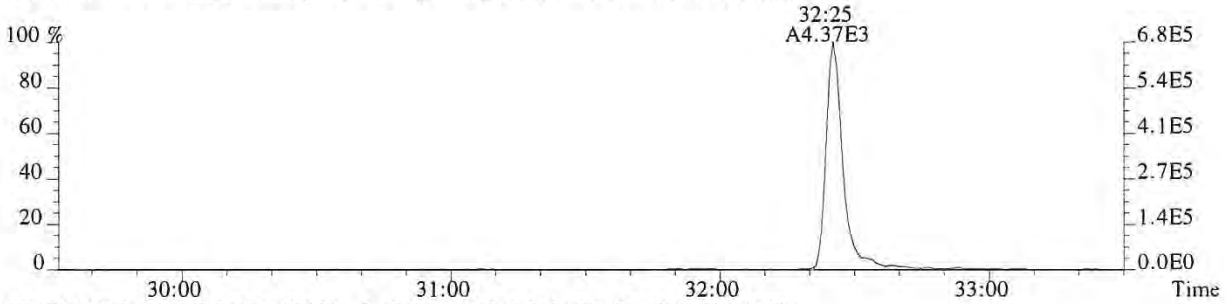


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

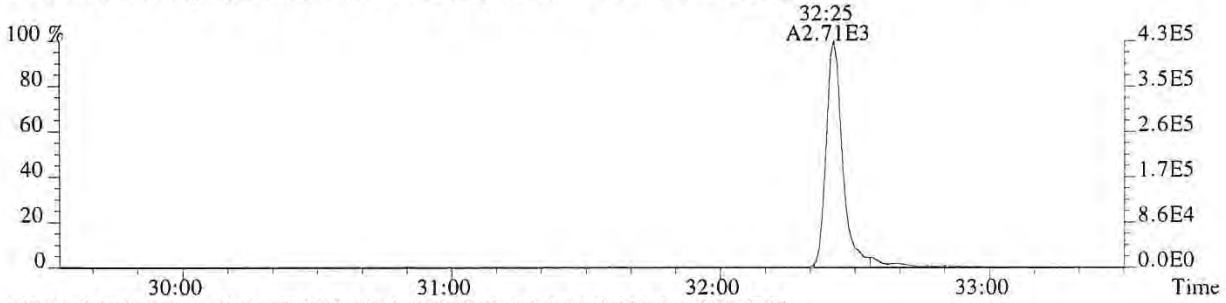


015871

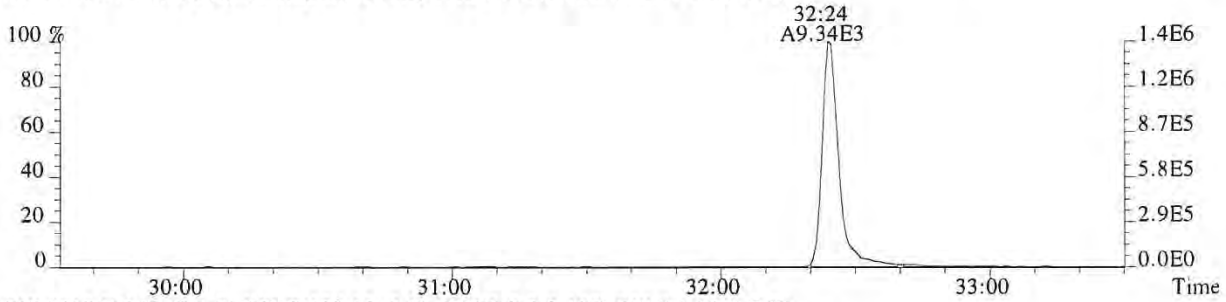
File:P519587 #1-357 Acq:24-DEC-2018 08:52:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,660.0,1.00%,F,T)



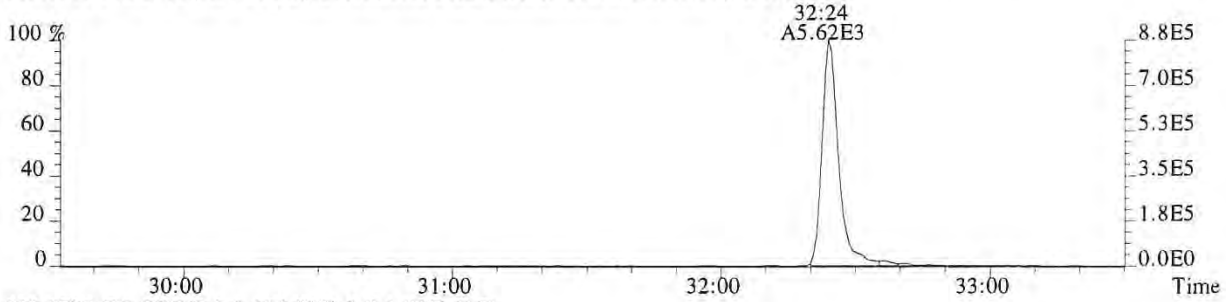
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,256.0,1.00%,F,T)



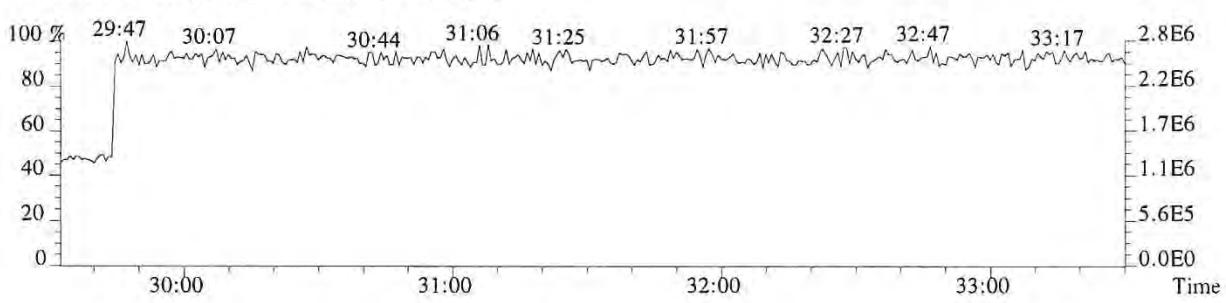
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,932.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,948.0,1.00%,F,T)

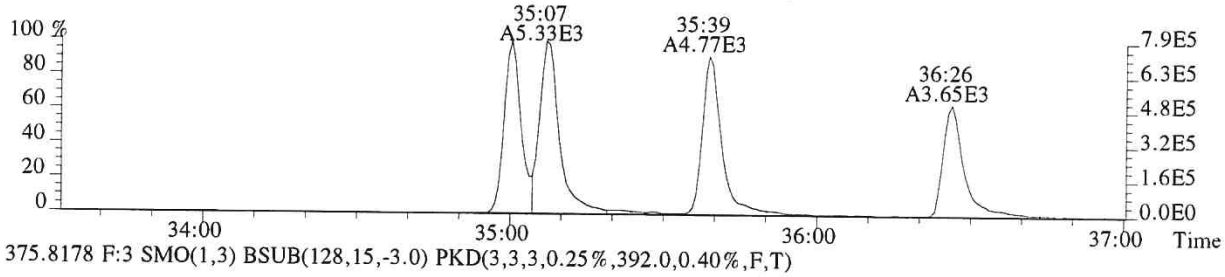


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

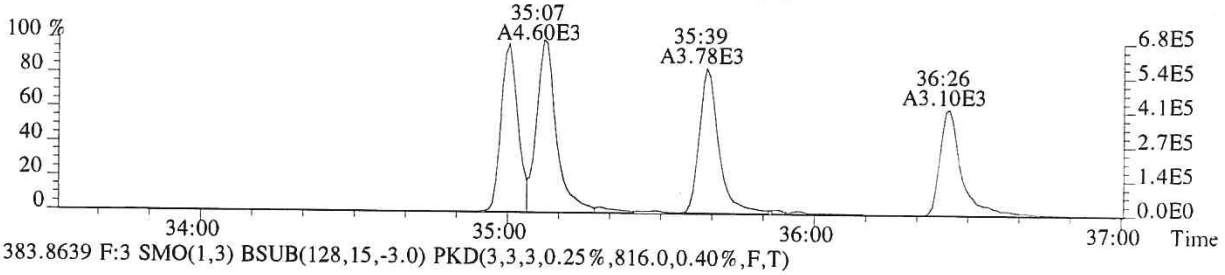


015872

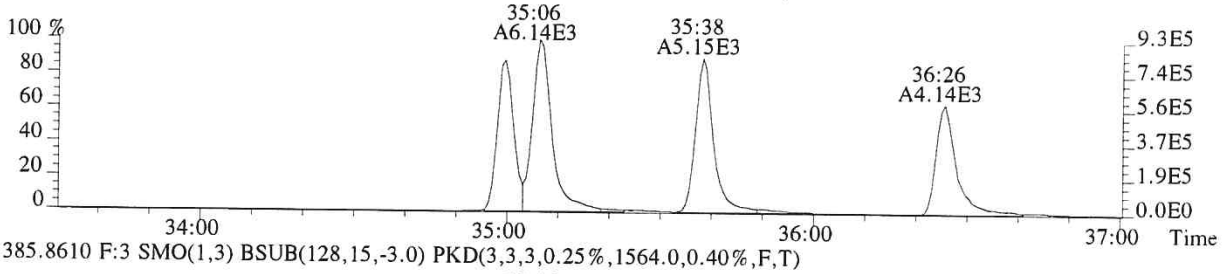
File:P519587 #1-313 Acq:24-DEC-2018 08:52:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,632.0,0.40%,F,T)



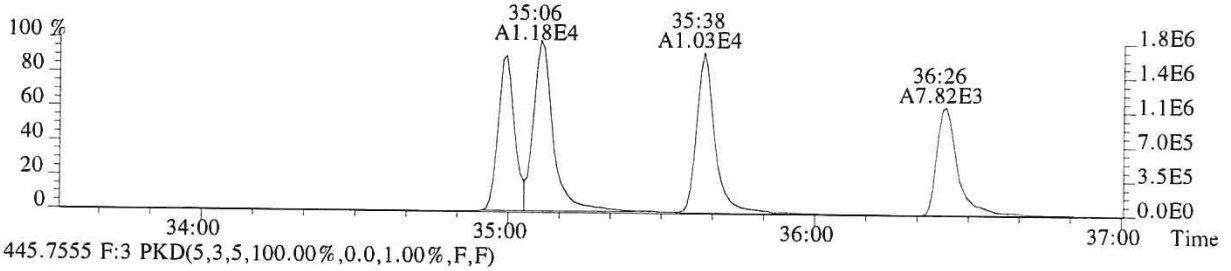
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,392.0,0.40%,F,T)



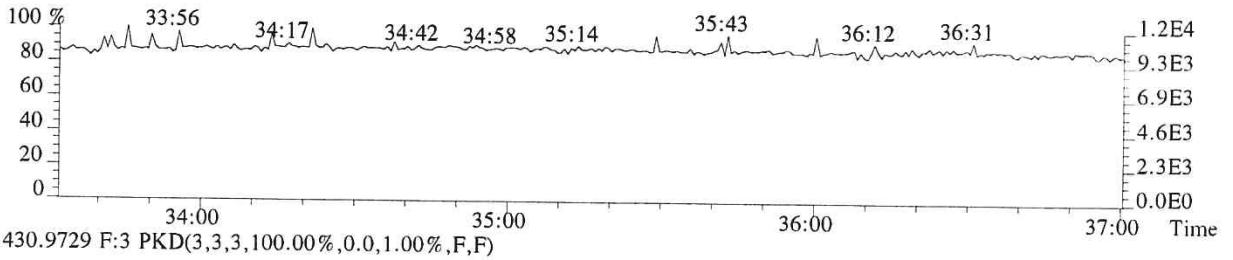
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,816.0,0.40%,F,T)



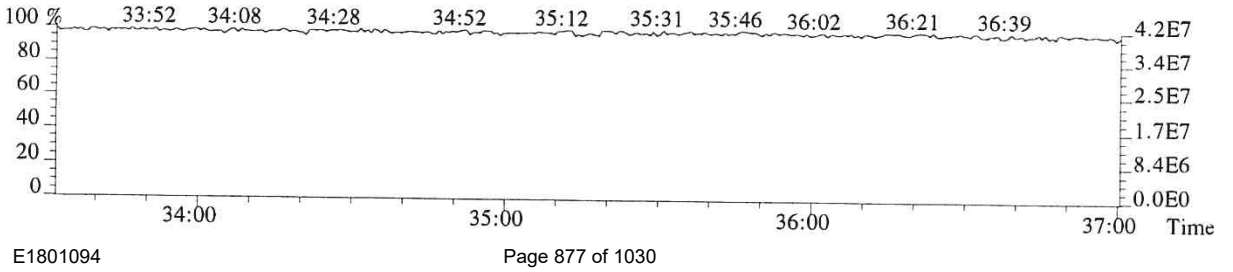
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1564.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

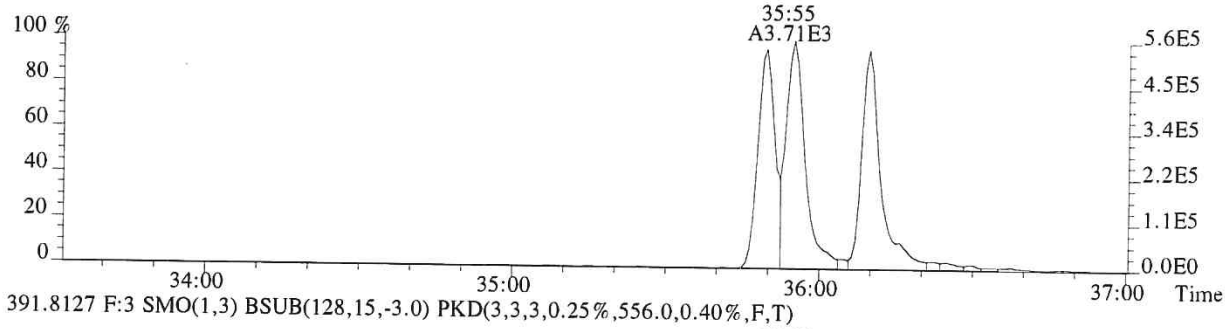


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

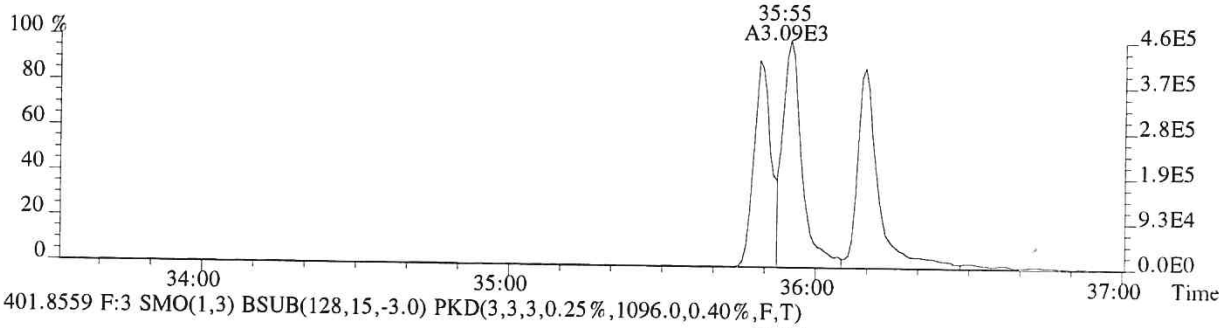


015873

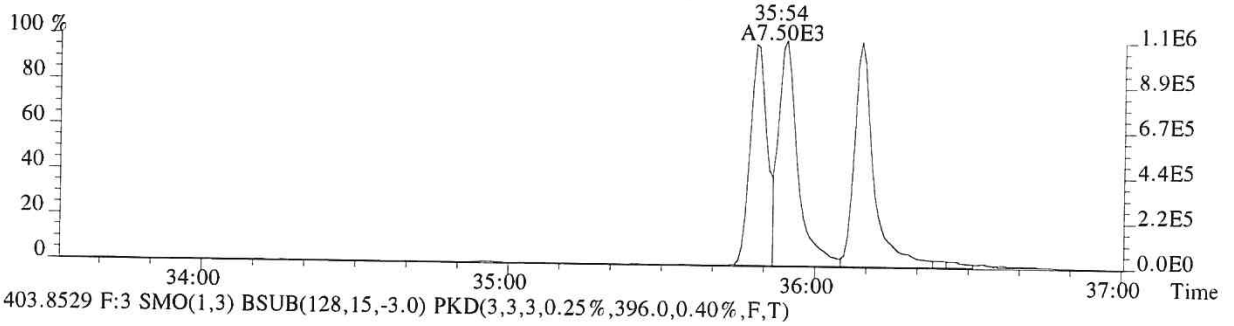
File:P519587 #1-313 Acq:24-DEC-2018 08:52:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,360.0,0.40%,F,T)



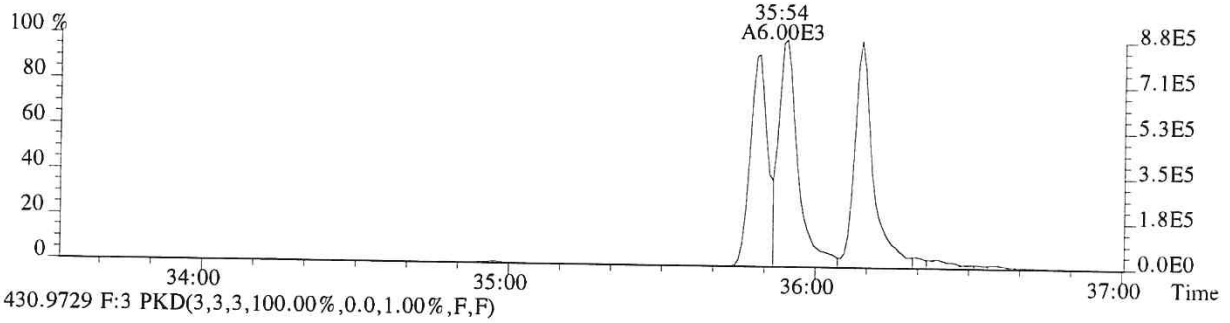
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,556.0,0.40%,F,T)



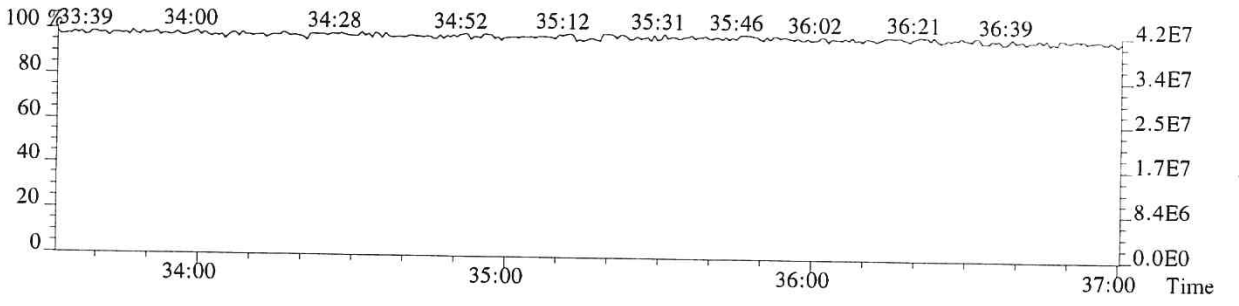
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1096.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,396.0,0.40%,F,T)



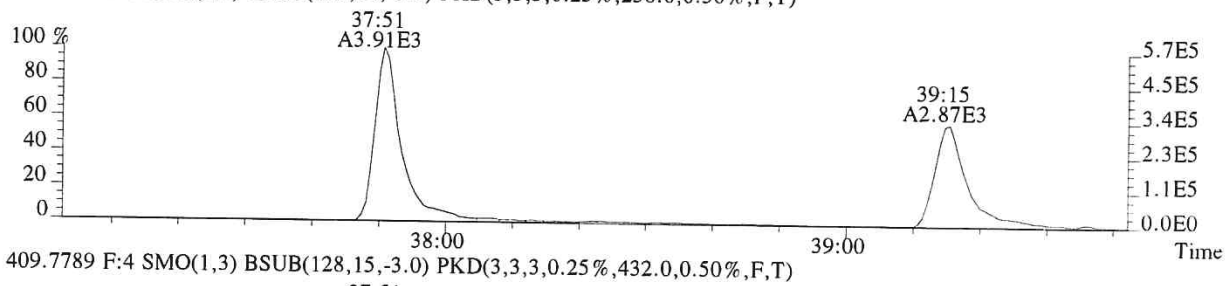
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



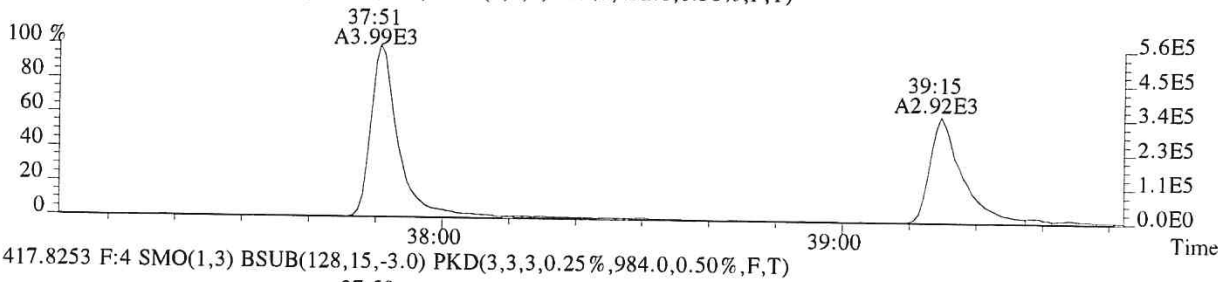
015874

File:P519587 #1-240 Acq:24-DEC-2018 08:52:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

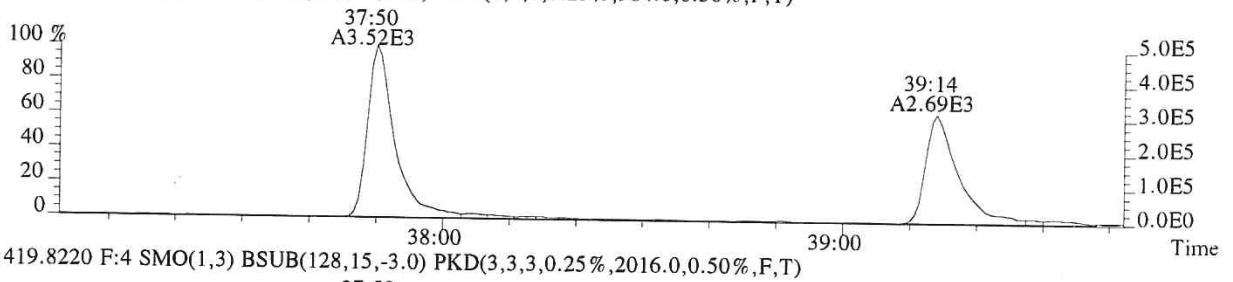
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,256.0,0.50%,F,T)



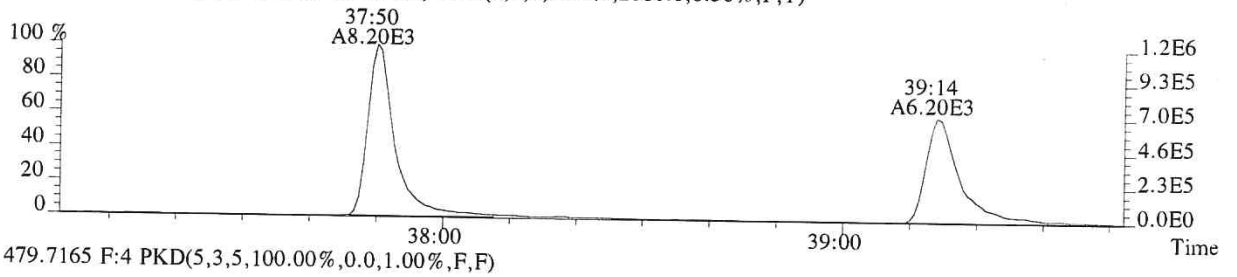
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,432.0,0.50%,F,T)



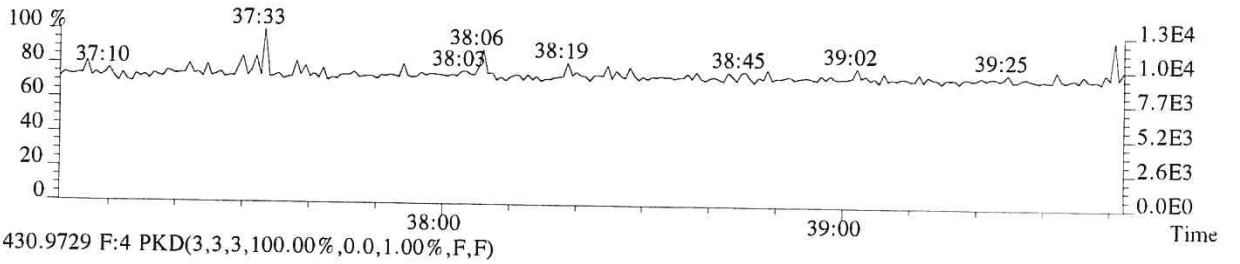
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,984.0,0.50%,F,T)



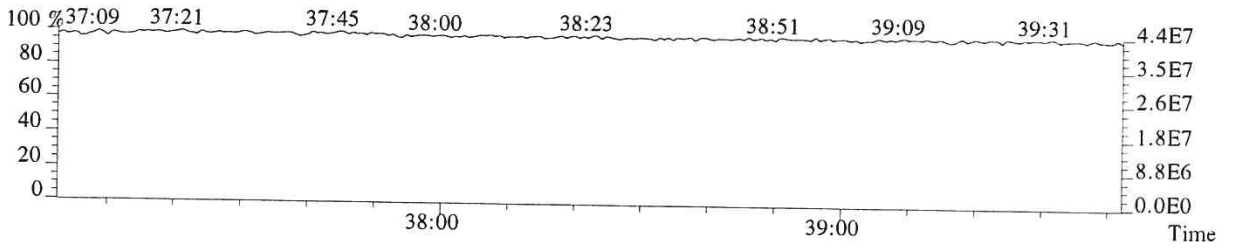
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2016.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

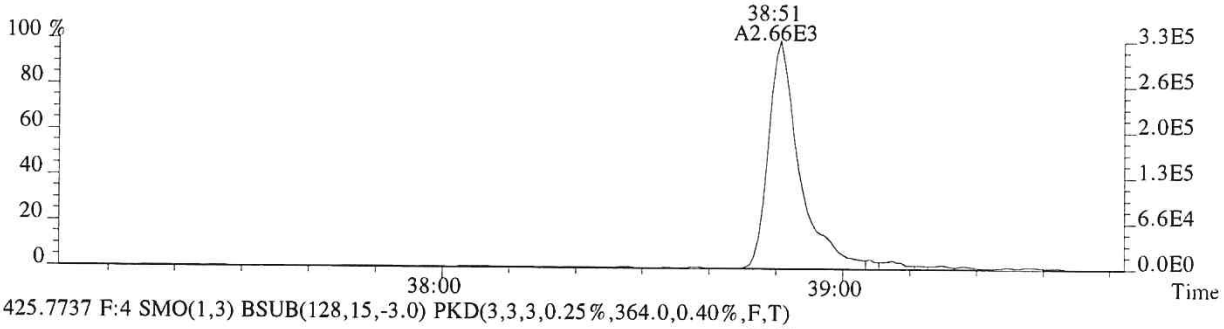


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

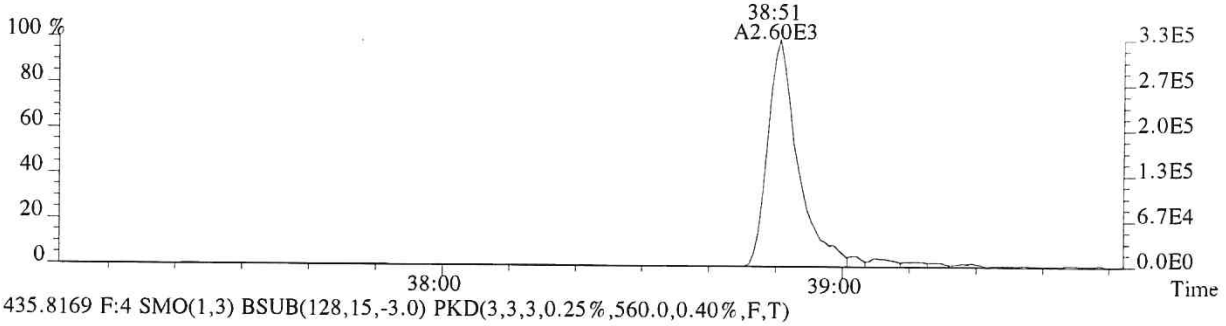


015875

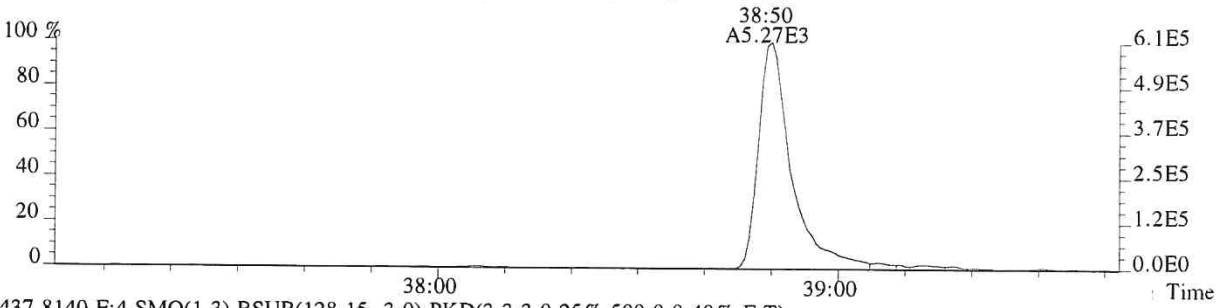
File:P519587 #1-240 Acq:24-DEC-2018 08:52:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,600.0,0.40%,F,T)



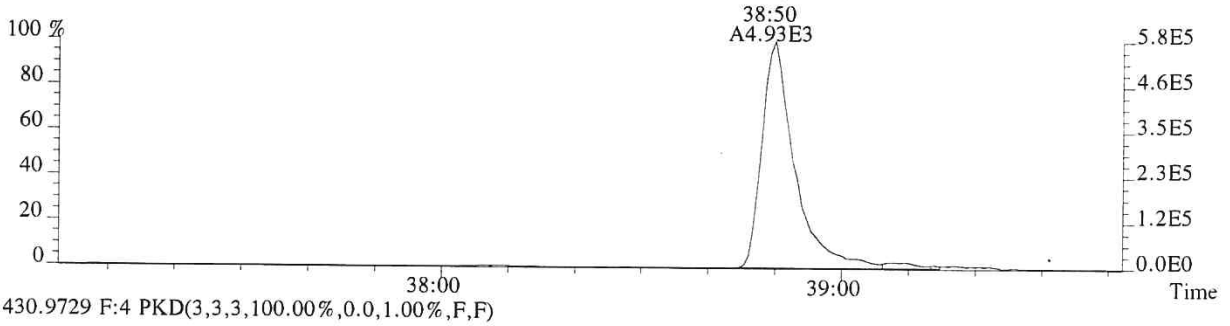
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,364.0,0.40%,F,T)



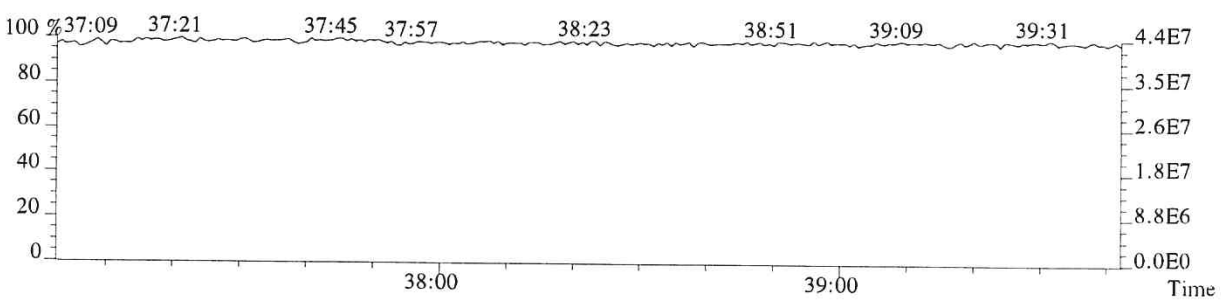
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,560.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,500.0,0.40%,F,T)

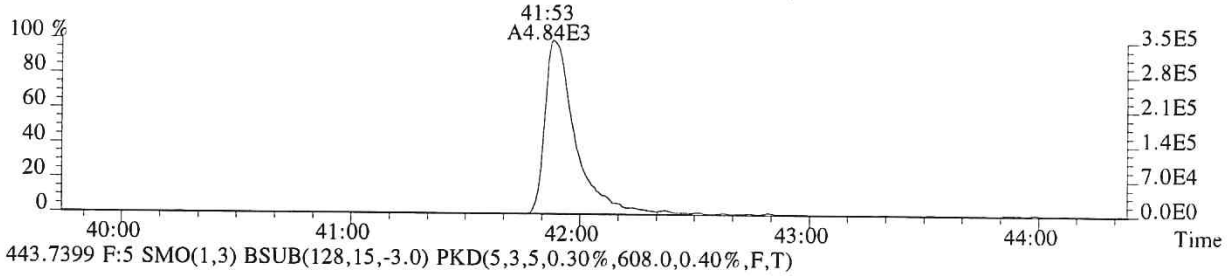


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

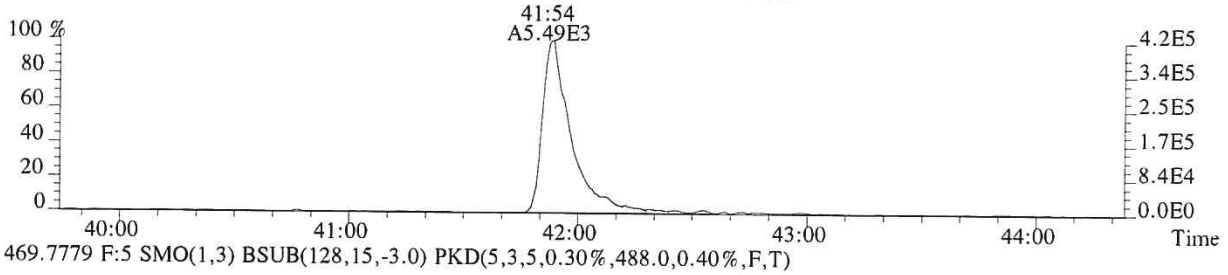


015876

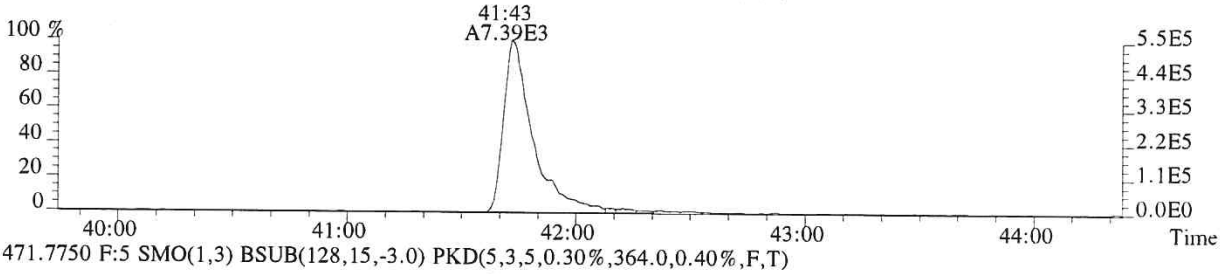
File:P519587 #1-419 Acq:24-DEC-2018 08:52:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,376.0,0.40%,F,T)



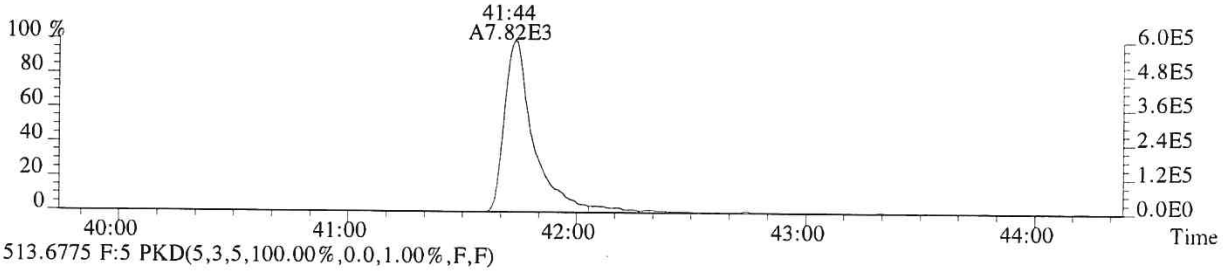
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,608.0,0.40%,F,T)



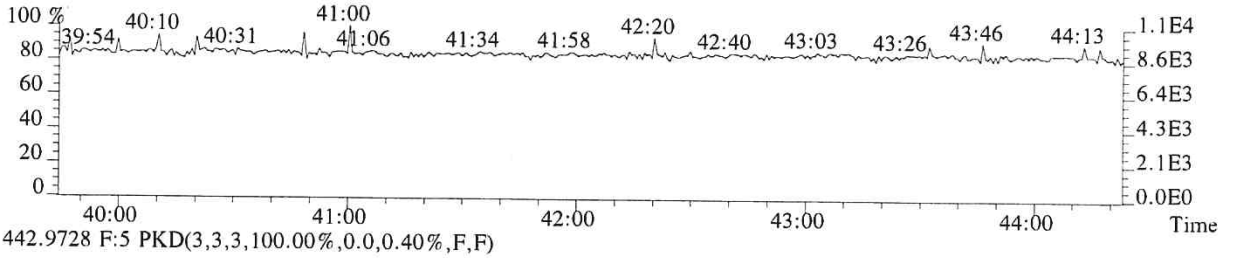
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,488.0,0.40%,F,T)



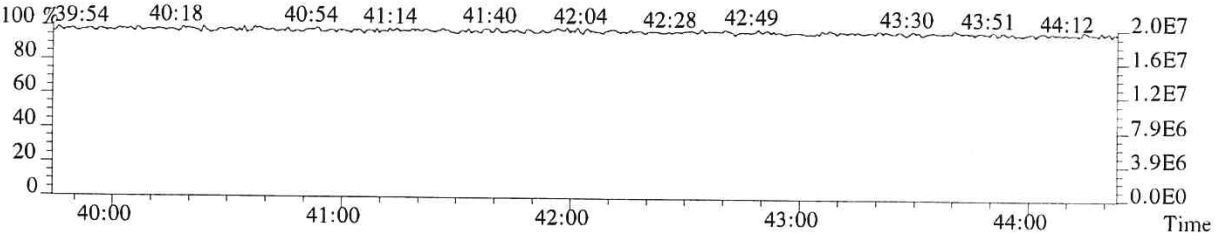
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,364.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

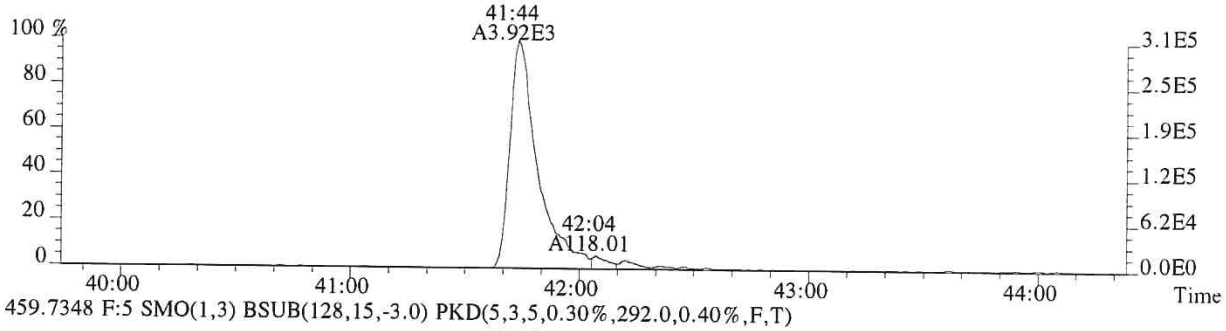


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

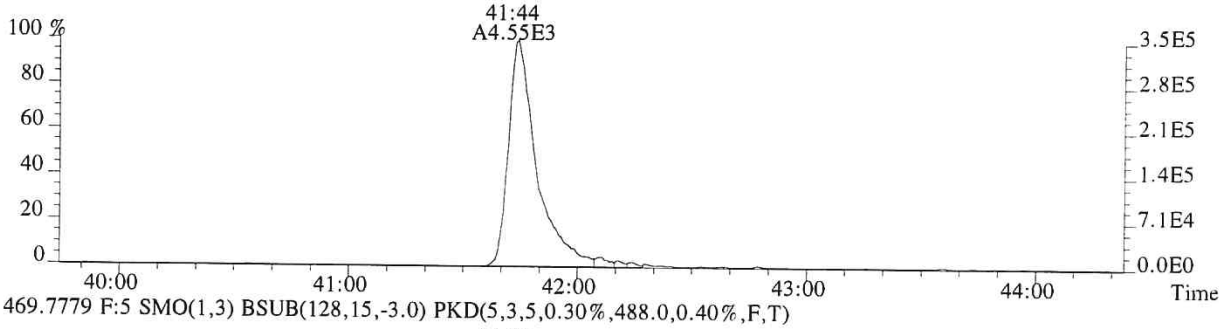


015877

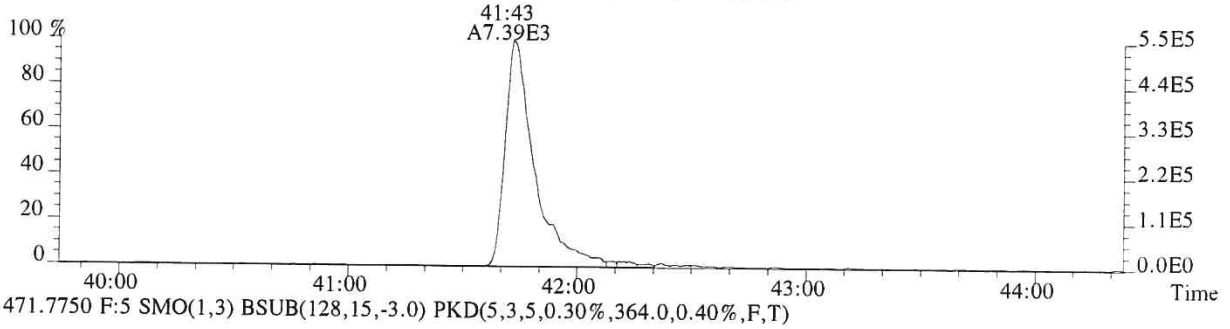
File:P519587 #1-419 Acq:24-DEC-2018 08:52:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,300.0,0.40%,F,T)



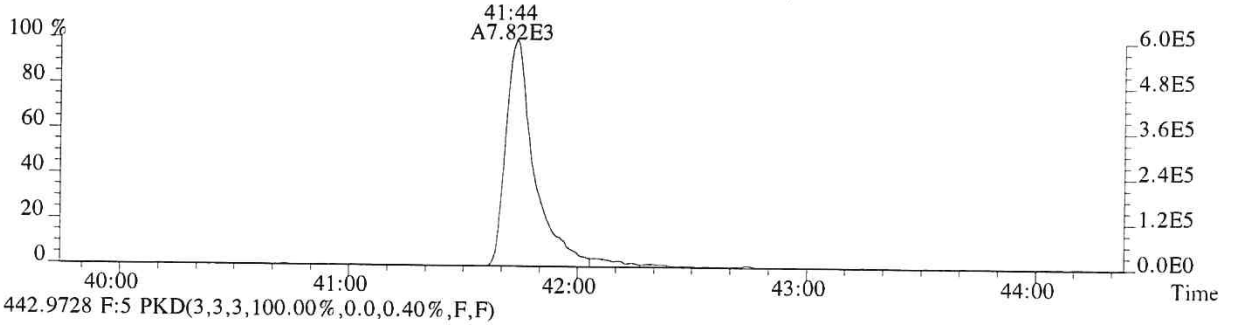
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,292.0,0.40%,F,T)



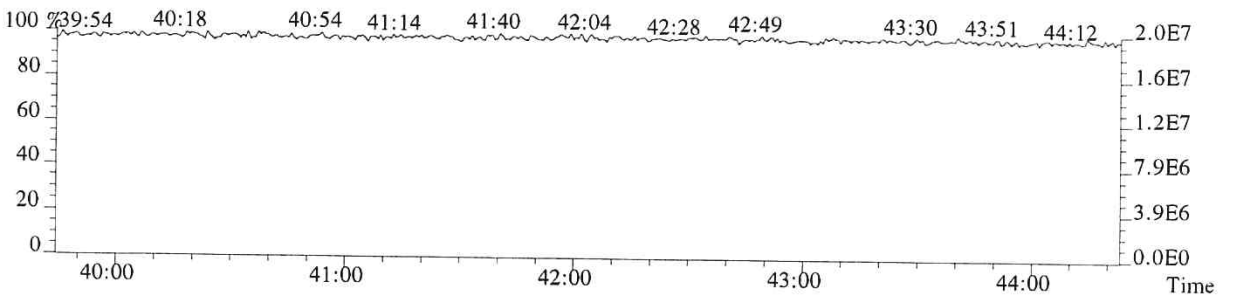
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,488.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,364.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



015878

CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P5l9l025

Date: 12/26/18 - 12/27/18 Circle one: Beginning / Ending

Method: (1613 / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: _____ Second QC: LG

ccalqc.xls 07/17/12

015879

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

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
194503	CS3	P519625	26-DEC-18	12:27:59
192977	WINDOW DEFINE	P519626	26-DEC-18	13:24:36
METHOD BLANK	EQ1800507-01	P519627	26-DEC-18	14:12:24
METHOD BLANK	EQ1800512-01	P519628	26-DEC-18	15:01:43
METHOD BLANK	EQ1800515-01	P519630	26-DEC-18	15:53:56
METHOD BLANK	EQ1800517-01	P519631	26-DEC-18	16:41:42
METHOD BLANK	EQ1800520-01	P519632	26-DEC-18	17:30:21
19-01413	E1801097-001	P519633	26-DEC-18	18:19:00
19-01414	E1801097-002	P519634	26-DEC-18	19:07:40
19-01415	E1801097-003	P519635	26-DEC-18	19:56:20
SLUDGE-NOVEMBER 20	E1801098-001	P519636	26-DEC-18	20:45:00
SL0038	E1801094-009	P519637	26-DEC-18	21:33:41
DBS18-09	E1801111-005	P519638	26-DEC-18	22:22:20
NONANE	NONANE	P519639	26-DEC-18	23:19:14
METHOD BLANK	EQ1800516-01	P519640	27-DEC-18	00:07:02

Sample List Report — **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20181226A.SPL
Last Modified: Thursday, December 27, 2018 06:54:32 Central Standard Time
Printed: Thursday, December 27, 2018 06:54:33 Central Standard Time

Page Position (1, 1)

OPUS 4: P519625res

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	12/26/18	12:27	P519625	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2	LG	1+2HRMS check 12:24
2		13:24	P519626	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:1		
3		14:12	P519627	MB	EQ1800507-01	EPA1613_ALS	Dioxin_ALS	Tray1:3		
4		15:01	P519628	MB	EQ1800512-01	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		15:53	P519630	MB	EQ1800515-01	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		16:41	P519631	MB	EQ1800517-01	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		17:30	P519632	MB	EQ1800520-01	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		18:19	P519633	E1801097-001	E1801097-001	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		19:07	P519634	E1801097-002	E1801097-002	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		19:56	P519635	E1801097-003	E1801097-003	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		20:45	P519636	E1801098-001	E1801098-001	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		21:33	P519637	E1801094-009	E1801094-009	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13		22:22	P519638	E1801111-005	E1801111-005	EPA1613_ALS	Dioxin_ALS	Tray1:13		
14	↓	23:19	P519639	NONANE	NONANE	EPA1613_ALS	Dioxin_ALS	Tray1:14		
15	12/27/18	00:07	P519640	MB	EQ1800516-01	EPA1613_ALS	Dioxin_ALS	Tray1:15	↓	01:03 12:24 1+2HRMS check LG 12/27/18
16	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:16	---	---
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:17	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:18	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---

LG 12/27/18

5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

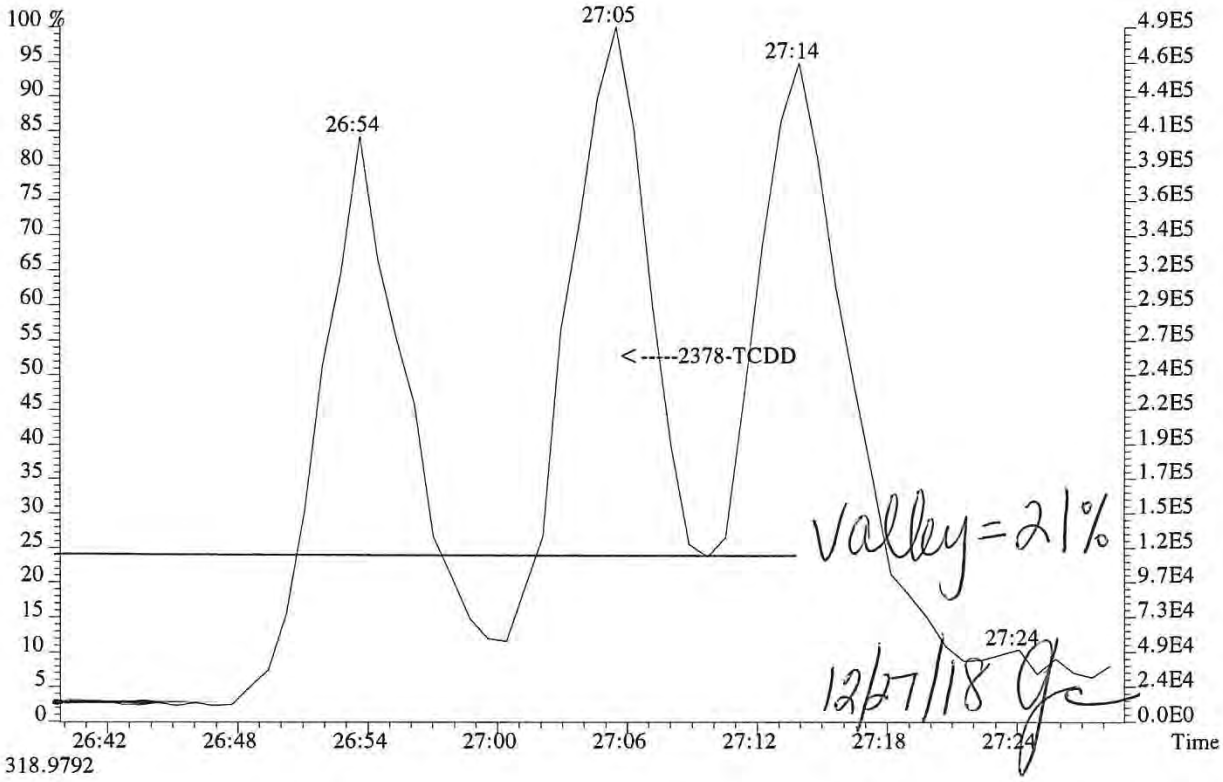
Case No.: _____ SDG No.:
ID: 0.25 (mm) Lab File ID: P519626
Date Analyzed: 26-DEC-2018
Time Analyzed: 13:24:36

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	21:42	28:24
TCDD	23:21	28:15
PeCDF	28:23	33:04
PeCDD	30:08	32:48
HxCDF	33:48	36:29
HxCDD	34:22	36:04
HpCDF	37:50	39:16
HpCDD	38:07	38:49

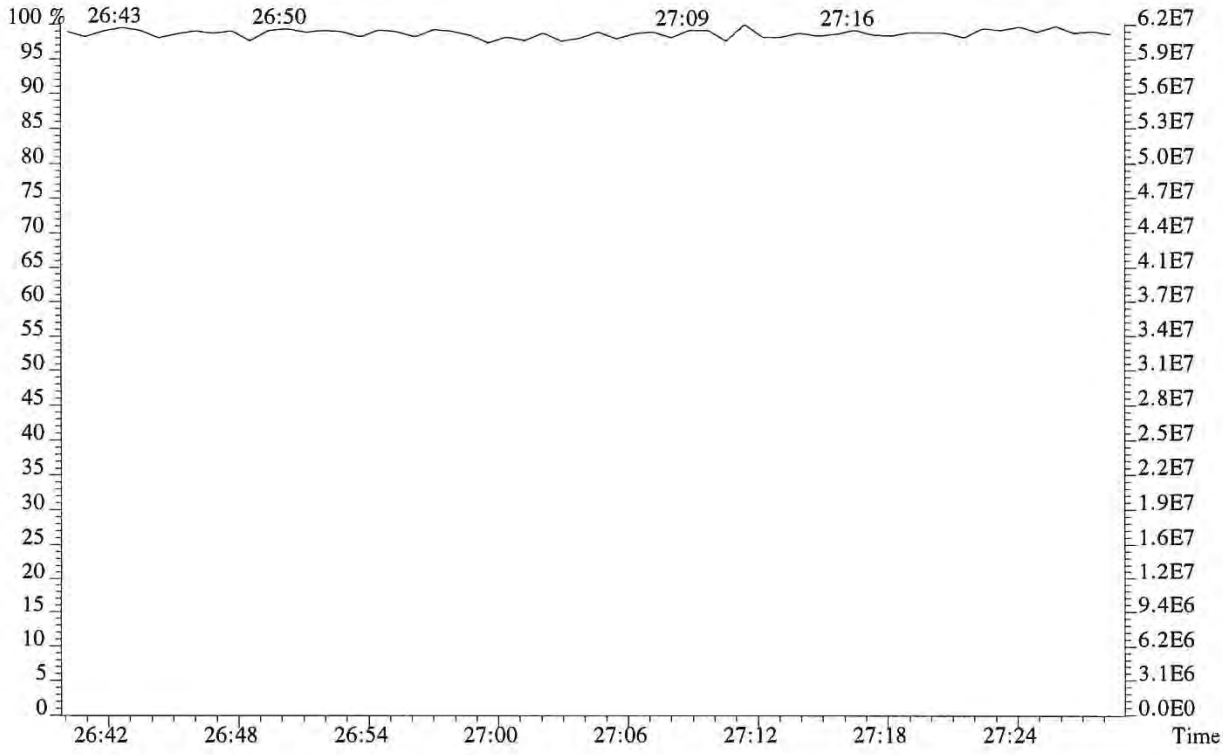
% Valley 2378-TCDD: 21 %

015882

File:P519626 #1-587 Acq:26-DEC-2018 13:24:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
319.8965



318.9792



015883

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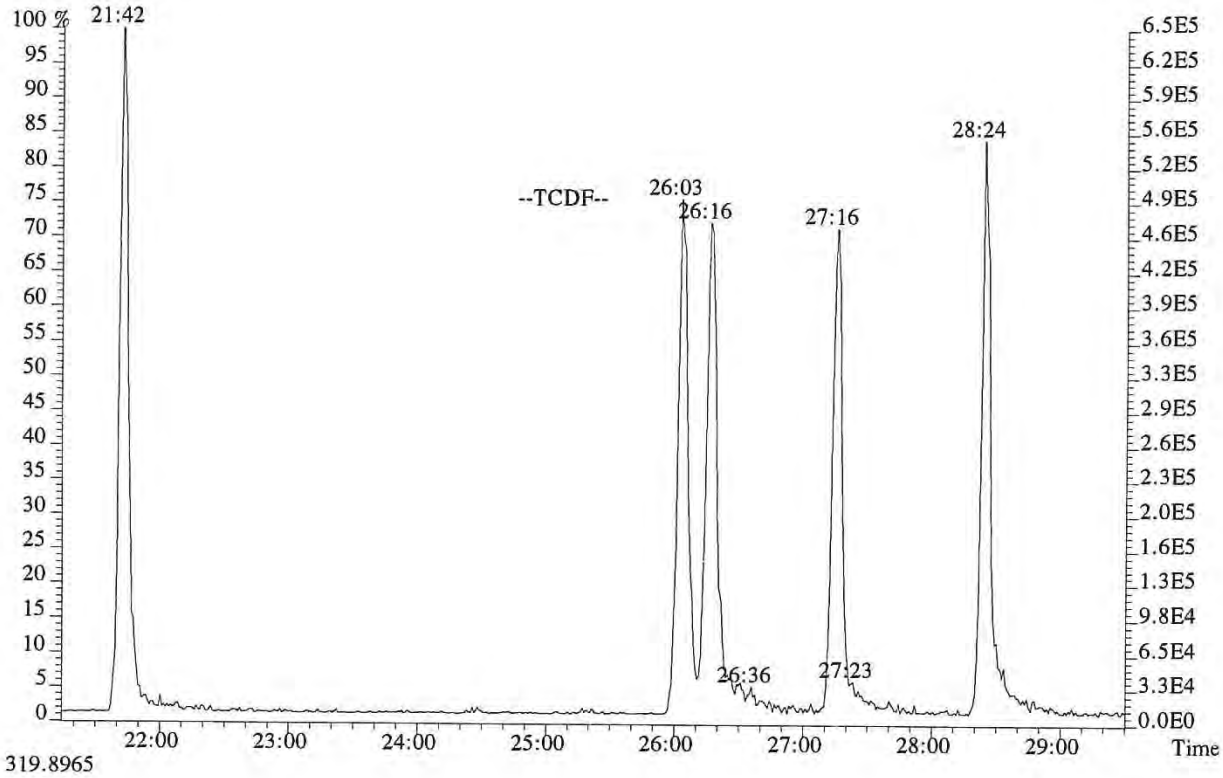
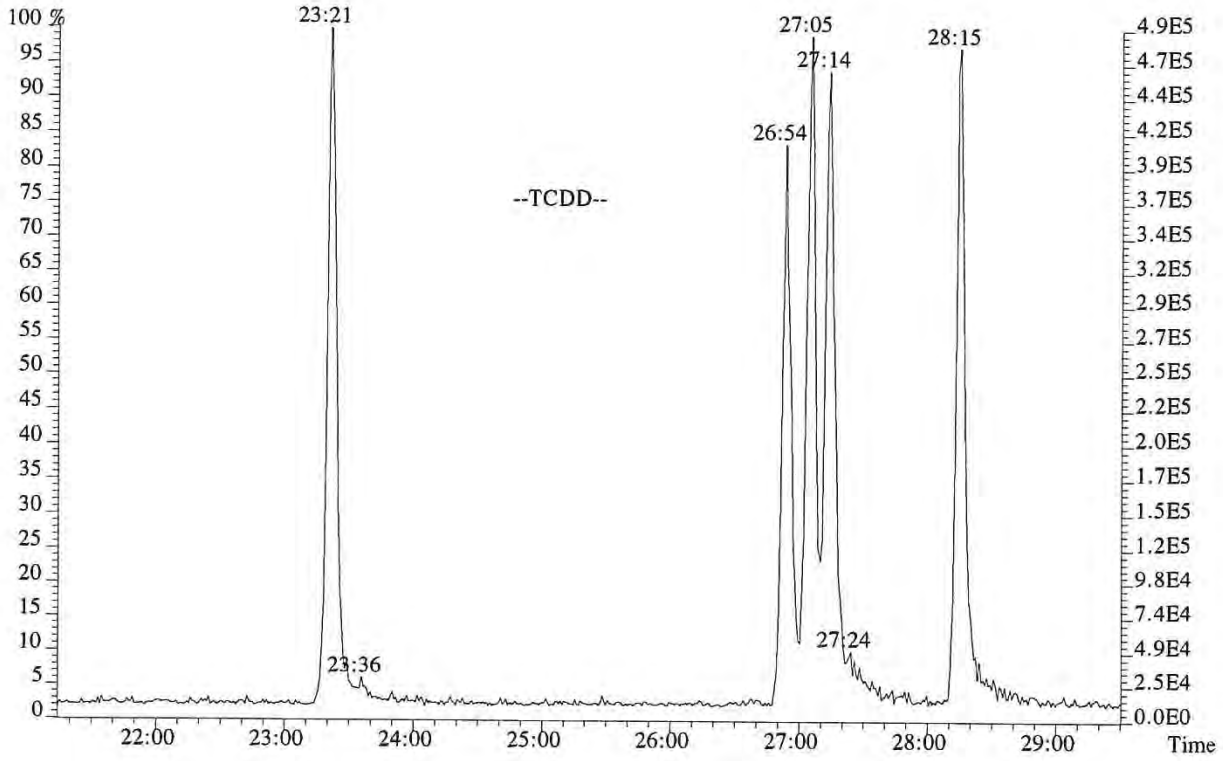
Sample#1 Exp:192977
303.9016

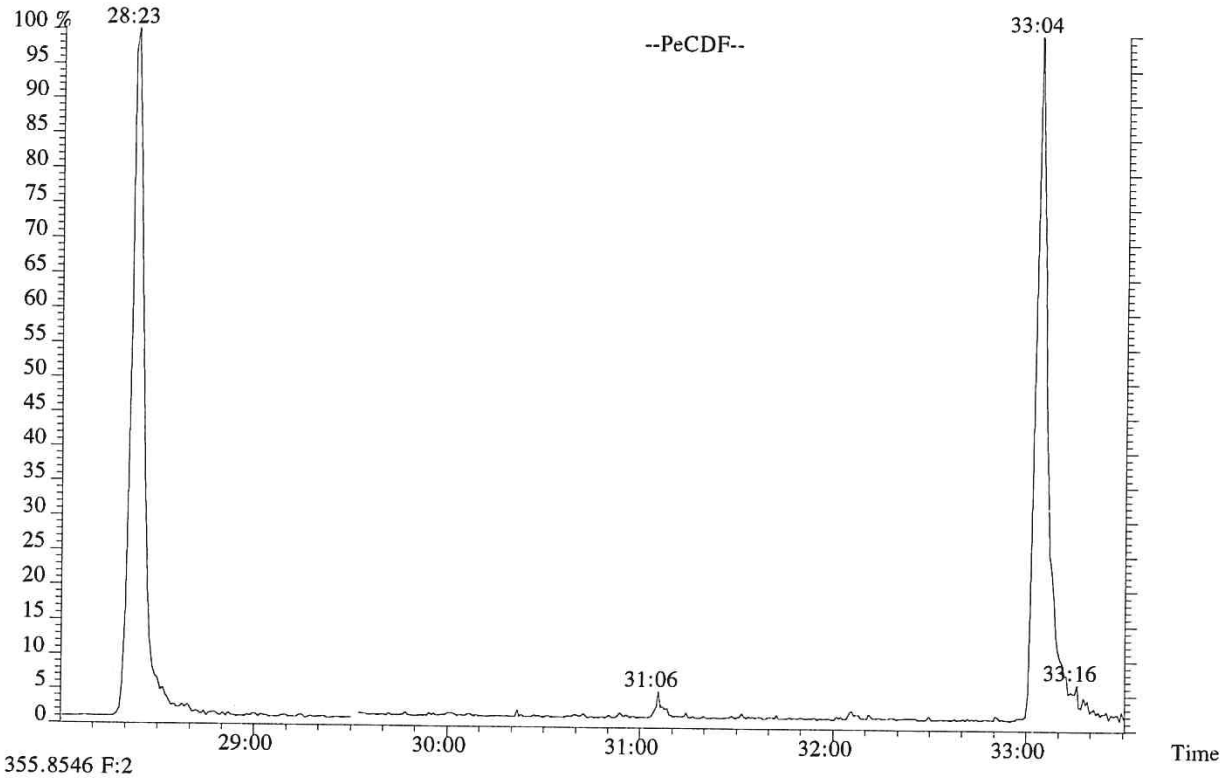


319.8965

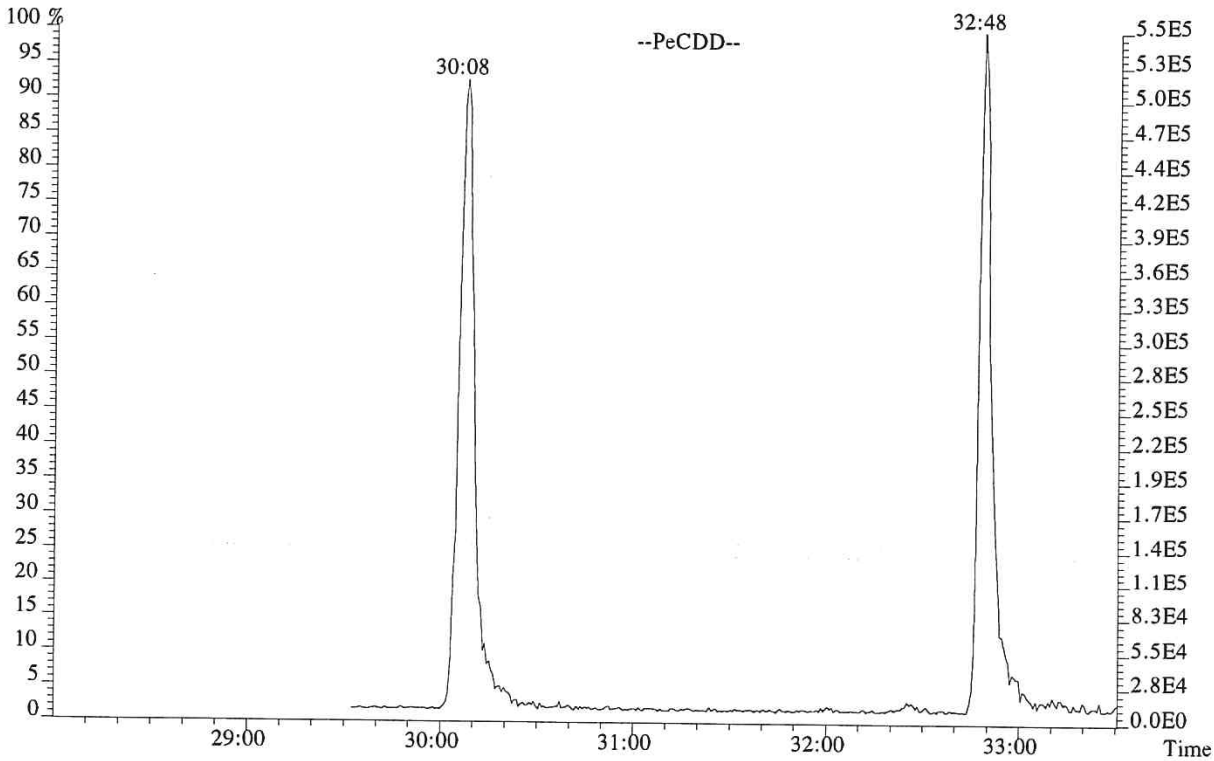


015884

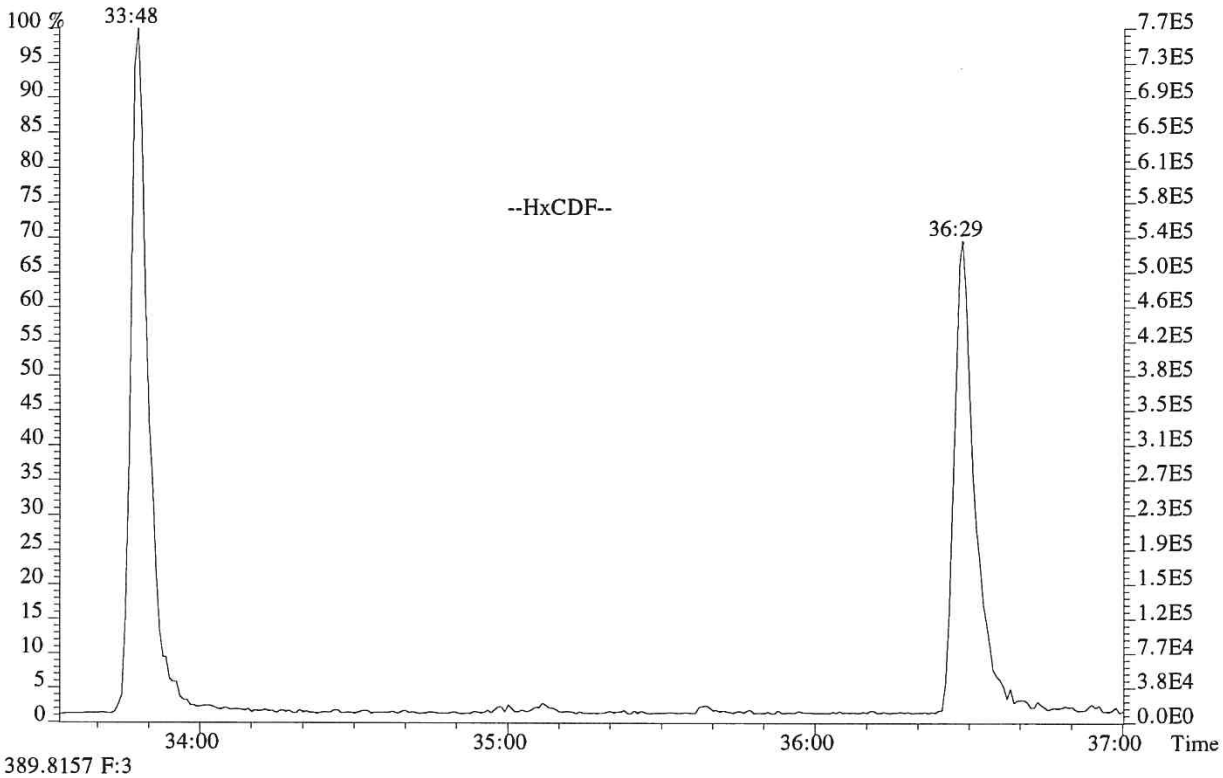
File:P519626 #1-587 Acq:26-DEC-2018 13:24:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
339.8597,339.8597 F:2



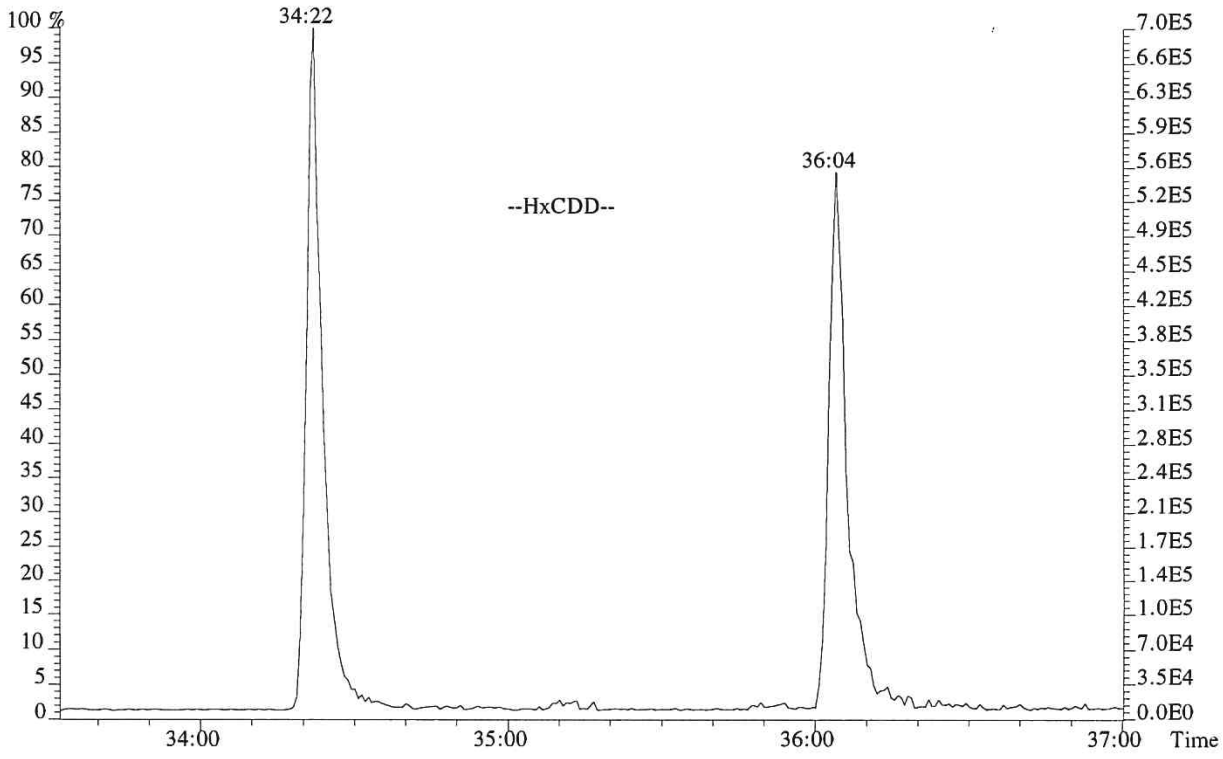
355.8546 F:2



File:P519626 #1-312 Acq:26-DEC-2018 13:24:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
373.8208 F:3

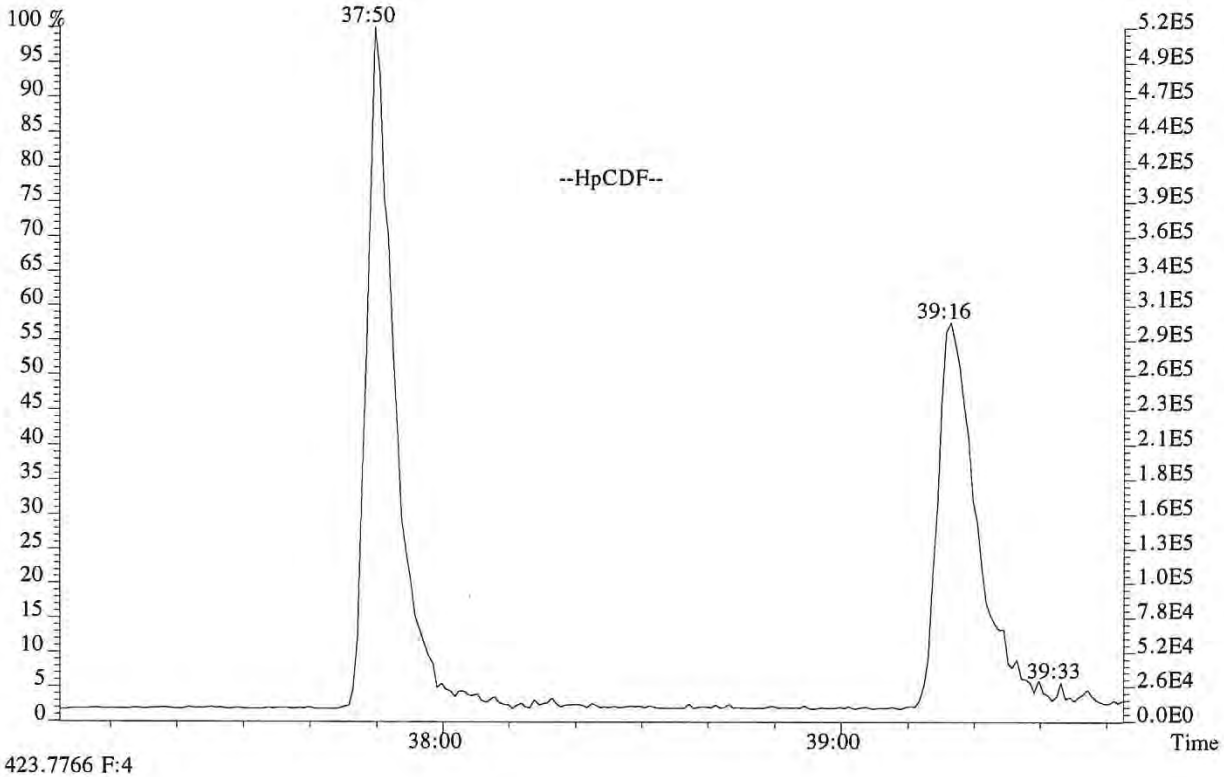


389.8157 F:3

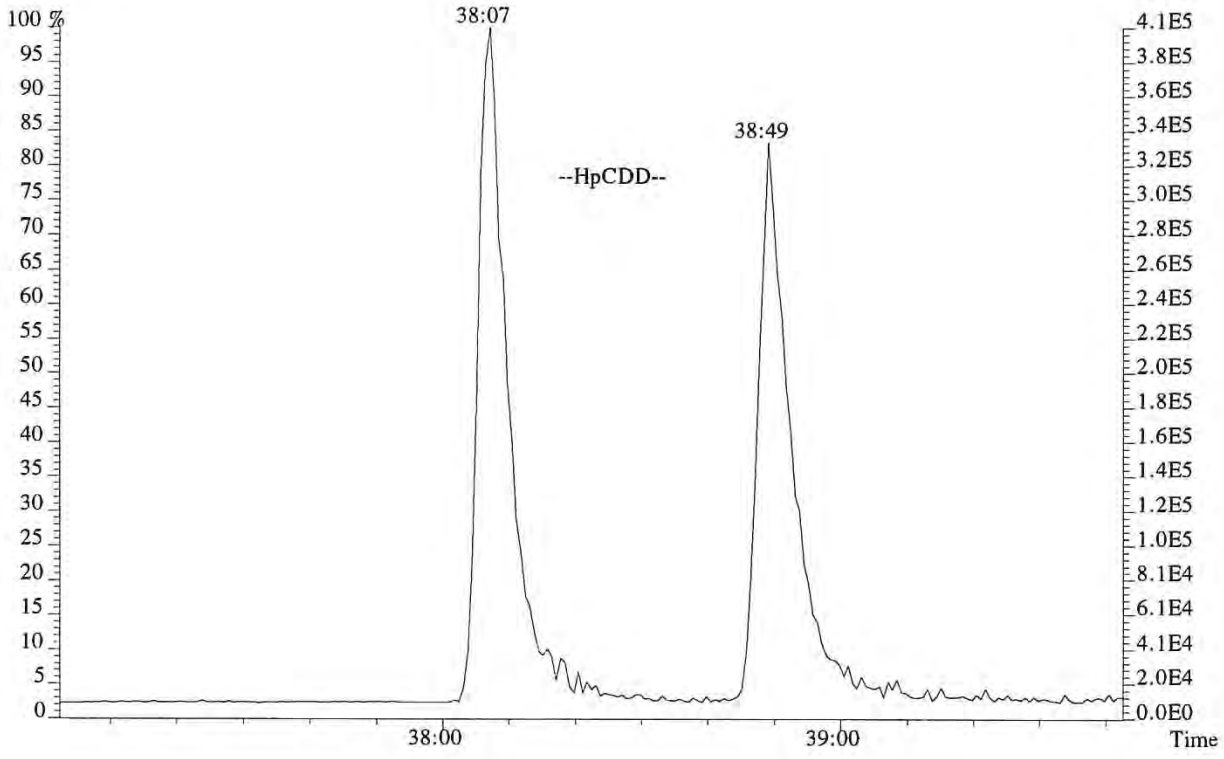


015886

File:P519626 #1-241 Acq:26-DEC-2018 13:24:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
407.7818 F:4



423.7766 F:4

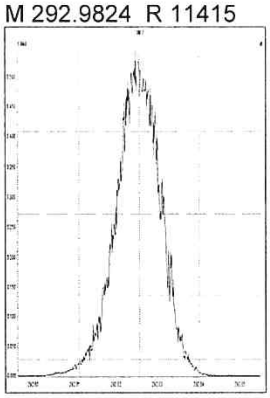


015887

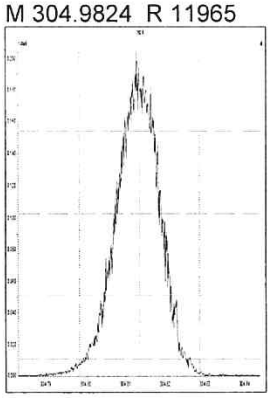
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Wednesday, December 26, 2018 12:24:37 Central Standard Time

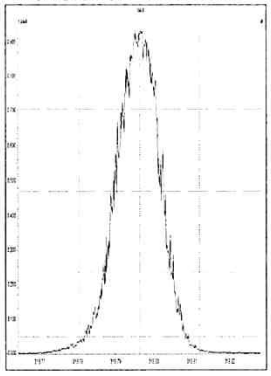
M 292.9824 R 11415



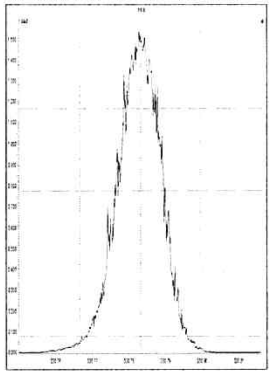
M 304.9824 R 11965



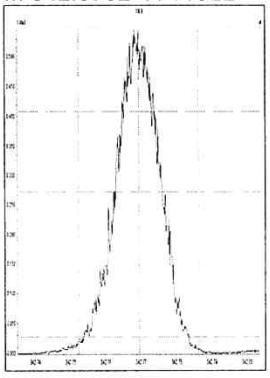
M 318.9792 R 12078



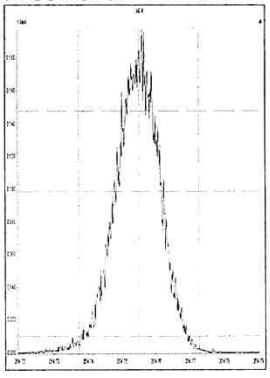
M 330.9792 R 12018



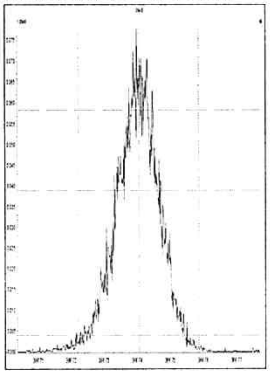
M 342.9792 R 11522



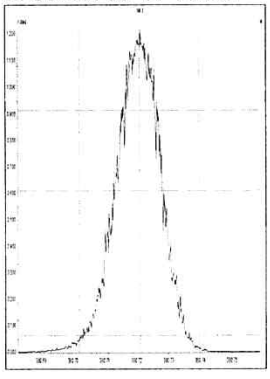
M 354.9792 R 11847



M 366.9792 R 12317



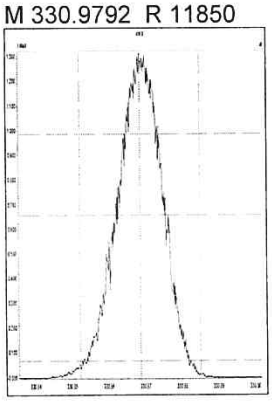
M 380.9760 R 11628



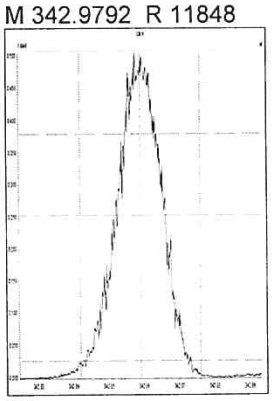
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Wednesday, December 26, 2018 12:25:12 Central Standard Time

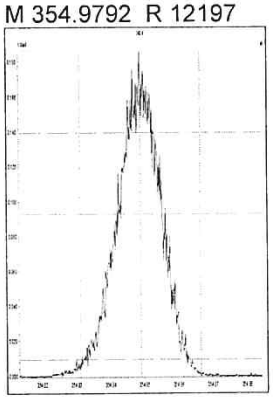
M 330.9792 R 11850



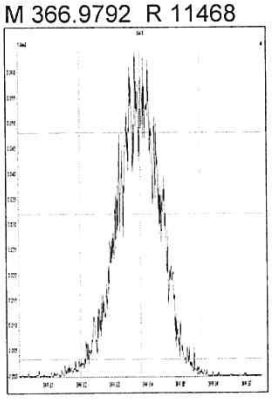
M 342.9792 R 11848



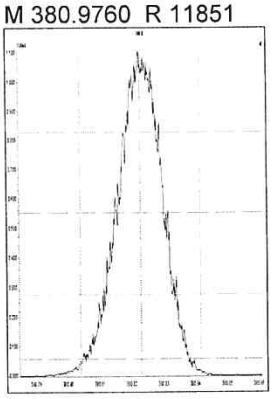
M 354.9792 R 12197



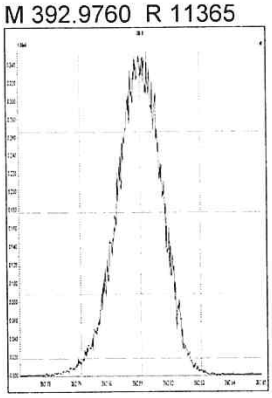
M 366.9792 R 11468



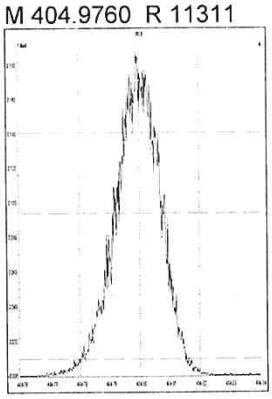
M 380.9760 R 11851



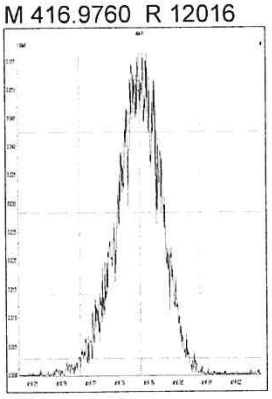
M 392.9760 R 11365



M 404.9760 R 11311



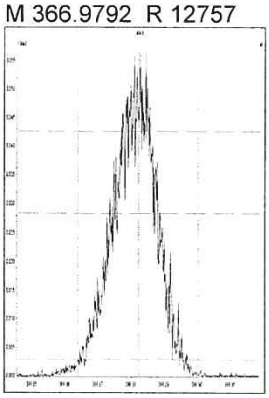
M 416.9760 R 12016



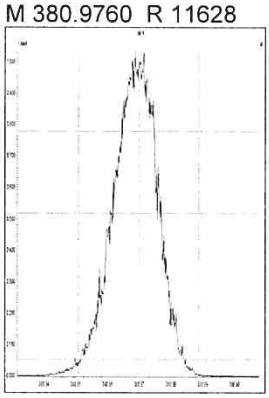
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Wednesday, December 26, 2018 12:25:52 Central Standard Time

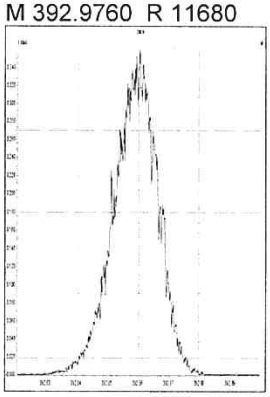
M 366.9792 R 12757



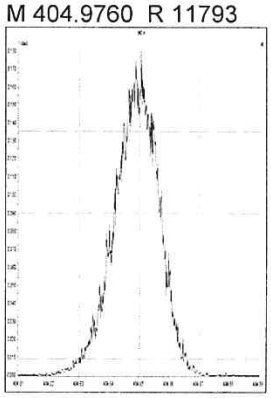
M 380.9760 R 11628



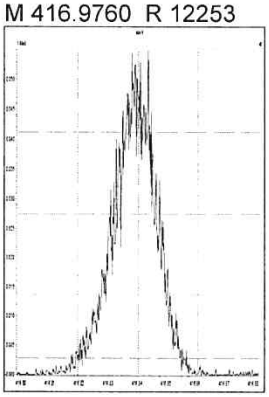
M 392.9760 R 11680



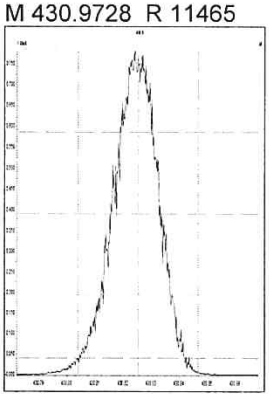
M 404.9760 R 11793



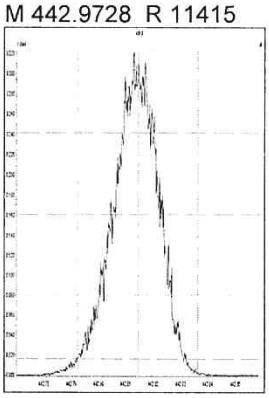
M 416.9760 R 12253



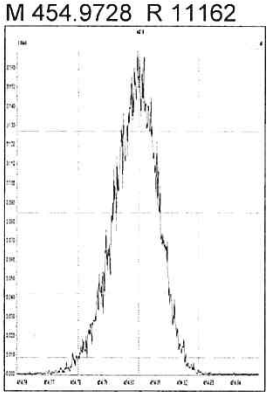
M 430.9728 R 11465



M 442.9728 R 11415



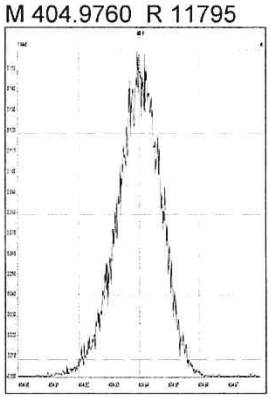
M 454.9728 R 11162



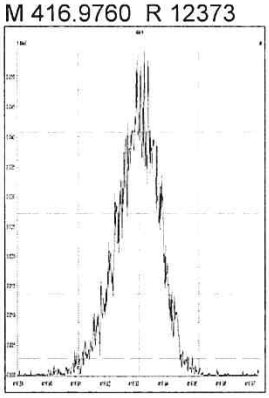
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Wednesday, December 26, 2018 12:26:31 Central Standard Time

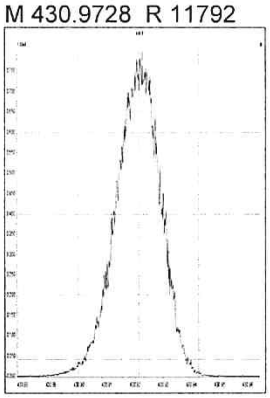
M 404.9760 R 11795



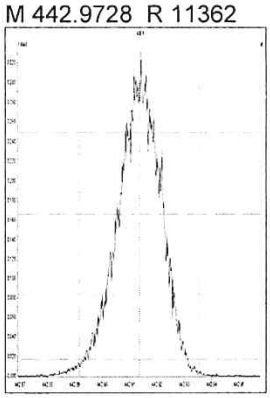
M 416.9760 R 12373



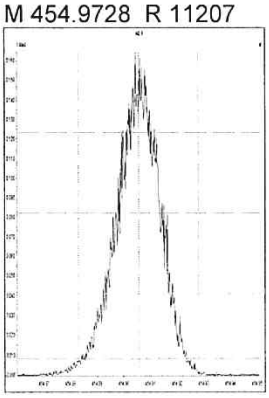
M 430.9728 R 11792



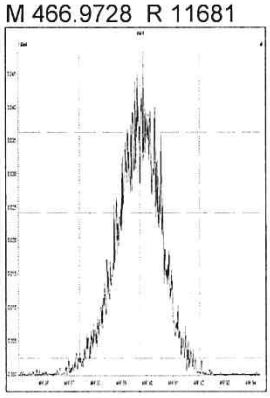
M 442.9728 R 11362



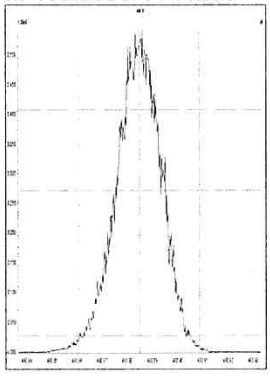
M 454.9728 R 11207



M 466.9728 R 11681



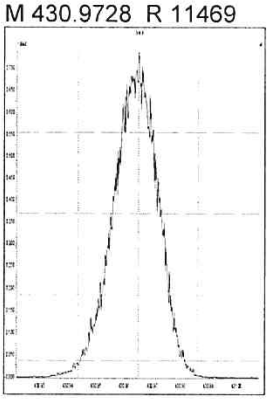
M 480.9696 R 11259



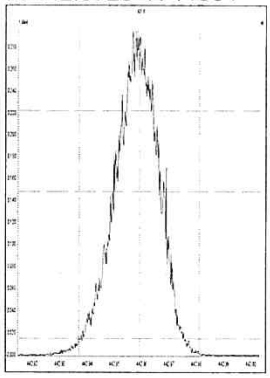
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Wednesday, December 26, 2018 12:27:10 Central Standard Time

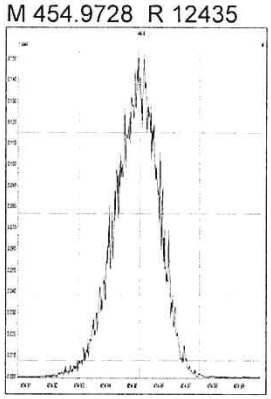
M 430.9728 R 11469



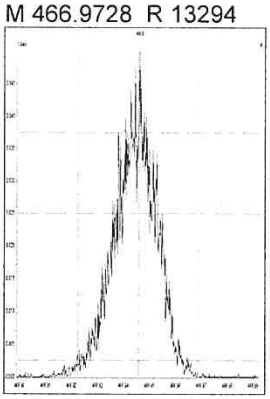
M 442.9728 R 11904



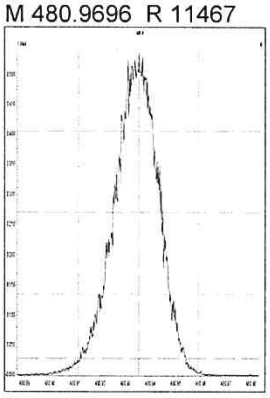
M 454.9728 R 12435



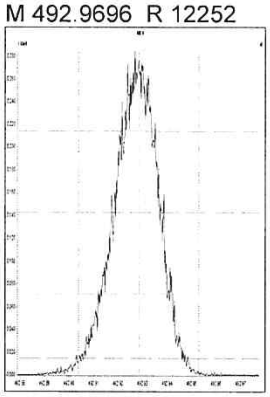
M 466.9728 R 13294



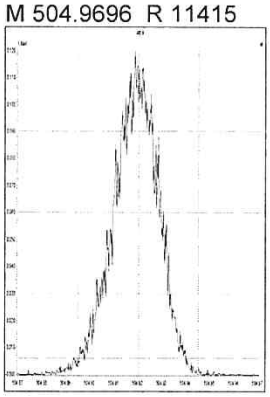
M 480.9696 R 11467



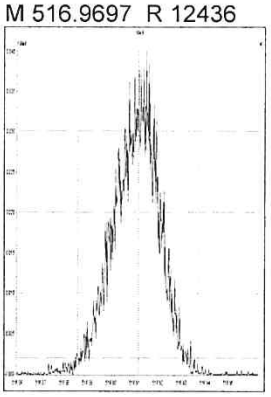
M 492.9696 R 12252



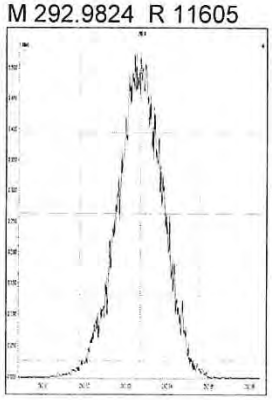
M 504.9696 R 11415



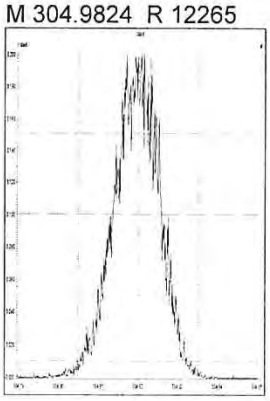
M 516.9697 R 12436



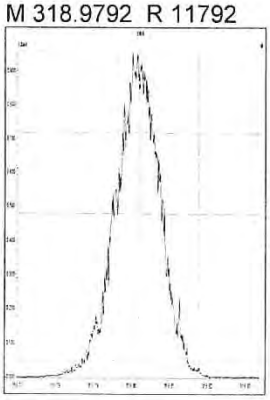
M 292.9824 R 11605



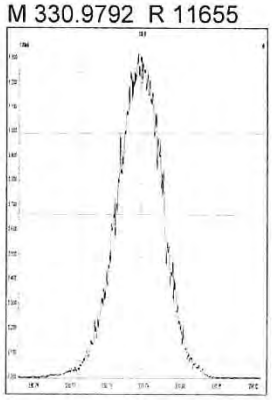
M 304.9824 R 12265



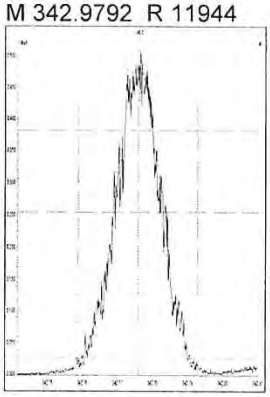
M 318.9792 R 11792



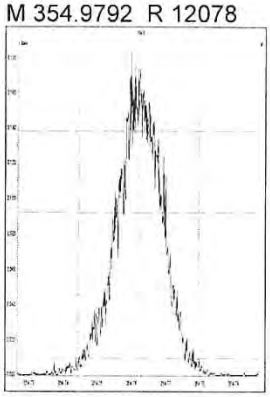
M 330.9792 R 11655



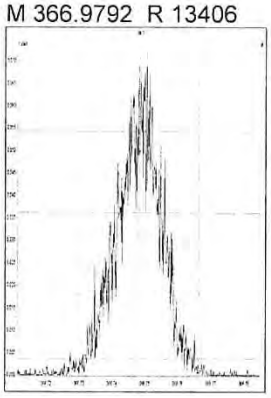
M 342.9792 R 11944



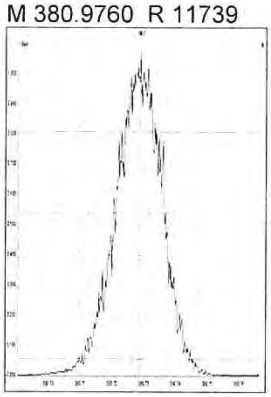
M 354.9792 R 12078



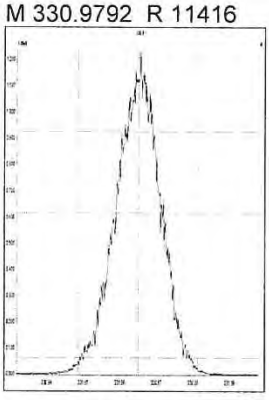
M 366.9792 R 13406



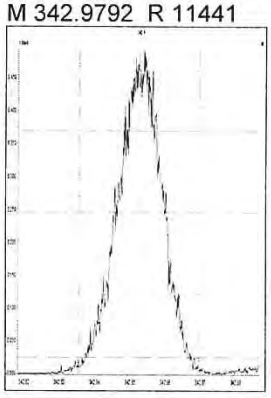
M 380.9760 R 11739



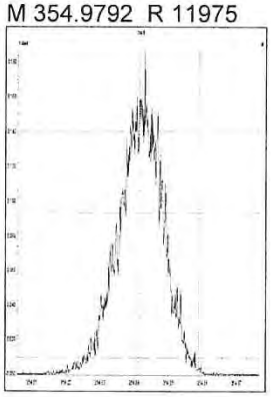
M 330.9792 R 11416



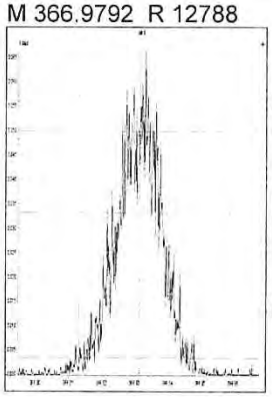
M 342.9792 R 11441



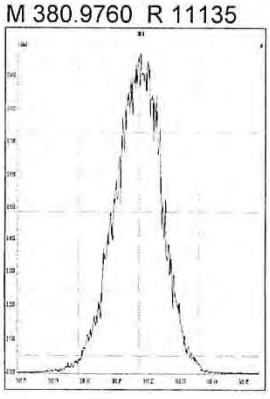
M 354.9792 R 11975



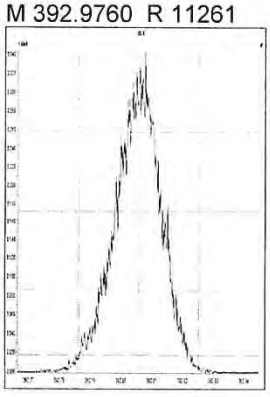
M 366.9792 R 12788



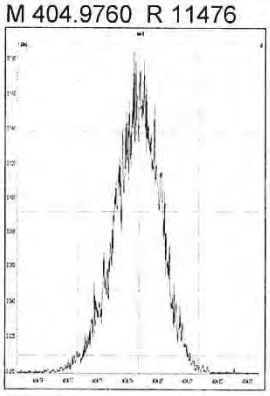
M 380.9760 R 11135



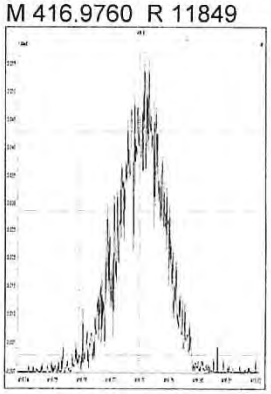
M 392.9760 R 11261



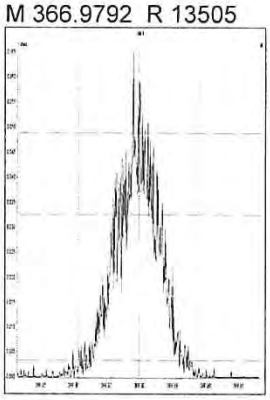
M 404.9760 R 11476



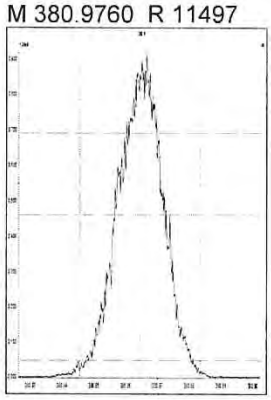
M 416.9760 R 11849



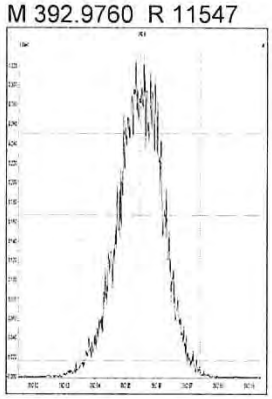
M 366.9792 R 13505



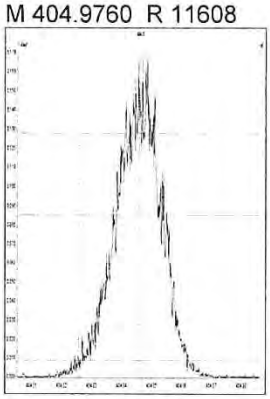
M 380.9760 R 11497



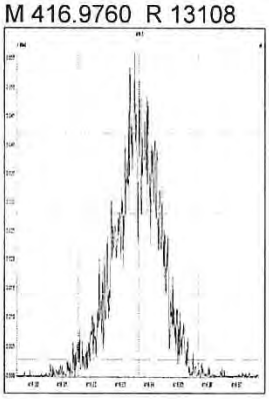
M 392.9760 R 11547



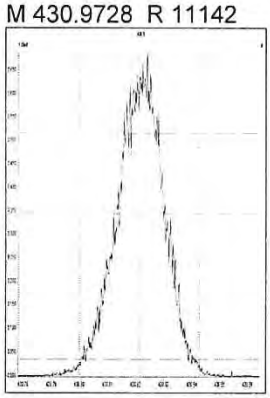
M 404.9760 R 11608



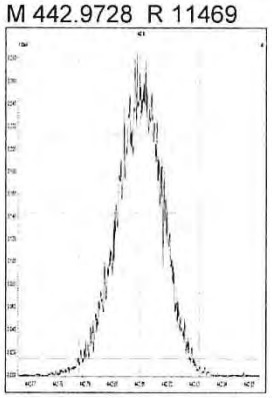
M 416.9760 R 13108



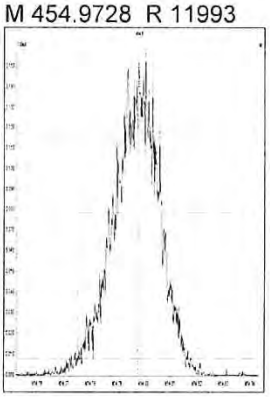
M 430.9728 R 11142



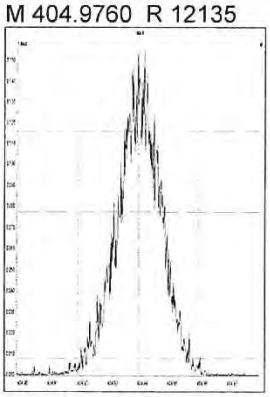
M 442.9728 R 11469



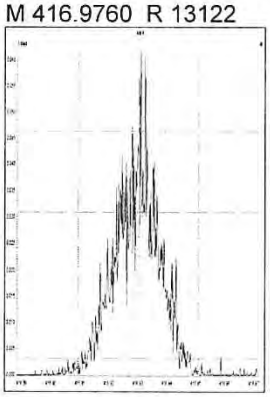
M 454.9728 R 11993



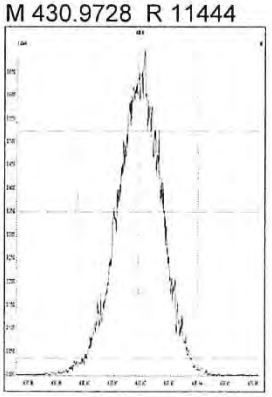
M 404.9760 R 12135



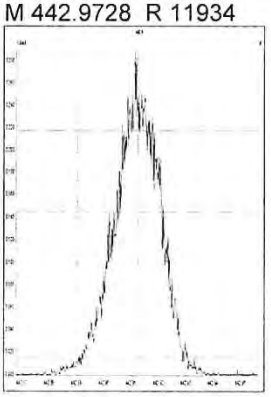
M 416.9760 R 13122



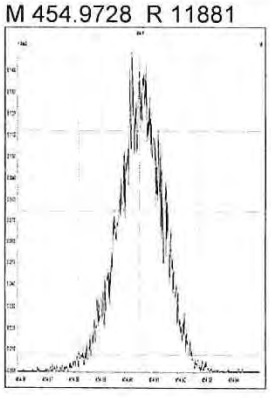
M 430.9728 R 11444



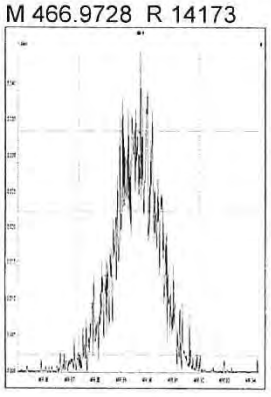
M 442.9728 R 11934



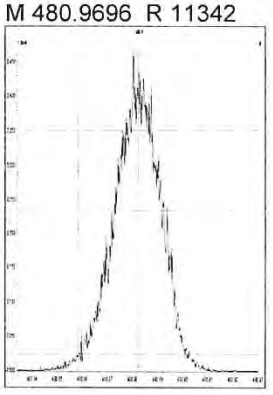
M 454.9728 R 11881



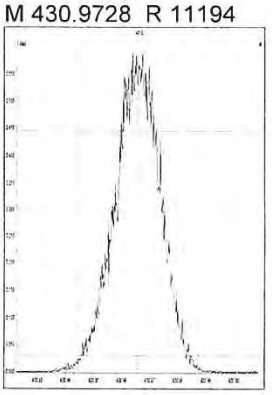
M 466.9728 R 14173



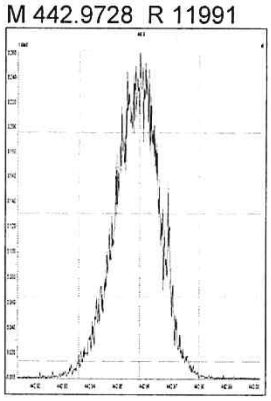
M 480.9696 R 11342



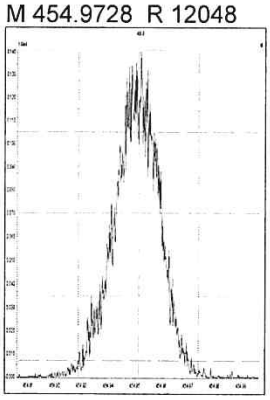
M 430.9728 R 11194



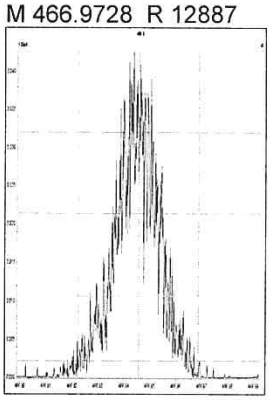
M 442.9728 R 11991



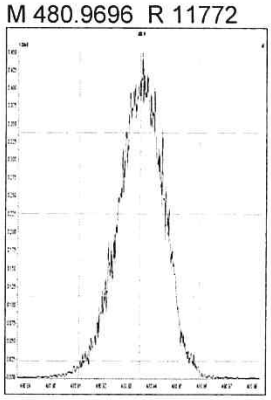
M 454.9728 R 12048



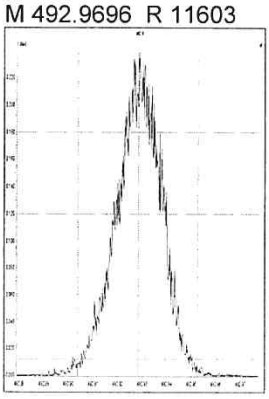
M 466.9728 R 12887



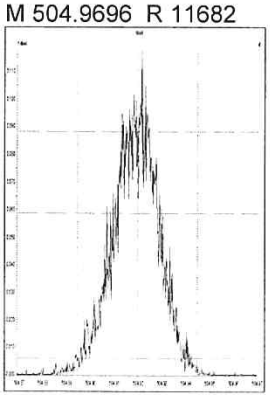
M 480.9696 R 11772



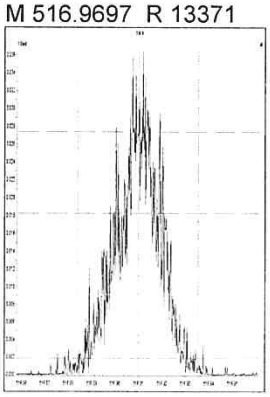
M 492.9696 R 11603



M 504.9696 R 11682



M 516.9697 R 13371



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519625 Analysis Date: 26-DEC-18 Time: 12:27:59

