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October 22, 2019

Jeff Wright
Weston Solutions, Inc.
13702 Coursey Blvd.,
Bldg #7, Ste A
Baton Rouge, LA 70817

Work Order: **HS19100570**

Laboratory Results for: **American Creosote - Site Walk**

Dear Jeff,

ALS Environmental received 5 sample(s) on Oct 10, 2019 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Generated By: BERNADETTE.FINI

Bernadette A. Fini
Project Manager

90044043

Client: Weston Solutions, Inc.
Project: American Creosote - Site Walk
Work Order: HS19100570

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS19100570-01	AC-5CP1-20191009-06-51	Soil		09-Oct-2019 10:45	10-Oct-2019 09:28	☐
HS19100570-02	AC-4SC1-20191009-06-51	Soil		09-Oct-2019 11:05	10-Oct-2019 09:28	☐
HS19100570-03	AC-4SC2-20191009-06-51	Soil		09-Oct-2019 11:12	10-Oct-2019 09:28	☐
HS19100570-04	AC-3WP1-20191009-06-51	Sludge		09-Oct-2019 11:18	10-Oct-2019 09:28	☐
HS19100570-05	AC-4SC3-20191009-06-51	Soil		09-Oct-2019 11:30	10-Oct-2019 09:28	☐

RIGHT SOLUTIONS | RIGHT PARTNER

Client: Weston Solutions, Inc.
Project: American Creosote - Site Walk
Work Order: HS19100570

CASE NARRATIVE

Work Order Comments

- The analysis for Dioxins/Furans was subcontracted to our ALS Houston TX, High Resolution Lab. Final report attached.

GCMS Semivolatiles by Method SW8270

Batch ID: 146287

Sample ID: AC-3WP1-20191009-06-51 (HS19100570-04)

- The GCMS semi-volatile extract of this sample was run at a dilution due to a high level of matrix interference.
- The surrogate recoveries could not be determined due to dilution below the calibration range.

Sample ID: AC-4SC1-20191009-06-51 (HS19100570-02)

- The surrogate recoveries could not be determined due to dilution below the calibration range.
- The GCMS semi-volatile extract of this sample was run at a dilution due to a high level of matrix interference.

Sample ID: AC-4SC2-20191009-06-51 (HS19100570-03)

- The surrogate recoveries could not be determined due to dilution below the calibration range.
- The GCMS semi-volatile extract of this sample was run at a dilution due to a high level of matrix interference.

Sample ID: AC-4SC3-20191009-06-51 (HS19100570-05)

- The surrogate recoveries could not be determined due to dilution below the calibration range.
- The GCMS semi-volatile extract of this sample was run at a dilution due to a high level of matrix interference.

Sample ID: AC-5CP1-20191009-06-51 (HS19100570-01)

- The surrogate recoveries could not be determined due to dilution below the calibration range.
- The GCMS semi-volatile extract of this sample was run at a dilution due to a high level of matrix interference.

Sample ID: HS19100627-07MS

- MS and MSD are for an unrelated sample

Metals by Method SW6020

Batch ID: 146288

Sample ID: AC-3WP1-20191009-06-51 (HS19100570-04)

- Sample ran at a 5X dilution due to sample matrix.

Sample ID: AC-5CP1-20191009-06-51 (HS19100570-01MS)

- Antimony and Calcium failed on the MS\MSD but passed on the PDS.
- The MS and/or MSD recovery was outside of the control; however, the result in the parent sample is greater than 4x the spike amount. Barium, Iron, Lead, Manganese, Zinc.
- The MS and/or MSD recovery was outside of the control; however, the result in the parent sample is greater than 4x the spike amount. Aluminum.

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Client: Weston Solutions, Inc.
Project: American Creosote - Site Walk
Work Order: HS19100570

CASE NARRATIVE

Metals by Method SW6020

Batch ID: 146288

Sample ID: AC-5CP1-20191009-06-51 (HS19100570-01MSD)

- Chromium failed on the MSD but passed on the MS and PDS.

Sample ID: AC-5CP1-20191009-06-51 (HS19100570-01PDS)

- The PDS recovery was outside method control limits, however the result in the parent sample is greater than 4x the spike amount. Aluminum.

Metals by Method SW7471A

Batch ID: 146253

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method ASTM D2216

Batch ID: R348297

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

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Client: Weston Solutions, Inc.
Project: American Creosote - Site Walk
Sample ID: AC-5CP1-20191009-06-51
Collection Date: 09-Oct-2019 10:45

ANALYTICAL REPORT
WorkOrder:HS19100570
Lab ID:HS19100570-01
Matrix:Soil

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW-LEVEL SEMIVOLATILES BY 8270D		**Method:SW8270**			Prep:SW3541 / 11-Oct-2019		Analyst: GEY
1,1´-Biphenyl	**0.12**		**0.018**	**0.072**	**mg/Kg-dry**	10	14-Oct-2019 18:02
2,4,5-Trichlorophenol	U		0.027	0.072	mg/Kg-dry	10	14-Oct-2019 18:02
2,4,6-Trichlorophenol	U		0.018	0.072	mg/Kg-dry	10	14-Oct-2019 18:02
2,4-Dichlorophenol	U		0.014	0.072	mg/Kg-dry	10	14-Oct-2019 18:02
2,4-Dimethylphenol	**0.053**	J	**0.036**	**0.072**	**mg/Kg-dry**	10	14-Oct-2019 18:02
2,4-Dinitrophenol	U		0.049	0.14	mg/Kg-dry	10	14-Oct-2019 18:02
2,4-Dinitrotoluene	U		0.0098	0.072	mg/Kg-dry	10	14-Oct-2019 18:02
2,6-Dinitrotoluene	U		0.036	0.072	mg/Kg-dry	10	14-Oct-2019 18:02
2-Chloronaphthalene	U		0.014	0.072	mg/Kg-dry	10	14-Oct-2019 18:02
2-Chlorophenol	U		0.014	0.072	mg/Kg-dry	10	14-Oct-2019 18:02
2-Methylnaphthalene	**0.25**		**0.0054**	**0.036**	**mg/Kg-dry**	10	14-Oct-2019 18:02
2-Methylphenol	U		0.012	0.072	mg/Kg-dry	10	14-Oct-2019 18:02
2-Nitroaniline	U		0.021	0.072	mg/Kg-dry	10	14-Oct-2019 18:02
2-Nitrophenol	U		0.027	0.072	mg/Kg-dry	10	14-Oct-2019 18:02
3&4-Methylphenol	**0.079**		**0.011**	**0.072**	**mg/Kg-dry**	10	14-Oct-2019 18:02
3,3´-Dichlorobenzidine	U		0.027	0.072	mg/Kg-dry	10	14-Oct-2019 18:02
3-Nitroaniline	U		0.021	0.072	mg/Kg-dry	10	14-Oct-2019 18:02
4,6-Dinitro-2-methylphenol	U		0.023	0.072	mg/Kg-dry	10	14-Oct-2019 18:02
4-Bromophenyl phenyl ether	U		0.017	0.072	mg/Kg-dry	10	14-Oct-2019 18:02
4-Chloro-3-methylphenol	U		0.0076	0.072	mg/Kg-dry	10	14-Oct-2019 18:02
4-Chloroaniline	U		0.012	0.072	mg/Kg-dry	10	14-Oct-2019 18:02
4-Chlorophenyl phenyl ether	U		0.016	0.072	mg/Kg-dry	10	14-Oct-2019 18:02
4-Nitroaniline	U		0.024	0.072	mg/Kg-dry	10	14-Oct-2019 18:02
4-Nitrophenol	U		0.021	0.14	mg/Kg-dry	10	14-Oct-2019 18:02
Acenaphthene	**0.12**		**0.0054**	**0.036**	**mg/Kg-dry**	10	14-Oct-2019 18:02
Acenaphthylene	**1.5**		**0.011**	**0.036**	**mg/Kg-dry**	10	14-Oct-2019 18:02
Acetophenone	**0.051**	J	**0.0087**	**0.072**	**mg/Kg-dry**	10	14-Oct-2019 18:02
Anthracene	**3.2**		**0.0054**	**0.036**	**mg/Kg-dry**	10	14-Oct-2019 18:02
Atrazine	U		0.022	0.072	mg/Kg-dry	10	14-Oct-2019 18:02
Benz(a)anthracene	**11**		**0.17**	**0.36**	**mg/Kg-dry**	100	14-Oct-2019 16:24
Benzaldehyde	U	a	0.013	0.072	mg/Kg-dry	10	14-Oct-2019 18:02
Benzo(a)pyrene	**8.6**		**0.11**	**0.36**	**mg/Kg-dry**	100	14-Oct-2019 16:24
Benzo(b)fluoranthene	**19**		**0.13**	**0.36**	**mg/Kg-dry**	100	14-Oct-2019 16:24
Benzo(g,h,i)perylene	**2.8**		**0.0076**	**0.036**	**mg/Kg-dry**	10	14-Oct-2019 18:02
Benzo(k)fluoranthene	**11**		**0.098**	**0.36**	**mg/Kg-dry**	100	14-Oct-2019 16:24
Bis(2-chloroethoxy)methane	U		0.0098	0.072	mg/Kg-dry	10	14-Oct-2019 18:02
Bis(2-chloroethyl)ether	U		0.012	0.072	mg/Kg-dry	10	14-Oct-2019 18:02
Bis(2-chloroisopropyl)ether	U		0.015	0.072	mg/Kg-dry	10	14-Oct-2019 18:02
Bis(2-ethylhexyl)phthalate	U		0.018	0.072	mg/Kg-dry	10	14-Oct-2019 18:02

Note: See Qualifiers Page for a list of qualifiers and their explanation.

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Client:	Weston Solutions, Inc.	**ANALYTICAL REPORT**	
Project:	American Creosote - Site Walk	WorkOrder:HS19100570	
Sample ID:	AC-5CP1-20191009-06-51	Lab ID:HS19100570-01	
Collection Date:	09-Oct-2019 10:45	Matrix:Soil	

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW-LEVEL SEMIVOLATILES BY 8270D		**Method:SW8270**			Prep:SW3541 / 11-Oct-2019		Analyst: GEY
Butyl benzyl phthalate	U		0.014	0.072	mg/Kg-dry	10	14-Oct-2019 18:02
Caprolactam	U		0.013	0.072	mg/Kg-dry	10	14-Oct-2019 18:02
Carbazole	**2.7**		**0.013**	**0.072**	**mg/Kg-dry**	10	14-Oct-2019 18:02
Chrysene	**14**		**0.087**	**0.36**	**mg/Kg-dry**	100	14-Oct-2019 16:24
Dibenz(a,h)anthracene	**1.7**		**0.017**	**0.036**	**mg/Kg-dry**	10	14-Oct-2019 18:02
Dibenzofuran	**0.50**		**0.0076**	**0.036**	**mg/Kg-dry**	10	14-Oct-2019 18:02
Diethyl phthalate	U		0.011	0.072	mg/Kg-dry	10	14-Oct-2019 18:02
Dimethyl phthalate	U		0.0087	0.072	mg/Kg-dry	10	14-Oct-2019 18:02
Di-n-butyl phthalate	U		0.013	0.072	mg/Kg-dry	10	14-Oct-2019 18:02
Di-n-octyl phthalate	U		0.0098	0.072	mg/Kg-dry	10	14-Oct-2019 18:02
Fluoranthene	**16**		**0.12**	**0.36**	**mg/Kg-dry**	100	14-Oct-2019 16:24
Fluorene	**0.24**		**0.012**	**0.036**	**mg/Kg-dry**	10	14-Oct-2019 18:02
Hexachlorobenzene	U		0.0098	0.072	mg/Kg-dry	10	14-Oct-2019 18:02
Hexachlorobutadiene	U		0.013	0.072	mg/Kg-dry	10	14-Oct-2019 18:02
Hexachlorocyclopentadiene	U		0.0087	0.072	mg/Kg-dry	10	14-Oct-2019 18:02
Hexachloroethane	U		0.016	0.072	mg/Kg-dry	10	14-Oct-2019 18:02
Indeno(1,2,3-cd)pyrene	**6.4**		**0.087**	**0.36**	**mg/Kg-dry**	100	14-Oct-2019 16:24
Isophorone	U		0.0087	0.072	mg/Kg-dry	10	14-Oct-2019 18:02
Naphthalene	**1.1**		**0.0065**	**0.036**	**mg/Kg-dry**	10	14-Oct-2019 18:02
Nitrobenzene	U		0.0098	0.072	mg/Kg-dry	10	14-Oct-2019 18:02
N-Nitrosodi-n-propylamine	U		0.012	0.072	mg/Kg-dry	10	14-Oct-2019 18:02
N-Nitrosodiphenylamine	U		0.0076	0.072	mg/Kg-dry	10	14-Oct-2019 18:02
Pentachlorophenol	U		0.036	0.072	mg/Kg-dry	10	14-Oct-2019 18:02
Phenanthrene	**3.2**		**0.016**	**0.036**	**mg/Kg-dry**	10	14-Oct-2019 18:02
Phenol	**0.037**	J	**0.012**	**0.072**	**mg/Kg-dry**	10	14-Oct-2019 18:02
Pyrene	**16**		**0.065**	**0.36**	**mg/Kg-dry**	100	14-Oct-2019 16:24
Surr: 2,4,6-Tribromophenol	*0*	*S*		*36-126*	*%REC*	*100*	*14-Oct-2019 16:24*
Surr: 2,4,6-Tribromophenol	*89.1*			*36-126*	*%REC*	*10*	*14-Oct-2019 18:02*
Surr: 2-Fluorobiphenyl	*74.2*			*43-125*	*%REC*	*10*	*14-Oct-2019 18:02*
Surr: 2-Fluorobiphenyl	*0*	*S*		*43-125*	*%REC*	*100*	*14-Oct-2019 16:24*
Surr: 2-Fluorophenol	*0*	*S*		*37-125*	*%REC*	*100*	*14-Oct-2019 16:24*
Surr: 2-Fluorophenol	*42.6*			*37-125*	*%REC*	*10*	*14-Oct-2019 18:02*
Surr: 4-Terphenyl-d14	*0*	*S*		*32-125*	*%REC*	*100*	*14-Oct-2019 16:24*
Surr: 4-Terphenyl-d14	*116*			*32-125*	*%REC*	*10*	*14-Oct-2019 18:02*
Surr: Nitrobenzene-d5	*0*	*S*		*37-125*	*%REC*	*100*	*14-Oct-2019 16:24*
Surr: Nitrobenzene-d5	*56.9*			*37-125*	*%REC*	*10*	*14-Oct-2019 18:02*
Surr: Phenol-d6	*0*	*S*		*40-125*	*%REC*	*100*	*14-Oct-2019 16:24*
Surr: Phenol-d6	*57.5*			*40-125*	*%REC*	*10*	*14-Oct-2019 18:02*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

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Client:	Weston Solutions, Inc.	**ANALYTICAL REPORT**
Project:	American Creosote - Site Walk	WorkOrder:HS19100570
Sample ID:	AC-5CP1-20191009-06-51	Lab ID:HS19100570-01
Collection Date:	09-Oct-2019 10:45	Matrix:Soil

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY SW6020A		**Method:SW6020**			Prep:SW3050A / 11-Oct-2019		Analyst: JC
Aluminum	**6,180**		**12.2**	**105**	**mg/Kg-dry**	50	15-Oct-2019 13:33
Antimony	**0.440**	J	**0.0684**	**0.526**	**mg/Kg-dry**	1	14-Oct-2019 23:43
Arsenic	**4.74**		**0.0736**	**0.526**	**mg/Kg-dry**	1	14-Oct-2019 23:43
Barium	**76.2**		**0.0316**	**0.526**	**mg/Kg-dry**	1	14-Oct-2019 23:43
Beryllium	**0.283**	J	**0.0221**	**0.526**	**mg/Kg-dry**	1	14-Oct-2019 23:43
Cadmium	**0.229**	J	**0.0284**	**0.526**	**mg/Kg-dry**	1	14-Oct-2019 23:43
Calcium	**1,500**		**5.22**	**52.6**	**mg/Kg-dry**	1	14-Oct-2019 23:43
Chromium	**8.34**		**0.0242**	**0.526**	**mg/Kg-dry**	1	14-Oct-2019 23:43
Cobalt	**2.66**		**0.0158**	**0.526**	**mg/Kg-dry**	1	14-Oct-2019 23:43
Copper	**27.6**		**0.0400**	**0.210**	**mg/Kg-dry**	1	14-Oct-2019 23:43
Iron	**7,800**		**1.93**	**52.6**	**mg/Kg-dry**	1	14-Oct-2019 23:43
Lead	**58.1**		**0.0137**	**0.526**	**mg/Kg-dry**	1	14-Oct-2019 23:43
Magnesium	**491**		**2.64**	**52.6**	**mg/Kg-dry**	1	14-Oct-2019 23:43
Manganese	**231**		**2.26**	**26.3**	**mg/Kg-dry**	50	15-Oct-2019 13:33
Nickel	**6.75**		**0.0505**	**0.526**	**mg/Kg-dry**	1	14-Oct-2019 23:43
Potassium	**245**		**7.07**	**52.6**	**mg/Kg-dry**	1	14-Oct-2019 23:43
Selenium	**0.764**		**0.0957**	**0.526**	**mg/Kg-dry**	1	14-Oct-2019 23:43
Silver	**0.0317**	J	**0.0158**	**0.526**	**mg/Kg-dry**	1	14-Oct-2019 23:43
Sodium	**90.9**		**4.39**	**52.6**	**mg/Kg-dry**	1	14-Oct-2019 23:43
Thallium	U		0.235	0.526	mg/Kg-dry	1	14-Oct-2019 23:43
Zinc	**57.1**		**0.179**	**0.526**	**mg/Kg-dry**	1	14-Oct-2019 23:43
MERCURY BY SW7471B		**Method:SW7471A**			Prep:SW7471A / 10-Oct-2019		Analyst: FO
Mercury	**0.108**		**0.000550**	**0.00389**	**mg/Kg-dry**	1	10-Oct-2019 18:33
MOISTURE - ASTM D2216		**Method:ASTM D2216**					Analyst: MWG
Percent Moisture	**8.31**		**0.0100**	**0.0100**	**wt%**	1	14-Oct-2019 11:14

Note: See Qualifiers Page for a list of qualifiers and their explanation.

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Client: Weston Solutions, Inc.
Project: American Creosote - Site Walk
Sample ID: AC-4SC1-20191009-06-51
Collection Date: 09-Oct-2019 11:05

ANALYTICAL REPORT
WorkOrder:HS19100570
Lab ID:HS19100570-02
Matrix:Soil

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW-LEVEL SEMIVOLATILES BY 8270D		**Method:SW8270**			Prep:SW3541 / 11-Oct-2019		Analyst: GEY
1,1´-Biphenyl	**0.25**		**0.020**	**0.078**	**mg/Kg-dry**	10	15-Oct-2019 17:39
2,4,5-Trichlorophenol	U		0.029	0.078	mg/Kg-dry	10	15-Oct-2019 17:39
2,4,6-Trichlorophenol	U		0.020	0.078	mg/Kg-dry	10	15-Oct-2019 17:39
2,4-Dichlorophenol	U		0.015	0.078	mg/Kg-dry	10	15-Oct-2019 17:39
2,4-Dimethylphenol	**0.22**		**0.039**	**0.078**	**mg/Kg-dry**	10	15-Oct-2019 17:39
2,4-Dinitrophenol	U		0.053	0.16	mg/Kg-dry	10	15-Oct-2019 17:39
2,4-Dinitrotoluene	U		0.011	0.078	mg/Kg-dry	10	15-Oct-2019 17:39
2,6-Dinitrotoluene	U		0.039	0.078	mg/Kg-dry	10	15-Oct-2019 17:39
2-Chloronaphthalene	U		0.015	0.078	mg/Kg-dry	10	15-Oct-2019 17:39
2-Chlorophenol	U		0.015	0.078	mg/Kg-dry	10	15-Oct-2019 17:39
2-Methylnaphthalene	**0.74**		**0.0059**	**0.039**	**mg/Kg-dry**	10	15-Oct-2019 17:39
2-Methylphenol	U		0.013	0.078	mg/Kg-dry	10	15-Oct-2019 17:39
2-Nitroaniline	U		0.022	0.078	mg/Kg-dry	10	15-Oct-2019 17:39
2-Nitrophenol	U		0.029	0.078	mg/Kg-dry	10	15-Oct-2019 17:39
3&4-Methylphenol	**0.59**		**0.012**	**0.078**	**mg/Kg-dry**	10	15-Oct-2019 17:39
3,3´-Dichlorobenzidine	U		0.029	0.078	mg/Kg-dry	10	15-Oct-2019 17:39
3-Nitroaniline	U		0.022	0.078	mg/Kg-dry	10	15-Oct-2019 17:39
4,6-Dinitro-2-methylphenol	U		0.025	0.078	mg/Kg-dry	10	15-Oct-2019 17:39
4-Bromophenyl phenyl ether	U		0.019	0.078	mg/Kg-dry	10	15-Oct-2019 17:39
4-Chloro-3-methylphenol	U		0.0082	0.078	mg/Kg-dry	10	15-Oct-2019 17:39
4-Chloroaniline	U		0.013	0.078	mg/Kg-dry	10	15-Oct-2019 17:39
4-Chlorophenyl phenyl ether	U		0.018	0.078	mg/Kg-dry	10	15-Oct-2019 17:39
4-Nitroaniline	U		0.026	0.078	mg/Kg-dry	10	15-Oct-2019 17:39
4-Nitrophenol	U		0.022	0.16	mg/Kg-dry	10	15-Oct-2019 17:39
Acenaphthene	**0.78**		**0.0059**	**0.039**	**mg/Kg-dry**	10	15-Oct-2019 17:39
Acenaphthylene	**5.9**		**0.12**	**0.39**	**mg/Kg-dry**	100	14-Oct-2019 16:44
Acetophenone	**0.18**		**0.0094**	**0.078**	**mg/Kg-dry**	10	15-Oct-2019 17:39
Anthracene	**24**		**0.059**	**0.39**	**mg/Kg-dry**	100	14-Oct-2019 16:44
Atrazine	U		0.024	0.078	mg/Kg-dry	10	15-Oct-2019 17:39
Benz(a)anthracene	**130**		**1.9**	**3.9**	**mg/Kg-dry**	1000	14-Oct-2019 18:21
Benzaldehyde	**0.61**	a	**0.014**	**0.078**	**mg/Kg-dry**	10	15-Oct-2019 17:39
Benzo(a)pyrene	**84**		**1.2**	**3.9**	**mg/Kg-dry**	1000	14-Oct-2019 18:21
Benzo(b)fluoranthene	**200**		**1.4**	**3.9**	**mg/Kg-dry**	1000	14-Oct-2019 18:21
Benzo(g,h,i)perylene	**25**		**0.082**	**0.39**	**mg/Kg-dry**	100	14-Oct-2019 16:44
Benzo(k)fluoranthene	**130**		**1.1**	**3.9**	**mg/Kg-dry**	1000	14-Oct-2019 18:21
Bis(2-chloroethoxy)methane	U		0.011	0.078	mg/Kg-dry	10	15-Oct-2019 17:39
Bis(2-chloroethyl)ether	U		0.013	0.078	mg/Kg-dry	10	15-Oct-2019 17:39
Bis(2-chloroisopropyl)ether	U		0.016	0.078	mg/Kg-dry	10	15-Oct-2019 17:39
Bis(2-ethylhexyl)phthalate	**0.38**		**0.020**	**0.078**	**mg/Kg-dry**	10	15-Oct-2019 17:39

Note: See Qualifiers Page for a list of qualifiers and their explanation.

RIGHT SOLUTIONS | RIGHT PARTNER

Client:	Weston Solutions, Inc.		**ANALYTICAL REPORT**
Project:	American Creosote - Site Walk		WorkOrder:HS19100570
Sample ID:	AC-4SC1-20191009-06-51		Lab ID:HS19100570-02
Collection Date:	09-Oct-2019 11:05		Matrix:Soil

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW-LEVEL SEMIVOLATILES BY 8270D		**Method:SW8270**			Prep:SW3541 / 11-Oct-2019		Analyst: GEY
Butyl benzyl phthalate	U		0.015	0.078	mg/Kg-dry	10	15-Oct-2019 17:39
Caprolactam	U		0.014	0.078	mg/Kg-dry	10	15-Oct-2019 17:39
Carbazole	**31**		**0.14**	**0.78**	**mg/Kg-dry**	100	14-Oct-2019 16:44
Chrysene	**180**		**0.94**	**3.9**	**mg/Kg-dry**	1000	14-Oct-2019 18:21
Dibenz(a,h)anthracene	**17**		**0.19**	**0.39**	**mg/Kg-dry**	100	14-Oct-2019 16:44
Dibenzofuran	**1.7**		**0.0082**	**0.039**	**mg/Kg-dry**	10	15-Oct-2019 17:39
Diethyl phthalate	U		0.012	0.078	mg/Kg-dry	10	15-Oct-2019 17:39
Dimethyl phthalate	U		0.0094	0.078	mg/Kg-dry	10	15-Oct-2019 17:39
Di-n-butyl phthalate	U		0.014	0.078	mg/Kg-dry	10	15-Oct-2019 17:39
Di-n-octyl phthalate	U		0.011	0.078	mg/Kg-dry	10	15-Oct-2019 17:39
Fluoranthene	**370**		**1.3**	**3.9**	**mg/Kg-dry**	1000	14-Oct-2019 18:21
Fluorene	**1.2**		**0.013**	**0.039**	**mg/Kg-dry**	10	15-Oct-2019 17:39
Hexachlorobenzene	U		0.011	0.078	mg/Kg-dry	10	15-Oct-2019 17:39
Hexachlorobutadiene	U		0.014	0.078	mg/Kg-dry	10	15-Oct-2019 17:39
Hexachlorocyclopentadiene	U		0.0094	0.078	mg/Kg-dry	10	15-Oct-2019 17:39
Hexachloroethane	U		0.018	0.078	mg/Kg-dry	10	15-Oct-2019 17:39
Indeno(1,2,3-cd)pyrene	**42**		**0.94**	**3.9**	**mg/Kg-dry**	1000	14-Oct-2019 18:21
Isophorone	U		0.0094	0.078	mg/Kg-dry	10	15-Oct-2019 17:39
Naphthalene	**2.4**		**0.0071**	**0.039**	**mg/Kg-dry**	10	15-Oct-2019 17:39
Nitrobenzene	U		0.011	0.078	mg/Kg-dry	10	15-Oct-2019 17:39
N-Nitrosodi-n-propylamine	U		0.013	0.078	mg/Kg-dry	10	15-Oct-2019 17:39
N-Nitrosodiphenylamine	U		0.0082	0.078	mg/Kg-dry	10	15-Oct-2019 17:39
Pentachlorophenol	U		0.039	0.078	mg/Kg-dry	10	15-Oct-2019 17:39
Phenanthrene	**50**		**1.8**	**3.9**	**mg/Kg-dry**	1000	14-Oct-2019 18:21
Phenol	**0.33**		**0.013**	**0.078**	**mg/Kg-dry**	10	15-Oct-2019 17:39
Pyrene	**310**		**0.71**	**3.9**	**mg/Kg-dry**	1000	14-Oct-2019 18:21
Surr: 2,4,6-Tribromophenol	*0*	*S*		*36-126*	*%REC*	*100*	*14-Oct-2019 16:44*
Surr: 2,4,6-Tribromophenol	*0*	*S*		*36-126*	*%REC*	*1000*	*14-Oct-2019 18:21*
Surr: 2,4,6-Tribromophenol	*64.6*			*36-126*	*%REC*	*10*	*15-Oct-2019 17:39*
Surr: 2-Fluorobiphenyl	*80.6*			*43-125*	*%REC*	*10*	*15-Oct-2019 17:39*
Surr: 2-Fluorobiphenyl	*0*	*S*		*43-125*	*%REC*	*100*	*14-Oct-2019 16:44*
Surr: 2-Fluorobiphenyl	*0*	*S*		*43-125*	*%REC*	*1000*	*14-Oct-2019 18:21*
Surr: 2-Fluorophenol	*0*	*S*		*37-125*	*%REC*	*100*	*14-Oct-2019 16:44*
Surr: 2-Fluorophenol	*0*	*S*		*37-125*	*%REC*	*1000*	*14-Oct-2019 18:21*
Surr: 2-Fluorophenol	*71.1*			*37-125*	*%REC*	*10*	*15-Oct-2019 17:39*
Surr: 4-Terphenyl-d14	*45.7*			*32-125*	*%REC*	*10*	*15-Oct-2019 17:39*
Surr: 4-Terphenyl-d14	*0*	*S*		*32-125*	*%REC*	*100*	*14-Oct-2019 16:44*
Surr: 4-Terphenyl-d14	*0*	*S*		*32-125*	*%REC*	*1000*	*14-Oct-2019 18:21*
Surr: Nitrobenzene-d5	*0*	*S*		*37-125*	*%REC*	*100*	*14-Oct-2019 16:44*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

RIGHT SOLUTIONS | RIGHT PARTNER

Client:	Weston Solutions, Inc.		**ANALYTICAL REPORT**
Project:	American Creosote - Site Walk		WorkOrder:HS19100570
Sample ID:	AC-4SC1-20191009-06-51		Lab ID:HS19100570-02
Collection Date:	09-Oct-2019 11:05		Matrix:Soil

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW-LEVEL SEMIVOLATILES BY 8270D		**Method:SW8270**			Prep:SW3541 / 11-Oct-2019		Analyst: GEY
Surr: Nitrobenzene-d5	*0*	*S*		*37-125*	*%REC*	*1000*	*14-Oct-2019 18:21*
Surr: Nitrobenzene-d5	*66.7*			*37-125*	*%REC*	*10*	*15-Oct-2019 17:39*
Surr: Phenol-d6	*95.8*			*40-125*	*%REC*	*10*	*15-Oct-2019 17:39*
Surr: Phenol-d6	*0*	*S*		*40-125*	*%REC*	*100*	*14-Oct-2019 16:44*
Surr: Phenol-d6	*0*	*S*		*40-125*	*%REC*	*1000*	*14-Oct-2019 18:21*
METALS BY SW6020A		**Method:SW6020**			Prep:SW3050A / 11-Oct-2019		Analyst: JC
Aluminum	**6,540**		**13.2**	**114**	**mg/Kg-dry**	50	15-Oct-2019 13:59
Antimony	**0.204**	J	**0.0739**	**0.568**	**mg/Kg-dry**	1	15-Oct-2019 00:27
Arsenic	**4.27**		**0.0795**	**0.568**	**mg/Kg-dry**	1	15-Oct-2019 00:27
Barium	**41.5**		**0.0341**	**0.568**	**mg/Kg-dry**	1	15-Oct-2019 00:27
Beryllium	**0.226**	J	**0.0239**	**0.568**	**mg/Kg-dry**	1	15-Oct-2019 00:27
Cadmium	**0.112**	J	**0.0307**	**0.568**	**mg/Kg-dry**	1	15-Oct-2019 00:27
Calcium	**938**		**5.64**	**56.8**	**mg/Kg-dry**	1	15-Oct-2019 00:27
Chromium	**7.61**		**0.0261**	**0.568**	**mg/Kg-dry**	1	15-Oct-2019 00:27
Cobalt	**2.73**		**0.0170**	**0.568**	**mg/Kg-dry**	1	15-Oct-2019 00:27
Copper	**10.6**		**0.0432**	**0.227**	**mg/Kg-dry**	1	15-Oct-2019 00:27
Iron	**17,800**		**2.08**	**56.8**	**mg/Kg-dry**	1	15-Oct-2019 00:27
Lead	**17.4**		**0.0148**	**0.568**	**mg/Kg-dry**	1	15-Oct-2019 00:27
Magnesium	**393**		**2.85**	**56.8**	**mg/Kg-dry**	1	15-Oct-2019 00:27
Manganese	**371**		**2.44**	**28.4**	**mg/Kg-dry**	50	15-Oct-2019 13:59
Nickel	**4.98**		**0.0545**	**0.568**	**mg/Kg-dry**	1	15-Oct-2019 00:27
Potassium	**247**		**7.64**	**56.8**	**mg/Kg-dry**	1	15-Oct-2019 00:27
Selenium	**0.681**		**0.103**	**0.568**	**mg/Kg-dry**	1	15-Oct-2019 00:27
Silver	**0.0532**	J	**0.0170**	**0.568**	**mg/Kg-dry**	1	15-Oct-2019 00:27
Sodium	**58.3**		**4.74**	**56.8**	**mg/Kg-dry**	1	15-Oct-2019 00:27
Thallium	U		0.253	0.568	mg/Kg-dry	1	15-Oct-2019 00:27
Zinc	**18.2**		**0.193**	**0.568**	**mg/Kg-dry**	1	15-Oct-2019 00:27
MERCURY BY SW7471B		**Method:SW7471A**			Prep:SW7471A / 10-Oct-2019		Analyst: FO
Mercury	**0.219**		**0.000583**	**0.00412**	**mg/Kg-dry**	1	10-Oct-2019 18:35
MOISTURE - ASTM D2216		**Method:ASTM D2216**					Analyst: MWG
Percent Moisture	**15.2**		**0.0100**	**0.0100**	**wt%**	1	14-Oct-2019 11:14

Note: See Qualifiers Page for a list of qualifiers and their explanation.

RIGHT SOLUTIONS | RIGHT PARTNER

Client: Weston Solutions, Inc.
Project: American Creosote - Site Walk
Sample ID: AC-4SC2-20191009-06-51
Collection Date: 09-Oct-2019 11:12

ANALYTICAL REPORT
WorkOrder:HS19100570
Lab ID:HS19100570-03
Matrix:Soil

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW-LEVEL SEMIVOLATILES BY 8270D		**Method:SW8270**			Prep:SW3541 / 11-Oct-2019		Analyst: GEY
1,1´-Biphenyl	**0.11**		**0.023**	**0.088**	**mg/Kg-dry**	10	15-Oct-2019 17:58
2,4,5-Trichlorophenol	U		0.033	0.088	mg/Kg-dry	10	15-Oct-2019 17:58
2,4,6-Trichlorophenol	U		0.023	0.088	mg/Kg-dry	10	15-Oct-2019 17:58
2,4-Dichlorophenol	U		0.017	0.088	mg/Kg-dry	10	15-Oct-2019 17:58
2,4-Dimethylphenol	**0.25**		**0.044**	**0.088**	**mg/Kg-dry**	10	15-Oct-2019 17:58
2,4-Dinitrophenol	U		0.060	0.18	mg/Kg-dry	10	15-Oct-2019 17:58
2,4-Dinitrotoluene	U		0.012	0.088	mg/Kg-dry	10	15-Oct-2019 17:58
2,6-Dinitrotoluene	U		0.044	0.088	mg/Kg-dry	10	15-Oct-2019 17:58
2-Chloronaphthalene	U		0.017	0.088	mg/Kg-dry	10	15-Oct-2019 17:58
2-Chlorophenol	U		0.017	0.088	mg/Kg-dry	10	15-Oct-2019 17:58
2-Methylnaphthalene	**0.71**		**0.0067**	**0.044**	**mg/Kg-dry**	10	15-Oct-2019 17:58
2-Methylphenol	U		0.015	0.088	mg/Kg-dry	10	15-Oct-2019 17:58
2-Nitroaniline	U		0.025	0.088	mg/Kg-dry	10	15-Oct-2019 17:58
2-Nitrophenol	U		0.033	0.088	mg/Kg-dry	10	15-Oct-2019 17:58
3&4-Methylphenol	**0.31**		**0.013**	**0.088**	**mg/Kg-dry**	10	15-Oct-2019 17:58
3,3´-Dichlorobenzidine	U		0.033	0.088	mg/Kg-dry	10	15-Oct-2019 17:58
3-Nitroaniline	U		0.025	0.088	mg/Kg-dry	10	15-Oct-2019 17:58
4,6-Dinitro-2-methylphenol	U		0.028	0.088	mg/Kg-dry	10	15-Oct-2019 17:58
4-Bromophenyl phenyl ether	U		0.021	0.088	mg/Kg-dry	10	15-Oct-2019 17:58
4-Chloro-3-methylphenol	U		0.0093	0.088	mg/Kg-dry	10	15-Oct-2019 17:58
4-Chloroaniline	U		0.015	0.088	mg/Kg-dry	10	15-Oct-2019 17:58
4-Chlorophenyl phenyl ether	U		0.020	0.088	mg/Kg-dry	10	15-Oct-2019 17:58
4-Nitroaniline	U		0.029	0.088	mg/Kg-dry	10	15-Oct-2019 17:58
4-Nitrophenol	U		0.025	0.18	mg/Kg-dry	10	15-Oct-2019 17:58
Acenaphthene	**0.59**		**0.0067**	**0.044**	**mg/Kg-dry**	10	15-Oct-2019 17:58
Acenaphthylene	**5.0**		**0.13**	**0.44**	**mg/Kg-dry**	100	14-Oct-2019 17:03
Acetophenone	**0.24**		**0.011**	**0.088**	**mg/Kg-dry**	10	15-Oct-2019 17:58
Anthracene	**56**		**0.67**	**4.4**	**mg/Kg-dry**	1000	14-Oct-2019 18:41
Atrazine	U		0.027	0.088	mg/Kg-dry	10	15-Oct-2019 17:58
Benz(a)anthracene	**150**		**2.1**	**4.4**	**mg/Kg-dry**	1000	14-Oct-2019 18:41
Benzaldehyde	**0.62**	a	**0.016**	**0.088**	**mg/Kg-dry**	10	15-Oct-2019 17:58
Benzo(a)pyrene	**85**		**1.3**	**4.4**	**mg/Kg-dry**	1000	14-Oct-2019 18:41
Benzo(b)fluoranthene	**200**		**1.6**	**4.4**	**mg/Kg-dry**	1000	14-Oct-2019 18:41
Benzo(g,h,i)perylene	**27**		**0.093**	**0.44**	**mg/Kg-dry**	100	14-Oct-2019 17:03
Benzo(k)fluoranthene	**120**		**1.2**	**4.4**	**mg/Kg-dry**	1000	14-Oct-2019 18:41
Bis(2-chloroethoxy)methane	U		0.012	0.088	mg/Kg-dry	10	15-Oct-2019 17:58
Bis(2-chloroethyl)ether	U		0.015	0.088	mg/Kg-dry	10	15-Oct-2019 17:58
Bis(2-chloroisopropyl)ether	U		0.019	0.088	mg/Kg-dry	10	15-Oct-2019 17:58
Bis(2-ethylhexyl)phthalate	U		0.023	0.088	mg/Kg-dry	10	15-Oct-2019 17:58

Note: See Qualifiers Page for a list of qualifiers and their explanation.

RIGHT SOLUTIONS | RIGHT PARTNER

Client:	Weston Solutions, Inc.		**ANALYTICAL REPORT**
Project:	American Creosote - Site Walk		WorkOrder:HS19100570
Sample ID:	AC-4SC2-20191009-06-51		Lab ID:HS19100570-03
Collection Date:	09-Oct-2019 11:12		Matrix:Soil

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW-LEVEL SEMIVOLATILES BY 8270D		**Method:SW8270**			Prep:SW3541 / 11-Oct-2019		Analyst: GEY
Butyl benzyl phthalate	U		0.017	0.088	mg/Kg-dry	10	15-Oct-2019 17:58
Caprolactam	U		0.016	0.088	mg/Kg-dry	10	15-Oct-2019 17:58
Carbazole	**26**		**0.16**	**0.88**	**mg/Kg-dry**	100	14-Oct-2019 17:03
Chrysene	**160**		**1.1**	**4.4**	**mg/Kg-dry**	1000	14-Oct-2019 18:41
Dibenz(a,h)anthracene	**20**		**0.21**	**0.44**	**mg/Kg-dry**	100	14-Oct-2019 17:03
Dibenzofuran	**0.52**		**0.0093**	**0.044**	**mg/Kg-dry**	10	15-Oct-2019 17:58
Diethyl phthalate	U		0.013	0.088	mg/Kg-dry	10	15-Oct-2019 17:58
Dimethyl phthalate	U		0.011	0.088	mg/Kg-dry	10	15-Oct-2019 17:58
Di-n-butyl phthalate	U		0.016	0.088	mg/Kg-dry	10	15-Oct-2019 17:58
Di-n-octyl phthalate	U		0.012	0.088	mg/Kg-dry	10	15-Oct-2019 17:58
Fluoranthene	**270**		**1.5**	**4.4**	**mg/Kg-dry**	1000	14-Oct-2019 18:41
Fluorene	**1.4**		**0.015**	**0.044**	**mg/Kg-dry**	10	15-Oct-2019 17:58
Hexachlorobenzene	U		0.012	0.088	mg/Kg-dry	10	15-Oct-2019 17:58
Hexachlorobutadiene	U		0.016	0.088	mg/Kg-dry	10	15-Oct-2019 17:58
Hexachlorocyclopentadiene	U		0.011	0.088	mg/Kg-dry	10	15-Oct-2019 17:58
Hexachloroethane	U		0.020	0.088	mg/Kg-dry	10	15-Oct-2019 17:58
Indeno(1,2,3-cd)pyrene	**52**		**1.1**	**4.4**	**mg/Kg-dry**	1000	14-Oct-2019 18:41
Isophorone	U		0.011	0.088	mg/Kg-dry	10	15-Oct-2019 17:58
Naphthalene	**2.1**		**0.0080**	**0.044**	**mg/Kg-dry**	10	15-Oct-2019 17:58
Nitrobenzene	U		0.012	0.088	mg/Kg-dry	10	15-Oct-2019 17:58
N-Nitrosodi-n-propylamine	U		0.015	0.088	mg/Kg-dry	10	15-Oct-2019 17:58
N-Nitrosodiphenylamine	U		0.0093	0.088	mg/Kg-dry	10	15-Oct-2019 17:58
Pentachlorophenol	U		0.044	0.088	mg/Kg-dry	10	15-Oct-2019 17:58
Phenanthrene	**12**		**0.20**	**0.44**	**mg/Kg-dry**	100	14-Oct-2019 17:03
Phenol	**0.23**		**0.015**	**0.088**	**mg/Kg-dry**	10	15-Oct-2019 17:58
Pyrene	**270**		**0.80**	**4.4**	**mg/Kg-dry**	1000	14-Oct-2019 18:41
Surr: 2,4,6-Tribromophenol	*83.7*			*36-126*	*%REC*	*10*	*15-Oct-2019 17:58*
Surr: 2,4,6-Tribromophenol	*0*	*S*		*36-126*	*%REC*	*100*	*14-Oct-2019 17:03*
Surr: 2,4,6-Tribromophenol	*0*	*S*		*36-126*	*%REC*	*1000*	*14-Oct-2019 18:41*
Surr: 2-Fluorobiphenyl	*0*	*S*		*43-125*	*%REC*	*1000*	*14-Oct-2019 18:41*
Surr: 2-Fluorobiphenyl	*0*	*S*		*43-125*	*%REC*	*100*	*14-Oct-2019 17:03*
Surr: 2-Fluorobiphenyl	*81.6*			*43-125*	*%REC*	*10*	*15-Oct-2019 17:58*
Surr: 2-Fluorophenol	*101*			*37-125*	*%REC*	*10*	*15-Oct-2019 17:58*
Surr: 2-Fluorophenol	*0*	*S*		*37-125*	*%REC*	*100*	*14-Oct-2019 17:03*
Surr: 2-Fluorophenol	*0*	*S*		*37-125*	*%REC*	*1000*	*14-Oct-2019 18:41*
Surr: 4-Terphenyl-d14	*0*	*S*		*32-125*	*%REC*	*1000*	*14-Oct-2019 18:41*
Surr: 4-Terphenyl-d14	*0*	*S*		*32-125*	*%REC*	*100*	*14-Oct-2019 17:03*
Surr: 4-Terphenyl-d14	*35.0*			*32-125*	*%REC*	*10*	*15-Oct-2019 17:58*
Surr: Nitrobenzene-d5	*78.9*			*37-125*	*%REC*	*10*	*15-Oct-2019 17:58*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

RIGHT SOLUTIONS | RIGHT PARTNER

Client:	Weston Solutions, Inc.	**ANALYTICAL REPORT**
Project:	American Creosote - Site Walk	WorkOrder:HS19100570
Sample ID:	AC-4SC2-20191009-06-51	Lab ID:HS19100570-03
Collection Date:	09-Oct-2019 11:12	Matrix:Soil

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW-LEVEL SEMIVOLATILES BY 8270D		**Method:SW8270**			Prep:SW3541 / 11-Oct-2019		Analyst: GEY
Surr: Nitrobenzene-d5	*0*	*S*		*37-125*	*%REC*	*100*	*14-Oct-2019 17:03*
Surr: Nitrobenzene-d5	*0*	*S*		*37-125*	*%REC*	*1000*	*14-Oct-2019 18:41*
Surr: Phenol-d6	*0*	*S*		*40-125*	*%REC*	*100*	*14-Oct-2019 17:03*
Surr: Phenol-d6	*0*	*S*		*40-125*	*%REC*	*1000*	*14-Oct-2019 18:41*
Surr: Phenol-d6	*96.9*			*40-125*	*%REC*	*10*	*15-Oct-2019 17:58*
METALS BY SW6020A		**Method:SW6020**			Prep:SW3050A / 11-Oct-2019		Analyst: JC
Aluminum	**10,500**		**30.0**	**259**	**mg/Kg-dry**	100	15-Oct-2019 14:01
Antimony	**0.122**	J	**0.0841**	**0.647**	**mg/Kg-dry**	1	15-Oct-2019 00:30
Arsenic	**2.62**		**0.0906**	**0.647**	**mg/Kg-dry**	1	15-Oct-2019 00:30
Barium	**58.4**		**0.0388**	**0.647**	**mg/Kg-dry**	1	15-Oct-2019 00:30
Beryllium	**0.298**	J	**0.0272**	**0.647**	**mg/Kg-dry**	1	15-Oct-2019 00:30
Cadmium	**0.280**	J	**0.0349**	**0.647**	**mg/Kg-dry**	1	15-Oct-2019 00:30
Calcium	**910**		**6.42**	**64.7**	**mg/Kg-dry**	1	15-Oct-2019 00:30
Chromium	**11.1**		**0.0298**	**0.647**	**mg/Kg-dry**	1	15-Oct-2019 00:30
Cobalt	**1.45**		**0.0194**	**0.647**	**mg/Kg-dry**	1	15-Oct-2019 00:30
Copper	**13.6**		**0.0492**	**0.259**	**mg/Kg-dry**	1	15-Oct-2019 00:30
Iron	**7,290**		**2.37**	**64.7**	**mg/Kg-dry**	1	15-Oct-2019 00:30
Lead	**33.7**		**0.0168**	**0.647**	**mg/Kg-dry**	1	15-Oct-2019 00:30
Magnesium	**364**		**3.25**	**64.7**	**mg/Kg-dry**	1	15-Oct-2019 00:30
Manganese	**34.3**		**0.0556**	**0.647**	**mg/Kg-dry**	1	15-Oct-2019 00:30
Nickel	**3.90**		**0.0621**	**0.647**	**mg/Kg-dry**	1	15-Oct-2019 00:30
Potassium	**278**		**8.70**	**64.7**	**mg/Kg-dry**	1	15-Oct-2019 00:30
Selenium	**1.21**		**0.118**	**0.647**	**mg/Kg-dry**	1	15-Oct-2019 00:30
Silver	**0.0446**	J	**0.0194**	**0.647**	**mg/Kg-dry**	1	15-Oct-2019 00:30
Sodium	**19.4**	J	**5.40**	**64.7**	**mg/Kg-dry**	1	15-Oct-2019 00:30
Thallium	**0.386**	J	**0.289**	**0.647**	**mg/Kg-dry**	1	15-Oct-2019 00:30
Zinc	**33.7**		**0.220**	**0.647**	**mg/Kg-dry**	1	15-Oct-2019 00:30
MERCURY BY SW7471B		**Method:SW7471A**			Prep:SW7471A / 10-Oct-2019		Analyst: FO
Mercury	**0.439**		**0.000656**	**0.00464**	**mg/Kg-dry**	1	10-Oct-2019 18:36
MOISTURE - ASTM D2216		**Method:ASTM D2216**					Analyst: MWG
Percent Moisture	**25.5**		**0.0100**	**0.0100**	**wt%**	1	14-Oct-2019 11:14

Note: See Qualifiers Page for a list of qualifiers and their explanation.

RIGHT SOLUTIONS | RIGHT PARTNER

Client:	Weston Solutions, Inc.		**ANALYTICAL REPORT**
Project:	American Creosote - Site Walk		WorkOrder:HS19100570
Sample ID:	AC-3WP1-20191009-06-51		Lab ID:HS19100570-04
Collection Date:	09-Oct-2019 11:18		Matrix:Sludge

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW-LEVEL SEMIVOLATILES BY 8270D		**Method:SW8270**			Prep:SW3541 / 11-Oct-2019		Analyst: GEY
1,1´-Biphenyl	**5,300**		**150**	**580**	**mg/Kg-dry**	1000	15-Oct-2019 16:41
2,4,5-Trichlorophenol	U		22	58	mg/Kg-dry	100	14-Oct-2019 17:23
2,4,6-Trichlorophenol	U		15	58	mg/Kg-dry	100	14-Oct-2019 17:23
2,4-Dichlorophenol	U		11	58	mg/Kg-dry	100	14-Oct-2019 17:23
2,4-Dimethylphenol	U		29	58	mg/Kg-dry	100	14-Oct-2019 17:23
2,4-Dinitrophenol	U		39	120	mg/Kg-dry	100	14-Oct-2019 17:23
2,4-Dinitrotoluene	U		7.8	58	mg/Kg-dry	100	14-Oct-2019 17:23
2,6-Dinitrotoluene	U		29	58	mg/Kg-dry	100	14-Oct-2019 17:23
2-Chloronaphthalene	U		11	58	mg/Kg-dry	100	14-Oct-2019 17:23
2-Chlorophenol	U		11	58	mg/Kg-dry	100	14-Oct-2019 17:23
2-Methylnaphthalene	**37,000**		**440**	**2900**	**mg/Kg-dry**	10000	15-Oct-2019 17:01
2-Methylphenol	U		9.6	58	mg/Kg-dry	100	14-Oct-2019 17:23
2-Nitroaniline	U		17	58	mg/Kg-dry	100	14-Oct-2019 17:23
2-Nitrophenol	U		22	58	mg/Kg-dry	100	14-Oct-2019 17:23
3&4-Methylphenol	U		8.7	58	mg/Kg-dry	100	14-Oct-2019 17:23
3,3´-Dichlorobenzidine	U		22	58	mg/Kg-dry	100	14-Oct-2019 17:23
3-Nitroaniline	U		17	58	mg/Kg-dry	100	14-Oct-2019 17:23
4,6-Dinitro-2-methylphenol	U		18	58	mg/Kg-dry	100	14-Oct-2019 17:23
4-Bromophenyl phenyl ether	U		14	58	mg/Kg-dry	100	14-Oct-2019 17:23
4-Chloro-3-methylphenol	U		6.1	58	mg/Kg-dry	100	14-Oct-2019 17:23
4-Chloroaniline	U		9.6	58	mg/Kg-dry	100	14-Oct-2019 17:23
4-Chlorophenyl phenyl ether	U		13	58	mg/Kg-dry	100	14-Oct-2019 17:23
4-Nitroaniline	U		19	58	mg/Kg-dry	100	14-Oct-2019 17:23
4-Nitrophenol	U		17	120	mg/Kg-dry	100	14-Oct-2019 17:23
Acenaphthene	**22,000**		**44**	**290**	**mg/Kg-dry**	1000	15-Oct-2019 16:41
Acenaphthylene	**540**		**8.7**	**29**	**mg/Kg-dry**	100	14-Oct-2019 17:23
Acetophenone	**51**	J	**7.0**	**58**	**mg/Kg-dry**	100	14-Oct-2019 17:23
Anthracene	**240,000**		**440**	**2900**	**mg/Kg-dry**	10000	15-Oct-2019 17:01
Atrazine	U		17	58	mg/Kg-dry	100	14-Oct-2019 17:23
Benz(a)anthracene	**8,200**		**140**	**290**	**mg/Kg-dry**	1000	15-Oct-2019 16:41
Benzaldehyde	U	a	10	58	mg/Kg-dry	100	14-Oct-2019 17:23
Benzo(a)pyrene	**2,700**		**8.7**	**29**	**mg/Kg-dry**	100	14-Oct-2019 17:23
Benzo(b)fluoranthene	**3,300**		**100**	**290**	**mg/Kg-dry**	1000	15-Oct-2019 16:41
Benzo(g,h,i)perylene	**520**		**6.1**	**29**	**mg/Kg-dry**	100	14-Oct-2019 17:23
Benzo(k)fluoranthene	**2,800**		**7.8**	**29**	**mg/Kg-dry**	100	14-Oct-2019 17:23
Bis(2-chloroethoxy)methane	U		7.8	58	mg/Kg-dry	100	14-Oct-2019 17:23
Bis(2-chloroethyl)ether	U		9.6	58	mg/Kg-dry	100	14-Oct-2019 17:23
Bis(2-chloroisopropyl)ether	U		12	58	mg/Kg-dry	100	14-Oct-2019 17:23
Bis(2-ethylhexyl)phthalate	U		15	58	mg/Kg-dry	100	14-Oct-2019 17:23

Note: See Qualifiers Page for a list of qualifiers and their explanation.

RIGHT SOLUTIONS | RIGHT PARTNER

Client: Weston Solutions, Inc.
Project: American Creosote - Site Walk
Sample ID: AC-3WP1-20191009-06-51
Collection Date: 09-Oct-2019 11:18

ANALYTICAL REPORT
WorkOrder:HS19100570
Lab ID:HS19100570-04
Matrix:Sludge

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW-LEVEL SEMIVOLATILES BY 8270D		**Method:SW8270**			Prep:SW3541 / 11-Oct-2019		Analyst: GEY
Butyl benzyl phthalate	U		11	58	mg/Kg-dry	100	14-Oct-2019 17:23
Caprolactam	U		10	58	mg/Kg-dry	100	14-Oct-2019 17:23
Carbazole	**140,000**		**1000**	**5800**	**mg/Kg-dry**	10000	15-Oct-2019 17:01
Chrysene	**7,600**		**70**	**290**	**mg/Kg-dry**	1000	15-Oct-2019 16:41
Dibenz(a,h)anthracene	**360**		**14**	**29**	**mg/Kg-dry**	100	14-Oct-2019 17:23
Dibenzofuran	**25,000**		**61**	**290**	**mg/Kg-dry**	1000	15-Oct-2019 16:41
Diethyl phthalate	U		8.7	58	mg/Kg-dry	100	14-Oct-2019 17:23
Dimethyl phthalate	U		7.0	58	mg/Kg-dry	100	14-Oct-2019 17:23
Di-n-butyl phthalate	U		10	58	mg/Kg-dry	100	14-Oct-2019 17:23
Di-n-octyl phthalate	U		7.8	58	mg/Kg-dry	100	14-Oct-2019 17:23
Fluoranthene	**43,000**		**960**	**2900**	**mg/Kg-dry**	10000	15-Oct-2019 17:01
Fluorene	**41,000**		**960**	**2900**	**mg/Kg-dry**	10000	15-Oct-2019 17:01
Hexachlorobenzene	U		7.8	58	mg/Kg-dry	100	14-Oct-2019 17:23
Hexachlorobutadiene	U		10	58	mg/Kg-dry	100	14-Oct-2019 17:23
Hexachlorocyclopentadiene	U		7.0	58	mg/Kg-dry	100	14-Oct-2019 17:23
Hexachloroethane	U		13	58	mg/Kg-dry	100	14-Oct-2019 17:23
Indeno(1,2,3-cd)pyrene	**680**		**7.0**	**29**	**mg/Kg-dry**	100	14-Oct-2019 17:23
Isophorone	U		7.0	58	mg/Kg-dry	100	14-Oct-2019 17:23
Naphthalene	**80,000**		**520**	**2900**	**mg/Kg-dry**	10000	15-Oct-2019 17:01
Nitrobenzene	U		7.8	58	mg/Kg-dry	100	14-Oct-2019 17:23
N-Nitrosodi-n-propylamine	U		9.6	58	mg/Kg-dry	100	14-Oct-2019 17:23
N-Nitrosodiphenylamine	U		6.1	58	mg/Kg-dry	100	14-Oct-2019 17:23
Pentachlorophenol	U		29	58	mg/Kg-dry	100	14-Oct-2019 17:23
Phenanthrene	**96,000**		**1300**	**2900**	**mg/Kg-dry**	10000	15-Oct-2019 17:01
Phenol	U		9.6	58	mg/Kg-dry	100	14-Oct-2019 17:23
Pyrene	**28,000**		**52**	**290**	**mg/Kg-dry**	1000	15-Oct-2019 16:41
Surr: 2,4,6-Tribromophenol	*0*	*S*		*36-126*	*%REC*	*100*	*14-Oct-2019 17:23*
Surr: 2,4,6-Tribromophenol	*0*	*S*		*36-126*	*%REC*	*1000*	*15-Oct-2019 16:41*
Surr: 2,4,6-Tribromophenol	*0*	*S*		*36-126*	*%REC*	*10000*	*15-Oct-2019 17:01*
Surr: 2-Fluorobiphenyl	*0*	*S*		*43-125*	*%REC*	*10000*	*15-Oct-2019 17:01*
Surr: 2-Fluorobiphenyl	*0*	*S*		*43-125*	*%REC*	*1000*	*15-Oct-2019 16:41*
Surr: 2-Fluorobiphenyl	*0*	*S*		*43-125*	*%REC*	*100*	*14-Oct-2019 17:23*
Surr: 2-Fluorophenol	*0*	*S*		*37-125*	*%REC*	*100*	*14-Oct-2019 17:23*
Surr: 2-Fluorophenol	*0*	*S*		*37-125*	*%REC*	*1000*	*15-Oct-2019 16:41*
Surr: 2-Fluorophenol	*0*	*S*		*37-125*	*%REC*	*10000*	*15-Oct-2019 17:01*
Surr: 4-Terphenyl-d14	*0*	*S*		*32-125*	*%REC*	*10000*	*15-Oct-2019 17:01*
Surr: 4-Terphenyl-d14	*0*	*S*		*32-125*	*%REC*	*1000*	*15-Oct-2019 16:41*
Surr: 4-Terphenyl-d14	*0*	*S*		*32-125*	*%REC*	*100*	*14-Oct-2019 17:23*
Surr: Nitrobenzene-d5	*0*	*S*		*37-125*	*%REC*	*100*	*14-Oct-2019 17:23*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

RIGHT SOLUTIONS | RIGHT PARTNER

Client:	Weston Solutions, Inc.	**ANALYTICAL REPORT**
Project:	American Creosote - Site Walk	WorkOrder:HS19100570
Sample ID:	AC-3WP1-20191009-06-51	Lab ID:HS19100570-04
Collection Date:	09-Oct-2019 11:18	Matrix:Sludge

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW-LEVEL SEMIVOLATILES BY 8270D		**Method:SW8270**			Prep:SW3541 / 11-Oct-2019		Analyst: GEY
Surr: Nitrobenzene-d5	*0*	*S*		*37-125*	*%REC*	*1000*	*15-Oct-2019 16:41*
Surr: Nitrobenzene-d5	*0*	*S*		*37-125*	*%REC*	*10000*	*15-Oct-2019 17:01*
Surr: Phenol-d6	*0*	*S*		*40-125*	*%REC*	*1000*	*15-Oct-2019 16:41*
Surr: Phenol-d6	*0*	*S*		*40-125*	*%REC*	*10000*	*15-Oct-2019 17:01*
Surr: Phenol-d6	*0*	*S*		*40-125*	*%REC*	*100*	*14-Oct-2019 17:23*
METALS BY SW6020A		**Method:SW6020**			Prep:SW3050A / 11-Oct-2019		Analyst: JC
Aluminum	**5,300**		**31.9**	**275**	**mg/Kg-dry**	50	15-Oct-2019 14:03
Antimony	U		0.894	6.88	mg/Kg-dry	5	15-Oct-2019 00:32
Arsenic	**21.0**		**0.963**	**6.88**	**mg/Kg-dry**	5	15-Oct-2019 00:32
Barium	**79.0**		**0.413**	**6.88**	**mg/Kg-dry**	5	15-Oct-2019 00:32
Beryllium	U		0.289	6.88	mg/Kg-dry	5	15-Oct-2019 00:32
Cadmium	**6.22**	J	**0.371**	**6.88**	**mg/Kg-dry**	5	15-Oct-2019 00:32
Calcium	**657**	J	**68.2**	**688**	**mg/Kg-dry**	5	15-Oct-2019 00:32
Chromium	**7.39**		**0.316**	**6.88**	**mg/Kg-dry**	5	15-Oct-2019 00:32
Cobalt	**1.27**	J	**0.206**	**6.88**	**mg/Kg-dry**	5	15-Oct-2019 00:32
Copper	**243**		**0.523**	**2.75**	**mg/Kg-dry**	5	15-Oct-2019 00:32
Iron	**4,820**		**25.2**	**688**	**mg/Kg-dry**	5	15-Oct-2019 00:32
Lead	**535**		**0.179**	**6.88**	**mg/Kg-dry**	5	15-Oct-2019 00:32
Magnesium	**252**	J	**34.5**	**688**	**mg/Kg-dry**	5	15-Oct-2019 00:32
Manganese	**42.3**		**0.591**	**6.88**	**mg/Kg-dry**	5	15-Oct-2019 00:32
Nickel	**6.79**	J	**0.660**	**6.88**	**mg/Kg-dry**	5	15-Oct-2019 00:32
Potassium	**182**	J	**92.4**	**688**	**mg/Kg-dry**	5	15-Oct-2019 00:32
Selenium	**2.51**	J	**1.25**	**6.88**	**mg/Kg-dry**	5	15-Oct-2019 00:32
Silver	**0.259**	J	**0.206**	**6.88**	**mg/Kg-dry**	5	15-Oct-2019 00:32
Sodium	U		57.3	688	mg/Kg-dry	5	15-Oct-2019 00:32
Thallium	**25.3**		**3.07**	**6.88**	**mg/Kg-dry**	5	15-Oct-2019 00:32
Zinc	**236**		**2.34**	**6.88**	**mg/Kg-dry**	5	15-Oct-2019 00:32
MERCURY BY SW7471B		**Method:SW7471A**			Prep:SW7471A / 10-Oct-2019		Analyst: FO
Mercury	**17.6**		**0.0139**	**0.0984**	**mg/Kg-dry**	10	10-Oct-2019 18:52
MOISTURE - ASTM D2216		**Method:ASTM D2216**					Analyst: MWG
Percent Moisture	**65.6**		**0.0100**	**0.0100**	**wt%**	1	14-Oct-2019 11:14

Note: See Qualifiers Page for a list of qualifiers and their explanation.

RIGHT SOLUTIONS | RIGHT PARTNER

Client: Weston Solutions, Inc.
Project: American Creosote - Site Walk
Sample ID: AC-4SC3-20191009-06-51
Collection Date: 09-Oct-2019 11:30

ANALYTICAL REPORT
WorkOrder:HS19100570
Lab ID:HS19100570-05
Matrix:Soil

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW-LEVEL SEMIVOLATILES BY 8270D		**Method:SW8270**			Prep:SW3541 / 11-Oct-2019		Analyst: GEY
1,1´-Biphenyl	**0.45**		**0.021**	**0.080**	**mg/Kg-dry**	10	15-Oct-2019 18:18
2,4,5-Trichlorophenol	U		0.030	0.080	mg/Kg-dry	10	15-Oct-2019 18:18
2,4,6-Trichlorophenol	U		0.021	0.080	mg/Kg-dry	10	15-Oct-2019 18:18
2,4-Dichlorophenol	U		0.016	0.080	mg/Kg-dry	10	15-Oct-2019 18:18
2,4-Dimethylphenol	**0.71**		**0.040**	**0.080**	**mg/Kg-dry**	10	15-Oct-2019 18:18
2,4-Dinitrophenol	U		0.054	0.16	mg/Kg-dry	10	15-Oct-2019 18:18
2,4-Dinitrotoluene	U		0.011	0.080	mg/Kg-dry	10	15-Oct-2019 18:18
2,6-Dinitrotoluene	U		0.040	0.080	mg/Kg-dry	10	15-Oct-2019 18:18
2-Chloronaphthalene	U		0.016	0.080	mg/Kg-dry	10	15-Oct-2019 18:18
2-Chlorophenol	U		0.016	0.080	mg/Kg-dry	10	15-Oct-2019 18:18
2-Methylnaphthalene	**2.0**		**0.0060**	**0.040**	**mg/Kg-dry**	10	15-Oct-2019 18:18
2-Methylphenol	U		0.013	0.080	mg/Kg-dry	10	15-Oct-2019 18:18
2-Nitroaniline	U		0.023	0.080	mg/Kg-dry	10	15-Oct-2019 18:18
2-Nitrophenol	U		0.030	0.080	mg/Kg-dry	10	15-Oct-2019 18:18
3&4-Methylphenol	**1.8**		**0.012**	**0.080**	**mg/Kg-dry**	10	15-Oct-2019 18:18
3,3´-Dichlorobenzidine	U		0.030	0.080	mg/Kg-dry	10	15-Oct-2019 18:18
3-Nitroaniline	U		0.023	0.080	mg/Kg-dry	10	15-Oct-2019 18:18
4,6-Dinitro-2-methylphenol	U		0.025	0.080	mg/Kg-dry	10	15-Oct-2019 18:18
4-Bromophenyl phenyl ether	U		0.019	0.080	mg/Kg-dry	10	15-Oct-2019 18:18
4-Chloro-3-methylphenol	U		0.0084	0.080	mg/Kg-dry	10	15-Oct-2019 18:18
4-Chloroaniline	U		0.013	0.080	mg/Kg-dry	10	15-Oct-2019 18:18
4-Chlorophenyl phenyl ether	U		0.018	0.080	mg/Kg-dry	10	15-Oct-2019 18:18
4-Nitroaniline	U		0.027	0.080	mg/Kg-dry	10	15-Oct-2019 18:18
4-Nitrophenol	U		0.023	0.16	mg/Kg-dry	10	15-Oct-2019 18:18
Acenaphthene	**1.9**		**0.0060**	**0.040**	**mg/Kg-dry**	10	15-Oct-2019 18:18
Acenaphthylene	**26**		**0.12**	**0.40**	**mg/Kg-dry**	100	14-Oct-2019 17:42
Acetophenone	**0.59**		**0.0097**	**0.080**	**mg/Kg-dry**	10	15-Oct-2019 18:18
Anthracene	**16**		**0.60**	**4.0**	**mg/Kg-dry**	1000	15-Oct-2019 17:20
Atrazine	U		0.024	0.080	mg/Kg-dry	10	15-Oct-2019 18:18
Benz(a)anthracene	**160**		**1.9**	**4.0**	**mg/Kg-dry**	1000	15-Oct-2019 17:20
Benzaldehyde	**0.31**	a	**0.014**	**0.080**	**mg/Kg-dry**	10	15-Oct-2019 18:18
Benzo(a)pyrene	**110**		**1.2**	**4.0**	**mg/Kg-dry**	1000	15-Oct-2019 17:20
Benzo(b)fluoranthene	**290**		**1.4**	**4.0**	**mg/Kg-dry**	1000	15-Oct-2019 17:20
Benzo(g,h,i)perylene	**36**		**0.084**	**0.40**	**mg/Kg-dry**	100	14-Oct-2019 17:42
Benzo(k)fluoranthene	**140**		**1.1**	**4.0**	**mg/Kg-dry**	1000	15-Oct-2019 17:20
Bis(2-chloroethoxy)methane	U		0.011	0.080	mg/Kg-dry	10	15-Oct-2019 18:18
Bis(2-chloroethyl)ether	U		0.013	0.080	mg/Kg-dry	10	15-Oct-2019 18:18
Bis(2-chloroisopropyl)ether	U		0.017	0.080	mg/Kg-dry	10	15-Oct-2019 18:18
Bis(2-ethylhexyl)phthalate	U		0.021	0.080	mg/Kg-dry	10	15-Oct-2019 18:18

Note: See Qualifiers Page for a list of qualifiers and their explanation.

RIGHT SOLUTIONS | RIGHT PARTNER

Client:	Weston Solutions, Inc.		**ANALYTICAL REPORT**
Project:	American Creosote - Site Walk		WorkOrder:HS19100570
Sample ID:	AC-4SC3-20191009-06-51		Lab ID:HS19100570-05
Collection Date:	09-Oct-2019 11:30		Matrix:Soil

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW-LEVEL SEMIVOLATILES BY 8270D		**Method:SW8270**			Prep:SW3541 / 11-Oct-2019		Analyst: GEY
Butyl benzyl phthalate	U		0.016	0.080	mg/Kg-dry	10	15-Oct-2019 18:18
Caprolactam	U		0.014	0.080	mg/Kg-dry	10	15-Oct-2019 18:18
Carbazole	**9.9**		**1.4**	**8.0**	**mg/Kg-dry**	1000	15-Oct-2019 17:20
Chrysene	**230**		**0.97**	**4.0**	**mg/Kg-dry**	1000	15-Oct-2019 17:20
Dibenz(a,h)anthracene	**24**		**0.19**	**0.40**	**mg/Kg-dry**	100	14-Oct-2019 17:42
Dibenzofuran	**1.8**		**0.0084**	**0.040**	**mg/Kg-dry**	10	15-Oct-2019 18:18
Diethyl phthalate	U		0.012	0.080	mg/Kg-dry	10	15-Oct-2019 18:18
Dimethyl phthalate	U		0.0097	0.080	mg/Kg-dry	10	15-Oct-2019 18:18
Di-n-butyl phthalate	U		0.014	0.080	mg/Kg-dry	10	15-Oct-2019 18:18
Di-n-octyl phthalate	U		0.011	0.080	mg/Kg-dry	10	15-Oct-2019 18:18
Fluoranthene	**310**		**1.3**	**4.0**	**mg/Kg-dry**	1000	15-Oct-2019 17:20
Fluorene	**3.3**		**0.013**	**0.040**	**mg/Kg-dry**	10	15-Oct-2019 18:18
Hexachlorobenzene	U		0.011	0.080	mg/Kg-dry	10	15-Oct-2019 18:18
Hexachlorobutadiene	U		0.014	0.080	mg/Kg-dry	10	15-Oct-2019 18:18
Hexachlorocyclopentadiene	U		0.0097	0.080	mg/Kg-dry	10	15-Oct-2019 18:18
Hexachloroethane	U		0.018	0.080	mg/Kg-dry	10	15-Oct-2019 18:18
Indeno(1,2,3-cd)pyrene	**83**		**0.97**	**4.0**	**mg/Kg-dry**	1000	15-Oct-2019 17:20
Isophorone	U		0.0097	0.080	mg/Kg-dry	10	15-Oct-2019 18:18
Naphthalene	**6.7**		**0.072**	**0.40**	**mg/Kg-dry**	100	14-Oct-2019 17:42
Nitrobenzene	U		0.011	0.080	mg/Kg-dry	10	15-Oct-2019 18:18
N-Nitrosodi-n-propylamine	U		0.013	0.080	mg/Kg-dry	10	15-Oct-2019 18:18
N-Nitrosodiphenylamine	U		0.0084	0.080	mg/Kg-dry	10	15-Oct-2019 18:18
Pentachlorophenol	U		0.040	0.080	mg/Kg-dry	10	15-Oct-2019 18:18
Phenanthrene	**19**		**0.18**	**0.40**	**mg/Kg-dry**	100	14-Oct-2019 17:42
Phenol	**0.83**		**0.013**	**0.080**	**mg/Kg-dry**	10	15-Oct-2019 18:18
Pyrene	**370**		**0.72**	**4.0**	**mg/Kg-dry**	1000	15-Oct-2019 17:20
Surr: 2,4,6-Tribromophenol	*0*	*S*		*36-126*	*%REC*	*1000*	*15-Oct-2019 17:20*
Surr: 2,4,6-Tribromophenol	*81.9*			*36-126*	*%REC*	*10*	*15-Oct-2019 18:18*
Surr: 2,4,6-Tribromophenol	*0*	*S*		*36-126*	*%REC*	*100*	*14-Oct-2019 17:42*
Surr: 2-Fluorobiphenyl	*0*	*S*		*43-125*	*%REC*	*100*	*14-Oct-2019 17:42*
Surr: 2-Fluorobiphenyl	*71.2*			*43-125*	*%REC*	*10*	*15-Oct-2019 18:18*
Surr: 2-Fluorobiphenyl	*0*	*S*		*43-125*	*%REC*	*1000*	*15-Oct-2019 17:20*
Surr: 2-Fluorophenol	*0*	*S*		*37-125*	*%REC*	*1000*	*15-Oct-2019 17:20*
Surr: 2-Fluorophenol	*109*			*37-125*	*%REC*	*10*	*15-Oct-2019 18:18*
Surr: 2-Fluorophenol	*0*	*S*		*37-125*	*%REC*	*100*	*14-Oct-2019 17:42*
Surr: 4-Terphenyl-d14	*0*	*S*		*32-125*	*%REC*	*100*	*14-Oct-2019 17:42*
Surr: 4-Terphenyl-d14	*59.2*			*32-125*	*%REC*	*10*	*15-Oct-2019 18:18*
Surr: 4-Terphenyl-d14	*0*	*S*		*32-125*	*%REC*	*1000*	*15-Oct-2019 17:20*
Surr: Nitrobenzene-d5	*0*	*S*		*37-125*	*%REC*	*1000*	*15-Oct-2019 17:20*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

RIGHT SOLUTIONS | RIGHT PARTNER

Client:	Weston Solutions, Inc.	**ANALYTICAL REPORT**	
Project:	American Creosote - Site Walk	WorkOrder:HS19100570	
Sample ID:	AC-4SC3-20191009-06-51	Lab ID:HS19100570-05	
Collection Date:	09-Oct-2019 11:30	Matrix:Soil	

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW-LEVEL SEMIVOLATILES BY 8270D		**Method:SW8270**			Prep:SW3541 / 11-Oct-2019		Analyst: GEY
Surr: Nitrobenzene-d5	*60.0*			*37-125*	*%REC*	*10*	*15-Oct-2019 18:18*
Surr: Nitrobenzene-d5	*0*	*S*		*37-125*	*%REC*	*100*	*14-Oct-2019 17:42*
Surr: Phenol-d6	*0*	*S*		*40-125*	*%REC*	*100*	*14-Oct-2019 17:42*
Surr: Phenol-d6	*111*			*40-125*	*%REC*	*10*	*15-Oct-2019 18:18*
Surr: Phenol-d6	*0*	*S*		*40-125*	*%REC*	*1000*	*15-Oct-2019 17:20*
METALS BY SW6020A		**Method:SW6020**			Prep:SW3050A / 11-Oct-2019		Analyst: JC
Aluminum	**6,230**		**27.1**	**233**	**mg/Kg-dry**	100	15-Oct-2019 14:06
Antimony	**0.204**	J	**0.0758**	**0.583**	**mg/Kg-dry**	1	15-Oct-2019 00:34
Arsenic	**5.48**		**0.0816**	**0.583**	**mg/Kg-dry**	1	15-Oct-2019 00:34
Barium	**56.4**		**0.0350**	**0.583**	**mg/Kg-dry**	1	15-Oct-2019 00:34
Beryllium	**0.190**	J	**0.0245**	**0.583**	**mg/Kg-dry**	1	15-Oct-2019 00:34
Cadmium	**0.269**	J	**0.0315**	**0.583**	**mg/Kg-dry**	1	15-Oct-2019 00:34
Calcium	**652**		**5.78**	**58.3**	**mg/Kg-dry**	1	15-Oct-2019 00:34
Chromium	**9.47**		**0.0268**	**0.583**	**mg/Kg-dry**	1	15-Oct-2019 00:34
Cobalt	**2.38**		**0.0175**	**0.583**	**mg/Kg-dry**	1	15-Oct-2019 00:34
Copper	**16.6**		**0.0443**	**0.233**	**mg/Kg-dry**	1	15-Oct-2019 00:34
Iron	**6,200**		**2.13**	**58.3**	**mg/Kg-dry**	1	15-Oct-2019 00:34
Lead	**33.7**		**0.0152**	**0.583**	**mg/Kg-dry**	1	15-Oct-2019 00:34
Magnesium	**347**		**2.93**	**58.3**	**mg/Kg-dry**	1	15-Oct-2019 00:34
Manganese	**680**		**5.01**	**58.3**	**mg/Kg-dry**	100	15-Oct-2019 14:06
Nickel	**3.50**		**0.0560**	**0.583**	**mg/Kg-dry**	1	15-Oct-2019 00:34
Potassium	**174**		**7.84**	**58.3**	**mg/Kg-dry**	1	15-Oct-2019 00:34
Selenium	**0.940**		**0.106**	**0.583**	**mg/Kg-dry**	1	15-Oct-2019 00:34
Silver	**0.0440**	J	**0.0175**	**0.583**	**mg/Kg-dry**	1	15-Oct-2019 00:34
Sodium	**16.0**	J	**4.86**	**58.3**	**mg/Kg-dry**	1	15-Oct-2019 00:34
Thallium	**0.278**	J	**0.260**	**0.583**	**mg/Kg-dry**	1	15-Oct-2019 00:34
Zinc	**38.6**		**0.198**	**0.583**	**mg/Kg-dry**	1	15-Oct-2019 00:34
MERCURY BY SW7471B		**Method:SW7471A**			Prep:SW7471A / 10-Oct-2019		Analyst: FO
Mercury	**1.91**		**0.00286**	**0.0202**	**mg/Kg-dry**	5	10-Oct-2019 18:54
MOISTURE - ASTM D2216		**Method:ASTM D2216**					Analyst: MWG
Percent Moisture	**17.6**		**0.0100**	**0.0100**	**wt%**	1	14-Oct-2019 11:14

Note: See Qualifiers Page for a list of qualifiers and their explanation.

RIGHT SOLUTIONS | RIGHT PARTNER

WEIGHT LOG

Client: Weston Solutions, Inc.
Project: American Creosote - Site Walk
WorkOrder: HS19100570

Batch ID: 146253 **Method:** MERCURY BY SW7471B **Prep:** HG_S_LOWPR

SampID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS19100570-01	1	0.5596	40 (mL)	71.48
HS19100570-02	1	0.5708	40 (mL)	70.08
HS19100570-03	1	0.5767	40 (mL)	69.36
HS19100570-04	1	0.5895	40 (mL)	67.85
HS19100570-05	1	0.5981	40 (mL)	66.88

Batch ID: 146287 **Method:** LOW-LEVEL SEMIVOLATILES BY 8270D **Prep:** 3541_B_LOW

SampID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS19100570-01	1	30.13	1 (mL)	0.03319
HS19100570-02	1	30.04	1 (mL)	0.03329
HS19100570-03	1	30.22	1 (mL)	0.03309
HS19100570-04	1	10.01	10 (mL)	0.999
HS19100570-05	1	30.17	1 (mL)	0.03315

Batch ID: 146288 **Method:** METALS BY SW6020A **Prep:** 3050_I_LOW

SampID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS19100570-01	1	0.5184	50 (mL)	96.45
HS19100570-02	1	0.5189	50 (mL)	96.36
HS19100570-03	1	0.5186	50 (mL)	96.41
HS19100570-04	1	0.5285	50 (mL)	94.61
HS19100570-05	1	0.5204	50 (mL)	96.08

RIGHT SOLUTIONS | RIGHT PARTNER

Client: Weston Solutions, Inc.
Project: American Creosote - Site Walk
WorkOrder: HS19100570

DATES REPORT

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
Batch ID: 146253 (0)	**Test Name :** MERCURY BY SW7471B				**Matrix:** Sludge	
HS19100570-04	AC-3WP1-20191009-06-51	09 Oct 2019 11:18		10 Oct 2019 11:00	10 Oct 2019 18:52	10
Batch ID: 146253 (0)	**Test Name :** MERCURY BY SW7471B				**Matrix:** Soil	
HS19100570-01	AC-5CP1-20191009-06-51	09 Oct 2019 10:45		10 Oct 2019 11:00	10 Oct 2019 18:33	1
HS19100570-02	AC-4SC1-20191009-06-51	09 Oct 2019 11:05		10 Oct 2019 11:00	10 Oct 2019 18:35	1
HS19100570-03	AC-4SC2-20191009-06-51	09 Oct 2019 11:12		10 Oct 2019 11:00	10 Oct 2019 18:36	1
HS19100570-05	AC-4SC3-20191009-06-51	09 Oct 2019 11:30		10 Oct 2019 11:00	10 Oct 2019 18:54	5
Batch ID: 146287 (0)	**Test Name :** LOW-LEVEL SEMIVOLATILES BY 8270D				**Matrix:** Sludge	
HS19100570-04	AC-3WP1-20191009-06-51	09 Oct 2019 11:18		11 Oct 2019 11:02	15 Oct 2019 17:01	10000
HS19100570-04	AC-3WP1-20191009-06-51	09 Oct 2019 11:18		11 Oct 2019 11:02	15 Oct 2019 16:41	1000
HS19100570-04	AC-3WP1-20191009-06-51	09 Oct 2019 11:18		11 Oct 2019 11:02	14 Oct 2019 17:23	100
Batch ID: 146287 (0)	**Test Name :** LOW-LEVEL SEMIVOLATILES BY 8270D				**Matrix:** Soil	
HS19100570-01	AC-5CP1-20191009-06-51	09 Oct 2019 10:45		11 Oct 2019 11:02	14 Oct 2019 18:02	10
HS19100570-01	AC-5CP1-20191009-06-51	09 Oct 2019 10:45		11 Oct 2019 11:02	14 Oct 2019 16:24	100
HS19100570-02	AC-4SC1-20191009-06-51	09 Oct 2019 11:05		11 Oct 2019 11:02	15 Oct 2019 17:39	10
HS19100570-02	AC-4SC1-20191009-06-51	09 Oct 2019 11:05		11 Oct 2019 11:02	14 Oct 2019 18:21	1000
HS19100570-02	AC-4SC1-20191009-06-51	09 Oct 2019 11:05		11 Oct 2019 11:02	14 Oct 2019 16:44	100
HS19100570-03	AC-4SC2-20191009-06-51	09 Oct 2019 11:12		11 Oct 2019 11:02	15 Oct 2019 17:58	10
HS19100570-03	AC-4SC2-20191009-06-51	09 Oct 2019 11:12		11 Oct 2019 11:02	14 Oct 2019 18:41	1000
HS19100570-03	AC-4SC2-20191009-06-51	09 Oct 2019 11:12		11 Oct 2019 11:02	14 Oct 2019 17:03	100
HS19100570-05	AC-4SC3-20191009-06-51	09 Oct 2019 11:30		11 Oct 2019 11:02	15 Oct 2019 18:18	10
HS19100570-05	AC-4SC3-20191009-06-51	09 Oct 2019 11:30		11 Oct 2019 11:02	15 Oct 2019 17:20	1000
HS19100570-05	AC-4SC3-20191009-06-51	09 Oct 2019 11:30		11 Oct 2019 11:02	14 Oct 2019 17:42	100
Batch ID: 146288 (0)	**Test Name :** METALS BY SW6020A				**Matrix:** Sludge	
HS19100570-04	AC-3WP1-20191009-06-51	09 Oct 2019 11:18		11 Oct 2019 11:06	15 Oct 2019 14:03	50
HS19100570-04	AC-3WP1-20191009-06-51	09 Oct 2019 11:18		11 Oct 2019 11:06	15 Oct 2019 00:32	5
Batch ID: 146288 (0)	**Test Name :** METALS BY SW6020A				**Matrix:** Soil	
HS19100570-01	AC-5CP1-20191009-06-51	09 Oct 2019 10:45		11 Oct 2019 11:06	15 Oct 2019 13:33	50
HS19100570-01	AC-5CP1-20191009-06-51	09 Oct 2019 10:45		11 Oct 2019 11:06	14 Oct 2019 23:43	1
HS19100570-02	AC-4SC1-20191009-06-51	09 Oct 2019 11:05		11 Oct 2019 11:06	15 Oct 2019 13:59	50
HS19100570-02	AC-4SC1-20191009-06-51	09 Oct 2019 11:05		11 Oct 2019 11:06	15 Oct 2019 00:27	1
HS19100570-03	AC-4SC2-20191009-06-51	09 Oct 2019 11:12		11 Oct 2019 11:06	15 Oct 2019 14:01	100
HS19100570-03	AC-4SC2-20191009-06-51	09 Oct 2019 11:12		11 Oct 2019 11:06	15 Oct 2019 00:30	1
HS19100570-05	AC-4SC3-20191009-06-51	09 Oct 2019 11:30		11 Oct 2019 11:06	15 Oct 2019 14:06	100
HS19100570-05	AC-4SC3-20191009-06-51	09 Oct 2019 11:30		11 Oct 2019 11:06	15 Oct 2019 00:34	1
Batch ID: R348297 (0)	**Test Name :** MOISTURE - ASTM D2216				**Matrix:** Sludge	
HS19100570-04	AC-3WP1-20191009-06-51	09 Oct 2019 11:18			14 Oct 2019 11:14	1

RIGHT SOLUTIONS | RIGHT PARTNER

Client: Weston Solutions, Inc.
Project: American Creosote - Site Walk
WorkOrder: HS19100570

DATES REPORT

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
Batch ID: R348297 (0)	**Test Name :** MOISTURE - ASTM D2216				**Matrix:** Soil	
HS19100570-01	AC-5CP1-20191009-06-51	09 Oct 2019 10:45			14 Oct 2019 11:14	1
HS19100570-02	AC-4SC1-20191009-06-51	09 Oct 2019 11:05			14 Oct 2019 11:14	1
HS19100570-03	AC-4SC2-20191009-06-51	09 Oct 2019 11:12			14 Oct 2019 11:14	1
HS19100570-05	AC-4SC3-20191009-06-51	09 Oct 2019 11:30			14 Oct 2019 11:14	1
Batch ID: R348770 (0)	**Test Name :** SUBCONTRACT ANALYSIS - DIOXINS/FURANS 8290A				**Matrix:** Sludge	
HS19100570-04	AC-3WP1-20191009-06-51	09 Oct 2019 11:18			21 Oct 2019 19:05	1
Batch ID: R348770 (0)	**Test Name :** SUBCONTRACT ANALYSIS - DIOXINS/FURANS 8290A				**Matrix:** Soil	
HS19100570-01	AC-5CP1-20191009-06-51	09 Oct 2019 10:45			21 Oct 2019 19:05	1
HS19100570-02	AC-4SC1-20191009-06-51	09 Oct 2019 11:05			21 Oct 2019 19:05	1
HS19100570-03	AC-4SC2-20191009-06-51	09 Oct 2019 11:12			21 Oct 2019 19:05	1
HS19100570-05	AC-4SC3-20191009-06-51	09 Oct 2019 11:30			21 Oct 2019 19:05	1

RIGHT SOLUTIONS | RIGHT PARTNER

Client: Weston Solutions, Inc.
Project: American Creosote - Site Walk
WorkOrder: HS19100570

QC BATCH REPORT

Batch ID: 146253 (0) **Instrument: HG03** **Method: MERCURY BY SW7471B**

MBLK Sample ID: **MBLK-146253** Units: **ug/Kg** Analysis Date: **10-Oct-2019 18:02**
Client ID: Run ID: **HG03_348092** SeqNo: **5291987** PrepDate: **10-Oct-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	U	3.32								

LCS Sample ID: **LCS-146253** Units: **ug/Kg** Analysis Date: **10-Oct-2019 18:04**
Client ID: Run ID: **HG03_348092** SeqNo: **5291988** PrepDate: **10-Oct-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	340.7	3.32	333.3	0	102	80 - 120				

MS Sample ID: **HS19100546-02MS** Units: **ug/Kg** Analysis Date: **10-Oct-2019 18:08**
Client ID: Run ID: **HG03_348092** SeqNo: **5291990** PrepDate: **10-Oct-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	345.1	3.36	337	1.559	102	80 - 120				

MSD Sample ID: **HS19100546-02MSD** Units: **ug/Kg** Analysis Date: **10-Oct-2019 18:09**
Client ID: Run ID: **HG03_348092** SeqNo: **5291991** PrepDate: **10-Oct-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	344.4	3.38	338.4	1.559	101	80 - 120	345.1	0.182	20	

The following samples were analyzed in this batch: HS19100570-01 HS19100570-02 HS19100570-03 HS19100570-04 HS19100570-05

RIGHT SOLUTIONS | RIGHT PARTNER

Client: Weston Solutions, Inc.
Project: American Creosote - Site Walk
WorkOrder: HS19100570

QC BATCH REPORT

Batch ID: 146288 (0) **Instrument: ICPMS04** **Method: METALS BY SW6020A**

MBLK Sample ID: **MBLK-146288** Units: **mg/Kg** Analysis Date: **15-Oct-2019 13:28**
Client ID: Run ID: **ICPMS04_348315** SeqNo: **5297148** PrepDate: **11-Oct-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.7254	1.96								J
Antimony	0.2062	0.489								J
Arsenic	U	0.489								
Barium	U	0.489								
Beryllium	U	0.489								
Cadmium	U	0.489								
Calcium	5.012	48.9								J
Chromium	U	0.489								
Cobalt	U	0.489								
Copper	U	0.196								
Iron	U	48.9								
Lead	U	0.489								
Magnesium	U	48.9								
Manganese	0.1146	0.489								J
Nickel	U	0.489								
Potassium	U	48.9								
Selenium	U	0.489								
Silver	U	0.489								
Sodium	4.782	48.9								J
Thallium	U	0.489								
Zinc	U	0.489								

LCS Sample ID: **LCS-146288** Units: **mg/Kg** Analysis Date: **15-Oct-2019 13:30**
Client ID: Run ID: **ICPMS04_348315** SeqNo: **5297149** PrepDate: **11-Oct-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	56.38	1.95	58.58	0	96.2	80 - 120				

RIGHT SOLUTIONS | RIGHT PARTNER

Client: Weston Solutions, Inc.
Project: American Creosote - Site Walk
WorkOrder: HS19100570

QC BATCH REPORT

Batch ID: **146288 (0)** **Instrument:** **ICPMS04** **Method:** **METALS BY SW6020A**

LCS Sample ID: **LCS-146288** Units: **mg/Kg** Analysis Date: **14-Oct-2019 23:41**
Client ID: Run ID: **ICPMS04_348222** SeqNo: **5296074** PrepDate: **11-Oct-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	9.335	0.488	9.764	0	95.6	80 - 120				
Arsenic	9.502	0.488	9.764	0	97.3	80 - 120				
Barium	9.44	0.488	9.764	0	96.7	80 - 120				
Beryllium	9.254	0.488	9.764	0	94.8	80 - 120				
Cadmium	9.509	0.488	9.764	0	97.4	80 - 120				
Calcium	938.7	48.8	976.4	0	96.1	80 - 120				
Chromium	9.814	0.488	9.764	0	101	80 - 120				
Cobalt	9.648	0.488	9.764	0	98.8	80 - 120				
Copper	9.529	0.195	9.764	0	97.6	80 - 120				
Iron	955.2	48.8	976.4	0	97.8	80 - 120				
Lead	9.361	0.488	9.764	0	95.9	80 - 120				
Magnesium	961.2	48.8	976.4	0	98.5	80 - 120				
Manganese	9.608	0.488	9.764	0	98.4	80 - 120				
Nickel	9.627	0.488	9.764	0	98.6	80 - 120				
Potassium	968.7	48.8	976.4	0	99.2	80 - 120				
Selenium	9.543	0.488	9.764	0	97.7	80 - 120				
Silver	9.129	0.488	9.764	0	93.5	80 - 120				
Sodium	966.3	48.8	976.4	0	99.0	80 - 120				
Thallium	9.766	0.488	9.764	0	100	80 - 120				
Zinc	9.315	0.488	9.764	0	95.4	80 - 120				

MS Sample ID: **HS19100570-01MS** Units: **mg/Kg** Analysis Date: **15-Oct-2019 13:37**
Client ID: **AC-5CP1-20191009-06-51** Run ID: **ICPMS04_348315** SeqNo: **5297152** PrepDate: **11-Oct-2019** DF: **50**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	7244	96.2	9.617	5669	16400	75 - 125				SO

RIGHT SOLUTIONS | RIGHT PARTNER

Client: Weston Solutions, Inc.
Project: American Creosote - Site Walk
WorkOrder: HS19100570

QC BATCH REPORT

Batch ID: **146288 (0)** **Instrument:** **ICPMS04** **Method:** **METALS BY SW6020A**

MS Sample ID: **HS19100570-01MS** Units: **mg/Kg** Analysis Date: **14-Oct-2019 23:48**
Client ID: **AC-5CP1-20191009-06-51** Run ID: **ICPMS04_348222** SeqNo: **5296077** PrepDate: **11-Oct-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	5.646	0.481	9.617	0.4035	54.5	75 - 125				S
Arsenic	13.23	0.481	9.617	4.349	92.3	75 - 125				
Barium	84.49	0.481	9.617	69.91	152	75 - 125				SO
Beryllium	9.562	0.481	9.617	0.2597	96.7	75 - 125				
Cadmium	9.403	0.481	9.617	0.2101	95.6	75 - 125				
Calcium	2659	48.1	961.7	1379	133	75 - 125				S
Chromium	17.12	0.481	9.617	7.649	98.5	75 - 125				
Cobalt	12.49	0.481	9.617	2.435	105	75 - 125				
Copper	36.5	0.192	9.617	25.29	117	75 - 125				
Iron	9271	48.1	961.7	7155	220	75 - 125				SO
Lead	59.82	0.481	9.617	53.3	67.9	75 - 125				SO
Magnesium	1484	48.1	961.7	449.9	108	75 - 125				
Manganese	255.6	0.481	9.617	194.7	633	75 - 125				SEO
Nickel	17.05	0.481	9.617	6.185	113	75 - 125				
Potassium	1214	48.1	961.7	224.7	103	75 - 125				
Selenium	9.502	0.481	9.617	0.7001	91.5	75 - 125				
Silver	8.857	0.481	9.617	0.02903	91.8	75 - 125				
Sodium	1116	48.1	961.7	83.39	107	75 - 125				
Thallium	9.117	0.481	9.617	0.1302	93.4	75 - 125				
Zinc	61.7	0.481	9.617	52.35	97.3	75 - 125				O

MSD Sample ID: **HS19100570-01MSD** Units: **mg/Kg** Analysis Date: **15-Oct-2019 13:39**
Client ID: **AC-5CP1-20191009-06-51** Run ID: **ICPMS04_348315** SeqNo: **5297153** PrepDate: **11-Oct-2019** DF: **50**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	7589	97.8	9.779	5669	19600	75 - 125	7244	4.66	20	SO

RIGHT SOLUTIONS | RIGHT PARTNER

Client: Weston Solutions, Inc.
Project: American Creosote - Site Walk
WorkOrder: HS19100570

QC BATCH REPORT

Batch ID: 146288 (0) **Instrument:** ICPMS04 **Method:** METALS BY SW6020A

MSD Sample ID: **HS19100570-01MSD** Units: **mg/Kg** Analysis Date: **14-Oct-2019 23:50**
Client ID: **AC-5CP1-20191009-06-51** Run ID: **ICPMS04_348222** SeqNo: **5296078** PrepDate: **11-Oct-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	5.539	0.489	9.779	0.4035	52.5	75 - 125	5.646	1.92	20	S
Arsenic	14.85	0.489	9.779	4.349	107	75 - 125	13.23	11.6	20	
Barium	89.32	0.489	9.779	69.91	198	75 - 125	84.49	5.56	20	SO
Beryllium	9.523	0.489	9.779	0.2597	94.7	75 - 125	9.562	0.41	20	
Cadmium	9.816	0.489	9.779	0.2101	98.2	75 - 125	9.403	4.3	20	
Calcium	2630	48.9	977.9	1379	128	75 - 125	2659	1.11	20	S
Chromium	20.79	0.489	9.779	7.649	134	75 - 125	17.12	19.4	20	S
Cobalt	12.59	0.489	9.779	2.435	104	75 - 125	12.49	0.784	20	
Copper	36.53	0.196	9.779	25.29	115	75 - 125	36.5	0.0888	20	
Iron	11520	48.9	977.9	7155	446	75 - 125	9271	21.6	20	SRO
Lead	64.66	0.489	9.779	53.3	116	75 - 125	59.82	7.77	20	O
Magnesium	1455	48.9	977.9	449.9	103	75 - 125	1484	1.99	20	
Manganese	214.1	0.489	9.779	194.7	198	75 - 125	255.6	17.7	20	SEO
Nickel	16.52	0.489	9.779	6.185	106	75 - 125	17.05	3.19	20	
Potassium	1211	48.9	977.9	224.7	101	75 - 125	1214	0.226	20	
Selenium	9.381	0.489	9.779	0.7001	88.8	75 - 125	9.502	1.28	20	
Silver	9.308	0.489	9.779	0.02903	94.9	75 - 125	8.857	4.97	20	
Sodium	1075	48.9	977.9	83.39	101	75 - 125	1116	3.71	20	
Thallium	9.537	0.489	9.779	0.1302	96.2	75 - 125	9.117	4.51	20	
Zinc	67.34	0.489	9.779	52.35	153	75 - 125	61.7	8.74	20	SO

PDS Sample ID: **HS19100570-01PDS** Units: **mg/Kg** Analysis Date: **15-Oct-2019 13:41**
Client ID: **AC-5CP1-20191009-06-51** Run ID: **ICPMS04_348315** SeqNo: **5297154** PrepDate: **11-Oct-2019** DF: **50**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	5891	96.5	482.3	5669	46.2	75 - 125				SO
Manganese	718.9	24.1	482.3	212.2	105	75 - 125				

RIGHT SOLUTIONS | RIGHT PARTNER

Client: Weston Solutions, Inc.
Project: American Creosote - Site Walk
WorkOrder: HS19100570

QC BATCH REPORT

Batch ID: **146288 (0)** **Instrument:** **ICPMS04** **Method:** **METALS BY SW6020A**

PDS Sample ID: **HS19100570-01PDS** Units: **mg/Kg** Analysis Date: **14-Oct-2019 23:52**
Client ID: **AC-5CP1-20191009-06-51** Run ID: **ICPMS04_348222** SeqNo: **5296079** PrepDate: **11-Oct-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	9.717	0.482	9.645	0.4035	96.6	75 - 125				
Arsenic	14.17	0.482	9.645	4.349	102	75 - 125				
Barium	79.41	0.482	9.645	69.91	98.5	75 - 125				O
Beryllium	8.82	0.482	9.645	0.2597	88.8	75 - 125				
Cadmium	9.854	0.482	9.645	0.2101	100.0	75 - 125				
Calcium	2326	48.2	964.5	1379	98.1	75 - 125				
Chromium	17.53	0.482	9.645	7.649	102	75 - 125				
Cobalt	12.33	0.482	9.645	2.435	103	75 - 125				
Copper	36.4	0.193	9.645	25.29	115	75 - 125				
Iron	8316	48.2	964.5	7155	120	75 - 125				O
Lead	61.22	0.482	9.645	53.3	82.2	75 - 125				O
Magnesium	1418	48.2	964.5	449.9	100	75 - 125				
Nickel	16.22	0.482	9.645	6.185	104	75 - 125				
Potassium	1222	48.2	964.5	224.7	103	75 - 125				
Selenium	10.61	0.482	9.645	0.7001	103	75 - 125				
Silver	7.435	0.482	9.645	0.02903	76.8	75 - 125				
Sodium	1085	48.2	964.5	83.39	104	75 - 125				
Thallium	9.647	0.482	9.645	0.1302	98.7	75 - 125				
Zinc	62.96	0.482	9.645	52.35	110	75 - 125				O

SD Sample ID: **HS19100570-01SD** Units: **mg/Kg** Analysis Date: **15-Oct-2019 13:35**
Client ID: **AC-5CP1-20191009-06-51** Run ID: **ICPMS04_348315** SeqNo: **5297151** PrepDate: **11-Oct-2019** DF: **250**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Aluminum	5554	482					5669	2.03	10	
Manganese	219.1	121					212.2	3.21	10	

RIGHT SOLUTIONS | RIGHT PARTNER

Client: Weston Solutions, Inc.
Project: American Creosote - Site Walk
WorkOrder: HS19100570

QC BATCH REPORT

Batch ID: **146288 (0)** **Instrument:** **ICPMS04** **Method:** **METALS BY SW6020A**

SD Sample ID: **HS19100570-01SD** Units: **mg/Kg** Analysis Date: **14-Oct-2019 23:45**
Client ID: **AC-5CP1-20191009-06-51** Run ID: **ICPMS04_348222** SeqNo: **5296076** PrepDate: **11-Oct-2019** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Antimony	0.4761	2.41					0.4035	0	10	J
Arsenic	4.747	2.41					4.349	9.16	10	
Barium	67.97	2.41					69.91	2.78	10	
Beryllium	0.2639	2.41					0.2597	0	10	J
Cadmium	0.1946	2.41					0.2101	0	10	J
Calcium	1416	241					1379	2.67	10	
Chromium	7.994	2.41					7.649	4.5	10	
Cobalt	2.615	2.41					2.435	7.36	10	
Copper	26.73	0.965					25.29	5.7	10	
Iron	7690	241					7155	7.47	10	
Lead	52.93	2.41					53.3	0.681	10	
Magnesium	468.6	241					449.9	4.15	10	
Nickel	6.388	2.41					6.185	3.29	10	
Potassium	234.8	241					224.7	0	10	J
Selenium	0.947	2.41					0.7001	0	10	J
Silver	U	2.41					0.02903	0	10	
Sodium	81.41	241					83.39	0	10	J
Thallium	U	2.41					0.1302	0	10	
Zinc	56.86	2.41					52.35	8.62	10	

The following samples were analyzed in this batch: HS19100570-01 HS19100570-02 HS19100570-03 HS19100570-04 HS19100570-05

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Client: Weston Solutions, Inc.
Project: American Creosote - Site Walk
WorkOrder: HS19100570

QC BATCH REPORT

Batch ID: 146287 (0) **Instrument: SV-7** **Method: LOW-LEVEL SEMIVOLATILES BY 8270D**

MBLK Sample ID: **MBLK-146287** Units: **ug/Kg** Analysis Date: **14-Oct-2019 13:28**
Client ID: Run ID: **SV-7_348263** SeqNo: **5295557** PrepDate: **11-Oct-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1´-Biphenyl	U	6.6								
2,4,5-Trichlorophenol	U	6.6								
2,4,6-Trichlorophenol	U	6.6								
2,4-Dichlorophenol	U	6.6								
2,4-Dimethylphenol	U	6.6								
2,4-Dinitrophenol	U	13								
2,4-Dinitrotoluene	U	6.6								
2,6-Dinitrotoluene	U	6.6								
2-Chloronaphthalene	U	6.6								
2-Chlorophenol	U	6.6								
2-Methylnaphthalene	U	3.3								
2-Methylphenol	U	6.6								
2-Nitroaniline	U	6.6								
2-Nitrophenol	U	6.6								
3&4-Methylphenol	U	6.6								
3,3´-Dichlorobenzidine	U	6.6								
3-Nitroaniline	U	6.6								
4,6-Dinitro-2-methylphenol	U	6.6								
4-Bromophenyl phenyl ether	U	6.6								
4-Chloro-3-methylphenol	U	6.6								
4-Chloroaniline	U	6.6								
4-Chlorophenyl phenyl ether	U	6.6								
4-Nitroaniline	U	6.6								
4-Nitrophenol	U	13								
Acenaphthene	U	3.3								
Acenaphthylene	U	3.3								
Acetophenone	U	6.6								
Anthracene	U	3.3								
Atrazine	U	6.6								
Benz(a)anthracene	U	3.3								
Benzaldehyde	U	6.6								
Benzo(a)pyrene	U	3.3								
Benzo(b)fluoranthene	U	3.3								
Benzo(g,h,i)perylene	U	3.3								

RIGHT SOLUTIONS | RIGHT PARTNER

Client: Weston Solutions, Inc.
Project: American Creosote - Site Walk
WorkOrder: HS19100570

QC BATCH REPORT

Batch ID: 146287 (0) **Instrument: SV-7** **Method: LOW-LEVEL SEMIVOLATILES BY 8270D**

MBLK Sample ID: **MBLK-146287** Units: **ug/Kg** Analysis Date: **14-Oct-2019 13:28**
Client ID: Run ID: **SV-7_348263** SeqNo: **5295557** PrepDate: **11-Oct-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzo(k)fluoranthene	U	3.3								
Bis(2-chloroethoxy)methane	U	6.6								
Bis(2-chloroethyl)ether	U	6.6								
Bis(2-chloroisopropyl)ether	U	6.6								
Bis(2-ethylhexyl)phthalate	U	6.6								
Butyl benzyl phthalate	U	6.6								
Caprolactam	U	6.6								
Carbazole	U	6.6								
Chrysene	U	3.3								
Dibenz(a,h)anthracene	U	3.3								
Dibenzofuran	U	3.3								
Diethyl phthalate	U	6.6								
Dimethyl phthalate	U	6.6								
Di-n-butyl phthalate	U	6.6								
Di-n-octyl phthalate	U	6.6								
Fluoranthene	U	3.3								
Fluorene	U	3.3								
Hexachlorobenzene	U	6.6								
Hexachlorobutadiene	U	6.6								
Hexachlorocyclopentadiene	U	6.6								
Hexachloroethane	U	6.6								
Indeno(1,2,3-cd)pyrene	U	3.3								
Isophorone	U	6.6								
Naphthalene	U	3.3								
Nitrobenzene	U	6.6								
N-Nitrosodi-n-propylamine	U	6.6								
N-Nitrosodiphenylamine	U	6.6								
Pentachlorophenol	U	6.6								
Phenanthrene	U	3.3								
Phenol	U	6.6								
Pyrene	U	3.3								
Surr: 2,4,6-Tribromophenol	*100.2*	*0*	*167*	*0*	*60.0*	*36 - 126*				
Surr: 2-Fluorobiphenyl	*156.4*	*0*	*167*	*0*	*93.7*	*43 - 125*				
Surr: 2-Fluorophenol	*179.5*	*0*	*167*	*0*	*107*	*37 - 125*				

RIGHT SOLUTIONS | RIGHT PARTNER

Client: Weston Solutions, Inc.
Project: American Creosote - Site Walk
WorkOrder: HS19100570

QC BATCH REPORT

Batch ID: 146287 (0) **Instrument: SV-7** **Method: LOW-LEVEL SEMIVOLATILES BY 8270D**

MBLK Sample ID: **MBLK-146287** Units: **ug/Kg** Analysis Date: **14-Oct-2019 13:28**
Client ID: Run ID: **SV-7_348263** SeqNo: **5295557** PrepDate: **11-Oct-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: 4-Terphenyl-d14	*162.4*	*0*	*167*	*0*	*97.2*	*32 - 125*				
Surr: Nitrobenzene-d5	*146.2*	*0*	*167*	*0*	*87.6*	*37 - 125*				
Surr: Phenol-d6	*157.8*	*0*	*167*	*0*	*94.5*	*40 - 125*				

RIGHT SOLUTIONS | RIGHT PARTNER

Client: Weston Solutions, Inc.
Project: American Creosote - Site Walk
WorkOrder: HS19100570

QC BATCH REPORT

Batch ID: 146287 (0) **Instrument: SV-7** **Method: LOW-LEVEL SEMIVOLATILES BY 8270D**

LCS Sample ID: **LCS-146287** Units: **ug/Kg** Analysis Date: **14-Oct-2019 13:48**
Client ID: Run ID: **SV-7_348263** SeqNo: **5295558** PrepDate: **11-Oct-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1´-Biphenyl	130.3	6.6	167	0	78.0	50 - 120				
2,4,5-Trichlorophenol	171.9	6.6	167	0	103	45 - 127				
2,4,6-Trichlorophenol	152.6	6.6	167	0	91.4	45 - 130				
2,4-Dichlorophenol	144.5	6.6	167	0	86.6	45 - 125				
2,4-Dimethylphenol	123.3	6.6	167	0	73.8	45 - 120				
2,4-Dinitrophenol	67.02	13	167	0	40.1	10 - 126				
2,4-Dinitrotoluene	155.6	6.6	167	0	93.2	50 - 130				
2,6-Dinitrotoluene	150.4	6.6	167	0	90.0	50 - 125				
2-Chloronaphthalene	132.1	6.6	167	0	79.1	50 - 145				
2-Chlorophenol	121.2	6.6	167	0	72.6	45 - 120				
2-Methylnaphthalene	139.7	3.3	167	0	83.6	50 - 120				
2-Methylphenol	128.3	6.6	167	0	76.8	45 - 120				
2-Nitroaniline	155.1	6.6	167	0	92.9	45 - 138				
2-Nitrophenol	145.4	6.6	167	0	87.1	45 - 125				
3&4-Methylphenol	119.9	6.6	167	0	71.8	45 - 120				
3,3´-Dichlorobenzidine	183.6	6.6	167	0	110	15 - 120				
3-Nitroaniline	168.8	6.6	167	0	101	40 - 120				
4,6-Dinitro-2-methylphenol	133.9	6.6	167	0	80.2	15 - 135				
4-Bromophenyl phenyl ether	144.8	6.6	167	0	86.7	50 - 125				
4-Chloro-3-methylphenol	152.1	6.6	167	0	91.1	45 - 130				
4-Chloroaniline	122.4	6.6	167	0	73.3	20 - 120				
4-Chlorophenyl phenyl ether	140.5	6.6	167	0	84.1	50 - 120				
4-Nitroaniline	178.3	6.6	167	0	107	50 - 127				
4-Nitrophenol	89.1	13	167	0	53.4	40 - 147				
Acenaphthene	126.2	3.3	167	0	75.5	50 - 120				
Acenaphthylene	129.8	3.3	167	0	77.7	50 - 120				
Acetophenone	135.4	6.6	167	0	81.1	50 - 120				
Anthracene	152.8	3.3	167	0	91.5	50 - 123				
Atrazine	164.2	6.6	167	0	98.3	29 - 148				
Benz(a)anthracene	164.6	3.3	167	0	98.6	50 - 131				
Benzaldehyde	50.15	6.6	167	0	30.0	22 - 129				
Benzo(a)pyrene	173.1	3.3	167	0	104	50 - 130				
Benzo(b)fluoranthene	188.9	3.3	167	0	113	50 - 137				
Benzo(g,h,i)perylene	162.6	3.3	167	0	97.3	50 - 130				

RIGHT SOLUTIONS | RIGHT PARTNER

Client: Weston Solutions, Inc.
Project: American Creosote - Site Walk
WorkOrder: HS19100570

QC BATCH REPORT

Batch ID: 146287 (0) **Instrument: SV-7** **Method: LOW-LEVEL SEMIVOLATILES BY 8270D**

LCS Sample ID: **LCS-146287** Units: **ug/Kg** Analysis Date: **14-Oct-2019 13:48**
Client ID: Run ID: **SV-7_348263** SeqNo: **5295558** PrepDate: **11-Oct-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzo(k)fluoranthene	185.9	3.3	167	0	111	50 - 143				
Bis(2-chloroethoxy)methane	132.4	6.6	167	0	79.3	50 - 120				
Bis(2-chloroethyl)ether	151.7	6.6	167	0	90.8	45 - 127				
Bis(2-chloroisopropyl)ether	139.4	6.6	167	0	83.5	50 - 120				
Bis(2-ethylhexyl)phthalate	166.7	6.6	167	0	99.8	21 - 148				
Butyl benzyl phthalate	166.8	6.6	167	0	99.9	50 - 136				
Caprolactam	166.5	6.6	167	0	99.7	50 - 135				
Carbazole	191.3	6.6	167	0	115	50 - 143				
Chrysene	163.6	3.3	167	0	98.0	50 - 130				
Dibenz(a,h)anthracene	176.4	3.3	167	0	106	50 - 130				
Dibenzofuran	131.4	3.3	167	0	78.7	50 - 125				
Diethyl phthalate	152.8	6.6	167	0	91.5	50 - 125				
Dimethyl phthalate	142.8	6.6	167	0	85.5	50 - 125				
Di-n-butyl phthalate	166.9	6.6	167	0	100.0	50 - 140				
Di-n-octyl phthalate	179.7	6.6	167	0	108	50 - 140				
Fluoranthene	162	3.3	167	0	97.0	50 - 131				
Fluorene	140.2	3.3	167	0	84.0	50 - 125				
Hexachlorobenzene	142.4	6.6	167	0	85.3	50 - 124				
Hexachlorobutadiene	137	6.6	167	0	82.0	50 - 125				
Hexachlorocyclopentadiene	114.6	6.6	167	0	68.6	45 - 135				
Hexachloroethane	115.9	6.6	167	0	69.4	45 - 125				
Indeno(1,2,3-cd)pyrene	179.8	3.3	167	0	108	45 - 139				
Isophorone	131.4	6.6	167	0	78.7	45 - 130				
Naphthalene	128.7	3.3	167	0	77.1	50 - 125				
Nitrobenzene	140.5	6.6	167	0	84.2	50 - 125				
N-Nitrosodi-n-propylamine	124.9	6.6	167	0	74.8	45 - 120				
N-Nitrosodiphenylamine	153.8	6.6	167	0	92.1	50 - 130				
Pentachlorophenol	66.66	6.6	167	0	39.9	23 - 136				
Phenanthrene	149	3.3	167	0	89.2	50 - 125				
Phenol	124.6	6.6	167	0	74.6	45 - 130				
Pyrene	161.6	3.3	167	0	96.8	45 - 130				
Surr: 2,4,6-Tribromophenol	*160.1*	*0*	*167*	*0*	*95.8*	*36 - 126*				
Surr: 2-Fluorobiphenyl	*153.3*	*0*	*167*	*0*	*91.8*	*43 - 125*				
Surr: 2-Fluorophenol	*125.7*	*0*	*167*	*0*	*75.3*	*37 - 125*				

RIGHT SOLUTIONS | RIGHT PARTNER

Client: Weston Solutions, Inc.
Project: American Creosote - Site Walk
WorkOrder: HS19100570

QC BATCH REPORT

Batch ID: **146287 (0)** **Instrument:** **SV-7** **Method:** **LOW-LEVEL SEMIVOLATILES BY 8270D**

LCS Sample ID: **LCS-146287** Units: **ug/Kg** Analysis Date: **14-Oct-2019 13:48**
Client ID: Run ID: **SV-7_348263** SeqNo: **5295558** PrepDate: **11-Oct-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: 4-Terphenyl-d14	*172.5*	*0*	*167*	*0*	*103*	*32 - 125*				
Surr: Nitrobenzene-d5	*148.5*	*0*	*167*	*0*	*88.9*	*37 - 125*				
Surr: Phenol-d6	*119.1*	*0*	*167*	*0*	*71.3*	*40 - 125*				

RIGHT SOLUTIONS | RIGHT PARTNER

Client: Weston Solutions, Inc.
Project: American Creosote - Site Walk
WorkOrder: HS19100570

QC BATCH REPORT

Batch ID: 146287 (0) **Instrument: SV-7** **Method: LOW-LEVEL SEMIVOLATILES BY 8270D**

MS Sample ID: **HS19100627-07MS** Units: **ug/Kg** Analysis Date: **14-Oct-2019 15:06**
Client ID: Run ID: **SV-7_348263** SeqNo: **5295560** PrepDate: **11-Oct-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1´-Biphenyl	145.2	6.5	165.1	0	87.9	50 - 120				
2,4,5-Trichlorophenol	161.2	6.5	165.1	0	97.6	45 - 127				
2,4,6-Trichlorophenol	158.8	6.5	165.1	0	96.2	45 - 130				
2,4-Dichlorophenol	161.4	6.5	165.1	0	97.8	45 - 125				
2,4-Dimethylphenol	145.9	6.5	165.1	0	88.4	45 - 120				
2,4-Dinitrophenol	29.9	13	165.1	0	18.1	10 - 126				
2,4-Dinitrotoluene	157.5	6.5	165.1	0	95.4	50 - 130				
2,6-Dinitrotoluene	152.2	6.5	165.1	0	92.2	50 - 125				
2-Chloronaphthalene	152.3	6.5	165.1	0	92.3	50 - 145				
2-Chlorophenol	149.3	6.5	165.1	0	90.4	45 - 120				
2-Methylnaphthalene	152.3	3.3	165.1	0	92.2	50 - 120				
2-Methylphenol	159.7	6.5	165.1	0	96.7	45 - 120				
2-Nitroaniline	179.6	6.5	165.1	0	109	45 - 138				
2-Nitrophenol	144.3	6.5	165.1	0	87.4	45 - 125				
3&4-Methylphenol	150.4	6.5	165.1	0	91.1	45 - 120				
3,3´-Dichlorobenzidine	31.49	6.5	165.1	0	19.1	15 - 120				
3-Nitroaniline	77.82	6.5	165.1	0	47.1	40 - 120				
4,6-Dinitro-2-methylphenol	94.2	6.5	165.1	0	57.1	15 - 135				
4-Bromophenyl phenyl ether	144.8	6.5	165.1	0	87.7	50 - 125				
4-Chloro-3-methylphenol	158.7	6.5	165.1	0	96.1	45 - 130				
4-Chloroaniline	37.53	6.5	165.1	0	22.7	20 - 120				
4-Chlorophenyl phenyl ether	137	6.5	165.1	0	83.0	50 - 120				
4-Nitroaniline	144.3	6.5	165.1	0	87.4	50 - 127				
4-Nitrophenol	79.91	13	165.1	0	48.4	40 - 147				
Acenaphthene	140.5	3.3	165.1	2.269	83.7	50 - 120				
Acenaphthylene	143.4	3.3	165.1	0	86.9	50 - 120				
Acetophenone	140.7	6.5	165.1	0	85.2	50 - 120				
Anthracene	143.3	3.3	165.1	11.9	79.6	50 - 123				
Atrazine	155	6.5	165.1	0	93.9	29 - 148				
Benz(a)anthracene	144.2	3.3	165.1	3.211	85.4	50 - 131				
Benzaldehyde	101.6	6.5	165.1	0	61.6	22 - 129				
Benzo(a)pyrene	138.3	3.3	165.1	2.78	82.1	50 - 130				
Benzo(b)fluoranthene	152.9	3.3	165.1	3.684	90.4	50 - 137				
Benzo(g,h,i)perylene	137.7	3.3	165.1	2.735	81.7	50 - 130				

RIGHT SOLUTIONS | RIGHT PARTNER

Client: Weston Solutions, Inc.
Project: American Creosote - Site Walk
WorkOrder: HS19100570

QC BATCH REPORT

Batch ID: 146287 (0) **Instrument: SV-7** **Method: LOW-LEVEL SEMIVOLATILES BY 8270D**

MS Sample ID: **HS19100627-07MS** Units: **ug/Kg** Analysis Date: **14-Oct-2019 15:06**
Client ID: Run ID: **SV-7_348263** SeqNo: **5295560** PrepDate: **11-Oct-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzo(k)fluoranthene	153.8	3.3	165.1	2.342	91.8	50 - 143				
Bis(2-chloroethoxy)methane	144.8	6.5	165.1	0	87.7	50 - 120				
Bis(2-chloroethyl)ether	166.9	6.5	165.1	0	101	45 - 127				
Bis(2-chloroisopropyl)ether	143.1	6.5	165.1	0	86.7	50 - 120				
Bis(2-ethylhexyl)phthalate	134.9	6.5	165.1	2.643	80.1	21 - 148				
Butyl benzyl phthalate	138.6	6.5	165.1	0	84.0	50 - 136				
Caprolactam	133	6.5	165.1	0	80.5	50 - 135				
Carbazole	186.8	6.5	165.1	4.034	111	50 - 143				
Chrysene	148.6	3.3	165.1	3.455	87.9	50 - 130				
Dibenz(a,h)anthracene	152.9	3.3	165.1	0	92.6	50 - 130				
Dibenzofuran	149.1	3.3	165.1	2.534	88.8	50 - 125				
Diethyl phthalate	156	6.5	165.1	0	94.5	50 - 125				
Dimethyl phthalate	162.7	6.5	165.1	0	98.5	50 - 125				
Di-n-butyl phthalate	135.4	6.5	165.1	1.213	81.3	50 - 140				
Di-n-octyl phthalate	131.9	6.5	165.1	0	79.9	50 - 140				
Fluoranthene	140.3	3.3	165.1	7.839	80.3	50 - 131				
Fluorene	149.3	3.3	165.1	3.862	88.1	50 - 125				
Hexachlorobenzene	135	6.5	165.1	0	81.8	50 - 124				
Hexachlorobutadiene	122.9	6.5	165.1	0	74.4	50 - 125				
Hexachlorocyclopentadiene	46.61	6.5	165.1	0	28.2	45 - 135				S
Hexachloroethane	117.4	6.5	165.1	0	71.1	45 - 125				
Indeno(1,2,3-cd)pyrene	181	3.3	165.1	2.272	108	45 - 139				
Isophorone	145.3	6.5	165.1	0	88.0	45 - 130				
Naphthalene	190.3	3.3	165.1	1.787	114	50 - 125				
Nitrobenzene	135.5	6.5	165.1	0	82.1	50 - 125				
N-Nitrosodi-n-propylamine	141.9	6.5	165.1	0	85.9	45 - 120				
N-Nitrosodiphenylamine	148	6.5	165.1	0	89.7	50 - 130				
Pentachlorophenol	115.4	6.5	165.1	0	69.9	23 - 136				
Phenanthrene	141	3.3	165.1	11.68	78.4	50 - 125				
Phenol	152.1	6.5	165.1	0	92.1	45 - 130				
Pyrene	147.7	3.3	165.1	5.766	86.0	45 - 130				
Surr: 2,4,6-Tribromophenol	*166.2*	*0*	*165.1*	*0*	*101*	*36 - 126*				
Surr: 2-Fluorobiphenyl	*135.1*	*0*	*165.1*	*0*	*81.9*	*43 - 125*				
Surr: 2-Fluorophenol	*147.9*	*0*	*165.1*	*0*	*89.6*	*37 - 125*				

RIGHT SOLUTIONS | RIGHT PARTNER

Client: Weston Solutions, Inc.
Project: American Creosote - Site Walk
WorkOrder: HS19100570

QC BATCH REPORT

Batch ID: **146287 (0)** **Instrument:** **SV-7** **Method:** **LOW-LEVEL SEMIVOLATILES BY 8270D**

MS Sample ID: **HS19100627-07MS** Units: **ug/Kg** Analysis Date: **14-Oct-2019 15:06**
Client ID: Run ID: **SV-7_348263** SeqNo: **5295560** PrepDate: **11-Oct-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: 4-Terphenyl-d14	*112.4*	*0*	*165.1*	*0*	*68.1*	*32 - 125*				
Surr: Nitrobenzene-d5	*139.7*	*0*	*165.1*	*0*	*84.7*	*37 - 125*				
Surr: Phenol-d6	*162.4*	*0*	*165.1*	*0*	*98.4*	*40 - 125*				

RIGHT SOLUTIONS | RIGHT PARTNER

Client: Weston Solutions, Inc.
Project: American Creosote - Site Walk
WorkOrder: HS19100570

QC BATCH REPORT

Batch ID: 146287 (0) **Instrument: SV-7** **Method: LOW-LEVEL SEMIVOLATILES BY 8270D**

MSD Sample ID: **HS19100627-07MSD** Units: **ug/Kg** Analysis Date: **14-Oct-2019 15:25**
Client ID: Run ID: **SV-7_348263** SeqNo: **5295561** PrepDate: **11-Oct-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1´-Biphenyl	141.5	6.5	164.5	0	86.0	50 - 120	145.2	2.57	30	
2,4,5-Trichlorophenol	134.2	6.5	164.5	0	81.6	45 - 127	161.2	18.3	30	
2,4,6-Trichlorophenol	128.9	6.5	164.5	0	78.4	45 - 130	158.8	20.8	30	
2,4-Dichlorophenol	140	6.5	164.5	0	85.1	45 - 125	161.4	14.2	30	
2,4-Dimethylphenol	133.1	6.5	164.5	0	80.9	45 - 120	145.9	9.18	30	
2,4-Dinitrophenol	9.865	13	164.5	0	6.00	10 - 126	29.9	0	30	JS
2,4-Dinitrotoluene	121.2	6.5	164.5	0	73.7	50 - 130	157.5	26.1	30	
2,6-Dinitrotoluene	127.6	6.5	164.5	0	77.6	50 - 125	152.2	17.6	30	
2-Chloronaphthalene	142.7	6.5	164.5	0	86.7	50 - 145	152.3	6.55	30	
2-Chlorophenol	131.9	6.5	164.5	0	80.2	45 - 120	149.3	12.3	30	
2-Methylnaphthalene	140	3.3	164.5	0	85.1	50 - 120	152.3	8.36	30	
2-Methylphenol	136.4	6.5	164.5	0	82.9	45 - 120	159.7	15.7	30	
2-Nitroaniline	136.2	6.5	164.5	0	82.8	45 - 138	179.6	27.5	30	
2-Nitrophenol	112.8	6.5	164.5	0	68.6	45 - 125	144.3	24.5	30	
3&4-Methylphenol	131.8	6.5	164.5	0	80.2	45 - 120	150.4	13.1	30	
3,3´-Dichlorobenzidine	78.07	6.5	164.5	0	47.5	15 - 120	31.49	85	30	R
3-Nitroaniline	69.36	6.5	164.5	0	42.2	40 - 120	77.82	11.5	30	
4,6-Dinitro-2-methylphenol	43.08	6.5	164.5	0	26.2	15 - 135	94.2	74.5	30	R
4-Bromophenyl phenyl ether	145.9	6.5	164.5	0	88.7	50 - 125	144.8	0.793	30	
4-Chloro-3-methylphenol	141.5	6.5	164.5	0	86.1	45 - 130	158.7	11.4	30	
4-Chloroaniline	31.41	6.5	164.5	0	19.1	20 - 120	37.53	17.8	30	S
4-Chlorophenyl phenyl ether	142.3	6.5	164.5	0	86.5	50 - 120	137	3.83	30	
4-Nitroaniline	110.7	6.5	164.5	0	67.3	50 - 127	144.3	26.3	30	
4-Nitrophenol	60.46	13	164.5	0	36.8	40 - 147	79.91	27.7	30	S
Acenaphthene	135.2	3.3	164.5	2.269	80.8	50 - 120	140.5	3.83	30	
Acenaphthylene	136.4	3.3	164.5	0	82.9	50 - 120	143.4	5.05	30	
Acetophenone	137	6.5	164.5	0	83.3	50 - 120	140.7	2.64	30	
Anthracene	150.6	3.3	164.5	11.9	84.3	50 - 123	143.3	4.91	30	
Atrazine	151.4	6.5	164.5	0	92.0	29 - 148	155	2.38	30	
Benz(a)anthracene	154.9	3.3	164.5	3.211	92.2	50 - 131	144.2	7.11	30	
Benzaldehyde	85.08	6.5	164.5	0	51.7	22 - 129	101.6	17.7	30	
Benzo(a)pyrene	147.9	3.3	164.5	2.78	88.3	50 - 130	138.3	6.75	30	
Benzo(b)fluoranthene	153.1	3.3	164.5	3.684	90.9	50 - 137	152.9	0.185	30	
Benzo(g,h,i)perylene	141	3.3	164.5	2.735	84.0	50 - 130	137.7	2.36	30	

RIGHT SOLUTIONS | RIGHT PARTNER

Client: Weston Solutions, Inc.
Project: American Creosote - Site Walk
WorkOrder: HS19100570

QC BATCH REPORT

Batch ID: 146287 (0) **Instrument: SV-7** **Method: LOW-LEVEL SEMIVOLATILES BY 8270D**

MSD Sample ID: **HS19100627-07MSD** Units: **ug/Kg** Analysis Date: **14-Oct-2019 15:25**
Client ID: Run ID: **SV-7_348263** SeqNo: **5295561** PrepDate: **11-Oct-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzo(k)fluoranthene	139.6	3.3	164.5	2.342	83.4	50 - 143	153.8	9.71	30	
Bis(2-chloroethoxy)methane	138.7	6.5	164.5	0	84.3	50 - 120	144.8	4.32	30	
Bis(2-chloroethyl)ether	150.8	6.5	164.5	0	91.7	45 - 127	166.9	10.1	30	
Bis(2-chloroisopropyl)ether	130	6.5	164.5	0	79.0	50 - 120	143.1	9.55	30	
Bis(2-ethylhexyl)phthalate	150.3	6.5	164.5	2.643	89.8	21 - 148	134.9	10.8	30	
Butyl benzyl phthalate	154.9	6.5	164.5	0	94.2	50 - 136	138.6	11.1	30	
Caprolactam	141.1	6.5	164.5	0	85.8	50 - 135	133	5.93	30	
Carbazole	175.7	6.5	164.5	4.034	104	50 - 143	186.8	6.11	30	
Chrysene	160	3.3	164.5	3.455	95.2	50 - 130	148.6	7.44	30	
Dibenz(a,h)anthracene	158.3	3.3	164.5	0	96.3	50 - 130	152.9	3.48	30	
Dibenzofuran	139.7	3.3	164.5	2.534	83.4	50 - 125	149.1	6.5	30	
Diethyl phthalate	153.5	6.5	164.5	0	93.3	50 - 125	156	1.63	30	
Dimethyl phthalate	150.5	6.5	164.5	0	91.5	50 - 125	162.7	7.76	30	
Di-n-butyl phthalate	149.7	6.5	164.5	1.213	90.3	50 - 140	135.4	10.1	30	
Di-n-octyl phthalate	145.2	6.5	164.5	0	88.3	50 - 140	131.9	9.57	30	
Fluoranthene	150.2	3.3	164.5	7.839	86.6	50 - 131	140.3	6.83	30	
Fluorene	148.6	3.3	164.5	3.862	88.0	50 - 125	149.3	0.42	30	
Hexachlorobenzene	142.8	6.5	164.5	0	86.8	50 - 124	135	5.68	30	
Hexachlorobutadiene	132.2	6.5	164.5	0	80.4	50 - 125	122.9	7.32	30	
Hexachlorocyclopentadiene	38.08	6.5	164.5	0	23.2	45 - 135	46.61	20.1	30	S
Hexachloroethane	113.9	6.5	164.5	0	69.2	45 - 125	117.4	3.07	30	
Indeno(1,2,3-cd)pyrene	187.1	3.3	164.5	2.272	112	45 - 139	181	3.33	30	
Isophorone	135.7	6.5	164.5	0	82.5	45 - 130	145.3	6.81	30	
Naphthalene	136.2	3.3	164.5	1.787	81.7	50 - 125	190.3	33.1	30	R
Nitrobenzene	121.2	6.5	164.5	0	73.7	50 - 125	135.5	11.2	30	
N-Nitrosodi-n-propylamine	131.7	6.5	164.5	0	80.1	45 - 120	141.9	7.43	30	
N-Nitrosodiphenylamine	135.7	6.5	164.5	0	82.5	50 - 130	148	8.74	30	
Pentachlorophenol	83.85	6.5	164.5	0	51.0	23 - 136	115.4	31.6	30	R
Phenanthrene	146.6	3.3	164.5	11.68	82.0	50 - 125	141	3.86	30	
Phenol	130.7	6.5	164.5	0	79.4	45 - 130	152.1	15.1	30	
Pyrene	154.7	3.3	164.5	5.766	90.5	45 - 130	147.7	4.66	30	
Surr: 2,4,6-Tribromophenol	*149.2*	*0*	*164.5*	*0*	*90.7*	*36 - 126*	*166.2*	*10.8*	*30*	
Surr: 2-Fluorobiphenyl	*140.4*	*0*	*164.5*	*0*	*85.4*	*43 - 125*	*135.1*	*3.83*	*30*	
Surr: 2-Fluorophenol	*130.3*	*0*	*164.5*	*0*	*79.2*	*37 - 125*	*147.9*	*12.7*	*30*	

RIGHT SOLUTIONS | RIGHT PARTNER

Client: Weston Solutions, Inc.
Project: American Creosote - Site Walk
WorkOrder: HS19100570

QC BATCH REPORT

Batch ID: **146287 (0)** **Instrument:** **SV-7** **Method:** **LOW-LEVEL SEMIVOLATILES BY 8270D**

MSD Sample ID: **HS19100627-07MSD** Units: **ug/Kg** Analysis Date: **14-Oct-2019 15:25**
Client ID: Run ID: **SV-7_348263** SeqNo: **5295561** PrepDate: **11-Oct-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: 4-Terphenyl-d14	*145.6*	*0*	*164.5*	*0*	*88.5*	*32 - 125*	*112.4*	*25.7*	*30*	
Surr: Nitrobenzene-d5	*133.7*	*0*	*164.5*	*0*	*81.3*	*37 - 125*	*139.7*	*4.39*	*30*	
Surr: Phenol-d6	*145.2*	*0*	*164.5*	*0*	*88.2*	*40 - 125*	*162.4*	*11.2*	*30*	

The following samples were analyzed in this batch: HS19100570-01 HS19100570-02 HS19100570-03 HS19100570-04 HS19100570-05

RIGHT SOLUTIONS | RIGHT PARTNER

Client: Weston Solutions, Inc.
Project: American Creosote - Site Walk
WorkOrder: HS19100570

QC BATCH REPORT

Batch ID: **R348297 (0)** **Instrument:** **Balance1** **Method:** **MOISTURE - ASTM D2216**

DUP Sample ID: **HS19100570-04DUP** Units: **wt%** Analysis Date: **14-Oct-2019 11:14**
Client ID: **AC-3WP1-20191009-06-51** Run ID: **Balance1_348297** SeqNo: **5296551** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Percent Moisture	65.6	0.0100					65.6	0	20	

The following samples were analyzed in this batch: HS19100570-01 HS19100570-02 HS19100570-03 HS19100570-04 HS19100570-05

RIGHT SOLUTIONS | RIGHT PARTNER

Client: Weston Solutions, Inc.
Project: American Creosote - Site Walk
WorkOrder: **HS19100570**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL/SDL

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitaion Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

Unit Reported	Description
mg/Kg-dry	Milligrams per Kilogram- Dry weight corrected

RIGHT SOLUTIONS | RIGHT PARTNER

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	19-028-0	27-Mar-2020
California	2919, 2019-2020	30-Apr-2020
Dept of Defense	ANAB L2231	20-Dec-2021
Florida	E87611-28	30-Jun-2020
Illinois	2000322019-2	09-May-2020
Kansas	E-10352 2019-2020	31-Jul-2020
Kentucky	123043, 2019-2020	30-Apr-2020
Louisiana	03087, 2019-2020	30-Jun-2020
Maryland	343, 2019-2020	30-Jun-2020
North Carolina	624-2019	31-Dec-2019
North Dakota	R-193 2019-2020	30-Apr-2020
Oklahoma	2019-141	31-Aug-2020
Texas	TX104704231-19-23	30-Apr-2020

RIGHT SOLUTIONS | RIGHT PARTNER

Sample Receipt Checklist

Client Name:	Weston Baton Rouge La	Date/Time Received:	**10-Oct-2019 09:28**
Work Order:	HS19100570	Received by:	**PMG**

Checklist completed by: *Jared R. Makan* (eSignature) 10-Oct-2019 (Date)

Reviewed by: (eSignature) (Date)

Matrices: **Soil, Sludge**

Carrier name: **Client**

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	1 Page(s)
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	COC IDs:208441
Samplers name present on COC?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	

Temperature(s)/Thermometer(s):	1.2°C / 1.2°C UC/C	IR25
Cooler(s)/Kit(s):	44855	
Date/Time sample(s) sent to storage:	10/10/2019 11:41	

Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

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Cincinnati, OH +1 513 733 5336 | Fort Collins, CO +1 970 490 1511
Everett, WA +1 425 356 2600 | Holland, MI +1 616 399 6070

Chain of Custody Form

Page ____ of ____

COC ID: 208441

HS19100570

Weston Solutions, Inc.
American Creosote - Site Walk

ALS Project Manager:

Customer Information		Project Information			
Purchase Order		Project Name	American Creosote - Site Walk	A	8270_LOW_S (Low Level TCL 4.3 SVOC (8270))
Work Order		Project Number	20000.016.001.1286.01	B	HG_S_Low (Part of TAL Metals)
Company Name	Weston Solutions, Inc.	Bill To Company	Weston Soltions, Inc	C	ICP_S_Low (TAL Metals)
Send Report To	Jeff Wright	Invoice Attn	Jeff Wright	D	MOIST_ASTM (Moisture)
Address	13702 Coursey Blvd., Bldg #7, Ste A	Address	13702 Coursey Blvd., Bldg #7, Ste A	E	SUB_DIOXINS/FURANS (ALS Dioxin Lab)
				F	
City/State/Zip	Baton Rouge, LA 70817	City/State/Zip	Baton Rouge LA 70817	G	
Phone	(225) -29-7-54	Phone	(225) -29-754	H	
Fax		Fax		I	
e-Mail Address	Jeff.Wright@WestonSolutions.com	e-Mail Address	Jeff.Wright@WestonSolutions.com	J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	~~AC-5CP1-06~~																
2	AC-5CP1-20191009-06-51	10/09/2019	1045	Soil	N/A	2	X	X	X	X	X						
3	AC-4SC1-20191009-06-51	10/09/2019	1105	Soil	N/A	2	X	X	X	X	X						
4	AC-4SC2-20191009-06-51	10/09/2019	1112	Soil	N/A	2	X	X	X	X	X						
5	AC-3WP1-20191009-06-51	10/09/2019	1113	Sludge	N/A	2	X	X	X	X	X						
6	AC-4SC3-20191009-06-51	10/09/2019	1130	Soil	N/A	2	X	X	X	X	X						
7																	
8																	
9																	
10																	

note: Strong odor / + sheen from content pit

Sampler(s) Please Print & Sign: DAVID BONDOC

Shipment Method: Auto Delivered

Required Turnaround Time: (Check Box) ☐ STD 10 Wk Days ☒ 5 Wk Days ☐ 2 Wk Days ☐ 24 Hour ☐ Other ____

Results Due Date:

Relinquished by: Date: 10/9/19 Time: 1245 Received by:

Relinquished by: Date: 10/10/19 Time: 0928 Received by (Laboratory): 10/10/19 09:28

Logged by (Laboratory): Date: Time: Checked by (Laboratory):

Notes: Weston American Creosote

Cooler ID	Cooler Temp.
	N/C
44855	1.20
	4.25
	5.5

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

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

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

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October 21, 2019 Service Request No:E1900728

Bernadette Fini
ALS Laboratory Group
10450 Stancliff Road
Suite 210
Houston, TX 77099-4338

Laboratory Results for: HS19100570

Dear Bernadette,

Enclosed are the results of the sample(s) submitted to our laboratory October 10, 2019
For your reference, these analyses have been assigned our service request number **E1900728.**

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 complete final report. Results apply only to the items submitted to the laboratory, as received for analysis. In accordance with the current TNI 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

Corey Grandits
Project Manager

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

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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

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ALS Environmental

Client:	ALS - Houston	**Service Request No.:**	E1900728
Project:	HS19100570	**Date Received:**	10/10/19
Sample Matrix:	S		

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

Five samples were received for analysis at ALS Environmental in Houston on 10/10/19.

The samples were received at 3.0°C in good condition and are consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Data Validation Notes and Discussion

Precision and Accuracy:

EQ1900347: 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 QC limits.

B flags – Method Blank

The Method Blank EQ1900347-01 contained low levels of target dioxin and furan 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

Select recoveries for the cleanup standard, 37Cl-2,3,7,8-TCDD are below control limits. 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.

Dilutions & Y flags – Labeled Standards

Samples E1900728-001 through E1900728-004 started at a 5x dilution due to matrix, sample E1900728-005 started at a 100x dilution due to sample matrix.

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. 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.

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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.

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.

Detection Limits

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

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

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

Certification is held for the state of Louisiana for the method/matrix/analytes provided in this 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.

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Client: ALS Environmental - US **Service Request:**E1900728
Project: HS19100570

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E1900728-001	AC-5CP1-20191009-06-51	10/9/2019	1045
E1900728-002	AC-4SC1-20191009-06-51	10/9/2019	1105
E1900728-003	AC-4SC2-20191009-06-51	10/9/2019	1112
E1900728-004	AC-3WP1-20191009-06-51	10/9/2019	1118
E1900728-005	AC-4SC3-20191009-06-51	10/9/2019	1130

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Printe
nary

Service Request Summary

Folder #: **E1900728**
Client Name: ALS Environmental - US
Project Name: HS19100570
Project Number:

Report To: Bernadette Fini
ALS Laboratory Group
10450 Stancliff Road
Houston, TX 77099-4338
USA
Phone Number: 281-530-5656
Cell Number:
Fax Number: 281-530-5887
E-mail: bernadette.fini@alsglobal.com

Project Chemist: Corey Grandits
Originating Lab: HOUSTON
Logged By: CGRANDITS
Date Received: 10/10/19
Internal Due Date: 10/17/2019
QAP: LAB QAP
Qualifier Set: HRMS Qualifier Set
Formset: Lab Standard
Merged?: N
Report to MDL?: Y
P.O. Number: HS19100570
EDD: No EDD Specified

5 4 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved
Location: EHRMS-WIC 6D
Pressure Gas:
Rush

				HOUSTON	
Lab Samp No.	**Client Samp No**	**Matrix**	**Collected**	PCDD PCDF/8290	Total Solids/ALS SOP
E1900728-001	AC-5CP1-20191009-06-51	Soil	10/09/19 1045	**IV**	**IV**
E1900728-002	AC-4SC1-20191009-06-51	Soil	10/09/19 1105	**IV**	**IV**
E1900728-003	AC-4SC2-20191009-06-51	Soil	10/09/19 1112	**IV**	**IV**
E1900728-004	AC-3WP1-20191009-06-51	Sludge, Solid	10/09/19 1118	**IV**	**IV**
E1900728-005	AC-4SC3-20191009-06-51	Soil	10/09/19 1130	**IV**	**IV**

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Service Request Summary

Folder #:	**E1900728**
Client Name:	ALS Environmental - US
Project Name:	HS19100570
Project Number:	

Report To:	Bernadette Fini ALS Laboratory Group 10450 Stancliff Road Houston, TX 77099-4338 USA
Phone Number:	281-530-5656
Cell Number:	
Fax Number:	281-530-5887
E-mail:	bernadette.fini@alsglobal.com

Project Chemist:	Corey Grandits
Originating Lab:	HOUSTON
Logged By:	CGRANDITS
Date Received:	10/10/19
Internal Due Date:	10/17/2019
QAP:	LAB QAP
Qualifier Set:	HRMS Qualifier Set
Formset:	Lab Standard
Merged?:	N
Report to MDL?:	Y
P.O. Number:	HS19100570
EDD:	No EDD Specified

5 4 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved

Location: EHRMS-WIC 6D

Pressure Gas:

Rush

Print

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Superset Summary

Service Request: E1900728 **SuperSet Reference:** 19-0000526941 rev 00

Analytical Method: **8290**

Calibrations: 04/25/19

Data Files:

Raw Data	Begin CCAL	Method Blank	Lab ID
P524772	P524769	P619497	E1900728-001
P524773	P524769	P619497	E1900728-002
P524774	P524769	P619497	E1900728-003
P524840	P524830	P619497	E1900728-004
P524839	P524830	P619497	E1900728-005
P524777	P524769	P619497	EQ1900347-02
P524778	P524769	P619497	EQ1900347-03

Calibrations: 10/04/19

Data Files:

Raw Data	Begin CCAL	Method Blank	Lab ID
P619497	P619496	P619497	EQ1900347-01

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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.

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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

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State Certifications, Accreditations, and Licenses

Agency	Number	Expire Date
American Association for Laboratory Accreditation	2897.01	11/30/2019
Arizona Department of Health Services	AZ0793	5/27/2020
Arkansas Department of Environmental Quality	19-028-0	3/27/2020
California Department of Health Services	2919	4/30/2020
Department of Defense	A2LA 2897.01	11/30/2019
Florida Department of Health	E87611	6/30/2020
Hawaii Department of Health	TX02694	4/30/2020
Illinois Environmental Protection Agency	2000322019-2	5/9/2020
Kansas Department of Health and Environment	E-10352	7/31/2020
Louisiana Department of Environmental Quality	03087	6/30/2020
Louisiana Department of Health and Hospitals	LA028	12/31/2019
Maine Center for Disease Control and Prevention	201815	6/5/2020
Maryland Department of the Environment	343	6/30/2020
Minnesota Department of Health	1556965	12/31/2019
Nebraska Department of Health and Human Services	NE-OS-25-13	4/30/2020
Nevada Department of Concervation and Natural Resources	TX026932019-1	7/31/2020
New Hampshire Environmental Laboratory Accreditation Program	209419	4/24/2020
New Jersey Department of Environmental Protection	NLC190001	6/30/2020
New York Department of Health	11707	3/31/2020
Oklahoma Department of Environmental Quality	2019-141	8/31/2020
Pennsylvania Department of Environmental Protection	68-03441-013	6/30/2020
Tennessee Department of Environment and Concervation	04016	6/30/2020
Texas Commision on Environmental Quality	TX104704231-19-25	4/30/2020
United States Department of Agriculture	P330-18-00368	12/14/2019
Utah Department of Health Environmental Laboratory Certification	TX026932019-9	7/31/2020
Washington Department of Health	C819	11/14/2019
West Virginia Department of Environmental Protection	347	6/30/2020

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

SR# Unique ID E190072-8 DB-5MSUI SPB-Octyl

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

Date: 10/18/19 Analyst: Jc Samples: 001-003 DC

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

Date: 10/21/19 Analyst: KN Samples: 001-003 DC

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

SR# Unique ID E190072 8

DB-5MSUI SPB-Octyl

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

Date:	Analyst:	Samples:
10/21/19	JC	001DL-005DL

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

Date:	Analyst:	Samples:
10/21/19	LKL	001DL 005DL

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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
www.alsglobal.com

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E1900728 5
ALS Laboratory Group
HS19100570

10450 Stancliff Rd, Ste 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887
www.alsglobal.com

Subcontract Chain of Custody

SAMPLING STATE: **Louisiana** **COC ID:** **12378**

SUBCONTRACT TO:

ALS Environmental
10450 Stancliff RoadSuite 210
Houston, TX 77084 **Phone:** +1 281 530 5656

CUSTOMER INFORMATION:

Company:	ALS Houston
Contact:	Bernadette A. Fini
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Email:	Bernadette.fini@alsglobal.com
Alternate Contact:	Jumoke M. Lawal
Email:	jumoke.lawal@alsglobal.com

INVOICE INFORMATION:

Company:	ALS Houston
Contact:	Accounts Payable
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Reference:	HS19100570
TSR:	Ron Martino

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS19100570-01**	**AC-5CP1-20191009-06-51**	**Soil**	**09 Oct 2019 10:45**
	SUB_DIOXINS/FURANS			17 Oct 2019
2.	**HS19100570-02**	**AC-4SC1-20191009-06-51**	**Soil**	**09 Oct 2019 11:05**
	SUB_DIOXINS/FURANS			17 Oct 2019
3.	**HS19100570-03**	**AC-4SC2-20191009-06-51**	**Soil**	**09 Oct 2019 11:12**
	SUB_DIOXINS/FURANS			17 Oct 2019
4.	**HS19100570-04**	**AC-3WP1-20191009-06-51**	**Sludge**	**09 Oct 2019 11:18**
	SUB_DIOXINS/FURANS			17 Oct 2019
5.	**HS19100570-05**	**AC-4SC3-20191009-06-51**	**Soil**	**09 Oct 2019 11:30**
	SUB_DIOXINS/FURANS			17 Oct 2019

Comments: Please analyze for the analysis listed above.
Send report to the emails shown above.

Strong odor from HS19100570-04. Analyze under a hood.

QC Level: LEVEL IV (CLP Like - No Forms)

Subcontract Chain of Custody

SAMPLING STATE: **Louisiana** **COC ID:** **12378**

Relinquished By:	J. MALLAN	Date/Time:	10/10/19 11:45
Received By:	COREY G	Date/Time:	10/10/19 11:45
Cooler ID(s):		Temperature(s):	

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Cooler Receipt Form

ALS Environmental

Project Chemist: CG

Client/Project: ALG-H

Thermometer ID: GMU1

Date/Time Received: 10/10/19 Initials: CG Date/Time Logged in: 10/10/19 Initials: CG

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

Cooler Tracking Number	COC ID	Date Opened	Time Opened	Opened By	Temp. °C	Temp Blank?
—		10/10/19	1145	CG	2.6/3.0	☑
						☐
						☐
						☐

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

Notes, Discrepancies, & Resolutions:

Service request Label: E1900728 5

ALS Laboratory Group
HS19100670

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Houston, TX 77099
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www.alsglobal.com

SAMPLE ACCEPTANCE POLICY

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

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

- ✓ Intact on outside of cooler, signed and dated

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

The following is required on each COC:

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

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

Sample Integrity (mandatory):

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

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

Temperature Requirement (varies by sample matrix):

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

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

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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

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Preparation Information Benchsheet

Prep Run#: 346278 **Prep WorkFlow:** OrgExtDioxS(30) **Status:** Prepped
Team: Semivoa GCMS/DBOTROS **Prep Method:** Method **Prep Date/Time:** 10/10/19 12:30

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E1900711-001	SB-C22 (0-10')	.01	8290/PCDD PCDF			Sediment	10.015g	brown clay
2	E1900711-002	SB-C22 (10-20')	.01	8290/PCDD PCDF			Sediment	10.192g	brown clay
3	E1900711-003	SB-C22 (20-45')	.01	8290/PCDD PCDF			Sediment	10.482g	brown clay
4	E1900711-004	SB-C17 (0-10')	.01	8290/PCDD PCDF			Sediment	10.834g	brown clay
5	E1900711-005	SB-C17 (10-20')	.01	8290/PCDD PCDF			Sediment	10.275g	brown clay
6	E1900711-006	SB-C17 (20-45')	.01	8290/PCDD PCDF			Sediment	10.554g	brown clay
7	E1900711-007	SB-C10 (0-10')	.01	8290/PCDD PCDF			Sediment	10.260g	brown clay
8	E1900711-008	SB-C10 (10-20')	.01	8290/PCDD PCDF			Sediment	10.151g	brown clay
9	E1900711-009	SB-C10 (20-45')	.01	8290/PCDD PCDF			Sediment	10.515g	brown clay
10	E1900711-010	SB-C4 (0-10')	.01	8290/PCDD PCDF			Sediment	10.333g	brown clay
11	E1900711-011	SB-C4 (10-20')	.01	8290/PCDD PCDF			Sediment	10.165g	brown clay
12	E1900711-012	SB-C4 (20-45')	.01	8290/PCDD PCDF			Sediment	10.091g	brown clay
13	E1900728-001	AC-5CP1-20191009-06-51	.01	8290/PCDD PCDF			Soil	10.183g	dark brown mold
14	E1900728-002	AC-4SC1-20191009-06-51	.01	8290/PCDD PCDF			Soil	10.097g	dark brown mud
15	E1900728-003	AC-4SC2-20191009-06-51	.01	8290/PCDD PCDF			Soil	10.754g	brown mud
16	E1900728-004	AC-3WP1-20191009-06-51	.01	8290/PCDD PCDF			Sludge, Solid	10.376g	black sludge
17	E1900728-005	AC-4SC3-20191009-06-51	.01	8290/PCDD PCDF			Soil	10.157g	dark brown mud
18	EQ1900347-01	MB		8290/PCDD PCDF			Solid	10.000g	
19	EQ1900347-02	LCS		8290/PCDD PCDF			Solid	10.000g	
20	EQ1900347-03	DLCS		8290/PCDD PCDF			Solid	10.000g	

Spiking Solutions

Name: 1613B Matrix Working Standard Inventory ID 203222 Logbook Ref: 203222 tw 09/24/19 2-20ng/ml Expires On: 03/22/2020

EQ1900347-02	100.00µL	EQ1900347-03	100.00µL

Name: 8290/1613B Cleanup Working Standard Inventory ID 203584 Logbook Ref: 203584 tw 100819 8ng/ml Expires On: 03/16/2020

E1900711-001	100.00µL	E1900711-002	100.00µL	E1900711-003	100.00µL	E1900711-004	100.00µL	E1900711-005	100.00µL	E1900711-006	100.00µL
E1900711-007	100.00µL	E1900711-008	100.00µL	E1900711-009	100.00µL	E1900711-010	100.00µL	E1900711-011	100.00µL	E1900711-012	100.00µL
E1900728-001	100.00µL	E1900728-002	100.00µL	E1900728-003	100.00µL	E1900728-004	100.00µL	E1900728-005	100.00µL	EQ1900347-01	100.00µL
EQ1900347-02	100.00µL	EQ1900347-03	100.00µL								

Name: 1613B Labeled Working Standard Inventory ID 203610 Logbook Ref: 203610 db 100819 2/4ng/ml Expires On: 03/24/2020

E1900711-001	1,000.00µL	E1900711-002	1,000.00µL	E1900711-003	1,000.00µL	E1900711-004	1,000.00µL	E1900711-005	1,000.00µL	E1900711-006	1,000.00µL
E1900711-007	1,000.00µL	E1900711-008	1,000.00µL	E1900711-009	1,000.00µL	E1900711-010	1,000.00µL	E1900711-011	1,000.00µL	E1900711-012	1,000.00µL

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Preparation Information Benchsheet

Prep Run#: 346278 **Prep WorkFlow:** OrgExtDioxS(30) **Status:** Prepped
Team: Semivoa GCMS/DBOTROS **Prep Method:** Method **Prep Date/Time:** 10/10/19 12:30

E1900728-001	1,000.00µL	E1900728-002	1,000.00µL	E1900728-003	1,000.00µL	E1900728-004	1,000.00µL	E1900728-005	1,000.00µL	EQ1900347-01	1,000.00µL
EQ1900347-02	1,000.00µL	EQ1900347-03	1,000.00µL								

Preparation Materials

Carbon, High Purity	JG 8/14/19 (202061)	Ethyl Acetate 99.9% Minimum EtOAc	JG 7/16/19 (201129)	Glass Wool	JG 8/1/19 (201624)
Hexanes 95%	JG 9/3/2019 (202538)	Dichloromethane (Methylene Chloride) 99.9% MeCl2	JG 7/19/19 (201263)	Sodium Chloride 5%	308051706 (202016)
Sodium Hydroxide 1N NaOH	sodsium hydroxide 1n (202287)	Sodium Sulfate Anhydrous Reagent Grade Na2SO4	JG 8/14/19 (202064)	Tridecane (n-Tridecane)	JG 6/25/19 (200486)
Silica Gel	silica gel 073119 tw (201591)	sulfuric acid	JG 6/18/19 (200325)	Toluene 99.9% Minimum	tw 09/29/19 (203281)

Preparation Steps

Step:	Extraction	Step:	Acid Clean	Step:	Silica Gel Clean	Step:	Final Volume
Started:	10/10/19 12:30	Started:	10/14/19 09:00	Started:	10/14/19 13:00	Started:	10/15/19 09:00
Finished:	10/11/19 09:30	Finished:	10/14/19 10:00	Finished:	10/14/19 16:00	Finished:	10/15/19 12:00
By:	DBOTROS	By:	DBOTROS	By:	DBOTROS	By:	DBOTROS
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

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ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E1900728
Project:	HS19100570	**Date Collected:**	10/09/19 10:45
Sample Matrix:	Soil	**Date Received:**	10/10/19 11:45
Sample Name:	AC-5CP1-20191009-06-51	**Units:**	ng/Kg
Lab Code:	E1900728-001	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290	**Date Analyzed:**	10/18/19 01:42
Prep Method:	Method	**Date Extracted:**	10/10/19
Sample Amount:	10.183g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P524772	**Blank File Name:**	P619497
ICAL Date:	04/25/19	**Cal Ver. File Name:**	P524769

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	2.21**J**		0.561	2.79	0.65	1.000	5
1,2,3,7,8-PeCDD	7.08**J**		0.205	13.9	1.58	1.001	5
1,2,3,4,7,8-HxCDD	7.84**J**		0.144	13.9	1.27	1.000	5
1,2,3,6,7,8-HxCDD	7.26**J**		0.116	13.9	1.36	1.000	5
1,2,3,7,8,9-HxCDD	8.32**J**		0.125	13.9	1.24	1.006	5
1,2,3,4,6,7,8-HpCDD	100		0.654	13.9	1.00	1.000	5
OCDD	7170		0.226	27.9	0.89	1.000	5
2,3,7,8-TCDF	3.35		0.342	2.79	0.87	1.001	5
1,2,3,7,8-PeCDF	6.55**JK**		0.0870	13.9	1.21	1.001	5
2,3,4,7,8-PeCDF	6.58**J**		0.108	13.9	1.65	1.001	5
1,2,3,4,7,8-HxCDF	7.54**J**		0.291	13.9	1.30	1.000	5
1,2,3,6,7,8-HxCDF	6.79**J**		0.310	13.9	1.30	1.000	5
1,2,3,7,8,9-HxCDF	7.28**J**		0.483	13.9	1.06	1.000	5
2,3,4,6,7,8-HxCDF	6.18**J**		0.329	13.9	1.29	1.001	5
1,2,3,4,6,7,8-HpCDF	32.1		0.174	13.9	1.06	1.000	5
1,2,3,4,7,8,9-HpCDF	5.71**JK**		0.202	13.9	1.21	1.000	5
OCDF	56.6		0.201	27.9	0.85	1.004	5

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ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E1900728
Project:	HS19100570	**Date Collected:**	10/09/19 10:45
Sample Matrix:	Soil	**Date Received:**	10/10/19 11:45
Sample Name:	AC-5CP1-20191009-06-51	**Units:**	ng/Kg
Lab Code:	E1900728-001	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290	**Date Analyzed:**	10/18/19 01:42
Prep Method:	Method	**Date Extracted:**	10/10/19
Sample Amount:	10.183g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P524772	**Blank File Name:**	P619497
ICAL Date:	04/25/19	**Cal Ver. File Name:**	P524769

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	1.06**J**		0.561	2.79	0.83		5
Total Penta-Dioxins	19.5		0.205	13.9	1.62		5
Total Hexa-Dioxins	32.7		0.128	13.9	1.21		5
Total Hepta-Dioxins	205		0.654	13.9	1.02		5
Total Tetra-Furans	4.11		0.342	2.79	0.87		5
Total Penta-Furans	11.1**J**		0.0965	13.9	1.76		5
Total Hexa-Furans	49.6		0.310	13.9	1.08		5
Total Hepta-Furans	74.1		0.187	13.9	1.06		5

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Client:	ALS Environmental - US	**Service Request:**	E1900728
Project:	HS19100570	**Date Collected:**	10/09/19 10:45
Sample Matrix:	Soil	**Date Received:**	10/10/19 11:45
Sample Name:	AC-5CP1-20191009-06-51	**Units:**	Percent
Lab Code:	E1900728-001	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290	**Date Analyzed:**	10/18/19 01:42
Prep Method:	Method	**Date Extracted:**	10/10/19
Sample Amount:	10.183g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P524772	**Blank File Name:**	P619497
ICAL Date:	04/25/19	**Cal Ver. File Name:**	P524769

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	1671.831	84		40-135	0.79	1.031
13C-1,2,3,7,8-PeCDD	2000	1562.417	78		40-135	1.58	1.224
13C-1,2,3,4,7,8-HxCDD	2000	1458.616	73		40-135	1.25	0.992
13C-1,2,3,6,7,8-HxCDD	2000	1858.538	93		40-135	1.27	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1516.812	76		40-135	1.05	1.062
13C-OCDD	4000	2764.334	69		40-135	0.90	1.135
13C-2,3,7,8-TCDF	2000	1668.137	83		40-135	0.79	0.995
13C-1,2,3,7,8-PeCDF	2000	1639.725	82		40-135	1.56	1.174
13C-2,3,4,7,8-PeCDF	2000	1512.630	76		40-135	1.59	1.213
13C-1,2,3,4,7,8-HxCDF	2000	1705.656	85		40-135	0.51	0.966
13C-1,2,3,6,7,8-HxCDF	2000	1574.255	79		40-135	0.53	0.970
13C-1,2,3,7,8,9-HxCDF	2000	745.910	37	**Y**	40-135	0.51	1.006
13C-2,3,4,6,7,8-HxCDF	2000	1589.061	79		40-135	0.51	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1424.568	71		40-135	0.44	1.037
13C-1,2,3,4,7,8,9-HpCDF	2000	1543.777	77		40-135	0.44	1.073
37Cl-2,3,7,8-TCDD	160	205.832	129		40-135	NA	1.032

RIGHT SOLUTIONS | RIGHT PARTNER

Client:	ALS Environmental - US	**Service Request:**	E1900728
Project:	HS19100570	**Date Collected:**	10/09/19 10:45
Sample Matrix:	Soil	**Date Received:**	10/10/19 11:45
Sample Name:	AC-5CP1-20191009-06-51	**Units:**	ng/Kg
Lab Code:	E1900728-001	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 8290

Prep Method: Method

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**2.21**	0.561	2.79	5	1	2.21
1,2,3,7,8-PeCDD	**7.08**	0.205	13.9	5	1	7.08
1,2,3,4,7,8-HxCDD	**7.84**	0.144	13.9	5	0.1	0.784
1,2,3,6,7,8-HxCDD	**7.26**	0.116	13.9	5	0.1	0.726
1,2,3,7,8,9-HxCDD	**8.32**	0.125	13.9	5	0.1	0.832
1,2,3,4,6,7,8-HpCDD	**100**	0.654	13.9	5	0.01	1.00
OCDD	**7170**	0.226	27.9	5	0.0003	2.15
2,3,7,8-TCDF	**3.35**	0.342	2.79	5	0.1	0.335
1,2,3,7,8-PeCDF	**6.55**	0.0870	13.9	5	0.03	0.197
2,3,4,7,8-PeCDF	**6.58**	0.108	13.9	5	0.3	1.97
1,2,3,4,7,8-HxCDF	**7.54**	0.291	13.9	5	0.1	0.754
1,2,3,6,7,8-HxCDF	**6.79**	0.310	13.9	5	0.1	0.679
1,2,3,7,8,9-HxCDF	**7.28**	0.483	13.9	5	0.1	0.728
2,3,4,6,7,8-HxCDF	**6.18**	0.329	13.9	5	0.1	0.618
1,2,3,4,6,7,8-HpCDF	**32.1**	0.174	13.9	5	0.01	0.321
1,2,3,4,7,8,9-HpCDF	**5.71**	0.202	13.9	5	0.01	0.0571
OCDF	**56.6**	0.201	27.9	5	0.0003	0.0170
		Total TEQ				20.5

2005 WHO TEFs, ND = 0

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ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E1900728
Project:	HS19100570	**Date Collected:**	10/09/19 10:45
Sample Matrix:	Soil	**Date Received:**	10/10/19 11:45
Sample Name:	AC-5CP1-20191009-06-51	**Units:**	Percent
Lab Code:	E1900728-001	**Basis:**	NA

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	10/18/19 12:41
	5.451g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Solids	88.1		-	-			1

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ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E1900728
Project:	HS19100570	**Date Collected:**	10/09/19 11:05
Sample Matrix:	Soil	**Date Received:**	10/10/19 11:45
Sample Name:	AC-4SC1-20191009-06-51	**Units:**	ng/Kg
Lab Code:	E1900728-002	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290	**Date Analyzed:**	10/18/19 02:31
Prep Method:	Method	**Date Extracted:**	10/10/19
Sample Amount:	10.097g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P524773	**Blank File Name:**	P619497
ICAL Date:	04/25/19	**Cal Ver. File Name:**	P524769

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.947	2.86			5
1,2,3,7,8-PeCDD	2.07**JK**		0.216	14.3	1.15	1.002	5
1,2,3,4,7,8-HxCDD	4.27**JK**		0.243	14.3	1.54	1.000	5
1,2,3,6,7,8-HxCDD	7.02**JK**		0.250	14.3	1.50	1.000	5
1,2,3,7,8,9-HxCDD	3.61**JK**		0.241	14.3	0.77	1.005	5
1,2,3,4,6,7,8-HpCDD	127		0.231	14.3	1.11	1.000	5
OCDD	1690		0.261	28.6	0.91	1.000	5
2,3,7,8-TCDF	ND	U	1.49	2.86			5
1,2,3,7,8-PeCDF	3.35**J**		0.290	14.3	1.64	1.001	5
2,3,4,7,8-PeCDF	ND	U	0.822	14.3			5
1,2,3,4,7,8-HxCDF	6.99**J**		0.150	14.3	1.35	1.000	5
1,2,3,6,7,8-HxCDF	4.38**JK**		0.158	14.3	1.01	1.000	5
1,2,3,7,8,9-HxCDF	3.43**JK**		0.339	14.3	1.01	1.000	5
2,3,4,6,7,8-HxCDF	3.35**JK**		0.220	14.3	0.95	1.000	5
1,2,3,4,6,7,8-HpCDF	56.8		0.270	14.3	1.02	1.000	5
1,2,3,4,7,8,9-HpCDF	4.82**J**		0.325	14.3	0.97	1.000	5
OCDF	84.3		0.270	28.6	0.87	1.004	5

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Client:	ALS Environmental - US	**Service Request:**	E1900728
Project:	HS19100570	**Date Collected:**	10/09/19 11:05
Sample Matrix:	Soil	**Date Received:**	10/10/19 11:45
Sample Name:	AC-4SC1-20191009-06-51	**Units:**	ng/Kg
Lab Code:	E1900728-002	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290	**Date Analyzed:**	10/18/19 02:31
Prep Method:	Method	**Date Extracted:**	10/10/19
Sample Amount:	10.097g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P524773	**Blank File Name:**	P619497
ICAL Date:	04/25/19	**Cal Ver. File Name:**	P524769

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.947	2.86			5
Total Penta-Dioxins	3.11**J**		0.216	14.3	1.73		5
Total Hexa-Dioxins	102		0.245	14.3	1.14		5
Total Hepta-Dioxins	324		0.231	14.3	1.03		5
Total Tetra-Furans	ND	U	1.49	2.86			5
Total Penta-Furans	4.30**J**		0.538	14.3	1.45		5
Total Hexa-Furans	27.9		0.169	14.3	1.11		5
Total Hepta-Furans	146		0.295	14.3	1.02		5

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Client:	ALS Environmental - US	**Service Request:**	E1900728
Project:	HS19100570	**Date Collected:**	10/09/19 11:05
Sample Matrix:	Soil	**Date Received:**	10/10/19 11:45
Sample Name:	AC-4SC1-20191009-06-51	**Units:**	Percent
Lab Code:	E1900728-002	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290	**Date Analyzed:**	10/18/19 02:31
Prep Method:	Method	**Date Extracted:**	10/10/19
Sample Amount:	10.097g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P524773	**Blank File Name:**	P619497
ICAL Date:	04/25/19	**Cal Ver. File Name:**	P524769

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	1684.081	84		40-135	0.80	1.036
13C-1,2,3,7,8-PeCDD	2000	1898.269	95		40-135	1.58	1.223
13C-1,2,3,4,7,8-HxCDD	2000	2364.330	118		40-135	1.25	0.994
13C-1,2,3,6,7,8-HxCDD	2000	2507.543	125		40-135	1.25	0.995
13C-1,2,3,4,6,7,8-HpCDD	2000	4730.147	237	**Y**	40-135	1.04	1.053
13C-OCDD	4000	9398.493	235	**Y**	40-135	0.89	1.127
13C-2,3,7,8-TCDF	2000	1602.238	80		40-135	0.79	1.001
13C-1,2,3,7,8-PeCDF	2000	1793.881	90		40-135	1.61	1.173
13C-2,3,4,7,8-PeCDF	2000	1695.414	85		40-135	1.58	1.211
13C-1,2,3,4,7,8-HxCDF	2000	5423.903	271	**Y**	40-135	0.51	0.974
13C-1,2,3,6,7,8-HxCDF	2000	4907.756	245	**Y**	40-135	0.52	0.977
13C-1,2,3,7,8,9-HxCDF	2000	1509.298	75		40-135	0.52	1.005
13C-2,3,4,6,7,8-HxCDF	2000	2863.515	143	**Y**	40-135	0.51	0.992
13C-1,2,3,4,6,7,8-HpCDF	2000	4423.725	221	**Y**	40-135	0.45	1.031
13C-1,2,3,4,7,8,9-HpCDF	2000	4780.799	239	**Y**	40-135	0.43	1.064
37Cl-2,3,7,8-TCDD	160	201.755	126		40-135	NA	1.038

RIGHT SOLUTIONS | RIGHT PARTNER

Client:	ALS Environmental - US	**Service Request:**	E1900728
Project:	HS19100570	**Date Collected:**	10/09/19 11:05
Sample Matrix:	Soil	**Date Received:**	10/10/19 11:45
Sample Name:	AC-4SC1-20191009-06-51	**Units:**	ng/Kg
Lab Code:	E1900728-002	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 8290

Prep Method: Method

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.947	2.86	5	1	
1,2,3,7,8-PeCDD	**2.07**	0.216	14.3	5	1	2.07
1,2,3,4,7,8-HxCDD	**4.27**	0.243	14.3	5	0.1	0.427
1,2,3,6,7,8-HxCDD	**7.02**	0.250	14.3	5	0.1	0.702
1,2,3,7,8,9-HxCDD	**3.61**	0.241	14.3	5	0.1	0.361
1,2,3,4,6,7,8-HpCDD	**127**	0.231	14.3	5	0.01	1.27
OCDD	**1690**	0.261	28.6	5	0.0003	0.507
2,3,7,8-TCDF	ND	1.49	2.86	5	0.1	
1,2,3,7,8-PeCDF	**3.35**	0.290	14.3	5	0.03	0.101
2,3,4,7,8-PeCDF	ND	0.822	14.3	5	0.3	
1,2,3,4,7,8-HxCDF	**6.99**	0.150	14.3	5	0.1	0.699
1,2,3,6,7,8-HxCDF	**4.38**	0.158	14.3	5	0.1	0.438
1,2,3,7,8,9-HxCDF	**3.43**	0.339	14.3	5	0.1	0.343
2,3,4,6,7,8-HxCDF	**3.35**	0.220	14.3	5	0.1	0.335
1,2,3,4,6,7,8-HpCDF	**56.8**	0.270	14.3	5	0.01	0.568
1,2,3,4,7,8,9-HpCDF	**4.82**	0.325	14.3	5	0.01	0.0482
OCDF	**84.3**	0.270	28.6	5	0.0003	0.0253
		Total TEQ				7.89

2005 WHO TEFs, ND = 0

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E1900728
Project:	HS19100570	**Date Collected:**	10/09/19 11:05
Sample Matrix:	Soil	**Date Received:**	10/10/19 11:45
Sample Name:	AC-4SC1-20191009-06-51	**Units:**	Percent
Lab Code:	E1900728-002	**Basis:**	NA

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	10/18/19 12:41
	5.307g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Solids	86.7		-	-			1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E1900728
Project:	HS19100570	**Date Collected:**	10/09/19 11:12
Sample Matrix:	Soil	**Date Received:**	10/10/19 11:45
Sample Name:	AC-4SC2-20191009-06-51	**Units:**	ng/Kg
Lab Code:	E1900728-003	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290	**Date Analyzed:**	10/18/19 03:20
Prep Method:	Method	**Date Extracted:**	10/10/19
Sample Amount:	10.754g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P524774	**Blank File Name:**	P619497
ICAL Date:	04/25/19	**Cal Ver. File Name:**	P524769

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	1.43	3.14			5
1,2,3,7,8-PeCDD	3.70**JK**		0.574	15.7	1.97	1.002	5
1,2,3,4,7,8-HxCDD	0.546**JK**		0.220	15.7	2.65	0.999	5
1,2,3,6,7,8-HxCDD	12.0**JK**		0.226	15.7	1.72	1.000	5
1,2,3,7,8,9-HxCDD	3.37**JK**		0.217	15.7	2.26	1.005	5
1,2,3,4,6,7,8-HpCDD	134		0.422	15.7	1.08	1.000	5
OCDD	2730		0.399	31.4	0.90	1.000	5
2,3,7,8-TCDF	ND	U	2.40	3.14			5
1,2,3,7,8-PeCDF	1.29**JK**		0.377	15.7	0.98	1.001	5
2,3,4,7,8-PeCDF	ND	U	1.06	15.7			5
1,2,3,4,7,8-HxCDF	9.25**J**		0.138	15.7	1.27	1.000	5
1,2,3,6,7,8-HxCDF	5.76**J**		0.149	15.7	1.33	1.000	5
1,2,3,7,8,9-HxCDF	2.04**JK**		0.333	15.7	0.99	1.000	5
2,3,4,6,7,8-HxCDF	5.35**J**		0.227	15.7	1.05	1.000	5
1,2,3,4,6,7,8-HpCDF	97.5		0.763	15.7	0.99	1.000	5
1,2,3,4,7,8,9-HpCDF	4.17**JK**		0.912	15.7	1.32	1.000	5
OCDF	71.8		0.401	31.4	0.84	1.004	5

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E1900728
Project:	HS19100570	**Date Collected:**	10/09/19 11:12
Sample Matrix:	Soil	**Date Received:**	10/10/19 11:45
Sample Name:	AC-4SC2-20191009-06-51	**Units:**	ng/Kg
Lab Code:	E1900728-003	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290	**Date Analyzed:**	10/18/19 03:20
Prep Method:	Method	**Date Extracted:**	10/10/19
Sample Amount:	10.754g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P524774	**Blank File Name:**	P619497
ICAL Date:	04/25/19	**Cal Ver. File Name:**	P524769

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	1.43	3.14			5
Total Penta-Dioxins	5.07**J**		0.574	15.7	1.64		5
Total Hexa-Dioxins	237		0.221	15.7	1.26		5
Total Hepta-Dioxins	382		0.422	15.7	1.05		5
Total Tetra-Furans	ND	U	2.40	3.14			5
Total Penta-Furans	11.8**J**		0.702	15.7	1.54		5
Total Hexa-Furans	94.3		0.160	15.7	1.23		5
Total Hepta-Furans	181		0.829	15.7	0.99		5

RIGHT SOLUTIONS | RIGHT PARTNER

Client:	ALS Environmental - US	**Service Request:**	E1900728
Project:	HS19100570	**Date Collected:**	10/09/19 11:12
Sample Matrix:	Soil	**Date Received:**	10/10/19 11:45
Sample Name:	AC-4SC2-20191009-06-51	**Units:**	Percent
Lab Code:	E1900728-003	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290	**Date Analyzed:**	10/18/19 03:20
Prep Method:	Method	**Date Extracted:**	10/10/19
Sample Amount:	10.754g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P524774	**Blank File Name:**	P619497
ICAL Date:	04/25/19	**Cal Ver. File Name:**	P524769

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	1628.834	81		40-135	0.78	1.036
13C-1,2,3,7,8-PeCDD	2000	1757.229	88		40-135	1.62	1.220
13C-1,2,3,4,7,8-HxCDD	2000	2388.219	119		40-135	1.28	0.993
13C-1,2,3,6,7,8-HxCDD	2000	2219.404	111		40-135	1.29	0.995
13C-1,2,3,4,6,7,8-HpCDD	2000	4965.861	248	**Y**	40-135	1.06	1.053
13C-OCDD	4000	10258.901	256	**Y**	40-135	0.91	1.126
13C-2,3,7,8-TCDF	2000	1611.295	81		40-135	0.79	1.001
13C-1,2,3,7,8-PeCDF	2000	1626.597	81		40-135	1.59	1.171
13C-2,3,4,7,8-PeCDF	2000	1600.615	80		40-135	1.56	1.209
13C-1,2,3,4,7,8-HxCDF	2000	5587.362	279	**Y**	40-135	0.53	0.975
13C-1,2,3,6,7,8-HxCDF	2000	5135.611	257	**Y**	40-135	0.52	0.978
13C-1,2,3,7,8,9-HxCDF	2000	1484.087	74		40-135	0.54	1.004
13C-2,3,4,6,7,8-HxCDF	2000	2645.147	132		40-135	0.51	0.992
13C-1,2,3,4,6,7,8-HpCDF	2000	4638.622	232	**Y**	40-135	0.44	1.030
13C-1,2,3,4,7,8,9-HpCDF	2000	5106.477	255	**Y**	40-135	0.44	1.063
37Cl-2,3,7,8-TCDD	160	232.093	145	**Y**	40-135	NA	1.037

RIGHT SOLUTIONS | RIGHT PARTNER

Client:	ALS Environmental - US	**Service Request:**	E1900728
Project:	HS19100570	**Date Collected:**	10/09/19 11:12
Sample Matrix:	Soil	**Date Received:**	10/10/19 11:45
Sample Name:	AC-4SC2-20191009-06-51	**Units:**	ng/Kg
Lab Code:	E1900728-003	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 8290

Prep Method: Method

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	1.43	3.14	5	1	
1,2,3,7,8-PeCDD	**3.70**	0.574	15.7	5	1	3.70
1,2,3,4,7,8-HxCDD	**0.546**	0.220	15.7	5	0.1	0.0546
1,2,3,6,7,8-HxCDD	**12.0**	0.226	15.7	5	0.1	1.20
1,2,3,7,8,9-HxCDD	**3.37**	0.217	15.7	5	0.1	0.337
1,2,3,4,6,7,8-HpCDD	**134**	0.422	15.7	5	0.01	1.34
OCDD	**2730**	0.399	31.4	5	0.0003	0.819
2,3,7,8-TCDF	ND	2.40	3.14	5	0.1	
1,2,3,7,8-PeCDF	**1.29**	0.377	15.7	5	0.03	0.0387
2,3,4,7,8-PeCDF	ND	1.06	15.7	5	0.3	
1,2,3,4,7,8-HxCDF	**9.25**	0.138	15.7	5	0.1	0.925
1,2,3,6,7,8-HxCDF	**5.76**	0.149	15.7	5	0.1	0.576
1,2,3,7,8,9-HxCDF	**2.04**	0.333	15.7	5	0.1	0.204
2,3,4,6,7,8-HxCDF	**5.35**	0.227	15.7	5	0.1	0.535
1,2,3,4,6,7,8-HpCDF	**97.5**	0.763	15.7	5	0.01	0.975
1,2,3,4,7,8,9-HpCDF	**4.17**	0.912	15.7	5	0.01	0.0417
OCDF	**71.8**	0.401	31.4	5	0.0003	0.0215
		Total TEQ				10.8

2005 WHO TEFs, ND = 0

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E1900728
Project:	HS19100570	**Date Collected:**	10/09/19 11:12
Sample Matrix:	Soil	**Date Received:**	10/10/19 11:45
Sample Name:	AC-4SC2-20191009-06-51	**Units:**	Percent
Lab Code:	E1900728-003	**Basis:**	NA

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	10/18/19 12:41
	5.365g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Solids	74.0		-	-			1

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ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E1900728
Project:	HS19100570	**Date Collected:**	10/09/19 11:18
Sample Matrix:	Sludge, Solid	**Date Received:**	10/10/19 11:45
Sample Name:	AC-3WP1-20191009-06-51	**Units:**	ng/Kg
Lab Code:	E1900728-004	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290	**Date Analyzed:**	10/20/19 14:19
Prep Method:	Method	**Date Extracted:**	10/10/19
Sample Amount:	10.376g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P524840	**Blank File Name:**	P619497
ICAL Date:	04/25/19	**Cal Ver. File Name:**	P524830

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	4.42	4.55			5
1,2,3,7,8-PeCDD	2.02**JK**		1.37	22.8	2.72	1.001	5
1,2,3,4,7,8-HxCDD	3.86**JK**		0.876	22.8	0.66	1.001	5
1,2,3,6,7,8-HxCDD	94.3		0.967	22.8	1.24	1.000	5
1,2,3,7,8,9-HxCDD	21.5**JK**		0.898	22.8	1.48	1.005	5
1,2,3,4,6,7,8-HpCDD	307		1.23	22.8	1.07	1.000	5
OCDD	1100		0.515	45.5	0.91	1.000	5
2,3,7,8-TCDF	ND	U	1.68	4.55			5
1,2,3,7,8-PeCDF	1.97**JK**		0.830	22.8	1.20	1.000	5
2,3,4,7,8-PeCDF	9.43**J**		0.893	22.8	1.55	1.000	5
1,2,3,4,7,8-HxCDF	27.1		0.704	22.8	1.26	1.000	5
1,2,3,6,7,8-HxCDF	12.4**J**		0.782	22.8	1.17	1.001	5
1,2,3,7,8,9-HxCDF	3.59**JK**		1.71	22.8	3.19	1.000	5
2,3,4,6,7,8-HxCDF	13.7**J**		0.783	22.8	1.13	1.000	5
1,2,3,4,6,7,8-HpCDF	258		1.03	22.8	1.01	1.000	5
1,2,3,4,7,8,9-HpCDF	10.5**J**		1.50	22.8	0.93	1.000	5
OCDF	131		0.717	45.5	0.87	1.004	5

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E1900728
Project:	HS19100570	**Date Collected:**	10/09/19 11:18
Sample Matrix:	Sludge, Solid	**Date Received:**	10/10/19 11:45
Sample Name:	AC-3WP1-20191009-06-51	**Units:**	ng/Kg
Lab Code:	E1900728-004	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290	**Date Analyzed:**	10/20/19 14:19
Prep Method:	Method	**Date Extracted:**	10/10/19
Sample Amount:	10.376g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P524840	**Blank File Name:**	P619497
ICAL Date:	04/25/19	**Cal Ver. File Name:**	P524830

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	4.42	4.55			5
Total Penta-Dioxins	42.1		1.37	22.8	1.40		5
Total Hexa-Dioxins	1550		0.912	22.8	1.25		5
Total Hepta-Dioxins	1280		1.23	22.8	1.02		5
Total Tetra-Furans	ND	U	1.68	4.55			5
Total Penta-Furans	32.6		0.862	22.8	1.55		5
Total Hexa-Furans	229		0.756	22.8	1.24		5
Total Hepta-Furans	430		1.22	22.8	1.01		5

RIGHT SOLUTIONS | RIGHT PARTNER

Client:	ALS Environmental - US	**Service Request:**	E1900728
Project:	HS19100570	**Date Collected:**	10/09/19 11:18
Sample Matrix:	Sludge, Solid	**Date Received:**	10/10/19 11:45
Sample Name:	AC-3WP1-20191009-06-51	**Units:**	Percent
Lab Code:	E1900728-004	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290	**Date Analyzed:**	10/20/19 14:19
Prep Method:	Method	**Date Extracted:**	10/10/19
Sample Amount:	10.376g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P524840	**Blank File Name:**	P619497
ICAL Date:	04/25/19	**Cal Ver. File Name:**	P524830

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	727.847	36	**Y**	40-135	0.77	1.035
13C-1,2,3,7,8-PeCDD	2000	771.354	39	**Y**	40-135	1.56	1.220
13C-1,2,3,4,7,8-HxCDD	2000	1782.453	89		40-135	1.31	0.993
13C-1,2,3,6,7,8-HxCDD	2000	1669.169	83		40-135	1.32	0.995
13C-1,2,3,4,6,7,8-HpCDD	2000	2470.944	124		40-135	1.06	1.054
13C-OCDD	4000	6952.586	174	**Y**	40-135	0.89	1.125
13C-2,3,7,8-TCDF	2000	1094.243	55		40-135	0.78	1.002
13C-1,2,3,7,8-PeCDF	2000	879.110	44		40-135	1.60	1.171
13C-2,3,4,7,8-PeCDF	2000	1205.441	60		40-135	1.56	1.210
13C-1,2,3,4,7,8-HxCDF	2000	3535.154	177	**Y**	40-135	0.52	0.973
13C-1,2,3,6,7,8-HxCDF	2000	3106.377	155	**Y**	40-135	0.51	0.975
13C-1,2,3,7,8,9-HxCDF	2000	895.345	45		40-135	0.55	1.005
13C-2,3,4,6,7,8-HxCDF	2000	2489.730	124		40-135	0.51	0.991
13C-1,2,3,4,6,7,8-HpCDF	2000	3244.994	162	**Y**	40-135	0.44	1.031
13C-1,2,3,4,7,8,9-HpCDF	2000	2960.911	148	**Y**	40-135	0.43	1.065
37Cl-2,3,7,8-TCDD	160	75.743	47		40-135	NA	1.035

RIGHT SOLUTIONS | RIGHT PARTNER

Client:	ALS Environmental - US	**Service Request:**	E1900728
Project:	HS19100570	**Date Collected:**	10/09/19 11:18
Sample Matrix:	Sludge, Solid	**Date Received:**	10/10/19 11:45
Sample Name:	AC-3WP1-20191009-06-51	**Units:**	ng/Kg
Lab Code:	E1900728-004	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 8290
Prep Method: Method

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	4.42	4.55	5	1	
1,2,3,7,8-PeCDD	**2.02**	1.37	22.8	5	1	2.02
1,2,3,4,7,8-HxCDD	**3.86**	0.876	22.8	5	0.1	0.386
1,2,3,6,7,8-HxCDD	**94.3**	0.967	22.8	5	0.1	9.43
1,2,3,7,8,9-HxCDD	**21.5**	0.898	22.8	5	0.1	2.15
1,2,3,4,6,7,8-HpCDD	**307**	1.23	22.8	5	0.01	3.07
OCDD	**1100**	0.515	45.5	5	0.0003	0.330
2,3,7,8-TCDF	ND	1.68	4.55	5	0.1	
1,2,3,7,8-PeCDF	**1.97**	0.830	22.8	5	0.03	0.0591
2,3,4,7,8-PeCDF	**9.43**	0.893	22.8	5	0.3	2.83
1,2,3,4,7,8-HxCDF	**27.1**	0.704	22.8	5	0.1	2.71
1,2,3,6,7,8-HxCDF	**12.4**	0.782	22.8	5	0.1	1.24
1,2,3,7,8,9-HxCDF	**3.59**	1.71	22.8	5	0.1	0.359
2,3,4,6,7,8-HxCDF	**13.7**	0.783	22.8	5	0.1	1.37
1,2,3,4,6,7,8-HpCDF	**258**	1.03	22.8	5	0.01	2.58
1,2,3,4,7,8,9-HpCDF	**10.5**	1.50	22.8	5	0.01	0.105
OCDF	**131**	0.717	45.5	5	0.0003	0.0393
		Total TEQ				28.7

2005 WHO TEFs, ND = 0

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ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E1900728
Project:	HS19100570	**Date Collected:**	10/09/19 11:18
Sample Matrix:	Sludge, Solid	**Date Received:**	10/10/19 11:45
Sample Name:	AC-3WP1-20191009-06-51	**Units:**	Percent
Lab Code:	E1900728-004	**Basis:**	NA

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	10/18/19 12:41
	6.021g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Solids	52.9		-	-			1

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ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E1900728
Project:	HS19100570	**Date Collected:**	10/09/19 11:30
Sample Matrix:	Soil	**Date Received:**	10/10/19 11:45
Sample Name:	AC-4SC3-20191009-06-51	**Units:**	ng/Kg
Lab Code:	E1900728-005	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290	**Date Analyzed:**	10/20/19 13:30
Prep Method:	Method	**Date Extracted:**	10/10/19
Sample Amount:	10.157g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P524839	**Blank File Name:**	P619497
ICAL Date:	04/25/19	**Cal Ver. File Name:**	P524830

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	16.9	58.4			100
1,2,3,7,8-PeCDD	ND	U	8.92	292			100
1,2,3,4,7,8-HxCDD	3.77**JK**		2.24	292	0.60	1.000	100
1,2,3,6,7,8-HxCDD	4.89**JK**		2.05	292	3.27	1.001	100
1,2,3,7,8,9-HxCDD	6.37**J**		2.10	292	1.26	1.007	100
1,2,3,4,6,7,8-HpCDD	64.6**JK**		4.03	292	1.34	1.000	100
OCDD	4870		13.4	584	0.86	1.000	100
2,3,7,8-TCDF	ND	U	12.1	58.4			100
1,2,3,7,8-PeCDF	ND	U	7.91	292			100
2,3,4,7,8-PeCDF	ND	U	8.94	292			100
1,2,3,4,7,8-HxCDF	ND	U	5.37	292			100
1,2,3,6,7,8-HxCDF	9.13**JK**		5.53	292	0.92	1.000	100
1,2,3,7,8,9-HxCDF	ND	U	9.06	292			100
2,3,4,6,7,8-HxCDF	ND	U	6.60	292			100
1,2,3,4,6,7,8-HpCDF	38.5**J**		3.24	292	1.19	1.000	100
1,2,3,4,7,8,9-HpCDF	ND	U	4.43	292			100
OCDF	42.5**JK**		5.70	584	1.11	1.005	100

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ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E1900728
Project:	HS19100570	**Date Collected:**	10/09/19 11:30
Sample Matrix:	Soil	**Date Received:**	10/10/19 11:45
Sample Name:	AC-4SC3-20191009-06-51	**Units:**	ng/Kg
Lab Code:	E1900728-005	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290	**Date Analyzed:**	10/20/19 13:30
Prep Method:	Method	**Date Extracted:**	10/10/19
Sample Amount:	10.157g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P524839	**Blank File Name:**	P619497
ICAL Date:	04/25/19	**Cal Ver. File Name:**	P524830

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	16.9	58.4			100
Total Penta-Dioxins	ND	U	8.92	292			100
Total Hexa-Dioxins	15.5**J**		2.12	292	1.16		100
Total Hepta-Dioxins	ND	U	4.03	292			100
Total Tetra-Furans	ND	U	12.1	58.4			100
Total Penta-Furans	ND	U	8.39	292			100
Total Hexa-Furans	ND	U	6.29	292			100
Total Hepta-Furans	71.3**J**		3.77	292	1.19		100

RIGHT SOLUTIONS | RIGHT PARTNER

Client:	ALS Environmental - US	**Service Request:**	E1900728
Project:	HS19100570	**Date Collected:**	10/09/19 11:30
Sample Matrix:	Soil	**Date Received:**	10/10/19 11:45
Sample Name:	AC-4SC3-20191009-06-51	**Units:**	Percent
Lab Code:	E1900728-005	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290	**Date Analyzed:**	10/20/19 13:30
Prep Method:	Method	**Date Extracted:**	10/10/19
Sample Amount:	10.157g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P524839	**Blank File Name:**	P619497
ICAL Date:	04/25/19	**Cal Ver. File Name:**	P524830

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	1699.646	85		40-135	0.78	1.027
13C-1,2,3,7,8-PeCDD	2000	1929.275	96		40-135	1.59	1.229
13C-1,2,3,4,7,8-HxCDD	2000	1605.765	80		40-135	1.29	0.990
13C-1,2,3,6,7,8-HxCDD	2000	1839.388	92		40-135	1.28	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1673.311	84		40-135	1.03	1.069
13C-OCDD	4000	3522.428	88		40-135	0.89	1.143
13C-2,3,7,8-TCDF	2000	1686.955	84		40-135	0.79	0.992
13C-1,2,3,7,8-PeCDF	2000	1997.411	100		40-135	1.59	1.178
13C-2,3,4,7,8-PeCDF	2000	1818.233	91		40-135	1.56	1.218
13C-1,2,3,4,7,8-HxCDF	2000	1864.763	93		40-135	0.51	0.967
13C-1,2,3,6,7,8-HxCDF	2000	1731.137	87		40-135	0.52	0.970
13C-1,2,3,7,8,9-HxCDF	2000	1098.348	55		40-135	0.52	1.007
13C-2,3,4,6,7,8-HxCDF	2000	1679.737	84		40-135	0.51	0.986
13C-1,2,3,4,6,7,8-HpCDF	2000	1646.882	82		40-135	0.44	1.043
13C-1,2,3,4,7,8,9-HpCDF	2000	1698.671	85		40-135	0.43	1.082
37Cl-2,3,7,8-TCDD	8.00	3.343	42		40-135	NA	1.029

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Client:	ALS Environmental - US	**Service Request:**	E1900728
Project:	HS19100570	**Date Collected:**	10/09/19 11:30
Sample Matrix:	Soil	**Date Received:**	10/10/19 11:45
Sample Name:	AC-4SC3-20191009-06-51	**Units:**	ng/Kg
Lab Code:	E1900728-005	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 8290

Prep Method: Method

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	16.9	58.4	100	1	
1,2,3,7,8-PeCDD	ND	8.92	292	100	1	
1,2,3,4,7,8-HxCDD	**3.77**	2.24	292	100	0.1	0.377
1,2,3,6,7,8-HxCDD	**4.89**	2.05	292	100	0.1	0.489
1,2,3,7,8,9-HxCDD	**6.37**	2.10	292	100	0.1	0.637
1,2,3,4,6,7,8-HpCDD	**64.6**	4.03	292	100	0.01	0.646
OCDD	**4870**	13.4	584	100	0.0003	1.46
2,3,7,8-TCDF	ND	12.1	58.4	100	0.1	
1,2,3,7,8-PeCDF	ND	7.91	292	100	0.03	
2,3,4,7,8-PeCDF	ND	8.94	292	100	0.3	
1,2,3,4,7,8-HxCDF	ND	5.37	292	100	0.1	
1,2,3,6,7,8-HxCDF	**9.13**	5.53	292	100	0.1	0.913
1,2,3,7,8,9-HxCDF	ND	9.06	292	100	0.1	
2,3,4,6,7,8-HxCDF	ND	6.60	292	100	0.1	
1,2,3,4,6,7,8-HpCDF	**38.5**	3.24	292	100	0.01	0.385
1,2,3,4,7,8,9-HpCDF	ND	4.43	292	100	0.01	
OCDF	**42.5**	5.70	584	100	0.0003	0.0128
		Total TEQ				4.92

2005 WHO TEFs, ND = 0

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ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E1900728
Project:	HS19100570	**Date Collected:**	10/09/19 11:30
Sample Matrix:	Soil	**Date Received:**	10/10/19 11:45
Sample Name:	AC-4SC3-20191009-06-51	**Units:**	Percent
Lab Code:	E1900728-005	**Basis:**	NA

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	10/18/19 12:41
	6.263g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Solids	84.3		-	-			1

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ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E1900728
Project:	HS19100570	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1900347-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290	**Date Analyzed:**	10/17/19 13:45
Prep Method:	Method	**Date Extracted:**	10/10/19
Sample Amount:	10.000g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P619497	**Blank File Name:**	P619497
ICAL Date:	10/04/19	**Cal Ver. File Name:**	P619496

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.157	0.500			1
1,2,3,7,8-PeCDD	ND	U	0.0554	2.50			1
1,2,3,4,7,8-HxCDD	ND	U	0.0387	2.50			1
1,2,3,6,7,8-HxCDD	ND	U	0.0345	2.50			1
1,2,3,7,8,9-HxCDD	ND	U	0.0336	2.50			1
1,2,3,4,6,7,8-HpCDD	0.0557**JK**		0.0524	2.50	0.79	1.000	1
OCDD	0.289**J**		0.0453	5.00	0.85	1.001	1
2,3,7,8-TCDF	ND	U	0.0686	0.500			1
1,2,3,7,8-PeCDF	ND	U	0.0536	2.50			1
2,3,4,7,8-PeCDF	0.110**J**		0.0563	2.50	1.36	1.001	1
1,2,3,4,7,8-HxCDF	ND	U	0.0281	2.50			1
1,2,3,6,7,8-HxCDF	ND	U	0.0304	2.50			1
1,2,3,7,8,9-HxCDF	0.0571**JK**		0.0341	2.50	0.97	1.001	1
2,3,4,6,7,8-HxCDF	0.0386**JK**		0.0311	2.50	0.66	1.001	1
1,2,3,4,6,7,8-HpCDF	ND	U	0.0220	2.50			1
1,2,3,4,7,8,9-HpCDF	ND	U	0.0301	2.50			1
OCDF	0.0673**J**		0.0537	5.00	0.82	1.005	1

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Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E1900728
Project:	HS19100570	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1900347-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290	**Date Analyzed:**	10/17/19 13:45
Prep Method:	Method	**Date Extracted:**	10/10/19
Sample Amount:	10.000g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P619497	**Blank File Name:**	P619497
ICAL Date:	10/04/19	**Cal Ver. File Name:**	P619496

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.157	0.500			1
Total Penta-Dioxins	ND	U	0.0554	2.50			1
Total Hexa-Dioxins	ND	U	0.0354	2.50			1
Total Hepta-Dioxins	ND	U	0.0524	2.50			1
Total Tetra-Furans	ND	U	0.0686	0.500			1
Total Penta-Furans	0.110**J**		0.0549	2.50	1.36		1
Total Hexa-Furans	ND	U	0.0309	2.50			1
Total Hepta-Furans	ND	U	0.0257	2.50			1

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Client:	ALS Environmental - US	**Service Request:**	E1900728
Project:	HS19100570	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	Percent
Lab Code:	EQ1900347-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290	**Date Analyzed:**	10/17/19 13:45
Prep Method:	Method	**Date Extracted:**	10/10/19
Sample Amount:	10.000g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P619497	**Blank File Name:**	P619497
ICAL Date:	10/04/19	**Cal Ver. File Name:**	P619496

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	670.387	34	**Y**	40-135	0.79	1.019
13C-1,2,3,7,8-PeCDD	2000	946.733	47		40-135	1.55	1.172
13C-1,2,3,4,7,8-HxCDD	2000	1250.077	63		40-135	1.29	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1538.530	77		40-135	1.27	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1287.907	64		40-135	1.07	1.066
13C-OCDD	4000	2652.676	66		40-135	0.92	1.141
13C-2,3,7,8-TCDF	2000	567.299	28	**Y**	40-135	0.80	0.994
13C-1,2,3,7,8-PeCDF	2000	823.309	41		40-135	1.59	1.133
13C-2,3,4,7,8-PeCDF	2000	798.185	40		40-135	1.58	1.163
13C-1,2,3,4,7,8-HxCDF	2000	1351.059	68		40-135	0.52	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1280.272	64		40-135	0.53	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1295.780	65		40-135	0.53	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1284.575	64		40-135	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1292.235	65		40-135	0.44	1.041
13C-1,2,3,4,7,8,9-HpCDF	2000	1256.468	63		40-135	0.44	1.079
37Cl-2,3,7,8-TCDD	800	265.799	33	**Y**	40-135	NA	1.020

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Client:	ALS Environmental - US	**Service Request:**	E1900728
Project:	HS19100570	**Date Analyzed:**	10/18/19
Sample Matrix:	Soil	**Date Extracted:**	10/10/19

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

Analysis Method:	8290	**Units:**	ng/Kg
Prep Method:	Method	**Basis:**	Dry
		Analysis Lot:	656373

	Lab Control Sample EQ1900347-02			Duplicate Lab Control Sample EQ1900347-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
1,2,3,4,6,7,8-HpCDD	90.3	100	90	90.7	100	91	70-130	<1	25
1,2,3,4,7,8-HxCDD	95.3	100	95	98.0	100	98	70-130	3	25
1,2,3,6,7,8-HxCDD	85.6	100	86	89.5	100	90	70-130	4	25
1,2,3,7,8,9-HxCDD	94.8	100	95	95.0	100	95	70-130	<1	25
1,2,3,7,8-PeCDD	86.4	100	86	89.0	100	89	70-130	3	25
2,3,7,8-TCDD	17.3	20.0	86	19.4	20.0	97	70-130	12	25
OCDD	179	200	90	184	200	92	70-130	3	25
1,2,3,4,6,7,8-HpCDF	87.4	100	87	91.7	100	92	70-130	5	25
1,2,3,4,7,8,9-HpCDF	90.7	100	91	92.5	100	93	70-130	2	25
1,2,3,4,7,8-HxCDF	83.7	100	84	84.6	100	85	70-130	1	25
1,2,3,6,7,8-HxCDF	89.1	100	89	92.1	100	92	70-130	3	25
1,2,3,7,8,9-HxCDF	87.3	100	87	89.9	100	90	70-130	3	25
1,2,3,7,8-PeCDF	83.2	100	83	84.1	100	84	70-130	1	25
2,3,4,6,7,8-HxCDF	92.9	100	93	94.3	100	94	70-130	1	25
2,3,4,7,8-PeCDF	92.7	100	93	94.5	100	94	70-130	2	25
2,3,7,8-TCDF	17.0	20.0	85	18.6	20.0	93	70-130	9	25
OCDF	175	200	88	182	200	91	70-130	4	25

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ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E1900728
Project:	HS19100570	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1900347-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290	**Date Analyzed:**	10/18/19 05:46
Prep Method:	Method	**Date Extracted:**	10/10/19
Sample Amount:	10.000g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P524777	**Blank File Name:**	P619497
ICAL Date:	04/25/19	**Cal Ver. File Name:**	P524769

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	17.3		0.246	0.500	0.79	1.001	1
1,2,3,7,8-PeCDD	86.4		0.0500	2.50	1.58	1.001	1
1,2,3,4,7,8-HxCDD	95.3		0.0331	2.50	1.25	1.000	1
1,2,3,6,7,8-HxCDD	85.6		0.0299	2.50	1.28	1.000	1
1,2,3,7,8,9-HxCDD	94.8		0.0306	2.50	1.28	1.007	1
1,2,3,4,6,7,8-HpCDD	90.3		0.0234	2.50	1.04	1.000	1
OCDD	179		0.0236	5.00	0.89	1.000	1
2,3,7,8-TCDF	17.0		0.179	0.500	0.71	1.001	1
1,2,3,7,8-PeCDF	83.2		0.0730	2.50	1.51	1.001	1
2,3,4,7,8-PeCDF	92.7		0.0771	2.50	1.48	1.001	1
1,2,3,4,7,8-HxCDF	83.7		0.0260	2.50	1.24	1.000	1
1,2,3,6,7,8-HxCDF	89.1		0.0277	2.50	1.24	1.000	1
1,2,3,7,8,9-HxCDF	87.3		0.0315	2.50	1.22	1.000	1
2,3,4,6,7,8-HxCDF	92.9		0.0285	2.50	1.23	1.000	1
1,2,3,4,6,7,8-HpCDF	87.4		0.157	2.50	1.02	1.000	1
1,2,3,4,7,8,9-HpCDF	90.7		0.217	2.50	1.03	1.000	1
OCDF	175		0.0498	5.00	0.88	1.004	1

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ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E1900728
Project:	HS19100570	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1900347-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290	**Date Analyzed:**	10/18/19 05:46
Prep Method:	Method	**Date Extracted:**	10/10/19
Sample Amount:	10.000g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P524777	**Blank File Name:**	P619497
ICAL Date:	04/25/19	**Cal Ver. File Name:**	P524769

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	17.3		0.246	0.500	0.79		1
Total Penta-Dioxins	86.4		0.0500	2.50	1.58		1
Total Hexa-Dioxins	276		0.0311	2.50	1.25		1
Total Hepta-Dioxins	90.3		0.0234	2.50	1.04		1
Total Tetra-Furans	17.1		0.179	0.500	0.77		1
Total Penta-Furans	176		0.0749	2.50	1.59		1
Total Hexa-Furans	353		0.0284	2.50	1.24		1
Total Hepta-Furans	178		0.184	2.50	1.02		1

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ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E1900728
Project:	HS19100570	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1900347-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290	**Date Analyzed:**	10/18/19 05:46
Prep Method:	Method	**Date Extracted:**	10/10/19
Sample Amount:	10.000g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P524777	**Blank File Name:**	P619497
ICAL Date:	04/25/19	**Cal Ver. File Name:**	P524769

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	853.284	43		40-135	0.80	1.028
13C-1,2,3,7,8-PeCDD	2000	1538.184	77		40-135	1.57	1.229
13C-1,2,3,4,7,8-HxCDD	2000	1301.069	65		40-135	1.29	0.990
13C-1,2,3,6,7,8-HxCDD	2000	1563.393	78		40-135	1.27	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1518.791	76		40-135	1.06	1.071
13C-OCDD	4000	3222.246	81		40-135	0.89	1.146
13C-2,3,7,8-TCDF	2000	784.003	39	**Y**	40-135	0.79	0.991
13C-1,2,3,7,8-PeCDF	2000	1314.676	66		40-135	1.55	1.178
13C-2,3,4,7,8-PeCDF	2000	1275.014	64		40-135	1.55	1.217
13C-1,2,3,4,7,8-HxCDF	2000	1390.948	70		40-135	0.51	0.968
13C-1,2,3,6,7,8-HxCDF	2000	1356.970	68		40-135	0.52	0.971
13C-1,2,3,7,8,9-HxCDF	2000	1495.457	75		40-135	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1368.956	68		40-135	0.51	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1411.779	71		40-135	0.45	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	1510.150	76		40-135	0.44	1.084
37Cl-2,3,7,8-TCDD	800	333.283	42		40-135	NA	1.029

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ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E1900728
Project:	HS19100570	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1900347-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290	**Date Analyzed:**	10/18/19 06:34
Prep Method:	Method	**Date Extracted:**	10/10/19
Sample Amount:	10.000g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P524778	**Blank File Name:**	P619497
ICAL Date:	04/25/19	**Cal Ver. File Name:**	P524769

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	19.4		0.391	0.500	0.80	1.001	1
1,2,3,7,8-PeCDD	89.0		0.124	2.50	1.61	1.001	1
1,2,3,4,7,8-HxCDD	98.0		0.0597	2.50	1.28	1.000	1
1,2,3,6,7,8-HxCDD	89.5		0.0541	2.50	1.22	1.000	1
1,2,3,7,8,9-HxCDD	95.0		0.0553	2.50	1.27	1.007	1
1,2,3,4,6,7,8-HpCDD	90.7		0.0459	2.50	1.08	1.000	1
OCDD	184		0.0889	5.00	0.88	1.000	1
2,3,7,8-TCDF	18.6		0.283	0.500	0.72	1.001	1
1,2,3,7,8-PeCDF	84.1		0.203	2.50	1.51	1.001	1
2,3,4,7,8-PeCDF	94.5		0.215	2.50	1.52	1.000	1
1,2,3,4,7,8-HxCDF	84.6		0.0708	2.50	1.20	1.000	1
1,2,3,6,7,8-HxCDF	92.1		0.0734	2.50	1.21	1.000	1
1,2,3,7,8,9-HxCDF	89.9		0.0967	2.50	1.23	1.000	1
2,3,4,6,7,8-HxCDF	94.3		0.0779	2.50	1.22	1.000	1
1,2,3,4,6,7,8-HpCDF	91.7		0.320	2.50	1.04	1.000	1
1,2,3,4,7,8,9-HpCDF	92.5		0.447	2.50	1.05	1.000	1
OCDF	182		0.0771	5.00	0.88	1.004	1

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ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E1900728
Project:	HS19100570	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1900347-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290	**Date Analyzed:**	10/18/19 06:34
Prep Method:	Method	**Date Extracted:**	10/10/19
Sample Amount:	10.000g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P524778	**Blank File Name:**	P619497
ICAL Date:	04/25/19	**Cal Ver. File Name:**	P524769

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	19.4		0.391	0.500	0.80		1
Total Penta-Dioxins	89.0		0.124	2.50	1.61		1
Total Hexa-Dioxins	282		0.0561	2.50	1.28		1
Total Hepta-Dioxins	90.7		0.0459	2.50	1.08		1
Total Tetra-Furans	19.4		0.283	0.500	0.72		1
Total Penta-Furans	179		0.209	2.50	1.49		1
Total Hexa-Furans	361		0.0789	2.50	1.20		1
Total Hepta-Furans	184		0.376	2.50	1.04		1

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Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E1900728
Project:	HS19100570	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1900347-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290	**Date Analyzed:**	10/18/19 06:34
Prep Method:	Method	**Date Extracted:**	10/10/19
Sample Amount:	10.000g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P524778	**Blank File Name:**	P619497
ICAL Date:	04/25/19	**Cal Ver. File Name:**	P524769

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	623.719	31	**Y**	40-135	0.83	1.027
13C-1,2,3,7,8-PeCDD	2000	1077.324	54		40-135	1.62	1.228
13C-1,2,3,4,7,8-HxCDD	2000	1147.542	57		40-135	1.30	0.990
13C-1,2,3,6,7,8-HxCDD	2000	1502.511	75		40-135	1.26	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1446.292	72		40-135	1.06	1.072
13C-OCDD	4000	3269.318	82		40-135	0.91	1.146
13C-2,3,7,8-TCDF	2000	590.565	30	**Y**	40-135	0.80	0.991
13C-1,2,3,7,8-PeCDF	2000	1001.783	50		40-135	1.60	1.178
13C-2,3,4,7,8-PeCDF	2000	971.502	49		40-135	1.60	1.217
13C-1,2,3,4,7,8-HxCDF	2000	1290.303	65		40-135	0.52	0.968
13C-1,2,3,6,7,8-HxCDF	2000	1272.259	64		40-135	0.53	0.972
13C-1,2,3,7,8,9-HxCDF	2000	1268.662	63		40-135	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1247.643	62		40-135	0.53	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1375.933	69		40-135	0.44	1.046
13C-1,2,3,4,7,8,9-HpCDF	2000	1434.915	72		40-135	0.44	1.084
37Cl-2,3,7,8-TCDD	800	256.111	32	**Y**	40-135	NA	1.029

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Chromatograms and Selected Ion Monitoring

ALS Environmental - Houston HRMS
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ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
AC-5CP1-20191

Run #10 Filename P524772 Samp: 1 Inj: 1 Acquired: 18-OCT-19 01:42:55
Processed: 18-OCT-19 13:56:18 Sample ID: E1900728-001DL

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:17	9.461e+01	1.083e+02	0.87	yes	yes	0.962
2	Unk	1,2,3,7,8-PeCDF	31:01	2.623e+02	2.169e+02	1.21	no	no	0.968
3	Unk	2,3,4,7,8-PeCDF	32:02	2.297e+02	1.388e+02	1.65	yes	no	0.919
4	Unk	1,2,3,4,7,8-HxCDF	35:03	2.252e+02	1.735e+02	1.30	yes	no	1.161
5	Unk	1,2,3,6,7,8-HxCDF	35:11	1.938e+02	1.489e+02	1.30	yes	no	1.073
6	Unk	2,3,4,6,7,8-HxCDF	35:52	1.627e+02	1.259e+02	1.29	yes	no	1.069
7	Unk	1,2,3,7,8,9-HxCDF	36:30	7.253e+01	6.828e+01	1.06	yes	no	1.096
8	Unk	1,2,3,4,6,7,8-HpCDF	37:37	6.627e+02	6.229e+02	1.06	yes	no	1.281
9	Unk	1,2,3,4,7,8,9-HpCDF	38:56	1.112e+02	9.214e+01	1.21	no	no	1.192
10	Unk	OCDF	41:20	6.895e+02	8.069e+02	0.85	yes	no	1.204
11	Unk	2,3,7,8-TCDD	27:13	4.713e+01	7.242e+01	0.65	no	yes	1.077
12	Unk	1,2,3,7,8-PeCDD	32:21	1.960e+02	1.244e+02	1.58	yes	no	0.971
13	Unk	1,2,3,4,7,8-HxCDD	35:58	1.483e+02	1.169e+02	1.27	yes	no	1.024
14	Unk	1,2,3,6,7,8-HxCDD	36:03	1.791e+02	1.315e+02	1.36	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:16	1.807e+02	1.453e+02	1.24	yes	no	1.055
16	Unk	1,2,3,4,6,7,8-HpCDD	38:31	1.581e+03	1.579e+03	1.00	yes	no	0.989
17	Unk	OCDD	41:10	8.105e+04	9.111e+04	0.89	yes	no	1.094
18	IS	13C-2,3,7,8-TCDF	26:16	3.096e+04	3.918e+04	0.79	yes	no	1.287
19	IS	13C-1,2,3,7,8-PeCDF	30:59	4.626e+04	2.959e+04	1.56	yes	no	1.416
20	IS	13C-2,3,4,7,8-PeCDF	32:01	4.172e+04	2.620e+04	1.59	yes	no	1.374
21	IS	13C-1,2,3,4,7,8-HxCDF	35:02	1.720e+04	3.359e+04	0.51	yes	no	1.114
22	IS	13C-1,2,3,6,7,8-HxCDF	35:10	1.805e+04	3.435e+04	0.53	yes	no	1.245
23	IS	13C-2,3,4,6,7,8-HxCDF	35:50	1.641e+04	3.228e+04	0.51	yes	no	1.146
24	IS	13C-1,2,3,7,8,9-HxCDF	36:29	6.636e+03	1.303e+04	0.51	yes	no	0.986
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:36	1.063e+04	2.422e+04	0.44	yes	no	0.915
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:55	9.462e+03	2.132e+04	0.44	yes	no	0.746
27	IS	13C-2,3,7,8-TCDD	27:13	2.233e+04	2.840e+04	0.79	yes	no	0.929
28	IS	13C-1,2,3,7,8-PeCDD	32:19	3.182e+04	2.009e+04	1.58	yes	no	1.017
29	IS	13C-1,2,3,4,7,8-HxCDD	35:58	2.048e+04	1.637e+04	1.25	yes	no	0.945
30	IS	13C-1,2,3,6,7,8-HxCDD	36:02	2.569e+04	2.022e+04	1.27	yes	no	0.924
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:30	1.822e+04	1.732e+04	1.05	yes	no	0.876
32	IS	13C-OCDD	41:10	2.312e+04	2.580e+04	0.90	yes	no	0.662
33	RS/RT	13C-1,2,3,4-TCDD	26:24	2.925e+04	3.610e+04	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:16	2.975e+04	2.373e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:14	6.794e+03				no	1.010

$$\text{OCDD} = \frac{(8.105e+04 + 9.111e+04) \times 4000 \text{ pg} \times 5}{(2.312e+04 + 2.580e+04) \times 10.183 \text{ g} \times 88.1 / 100 \times 1.094} = 7171 \text{ ng/Kg}$$

LKL 10/21/19

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

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
AC-5CP1-20191009

Run #10 Filename P524772 Samp: 1 Inj: 1 Acquired: 18-OCT-19 01:42:55
Processed: 18-OCT-19 13:56:18 LAB. ID: E1900728-001DL

	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+04	4.28e+02	2.6e+01	1.48e+04	5.52e+02	2.7e+01
2	1,2,3,7,8-PeCDF	4.21e+04	2.12e+02	2.0e+02	2.82e+04	1.72e+02	1.6e+02
3	2,3,4,7,8-PeCDF	3.50e+04	2.12e+02	1.7e+02	2.15e+04	1.72e+02	1.3e+02
4	1,2,3,4,7,8-HxCDF	4.17e+04	6.72e+02	6.2e+01	3.19e+04	3.84e+02	8.3e+01
5	1,2,3,6,7,8-HxCDF	3.03e+04	6.72e+02	4.5e+01	2.61e+04	3.84e+02	6.8e+01
6	2,3,4,6,7,8-HxCDF	2.40e+04	6.72e+02	3.6e+01	2.35e+04	3.84e+02	6.1e+01
7	1,2,3,7,8,9-HxCDF	1.97e+04	6.72e+02	2.9e+01	2.08e+04	3.84e+02	5.4e+01
8	1,2,3,4,6,7,8-HpCDF	1.36e+05	1.64e+02	8.3e+02	1.38e+05	4.16e+02	3.3e+02
9	1,2,3,4,7,8,9-HpCDF	2.36e+04	1.64e+02	1.4e+02	2.28e+04	4.16e+02	5.5e+01
10	OCDF	1.21e+05	1.84e+02	6.6e+02	1.35e+05	1.56e+02	8.7e+02
11	2,3,7,8-TCDD	8.58e+03	8.88e+02	9.7e+00	1.22e+04	6.44e+02	1.9e+01
12	1,2,3,7,8-PeCDD	2.55e+04	3.36e+02	7.6e+01	1.78e+04	2.04e+02	8.7e+01
13	1,2,3,4,7,8-HxCDD	2.45e+04	1.64e+02	1.5e+02	2.25e+04	2.08e+02	1.1e+02
14	1,2,3,6,7,8-HxCDD	3.73e+04	1.64e+02	2.3e+02	2.26e+04	2.08e+02	1.1e+02
15	1,2,3,7,8,9-HxCDD	3.79e+04	1.64e+02	2.3e+02	3.20e+04	2.08e+02	1.5e+02
16	1,2,3,4,6,7,8-HpCDD	3.42e+05	1.32e+03	2.6e+02	3.52e+05	4.44e+02	7.9e+02
17	OCDD	1.31e+07	2.00e+02	6.5e+04	1.48e+07	1.48e+02	1.0e+05
18	13C-2,3,7,8-TCDF	3.65e+06	4.57e+03	8.0e+02	4.63e+06	2.10e+03	2.2e+03
19	13C-1,2,3,7,8-PeCDF	7.68e+06	5.48e+02	1.4e+04	4.95e+06	6.92e+02	7.1e+03
20	13C-2,3,4,7,8-PeCDF	6.62e+06	5.48e+02	1.2e+04	4.22e+06	6.92e+02	6.1e+03
21	13C-1,2,3,4,7,8-HxCDF	2.94e+06	1.88e+02	1.6e+04	5.77e+06	1.30e+03	4.5e+03
22	13C-1,2,3,6,7,8-HxCDF	3.02e+06	1.88e+02	1.6e+04	5.80e+06	1.30e+03	4.5e+03
23	13C-2,3,4,6,7,8-HxCDF	2.79e+06	1.88e+02	1.5e+04	5.59e+06	1.30e+03	4.3e+03
24	13C-1,2,3,7,8,9-HxCDF	1.89e+06	1.88e+02	1.0e+04	3.65e+06	1.30e+03	2.8e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.19e+06	9.60e+02	2.3e+03	5.07e+06	7.12e+02	7.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.04e+06	9.60e+02	2.1e+03	4.67e+06	7.12e+02	6.6e+03
27	13C-2,3,7,8-TCDD	3.09e+06	6.66e+03	4.6e+02	3.95e+06	1.68e+03	2.4e+03
28	13C-1,2,3,7,8-PeCDD	4.63e+06	2.76e+02	1.7e+04	2.91e+06	1.76e+02	1.7e+04
29	13C-1,2,3,4,7,8-HxCDD	3.90e+06	1.30e+03	3.0e+03	3.14e+06	2.40e+02	1.3e+04
30	13C-1,2,3,6,7,8-HxCDD	4.81e+06	1.30e+03	3.7e+03	3.79e+06	2.40e+02	1.6e+04
31	13C-1,2,3,4,6,7,8-HpCDD	3.90e+06	2.44e+02	1.6e+04	3.67e+06	2.52e+02	1.5e+04
32	13C-OCDD	3.65e+06	1.40e+02	2.6e+04	4.16e+06	2.48e+02	1.7e+04
33	13C-1,2,3,4-TCDD	3.08e+06	6.66e+03	4.6e+02	3.75e+06	1.68e+03	2.2e+03
34	13C-1,2,3,7,8,9-HxCDD	6.88e+06	1.30e+03	5.3e+03	5.42e+06	2.40e+02	2.3e+04
35	37Cl-2,3,7,8-TCDD	9.62e+05	3.64e+02	2.6e+03			

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Peak List Summary

CLIENT ID.

AC-5CP1-20191009

Entry: 36 Totals Name: Total Tetra-Furans

Run: 10 File: P524772 Sample:1 Injection:1 Function:1

Acquired: 18-OCT-19 01:42:55 Processed: 18-OCT-19 13:56:18

Mass: 303.9020 305.8990 Tot Response: 2.49e+02 RRF: 0.9623

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	26:17	9.46e+01	1.08e+02	0.87	yes	2.03e+02	2,3,7,8-TCDF	y	n
2	27:11	2.12e+01	2.47e+01	0.86	yes	4.59e+01		y	y

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Peak List Summary

CLIENT ID.

AC-5CP1-20191009

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 10 File: P524772 Sample:1 Injection:1 Function:1

Acquired: 18-OCT-19 01:42:55 Processed: 18-OCT-19 13:56:18

Mass: 319.8970 321.8940 Tot Response: 5.20e+01 RRF: 1.077

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	28:16	2.35e+01	2.85e+01	0.83	yes	5.20e+01	n	y

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Peak List Summary

CLIENT ID.

AC-5CP1-20191009

Entry: 39 Totals Name: Total Penta-Furans2

Run: 10 File: P524772 Sample:1 Injection:1 Function:2

Acquired: 18-OCT-19 01:42:55 Processed: 18-OCT-19 13:56:18

Mass: 339.8600 341.8570 Tot Response: 6.44e+02 RRF: 0.9438

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:25	1.35e+02	7.64e+01	1.76	yes	2.11e+02		n	n
2	32:02	2.30e+02	1.39e+02	1.65	yes	3.69e+02	2,3,4,7,8-PeCDF	n	n
3	33:01	3.71e+01	2.69e+01	1.38	yes	6.41e+01		n	n

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Peak List Summary

CLIENT ID.

AC-5CP1-20191009

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 10 File: P524772 Sample:1 Injection:1 Function:2

Acquired: 18-OCT-19 01:42:55 Processed: 18-OCT-19 13:56:18

Mass: 355.8550 357.8520 Tot Response: 8.83e+02 RRF: 0.9712

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:26	1.08e+02	6.69e+01	1.62	yes	1.75e+02		n	y
2	31:01	7.21e+01	4.15e+01	1.74	yes	1.14e+02		n	n
3	31:20	4.00e+01	2.32e+01	1.73	yes	6.32e+01		n	n
4	31:31	3.61e+01	2.28e+01	1.58	yes	5.89e+01		n	y
5	31:53	2.73e+01	1.97e+01	1.39	yes	4.71e+01		n	n
6	32:21	1.96e+02	1.24e+02	1.58	yes	3.20e+02	1,2,3,7,8-PeCDD	n	n
7	32:45	6.37e+01	4.13e+01	1.54	yes	1.05e+02		n	n

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Peak List Summary

CLIENT ID.

AC-5CP1-20191009

Entry: 41 Totals Name: Total Hexa-Furans

Run: 10 File: P524772 Sample:1 Injection:1 Function:3

Acquired: 18-OCT-19 01:42:55 Processed: 18-OCT-19 13:56:18

Mass: 373.8210 375.8180 Tot Response: 2.48e+03 RRF: 1.099

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	33:48	1.45e+02	1.34e+02	1.08	yes	2.79e+02		n	n
2	33:58	3.04e+02	2.57e+02	1.18	yes	5.61e+02		n	n
3	34:31	3.24e+02	2.90e+02	1.12	yes	6.14e+02		n	n
4	35:03	2.25e+02	1.74e+02	1.30	yes	3.99e+02	1,2,3,4,7,8-HxCDF	n	n
5	35:11	1.94e+02	1.49e+02	1.30	yes	3.43e+02	1,2,3,6,7,8-HxCDF	n	n
6	35:52	1.63e+02	1.26e+02	1.29	yes	2.89e+02	2,3,4,6,7,8-HxCDF	n	n

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Peak List Summary

CLIENT ID.

AC-5CP1-20191009

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 10 File: P524772 Sample:1 Injection:1 Function:3

Acquired: 18-OCT-19 01:42:55 Processed: 18-OCT-19 13:56:18

Mass: 389.8160 391.8130 Tot Response: 1.25e+03 RRF: 1.039

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:22	3.39e+02	2.81e+02	1.21	yes	6.20e+02		n	n
2	35:22	3.23e+01	2.59e+01	1.25	yes	5.83e+01		n	n
3	35:58	1.48e+02	1.17e+02	1.27	yes	2.65e+02	1,2,3,4,7,8-HxCDD	n	n
4	36:03	1.79e+02	1.31e+02	1.36	yes	3.11e+02	1,2,3,6,7,8-HxCDD	n	n

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Peak List Summary

CLIENT ID.

AC-5CP1-20191009

Entry: 43 Totals Name: Total Hepta-Furans

Run: 10 File: P524772 Sample:1 Injection:1 Function:4

Acquired: 18-OCT-19 01:42:55 Processed: 18-OCT-19 13:56:18

Mass: 407.7820 409.7790 Tot Response: 2.82e+03 RRF: 1.241

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:37	6.63e+02	6.23e+02 1.06	yes	1.29e+03	1,2,3,4,6,7,8-HpCDF	n	n
2	38:01	7.62e+02	7.74e+02 0.99	yes	1.54e+03		n	n

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Peak List Summary

CLIENT ID.