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.73	0.65-0.89	9.0	7.8 - 12.9	-10.5
1,2,3,7,8-PeCDD	M+2/M+4	1.56	1.32-1.78	48	39 - 65	-3.5
1,2,3,4,7,8-HxCDD	M+2/M+4	1.37	1.05-1.43	48	39 - 64	-4.8
1,2,3,6,7,8-HxCDD	M+2/M+4	1.18	1.05-1.43	48	39 - 64	-3.0
1,2,3,7,8,9-HxCDD	M+2/M+4	1.26	1.05-1.43	50	41 - 61	-0.1
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.07	0.88-1.20	49	43 - 58	-2.0
OCDD	M+2/M+4	0.89	0.76-1.02	97	79 - 126	-2.6
2,3,7,8-TCDF	M/M+2	0.76	0.65-0.89	8.9	8.4 - 12.0	-10.7
1,2,3,7,8-PeCDF	M+2/M+4	1.50	1.32-1.78	48	41 - 60	-4.0
2,3,4,7,8-PeCDF	M+2/M+4	1.49	1.32-1.78	47	41 - 61	-6.0
1,2,3,4,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	49	45 - 56	-1.9
1,2,3,6,7,8-HxCDF	M+2/M+4	1.18	1.05-1.43	49	44 - 57	-1.5
1,2,3,7,8,9-HxCDF	M+2/M+4	1.22	1.05-1.43	49	45 - 56	-1.6
2,3,4,6,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	49	44 - 57	-1.9
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.03	0.88-1.20	48	45 - 55	-3.2
1,2,3,4,7,8,9-HpCDF	M+2/M+4	0.99	0.88-1.20	49	43 - 58	-3.0
OCDF	M+2/M+4	0.89	0.76-1.02	91	63 - 159	-9.3

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519625 Analysis Date: 26-DEC-18 Time: 12:27:59

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	102	82 - 121	2.1
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.58	1.32-1.78	106	62 - 160	6.4
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.39	1.05-1.43	89	85 - 117	-11.2
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.18	1.05-1.43	102	85 - 118	2.4
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	98	72 - 138	-1.9
13C-OCDD	M+2/M+4	0.89	0.76-1.02	226	96 - 415	13.2
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	87	71 - 140	-13.3
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	95	76 - 130	-5.0
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	97	77 - 130	-3.4
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	79	76 - 131	-20.9
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	86	70 - 143	-14.4
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.51	0.43-0.59	84	74 - 135	-16.1
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	87	73 - 137	-12.8
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.43	0.37-0.51	90	78 - 129	-10.4
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.43	0.37-0.51	91	77 - 129	-9.2
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.6	7.8 - 12.7	-3.9

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #7 Filename P519625 Samp: 1 Inj: 1 Acquired: 26-DEC-18 12:27:59
Processed: 27-DEC-18 08:08:31 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:17	3.474e+03	4.552e+03	0.76	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	31:06	2.966e+04	1.977e+04	1.50	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	32:06	2.761e+04	1.848e+04	1.49	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:00	2.271e+04	1.886e+04	1.20	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:07	2.620e+04	2.214e+04	1.18	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:39	2.375e+04	1.975e+04	1.20	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	36:27	2.054e+04	1.689e+04	1.22	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	37:50	2.097e+04	2.037e+04	1.03	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:16	1.649e+04	1.666e+04	0.99	yes	no	1.258
10	Unk	OCDF	41:55	2.786e+04	3.139e+04	0.89	yes	no	1.359
11	Unk	2,3,7,8-TCDD	27:14	2.808e+03	3.860e+03	0.73	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	32:25	2.120e+04	1.361e+04	1.56	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	35:49	1.708e+04	1.250e+04	1.37	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	35:55	1.932e+04	1.634e+04	1.18	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:09	1.933e+04	1.539e+04	1.26	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:50	1.590e+04	1.491e+04	1.07	yes	no	1.025
17	Unk	OCDD	41:45	2.463e+04	2.776e+04	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	26:16	4.197e+04	5.343e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	31:05	6.208e+04	3.964e+04	1.57	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	32:05	6.303e+04	3.929e+04	1.60	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	34:59	2.430e+04	4.693e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:06	2.992e+04	5.745e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:39	2.722e+04	5.270e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	36:27	2.245e+04	4.403e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:50	1.886e+04	4.433e+04	0.43	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:16	1.646e+04	3.786e+04	0.43	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	27:13	3.008e+04	3.856e+04	0.78	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:24	4.619e+04	2.928e+04	1.58	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:49	3.485e+04	2.501e+04	1.39	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:54	3.832e+04	3.253e+04	1.18	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:48	3.151e+04	2.986e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	41:44	4.532e+04	5.086e+04	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	26:33	3.218e+04	4.057e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:09	4.093e+04	3.201e+04	1.28	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:14	7.092e+03				no	1.014

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www.alsglobal.com

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #7 Filename P519625 Samp: 1 Inj: 1 Acquired: 26-DEC-18 12:27:59
Processed: 27-DEC-18 08:08:31 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.07e+05	5.08e+02	1.0e+03	7.05e+05	6.92e+02	1.0e+03
2	1,2,3,7,8-PeCDF	4.56e+06	3.92e+02	1.2e+04	3.03e+06	1.04e+03	2.9e+03
3	2,3,4,7,8-PeCDF	4.45e+06	3.92e+02	1.1e+04	2.93e+06	1.04e+03	2.8e+03
4	1,2,3,4,7,8-HxCDF	3.95e+06	8.40e+02	4.7e+03	3.28e+06	4.88e+02	6.7e+03
5	1,2,3,6,7,8-HxCDF	4.18e+06	8.40e+02	5.0e+03	3.51e+06	4.88e+02	7.2e+03
6	2,3,4,6,7,8-HxCDF	4.02e+06	8.40e+02	4.8e+03	3.30e+06	4.88e+02	6.8e+03
7	1,2,3,7,8,9-HxCDF	2.97e+06	8.40e+02	3.5e+03	2.46e+06	4.88e+02	5.0e+03
8	1,2,3,4,6,7,8-HpCDF	2.84e+06	5.28e+02	5.4e+03	2.79e+06	3.60e+02	7.7e+03
9	1,2,3,4,7,8,9-HpCDF	1.71e+06	5.28e+02	3.2e+03	1.80e+06	3.60e+02	5.0e+03
10	OCDF	1.84e+06	3.88e+02	4.8e+03	2.10e+06	6.32e+02	3.3e+03
11	2,3,7,8-TCDD	4.44e+05	2.16e+03	2.1e+02	6.04e+05	6.32e+02	9.6e+02
12	1,2,3,7,8-PeCDD	3.30e+06	9.92e+02	3.3e+03	2.10e+06	3.84e+02	5.5e+03
13	1,2,3,4,7,8-HxCDD	2.96e+06	4.00e+02	7.4e+03	2.34e+06	5.44e+02	4.3e+03
14	1,2,3,6,7,8-HxCDD	2.95e+06	4.00e+02	7.4e+03	2.36e+06	5.44e+02	4.3e+03
15	1,2,3,7,8,9-HxCDD	2.91e+06	4.00e+02	7.3e+03	2.31e+06	5.44e+02	4.2e+03
16	1,2,3,4,6,7,8-HpCDD	1.82e+06	5.64e+02	3.2e+03	1.74e+06	5.00e+02	3.5e+03
17	OCDD	1.66e+06	3.60e+02	4.6e+03	1.86e+06	3.68e+02	5.1e+03
18	13C-2,3,7,8-TCDF	5.89e+06	3.92e+03	1.5e+03	7.54e+06	1.85e+03	4.1e+03
19	13C-1,2,3,7,8-PeCDF	9.61e+06	2.32e+02	4.1e+04	6.09e+06	4.12e+02	1.5e+04
20	13C-2,3,4,7,8-PeCDF	9.90e+06	2.32e+02	4.3e+04	6.17e+06	4.12e+02	1.5e+04
21	13C-1,2,3,4,7,8-HxCDF	4.20e+06	5.80e+02	7.2e+03	8.16e+06	4.16e+02	2.0e+04
22	13C-1,2,3,6,7,8-HxCDF	4.82e+06	5.80e+02	8.3e+03	9.22e+06	4.16e+02	2.2e+04
23	13C-2,3,4,6,7,8-HxCDF	4.50e+06	5.80e+02	7.8e+03	8.64e+06	4.16e+02	2.1e+04
24	13C-1,2,3,7,8,9-HxCDF	3.26e+06	5.80e+02	5.6e+03	6.31e+06	4.16e+02	1.5e+04
25	13C-1,2,3,4,6,7,8-HpCDF	2.53e+06	7.40e+02	3.4e+03	5.92e+06	7.28e+03	8.1e+02
26	13C-1,2,3,4,7,8,9-HpCDF	1.72e+06	7.40e+02	2.3e+03	3.94e+06	7.28e+03	5.4e+02
27	13C-2,3,7,8-TCDD	4.66e+06	4.24e+03	1.1e+03	5.95e+06	1.36e+03	4.4e+03
28	13C-1,2,3,7,8-PeCDD	7.14e+06	5.00e+02	1.4e+04	4.60e+06	8.60e+02	5.4e+03
29	13C-1,2,3,4,7,8-HxCDD	5.97e+06	3.56e+02	1.7e+04	4.69e+06	5.44e+02	8.6e+03
30	13C-1,2,3,6,7,8-HxCDD	5.85e+06	3.56e+02	1.6e+04	4.65e+06	5.44e+02	8.5e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.66e+06	6.40e+02	5.7e+03	3.49e+06	1.88e+02	1.9e+04
32	13C-OCDD	3.07e+06	3.80e+02	8.1e+03	3.37e+06	3.72e+02	9.1e+03
33	13C-1,2,3,4-TCDD	4.89e+06	4.24e+03	1.2e+03	6.19e+06	1.36e+03	4.5e+03
34	13C-1,2,3,7,8,9-HxCDD	6.06e+06	3.56e+02	1.7e+04	4.80e+06	5.44e+02	8.8e+03
35	37Cl-2,3,7,8-TCDD	1.06e+06	8.88e+02	1.2e+03			

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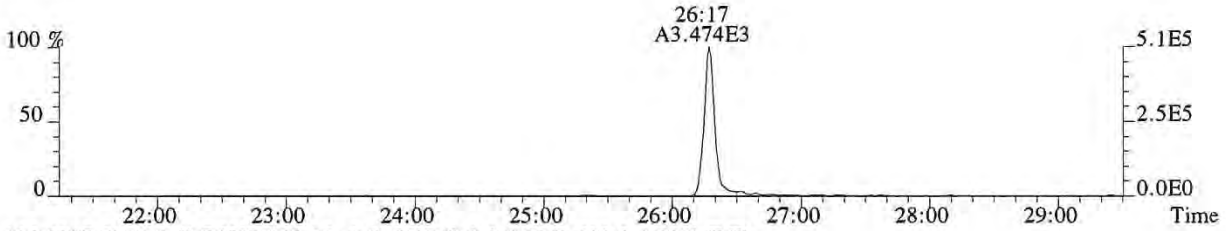
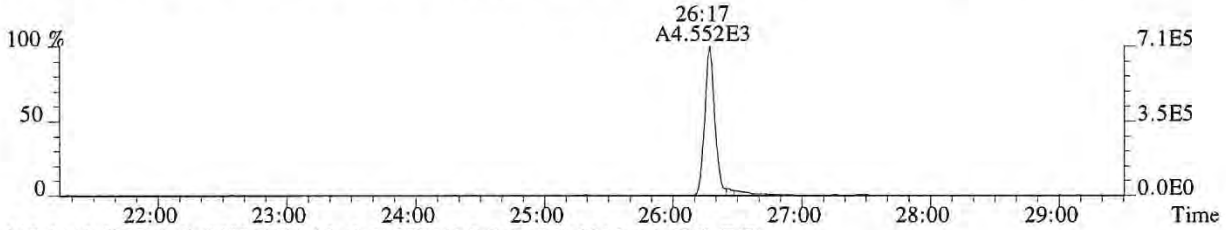
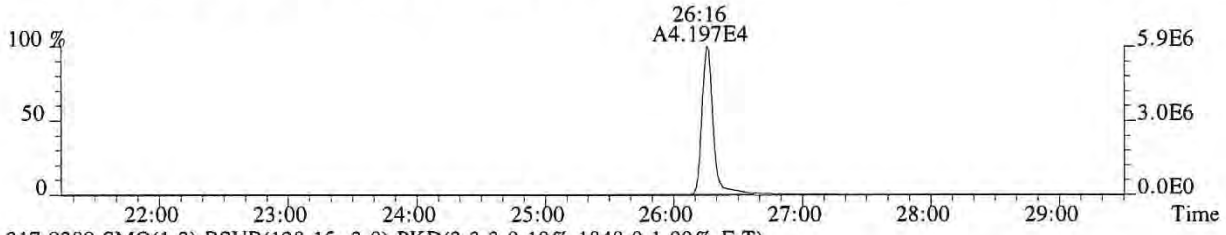
File:P519625 #1-587 Acq:26-DEC-2018 12:27:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,508.0,1.00%,F,T)



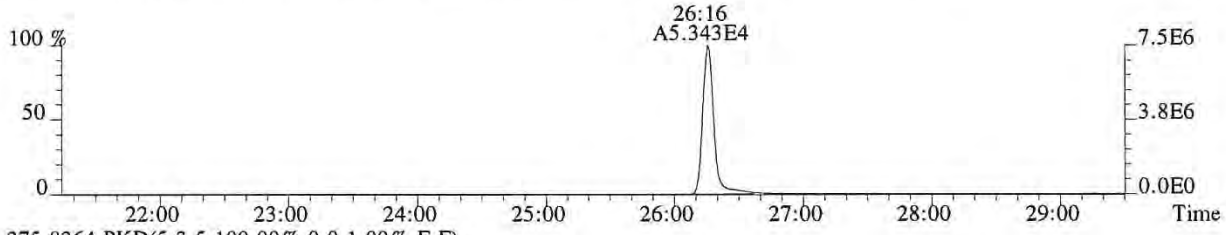
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,692.0,1.00%,F,T)



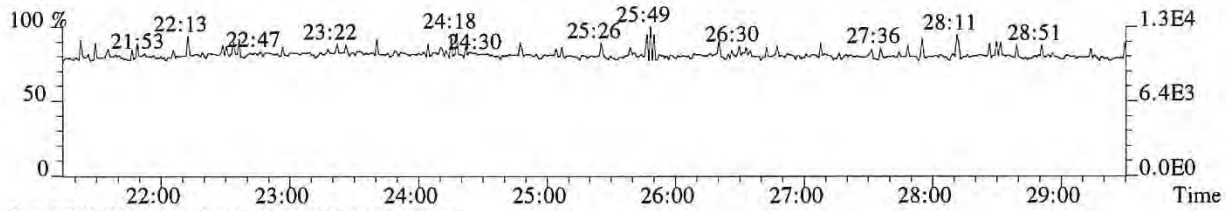
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3916.0,1.00%,F,T)



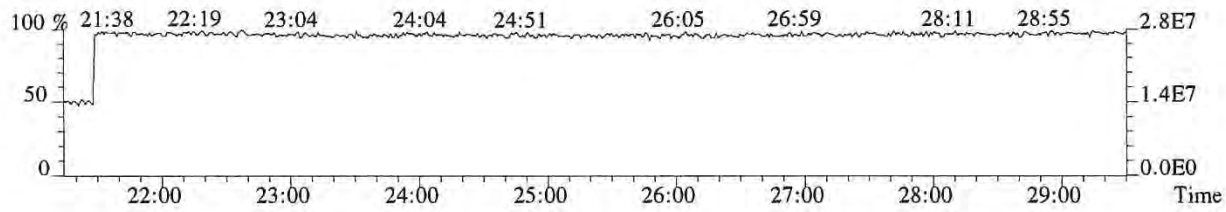
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1848.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

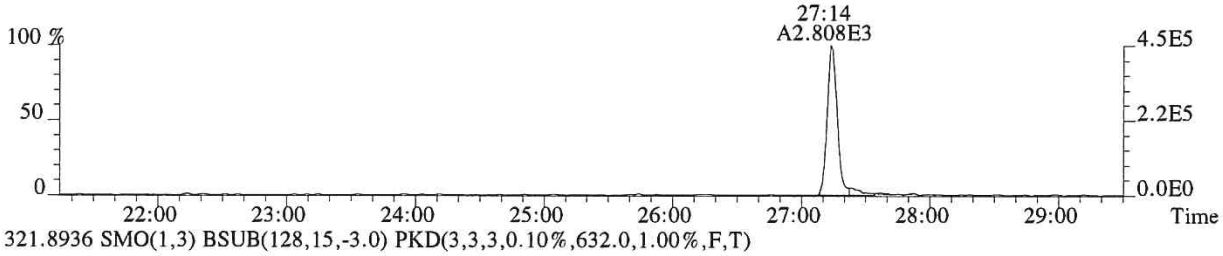


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

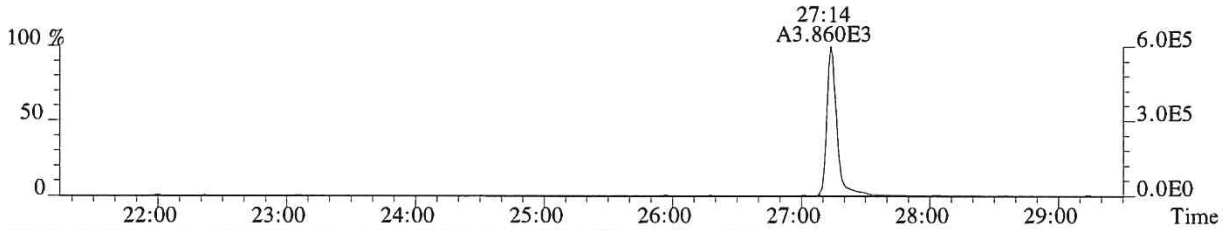


015900

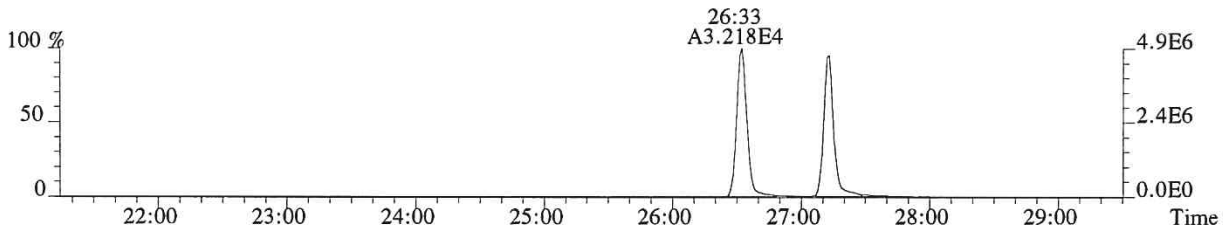
File:P519625 #1-587 Acq:26-DEC-2018 12:27:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2160.0,1.00%,F,T)



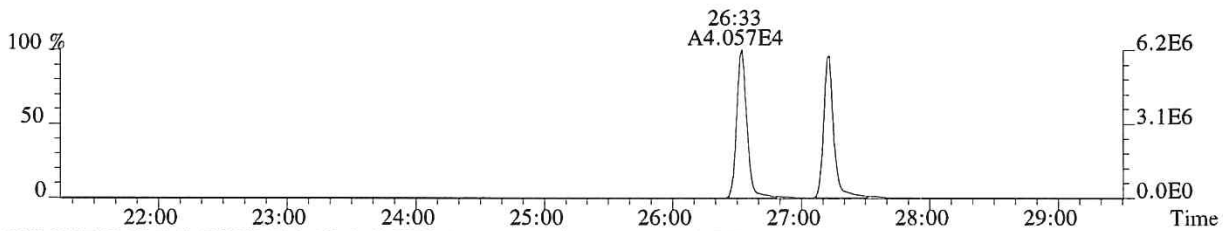
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,632.0,1.00%,F,T)



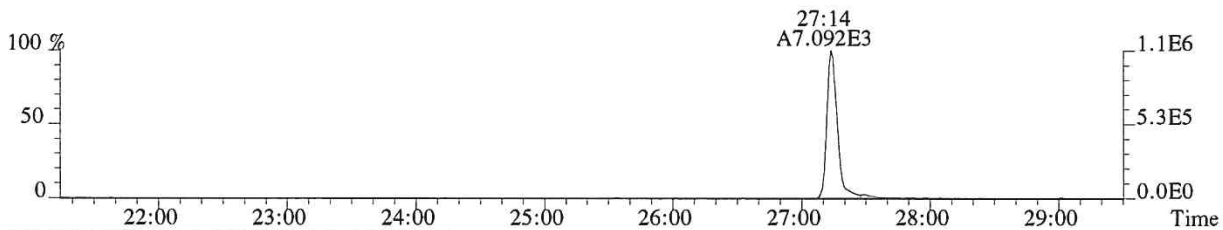
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4240.0,1.00%,F,T)



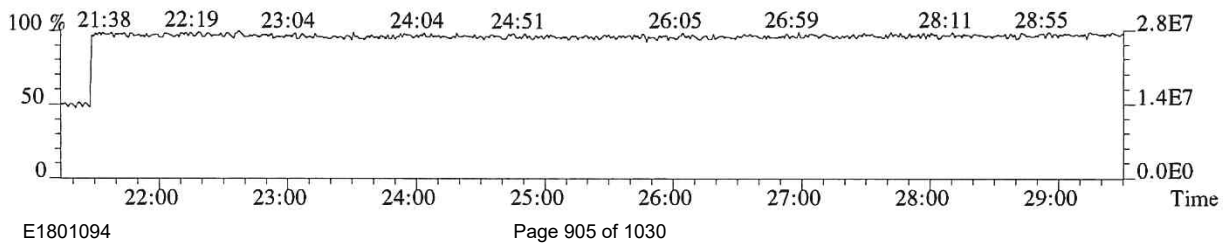
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1364.0,1.00%,F,T)



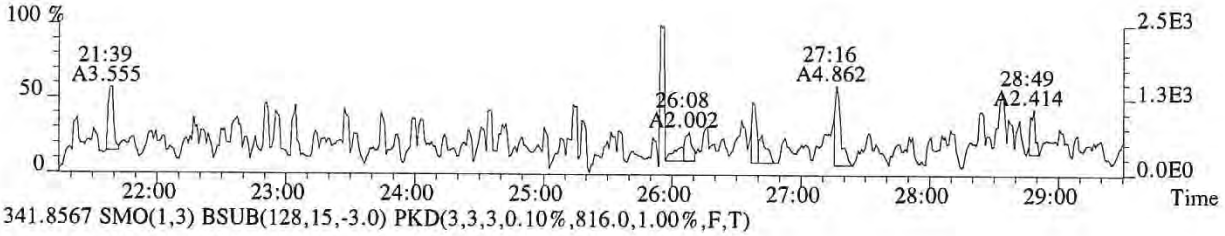
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,888.0,1.00%,F,T)



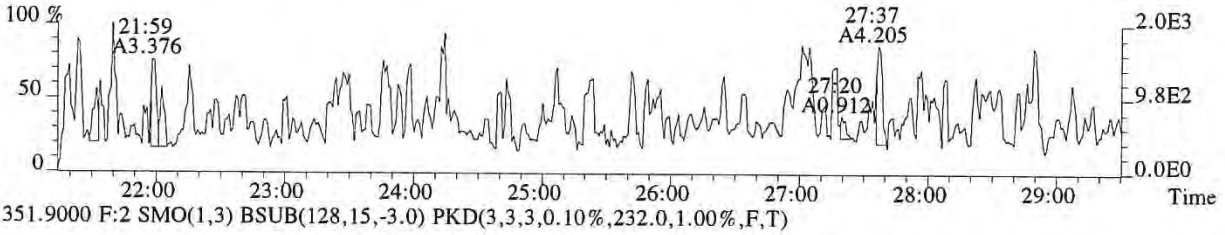
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



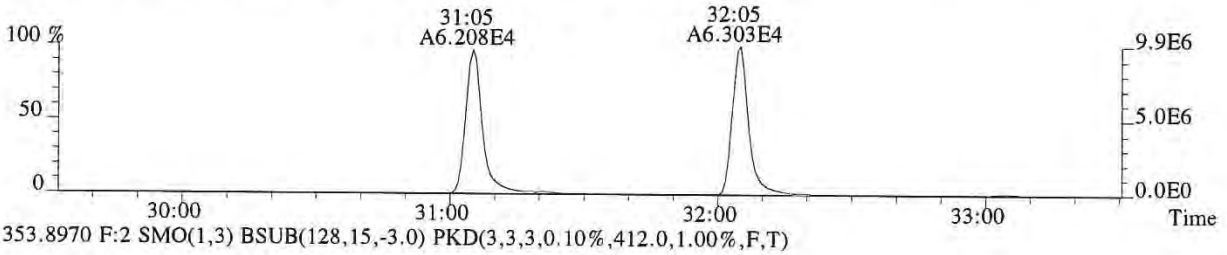
File:P519625 #1-587 Acq:26-DEC-2018 12:27:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,612.0,1.00%,F,T)



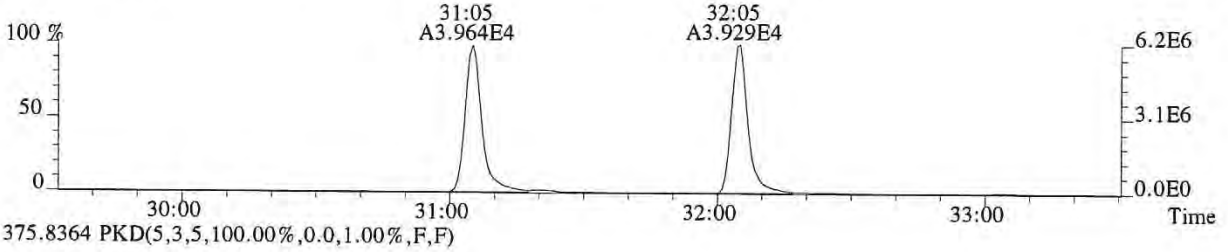
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,816.0,1.00%,F,T)



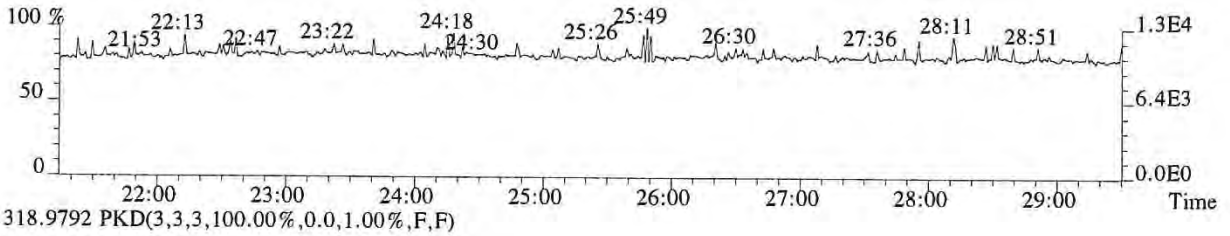
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,232.0,1.00%,F,T)



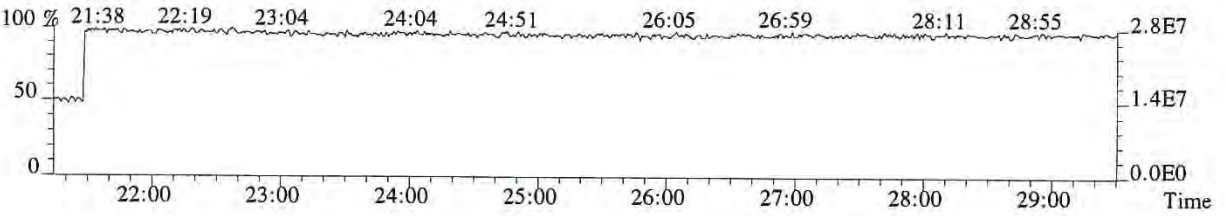
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,412.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

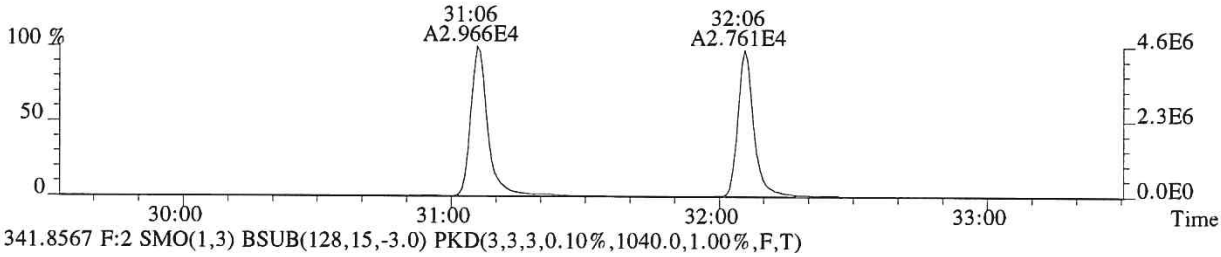


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

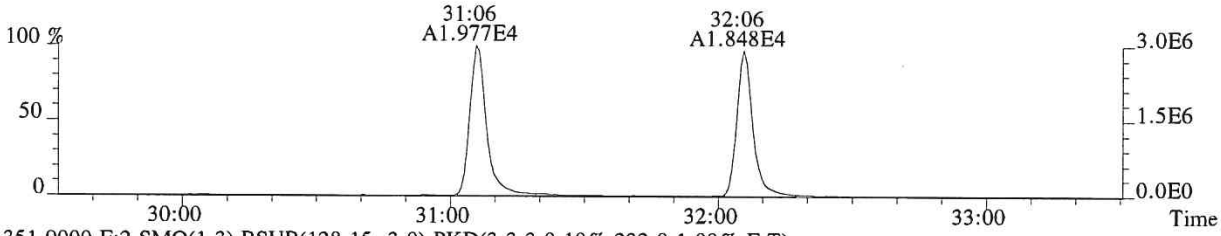


015902

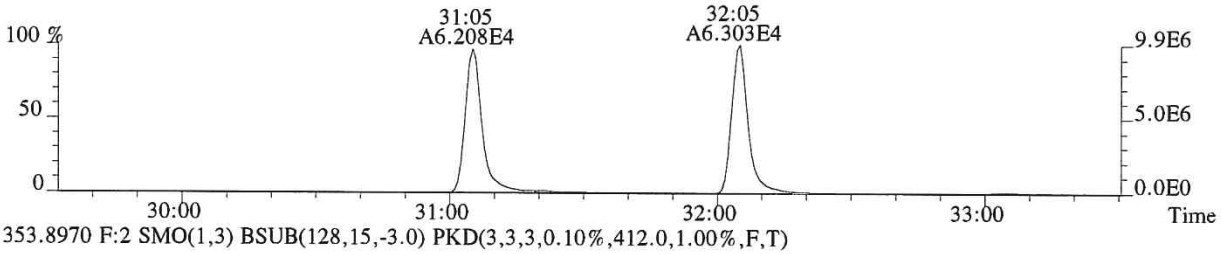
File:P519625 #1-358 Acq:26-DEC-2018 12:27:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,392.0,1.00%,F,T)



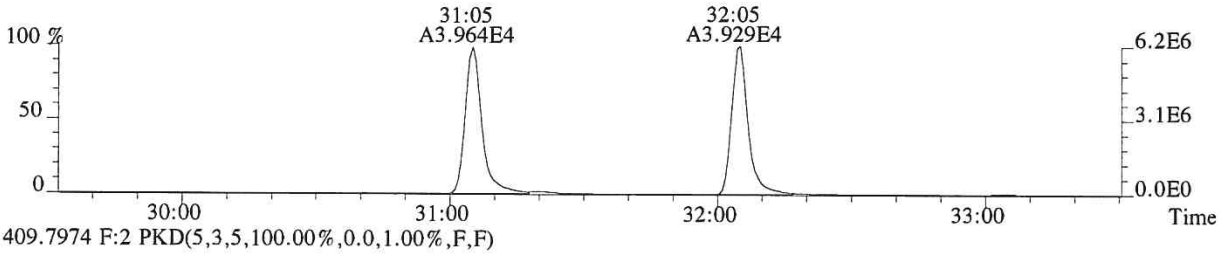
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1040.0,1.00%,F,T)



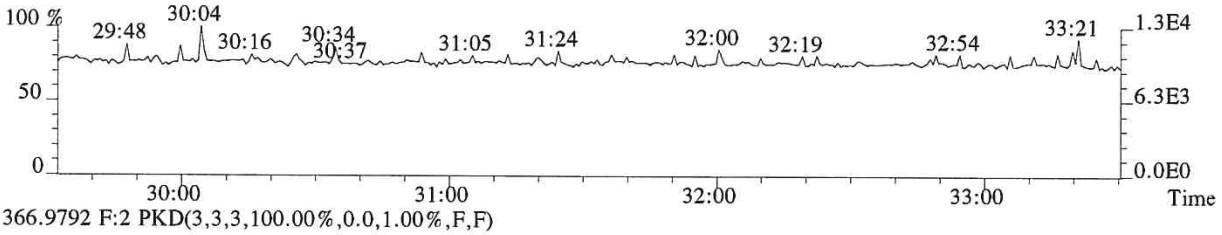
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,232.0,1.00%,F,T)



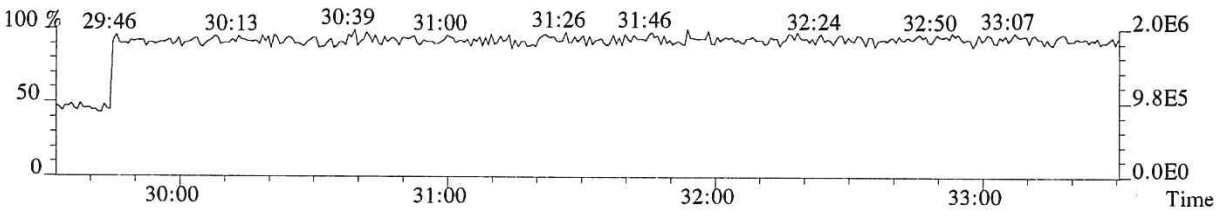
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,412.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

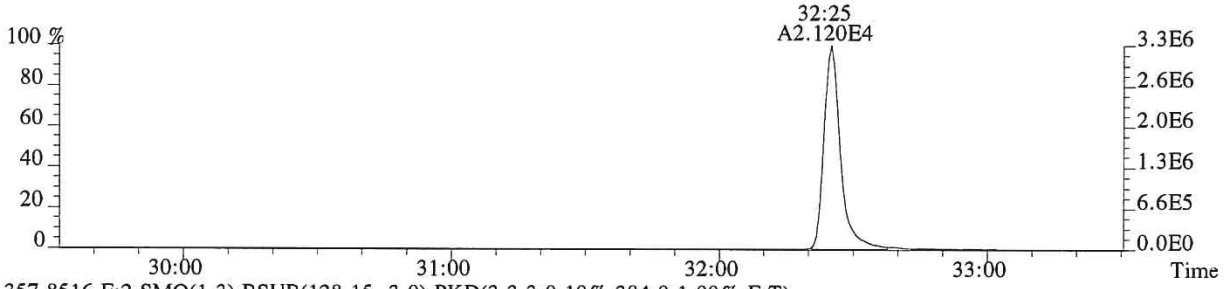


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

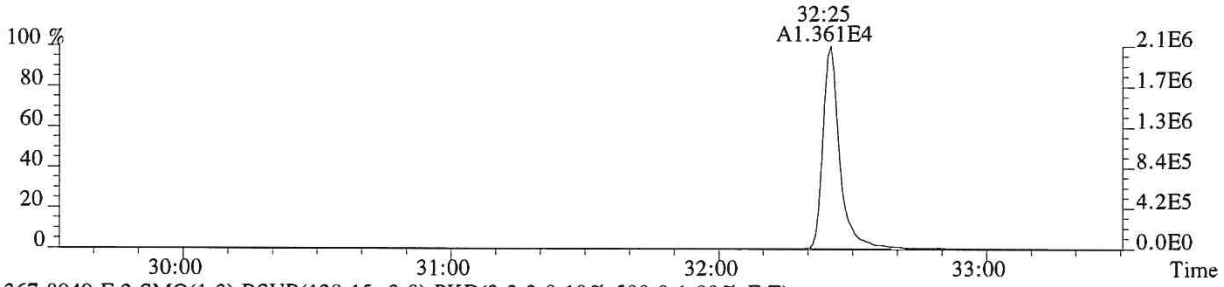


015903

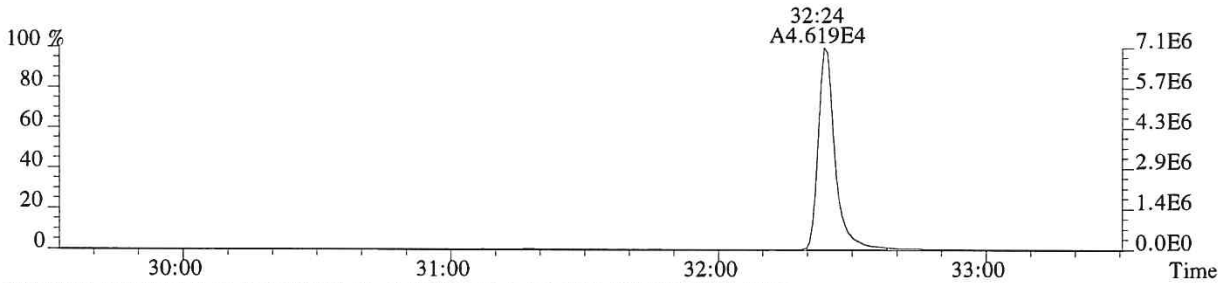
File:P519625 #1-358 Acq:26-DEC-2018 12:27:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,992.0,1.00%,F,T)



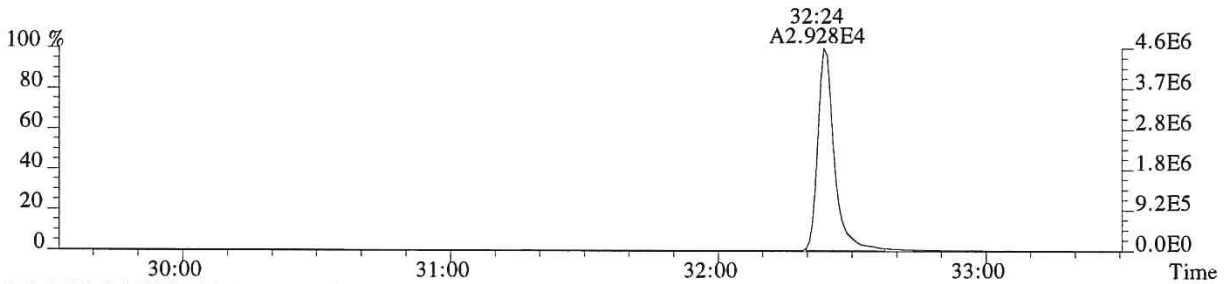
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,384.0,1.00%,F,T)



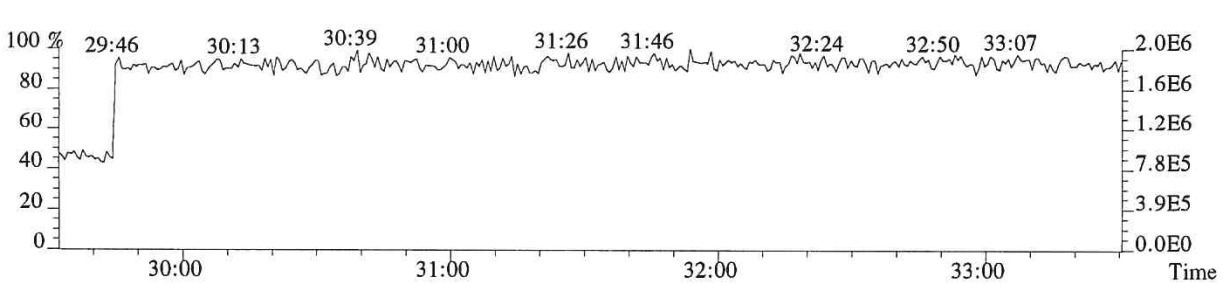
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,500.0,1.00%,F,T)



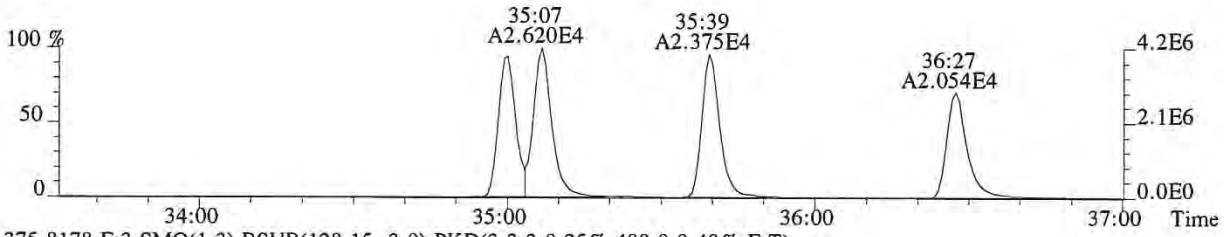
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,860.0,1.00%,F,T)



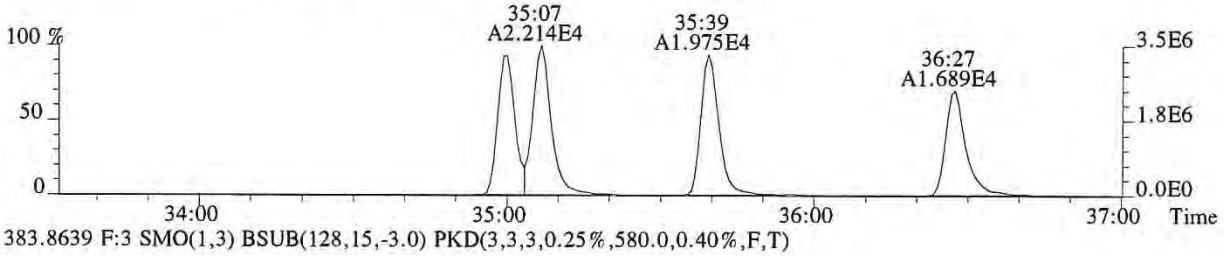
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



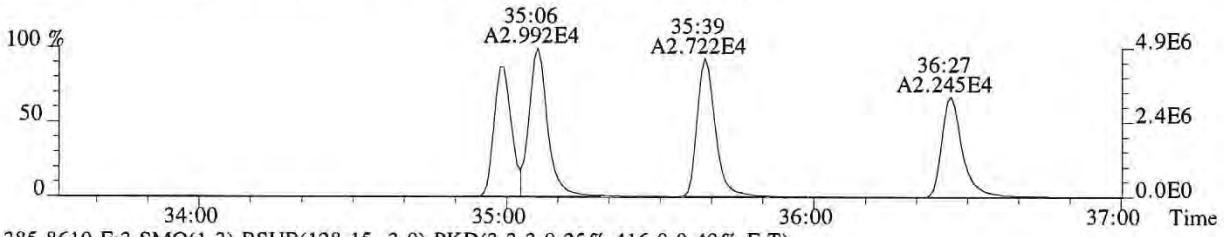
File:P519625 #1-312 Acq:26-DEC-2018 12:27:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,840.0,0.40%,F,T)



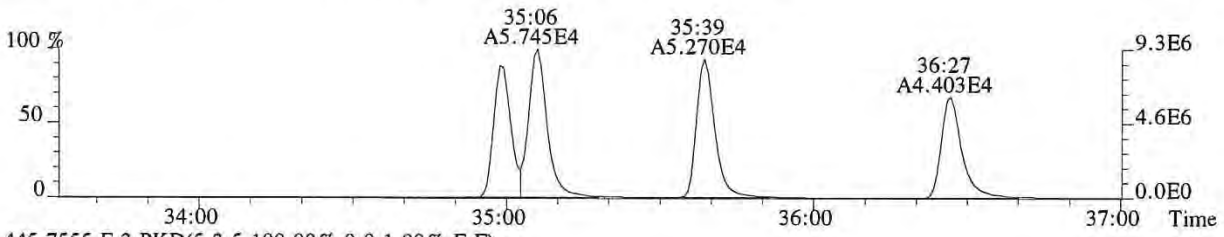
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,488.0,0.40%,F,T)



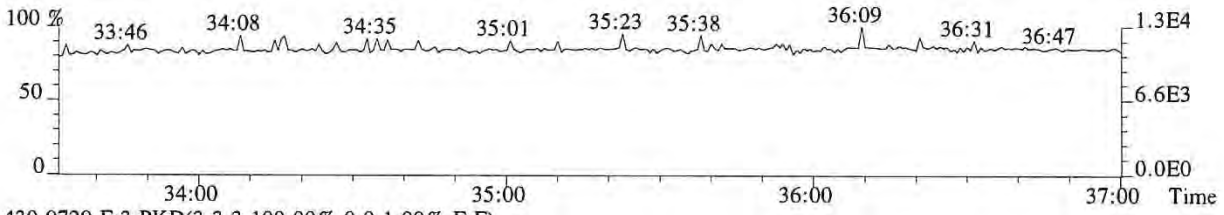
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,580.0,0.40%,F,T)



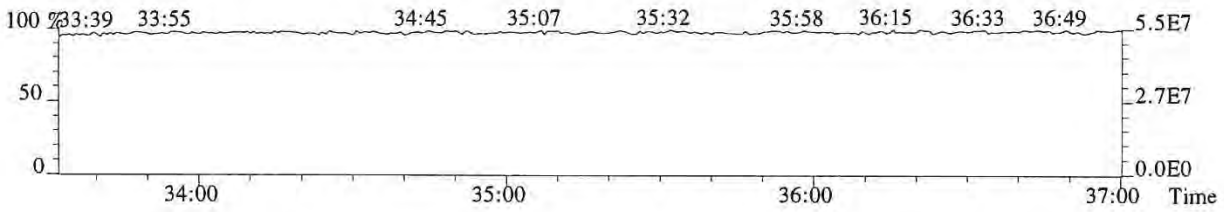
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,416.0,0.40%,F,T)



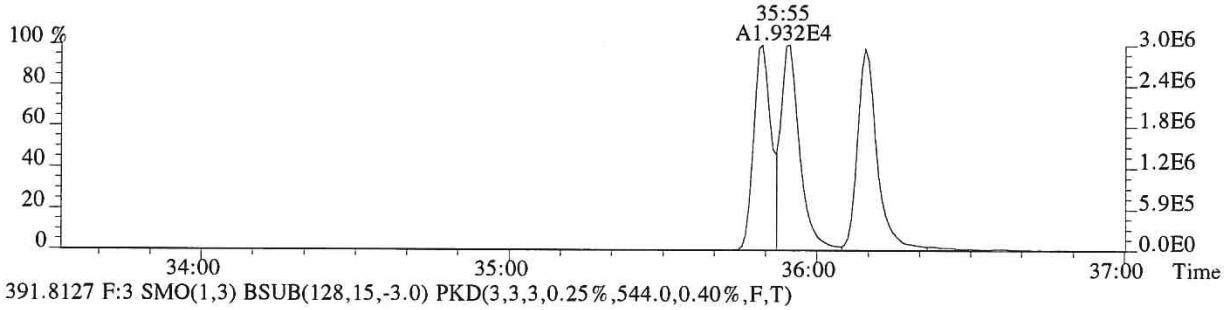
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



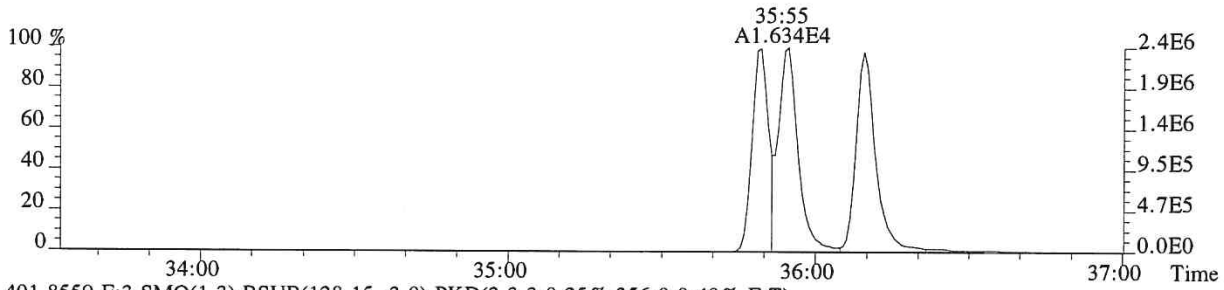
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



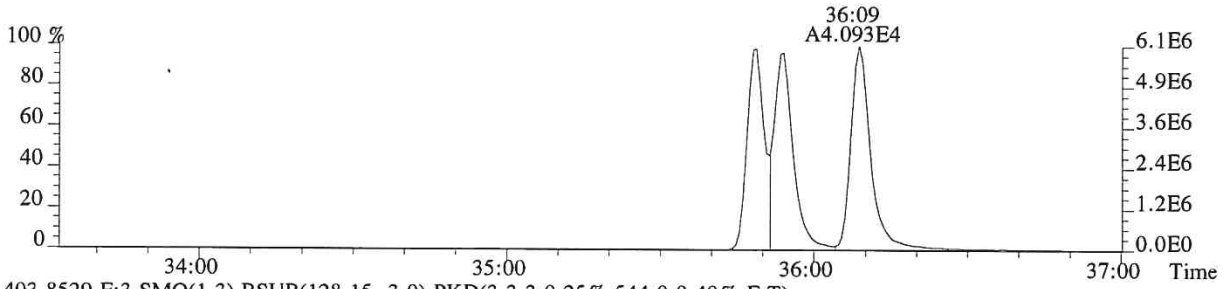
File:P519625 #1-312 Acq:26-DEC-2018 12:27:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,400.0,0.40%,F,T)



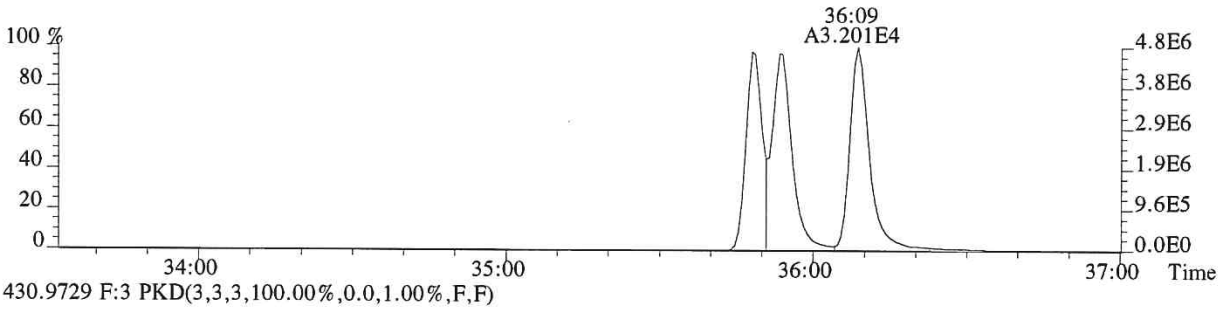
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,544.0,0.40%,F,T)



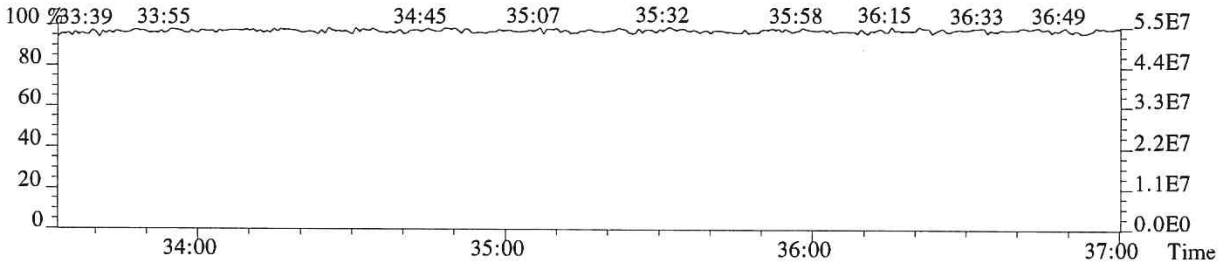
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,356.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,544.0,0.40%,F,T)

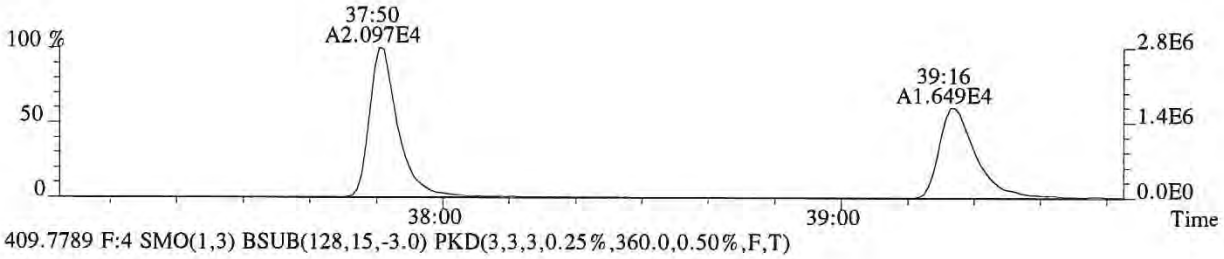


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

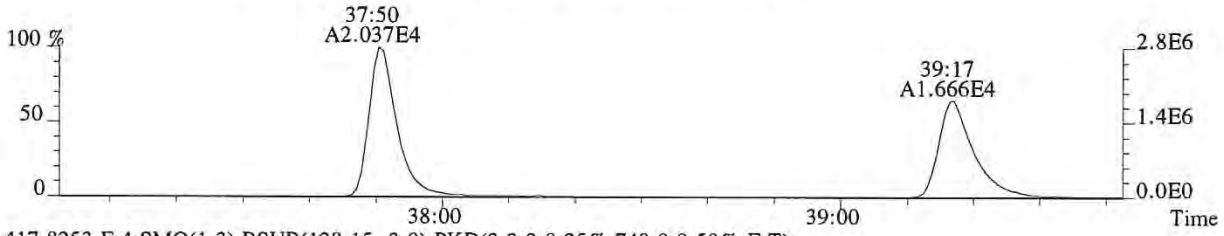


015906

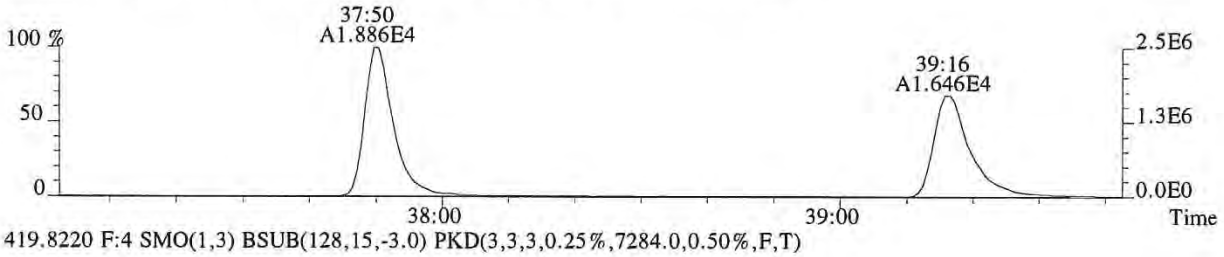
File:P519625 #1-241 Acq:26-DEC-2018 12:27:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,528.0,0.50%,F,T)



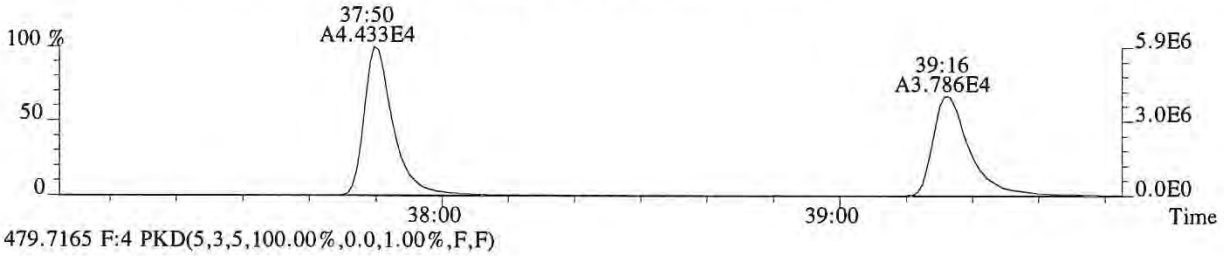
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,360.0,0.50%,F,T)



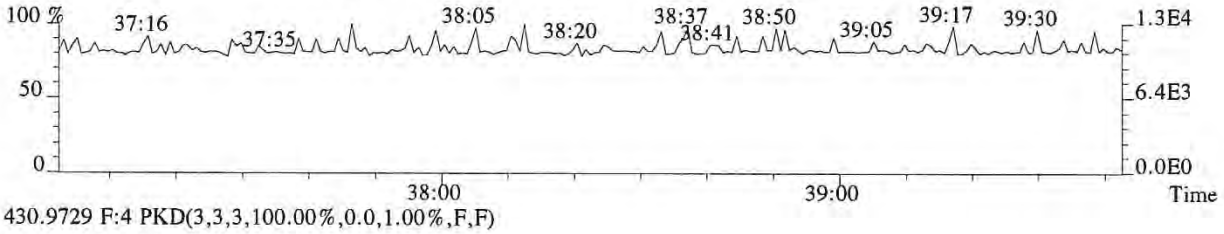
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,740.0,0.50%,F,T)



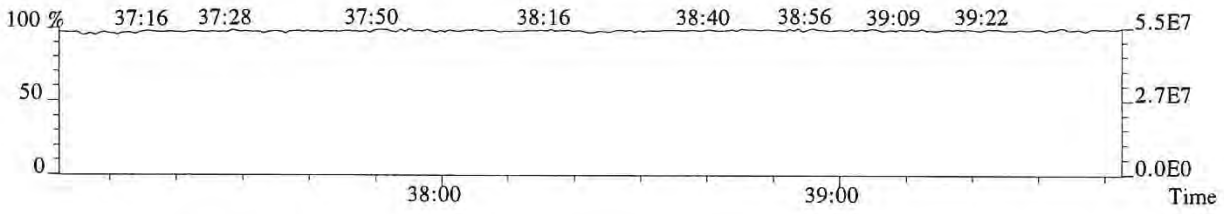
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7284.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

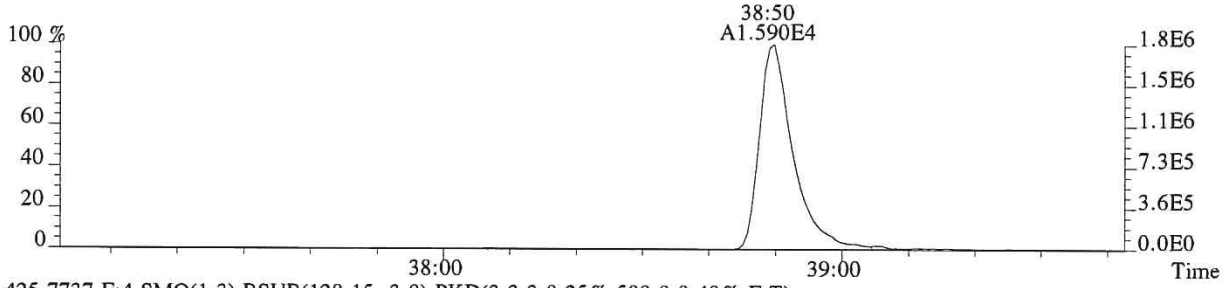


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

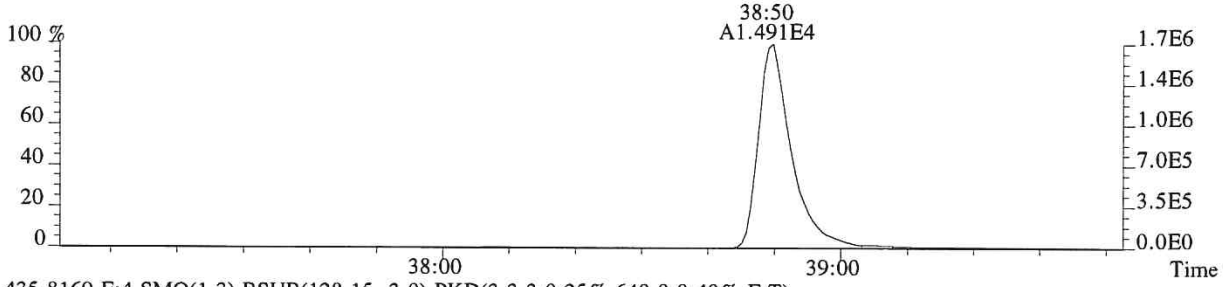


015907

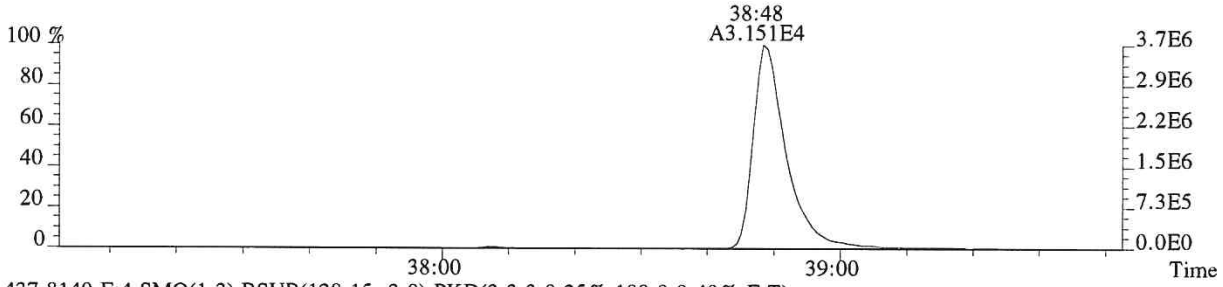
File:P519625 #1-241 Acq:26-DEC-2018 12:27:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,564.0,0.40%,F,T)



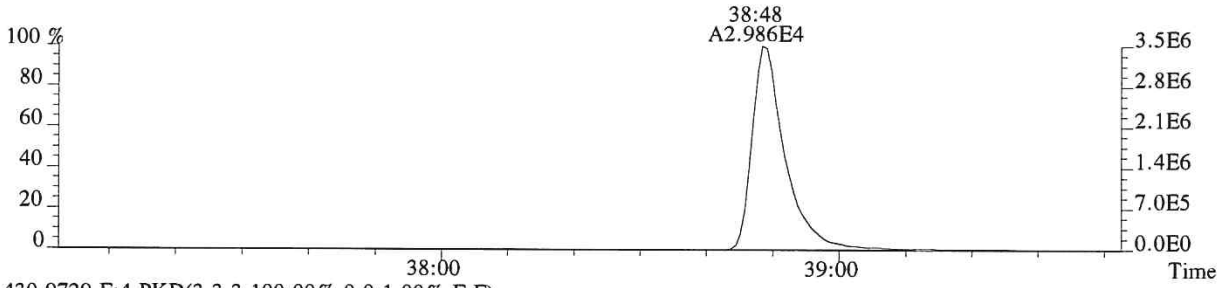
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,500.0,0.40%,F,T)



435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,640.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,188.0,0.40%,F,T)

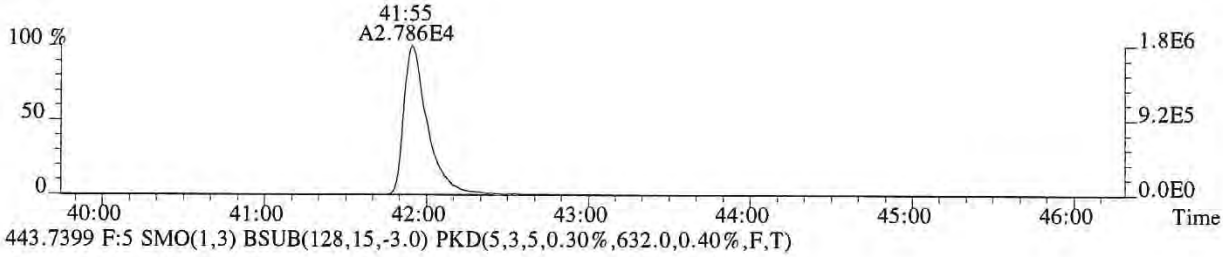


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

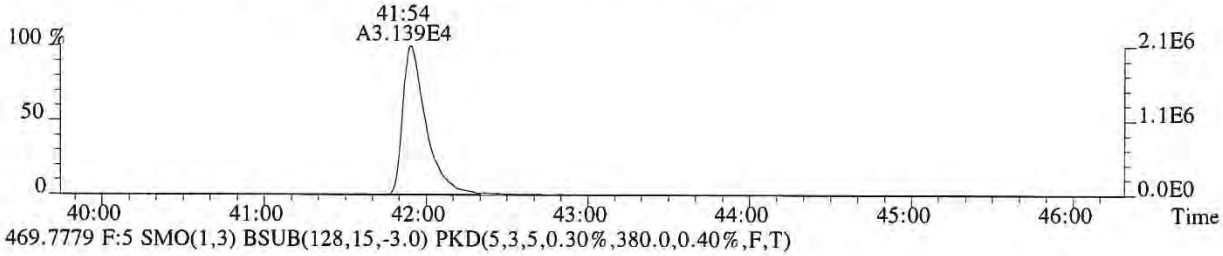


015908

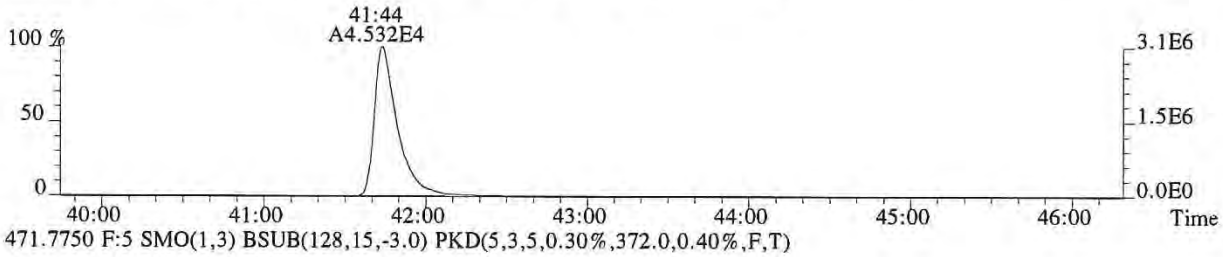
File:P519625 #1-592 Acq:26-DEC-2018 12:27:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,388.0,0.40%,F,T)



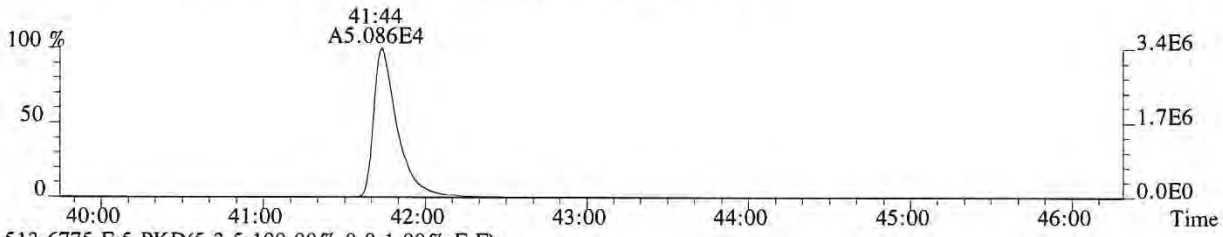
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,632.0,0.40%,F,T)



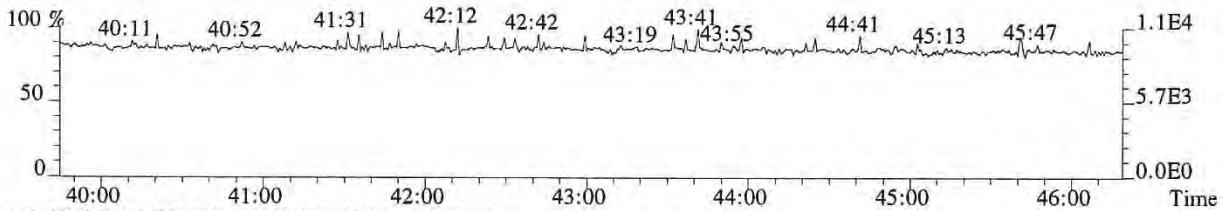
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,380.0,0.40%,F,T)



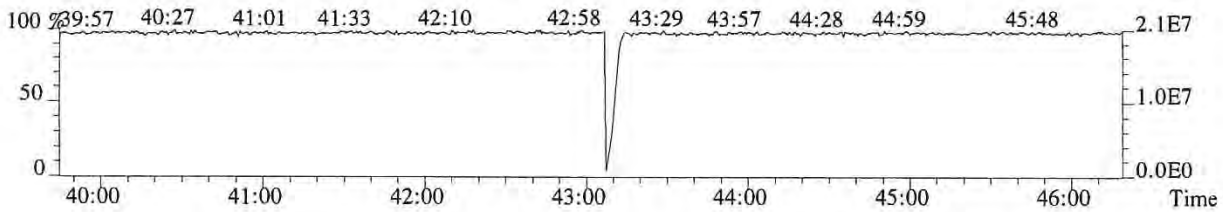
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,372.0,0.40%,F,T)



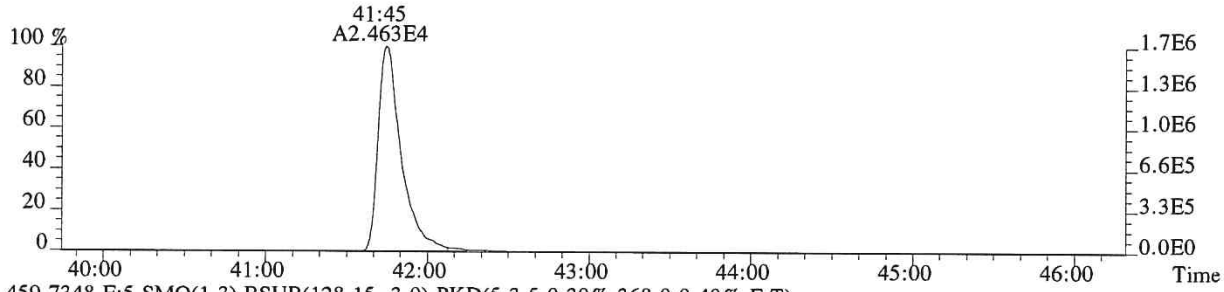
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



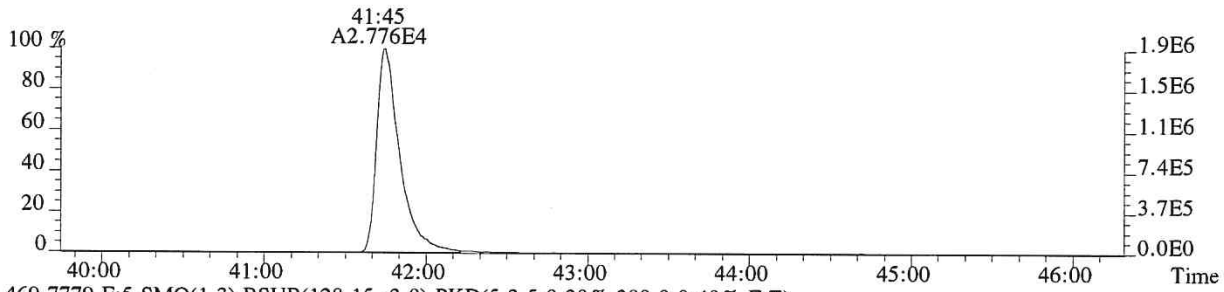
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



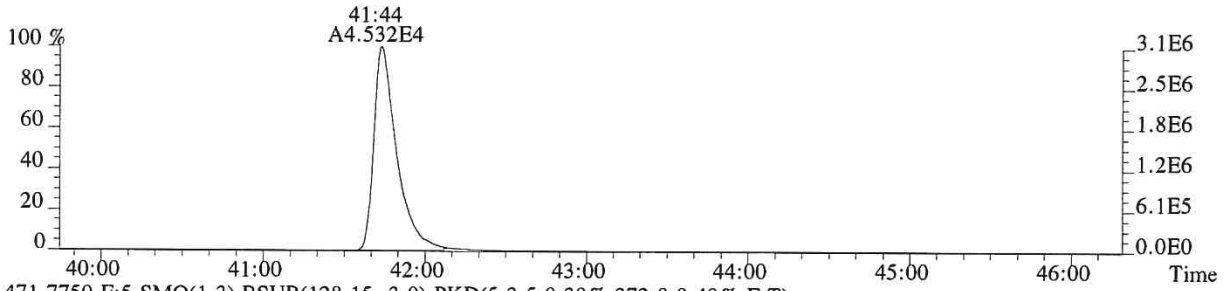
File:P519625 #1-592 Acq:26-DEC-2018 12:27:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,360.0,0.40%,F,T)



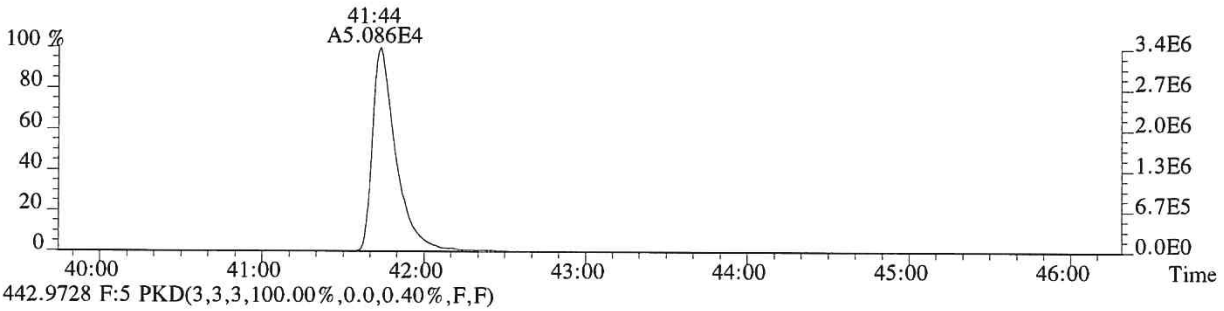
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,368.0,0.40%,F,T)



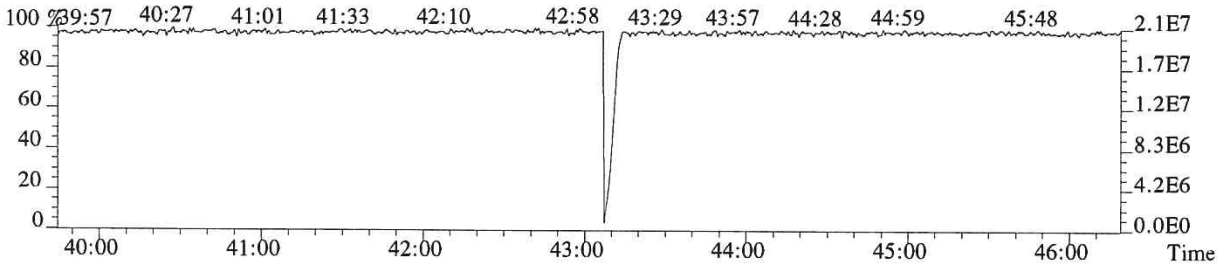
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,380.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,372.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



Initial Calibration

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290	Process Date: 01/25/18
Instrument Name: E-HRMS-07	Calibration File Name: P5-1801241613I
Processor Name: Gisela Cruz	Reviewer Name: Loan Leung
Supervisor: Kristin Neir	

Description	Yes	No	NA	NR	ER#
Analytical Sequence					
Does the analytical sequence summary accurately reflect the instrument run log, including ICV?	√				
Was a Mass Resolution Check performed at the beginning and end of the 12-hour sequence?	√				
Were all calibration standards and the ICV analyzed within the same 12-hour sequence?	√				
Were all calibration standards analyzed only once?	√				
Was the ICV analyzed after the ICAL, before analyzing samples?	√				
	√				
Mass Resolution Check					
Are beginning and ending resolution checks provided and legible?	√				
Were all target masses >10,000 resolving power at the beginning of the sequence?	√				
Were all target masses >10,000 resolving power at the end of the sequence?	√				
For PCB analysis, were masses at the low and high end of each function mass range >8,000?			√		
Where automatic printout of the mass resolution were not >10,000, was the resolution inspected by a trained analyst, including manual calculation of the resolution, if warranted?			√		
Window Define/209					
Is the window defining mix summary present, and accompanied by SICPs/Chromatograms for the WDM?	√				
Was the WDM/Column Performance/209 solution analyzed prior to the analysis of the calibration standards?	√				
Was 2,3,7,8-TCDD peak valley <25% to any other TCDD?	√				
Were all first and last eluters adequately resolved in each function?	√				
If first and last eluters were not resolved, was corrective action performed and documented, followed by a reanalysis of the WDM?			√		
Was the retention time of PCB 209 >55 min?			√		
Were the following congeners uniquely resolved (valley height <40% of the shortest peak)? PCB-34 and PCB-23 PCB-187 and PCB-182			√		
Did PCB 156/157 co-elute within 2 seconds at peak maximum?			√		
Calibration Standards					
Were there at least 5 calibration standards analyzed?	√				
If not all calibration standards were used, were the omitted standards either the lowest or highest calibration standard?			√		

Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290	Process Date: 01/25/18
Instrument Name: E-HRMS-07	Calibration File Name: P5-180124161 3I
Processor Name: Gisela Cruz	Reviewer Name: Loan Luong
Supervisor: Kristin Neir	

Description	Yes	No	NA	NR	ER#
Are all sample response summaries, S/N height summaries, and SICPs included (and legible) for the entire sequence?	√				
Did each calibration point meet method criteria for Ion Abundance Ratio for all analytes and labeled standards?	√				
Did each calibration point meet method criteria for signal-to-noise ratios (S/N)?	√				
Were area counts for the highest calibration standard below levels of saturation?	√				
Were manual integrations technically justified to correct for poor software integration?		√			
Response Factors					
Is the ICAL Response Factor Summary present, including RR/RF values for each native/labeled analyte at each level of calibration?	√				
Were all calibration standards used in determining response factors?	√				
Were relative response factors (RR) for each native analyte calculated at each calibration point?	√				
Did the RSD for RRFs for each native analyte meet method criteria?	√				
Were response factors (RF) for each native analyte not having a corresponding labeled compound calculated at each calibration point?	√				
Were RFs for each labeled compound calculated for each calibration point?	√				
Did the RSD for RF for each labeled compound meet method criteria?	√				
Initial Calibration Verification					
Is the calibration verification present, including form 4A/B reflecting results for the ICV (Conc. or %D)	√				
Did all analytes meet method criteria for the ICV.	√				

Laboratory Review Checklist: Initial Calibration

Method: 1613/8290	Process Date: 01/25/18
Instrument Name: E-HRMS-07	Calibration File Name: P5-180124161 3I
Processor Name: Gisela Cruz	Reviewer Name: Loan Luong

ER#[5]	Description

NA = Not Applicable;
NR = Not Reviewed;
R# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: TX01411 Episode No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm) Instrument ID: E-HRMS-07

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, SPIKES AND DUPLICATES IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
183360	WINDOW DEFINE	P513848	24-JAN-18	11:44:47
76554	CS0.5	P513850	24-JAN-18	13:32:06
76555	CS1	P513851	24-JAN-18	14:23:56
76556	CS2	P513852	24-JAN-18	15:18:44
76557	CS3	P513853	24-JAN-18	16:06:29
76558	CS4	P513854	24-JAN-18	16:55:09
185657	CS5	P513855	24-JAN-18	17:43:48
75080	2ND SOURCE	P513857	24-JAN-18	19:21:06

Sample List Report — **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20180124A.SPL
Last Modified: Thursday, January 25, 2018 07:09:10 Eastern Standard Time
Printed: Thursday, January 25, 2018 07:24:00 Eastern Standard Time

Page Position (1, 1)

Opus 4: P5-180124I613I P513857res

*Opus 4: P5-180124m23I P513857resm23

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	1/24/18	10:39	P513847	CS3	186061	EPA1613_ALS	Dioxin_ALS	Tray1:1	YY	not used
2		11:44	P513848	WINDOWDEFINE	183360	EPA1613_ALS	Dioxin_ALS	Tray1:2		HRMS check 11:10
3		12:35	P513849	CS0.5	76554	EPA1613_ALS	Dioxin_ALS	Tray1:3		not used
4		13:32	P513850	CS0.5	76554	EPA1613_ALS	Dioxin_ALS	Tray1:4		~~not used~~ YY 1/25/18
5		14:23	P513851	CS1	76555	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		15:18	P513852	CS2	76556	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		16:06	P513853	CS3	76557	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		16:55	P513854	CS4	76558	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		17:43	P513855	CS5	185657	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		18:32	P513856	NONANE	NONANE	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		19:21	P513857	2ND SOURCE	75080	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1		
13			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1		
14			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2		
15			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:15		HRMS check 1/25/18 00:51
16		19:21	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:16	---	---
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:17	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:18	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---
22	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:22	---	---
23	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:23	---	---
24	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:24	---	---
25	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:25	---	---

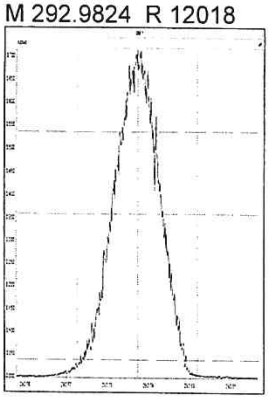
gc 01/25/18

* gc 01/25/18

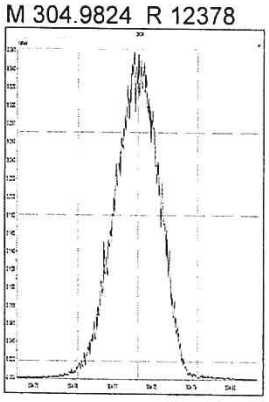
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:40:23 Eastern Standard Time

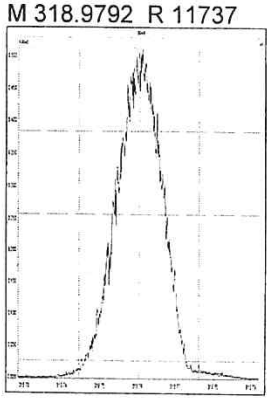
M 292.9824 R 12018



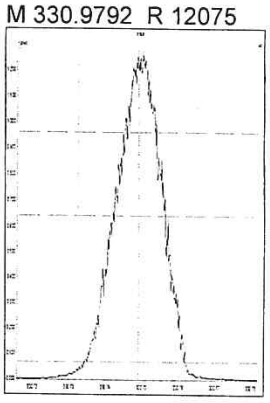
M 304.9824 R 12378



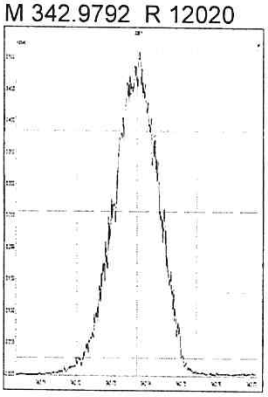
M 318.9792 R 11737



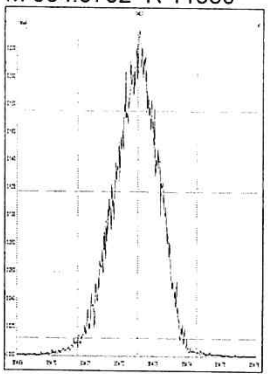
M 330.9792 R 12075



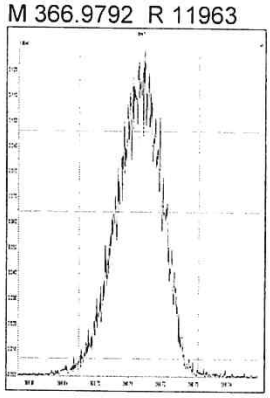
M 342.9792 R 12020



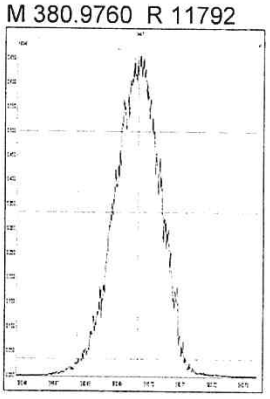
M 354.9792 R 11680



M 366.9792 R 11963



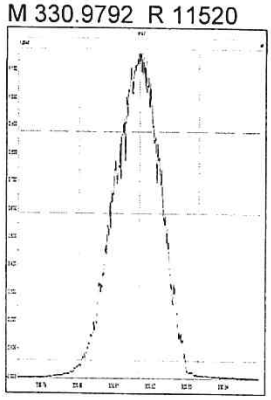
M 380.9760 R 11792



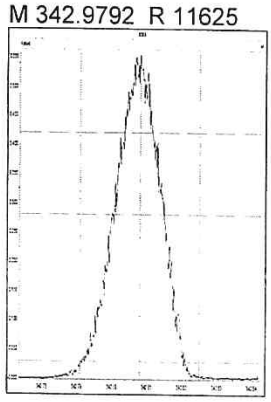
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:41:23 Eastern Standard Time

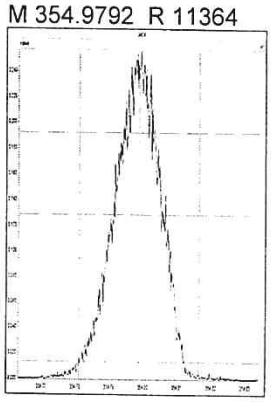
M 330.9792 R 11520



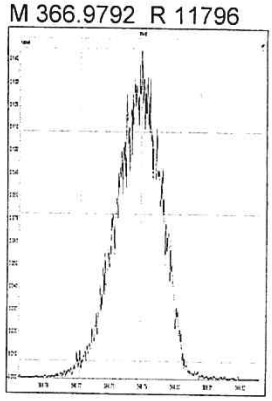
M 342.9792 R 11625



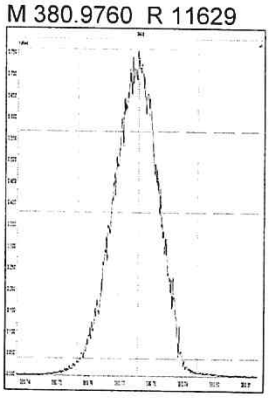
M 354.9792 R 11364



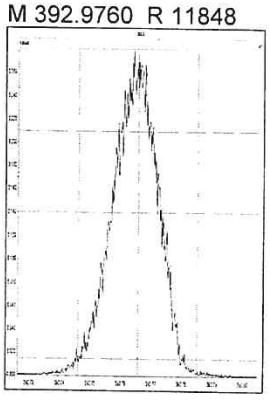
M 366.9792 R 11796



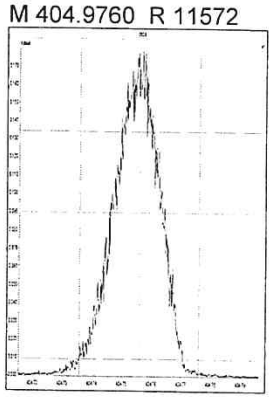
M 380.9760 R 11629



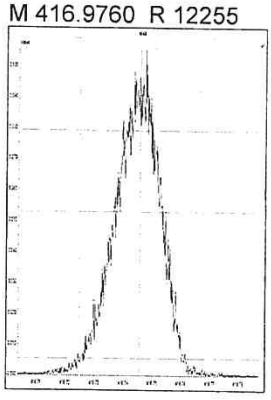
M 392.9760 R 11848



M 404.9760 R 11572



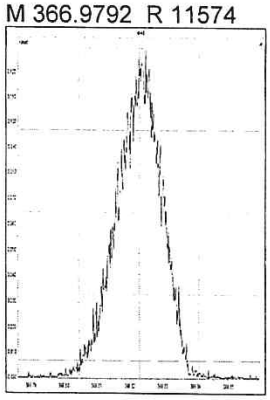
M 416.9760 R 12255



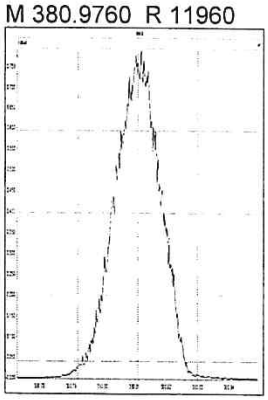
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:42:15 Eastern Standard Time

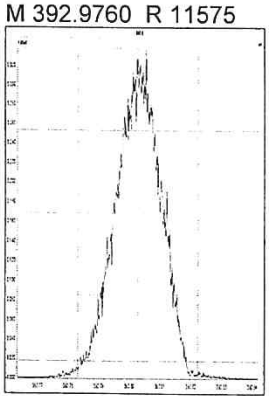
M 366.9792 R 11574



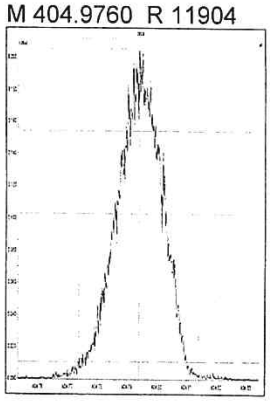
M 380.9760 R 11960



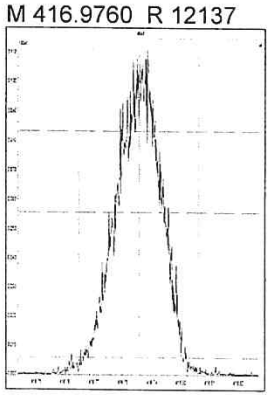
M 392.9760 R 11575



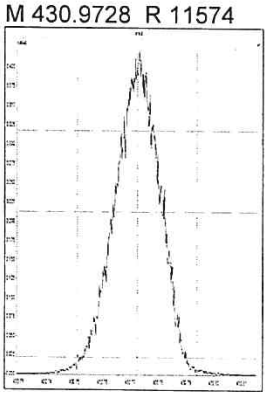
M 404.9760 R 11904



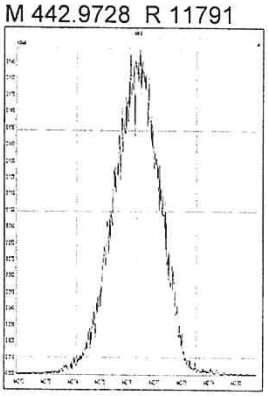
M 416.9760 R 12137



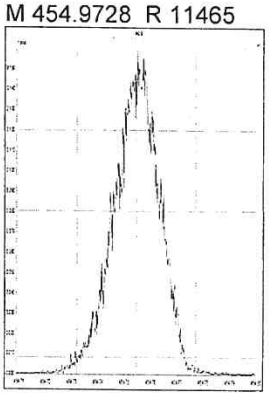
M 430.9728 R 11574



M 442.9728 R 11791



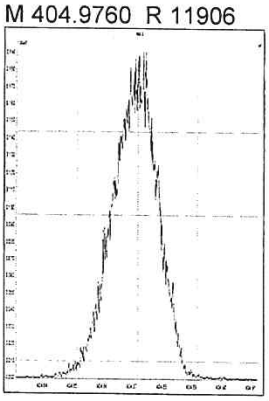
M 454.9728 R 11465



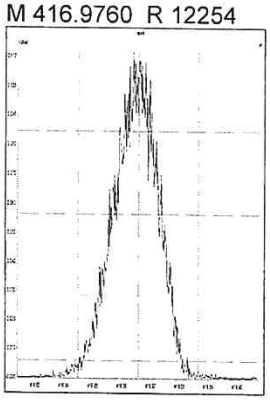
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:43:11 Eastern Standard Time

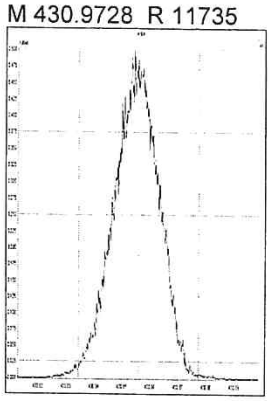
M 404.9760 R 11906



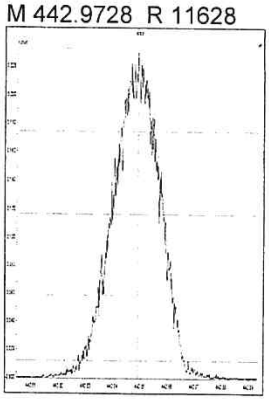
M 416.9760 R 12254



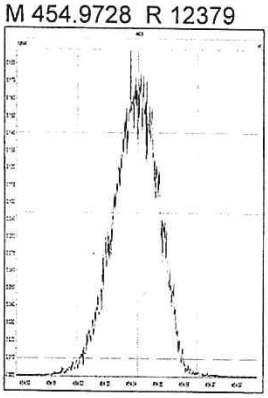
M 430.9728 R 11735



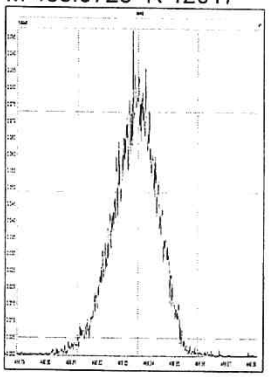
M 442.9728 R 11628



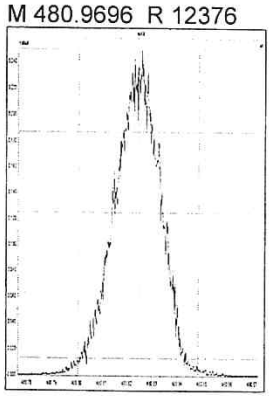
M 454.9728 R 12379



M 466.9728 R 12017



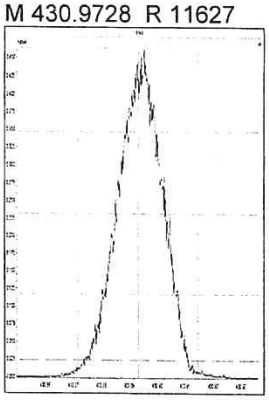
M 480.9696 R 12376



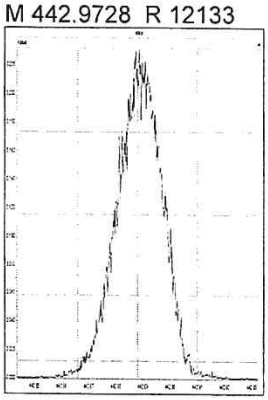
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:43:57 Eastern Standard Time

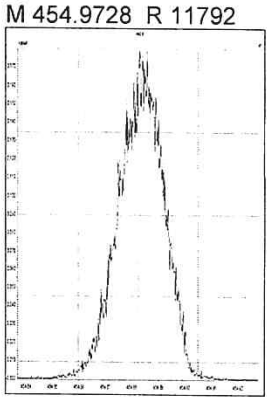
M 430.9728 R 11627



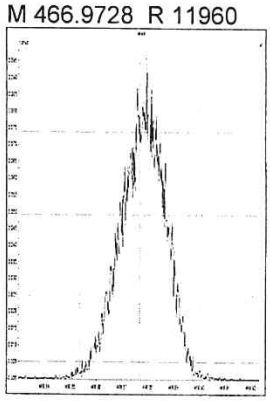
M 442.9728 R 12133



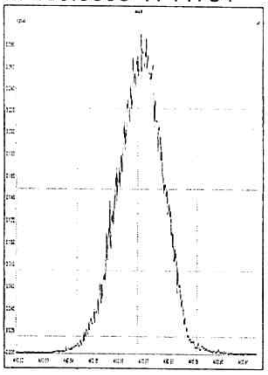
M 454.9728 R 11792



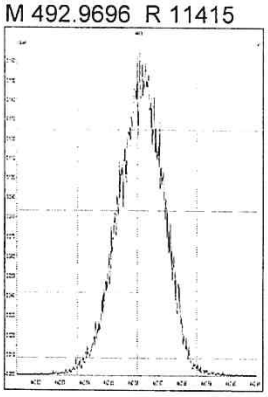
M 466.9728 R 11960



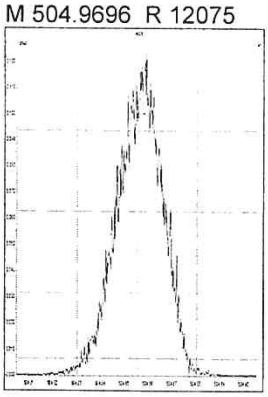
M 480.9696 R 11734



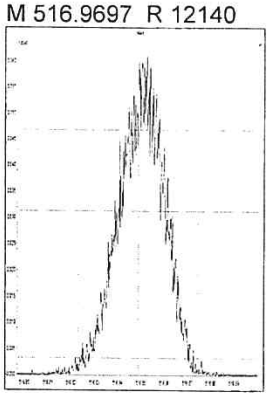
M 492.9696 R 11415



M 504.9696 R 12075



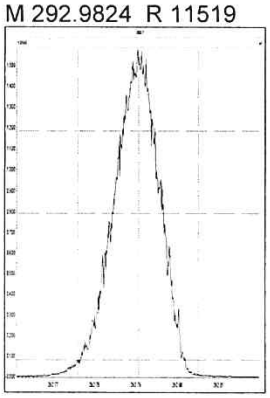
M 516.9697 R 12140



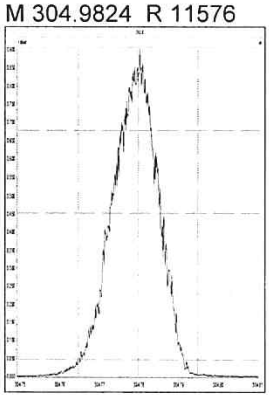
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:51:19 Eastern Standard Time

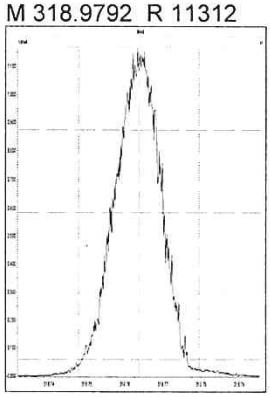
M 292.9824 R 11519



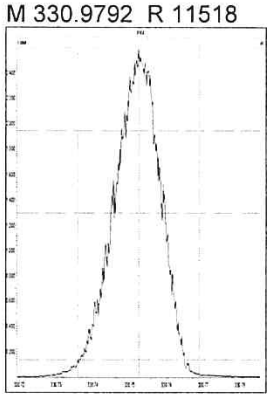
M 304.9824 R 11576



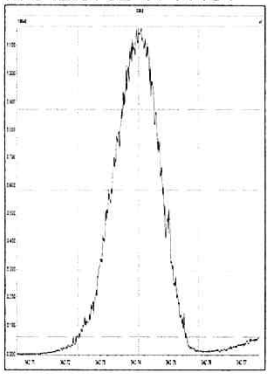
M 318.9792 R 11312



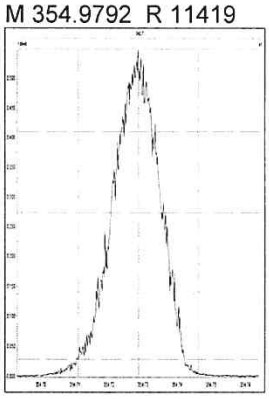
M 330.9792 R 11518



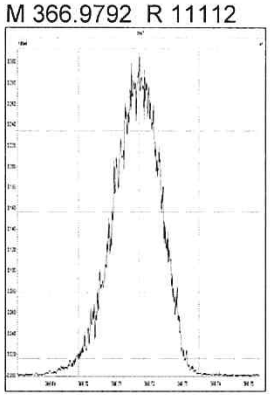
M 342.9792 R 11161



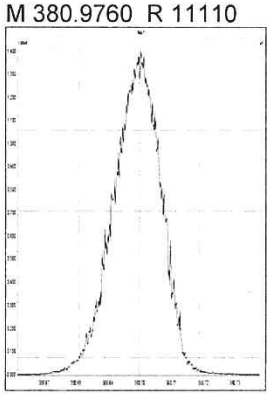
M 354.9792 R 11419



M 366.9792 R 11112



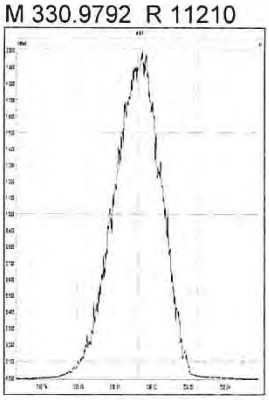
M 380.9760 R 11110



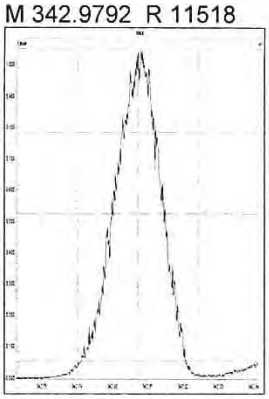
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:52:11 Eastern Standard Time

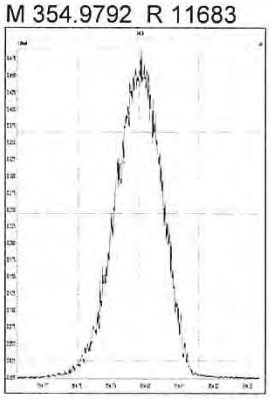
M 330.9792 R 11210



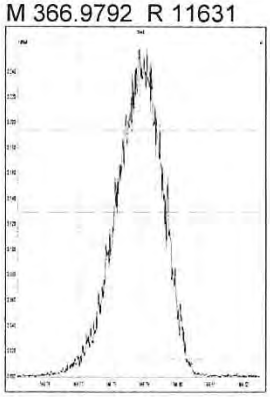
M 342.9792 R 11518



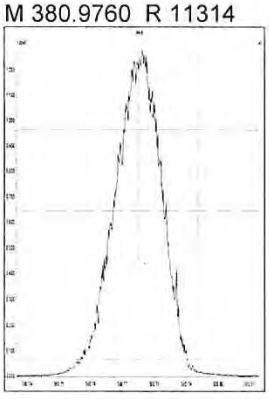
M 354.9792 R 11683



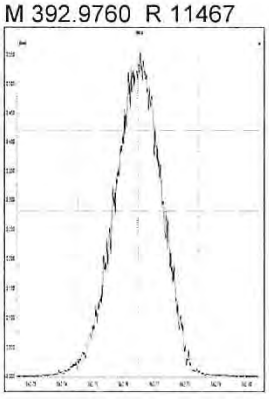
M 366.9792 R 11631



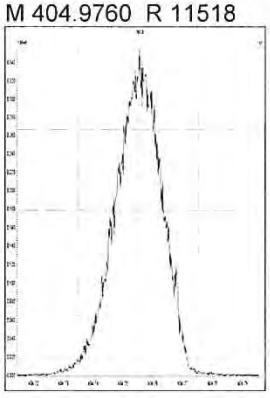
M 380.9760 R 11314



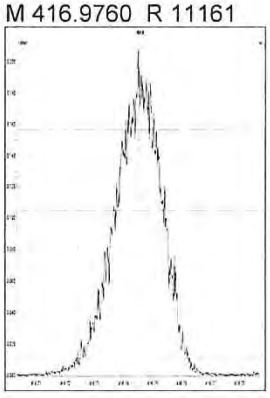
M 392.9760 R 11467



M 404.9760 R 11518



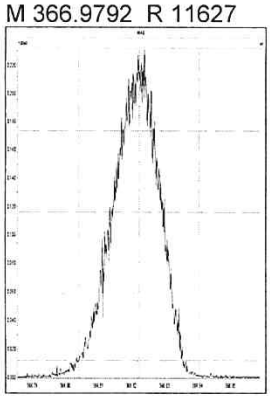
M 416.9760 R 11161



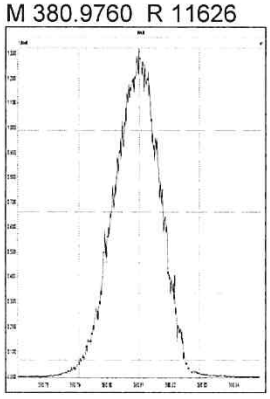
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:52:51 Eastern Standard Time

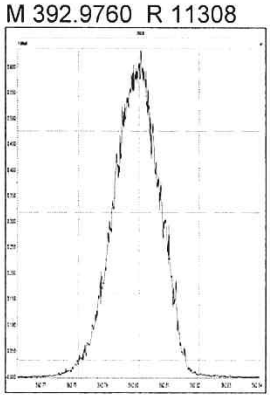
M 366.9792 R 11627



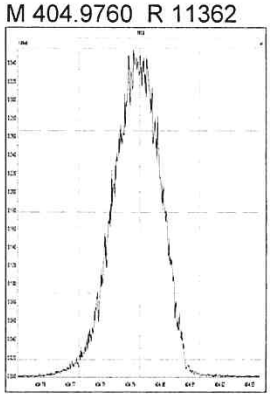
M 380.9760 R 11626



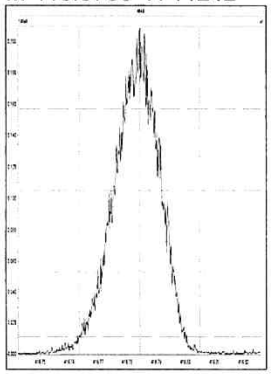
M 392.9760 R 11308



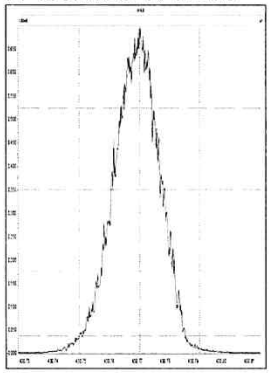
M 404.9760 R 11362



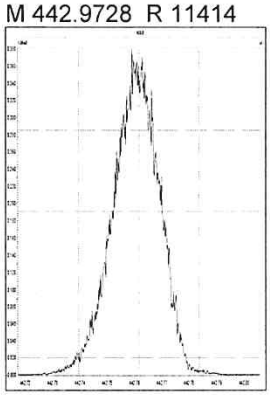
M 416.9760 R 11212



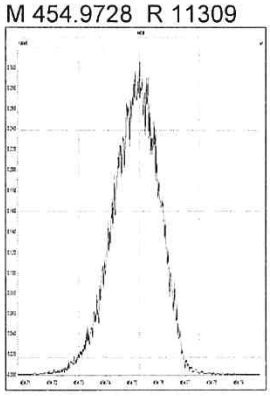
M 430.9728 R 11363



M 442.9728 R 11414



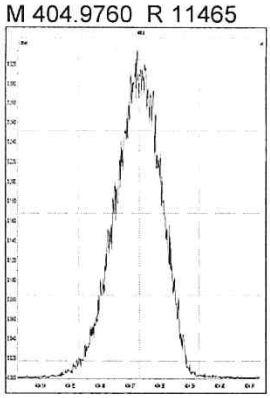
M 454.9728 R 11309



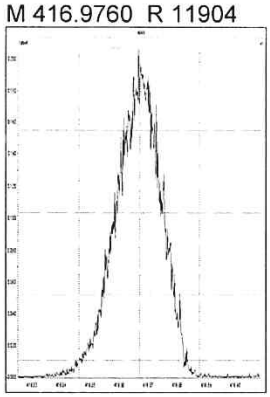
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:53:26 Eastern Standard Time

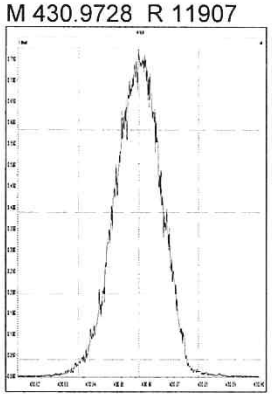
M 404.9760 R 11465



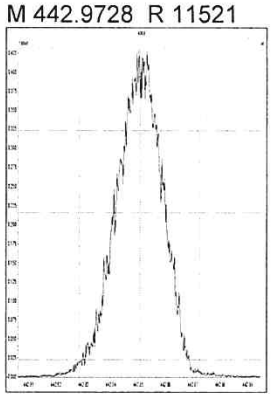
M 416.9760 R 11904



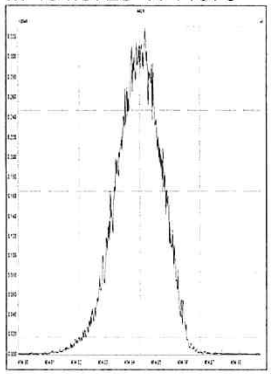
M 430.9728 R 11907



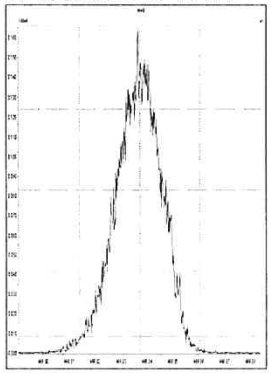
M 442.9728 R 11521



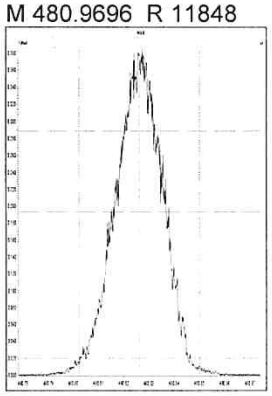
M 454.9728 R 11573



M 466.9728 R 11417



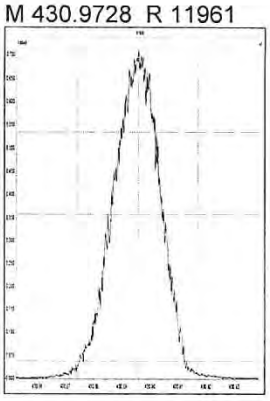
M 480.9696 R 11848



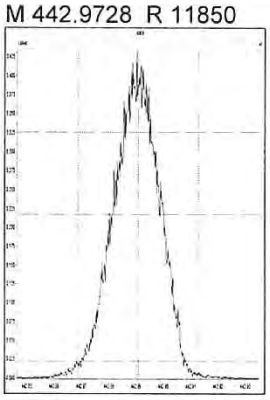
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:53:57 Eastern Standard Time

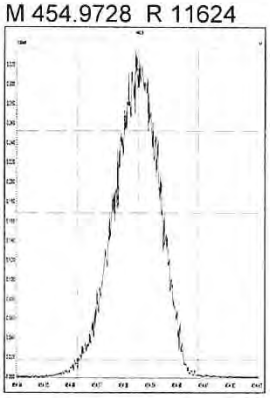
M 430.9728 R 11961



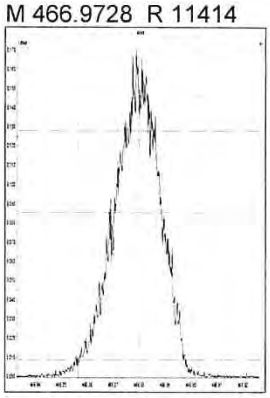
M 442.9728 R 11850



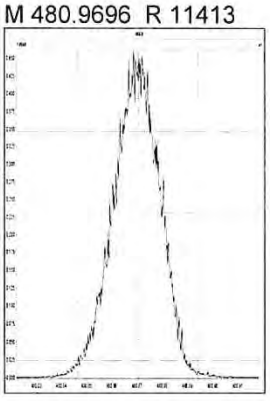
M 454.9728 R 11624



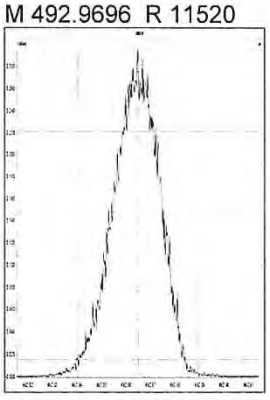
M 466.9728 R 11414



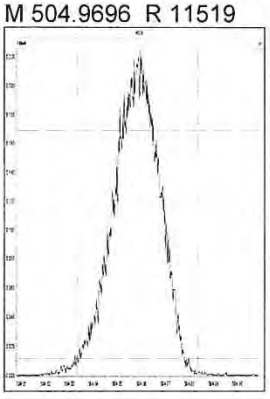
M 480.9696 R 11413



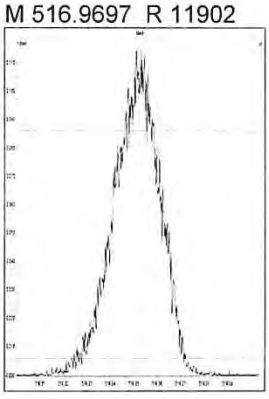
M 492.9696 R 11520



M 504.9696 R 11519



M 516.9697 R 11902



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

Case No.: _____ SDG No.:
ID: 0.25 (mm)

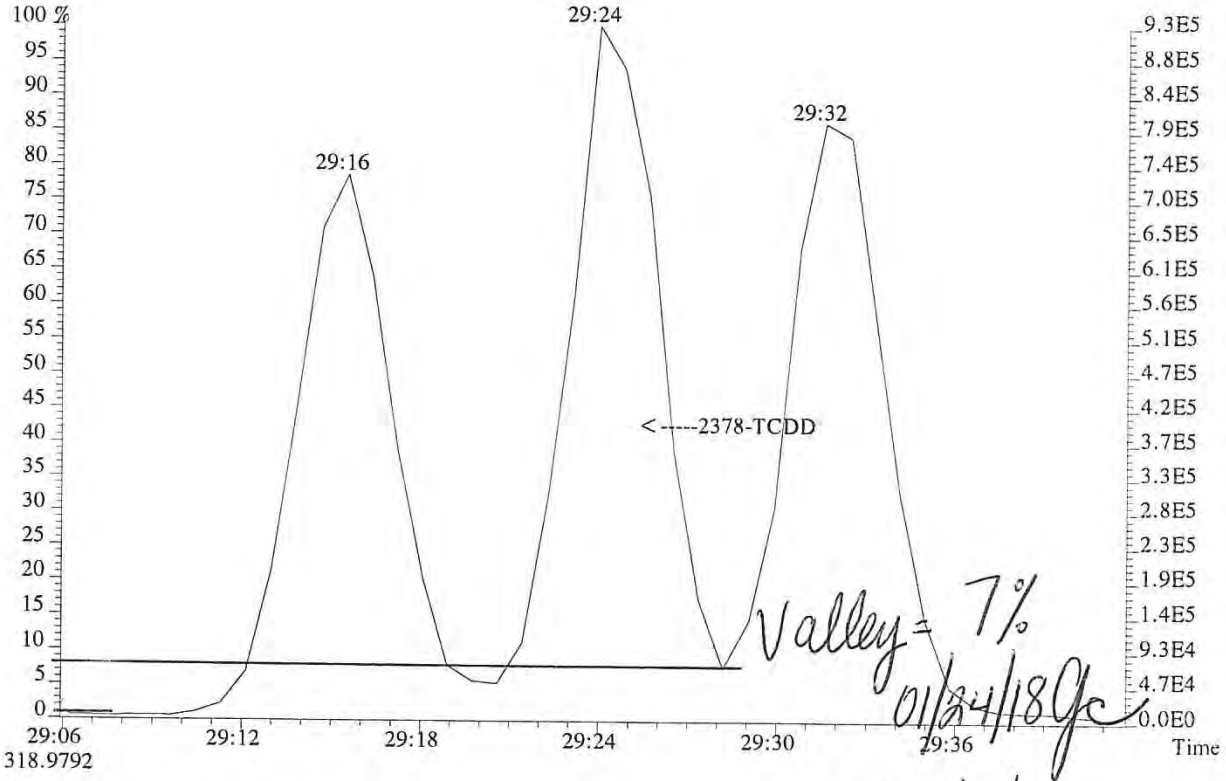
Lab File ID: P513848
Date Analyzed: 24-JAN-2018
Time Analyzed: 11:44:47

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	24:25	30:32
TCDD	26:17	30:22
PeCDF	30:27	34:34
PeCDD	31:55	34:19
HxCDF	35:11	37:38
HxCDD	35:41	37:14
HpCDF	38:49	40:14
HpCDD	39:04	39:44

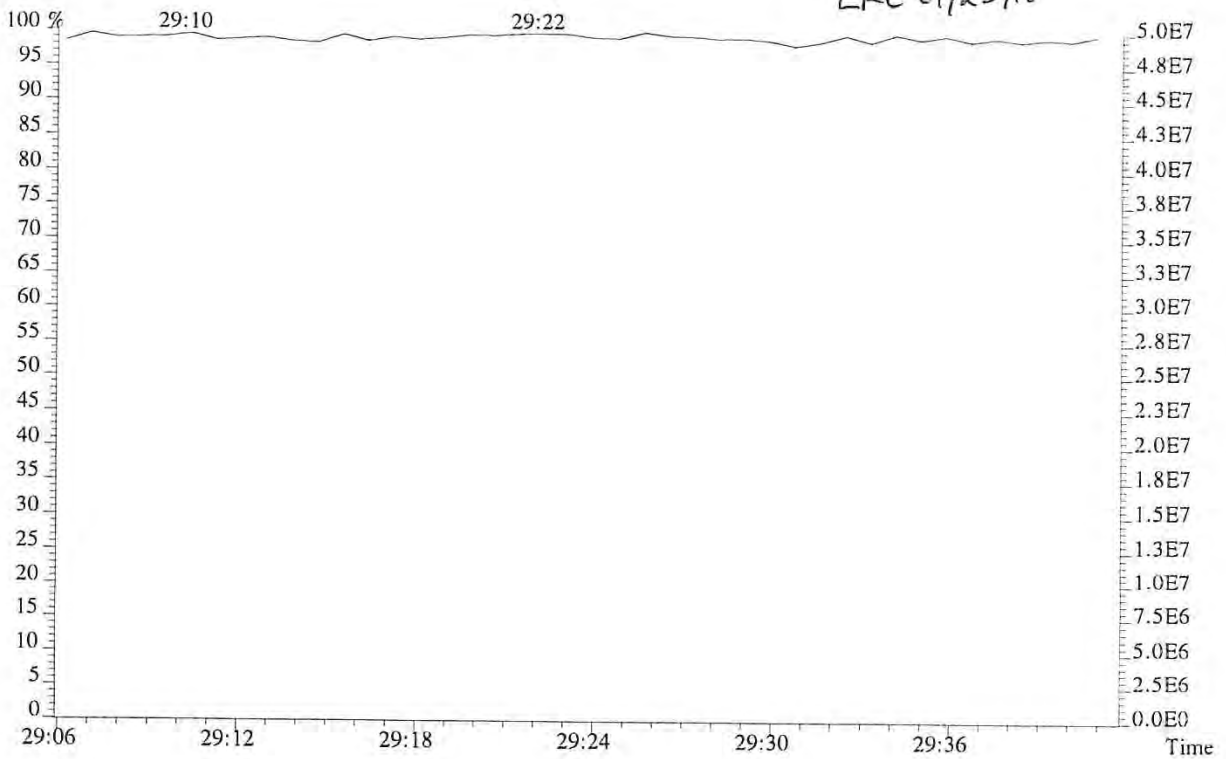
% Valley 2378-TCDD: 7 %

015926

File:P513848 #1-665 Acq:24-JAN-2018 11:44:47 Probe EI+ Magnet SIR VG BioTech Mass spectt
Sample#1 Exp:183360
319.8965

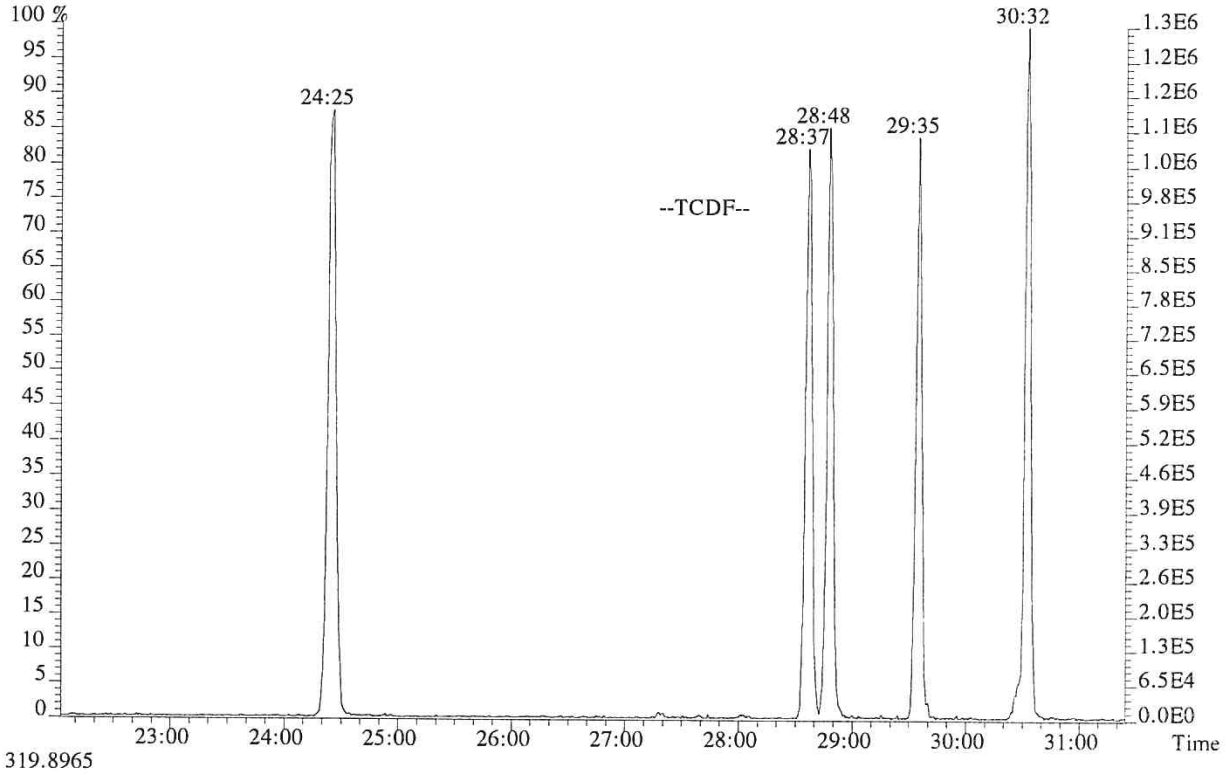


LKL 01/25/18

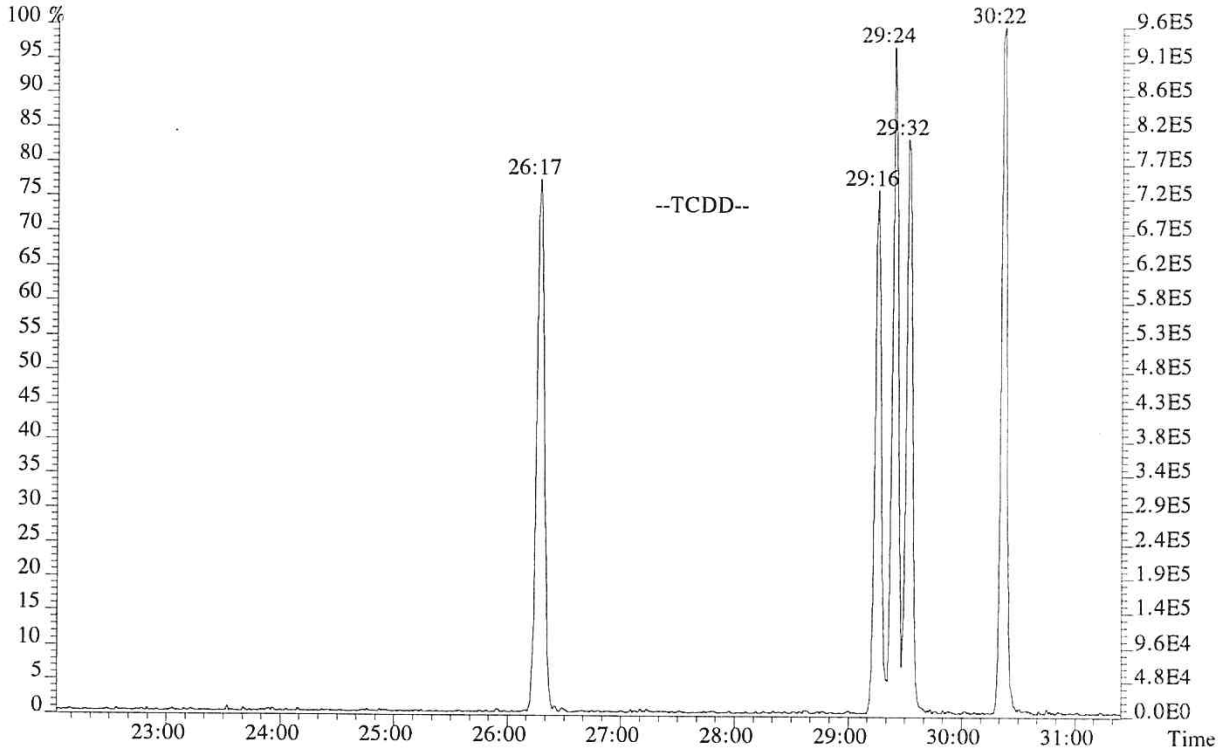


015927

File:P513848 #1-665 Acq:24-JAN-2018 11:44:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:183360
303.9016

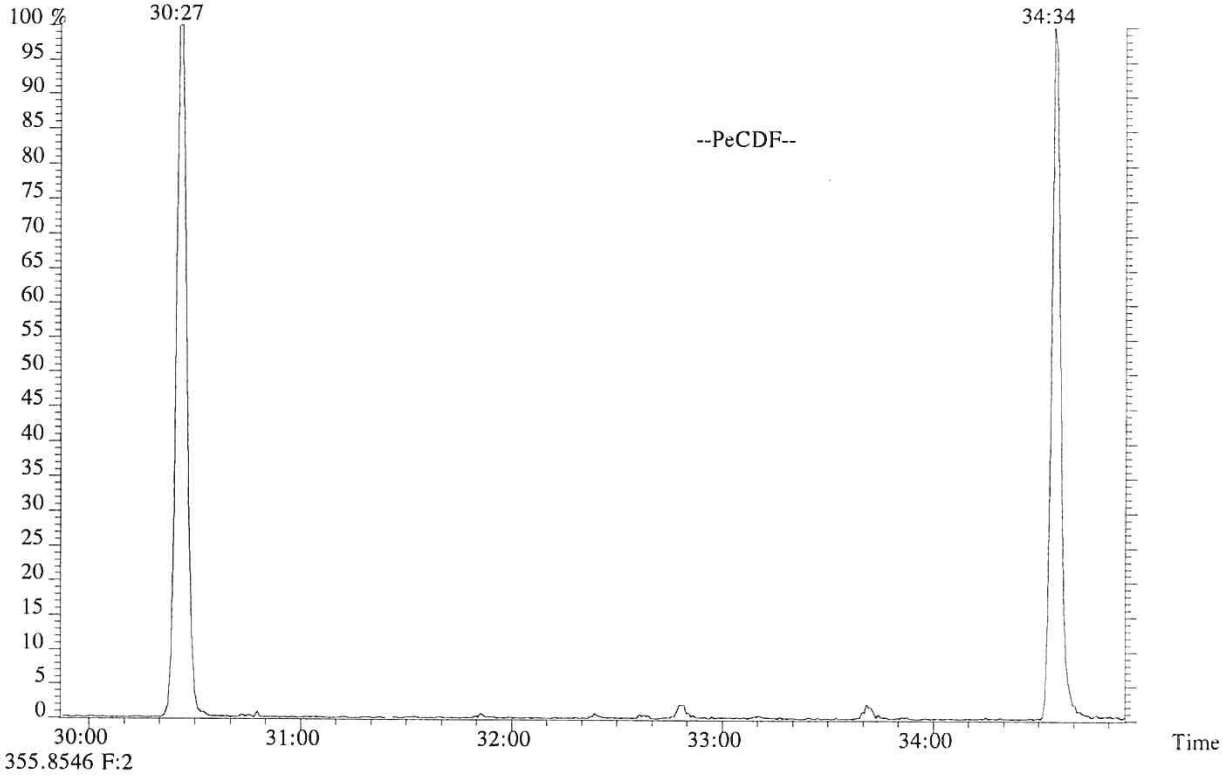


319.8965

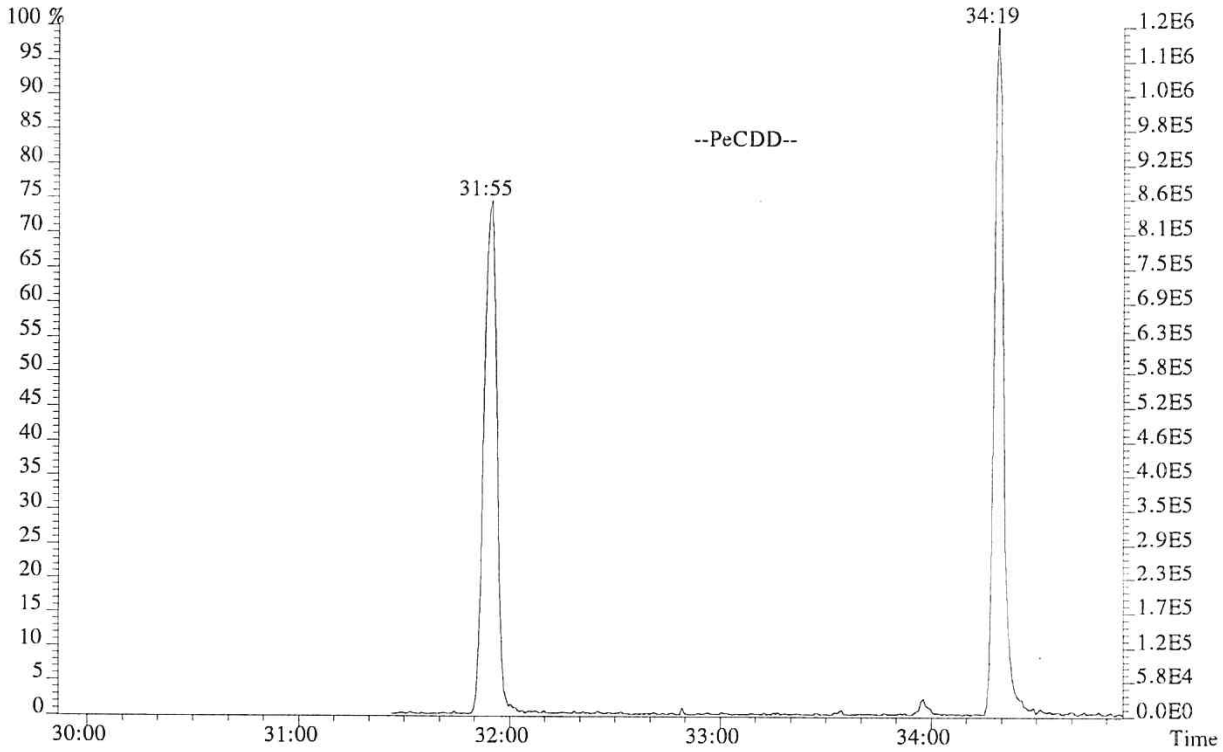


015928

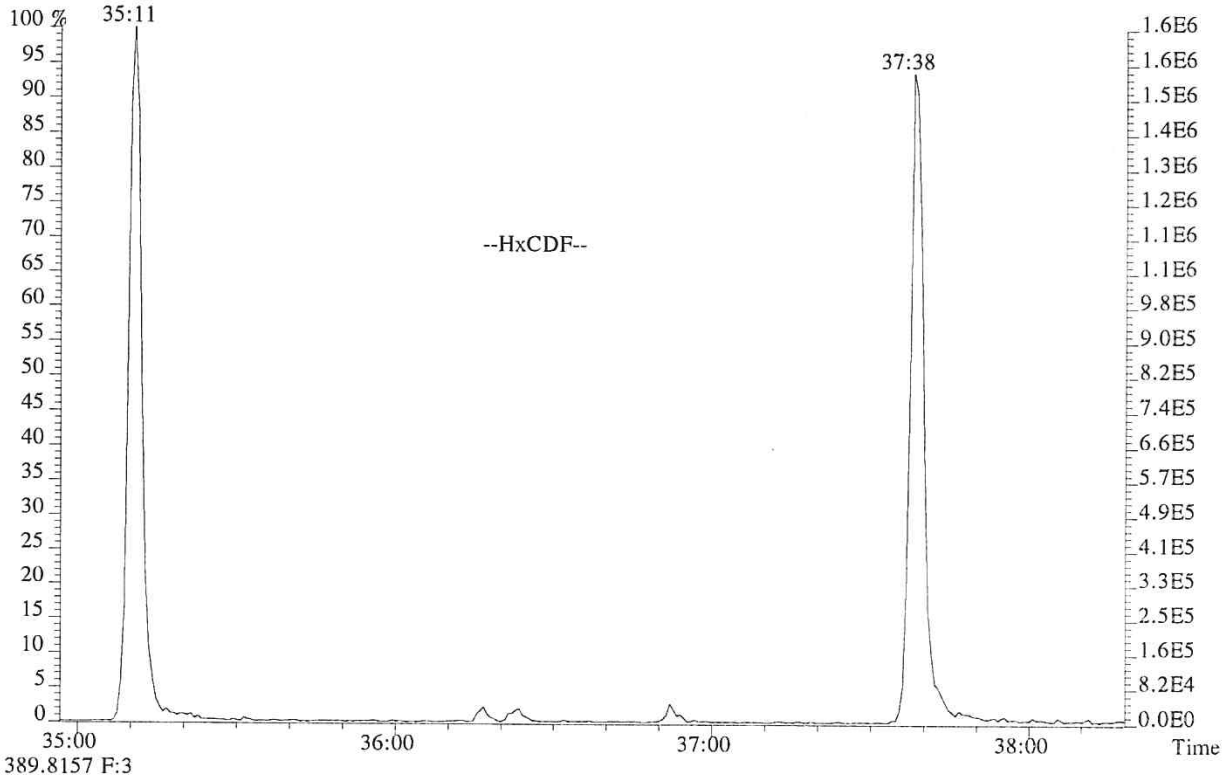
File:P513848 #1-665 Acq:24-JAN-2018 11:44:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:183360
339.8597,339.8597 F:2



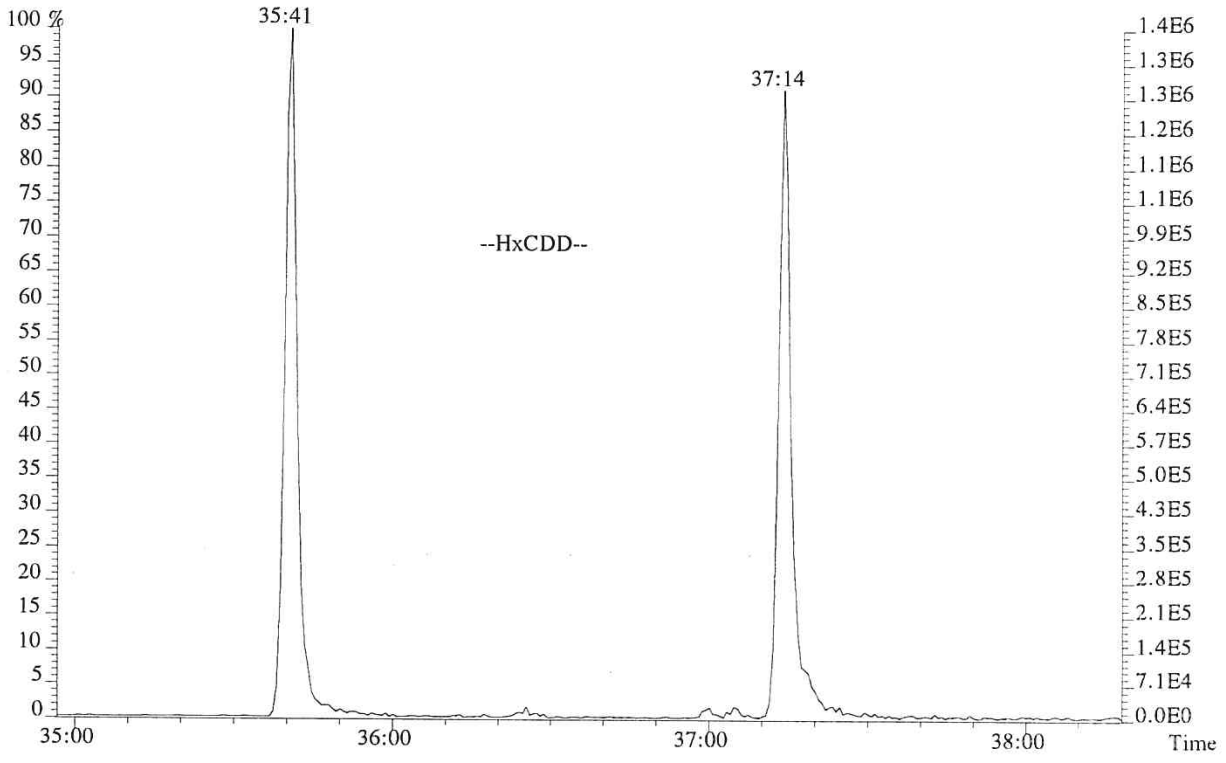
355.8546 F:2



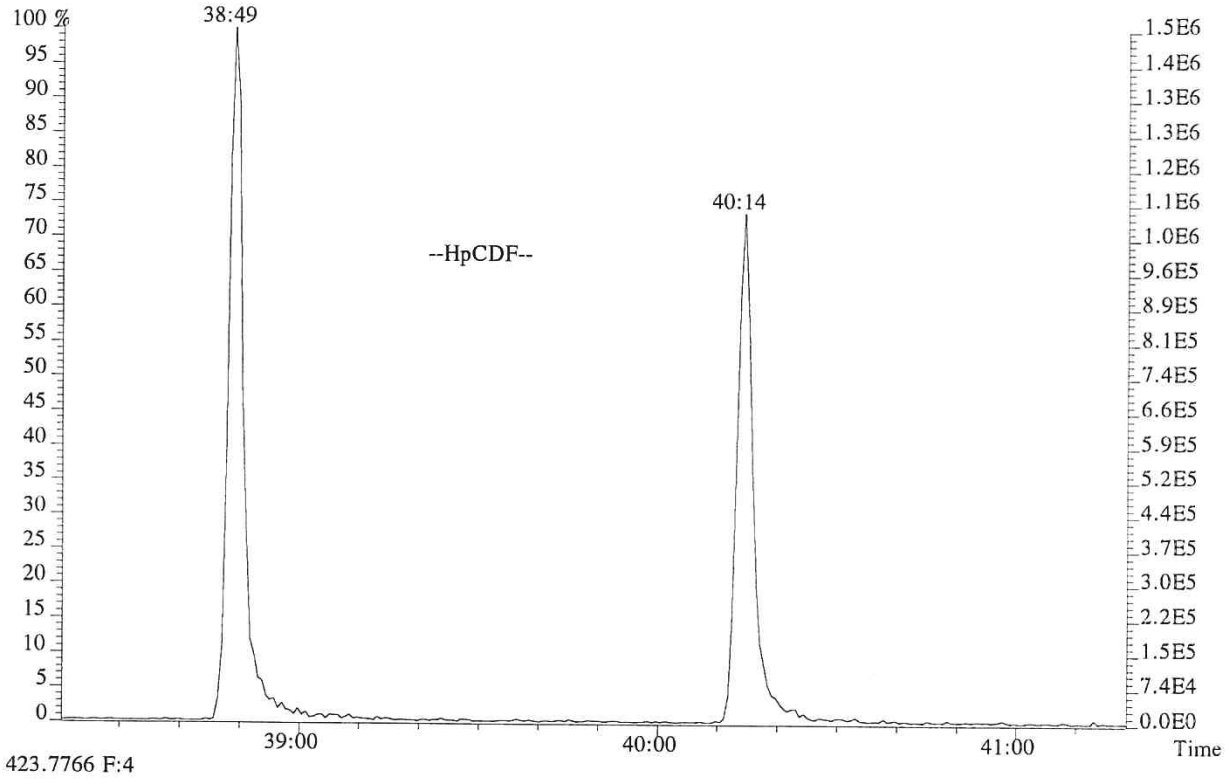
File:P513848 #1-303 Acq:24-JAN-2018 11:44:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:183360
373.8208 F:3



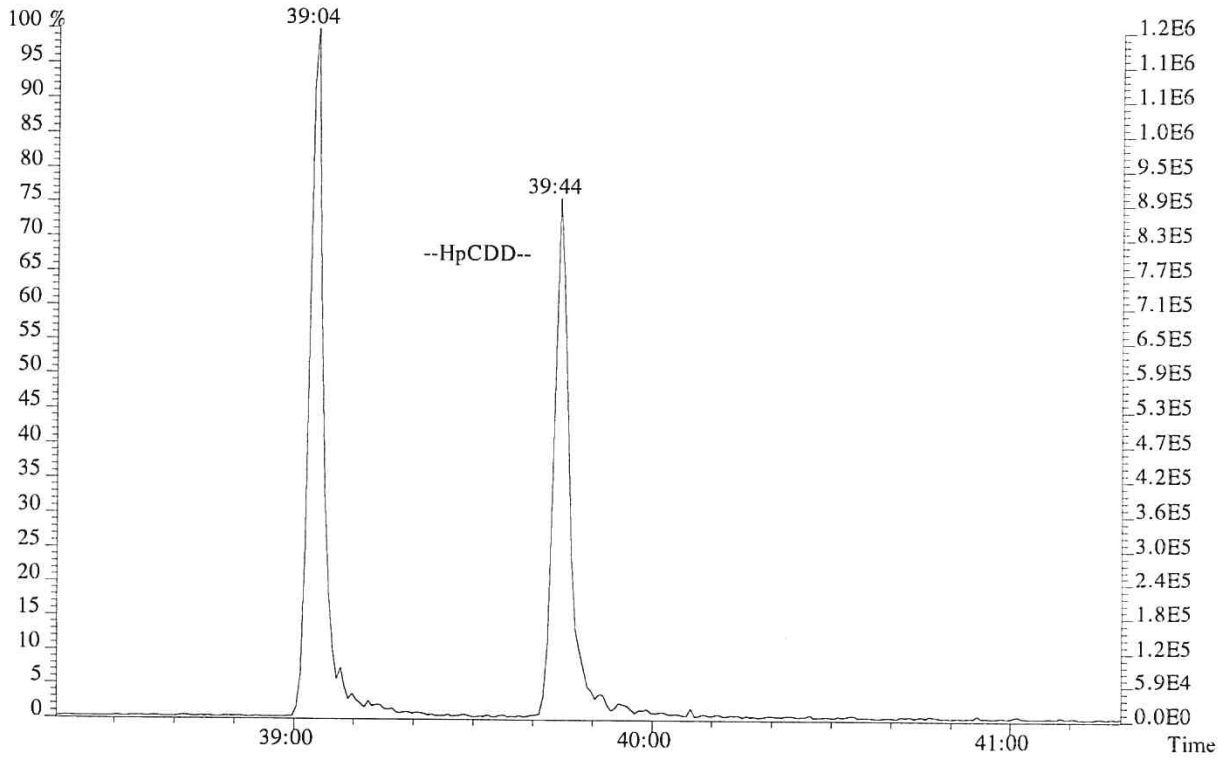
389.8157 F:3



File:P513848 #1-268 Acq:24-JAN-2018 11:44:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:183360
407.7818 F:4



423.7766 F:4



015931

USEPA - CLP
6DFA6
CDD/CDF INITIAL CALIBRATION RESPONSE FACTOR SUMMARY
HIGH RESOLUTION

Lab Name: ALS Environmental
Lab Code: ALSTX Case No.:
GC Column: DB-5MSUI ID: 0.25(mm)
Init. Calib. Date(s).: 01/24/18
Init. Calib. Time.: 11:44

Contract No.:
TO No.: SDG No.:
Instrument ID: E-HRMS-07
Method 1613/8290

RR/RRF

Target Analytes	CS0.5	CS1	CS2	CS3	CS4	CS5	MEAN RR/RRF	%RSD	QC LIMITS
2,3,7,8-TCDD	1.10	1.07	1.06	1.07	1.10	1.11	1.09	1.96	+/-20%
2,3,7,8-TCDF	0.89	0.96	0.91	0.94	0.96	0.99	0.94	4.09	+/-20%
1,2,3,7,8-PeCDF	0.93	0.98	1.02	1.03	1.06	1.06	1.01	5.02	+/-20%
1,2,3,7,8-PeCDD	0.92	0.97	0.96	0.95	0.97	0.97	0.96	2.08	+/-20%
2,3,4,7,8-PeCDF	0.87	0.94	0.98	0.97	0.99	1.00	0.96	4.97	+/-20%
1,2,3,4,7,8-HxCDF	1.07	1.13	1.22	1.21	1.25	1.26	1.19	6.34	+/-20%
1,2,3,6,7,8-HxCDF	1.06	1.07	1.13	1.13	1.17	1.17	1.12	4.28	+/-20%
1,2,3,4,7,8-HxCDD	0.96	1.04	1.03	1.06	1.06	1.07	1.04	3.78	+/-20%
1,2,3,6,7,8-HxCDD	1.00	1.06	1.03	1.03	1.05	1.06	1.04	2.33	+/-20%
1,2,3,7,8,9-HxCDD	0.98	1.06	1.10	1.06	1.07	1.10	1.06	4.09	+/-20%
2,3,4,6,7,8-HxCDF	1.01	1.09	1.12	1.13	1.15	1.17	1.11	5.18	+/-20%
1,2,3,7,8,9-HxCDF	1.08	1.10	1.15	1.17	1.18	1.18	1.14	3.94	+/-20%
1,2,3,4,6,7,8-HpCDF	1.31	1.32	1.36	1.37	1.37	1.38	1.35	2.22	+/-20%
1,2,3,4,6,7,8-HpCDD	1.00	0.98	1.05	1.03	1.05	1.04	1.02	2.88	+/-20%
1,2,3,4,7,8,9-HpCDF	1.18	1.23	1.29	1.30	1.28	1.27	1.26	3.68	+/-20%
OCDD	1.05	1.14	1.14	1.13	1.12	1.12	1.12	2.97	+/-20%
OCDF	1.26	1.39	1.35	1.33	1.39	1.43	1.36	4.36	+/-20%
Labeled Compounds									
13C-2,3,7,8-TCDD	0.91	0.87	0.93	0.90	0.94	0.98	0.92	4.14	+/-35%
13C-1,2,3,7,8-PeCDD	0.91	0.83	1.03	0.99	1.01	1.08	0.98	9.21	+/-35%
13C-1,2,3,4,7,8-HxCDD	0.94	0.90	0.90	0.95	0.93	0.92	0.92	2.06	+/-35%
13C-1,2,3,6,7,8-HxCDD	0.96	0.96	0.94	0.97	0.97	0.91	0.95	2.50	+/-35%
13C-1,2,3,4,6,7,8-HpCDD	0.81	0.92	0.79	0.88	0.90	0.85	0.86	5.83	+/-35%
13C-OCDD	0.52	0.63	0.58	0.58	0.62	0.57	0.58	6.90	+/-35%
13C-2,3,7,8-TCDF	1.45	1.48	1.53	1.60	1.53	1.49	1.51	3.54	+/-35%
13C-1,2,3,7,8-PeCDF	1.37	1.32	1.50	1.50	1.52	1.62	1.47	7.34	+/-35%
13C-2,3,4,7,8-PeCDF	1.36	1.29	1.50	1.46	1.52	1.61	1.46	7.94	+/-35%
13C-1,2,3,4,7,8-HxCDF	1.22	1.27	1.18	1.29	1.25	1.19	1.23	3.63	+/-35%
13C-1,2,3,6,7,8-HxCDF	1.40	1.48	1.34	1.42	1.41	1.34	1.40	3.84	+/-35%
13C-2,3,4,6,7,8-HxCDF	1.26	1.26	1.23	1.27	1.28	1.23	1.26	1.87	+/-35%
13C-1,2,3,7,8,9-HxCDF	1.03	1.17	1.06	1.00	1.17	1.08	1.09	6.47	+/-35%
13C-1,2,3,4,6,7,8-HpCDF	0.96	1.02	0.92	0.99	0.98	0.93	0.97	3.83	+/-35%
13C-1,2,3,4,7,8,9-HpCDF	0.76	0.95	0.79	0.74	0.86	0.82	0.82	9.19	+/-35%
37Cl-2,3,7,8-TCDD	0.93	0.96	1.03	1.00	1.05	1.11	1.01	6.21	+/-35%

1.123789-HxCDD Relative Response (RR) is calculated based on the labeled analog of the other two HxCDDs.
2. OCDF RR is calculated based on the labeled analog of OCDD

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-07
Init. Calib. Date(s).: 01/24/18 Method 1613/8290
Init. Calib. Time.: 11:44

Target Analytes	SELECTED IONS	ION ABUNDANCE RATIO CS0.5	CS1	CS2	CS3	CS4	CS5	FLAG	ION RATIO QC LIMITS
2,3,7,8-TCDF	304/306	0.76	0.72	0.74	0.75	0.77	0.77		0.65-0.89
2,3,7,8-TCDD	320/322	0.73	0.88	0.76	0.79	0.78	0.78		0.65-0.89
1,2,3,7,8-PeCDF	340/342	1.42	1.54	1.48	1.53	1.54	1.55		1.32-1.78
2,3,4,7,8-PeCDF	340/342	1.48	1.46	1.50	1.52	1.53	1.54		1.32-1.78
1,2,3,7,8-PeCDD	356/358	1.64	1.66	1.58	1.56	1.56	1.57		1.32-1.78
1,2,3,4,7,8-HxCDF	374/376	1.18	1.20	1.20	1.22	1.22	1.23		1.05-1.43
1,2,3,6,7,8-HxCDF	374/376	1.28	1.17	1.21	1.21	1.22	1.24		1.05-1.43
2,3,4,6,7,8-HxCDF	374/376	1.12	1.24	1.22	1.22	1.21	1.22		1.05-1.43
1,2,3,7,8,9-HxCDF	374/376	1.19	1.33	1.22	1.21	1.24	1.23		1.05-1.43
1,2,3,4,7,8-HxCDD	390/392	1.32	1.26	1.25	1.25	1.25	1.26		1.05-1.43
1,2,3,6,7,8-HxCDD	390/392	1.09	1.35	1.26	1.26	1.26	1.26		1.05-1.43
1,2,3,7,8,9-HxCDD	390/392	1.23	1.21	1.24	1.28	1.26	1.25		1.05-1.43
1,2,3,4,6,7,8-HpCDF	408/410	0.98	1.03	1.02	1.02	1.03	1.04		0.88-1.20
1,2,3,4,7,8,9-HpCDF	408/410	1.03	0.96	1.01	1.03	1.03	1.04		0.88-1.20
1,2,3,4,6,7,8-HpCDD	424/426	0.99	1.11	1.04	1.05	1.05	1.05		0.88-1.20
OCDF	442/444	0.88	0.95	0.89	0.90	0.91	0.91		0.76-1.02
OCDD	458/460	0.86	0.88	0.89	0.89	0.89	0.89		0.76-1.02
13C-2,3,7,8-TCDD	332/334	0.81	0.80	0.80	0.80	0.81	0.80		0.65-0.89
13C-1,2,3,7,8-PeCDD	368/370	1.60	1.59	1.59	1.58	1.59	1.59		1.32-1.78
13C-1,2,3,4,7,8-HxCDD	402/404	1.29	1.27	1.26	1.33	1.27	1.28		1.05-1.43
13C-1,2,3,6,7,8-HxCDD	402/404	1.26	1.28	1.27	1.20	1.26	1.26		1.05-1.43
13C-1,2,3,4,6,7,8-HpCDD	436/438	1.06	1.04	1.06	1.06	1.08	1.06		0.88-1.20
13C-OCDD	470/472	0.90	0.91	0.90	0.89	0.90	0.89		0.76-1.02
13C-2,3,7,8-TCDF	316/318	0.79	0.79	0.80	0.79	0.79	0.79		0.65-0.89
13C-1,2,3,7,8-PeCDF	352/354	1.58	1.60	1.59	1.58	1.58	1.59		1.32-1.78
13C-2,3,4,7,8-PeCDF	352/354	1.58	1.58	1.58	1.58	1.58	1.58		1.32-1.78
13C-1,2,3,4,7,8-HxCDF	384/386	0.53	0.52	0.52	0.53	0.53	0.53		0.43-0.59
13C-1,2,3,6,7,8-HxCDF	384/386	0.53	0.53	0.53	0.53	0.53	0.53		0.43-0.59
13C-2,3,4,6,7,8-HxCDF	384/386	0.52	0.52	0.52	0.52	0.53	0.52		0.43-0.59
13C-1,2,3,7,8,9-HxCDF	384/386	0.52	0.52	0.53	0.53	0.52	0.52		0.43-0.59
13C-1,2,3,4,6,7,8-HpCDF	418/420	0.45	0.45	0.45	0.45	0.45	0.45		0.37-0.51
13C-1,2,3,4,7,8,9-HpCDF	418/420	0.45	0.44	0.45	0.45	0.45	0.45		0.37-0.51
13C-1,2,3,4-TCDD	332/334	0.81	0.82	0.81	0.81	0.82	0.82		0.65-0.89
13C-1,2,3,7,8,9-HxCDD	402/404	1.26	1.25	1.27	1.23	1.25	1.25		1.05-1.43

Quality Control (QC) limits represent +/- 15% window around the theoretical ion abundance ratio. The laboratory must flag any analyte in any calibration solution which does not meet the ion abundance ratio QC limit by placing an asterisk in the flag column.

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76554

Run #1 Filename P513850 Samp: 1 Inj: 1 Acquired: 24-JAN-18 13:32:06
Processed: 24-JAN-18 15:49:37 Sample ID: CS0.5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	3.276e+02	4.332e+02	0.76	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	2.212e+03	1.557e+03	1.42	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:42	2.093e+03	1.410e+03	1.48	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:17	1.728e+03	1.459e+03	1.18	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	2.025e+03	1.584e+03	1.28	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:53	1.636e+03	1.459e+03	1.12	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	1.473e+03	1.234e+03	1.19	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	1.513e+03	1.543e+03	0.98	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	1.104e+03	1.067e+03	1.03	yes	no	1.258
10	Unk	OCDF	42:45	1.481e+03	1.680e+03	0.88	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	2.508e+02	3.419e+02	0.73	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:58	1.543e+03	9.381e+02	1.64	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	37:00	1.247e+03	9.443e+02	1.32	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	1.208e+03	1.105e+03	1.09	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	1.245e+03	1.015e+03	1.23	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	9.700e+02	9.817e+02	0.99	yes	no	1.025
17	Unk	OCDD	42:31	1.223e+03	1.416e+03	0.86	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:47	1.518e+05	1.920e+05	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:48	1.987e+05	1.259e+05	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:41	1.969e+05	1.249e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:16	8.196e+04	1.558e+05	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	9.429e+04	1.782e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:52	8.377e+04	1.622e+05	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:37	6.829e+04	1.322e+05	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	5.778e+04	1.288e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	4.552e+04	1.019e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:31	9.630e+04	1.195e+05	0.81	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	1.330e+05	8.317e+04	1.60	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	1.026e+05	7.962e+04	1.29	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	1.036e+05	8.231e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	8.056e+04	7.625e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	9.520e+04	1.052e+05	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:58	1.055e+05	1.310e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	1.085e+05	8.606e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	5.518e+02				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76554

Run #1 Filename P513850 Samp: 1 Inj: 1 Acquired: 24-JAN-18 13:32:06
Processed: 24-JAN-18 15:49:37 LAB. ID: CS0.5

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.43e+04	7.40e+02	8.7e+01	8.19e+04	1.58e+03	5.2e+01
2	1,2,3,7,8-PeCDF	4.30e+05	1.01e+03	4.3e+02	3.00e+05	2.96e+03	1.0e+02
3	2,3,4,7,8-PeCDF	4.25e+05	1.01e+03	4.2e+02	2.98e+05	2.96e+03	1.0e+02
4	1,2,3,4,7,8-HxCDF	3.96e+05	8.76e+02	4.5e+02	3.10e+05	2.44e+02	1.3e+03
5	1,2,3,6,7,8-HxCDF	4.08e+05	8.76e+02	4.7e+02	3.20e+05	2.44e+02	1.3e+03
6	2,3,4,6,7,8-HxCDF	3.56e+05	8.76e+02	4.1e+02	3.17e+05	2.44e+02	1.3e+03
7	1,2,3,7,8,9-HxCDF	3.08e+05	8.76e+02	3.5e+02	2.40e+05	2.44e+02	9.9e+02
8	1,2,3,4,6,7,8-HpCDF	3.07e+05	8.60e+02	3.6e+02	3.29e+05	5.36e+02	6.1e+02
9	1,2,3,4,7,8,9-HpCDF	2.09e+05	8.60e+02	2.4e+02	1.94e+05	5.36e+02	3.6e+02
10	OCDF	2.59e+05	6.40e+02	4.0e+02	2.85e+05	1.05e+03	2.7e+02
11	2,3,7,8-TCDD	4.96e+04	1.22e+03	4.1e+01	7.37e+04	7.32e+02	1.0e+02
12	1,2,3,7,8-PeCDD	3.05e+05	1.17e+03	2.6e+02	1.78e+05	1.88e+02	9.5e+02
13	1,2,3,4,7,8-HxCDD	2.70e+05	5.20e+02	5.2e+02	2.09e+05	4.64e+02	4.5e+02
14	1,2,3,6,7,8-HxCDD	2.52e+05	5.20e+02	4.8e+02	2.26e+05	4.64e+02	4.9e+02
15	1,2,3,7,8,9-HxCDD	2.55e+05	5.20e+02	4.9e+02	2.09e+05	4.64e+02	4.5e+02
16	1,2,3,4,6,7,8-HpCDD	1.84e+05	1.72e+02	1.1e+03	2.04e+05	1.92e+02	1.1e+03
17	OCDD	1.95e+05	1.24e+02	1.6e+03	2.29e+05	1.76e+03	1.3e+02
18	13C-2,3,7,8-TCDF	2.97e+07	7.00e+03	4.2e+03	3.74e+07	3.24e+03	1.2e+04
19	13C-1,2,3,7,8-PeCDF	3.75e+07	6.04e+02	6.2e+04	2.38e+07	1.03e+03	2.3e+04
20	13C-2,3,4,7,8-PeCDF	3.92e+07	6.04e+02	6.5e+04	2.45e+07	1.03e+03	2.4e+04
21	13C-1,2,3,4,7,8-HxCDF	1.77e+07	4.00e+02	4.4e+04	3.34e+07	1.14e+03	2.9e+04
22	13C-1,2,3,6,7,8-HxCDF	1.91e+07	4.00e+02	4.8e+04	3.65e+07	1.14e+03	3.2e+04
23	13C-2,3,4,6,7,8-HxCDF	1.78e+07	4.00e+02	4.5e+04	3.38e+07	1.14e+03	3.0e+04
24	13C-1,2,3,7,8,9-HxCDF	1.38e+07	4.00e+02	3.5e+04	2.65e+07	1.14e+03	2.3e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.16e+07	1.44e+03	8.1e+03	2.60e+07	5.60e+03	4.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	8.60e+06	1.44e+03	6.0e+03	1.92e+07	5.60e+03	3.4e+03
27	13C-2,3,7,8-TCDD	1.97e+07	6.10e+03	3.2e+03	2.45e+07	2.10e+03	1.2e+04
28	13C-1,2,3,7,8-PeCDD	2.62e+07	9.88e+02	2.7e+04	1.65e+07	6.72e+02	2.4e+04
29	13C-1,2,3,4,7,8-HxCDD	2.25e+07	4.24e+03	5.3e+03	1.74e+07	9.28e+02	1.9e+04
30	13C-1,2,3,6,7,8-HxCDD	2.12e+07	4.24e+03	5.0e+03	1.71e+07	9.28e+02	1.8e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.57e+07	9.20e+02	1.7e+04	1.49e+07	8.32e+02	1.8e+04
32	13C-OCDD	1.56e+07	1.68e+02	9.3e+04	1.71e+07	3.40e+02	5.0e+04
33	13C-1,2,3,4-TCDD	2.11e+07	6.10e+03	3.5e+03	2.60e+07	2.10e+03	1.2e+04
34	13C-1,2,3,7,8,9-HxCDD	2.13e+07	4.24e+03	5.0e+03	1.71e+07	9.28e+02	1.8e+04
35	37Cl-2,3,7,8-TCDD	1.10e+05	1.04e+03	1.1e+02			

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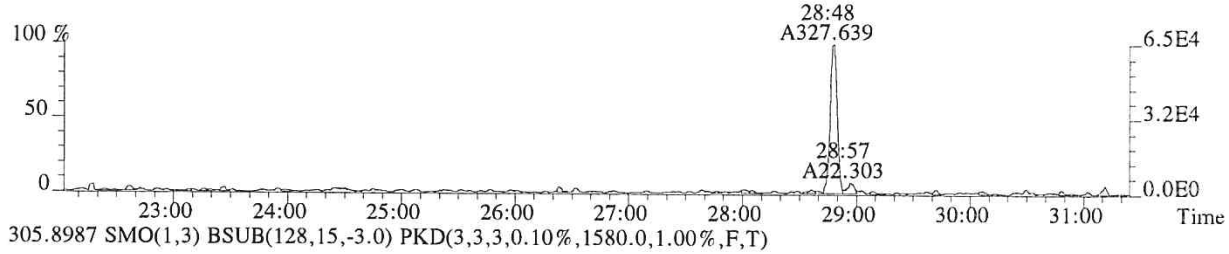
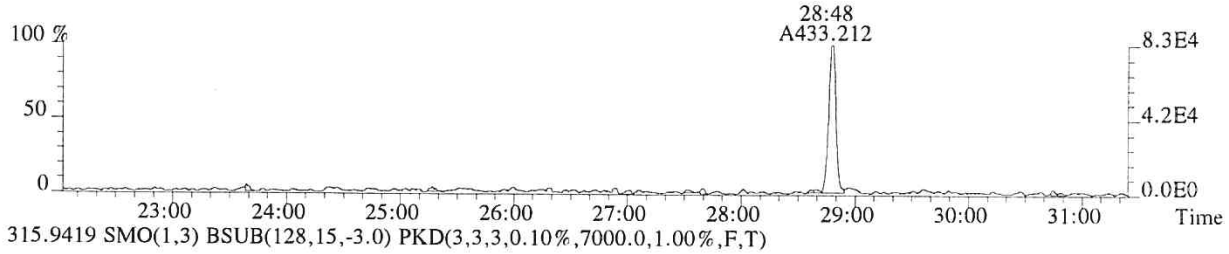
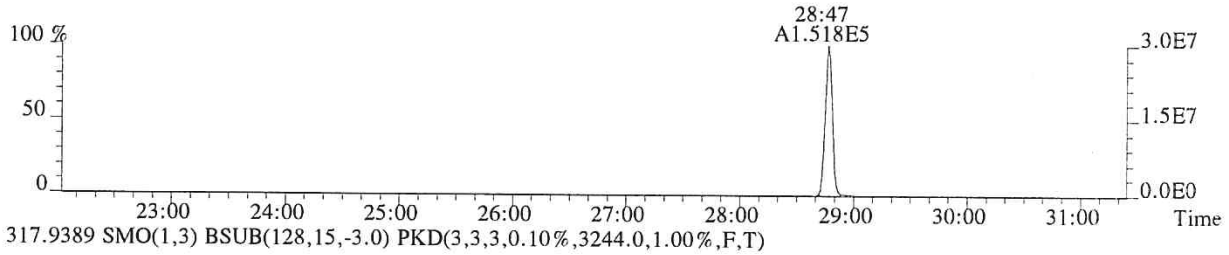
File:P513850 #1-665 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,740.0,1.00%,F,T)



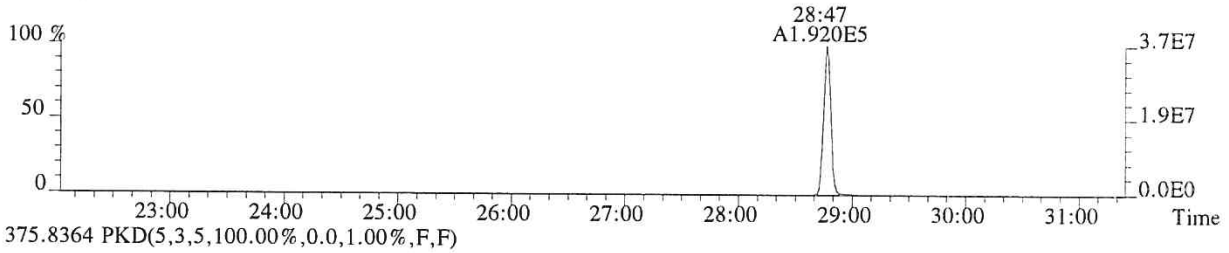
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1580.0,1.00%,F,T)



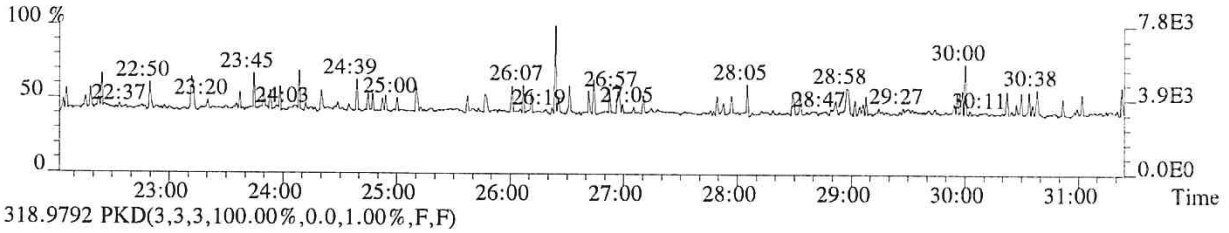
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7000.0,1.00%,F,T)



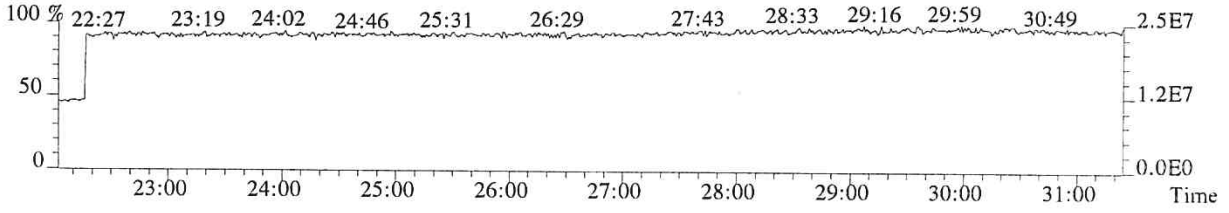
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3244.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

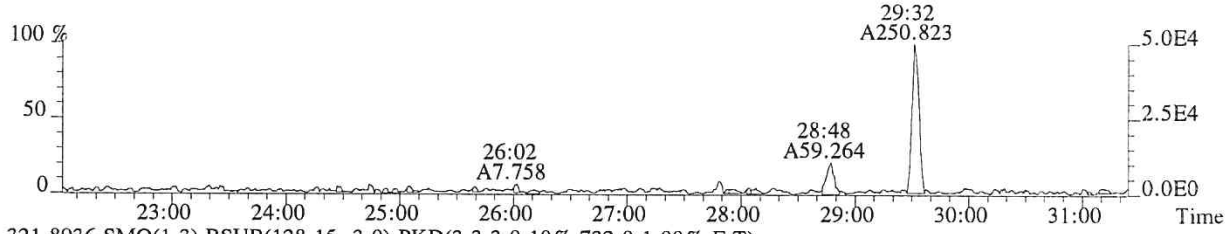


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

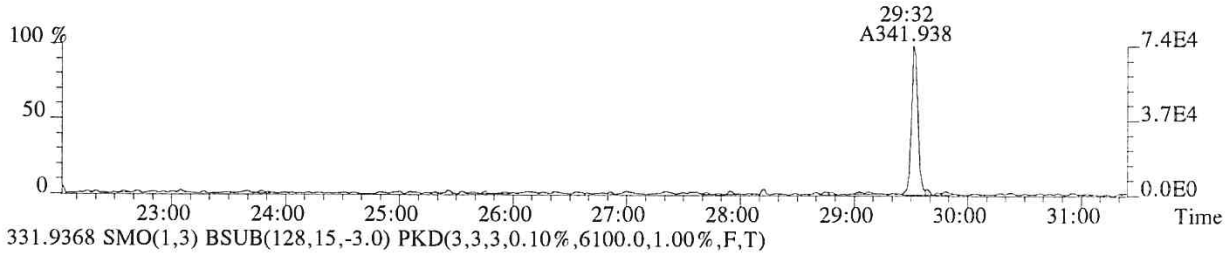


015936

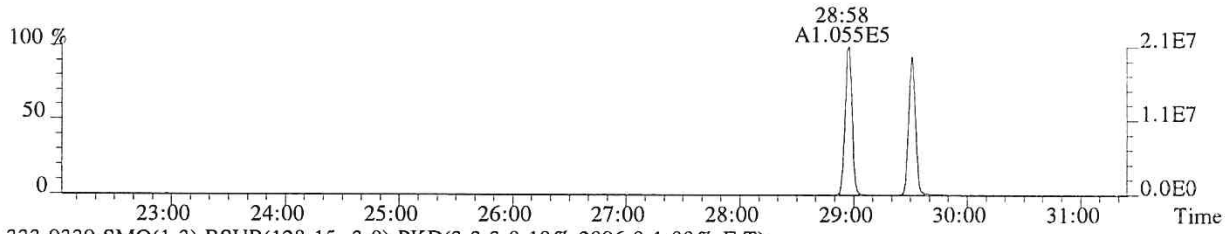
File:P513850 #1-665 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1220.0,1.00%,F,T)



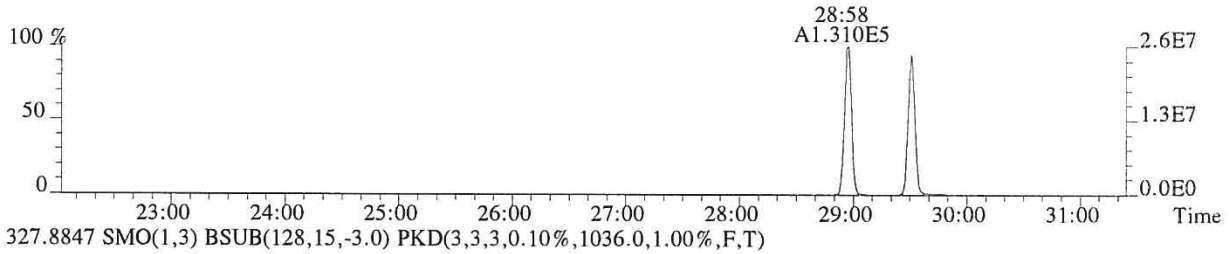
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,732.0,1.00%,F,T)



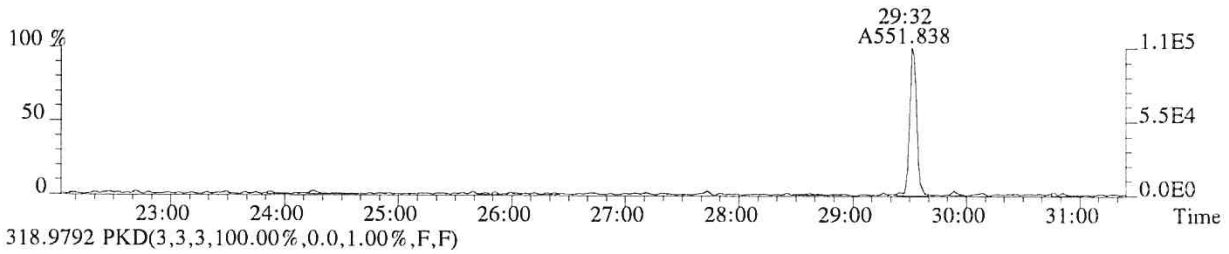
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6100.0,1.00%,F,T)



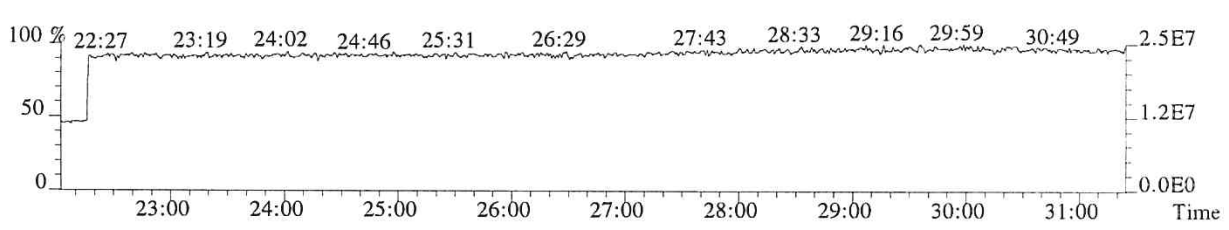
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2096.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1036.0,1.00%,F,T)

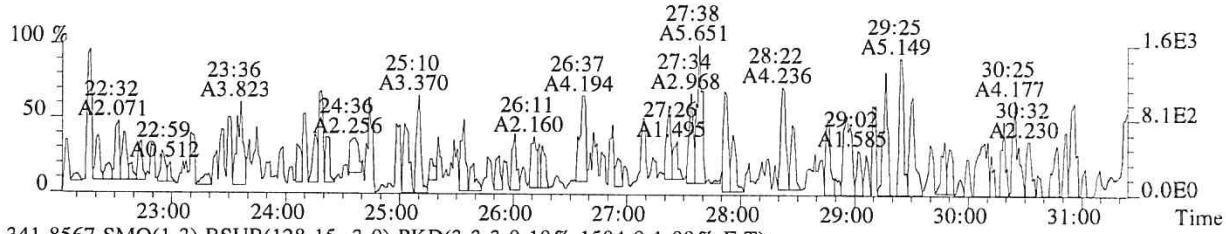


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

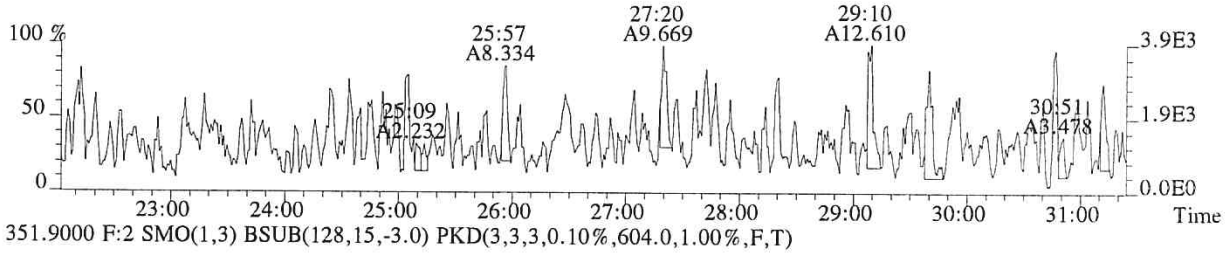


015937

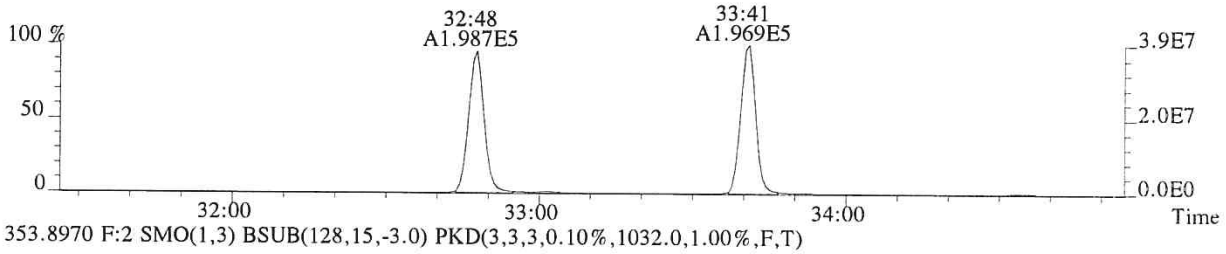
File:P513850 #1-665 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,244.0,1.00%,F,T)



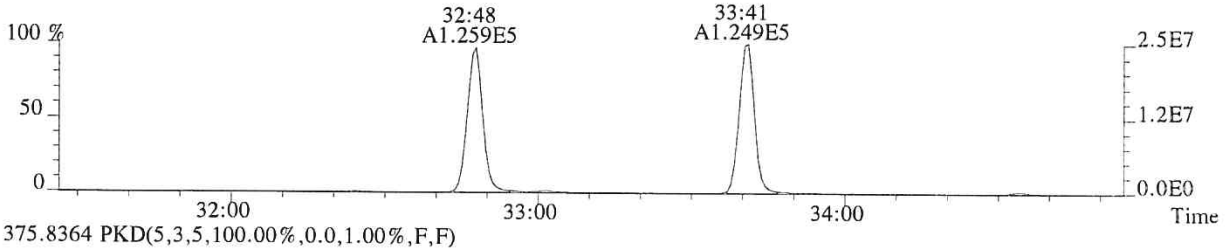
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1504.0,1.00%,F,T)



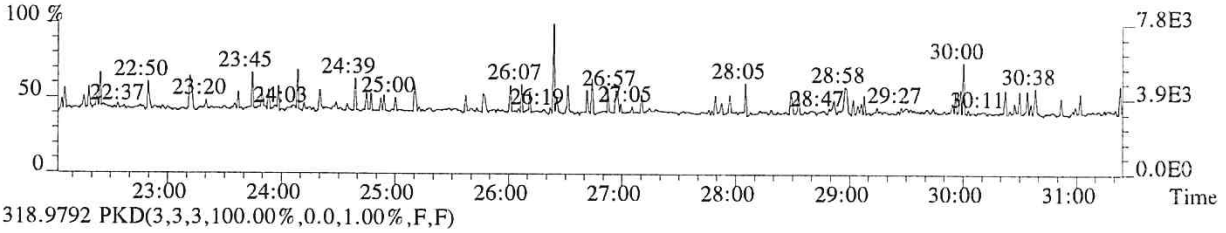
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



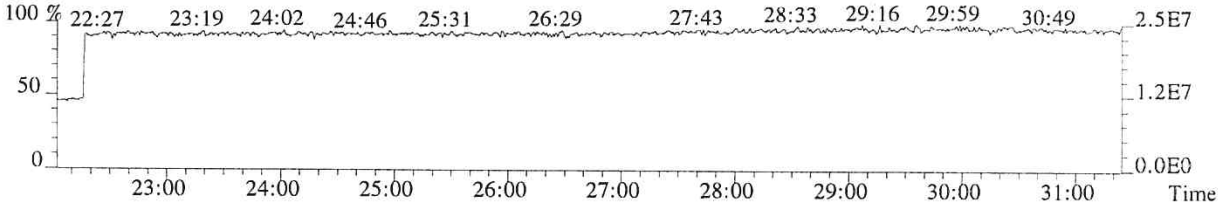
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

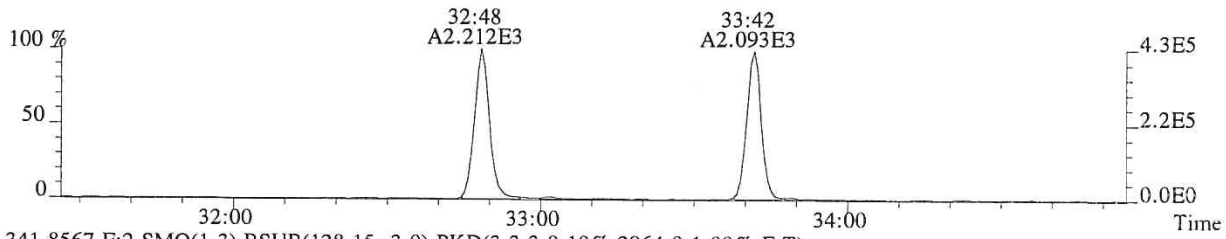


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

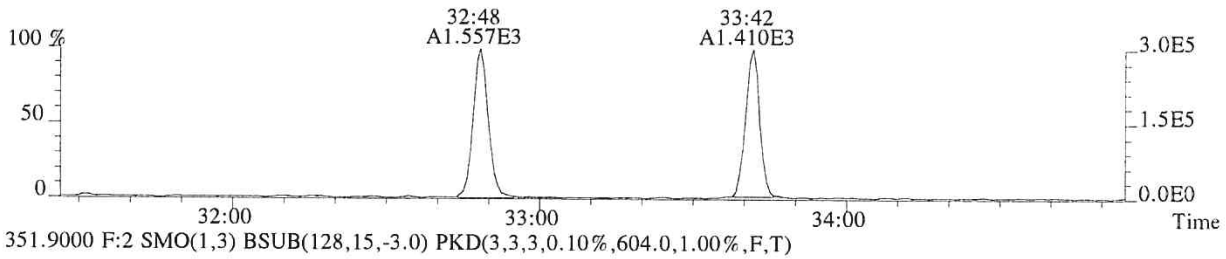


015938

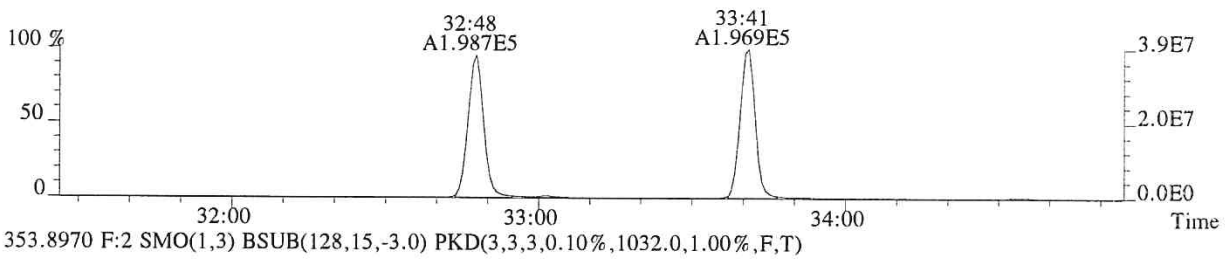
File:P513850 #1-313 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1008.0,1.00%,F,T)



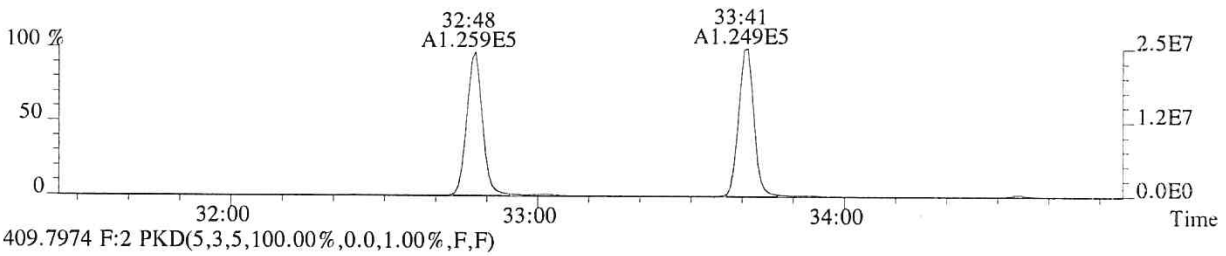
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2964.0,1.00%,F,T)



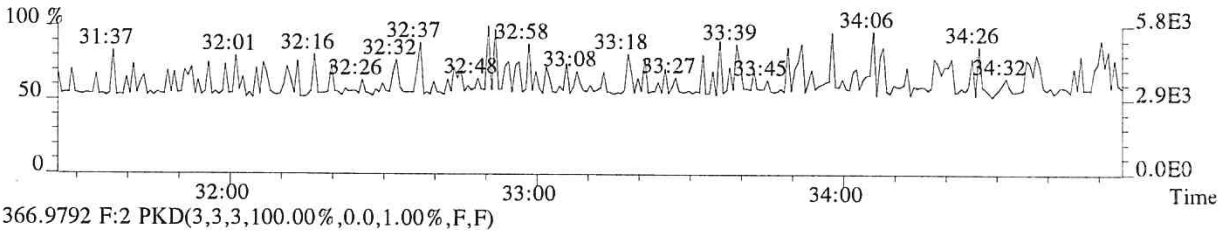
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



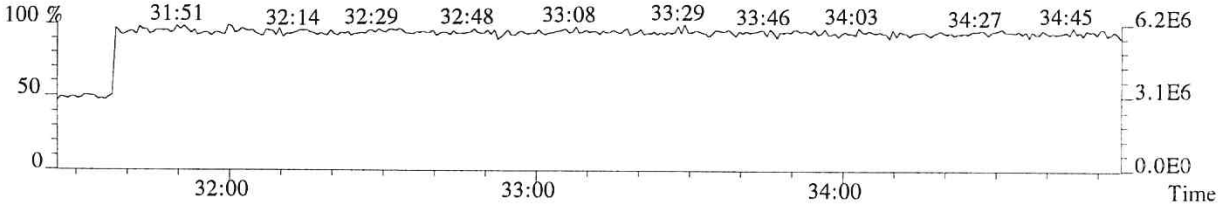
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

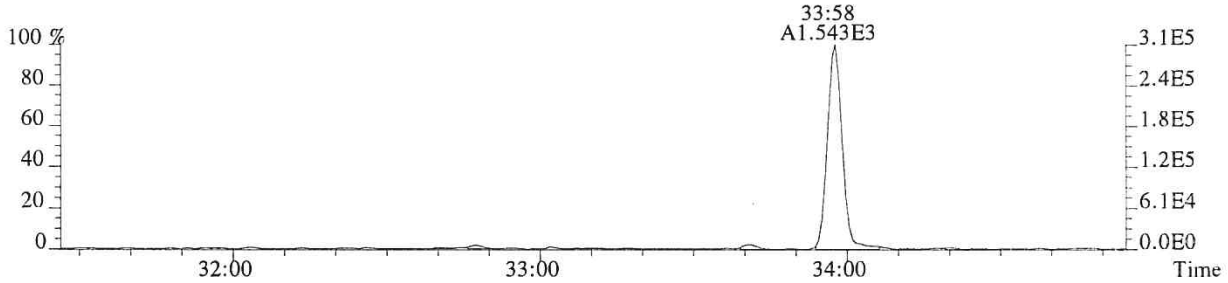


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

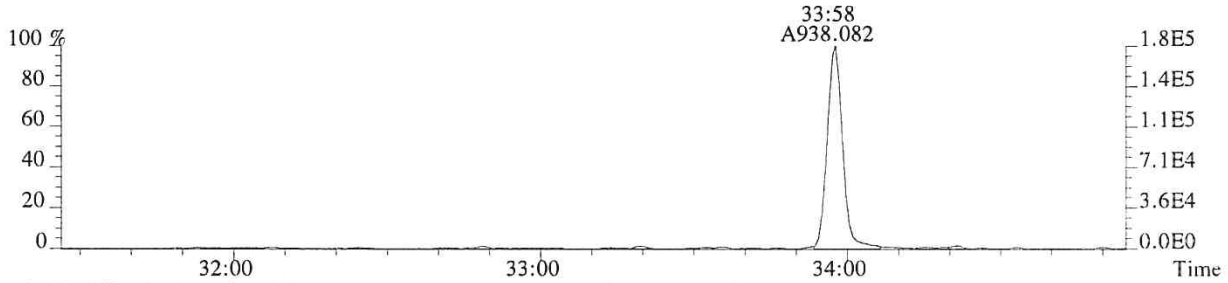


015939

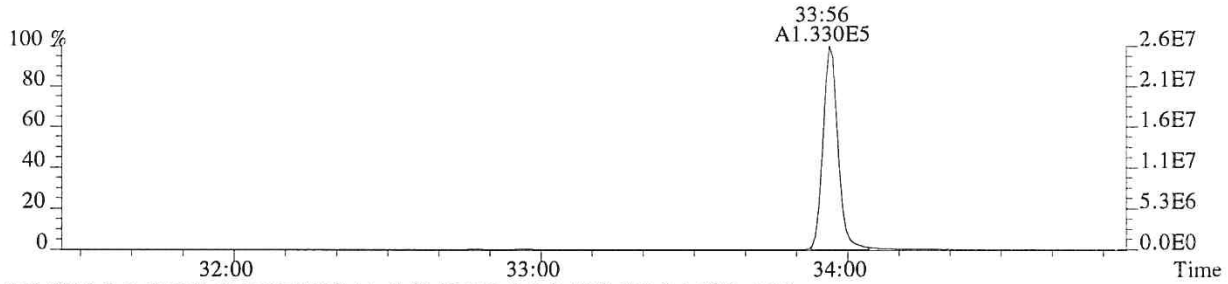
File:P513850 #1-313 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1172.0,1.00%,F,T)



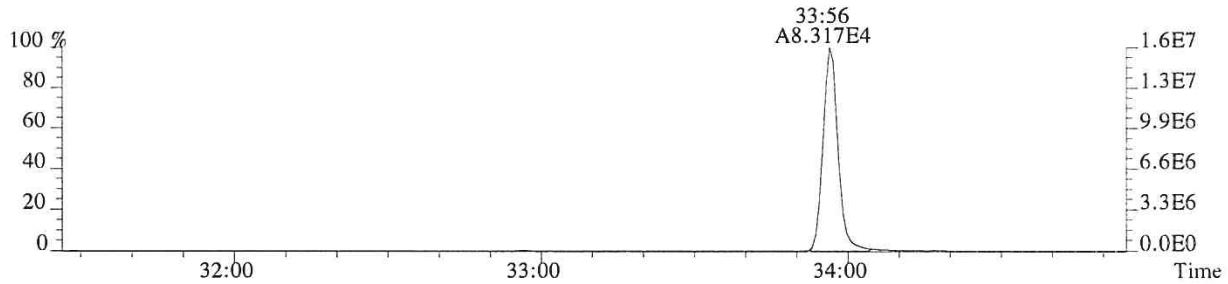
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,188.0,1.00%,F,T)



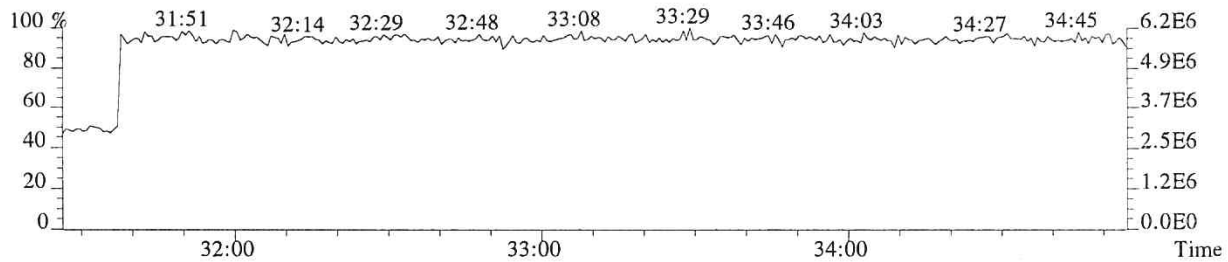
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,988.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,672.0,1.00%,F,T)

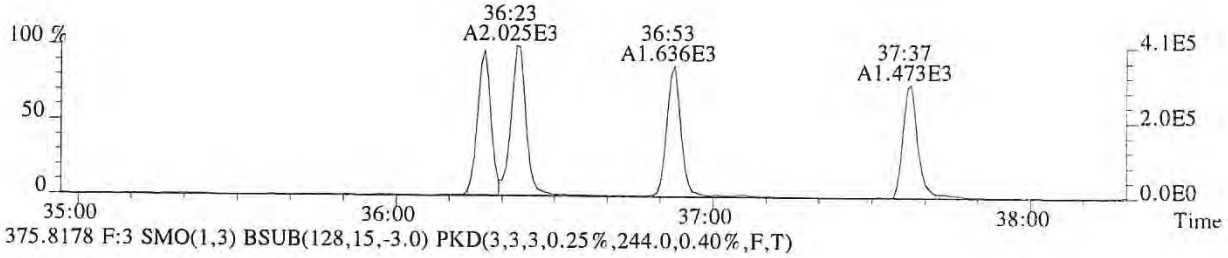


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

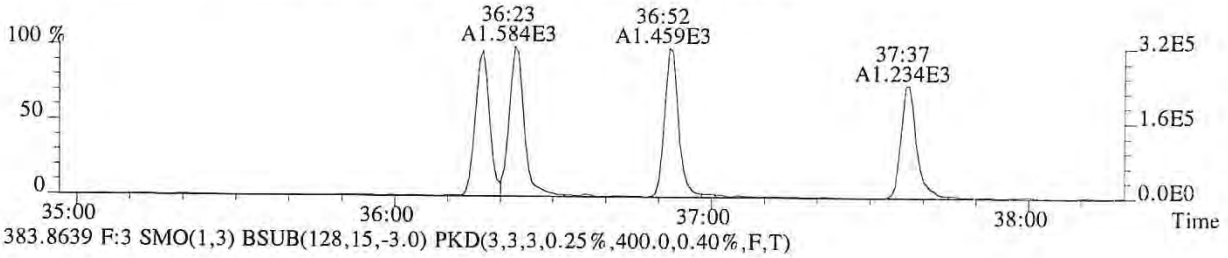


015940

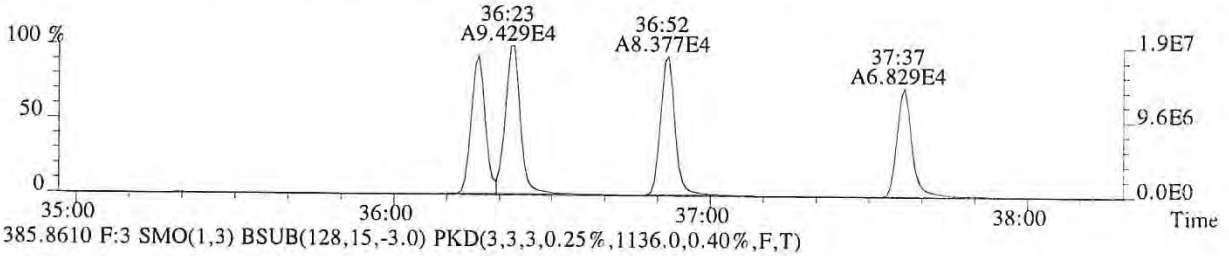
File:P513850 #1-303 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,876.0,0.40%,F,T)



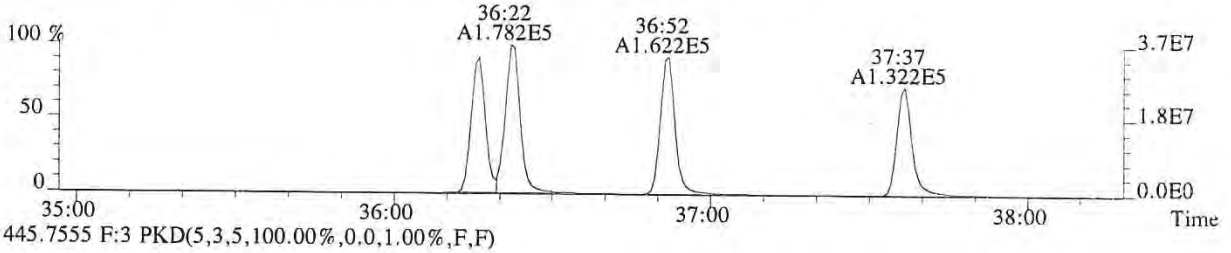
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,244.0,0.40%,F,T)



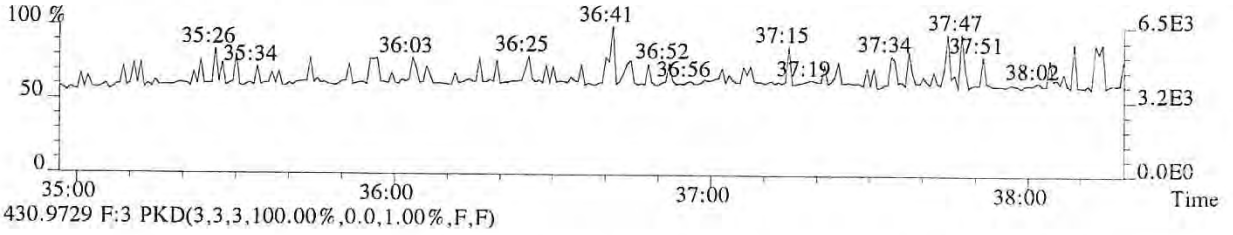
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,400.0,0.40%,F,T)



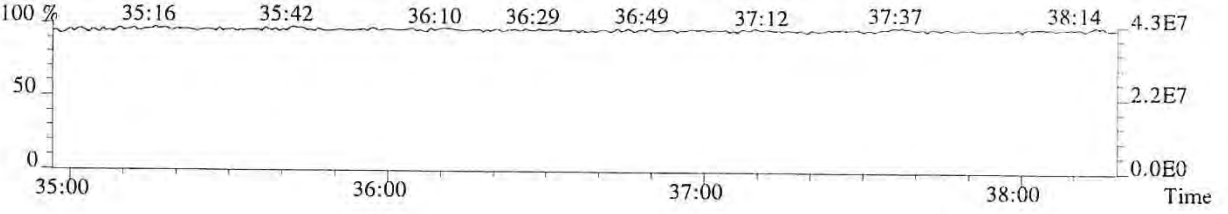
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1136.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

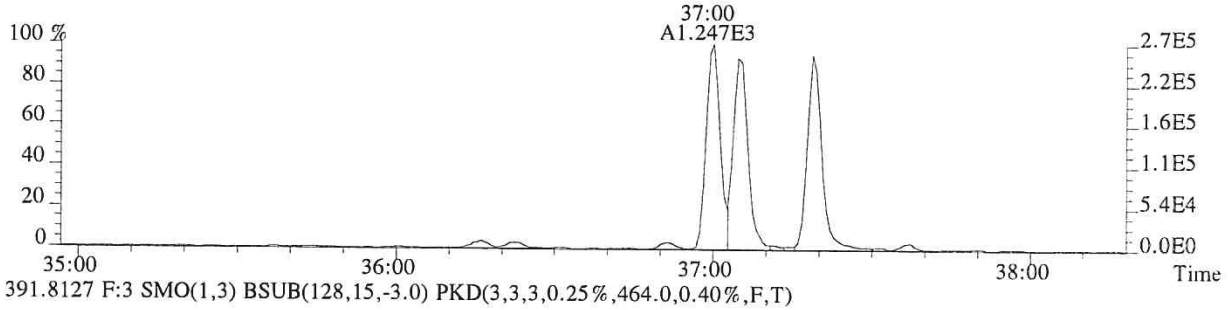


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

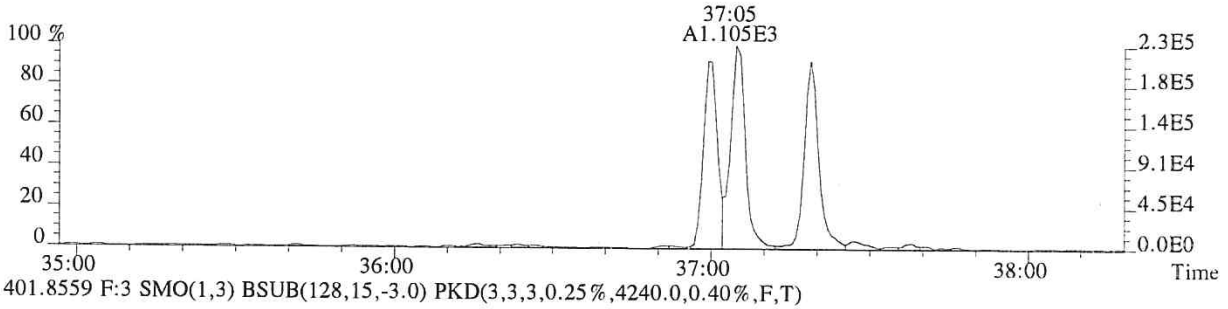


015941

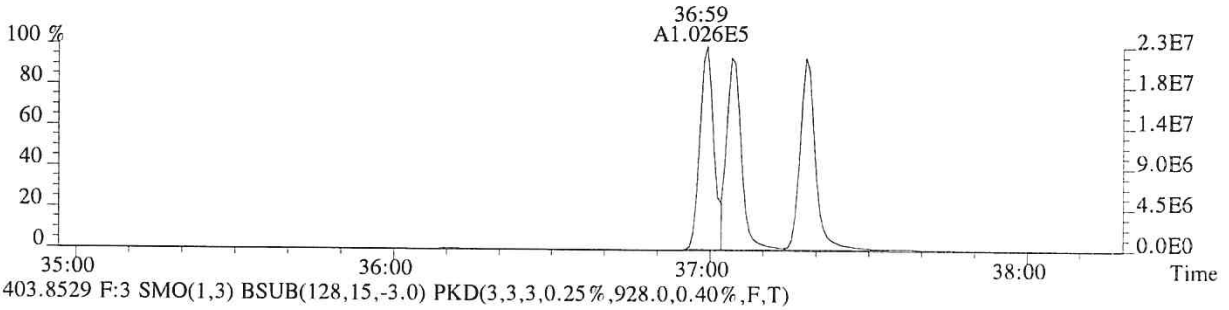
File:P513850 #1-303 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,520.0,0.40%,F,T)



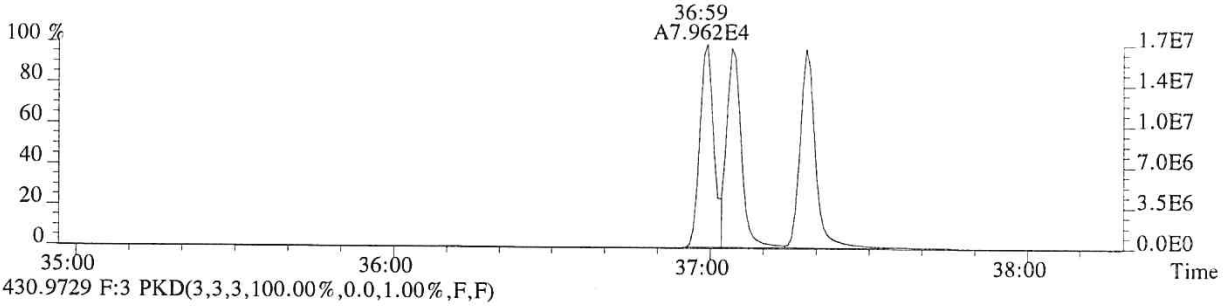
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,464.0,0.40%,F,T)



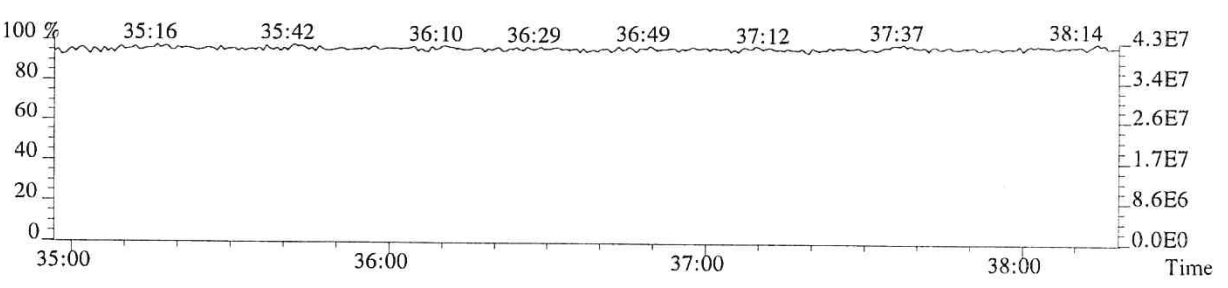
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4240.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,928.0,0.40%,F,T)

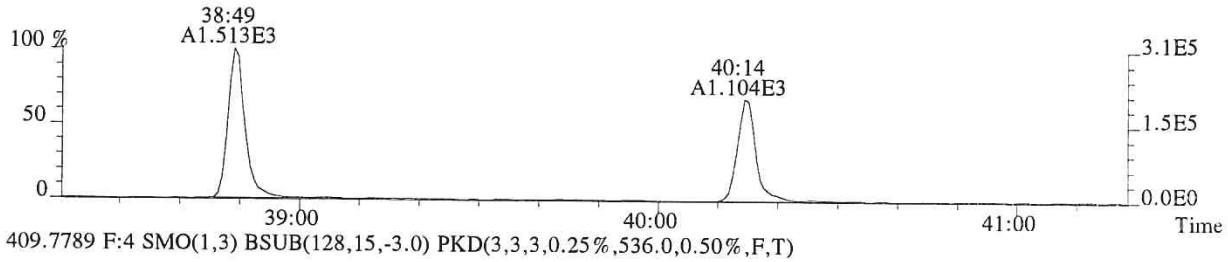


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

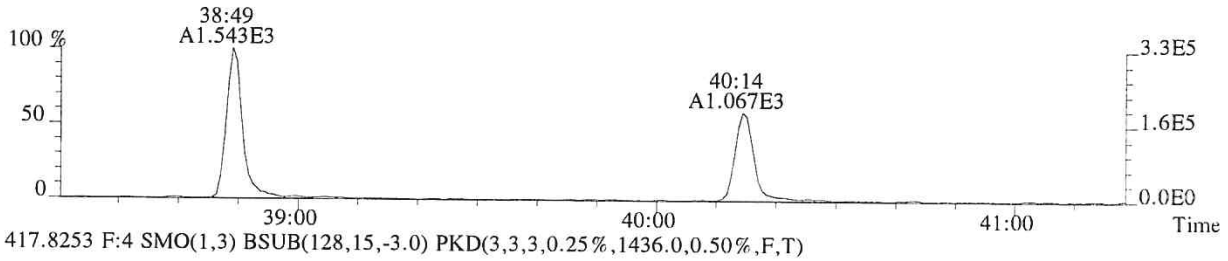


015942

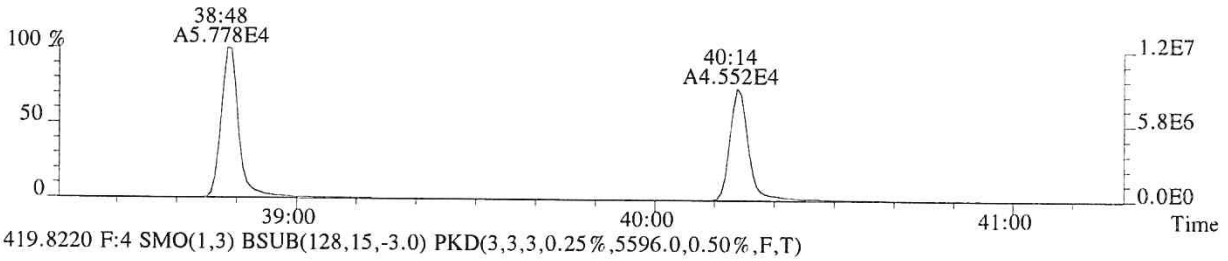
File:P513850 #1-268 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,860.0,0.50%,F,T)



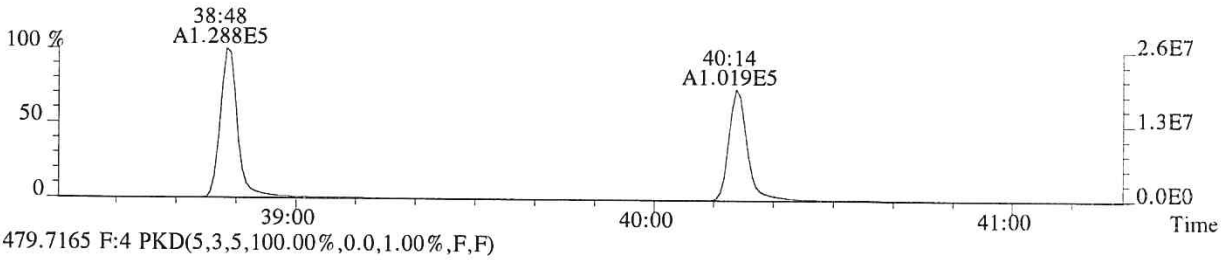
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,536.0,0.50%,F,T)



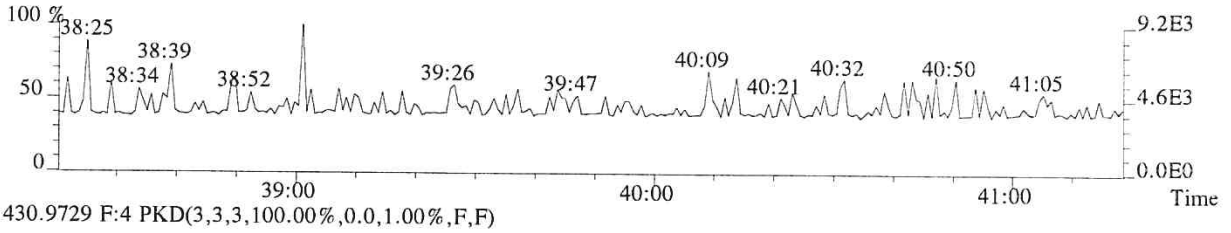
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1436.0,0.50%,F,T)



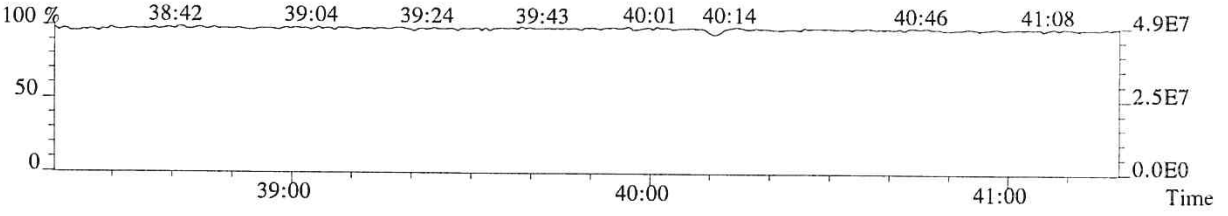
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5596.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

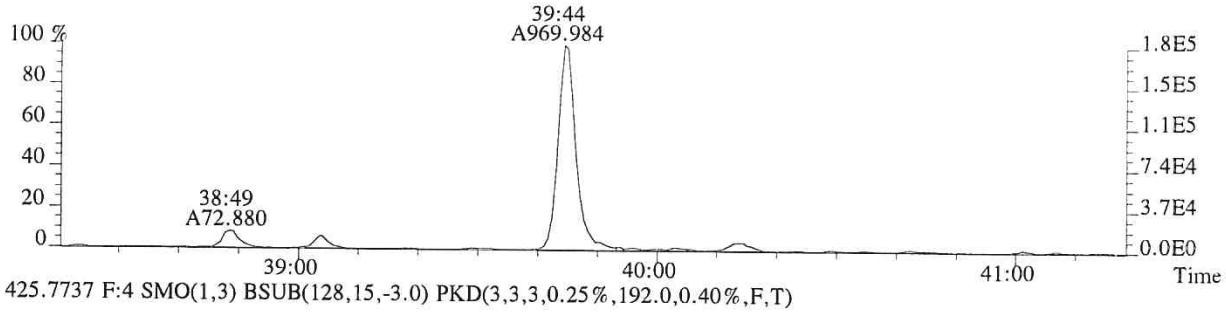


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

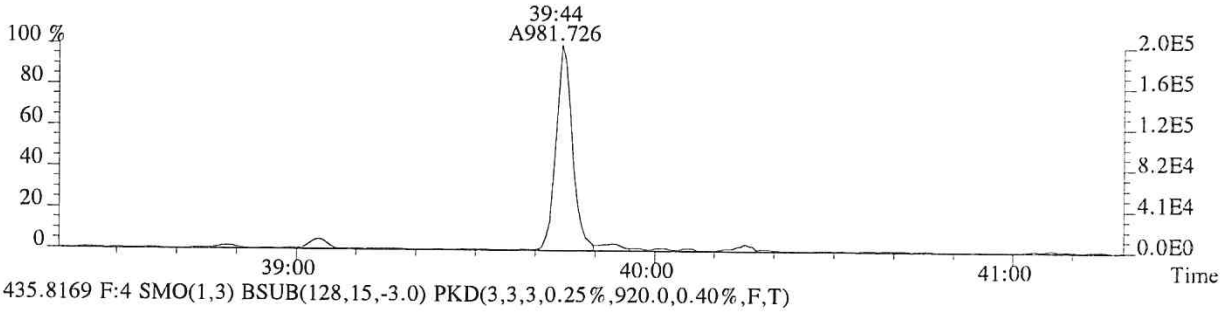


015943

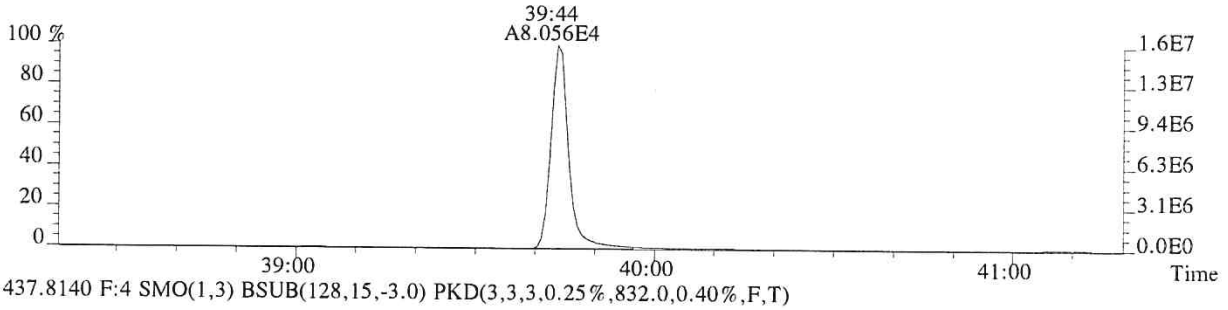
File:P513850 #1-268 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,172.0,0.40%,F,T)



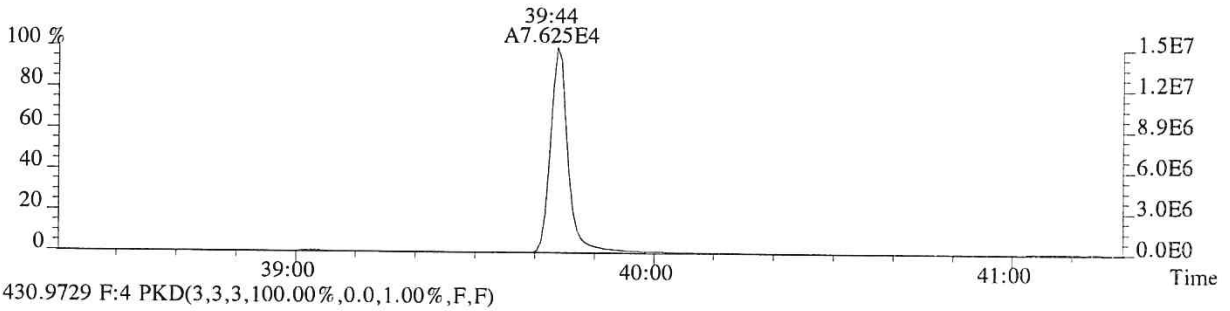
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,192.0,0.40%,F,T)