AC-5CP1-20191009

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 10 File: P524772 Sample:1 Injection:1 Function:4

Acquired: 18-OCT-19 01:42:55 Processed: 18-OCT-19 13:56:18

Mass: 423.7770 425.7740 Tot Response: 6.45e+03 RRF: 0.9886

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:52	1.66e+03	1.63e+03	1.02	yes	3.29e+03	n	n
2	38:31	1.58e+03	1.58e+03	1.00	yes	3.16e+03	1,2,3,4,6,7,8-HpCDD	n	n

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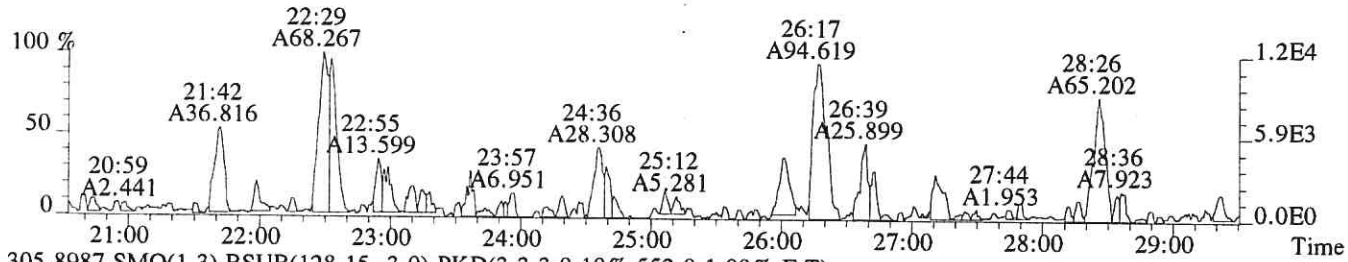
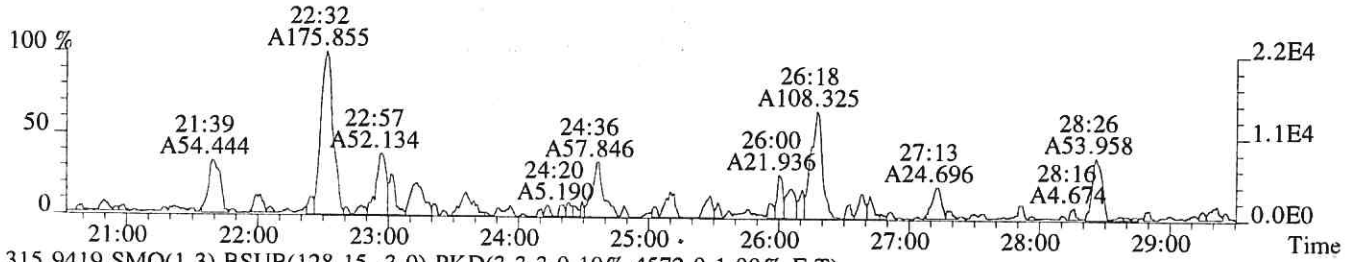
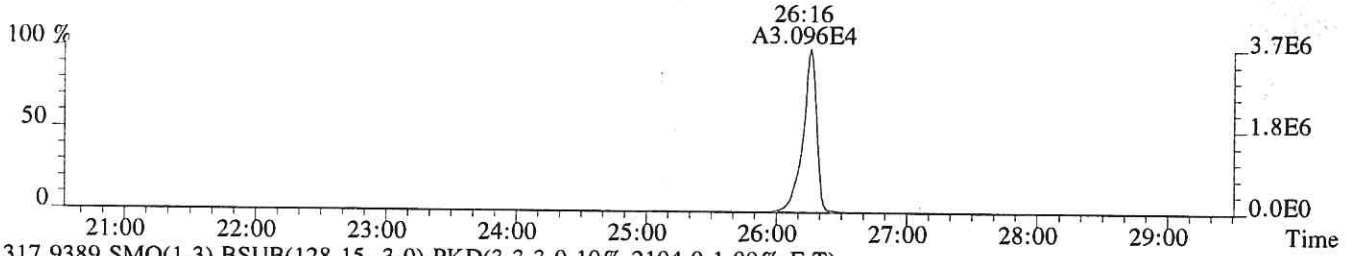
File:P524772 #1-637 Acq:18-OCT-2019 01:42:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1900728-001DL
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,428.0,1.00%,F,T)



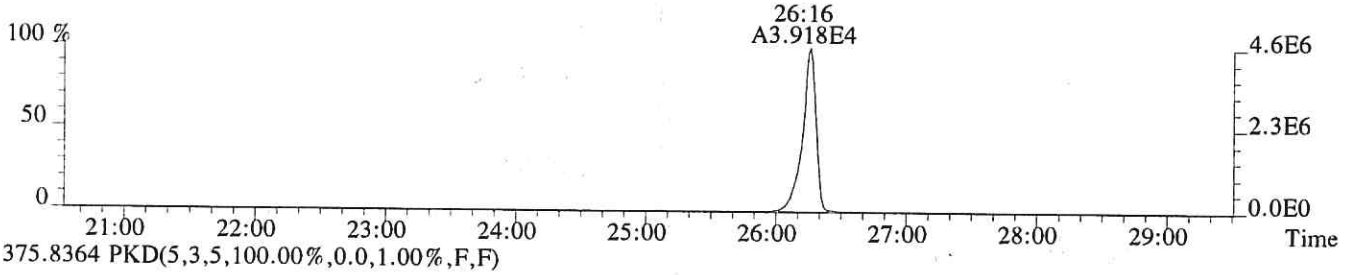
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,552.0,1.00%,F,T)



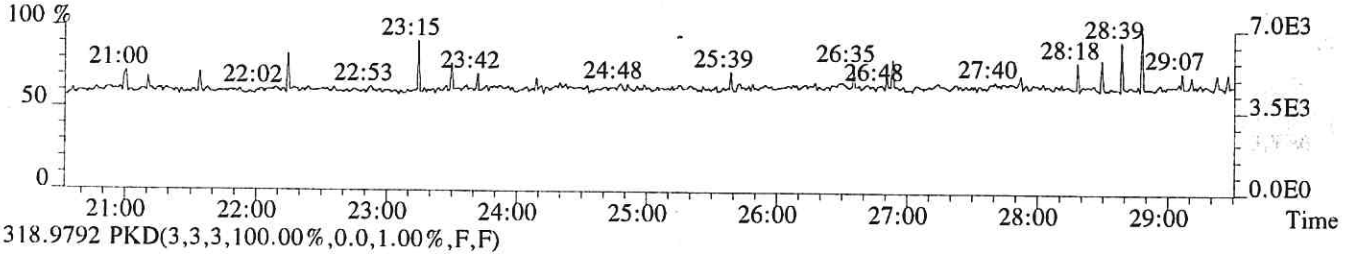
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4572.0,1.00%,F,T)



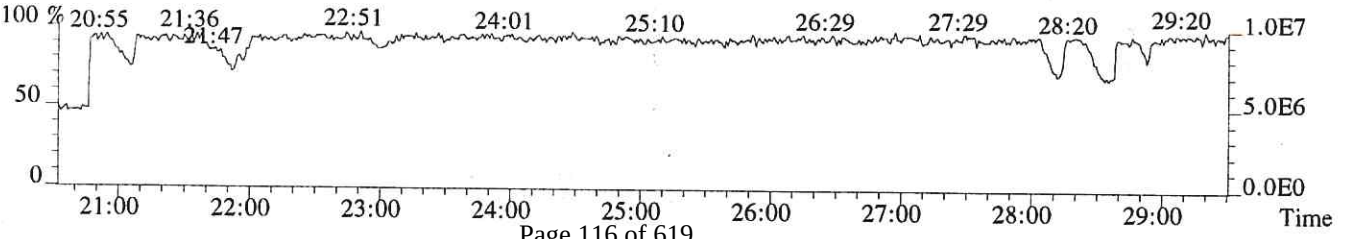
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2104.0,1.00%,F,T)



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



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



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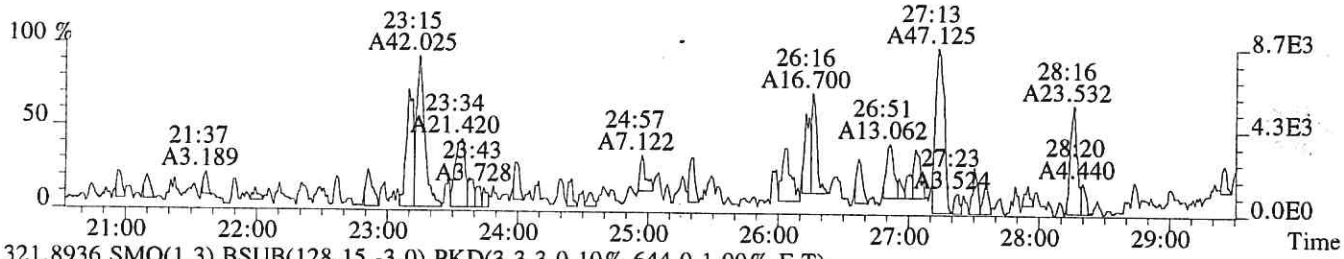
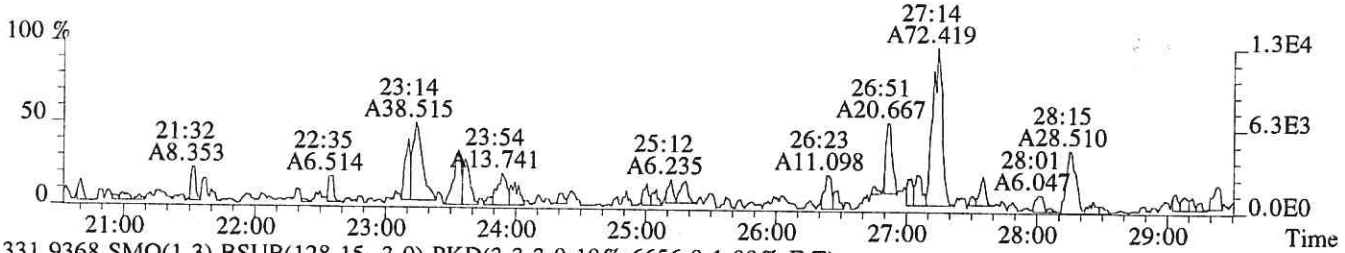
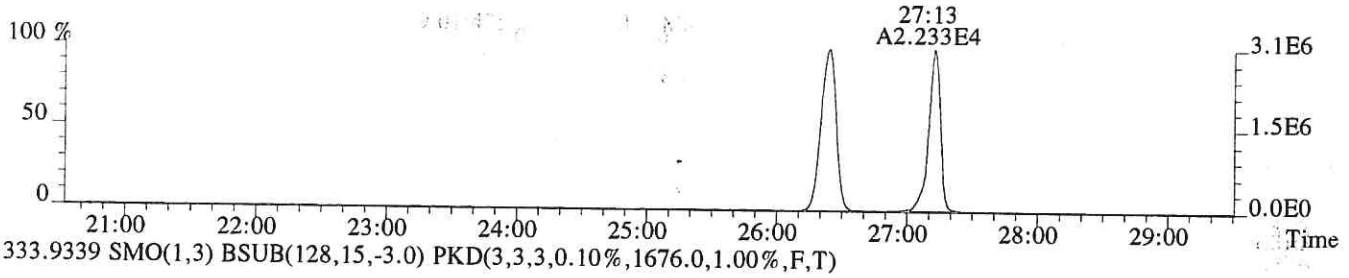
File:P524772 #1-637 Acq:18-OCT-2019 01:42:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1900728-001DL
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,888.0,1.00%,F,T)



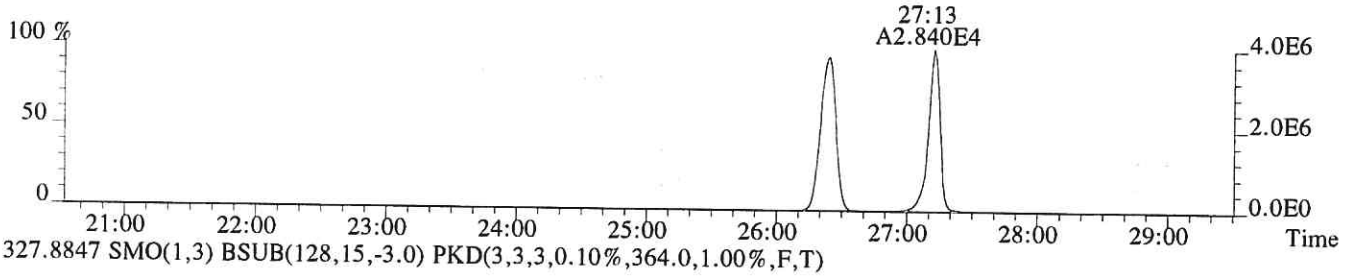
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,644.0,1.00%,F,T)



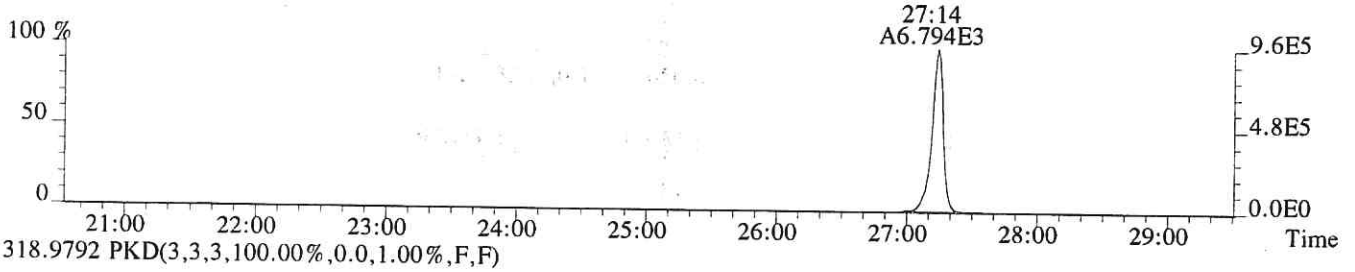
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6656.0,1.00%,F,T)



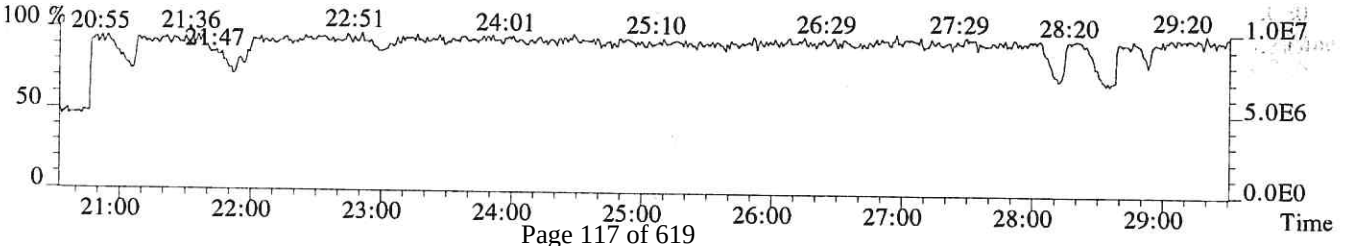
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1676.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,364.0,1.00%,F,T)



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



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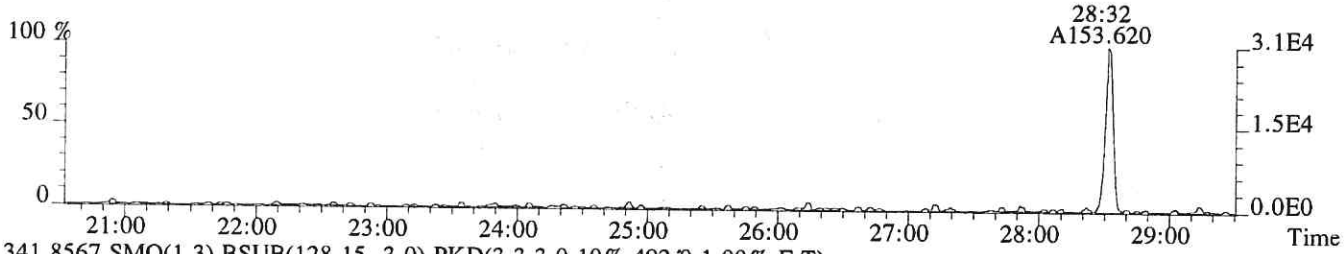
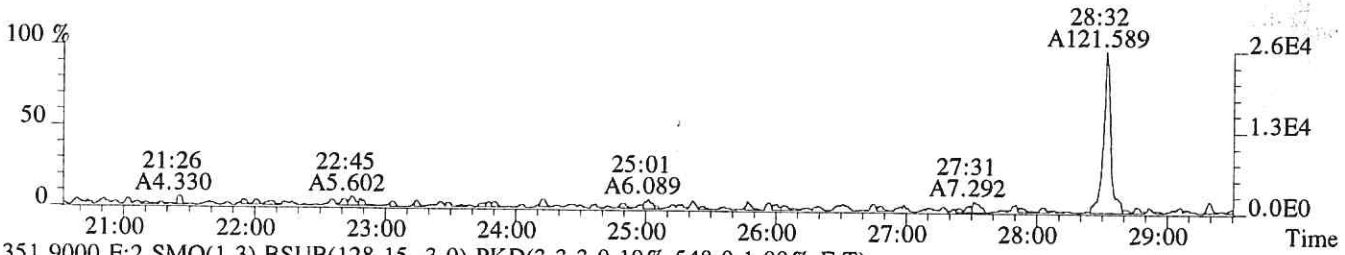
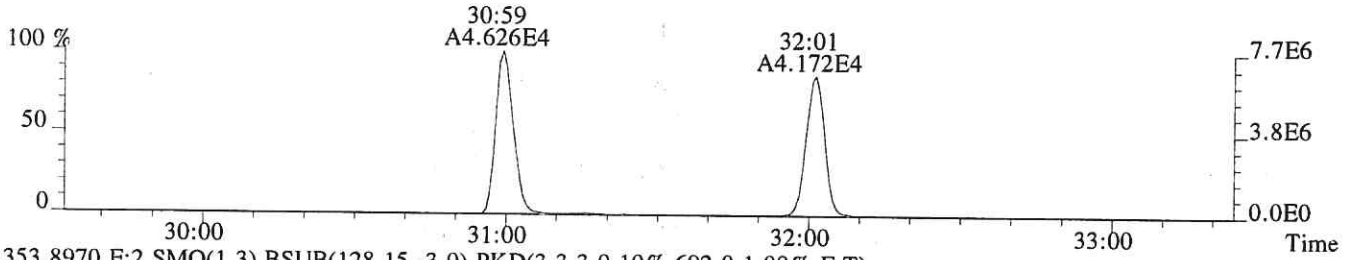
File:P524772 #1-637 Acq:18-OCT-2019 01:42:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1900728-001DL
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,192.0,1.00%,F,T)



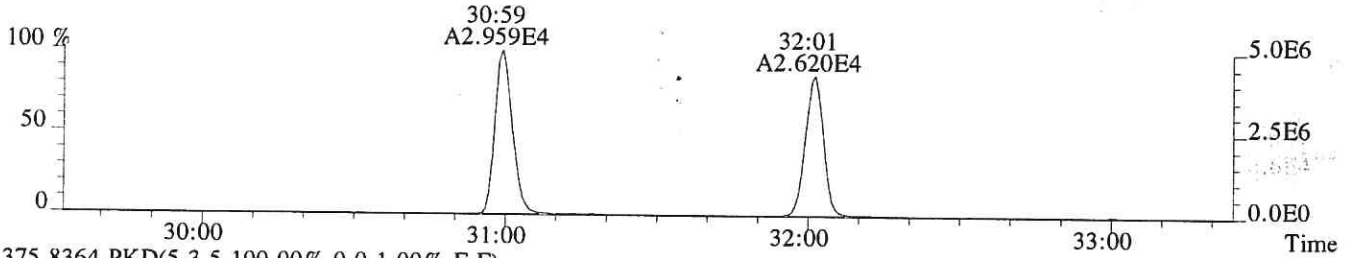
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,492.0,1.00%,F,T)



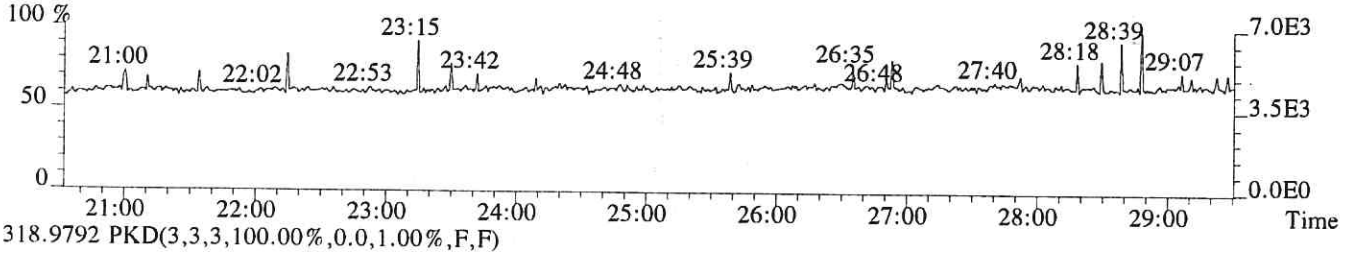
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,548.0,1.00%,F,T)



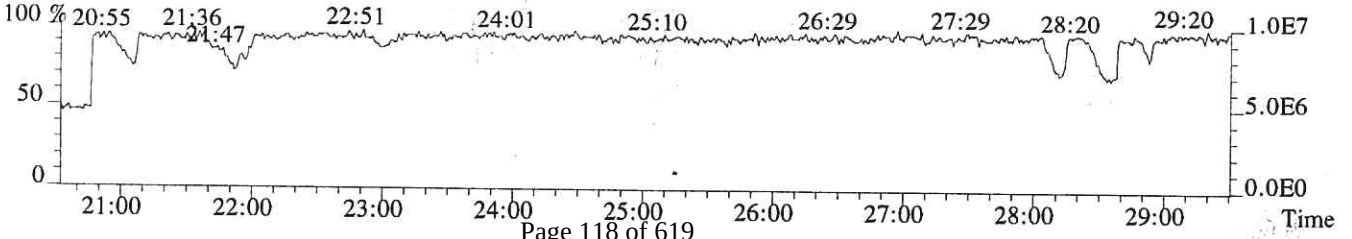
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,692.0,1.00%,F,T)



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



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



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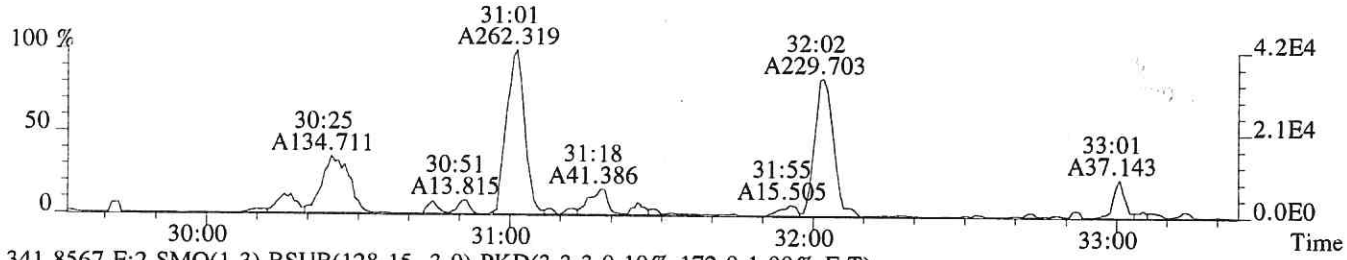
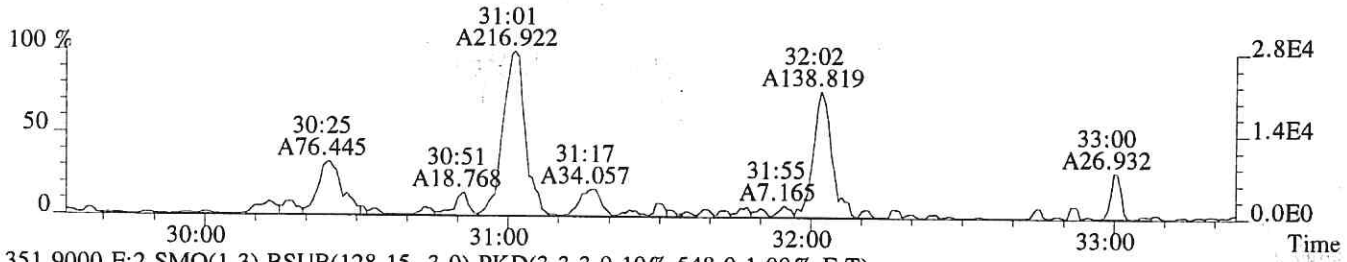
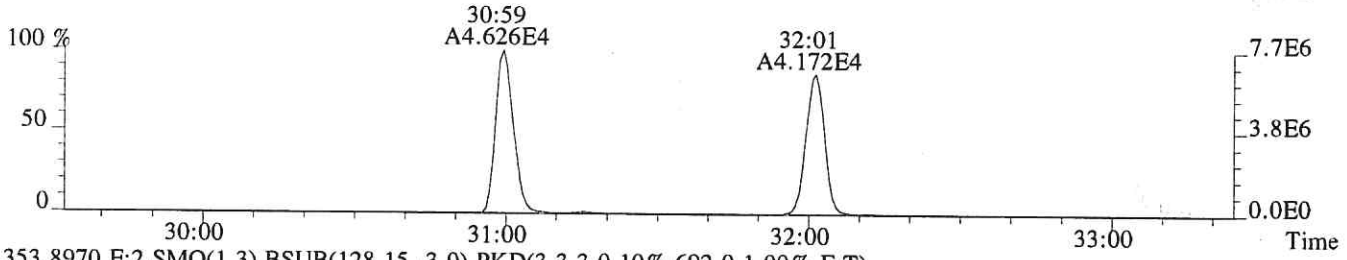
File:P524772 #1-348 Acq:18-OCT-2019 01:42:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1900728-001DL
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,212.0,1.00%,F,T)



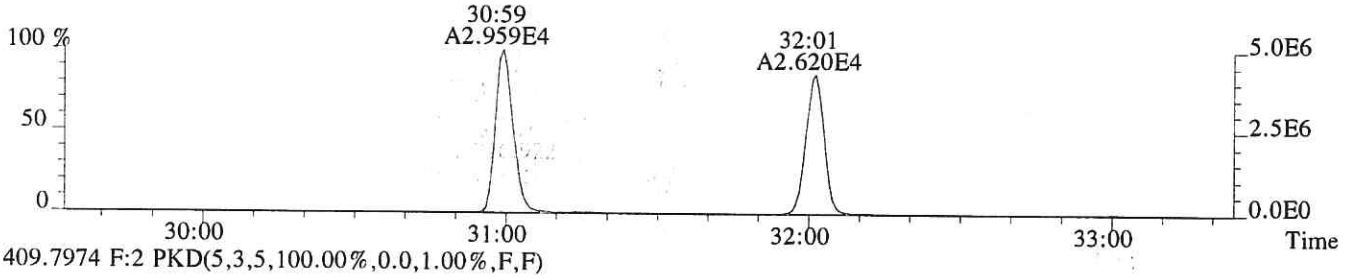
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,172.0,1.00%,F,T)



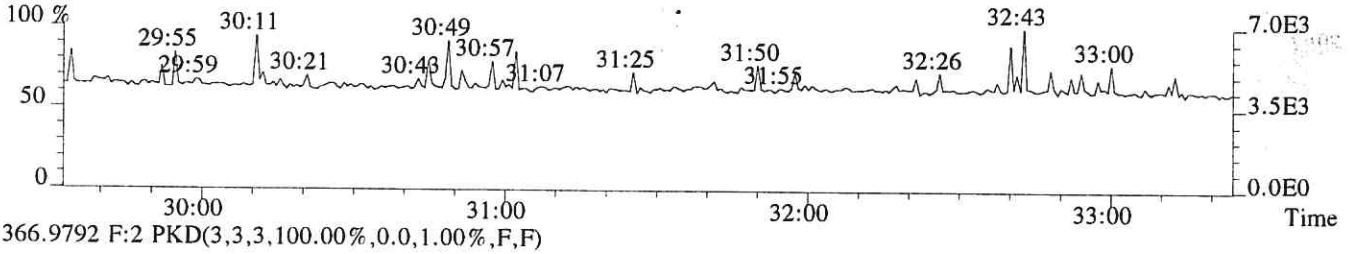
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,548.0,1.00%,F,T)



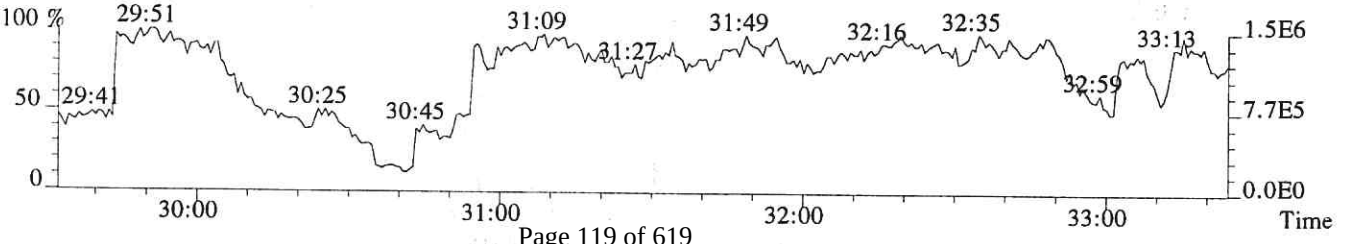
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,692.0,1.00%,F,T)



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)



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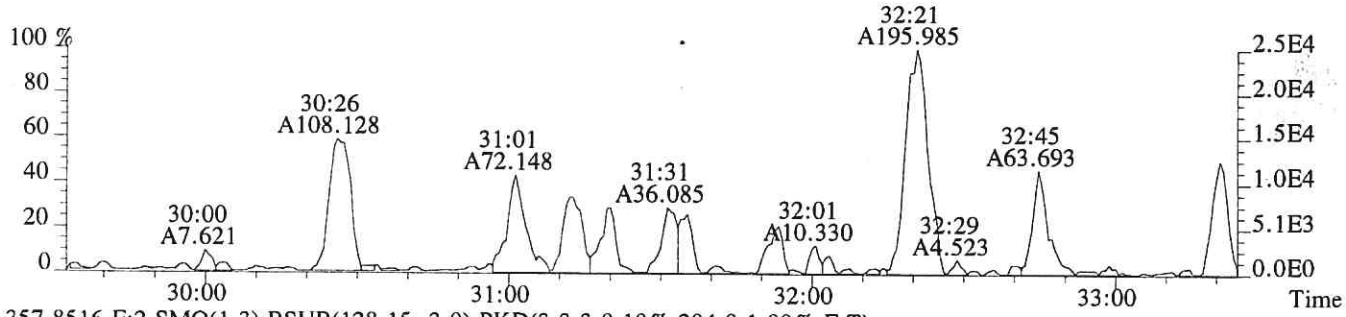
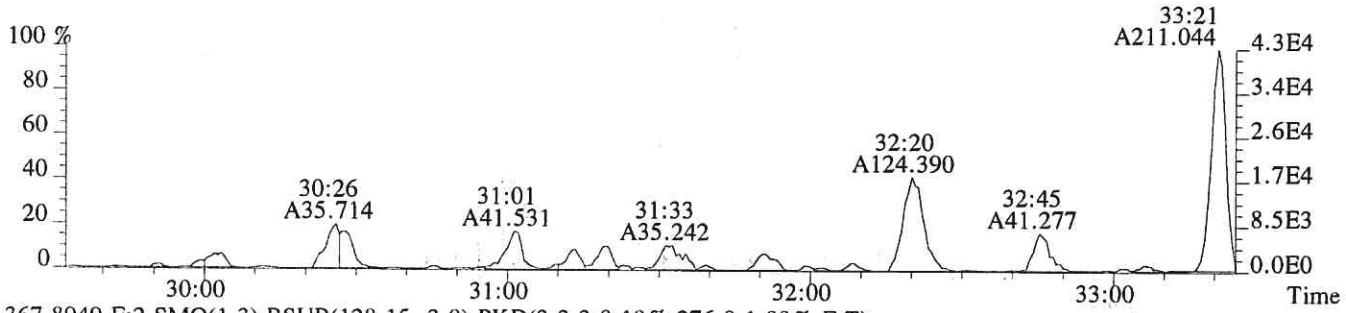
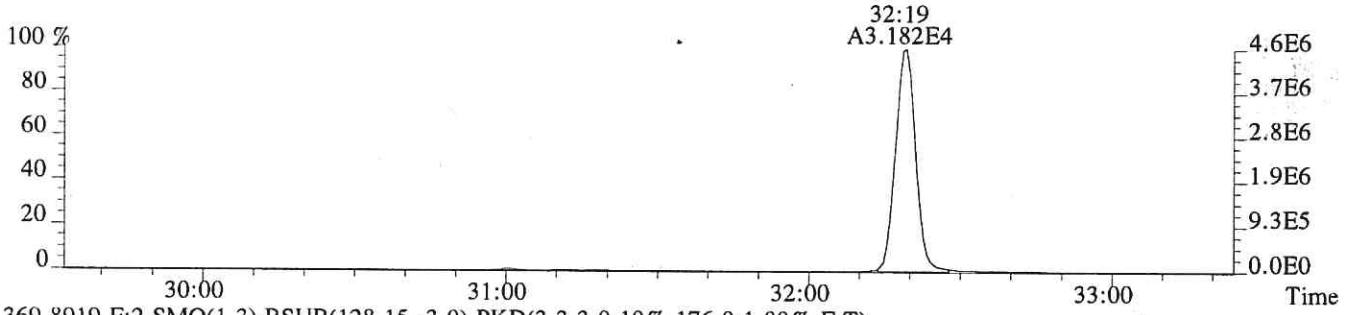
File:P524772 #1-348 Acq:18-OCT-2019 01:42:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1900728-001DL
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,336.0,1.00%,F,T)



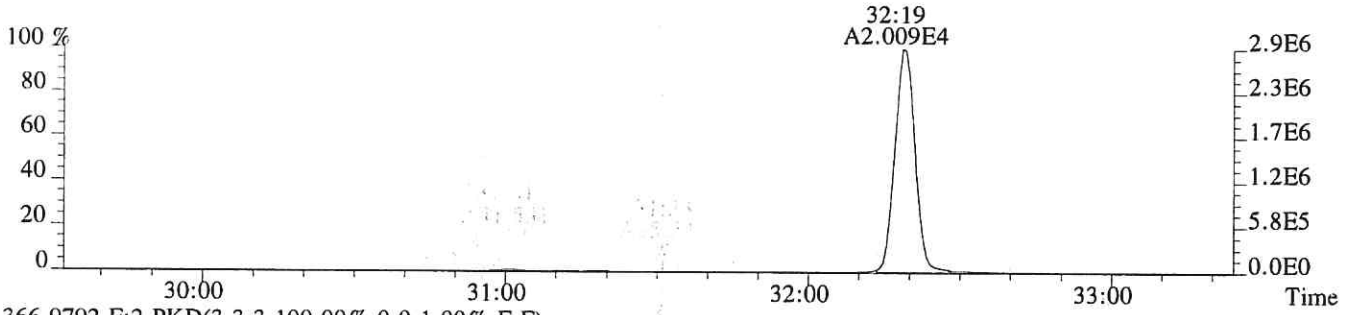
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,204.0,1.00%,F,T)



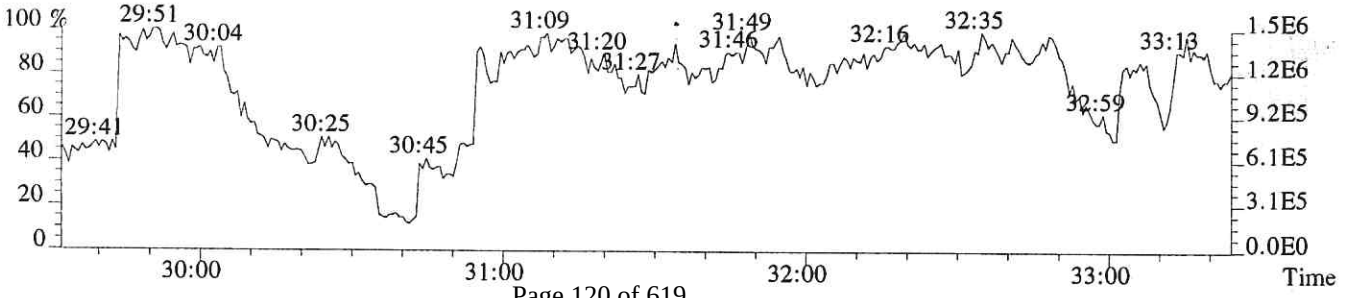
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,276.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,176.0,1.00%,F,T)

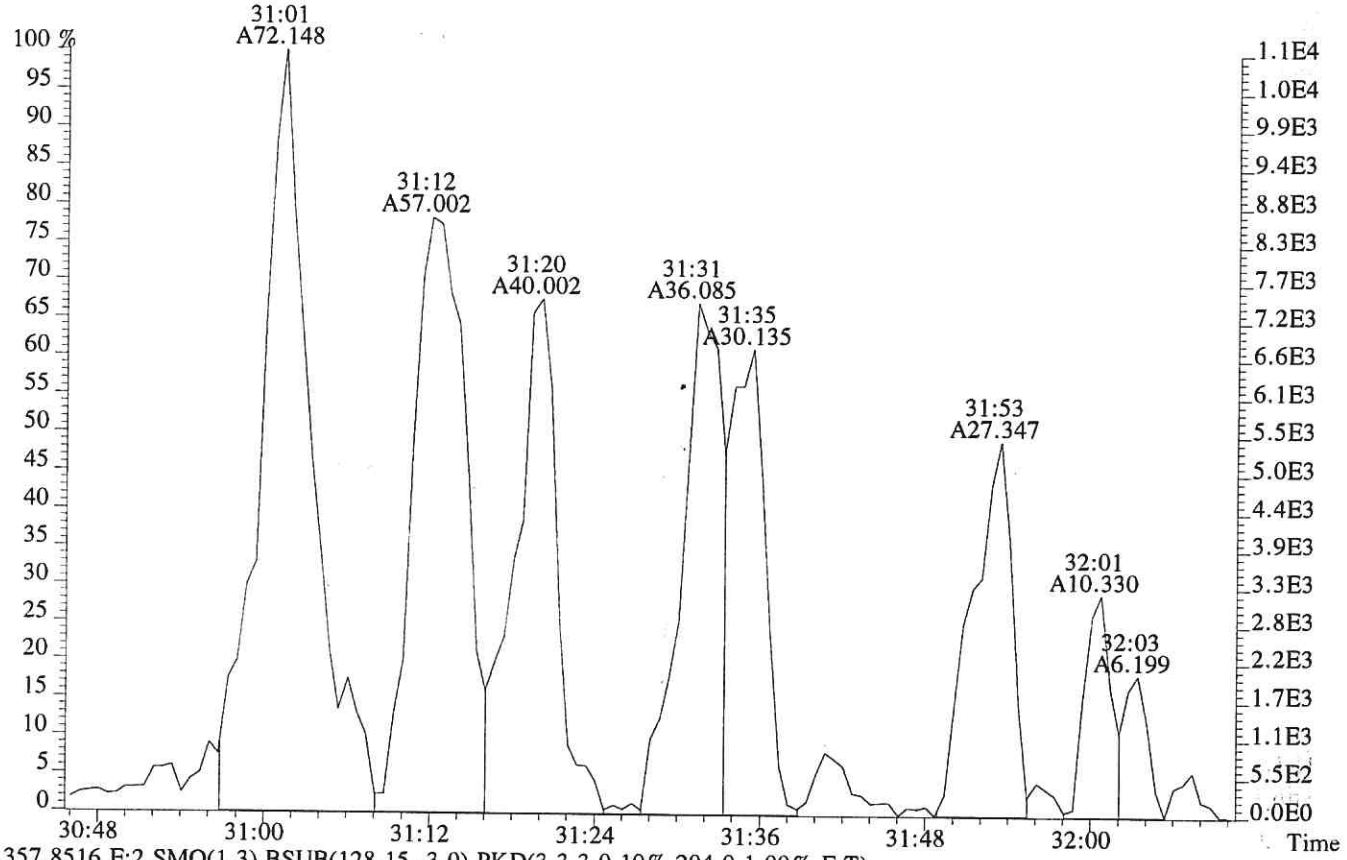


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

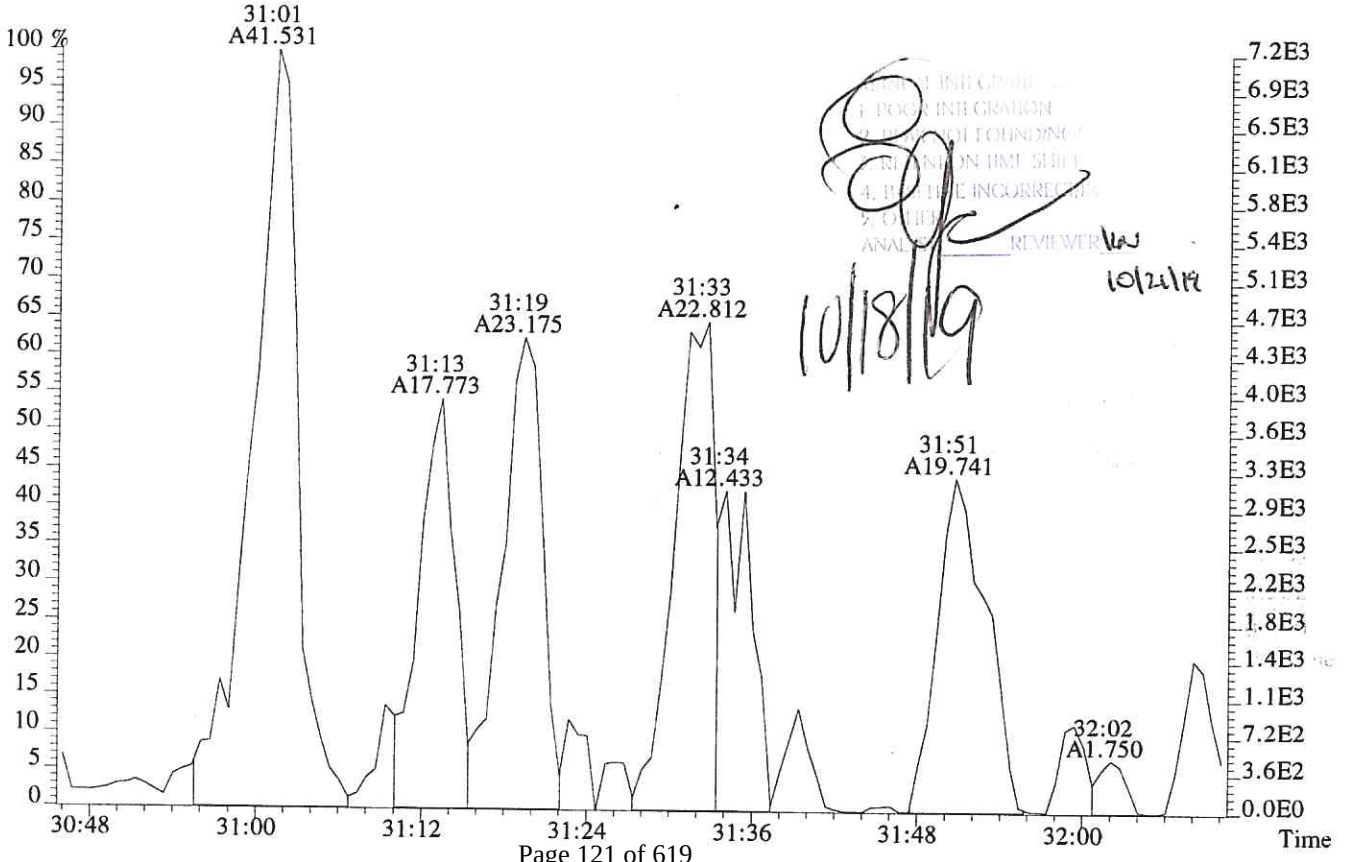


RIGHT SOLUTIONS | RIGHT PARTNER

File:P524772 #1-348 Acq:18-OCT-2019 01:42:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1900728-001DL
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,336.0,1.00%,F,T)



357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,204.0,1.00%,F,T)

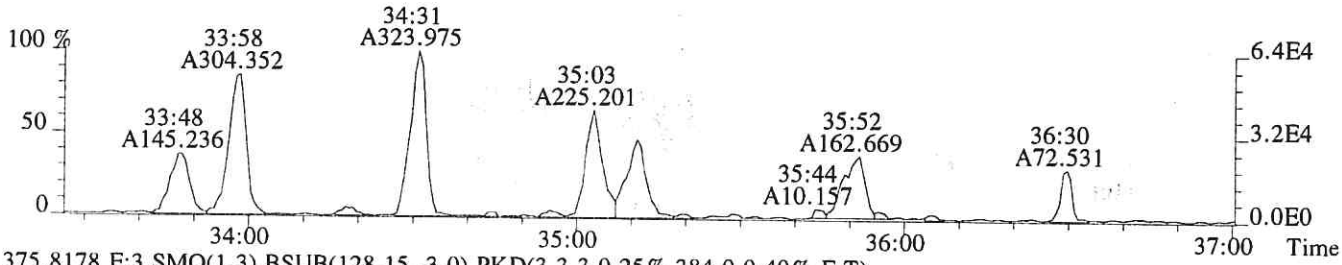


10/18/19

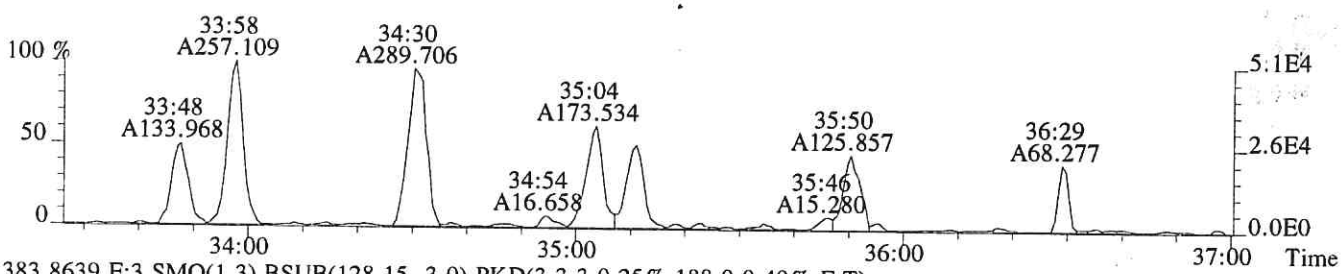
REVIEWER lw 10/21/19

RIGHT SOLUTIONS | RIGHT PARTNER

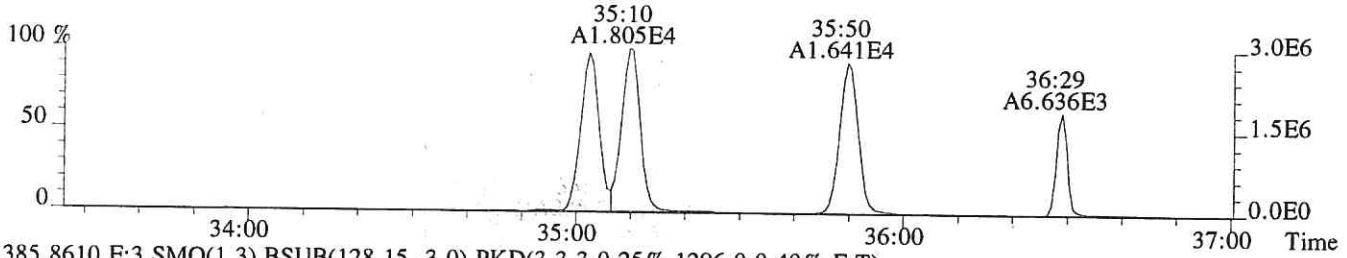
File:P524772 #1-322 Acq:18-OCT-2019 01:42:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1900728-001DL
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,672.0,0.40%,F,T)



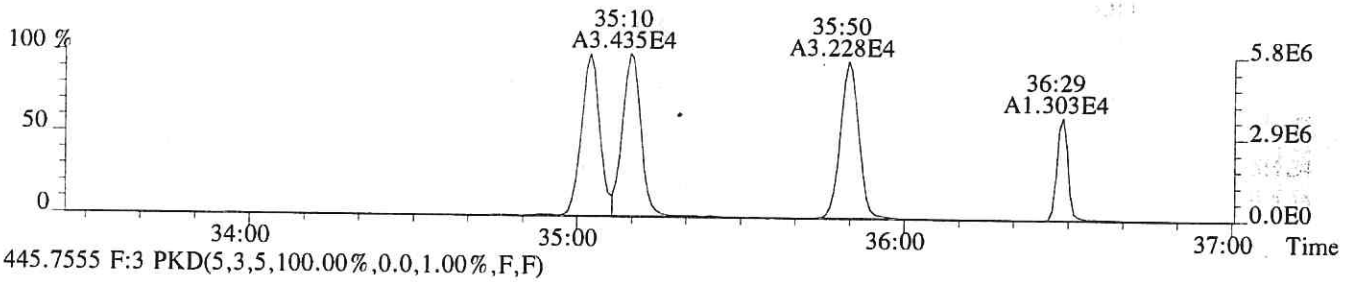
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,384.0,0.40%,F,T)



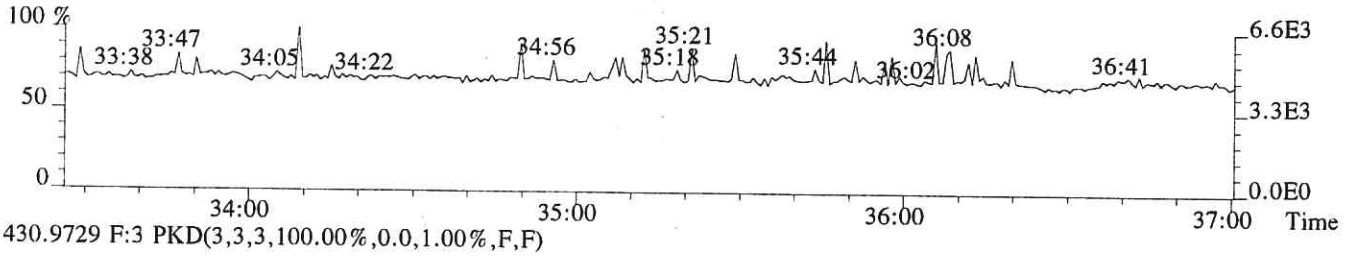
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,188.0,0.40%,F,T)



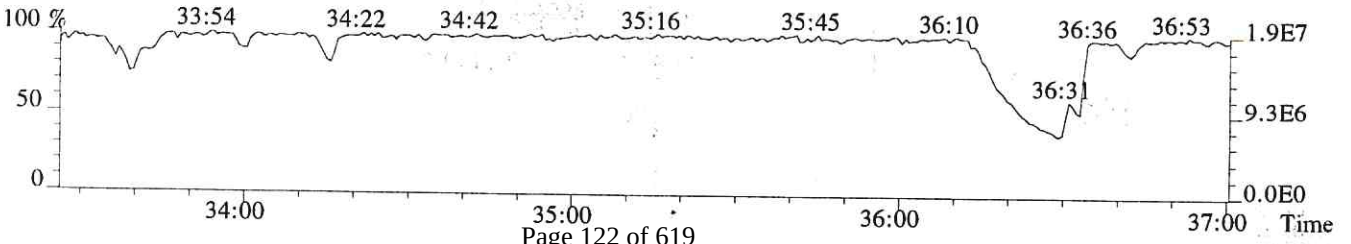
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1296.0,0.40%,F,T)



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

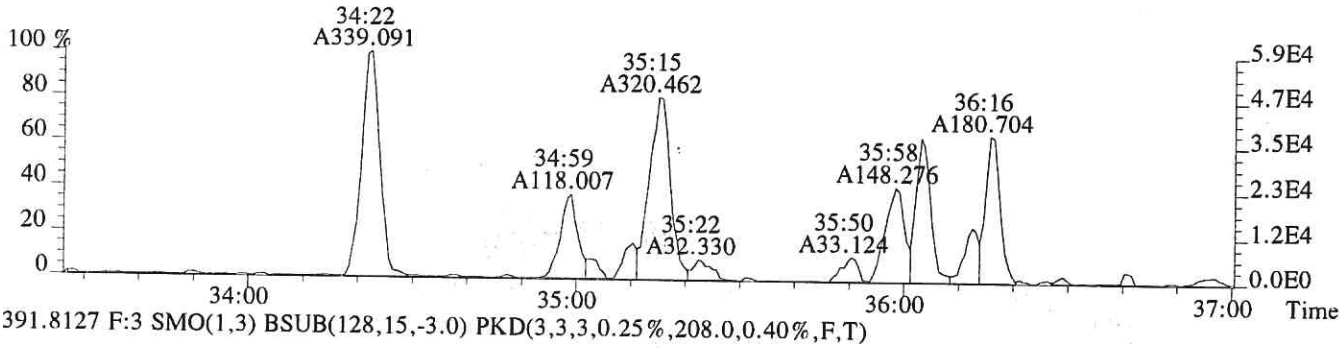


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

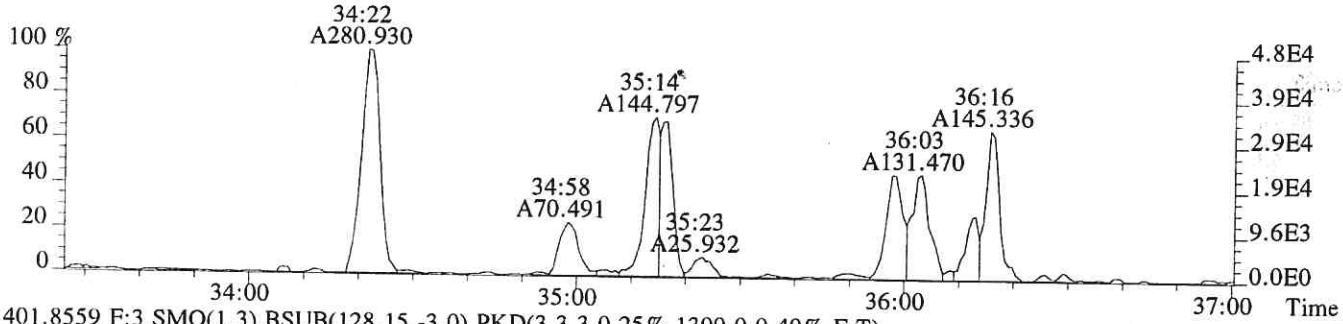


RIGHT SOLUTIONS | RIGHT PARTNER

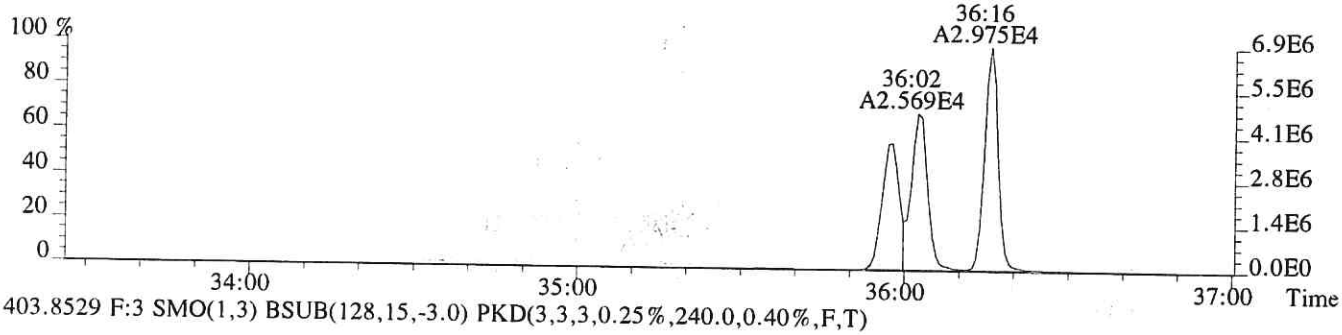
File:P524772 #1-322 Acq:18-OCT-2019 01:42:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1900728-001DL
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,164.0,0.40%,F,T)



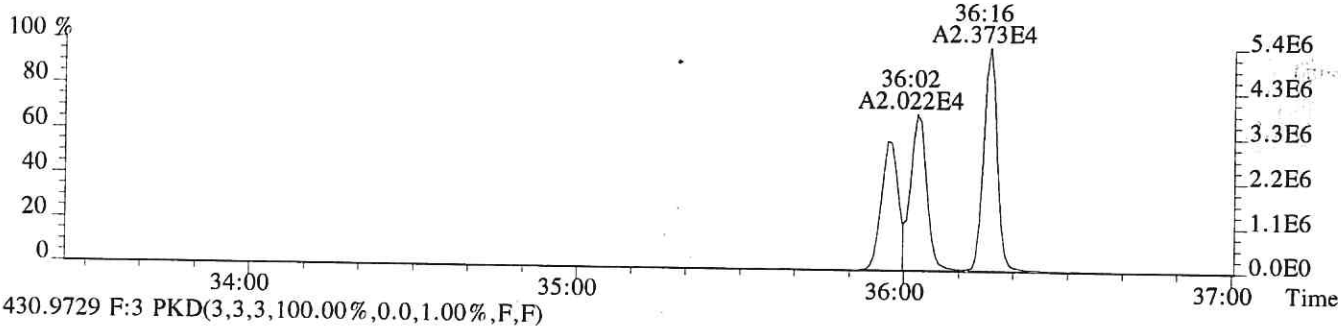
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,208.0,0.40%,F,T)



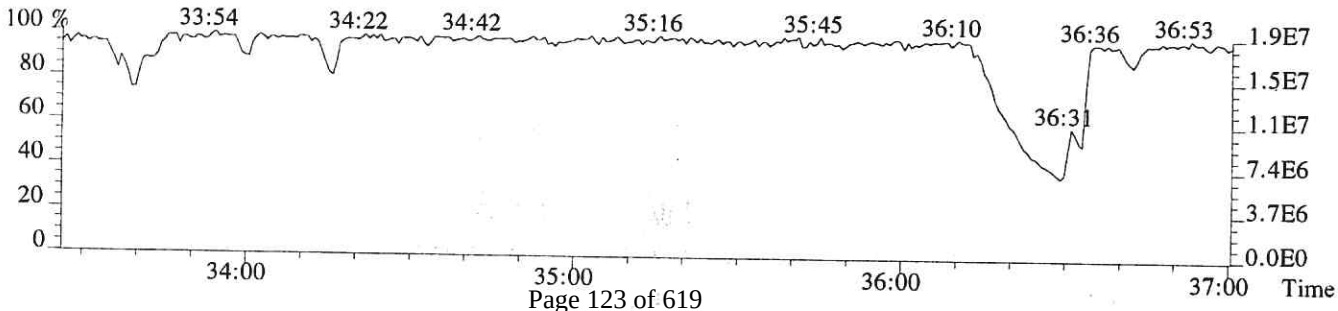
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1300.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,240.0,0.40%,F,T)

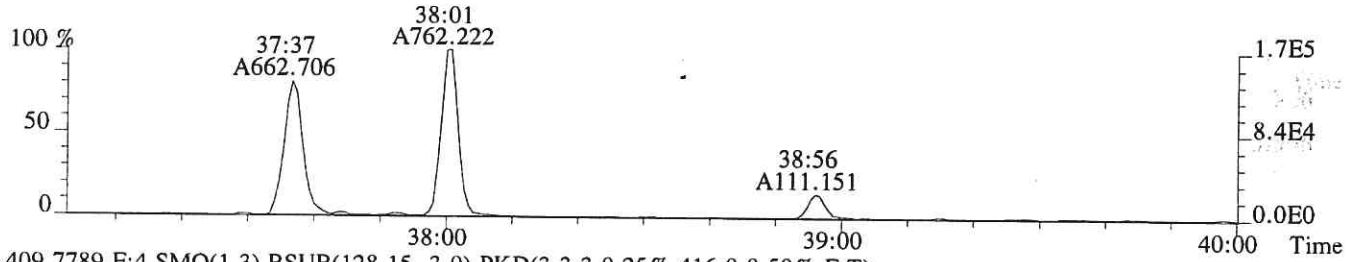


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

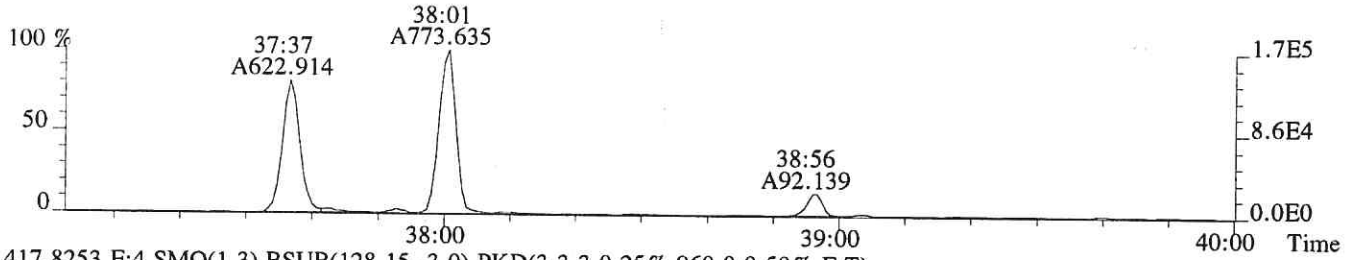


RIGHT SOLUTIONS | RIGHT PARTNER

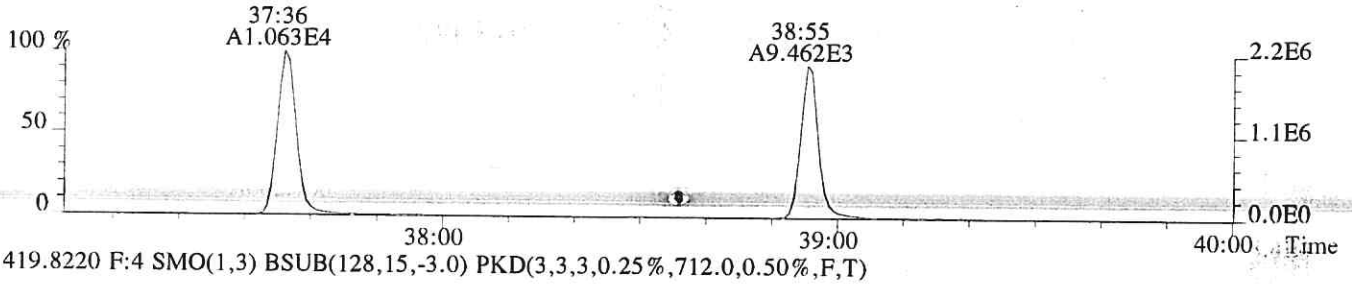
File:P524772 #1-267 Acq:18-OCT-2019 01:42:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1900728-001DL
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,164.0,0.50%,F,T)



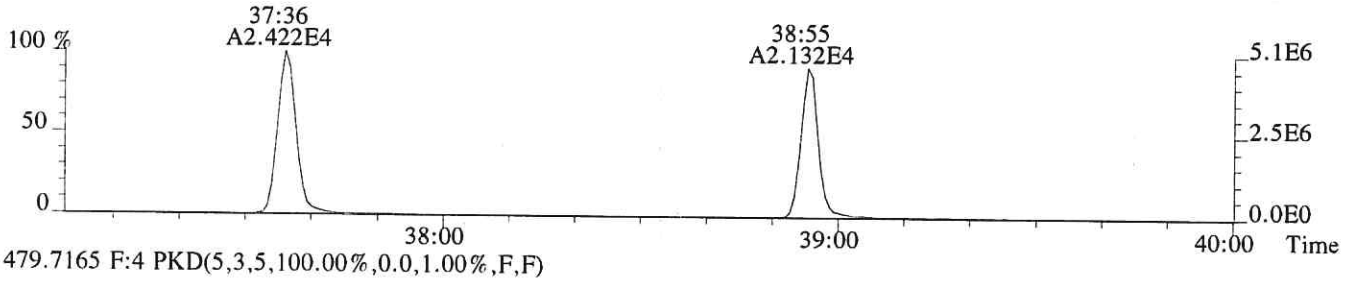
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,416.0,0.50%,F,T)



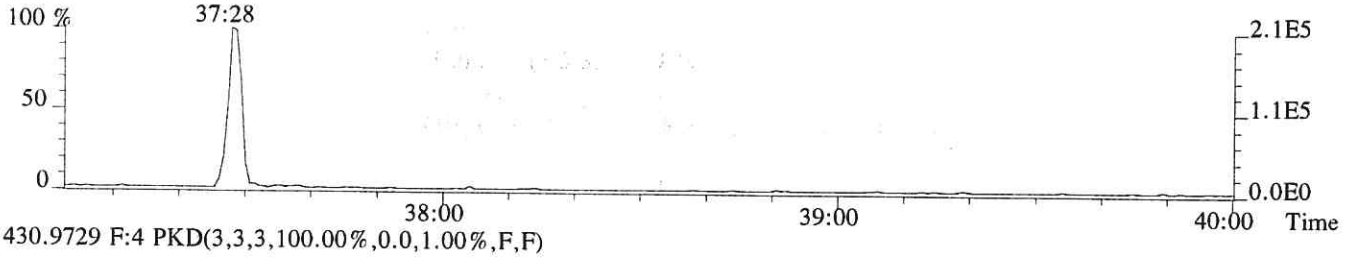
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,960.0,0.50%,F,T)



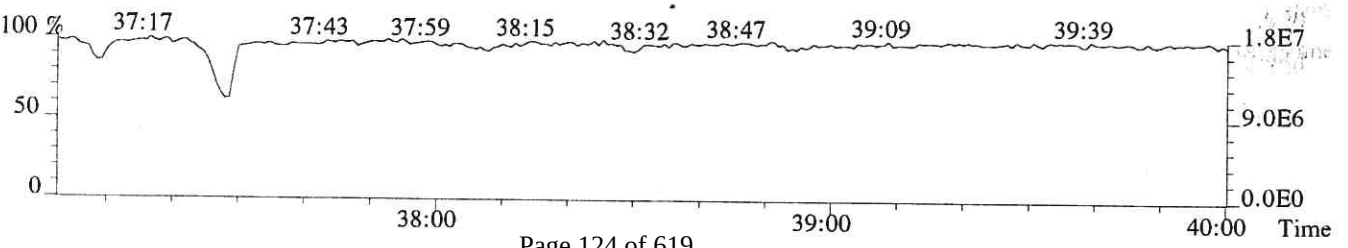
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,712.0,0.50%,F,T)



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

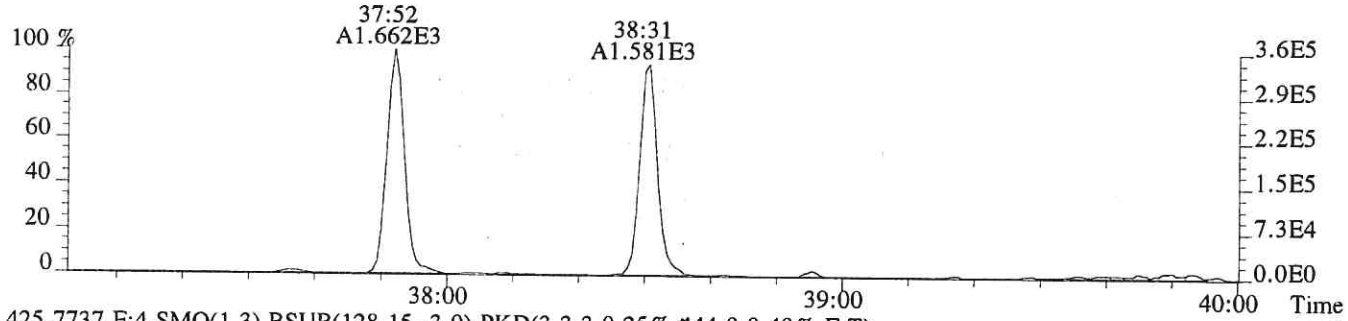


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

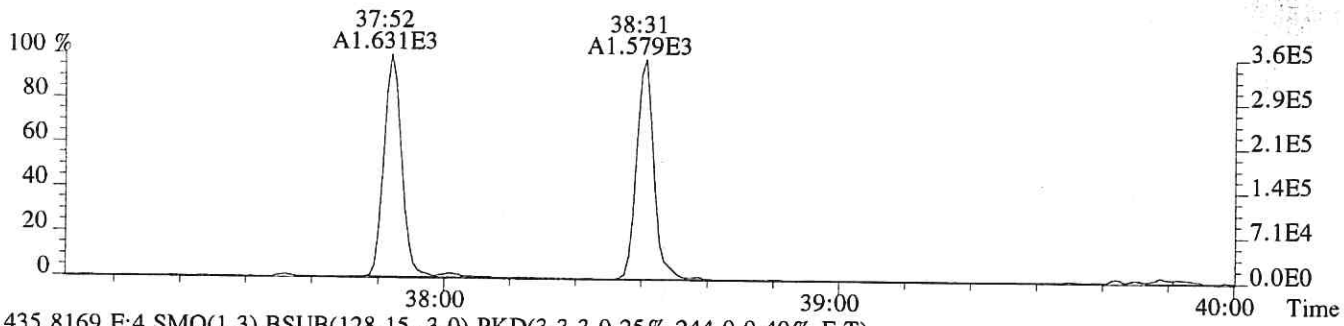


RIGHT SOLUTIONS | RIGHT PARTNER

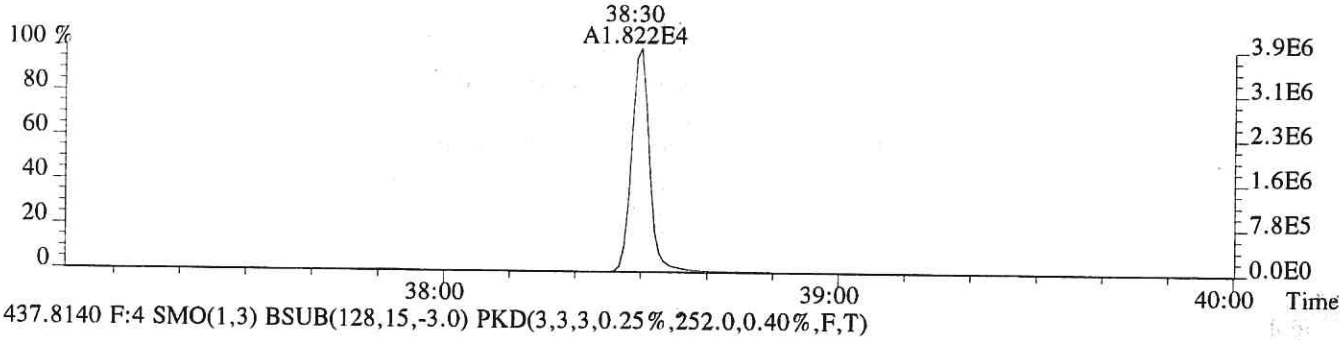
File:P524772 #1-267 Acq:18-OCT-2019 01:42:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1900728-001DL
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1320.0,0.40%,F,T)



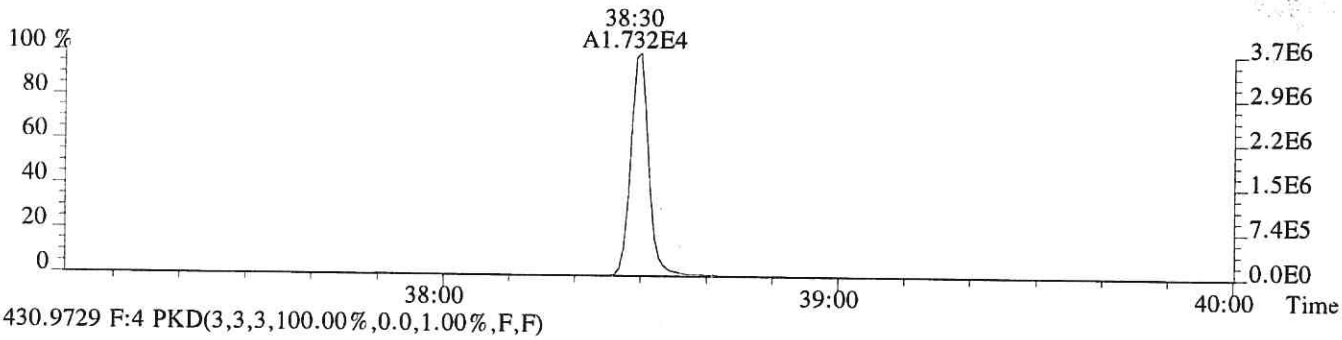
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,444.0,0.40%,F,T)



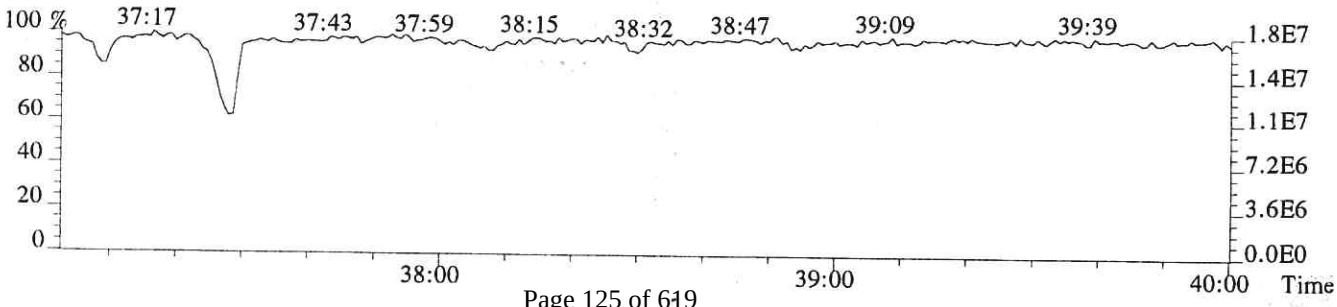
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,244.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,252.0,0.40%,F,T)

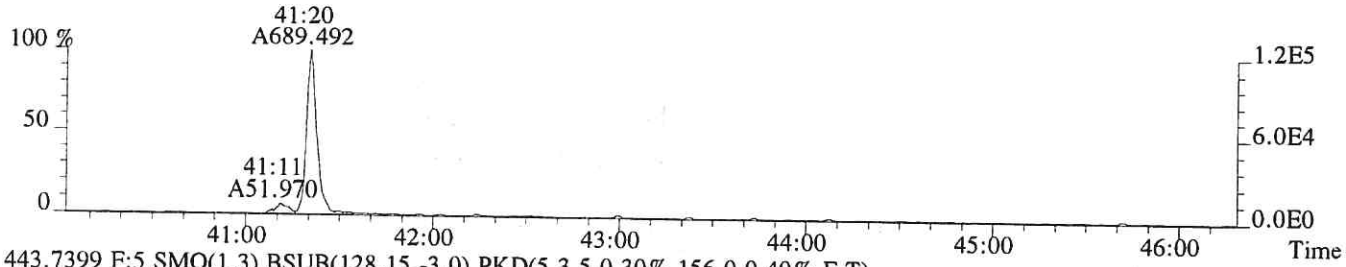


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

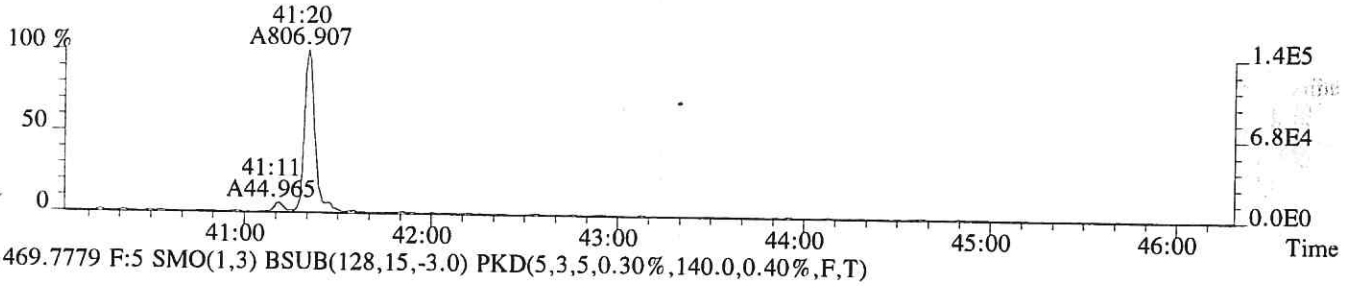


RIGHT SOLUTIONS | RIGHT PARTNER

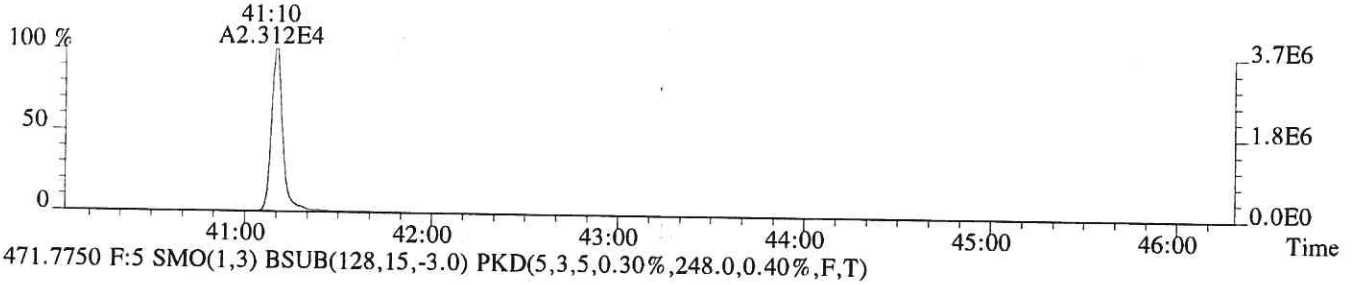
File:P524772 #1-565 Acq:18-OCT-2019 01:42:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1900728-001DL
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,184.0,0.40%,F,T)



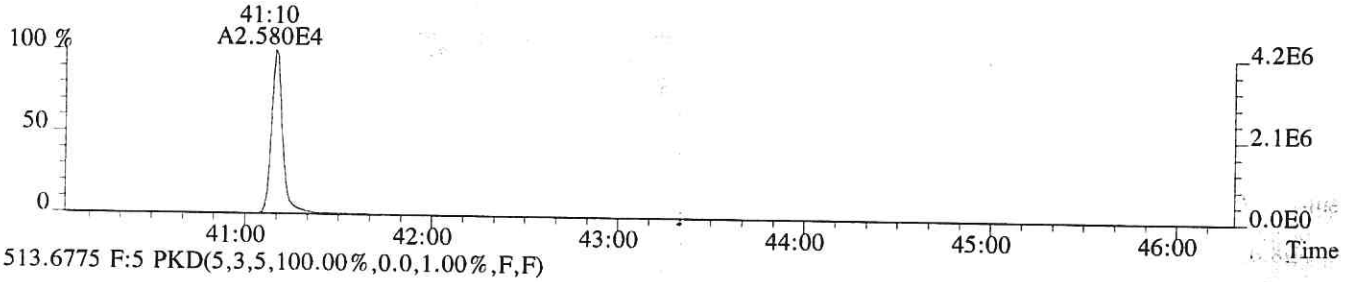
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,156.0,0.40%,F,T)



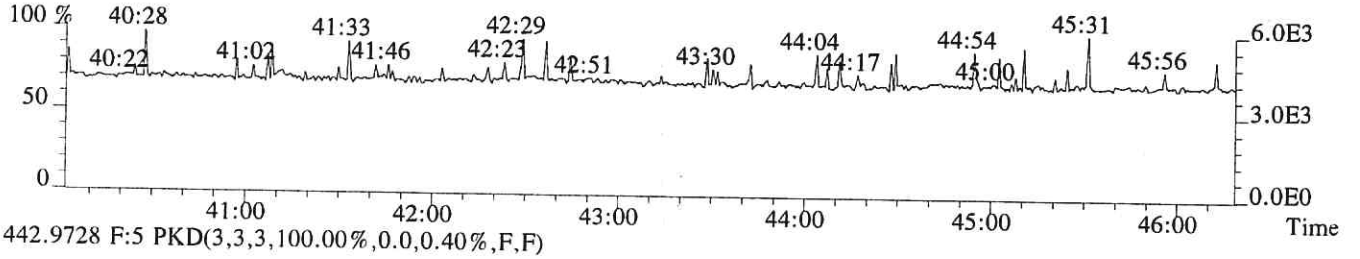
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,140.0,0.40%,F,T)



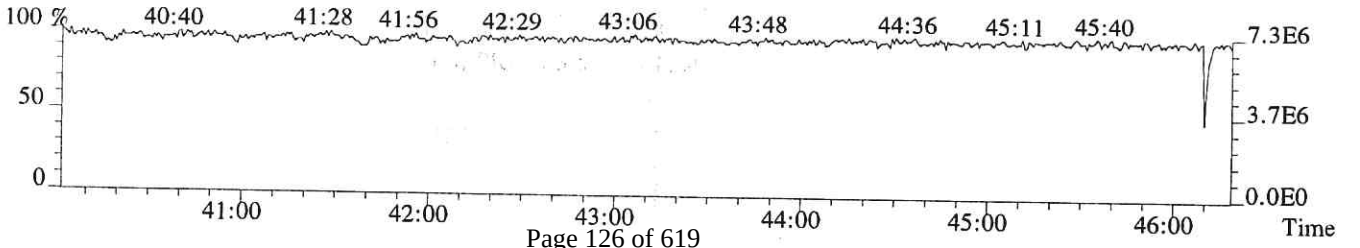
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,248.0,0.40%,F,T)



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

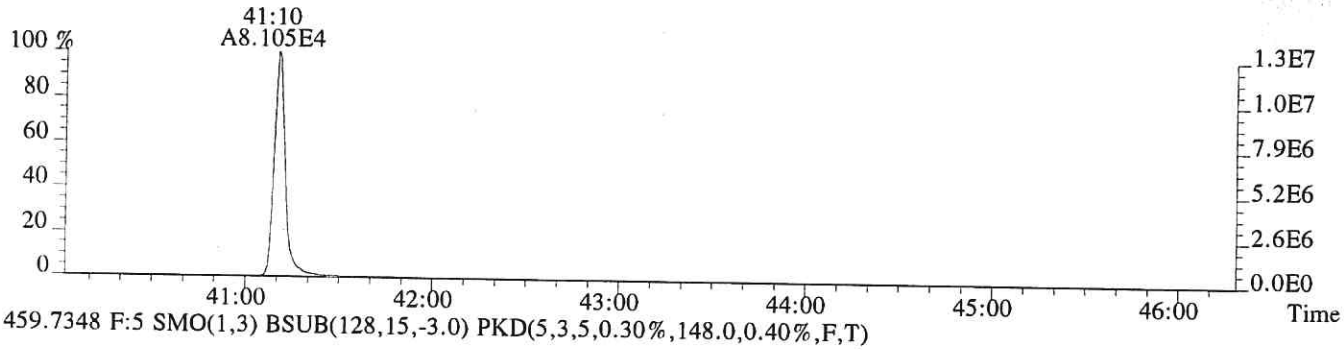


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

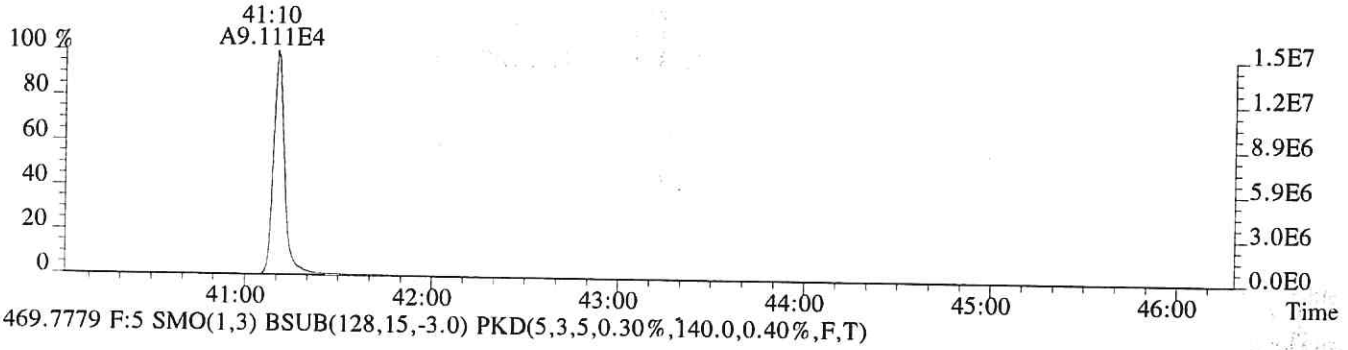


RIGHT SOLUTIONS | RIGHT PARTNER

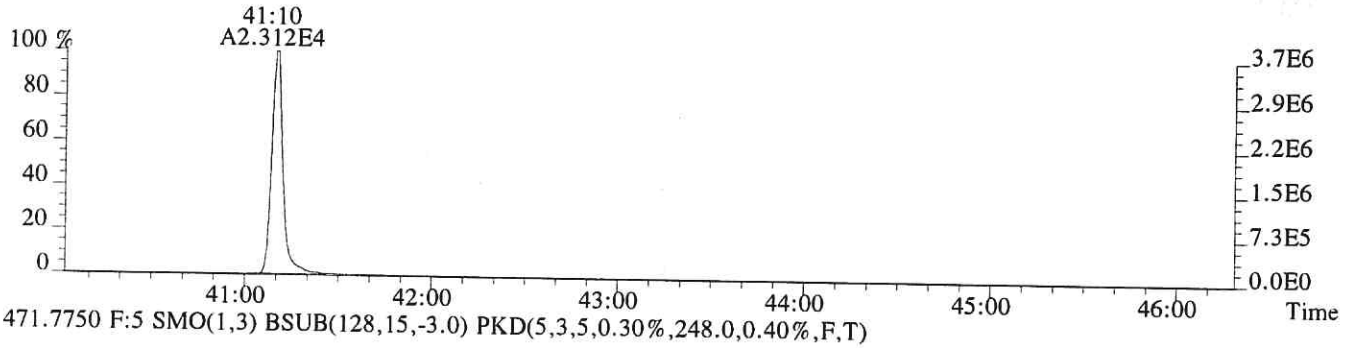
File:P524772 #1-565 Acq:18-OCT-2019 01:42:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1900728-001DL
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,200.0,0.40%,F,T)



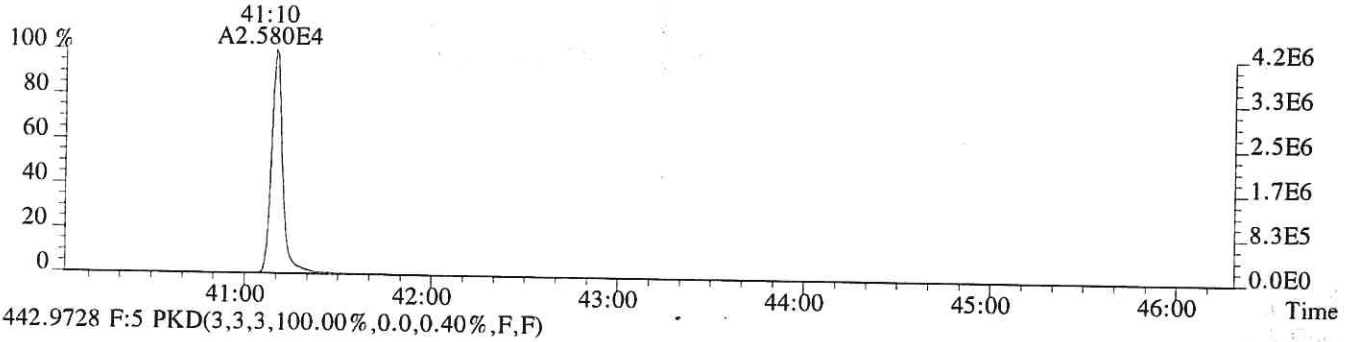
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,148.0,0.40%,F,T)



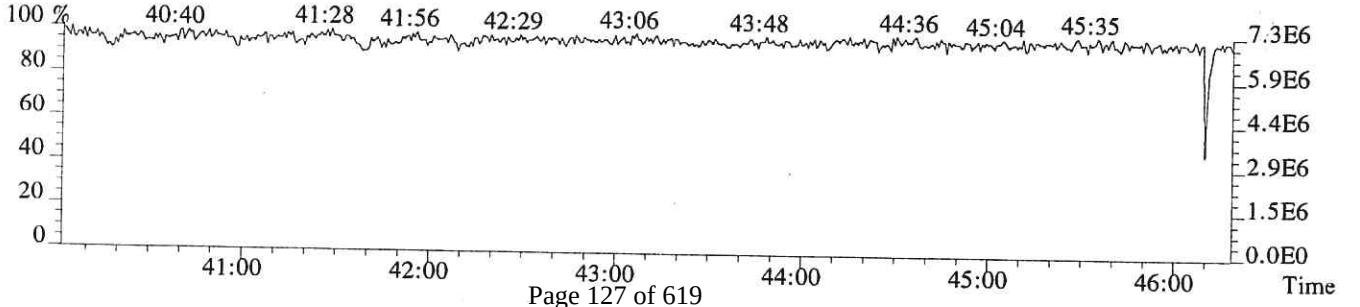
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,140.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,248.0,0.40%,F,T)



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



RIGHT SOLUTIONS | RIGHT PARTNER

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
AC-4SC1-20191

Run #11 Filename P524773 Samp: 1 Inj: 1 Acquired: 18-OCT-19 02:31:34
Processed: 18-OCT-19 14:40:04 Sample ID: E1900728-002DL

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.962
2	Unk	1,2,3,7,8-PeCDF	31:17	1.427e+02	8.679e+01	1.64	yes	no	0.968
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	yes	0.919
4	Unk	1,2,3,4,7,8-HxCDF	35:47	2.509e+02	1.864e+02	1.35	yes	no	1.161
5	Unk	1,2,3,6,7,8-HxCDF	35:54	1.419e+02	1.401e+02	1.01	no	no	1.073
6	Unk	2,3,4,6,7,8-HxCDF	36:26	5.801e+01	6.125e+01	0.95	no	no	1.069
7	Unk	1,2,3,7,8,9-HxCDF	36:53	2.767e+01	2.734e+01	1.01	no	no	1.096
8	Unk	1,2,3,4,6,7,8-HpCDF	37:52	1.325e+03	1.304e+03	1.02	yes	no	1.281
9	Unk	1,2,3,4,7,8,9-HpCDF	39:05	8.982e+01	9.295e+01	0.97	yes	no	1.192
10	Unk	OCDF	41:32	1.310e+03	1.507e+03	0.87	yes	no	1.204
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.077
12	Unk	1,2,3,7,8-PeCDD	32:39	6.561e+01	5.725e+01	1.15	no	yes	0.971
13	Unk	1,2,3,4,7,8-HxCDD	36:29	5.978e+01	3.884e+01	1.54	no	no	1.024
14	Unk	1,2,3,6,7,8-HxCDD	36:33	1.012e+02	6.726e+01	1.50	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:44	4.283e+01	5.557e+01	0.77	no	no	1.055
16	Unk	1,2,3,4,6,7,8-HpCDD	38:41	2.437e+03	2.197e+03	1.11	yes	no	0.989
17	Unk	OCDD	41:22	2.451e+04	2.685e+04	0.91	yes	no	1.094
18	IS	13C-2,3,7,8-TCDF	26:40	2.907e+04	3.660e+04	0.79	yes	no	1.287
19	IS	13C-1,2,3,7,8-PeCDF	31:15	4.990e+04	3.099e+04	1.61	yes	no	1.416
20	IS	13C-2,3,4,7,8-PeCDF	32:17	4.546e+04	2.875e+04	1.58	yes	yes	1.374
21	IS	13C-1,2,3,4,7,8-HxCDF	35:46	2.088e+04	4.068e+04	0.51	yes	no	1.114
22	IS	13C-1,2,3,6,7,8-HxCDF	35:53	2.127e+04	4.099e+04	0.52	yes	no	1.245
23	IS	13C-2,3,4,6,7,8-HxCDF	36:26	1.136e+04	2.207e+04	0.51	yes	no	1.146
24	IS	13C-1,2,3,7,8,9-HxCDF	36:53	5.174e+03	9.995e+03	0.52	yes	no	0.986
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:51	1.275e+04	2.849e+04	0.45	yes	no	0.915
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:05	1.100e+04	2.534e+04	0.43	yes	no	0.746
27	IS	13C-2,3,7,8-TCDD	27:37	2.208e+04	2.772e+04	0.80	yes	no	0.929
28	IS	13C-1,2,3,7,8-PeCDD	32:35	3.764e+04	2.383e+04	1.58	yes	no	1.017
29	IS	13C-1,2,3,4,7,8-HxCDD	36:29	1.263e+04	1.013e+04	1.25	yes	no	0.945
30	IS	13C-1,2,3,6,7,8-HxCDD	36:32	1.312e+04	1.049e+04	1.25	yes	no	0.924
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:40	2.150e+04	2.074e+04	1.04	yes	no	0.876
32	IS	13C-OCDD	41:22	2.986e+04	3.353e+04	0.89	yes	no	0.662
33	RS/RT	13C-1,2,3,4-TCDD	26:39	2.800e+04	3.570e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:43	1.135e+04	9.028e+03	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:39	6.491e+03				no	1.010

$$\text{OCDD} = \frac{(2.451e+04 + 2.685e+04) \times 4000 \text{ pg} \times 5}{(2.986e+04 + 3.353e+04) \times 10.097 \text{ g} \times 86.7/100 \times 1.094} = 1692 \text{ ng/kg}$$

LKK 10/21/19

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
AC-4SC1-20191009

Run #11 Filename P524773 Samp: 1 Inj: 1 Acquired: 18-OCT-19 02:31:34
Processed: 18-OCT-19 14:40:04 LAB. ID: E1900728-002DL

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	1.02e+03	*	*	1.66e+03	*
2	1,2,3,7,8-PeCDF	1.72e+04	4.36e+02	4.0e+01	1.16e+04	6.32e+02	1.8e+01
3	2,3,4,7,8-PeCDF	*	4.36e+02	*	*	6.32e+02	*
4	1,2,3,4,7,8-HxCDF	4.05e+04	3.60e+02	1.1e+02	2.96e+04	2.40e+02	1.2e+02
5	1,2,3,6,7,8-HxCDF	2.21e+04	3.60e+02	6.1e+01	2.17e+04	2.40e+02	9.1e+01
6	2,3,4,6,7,8-HxCDF	9.10e+03	3.60e+02	2.5e+01	9.94e+03	2.40e+02	4.1e+01
7	1,2,3,7,8,9-HxCDF	8.51e+03	3.60e+02	2.4e+01	8.76e+03	2.40e+02	3.7e+01
8	1,2,3,4,6,7,8-HpCDF	2.78e+05	4.84e+02	5.7e+02	2.87e+05	6.20e+02	4.6e+02
9	1,2,3,4,7,8,9-HpCDF	2.42e+04	4.84e+02	5.0e+01	2.04e+04	6.20e+02	3.3e+01
10	OCDF	1.95e+05	2.60e+02	7.5e+02	2.37e+05	3.40e+02	7.0e+02
11	2,3,7,8-TCDD	*	1.28e+03	*	*	7.72e+02	*
12	1,2,3,7,8-PeCDD	9.79e+03	1.60e+02	6.1e+01	6.00e+03	2.00e+02	3.0e+01
13	1,2,3,4,7,8-HxCDD	1.21e+04	3.52e+02	3.4e+01	9.33e+03	1.32e+02	7.1e+01
14	1,2,3,6,7,8-HxCDD	2.31e+04	3.52e+02	6.6e+01	1.33e+04	1.32e+02	1.0e+02
15	1,2,3,7,8,9-HxCDD	1.07e+04	3.52e+02	3.1e+01	1.53e+04	1.32e+02	1.2e+02
16	1,2,3,4,6,7,8-HpCDD	5.53e+05	5.64e+02	9.8e+02	4.97e+05	2.12e+02	2.3e+03
17	OCDD	3.94e+06	1.84e+02	2.1e+04	4.38e+06	3.44e+02	1.3e+04
18	13C-2,3,7,8-TCDF	2.37e+06	4.44e+03	5.3e+02	2.95e+06	1.87e+03	1.6e+03
19	13C-1,2,3,7,8-PeCDF	6.64e+06	4.72e+02	1.4e+04	4.20e+06	4.56e+02	9.2e+03
20	13C-2,3,4,7,8-PeCDF	2.43e+06	4.72e+02	5.2e+03	1.58e+06	4.56e+02	3.5e+03
21	13C-1,2,3,4,7,8-HxCDF	3.35e+06	2.92e+02	1.1e+04	6.45e+06	2.32e+02	2.8e+04
22	13C-1,2,3,6,7,8-HxCDF	3.47e+06	2.92e+02	1.2e+04	6.62e+06	2.32e+02	2.9e+04
23	13C-2,3,4,6,7,8-HxCDF	2.48e+06	2.92e+02	8.5e+03	4.77e+06	2.32e+02	2.1e+04
24	13C-1,2,3,7,8,9-HxCDF	1.57e+06	2.92e+02	5.4e+03	3.02e+06	2.32e+02	1.3e+04
25	13C-1,2,3,4,6,7,8-HpCDF	2.84e+06	4.84e+02	5.9e+03	6.22e+06	2.66e+03	2.3e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.44e+06	4.84e+02	5.0e+03	5.68e+06	2.66e+03	2.1e+03
27	13C-2,3,7,8-TCDD	2.52e+06	7.51e+03	3.4e+02	3.20e+06	1.44e+03	2.2e+03
28	13C-1,2,3,7,8-PeCDD	3.04e+06	4.44e+02	6.8e+03	1.86e+06	2.04e+02	9.1e+03
29	13C-1,2,3,4,7,8-HxCDD	3.11e+06	9.68e+02	3.2e+03	2.44e+06	6.40e+02	3.8e+03
30	13C-1,2,3,6,7,8-HxCDD	2.95e+06	9.68e+02	3.0e+03	2.37e+06	6.40e+02	3.7e+03
31	13C-1,2,3,4,6,7,8-HpCDD	4.96e+06	4.60e+02	1.1e+04	4.74e+06	1.56e+02	3.0e+04
32	13C-OCDD	4.97e+06	2.08e+02	2.4e+04	5.57e+06	2.04e+02	2.7e+04
33	13C-1,2,3,4-TCDD	1.58e+06	7.51e+03	2.1e+02	2.10e+06	1.44e+03	1.5e+03
34	13C-1,2,3,7,8,9-HxCDD	2.88e+06	9.68e+02	3.0e+03	2.30e+06	6.40e+02	3.6e+03
35	37Cl-2,3,7,8-TCDD	7.75e+05	2.59e+03	3.0e+02			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

AC-4SC1-20191009

Entry: 39 Totals Name: Total Penta-Furans2

Run: 11 File: P524773 Sample:1 Injection:1 Function:2

Acquired: 18-OCT-19 02:31:34 Processed: 18-OCT-19 14:40:04

Mass: 339.8600 341.8570 Tot Response: 2.90e+02 RRF: 0.9438

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:49	3.61e+01	2.49e+01	1.45	yes	6.09e+01	n	n
2	31:17	1.43e+02	8.68e+01	1.64	yes	2.29e+02	1,2,3,7,8-PeCDF n	n

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Peak List Summary

CLIENT ID.

AC-4SC1-20191009

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 11 File: P524773 Sample:1 Injection:1 Function:2

Acquired: 18-OCT-19 02:31:34 Processed: 18-OCT-19 14:40:04

Mass: 355.8550 357.8520 Tot Response: 1.62e+02 RRF: 0.9712

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:35	3.78e+01	2.19e+01	1.73	yes	5.98e+01	n	n
2	32:41	6.33e+01	3.94e+01	1.61	yes	1.03e+02	n	y

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Peak List Summary

CLIENT ID.

AC-4SC1-20191009

Entry: 41 Totals Name: Total Hexa-Furans

Run: 11 File: P524773 Sample:1 Injection:1 Function:3

Acquired: 18-OCT-19 02:31:34 Processed: 18-OCT-19 14:40:04

Mass: 373.8210 375.8180 Tot Response: 1.49e+03 RRF: 1.099

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:36	5.54e+02	4.98e+02	1.11	yes	1.05e+03	n	n
2	35:47	2.51e+02	1.86e+02	1.35	yes	4.37e+02	1,2,3,4,7,8-HxCDF	n	n

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Peak List Summary

CLIENT ID.

AC-4SC1-20191009

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 11 File: P524773 Sample:1 Injection:1 Function:3

Acquired: 18-OCT-19 02:31:34 Processed: 18-OCT-19 14:40:04

Mass: 389.8160 391.8130 Tot Response: 2.15e+03 RRF: 1.039

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:02	5.58e+02	4.89e+02	1.14	yes	1.05e+03	n	n
2	35:56	6.23e+02	4.83e+02	1.29	yes	1.11e+03	n	n

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Peak List Summary

CLIENT ID.

AC-4SC1-20191009

Entry: 43 Totals Name: Total Hepta-Furans

Run: 11 File: P524773 Sample:1 Injection:1 Function:4

Acquired: 18-OCT-19 02:31:34 Processed: 18-OCT-19 14:40:04

Mass: 407.7820 409.7790 Tot Response: 6.37e+03 RRF: 1.241

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:52	1.33e+03	1.30e+03	1.02	yes	2.63e+03	1,2,3,4,6,7,8-HpCDF	n	n
2	38:13	1.77e+03	1.80e+03	0.98	yes	3.56e+03		n	n
3	39:05	8.98e+01	9.29e+01	0.97	yes	1.83e+02	1,2,3,4,7,8,9-HpCDF	n	n

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Peak List Summary

CLIENT ID.

AC-4SC1-20191009

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 11 File: P524773 Sample:1 Injection:1 Function:4

Acquired: 18-OCT-19 02:31:34 Processed: 18-OCT-19 14:40:04

Mass: 423.7770 425.7740 Tot Response: 1.18e+04 RRF: 0.9886

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:05	3.66e+03	3.55e+03	1.03	yes	7.20e+03	n	n
2	38:41	2.44e+03	2.20e+03	1.11	yes	4.63e+03	1,2,3,4,6,7,8-HpCDD	n	n

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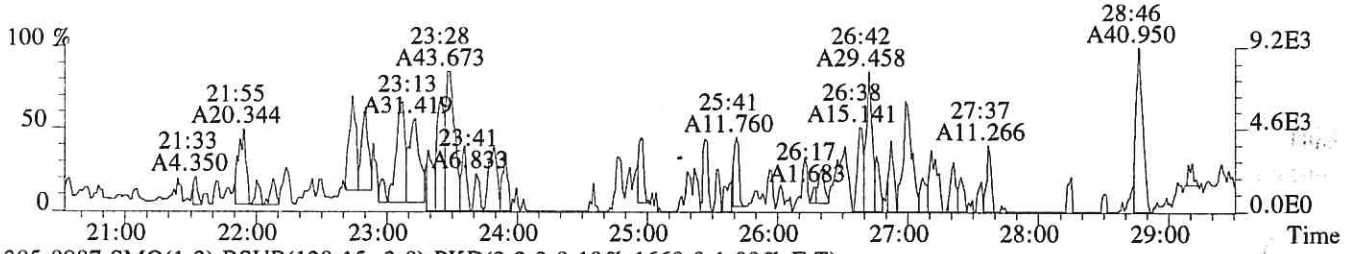
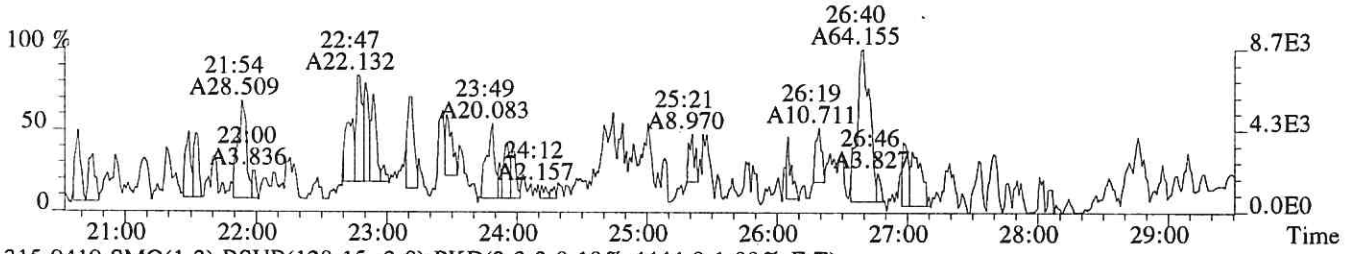
RIGHT SOLUTIONS | RIGHT PARTNER

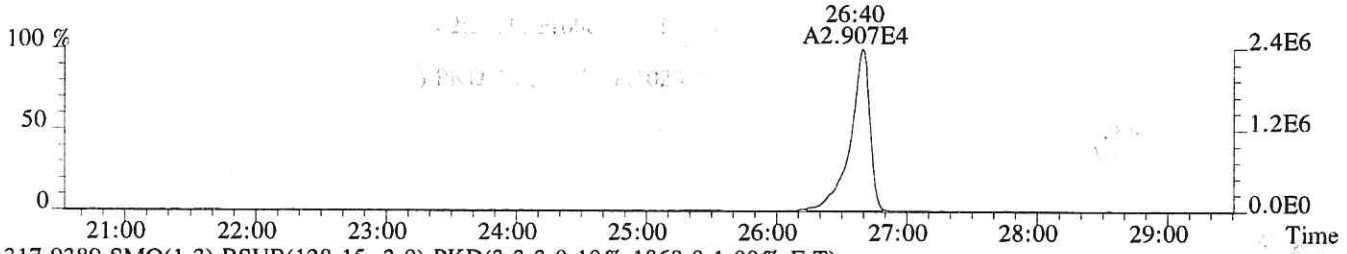
File:P524773 #1-637 Acq:18-OCT-2019 02:31:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1900728-002DL
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1020.0,1.00%,F,T)



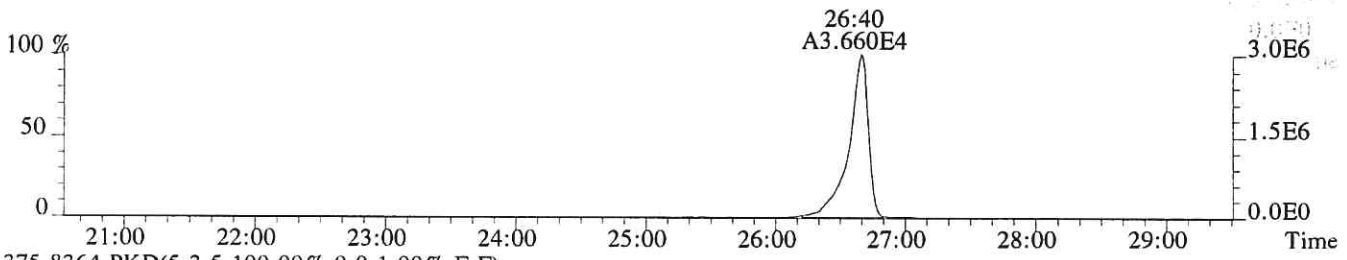
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1660.0,1.00%,F,T)



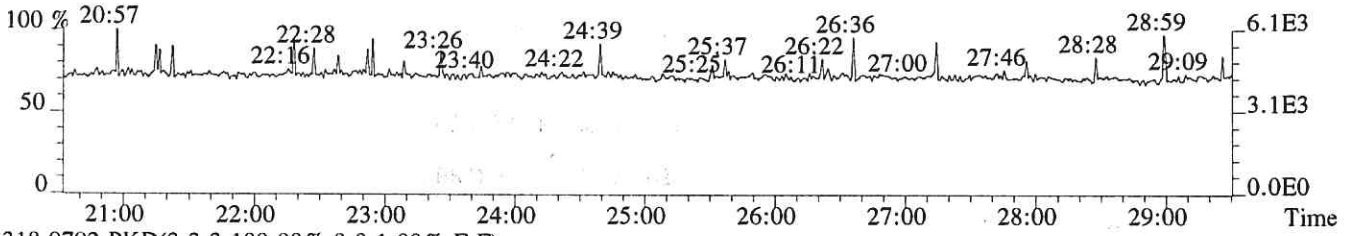
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4444.0,1.00%,F,T)



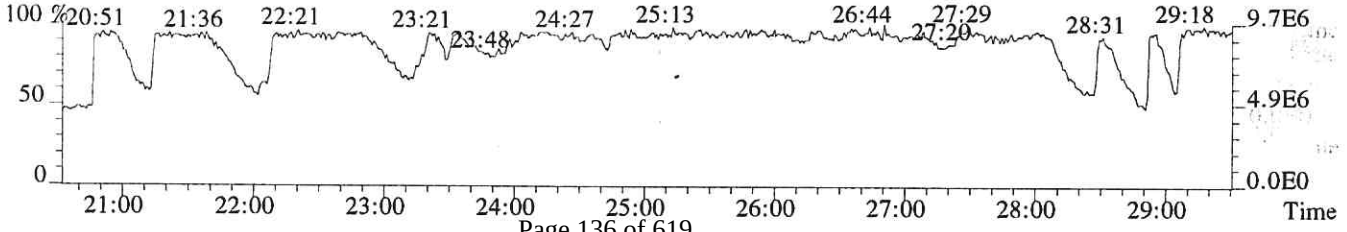
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1868.0,1.00%,F,T)



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



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



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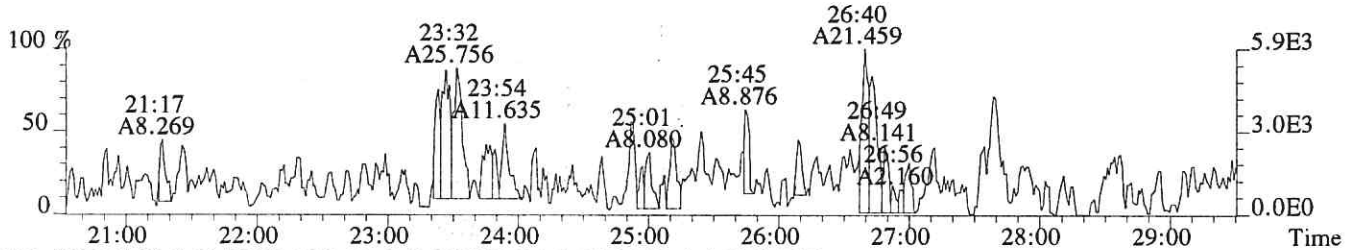
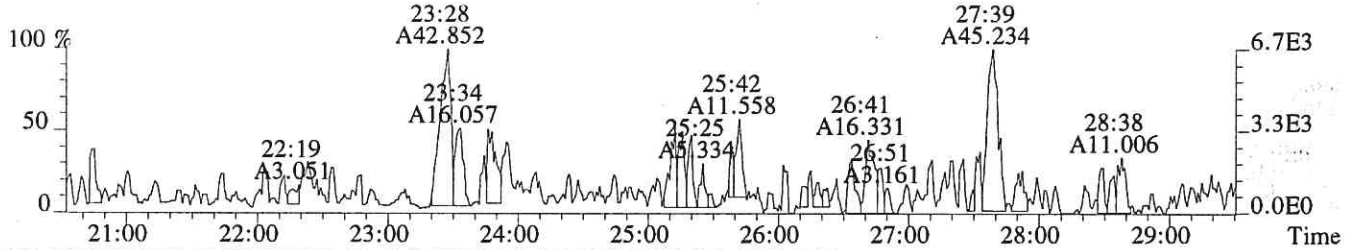
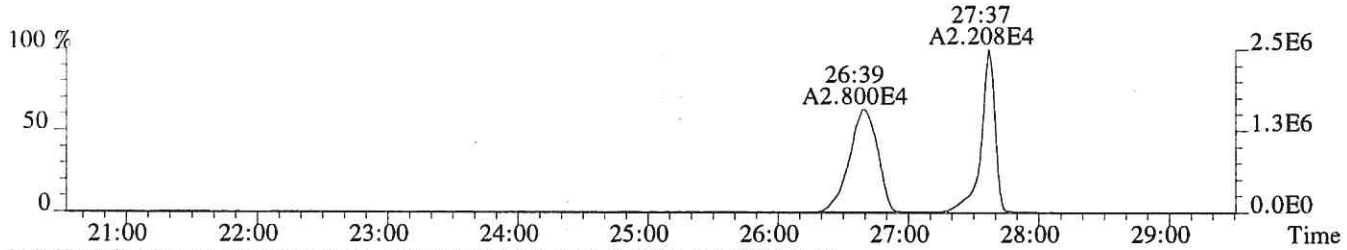
File:P524773 #1-637 Acq:18-OCT-2019 02:31:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1900728-002DL
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1276.0,1.00%,F,T)



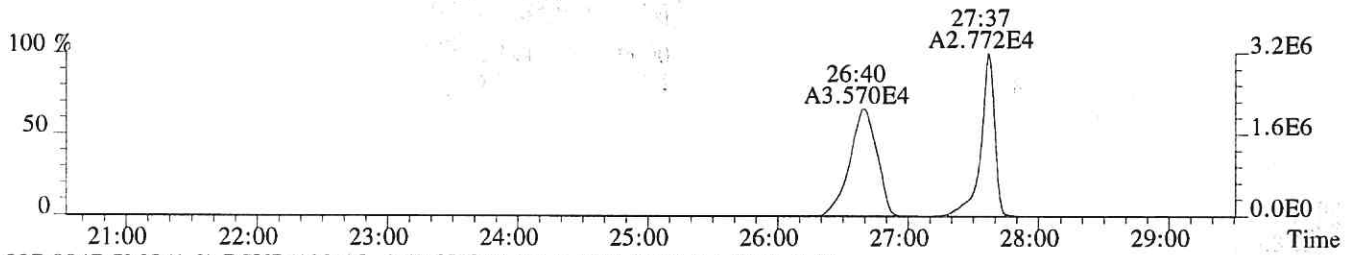
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,772.0,1.00%,F,T)



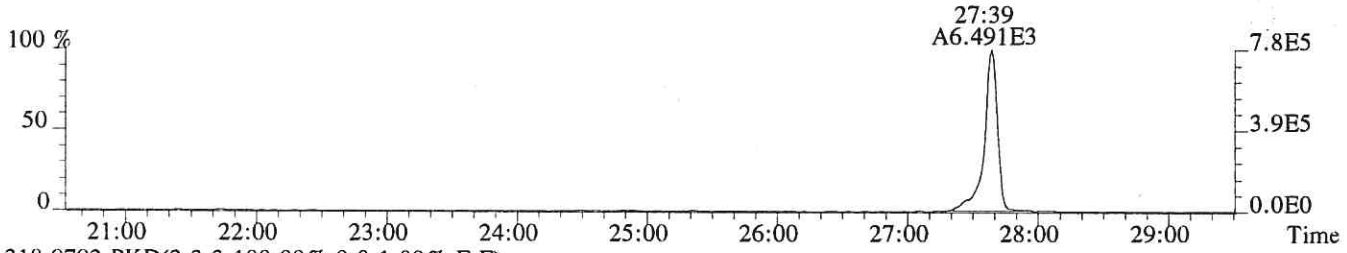
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7512.0,1.00%,F,T)



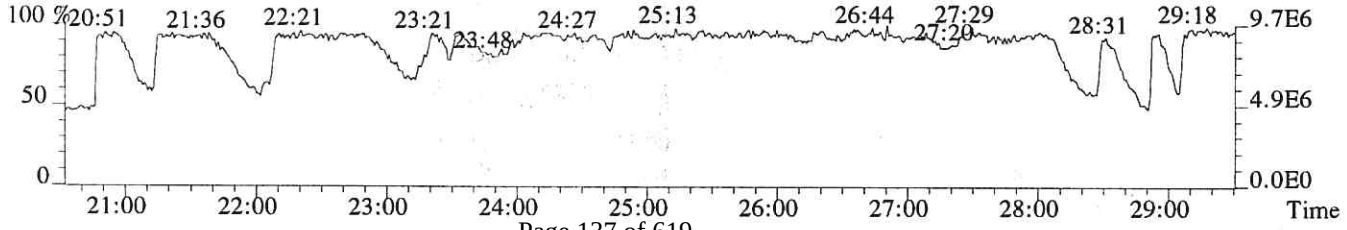
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1444.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2588.0,1.00%,F,T)



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



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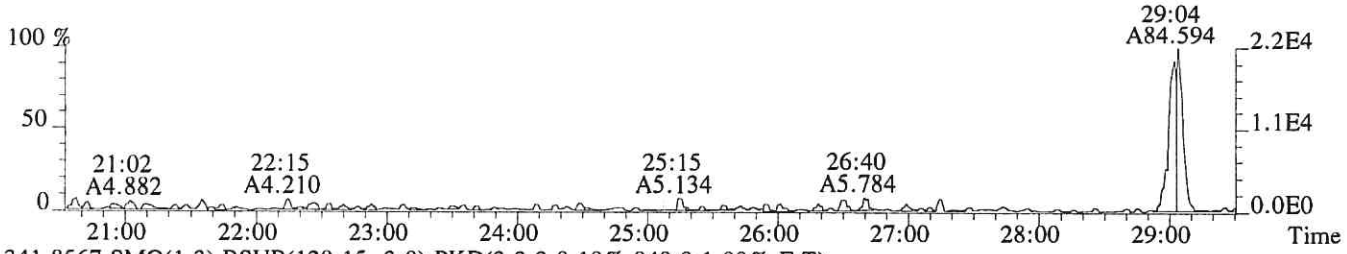
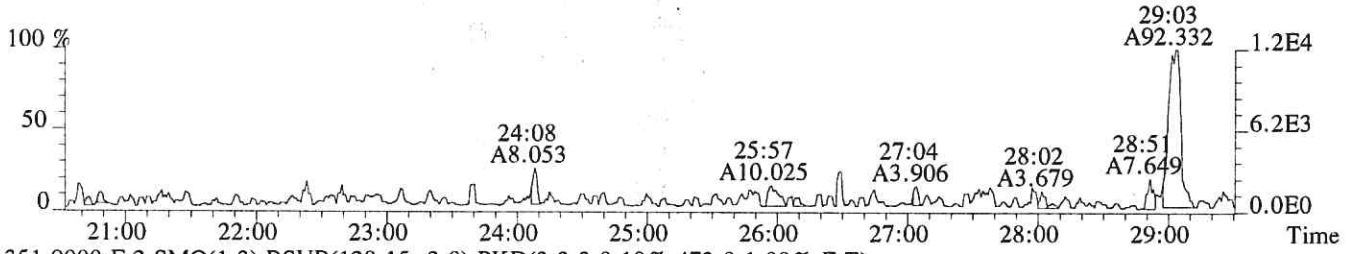
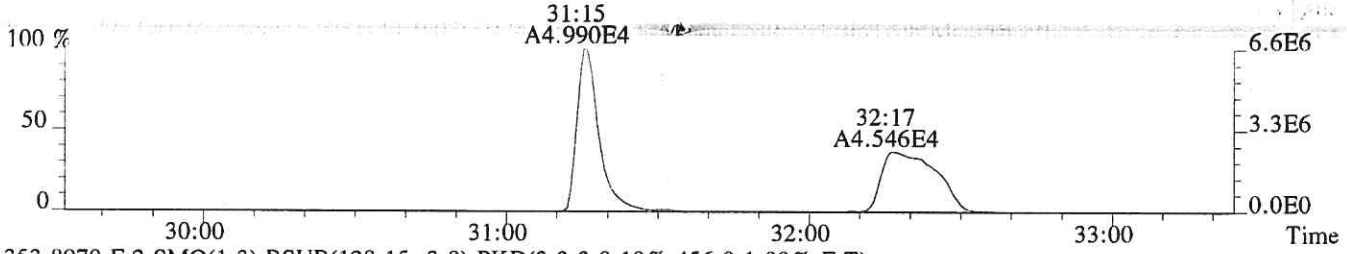
File:P524773 #1-637 Acq:18-OCT-2019 02:31:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1900728-002DL
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,328.0,1.00%,F,T)



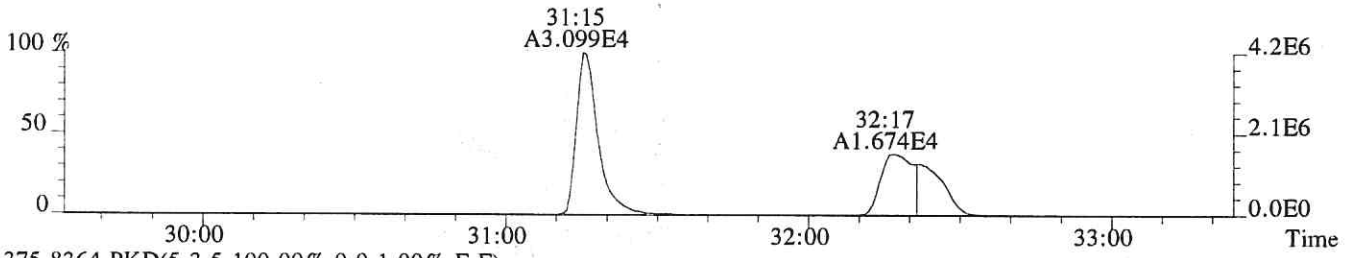
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,840.0,1.00%,F,T)



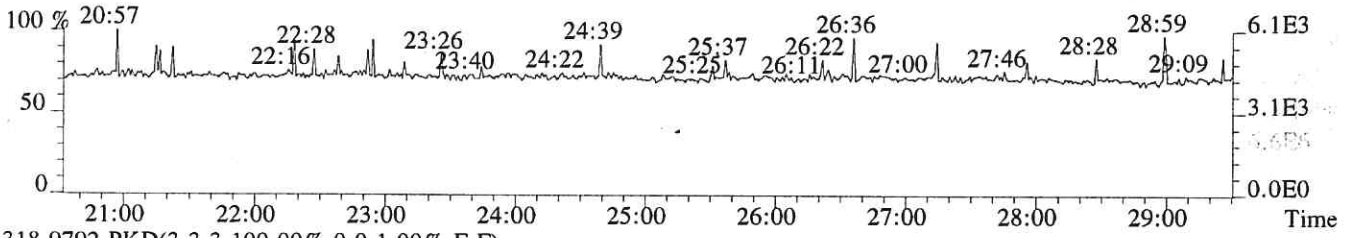
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,472.0,1.00%,F,T)



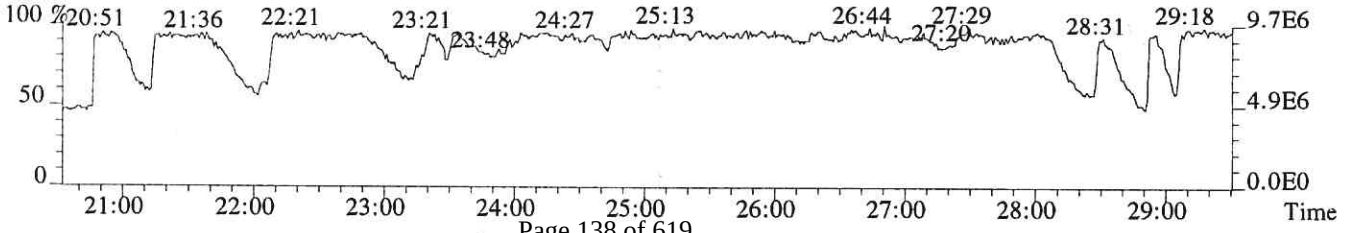
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,456.0,1.00%,F,T)



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

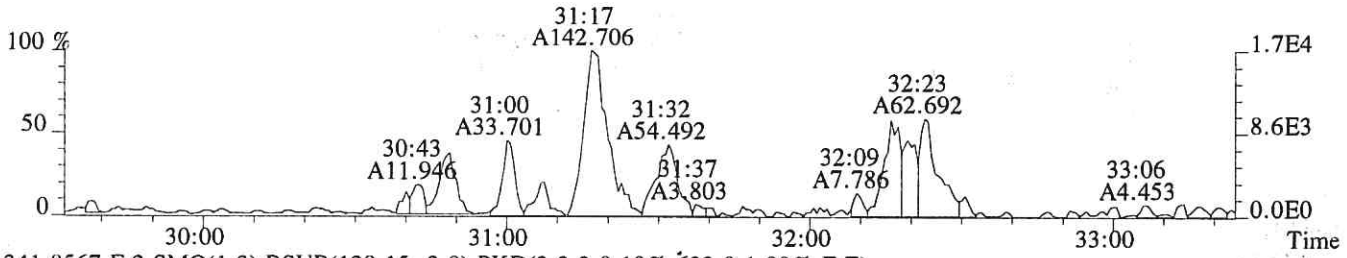


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

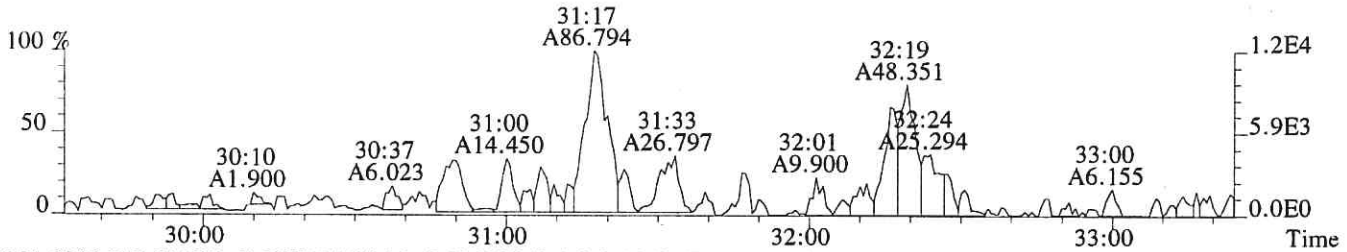


RIGHT SOLUTIONS | RIGHT PARTNER

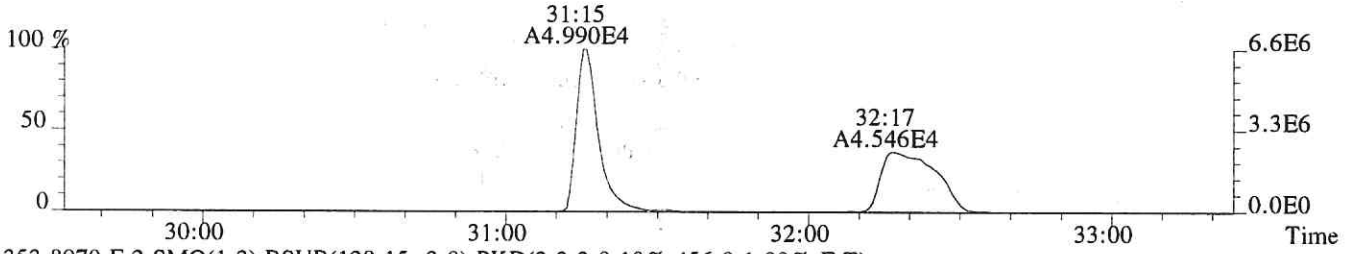
File:P524773 #1-348 Acq:18-OCT-2019 02:31:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1900728-002DL
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,436.0,1.00%,F,T)



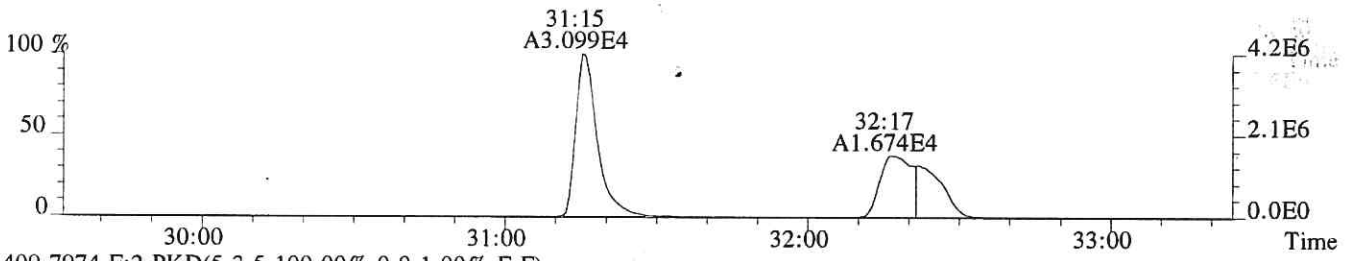
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,632.0,1.00%,F,T)



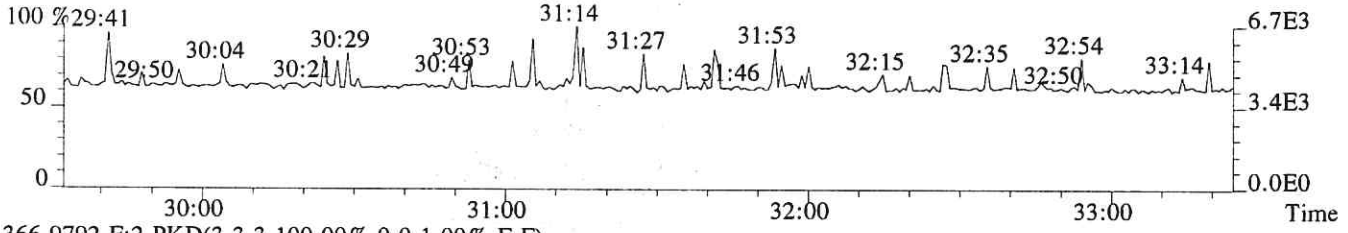
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,472.0,1.00%,F,T)



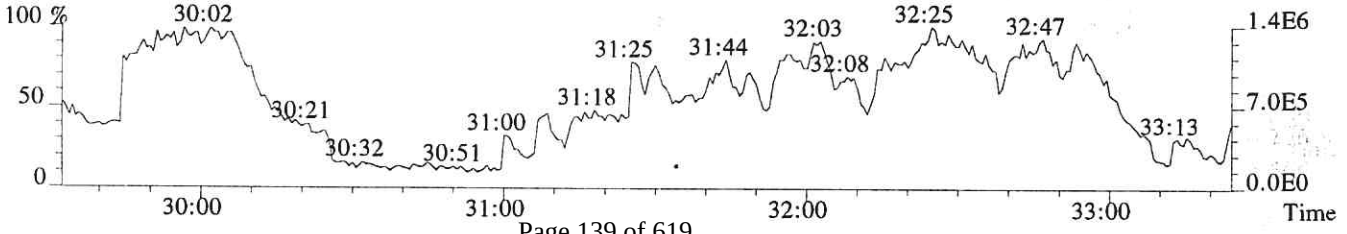
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,456.0,1.00%,F,T)



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

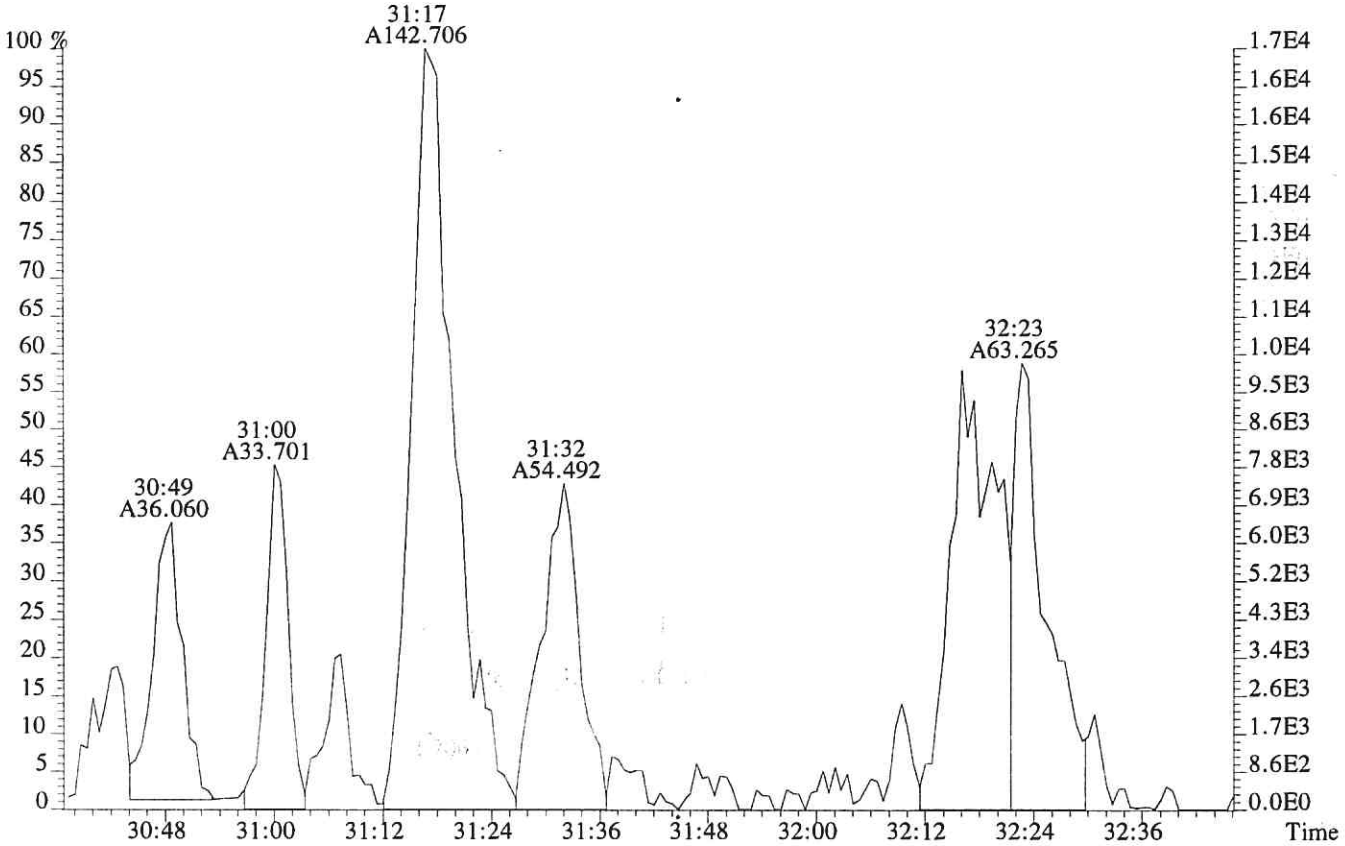


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

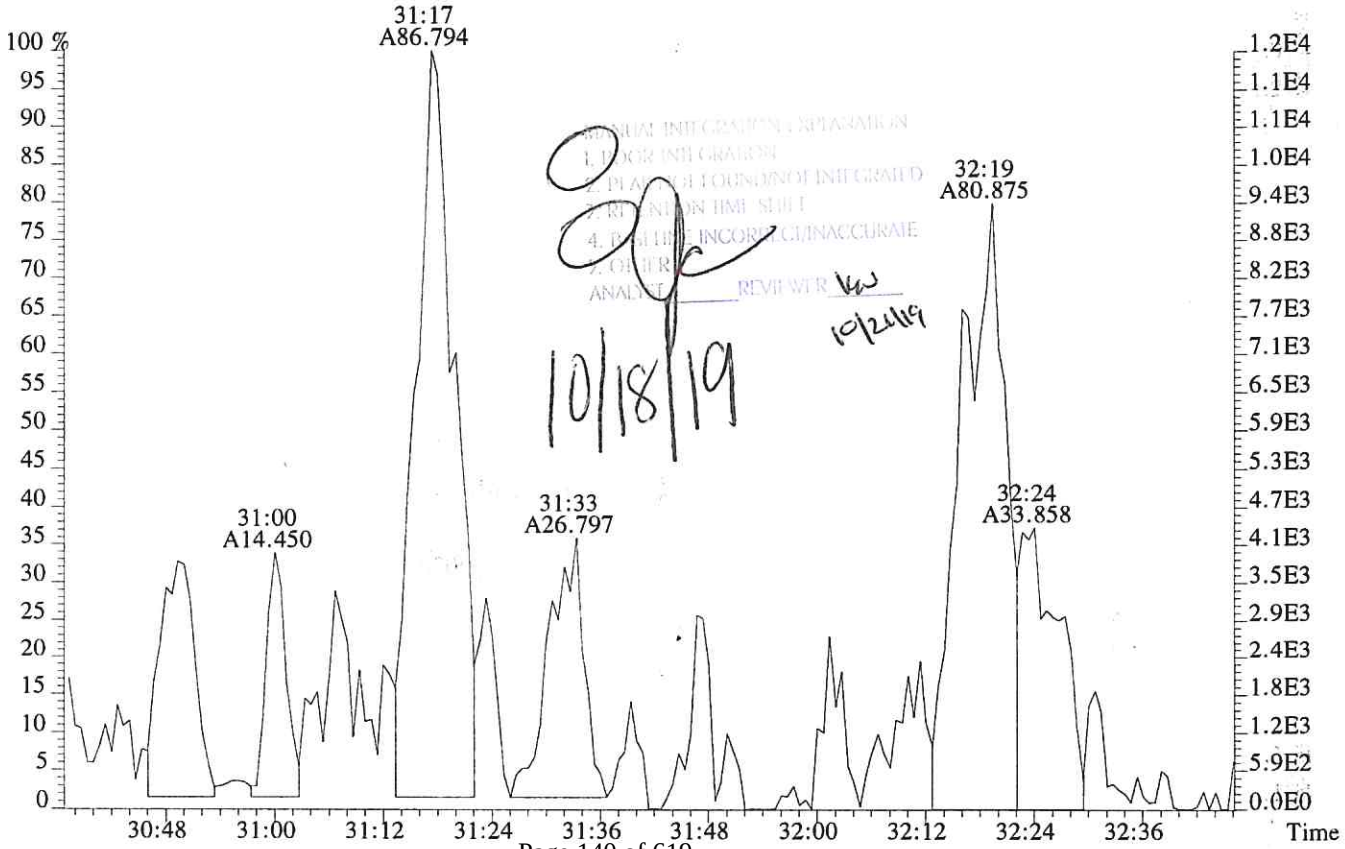


RIGHT SOLUTIONS | RIGHT PARTNER

File:P524773 #1-348 Acq:18-OCT-2019 02:31:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1900728-002DL
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%,632.0,1.00%,F,T)

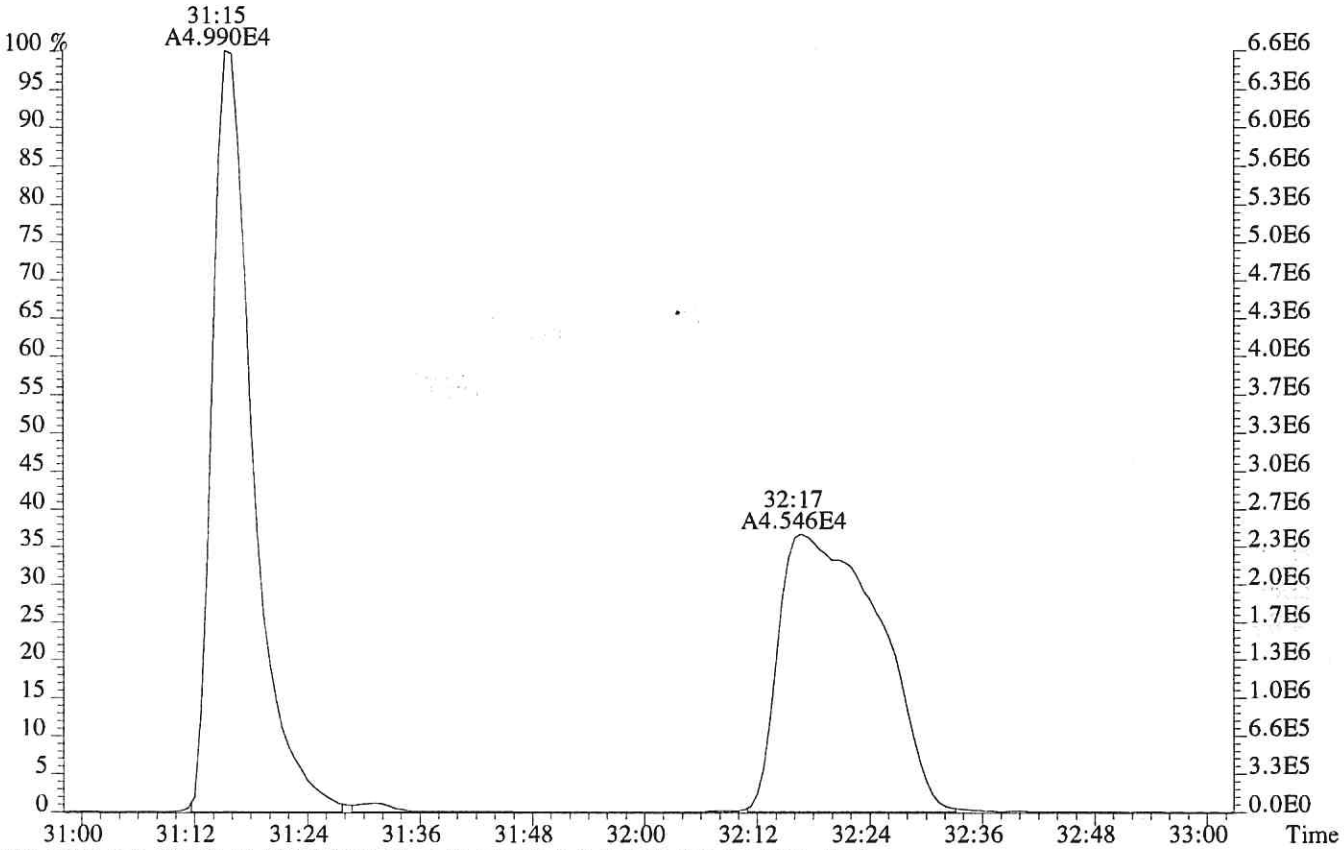


10/18/19

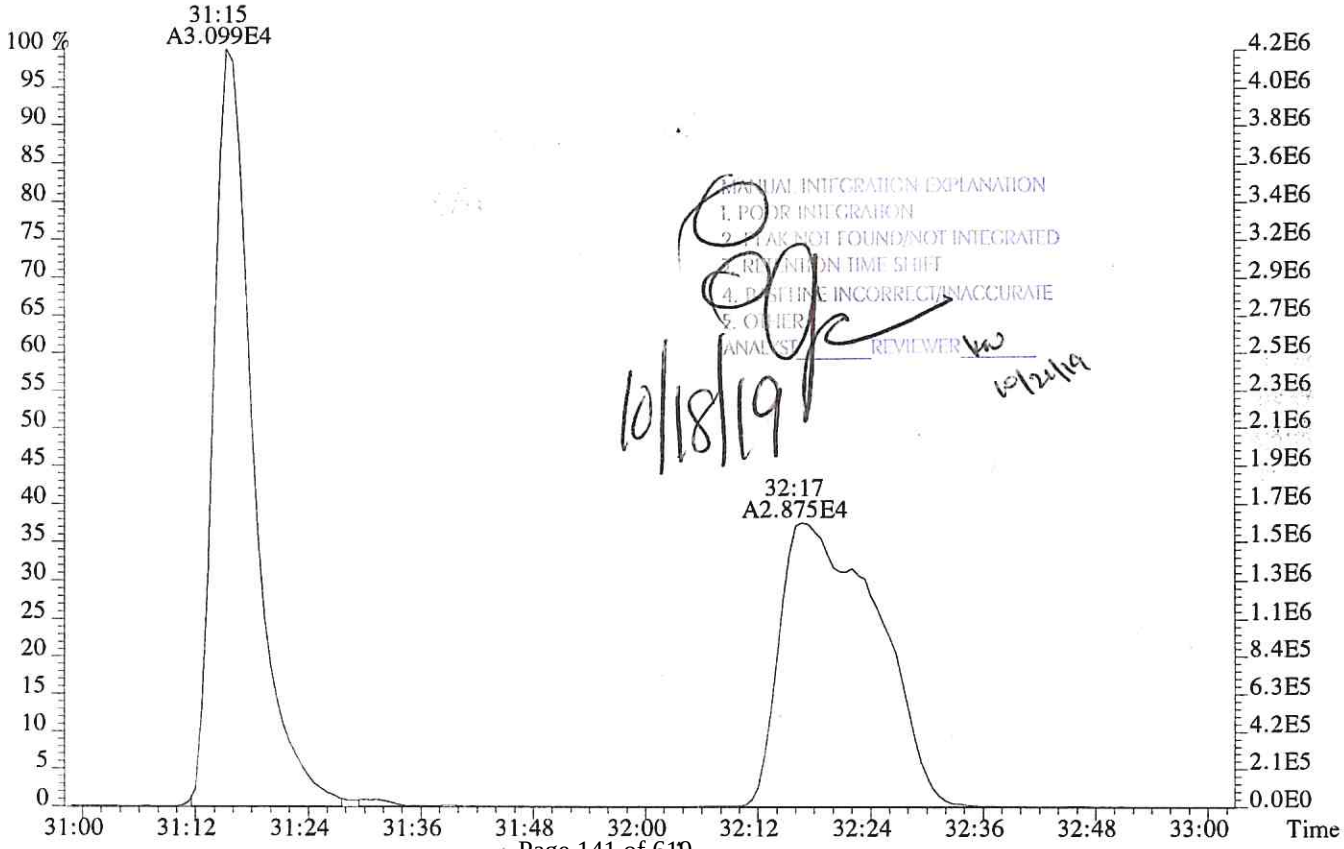
10/24/19

RIGHT SOLUTIONS | RIGHT PARTNER

File:P524773 #1-348 Acq:18-OCT-2019 02:31:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1900728-002DL
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%,456.0,1.00%,F,T)

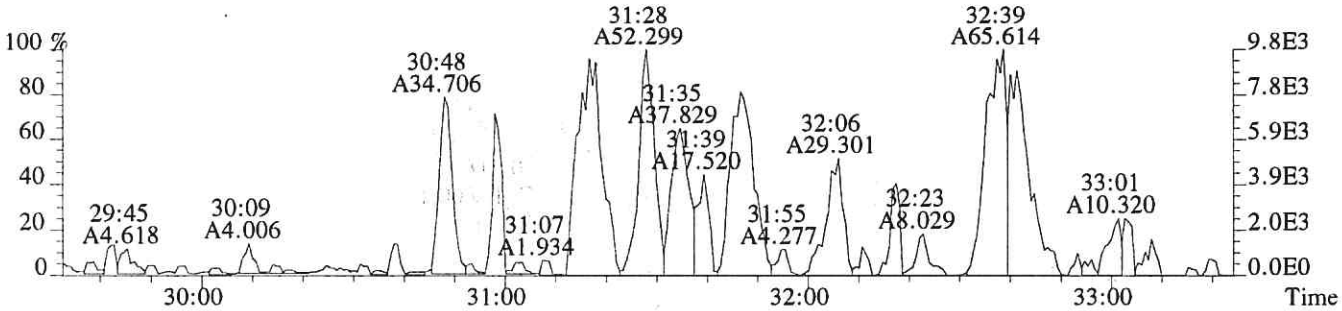


MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST _____ REVIEWER KW

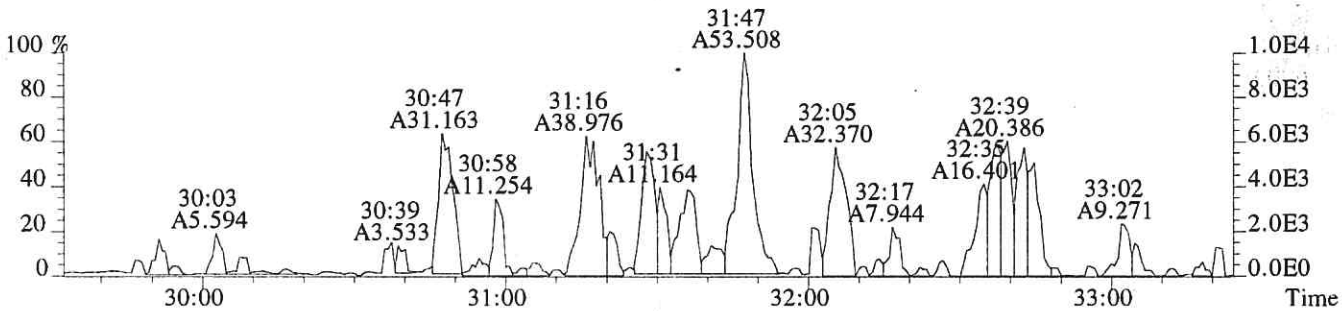
10/18/19 10/21/19

RIGHT SOLUTIONS | RIGHT PARTNER

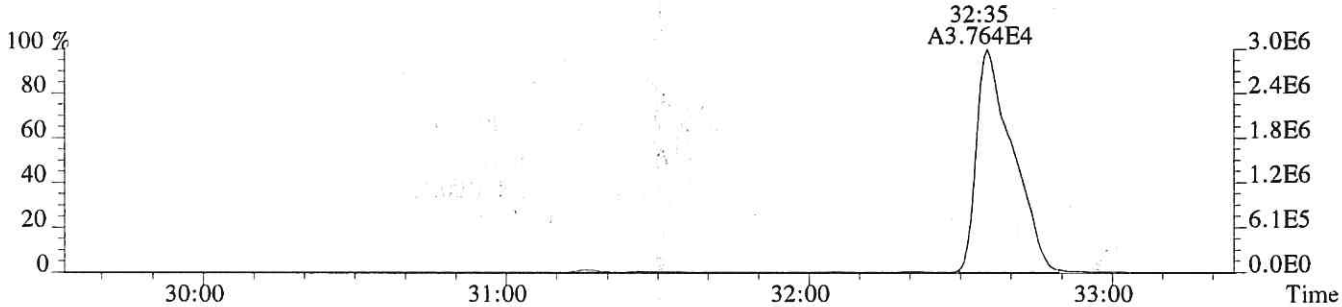
File:P524773 #1-348 Acq:18-OCT-2019 02:31:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1900728-002DL
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,160.0,1.00%,F,T)



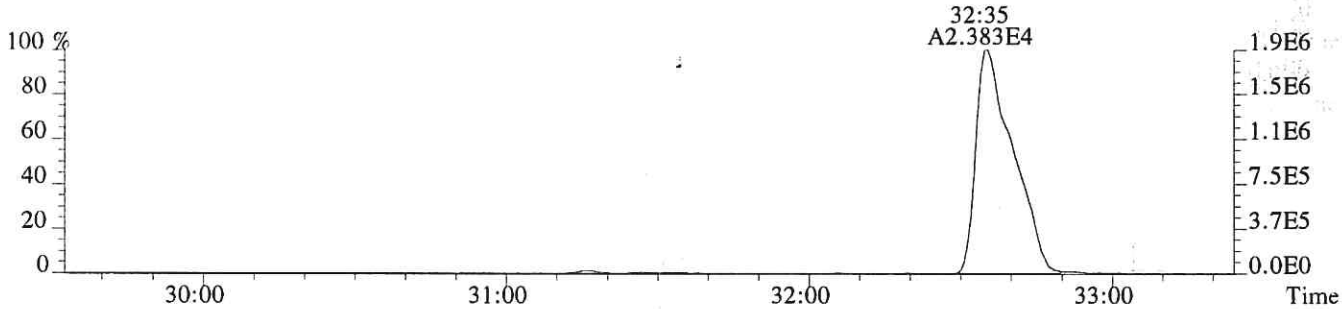
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,200.0,1.00%,F,T)



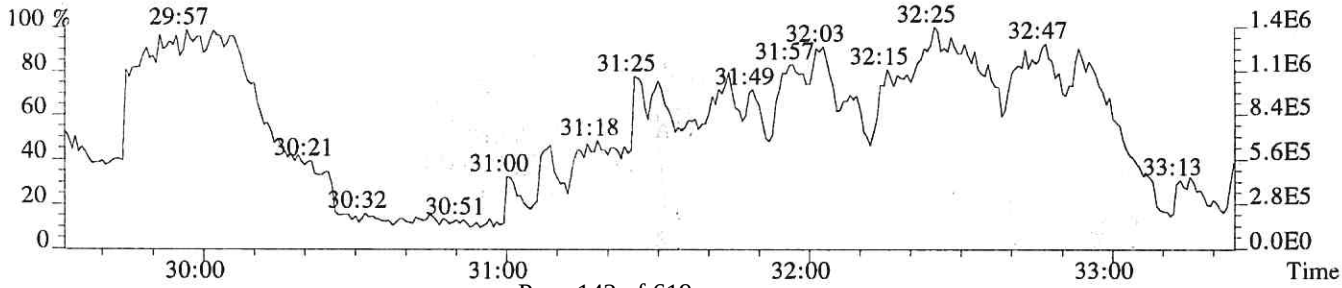
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,444.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,204.0,1.00%,F,T)

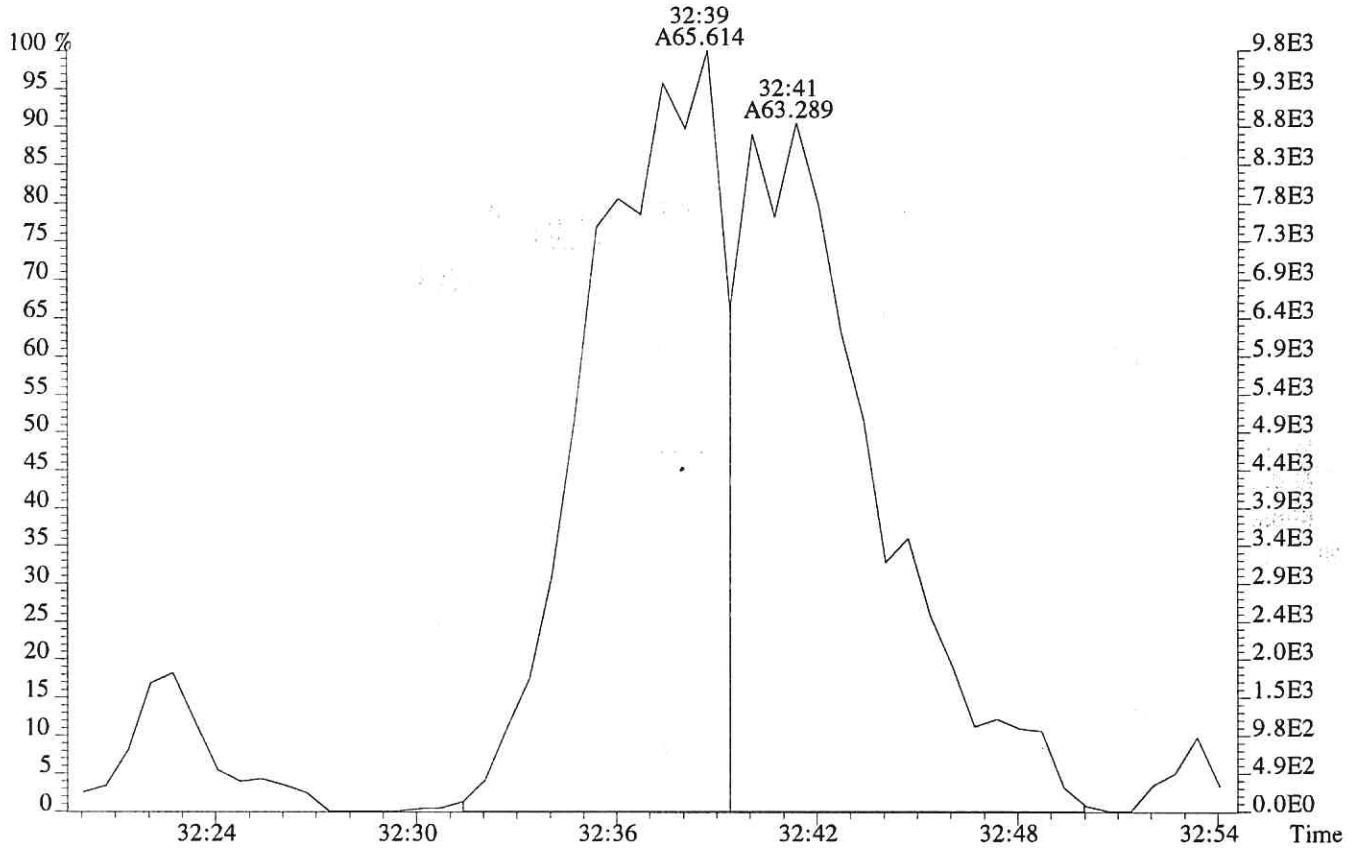


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

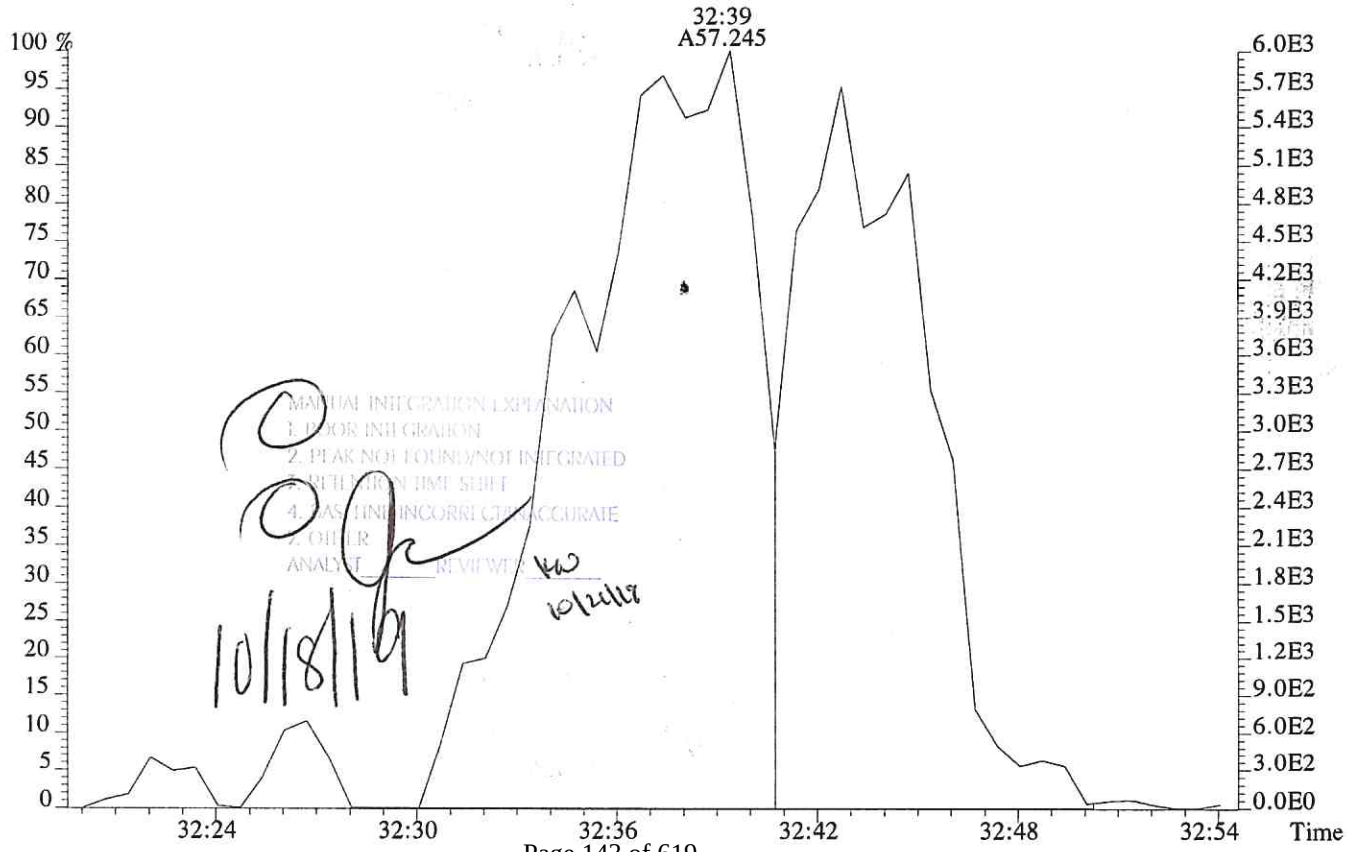


RIGHT SOLUTIONS | RIGHT PARTNER

File:P524773 #1-348 Acq:18-OCT-2019 02:31:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1900728-002DL
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,160.0,1.00%,F,T)

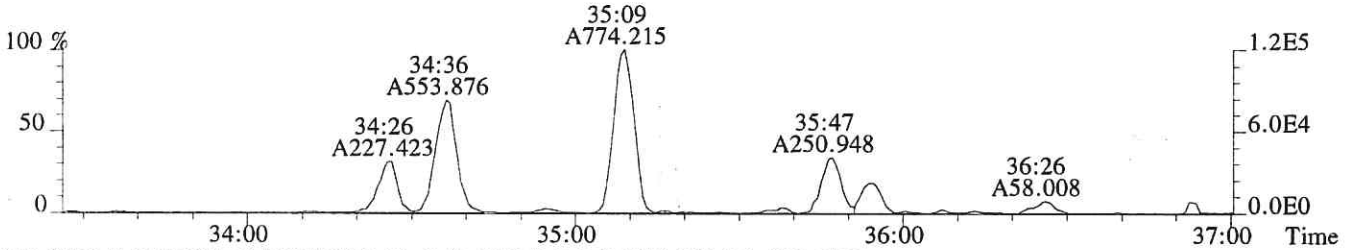


357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,200.0,1.00%,F,T)

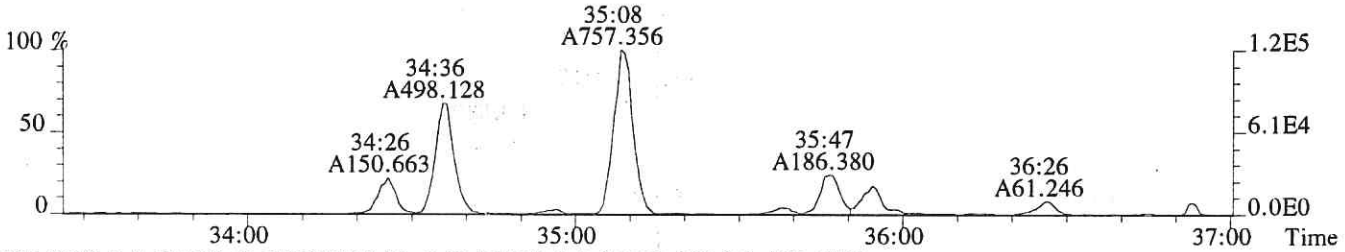


RIGHT SOLUTIONS | RIGHT PARTNER

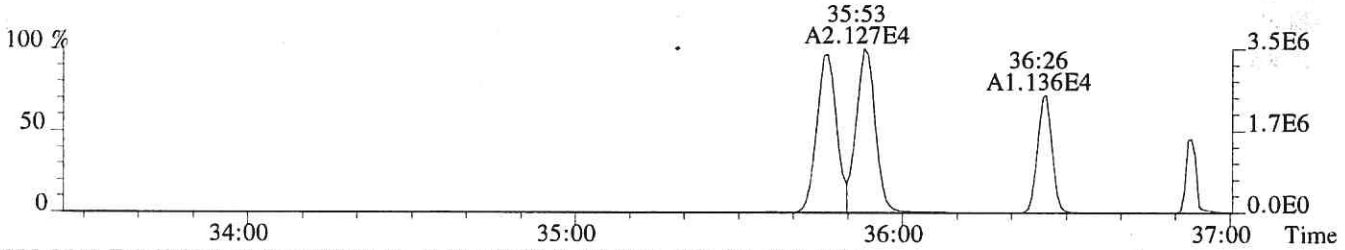
File:P524773 #1-322 Acq:18-OCT-2019 02:31:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1900728-002DL
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,360.0,0.40%,F,T)



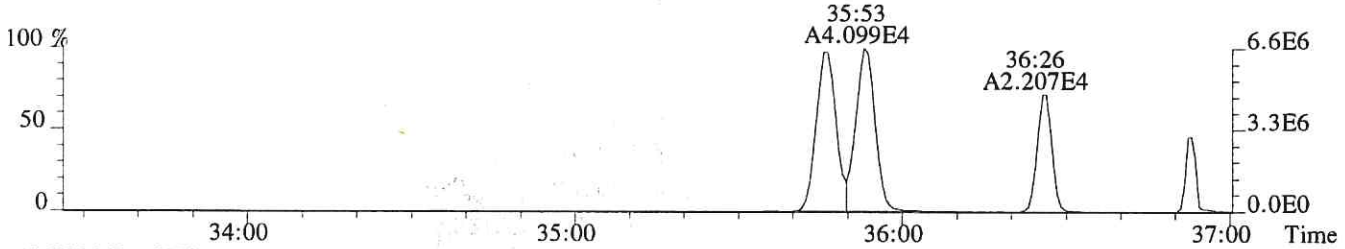
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,240.0,0.40%,F,T)



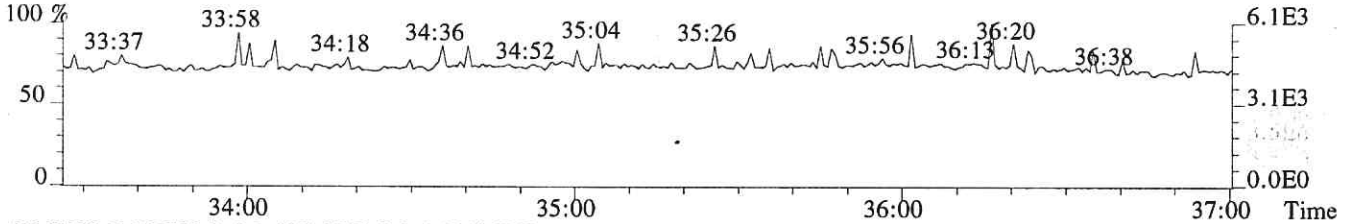
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,292.0,0.40%,F,T)



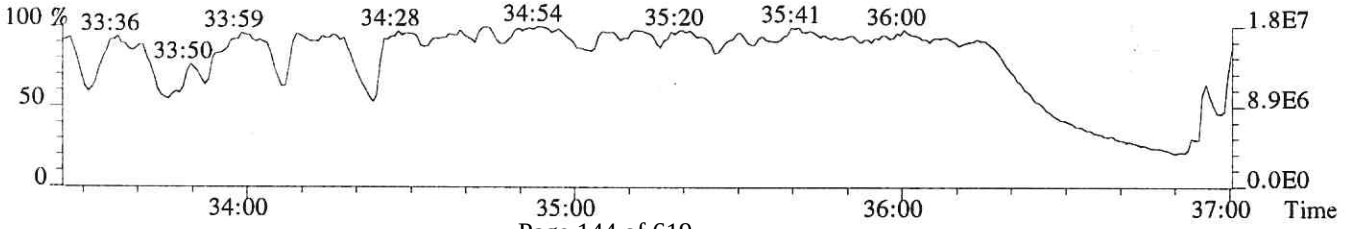
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,232.0,0.40%,F,T)



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

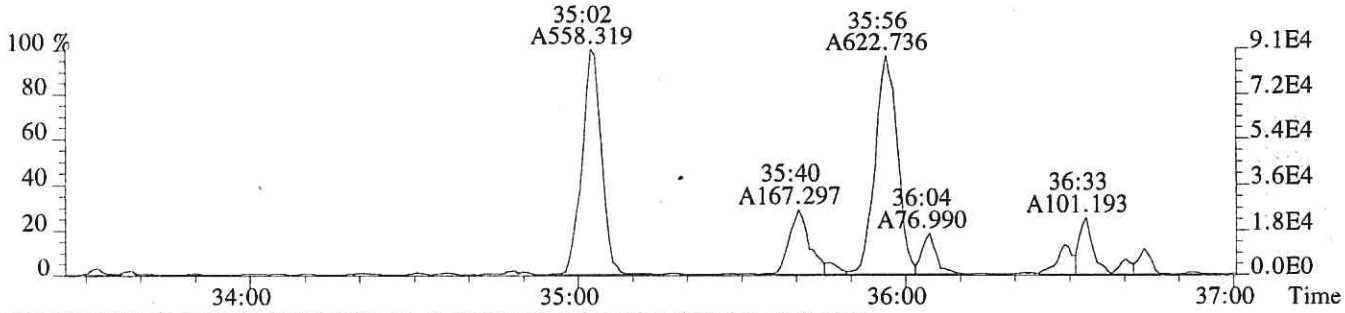


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

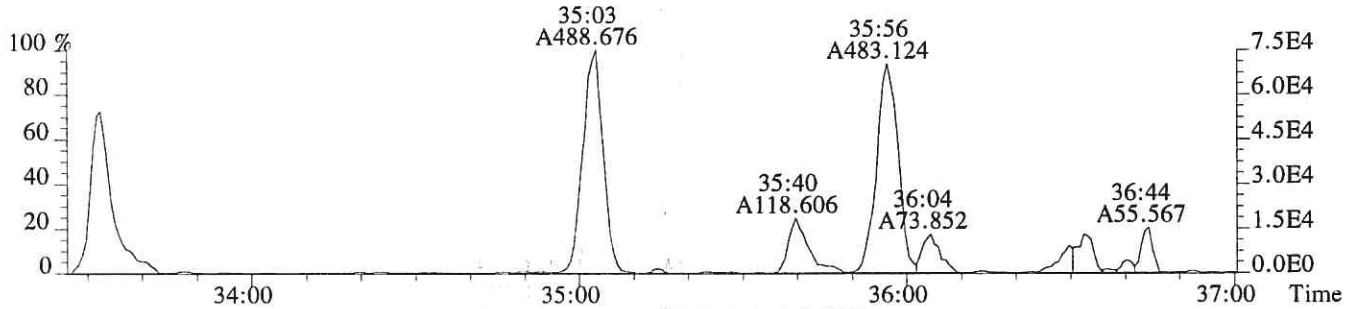


RIGHT SOLUTIONS | RIGHT PARTNER

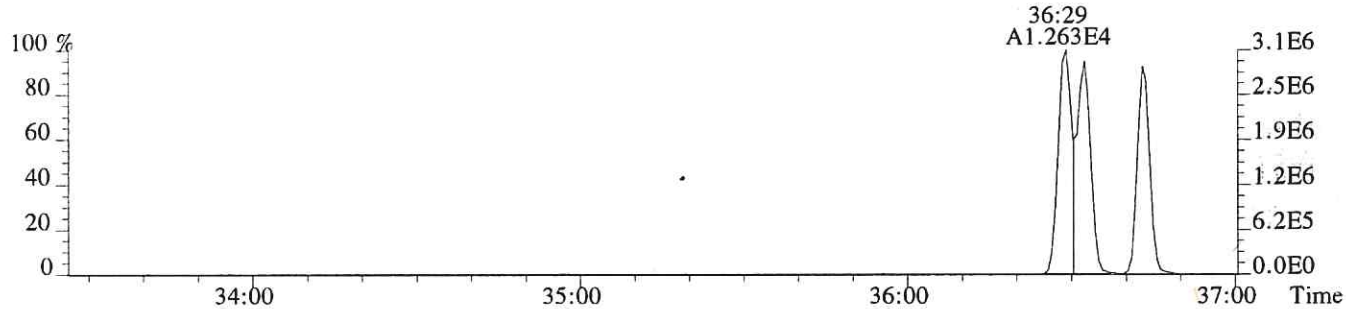
File:P524773 #1-322 Acq:18-OCT-2019 02:31:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1900728-002DL
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,352.0,0.40%,F,T)



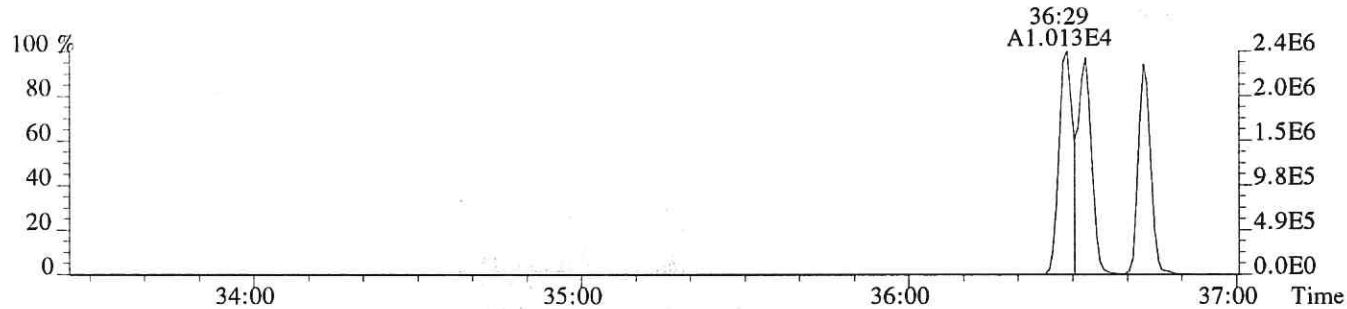
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,132.0,0.40%,F,T)



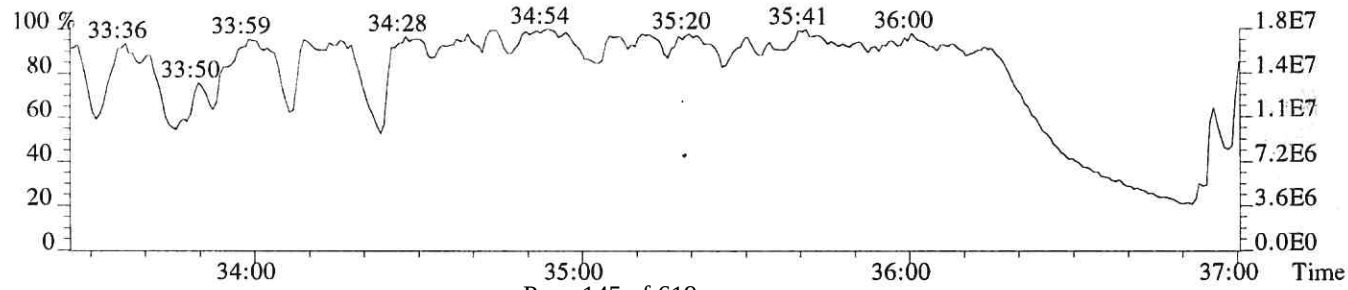
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,968.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,640.0,0.40%,F,T)

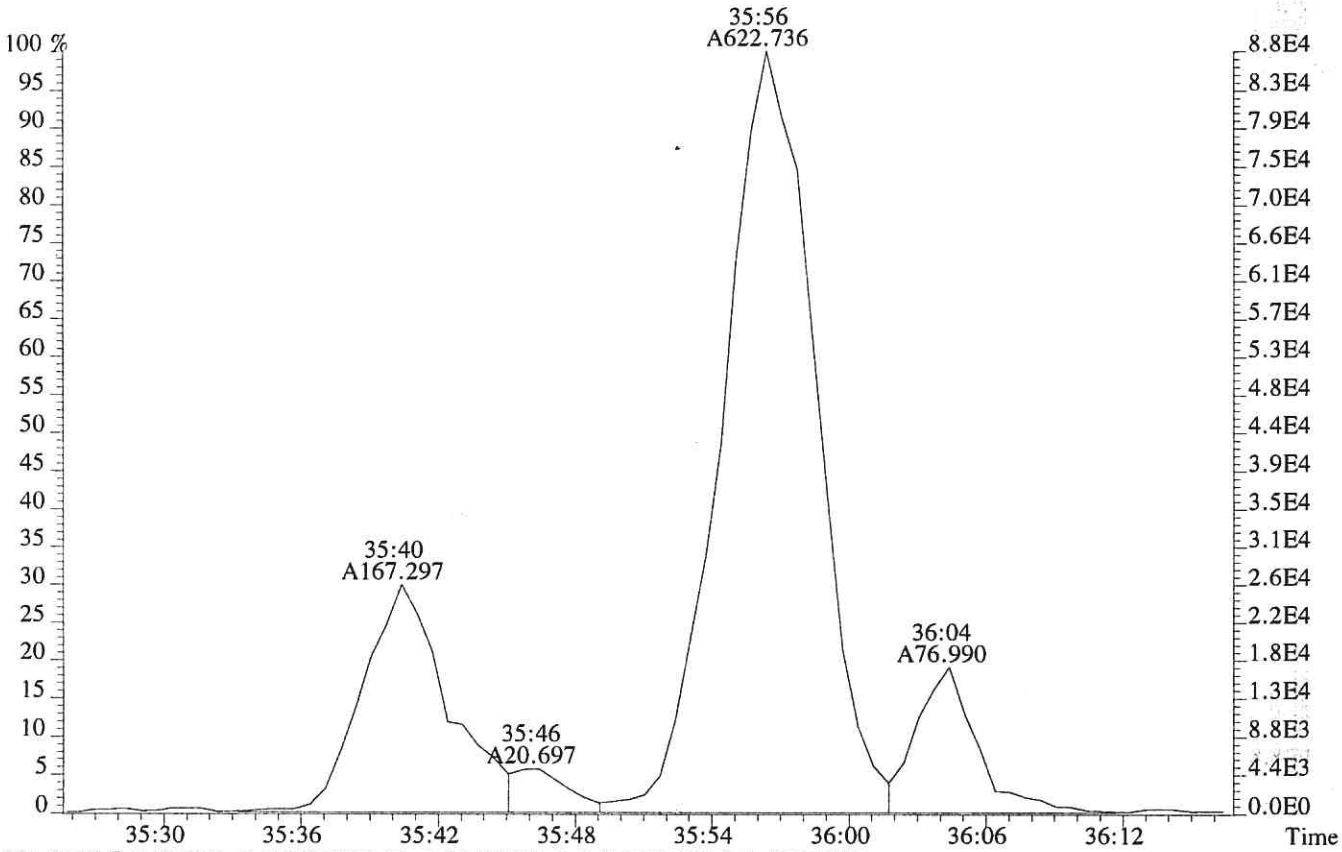


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

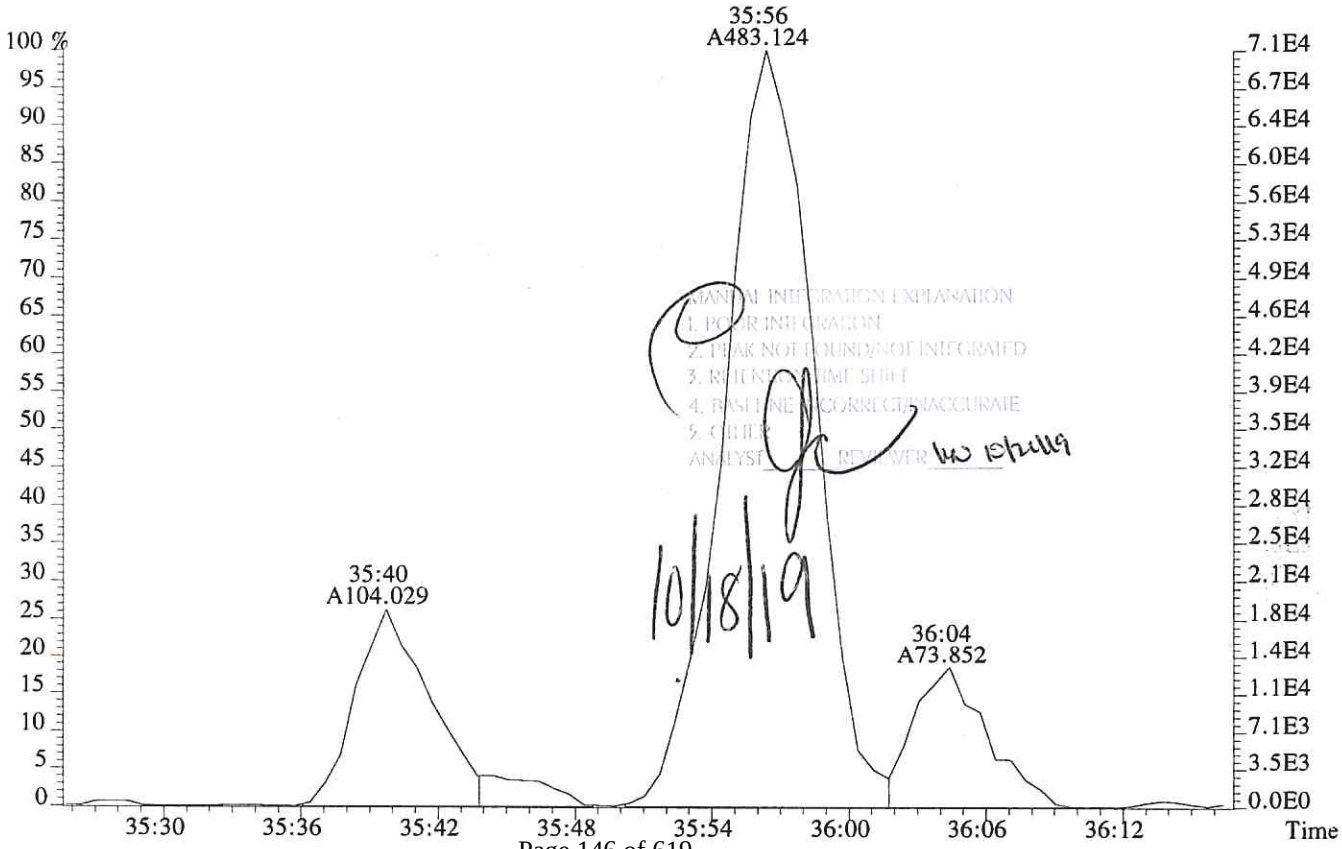


RIGHT SOLUTIONS | RIGHT PARTNER

File:P524773 #1-322 Acq:18-OCT-2019 02:31:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1900728-002DL
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,352.0,0.40%,F,T)



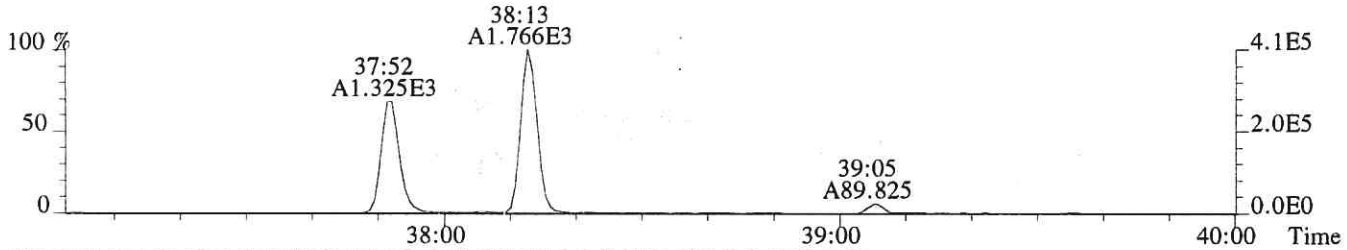
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,432.0,0.40%,F,T)



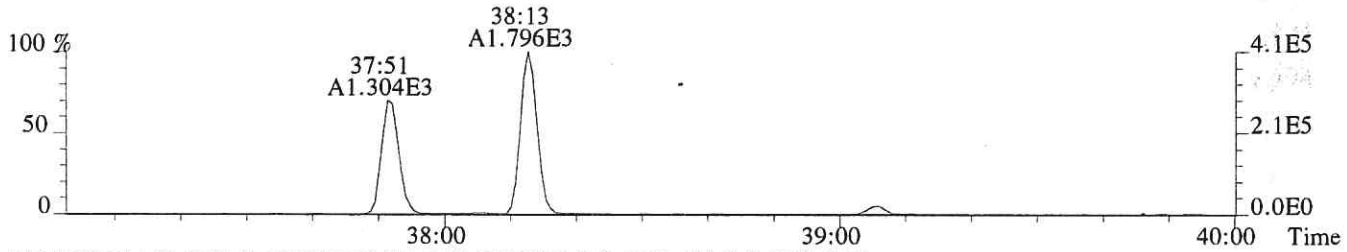
MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST JC REVIEWER MW 10/21/19
10/18/19

RIGHT SOLUTIONS | RIGHT PARTNER

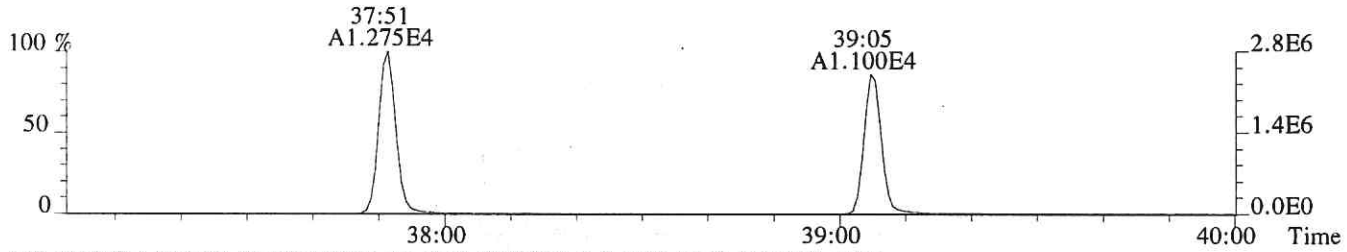
File:P524773 #1-267 Acq:18-OCT-2019 02:31:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1900728-002DL
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,484.0,0.50%,F,T)



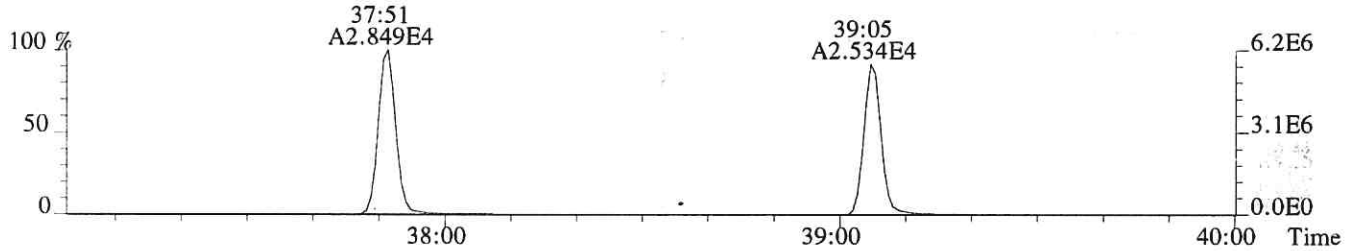
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,620.0,0.50%,F,T)



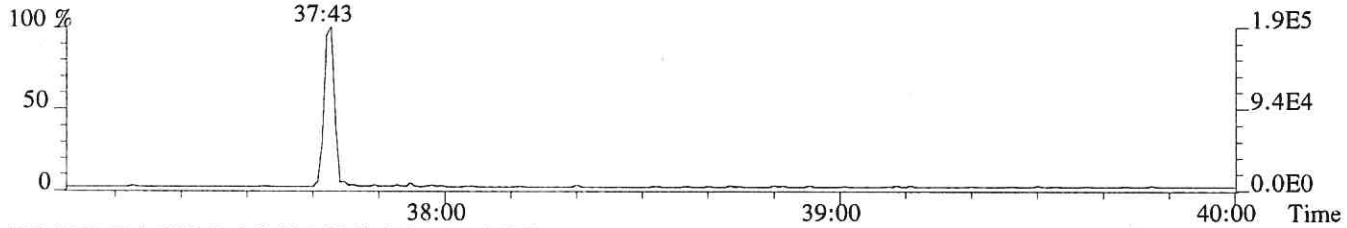
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,484.0,0.50%,F,T)



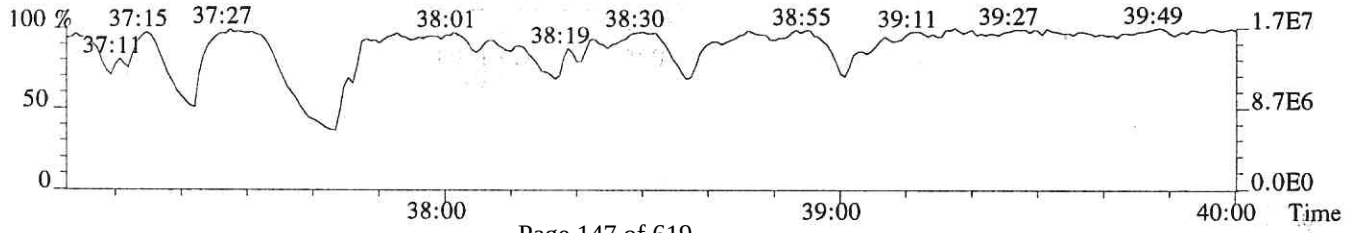
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2660.0,0.50%,F,T)



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

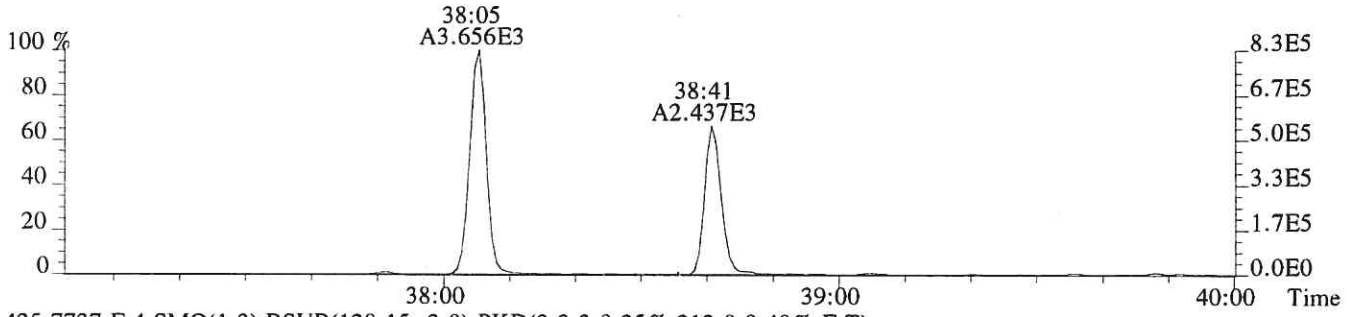


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

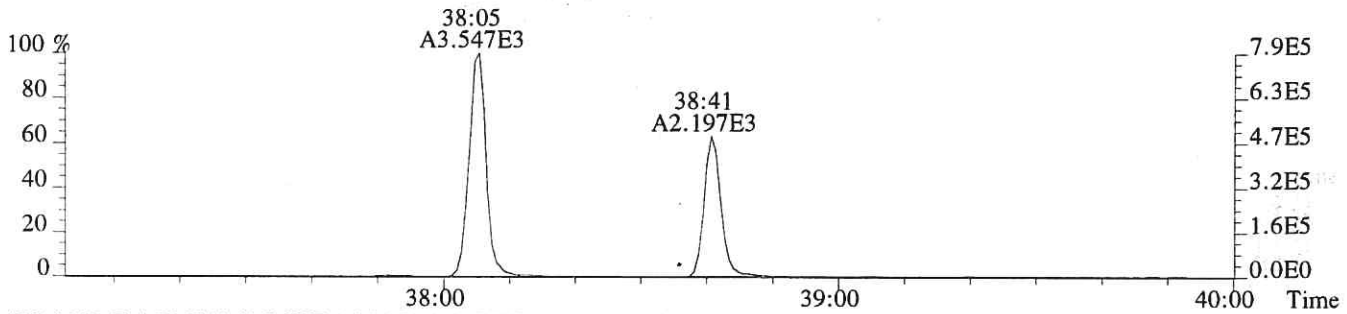


RIGHT SOLUTIONS | RIGHT PARTNER

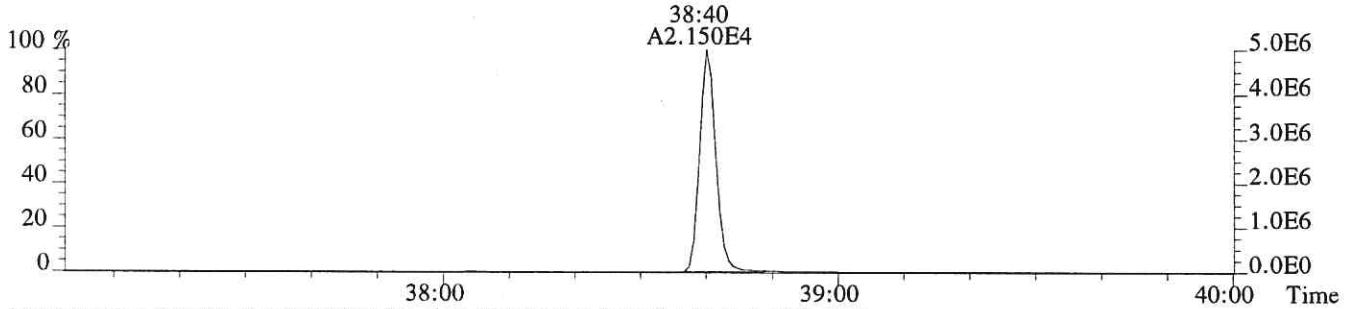
File:P524773 #1-267 Acq:18-OCT-2019 02:31:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1900728-002DL
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,564.0,0.40%,F,T)



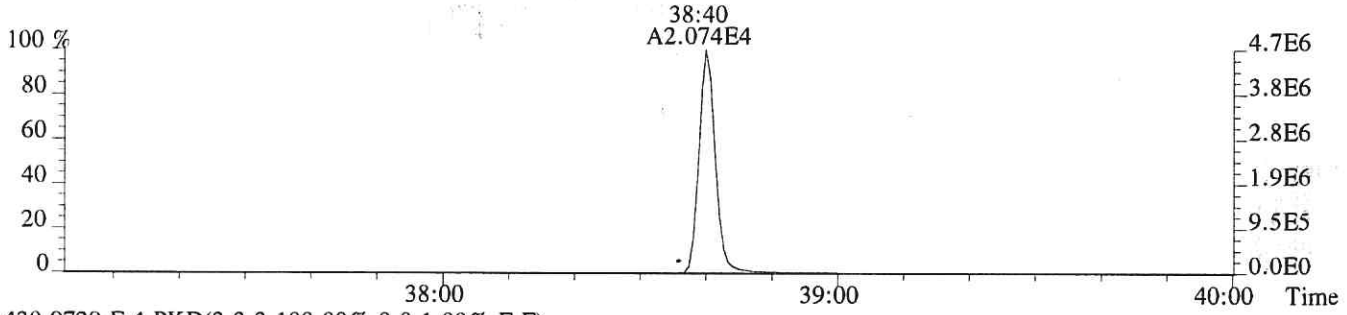
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,212.0,0.40%,F,T)



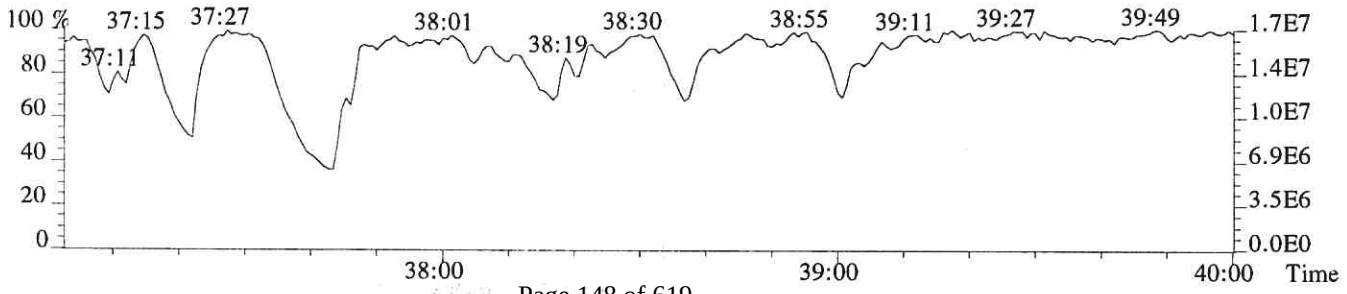
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,460.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,156.0,0.40%,F,T)

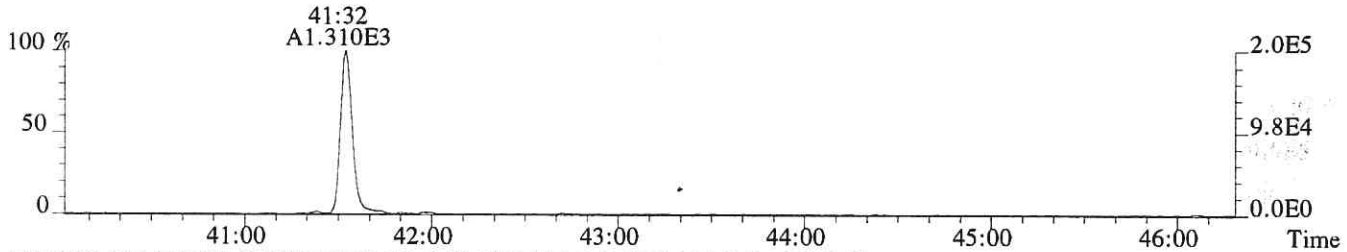


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

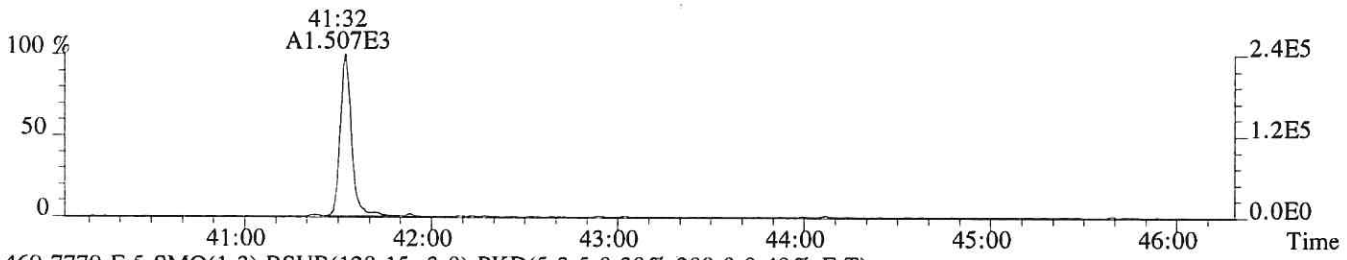


RIGHT SOLUTIONS | RIGHT PARTNER

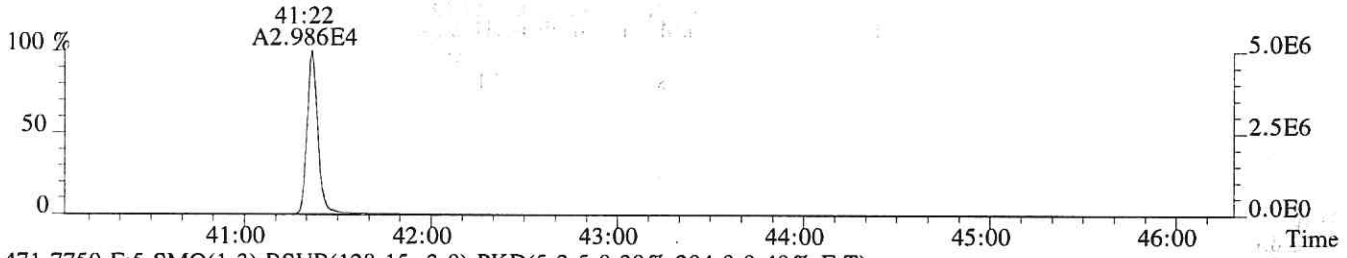
File:P524773 #1-565 Acq:18-OCT-2019 02:31:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1900728-002DL
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,260.0,0.40%,F,T)



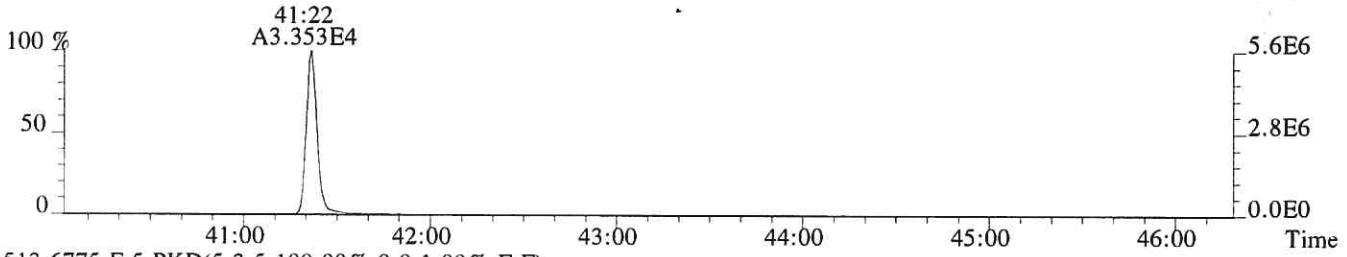
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,340.0,0.40%,F,T)



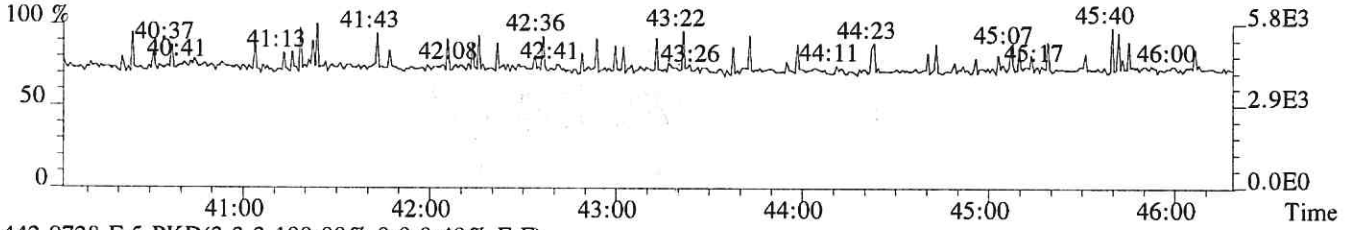
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,208.0,0.40%,F,T)



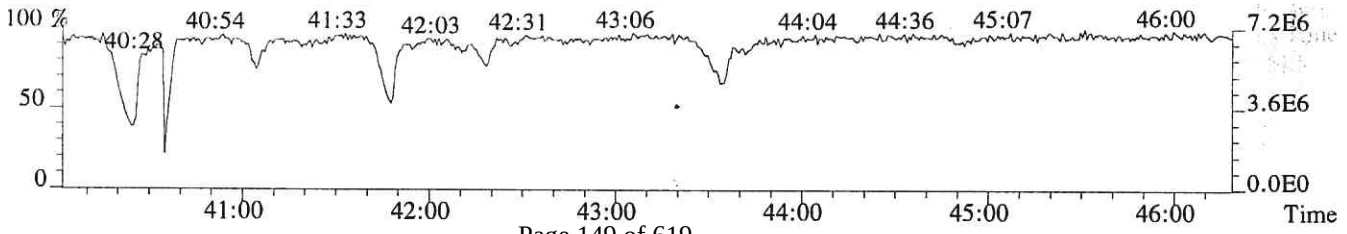
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,204.0,0.40%,F,T)



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

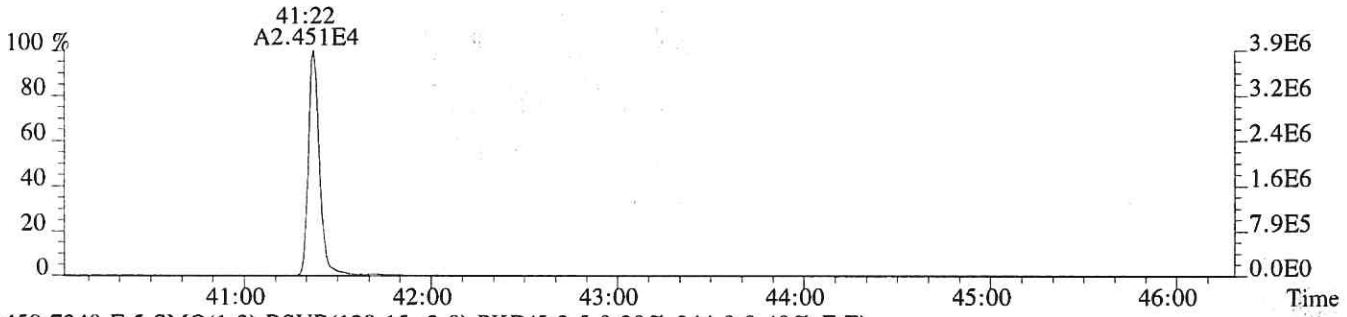


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

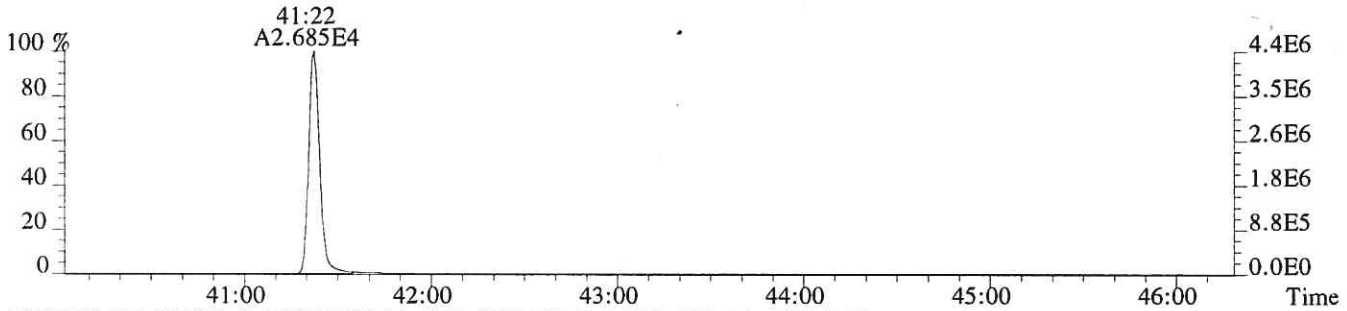


RIGHT SOLUTIONS | RIGHT PARTNER

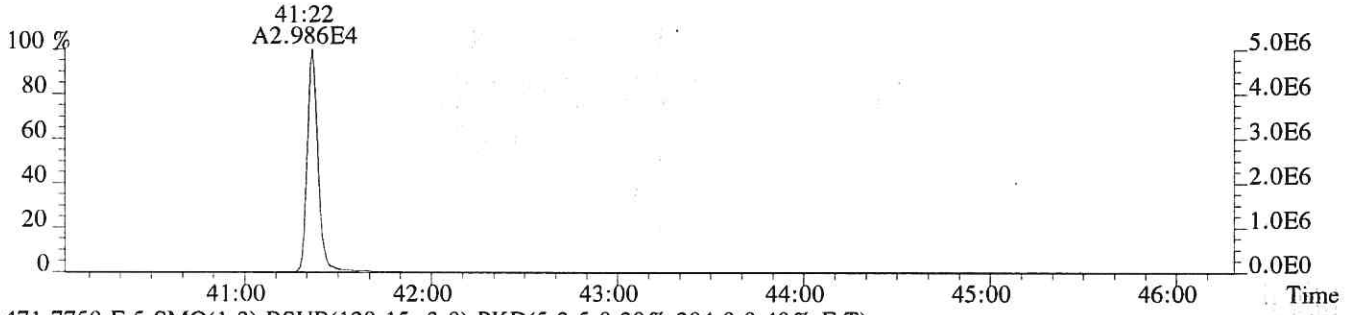
File:P524773 #1-565 Acq:18-OCT-2019 02:31:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1900728-002DL
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,184.0,0.40%,F,T)



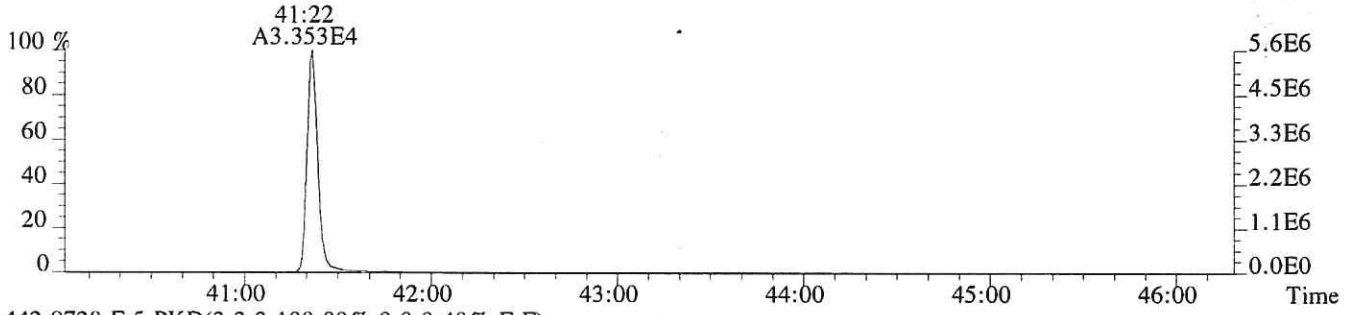
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,344.0,0.40%,F,T)



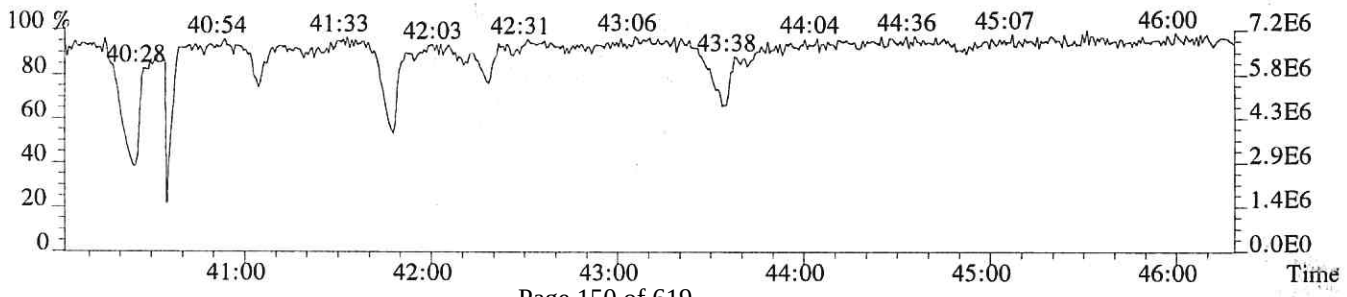
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,208.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,204.0,0.40%,F,T)



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



RIGHT SOLUTIONS | RIGHT PARTNER

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
AC-4SC2-20191

Run #12 Filename P524774 Samp: 1 Inj: 1 Acquired: 18-OCT-19 03:20:13
Processed: 18-OCT-19 14:52:34 Sample ID: E1900728-003DL

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.962
2	Unk	1,2,3,7,8-PeCDF	31:19	5.311e+01	5.417e+01	0.98	no	no	0.968
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	yes	0.919
4	Unk	1,2,3,4,7,8-HxCDF	35:50	3.292e+02	2.591e+02	1.27	yes	no	1.161
5	Unk	1,2,3,6,7,8-HxCDF	35:57	1.989e+02	1.492e+02	1.33	yes	no	1.073
6	Unk	2,3,4,6,7,8-HxCDF	36:28	8.447e+01	8.081e+01	1.05	no	no	1.069
7	Unk	1,2,3,7,8,9-HxCDF	36:54	1.598e+01	1.622e+01	0.99	no	no	1.096
8	Unk	1,2,3,4,6,7,8-HpCDF	37:53	2.324e+03	2.346e+03	0.99	yes	no	1.281
9	Unk	1,2,3,4,7,8,9-HpCDF	39:06	1.076e+02	8.178e+01	1.32	no	no	1.192
10	Unk	OCDF	41:34	1.180e+03	1.404e+03	0.84	yes	no	1.204
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	yes	1.077
12	Unk	1,2,3,7,8-PeCDD	32:41	1.504e+02	7.634e+01	1.97	no	yes	0.971
13	Unk	1,2,3,4,7,8-HxCDD	36:28	1.316e+01	4.959e+00	2.65	no	no	1.024
14	Unk	1,2,3,6,7,8-HxCDD	36:35	1.719e+02	1.001e+02	1.72	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:45	6.788e+01	3.009e+01	2.26	no	no	1.055
16	Unk	1,2,3,4,6,7,8-HpCDD	38:41	2.641e+03	2.441e+03	1.08	yes	no	0.989
17	Unk	OCDD	41:24	4.236e+04	4.714e+04	0.90	yes	no	1.094
18	IS	13C-2,3,7,8-TCDF	26:45	3.489e+04	4.405e+04	0.79	yes	no	1.287
19	IS	13C-1,2,3,7,8-PeCDF	31:18	5.377e+04	3.389e+04	1.59	yes	no	1.416
20	IS	13C-2,3,4,7,8-PeCDF	32:19	5.109e+04	3.265e+04	1.56	yes	yes	1.374
21	IS	13C-1,2,3,4,7,8-HxCDF	35:49	2.373e+04	4.513e+04	0.53	yes	no	1.114
22	IS	13C-1,2,3,6,7,8-HxCDF	35:56	2.421e+04	4.654e+04	0.52	yes	no	1.245
23	IS	13C-2,3,4,6,7,8-HxCDF	36:28	1.129e+04	2.226e+04	0.51	yes	no	1.146
24	IS	13C-1,2,3,7,8,9-HxCDF	36:54	5.684e+03	1.051e+04	0.54	yes	no	0.986
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:52	1.435e+04	3.261e+04	0.44	yes	no	0.915
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:05	1.280e+04	2.935e+04	0.44	yes	no	0.746
27	IS	13C-2,3,7,8-TCDD	27:41	2.524e+04	3.234e+04	0.78	yes	no	0.929
28	IS	13C-1,2,3,7,8-PeCDD	32:37	4.201e+04	2.601e+04	1.62	yes	no	1.017
29	IS	13C-1,2,3,4,7,8-HxCDD	36:30	1.402e+04	1.095e+04	1.28	yes	no	0.945
30	IS	13C-1,2,3,6,7,8-HxCDD	36:34	1.280e+04	9.888e+03	1.29	yes	no	0.924
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:41	2.482e+04	2.332e+04	1.06	yes	no	0.876
32	IS	13C-OCDD	41:23	3.575e+04	3.939e+04	0.91	yes	no	0.662
33	RS/RT	13C-1,2,3,4-TCDD	26:44	3.411e+04	4.203e+04	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:45	1.243e+04	9.706e+03	1.28	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:43	8.925e+03				no	1.010

$$\text{OCDD} = \frac{(4.236e+04 + 4.714e+04) \times 4000 \text{ pg} \times 5}{(3.575e+04 + 3.939e+04) \times 10.754\text{g} \times 74.0/100 \times 1.094} = 2736 \text{ ng/kg}$$

LLA 10/21/19

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RIGHT SOLUTIONS | RIGHT PARTNER

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
AC-4SC2-20191009

Run #12 Filename P524774 Samp: 1 Inj: 1 Acquired: 18-OCT-19 03:20:13
Processed: 18-OCT-19 14:52:34 LAB. ID: E1900728-003DL

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	1.00e+03	*	*	3.42e+03	*
2	1,2,3,7,8-PeCDF	8.81e+03	3.04e+02	2.9e+01	8.05e+03	1.12e+03	7.2e+00
3	2,3,4,7,8-PeCDF	*	3.04e+02	*	*	1.12e+03	*
4	1,2,3,4,7,8-HxCDF	5.60e+04	2.88e+02	1.9e+02	3.96e+04	2.92e+02	1.4e+02
5	1,2,3,6,7,8-HxCDF	3.16e+04	2.88e+02	1.1e+02	2.29e+04	2.92e+02	7.8e+01
6	2,3,4,6,7,8-HxCDF	1.21e+04	2.88e+02	4.2e+01	1.35e+04	2.92e+02	4.6e+01
7	1,2,3,7,8,9-HxCDF	5.03e+03	2.88e+02	1.7e+01	5.38e+03	2.92e+02	1.8e+01
8	1,2,3,4,6,7,8-HpCDF	5.19e+05	8.60e+02	6.0e+02	5.30e+05	2.43e+03	2.2e+02
9	1,2,3,4,7,8,9-HpCDF	2.66e+04	8.60e+02	3.1e+01	1.81e+04	2.43e+03	7.5e+00
10	OCDF	1.94e+05	4.28e+02	4.5e+02	2.18e+05	4.84e+02	4.5e+02
11	2,3,7,8-TCDD	*	1.29e+03	*	*	1.81e+03	*
12	1,2,3,7,8-PeCDD	1.25e+04	7.24e+02	1.7e+01	5.03e+03	2.12e+02	2.4e+01
13	1,2,3,4,7,8-HxCDD	4.41e+03	1.84e+02	2.4e+01	1.32e+03	2.28e+02	5.8e+00
14	1,2,3,6,7,8-HxCDD	2.97e+04	1.84e+02	1.6e+02	2.30e+04	2.28e+02	1.0e+02
15	1,2,3,7,8,9-HxCDD	1.88e+04	1.84e+02	1.0e+02	8.08e+03	2.28e+02	3.5e+01
16	1,2,3,4,6,7,8-HpCDD	5.73e+05	9.12e+02	6.3e+02	5.45e+05	5.32e+02	1.0e+03
17	OCDD	6.39e+06	4.16e+02	1.5e+04	7.15e+06	4.08e+02	1.8e+04
18	13C-2,3,7,8-TCDF	2.63e+06	4.45e+03	5.9e+02	3.37e+06	3.61e+03	9.3e+02
19	13C-1,2,3,7,8-PeCDF	7.53e+06	9.20e+02	8.2e+03	4.74e+06	9.08e+02	5.2e+03
20	13C-2,3,4,7,8-PeCDF	2.80e+06	9.20e+02	3.0e+03	1.78e+06	9.08e+02	2.0e+03
21	13C-1,2,3,4,7,8-HxCDF	3.93e+06	2.80e+02	1.4e+04	7.44e+06	7.72e+02	9.6e+03
22	13C-1,2,3,6,7,8-HxCDF	3.86e+06	2.80e+02	1.4e+04	7.53e+06	7.72e+02	9.8e+03
23	13C-2,3,4,6,7,8-HxCDF	2.50e+06	2.80e+02	8.9e+03	4.99e+06	7.72e+02	6.5e+03
24	13C-1,2,3,7,8,9-HxCDF	1.74e+06	2.80e+02	6.2e+03	3.23e+06	7.72e+02	4.2e+03
25	13C-1,2,3,4,6,7,8-HpCDF	3.22e+06	1.04e+03	3.1e+03	7.34e+06	1.08e+03	6.8e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.87e+06	1.04e+03	2.7e+03	6.63e+06	1.08e+03	6.1e+03
27	13C-2,3,7,8-TCDD	2.74e+06	5.44e+03	5.0e+02	3.60e+06	1.63e+03	2.2e+03
28	13C-1,2,3,7,8-PeCDD	3.25e+06	4.08e+02	8.0e+03	2.01e+06	1.72e+02	1.2e+04
29	13C-1,2,3,4,7,8-HxCDD	3.24e+06	7.40e+02	4.4e+03	2.51e+06	3.96e+02	6.3e+03
30	13C-1,2,3,6,7,8-HxCDD	3.08e+06	7.40e+02	4.2e+03	2.42e+06	3.96e+02	6.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	5.54e+06	5.72e+02	9.7e+03	5.29e+06	2.48e+02	2.1e+04
32	13C-OCDD	5.64e+06	1.52e+02	3.7e+04	6.18e+06	1.32e+02	4.7e+04
33	13C-1,2,3,4-TCDD	1.67e+06	5.44e+03	3.1e+02	2.07e+06	1.63e+03	1.3e+03
34	13C-1,2,3,7,8,9-HxCDD	3.19e+06	7.40e+02	4.3e+03	2.44e+06	3.96e+02	6.2e+03
35	37Cl-2,3,7,8-TCDD	9.55e+05	3.00e+03	3.2e+02			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

AC-4SC2-20191009

Entry: 36 Totals Name: Total Tetra-Furans

Run: 12 File: P524774 Sample:1 Injection:1 Function:1

Acquired: 18-OCT-19 03:20:13 Processed: 18-OCT-19 14:52:34

Mass: 303.9020 305.8990 Tot Response: 3.63e+01 RRF: 0.9623

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	23:29	1.50e+01	2.13e+01	0.71	yes	3.63e+01	n	n

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RIGHT SOLUTIONS | RIGHT PARTNER

ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

AC-4SC2-20191009

Entry: 38 Totals Name: Total Penta-Furans1

Run: 12 File: P524774 Sample:1 Injection:1 Function:1

Acquired: 18-OCT-19 03:20:13 Processed: 18-OCT-19 14:52:34

Mass: 339.8600 341.8570 Tot Response: 6.81e+02 RRF: 0.9438

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:09	4.32e+02	2.49e+02	1.73	yes	6.81e+02	n	n

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RIGHT SOLUTIONS | RIGHT PARTNER

ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

AC-4SC2-20191009

Entry: 39 Totals Name: Total Penta-Furans2

Run: 12 File: P524774 Sample:1 Injection:1 Function:2

Acquired: 18-OCT-19 03:20:13 Processed: 18-OCT-19 14:52:34

Mass: 339.8600 341.8570 Tot Response: 7.86e+01 RRF: 0.9438

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:53	4.76e+01	3.10e+01	1.54	yes	7.86e+01	n	n

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RIGHT SOLUTIONS | RIGHT PARTNER

ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
AC-4SC2-20191009

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 12 File: P524774 Sample:1 Injection:1 Function:2

Acquired: 18-OCT-19 03:20:13 Processed: 18-OCT-19 14:52:34

Mass: 355.8550 357.8520 Tot Response: 2.66e+02 RRF: 0.9712

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:53	4.54e+01	2.76e+01	1.64	yes	7.30e+01	n	n
2	31:19	8.19e+01	4.63e+01	1.77	yes	1.28e+02	n	n
3	31:36	3.75e+01	2.77e+01	1.35	yes	6.52e+01	n	n

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

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Peak List Summary

CLIENT ID.

AC-4SC2-20191009

Entry: 41 Totals Name: Total Hexa-Furans

Run: 12 File: P524774 Sample:1 Injection:1 Function:3

Acquired: 18-OCT-19 03:20:13 Processed: 18-OCT-19 14:52:34

Mass: 373.8210 375.8180 Tot Response: 4.94e+03 RRF: 1.099

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:28	3.95e+02	3.20e+02	1.23	yes	7.14e+02		n	n
2	34:40	8.57e+02	7.94e+02	1.08	yes	1.65e+03		n	n
3	35:12	8.52e+02	6.90e+02	1.24	yes	1.54e+03		n	n
4	35:40	5.17e+01	4.18e+01	1.24	yes	9.35e+01		n	n
5	35:50	3.29e+02	2.59e+02	1.27	yes	5.88e+02	1,2,3,4,7,8-HxCDF	n	n
6	35:57	1.99e+02	1.49e+02	1.33	yes	3.48e+02	1,2,3,6,7,8-HxCDF	n	n

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Peak List Summary

CLIENT ID.

AC-4SC2-20191009

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 12 File: P524774 Sample:1 Injection:1 Function:3

Acquired: 18-OCT-19 03:20:13 Processed: 18-OCT-19 14:52:34

Mass: 389.8160 391.8130 Tot Response: 4.66e+03 RRF: 1.039

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:06	9.54e+02	7.57e+02	1.26	yes	1.71e+03	n	n
2	35:44	1.73e+02	1.46e+02	1.18	yes	3.19e+02	n	n
3	35:59	1.36e+03	1.12e+03	1.21	yes	2.48e+03	n	n
4	36:07	8.65e+01	6.80e+01	1.27	yes	1.55e+02	n	n

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Peak List Summary

CLIENT ID.

AC-4SC2-20191009

Entry: 43 Totals Name: Total Hepta-Furans

Run: 12 File: P524774 Sample:1 Injection:1 Function:4

Acquired: 18-OCT-19 03:20:13 Processed: 18-OCT-19 14:52:34

Mass: 407.7820 409.7790 Tot Response: 8.34e+03 RRF: 1.241

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:53	2.32e+03	2.35e+03	0.99	yes	4.67e+03	1,2,3,4,6,7,8-HpCDF	n	n
2	38:14	1.87e+03	1.79e+03	1.04	yes	3.67e+03		n	n

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Peak List Summary

CLIENT ID.

AC-4SC2-20191009

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 12 File: P524774 Sample:1 Injection:1 Function:4

Acquired: 18-OCT-19 03:20:13 Processed: 18-OCT-19 14:52:34

Mass: 423.7770 425.7740 Tot Response: 1.45e+04 RRF: 0.9886

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:06	4.79e+03	4.58e+03	1.05	yes	9.37e+03		n	n
2	38:41	2.64e+03	2.44e+03	1.08	yes	5.08e+03	1,2,3,4,6,7,8-HpCDD	n	n

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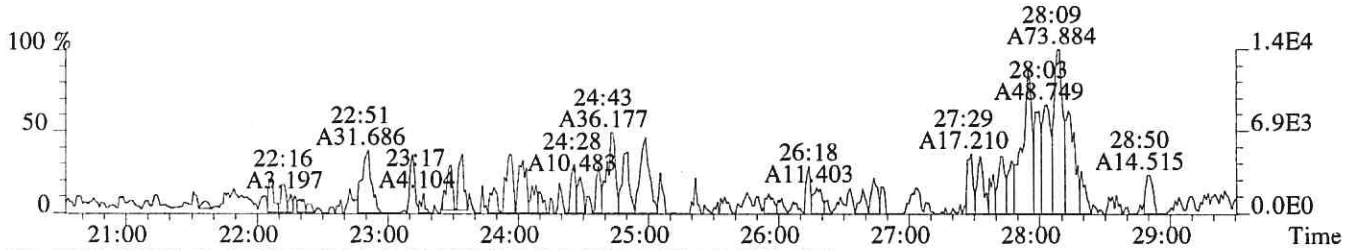
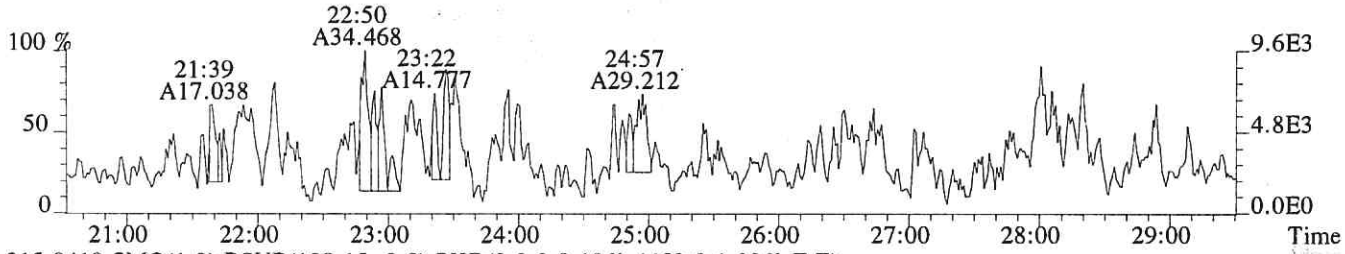
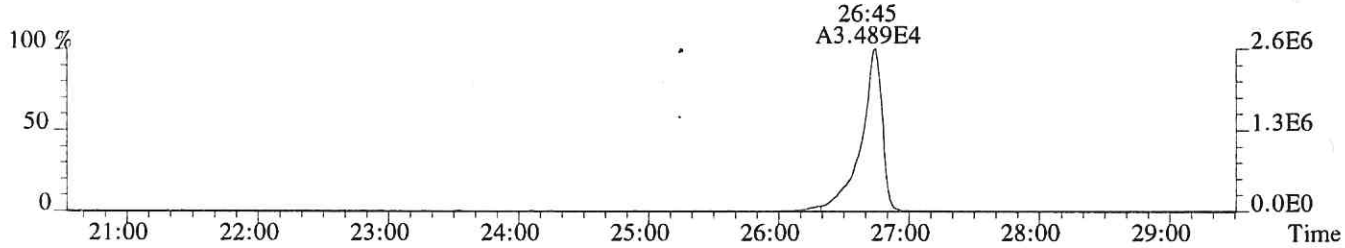
File:P524774 #1-637 Acq:18-OCT-2019 03:20:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1900728-003DL
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)



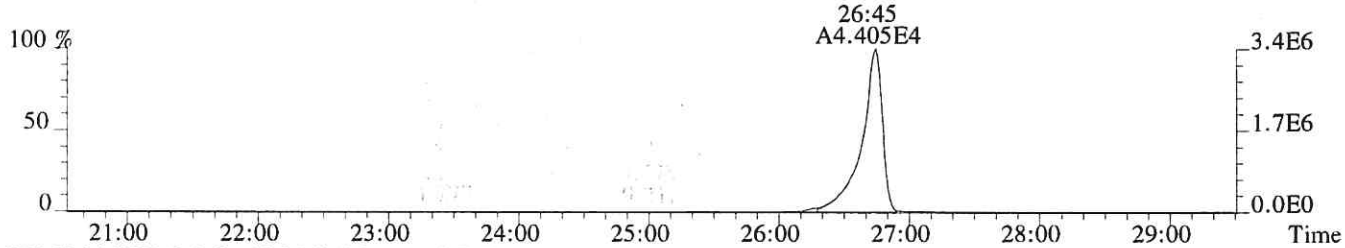
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3416.0,1.00%,F,T)



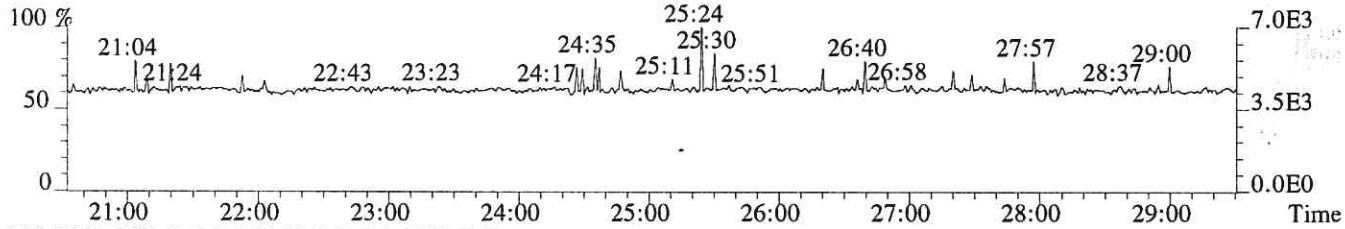
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4452.0,1.00%,F,T)



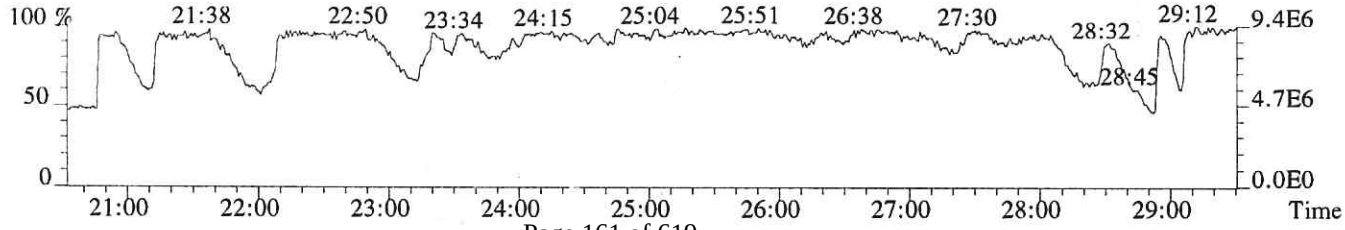
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3612.0,1.00%,F,T)



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



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



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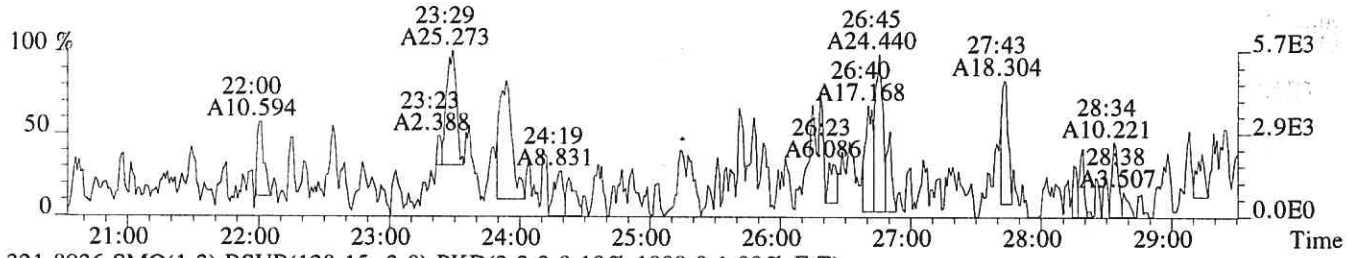
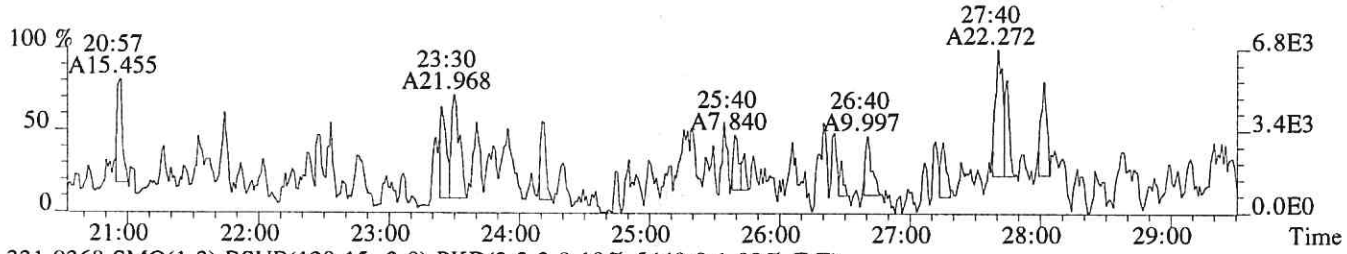
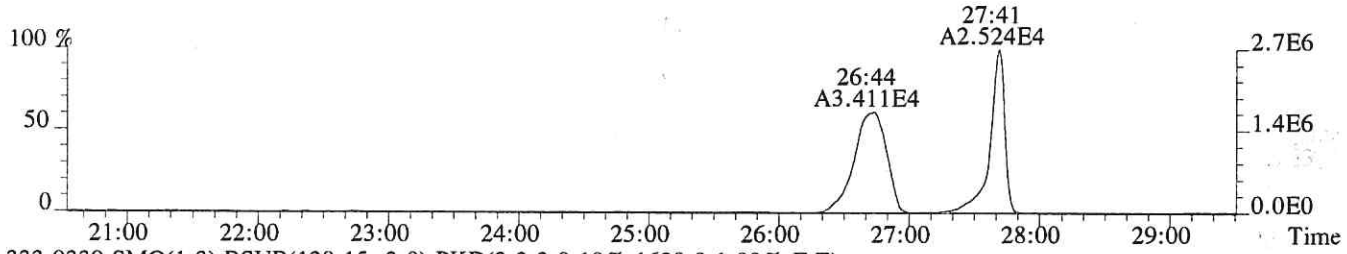
File:P524774 #1-637 Acq:18-OCT-2019 03:20:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1900728-003DL
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1292.0,1.00%,F,T)



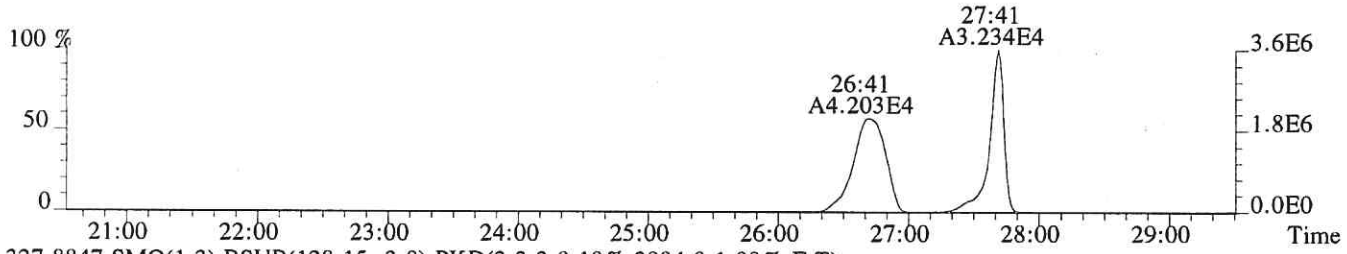
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1808.0,1.00%,F,T)



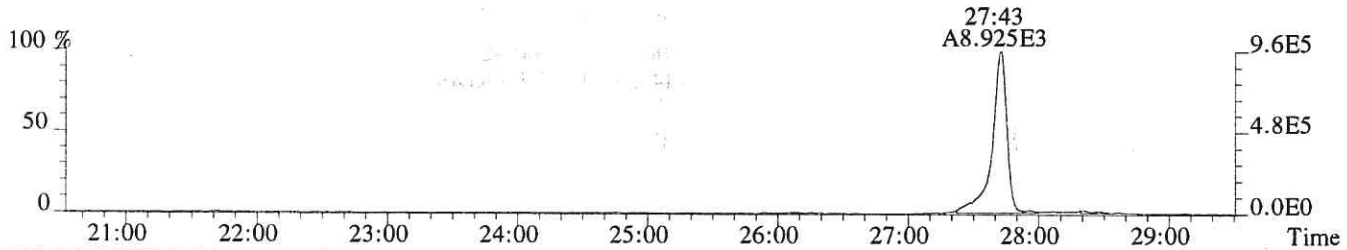
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5440.0,1.00%,F,T)



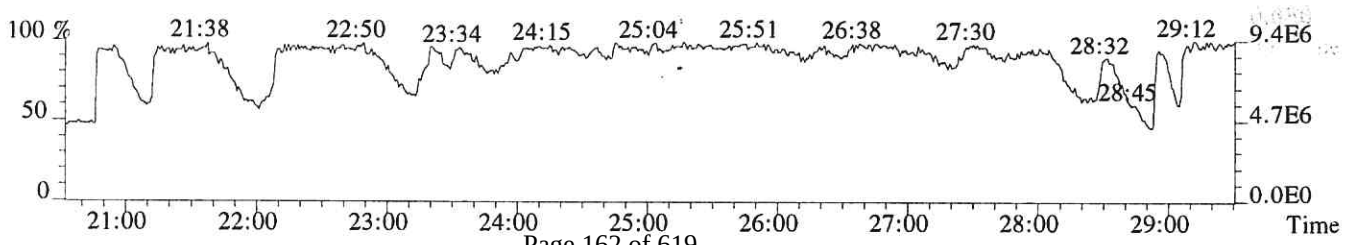
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1628.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3004.0,1.00%,F,T)



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



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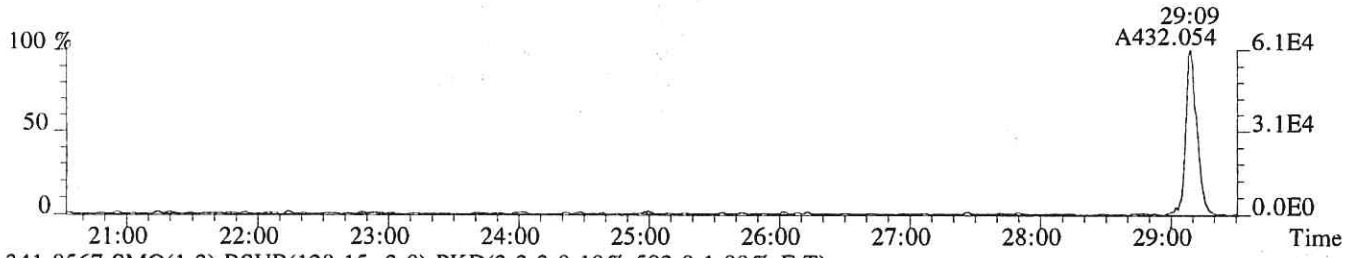
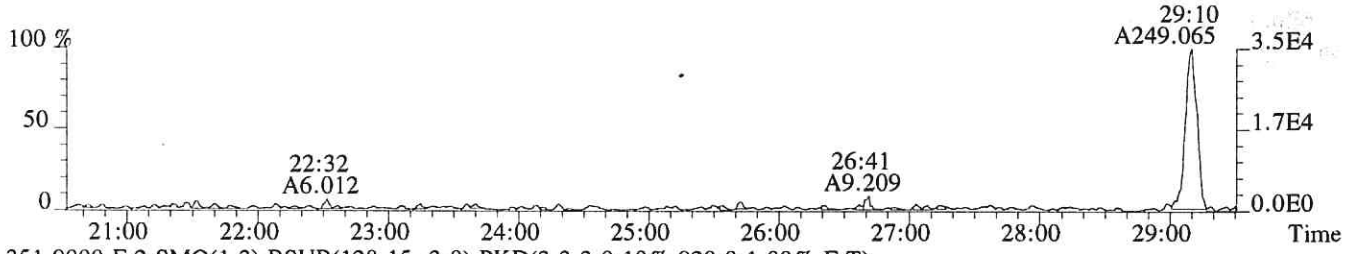
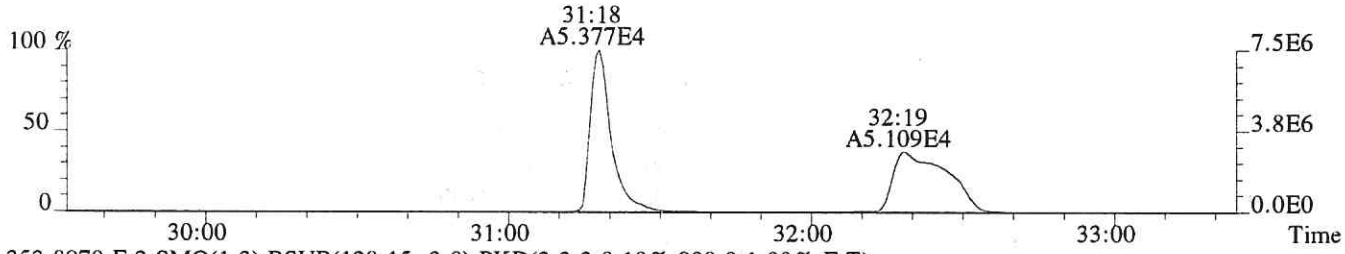
File:P524774 #1-637 Acq:18-OCT-2019 03:20:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1900728-003DL
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,252.0,1.00%,F,T)



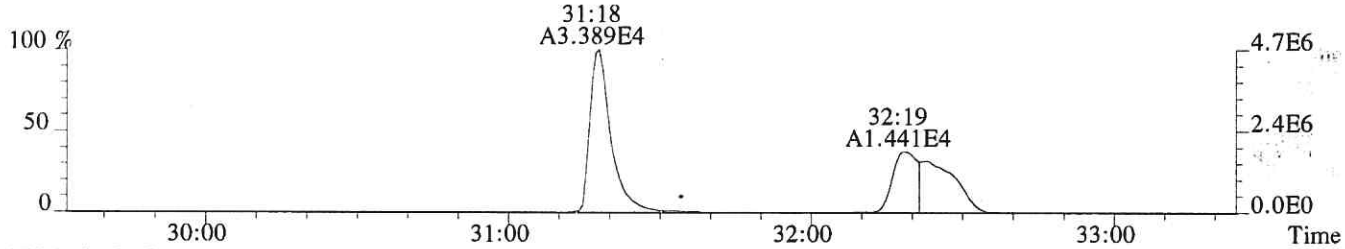
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,592.0,1.00%,F,T)



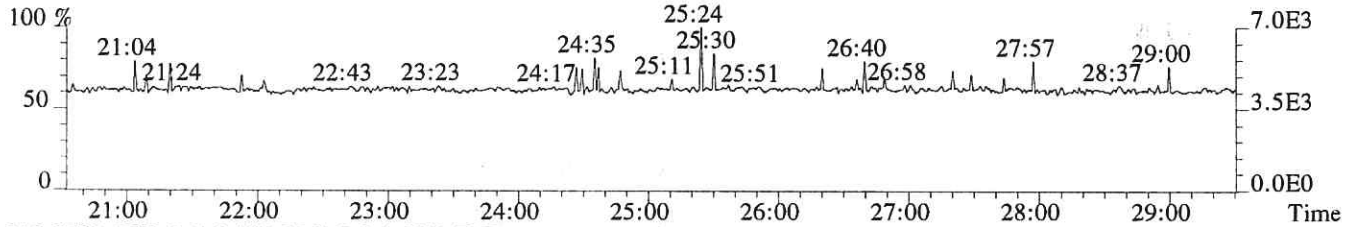
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,920.0,1.00%,F,T)



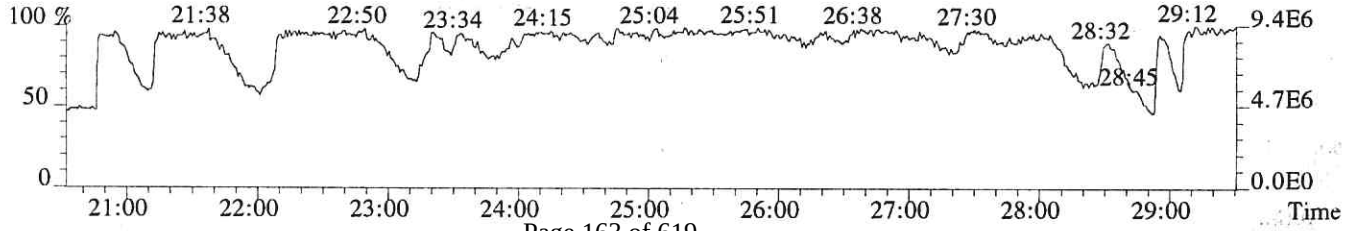
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,908.0,1.00%,F,T)



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

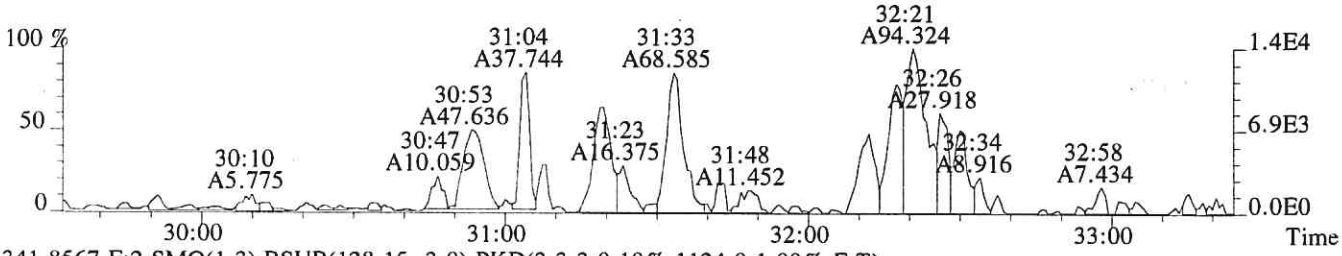


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

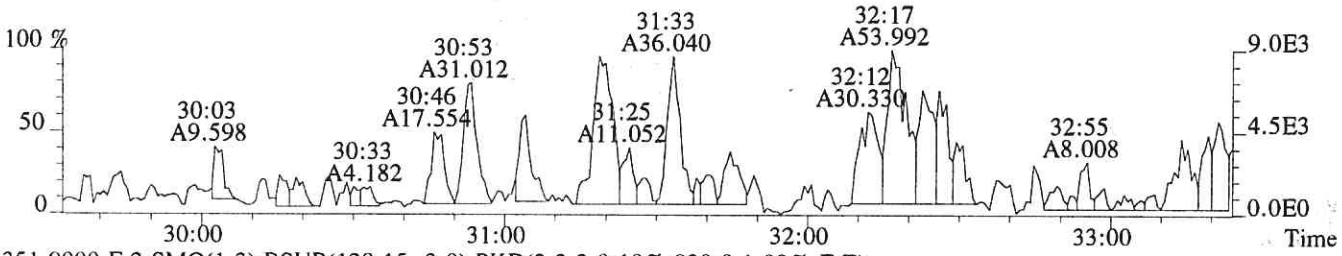


RIGHT SOLUTIONS | RIGHT PARTNER

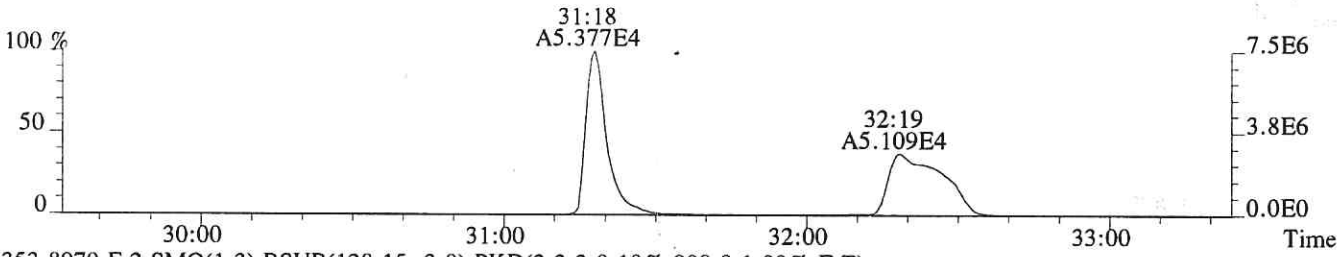
File:P524774 #1-348 Acq:18-OCT-2019 03:20:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1900728-003DL
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,304.0,1.00%,F,T)



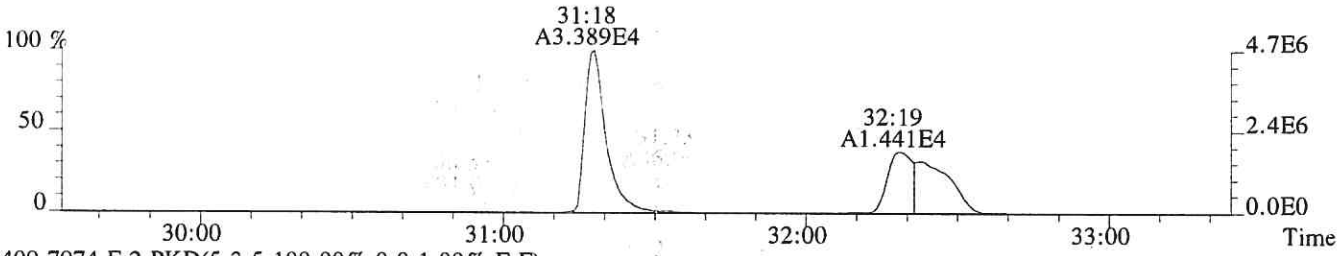
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1124.0,1.00%,F,T)



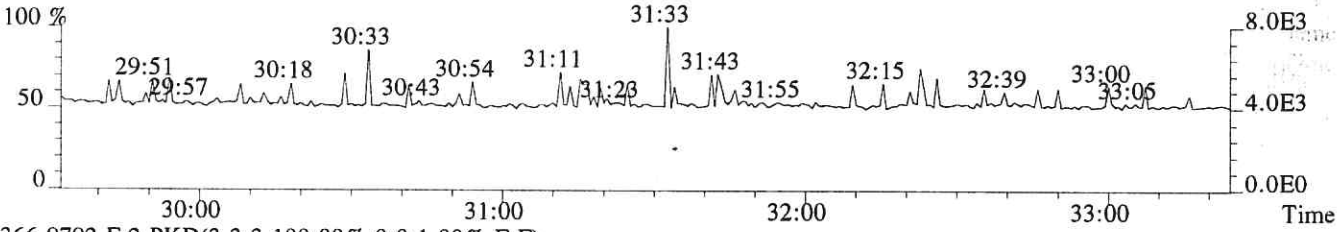
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,920.0,1.00%,F,T)



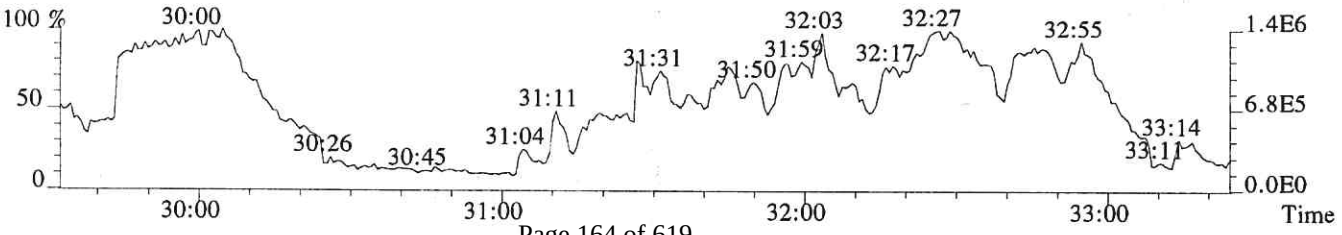
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,908.0,1.00%,F,T)



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

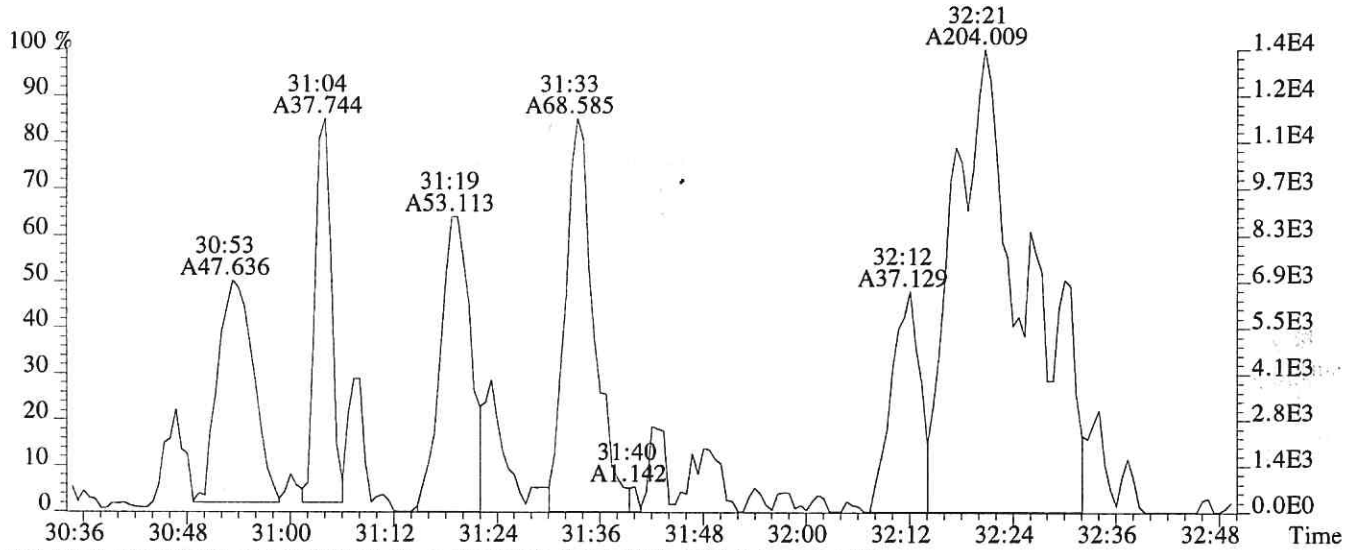


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

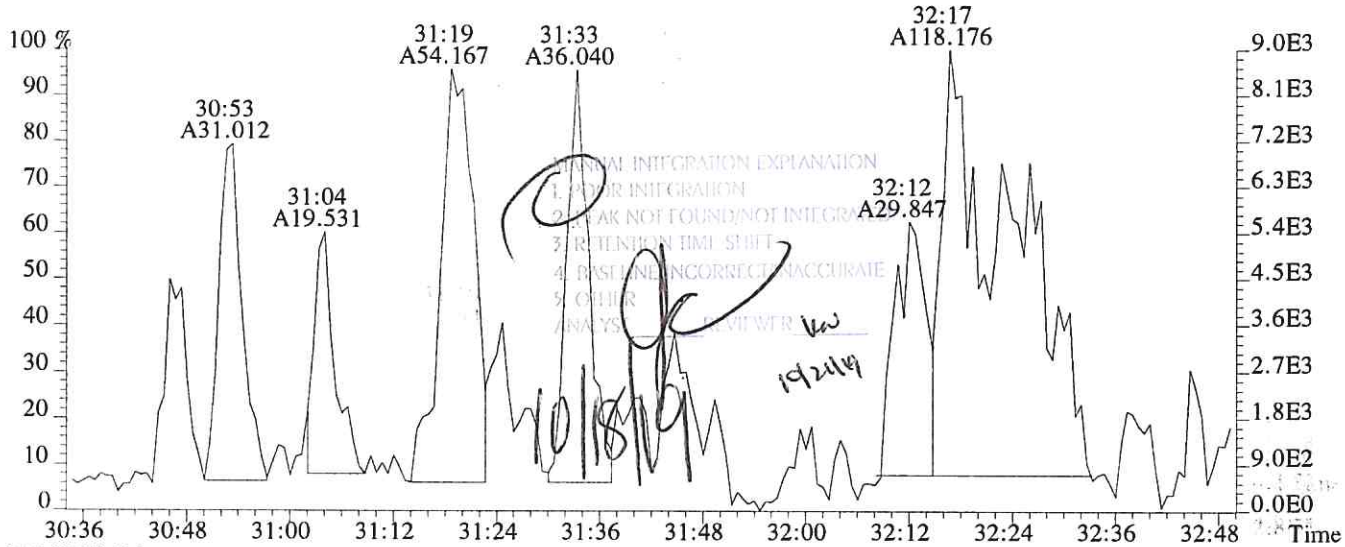


RIGHT SOLUTIONS | RIGHT PARTNER

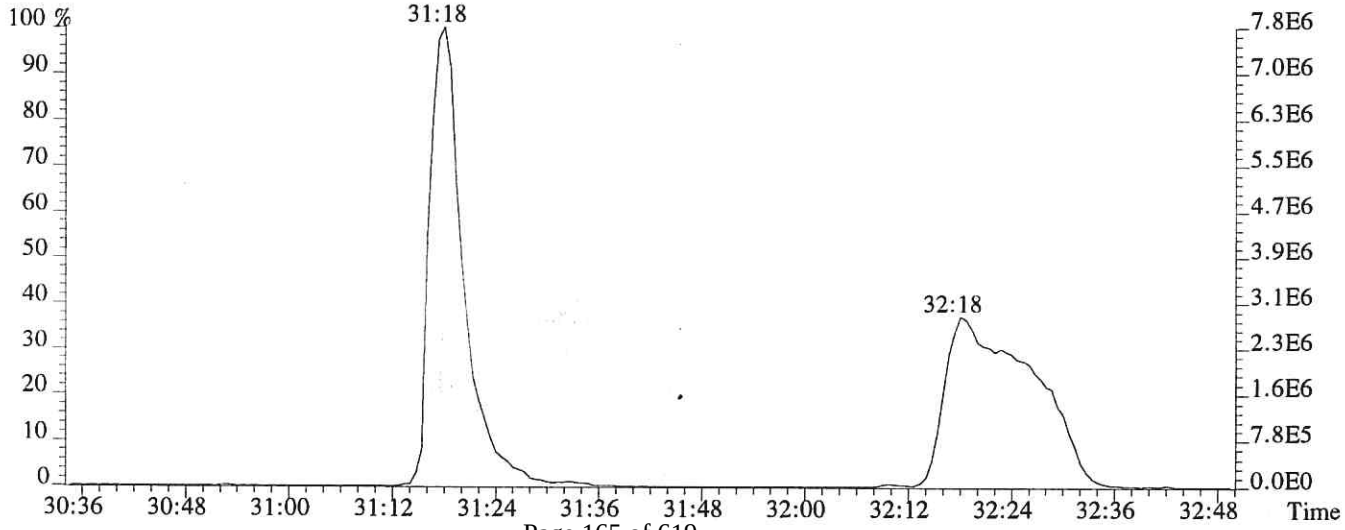
File:P524774 #1-348 Acq:18-OCT-2019 03:20:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1900728-003DL
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,304.0,1.00%,F,T)



341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1124.0,1.00%,F,T)



351.9000 F:2



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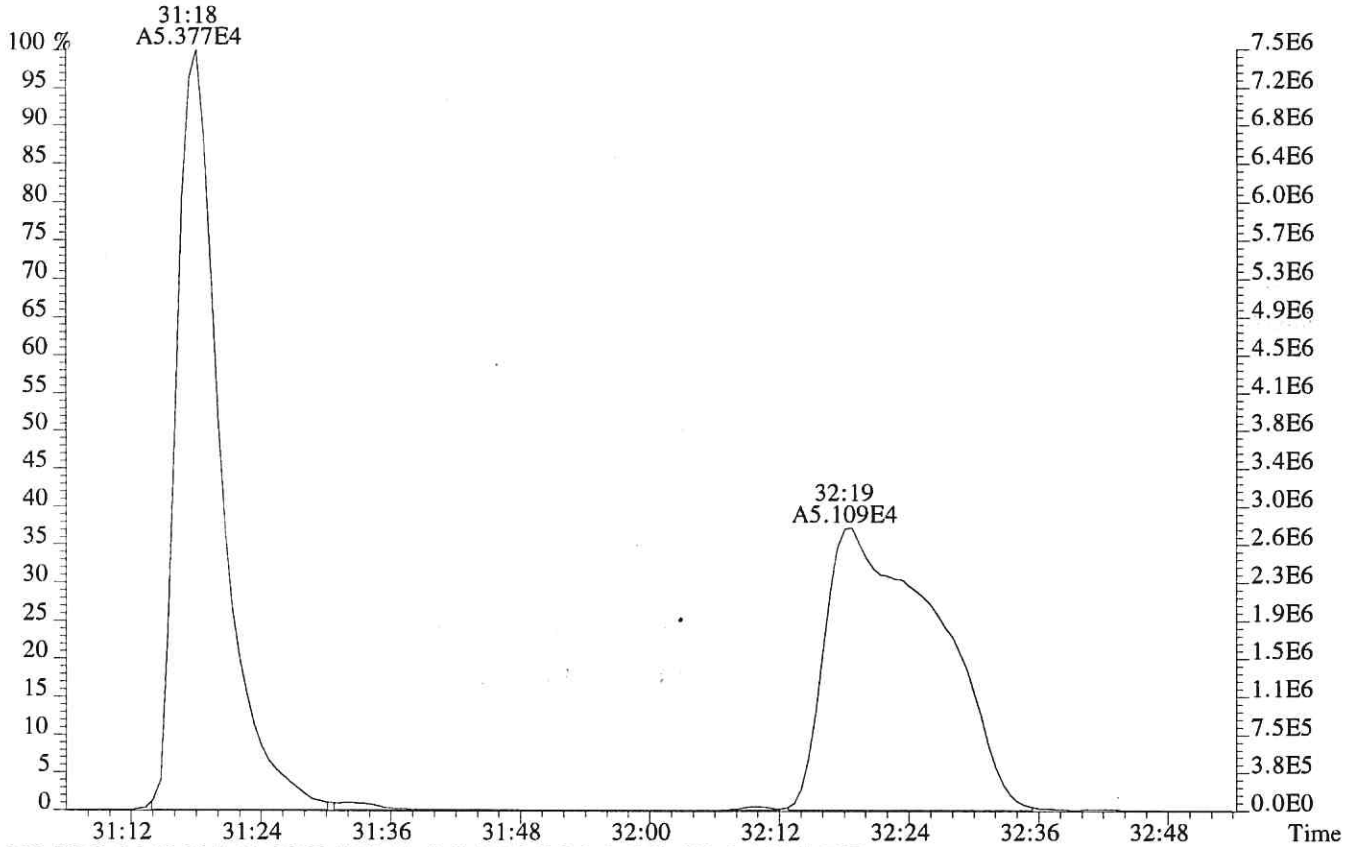
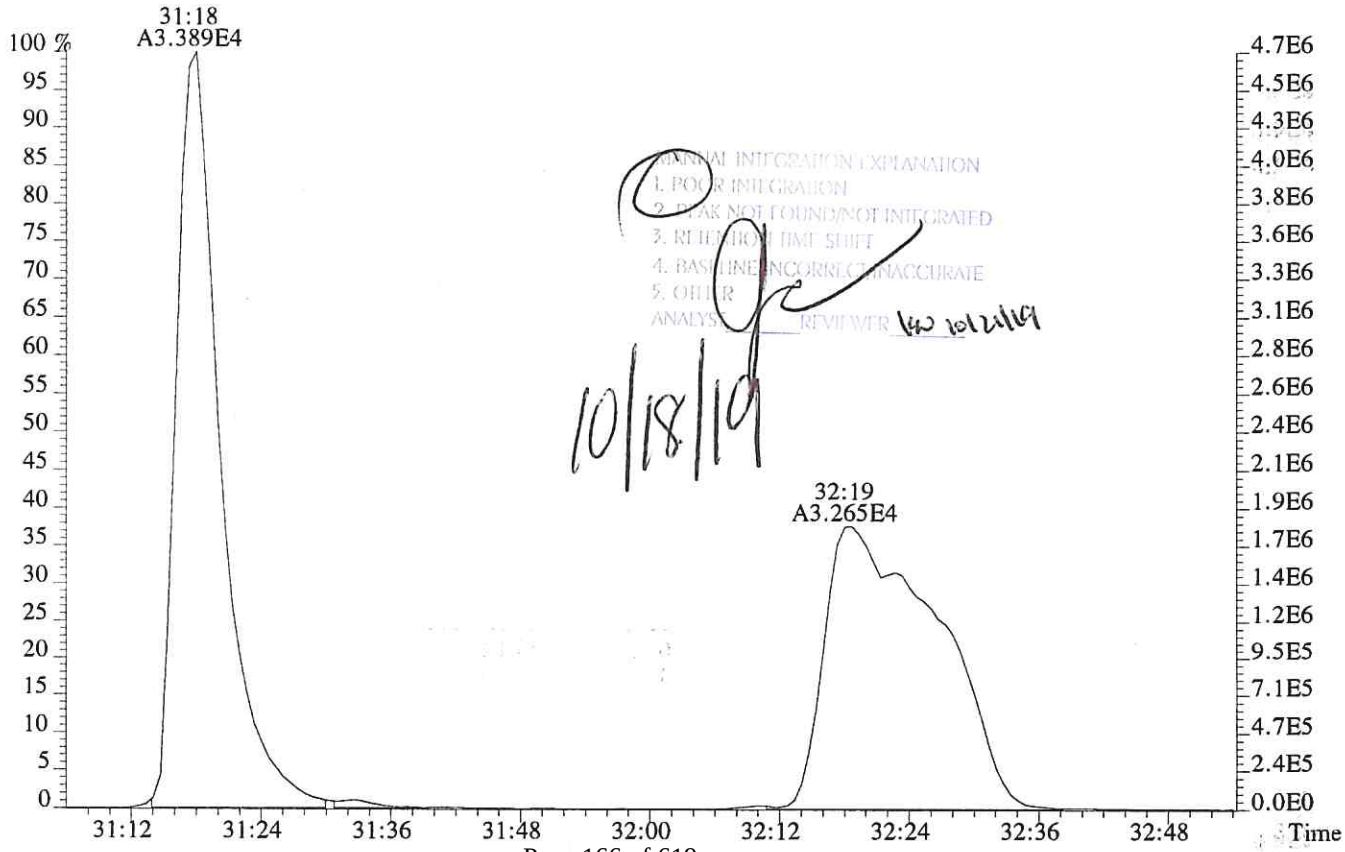
File:P524774 #1-348 Acq:18-OCT-2019 03:20:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1900728-003DL
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,920.0,1.00%,F,T)