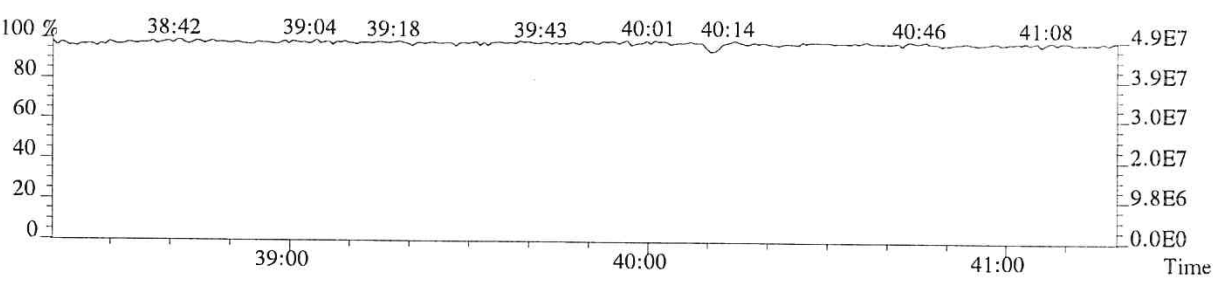
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,920.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,832.0,0.40%,F,T)

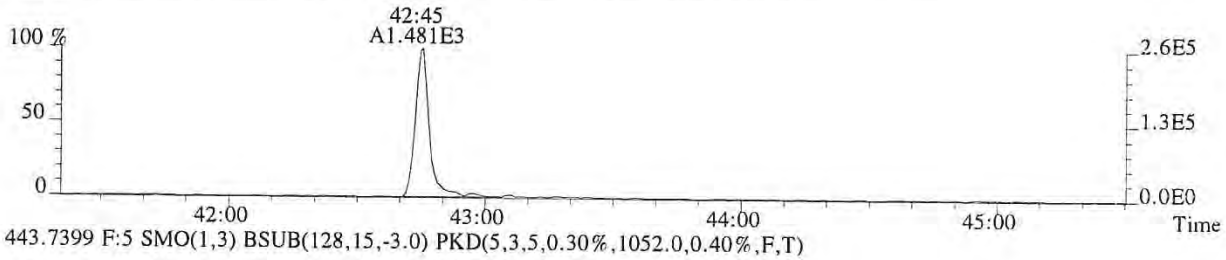


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

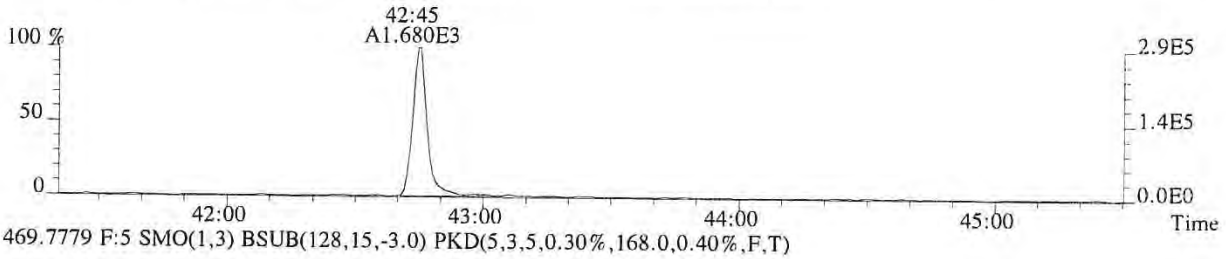


015944

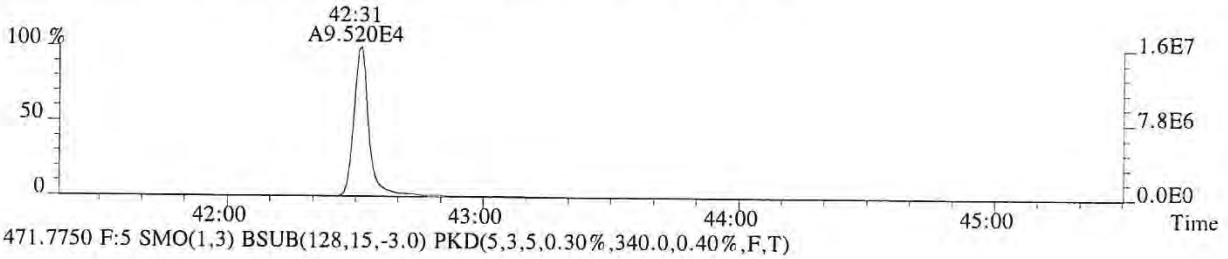
File:P513850 #1-375 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,640.0,0.40%,F,T)



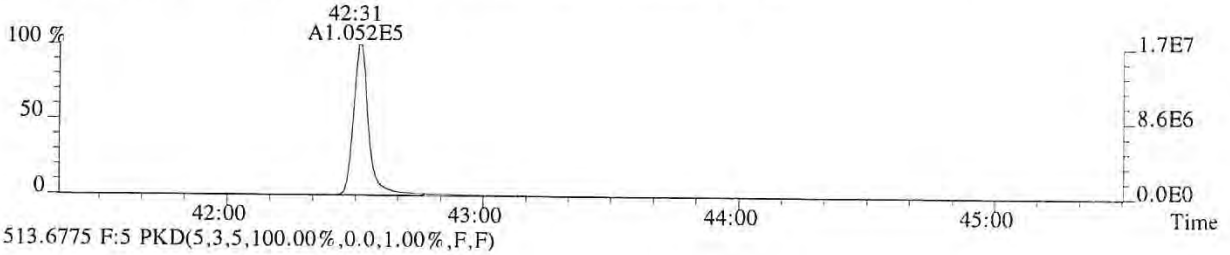
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1052.0,0.40%,F,T)



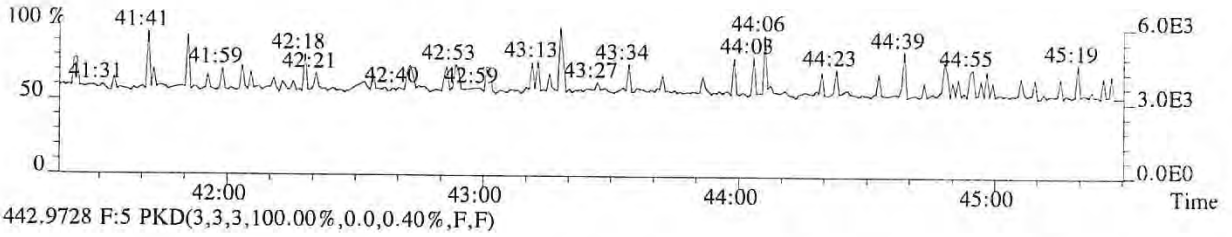
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,168.0,0.40%,F,T)



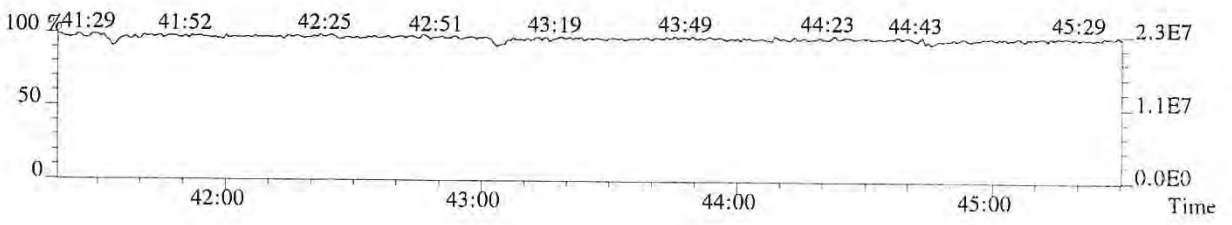
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,340.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

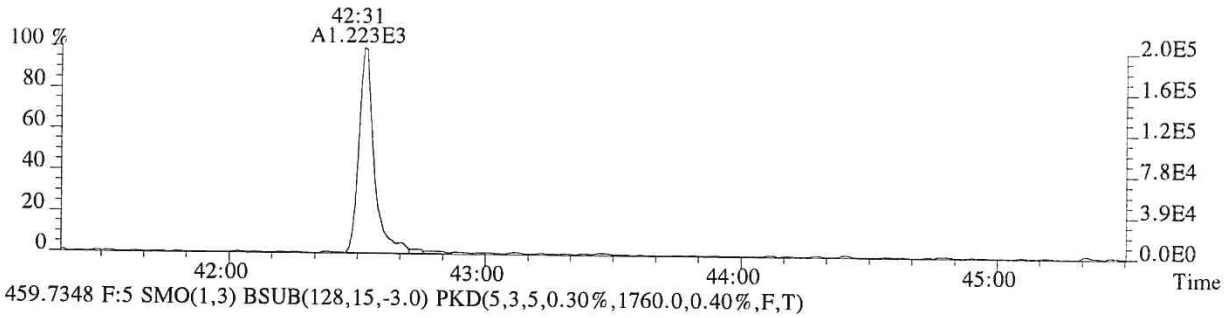


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

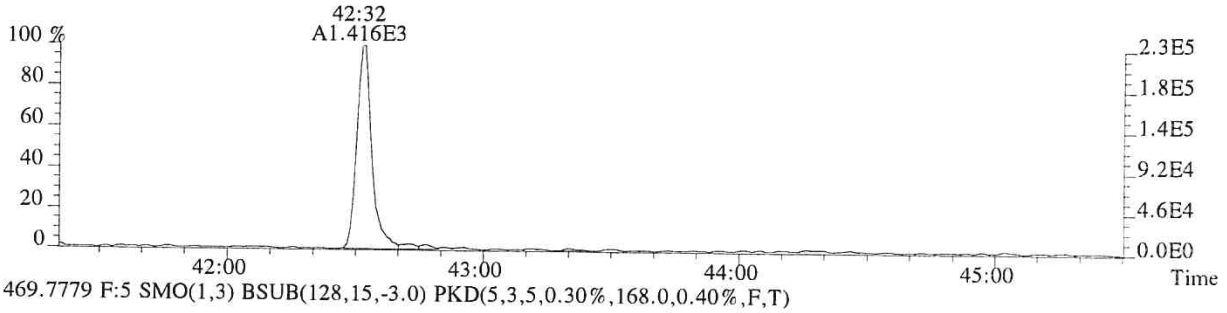


015945

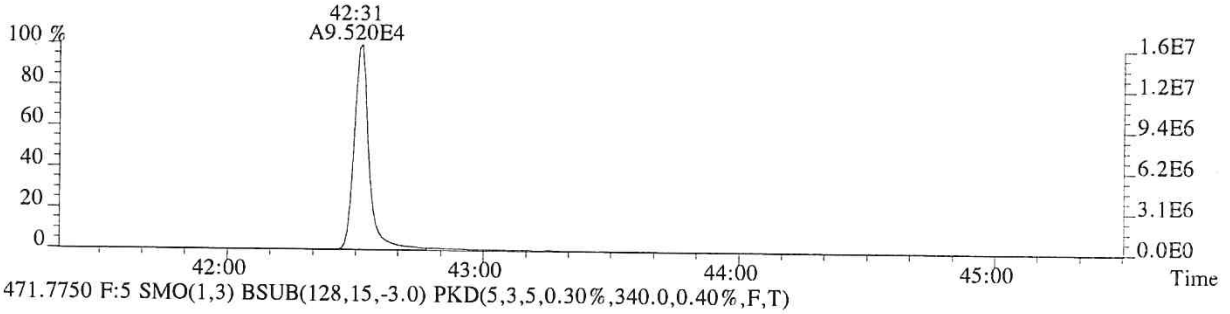
File:P513850 #1-375 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,124.0,0.40%,F,T)



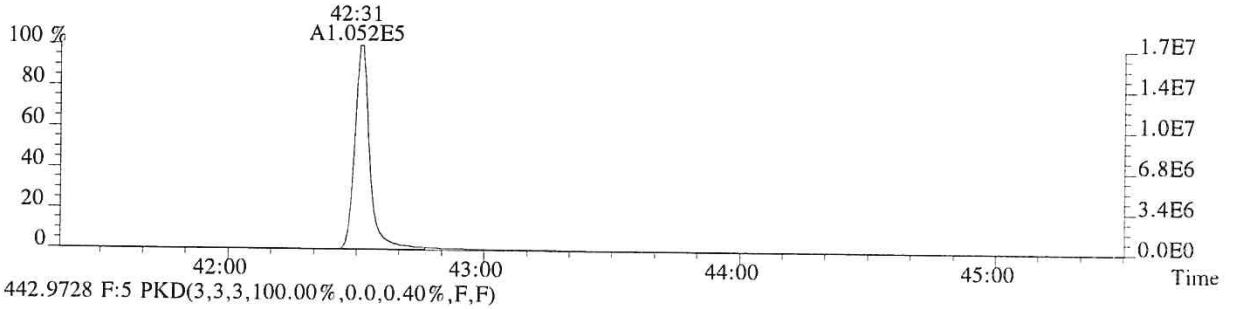
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1760.0,0.40%,F,T)



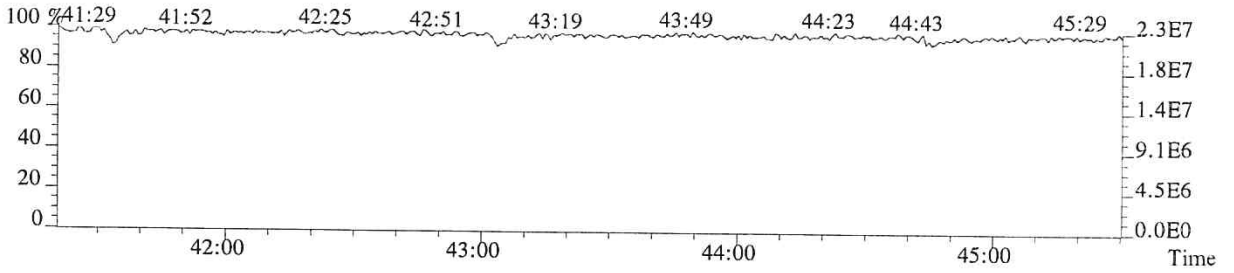
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,168.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,340.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



015946

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76555

Run #2 Filename P513851 Samp: 1 Inj: 1 Acquired: 24-JAN-18 14:23:56
Processed: 24-JAN-18 15:49:38 Sample ID: CS1

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	3.265e+02	4.510e+02	0.72	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	2.143e+03	1.390e+03	1.54	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:41	1.966e+03	1.345e+03	1.46	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:16	1.692e+03	1.406e+03	1.20	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	1.851e+03	1.586e+03	1.17	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:52	1.642e+03	1.320e+03	1.24	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	1.587e+03	1.193e+03	1.33	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	1.464e+03	1.425e+03	1.03	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	1.230e+03	1.277e+03	0.96	yes	no	1.258
10	Unk	OCDF	42:45	1.832e+03	1.936e+03	0.95	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	2.385e+02	2.700e+02	0.88	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:57	1.365e+03	8.234e+02	1.66	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:59	1.134e+03	9.001e+02	1.26	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	1.250e+03	9.288e+02	1.35	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	1.168e+03	9.616e+02	1.21	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	1.020e+03	9.210e+02	1.11	yes	no	1.025
17	Unk	OCDD	42:31	1.446e+03	1.652e+03	0.88	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:47	7.137e+04	9.000e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:47	8.867e+04	5.547e+04	1.60	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	8.638e+04	5.480e+04	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	3.777e+04	7.232e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:22	4.414e+04	8.392e+04	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:51	3.753e+04	7.150e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:36	3.488e+04	6.647e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	2.710e+04	6.070e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	2.509e+04	5.658e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:31	4.231e+04	5.302e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	5.560e+04	3.503e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	4.358e+04	3.432e+04	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	4.635e+04	3.621e+04	1.28	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	4.039e+04	3.882e+04	1.04	yes	no	0.858
32	IS	13C-OCDD	42:31	5.166e+04	5.687e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:57	4.919e+04	6.018e+04	0.82	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	4.800e+04	3.836e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	5.257e+02				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76555

Run #2 Filename P513851 Samp: 1 Inj: 1 Acquired: 24-JAN-18 14:23:56
Processed: 24-JAN-18 15:49:38 LAB. ID: CS1

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.11e+04	5.52e+02	1.1e+02	8.10e+04	1.82e+03	4.5e+01
2	1,2,3,7,8-PeCDF	4.20e+05	1.32e+03	3.2e+02	2.59e+05	1.41e+03	1.8e+02
3	2,3,4,7,8-PeCDF	4.04e+05	1.32e+03	3.1e+02	2.67e+05	1.41e+03	1.9e+02
4	1,2,3,4,7,8-HxCDF	3.58e+05	5.32e+02	6.7e+02	3.14e+05	1.28e+02	2.5e+03
5	1,2,3,6,7,8-HxCDF	3.97e+05	5.32e+02	7.5e+02	3.35e+05	1.28e+02	2.6e+03
6	2,3,4,6,7,8-HxCDF	3.52e+05	5.32e+02	6.6e+02	2.91e+05	1.28e+02	2.3e+03
7	1,2,3,7,8,9-HxCDF	3.28e+05	5.32e+02	6.2e+02	2.40e+05	1.28e+02	1.9e+03
8	1,2,3,4,6,7,8-HpCDF	3.00e+05	3.04e+02	9.9e+02	3.07e+05	7.12e+02	4.3e+02
9	1,2,3,4,7,8,9-HpCDF	2.35e+05	3.04e+02	7.7e+02	2.45e+05	7.12e+02	3.4e+02
10	OCDF	3.05e+05	4.12e+02	7.4e+02	3.13e+05	8.20e+02	3.8e+02
11	2,3,7,8-TCDD	5.05e+04	1.50e+03	3.4e+01	5.68e+04	1.02e+03	5.5e+01
12	1,2,3,7,8-PeCDD	2.75e+05	9.88e+02	2.8e+02	1.65e+05	1.80e+02	9.2e+02
13	1,2,3,4,7,8-HxCDD	2.60e+05	5.96e+02	4.4e+02	2.09e+05	7.60e+02	2.7e+02
14	1,2,3,6,7,8-HxCDD	2.55e+05	5.96e+02	4.3e+02	1.96e+05	7.60e+02	2.6e+02
15	1,2,3,7,8,9-HxCDD	2.36e+05	5.96e+02	4.0e+02	1.94e+05	7.60e+02	2.6e+02
16	1,2,3,4,6,7,8-HpCDD	1.99e+05	6.88e+02	2.9e+02	1.95e+05	5.68e+02	3.4e+02
17	OCDD	2.63e+05	1.92e+02	1.4e+03	2.88e+05	1.59e+03	1.8e+02
18	13C-2,3,7,8-TCDF	1.42e+07	6.97e+03	2.0e+03	1.79e+07	2.86e+03	6.3e+03
19	13C-1,2,3,7,8-PeCDF	1.70e+07	6.48e+02	2.6e+04	1.08e+07	1.59e+03	6.8e+03
20	13C-2,3,4,7,8-PeCDF	1.78e+07	6.48e+02	2.7e+04	1.13e+07	1.59e+03	7.1e+03
21	13C-1,2,3,4,7,8-HxCDF	8.20e+06	9.16e+02	9.0e+03	1.58e+07	1.42e+03	1.1e+04
22	13C-1,2,3,6,7,8-HxCDF	9.34e+06	9.16e+02	1.0e+04	1.79e+07	1.42e+03	1.3e+04
23	13C-2,3,4,6,7,8-HxCDF	8.09e+06	9.16e+02	8.8e+03	1.56e+07	1.42e+03	1.1e+04
24	13C-1,2,3,7,8,9-HxCDF	7.17e+06	9.16e+02	7.8e+03	1.36e+07	1.42e+03	9.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	5.66e+06	2.69e+03	2.1e+03	1.28e+07	9.09e+03	1.4e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.79e+06	2.69e+03	1.8e+03	1.07e+07	9.09e+03	1.2e+03
27	13C-2,3,7,8-TCDD	8.84e+06	4.39e+03	2.0e+03	1.11e+07	2.59e+03	4.3e+03
28	13C-1,2,3,7,8-PeCDD	1.13e+07	1.11e+03	1.0e+04	7.15e+06	7.88e+02	9.1e+03
29	13C-1,2,3,4,7,8-HxCDD	9.90e+06	2.00e+03	4.9e+03	7.79e+06	1.42e+03	5.5e+03
30	13C-1,2,3,6,7,8-HxCDD	9.60e+06	2.00e+03	4.8e+03	7.47e+06	1.42e+03	5.2e+03
31	13C-1,2,3,4,6,7,8-HpCDD	7.95e+06	1.15e+03	6.9e+03	7.67e+06	8.88e+02	8.6e+03
32	13C-OCDD	8.56e+06	6.00e+01	1.4e+05	9.50e+06	8.00e+02	1.2e+04
33	13C-1,2,3,4-TCDD	9.96e+06	4.39e+03	2.3e+03	1.22e+07	2.59e+03	4.7e+03
34	13C-1,2,3,7,8,9-HxCDD	9.63e+06	2.00e+03	4.8e+03	7.67e+06	1.42e+03	5.4e+03
35	37Cl-2,3,7,8-TCDD	1.07e+05	1.30e+03	8.2e+01			

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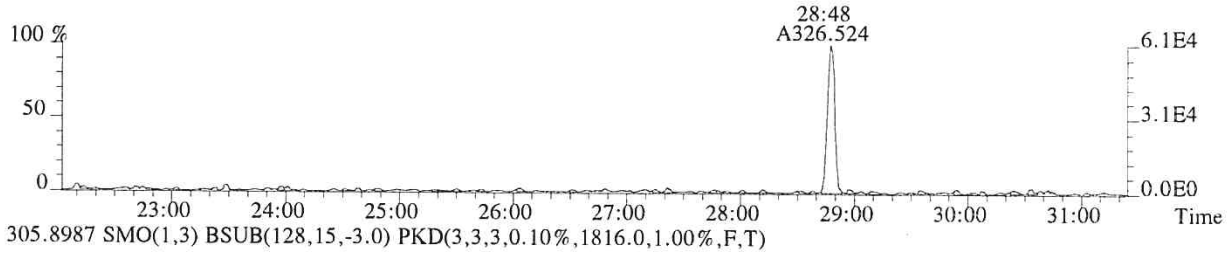
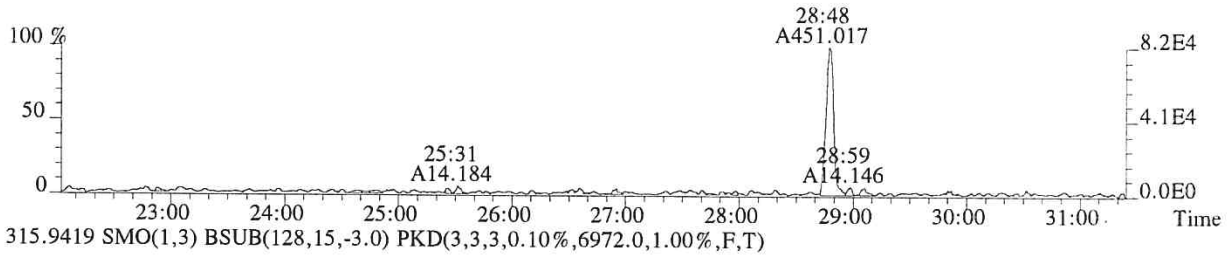
File:P513851 #1-665 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555

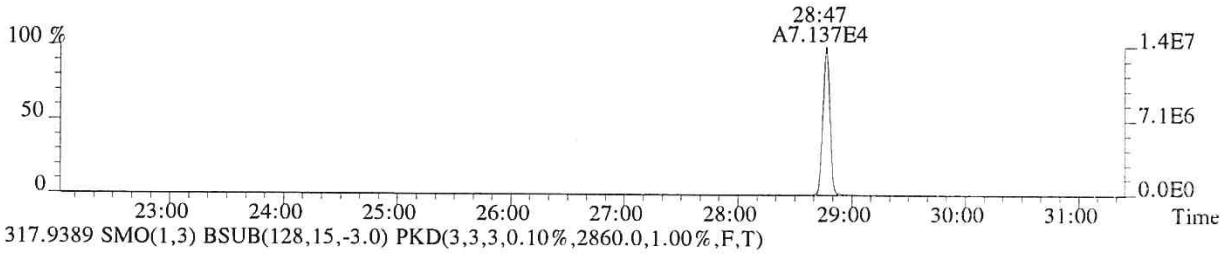
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,552.0,1.00%,F,T)



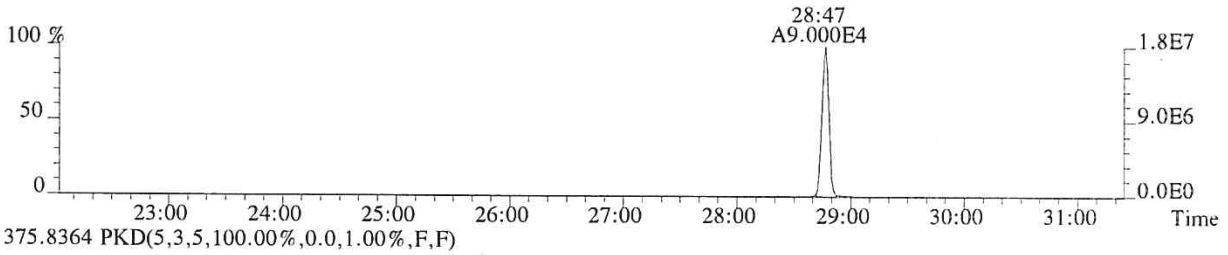
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1816.0,1.00%,F,T)



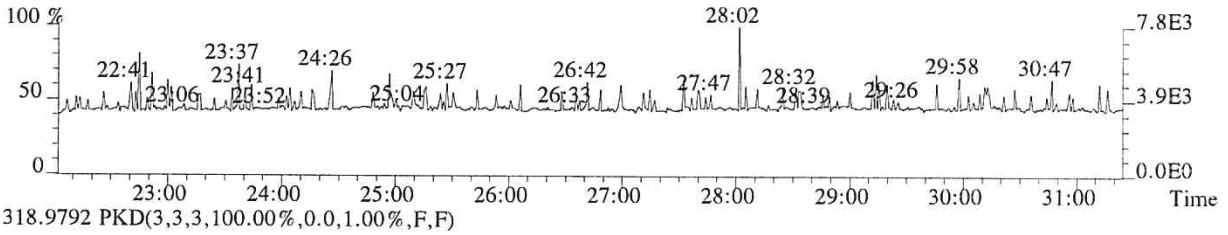
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6972.0,1.00%,F,T)



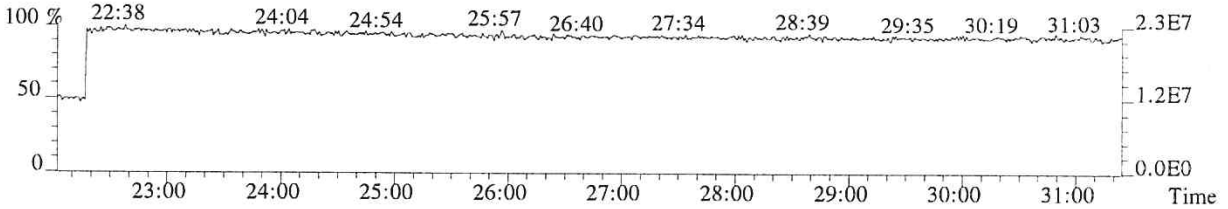
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2860.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

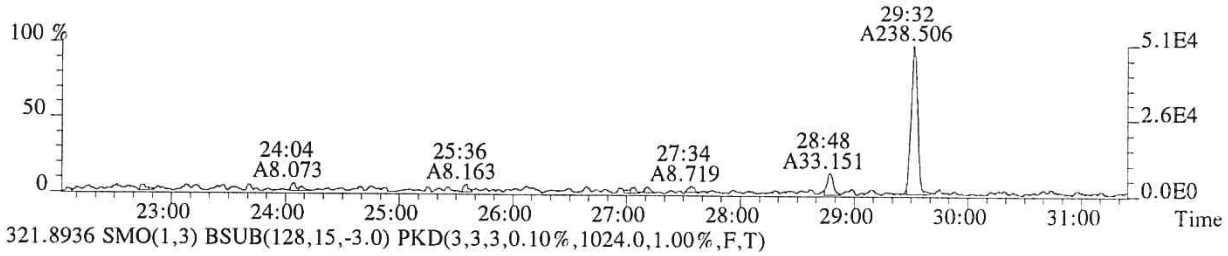


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

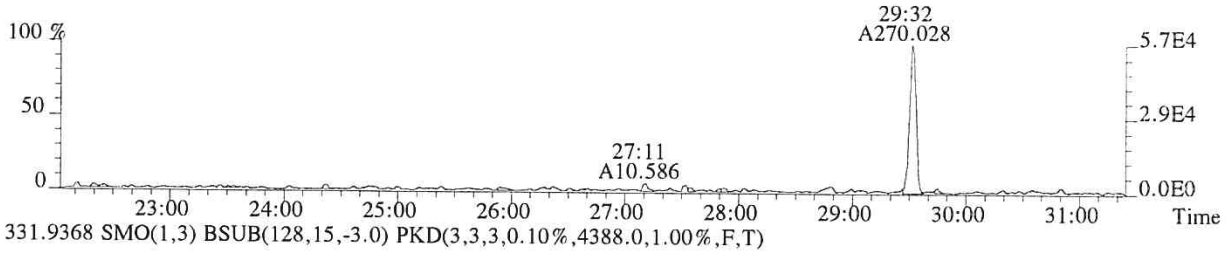


015949

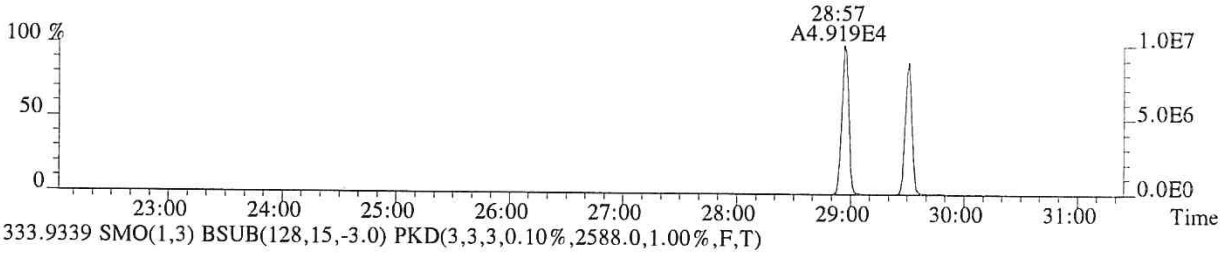
File:P513851 #1-665 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1496.0,1.00%,F,T)



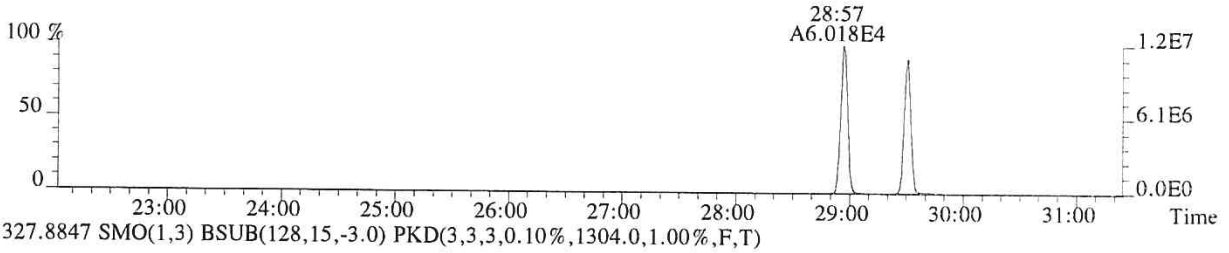
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1024.0,1.00%,F,T)



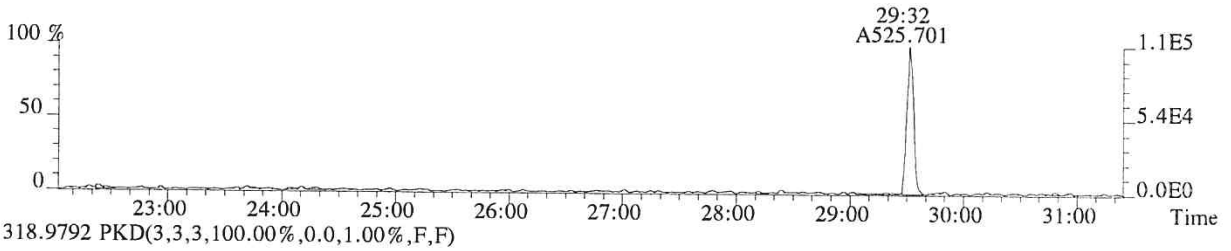
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4388.0,1.00%,F,T)



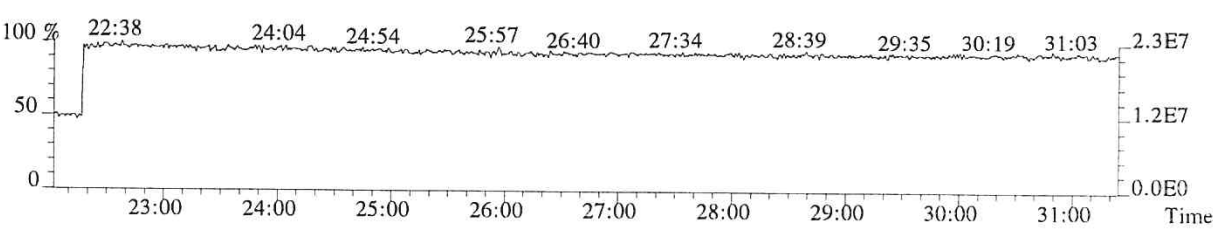
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2588.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1304.0,1.00%,F,T)

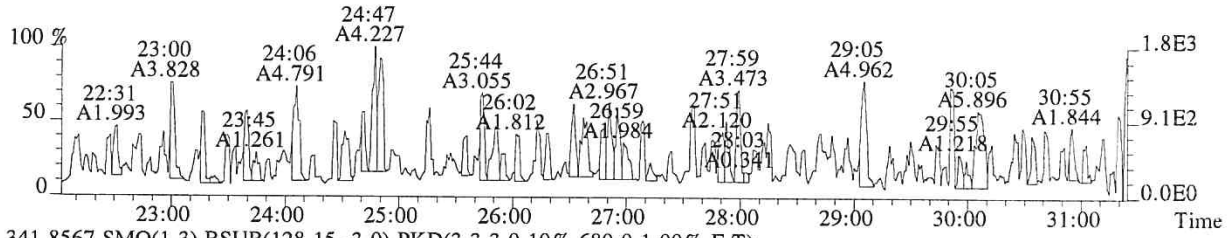


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

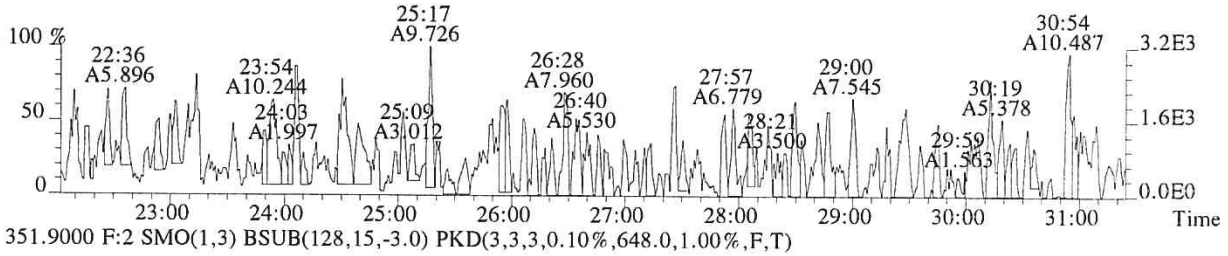


015950

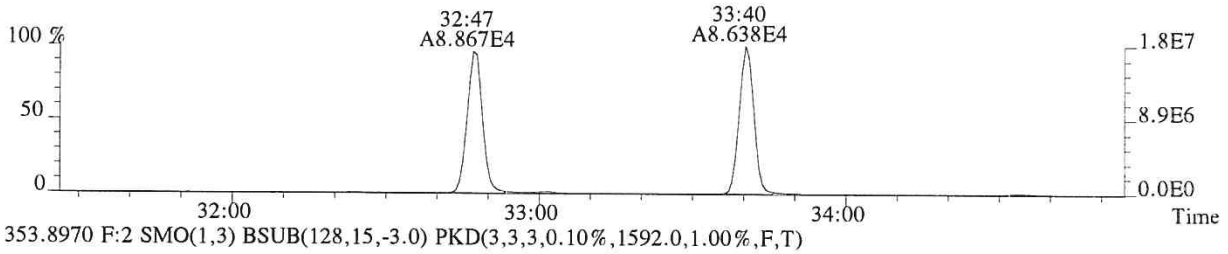
File:P513851 #1-665 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:76555
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,388.0,1.00%,F,T)



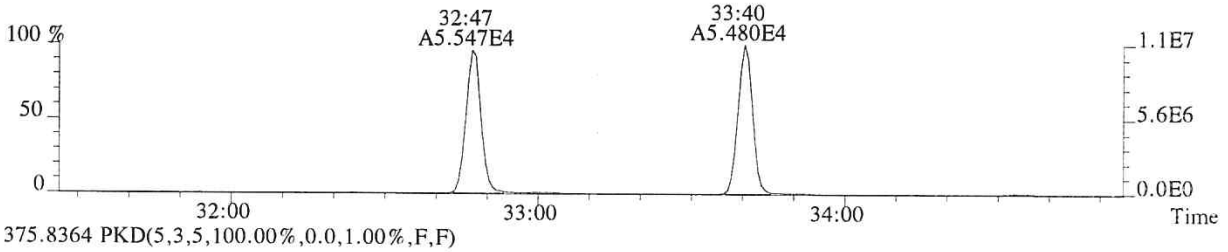
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,680.0,1.00%,F,T)



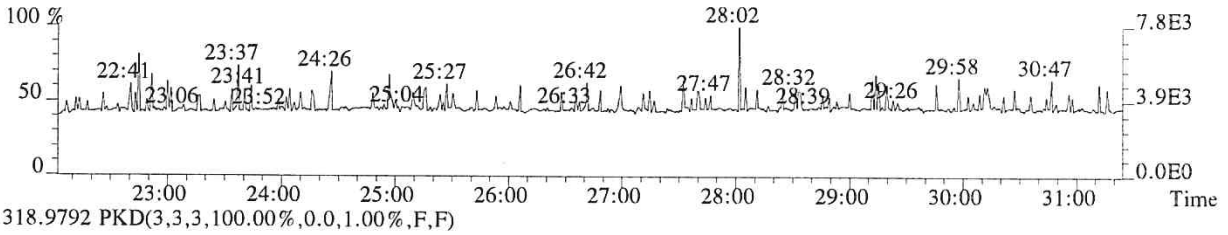
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



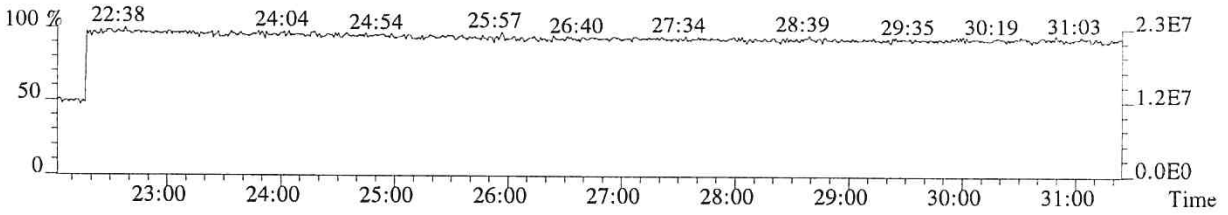
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1592.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

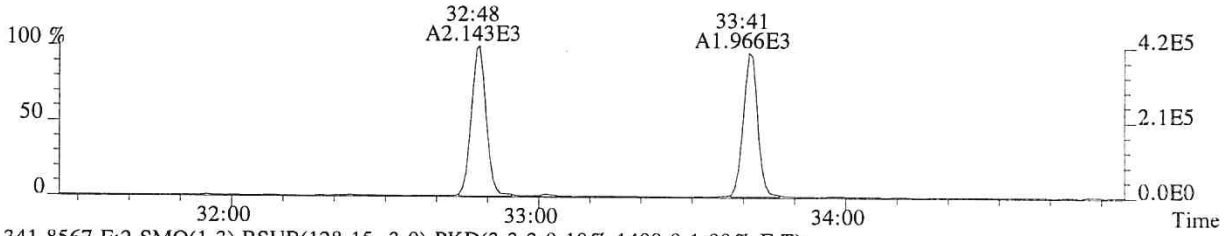


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

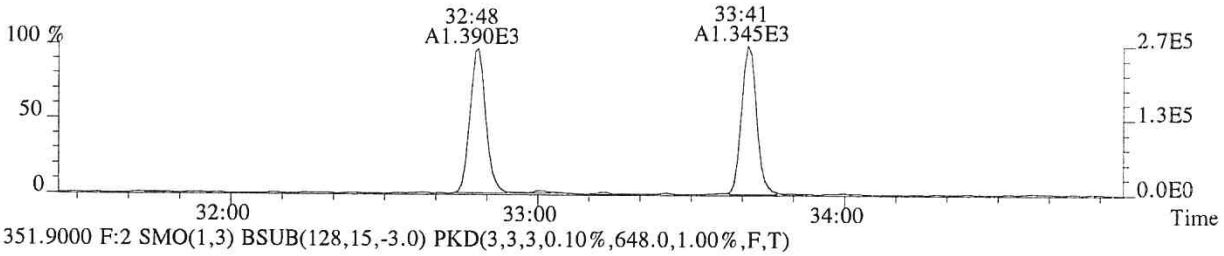


015951

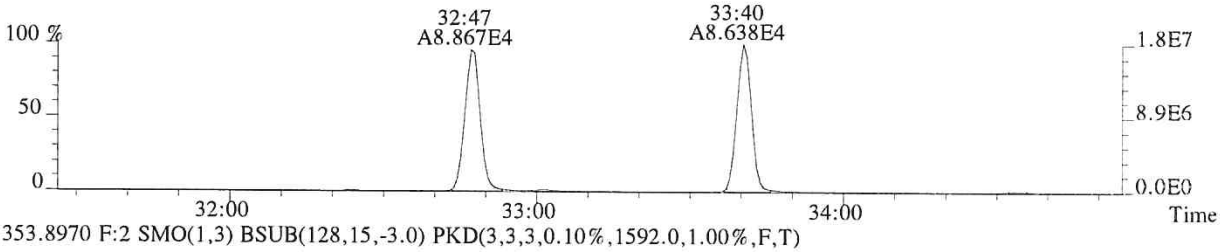
File:P513851 #1-313 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1316.0,1.00%,F,T)



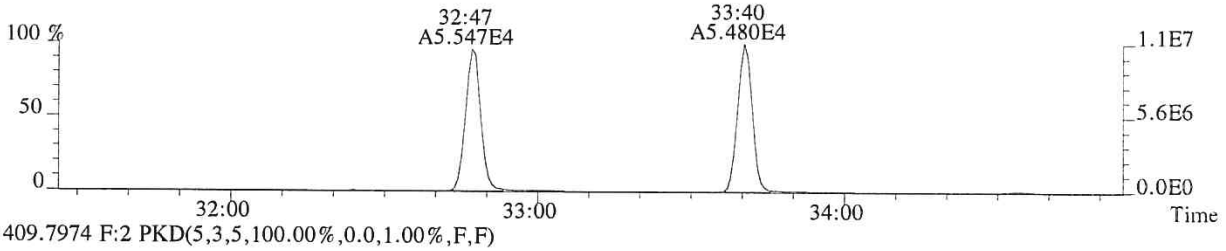
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1408.0,1.00%,F,T)



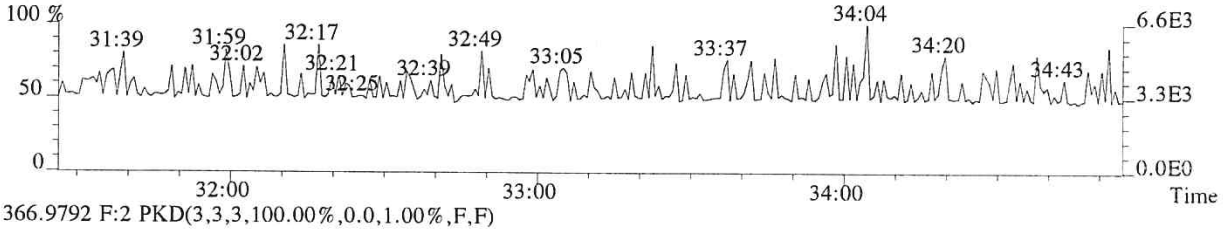
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



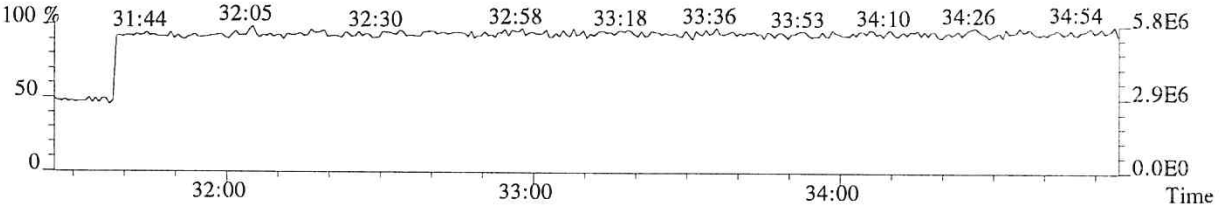
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1592.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

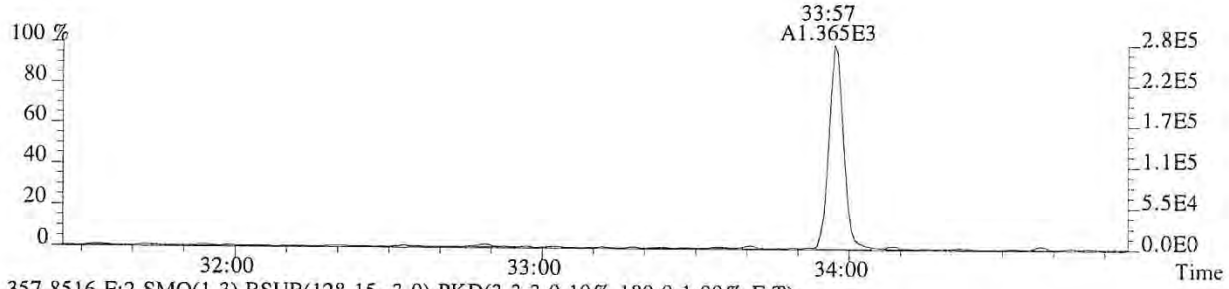


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

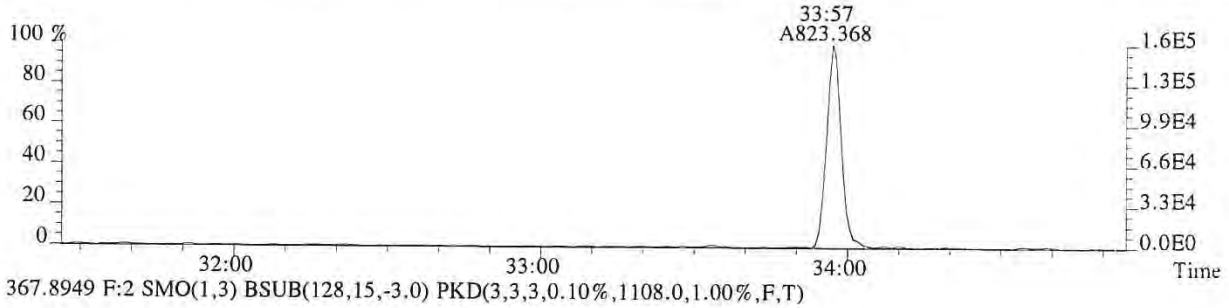


015952

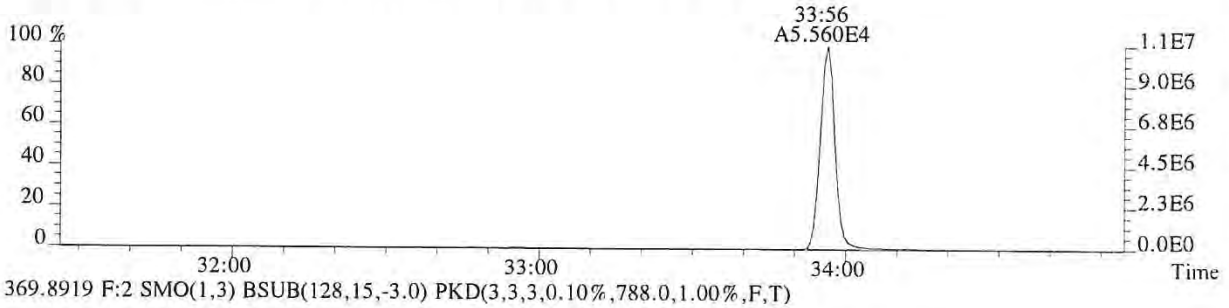
File:P513851 #1-313 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,988.0,1.00%,F,T)



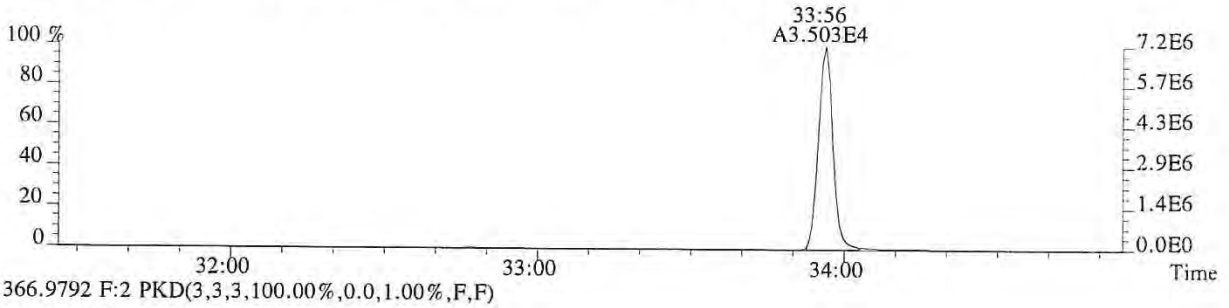
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,180.0,1.00%,F,T)



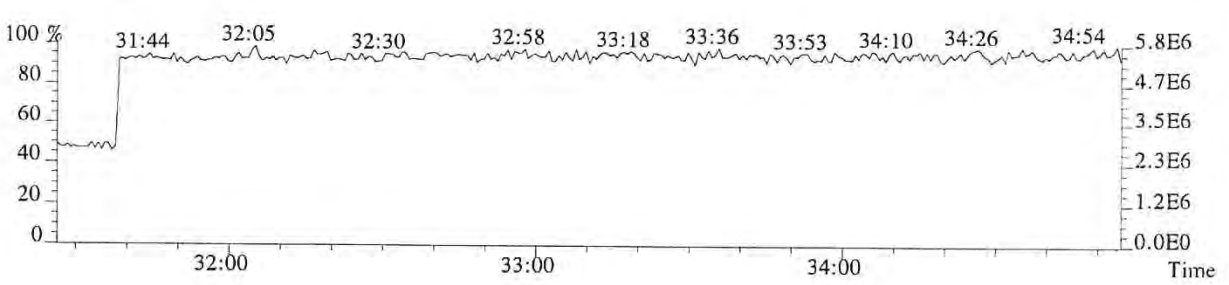
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1108.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,788.0,1.00%,F,T)



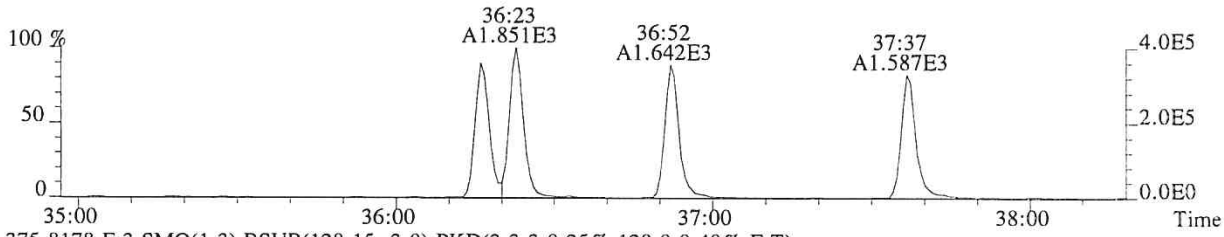
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



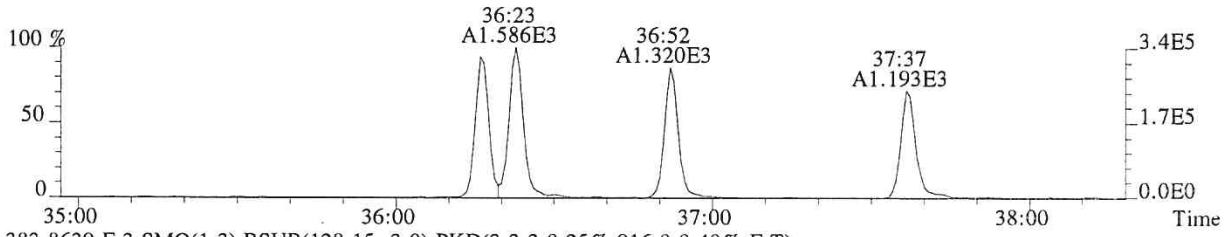
015953

File:P513851 #1-303 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555

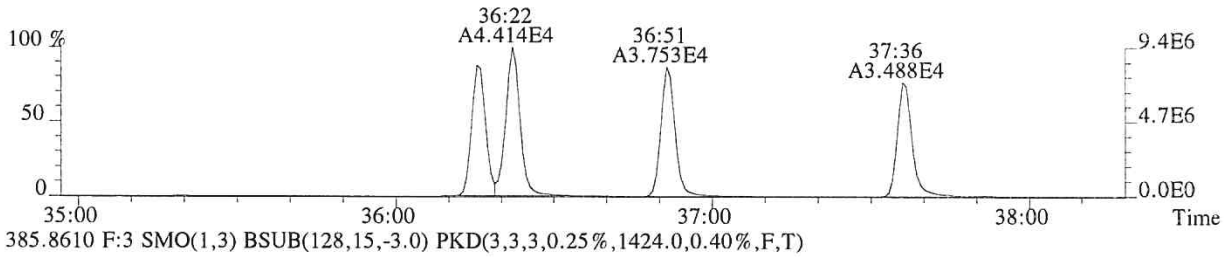
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,532.0,0.40%,F,T)



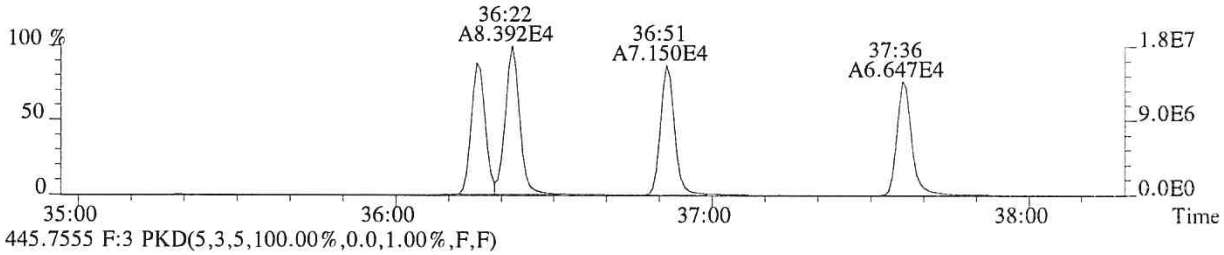
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,128.0,0.40%,F,T)



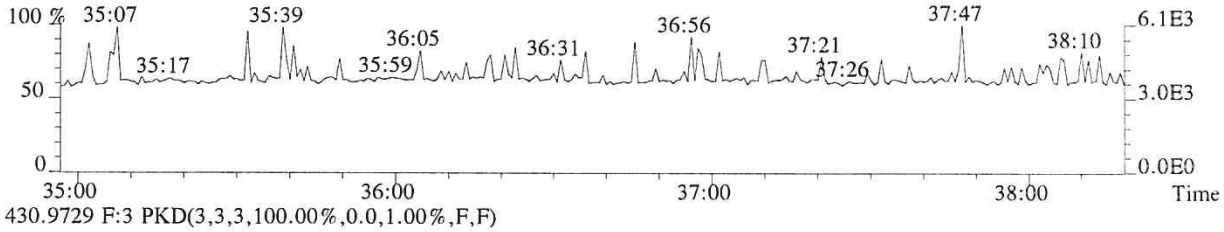
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,916.0,0.40%,F,T)



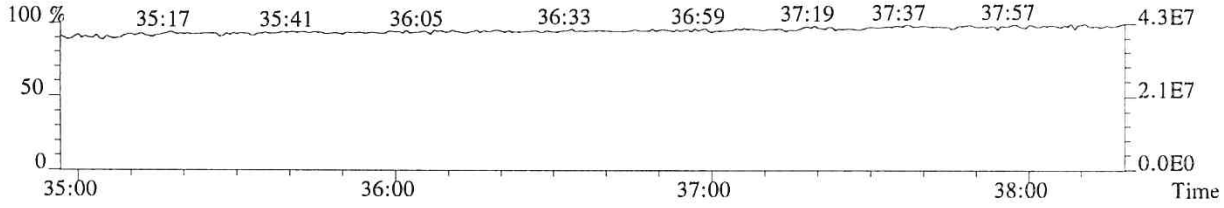
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1424.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

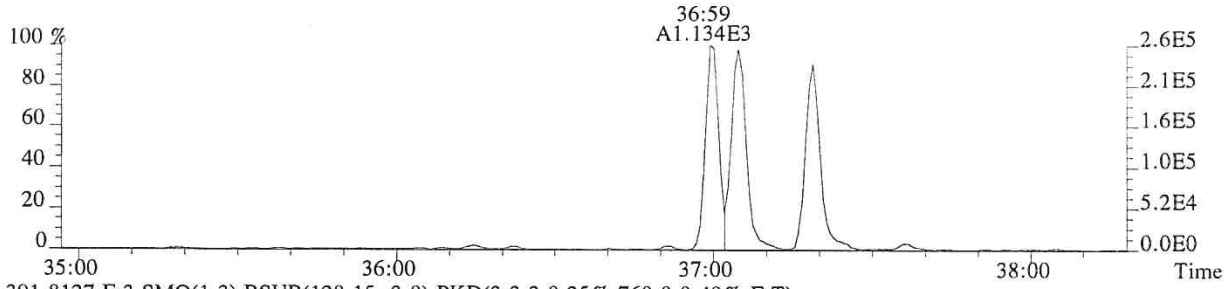


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

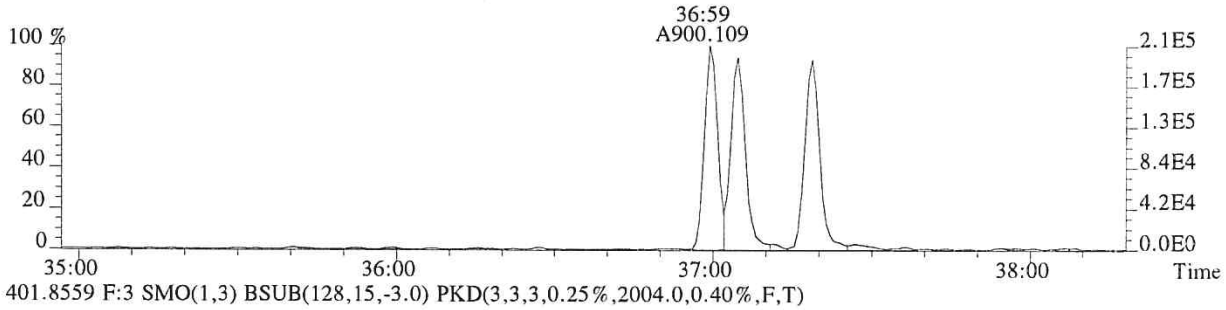


015954

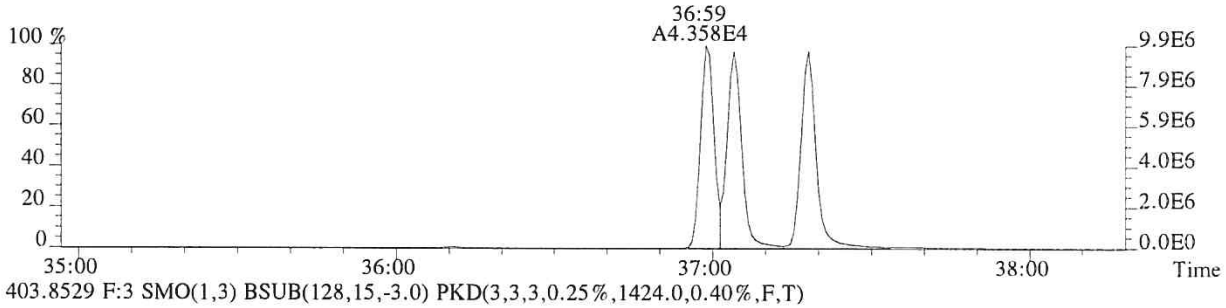
File:P513851 #1-303 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,596.0,0.40%,F,T)



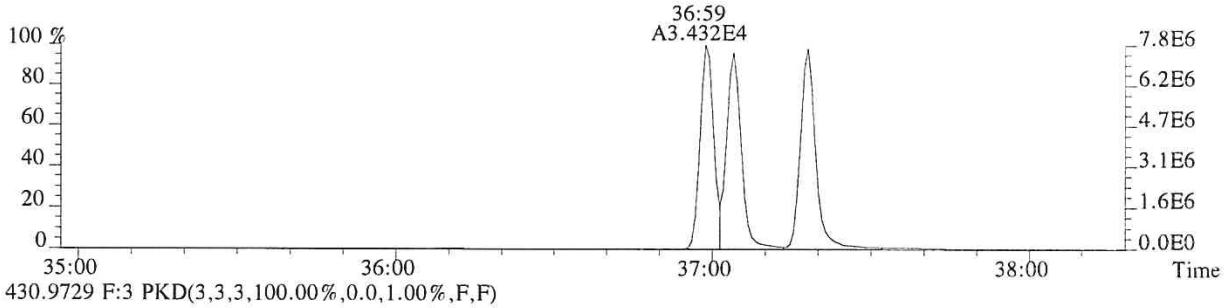
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,760.0,0.40%,F,T)



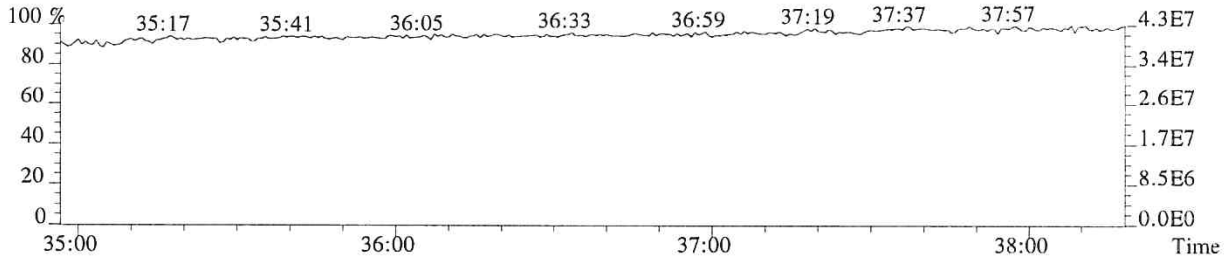
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2004.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1424.0,0.40%,F,T)

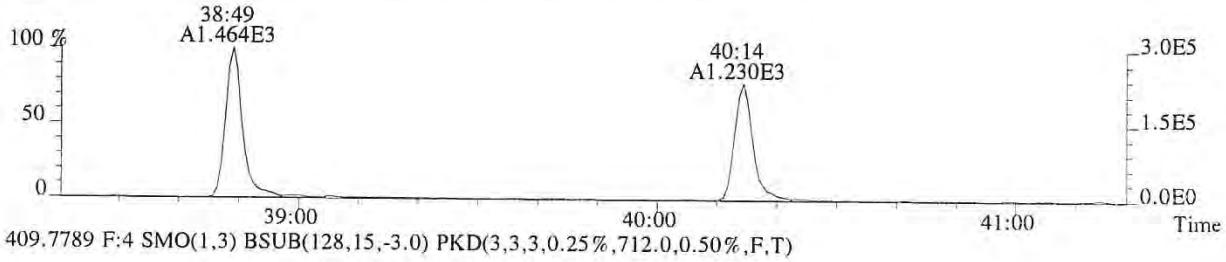


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

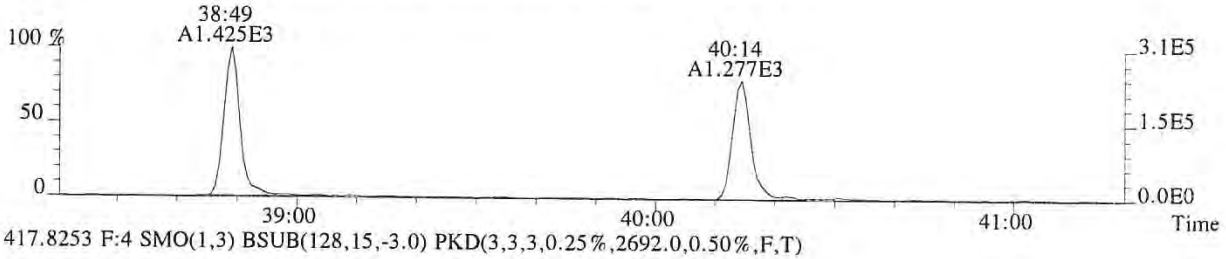


015955

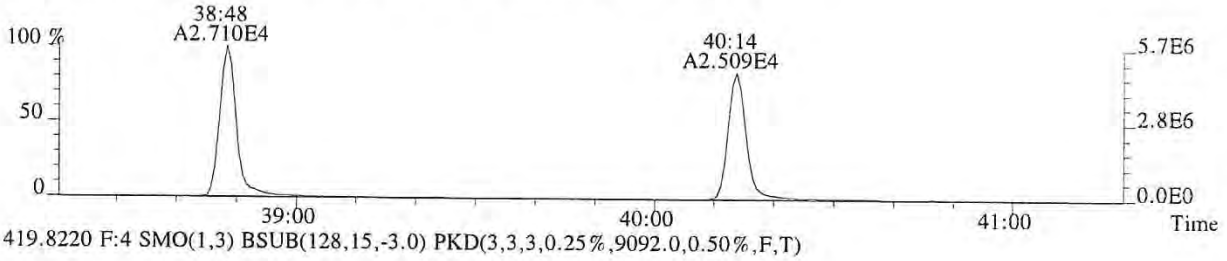
File:P513851 #1-268 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,304.0,0.50%,F,T)



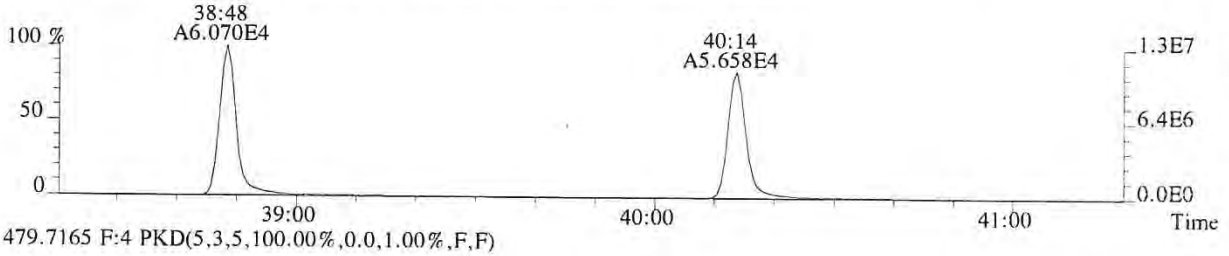
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,712.0,0.50%,F,T)



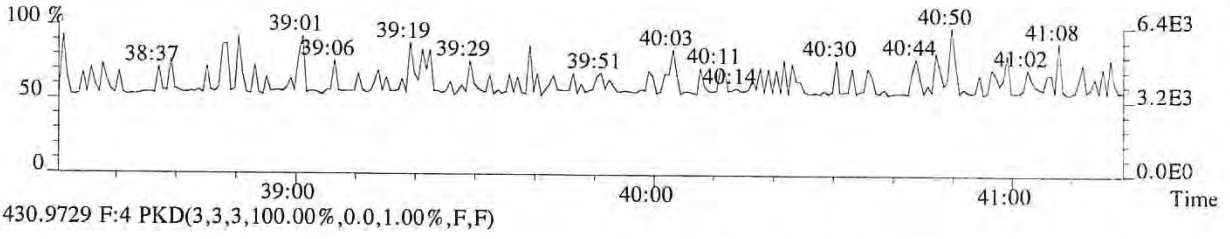
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2692.0,0.50%,F,T)



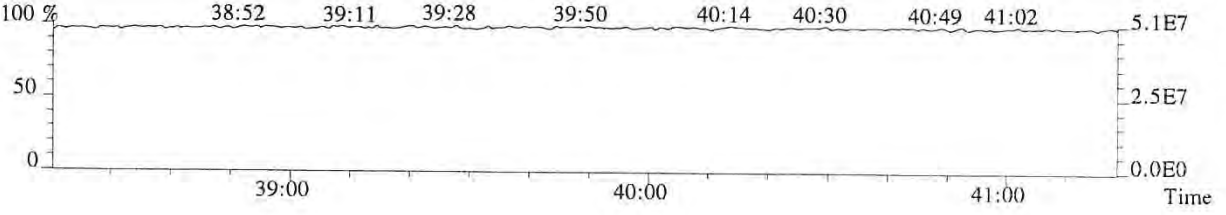
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,9092.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

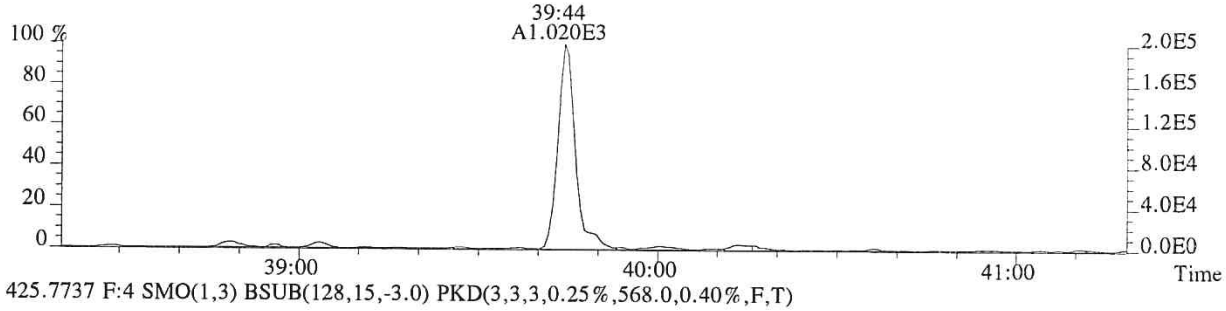


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

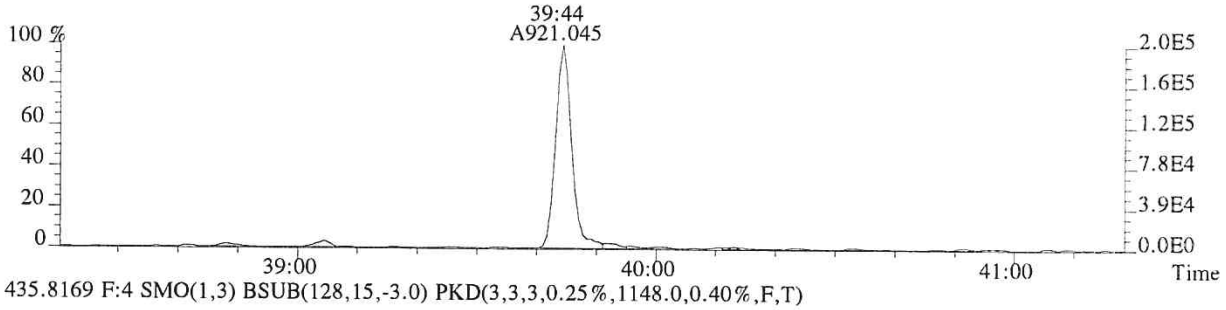


015956

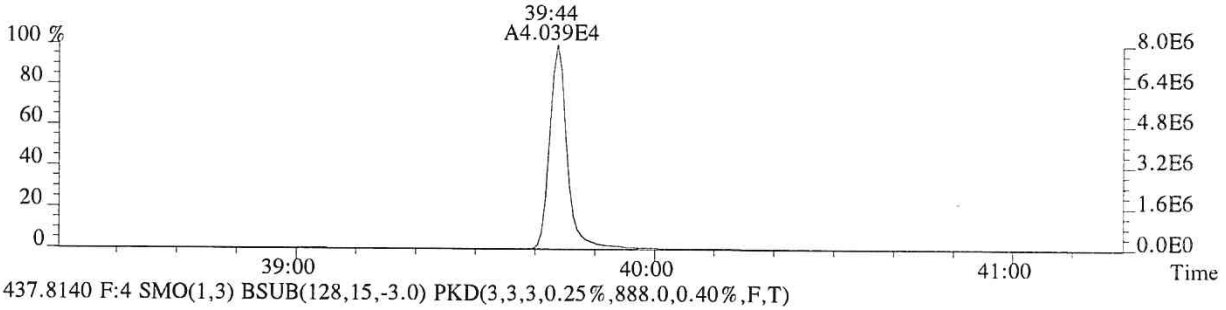
File:P513851 #1-268 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,688.0,0.40%,F,T)



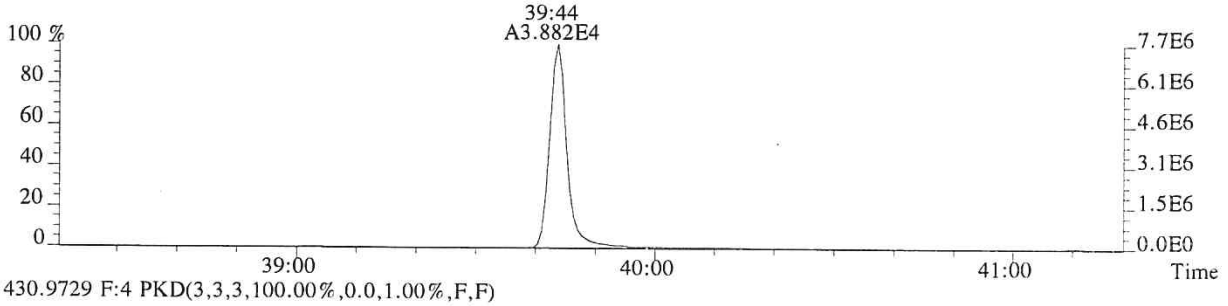
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,568.0,0.40%,F,T)



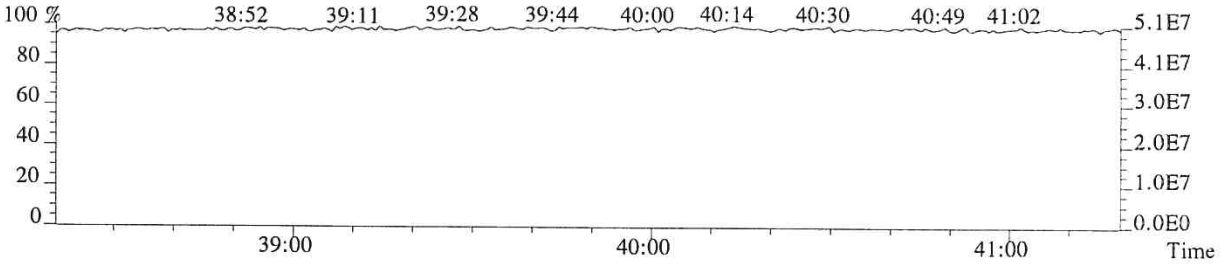
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1148.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,888.0,0.40%,F,T)

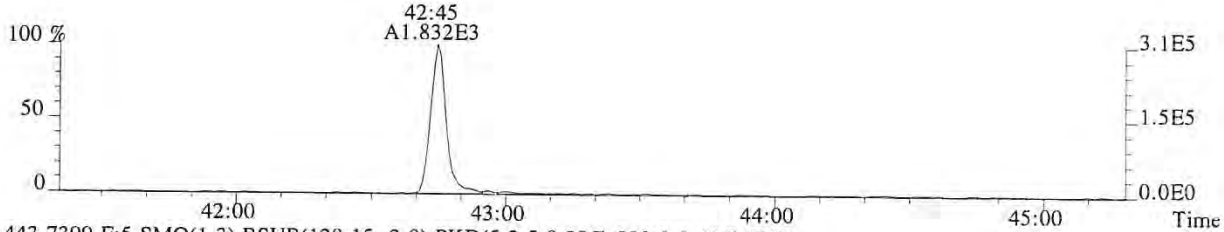


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

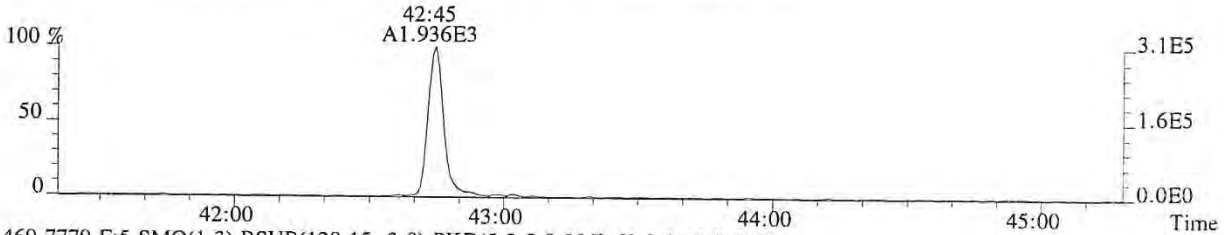


015957

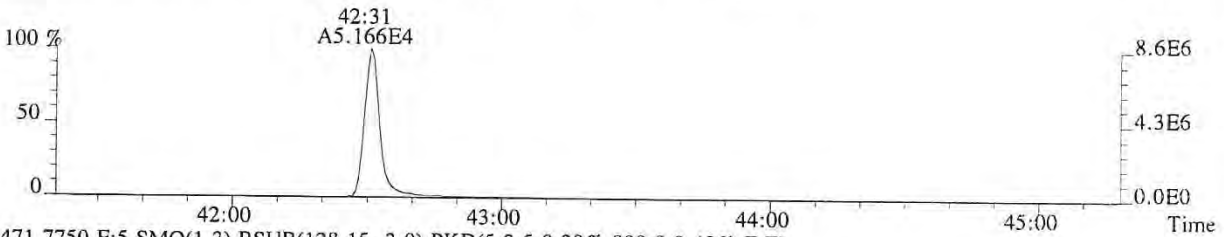
File:P513851 #1-357 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,412.0,0.40%,F,T)



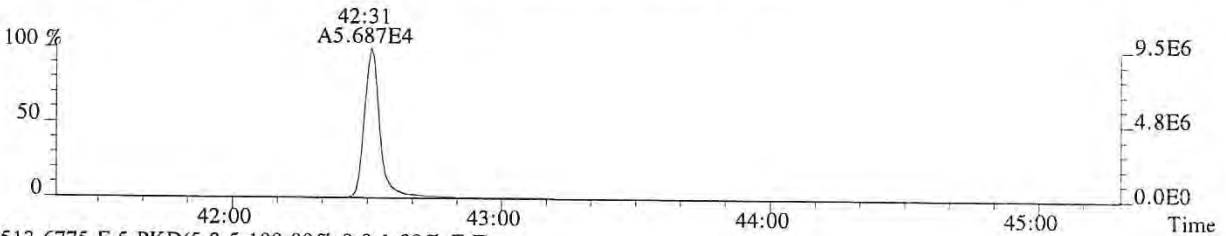
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,820.0,0.40%,F,T)



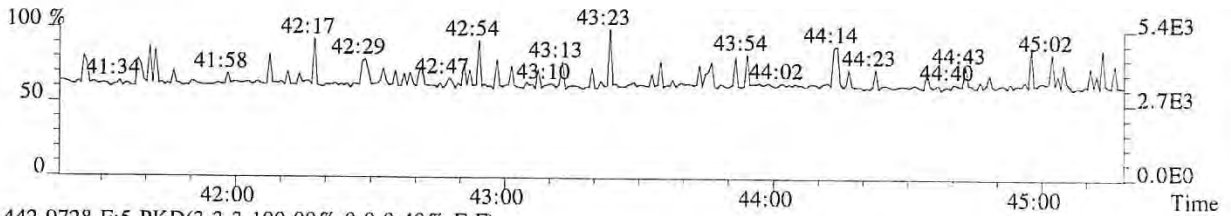
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,60.0,0.40%,F,T)



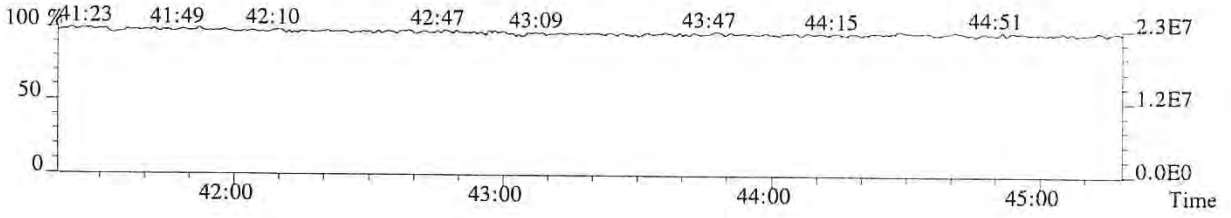
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,800.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

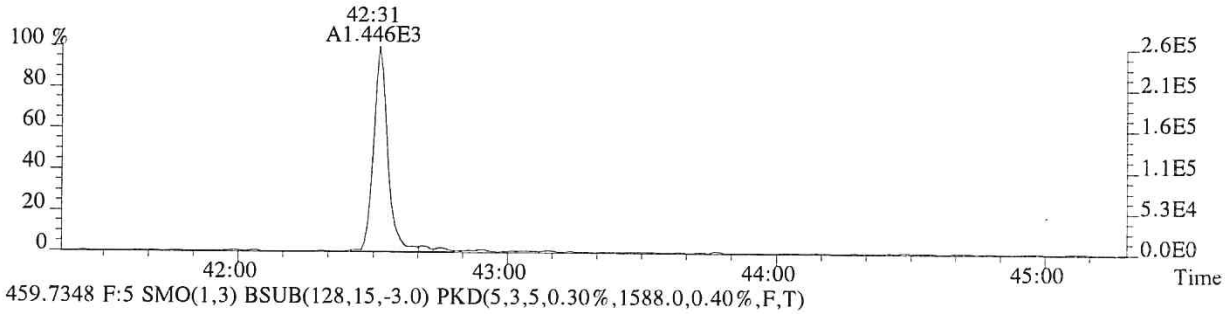


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

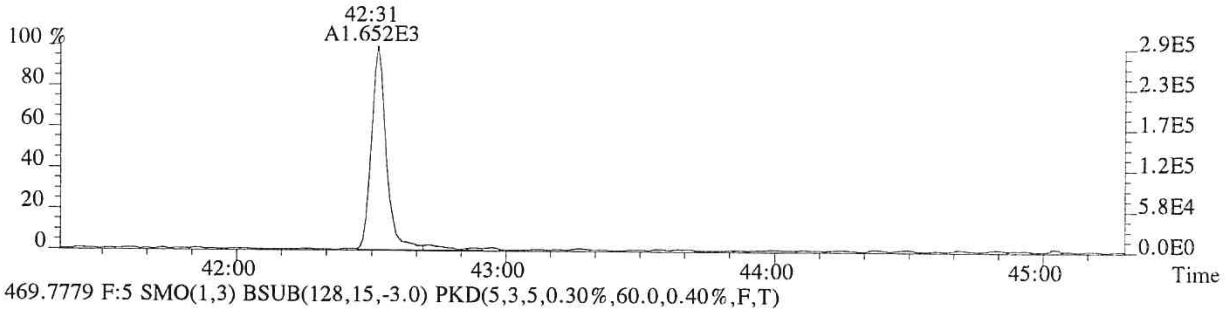


015958

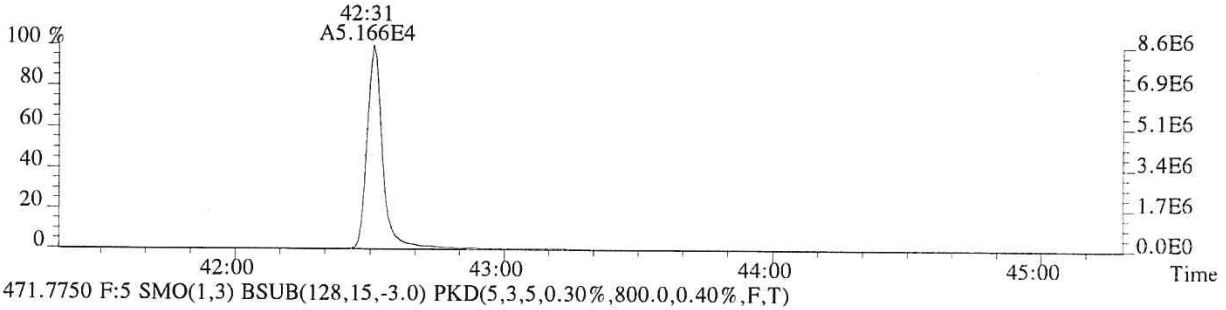
File:P513851 #1-357 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,192.0,0.40%,F,T)



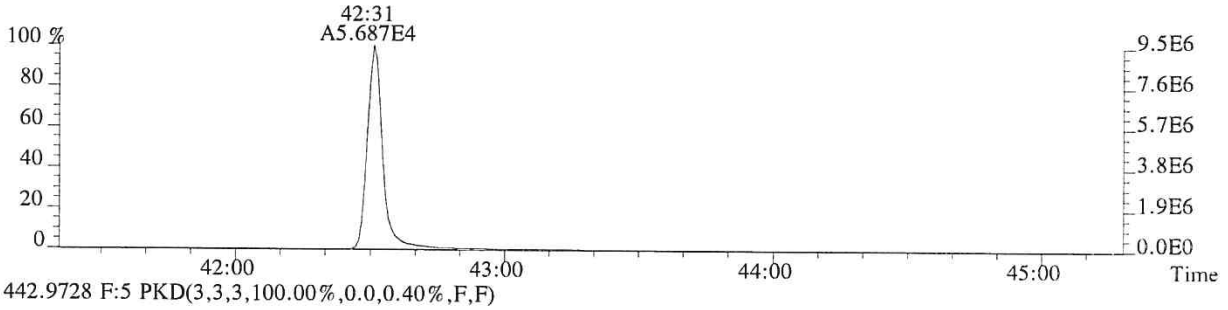
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1588.0,0.40%,F,T)



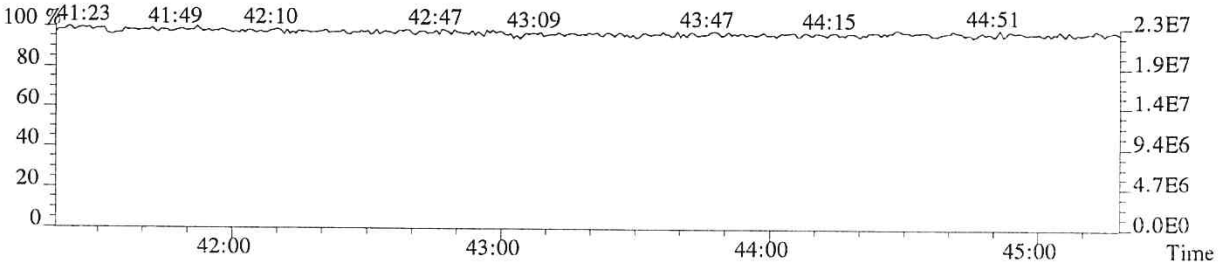
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,60.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,800.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



015959

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76556

Run #3 Filename P513852 Samp: 1 Inj: 1 Acquired: 24-JAN-18 15:18:44
Processed: 24-JAN-18 16:27:06 Sample ID: CS2

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	5.859e+03	7.932e+03	0.74	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	4.499e+04	3.047e+04	1.48	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:42	4.356e+04	2.901e+04	1.50	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:17	4.061e+04	3.382e+04	1.20	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	4.295e+04	3.562e+04	1.21	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:53	3.905e+04	3.212e+04	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	3.479e+04	2.862e+04	1.22	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	3.262e+04	3.207e+04	1.02	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	2.654e+04	2.632e+04	1.01	yes	no	1.258
10	Unk	OCDF	42:45	3.789e+04	4.247e+04	0.89	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	4.192e+03	5.525e+03	0.76	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:58	2.973e+04	1.886e+04	1.58	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	37:00	2.687e+04	2.156e+04	1.25	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	2.801e+04	2.223e+04	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	2.898e+04	2.343e+04	1.24	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:45	2.194e+04	2.114e+04	1.04	yes	no	1.025
17	Unk	OCDD	42:32	3.213e+04	3.615e+04	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:47	3.357e+05	4.220e+05	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:48	4.551e+05	2.871e+05	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	4.534e+05	2.868e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:16	2.091e+05	4.014e+05	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	2.405e+05	4.554e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:52	2.176e+05	4.192e+05	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:37	1.900e+05	3.615e+05	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:49	1.476e+05	3.275e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	1.279e+05	2.823e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:31	2.035e+05	2.546e+05	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	3.112e+05	1.963e+05	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	2.611e+05	2.071e+05	1.26	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:05	2.721e+05	2.137e+05	1.27	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	2.118e+05	1.999e+05	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	2.824e+05	3.150e+05	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:57	2.212e+05	2.732e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:19	2.902e+05	2.282e+05	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	1.018e+04				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76556

Run #3 Filename P513852 Samp: 1 Inj: 1 Acquired: 24-JAN-18 15:18:44
Processed: 24-JAN-18 16:27:06 LAB. ID: CS2

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.20e+06	7.00e+02	1.7e+03	1.59e+06	1.72e+03	9.3e+02
2	1,2,3,7,8-PeCDF	9.02e+06	1.92e+02	4.7e+04	6.06e+06	3.56e+03	1.7e+03
3	2,3,4,7,8-PeCDF	8.94e+06	1.92e+02	4.7e+04	5.88e+06	3.56e+03	1.7e+03
4	1,2,3,4,7,8-HxCDF	9.11e+06	1.02e+03	9.0e+03	7.52e+06	1.04e+03	7.2e+03
5	1,2,3,6,7,8-HxCDF	8.86e+06	1.02e+03	8.7e+03	7.32e+06	1.04e+03	7.0e+03
6	2,3,4,6,7,8-HxCDF	8.62e+06	1.02e+03	8.5e+03	6.97e+06	1.04e+03	6.7e+03
7	1,2,3,7,8,9-HxCDF	7.31e+06	1.02e+03	7.2e+03	6.00e+06	1.04e+03	5.7e+03
8	1,2,3,4,6,7,8-HpCDF	6.83e+06	3.67e+03	1.9e+03	6.77e+06	3.04e+03	2.2e+03
9	1,2,3,4,7,8,9-HpCDF	5.23e+06	3.67e+03	1.4e+03	5.30e+06	3.04e+03	1.7e+03
10	OCDF	6.47e+06	1.08e+03	6.0e+03	7.24e+06	1.74e+03	4.2e+03
11	2,3,7,8-TCDD	8.47e+05	1.35e+03	6.3e+02	1.14e+06	7.40e+02	1.5e+03
12	1,2,3,7,8-PeCDD	6.05e+06	5.16e+02	1.2e+04	3.80e+06	5.04e+02	7.5e+03
13	1,2,3,4,7,8-HxCDD	6.06e+06	7.48e+02	8.1e+03	4.85e+06	1.29e+03	3.8e+03
14	1,2,3,6,7,8-HxCDD	5.88e+06	7.48e+02	7.9e+03	4.64e+06	1.29e+03	3.6e+03
15	1,2,3,7,8,9-HxCDD	5.73e+06	7.48e+02	7.7e+03	4.69e+06	1.29e+03	3.6e+03
16	1,2,3,4,6,7,8-HpCDD	4.40e+06	1.68e+03	2.6e+03	4.18e+06	7.28e+02	5.7e+03
17	OCDD	5.55e+06	1.60e+02	3.5e+04	6.20e+06	1.07e+03	5.8e+03
18	13C-2,3,7,8-TCDF	6.63e+07	8.64e+03	7.7e+03	8.31e+07	4.36e+03	1.9e+04
19	13C-1,2,3,7,8-PeCDF	8.82e+07	9.44e+02	9.3e+04	5.54e+07	2.55e+03	2.2e+04
20	13C-2,3,4,7,8-PeCDF	9.11e+07	9.44e+02	9.6e+04	5.80e+07	2.55e+03	2.3e+04
21	13C-1,2,3,4,7,8-HxCDF	4.63e+07	1.33e+03	3.5e+04	8.84e+07	3.58e+03	2.5e+04
22	13C-1,2,3,6,7,8-HxCDF	4.97e+07	1.33e+03	3.7e+04	9.31e+07	3.58e+03	2.6e+04
23	13C-2,3,4,6,7,8-HxCDF	4.74e+07	1.33e+03	3.6e+04	9.03e+07	3.58e+03	2.5e+04
24	13C-1,2,3,7,8,9-HxCDF	3.91e+07	1.33e+03	2.9e+04	7.44e+07	3.58e+03	2.1e+04
25	13C-1,2,3,4,6,7,8-HpCDF	3.05e+07	5.18e+03	5.9e+03	6.68e+07	7.38e+03	9.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.48e+07	5.18e+03	4.8e+03	5.51e+07	7.38e+03	7.5e+03
27	13C-2,3,7,8-TCDD	4.21e+07	6.43e+03	6.5e+03	5.22e+07	3.34e+03	1.6e+04
28	13C-1,2,3,7,8-PeCDD	6.30e+07	1.05e+03	6.0e+04	3.99e+07	1.24e+03	3.2e+04
29	13C-1,2,3,4,7,8-HxCDD	5.84e+07	4.36e+03	1.3e+04	4.60e+07	2.04e+03	2.3e+04
30	13C-1,2,3,6,7,8-HxCDD	5.57e+07	4.36e+03	1.3e+04	4.34e+07	2.04e+03	2.1e+04
31	13C-1,2,3,4,6,7,8-HpCDD	4.12e+07	2.07e+03	2.0e+04	3.91e+07	2.18e+03	1.8e+04
32	13C-OCDD	4.87e+07	6.80e+01	7.2e+05	5.40e+07	9.12e+02	5.9e+04
33	13C-1,2,3,4-TCDD	4.48e+07	6.43e+03	7.0e+03	5.57e+07	3.34e+03	1.7e+04
34	13C-1,2,3,7,8,9-HxCDD	5.61e+07	4.36e+03	1.3e+04	4.47e+07	2.04e+03	2.2e+04
35	37Cl-2,3,7,8-TCDD	2.10e+06	1.00e+03	2.1e+03			

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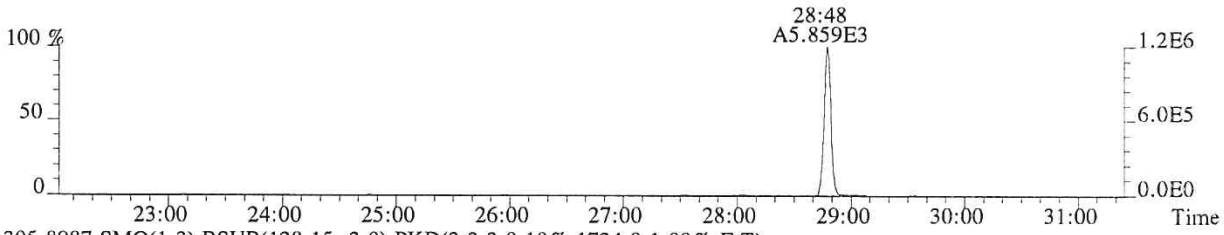
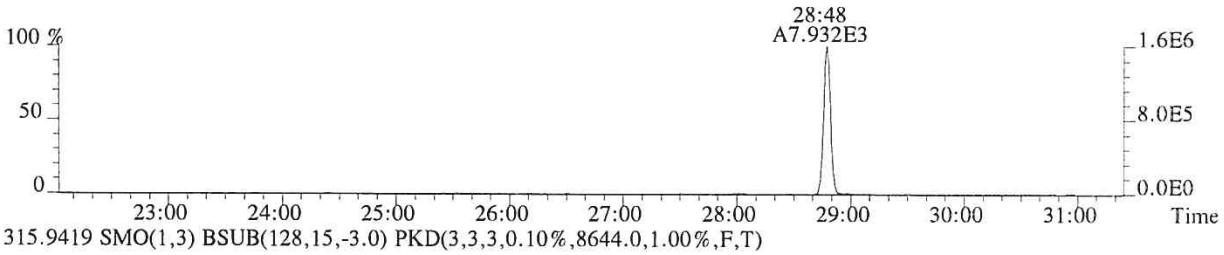
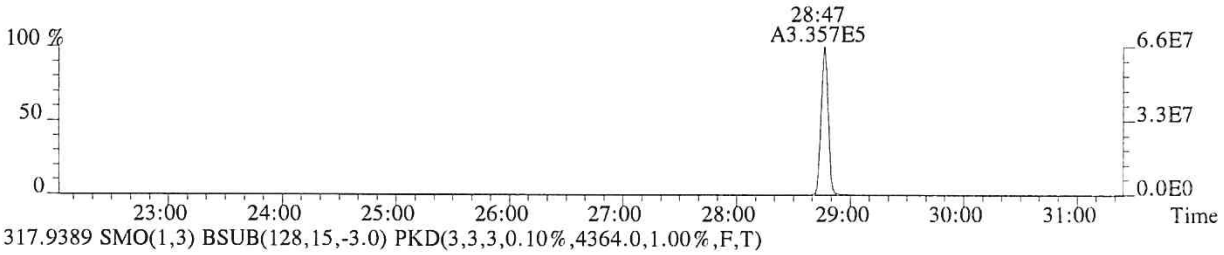
File:P513852 #1-665 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,700.0,1.00%,F,T)



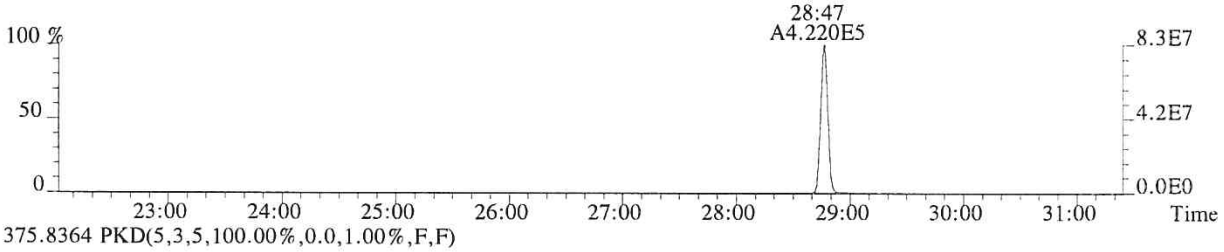
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1724.0,1.00%,F,T)



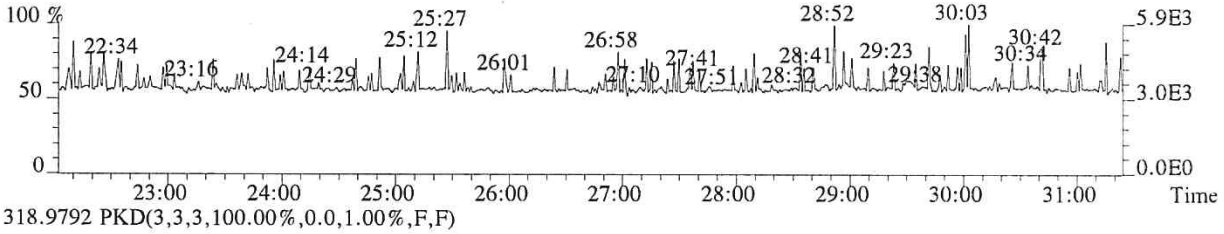
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8644.0,1.00%,F,T)



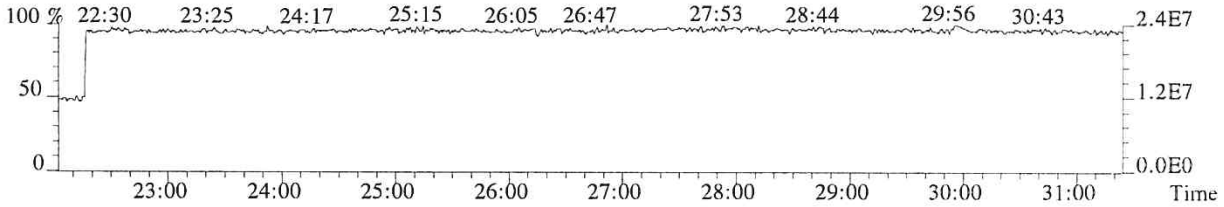
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4364.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

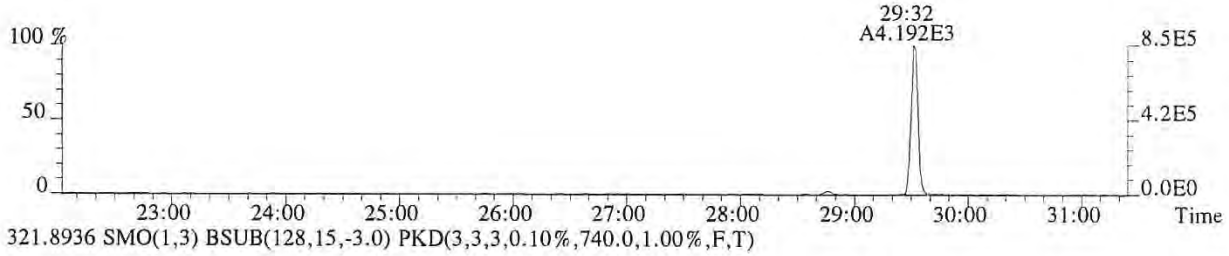


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

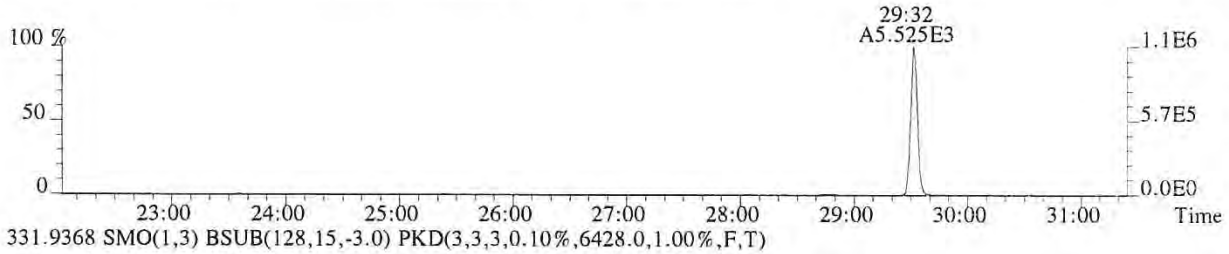


015962

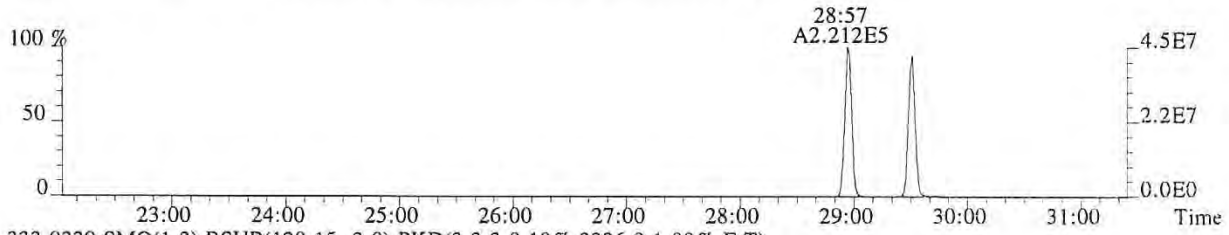
File:P513852 #1-665 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1348.0,1.00%,F,T)



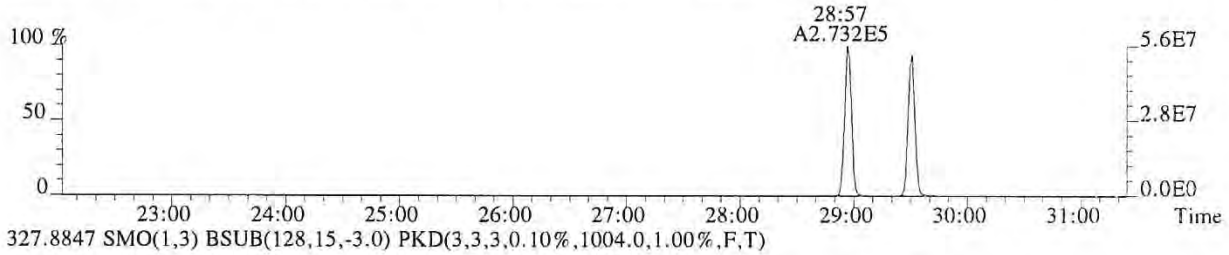
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,740.0,1.00%,F,T)



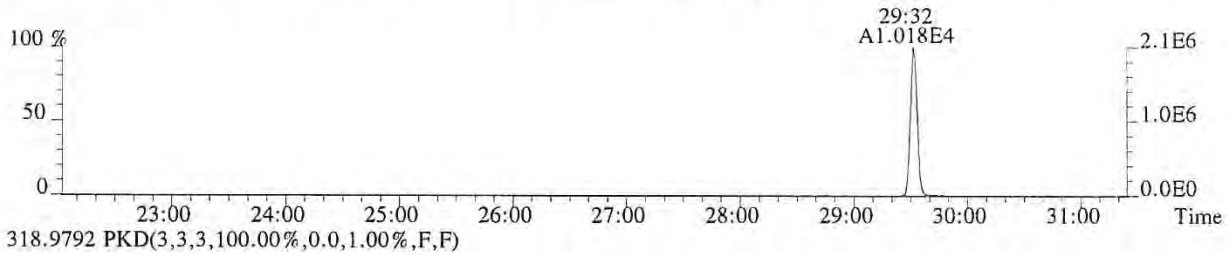
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6428.0,1.00%,F,T)



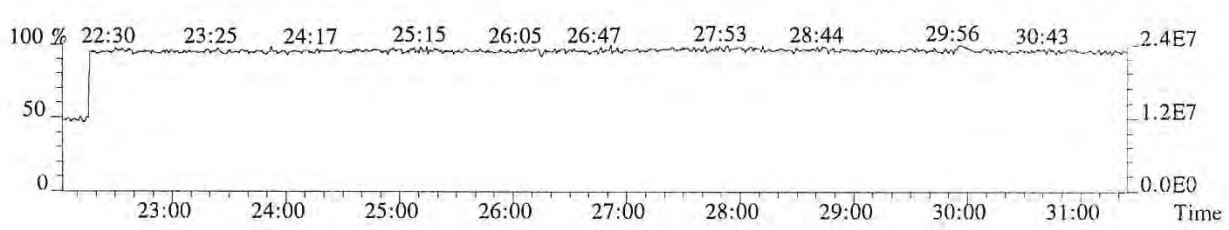
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3336.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)

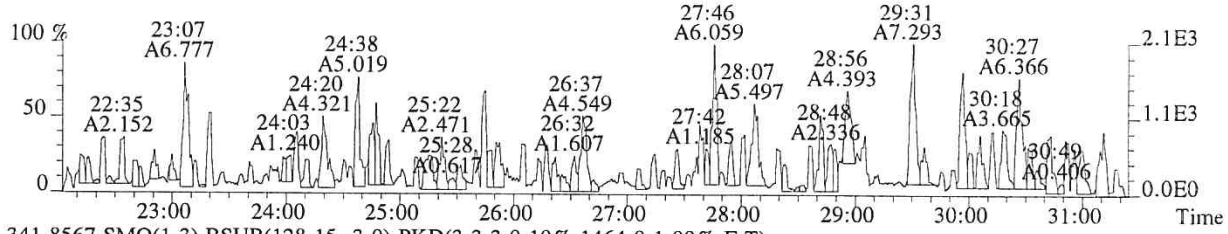


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

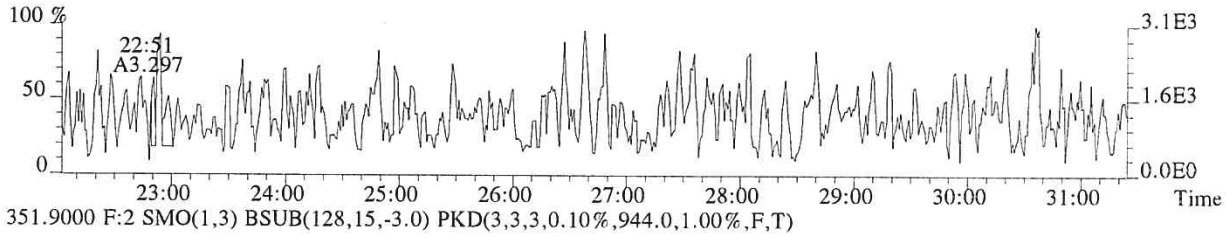


015963

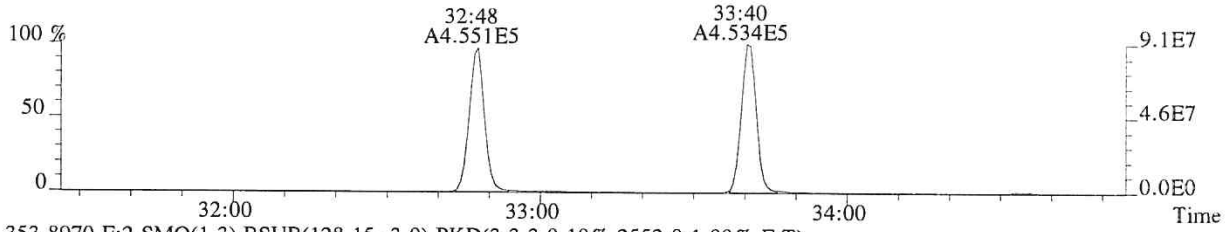
File:P513852 #1-665 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,196.0,1.00%,F,T)



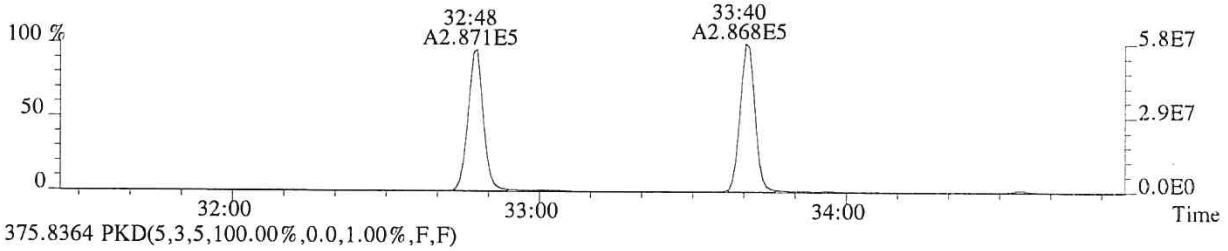
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1464.0,1.00%,F,T)



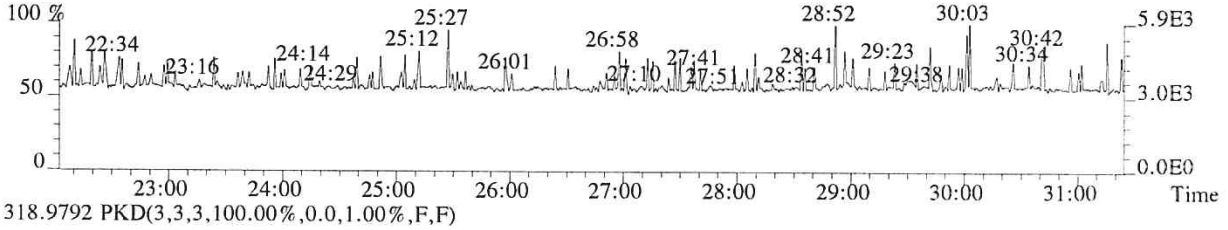
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,944.0,1.00%,F,T)



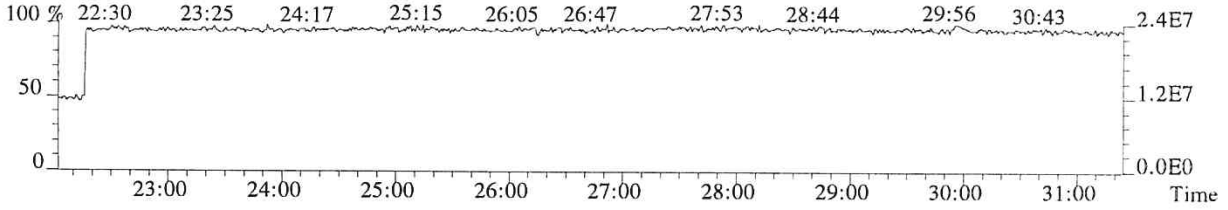
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2552.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

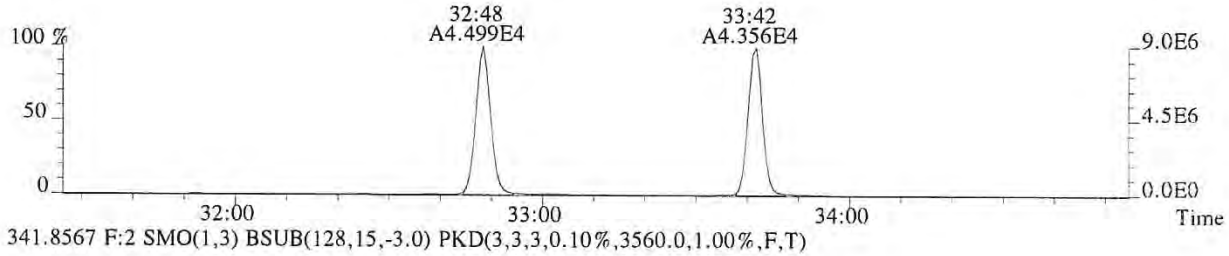


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

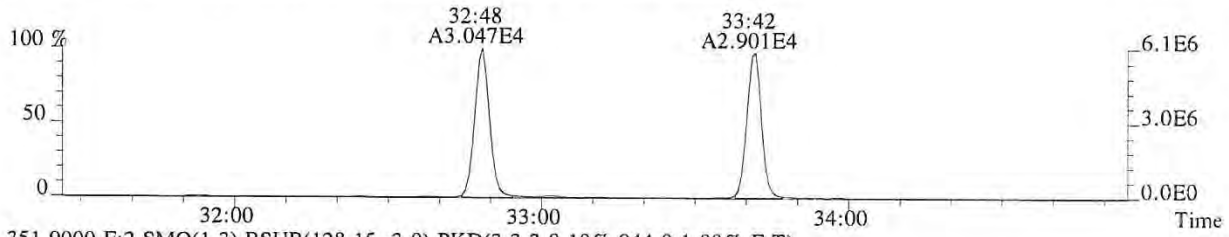


015964

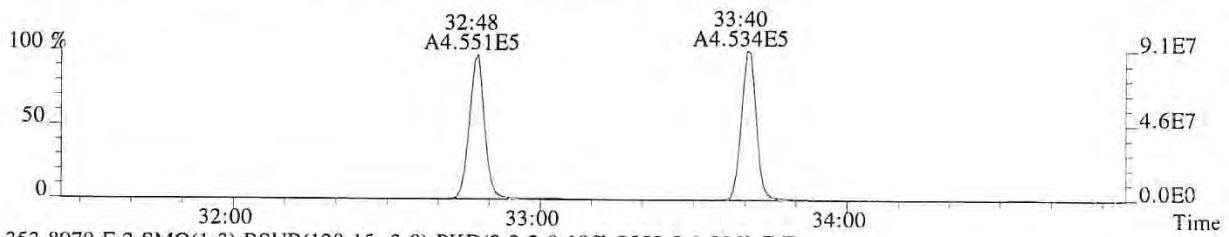
File:P513852 #1-313 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,192.0,1.00%,F,T)



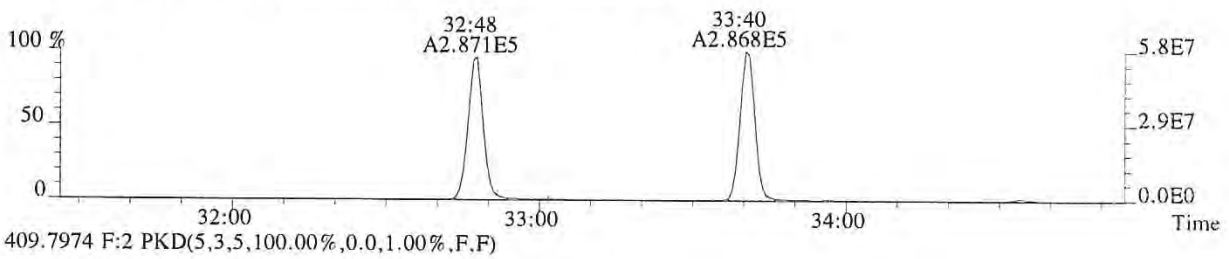
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3560.0,1.00%,F,T)



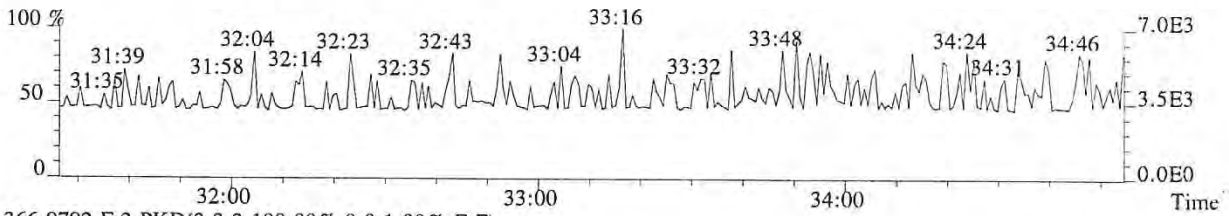
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,944.0,1.00%,F,T)



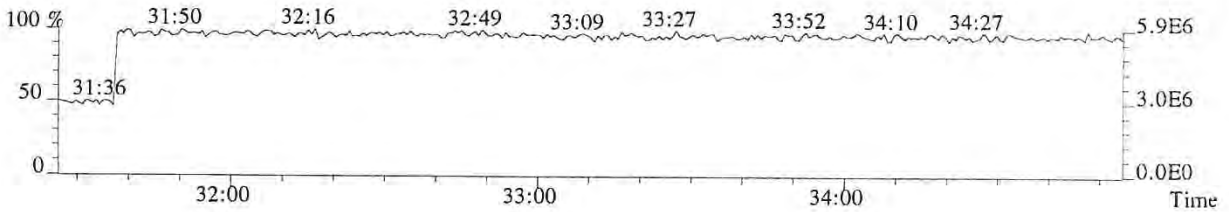
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2552.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

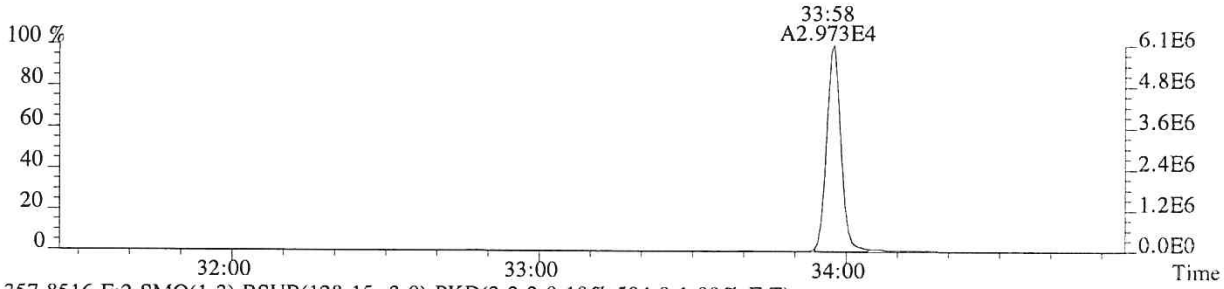


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

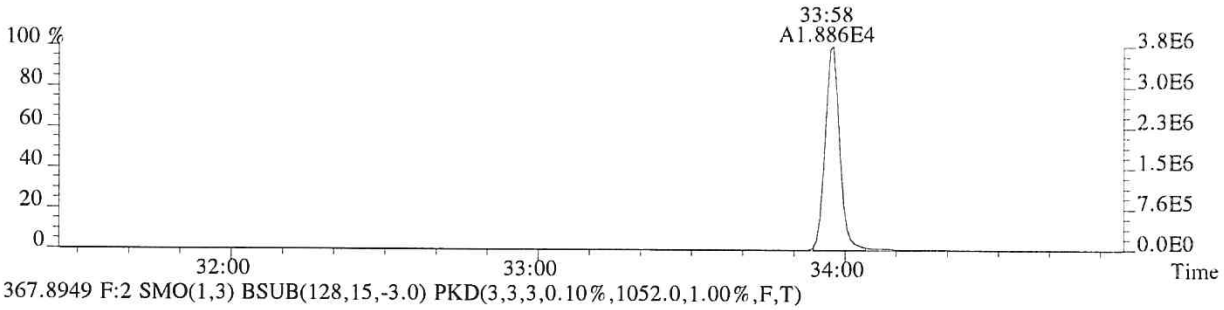


015965

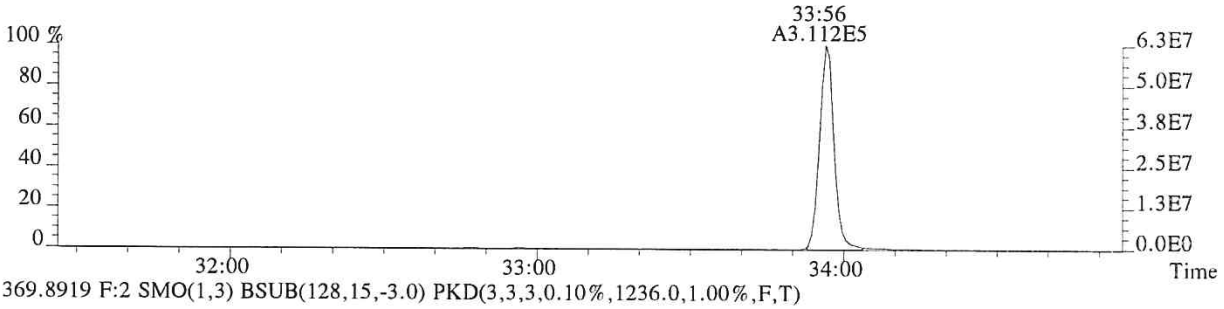
File:P513852 #1-313 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,516.0,1.00%,F,T)



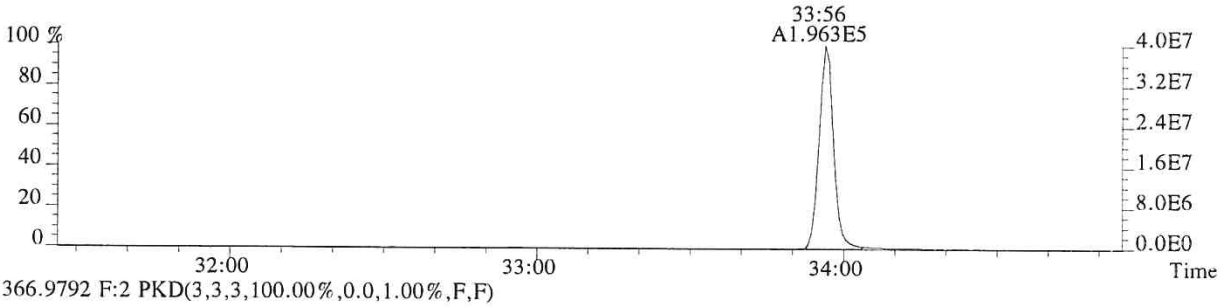
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,504.0,1.00%,F,T)



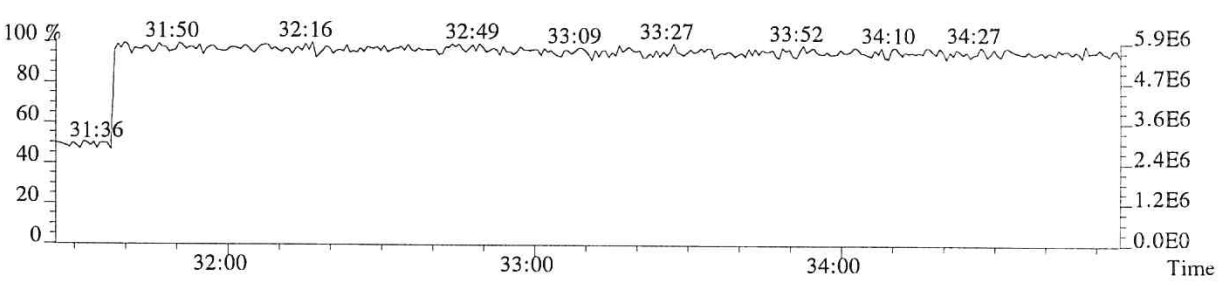
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1052.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1236.0,1.00%,F,T)

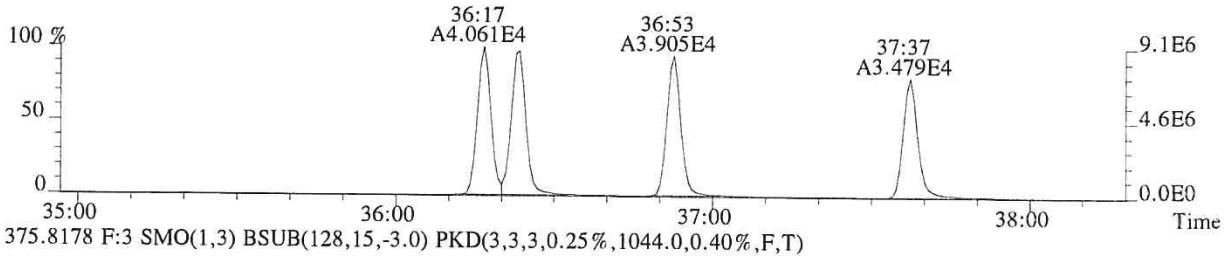


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

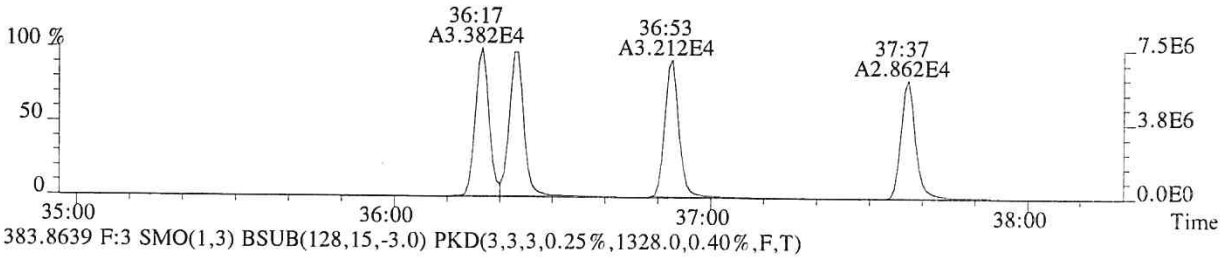


015966

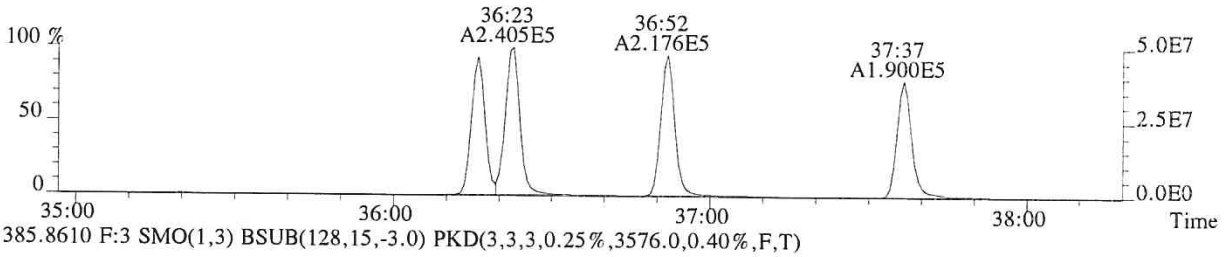
File:P513852 #1-303 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:76556
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1016.0,0.40%,F,T)



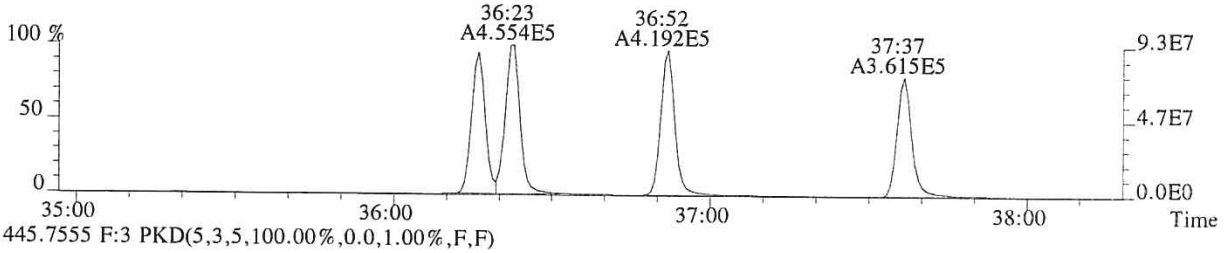
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1044.0,0.40%,F,T)



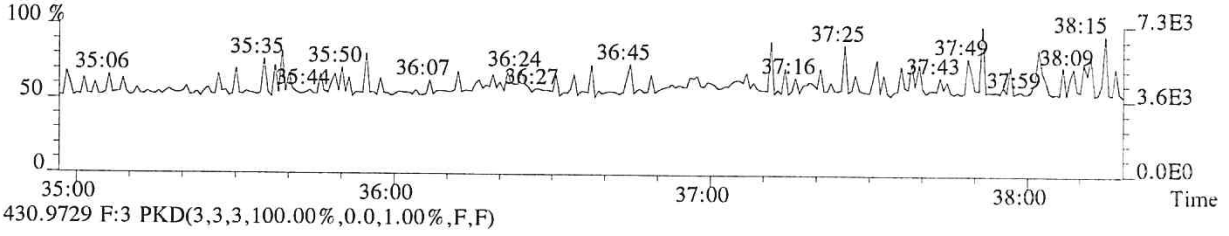
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1328.0,0.40%,F,T)



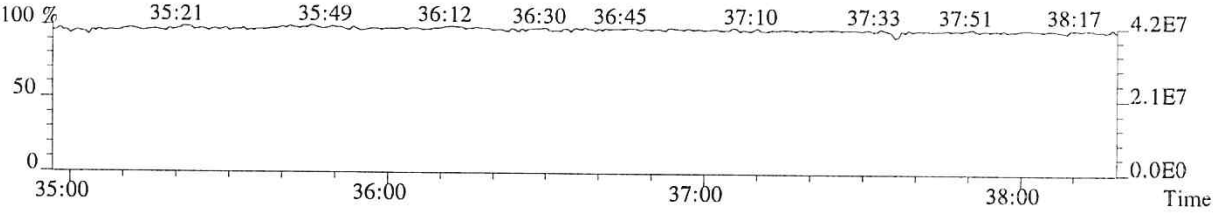
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3576.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

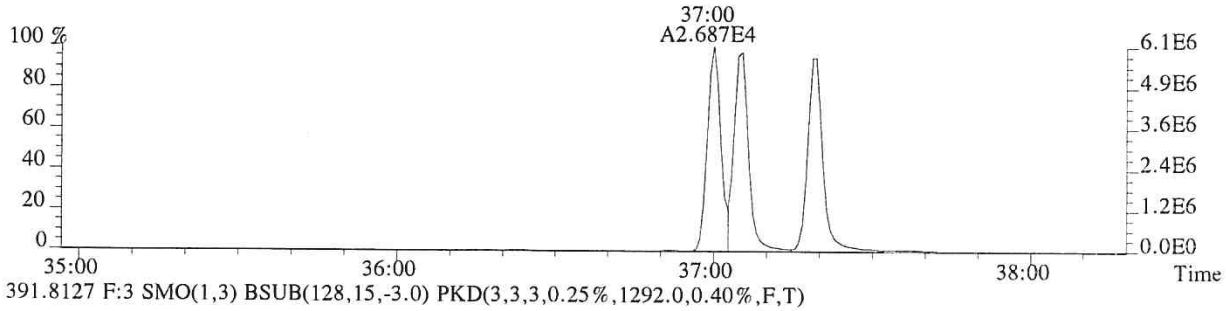


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

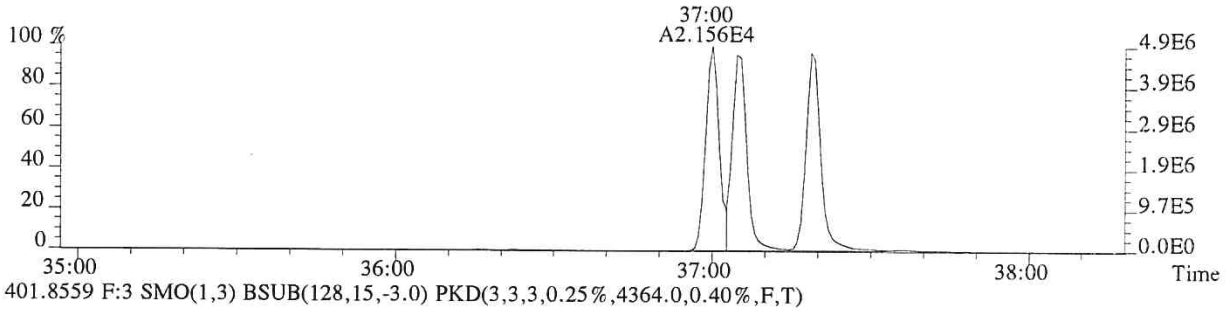


015967

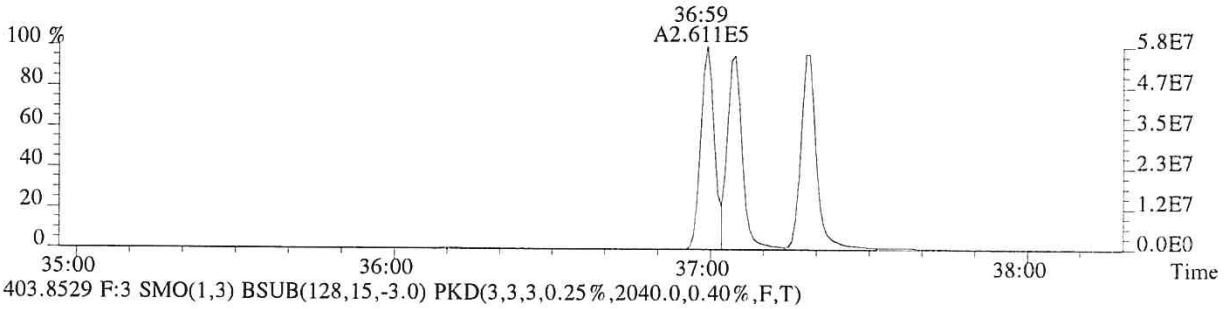
File:P513852 #1-303 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,748.0,0.40%,F,T)



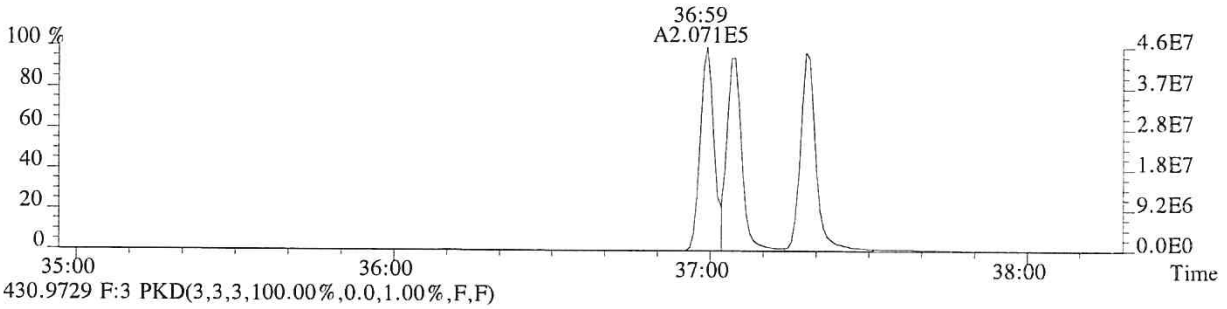
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1292.0,0.40%,F,T)



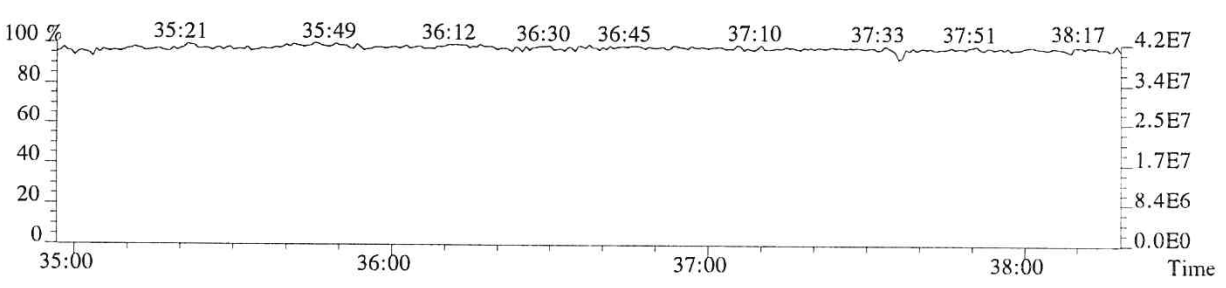
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4364.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2040.0,0.40%,F,T)

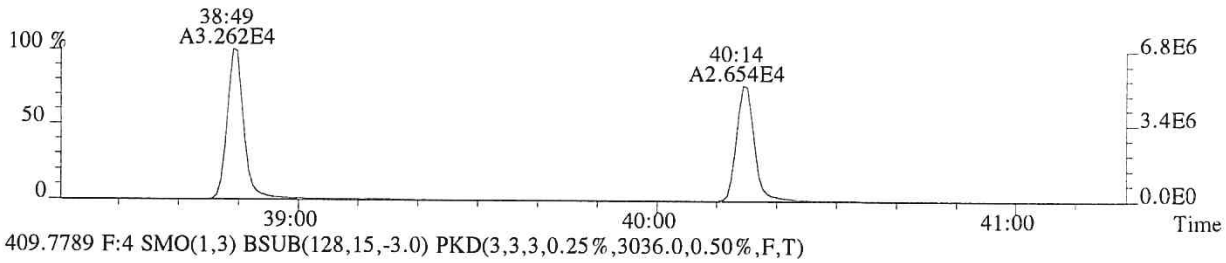


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

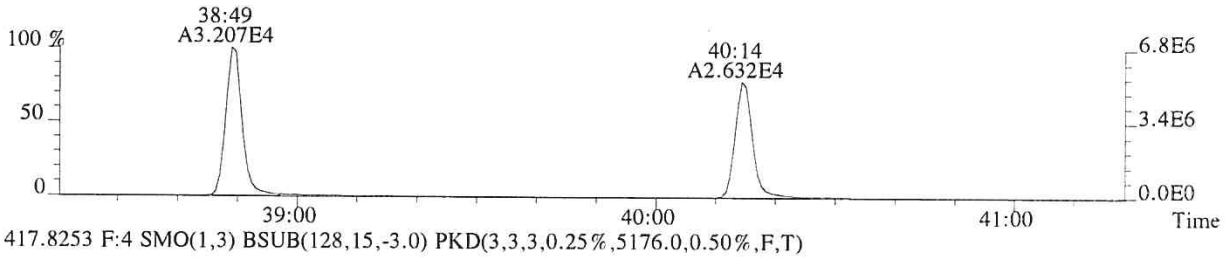


015968

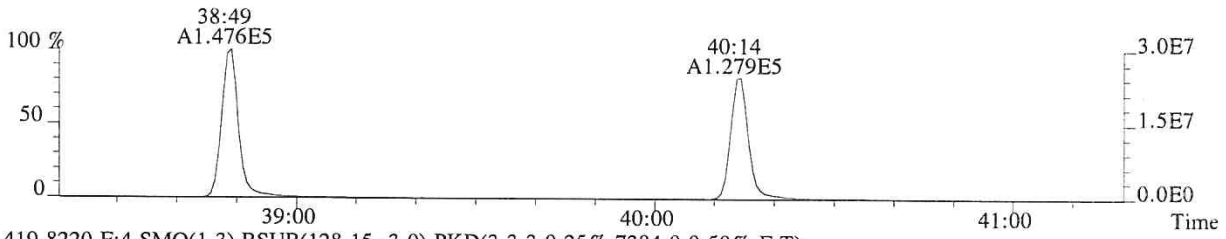
File:P513852 #1-268 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3668.0,0.50%,F,T)



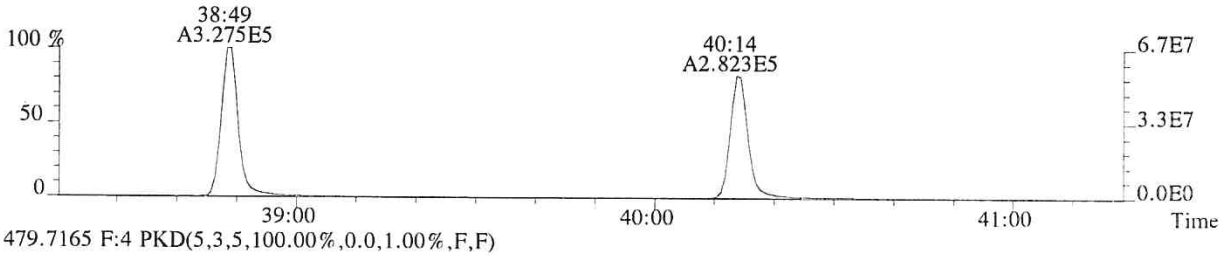
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3036.0,0.50%,F,T)



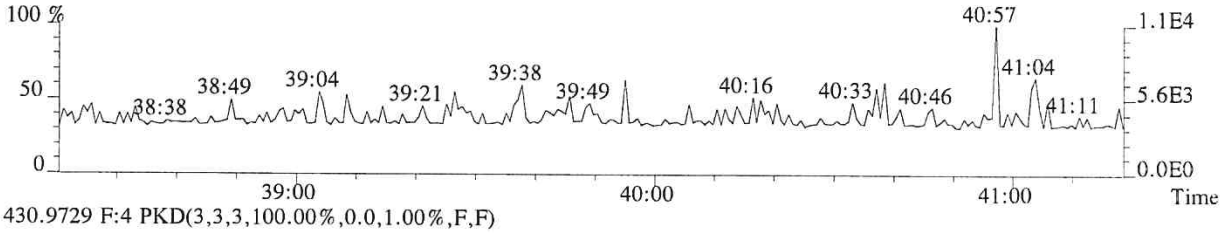
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5176.0,0.50%,F,T)



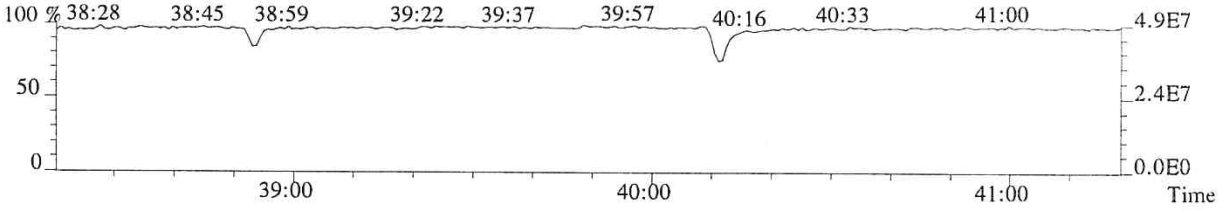
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7384.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

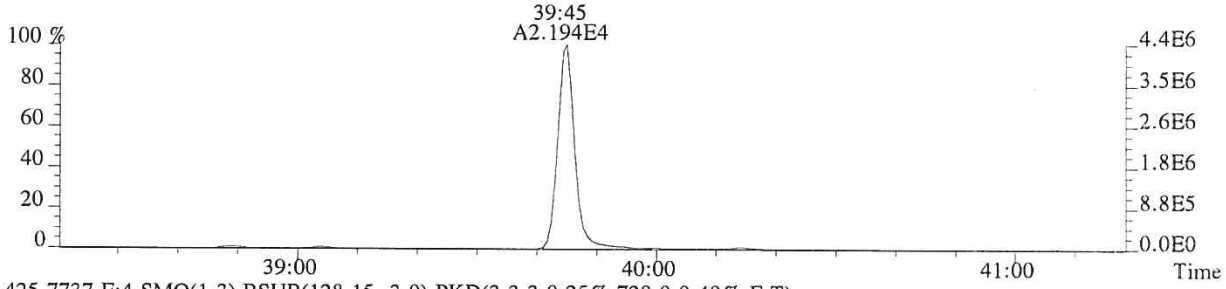


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

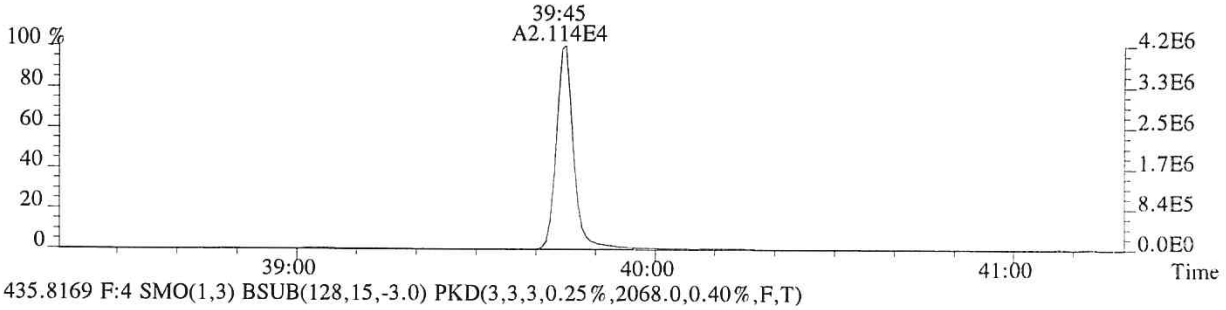


015969

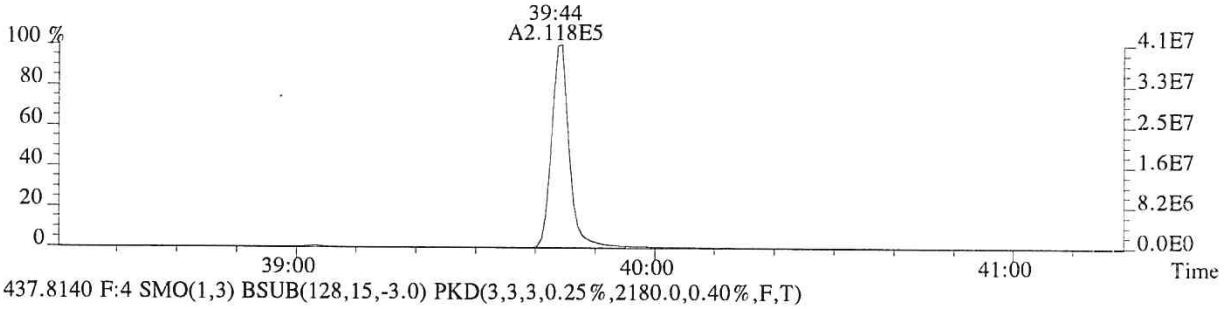
File:P513852 #1-268 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1676.0,0.40%,F,T)



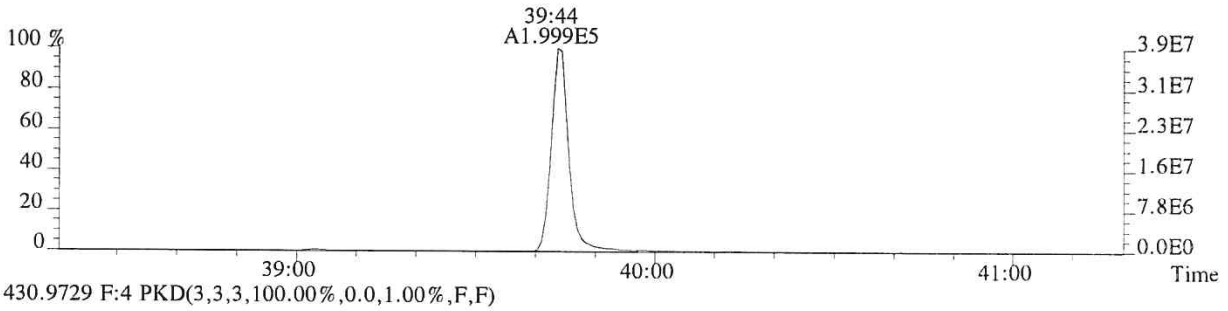
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,728.0,0.40%,F,T)



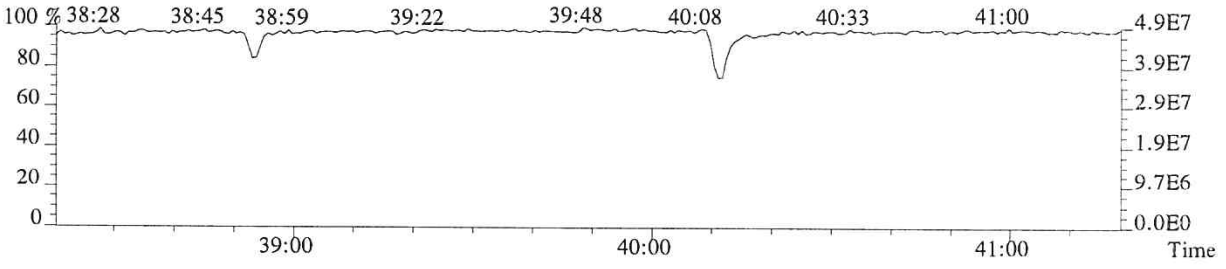
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2068.0,0.40%,F,T)



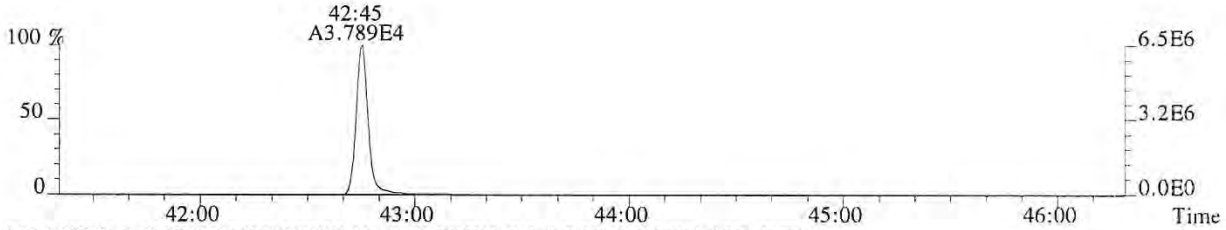
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2180.0,0.40%,F,T)



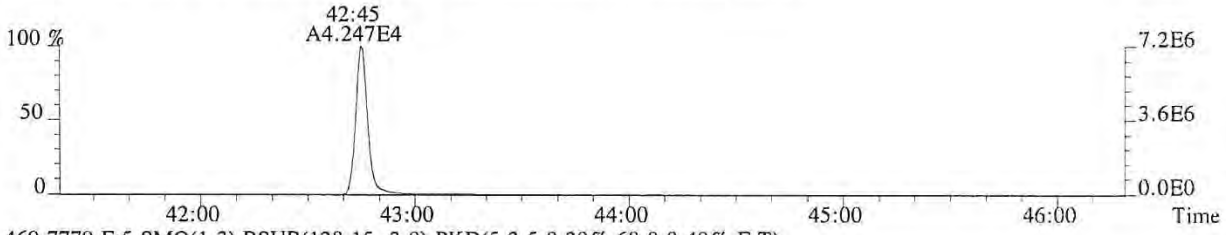
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



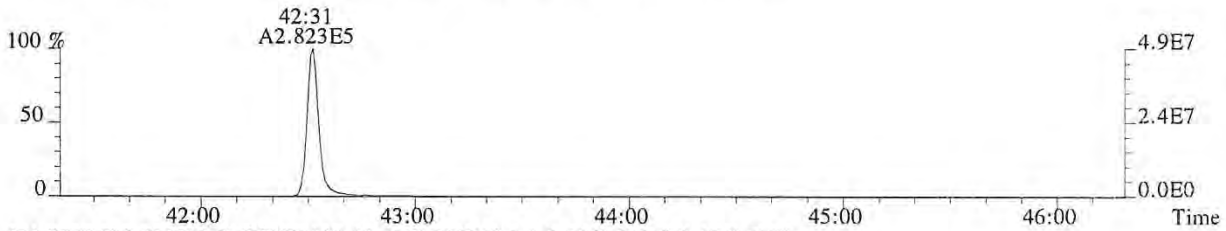
File:P513852 #1-448 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1076.0,0.40%,F,T)



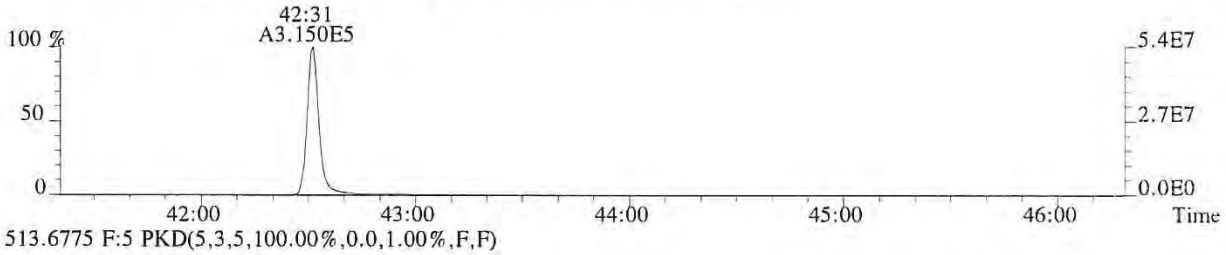
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1736.0,0.40%,F,T)



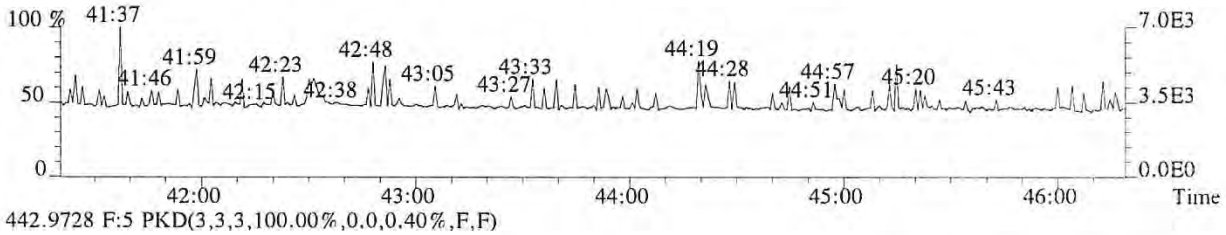
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,68.0,0.40%,F,T)



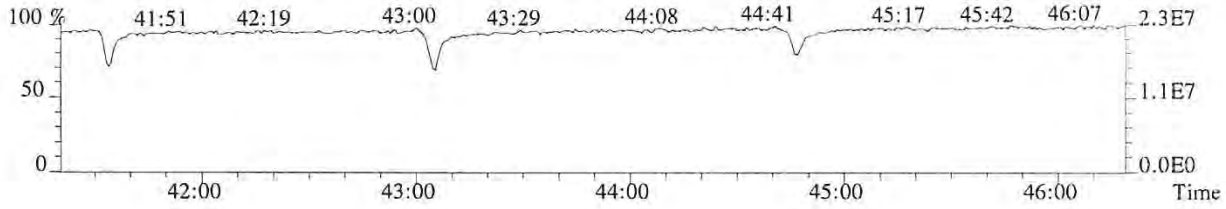
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,912.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

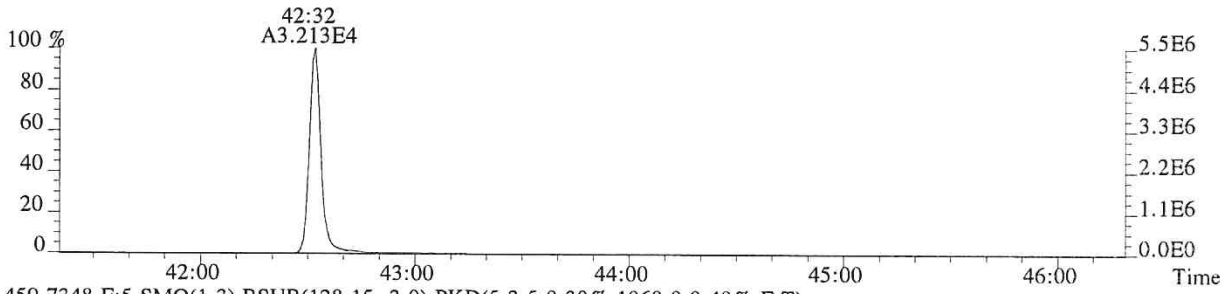


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

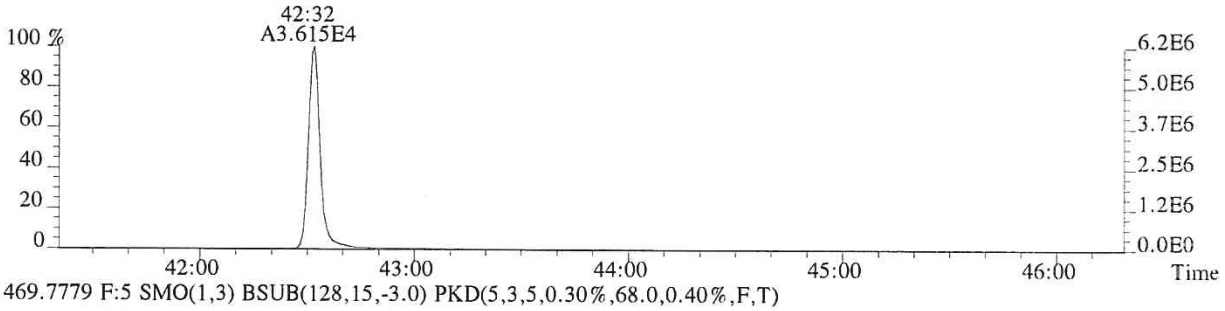


015971

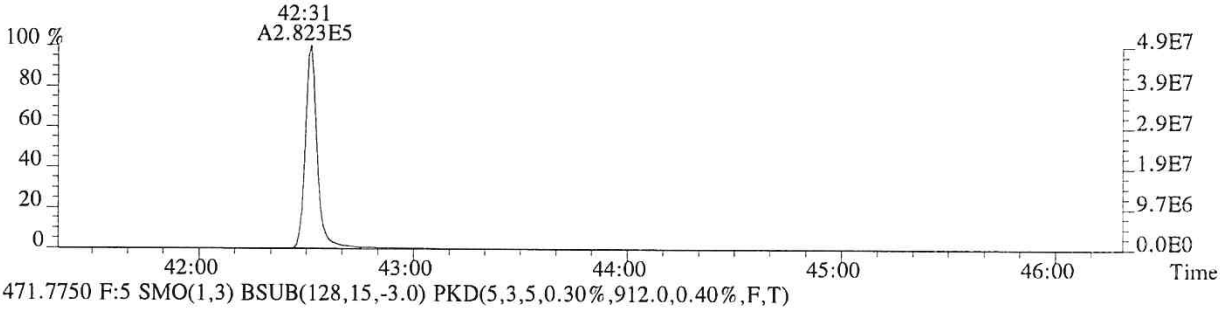
File:P513852 #1-448 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,160.0,0.40%,F,T)



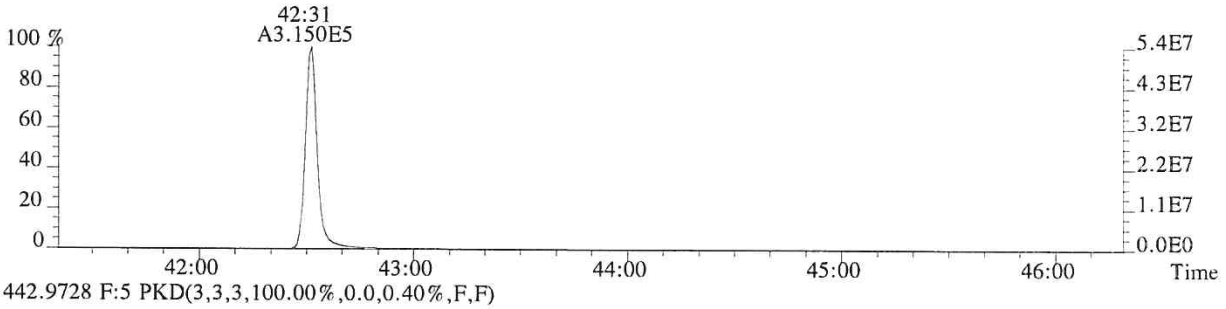
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1068.0,0.40%,F,T)



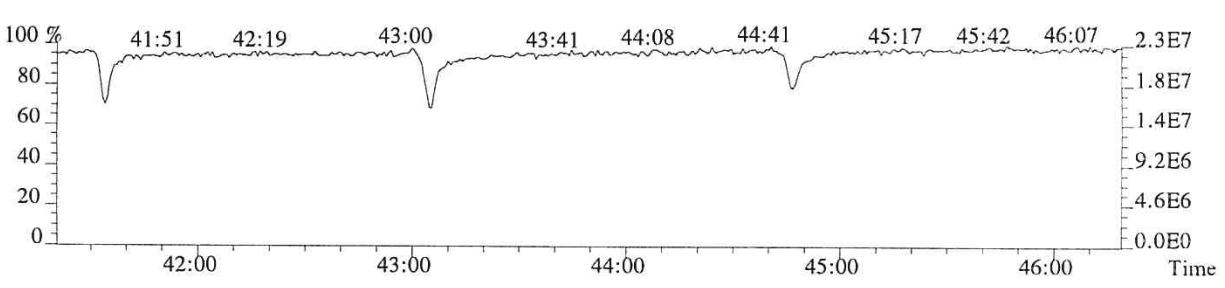
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,68.0,0.40%,F,T)



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)



015972

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76557

Run #4 Filename P513853 Samp: 1 Inj: 1 Acquired: 24-JAN-18 16:06:29
Processed: 24-JAN-18 17:13:42 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:47	4.270e+04	5.692e+04	0.75	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	3.077e+05	2.016e+05	1.53	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:41	2.833e+05	1.864e+05	1.52	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:16	2.625e+05	2.158e+05	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:22	2.702e+05	2.228e+05	1.21	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:52	2.439e+05	2.001e+05	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	1.977e+05	1.631e+05	1.21	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:48	2.099e+05	2.057e+05	1.02	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	1.509e+05	1.470e+05	1.03	yes	no	1.258
10	Unk	OCDF	42:45	2.260e+05	2.525e+05	0.90	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:31	2.824e+04	3.588e+04	0.79	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:57	1.903e+05	1.221e+05	1.56	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:59	1.727e+05	1.384e+05	1.25	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:04	1.705e+05	1.356e+05	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:18	1.758e+05	1.371e+05	1.28	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	1.431e+05	1.365e+05	1.05	yes	no	1.025
17	Unk	OCDD	42:31	1.906e+05	2.140e+05	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:46	4.689e+05	5.926e+05	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:47	6.073e+05	3.832e+05	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	5.900e+05	3.740e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	2.738e+05	5.189e+05	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:21	3.023e+05	5.708e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:51	2.671e+05	5.167e+05	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:36	2.133e+05	4.042e+05	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	1.882e+05	4.188e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	1.419e+05	3.155e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:30	2.668e+05	3.316e+05	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	4.009e+05	2.534e+05	1.58	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	3.335e+05	2.508e+05	1.33	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:03	3.244e+05	2.699e+05	1.20	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:43	2.779e+05	2.632e+05	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	3.375e+05	3.799e+05	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:56	2.956e+05	3.663e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:17	3.390e+05	2.761e+05	1.23	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:31	6.612e+04				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76557

Run #4 Filename P513853 Samp: 1 Inj: 1 Acquired: 24-JAN-18 16:06:29
Processed: 24-JAN-18 17:13:42 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	8.50e+06	6.40e+02	1.3e+04	1.14e+07	2.11e+03	5.4e+03
2	1,2,3,7,8-PeCDF	6.16e+07	1.61e+03	3.8e+04	4.01e+07	2.10e+03	1.9e+04
3	2,3,4,7,8-PeCDF	5.79e+07	1.61e+03	3.6e+04	3.78e+07	2.10e+03	1.8e+04
4	1,2,3,4,7,8-HxCDF	5.83e+07	1.86e+03	3.1e+04	4.74e+07	2.55e+03	1.9e+04
5	1,2,3,6,7,8-HxCDF	5.80e+07	1.86e+03	3.1e+04	4.80e+07	2.55e+03	1.9e+04
6	2,3,4,6,7,8-HxCDF	5.37e+07	1.86e+03	2.9e+04	4.34e+07	2.55e+03	1.7e+04
7	1,2,3,7,8,9-HxCDF	4.12e+07	1.86e+03	2.2e+04	3.39e+07	2.55e+03	1.3e+04
8	1,2,3,4,6,7,8-HpCDF	4.57e+07	4.44e+03	1.0e+04	4.52e+07	1.05e+04	4.3e+03
9	1,2,3,4,7,8,9-HpCDF	3.06e+07	4.44e+03	6.9e+03	2.99e+07	1.05e+04	2.8e+03
10	OCDF	3.93e+07	1.44e+02	2.7e+05	4.34e+07	1.38e+03	3.1e+04
11	2,3,7,8-TCDD	5.83e+06	1.92e+03	3.0e+03	7.39e+06	1.30e+03	5.7e+03
12	1,2,3,7,8-PeCDD	3.83e+07	1.45e+03	2.6e+04	2.46e+07	7.04e+02	3.5e+04
13	1,2,3,4,7,8-HxCDD	3.89e+07	5.12e+02	7.6e+04	3.08e+07	1.23e+03	2.5e+04
14	1,2,3,6,7,8-HxCDD	3.74e+07	5.12e+02	7.3e+04	3.02e+07	1.23e+03	2.5e+04
15	1,2,3,7,8,9-HxCDD	3.75e+07	5.12e+02	7.3e+04	3.01e+07	1.23e+03	2.5e+04
16	1,2,3,4,6,7,8-HpCDD	2.89e+07	1.84e+03	1.6e+04	2.78e+07	1.41e+03	2.0e+04
17	OCDD	3.41e+07	6.32e+02	5.4e+04	3.81e+07	1.31e+03	2.9e+04
18	13C-2,3,7,8-TCDF	9.47e+07	6.52e+03	1.5e+04	1.19e+08	4.12e+03	2.9e+04
19	13C-1,2,3,7,8-PeCDF	1.17e+08	1.28e+03	9.1e+04	7.33e+07	8.08e+02	9.1e+04
20	13C-2,3,4,7,8-PeCDF	1.21e+08	1.28e+03	9.4e+04	7.72e+07	8.08e+02	9.6e+04
21	13C-1,2,3,4,7,8-HxCDF	6.01e+07	1.97e+03	3.1e+04	1.13e+08	1.75e+03	6.5e+04
22	13C-1,2,3,6,7,8-HxCDF	6.52e+07	1.97e+03	3.3e+04	1.24e+08	1.75e+03	7.1e+04
23	13C-2,3,4,6,7,8-HxCDF	5.86e+07	1.97e+03	3.0e+04	1.11e+08	1.75e+03	6.4e+04
24	13C-1,2,3,7,8,9-HxCDF	4.44e+07	1.97e+03	2.3e+04	8.35e+07	1.75e+03	4.8e+04
25	13C-1,2,3,4,6,7,8-HpCDF	4.03e+07	8.48e+03	4.8e+03	9.01e+07	6.21e+03	1.5e+04
26	13C-1,2,3,4,7,8,9-HpCDF	2.83e+07	8.48e+03	3.3e+03	6.33e+07	6.21e+03	1.0e+04
27	13C-2,3,7,8-TCDD	5.56e+07	5.87e+03	9.5e+03	6.88e+07	2.90e+03	2.4e+04
28	13C-1,2,3,7,8-PeCDD	8.27e+07	1.46e+03	5.7e+04	5.24e+07	1.17e+03	4.5e+04
29	13C-1,2,3,4,7,8-HxCDD	7.51e+07	3.07e+03	2.4e+04	5.90e+07	2.67e+03	2.2e+04
30	13C-1,2,3,6,7,8-HxCDD	7.07e+07	3.07e+03	2.3e+04	5.69e+07	2.67e+03	2.1e+04
31	13C-1,2,3,4,6,7,8-HpCDD	5.63e+07	2.93e+03	1.9e+04	5.39e+07	1.32e+03	4.1e+04
32	13C-OCDD	5.98e+07	1.07e+03	5.6e+04	6.69e+07	9.36e+02	7.1e+04
33	13C-1,2,3,4-TCDD	5.97e+07	5.87e+03	1.0e+04	7.42e+07	2.90e+03	2.6e+04
34	13C-1,2,3,7,8,9-HxCDD	7.31e+07	3.07e+03	2.4e+04	5.89e+07	2.67e+03	2.2e+04
35	37Cl-2,3,7,8-TCDD	1.36e+07	1.25e+03	1.1e+04			

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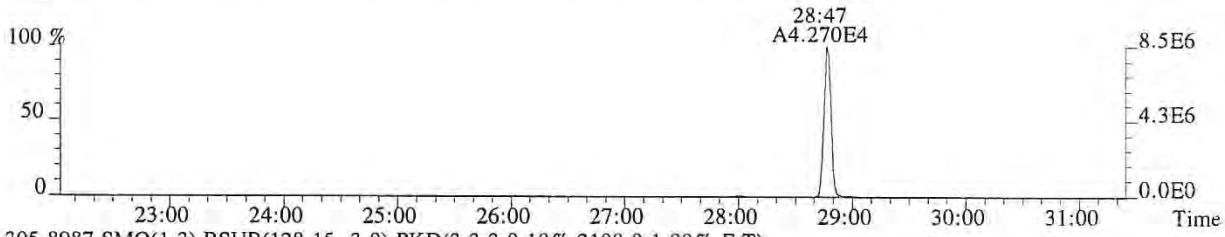
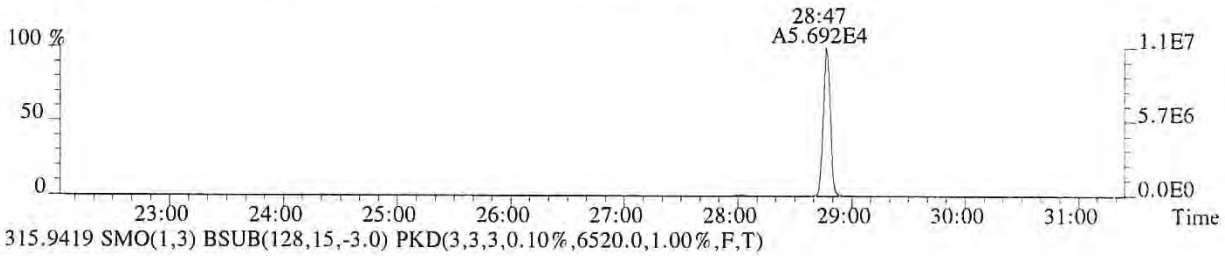
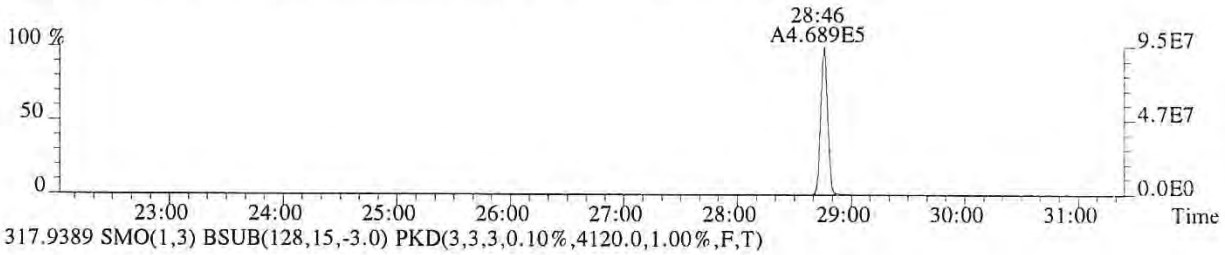
File:P513853 #1-665 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,640.0,1.00%,F,T)



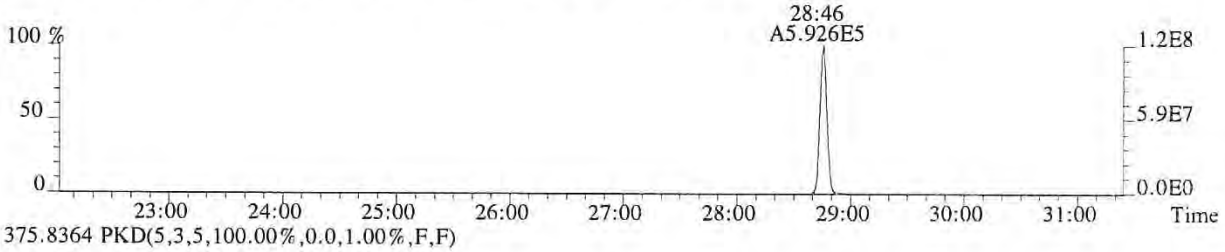
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2108.0,1.00%,F,T)



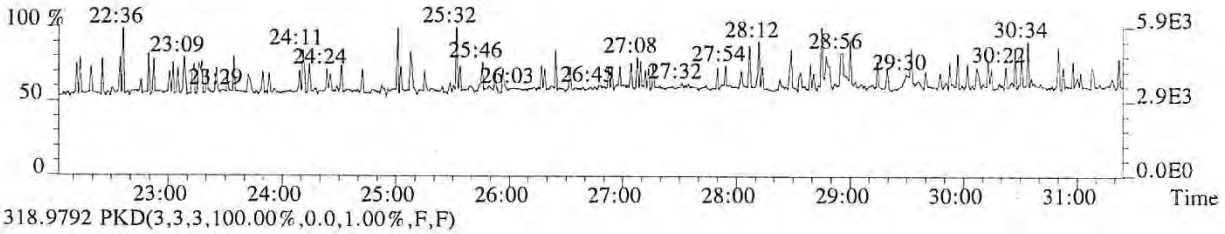
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6520.0,1.00%,F,T)



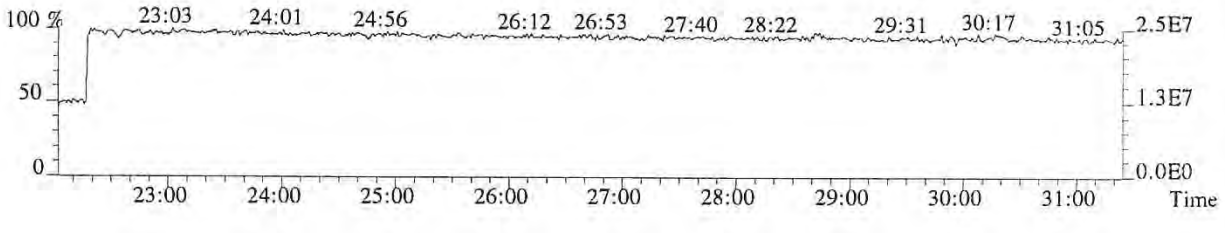
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4120.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



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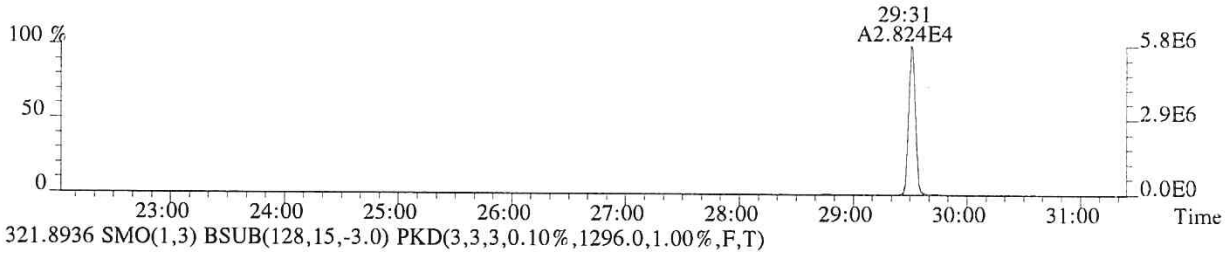
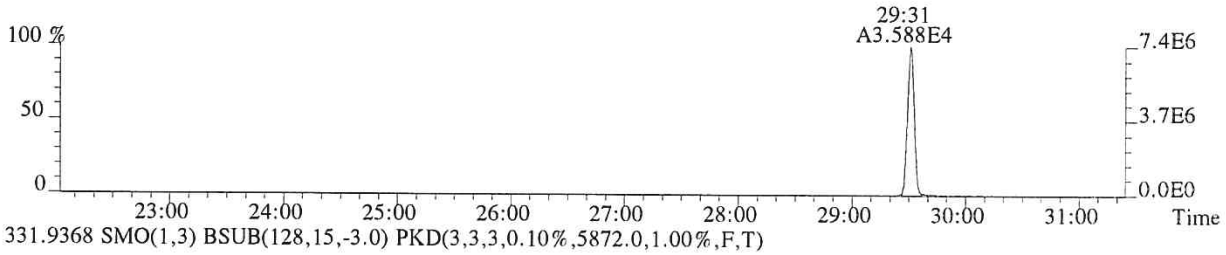
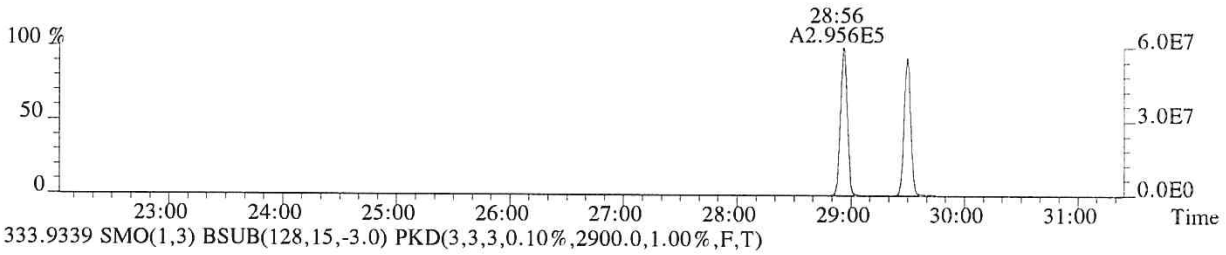
File:P513853 #1-665 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1924.0,1.00%,F,T)



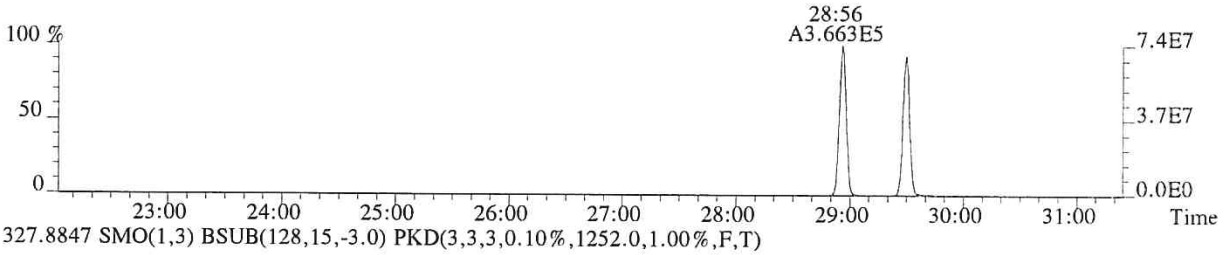
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1296.0,1.00%,F,T)



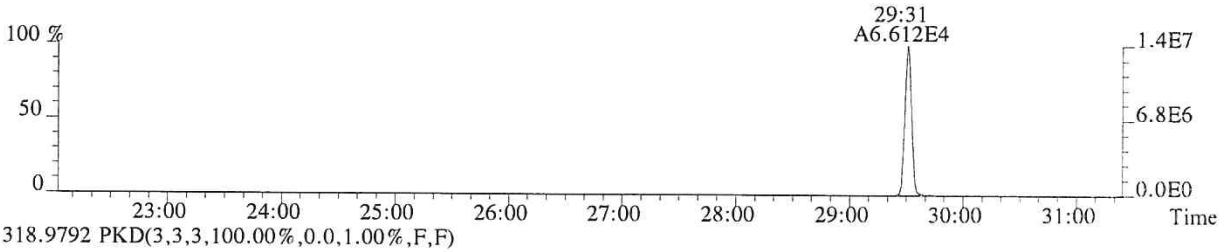
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5872.0,1.00%,F,T)



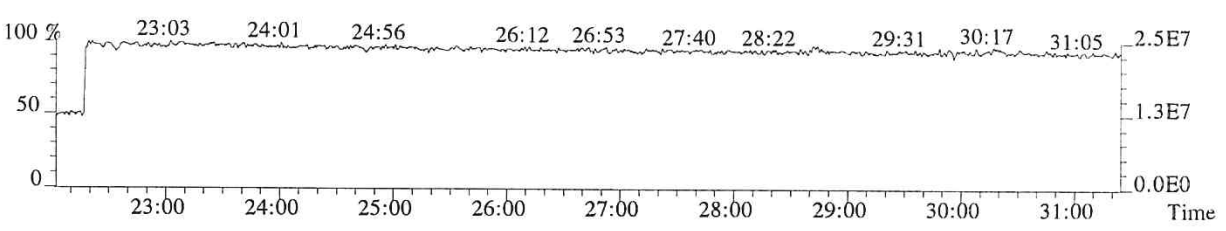
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2900.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1252.0,1.00%,F,T)

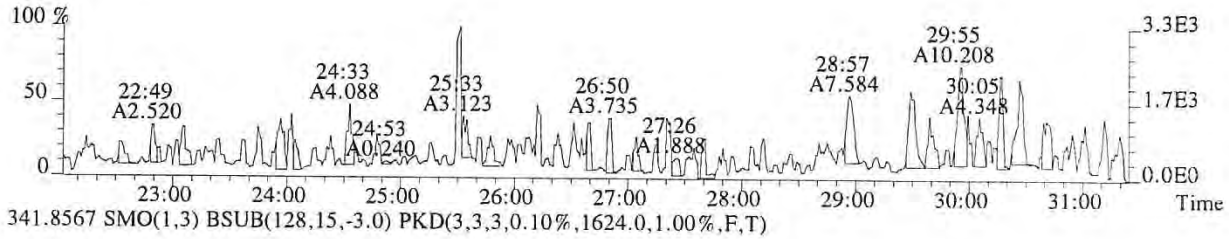


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

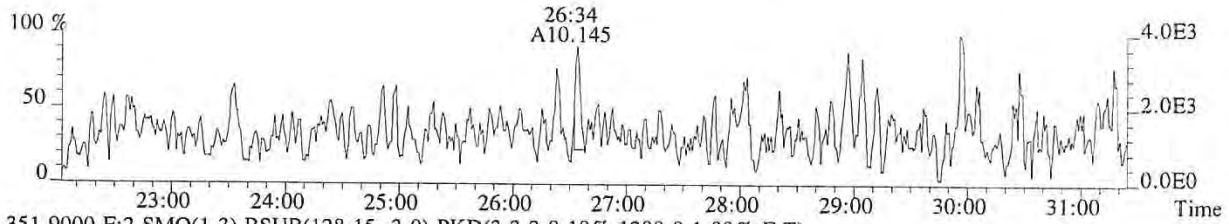


015976

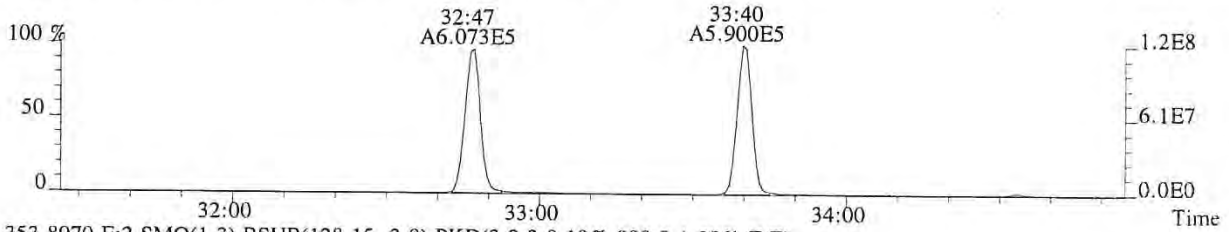
File:P513853 #1-665 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,452.0,1.00%,F,T)



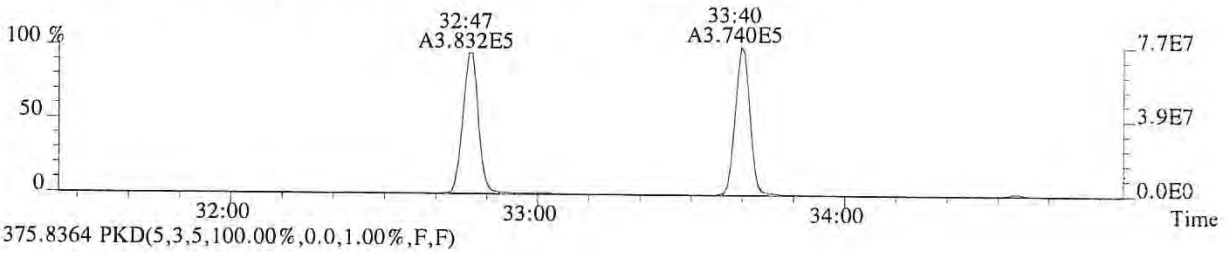
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1624.0,1.00%,F,T)



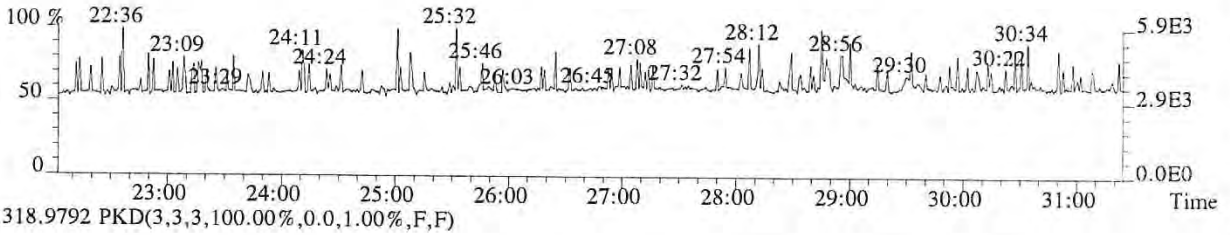
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1280.0,1.00%,F,T)



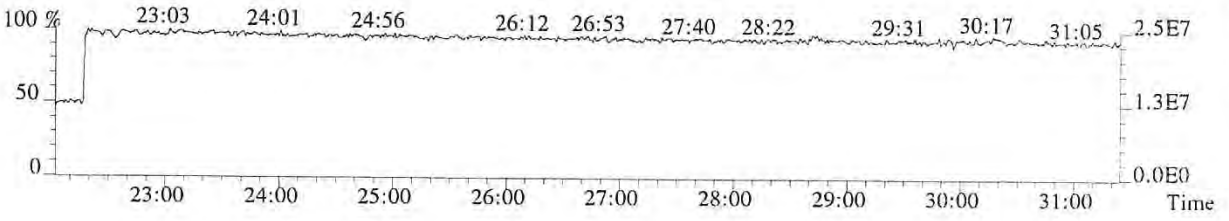
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,808.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

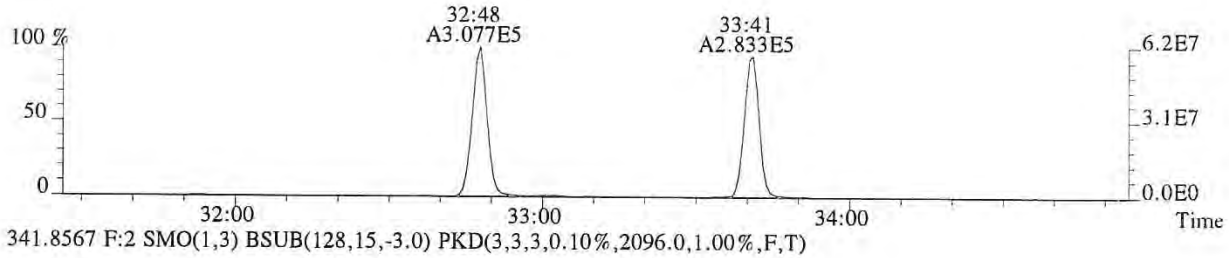


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

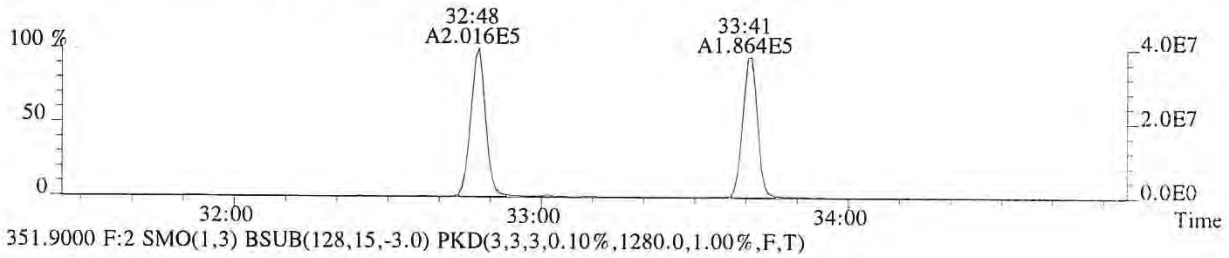


015977

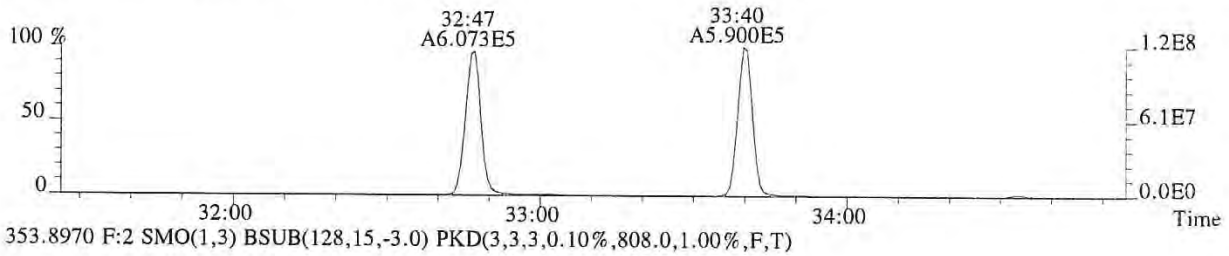
File:P513853 #1-313 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1612.0,1.00%,F,T)



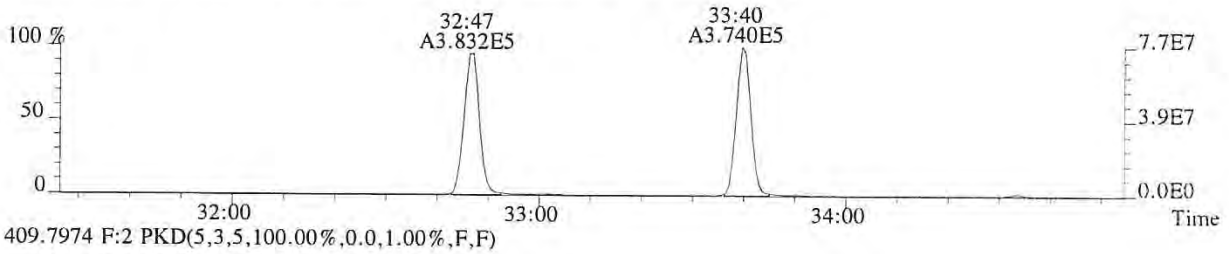
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2096.0,1.00%,F,T)



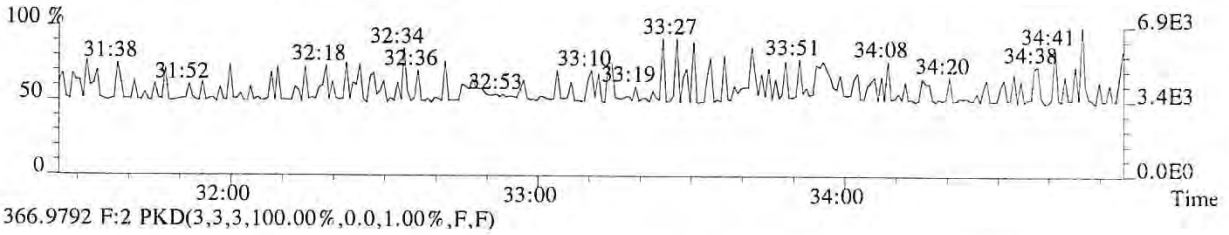
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1280.0,1.00%,F,T)



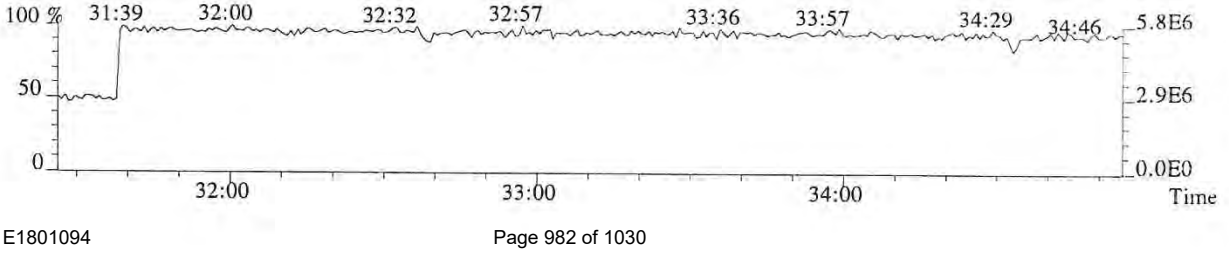
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,808.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

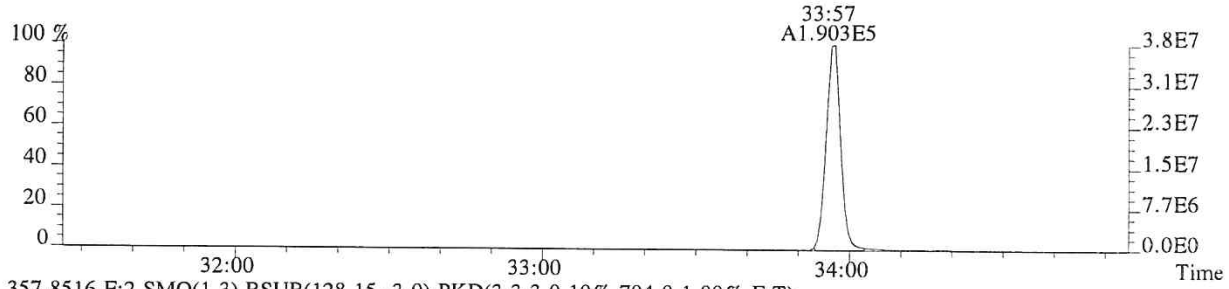


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

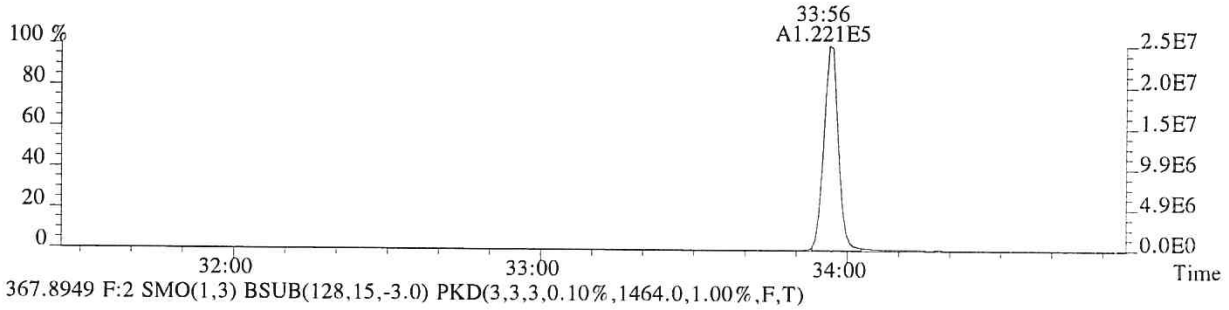


015978

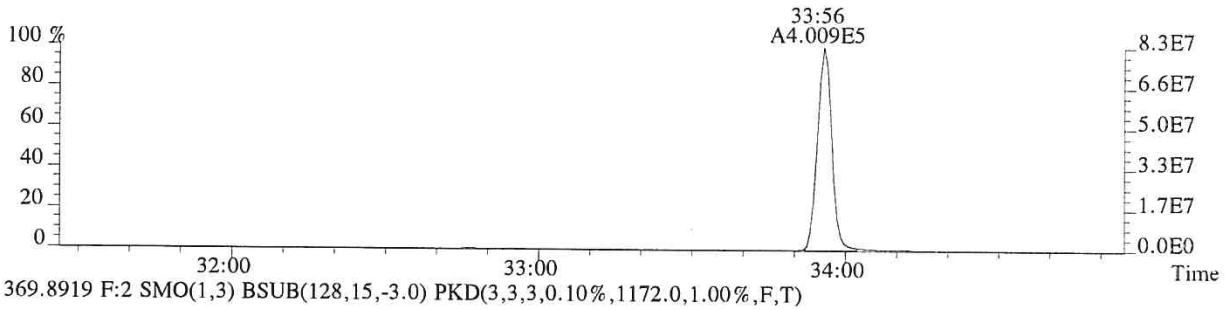
File:P513853 #1-313 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1452.0,1.00%,F,T)



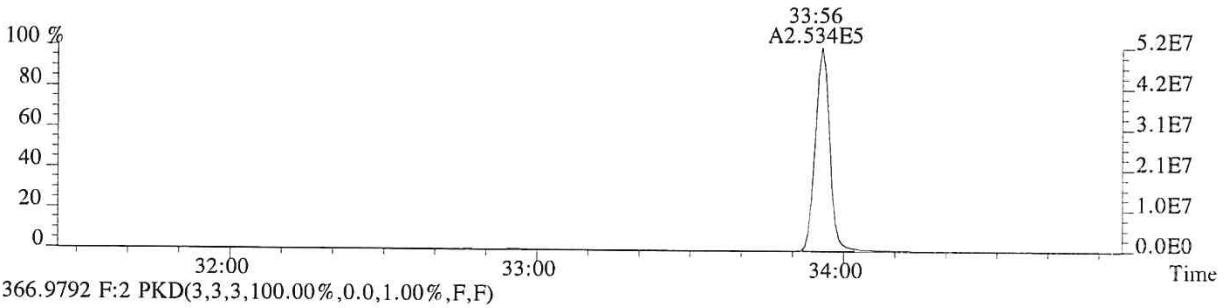
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,704.0,1.00%,F,T)



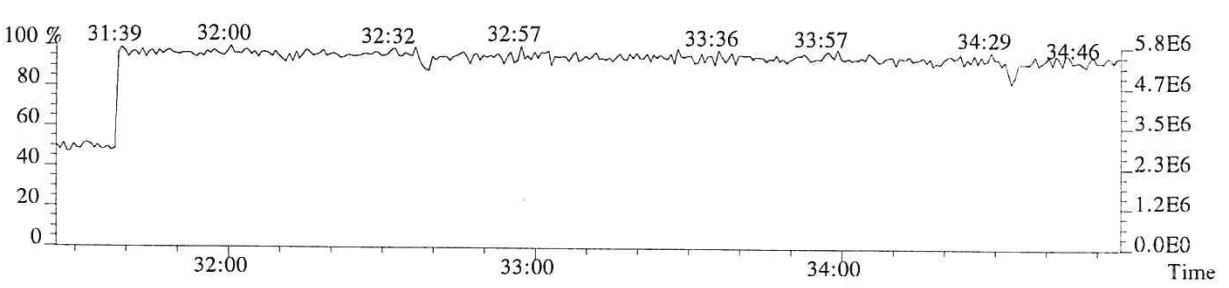
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1464.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1172.0,1.00%,F,T)

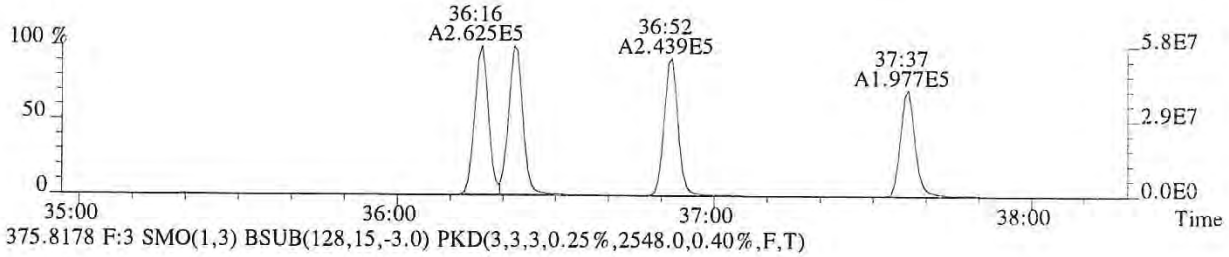


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

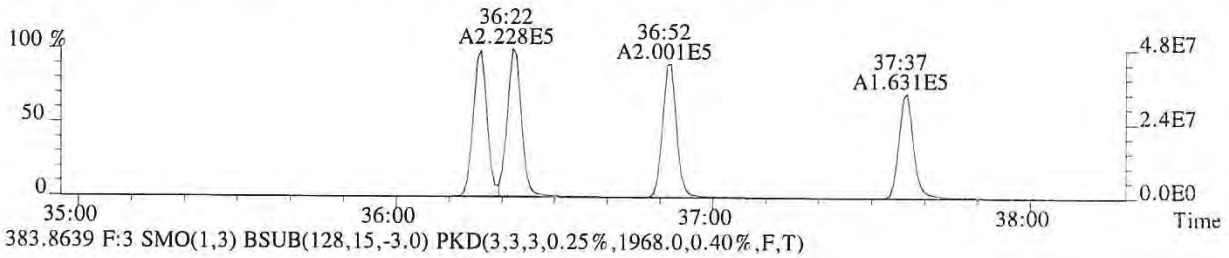


015979

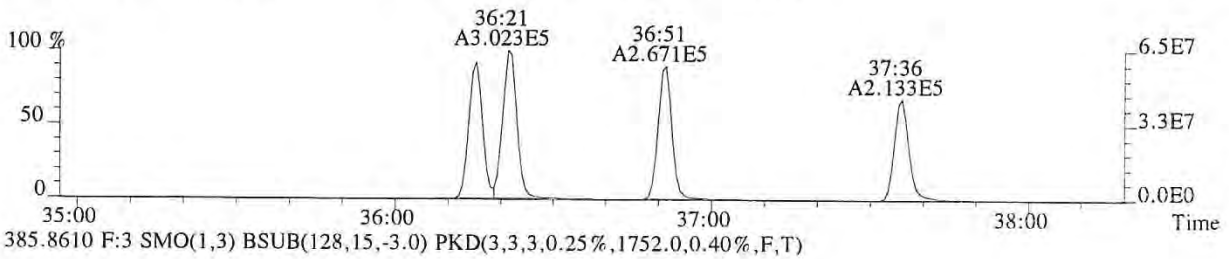
File:P513853 #1-303 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1856.0,0.40%,F,T)



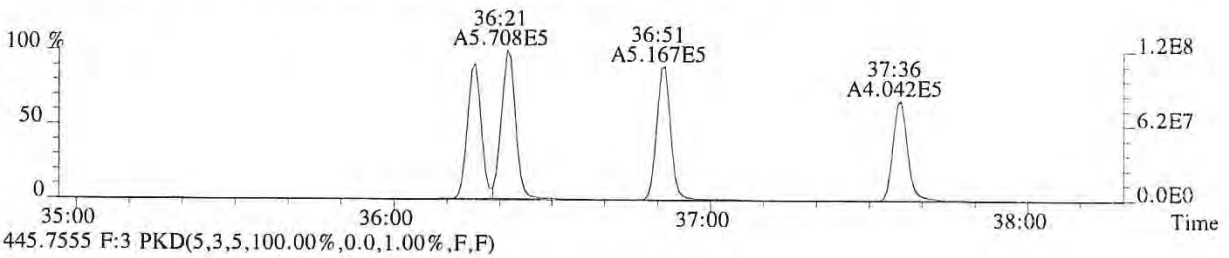
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2548.0,0.40%,F,T)



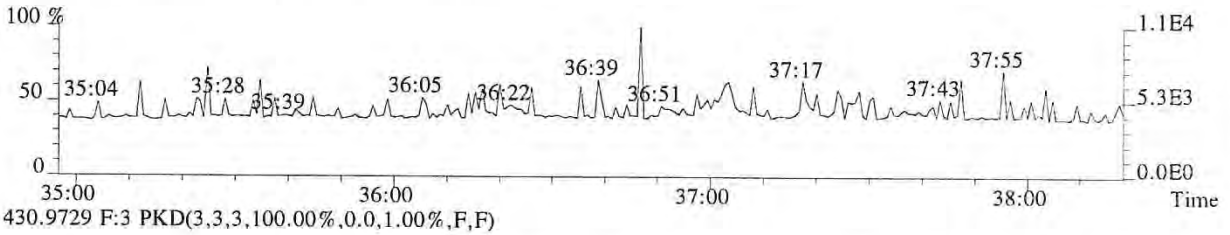
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1968.0,0.40%,F,T)



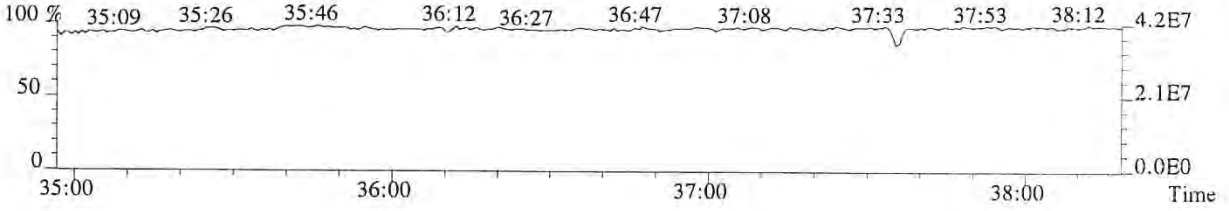
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1752.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

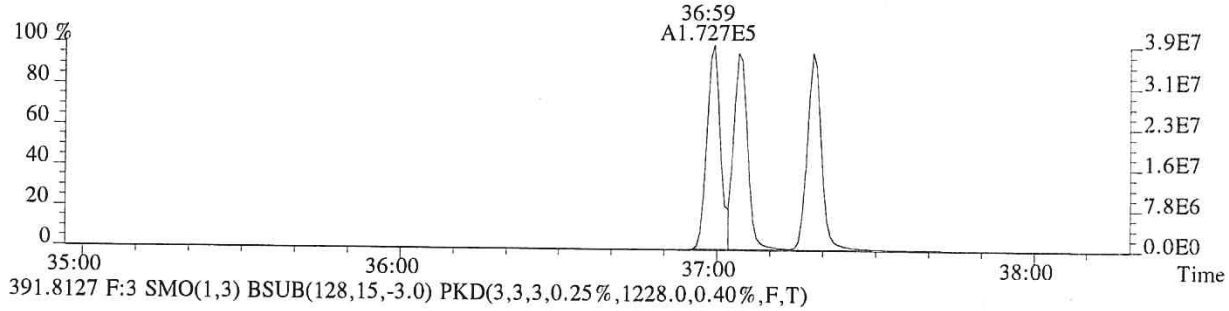


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

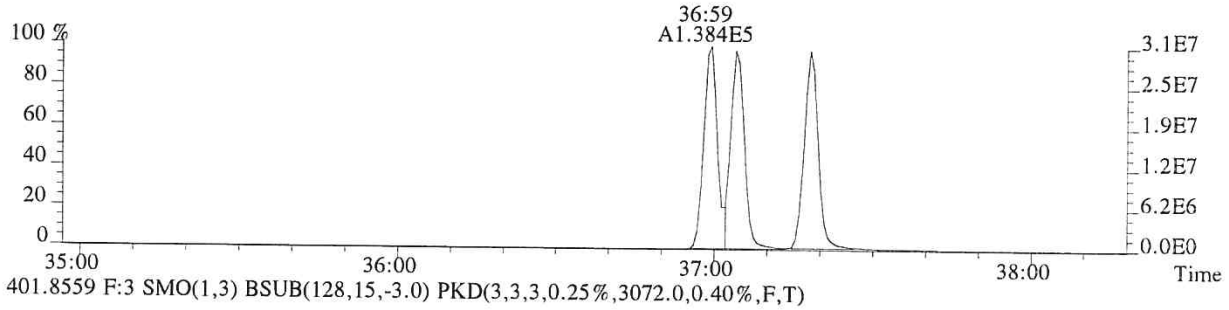


015980

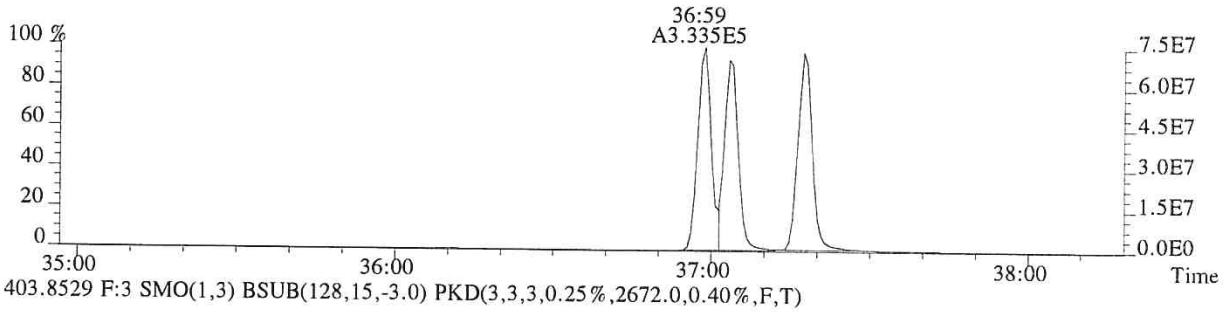
File:P513853 #1-303 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,512.0,0.40%,F,T)



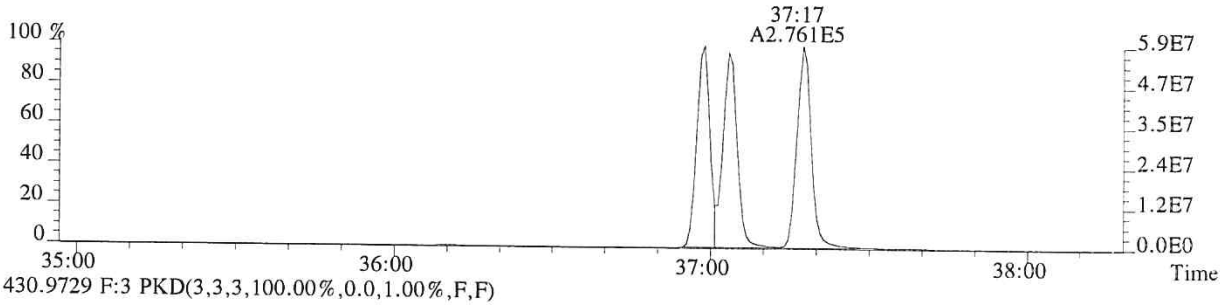
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1228.0,0.40%,F,T)



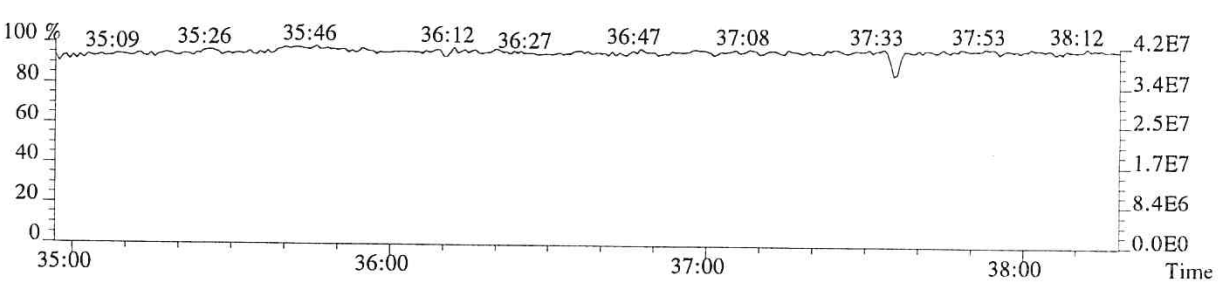
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3072.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2672.0,0.40%,F,T)

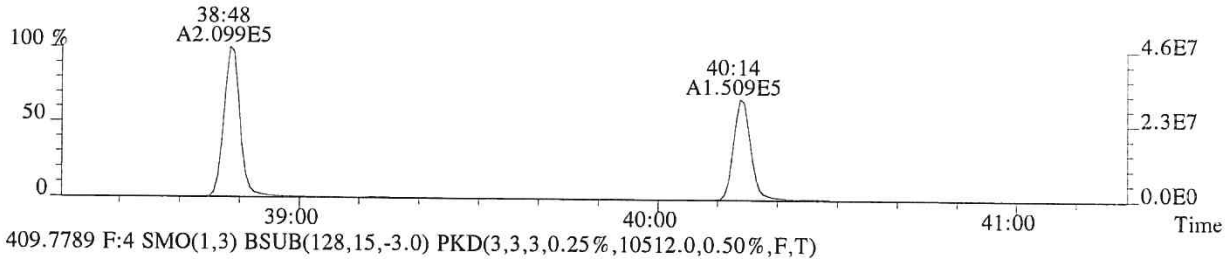


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

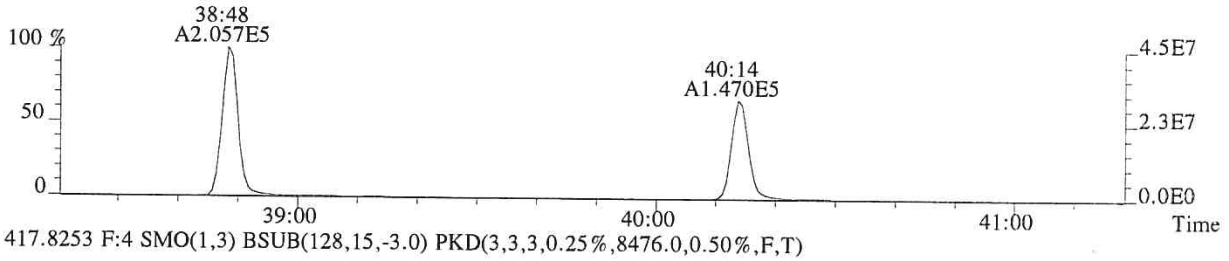


015981

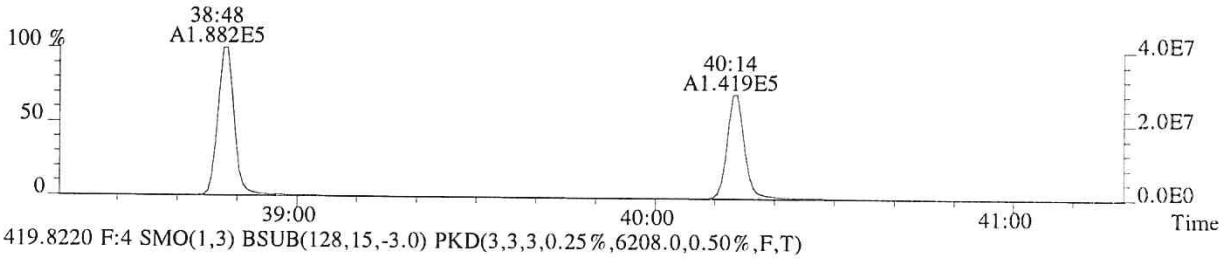
File:P513853 #1-268 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4436.0,0.50%,F,T)