353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,908.0,1.00%,F,T)

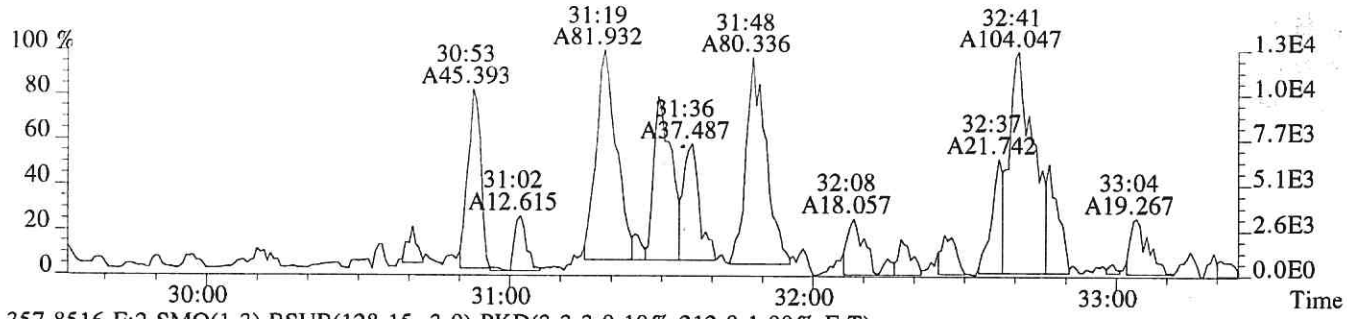


MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST _____ REVIEWER KW 10/21/19

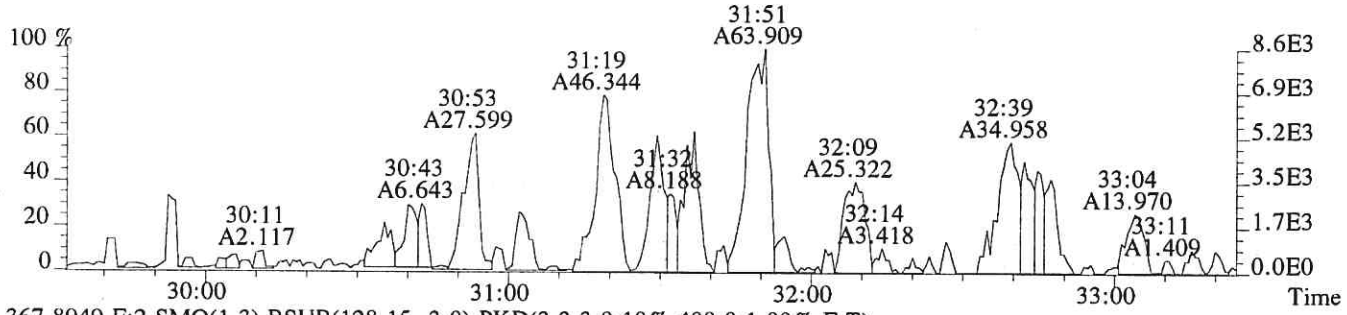
10/18/19

RIGHT SOLUTIONS | RIGHT PARTNER

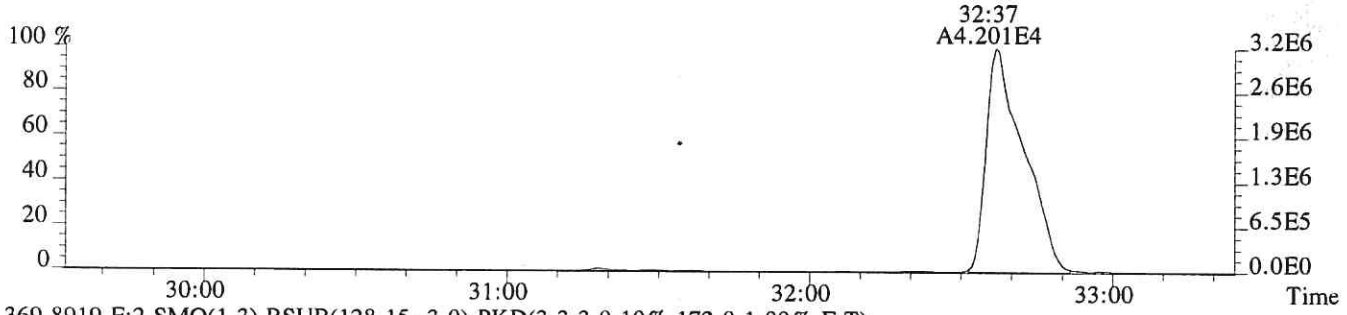
File:P524774 #1-348 Acq:18-OCT-2019 03:20:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1900728-003DL
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,724.0,1.00%,F,T)



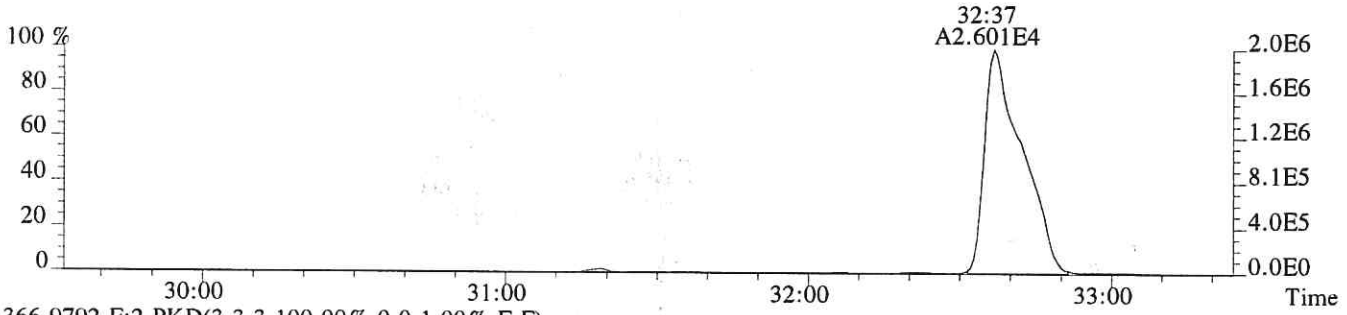
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,212.0,1.00%,F,T)



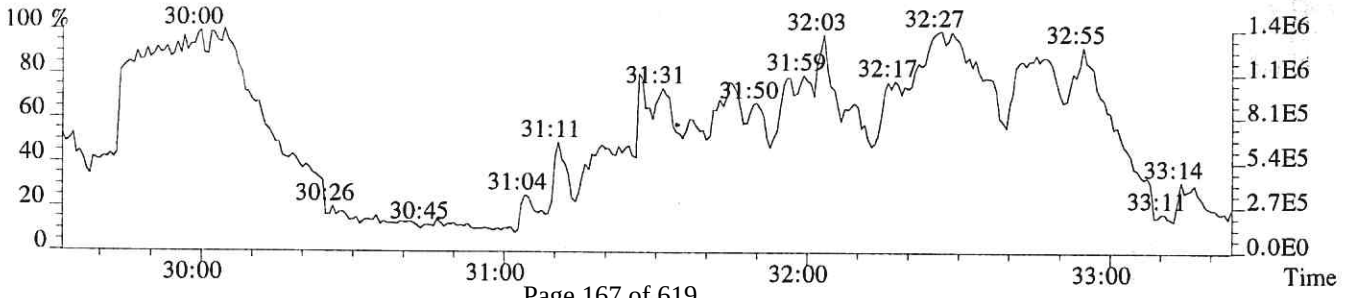
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,408.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,172.0,1.00%,F,T)

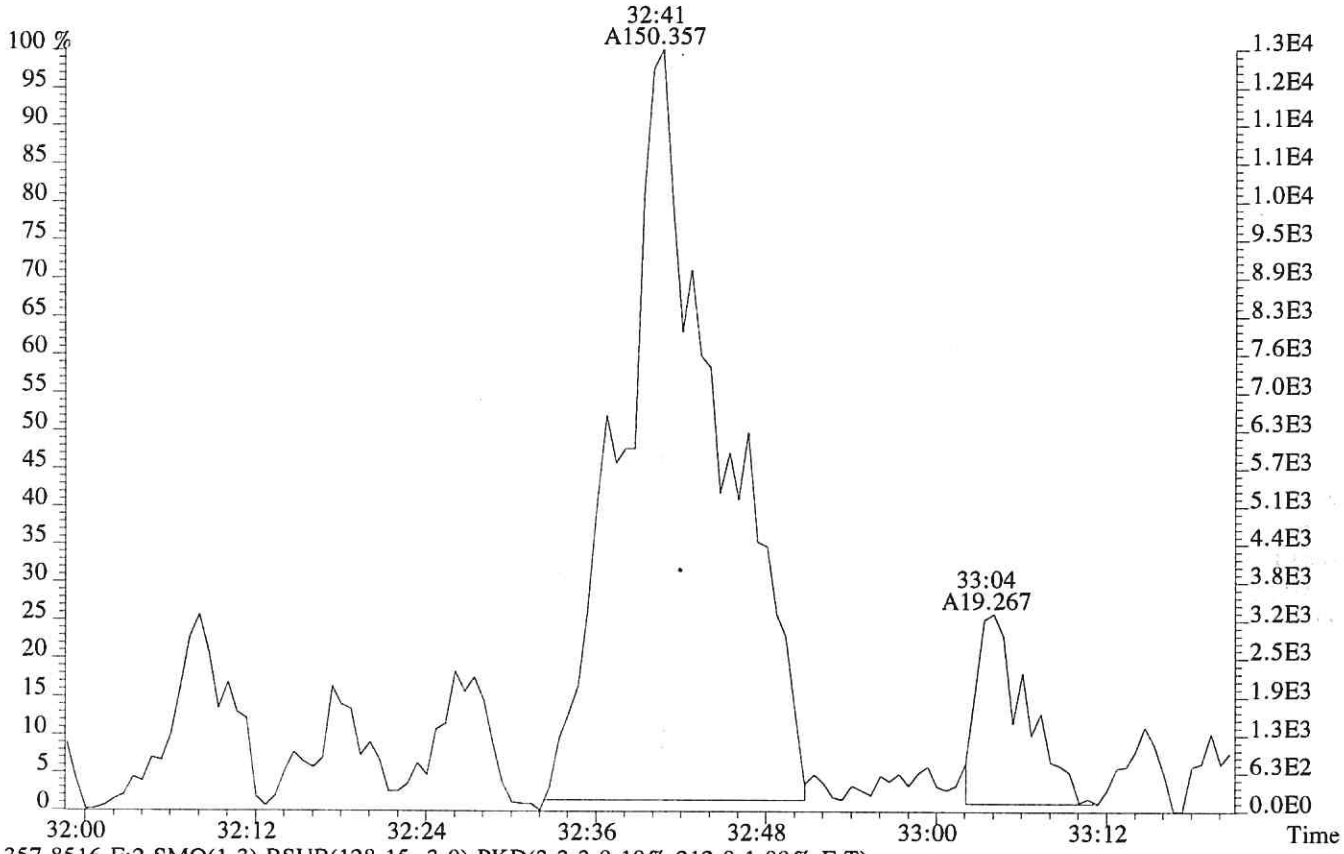


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

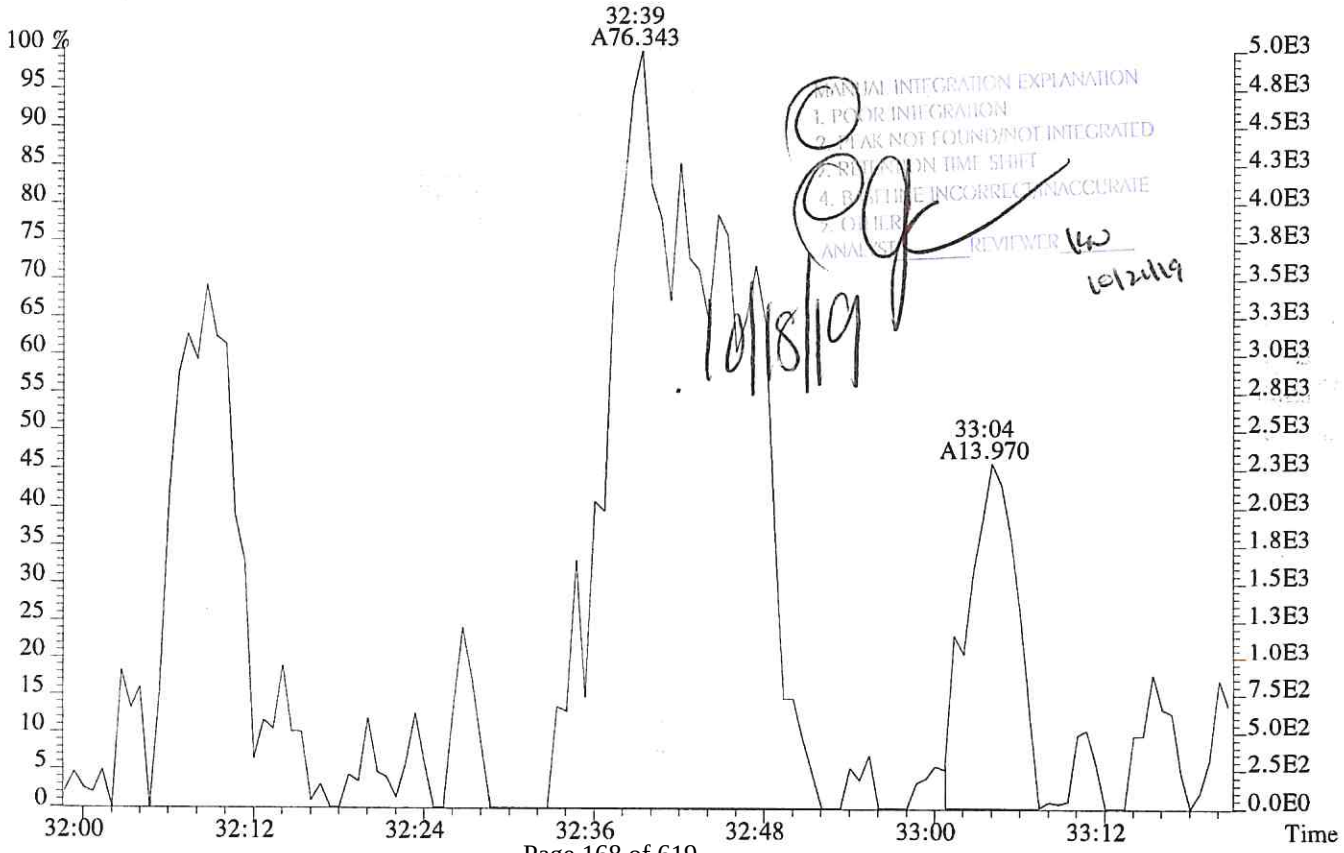


RIGHT SOLUTIONS | RIGHT PARTNER

File:P524774 #1-348 Acq:18-OCT-2019 03:20:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1900728-003DL
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,724.0,1.00%,F,T)



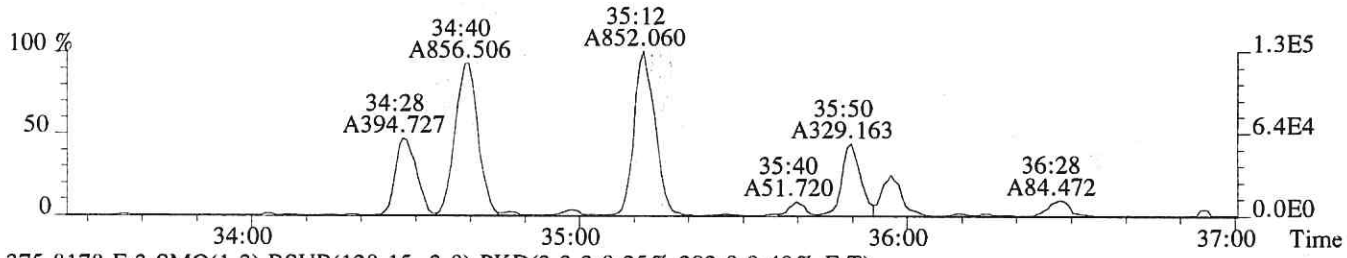
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,212.0,1.00%,F,T)



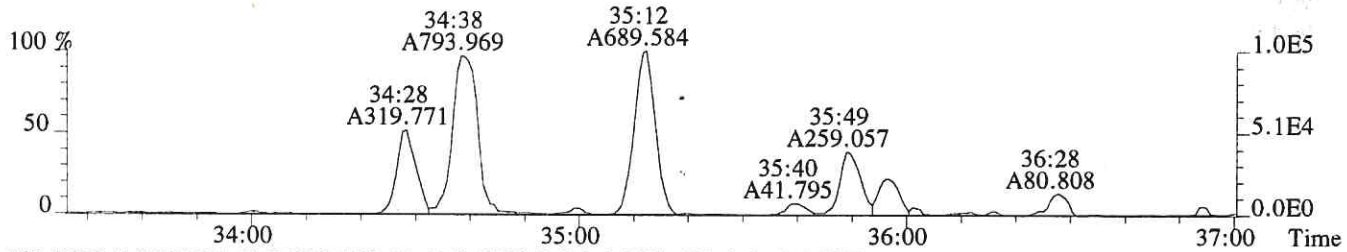
MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. PEAK TIME INCORRECT/INACCURATE
5. OTHER
ANALYST REVIEWER KW
10/21/19
10/18/19

RIGHT SOLUTIONS | RIGHT PARTNER

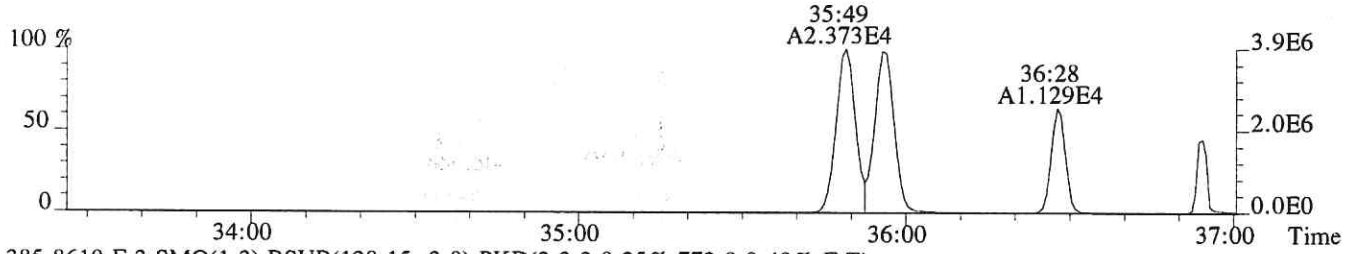
File:P524774 #1-322 Acq:18-OCT-2019 03:20:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1900728-003DL
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,288.0,0.40%,F,T)



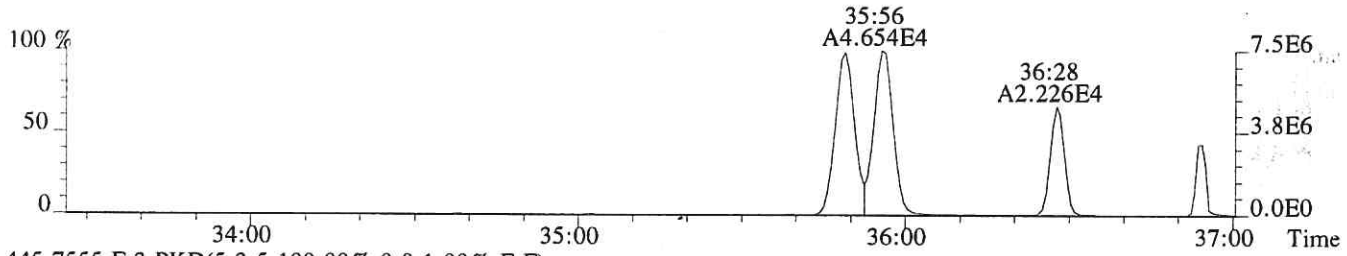
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,292.0,0.40%,F,T)



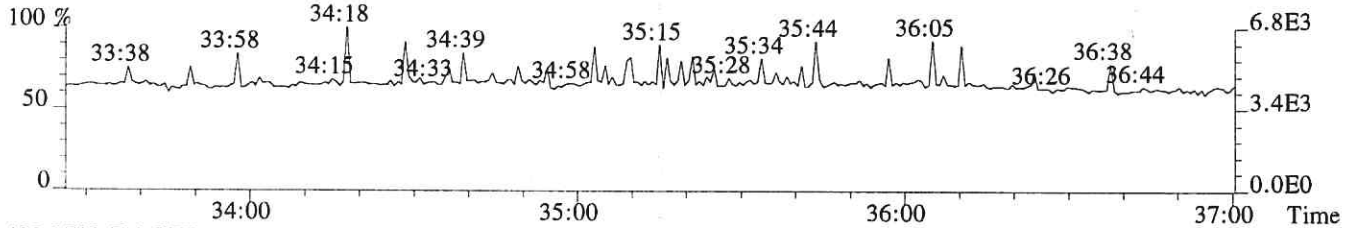
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,280.0,0.40%,F,T)



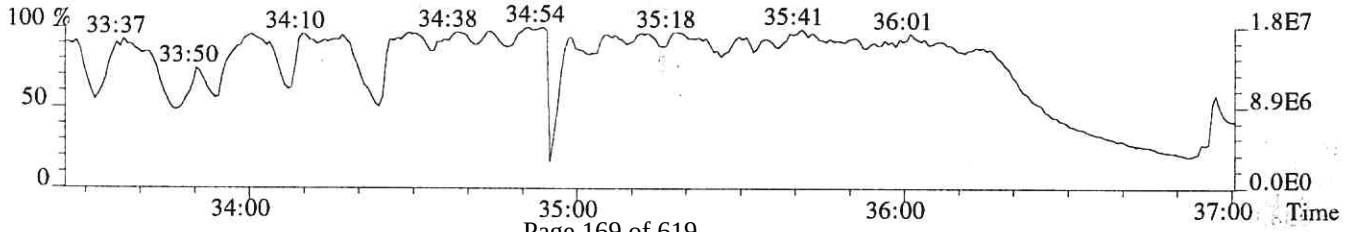
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,772.0,0.40%,F,T)



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

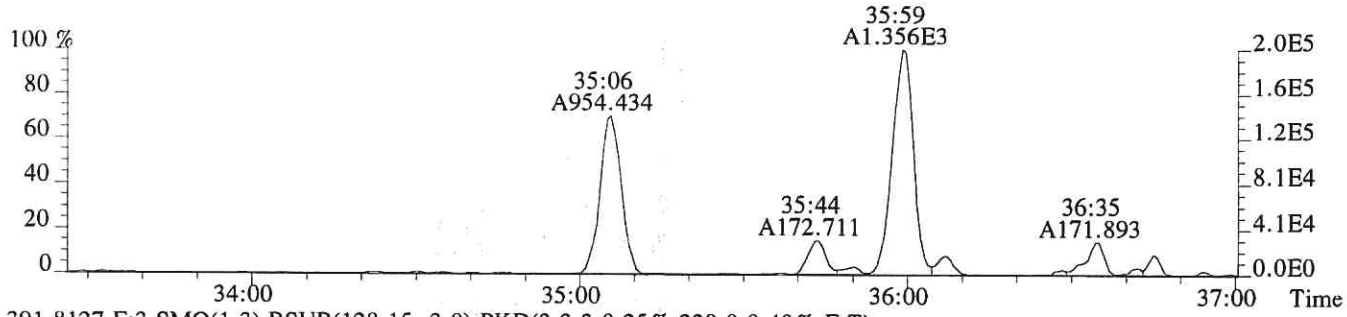


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

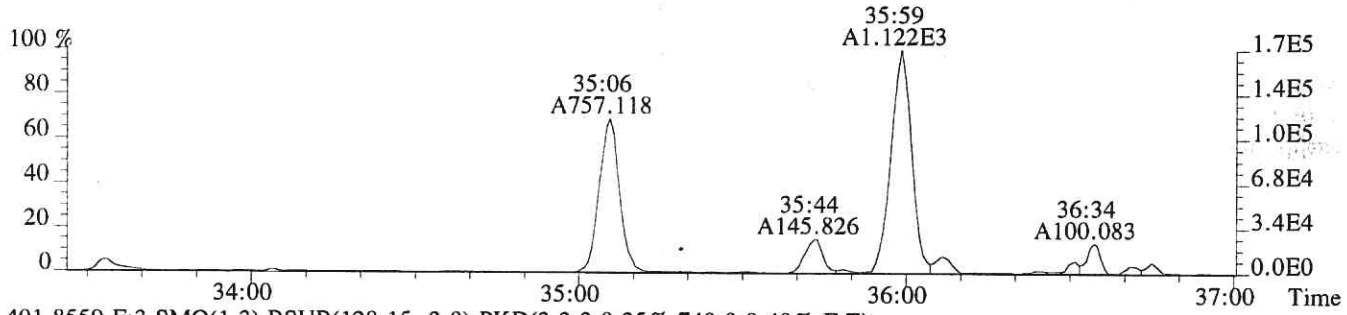


RIGHT SOLUTIONS | RIGHT PARTNER

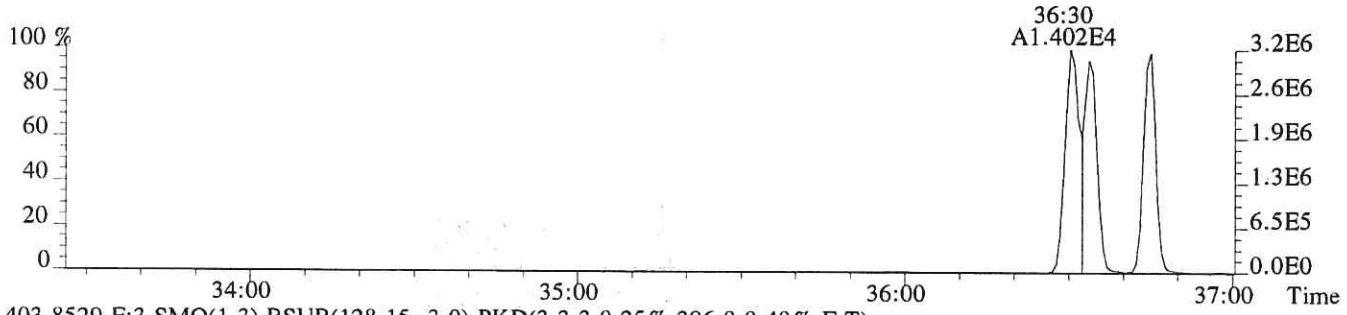
File:P524774 #1-322 Acq:18-OCT-2019 03:20:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1900728-003DL
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,184.0,0.40%,F,T)



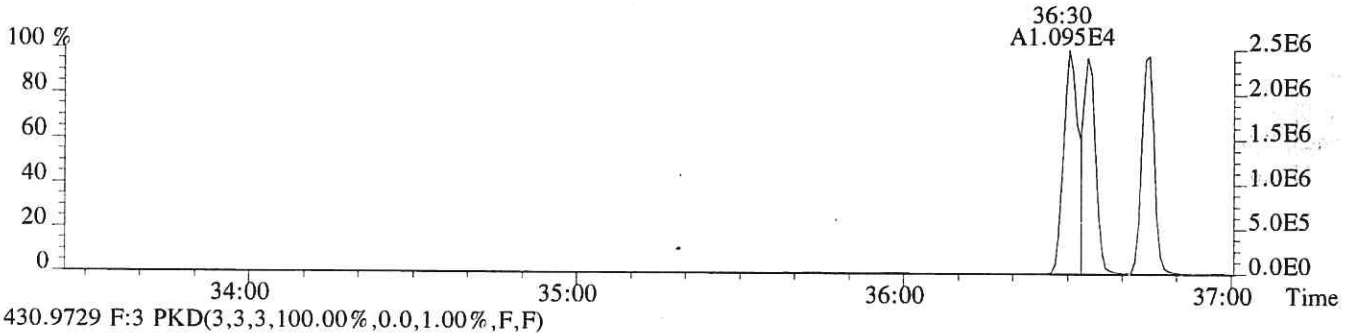
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,228.0,0.40%,F,T)



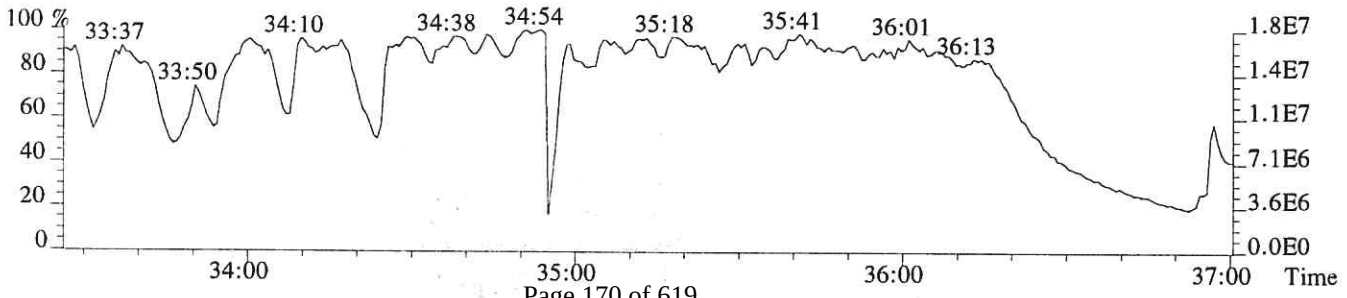
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,740.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,396.0,0.40%,F,T)

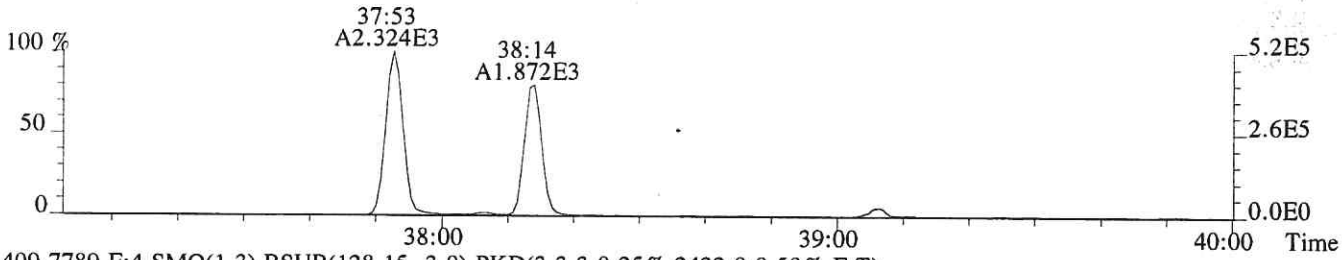


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

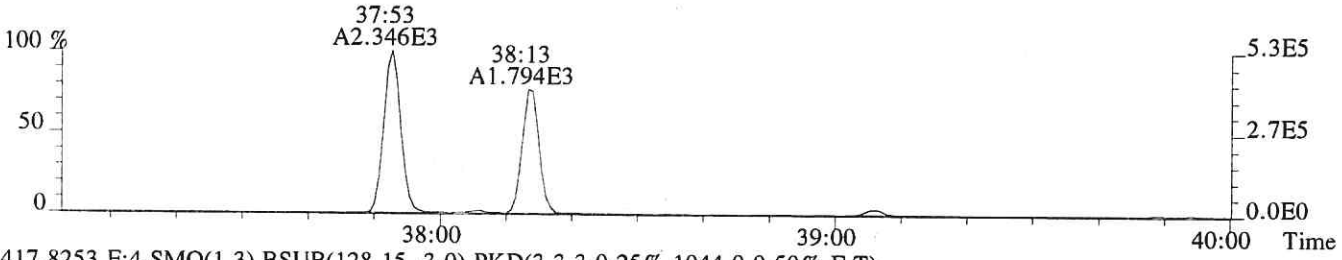


RIGHT SOLUTIONS | RIGHT PARTNER

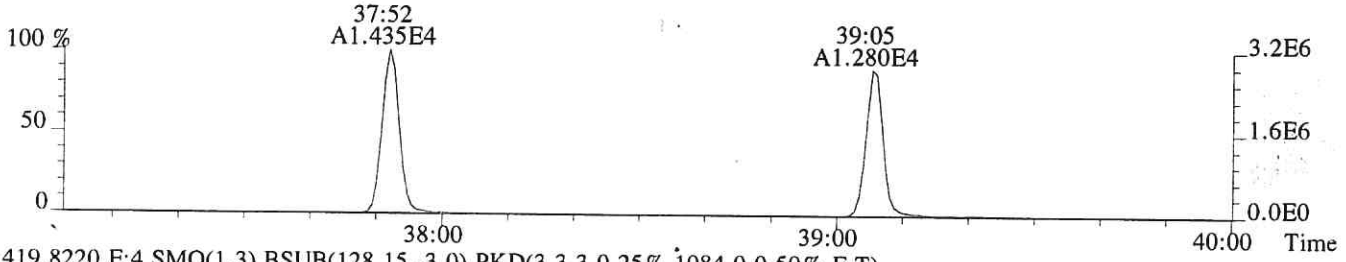
File:P524774 #1-267 Acq:18-OCT-2019 03:20:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1900728-003DL
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,860.0,0.50%,F,T)



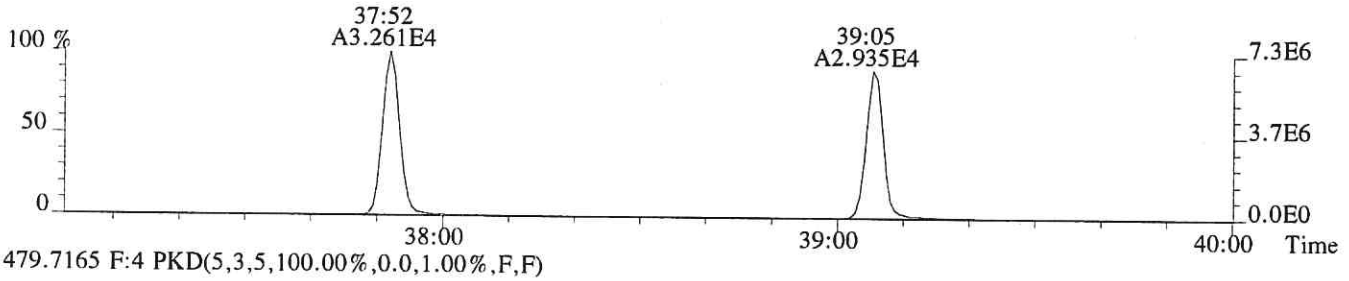
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2432.0,0.50%,F,T)



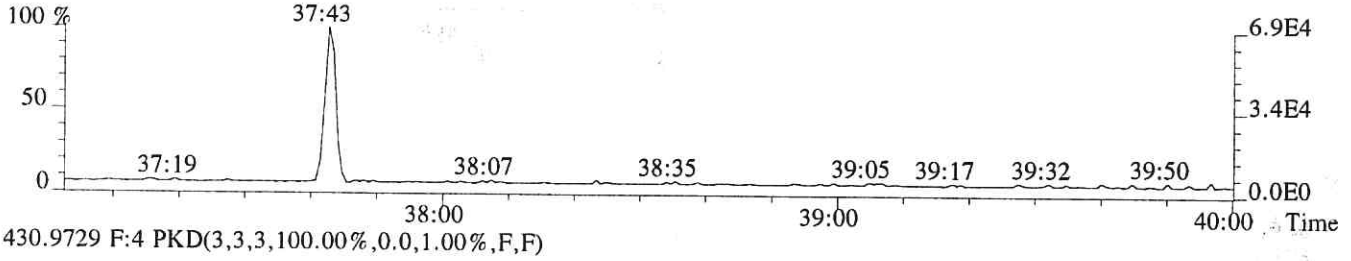
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1044.0,0.50%,F,T)



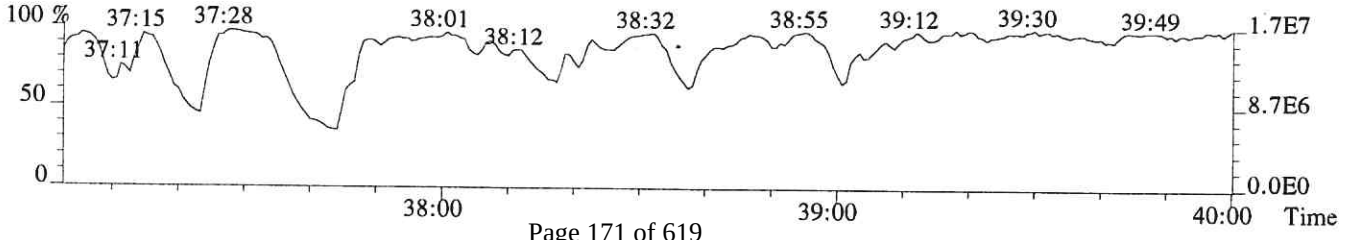
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1084.0,0.50%,F,T)



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

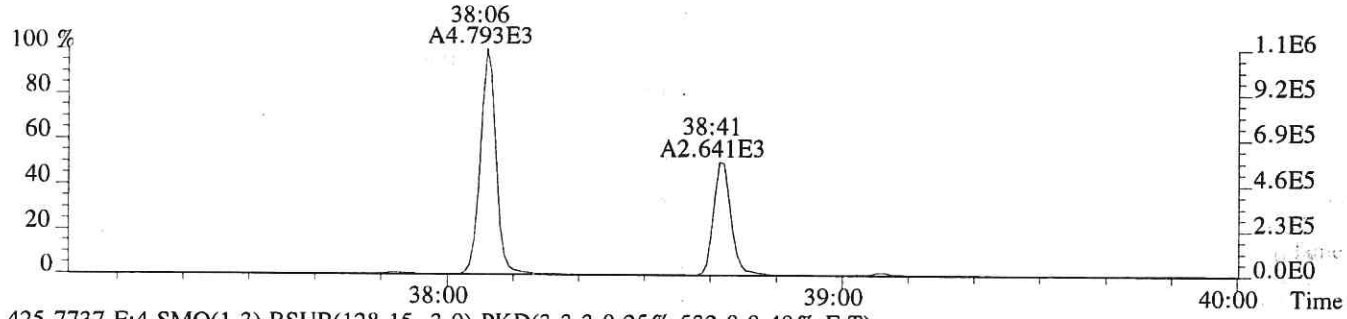


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

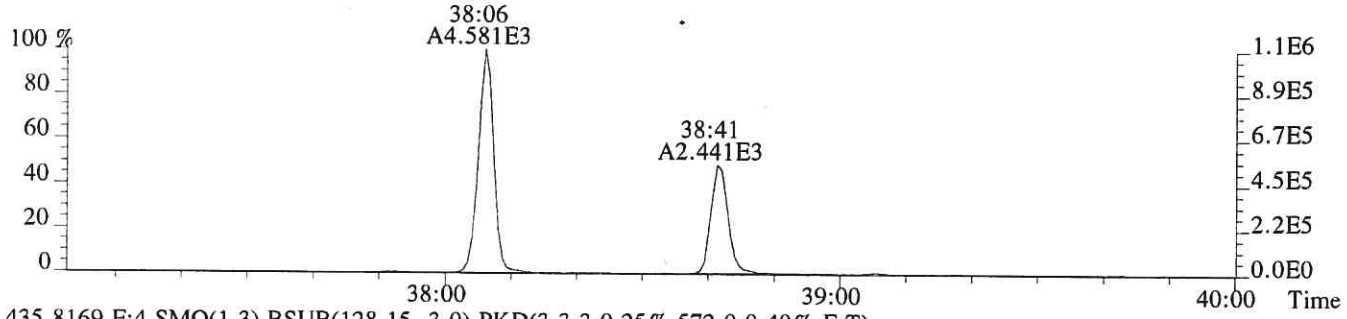


RIGHT SOLUTIONS | RIGHT PARTNER

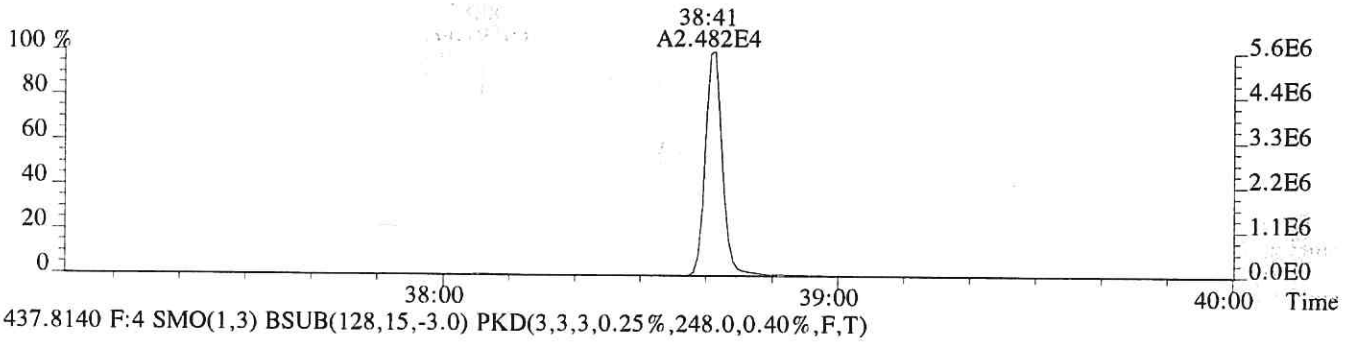
File:P524774 #1-267 Acq:18-OCT-2019 03:20:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1900728-003DL
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,912.0,0.40%,F,T)



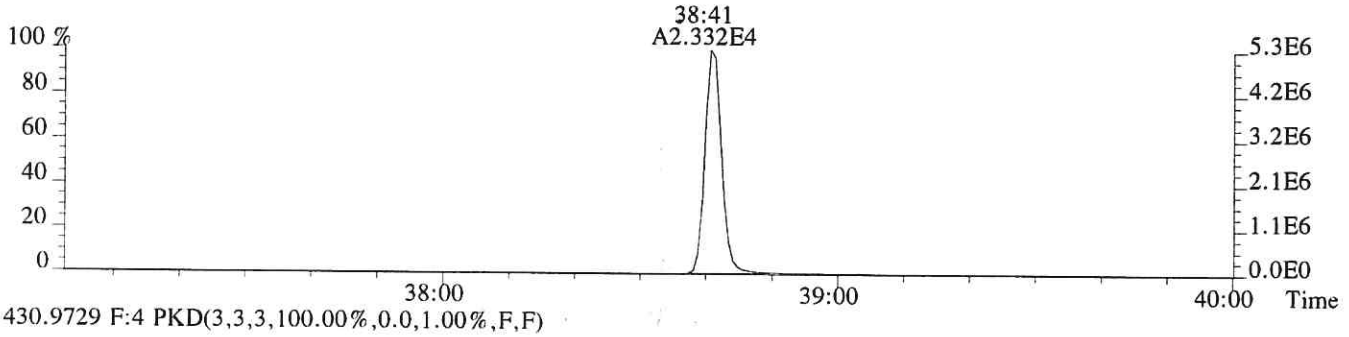
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,532.0,0.40%,F,T)



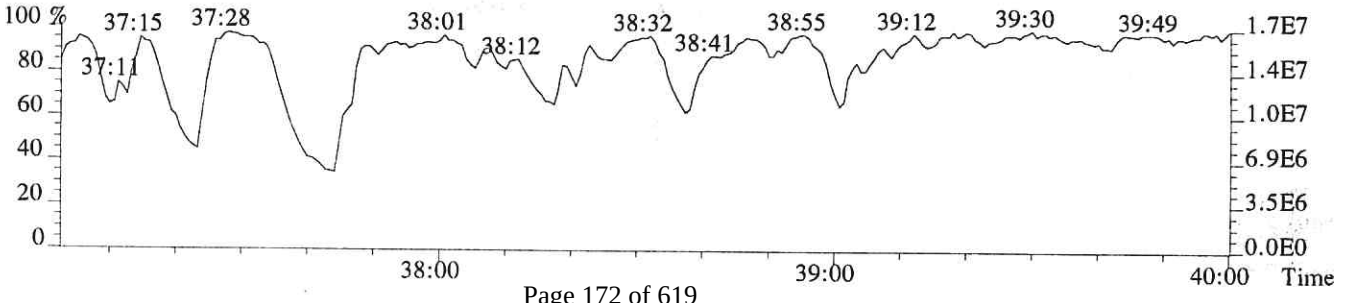
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,572.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,248.0,0.40%,F,T)

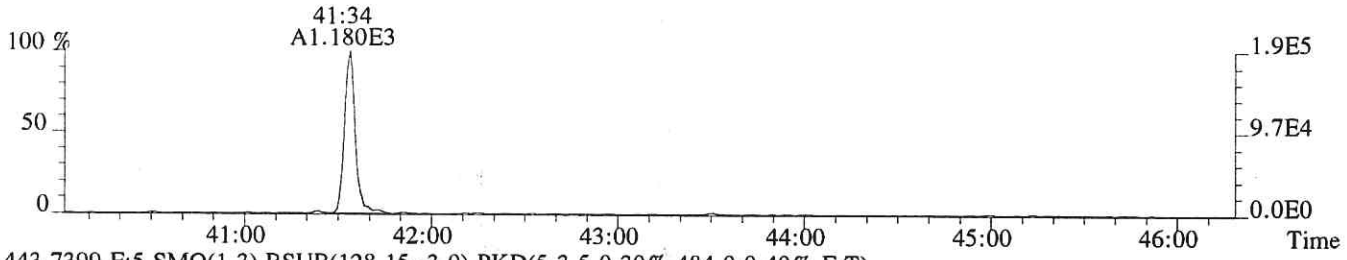


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

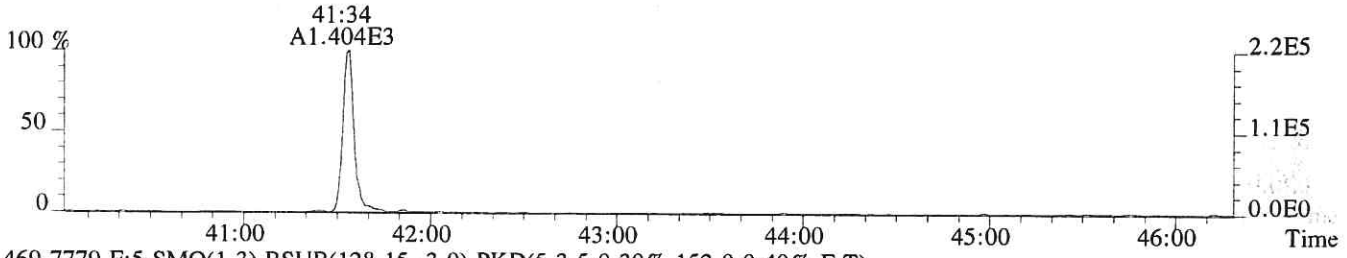


RIGHT SOLUTIONS | RIGHT PARTNER

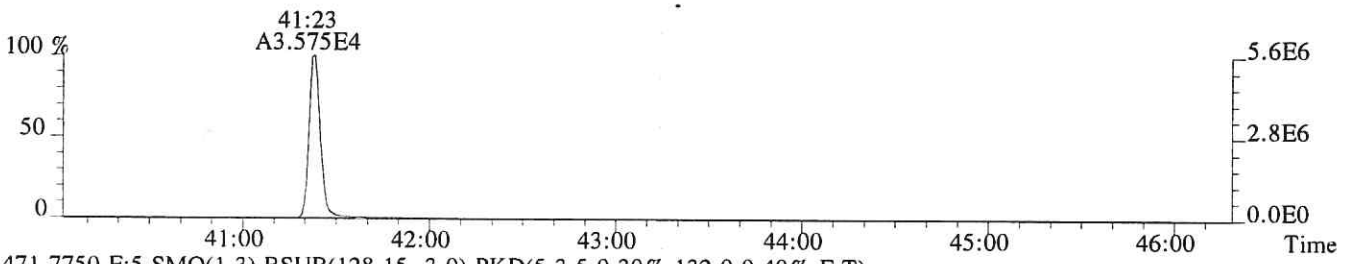
File:P524774 #1-565 Acq:18-OCT-2019 03:20:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1900728-003DL
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,428.0,0.40%,F,T)



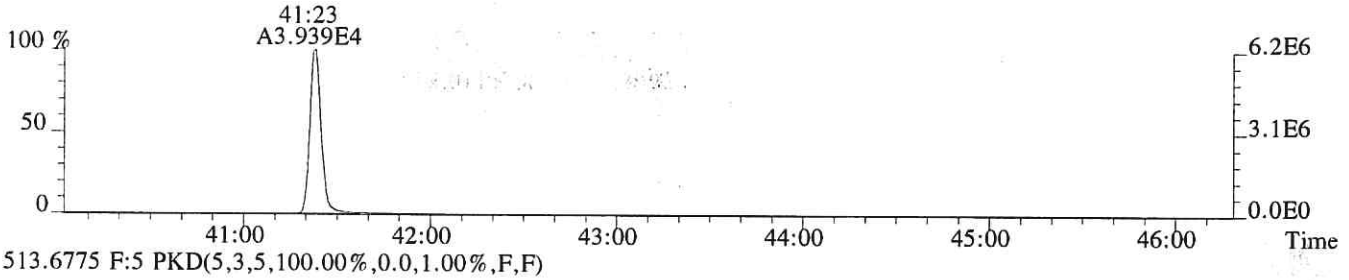
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,484.0,0.40%,F,T)



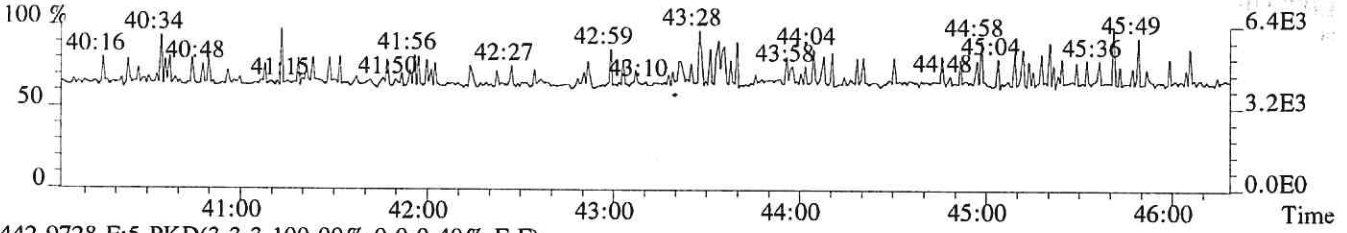
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,152.0,0.40%,F,T)



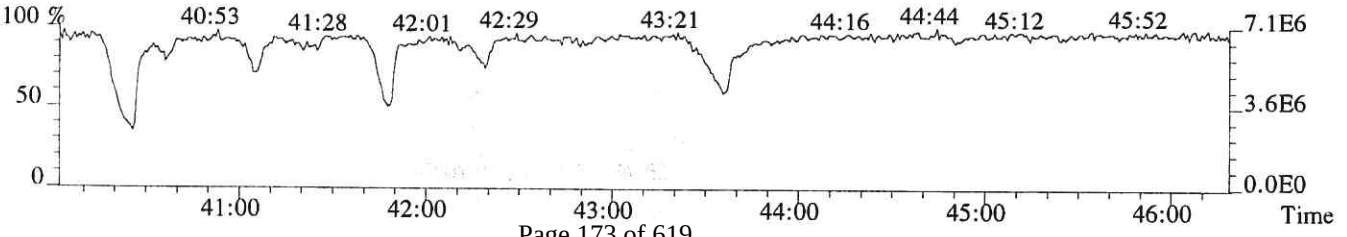
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,132.0,0.40%,F,T)



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

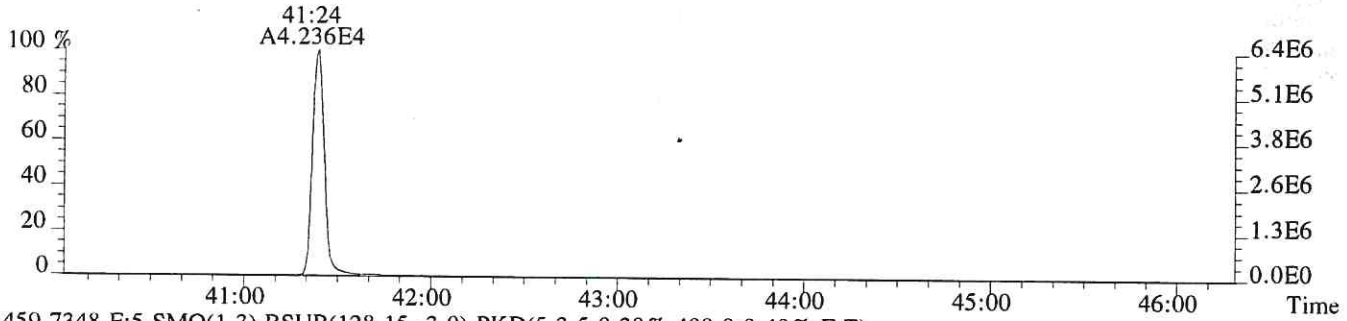


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

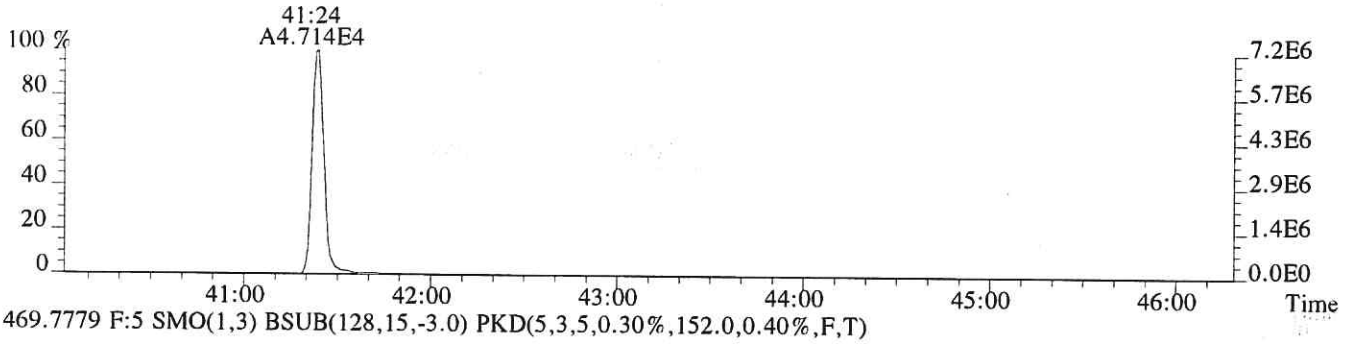


RIGHT SOLUTIONS | RIGHT PARTNER

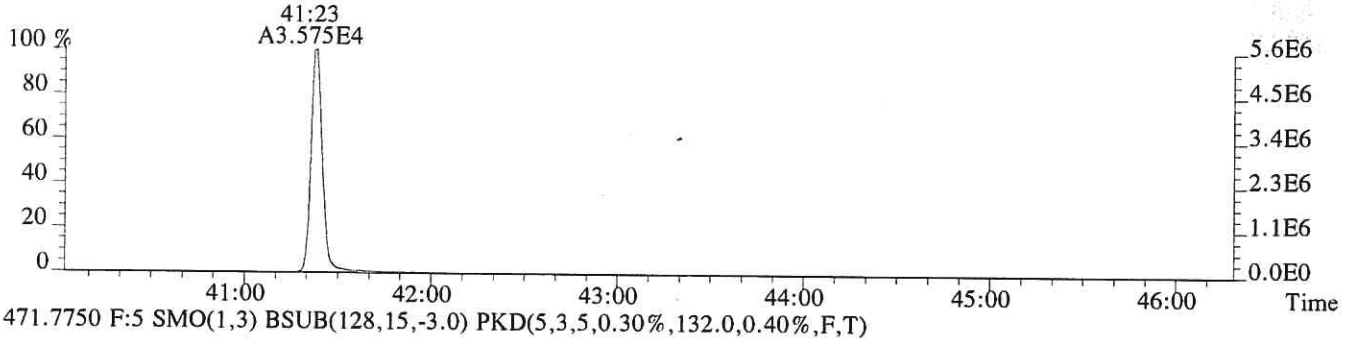
File:P524774 #1-565 Acq:18-OCT-2019 03:20:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1900728-003DL
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,416.0,0.40%,F,T)



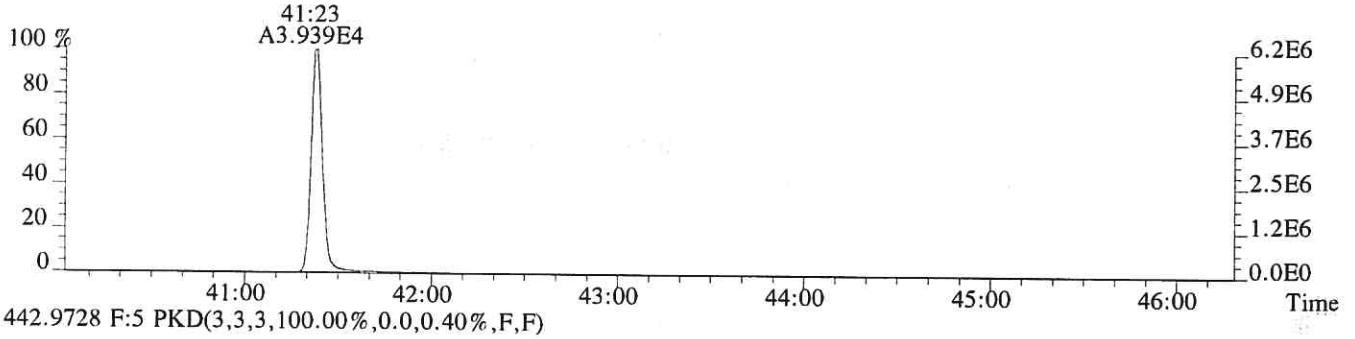
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,408.0,0.40%,F,T)



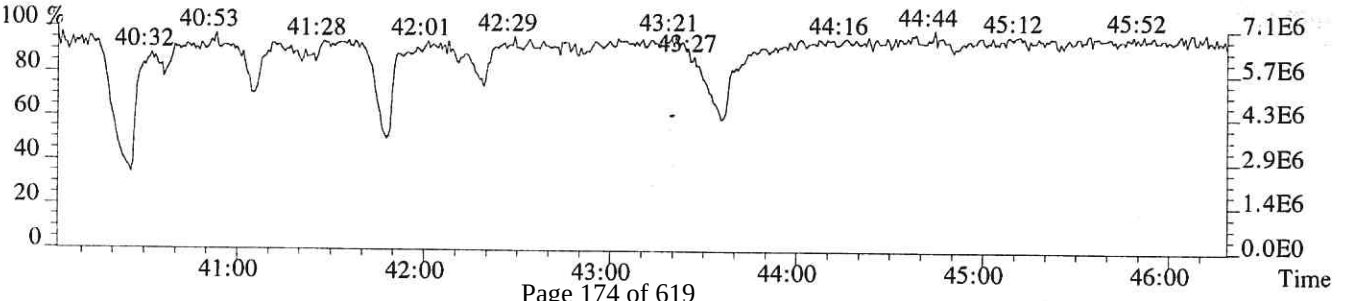
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,152.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,132.0,0.40%,F,T)



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



RIGHT SOLUTIONS | RIGHT PARTNER

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
AC-3WP1-20191

Run #17 Filename P524840 Samp: 1 Inj: 1 Acquired: 20-OCT-19 14:19:12
Processed: 21-OCT-19 14:58:17 Sample ID: E1900728-004DL

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	yes	0.962
2	Unk	1,2,3,7,8-PeCDF	31:26	1.867e+01	1.551e+01	1.20	no	yes	0.968
3	Unk	2,3,4,7,8-PeCDF	32:29	1.127e+02	7.278e+01	1.55	yes	yes	0.919
4	Unk	1,2,3,4,7,8-HxCDF	35:40	2.155e+02	1.711e+02	1.26	yes	no	1.161
5	Unk	1,2,3,6,7,8-HxCDF	35:48	8.644e+01	7.378e+01	1.17	yes	no	1.073
6	Unk	2,3,4,6,7,8-HxCDF	36:21	6.933e+01	6.110e+01	1.13	yes	no	1.069
7	Unk	1,2,3,7,8,9-HxCDF	36:50	1.542e+01	4.839e+00	3.19	no	yes	1.096
8	Unk	1,2,3,4,6,7,8-HpCDF	37:49	1.537e+03	1.529e+03	1.01	yes	no	1.281
9	Unk	1,2,3,4,7,8,9-HpCDF	39:03	4.137e+01	4.464e+01	0.93	yes	no	1.192
10	Unk	OCDF	41:25	5.269e+02	6.036e+02	0.87	yes	no	1.204
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.077
12	Unk	1,2,3,7,8-PeCDD	32:48	2.117e+01	7.799e+00	2.72	no	yes	0.971
13	Unk	1,2,3,4,7,8-HxCDD	36:26	1.149e+01	1.743e+01	0.66	no	yes	1.024
14	Unk	1,2,3,6,7,8-HxCDD	36:29	2.601e+02	2.106e+02	1.24	yes	yes	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:40	7.538e+01	5.101e+01	1.48	no	no	1.055
16	Unk	1,2,3,4,6,7,8-HpCDD	38:39	1.061e+03	9.891e+02	1.07	yes	no	0.989
17	Unk	OCDD	41:15	4.110e+03	4.509e+03	0.91	yes	no	1.094
18	IS	13C-2,3,7,8-TCDF	26:54	1.449e+04	1.864e+04	0.78	yes	no	1.287
19	IS	13C-1,2,3,7,8-PeCDF	31:26	1.803e+04	1.126e+04	1.60	yes	no	1.416
20	IS	13C-2,3,4,7,8-PeCDF	32:29	2.374e+04	1.523e+04	1.56	yes	no	1.374
21	IS	13C-1,2,3,4,7,8-HxCDF	35:40	7.607e+03	1.476e+04	0.52	yes	no	1.114
22	IS	13C-1,2,3,6,7,8-HxCDF	35:46	7.447e+03	1.452e+04	0.51	yes	no	1.245
23	IS	13C-2,3,4,6,7,8-HxCDF	36:21	5.475e+03	1.073e+04	0.51	yes	no	1.146
24	IS	13C-1,2,3,7,8,9-HxCDF	36:50	1.788e+03	3.228e+03	0.55	yes	no	0.986
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:49	5.119e+03	1.175e+04	0.44	yes	no	0.915
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:02	3.778e+03	8.767e+03	0.43	yes	no	0.746
27	IS	13C-2,3,7,8-TCDD	27:47	6.942e+03	8.961e+03	0.77	yes	no	0.929
28	IS	13C-1,2,3,7,8-PeCDD	32:46	1.126e+04	7.196e+03	1.56	yes	no	1.017
29	IS	13C-1,2,3,4,7,8-HxCDD	36:24	5.432e+03	4.133e+03	1.31	yes	no	0.945
30	IS	13C-1,2,3,6,7,8-HxCDD	36:28	4.990e+03	3.770e+03	1.32	yes	no	0.924
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:39	6.315e+03	5.983e+03	1.06	yes	no	0.876
32	IS	13C-OCDD	41:14	1.228e+04	1.386e+04	0.89	yes	no	0.662
33	RS/RT	13C-1,2,3,4-TCDD	26:51	2.060e+04	2.646e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:40	6.446e+03	4.915e+03	1.31	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:48	1.800e+03				no	1.010

$$\text{OCDD} = \frac{(4.110e+03 + 4.509e+03) \times 4000 \text{ pg} \times 5}{(1.228e+04 + 1.386e+04) \times 10.376 \text{ g} \times 52.9 / 100 \times 1.094} = 1098 \text{ ng/kg}$$

LKK 10/21/19

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
AC-3WP1-20191009

Run #17 Filename P524840 Samp: 1 Inj: 1 Acquired: 20-OCT-19 14:19:12
Processed: 21-OCT-19 14:58:17 LAB. ID: E1900728-004DL

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	4.20e+02	*	*	5.76e+02	*
2	1,2,3,7,8-PeCDF	3.36e+03	2.72e+02	1.2e+01	2.77e+03	5.36e+02	5.2e+00
3	2,3,4,7,8-PeCDF	1.31e+04	2.72e+02	4.8e+01	8.82e+03	5.36e+02	1.6e+01
4	1,2,3,4,7,8-HxCDF	3.42e+04	1.60e+02	2.1e+02	2.94e+04	4.92e+02	6.0e+01
5	1,2,3,6,7,8-HxCDF	1.44e+04	1.60e+02	9.0e+01	1.26e+04	4.92e+02	2.6e+01
6	2,3,4,6,7,8-HxCDF	9.89e+03	1.60e+02	6.2e+01	1.06e+04	4.92e+02	2.2e+01
7	1,2,3,7,8,9-HxCDF	5.14e+03	1.60e+02	3.2e+01	1.51e+03	4.92e+02	3.1e+00
8	1,2,3,4,6,7,8-HpCDF	3.53e+05	4.88e+02	7.2e+02	3.51e+05	6.12e+02	5.7e+02
9	1,2,3,4,7,8,9-HpCDF	9.65e+03	4.88e+02	2.0e+01	1.10e+04	6.12e+02	1.8e+01
10	OCDF	9.19e+04	2.16e+02	4.3e+02	1.02e+05	2.56e+02	4.0e+02
11	2,3,7,8-TCDD	*	1.08e+03	*	*	6.16e+02	*
12	1,2,3,7,8-PeCDD	4.96e+03	4.84e+02	1.0e+01	1.96e+03	2.88e+02	6.8e+00
13	1,2,3,4,7,8-HxCDD	4.84e+03	2.64e+02	1.8e+01	5.19e+03	1.72e+02	3.0e+01
14	1,2,3,6,7,8-HxCDD	5.98e+04	2.64e+02	2.3e+02	4.72e+04	1.72e+02	2.7e+02
15	1,2,3,7,8,9-HxCDD	1.84e+04	2.64e+02	7.0e+01	1.22e+04	1.72e+02	7.1e+01
16	1,2,3,4,6,7,8-HpCDD	2.41e+05	2.12e+02	1.1e+03	2.27e+05	5.64e+02	4.0e+02
17	OCDD	7.55e+05	1.08e+02	7.0e+03	8.34e+05	2.00e+02	4.2e+03
18	13C-2,3,7,8-TCDF	1.24e+06	4.11e+03	3.0e+02	1.56e+06	8.88e+02	1.8e+03
19	13C-1,2,3,7,8-PeCDF	2.83e+06	6.48e+02	4.4e+03	1.75e+06	2.04e+02	8.6e+03
20	13C-2,3,4,7,8-PeCDF	2.72e+06	6.48e+02	4.2e+03	1.74e+06	2.04e+02	8.5e+03
21	13C-1,2,3,4,7,8-HxCDF	1.23e+06	2.72e+02	4.5e+03	2.39e+06	4.80e+02	5.0e+03
22	13C-1,2,3,6,7,8-HxCDF	1.20e+06	2.72e+02	4.4e+03	2.31e+06	4.80e+02	4.8e+03
23	13C-2,3,4,6,7,8-HxCDF	1.19e+06	2.72e+02	4.4e+03	2.34e+06	4.80e+02	4.9e+03
24	13C-1,2,3,7,8,9-HxCDF	5.63e+05	2.72e+02	2.1e+03	1.02e+06	4.80e+02	2.1e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.16e+06	2.72e+02	4.3e+03	2.66e+06	1.70e+03	1.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	8.40e+05	2.72e+02	3.1e+03	1.97e+06	1.70e+03	1.2e+03
27	13C-2,3,7,8-TCDD	7.10e+05	3.44e+03	2.1e+02	9.01e+05	2.04e+03	4.4e+02
28	13C-1,2,3,7,8-PeCDD	1.62e+06	4.12e+02	3.9e+03	1.02e+06	3.12e+02	3.3e+03
29	13C-1,2,3,4,7,8-HxCDD	1.26e+06	5.32e+02	2.4e+03	9.49e+05	1.72e+02	5.5e+03
30	13C-1,2,3,6,7,8-HxCDD	1.11e+06	5.32e+02	2.1e+03	8.59e+05	1.72e+02	5.0e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.50e+06	2.48e+02	6.0e+03	1.42e+06	2.52e+02	5.6e+03
32	13C-OCDD	2.33e+06	1.52e+02	1.5e+04	2.63e+06	1.52e+02	1.7e+04
33	13C-1,2,3,4-TCDD	1.27e+06	3.44e+03	3.7e+02	1.65e+06	2.04e+03	8.1e+02
34	13C-1,2,3,7,8,9-HxCDD	1.63e+06	5.32e+02	3.1e+03	1.25e+06	1.72e+02	7.3e+03
35	37Cl-2,3,7,8-TCDD	2.06e+05	3.52e+02	5.9e+02			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

AC-3WP1-20191009

Entry: 38 Totals Name: Total Penta-Furans1

Run: 17 File: P524840 Sample:1 Injection:1 Function:1

Acquired: 20-OCT-19 14:19:12 Processed: 21-OCT-19 14:58:17

Mass: 339.8600 341.8570 Tot Response: 4.09e+02 RRF: 0.9438

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:21	2.40e+02	1.69e+02	1.42	yes	4.09e+02	n	n

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Peak List Summary

CLIENT ID.

AC-3WP1-20191009

Entry: 39 Totals Name: Total Penta-Furans2

Run: 17 File: P524840 Sample:1 Injection:1 Function:2

Acquired: 20-OCT-19 14:19:12 Processed: 21-OCT-19 14:58:17

Mass: 339.8600 341.8570 Tot Response: 1.85e+02 RRF: 0.9438

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	32:29	1.13e+02	7.28e+01	1.55	yes	1.85e+02	2,3,4,7,8-PeCDF	n	y

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Peak List Summary

CLIENT ID.

AC-3WP1-20191009

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 17 File: P524840 Sample:1 Injection:1 Function:2

Acquired: 20-OCT-19 14:19:12 Processed: 21-OCT-19 14:58:17

Mass: 355.8550 357.8520 Tot Response: 4.14e+02 RRF: 0.9712

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:54	8.96e+01	6.38e+01	1.40	yes	1.53e+02	n	n
2	31:27	9.34e+01	6.57e+01	1.42	yes	1.59e+02	n	n
3	31:57	6.03e+01	4.11e+01	1.47	yes	1.01e+02	y	n

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Peak List Summary

CLIENT ID.

AC-3WP1-20191009

Entry: 41 Totals Name: Total Hexa-Furans

Run: 17 File: P524840 Sample:1 Injection:1 Function:3

Acquired: 20-OCT-19 14:19:12 Processed: 21-OCT-19 14:58:17

Mass: 373.8210 375.8180 Tot Response: 2.81e+03 RRF: 1.099

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:21	1.77e+02	1.43e+02	1.24	yes	3.20e+02		n	n
2	34:32	5.69e+02	4.86e+02	1.17	yes	1.05e+03		n	n
3	35:04	4.25e+02	3.37e+02	1.26	yes	7.63e+02		n	n
4	35:40	2.15e+02	1.71e+02	1.26	yes	3.87e+02	1,2,3,4,7,8-HxCDF	n	n
5	35:48	8.64e+01	7.38e+01	1.17	yes	1.60e+02	1,2,3,6,7,8-HxCDF	n	n
6	36:21	6.93e+01	6.11e+01	1.13	yes	1.30e+02	2,3,4,6,7,8-HxCDF	n	n

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Peak List Summary

CLIENT ID.

AC-3WP1-20191009

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 17 File: P524840 Sample:1 Injection:1 Function:3

Acquired: 20-OCT-19 14:19:12 Processed: 21-OCT-19 14:58:17

Mass: 389.8160 391.8130 Tot Response: 8.06e+03 RRF: 1.039

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:58	1.22e+03	9.70e+02	1.25	yes	2.19e+03	n	n
2	35:34	2.08e+02	1.55e+02	1.34	yes	3.63e+02	n	n
3	35:50	2.60e+03	2.11e+03	1.23	yes	4.71e+03	n	n
4	35:59	1.59e+02	1.23e+02	1.30	yes	2.82e+02	n	n
5	36:29	2.60e+02	2.11e+02	1.24	yes	4.71e+02	1,2,3,6,7,8-HxCDD	y	y
6	36:36	2.48e+01	2.05e+01	1.21	yes	4.53e+01	n	n

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Peak List Summary

CLIENT ID.

AC-3WP1-20191009

Entry: 43 Totals Name: Total Hepta-Furans

Run: 17 File: P524840 Sample:1 Injection:1 Function:4

Acquired: 20-OCT-19 14:19:12 Processed: 21-OCT-19 14:58:17

Mass: 407.7820 409.7790 Tot Response: 4.76e+03 RRF: 1.241

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:49	1.54e+03	1.53e+03	1.01	yes	3.07e+03	1,2,3,4,6,7,8-HpCDF	n	n
2	38:11	7.96e+02	8.14e+02	0.98	yes	1.61e+03		n	n
3	39:03	4.14e+01	4.46e+01	0.93	yes	8.60e+01	1,2,3,4,7,8,9-HpCDF	n	n

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Peak List Summary

CLIENT ID.

AC-3WP1-20191009

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 17 File: P524840 Sample:1 Injection:1 Function:4

Acquired: 20-OCT-19 14:19:12 Processed: 21-OCT-19 14:58:17

Mass: 423.7770 425.7740 Tot Response: 8.54e+03 RRF: 0.9886

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:03	3.28e+03	3.21e+03	1.02	yes	6.49e+03	n	n
2	38:39	1.06e+03	9.89e+02	1.07	yes	2.05e+03	1,2,3,4,6,7,8-HpCDD	n	n

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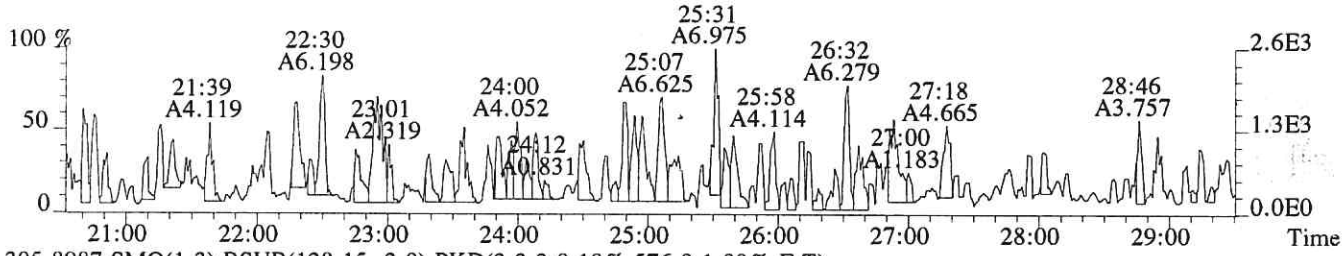
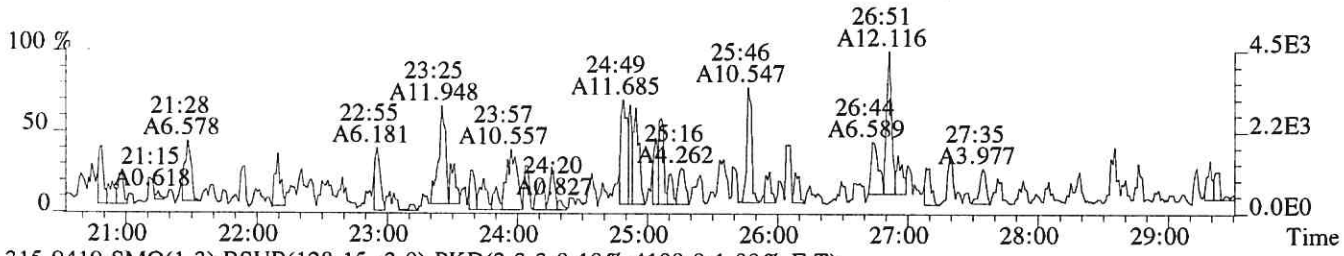
RIGHT SOLUTIONS | RIGHT PARTNER

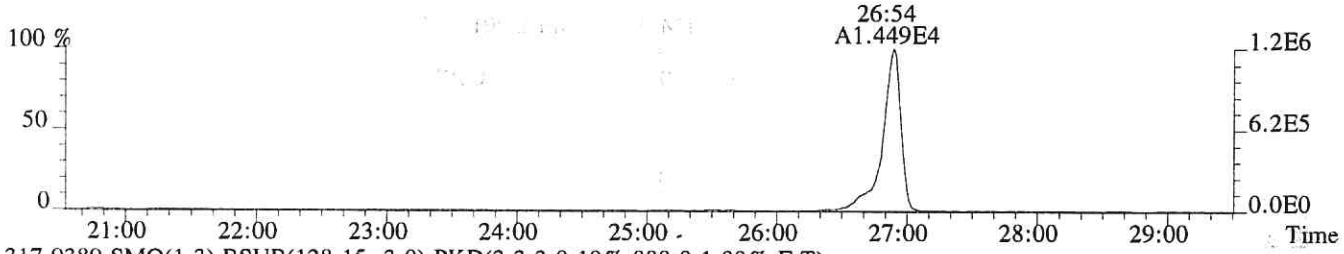
File:P524840 #1-637 Acq:20-OCT-2019 14:19:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1900728-004DL
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,420.0,1.00%,F,T)



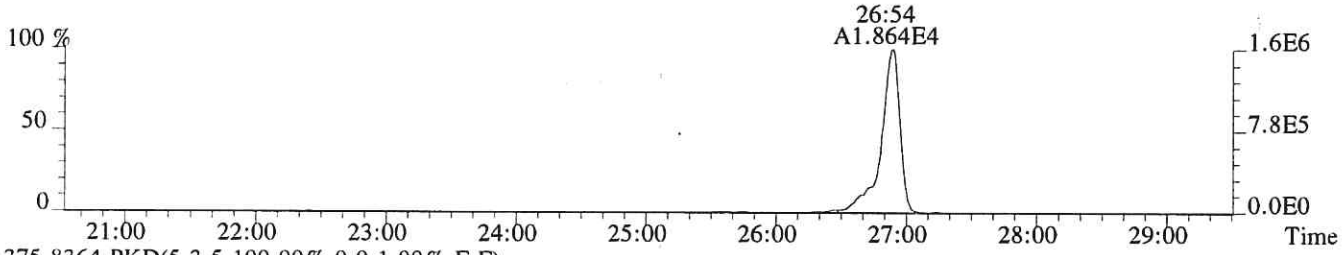
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,576.0,1.00%,F,T)



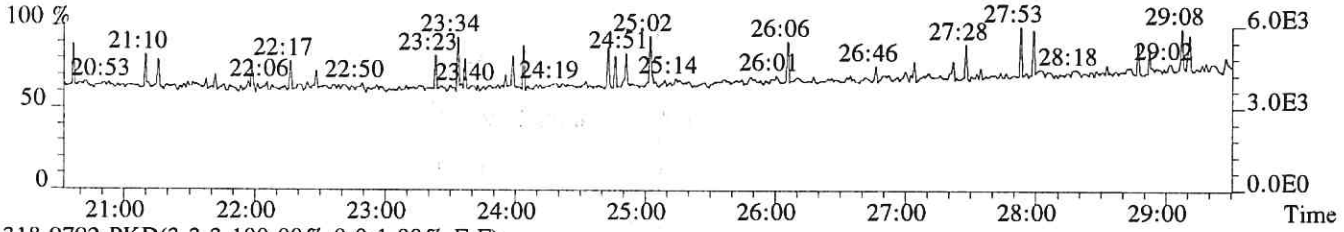
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4108.0,1.00%,F,T)



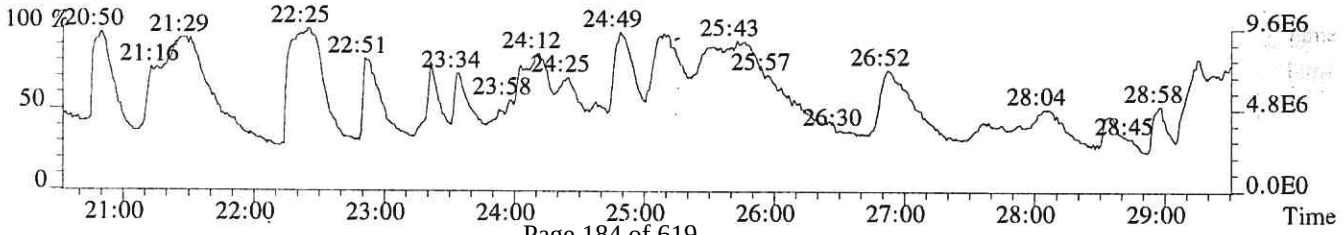
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,888.0,1.00%,F,T)



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

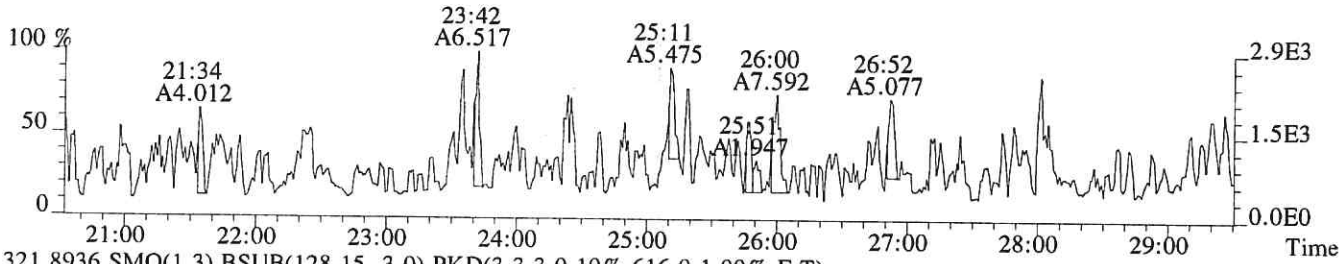


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

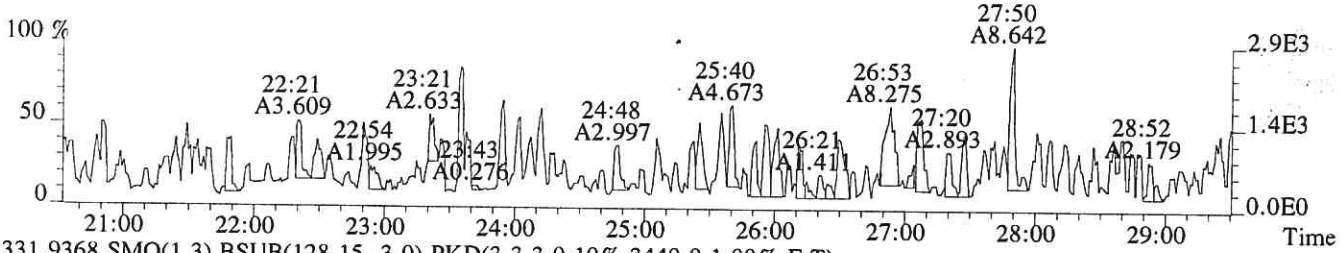


RIGHT SOLUTIONS | RIGHT PARTNER

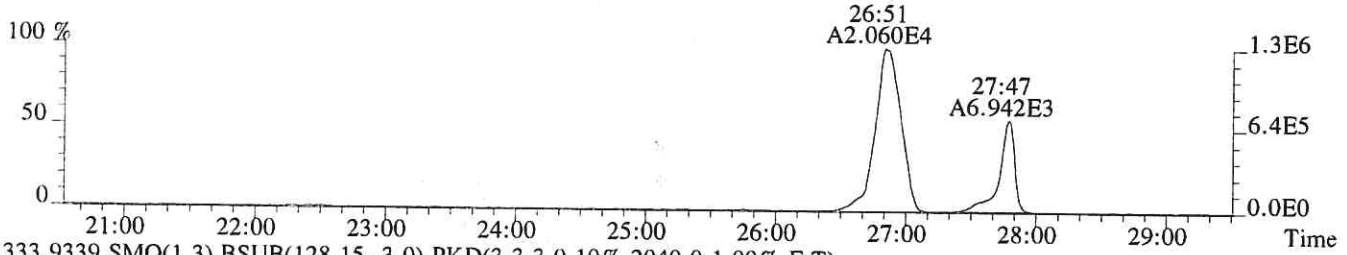
File:P524840 #1-637 Acq:20-OCT-2019 14:19:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1900728-004DL
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1076.0,1.00%,F,T)



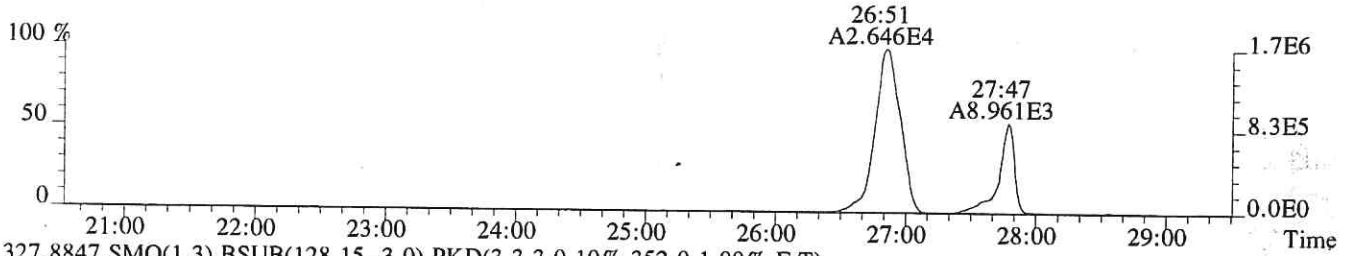
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,616.0,1.00%,F,T)



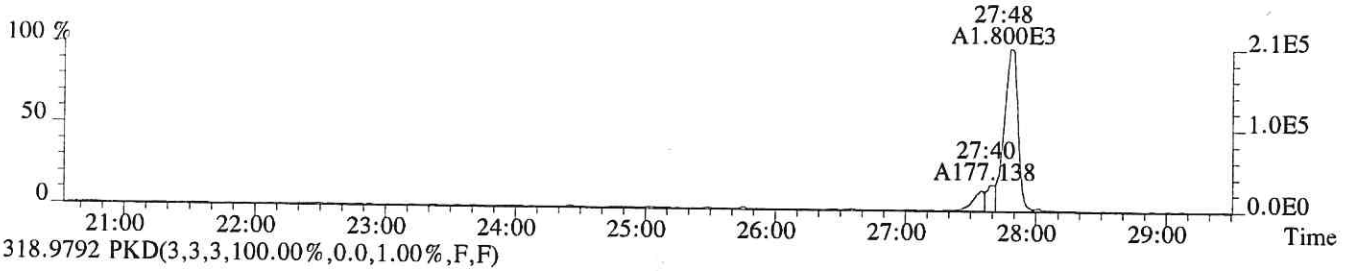
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3440.0,1.00%,F,T)



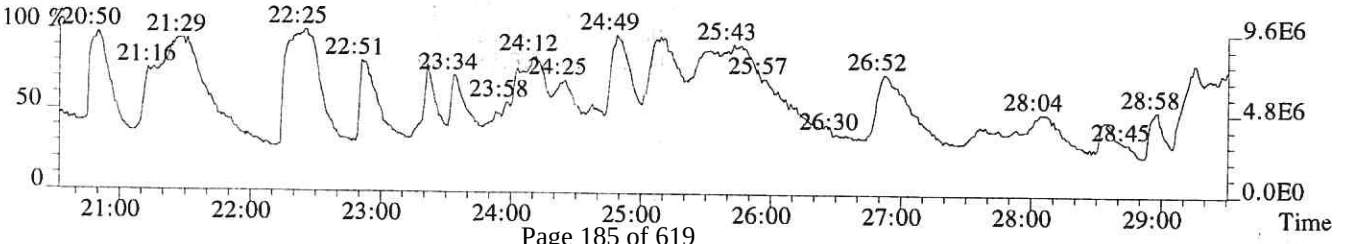
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2040.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,352.0,1.00%,F,T)

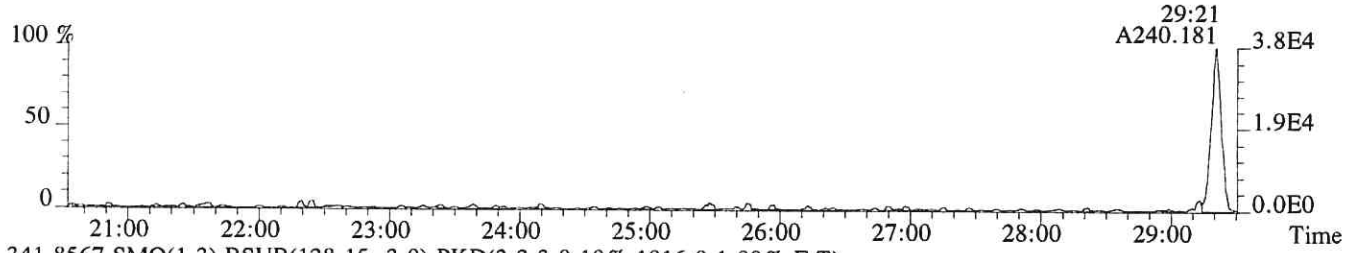


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

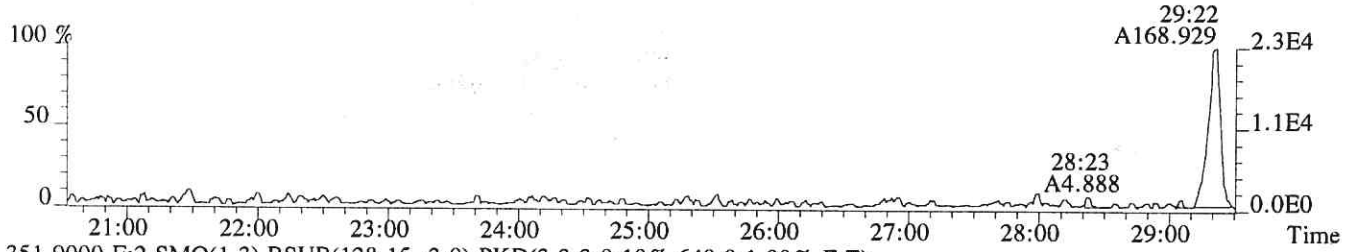


RIGHT SOLUTIONS | RIGHT PARTNER

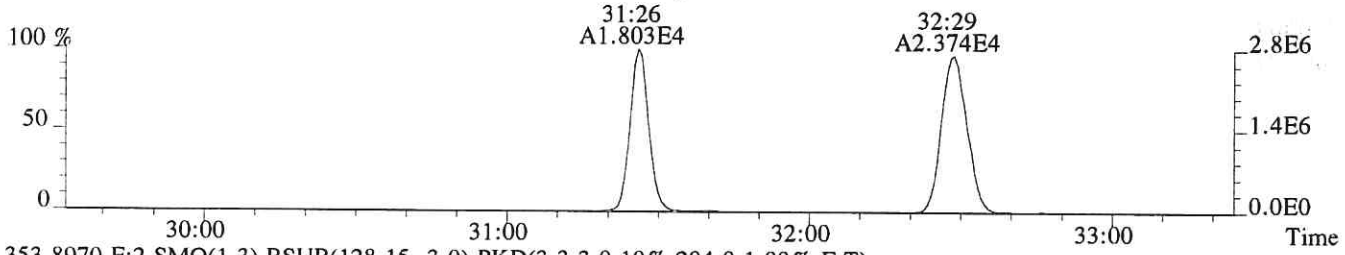
File:P524840 #1-637 Acq:20-OCT-2019 14:19:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1900728-004DL
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,236.0,1.00%,F,T)



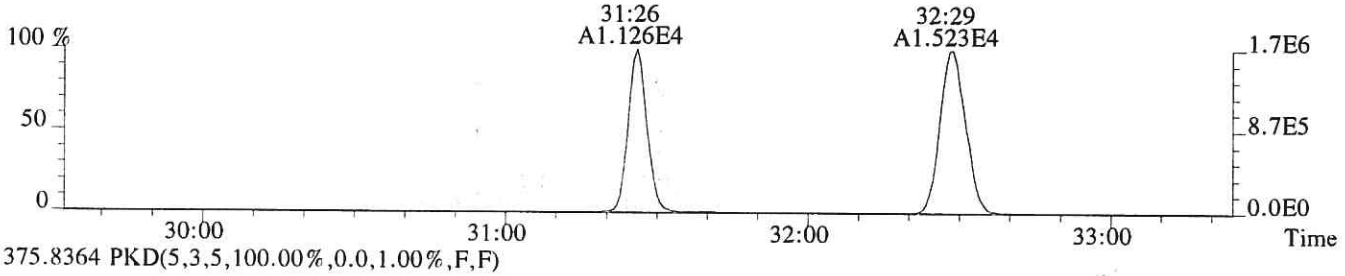
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1016.0,1.00%,F,T)



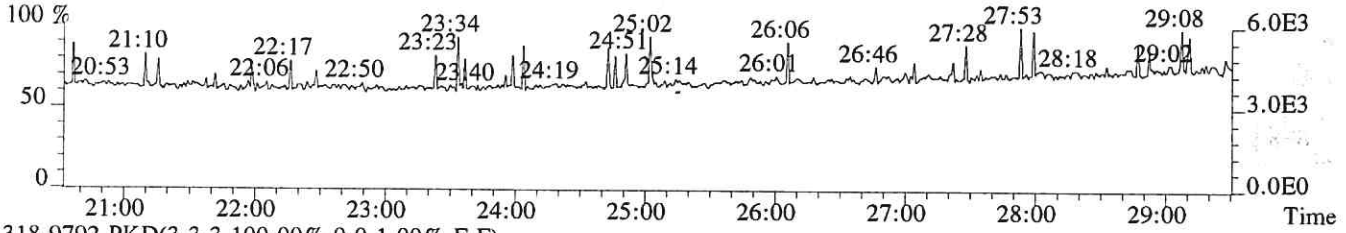
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



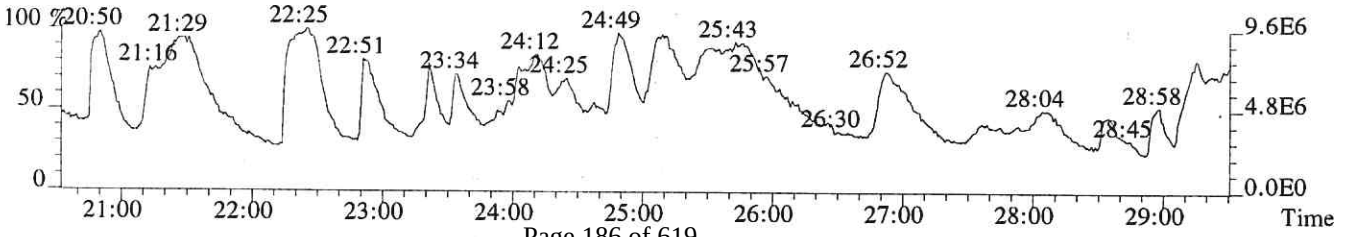
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,204.0,1.00%,F,T)



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

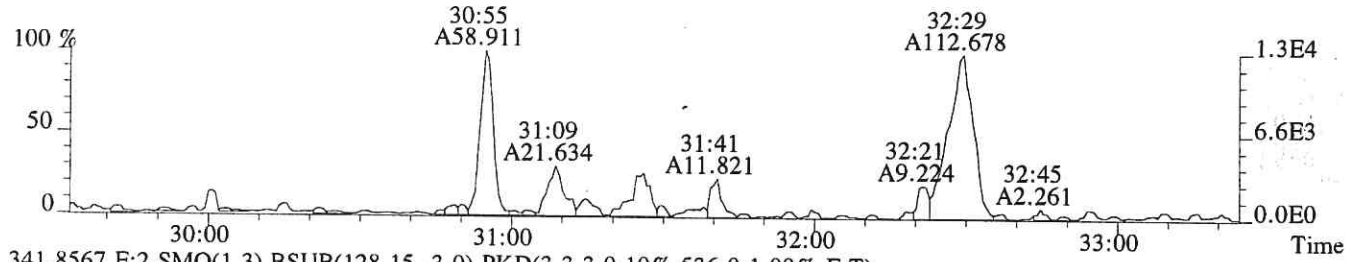


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

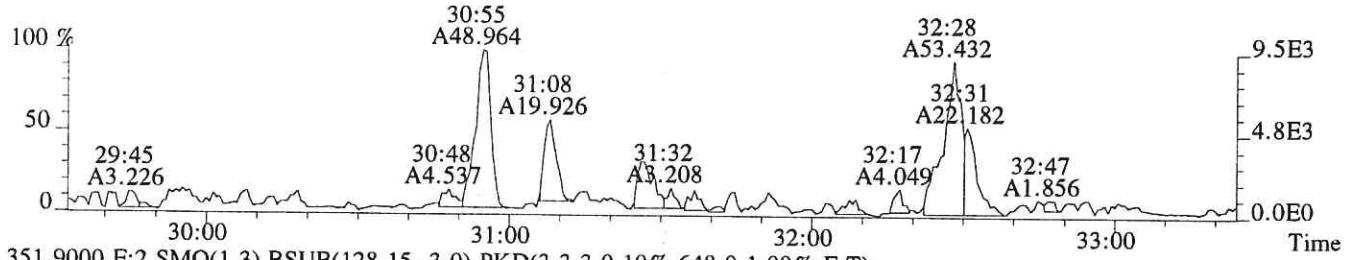


RIGHT SOLUTIONS | RIGHT PARTNER

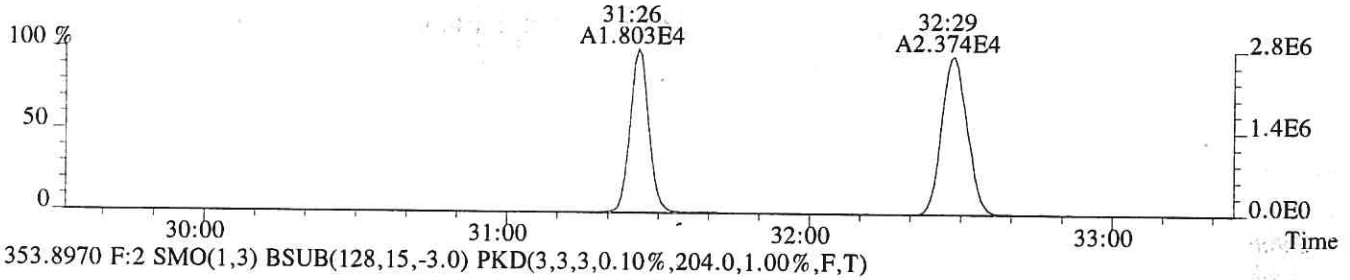
File:P524840 #1-348 Acq:20-OCT-2019 14:19:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1900728-004DL
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,272.0,1.00%,F,T)



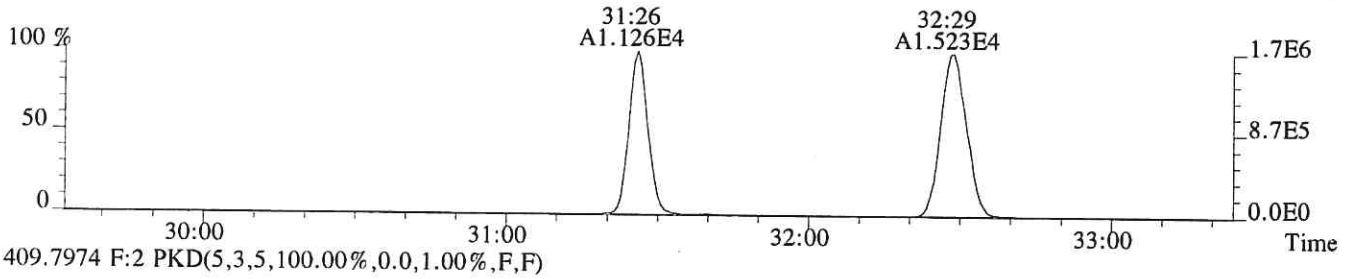
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,536.0,1.00%,F,T)



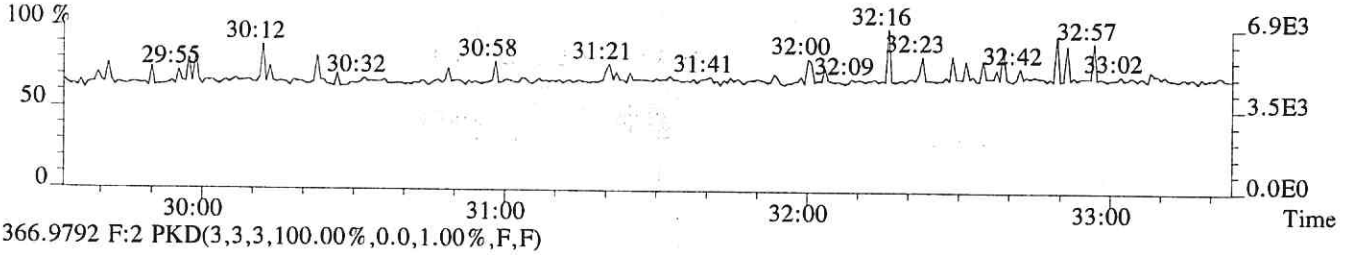
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



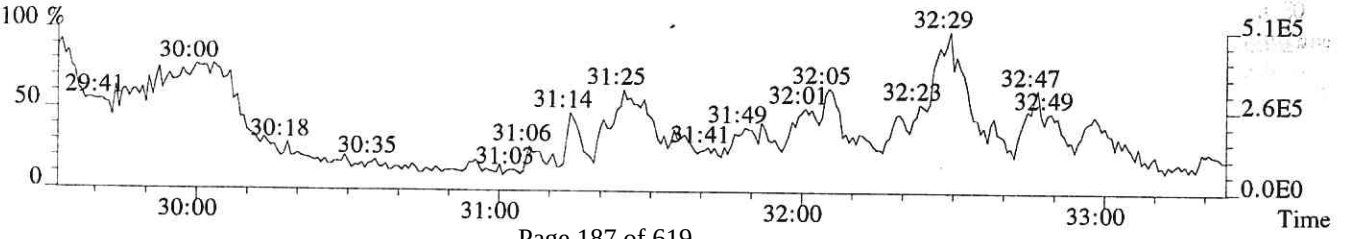
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,204.0,1.00%,F,T)



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

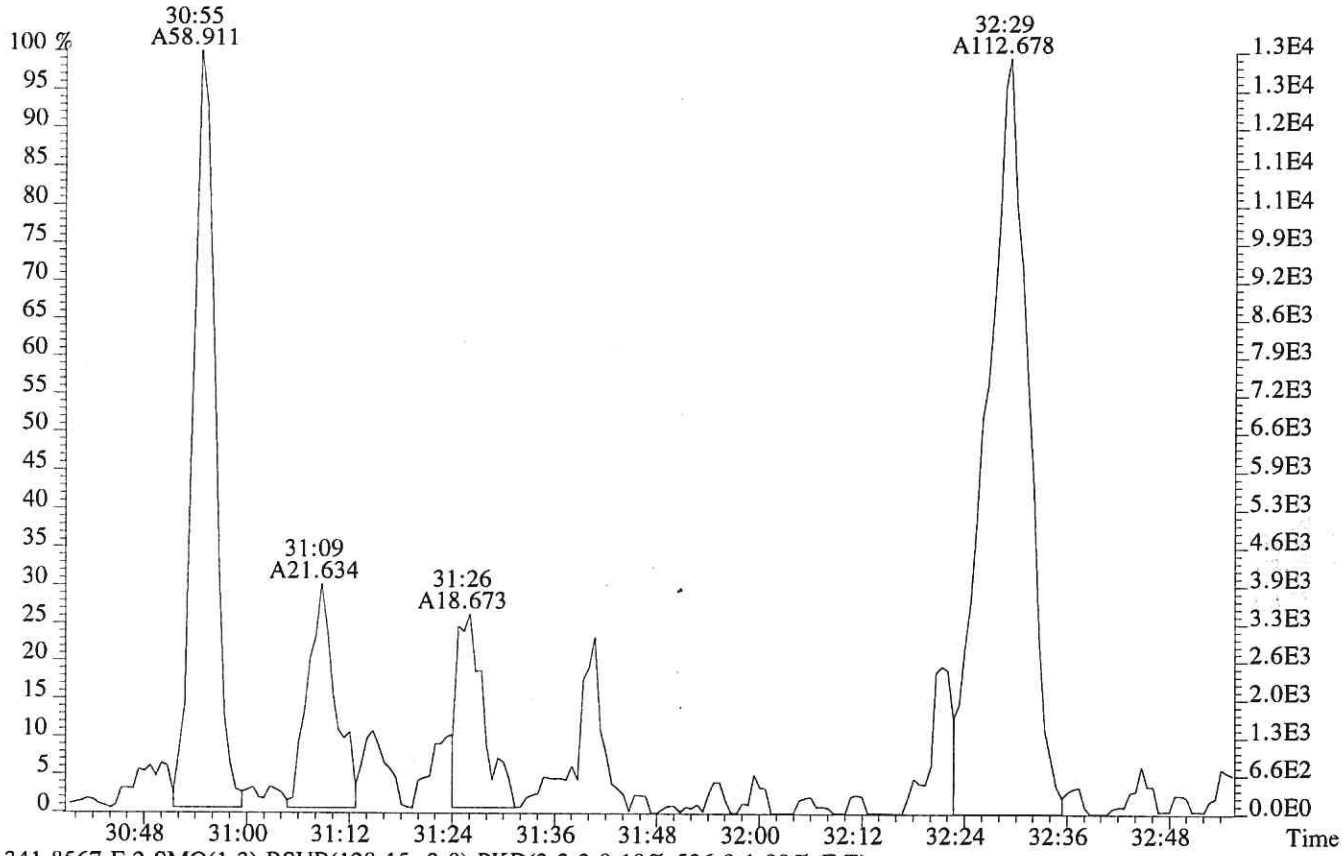


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

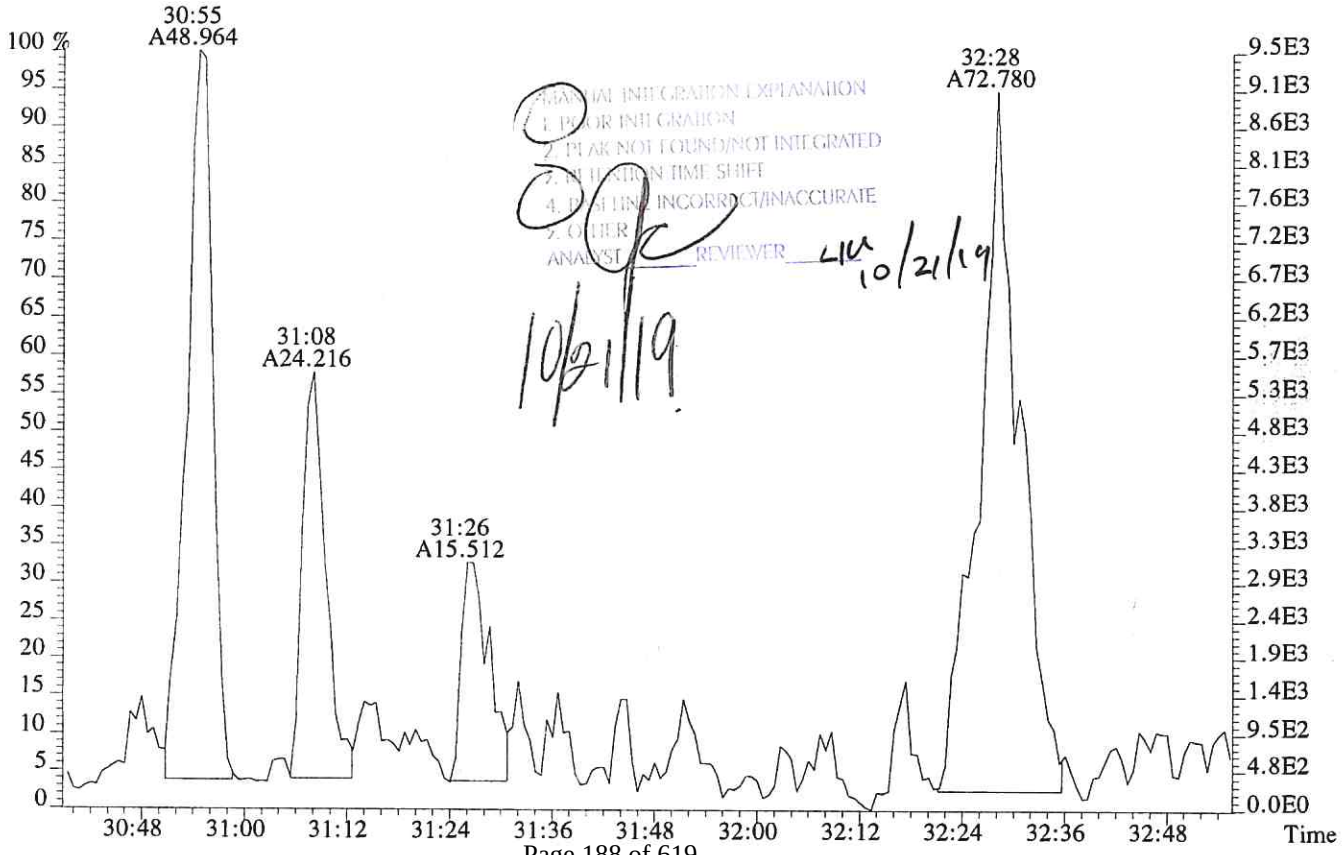


RIGHT SOLUTIONS | RIGHT PARTNER

File:P524840 #1-348 Acq:20-OCT-2019 14:19:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1900728-004DL
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,272.0,1.00%,F,T)



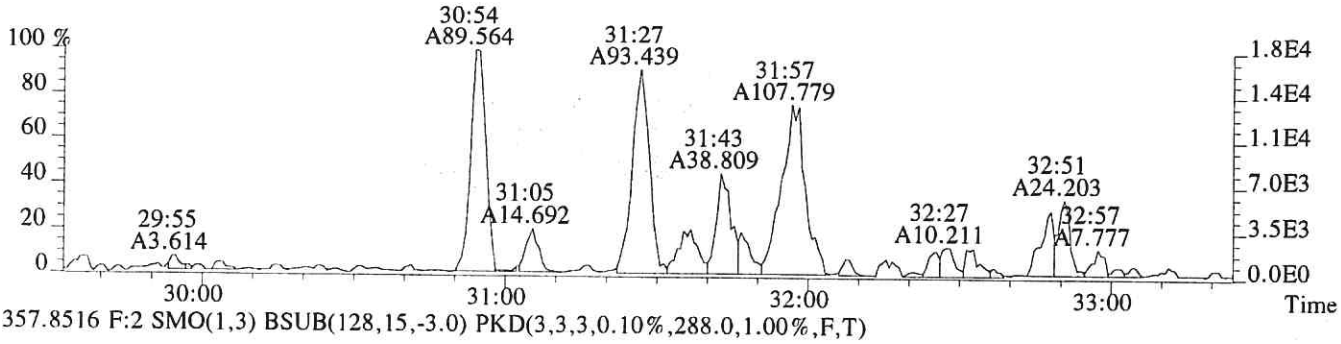
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,536.0,1.00%,F,T)



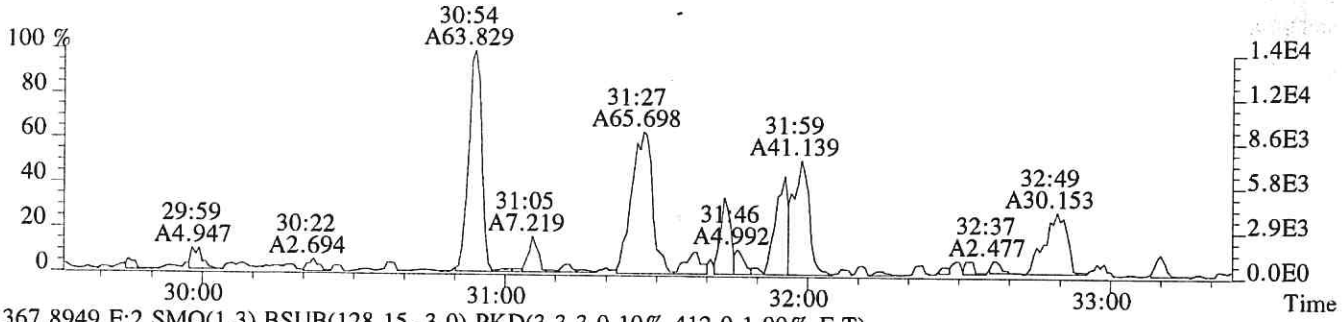
MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. PEAK LINE INCORRECT/INACCURATE
5. OTHER
ANALYST 10/21/19 REVIEWER LKK 10/21/19

RIGHT SOLUTIONS | RIGHT PARTNER

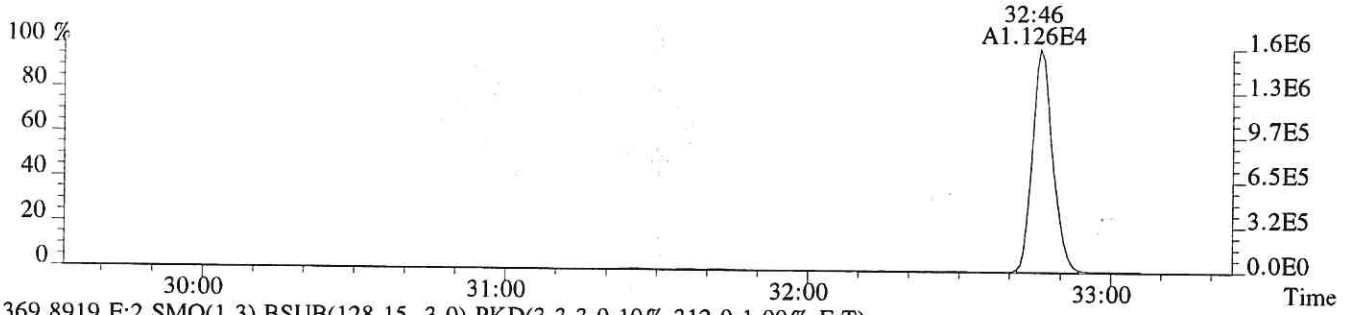
File:P524840 #1-348 Acq:20-OCT-2019 14:19:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1900728-004DL
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,484.0,1.00%,F,T)



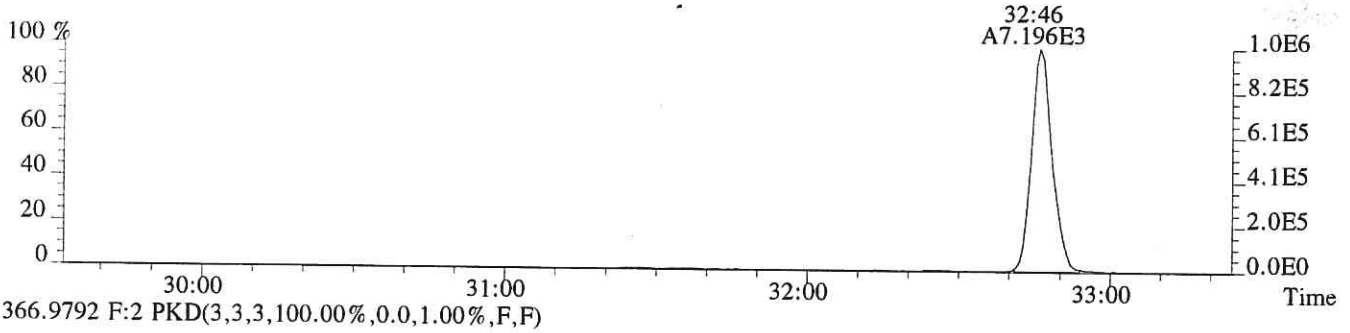
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,288.0,1.00%,F,T)



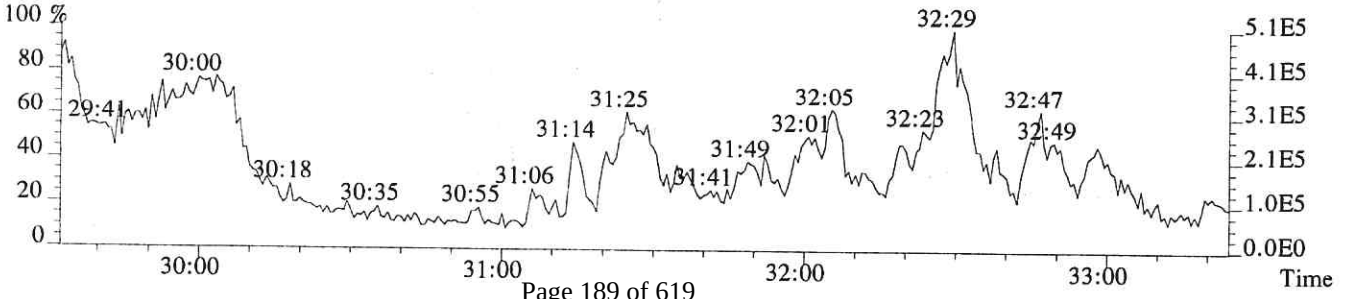
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,412.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,312.0,1.00%,F,T)

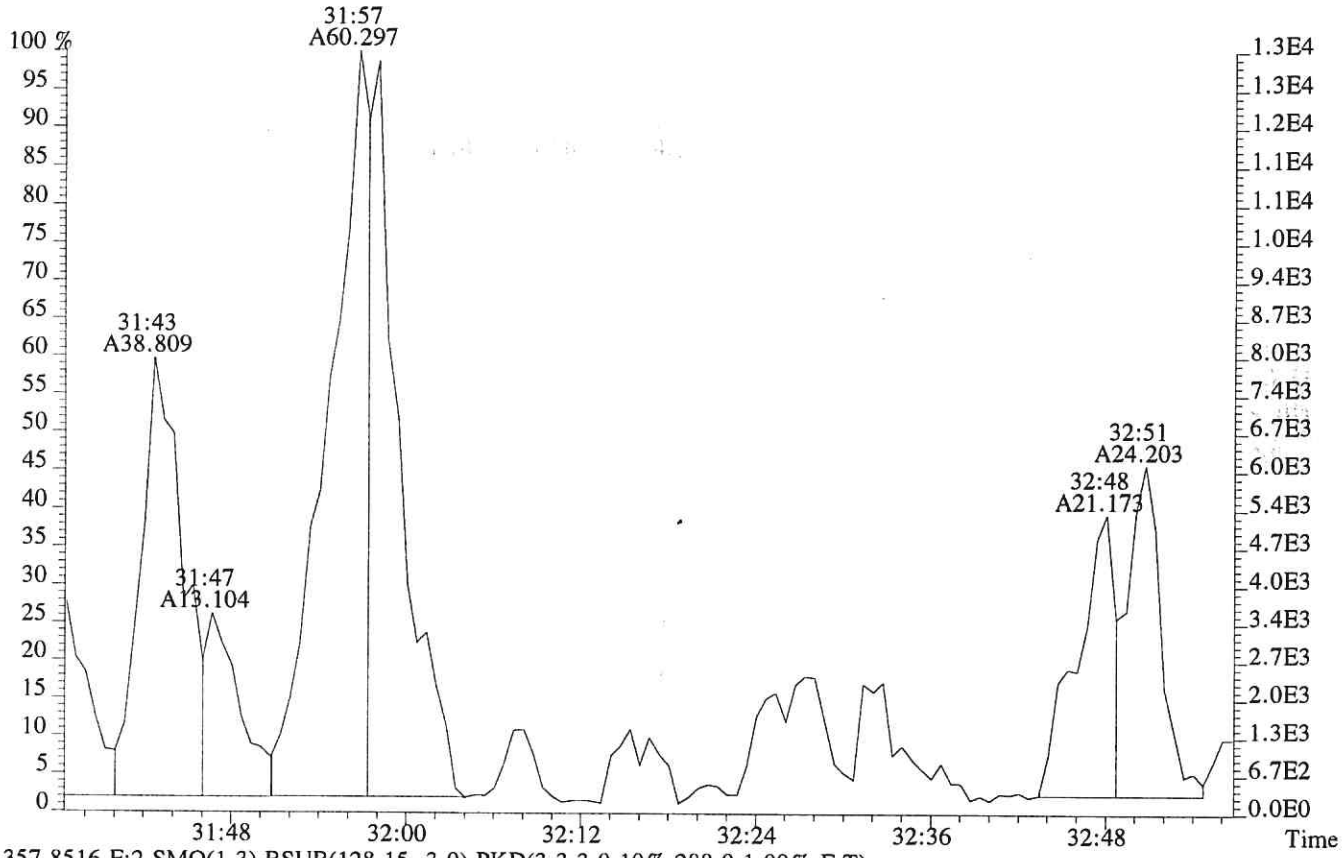


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

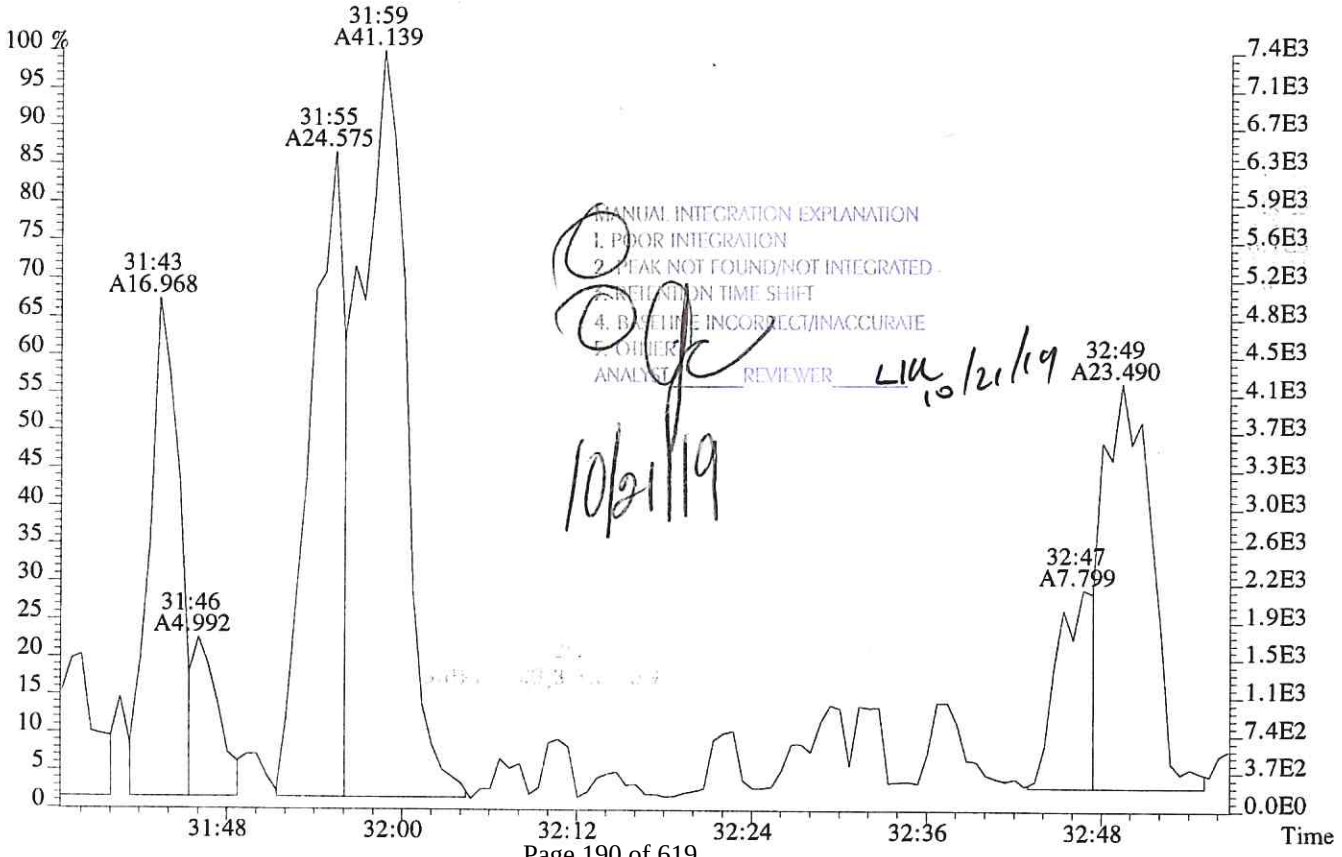


RIGHT SOLUTIONS | RIGHT PARTNER

File:P524840 #1-348 Acq:20-OCT-2019 14:19:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1900728-004DL
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,484.0,1.00%,F,T)



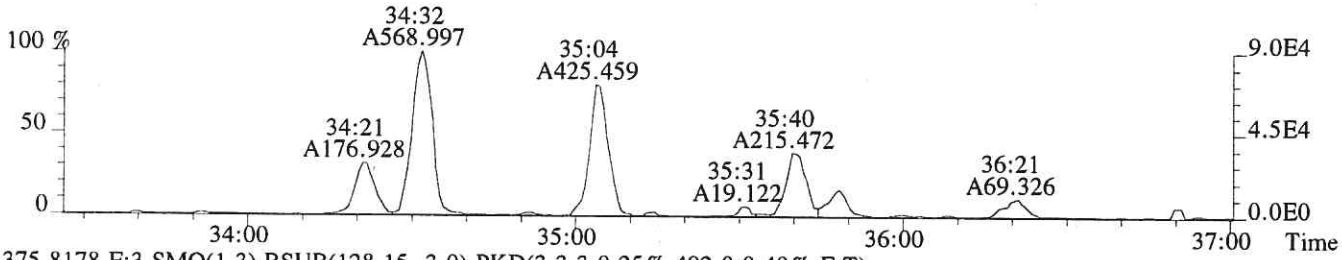
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,288.0,1.00%,F,T)



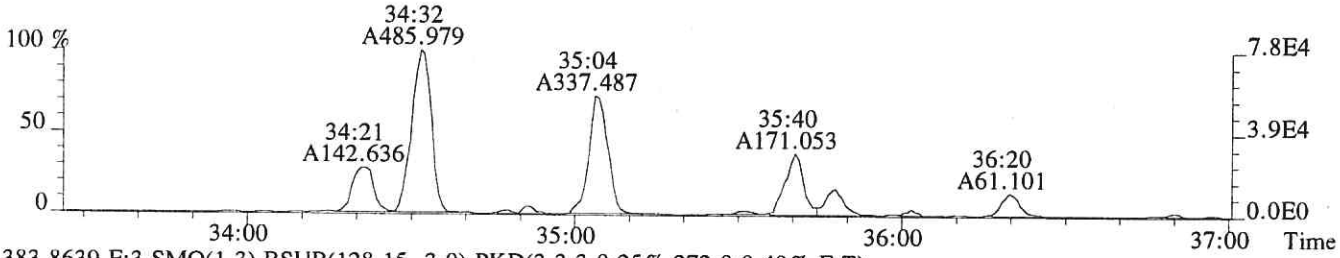
MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST 10/21/19 REVIEWER LIU 10/21/19

RIGHT SOLUTIONS | RIGHT PARTNER

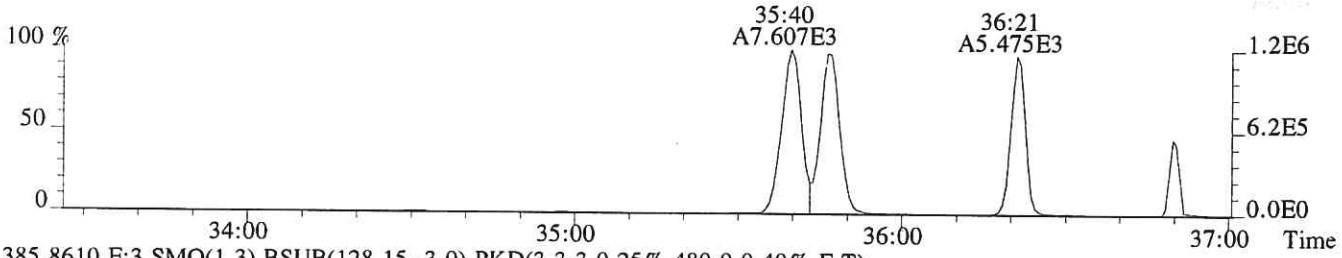
File:P524840 #1-322 Acq:20-OCT-2019 14:19:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1900728-004DL
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,160.0,0.40%,F,T)



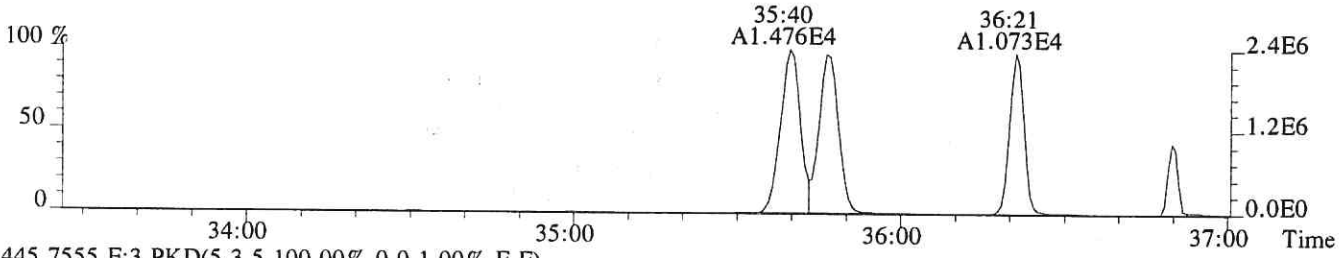
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,492.0,0.40%,F,T)



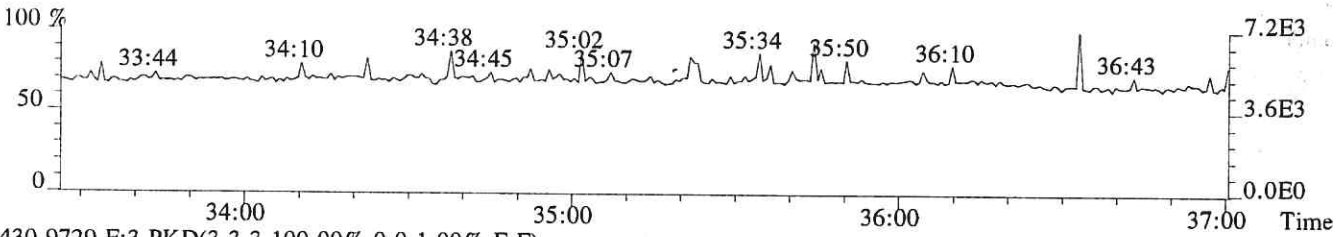
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,272.0,0.40%,F,T)



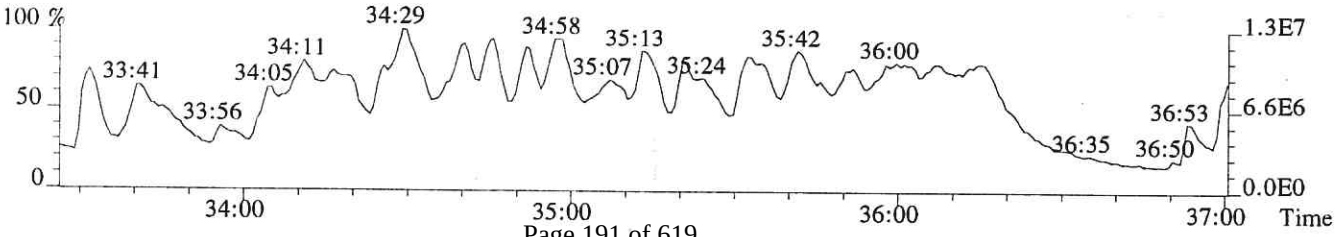
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,480.0,0.40%,F,T)



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

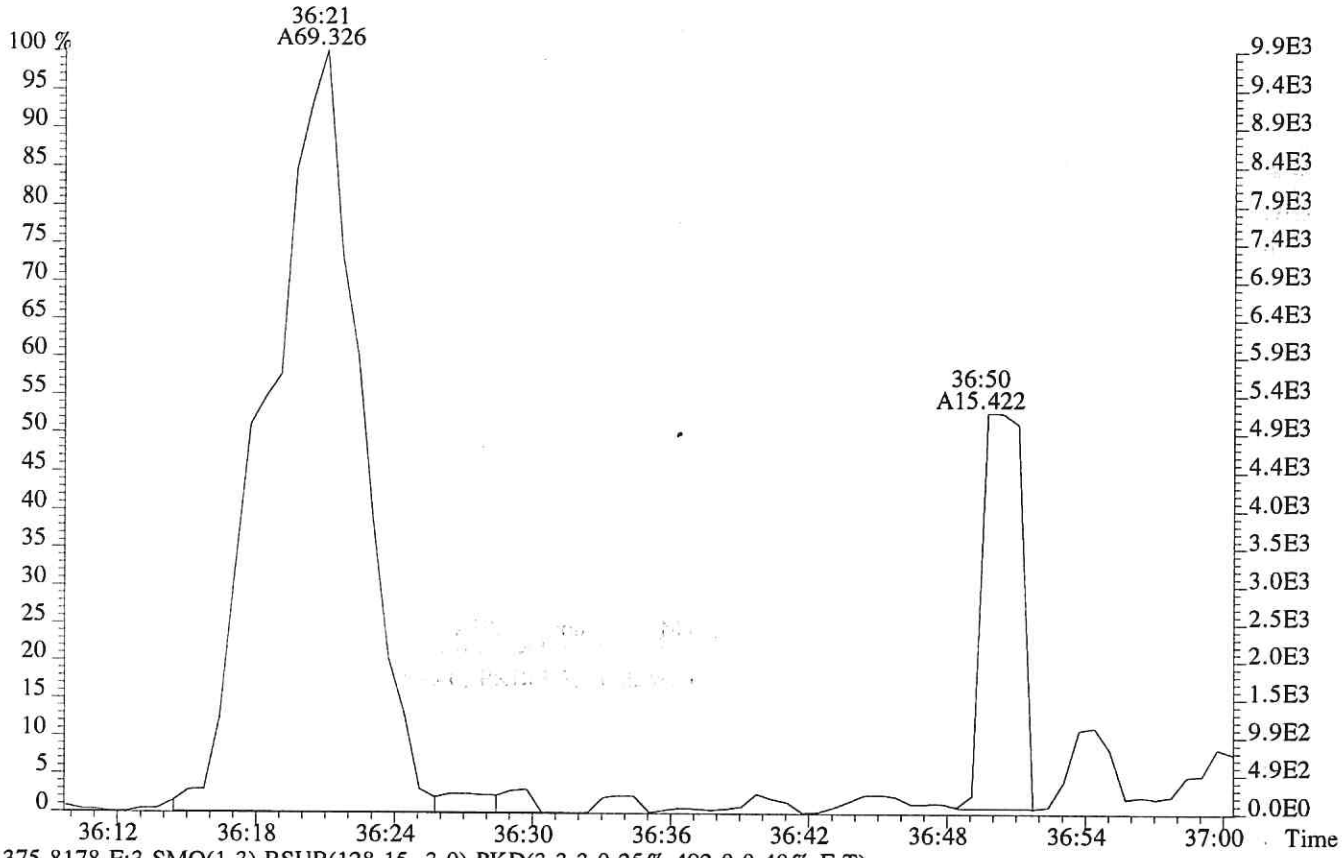


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

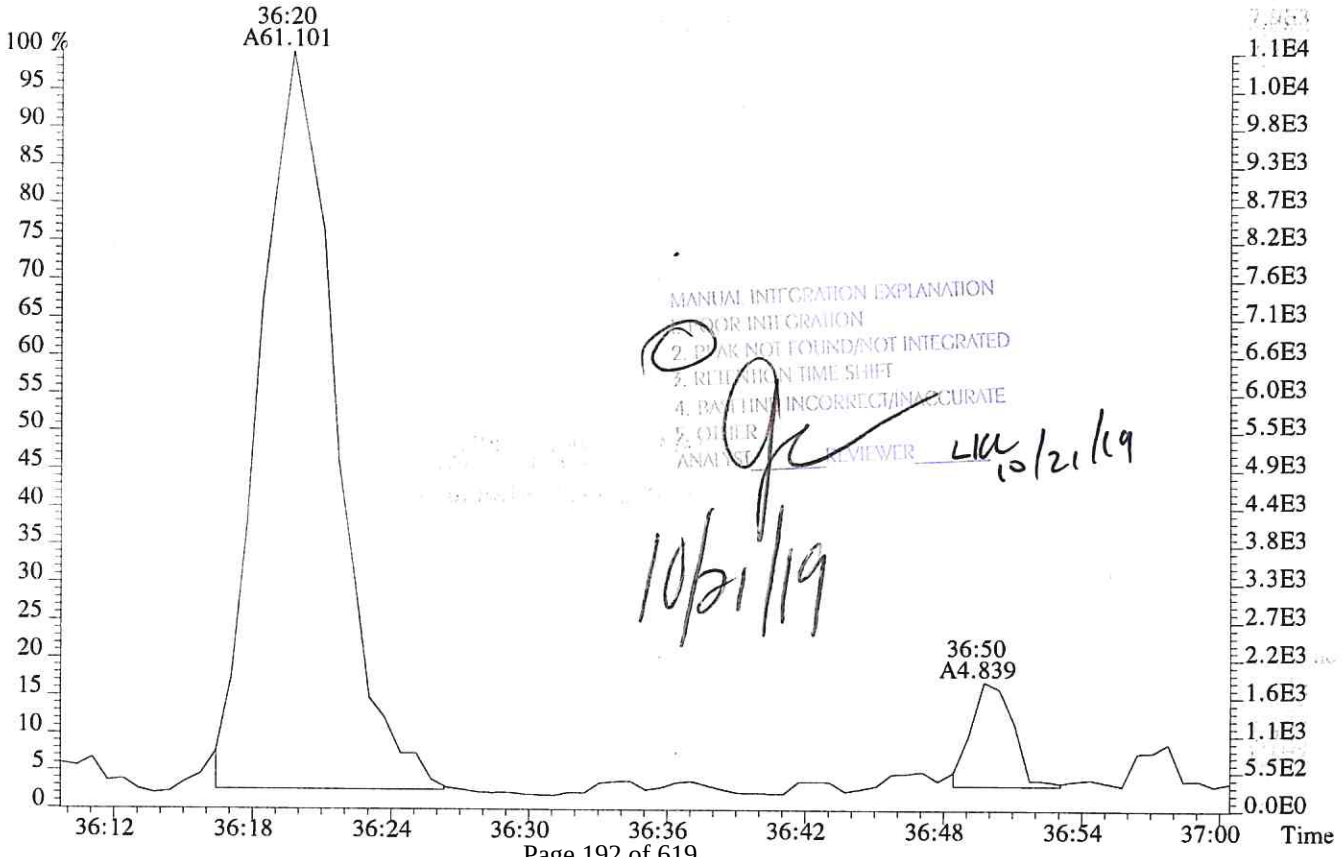


RIGHT SOLUTIONS | RIGHT PARTNER

File:P524840 #1-322 Acq:20-OCT-2019 14:19:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1900728-004DL
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,160.0,0.40%,F,T)



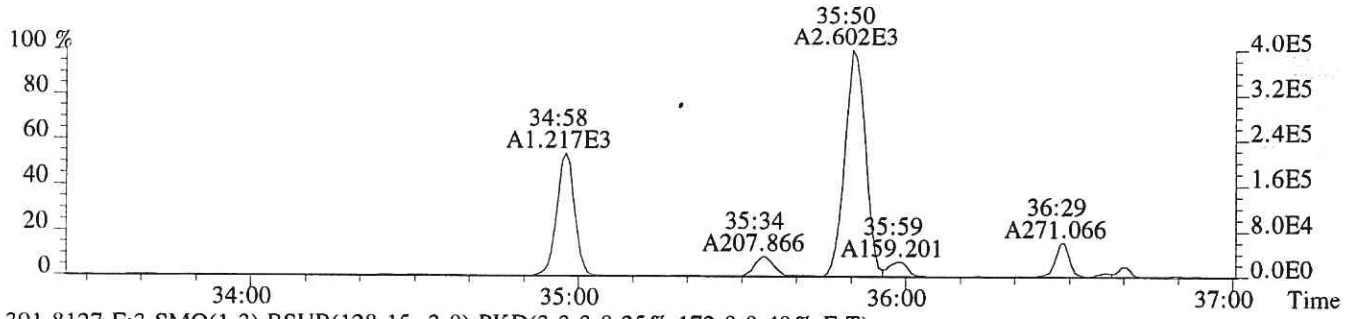
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,492.0,0.40%,F,T)



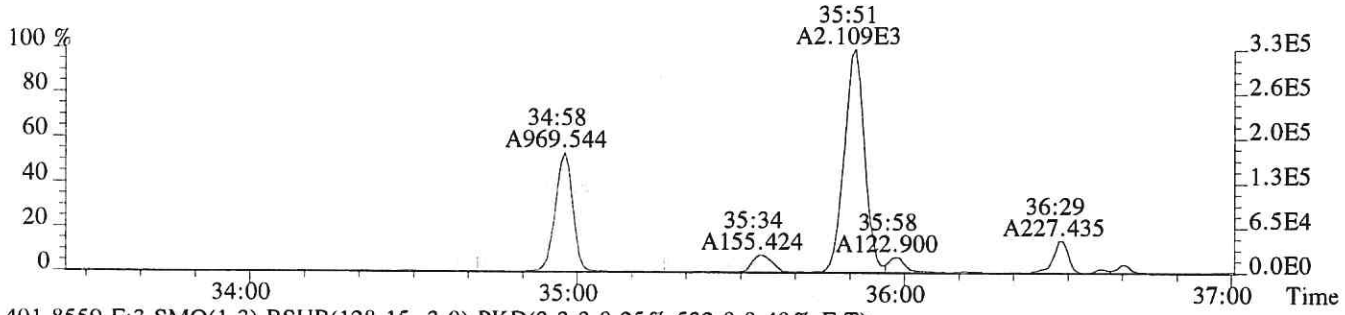
MANUAL INTEGRATION EXPLANATION
1. NOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST LKW 10/21/19 REVIEWER
10/21/19

RIGHT SOLUTIONS | RIGHT PARTNER

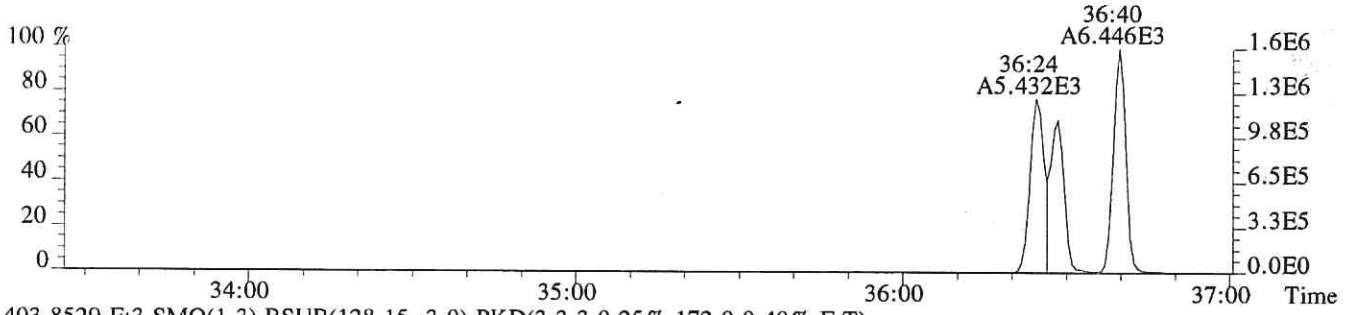
File:P524840 #1-322 Acq:20-OCT-2019 14:19:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1900728-004DL
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,264.0,0.40%,F,T)



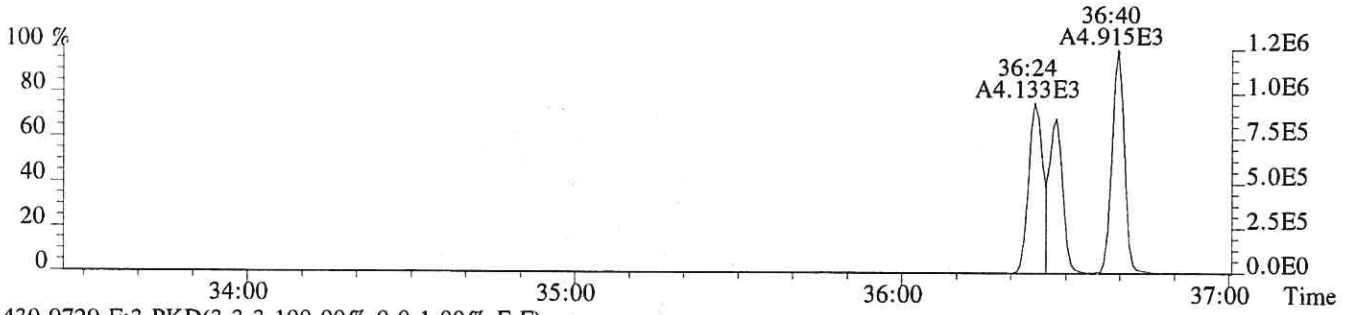
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,172.0,0.40%,F,T)



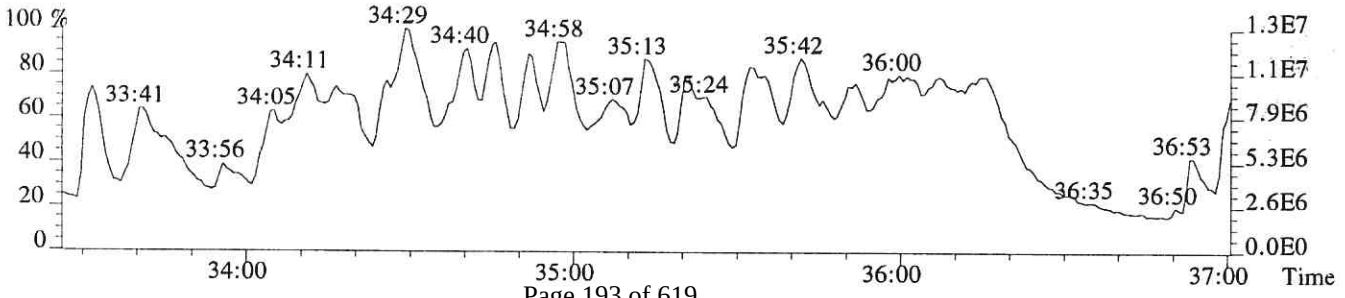
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,532.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,172.0,0.40%,F,T)

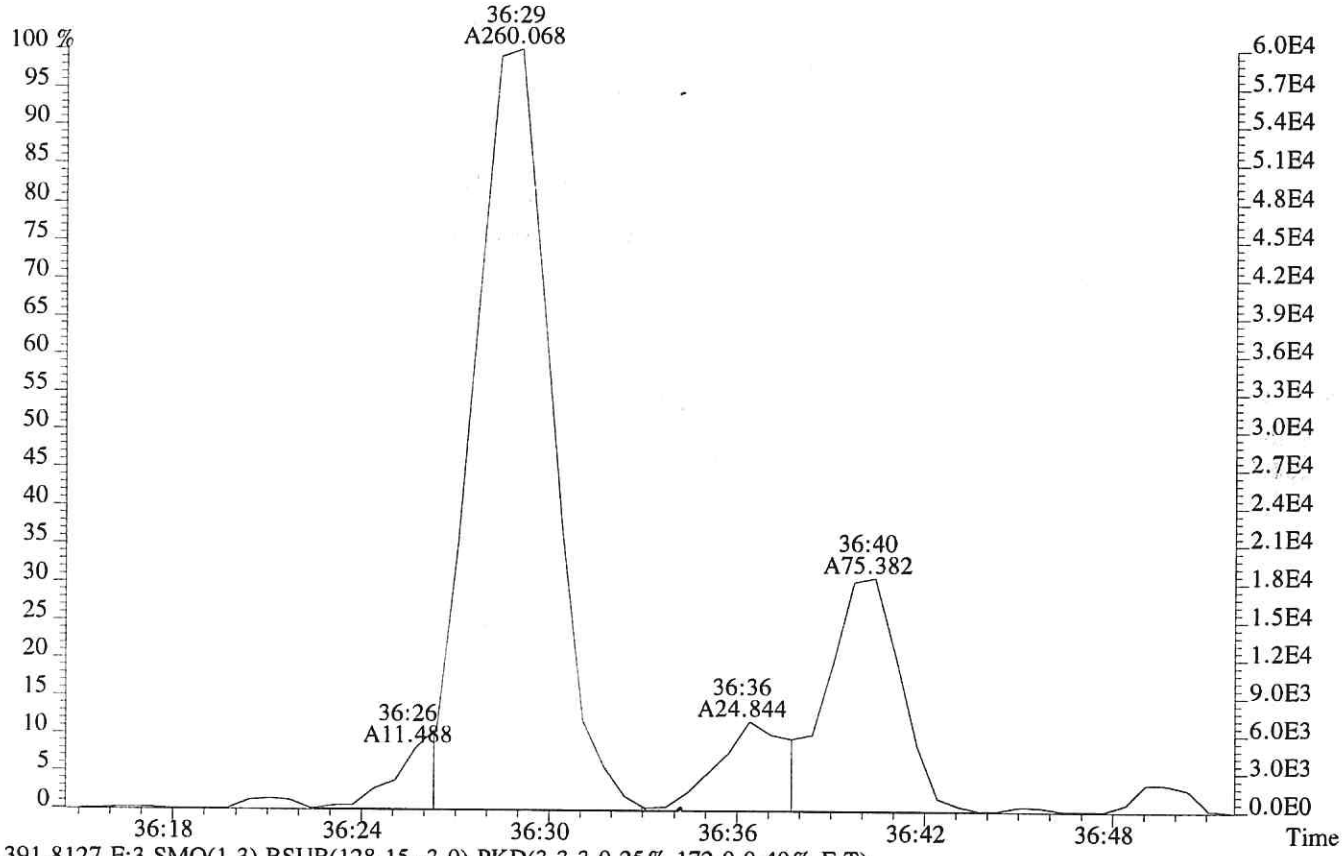


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

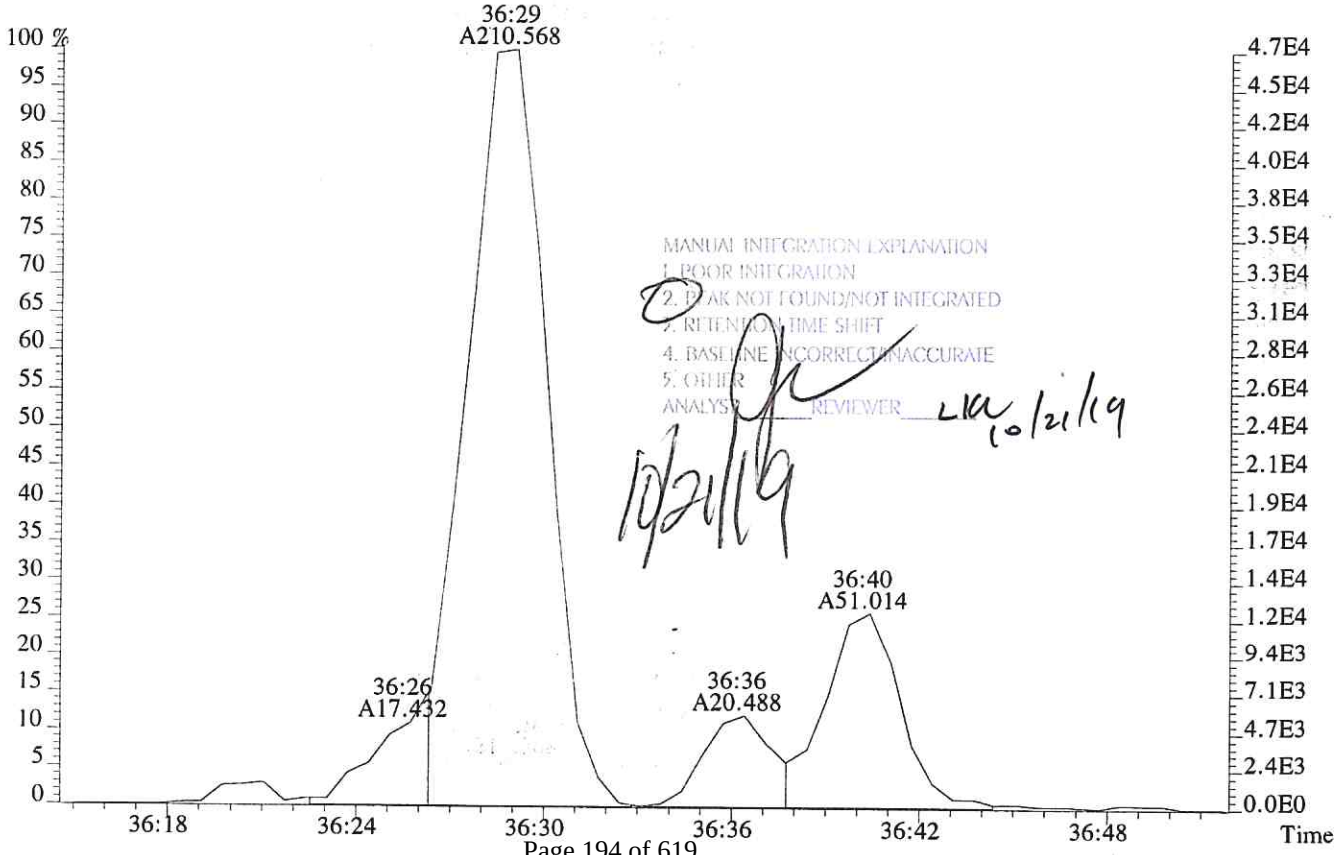


RIGHT SOLUTIONS | RIGHT PARTNER

File:P524840 #1-322 Acq:20-OCT-2019 14:19:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1900728-004DL
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,264.0,0.40%,F,T)



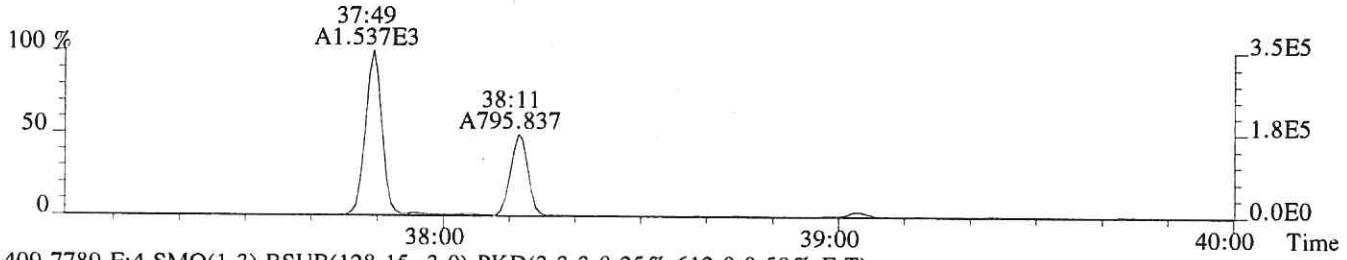
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,172.0,0.40%,F,T)



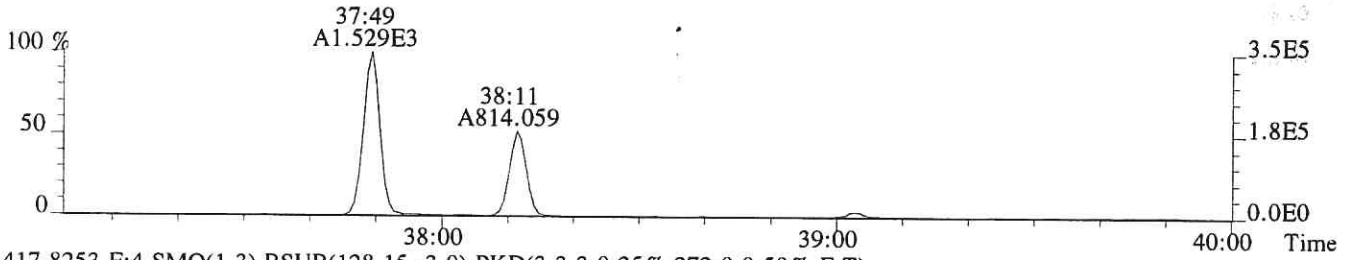
MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST 10/21/19 REVIEWER LKA 10/21/19

RIGHT SOLUTIONS | RIGHT PARTNER

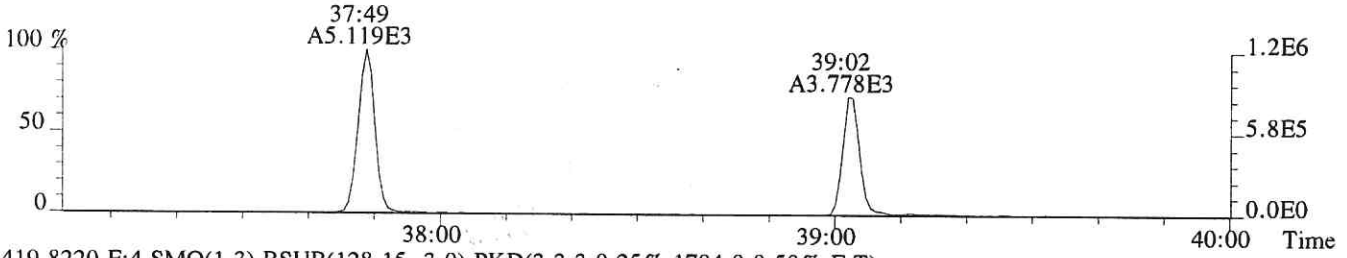
File:P524840 #1-267 Acq:20-OCT-2019 14:19:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1900728-004DL
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,488.0,0.50%,F,T)



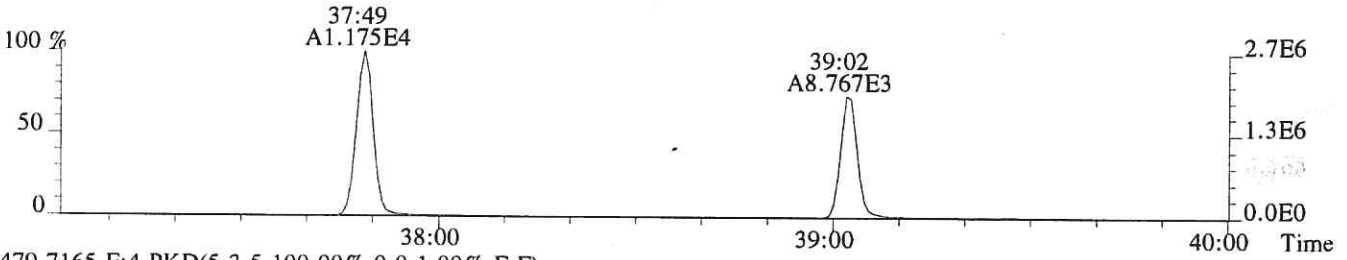
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,612.0,0.50%,F,T)



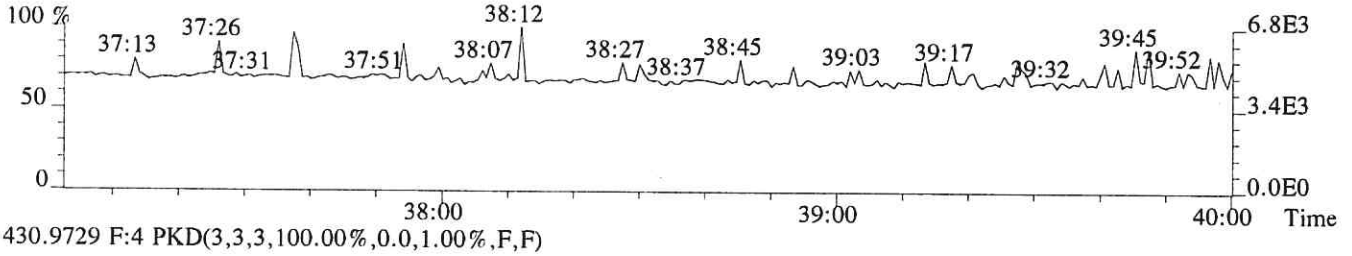
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,272.0,0.50%,F,T)



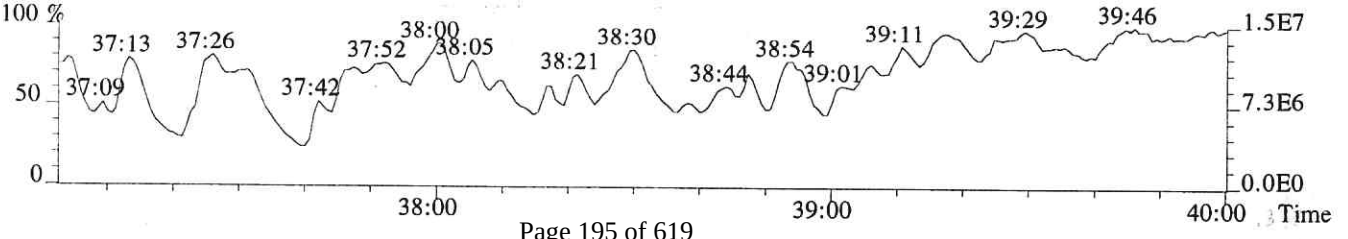
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1704.0,0.50%,F,T)



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

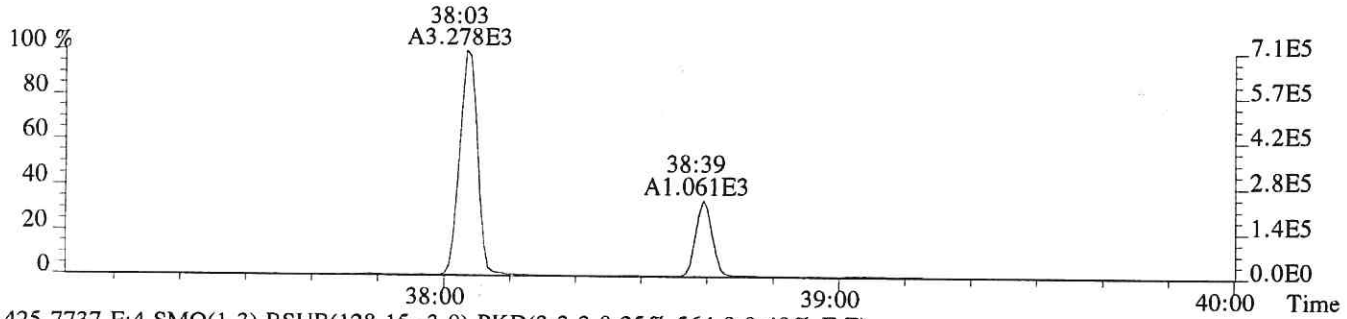


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

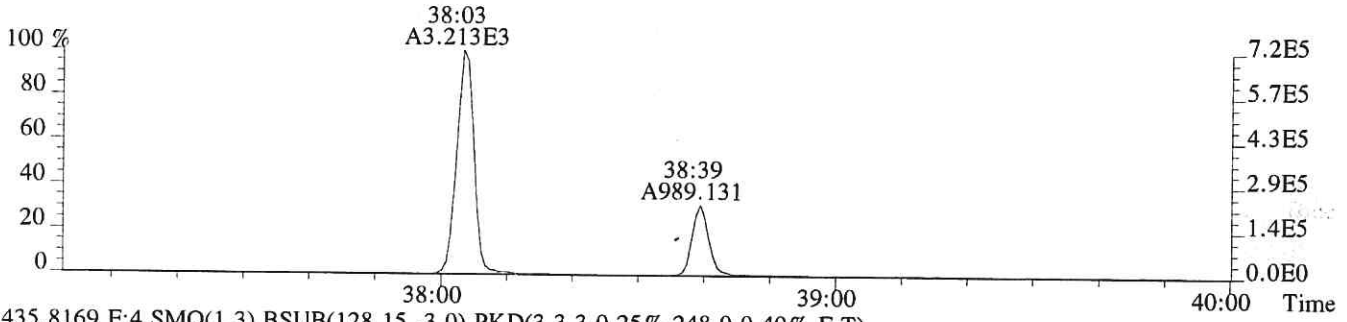


RIGHT SOLUTIONS | RIGHT PARTNER

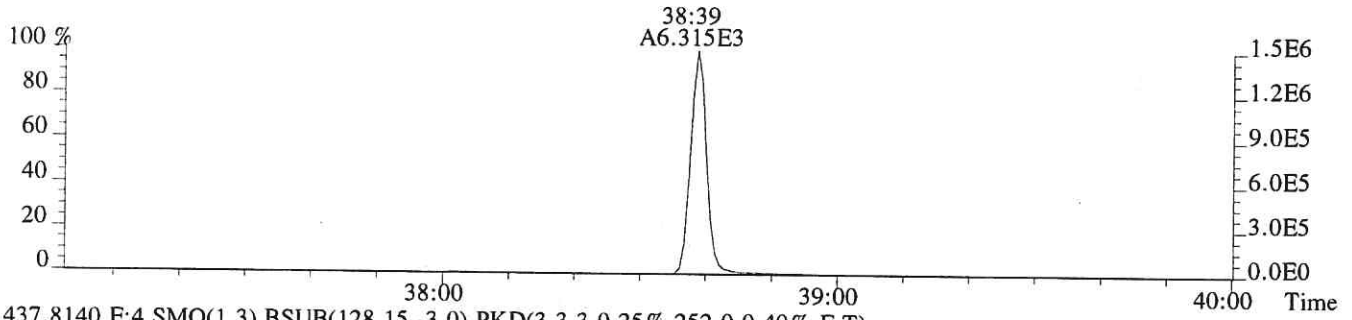
File:P524840 #1-267 Acq:20-OCT-2019 14:19:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1900728-004DL
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,212.0,0.40%,F,T)



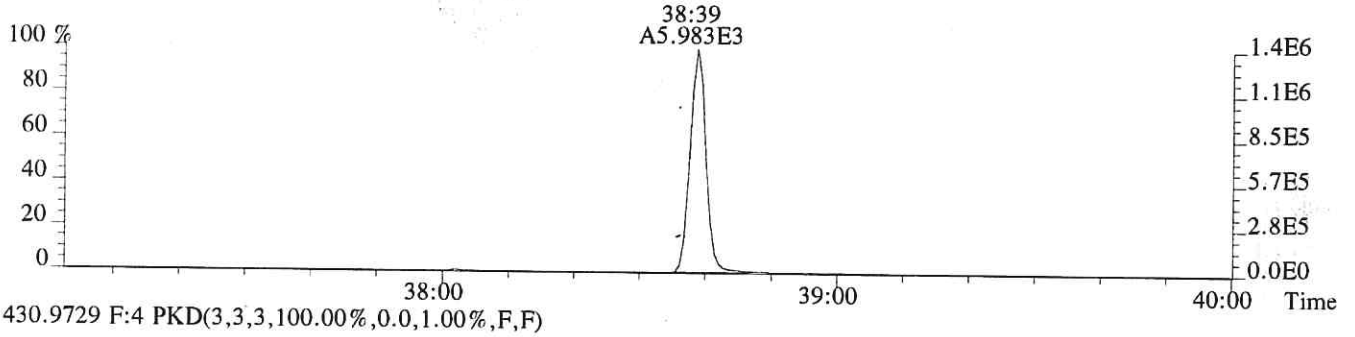
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,564.0,0.40%,F,T)



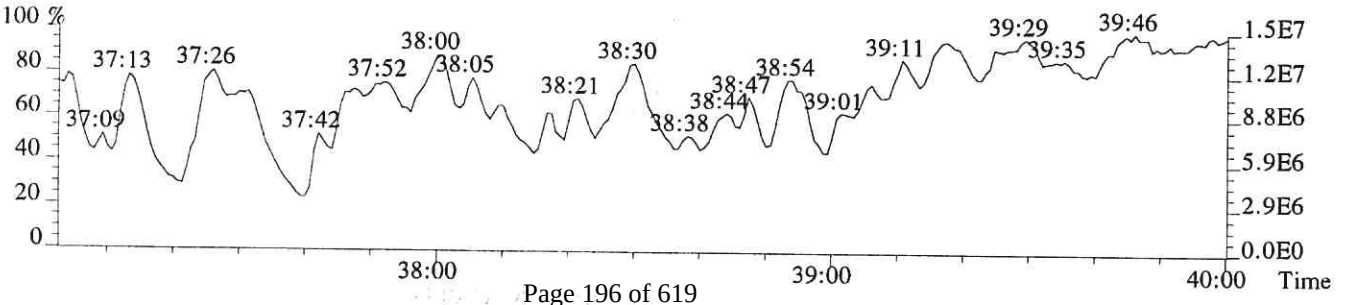
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,248.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,252.0,0.40%,F,T)

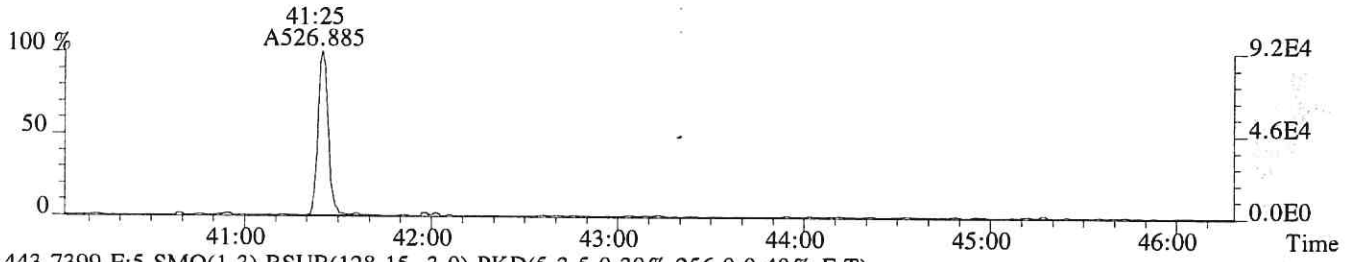


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

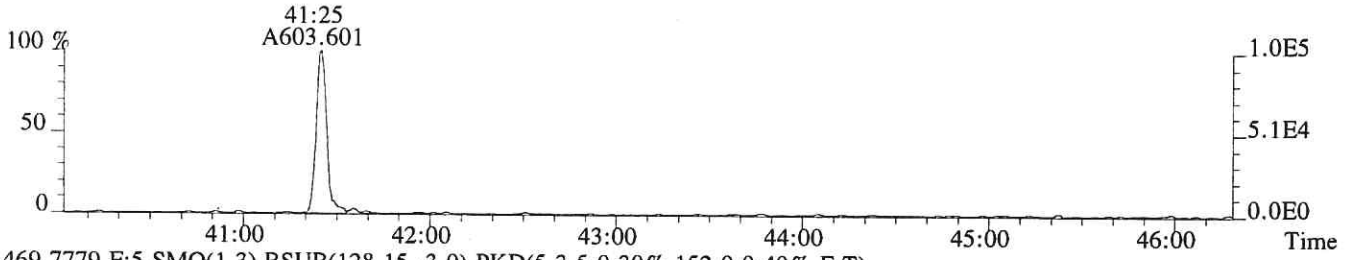


RIGHT SOLUTIONS | RIGHT PARTNER

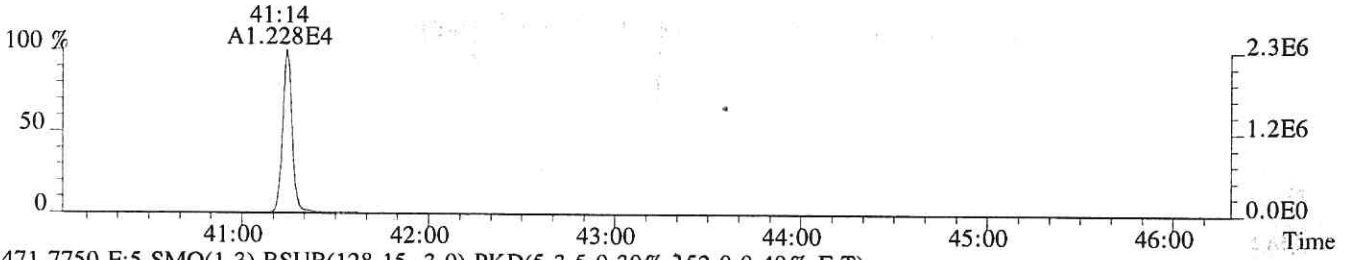
File:P524840 #1-565 Acq:20-OCT-2019 14:19:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1900728-004DL
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,216.0,0.40%,F,T)



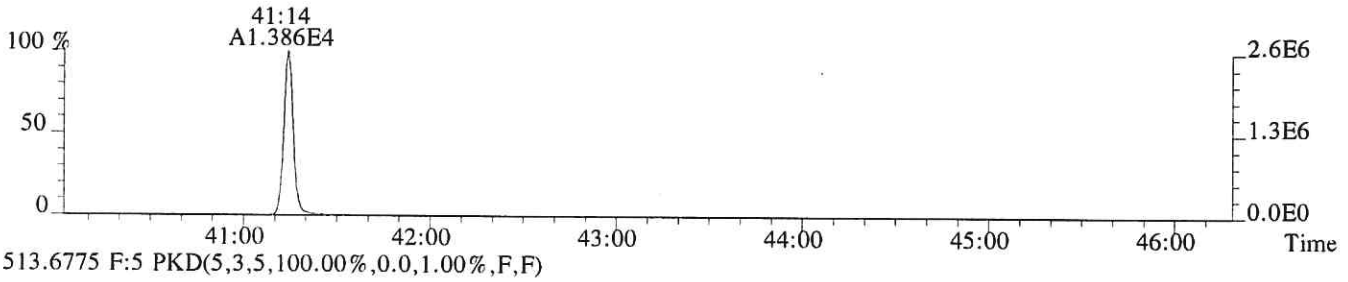
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,256.0,0.40%,F,T)



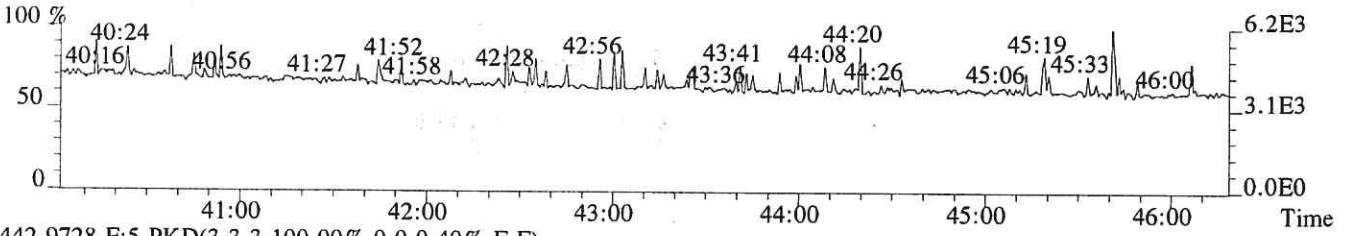
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,152.0,0.40%,F,T)



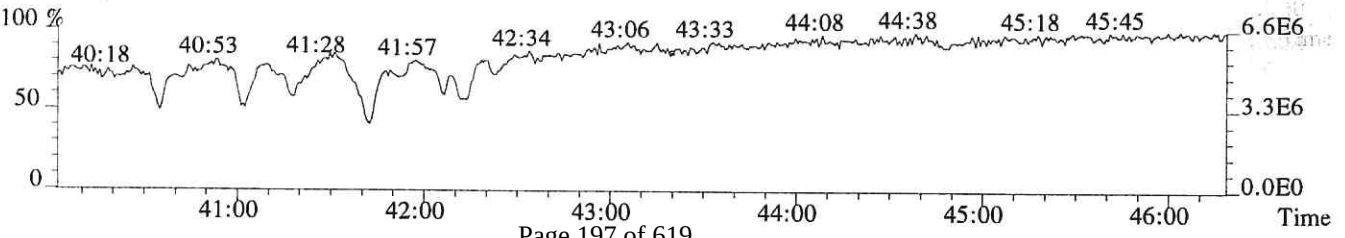
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,152.0,0.40%,F,T)



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

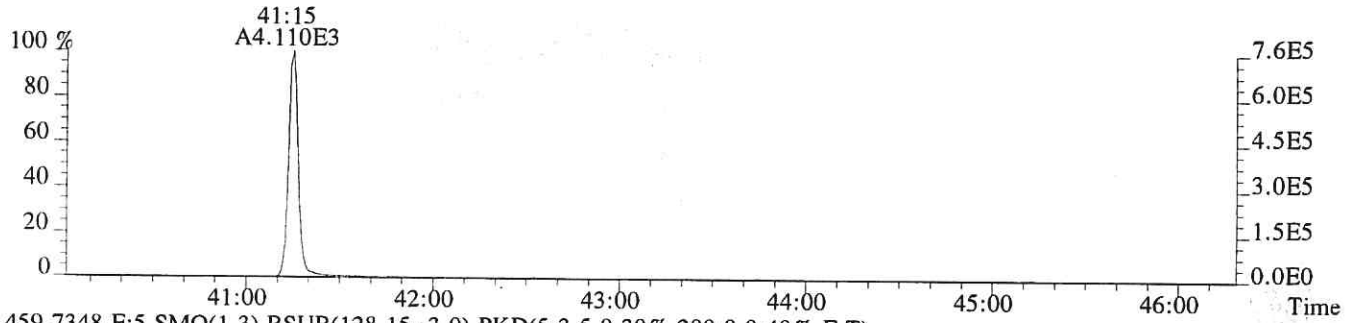


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

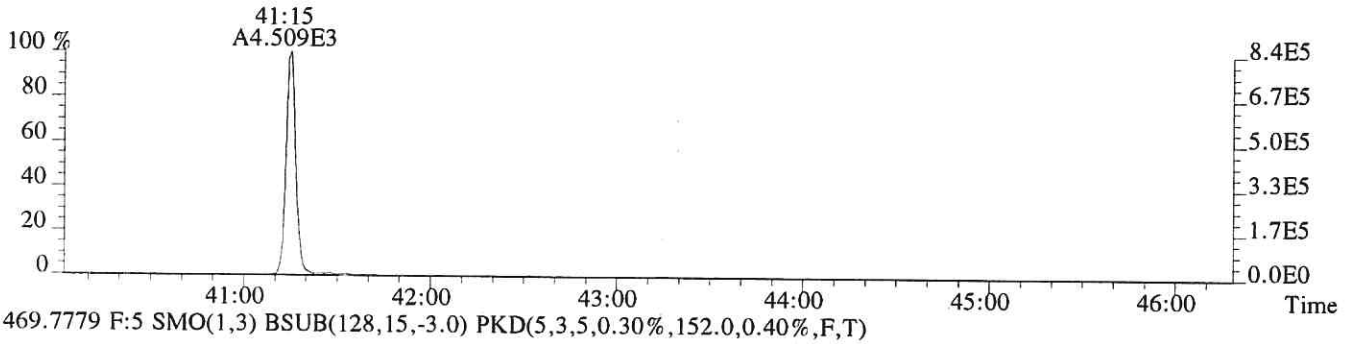


RIGHT SOLUTIONS | RIGHT PARTNER

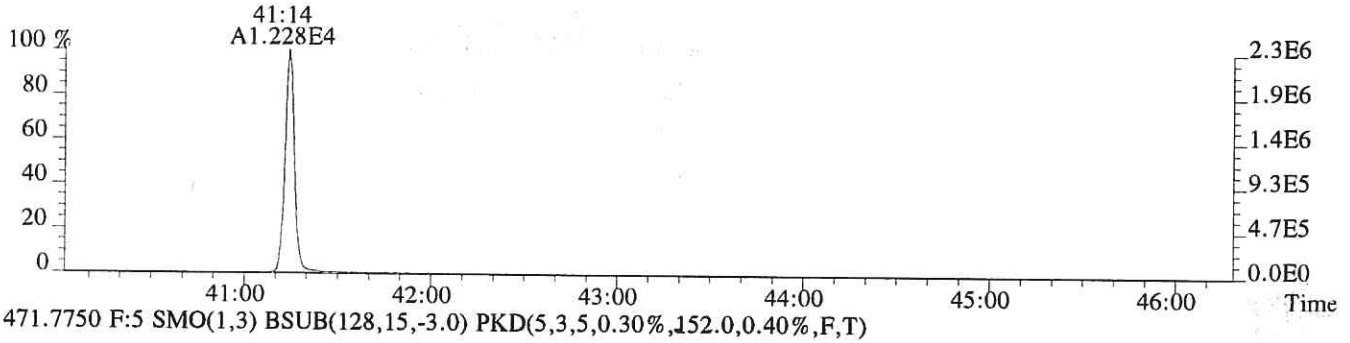
File:P524840 #1-565 Acq:20-OCT-2019 14:19:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1900728-004DL
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,108.0,0.40%,F,T)



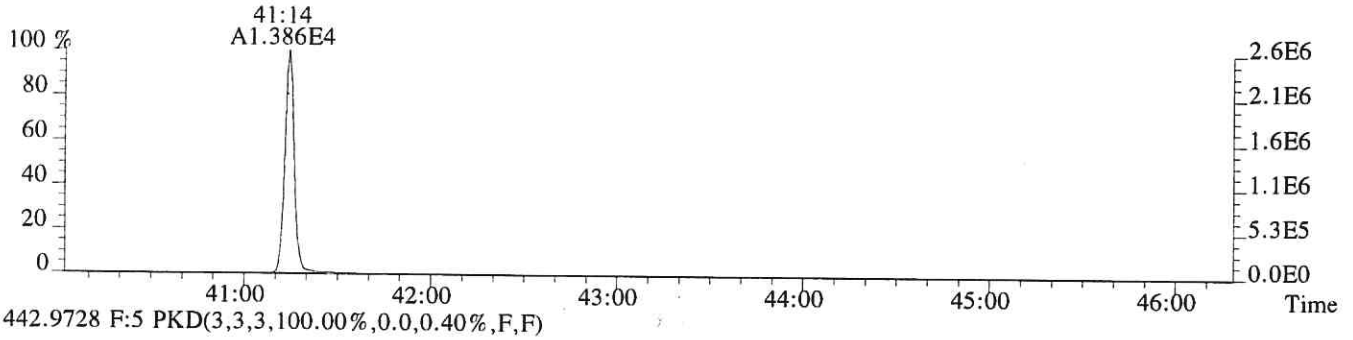
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,200.0,0.40%,F,T)



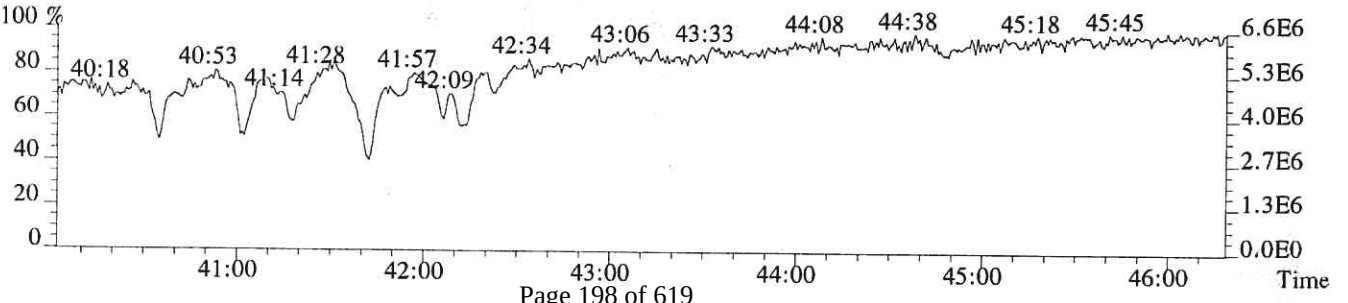
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,152.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,152.0,0.40%,F,T)



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



RIGHT SOLUTIONS | RIGHT PARTNER

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
AC-4SC3-20191

Run #16 Filename P524839 Samp: 1 Inj: 1 Acquired: 20-OCT-19 13:30:33
Processed: 21-OCT-19 14:57:19 Sample ID: E1900728-005DL

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.962
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	0.968
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.919
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	no	1.161
5	Unk	1,2,3,6,7,8-HxCDF	34:51	1.238e+01	1.344e+01	0.92	no	no	1.073
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.069
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.096
8	Unk	1,2,3,4,6,7,8-HpCDF	37:30	4.278e+01	3.599e+01	1.19	yes	no	1.281
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.192
10	Unk	OCDF	41:17	3.714e+01	3.346e+01	1.11	no	no	1.204
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.077
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.971
13	Unk	1,2,3,4,7,8-HxCDD	35:34	3.429e+00	5.760e+00	0.60	no	no	1.024
14	Unk	1,2,3,6,7,8-HxCDD	35:42	1.333e+01	4.080e+00	3.27	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	35:55	6.376e+00	5.055e+00	1.26	yes	no	1.055
16	Unk	1,2,3,4,6,7,8-HpCDD	38:25	6.534e+01	4.862e+01	1.34	no	no	0.989
17	Unk	OCDD	41:05	3.051e+03	3.530e+03	0.86	yes	no	1.094
18	IS	13C-2,3,7,8-TCDF	25:56	2.285e+04	2.882e+04	0.79	yes	no	1.287
19	IS	13C-1,2,3,7,8-PeCDF	30:49	4.127e+04	2.603e+04	1.59	yes	no	1.416
20	IS	13C-2,3,4,7,8-PeCDF	31:51	3.623e+04	2.325e+04	1.56	yes	no	1.374
21	IS	13C-1,2,3,4,7,8-HxCDF	34:44	1.734e+04	3.403e+04	0.51	yes	no	1.114
22	IS	13C-1,2,3,6,7,8-HxCDF	34:51	1.834e+04	3.496e+04	0.52	yes	no	1.245
23	IS	13C-2,3,4,6,7,8-HxCDF	35:25	1.610e+04	3.151e+04	0.51	yes	no	1.146
24	IS	13C-1,2,3,7,8,9-HxCDF	36:12	9.202e+03	1.759e+04	0.52	yes	no	0.986
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:29	1.133e+04	2.594e+04	0.44	yes	no	0.915
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:52	9.498e+03	2.184e+04	0.43	yes	no	0.746
27	IS	13C-2,3,7,8-TCDD	26:52	1.652e+04	2.105e+04	0.78	yes	no	0.929
28	IS	13C-1,2,3,7,8-PeCDD	32:09	2.868e+04	1.801e+04	1.59	yes	no	1.017
29	IS	13C-1,2,3,4,7,8-HxCDD	35:34	2.115e+04	1.637e+04	1.29	yes	no	0.945
30	IS	13C-1,2,3,6,7,8-HxCDD	35:40	2.356e+04	1.848e+04	1.28	yes	no	0.924
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:25	1.836e+04	1.791e+04	1.03	yes	no	0.876
32	IS	13C-OCDD	41:04	2.708e+04	3.059e+04	0.89	yes	no	0.662
33	RS/RT	13C-1,2,3,4-TCDD	26:09	2.123e+04	2.638e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:56	2.763e+04	2.184e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:54	8.037e+01				no	1.010

$$\text{OCDD} = \frac{(3.051e+03 + 3.530e+03) \times 4000 \text{ pg} \times 100}{(2.708e+04 + 3.059e+04) \times 10.157 \text{ g} \times 84.3/100 \times 1.094} = 4873 \text{ ng/kg}$$

LKW 10/21/19

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RIGHT SOLUTIONS | RIGHT PARTNER

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
AC-4SC3-20191009

Run #16 Filename P524839 Samp: 1 Inj: 1 Acquired: 20-OCT-19 13:30:33
Processed: 21-OCT-19 14:57:19 LAB. ID: E1900728-005DL

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	5.84e+02	*	*	9.00e+02	*
2	1,2,3,7,8-PeCDF	*	6.36e+02	*	*	9.60e+02	*
3	2,3,4,7,8-PeCDF	*	6.36e+02	*	*	9.60e+02	*
4	1,2,3,4,7,8-HxCDF	*	9.00e+02	*	*	2.48e+02	*
5	1,2,3,6,7,8-HxCDF	2.57e+03	9.00e+02	2.9e+00	3.27e+03	2.48e+02	1.3e+01
6	2,3,4,6,7,8-HxCDF	*	9.00e+02	*	*	2.48e+02	*
7	1,2,3,7,8,9-HxCDF	*	9.00e+02	*	*	2.48e+02	*
8	1,2,3,4,6,7,8-HpCDF	1.08e+04	3.68e+02	2.9e+01	9.19e+03	2.32e+02	4.0e+01
9	1,2,3,4,7,8,9-HpCDF	*	3.68e+02	*	*	2.32e+02	*
10	OCDF	6.59e+03	1.84e+02	3.6e+01	4.79e+03	4.20e+02	1.1e+01
11	2,3,7,8-TCDD	*	1.19e+03	*	*	7.16e+02	*
12	1,2,3,7,8-PeCDD	*	1.02e+03	*	*	3.28e+02	*
13	1,2,3,4,7,8-HxCDD	8.58e+02	1.76e+02	4.9e+00	1.28e+03	1.20e+02	1.1e+01
14	1,2,3,6,7,8-HxCDD	2.38e+03	1.76e+02	1.4e+01	1.23e+03	1.20e+02	1.0e+01
15	1,2,3,7,8,9-HxCDD	1.40e+03	1.76e+02	8.0e+00	1.46e+03	1.20e+02	1.2e+01
16	1,2,3,4,6,7,8-HpCDD	1.16e+04	2.12e+02	5.5e+01	1.04e+04	3.32e+02	3.1e+01
17	OCDD	5.41e+05	3.88e+02	1.4e+03	6.31e+05	9.00e+02	7.0e+02
18	13C-2,3,7,8-TCDF	3.27e+06	3.22e+03	1.0e+03	4.20e+06	1.24e+03	3.4e+03
19	13C-1,2,3,7,8-PeCDF	7.43e+06	1.10e+03	6.8e+03	4.70e+06	6.72e+02	7.0e+03
20	13C-2,3,4,7,8-PeCDF	6.91e+06	1.10e+03	6.3e+03	4.40e+06	6.72e+02	6.5e+03
21	13C-1,2,3,4,7,8-HxCDF	3.66e+06	6.60e+02	5.5e+03	7.05e+06	4.88e+02	1.4e+04
22	13C-1,2,3,6,7,8-HxCDF	3.86e+06	6.60e+02	5.8e+03	7.43e+06	4.88e+02	1.5e+04
23	13C-2,3,4,6,7,8-HxCDF	3.23e+06	6.60e+02	4.9e+03	6.22e+06	4.88e+02	1.3e+04
24	13C-1,2,3,7,8,9-HxCDF	2.32e+06	6.60e+02	3.5e+03	4.40e+06	4.88e+02	9.0e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.57e+06	5.28e+02	4.9e+03	5.83e+06	3.56e+03	1.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.02e+06	5.28e+02	3.8e+03	4.58e+06	3.56e+03	1.3e+03
27	13C-2,3,7,8-TCDD	2.72e+06	5.60e+03	4.9e+02	3.40e+06	2.35e+03	1.5e+03
28	13C-1,2,3,7,8-PeCDD	5.55e+06	2.84e+02	2.0e+04	3.48e+06	6.68e+02	5.2e+03
29	13C-1,2,3,4,7,8-HxCDD	4.27e+06	2.33e+03	1.8e+03	3.26e+06	1.06e+03	3.1e+03
30	13C-1,2,3,6,7,8-HxCDD	4.55e+06	2.33e+03	2.0e+03	3.56e+06	1.06e+03	3.4e+03
31	13C-1,2,3,4,6,7,8-HpCDD	4.02e+06	2.52e+02	1.6e+04	3.92e+06	2.40e+02	1.6e+04
32	13C-OCDD	4.83e+06	9.60e+01	5.0e+04	5.40e+06	6.88e+02	7.9e+03
33	13C-1,2,3,4-TCDD	3.16e+06	5.60e+03	5.7e+02	3.98e+06	2.35e+03	1.7e+03
34	13C-1,2,3,7,8,9-HxCDD	5.58e+06	2.33e+03	2.4e+03	4.37e+06	1.06e+03	4.1e+03
35	37Cl-2,3,7,8-TCDD	1.24e+04	9.92e+02	1.2e+01			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

AC-4SC3-20191009

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 16 File: P524839 Sample:1 Injection:1 Function:3

Acquired: 20-OCT-19 13:30:33 Processed: 21-OCT-19 14:57:19

Mass: 389.8160 391.8130 Tot Response: 2.76e+01 RRF: 1.039

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:50	8.71e+00	7.49e+00	1.16	yes	1.62e+01	n	n
2	35:55	6.38e+00	5.05e+00	1.26	yes	1.14e+01	1,2,3,7,8,9-HxCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

AC-4SC3-20191009

Entry: 43 Totals Name: Total Hepta-Furans

Run: 16 File: P524839 Sample:1 Injection:1 Function:4

Acquired: 20-OCT-19 13:30:33 Processed: 21-OCT-19 14:57:19

Mass: 407.7820 409.7790 Tot Response: 1.39e+02 RRF: 1.241

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:30	4.28e+01	3.60e+01	1.19	yes	7.88e+01	1,2,3,4,6,7,8-HpCDF	n	n
2	37:54	3.06e+01	2.91e+01	1.05	yes	5.97e+01		n	n

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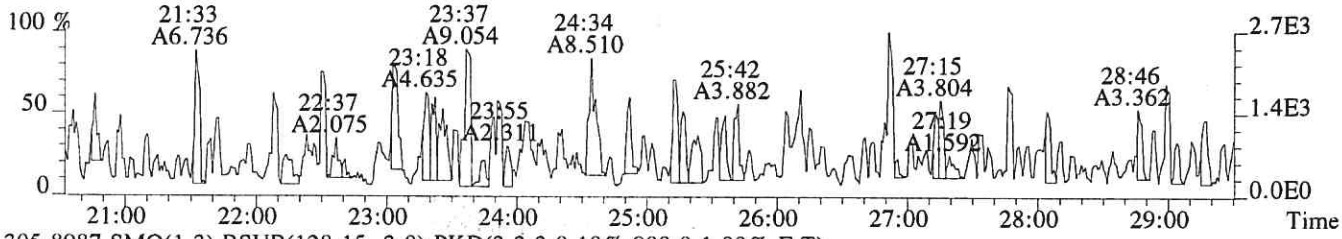
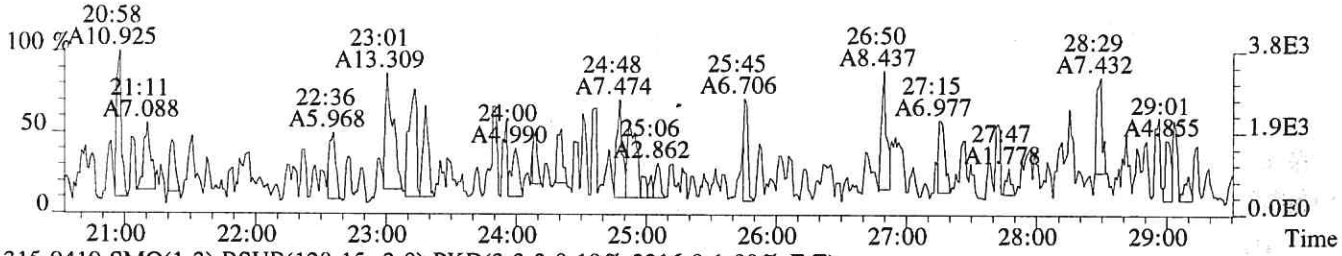
RIGHT SOLUTIONS | RIGHT PARTNER

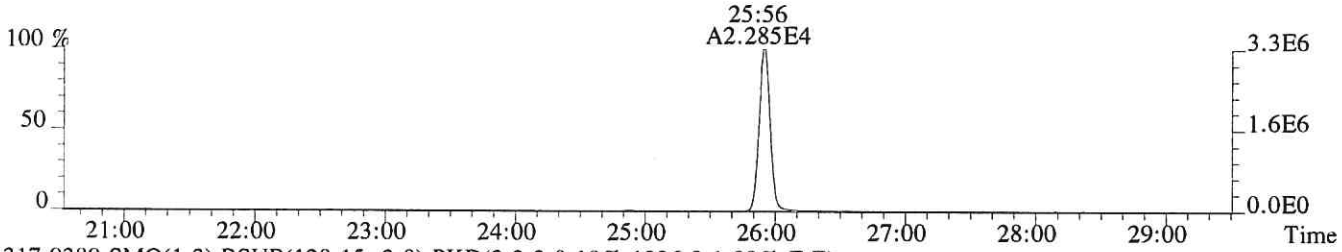
File:P524839 #1-637 Acq:20-OCT-2019 13:30:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1900728-005DL
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,584.0,1.00%,F,T)



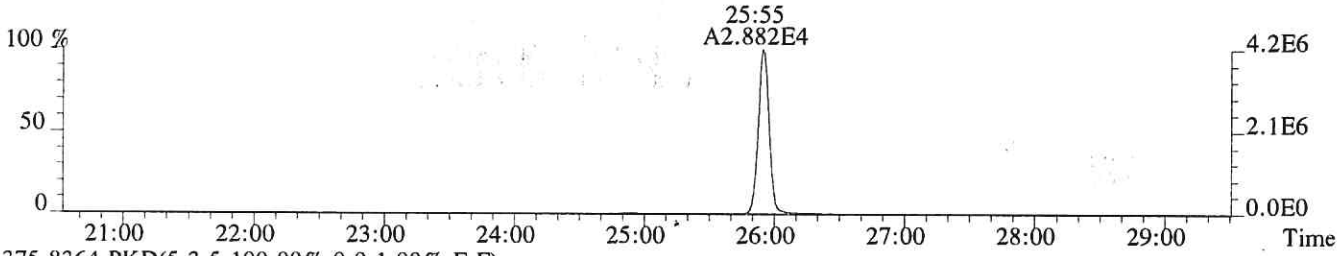
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,900.0,1.00%,F,T)



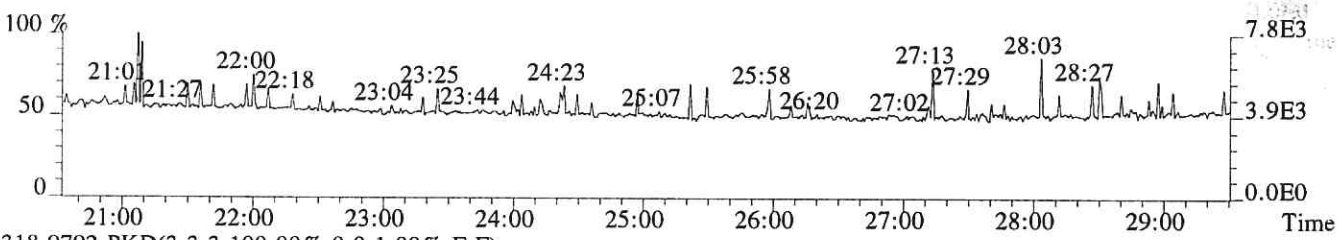
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3216.0,1.00%,F,T)



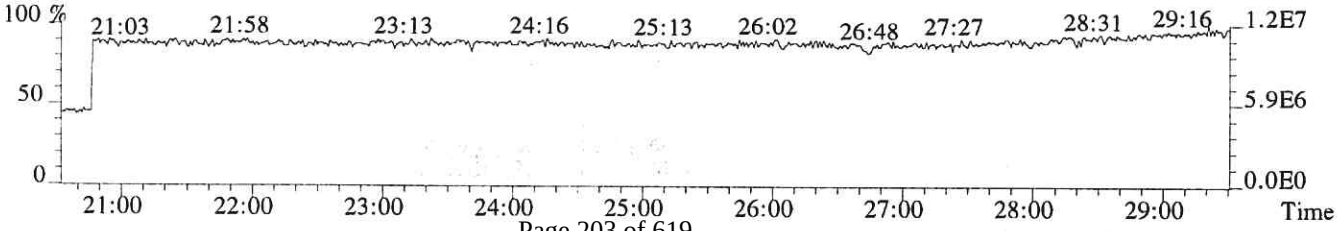
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1236.0,1.00%,F,T)



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

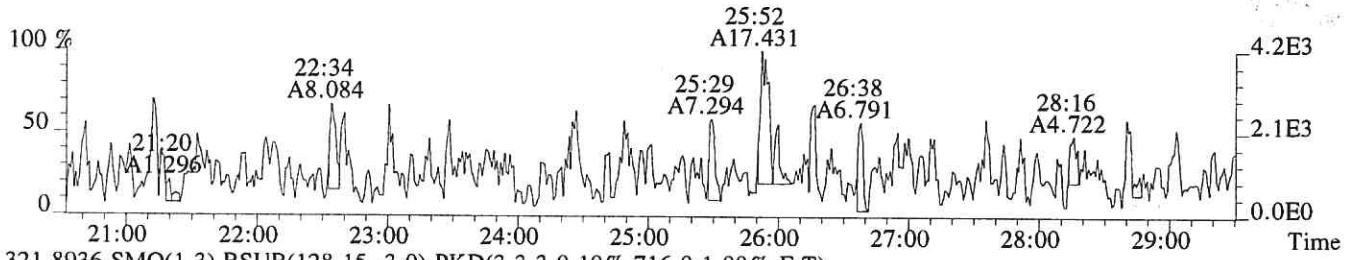


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

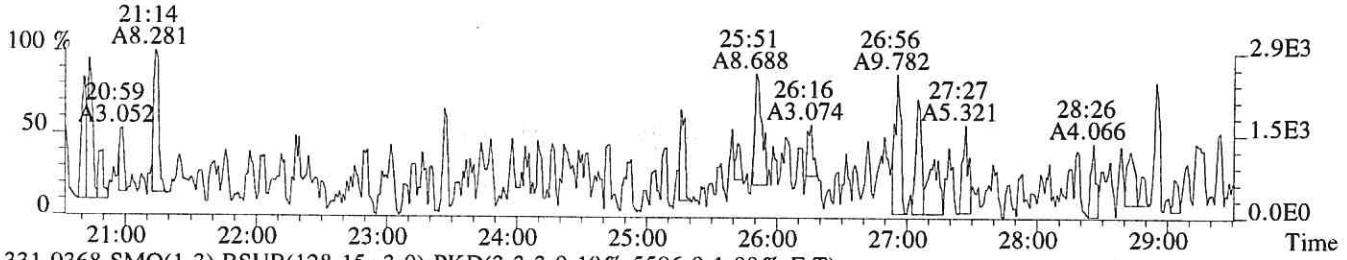


RIGHT SOLUTIONS | RIGHT PARTNER

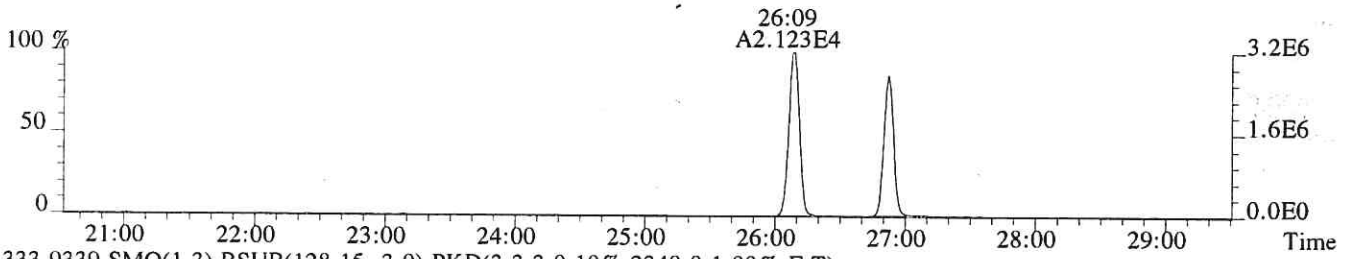
File:P524839 #1-637 Acq:20-OCT-2019 13:30:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1900728-005DL
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1192.0,1.00%,F,T)



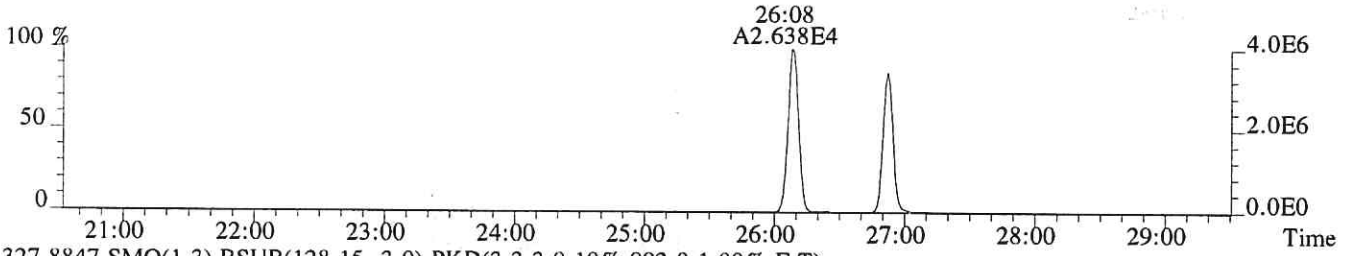
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,716.0,1.00%,F,T)



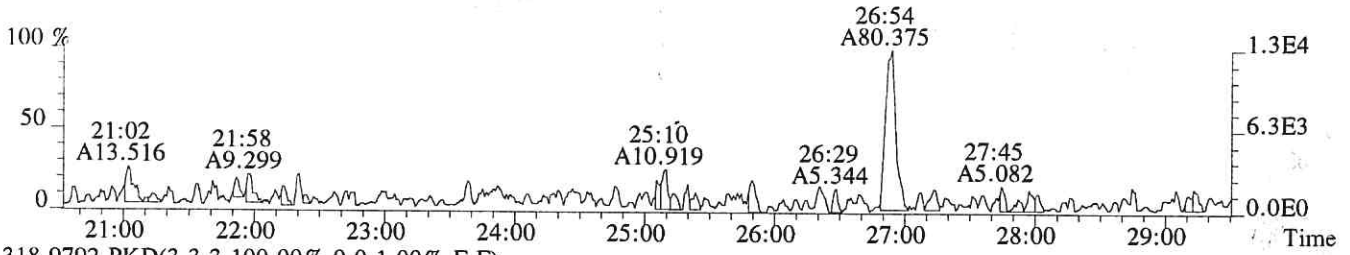
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5596.0,1.00%,F,T)



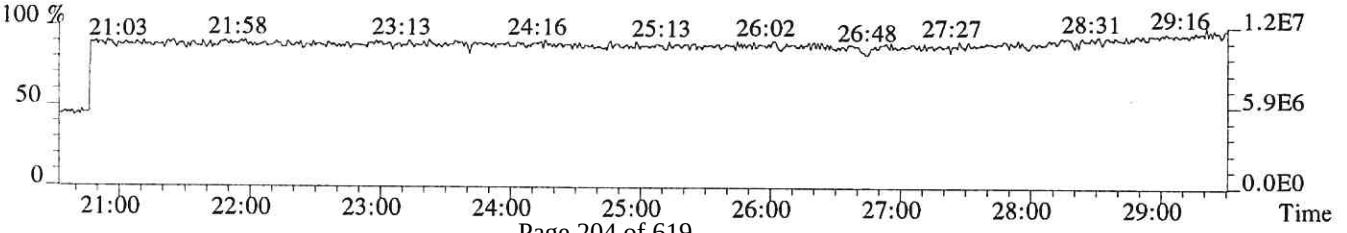
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2348.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,992.0,1.00%,F,T)

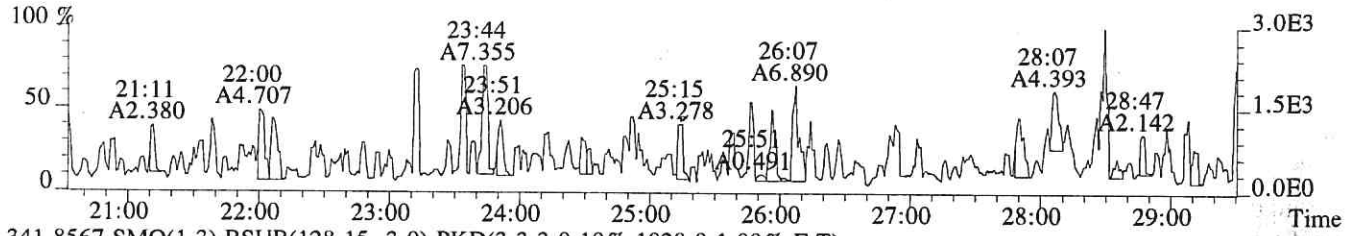


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

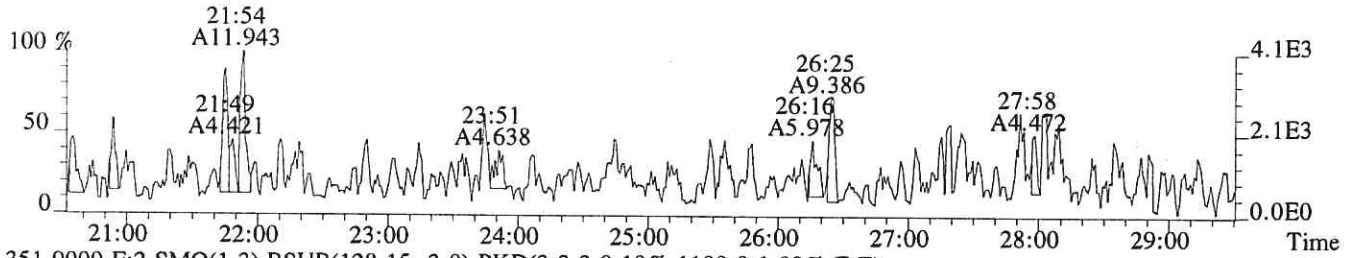


RIGHT SOLUTIONS | RIGHT PARTNER

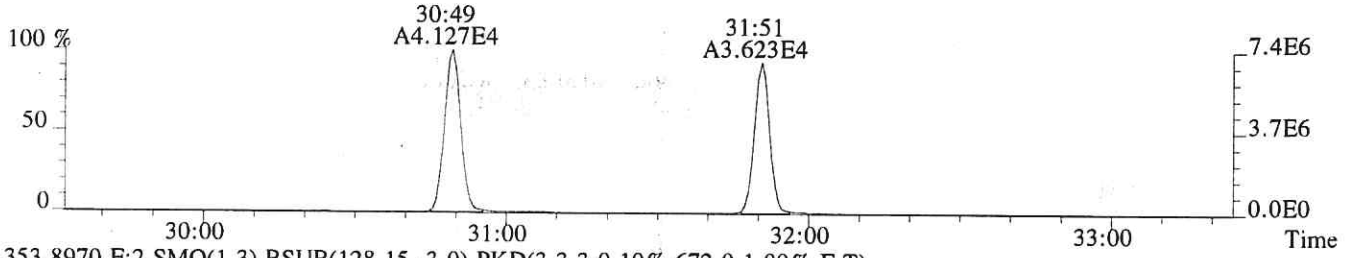
File:P524839 #1-637 Acq:20-OCT-2019 13:30:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1900728-005DL
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,508.0,1.00%,F,T)



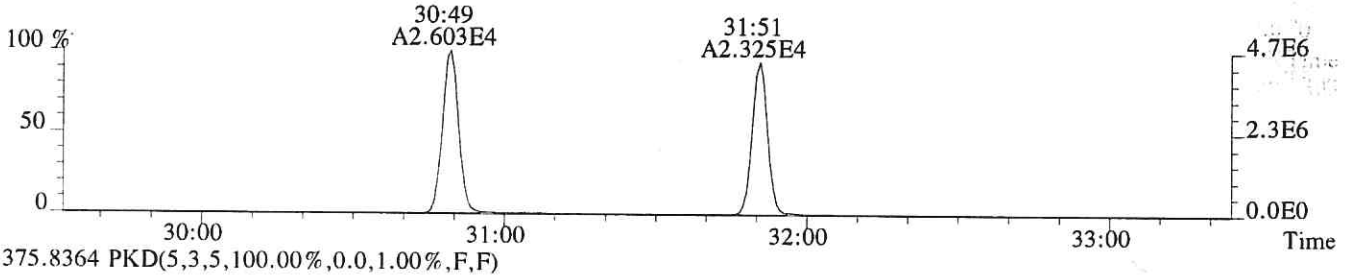
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1028.0,1.00%,F,T)



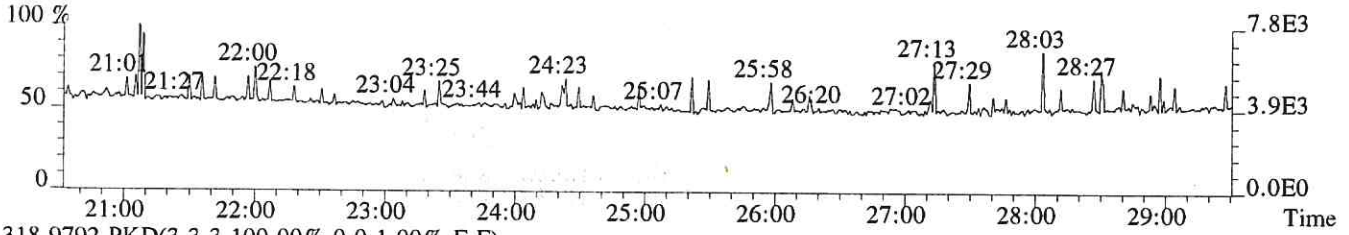
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1100.0,1.00%,F,T)



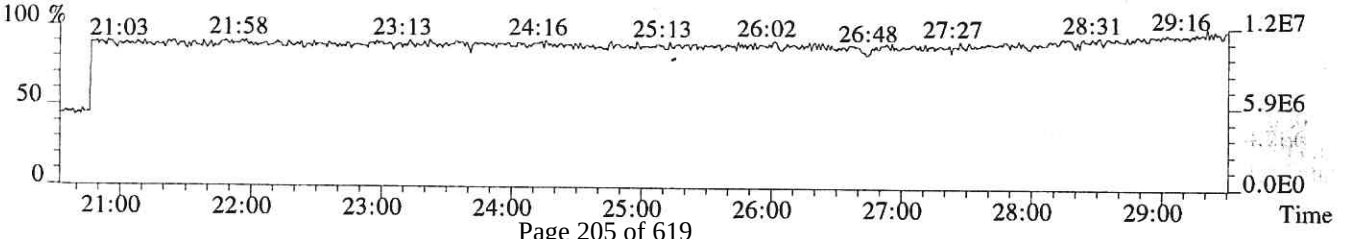
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,672.0,1.00%,F,T)



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

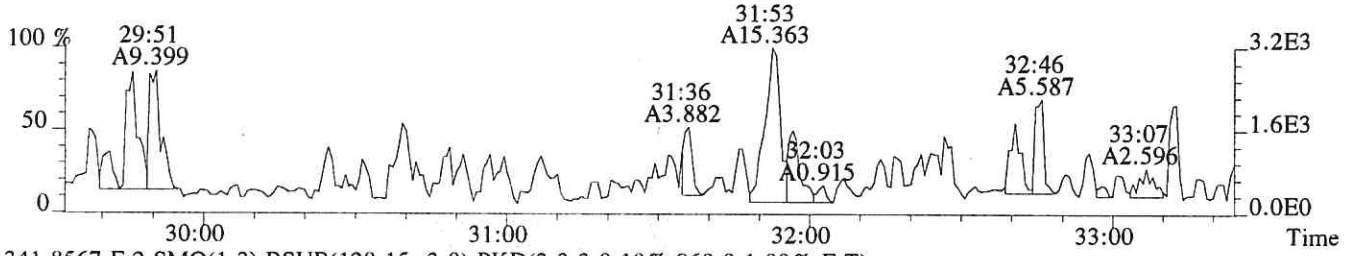


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

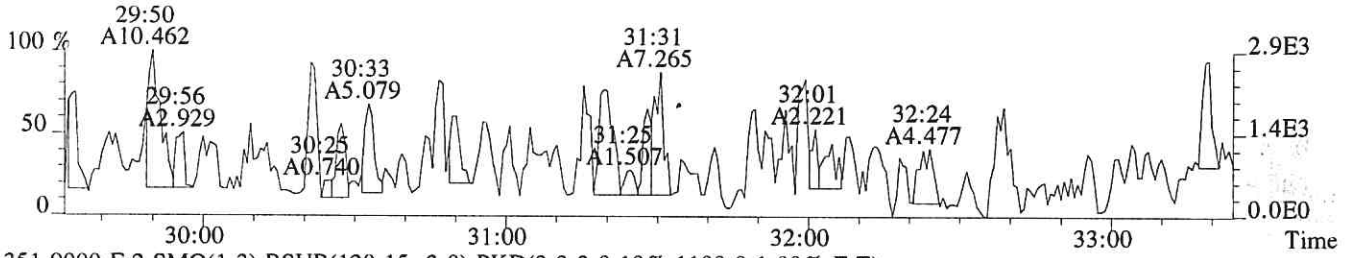


RIGHT SOLUTIONS | RIGHT PARTNER

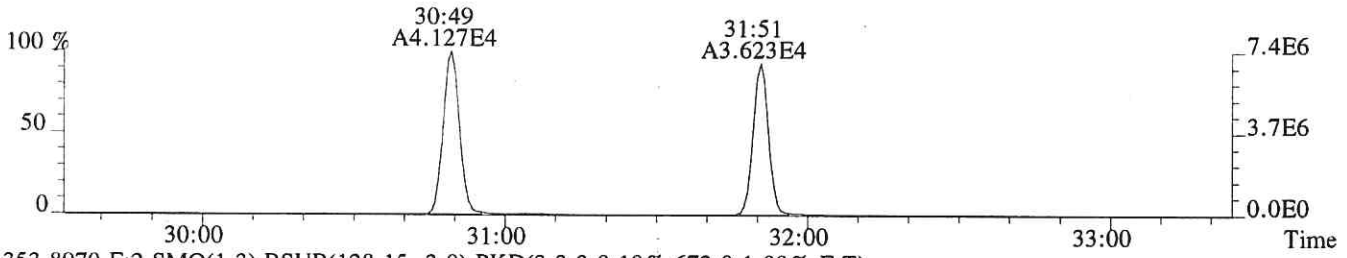
File:P524839 #1-348 Acq:20-OCT-2019 13:30:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1900728-005DL
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)



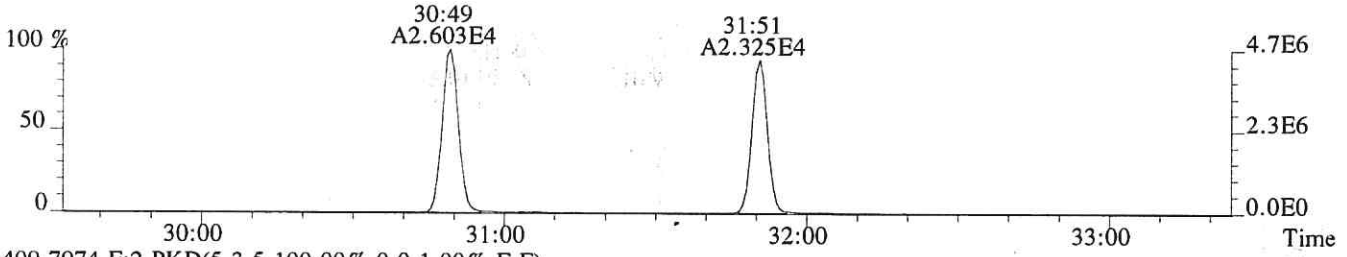
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,960.0,1.00%,F,T)



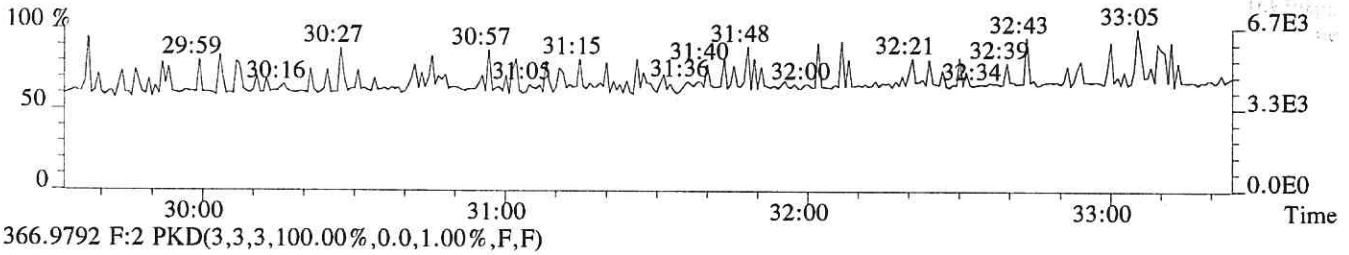
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1100.0,1.00%,F,T)



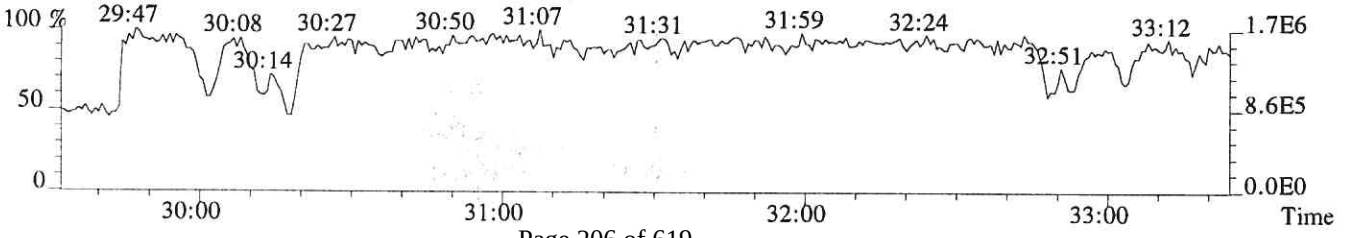
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,672.0,1.00%,F,T)



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

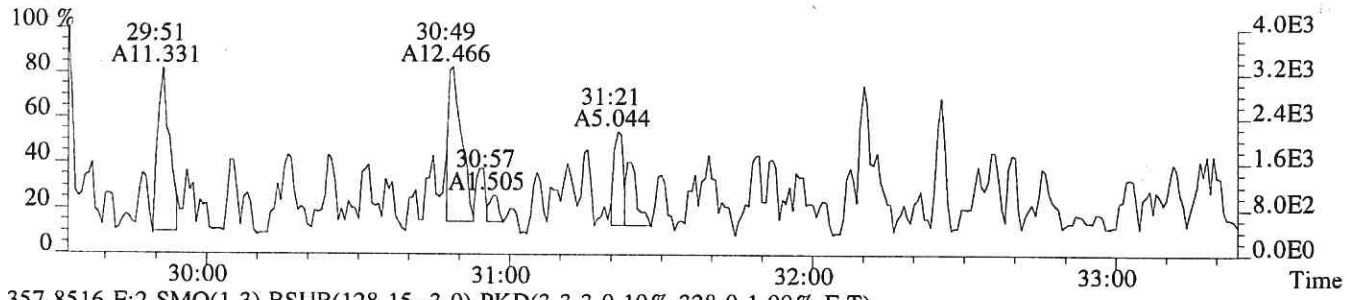


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

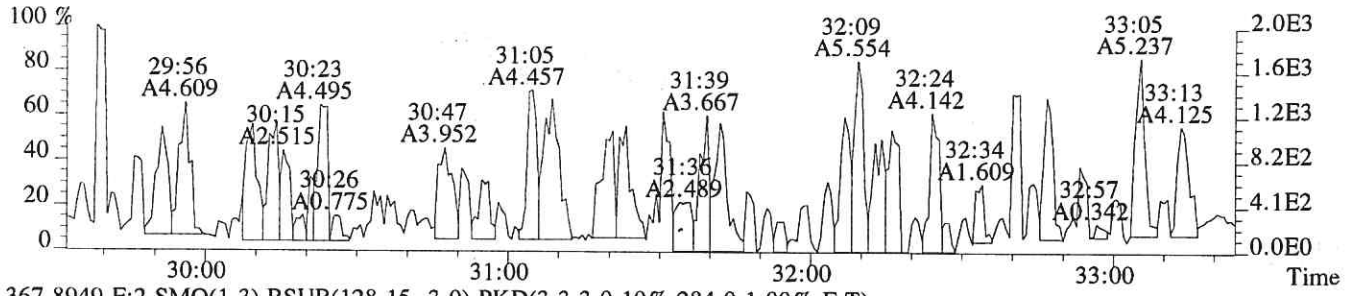


RIGHT SOLUTIONS | RIGHT PARTNER

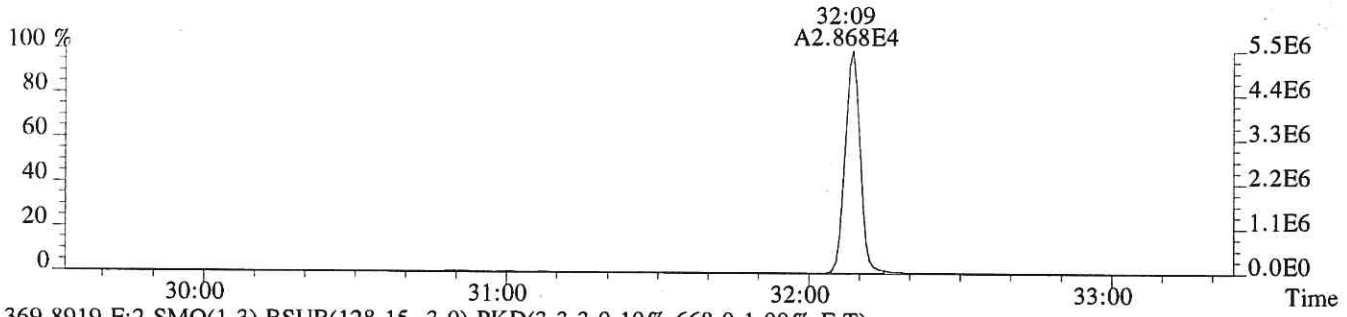
File:P524839 #1-348 Acq:20-OCT-2019 13:30:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1900728-005DL
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1016.0,1.00%,F,T)



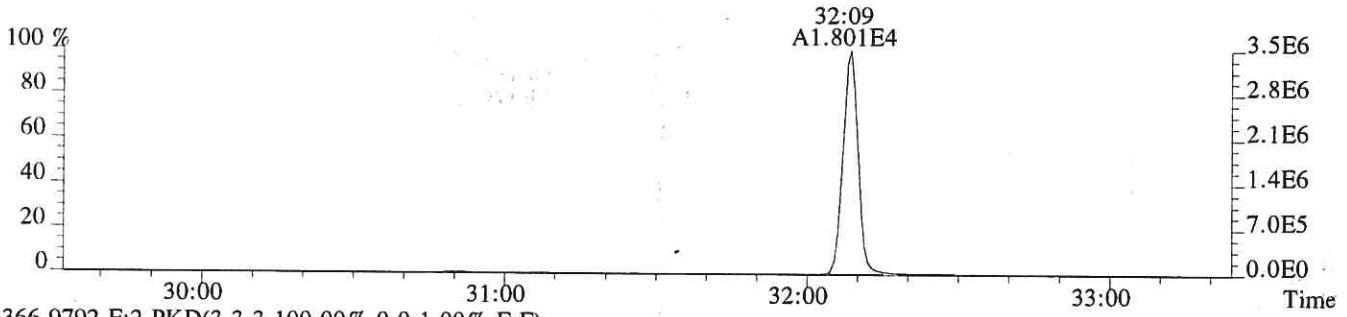
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,328.0,1.00%,F,T)



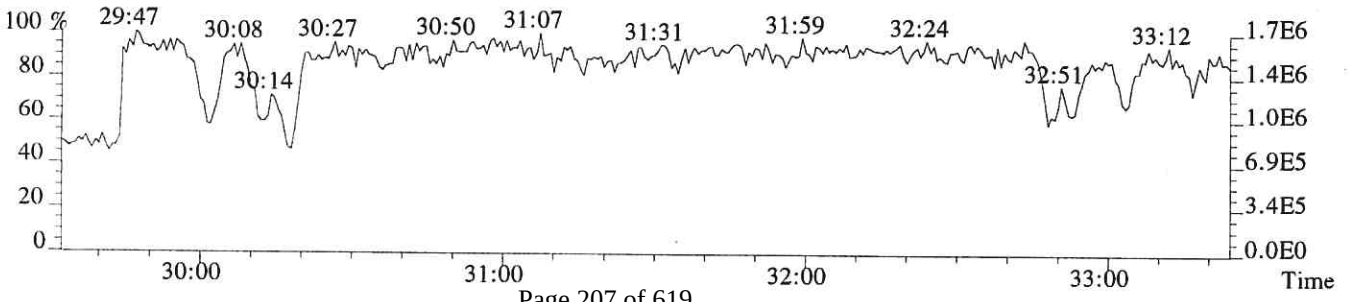
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,284.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,668.0,1.00%,F,T)

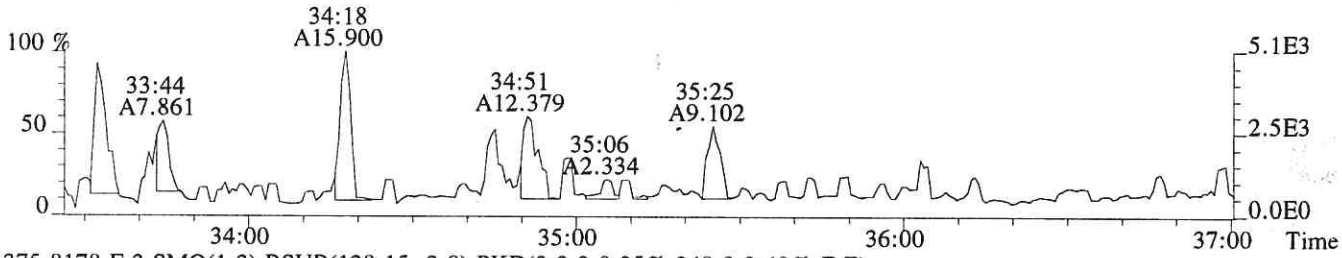


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

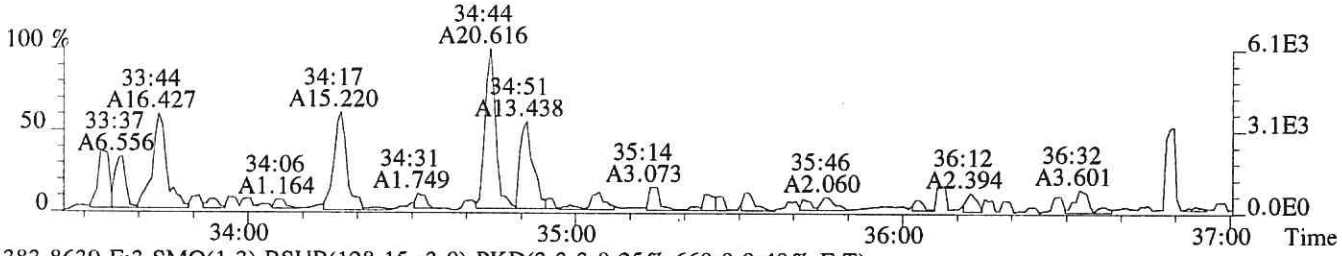


RIGHT SOLUTIONS | RIGHT PARTNER

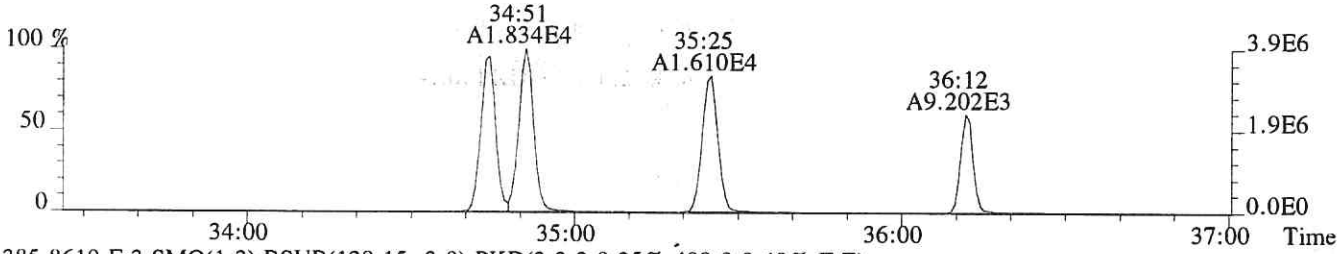
File:P524839 #1-322 Acq:20-OCT-2019 13:30:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1900728-005DL
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,900.0,0.40%,F,T)



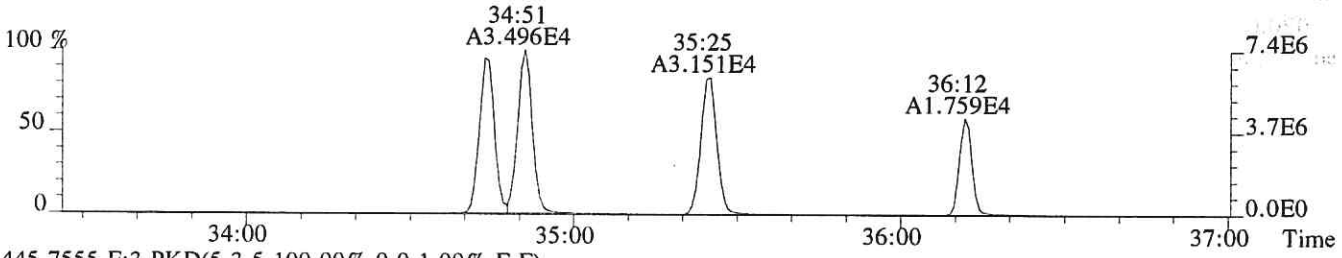
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,248.0,0.40%,F,T)



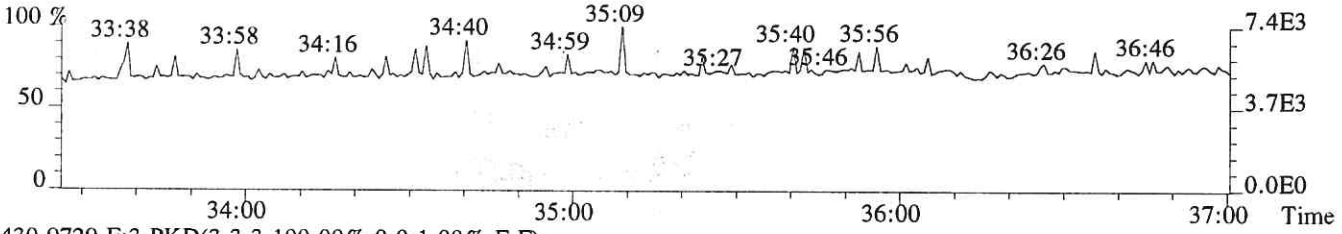
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,660.0,0.40%,F,T)



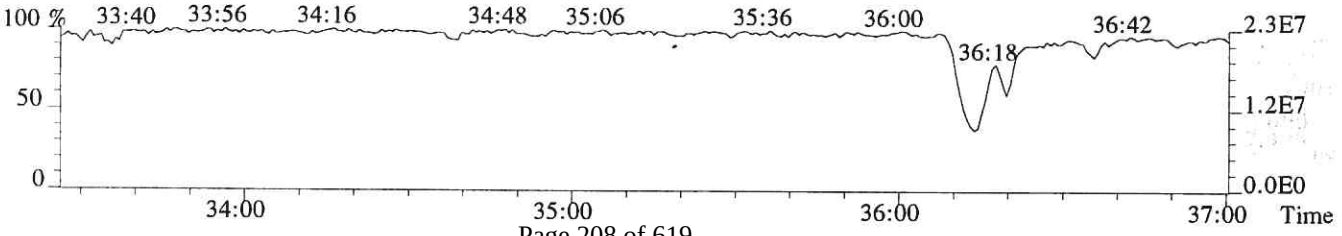
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,488.0,0.40%,F,T)



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

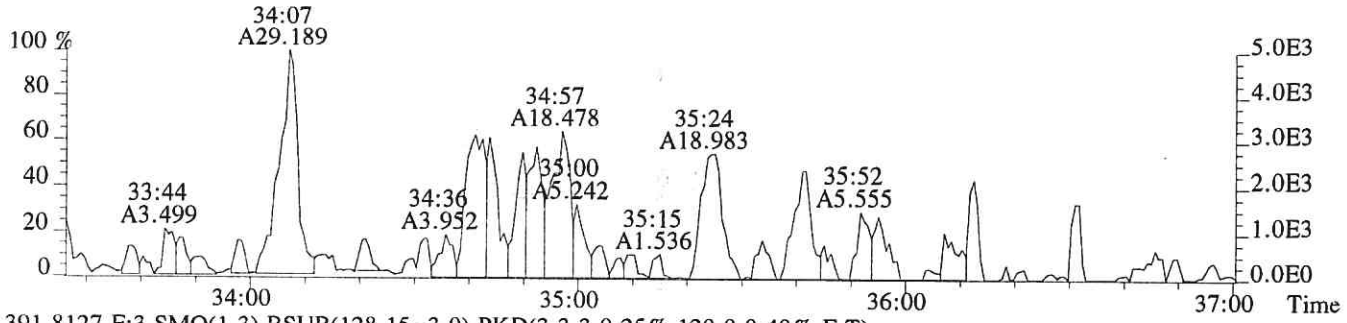


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

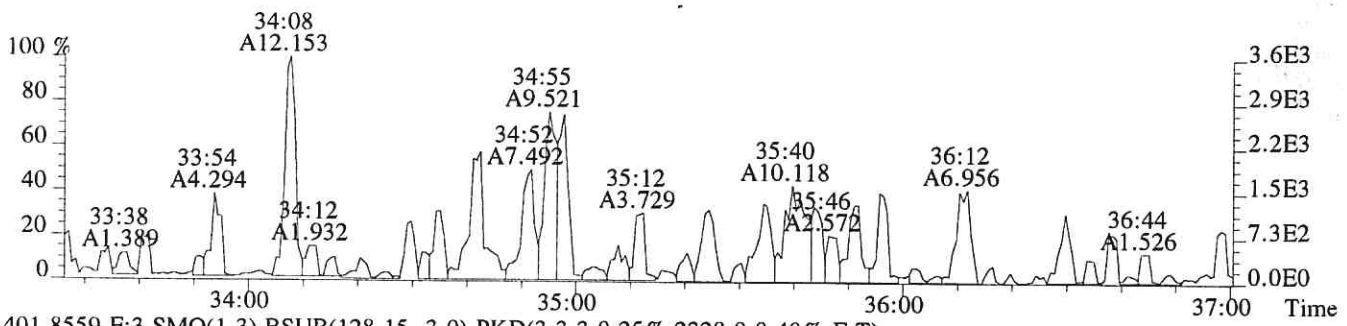


RIGHT SOLUTIONS | RIGHT PARTNER

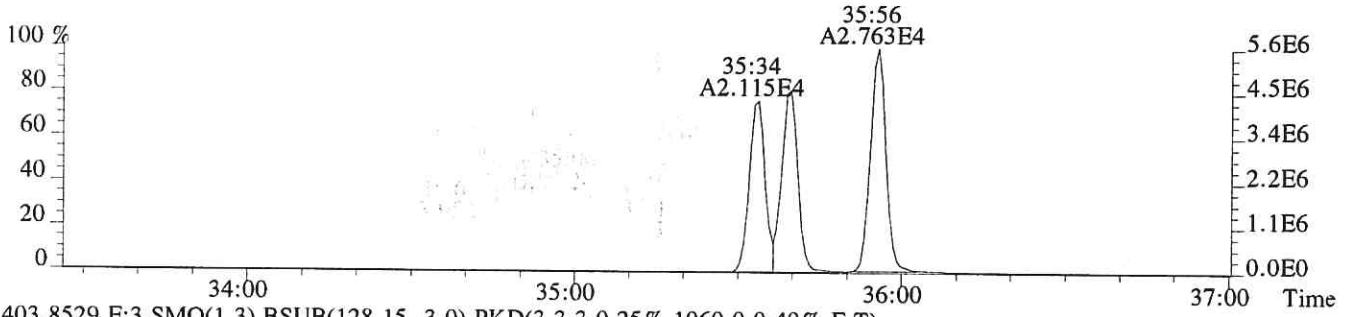
File:P524839 #1-322 Acq:20-OCT-2019 13:30:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1900728-005DL
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,176.0,0.40%,F,T)



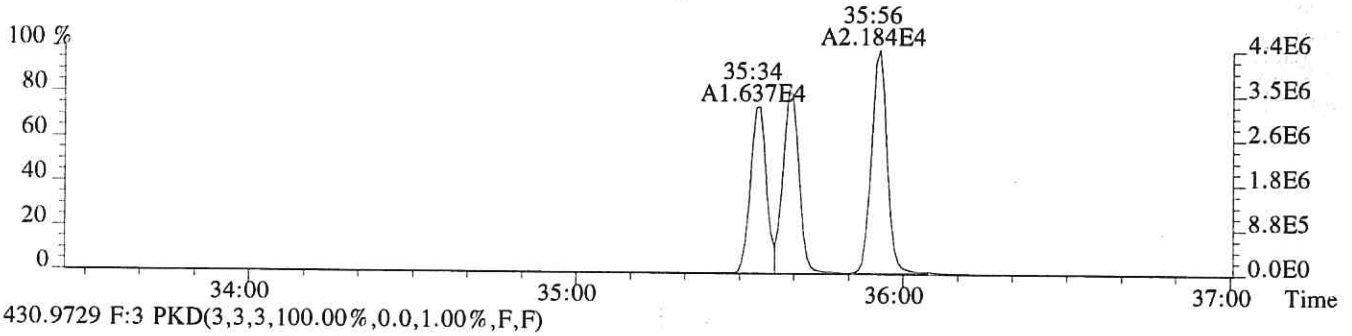
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,120.0,0.40%,F,T)



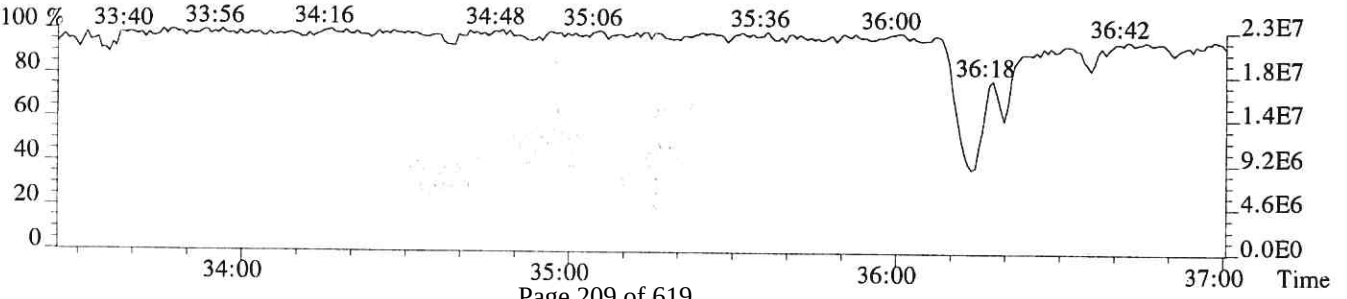
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2328.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1060.0,0.40%,F,T)

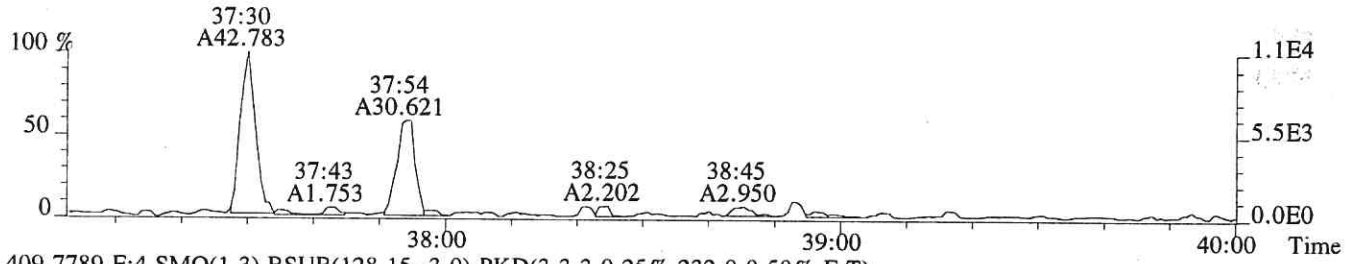


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

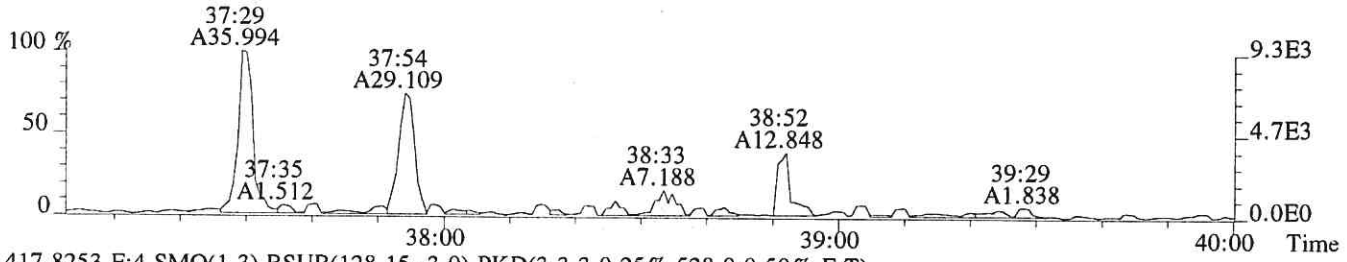


RIGHT SOLUTIONS | RIGHT PARTNER

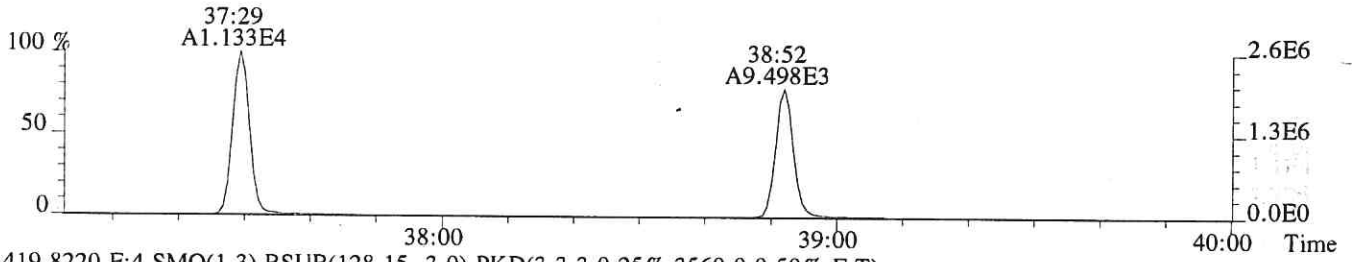
File:P524839 #1-267 Acq:20-OCT-2019 13:30:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1900728-005DL
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,368.0,0.50%,F,T)



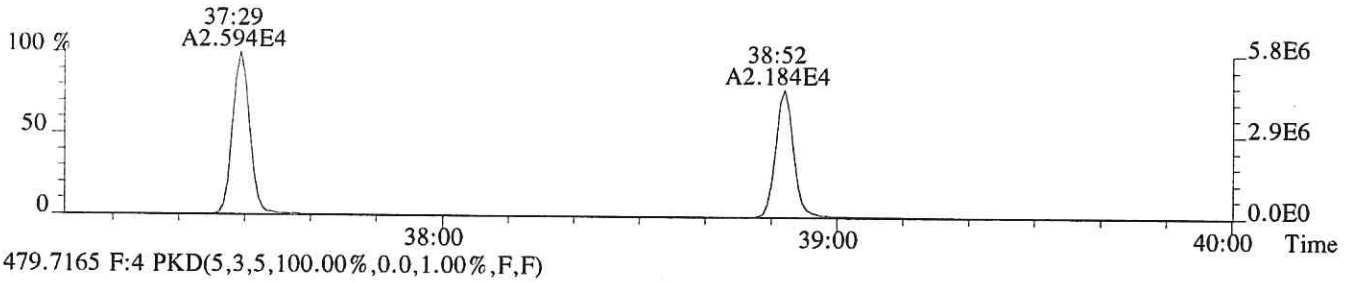
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,232.0,0.50%,F,T)



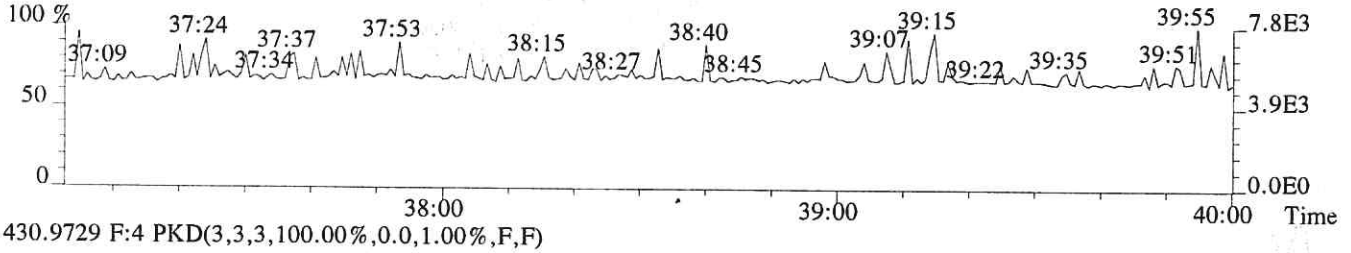
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,528.0,0.50%,F,T)



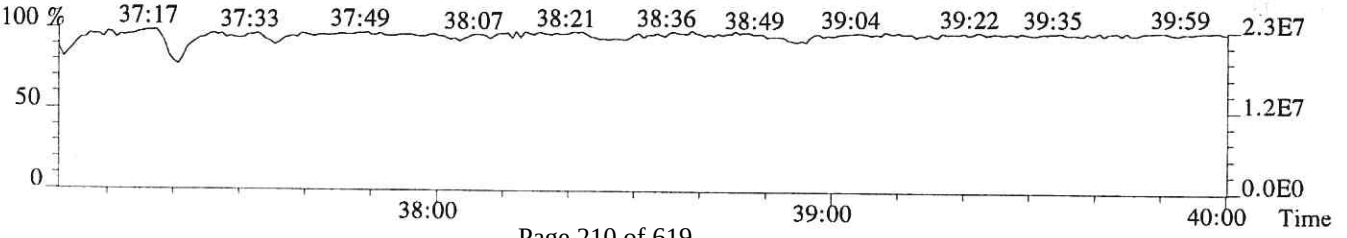
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3560.0,0.50%,F,T)



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

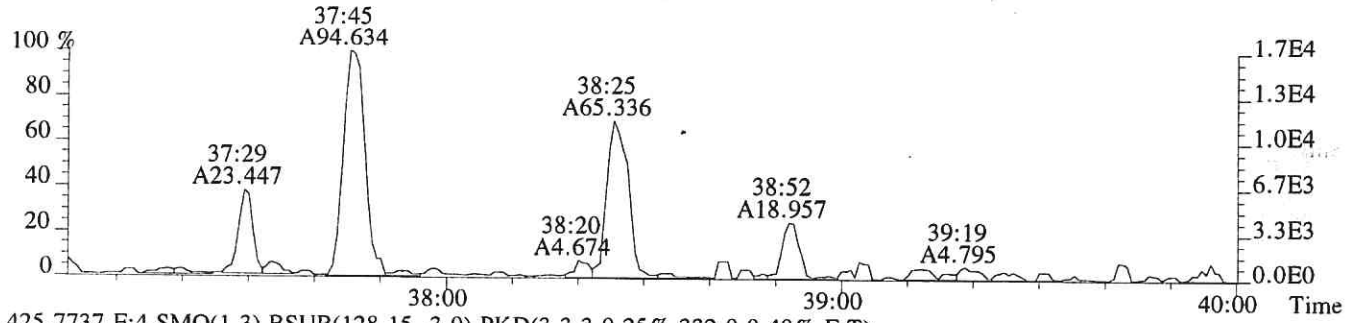


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

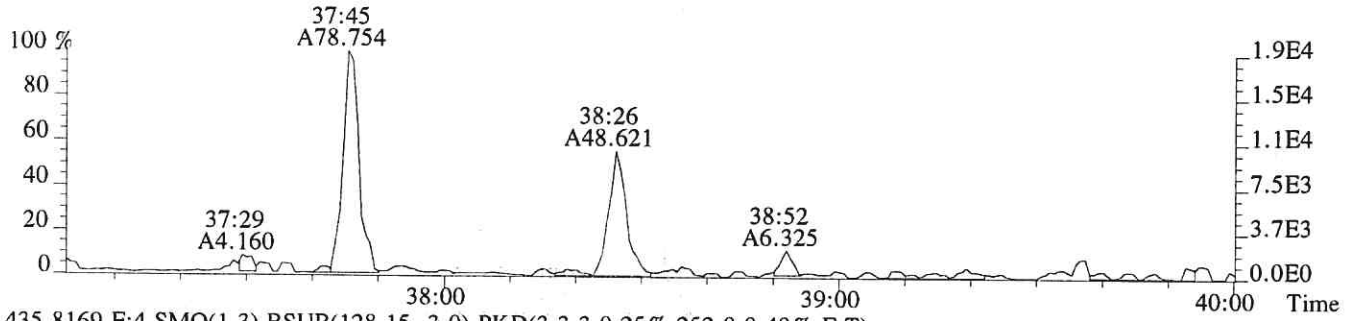


RIGHT SOLUTIONS | RIGHT PARTNER

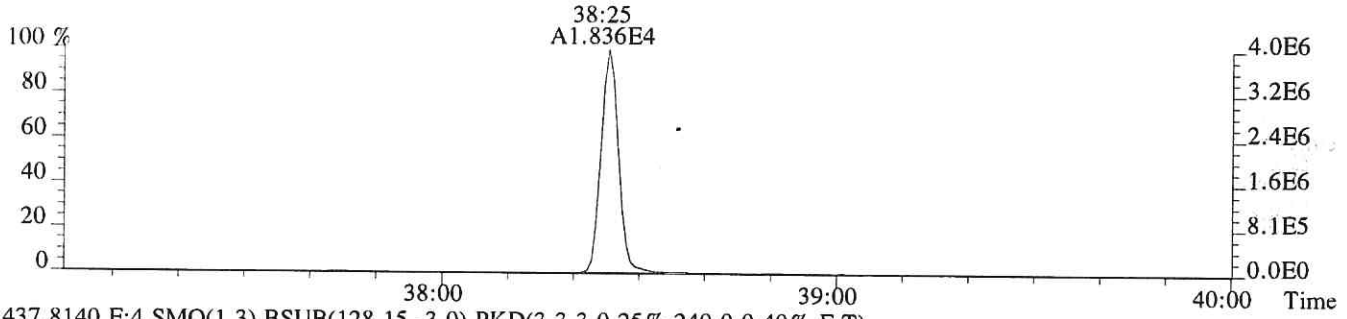
File:P524839 #1-267 Acq:20-OCT-2019 13:30:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1900728-005DL
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,212.0,0.40%,F,T)



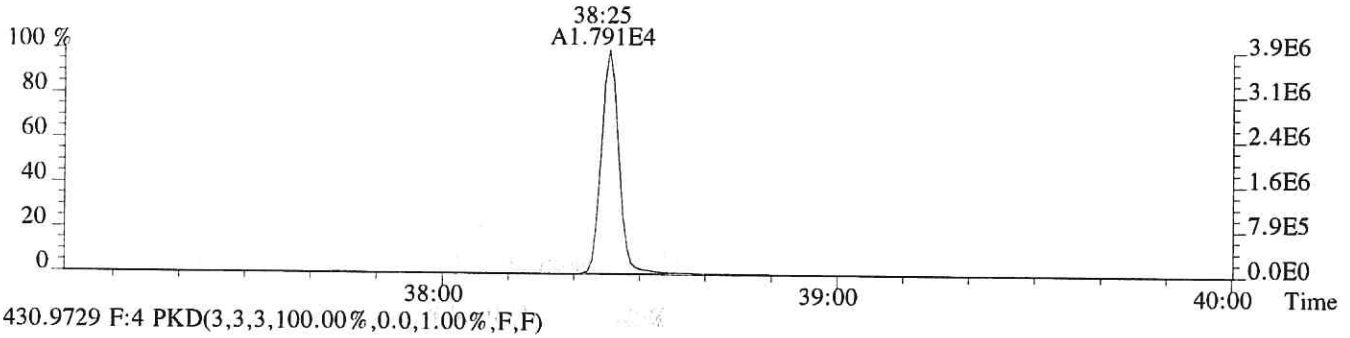
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,332.0,0.40%,F,T)



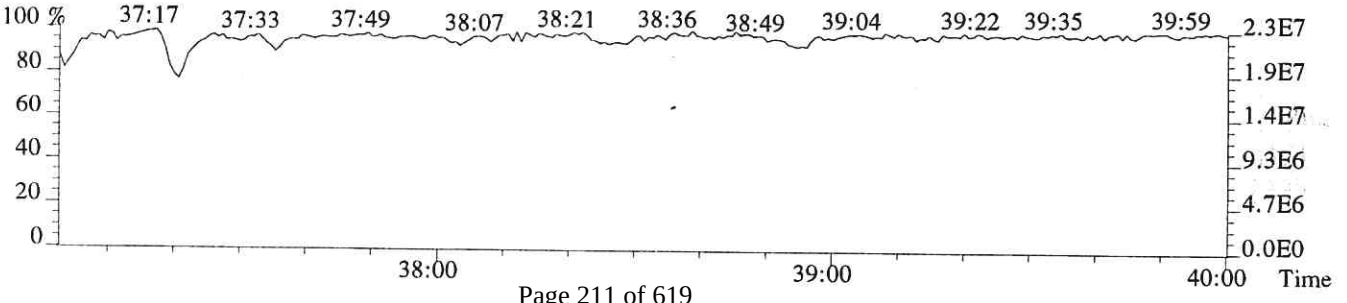
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,252.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,240.0,0.40%,F,T)

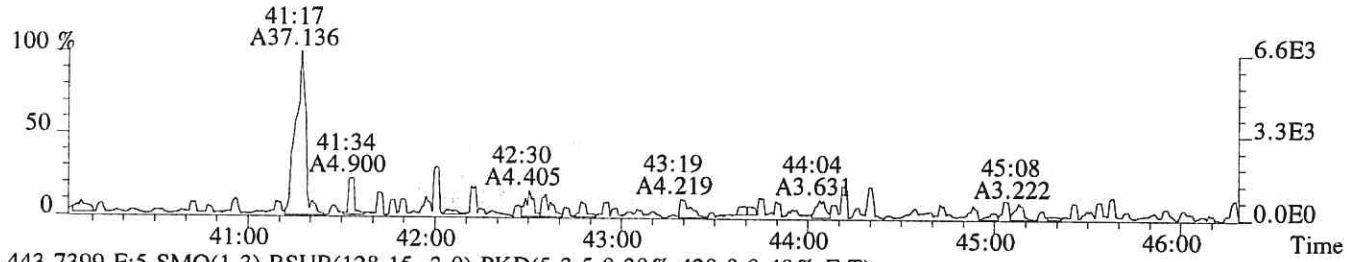


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

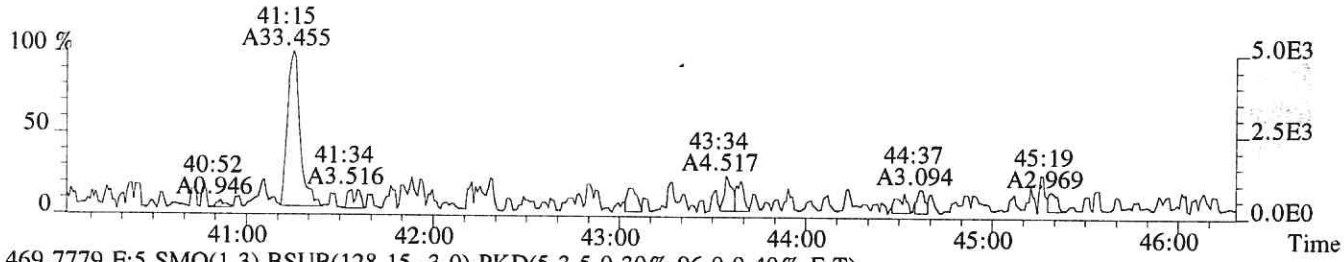


RIGHT SOLUTIONS | RIGHT PARTNER

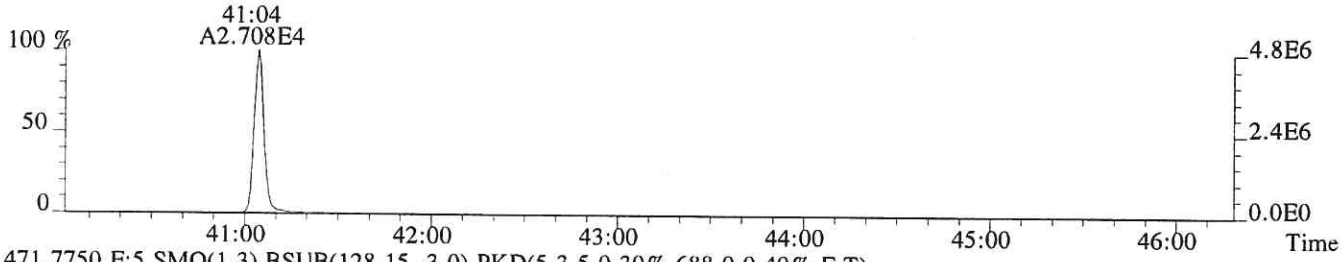
File:P524839 #1-565 Acq:20-OCT-2019 13:30:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1900728-005DL
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,184.0,0.40%,F,T)



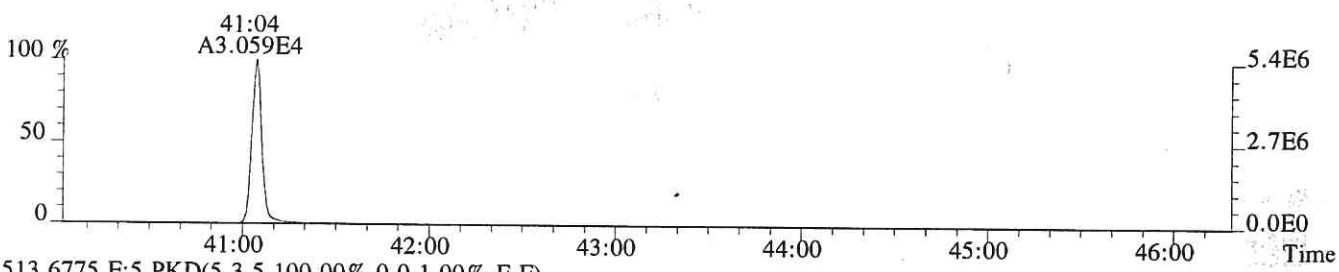
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,420.0,0.40%,F,T)



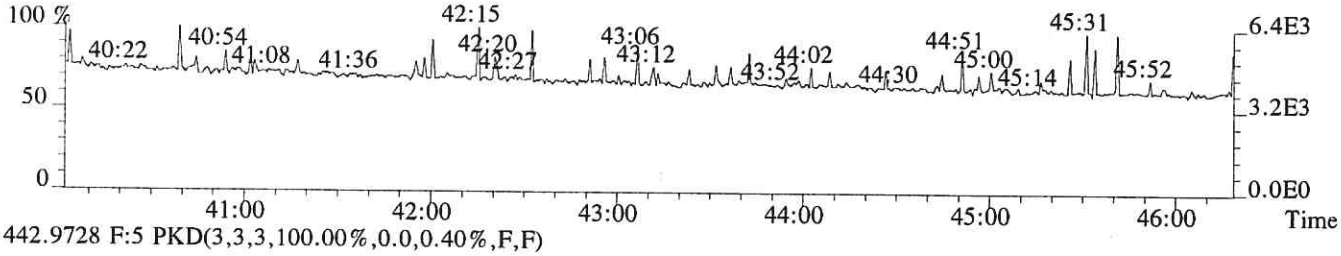
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,96.0,0.40%,F,T)



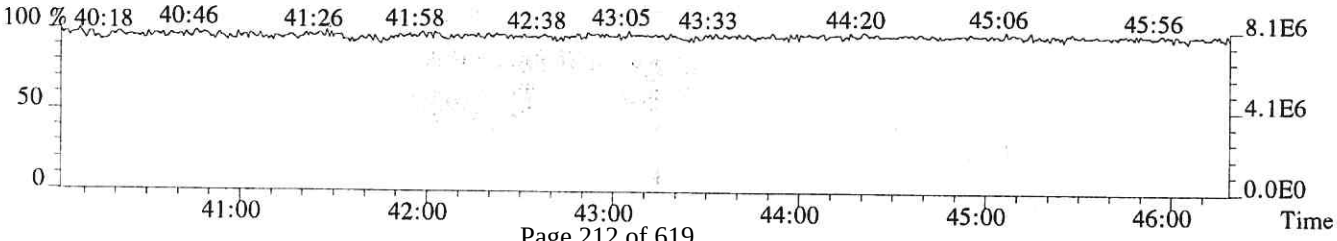
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,688.0,0.40%,F,T)



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

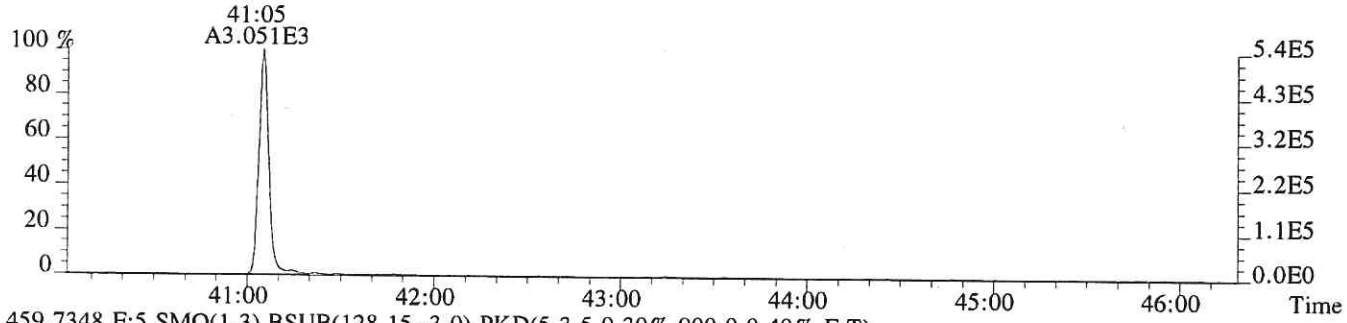


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

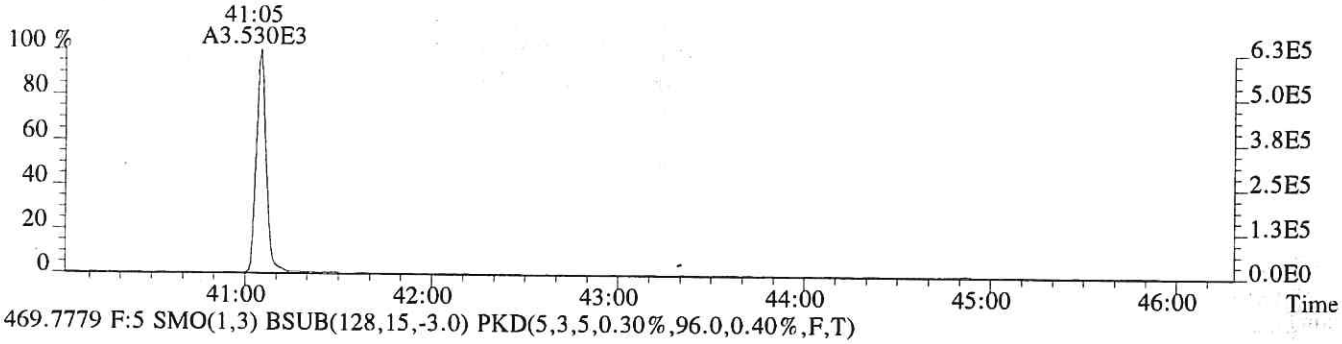


RIGHT SOLUTIONS | RIGHT PARTNER

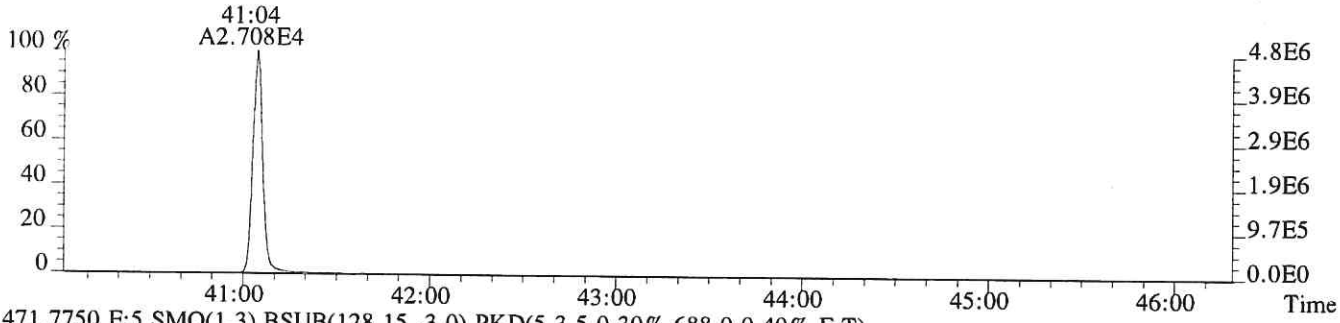
File:P524839 #1-565 Acq:20-OCT-2019 13:30:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1900728-005DL
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,388.0,0.40%,F,T)



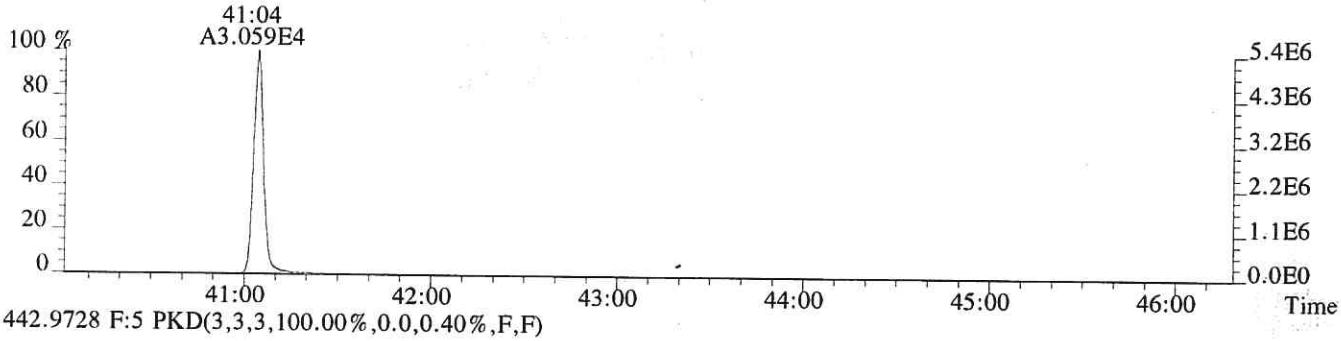
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,900.0,0.40%,F,T)



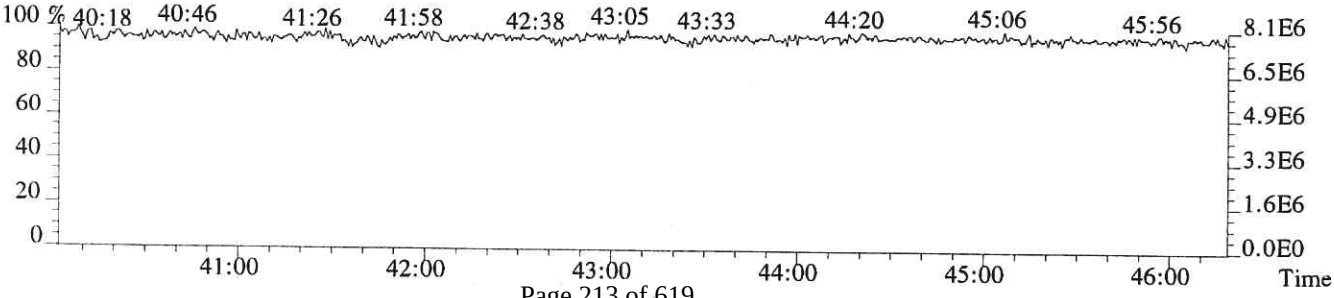
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,96.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,688.0,0.40%,F,T)



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



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Form 1

PCDD/PCDF ANALYSIS DATA SHEET
Use for Sample and Blank Results

CLIENT ID.
METHOD BLANK

Lab Name: ALS ENVIRONMENTAL Contract: SDG No:

Lab Code: Method:1613B Case No: Client No: Lab ID: EQ1900347-01

Client Name: Sample Wt/Vol: g or mL:

Matrix (Solid/Aqueous/Waste/Ash): Initial Calibration Date: 10/04/19

Sample Receipt Date: Instrument ID: E-HRMS-08

Ext. Date: GC Column:DB-5MSUI

Ext. Vol(ul): Inj. Vol(ul): Sample Data Filename: P619497

Analysis Date: 17-OCT-19 Time: 13:45:14 Blank Data Filename: EQ347

Dilution Factor: 1 Cal. Ver. Data Filename: P619496

Concentration Units (pg/L or ng/Kg dry weight): pg % Solids/Lipids:

ANALYTE	CONCENTRATION FOUND	DETECTION LIMIT	Qual. (1)	ION ABUND. RATIO (2)	RRT (2)	MEAN RRF
2,3,7,8-TCDF	*	0.686		*	*	1.02
1,2,3,7,8-PeCDF	*	0.536		*	*	1.02
2,3,4,7,8-PeCDF	1.096	0.563		1.36	1.001	0.98
1,2,3,4,7,8-HxCDF	*	0.281		*	*	1.23
1,2,3,6,7,8-HxCDF	*	0.304		*	*	1.11
2,3,4,6,7,8-HxCDF	0.386	0.311		0.66	1.001	1.13
1,2,3,7,8,9-HxCDF	0.571	0.341		0.97	1.001	1.14
1,2,3,4,6,7,8-HpCDF	*	0.220		*	*	1.32
1,2,3,4,7,8,9-HpCDF	*	0.301		*	*	1.25
OCDF	0.673	0.537		0.82	1.005	1.37
2,3,7,8-TCDD	*	1.562		*	*	1.01
1,2,3,7,8-PeCDD	*	0.554		*	*	0.99
1,2,3,4,7,8-HxCDD	*	0.387		*	*	1.08
1,2,3,6,7,8-HxCDD	*	0.345		*	*	1.08
1,2,3,7,8,9-HxCDD	*	0.336		*	*	1.17
1,2,3,4,6,7,8-HpCDD	0.557	0.524		0.79	1.000	1.05
OCDD	2.892	0.453		0.85	1.001	1.16
Total Tetra-Furans	*	0.686				
Total Tetra-Dioxins	*	1.562				
Total Penta-Furans1	*	0.478	Total Penta Furan		1.096	
Total Penta-Furans2	1.096	0.549				
Total Penta-Dioxins	*	0.554				
Total Hexa-Furans	*	0.309				
Total Hexa-Dioxins	*	0.354				
Total Hepta-Furans	*	0.257				
Total Hepta-Dioxins	*	0.524				

(1) Qualifier U indicates not detected; The K indicates EMPC. The C needs value from second column analysis. The B indicates possible blank contamination.
(2) RRTs and ion ratios are specified in Tables 2 and 9, Method 1613B.