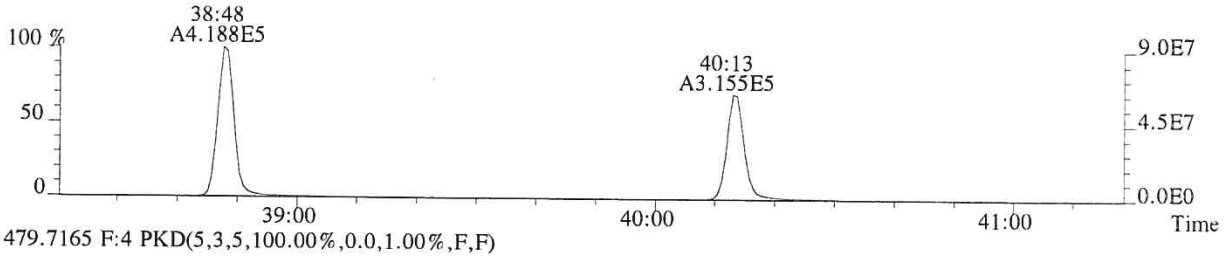
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,10512.0,0.50%,F,T)



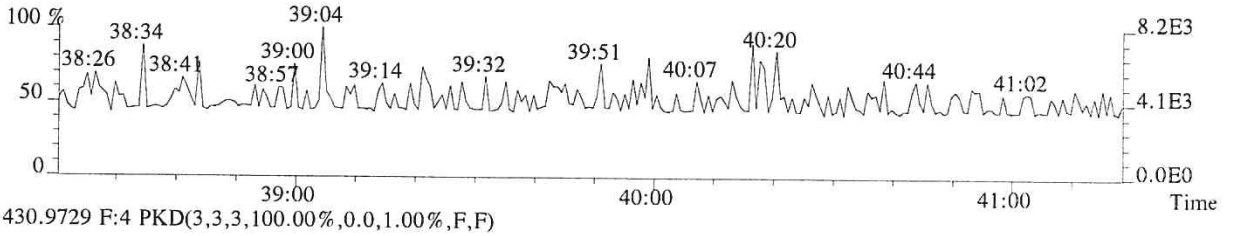
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8476.0,0.50%,F,T)



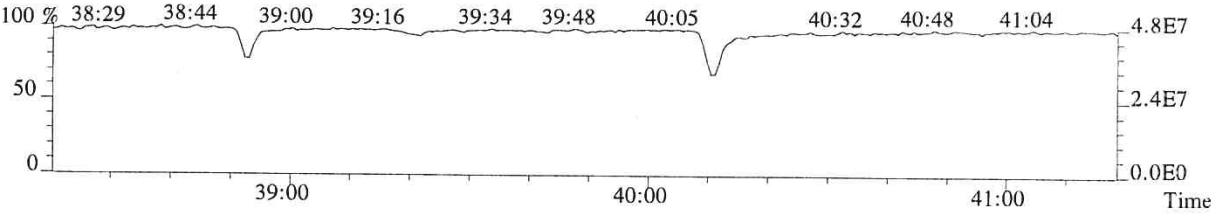
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6208.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

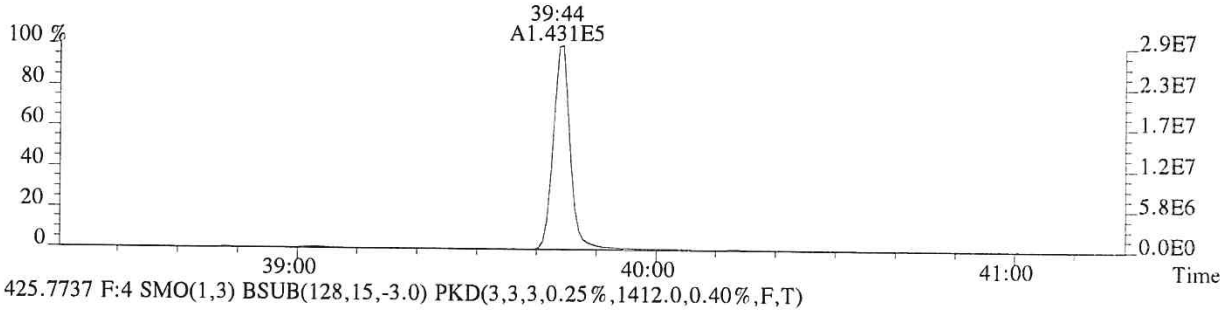


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

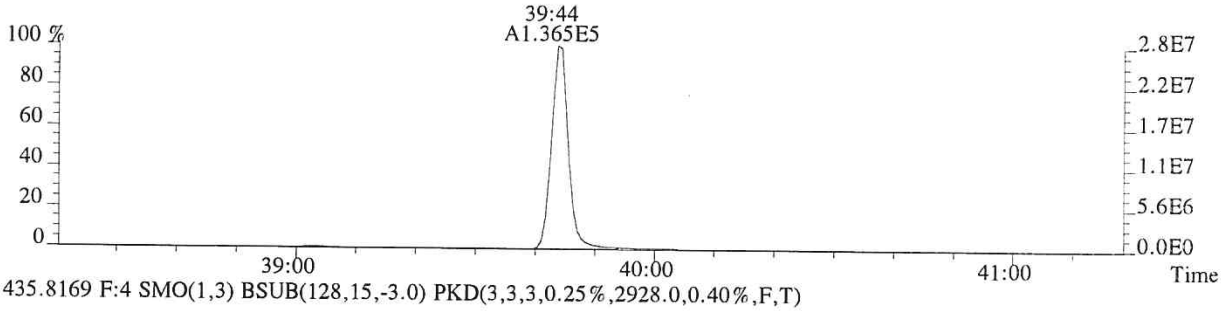


015982

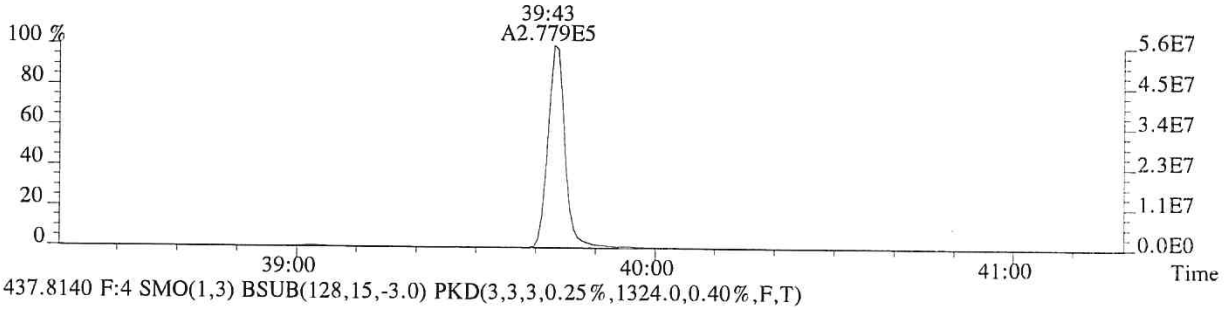
File:P513853 #1-268 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1840.0,0.40%,F,T)



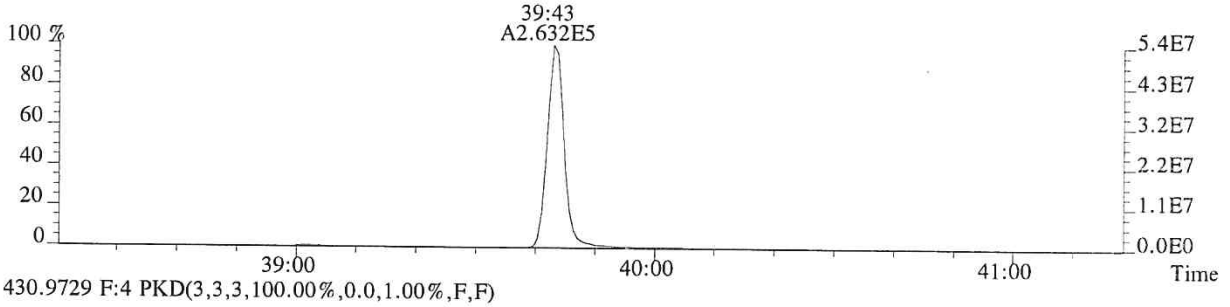
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1412.0,0.40%,F,T)



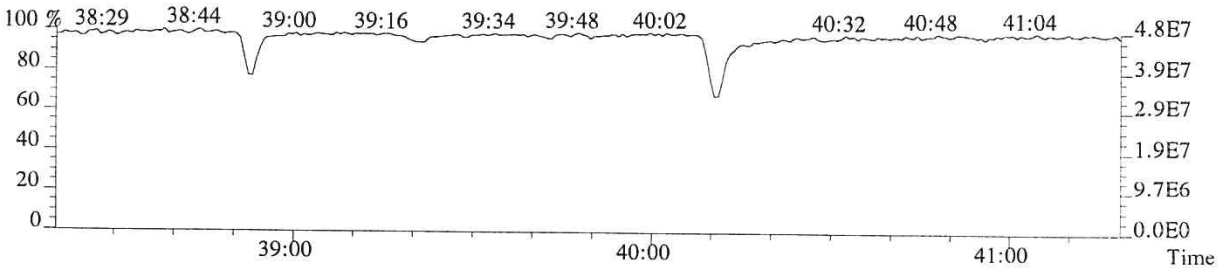
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2928.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1324.0,0.40%,F,T)

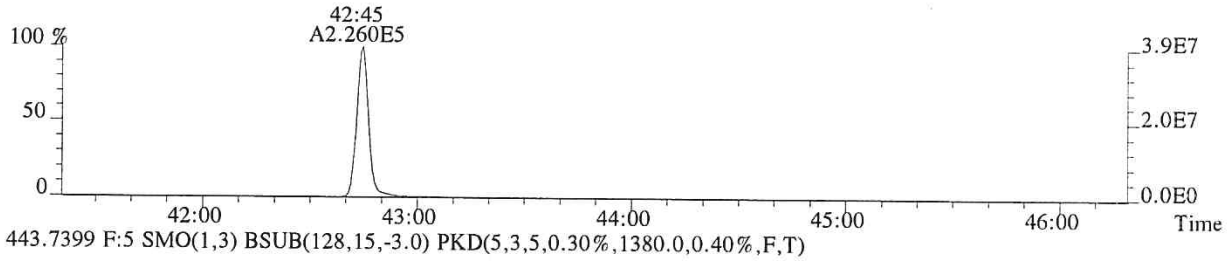


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

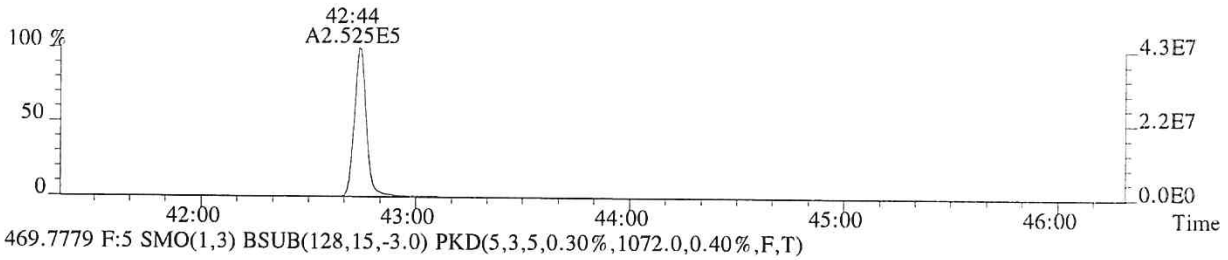


015983

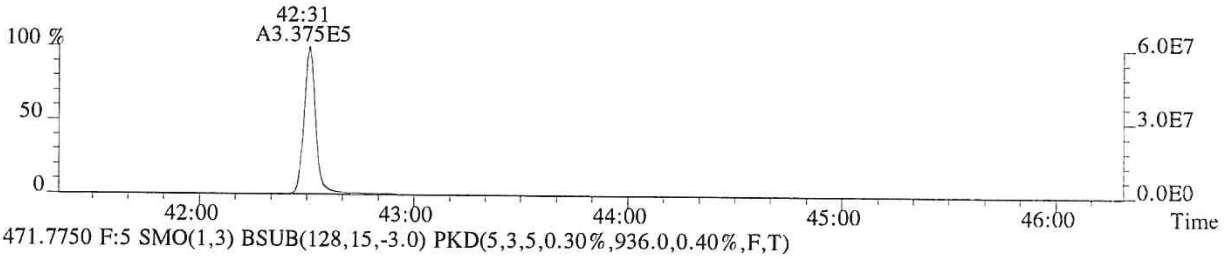
File:P513853 #1-448 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,144.0,0.40%,F,T)



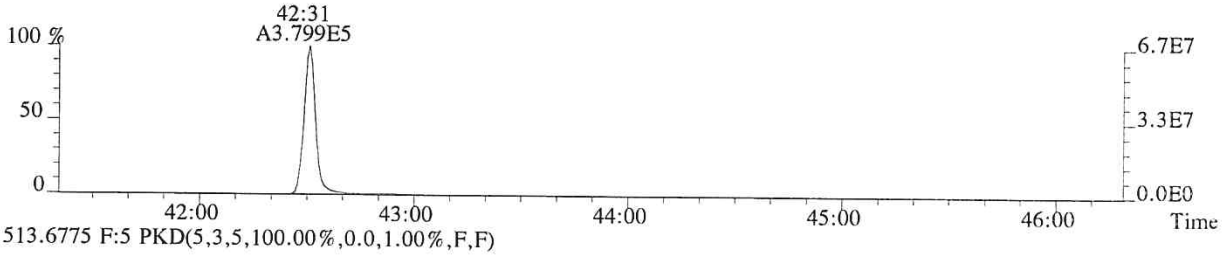
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1380.0,0.40%,F,T)



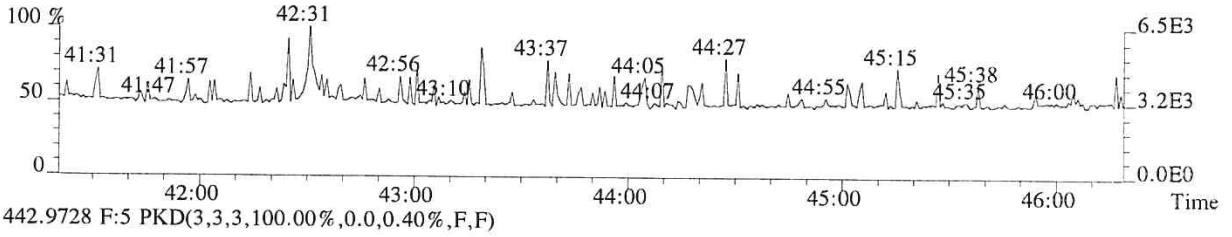
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1072.0,0.40%,F,T)



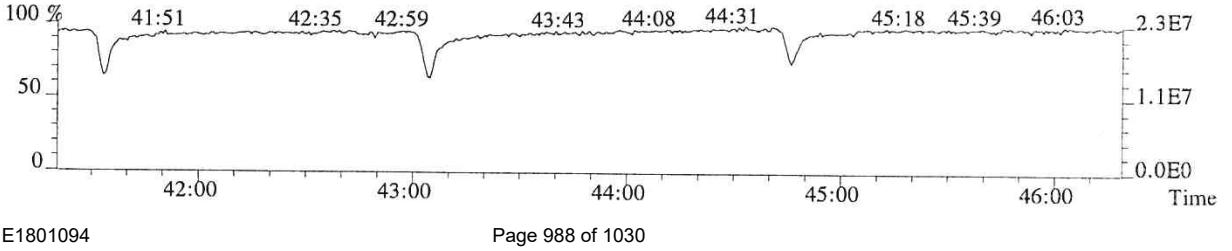
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,936.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

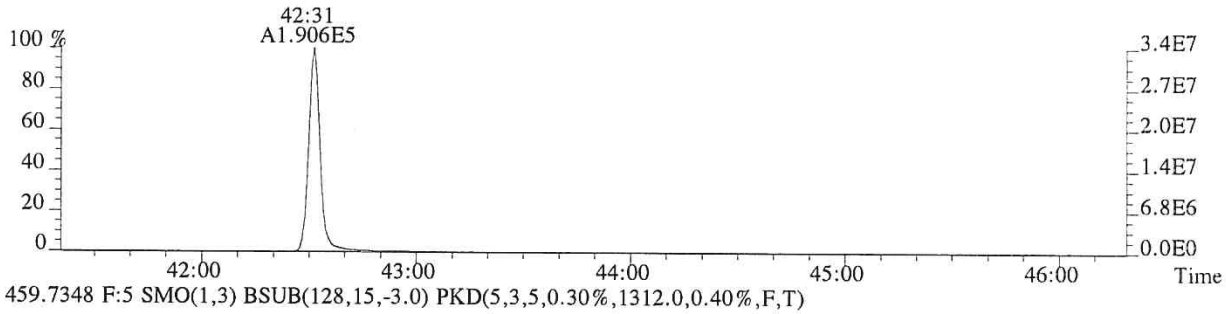


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

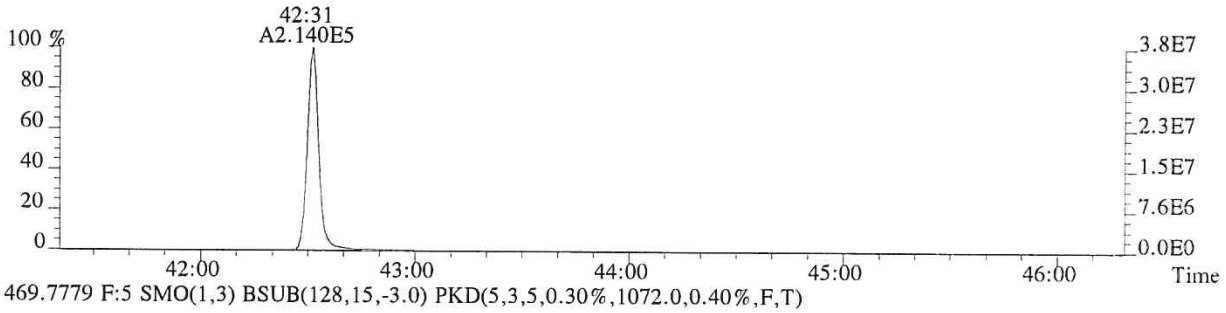


015984

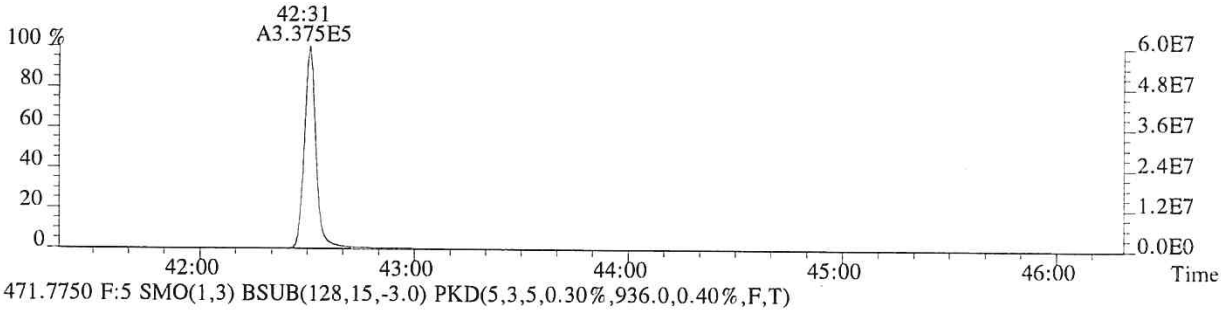
File:P513853 #1-448 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,632.0,0.40%,F,T)



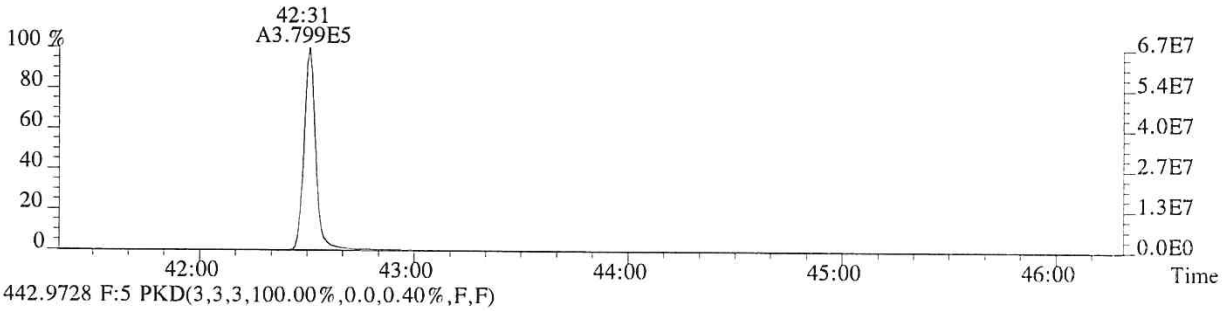
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1312.0,0.40%,F,T)



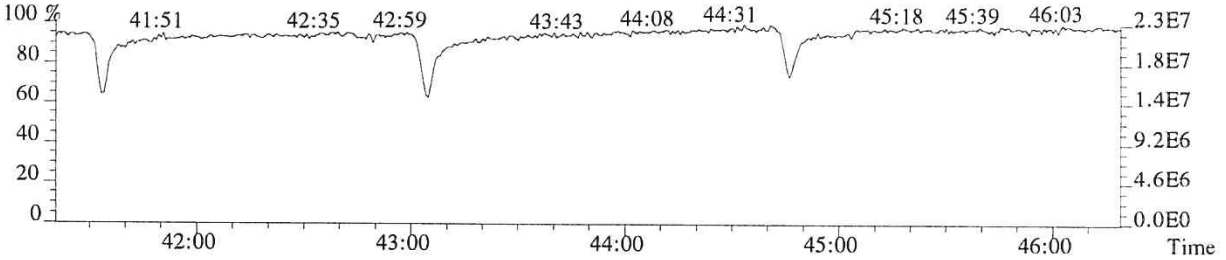
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1072.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,936.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



015985

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76558

Run #5 Filename P513854 Samp: 1 Inj: 1 Acquired: 24-JAN-18 16:55:09
Processed: 24-JAN-18 17:50:33 Sample ID: CS4

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:47	9.367e+04	1.218e+05	0.77	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:47	7.158e+05	4.652e+05	1.54	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:40	6.668e+05	4.362e+05	1.53	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:15	6.097e+05	4.979e+05	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:22	6.415e+05	5.246e+05	1.22	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:51	5.685e+05	4.706e+05	1.21	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:36	5.397e+05	4.367e+05	1.24	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:48	4.833e+05	4.698e+05	1.03	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	3.955e+05	3.845e+05	1.03	yes	no	1.258
10	Unk	OCDF	42:44	5.770e+05	6.374e+05	0.91	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:31	6.699e+04	8.569e+04	0.78	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:56	4.394e+05	2.817e+05	1.56	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:59	3.869e+05	3.085e+05	1.25	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:04	4.031e+05	3.210e+05	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:18	4.024e+05	3.196e+05	1.26	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	3.425e+05	3.252e+05	1.05	yes	no	1.025
17	Unk	OCDD	42:31	4.623e+05	5.191e+05	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:46	2.467e+05	3.121e+05	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:46	3.414e+05	2.167e+05	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	3.412e+05	2.161e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	1.522e+05	2.895e+05	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:21	1.720e+05	3.253e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:51	1.562e+05	2.969e+05	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:36	1.406e+05	2.715e+05	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	1.081e+05	2.395e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:13	9.438e+04	2.110e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:30	1.544e+05	1.910e+05	0.81	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	2.282e+05	1.431e+05	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	1.841e+05	1.451e+05	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:03	1.915e+05	1.516e+05	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:43	1.646e+05	1.528e+05	1.08	yes	no	0.858
32	IS	13C-OCDD	42:31	2.072e+05	2.298e+05	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:56	1.645e+05	2.018e+05	0.82	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:17	1.964e+05	1.566e+05	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:31	1.545e+05				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76558

Run #5 Filename P513854 Samp: 1 Inj: 1 Acquired: 24-JAN-18 16:55:09
Processed: 24-JAN-18 17:50:33 LAB. ID: CS4

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.89e+07	1.00e+03	1.9e+04	2.44e+07	1.90e+03	1.3e+04
2	1,2,3,7,8-PeCDF	1.40e+08	2.03e+03	6.9e+04	9.16e+07	1.47e+03	6.2e+04
3	2,3,4,7,8-PeCDF	1.39e+08	2.03e+03	6.9e+04	9.17e+07	1.47e+03	6.2e+04
4	1,2,3,4,7,8-HxCDF	1.35e+08	1.80e+03	7.5e+04	1.11e+08	2.10e+03	5.3e+04
5	1,2,3,6,7,8-HxCDF	1.41e+08	1.80e+03	7.8e+04	1.16e+08	2.10e+03	5.5e+04
6	2,3,4,6,7,8-HxCDF	1.27e+08	1.80e+03	7.0e+04	1.06e+08	2.10e+03	5.0e+04
7	1,2,3,7,8,9-HxCDF	1.14e+08	1.80e+03	6.3e+04	9.30e+07	2.10e+03	4.4e+04
8	1,2,3,4,6,7,8-HpCDF	1.07e+08	1.75e+04	6.1e+03	1.05e+08	2.93e+04	3.6e+03
9	1,2,3,4,7,8,9-HpCDF	8.10e+07	1.75e+04	4.6e+03	7.89e+07	2.93e+04	2.7e+03
10	OCDF	1.02e+08	5.04e+02	2.0e+05	1.14e+08	1.72e+03	6.6e+04
11	2,3,7,8-TCDD	1.41e+07	2.20e+03	6.4e+03	1.80e+07	1.38e+03	1.3e+04
12	1,2,3,7,8-PeCDD	9.08e+07	1.42e+03	6.4e+04	5.86e+07	1.44e+02	4.1e+05
13	1,2,3,4,7,8-HxCDD	8.77e+07	1.20e+03	7.3e+04	7.06e+07	1.58e+03	4.5e+04
14	1,2,3,6,7,8-HxCDD	8.80e+07	1.20e+03	7.3e+04	7.05e+07	1.58e+03	4.5e+04
15	1,2,3,7,8,9-HxCDD	8.97e+07	1.20e+03	7.5e+04	7.13e+07	1.58e+03	4.5e+04
16	1,2,3,4,6,7,8-HpCDD	7.19e+07	1.52e+03	4.7e+04	6.86e+07	1.50e+03	4.6e+04
17	OCDD	8.05e+07	7.36e+02	1.1e+05	9.09e+07	1.16e+03	7.8e+04
18	13C-2,3,7,8-TCDF	4.92e+07	8.28e+03	5.9e+03	6.18e+07	3.78e+03	1.6e+04
19	13C-1,2,3,7,8-PeCDF	6.78e+07	1.09e+03	6.2e+04	4.35e+07	7.12e+02	6.1e+04
20	13C-2,3,4,7,8-PeCDF	7.11e+07	1.09e+03	6.5e+04	4.54e+07	7.12e+02	6.4e+04
21	13C-1,2,3,4,7,8-HxCDF	3.32e+07	1.94e+03	1.7e+04	6.39e+07	1.54e+03	4.2e+04
22	13C-1,2,3,6,7,8-HxCDF	3.76e+07	1.94e+03	1.9e+04	7.17e+07	1.54e+03	4.7e+04
23	13C-2,3,4,6,7,8-HxCDF	3.46e+07	1.94e+03	1.8e+04	6.63e+07	1.54e+03	4.3e+04
24	13C-1,2,3,7,8,9-HxCDF	2.97e+07	1.94e+03	1.5e+04	5.66e+07	1.54e+03	3.7e+04
25	13C-1,2,3,4,6,7,8-HpCDF	2.37e+07	7.11e+03	3.3e+03	5.25e+07	1.03e+04	5.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.95e+07	7.11e+03	2.7e+03	4.34e+07	1.03e+04	4.2e+03
27	13C-2,3,7,8-TCDD	3.25e+07	6.40e+03	5.1e+03	3.99e+07	2.77e+03	1.4e+04
28	13C-1,2,3,7,8-PeCDD	4.73e+07	1.13e+03	4.2e+04	2.97e+07	8.40e+02	3.5e+04
29	13C-1,2,3,4,7,8-HxCDD	4.15e+07	3.03e+03	1.4e+04	3.28e+07	2.40e+03	1.4e+04
30	13C-1,2,3,6,7,8-HxCDD	4.14e+07	3.03e+03	1.4e+04	3.31e+07	2.40e+03	1.4e+04
31	13C-1,2,3,4,6,7,8-HpCDD	3.45e+07	1.55e+03	2.2e+04	3.21e+07	1.32e+03	2.4e+04
32	13C-OCDD	3.61e+07	1.25e+03	2.9e+04	4.00e+07	1.19e+03	3.4e+04
33	13C-1,2,3,4-TCDD	3.34e+07	6.40e+03	5.2e+03	4.12e+07	2.77e+03	1.5e+04
34	13C-1,2,3,7,8,9-HxCDD	4.34e+07	3.03e+03	1.4e+04	3.46e+07	2.40e+03	1.4e+04
35	37Cl-2,3,7,8-TCDD	3.25e+07	1.28e+03	2.5e+04			

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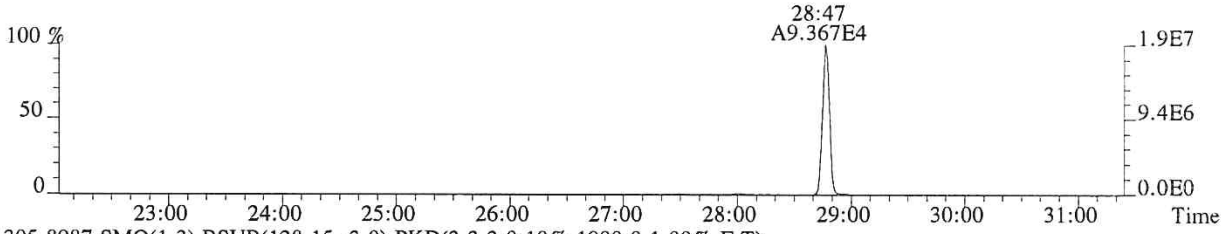
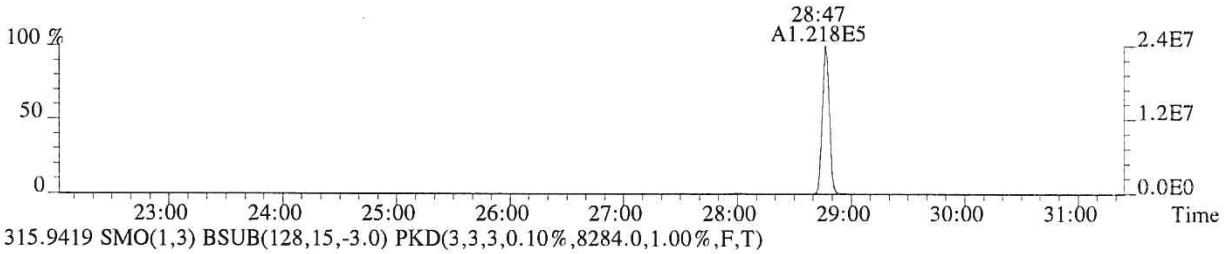
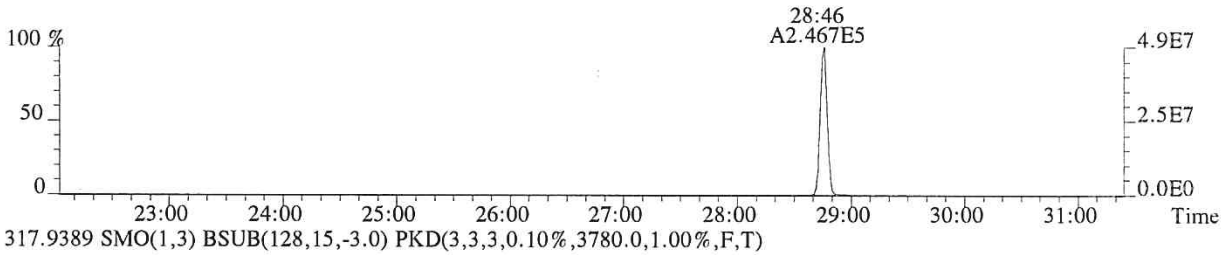
File:P513854 #1-665 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)



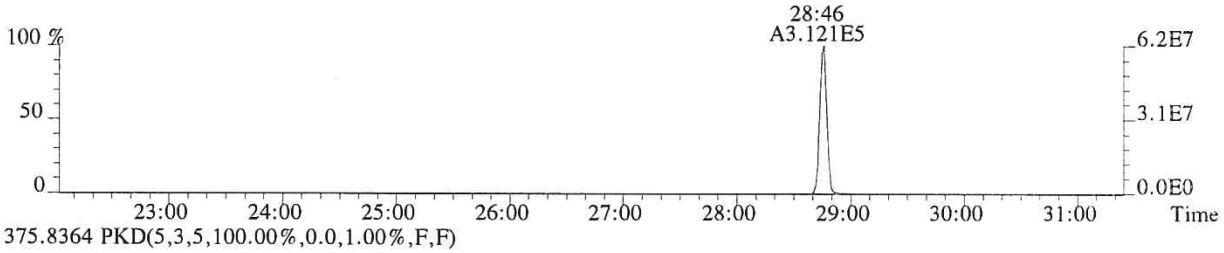
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1900.0,1.00%,F,T)



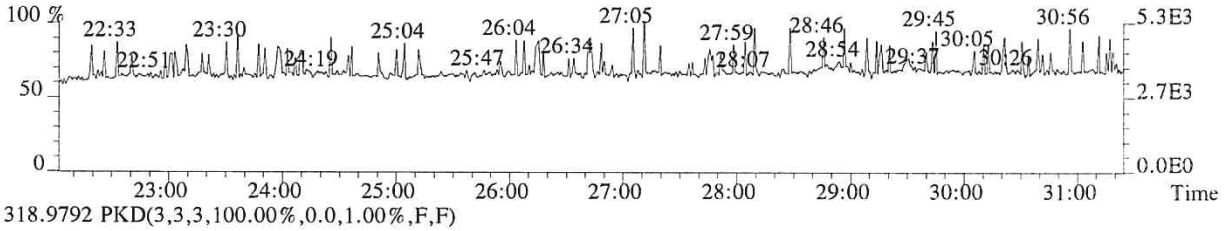
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8284.0,1.00%,F,T)



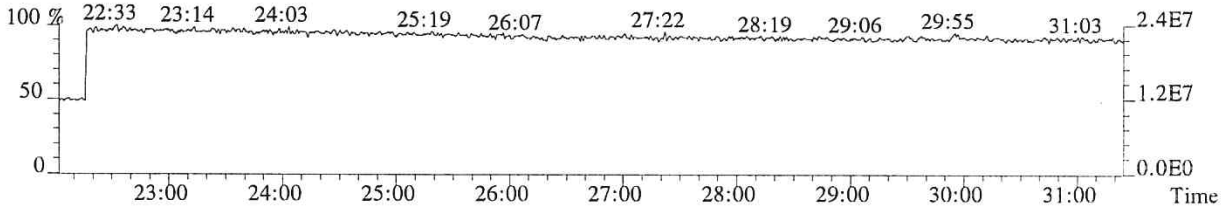
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3780.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

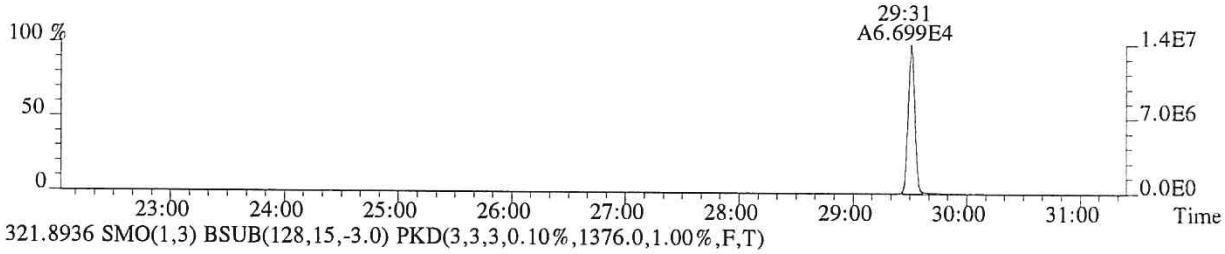


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

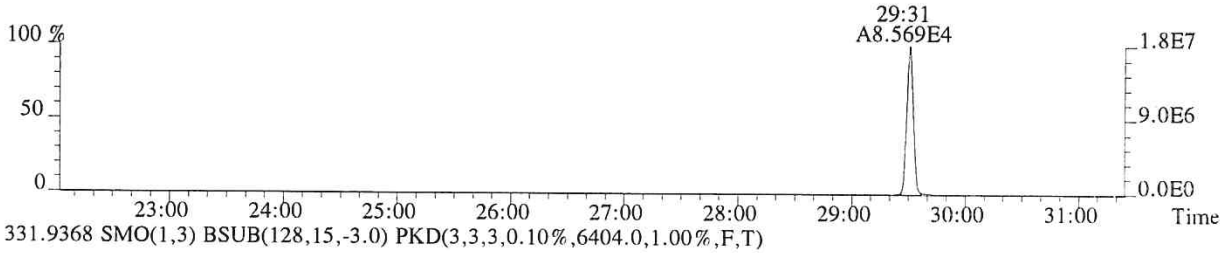


015988

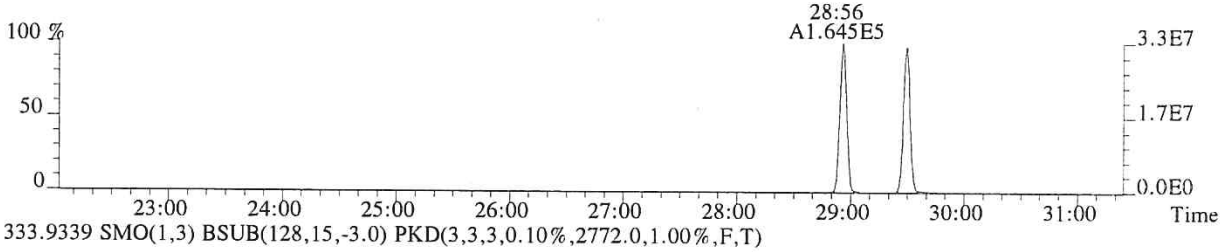
File:P513854 #1-665 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2200.0,1.00%,F,T)



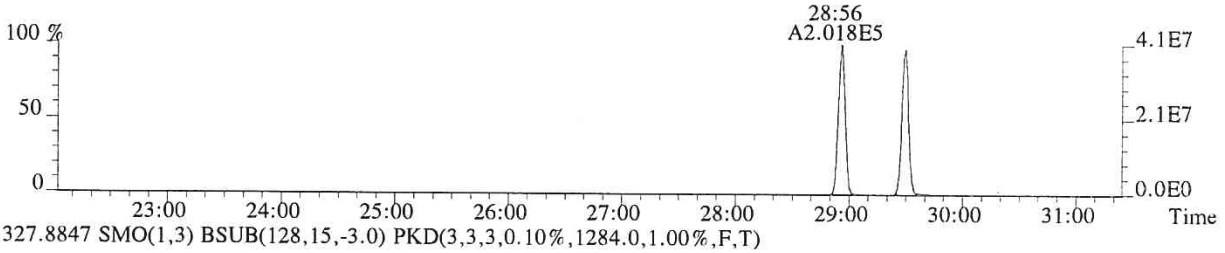
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1376.0,1.00%,F,T)



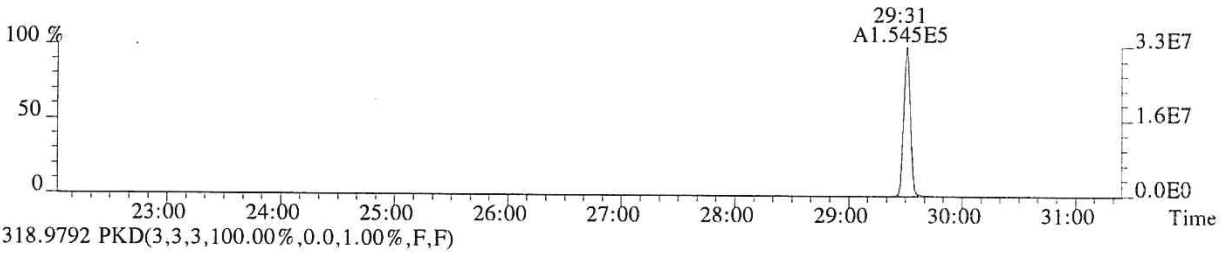
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6404.0,1.00%,F,T)



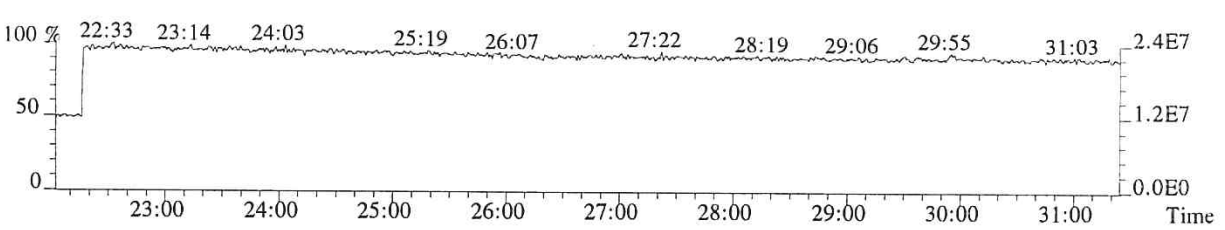
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2772.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1284.0,1.00%,F,T)

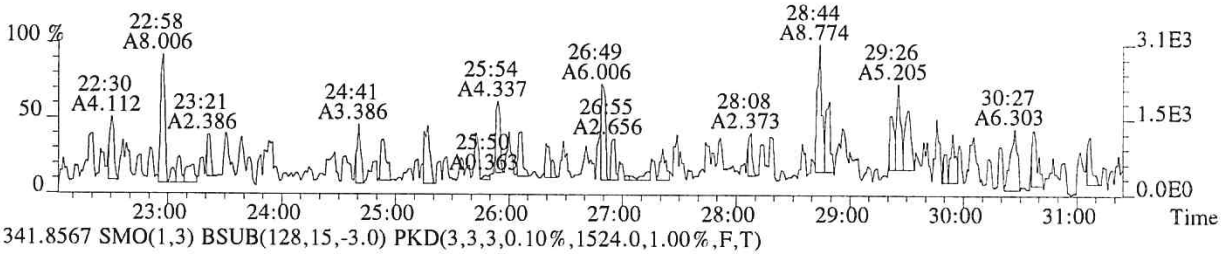


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

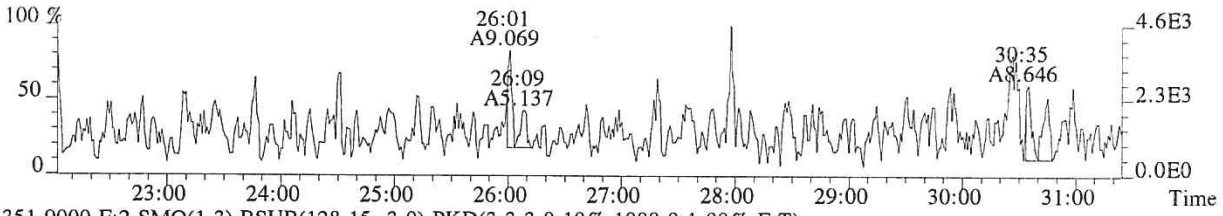


015989

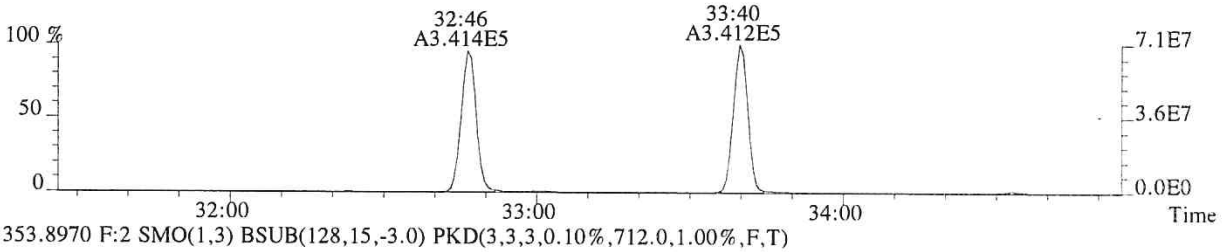
File:P513854 #1-665 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,600.0,1.00%,F,T)



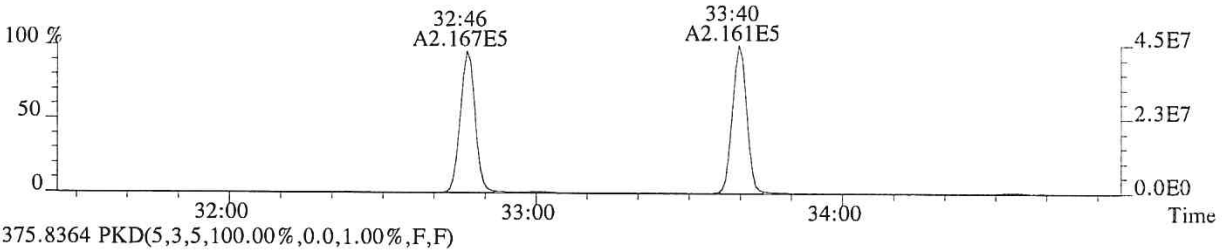
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1524.0,1.00%,F,T)



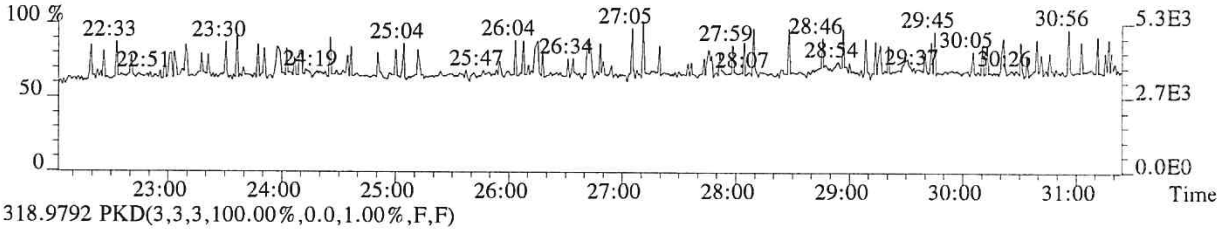
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1088.0,1.00%,F,T)



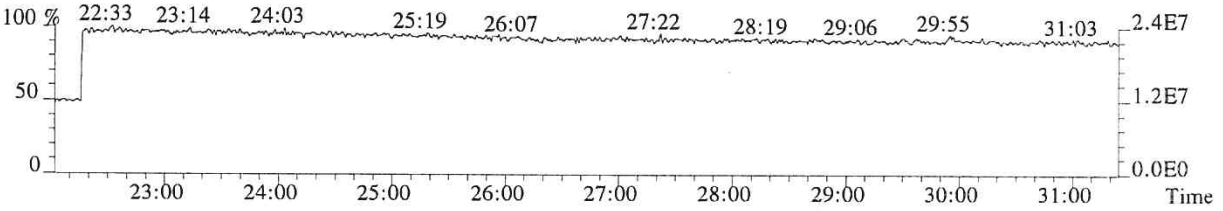
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

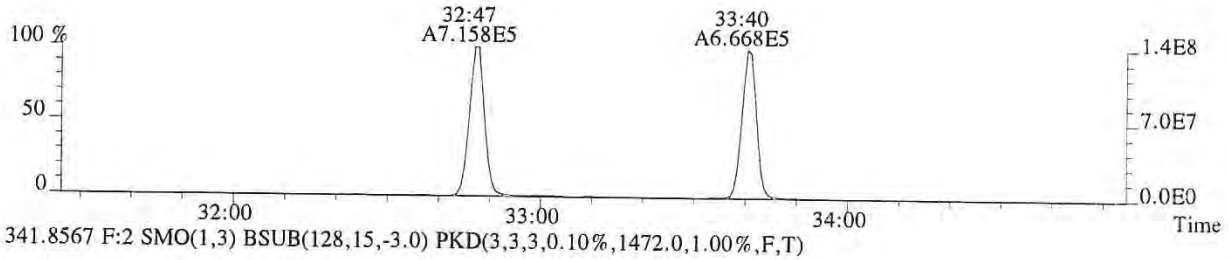


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

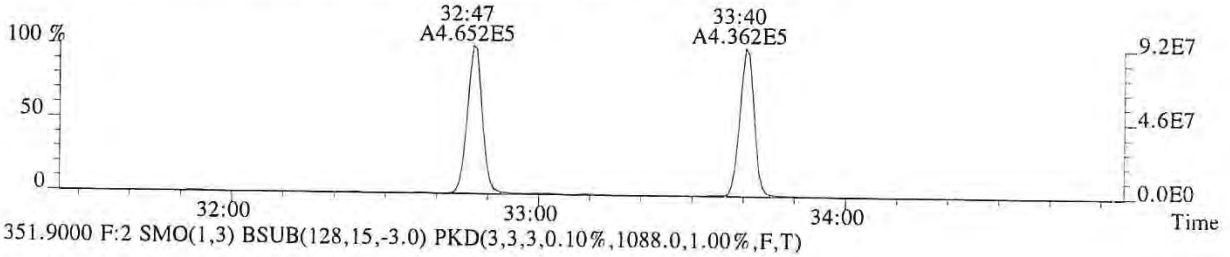


015990

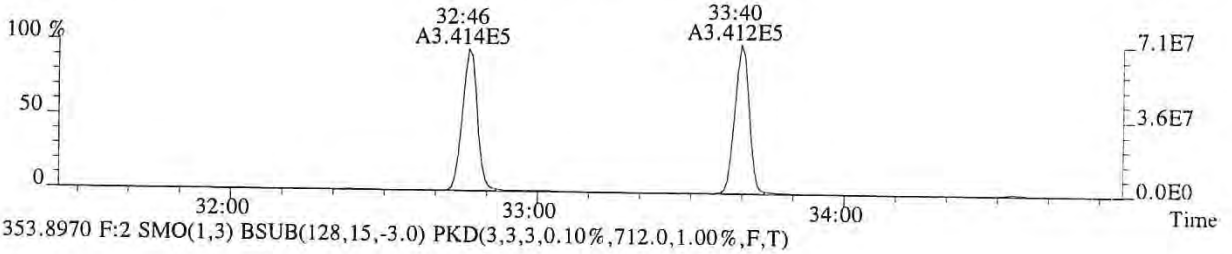
File:P513854 #1-313 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2028.0,1.00%,F,T)



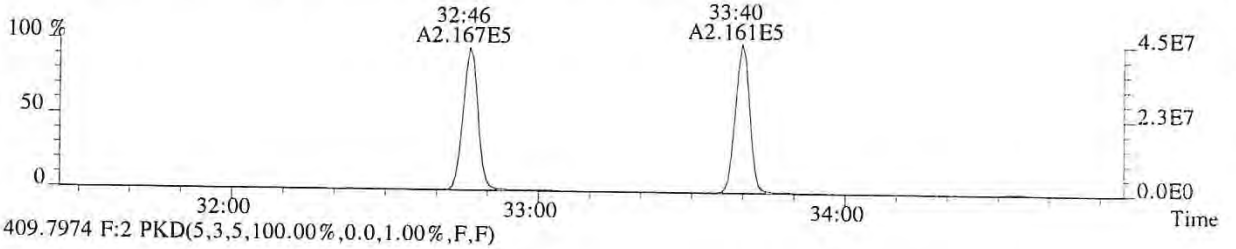
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1472.0,1.00%,F,T)



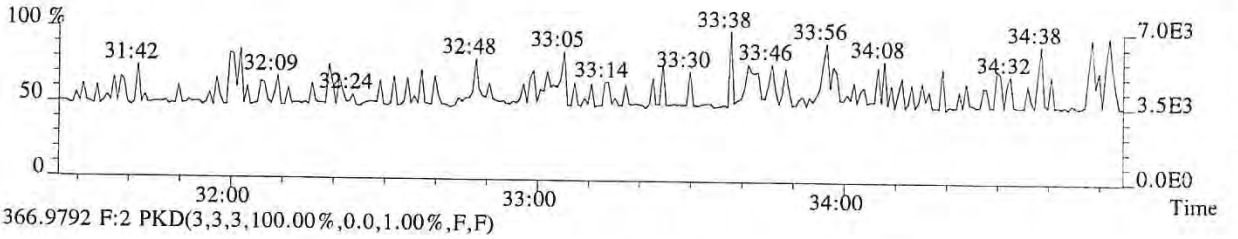
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1088.0,1.00%,F,T)



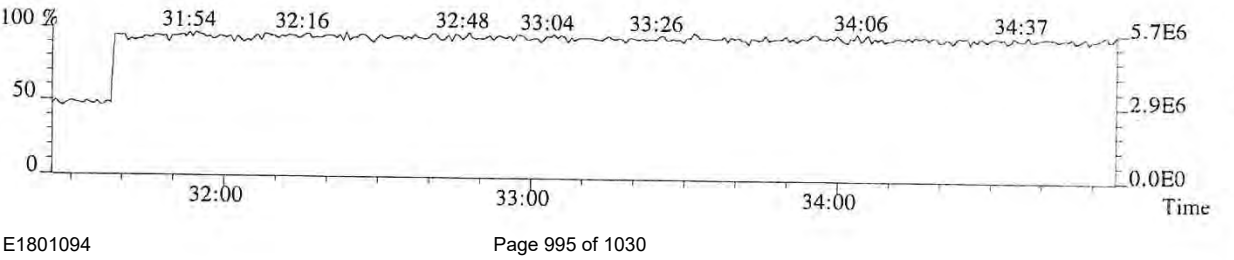
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

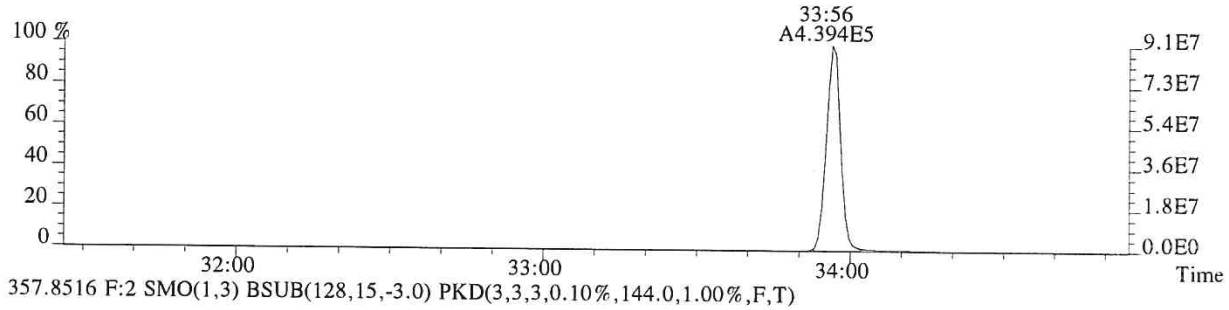


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

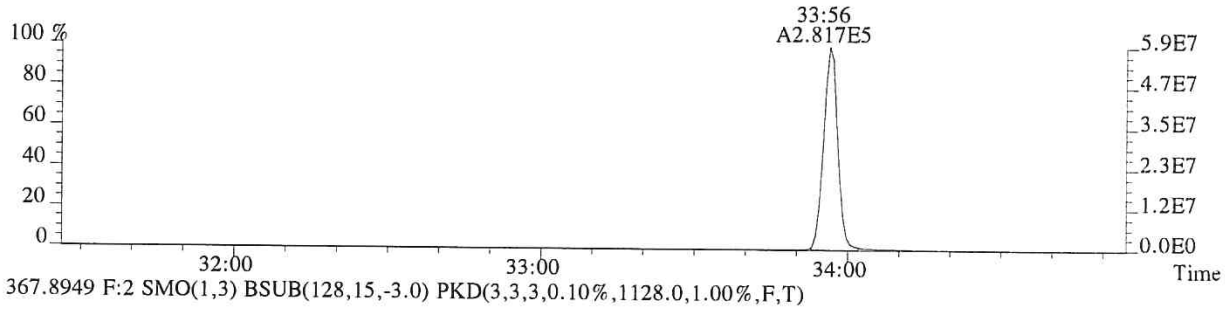


015991

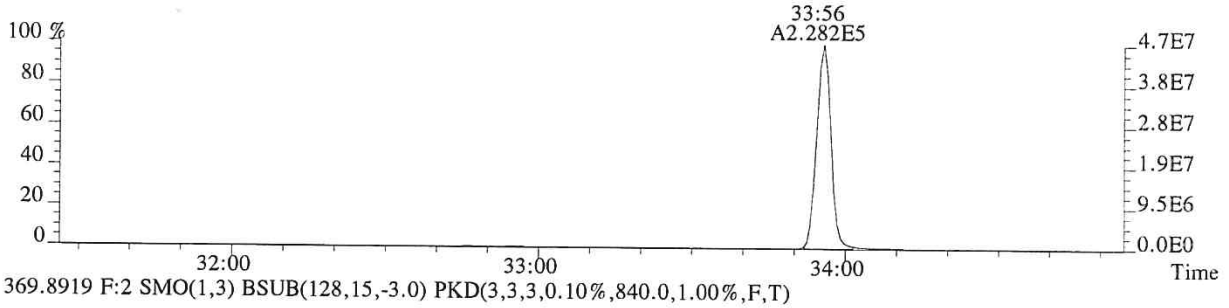
File:P513854 #1-313 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1420.0,1.00%,F,T)



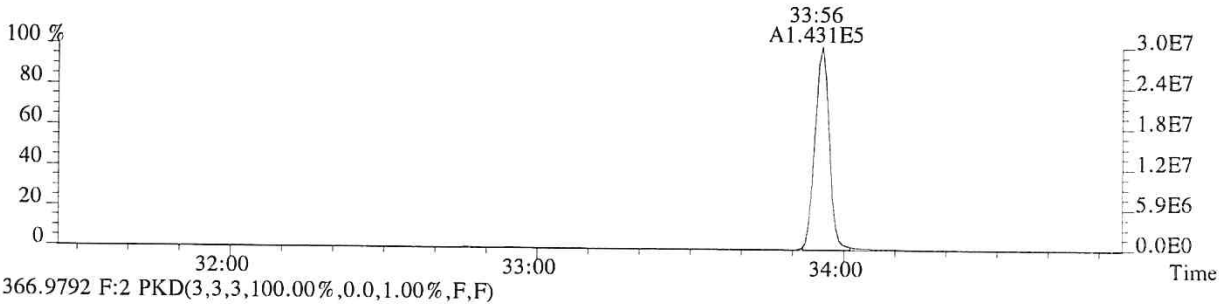
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,144.0,1.00%,F,T)



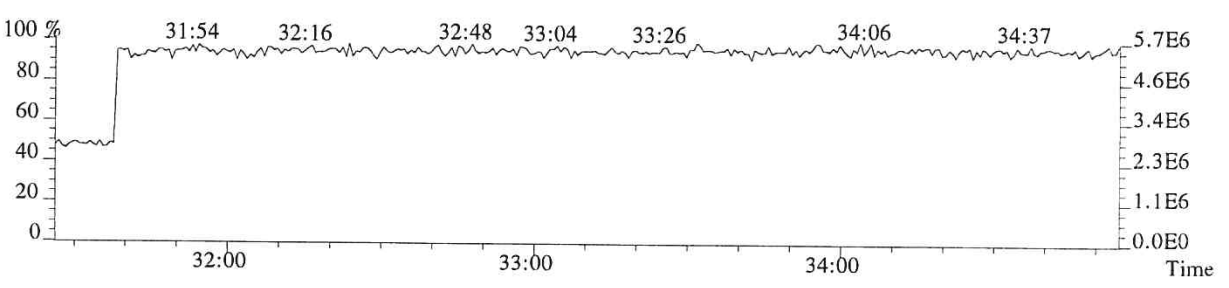
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1128.0,1.00%,F,T)



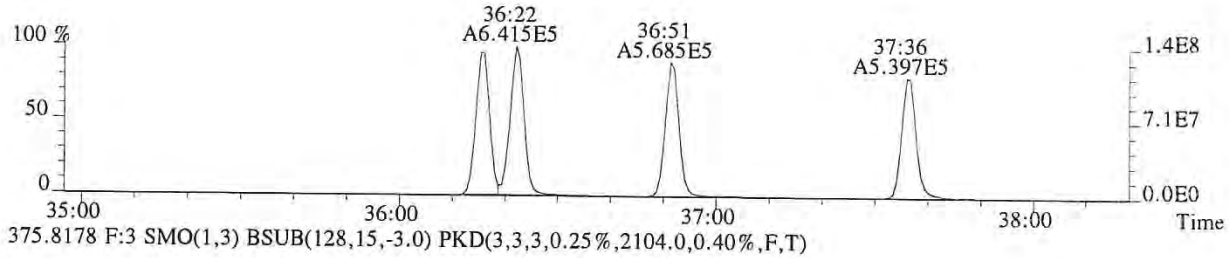
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,840.0,1.00%,F,T)



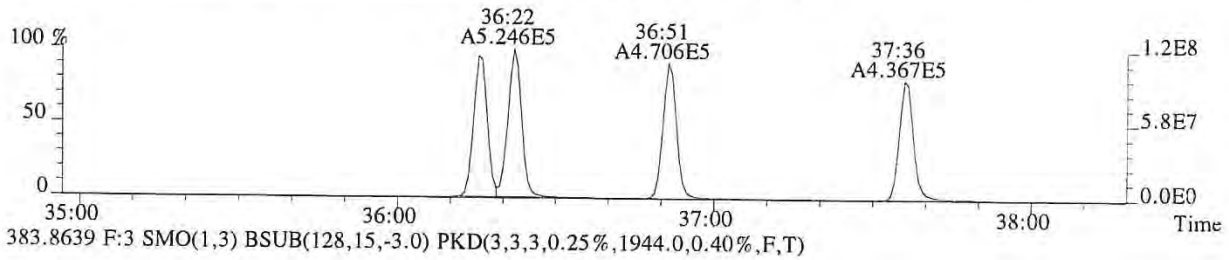
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



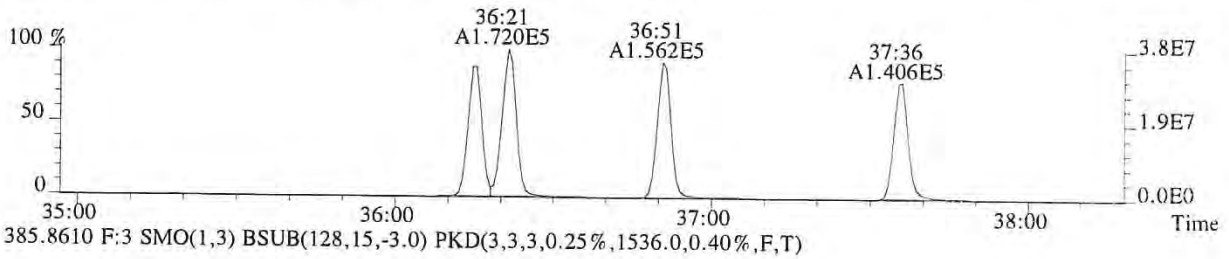
File:P513854 #1-303 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1804.0,0.40%,F,T)



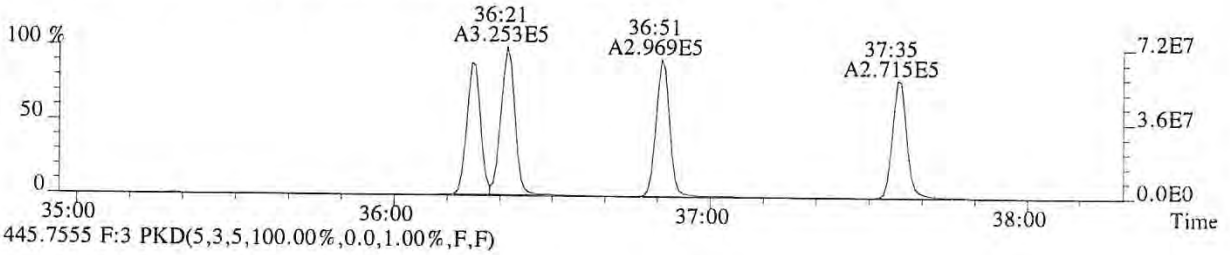
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2104.0,0.40%,F,T)



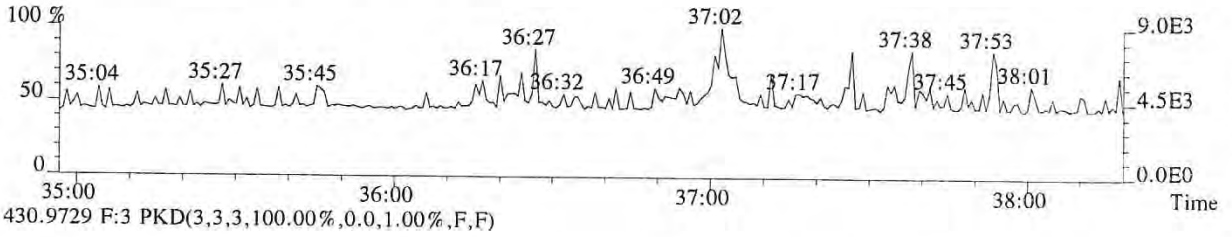
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1944.0,0.40%,F,T)



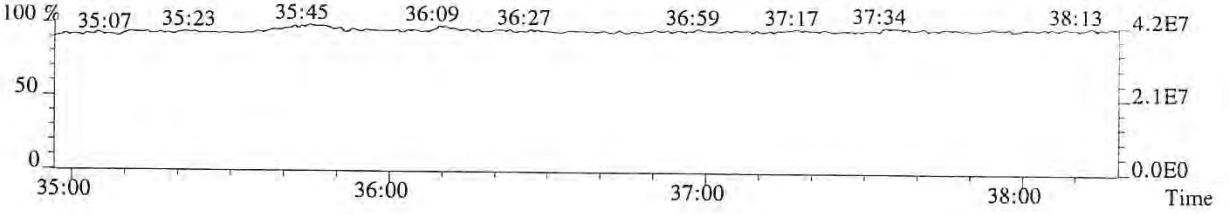
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1536.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

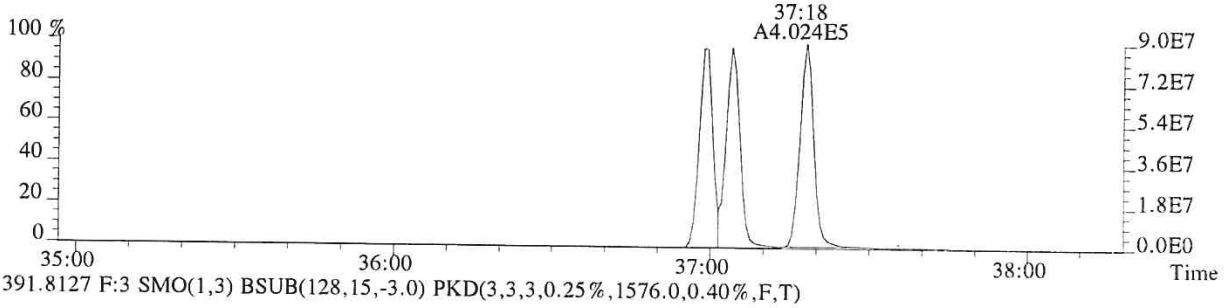


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

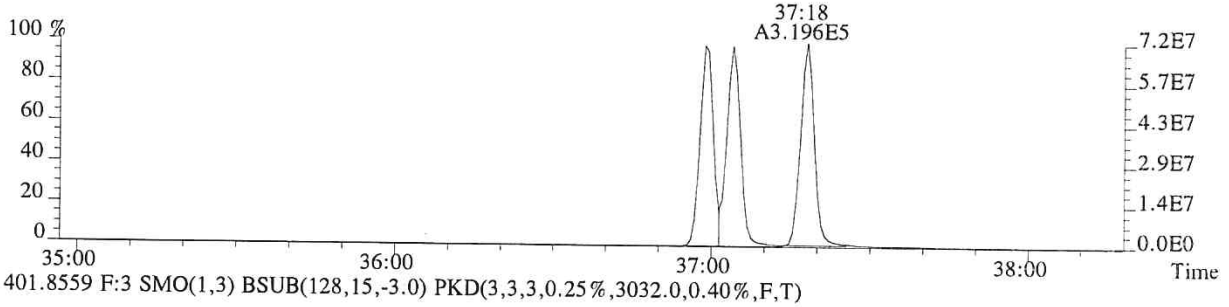


015993

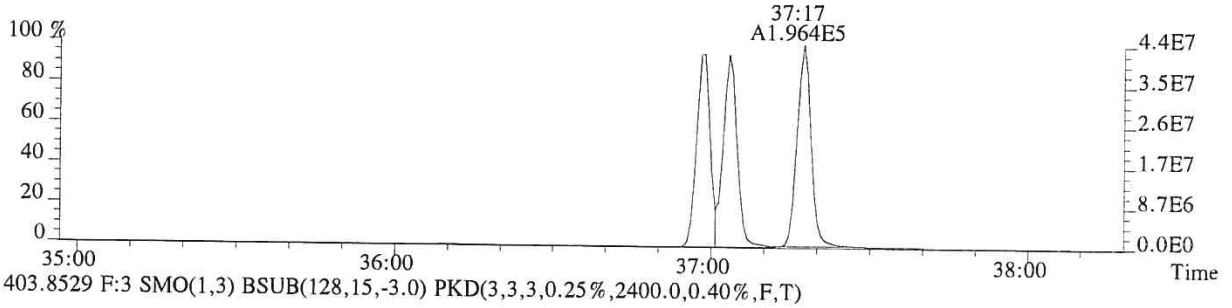
File:P513854 #1-303 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1200.0,0.40%,F,T)



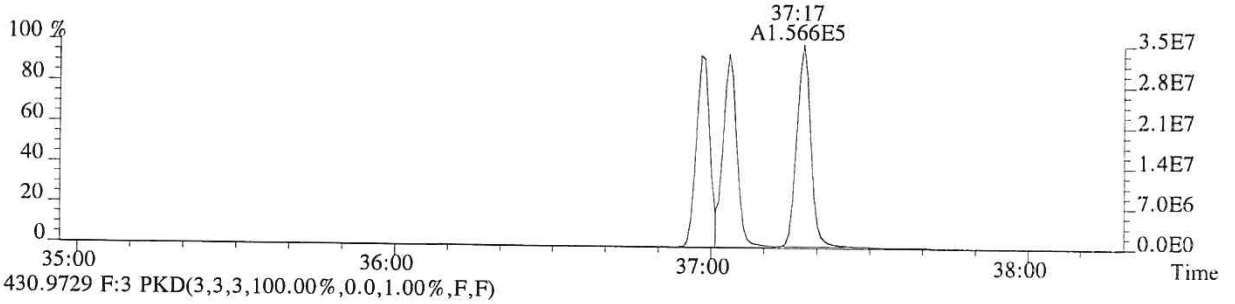
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1576.0,0.40%,F,T)



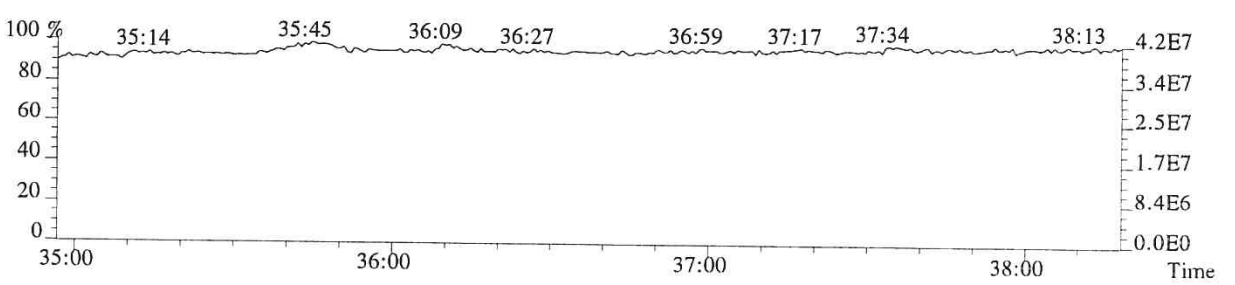
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3032.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2400.0,0.40%,F,T)

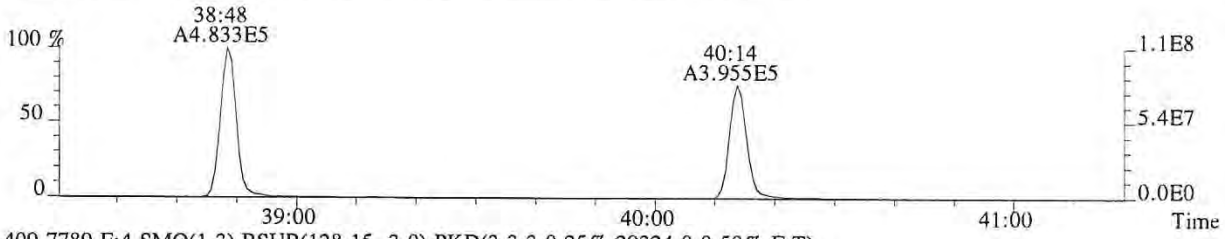


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

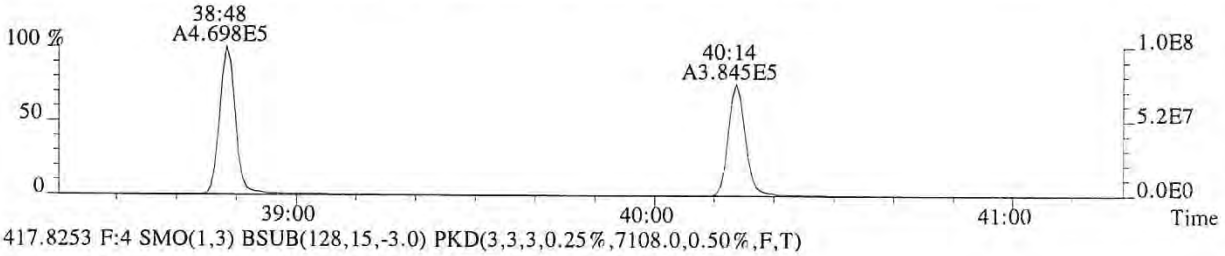


015994

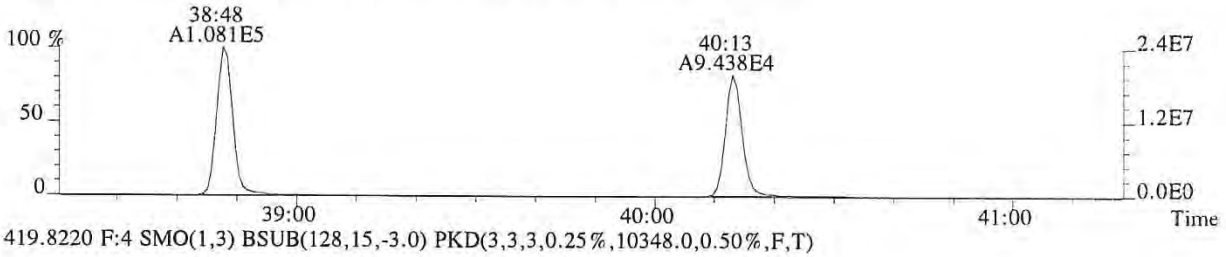
File:P513854 #1-268 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,17516.0,0.50%,F,T)



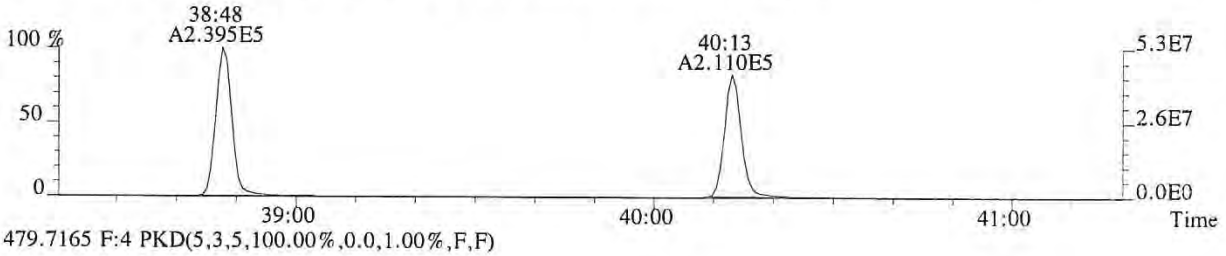
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,29324.0,0.50%,F,T)



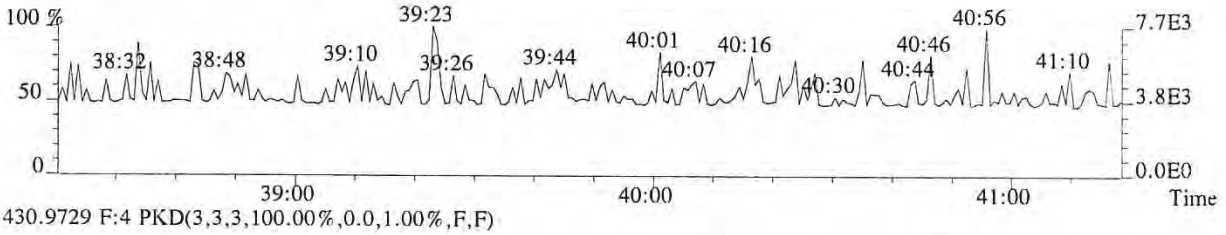
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7108.0,0.50%,F,T)



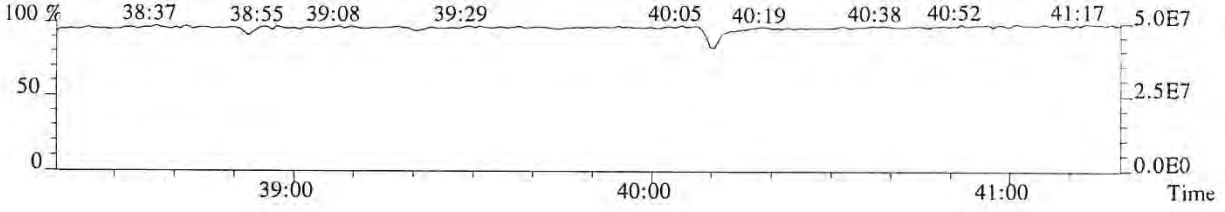
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,10348.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

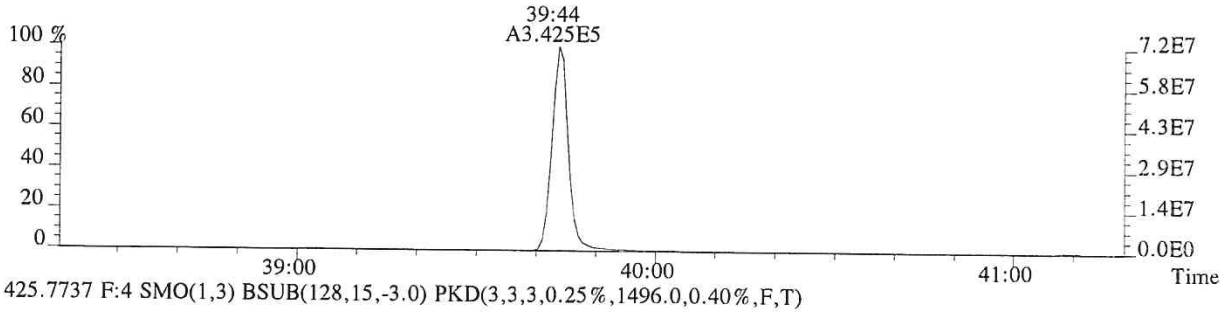


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

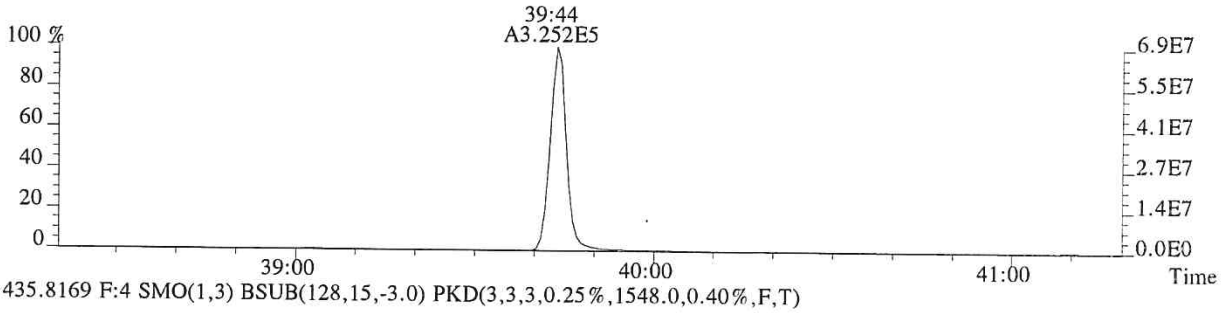


015995

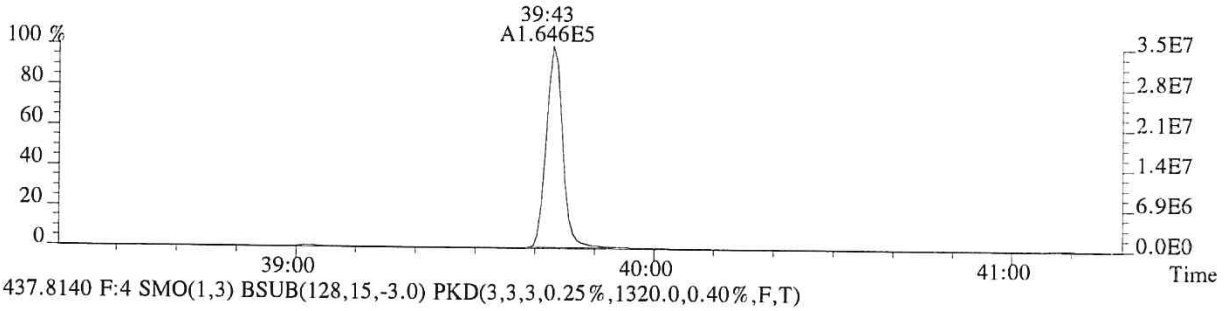
File:P513854 #1-268 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1516.0,0.40%,F,T)



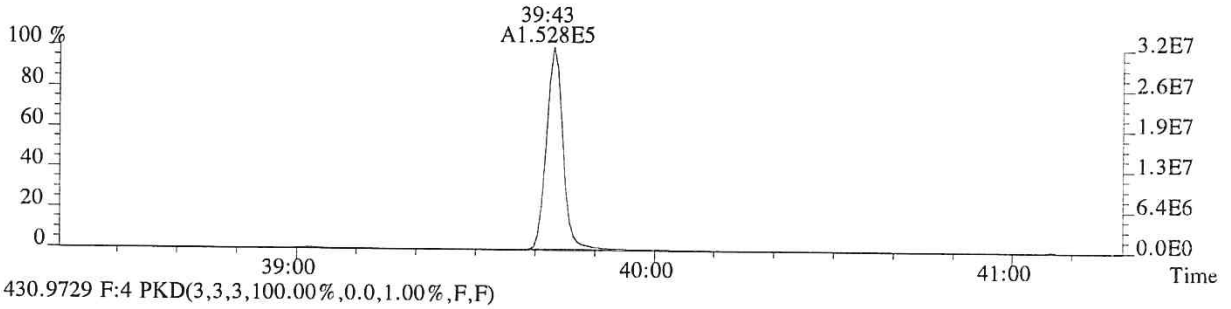
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1496.0,0.40%,F,T)



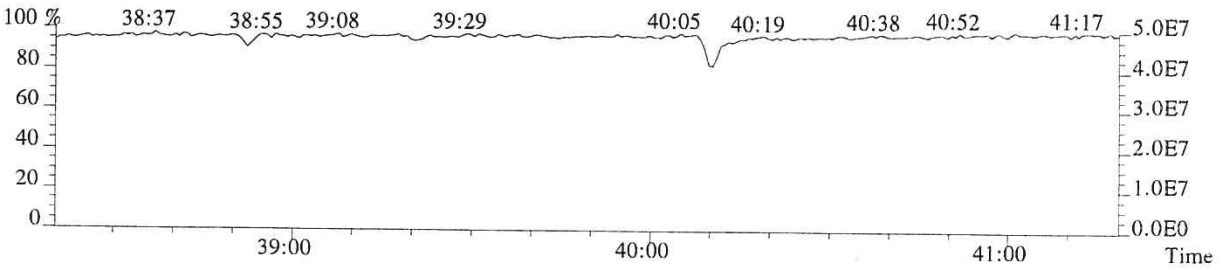
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1548.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1320.0,0.40%,F,T)

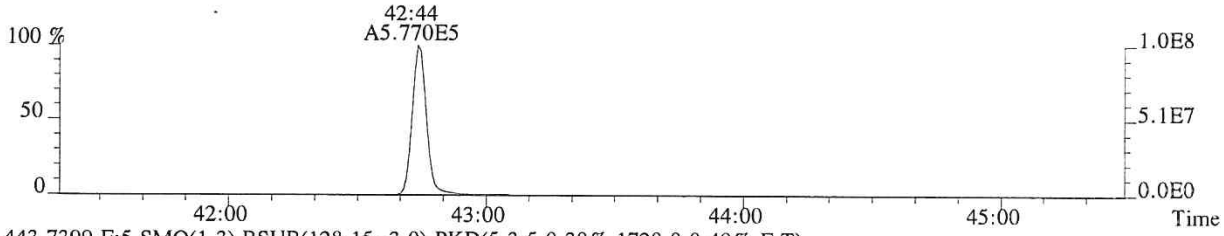


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

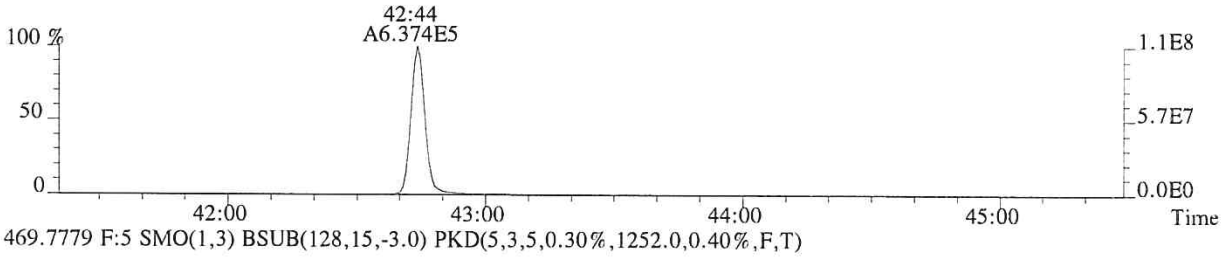


015996

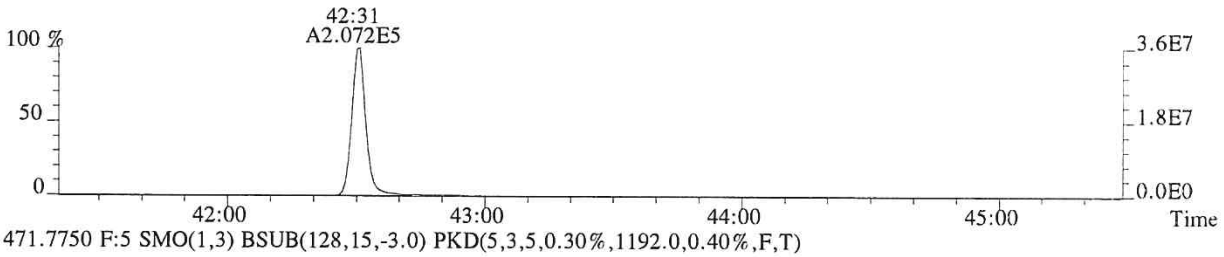
File:P513854 #1-373 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,504.0,0.40%,F,T)



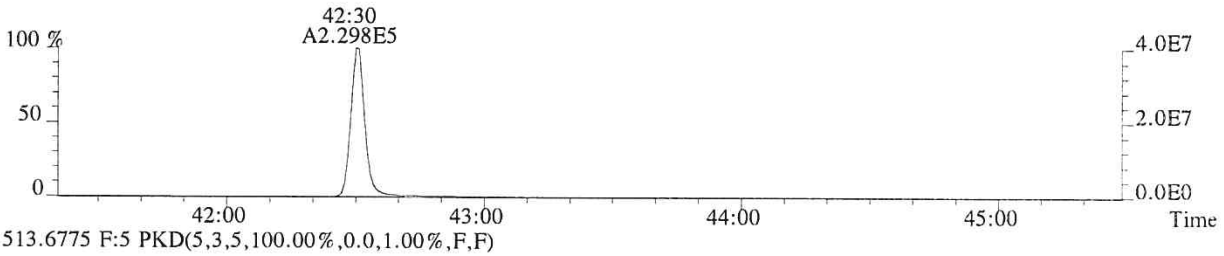
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1720.0,0.40%,F,T)



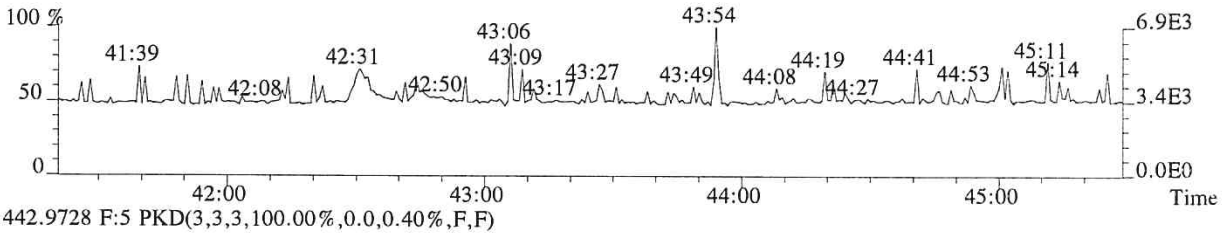
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1252.0,0.40%,F,T)



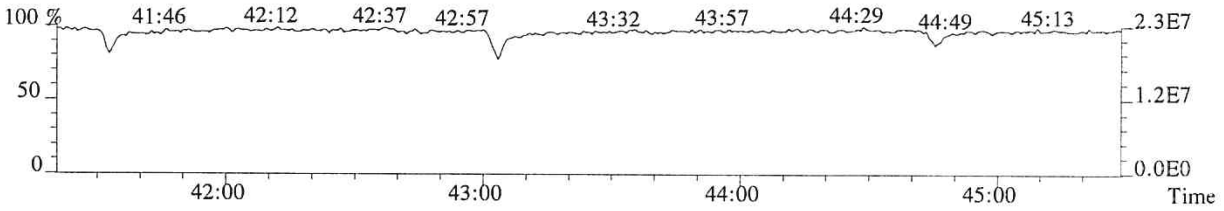
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1192.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

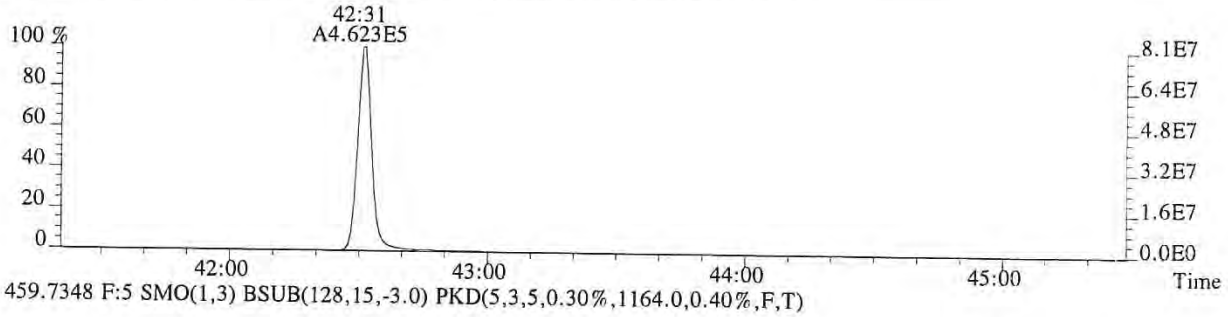


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

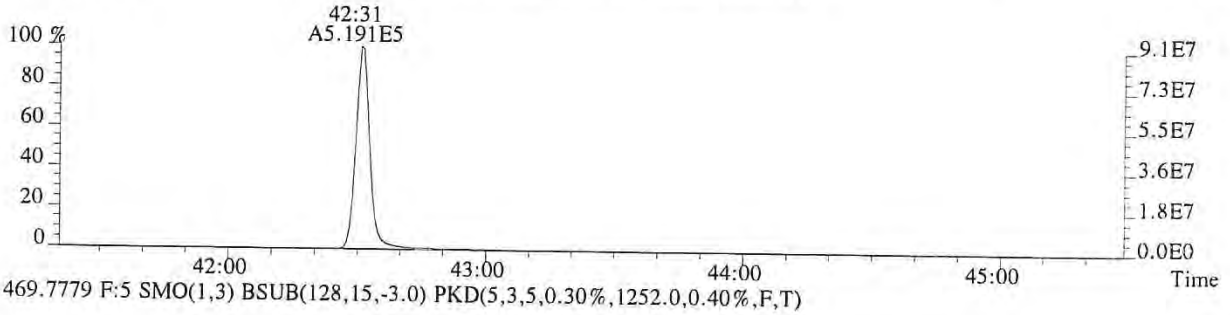


015997

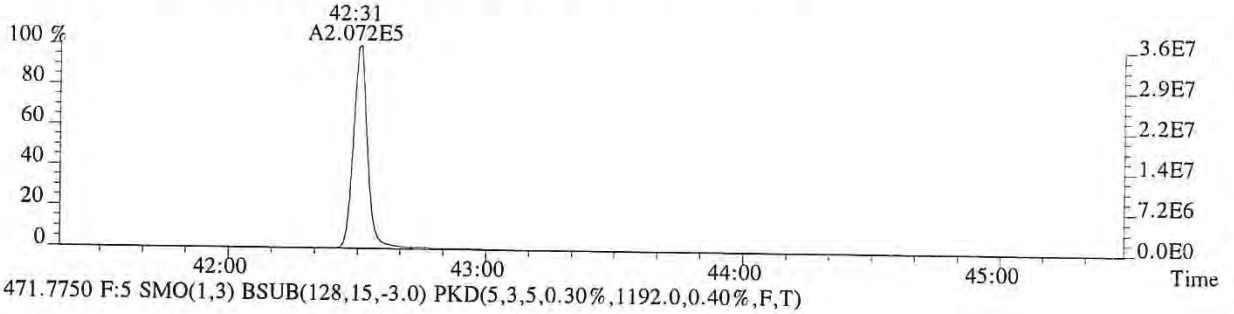
File:P513854 #1-373 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,736.0,0.40%,F,T)



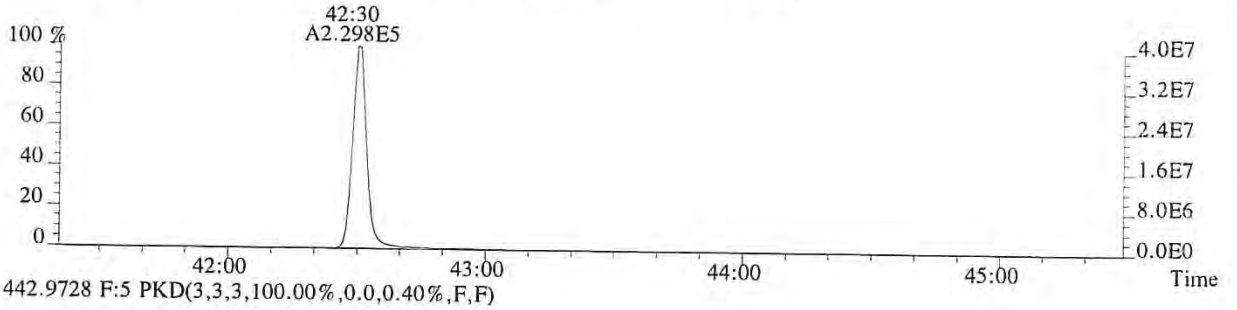
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1164.0,0.40%,F,T)



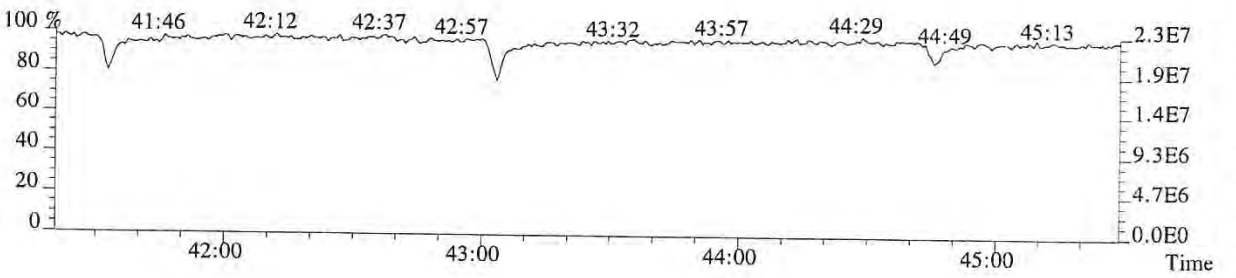
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1252.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1192.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



015998

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
185657

Run #6 Filename P513855 Samp: 1 Inj: 1 Acquired: 24-JAN-18 17:43:48
Processed: 25-JAN-18 08:12:42 Sample ID: CS5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	2.519e+05	3.290e+05	0.77	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	2.059e+06	1.330e+06	1.55	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:42	1.928e+06	1.251e+06	1.54	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:17	1.692e+06	1.377e+06	1.23	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	1.772e+06	1.434e+06	1.24	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:53	1.608e+06	1.317e+06	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	1.433e+06	1.167e+06	1.23	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	1.339e+06	1.290e+06	1.04	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	1.080e+06	1.042e+06	1.04	yes	no	1.258
10	Unk	OCDF	42:45	1.595e+06	1.756e+06	0.91	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	1.888e+05	2.423e+05	0.78	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:58	1.263e+06	8.057e+05	1.57	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	37:00	1.121e+06	8.925e+05	1.26	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	1.092e+06	8.671e+05	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	1.145e+06	9.139e+05	1.25	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:45	9.236e+05	8.810e+05	1.05	yes	no	1.025
17	Unk	OCDD	42:32	1.236e+06	1.384e+06	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:47	1.298e+05	1.639e+05	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:48	1.958e+05	1.231e+05	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	1.948e+05	1.236e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:16	8.374e+04	1.594e+05	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	9.521e+04	1.780e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:52	8.554e+04	1.650e+05	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:37	7.556e+04	1.441e+05	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:49	5.927e+04	1.314e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	5.166e+04	1.153e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:31	8.633e+04	1.080e+05	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	1.308e+05	8.218e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	1.058e+05	8.279e+04	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	1.031e+05	8.205e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	8.934e+04	8.409e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	1.103e+05	1.236e+05	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:57	8.893e+04	1.085e+05	0.82	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	1.136e+05	9.051e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	4.366e+05				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
185657

Run #6 Filename P513855 Samp: 1 Inj: 1 Acquired: 24-JAN-18 17:43:48
Processed: 25-JAN-18 08:12:42 LAB. ID: CS5

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.13e+07	1.02e+03	5.0e+04	6.69e+07	2.00e+03	3.3e+04
2	1,2,3,7,8-PeCDF	4.18e+08	1.72e+03	2.4e+05	2.69e+08	4.25e+03	6.3e+04
3	2,3,4,7,8-PeCDF	4.06e+08	1.72e+03	2.4e+05	2.60e+08	4.25e+03	6.1e+04
4	1,2,3,4,7,8-HxCDF	3.87e+08	3.18e+03	1.2e+05	3.12e+08	2.28e+03	1.4e+05
5	1,2,3,6,7,8-HxCDF	3.87e+08	3.18e+03	1.2e+05	3.14e+08	2.28e+03	1.4e+05
6	2,3,4,6,7,8-HxCDF	3.59e+08	3.18e+03	1.1e+05	2.88e+08	2.28e+03	1.3e+05
7	1,2,3,7,8,9-HxCDF	3.14e+08	3.18e+03	9.9e+04	2.53e+08	2.28e+03	1.1e+05
8	1,2,3,4,6,7,8-HpCDF	2.94e+08	4.87e+04	6.0e+03	2.86e+08	4.51e+04	6.3e+03
9	1,2,3,4,7,8,9-HpCDF	2.17e+08	4.87e+04	4.5e+03	2.12e+08	4.51e+04	4.7e+03
10	OCDF	2.95e+08	6.68e+02	4.4e+05	3.20e+08	1.53e+03	2.1e+05
11	2,3,7,8-TCDD	4.01e+07	1.56e+03	2.6e+04	5.16e+07	1.78e+03	2.9e+04
12	1,2,3,7,8-PeCDD	2.63e+08	1.48e+03	1.8e+05	1.68e+08	6.04e+02	2.8e+05
13	1,2,3,4,7,8-HxCDD	2.57e+08	1.76e+03	1.5e+05	2.02e+08	1.10e+03	1.8e+05
14	1,2,3,6,7,8-HxCDD	2.40e+08	1.76e+03	1.4e+05	1.94e+08	1.10e+03	1.8e+05
15	1,2,3,7,8,9-HxCDD	2.55e+08	1.76e+03	1.5e+05	2.05e+08	1.10e+03	1.9e+05
16	1,2,3,4,6,7,8-HpCDD	1.92e+08	4.16e+03	4.6e+04	1.82e+08	2.40e+03	7.6e+04
17	OCDD	2.24e+08	1.92e+02	1.2e+06	2.52e+08	1.77e+03	1.4e+05
18	13C-2,3,7,8-TCDF	2.56e+07	8.72e+03	2.9e+03	3.23e+07	4.65e+03	7.0e+03
19	13C-1,2,3,7,8-PeCDF	3.90e+07	1.47e+03	2.7e+04	2.42e+07	1.14e+03	2.1e+04
20	13C-2,3,4,7,8-PeCDF	3.95e+07	1.47e+03	2.7e+04	2.53e+07	1.14e+03	2.2e+04
21	13C-1,2,3,4,7,8-HxCDF	1.87e+07	1.28e+03	1.5e+04	3.55e+07	3.08e+03	1.2e+04
22	13C-1,2,3,6,7,8-HxCDF	2.06e+07	1.28e+03	1.6e+04	3.85e+07	3.08e+03	1.3e+04
23	13C-2,3,4,6,7,8-HxCDF	1.90e+07	1.28e+03	1.5e+04	3.60e+07	3.08e+03	1.2e+04
24	13C-1,2,3,7,8,9-HxCDF	1.65e+07	1.28e+03	1.3e+04	3.12e+07	3.08e+03	1.0e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.32e+07	1.18e+04	1.1e+03	2.87e+07	5.77e+03	5.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.03e+07	1.18e+04	8.7e+02	2.29e+07	5.77e+03	4.0e+03
27	13C-2,3,7,8-TCDD	1.81e+07	7.00e+03	2.6e+03	2.26e+07	3.08e+03	7.3e+03
28	13C-1,2,3,7,8-PeCDD	2.76e+07	1.47e+03	1.9e+04	1.74e+07	7.76e+02	2.2e+04
29	13C-1,2,3,4,7,8-HxCDD	2.40e+07	2.43e+03	9.9e+03	1.87e+07	1.70e+03	1.1e+04
30	13C-1,2,3,6,7,8-HxCDD	2.24e+07	2.43e+03	9.2e+03	1.82e+07	1.70e+03	1.1e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.84e+07	1.79e+03	1.0e+04	1.72e+07	1.40e+03	1.2e+04
32	13C-OCDD	1.97e+07	1.62e+03	1.2e+04	2.22e+07	1.42e+03	1.6e+04
33	13C-1,2,3,4-TCDD	1.83e+07	7.00e+03	2.6e+03	2.22e+07	3.08e+03	7.2e+03
34	13C-1,2,3,7,8,9-HxCDD	2.50e+07	2.43e+03	1.0e+04	1.99e+07	1.70e+03	1.2e+04
35	37Cl-2,3,7,8-TCDD	9.29e+07	1.57e+03	5.9e+04			

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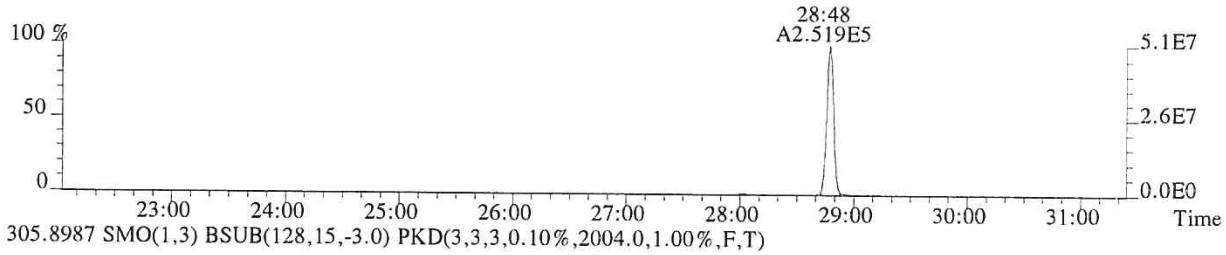
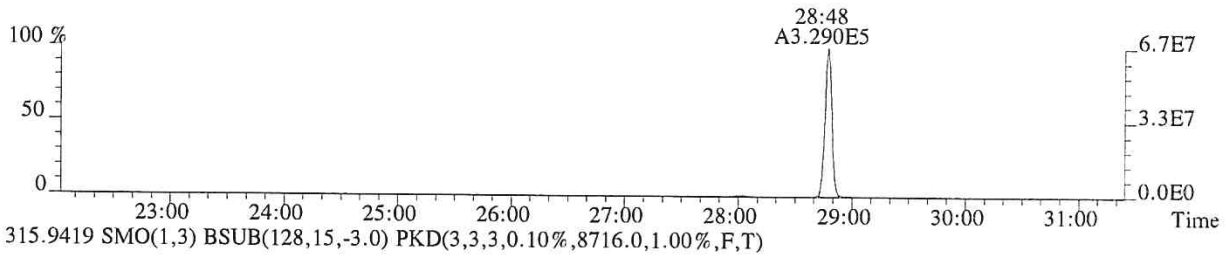
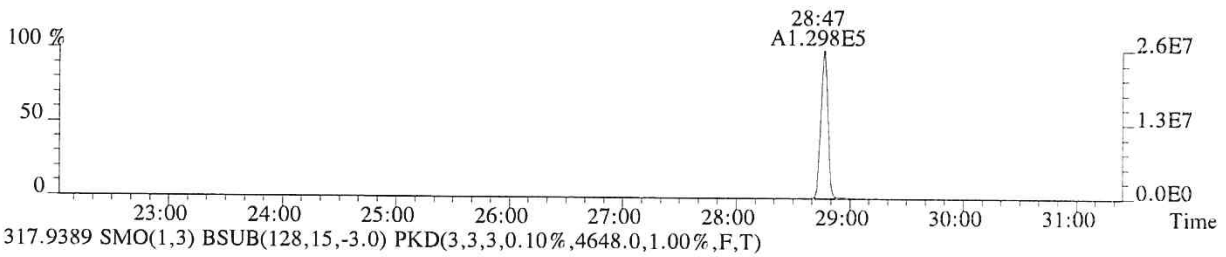
File:P513855 #1-665 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1024.0,1.00%,F,T)



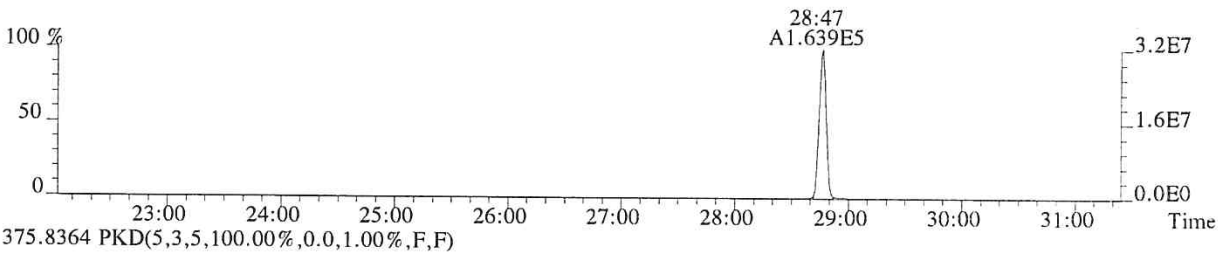
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2004.0,1.00%,F,T)



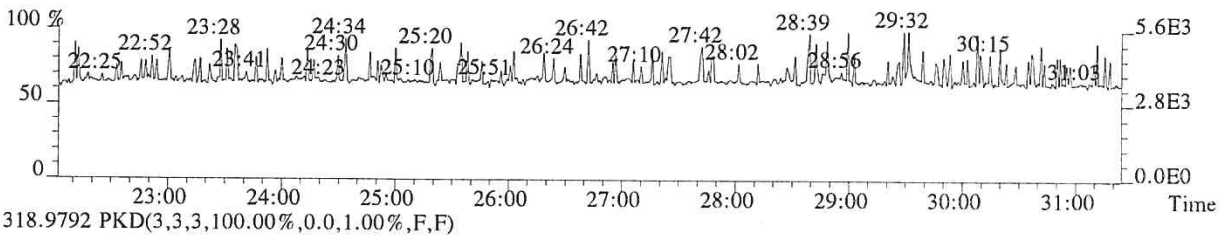
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8716.0,1.00%,F,T)



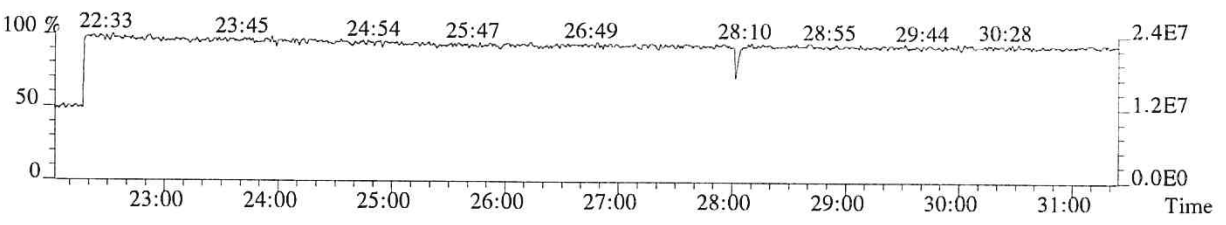
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4648.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

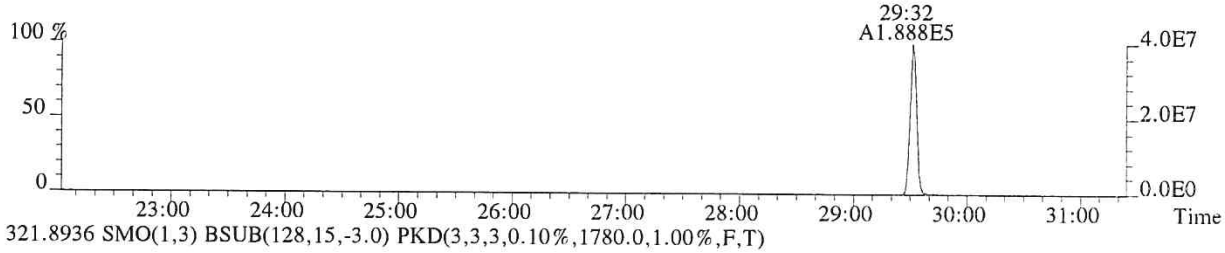


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

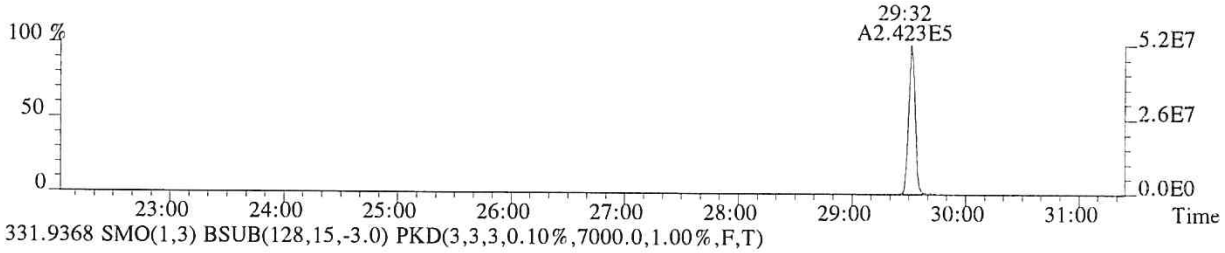


016001

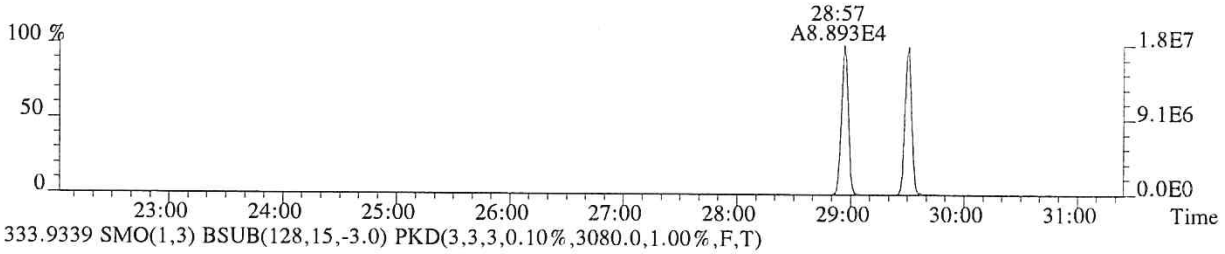
File:P513855 #1-665 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1556.0,1.00%,F,T)



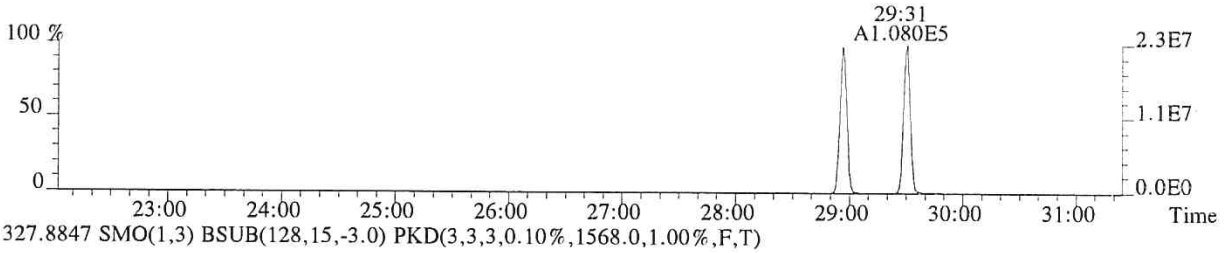
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1780.0,1.00%,F,T)



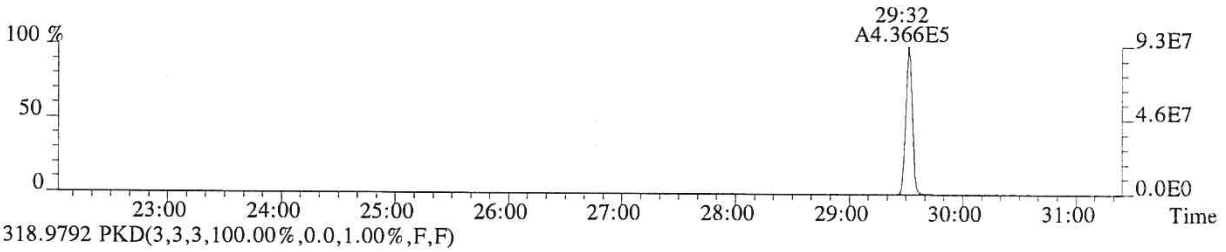
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7000.0,1.00%,F,T)



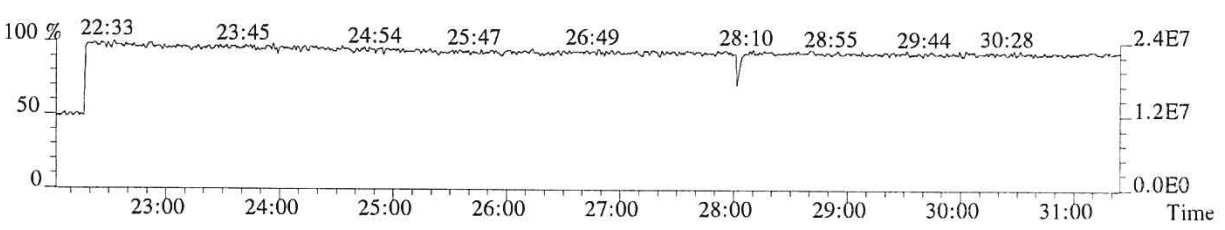
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3080.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1568.0,1.00%,F,T)

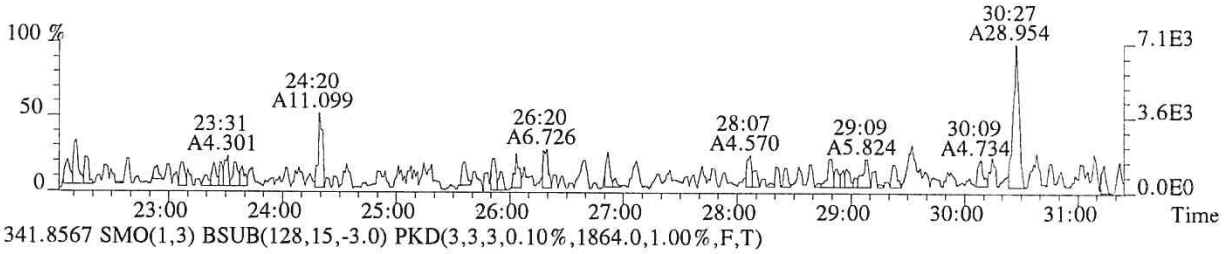


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

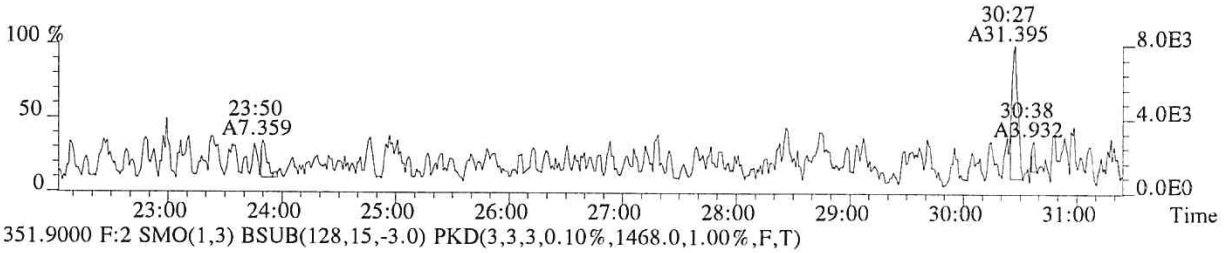


016002

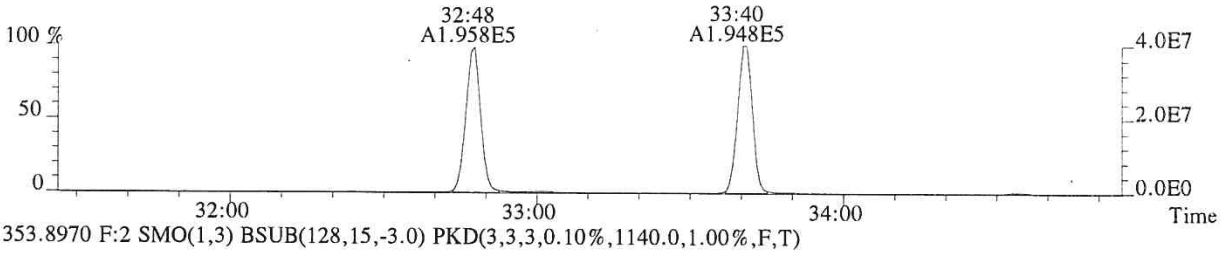
File:P513855 #1-665 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



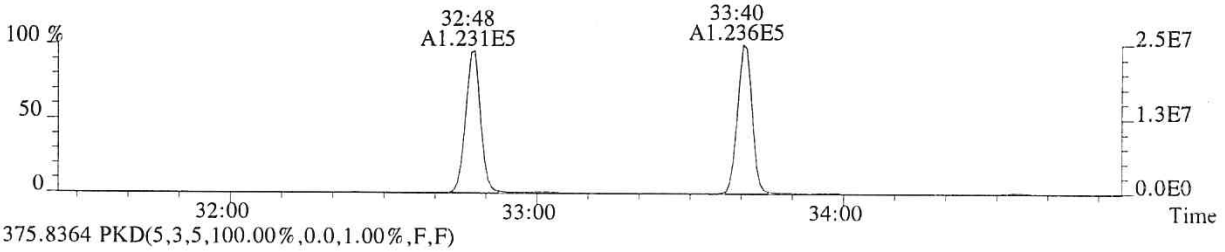
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1864.0,1.00%,F,T)



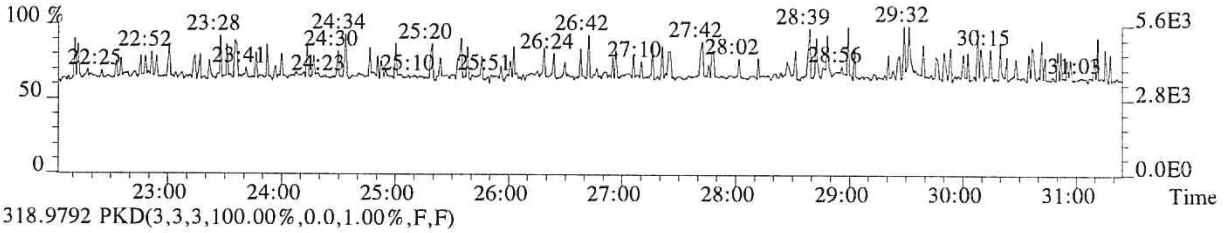
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1468.0,1.00%,F,T)



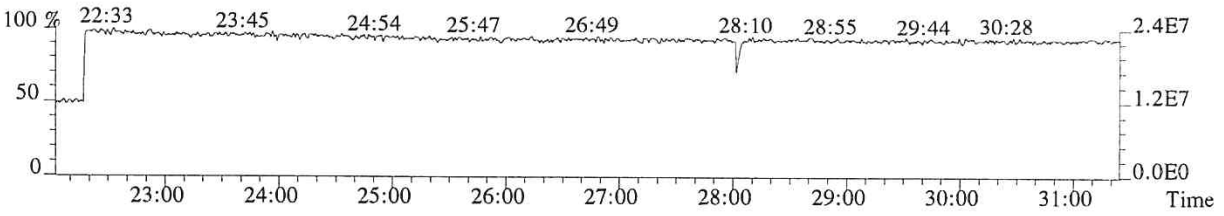
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1140.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

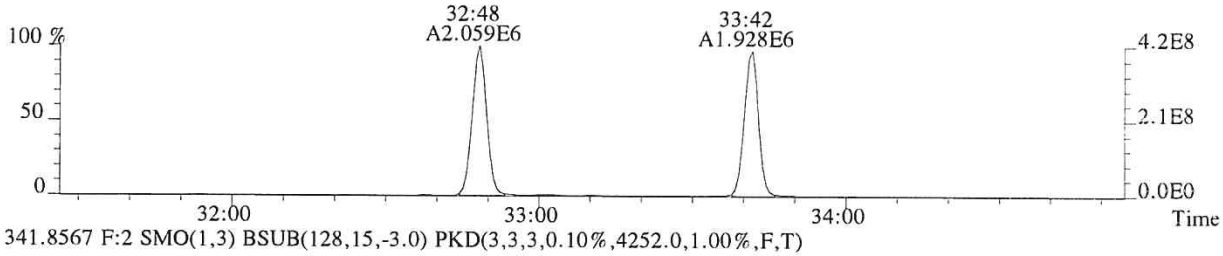


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

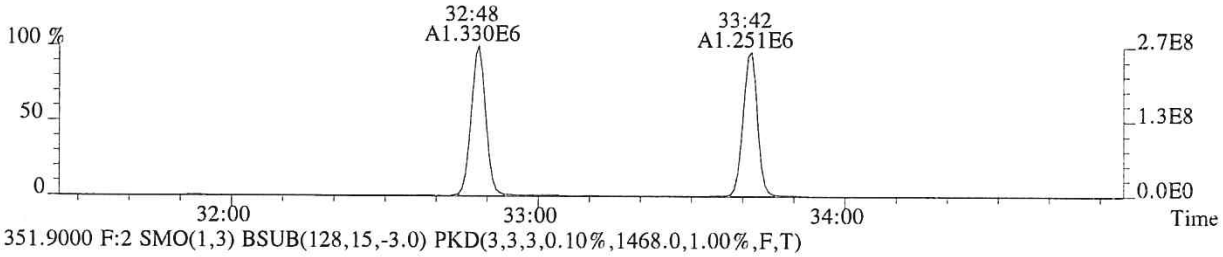


016003

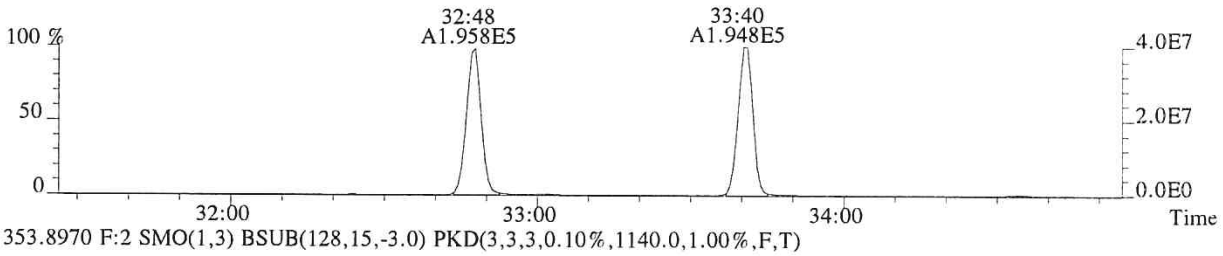
File:P513855 #1-313 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1724.0,1.00%,F,T)



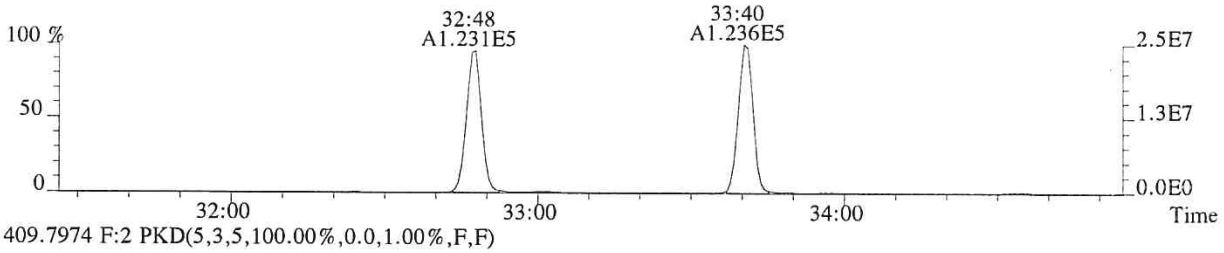
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4252.0,1.00%,F,T)



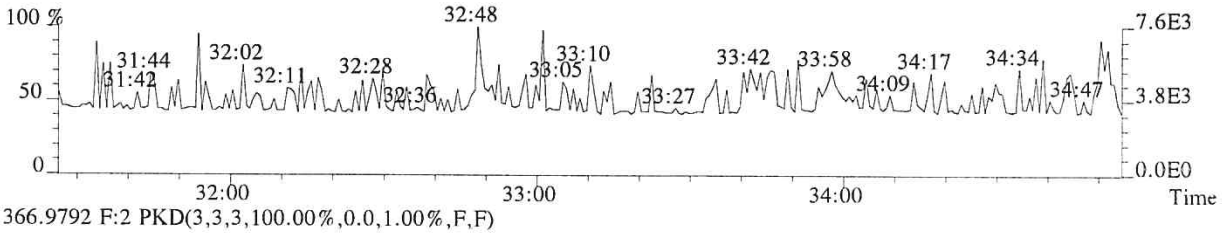
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1468.0,1.00%,F,T)



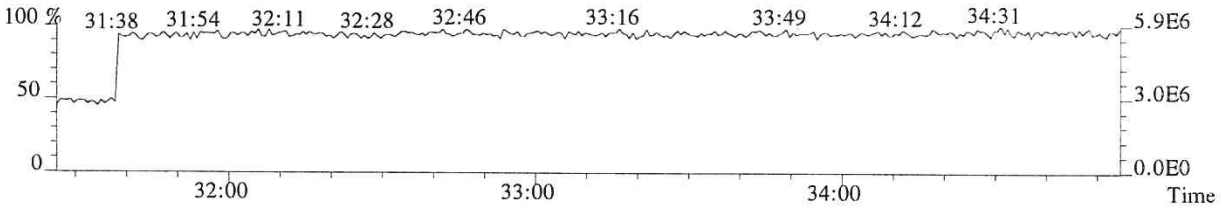
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1140.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

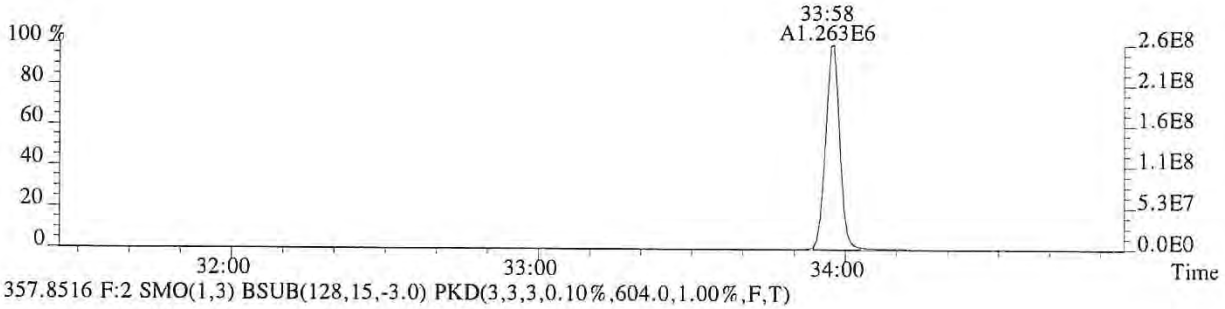


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

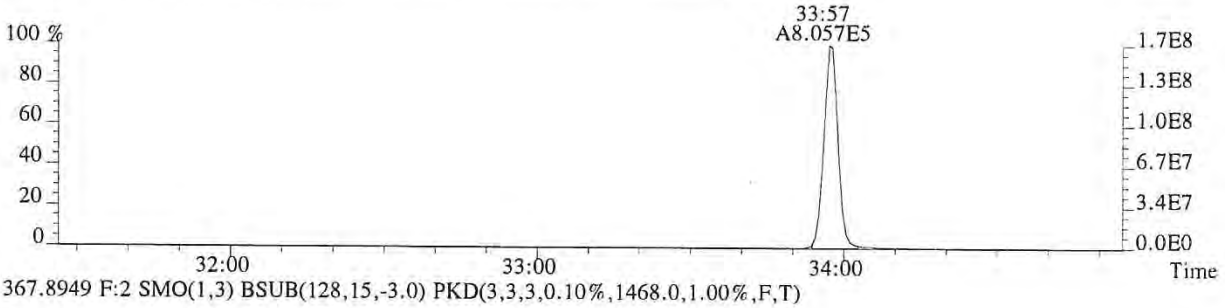


016004

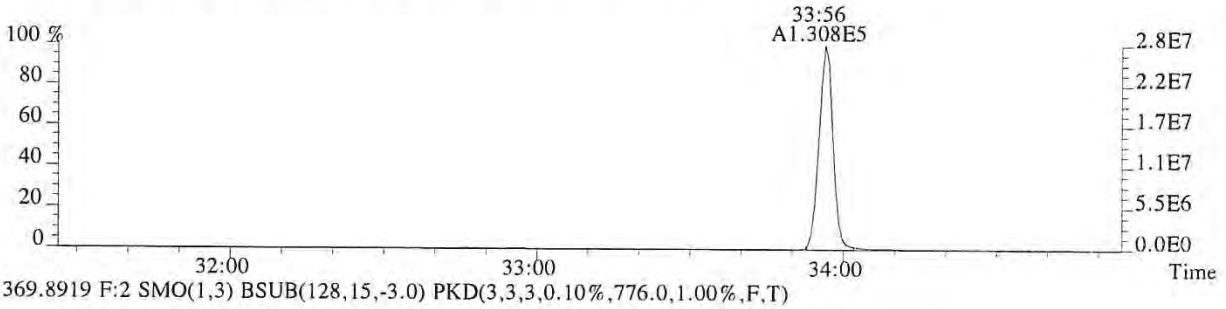
File:P513855 #1-313 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1476.0,1.00%,F,T)



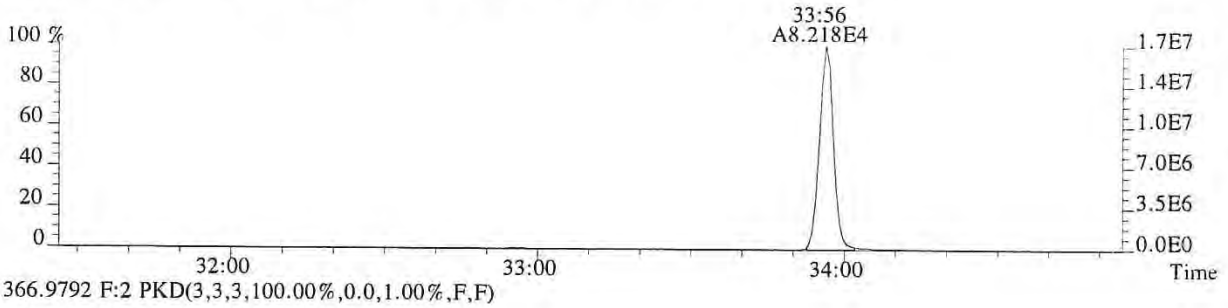
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



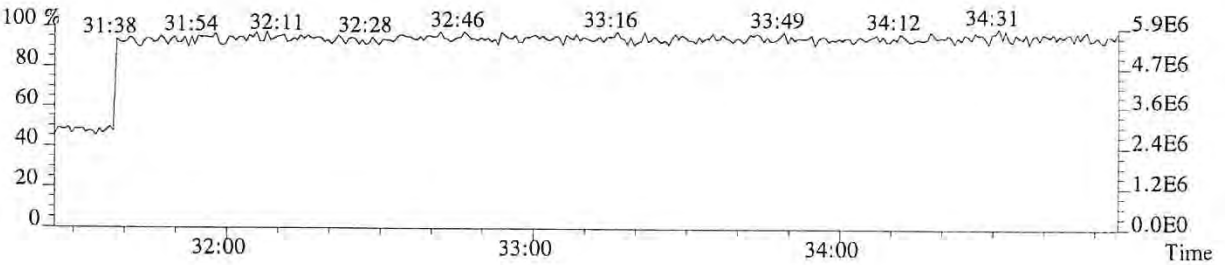
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1468.0,1.00%,F,T)



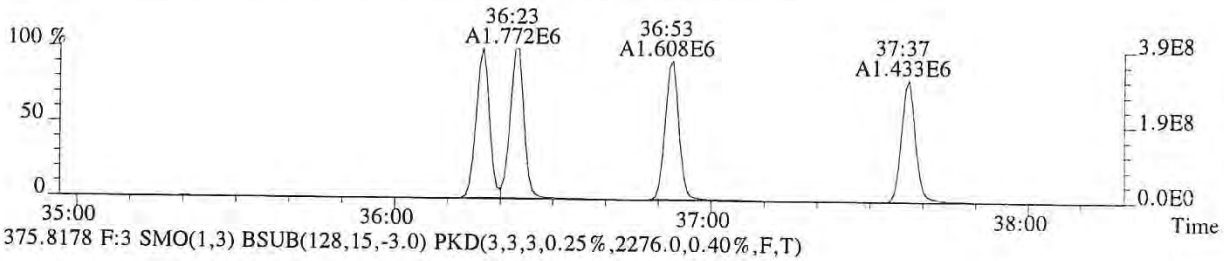
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)



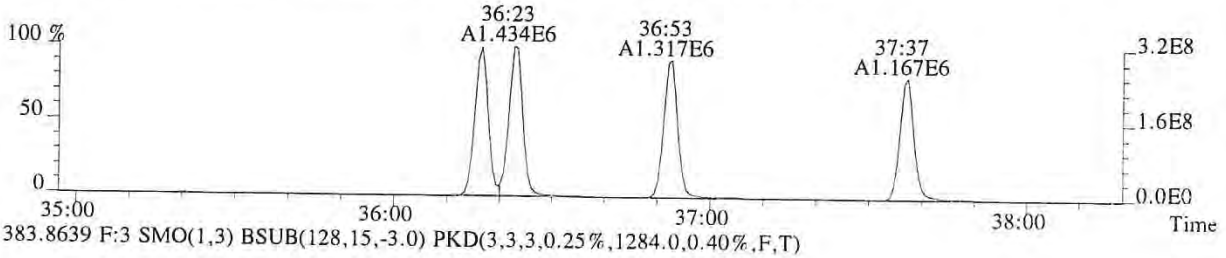
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



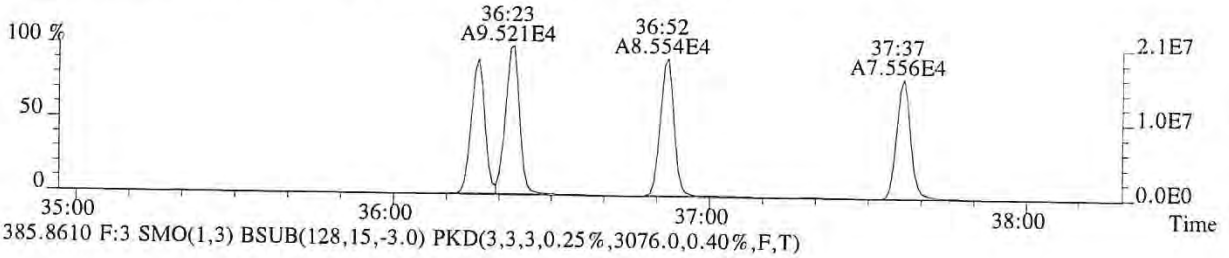
File:P513855 #1-303 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:185657
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3180.0,0.40%,F,T)



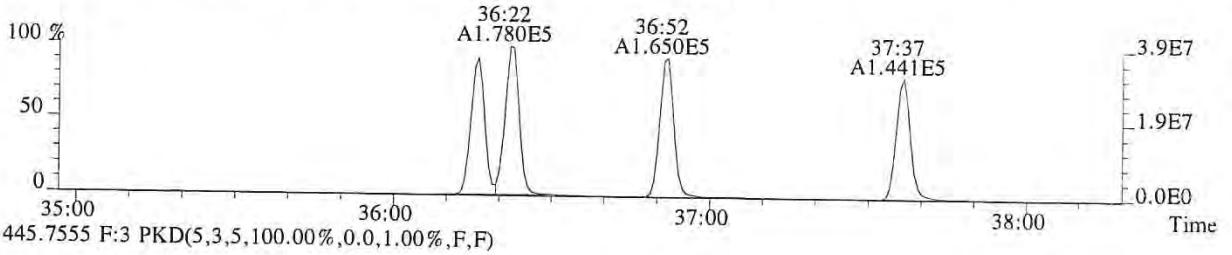
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2276.0,0.40%,F,T)



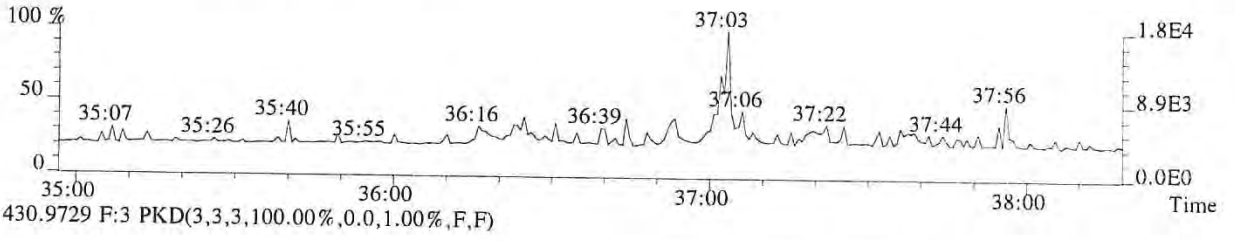
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1284.0,0.40%,F,T)



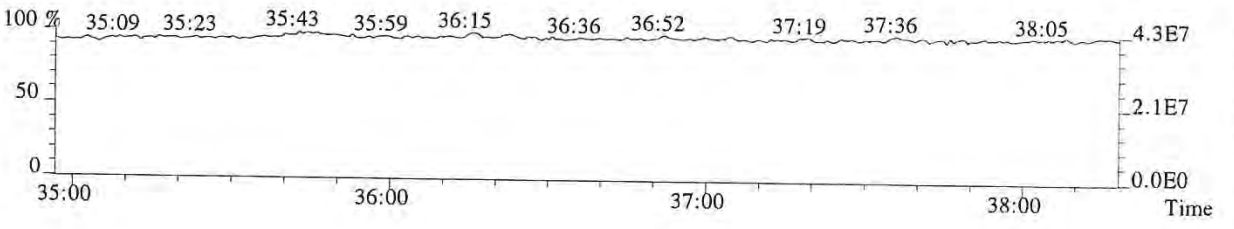
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3076.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

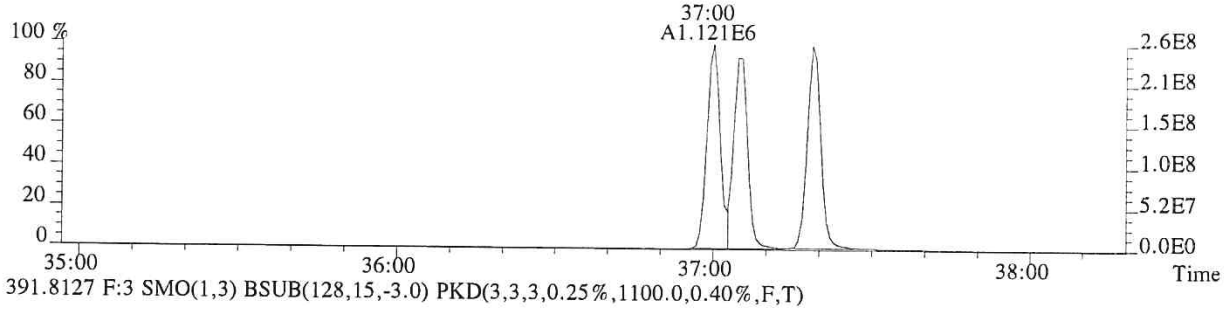


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

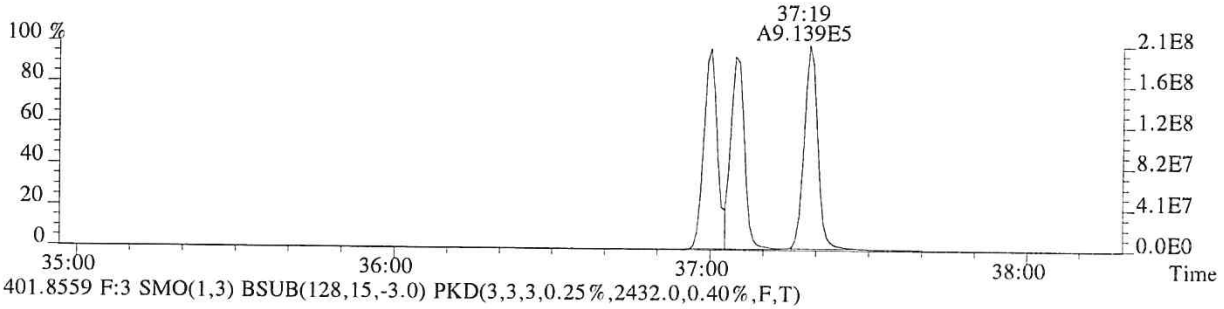


016006

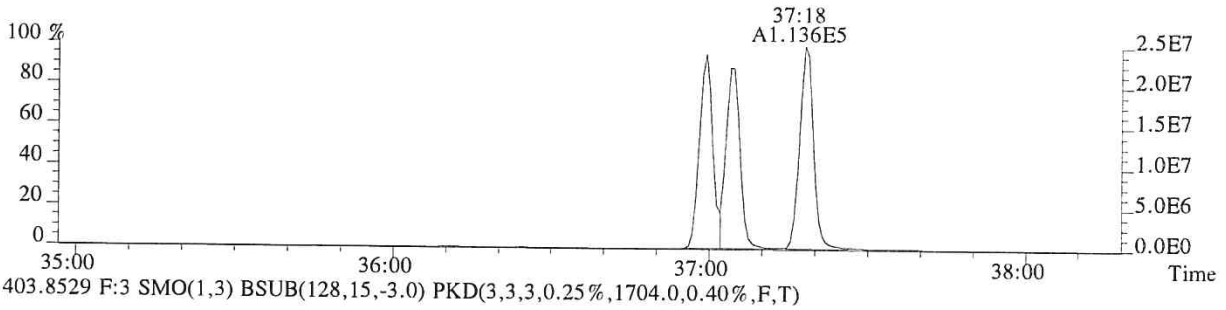
File:P513855 #1-303 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1760.0,0.40%,F,T)



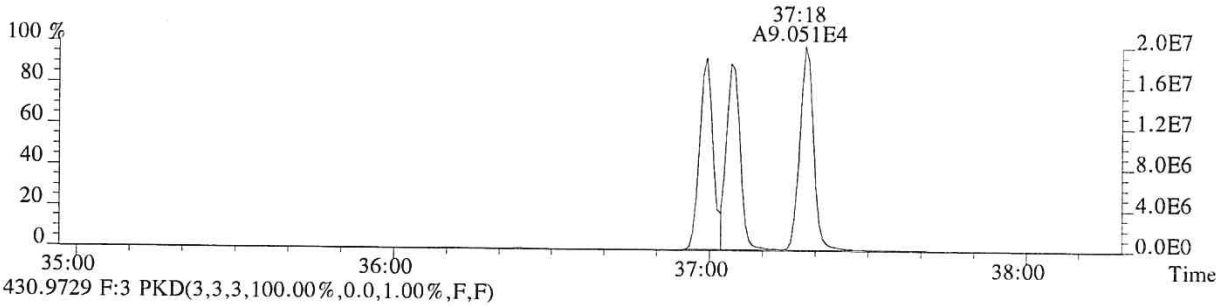
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1100.0,0.40%,F,T)



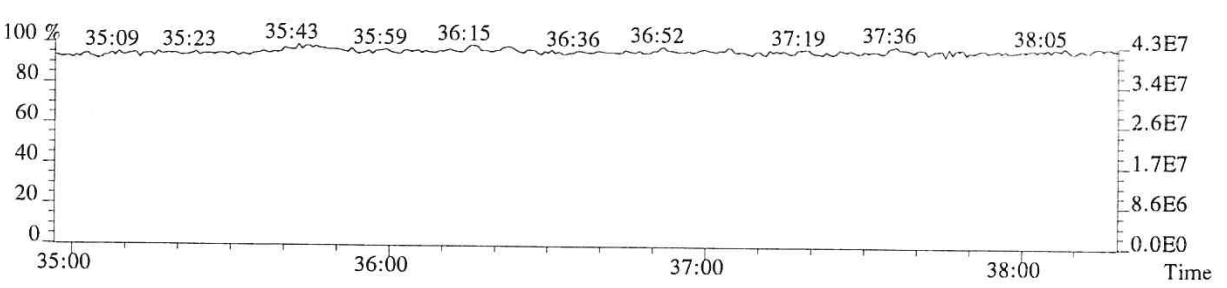
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2432.0,0.40%,F,T)



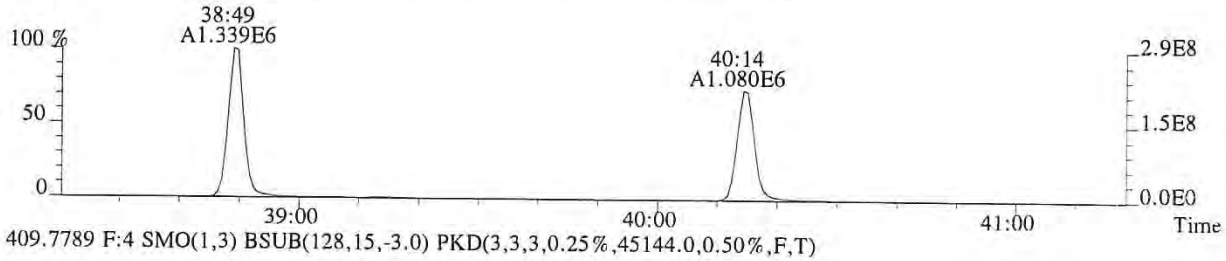
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1704.0,0.40%,F,T)



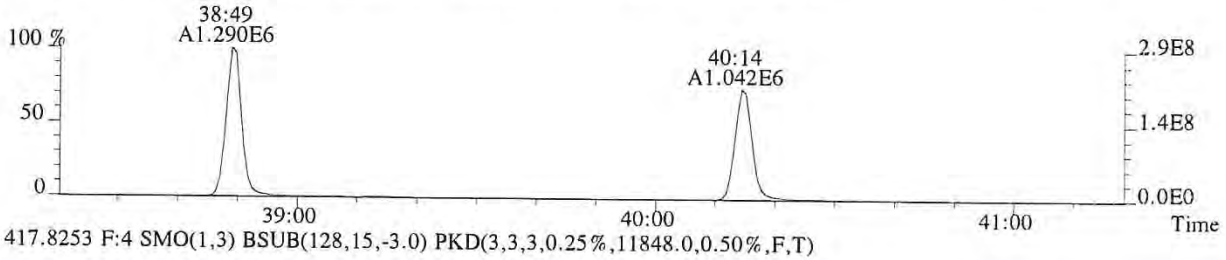
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



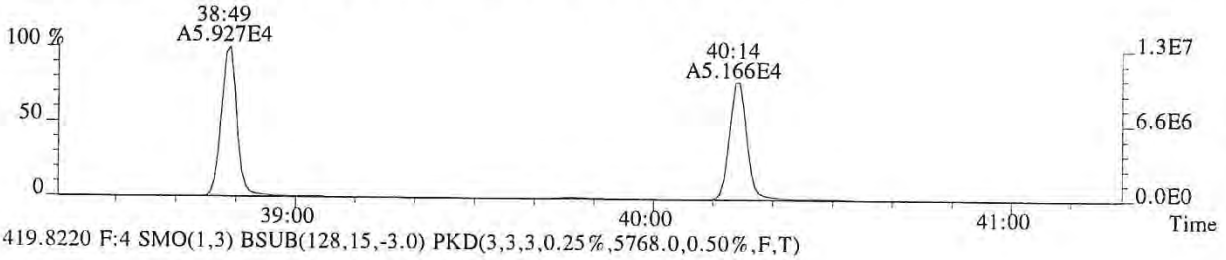
File:P513855 #1-268 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:185657
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,48736.0,0.50%,F,T)



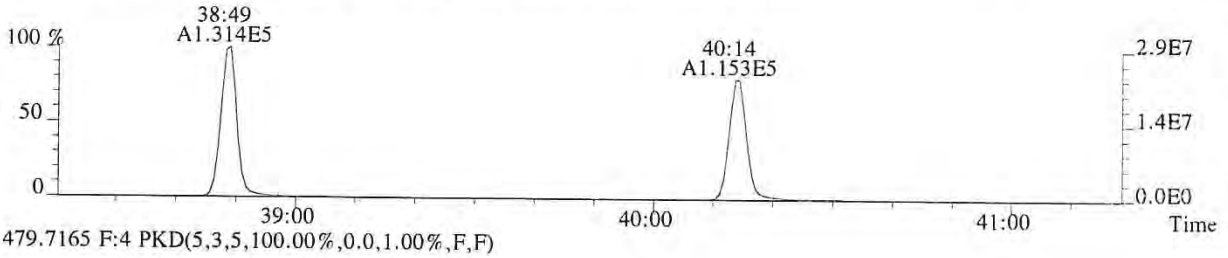
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,45144.0,0.50%,F,T)



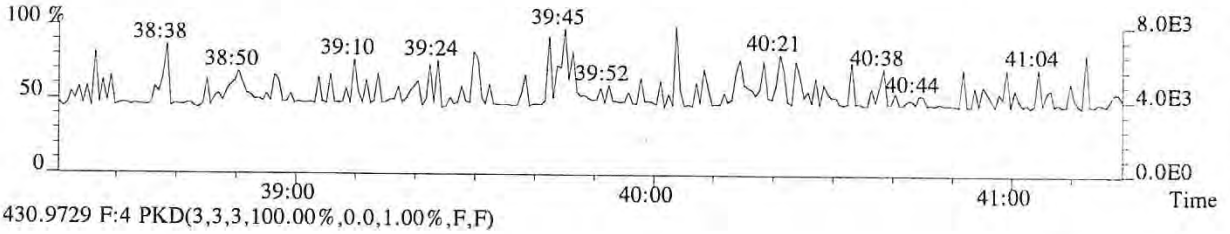
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11848.0,0.50%,F,T)



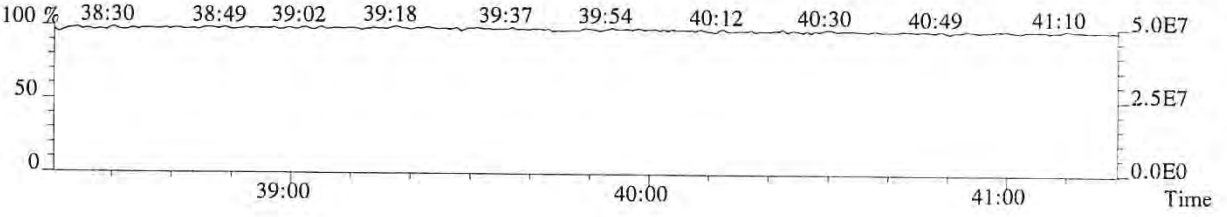
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5768.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

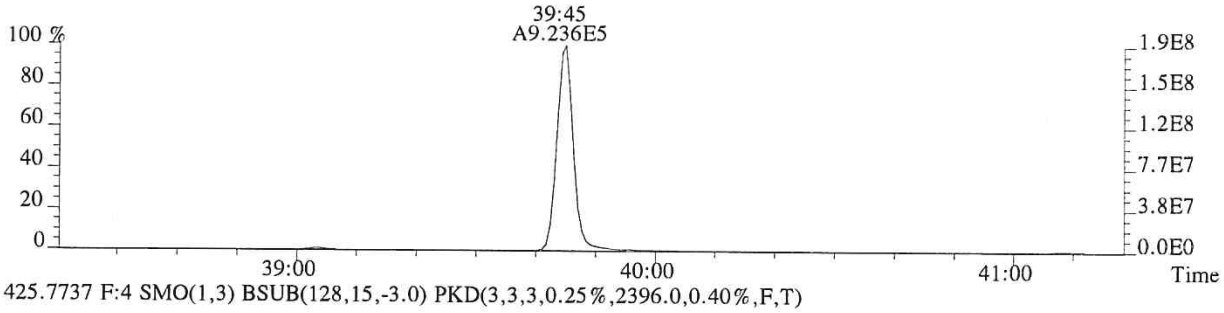


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

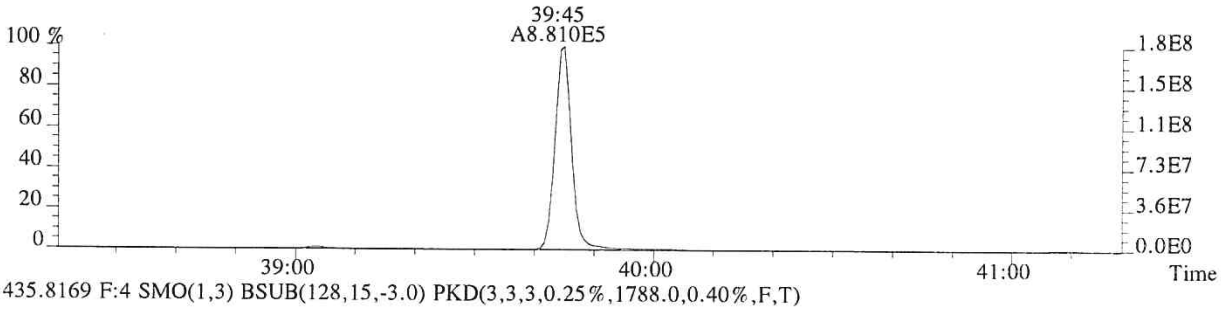


016008

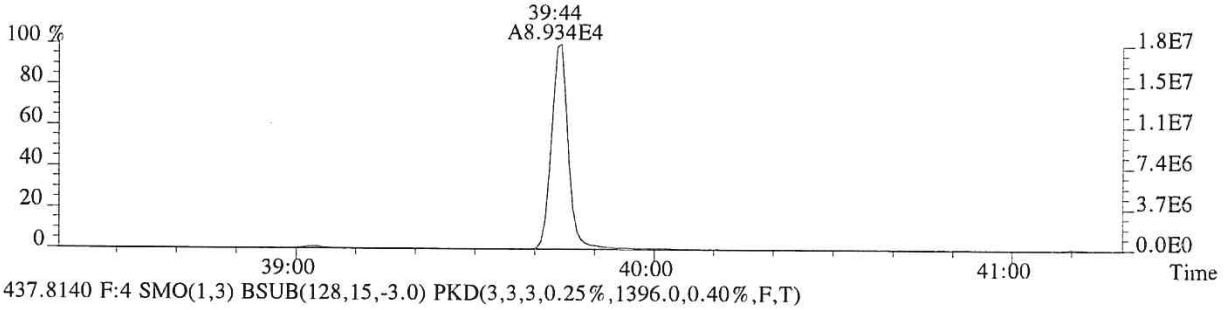
File:P513855 #1-268 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4156.0,0.40%,F,T)



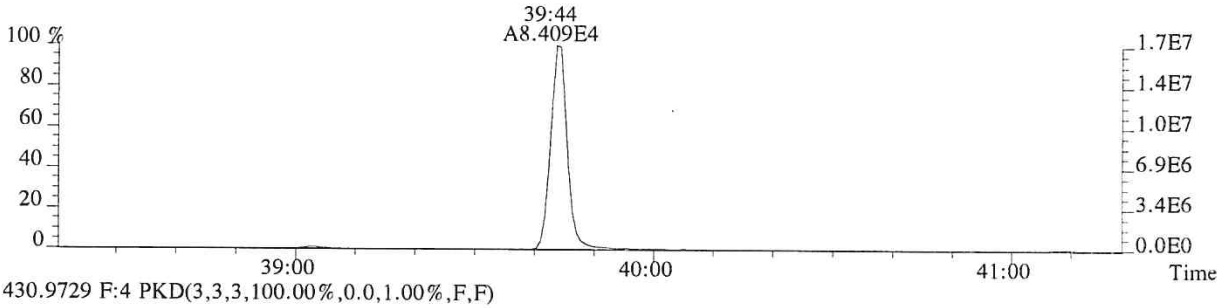
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2396.0,0.40%,F,T)



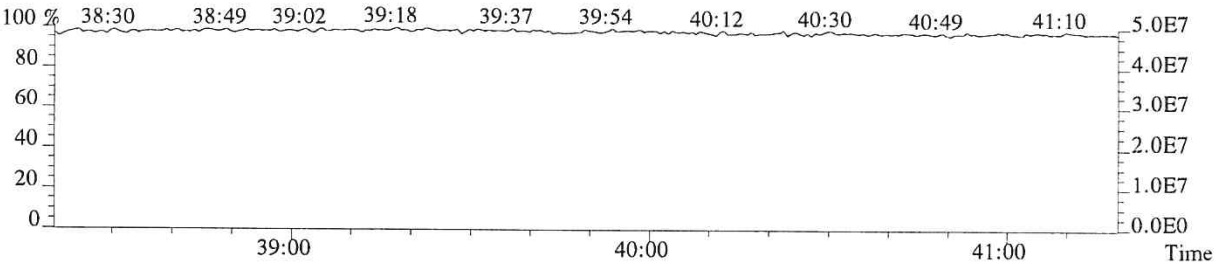
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1788.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1396.0,0.40%,F,T)

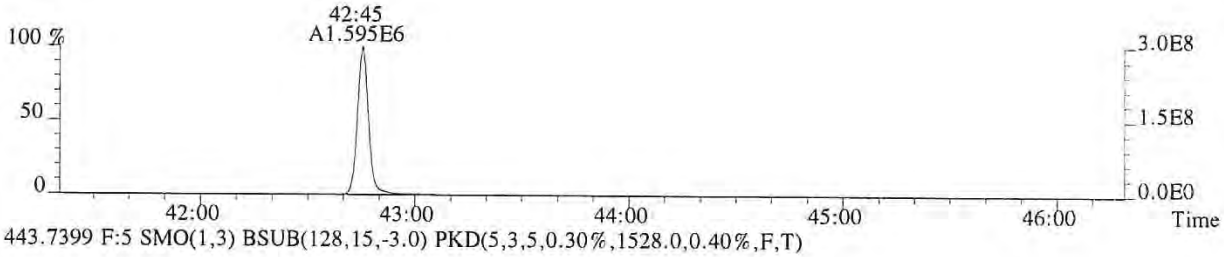


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

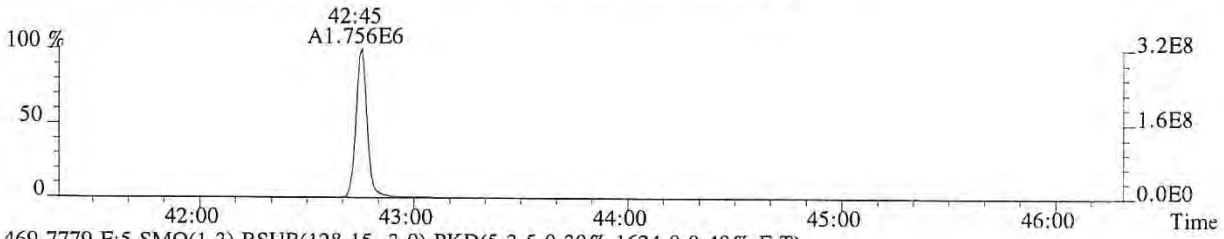


016009

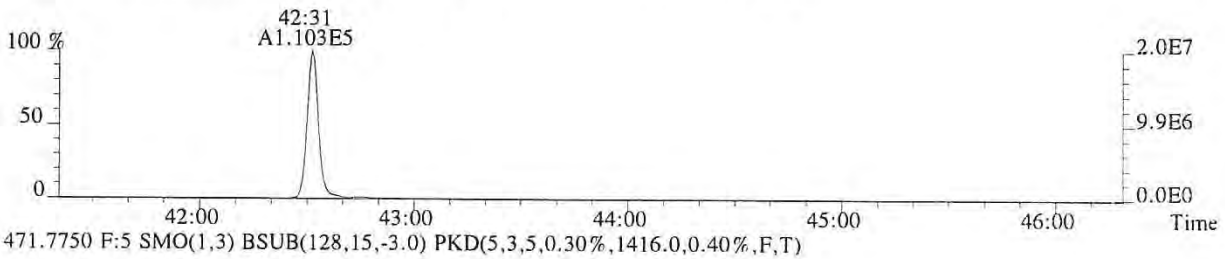
File:P513855 #1-448 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,668.0,0.40%,F,T)



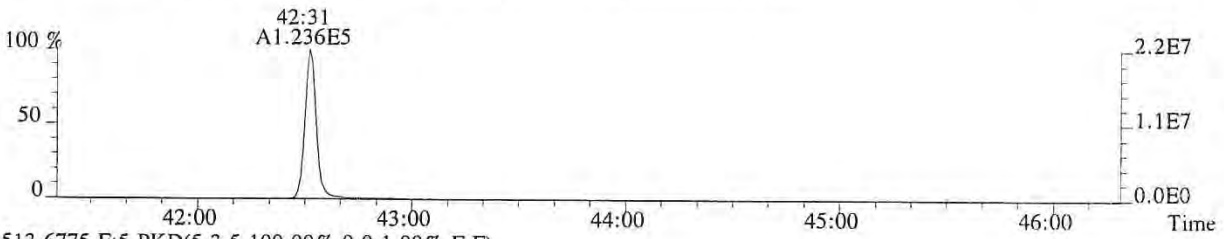
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1528.0,0.40%,F,T)



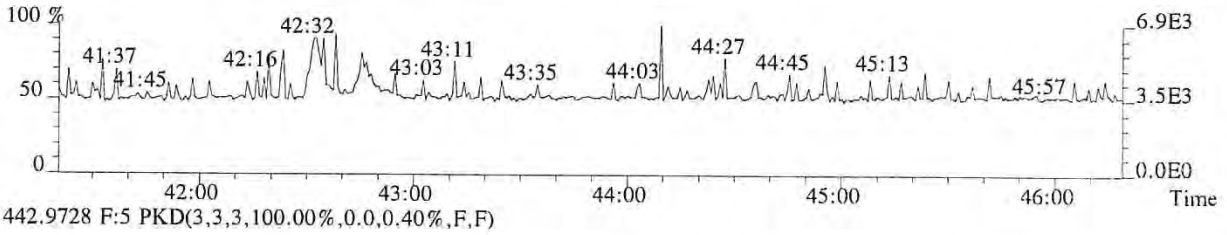
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1624.0,0.40%,F,T)



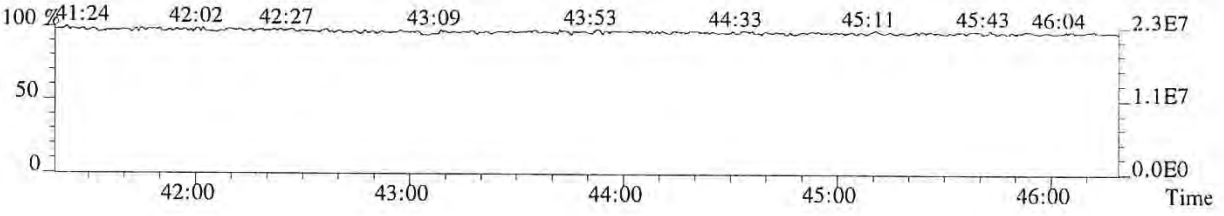
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1416.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

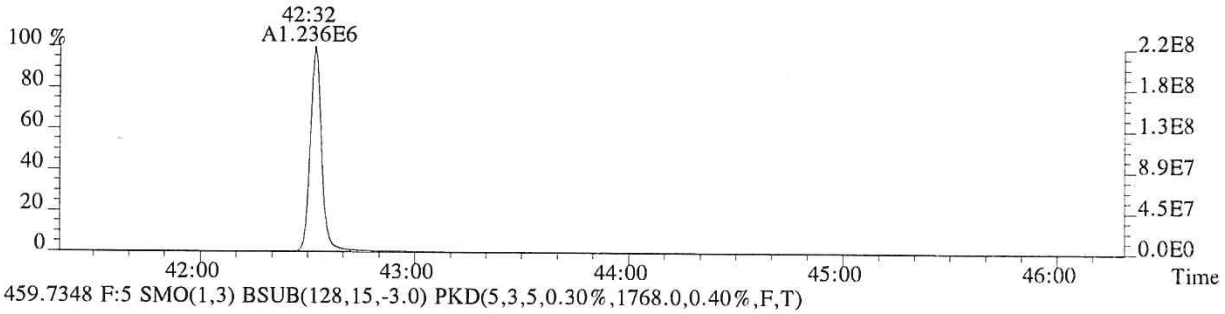


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

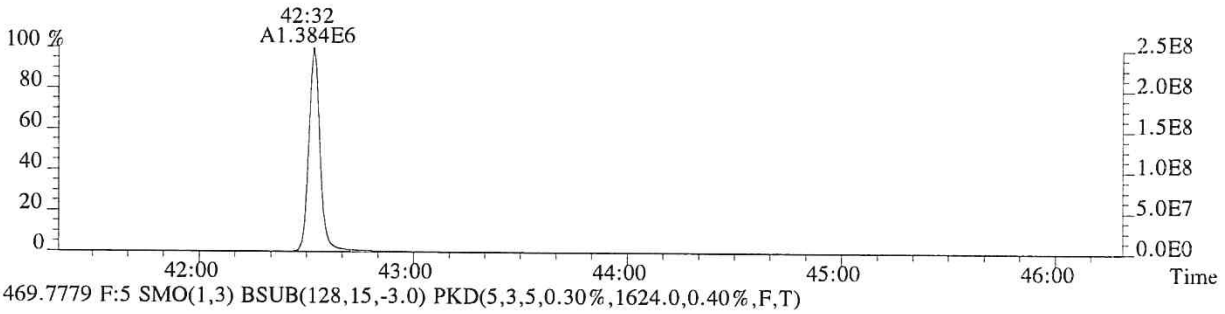


016010

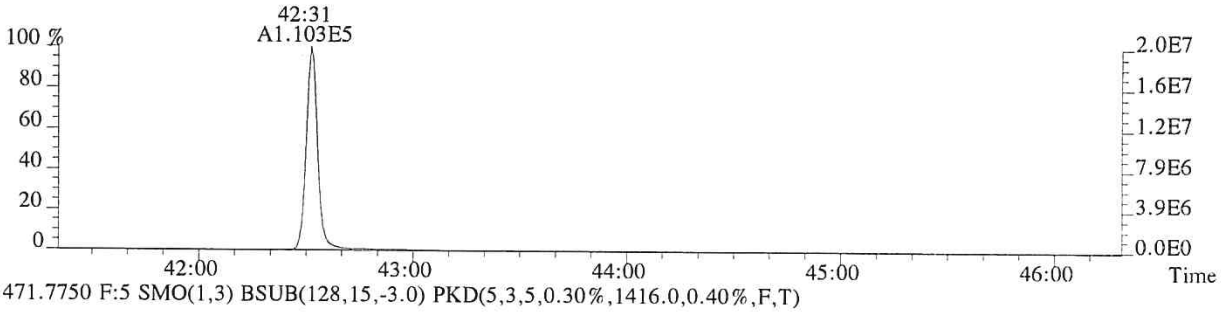
File:P513855 #1-448 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,192.0,0.40%,F,T)



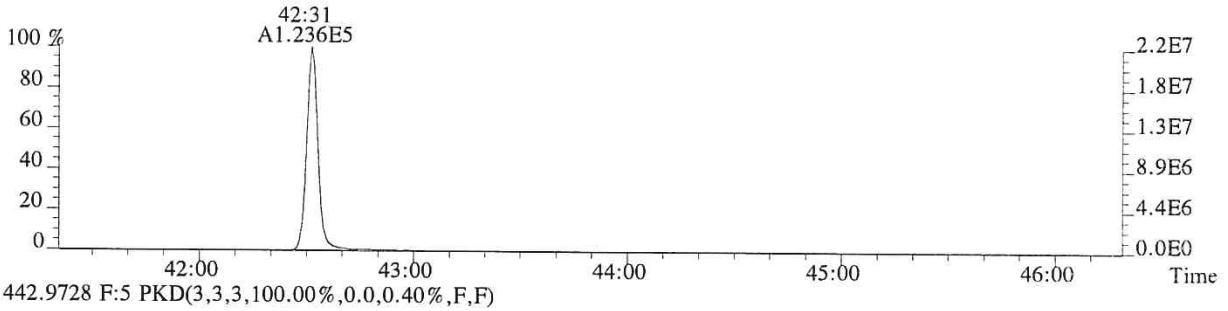
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1768.0,0.40%,F,T)



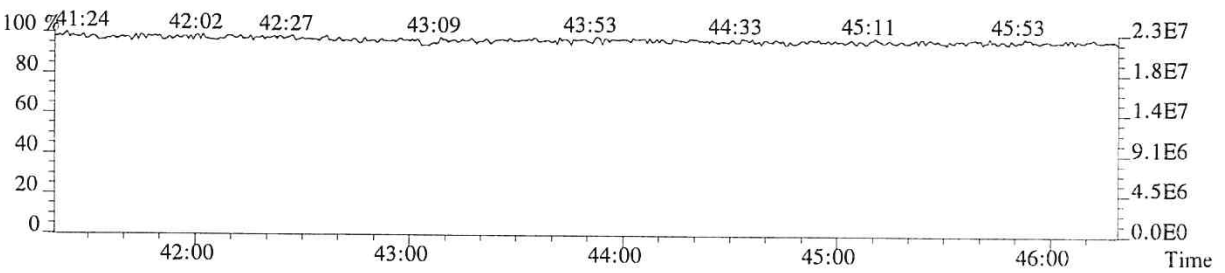
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1624.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1416.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



016011

USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P513857 Analysis Date: 24-JAN-18 Time: 19:21:06

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.76	0.65-0.89	9.9	7.8 - 12.9	-0.8
1,2,3,7,8-PeCDD	M+2/M+4	1.55	1.32-1.78	50	39 - 65	0.9
1,2,3,4,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	50	39 - 64	0.2
1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	50	39 - 64	0.8
1,2,3,7,8,9-HxCDD	M+2/M+4	1.27	1.05-1.43	50	41 - 61	-0.7
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	51	43 - 58	1.6
OCDD	M+2/M+4	0.89	0.76-1.02	101	79 - 126	1.5
2,3,7,8-TCDF	M/M+2	0.71	0.65-0.89	10.2	8.4 - 12.0	2.1
1,2,3,7,8-PeCDF	M+2/M+4	1.51	1.32-1.78	51	41 - 60	2.7
2,3,4,7,8-PeCDF	M+2/M+4	1.52	1.32-1.78	50	41 - 61	0.8
1,2,3,4,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	52	45 - 56	4.0
1,2,3,6,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	50	44 - 57	-0.1
1,2,3,7,8,9-HxCDF	M+2/M+4	1.23	1.05-1.43	51	45 - 56	2.0
2,3,4,6,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	50	44 - 57	0.8
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.00	0.88-1.20	50	45 - 55	0.3
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.00	0.88-1.20	50	43 - 58	0.1
OCDF	M+2/M+4	0.89	0.76-1.02	100	63 - 159	0.0

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P513857 Analysis Date: 24-JAN-18 Time: 19:21:06

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	98	82 - 121	-1.7
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	92	62 - 160	-8.5
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	101	85 - 117	1.4
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	103	85 - 118	2.7
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	113	72 - 138	13.3
13C-OCDD	M+2/M+4	0.89	0.76-1.02	253	96 - 415	26.3
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	94	71 - 140	-6.2
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	94	76 - 130	-6.3
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	94	77 - 130	-6.4
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	97	76 - 131	-2.6
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	102	70 - 143	1.7
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	104	74 - 135	3.6
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	105	73 - 137	4.9
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	112	78 - 129	11.6
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.44	0.37-0.51	116	77 - 129	16.1
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				10.1	7.8 - 12.7	0.9

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
75080

Run #7 Filename P513857 Samp: 1 Inj: 1 Acquired: 24-JAN-18 19:21:06
Processed: 25-JAN-18 08:41:26 Sample ID: 2ND SOURCE

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	5.152e+03	7.223e+03	0.71	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	3.916e+04	2.586e+04	1.51	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:41	3.607e+04	2.366e+04	1.52	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:16	3.202e+04	2.632e+04	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	3.416e+04	2.839e+04	1.20	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:52	3.150e+04	2.633e+04	1.20	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	2.836e+04	2.314e+04	1.23	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	2.874e+04	2.862e+04	1.00	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	2.352e+04	2.346e+04	1.00	yes	no	1.258
10	Unk	OCDF	42:45	3.688e+04	4.148e+04	0.89	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	3.845e+03	5.032e+03	0.76	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:57	2.377e+04	1.531e+04	1.55	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:59	2.145e+04	1.680e+04	1.28	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	2.240e+04	1.756e+04	1.28	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	2.219e+04	1.741e+04	1.27	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	2.034e+04	1.933e+04	1.05	yes	no	1.025
17	Unk	OCDD	42:31	3.083e+04	3.462e+04	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:46	5.681e+04	7.189e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:47	7.678e+04	4.833e+04	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	7.550e+04	4.814e+04	1.57	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	3.216e+04	6.216e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:22	3.808e+04	7.348e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:51	3.589e+04	6.747e+04	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:36	3.054e+04	5.771e+04	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	2.616e+04	5.845e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	2.287e+04	5.181e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:30	3.654e+04	4.587e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	4.972e+04	3.125e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	4.147e+04	3.207e+04	1.29	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	4.264e+04	3.379e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	3.921e+04	3.703e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	5.445e+04	6.090e+04	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:57	4.052e+04	5.019e+04	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	4.325e+04	3.518e+04	1.23	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	9.276e+03				no	1.014

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www.alsglobal.com

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
75080

Run #7 Filename P513857 Samp: 1 Inj: 1 Acquired: 24-JAN-18 19:21:06
Processed: 25-JAN-18 08:41:26 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	1.04e+06	1.03e+03	1.0e+03	1.42e+06	2.00e+03	7.1e+02
2	1,2,3,7,8-PeCDF	7.88e+06	8.44e+02	9.3e+03	5.19e+06	1.52e+03	3.4e+03
3	2,3,4,7,8-PeCDF	7.53e+06	8.44e+02	8.9e+03	4.93e+06	1.52e+03	3.2e+03
4	1,2,3,4,7,8-HxCDF	7.21e+06	1.53e+03	4.7e+03	5.89e+06	1.36e+03	4.3e+03
5	1,2,3,6,7,8-HxCDF	7.34e+06	1.53e+03	4.8e+03	6.08e+06	1.36e+03	4.5e+03
6	2,3,4,6,7,8-HxCDF	7.02e+06	1.53e+03	4.6e+03	5.88e+06	1.36e+03	4.3e+03
7	1,2,3,7,8,9-HxCDF	6.10e+06	1.53e+03	4.0e+03	4.95e+06	1.36e+03	3.6e+03
8	1,2,3,4,6,7,8-HpCDF	6.16e+06	5.00e+03	1.2e+03	6.13e+06	6.59e+03	9.3e+02
9	1,2,3,4,7,8,9-HpCDF	4.58e+06	5.00e+03	9.1e+02	4.45e+06	6.59e+03	6.7e+02
10	OCDF	6.54e+06	1.44e+02	4.5e+04	7.12e+06	8.36e+02	8.5e+03
11	2,3,7,8-TCDD	8.13e+05	1.92e+03	4.2e+02	1.05e+06	1.26e+03	8.3e+02
12	1,2,3,7,8-PeCDD	4.95e+06	8.52e+02	5.8e+03	3.18e+06	2.84e+02	1.1e+04
13	1,2,3,4,7,8-HxCDD	4.98e+06	7.64e+02	6.5e+03	3.93e+06	4.12e+02	9.5e+03
14	1,2,3,6,7,8-HxCDD	4.78e+06	7.64e+02	6.3e+03	3.77e+06	4.12e+02	9.2e+03
15	1,2,3,7,8,9-HxCDD	4.67e+06	7.64e+02	6.1e+03	3.64e+06	4.12e+02	8.8e+03
16	1,2,3,4,6,7,8-HpCDD	4.20e+06	1.17e+03	3.6e+03	3.99e+06	7.20e+01	5.5e+04
17	OCDD	5.25e+06	1.60e+02	3.3e+04	5.90e+06	1.22e+03	4.8e+03
18	13C-2,3,7,8-TCDF	1.11e+07	9.00e+03	1.2e+03	1.40e+07	3.76e+03	3.7e+03
19	13C-1,2,3,7,8-PeCDF	1.52e+07	6.36e+02	2.4e+04	9.62e+06	1.34e+03	7.2e+03
20	13C-2,3,4,7,8-PeCDF	1.56e+07	6.36e+02	2.5e+04	9.99e+06	1.34e+03	7.5e+03
21	13C-1,2,3,4,7,8-HxCDF	7.22e+06	7.60e+02	9.5e+03	1.40e+07	1.60e+03	8.8e+03
22	13C-1,2,3,6,7,8-HxCDF	8.16e+06	7.60e+02	1.1e+04	1.57e+07	1.60e+03	9.8e+03
23	13C-2,3,4,6,7,8-HxCDF	7.92e+06	7.60e+02	1.0e+04	1.49e+07	1.60e+03	9.3e+03
24	13C-1,2,3,7,8,9-HxCDF	6.41e+06	7.60e+02	8.4e+03	1.22e+07	1.60e+03	7.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	5.67e+06	2.84e+03	2.0e+03	1.26e+07	6.70e+03	1.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.44e+06	2.84e+03	1.6e+03	1.00e+07	6.70e+03	1.5e+03
27	13C-2,3,7,8-TCDD	7.51e+06	5.77e+03	1.3e+03	9.42e+06	2.25e+03	4.2e+03
28	13C-1,2,3,7,8-PeCDD	1.01e+07	1.06e+03	9.5e+03	6.31e+06	5.88e+02	1.1e+04
29	13C-1,2,3,4,7,8-HxCDD	9.57e+06	2.66e+03	3.6e+03	7.40e+06	1.57e+03	4.7e+03
30	13C-1,2,3,6,7,8-HxCDD	9.03e+06	2.66e+03	3.4e+03	7.14e+06	1.57e+03	4.6e+03
31	13C-1,2,3,4,6,7,8-HpCDD	7.97e+06	1.17e+03	6.8e+03	7.51e+06	7.00e+02	1.1e+04
32	13C-OCDD	9.30e+06	2.60e+02	3.6e+04	1.03e+07	4.00e+02	2.6e+04
33	13C-1,2,3,4-TCDD	8.25e+06	5.77e+03	1.4e+03	1.02e+07	2.25e+03	4.5e+03
34	13C-1,2,3,7,8,9-HxCDD	9.23e+06	2.66e+03	3.5e+03	7.29e+06	1.57e+03	4.6e+03
35	37Cl-2,3,7,8-TCDD	1.94e+06	1.18e+03	1.6e+03			

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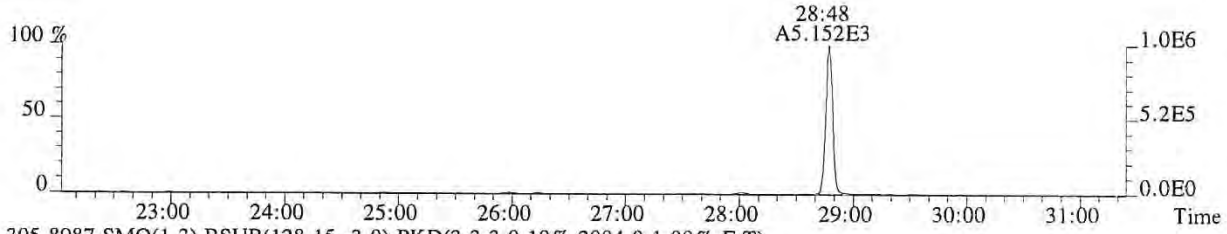
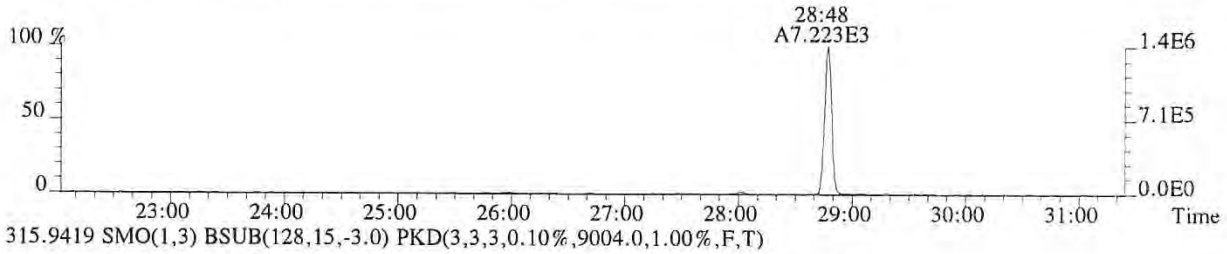
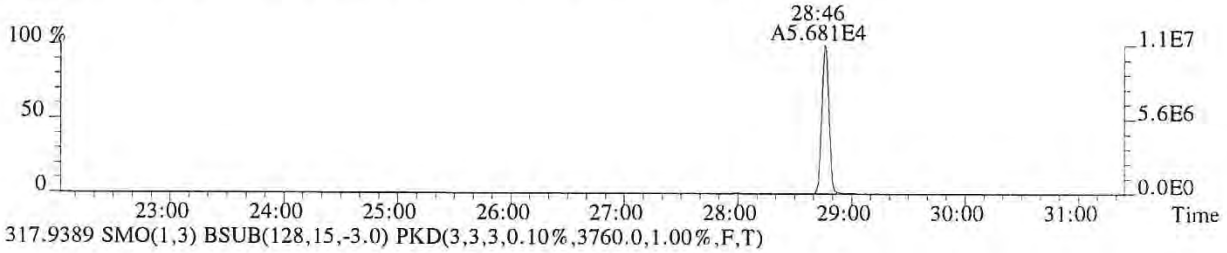
File:P513857 #1-665 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



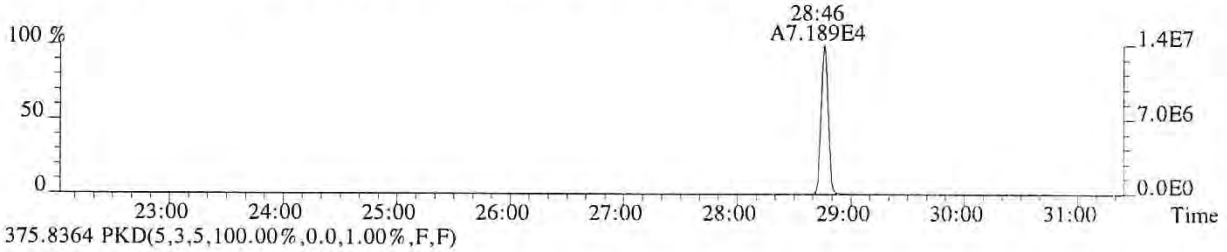
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2004.0,1.00%,F,T)



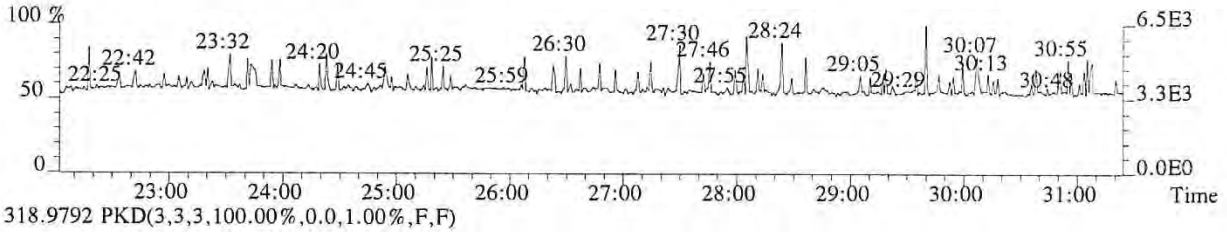
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9004.0,1.00%,F,T)



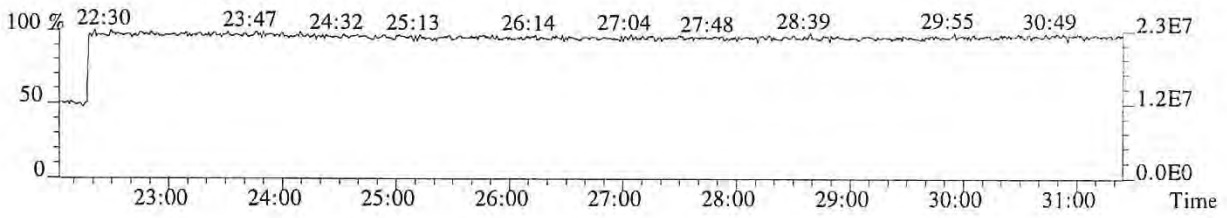
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3760.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

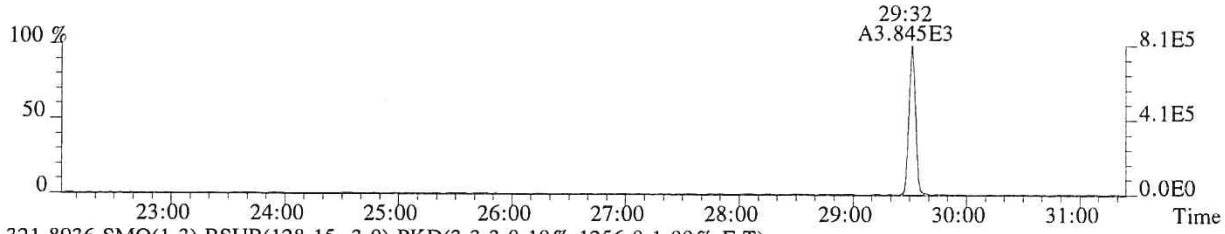


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

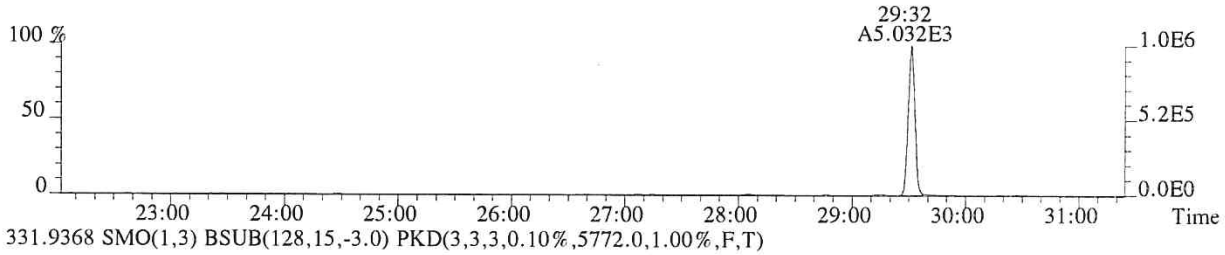


016016

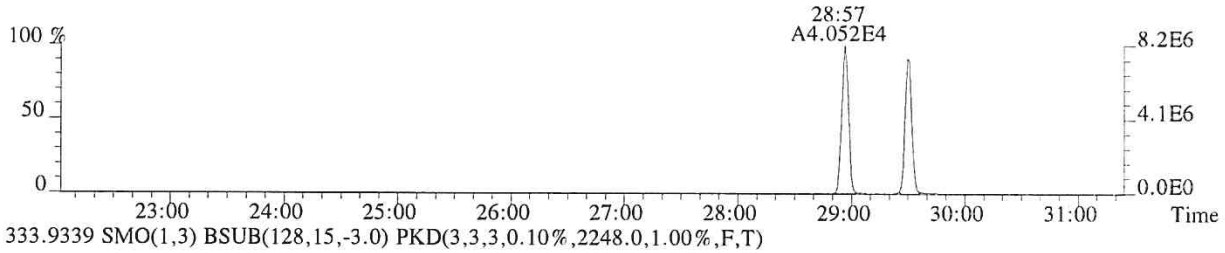
File:P513857 #1-665 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1924.0,1.00%,F,T)



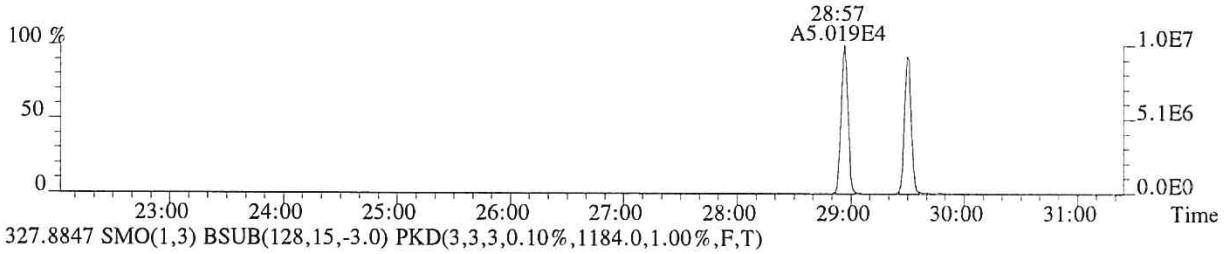
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1256.0,1.00%,F,T)



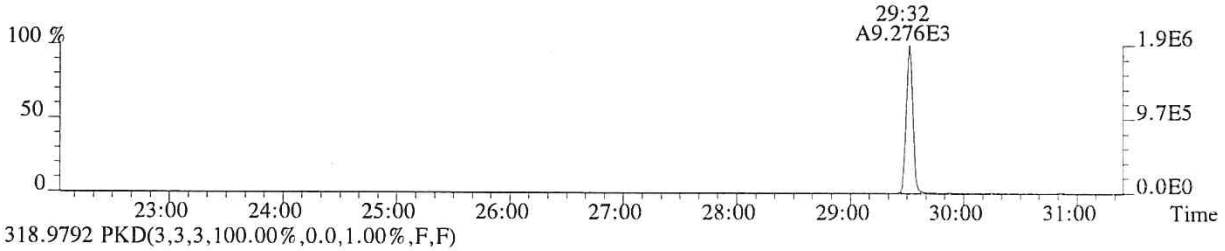
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5772.0,1.00%,F,T)



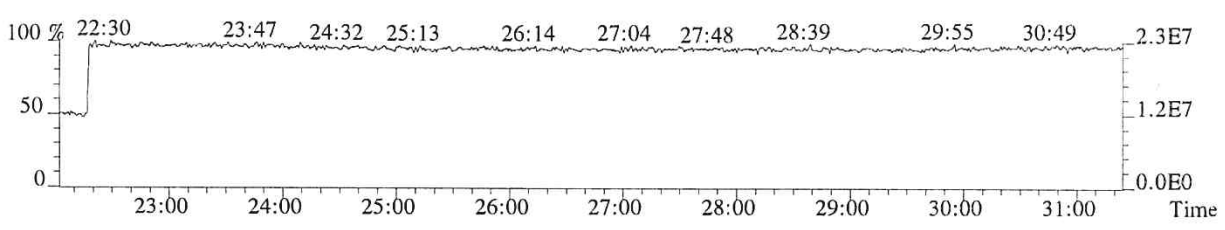
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2248.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1184.0,1.00%,F,T)

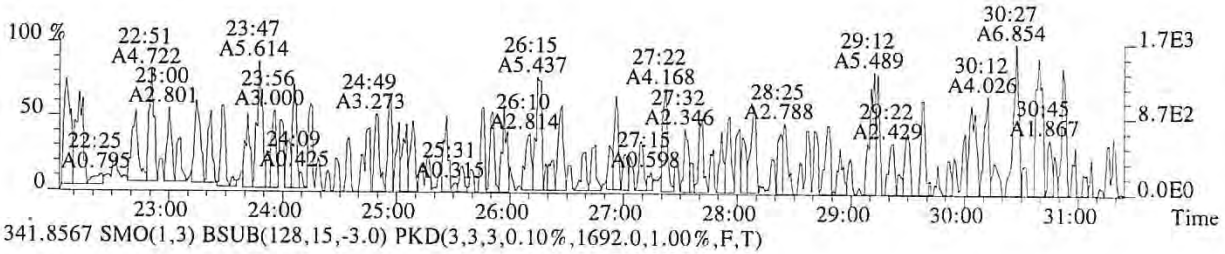


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

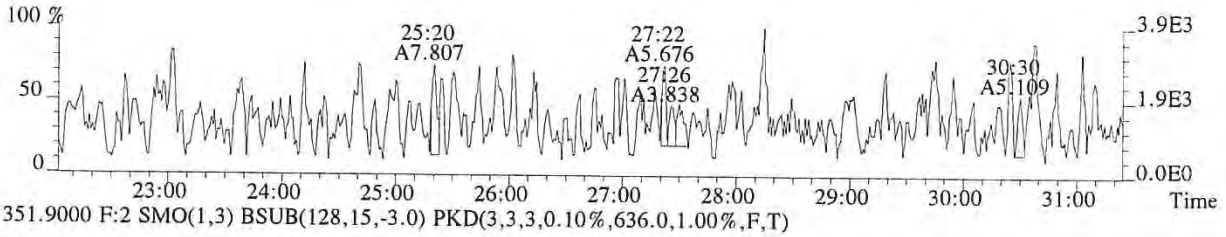


016017

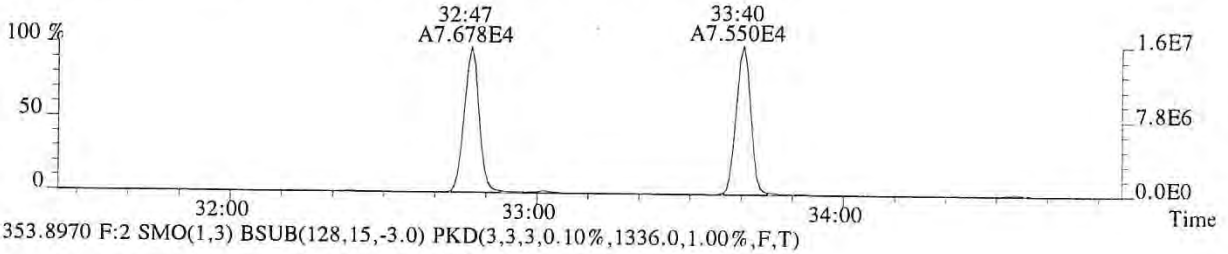
File:P513857 #1-665 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,188.0,1.00%,F,T)



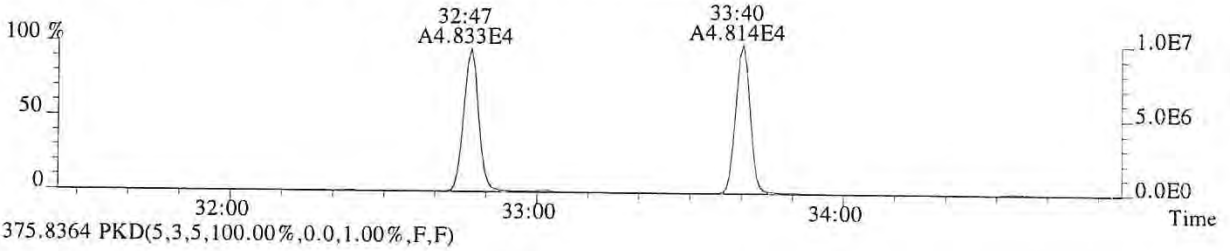
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1692.0,1.00%,F,T)



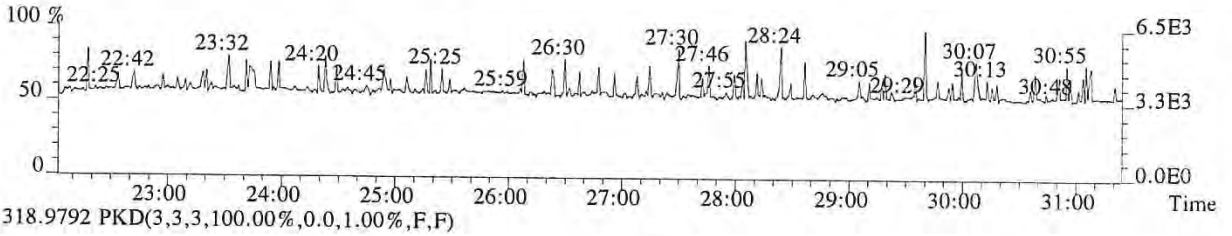
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)



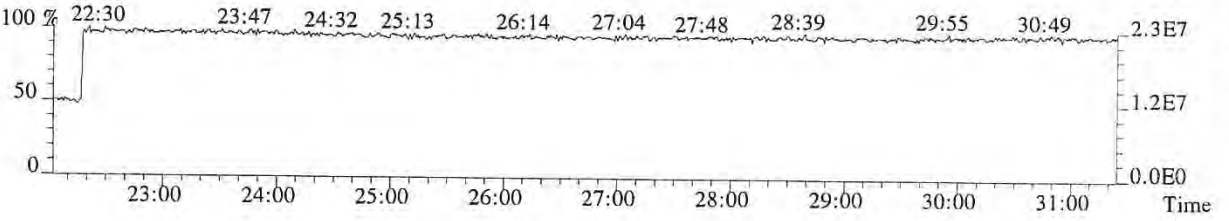
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1336.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

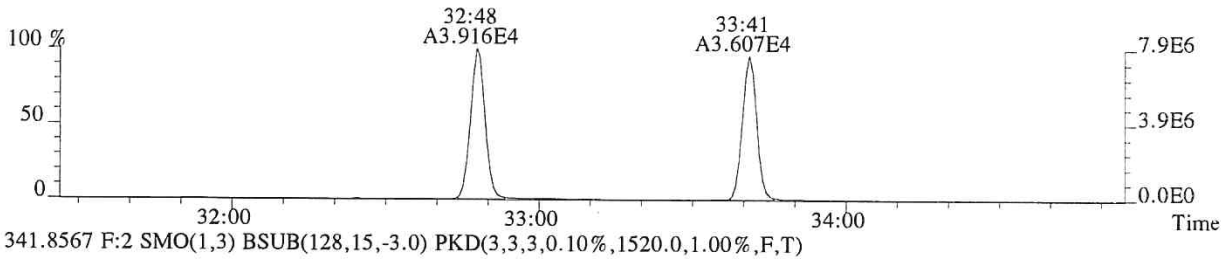


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

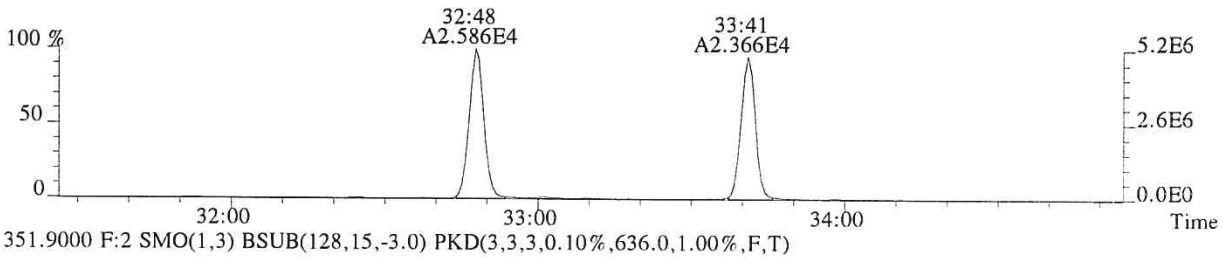


016018

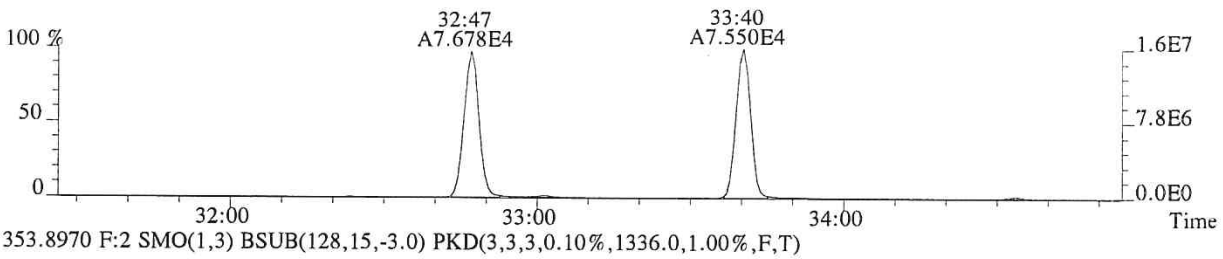
File:P513857 #1-313 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,844.0,1.00%,F,T)



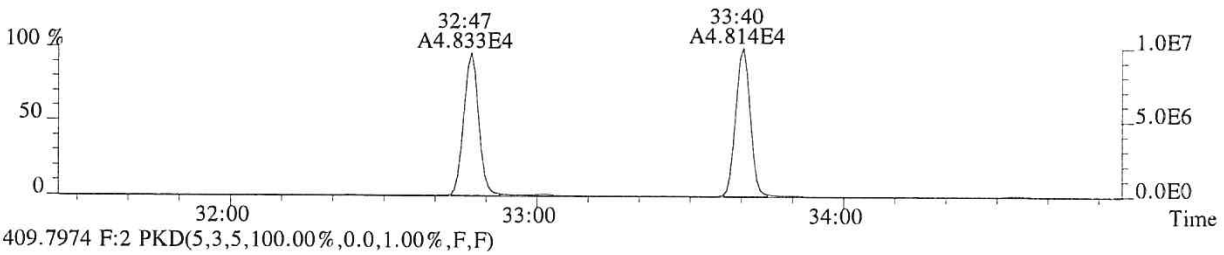
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1520.0,1.00%,F,T)



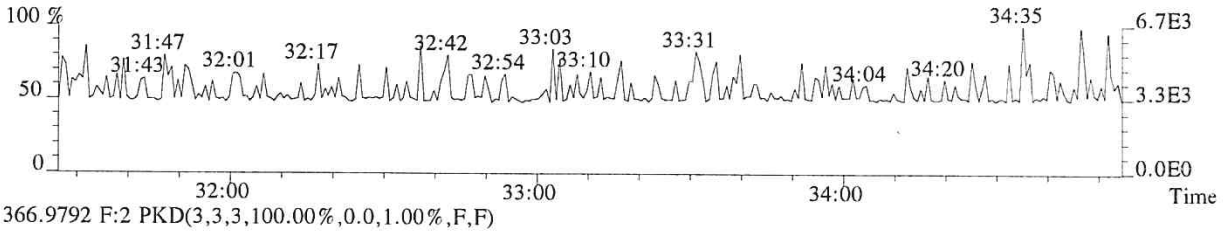
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)



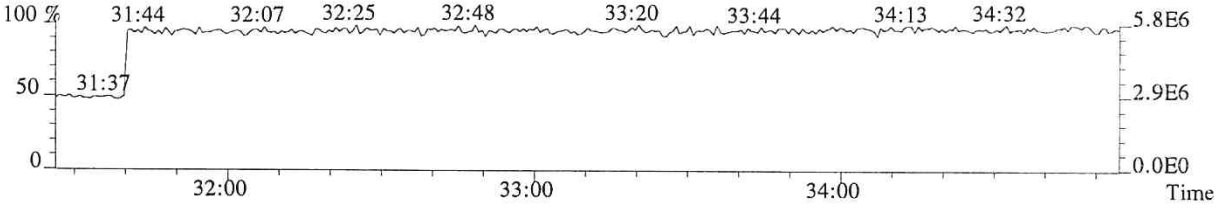
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1336.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

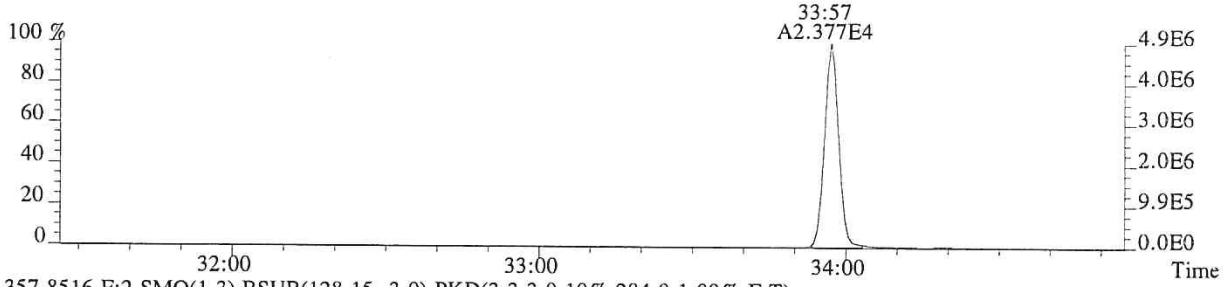


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

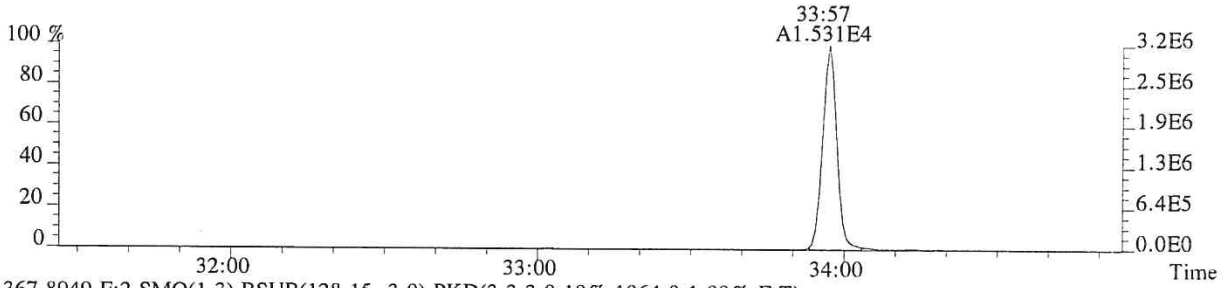


016019

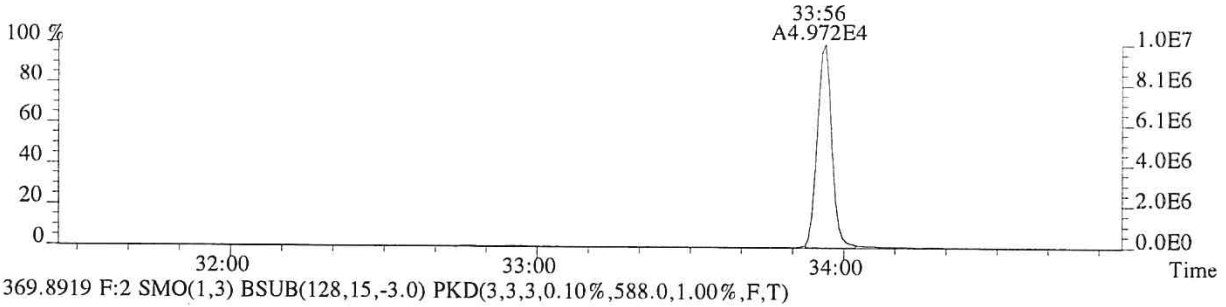
File:P513857 #1-313 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,852.0,1.00%,F,T)



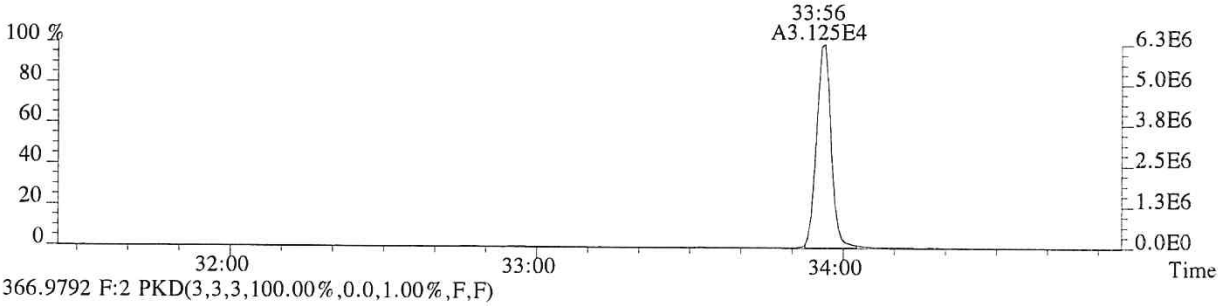
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,284.0,1.00%,F,T)



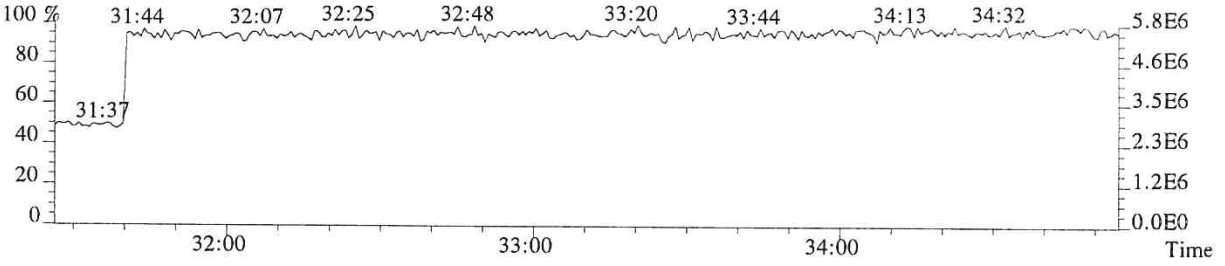
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1064.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,588.0,1.00%,F,T)

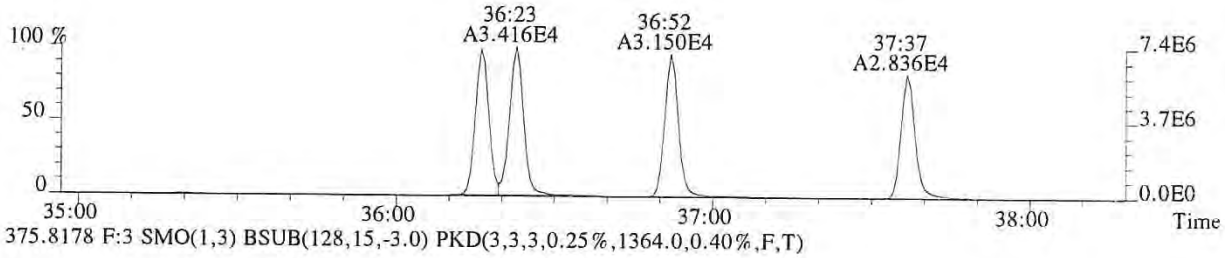


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

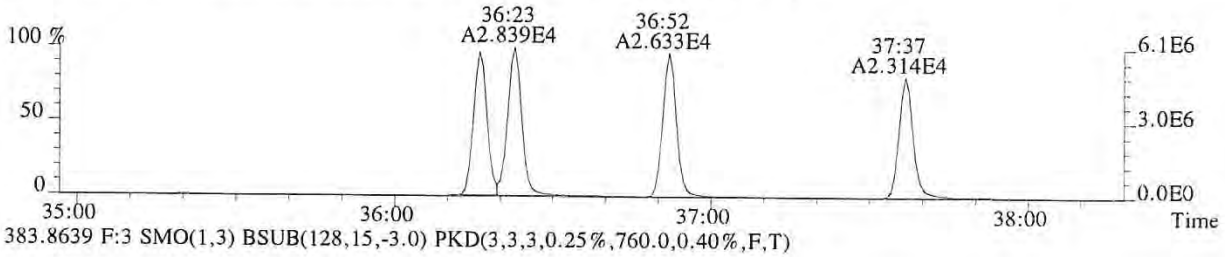


016020

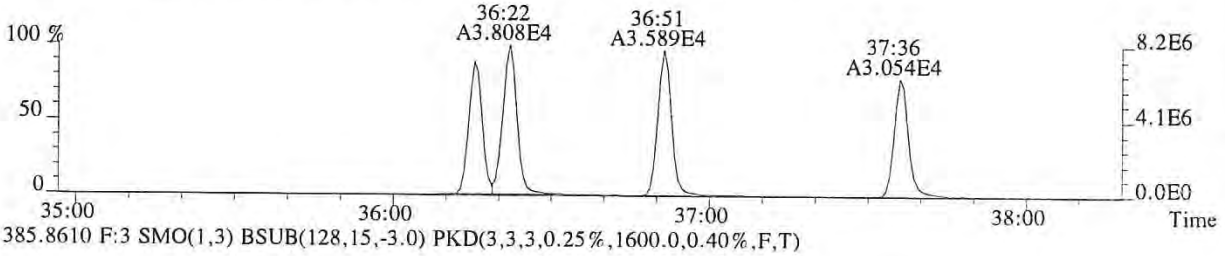
File:P513857 #1-303 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1528.0,0.40%,F,T)



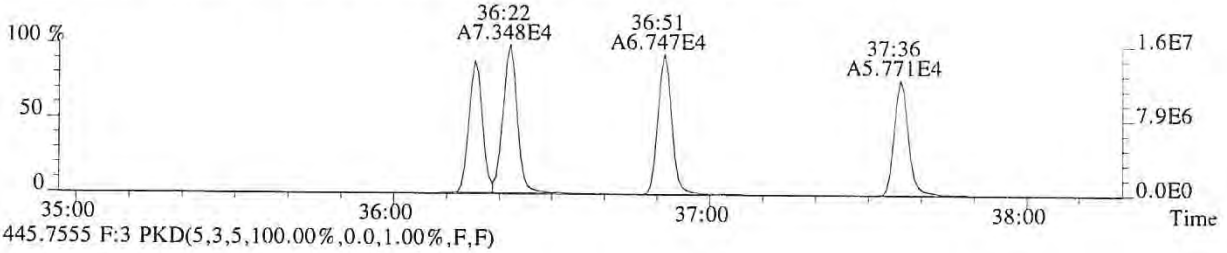
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1364.0,0.40%,F,T)