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USEPA, EAD

FORM 2: PCDD/PCDF LABELED COMPOUND AND CLEANUP STANDARD RECOVERIES

CLIENT ID.

METHOD BLANK

Lab Name: ALS Environmental Contract: SDG No:

Lab Code: ALS Method:1613BCase No: Client No: Lab ID:EQ1900347-01

Client Name: Sample Wt/Vol: g or mL:

Matrix (Solid/Aqueous/Waste/Ash): Initial Calibration Date: 10/04/19

Sample Receipt Date: Instrument ID: E-HRMS-08

GC Column ID: DB-5MSUI

Analysis Date: 17-OCT-19 Time: 13:45:14 Sample Data Filename: P619497

Ext. Vol(uL): 20.0 Inj. Vol(uL): Blank Data Filename: EQ347

Dilution Factor: 1 Cal. Ver. Data Filename: P619496

Concentration Units (pg/L or ng/Kg dry weight): pg

LABELED COMPOUNDS	SPIKE CONC.	CONC. FOUND	R(%) (1)	QC Limit(1)	ION ABUND. RATIO (2)	RRT (2)
13C-2,3,7,8-TCDD	2000	670.39	33.52	25-164	0.79	1.019
13C-1,2,3,7,8-PeCDD	2000	946.73	47.34	25-181	1.55	1.172
13C-1,2,3,4,7,8-HxCDD	2000	1250.08	62.50	32-141	1.29	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1538.53	76.93	28-130	1.27	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1287.91	64.40	23-140	1.07	1.066
13C-OCDD	4000	2652.68	66.32	17-157	0.92	1.141
13C-2,3,7,8-TCDF	2000	567.30	28.36	24-169	0.80	0.994
13C-1,2,3,7,8-PeCDF	2000	823.31	41.17	24-185	1.59	1.133
13C-2,3,4,7,8-PeCDF	2000	798.19	39.91	21-178	1.58	1.163
13C-1,2,3,4,7,8-HxCDF	2000	1351.06	67.55	26-152	0.52	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1280.27	64.01	26-123	0.53	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1295.78	64.79	29-147	0.53	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1284.58	64.23	28-136	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1292.23	64.61	28-143	0.44	1.041
13C-1,2,3,4,7,8,9-HpCDF	2000	1256.47	62.82	26-138	0.44	1.079
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD	800	265.80	33.22	35-197		1.020

(1) Contract-required limits for percent recovery (R) are specified in Table 7, Method 1613B.
(2) Contract-required limits for RRTs and ion abundance ratios are specified in Tables 2 and 9, respectively, Method 1613B. NOTE: There is no ion abundance ratio for 37Cl4-2378-TCDD (cleanup standard).

RFP C500273T1

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ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
METHOD BLANK

Run #9 Filename P619497 Samp: 1 Inj: 1 Acquired: 17-OCT-19 13:45:14
Processed: 18-OCT-19 13:41:32 Sample ID: EQ1900347-01

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	yes	1.017
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	1.021
3	Unk	2,3,4,7,8-PeCDF	33:46	2.185e+01	1.607e+01	1.36	yes	no	0.983
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.229
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.109
6	Unk	2,3,4,6,7,8-HxCDF	36:59	8.937e+00	1.354e+01	0.66	no	no	1.125
7	Unk	1,2,3,7,8,9-HxCDF	37:43	1.260e+01	1.300e+01	0.97	no	no	1.143
8	Unk	1,2,3,4,6,7,8-HpCDF	NotFnd	*	*	*	no	yes	1.323
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.253
10	Unk	OCDF	42:53	1.068e+01	1.300e+01	0.82	yes	no	1.373
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.012
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	yes	0.993
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.082
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	1.083
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	yes	1.174
16	Unk	1,2,3,4,6,7,8-HpCDD	39:50	9.100e+00	1.154e+01	0.79	no	no	1.053
17	Unk	OCDD	42:41	3.962e+01	4.640e+01	0.85	yes	no	1.160
18	IS	13C-2,3,7,8-TCDF	28:50	1.808e+04	2.259e+04	0.80	yes	no	1.341
19	IS	13C-1,2,3,7,8-PeCDF	32:52	4.391e+04	2.768e+04	1.59	yes	no	1.627
20	IS	13C-2,3,4,7,8-PeCDF	33:45	4.318e+04	2.725e+04	1.58	yes	no	1.651
21	IS	13C-1,2,3,4,7,8-HxCDF	36:21	2.495e+04	4.778e+04	0.52	yes	no	1.137
22	IS	13C-1,2,3,6,7,8-HxCDF	36:27	2.756e+04	5.169e+04	0.53	yes	no	1.307
23	IS	13C-2,3,4,6,7,8-HxCDF	36:57	2.543e+04	4.890e+04	0.52	yes	no	1.222
24	IS	13C-1,2,3,7,8,9-HxCDF	37:41	2.403e+04	4.574e+04	0.53	yes	no	1.137
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:55	2.003e+04	4.539e+04	0.44	yes	no	1.069
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:20	1.752e+04	3.967e+04	0.44	yes	no	0.961
27	IS	13C-2,3,7,8-TCDD	29:34	1.533e+04	1.942e+04	0.79	yes	no	0.970
28	IS	13C-1,2,3,7,8-PeCDD	34:01	3.514e+04	2.266e+04	1.55	yes	no	1.142
29	IS	13C-1,2,3,4,7,8-HxCDD	37:04	3.048e+04	2.360e+04	1.29	yes	no	0.914
30	IS	13C-1,2,3,6,7,8-HxCDD	37:09	3.659e+04	2.892e+04	1.27	yes	no	0.899
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:50	3.141e+04	2.939e+04	1.07	yes	no	0.997
32	IS	13C-OCDD	42:39	4.908e+04	5.347e+04	0.92	yes	no	0.817
33	RS/RT	13C-1,2,3,4-TCDD	29:01	4.671e+04	6.019e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:23	5.311e+04	4.158e+04	1.28	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:36	1.428e+04				no	1.005

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

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
METHOD BLANK

Run #9 Filename P619497 Samp: 1 Inj: 1 Acquired: 17-OCT-19 13:45:14
Processed: 18-OCT-19 13:41:32 LAB. ID: EQ1900347-01

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	4.00e+02	*	*	6.24e+02	*
2	1,2,3,7,8-PeCDF	*	4.96e+02	*	*	9.92e+02	*
3	2,3,4,7,8-PeCDF	4.36e+03	4.96e+02	8.8e+00	3.41e+03	9.92e+02	3.4e+00
4	1,2,3,4,7,8-HxCDF	*	6.52e+02	*	*	4.44e+02	*
5	1,2,3,6,7,8-HxCDF	*	6.52e+02	*	*	4.44e+02	*
6	2,3,4,6,7,8-HxCDF	2.69e+03	6.52e+02	4.1e+00	3.79e+03	4.44e+02	8.5e+00
7	1,2,3,7,8,9-HxCDF	2.39e+03	6.52e+02	3.7e+00	3.70e+03	4.44e+02	8.3e+00
8	1,2,3,4,6,7,8-HpCDF	*	3.92e+02	*	*	4.28e+02	*
9	1,2,3,4,7,8,9-HpCDF	*	3.92e+02	*	*	4.28e+02	*
10	OCDF	2.14e+03	4.92e+02	4.3e+00	2.50e+03	7.60e+02	3.3e+00
11	2,3,7,8-TCDD	*	1.30e+03	*	*	8.00e+02	*
12	1,2,3,7,8-PeCDD	*	7.16e+02	*	*	5.12e+02	*
13	1,2,3,4,7,8-HxCDD	*	3.92e+02	*	*	6.28e+02	*
14	1,2,3,6,7,8-HxCDD	*	3.92e+02	*	*	6.28e+02	*
15	1,2,3,7,8,9-HxCDD	*	3.92e+02	*	*	6.28e+02	*
16	1,2,3,4,6,7,8-HpCDD	2.94e+03	7.04e+02	4.2e+00	3.19e+03	6.32e+02	5.1e+00
17	OCDD	6.48e+03	3.84e+02	1.7e+01	6.30e+03	5.08e+02	1.2e+01
18	13C-2,3,7,8-TCDF	3.27e+06	4.66e+03	7.0e+02	4.03e+06	2.09e+03	1.9e+03
19	13C-1,2,3,7,8-PeCDF	8.32e+06	4.52e+02	1.8e+04	5.23e+06	6.44e+02	8.1e+03
20	13C-2,3,4,7,8-PeCDF	8.17e+06	4.52e+02	1.8e+04	5.21e+06	6.44e+02	8.1e+03
21	13C-1,2,3,4,7,8-HxCDF	5.45e+06	7.00e+02	7.8e+03	1.04e+07	8.76e+02	1.2e+04
22	13C-1,2,3,6,7,8-HxCDF	5.60e+06	7.00e+02	8.0e+03	1.06e+07	8.76e+02	1.2e+04
23	13C-2,3,4,6,7,8-HxCDF	5.33e+06	7.00e+02	7.6e+03	1.02e+07	8.76e+02	1.2e+04
24	13C-1,2,3,7,8,9-HxCDF	4.80e+06	7.00e+02	6.9e+03	9.22e+06	8.76e+02	1.1e+04
25	13C-1,2,3,4,6,7,8-HpCDF	4.32e+06	2.15e+03	2.0e+03	9.66e+06	5.76e+03	1.7e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.35e+06	2.15e+03	1.6e+03	7.45e+06	5.76e+03	1.3e+03
27	13C-2,3,7,8-TCDD	2.89e+06	3.48e+03	8.3e+02	3.71e+06	1.53e+03	2.4e+03
28	13C-1,2,3,7,8-PeCDD	6.74e+06	8.08e+02	8.3e+03	4.36e+06	6.32e+02	6.9e+03
29	13C-1,2,3,4,7,8-HxCDD	6.81e+06	2.34e+03	2.9e+03	5.30e+06	9.16e+02	5.8e+03
30	13C-1,2,3,6,7,8-HxCDD	7.57e+06	2.34e+03	3.2e+03	6.02e+06	9.16e+02	6.6e+03
31	13C-1,2,3,4,6,7,8-HpCDD	6.25e+06	6.28e+02	9.9e+03	5.82e+06	3.48e+02	1.7e+04
32	13C-OCDD	8.05e+06	5.48e+02	1.5e+04	8.88e+06	4.72e+02	1.9e+04
33	13C-1,2,3,4-TCDD	9.13e+06	3.48e+03	2.6e+03	1.18e+07	1.53e+03	7.7e+03
34	13C-1,2,3,7,8,9-HxCDD	1.11e+07	2.34e+03	4.8e+03	8.73e+06	9.16e+02	9.5e+03
35	37Cl-2,3,7,8-TCDD	2.73e+06	1.16e+03	2.4e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.296e{+}03 + 8.000e{+}02\ ) \times 2000}{(2.894e{+}06 + 3.713e{+}06\ ) \times (\qquad\qquad\qquad\qquad) \times 1.012} =$$

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

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Peak List Summary

CLIENT ID.

METHOD BLANK

Entry: 39 Totals Name: Total Penta-Furans2

Run: 9 File: P619497 Sample:1 Injection:1 Function:2

Acquired: 17-OCT-19 13:45:14 Processed: 18-OCT-19 13:41:32

Mass: 339.8600 341.8570 Tot Response: 3.79e+01 RRF: 1.002

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	33:46	2.18e+01	1.61e+01	1.36	yes	3.79e+01	2,3,4,7,8-PeCDF	n	n

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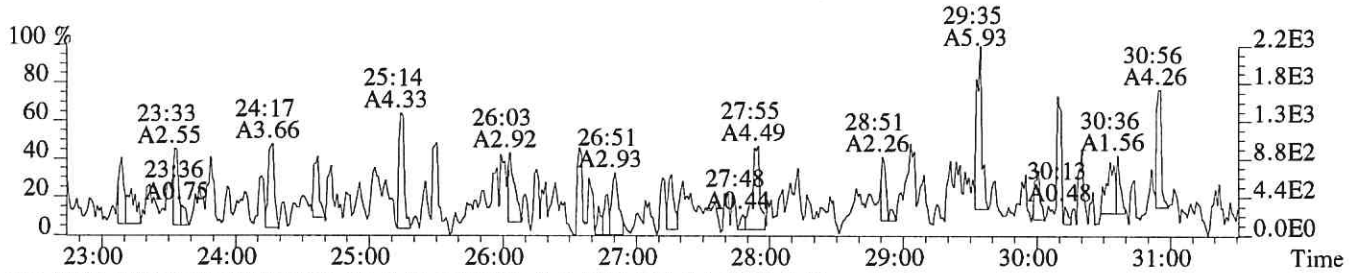
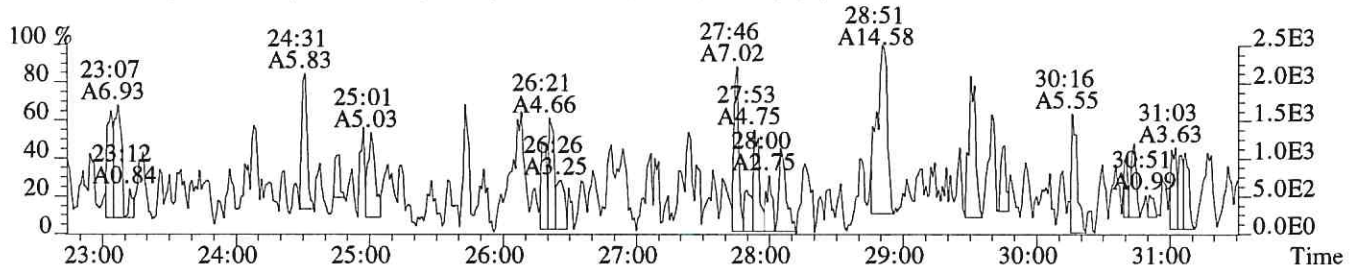
File:P619497 #1-623 Acq:17-OCT-2019 13:45:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB

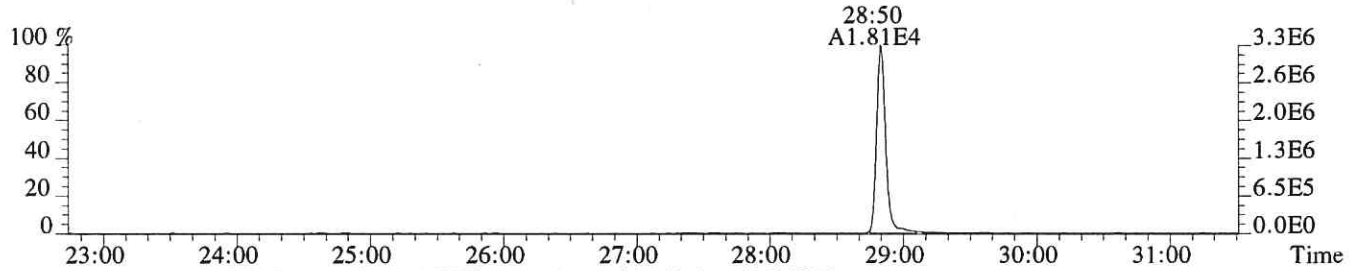
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,400.0,1.00%,F,T)



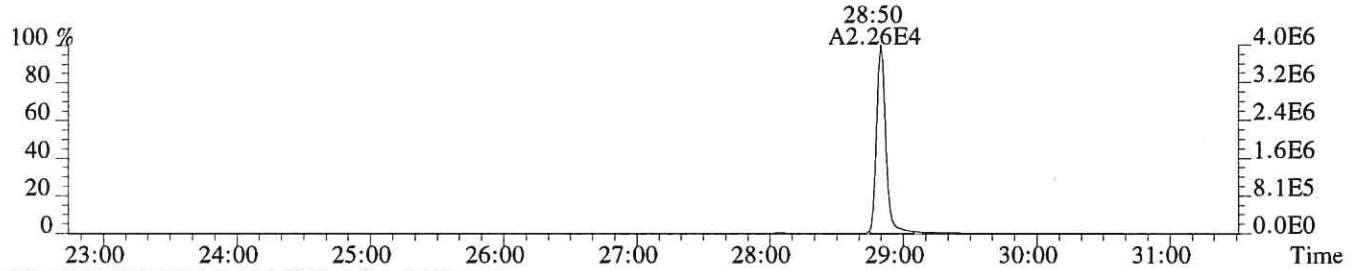
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,624.0,1.00%,F,T)



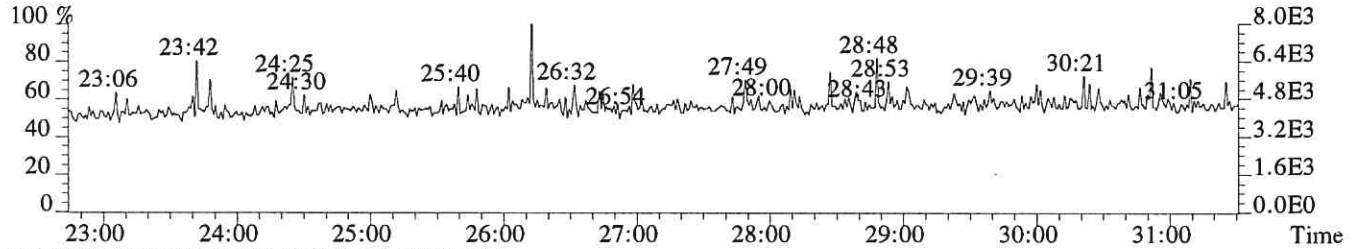
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4656.0,1.00%,F,T)



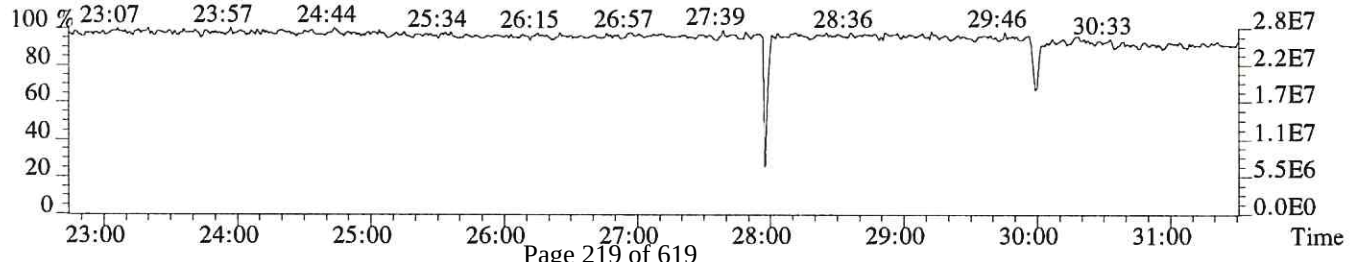
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2092.0,1.00%,F,T)



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



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



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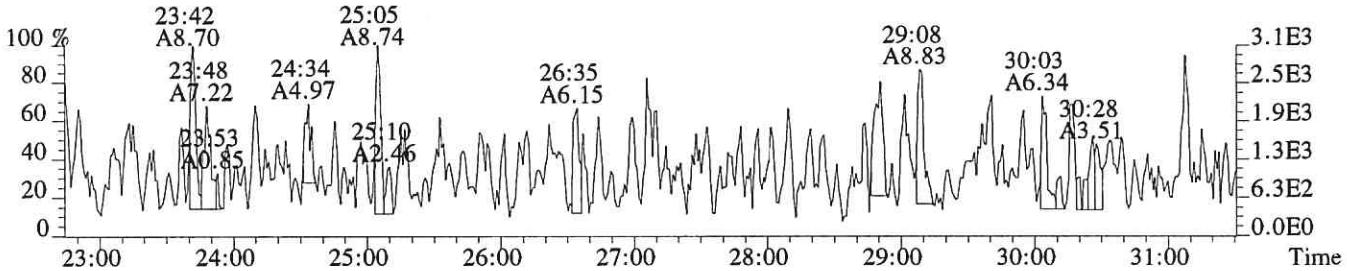
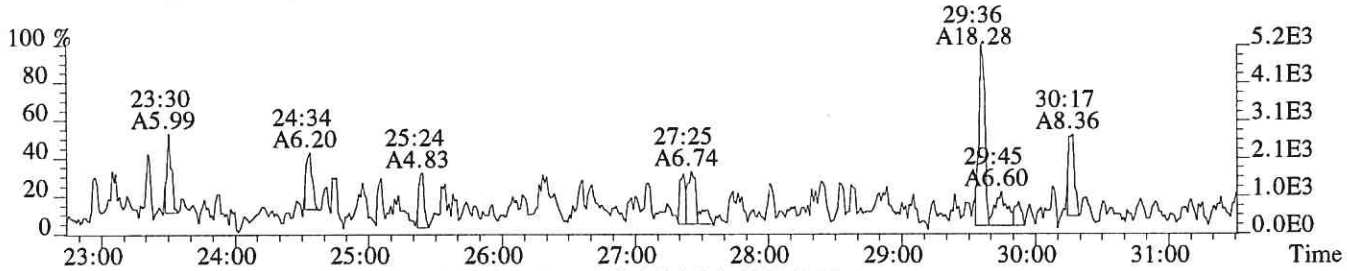
File:P619497 #1-623 Acq:17-OCT-2019 13:45:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB

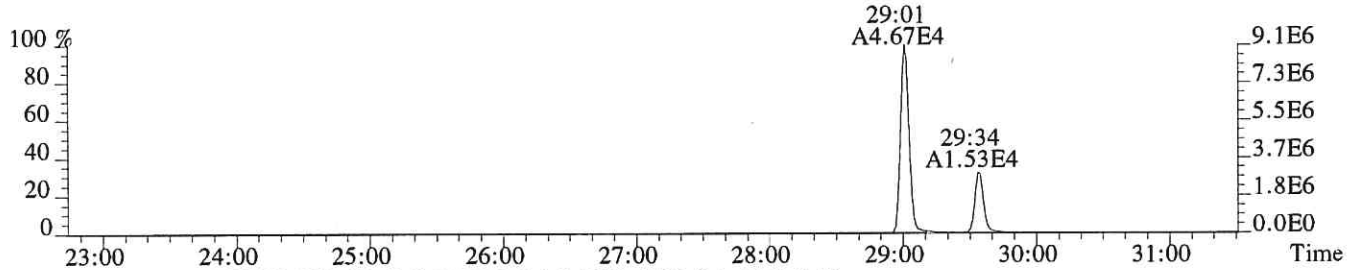
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1296.0,1.00%,F,T)



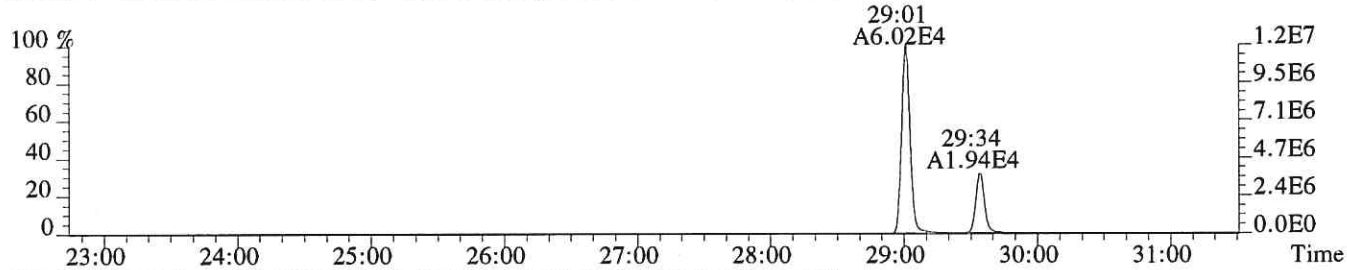
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,800.0,1.00%,F,T)



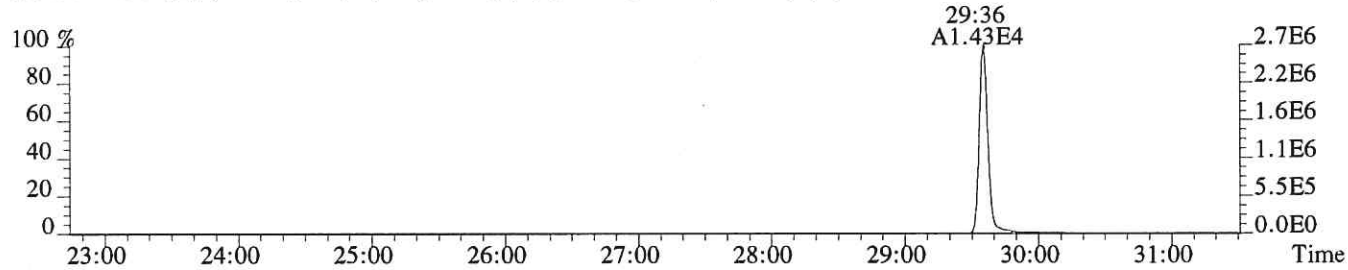
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3484.0,1.00%,F,T)



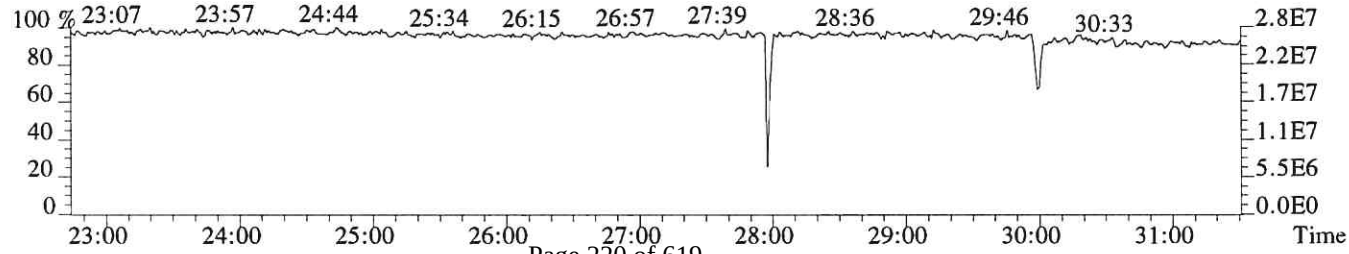
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1532.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1160.0,1.00%,F,T)

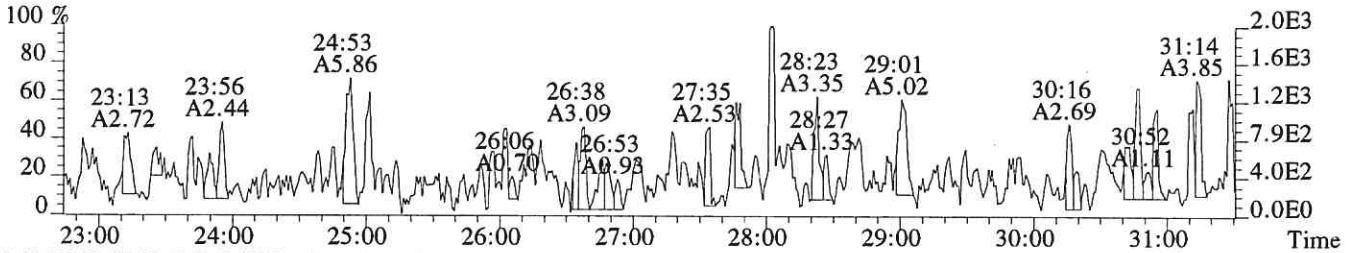


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

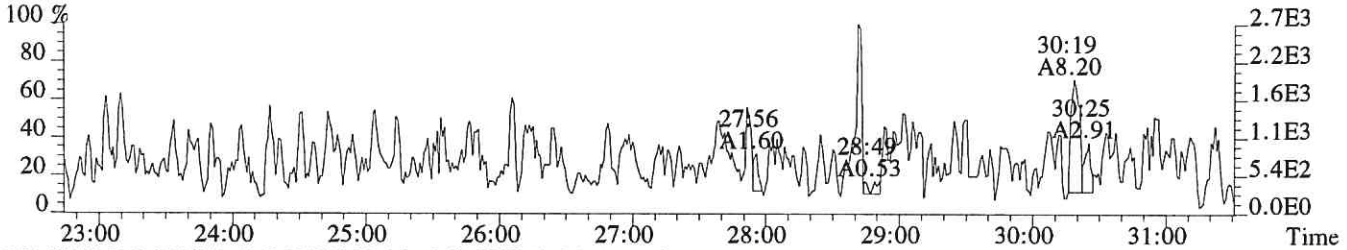


RIGHT SOLUTIONS | RIGHT PARTNER

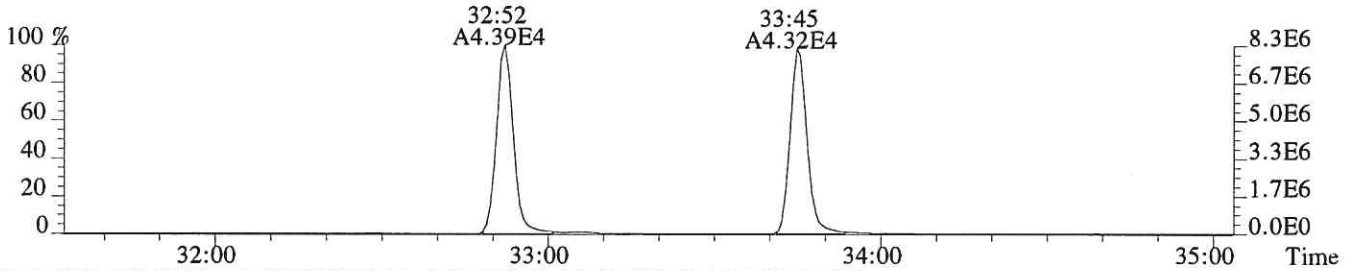
File:P619497 #1-623 Acq:17-OCT-2019 13:45:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,412.0,1.00%,F,T)



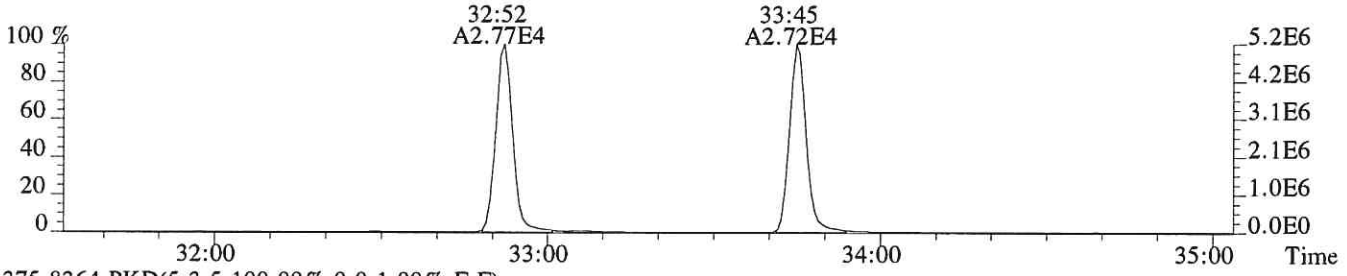
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,884.0,1.00%,F,T)



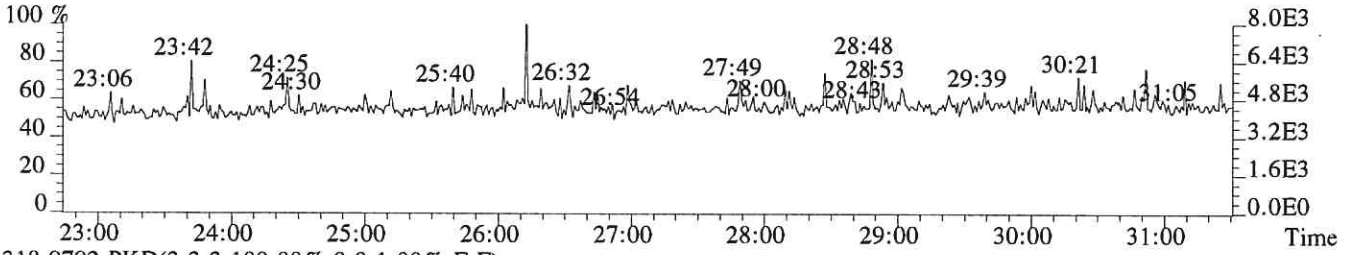
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,452.0,1.00%,F,T)



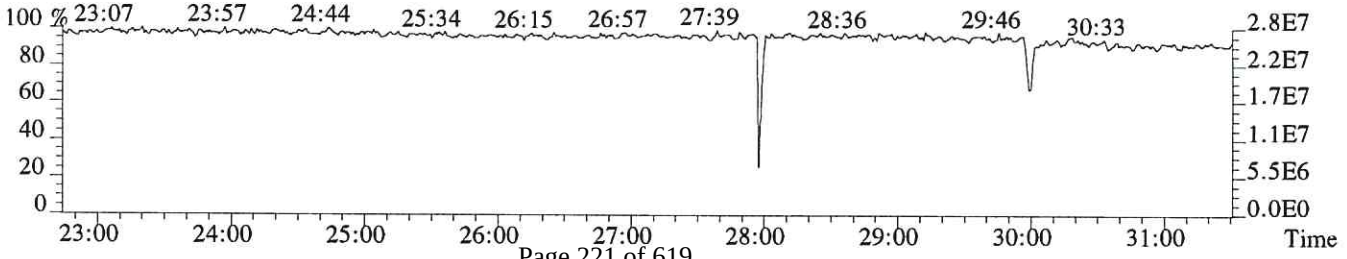
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,644.0,1.00%,F,T)



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



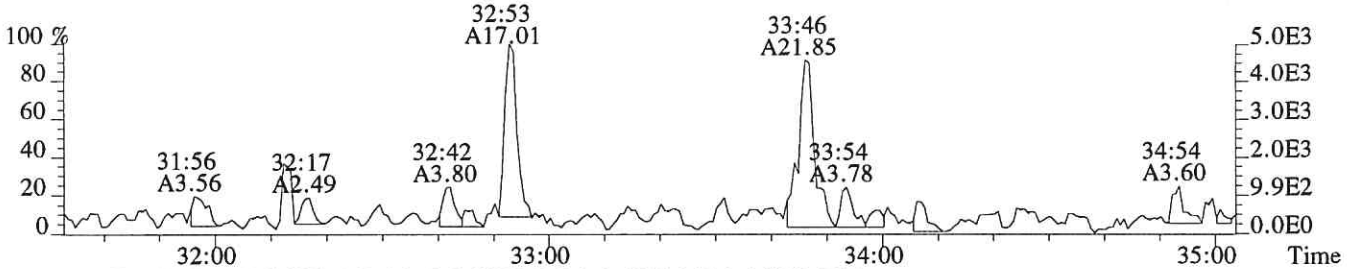
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



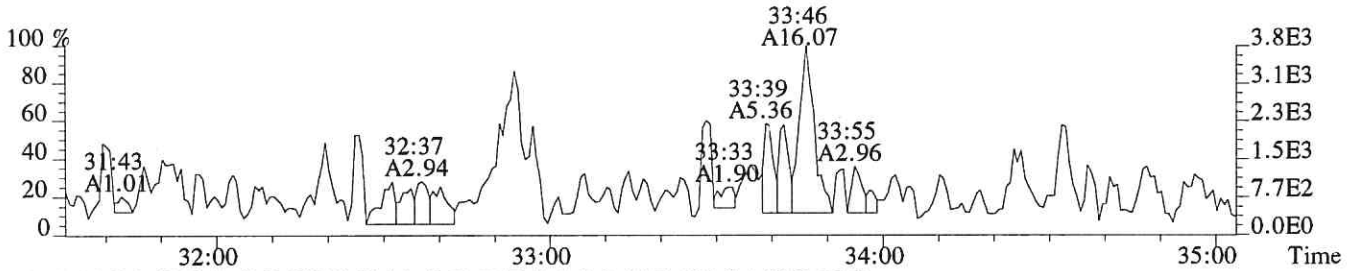
RIGHT SOLUTIONS | RIGHT PARTNER

File:P619497 #1-317 Acq:17-OCT-2019 13:45:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB

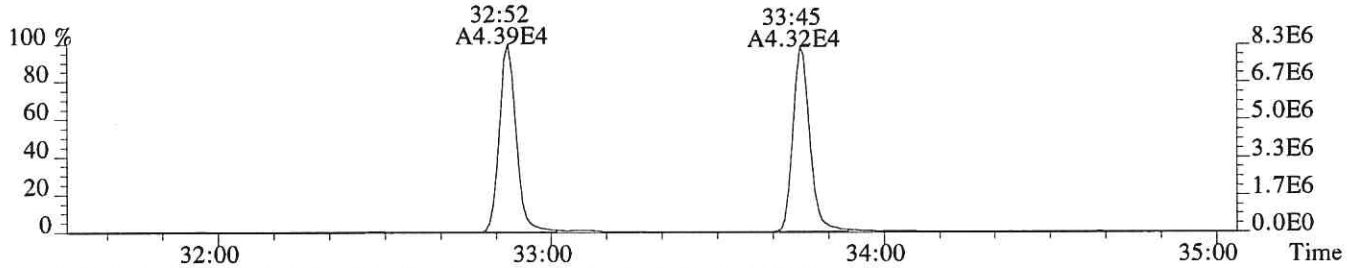
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,496.0,1.00%,F,T)



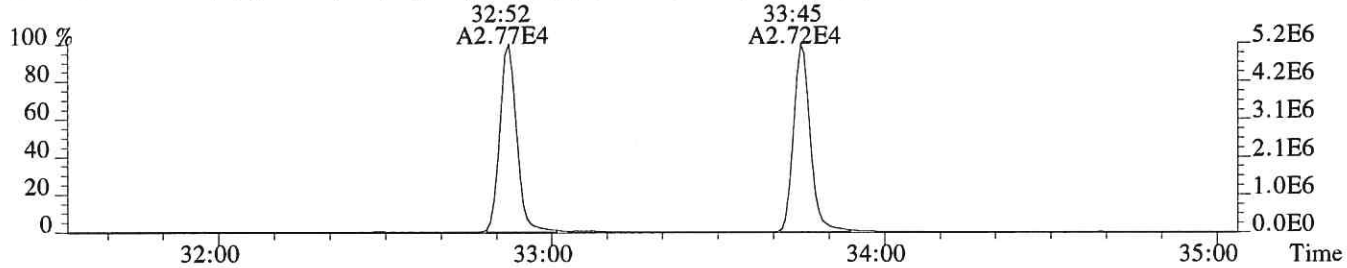
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,992.0,1.00%,F,T)



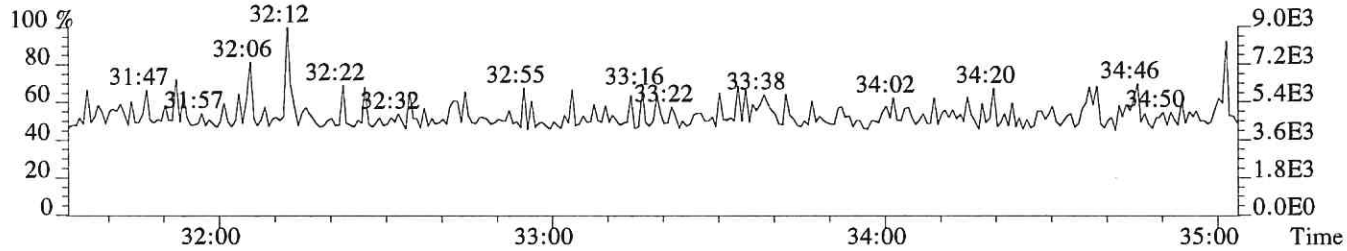
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,452.0,1.00%,F,T)



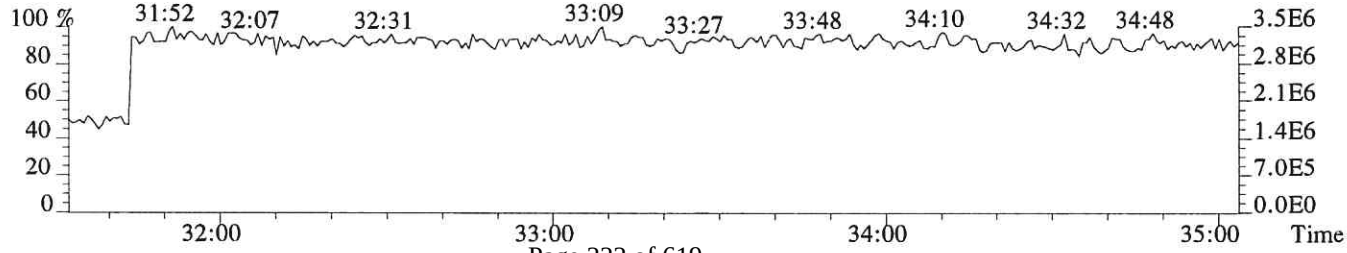
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,644.0,1.00%,F,T)



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

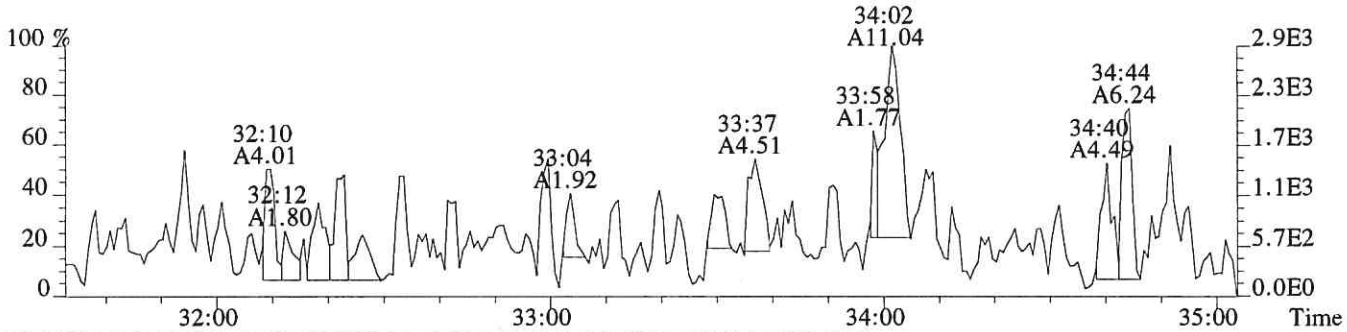


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

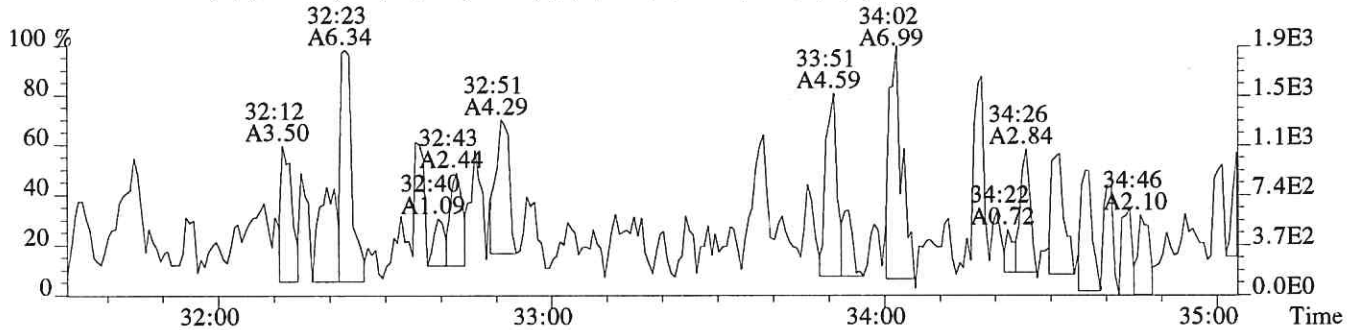


RIGHT SOLUTIONS | RIGHT PARTNER

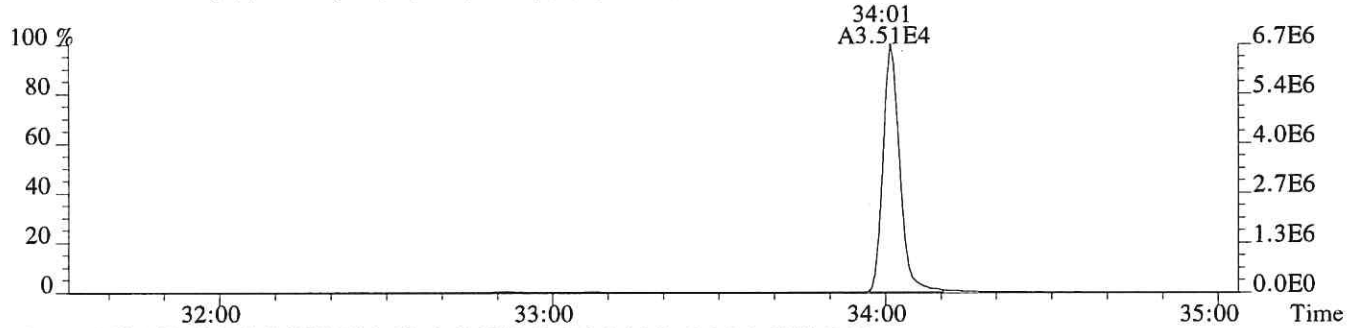
File:P619497 #1-317 Acq:17-OCT-2019 13:45:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,716.0,1.00%,F,T)



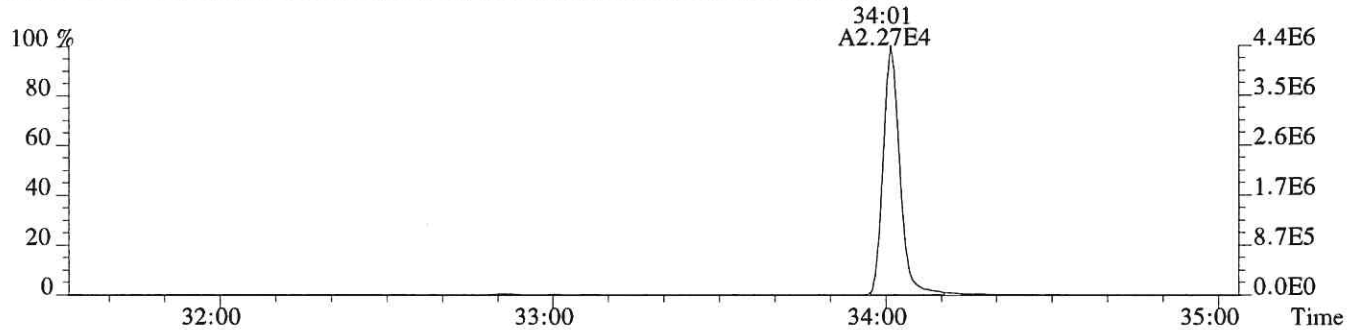
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,512.0,1.00%,F,T)



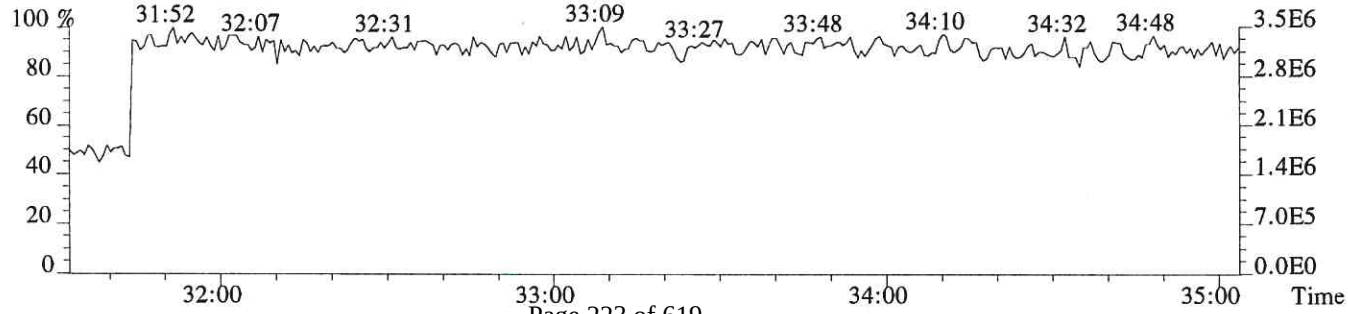
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,808.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,632.0,1.00%,F,T)

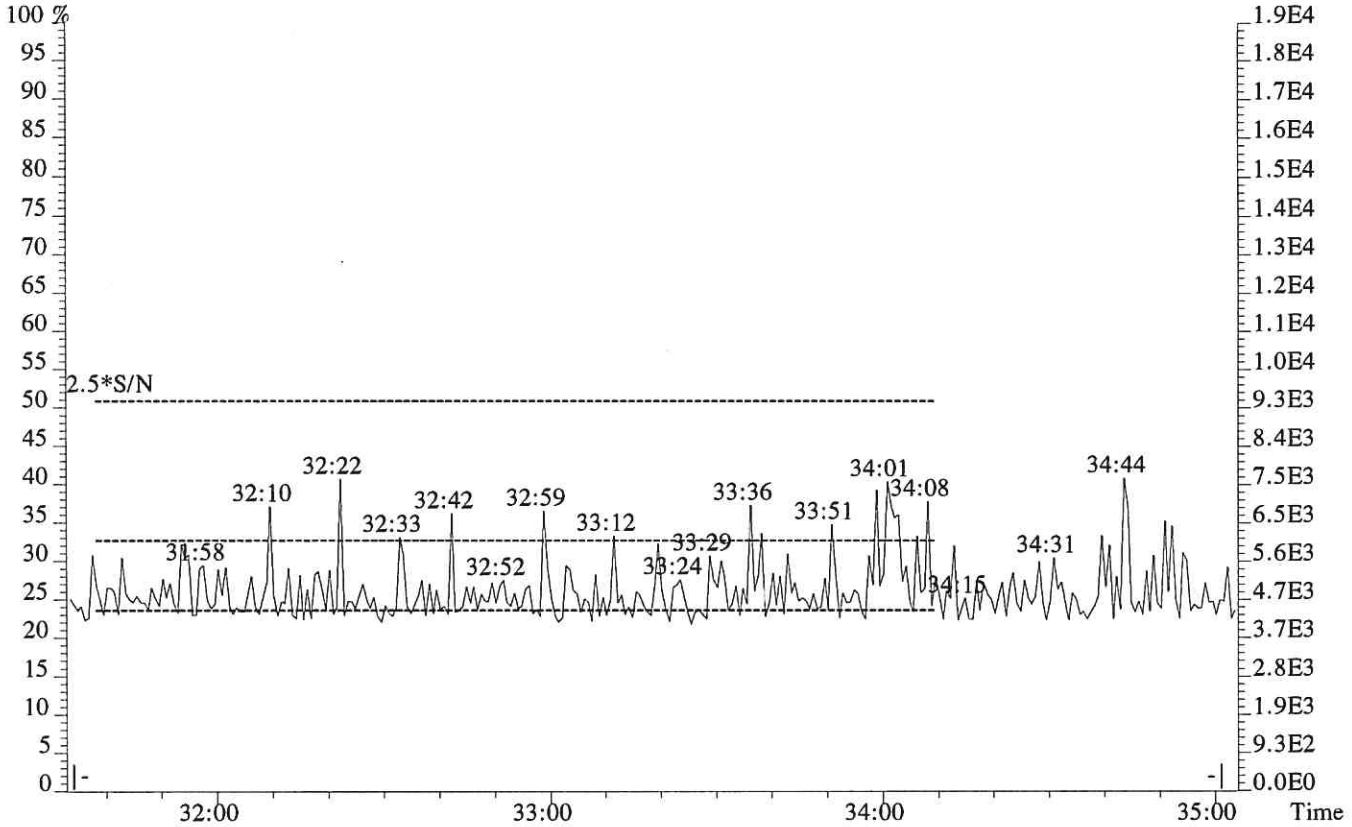


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

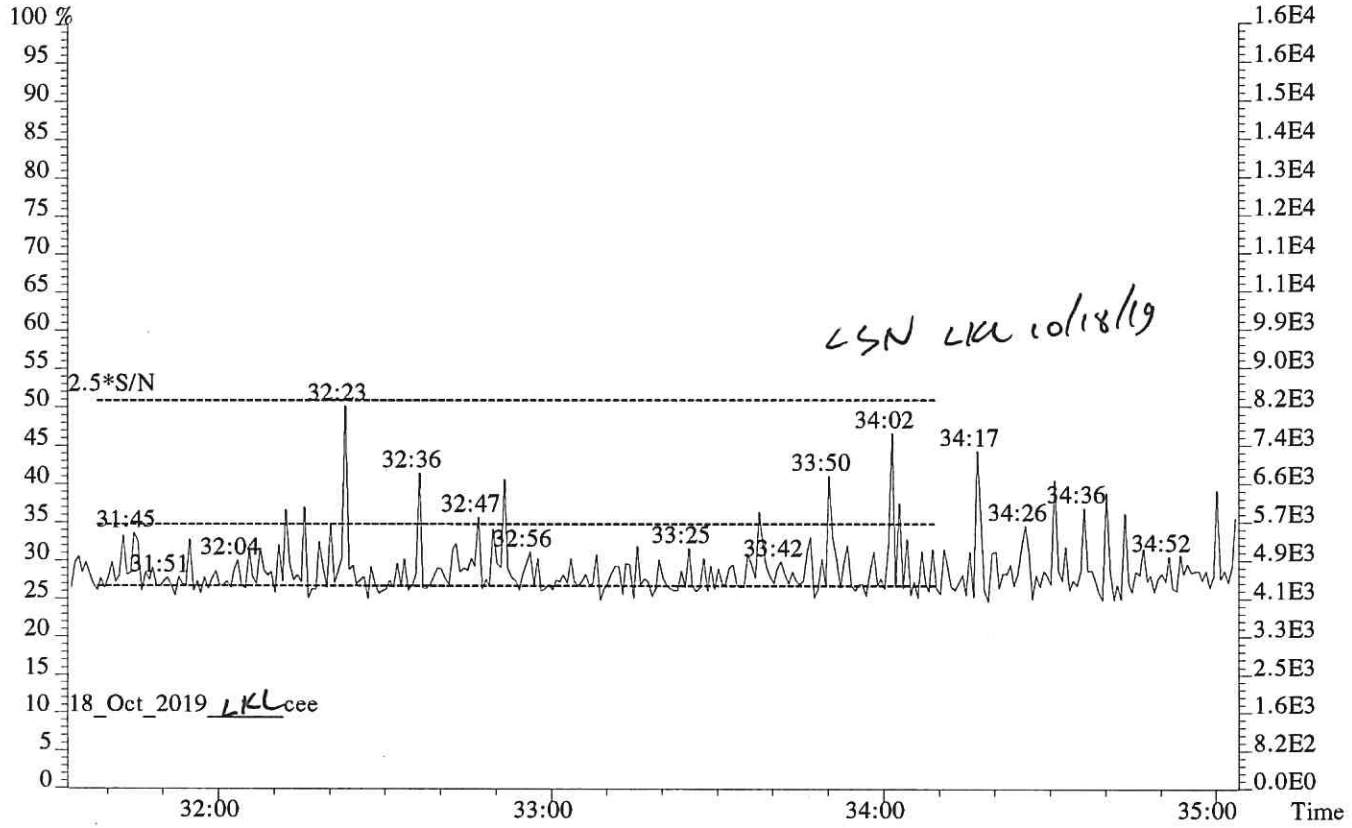


RIGHT SOLUTIONS | RIGHT PARTNER

File:P619497 #1-317 Acq:17-OCT-2019 13:45:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
355.8546 F:2



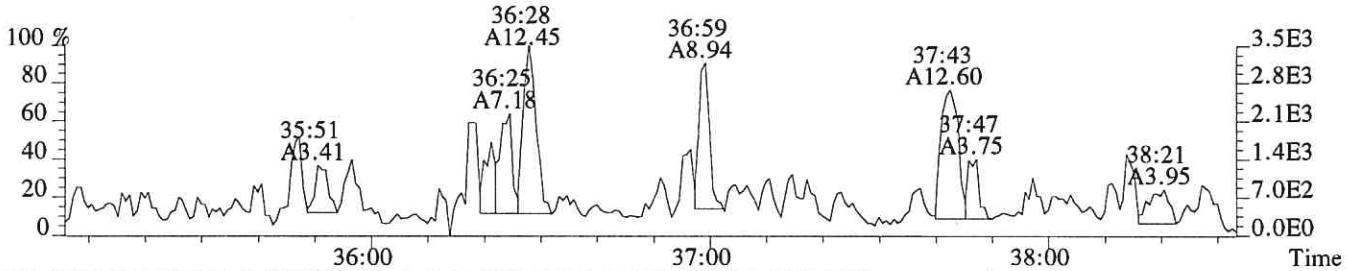
357.8516 F:2



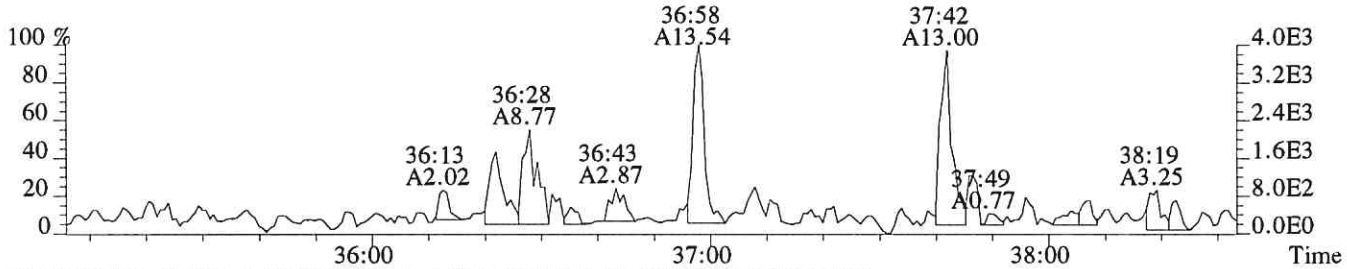
RIGHT SOLUTIONS | RIGHT PARTNER

File:P619497 #1-312 Acq:17-OCT-2019 13:45:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB

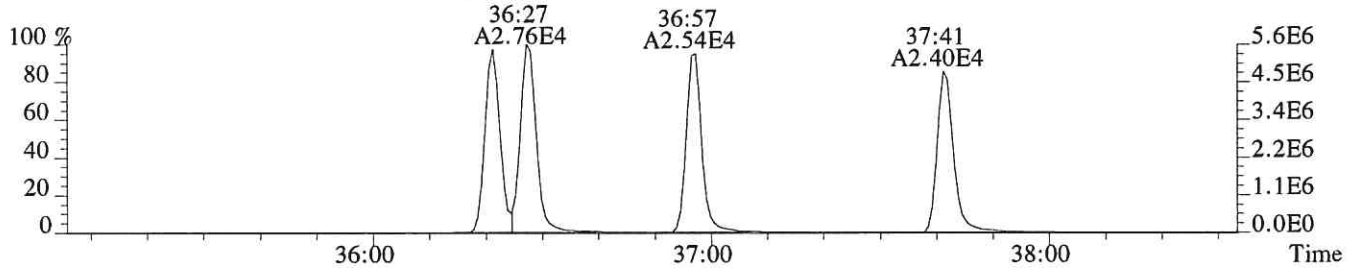
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,652.0,0.40%,F,T)



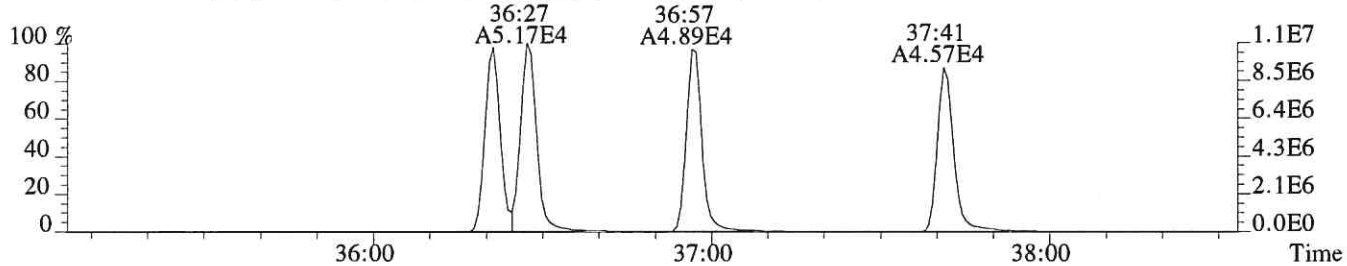
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,444.0,0.40%,F,T)



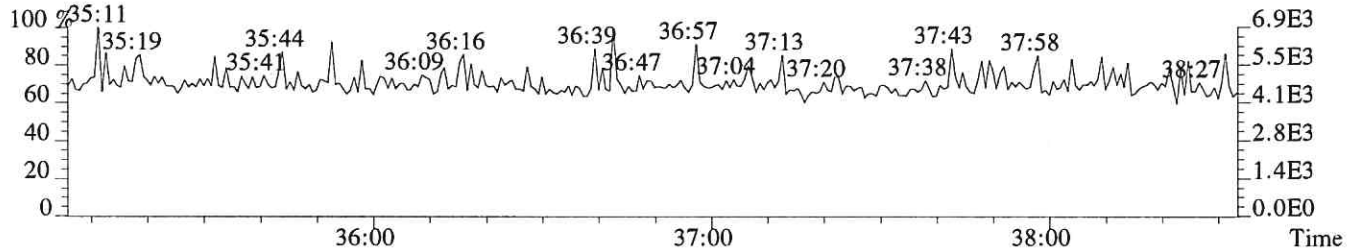
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,700.0,0.40%,F,T)



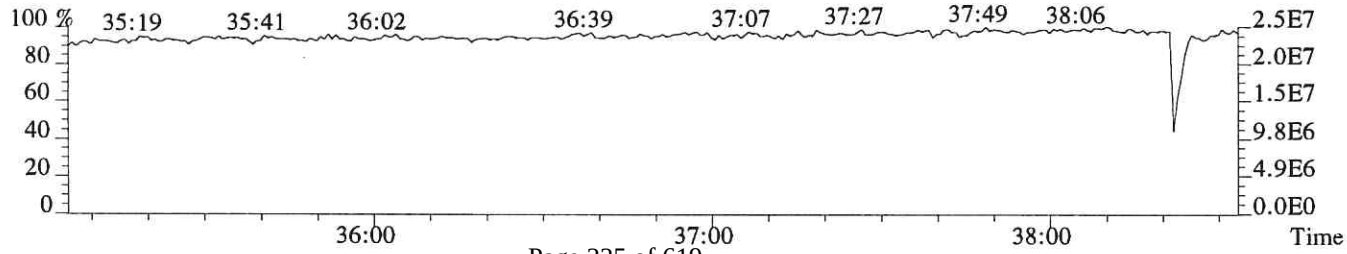
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,876.0,0.40%,F,T)



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

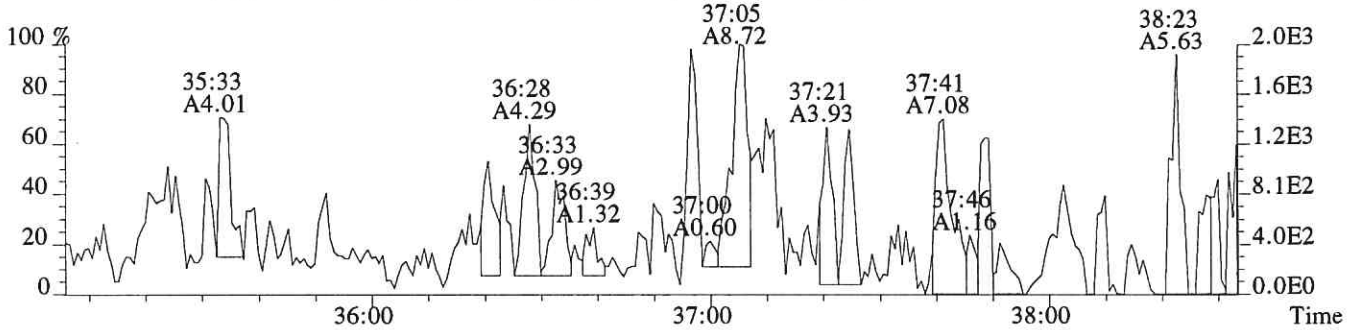


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

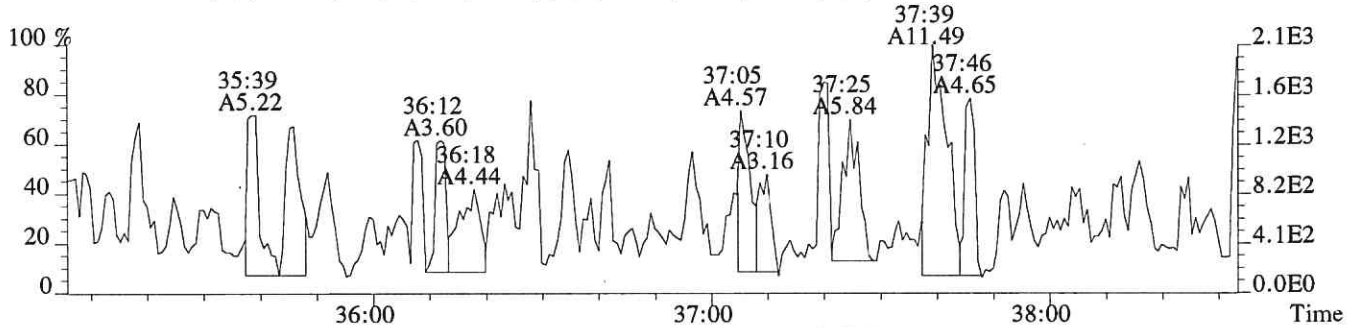


RIGHT SOLUTIONS | RIGHT PARTNER

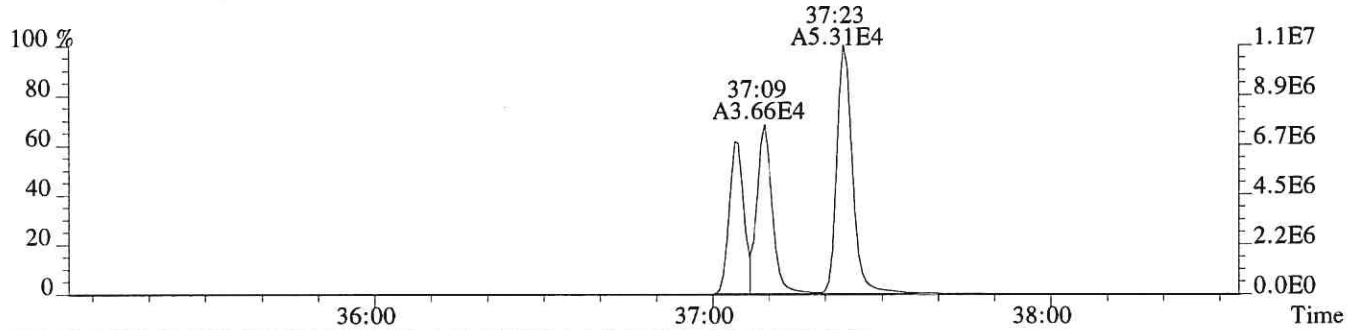
File:P619497 #1-312 Acq:17-OCT-2019 13:45:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,392.0,0.40%,F,T)



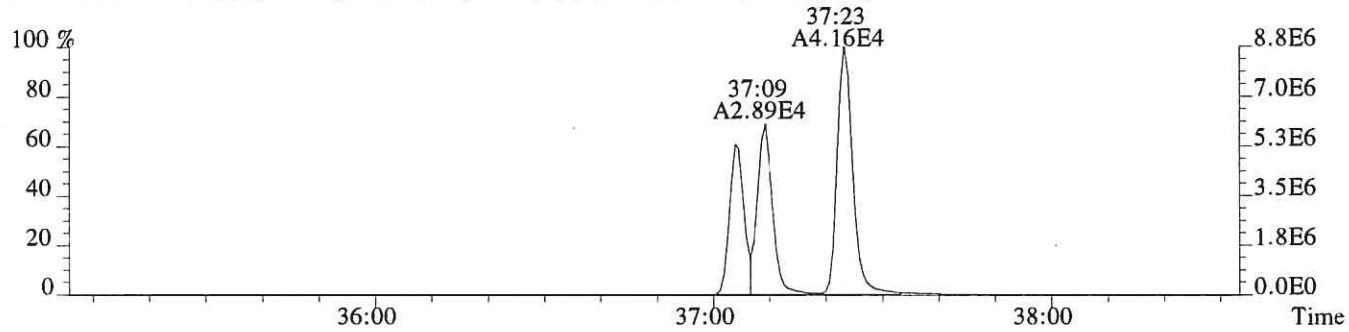
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,628.0,0.40%,F,T)



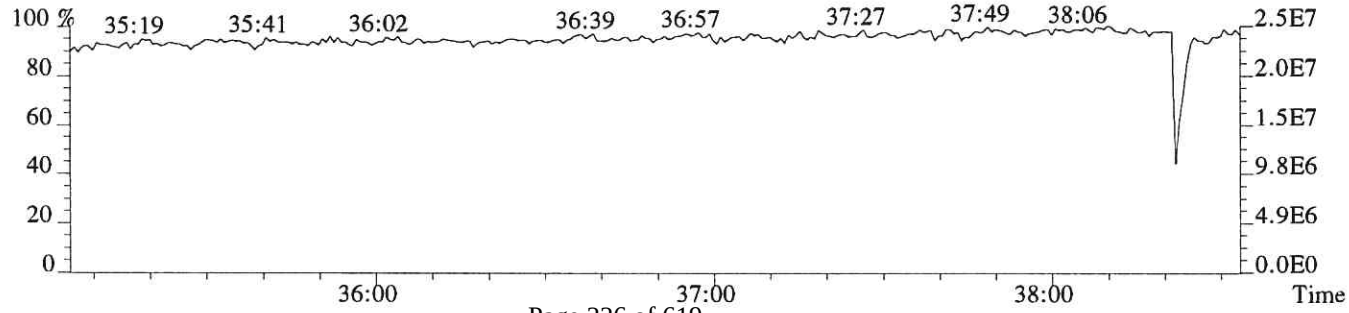
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2340.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,916.0,0.40%,F,T)



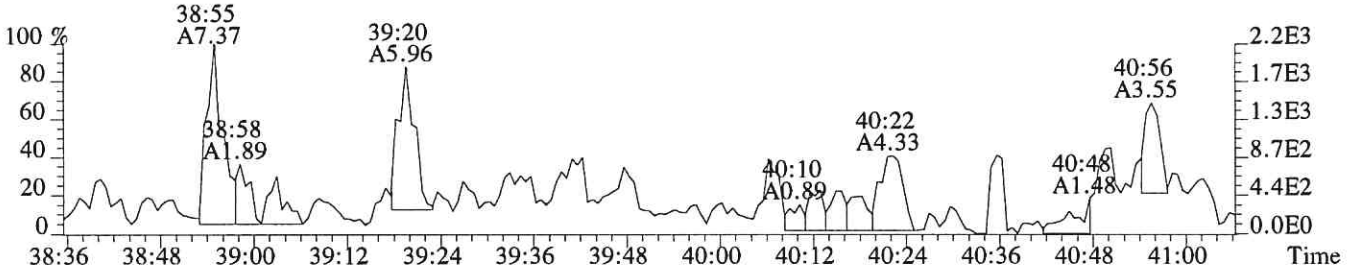
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



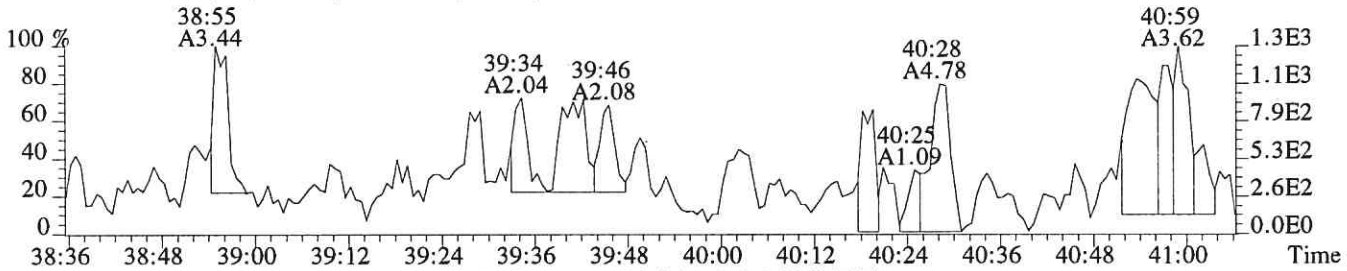
RIGHT SOLUTIONS | RIGHT PARTNER

File:P619497 #1-227 Acq:17-OCT-2019 13:45:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB

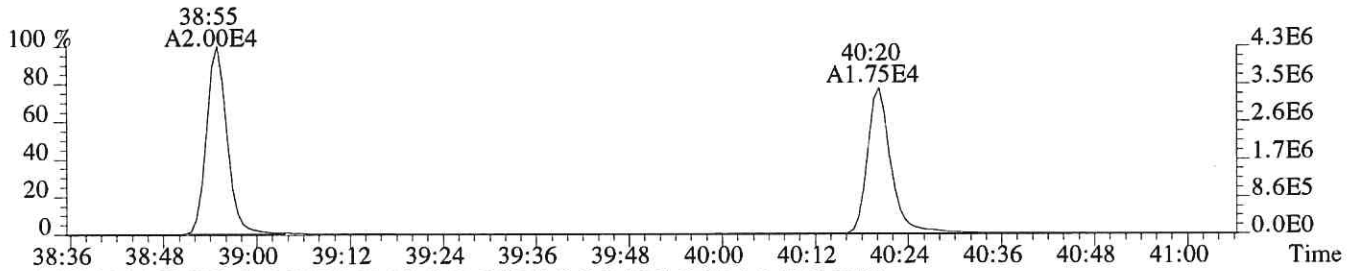
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,392.0,0.50%,F,T)



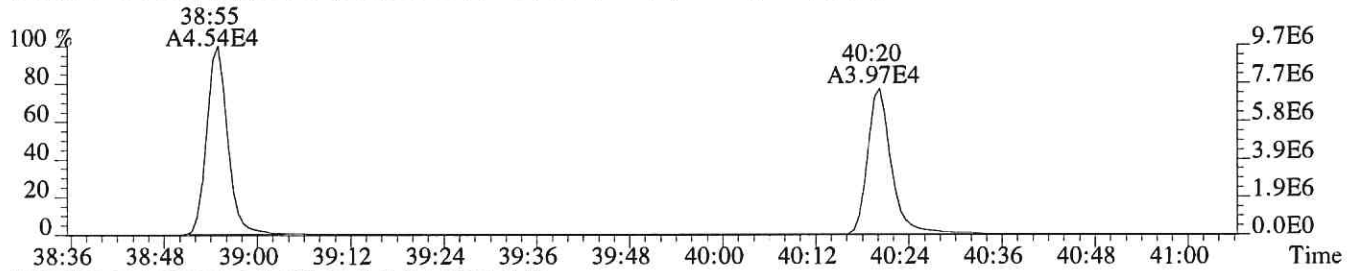
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,428.0,0.50%,F,T)



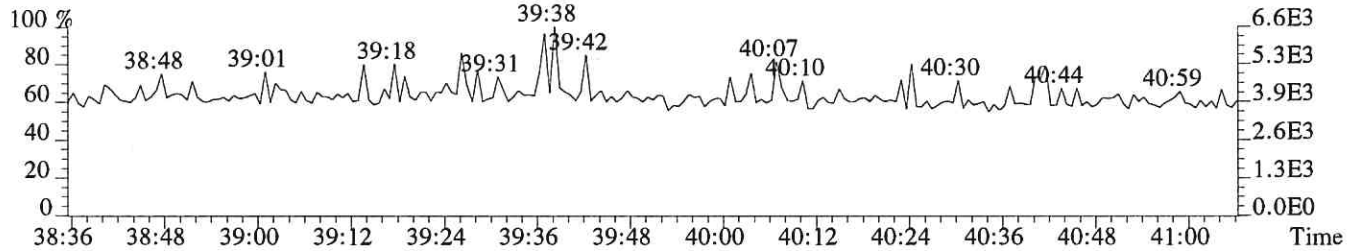
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2148.0,0.50%,F,T)



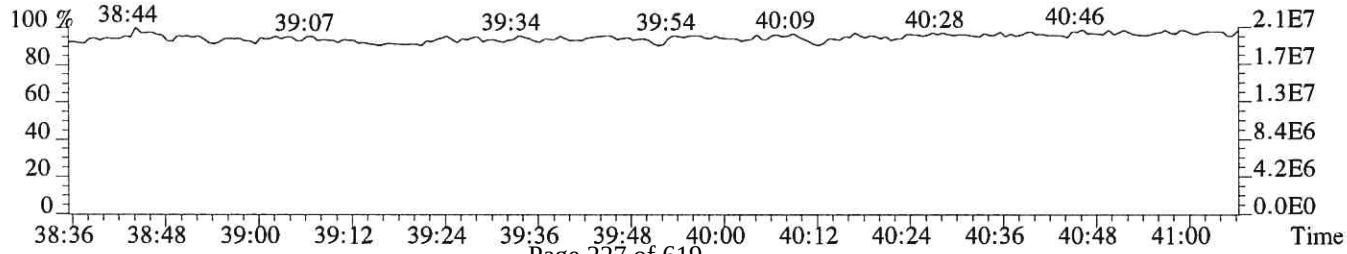
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5764.0,0.50%,F,T)



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



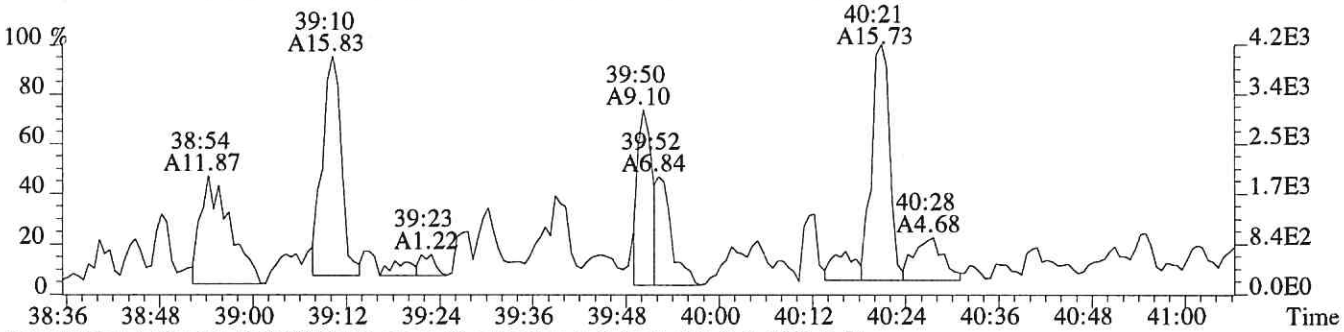
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



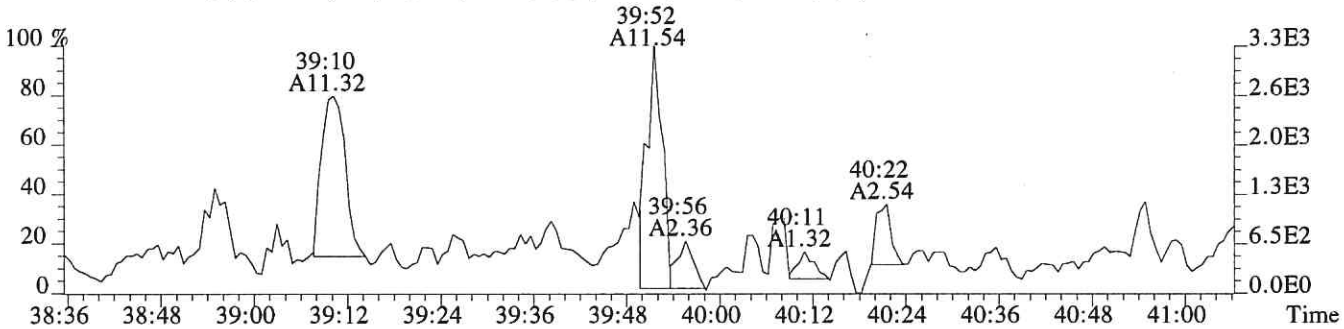
RIGHT SOLUTIONS | RIGHT PARTNER

File:P619497 #1-227 Acq:17-OCT-2019 13:45:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB

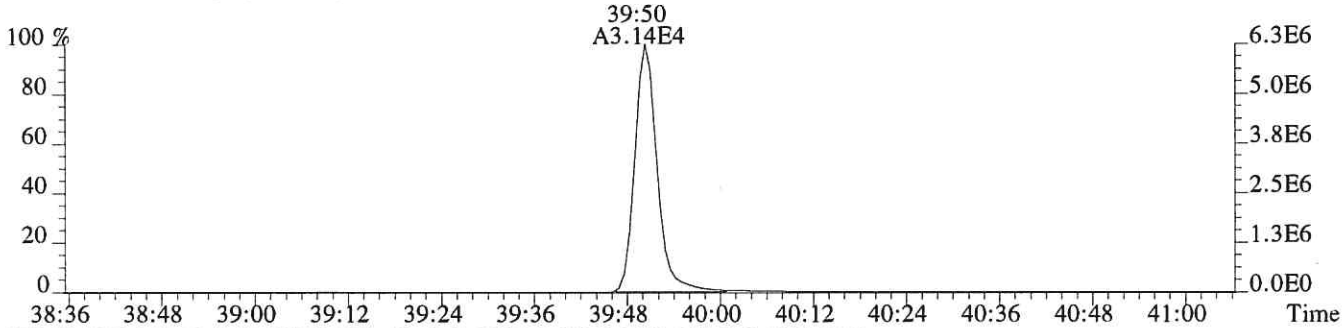
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,704.0,0.40%,F,T)



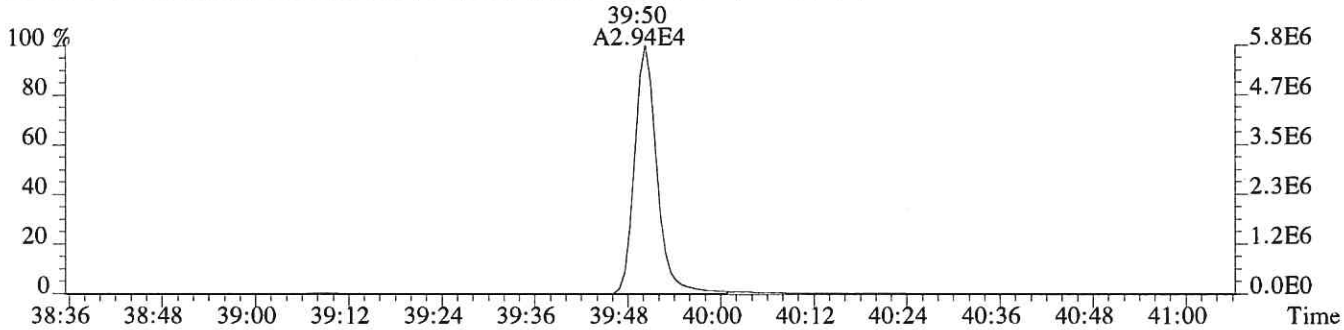
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,632.0,0.40%,F,T)



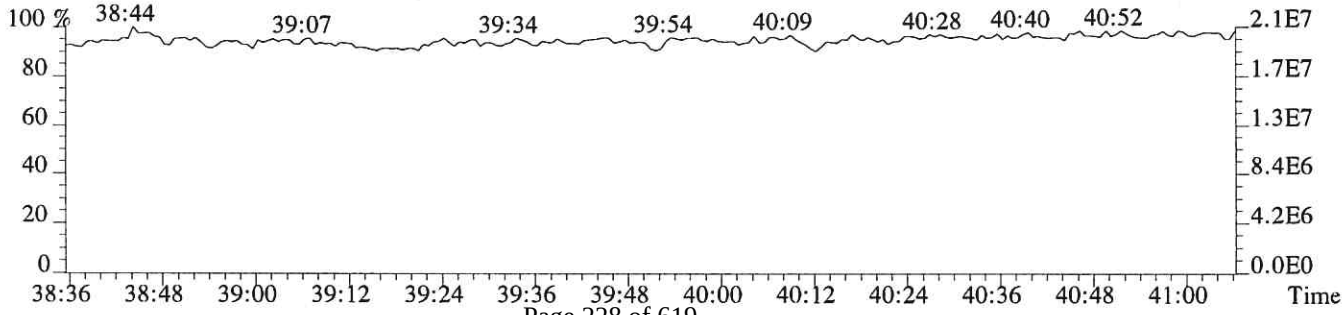
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,628.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,348.0,0.40%,F,T)

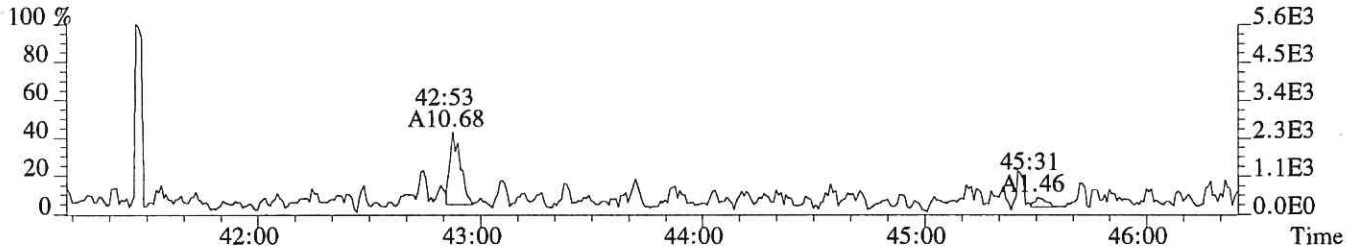


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

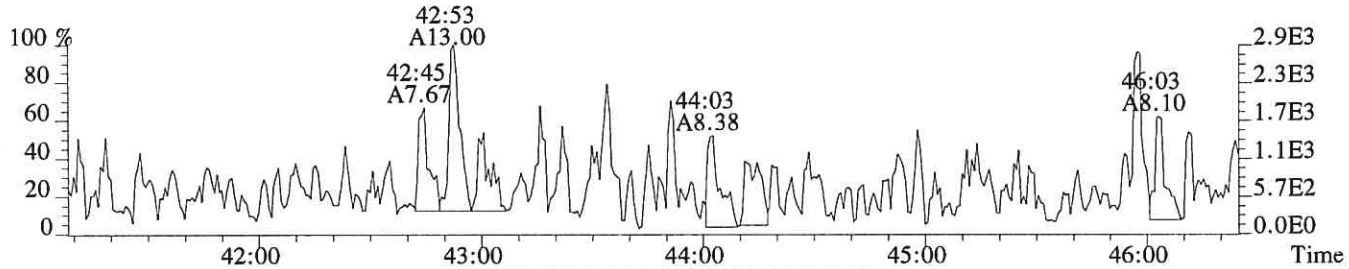


RIGHT SOLUTIONS | RIGHT PARTNER

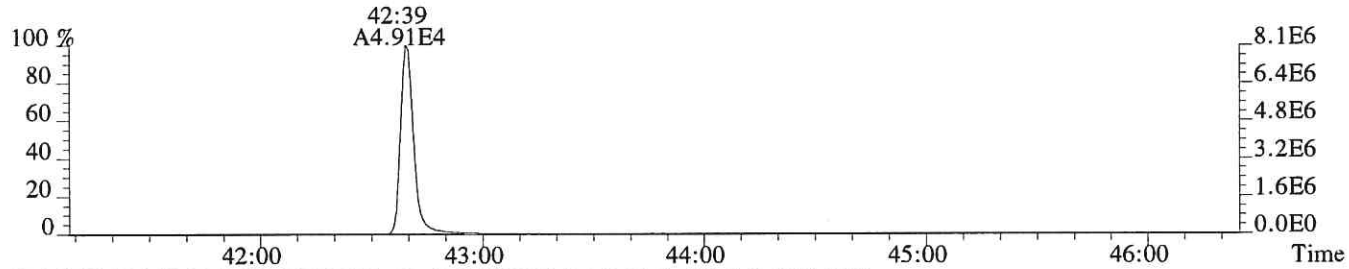
File:P619497 #1-475 Acq:17-OCT-2019 13:45:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,492.0,0.40%,F,T)



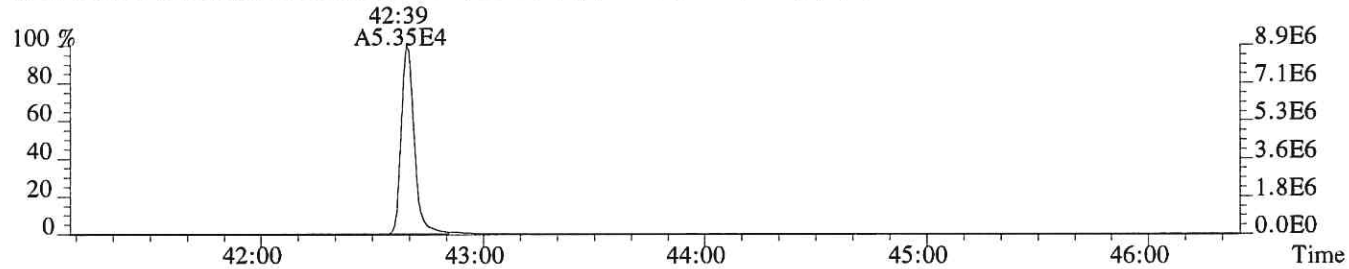
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,760.0,0.40%,F,T)



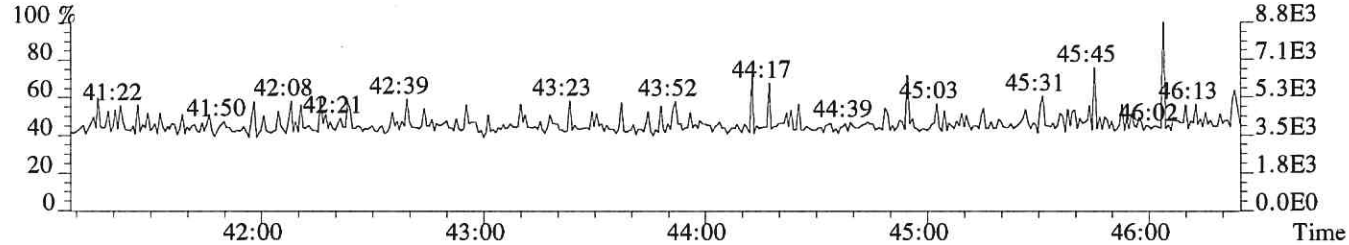
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,548.0,0.40%,F,T)



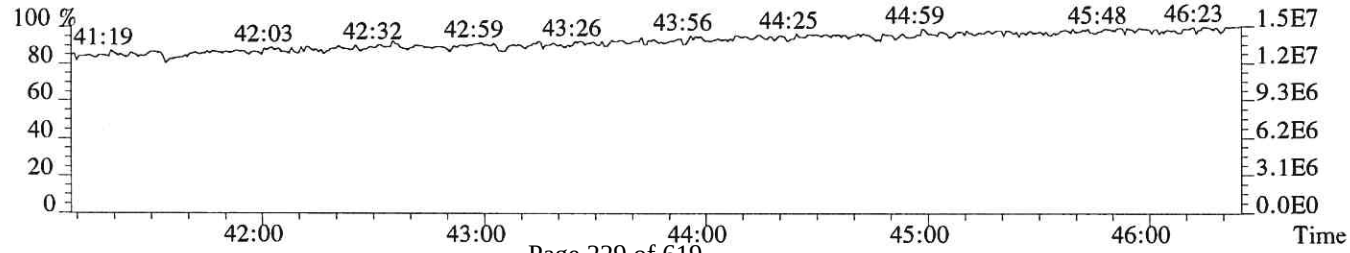
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,472.0,0.40%,F,T)



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



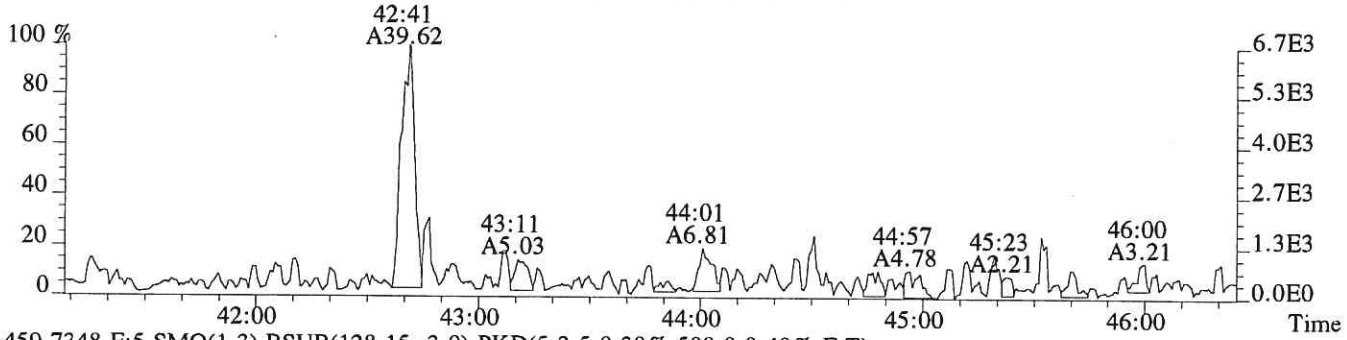
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



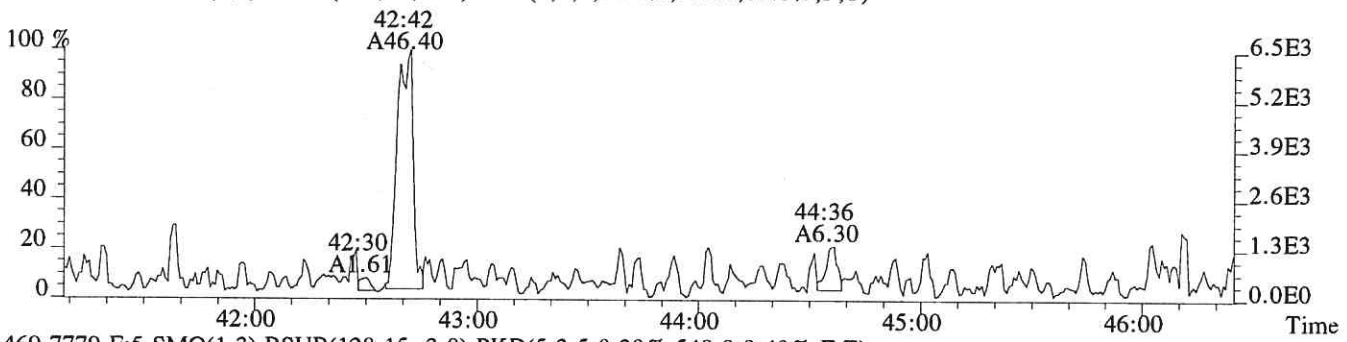
RIGHT SOLUTIONS | RIGHT PARTNER

File:P619497 #1-475 Acq:17-OCT-2019 13:45:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB

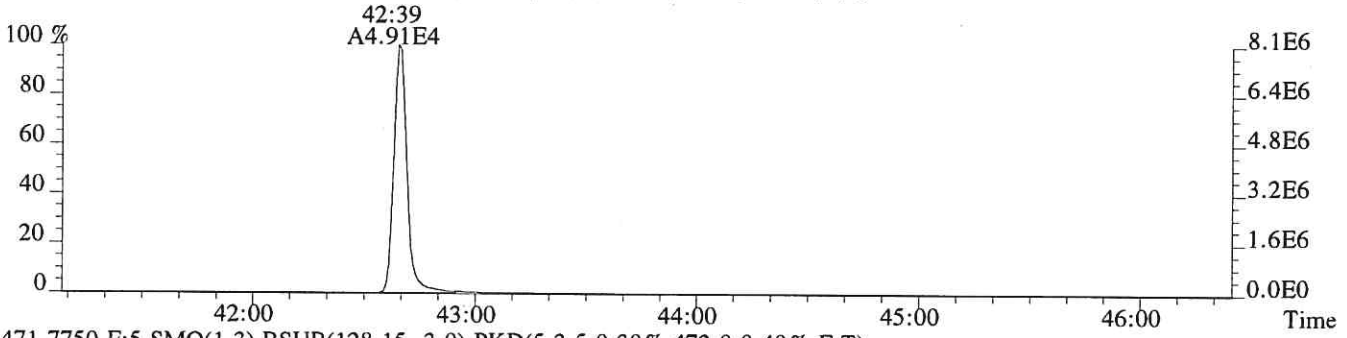
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,384.0,0.40%,F,T)



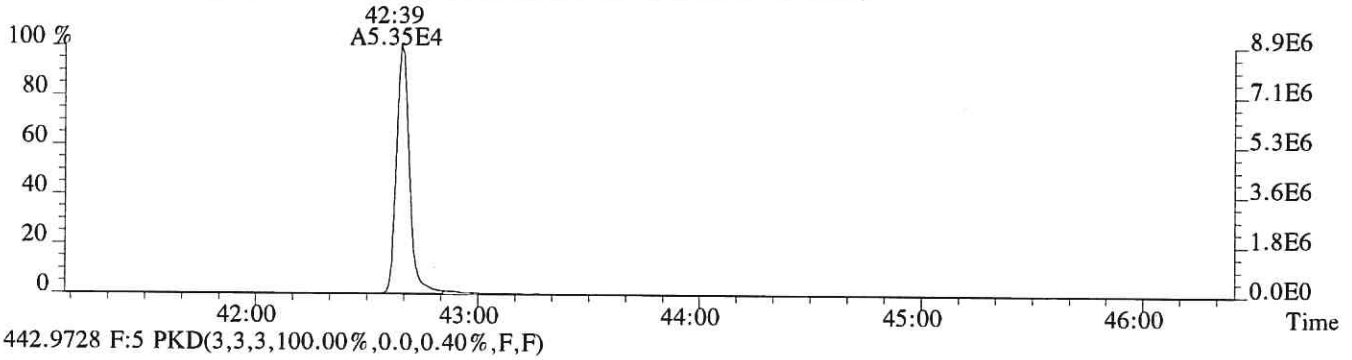
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,508.0,0.40%,F,T)



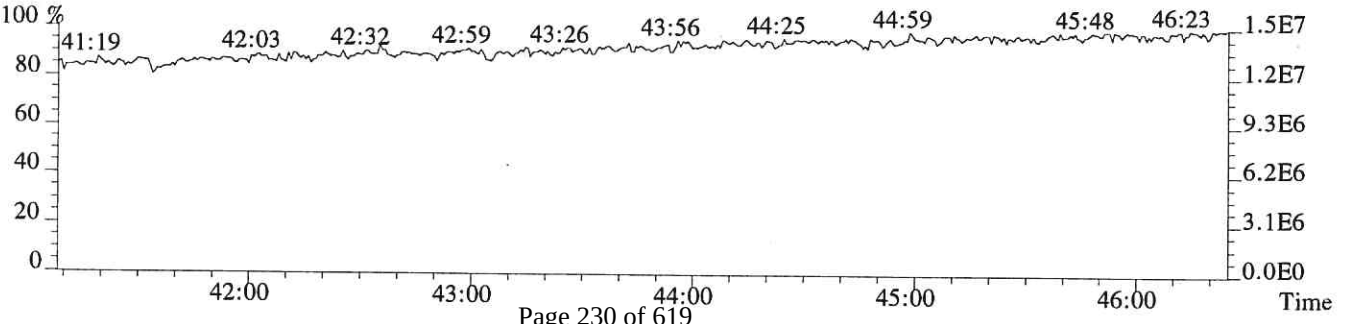
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,548.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,472.0,0.40%,F,T)



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



RIGHT SOLUTIONS | RIGHT PARTNER

Form 1

PCDD/PCDF ANALYSIS DATA SHEET
Use for Sample and Blank Results

CLIENT ID.
LCS

Lab Name: ALS ENVIRONMENTAL Contract: SDG No:

Lab Code: Method:1613B Case No: Client No: Lab ID: EQ1900347-02

Client Name: Sample Wt/Vol: g or mL:

Matrix (Solid/Aqueous/Waste/Ash): Initial Calibration Date: 04/25/19

Sample Receipt Date: Instrument ID: E-HRMS-07

Ext. Date: GC Column:DB-5MSUI

Ext. Vol(ul): Inj. Vol(ul): Sample Data Filename: P524777

Analysis Date: 18-OCT-19 Time: 05:46:11 Blank Data Filename:

Dilution Factor: 1 Cal. Ver. Data Filename: P524769

Concentration Units (pg/L or ng/Kg dry weight): pg % Solids/Lipids:

ANALYTE	CONCENTRATION FOUND	DETECTION LIMIT	Qual. (1)	ION ABUND. RATIO (2)	RRT (2)	MEAN RRF
2,3,7,8-TCDF	169.922	1.790		0.71	1.001	0.96
1,2,3,7,8-PeCDF	832.207	0.730		1.51	1.001	0.97
2,3,4,7,8-PeCDF	926.593	0.771		1.48	1.001	0.92
1,2,3,4,7,8-HxCDF	836.849	0.260		1.24	1.000	1.16
1,2,3,6,7,8-HxCDF	890.661	0.277		1.24	1.000	1.07
2,3,4,6,7,8-HxCDF	929.116	0.285		1.23	1.000	1.07
1,2,3,7,8,9-HxCDF	872.599	0.315		1.22	1.000	1.10
1,2,3,4,6,7,8-HpCDF	874.280	1.570		1.02	1.000	1.28
1,2,3,4,7,8,9-HpCDF	907.065	2.166		1.03	1.000	1.19
OCDF	1751.993	0.498		0.88	1.004	1.20
2,3,7,8-TCDD	172.712	2.454		0.79	1.001	1.08
1,2,3,7,8-PeCDD	864.084	0.500		1.58	1.001	0.97
1,2,3,4,7,8-HxCDD	953.133	0.331		1.25	1.000	1.02
1,2,3,6,7,8-HxCDD	856.092	0.299		1.28	1.000	1.04
1,2,3,7,8,9-HxCDD	948.292	0.306		1.28	1.007	1.06
1,2,3,4,6,7,8-HpCDD	902.987	0.234		1.04	1.000	0.99
OCDD	1791.196	0.236		0.89	1.000	1.09
Total Tetra-Furans	171.070	1.790				
Total Tetra-Dioxins	172.712	2.454				
Total Penta-Furans1	*	0.797	Total Penta Furan		1764.636	
Total Penta-Furans2	1764.636	0.749				
Total Penta-Dioxins	864.084	0.500				
Total Hexa-Furans	3529.226	0.284				
Total Hexa-Dioxins	2757.517	0.311				
Total Hepta-Furans	1781.345	1.835				
Total Hepta-Dioxins	902.987	0.234				

(1) Qualifier U indicates not detected; The K indicates EMPC. The C needs value from second column analysis. The B indicates possible blank contamination.
(2) RRTs and ion ratios are specified in Tables 2 and 9, Method 1613B.

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USEPA, EAD

FORM 2: PCDD/PCDF LABELED COMPOUND AND CLEANUP STANDARD RECOVERIES

CLIENT ID.

LCS

Lab Name: ALS Environmental Contract: SDG No:

Lab Code: ALS Method:1613BCase No: Client No: Lab ID:EQ1900347-02

Client Name: Sample Wt/Vol: g or mL:

Matrix (Solid/Aqueous/Waste/Ash): Initial Calibration Date: 04/25/19

Sample Receipt Date: Instrument ID: E-HRMS-07

GC Column ID: DB-5MSUI

Analysis Date: 18-OCT-19 Time: 05:46:11 Sample Data Filename: P524777

Ext. Vol(uL): 20.0 Inj. Vol(uL): Blank Data Filename: eq347

Dilution Factor: 1 Cal. Ver. Data Filename: P524769

Concentration Units (pg/L or ng/Kg dry weight): pg

LABELED COMPOUNDS	SPIKE CONC.	CONC. FOUND	R(%) (1)	QC Limit(1)	ION ABUND. RATIO (2)	RRT (2)
13C-2,3,7,8-TCDD	2000	853.28	42.66	25-164	0.80	1.028
13C-1,2,3,7,8-PeCDD	2000	1538.18	76.91	25-181	1.57	1.229
13C-1,2,3,4,7,8-HxCDD	2000	1301.07	65.05	32-141	1.29	0.990
13C-1,2,3,6,7,8-HxCDD	2000	1563.39	78.17	28-130	1.27	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1518.79	75.94	23-140	1.06	1.071
13C-OCDD	4000	3222.25	80.56	17-157	0.89	1.146
13C-2,3,7,8-TCDF	2000	784.00	39.20	24-169	0.79	0.991
13C-1,2,3,7,8-PeCDF	2000	1314.68	65.73	24-185	1.55	1.178
13C-2,3,4,7,8-PeCDF	2000	1275.01	63.75	21-178	1.55	1.217
13C-1,2,3,4,7,8-HxCDF	2000	1390.95	69.55	26-152	0.51	0.968
13C-1,2,3,6,7,8-HxCDF	2000	1356.97	67.85	26-123	0.52	0.971
13C-1,2,3,7,8,9-HxCDF	2000	1495.46	74.77	29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1368.96	68.45	28-136	0.51	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1411.78	70.59	28-143	0.45	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	1510.15	75.51	26-138	0.44	1.084
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD	800	333.28	41.66	35-197		1.029

(1) Contract-required limits for percent recovery (R) are specified in Table 7, Method 1613B.

(2) Contract-required limits for RRTs and ion abundance ratios are specified in Tables 2 and 9, respectively, Method 1613B. NOTE: There is no ion abundance ratio for 37Cl4-2378-TCDD (cleanup standard).

RFP C500273T1

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ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
LCS

Run #15 Filename P524777 Samp: 1 Inj: 1 Acquired: 18-OCT-19 05:46:11
Processed: 18-OCT-19 15:38:15 Sample ID: EQ1900347-02

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:58	2.015e+03	2.852e+03	0.71	yes	no	0.962
2	Unk	1,2,3,7,8-PeCDF	30:51	2.657e+04	1.764e+04	1.51	yes	no	0.968
3	Unk	2,3,4,7,8-PeCDF	31:52	2.631e+04	1.773e+04	1.48	yes	no	0.919
4	Unk	1,2,3,4,7,8-HxCDF	34:44	2.634e+04	2.122e+04	1.24	yes	no	1.161
5	Unk	1,2,3,6,7,8-HxCDF	34:51	2.824e+04	2.282e+04	1.24	yes	no	1.073
6	Unk	2,3,4,6,7,8-HxCDF	35:24	2.715e+04	2.212e+04	1.23	yes	no	1.069
7	Unk	1,2,3,7,8,9-HxCDF	36:10	2.455e+04	2.005e+04	1.22	yes	no	1.096
8	Unk	1,2,3,4,6,7,8-HpCDF	37:30	2.315e+04	2.259e+04	1.02	yes	no	1.281
9	Unk	1,2,3,4,7,8,9-HpCDF	38:53	1.958e+04	1.893e+04	1.03	yes	no	1.192
10	Unk	OCDF	41:16	3.325e+04	3.786e+04	0.88	yes	no	1.204
11	Unk	2,3,7,8-TCDD	26:55	1.920e+03	2.429e+03	0.79	yes	no	1.077
12	Unk	1,2,3,7,8-PeCDD	32:10	2.371e+04	1.501e+04	1.58	yes	no	0.971
13	Unk	1,2,3,4,7,8-HxCDD	35:32	2.102e+04	1.688e+04	1.25	yes	no	1.024
14	Unk	1,2,3,6,7,8-HxCDD	35:37	2.275e+04	1.783e+04	1.28	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	35:52	2.377e+04	1.852e+04	1.28	yes	no	1.055
16	Unk	1,2,3,4,6,7,8-HpCDD	38:26	1.911e+04	1.845e+04	1.04	yes	no	0.989
17	Unk	OCDD	41:06	3.109e+04	3.500e+04	0.89	yes	no	1.094
18	IS	13C-2,3,7,8-TCDF	25:56	2.622e+04	3.330e+04	0.79	yes	no	1.287
19	IS	13C-1,2,3,7,8-PeCDF	30:50	6.681e+04	4.300e+04	1.55	yes	no	1.416
20	IS	13C-2,3,4,7,8-PeCDF	31:51	6.287e+04	4.051e+04	1.55	yes	no	1.374
21	IS	13C-1,2,3,4,7,8-HxCDF	34:43	3.312e+04	6.482e+04	0.51	yes	no	1.114
22	IS	13C-1,2,3,6,7,8-HxCDF	34:50	3.666e+04	7.015e+04	0.52	yes	no	1.245
23	IS	13C-2,3,4,6,7,8-HxCDF	35:23	3.351e+04	6.567e+04	0.51	yes	no	1.146
24	IS	13C-1,2,3,7,8,9-HxCDF	36:10	3.151e+04	6.174e+04	0.51	yes	no	0.986
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:29	2.516e+04	5.650e+04	0.45	yes	no	0.915
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:52	2.163e+04	4.958e+04	0.44	yes	no	0.746
27	IS	13C-2,3,7,8-TCDD	26:54	2.074e+04	2.601e+04	0.80	yes	no	0.929
28	IS	13C-1,2,3,7,8-PeCDD	32:09	5.635e+04	3.592e+04	1.57	yes	no	1.017
29	IS	13C-1,2,3,4,7,8-HxCDD	35:31	4.372e+04	3.399e+04	1.29	yes	no	0.945
30	IS	13C-1,2,3,6,7,8-HxCDD	35:36	5.115e+04	4.017e+04	1.27	yes	no	0.924
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:25	4.337e+04	4.077e+04	1.06	yes	no	0.876
32	IS	13C-OCDD	41:06	6.363e+04	7.122e+04	0.89	yes	no	0.662
33	RS/RT	13C-1,2,3,4-TCDD	26:10	5.220e+04	6.580e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:52	6.997e+04	5.648e+04	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:55	1.986e+04				no	1.010

$$\text{OCDD} = \frac{(3.109e+04 + 3.500e+04) \times 4000 \text{ pg} \times 1}{(6.363e+04 + 7.122e+04) \times \quad g \times \quad / 100 \times 1.094} =$$

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Signal/Noise Height Ratio Summary

CLIENT ID.
LCS

Run #15 Filename P524777 Samp: 1 Inj: 1 Acquired: 18-OCT-19 05:46:11
Processed: 18-OCT-19 15:38:15 LAB. ID: EQ1900347-02

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.87e+05	8.80e+02	3.3e+02	4.08e+05	1.95e+03	2.1e+02
2	1,2,3,7,8-PeCDF	4.71e+06	7.40e+02	6.4e+03	3.14e+06	1.94e+03	1.6e+03
3	2,3,4,7,8-PeCDF	4.86e+06	7.40e+02	6.6e+03	3.21e+06	1.94e+03	1.7e+03
4	1,2,3,4,7,8-HxCDF	5.42e+06	7.80e+02	6.9e+03	4.44e+06	4.76e+02	9.3e+03
5	1,2,3,6,7,8-HxCDF	5.58e+06	7.80e+02	7.2e+03	4.44e+06	4.76e+02	9.3e+03
6	2,3,4,6,7,8-HxCDF	5.67e+06	7.80e+02	7.3e+03	4.59e+06	4.76e+02	9.6e+03
7	1,2,3,7,8,9-HxCDF	4.81e+06	7.80e+02	6.2e+03	3.88e+06	4.76e+02	8.2e+03
8	1,2,3,4,6,7,8-HpCDF	4.81e+06	2.98e+03	1.6e+03	4.69e+06	3.90e+03	1.2e+03
9	1,2,3,4,7,8,9-HpCDF	3.62e+06	2.98e+03	1.2e+03	3.53e+06	3.90e+03	9.1e+02
10	OCDF	5.26e+06	1.96e+02	2.7e+04	6.01e+06	1.04e+03	5.8e+03
11	2,3,7,8-TCDD	2.79e+05	1.88e+03	1.5e+02	3.79e+05	1.90e+03	2.0e+02
12	1,2,3,7,8-PeCDD	4.38e+06	9.12e+02	4.8e+03	2.73e+06	7.60e+02	3.6e+03
13	1,2,3,4,7,8-HxCDD	4.65e+06	5.16e+02	9.0e+03	3.75e+06	6.40e+02	5.9e+03
14	1,2,3,6,7,8-HxCDD	4.53e+06	5.16e+02	8.8e+03	3.60e+06	6.40e+02	5.6e+03
15	1,2,3,7,8,9-HxCDD	4.72e+06	5.16e+02	9.2e+03	3.64e+06	6.40e+02	5.7e+03
16	1,2,3,4,6,7,8-HpCDD	3.77e+06	5.72e+02	6.6e+03	3.60e+06	1.84e+02	2.0e+04
17	OCDD	4.75e+06	2.72e+02	1.7e+04	5.31e+06	2.60e+02	2.0e+04
18	13C-2,3,7,8-TCDF	3.61e+06	5.71e+03	6.3e+02	4.57e+06	4.67e+03	9.8e+02
19	13C-1,2,3,7,8-PeCDF	1.15e+07	1.68e+03	6.9e+03	7.40e+06	1.77e+03	4.2e+03
20	13C-2,3,4,7,8-PeCDF	1.15e+07	1.68e+03	6.8e+03	7.38e+06	1.77e+03	4.2e+03
21	13C-1,2,3,4,7,8-HxCDF	6.99e+06	1.19e+03	5.9e+03	1.38e+07	8.20e+02	1.7e+04
22	13C-1,2,3,6,7,8-HxCDF	7.16e+06	1.19e+03	6.0e+03	1.39e+07	8.20e+02	1.7e+04
23	13C-2,3,4,6,7,8-HxCDF	7.00e+06	1.19e+03	5.9e+03	1.35e+07	8.20e+02	1.6e+04
24	13C-1,2,3,7,8,9-HxCDF	6.15e+06	1.19e+03	5.2e+03	1.19e+07	8.20e+02	1.5e+04
25	13C-1,2,3,4,6,7,8-HpCDF	5.23e+06	3.48e+03	1.5e+03	1.18e+07	4.35e+03	2.7e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.09e+06	3.48e+03	1.2e+03	9.09e+06	4.35e+03	2.1e+03
27	13C-2,3,7,8-TCDD	3.15e+06	5.63e+03	5.6e+02	4.00e+06	2.02e+03	2.0e+03
28	13C-1,2,3,7,8-PeCDD	1.04e+07	1.08e+03	9.6e+03	6.68e+06	7.92e+02	8.4e+03
29	13C-1,2,3,4,7,8-HxCDD	9.58e+06	1.28e+03	7.5e+03	7.40e+06	1.04e+03	7.1e+03
30	13C-1,2,3,6,7,8-HxCDD	1.04e+07	1.28e+03	8.1e+03	8.19e+06	1.04e+03	7.9e+03
31	13C-1,2,3,4,6,7,8-HpCDD	8.40e+06	7.16e+02	1.2e+04	7.86e+06	3.32e+02	2.4e+04
32	13C-OCDD	9.67e+06	1.64e+02	5.9e+04	1.08e+07	2.16e+02	5.0e+04
33	13C-1,2,3,4-TCDD	8.02e+06	5.63e+03	1.4e+03	1.01e+07	2.02e+03	5.0e+03
34	13C-1,2,3,7,8,9-HxCDD	1.42e+07	1.28e+03	1.1e+04	1.11e+07	1.04e+03	1.1e+04
35	37Cl-2,3,7,8-TCDD	3.13e+06	2.13e+03	1.5e+03			

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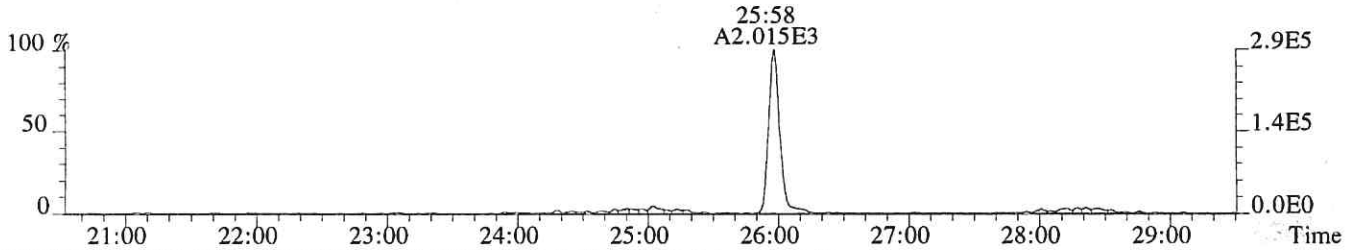
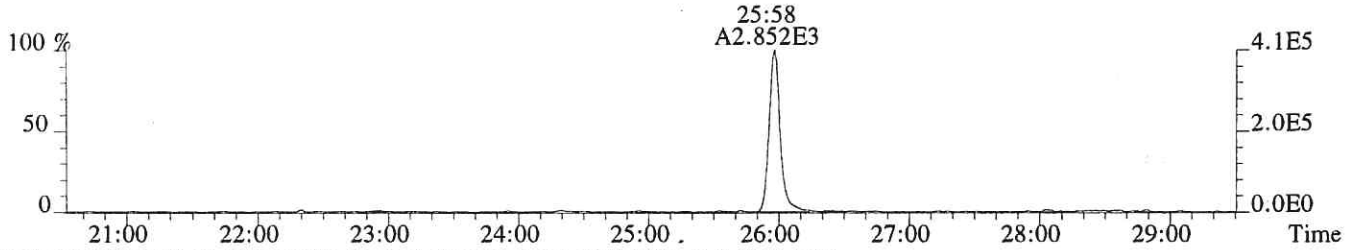
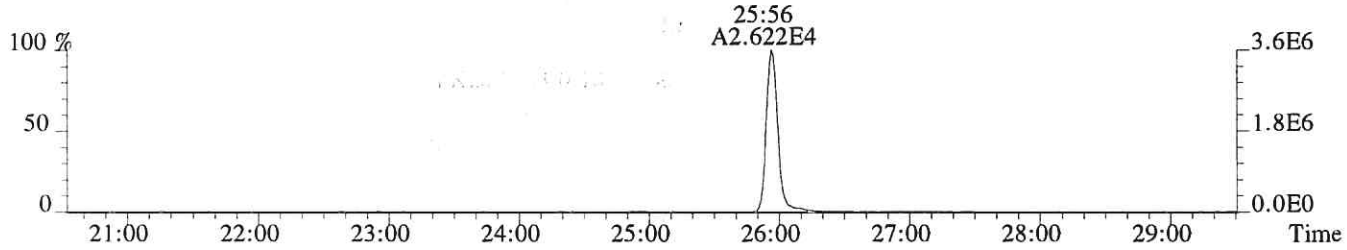
File:P524777 #1-637 Acq:18-OCT-2019 05:46:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1900347-02
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,880.0,1.00%,F,T)



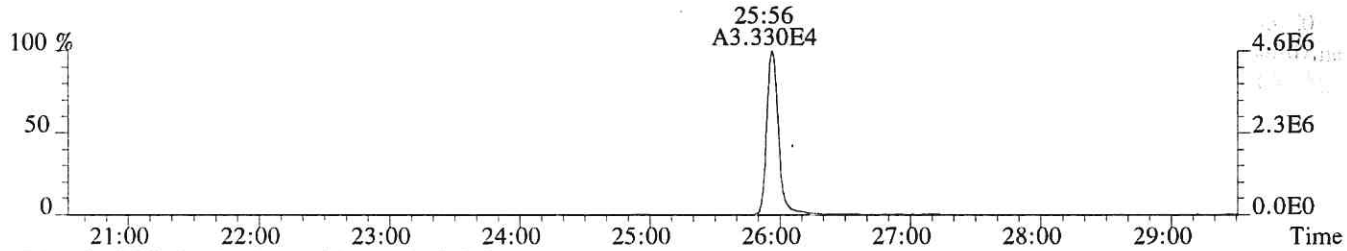
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1952.0,1.00%,F,T)



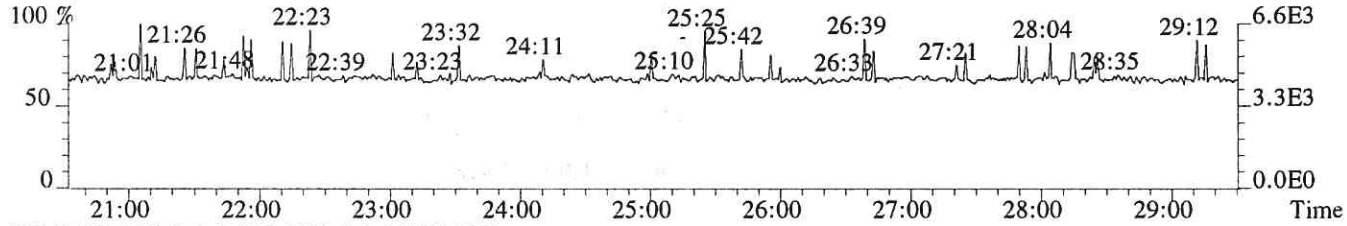
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5712.0,1.00%,F,T)



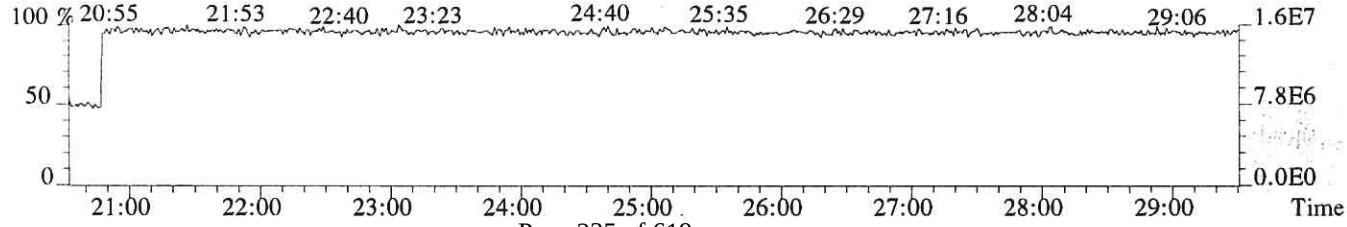
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4672.0,1.00%,F,T)



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



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



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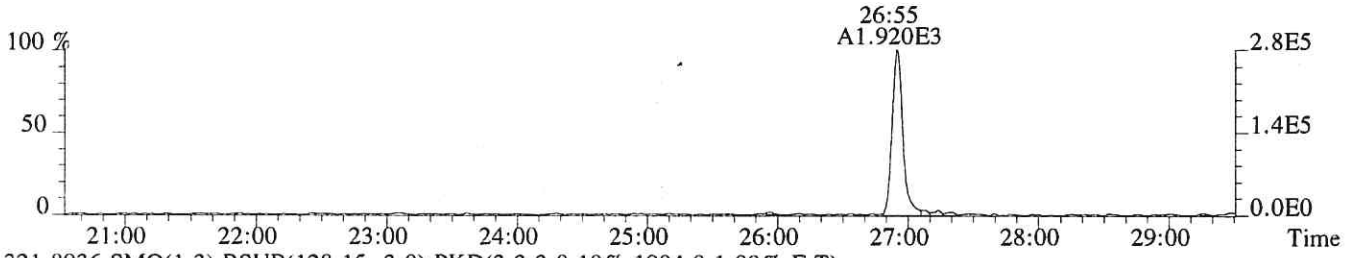
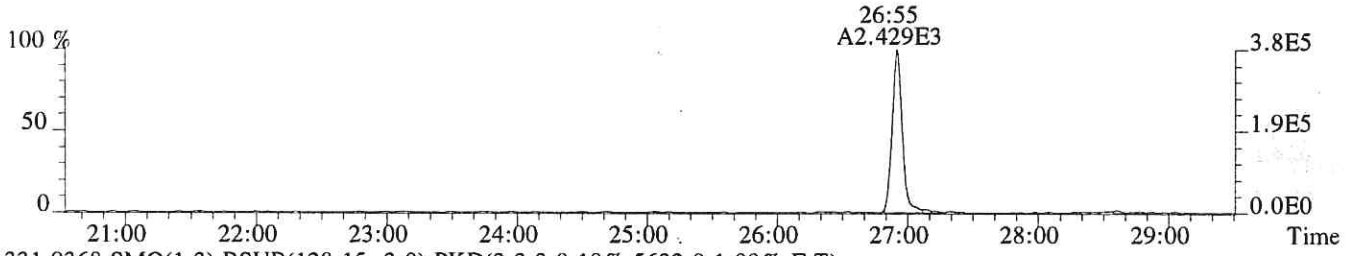
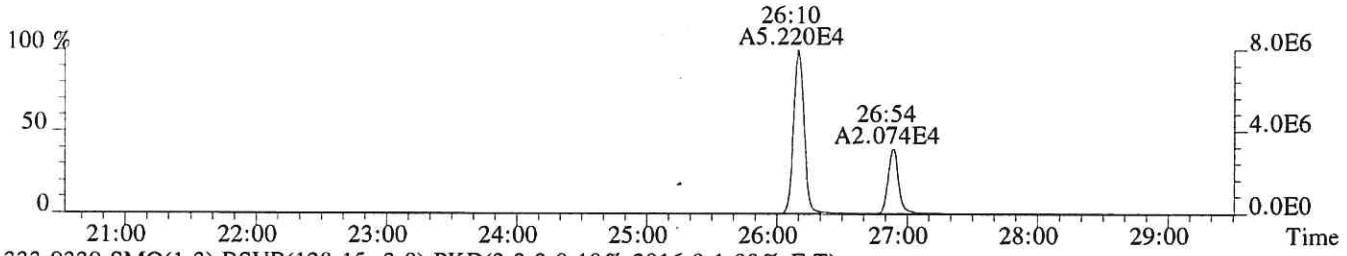
File:P524777 #1-637 Acq:18-OCT-2019 05:46:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1900347-02
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1884.0,1.00%,F,T)



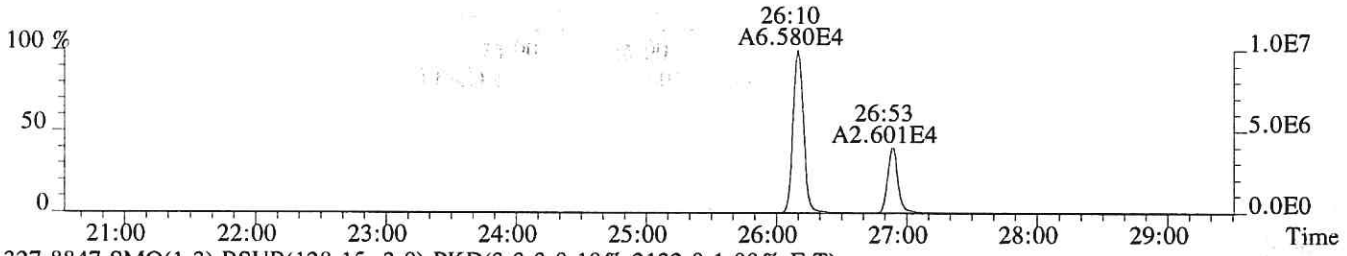
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1904.0,1.00%,F,T)



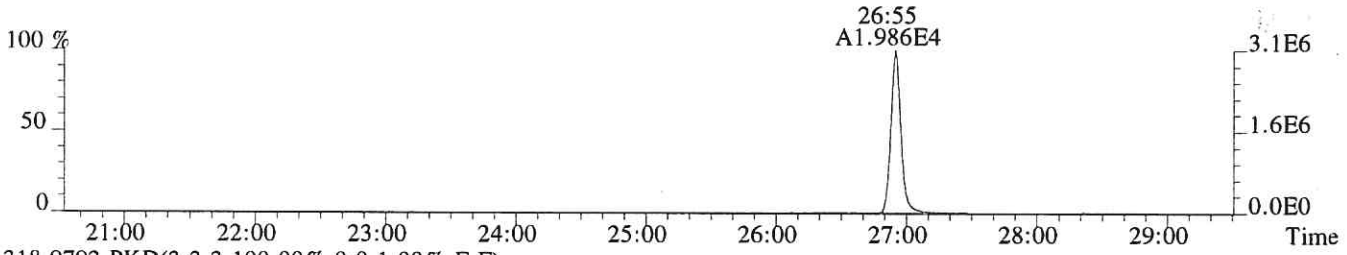
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5632.0,1.00%,F,T)



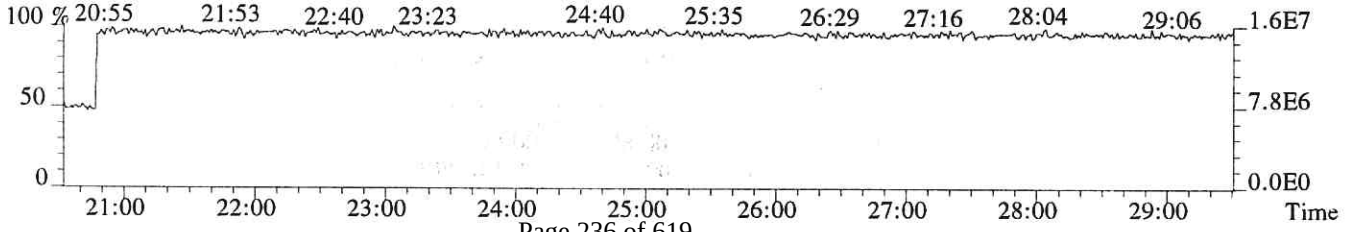
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2016.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2132.0,1.00%,F,T)



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



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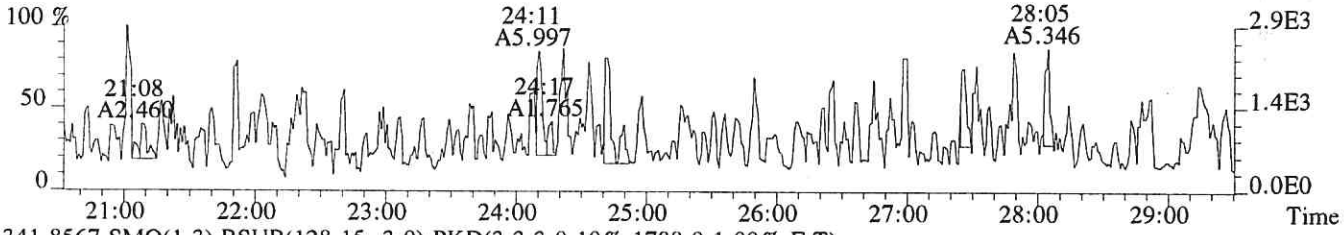
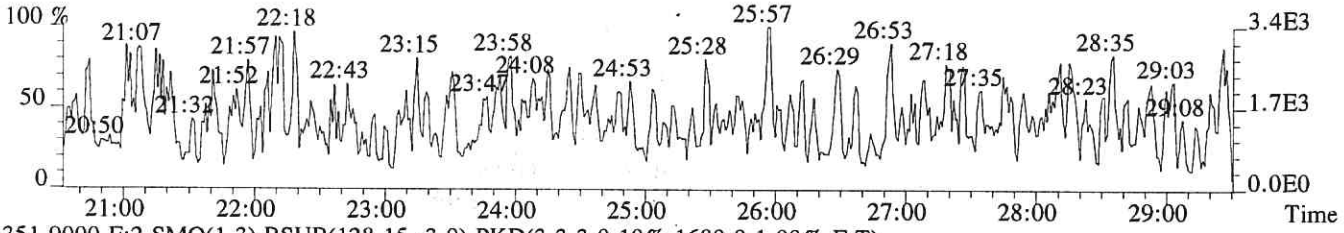
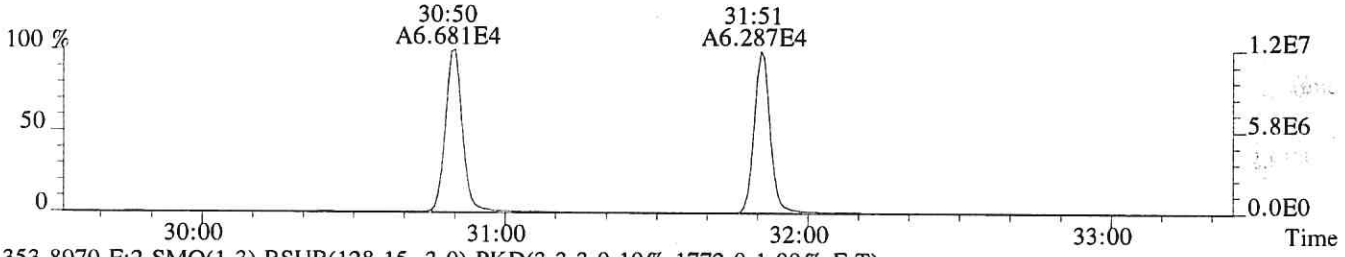
File:P524777 #1-637 Acq:18-OCT-2019 05:46:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1900347-02
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1068.0,1.00%,F,T)



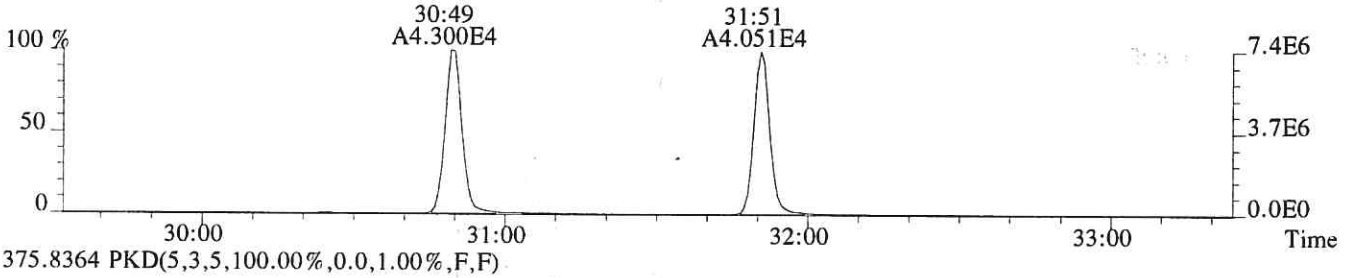
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1788.0,1.00%,F,T)



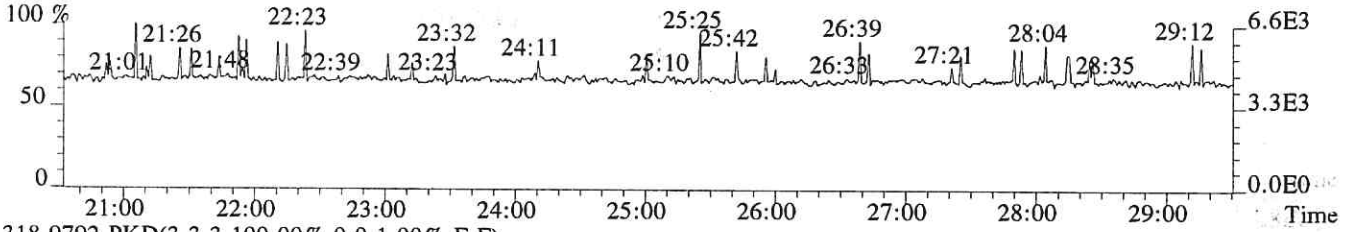
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1680.0,1.00%,F,T)



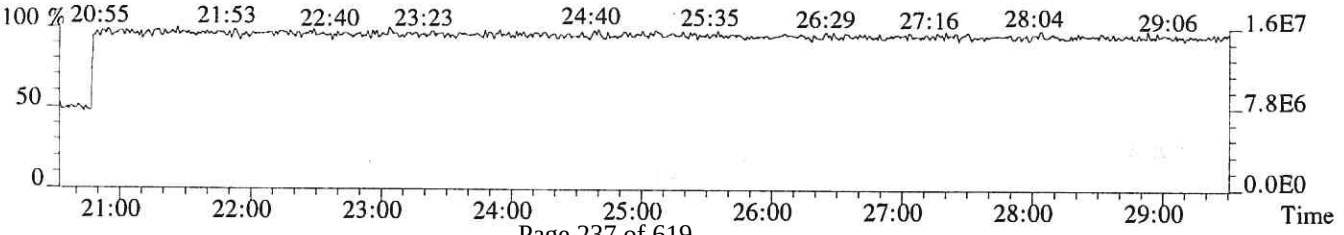
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1772.0,1.00%,F,T)



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



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



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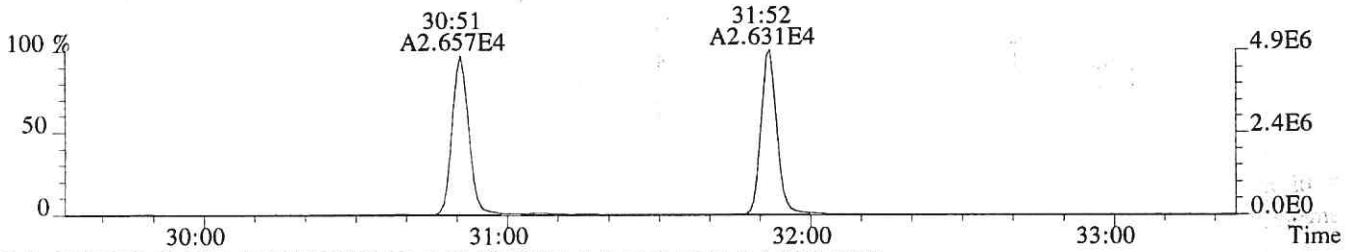
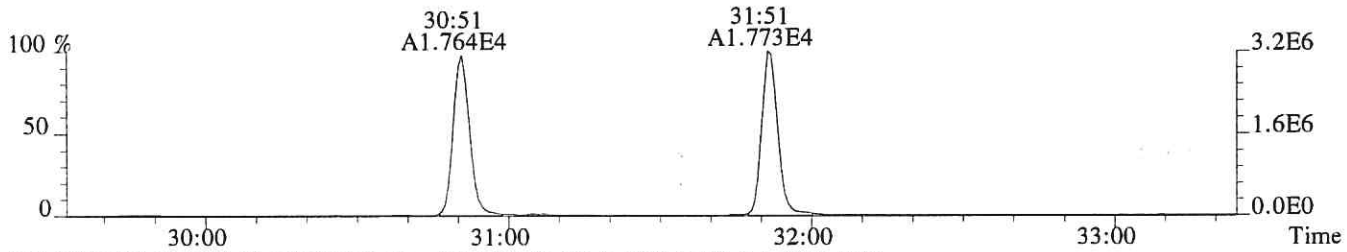
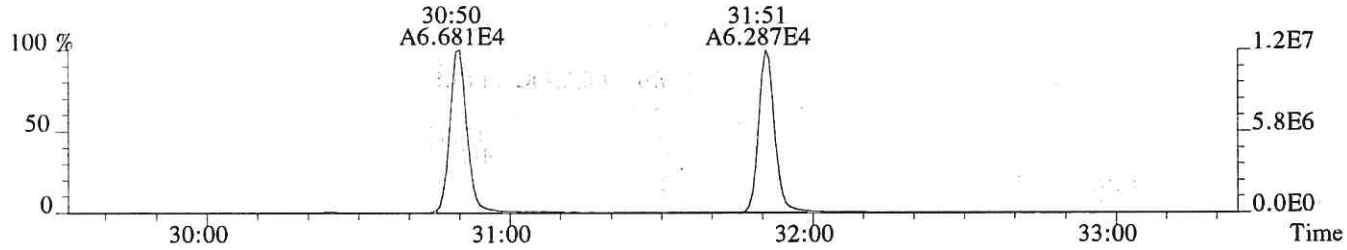
File:P524777 #1-348 Acq:18-OCT-2019 05:46:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1900347-02
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,740.0,1.00%,F,T)



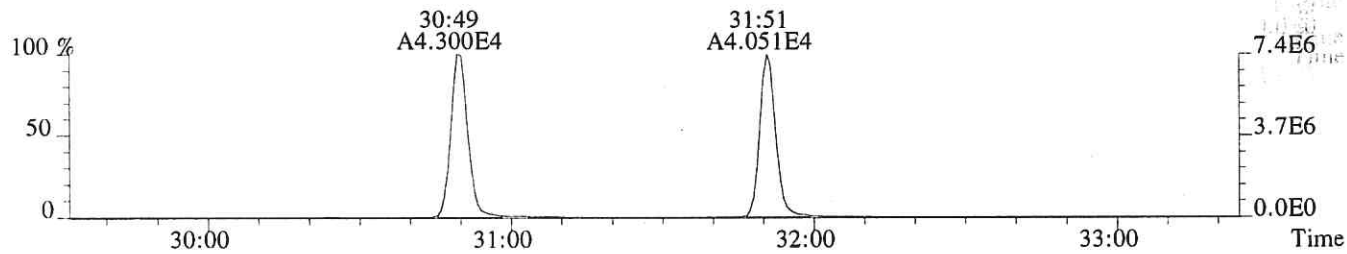
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1944.0,1.00%,F,T)



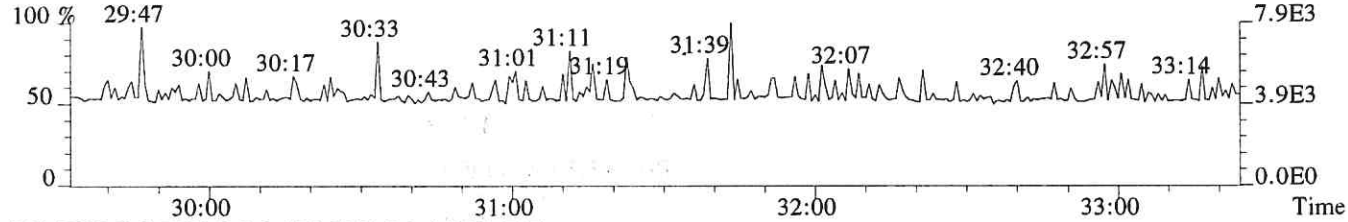
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1680.0,1.00%,F,T)



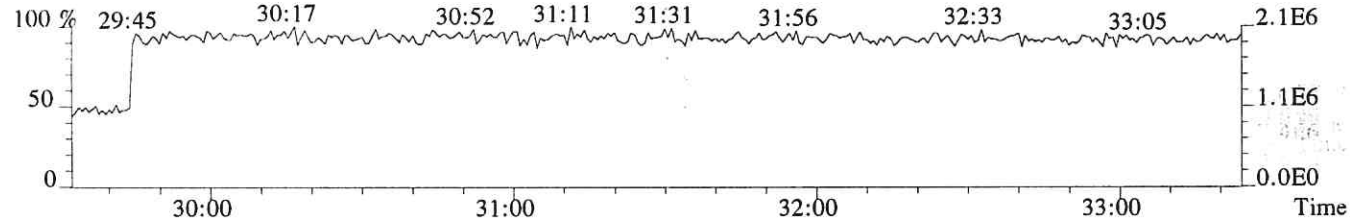
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1772.0,1.00%,F,T)



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

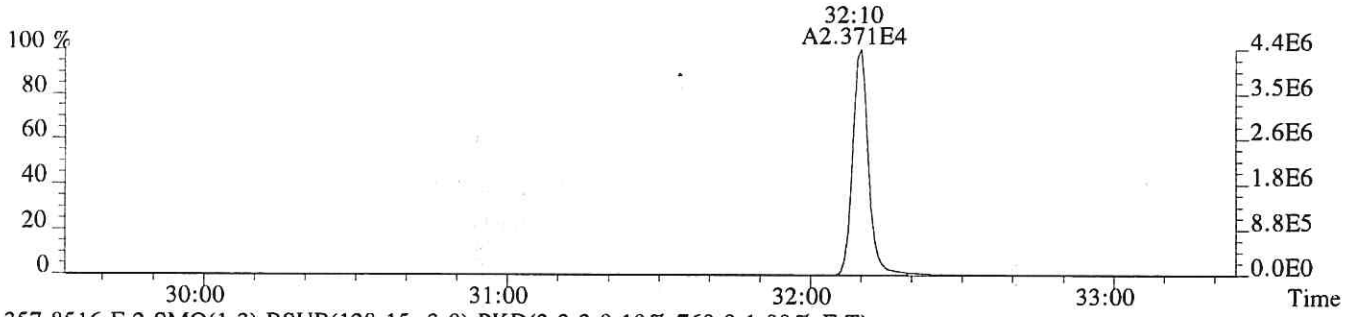


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

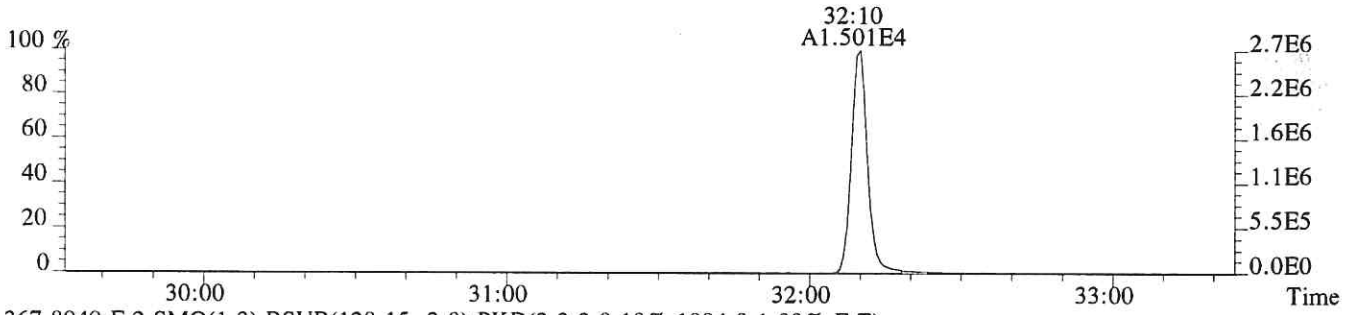


RIGHT SOLUTIONS | RIGHT PARTNER

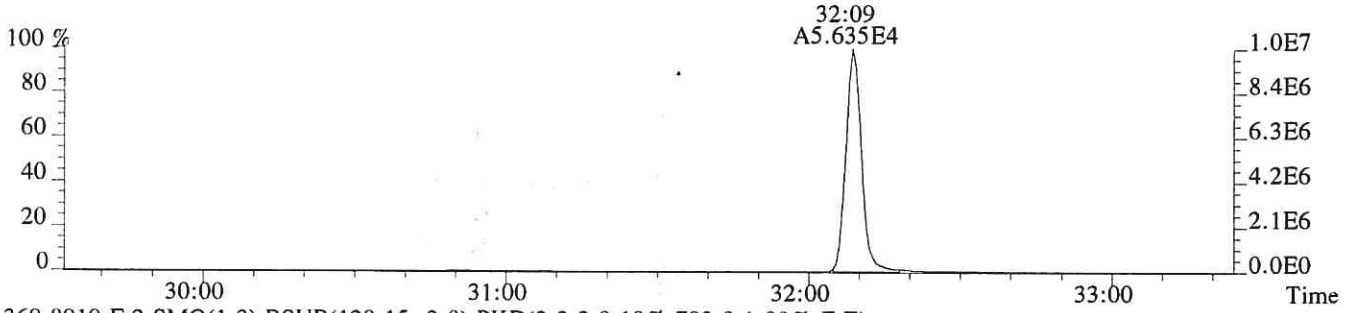
File:P524777 #1-348 Acq:18-OCT-2019 05:46:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1900347-02
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,912.0,1.00%,F,T)



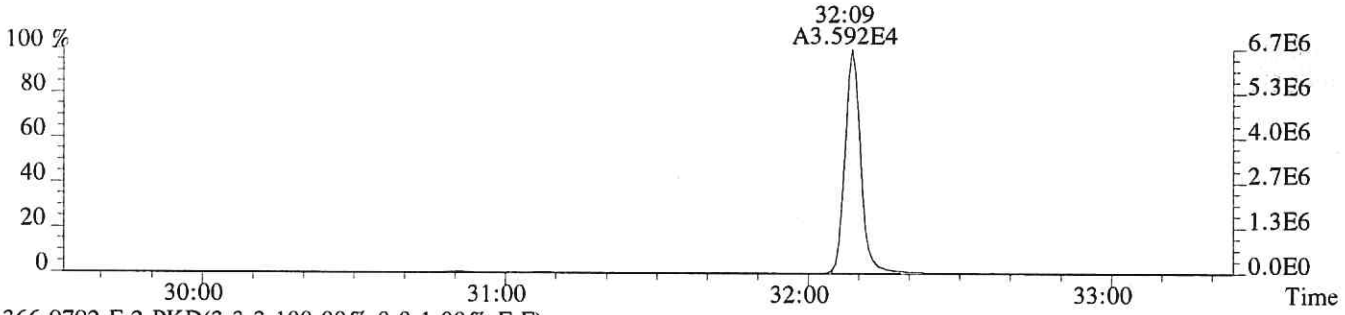
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,760.0,1.00%,F,T)



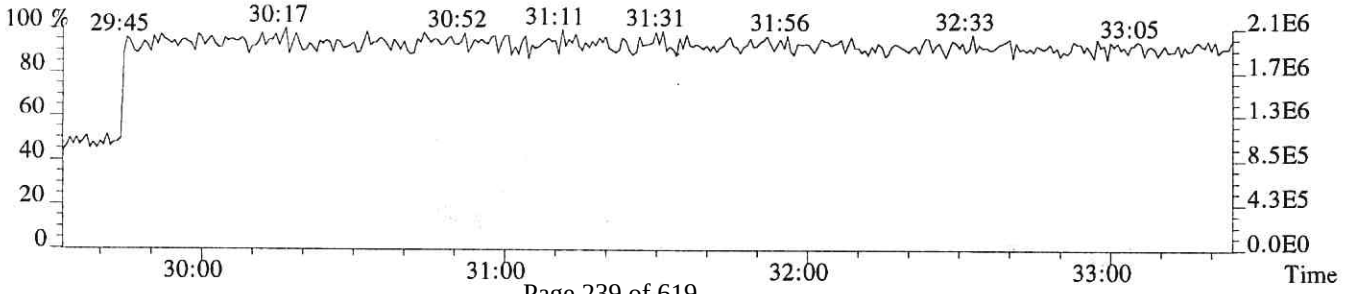
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1084.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,792.0,1.00%,F,T)

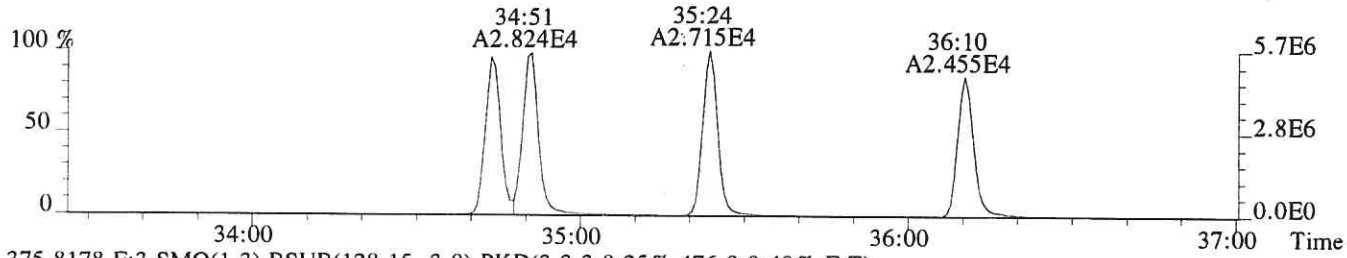


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

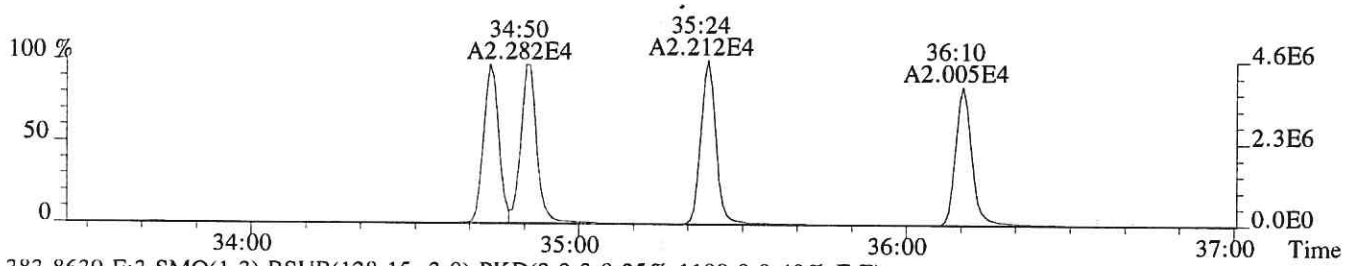


RIGHT SOLUTIONS | RIGHT PARTNER

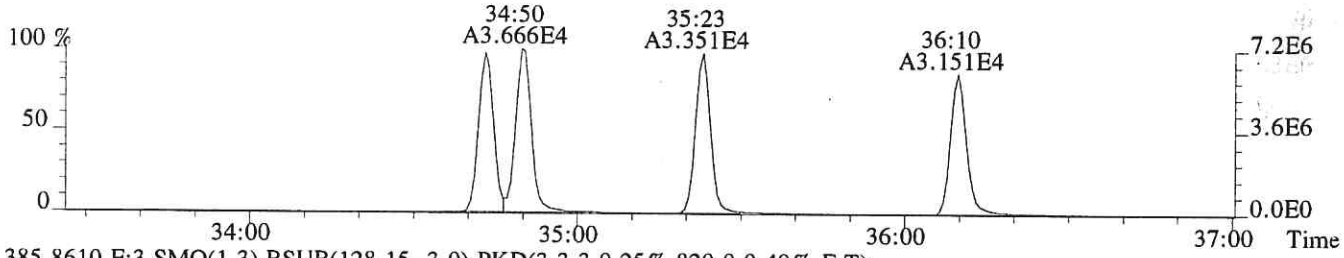
File:P524777 #1-322 Acq:18-OCT-2019 05:46:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1900347-02
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,780.0,0.40%,F,T)



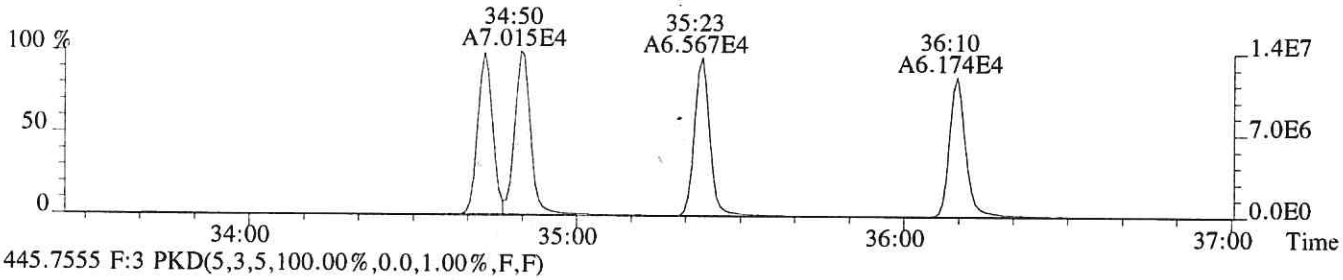
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,476.0,0.40%,F,T)



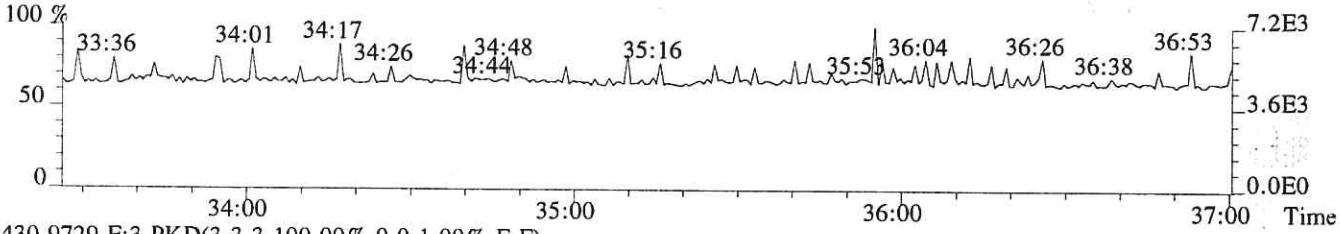
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1188.0,0.40%,F,T)



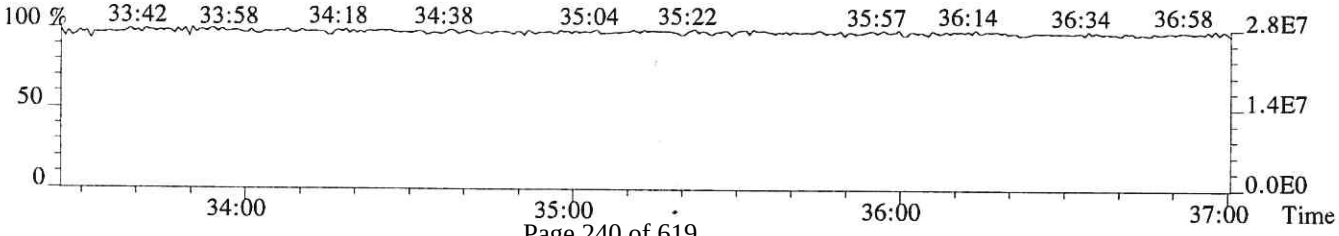
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,820.0,0.40%,F,T)



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

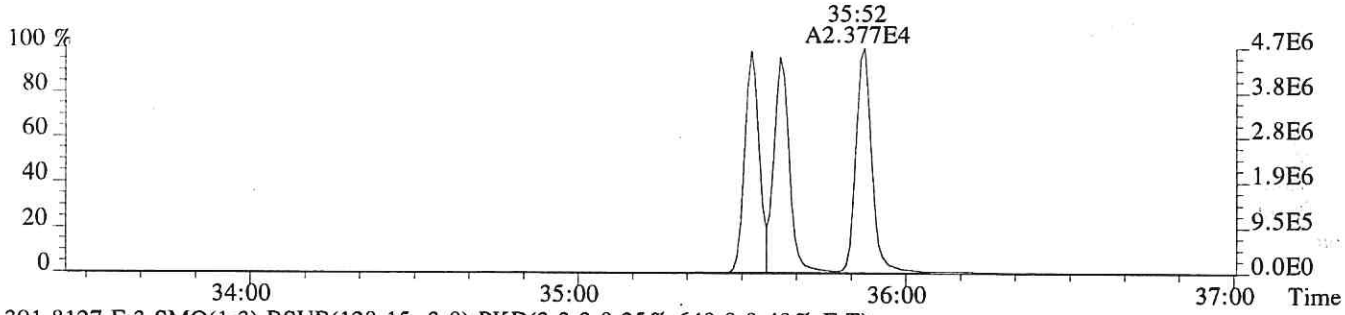


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

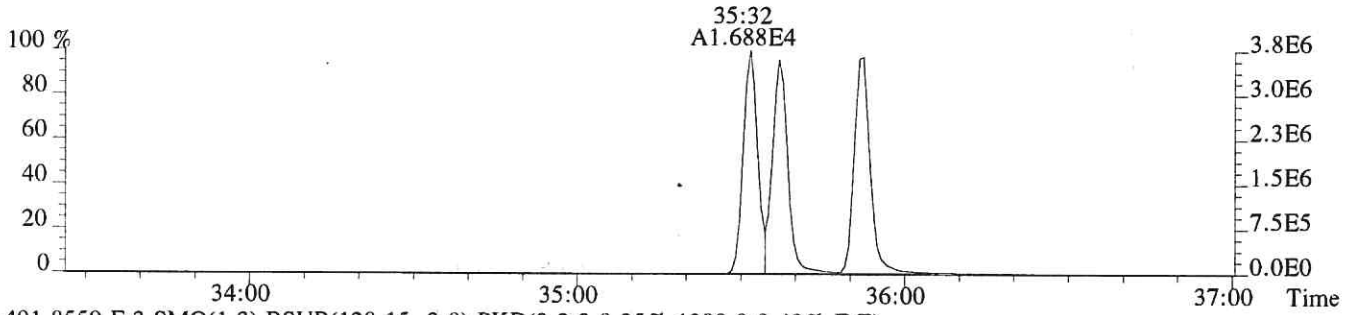


RIGHT SOLUTIONS | RIGHT PARTNER

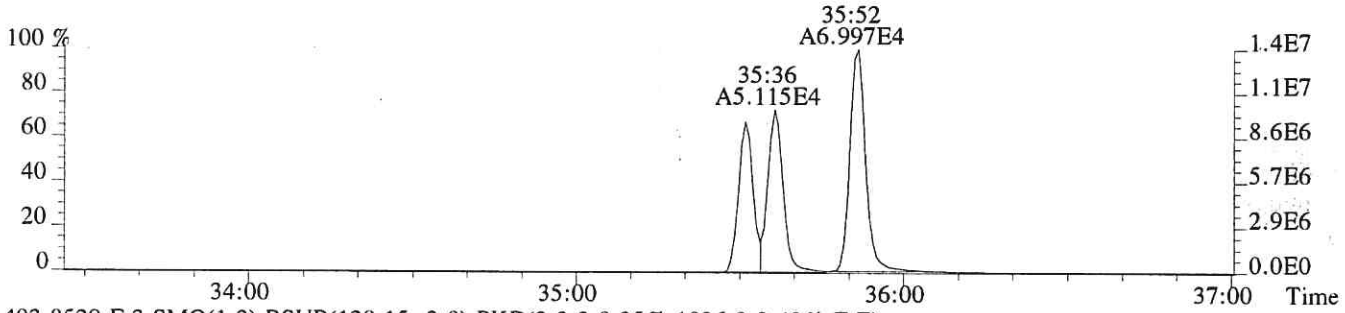
File:P524777 #1-322 Acq:18-OCT-2019 05:46:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1900347-02
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,516.0,0.40%,F,T)



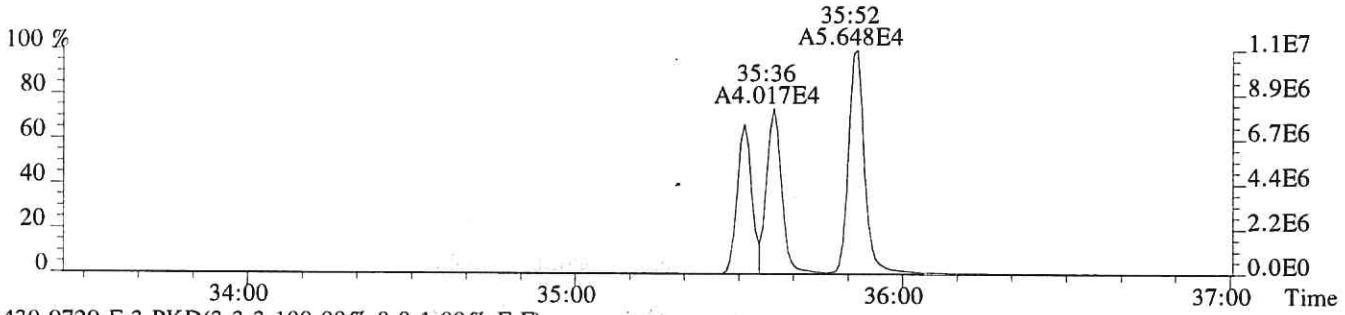
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,640.0,0.40%,F,T)



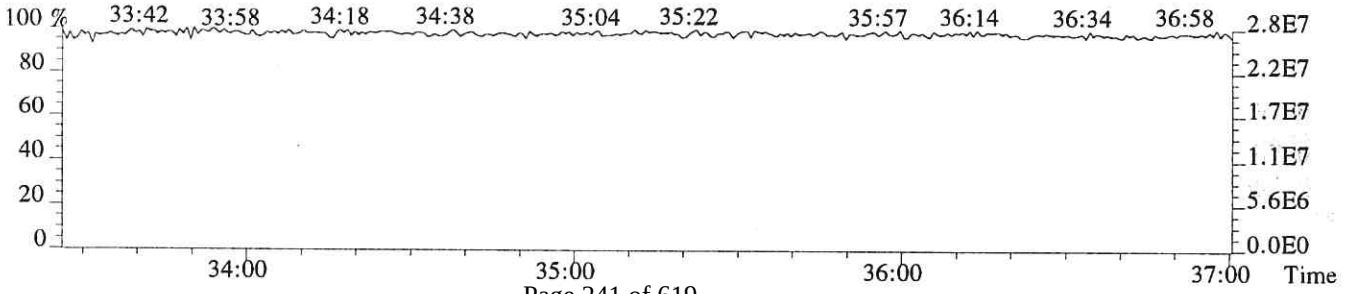
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1280.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1036.0,0.40%,F,T)

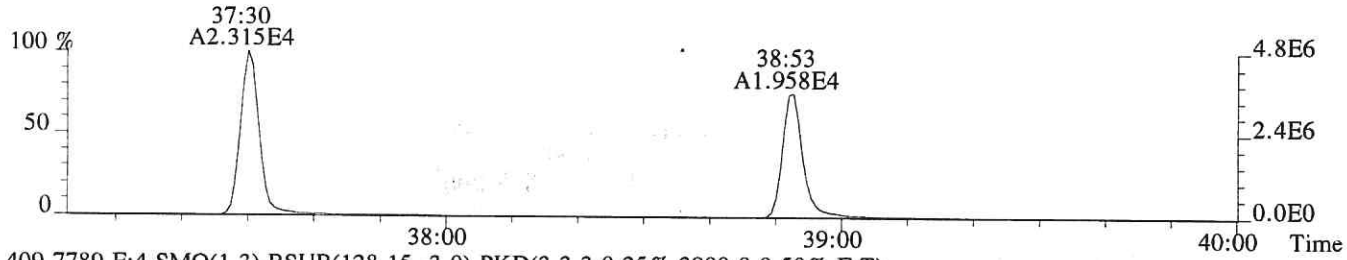


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

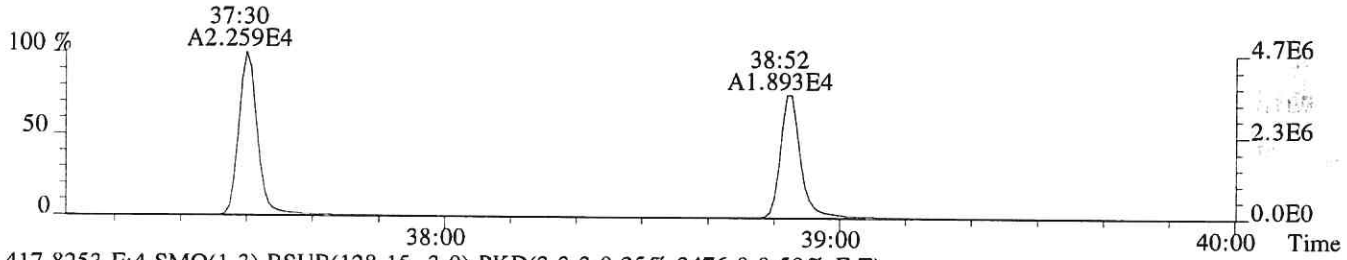


RIGHT SOLUTIONS | RIGHT PARTNER

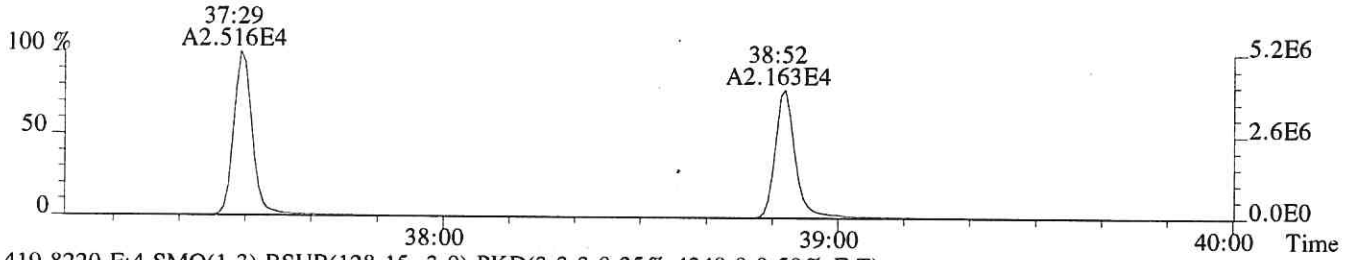
File:P524777 #1-267 Acq:18-OCT-2019 05:46:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1900347-02
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2980.0,0.50%,F,T)



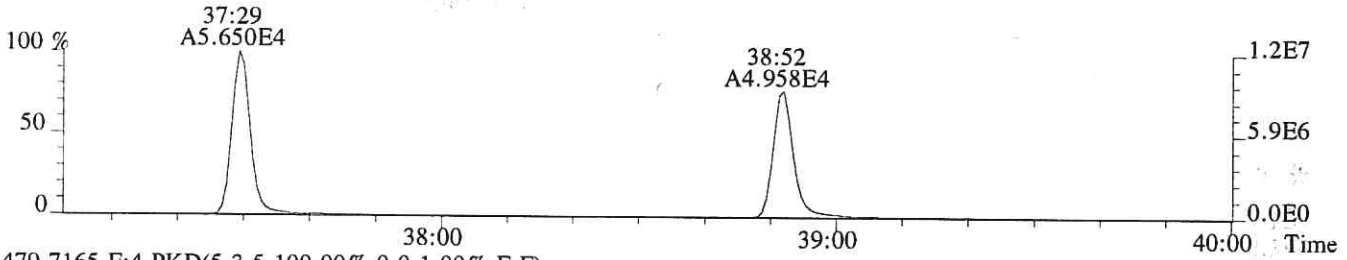
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3900.0,0.50%,F,T)



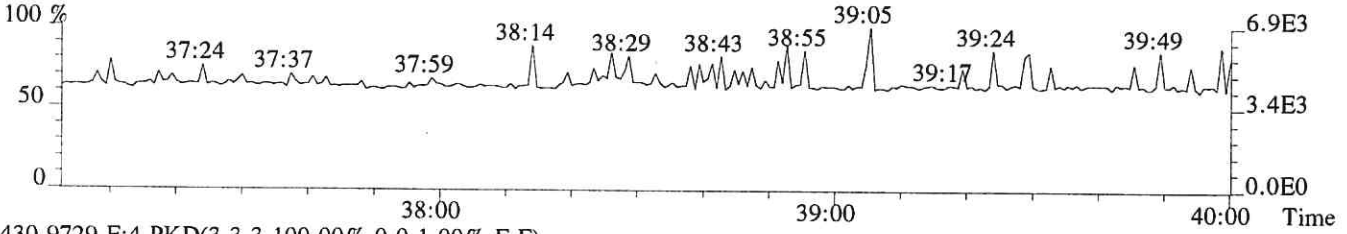
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3476.0,0.50%,F,T)



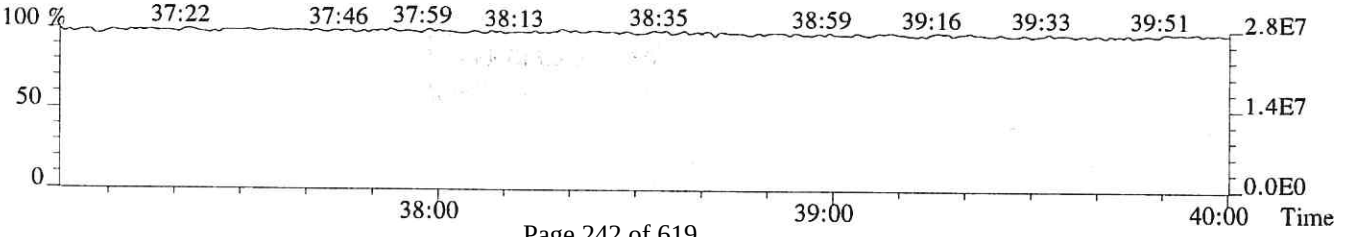
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4348.0,0.50%,F,T)



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

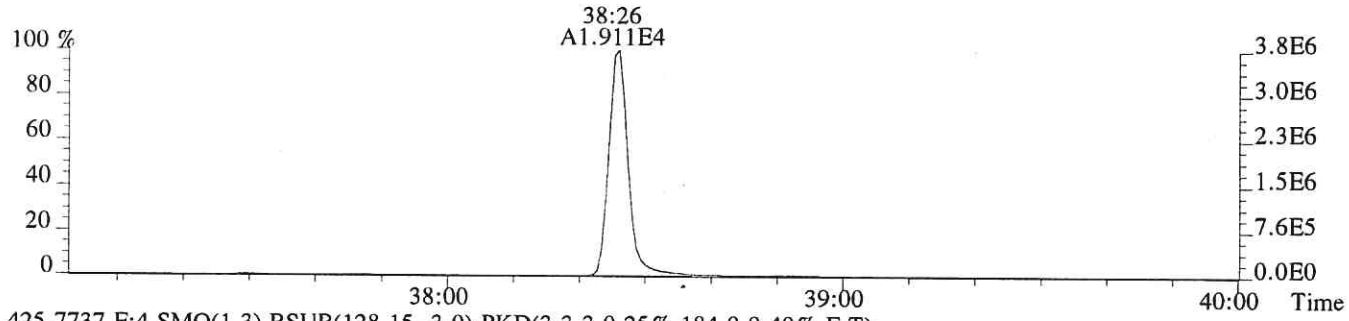


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

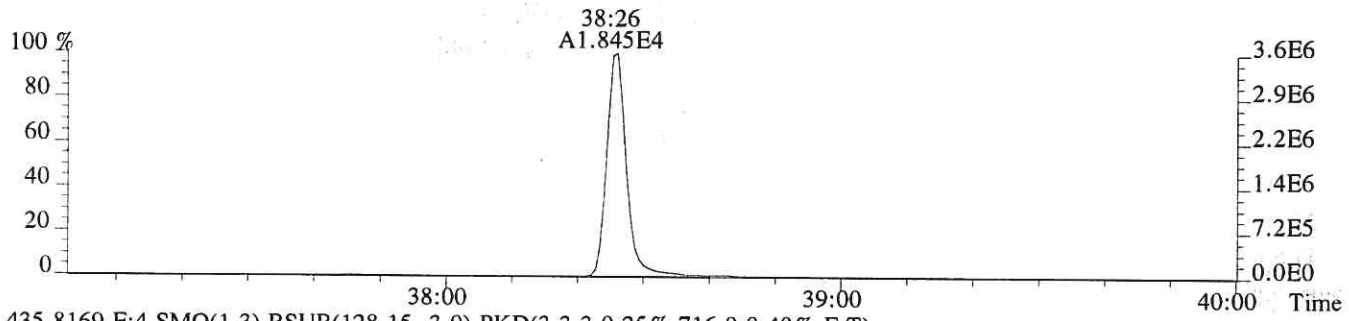


RIGHT SOLUTIONS | RIGHT PARTNER

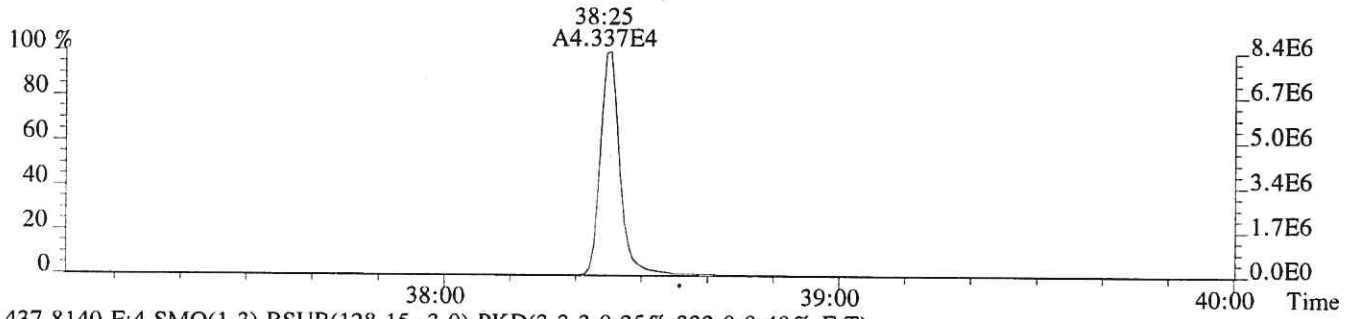
File:P524777 #1-267 Acq:18-OCT-2019 05:46:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1900347-02
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,572.0,0.40%,F,T)



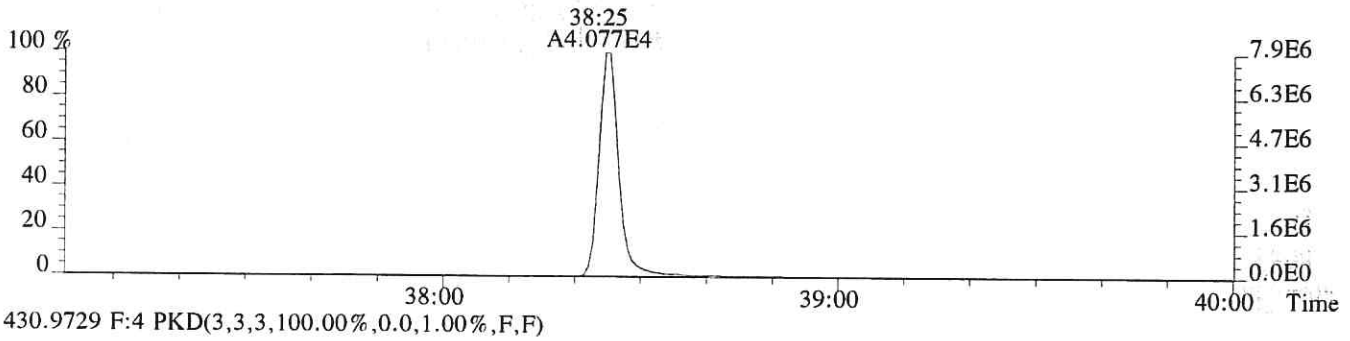
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,184.0,0.40%,F,T)



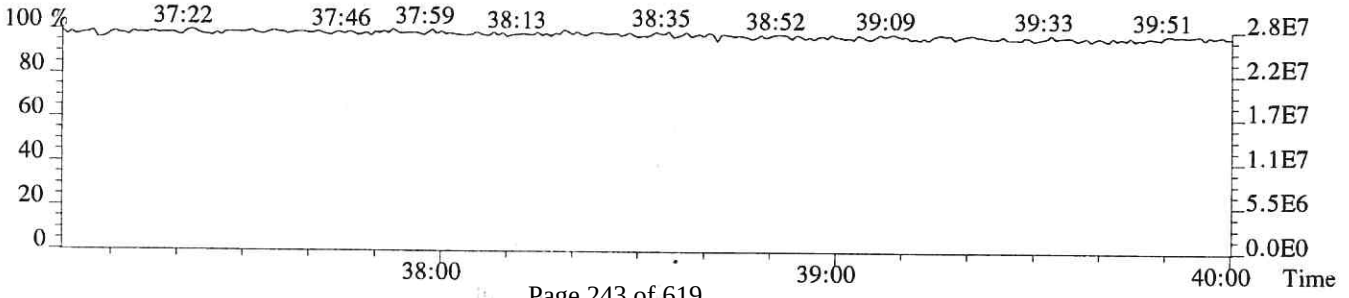
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,716.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,332.0,0.40%,F,T)

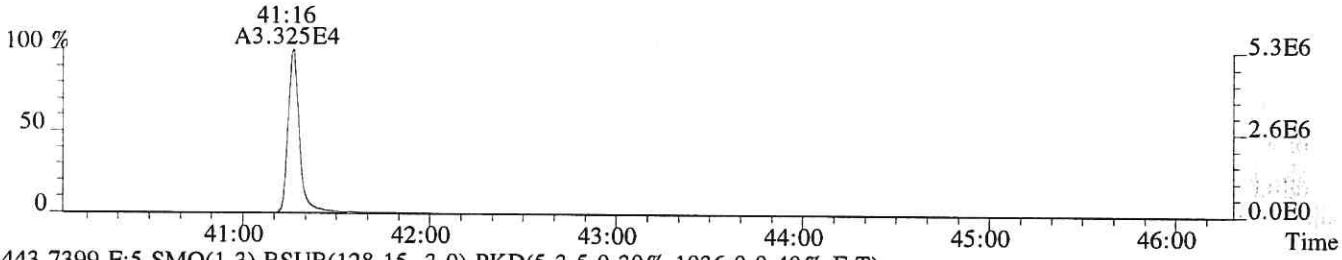


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

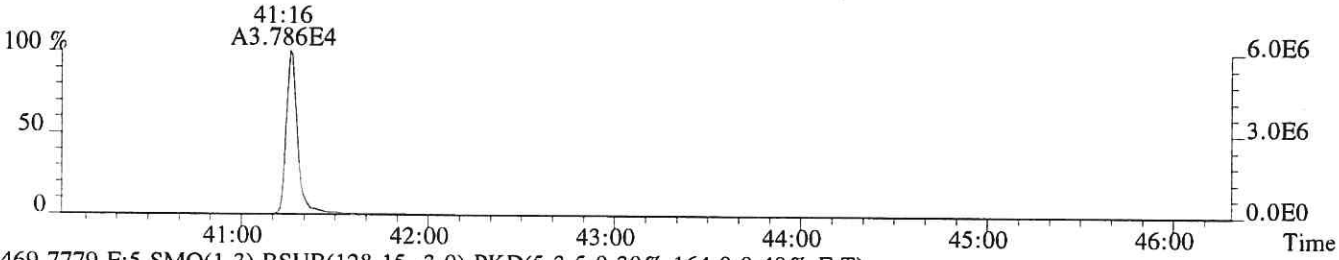


RIGHT SOLUTIONS | RIGHT PARTNER

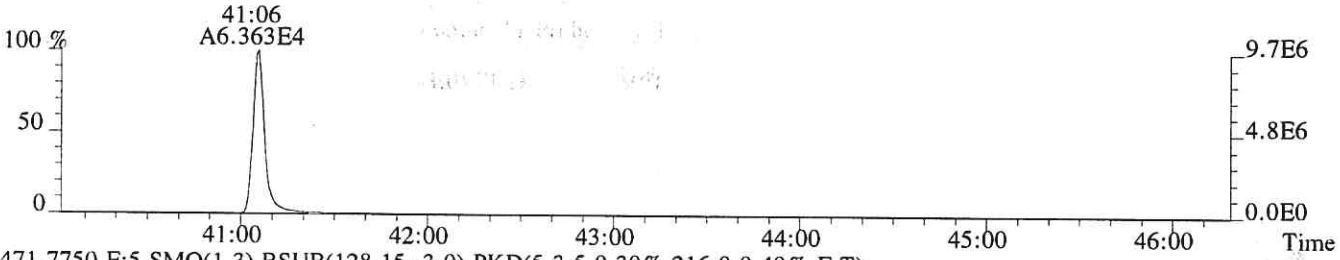
File:P524777 #1-565 Acq:18-OCT-2019 05:46:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1900347-02
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,196.0,0.40%,F,T)



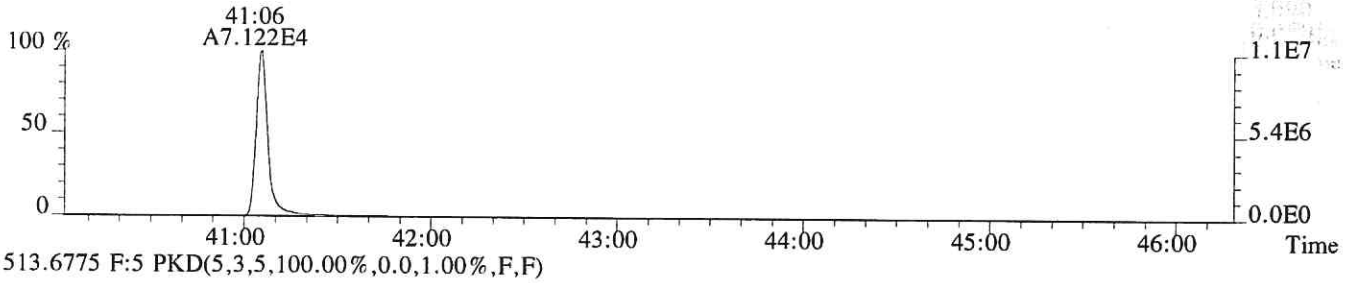
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1036.0,0.40%,F,T)



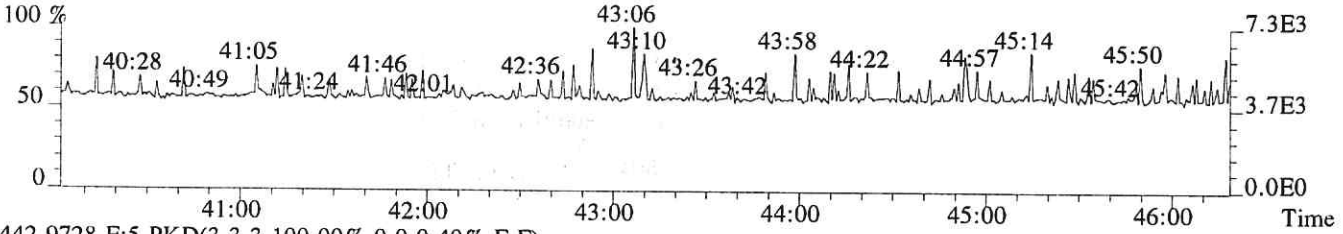
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,164.0,0.40%,F,T)



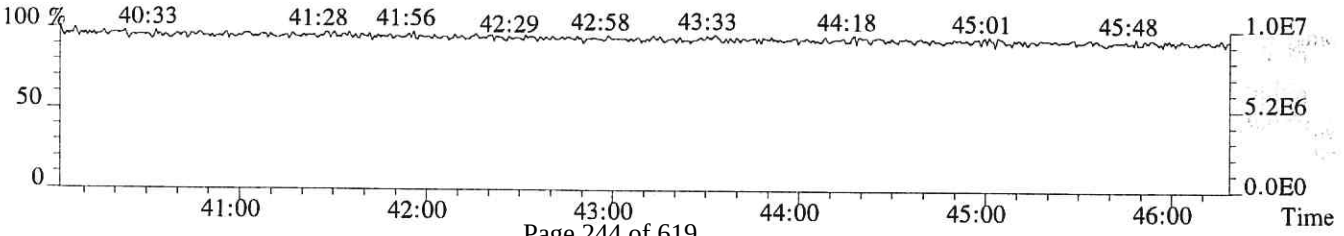
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,216.0,0.40%,F,T)



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

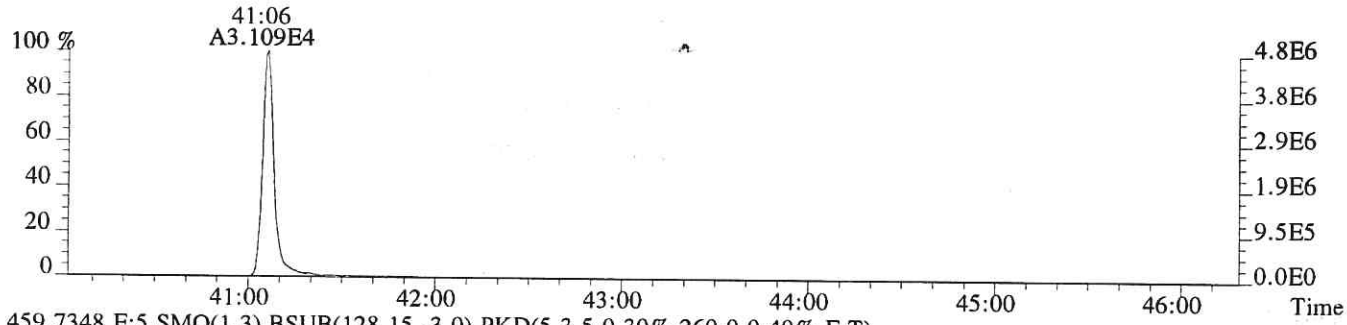


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

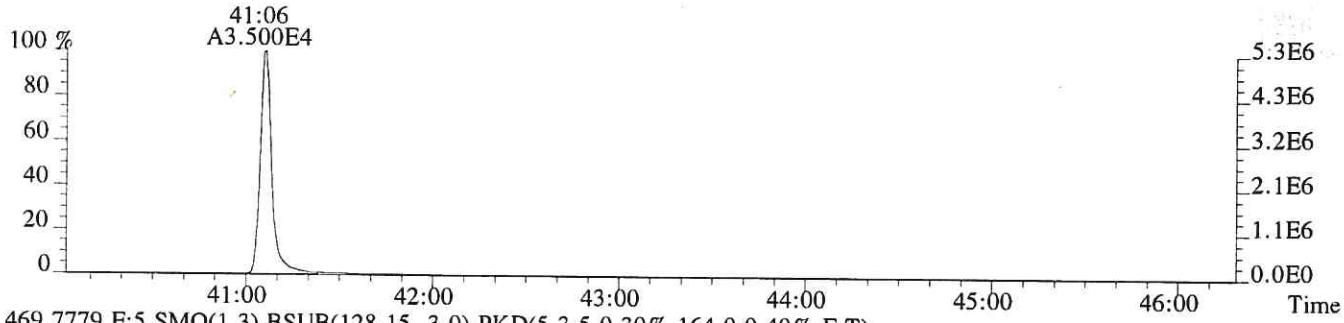


RIGHT SOLUTIONS | RIGHT PARTNER

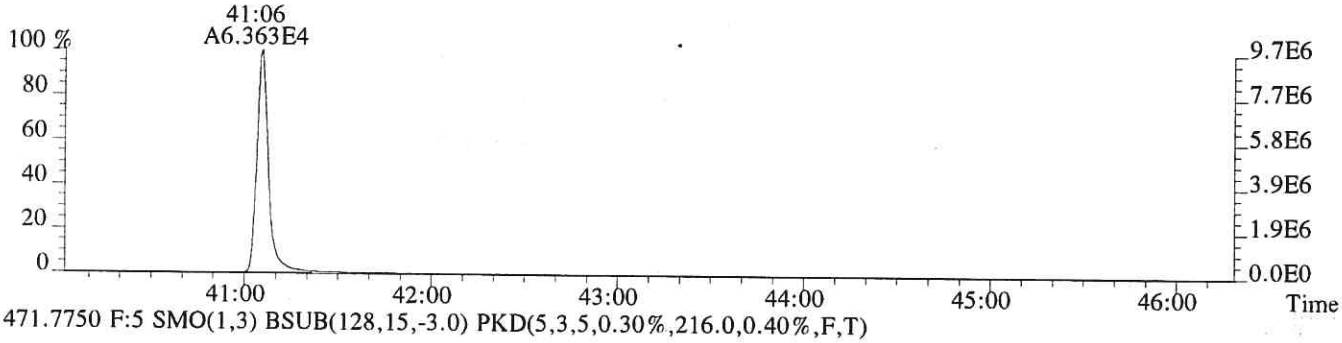
File:P524777 #1-565 Acq:18-OCT-2019 05:46:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1900347-02
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,272.0,0.40%,F,T)



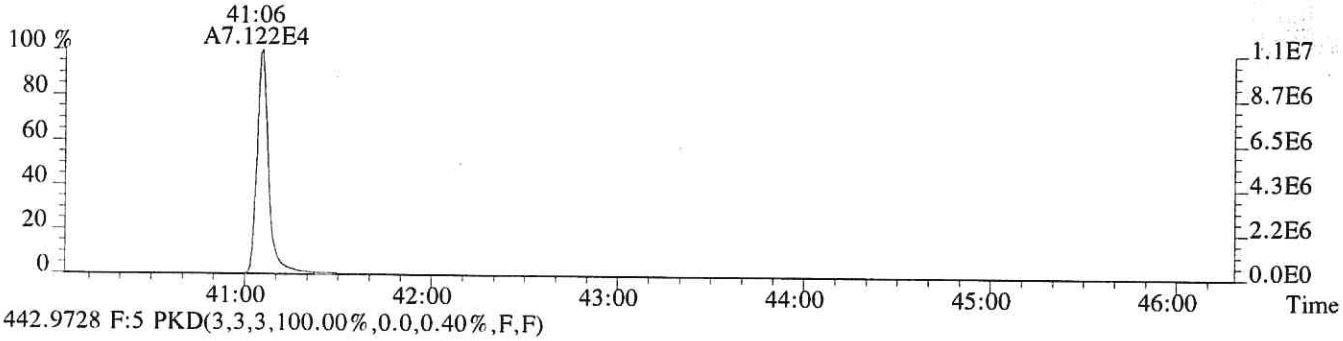
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,260.0,0.40%,F,T)



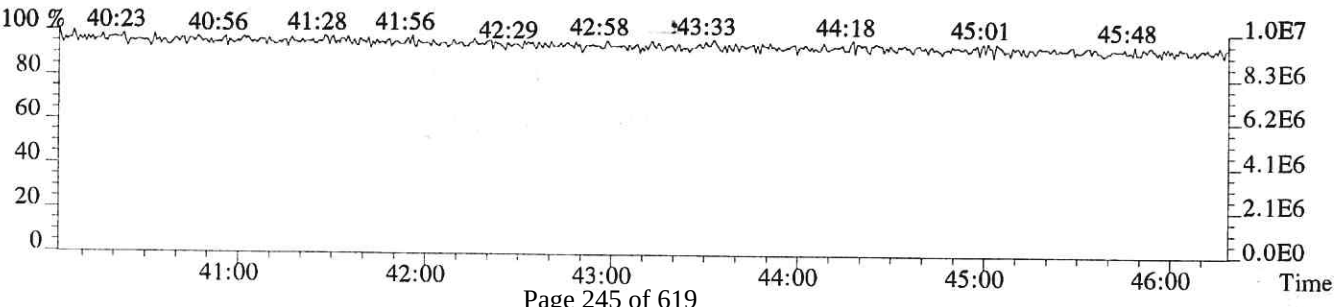
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,164.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,216.0,0.40%,F,T)



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



RIGHT SOLUTIONS | RIGHT PARTNER

Form 1

PCDD/PCDF ANALYSIS DATA SHEET
Use for Sample and Blank Results

CLIENT ID.

DLCS

Lab Name: ALS ENVIRONMENTAL Contract: SDG No:

Lab Code: Method:1613B Case No: Client No: Lab ID: EQ1900347-03

Client Name: Sample Wt/Vol: g or mL:

Matrix (Solid/Aqueous/Waste/Ash): Initial Calibration Date: 04/25/19

Sample Receipt Date: Instrument ID: E-HRMS-07

Ext. Date: GC Column:DB-5MSUI

Ext. Vol(ul): Inj. Vol(ul): Sample Data Filename: P524778

Analysis Date: 18-OCT-19 Time: 06:34:49 Blank Data Filename:

Dilution Factor: 1 Cal. Ver. Data Filename: P524769

Concentration Units (pg/L or ng/Kg dry weight): pg % Solids/Lipids:

ANALYTE	CONCENTRATION FOUND	DETECTION LIMIT	Qual. (1)	ION ABUND. RATIO (2)	RRT (2)	MEAN RRF
2,3,7,8-TCDF	185.687	2.827		0.72	1.001	0.96
1,2,3,7,8-PeCDF	841.431	2.024		1.51	1.001	0.97
2,3,4,7,8-PeCDF	944.555	2.146		1.52	1.000	0.92
1,2,3,4,7,8-HxCDF	845.774	0.708		1.20	1.000	1.16
1,2,3,6,7,8-HxCDF	921.330	0.734		1.21	1.000	1.07
2,3,4,6,7,8-HxCDF	942.669	0.779		1.22	1.000	1.07
1,2,3,7,8,9-HxCDF	898.674	0.967		1.23	1.000	1.10
1,2,3,4,6,7,8-HpCDF	917.226	3.193		1.04	1.000	1.28
1,2,3,4,7,8,9-HpCDF	925.255	4.468		1.05	1.000	1.19
OCDF	1824.450	0.771		0.88	1.004	1.20
2,3,7,8-TCDD	193.932	3.901		0.80	1.001	1.08
1,2,3,7,8-PeCDD	890.455	1.238		1.61	1.001	0.97
1,2,3,4,7,8-HxCDD	979.662	0.597		1.28	1.000	1.02
1,2,3,6,7,8-HxCDD	895.223	0.541		1.22	1.000	1.04
1,2,3,7,8,9-HxCDD	949.776	0.553		1.27	1.007	1.06
1,2,3,4,6,7,8-HpCDD	907.410	0.459		1.08	1.000	0.99
OCDD	1842.853	0.889		0.88	1.000	1.09
Total Tetra-Furans	193.518	2.827				
Total Tetra-Dioxins	193.932	3.901				
Total Penta-Furans1	*	1.370	Total Penta Furan		1792.722	
Total Penta-Furans2	1792.722	2.083				
Total Penta-Dioxins	890.455	1.238				
Total Hexa-Furans	3608.447	0.789				
Total Hexa-Dioxins	2824.661	0.561				
Total Hepta-Furans	1842.481	3.754				
Total Hepta-Dioxins	907.410	0.459				

(1) Qualifier U indicates not detected; The K indicates EMPC. The C needs value from second column analysis. The B indicates possible blank contamination.
(2) RRTs and ion ratios are specified in Tables 2 and 9, Method 1613B.

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USEPA, EAD

CLIENT ID.

FORM 2: PCDD/PCDF LABELED COMPOUND AND CLEANUP STANDARD RECOVERIES

DLCS

Lab Name: ALS Environmental Contract: SDG No:

Lab Code: ALS Method:1613BCase No: Client No: Lab ID:EQ1900347-03

Client Name: Sample Wt/Vol: g or mL:

Matrix (Solid/Aqueous/Waste/Ash): Initial Calibration Date: 04/25/19

Sample Receipt Date: Instrument ID: E-HRMS-07

GC Column ID: DB-5MSUI

Analysis Date: 18-OCT-19 Time: 06:34:49 Sample Data Filename: P524778

Ext. Vol(uL): 20.0 Inj. Vol(uL): Blank Data Filename: eq347

Dilution Factor: 1 Cal. Ver. Data Filename: P524769

Concentration Units (pg/L or ng/Kg dry weight): pg

	SPIKE CONC.	CONC. FOUND	R(%) (1)	QC Limit(1)	ION ABUND. RATIO (2)	RRT (2)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	2000	623.72	31.19	25-164	0.83	1.027
13C-1,2,3,7,8-PeCDD	2000	1077.32	53.87	25-181	1.62	1.228
13C-1,2,3,4,7,8-HxCDD	2000	1147.54	57.38	32-141	1.30	0.990
13C-1,2,3,6,7,8-HxCDD	2000	1502.51	75.13	28-130	1.26	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1446.29	72.31	23-140	1.06	1.072
13C-OCDD	4000	3269.32	81.73	17-157	0.91	1.146
13C-2,3,7,8-TCDF	2000	590.57	29.53	24-169	0.80	0.991
13C-1,2,3,7,8-PeCDF	2000	1001.78	50.09	24-185	1.60	1.178
13C-2,3,4,7,8-PeCDF	2000	971.50	48.58	21-178	1.60	1.217
13C-1,2,3,4,7,8-HxCDF	2000	1290.30	64.52	26-152	0.52	0.968
13C-1,2,3,6,7,8-HxCDF	2000	1272.26	63.61	26-123	0.53	0.972
13C-1,2,3,7,8,9-HxCDF	2000	1268.66	63.43	29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1247.64	62.38	28-136	0.53	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1375.93	68.80	28-143	0.44	1.046
13C-1,2,3,4,7,8,9-HpCDF	2000	1434.91	71.75	26-138	0.44	1.084
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD	800	256.11	32.01	35-197		1.029

(1) Contract-required limits for percent recovery (R) are specified in Table 7, Method 1613B.
(2) Contract-required limits for RRTs and ion abundance ratios are specified in Tables 2 and 9, respectively, Method 1613B. NOTE: There is no ion abundance ratio for 37Cl4-2378-TCDD (cleanup standard).