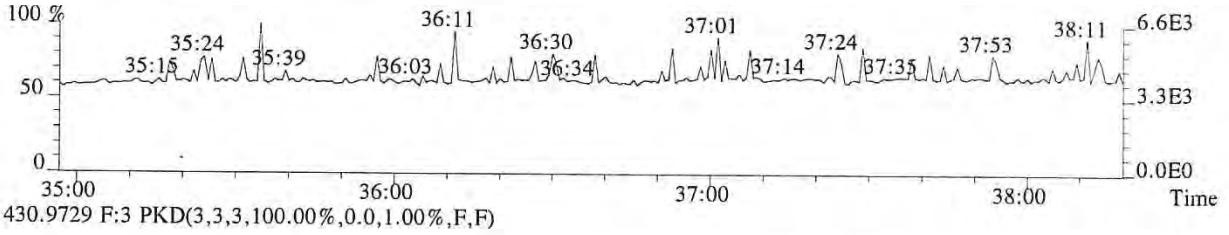
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,760.0,0.40%,F,T)



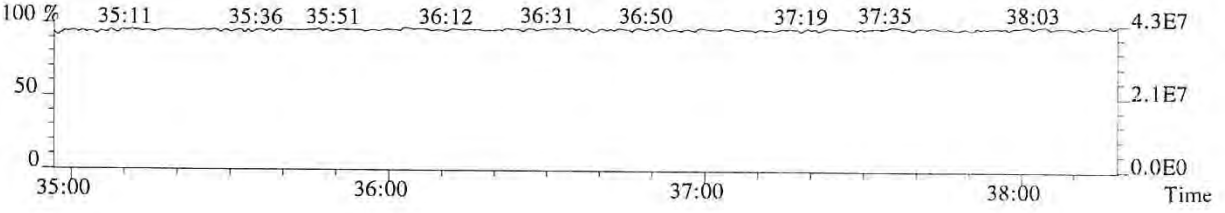
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1600.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

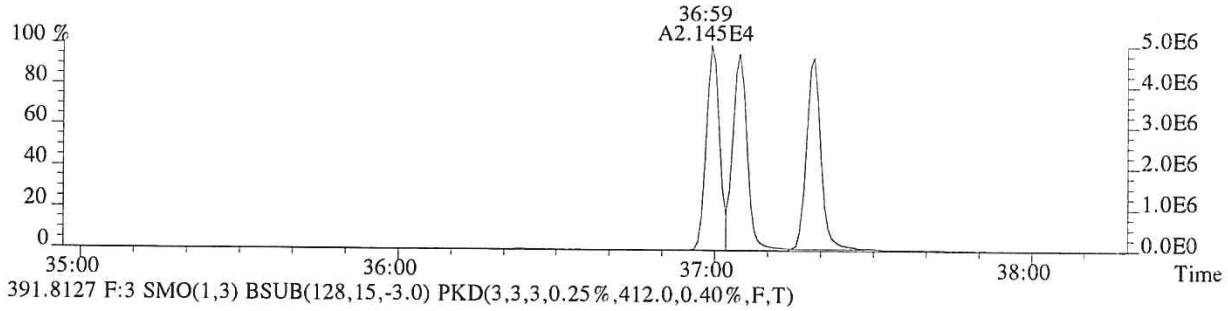


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

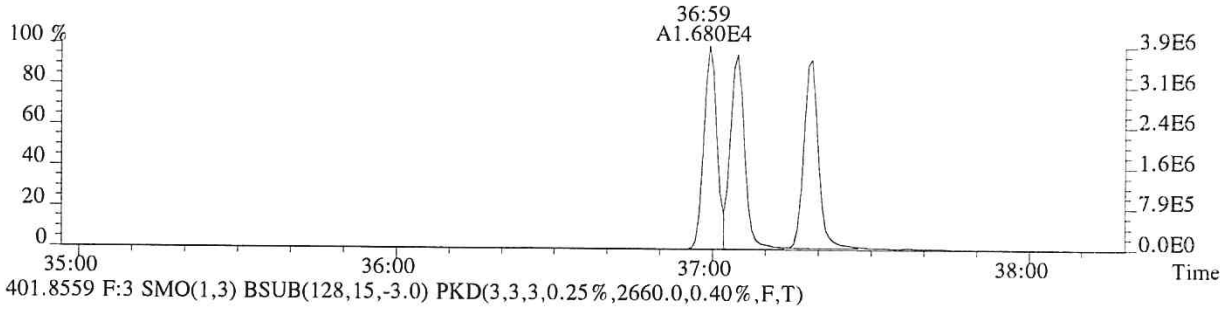


016021

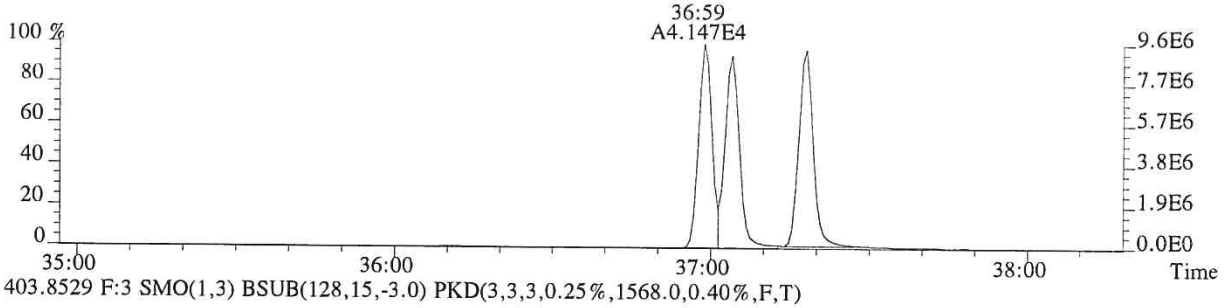
File:P513857 #1-303 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spectℓ
Sample#1 Exp:75080
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,764.0,0.40%,F,T)



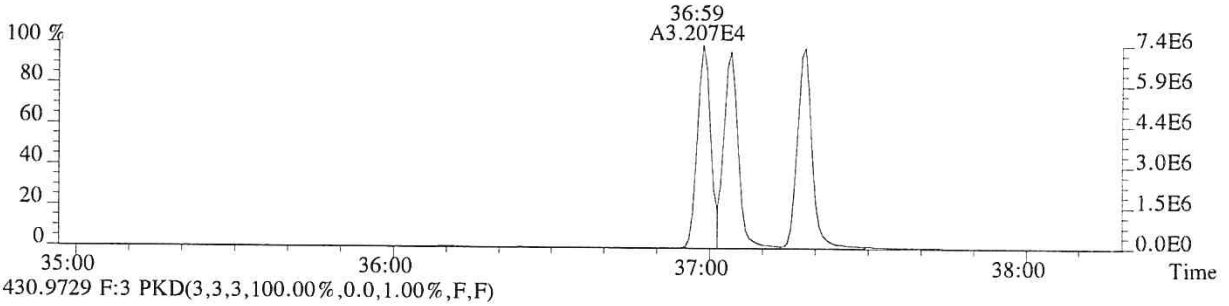
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,412.0,0.40%,F,T)



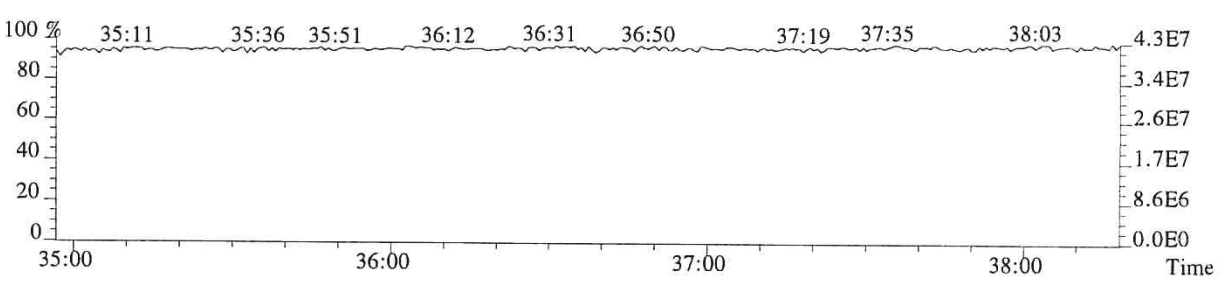
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2660.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1568.0,0.40%,F,T)

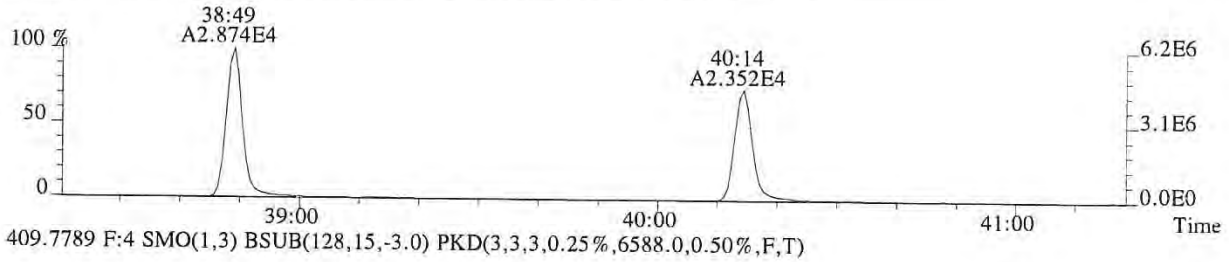


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

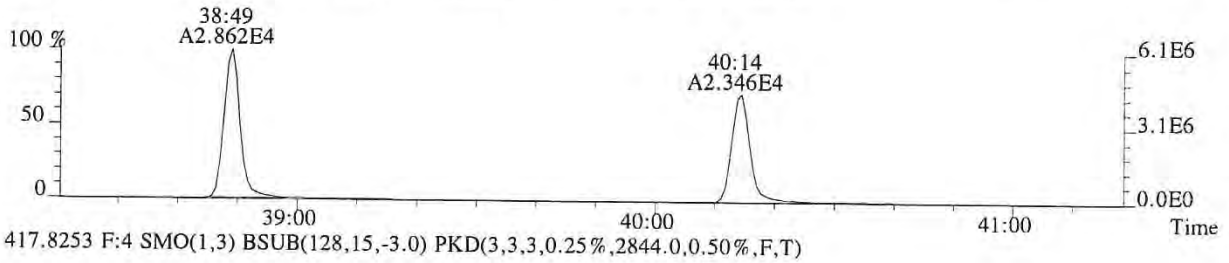


016022

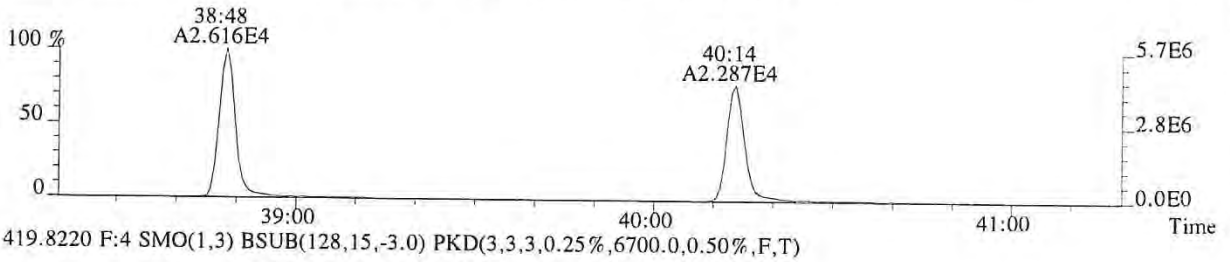
File:P513857 #1-268 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:75080
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5004.0,0.50%,F,T)



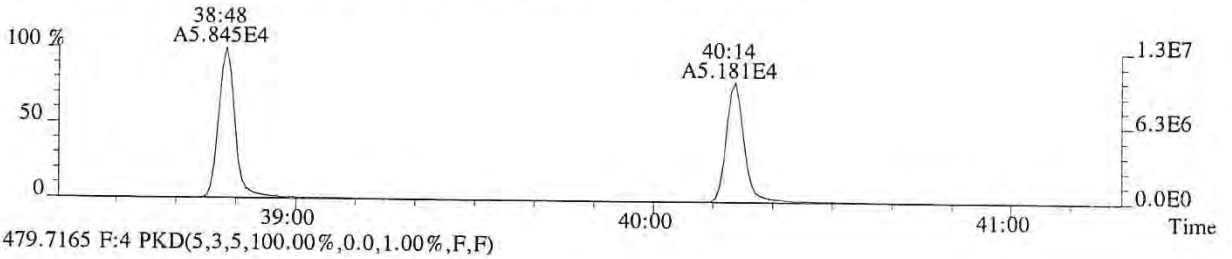
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6588.0,0.50%,F,T)



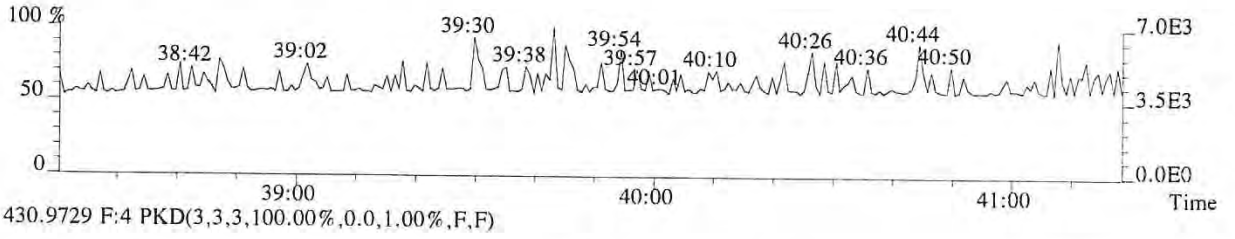
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2844.0,0.50%,F,T)



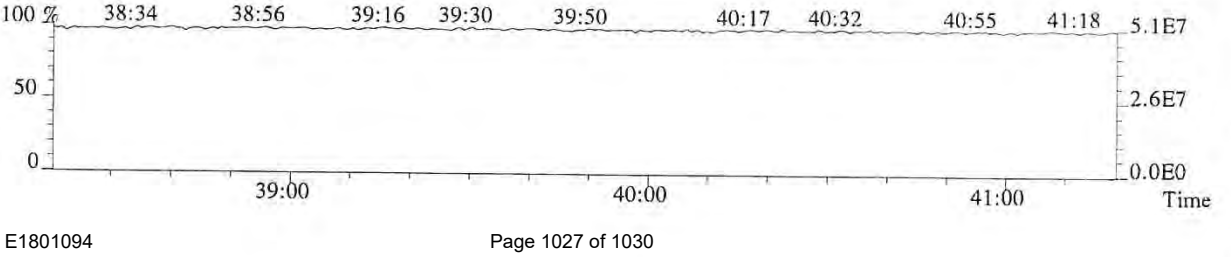
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6700.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

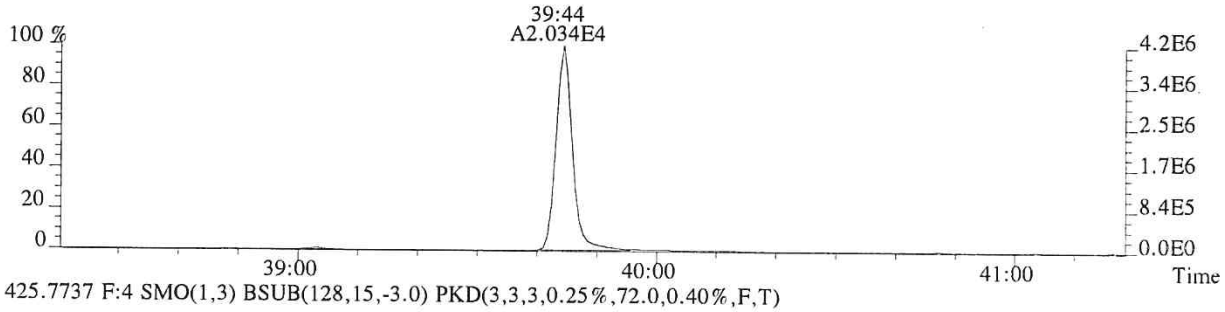


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

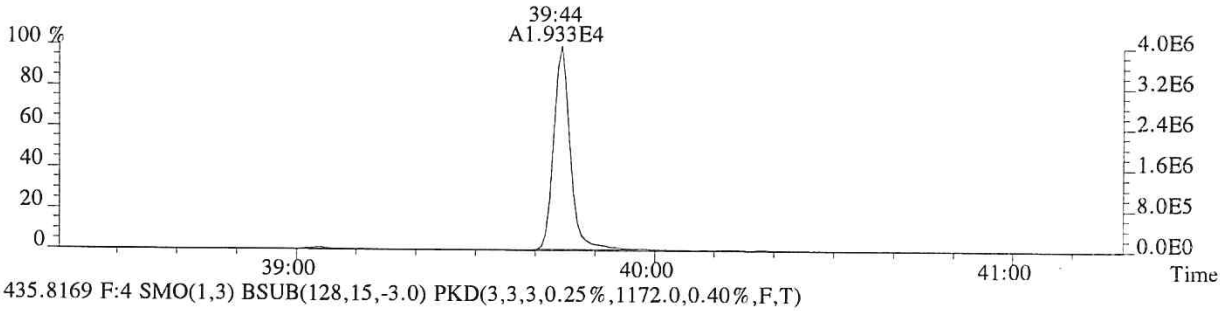


016023

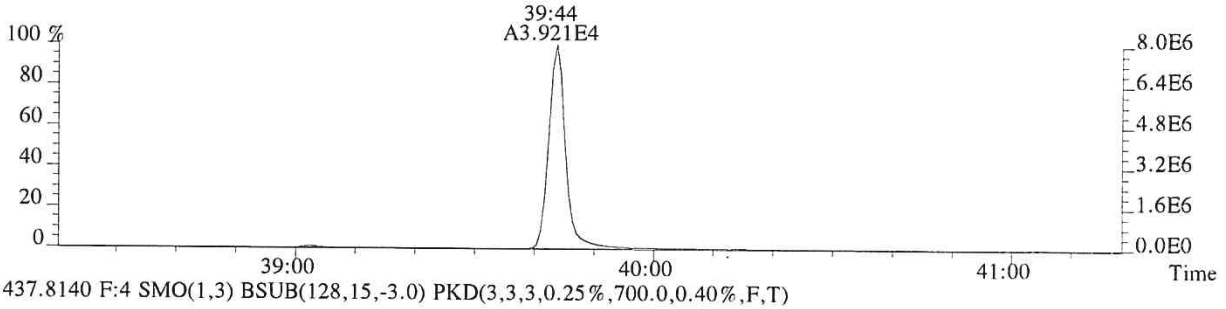
File:P513857 #1-268 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1168.0,0.40%,F,T)



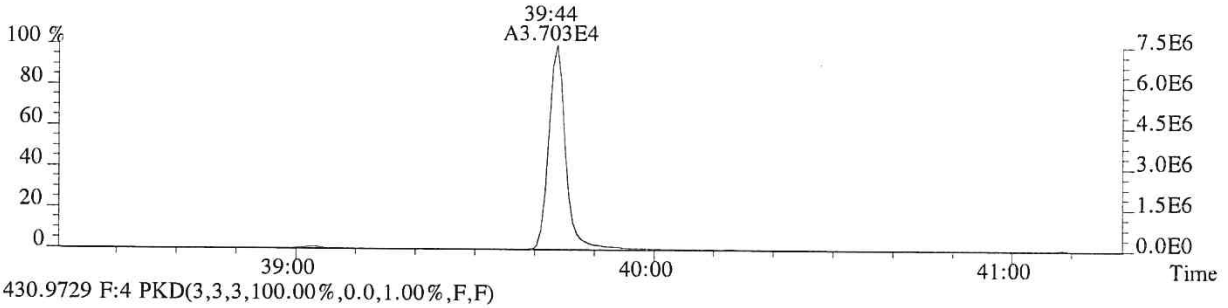
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,72.0,0.40%,F,T)



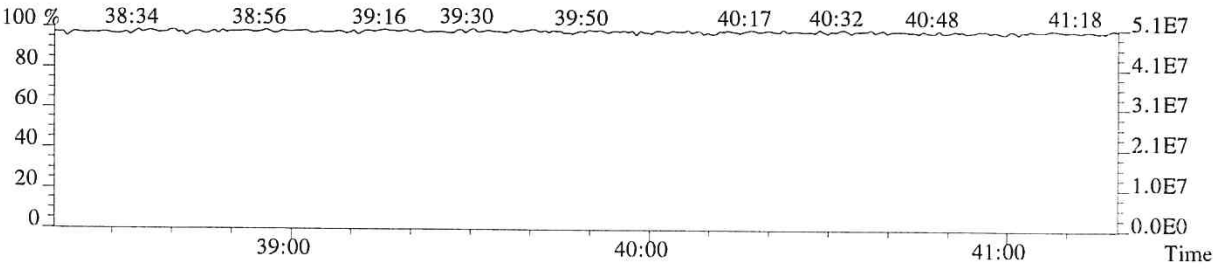
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1172.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,700.0,0.40%,F,T)

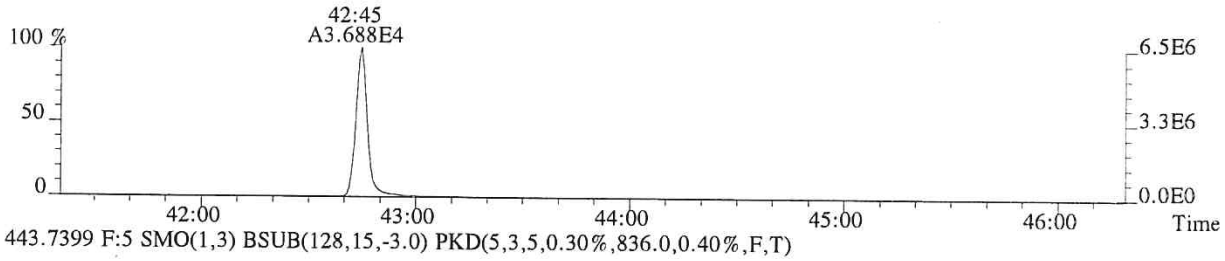


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

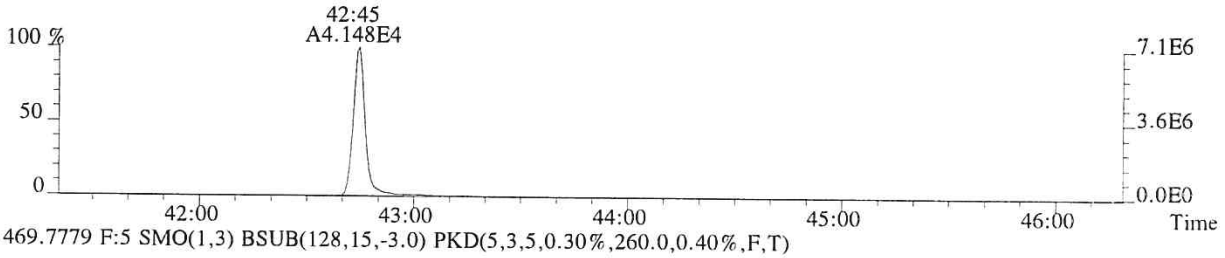


016024

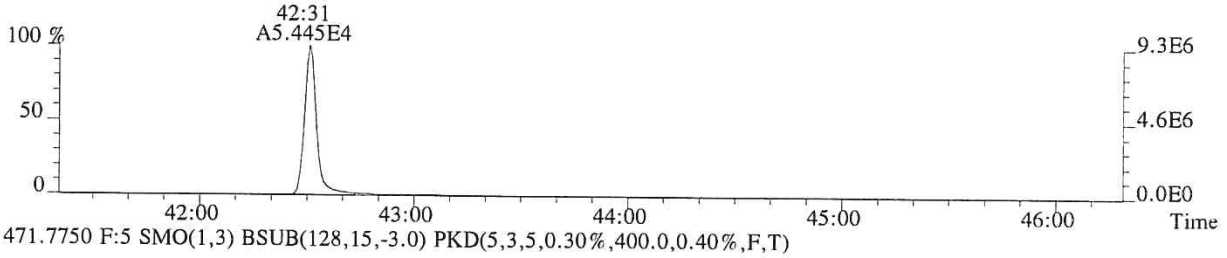
File:P513857 #1-448 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,144.0,0.40%,F,T)



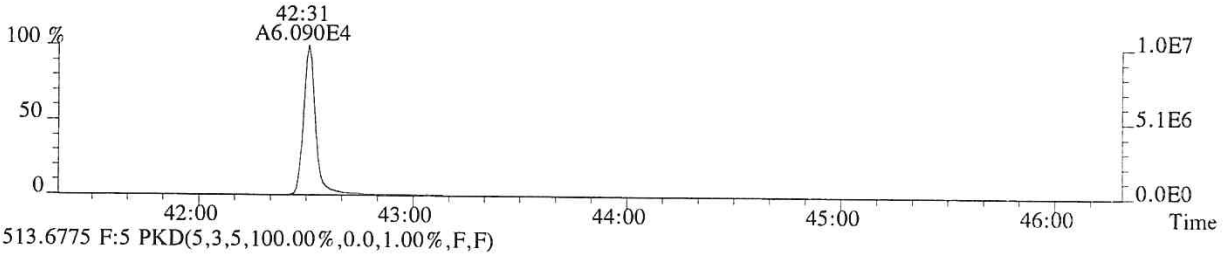
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,836.0,0.40%,F,T)



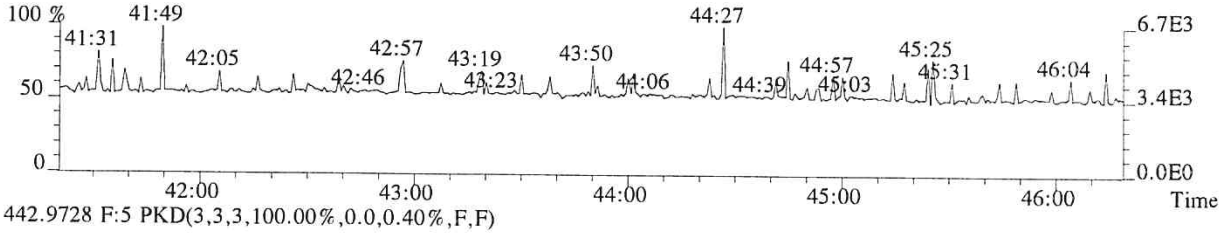
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,260.0,0.40%,F,T)



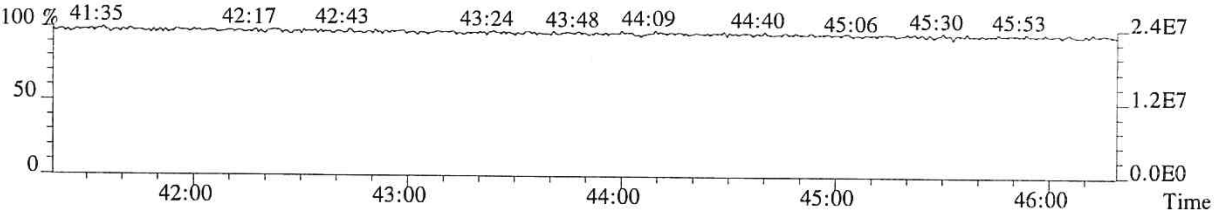
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,400.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

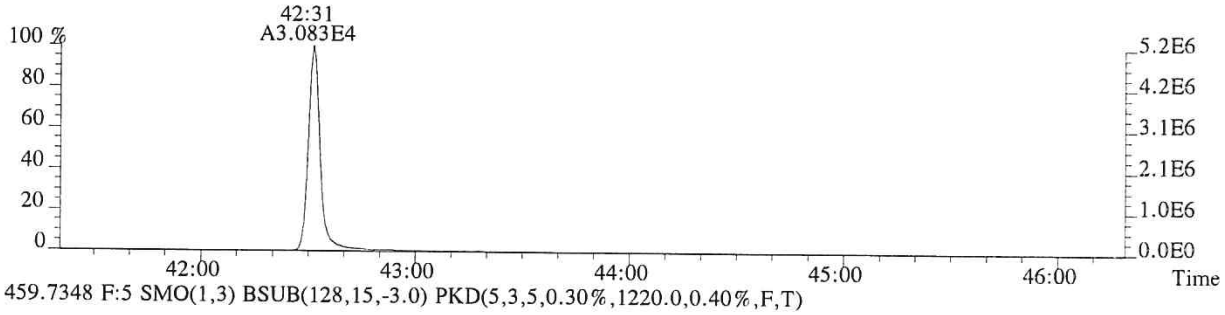


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

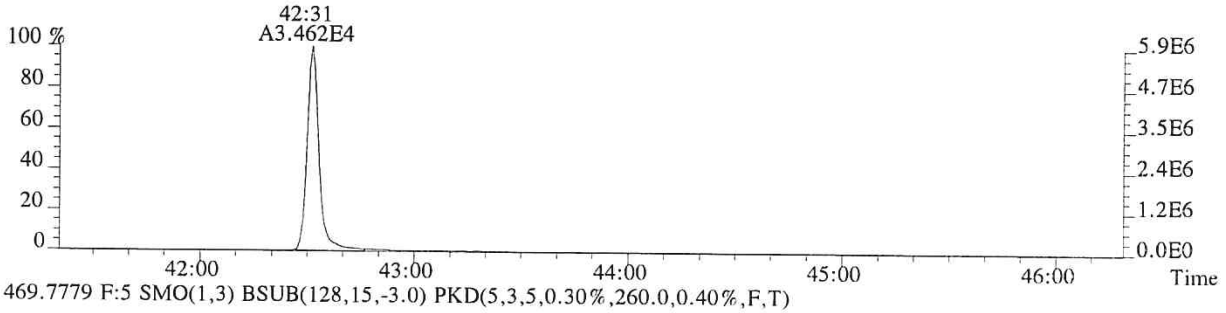


016025

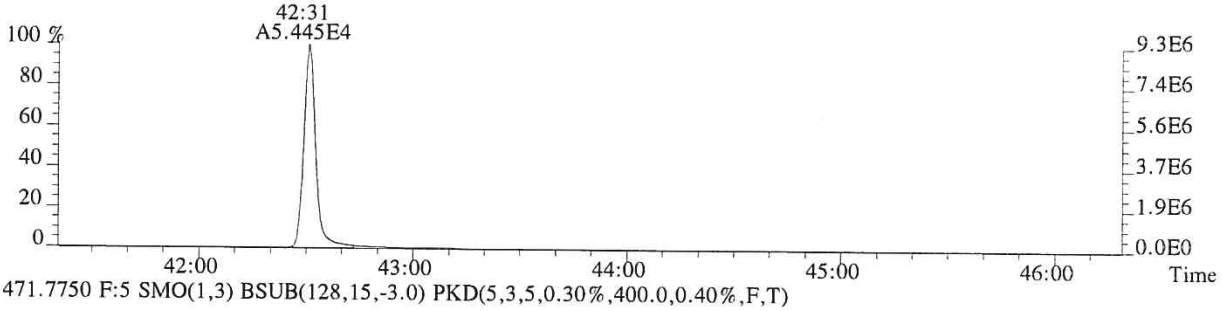
File:P513857 #1-448 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,160.0,0.40%,F,T)



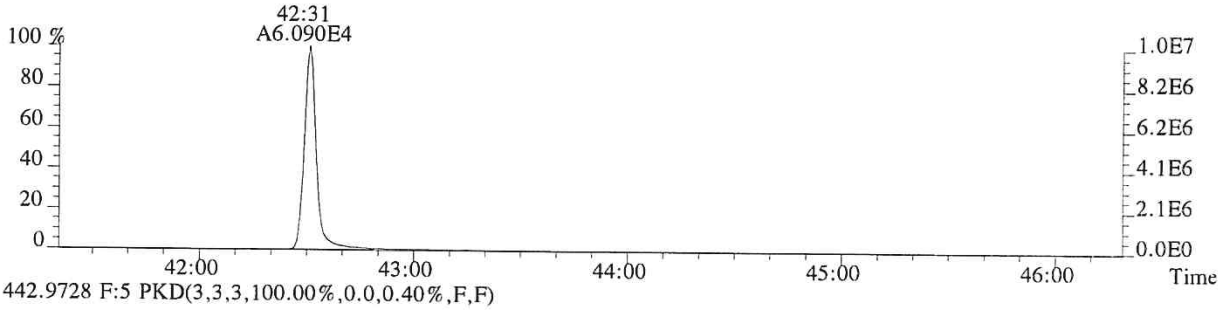
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1220.0,0.40%,F,T)



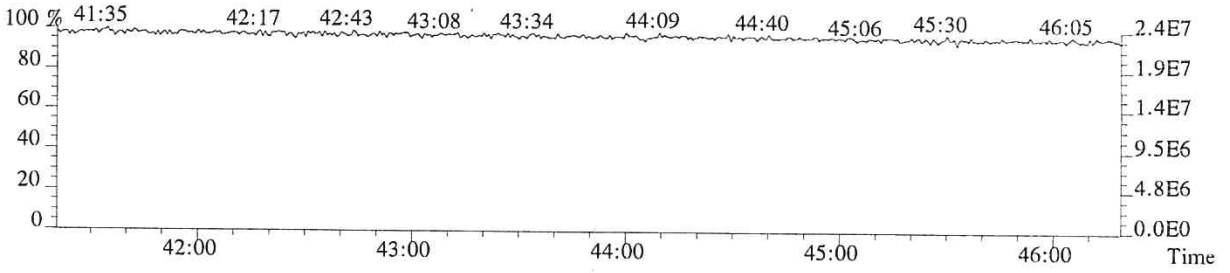
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,260.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,400.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



016026

December 27, 2018 Service Request No:E1801096

Craig Hutchings
Integral Consulting, Inc.
1205 West Bay Drive NW
Olympia, WA 98502-4670

Laboratory Results for: C1887-0501

Dear Craig,

Enclosed are the results of the sample(s) submitted to our laboratory December 07, 2018
For your reference, these analyses have been assigned our service request number **E1801096.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current TNI standards, where applicable, and except as noted in the laboratory case narrative provided. All results are intended to be considered in their entirety, and ALS Environmental is not responsible for use of less than the final complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. In accordance to the TNI 2009 Standard, a statement on the estimated uncertainty of measurement of any quantitative analysis will be supplied upon request.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Kristin Brown

ADDRESS 10450 Stancliff Rd., Suite 210, Houston, TX 77099
PHONE +1 281 530 5656 | FAX +1 281 530 5887
ALS Group USA, Corp.
dba ALS Environmental

Certificate of Analysis

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

ALS Environmental

Client:	Integral	**Service Request No.:**	E1801096
Project:	SJWP		
Sample Matrix:	Sediment		

CASE NARRATIVE

All analyses were performed in adherence to the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier IV. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Sample on hold originally reported on a separate ALS service request number; samples were activated and reported under E1801096.

Data Validation Notes and Discussion

Precision and Accuracy:

EQ1800512: Laboratory Control Spike/Duplicate Laboratory Control Spike (LCS/DLCS) samples were analyzed and reported in lieu of a MS/MSD for this extraction batch. The LCS and DLCS recoveries are within control limits.

Y flag – Cleanup Standard

The recovery for the cleanup standard, 37Cl-2,3,7,8-TCDD is below control limits in sample E1801096-020. The sample results are not affected since this labeled standard is provided as a means of demonstrating that both the sample extraction and subsequent cleanup steps performed as expected, and is not used in quantitation of target analytes.

Y flags – Labeled Standards

13C-2,3,7,8-TCDD labeled standard recovered below control limits in sample E1801094-020.

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.

E flags

When OCDD exceed the upper method calibration limit (MCL), we use an 'E' flag on the Sample Analytical Report results page when the detector is not saturated. Samples E1801096-001 and E1801096-006 are reported with an 'E' flag to denote that they had concentration greater than the highest calibration point. The process of dilution is counter to the isotopic dilution technique that the laboratory uses to determine recovery and produces variability in the final value. The laboratory only dilutes when detector saturation occurs.

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.

P flags

Chlorodiphenyl ether interference was present at the retention time of the target analyte 1,2,3,6,7,8-HxCDF in samples E1801096-006, E1801096-004, and E1801096-016 and 1,2,3,4,6,7,8-HpCDF in sample E1801096-002. Reported result should be considered an estimate.

2378-TCDF

Samples analyzed on the DB-5MSUI column were analyzed under conditions where sufficient separation between 2,3,7,8-TCDF and its closest eluter was achieved. Confirmation of this result was not required.

Dilutions

The samples E1801096-002, E1801096-003, and E1801096-005 had elevated levels of target analytes and required a dilution. The undiluted and diluted results were combined into one Total TEQ summary report for each sample. This reports a 'Total' result that includes the most appropriate concentration found for the associated target analyte.

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.

Manual Integrations

For this type of instrumentation and software, manual integration may be required frequently to correct inaccurate integrations performed by the processing software. These manual integrations are indicated in the raw data with a before and after chromatogram and are stamped with the reason for integration.

The TEQ Summary results for each sample have been calculated by ALS/Houston to include:

- WHO-2005 TEFs, The 2005 World Health Organization Reevaluation of Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-Like Compounds (M. Van den Berg et al., Toxicological Sciences 93(2):223-241, 2006)
- 2378-TCDF from the DB-225 column, when confirmation required
- Non-detected compounds are not included in the 'Total'
- The 1:1 and associated dilution have been combined into one TEQ Summary report

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS group USA Corp dba ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written

approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E1801096-001	SL0059	11/5/2018	1450
E1801096-002	SL0060	11/5/2018	1455
E1801096-003	SL0061	11/5/2018	1500
E1801096-004	SL0062	11/5/2018	1505
E1801096-005	SL0063	11/5/2018	1510
E1801096-006	SL0206	11/15/2018	1045
E1801096-007	SL0207	11/15/2018	1050
E1801096-008	SL0208	11/15/2018	1055
E1801096-009	SL0209	11/15/2018	1100
E1801096-010	SL0210	11/15/2018	1105
E1801096-011	SL0066	11/6/2018	0900
E1801096-012	SL0067	11/6/2018	0905
E1801096-013	SL0068	11/6/2018	0910
E1801096-014	SL0069	11/6/2018	0915
E1801096-015	SL0070	11/6/2018	0920
E1801096-016	SL0233	11/16/2018	0825
E1801096-017	SL0234	11/16/2018	0830
E1801096-018	SL0235	11/16/2018	0835
E1801096-019	SL0236	11/16/2018	0840
E1801096-020	SL0237	11/16/2018	0845

Service Request Summary

Folder #: **E1801096**
Client Name: Integral Consulting, Incorporated
Project Name: C1887-0501
Project Number:

Report To: Craig Hutchings
Integral Consulting, Inc.
1205 West Bay Drive NW
Olympia, WA 98502-4670
USA
Phone Number: 360-705-3534
Cell Number:
Fax Number:
E-mail: chutchings@integral-corp.com

Project Chemist: Kristin Brown
Originating Lab: HOUSTON
Logged By: ALOPEZ
Date Received: 12/07/18
Internal Due Date: 12/21/2018
QAP: LAB QAP
Qualifier Set: HRMS Qualifier Set
Formset: Lab Standard
Merged?: N, Y
Report to MDL?: N, Y
P.O. Number:
EDD: Integral-UCR

20 4 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved
20 8 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved
Location: SMO, EHRMS-WIC 2B, EHRMS-WIC 3B, EHRMS-WIC 2E
Pressure Gas:

				HOUSTON	
Lab Samp No.	**Client Samp No**	**Matrix**	**Collected**	Dioxins Furans/1613B	Total Solids/ALS SOP
E1801096-001	SL0059	Sediment	11/05/18 1450	**IV**	**IV**
E1801096-002	SL0060	Sediment	11/05/18 1455	**IV**	**IV**
E1801096-003	SL0061	Sediment	11/05/18 1500	**IV**	**IV**
E1801096-004	SL0062	Sediment	11/05/18 1505	**IV**	**IV**
E1801096-005	SL0063	Sediment	11/05/18 1510	**IV**	**IV**
E1801096-006	SL0206	Sediment	11/15/18 1045	**IV**	**IV**
E1801096-007	SL0207	Sediment	11/15/18 1050	**IV**	**IV**
E1801096-008	SL0208	Sediment	11/15/18 1055	**IV**	**IV**
E1801096-009	SL0209	Sediment	11/15/18 1100	**IV**	**IV**
E1801096-010	SL0210	Sediment	11/15/18 1105	**IV**	**IV**
E1801096-011	SL0066	Sediment	11/06/18 0900	**IV**	**IV**
E1801096-012	SL0067	Sediment	11/06/18 0905	**IV**	**IV**
E1801096-013	SL0068	Sediment	11/06/18 0910	**IV**	**IV**
E1801096-014	SL0069	Sediment	11/06/18 0915	**IV**	**IV**
E1801096-015	SL0070	Sediment	11/06/18 0920	**IV**	**IV**
E1801096-016	SL0233	Sediment	11/16/18 0825	**IV**	**IV**

Service Request Summary

Folder #: **E1801096**
Client Name: Integral Consulting, Incorporated
Project Name: C1887-0501
Project Number:

Report To: Craig Hutchings
Integral Consulting, Inc.
1205 West Bay Drive NW
Olympia, WA 98502-4670
USA
Phone Number: 360-705-3534
Cell Number:
Fax Number:
E-mail: chutchings@integral-corp.com

Project Chemist: Kristin Brown
Originating Lab: HOUSTON
Logged By: ALOPEZ
Date Received: 12/07/18
Internal Due Date: 12/21/2018
QAP: LAB QAP
Qualifier Set: HRMS Qualifier Set
Formset: Lab Standard
Merged?: N, Y
Report to MDL?: N, Y
P.O. Number:
EDD: Integral-UCR

20 4 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved
20 8 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved
Location: SMO, EHRMS-WIC 2B, EHRMS-WIC 3B, EHRMS-WIC 2E
Pressure Gas:

				HOUSTON	
Lab Samp No.	**Client Samp No**	**Matrix**	**Collected**	Dioxins Furans/1613B	Total Solids/ALS SOP
E1801096-017	SL0234	Sediment	11/16/18 0830	**IV**	**IV**
E1801096-018	SL0235	Sediment	11/16/18 0835	**IV**	**IV**
E1801096-019	SL0236	Sediment	11/16/18 0840	**IV**	**IV**
E1801096-020	SL0237	Sediment	11/16/18 0845	**IV**	**IV**

Service Request Summary

Folder #:	**E1801096**
Client Name:	Integral Consulting, Incorporated
Project Name:	C1887-0501
Project Number:	

Report To: Craig Hutchings
Integral Consulting, Inc.
1205 West Bay Drive NW
Olympia, WA 98502-4670
USA

Phone Number:	360-705-3534
Cell Number:	
Fax Number:	
E-mail:	chutchings@integral-corp.com

Project Chemist:	Kristin Brown
Originating Lab:	HOUSTON
Logged By:	ALOPEZ
Date Received:	12/07/18
Internal Due Date:	12/21/2018
QAP:	LAB QAP
Qualifier Set:	HRMS Qualifier Set
Formset:	Lab Standard
Merged?:	N, Y
Report to MDL?:	N, Y
P.O. Number:	
EDD:	Integral-UCR

20 4 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved
20 8 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved

Location: SMO, EHRMS-WIC 2B, EHRMS-WIC 3B, EHRMS-WIC 2E

Pressure Gas:

Superset Summary

Service Request: E1801096 **SuperSet Reference:** 18-0000491612 rev 00

Analytical Method: **1613B**

Calibrations: 01/24/18

Data Files:

Raw Data	Begin CCAL	Method Blank	Lab ID
P519591	P519587	P519590	E1801096-002
P519592	P519587	P519590	E1801096-003
P519593	P519587	P519590	E1801096-004
P519503	P519494	P519590	E1801096-009
P519504	P519494	P519590	E1801096-010
P519542	P519532	P519590	E1801096-011
P519505	P519494	P519590	E1801096-011.R01
P519543	P519532	P519590	E1801096-012
P519506	P519494	P519590	E1801096-012.R01
P519608	P519603	P519590	E1801096-013
P519609	P519603	P519590	E1801096-014
P519590	P519587	P519590	EQ1800512-01
P519601	P519587	P519590	EQ1800512-03

Calibrations: 09/25/18

Data Files:

Raw Data	Begin CCAL	Method Blank	Lab ID
P616131	P616127	P519590	E1801096-001
P616132	P616127	P519590	E1801096-002.R01
P616133	P616127	P519590	E1801096-003.R01
P616134	P616127	P519590	E1801096-004.R01
P616135	P616127	P519590	E1801096-005
P616136	P616127	P519590	E1801096-006
P616137	P616127	P519590	E1801096-007
P616138	P616127	P519590	E1801096-008
P616144	P616141	P519590	E1801096-013.R01
P616145	P616141	P519590	E1801096-014.R01
P616146	P616141	P519590	E1801096-015
P616147	P616141	P519590	E1801096-016
P616148	P616141	P519590	E1801096-017
P616149	P616141	P519590	E1801096-018
P616150	P616141	P519590	E1801096-019
P616151	P616141	P519590	E1801096-020
P616139	P616127	P519590	EQ1800512-02

Data Qualifiers

HRMS Qualifier Set

B	Indicates the associated analyte was found in the method blank at >1/10th the reported value.
E	Estimated value. The reported concentration is above the calibration range of the instrument.
H	Sample extracted and/or analyzed out of suggested holding time.
J	Estimated value. The reported concentration is below the MRL.
K	The ion abundance ratio between the primary and secondary ions were outside of theoretical acceptance limits.The concentration of this analyte should be considered as an estimate.
P	Chlorodiphenyl ether interference was present at the retention time of the target analyte. Reported result should be considered an estimate.
Q	Monitored lock-mass indicates matrix-interference. Reported result is estimated.
S	Signal saturated detector. Result reported from dilution.
U	Compound was analyzed for, but was not detected (ND).
X	See Case Narrative.
Y	Isotopically Labeled Standard recovery outside of acceptance limits. In all cases, the signal-to-nois ratios are greater than 10:1, making the recoveries acceptable.
i	The MDL/MRL have been elevated due to a matrix interference.

Acronyms

Cal	Calibration
Conc	CONCentration
Dioxin(s)	Polychlorinated dibenzo-p-dioxin(s)
EDL	Estimated Detection Limit
EMPC	Estimated Maximum Possible Concentration
Flags	Data qualifiers
Furan(s)	Polychlorinated dibenzofuran(s)
g	Grams
ICAL	Initial CALibration
ID	IDentifier
Ions	Masses monitored for the analyte during data acquisition
L	Liter (s)
LCS	Laboratory Control Sample
DLCS	Duplicate Laboratory Control Sample
MB	Method Blank
MCL	Method Calibration Limit
MDL	Method Detection Limit
mL	Milliliters
MS	Matrix Spiked sample
DMS	Duplicate Matrix Spiked sample
NO	Number of peaks meeting all identification criteria
PCDD(s)	Polychlorinated dibenzo-p-dioxin(s)
PCDF(s)	Polychlorinated dibenzofuran(s)
ppb	Parts per billion
ppm	Parts per million
ppq	Parts per quadrillion
ppt	Parts per trillion
QA	Quality Assurance
QC	Quality Control
Ratio	Ratio of areas from monitored ions for an analyte
% Rec.	Percent recovery
RPD	Relative Percent Difference
RRF	Relative Response Factor
RT	Retention Time
SDG	Sample Delivery Group
S/N	Signal-to-noise ratio
TEF	Toxicity Equivalence Factor
TEQ	Toxicity Equivalence Quotient

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID: E1801096 (DB-5MSUI) SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date: 12/21/18 Analyst: [signature] Samples: 001-008

Second Level - Data Review – to be filled by person doing peer review

Date: 12/21/18 Analyst: [signature] Samples: 001-008

HS-HRMSREVIEW R1.0

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ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID: E1801096 | DB-5MSUI | SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date:	Analyst:	Samples:
12/20/18	LKL	009-012

Second Level - Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:
12/20/18	KW	009-012

HS-HRMSREVIEW R1.0

PEER REVIEW PAGE2015

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID: E1801096 (DB-5MSUI) SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date:	Analyst:	Samples:
12/24/18	LKL	011DL, 012DL

Second Level - Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:
12/24/18	LG	011DL, 012DL

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PEER REVIEW PAGE2015

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID: E1801096 | DB-5MSUI | SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date:	Analyst:	Samples:
12/24/18	LKL	013 – 020

Second Level - Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:
12/24/18	LG	013 – 020

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PEER REVIEW PAGE2015

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID: E1801096 | DB-5MSUI (circled) | SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date:	Analyst:	Samples:
12/26/18	LKL	002DL_004DL

Second Level - Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:
12/27/18	LG	002DL-004DL

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID: E1801096 | DB-5MSUI | SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date:	Analyst:	Samples:
12/26/18	[signature]	013DL, 014DL

Second Level - Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:	
12/26/18	LG	013D	014DL

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Chain of Custody

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
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SAMPLE ACCEPTANCE POLICY

This policy outlines the criteria samples must meet to be accepted by ALS Environmental – Houston HRMS.

Cooler Custody Seals (desirable, mandatory if specified in SAP):

- ✓ Intact on outside of cooler, signed and dated

Chain-of-Custody (COC) documentation (mandatory):

The following is required on each COC:

- ✓ Sample ID, the location, date and time of collection, collector's name, preservation type, sample type, and any other special remarks concerning the sampleThe COC must be completed in ink.
- ✓ Signature and date of relinquishing party.

In the absence of a COC at sample receipt, the COC will be requested from the client.

Sample Integrity (mandatory):

Samples are inspected upon arrival to ensure that sample integrity was not compromised during transfer to the laboratory.

- ✓ Sample containers must arrive in good condition (not broken or leaking).
- ✓ Samples must be labeled appropriately, including Sample IDs, and requested test using durable labels and indelible ink.
- ✓ The correct type of sample bottle must be used for the method requested.
- ✓ An appropriate sample volume, or weight, must be received.
- ✓ Sample IDs and number of containers must reconcile with the COC.
- ✓ Samples must be received within the method defined holding time.

Temperature Requirement (varies by sample matrix):

- ✓ Aqueous and Non-aqueous samples must be shipped and stored cold, at 0 to 6ºC.
- ✓ Tissue samples must be shipped and stored frozen, at -20 to -10ºC.
- ✓ Air samples are shipped and stored cold, at 0 to 6ºC
- ✓ The sample temperature must be recorded on the COC

All cooler inspections are documented on the Cooler Receipt Form (CRF). A separate CRF is completed for each service request. Any samples not meeting the above criteria are noted on the CRF and the Project Manager notified. The Project Manager must resolve any sample integrity issues with the client prior to proceeding with the analysis. Such resolutions are documented in writing and filed with the project folder. Data associated with samples received outside of this acceptance policy will be qualified on the case narrative of the final report

Preparation Information Benchsheets

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Preparation Information Benchsheet

Prep Run#: 328211 **Prep WorkFlow:** OrgExtS(365) **Status:** Prepped
Team: Semivoa GCMS/ALOPEZ **Prep Method:** Method Soxhlet **Prep Date/Time:** 12/13/18 10:30 AM

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E1801096-001	SL0059	.01	1613B/Dioxins Furans			Sediment	10.007g	Brown Mud
2	E1801096-002	SL0060	.01	1613B/Dioxins Furans			Sediment	10.784g	Brown Mud
3	E1801096-003	SL0061	.01	1613B/Dioxins Furans			Sediment	10.640g	Brown Mud
4	E1801096-004	SL0062	.01	1613B/Dioxins Furans			Sediment	10.241g	Brown + Black Mud
5	E1801096-005	SL0063	.01	1613B/Dioxins Furans			Sediment	10.883g	Brown Mud
6	E1801096-006	SL0206	.01	1613B/Dioxins Furans			Sediment	10.118g	Brown Mud Clumps
7	E1801096-007	SL0207	.01	1613B/Dioxins Furans			Sediment	10.287g	Brown Mud
8	E1801096-008	SL0208	.01	1613B/Dioxins Furans			Sediment	10.707g	Brown Mud
9	E1801096-009	SL0209	.01	1613B/Dioxins Furans			Sediment	10.064g	Brown Mud
10	E1801096-010	SL0210	.01	1613B/Dioxins Furans			Sediment	10.149g	Brown Mud
11	E1801096-011	SL0066	.01	1613B/Dioxins Furans			Sediment	10.084g	Brown Dirt + Mud
12	E1801096-012	SL0067	.01	1613B/Dioxins Furans			Sediment	10.141g	Brown Mud
13	E1801096-013	SL0068	.01	1613B/Dioxins Furans			Sediment	10.742g	Brown Mud
14	E1801096-014	SL0069	.01	1613B/Dioxins Furans			Sediment	10.618g	Brown Mud
15	E1801096-015	SL0070	.01	1613B/Dioxins Furans			Sediment	10.656g	Brown Mud
16	E1801096-016	SL0233	.01	1613B/Dioxins Furans			Sediment	10.000g	Brown Mud
17	E1801096-017	SL0234	.01	1613B/Dioxins Furans			Sediment	10.074g	Brown Mud
18	E1801096-018	SL0235	.01	1613B/Dioxins Furans			Sediment	10.645g	Brown Mud
19	E1801096-019	SL0236	.01	1613B/Dioxins Furans			Sediment	10.295g	Brown Mud
20	E1801096-020	SL0237	.01	1613B/Dioxins Furans			Sediment	10.167g	Brown Mud
21	EQ1800512-01	MB		1613B/Dioxins Furans			Solid	10.302g	
22	EQ1800512-02	LCS		1613B/Dioxins Furans			Solid	10.462g	
23	EQ1800512-03	DLCS		1613B/Dioxins Furans			Solid	10.133g	

Spiking Solutions

Name: 1613B Matrix Working Standard Inventory ID 195564 Logbook Ref: 195564 AL 12/11/18 2-20 ng/mL Expires On: 06/09/2019

EQ1800512-02 100.00µL EQ1800512-03 100.00µL

Name: 1613B Labeled Working Standard Inventory ID 195603 Logbook Ref: 195603 AL 12/13/18 2-4 ng/mL Expires On: 01/31/2019

E1801096-001	1,000.00µL	E1801096-002	1,000.00µL	E1801096-002.R	1,000.00µL	E1801096-003	1,000.00µL	E1801096-003.R	1,000.00µL	E1801096-004	1,000.00µL
E1801096-004.R	1,000.00µL	E1801096-005	1,000.00µL	E1801096-006	1,000.00µL	E1801096-007	1,000.00µL	E1801096-008	1,000.00µL	E1801096-009	1,000.00µL
E1801096-010	1,000.00µL	E1801096-011	1,000.00µL	E1801096-011.R	1,000.00µL	E1801096-012	1,000.00µL	E1801096-012.R	1,000.00µL	E1801096-013	1,000.00µL
E1801096-014	1,000.00µL	E1801096-015	1,000.00µL	E1801096-016	1,000.00µL	E1801096-017	1,000.00µL	E1801096-018	1,000.00µL	E1801096-019	1,000.00µL
E1801096-020	1,000.00µL	EQ1800512-01	1,000.00µL	EQ1800512-02	1,000.00µL	EQ1800512-03	1,000.00µL				

Preparation Information Benchsheet

Prep Run#: 328211 **Prep WorkFlow:** OrgExtS(365) **Status:** Prepped
Team: Semivoa GCMS/ALOPEZ **Prep Method:** Method Soxhlet **Prep Date/Time:** 12/13/18 10:30 AM

Name:	8290/1613B Cleanup Working Standard	Inventory ID	195630	Logbook Ref:	195630 tw012/14/18 8ng/ml	Expires On:	04/27/2019

E1801096-001	100.00µL	E1801096-002	100.00µL	E1801096-002.R	100.00µL	E1801096-003	100.00µL	E1801096-003.R	100.00µL	E1801096-004	100.00µL
E1801096-004.R	100.00µL	E1801096-005	100.00µL	E1801096-006	100.00µL	E1801096-007	100.00µL	E1801096-008	100.00µL	E1801096-009	100.00µL
E1801096-010	100.00µL	E1801096-011	100.00µL	E1801096-011.R	100.00µL	E1801096-012	100.00µL	E1801096-012.R	100.00µL	E1801096-013	100.00µL
E1801096-014	100.00µL	E1801096-015	100.00µL	E1801096-016	100.00µL	E1801096-017	100.00µL	E1801096-018	100.00µL	E1801096-019	100.00µL
E1801096-020	100.00µL	EQ1800512-01	100.00µL	EQ1800512-02	100.00µL	EQ1800512-03	100.00µL				

Preparation Materials

Carbon, High Purity	12/7/18 carbon tw (195519)	Ethyl Acetate 99.9% Minimum EtOAc	tw ethyl acet 080218 (192158)	Glass Wool	112018 tw glasswool (195079)
Hexanes 95%	AL 11/16/18 (195004)	Dichloromethane (Methylene Chloride) 99.9% MeCl2	AL (195005)	Sodium Hydroxide 1N NaOH	TW 6/14/18 (191093)
Toluene 99.9% Minimum	AL 11/16/18 (195003)	sulfuric acid	AL 10/11/18 (194007)	Sodium Sulfate Anhydrous Reagent Grade Na2SO4	AL 10/12/18 (194060)
Tridecane (n-Tridecane)	AL 12/12/18 (195585)	Silica Gel	AL 10/11/18 (194005)		

Preparation Steps

Step:	Extraction	Step:	Acid Clean	Step:	Silica Gel Clean	Step:	Final Volume
Started:	12/13/18 10:30	Started:	12/18/18 09:00	Started:	12/18/18 11:00	Started:	12/19/18 09:00
Finished:	12/14/18 07:30	Finished:	12/18/18 10:00	Finished:	12/18/18 14:00	Finished:	12/19/18 12:00
By:	ALOPEZ	By:	ALOPEZ	By:	ALOPEZ	By:	ALOPEZ
Comments		Comments		Comments		Comments	

Comments: _____

Reviewed By: _____ Date: _____

Chain of Custody

Relinquished By: _____ Date: _____ Extracts Examined

Received By: _____ Date: _____ Yes No

Analytical Results

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801096
Project:	C1887-0501	**Date Collected:**	11/05/18 14:50
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:51
Sample Name:	SL0059	**Units:**	ng/Kg
Lab Code:	E1801096-001	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/19/18 20:23
Prep Method:	Method Soxhlet	**Date Extracted:**	12/13/18
Sample Amount:	10.007g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616131	**Blank File Name:**	P519590
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616127

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	33.4		0.146	0.625	0.80	1.001	1
1,2,3,7,8-PeCDD	0.965	**JK**	0.0601	3.13	0.92	1.001	1
1,2,3,4,7,8-HxCDD	0.901	**J**	0.0483	3.13	1.21	1.000	1
1,2,3,6,7,8-HxCDD	1.87	**J**	0.0555	3.13	1.28	1.000	1
1,2,3,7,8,9-HxCDD	1.71	**J**	0.0481	3.13	1.12	1.007	1
1,2,3,4,6,7,8-HpCDD	64.1		1.48	3.13	1.07	1.000	1
OCDD	9120	**E**	0.101	6.25	0.90	1.000	1
2,3,7,8-TCDF	69.6		0.0402	0.625	0.76	1.001	1
1,2,3,7,8-PeCDF	3.52		0.0856	3.13	1.59	1.001	1
2,3,4,7,8-PeCDF	3.14		0.0941	3.13	1.50	1.001	1
1,2,3,4,7,8-HxCDF	6.39		0.0458	3.13	1.28	1.000	1
1,2,3,6,7,8-HxCDF	1.85	**J**	0.0448	3.13	1.39	1.000	1
1,2,3,7,8,9-HxCDF	0.693	**J**	0.0503	3.13	1.42	1.001	1
2,3,4,6,7,8-HxCDF	0.729	**JK**	0.0477	3.13	1.51	1.000	1
1,2,3,4,6,7,8-HpCDF	7.29		0.0566	3.13	0.99	1.000	1
1,2,3,4,7,8,9-HpCDF	0.922	**JK**	0.0680	3.13	1.23	1.000	1
OCDF	20.8		0.0404	6.25	0.92	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801096
Project:	C1887-0501	**Date Collected:**	11/05/18 14:50
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:51
Sample Name:	SL0059	**Units:**	ng/Kg
Lab Code:	E1801096-001	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/19/18 20:23
Prep Method:	Method Soxhlet	**Date Extracted:**	12/13/18
Sample Amount:	10.007g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616131	**Blank File Name:**	P519590
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616127

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	36.8		0.146	0.625	0.80		1
Total Penta-Dioxins	0.760	**J**	0.0601	3.13	1.40		1
Total Hexa-Dioxins	24.1		0.0505	3.13	1.18		1
Total Hepta-Dioxins	174		1.48	3.13	1.07		1
Total Tetra-Furans	129		0.0402	0.625	0.82		1
Total Penta-Furans	12.4		0.0783	3.13	1.64		1
Total Hexa-Furans	14.4		0.0471	3.13	1.18		1
Total Hepta-Furans	16.1		0.0620	3.13	0.99		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801096
Project:	C1887-0501	**Date Collected:**	11/05/18 14:50
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:51
Sample Name:	SL0059	**Units:**	Percent
Lab Code:	E1801096-001	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/19/18 20:23
Prep Method:	Method Soxhlet	**Date Extracted:**	12/13/18
Sample Amount:	10.007g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616131	**Blank File Name:**	P519590
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616127

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	924.785	46		25-164	0.79	1.026
13C-1,2,3,7,8-PeCDD	2000	1299.997	65		25-181	1.57	1.219
13C-1,2,3,4,7,8-HxCDD	2000	1459.832	73		32-141	1.31	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1330.076	67		28-130	1.22	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1676.671	84		23-140	1.06	1.068
13C-OCDD	4000	2336.239	58		17-157	0.90	1.138
13C-2,3,7,8-TCDF	2000	1247.215	62		24-169	0.79	0.991
13C-1,2,3,7,8-PeCDF	2000	1282.249	64		24-185	1.59	1.170
13C-2,3,4,7,8-PeCDF	2000	1191.917	60		21-178	1.59	1.208
13C-1,2,3,4,7,8-HxCDF	2000	1285.612	64		26-152	0.52	0.969
13C-1,2,3,6,7,8-HxCDF	2000	1282.144	64		26-123	0.53	0.972
13C-1,2,3,7,8,9-HxCDF	2000	1270.772	64		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1214.610	61		28-136	0.53	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1157.221	58		28-143	0.45	1.043
13C-1,2,3,4,7,8,9-HpCDF	2000	1204.270	60		26-138	0.45	1.080
37Cl-2,3,7,8-TCDD	800	510.803	64		35-197	NA	1.028

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801096
Project:	C1887-0501	**Date Collected:**	11/05/18 14:50
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:51
Sample Name:	SL0059	**Units:**	ng/Kg
Lab Code:	E1801096-001	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**33.4**	0.146	0.625	1	1	33.4
1,2,3,7,8-PeCDD	**0.965**	0.0601	3.13	1	1	0.965
1,2,3,4,7,8-HxCDD	**0.901**	0.0483	3.13	1	0.1	0.0901
1,2,3,6,7,8-HxCDD	**1.87**	0.0555	3.13	1	0.1	0.187
1,2,3,7,8,9-HxCDD	**1.71**	0.0481	3.13	1	0.1	0.171
1,2,3,4,6,7,8-HpCDD	**64.1**	1.48	3.13	1	0.01	0.641
OCDD	**9120**	0.101	6.25	1	0.0003	2.74
2,3,7,8-TCDF	**69.6**	0.0402	0.625	1	0.1	6.96
1,2,3,7,8-PeCDF	**3.52**	0.0856	3.13	1	0.03	0.106
2,3,4,7,8-PeCDF	**3.14**	0.0941	3.13	1	0.3	0.942
1,2,3,4,7,8-HxCDF	**6.39**	0.0458	3.13	1	0.1	0.639
1,2,3,6,7,8-HxCDF	**1.85**	0.0448	3.13	1	0.1	0.185
1,2,3,7,8,9-HxCDF	**0.693**	0.0503	3.13	1	0.1	0.0693
2,3,4,6,7,8-HxCDF	**0.729**	0.0477	3.13	1	0.1	0.0729
1,2,3,4,6,7,8-HpCDF	**7.29**	0.0566	3.13	1	0.01	0.0729
1,2,3,4,7,8,9-HpCDF	**0.922**	0.0680	3.13	1	0.01	0.00922
OCDF	**20.8**	0.0404	6.25	1	0.0003	0.00624
		Total TEQ				47.3

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801096
Project:	C1887-0501	**Date Collected:**	11/05/18 14:50
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:51
Sample Name:	SL0059	**Units:**	Percent
Lab Code:	E1801096-001	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/14/18 15:22
	6.794g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	79.9		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801096
Project:	C1887-0501	**Date Collected:**	11/05/18 14:55
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:51
Sample Name:	SL0060	**Units:**	ng/Kg
Lab Code:	E1801096-002	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/24/18 12:13
Prep Method:	Method Soxhlet	**Date Extracted:**	12/13/18
Sample Amount:	10.784g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519591	**Blank File Name:**	P519590
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519587

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	3290		67.8	67.8	0.70	1.001	20
1,2,3,7,8-PeCDD	11.7		0.0683	2.76	1.63	1.001	1
1,2,3,4,7,8-HxCDD	0.771	**JK**	0.0757	2.76	1.53	1.000	1
1,2,3,6,7,8-HxCDD	3.48		0.0855	2.76	1.22	1.000	1
1,2,3,7,8,9-HxCDD	2.56	**J**	0.0747	2.76	1.30	1.007	1
1,2,3,4,6,7,8-HpCDD	102		1.58	2.76	1.02	1.000	1
OCDD	12600		30.9	110	0.88	1.000	20
2,3,7,8-TCDF	5130		20.1	20.1	0.75	1.001	20
1,2,3,7,8-PeCDF	107		0.135	2.76	1.54	1.001	1
2,3,4,7,8-PeCDF	92.3		0.144	2.76	1.56	1.001	1
1,2,3,4,7,8-HxCDF	171		0.132	2.76	1.25	1.000	1
1,2,3,6,7,8-HxCDF	42.1		0.129	2.76	1.26	1.000	1
1,2,3,7,8,9-HxCDF	13.5		0.140	2.76	1.30	1.001	1
2,3,4,6,7,8-HxCDF	9.32		0.141	2.76	1.25	1.001	1
1,2,3,4,6,7,8-HpCDF	56.0	**P**	0.0692	2.76	1.05	1.000	1
1,2,3,4,7,8,9-HpCDF	18.3		0.0834	2.76	1.02	1.000	1
OCDF	48.6		0.110	5.52	0.88	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801096
Project:	C1887-0501	**Date Collected:**	11/05/18 14:55
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:51
Sample Name:	SL0060	**Units:**	ng/Kg
Lab Code:	E1801096-002	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/24/18 12:13
Prep Method:	Method Soxhlet	**Date Extracted:**	12/13/18
Sample Amount:	10.784g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519591	**Blank File Name:**	P519590
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519587

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	1800		0.150	0.552	0.83		1
Total Penta-Dioxins	21.1		0.0683	2.76	1.36		1
Total Hexa-Dioxins	44.3		0.0783	2.76	1.25		1
Total Hepta-Dioxins	234		1.58	2.76	1.05		1
Total Tetra-Furans	5560		0.0681	0.552	0.81		1
Total Penta-Furans	309		0.0692	2.76	1.61		1
Total Hexa-Furans	262		0.136	2.76	1.14		1
Total Hepta-Furans	102		0.0758	2.76	1.05		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801096
Project:	C1887-0501	**Date Collected:**	11/05/18 14:55
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:51
Sample Name:	SL0060	**Units:**	Percent
Lab Code:	E1801096-002	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/19/18 21:12
Prep Method:	Method Soxhlet	**Date Extracted:**	12/13/18
Sample Amount:	10.784g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616132	**Blank File Name:**	P519590
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616127

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	883.965	44		25-164	0.78	1.026
13C-1,2,3,7,8-PeCDD	2000	1383.242	69		25-181	1.57	1.218
13C-1,2,3,4,7,8-HxCDD	2000	1475.418	74		32-141	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1295.896	65		28-130	1.25	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1624.811	81		23-140	1.07	1.068
13C-OCDD	4000	2214.365	55		17-157	0.90	1.138
13C-2,3,7,8-TCDF	2000	1259.712	63		24-169	0.79	0.991
13C-1,2,3,7,8-PeCDF	2000	1366.187	68		24-185	1.59	1.170
13C-2,3,4,7,8-PeCDF	2000	1308.580	65		21-178	1.60	1.207
13C-1,2,3,4,7,8-HxCDF	2000	1296.980	65		26-152	0.53	0.970
13C-1,2,3,6,7,8-HxCDF	2000	1244.276	62		26-123	0.54	0.973
13C-1,2,3,7,8,9-HxCDF	2000	1274.945	64		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1204.051	60		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1127.021	56		28-143	0.45	1.044
13C-1,2,3,4,7,8,9-HpCDF	2000	1167.399	58		26-138	0.45	1.081
37Cl-2,3,7,8-TCDD	800	526.187	66		35-197	NA	1.027

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801096
Project:	C1887-0501	**Date Collected:**	11/05/18 14:55
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:51
Sample Name:	SL0060	**Units:**	ng/Kg
Lab Code:	E1801096-002	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**3290**	67.8	67.8	20	1	3290
1,2,3,7,8-PeCDD	**11.7**	0.0683	2.76	1	1	11.7
1,2,3,4,7,8-HxCDD	**0.771**	0.0757	2.76	1	0.1	0.0771
1,2,3,6,7,8-HxCDD	**3.48**	0.0855	2.76	1	0.1	0.348
1,2,3,7,8,9-HxCDD	**2.56**	0.0747	2.76	1	0.1	0.256
1,2,3,4,6,7,8-HpCDD	**102**	1.58	2.76	1	0.01	1.02
OCDD	**12600**	30.9	110	20	0.0003	3.78
2,3,7,8-TCDF	**5130**	20.1	20.1	20	0.1	513
1,2,3,7,8-PeCDF	**107**	0.135	2.76	1	0.03	3.21
2,3,4,7,8-PeCDF	**92.3**	0.144	2.76	1	0.3	27.7
1,2,3,4,7,8-HxCDF	**171**	0.132	2.76	1	0.1	17.1
1,2,3,6,7,8-HxCDF	**42.1**	0.129	2.76	1	0.1	4.21
1,2,3,7,8,9-HxCDF	**13.5**	0.140	2.76	1	0.1	1.35
2,3,4,6,7,8-HxCDF	**9.32**	0.141	2.76	1	0.1	0.932
1,2,3,4,6,7,8-HpCDF	**56.0**	0.0692	2.76	1	0.01	0.560
1,2,3,4,7,8,9-HpCDF	**18.3**	0.0834	2.76	1	0.01	0.183
OCDF	**48.6**	0.110	5.52	1	0.0003	0.0146
		Total TEQ				3880

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801096
Project:	C1887-0501	**Date Collected:**	11/05/18 14:55
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:51
Sample Name:	SL0060	**Units:**	Percent
Lab Code:	E1801096-002	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/14/18 15:22
	5.774g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	84.0		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801096
Project:	C1887-0501	**Date Collected:**	11/05/18 15:00
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:51
Sample Name:	SL0061	**Units:**	ng/Kg
Lab Code:	E1801096-003	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/24/18 13:01
Prep Method:	Method Soxhlet	**Date Extracted:**	12/13/18
Sample Amount:	10.640g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519592	**Blank File Name:**	P519590
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519587

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	75800		560	560	0.85	1.001	200
1,2,3,7,8-PeCDD	270		0.482	3.46	1.56	1.001	1
1,2,3,4,7,8-HxCDD	4.79		0.304	3.46	1.14	1.000	1
1,2,3,6,7,8-HxCDD	46.6		0.346	3.46	1.24	1.000	1
1,2,3,7,8,9-HxCDD	11.7		0.302	3.46	1.26	1.007	1
1,2,3,4,6,7,8-HpCDD	1390		1.56	3.46	1.04	1.000	1
OCDD	47600		407	1380	0.88	1.001	200
2,3,7,8-TCDF	110000		131	138	0.74	1.001	200
1,2,3,7,8-PeCDF	2680		3.08	3.46	1.55	1.001	1
2,3,4,7,8-PeCDF	1140		7.55	7.55	1.48	1.001	1
1,2,3,4,7,8-HxCDF	6500		98.8	692	1.25	1.000	200
1,2,3,6,7,8-HxCDF	949		0.958	3.46	1.23	1.000	1
1,2,3,7,8,9-HxCDF	328		0.926	3.46	1.23	1.001	1
2,3,4,6,7,8-HxCDF	211		0.968	3.46	1.27	1.000	1
1,2,3,4,6,7,8-HpCDF	1260		0.399	3.46	1.03	1.000	1
1,2,3,4,7,8,9-HpCDF	426		0.446	3.46	1.01	1.000	1
OCDF	820		0.135	6.92	0.88	1.004	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801096
Project:	C1887-0501	**Date Collected:**	11/05/18 15:00
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:51
Sample Name:	SL0061	**Units:**	ng/Kg
Lab Code:	E1801096-003	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/24/18 13:01
Prep Method:	Method Soxhlet	**Date Extracted:**	12/13/18
Sample Amount:	10.640g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519592	**Blank File Name:**	P519590
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519587

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	42300		2.36	2.36	0.81		1
Total Penta-Dioxins	349		0.482	3.46	1.61		1
Total Hexa-Dioxins	281		0.316	3.46	1.26		1
Total Hepta-Dioxins	2610		1.56	3.46	1.05		1
Total Tetra-Furans	55000		1.24	1.24	0.76		1
Total Penta-Furans	6640		0.0867	3.46	1.57		1
Total Hexa-Furans	5930		0.949	3.46	1.24		1
Total Hepta-Furans	2310		0.421	3.46	1.03		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801096
Project:	C1887-0501	**Date Collected:**	11/05/18 15:00
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:51
Sample Name:	SL0061	**Units:**	Percent
Lab Code:	E1801096-003	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/19/18 22:01
Prep Method:	Method Soxhlet	**Date Extracted:**	12/13/18
Sample Amount:	10.640g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616133	**Blank File Name:**	P519590
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616127

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	1031.682	52		25-164	0.80	1.022
13C-1,2,3,7,8-PeCDD	2000	1628.497	81		25-181	1.60	1.205
13C-1,2,3,4,7,8-HxCDD	2000	1488.159	74		32-141	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1372.723	69		28-130	1.28	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1719.205	86		23-140	1.04	1.067
13C-OCDD	4000	2079.277	52		17-157	0.90	1.136
13C-2,3,7,8-TCDF	2000	1563.118	78		24-169	0.83	0.989
13C-1,2,3,7,8-PeCDF	2000	1620.364	81		24-185	1.59	1.160
13C-2,3,4,7,8-PeCDF	2000	434.222	22		21-178	1.52	1.195
13C-1,2,3,4,7,8-HxCDF	2000	1364.543	68		26-152	0.54	0.970
13C-1,2,3,6,7,8-HxCDF	2000	1263.088	63		26-123	0.53	0.973
13C-1,2,3,7,8,9-HxCDF	2000	1386.155	69		29-147	0.53	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1303.594	65		28-136	0.54	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1197.530	60		28-143	0.45	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	1265.147	63		26-138	0.46	1.079
37Cl-2,3,7,8-TCDD	800	1259.514	157		35-197	NA	1.022

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801096
Project:	C1887-0501	**Date Collected:**	11/05/18 15:00
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:51
Sample Name:	SL0061	**Units:**	ng/Kg
Lab Code:	E1801096-003	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**75800**	560	560	200	1	75800
1,2,3,7,8-PeCDD	**270**	0.482	3.46	1	1	270
1,2,3,4,7,8-HxCDD	**4.79**	0.304	3.46	1	0.1	0.479
1,2,3,6,7,8-HxCDD	**46.6**	0.346	3.46	1	0.1	4.66
1,2,3,7,8,9-HxCDD	**11.7**	0.302	3.46	1	0.1	1.17
1,2,3,4,6,7,8-HpCDD	**1390**	1.56	3.46	1	0.01	13.9
OCDD	**47600**	407	1380	200	0.0003	14.3
2,3,7,8-TCDF	**110000**	131	138	200	0.1	11000
1,2,3,7,8-PeCDF	**2680**	3.08	3.46	1	0.03	80.4
2,3,4,7,8-PeCDF	**1140**	7.55	7.55	1	0.3	342
1,2,3,4,7,8-HxCDF	**6500**	98.8	692	200	0.1	650
1,2,3,6,7,8-HxCDF	**949**	0.958	3.46	1	0.1	94.9
1,2,3,7,8,9-HxCDF	**328**	0.926	3.46	1	0.1	32.8
2,3,4,6,7,8-HxCDF	**211**	0.968	3.46	1	0.1	21.1
1,2,3,4,6,7,8-HpCDF	**1260**	0.399	3.46	1	0.01	12.6
1,2,3,4,7,8,9-HpCDF	**426**	0.446	3.46	1	0.01	4.26
OCDF	**820**	0.135	6.92	1	0.0003	0.246
		Total TEQ				88300

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801096
Project:	C1887-0501	**Date Collected:**	11/05/18 15:00
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:51
Sample Name:	SL0061	**Units:**	Percent
Lab Code:	E1801096-003	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/14/18 15:22
	7.902g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	67.9		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801096
Project:	C1887-0501	**Date Collected:**	11/05/18 15:05
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:51
Sample Name:	SL0062	**Units:**	ng/Kg
Lab Code:	E1801096-004	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/19/18 22:50
Prep Method:	Method Soxhlet	**Date Extracted:**	12/13/18
Sample Amount:	10.241g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616134	**Blank File Name:**	P519590
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616127

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	520		0.220	0.694	0.79	1.001	1
1,2,3,7,8-PeCDD	6.80		0.510	3.47	1.35	1.001	1
1,2,3,4,7,8-HxCDD	3.78		0.171	3.47	1.31	1.000	1
1,2,3,6,7,8-HxCDD	16.3		0.195	3.47	1.30	1.000	1
1,2,3,7,8,9-HxCDD	8.41		0.169	3.47	1.28	1.007	1
1,2,3,4,6,7,8-HpCDD	329		0.930	3.47	1.05	1.000	1
OCDD	10700		27.2	69.4	0.88	1.000	10
2,3,7,8-TCDF	1520		10.6	10.6	0.72	1.001	10
1,2,3,7,8-PeCDF	28.8		0.654	3.47	1.53	1.001	1
2,3,4,7,8-PeCDF	33.0		0.725	3.47	1.54	1.001	1
1,2,3,4,7,8-HxCDF	46.5		0.384	3.47	1.21	1.001	1
1,2,3,6,7,8-HxCDF	13.7	**P**	0.398	3.47	1.30	1.000	1
1,2,3,7,8,9-HxCDF	5.81		0.402	3.47	1.19	1.001	1
2,3,4,6,7,8-HxCDF	7.93		0.399	3.47	1.22	1.000	1
1,2,3,4,6,7,8-HpCDF	146		0.675	3.47	1.01	1.000	1
1,2,3,4,7,8,9-HpCDF	15.8		0.739	3.47	1.04	1.000	1
OCDF	5190		0.186	6.94	0.89	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801096
Project:	C1887-0501	**Date Collected:**	11/05/18 15:05
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:51
Sample Name:	SL0062	**Units:**	ng/Kg
Lab Code:	E1801096-004	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/19/18 22:50
Prep Method:	Method Soxhlet	**Date Extracted:**	12/13/18
Sample Amount:	10.241g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616134	**Blank File Name:**	P519590
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616127

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	587		0.220	0.694	0.78		1
Total Penta-Dioxins	27.9		0.510	3.47	1.49		1
Total Hexa-Dioxins	170		0.177	3.47	1.24		1
Total Hepta-Dioxins	755		0.930	3.47	1.03		1
Total Tetra-Furans	1950		0.148	0.694	0.77		1
Total Penta-Furans	164		0.0869	3.47	1.34		1
Total Hexa-Furans	171		0.396	3.47	1.20		1
Total Hepta-Furans	320		0.705	3.47	1.01		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801096
Project:	C1887-0501	**Date Collected:**	11/05/18 15:05
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:51
Sample Name:	SL0062	**Units:**	Percent
Lab Code:	E1801096-004	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/19/18 22:50
Prep Method:	Method Soxhlet	**Date Extracted:**	12/13/18
Sample Amount:	10.241g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616134	**Blank File Name:**	P519590
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616127

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	894.783	45		25-164	0.78	1.026
13C-1,2,3,7,8-PeCDD	2000	1228.640	61		25-181	1.53	1.218
13C-1,2,3,4,7,8-HxCDD	2000	1296.550	65		32-141	1.27	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1133.101	57		28-130	1.26	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1422.832	71		23-140	1.05	1.068
13C-OCDD	4000	1690.502	42		17-157	0.91	1.138
13C-2,3,7,8-TCDF	2000	1220.772	61		24-169	0.79	0.991
13C-1,2,3,7,8-PeCDF	2000	1225.441	61		24-185	1.59	1.170
13C-2,3,4,7,8-PeCDF	2000	1135.145	57		21-178	1.59	1.207
13C-1,2,3,4,7,8-HxCDF	2000	1153.944	58		26-152	0.53	0.969
13C-1,2,3,6,7,8-HxCDF	2000	1072.468	54		26-123	0.53	0.973
13C-1,2,3,7,8,9-HxCDF	2000	1161.393	58		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1084.001	54		28-136	0.53	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	975.607	49		28-143	0.45	1.044
13C-1,2,3,4,7,8,9-HpCDF	2000	1065.699	53		26-138	0.46	1.080
37Cl-2,3,7,8-TCDD	800	500.590	63		35-197	NA	1.027

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801096
Project:	C1887-0501	**Date Collected:**	11/05/18 15:05
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:51
Sample Name:	SL0062	**Units:**	ng/Kg
Lab Code:	E1801096-004	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**520**	0.220	0.694	1	1	520
1,2,3,7,8-PeCDD	**6.80**	0.510	3.47	1	1	6.80
1,2,3,4,7,8-HxCDD	**3.78**	0.171	3.47	1	0.1	0.378
1,2,3,6,7,8-HxCDD	**16.3**	0.195	3.47	1	0.1	1.63
1,2,3,7,8,9-HxCDD	**8.41**	0.169	3.47	1	0.1	0.841
1,2,3,4,6,7,8-HpCDD	**329**	0.930	3.47	1	0.01	3.29
OCDD	**10700**	27.2	69.4	10	0.0003	3.21
2,3,7,8-TCDF	**1520**	10.6	10.6	10	0.1	152
1,2,3,7,8-PeCDF	**28.8**	0.654	3.47	1	0.03	0.864
2,3,4,7,8-PeCDF	**33.0**	0.725	3.47	1	0.3	9.90
1,2,3,4,7,8-HxCDF	**46.5**	0.384	3.47	1	0.1	4.65
1,2,3,6,7,8-HxCDF	**13.7**	0.398	3.47	1	0.1	1.37
1,2,3,7,8,9-HxCDF	**5.81**	0.402	3.47	1	0.1	0.581
2,3,4,6,7,8-HxCDF	**7.93**	0.399	3.47	1	0.1	0.793
1,2,3,4,6,7,8-HpCDF	**146**	0.675	3.47	1	0.01	1.46
1,2,3,4,7,8,9-HpCDF	**15.8**	0.739	3.47	1	0.01	0.158
OCDF	**5190**	0.186	6.94	1	0.0003	1.56
		Total TEQ				709

2005 WHO TEFs, ND = 0

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801096
Project:	C1887-0501	**Date Collected:**	11/05/18 15:05
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:51
Sample Name:	SL0062	**Units:**	Percent
Lab Code:	E1801096-004	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/14/18 15:22
	7.492g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	70.4		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801096
Project:	C1887-0501	**Date Collected:**	11/05/18 15:10
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:51
Sample Name:	SL0063	**Units:**	ng/Kg
Lab Code:	E1801096-005	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/19/18 23:39
Prep Method:	Method Soxhlet	**Date Extracted:**	12/13/18
Sample Amount:	10.883g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616135	**Blank File Name:**	P519590
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616127

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	28.0		0.0796	0.597	0.76	1.001	1
1,2,3,7,8-PeCDD	0.625	**JK**	0.0925	2.99	1.31	1.001	1
1,2,3,4,7,8-HxCDD	0.402	**JK**	0.0876	2.99	1.68	1.000	1
1,2,3,6,7,8-HxCDD	0.906	**JK**	0.101	2.99	1.52	1.000	1
1,2,3,7,8,9-HxCDD	1.59	**J**	0.0870	2.99	1.15	1.007	1
1,2,3,4,6,7,8-HpCDD	18.2		0.144	2.99	1.04	1.000	1
OCDD	560		0.164	5.97	0.89	1.000	1
2,3,7,8-TCDF	53.2		0.0796	0.597	0.75	1.001	1
1,2,3,7,8-PeCDF	2.05	**J**	0.0800	2.99	1.43	1.001	1
2,3,4,7,8-PeCDF	1.80	**J**	0.0869	2.99	1.54	1.001	1
1,2,3,4,7,8-HxCDF	2.69	**J**	0.0412	2.99	1.17	1.000	1
1,2,3,6,7,8-HxCDF	0.775	**J**	0.0416	2.99	1.09	1.000	1
1,2,3,7,8,9-HxCDF	0.340	**J**	0.0437	2.99	1.26	1.001	1
2,3,4,6,7,8-HxCDF	0.201	**JK**	0.0429	2.99	0.93	1.000	1
1,2,3,4,6,7,8-HpCDF	1.48	**JK**	0.0858	2.99	1.34	1.000	1
1,2,3,4,7,8,9-HpCDF	0.400	**J**	0.0952	2.99	1.04	1.000	1
OCDF	19.8		0.107	5.97	0.92	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801096
Project:	C1887-0501	**Date Collected:**	11/05/18 15:10
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:51
Sample Name:	SL0063	**Units:**	ng/Kg
Lab Code:	E1801096-005	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/19/18 23:39
Prep Method:	Method Soxhlet	**Date Extracted:**	12/13/18
Sample Amount:	10.883g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616135	**Blank File Name:**	P519590
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616127

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	46.4		0.0796	0.597	0.75		1
Total Penta-Dioxins	8.77		0.0925	2.99	1.49		1
Total Hexa-Dioxins	48.2		0.0912	2.99	1.24		1
Total Hepta-Dioxins	98.3		0.144	2.99	1.05		1
Total Tetra-Furans	100		0.0796	0.597	0.70		1
Total Penta-Furans	6.66		0.0748	2.99	1.46		1
Total Hexa-Furans	4.22		0.0423	2.99	1.21		1
Total Hepta-Furans	1.64	**J**	0.0903	2.99	1.06		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801096
Project:	C1887-0501	**Date Collected:**	11/05/18 15:10
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:51
Sample Name:	SL0063	**Units:**	Percent
Lab Code:	E1801096-005	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/19/18 23:39
Prep Method:	Method Soxhlet	**Date Extracted:**	12/13/18
Sample Amount:	10.883g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616135	**Blank File Name:**	P519590
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616127

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	946.405	47		25-164	0.80	1.026
13C-1,2,3,7,8-PeCDD	2000	1455.385	73		25-181	1.58	1.218
13C-1,2,3,4,7,8-HxCDD	2000	1498.282	75		32-141	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1324.388	66		28-130	1.28	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1761.371	88		23-140	1.06	1.068
13C-OCDD	4000	2278.518	57		17-157	0.91	1.138
13C-2,3,7,8-TCDF	2000	1252.644	63		24-169	0.80	0.991
13C-1,2,3,7,8-PeCDF	2000	1421.771	71		24-185	1.58	1.170
13C-2,3,4,7,8-PeCDF	2000	1316.672	66		21-178	1.58	1.207
13C-1,2,3,4,7,8-HxCDF	2000	1308.770	65		26-152	0.53	0.969
13C-1,2,3,6,7,8-HxCDF	2000	1224.087	61		26-123	0.54	0.973
13C-1,2,3,7,8,9-HxCDF	2000	1286.000	64		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1234.185	62		28-136	0.54	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1184.586	59		28-143	0.46	1.044
13C-1,2,3,4,7,8,9-HpCDF	2000	1263.119	63		26-138	0.45	1.080
37Cl-2,3,7,8-TCDD	800	521.783	65		35-197	NA	1.027

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801096
Project:	C1887-0501	**Date Collected:**	11/05/18 15:10
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:51
Sample Name:	SL0063	**Units:**	ng/Kg
Lab Code:	E1801096-005	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**28.0**	0.0796	0.597	1	1	28.0
1,2,3,7,8-PeCDD	**0.625**	0.0925	2.99	1	1	0.625
1,2,3,4,7,8-HxCDD	**0.402**	0.0876	2.99	1	0.1	0.0402
1,2,3,6,7,8-HxCDD	**0.906**	0.101	2.99	1	0.1	0.0906
1,2,3,7,8,9-HxCDD	**1.59**	0.0870	2.99	1	0.1	0.159
1,2,3,4,6,7,8-HpCDD	**18.2**	0.144	2.99	1	0.01	0.182
OCDD	**560**	0.164	5.97	1	0.0003	0.168
2,3,7,8-TCDF	**53.2**	0.0796	0.597	1	0.1	5.32
1,2,3,7,8-PeCDF	**2.05**	0.0800	2.99	1	0.03	0.0615
2,3,4,7,8-PeCDF	**1.80**	0.0869	2.99	1	0.3	0.540
1,2,3,4,7,8-HxCDF	**2.69**	0.0412	2.99	1	0.1	0.269
1,2,3,6,7,8-HxCDF	**0.775**	0.0416	2.99	1	0.1	0.0775
1,2,3,7,8,9-HxCDF	**0.340**	0.0437	2.99	1	0.1	0.0340
2,3,4,6,7,8-HxCDF	**0.201**	0.0429	2.99	1	0.1	0.0201
1,2,3,4,6,7,8-HpCDF	**1.48**	0.0858	2.99	1	0.01	0.0148
1,2,3,4,7,8,9-HpCDF	**0.400**	0.0952	2.99	1	0.01	0.00400
OCDF	**19.8**	0.107	5.97	1	0.0003	0.00594
		Total TEQ				35.6

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801096
Project:	C1887-0501	**Date Collected:**	11/05/18 15:10
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:51
Sample Name:	SL0063	**Units:**	Percent
Lab Code:	E1801096-005	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/14/18 15:22
	6.095g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	76.9		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801096
Project:	C1887-0501	**Date Collected:**	11/15/18 10:45
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:51
Sample Name:	SL0206	**Units:**	ng/Kg
Lab Code:	E1801096-006	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/20/18 00:29
Prep Method:	Method Soxhlet	**Date Extracted:**	12/13/18
Sample Amount:	10.118g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616136	**Blank File Name:**	P519590
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616127

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	15.2		0.0985	0.591	0.79	1.001	1
1,2,3,7,8-PeCDD	1.09	**JK**	0.157	2.96	0.97	1.001	1
1,2,3,4,7,8-HxCDD	2.05	**J**	0.199	2.96	1.24	1.000	1
1,2,3,6,7,8-HxCDD	5.72		0.229	2.96	1.23	1.000	1
1,2,3,7,8,9-HxCDD	3.30		0.198	2.96	1.32	1.007	1
1,2,3,4,6,7,8-HpCDD	268		4.27	4.27	1.06	1.000	1
OCDD	16300	**E**	0.213	5.91	0.90	1.000	1
2,3,7,8-TCDF	28.9		0.0639	0.591	0.80	1.001	1
1,2,3,7,8-PeCDF	1.45	**J**	0.105	2.96	1.51	1.001	1
2,3,4,7,8-PeCDF	1.91	**J**	0.113	2.96	1.60	1.001	1
1,2,3,4,7,8-HxCDF	3.06		0.120	2.96	1.17	1.000	1
1,2,3,6,7,8-HxCDF	1.23	**JKP**	0.119	2.96	1.04	1.000	1
1,2,3,7,8,9-HxCDF	0.406	**JK**	0.132	2.96	1.49	1.000	1
2,3,4,6,7,8-HxCDF	1.16	**J**	0.132	2.96	1.09	1.000	1
1,2,3,4,6,7,8-HpCDF	16.4		0.155	2.96	1.08	1.000	1
1,2,3,4,7,8,9-HpCDF	1.33	**J**	0.176	2.96	1.00	1.000	1
OCDF	71.6		0.185	5.91	0.89	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801096
Project:	C1887-0501	**Date Collected:**	11/15/18 10:45
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:51
Sample Name:	SL0206	**Units:**	ng/Kg
Lab Code:	E1801096-006	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/20/18 00:29
Prep Method:	Method Soxhlet	**Date Extracted:**	12/13/18
Sample Amount:	10.118g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616136	**Blank File Name:**	P519590
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616127

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	16.7		0.0985	0.591	0.77		1
Total Penta-Dioxins	1.43**J**		0.157	2.96	1.71		1
Total Hexa-Dioxins	125		0.208	2.96	1.27		1
Total Hepta-Dioxins	1220		4.27	4.27	1.04		1
Total Tetra-Furans	52.3		0.0639	0.591	0.71		1
Total Penta-Furans	9.86		0.0741	2.96	1.50		1
Total Hexa-Furans	18.1		0.125	2.96	1.23		1
Total Hepta-Furans	56.7		0.165	2.96	1.08		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801096
Project:	C1887-0501	**Date Collected:**	11/15/18 10:45
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:51
Sample Name:	SL0206	**Units:**	Percent
Lab Code:	E1801096-006	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/20/18 00:29
Prep Method:	Method Soxhlet	**Date Extracted:**	12/13/18
Sample Amount:	10.118g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616136	**Blank File Name:**	P519590
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616127

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	641.184	32		25-164	0.79	1.026
13C-1,2,3,7,8-PeCDD	2000	1006.373	50		25-181	1.57	1.219
13C-1,2,3,4,7,8-HxCDD	2000	1046.646	52		32-141	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2000	958.662	48		28-130	1.26	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1258.787	63		23-140	1.07	1.069
13C-OCDD	4000	1757.954	44		17-157	0.91	1.138
13C-2,3,7,8-TCDF	2000	839.569	42		24-169	0.80	0.992
13C-1,2,3,7,8-PeCDF	2000	998.224	50		24-185	1.60	1.170
13C-2,3,4,7,8-PeCDF	2000	909.284	45		21-178	1.57	1.208
13C-1,2,3,4,7,8-HxCDF	2000	935.542	47		26-152	0.53	0.970
13C-1,2,3,6,7,8-HxCDF	2000	898.338	45		26-123	0.53	0.973
13C-1,2,3,7,8,9-HxCDF	2000	951.428	48		29-147	0.53	1.009
13C-2,3,4,6,7,8-HxCDF	2000	855.265	43		28-136	0.53	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	868.788	43		28-143	0.45	1.044
13C-1,2,3,4,7,8,9-HpCDF	2000	928.113	46		26-138	0.45	1.081
37Cl-2,3,7,8-TCDD	800	352.483	44		35-197	NA	1.028

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801096
Project:	C1887-0501	**Date Collected:**	11/15/18 10:45
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:51
Sample Name:	SL0206	**Units:**	ng/Kg
Lab Code:	E1801096-006	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**15.2**	0.0985	0.591	1	1	15.2
1,2,3,7,8-PeCDD	**1.09**	0.157	2.96	1	1	1.09
1,2,3,4,7,8-HxCDD	**2.05**	0.199	2.96	1	0.1	0.205
1,2,3,6,7,8-HxCDD	**5.72**	0.229	2.96	1	0.1	0.572
1,2,3,7,8,9-HxCDD	**3.30**	0.198	2.96	1	0.1	0.330
1,2,3,4,6,7,8-HpCDD	**268**	4.27	4.27	1	0.01	2.68
OCDD	**16300**	0.213	5.91	1	0.0003	4.89
2,3,7,8-TCDF	**28.9**	0.0639	0.591	1	0.1	2.89
1,2,3,7,8-PeCDF	**1.45**	0.105	2.96	1	0.03	0.0435
2,3,4,7,8-PeCDF	**1.91**	0.113	2.96	1	0.3	0.573
1,2,3,4,7,8-HxCDF	**3.06**	0.120	2.96	1	0.1	0.306
1,2,3,6,7,8-HxCDF	**1.23**	0.119	2.96	1	0.1	0.123
1,2,3,7,8,9-HxCDF	**0.406**	0.132	2.96	1	0.1	0.0406
2,3,4,6,7,8-HxCDF	**1.16**	0.132	2.96	1	0.1	0.116
1,2,3,4,6,7,8-HpCDF	**16.4**	0.155	2.96	1	0.01	0.164
1,2,3,4,7,8,9-HpCDF	**1.33**	0.176	2.96	1	0.01	0.0133
OCDF	**71.6**	0.185	5.91	1	0.0003	0.0215
		Total TEQ				29.3

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801096
Project:	C1887-0501	**Date Collected:**	11/15/18 10:45
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:51
Sample Name:	SL0206	**Units:**	Percent
Lab Code:	E1801096-006	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/14/18 15:22
	6.312g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	83.6		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801096
Project:	C1887-0501	**Date Collected:**	11/15/18 10:50
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:51
Sample Name:	SL0207	**Units:**	ng/Kg
Lab Code:	E1801096-007	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/20/18 01:18
Prep Method:	Method Soxhlet	**Date Extracted:**	12/13/18
Sample Amount:	10.287g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616137	**Blank File Name:**	P519590
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616127

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	114		0.0794	0.596	0.77	1.001	1
1,2,3,7,8-PeCDD	1.29**J**		0.0693	2.98	1.49	1.001	1
1,2,3,4,7,8-HxCDD	0.467**J**		0.0840	2.98	1.42	1.000	1
1,2,3,6,7,8-HxCDD	0.795**J**		0.0940	2.98	1.16	1.000	1
1,2,3,7,8,9-HxCDD	1.25**J**		0.0826	2.98	1.11	1.007	1
1,2,3,4,6,7,8-HpCDD	22.6		0.422	2.98	1.01	1.000	1
OCDD	1270		0.120	5.96	0.90	1.000	1
2,3,7,8-TCDF	201		0.0412	0.596	0.78	1.001	1
1,2,3,7,8-PeCDF	7.29		0.0797	2.98	1.62	1.001	1
2,3,4,7,8-PeCDF	6.25		0.0857	2.98	1.61	1.001	1
1,2,3,4,7,8-HxCDF	15.5		0.0487	2.98	1.26	1.000	1
1,2,3,6,7,8-HxCDF	4.00		0.0474	2.98	1.16	1.000	1
1,2,3,7,8,9-HxCDF	1.45**J**		0.0517	2.98	1.30	1.001	1
2,3,4,6,7,8-HxCDF	0.821**J**		0.0517	2.98	1.10	1.000	1
1,2,3,4,6,7,8-HpCDF	5.37		0.0573	2.98	1.07	1.000	1
1,2,3,4,7,8,9-HpCDF	1.78**J**		0.0647	2.98	0.96	1.000	1
OCDF	5.19**J**		0.127	5.96	0.85	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801096
Project:	C1887-0501	**Date Collected:**	11/15/18 10:50
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:51
Sample Name:	SL0207	**Units:**	ng/Kg
Lab Code:	E1801096-007	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/20/18 01:18
Prep Method:	Method Soxhlet	**Date Extracted:**	12/13/18
Sample Amount:	10.287g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616137	**Blank File Name:**	P519590
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616127

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	123		0.0794	0.596	0.75		1
Total Penta-Dioxins	3.79		0.0693	2.98	1.44		1
Total Hexa-Dioxins	25.2		0.0865	2.98	1.24		1
Total Hepta-Dioxins	69.9		0.422	2.98	1.04		1
Total Tetra-Furans	415		0.0412	0.596	0.76		1
Total Penta-Furans	18.7		0.0826	2.98	1.70		1
Total Hexa-Furans	24.3		0.0498	2.98	1.24		1
Total Hepta-Furans	9.32		0.0608	2.98	1.07		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801096
Project:	C1887-0501	**Date Collected:**	11/15/18 10:50
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:51
Sample Name:	SL0207	**Units:**	Percent
Lab Code:	E1801096-007	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/20/18 01:18
Prep Method:	Method Soxhlet	**Date Extracted:**	12/13/18
Sample Amount:	10.287g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616137	**Blank File Name:**	P519590
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616127

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	772.504	39		25-164	0.79	1.026
13C-1,2,3,7,8-PeCDD	2000	1243.771	62		25-181	1.56	1.218
13C-1,2,3,4,7,8-HxCDD	2000	1284.736	64		32-141	1.26	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1148.088	57		28-130	1.26	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1533.954	77		23-140	1.05	1.068
13C-OCDD	4000	2047.511	51		17-157	0.92	1.138
13C-2,3,7,8-TCDF	2000	1022.313	51		24-169	0.79	0.991
13C-1,2,3,7,8-PeCDF	2000	1221.827	61		24-185	1.58	1.170
13C-2,3,4,7,8-PeCDF	2000	1139.950	57		21-178	1.61	1.207
13C-1,2,3,4,7,8-HxCDF	2000	1129.008	56		26-152	0.53	0.969
13C-1,2,3,6,7,8-HxCDF	2000	1072.639	54		26-123	0.53	0.973
13C-1,2,3,7,8,9-HxCDF	2000	1103.932	55		29-147	0.53	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1058.606	53		28-136	0.54	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1057.117	53		28-143	0.45	1.044
13C-1,2,3,4,7,8,9-HpCDF	2000	1092.106	55		26-138	0.46	1.080
37Cl-2,3,7,8-TCDD	800	450.190	56		35-197	NA	1.027

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801096
Project:	C1887-0501	**Date Collected:**	11/15/18 10:50
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:51
Sample Name:	SL0207	**Units:**	ng/Kg
Lab Code:	E1801096-007	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**114**	0.0794	0.596	1	1	114
1,2,3,7,8-PeCDD	**1.29**	0.0693	2.98	1	1	1.29
1,2,3,4,7,8-HxCDD	**0.467**	0.0840	2.98	1	0.1	0.0467
1,2,3,6,7,8-HxCDD	**0.795**	0.0940	2.98	1	0.1	0.0795
1,2,3,7,8,9-HxCDD	**1.25**	0.0826	2.98	1	0.1	0.125
1,2,3,4,6,7,8-HpCDD	**22.6**	0.422	2.98	1	0.01	0.226
OCDD	**1270**	0.120	5.96	1	0.0003	0.381
2,3,7,8-TCDF	**201**	0.0412	0.596	1	0.1	20.1
1,2,3,7,8-PeCDF	**7.29**	0.0797	2.98	1	0.03	0.219
2,3,4,7,8-PeCDF	**6.25**	0.0857	2.98	1	0.3	1.88
1,2,3,4,7,8-HxCDF	**15.5**	0.0487	2.98	1	0.1	1.55
1,2,3,6,7,8-HxCDF	**4.00**	0.0474	2.98	1	0.1	0.400
1,2,3,7,8,9-HxCDF	**1.45**	0.0517	2.98	1	0.1	0.145
2,3,4,6,7,8-HxCDF	**0.821**	0.0517	2.98	1	0.1	0.0821
1,2,3,4,6,7,8-HpCDF	**5.37**	0.0573	2.98	1	0.01	0.0537
1,2,3,4,7,8,9-HpCDF	**1.78**	0.0647	2.98	1	0.01	0.0178
OCDF	**5.19**	0.127	5.96	1	0.0003	0.00156
		Total TEQ				141

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801096
Project:	C1887-0501	**Date Collected:**	11/15/18 10:50
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:51
Sample Name:	SL0207	**Units:**	Percent
Lab Code:	E1801096-007	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/14/18 15:22
	7.348g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	81.5		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801096
Project:	C1887-0501	**Date Collected:**	11/15/18 10:55
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:51
Sample Name:	SL0208	**Units:**	ng/Kg
Lab Code:	E1801096-008	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/20/18 02:07
Prep Method:	Method Soxhlet	**Date Extracted:**	12/13/18
Sample Amount:	10.707g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616138	**Blank File Name:**	P519590
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616127

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	3.07		0.129	0.575	0.70	1.001	1
1,2,3,7,8-PeCDD	0.373	**JK**	0.0476	2.88	1.80	1.001	1
1,2,3,4,7,8-HxCDD	0.386	**J**	0.0945	2.88	1.12	1.000	1
1,2,3,6,7,8-HxCDD	0.621	**JK**	0.108	2.88	1.59	1.000	1
1,2,3,7,8,9-HxCDD	1.35	**J**	0.0938	2.88	1.28	1.007	1
1,2,3,4,6,7,8-HpCDD	16.4		0.236	2.88	1.01	1.000	1
OCDD	541		0.300	5.75	0.90	1.000	1
2,3,7,8-TCDF	5.71		0.0525	0.575	0.83	1.001	1
1,2,3,7,8-PeCDF	0.246	**JK**	0.0830	2.88	0.95	1.002	1
2,3,4,7,8-PeCDF	0.151	**JK**	0.0388	2.88	1.07	1.001	1
1,2,3,4,7,8-HxCDF	0.243	**JK**	0.0157	2.88	1.69	1.000	1
1,2,3,6,7,8-HxCDF	0.149	**J**	0.0155	2.88	1.24	1.000	1
1,2,3,7,8,9-HxCDF	0.148	**J**	0.0168	2.88	1.33	1.000	1
2,3,4,6,7,8-HxCDF	0.0534	**J**	0.0163	2.88	1.41	1.000	1
1,2,3,4,6,7,8-HpCDF	0.235	**J**	0.0222	2.88	1.10	1.000	1
1,2,3,4,7,8,9-HpCDF	0.0715	**JK**	0.0252	2.88	1.32	1.000	1
OCDF	0.716	**JK**	0.0770	5.75	0.72	1.004	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801096
Project:	C1887-0501	**Date Collected:**	11/15/18 10:55
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:51
Sample Name:	SL0208	**Units:**	ng/Kg
Lab Code:	E1801096-008	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/20/18 02:07
Prep Method:	Method Soxhlet	**Date Extracted:**	12/13/18
Sample Amount:	10.707g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616138	**Blank File Name:**	P519590
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616127

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	17.6		0.129	0.575	0.82		1
Total Penta-Dioxins	11.4		0.0476	2.88	1.51		1
Total Hexa-Dioxins	39.9		0.0983	2.88	1.26		1
Total Hepta-Dioxins	73.5		0.236	2.88	1.05		1
Total Tetra-Furans	9.10		0.0525	0.575	0.68		1
Total Penta-Furans	ND	U	0.0550	2.88			1
Total Hexa-Furans	0.434**J**		0.0160	2.88	1.23		1
Total Hepta-Furans	0.363**J**		0.0236	2.88	1.10		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801096
Project:	C1887-0501	**Date Collected:**	11/15/18 10:55
Sample Matrix:	Sediment	**Date Received:**	12/07/18 12:51
Sample Name:	SL0208	**Units:**	Percent
Lab Code:	E1801096-008	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

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ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616127

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	651.428	33		25-164	0.80	1.026
13C-1,2,3,7,8-PeCDD	2000	773.189	39		25-181	1.61	1.219
13C-1,2,3,4,7,8-HxCDD	2000	1337.985	67		32-141	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1182.693	59		28-130	1.26	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1616.322	81		23-140	1.07	1.068
13C-OCDD	4000	2202.656	55		17-157	0.91	1.138
13C-2,3,7,8-TCDF	2000	866.946	43		24-169	0.79	0.991
13C-1,2,3,7,8-PeCDF	2000	525.200	26		24-185	1.57	1.169
13C-2,3,4,7,8-PeCDF	2000	930.738	47		21-178	1.60	1.207
13C-1,2,3,4,7,8-HxCDF	2000	1187.595	59		26-152	0.52	0.969
13C-1,2,3,6,7,8-HxCDF	2000	1111.219	56		26-123	0.53	0.973
13C-1,2,3,7,8,9-HxCDF	2000	1143.153	57		29-147	0.53	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1121.101	56		28-136	0.53	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1095.529	55		28-143	0.46	1.043
13C-1,2,3,4,7,8,9-HpCDF	2000	1124.544	56		26-138	0.46	1.080
37Cl-2,3,7,8-TCDD	800	376.942	47		35-197	NA	1.027