RFP C500273T1

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Sample Response Summary

CLIENT ID.
DLCS

Run #16 Filename P524778 Samp: 1 Inj: 1 Acquired: 18-OCT-19 06:34:49
Processed: 18-OCT-19 15:53:32 Sample ID: EQ1900347-03

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:58	9.012e+02	1.243e+03	0.72	yes	no	0.962
2	Unk	1,2,3,7,8-PeCDF	30:50	1.097e+04	7.267e+03	1.51	yes	no	0.968
3	Unk	2,3,4,7,8-PeCDF	31:51	1.104e+04	7.269e+03	1.52	yes	no	0.919
4	Unk	1,2,3,4,7,8-HxCDF	34:43	1.143e+04	9.552e+03	1.20	yes	no	1.161
5	Unk	1,2,3,6,7,8-HxCDF	34:50	1.276e+04	1.054e+04	1.21	yes	no	1.073
6	Unk	2,3,4,6,7,8-HxCDF	35:23	1.179e+04	9.651e+03	1.22	yes	no	1.069
7	Unk	1,2,3,7,8,9-HxCDF	36:10	1.011e+04	8.232e+03	1.23	yes	no	1.096
8	Unk	1,2,3,4,6,7,8-HpCDF	37:30	1.121e+04	1.080e+04	1.04	yes	no	1.281
9	Unk	1,2,3,4,7,8,9-HpCDF	38:52	8.995e+03	8.572e+03	1.05	yes	no	1.192
10	Unk	OCDF	41:14	1.659e+04	1.877e+04	0.88	yes	no	1.204
11	Unk	2,3,7,8-TCDD	26:55	8.510e+02	1.060e+03	0.80	yes	no	1.077
12	Unk	1,2,3,7,8-PeCDD	32:09	9.235e+03	5.724e+03	1.61	yes	no	0.971
13	Unk	1,2,3,4,7,8-HxCDD	35:31	9.075e+03	7.098e+03	1.28	yes	no	1.024
14	Unk	1,2,3,6,7,8-HxCDD	35:37	1.053e+04	8.660e+03	1.22	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	35:52	1.030e+04	8.134e+03	1.27	yes	no	1.055
16	Unk	1,2,3,4,6,7,8-HpCDD	38:25	8.795e+03	8.118e+03	1.08	yes	no	0.989
17	Unk	OCDD	41:04	1.522e+04	1.724e+04	0.88	yes	no	1.094
18	IS	13C-2,3,7,8-TCDF	25:56	1.067e+04	1.333e+04	0.80	yes	no	1.287
19	IS	13C-1,2,3,7,8-PeCDF	30:49	2.759e+04	1.720e+04	1.60	yes	no	1.416
20	IS	13C-2,3,4,7,8-PeCDF	31:51	2.595e+04	1.621e+04	1.60	yes	no	1.374
21	IS	13C-1,2,3,4,7,8-HxCDF	34:42	1.457e+04	2.819e+04	0.52	yes	no	1.114
22	IS	13C-1,2,3,6,7,8-HxCDF	34:50	1.628e+04	3.085e+04	0.53	yes	no	1.245
23	IS	13C-2,3,4,6,7,8-HxCDF	35:22	1.481e+04	2.773e+04	0.53	yes	no	1.146
24	IS	13C-1,2,3,7,8,9-HxCDF	36:09	1.281e+04	2.442e+04	0.52	yes	no	0.986
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:29	1.145e+04	2.601e+04	0.44	yes	no	0.915
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:51	9.739e+03	2.211e+04	0.44	yes	no	0.746
27	IS	13C-2,3,7,8-TCDD	26:53	8.276e+03	1.002e+04	0.83	yes	no	0.929
28	IS	13C-1,2,3,7,8-PeCDD	32:08	2.138e+04	1.321e+04	1.62	yes	no	1.017
29	IS	13C-1,2,3,4,7,8-HxCDD	35:30	1.821e+04	1.405e+04	1.30	yes	no	0.945
30	IS	13C-1,2,3,6,7,8-HxCDD	35:36	2.306e+04	1.825e+04	1.26	yes	no	0.924
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:25	1.937e+04	1.834e+04	1.06	yes	no	0.876
32	IS	13C-OCDD	41:04	3.060e+04	3.379e+04	0.91	yes	no	0.662
33	RS/RT	13C-1,2,3,4-TCDD	26:10	2.820e+04	3.497e+04	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:51	3.289e+04	2.663e+04	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:55	8.171e+03				no	1.010

$$\text{OCDD} = \frac{(1.522e+04 + 1.724e+04) \times 4000 \text{ pg} \times 1}{(3.060e+04 + 3.379e+04) \times \quad \text{g} \times \quad / 100 \times 1.094} =$$

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Signal/Noise Height Ratio Summary

CLIENT ID.
DLCS

Run #16 Filename P524778 Samp: 1 Inj: 1 Acquired: 18-OCT-19 06:34:49
Processed: 18-OCT-19 15:53:32 LAB. ID: EQ1900347-03

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.20e+05	5.56e+02	2.2e+02	1.68e+05	1.13e+03	1.5e+02
2	1,2,3,7,8-PeCDF	1.81e+06	5.44e+02	3.3e+03	1.18e+06	2.33e+03	5.1e+02
3	2,3,4,7,8-PeCDF	1.97e+06	5.44e+02	3.6e+03	1.28e+06	2.33e+03	5.5e+02
4	1,2,3,4,7,8-HxCDF	2.26e+06	8.72e+02	2.6e+03	1.89e+06	5.48e+02	3.5e+03
5	1,2,3,6,7,8-HxCDF	2.40e+06	8.72e+02	2.8e+03	1.96e+06	5.48e+02	3.6e+03
6	2,3,4,6,7,8-HxCDF	2.36e+06	8.72e+02	2.7e+03	1.94e+06	5.48e+02	3.5e+03
7	1,2,3,7,8,9-HxCDF	1.82e+06	8.72e+02	2.1e+03	1.48e+06	5.48e+02	2.7e+03
8	1,2,3,4,6,7,8-HpCDF	2.18e+06	1.62e+03	1.3e+03	2.11e+06	4.37e+03	4.8e+02
9	1,2,3,4,7,8,9-HpCDF	1.61e+06	1.62e+03	9.9e+02	1.55e+06	4.37e+03	3.5e+02
10	OCDF	2.53e+06	1.72e+02	1.5e+04	2.84e+06	7.32e+02	3.9e+03
11	2,3,7,8-TCDD	1.32e+05	1.10e+03	1.2e+02	1.56e+05	1.17e+03	1.3e+02
12	1,2,3,7,8-PeCDD	1.59e+06	7.84e+02	2.0e+03	9.90e+05	6.24e+02	1.6e+03
13	1,2,3,4,7,8-HxCDD	1.93e+06	2.60e+02	7.4e+03	1.53e+06	5.96e+02	2.6e+03
14	1,2,3,6,7,8-HxCDD	1.86e+06	2.60e+02	7.1e+03	1.62e+06	5.96e+02	2.7e+03
15	1,2,3,7,8,9-HxCDD	1.96e+06	2.60e+02	7.6e+03	1.57e+06	5.96e+02	2.6e+03
16	1,2,3,4,6,7,8-HpCDD	1.70e+06	4.80e+02	3.5e+03	1.62e+06	1.76e+02	9.2e+03
17	OCDD	2.24e+06	2.48e+02	9.0e+03	2.59e+06	7.00e+02	3.7e+03
18	13C-2,3,7,8-TCDF	1.37e+06	4.02e+03	3.4e+02	1.72e+06	1.59e+03	1.1e+03
19	13C-1,2,3,7,8-PeCDF	4.54e+06	2.84e+03	1.6e+03	2.79e+06	1.97e+03	1.4e+03
20	13C-2,3,4,7,8-PeCDF	4.47e+06	2.84e+03	1.6e+03	2.79e+06	1.97e+03	1.4e+03
21	13C-1,2,3,4,7,8-HxCDF	2.93e+06	8.56e+02	3.4e+03	5.69e+06	9.20e+02	6.2e+03
22	13C-1,2,3,6,7,8-HxCDF	3.10e+06	8.56e+02	3.6e+03	5.87e+06	9.20e+02	6.4e+03
23	13C-2,3,4,6,7,8-HxCDF	2.91e+06	8.56e+02	3.4e+03	5.61e+06	9.20e+02	6.1e+03
24	13C-1,2,3,7,8,9-HxCDF	2.28e+06	8.56e+02	2.7e+03	4.41e+06	9.20e+02	4.8e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.27e+06	3.56e+03	6.4e+02	4.98e+06	3.45e+03	1.4e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.72e+06	3.56e+03	4.8e+02	3.87e+06	3.45e+03	1.1e+03
27	13C-2,3,7,8-TCDD	1.21e+06	5.18e+03	2.3e+02	1.48e+06	2.05e+03	7.2e+02
28	13C-1,2,3,7,8-PeCDD	3.61e+06	2.80e+02	1.3e+04	2.22e+06	6.20e+02	3.6e+03
29	13C-1,2,3,4,7,8-HxCDD	3.94e+06	1.78e+03	2.2e+03	3.03e+06	1.09e+03	2.8e+03
30	13C-1,2,3,6,7,8-HxCDD	4.23e+06	1.78e+03	2.4e+03	3.36e+06	1.09e+03	3.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.71e+06	1.44e+02	2.6e+04	3.50e+06	5.48e+02	6.4e+03
32	13C-OCDD	4.61e+06	1.32e+02	3.5e+04	5.09e+06	2.52e+02	2.0e+04
33	13C-1,2,3,4-TCDD	4.14e+06	5.18e+03	8.0e+02	5.20e+06	2.05e+03	2.5e+03
34	13C-1,2,3,7,8,9-HxCDD	6.40e+06	1.78e+03	3.6e+03	5.04e+06	1.09e+03	4.6e+03
35	37Cl-2,3,7,8-TCDD	1.19e+06	1.36e+03	8.8e+02			

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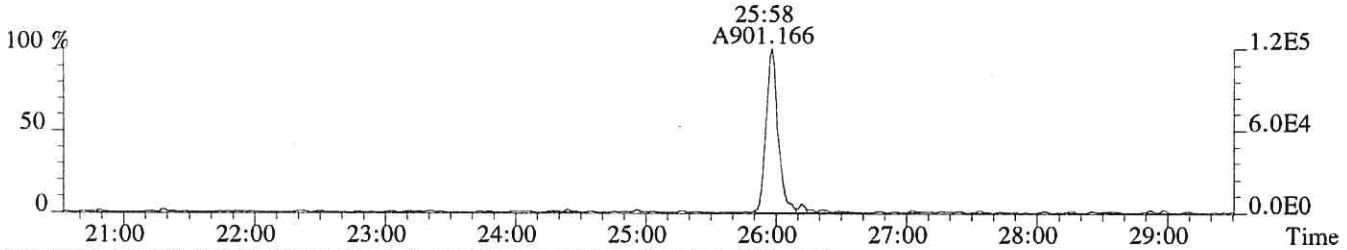
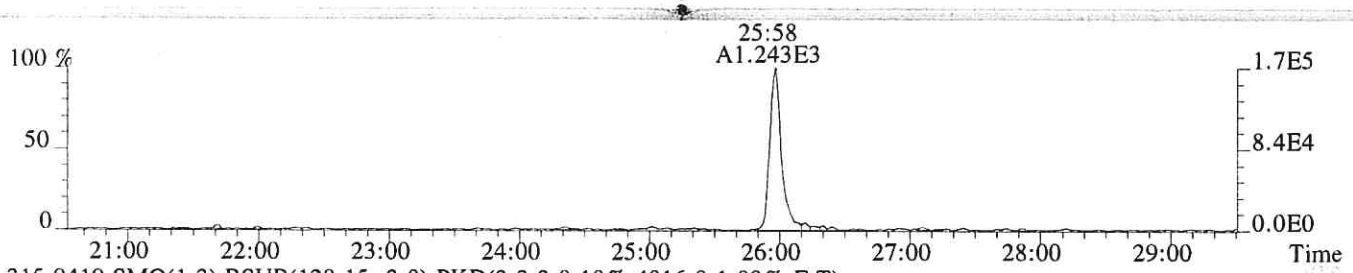
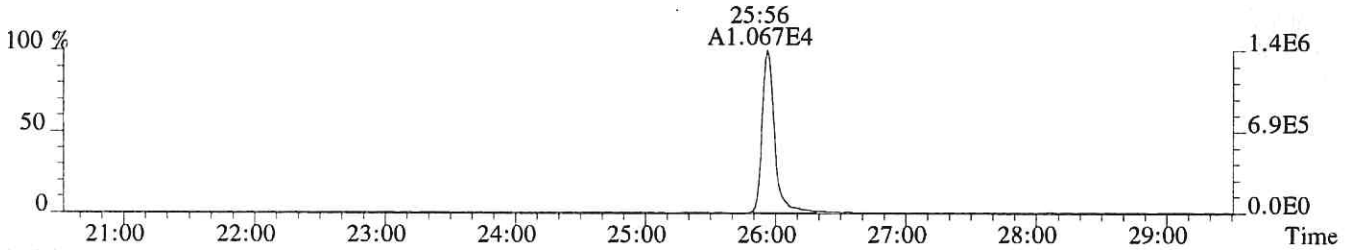
File:P524778 #1-637 Acq:18-OCT-2019 06:34:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1900347-03
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,556.0,1.00%,F,T)



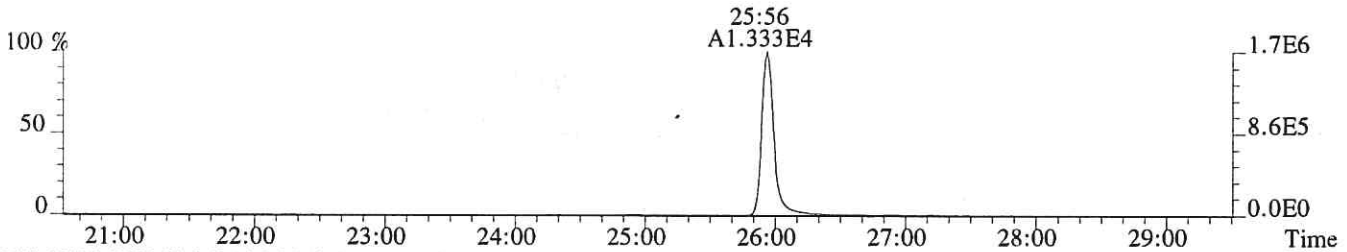
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1128.0,1.00%,F,T)



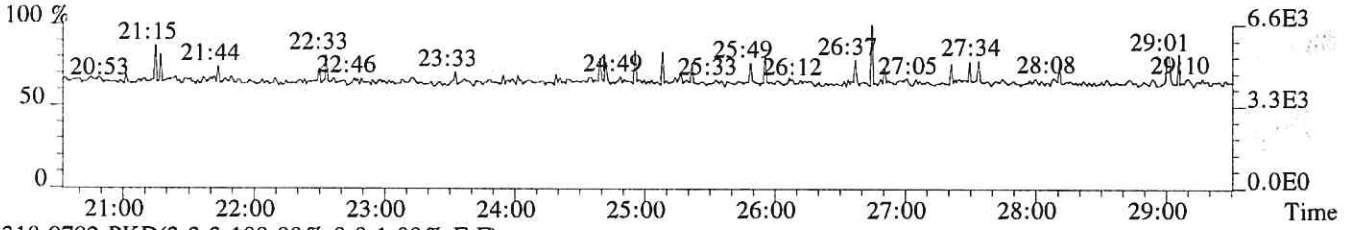
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4016.0,1.00%,F,T)



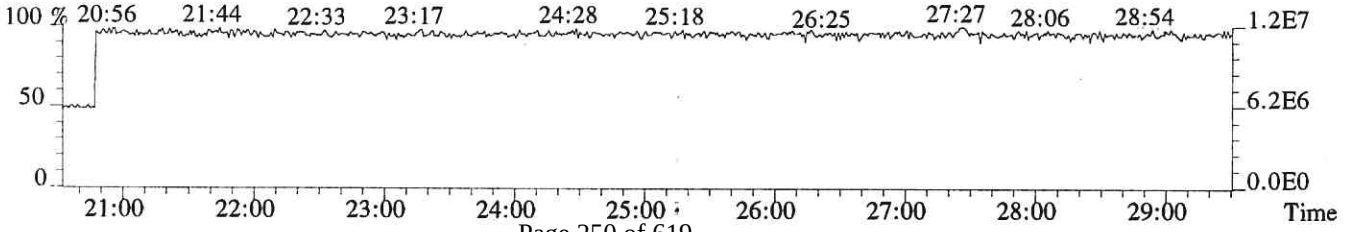
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1588.0,1.00%,F,T)



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



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



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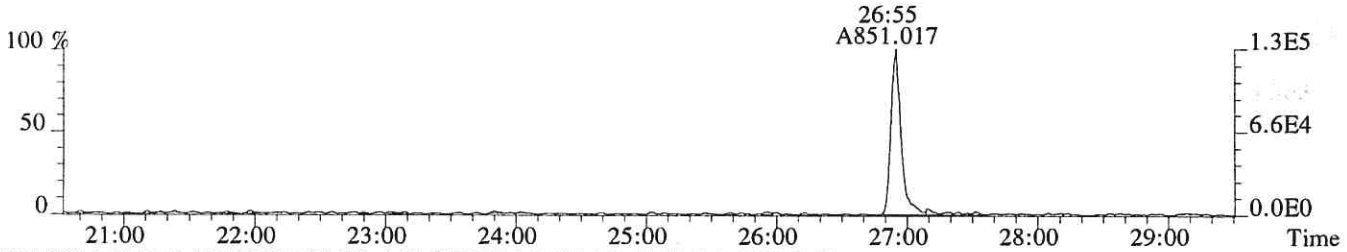
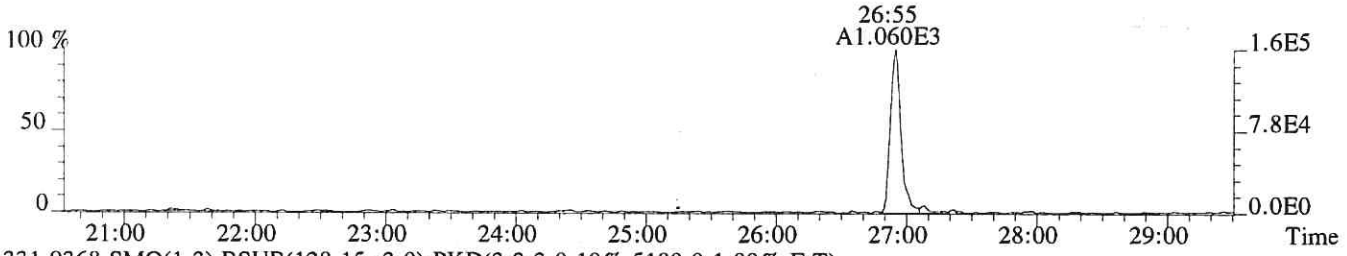
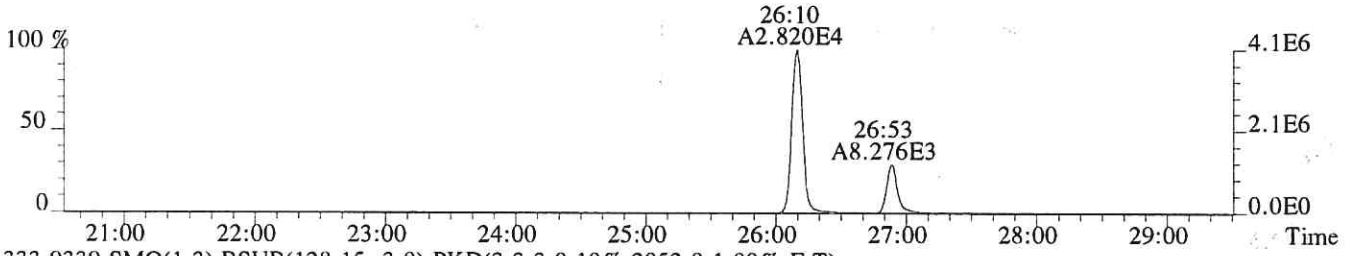
File:P524778 #1-637 Acq:18-OCT-2019 06:34:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1900347-03
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1104.0,1.00%,F,T)



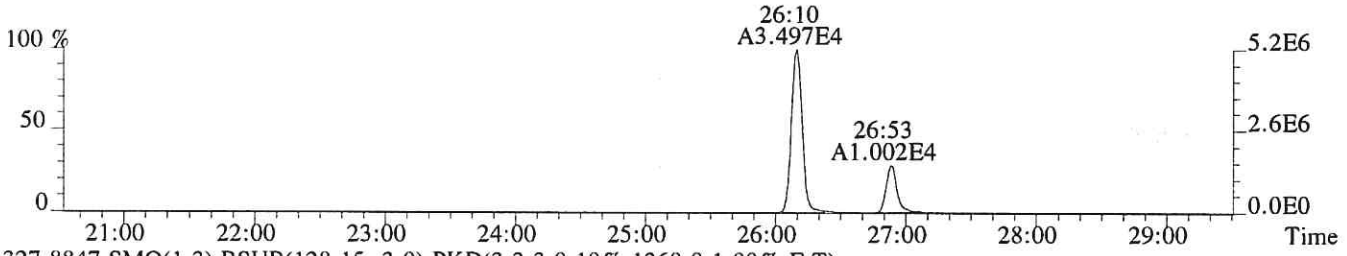
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1168.0,1.00%,F,T)



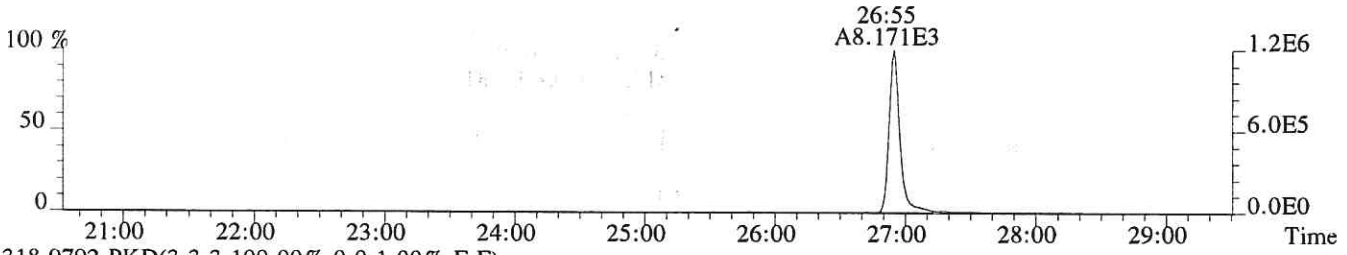
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5180.0,1.00%,F,T)



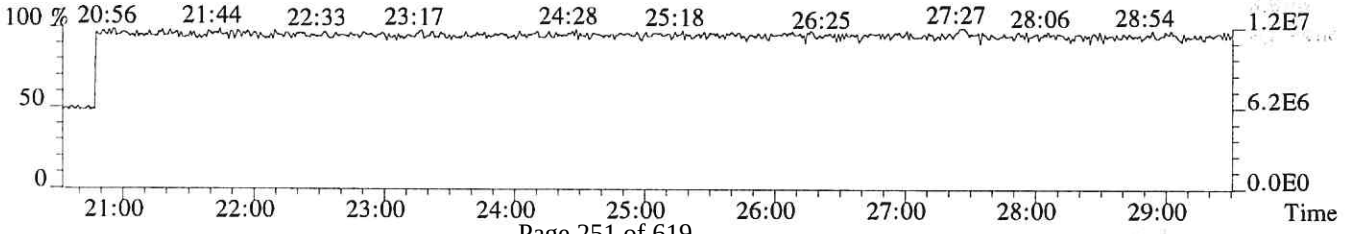
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2052.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1360.0,1.00%,F,T)

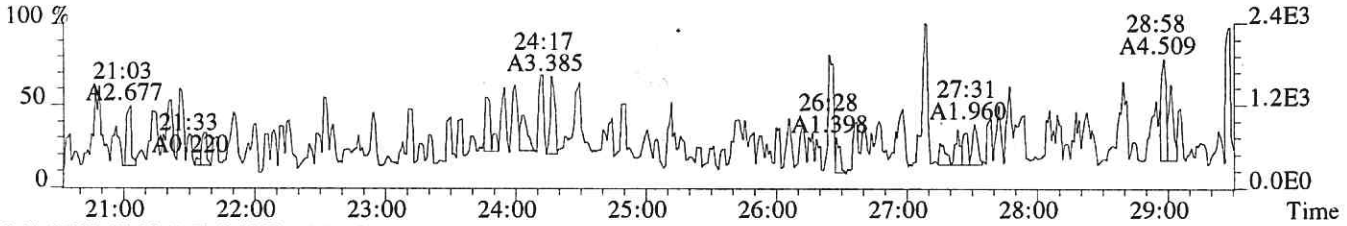


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

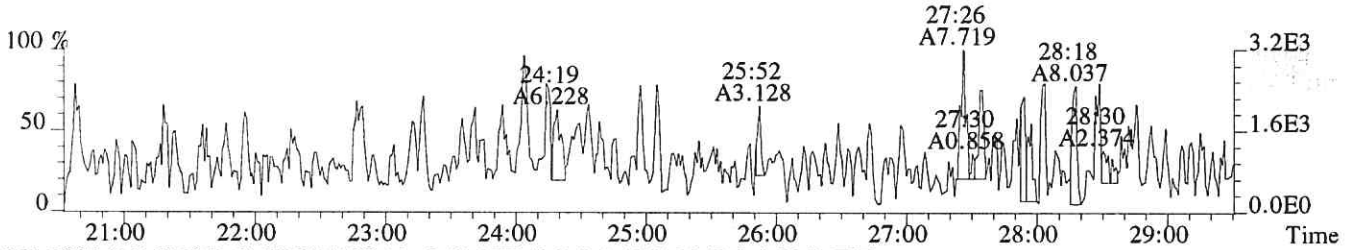


RIGHT SOLUTIONS | RIGHT PARTNER

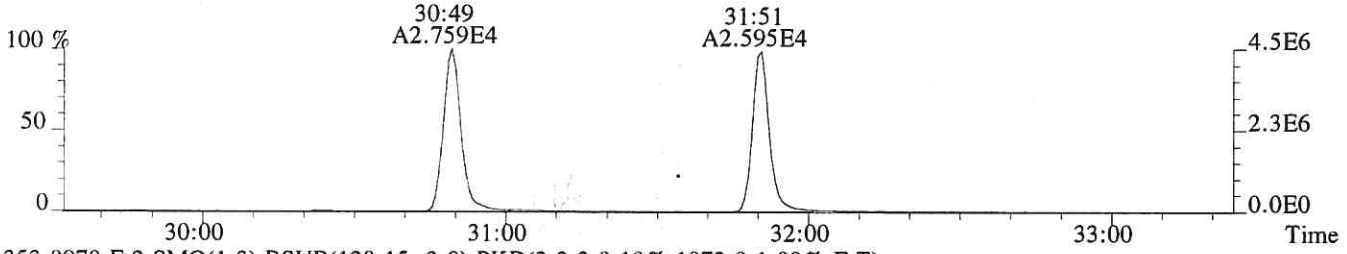
File:P524778 #1-637 Acq:18-OCT-2019 06:34:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1900347-03
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,728.0,1.00%,F,T)



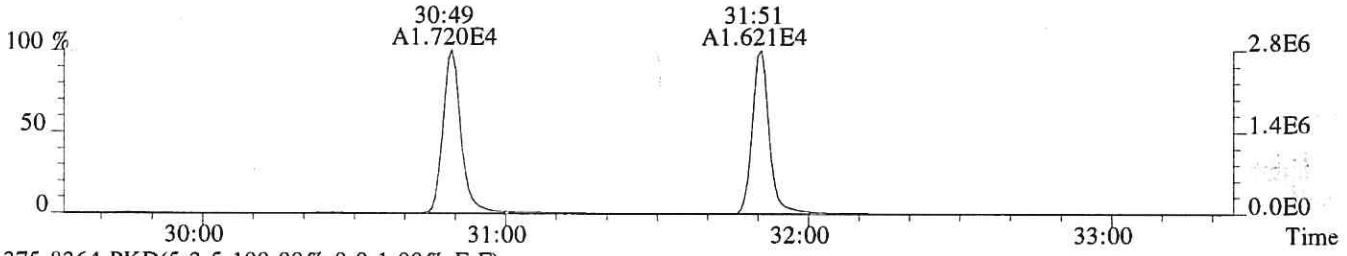
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1164.0,1.00%,F,T)



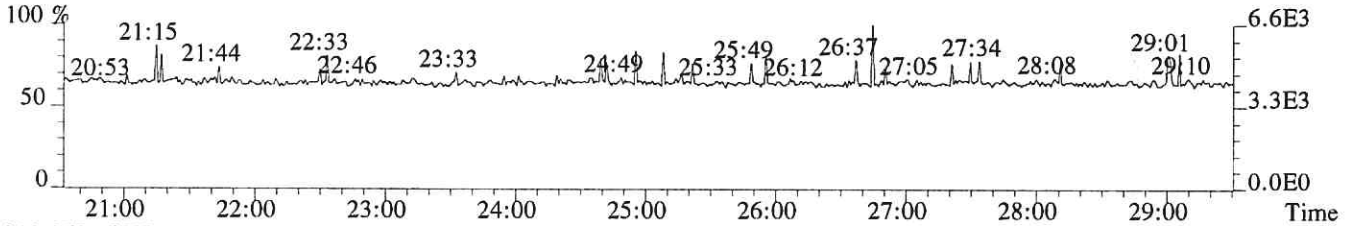
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2840.0,1.00%,F,T)



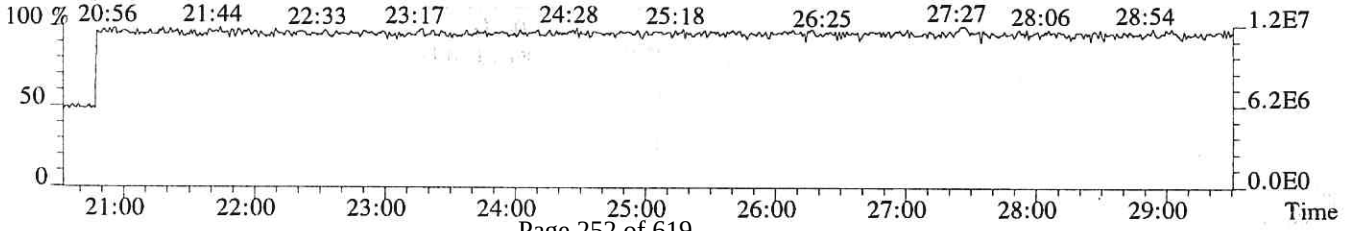
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1972.0,1.00%,F,T)



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

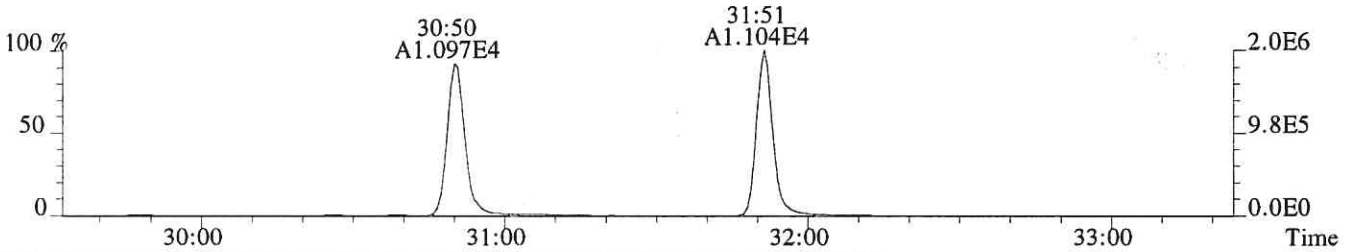


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

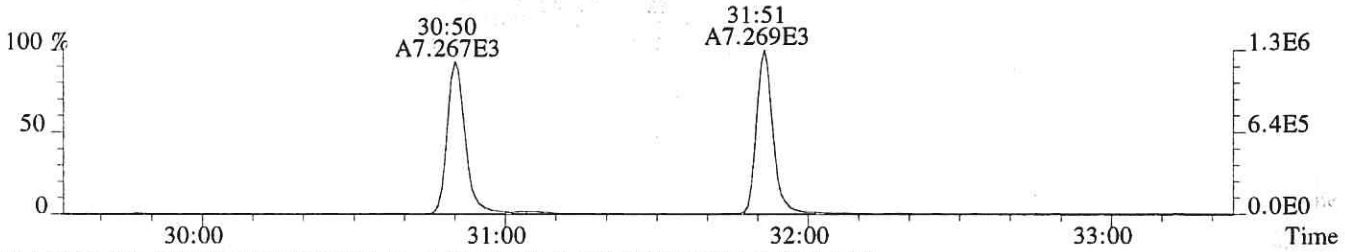


RIGHT SOLUTIONS | RIGHT PARTNER

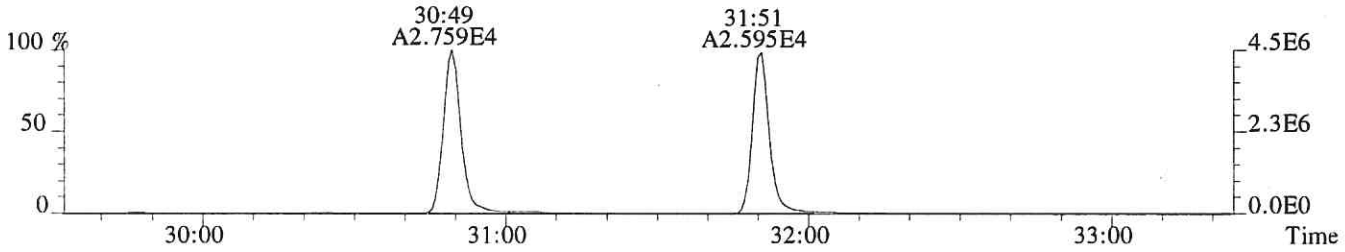
File:P524778 #1-348 Acq:18-OCT-2019 06:34:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1900347-03
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,544.0,1.00%,F,T)



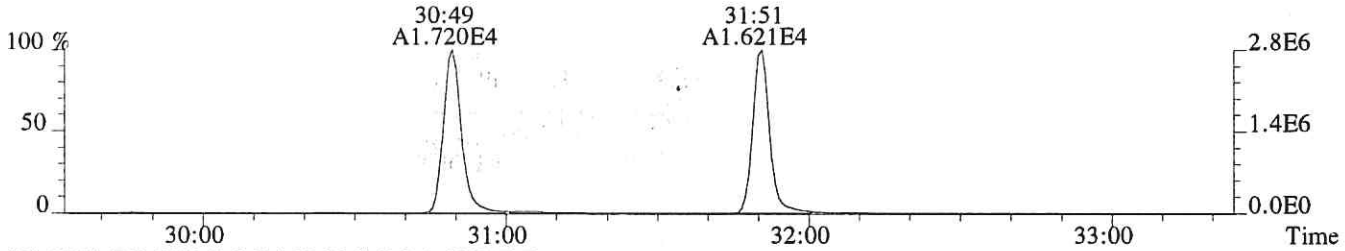
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2332.0,1.00%,F,T)



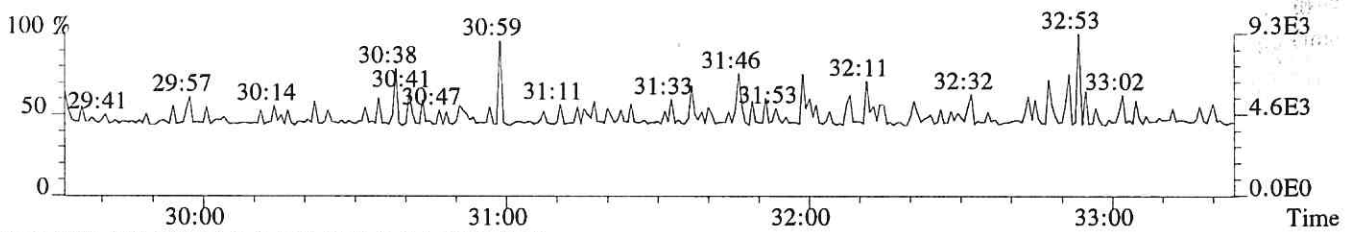
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2840.0,1.00%,F,T)



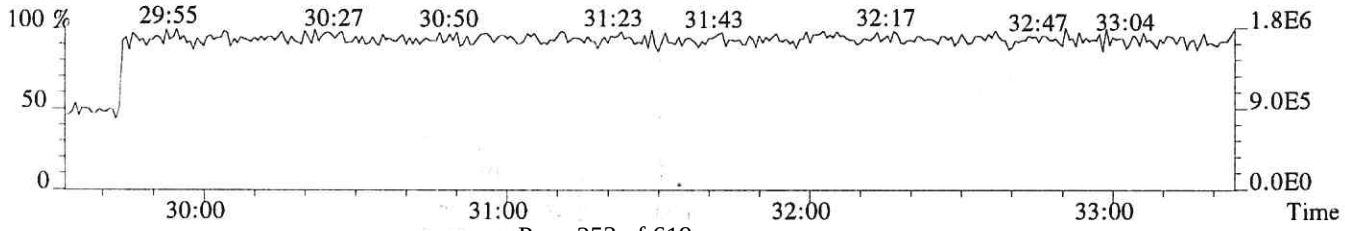
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1972.0,1.00%,F,T)



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

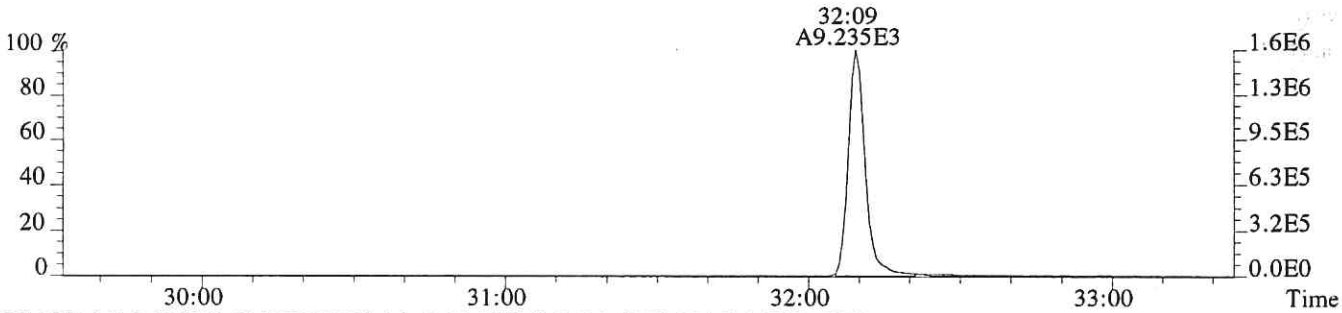


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

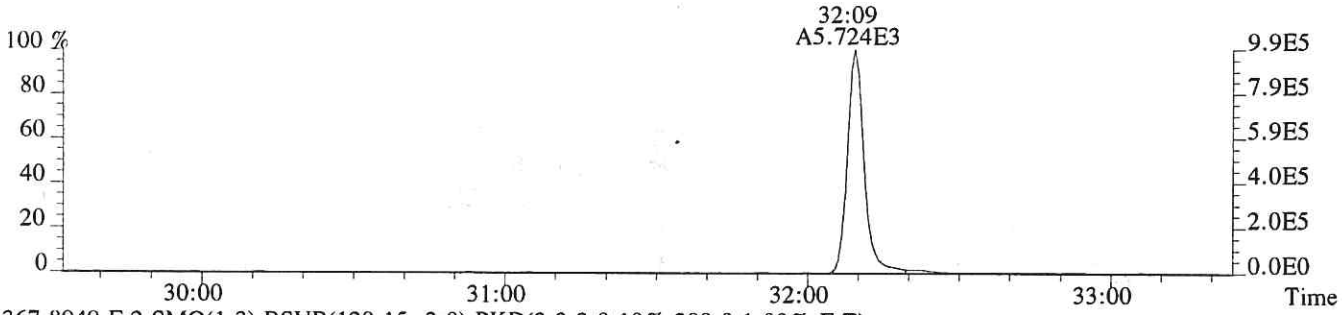


RIGHT SOLUTIONS | RIGHT PARTNER

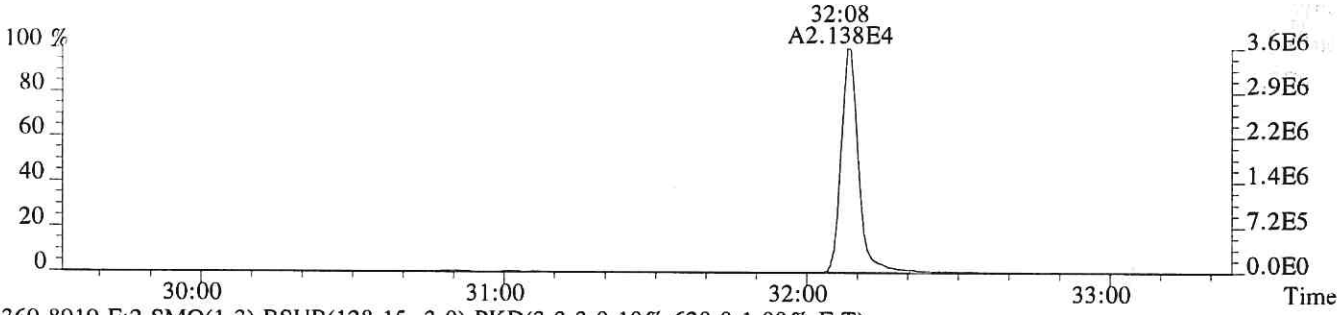
File:P524778 #1-348 Acq:18-OCT-2019 06:34:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1900347-03
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,784.0,1.00%,F,T)



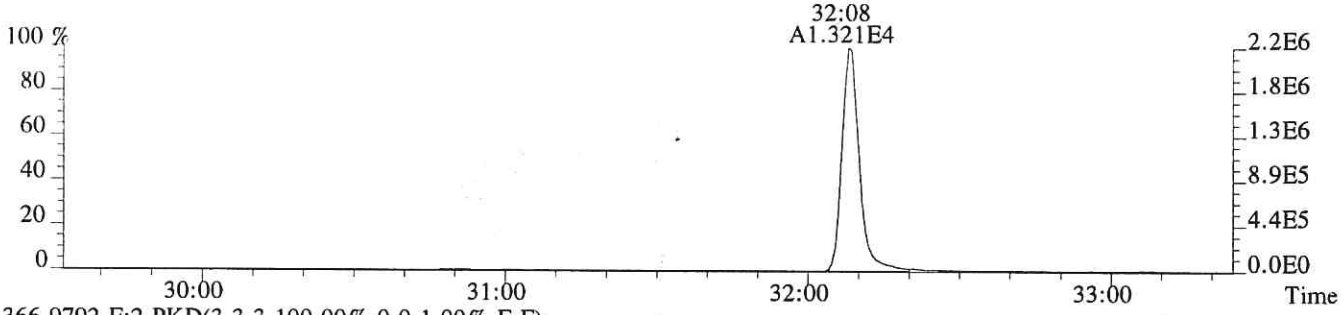
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,624.0,1.00%,F,T)



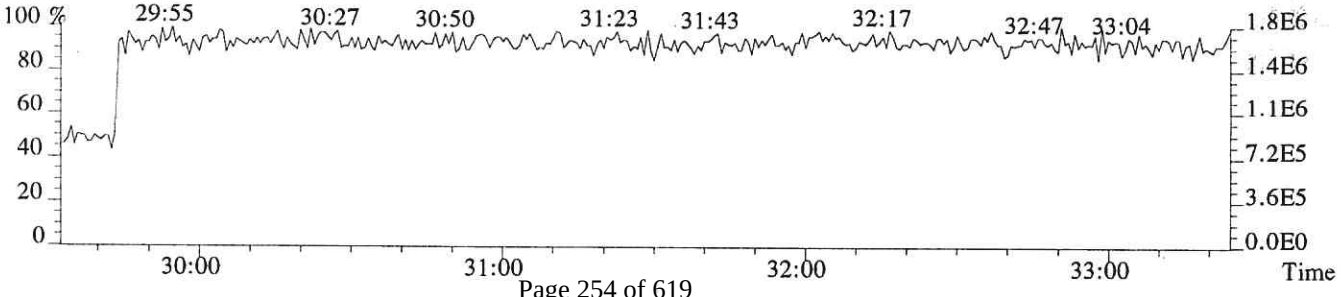
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,280.0,1.00%,F,T)



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

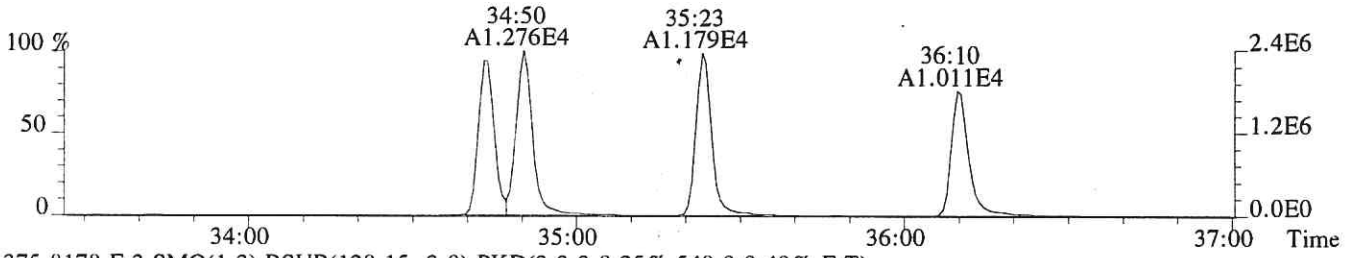


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

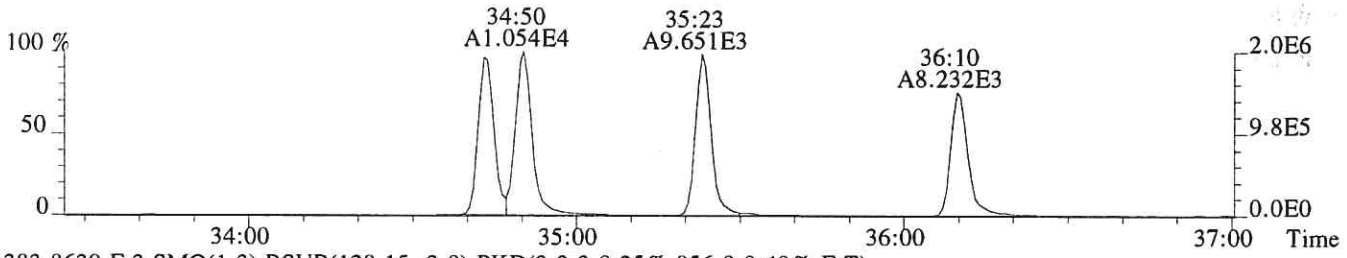


RIGHT SOLUTIONS | RIGHT PARTNER

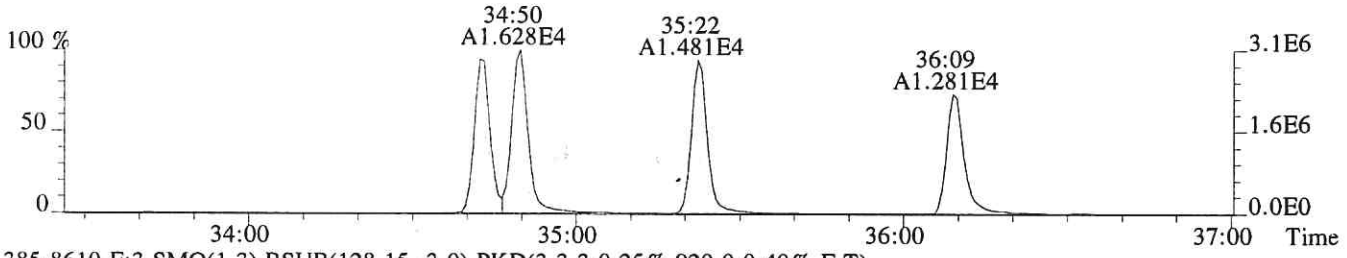
File:P524778 #1-322 Acq:18-OCT-2019 06:34:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1900347-03
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,872.0,0.40%,F,T)



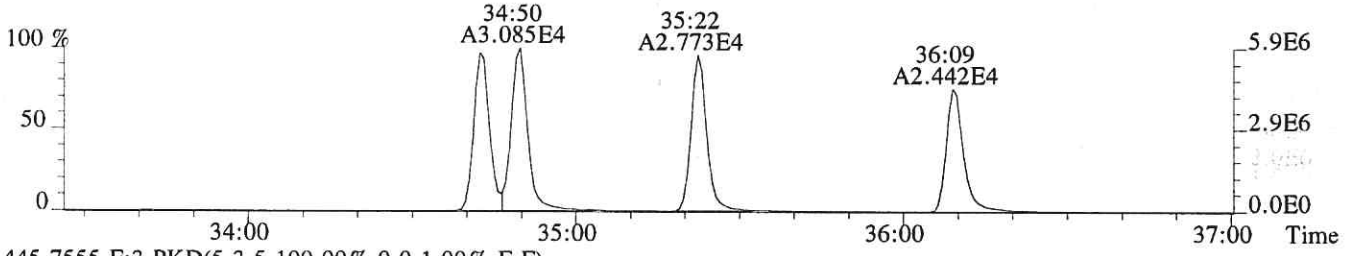
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,548.0,0.40%,F,T)



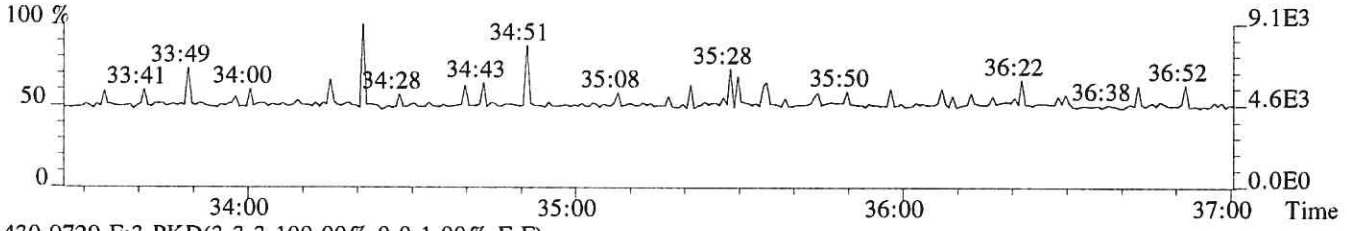
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,856.0,0.40%,F,T)



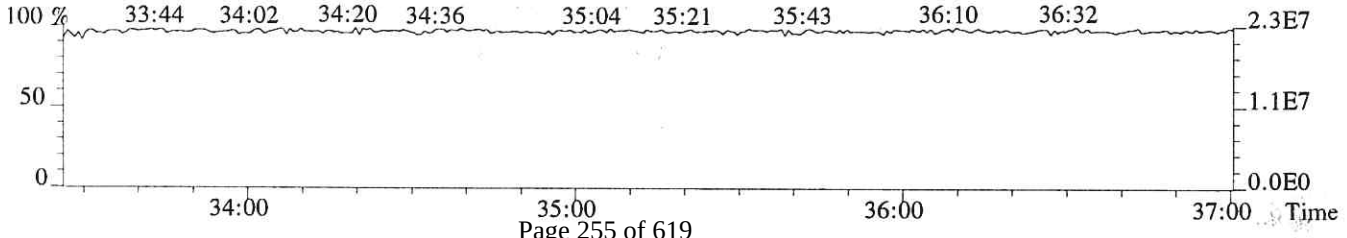
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,920.0,0.40%,F,T)



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

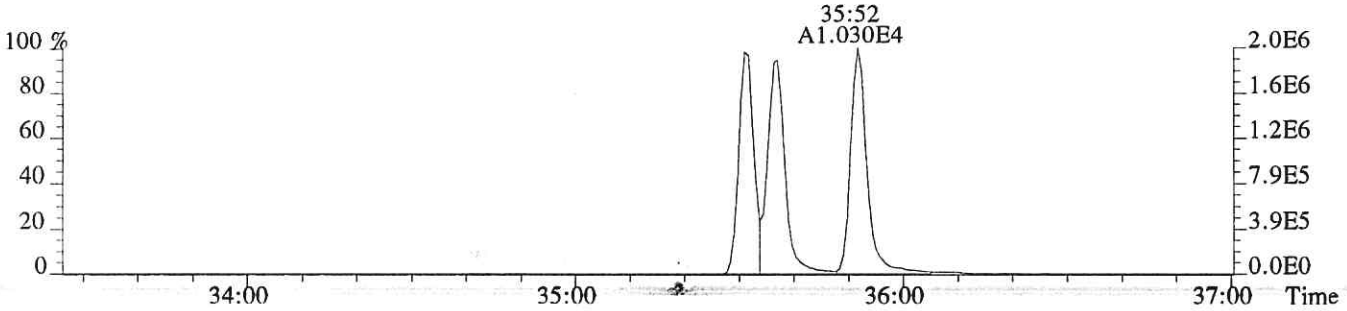


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

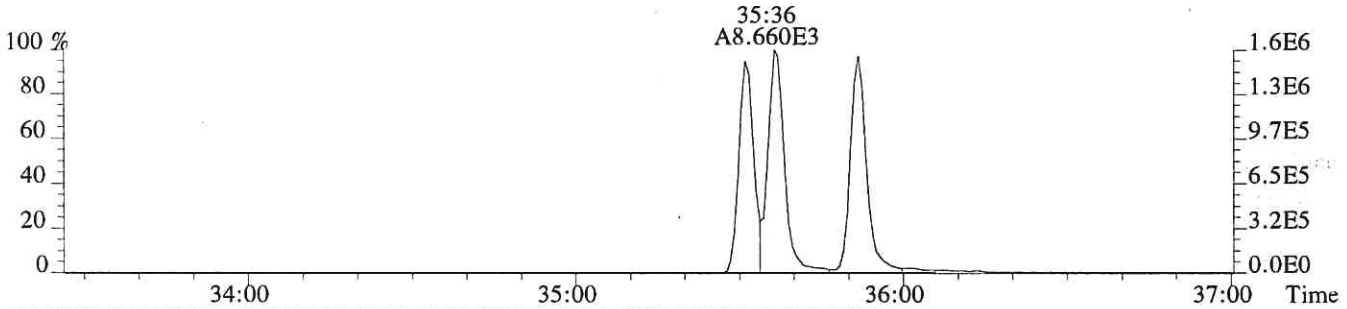


RIGHT SOLUTIONS | RIGHT PARTNER

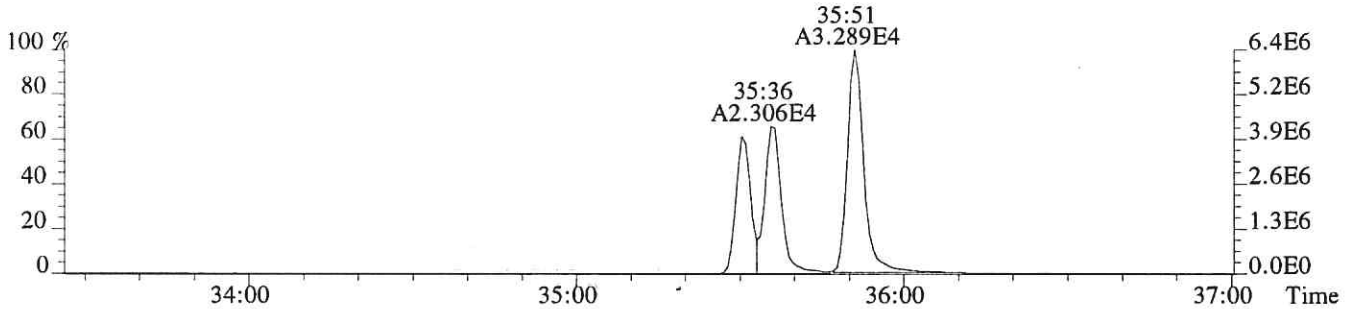
File:P524778 #1-322 Acq:18-OCT-2019 06:34:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1900347-03
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,260.0,0.40%,F,T)



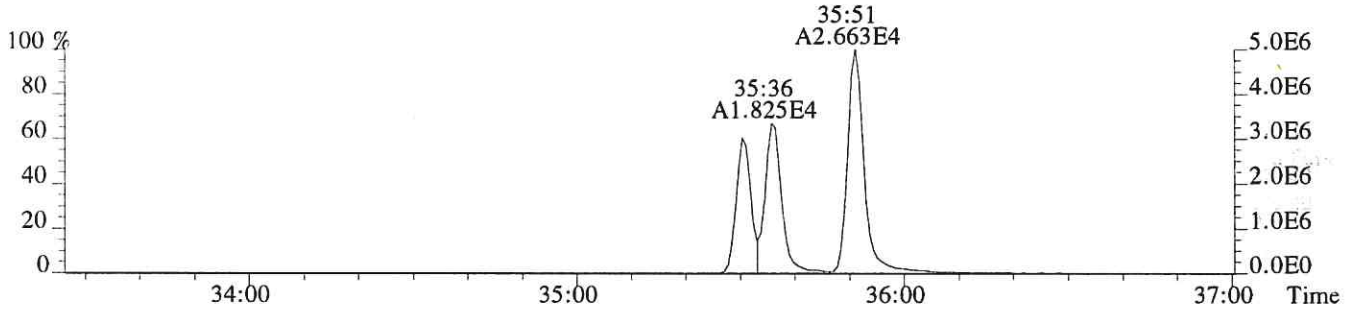
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,596.0,0.40%,F,T)



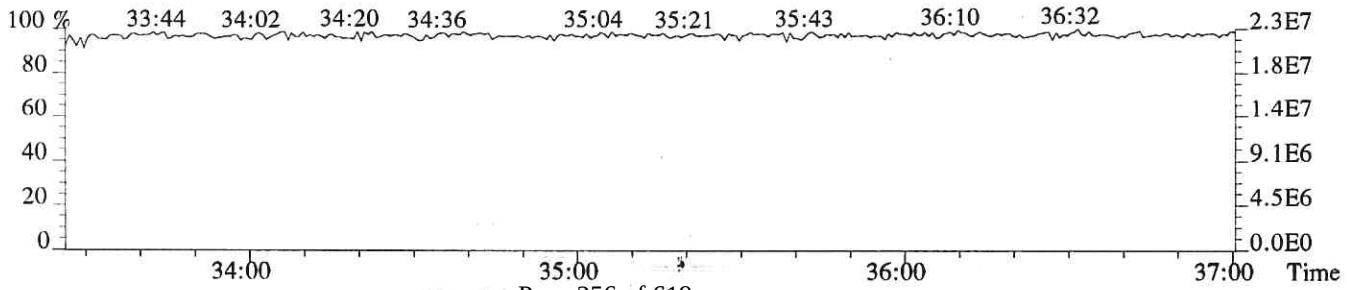
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1776.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1092.0,0.40%,F,T)

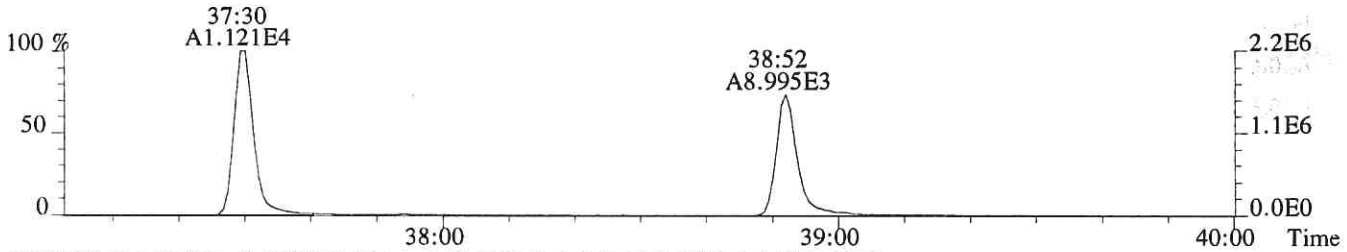


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

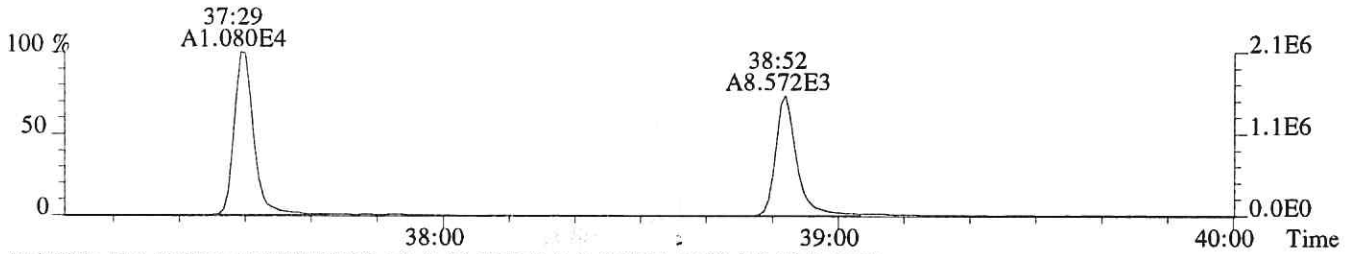


RIGHT SOLUTIONS | RIGHT PARTNER

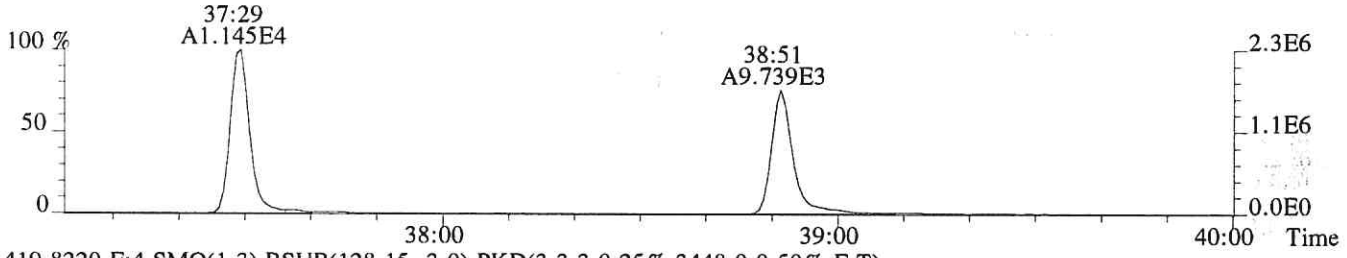
File:P524778 #1-267 Acq:18-OCT-2019 06:34:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1900347-03
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1620.0,0.50%,F,T)



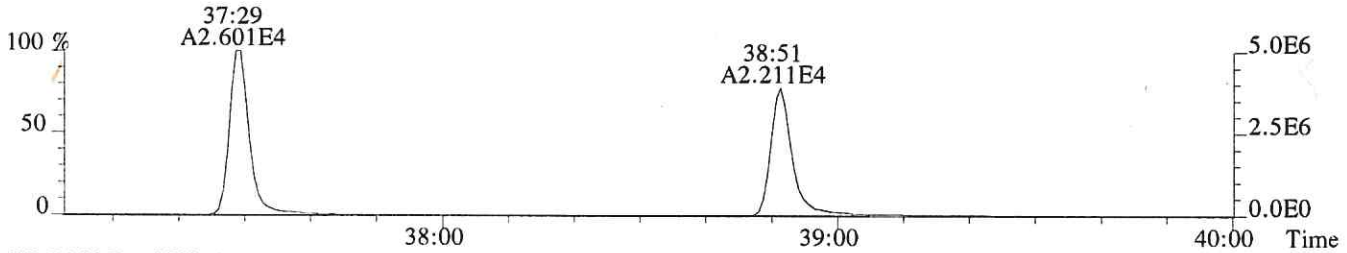
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4372.0,0.50%,F,T)



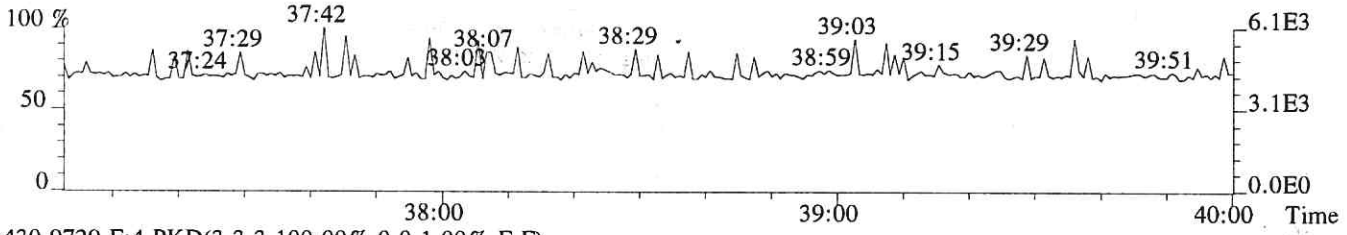
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3560.0,0.50%,F,T)



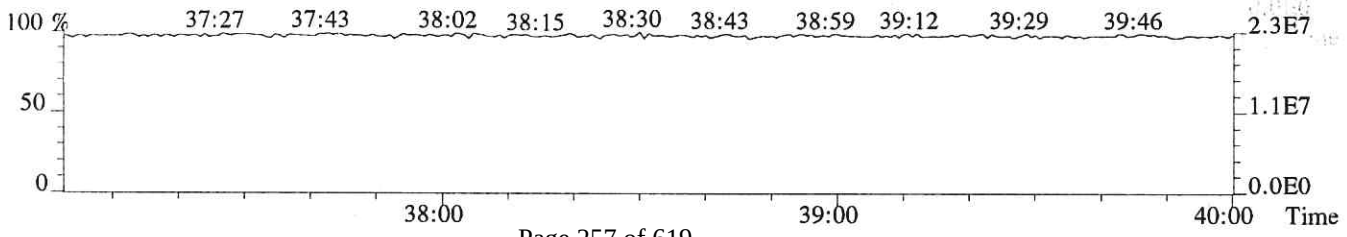
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3448.0,0.50%,F,T)



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

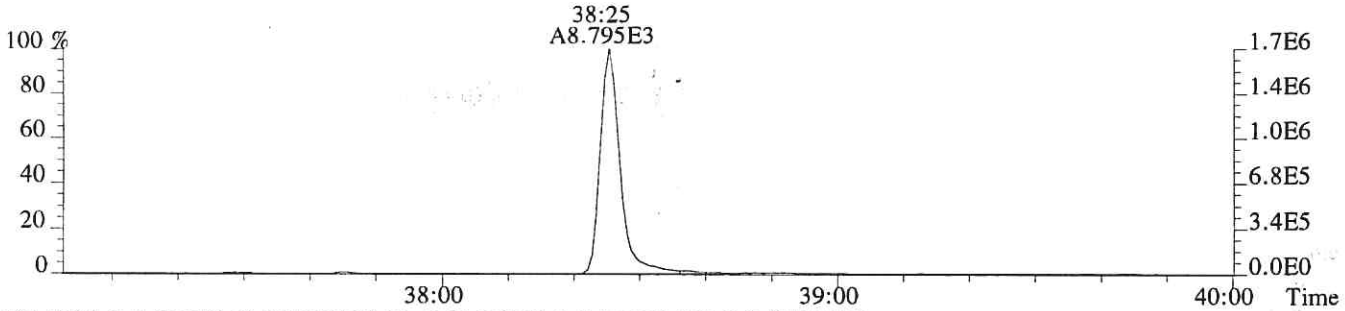


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

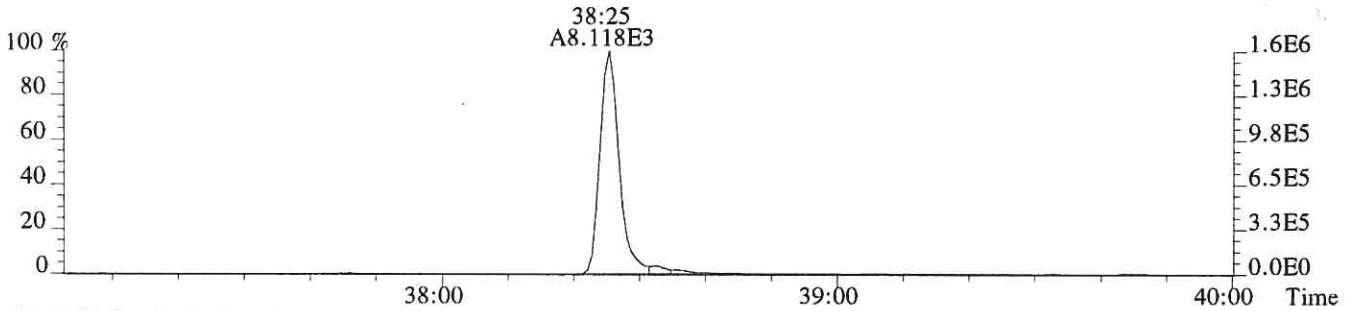


RIGHT SOLUTIONS | RIGHT PARTNER

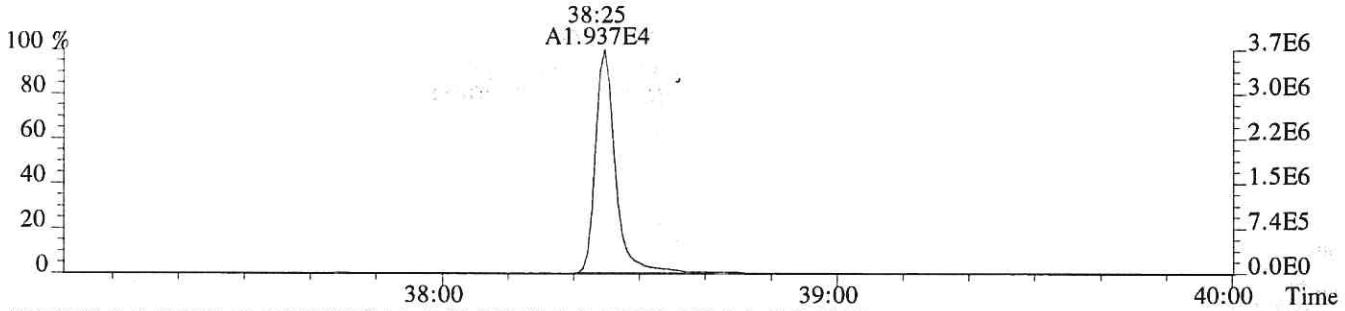
File:P524778 #1-267 Acq:18-OCT-2019 06:34:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1900347-03
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,480.0,0.40%,F,T)



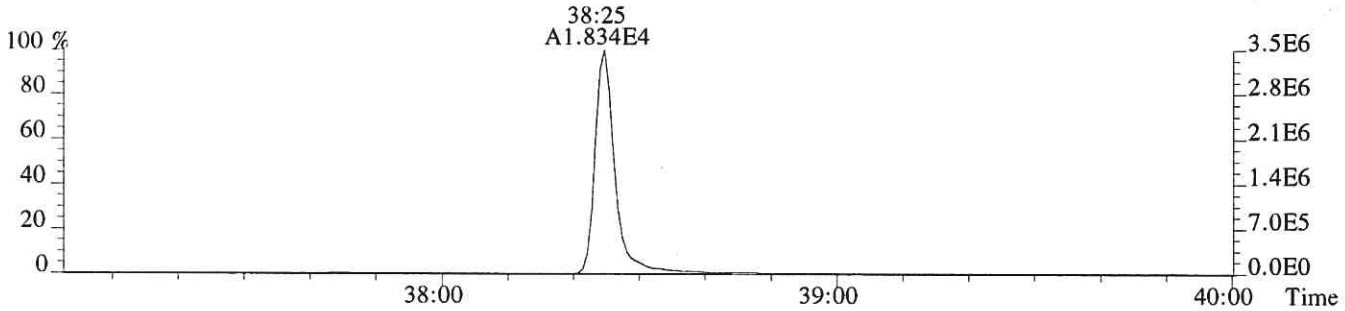
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,176.0,0.40%,F,T)



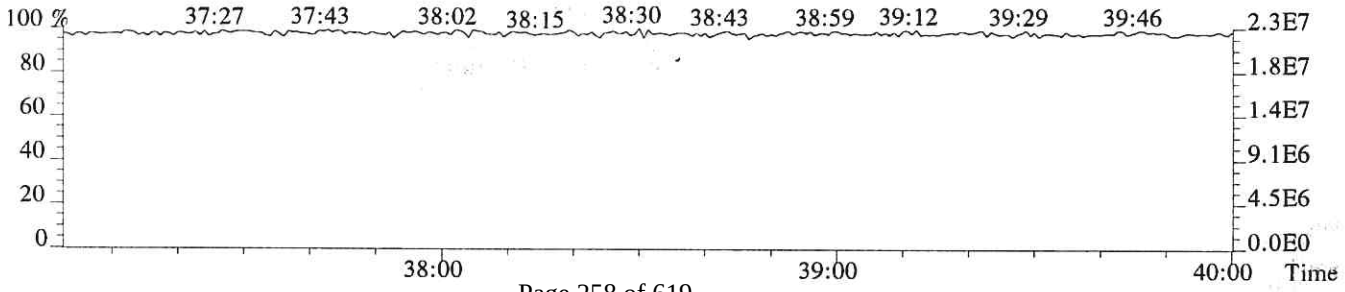
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,144.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,548.0,0.40%,F,T)

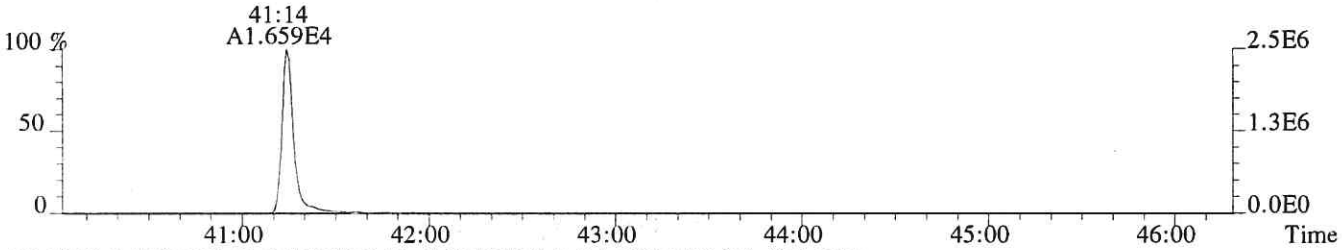


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

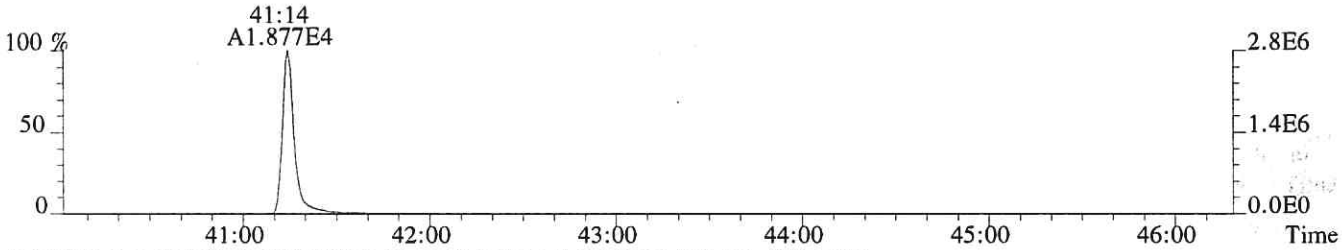


RIGHT SOLUTIONS | RIGHT PARTNER

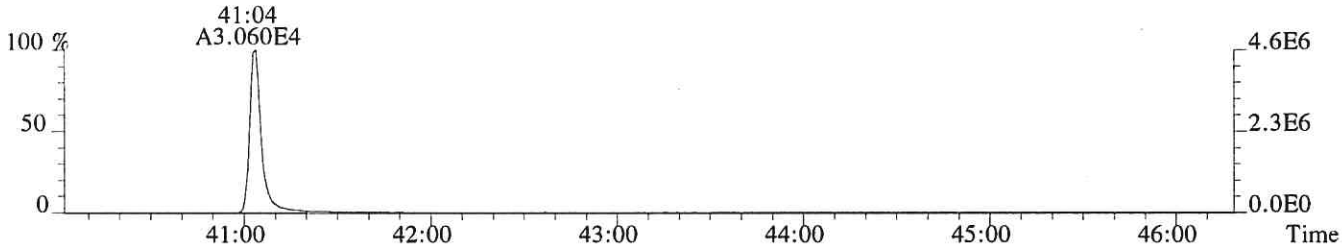
File:P524778 #1-565 Acq:18-OCT-2019 06:34:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1900347-03
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,172.0,0.40%,F,T)



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%,132.0,0.40%,F,T)



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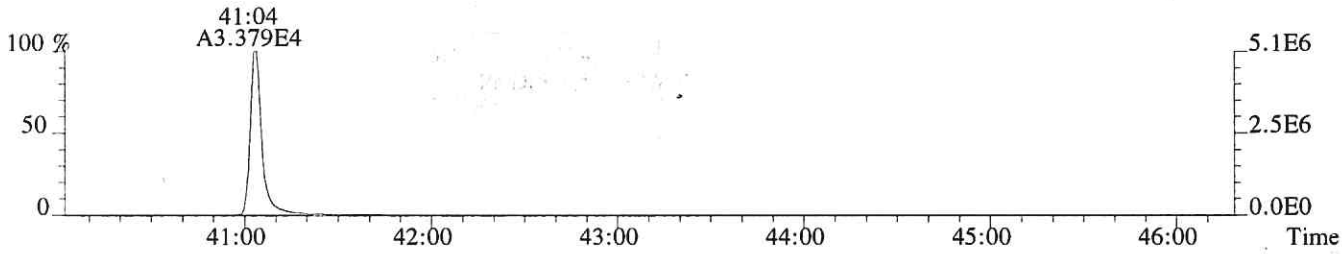
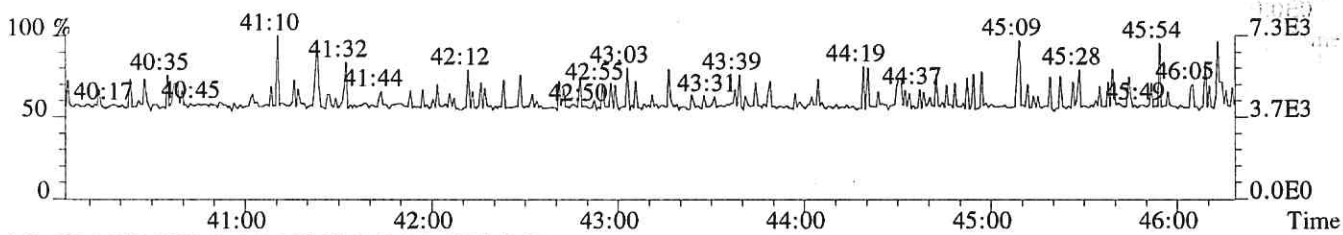
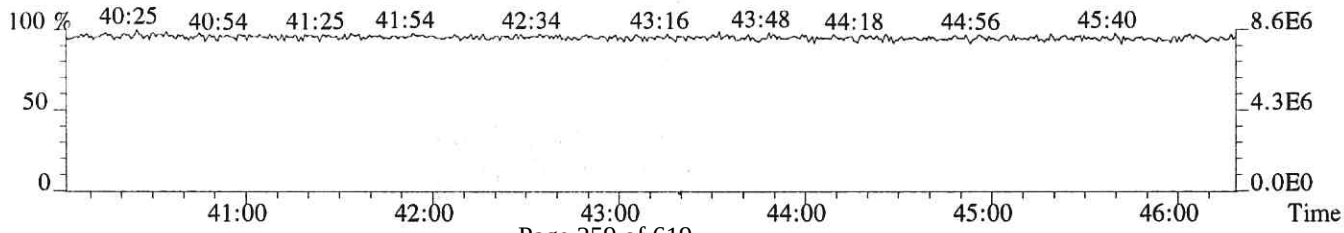


513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



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



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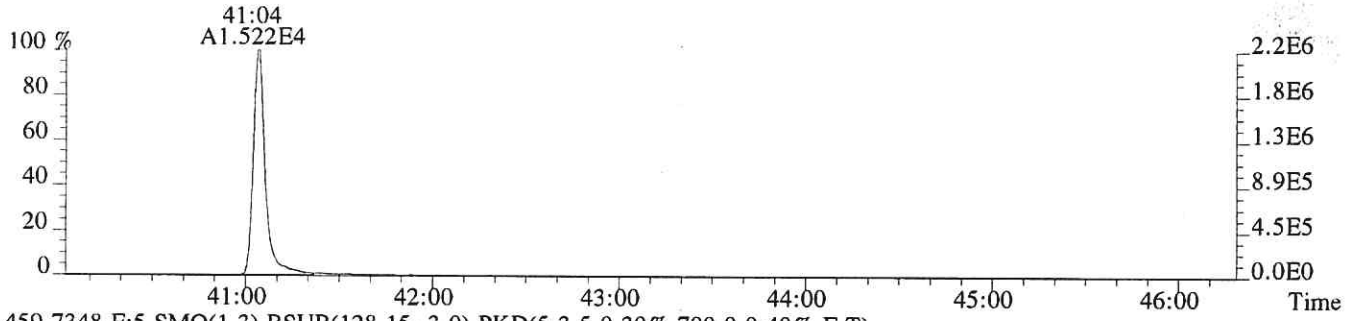
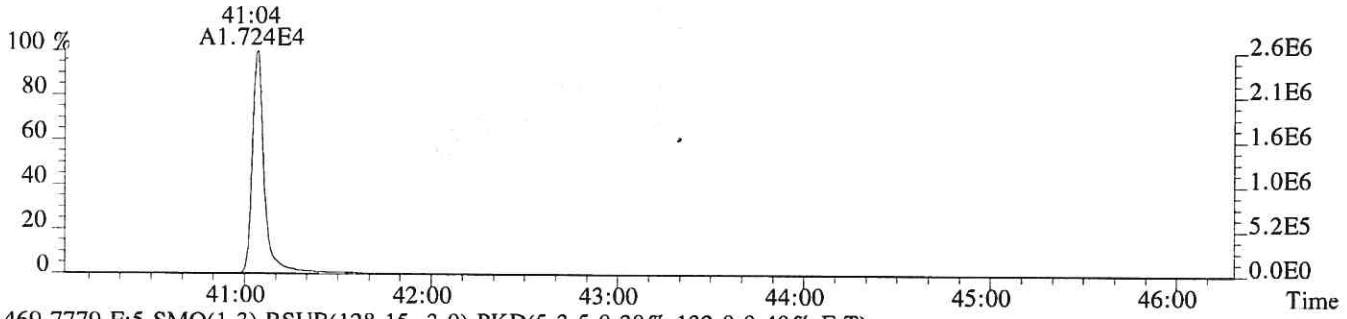
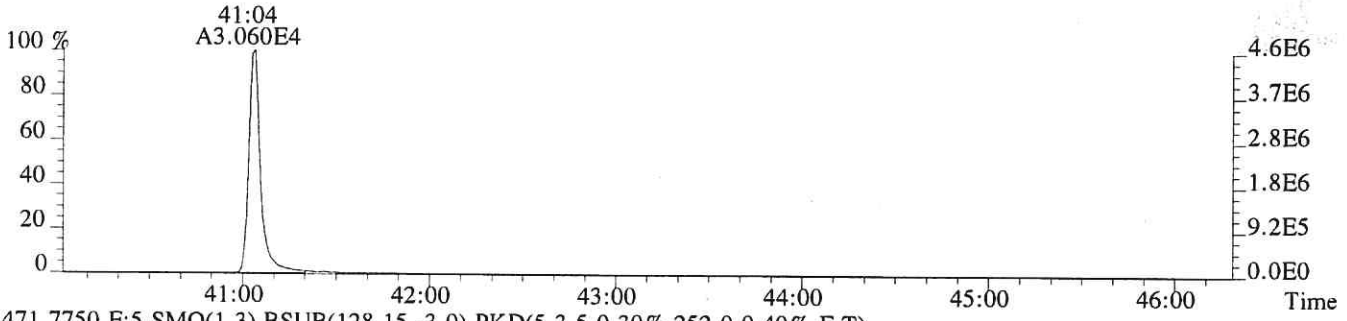
File:P524778 #1-565 Acq:18-OCT-2019 06:34:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1900347-03
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,248.0,0.40%,F,T)



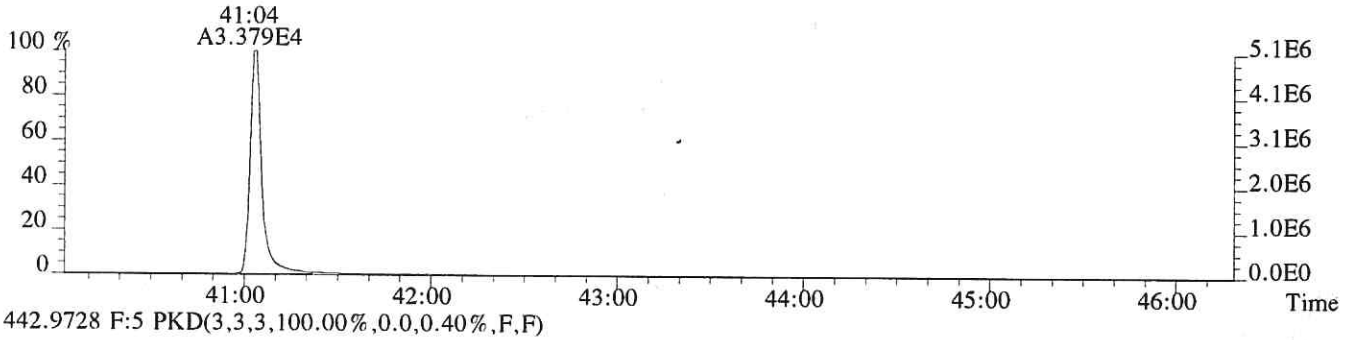
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,700.0,0.40%,F,T)



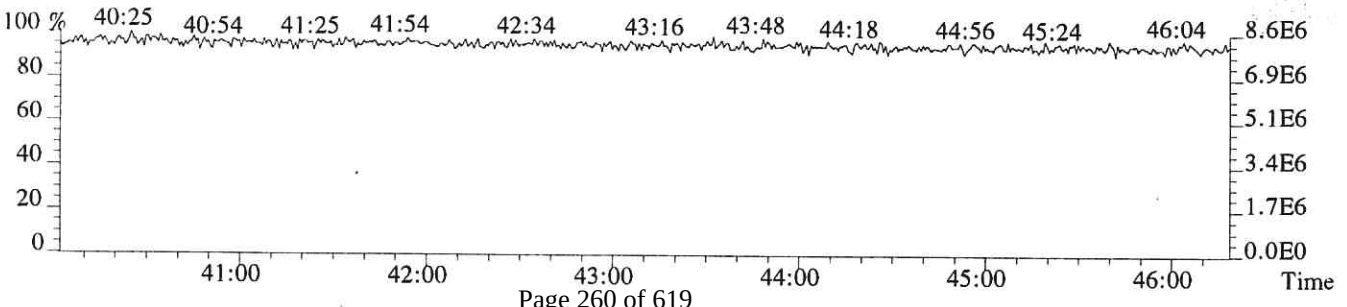
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,132.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,252.0,0.40%,F,T)



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



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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

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CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P524769-P524779

Date: 10/17/19 - 10/18/19

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: _____ Second QC: KW.

ccalqc.xls 07/17/12

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5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

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

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

Init. Calib. Date: 04/25/19

Init. Calib.Times: 21:22

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
203606	CS3	P524769	17-OCT-19	22:21:49
202629	WINDOW DEFINE	P524770	17-OCT-19	23:17:50
METHOD BLANK	EQ1900345-01	P524771	18-OCT-19	00:54:17
AC-5CP1-20191009-0ㄱ	E1900728-001DL	P524772	18-OCT-19	01:42:55
AC-4SC1-20191009-0ㄱ	E1900728-002DL	P524773	18-OCT-19	02:31:34
AC-4SC2-20191009-0ㄱ	E1900728-003DL	P524774	18-OCT-19	03:20:13
AC-3WP1-20191009-0ㄱ	E1900728-004DL	P524775	18-OCT-19	04:08:52
AC-4SC3-20191009-0ㄱ	E1900728-005DL	P524776	18-OCT-19	04:57:31
LCS	EQ1900347-02	P524777	18-OCT-19	05:46:11
DLCS	EQ1900347-03	P524778	18-OCT-19	06:34:49
203606	CS3	P524779	18-OCT-19	07:23:28

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Sample List Report MassLynx 4.1 SCN815 SCN795

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20191017B.SPL
Last Modified: Friday, October 18, 2019 08:53:31 Central Daylight Time
Printed: Friday, October 18, 2019 08:54:19 Central Daylight Time

Page Position (1, 1)

Opus 4: P524769res

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	10/17/19	22:21	P524769	CS3	203606	EPA1613_ALS	Dioxin_ALS	Tray1:2	JC	HRMS CHECK 23:17
2		23:17	P524770	WINDOWDEFINE	202629	EPA1613_ALS	Dioxin_ALS	Tray1:1		
3	10/18/19	00:54	P524771	MB	EQ1900345-01	EPA1613_ALS	Dioxin_ALS	Tray1:3		
4		01:42	P524772	E1900728-001DL	E1900728-001DL	EPA1613_ALS	Dioxin_ALS	Tray1:24		
5		02:31	P524773	E1900728-002DL	E1900728-002DL	EPA1613_ALS	Dioxin_ALS	Tray1:25		
6		03:20	P524774	E1900728-003DL	E1900728-003DL	EPA1613_ALS	Dioxin_ALS	Tray1:26		
7		04:08	P524775	E1900728-004DL	E1900728-004DL	EPA1613_ALS	Dioxin_ALS	Tray1:27		needs reinjection
8		04:57	P524776	E1900728-005DL	E1900728-005DL	EPA1613_ALS	Dioxin_ALS	Tray1:28		
9		05:46	P524777	LCS	EQ1900347-02	EPA1613_ALS	Dioxin_ALS	Tray1:29		
10		06:34	P524778	DLCS	EQ1900347-03	EPA1613_ALS	Dioxin_ALS	Tray1:30		
11		07:23	P524779	CS3	203606	EPA1613_ALS	Dioxin_ALS	Tray1:2		HRMS CHECK 08:20

JC 10/18/19

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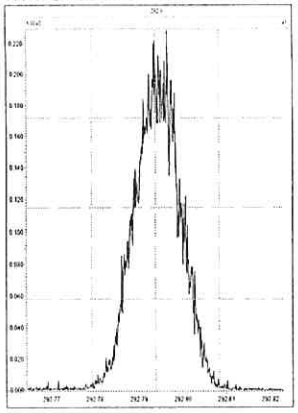
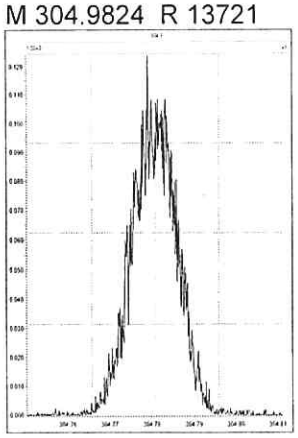
M 292.9824 R 12348



M 304.9824 R 13721



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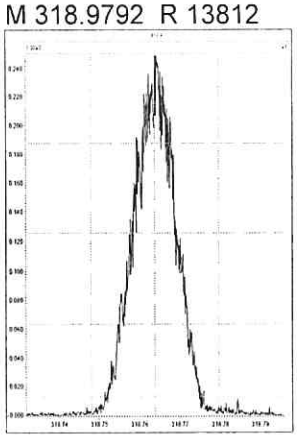
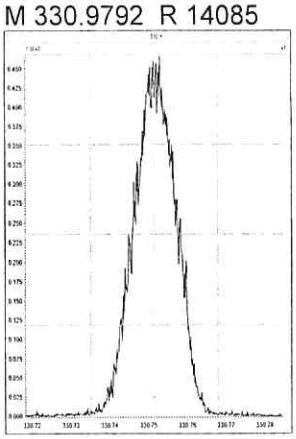
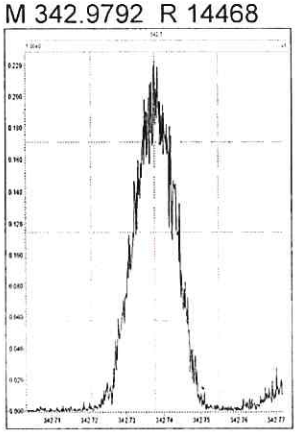


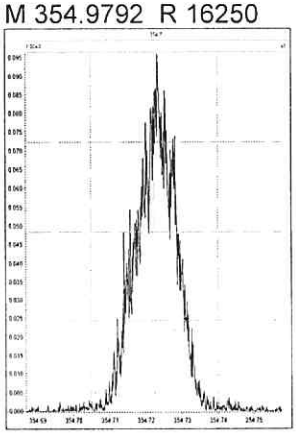
M 330.9792 R 14085



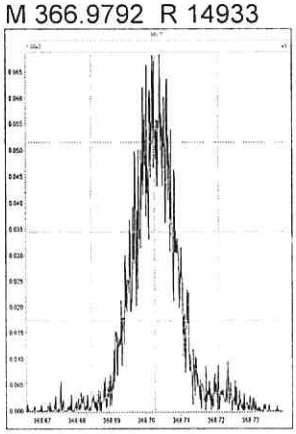
M 342.9792 R 14468



M 354.9792 R 16250



M 366.9792 R 14933



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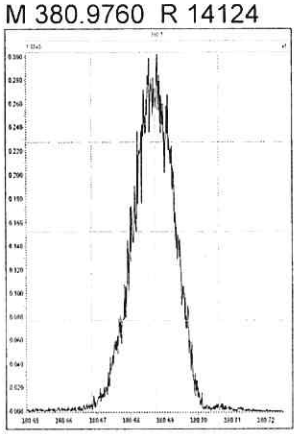

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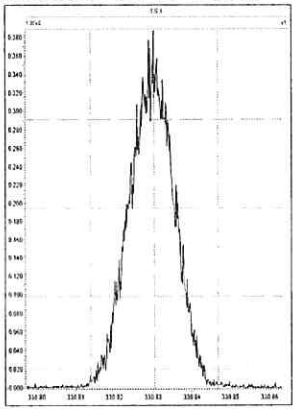

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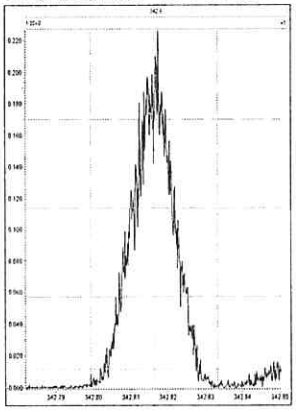
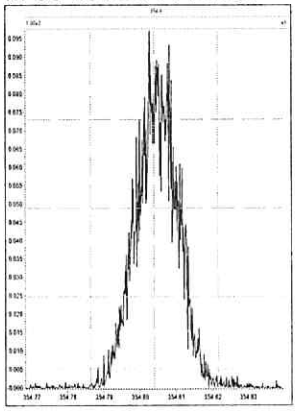


M 354.9792 R 14164



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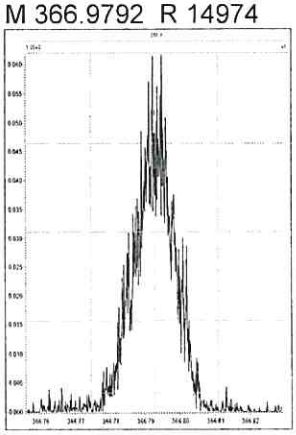

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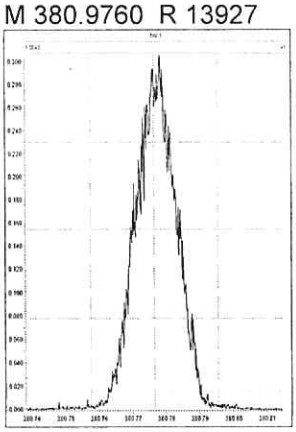

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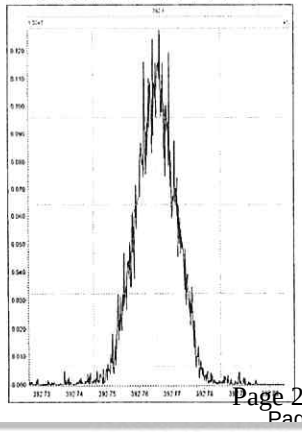

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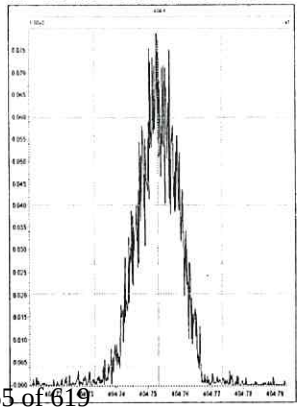
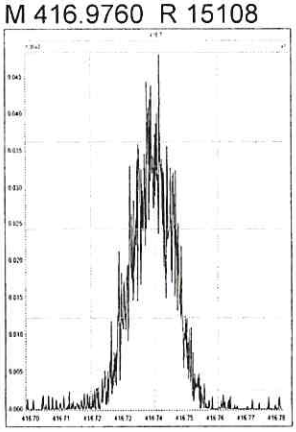


M 416.9760 R 15108



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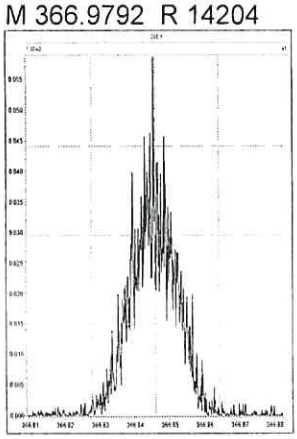
M 366.9792 R 14204



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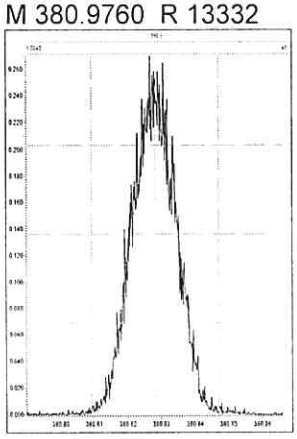

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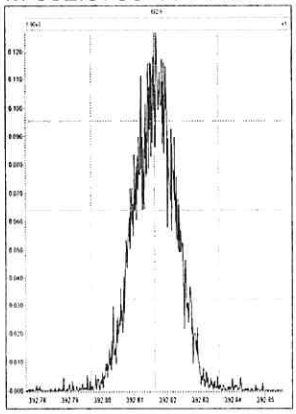

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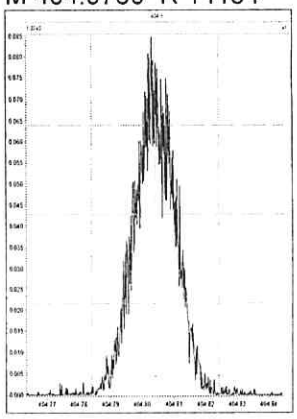

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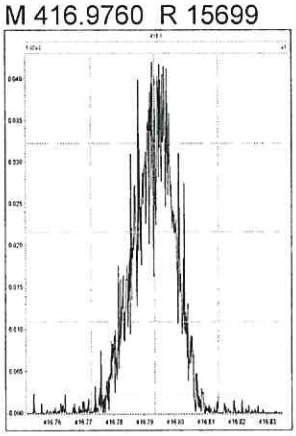

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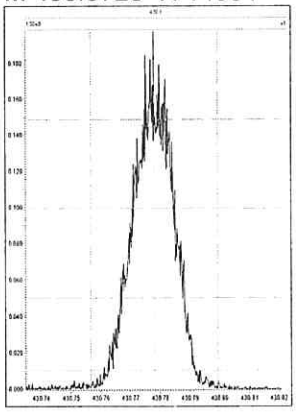
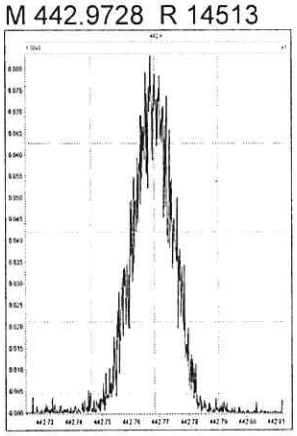


M 442.9728 R 14513



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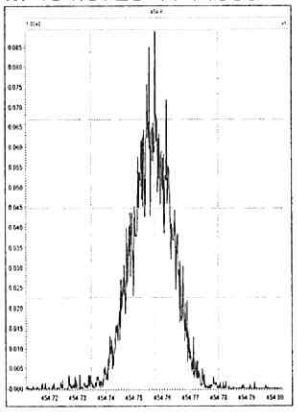

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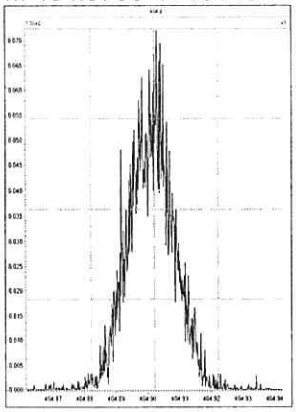

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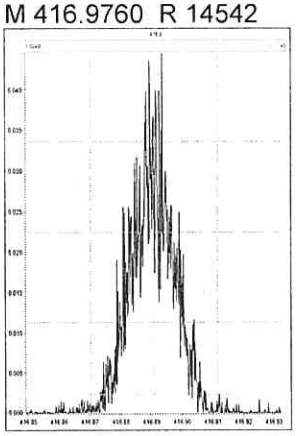

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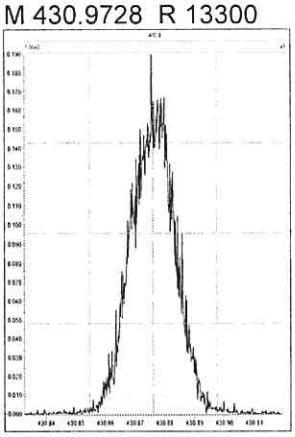

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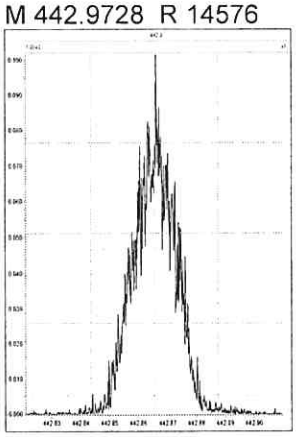

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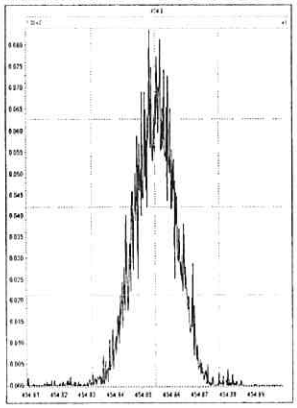

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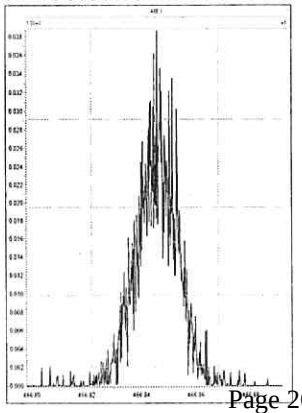

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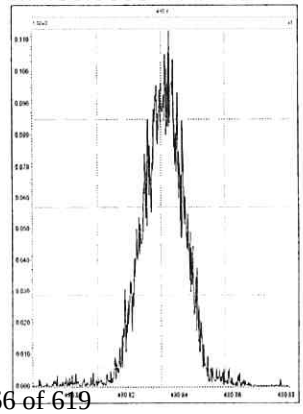

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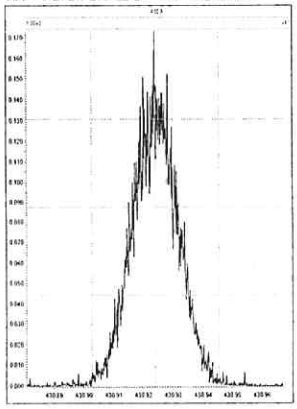

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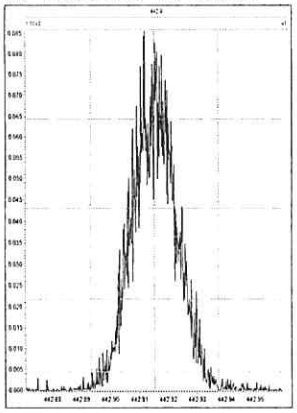
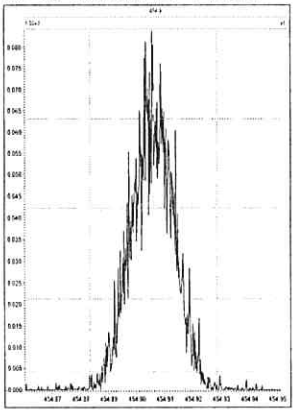
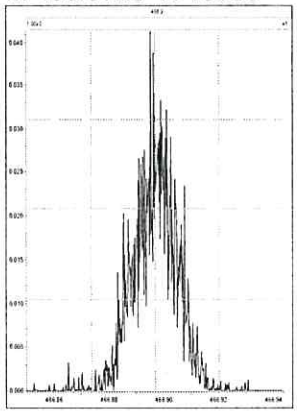
M 442.9728 R 13590



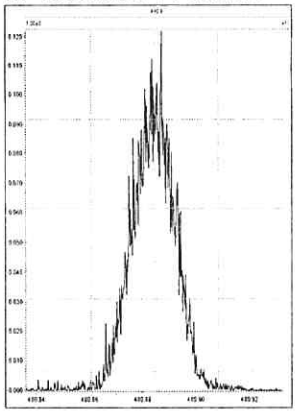
M 454.9728 R 14084



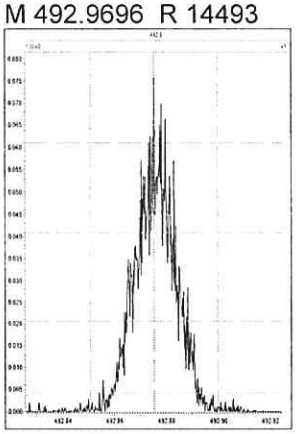
M 466.9728 R 15353



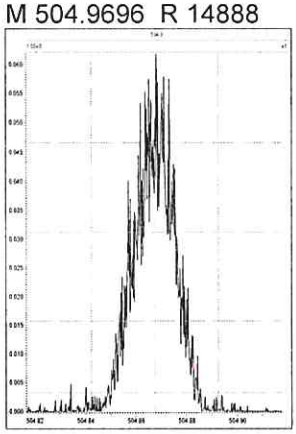
M 480.9696 R 13892



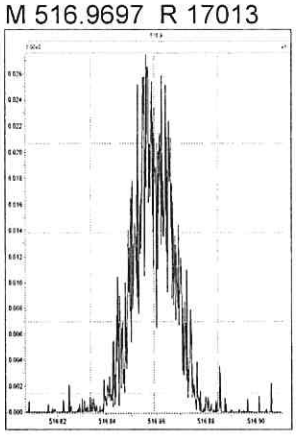
M 492.9696 R 14493



M 504.9696 R 14888



M 516.9697 R 17013



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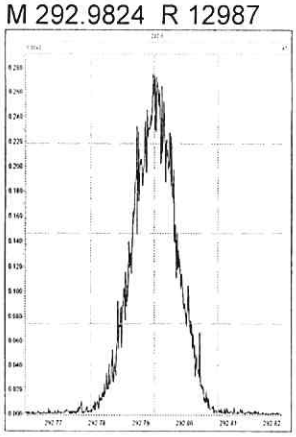
M 292.9824 R 12987



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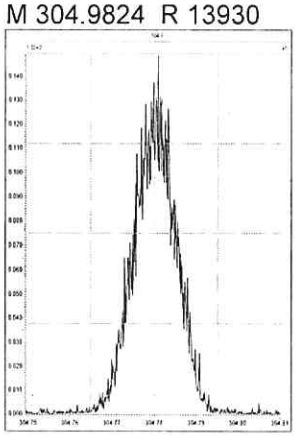

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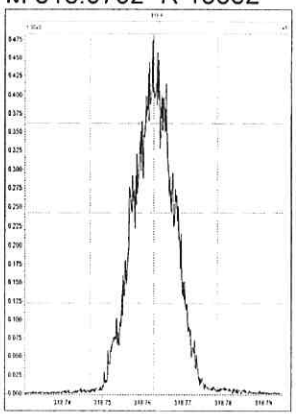

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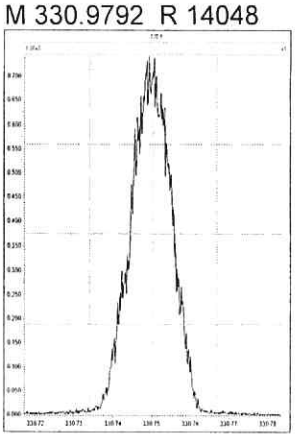
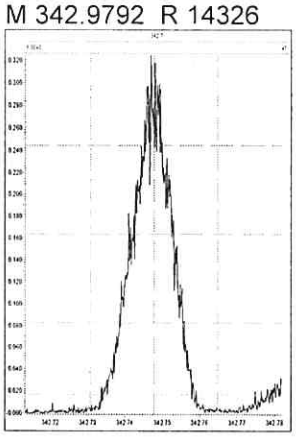
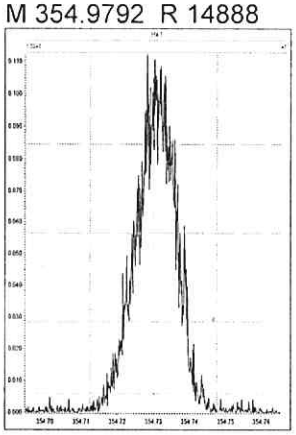


M 342.9792 R 14326



M 354.9792 R 14888



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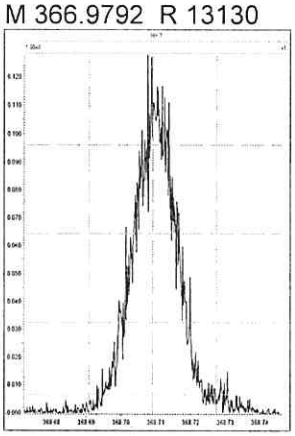

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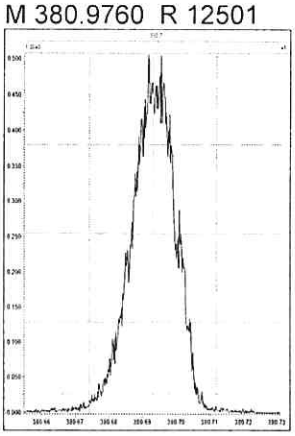

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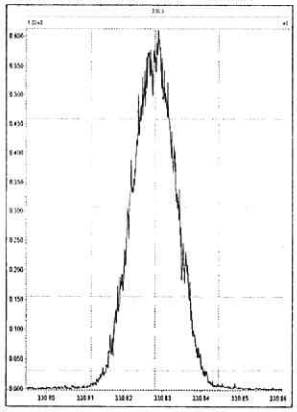
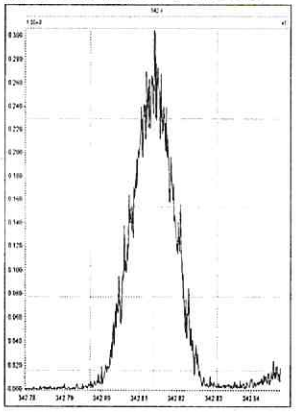


M 342.9792 R 14008



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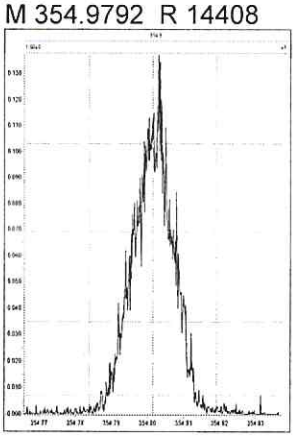

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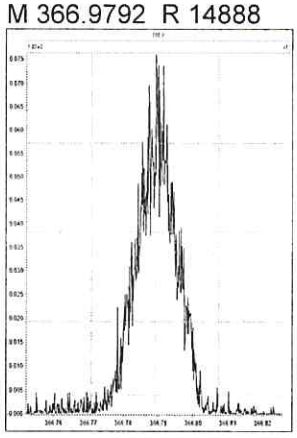

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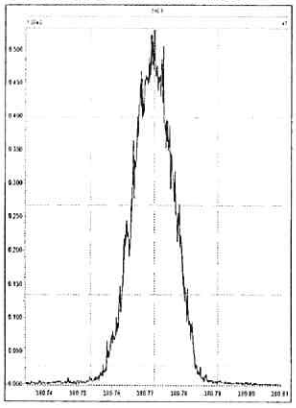

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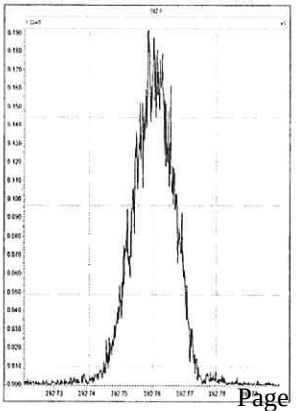
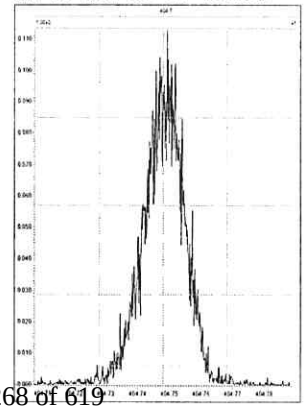
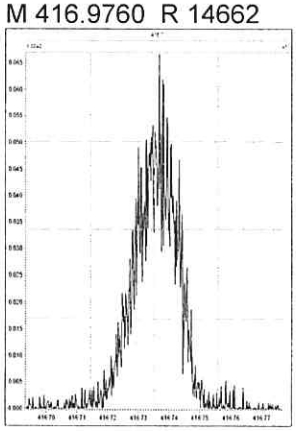


M 404.9760 R 15290



M 416.9760 R 14662



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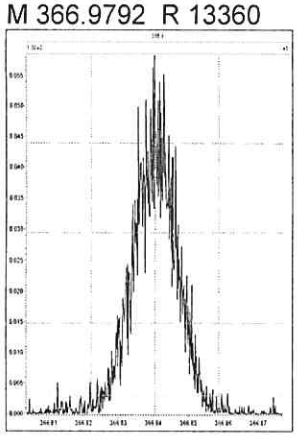

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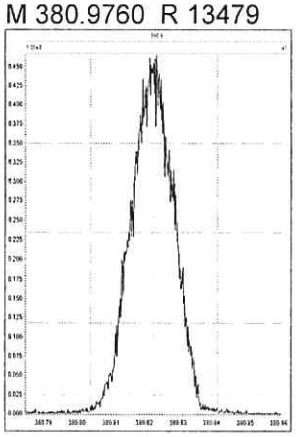
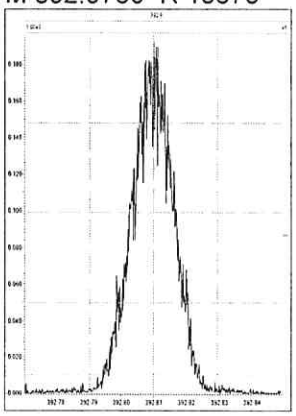
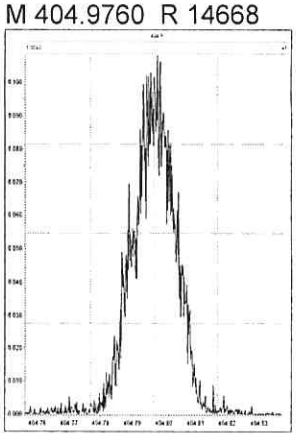


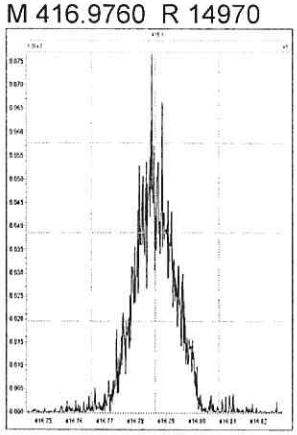
M 392.9760 R 13675



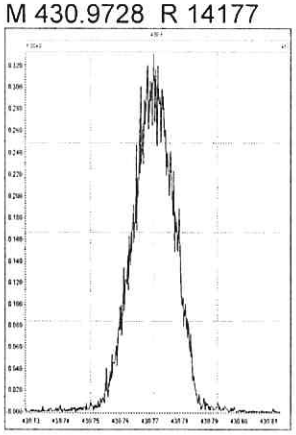
M 404.9760 R 14668



M 416.9760 R 14970



M 430.9728 R 14177



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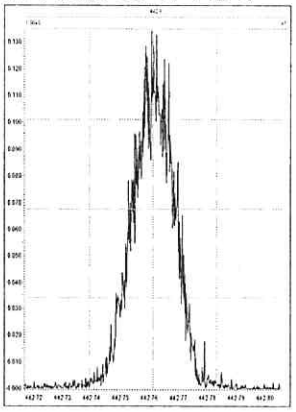

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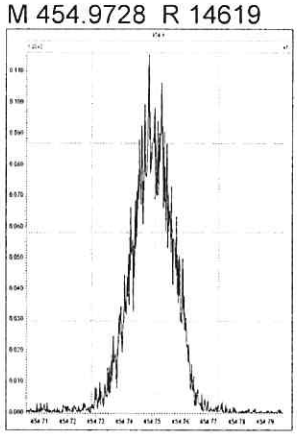

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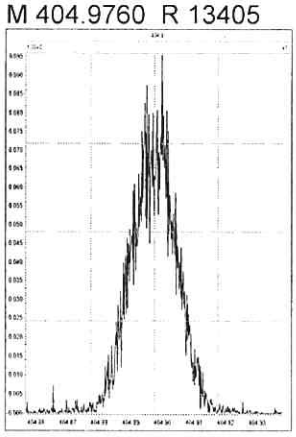

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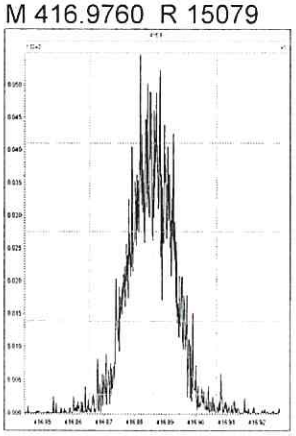

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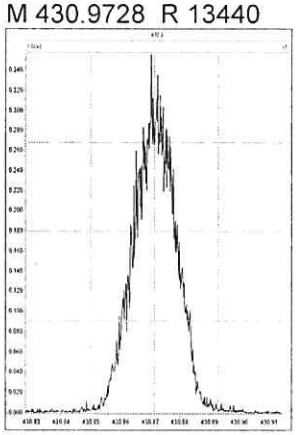

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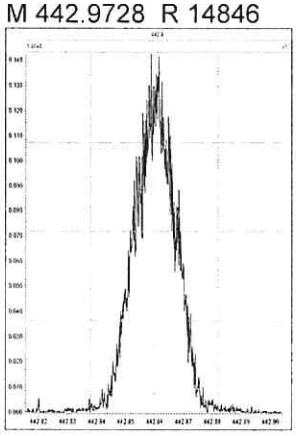
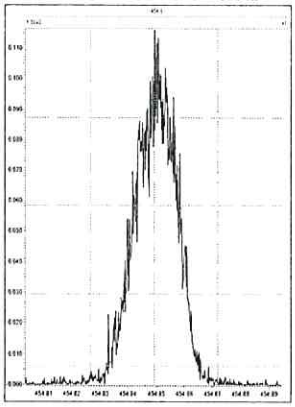
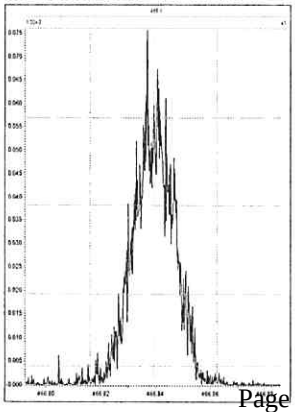


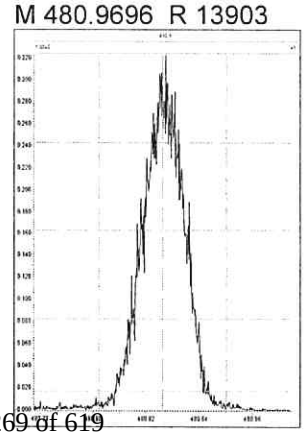
M 454.9728 R 14632



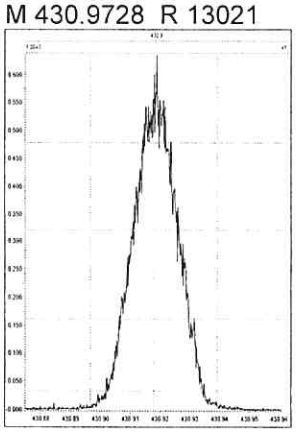
M 466.9728 R 14794



M 480.9696 R 13903



M 430.9728 R 13021



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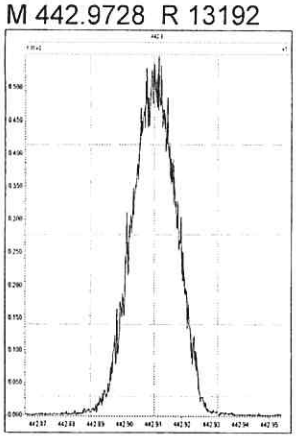
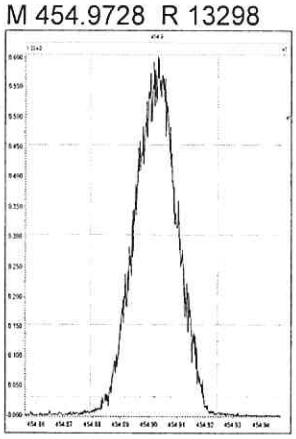
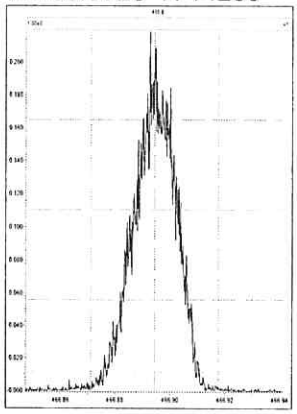
M 442.9728 R 13192



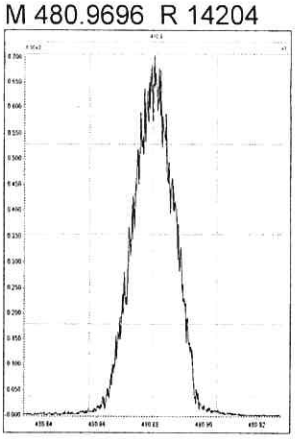
M 454.9728 R 13298



M 466.9728 R 14285



M 480.9696 R 14204



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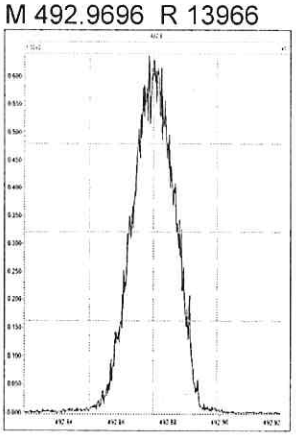
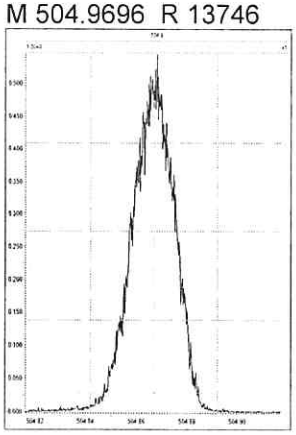
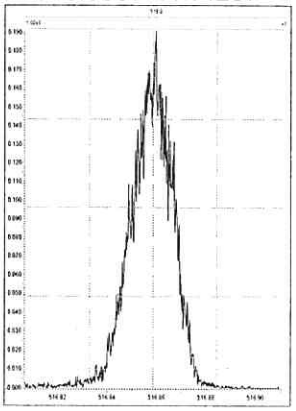


M 504.9696 R 13746



M 516.9697 R 14287



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5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

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

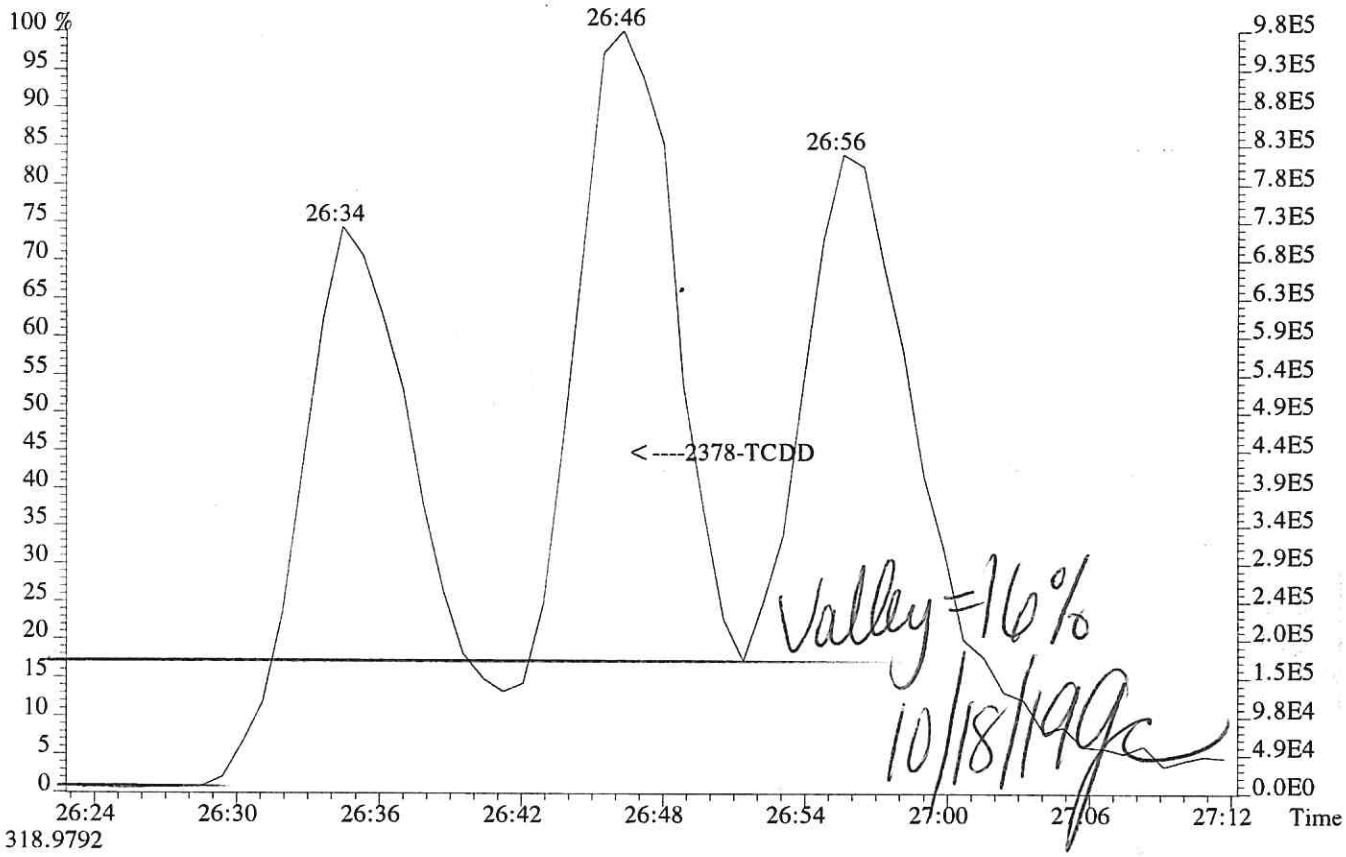
Case No.: _____ SDG No.:
ID: 0.25 (mm)
Lab File ID: P524770
Date Analyzed: 17-OCT-2019
Time Analyzed: 23:17:50

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	21:26	28:10
TCDD	23:01	27:58
PeCDF	28:06	32:51
PeCDD	29:52	32:35
HxCDF	33:34	36:12
HxCDD	34:07	35:48
HpCDF	37:31	38:53
HpCDD	37:46	38:27

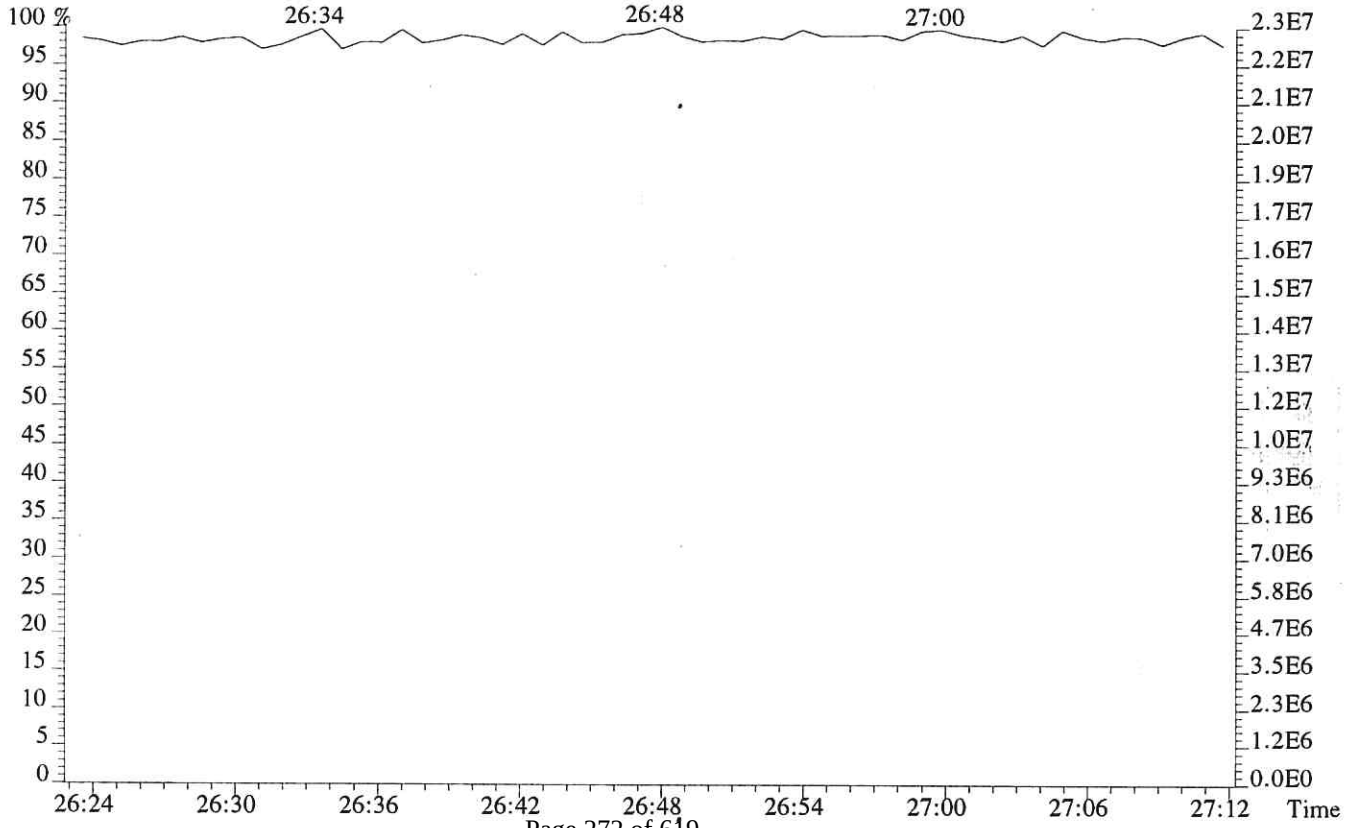
% Valley 2378-TCDD: 16 %

RIGHT SOLUTIONS | RIGHT PARTNER

File:P524770 #1-637 Acq:17-OCT-2019 23:17:50 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:202629
319.8965



318.9792



RIGHT SOLUTIONS | RIGHT PARTNER

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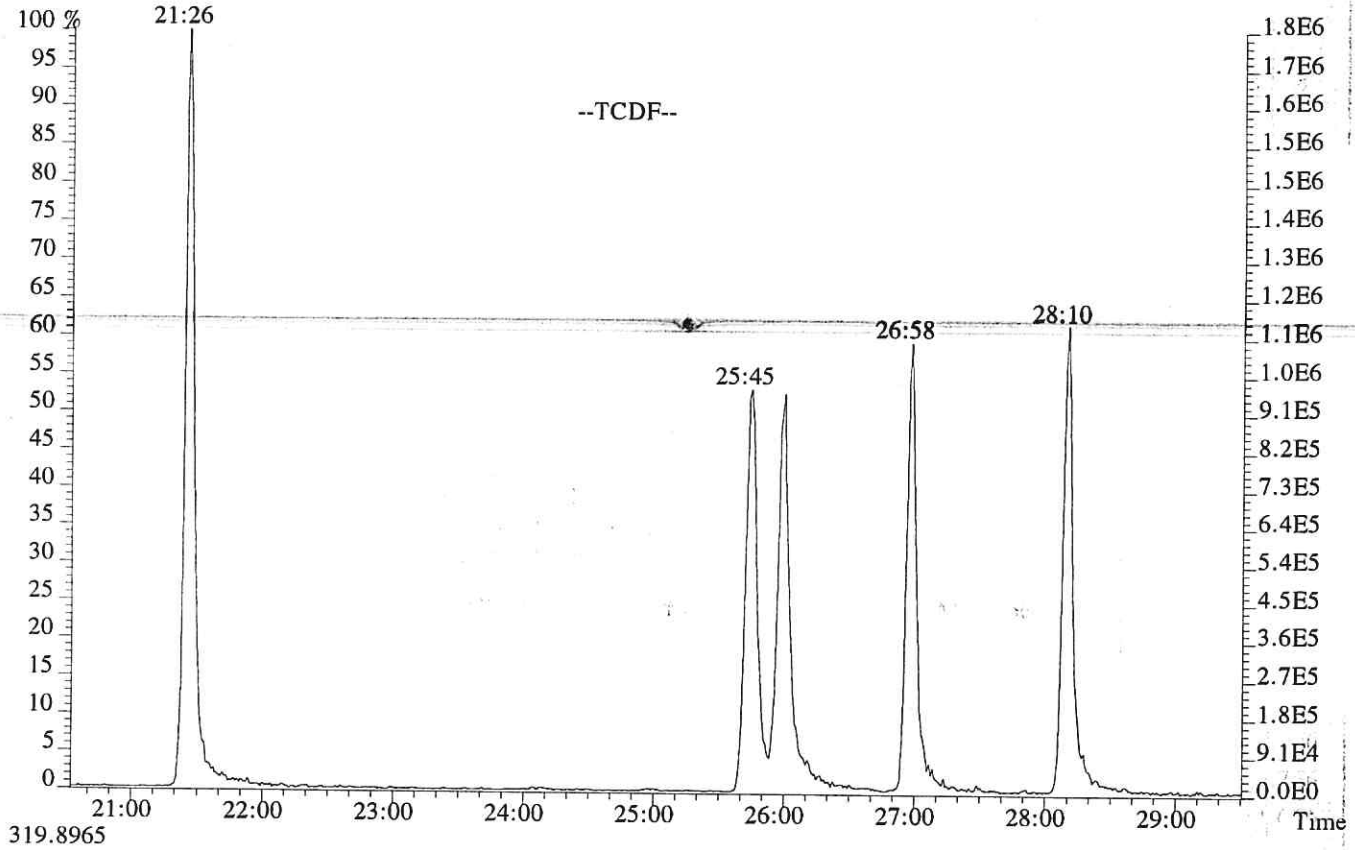
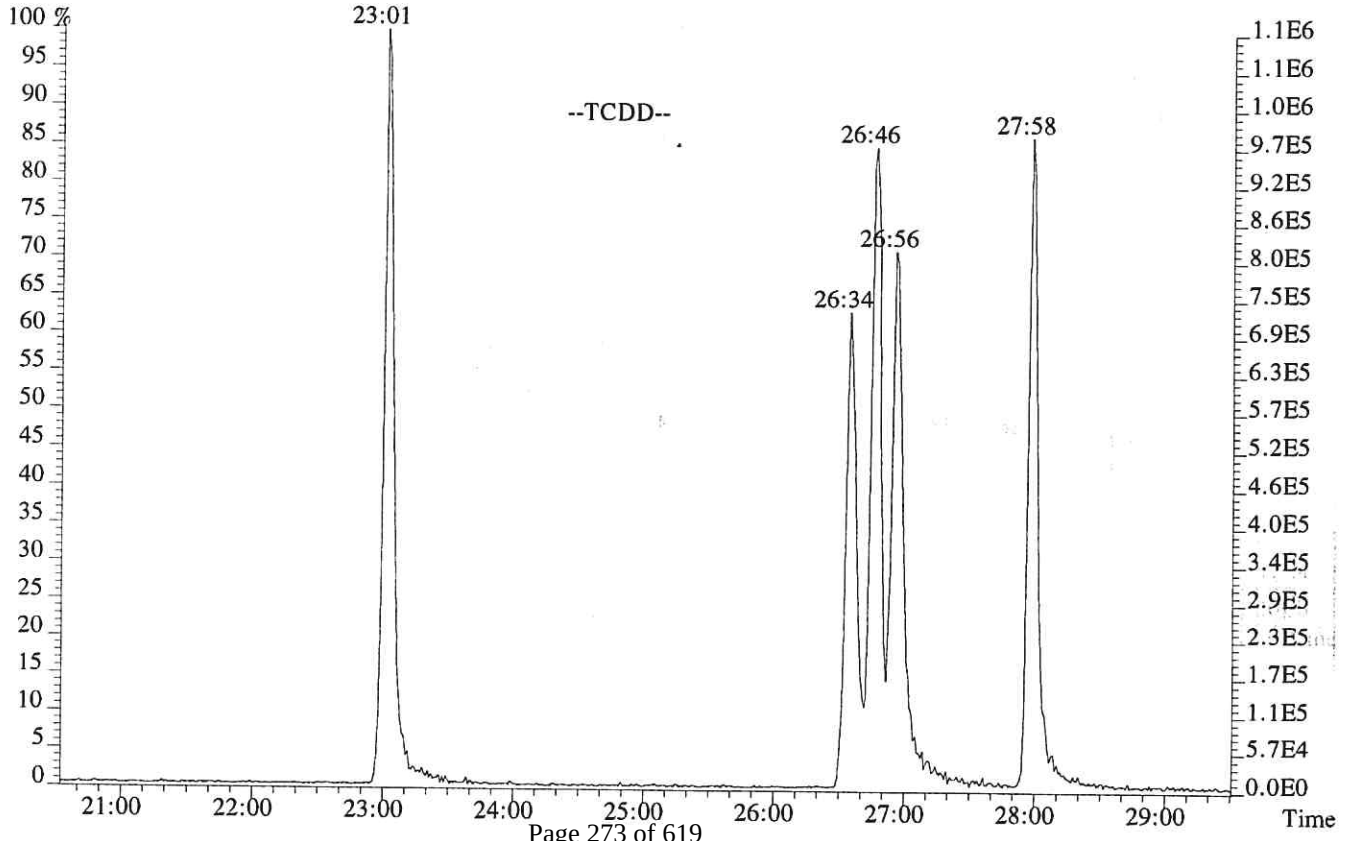
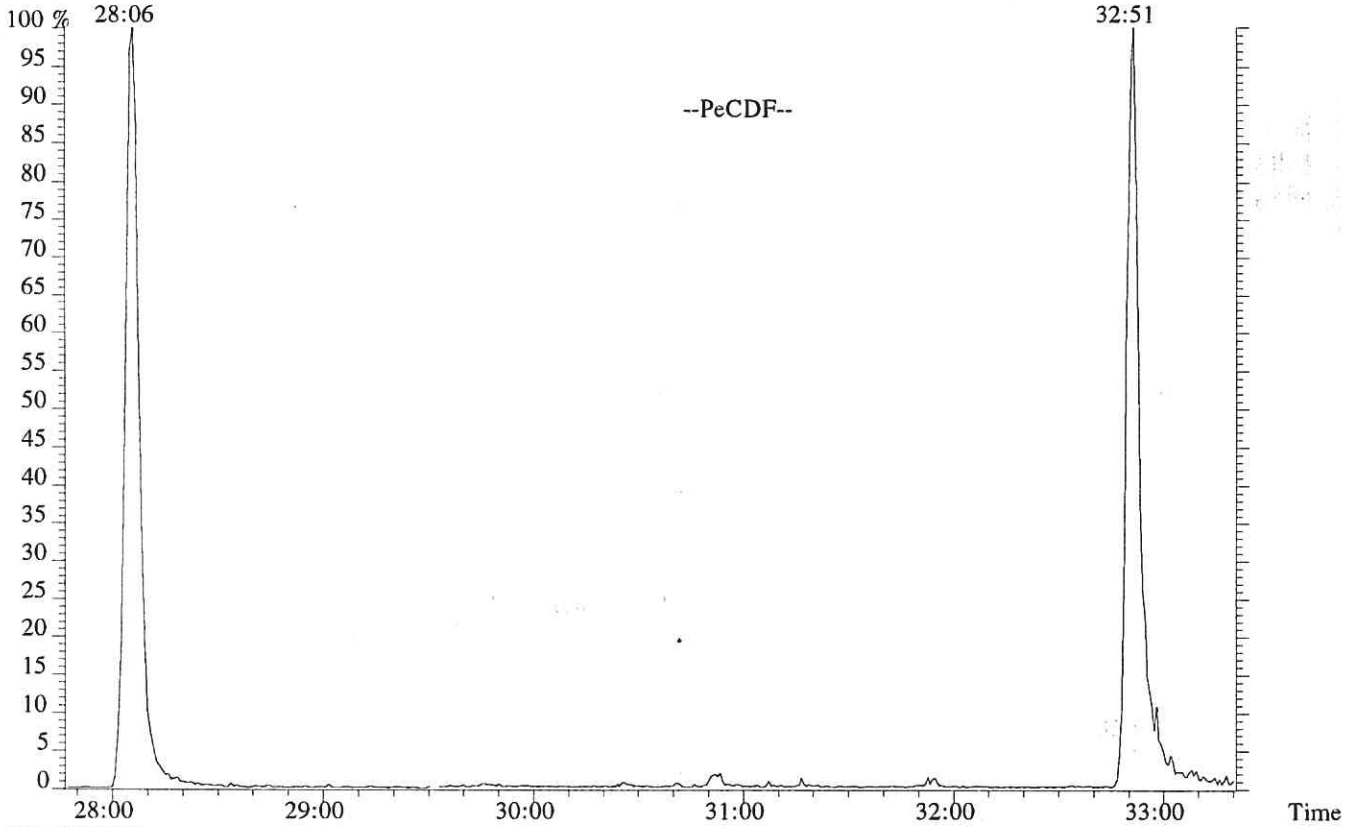
Sample#1 Exp:202629
303.9016



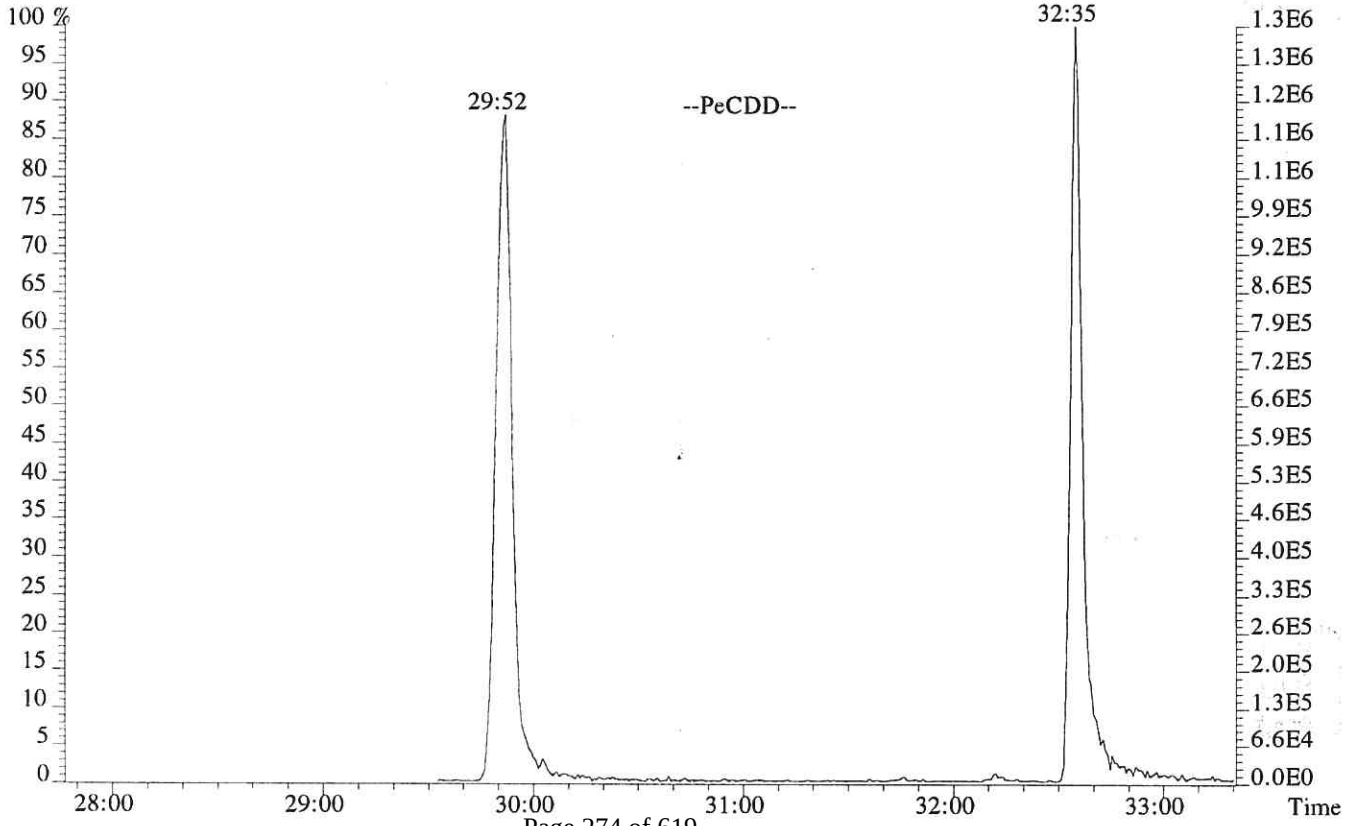


RIGHT SOLUTIONS | RIGHT PARTNER

File:P524770 #1-637 Acq:17-OCT-2019 23:17:50 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:202629
339.8597,339.8597 F:2



355.8546 F:2



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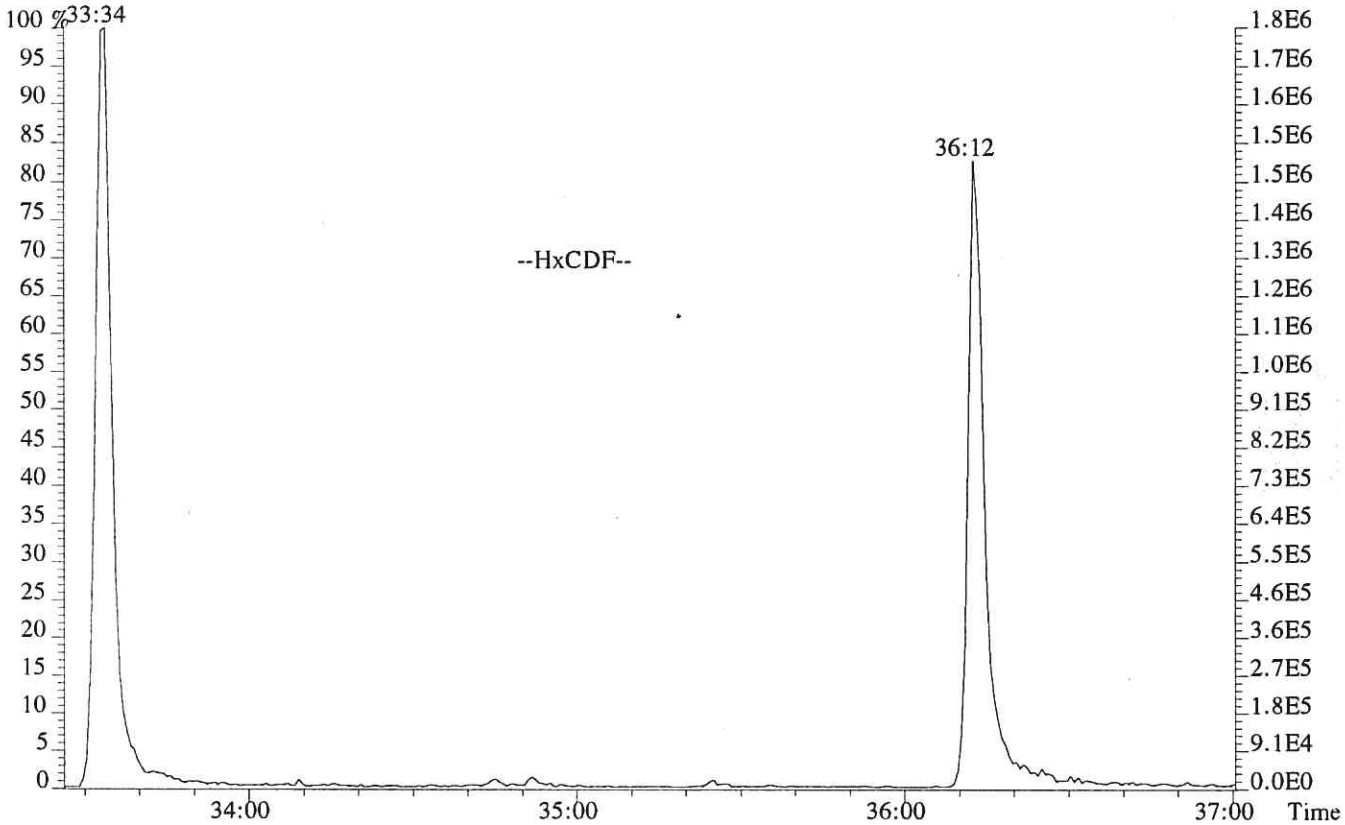
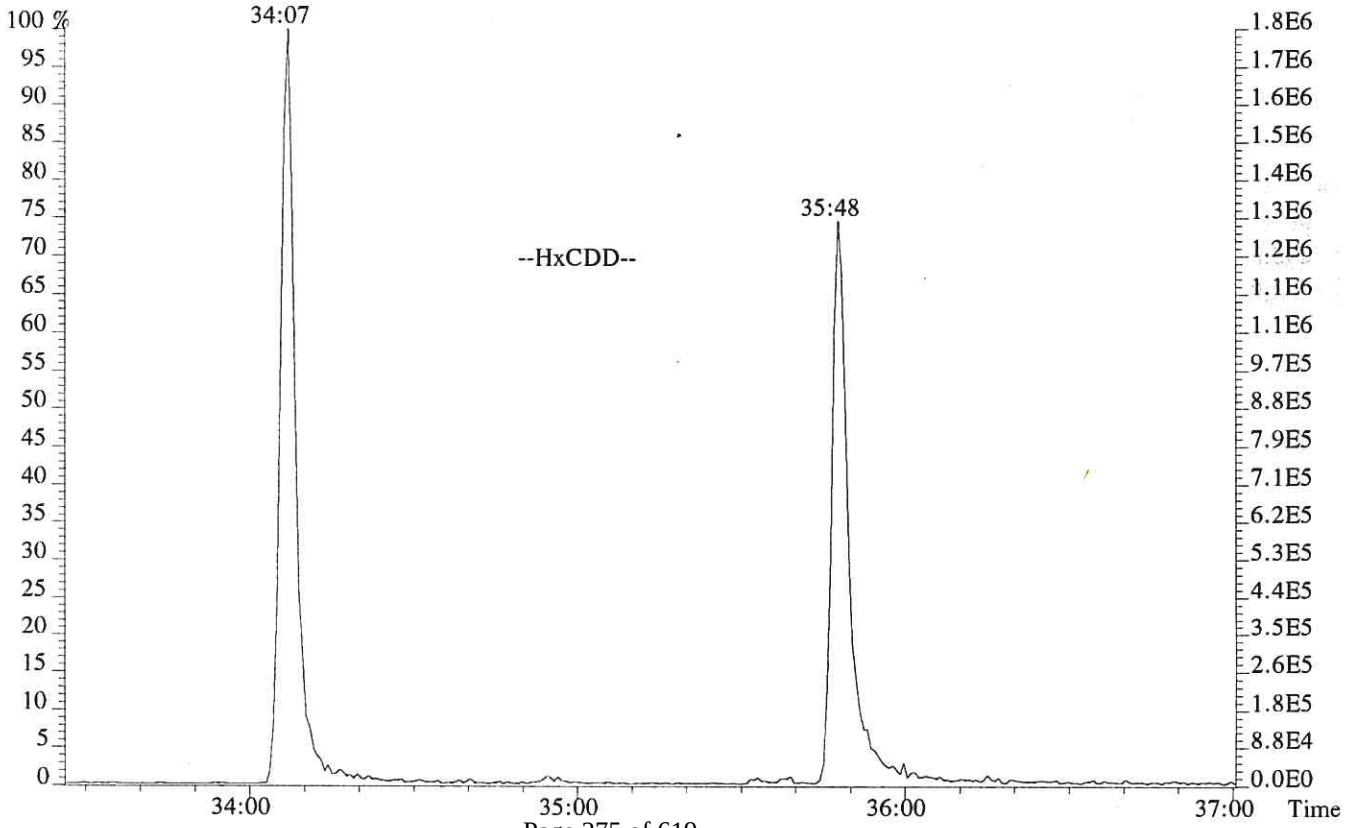
File:P524770 #1-322 Acq:17-OCT-2019 23:17:50 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:202629
373.8208 F:3

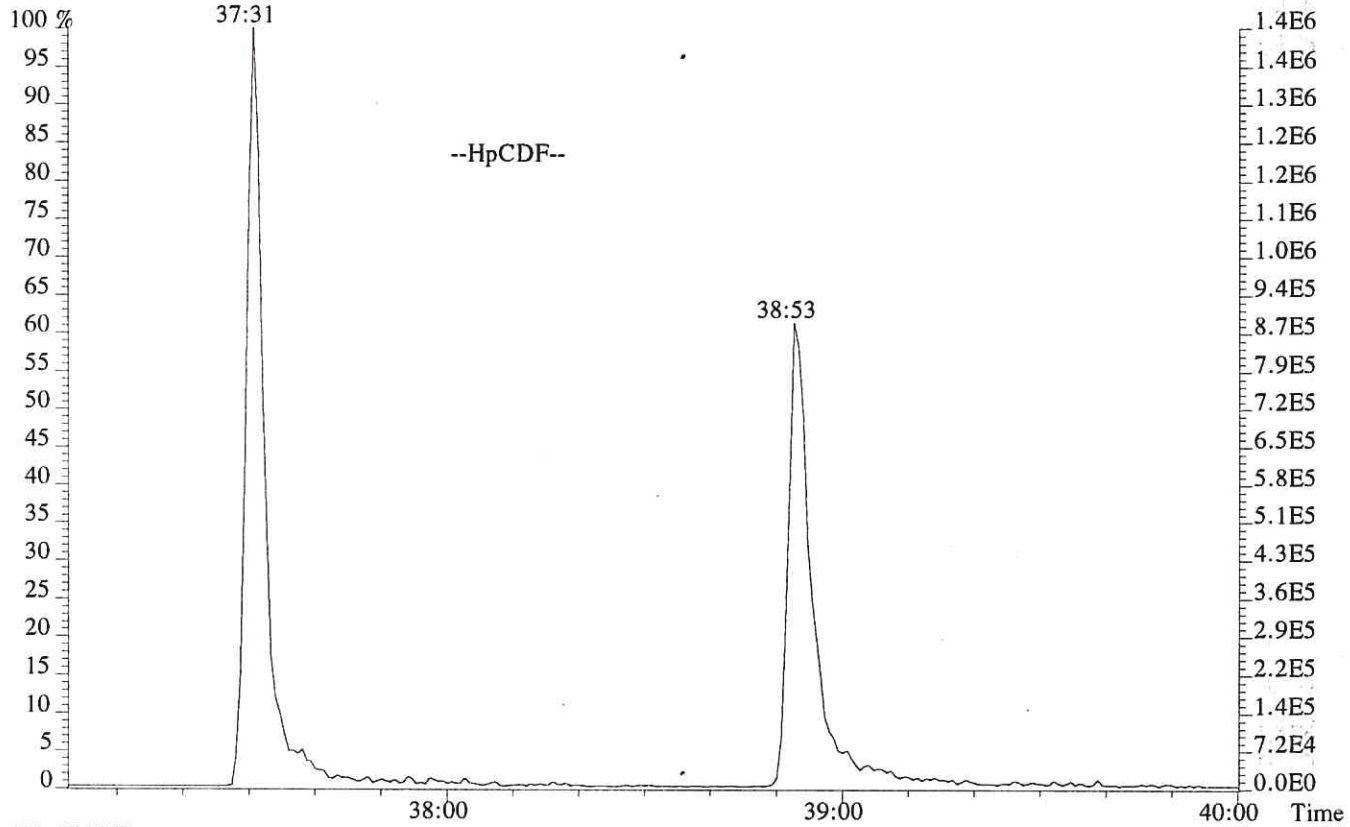


389.8157 F:3

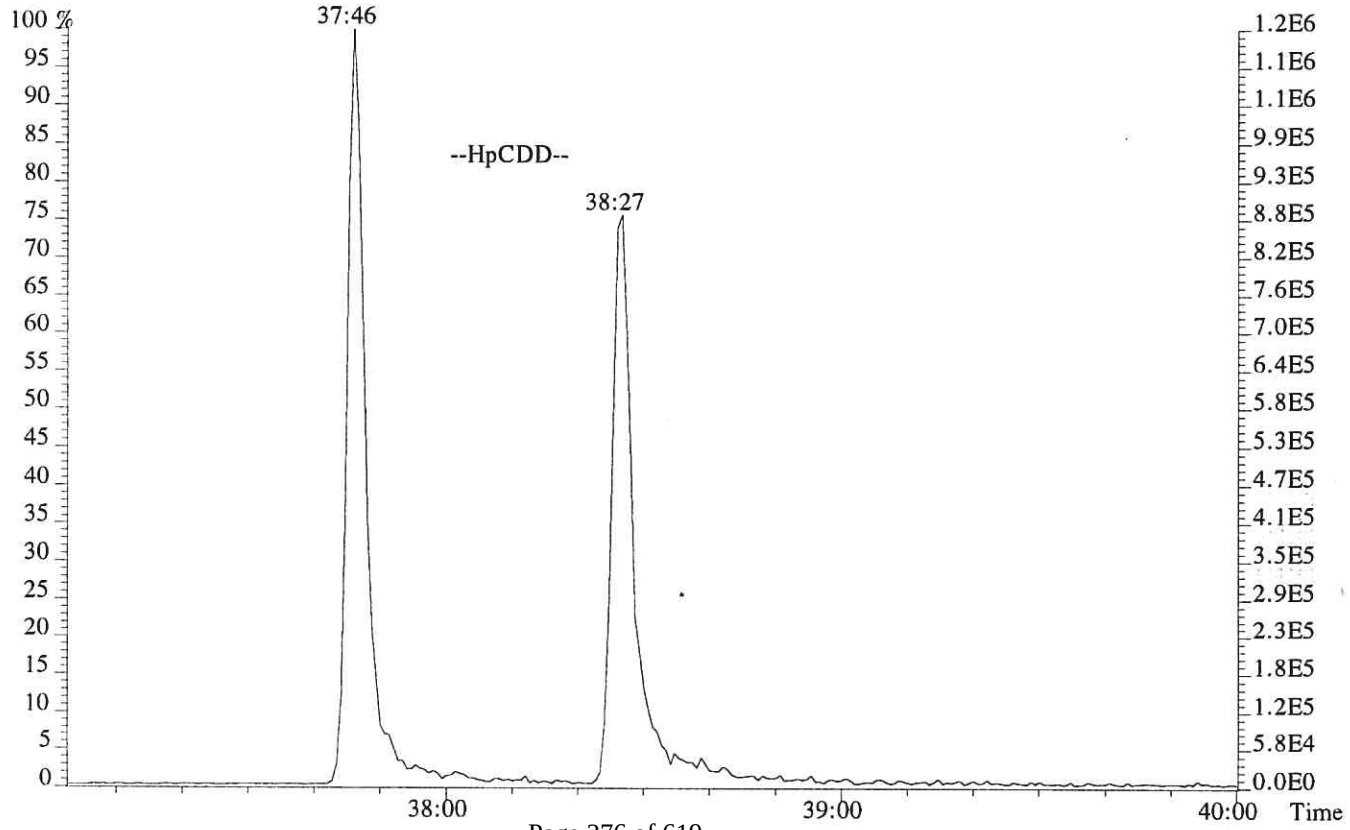


RIGHT SOLUTIONS | RIGHT PARTNER

File:P524770 #1-267 Acq:17-OCT-2019 23:17:50 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:202629
407.7818 F:4



423.7766 F:4



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USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 04/25/19

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

VER Data Filename: P524769 Analysis Date: 17-OCT-19 Time: 22:21:49

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	9.5	7.8 - 12.9	-5.0
1,2,3,7,8-PeCDD	M+2/M+4	1.56	1.32-1.78	50	39 - 65	-0.1
1,2,3,4,7,8-HxCDD	M+2/M+4	1.32	1.05-1.43	51	39 - 64	2.7
1,2,3,6,7,8-HxCDD	M+2/M+4	1.20	1.05-1.43	49	39 - 64	-2.1
1,2,3,7,8,9-HxCDD	M+2/M+4	1.25	1.05-1.43	51	41 - 61	2.6
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.03	0.88-1.20	49	43 - 58	-2.4
OCDD	M+2/M+4	0.89	0.76-1.02	97	79 - 126	-2.7
2,3,7,8-TCDF	M/M+2	0.70	0.65-0.89	9.0	8.4 - 12.0	-9.5
1,2,3,7,8-PeCDF	M+2/M+4	1.49	1.32-1.78	47	41 - 60	-6.2
2,3,4,7,8-PeCDF	M+2/M+4	1.47	1.32-1.78	49	41 - 61	-2.1
1,2,3,4,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	50	45 - 56	-0.8
1,2,3,6,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	50	44 - 57	-0.6
1,2,3,7,8,9-HxCDF	M+2/M+4	1.24	1.05-1.43	50	45 - 56	-0.6
2,3,4,6,7,8-HxCDF	M+2/M+4	1.18	1.05-1.43	50	44 - 57	0.0
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.02	0.88-1.20	49	45 - 55	-2.1
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.02	0.88-1.20	50	43 - 58	-0.3
OCDF	M+2/M+4	0.89	0.76-1.02	99	63 - 159	-1.1

(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

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USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 04/25/19

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

VER Data Filename: P524769 Analysis Date: 17-OCT-19 Time: 22:21:49

	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	0.81	0.65-0.89	92	82 - 121	-8.4
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	83	62 - 160	-16.8
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	85	85 - 117	-15.2
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	105	85 - 118	4.5
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	98	72 - 138	-1.8
13C-OCDD	M+2/M+4	0.91	0.76-1.02	232	96 - 415	16.1
13C-2,3,7,8-TCDF	M/M+2	0.78	0.65-0.89	100	71 - 140	-0.3
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	90	76 - 130	-10.3
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	89	77 - 130	-10.7
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.51	0.43-0.59	91	76 - 131	-8.5
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.51	0.43-0.59	104	70 - 143	4.1
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	95	74 - 135	-5.2
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	98	73 - 137	-2.0
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.44	0.37-0.51	97	78 - 129	-2.6
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.43	0.37-0.51	103	77 - 129	2.7
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.1	7.8 - 12.7	-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) 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

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ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
203606

Run #7 Filename P524769 Samp: 1 Inj: 1 Acquired: 17-OCT-19 22:21:49
Processed: 18-OCT-19 13:54:02 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:59	3.952e+03	5.653e+03	0.70	yes	no	0.962
2	Unk	1,2,3,7,8-PeCDF	30:51	2.966e+04	1.986e+04	1.49	yes	no	0.968
3	Unk	2,3,4,7,8-PeCDF	31:53	2.825e+04	1.920e+04	1.47	yes	no	0.919
4	Unk	1,2,3,4,7,8-HxCDF	34:45	2.272e+04	1.870e+04	1.22	yes	no	1.161
5	Unk	1,2,3,6,7,8-HxCDF	34:52	2.676e+04	2.210e+04	1.21	yes	no	1.073
6	Unk	2,3,4,6,7,8-HxCDF	35:24	2.299e+04	1.943e+04	1.18	yes	no	1.069
7	Unk	1,2,3,7,8,9-HxCDF	36:12	1.992e+04	1.607e+04	1.24	yes	no	1.096
8	Unk	1,2,3,4,6,7,8-HpCDF	37:31	1.995e+04	1.953e+04	1.02	yes	no	1.281
9	Unk	1,2,3,4,7,8,9-HpCDF	38:53	1.622e+04	1.594e+04	1.02	yes	no	1.192
10	Unk	OCDF	41:16	3.050e+04	3.416e+04	0.89	yes	no	1.204
11	Unk	2,3,7,8-TCDD	26:56	3.270e+03	4.214e+03	0.78	yes	no	1.077
12	Unk	1,2,3,7,8-PeCDD	32:11	2.152e+04	1.375e+04	1.56	yes	no	0.971
13	Unk	1,2,3,4,7,8-HxCDD	35:33	1.692e+04	1.283e+04	1.32	yes	no	1.024
14	Unk	1,2,3,6,7,8-HxCDD	35:38	1.889e+04	1.577e+04	1.20	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	35:53	1.876e+04	1.504e+04	1.25	yes	no	1.055
16	Unk	1,2,3,4,6,7,8-HpCDD	38:27	1.490e+04	1.443e+04	1.03	yes	no	0.989
17	Unk	OCDD	41:06	2.716e+04	3.064e+04	0.89	yes	no	1.094
18	IS	13C-2,3,7,8-TCDF	25:57	4.844e+04	6.189e+04	0.78	yes	no	1.287
19	IS	13C-1,2,3,7,8-PeCDF	30:51	6.689e+04	4.222e+04	1.58	yes	no	1.416
20	IS	13C-2,3,4,7,8-PeCDF	31:52	6.447e+04	4.098e+04	1.57	yes	no	1.374
21	IS	13C-1,2,3,4,7,8-HxCDF	34:44	2.429e+04	4.770e+04	0.51	yes	no	1.114
22	IS	13C-1,2,3,6,7,8-HxCDF	34:51	3.107e+04	6.048e+04	0.51	yes	no	1.245
23	IS	13C-2,3,4,6,7,8-HxCDF	35:24	2.713e+04	5.219e+04	0.52	yes	no	1.146
24	IS	13C-1,2,3,7,8,9-HxCDF	36:11	2.272e+04	4.333e+04	0.52	yes	no	0.986
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:31	1.929e+04	4.363e+04	0.44	yes	no	0.915
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:53	1.622e+04	3.788e+04	0.43	yes	no	0.746
27	IS	13C-2,3,7,8-TCDD	26:55	3.266e+04	4.044e+04	0.81	yes	no	0.929
28	IS	13C-1,2,3,7,8-PeCDD	32:10	4.460e+04	2.813e+04	1.59	yes	no	1.017
29	IS	13C-1,2,3,4,7,8-HxCDD	35:32	3.156e+04	2.503e+04	1.26	yes	no	0.945
30	IS	13C-1,2,3,6,7,8-HxCDD	35:37	3.826e+04	2.995e+04	1.28	yes	no	0.924
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:26	3.129e+04	2.952e+04	1.06	yes	no	0.876
32	IS	13C-OCDD	41:06	5.162e+04	5.694e+04	0.91	yes	no	0.662
33	RS/RT	13C-1,2,3,4-TCDD	26:11	3.819e+04	4.777e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:52	3.968e+04	3.096e+04	1.28	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:56	7.874e+03				no	1.010

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
203606

Run #7 Filename P524769 Samp: 1 Inj: 1 Acquired: 17-OCT-19 22:21:49
Processed: 18-OCT-19 13:54:02 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	5.13e+05	2.56e+02	2.0e+03	7.15e+05	9.64e+02	7.4e+02
2	1,2,3,7,8-PeCDF	4.56e+06	4.44e+02	1.0e+04	3.10e+06	2.22e+03	1.4e+03
3	2,3,4,7,8-PeCDF	4.74e+06	4.44e+02	1.1e+04	3.23e+06	2.22e+03	1.5e+03
4	1,2,3,4,7,8-HxCDF	4.45e+06	1.40e+02	3.2e+04	3.70e+06	2.12e+02	1.7e+04
5	1,2,3,6,7,8-HxCDF	4.81e+06	1.40e+02	3.4e+04	3.88e+06	2.12e+02	1.8e+04
6	2,3,4,6,7,8-HxCDF	4.42e+06	1.40e+02	3.2e+04	3.66e+06	2.12e+02	1.7e+04
7	1,2,3,7,8,9-HxCDF	3.37e+06	1.40e+02	2.4e+04	2.61e+06	2.12e+02	1.2e+04
8	1,2,3,4,6,7,8-HpCDF	3.78e+06	2.81e+03	1.3e+03	3.62e+06	3.28e+03	1.1e+03
9	1,2,3,4,7,8,9-HpCDF	2.65e+06	2.81e+03	9.5e+02	2.61e+06	3.28e+03	7.9e+02
10	OCDF	4.35e+06	2.56e+02	1.7e+04	4.89e+06	2.48e+02	2.0e+04
11	2,3,7,8-TCDD	4.44e+05	1.14e+03	3.9e+02	5.65e+05	8.36e+02	6.8e+02
12	1,2,3,7,8-PeCDD	3.53e+06	1.88e+02	1.9e+04	2.27e+06	1.76e+02	1.3e+04
13	1,2,3,4,7,8-HxCDD	3.32e+06	2.24e+02	1.5e+04	2.74e+06	1.88e+02	1.5e+04
14	1,2,3,6,7,8-HxCDD	3.39e+06	2.24e+02	1.5e+04	2.74e+06	1.88e+02	1.5e+04
15	1,2,3,7,8,9-HxCDD	3.24e+06	2.24e+02	1.4e+04	2.65e+06	1.88e+02	1.4e+04
16	1,2,3,4,6,7,8-HpCDD	2.71e+06	5.68e+02	4.8e+03	2.62e+06	1.64e+02	1.6e+04
17	OCDD	3.85e+06	1.84e+02	2.1e+04	4.28e+06	1.56e+02	2.7e+04
18	13C-2,3,7,8-TCDF	6.05e+06	4.09e+03	1.5e+03	7.78e+06	1.86e+03	4.2e+03
19	13C-1,2,3,7,8-PeCDF	1.03e+07	1.35e+03	7.6e+03	6.50e+06	1.07e+03	6.1e+03
20	13C-2,3,4,7,8-PeCDF	1.06e+07	1.35e+03	7.9e+03	6.72e+06	1.07e+03	6.3e+03
21	13C-1,2,3,4,7,8-HxCDF	4.74e+06	1.18e+03	4.0e+03	9.20e+06	3.76e+02	2.4e+04
22	13C-1,2,3,6,7,8-HxCDF	5.50e+06	1.18e+03	4.6e+03	1.07e+07	3.76e+02	2.8e+04
23	13C-2,3,4,6,7,8-HxCDF	5.21e+06	1.18e+03	4.4e+03	9.91e+06	3.76e+02	2.6e+04
24	13C-1,2,3,7,8,9-HxCDF	3.81e+06	1.18e+03	3.2e+03	7.14e+06	3.76e+02	1.9e+04
25	13C-1,2,3,4,6,7,8-HpCDF	3.62e+06	4.88e+03	7.4e+02	8.09e+06	8.38e+03	9.7e+02
26	13C-1,2,3,4,7,8,9-HpCDF	2.68e+06	4.88e+03	5.5e+02	6.13e+06	8.38e+03	7.3e+02
27	13C-2,3,7,8-TCDD	4.65e+06	4.52e+03	1.0e+03	5.67e+06	1.75e+03	3.2e+03
28	13C-1,2,3,7,8-PeCDD	7.10e+06	2.56e+02	2.8e+04	4.44e+06	5.52e+02	8.0e+03
29	13C-1,2,3,4,7,8-HxCDD	6.55e+06	1.80e+03	3.6e+03	5.26e+06	6.20e+02	8.5e+03
30	13C-1,2,3,6,7,8-HxCDD	6.54e+06	1.80e+03	3.6e+03	5.17e+06	6.20e+02	8.3e+03
31	13C-1,2,3,4,6,7,8-HpCDD	5.52e+06	4.20e+02	1.3e+04	5.26e+06	2.88e+02	1.8e+04
32	13C-OCDD	7.18e+06	3.00e+02	2.4e+04	7.89e+06	1.40e+02	5.6e+04
33	13C-1,2,3,4-TCDD	5.53e+06	4.52e+03	1.2e+03	7.03e+06	1.75e+03	4.0e+03
34	13C-1,2,3,7,8,9-HxCDD	6.62e+06	1.80e+03	3.7e+03	5.29e+06	6.20e+02	8.5e+03
35	37Cl-2,3,7,8-TCDD	1.07e+06	9.60e+02	1.1e+03			

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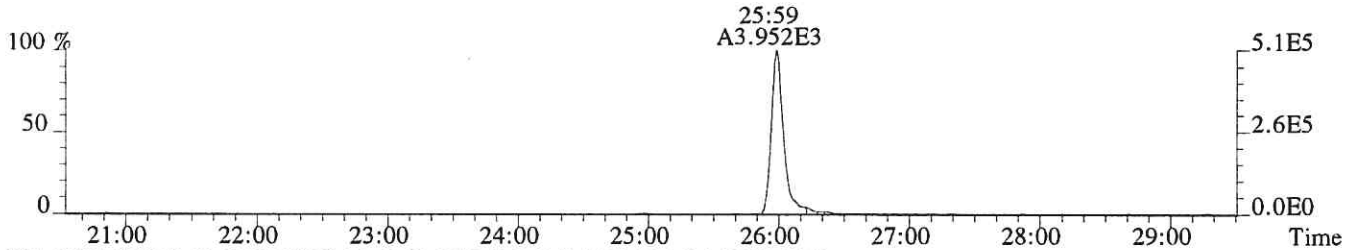
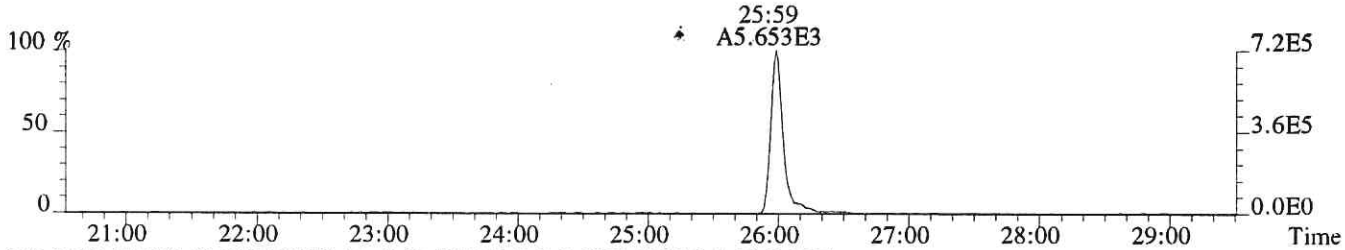
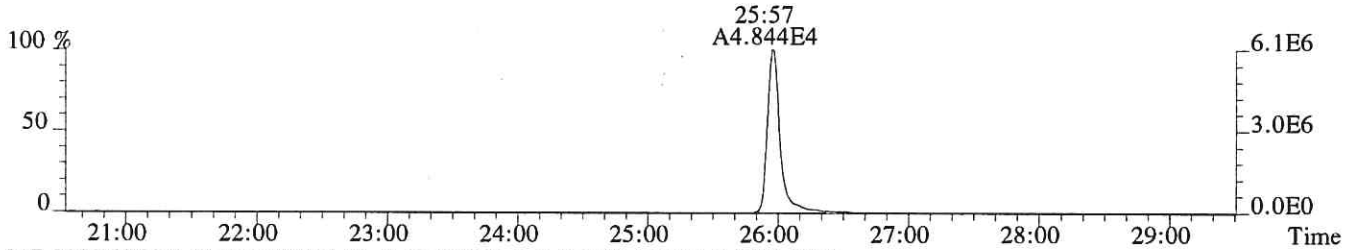
File:P524769 #1-637 Acq:17-OCT-2019 22:21:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:203606
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,256.0,1.00%,F,T)



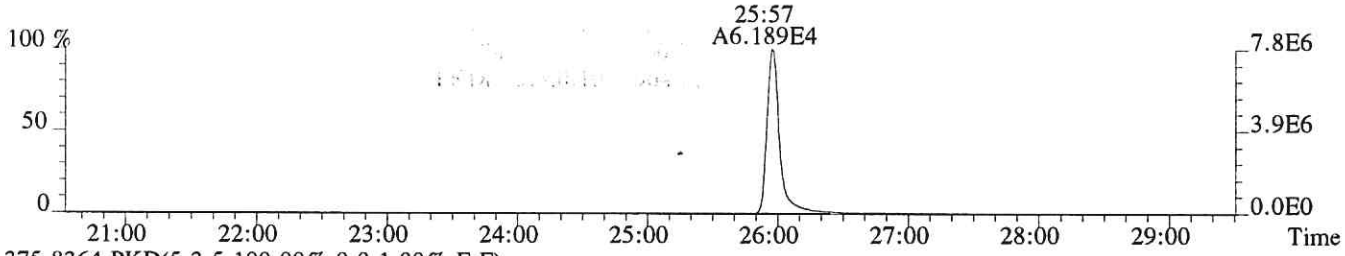
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,964.0,1.00%,F,T)



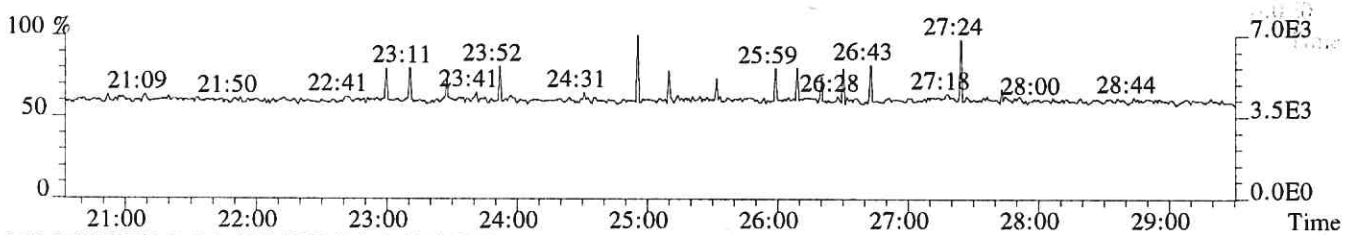
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4092.0,1.00%,F,T)



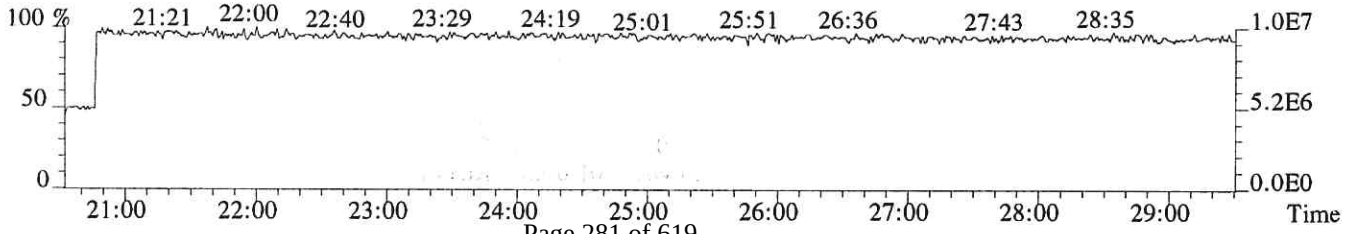
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1860.0,1.00%,F,T)



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



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



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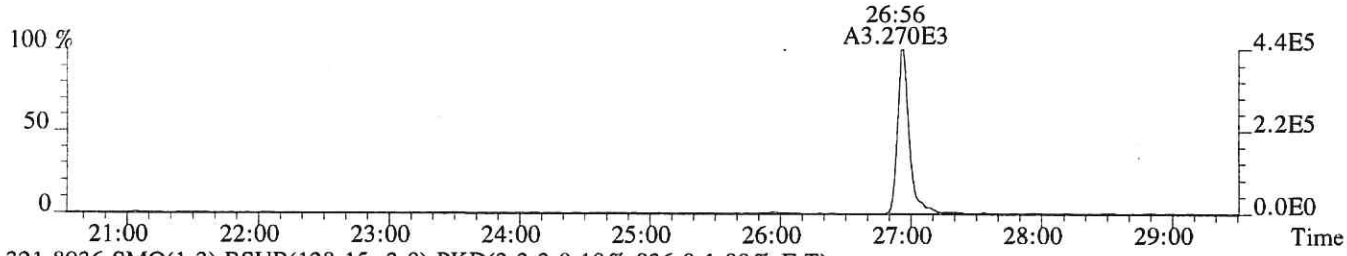
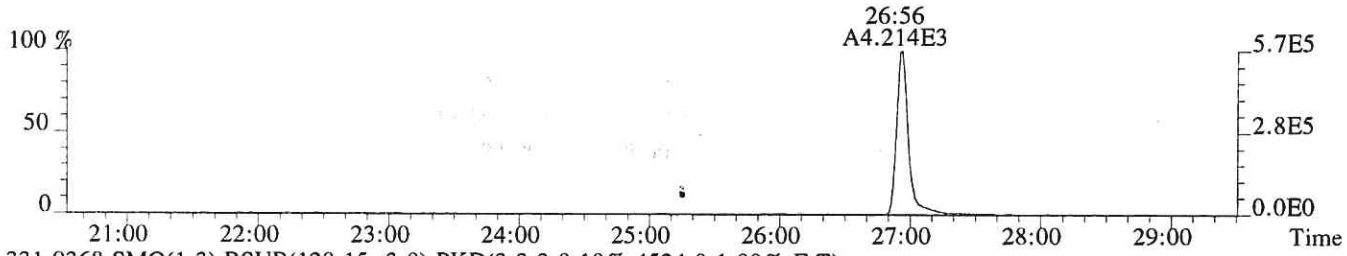
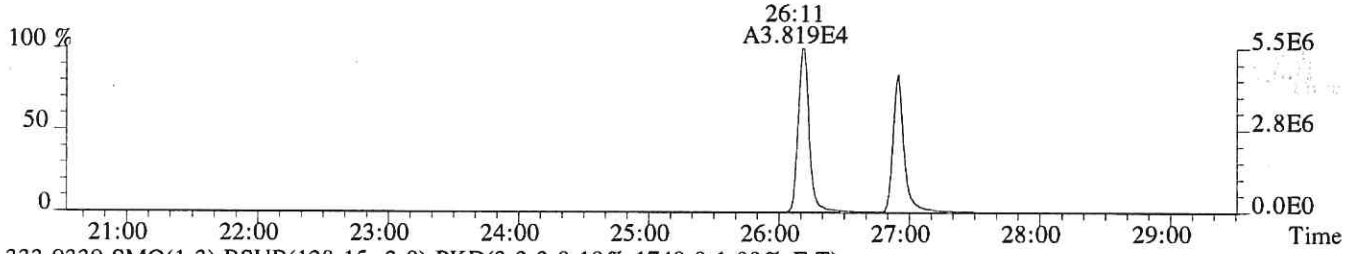
File:P524769 #1-637 Acq:17-OCT-2019 22:21:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:203606
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1144.0,1.00%,F,T)



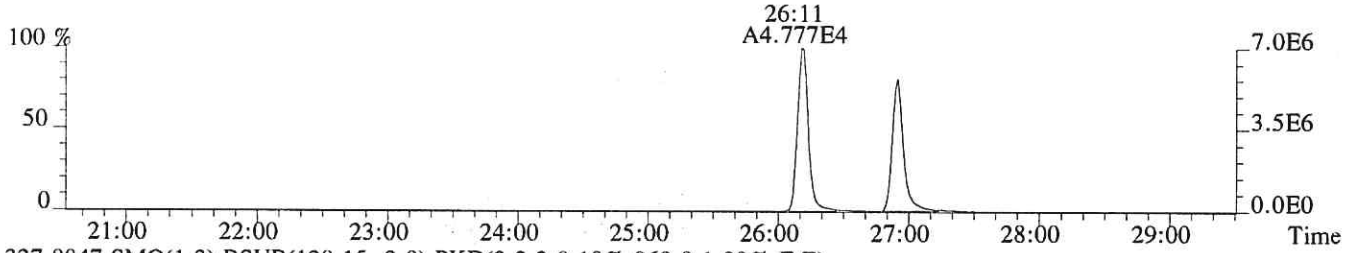
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,836.0,1.00%,F,T)



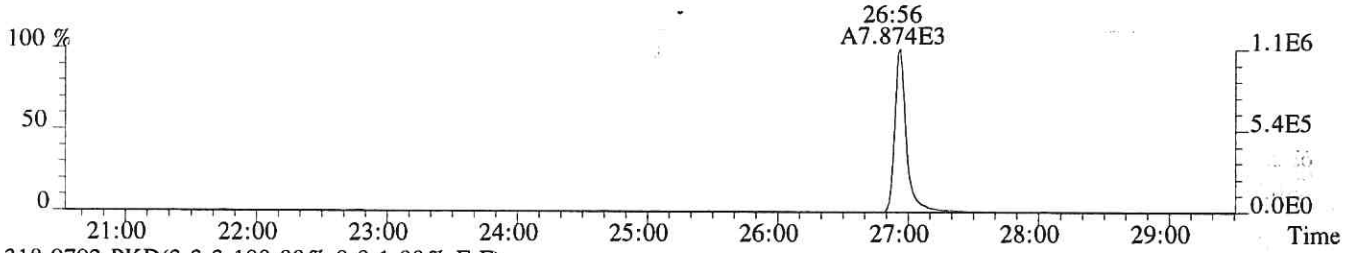
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4524.0,1.00%,F,T)



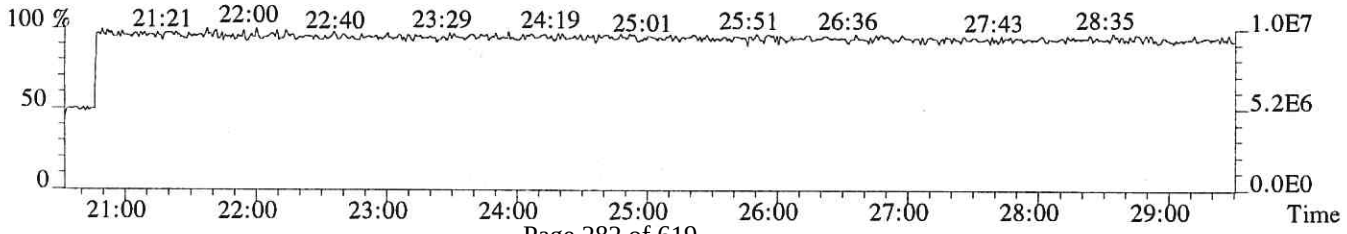
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1748.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,960.0,1.00%,F,T)

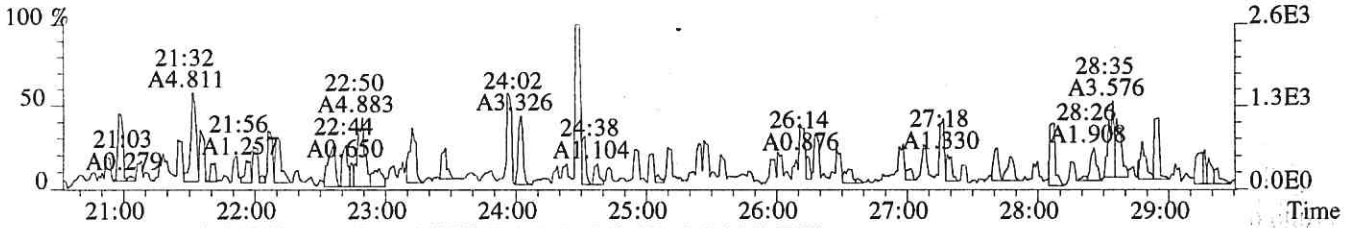


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

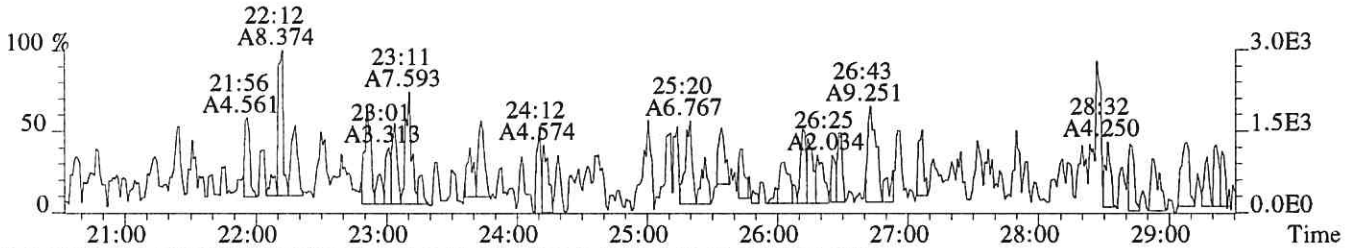


RIGHT SOLUTIONS | RIGHT PARTNER

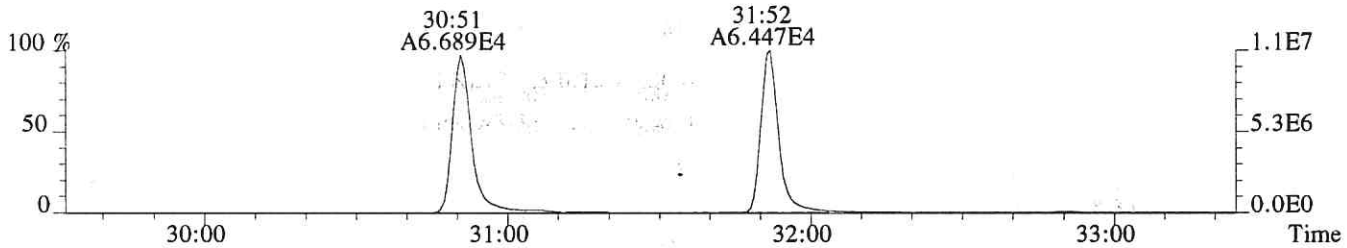
File:P524769 #1-637 Acq:17-OCT-2019 22:21:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:203606
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,236.0,1.00%,F,T)



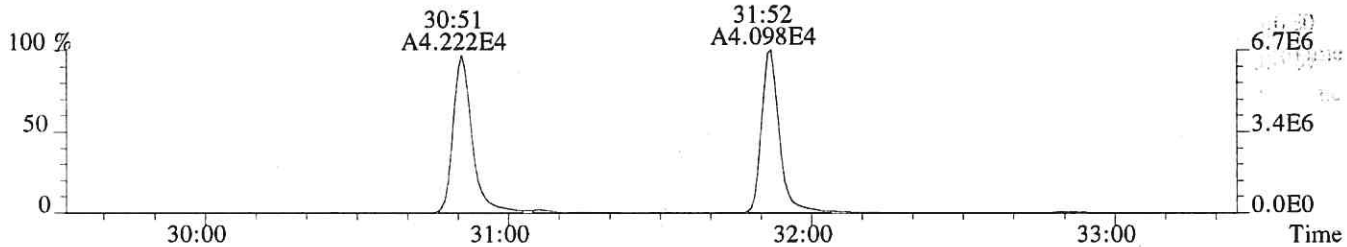
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,672.0,1.00%,F,T)



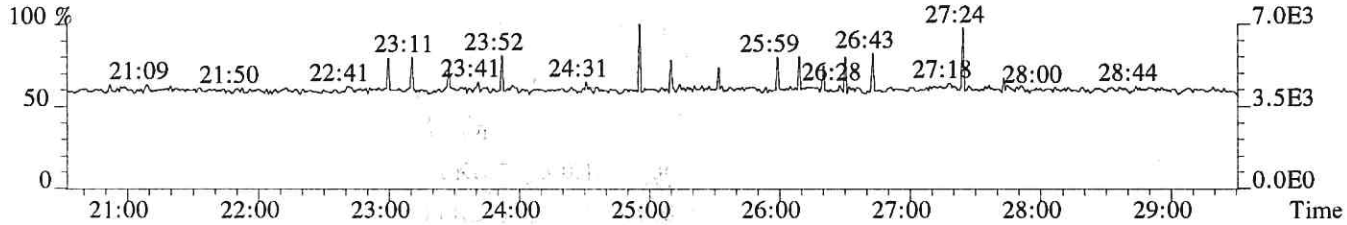
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1348.0,1.00%,F,T)



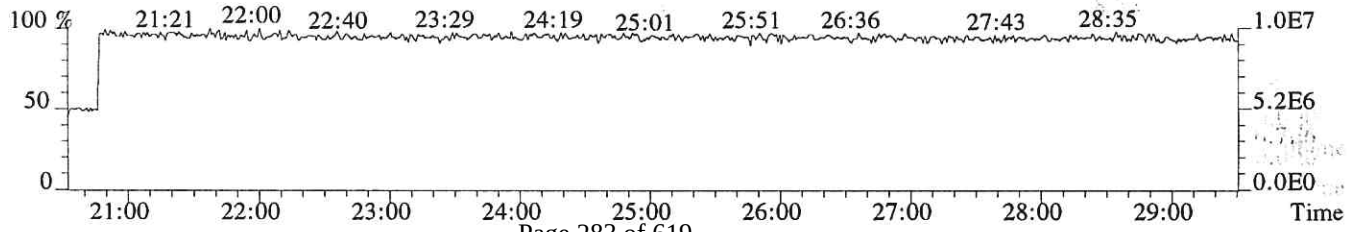
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1068.0,1.00%,F,T)



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

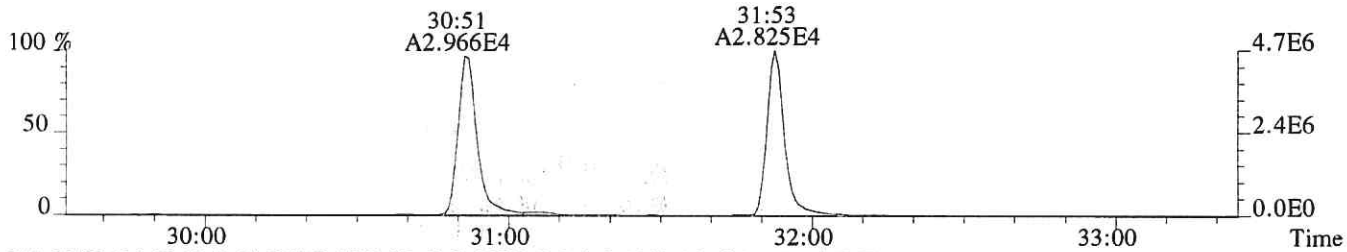


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

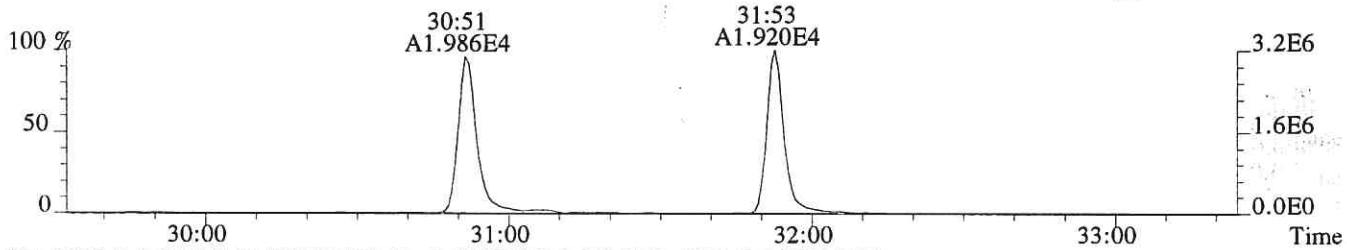


RIGHT SOLUTIONS | RIGHT PARTNER

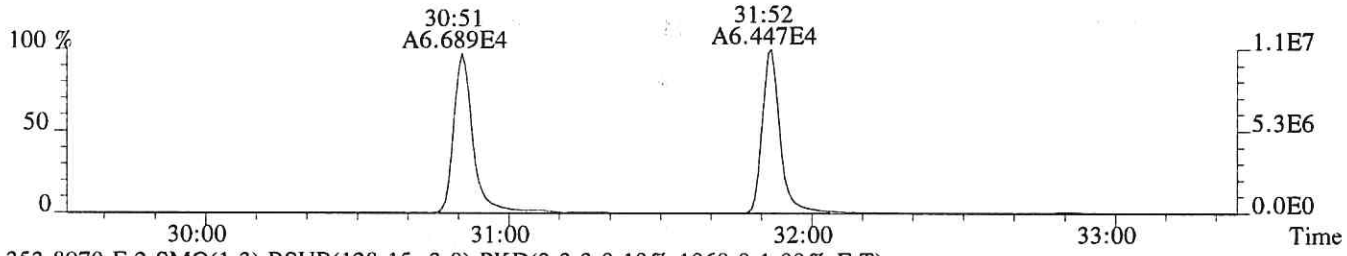
File:P524769 #1-348 Acq:17-OCT-2019 22:21:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:203606
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,444.0,1.00%,F,T)



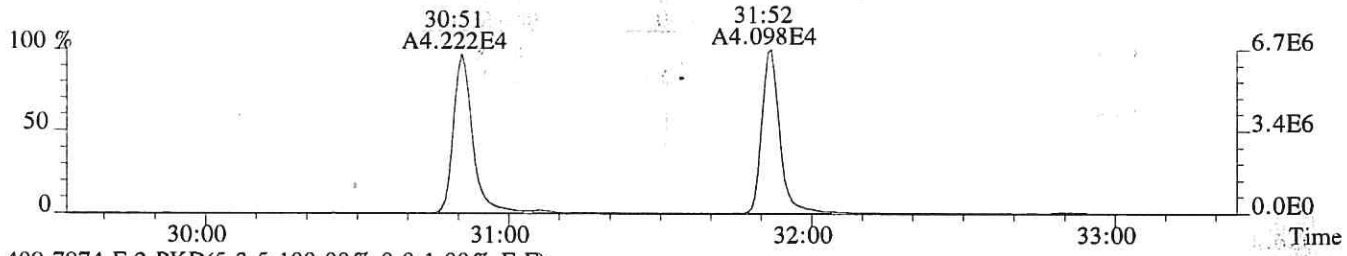
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2216.0,1.00%,F,T)



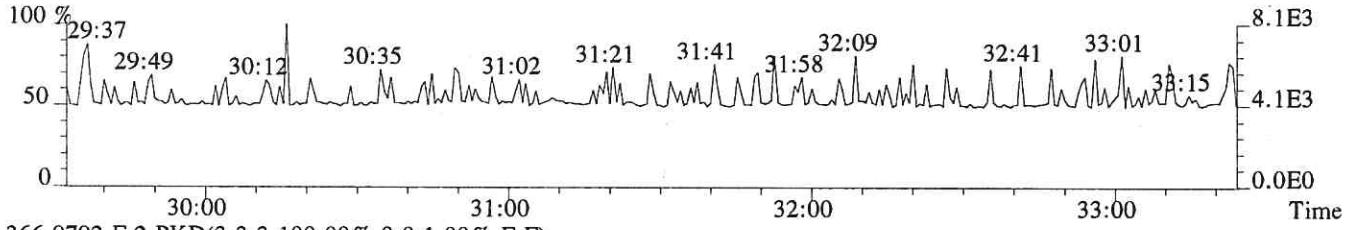
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1348.0,1.00%,F,T)



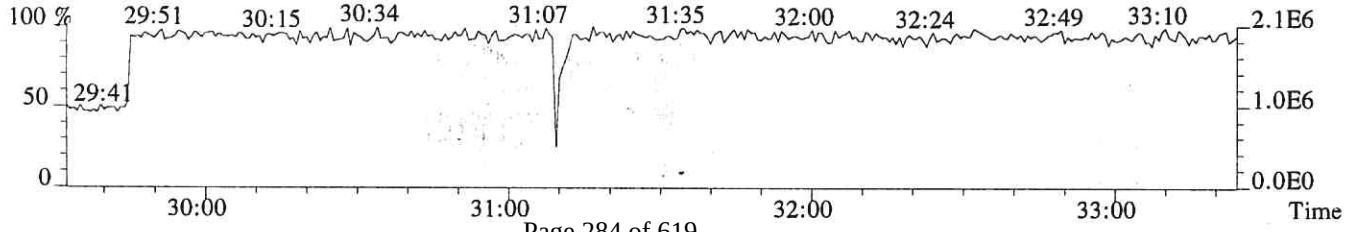
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1068.0,1.00%,F,T)



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

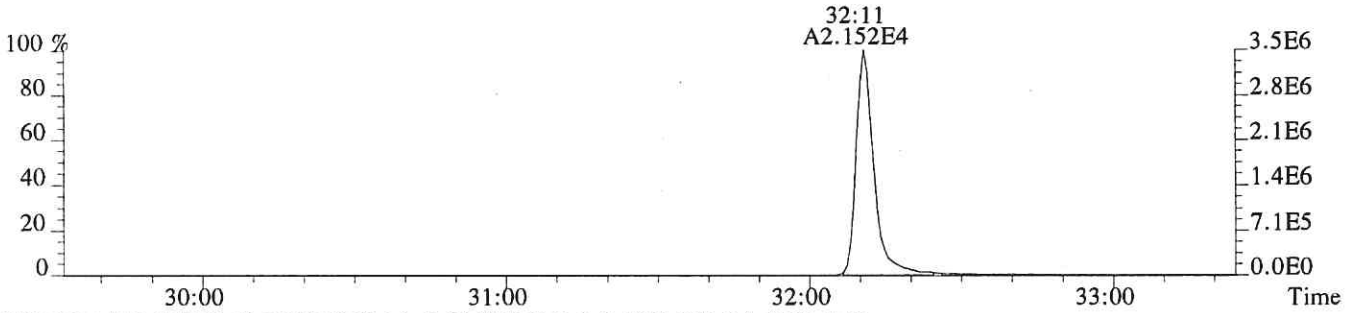


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

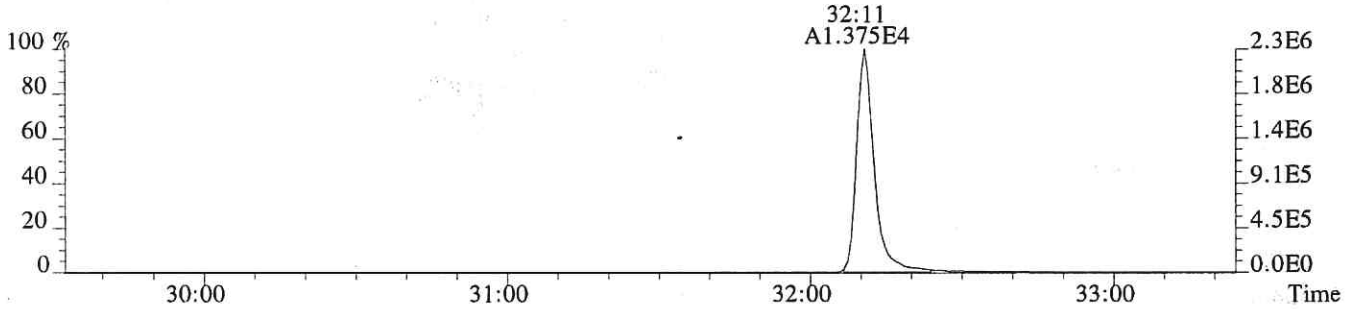


RIGHT SOLUTIONS | RIGHT PARTNER

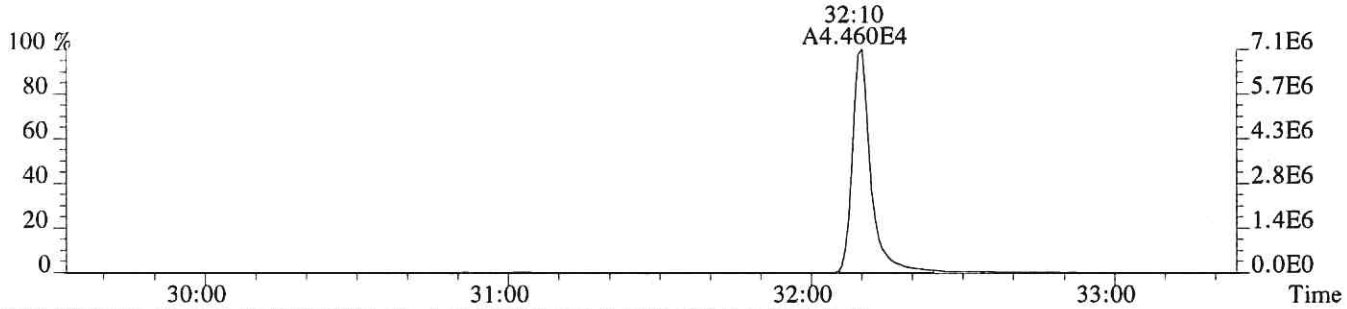
File:P524769 #1-348 Acq:17-OCT-2019 22:21:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:203606
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,188.0,1.00%,F,T)



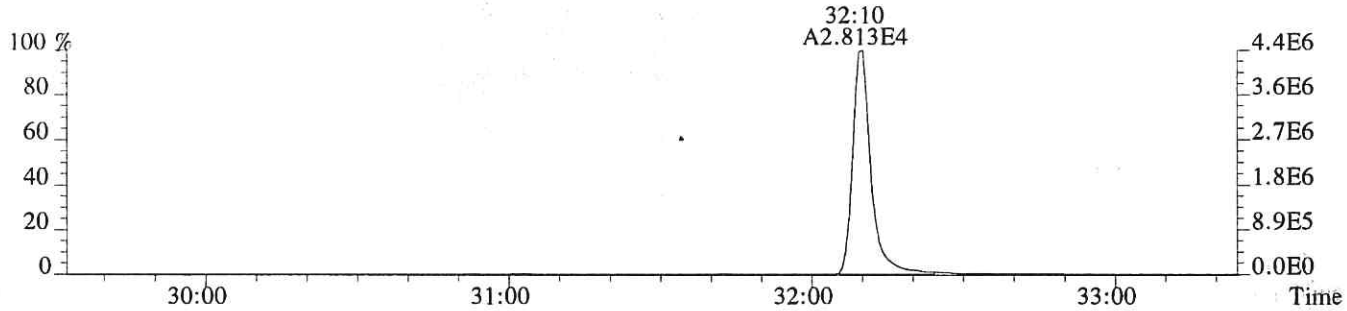
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,176.0,1.00%,F,T)



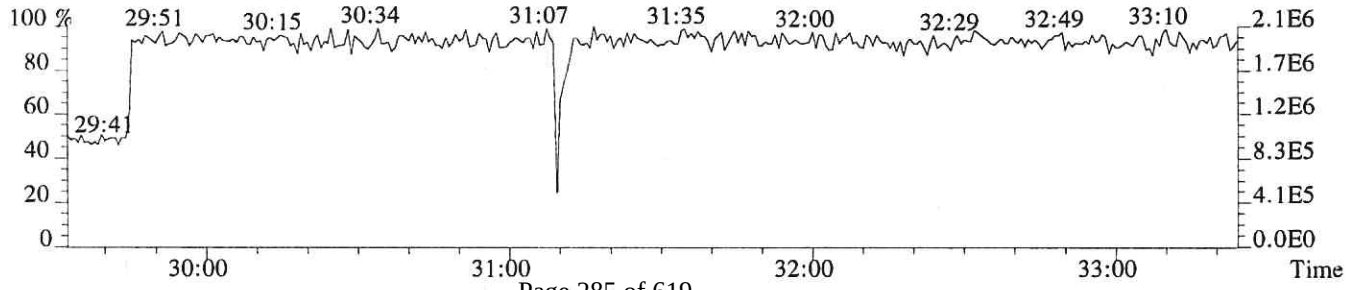
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,256.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,552.0,1.00%,F,T)

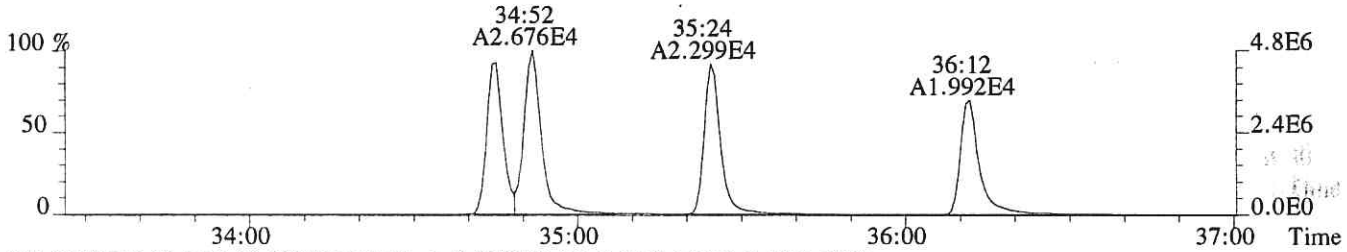


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

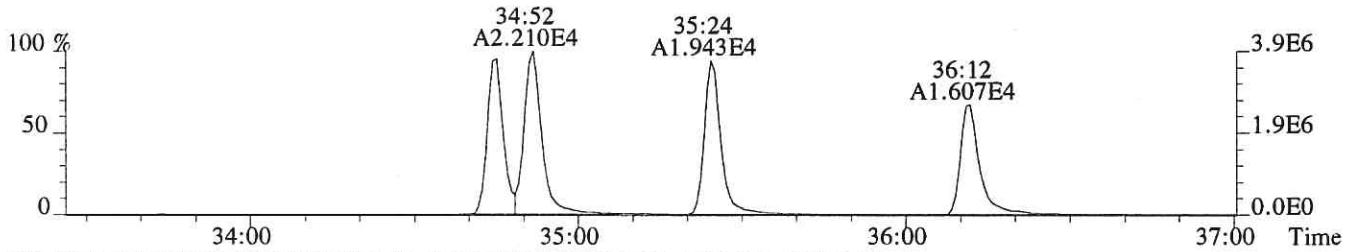


RIGHT SOLUTIONS | RIGHT PARTNER

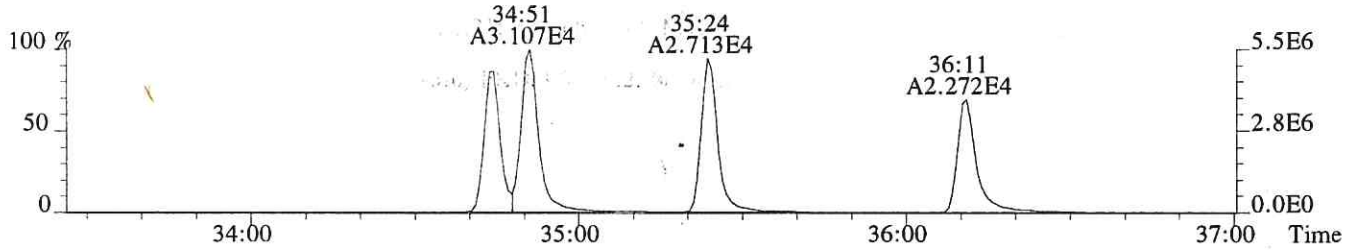
File:P524769 #1-322 Acq:17-OCT-2019 22:21:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:203606
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,140.0,0.40%,F,T)



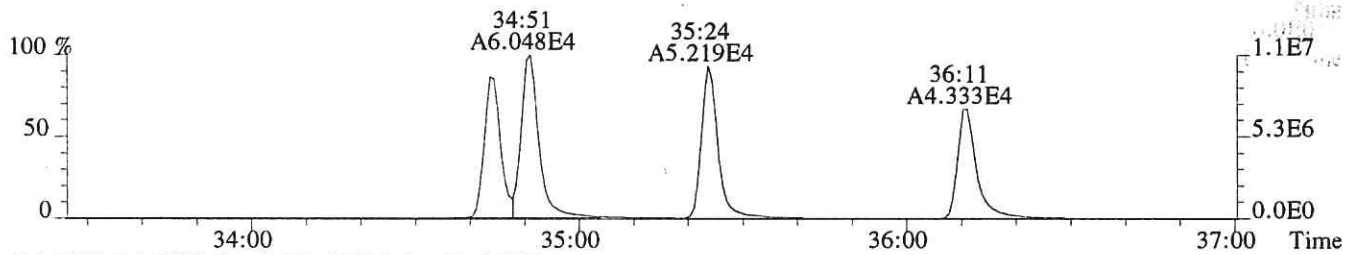
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,212.0,0.40%,F,T)



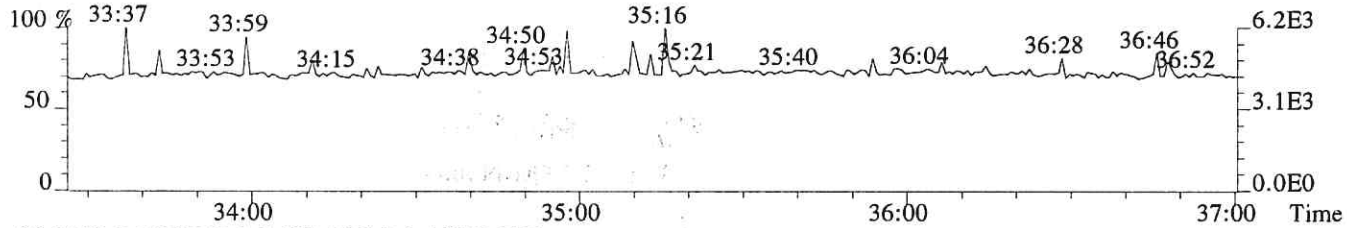
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1184.0,0.40%,F,T)



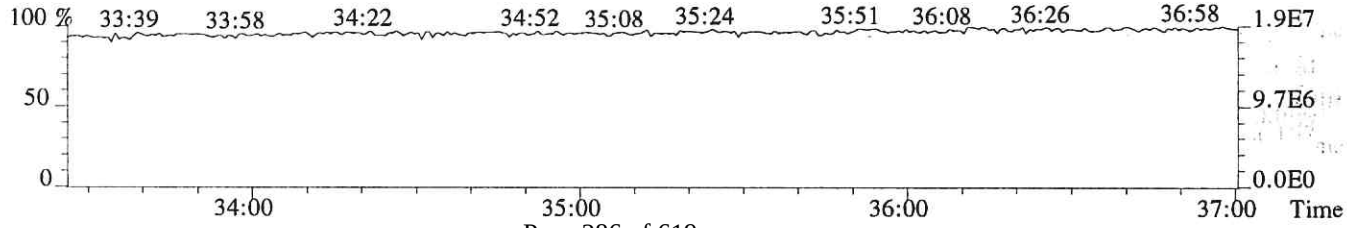
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,376.0,0.40%,F,T)



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

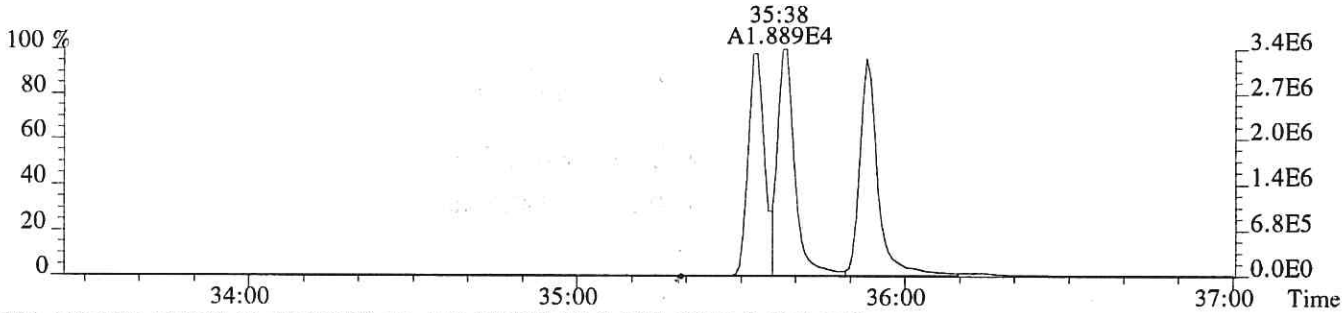


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

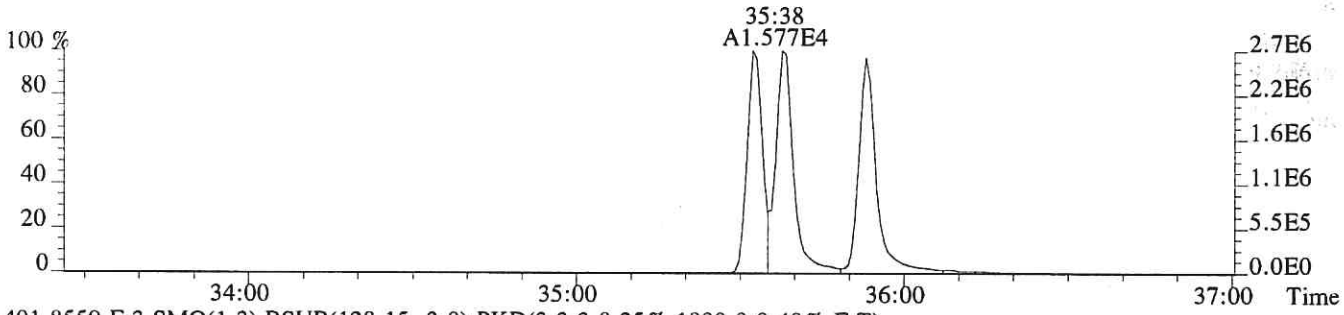


RIGHT SOLUTIONS | RIGHT PARTNER

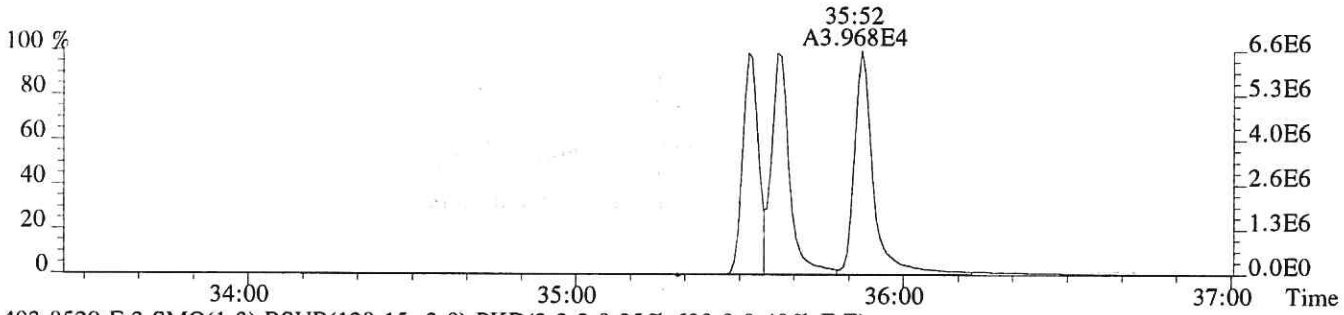
File:P524769 #1-322 Acq:17-OCT-2019 22:21:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:203606
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,224.0,0.40%,F,T)



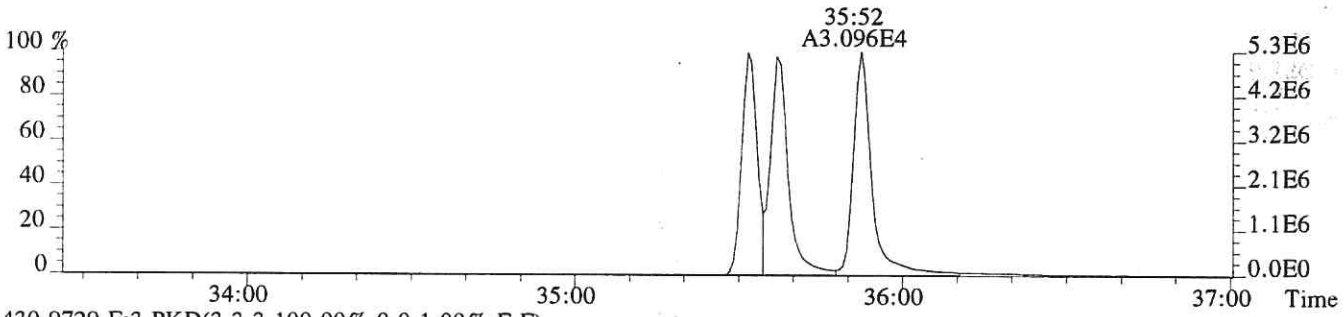
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,188.0,0.40%,F,T)



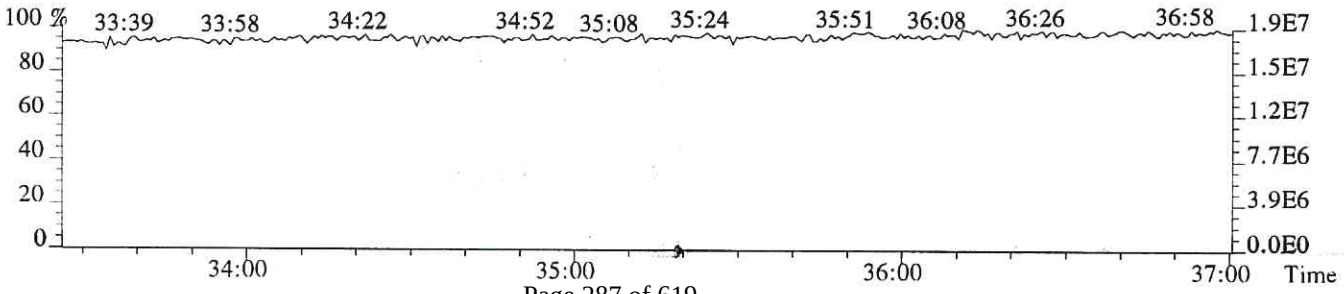
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1800.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,620.0,0.40%,F,T)

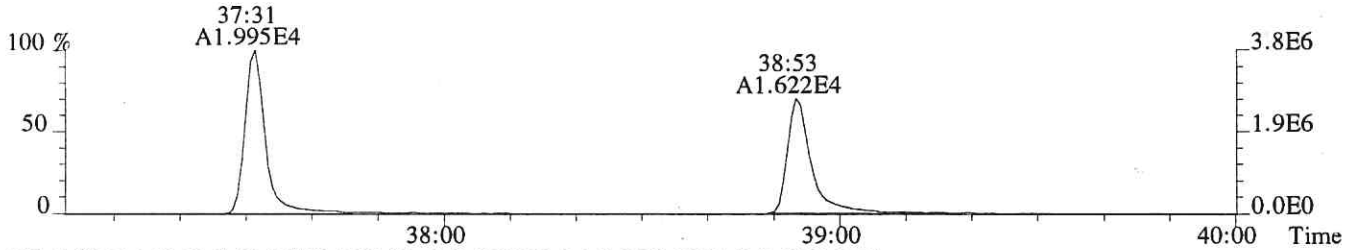


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

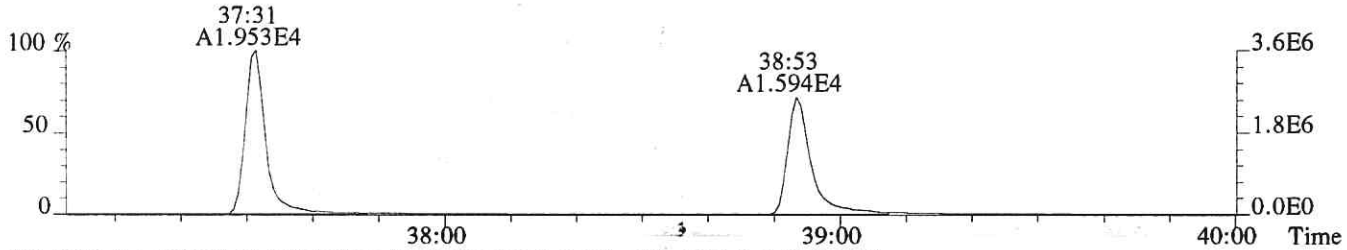


RIGHT SOLUTIONS | RIGHT PARTNER

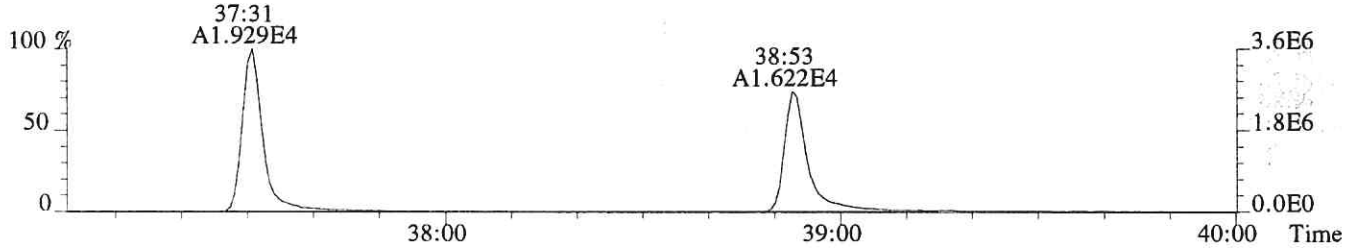
File:P524769 #1-267 Acq:17-OCT-2019 22:21:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:203606
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2808.0,0.50%,F,T)



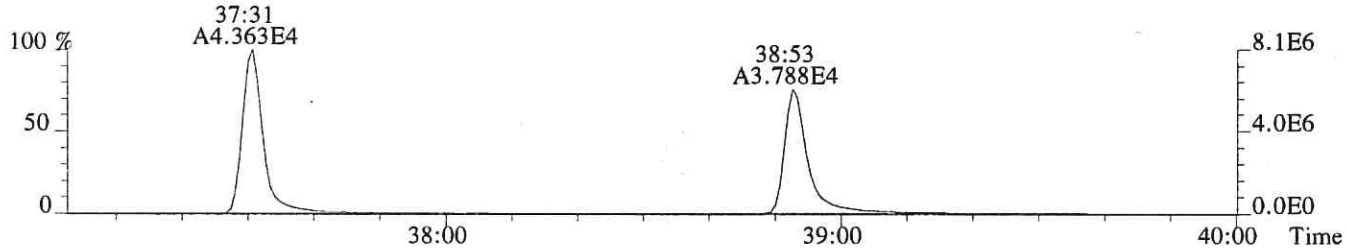
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3284.0,0.50%,F,T)



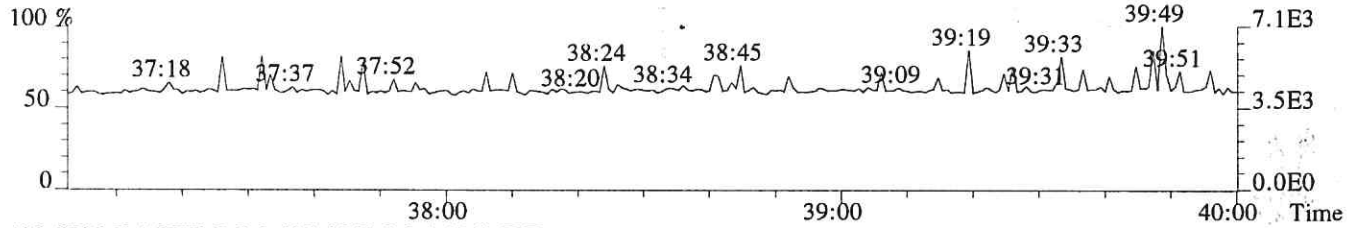
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4884.0,0.50%,F,T)



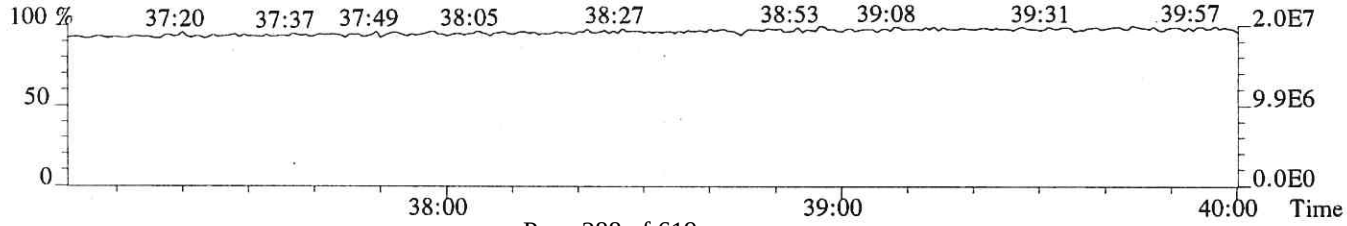
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8380.0,0.50%,F,T)



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

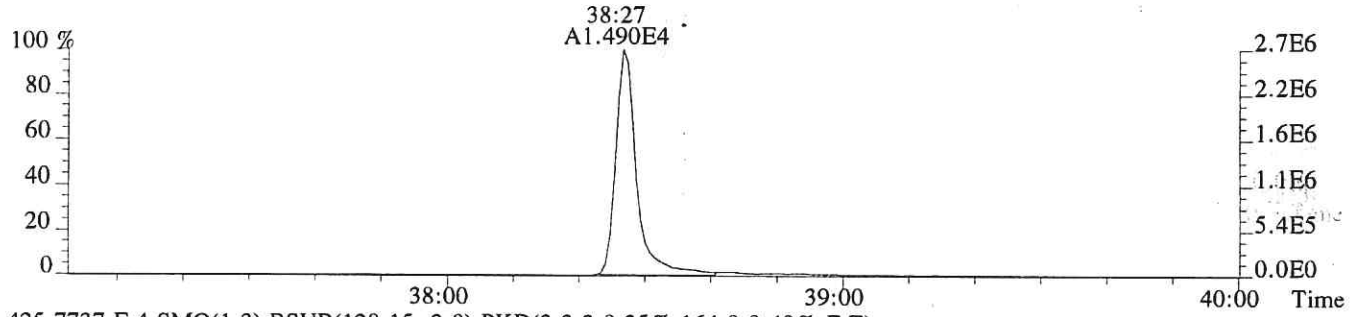


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

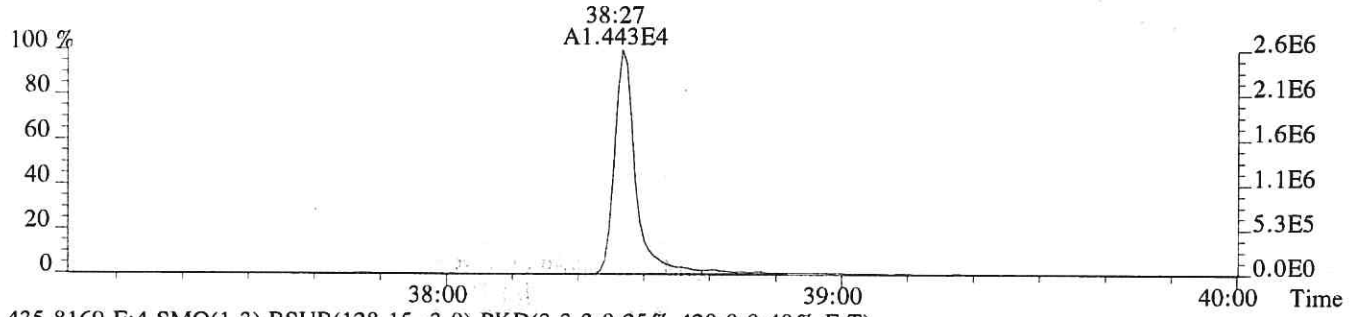


RIGHT SOLUTIONS | RIGHT PARTNER

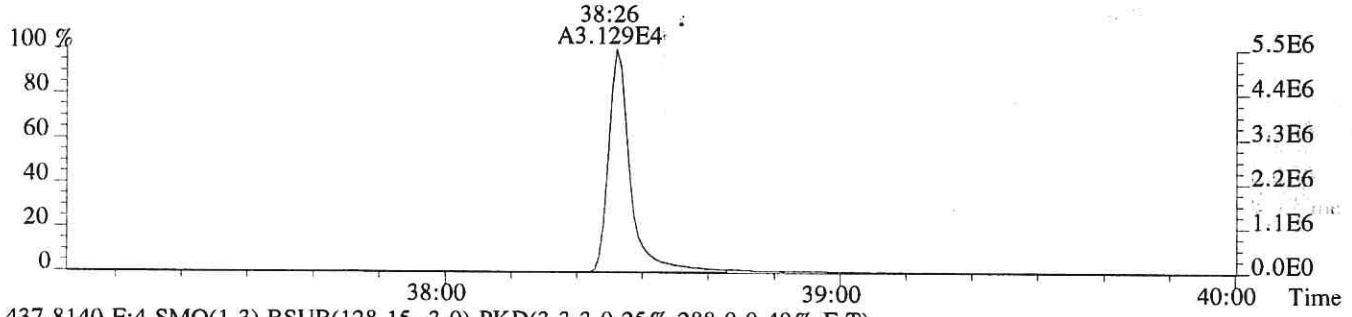
File:P524769 #1-267 Acq:17-OCT-2019 22:21:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:203606
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,568.0,0.40%,F,T)



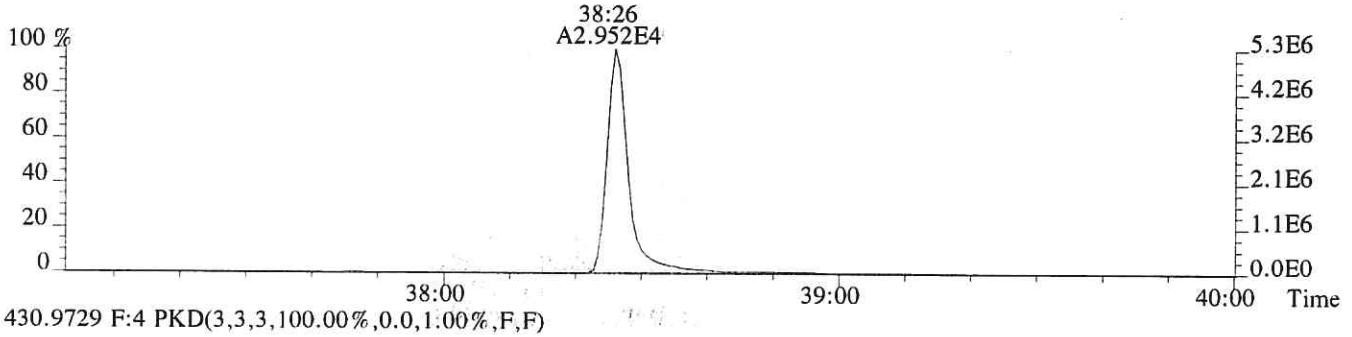
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,164.0,0.40%,F,T)



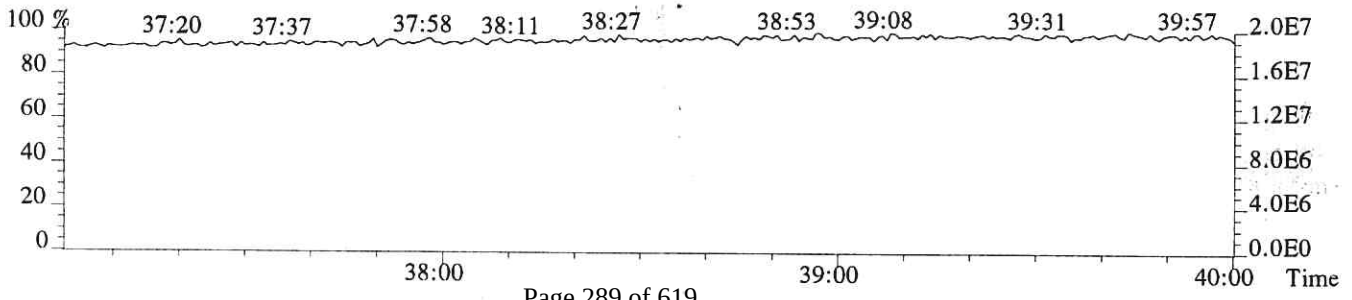
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,420.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,288.0,0.40%,F,T)

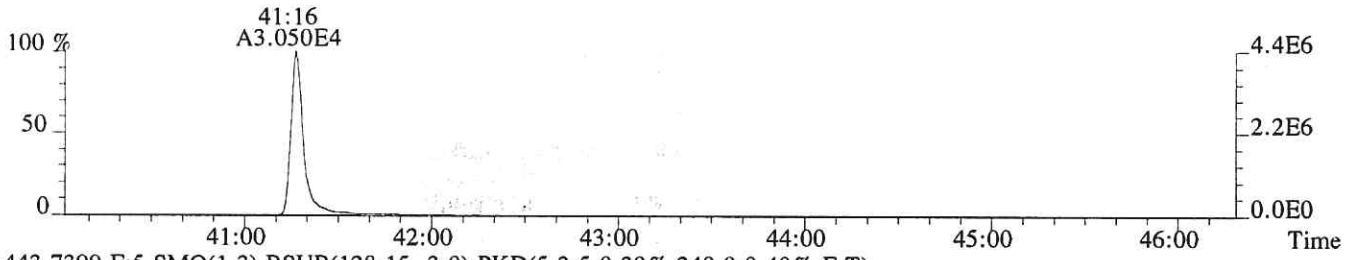


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

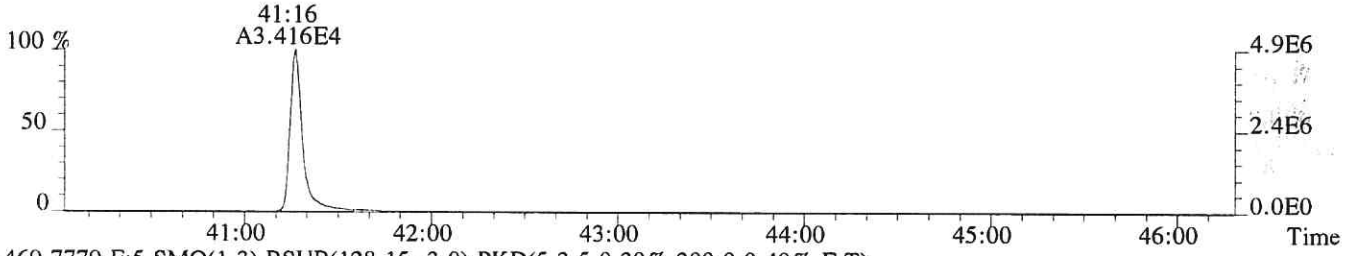


RIGHT SOLUTIONS | RIGHT PARTNER

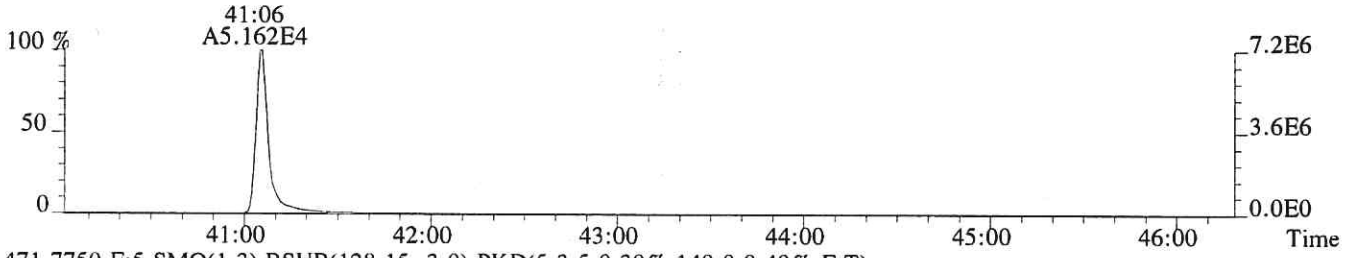
File:P524769 #1-565 Acq:17-OCT-2019 22:21:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:203606
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,256.0,0.40%,F,T)



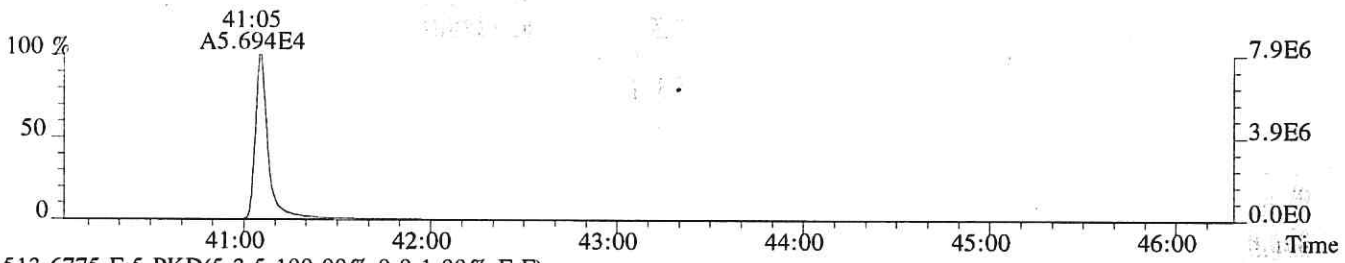
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,248.0,0.40%,F,T)



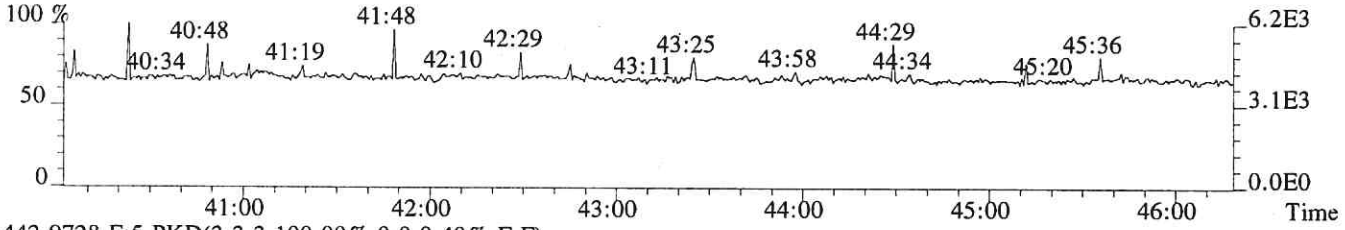
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,300.0,0.40%,F,T)



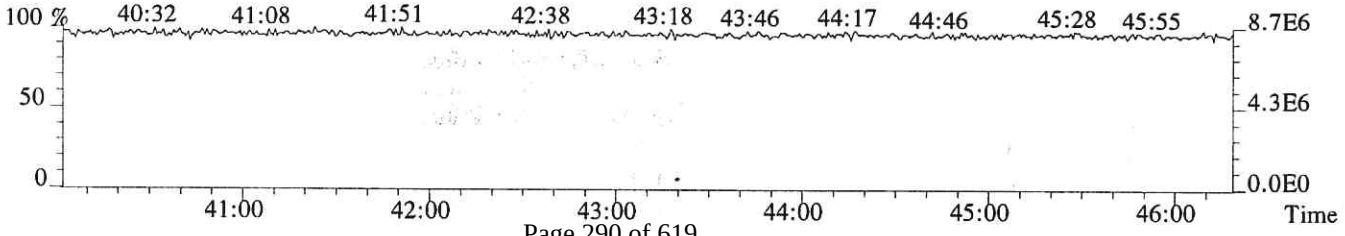
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,140.0,0.40%,F,T)



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

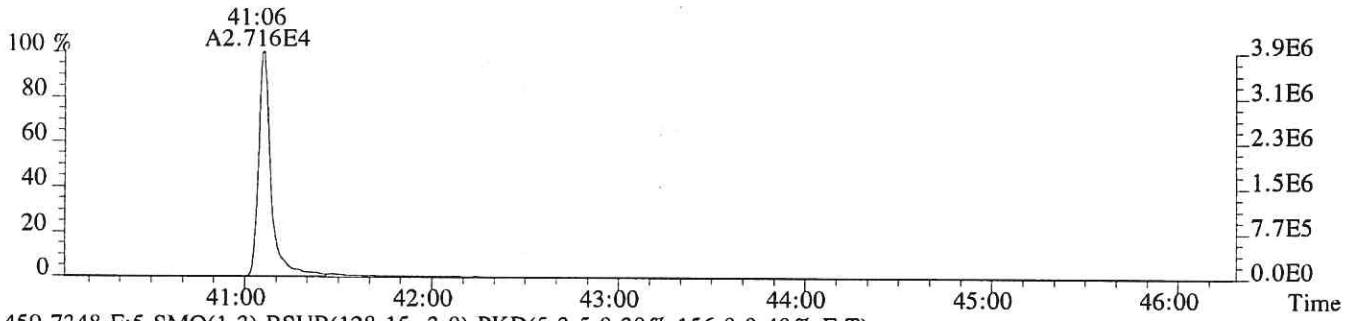


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

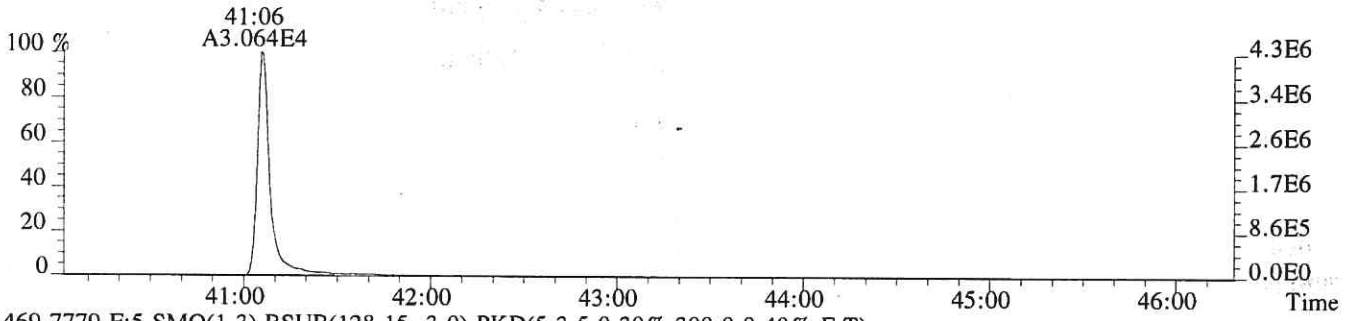


RIGHT SOLUTIONS | RIGHT PARTNER

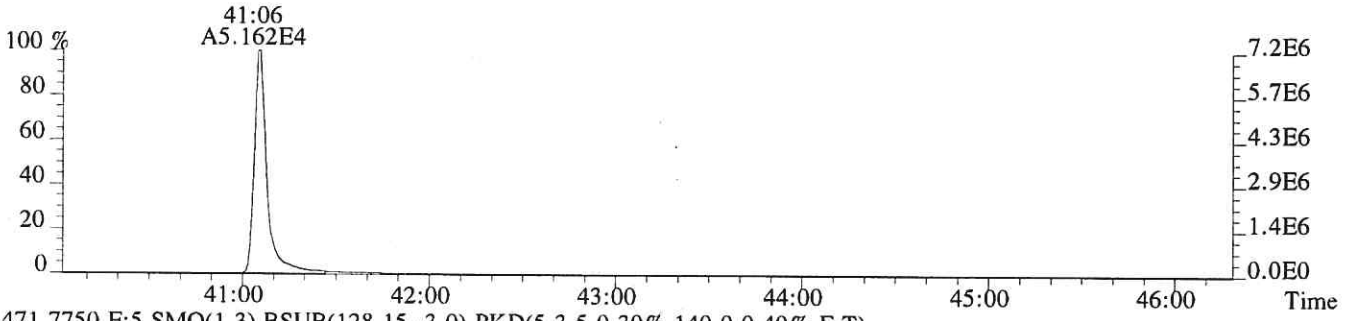
File:P524769 #1-565 Acq:17-OCT-2019 22:21:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:203606
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,184.0,0.40%,F,T)



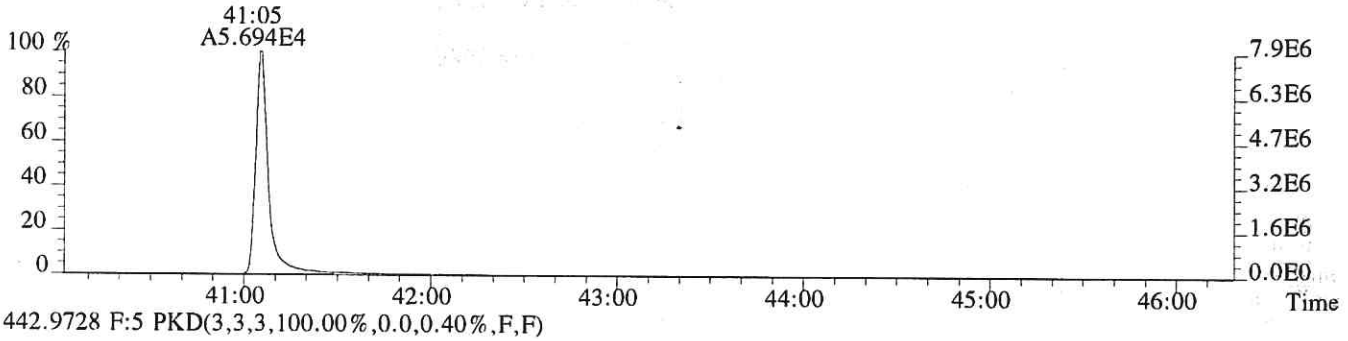
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,156.0,0.40%,F,T)



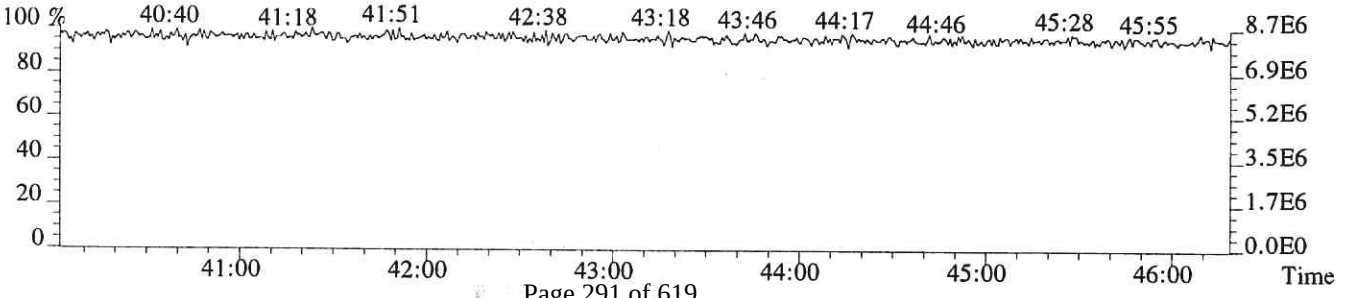
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,300.0,0.40%,F,T)



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



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



RIGHT SOLUTIONS | RIGHT PARTNER

USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 04/25/19

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

VER Data Filename: P524779 Analysis Date: 18-OCT-19 Time: 07:23:28

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	0.78	0.65-0.89	9.9	7.8 - 12.9	-1.5
1,2,3,7,8-PeCDD	M+2/M+4	1.57	1.32-1.78	50	39 - 65	0.4
1,2,3,4,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	50	39 - 64	-0.3
1,2,3,6,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	51	39 - 64	1.3
1,2,3,7,8,9-HxCDD	M+2/M+4	1.27	1.05-1.43	53	41 - 61	6.0
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.04	0.88-1.20	50	43 - 58	-0.6
OCDD	M+2/M+4	0.88	0.76-1.02	98	79 - 126	-1.8
2,3,7,8-TCDF	M/M+2	0.73	0.65-0.89	9.3	8.4 - 12.0	-7.1
1,2,3,7,8-PeCDF	M+2/M+4	1.48	1.32-1.78	47	41 - 60	-5.3
2,3,4,7,8-PeCDF	M+2/M+4	1.49	1.32-1.78	49	41 - 61	-2.6
1,2,3,4,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	50	45 - 56	-0.8
1,2,3,6,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	49	44 - 57	-1.4
1,2,3,7,8,9-HxCDF	M+2/M+4	1.23	1.05-1.43	49	45 - 56	-1.4
2,3,4,6,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	49	44 - 57	-1.5
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.02	0.88-1.20	49	45 - 55	-2.7
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.00	0.88-1.20	51	43 - 58	1.4
OCDF	M+2/M+4	0.87	0.76-1.02	97	63 - 159	-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) 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

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USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 04/25/19

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

VER Data Filename: P524779 Analysis Date: 18-OCT-19 Time: 07:23:28

	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	93	82 - 121	-6.5
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.60	1.32-1.78	90	62 - 160	-9.8
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	90	85 - 117	-10.5
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	99	85 - 118	-1.2
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	94	72 - 138	-6.0
13C-OCDD	M+2/M+4	0.90	0.76-1.02	212	96 - 415	5.9
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	102	71 - 140	2.2
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	94	76 - 130	-5.5
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	93	77 - 130	-6.8
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	89	76 - 131	-11.3
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	98	70 - 143	-1.5
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	93	74 - 135	-6.7
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	95	73 - 137	-5.4
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.44	0.37-0.51	92	78 - 129	-8.2
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.43	0.37-0.51	94	77 - 129	-5.8
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.5	7.8 - 12.7	-5.3

(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

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ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
203606

Run #17 Filename P524779 Samp: 1 Inj: 1 Acquired: 18-OCT-19 07:23:28
Processed: 18-OCT-19 15:54:23 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:57	6.597e+03	9.074e+03	0.73	yes	no	0.962
2	Unk	1,2,3,7,8-PeCDF	30:51	4.882e+04	3.290e+04	1.48	yes	no	0.968
3	Unk	2,3,4,7,8-PeCDF	31:51	4.577e+04	3.065e+04	1.49	yes	no	0.919
4	Unk	1,2,3,4,7,8-HxCDF	34:44	3.848e+04	3.129e+04	1.23	yes	no	1.161
5	Unk	1,2,3,6,7,8-HxCDF	34:50	4.395e+04	3.561e+04	1.23	yes	no	1.073
6	Unk	2,3,4,6,7,8-HxCDF	35:23	3.860e+04	3.141e+04	1.23	yes	no	1.069
7	Unk	1,2,3,7,8,9-HxCDF	36:10	3.364e+04	2.737e+04	1.23	yes	no	1.096
8	Unk	1,2,3,4,6,7,8-HpCDF	37:30	3.239e+04	3.182e+04	1.02	yes	no	1.281
9	Unk	1,2,3,4,7,8,9-HpCDF	38:52	2.605e+04	2.608e+04	1.00	yes	no	1.192
10	Unk	OCDF	41:14	4.655e+04	5.358e+04	0.87	yes	no	1.204
11	Unk	2,3,7,8-TCDD	26:55	5.394e+03	6.894e+03	0.78	yes	no	1.077
12	Unk	1,2,3,7,8-PeCDD	32:09	3.639e+04	2.318e+04	1.57	yes	no	0.971
13	Unk	1,2,3,4,7,8-HxCDD	35:32	2.932e+04	2.360e+04	1.24	yes	no	1.024
14	Unk	1,2,3,6,7,8-HxCDD	35:37	3.262e+04	2.624e+04	1.24	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	35:52	3.373e+04	2.657e+04	1.27	yes	no	1.055
16	Unk	1,2,3,4,6,7,8-HpCDD	38:25	2.534e+04	2.432e+04	1.04	yes	no	0.989
17	Unk	OCDD	41:04	4.333e+04	4.912e+04	0.88	yes	no	1.094
18	IS	13C-2,3,7,8-TCDF	25:56	7.724e+04	9.809e+04	0.79	yes	no	1.287
19	IS	13C-1,2,3,7,8-PeCDF	30:49	1.090e+05	6.939e+04	1.57	yes	no	1.416
20	IS	13C-2,3,4,7,8-PeCDF	31:51	1.044e+05	6.632e+04	1.57	yes	no	1.374
21	IS	13C-1,2,3,4,7,8-HxCDF	34:43	4.136e+04	7.984e+04	0.52	yes	no	1.114
22	IS	13C-1,2,3,6,7,8-HxCDF	34:50	5.178e+04	9.853e+04	0.53	yes	no	1.245
23	IS	13C-2,3,4,6,7,8-HxCDF	35:22	4.552e+04	8.740e+04	0.52	yes	no	1.146
24	IS	13C-1,2,3,7,8,9-HxCDF	36:10	3.933e+04	7.352e+04	0.53	yes	no	0.986
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:29	3.138e+04	7.165e+04	0.44	yes	no	0.915
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:51	2.610e+04	6.008e+04	0.43	yes	no	0.746
27	IS	13C-2,3,7,8-TCDD	26:53	5.112e+04	6.466e+04	0.79	yes	no	0.929
28	IS	13C-1,2,3,7,8-PeCDD	32:09	7.530e+04	4.694e+04	1.60	yes	no	1.017
29	IS	13C-1,2,3,4,7,8-HxCDD	35:31	5.840e+04	4.530e+04	1.29	yes	no	0.945
30	IS	13C-1,2,3,6,7,8-HxCDD	35:36	6.288e+04	4.901e+04	1.28	yes	no	0.924
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:25	5.175e+04	4.928e+04	1.05	yes	no	0.876
32	IS	13C-OCDD	41:04	8.129e+04	9.071e+04	0.90	yes	no	0.662
33	RS/RT	13C-1,2,3,4-TCDD	26:10	5.921e+04	7.414e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:51	6.905e+04	5.359e+04	1.29	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:55	1.275e+04				no	1.010

ALS ENVIRONMENTAL
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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
203606

Run #17 Filename P524779 Samp: 1 Inj: 1 Acquired: 18-OCT-19 07:23:28
Processed: 18-OCT-19 15:54:23 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	8.71e+05	5.16e+02	1.7e+03	1.24e+06	1.71e+03	7.3e+02
2	1,2,3,7,8-PeCDF	7.69e+06	5.36e+02	1.4e+04	5.12e+06	2.09e+03	2.4e+03
3	2,3,4,7,8-PeCDF	8.01e+06	5.36e+02	1.5e+04	5.36e+06	2.09e+03	2.6e+03
4	1,2,3,4,7,8-HxCDF	7.70e+06	7.72e+02	1.0e+04	6.22e+06	1.09e+03	5.7e+03
5	1,2,3,6,7,8-HxCDF	8.14e+06	7.72e+02	1.1e+04	6.51e+06	1.09e+03	6.0e+03
6	2,3,4,6,7,8-HxCDF	7.40e+06	7.72e+02	9.6e+03	5.98e+06	1.09e+03	5.5e+03
7	1,2,3,7,8,9-HxCDF	5.92e+06	7.72e+02	7.7e+03	4.70e+06	1.09e+03	4.3e+03
8	1,2,3,4,6,7,8-HpCDF	6.19e+06	2.36e+03	2.6e+03	6.01e+06	3.25e+03	1.8e+03
9	1,2,3,4,7,8,9-HpCDF	4.58e+06	2.36e+03	1.9e+03	4.49e+06	3.25e+03	1.4e+03
10	OCDF	6.74e+06	2.56e+02	2.6e+04	7.86e+06	5.92e+02	1.3e+04
11	2,3,7,8-TCDD	7.95e+05	1.10e+03	7.2e+02	9.91e+05	1.21e+03	8.2e+02
12	1,2,3,7,8-PeCDD	6.08e+06	2.48e+02	2.5e+04	3.83e+06	1.48e+02	2.6e+04
13	1,2,3,4,7,8-HxCDD	5.97e+06	7.00e+02	8.5e+03	4.76e+06	1.26e+03	3.8e+03
14	1,2,3,6,7,8-HxCDD	6.13e+06	7.00e+02	8.8e+03	5.07e+06	1.26e+03	4.0e+03
15	1,2,3,7,8,9-HxCDD	5.97e+06	7.00e+02	8.5e+03	4.73e+06	1.26e+03	3.7e+03
16	1,2,3,4,6,7,8-HpCDD	4.69e+06	3.12e+02	1.5e+04	4.50e+06	5.44e+02	8.3e+03
17	OCDD	6.41e+06	2.16e+02	3.0e+04	7.15e+06	9.04e+02	7.9e+03
18	13C-2,3,7,8-TCDF	1.01e+07	4.74e+03	2.1e+03	1.29e+07	2.21e+03	5.8e+03
19	13C-1,2,3,7,8-PeCDF	1.72e+07	9.84e+02	1.8e+04	1.10e+07	5.88e+02	1.9e+04
20	13C-2,3,4,7,8-PeCDF	1.79e+07	9.84e+02	1.8e+04	1.14e+07	5.88e+02	1.9e+04
21	13C-1,2,3,4,7,8-HxCDF	8.29e+06	4.64e+02	1.8e+04	1.58e+07	9.60e+02	1.6e+04
22	13C-1,2,3,6,7,8-HxCDF	9.38e+06	4.64e+02	2.0e+04	1.81e+07	9.60e+02	1.9e+04
23	13C-2,3,4,6,7,8-HxCDF	8.70e+06	4.64e+02	1.9e+04	1.70e+07	9.60e+02	1.8e+04
24	13C-1,2,3,7,8,9-HxCDF	6.71e+06	4.64e+02	1.4e+04	1.27e+07	9.60e+02	1.3e+04
25	13C-1,2,3,4,6,7,8-HpCDF	6.11e+06	3.32e+03	1.8e+03	1.38e+07	1.99e+03	6.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.52e+06	3.32e+03	1.4e+03	1.03e+07	1.99e+03	5.2e+03
27	13C-2,3,7,8-TCDD	7.54e+06	6.54e+03	1.2e+03	9.63e+06	1.69e+03	5.7e+03
28	13C-1,2,3,7,8-PeCDD	1.23e+07	4.68e+02	2.6e+04	7.78e+06	7.84e+02	9.9e+03
29	13C-1,2,3,4,7,8-HxCDD	1.18e+07	2.22e+03	5.3e+03	9.09e+06	5.64e+02	1.6e+04
30	13C-1,2,3,6,7,8-HxCDD	1.18e+07	2.22e+03	5.3e+03	9.17e+06	5.64e+02	1.6e+04
31	13C-1,2,3,4,6,7,8-HpCDD	9.66e+06	9.00e+02	1.1e+04	9.16e+06	5.24e+02	1.7e+04
32	13C-OCDD	1.18e+07	2.28e+02	5.2e+04	1.33e+07	5.92e+02	2.3e+04
33	13C-1,2,3,4-TCDD	8.77e+06	6.54e+03	1.3e+03	1.09e+07	1.69e+03	6.4e+03
34	13C-1,2,3,7,8,9-HxCDD	1.19e+07	2.22e+03	5.4e+03	9.55e+06	5.64e+02	1.7e+04
35	37Cl-2,3,7,8-TCDD	1.90e+06	9.96e+02	1.9e+03			

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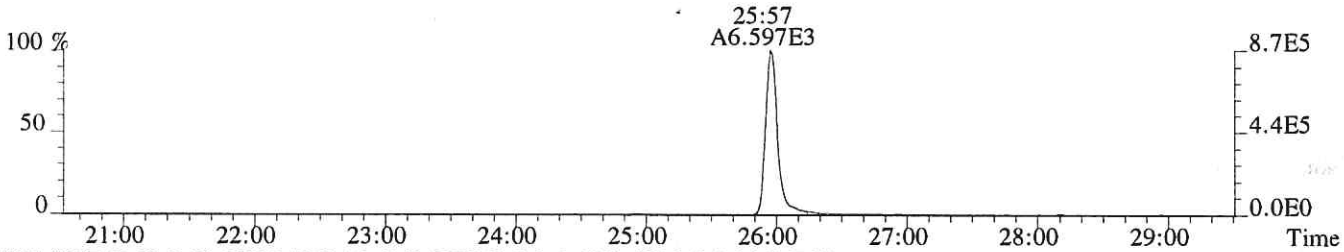
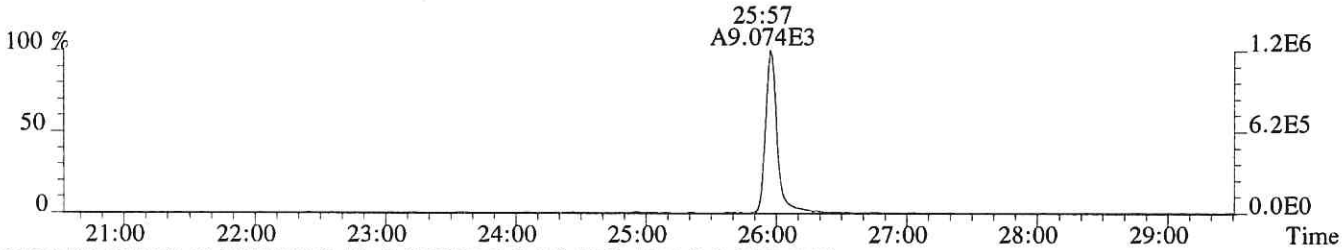
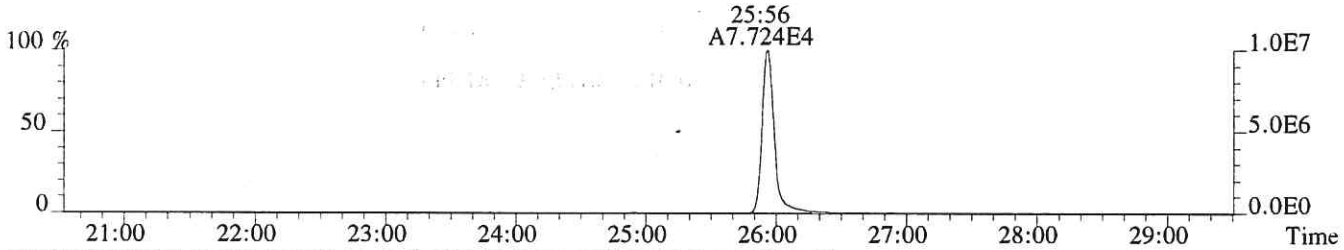
File:P524779 #1-637 Acq:18-OCT-2019 07:23:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:203606
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,516.0,1.00%,F,T)



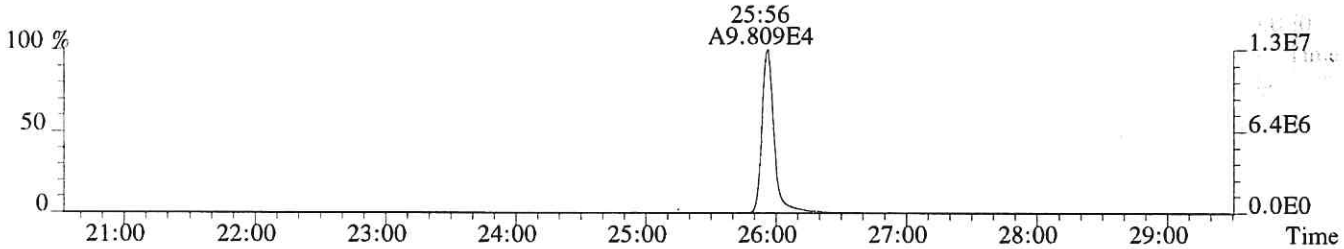
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1712.0,1.00%,F,T)



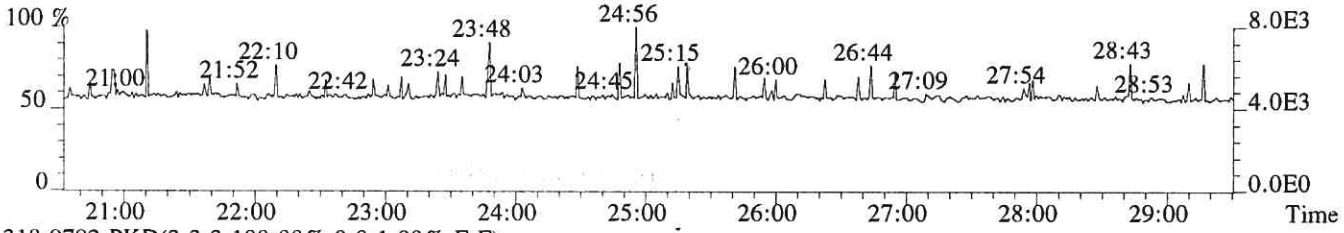
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4744.0,1.00%,F,T)



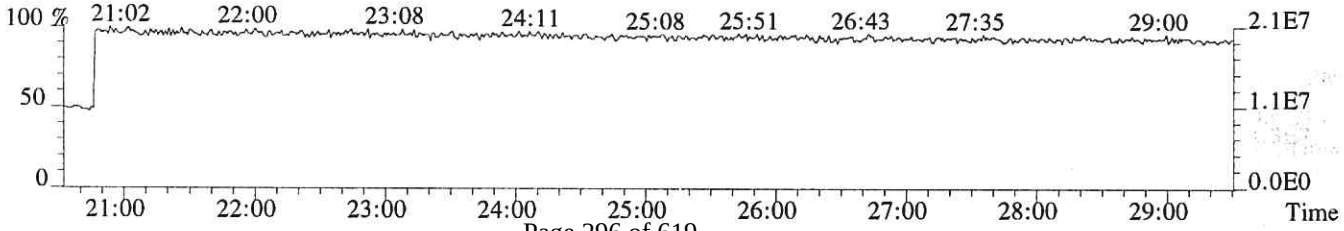
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2212.0,1.00%,F,T)



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



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



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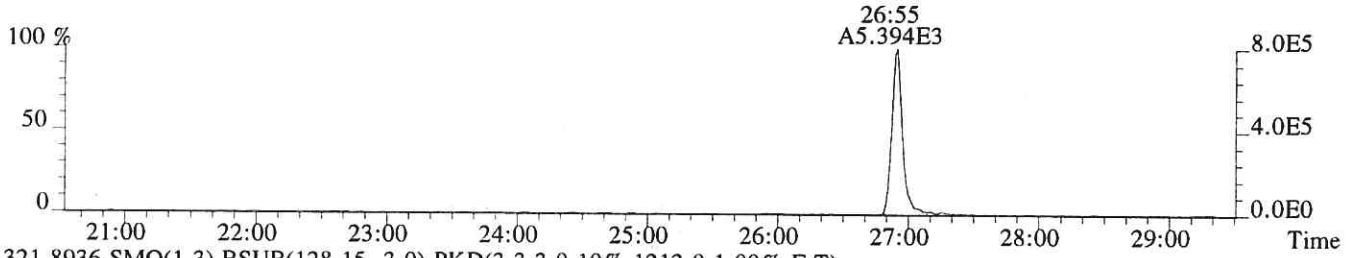
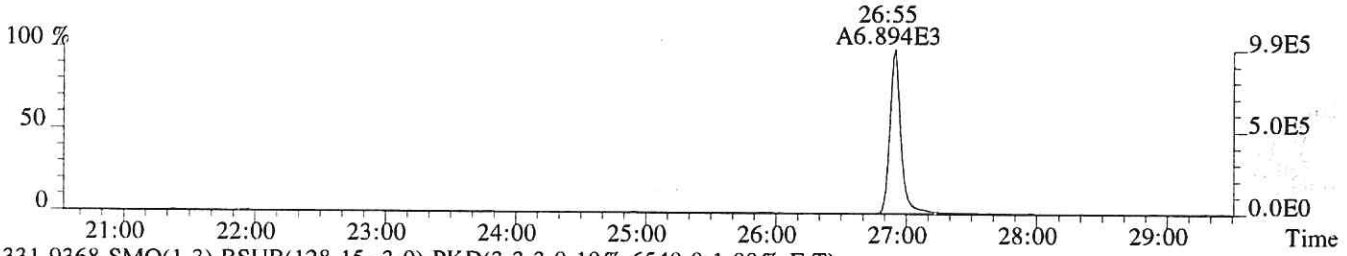
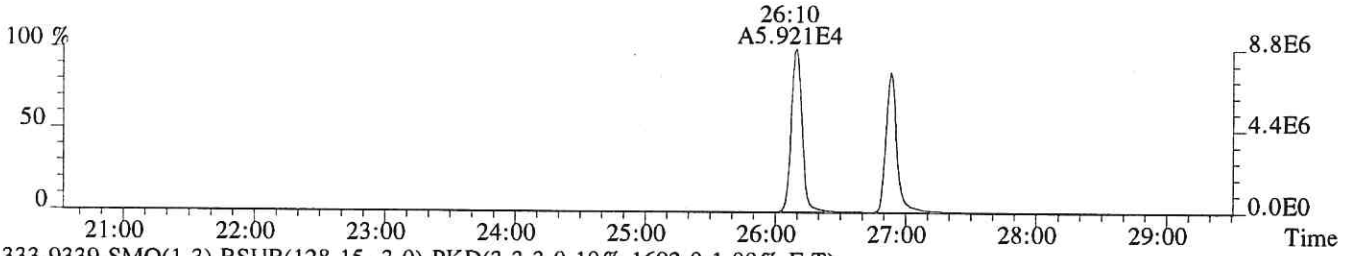
File:P524779 #1-637 Acq:18-OCT-2019 07:23:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:203606
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1104.0,1.00%,F,T)



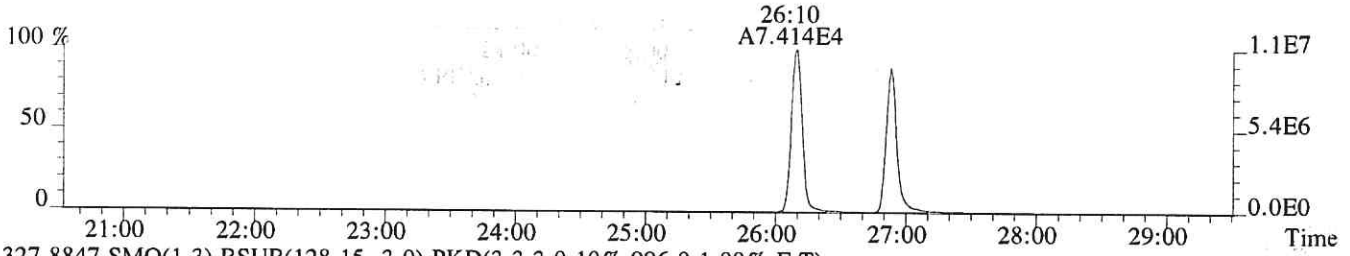
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1212.0,1.00%,F,T)



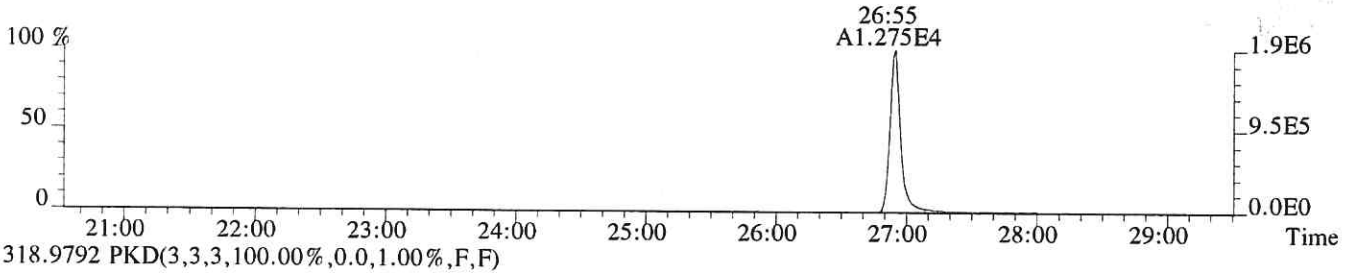
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6540.0,1.00%,F,T)



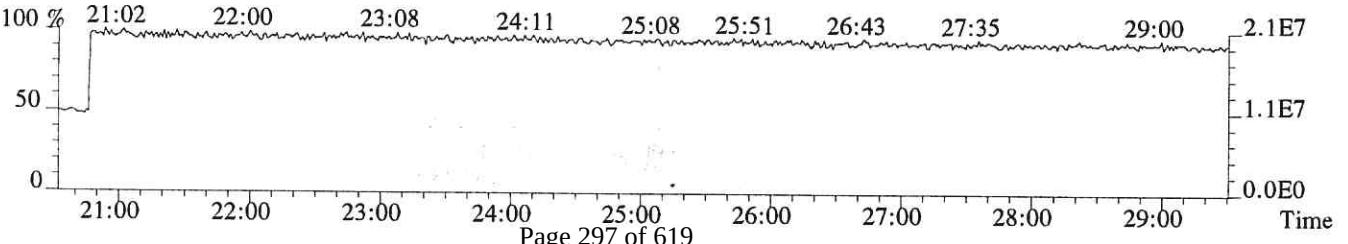
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1692.0,1.00%,F,T)



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

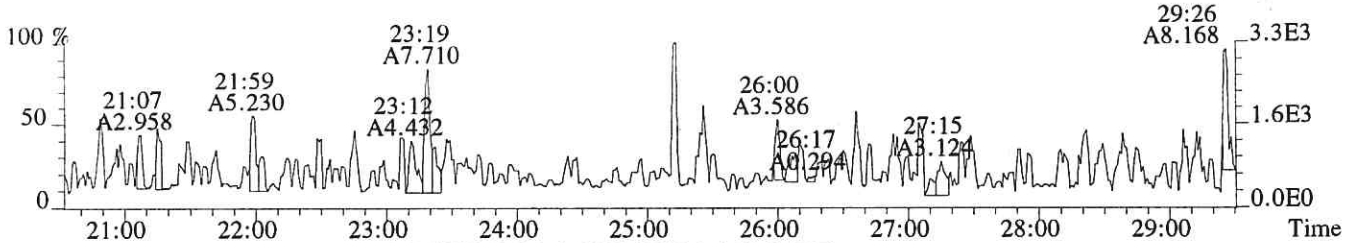


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

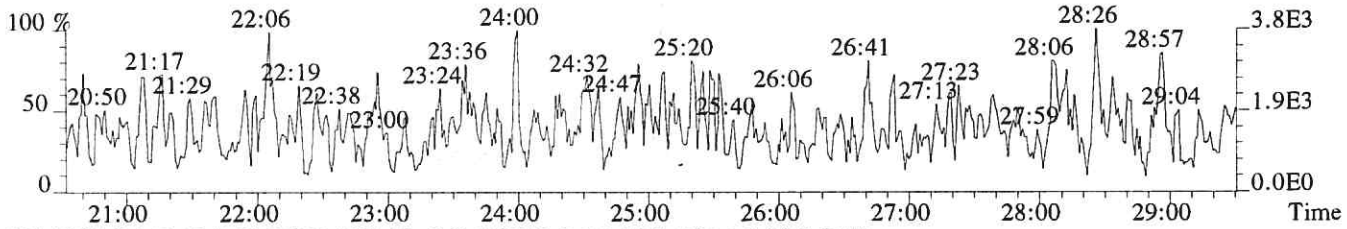


RIGHT SOLUTIONS | RIGHT PARTNER

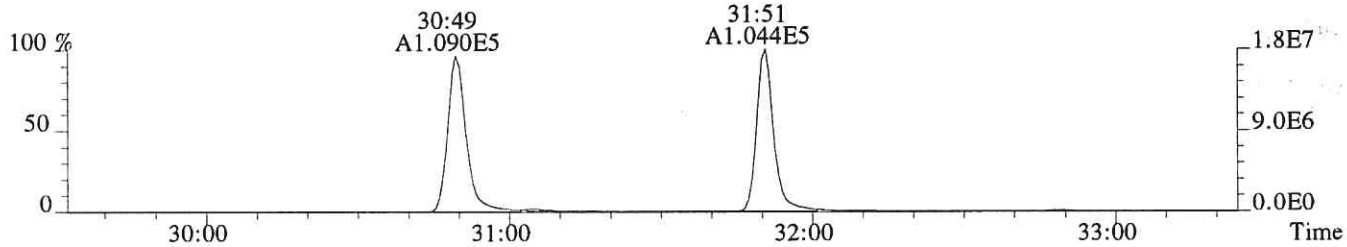
File:P524779 #1-637 Acq:18-OCT-2019 07:23:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:203606
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,832.0,1.00%,F,T)



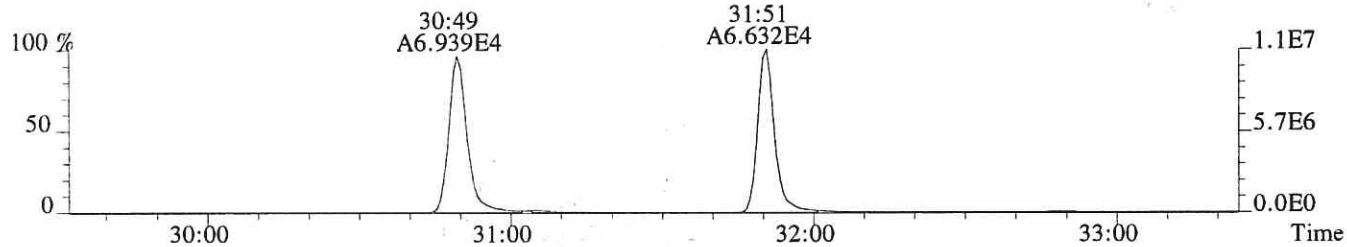
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1776.0,1.00%,F,T)



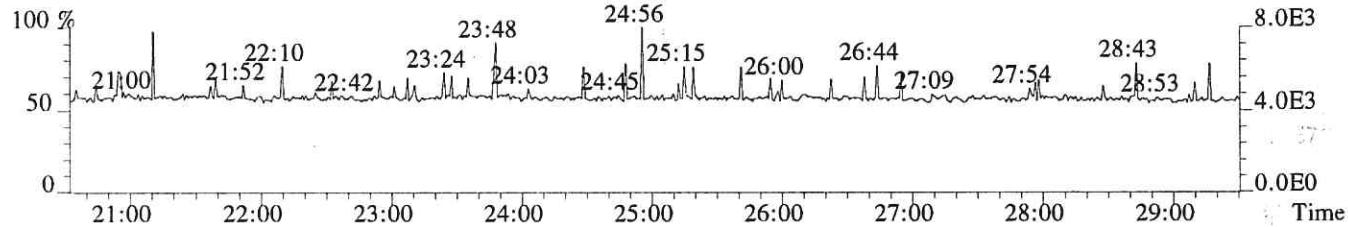
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,984.0,1.00%,F,T)



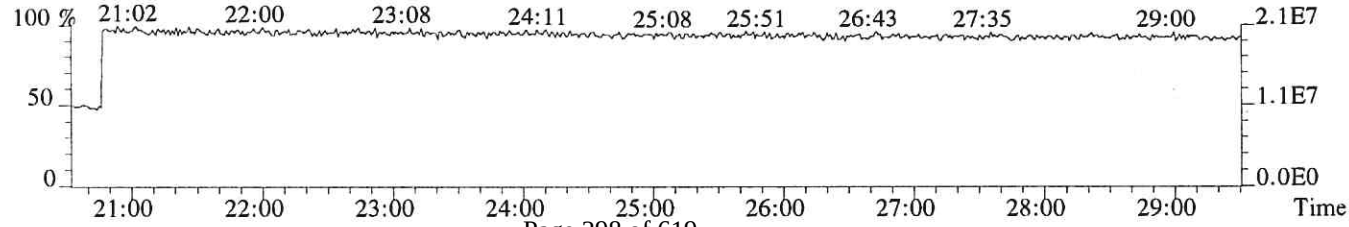
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,588.0,1.00%,F,T)



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)



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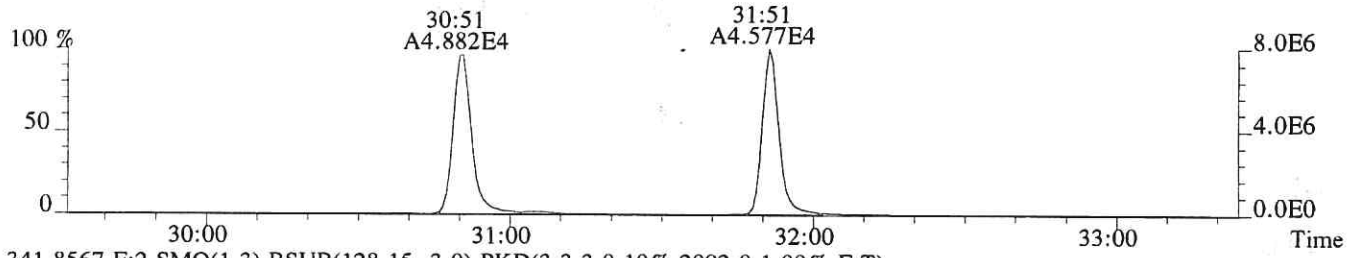
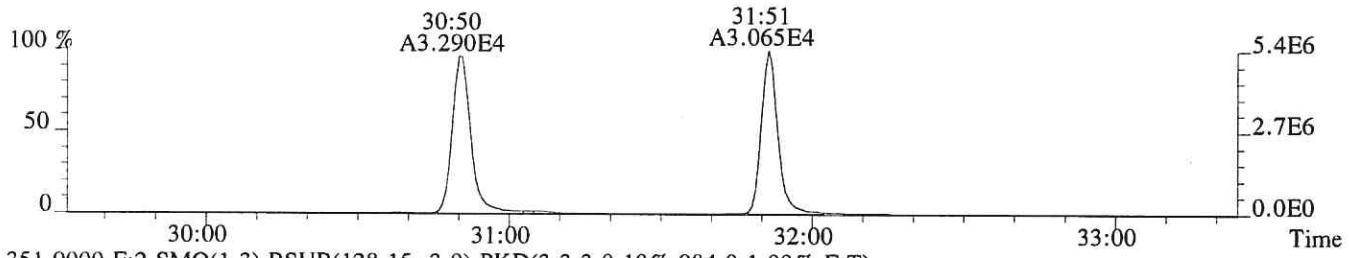
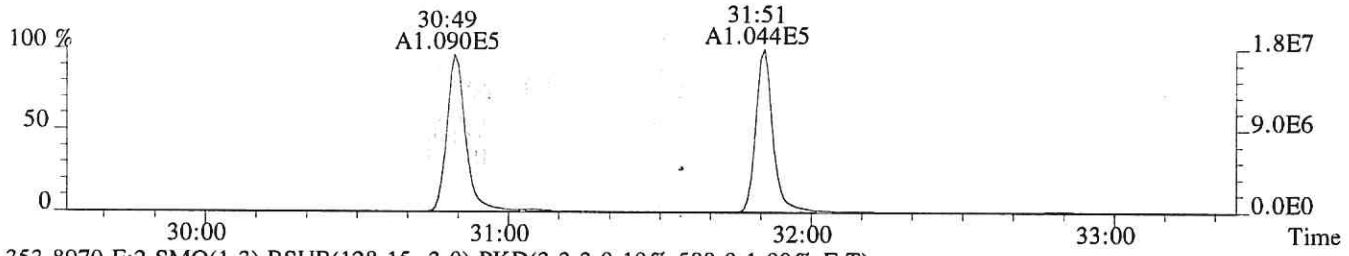
File:P524779 #1-348 Acq:18-OCT-2019 07:23:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:203606
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,536.0,1.00%,F,T)



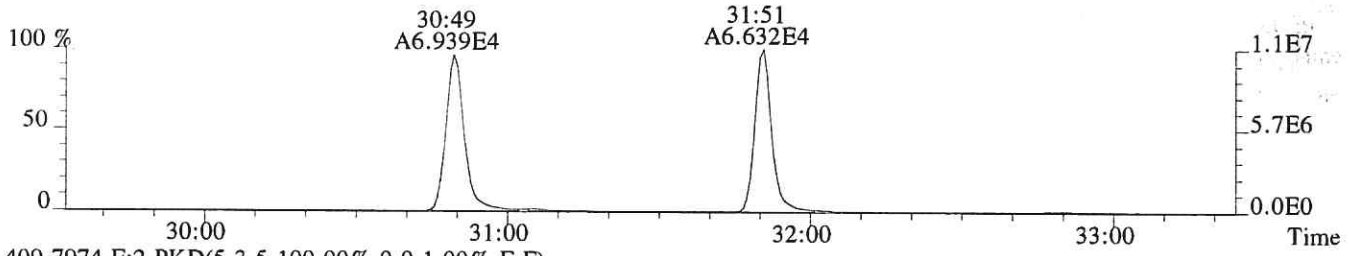
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2092.0,1.00%,F,T)



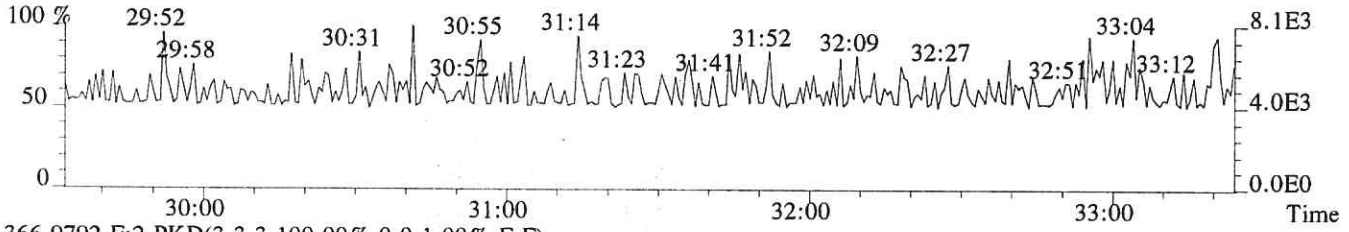
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,984.0,1.00%,F,T)



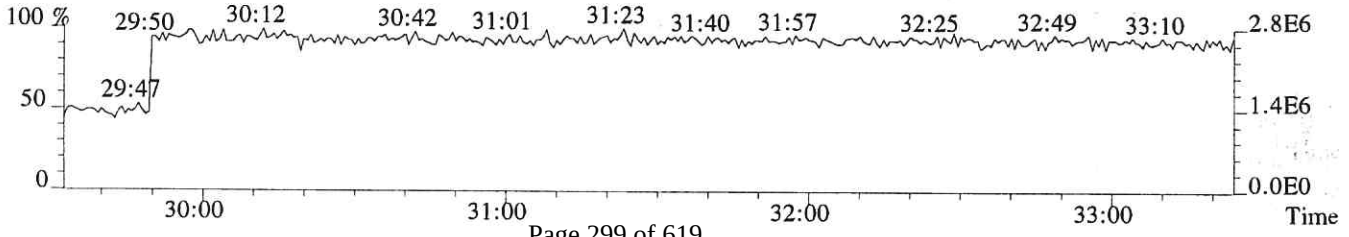
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,588.0,1.00%,F,T)



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

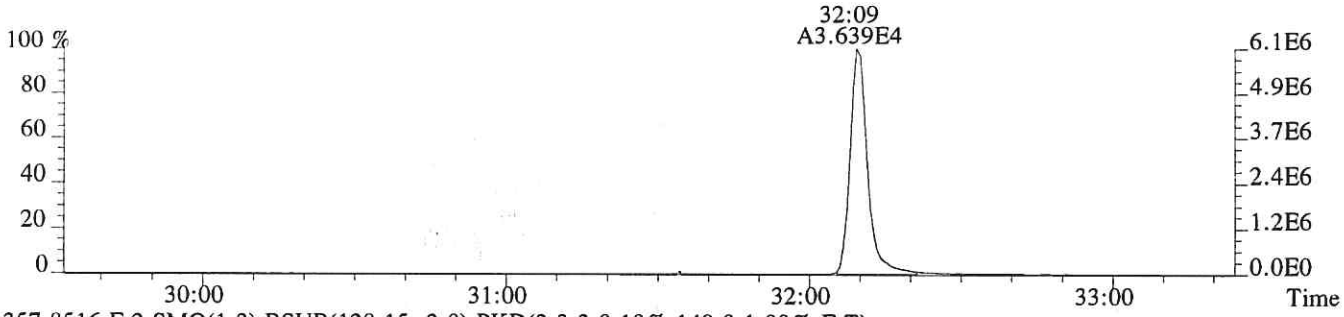


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

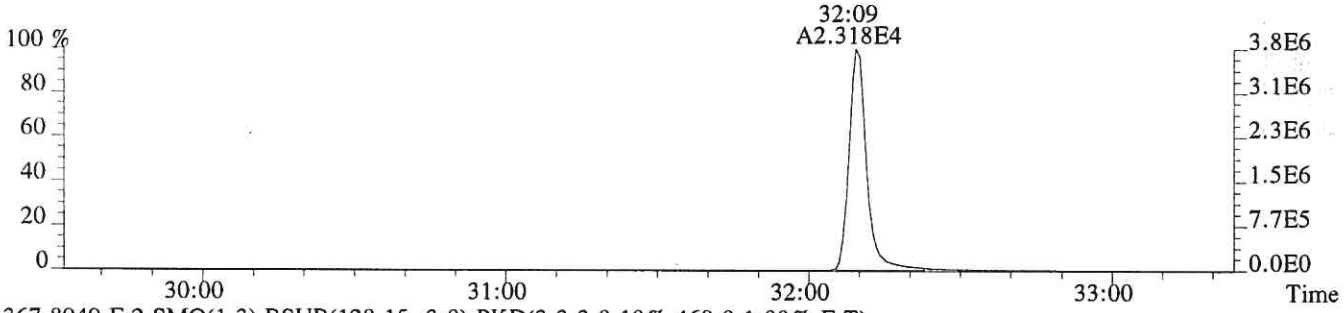


RIGHT SOLUTIONS | RIGHT PARTNER

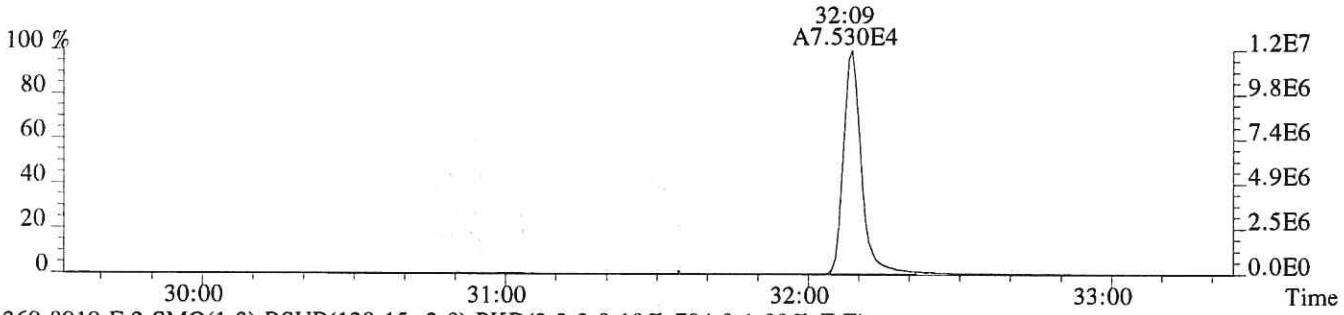
File:P524779 #1-348 Acq:18-OCT-2019 07:23:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:203606
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,248.0,1.00%,F,T)



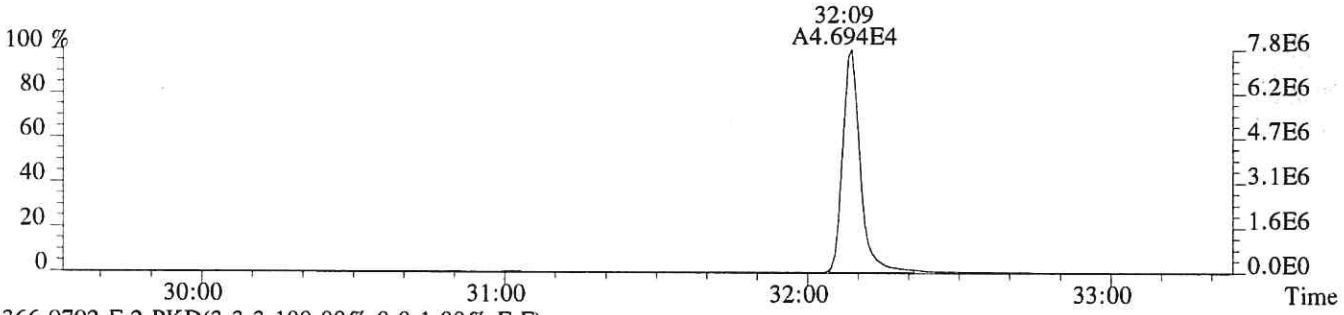
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,148.0,1.00%,F,T)



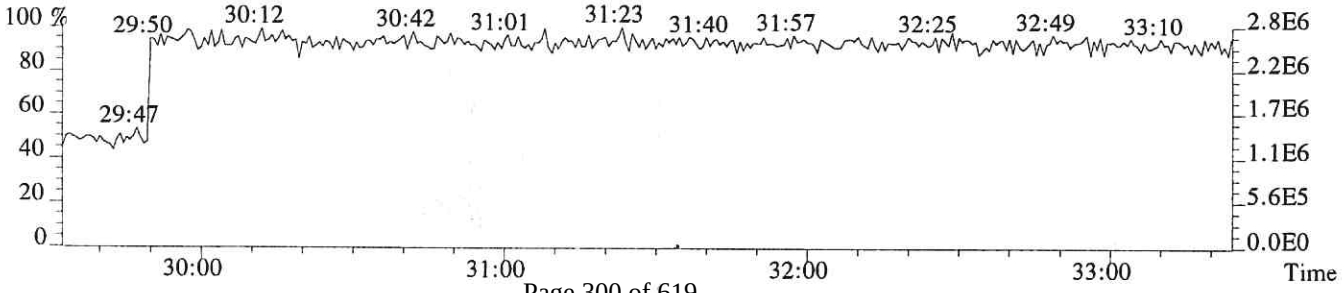
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,468.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,784.0,1.00%,F,T)

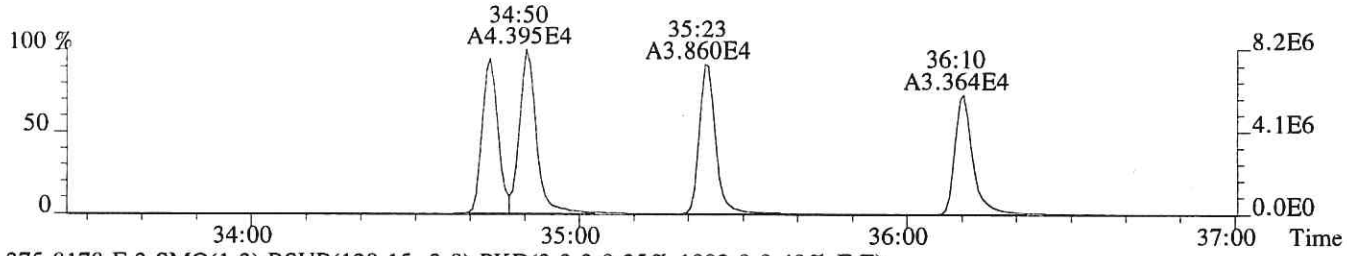


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

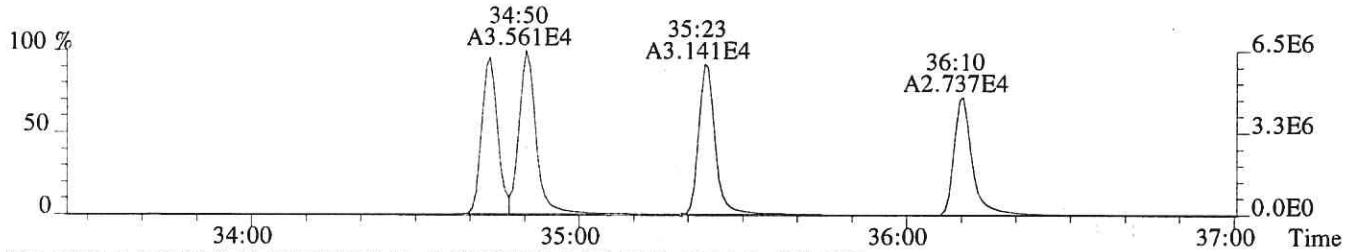


RIGHT SOLUTIONS | RIGHT PARTNER

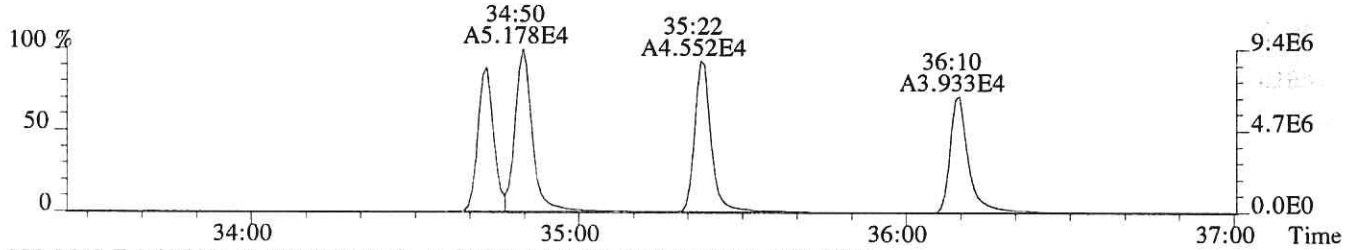
File:P524779 #1-322 Acq:18-OCT-2019 07:23:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:203606
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,772.0,0.40%,F,T)



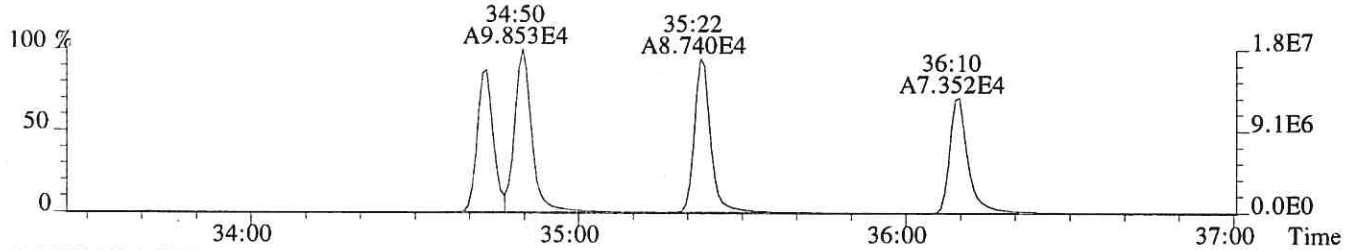
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1092.0,0.40%,F,T)



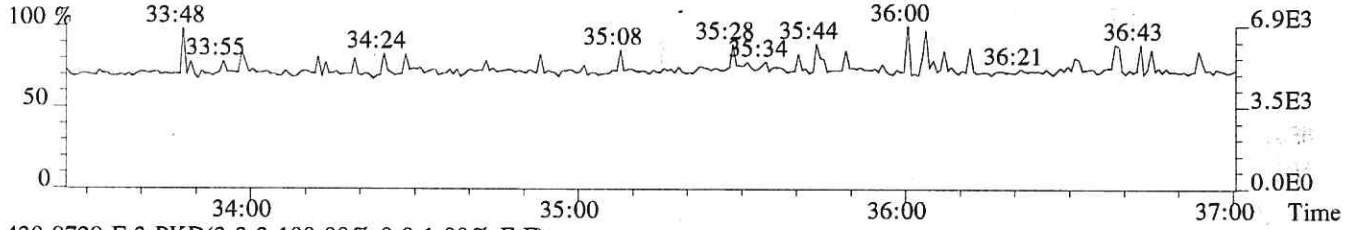
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,464.0,0.40%,F,T)



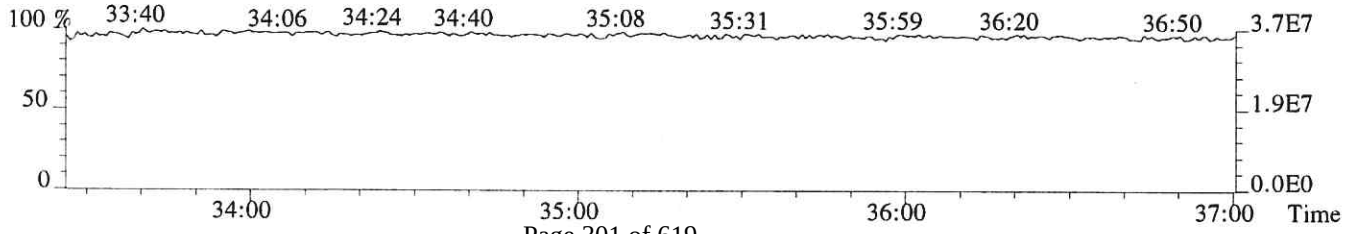
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,960.0,0.40%,F,T)



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

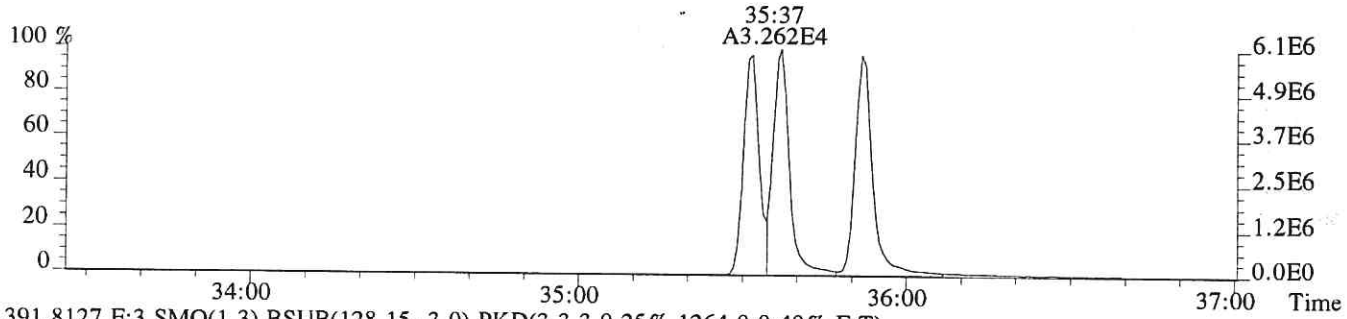


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

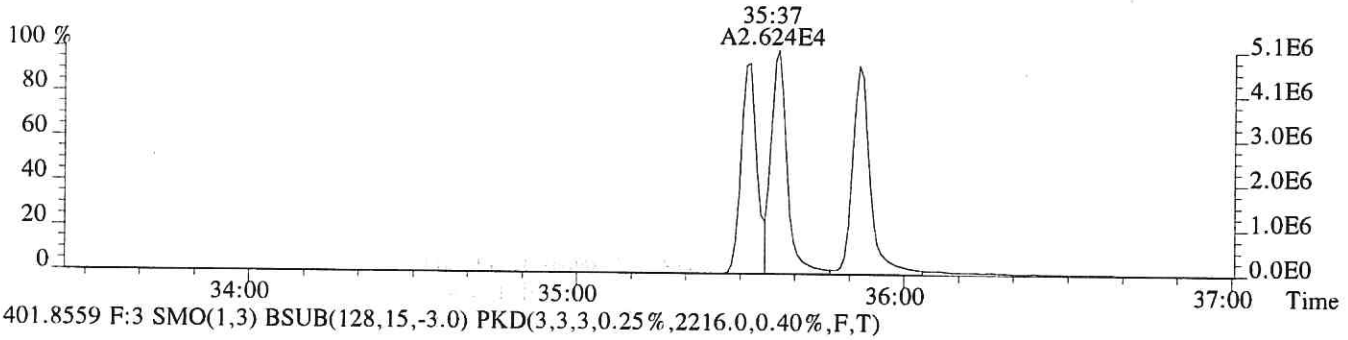


RIGHT SOLUTIONS | RIGHT PARTNER

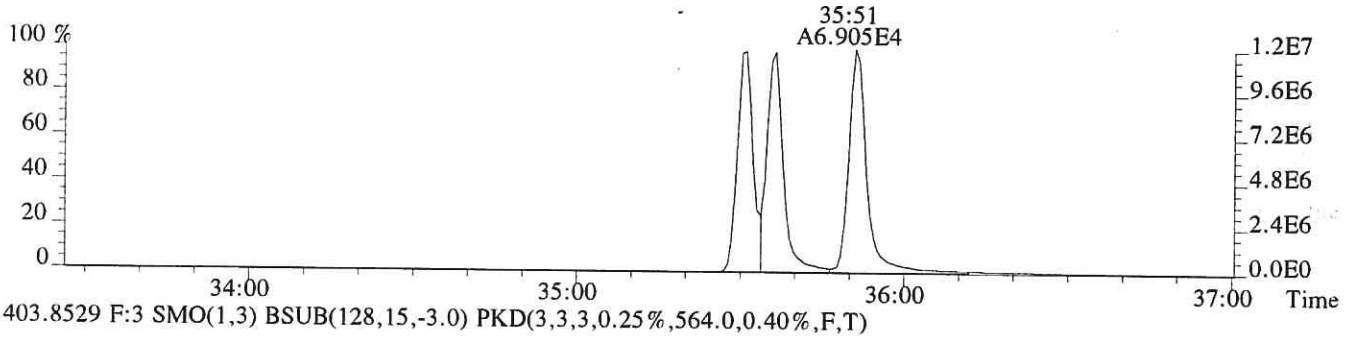
File:P524779 #1-322 Acq:18-OCT-2019 07:23:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:203606
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,700.0,0.40%,F,T)



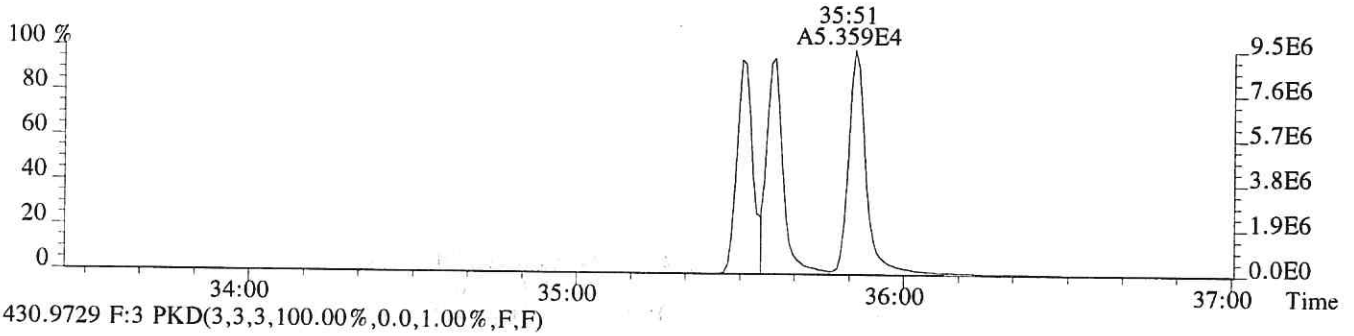
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1264.0,0.40%,F,T)



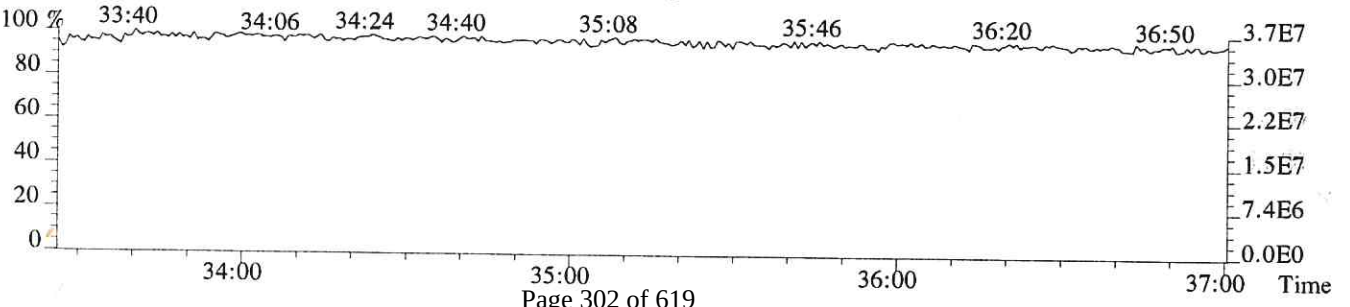
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2216.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,564.0,0.40%,F,T)

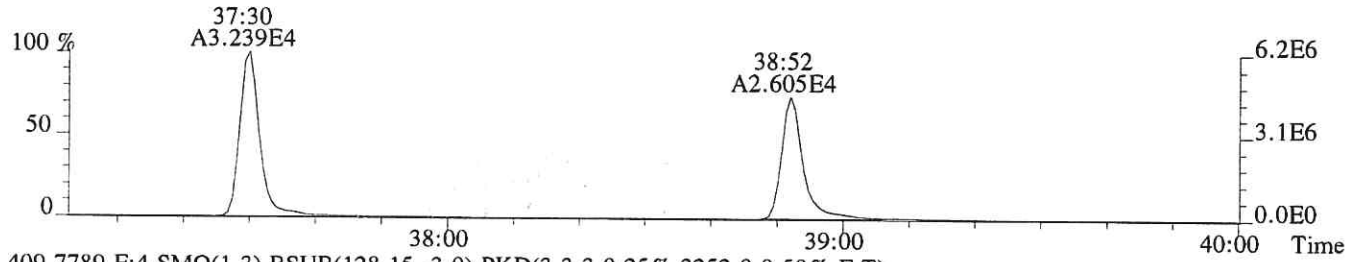


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

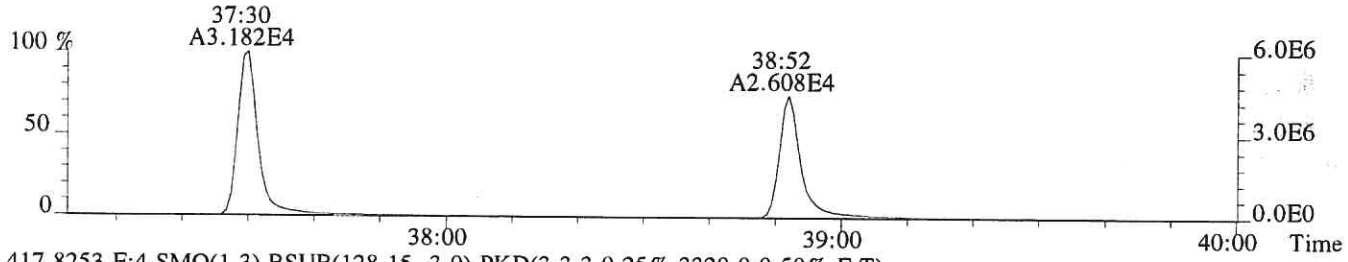


RIGHT SOLUTIONS | RIGHT PARTNER

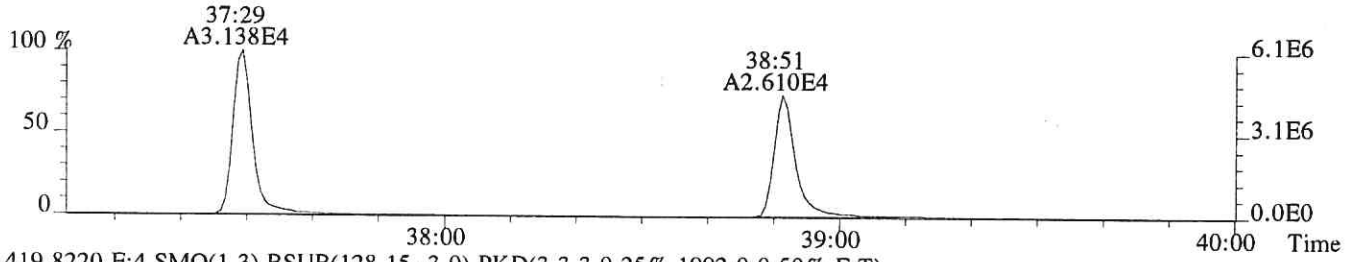
File:P524779 #1-267 Acq:18-OCT-2019 07:23:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:203606
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2360.0,0.50%,F,T)



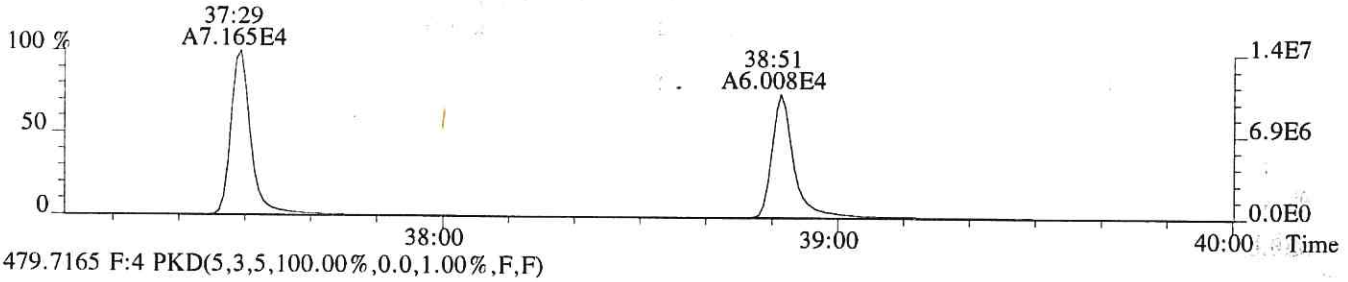
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3252.0,0.50%,F,T)



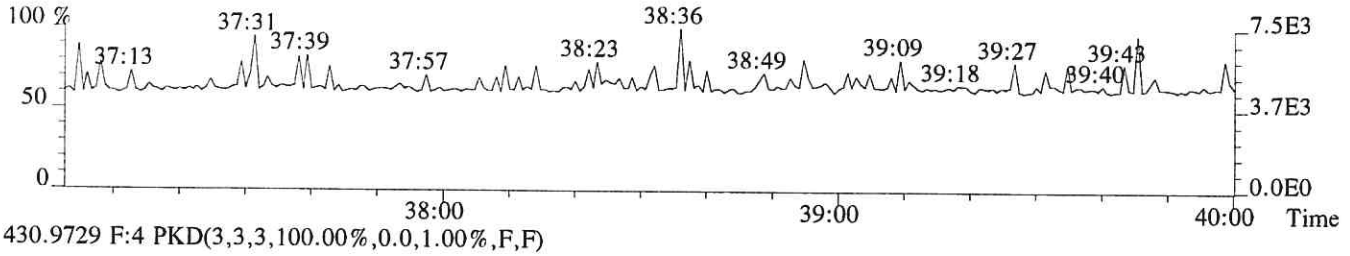
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3320.0,0.50%,F,T)



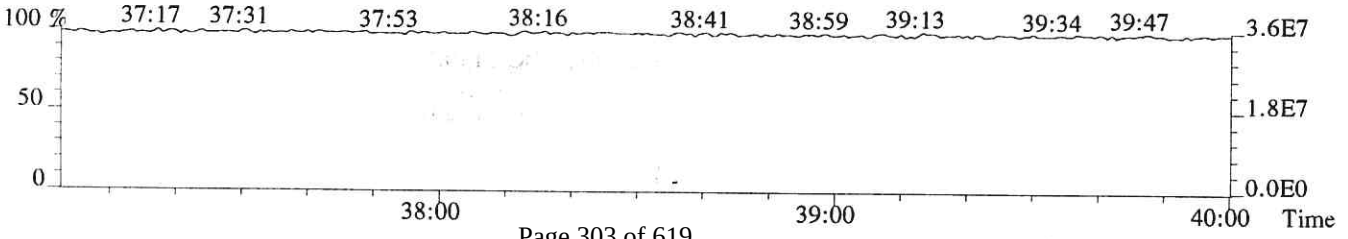
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1992.0,0.50%,F,T)



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

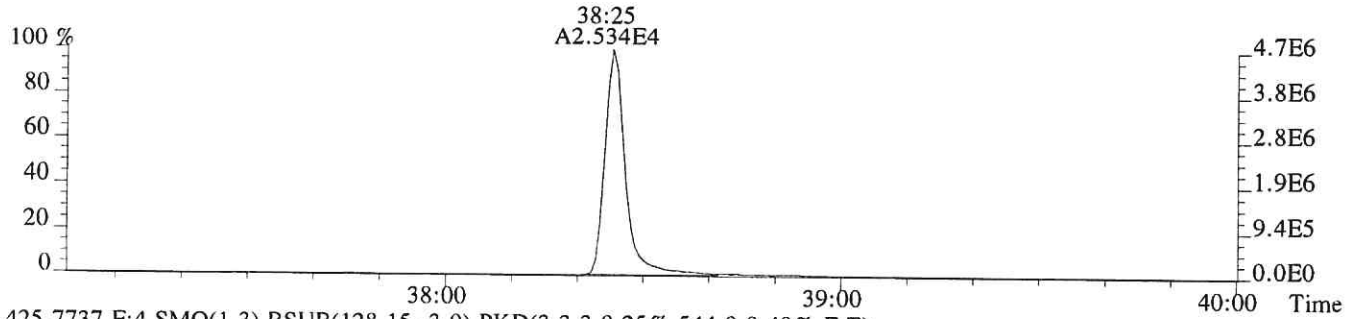


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

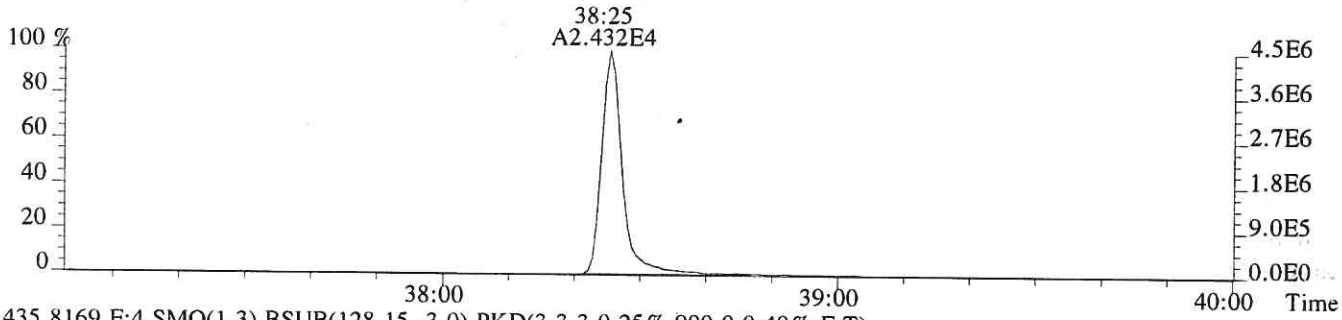


RIGHT SOLUTIONS | RIGHT PARTNER

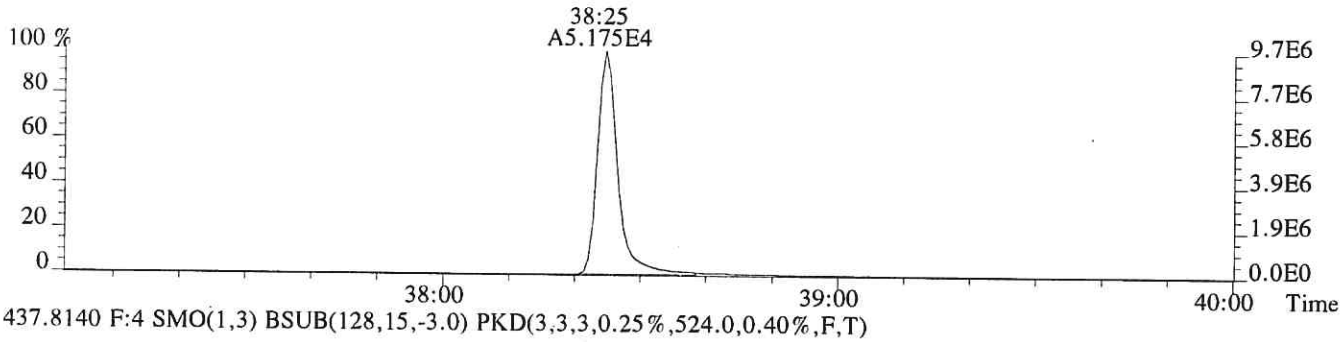
File:P524779 #1-267 Acq:18-OCT-2019 07:23:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:203606
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,312.0,0.40%,F,T)



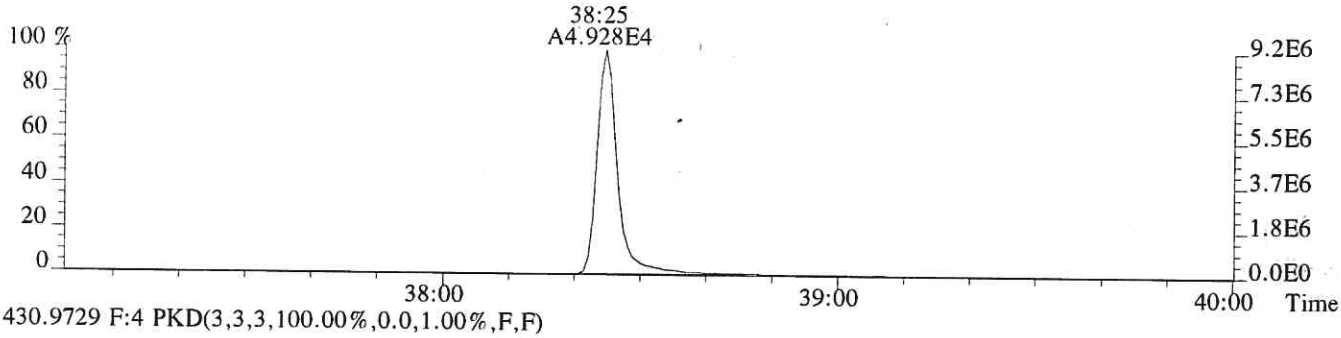
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,544.0,0.40%,F,T)



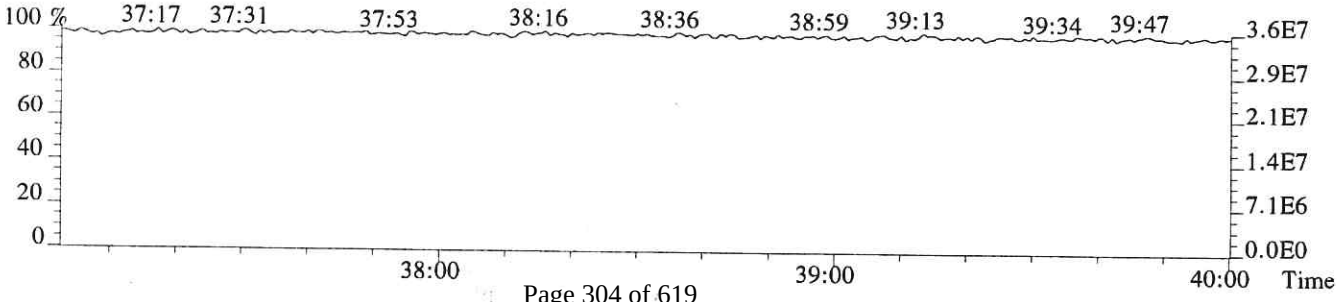
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,900.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,524.0,0.40%,F,T)

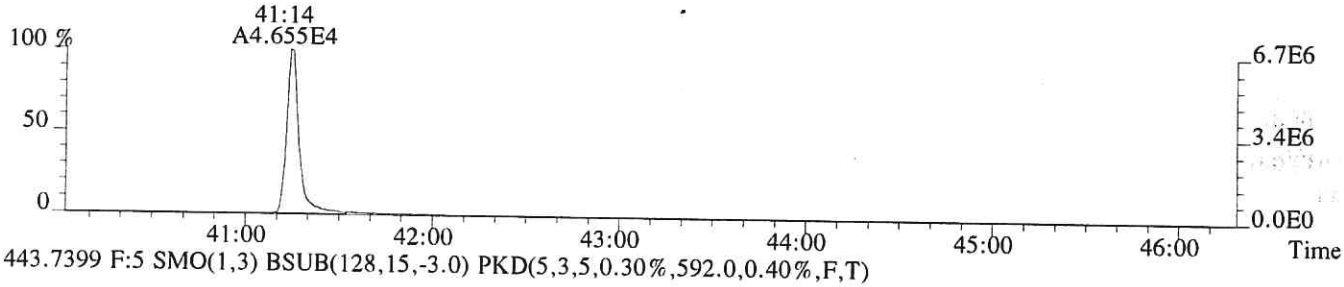


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

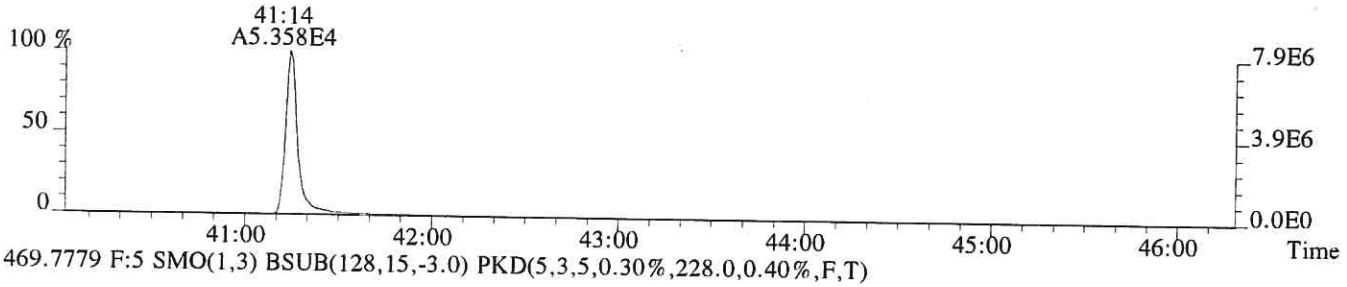


RIGHT SOLUTIONS | RIGHT PARTNER

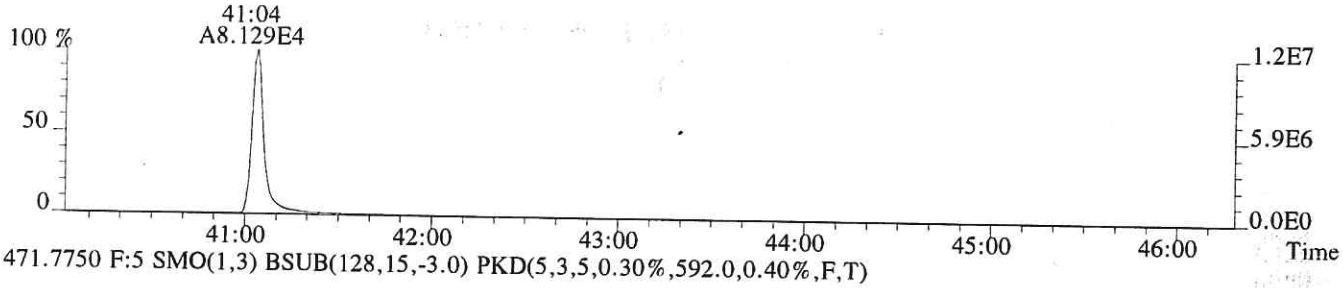
File:P524779 #1-565 Acq:18-OCT-2019 07:23:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:203606
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,256.0,0.40%,F,T)



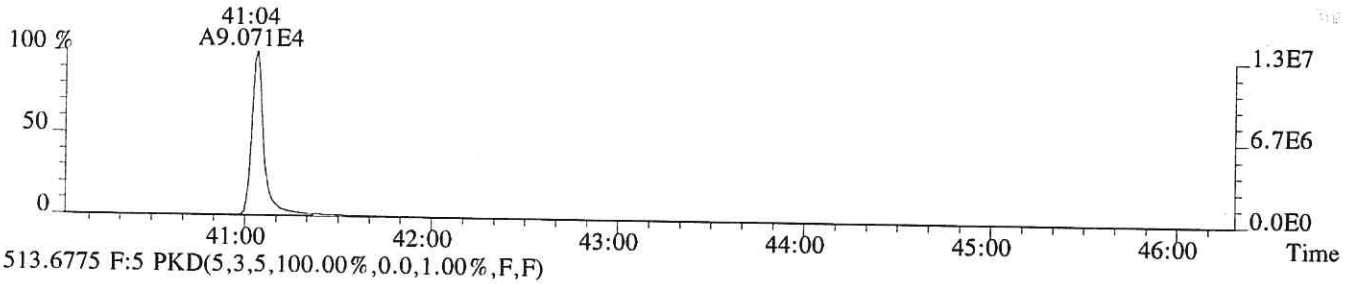
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,592.0,0.40%,F,T)



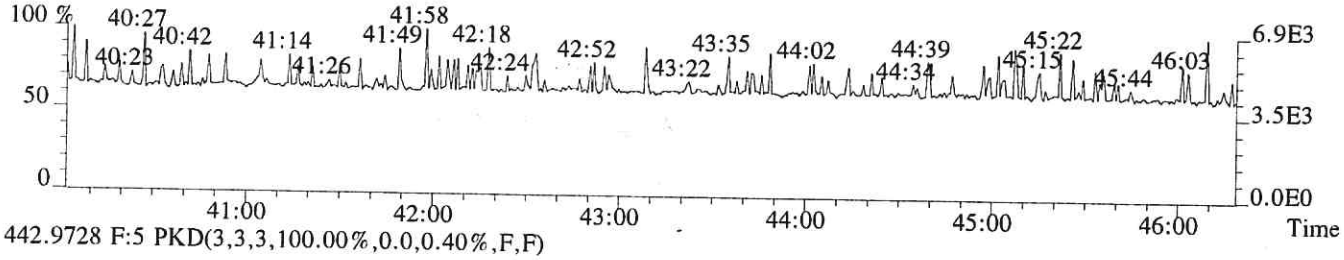
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,228.0,0.40%,F,T)



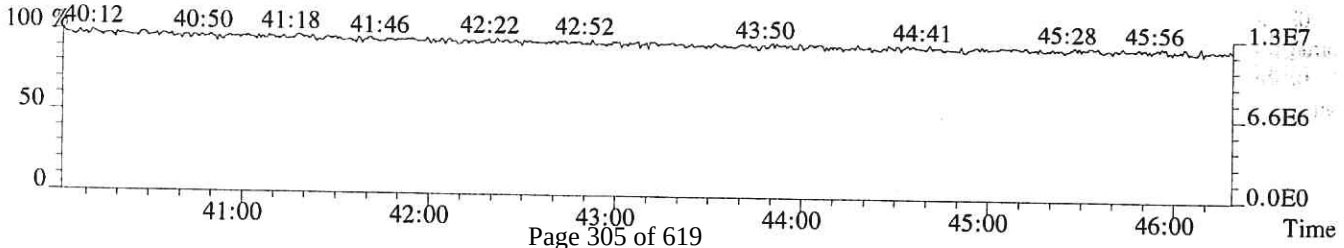
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,592.0,0.40%,F,T)



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

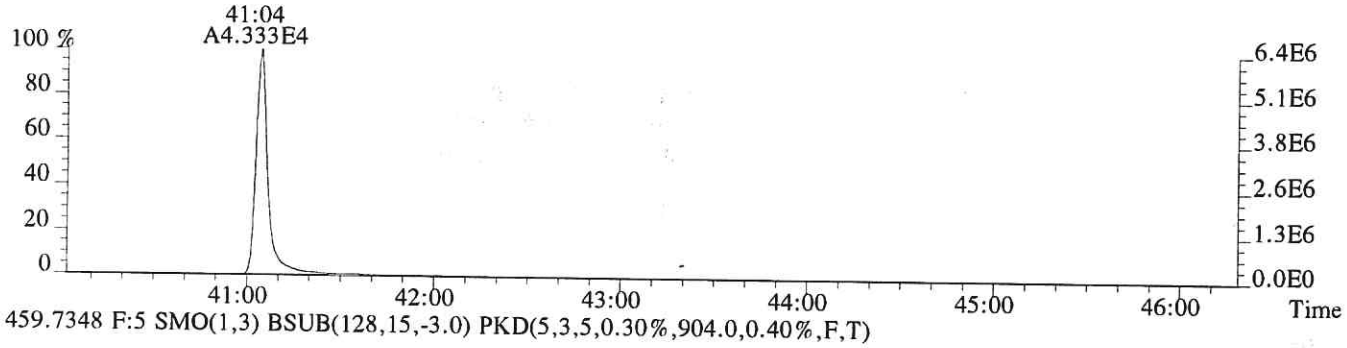


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

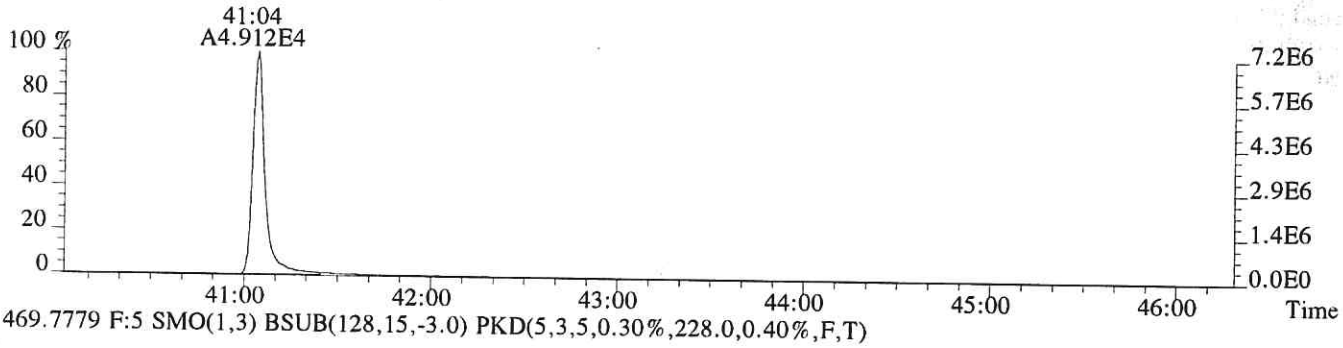


RIGHT SOLUTIONS | RIGHT PARTNER

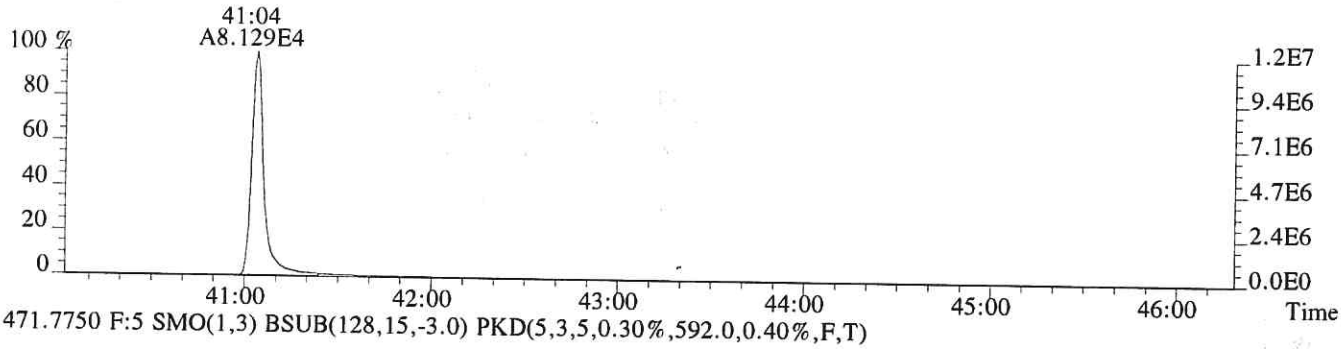
File:P524779 #1-565 Acq:18-OCT-2019 07:23:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:203606
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,216.0,0.40%,F,T)



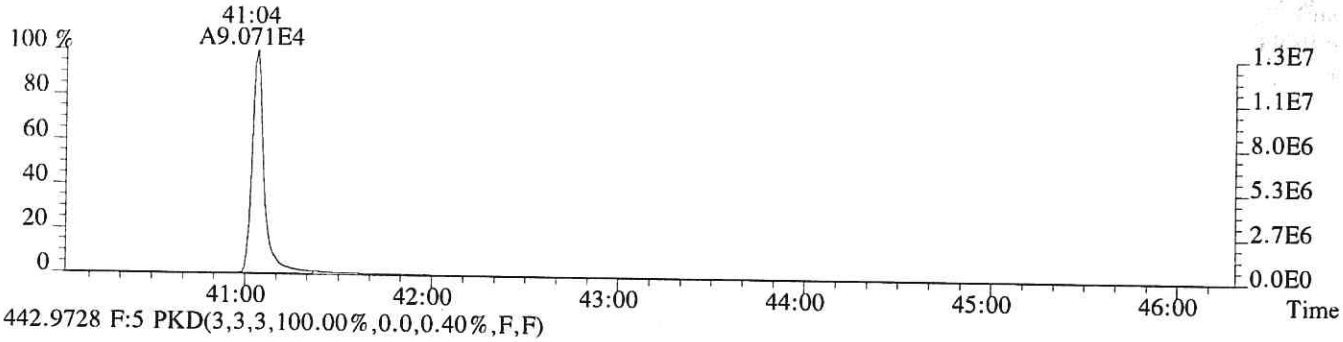
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,904.0,0.40%,F,T)



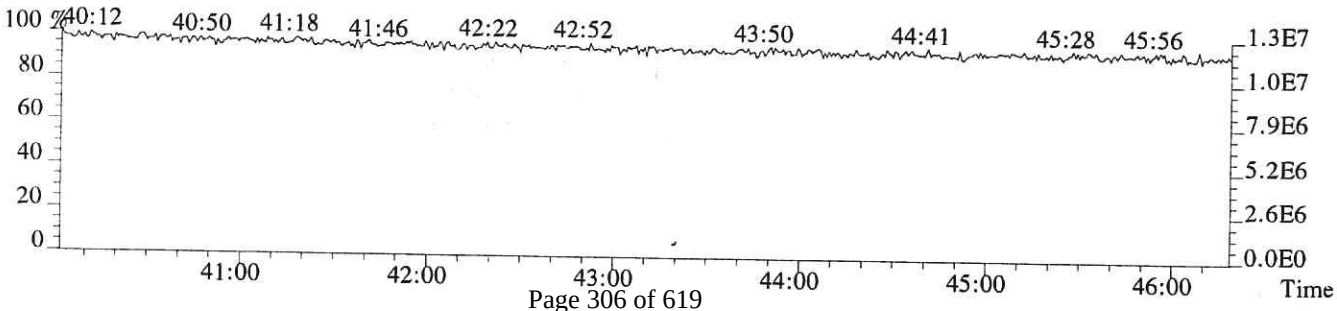
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,228.0,0.40%,F,T)



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)



RIGHT SOLUTIONS | RIGHT PARTNER

CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P524830 - P524842

Date: 10/20/19

Circle one: Beginning / Ending

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

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

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

Analyst: JC

Second QC: LKL

ccalqc.xls 07/17/12

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5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

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

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

Init. Calib. Date: 04/25/19

Init. Calib.Times: 21:22

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
203606	CS3	P524830	20-OCT-19	06:06:12
202629	WINDOW DEFINE	P524831	20-OCT-19	07:02:12
METHOD BLANK	EQ1900346-01	P524832	20-OCT-19	07:50:00
DRIED MARKET PULP	E1900648-001RE	P524833	20-OCT-19	08:38:38
KL42HP REEL 15	K1906995-001RE	P524834	20-OCT-19	09:27:17
AC-5CP1-20191009-0	E1900728-001DL	P524835	20-OCT-19	10:15:57
AC-4SC1-20191009-0	E1900728-002DL	P524836	20-OCT-19	11:04:36
AC-4SC2-20191009-0	E1900728-003DL	P524837	20-OCT-19	11:53:16
AC-3WP1-20191009-0	E1900728-004DL	P524838	20-OCT-19	12:41:55
AC-4SC3-20191009-0	E1900728-005DL	P524839	20-OCT-19	13:30:33
AC-3WP1-20191009-0	E1900728-004DL	P524840	20-OCT-19	14:19:12
203606	DO NOT USE	P524841	20-OCT-19	15:07:50
203606	CS3	P524842	20-OCT-19	16:04:40

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Sample List Report MassLynx 4.1 SCN815 SCN795

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20191020A.SPL
Last Modified: Sunday, October 20, 2019 17:31:40 Central Daylight Time
Printed: Sunday, October 20, 2019 17:32:26 Central Daylight Time

Page Position (1, 1)

OPUS 4: P524830res

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	10/20/19	06:06	P524830	CS3	203606	EPA1613_ALS	Dioxin_ALS	Tray1:2	TL	HRMS CHECK 06:06
2		07:20	P524831	WINDOWDEFINE	202629	EPA1613_ALS	Dioxin_ALS	Tray1:1		
3		07:50	P524832	MB	EQ1900346-01	EPA1613_ALS	Dioxin_ALS	Tray1:3		
4		08:38	P524833	E1900648-001RE	E1900648-001RE	EPA1613_ALS	Dioxin_ALS	Tray1:30		
5		09:27	P524834	K1906995-001RE	K1906995-001RE	EPA1613_ALS	Dioxin_ALS	Tray1:31		
6		10:15	P524835	E1900728-001DL	E1900728-001DL	EPA1613_ALS	Dioxin_ALS	Tray1:32		
7		11:04	P524836	E1900728-002DL	E1900728-002DL	EPA1613_ALS	Dioxin_ALS	Tray1:33		
8		11:53	P524837	E1900728-003DL	E1900728-003DL	EPA1613_ALS	Dioxin_ALS	Tray1:34		
9		12:41	P524838	E1900728-004DL	E1900728-004DL	EPA1613_ALS	Dioxin_ALS	Tray1:35		
10		13:30	P524839	E1900728-005DL	E1900728-005DL	EPA1613_ALS	Dioxin_ALS	Tray1:36		
11		14:19	P524840	E1900728-004DL	E1900728-004DL	EPA1613_ALS	Dioxin_ALS	Tray1:37		
12		15:07	P524841	CS3	203606	EPA1613_ALS	Dioxin_ALS	Tray1:2		
13		16:04	P524842	CS3	203606	EPA1613_ALS	Dioxin_ALS	Tray1:2		HRMS CHECK 16:04

gc 10/21/19

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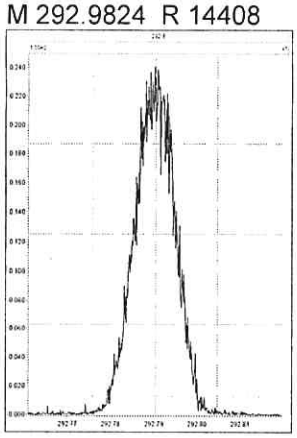
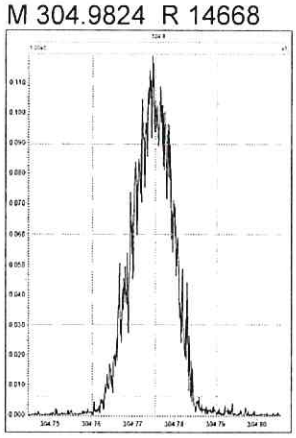
Printed: Sunday, October 20, 2019 06:06:10 Central Daylight Time

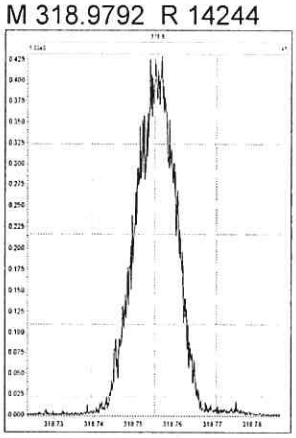
M 292.9824 R 14408



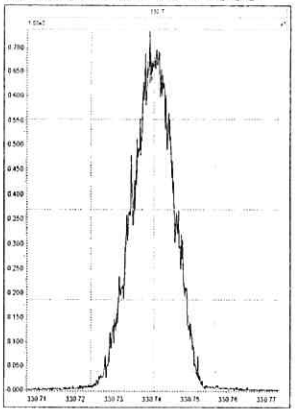
M 304.9824 R 14668



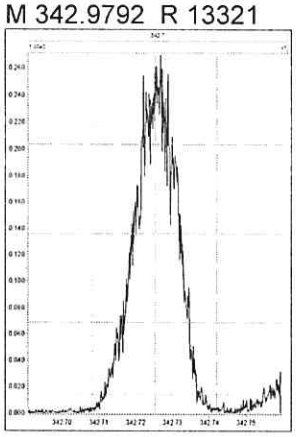
M 318.9792 R 14244



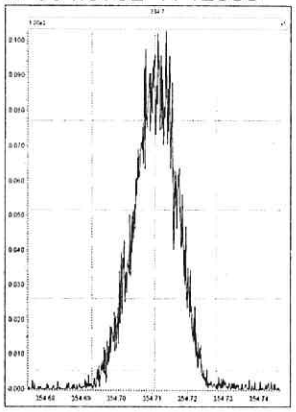
M 330.9792 R 14005



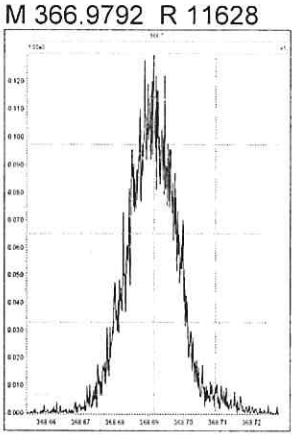
M 342.9792 R 13321



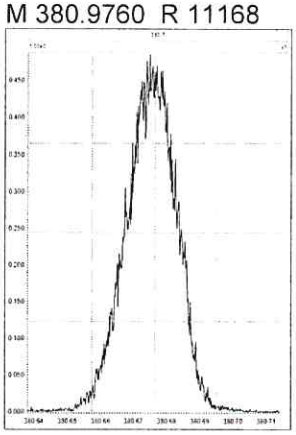
M 354.9792 R 12986



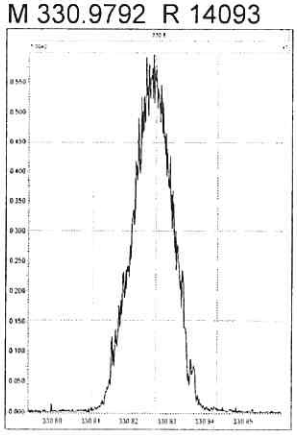
M 366.9792 R 11628



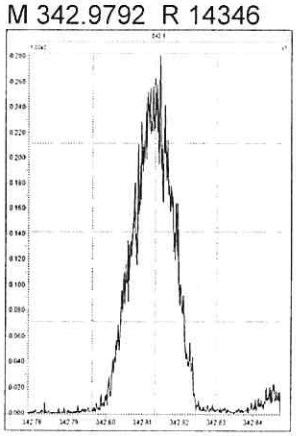
M 380.9760 R 11168



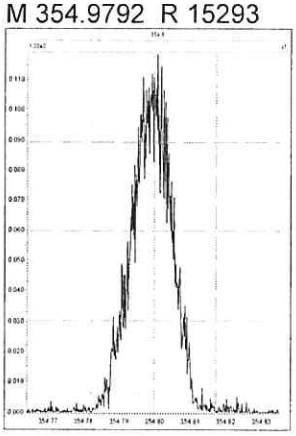
M 330.9792 R 14093



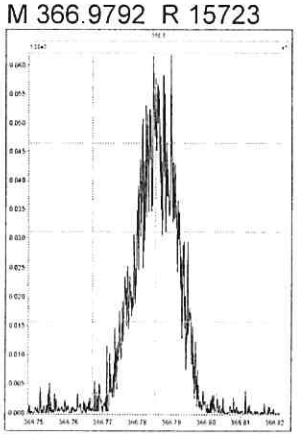
M 342.9792 R 14346



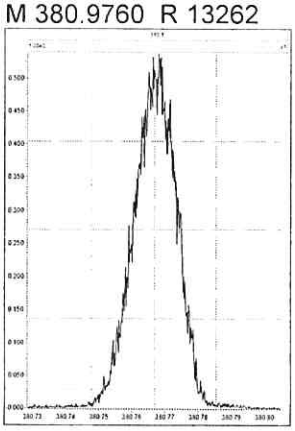
M 354.9792 R 15293



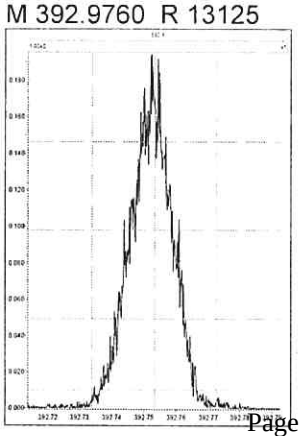
M 366.9792 R 15723



M 380.9760 R 13262



M 392.9760 R 13125



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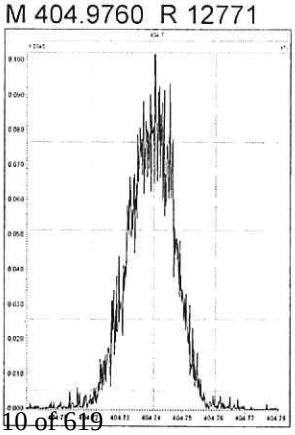
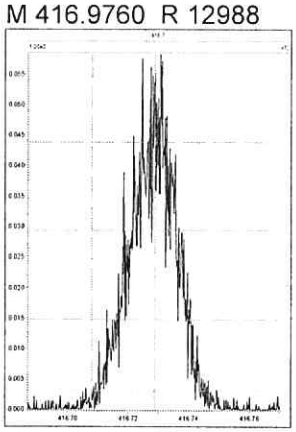


M 416.9760 R 12988



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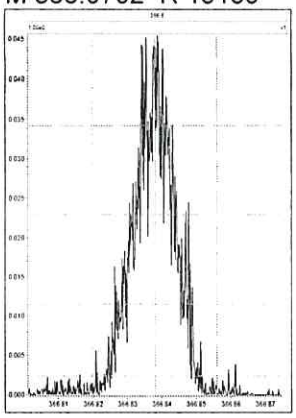

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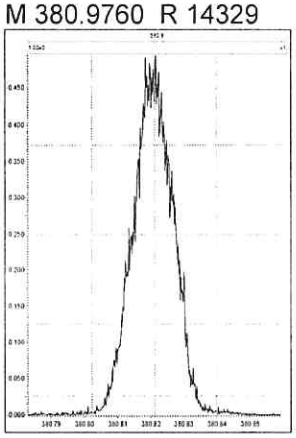

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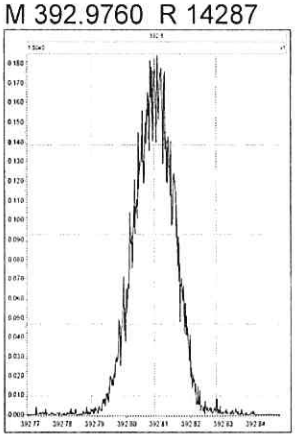
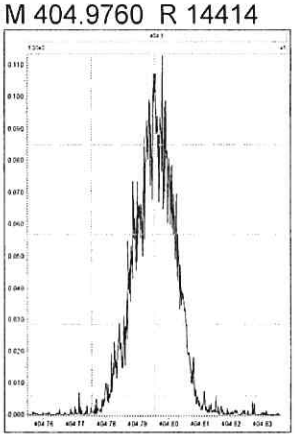
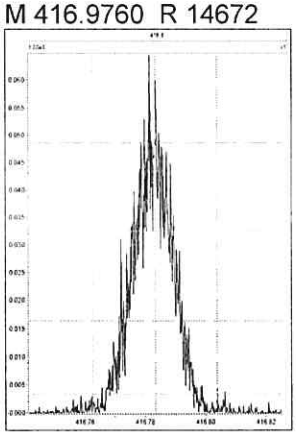


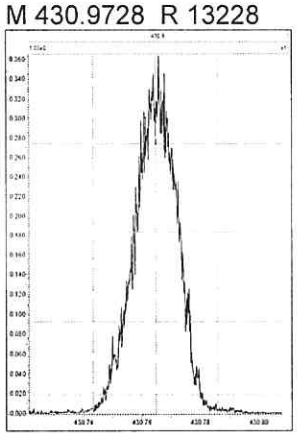
M 404.9760 R 14414



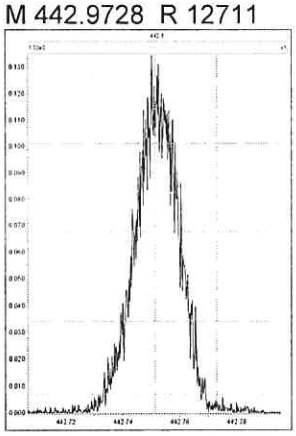
M 416.9760 R 14672



M 430.9728 R 13228



M 442.9728 R 12711



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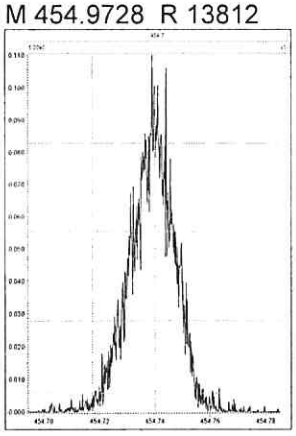

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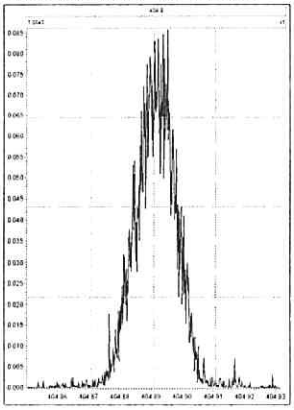

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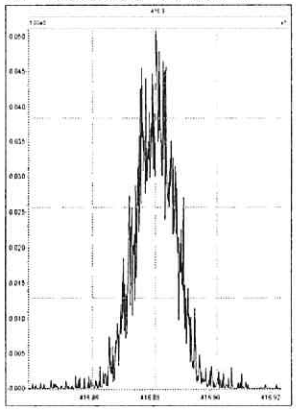

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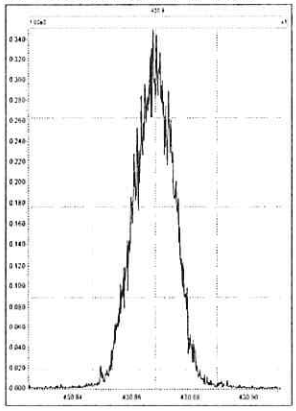

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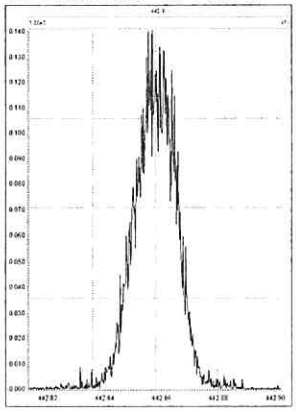
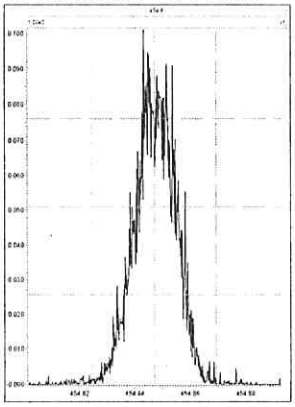
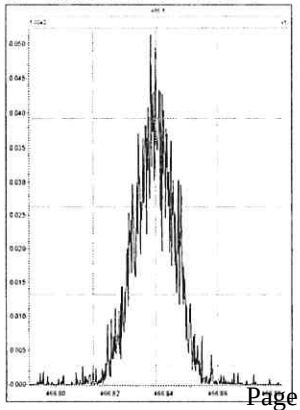


M 454.9728 R 14683



M 466.9728 R 15301



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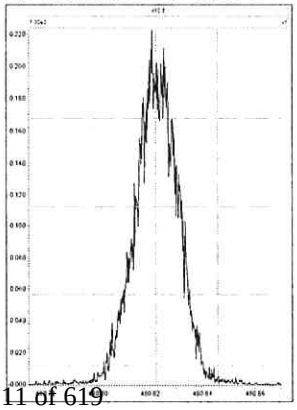

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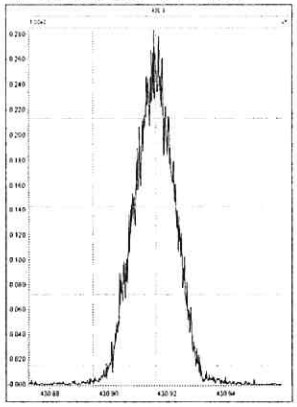

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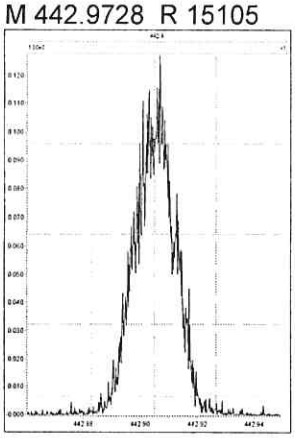

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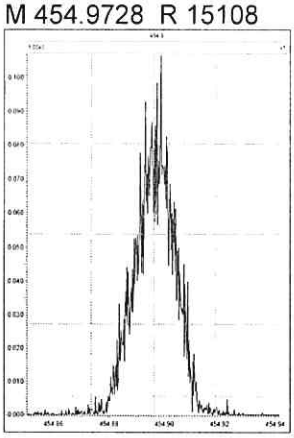

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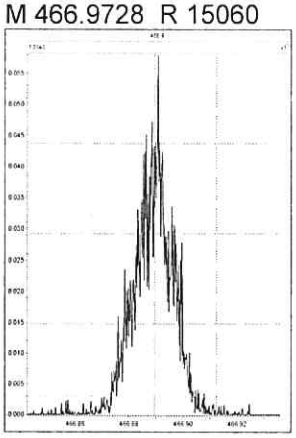

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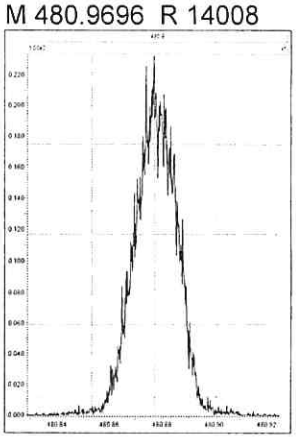

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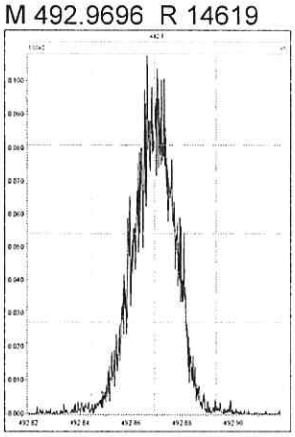

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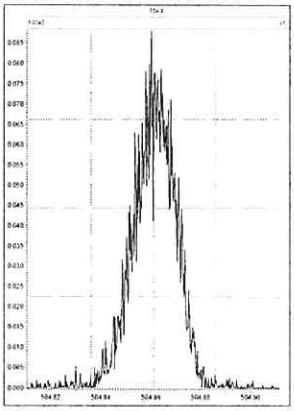

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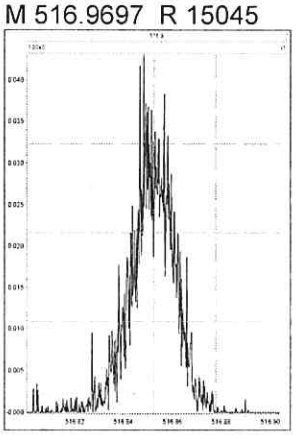

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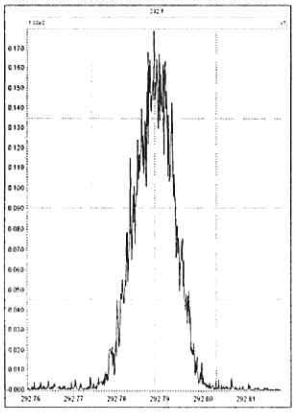
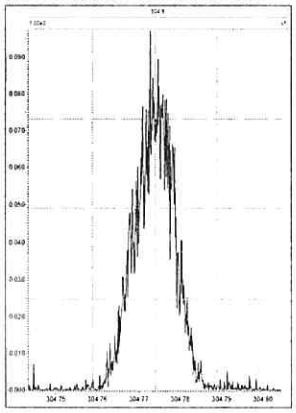


M 304.9824 R 14285



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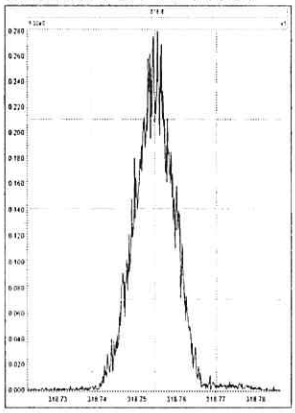
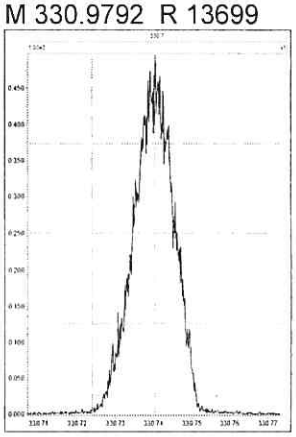
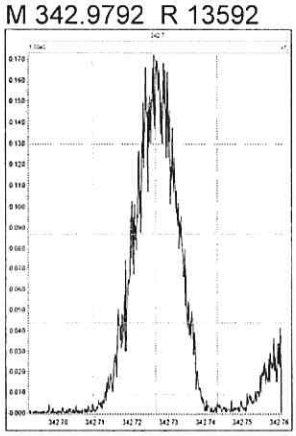


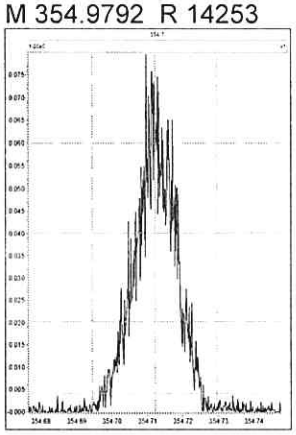
M 330.9792 R 13699



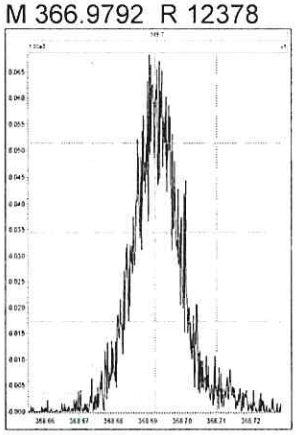
M 342.9792 R 13592



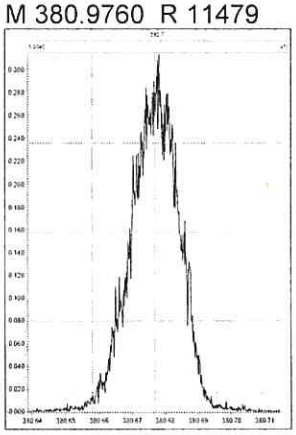
M 354.9792 R 14253



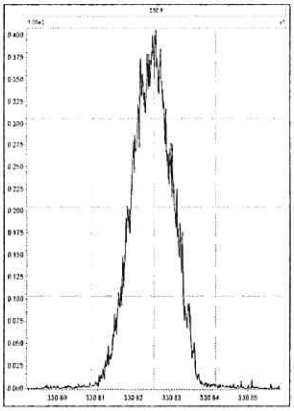
M 366.9792 R 12378



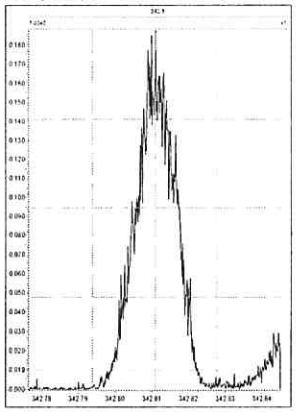
M 380.9760 R 11479



M 330.9792 R 13928



M 342.9792 R 14371



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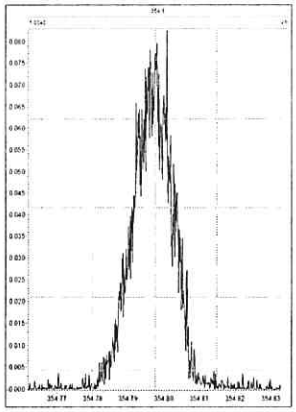

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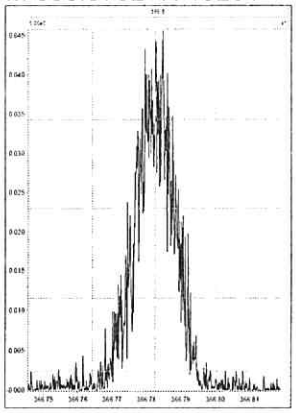
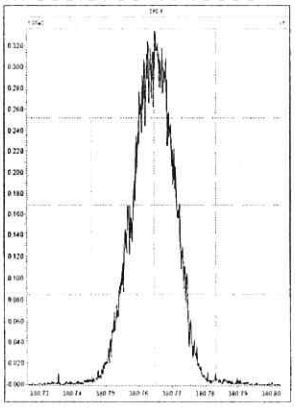
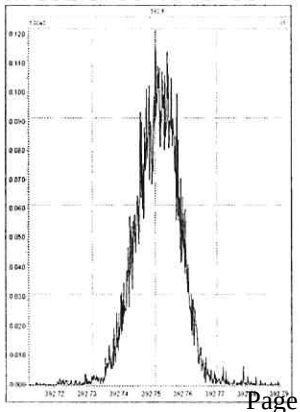


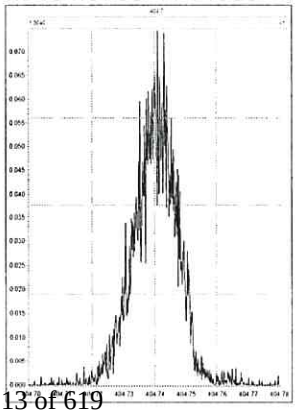
M 380.9760 R 13090



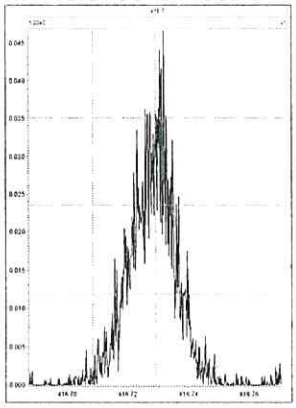
M 392.9760 R 13406



M 404.9760 R 14053



M 416.9760 R 15074



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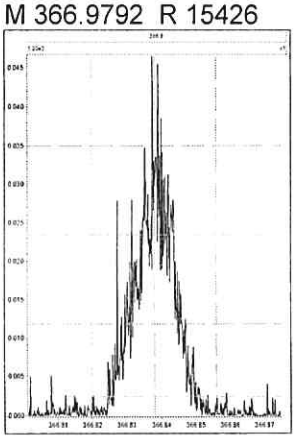
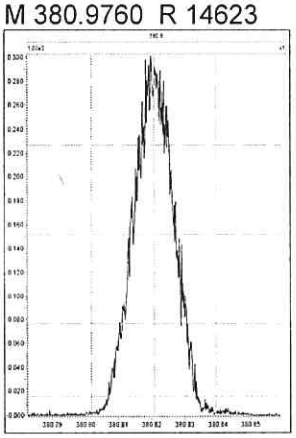


M 380.9760 R 14623



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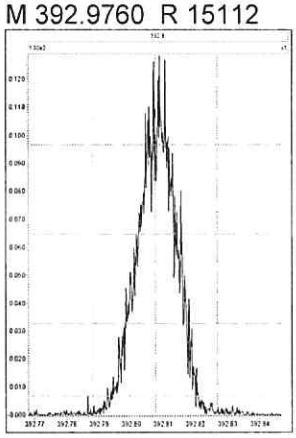

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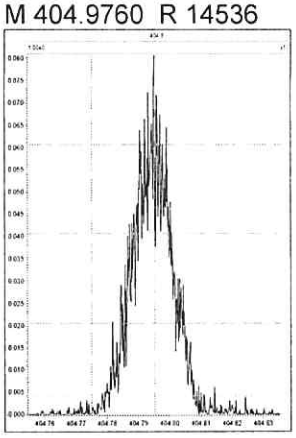
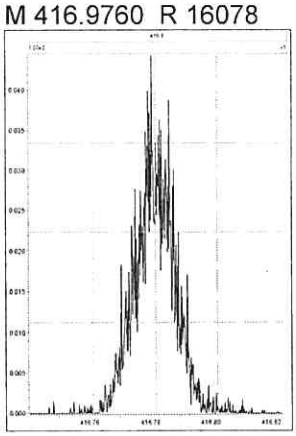
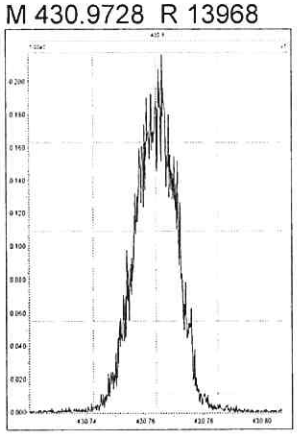


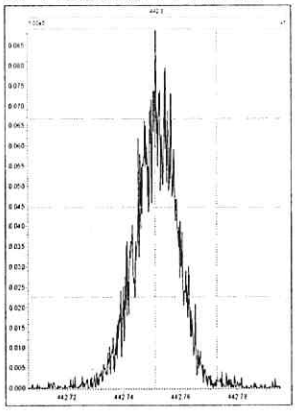
M 416.9760 R 16078



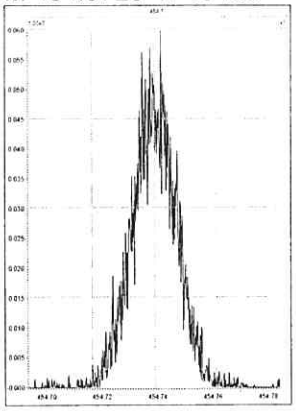
M 430.9728 R 13968



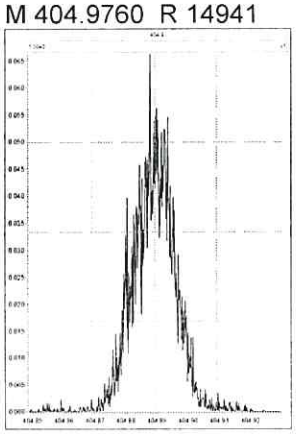
M 442.9728 R 14102



M 454.9728 R 13196



M 404.9760 R 14941



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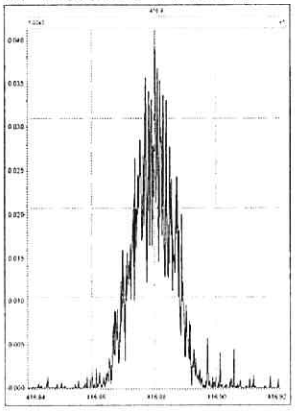

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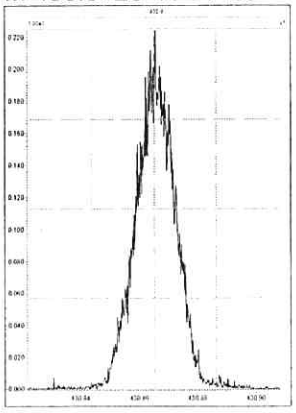

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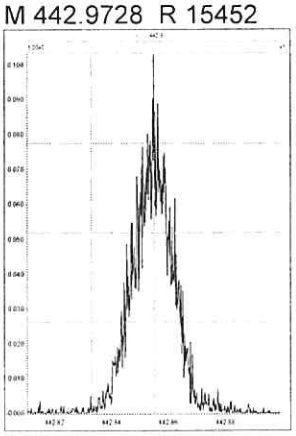

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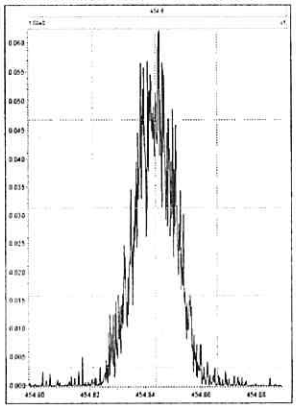

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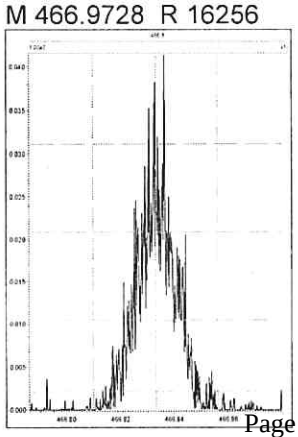

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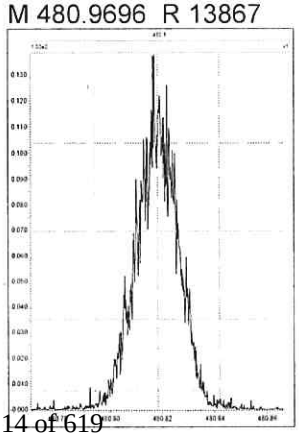
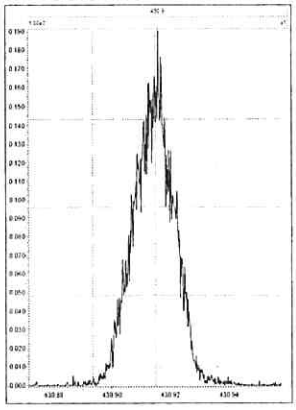


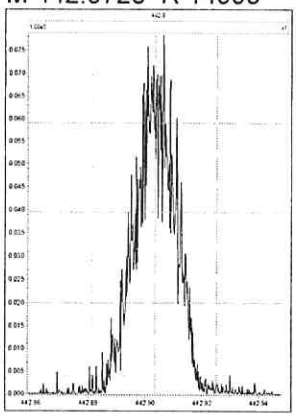
M 430.9728 R 14346



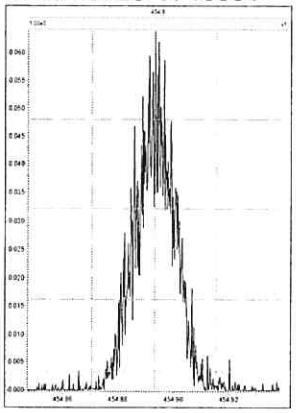
RIGHT SOLUTIONS | RIGHT PARTNER

Printed: Sunday, October 20, 2019 16:04:38 Central Daylight Time

M 442.9728 R 14995



M 454.9728 R 16031



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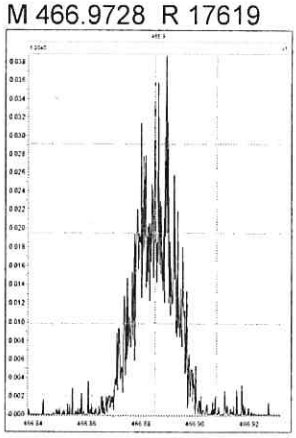
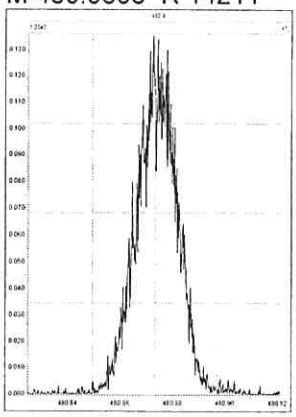
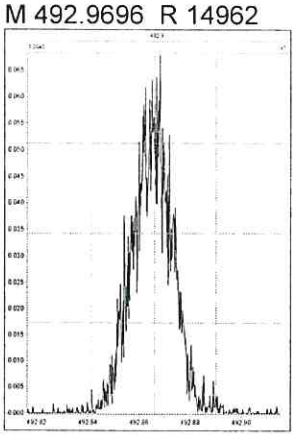


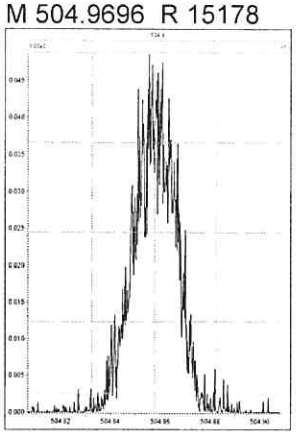
M 480.9696 R 14211



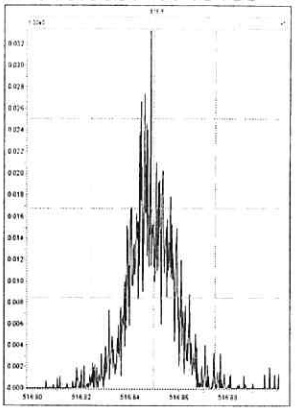
M 492.9696 R 14962



M 504.9696 R 15178



M 516.9697 R 16158



RIGHT SOLUTIONS | RIGHT PARTNER

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)

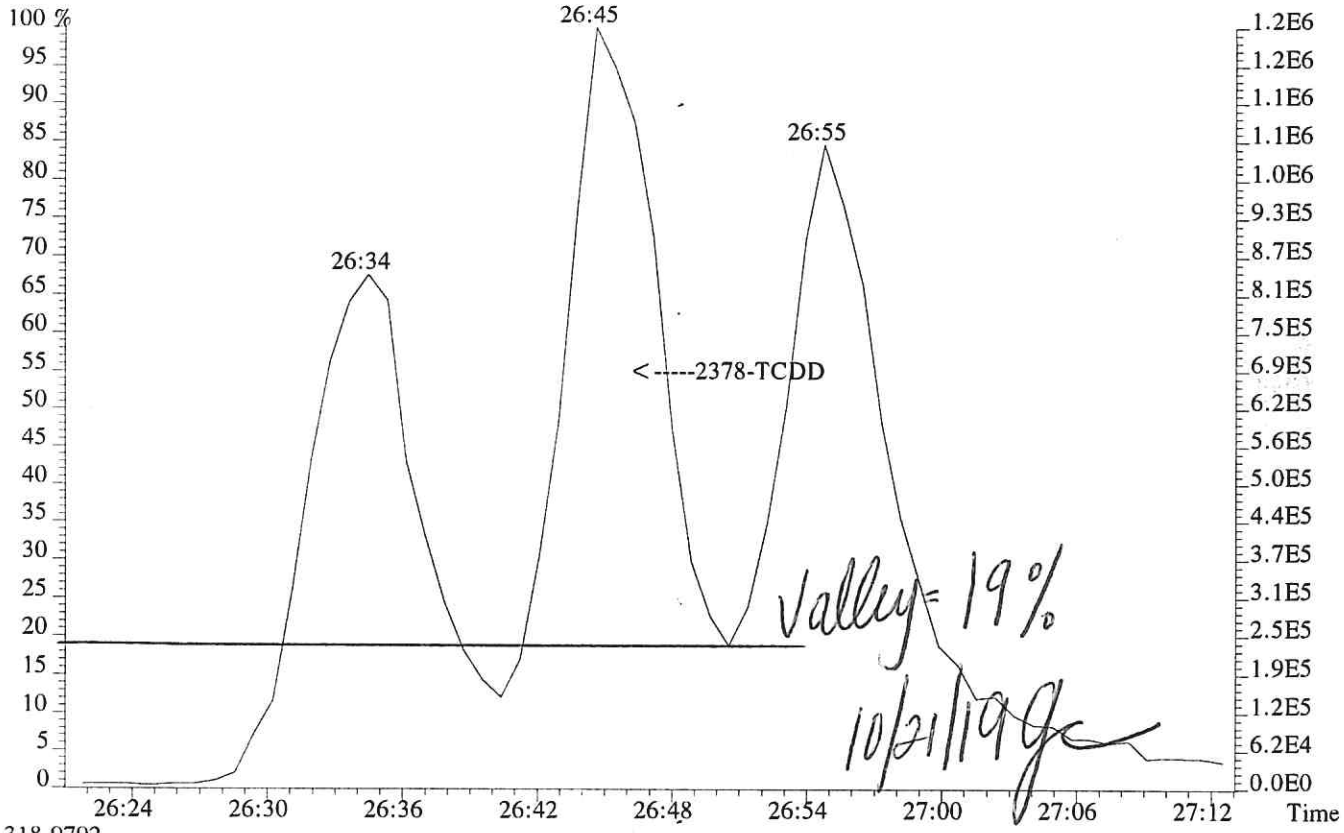
Lab File ID: P524831
Date Analyzed: 20-OCT-2019
Time Analyzed: 07:02:12

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	21:25	28:09
TCDD	23:01	27:57
PeCDF	28:05	32:50
PeCDD	29:51	32:34
HxCDF	33:33	36:12
HxCDD	34:06	35:47
HpCDF	37:31	38:53
HpCDD	37:46	38:27

% Valley 2378-TCDD: 19 %

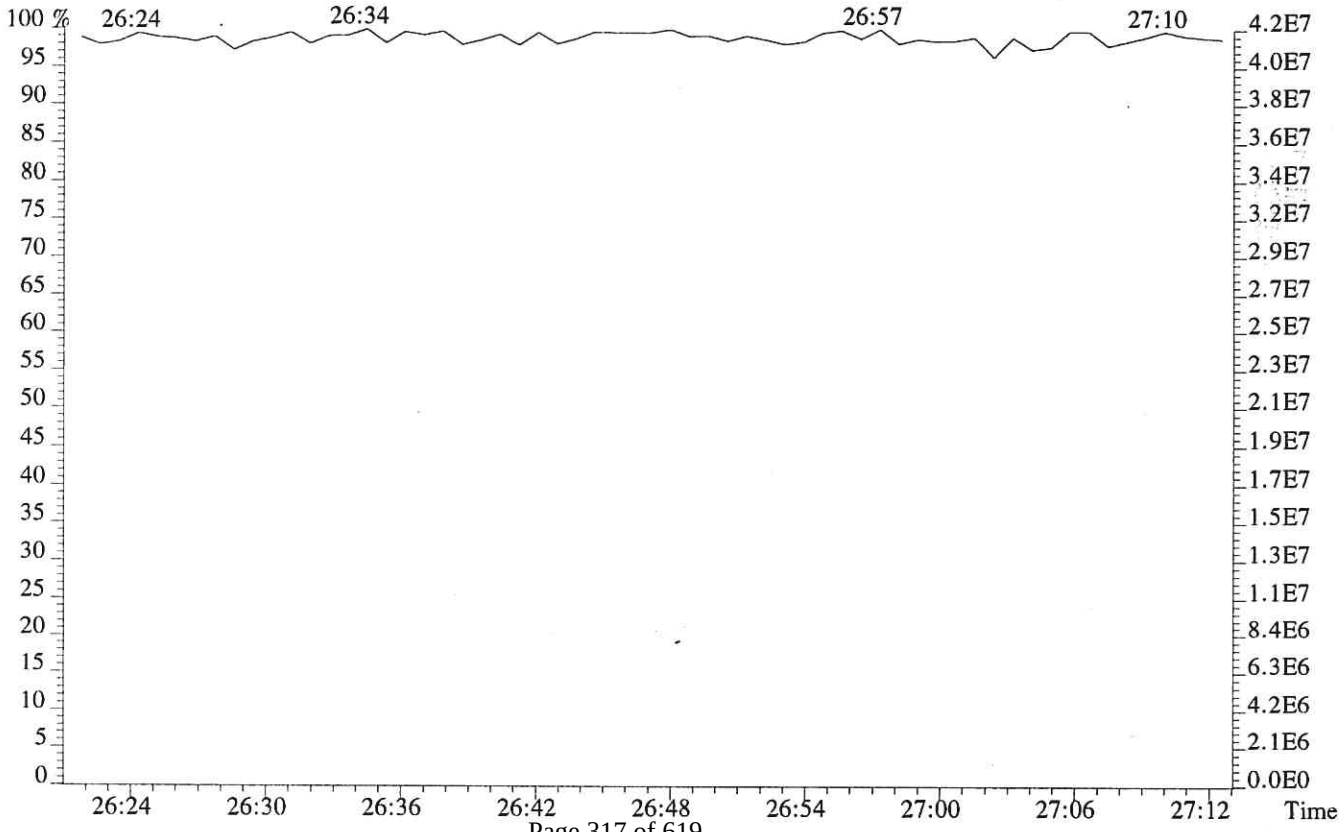
RIGHT SOLUTIONS | RIGHT PARTNER

File:P524831 #1-637 Acq:20-OCT-2019 07:02:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:202629
319.8965



318.9792

LM 10/21/19



RIGHT SOLUTIONS | RIGHT PARTNER

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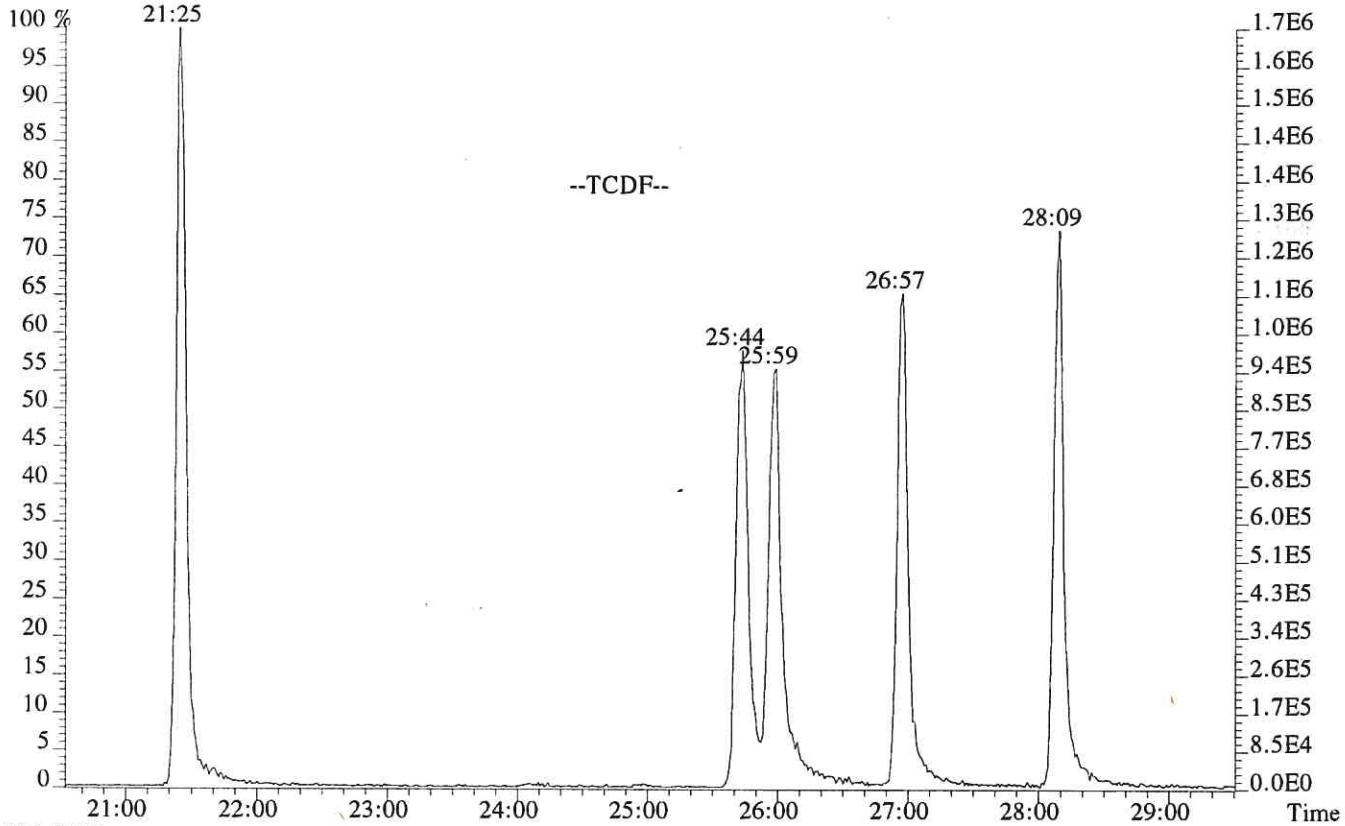
Sample#1 Exp:202629
303.9016



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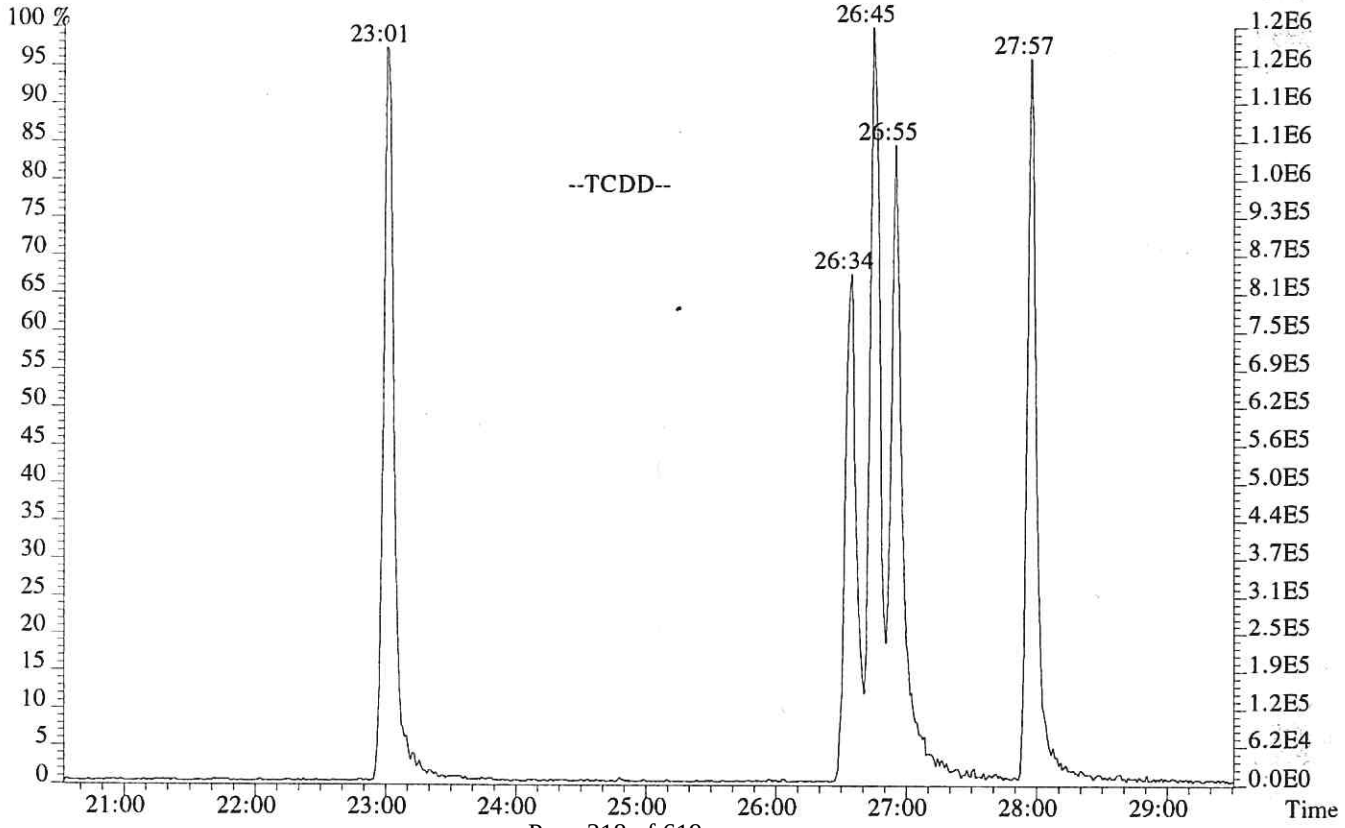
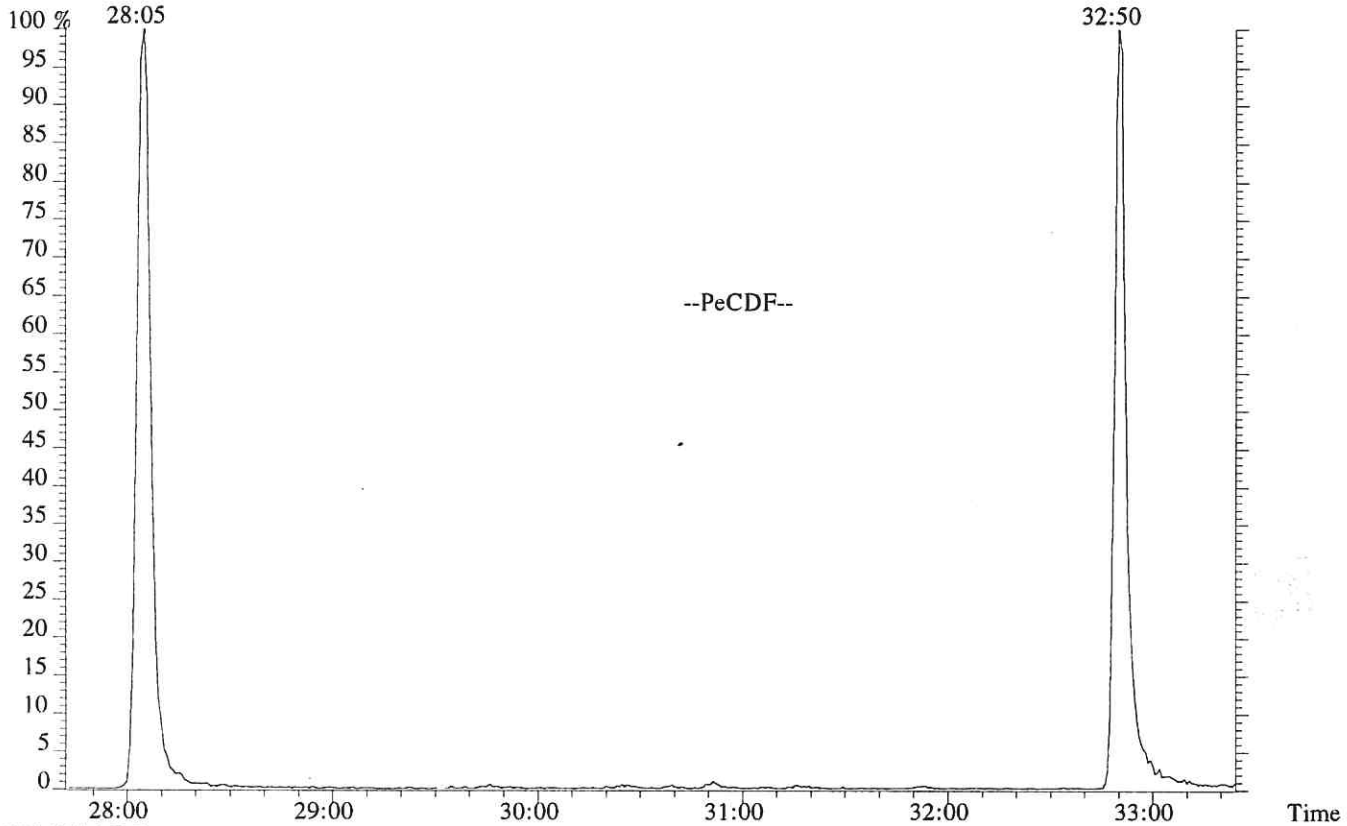
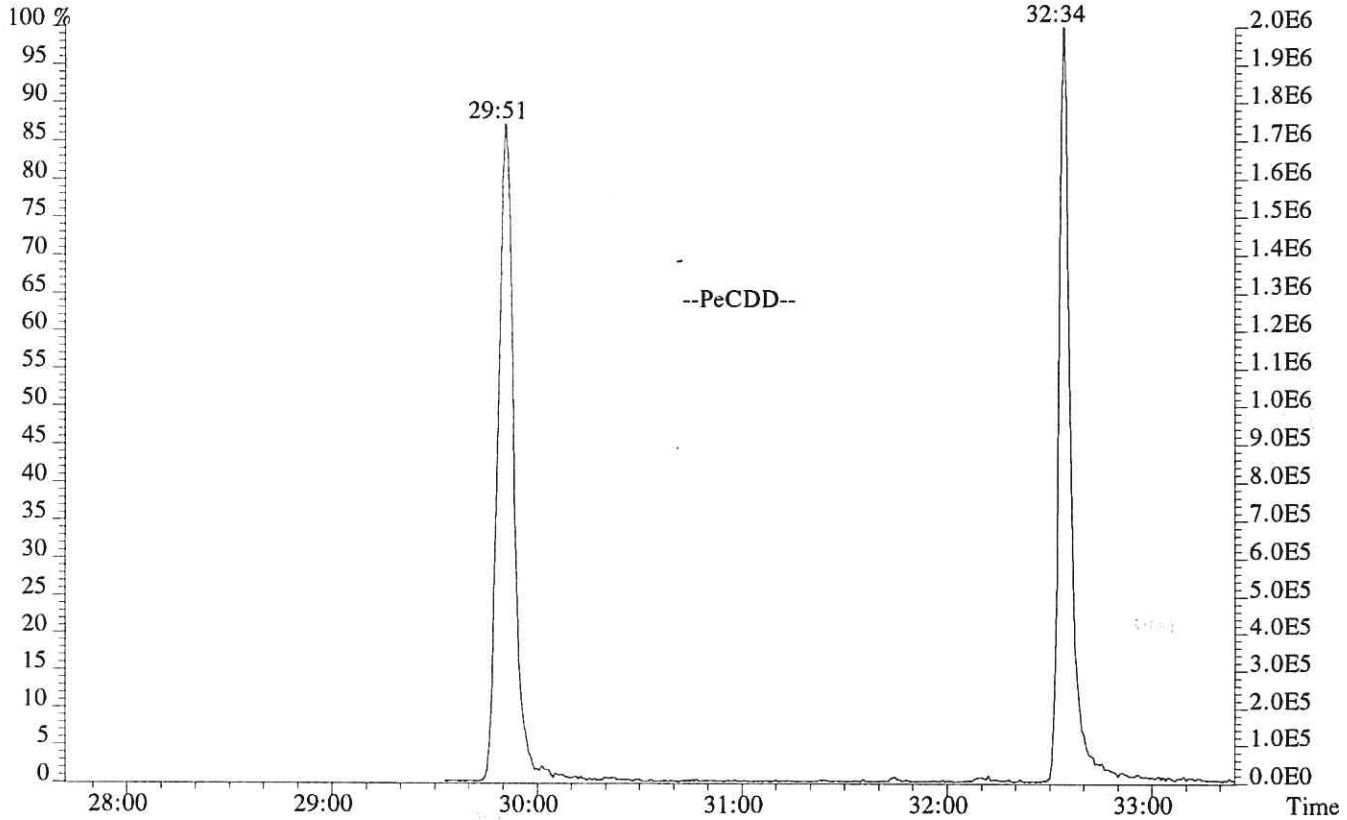


RIGHT SOLUTIONS | RIGHT PARTNER

File:P524831 #1-637 Acq:20-OCT-2019 07:02:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:202629
339.8597,339.8597 F:2

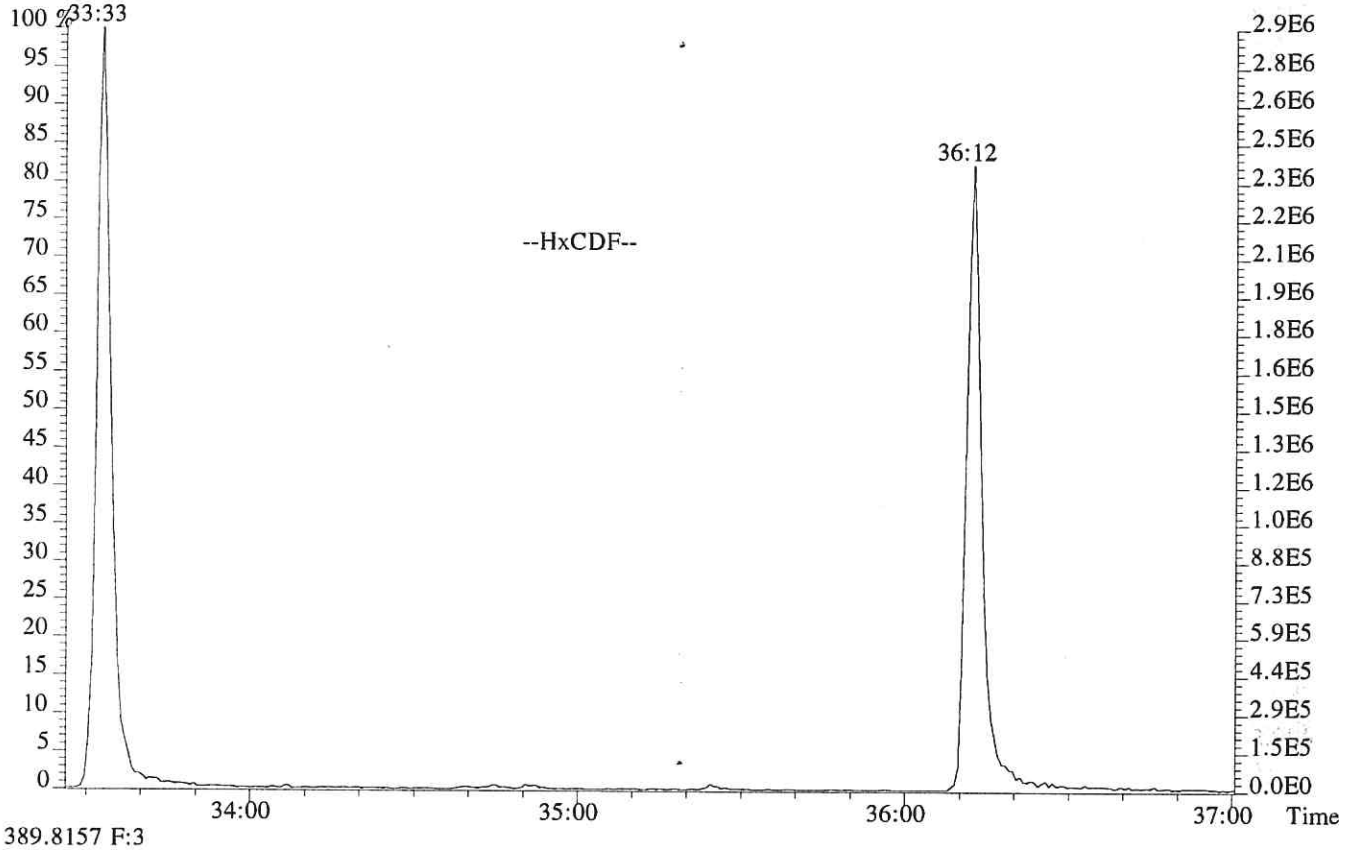


355.8546 F:2

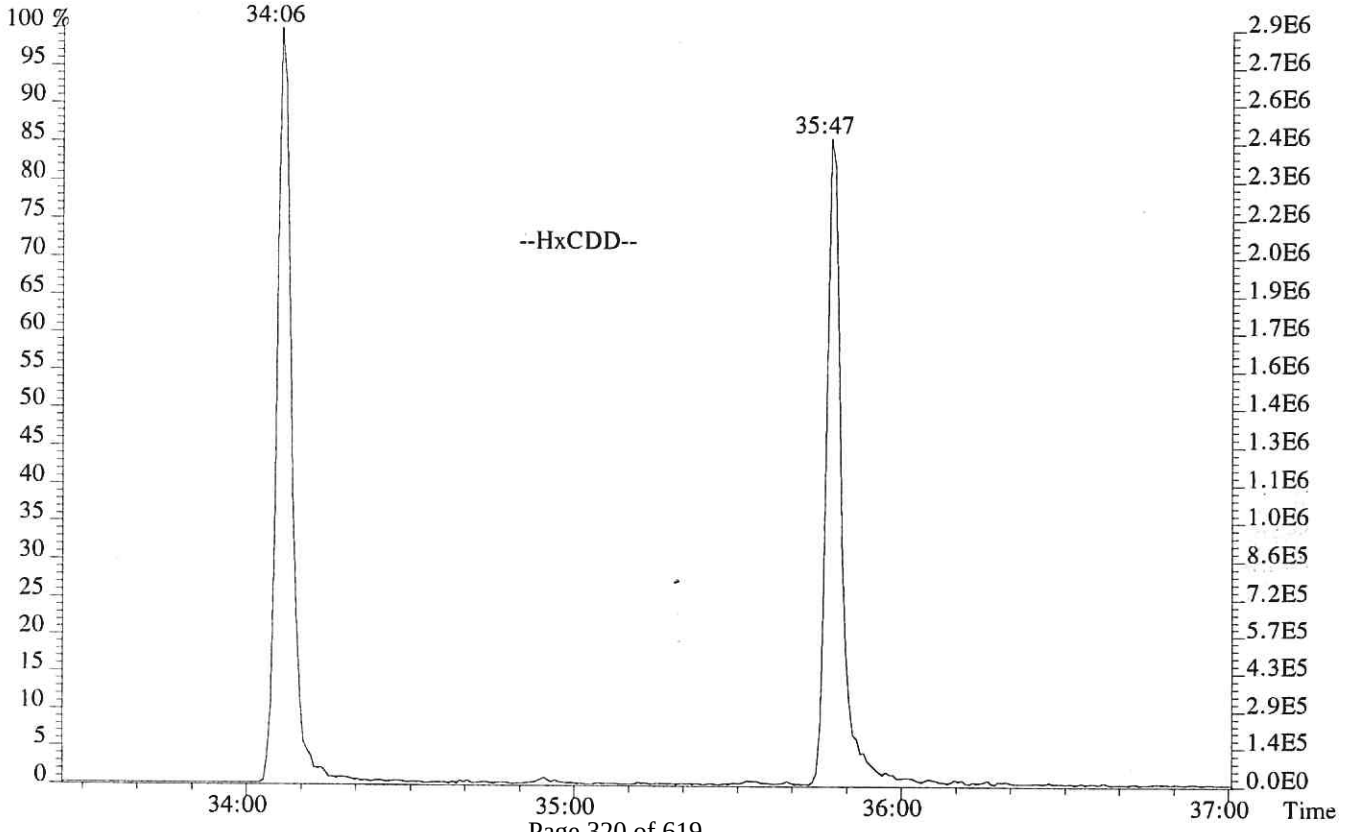


RIGHT SOLUTIONS | RIGHT PARTNER

File:P524831 #1-322 Acq:20-OCT-2019 07:02:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:202629
373.8208 F:3

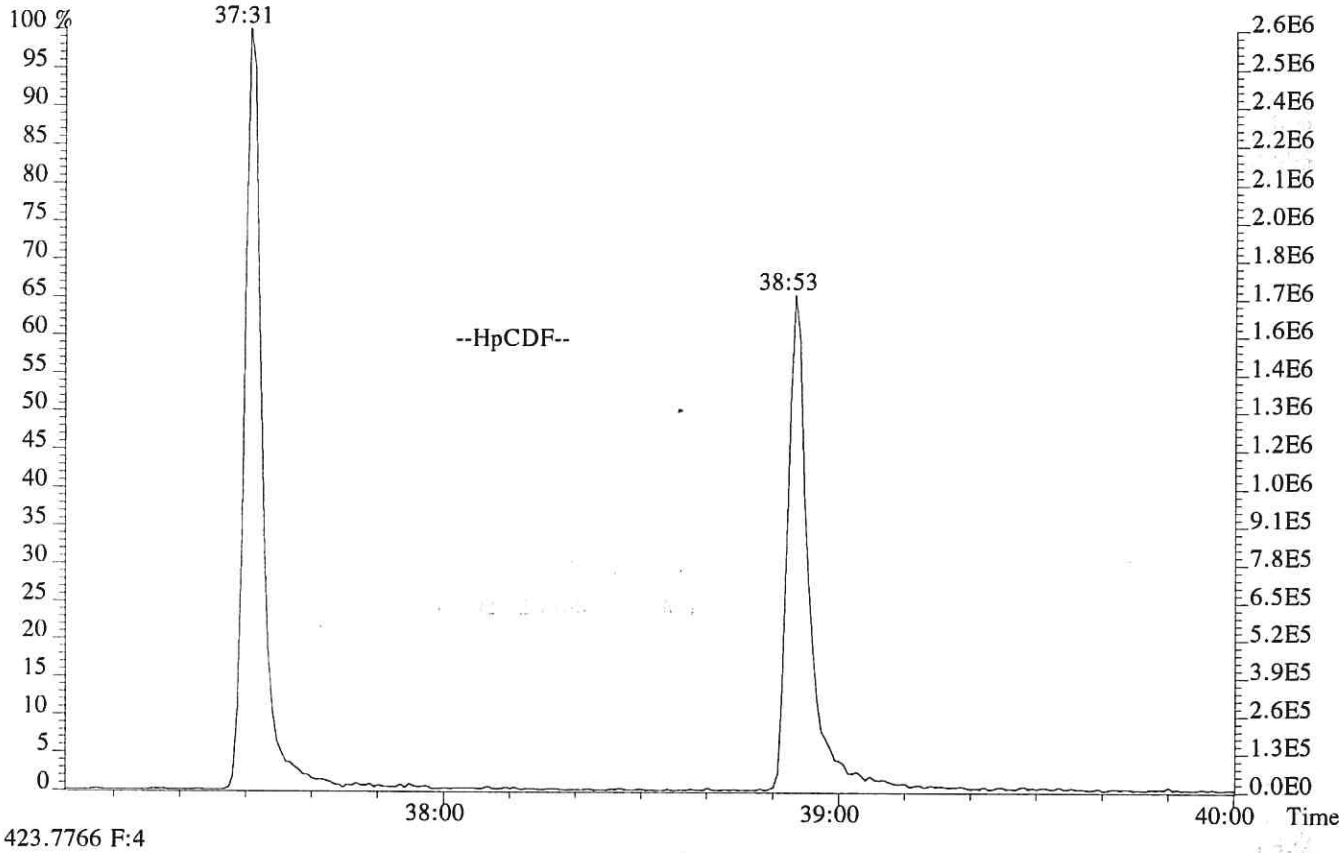


389.8157 F:3

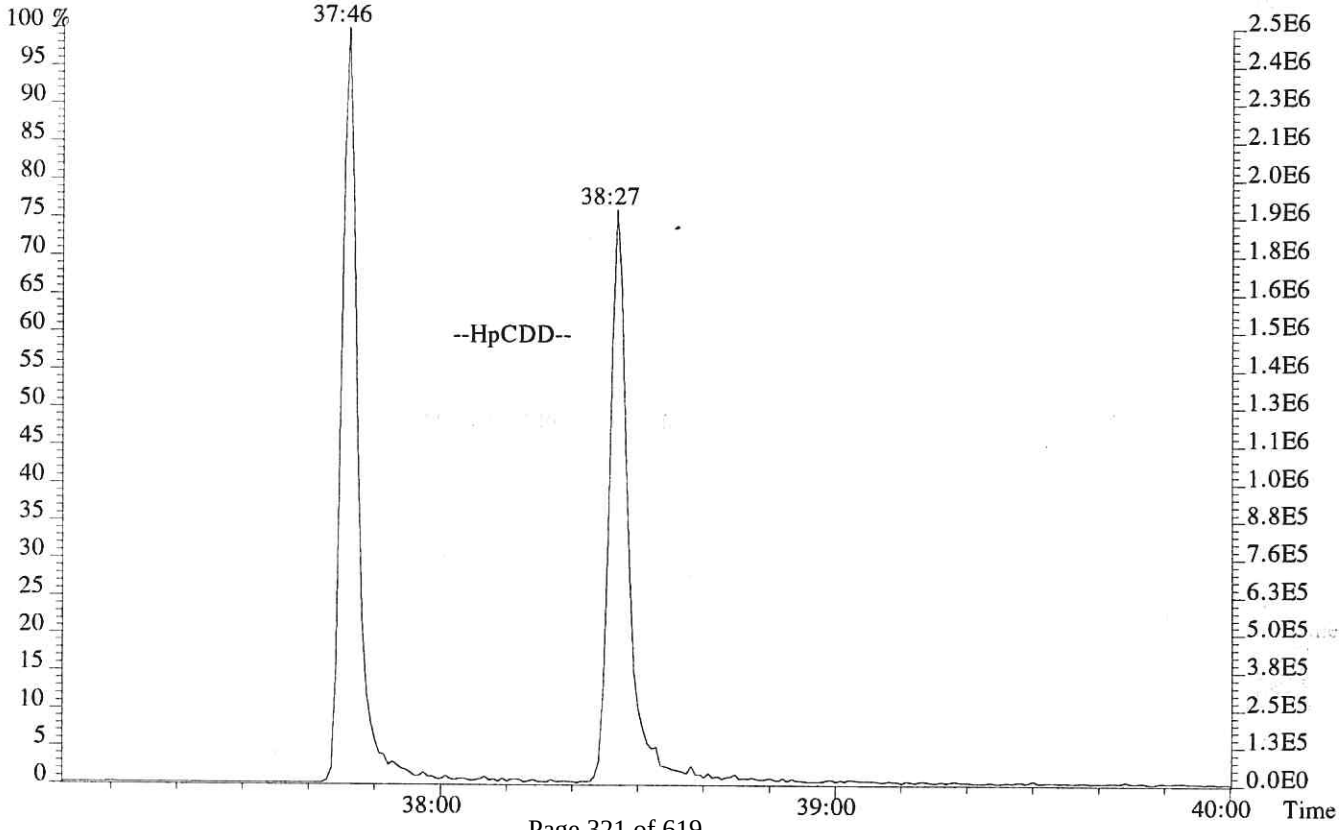


RIGHT SOLUTIONS | RIGHT PARTNER

File:P524831 #1-267 Acq:20-OCT-2019 07:02:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:202629
407.7818 F:4



423.7766 F:4



RIGHT SOLUTIONS | RIGHT PARTNER

USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 04/25/19

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

VER Data Filename: P524830 Analysis Date: 20-OCT-19 Time: 06:06:12

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	9.4	7.8 - 12.9	-5.7
1,2,3,7,8-PeCDD	M+2/M+4	1.56	1.32-1.78	49	39 - 65	-1.6
1,2,3,4,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	50	39 - 64	-0.8
1,2,3,6,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	49	39 - 64	-1.1
1,2,3,7,8,9-HxCDD	M+2/M+4	1.29	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	50	43 - 58	0.8
OCDD	M+2/M+4	0.88	0.76-1.02	103	79 - 126	2.8
2,3,7,8-TCDF	M/M+2	0.72	0.65-0.89	8.7	8.4 - 12.0	-13.5
1,2,3,7,8-PeCDF	M+2/M+4	1.53	1.32-1.78	49	41 - 60	-1.4
2,3,4,7,8-PeCDF	M+2/M+4	1.46	1.32-1.78	48	41 - 61	-3.5
1,2,3,4,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	48	45 - 56	-4.5
1,2,3,6,7,8-HxCDF	M+2/M+4	1.17	1.05-1.43	49	44 - 57	-2.0
1,2,3,7,8,9-HxCDF	M+2/M+4	1.18	1.05-1.43	48	45 - 56	-4.0
2,3,4,6,7,8-HxCDF	M+2/M+4	1.16	1.05-1.43	48	44 - 57	-4.1
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.00	0.88-1.20	49	45 - 55	-1.0
1,2,3,4,7,8,9-HpCDF	M+2/M+4	0.99	0.88-1.20	49	43 - 58	-1.4
OCDF	M+2/M+4	0.87	0.76-1.02	100	63 - 159	-0.1

(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

RIGHT SOLUTIONS | RIGHT PARTNER

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 04/25/19

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

VER Data Filename: P524830 Analysis Date: 20-OCT-19 Time: 06:06:12

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	98	82 - 121	-1.7
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.60	1.32-1.78	101	62 - 160	0.6
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	95	85 - 117	-5.2
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	99	85 - 118	-0.7
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	96	72 - 138	-3.5
13C-OCDD	M+2/M+4	0.90	0.76-1.02	203	96 - 415	1.4
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	101	71 - 140	0.8
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	100	76 - 130	0.0
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	95	76 - 131	-4.6
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.51	0.43-0.59	99	70 - 143	-1.2
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	95	74 - 135	-5.0
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	0.44	0.37-0.51	93	78 - 129	-7.2
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.44	0.37-0.51	96	77 - 129	-4.5
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.6	7.8 - 12.7	-4.2

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

12/2012
1613F4B.FRM

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ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
203606

Run #7 Filename P524830 Samp: 1 Inj: 1 Acquired: 20-OCT-19 06:06:12
Processed: 21-OCT-19 13:26:24 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:56	8.844e+03	1.228e+04	0.72	yes	no	0.962
2	Unk	1,2,3,7,8-PeCDF	30:50	7.977e+04	5.227e+04	1.53	yes	no	0.968
3	Unk	2,3,4,7,8-PeCDF	31:51	7.227e+04	4.946e+04	1.46	yes	no	0.919
4	Unk	1,2,3,4,7,8-HxCDF	34:44	6.095e+04	5.099e+04	1.20	yes	no	1.161
5	Unk	1,2,3,6,7,8-HxCDF	34:50	6.635e+04	5.652e+04	1.17	yes	no	1.073
6	Unk	2,3,4,6,7,8-HxCDF	35:24	5.827e+04	5.014e+04	1.16	yes	no	1.069
7	Unk	1,2,3,7,8,9-HxCDF	36:10	5.076e+04	4.297e+04	1.18	yes	no	1.096
8	Unk	1,2,3,4,6,7,8-HpCDF	37:30	5.121e+04	5.108e+04	1.00	yes	no	1.281
9	Unk	1,2,3,4,7,8,9-HpCDF	38:53	3.967e+04	3.995e+04	0.99	yes	no	1.192
10	Unk	OCDF	41:16	7.140e+04	8.202e+04	0.87	yes	no	1.204
11	Unk	2,3,7,8-TCDD	26:54	8.013e+03	1.012e+04	0.79	yes	no	1.077
12	Unk	1,2,3,7,8-PeCDD	32:09	5.826e+04	3.725e+04	1.56	yes	no	0.971
13	Unk	1,2,3,4,7,8-HxCDD	35:32	4.812e+04	3.824e+04	1.26	yes	no	1.024
14	Unk	1,2,3,6,7,8-HxCDD	35:37	4.965e+04	3.982e+04	1.25	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	35:52	5.155e+04	3.995e+04	1.29	yes	no	1.055
16	Unk	1,2,3,4,6,7,8-HpCDD	38:26	4.090e+04	3.913e+04	1.05	yes	no	0.989
17	Unk	OCDD	41:04	6.711e+04	7.638e+04	0.88	yes	no	1.094
18	IS	13C-2,3,7,8-TCDF	25:55	1.122e+05	1.414e+05	0.79	yes	no	1.287
19	IS	13C-1,2,3,7,8-PeCDF	30:49	1.691e+05	1.077e+05	1.57	yes	no	1.416
20	IS	13C-2,3,4,7,8-PeCDF	31:51	1.682e+05	1.063e+05	1.58	yes	no	1.374
21	IS	13C-1,2,3,4,7,8-HxCDF	34:43	6.890e+04	1.331e+05	0.52	yes	no	1.114
22	IS	13C-1,2,3,6,7,8-HxCDF	34:50	7.935e+04	1.543e+05	0.51	yes	no	1.245
23	IS	13C-2,3,4,6,7,8-HxCDF	35:23	7.225e+04	1.392e+05	0.52	yes	no	1.146
24	IS	13C-1,2,3,7,8,9-HxCDF	36:10	6.127e+04	1.168e+05	0.52	yes	no	0.986
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:29	4.914e+04	1.122e+05	0.44	yes	no	0.915
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:52	4.123e+04	9.416e+04	0.44	yes	no	0.746
27	IS	13C-2,3,7,8-TCDD	26:52	7.846e+04	1.000e+05	0.78	yes	no	0.929
28	IS	13C-1,2,3,7,8-PeCDD	32:08	1.229e+05	7.700e+04	1.60	yes	no	1.017
29	IS	13C-1,2,3,4,7,8-HxCDD	35:31	9.535e+04	7.475e+04	1.28	yes	no	0.945
30	IS	13C-1,2,3,6,7,8-HxCDD	35:36	9.753e+04	7.677e+04	1.27	yes	no	0.924
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:25	8.246e+04	7.818e+04	1.05	yes	no	0.876
32	IS	13C-OCDD	41:04	1.209e+05	1.343e+05	0.90	yes	no	0.662
33	RS/RT	13C-1,2,3,4-TCDD	26:09	8.728e+04	1.082e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:51	1.061e+05	8.388e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:54	1.893e+04				no	1.010

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

www.alsglobal.com

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
203606

Run #7 Filename P524830 Samp: 1 Inj: 1 Acquired: 20-OCT-19 06:06:12
Processed: 21-OCT-19 13:26:24 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	1.20e+06	6.96e+02	1.7e+03	1.66e+06	1.52e+03	1.1e+03
2	1,2,3,7,8-PeCDF	1.32e+07	8.80e+02	1.5e+04	8.65e+06	8.16e+02	1.1e+04
3	2,3,4,7,8-PeCDF	1.32e+07	8.80e+02	1.5e+04	8.99e+06	8.16e+02	1.1e+04
4	1,2,3,4,7,8-HxCDF	1.29e+07	3.16e+02	4.1e+04	1.07e+07	1.07e+03	1.0e+04
5	1,2,3,6,7,8-HxCDF	1.29e+07	3.16e+02	4.1e+04	1.12e+07	1.07e+03	1.0e+04
6	2,3,4,6,7,8-HxCDF	1.20e+07	3.16e+02	3.8e+04	1.01e+07	1.07e+03	9.4e+03
7	1,2,3,7,8,9-HxCDF	9.93e+06	3.16e+02	3.1e+04	8.24e+06	1.07e+03	7.7e+03
8	1,2,3,4,6,7,8-HpCDF	1.06e+07	8.13e+03	1.3e+03	1.07e+07	5.58e+03	1.9e+03
9	1,2,3,4,7,8,9-HpCDF	7.55e+06	8.13e+03	9.3e+02	7.50e+06	5.58e+03	1.3e+03
10	OCDF	1.08e+07	2.40e+02	4.5e+04	1.23e+07	6.56e+02	1.9e+04
11	2,3,7,8-TCDD	1.21e+06	1.52e+03	7.9e+02	1.52e+06	8.80e+02	1.7e+03
12	1,2,3,7,8-PeCDD	1.05e+07	9.28e+02	1.1e+04	6.63e+06	1.52e+02	4.4e+04
13	1,2,3,4,7,8-HxCDD	1.04e+07	1.92e+02	5.4e+04	8.25e+06	1.12e+03	7.4e+03
14	1,2,3,6,7,8-HxCDD	1.01e+07	1.92e+02	5.2e+04	8.05e+06	1.12e+03	7.2e+03
15	1,2,3,7,8,9-HxCDD	9.98e+06	1.92e+02	5.2e+04	8.03e+06	1.12e+03	7.2e+03
16	1,2,3,4,6,7,8-HpCDD	8.25e+06	8.48e+02	9.7e+03	7.95e+06	2.48e+02	3.2e+04
17	OCDD	1.04e+07	1.76e+02	5.9e+04	1.17e+07	1.80e+02	6.5e+04
18	13C-2,3,7,8-TCDF	1.48e+07	3.96e+03	3.7e+03	1.88e+07	2.51e+03	7.5e+03
19	13C-1,2,3,7,8-PeCDF	2.74e+07	1.61e+03	1.7e+04	1.76e+07	9.92e+02	1.8e+04
20	13C-2,3,4,7,8-PeCDF	2.94e+07	1.61e+03	1.8e+04	1.86e+07	9.92e+02	1.9e+04
21	13C-1,2,3,4,7,8-HxCDF	1.44e+07	1.56e+03	9.2e+03	2.75e+07	8.44e+02	3.3e+04
22	13C-1,2,3,6,7,8-HxCDF	1.59e+07	1.56e+03	1.0e+04	3.06e+07	8.44e+02	3.6e+04
23	13C-2,3,4,6,7,8-HxCDF	1.47e+07	1.56e+03	9.4e+03	2.81e+07	8.44e+02	3.3e+04
24	13C-1,2,3,7,8,9-HxCDF	1.18e+07	1.56e+03	7.6e+03	2.25e+07	8.44e+02	2.7e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.01e+07	8.35e+03	1.2e+03	2.32e+07	4.15e+03	5.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	7.83e+06	8.35e+03	9.4e+02	1.76e+07	4.15e+03	4.2e+03
27	13C-2,3,7,8-TCDD	1.16e+07	4.48e+03	2.6e+03	1.51e+07	2.45e+03	6.2e+03
28	13C-1,2,3,7,8-PeCDD	2.15e+07	3.80e+02	5.7e+04	1.35e+07	2.88e+02	4.7e+04
29	13C-1,2,3,4,7,8-HxCDD	2.05e+07	6.68e+02	3.1e+04	1.59e+07	4.68e+02	3.4e+04
30	13C-1,2,3,6,7,8-HxCDD	1.94e+07	6.68e+02	2.9e+04	1.53e+07	4.68e+02	3.3e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.68e+07	7.92e+02	2.1e+04	1.58e+07	8.16e+02	1.9e+04
32	13C-OCDD	1.86e+07	1.72e+02	1.1e+05	2.09e+07	6.56e+02	3.2e+04
33	13C-1,2,3,4-TCDD	1.31e+07	4.48e+03	2.9e+03	1.62e+07	2.45e+03	6.6e+03
34	13C-1,2,3,7,8,9-HxCDD	2.01e+07	6.68e+02	3.0e+04	1.59e+07	4.68e+02	3.4e+04
35	37Cl-2,3,7,8-TCDD	2.93e+06	1.02e+03	2.9e+03			

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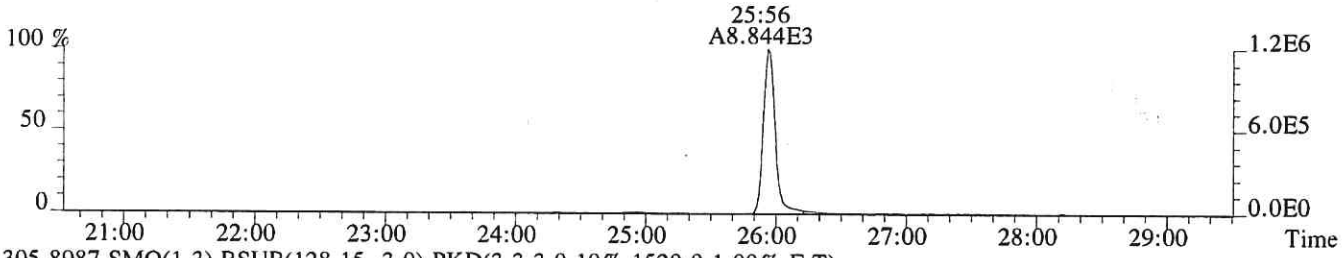
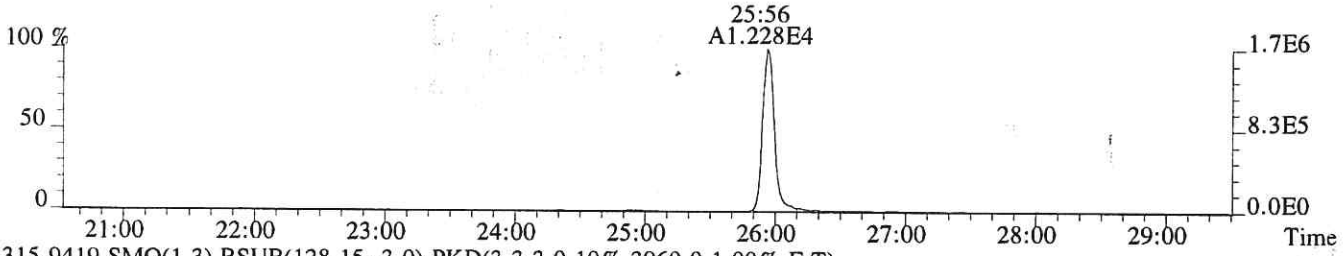
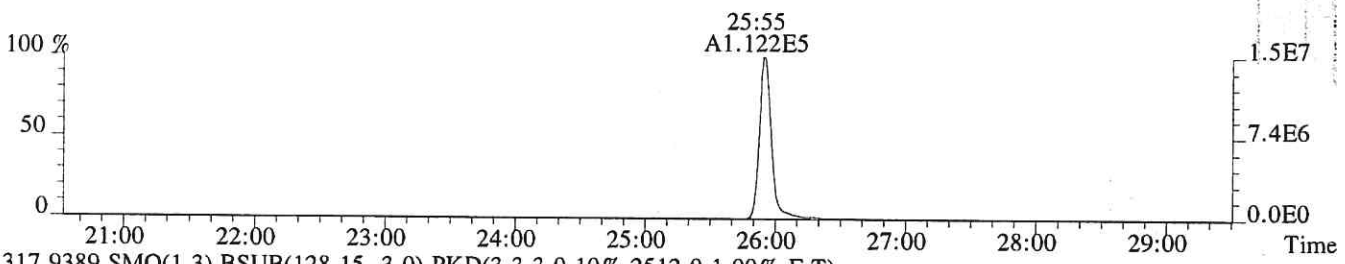
File:P524830 #1-637 Acq:20-OCT-2019 06:06:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:203606
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



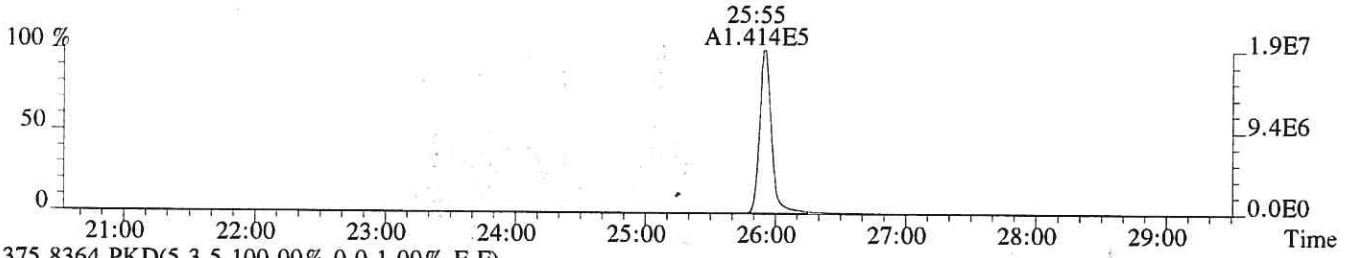
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1520.0,1.00%,F,T)



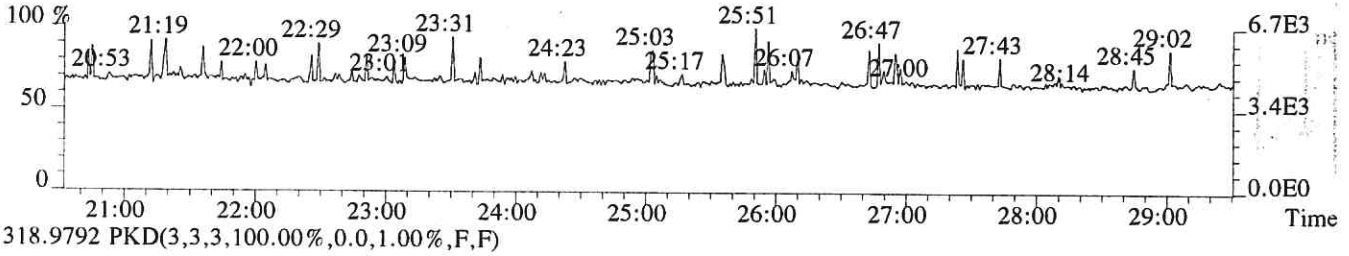
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3960.0,1.00%,F,T)



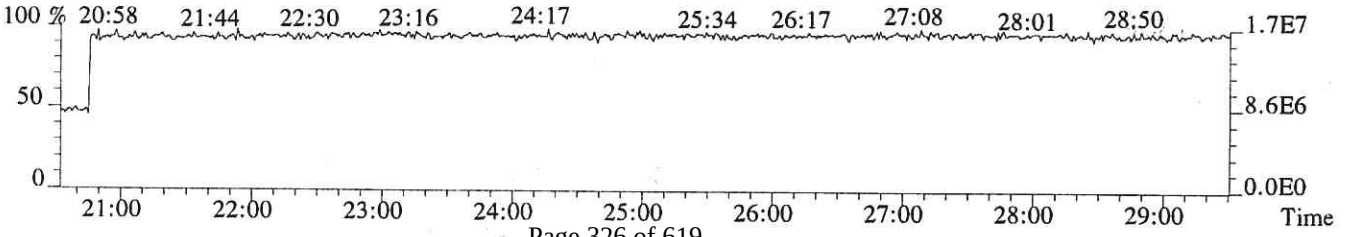
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2512.0,1.00%,F,T)



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



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



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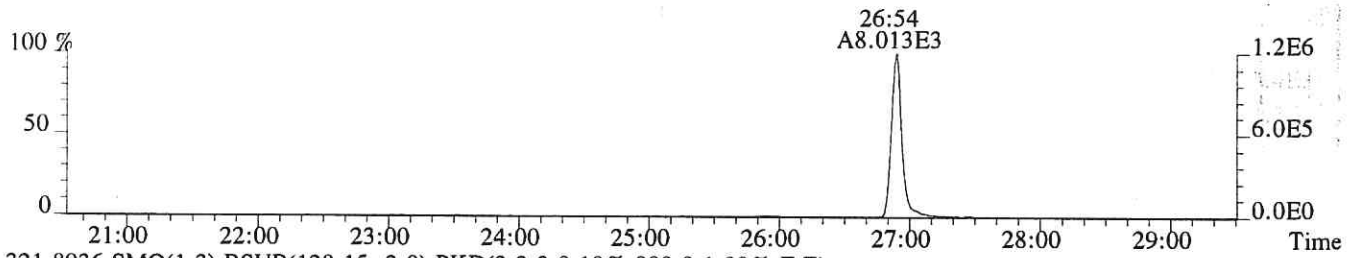
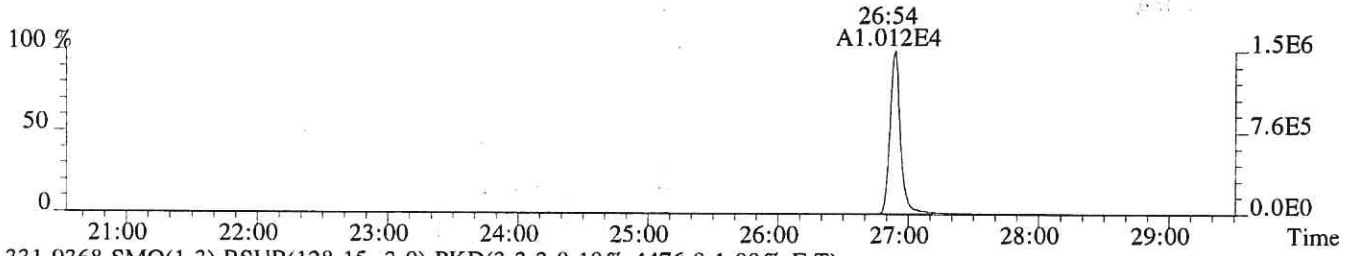
File:P524830 #1-637 Acq:20-OCT-2019 06:06:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:203606

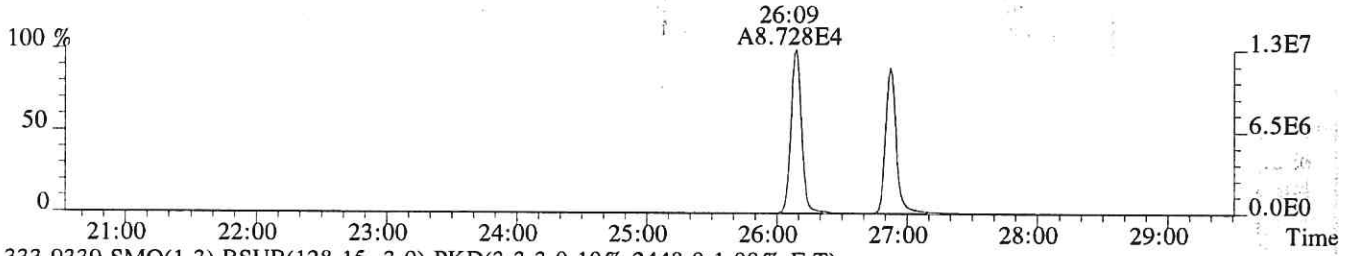
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1524.0,1.00%,F,T)



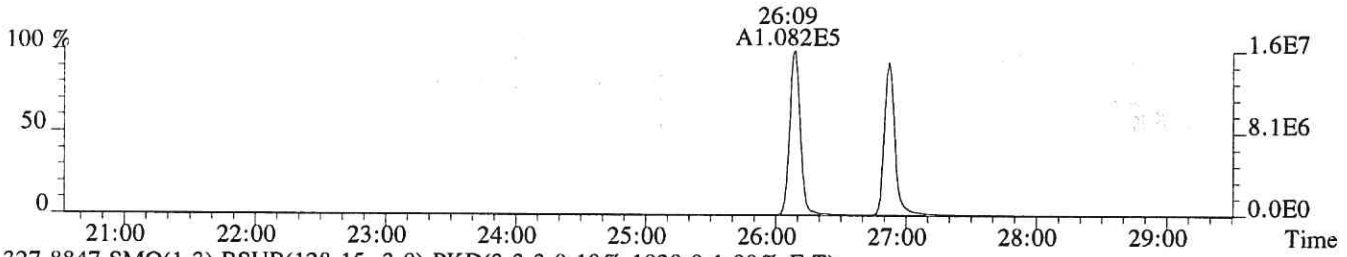
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,880.0,1.00%,F,T)



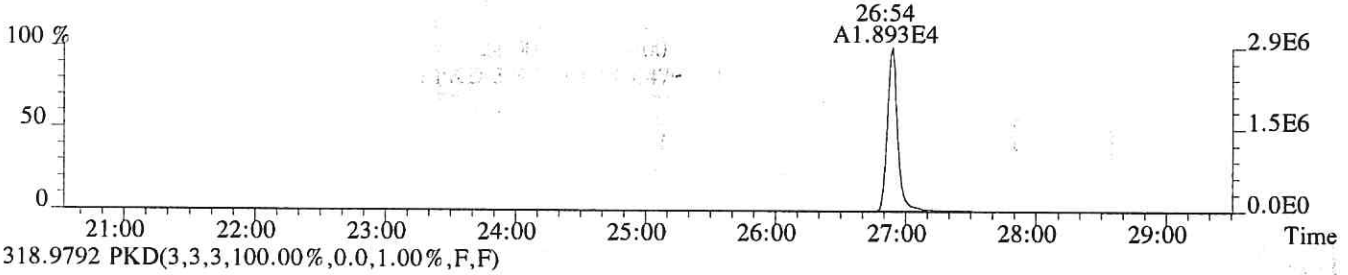
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4476.0,1.00%,F,T)



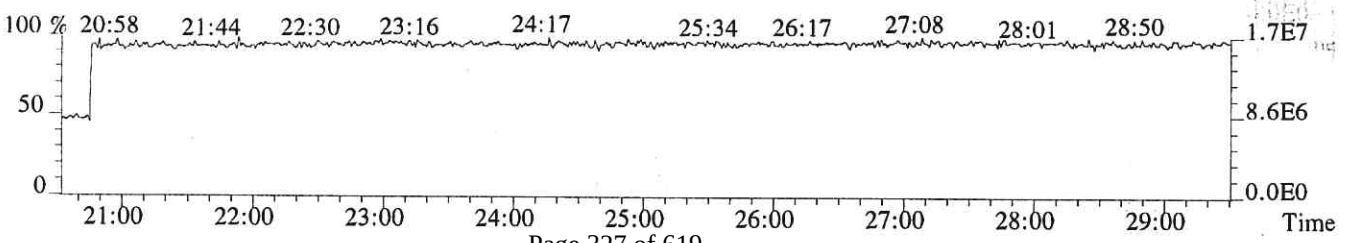
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2448.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1020.0,1.00%,F,T)

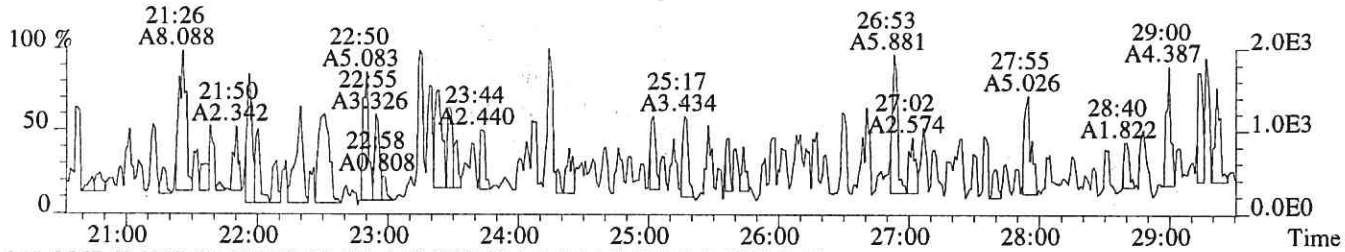


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

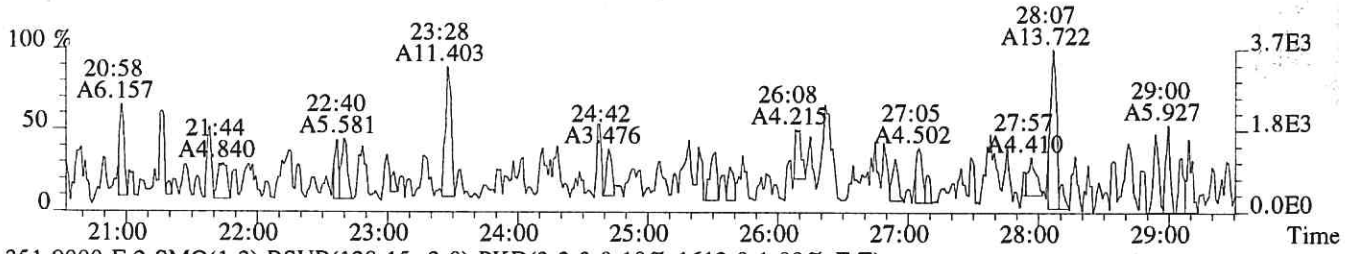


RIGHT SOLUTIONS | RIGHT PARTNER

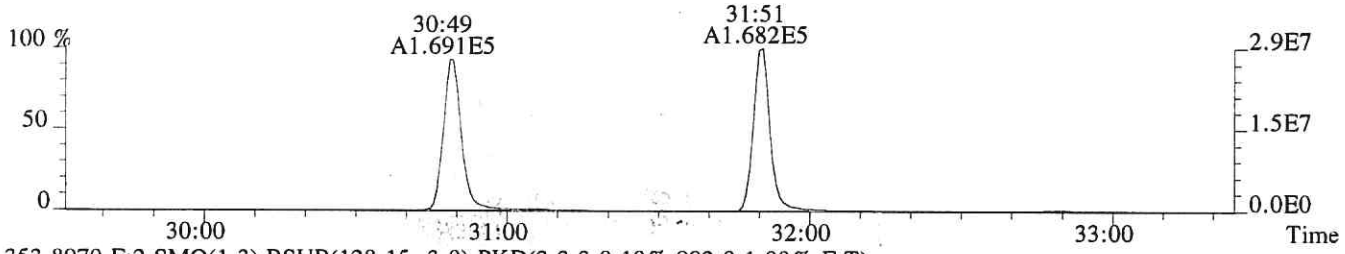
File:P524830 #1-637 Acq:20-OCT-2019 06:06:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:203606
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,556.0,1.00%,F,T)



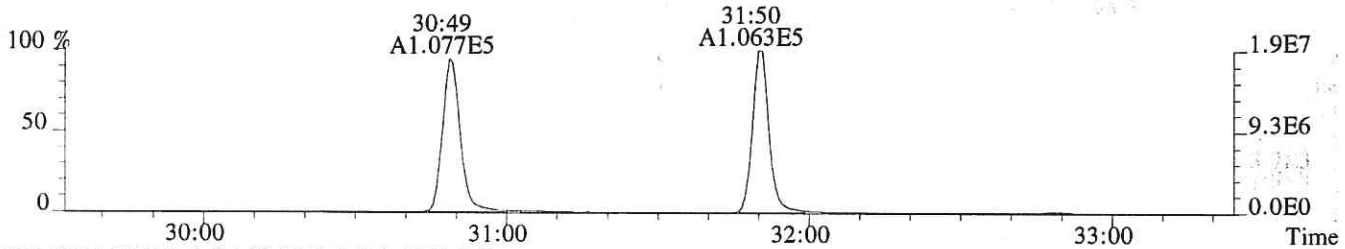
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,748.0,1.00%,F,T)



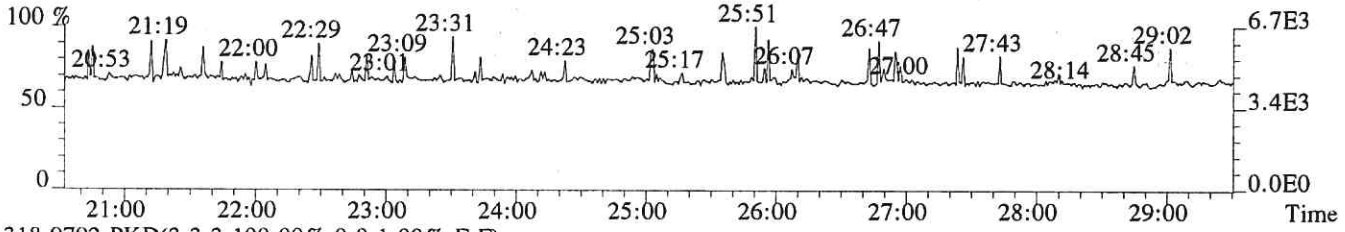
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1612.0,1.00%,F,T)



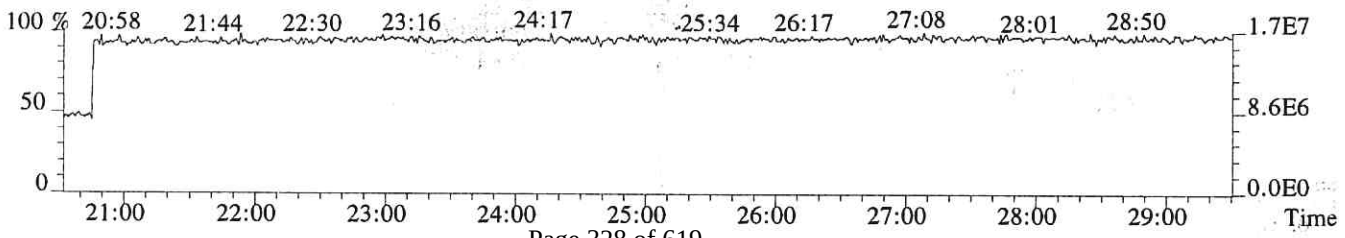
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,992.0,1.00%,F,T)



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



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



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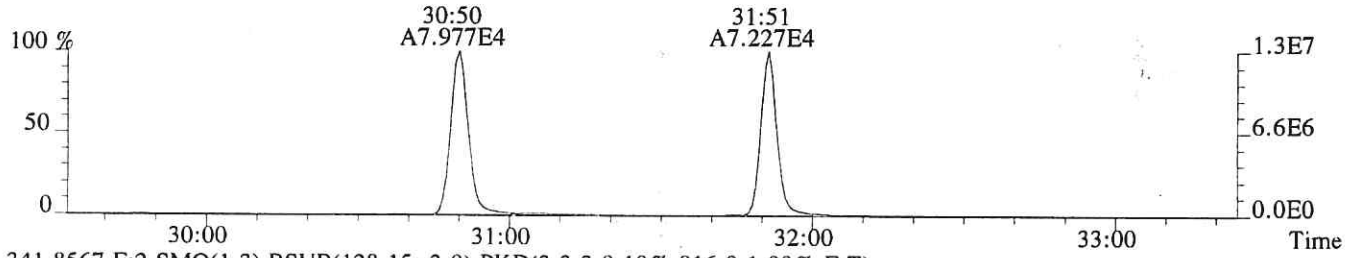
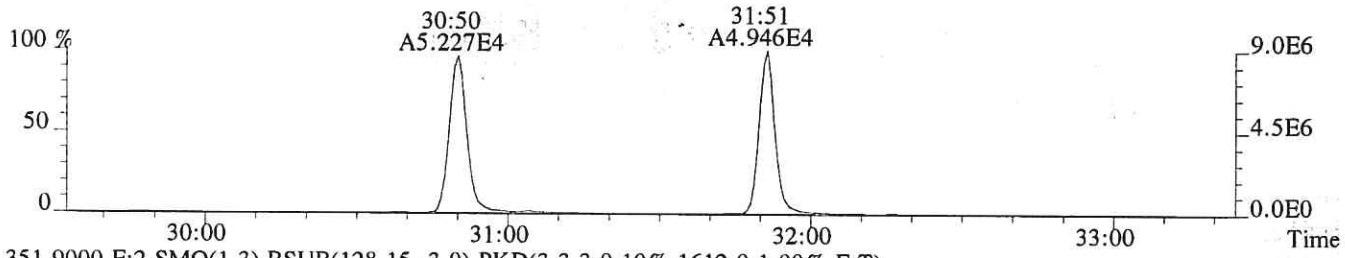
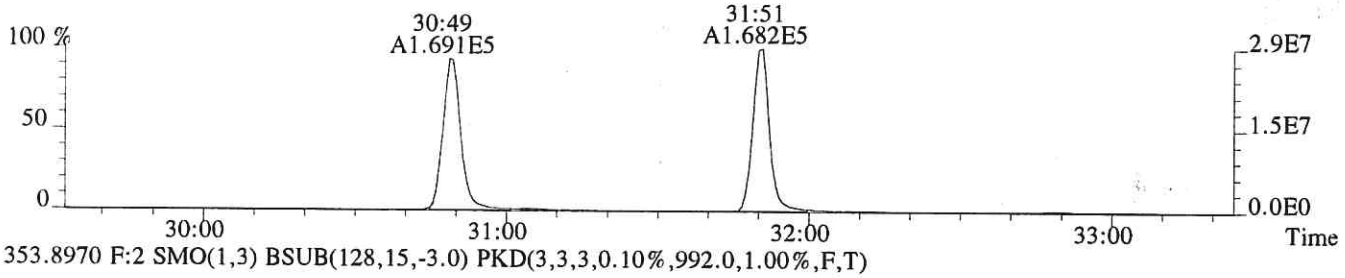
File:P524830 #1-348 Acq:20-OCT-2019 06:06:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:203606
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,880.0,1.00%,F,T)



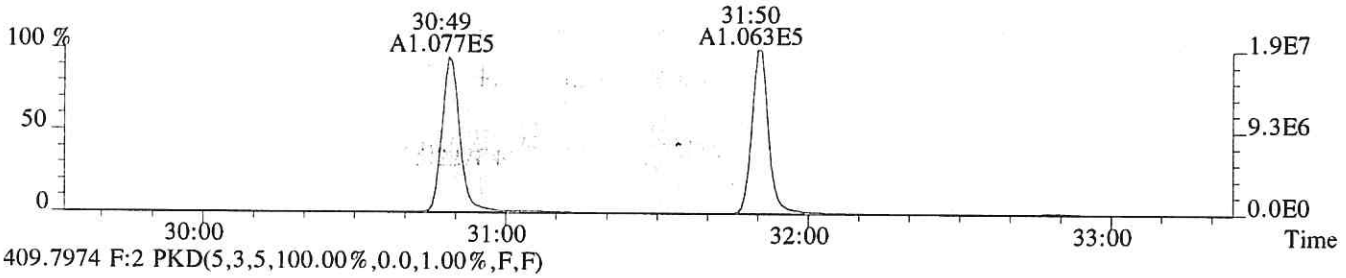
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,816.0,1.00%,F,T)



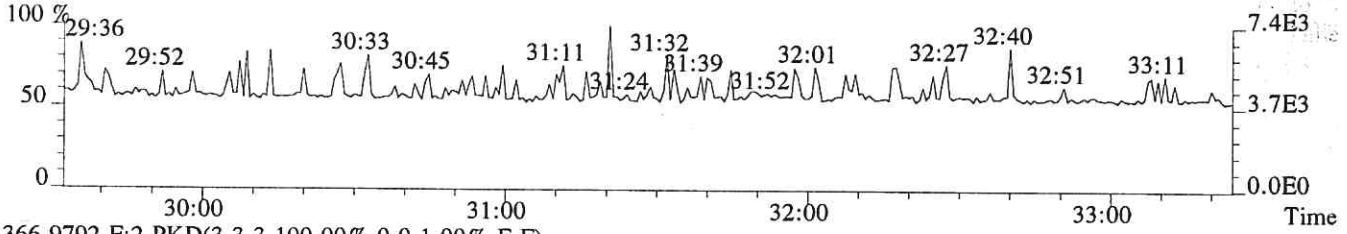
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1612.0,1.00%,F,T)



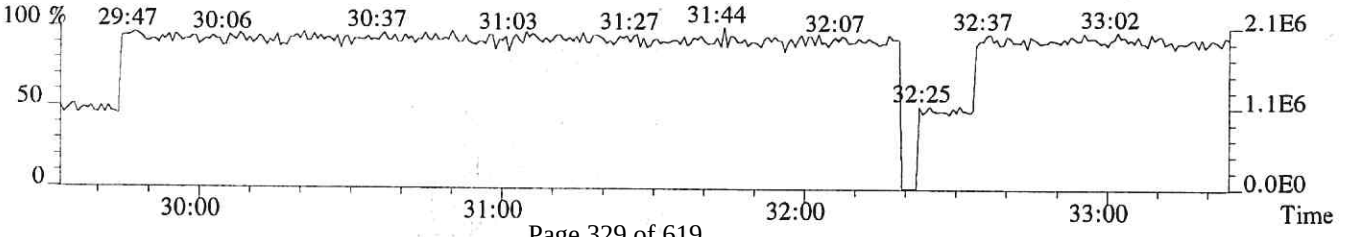
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,992.0,1.00%,F,T)



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

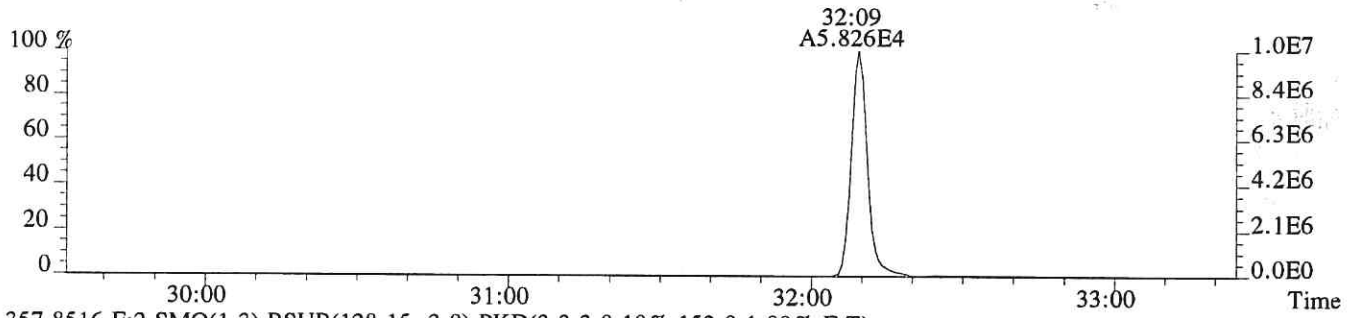


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

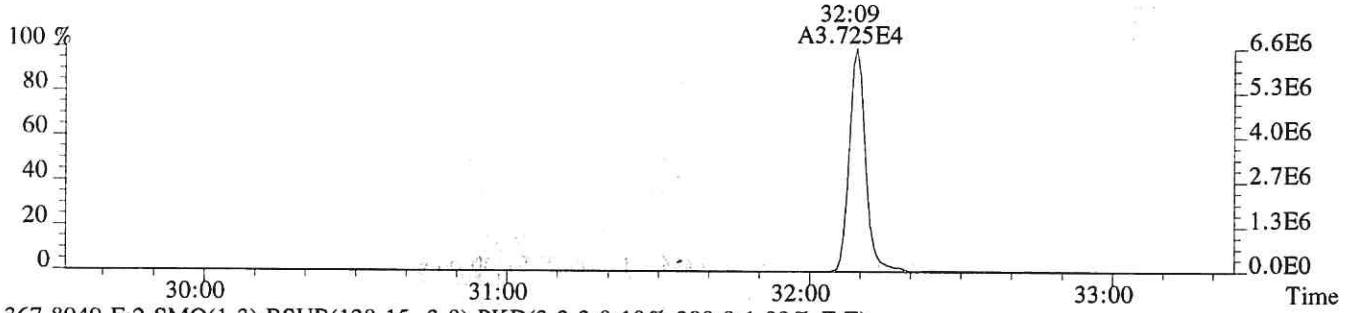


RIGHT SOLUTIONS | RIGHT PARTNER

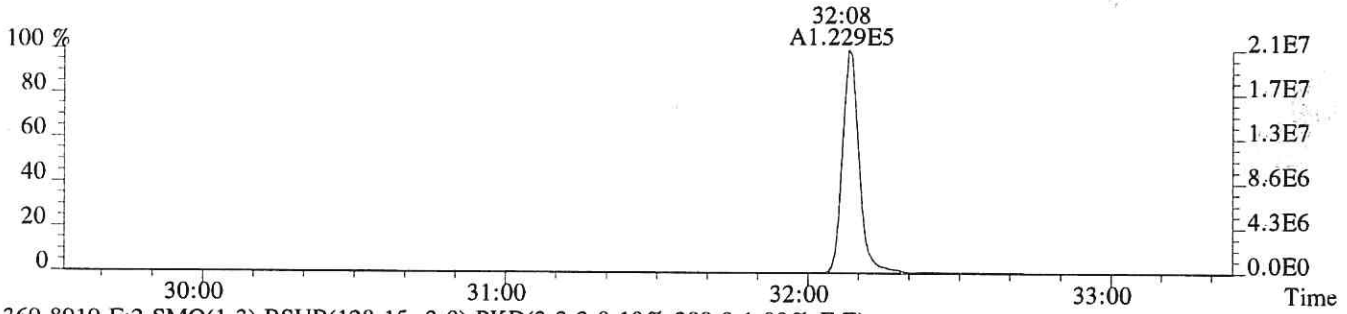
File:P524830 #1-348 Acq:20-OCT-2019 06:06:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:203606
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,928.0,1.00%,F,T)



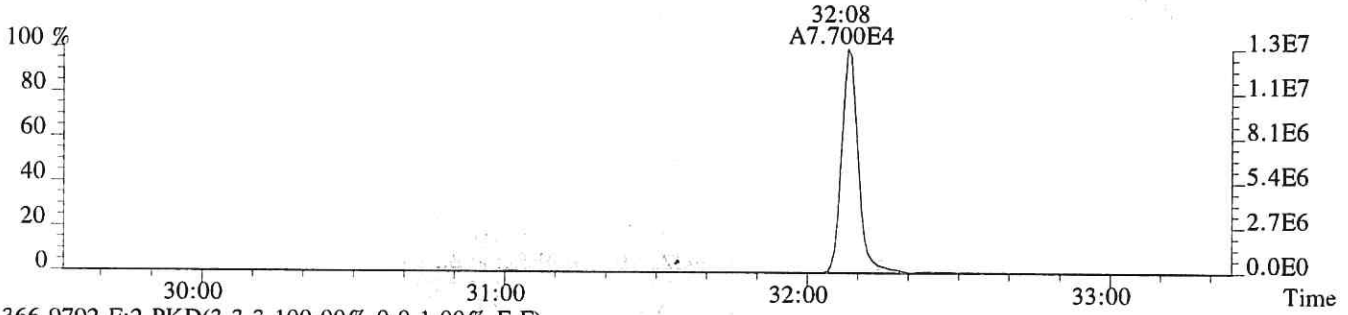
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,152.0,1.00%,F,T)



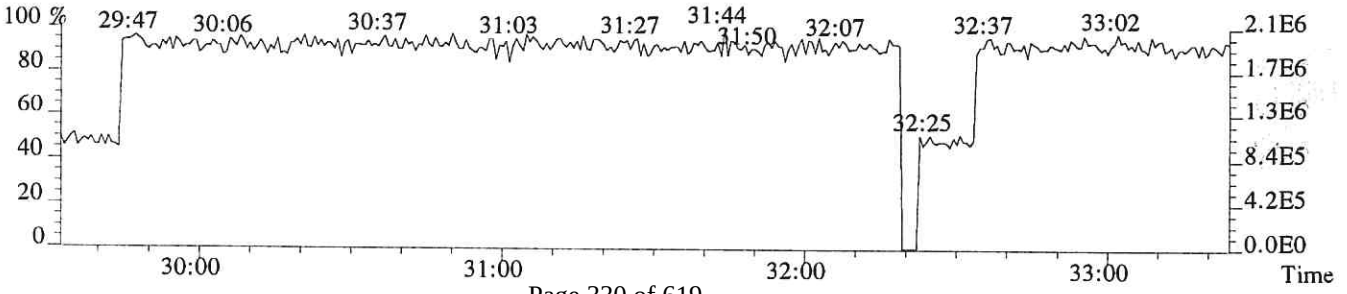
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,380.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,288.0,1.00%,F,T)

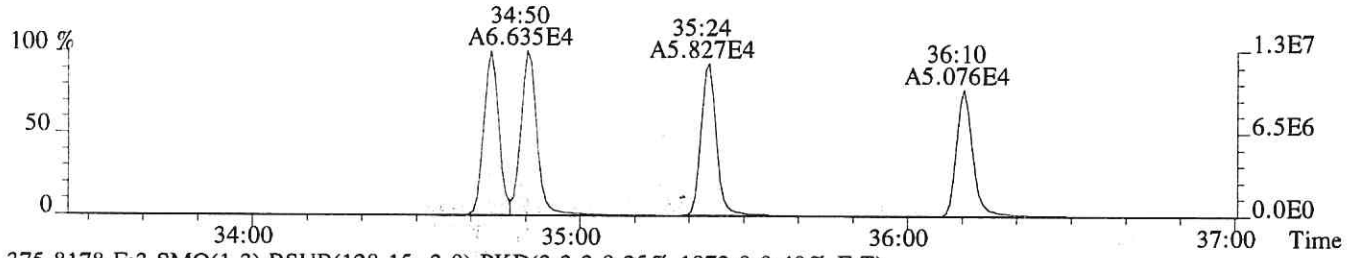


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

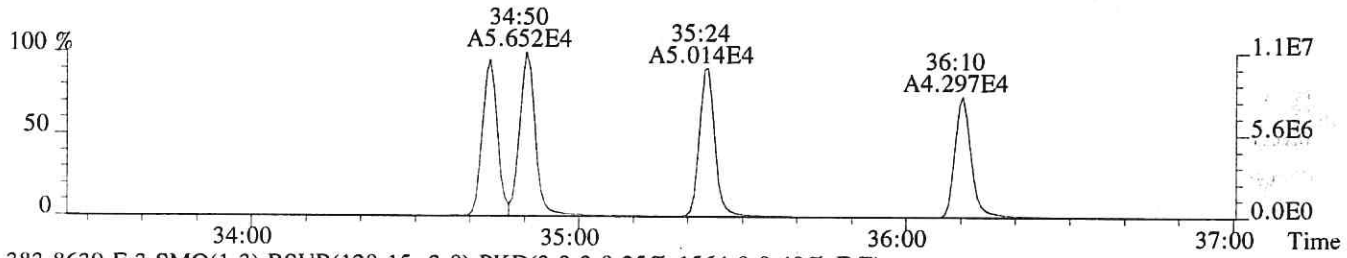


RIGHT SOLUTIONS | RIGHT PARTNER

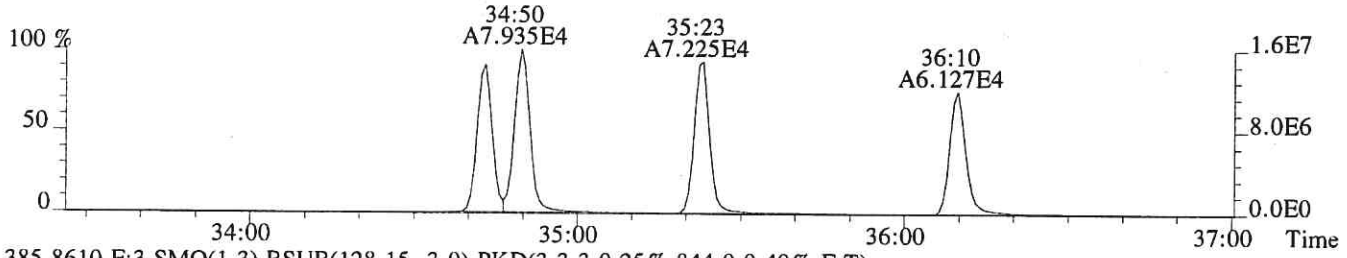
File:P524830 #1-322 Acq:20-OCT-2019 06:06:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:203606
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,316.0,0.40%,F,T)



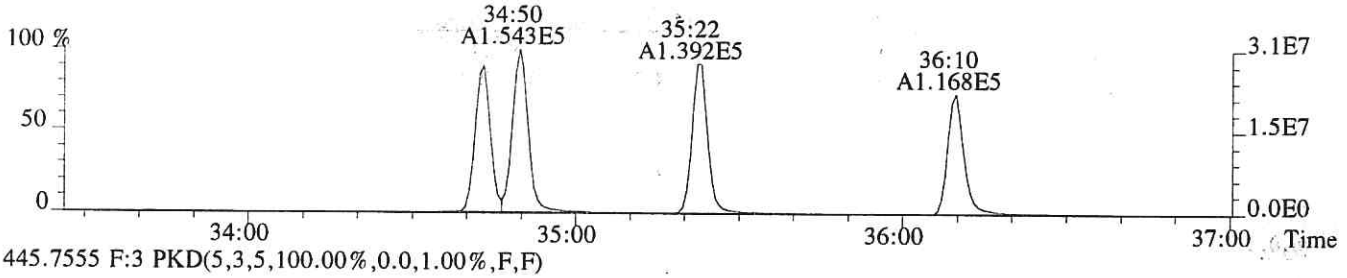
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1072.0,0.40%,F,T)



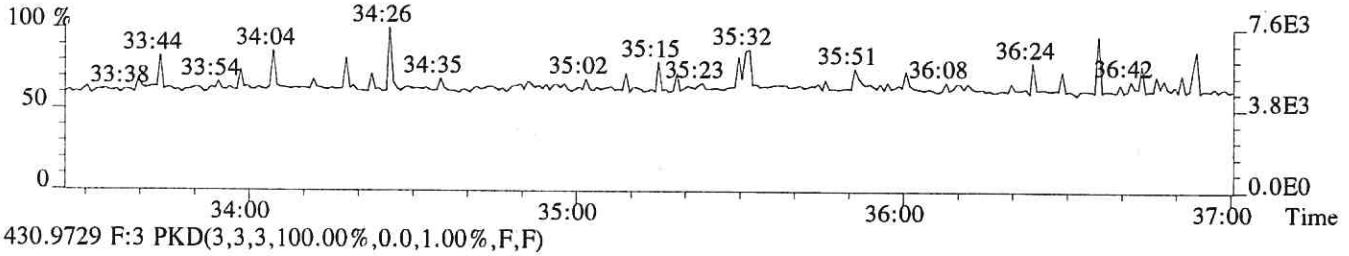
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1564.0,0.40%,F,T)



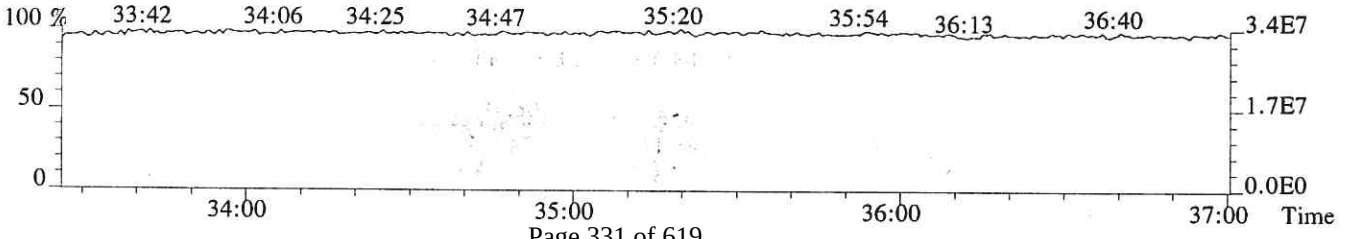
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,844.0,0.40%,F,T)



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

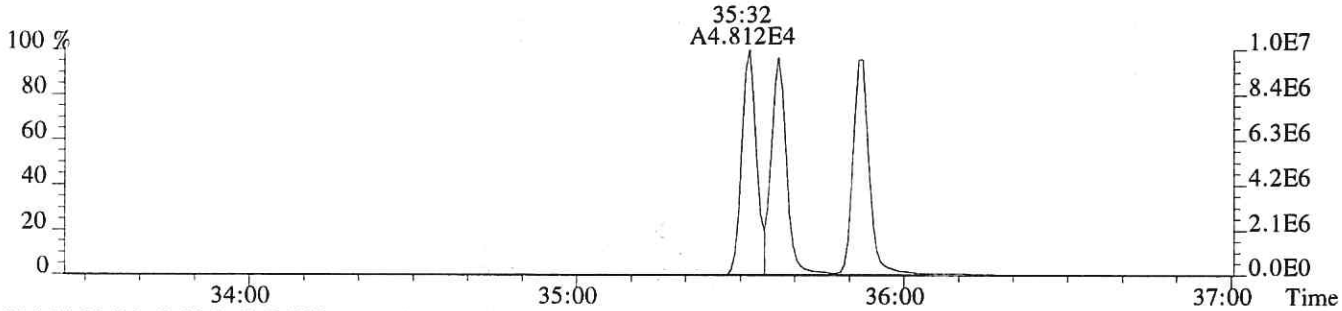


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

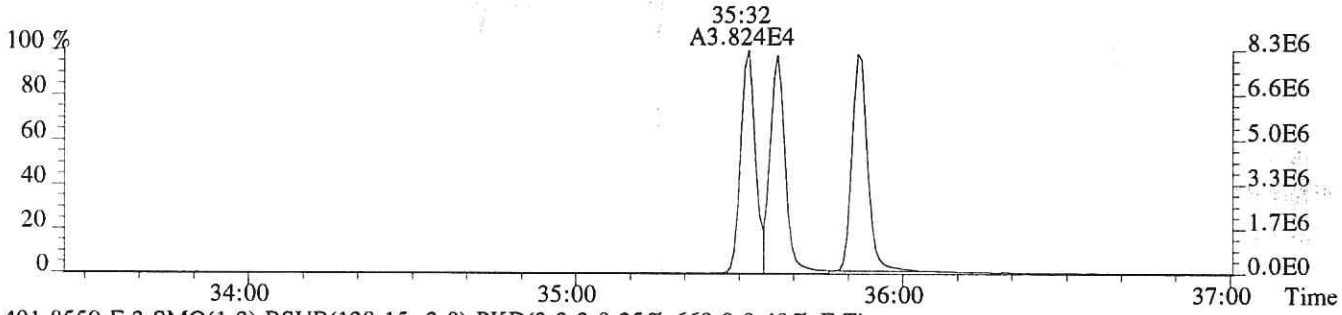


RIGHT SOLUTIONS | RIGHT PARTNER

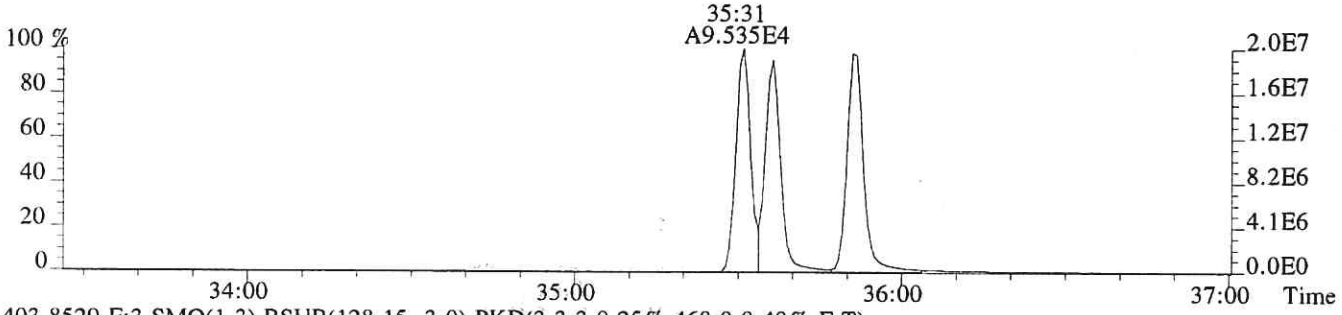
File:P524830 #1-322 Acq:20-OCT-2019 06:06:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:203606
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,192.0,0.40%,F,T)



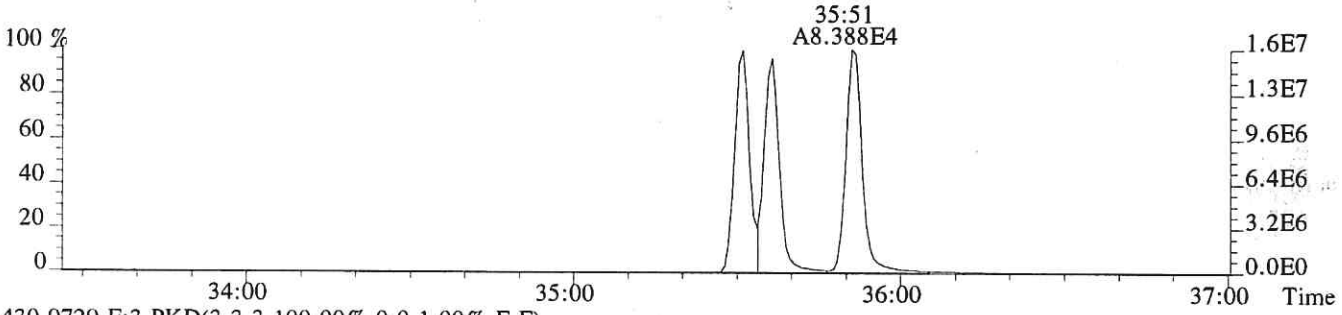
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1116.0,0.40%,F,T)



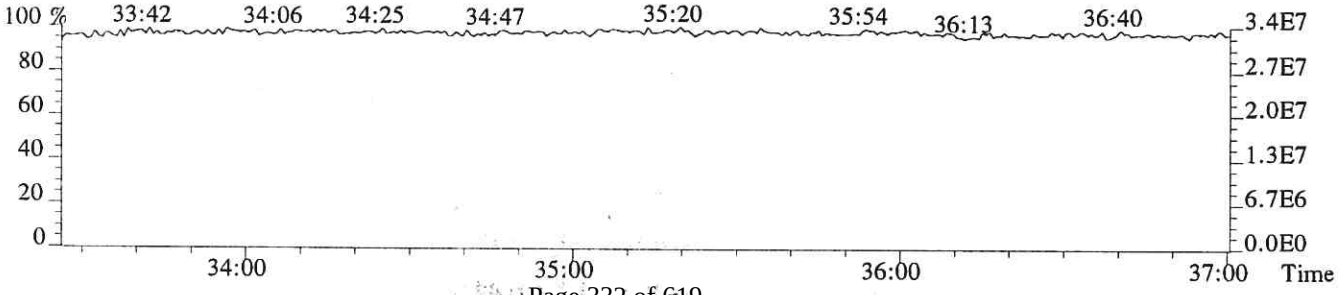
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,668.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,468.0,0.40%,F,T)

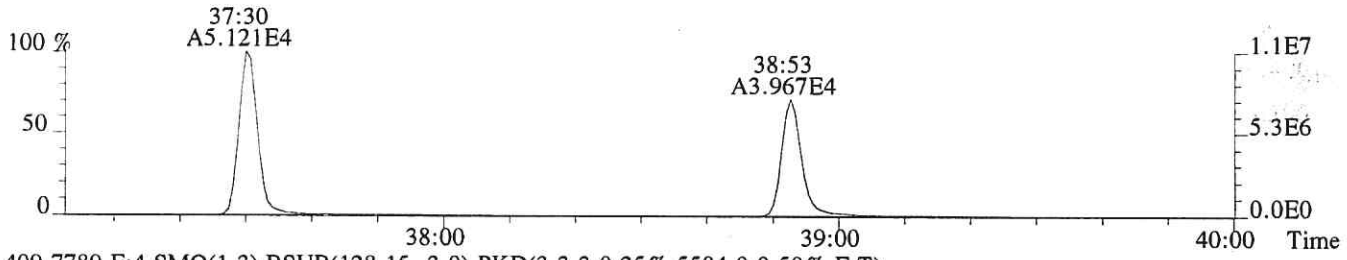


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

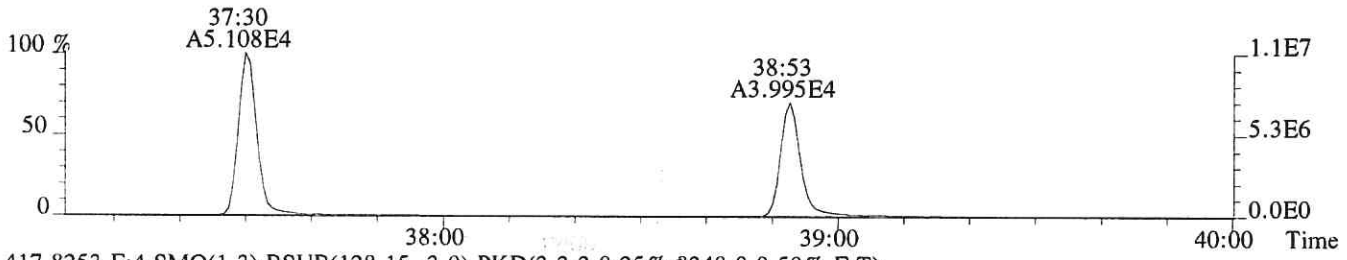


RIGHT SOLUTIONS | RIGHT PARTNER

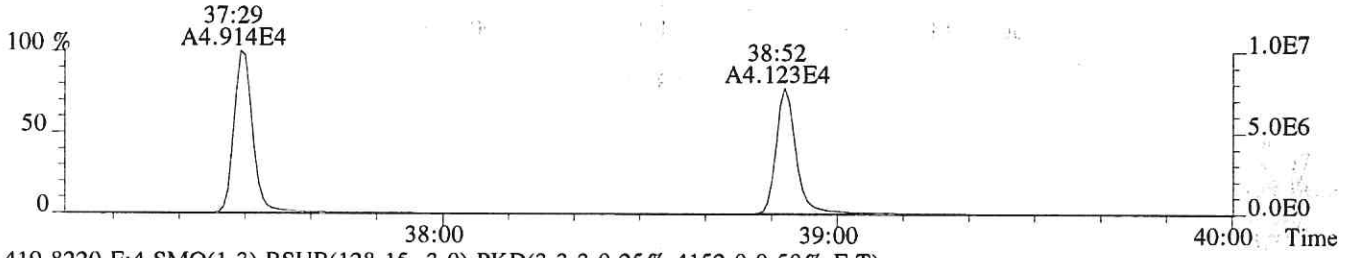
File:P524830 #1-267 Acq:20-OCT-2019 06:06:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:203606
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8128.0,0.50%,F,T)



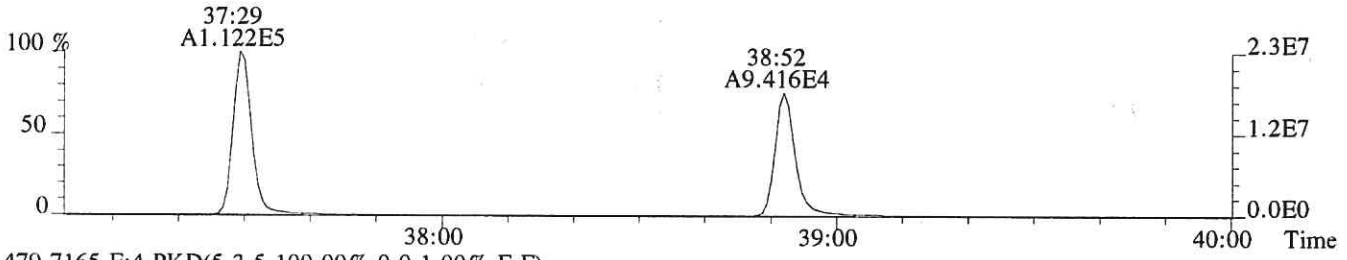
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5584.0,0.50%,F,T)



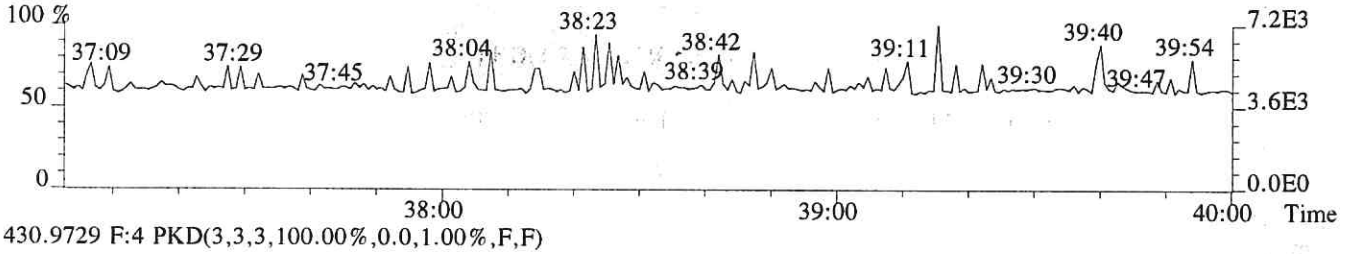
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8348.0,0.50%,F,T)



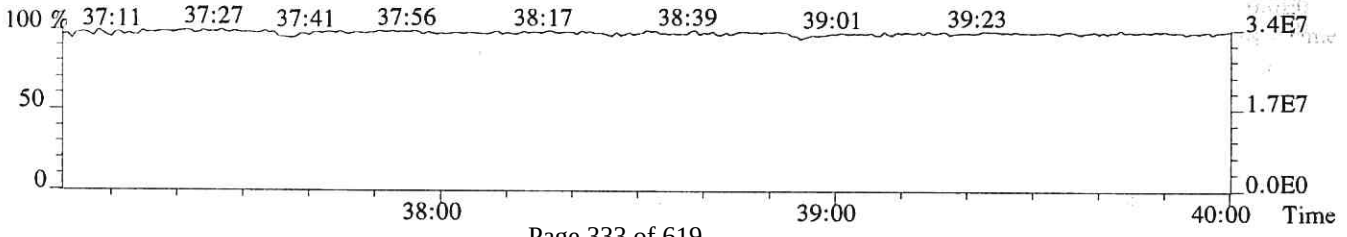
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4152.0,0.50%,F,T)



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

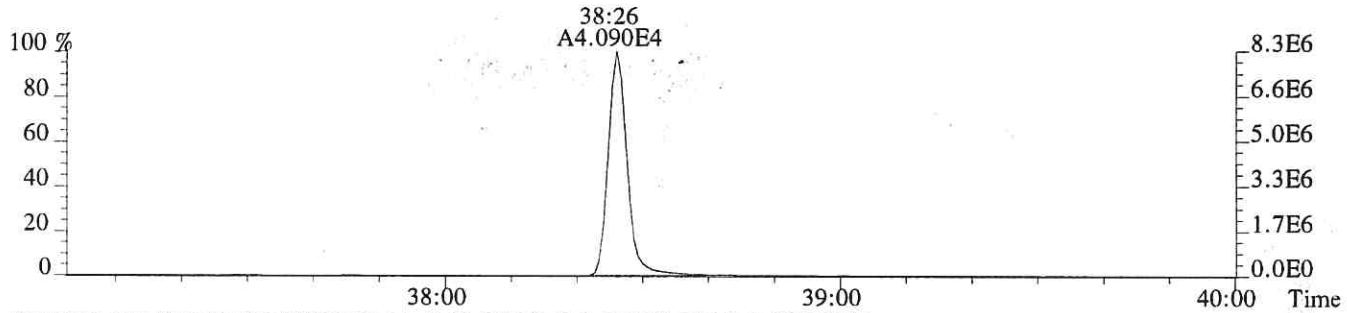


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

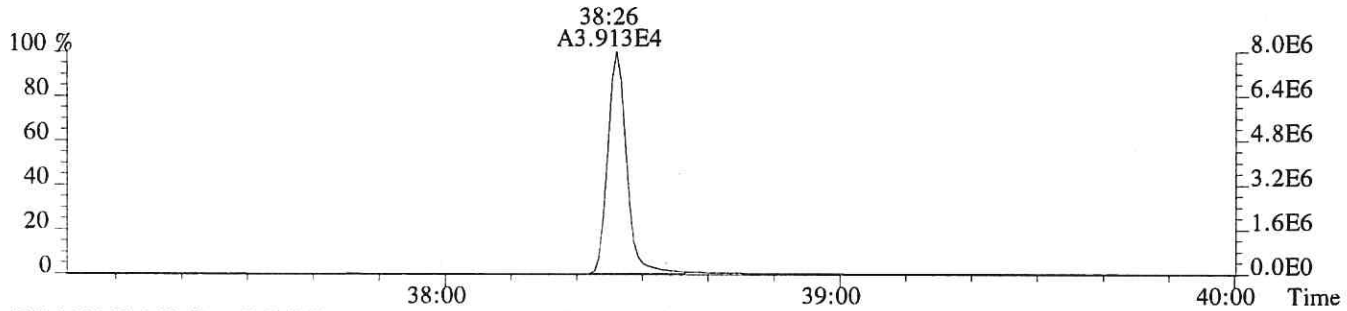


RIGHT SOLUTIONS | RIGHT PARTNER

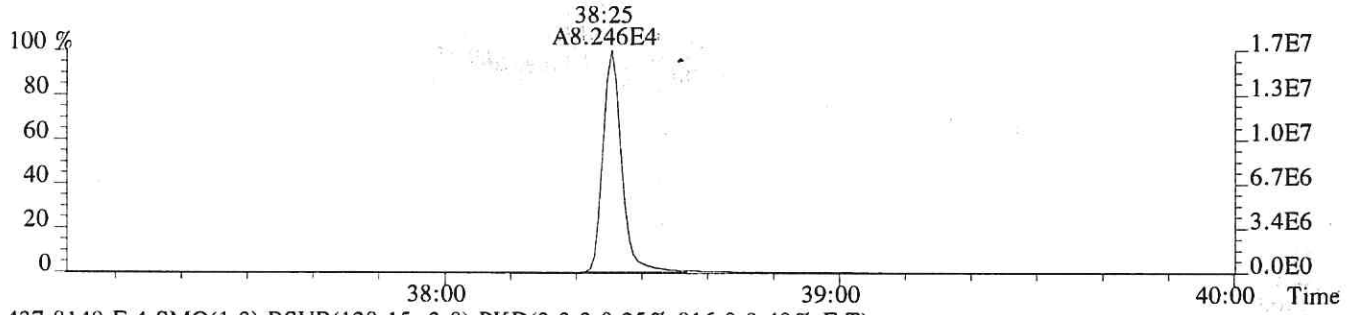
File:P524830 #1-267 Acq:20-OCT-2019 06:06:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:203606
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,848.0,0.40%,F,T)



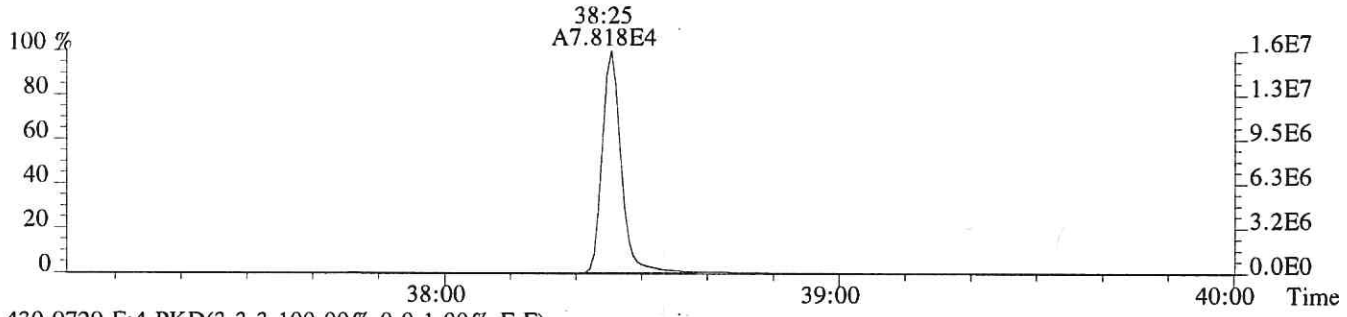
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,248.0,0.40%,F,T)



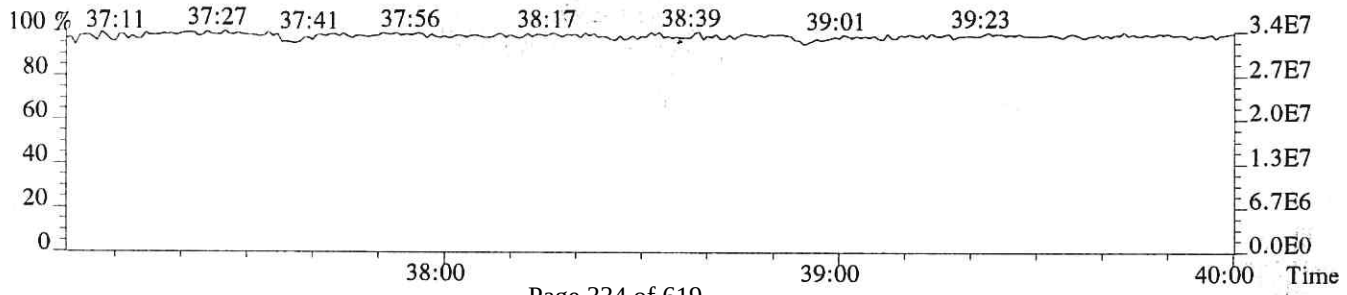
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,792.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,816.0,0.40%,F,T)

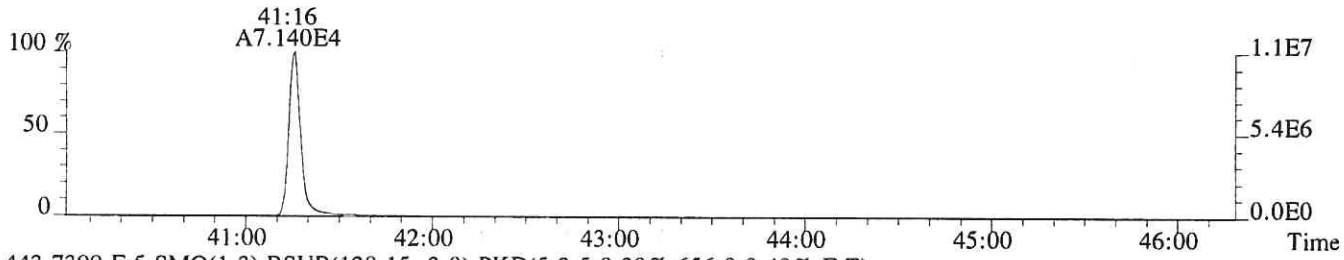


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

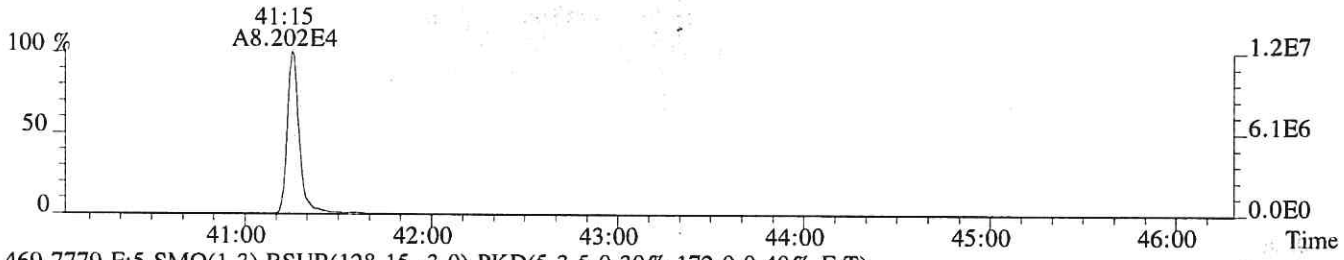


RIGHT SOLUTIONS | RIGHT PARTNER

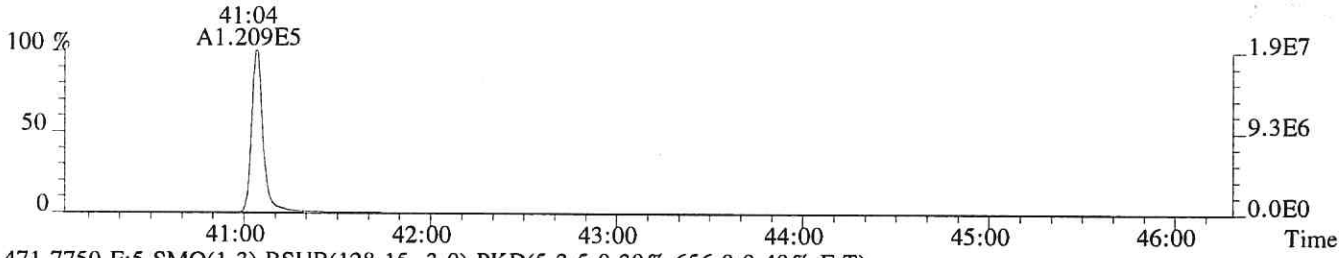
File:P524830 #1-565 Acq:20-OCT-2019 06:06:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:203606
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,240.0,0.40%,F,T)



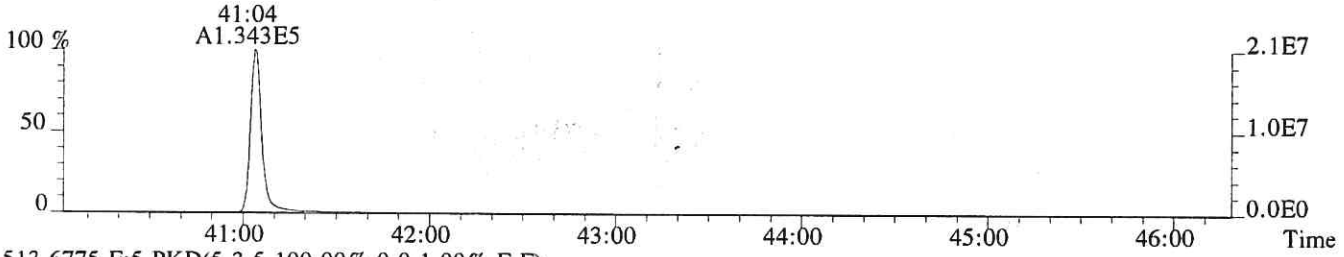
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,656.0,0.40%,F,T)



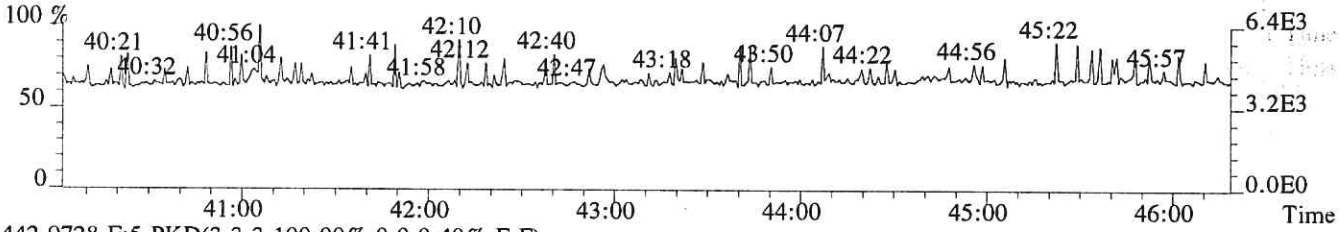
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,172.0,0.40%,F,T)



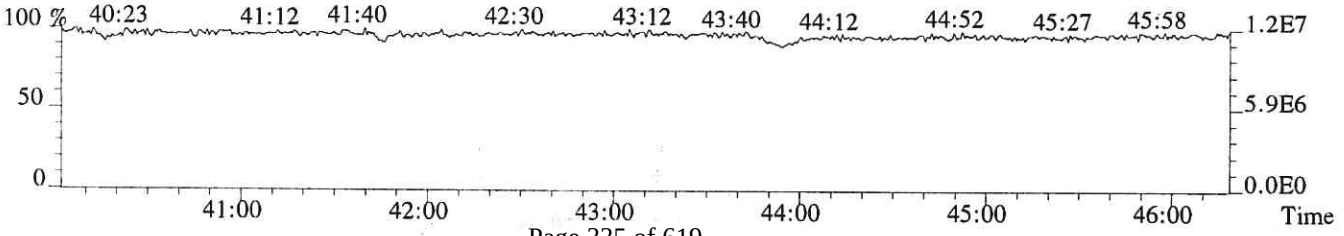
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,656.0,0.40%,F,T)



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

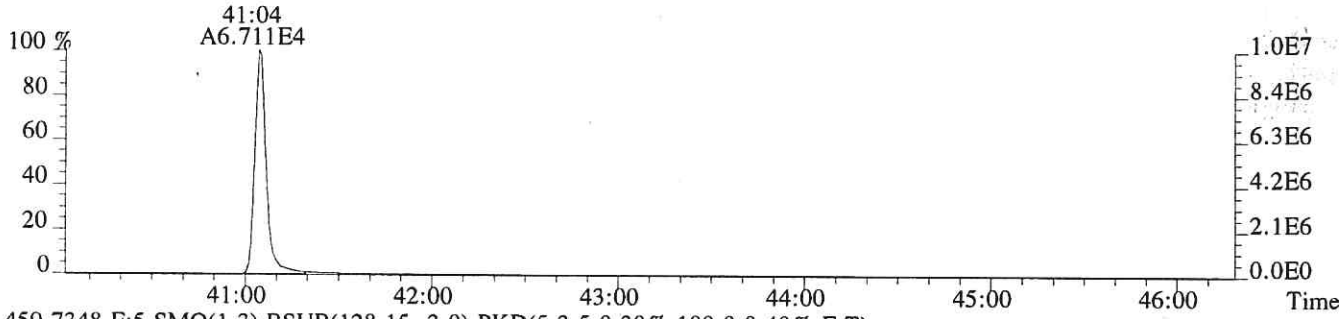


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

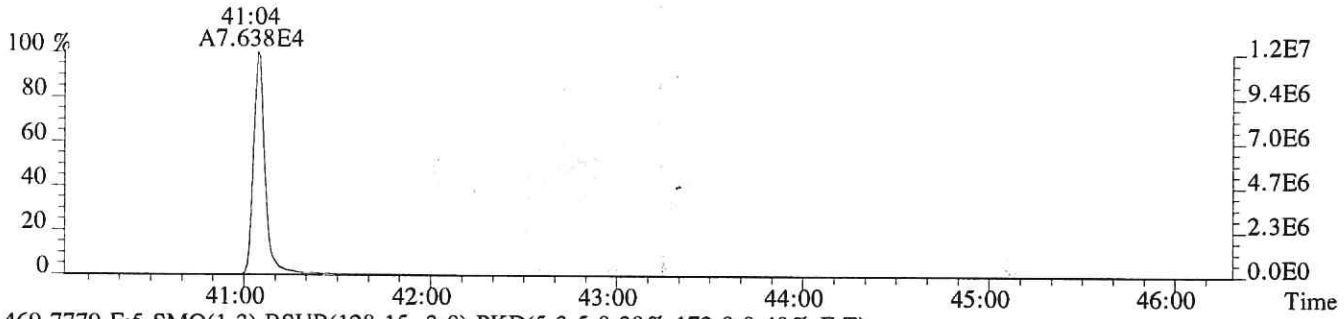


RIGHT SOLUTIONS | RIGHT PARTNER

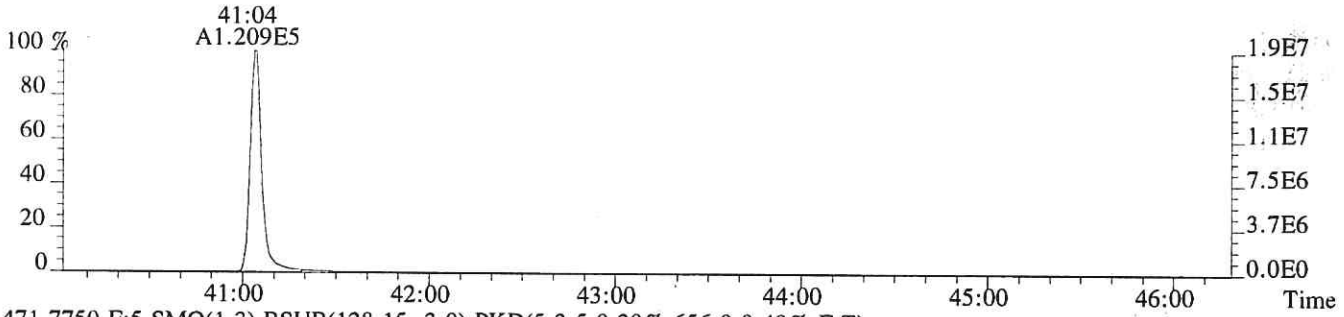
File:P524830 #1-565 Acq:20-OCT-2019 06:06:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:203606
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,176.0,0.40%,F,T)



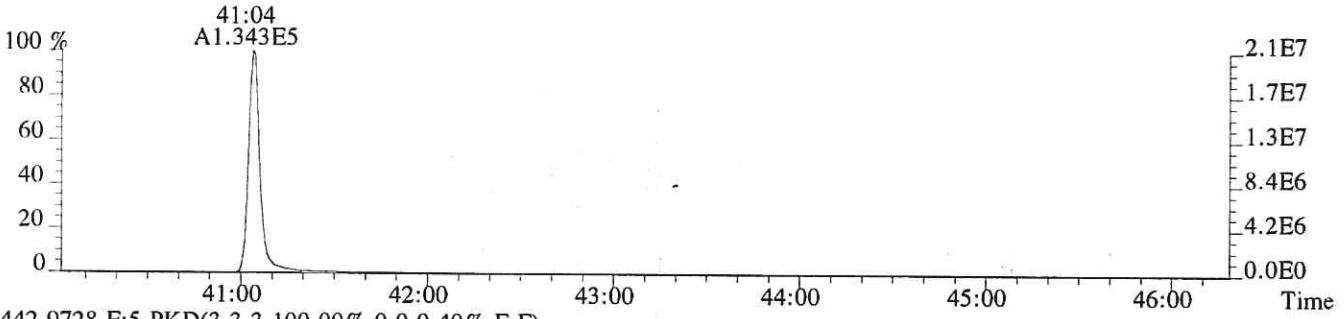
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,180.0,0.40%,F,T)



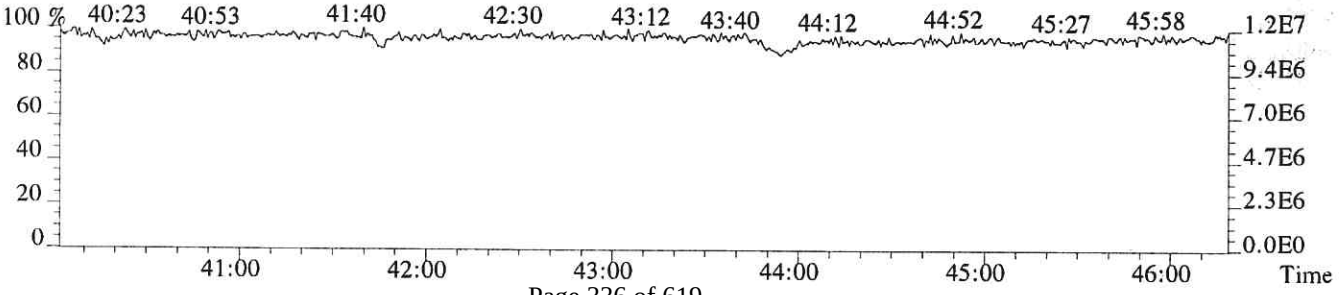
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,172.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,656.0,0.40%,F,T)



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



RIGHT SOLUTIONS | RIGHT PARTNER

USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 04/25/19

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

VER Data Filename: P524842 Analysis Date: 20-OCT-19 Time: 16:04:40

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	9.5	7.8 - 12.9	-5.1
1,2,3,7,8-PeCDD	M+2/M+4	1.55	1.32-1.78	50	39 - 65	-0.4
1,2,3,4,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	52	39 - 64	3.9
1,2,3,6,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	49	39 - 64	-1.3
1,2,3,7,8,9-HxCDD	M+2/M+4	1.26	1.05-1.43	52	41 - 61	3.6
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.03	0.88-1.20	51	43 - 58	1.9
OCDD	M+2/M+4	0.89	0.76-1.02	102	79 - 126	2.5
2,3,7,8-TCDF	M/M+2	0.71	0.65-0.89	9.0	8.4 - 12.0	-10.1
1,2,3,7,8-PeCDF	M+2/M+4	1.51	1.32-1.78	51	41 - 60	1.1
2,3,4,7,8-PeCDF	M+2/M+4	1.53	1.32-1.78	51	41 - 61	1.2
1,2,3,4,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	50	45 - 56	-1.0
1,2,3,6,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	50	44 - 57	0.4
1,2,3,7,8,9-HxCDF	M+2/M+4	1.17	1.05-1.43	50	45 - 56	-0.9
2,3,4,6,7,8-HxCDF	M+2/M+4	1.19	1.05-1.43	50	44 - 57	-0.8
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.02	0.88-1.20	50	45 - 55	0.0
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.01	0.88-1.20	50	43 - 58	0.7
OCDF	M+2/M+4	0.88	0.76-1.02	101	63 - 159	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) 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

RIGHT SOLUTIONS | RIGHT PARTNER

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 04/25/19

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

VER Data Filename: P524842 Analysis Date: 20-OCT-19 Time: 16:04:40

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	98	82 - 121	-2.3
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	93	62 - 160	-7.2
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.35	1.05-1.43	95	85 - 117	-5.5
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.22	1.05-1.43	99	85 - 118	-1.1
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.07	0.88-1.20	100	72 - 138	0.0
13C-OCDD	M+2/M+4	0.91	0.76-1.02	209	96 - 415	4.6
13C-2,3,7,8-TCDF	M/M+2	0.78	0.65-0.89	104	71 - 140	4.4
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	98	76 - 130	-2.0
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	97	77 - 130	-3.2
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	99	76 - 131	-0.7
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	101	70 - 143	1.2
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	99	74 - 135	-0.6
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	100	73 - 137	0.2
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	97	78 - 129	-2.9
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	102	77 - 129	2.5
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.6	7.8 - 12.7	-3.7

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

12/2012
1613F4B.FRM

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ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
203606

Run #19 Filename P524842 Samp: 1 Inj: 1 Acquired: 20-OCT-19 16:04:40
Processed: 21-OCT-19 15:26:00 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:56	1.381e+04	1.953e+04	0.71	yes	no	0.962
2	Unk	1,2,3,7,8-PeCDF	30:49	1.173e+05	7.762e+04	1.51	yes	no	0.968
3	Unk	2,3,4,7,8-PeCDF	31:51	1.075e+05	7.021e+04	1.53	yes	no	0.919
4	Unk	1,2,3,4,7,8-HxCDF	34:43	9.213e+04	7.636e+04	1.21	yes	no	1.161
5	Unk	1,2,3,6,7,8-HxCDF	34:50	9.856e+04	8.161e+04	1.21	yes	no	1.073
6	Unk	2,3,4,6,7,8-HxCDF	35:22	8.762e+04	7.385e+04	1.19	yes	no	1.069
7	Unk	1,2,3,7,8,9-HxCDF	36:10	7.616e+04	6.508e+04	1.17	yes	no	1.096
8	Unk	1,2,3,4,6,7,8-HpCDF	37:29	7.632e+04	7.470e+04	1.02	yes	no	1.281
9	Unk	1,2,3,4,7,8,9-HpCDF	38:51	6.117e+04	6.057e+04	1.01	yes	no	1.192
10	Unk	OCDF	41:14	1.046e+05	1.188e+05	0.88	yes	no	1.204
11	Unk	2,3,7,8-TCDD	26:53	1.180e+04	1.483e+04	0.80	yes	no	1.077
12	Unk	1,2,3,7,8-PeCDD	32:09	7.971e+04	5.137e+04	1.55	yes	no	0.971
13	Unk	1,2,3,4,7,8-HxCDD	35:30	7.000e+04	5.591e+04	1.25	yes	no	1.024
14	Unk	1,2,3,6,7,8-HxCDD	35:36	6.905e+04	5.518e+04	1.25	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	35:51	7.299e+04	5.806e+04	1.26	yes	no	1.055
16	Unk	1,2,3,4,6,7,8-HpCDD	38:25	5.949e+04	5.760e+04	1.03	yes	no	0.989
17	Unk	OCDD	41:04	9.691e+04	1.090e+05	0.89	yes	no	1.094
18	IS	13C-2,3,7,8-TCDF	25:55	1.695e+05	2.161e+05	0.78	yes	no	1.287
19	IS	13C-1,2,3,7,8-PeCDF	30:49	2.437e+05	1.548e+05	1.57	yes	no	1.416
20	IS	13C-2,3,4,7,8-PeCDF	31:49	2.337e+05	1.484e+05	1.58	yes	no	1.374
21	IS	13C-1,2,3,4,7,8-HxCDF	34:42	9.971e+04	1.935e+05	0.52	yes	no	1.114
22	IS	13C-1,2,3,6,7,8-HxCDF	34:49	1.149e+05	2.193e+05	0.52	yes	no	1.245
23	IS	13C-2,3,4,6,7,8-HxCDF	35:22	1.040e+05	2.004e+05	0.52	yes	no	1.146
24	IS	13C-1,2,3,7,8,9-HxCDF	36:09	9.061e+04	1.694e+05	0.53	yes	no	0.986
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:29	7.274e+04	1.630e+05	0.45	yes	no	0.915
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:51	6.258e+04	1.402e+05	0.45	yes	no	0.746
27	IS	13C-2,3,7,8-TCDD	26:51	1.152e+05	1.452e+05	0.79	yes	no	0.929
28	IS	13C-1,2,3,7,8-PeCDD	32:07	1.665e+05	1.045e+05	1.59	yes	no	1.017
29	IS	13C-1,2,3,4,7,8-HxCDD	35:30	1.359e+05	1.010e+05	1.35	yes	no	0.945
30	IS	13C-1,2,3,6,7,8-HxCDD	35:36	1.332e+05	1.093e+05	1.22	yes	no	0.924
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:25	1.200e+05	1.124e+05	1.07	yes	no	0.876
32	IS	13C-OCDD	41:04	1.746e+05	1.927e+05	0.91	yes	no	0.662
33	RS/RT	13C-1,2,3,4-TCDD	26:08	1.278e+05	1.593e+05	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:50	1.487e+05	1.166e+05	1.28	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:53	2.794e+04				no	1.010

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Signal/Noise Height Ratio Summary

CLIENT ID.
203606

Run #19 Filename P524842 Samp: 1 Inj: 1 Acquired: 20-OCT-19 16:04:40
Processed: 21-OCT-19 15:26:00 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+06	4.24e+02	4.4e+03	2.55e+06	1.28e+03	2.0e+03
2	1,2,3,7,8-PeCDF	1.94e+07	1.32e+03	1.5e+04	1.27e+07	1.90e+03	6.7e+03
3	2,3,4,7,8-PeCDF	1.90e+07	1.32e+03	1.4e+04	1.23e+07	1.90e+03	6.5e+03
4	1,2,3,4,7,8-HxCDF	1.93e+07	4.28e+02	4.5e+04	1.57e+07	2.64e+02	6.0e+04
5	1,2,3,6,7,8-HxCDF	1.98e+07	4.28e+02	4.6e+04	1.63e+07	2.64e+02	6.2e+04
6	2,3,4,6,7,8-HxCDF	1.76e+07	4.28e+02	4.1e+04	1.52e+07	2.64e+02	5.8e+04
7	1,2,3,7,8,9-HxCDF	1.48e+07	4.28e+02	3.5e+04	1.22e+07	2.64e+02	4.6e+04
8	1,2,3,4,6,7,8-HpCDF	1.67e+07	1.18e+04	1.4e+03	1.62e+07	4.40e+03	3.7e+03
9	1,2,3,4,7,8,9-HpCDF	1.16e+07	1.18e+04	9.8e+02	1.14e+07	4.40e+03	2.6e+03
10	OCDF	1.68e+07	4.72e+02	3.6e+04	1.91e+07	6.04e+02	3.2e+04
11	2,3,7,8-TCDD	1.77e+06	1.21e+03	1.5e+03	2.17e+06	1.16e+03	1.9e+03
12	1,2,3,7,8-PeCDD	1.42e+07	8.96e+02	1.6e+04	8.95e+06	8.88e+02	1.0e+04
13	1,2,3,4,7,8-HxCDD	1.47e+07	3.08e+02	4.8e+04	1.18e+07	1.48e+02	8.0e+04
14	1,2,3,6,7,8-HxCDD	1.40e+07	3.08e+02	4.5e+04	1.11e+07	1.48e+02	7.5e+04
15	1,2,3,7,8,9-HxCDD	1.47e+07	3.08e+02	4.8e+04	1.17e+07	1.48e+02	7.9e+04
16	1,2,3,4,6,7,8-HpCDD	1.23e+07	5.96e+02	2.1e+04	1.16e+07	1.10e+03	1.1e+04
17	OCDD	1.59e+07	1.48e+02	1.1e+05	1.79e+07	1.92e+02	9.3e+04
18	13C-2,3,7,8-TCDF	2.22e+07	4.42e+03	5.0e+03	2.79e+07	2.28e+03	1.2e+04
19	13C-1,2,3,7,8-PeCDF	3.94e+07	3.51e+03	1.1e+04	2.48e+07	3.87e+03	6.4e+03
20	13C-2,3,4,7,8-PeCDF	4.04e+07	3.51e+03	1.2e+04	2.57e+07	3.87e+03	6.6e+03
21	13C-1,2,3,4,7,8-HxCDF	2.03e+07	6.44e+02	3.1e+04	3.92e+07	1.28e+03	3.1e+04
22	13C-1,2,3,6,7,8-HxCDF	2.30e+07	6.44e+02	3.6e+04	4.35e+07	1.28e+03	3.4e+04
23	13C-2,3,4,6,7,8-HxCDF	2.13e+07	6.44e+02	3.3e+04	4.13e+07	1.28e+03	3.2e+04
24	13C-1,2,3,7,8,9-HxCDF	1.71e+07	6.44e+02	2.7e+04	3.24e+07	1.28e+03	2.5e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.57e+07	3.44e+03	4.6e+03	3.54e+07	1.82e+04	1.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.17e+07	3.44e+03	3.4e+03	2.63e+07	1.82e+04	1.4e+03
27	13C-2,3,7,8-TCDD	1.67e+07	4.30e+03	3.9e+03	2.10e+07	1.89e+03	1.1e+04
28	13C-1,2,3,7,8-PeCDD	2.91e+07	1.32e+02	2.2e+05	1.83e+07	1.04e+02	1.8e+05
29	13C-1,2,3,4,7,8-HxCDD	2.84e+07	2.82e+03	1.0e+04	2.23e+07	1.06e+03	2.1e+04
30	13C-1,2,3,6,7,8-HxCDD	2.68e+07	2.82e+03	9.5e+03	2.13e+07	1.06e+03	2.0e+04
31	13C-1,2,3,4,6,7,8-HpCDD	2.41e+07	5.72e+02	4.2e+04	2.26e+07	1.50e+03	1.5e+04
32	13C-OCDD	2.88e+07	1.20e+02	2.4e+05	3.18e+07	1.88e+02	1.7e+05
33	13C-1,2,3,4-TCDD	1.89e+07	4.30e+03	4.4e+03	2.34e+07	1.89e+03	1.2e+04
34	13C-1,2,3,7,8,9-HxCDD	2.93e+07	2.82e+03	1.0e+04	2.32e+07	1.06e+03	2.2e+04
35	37Cl-2,3,7,8-TCDD	4.07e+06	9.32e+02	4.4e+03			

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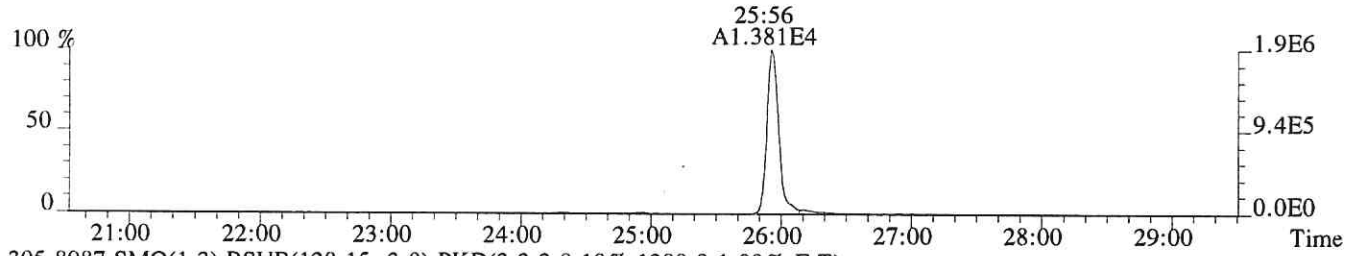
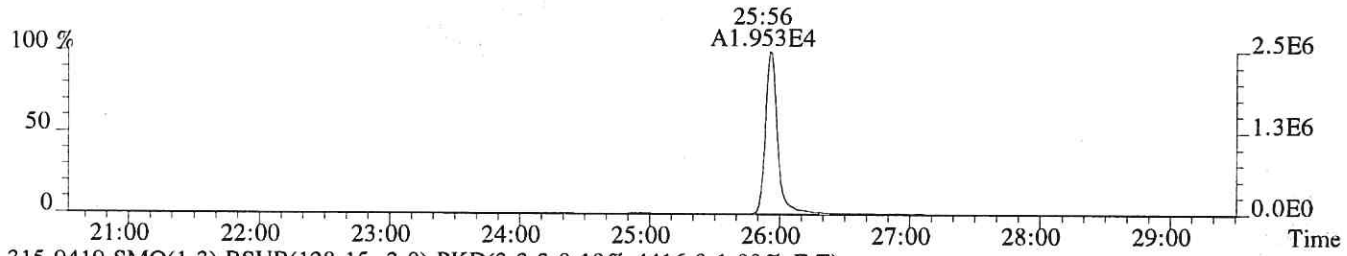
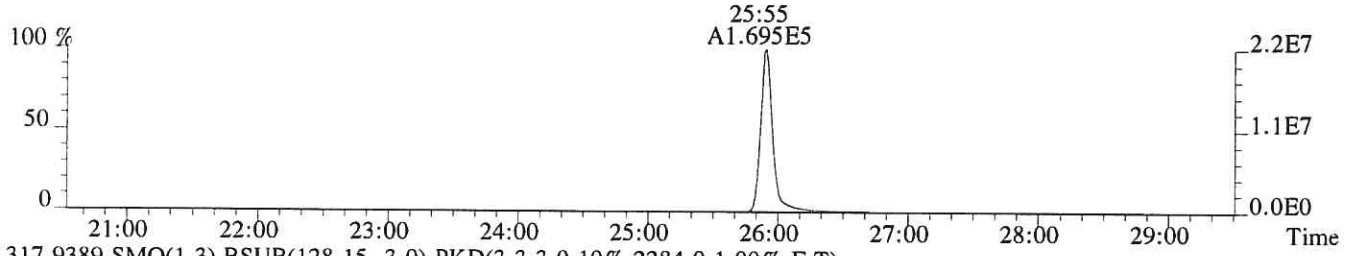
File:P524842 #1-637 Acq:20-OCT-2019 16:04:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:203606
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,424.0,1.00%,F,T)



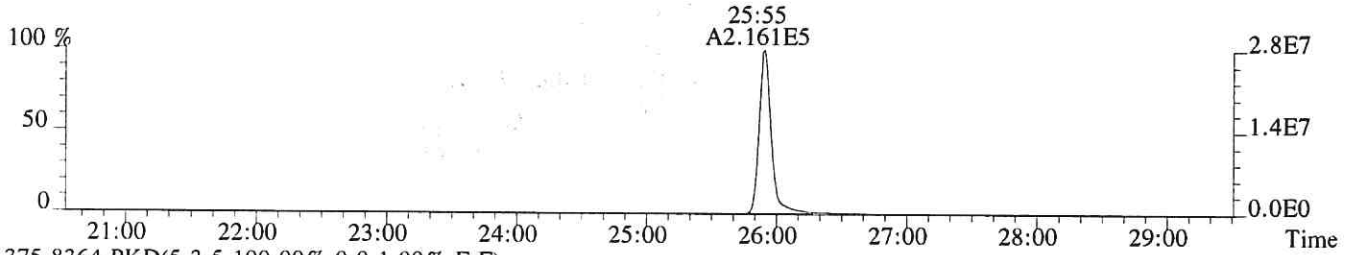
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1280.0,1.00%,F,T)



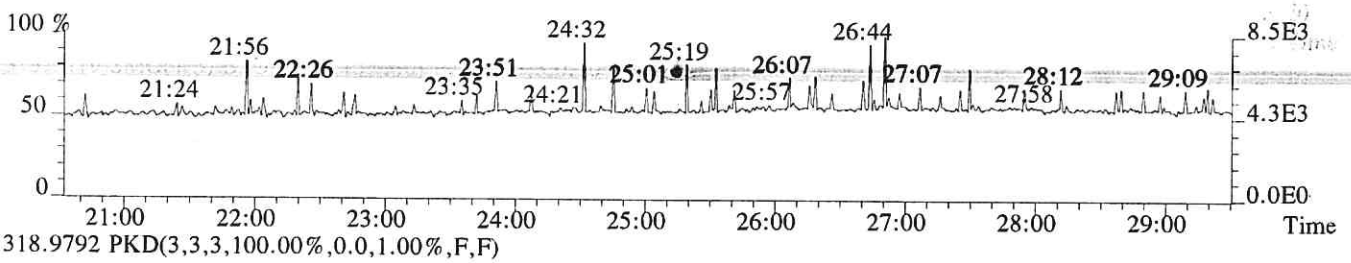
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4416.0,1.00%,F,T)



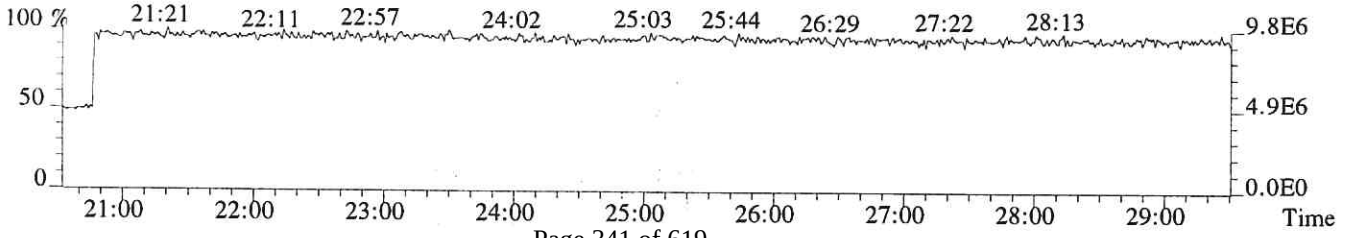
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2284.0,1.00%,F,T)



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



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



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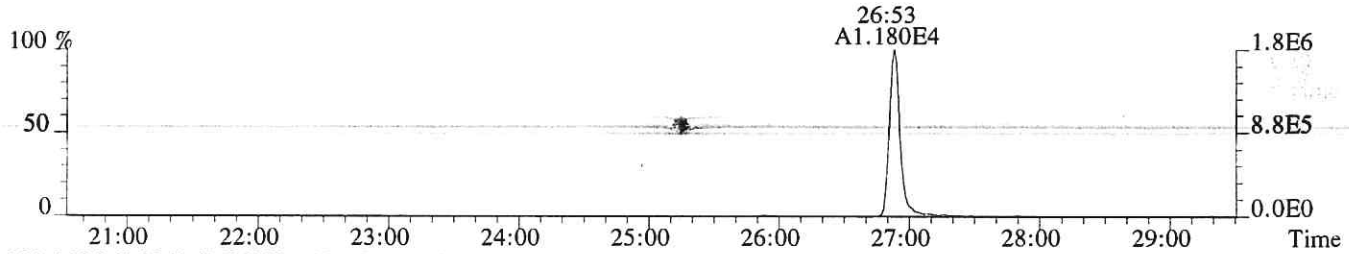
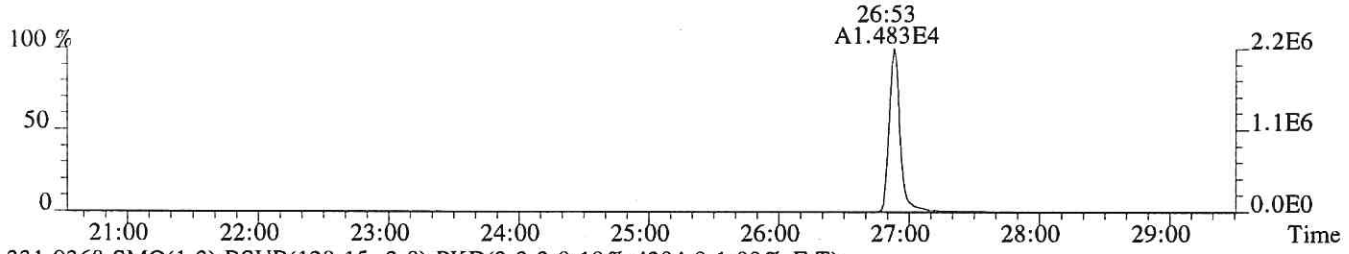
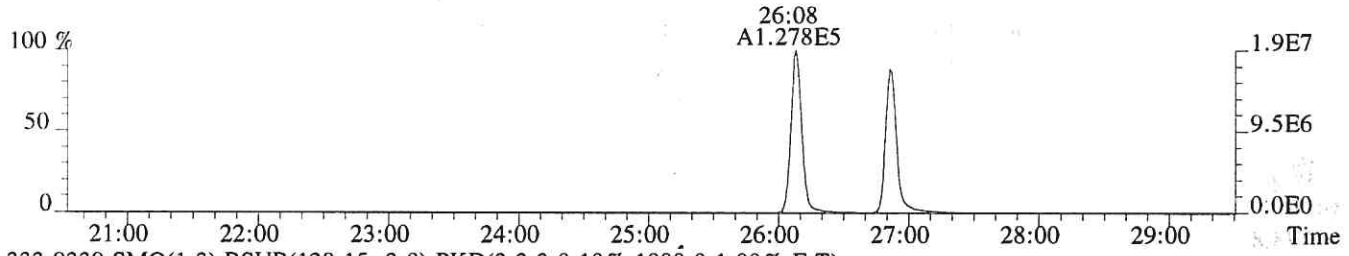
File:P524842 #1-637 Acq:20-OCT-2019 16:04:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:203606
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1212.0,1.00%,F,T)



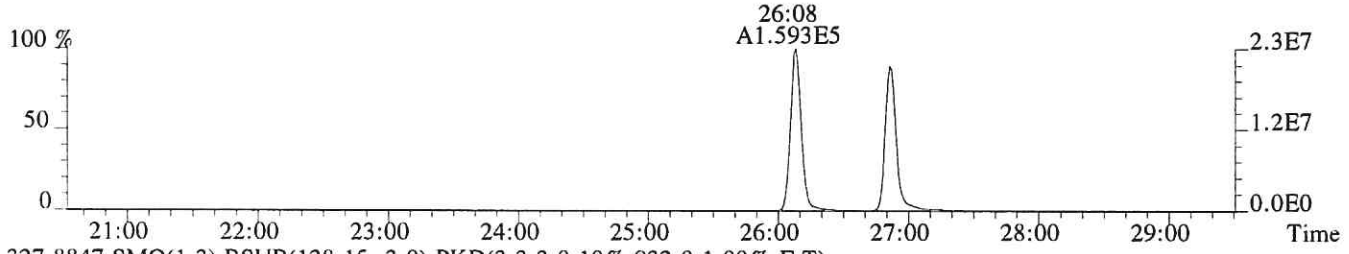
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1156.0,1.00%,F,T)



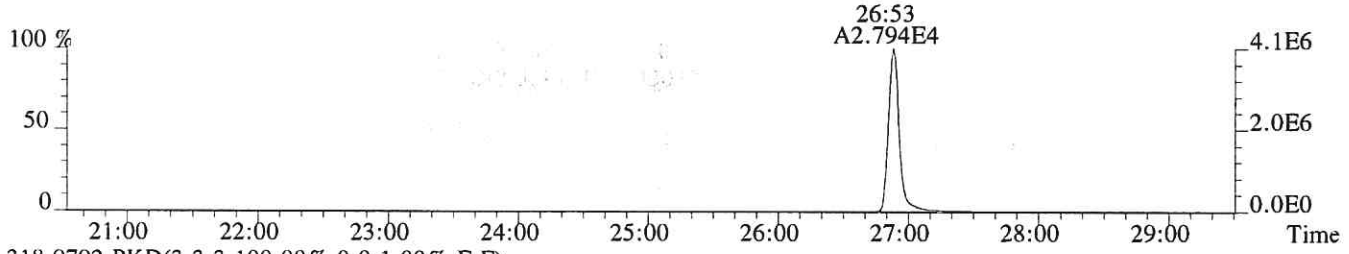
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4304.0,1.00%,F,T)



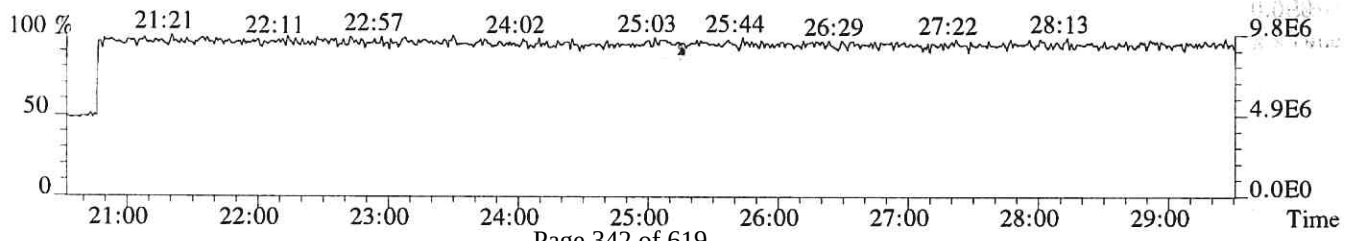
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1888.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,932.0,1.00%,F,T)



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



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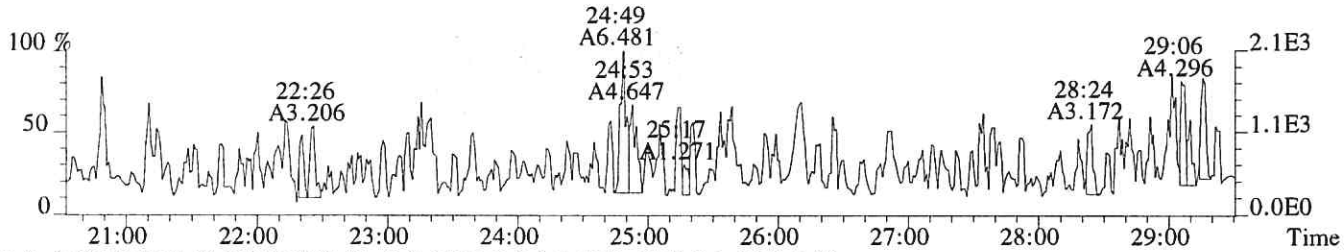
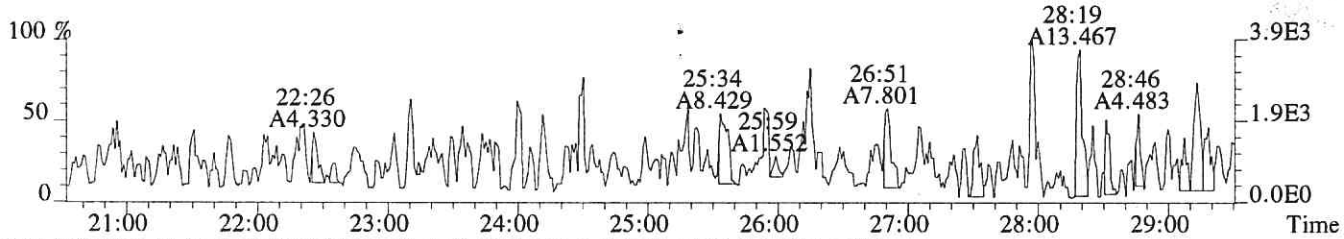
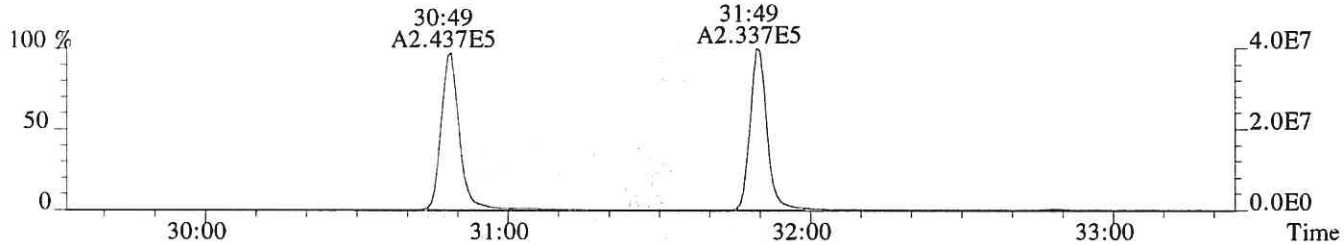
File:P524842 #1-637 Acq:20-OCT-2019 16:04:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:203606
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,684.0,1.00%,F,T)



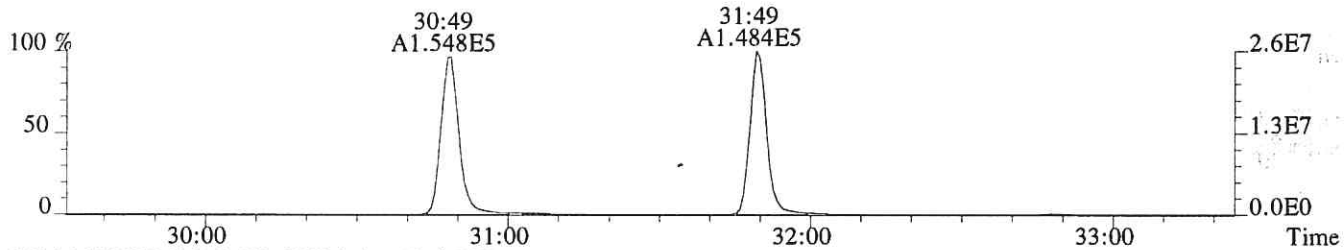
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1040.0,1.00%,F,T)



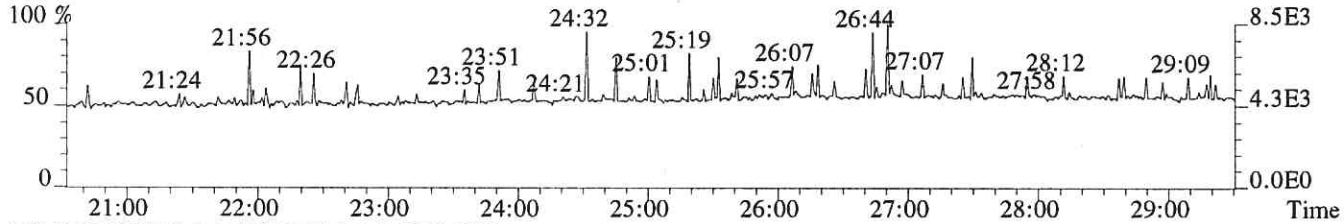
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3508.0,1.00%,F,T)



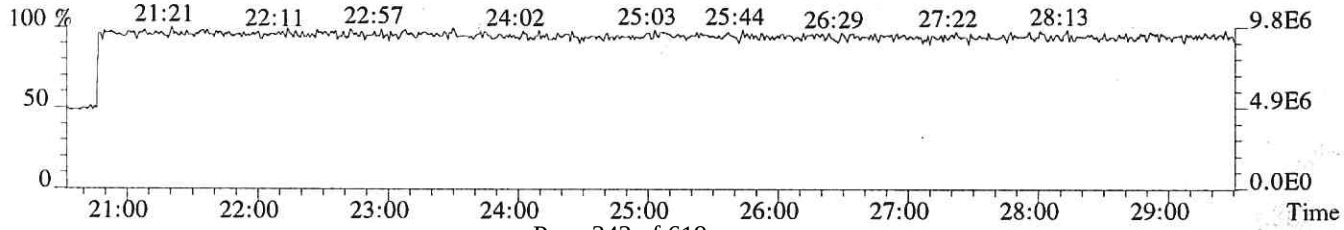
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3868.0,1.00%,F,T)



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



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



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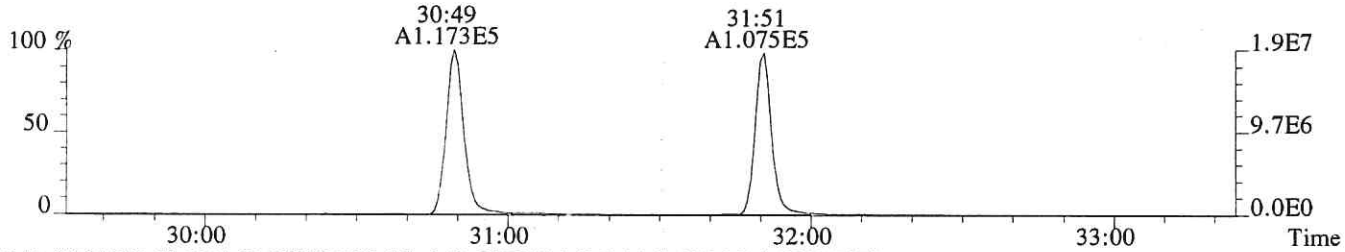
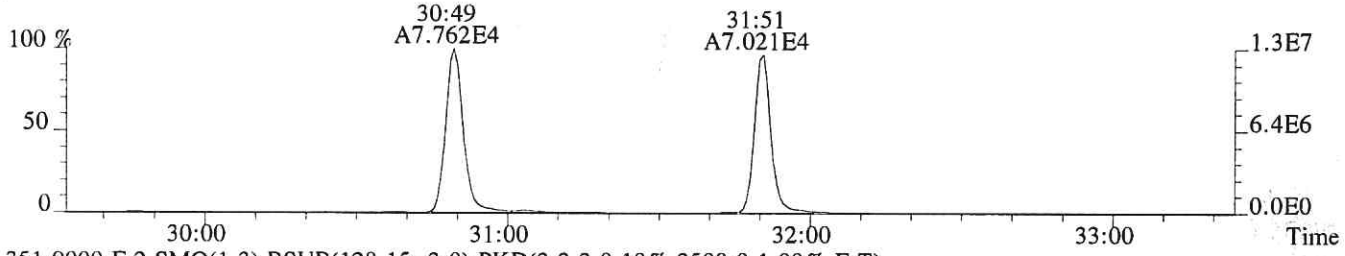
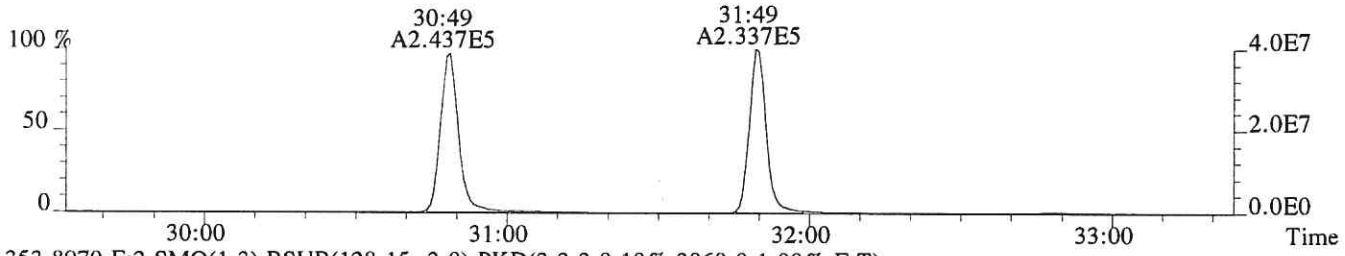
File:P524842 #1-348 Acq:20-OCT-2019 16:04:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:203606
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1316.0,1.00%,F,T)



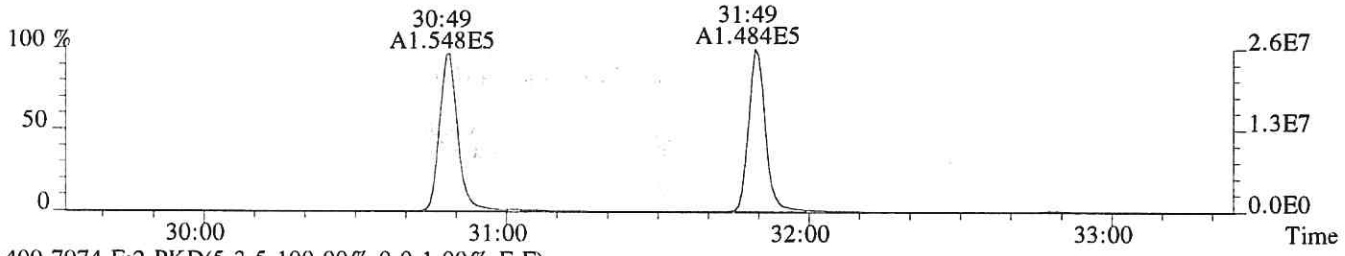
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1896.0,1.00%,F,T)



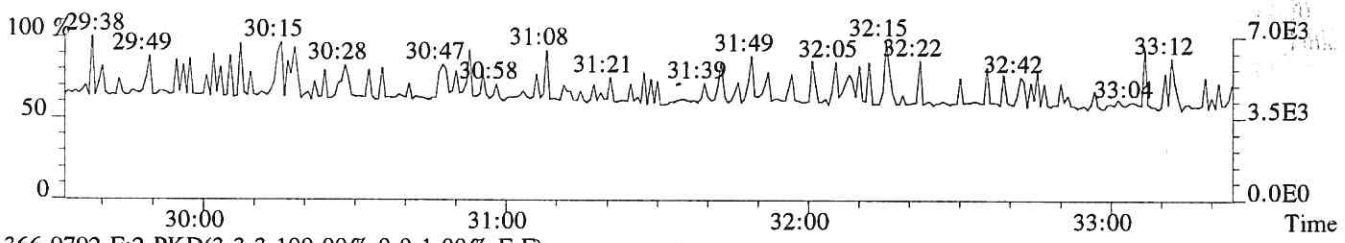
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3508.0,1.00%,F,T)



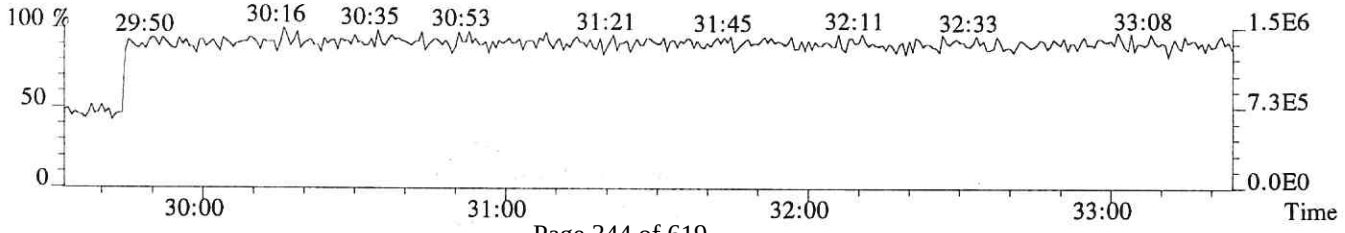
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3868.0,1.00%,F,T)



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

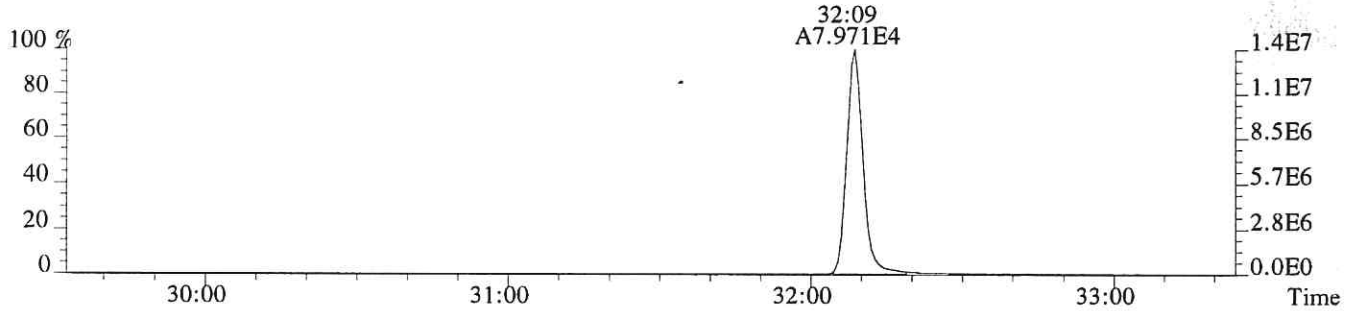


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

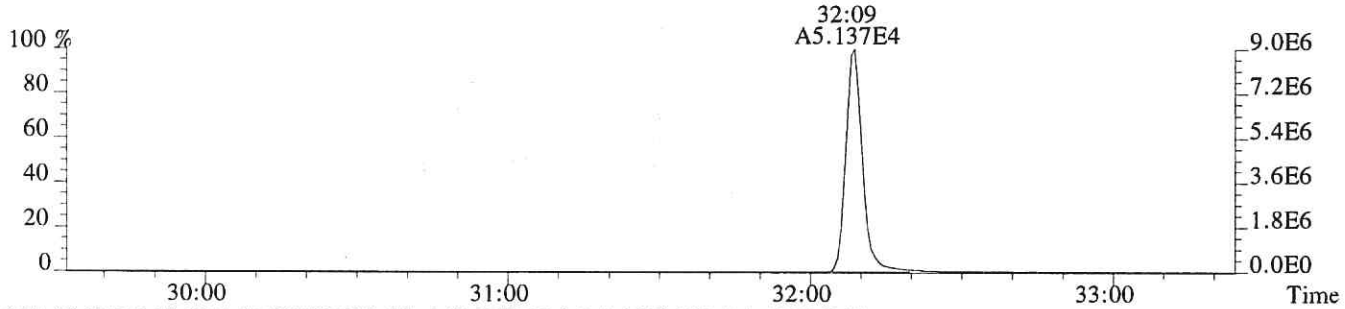


RIGHT SOLUTIONS | RIGHT PARTNER

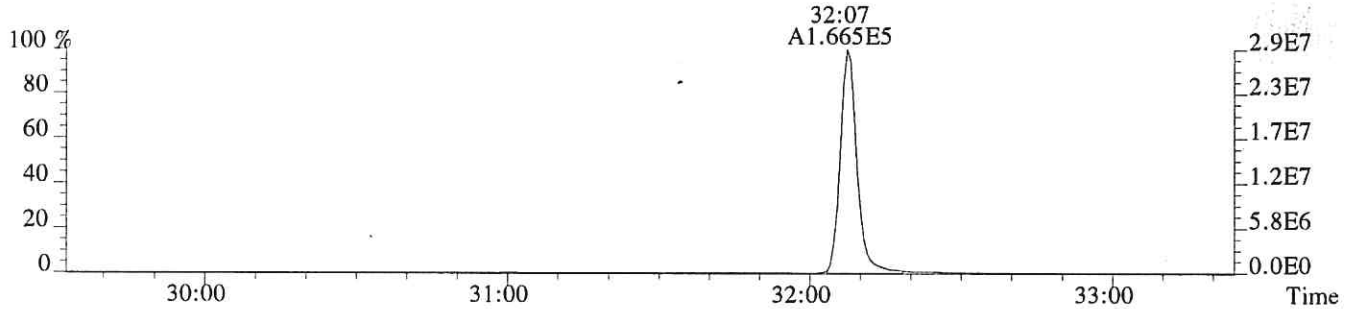
File:P524842 #1-348 Acq:20-OCT-2019 16:04:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:203606
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,896.0,1.00%,F,T)



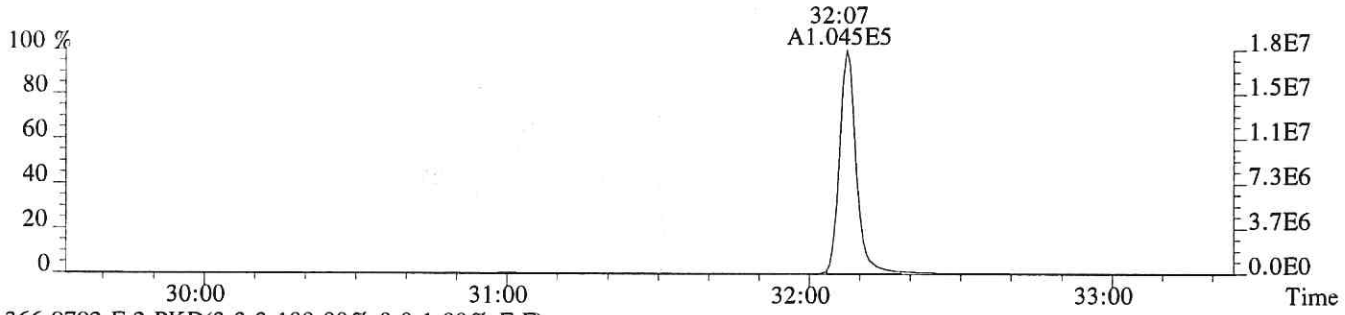
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,888.0,1.00%,F,T)



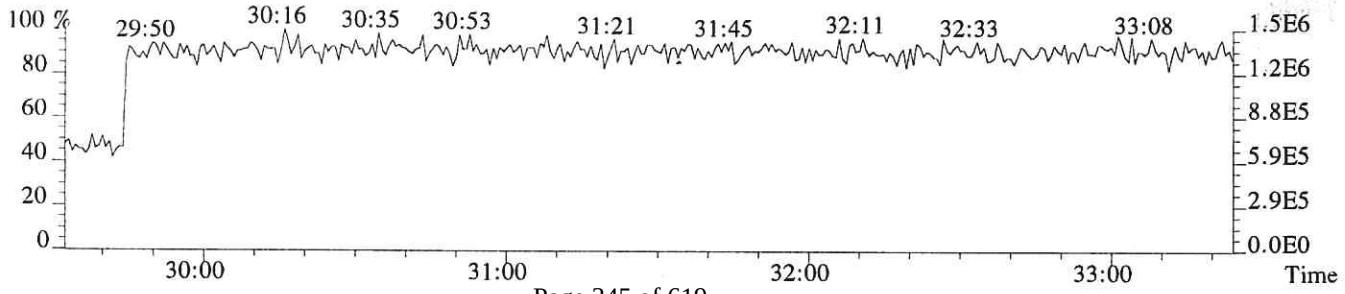
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,132.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,104.0,1.00%,F,T)

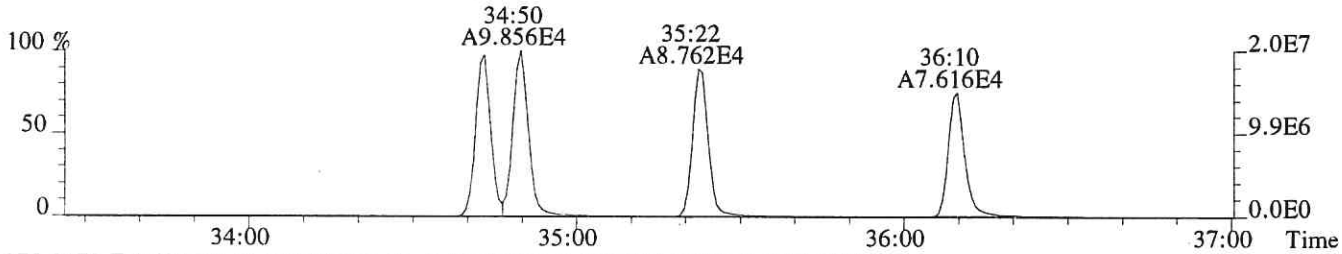


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

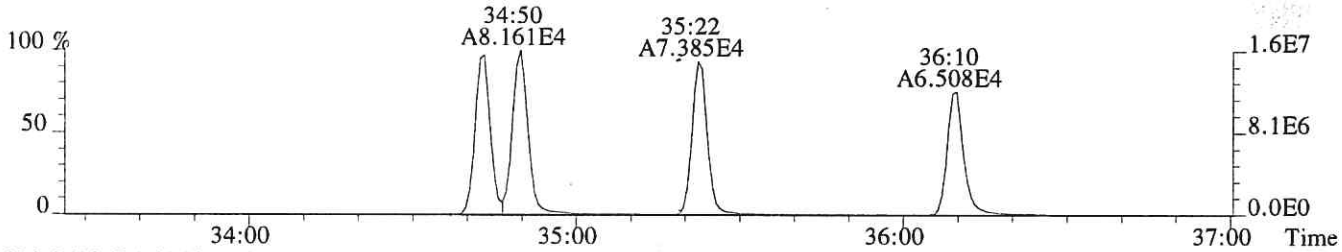


RIGHT SOLUTIONS | RIGHT PARTNER

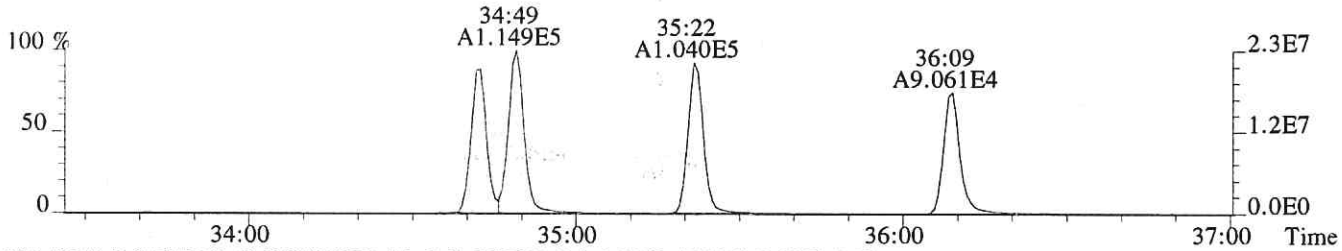
File:P524842 #1-322 Acq:20-OCT-2019 16:04:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:203606
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,428.0,0.40%,F,T)



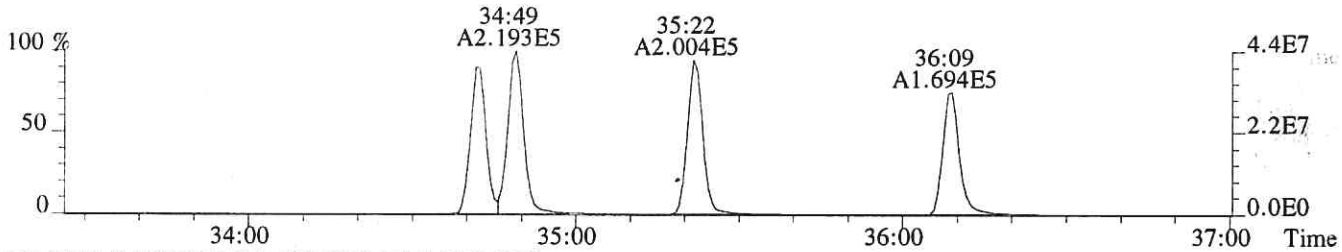
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,264.0,0.40%,F,T)



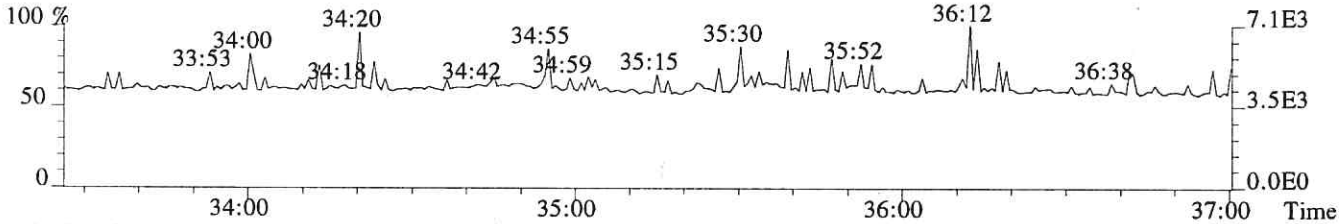
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,644.0,0.40%,F,T)



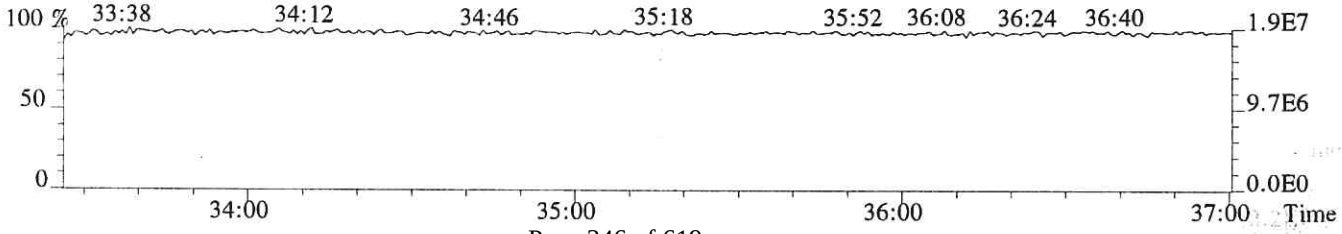
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1276.0,0.40%,F,T)



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

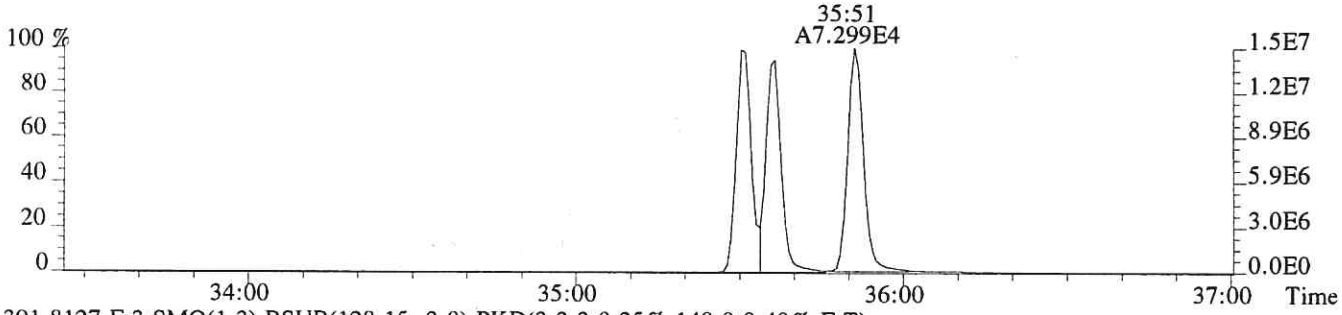


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

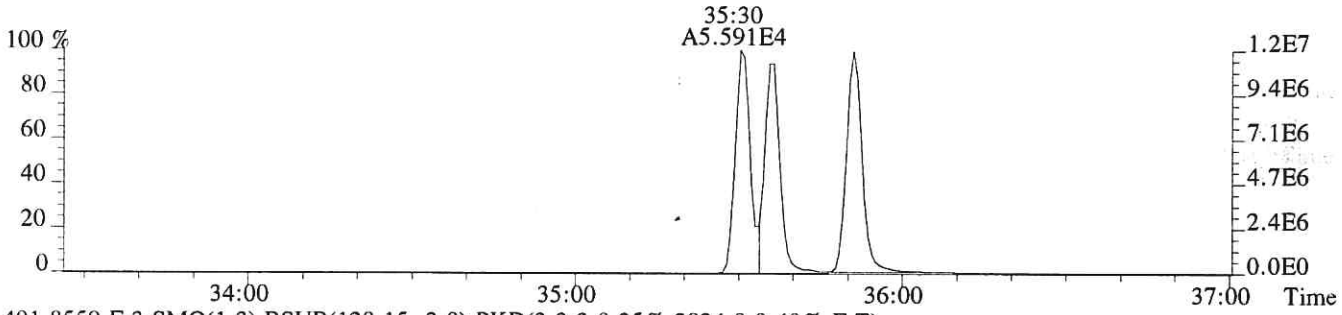


RIGHT SOLUTIONS | RIGHT PARTNER

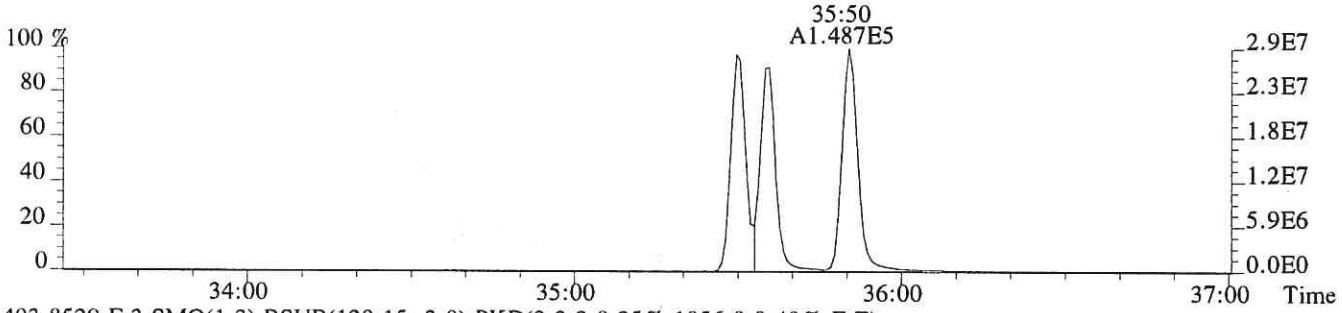
File:P524842 #1-322 Acq:20-OCT-2019 16:04:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:203606
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,308.0,0.40%,F,T)



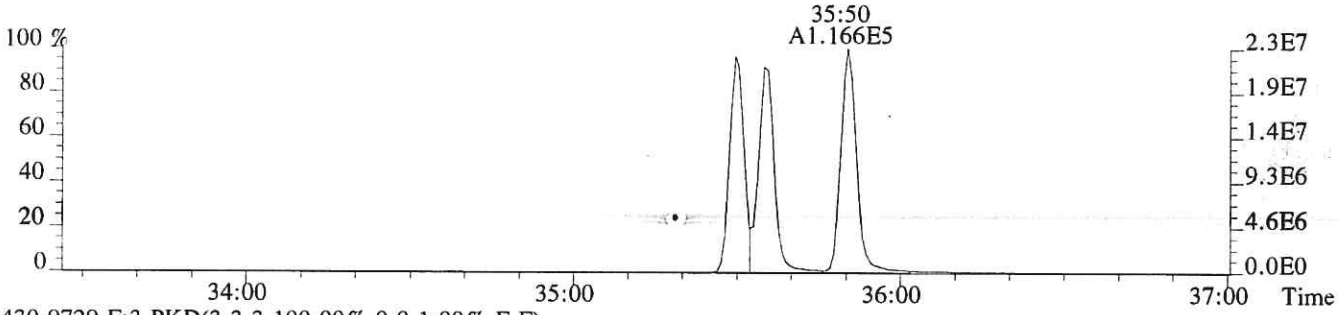
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,148.0,0.40%,F,T)



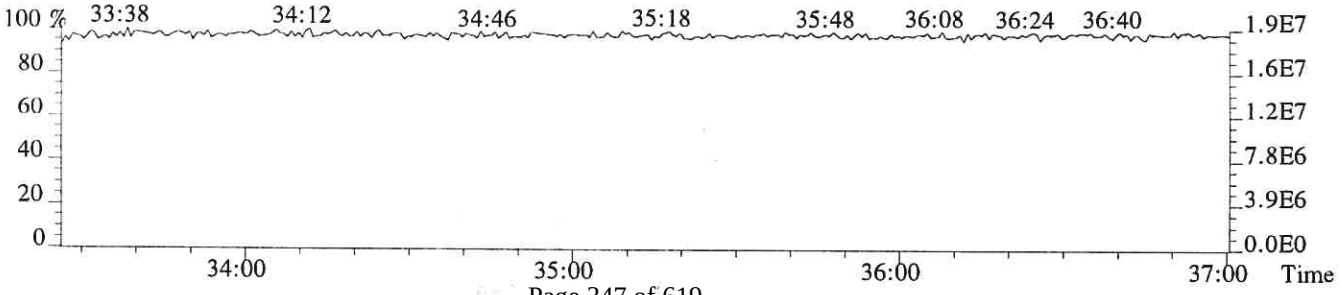
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2824.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1056.0,0.40%,F,T)

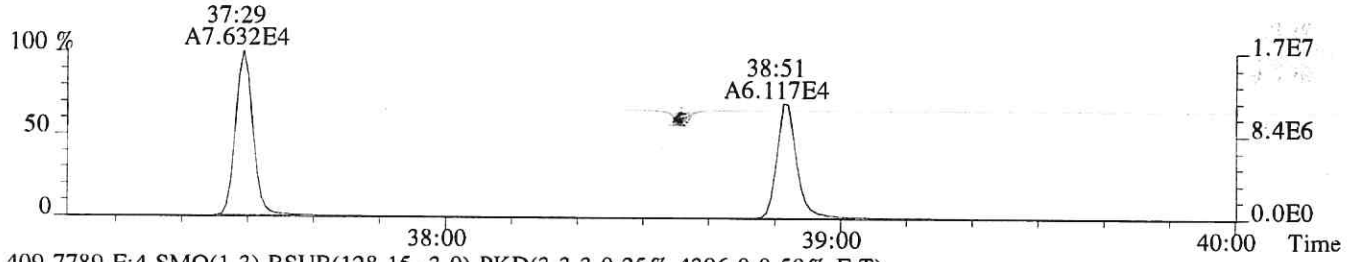


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

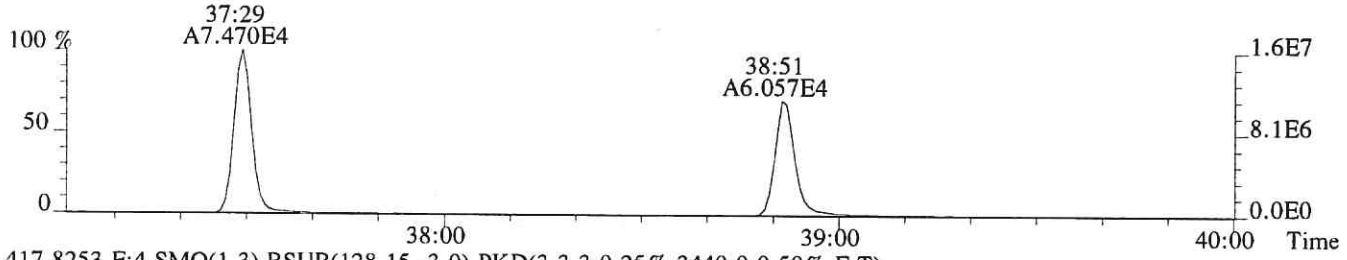


RIGHT SOLUTIONS | RIGHT PARTNER

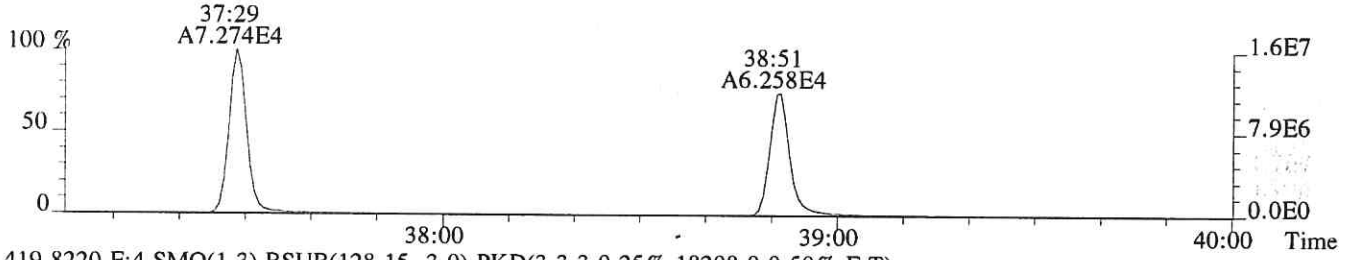
File:P524842 #1-267 Acq:20-OCT-2019 16:04:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:203606
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11836.0,0.50%,F,T)



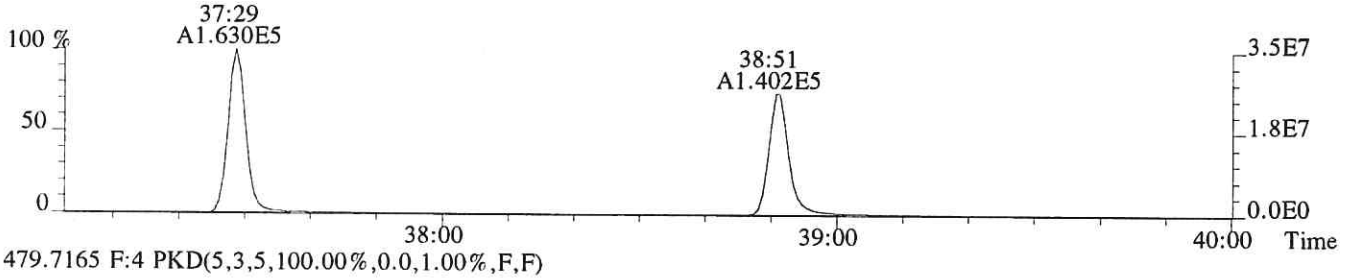
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4396.0,0.50%,F,T)



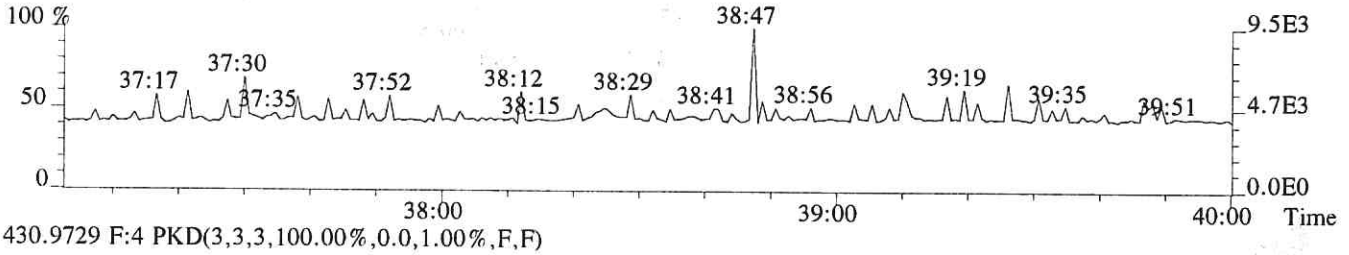
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3440.0,0.50%,F,T)



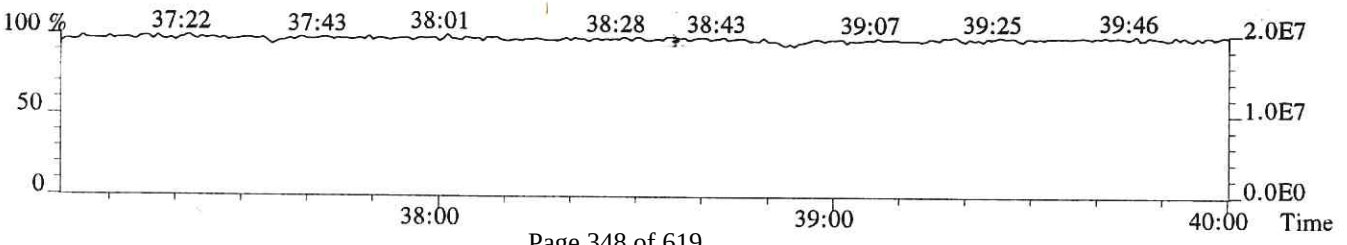
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,18208.0,0.50%,F,T)



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

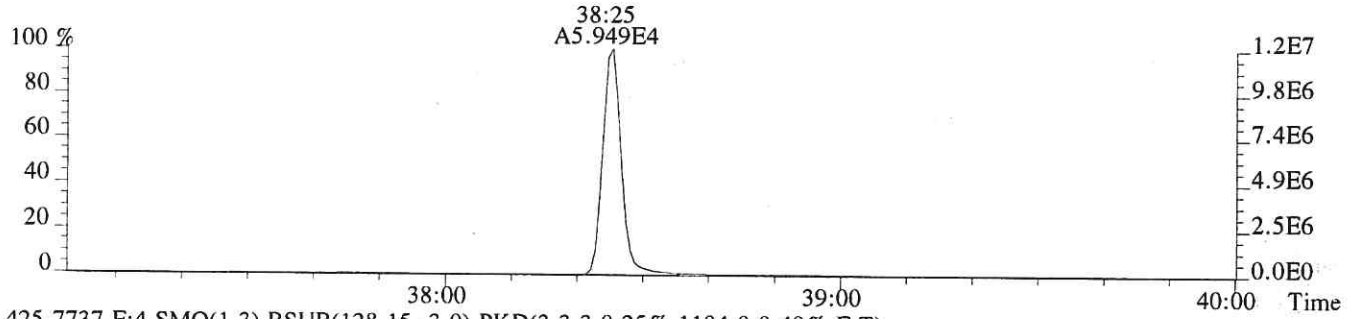


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

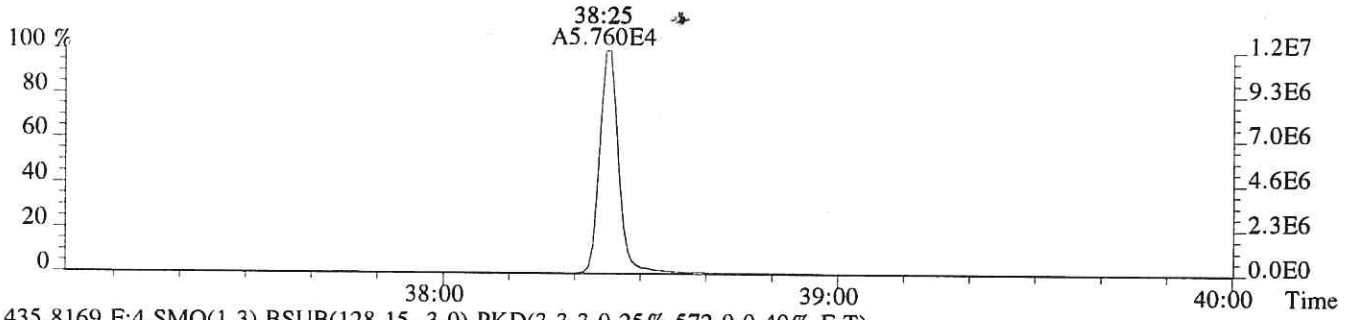


RIGHT SOLUTIONS | RIGHT PARTNER

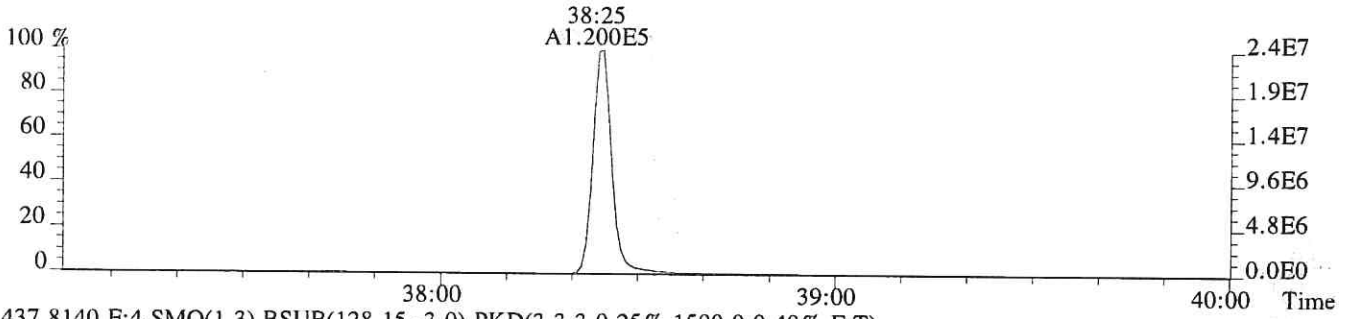
File:P524842 #1-267 Acq:20-OCT-2019 16:04:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:203606
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,596.0,0.40%,F,T)



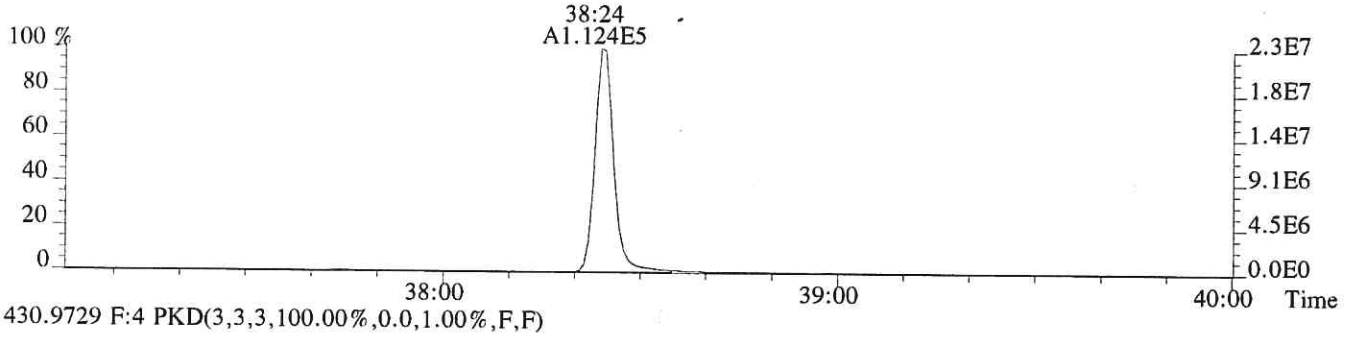
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1104.0,0.40%,F,T)



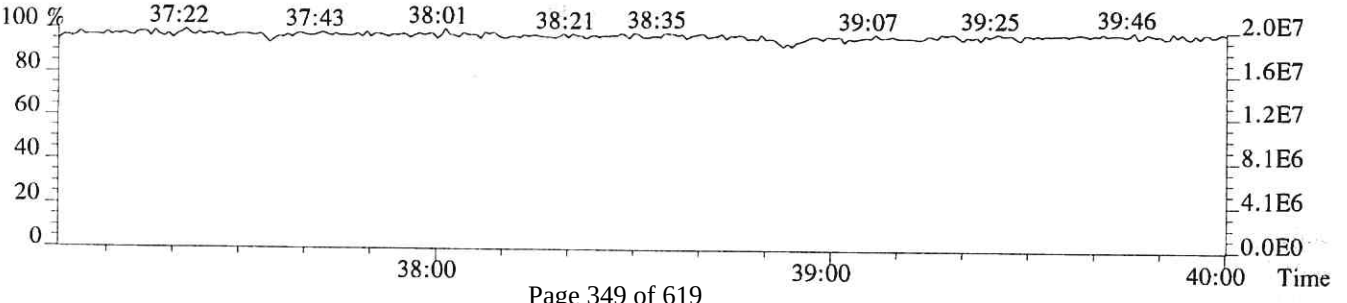
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,572.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1500.0,0.40%,F,T)

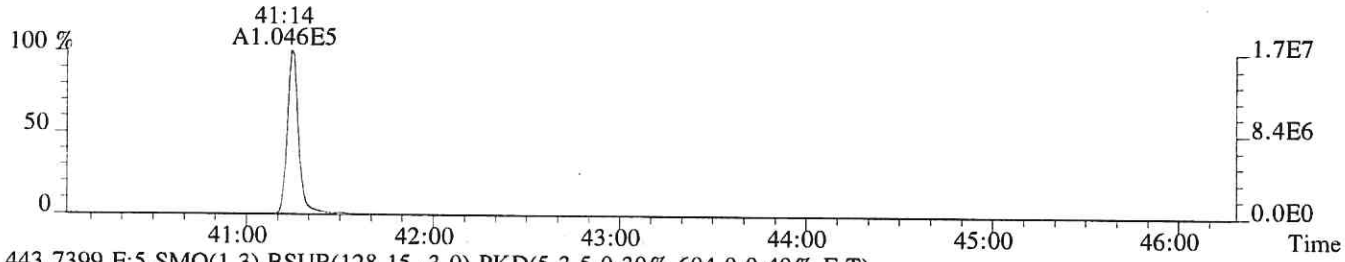


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

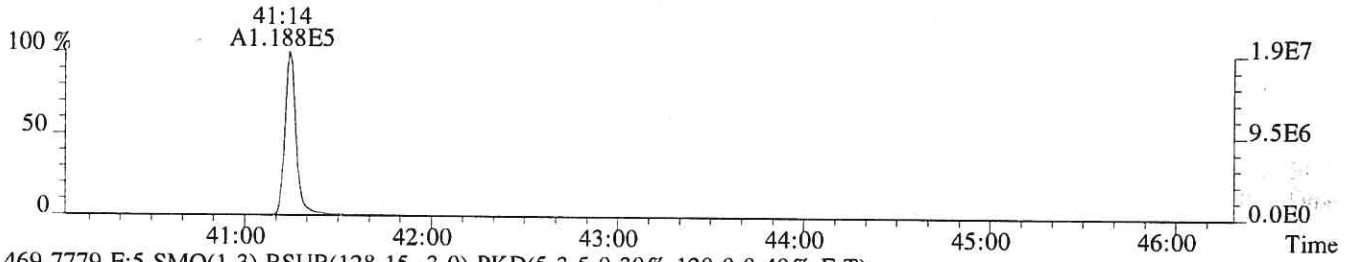


RIGHT SOLUTIONS | RIGHT PARTNER

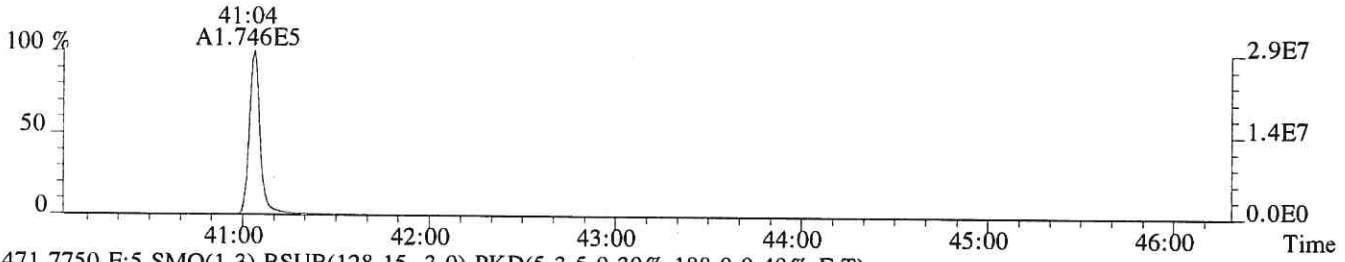
File:P524842 #1-565 Acq:20-OCT-2019 16:04:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:203606
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,472.0,0.40%,F,T)



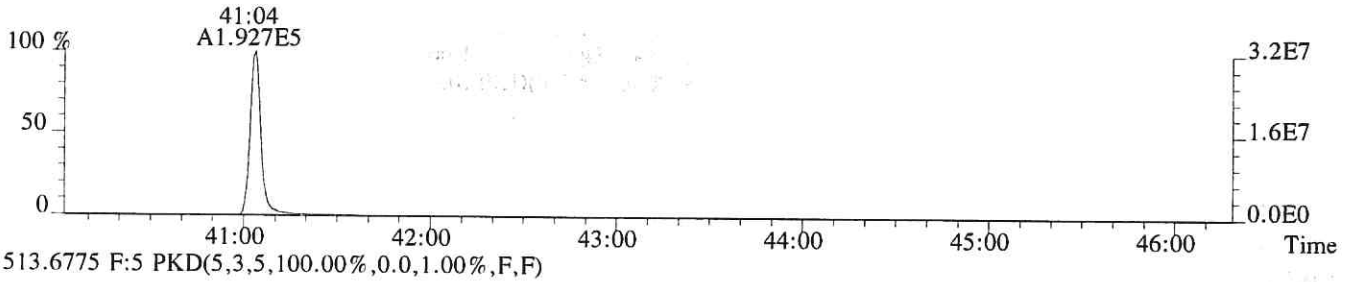
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,604.0,0.40%,F,T)



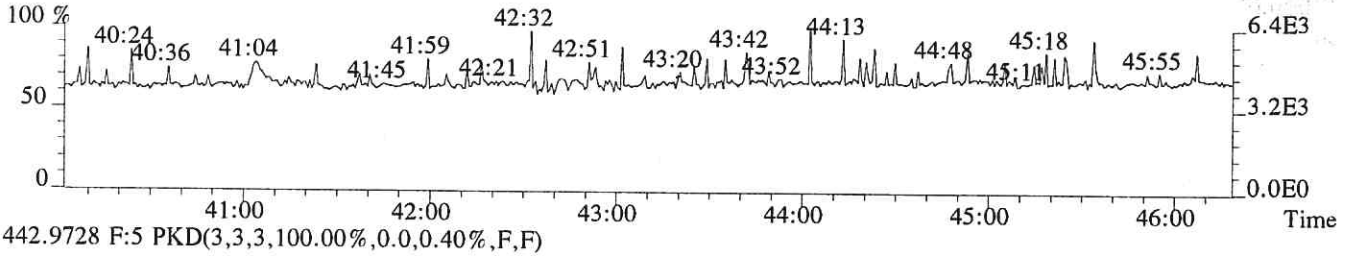
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,120.0,0.40%,F,T)



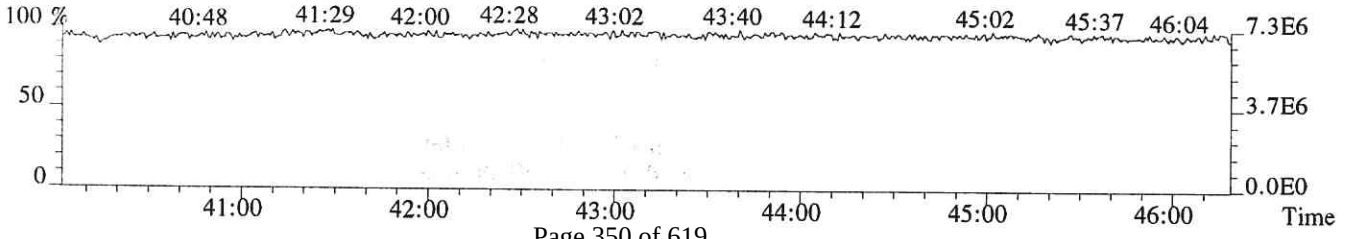
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,188.0,0.40%,F,T)



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

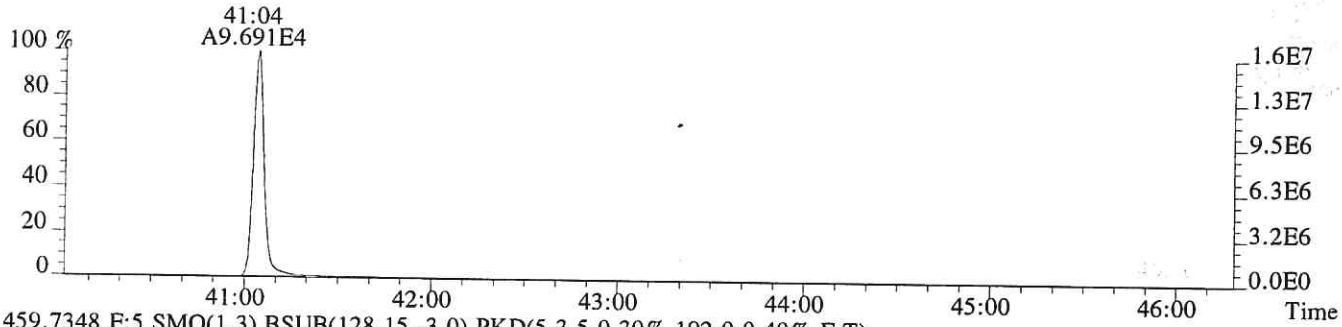


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

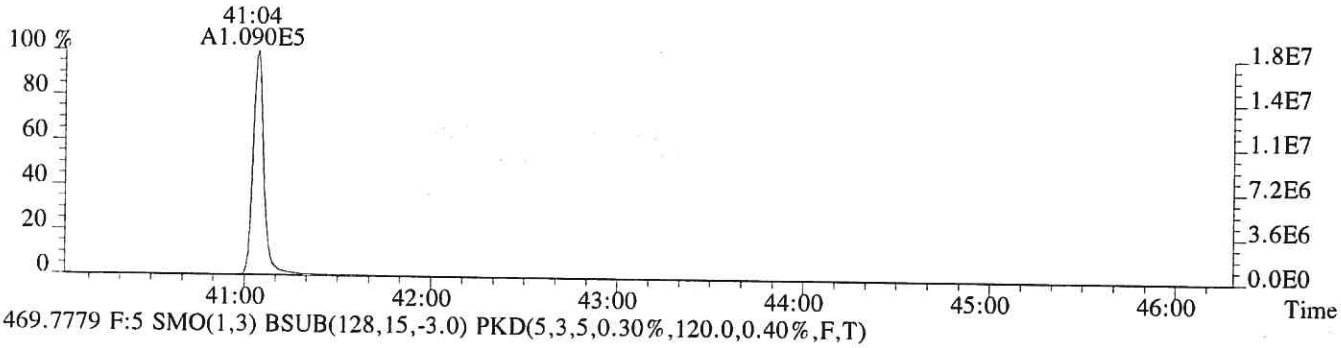


RIGHT SOLUTIONS | RIGHT PARTNER

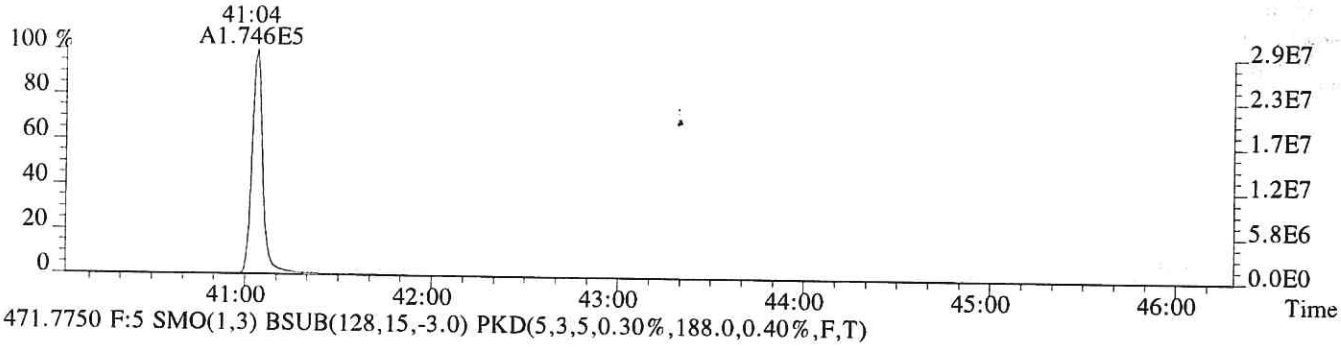
File:P524842 #1-565 Acq:20-OCT-2019 16:04:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:203606
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,148.0,0.40%,F,T)



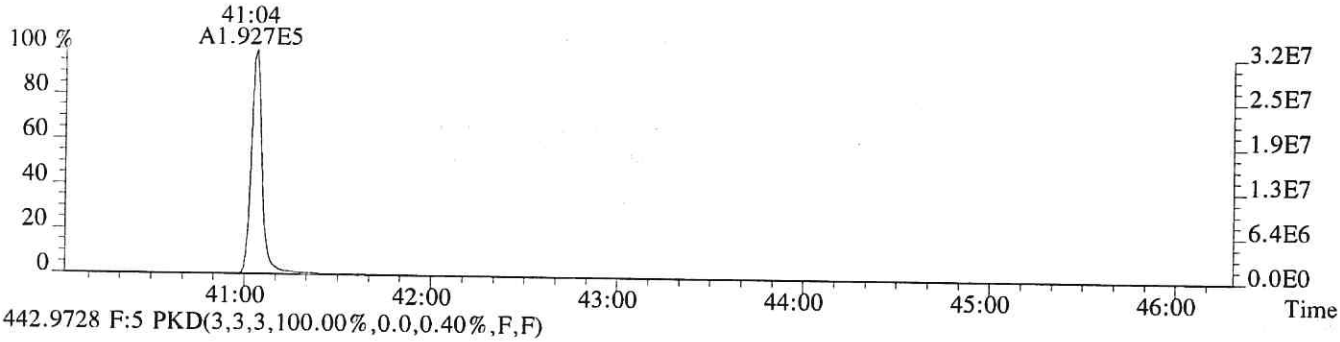
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,192.0,0.40%,F,T)



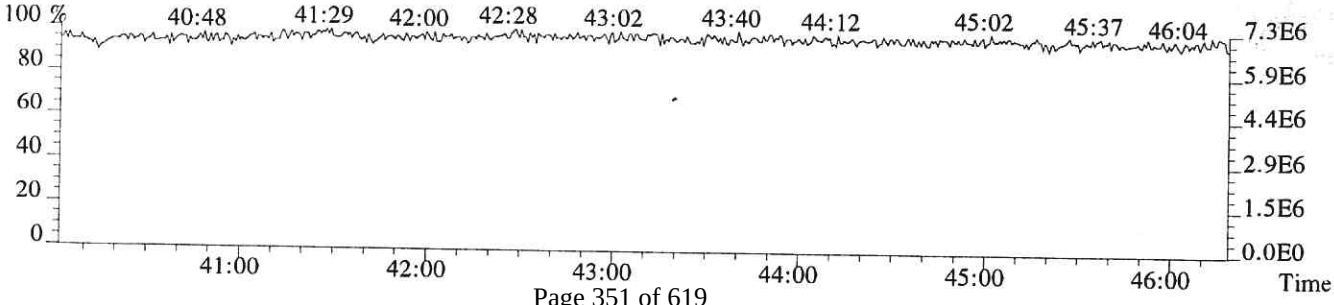
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,120.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,188.0,0.40%,F,T)



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



RIGHT SOLUTIONS | RIGHT PARTNER

CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P619496- P619507

Circle one: Beginning / Ending

Date: 10/17/19

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

RIGHT SOLUTIONS | RIGHT PARTNER

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

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

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

Init. Calib. Date: 10/04/19

Init. Calib.Times: 02:18

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
202629	WINDOW DEFINE	P619495	17-OCT-19	10:22:00
203606	CS3	P619496	17-OCT-19	11:18:36
203606	CS3	P619507	17-OCT-19	22:05:01
METHOD BLANK	EQ1900347-01	P619497	17-OCT-19	13:45:14
5-21-SS-01-092419-╗	K1908885-001DL	P619498	17-OCT-19	14:34:23
5-21-SS-01-092419-╗	K1908885-002DL	P619499	17-OCT-19	15:23:32
001	E1900668-001	P619500	17-OCT-19	16:12:43
1909-358-1	E1900698-001	P619501	17-OCT-19	17:01:52
1909-358-2	E1900698-002	P619502	17-OCT-19	17:51:01
1909-358-3	E1900698-003	P619503	17-OCT-19	18:40:12
1909-358-4	E1900698-004	P619504	17-OCT-19	19:29:21
1909-358-5	E1900698-005	P619505	17-OCT-19	20:18:30
1909-358-6	E1900698-006	P619506	17-OCT-19	21:07:40

RIGHT SOLUTIONS | RIGHT PARTNER

Sample List Report MassLynx 4.1 SCN815 SCN795

Sample List: C:\MassLynx\EHRMS08.PRO\SampleDB\20191017A.SPL

Last Modified: Friday, October 18, 2019 09:05:17 Central Daylight Time

Printed: Friday, October 18, 2019 09:05:20 Central Daylight Time

Page Position (1, 1)

OPUS 5 NET: P619496 RES

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	10/17/19	10:22	P619495	202629	WINDOW DEFINE	EPA1613_ALS	Dioxin_ALS	Tray1:1	JC	HRMS CHECK 11:18
2		11:18	P619496	203606	CS3	EPA1613_ALS	Dioxin_ALS	Tray1:2		
3		13:45	P619497	EQ1900347-01	MB	EPA1613_ALS	Dioxin_ALS	Tray1:3		
4		14:34	P619498	K1908885-001DL	K1908885-001DL	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		15:23	P619499	K1908885-002DL	K1908885-002DL	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		16:12	P619500	E1900668-001	E1900668-001	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		17:01	P619501	E1900698-001	E1900698-001	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		17:51	P619502	E1900698-002	E1900698-002	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		18:40	P619503	E1900698-003	E1900698-003	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		19:29	P619504	E1900698-004	E1900698-004	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		20:18	P619505	E1900698-005	E1900698-005	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		21:09	P619506	E1900698-006	E1900698-006	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13		22:05	P619507	203606	CS3	EPA1613_ALS	Dioxin_ALS	Tray1:2		HRMS CHECK 22:09

LKL 10/18/19

RIGHT SOLUTIONS | RIGHT PARTNER

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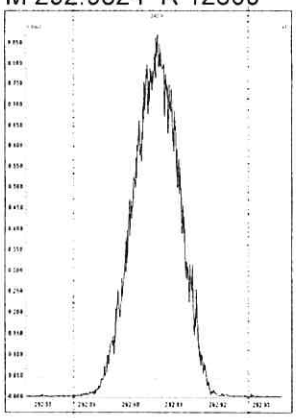

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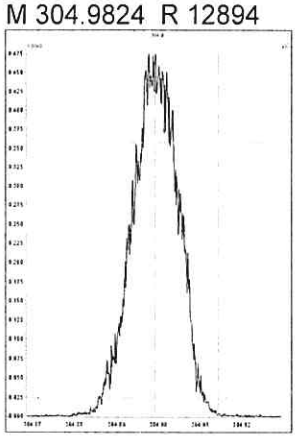

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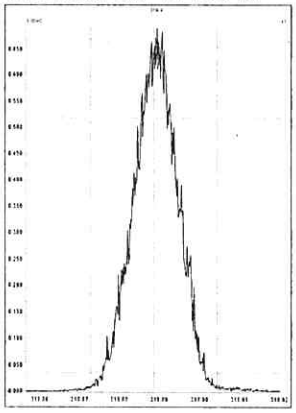

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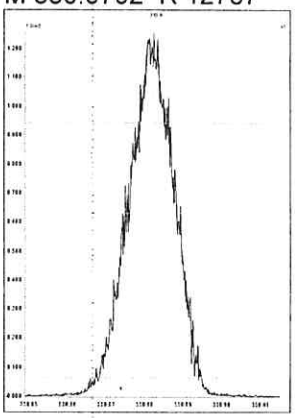

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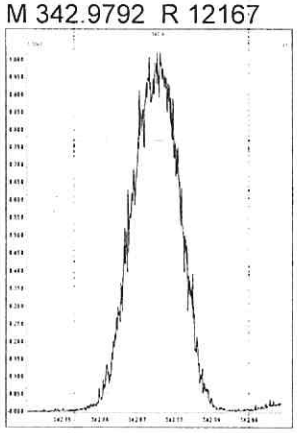

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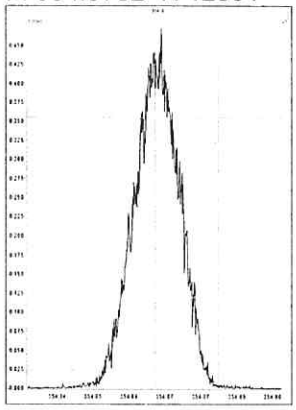

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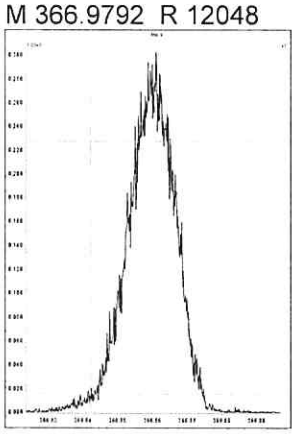

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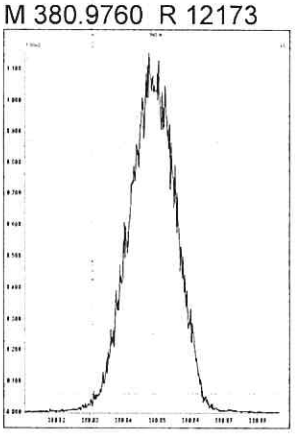

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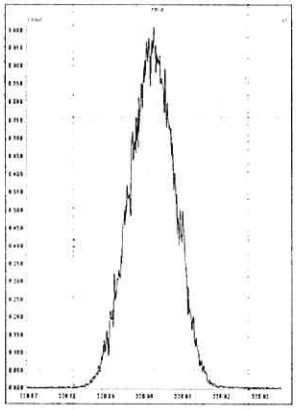

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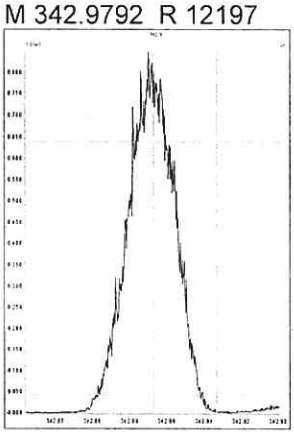

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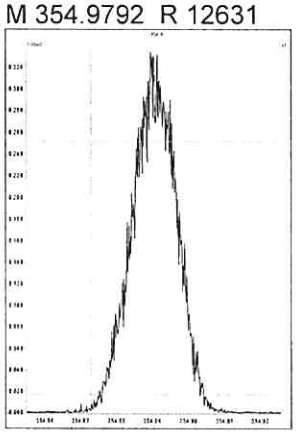

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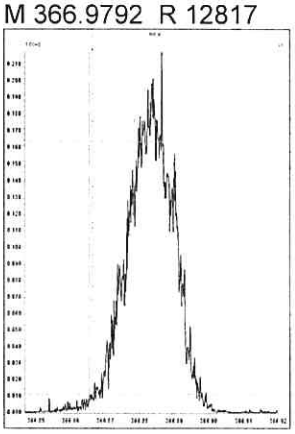

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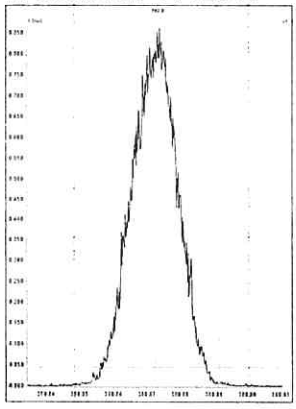

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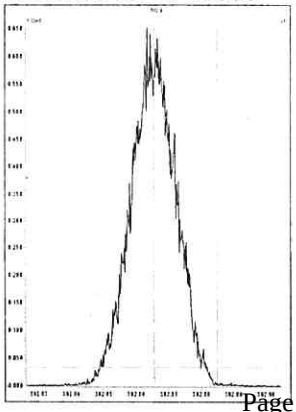

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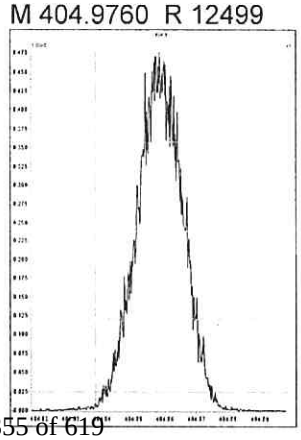

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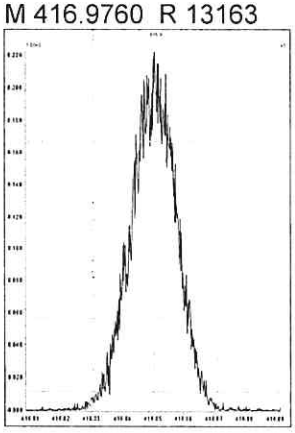

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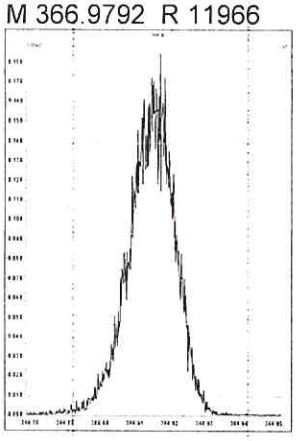

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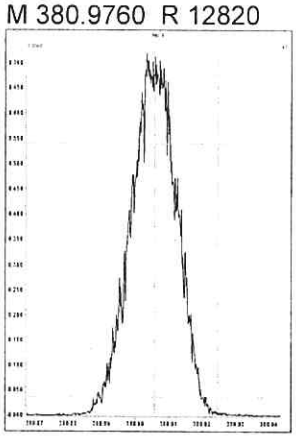

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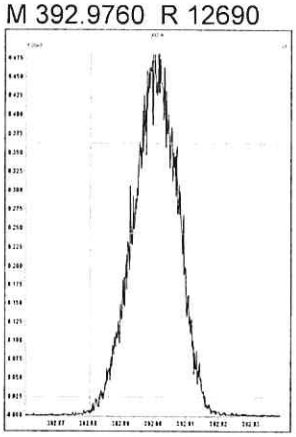

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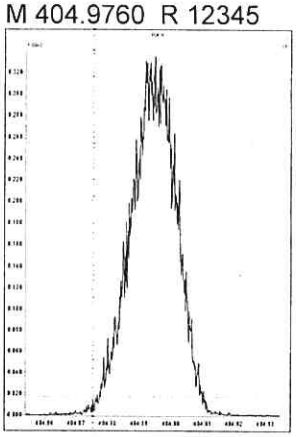

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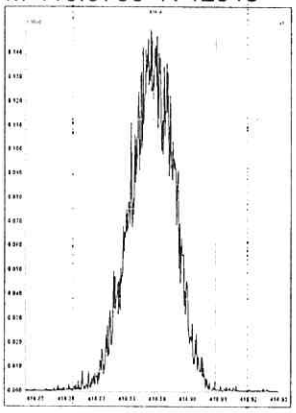

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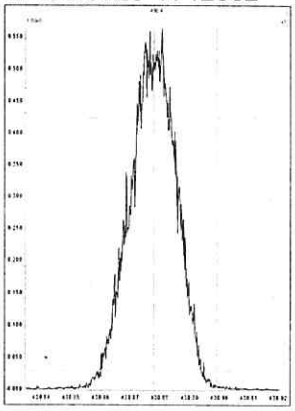

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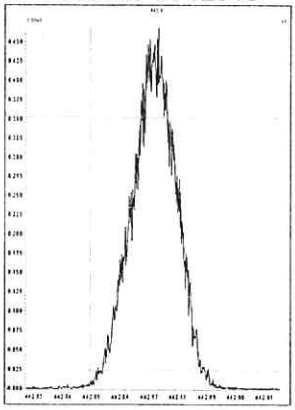

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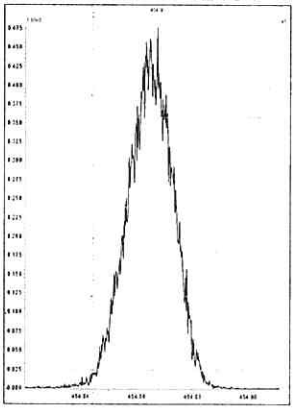

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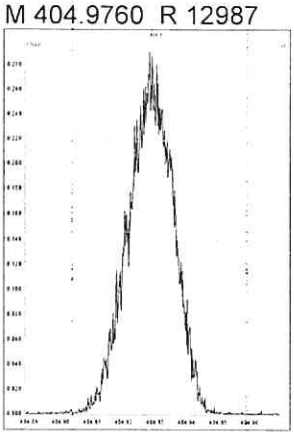

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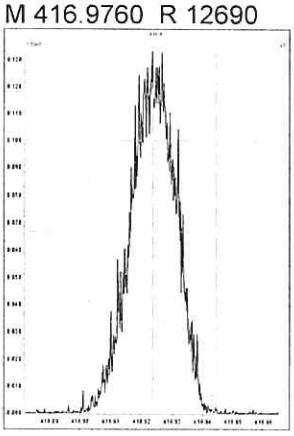

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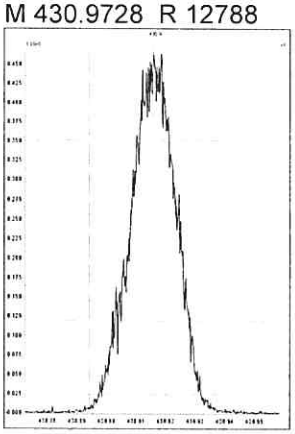

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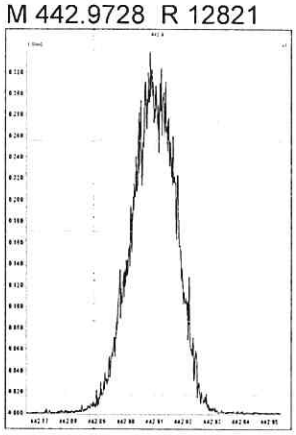

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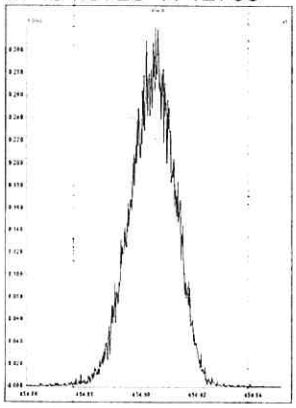

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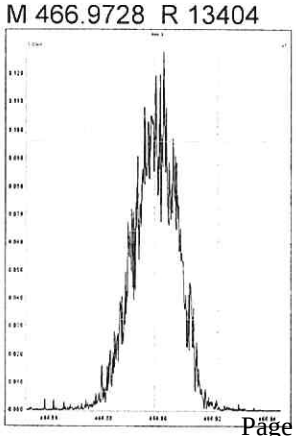

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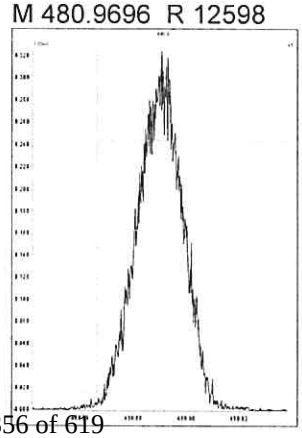

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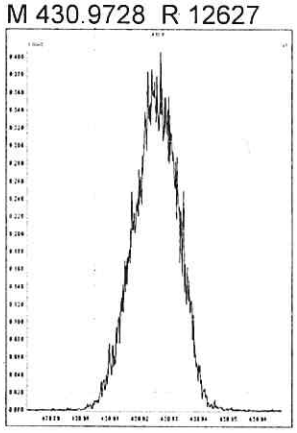

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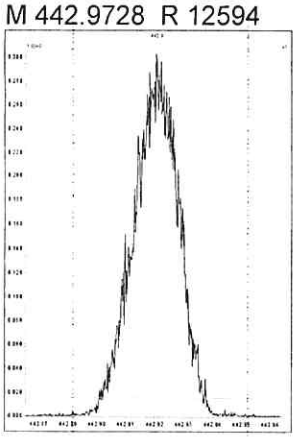

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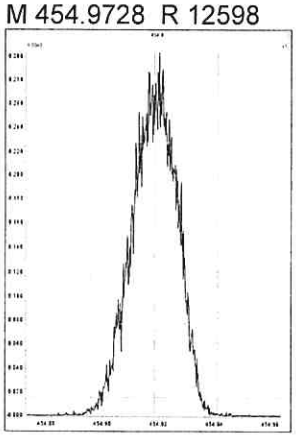

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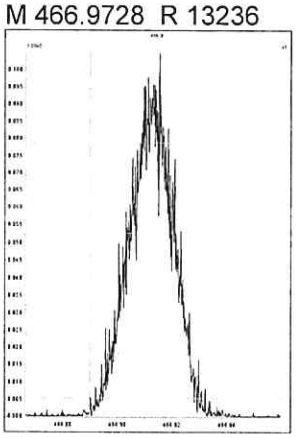

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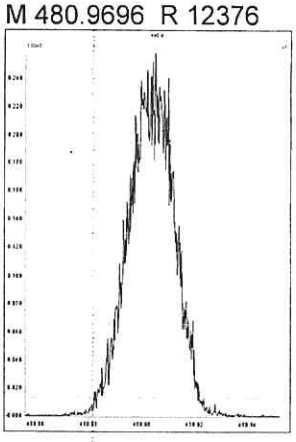

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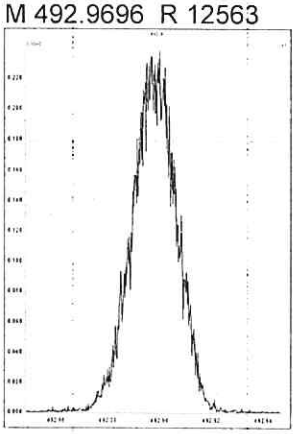

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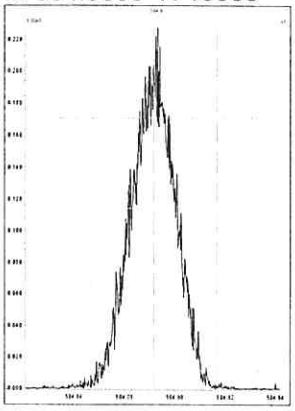

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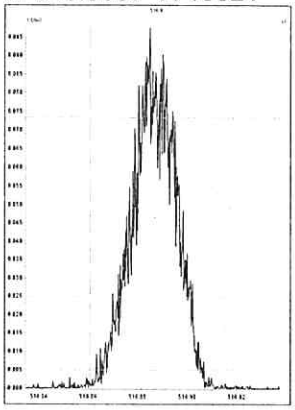

RIGHT SOLUTIONS | RIGHT PARTNER

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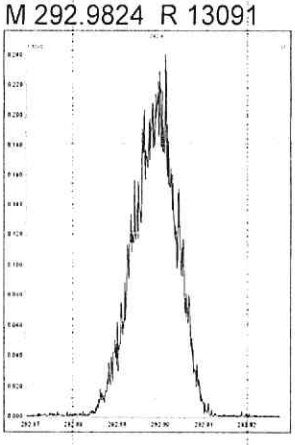

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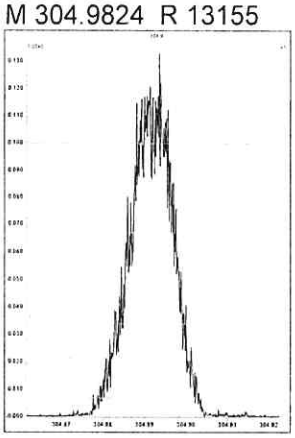

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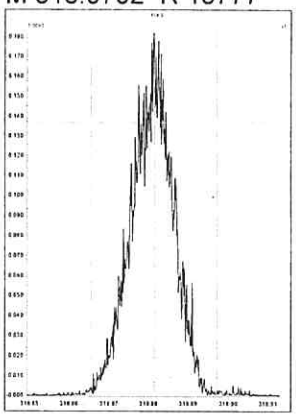

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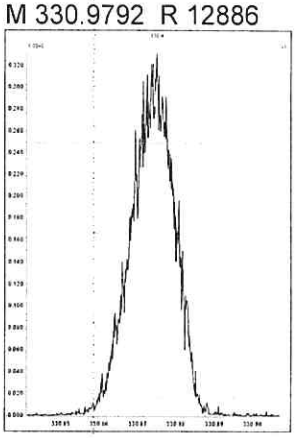

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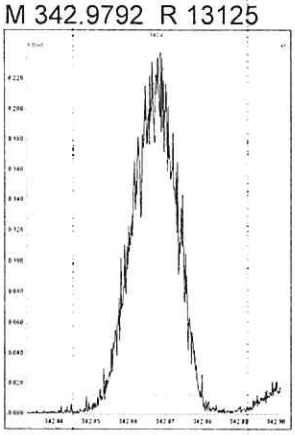

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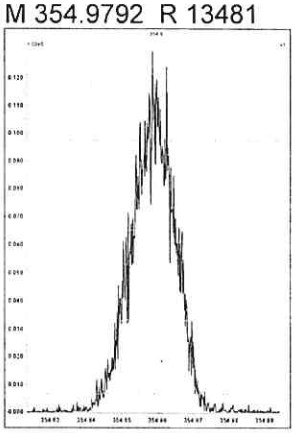

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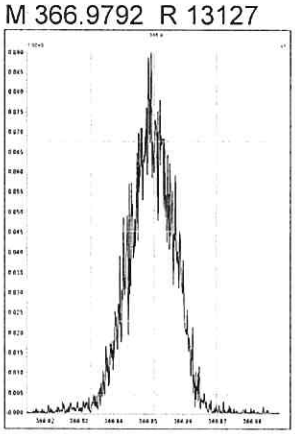

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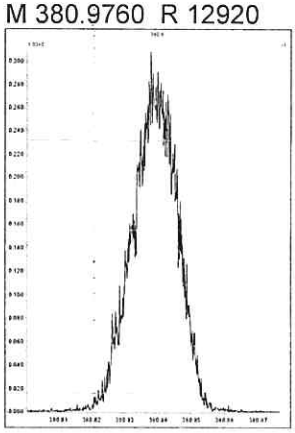

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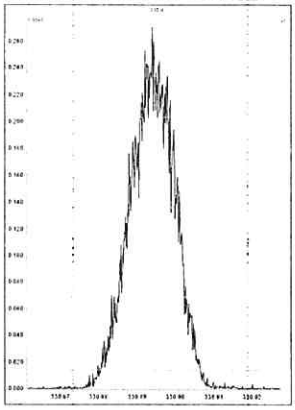

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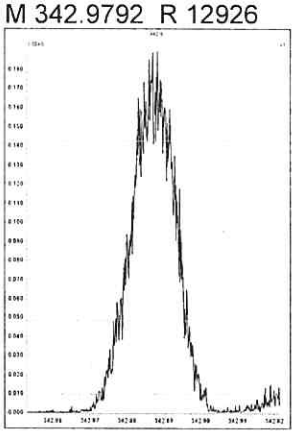

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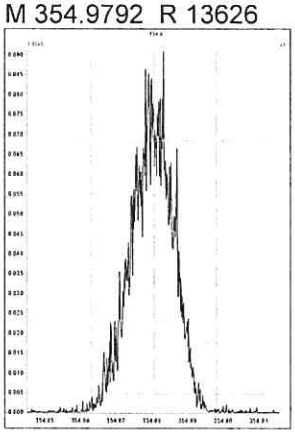

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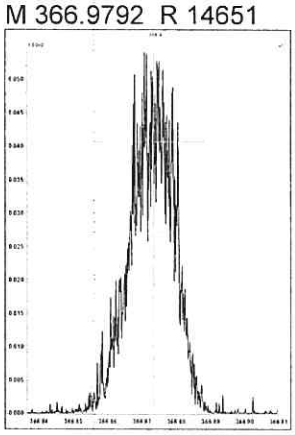
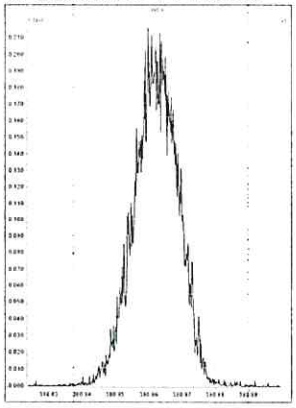


M 380.9760 R 12953



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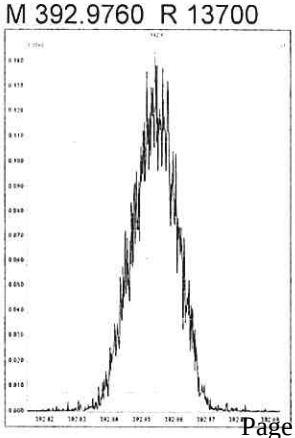

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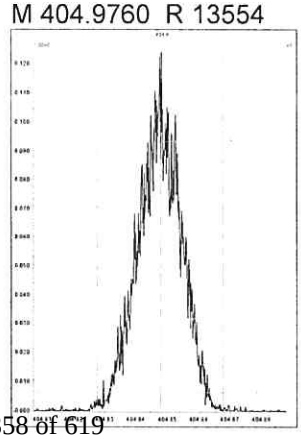

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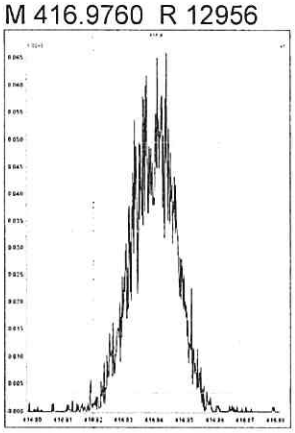

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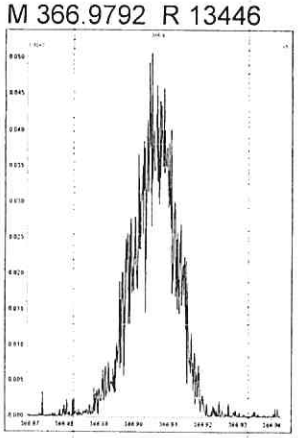

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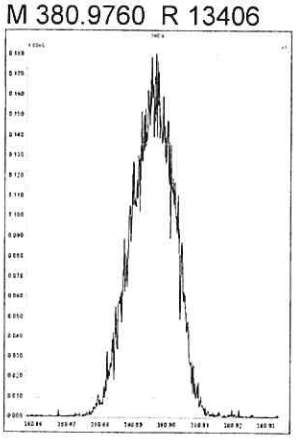

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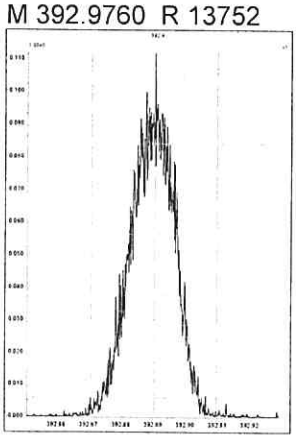
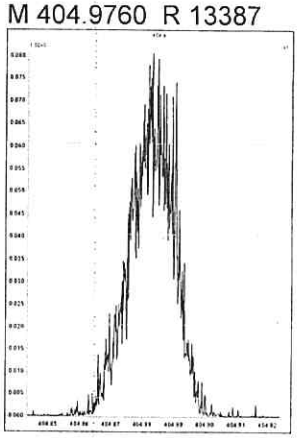


M 404.9760 R 13387



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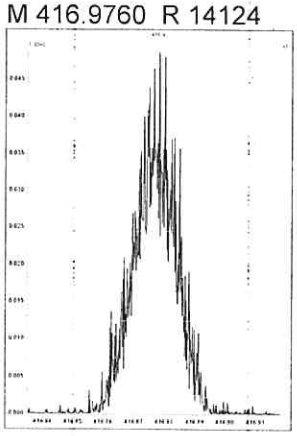

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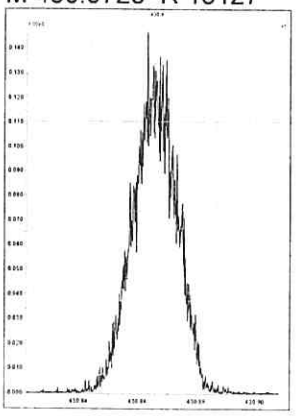

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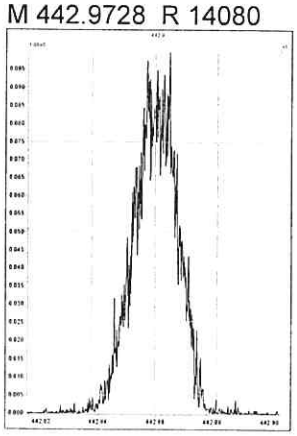
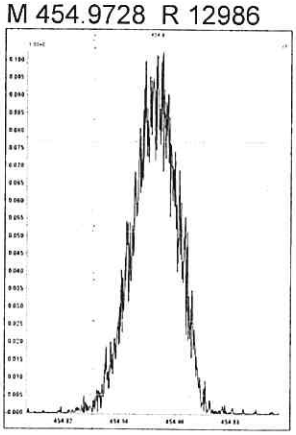
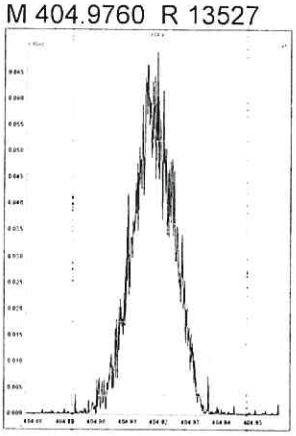


M 454.9728 R 12986



M 404.9760 R 13527



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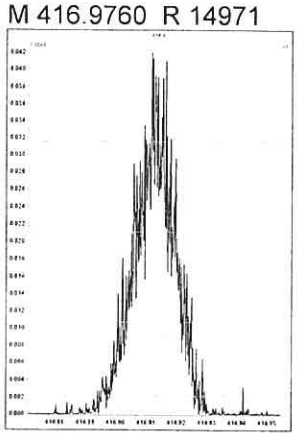
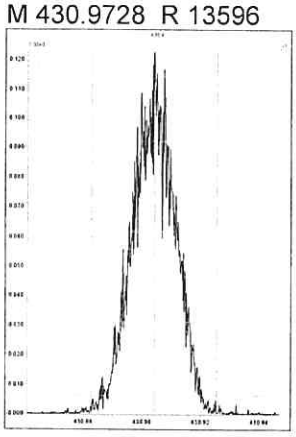
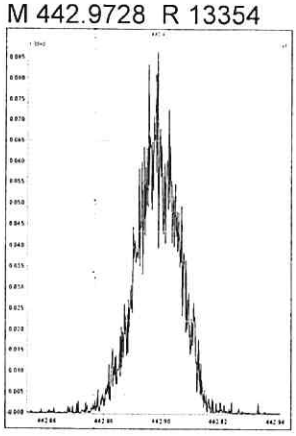


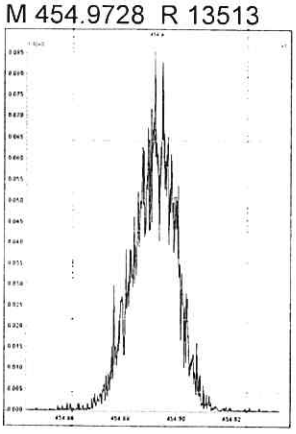
M 430.9728 R 13596



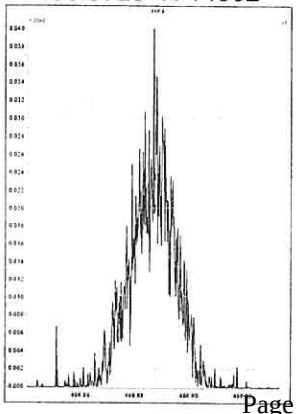
M 442.9728 R 13354



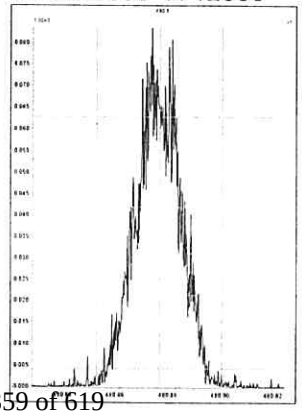
M 454.9728 R 13513



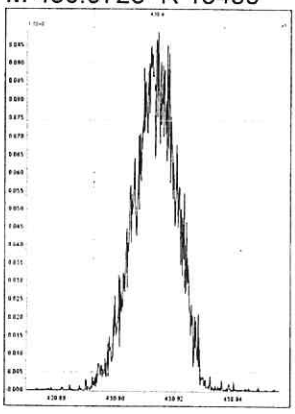
M 466.9728 R 14502



M 480.9696 R 12886



M 430.9728 R 13455



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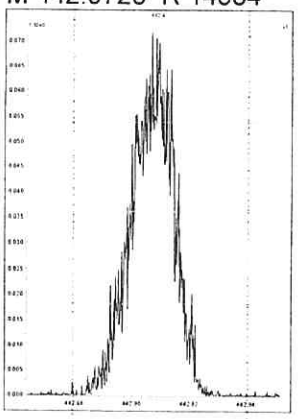
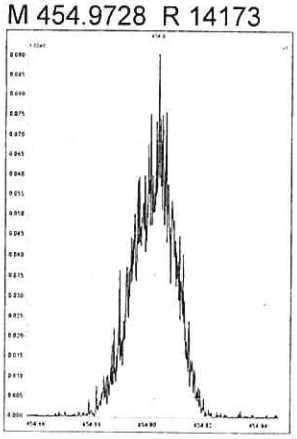
M 442.9728 R 14534



M 454.9728 R 14173



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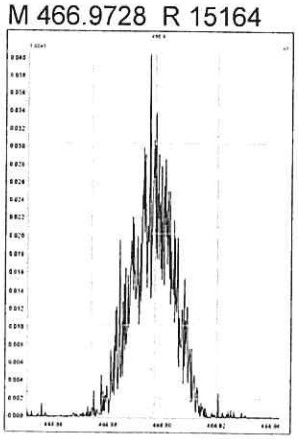

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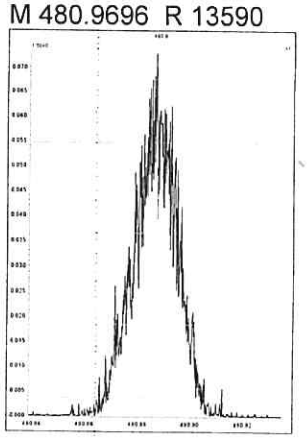
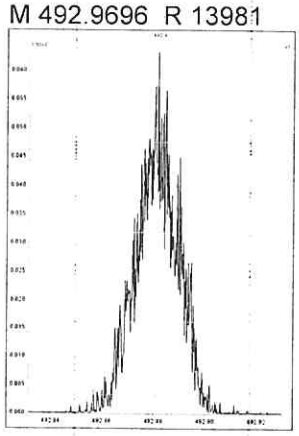
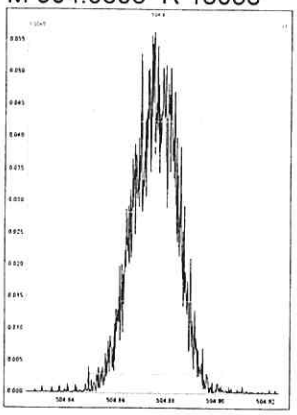


M 492.9696 R 13981



M 504.9696 R 13088



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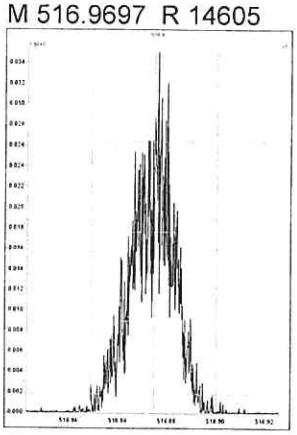


RIGHT SOLUTIONS | RIGHT PARTNER

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)

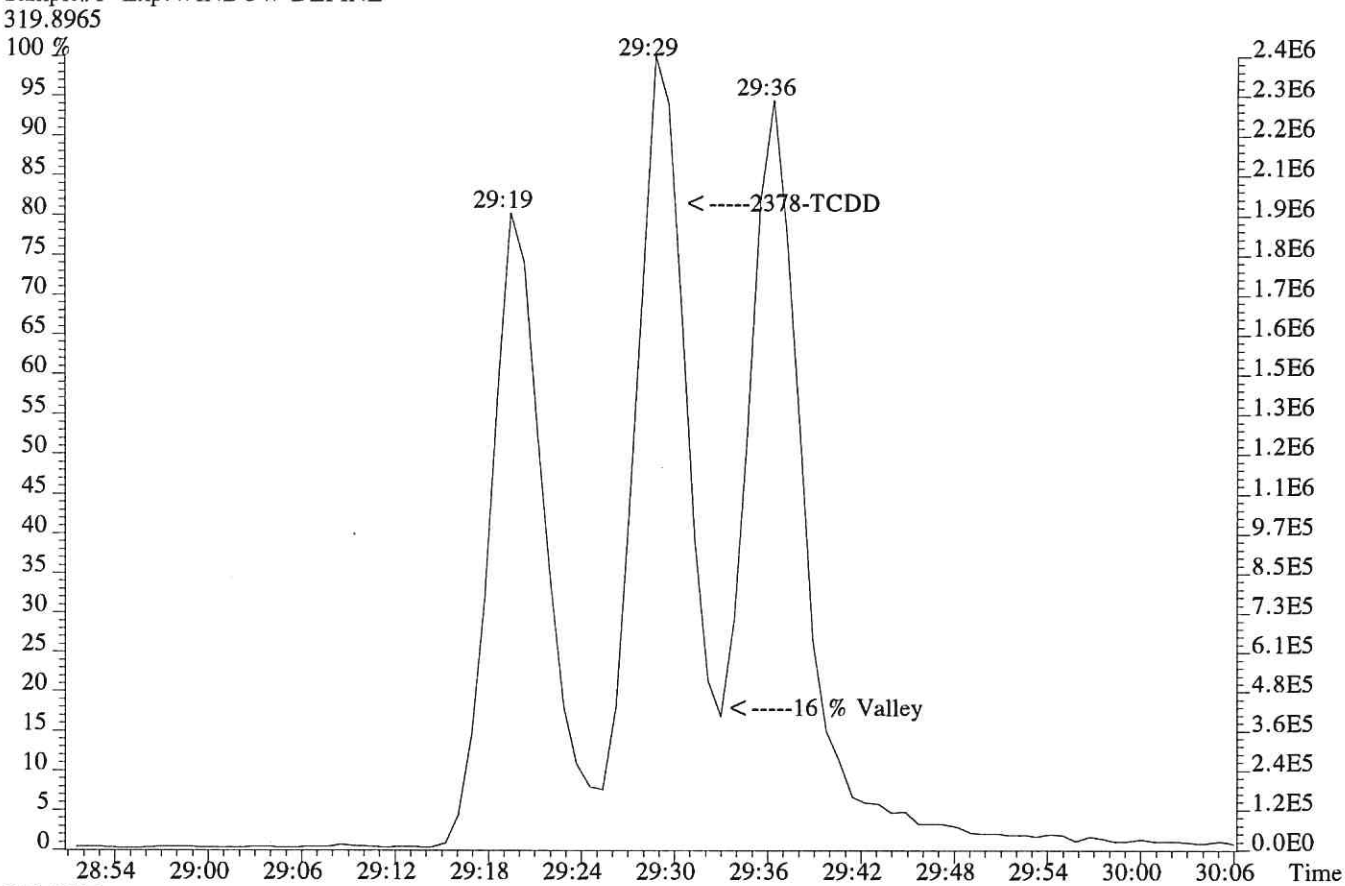
Lab File ID: P619495
Date Analyzed: 17-OCT-19
Time Analyzed: 10:22:00

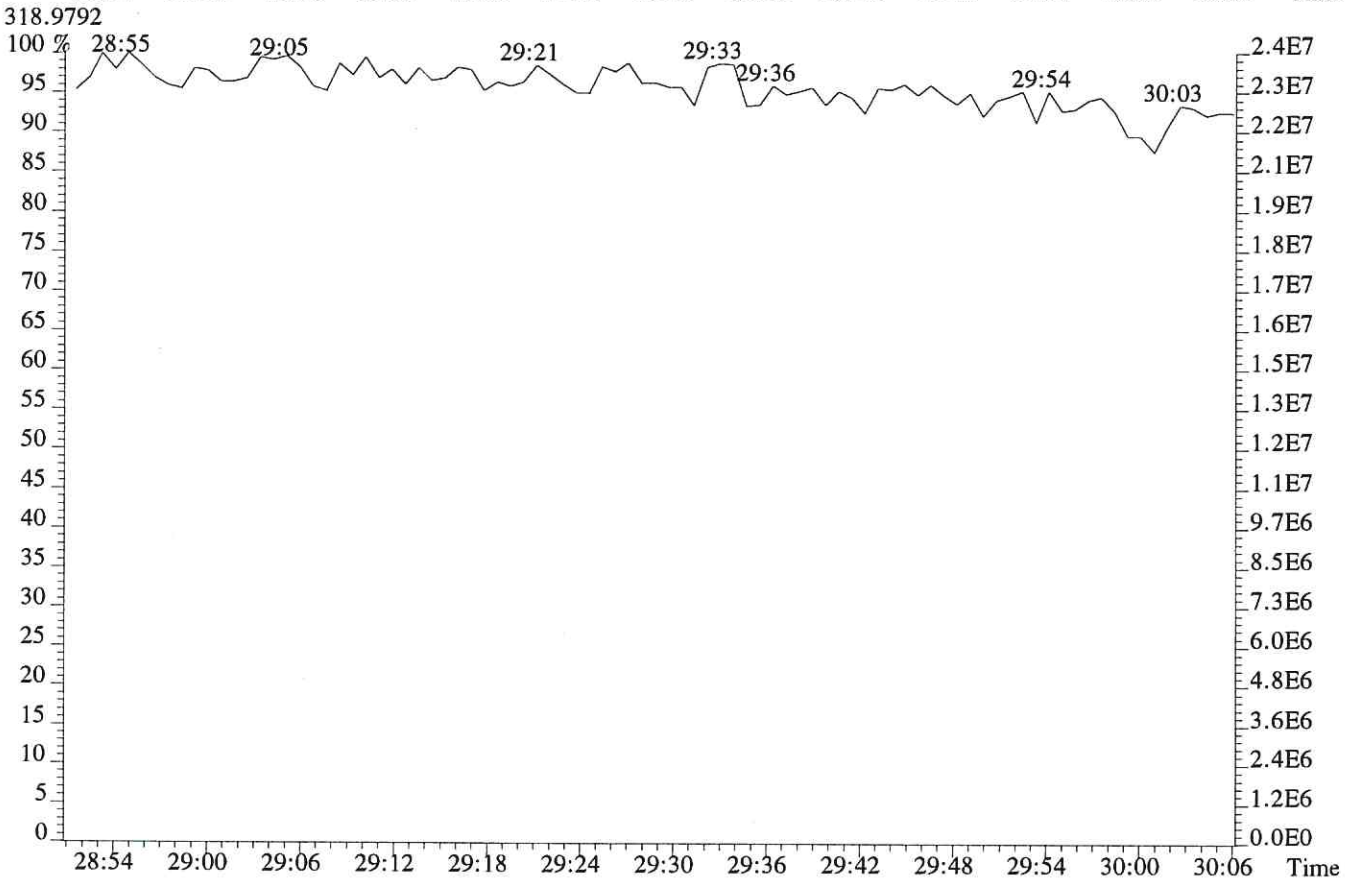
Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	24:30	30:36
TCDD	26:22	30:26
PeCDF	30:32	34:40
PeCDD	32:01	34:24
HxCDF	35:17	37:44
HxCDD	35:47	37:20
HpCDF	38:56	40:22
HpCDD	39:10	39:52

% Valley 2378-TCDD: 16 %

RIGHT SOLUTIONS | RIGHT PARTNER

File:P619495 #1-623 Acq:17-OCT-2019 10:22:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE





RIGHT SOLUTIONS | RIGHT PARTNER

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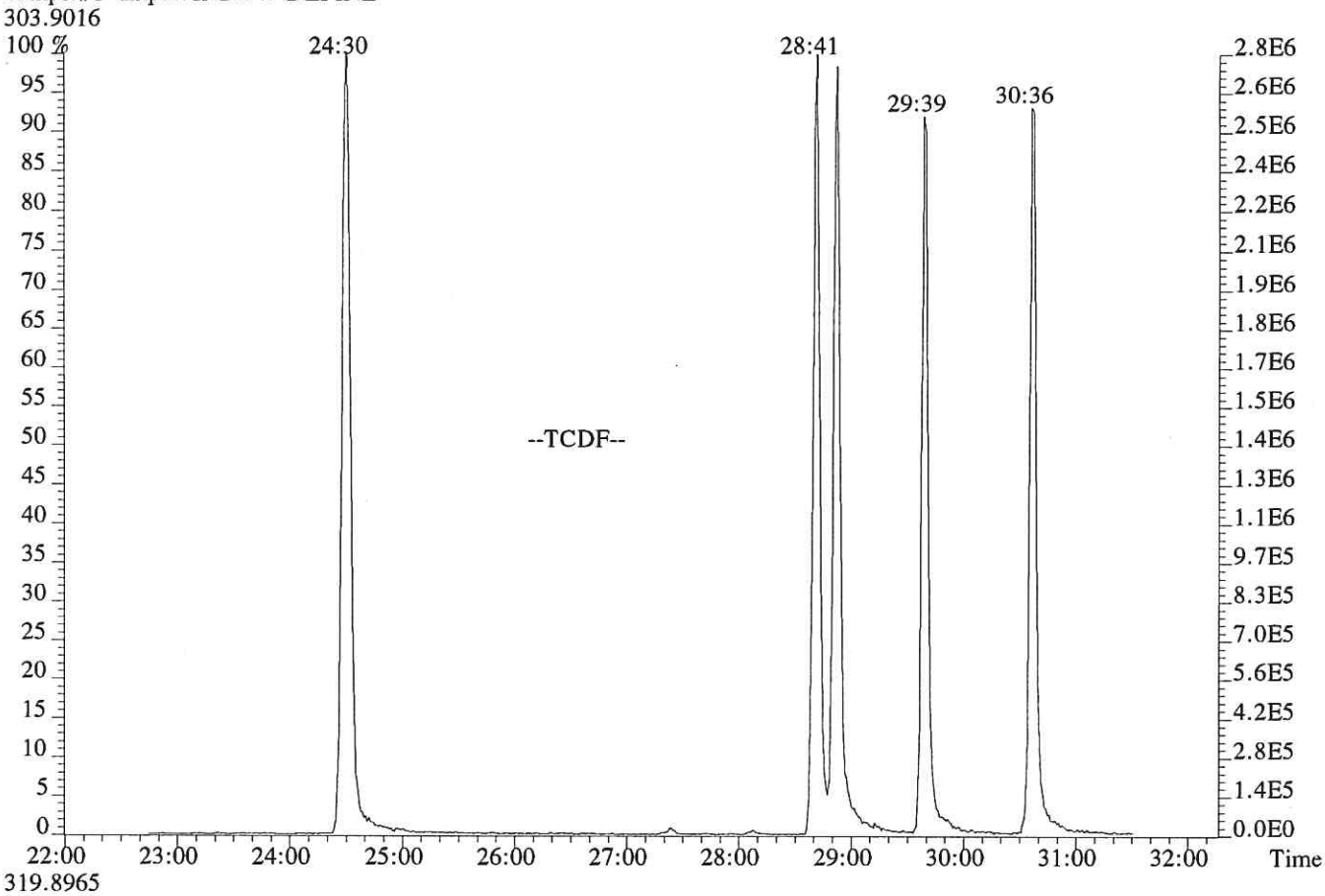
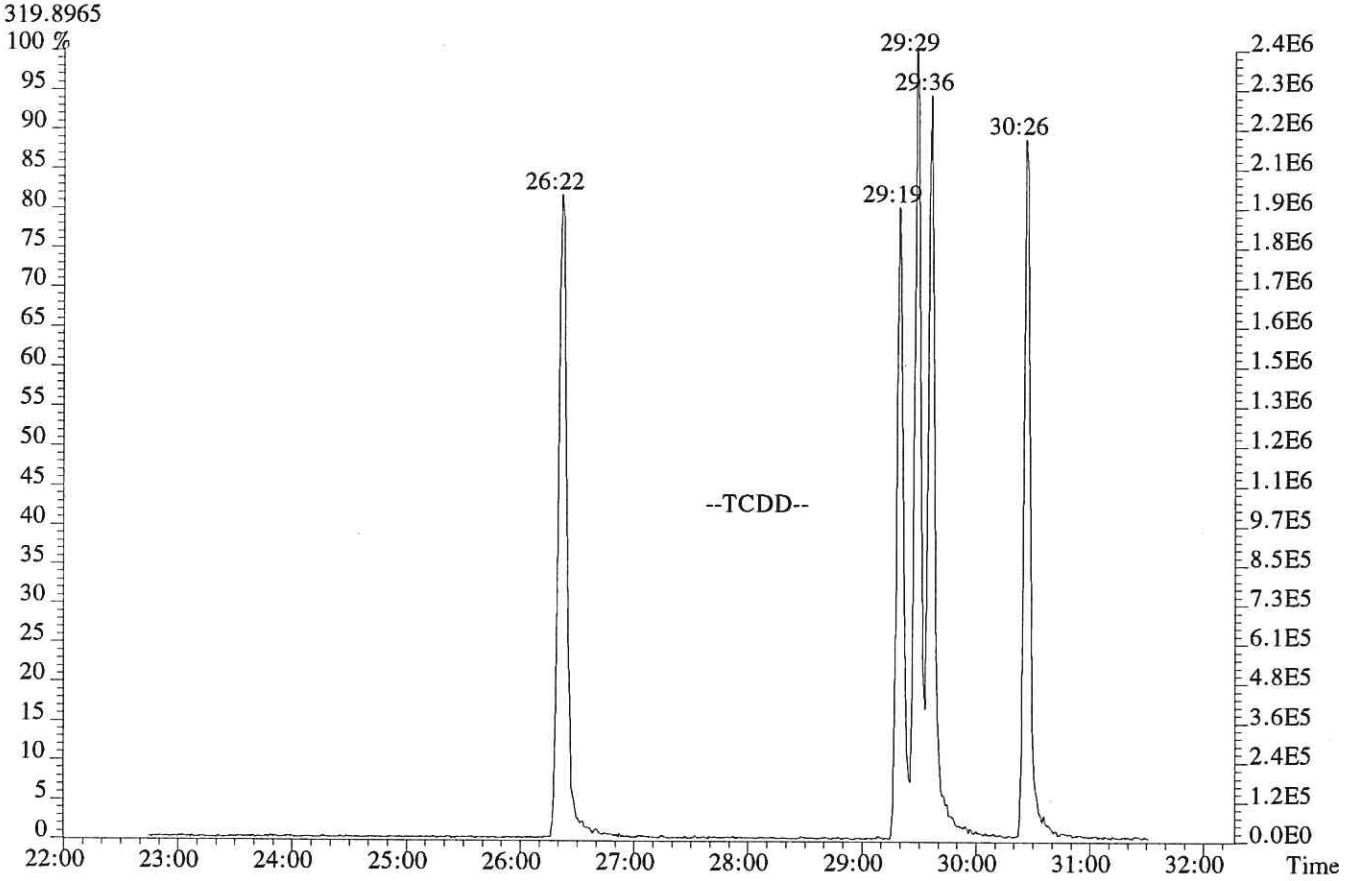
Sample#1 Exp:WINDOW DEFINE





RIGHT SOLUTIONS | RIGHT PARTNER

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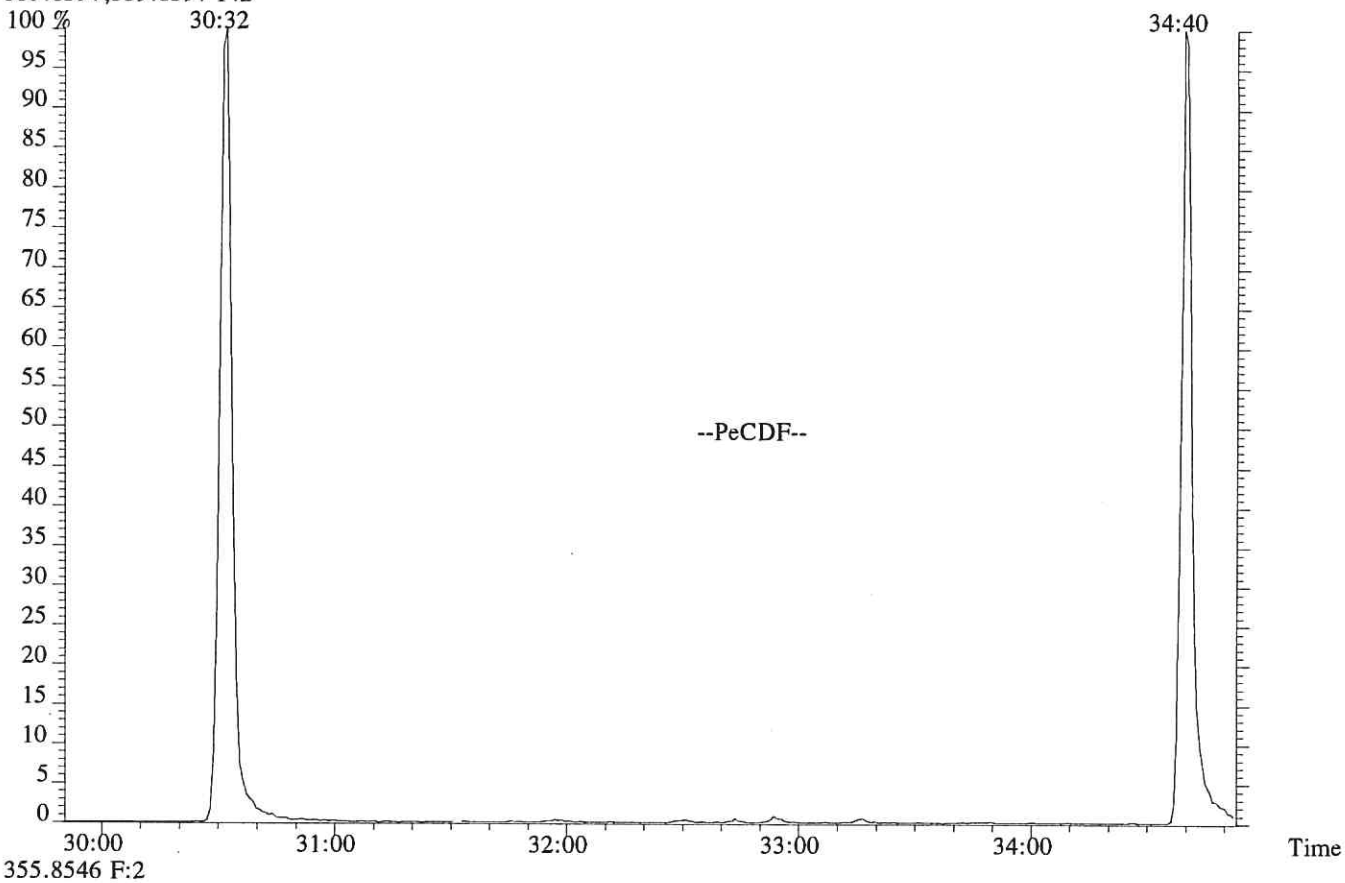
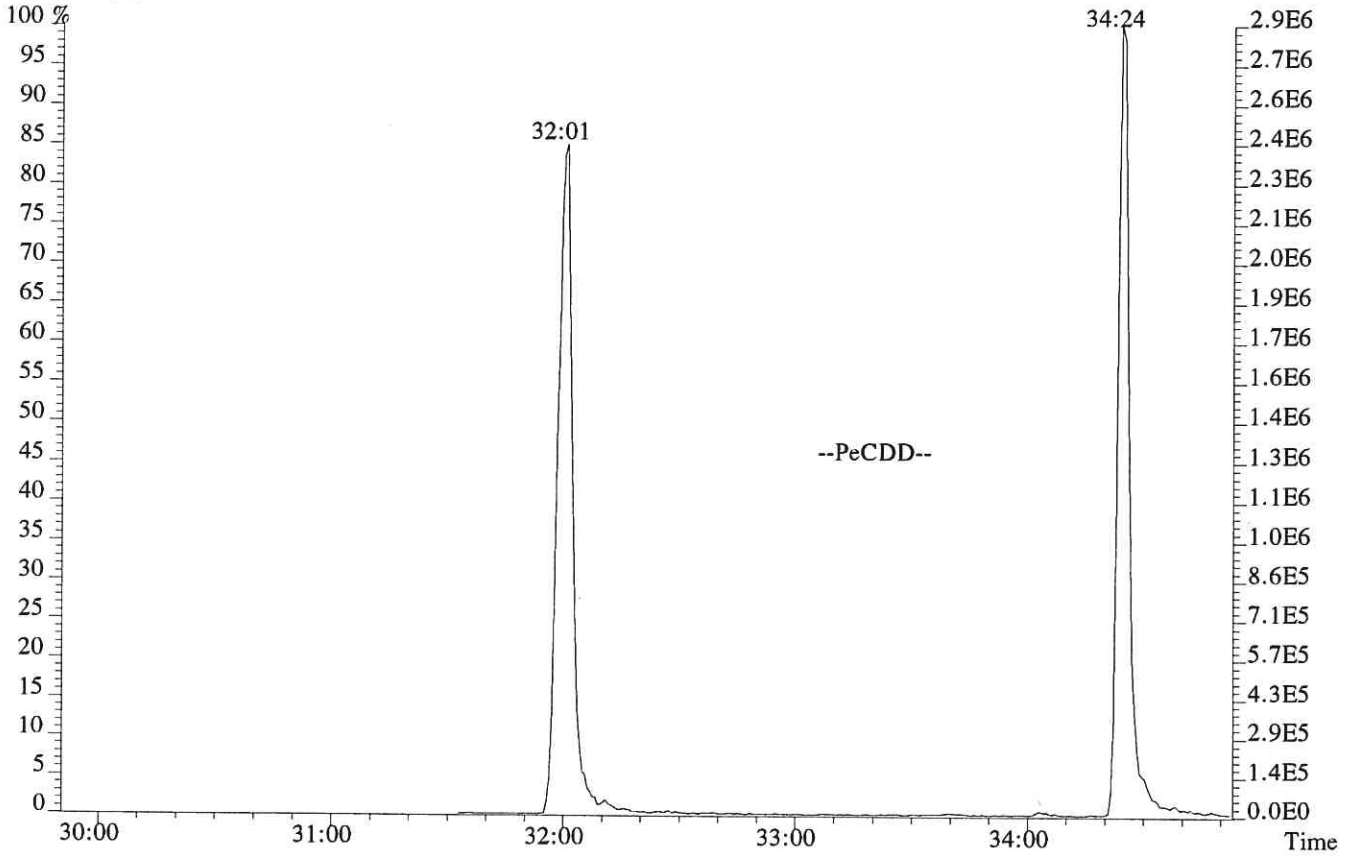
339.8597,339.8597 F:2

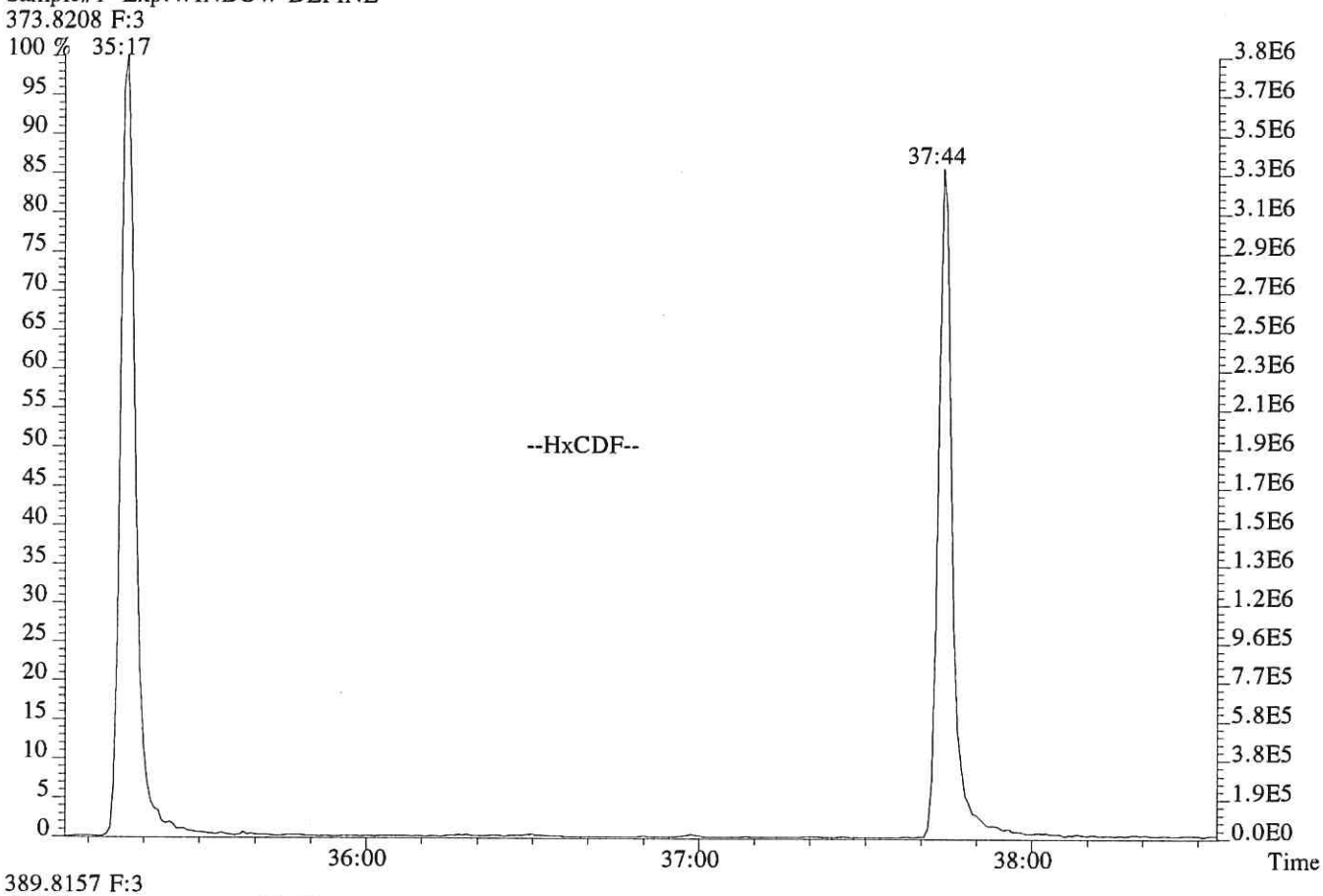


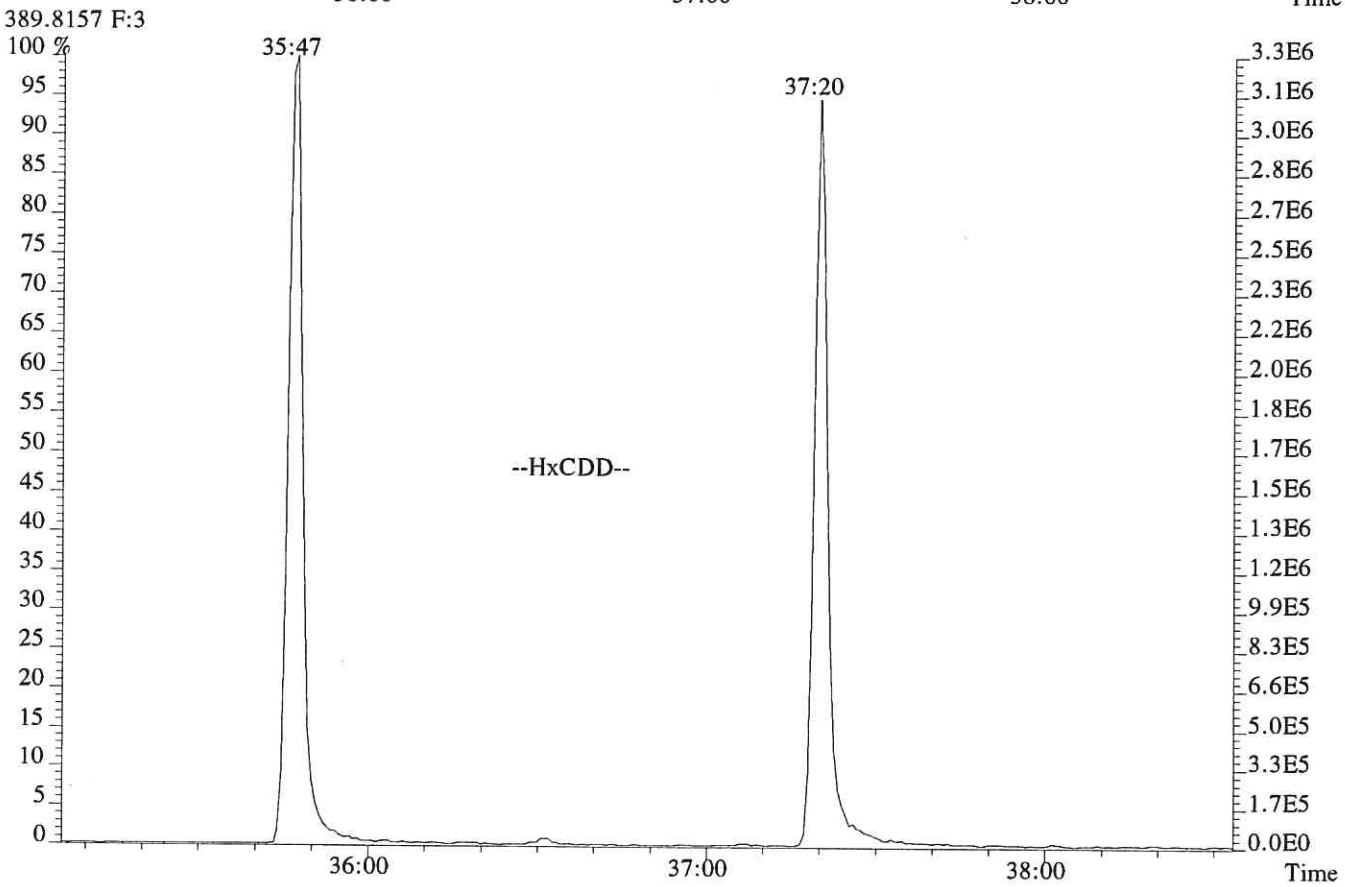
355.8546 F:2



RIGHT SOLUTIONS | RIGHT PARTNER

File:P619495 #1-623 Acq:17-OCT-2019 10:22:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE





RIGHT SOLUTIONS | RIGHT PARTNER

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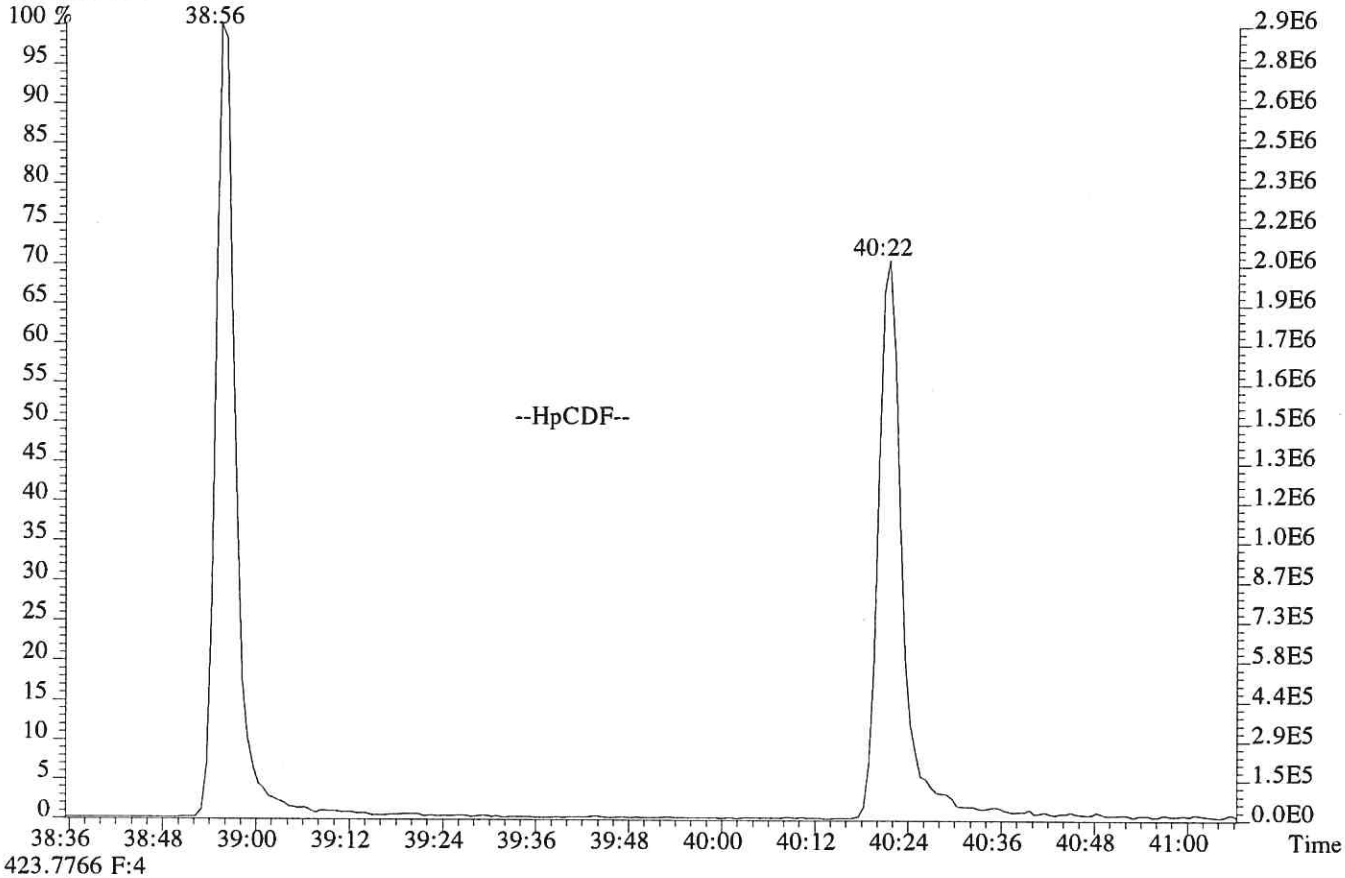
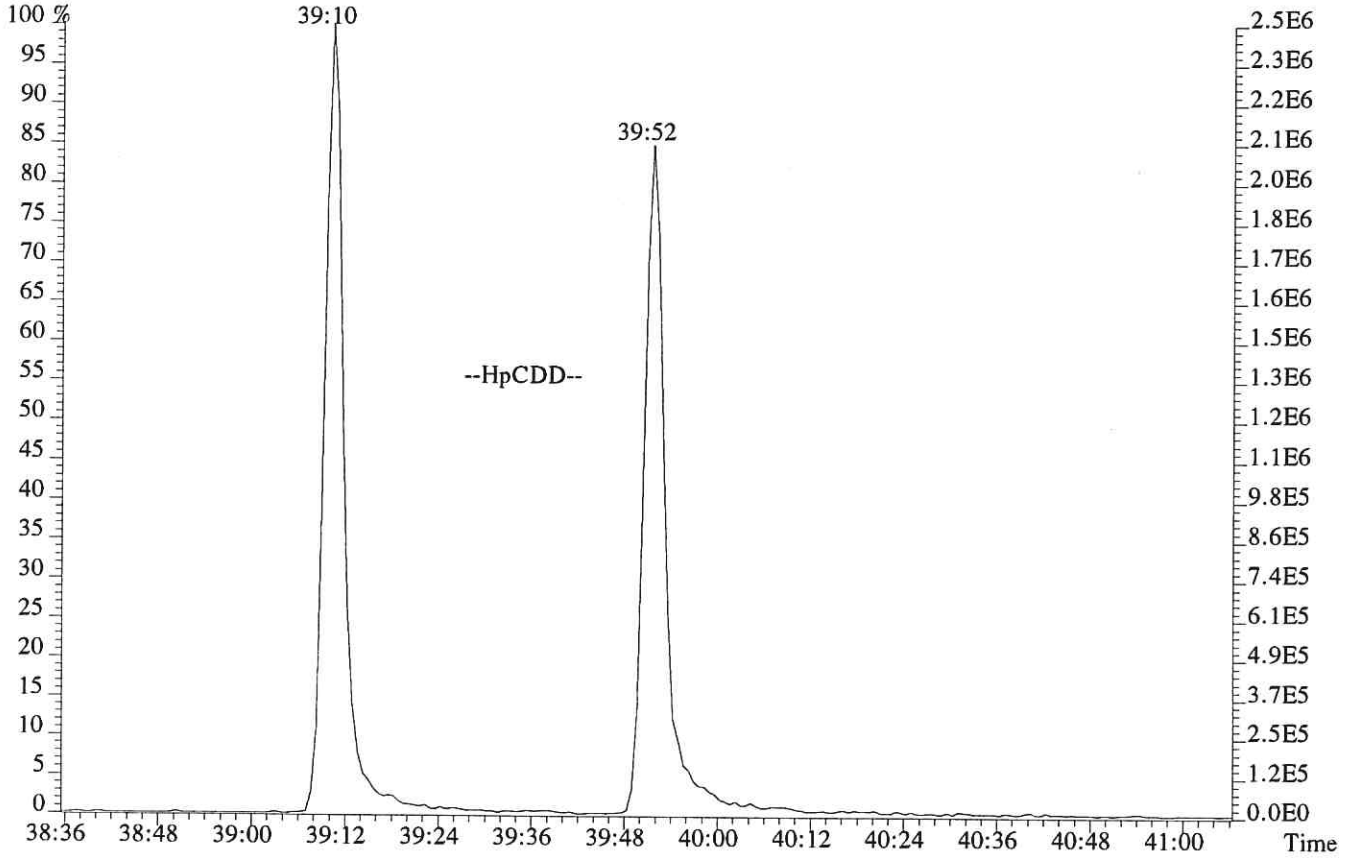
Sample#1 Exp:WINDOW DEFINE
407.7818 F:4



423.7766 F:4



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USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 10/04/19

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

VER Data Filename: P619496 Analysis Date: 17-OCT-19 Time: 11:18:36

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.81	0.65-0.89	9.4	7.8 - 12.9	-5.5
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	1.25	1.05-1.43	48	39 - 64	-3.6
1,2,3,6,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	49	39 - 64	-2.5
1,2,3,7,8,9-HxCDD	M+2/M+4	1.24	1.05-1.43	49	41 - 61	-2.3
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.04	0.88-1.20	48	43 - 58	-3.6
OCDD	M+2/M+4	0.90	0.76-1.02	97	79 - 126	-2.7
2,3,7,8-TCDF	M/M+2	0.76	0.65-0.89	9.0	8.4 - 12.0	-10.1
1,2,3,7,8-PeCDF	M+2/M+4	1.51	1.32-1.78	48	41 - 60	-4.6
2,3,4,7,8-PeCDF	M+2/M+4	1.51	1.32-1.78	47	41 - 61	-5.0
1,2,3,4,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	48	45 - 56	-4.5
1,2,3,6,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	50	44 - 57	-0.9
1,2,3,7,8,9-HxCDF	M+2/M+4	1.22	1.05-1.43	48	45 - 56	-4.0
2,3,4,6,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	48	44 - 57	-4.8
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.01	0.88-1.20	49	45 - 55	-2.3
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.00	0.88-1.20	48	43 - 58	-4.5
OCDF	M+2/M+4	0.90	0.76-1.02	94	63 - 159	-5.5

(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

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USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 10/04/19

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

VER Data Filename: P619496 Analysis Date: 17-OCT-19 Time: 11:18:36

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.77	0.65-0.89	94	82 - 121	-6.1
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.57	1.32-1.78	76	62 - 160	-24.3
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	95	85 - 117	-5.4
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	100	85 - 118	-0.4
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	91	72 - 138	-9.5
13C-OCDD	M+2/M+4	0.91	0.76-1.02	168	96 - 415	-16.2
13C-2,3,7,8-TCDF	M/M+2	0.80	0.65-0.89	98	71 - 140	-2.2
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	80	76 - 130	-19.9
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	76	77 - 130	-24.2
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	94	76 - 131	-6.3
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	97	70 - 143	-3.3
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	94	74 - 135	-6.1
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	95	73 - 137	-4.7
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	91	78 - 129	-9.2
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.44	0.37-0.51	87	77 - 129	-13.3
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD	M+2/M+4			9.3	7.8 - 12.7	-7.2

(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

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ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
203606

Run #7 Filename P619496 Samp: 1 Inj: 1 Acquired: 17-OCT-19 11:18:36
Processed: 18-OCT-19 13:37:33 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:51	5.992e+03	7.930e+03	0.76	yes	no	1.017
2	Unk	1,2,3,7,8-PeCDF	32:53	4.432e+04	2.927e+04	1.51	yes	no	1.021
3	Unk	2,3,4,7,8-PeCDF	33:46	4.071e+04	2.703e+04	1.51	yes	no	0.983
4	Unk	1,2,3,4,7,8-HxCDF	36:21	3.604e+04	2.998e+04	1.20	yes	no	1.229
5	Unk	1,2,3,6,7,8-HxCDF	36:28	4.039e+04	3.300e+04	1.22	yes	no	1.109
6	Unk	2,3,4,6,7,8-HxCDF	36:57	3.620e+04	2.964e+04	1.22	yes	no	1.125
7	Unk	1,2,3,7,8,9-HxCDF	37:42	3.400e+04	2.784e+04	1.22	yes	no	1.143
8	Unk	1,2,3,4,6,7,8-HpCDF	38:55	3.320e+04	3.303e+04	1.01	yes	no	1.323
9	Unk	1,2,3,4,7,8,9-HpCDF	40:20	2.629e+04	2.634e+04	1.00	yes	no	1.253
10	Unk	OCDF	42:53	4.434e+04	4.937e+04	0.90	yes	no	1.373
11	Unk	2,3,7,8-TCDD	29:36	4.511e+03	5.594e+03	0.81	yes	no	1.012
12	Unk	1,2,3,7,8-PeCDD	34:02	2.925e+04	1.859e+04	1.57	yes	no	0.993
13	Unk	1,2,3,4,7,8-HxCDD	37:05	2.648e+04	2.115e+04	1.25	yes	no	1.082
14	Unk	1,2,3,6,7,8-HxCDD	37:09	2.774e+04	2.223e+04	1.25	yes	no	1.083
15	Unk	1,2,3,7,8,9-HxCDD	37:24	2.949e+04	2.379e+04	1.24	yes	no	1.174
16	Unk	1,2,3,4,6,7,8-HpCDD	39:51	2.468e+04	2.372e+04	1.04	yes	no	1.053
17	Unk	OCDD	42:40	3.868e+04	4.290e+04	0.90	yes	no	1.160
18	IS	13C-2,3,7,8-TCDF	28:50	6.760e+04	8.469e+04	0.80	yes	no	1.341
19	IS	13C-1,2,3,7,8-PeCDF	32:52	9.295e+04	5.823e+04	1.60	yes	no	1.627
20	IS	13C-2,3,4,7,8-PeCDF	33:45	8.918e+04	5.599e+04	1.59	yes	no	1.651
21	IS	13C-1,2,3,4,7,8-HxCDF	36:21	3.861e+04	7.384e+04	0.52	yes	no	1.137
22	IS	13C-1,2,3,6,7,8-HxCDF	36:27	4.612e+04	8.744e+04	0.53	yes	no	1.307
23	IS	13C-2,3,4,6,7,8-HxCDF	36:57	4.245e+04	8.051e+04	0.53	yes	no	1.222
24	IS	13C-1,2,3,7,8,9-HxCDF	37:41	3.895e+04	7.380e+04	0.53	yes	no	1.137
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:54	3.195e+04	7.057e+04	0.45	yes	no	1.069
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:20	2.705e+04	6.098e+04	0.44	yes	no	0.961
27	IS	13C-2,3,7,8-TCDD	29:34	4.614e+04	5.956e+04	0.77	yes	no	0.970
28	IS	13C-1,2,3,7,8-PeCDD	34:01	6.135e+04	3.897e+04	1.57	yes	no	1.142
29	IS	13C-1,2,3,4,7,8-HxCDD	37:04	5.108e+04	4.020e+04	1.27	yes	no	0.914
30	IS	13C-1,2,3,6,7,8-HxCDD	37:09	5.318e+04	4.144e+04	1.28	yes	no	0.899
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:50	4.907e+04	4.625e+04	1.06	yes	no	0.997
32	IS	13C-OCDD	42:39	6.876e+04	7.574e+04	0.91	yes	no	0.817
33	RS/RT	13C-1,2,3,4-TCDD	29:01	5.084e+04	6.522e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:23	6.026e+04	4.536e+04	1.33	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:36	1.082e+04				no	1.005

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Signal/Noise Height Ratio Summary

CLIENT ID.
203606

Run #7 Filename P619496 Samp: 1 Inj: 1 Acquired: 17-OCT-19 11:18:36
Processed: 18-OCT-19 13:37:33 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.05e+06	6.24e+02	1.7e+03	1.43e+06	9.36e+02	1.5e+03
2	1,2,3,7,8-PeCDF	8.08e+06	7.68e+02	1.1e+04	5.37e+06	9.56e+02	5.6e+03
3	2,3,4,7,8-PeCDF	7.76e+06	7.68e+02	1.0e+04	5.17e+06	9.56e+02	5.4e+03
4	1,2,3,4,7,8-HxCDF	7.79e+06	7.00e+02	1.1e+04	6.47e+06	4.36e+02	1.5e+04
5	1,2,3,6,7,8-HxCDF	8.21e+06	7.00e+02	1.2e+04	6.75e+06	4.36e+02	1.5e+04
6	2,3,4,6,7,8-HxCDF	7.72e+06	7.00e+02	1.1e+04	6.35e+06	4.36e+02	1.5e+04
7	1,2,3,7,8,9-HxCDF	6.89e+06	7.00e+02	9.8e+03	5.63e+06	4.36e+02	1.3e+04
8	1,2,3,4,6,7,8-HpCDF	6.91e+06	2.92e+03	2.4e+03	6.88e+06	1.30e+03	5.3e+03
9	1,2,3,4,7,8,9-HpCDF	4.88e+06	2.92e+03	1.7e+03	4.88e+06	1.30e+03	3.8e+03
10	OCDF	7.02e+06	4.52e+02	1.6e+04	7.83e+06	5.80e+02	1.3e+04
11	2,3,7,8-TCDD	8.44e+05	1.56e+03	5.4e+02	1.06e+06	1.33e+03	8.0e+02
12	1,2,3,7,8-PeCDD	5.53e+06	1.35e+03	4.1e+03	3.63e+06	8.48e+02	4.3e+03
13	1,2,3,4,7,8-HxCDD	6.00e+06	9.56e+02	6.3e+03	4.79e+06	8.00e+02	6.0e+03
14	1,2,3,6,7,8-HxCDD	5.65e+06	9.56e+02	5.9e+03	4.61e+06	8.00e+02	5.8e+03
15	1,2,3,7,8,9-HxCDD	6.01e+06	9.56e+02	6.3e+03	4.74e+06	8.00e+02	5.9e+03
16	1,2,3,4,6,7,8-HpCDD	4.79e+06	6.84e+02	7.0e+03	4.50e+06	1.18e+03	3.8e+03
17	OCDD	6.25e+06	3.88e+02	1.6e+04	6.88e+06	5.68e+02	1.2e+04
18	13C-2,3,7,8-TCDF	1.22e+07	8.12e+03	1.5e+03	1.53e+07	3.22e+03	4.7e+03
19	13C-1,2,3,7,8-PeCDF	1.65e+07	1.90e+03	8.7e+03	1.05e+07	7.68e+02	1.4e+04
20	13C-2,3,4,7,8-PeCDF	1.71e+07	1.90e+03	9.0e+03	1.07e+07	7.68e+02	1.4e+04
21	13C-1,2,3,4,7,8-HxCDF	8.25e+06	9.04e+02	9.1e+03	1.60e+07	1.57e+03	1.0e+04
22	13C-1,2,3,6,7,8-HxCDF	9.38e+06	9.04e+02	1.0e+04	1.78e+07	1.57e+03	1.1e+04
23	13C-2,3,4,6,7,8-HxCDF	9.05e+06	9.04e+02	1.0e+04	1.71e+07	1.57e+03	1.1e+04
24	13C-1,2,3,7,8,9-HxCDF	7.84e+06	9.04e+02	8.7e+03	1.49e+07	1.57e+03	9.5e+03
25	13C-1,2,3,4,6,7,8-HpCDF	6.57e+06	2.26e+03	2.9e+03	1.46e+07	2.28e+03	6.4e+03
26	13C-1,2,3,4,7,8,9-HpCDF	5.05e+06	2.26e+03	2.2e+03	1.13e+07	2.28e+03	5.0e+03
27	13C-2,3,7,8-TCDD	8.74e+06	5.05e+03	1.7e+03	1.12e+07	2.42e+03	4.6e+03
28	13C-1,2,3,7,8-PeCDD	1.17e+07	9.48e+02	1.2e+04	7.35e+06	9.64e+02	7.6e+03
29	13C-1,2,3,4,7,8-HxCDD	1.15e+07	2.05e+03	5.6e+03	9.00e+06	1.52e+03	5.9e+03
30	13C-1,2,3,6,7,8-HxCDD	1.08e+07	2.05e+03	5.3e+03	8.45e+06	1.52e+03	5.6e+03
31	13C-1,2,3,4,6,7,8-HpCDD	9.34e+06	1.21e+03	7.7e+03	8.89e+06	5.20e+02	1.7e+04
32	13C-OCDD	1.11e+07	8.28e+02	1.3e+04	1.22e+07	5.28e+02	2.3e+04
33	13C-1,2,3,4-TCDD	9.57e+06	5.05e+03	1.9e+03	1.23e+07	2.42e+03	5.1e+03
34	13C-1,2,3,7,8,9-HxCDD	1.20e+07	2.05e+03	5.8e+03	9.23e+06	1.52e+03	6.1e+03
35	37Cl-2,3,7,8-TCDD	2.05e+06	8.92e+02	2.3e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.556e{+}03 + 1.328e{+}03\ ) \times 100}{(8.738e{+}06 + 1.121e{+}07\ ) \times (\qquad\qquad) \times 1.012} =$$

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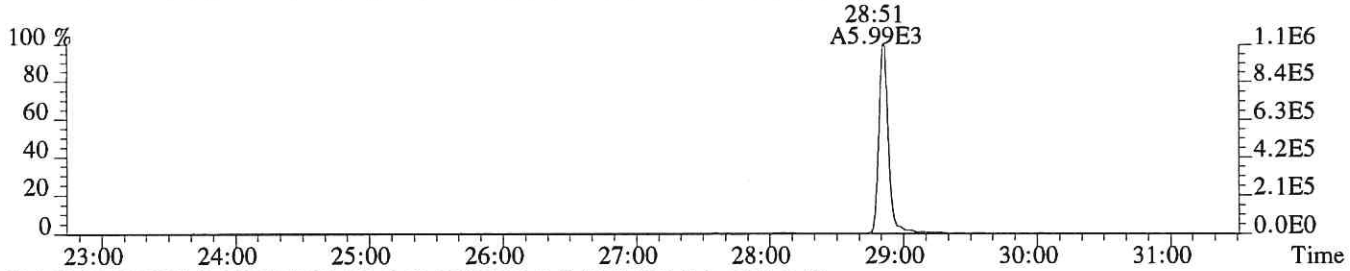
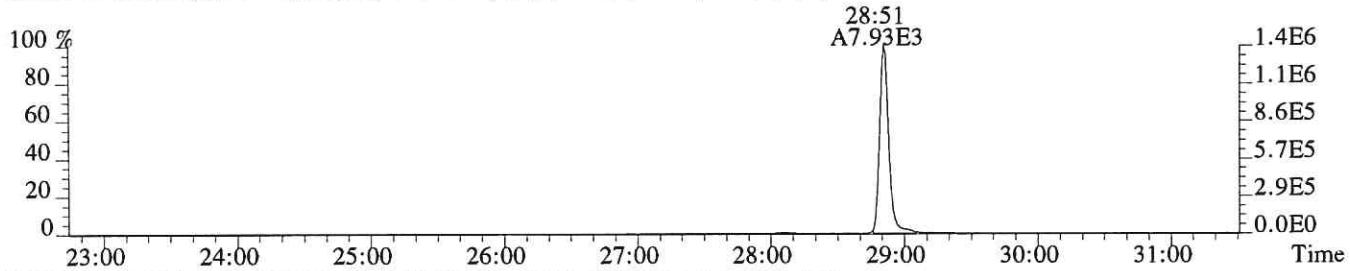
File:P619496 #1-623 Acq:17-OCT-2019 11:18:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

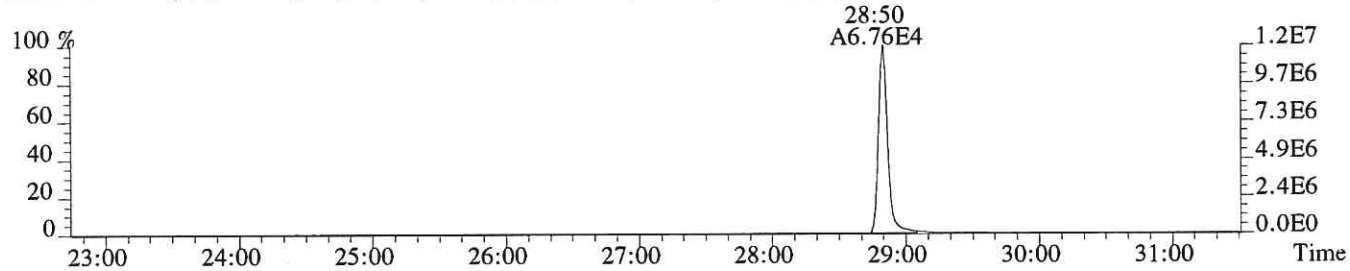
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,624.0,1.00%,F,T)



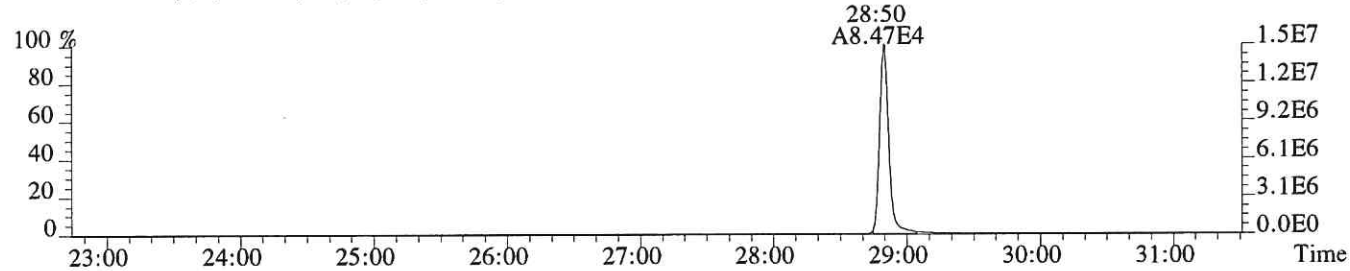
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,936.0,1.00%,F,T)



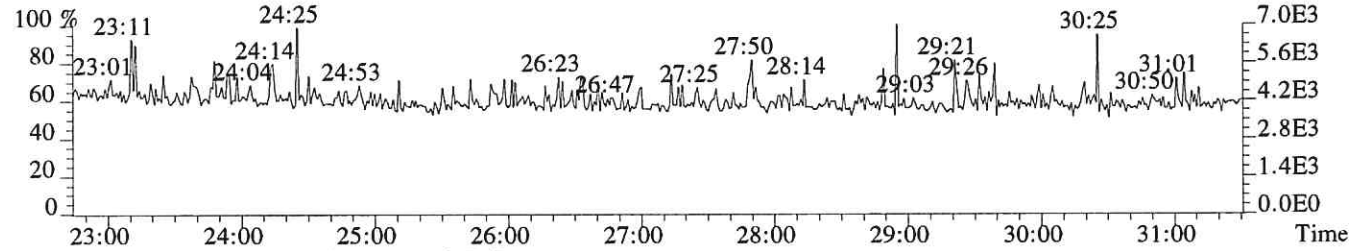
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8116.0,1.00%,F,T)



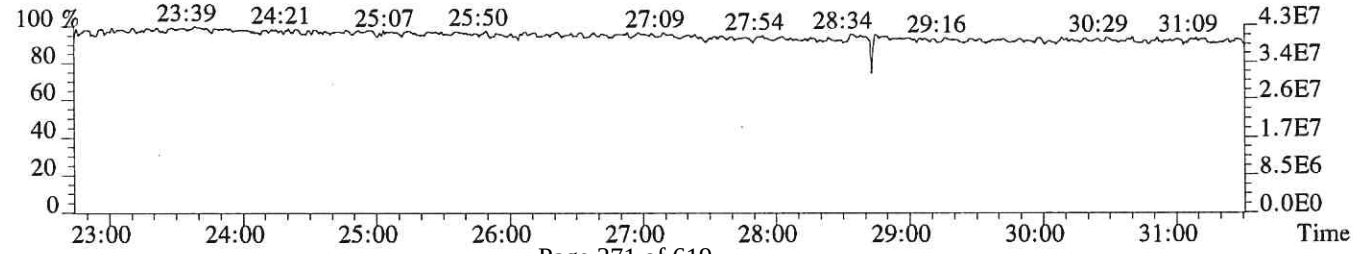
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3224.0,1.00%,F,T)



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



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



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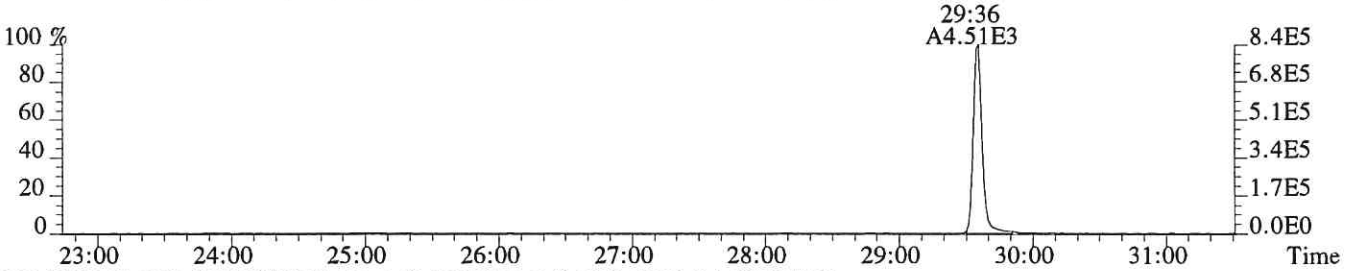
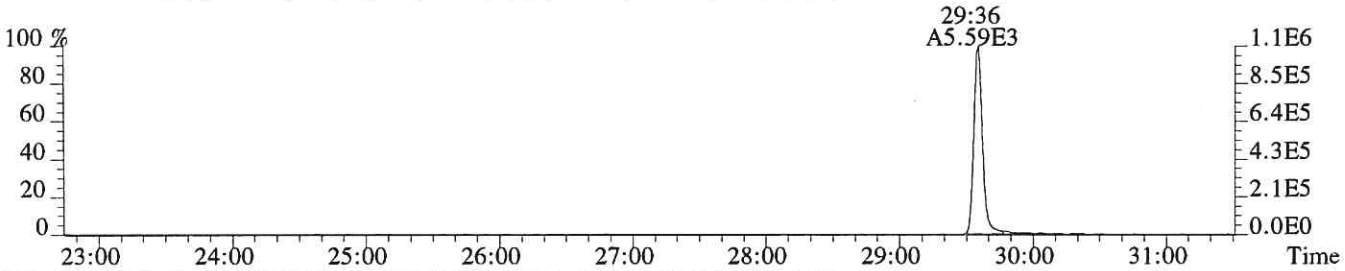
File:P619496 #1-623 Acq:17-OCT-2019 11:18:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

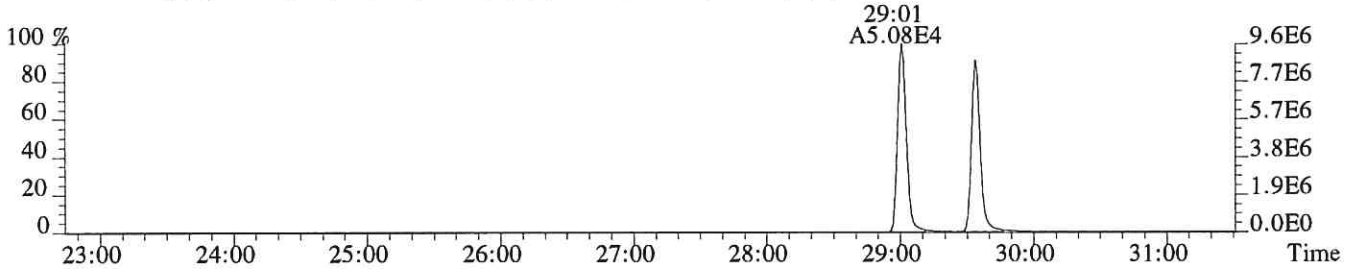
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1556.0,1.00%,F,T)



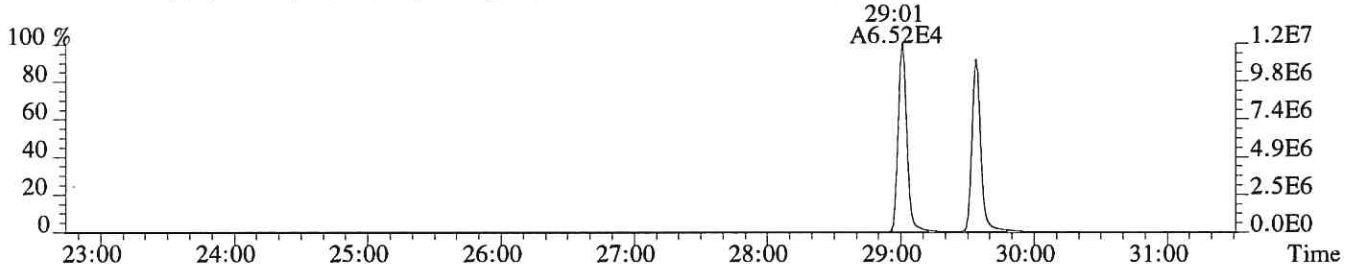
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1328.0,1.00%,F,T)



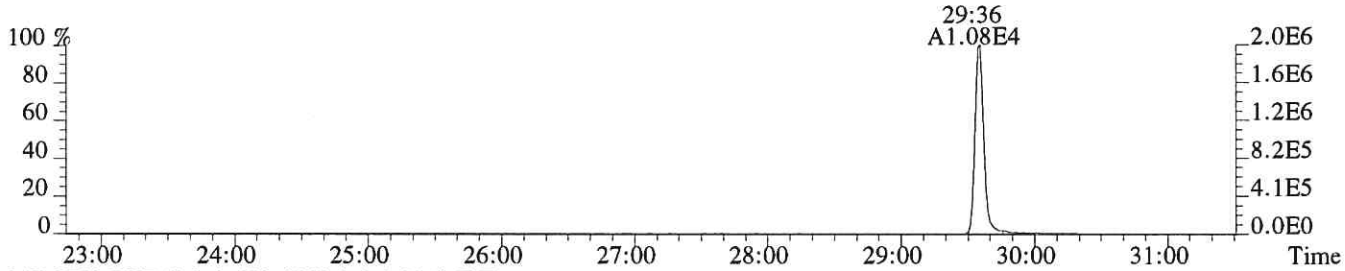
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5052.0,1.00%,F,T)



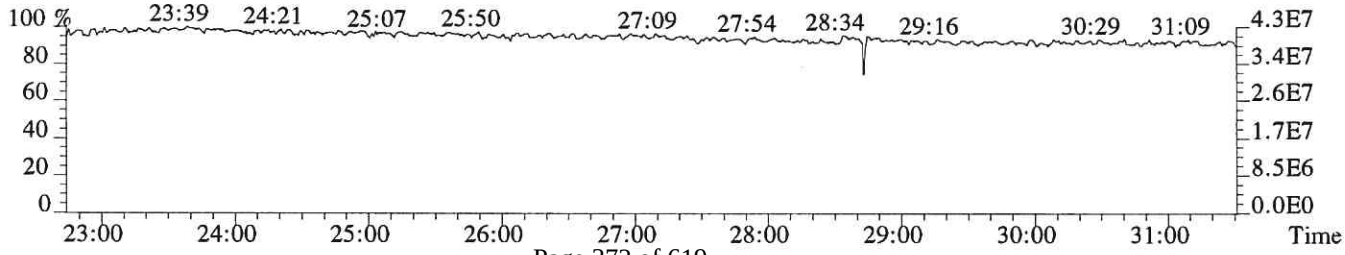
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2424.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,892.0,1.00%,F,T)

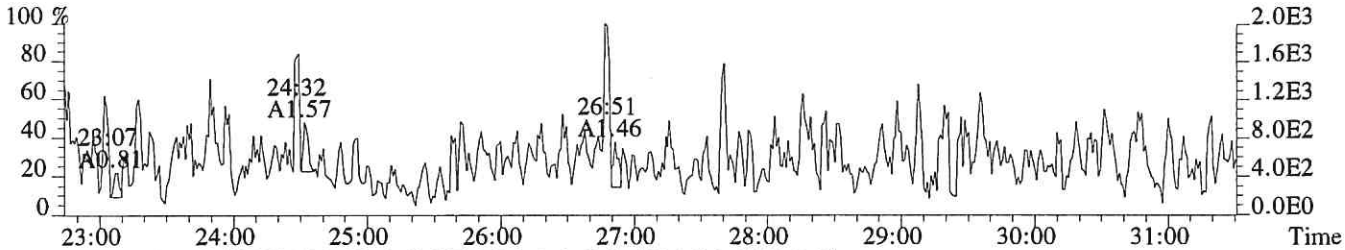


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

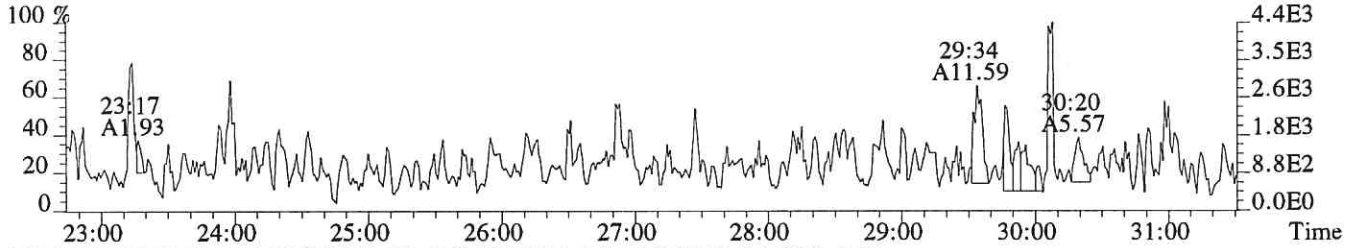


RIGHT SOLUTIONS | RIGHT PARTNER

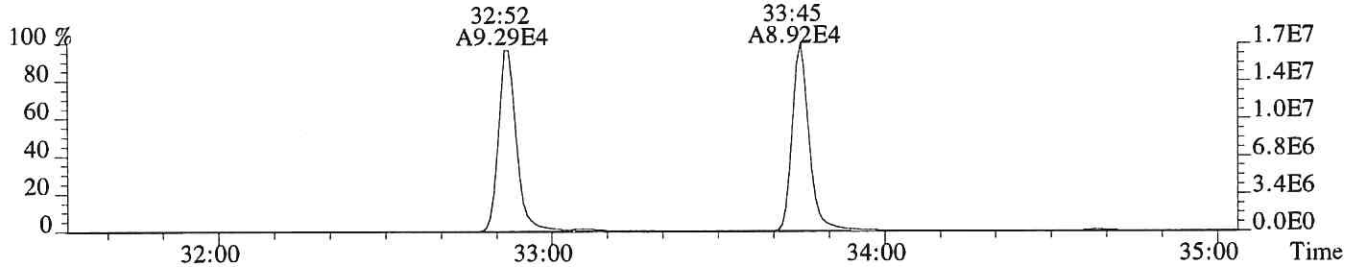
File:P619496 #1-623 Acq:17-OCT-2019 11:18:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,708.0,1.00%,F,T)



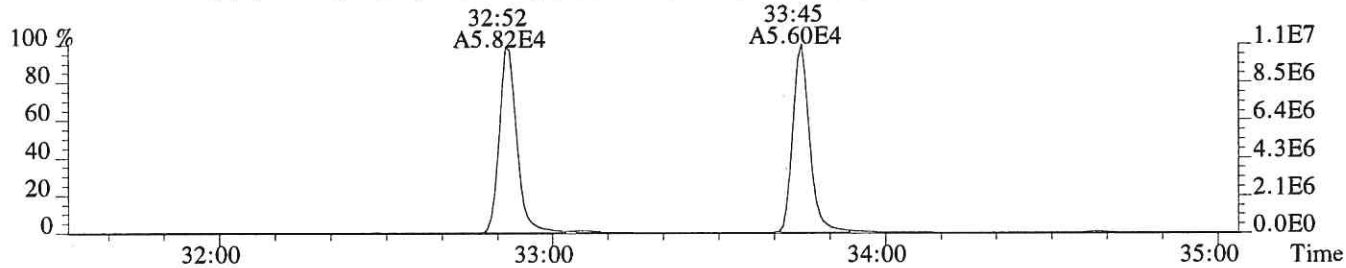
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1308.0,1.00%,F,T)



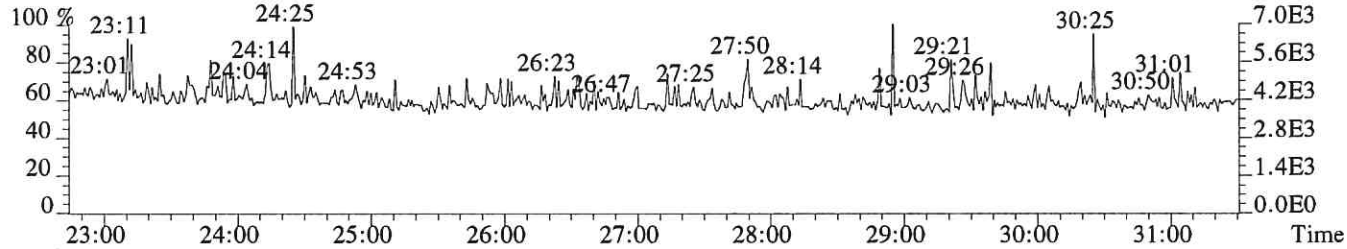
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1900.0,1.00%,F,T)



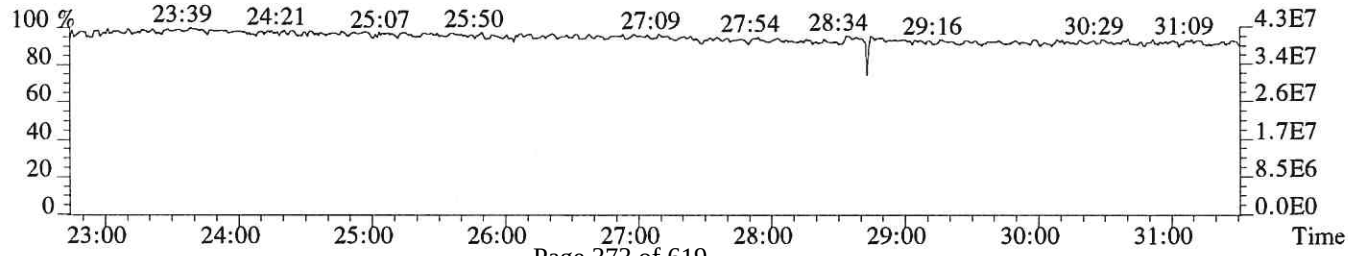
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,768.0,1.00%,F,T)



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



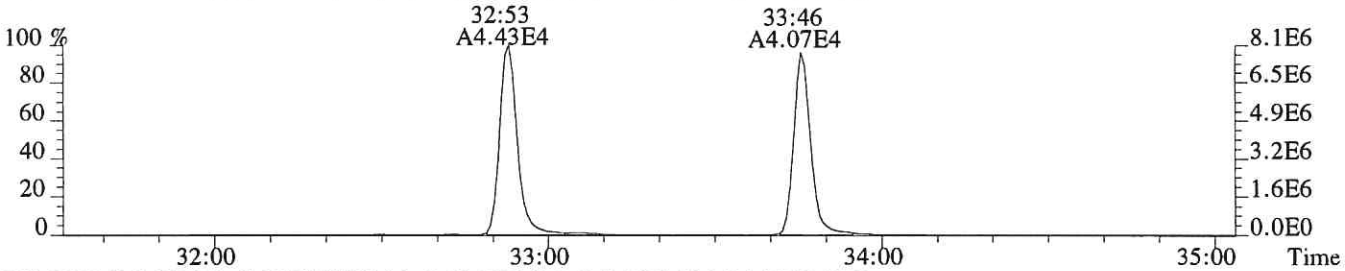
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



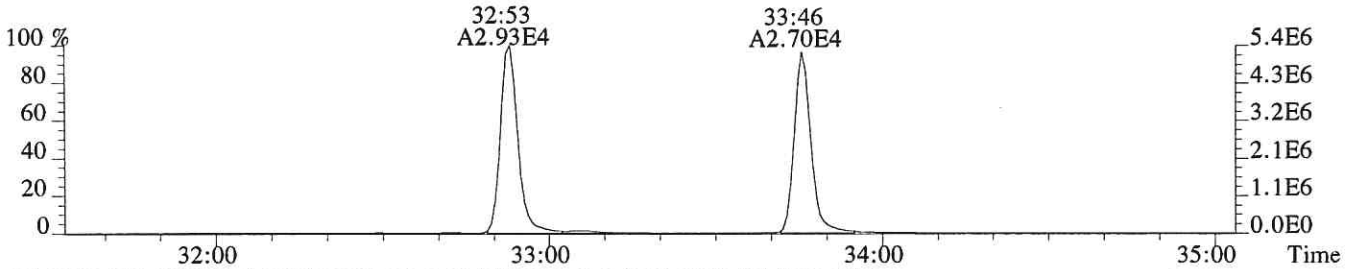
RIGHT SOLUTIONS | RIGHT PARTNER

File:P619496 #1-317 Acq:17-OCT-2019 11:18:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

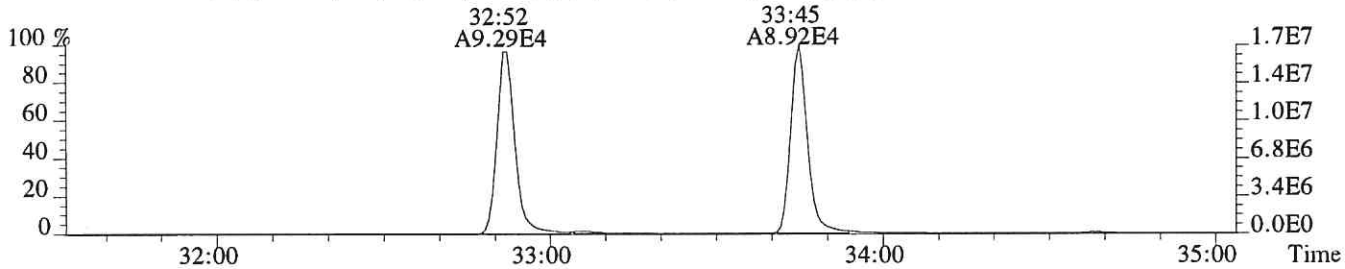
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,768.0,1.00%,F,T)



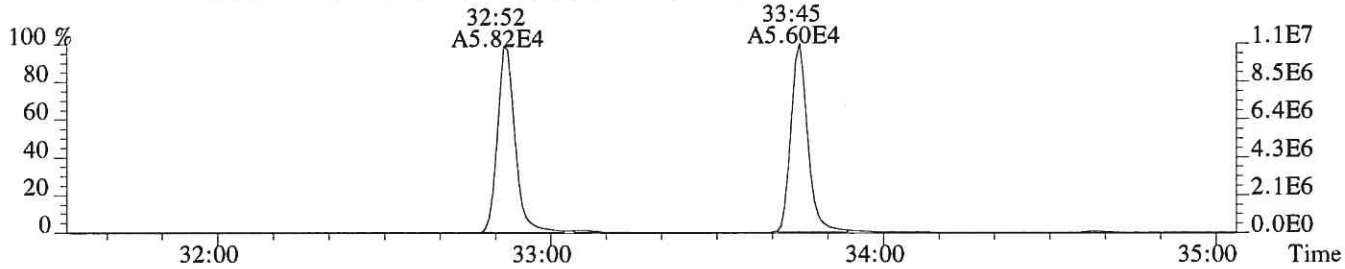
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,956.0,1.00%,F,T)



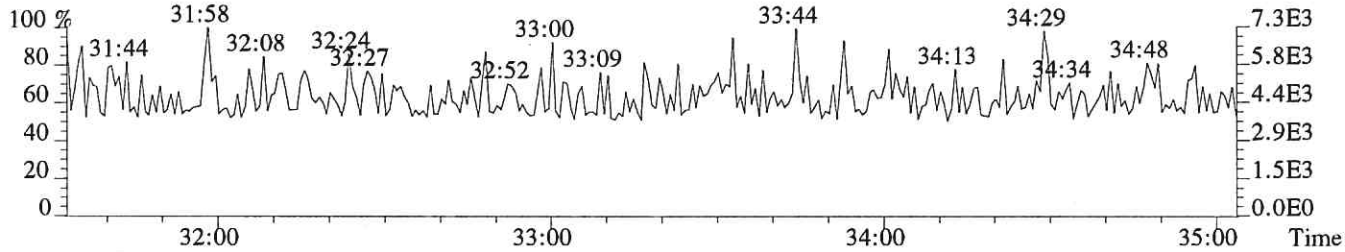
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1900.0,1.00%,F,T)



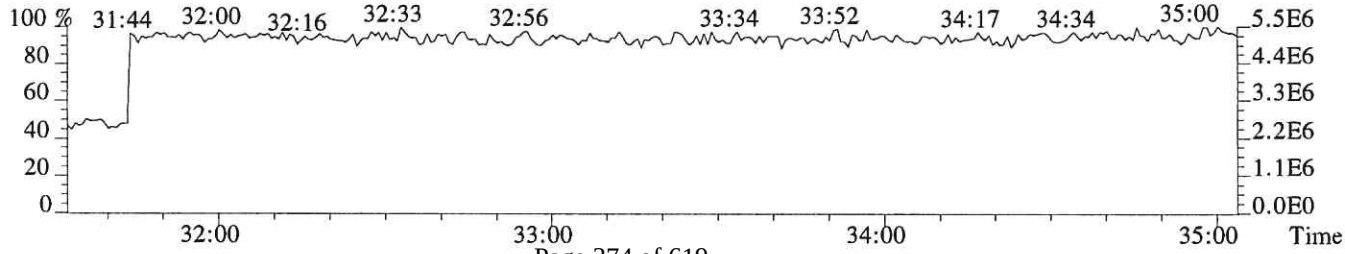
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,768.0,1.00%,F,T)



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



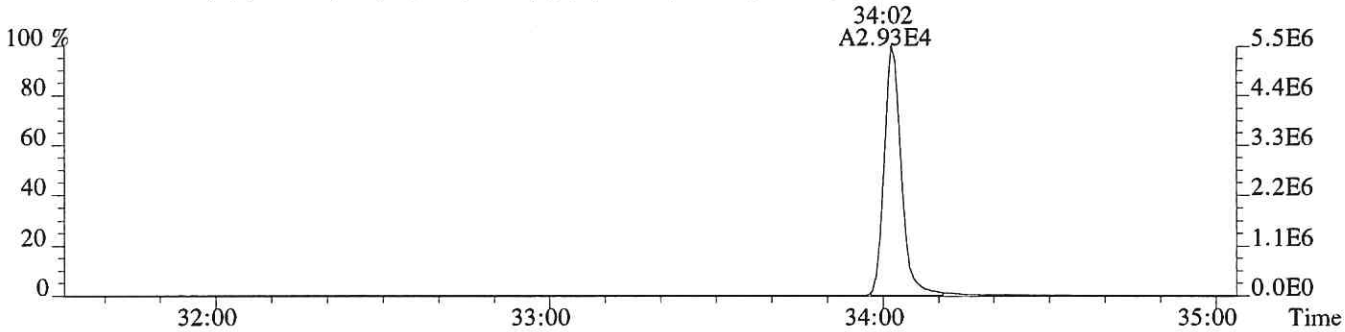
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



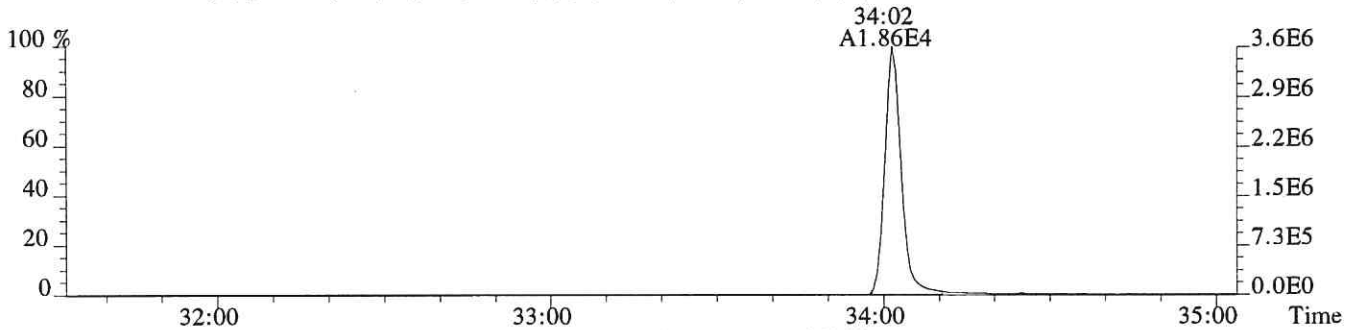
RIGHT SOLUTIONS | RIGHT PARTNER

File:P619496 #1-317 Acq:17-OCT-2019 11:18:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

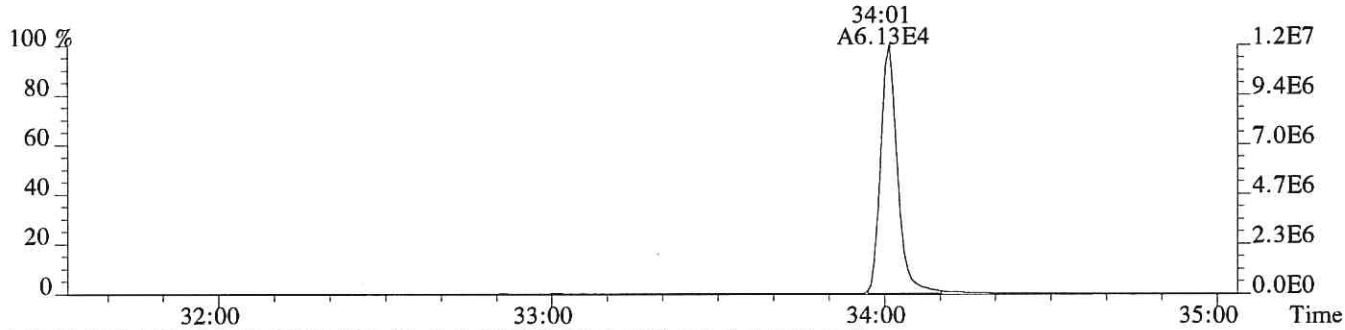
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1348.0,1.00%,F,T)



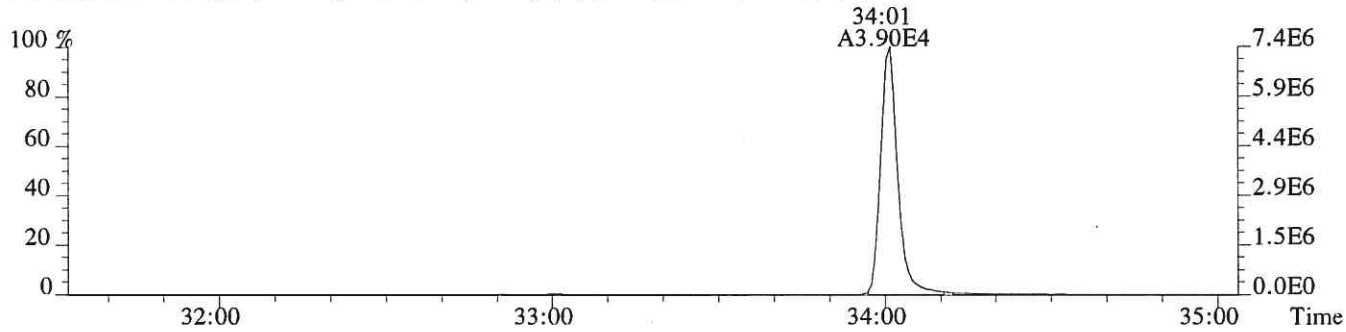
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,848.0,1.00%,F,T)



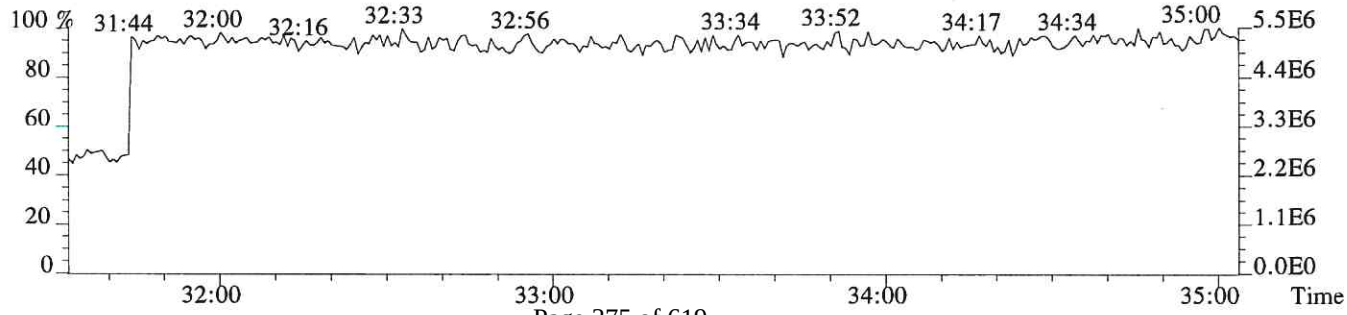
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,948.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,964.0,1.00%,F,T)



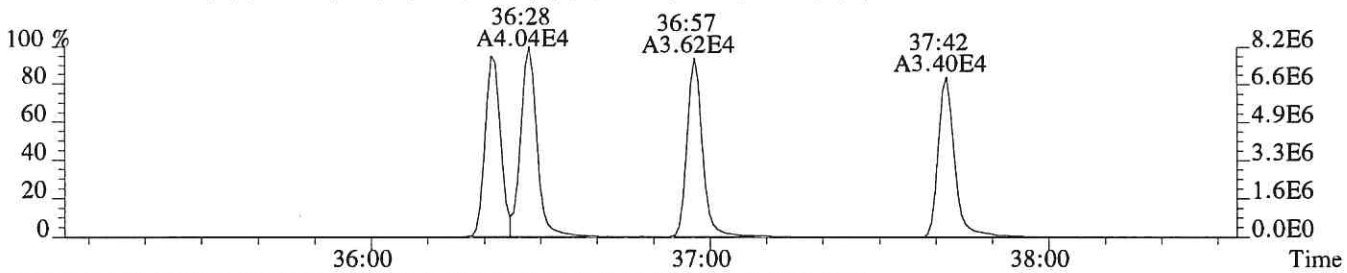
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



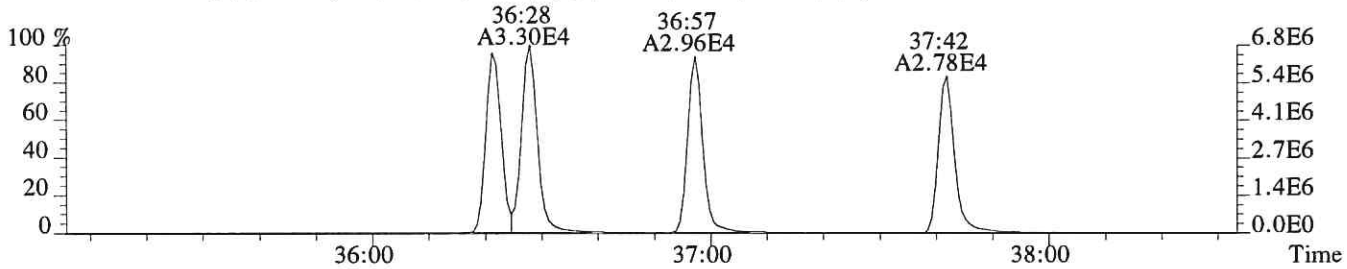
RIGHT SOLUTIONS | RIGHT PARTNER

File:P619496 #1-312 Acq:17-OCT-2019 11:18:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

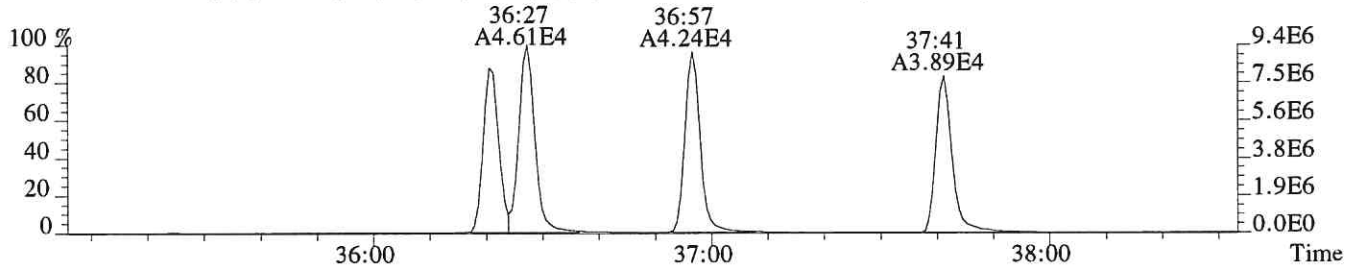
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,700.0,0.40%,F,T)



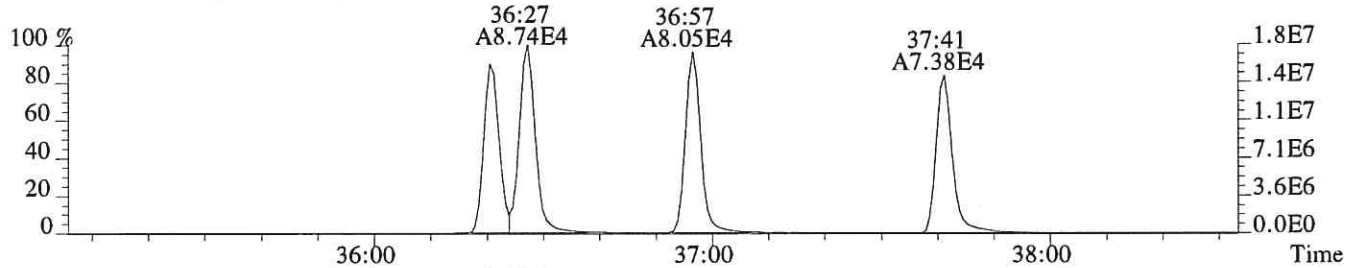
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,436.0,0.40%,F,T)



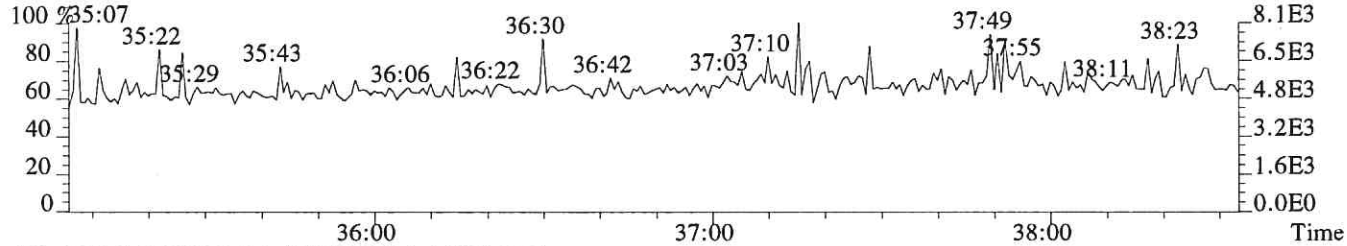
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,904.0,0.40%,F,T)



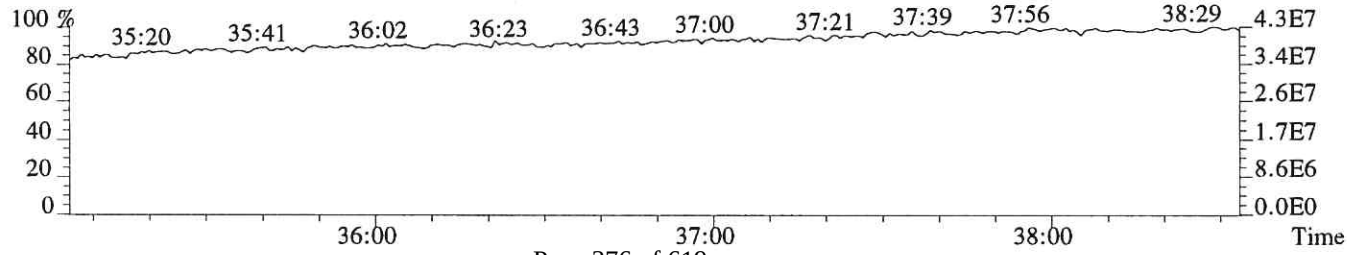
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1572.0,0.40%,F,T)



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



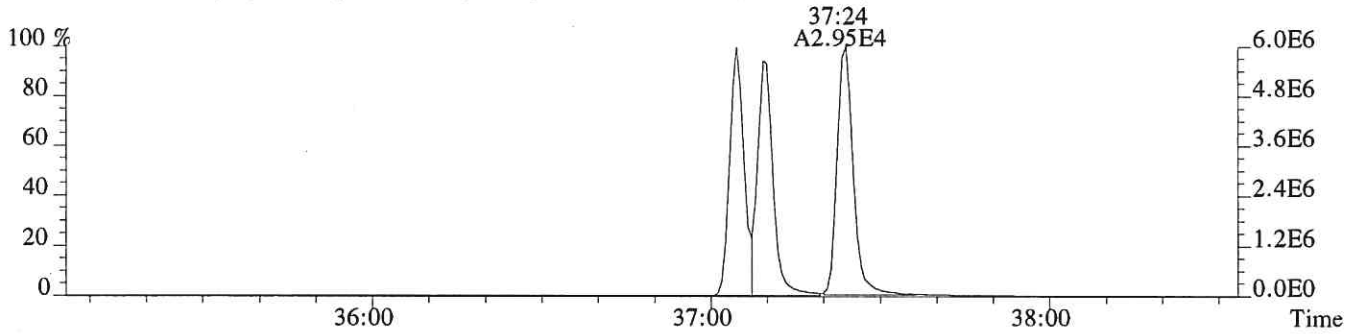
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



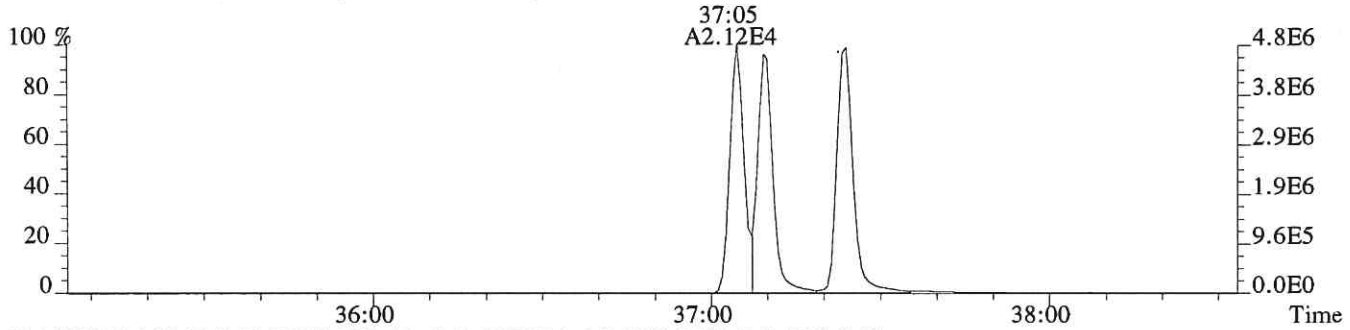
RIGHT SOLUTIONS | RIGHT PARTNER

File:P619496 #1-312 Acq:17-OCT-2019 11:18:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

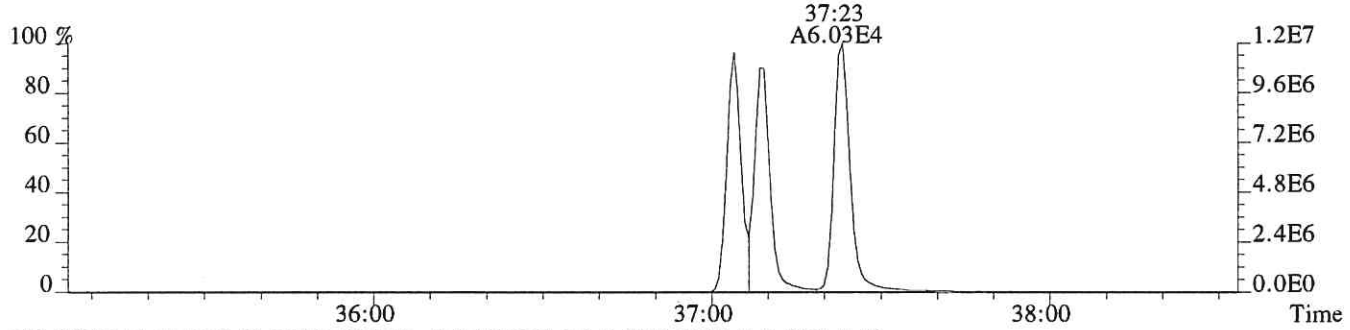
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,956.0,0.40%,F,T)



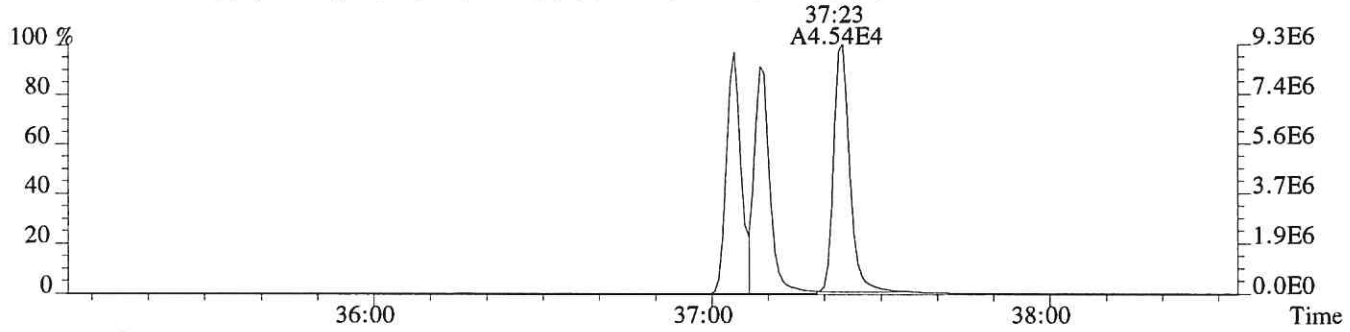
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,800.0,0.40%,F,T)



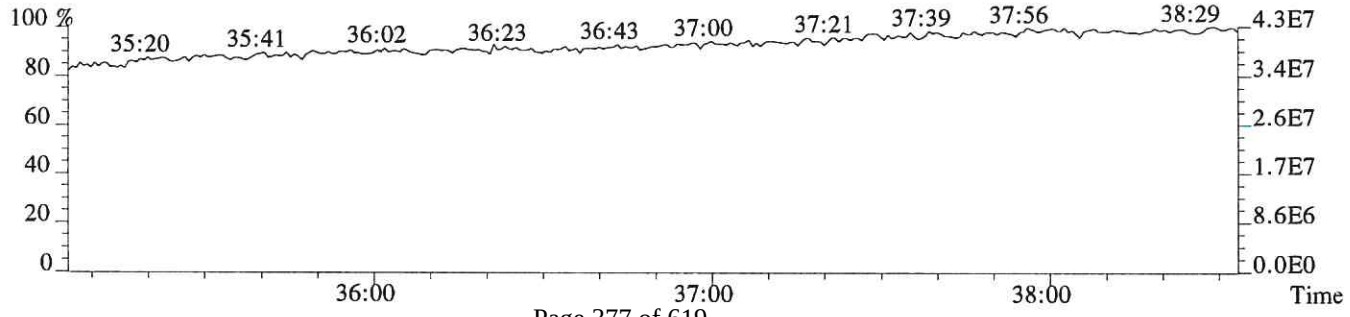
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2052.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1520.0,0.40%,F,T)



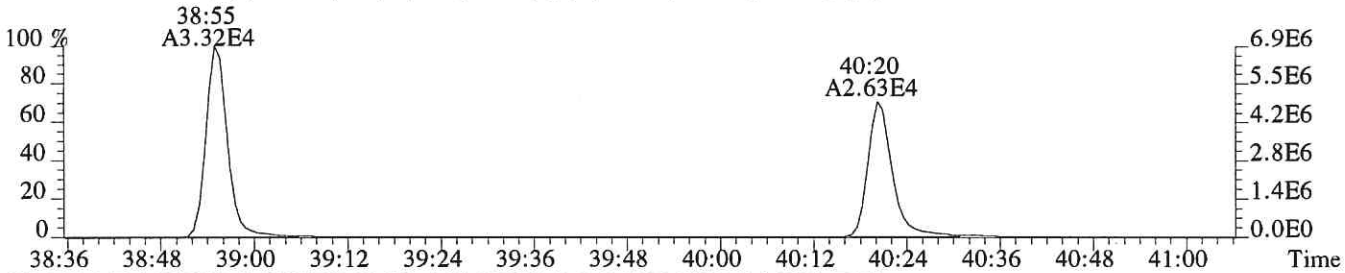
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



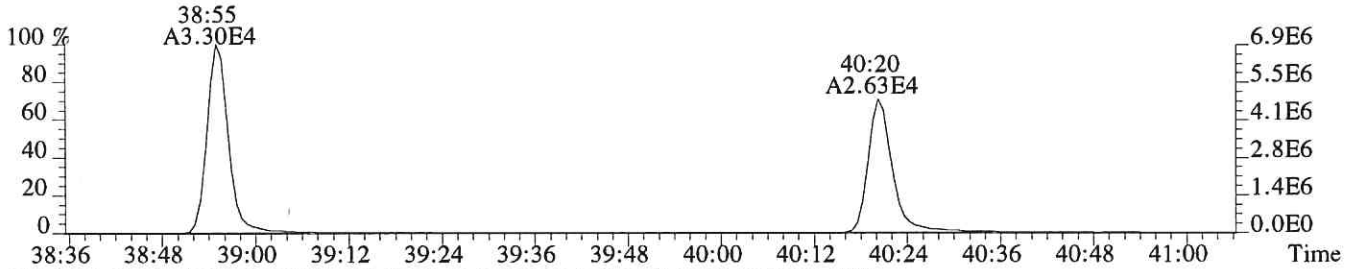
RIGHT SOLUTIONS | RIGHT PARTNER

File:P619496 #1-227 Acq:17-OCT-2019 11:18:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

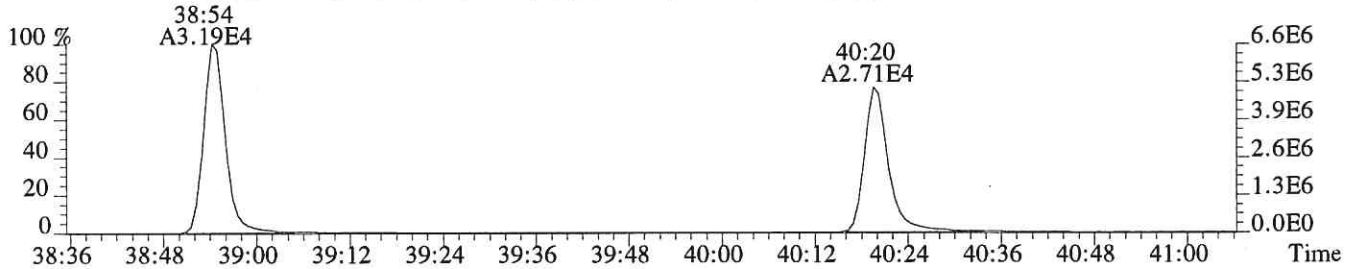
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2920.0,0.50%,F,T)



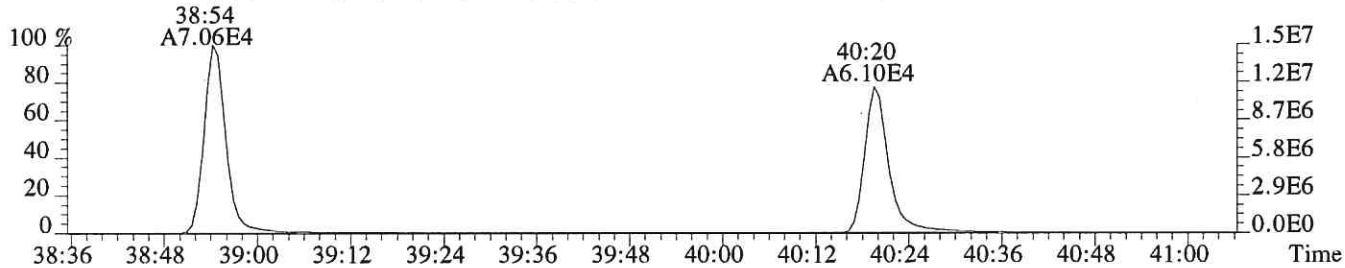
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1300.0,0.50%,F,T)



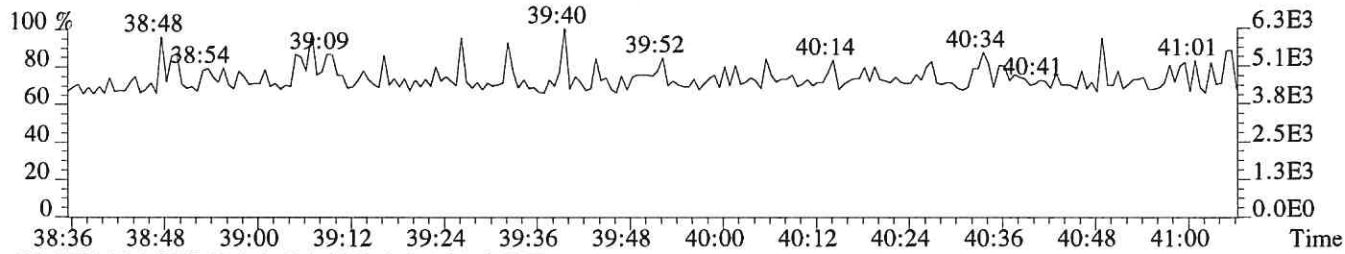
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2264.0,0.50%,F,T)



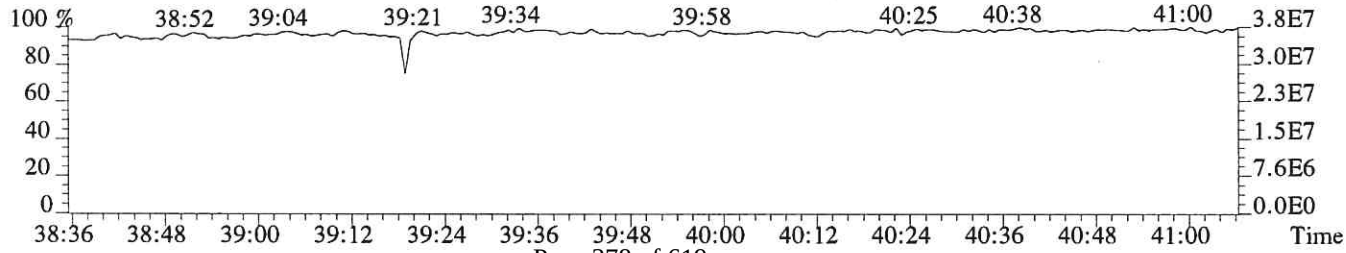
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2276.0,0.50%,F,T)



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

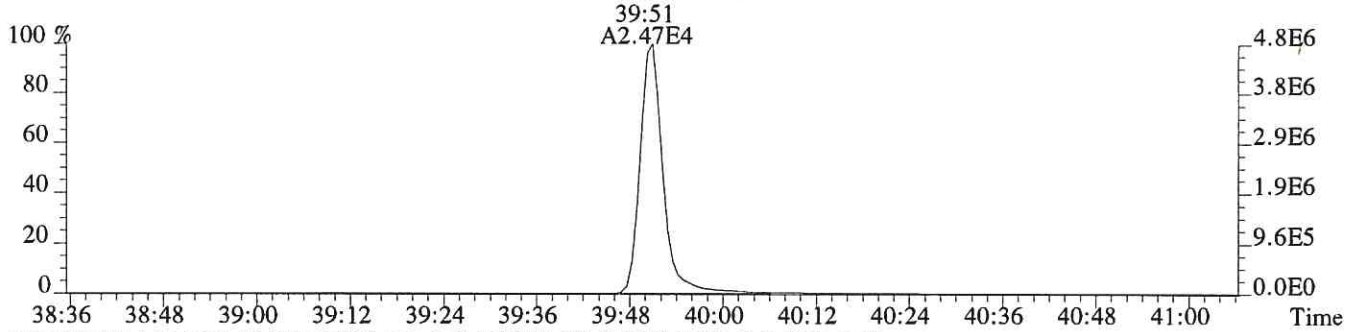


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

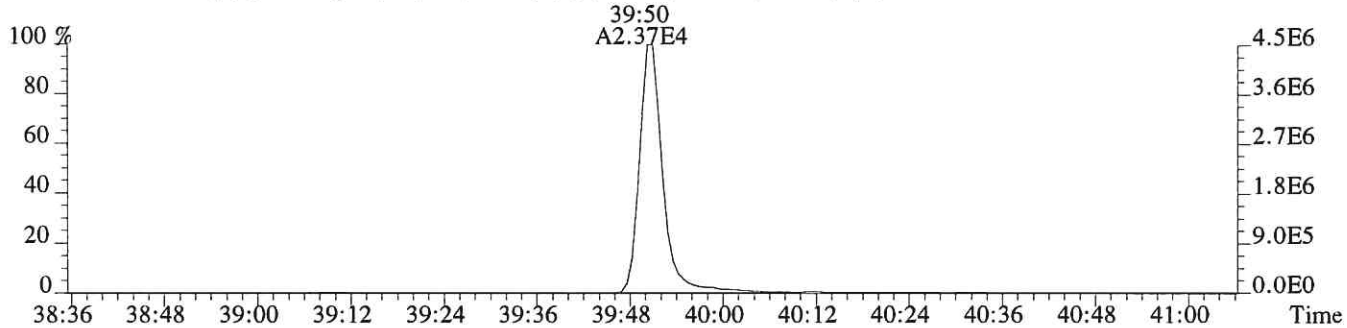


RIGHT SOLUTIONS | RIGHT PARTNER

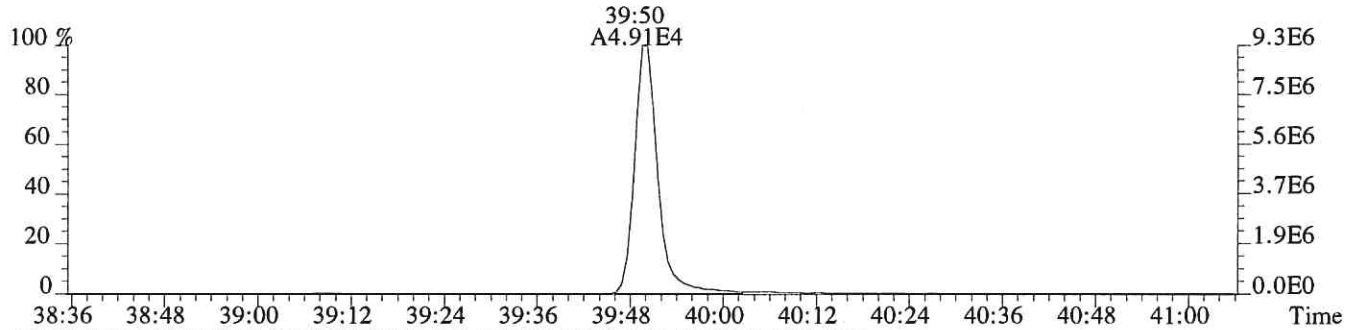
File:P619496 #1-227 Acq:17-OCT-2019 11:18:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,684.0,0.40%,F,T)



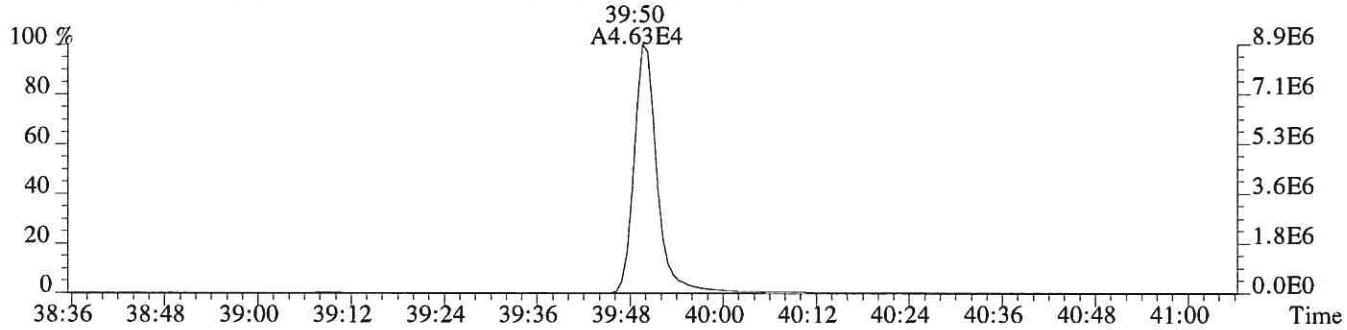
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1180.0,0.40%,F,T)



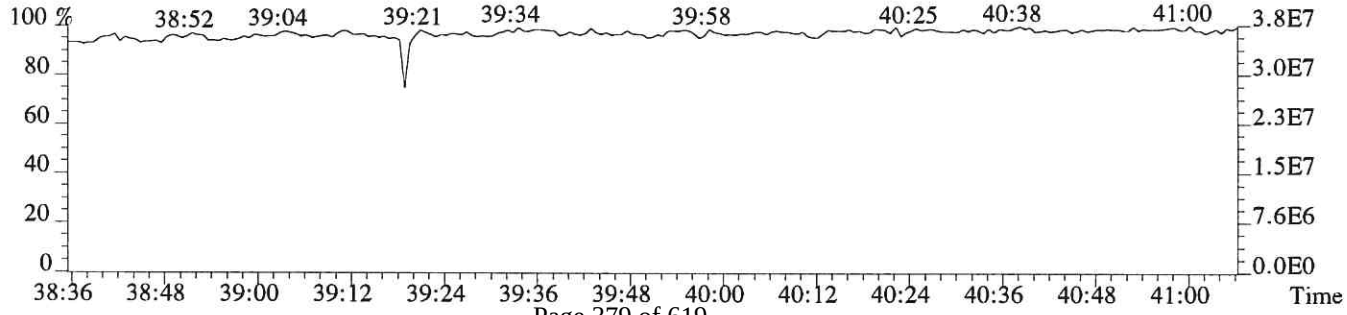
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1208.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,520.0,0.40%,F,T)



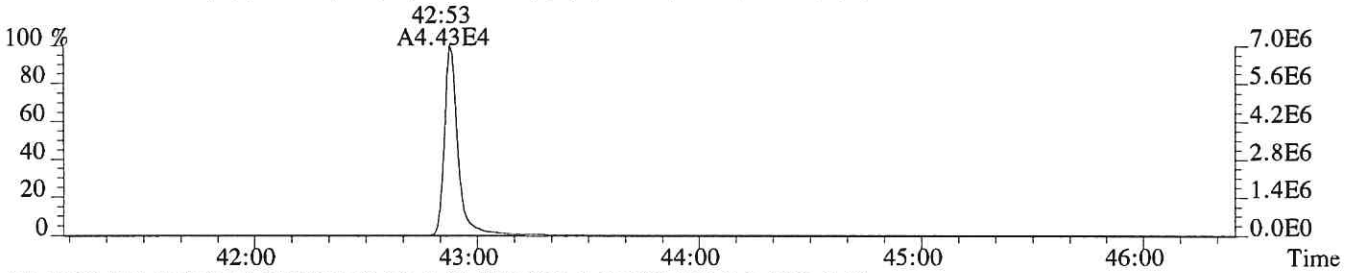
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



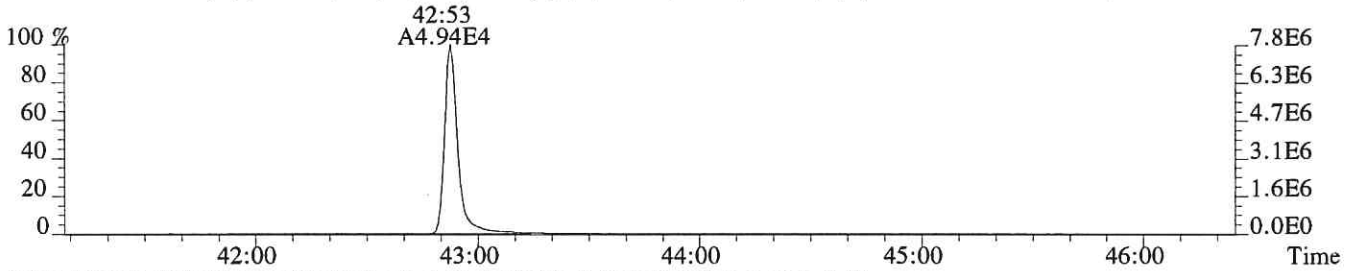
RIGHT SOLUTIONS | RIGHT PARTNER

File:P619496 #1-475 Acq:17-OCT-2019 11:18:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

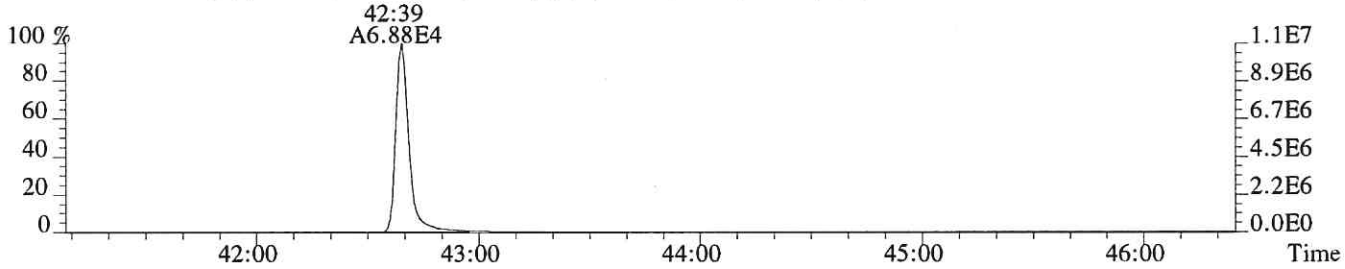
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,452.0,0.40%,F,T)



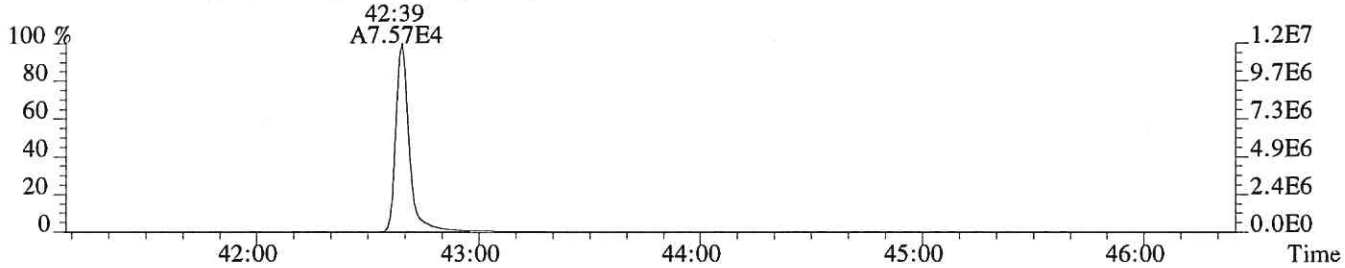
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,580.0,0.40%,F,T)



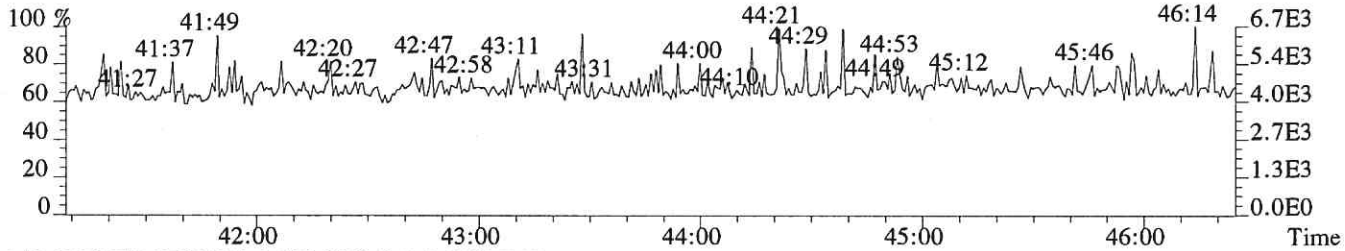
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,828.0,0.40%,F,T)



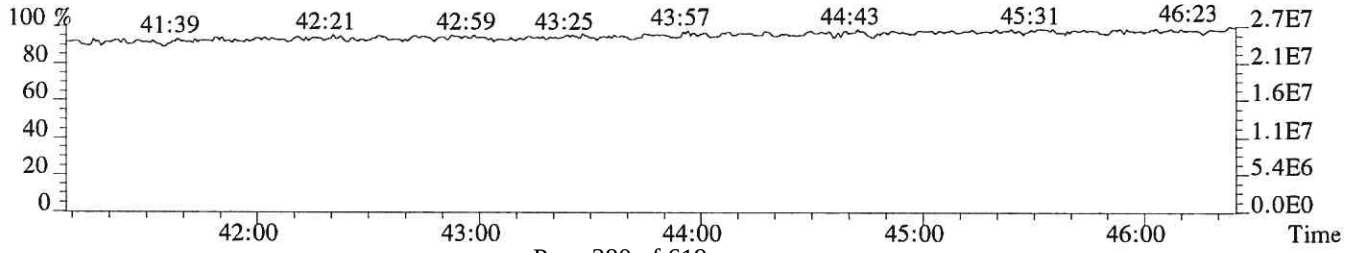
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,528.0,0.40%,F,T)



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



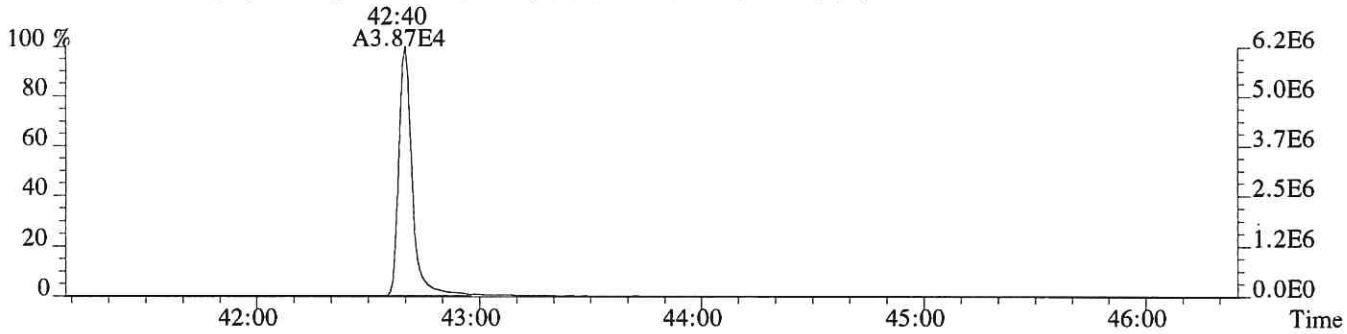
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



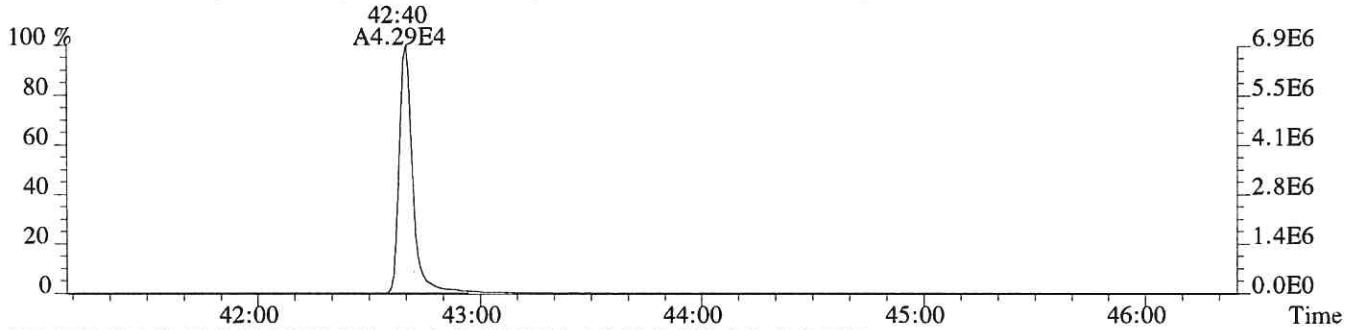
RIGHT SOLUTIONS | RIGHT PARTNER

File:P619496 #1-475 Acq:17-OCT-2019 11:18:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

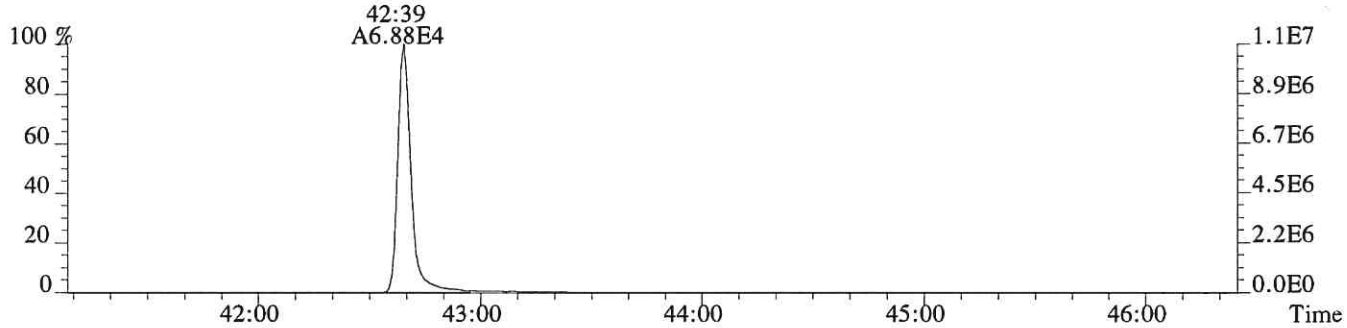
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,388.0,0.40%,F,T)



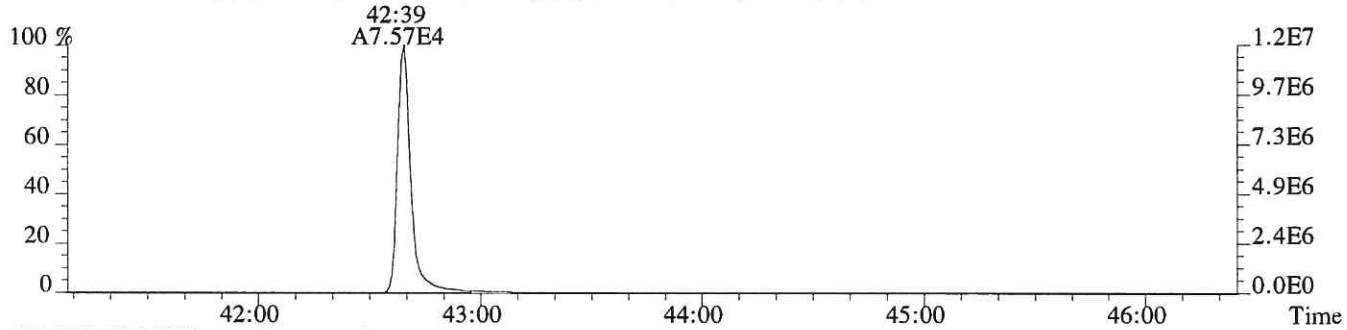
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,568.0,0.40%,F,T)



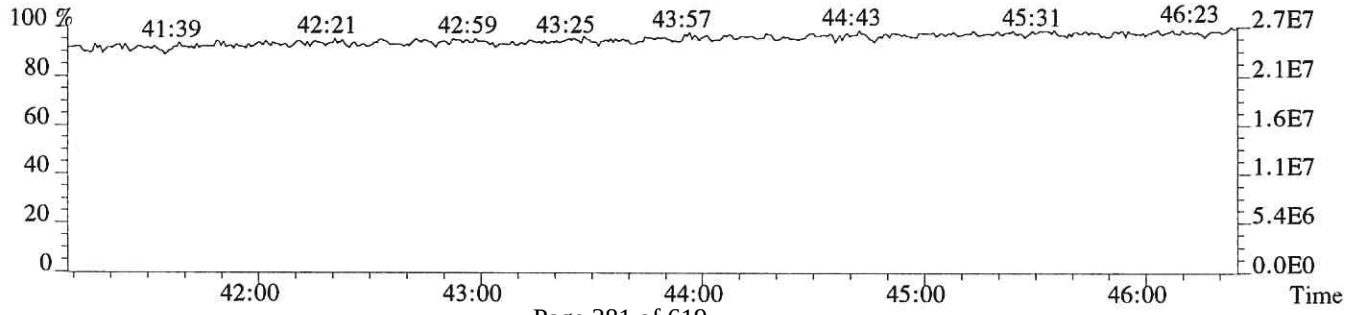
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,828.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,528.0,0.40%,F,T)



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



RIGHT SOLUTIONS | RIGHT PARTNER

USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 10/04/19

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

VER Data Filename: P619507 Analysis Date: 17-OCT-19 Time: 22:05:01

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	9.7	7.8 - 12.9	-2.8
1,2,3,7,8-PeCDD	M+2/M+4	1.57	1.32-1.78	49	39 - 65	-2.1
1,2,3,4,7,8-HxCDD	M+2/M+4	1.35	1.05-1.43	48	39 - 64	-3.2
1,2,3,6,7,8-HxCDD	M+2/M+4	1.20	1.05-1.43	48	39 - 64	-3.3
1,2,3,7,8,9-HxCDD	M+2/M+4	1.22	1.05-1.43	50	41 - 61	0.6
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	49	43 - 58	-2.9
OCDD	M+2/M+4	0.89	0.76-1.02	98	79 - 126	-2.4
2,3,7,8-TCDF	M/M+2	0.77	0.65-0.89	9.3	8.4 - 12.0	-7.1
1,2,3,7,8-PeCDF	M+2/M+4	1.55	1.32-1.78	49	41 - 60	-2.7
2,3,4,7,8-PeCDF	M+2/M+4	1.51	1.32-1.78	47	41 - 61	-6.0
1,2,3,4,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	48	45 - 56	-4.2
1,2,3,6,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	50	44 - 57	-0.6
1,2,3,7,8,9-HxCDF	M+2/M+4	1.24	1.05-1.43	49	45 - 56	-1.7
2,3,4,6,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	48	44 - 57	-3.3
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.02	0.88-1.20	49	45 - 55	-1.5
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.02	0.88-1.20	48	43 - 58	-3.2
OCDF	M+2/M+4	0.91	0.76-1.02	96	63 - 159	-4.4

(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

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USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 10/04/19

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

VER Data Filename: P619507 Analysis Date: 17-OCT-19 Time: 22:05:01

	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	97	82 - 121	-2.8
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.57	1.32-1.78	77	62 - 160	-23.4
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.33	1.05-1.43	95	85 - 117	-4.9
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.20	1.05-1.43	102	85 - 118	1.7
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.07	0.88-1.20	106	72 - 138	5.9
13C-OCDD	M+2/M+4	0.91	0.76-1.02	207	96 - 415	3.4
13C-2,3,7,8-TCDF	M/M+2	0.80	0.65-0.89	100	71 - 140	0.3
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	81	76 - 130	-19.0
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	78	77 - 130	-22.3
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	95	76 - 131	-4.6
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	96	70 - 143	-4.2
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	98	74 - 135	-2.0
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	95	73 - 137	-5.3
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	104	78 - 129	4.1
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.44	0.37-0.51	103	77 - 129	3.4
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD	M+2/M+4			9.6	7.8 - 12.7	-3.5

(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) 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

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ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
203606

Run #8 Filename P619507 Samp: 1 Inj: 1 Acquired: 17-OCT-19 22:05:01
Processed: 18-OCT-19 13:39:38 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:51	5.839e+03	7.544e+03	0.77	yes	no	1.017
2	Unk	1,2,3,7,8-PeCDF	32:52	4.183e+04	2.708e+04	1.55	yes	no	1.021
3	Unk	2,3,4,7,8-PeCDF	33:46	3.755e+04	2.487e+04	1.51	yes	no	0.983
4	Unk	1,2,3,4,7,8-HxCDF	36:21	3.307e+04	2.705e+04	1.22	yes	no	1.229
5	Unk	1,2,3,6,7,8-HxCDF	36:28	3.590e+04	2.912e+04	1.23	yes	no	1.109
6	Unk	2,3,4,6,7,8-HxCDF	36:57	3.294e+04	2.638e+04	1.25	yes	no	1.125
7	Unk	1,2,3,7,8,9-HxCDF	37:42	3.264e+04	2.627e+04	1.24	yes	no	1.143
8	Unk	1,2,3,4,6,7,8-HpCDF	38:55	3.455e+04	3.372e+04	1.02	yes	no	1.323
9	Unk	1,2,3,4,7,8,9-HpCDF	40:20	2.861e+04	2.816e+04	1.02	yes	no	1.253
10	Unk	OCDF	42:53	4.968e+04	5.465e+04	0.91	yes	no	1.373
11	Unk	2,3,7,8-TCDD	29:35	4.136e+03	5.627e+03	0.73	yes	no	1.012
12	Unk	1,2,3,7,8-PeCDD	34:02	2.736e+04	1.743e+04	1.57	yes	no	0.993
13	Unk	1,2,3,4,7,8-HxCDD	37:05	2.463e+04	1.824e+04	1.35	yes	no	1.082
14	Unk	1,2,3,6,7,8-HxCDD	37:09	2.459e+04	2.051e+04	1.20	yes	no	1.083
15	Unk	1,2,3,7,8,9-HxCDD	37:23	2.720e+04	2.236e+04	1.22	yes	no	1.174
16	Unk	1,2,3,4,6,7,8-HpCDD	39:50	2.599e+04	2.485e+04	1.05	yes	no	1.053
17	Unk	OCDD	42:40	4.235e+04	4.771e+04	0.89	yes	no	1.160
18	IS	13C-2,3,7,8-TCDF	28:50	6.292e+04	7.868e+04	0.80	yes	no	1.341
19	IS	13C-1,2,3,7,8-PeCDF	32:52	8.506e+04	5.377e+04	1.58	yes	no	1.627
20	IS	13C-2,3,4,7,8-PeCDF	33:45	8.312e+04	5.201e+04	1.60	yes	no	1.651
21	IS	13C-1,2,3,4,7,8-HxCDF	36:21	3.494e+04	6.717e+04	0.52	yes	no	1.137
22	IS	13C-1,2,3,6,7,8-HxCDF	36:27	4.078e+04	7.716e+04	0.53	yes	no	1.307
23	IS	13C-2,3,4,6,7,8-HxCDF	36:57	3.715e+04	7.184e+04	0.52	yes	no	1.222
24	IS	13C-1,2,3,7,8,9-HxCDF	37:41	3.617e+04	6.873e+04	0.53	yes	no	1.137
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:54	3.249e+04	7.227e+04	0.45	yes	no	1.069
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:20	2.859e+04	6.505e+04	0.44	yes	no	0.961
27	IS	13C-2,3,7,8-TCDD	29:34	4.337e+04	5.589e+04	0.78	yes	no	0.970
28	IS	13C-1,2,3,7,8-PeCDD	34:01	5.627e+04	3.582e+04	1.57	yes	no	1.142
29	IS	13C-1,2,3,4,7,8-HxCDD	37:04	4.678e+04	3.506e+04	1.33	yes	no	0.914
30	IS	13C-1,2,3,6,7,8-HxCDD	37:09	4.689e+04	3.922e+04	1.20	yes	no	0.899
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:50	5.131e+04	4.811e+04	1.07	yes	no	0.997
32	IS	13C-OCDD	42:39	7.591e+04	8.312e+04	0.91	yes	no	0.817
33	RS/RT	13C-1,2,3,4-TCDD	29:01	4.649e+04	5.882e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:23	5.261e+04	4.155e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:35	1.021e+04				no	1.005

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
203606

Run #8 Filename P619507 Samp: 1 Inj: 1 Acquired: 17-OCT-19 22:05:01
Processed: 18-OCT-19 13:39:38 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	1.04e+06	4.44e+02	2.3e+03	1.36e+06	5.28e+02	2.6e+03
2	1,2,3,7,8-PeCDF	7.60e+06	4.84e+02	1.6e+04	5.02e+06	1.74e+03	2.9e+03
3	2,3,4,7,8-PeCDF	7.36e+06	4.84e+02	1.5e+04	4.91e+06	1.74e+03	2.8e+03
4	1,2,3,4,7,8-HxCDF	7.32e+06	3.88e+02	1.9e+04	6.00e+06	4.48e+02	1.3e+04
5	1,2,3,6,7,8-HxCDF	7.36e+06	3.88e+02	1.9e+04	6.00e+06	4.48e+02	1.3e+04
6	2,3,4,6,7,8-HxCDF	7.00e+06	3.88e+02	1.8e+04	5.61e+06	4.48e+02	1.3e+04
7	1,2,3,7,8,9-HxCDF	6.69e+06	3.88e+02	1.7e+04	5.32e+06	4.48e+02	1.2e+04
8	1,2,3,4,6,7,8-HpCDF	7.45e+06	1.19e+03	6.3e+03	7.32e+06	3.00e+03	2.4e+03
9	1,2,3,4,7,8,9-HpCDF	5.47e+06	1.19e+03	4.6e+03	5.38e+06	3.00e+03	1.8e+03
10	OCDF	8.13e+06	4.36e+02	1.9e+04	8.91e+06	7.16e+02	1.2e+04
11	2,3,7,8-TCDD	8.01e+05	8.32e+02	9.6e+02	1.08e+06	4.76e+02	2.3e+03
12	1,2,3,7,8-PeCDD	5.44e+06	3.40e+02	1.6e+04	3.44e+06	6.92e+02	5.0e+03
13	1,2,3,4,7,8-HxCDD	5.47e+06	4.88e+02	1.1e+04	4.24e+06	6.16e+02	6.9e+03
14	1,2,3,6,7,8-HxCDD	5.36e+06	4.88e+02	1.1e+04	4.28e+06	6.16e+02	7.0e+03
15	1,2,3,7,8,9-HxCDD	5.72e+06	4.88e+02	1.2e+04	4.68e+06	6.16e+02	7.6e+03
16	1,2,3,4,6,7,8-HpCDD	5.19e+06	6.16e+02	8.4e+03	5.01e+06	8.88e+02	5.6e+03
17	OCDD	6.95e+06	6.00e+02	1.2e+04	7.77e+06	6.84e+02	1.1e+04
18	13C-2,3,7,8-TCDF	1.11e+07	3.35e+03	3.3e+03	1.38e+07	1.14e+03	1.2e+04
19	13C-1,2,3,7,8-PeCDF	1.56e+07	4.60e+02	3.4e+04	9.95e+06	7.16e+02	1.4e+04
20	13C-2,3,4,7,8-PeCDF	1.62e+07	4.60e+02	3.5e+04	1.00e+07	7.16e+02	1.4e+04
21	13C-1,2,3,4,7,8-HxCDF	7.80e+06	7.24e+02	1.1e+04	1.48e+07	8.44e+02	1.8e+04
22	13C-1,2,3,6,7,8-HxCDF	8.51e+06	7.24e+02	1.2e+04	1.60e+07	8.44e+02	1.9e+04
23	13C-2,3,4,6,7,8-HxCDF	7.97e+06	7.24e+02	1.1e+04	1.53e+07	8.44e+02	1.8e+04
24	13C-1,2,3,7,8,9-HxCDF	7.42e+06	7.24e+02	1.0e+04	1.40e+07	8.44e+02	1.7e+04
25	13C-1,2,3,4,6,7,8-HpCDF	6.95e+06	2.89e+03	2.4e+03	1.55e+07	3.96e+03	3.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	5.54e+06	2.89e+03	1.9e+03	1.24e+07	3.96e+03	3.1e+03
27	13C-2,3,7,8-TCDD	8.33e+06	2.52e+03	3.3e+03	1.07e+07	8.04e+02	1.3e+04
28	13C-1,2,3,7,8-PeCDD	1.06e+07	5.96e+02	1.8e+04	6.80e+06	6.00e+02	1.1e+04
29	13C-1,2,3,4,7,8-HxCDD	1.03e+07	2.71e+03	3.8e+03	8.11e+06	6.48e+02	1.3e+04
30	13C-1,2,3,6,7,8-HxCDD	1.01e+07	2.71e+03	3.7e+03	8.12e+06	6.48e+02	1.3e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.03e+07	8.44e+02	1.2e+04	9.63e+06	4.28e+02	2.3e+04
32	13C-OCDD	1.25e+07	6.12e+02	2.0e+04	1.37e+07	5.92e+02	2.3e+04
33	13C-1,2,3,4-TCDD	8.86e+06	2.52e+03	3.5e+03	1.12e+07	8.04e+02	1.4e+04
34	13C-1,2,3,7,8,9-HxCDD	1.12e+07	2.71e+03	4.1e+03	8.87e+06	6.48e+02	1.4e+04
35	37Cl-2,3,7,8-TCDD	1.96e+06	5.12e+02	3.8e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (8.320e{+}02 + 4.760e{+}02) \times 100}{(8.334e{+}06 + 1.069e{+}07) \times (\qquad\qquad) \times 1.012} =$$

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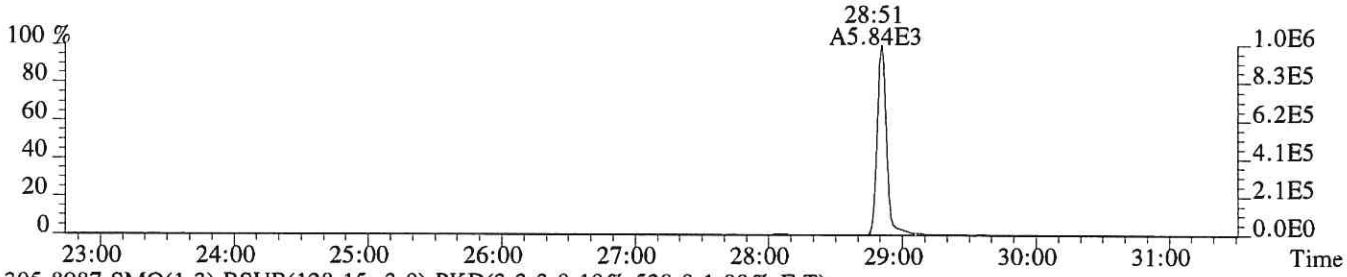
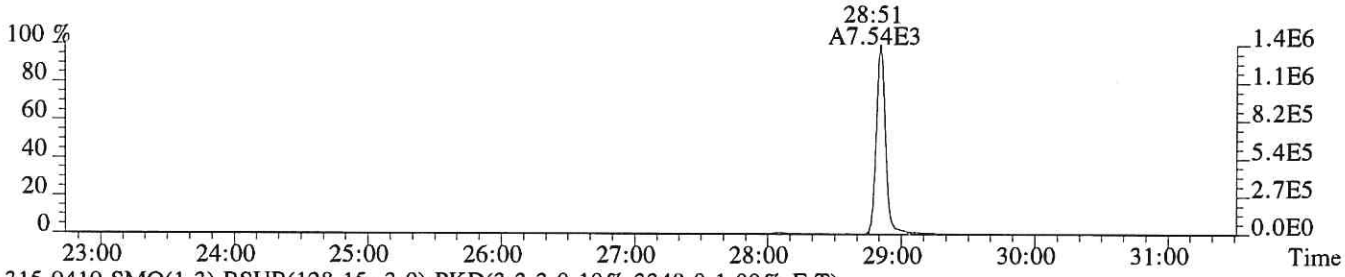
File:P619507 #1-623 Acq:17-OCT-2019 22:05:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

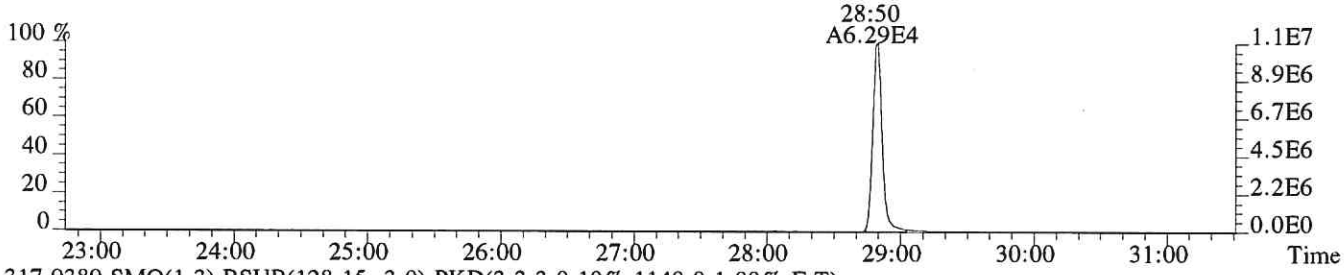
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,444.0,1.00%,F,T)



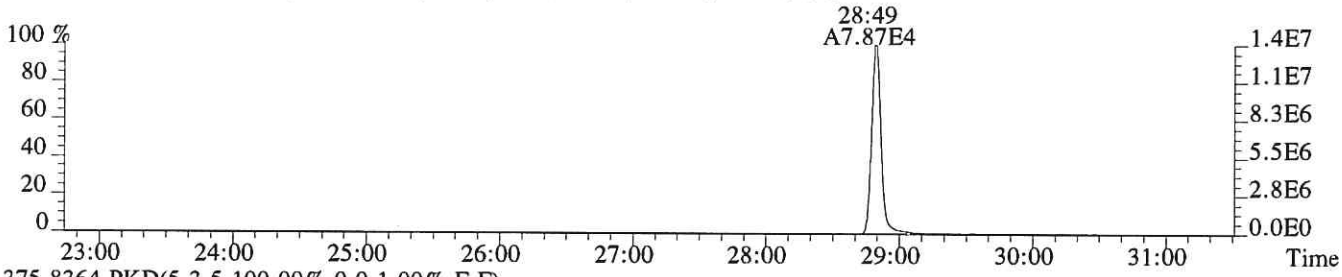
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,528.0,1.00%,F,T)



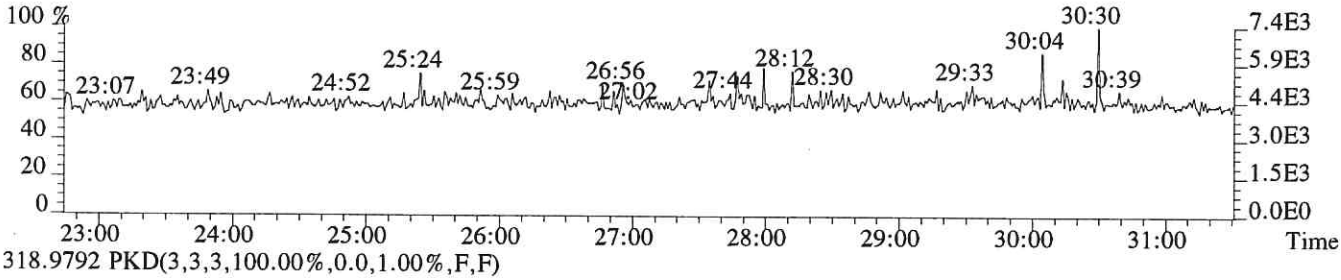
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3348.0,1.00%,F,T)



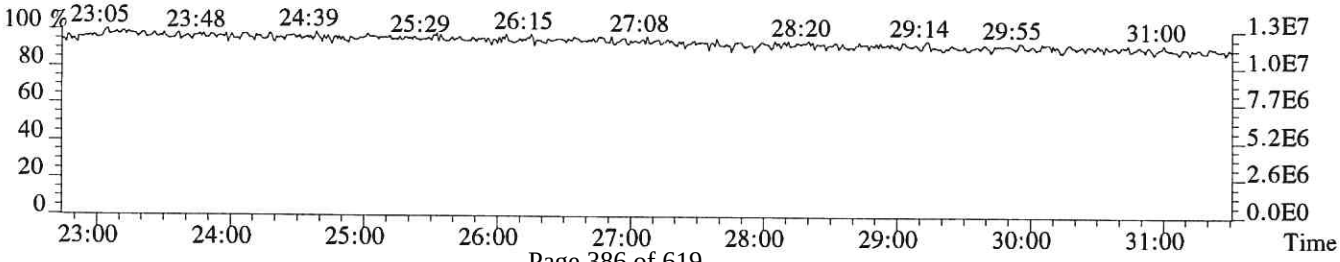
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1140.0,1.00%,F,T)



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)



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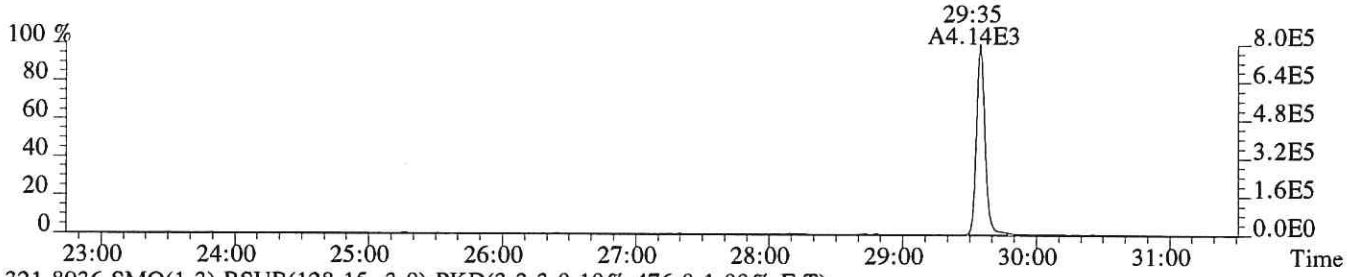
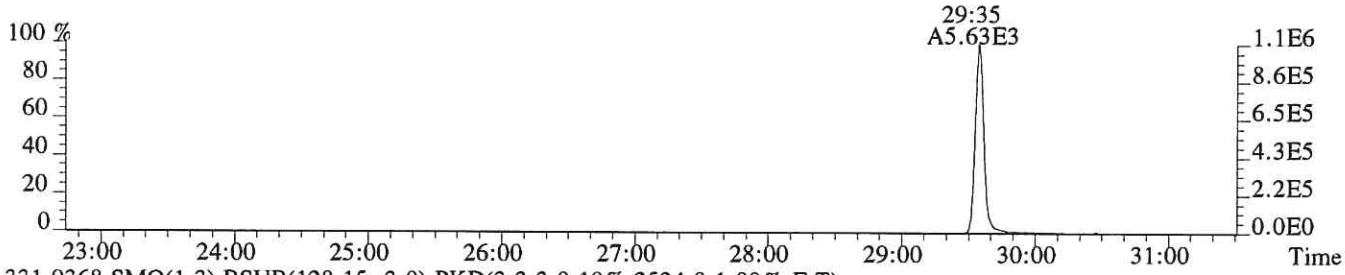
File:P619507 #1-623 Acq:17-OCT-2019 22:05:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

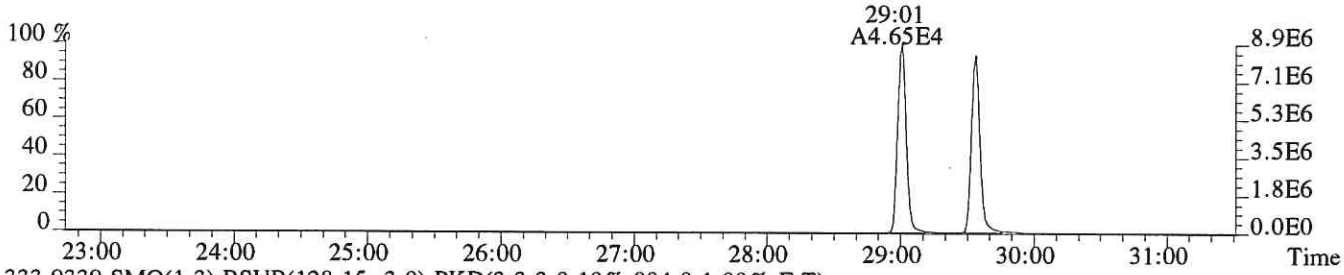
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,832.0,1.00%,F,T)



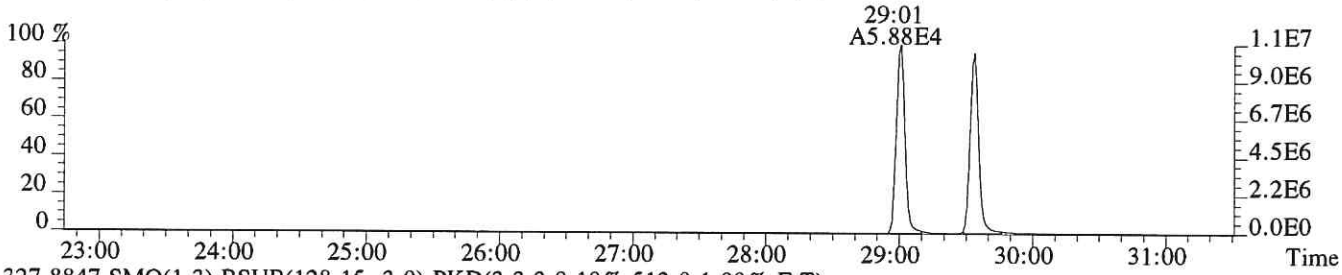
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,476.0,1.00%,F,T)



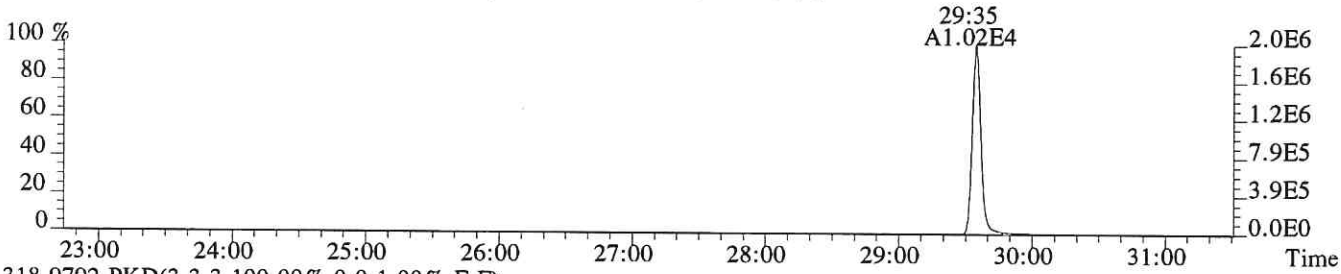
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2524.0,1.00%,F,T)



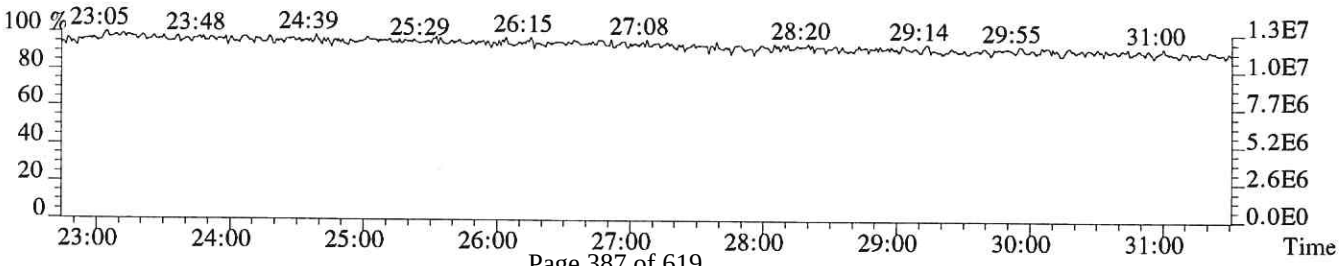
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,804.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,512.0,1.00%,F,T)



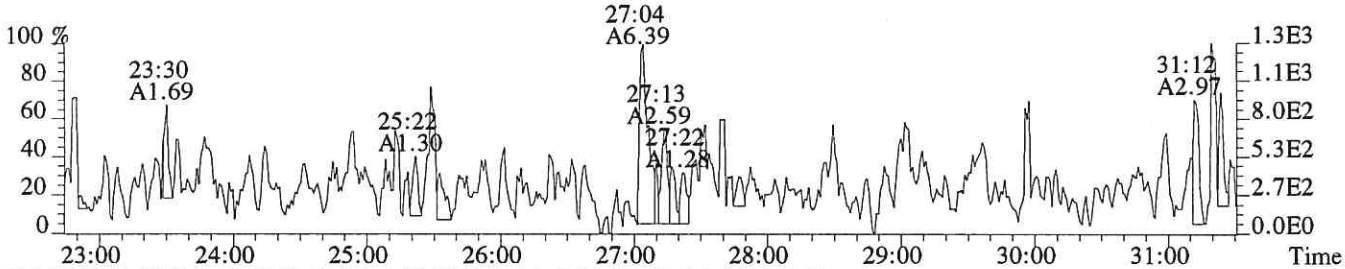
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



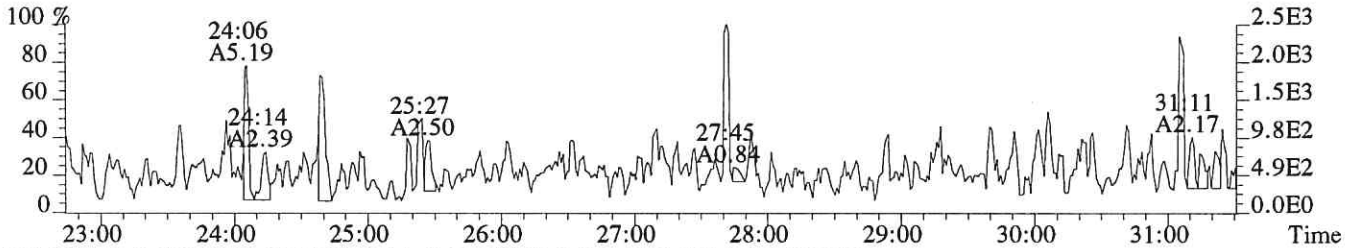
RIGHT SOLUTIONS | RIGHT PARTNER

File:P619507 #1-623 Acq:17-OCT-2019 22:05:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

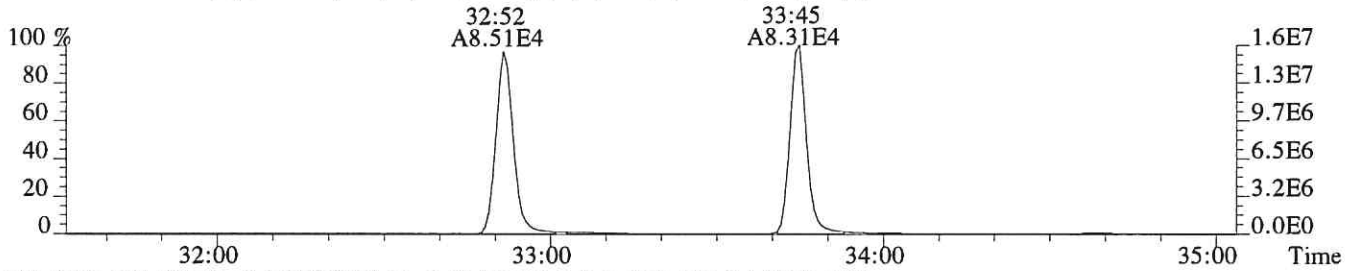
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,396.0,1.00%,F,T)



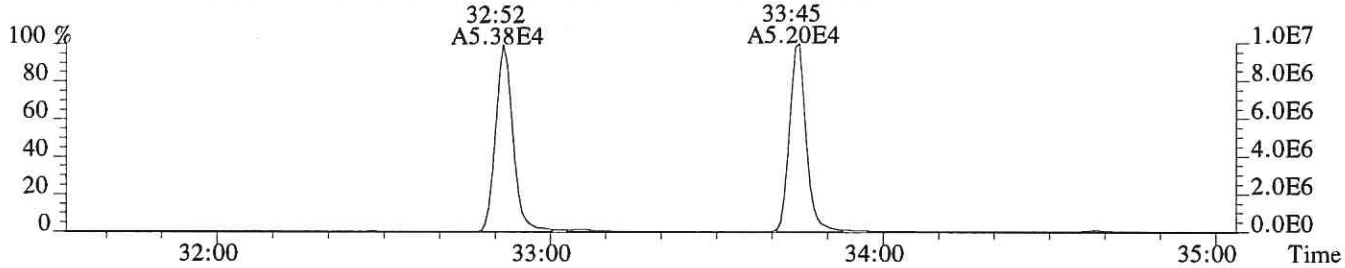
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,672.0,1.00%,F,T)



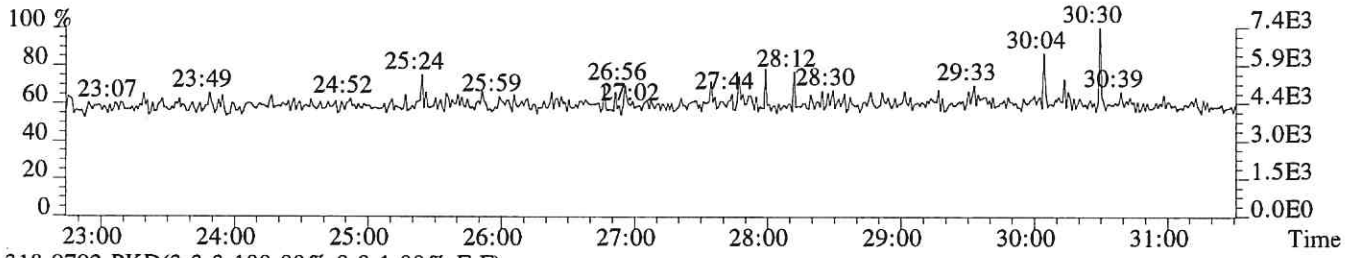
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,460.0,1.00%,F,T)



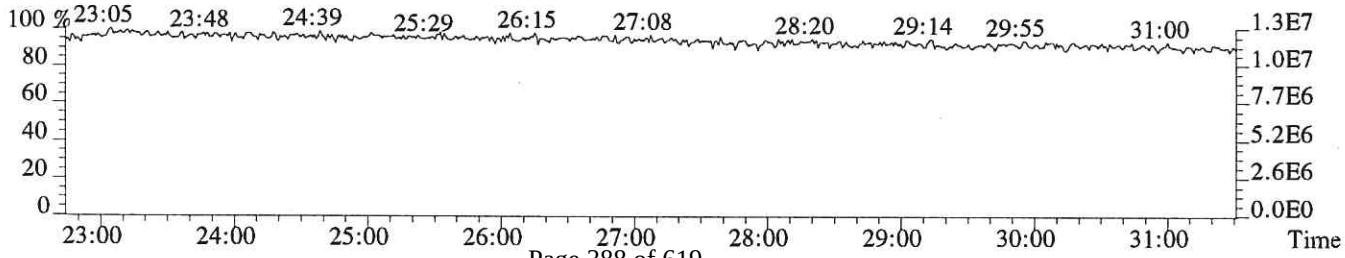
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,716.0,1.00%,F,T)



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



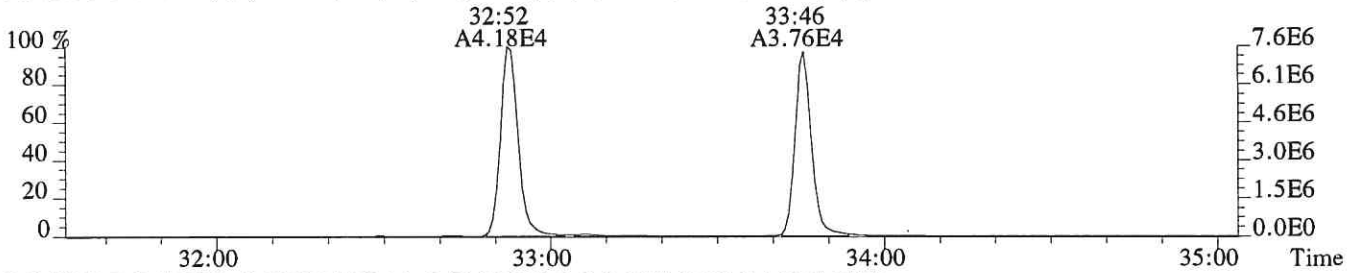
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



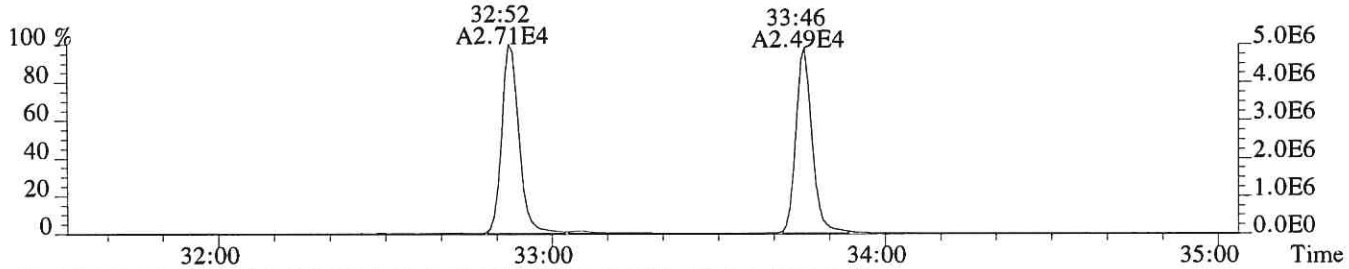
RIGHT SOLUTIONS | RIGHT PARTNER

File:P619507 #1-317 Acq:17-OCT-2019 22:05:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

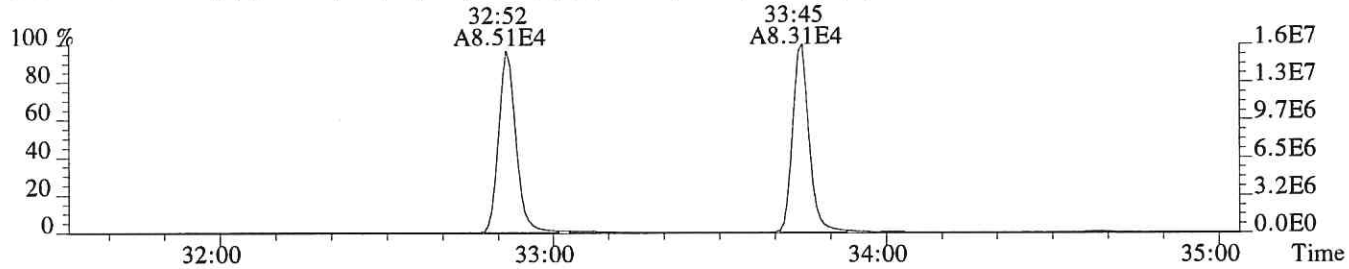
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,484.0,1.00%,F,T)



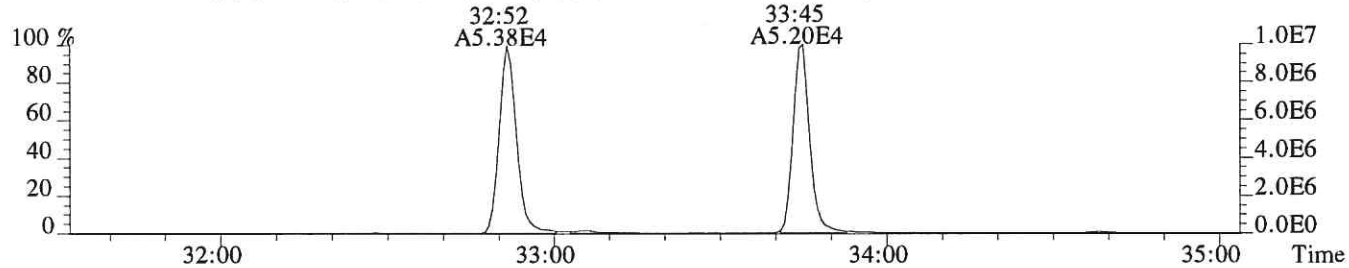
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1736.0,1.00%,F,T)



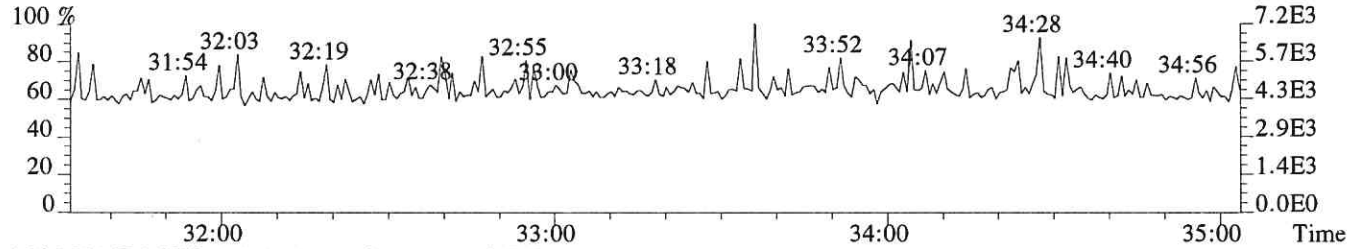
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,460.0,1.00%,F,T)



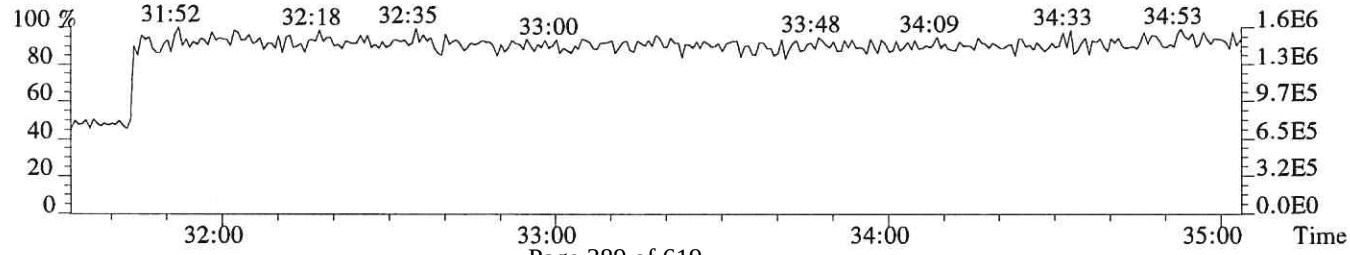
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,716.0,1.00%,F,T)



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



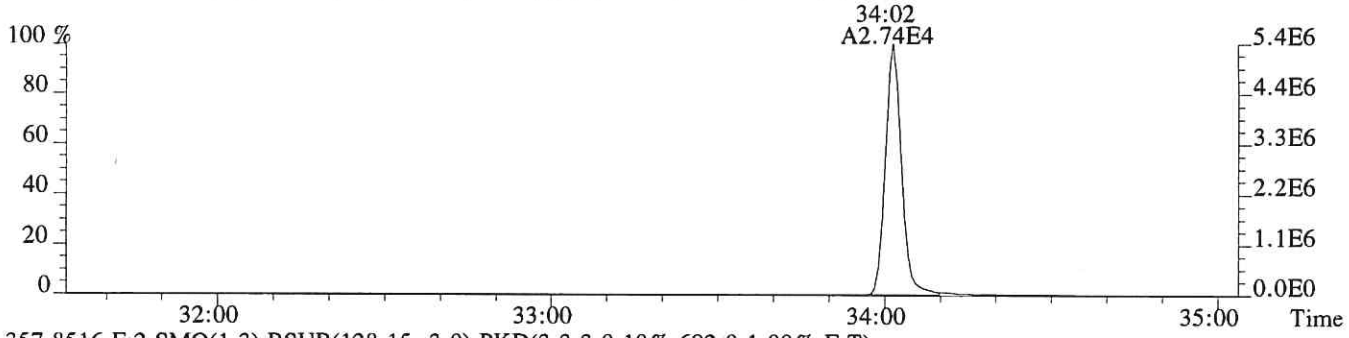
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



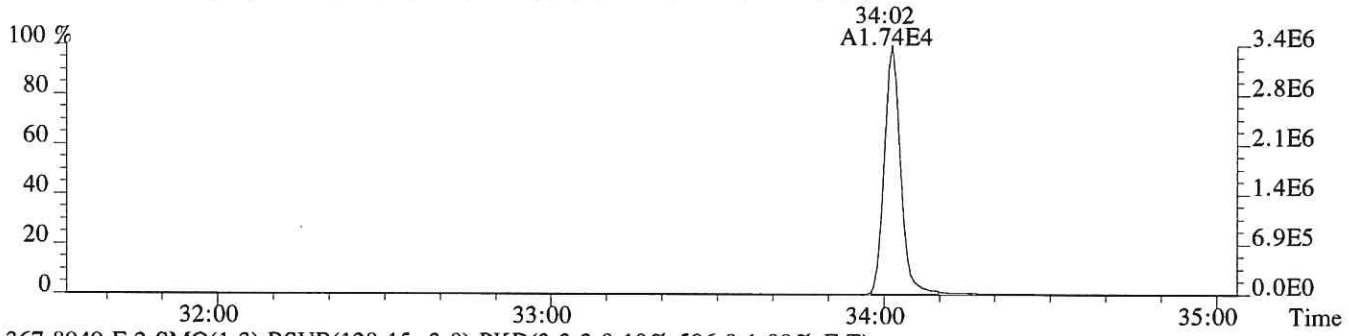
RIGHT SOLUTIONS | RIGHT PARTNER

File:P619507 #1-317 Acq:17-OCT-2019 22:05:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

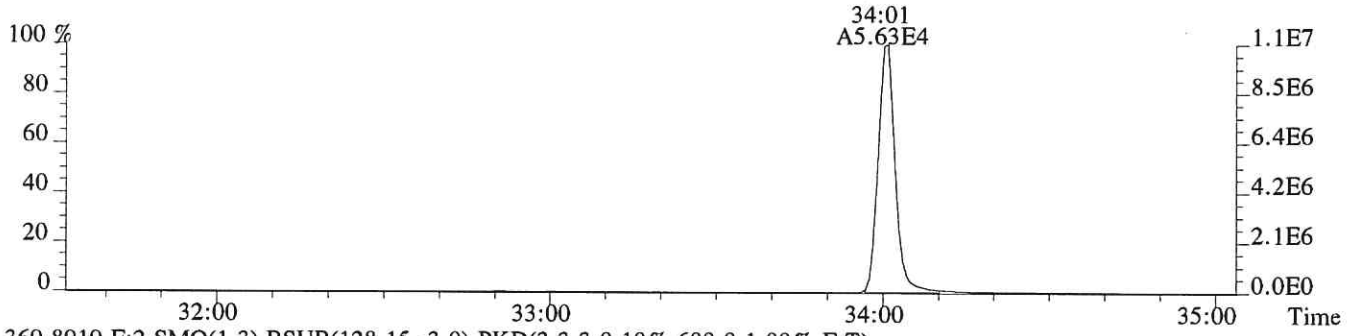
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,340.0,1.00%,F,T)



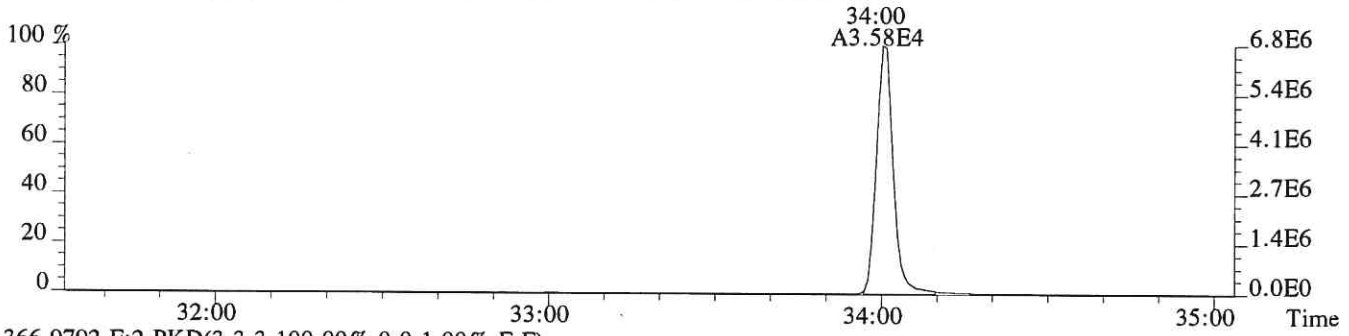
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,692.0,1.00%,F,T)



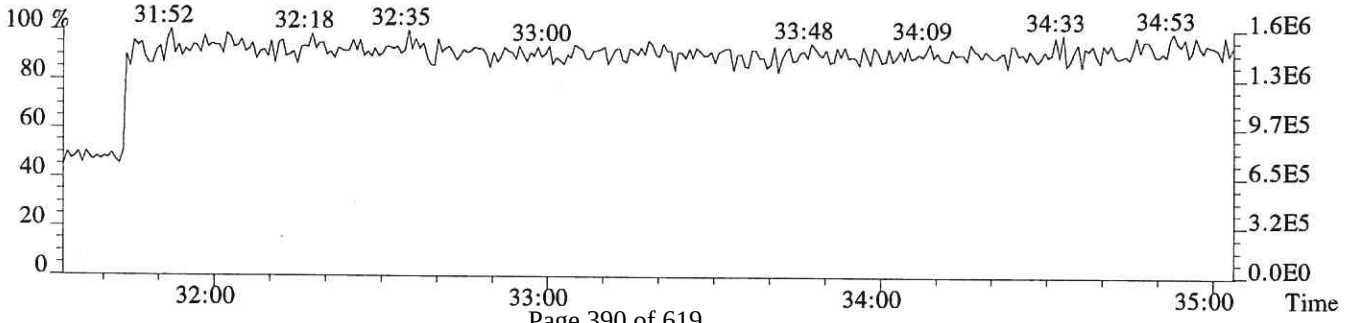
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,596.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,600.0,1.00%,F,T)



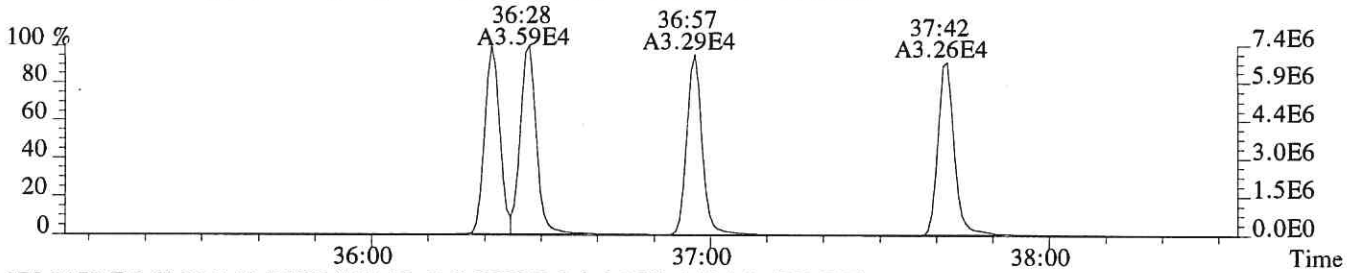
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



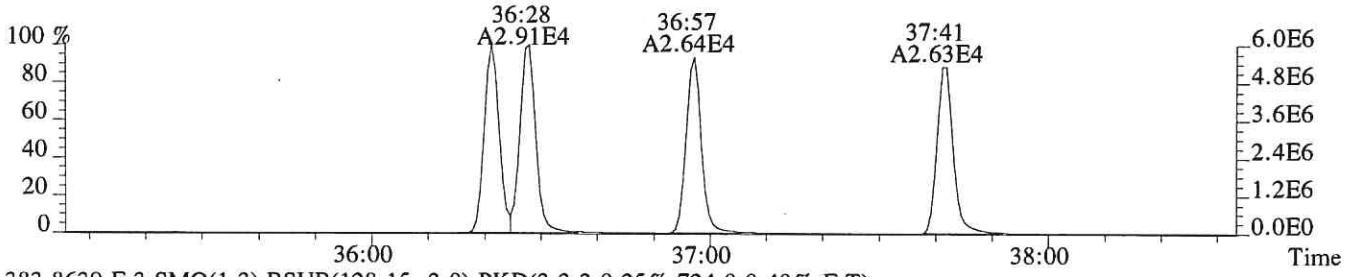
RIGHT SOLUTIONS | RIGHT PARTNER

File:P619507 #1-312 Acq:17-OCT-2019 22:05:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

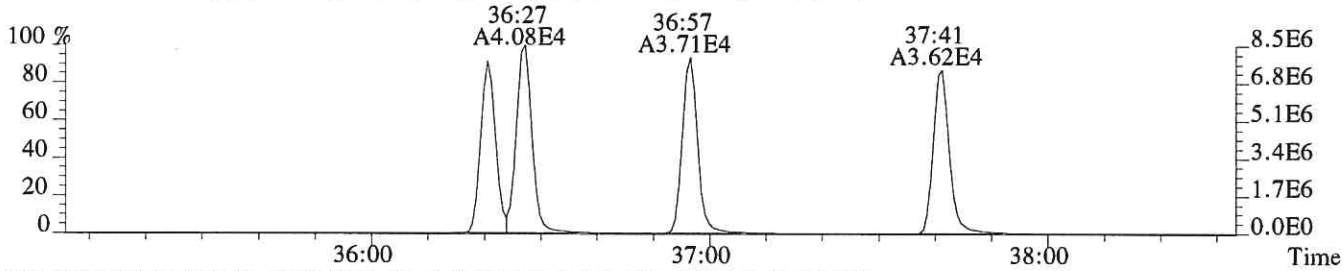
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,388.0,0.40%,F,T)



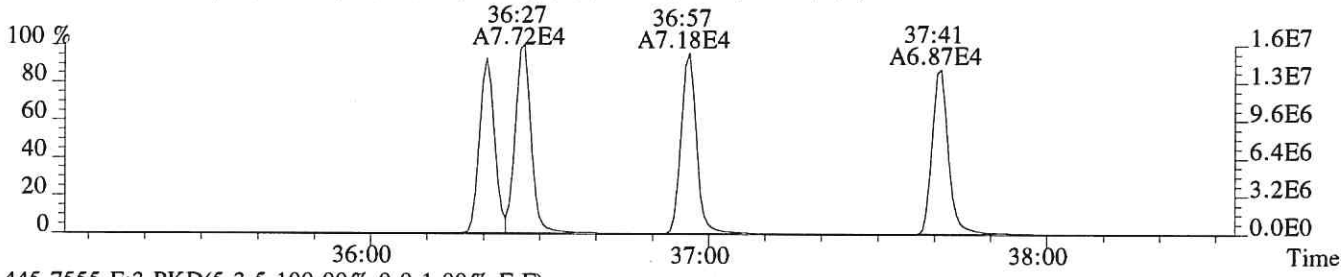
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,448.0,0.40%,F,T)



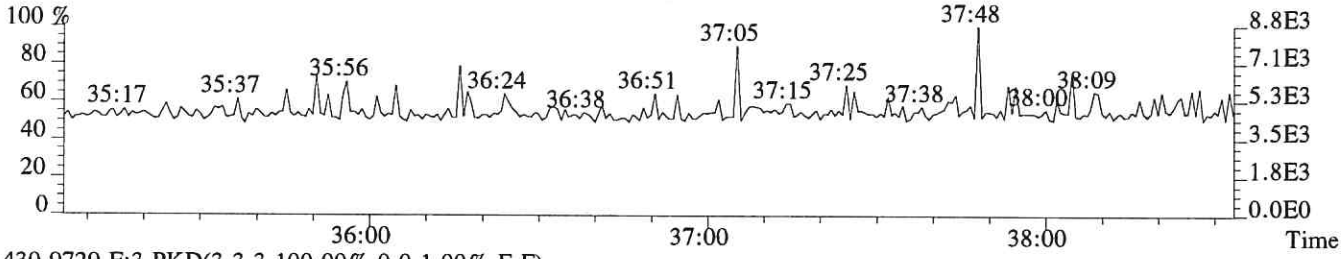
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,724.0,0.40%,F,T)



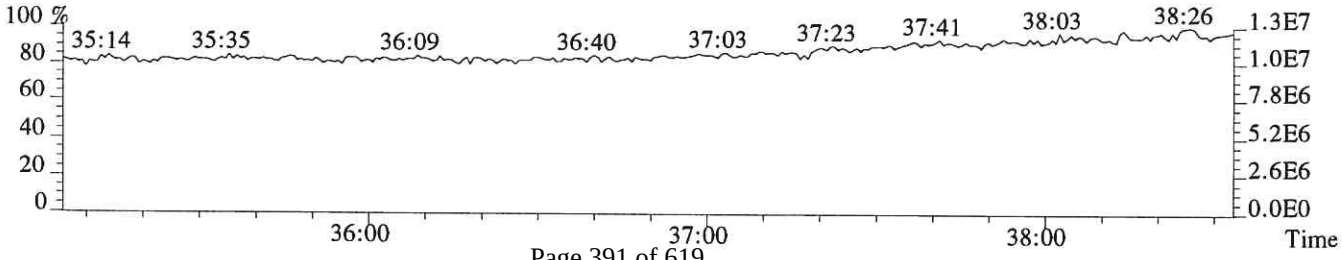
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,844.0,0.40%,F,T)



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



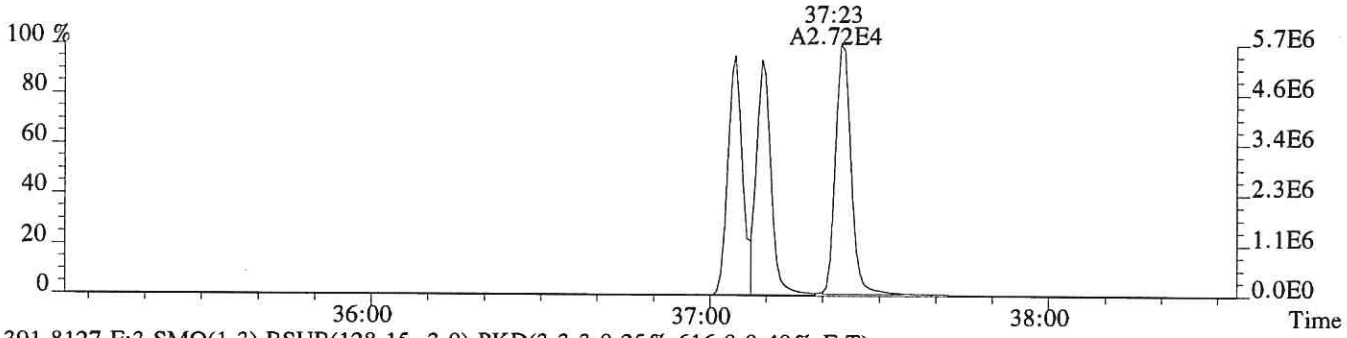
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



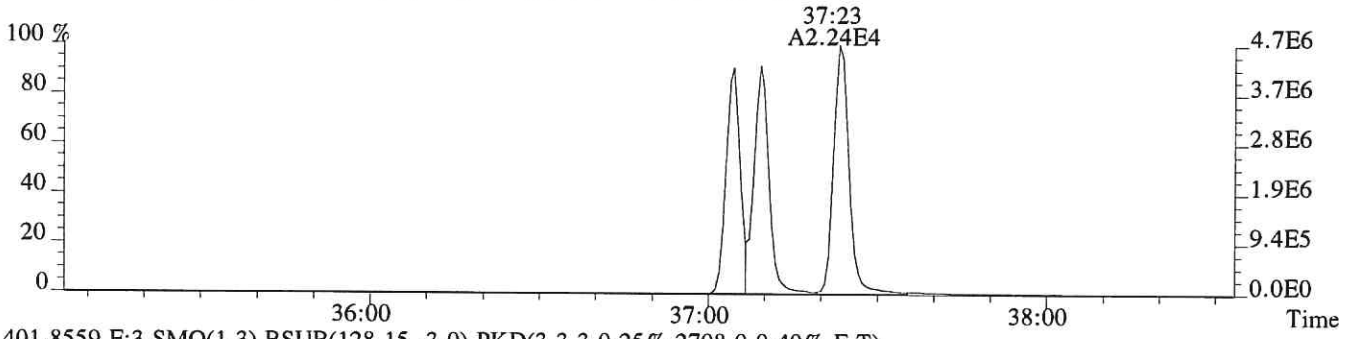
RIGHT SOLUTIONS | RIGHT PARTNER

File:P619507 #1-312 Acq:17-OCT-2019 22:05:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

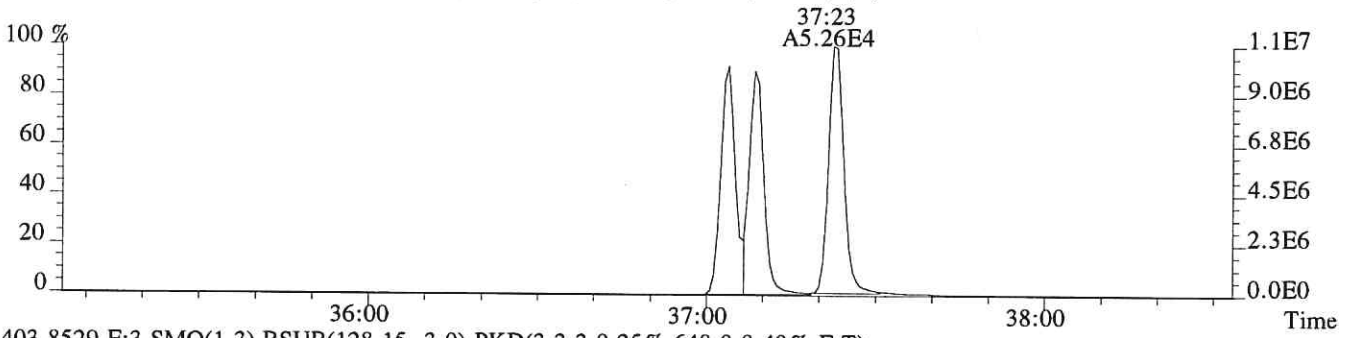
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,488.0,0.40%,F,T)



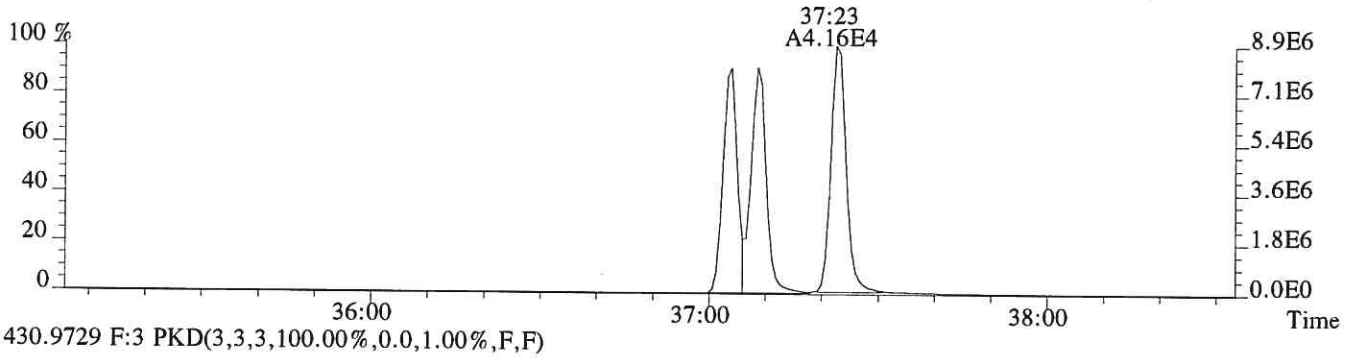
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,616.0,0.40%,F,T)



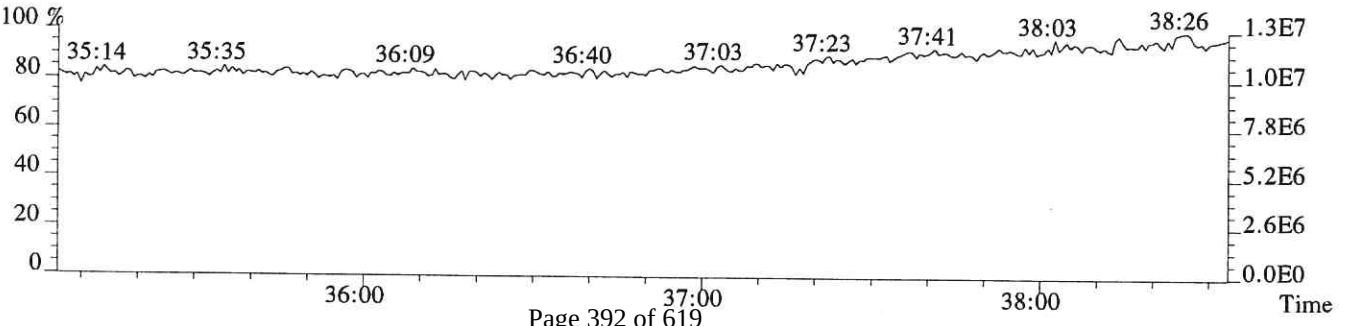
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2708.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,648.0,0.40%,F,T)



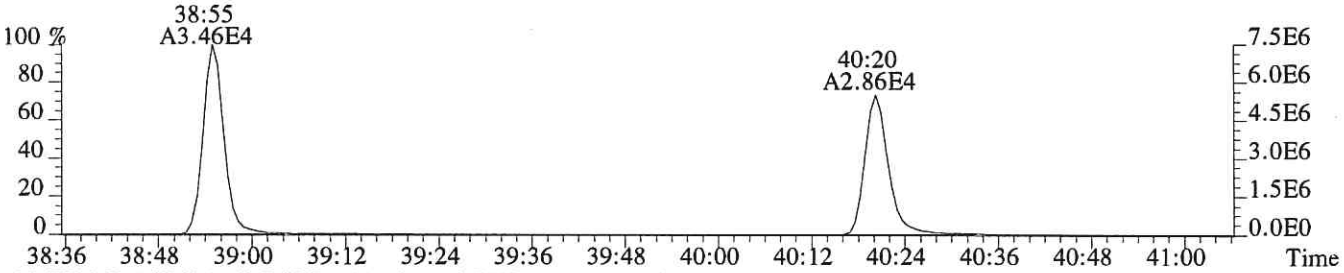
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



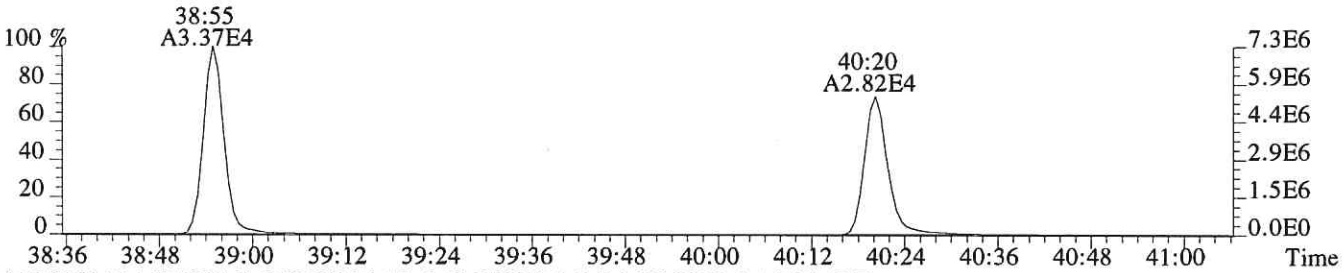
RIGHT SOLUTIONS | RIGHT PARTNER

File:P619507 #1-227 Acq:17-OCT-2019 22:05:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

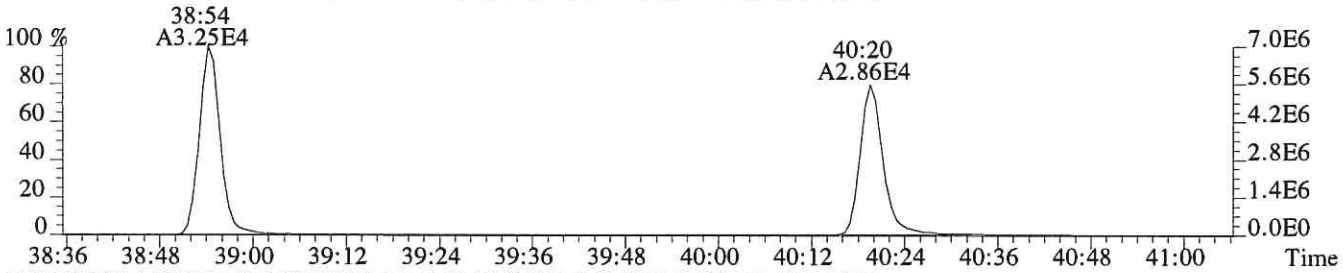
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1192.0,0.50%,F,T)



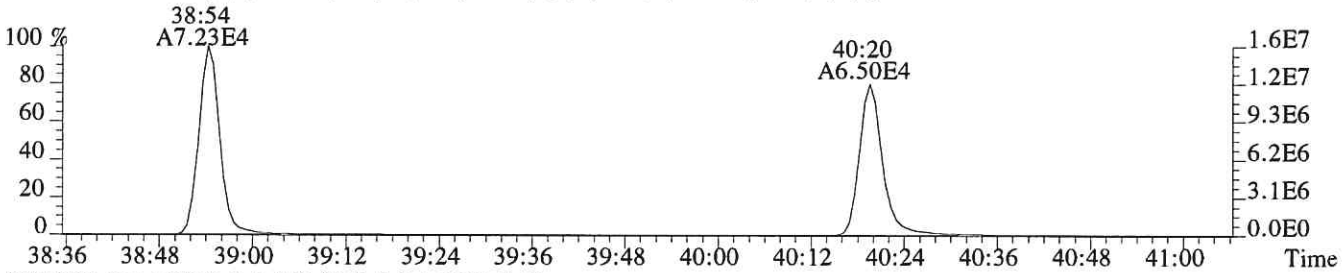
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2996.0,0.50%,F,T)



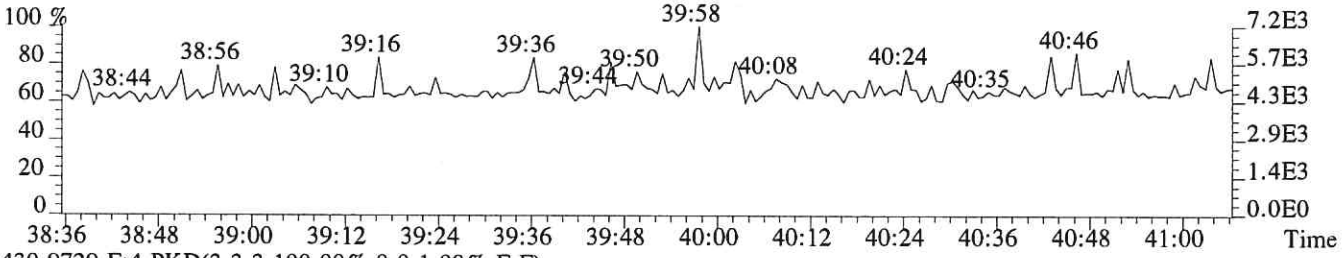
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2892.0,0.50%,F,T)



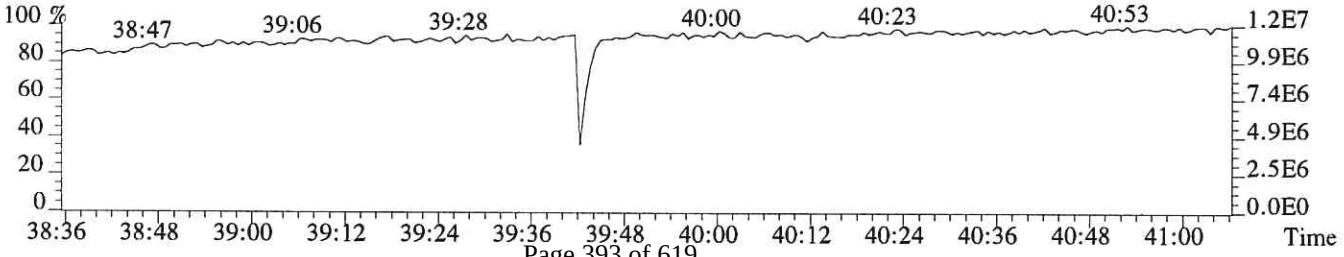
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3964.0,0.50%,F,T)



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

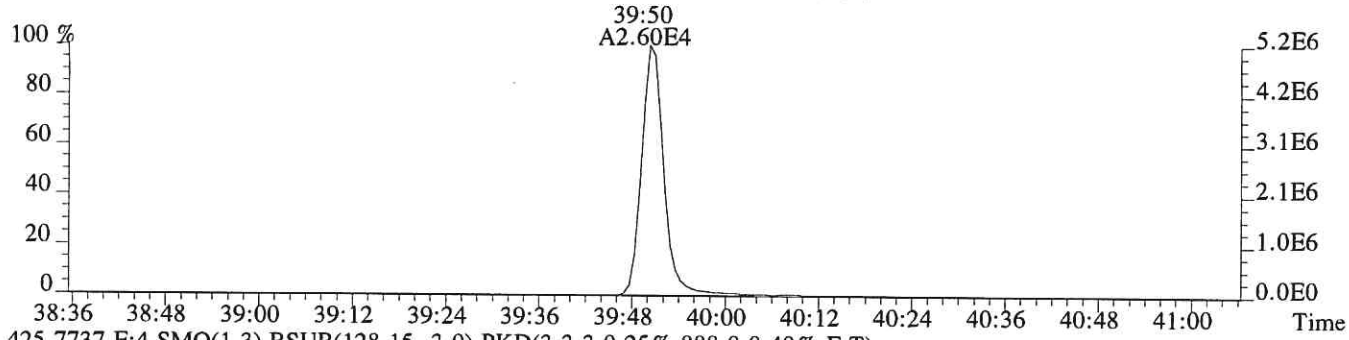


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

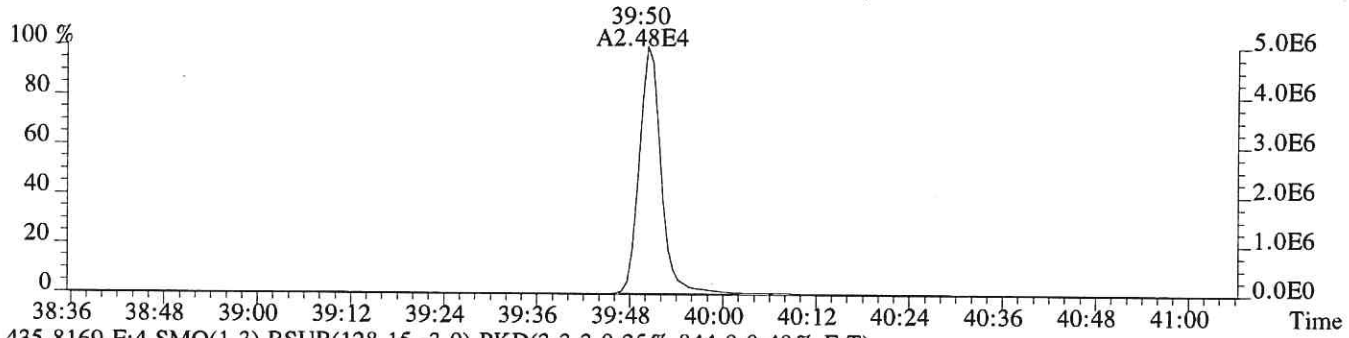


RIGHT SOLUTIONS | RIGHT PARTNER

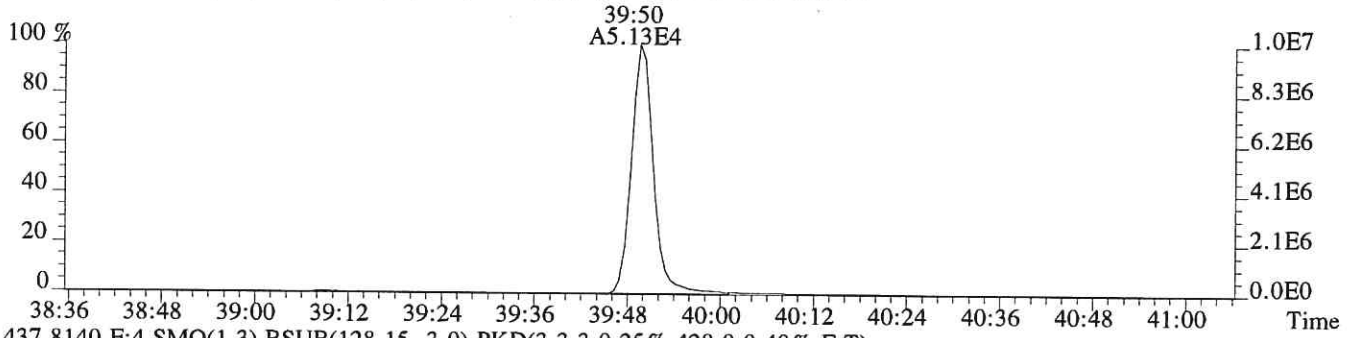
File:P619507 #1-227 Acq:17-OCT-2019 22:05:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,616.0,0.40%,F,T)



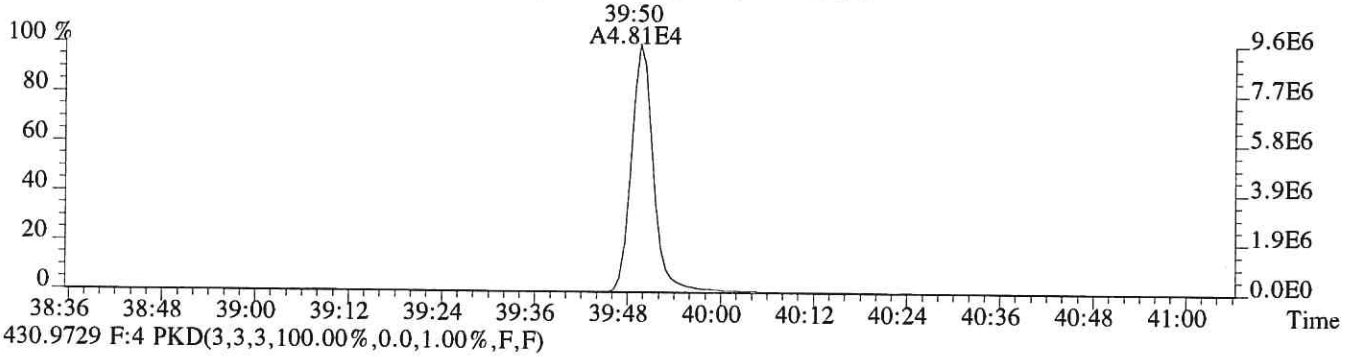
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,888.0,0.40%,F,T)



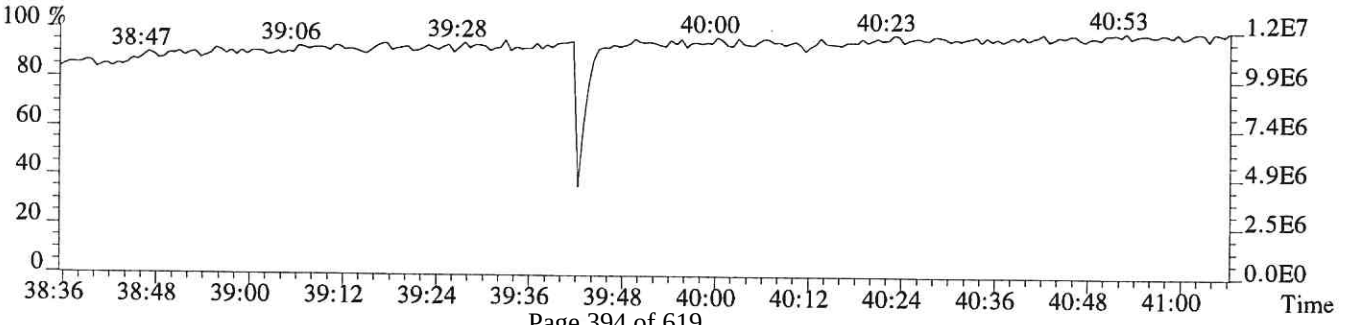
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,844.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,428.0,0.40%,F,T)



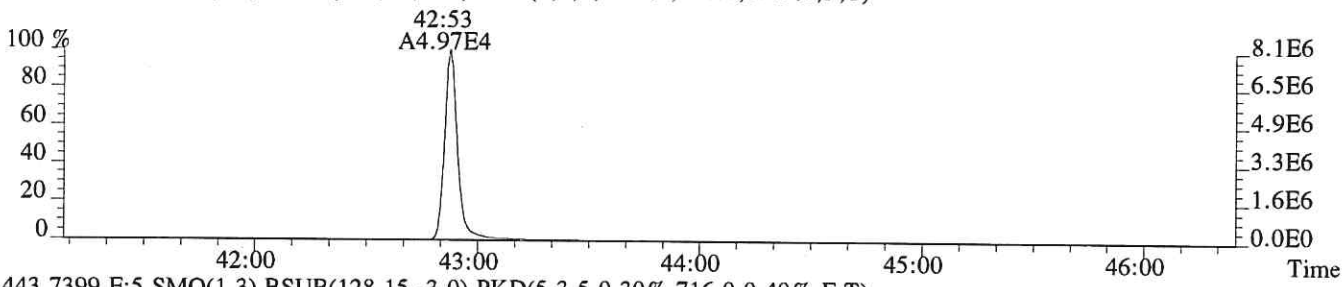
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



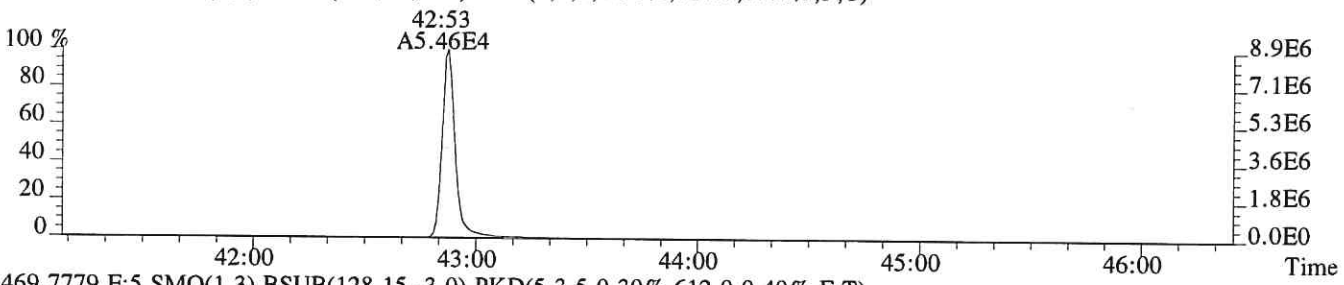
RIGHT SOLUTIONS | RIGHT PARTNER

File:P619507 #1-475 Acq:17-OCT-2019 22:05:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

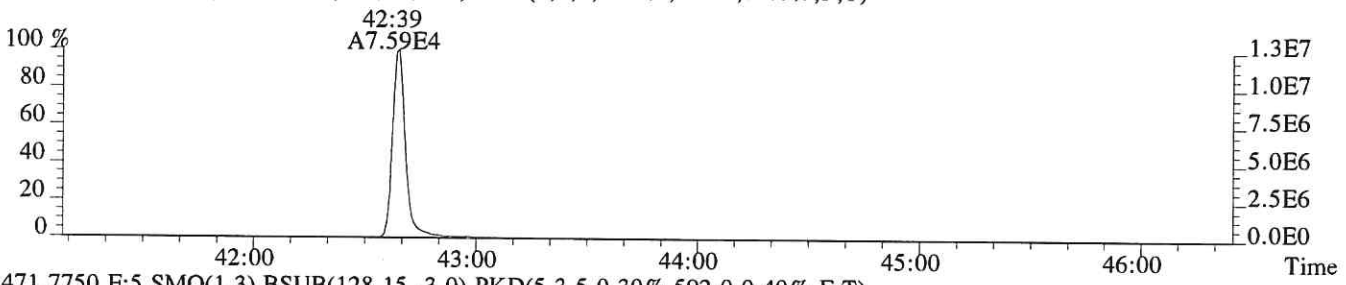
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,436.0,0.40%,F,T)



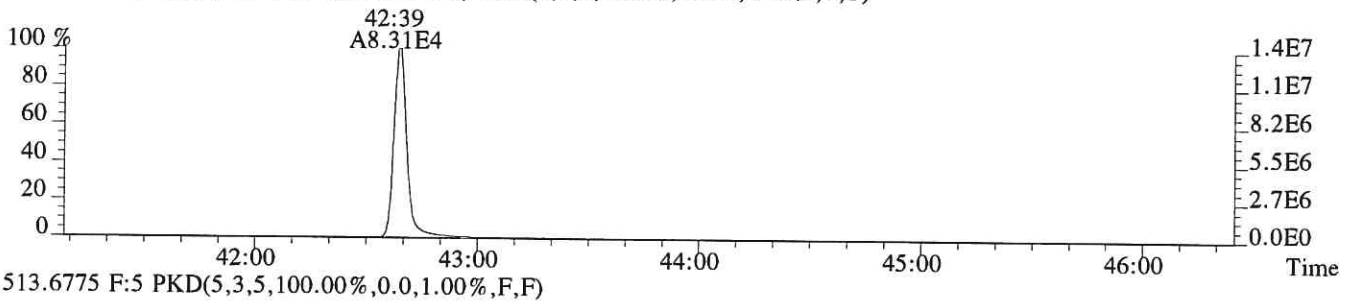
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,716.0,0.40%,F,T)



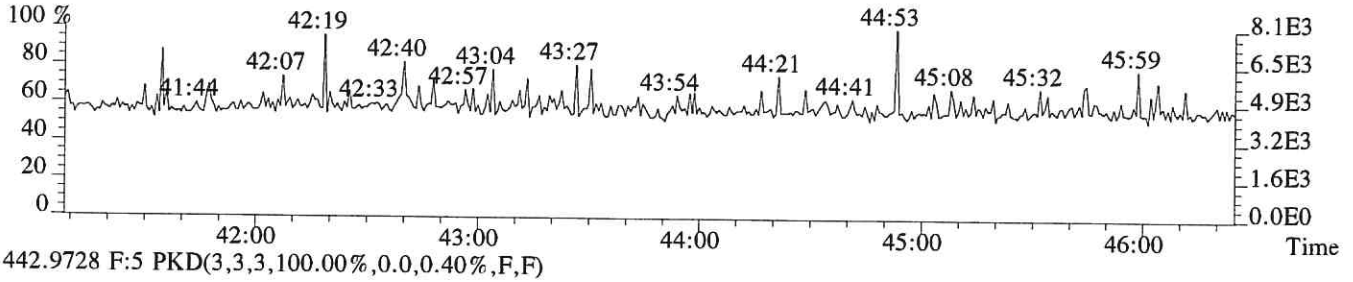
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,612.0,0.40%,F,T)



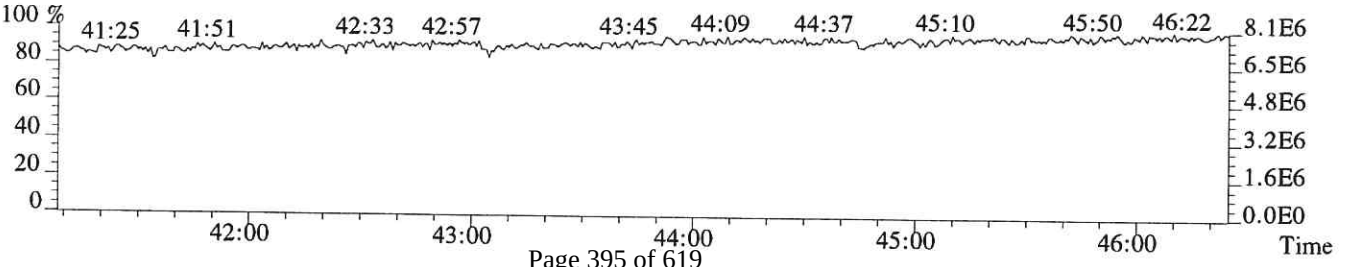
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,592.0,0.40%,F,T)



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)



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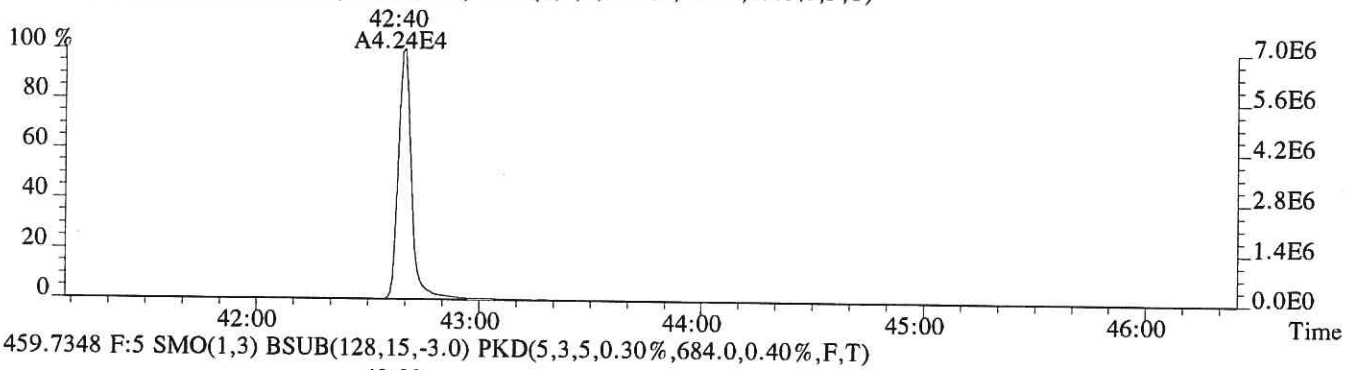
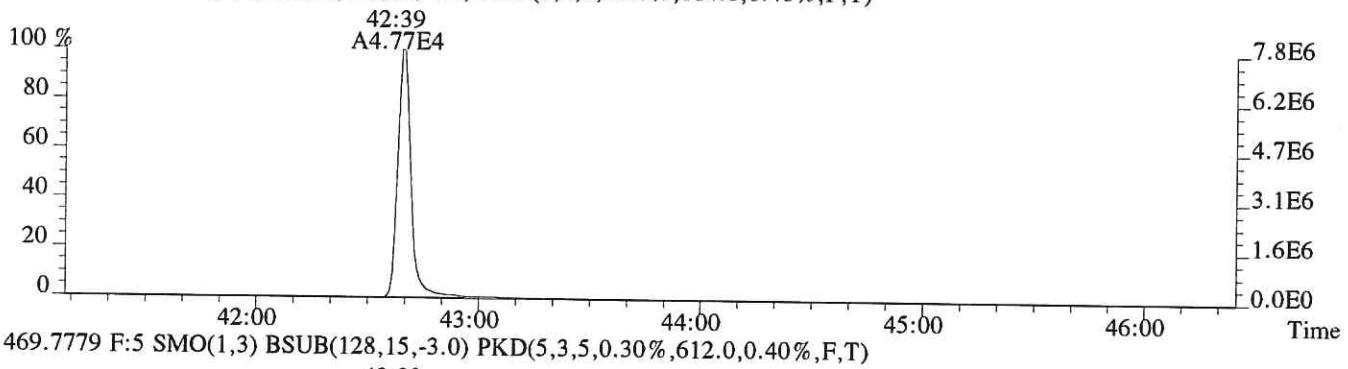
File:P619507 #1-475 Acq:17-OCT-2019 22:05:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

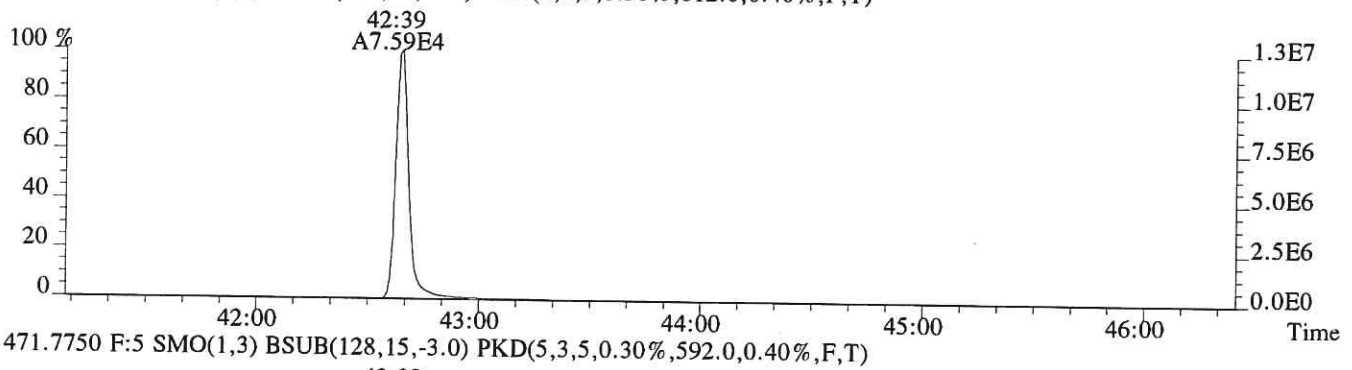
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,600.0,0.40%,F,T)



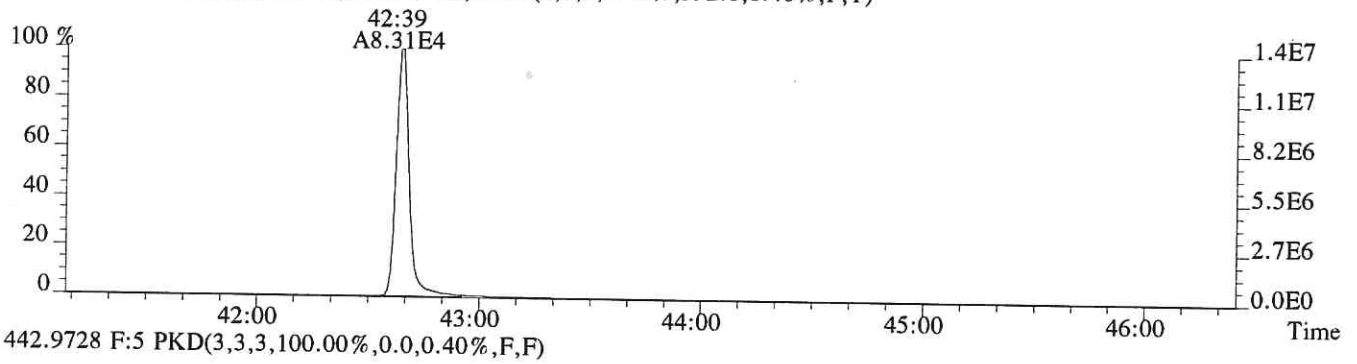
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,684.0,0.40%,F,T)



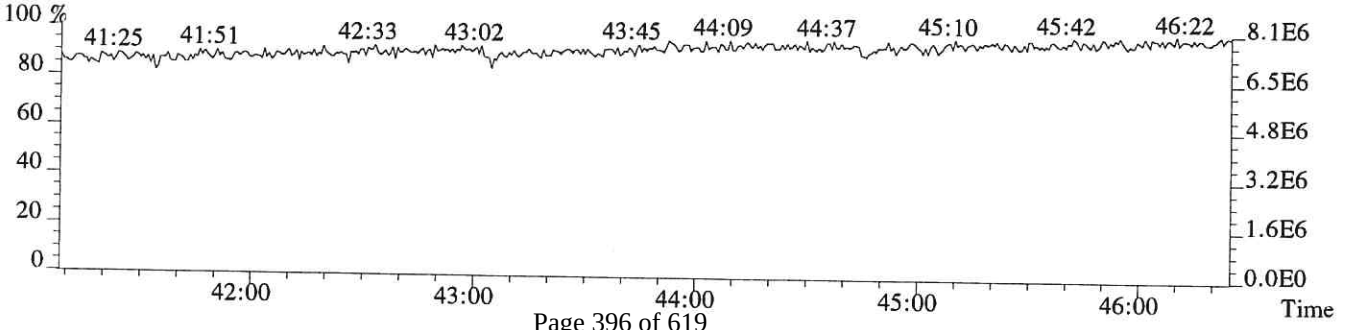
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,612.0,0.40%,F,T)



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)



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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

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Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290	Process Date: 04/26/2019
Instrument Name: E-HRMS-07	Calibration File Name: P5-19042516131
Processor Name: Rosila Cruz	Reviewer Name: Loan Luong
Supervisor Signature: Kristin Meir	

	Yes	No	NA	NR	ER#
Description					
Analytical Sequence					
Does the analytical sequence summary accurately reflect the instrument run log, including ICV?	√				
Was a Mass Resolution Check performed at the beginning and end of the 12-hour sequence?	√				
Were all calibration standards and the ICV analyzed within the same 12-hour sequence?	√				
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?	√				

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Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290	Process Date: 04/26/2019
Instrument Name: E-HRMS-07	Calibration File Name: P5-1904251613I
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: 04/26/2019
Instrument Name: E-HRMS-07	Calibration File Name: P6-1904251613I
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).

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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: 04/25/19

Init. Calib.Times: 21:22

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	P521507	25-APR-19	21:22:33
193431	CS0.5	P521510	25-APR-19	23:48:29
193432	CS1	P521511	26-APR-19	00:37:08
193434	CS2	P521512	26-APR-19	01:25:47
193435	CS3	P521513	26-APR-19	02:14:26
82167	CS4	P521514	26-APR-19	03:03:05
185657	CS5	P521515	26-APR-19	03:51:44
NONANE	NONANE	P521516	26-APR-19	04:40:23
188969	DO NOT USE	P521517	26-APR-19	05:29:04
188969	2ND SOURCE	P521518	26-APR-19	06:25:55

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Sample List Report MassLynx 4.1 SCN815 SCN795

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20190425A.SPL
Last Modified: Friday, April 26, 2019 09:30:41 Central Daylight Time
Printed: Friday, April 26, 2019 09:31:27 Central Daylight Time

Page Position (1, 1)

opus 4: P5-1904251613I P521518res

opus4: P5-1904251613I P521518resm23

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	04/25/19	21:22	P521507	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:1	LKL	HRMS check 20:34
2		22:11	P521508	CS3	197303	EPA1613_ALS	Dioxin_ALS	Tray1:2		Not use
3		22:59	P521509	CS0.5	193431	EPA1613_ALS	Dioxin_ALS	Tray1:3		Not use
4		23:48	P521510	CS0.5	193431	EPA1613_ALS	Dioxin_ALS	Tray1:3		
5	04/26/19	00:37	P521511	CS1	193432	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		01:25	P521512	CS2	193434	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		02:14	P521513	CS3	193435	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		03:03	P521514	CS4	82167	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		03:51	P521515	CS5	185657	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		04:40	P521516	NONANE	NONANE	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		05:29	P521517	2ND SOURCE	188969	EPA1613_ALS	Dioxin_ALS	Tray1:11		Not use
12		06:25	P521518	2ND SOURCE	188969	EPA1613_ALS	Dioxin_ALS	Tray1:11		HRMS check 06:25
13			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:12		
14			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1		
15			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1		
16			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2		
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:3	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:3	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:4	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:5	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:6	---	---
22	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:7	---	---
23	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:8	---	---
24	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:12	---	---
25	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:12	---	---
26	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---

gc 04/26/19

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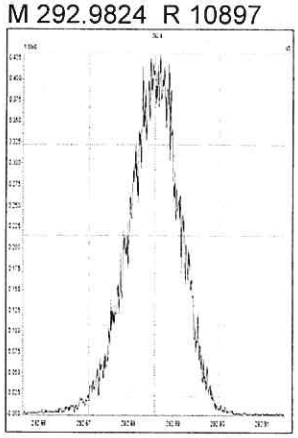
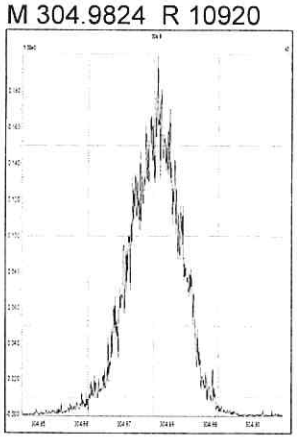
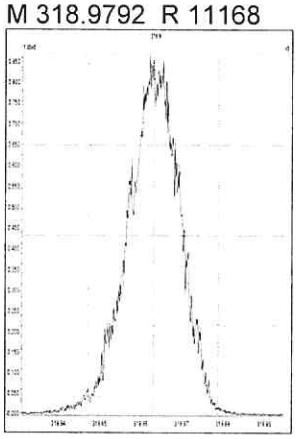
M 292.9824 R 10897



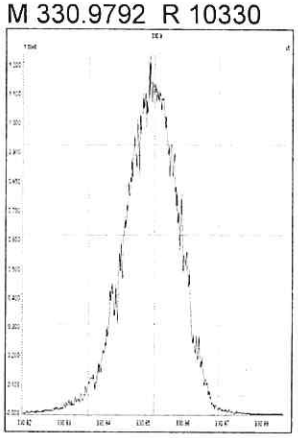
M 304.9824 R 10920



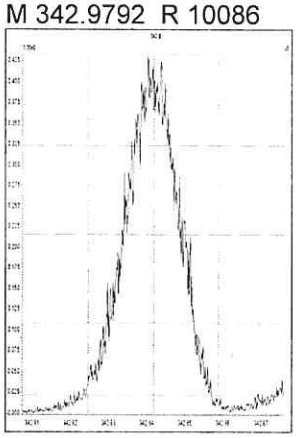
M 318.9792 R 11168



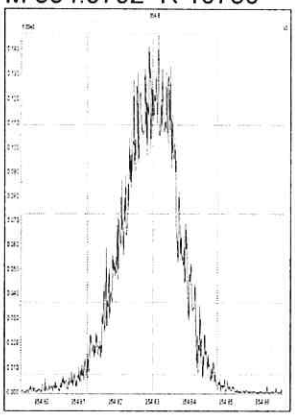
M 330.9792 R 10330



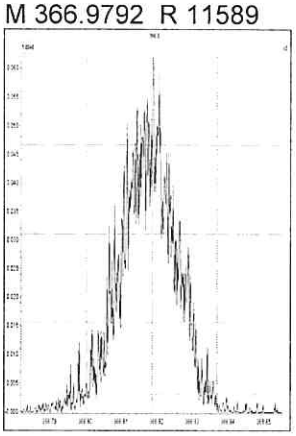
M 342.9792 R 10086



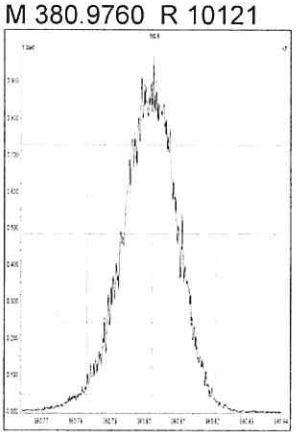
M 354.9792 R 10730



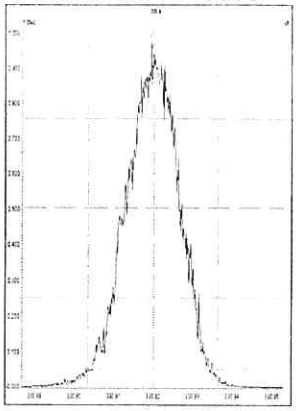
M 366.9792 R 11589



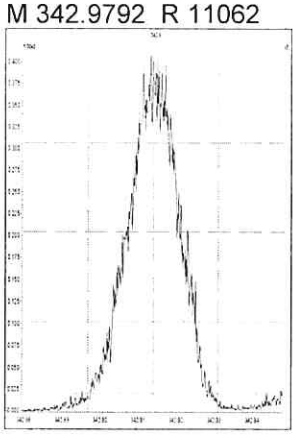
M 380.9760 R 10121



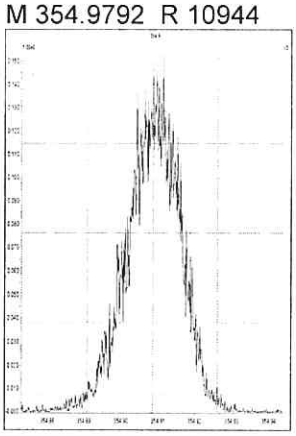
M 330.9792 R 10869



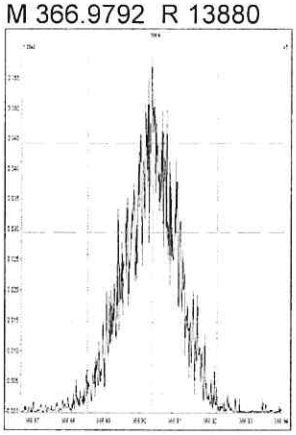
M 342.9792 R 11062



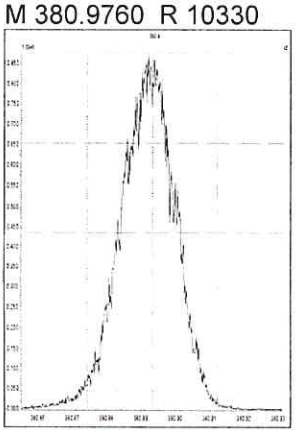
M 354.9792 R 10944



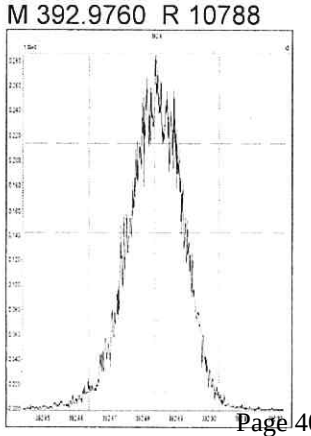
M 366.9792 R 13880



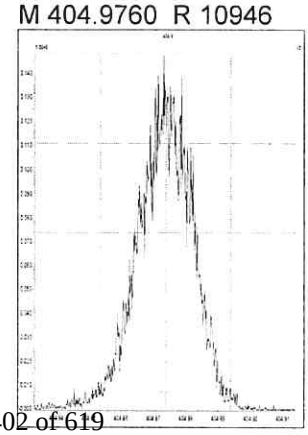
M 380.9760 R 10330



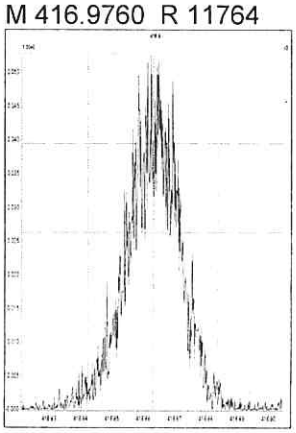
M 392.9760 R 10788



M 404.9760 R 10946



M 416.9760 R 11764



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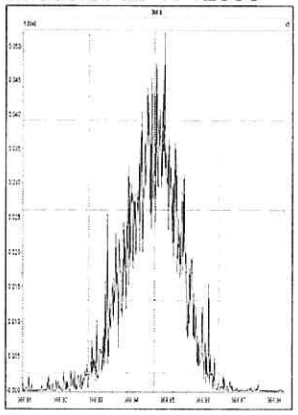
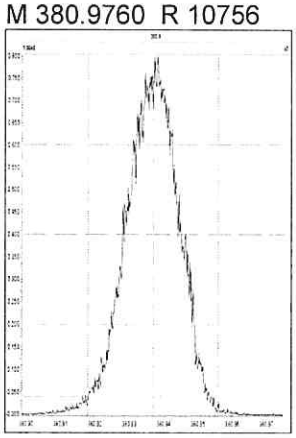
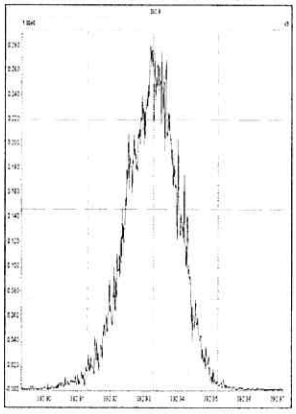
M 366.9792 R 12596



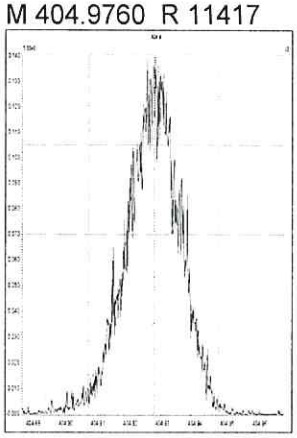
M 380.9760 R 10756



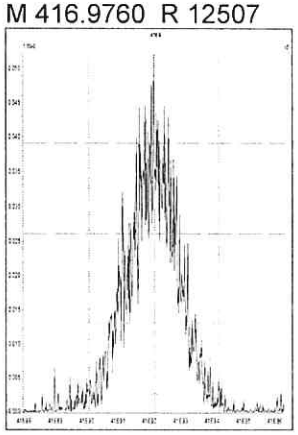
M 392.9760 R 11467



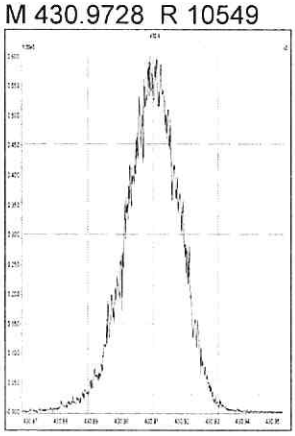
M 404.9760 R 11417



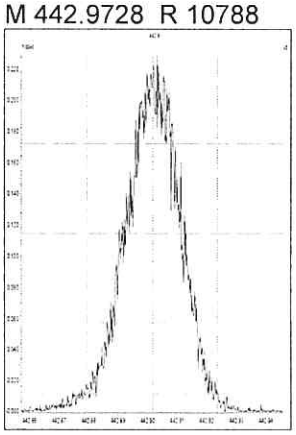
M 416.9760 R 12507



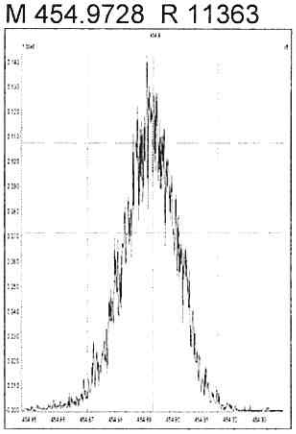
M 430.9728 R 10549



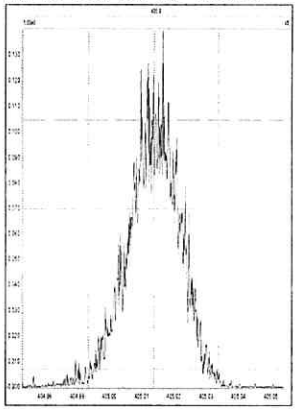
M 442.9728 R 10788



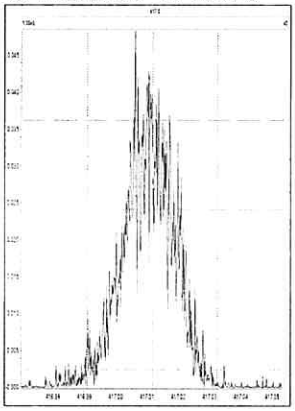
M 454.9728 R 11363



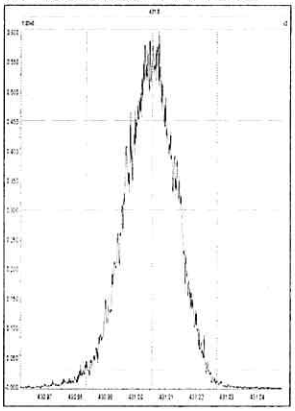
M 404.9760 R 11548



M 416.9760 R 13170



M 430.9728 R 11312



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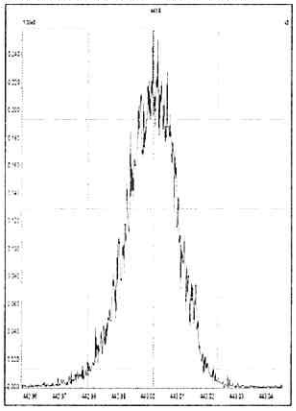

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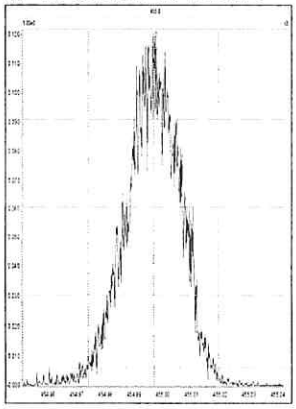

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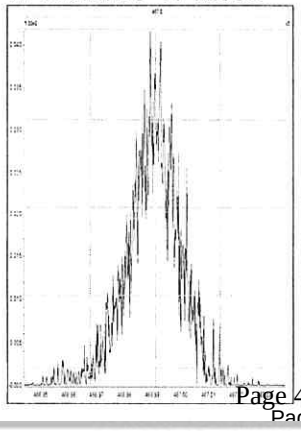
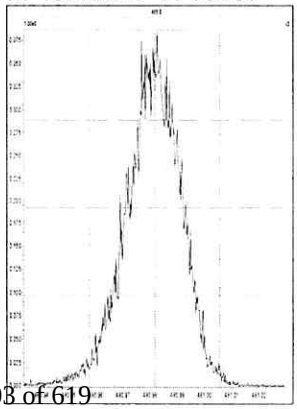


M 480.9696 R 10557



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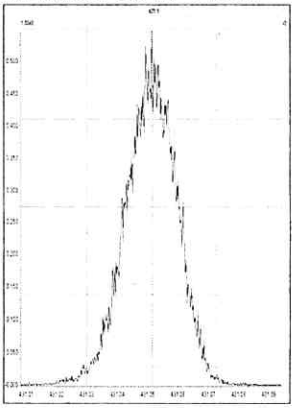

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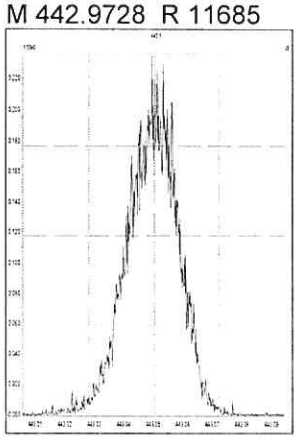
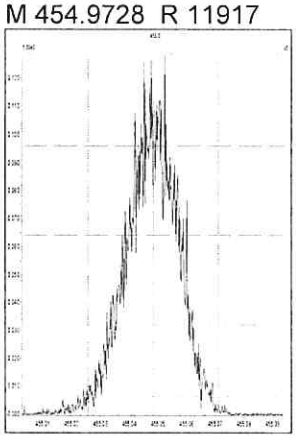
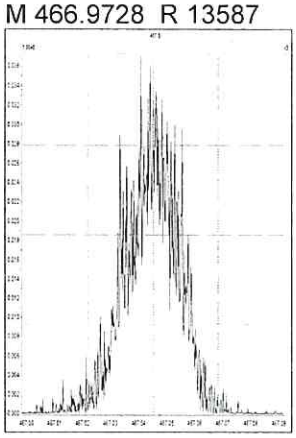
M 442.9728 R 11685



M 454.9728 R 11917



M 466.9728 R 13587



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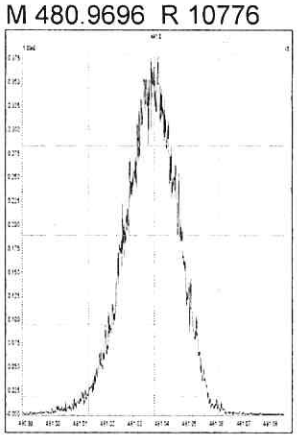

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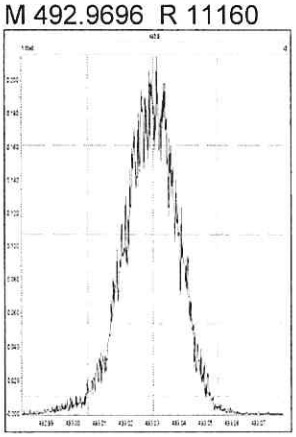
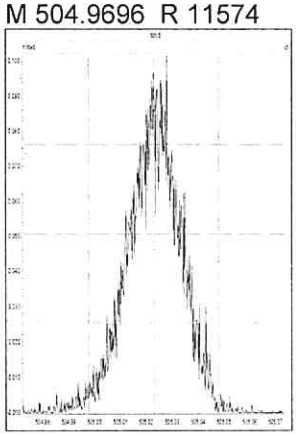
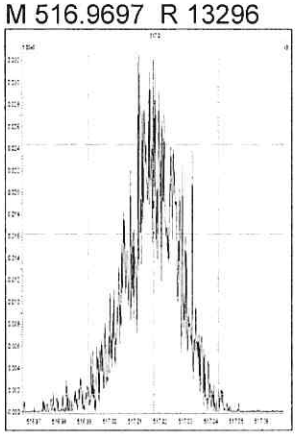


M 504.9696 R 11574



M 516.9697 R 13296



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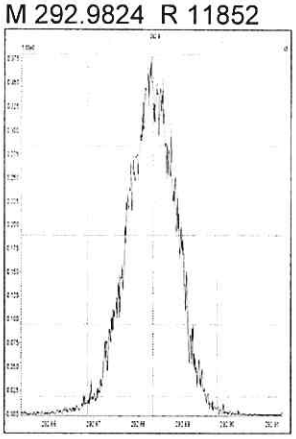
M 292.9824 R 11852



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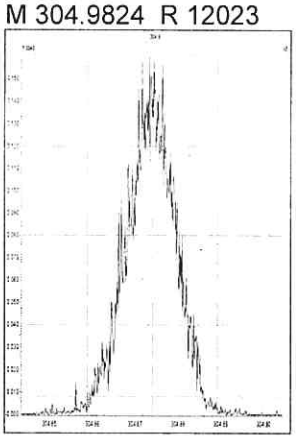
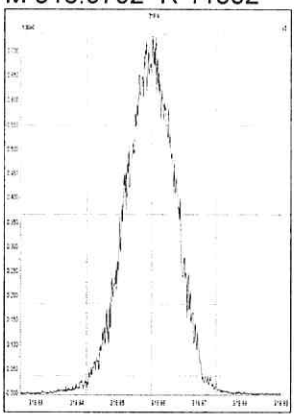


M 318.9792 R 11852



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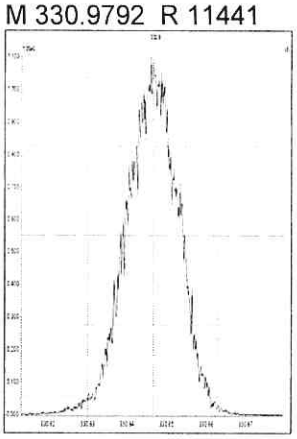

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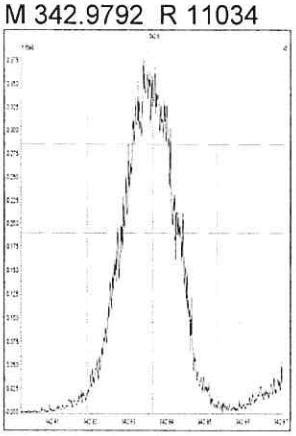
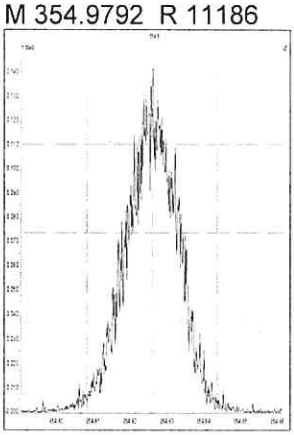


M 354.9792 R 11186



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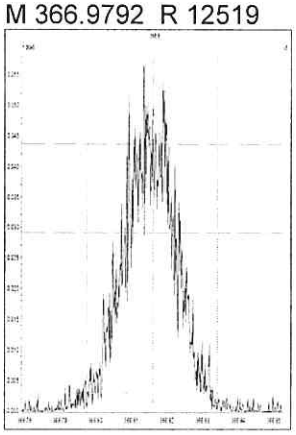
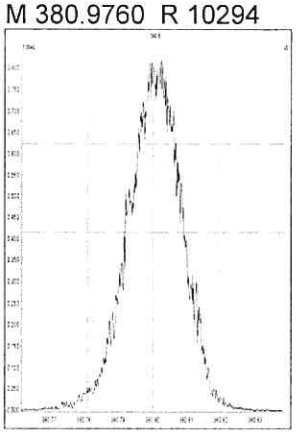


M 380.9760 R 10294



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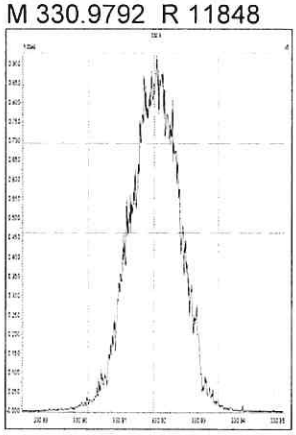
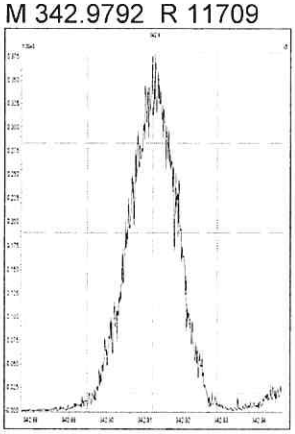


M 342.9792 R 11709



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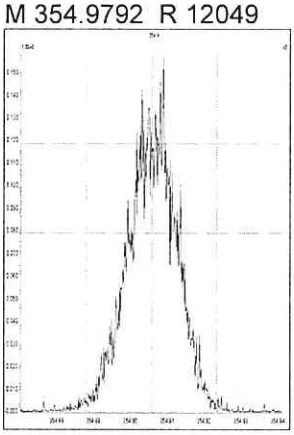
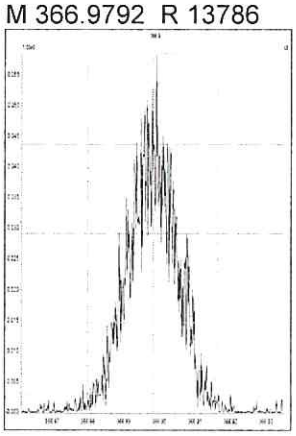


M 366.9792 R 13786



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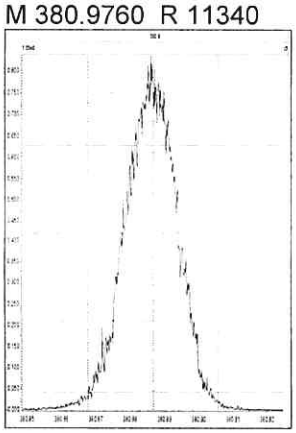

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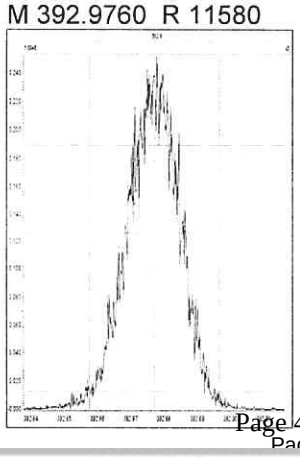

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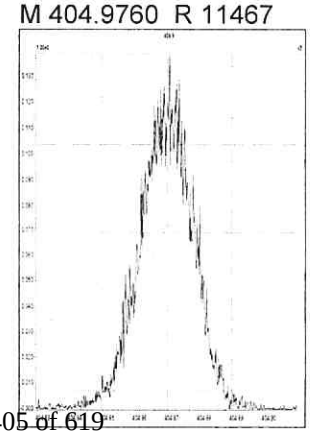
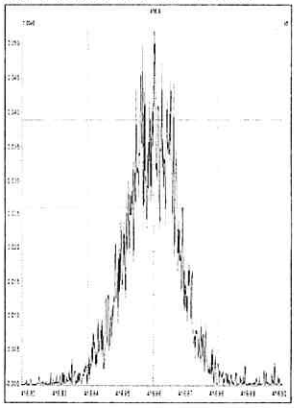


M 416.9760 R 12607



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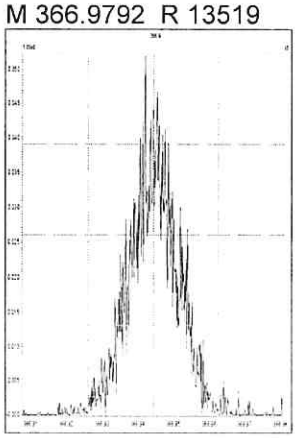
M 366.9792 R 13519



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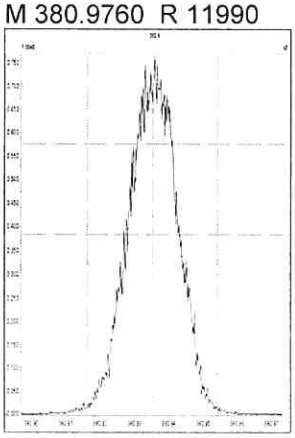
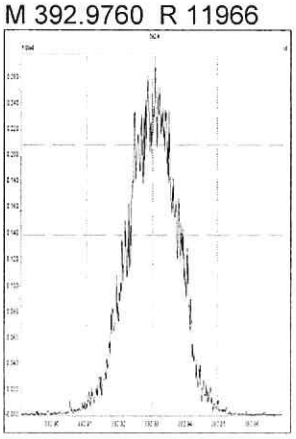


M 392.9760 R 11966



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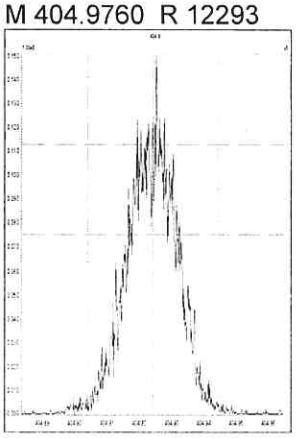

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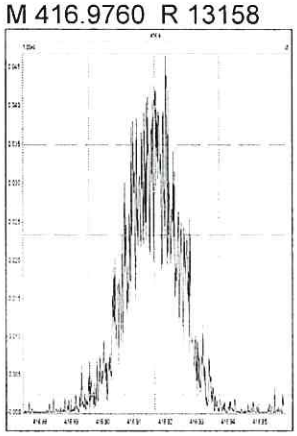
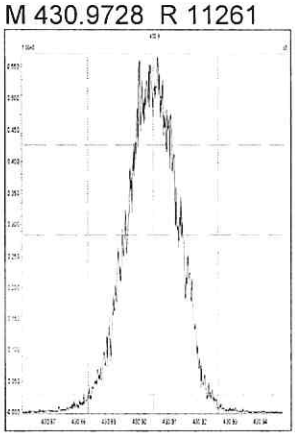
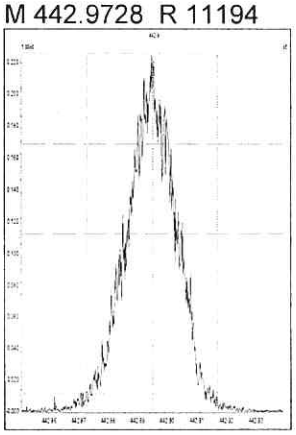


M 430.9728 R 11261



M 442.9728 R 11194



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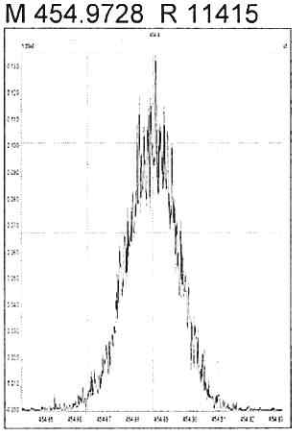

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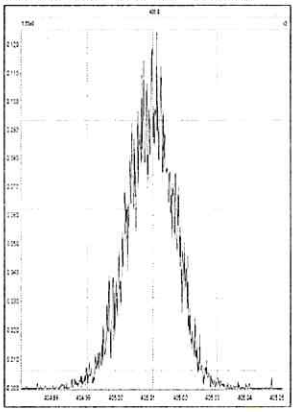

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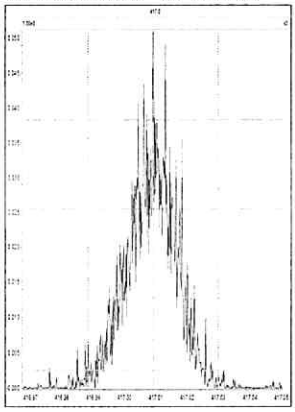
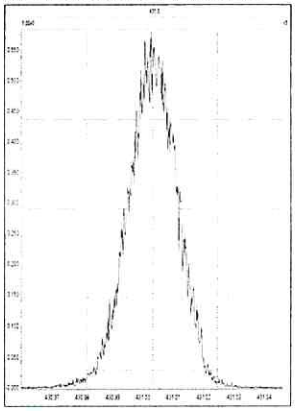


M 430.9728 R 11932



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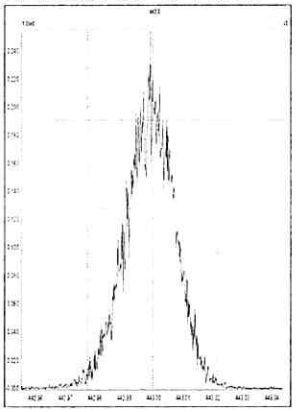

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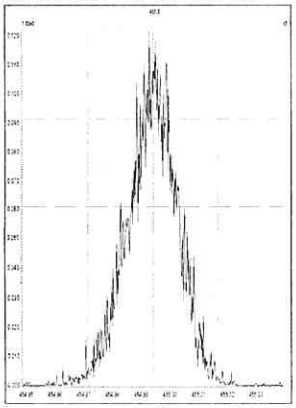

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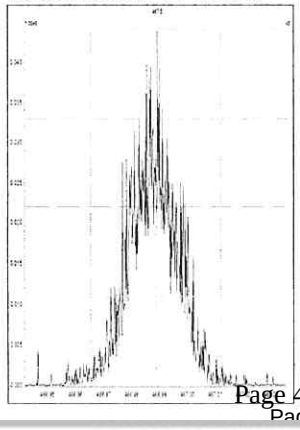

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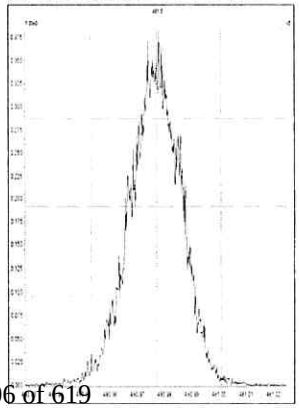

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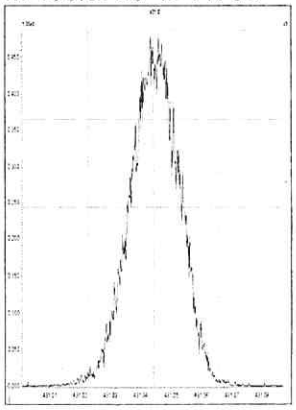

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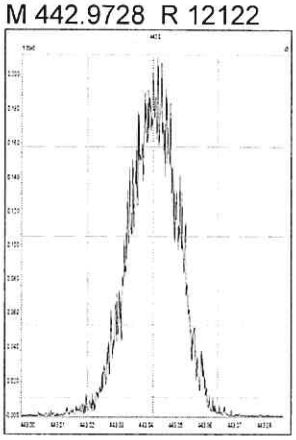
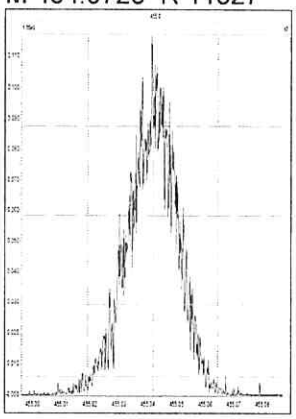


M 454.9728 R 11827



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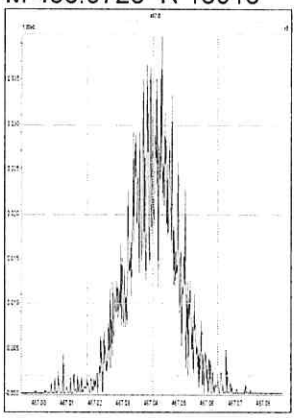

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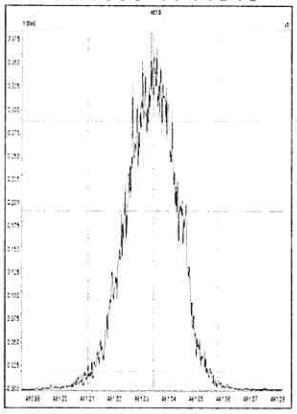

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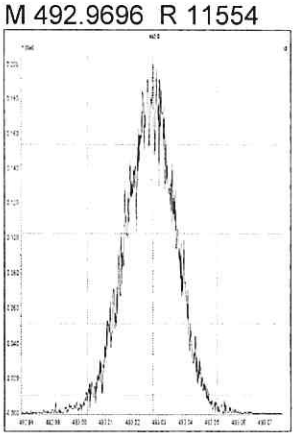
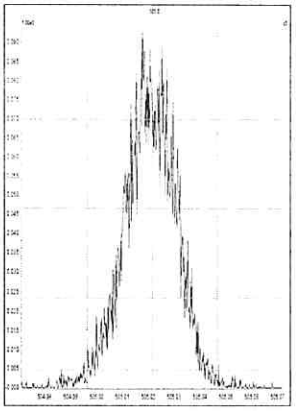


M 504.9696 R 12019



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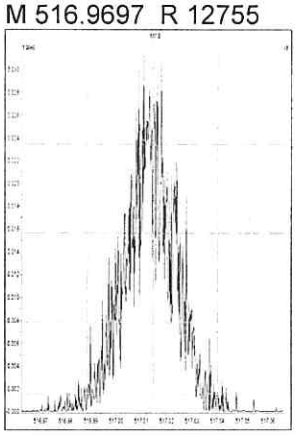

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5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

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

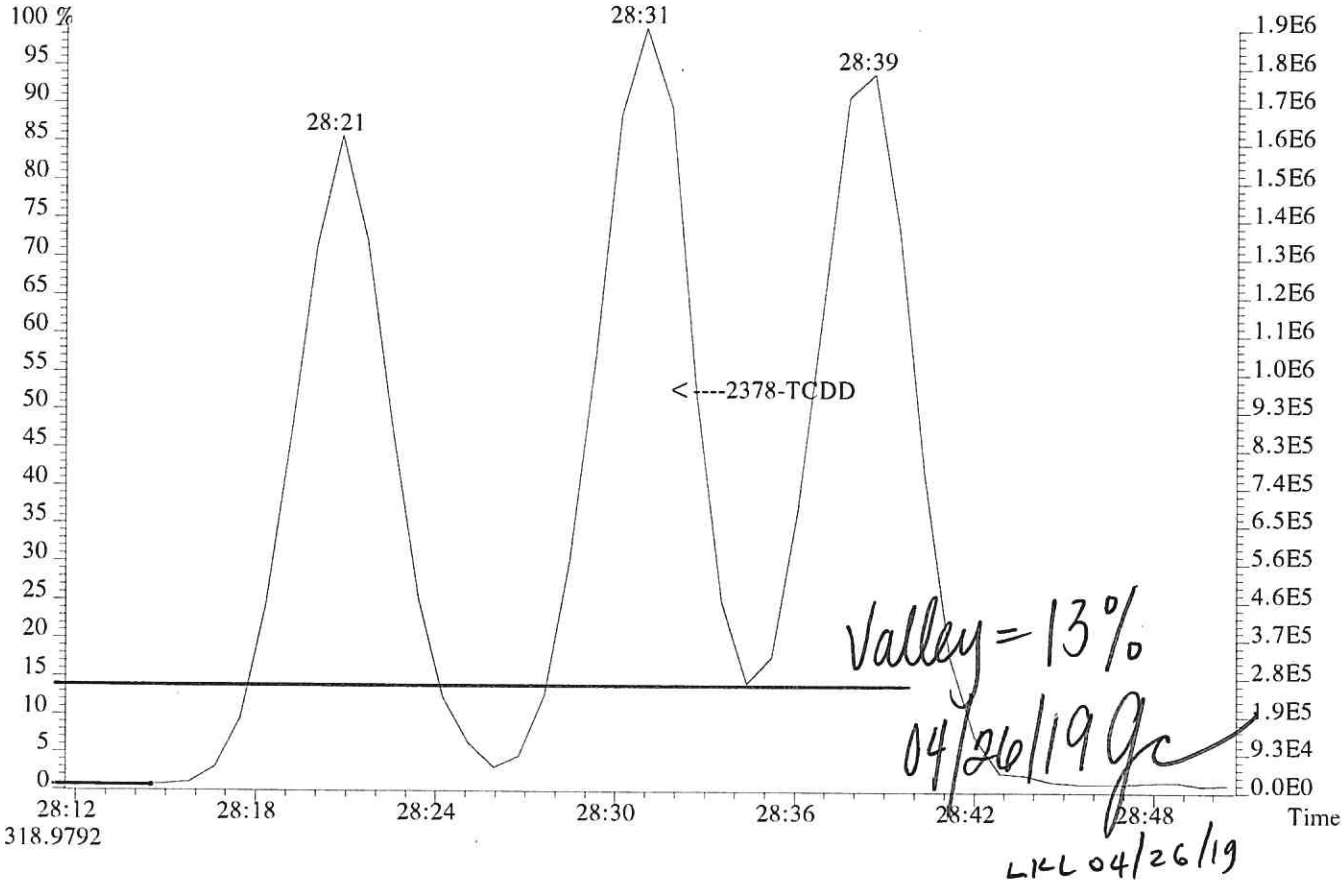
Case No.: _____ SDG No.:
ID: 0.25 (mm)
Lab File ID: P521507
Date Analyzed: 25-APR-2019
Time Analyzed: 21:22:33

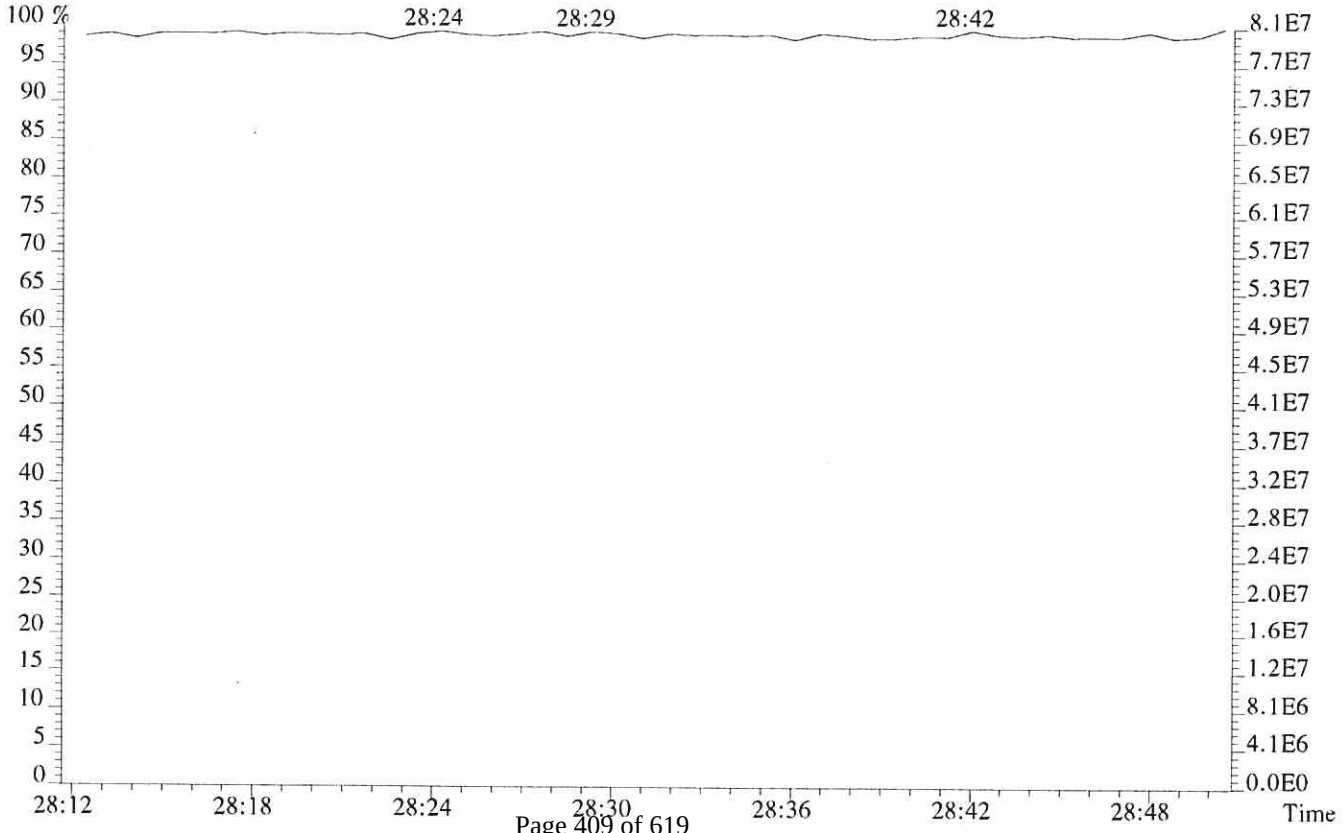
Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	23:16	29:42
TCDD	25:05	29:32
PeCDF	29:39	33:56
PeCDD	31:12	33:40
HxCDF	34:35	37:05
HxCDD	35:06	36:41
HpCDF	38:17	39:39
HpCDD	38:32	39:11

% Valley 2378-TCDD: 13 %

RIGHT SOLUTIONS | RIGHT PARTNER

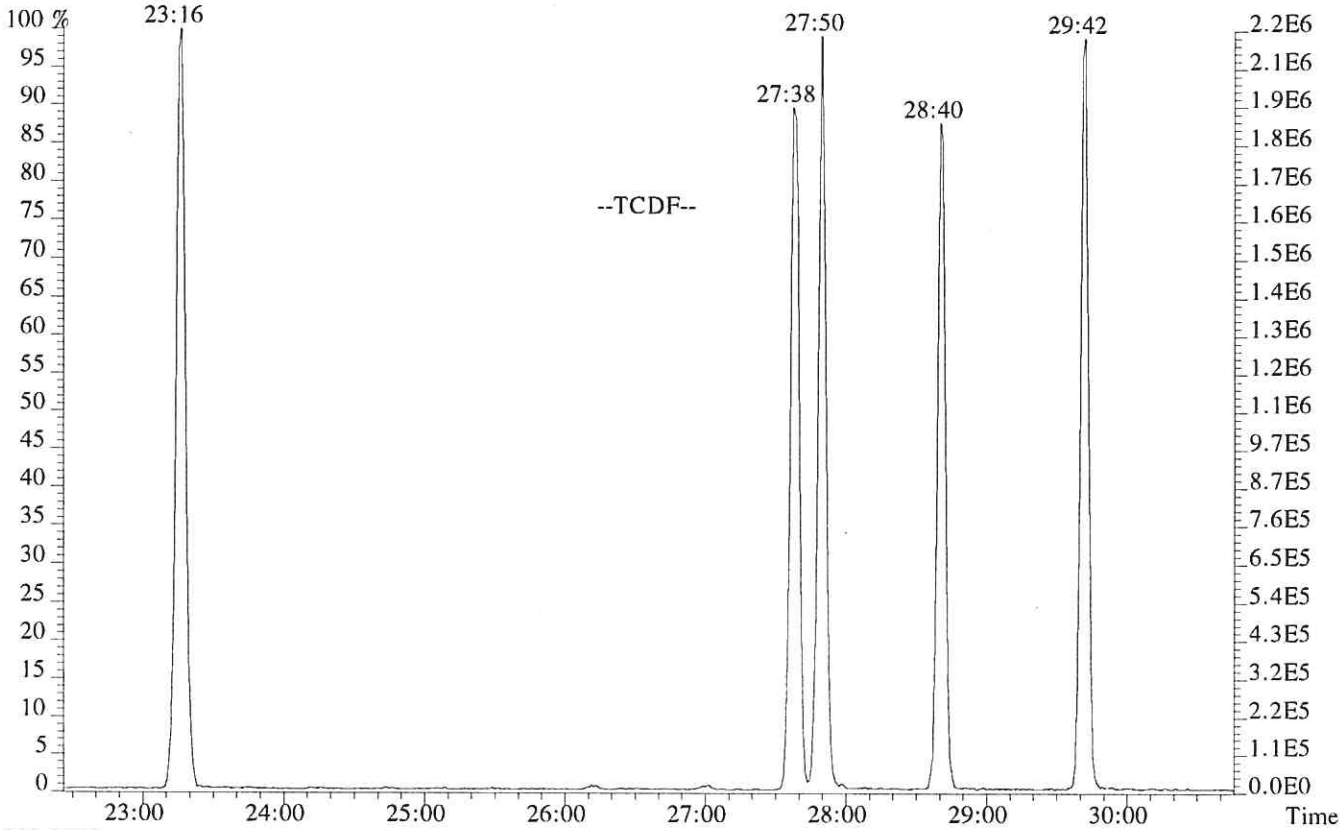
File:P521507 #1-591 Acq:25-APR-2019 21:22:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
319.8965



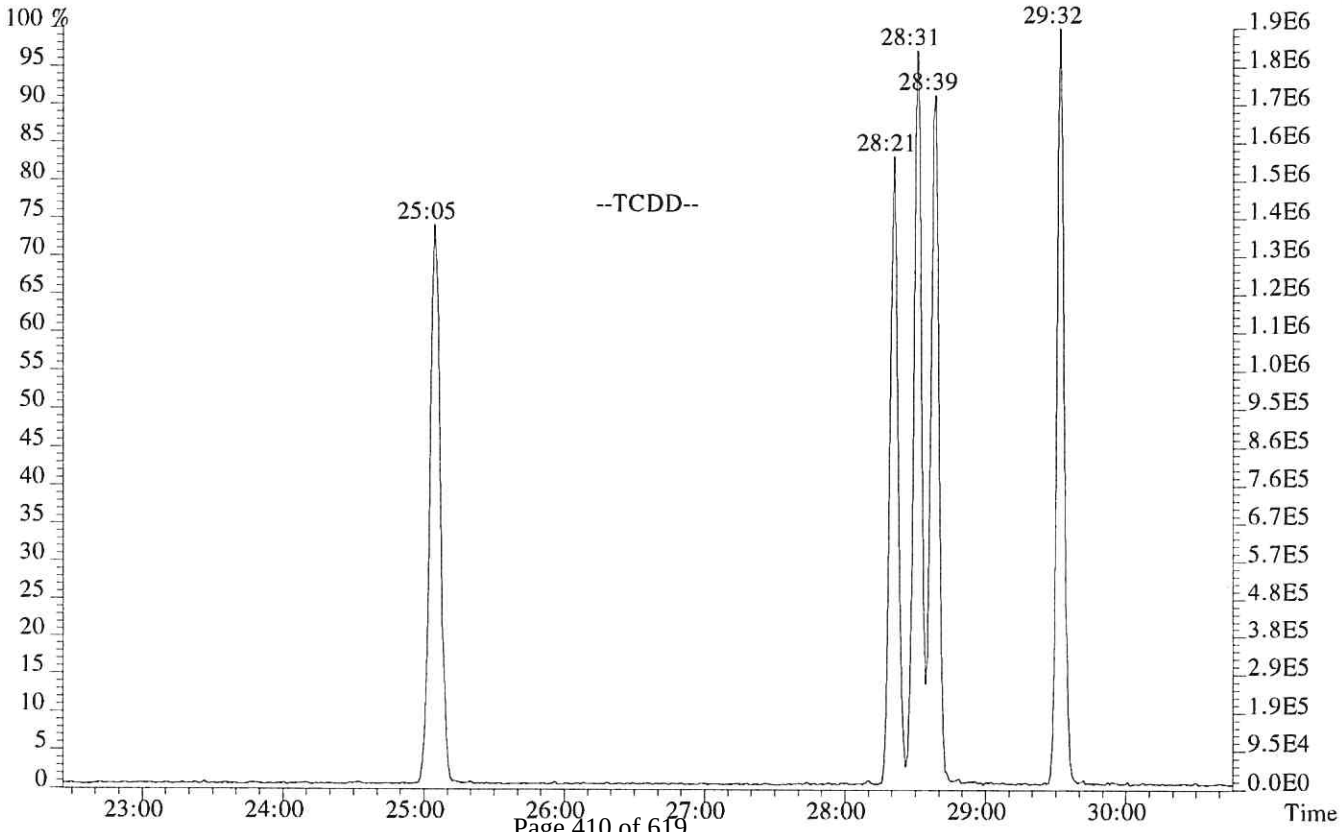


RIGHT SOLUTIONS | RIGHT PARTNER

File:P521507 #1-591 Acq:25-APR-2019 21:22:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
303.9016

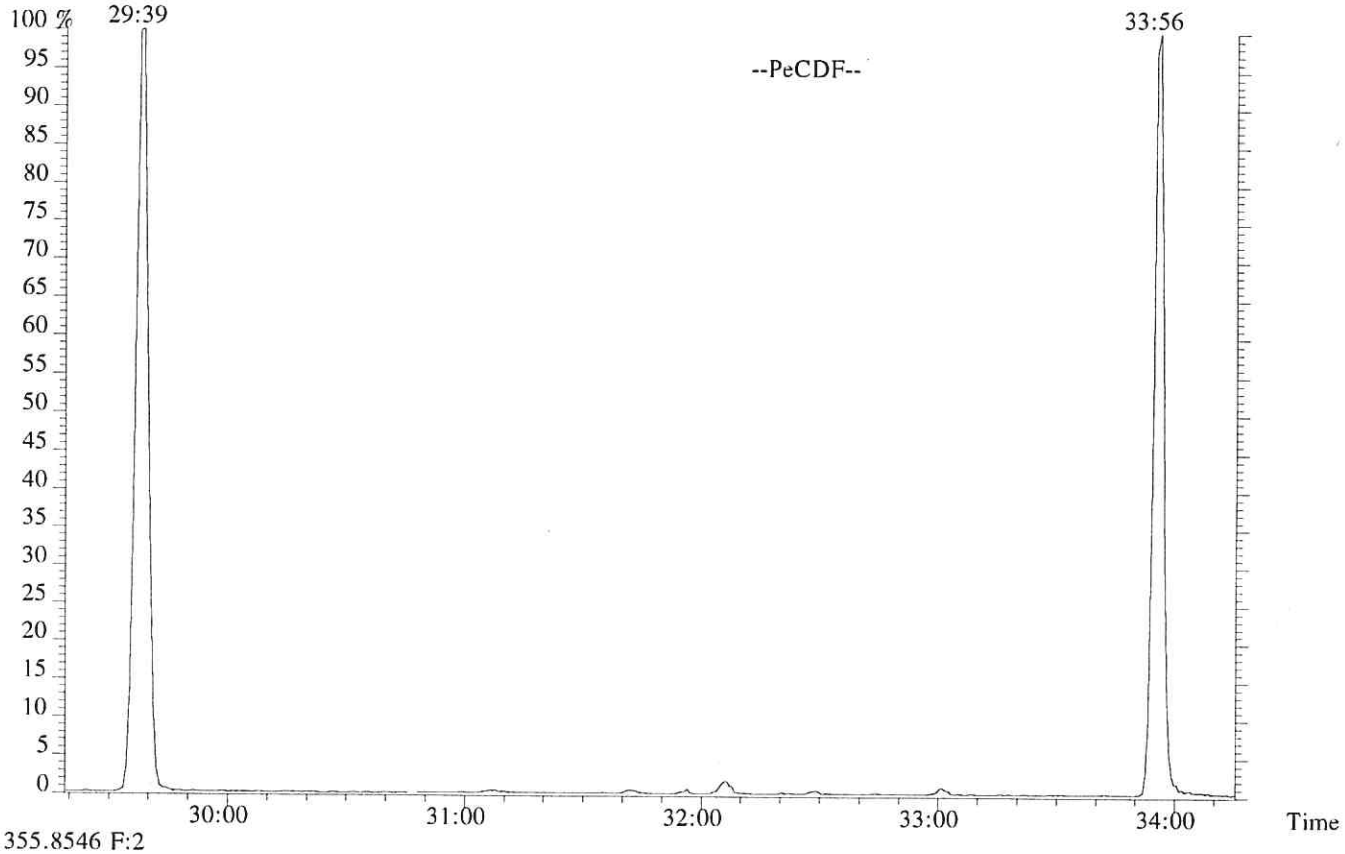


319.8965

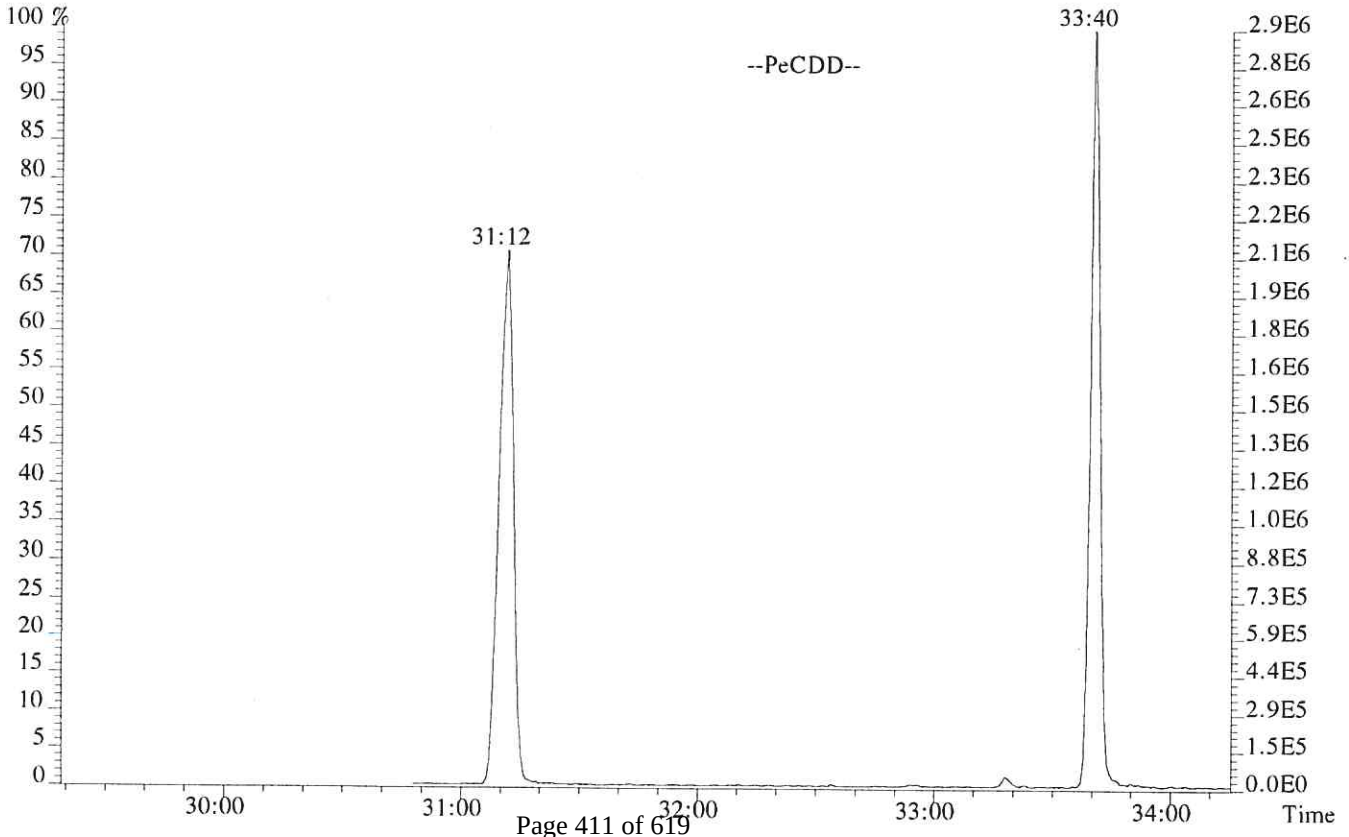


RIGHT SOLUTIONS | RIGHT PARTNER

File:P521507 #1-591 Acq:25-APR-2019 21:22:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
339.8597,339.8597 F:2

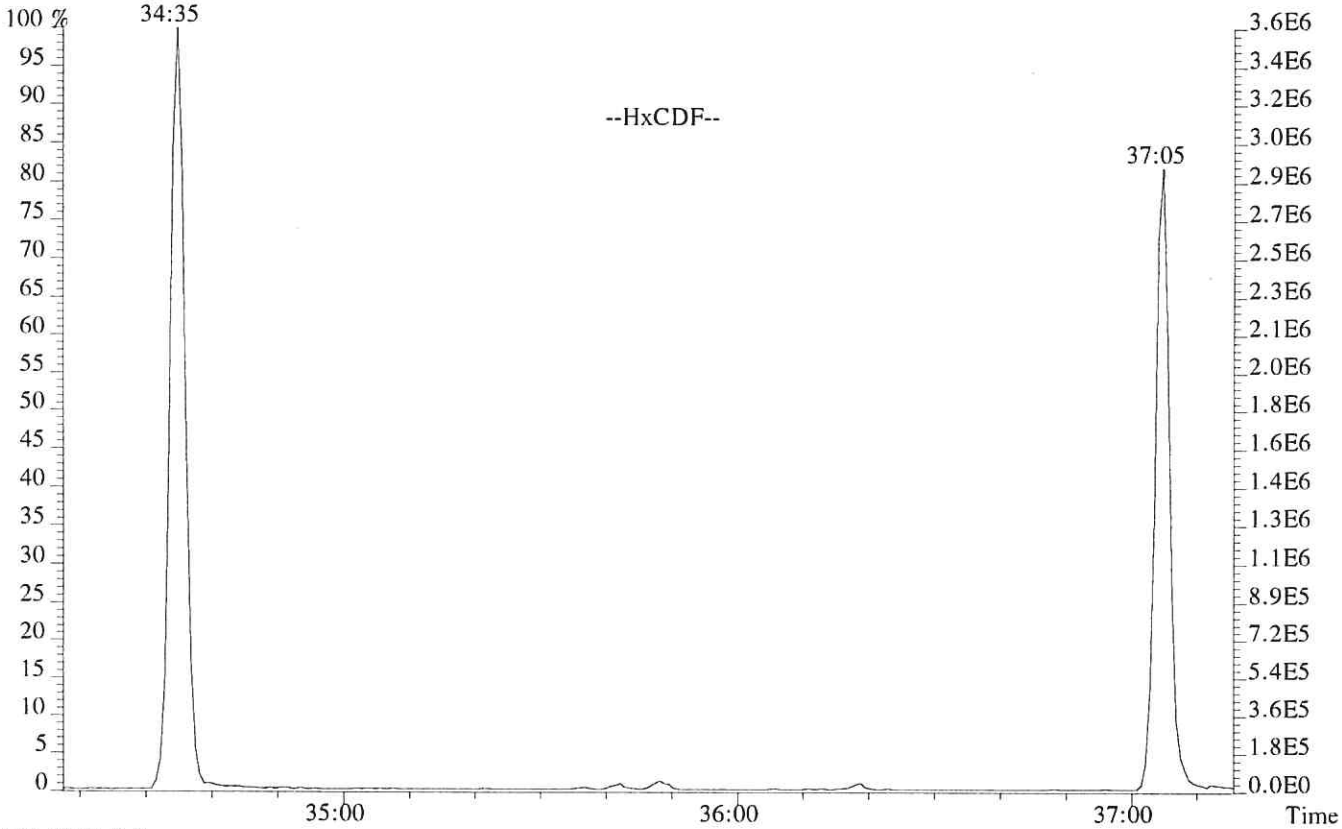


355.8546 F:2

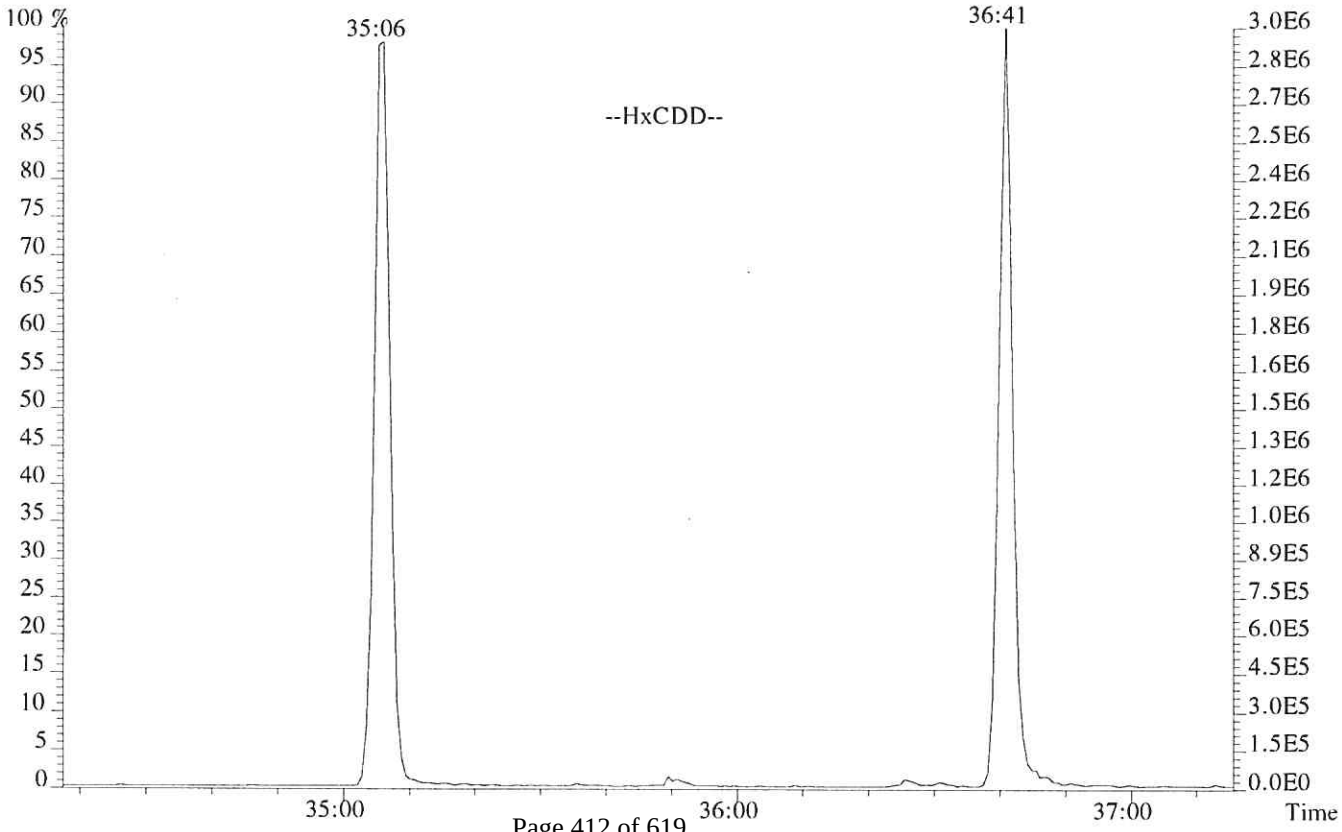


RIGHT SOLUTIONS | RIGHT PARTNER

File:P521507 #1-268 Acq:25-APR-2019 21:22:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
373.8208 F:3

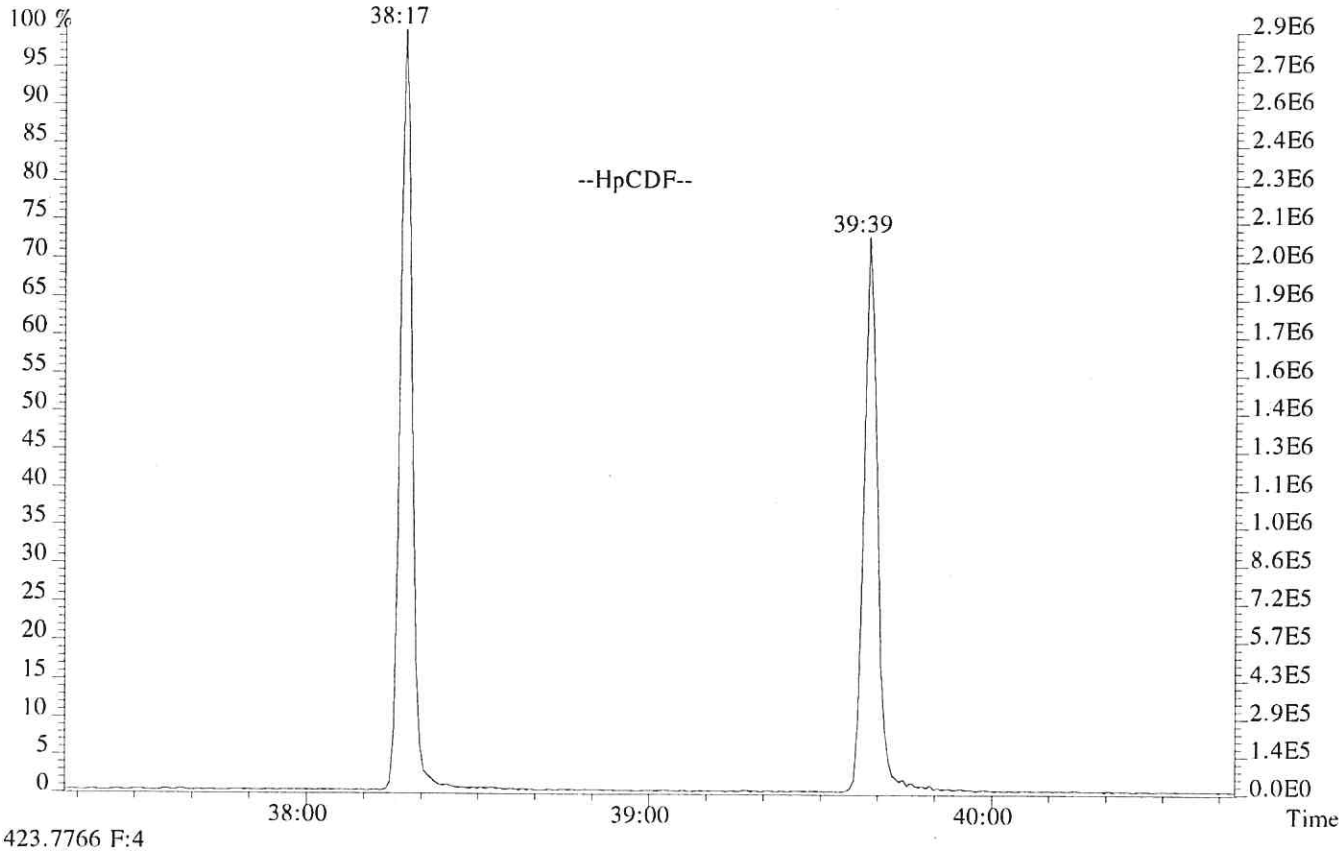


389.8157 F:3

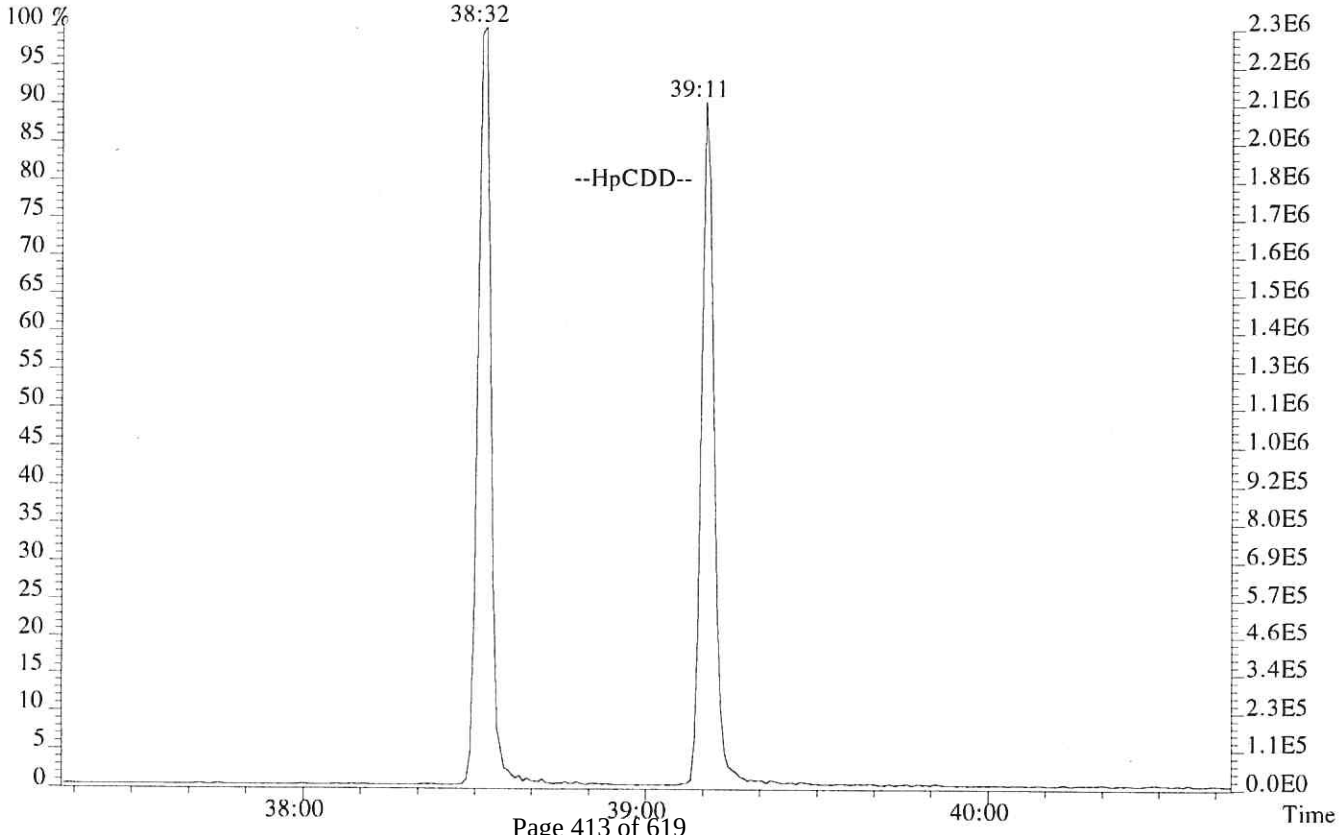


RIGHT SOLUTIONS | RIGHT PARTNER

File:P521507 #1-308 Acq:25-APR-2019 21:22:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
407.7818 F:4



423.7766 F:4



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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).: 04/25/19
Init. Calib. Time.: 21:22

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

Target Analytes	RR/RRF CS0.5	CS1	CS2	CS3	CS4	CS5	MEAN RR/RRF	%RSD	QC LIMITS
2,3,7,8-TCDD	1.26	1.08	1.04	1.00	1.03	1.04	1.08	8.79	+/-20%
2,3,7,8-TCDF	1.09	1.00	0.92	0.90	0.93	0.94	0.96	7.57	+/-20%
1,2,3,7,8-PeCDF	1.03	0.91	0.93	0.97	0.98	0.99	0.97	4.47	+/-20%
1,2,3,7,8-PeCDD	1.04	0.96	0.96	0.95	0.96	0.95	0.97	3.30	+/-20%
2,3,4,7,8-PeCDF	0.94	0.90	0.91	0.91	0.93	0.93	0.92	1.63	+/-20%
1,2,3,4,7,8-HxCDF	1.14	1.13	1.16	1.16	1.19	1.19	1.16	2.31	+/-20%
1,2,3,6,7,8-HxCDF	1.04	1.05	1.06	1.08	1.10	1.11	1.07	2.66	+/-20%
1,2,3,4,7,8-HxCDD	1.05	0.97	1.02	1.03	1.04	1.05	1.02	3.03	+/-20%
1,2,3,6,7,8-HxCDD	1.07	0.99	1.04	1.03	1.05	1.05	1.04	2.57	+/-20%
1,2,3,7,8,9-HxCDD	1.06	1.01	1.03	1.07	1.08	1.09	1.06	2.94	+/-20%
2,3,4,6,7,8-HxCDF	1.10	1.00	1.04	1.09	1.10	1.09	1.07	3.73	+/-20%
1,2,3,7,8,9-HxCDF	1.11	1.07	1.07	1.09	1.11	1.12	1.10	2.29	+/-20%
1,2,3,4,6,7,8-HpCDF	1.29	1.22	1.26	1.29	1.32	1.31	1.28	2.92	+/-20%
1,2,3,4,6,7,8-HpCDD	1.06	0.92	0.96	0.98	1.01	1.00	0.99	4.74	+/-20%
1,2,3,4,7,8,9-HpCDF	1.18	1.16	1.18	1.20	1.23	1.21	1.19	1.95	+/-20%
OCDD	1.19	1.04	1.03	1.10	1.11	1.10	1.09	5.17	+/-20%
OCDF	1.20	1.13	1.14	1.23	1.26	1.26	1.20	4.61	+/-20%
Labeled Compounds									
13C-2,3,7,8-TCDD	0.93	0.93	0.92	0.91	0.93	0.95	0.93	1.35	+/-35%
13C-1,2,3,7,8-PeCDD	1.00	1.02	1.00	1.00	1.02	1.07	1.02	2.53	+/-35%
13C-1,2,3,4,7,8-HxCDD	0.95	0.93	0.94	0.95	0.95	0.94	0.94	0.80	+/-35%
13C-1,2,3,6,7,8-HxCDD	0.94	0.91	0.93	0.92	0.93	0.90	0.92	1.55	+/-35%
13C-1,2,3,4,6,7,8-HpCDD	0.89	0.87	0.87	0.87	0.89	0.87	0.88	1.10	+/-35%
13C-OCDD	0.67	0.68	0.66	0.65	0.68	0.64	0.66	2.36	+/-35%
13C-2,3,7,8-TCDF	1.29	1.30	1.30	1.26	1.28	1.30	1.29	1.21	+/-35%
13C-1,2,3,7,8-PeCDF	1.38	1.42	1.40	1.39	1.42	1.49	1.42	2.81	+/-35%
13C-2,3,4,7,8-PeCDF	1.36	1.38	1.33	1.35	1.38	1.45	1.37	3.10	+/-35%
13C-1,2,3,4,7,8-HxCDF	1.11	1.09	1.11	1.13	1.13	1.11	1.11	1.48	+/-35%
13C-1,2,3,6,7,8-HxCDF	1.25	1.22	1.26	1.26	1.26	1.22	1.24	1.58	+/-35%
13C-2,3,4,6,7,8-HxCDF	1.15	1.15	1.15	1.14	1.15	1.13	1.15	0.64	+/-35%
13C-1,2,3,7,8,9-HxCDF	0.99	0.98	0.98	0.99	1.00	0.98	0.99	1.00	+/-35%
13C-1,2,3,4,6,7,8-HpCDF	0.92	0.90	0.91	0.93	0.94	0.90	0.91	1.48	+/-35%
13C-1,2,3,4,7,8,9-HpCDF	0.77	0.75	0.73	0.74	0.76	0.72	0.75	2.67	+/-35%
37Cl-2,3,7,8-TCDD	1.09	1.01	0.99	0.96	0.99	1.02	1.01	4.53	+/-35%

1. 123789-HxCDD Relative Response (RR) is calculated based on the labeled analog of the other two HxCDDs.
2. OCDF RR is calculated based on the labeled analog of OCDD

FORM VI-HR CDD-1 DLM02.2

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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).: 04/25/19 Method 1613/8290
Init. Calib. Time.: 21:22

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	0.67	0.77	0.74	0.75	0.74	0.75		0.65-0.89
2,3,7,8-TCDD	320/322	0.81	0.80	0.77	0.77	0.78	0.78		0.65-0.89
1,2,3,7,8-PeCDF	340/342	1.63	1.50	1.52	1.50	1.51	1.54		1.32-1.78
2,3,4,7,8-PeCDF	340/342	1.55	1.55	1.47	1.50	1.52	1.53		1.32-1.78
1,2,3,7,8-PeCDD	356/358	1.54	1.56	1.58	1.56	1.57	1.57		1.32-1.78
1,2,3,4,7,8-HxCDF	374/376	1.16	1.24	1.21	1.21	1.22	1.22		1.05-1.43
1,2,3,6,7,8-HxCDF	374/376	1.07	1.23	1.20	1.21	1.21	1.23		1.05-1.43
2,3,4,6,7,8-HxCDF	374/376	1.15	1.09	1.22	1.20	1.21	1.22		1.05-1.43
1,2,3,7,8,9-HxCDF	374/376	1.21	1.12	1.17	1.23	1.22	1.23		1.05-1.43
1,2,3,4,7,8-HxCDD	390/392	1.30	1.24	1.26	1.25	1.24	1.24		1.05-1.43
1,2,3,6,7,8-HxCDD	390/392	1.20	1.17	1.29	1.27	1.25	1.25		1.05-1.43
1,2,3,7,8,9-HxCDD	390/392	1.22	1.17	1.18	1.24	1.24	1.24		1.05-1.43
1,2,3,4,6,7,8-HpCDF	408/410	1.01	1.02	0.98	1.00	1.02	1.03		0.88-1.20
1,2,3,4,7,8,9-HpCDF	408/410	1.05	0.99	1.02	1.01	1.02	1.02		0.88-1.20
1,2,3,4,6,7,8-HpCDD	424/426	1.01	1.01	1.02	1.03	1.03	1.04		0.88-1.20
OCDF	442/444	0.96	0.95	0.88	0.89	0.89	0.90		0.76-1.02
OCDD	458/460	0.92	0.90	0.88	0.88	0.89	0.89		0.76-1.02
13C-2,3,7,8-TCDD	332/334	0.78	0.79	0.78	0.79	0.79	0.79		0.65-0.89
13C-1,2,3,7,8-PeCDD	368/370	1.59	1.58	1.56	1.58	1.58	1.59		1.32-1.78
13C-1,2,3,4,7,8-HxCDD	402/404	1.28	1.28	1.28	1.28	1.28	1.28		1.05-1.43
13C-1,2,3,6,7,8-HxCDD	402/404	1.30	1.27	1.28	1.28	1.26	1.27		1.05-1.43
13C-1,2,3,4,6,7,8-HpCDD	436/438	1.06	1.06	1.08	1.07	1.05	1.07		0.88-1.20
13C-OCDD	470/472	0.91	0.90	0.90	0.90	0.90	0.90		0.76-1.02
13C-2,3,7,8-TCDF	316/318	0.80	0.79	0.80	0.79	0.80	0.80		0.65-0.89
13C-1,2,3,7,8-PeCDF	352/354	1.57	1.57	1.56	1.58	1.58	1.58		1.32-1.78
13C-2,3,4,7,8-PeCDF	352/354	1.57	1.58	1.55	1.57	1.56	1.57		1.32-1.78
13C-1,2,3,4,7,8-HxCDF	384/386	0.52	0.52	0.52	0.52	0.52	0.52		0.43-0.59
13C-1,2,3,6,7,8-HxCDF	384/386	0.52	0.52	0.52	0.53	0.52	0.53		0.43-0.59
13C-2,3,4,6,7,8-HxCDF	384/386	0.51	0.52	0.52	0.52	0.53	0.52		0.43-0.59
13C-1,2,3,7,8,9-HxCDF	384/386	0.51	0.52	0.51	0.52	0.52	0.52		0.43-0.59
13C-1,2,3,4,6,7,8-HpCDF	418/420	0.44	0.44	0.45	0.44	0.45	0.45		0.37-0.51
13C-1,2,3,4,7,8,9-HpCDF	418/420	0.44	0.44	0.45	0.44	0.45	0.44		0.37-0.51
13C-1,2,3,4-TCDD	332/334	0.79	0.79	0.80	0.79	0.80	0.80		0.65-0.89
13C-1,2,3,7,8,9-HxCDD	402/404	1.24	1.30	1.28	1.25	1.27	1.26		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.

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ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
193431

Run #1 Filename P521510 Samp: 1 Inj: 1 Acquired: 25-APR-19 23:48:29
Processed: 26-APR-19 07:12:43 Sample ID: CS0.5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:50	1.626e+02	2.418e+02	0.67	yes	no	0.962
2	Unk	1,2,3,7,8-PeCDF	32:06	1.270e+03	7.771e+02	1.63	yes	no	0.968
3	Unk	2,3,4,7,8-PeCDF	33:00	1.108e+03	7.131e+02	1.55	yes	no	0.919
4	Unk	1,2,3,4,7,8-HxCDF	35:41	9.048e+02	7.794e+02	1.16	yes	no	1.161
5	Unk	1,2,3,6,7,8-HxCDF	35:48	8.931e+02	8.381e+02	1.07	yes	no	1.073
6	Unk	2,3,4,6,7,8-HxCDF	36:18	8.927e+02	7.787e+02	1.15	yes	no	1.069
7	Unk	1,2,3,7,8,9-HxCDF	37:03	7.994e+02	6.614e+02	1.21	yes	no	1.096
8	Unk	1,2,3,4,6,7,8-HpCDF	38:17	7.898e+02	7.829e+02	1.01	yes	no	1.281
9	Unk	1,2,3,4,7,8,9-HpCDF	39:39	6.194e+02	5.875e+02	1.05	yes	no	1.192
10	Unk	OCDF	42:04	1.039e+03	1.083e+03	0.96	yes	no	1.204
11	Unk	2,3,7,8-TCDD	28:39	1.507e+02	1.865e+02	0.81	yes	no	1.077
12	Unk	1,2,3,7,8-PeCDD	33:18	8.989e+02	5.854e+02	1.54	yes	no	0.971
13	Unk	1,2,3,4,7,8-HxCDD	36:26	7.448e+02	5.739e+02	1.30	yes	no	1.024
14	Unk	1,2,3,6,7,8-HxCDD	36:31	7.270e+02	6.080e+02	1.20	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:45	7.278e+02	5.970e+02	1.22	yes	no	1.055
16	Unk	1,2,3,4,6,7,8-HpCDD	39:11	6.298e+02	6.218e+02	1.01	yes	no	0.989
17	Unk	OCDD	41:52	1.007e+03	1.095e+03	0.92	yes	no	1.094
18	IS	13C-2,3,7,8-TCDF	27:48	6.549e+04	8.228e+04	0.80	yes	no	1.287
19	IS	13C-1,2,3,7,8-PeCDF	32:05	9.694e+04	6.177e+04	1.57	yes	no	1.416
20	IS	13C-2,3,4,7,8-PeCDF	33:00	9.513e+04	6.061e+04	1.57	yes	no	1.374
21	IS	13C-1,2,3,4,7,8-HxCDF	35:40	4.064e+04	7.804e+04	0.52	yes	no	1.114
22	IS	13C-1,2,3,6,7,8-HxCDF	35:47	4.547e+04	8.738e+04	0.52	yes	no	1.245
23	IS	13C-2,3,4,6,7,8-HxCDF	36:17	4.130e+04	8.073e+04	0.51	yes	no	1.146
24	IS	13C-1,2,3,7,8,9-HxCDF	37:02	3.541e+04	6.949e+04	0.51	yes	no	0.986
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:17	2.984e+04	6.758e+04	0.44	yes	no	0.915
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:38	2.499e+04	5.709e+04	0.44	yes	no	0.746
27	IS	13C-2,3,7,8-TCDD	28:37	4.678e+04	6.001e+04	0.78	yes	no	0.929
28	IS	13C-1,2,3,7,8-PeCDD	33:16	7.034e+04	4.431e+04	1.59	yes	no	1.017
29	IS	13C-1,2,3,4,7,8-HxCDD	36:25	5.676e+04	4.417e+04	1.28	yes	no	0.945
30	IS	13C-1,2,3,6,7,8-HxCDD	36:30	5.643e+04	4.356e+04	1.30	yes	no	0.924
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:10	4.864e+04	4.588e+04	1.06	yes	no	0.876
32	IS	13C-OCDD	41:51	6.746e+04	7.435e+04	0.91	yes	no	0.662
33	RS/RT	13C-1,2,3,4-TCDD	28:01	5.060e+04	6.403e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:44	5.901e+04	4.746e+04	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:38	3.131e+02				no	1.010

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www.alsglobal.com

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
193431

Run #1 Filename P521510 Samp: 1 Inj: 1 Acquired: 25-APR-19 23:48:29
Processed: 26-APR-19 07:12:43 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	3.22e+04	5.28e+02	6.1e+01	4.10e+04	1.26e+03	3.2e+01
2	1,2,3,7,8-PeCDF	2.54e+05	7.92e+02	3.2e+02	1.38e+05	1.65e+03	8.4e+01
3	2,3,4,7,8-PeCDF	2.21e+05	7.92e+02	2.8e+02	1.46e+05	1.65e+03	8.8e+01
4	1,2,3,4,7,8-HxCDF	2.00e+05	9.12e+02	2.2e+02	1.68e+05	7.56e+02	2.2e+02
5	1,2,3,6,7,8-HxCDF	2.04e+05	9.12e+02	2.2e+02	1.78e+05	7.56e+02	2.3e+02
6	2,3,4,6,7,8-HxCDF	2.03e+05	9.12e+02	2.2e+02	1.61e+05	7.56e+02	2.1e+02
7	1,2,3,7,8,9-HxCDF	1.75e+05	9.12e+02	1.9e+02	1.41e+05	7.56e+02	1.9e+02
8	1,2,3,4,6,7,8-HpCDF	1.80e+05	3.92e+02	4.6e+02	1.71e+05	7.60e+02	2.2e+02
9	1,2,3,4,7,8,9-HpCDF	1.24e+05	3.92e+02	3.2e+02	1.21e+05	7.60e+02	1.6e+02
10	OCDF	1.83e+05	6.40e+02	2.9e+02	1.91e+05	3.44e+02	5.6e+02
11	2,3,7,8-TCDD	2.86e+04	2.54e+03	1.1e+01	3.64e+04	1.02e+03	3.6e+01
12	1,2,3,7,8-PeCDD	1.93e+05	1.69e+03	1.1e+02	1.22e+05	9.32e+02	1.3e+02
13	1,2,3,4,7,8-HxCDD	1.73e+05	5.12e+02	3.4e+02	1.31e+05	3.84e+02	3.4e+02
14	1,2,3,6,7,8-HxCDD	1.65e+05	5.12e+02	3.2e+02	1.38e+05	3.84e+02	3.6e+02
15	1,2,3,7,8,9-HxCDD	1.58e+05	5.12e+02	3.1e+02	1.32e+05	3.84e+02	3.4e+02
16	1,2,3,4,6,7,8-HpCDD	1.48e+05	4.40e+02	3.4e+02	1.41e+05	4.00e+02	3.5e+02
17	OCDD	1.97e+05	6.56e+02	3.0e+02	2.11e+05	1.39e+03	1.5e+02
18	13C-2,3,7,8-TCDF	1.20e+07	6.28e+03	1.9e+03	1.50e+07	4.82e+03	3.1e+03
19	13C-1,2,3,7,8-PeCDF	1.85e+07	8.56e+02	2.2e+04	1.20e+07	9.44e+02	1.3e+04
20	13C-2,3,4,7,8-PeCDF	1.95e+07	8.56e+02	2.3e+04	1.23e+07	9.44e+02	1.3e+04
21	13C-1,2,3,4,7,8-HxCDF	8.92e+06	1.09e+03	8.2e+03	1.74e+07	8.60e+02	2.0e+04
22	13C-1,2,3,6,7,8-HxCDF	1.00e+07	1.09e+03	9.2e+03	1.93e+07	8.60e+02	2.2e+04
23	13C-2,3,4,6,7,8-HxCDF	9.22e+06	1.09e+03	8.4e+03	1.82e+07	8.60e+02	2.1e+04
24	13C-1,2,3,7,8,9-HxCDF	7.61e+06	1.09e+03	7.0e+03	1.49e+07	8.60e+02	1.7e+04
25	13C-1,2,3,4,6,7,8-HpCDF	6.85e+06	6.58e+03	1.0e+03	1.53e+07	7.60e+02	2.0e+04
26	13C-1,2,3,4,7,8,9-HpCDF	5.30e+06	6.58e+03	8.0e+02	1.18e+07	7.60e+02	1.5e+04
27	13C-2,3,7,8-TCDD	9.13e+06	5.61e+03	1.6e+03	1.16e+07	2.70e+03	4.3e+03
28	13C-1,2,3,7,8-PeCDD	1.42e+07	1.10e+03	1.3e+04	9.03e+06	1.18e+03	7.6e+03
29	13C-1,2,3,4,7,8-HxCDD	1.32e+07	1.27e+03	1.0e+04	1.02e+07	6.16e+02	1.7e+04
30	13C-1,2,3,6,7,8-HxCDD	1.26e+07	1.27e+03	1.0e+04	9.84e+06	6.16e+02	1.6e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.08e+07	8.16e+02	1.3e+04	1.00e+07	6.72e+02	1.5e+04
32	13C-OCDD	1.26e+07	4.92e+02	2.6e+04	1.39e+07	3.88e+02	3.6e+04
33	13C-1,2,3,4-TCDD	9.55e+06	5.61e+03	1.7e+03	1.22e+07	2.70e+03	4.5e+03
34	13C-1,2,3,7,8,9-HxCDD	1.34e+07	1.27e+03	1.1e+04	1.07e+07	6.16e+02	1.7e+04
35	37Cl-2,3,7,8-TCDD	6.50e+04	1.68e+03	3.9e+01			

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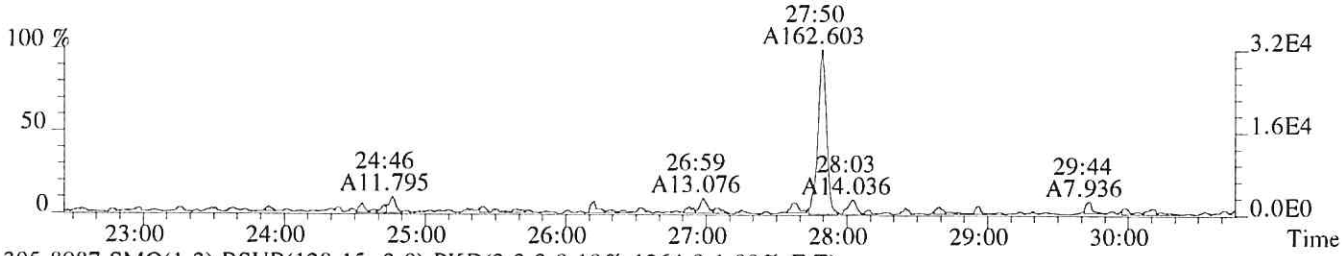
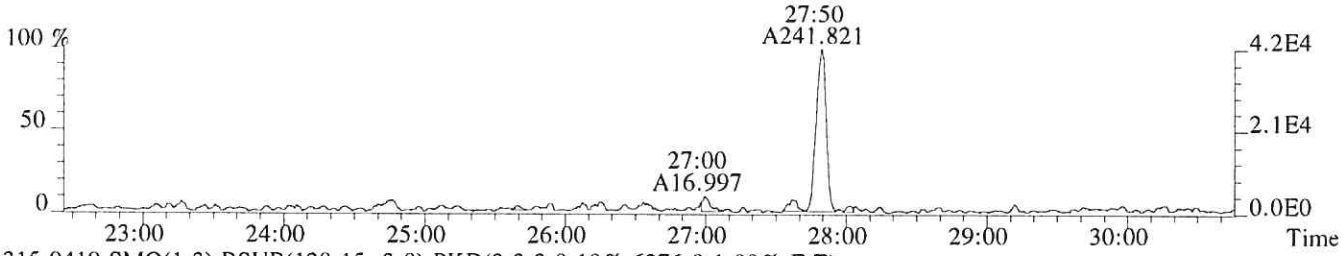
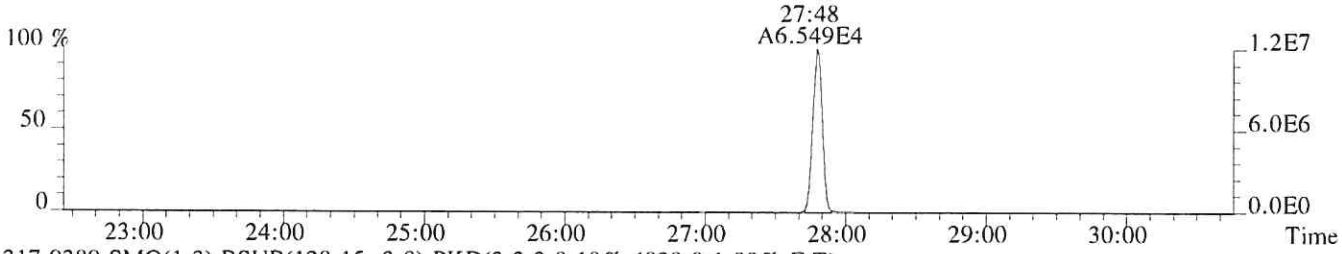
File:P521510 #1-591 Acq:25-APR-2019 23:48:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:193431
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,528.0,1.00%,F,T)



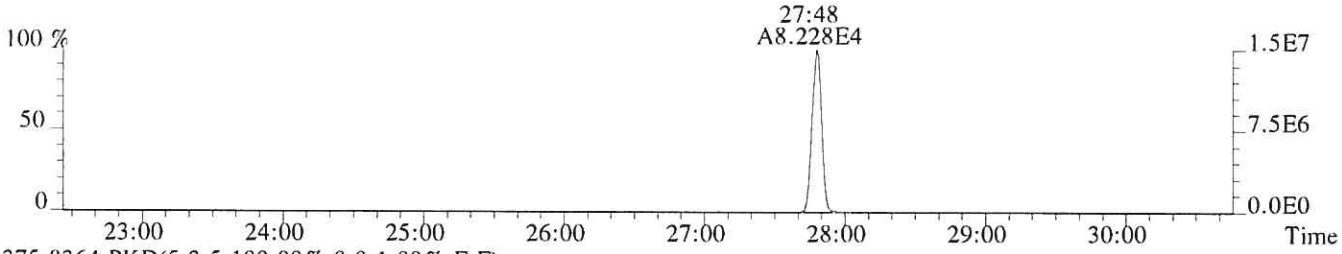
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1264.0,1.00%,F,T)



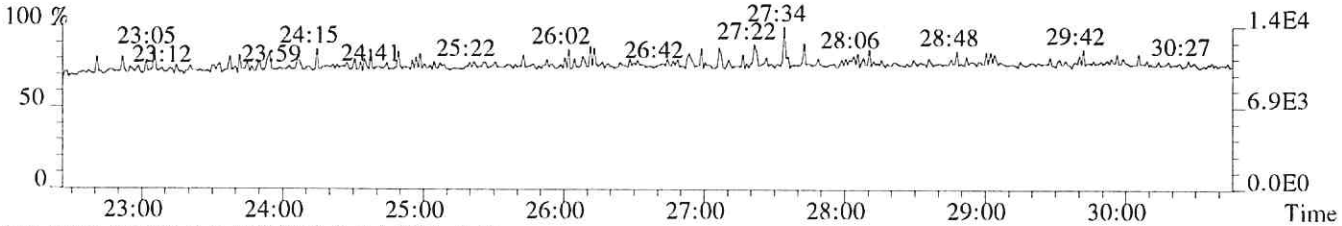
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6276.0,1.00%,F,T)



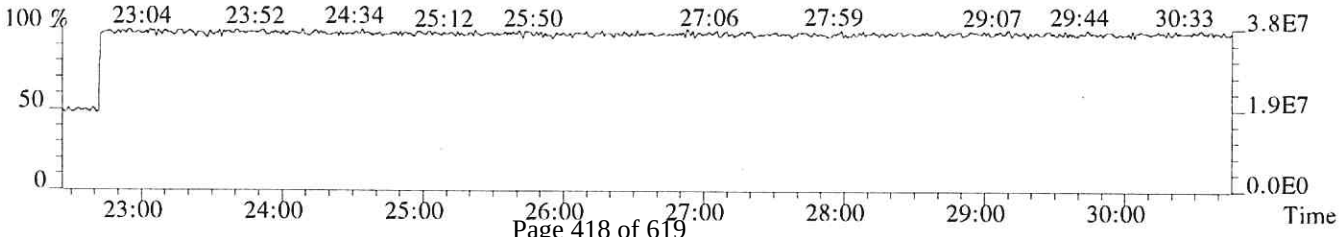
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4820.0,1.00%,F,T)



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



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



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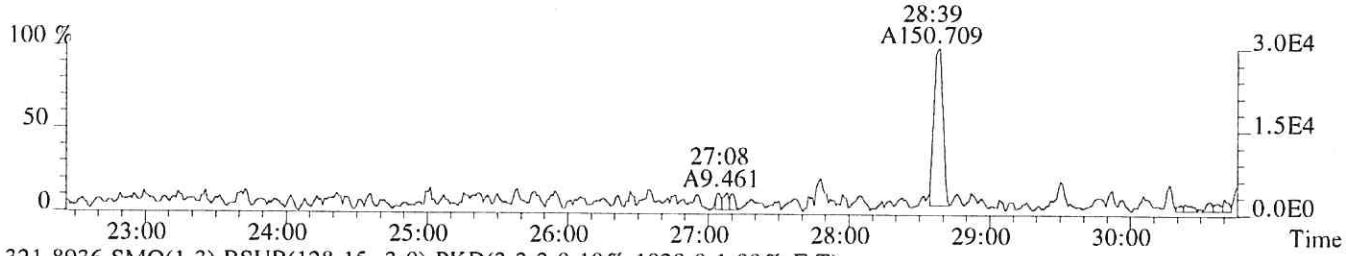
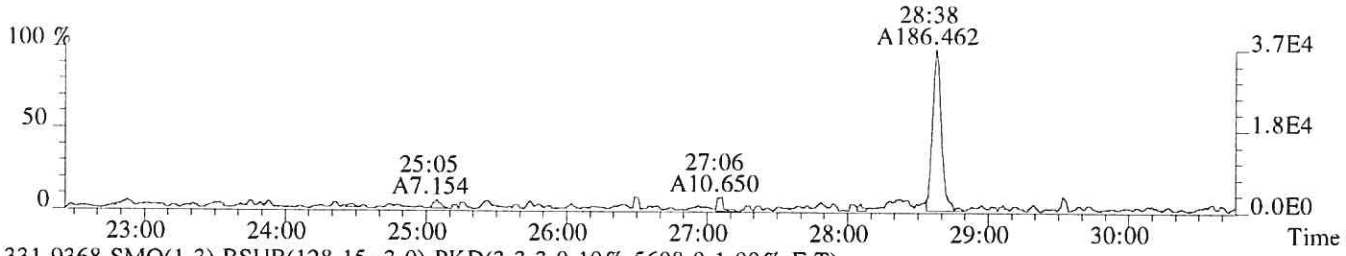
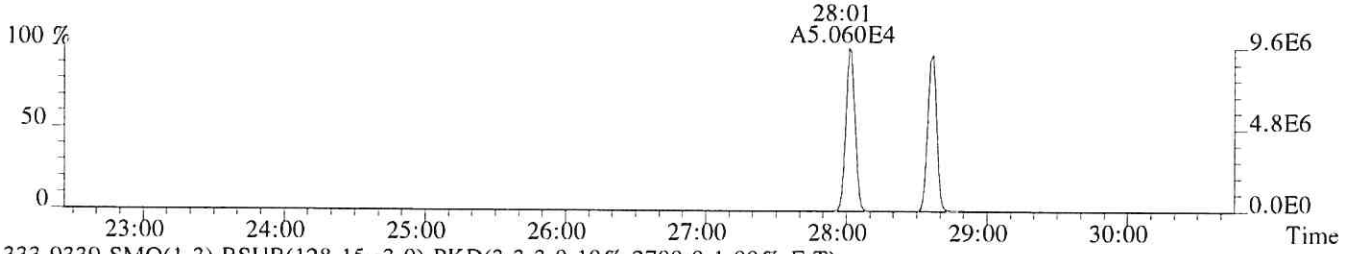
File:P521510 #1-591 Acq:25-APR-2019 23:48:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:193431
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2540.0,1.00%,F,T)



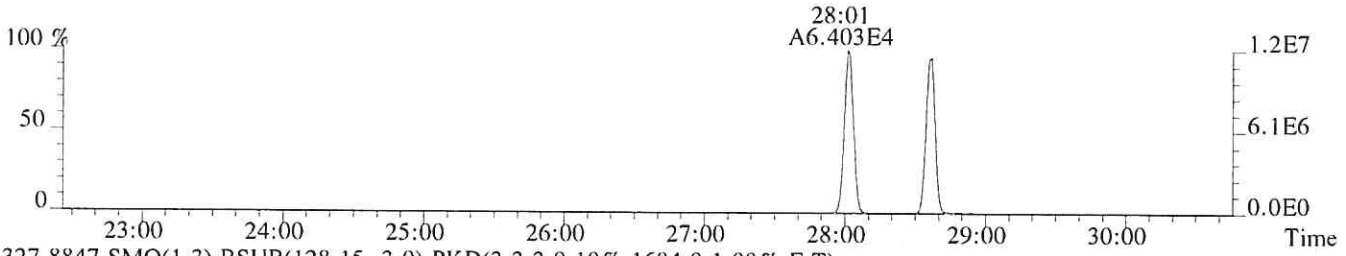
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1020.0,1.00%,F,T)



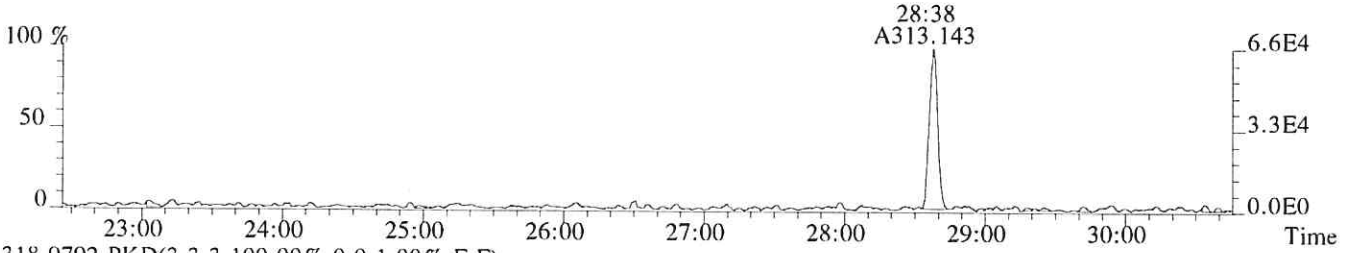
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5608.0,1.00%,F,T)



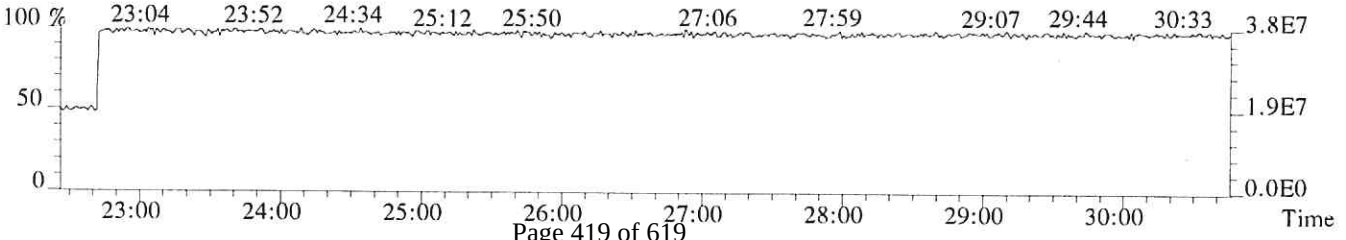
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2700.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1684.0,1.00%,F,T)



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



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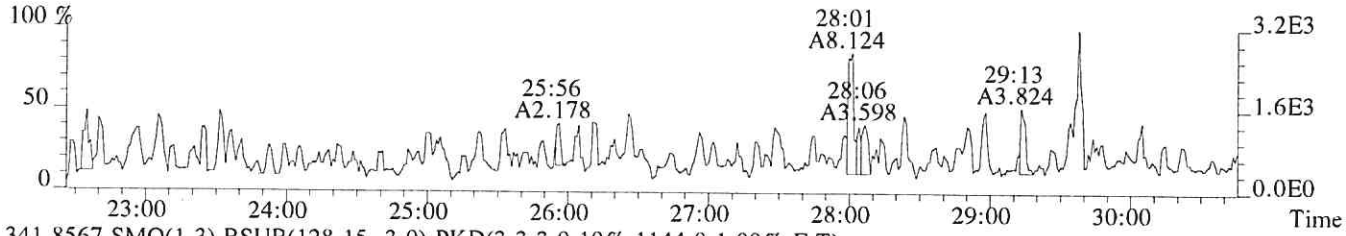
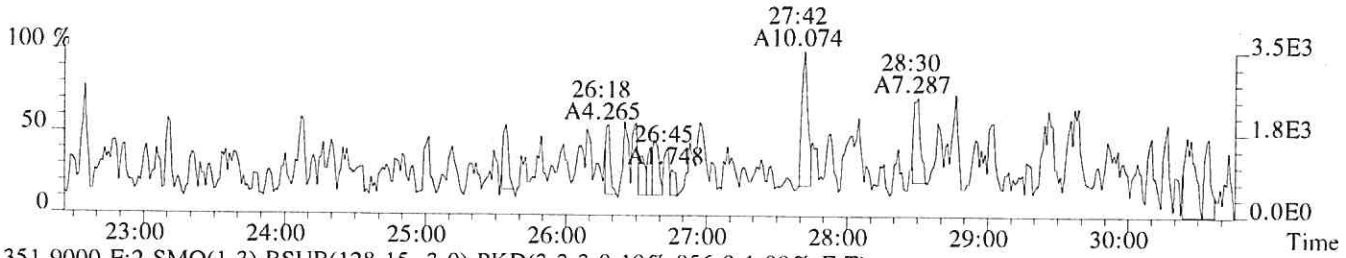
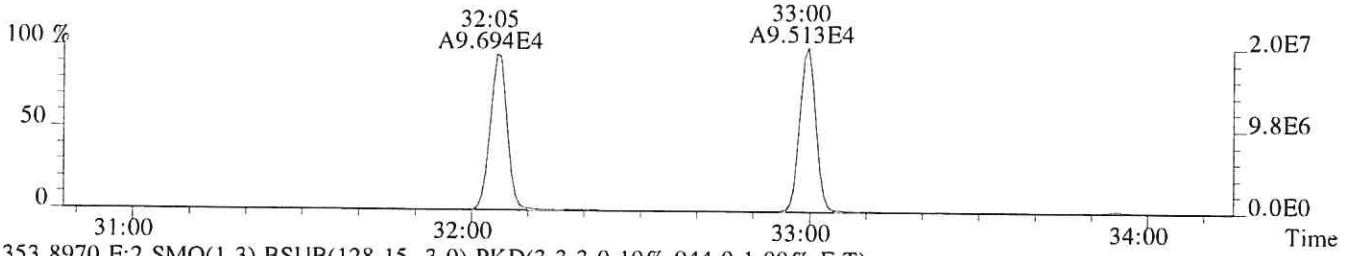
File:P521510 #1-591 Acq:25-APR-2019 23:48:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:193431
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,756.0,1.00%,F,T)



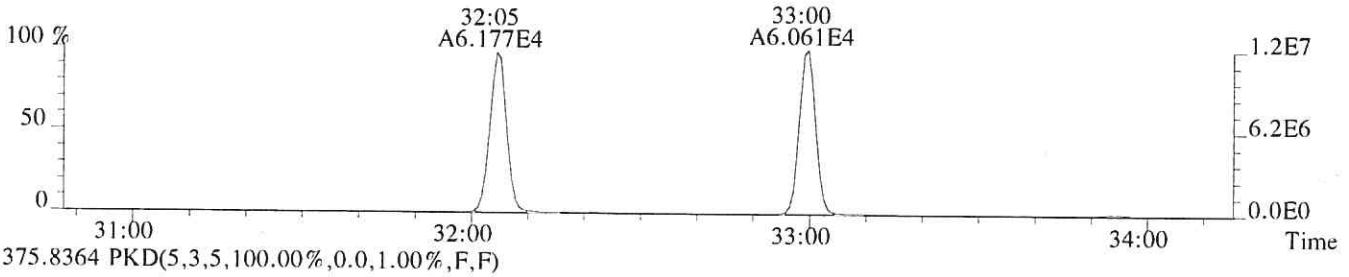
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1144.0,1.00%,F,T)



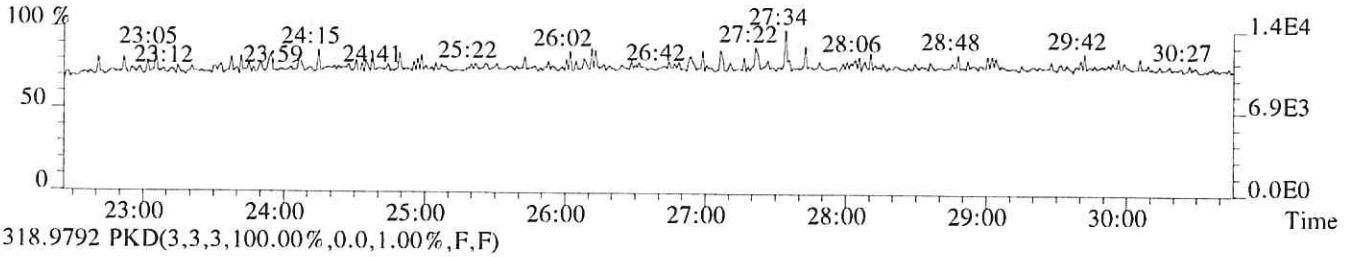
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,856.0,1.00%,F,T)



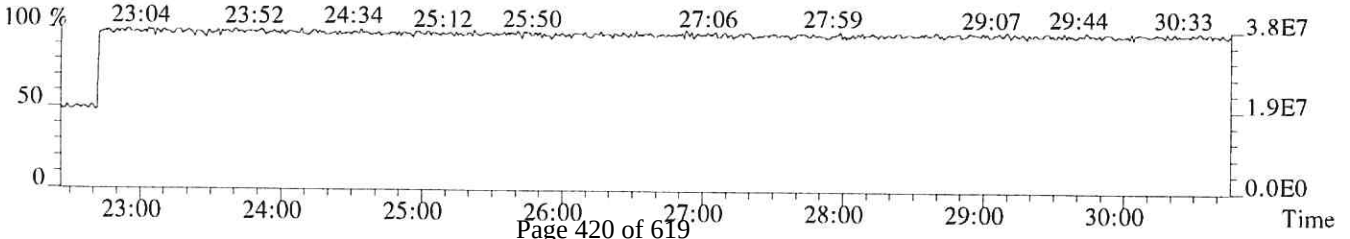
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,944.0,1.00%,F,T)



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



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



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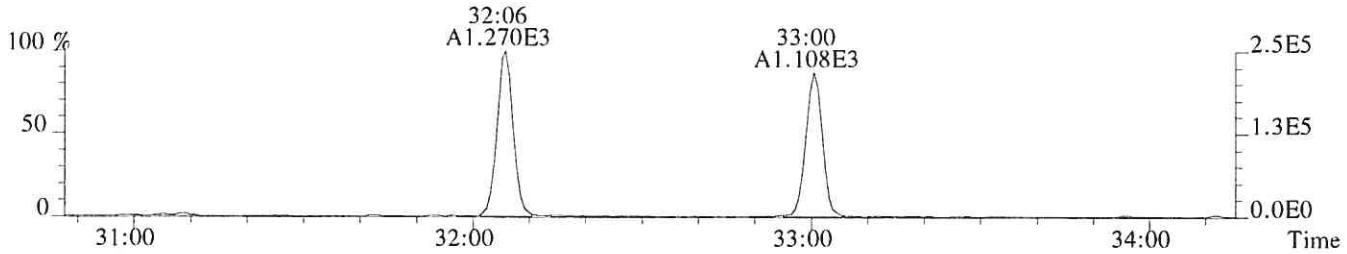
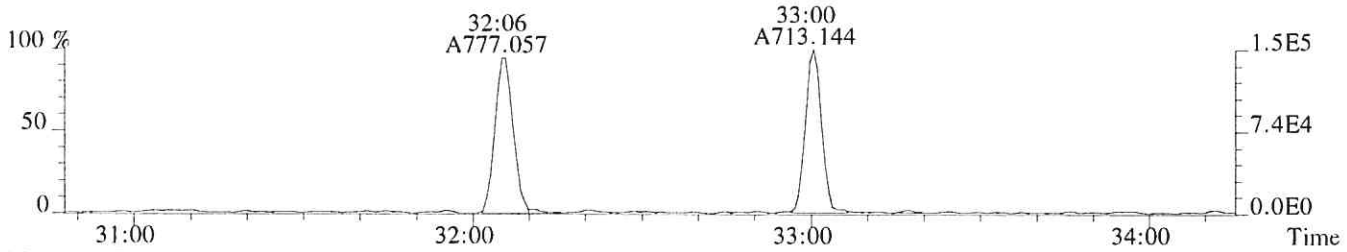
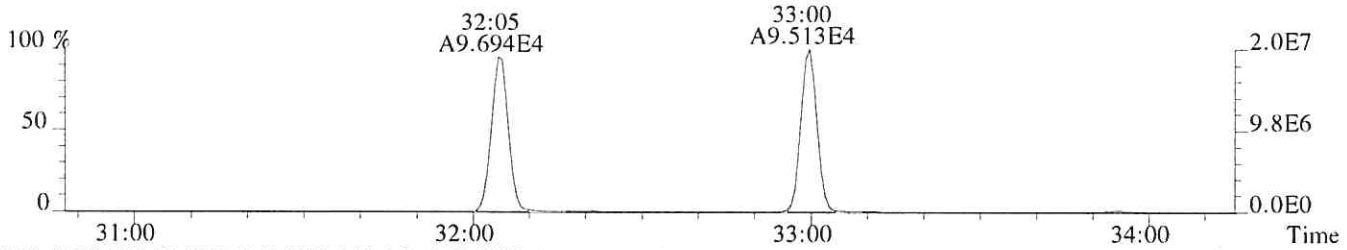
File:P521510 #1-312 Acq:25-APR-2019 23:48:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:193431
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,792.0,1.00%,F,T)



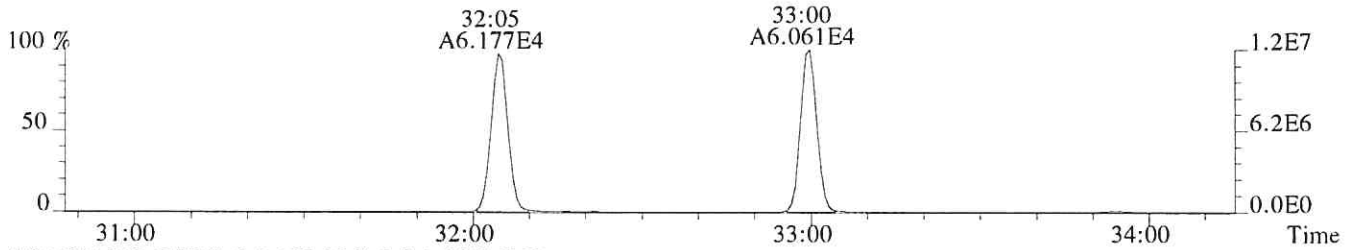
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1648.0,1.00%,F,T)



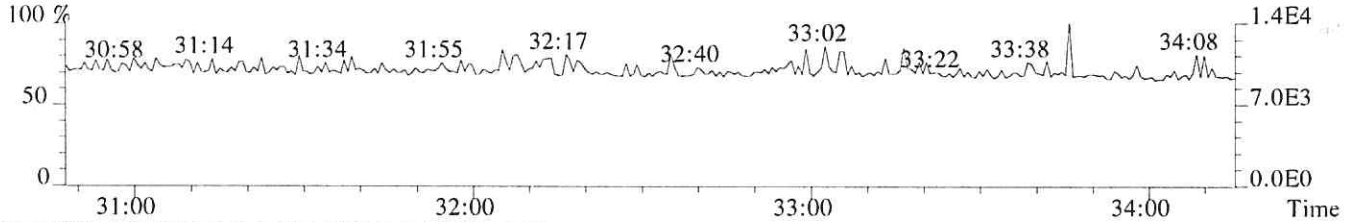
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,856.0,1.00%,F,T)



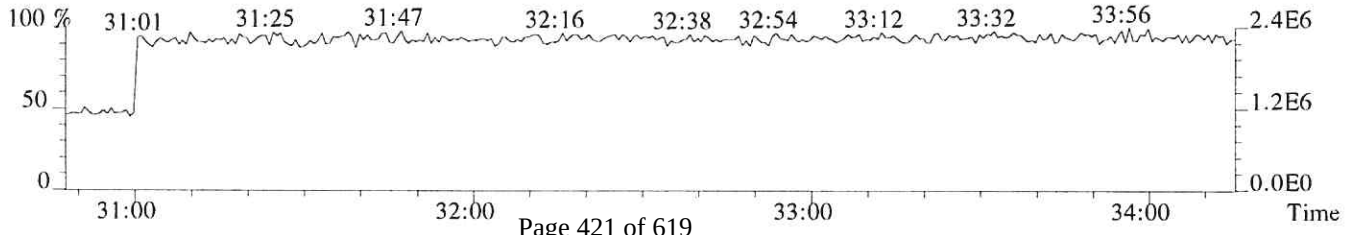
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,944.0,1.00%,F,T)



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

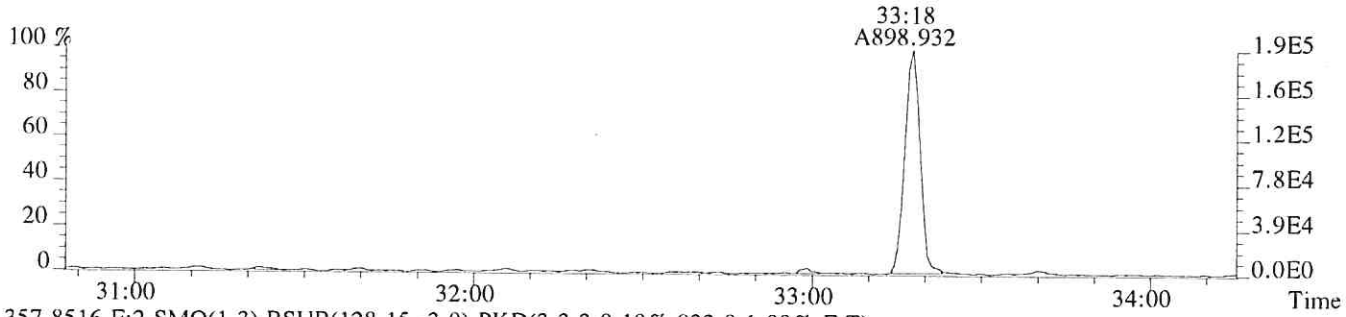


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

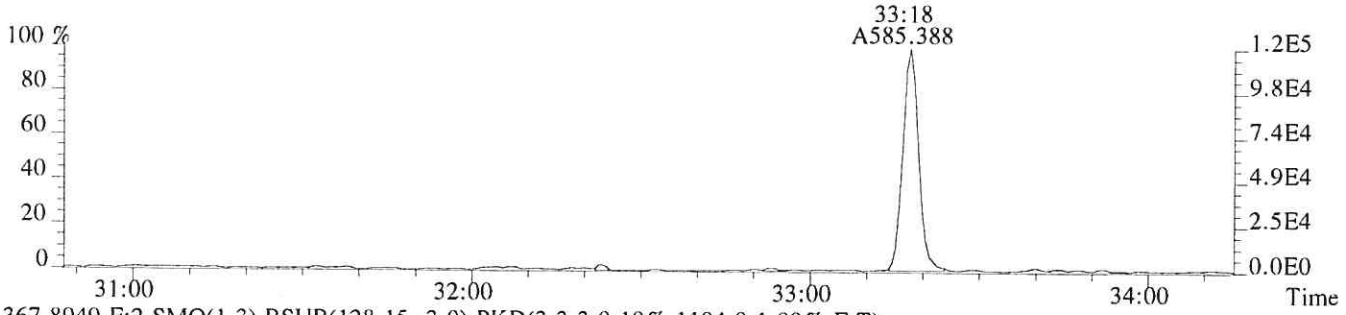


RIGHT SOLUTIONS | RIGHT PARTNER

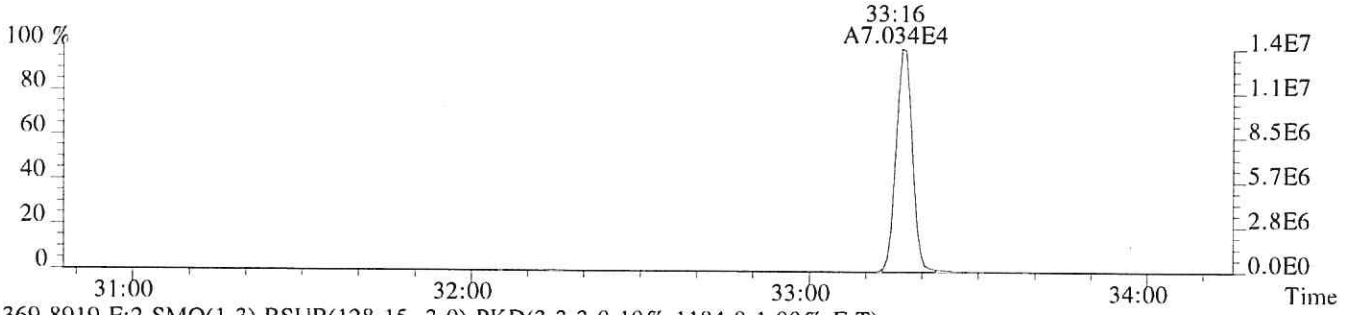
File:P521510 #1-312 Acq:25-APR-2019 23:48:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:193431
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1692.0,1.00%,F,T)



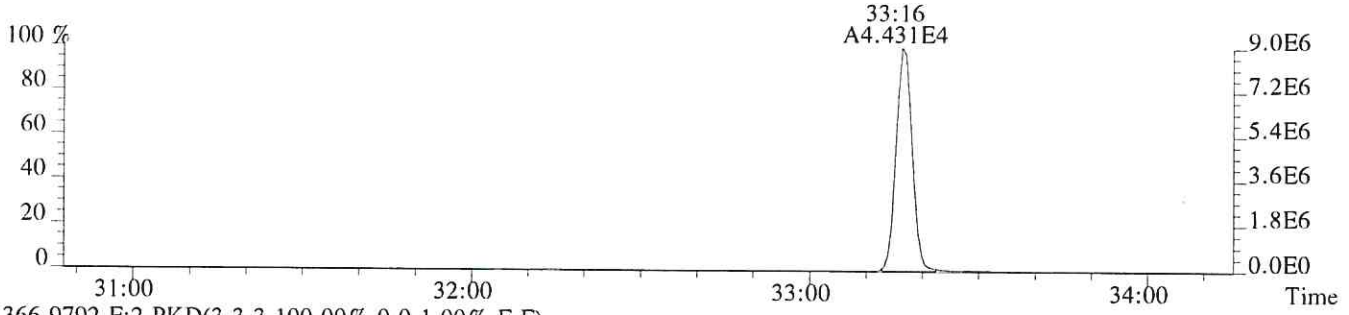
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,932.0,1.00%,F,T)



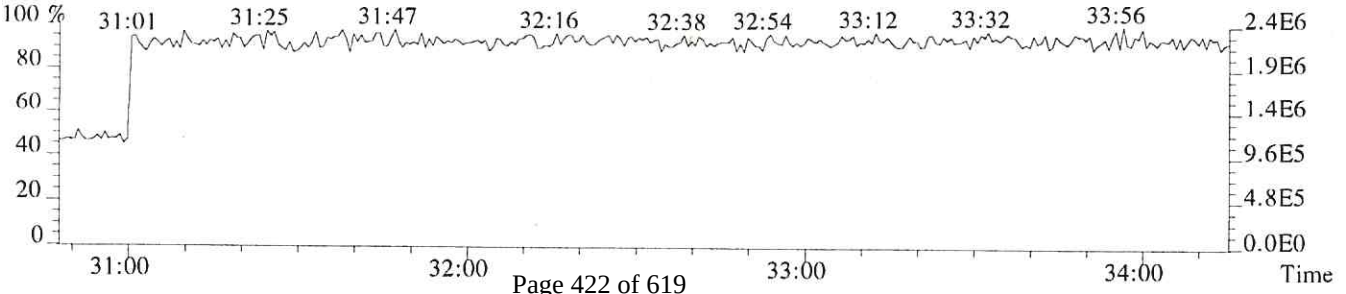
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1104.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1184.0,1.00%,F,T)

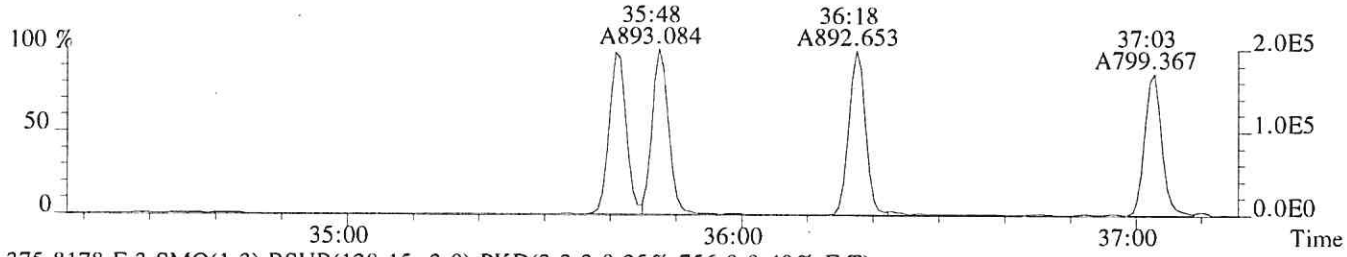


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

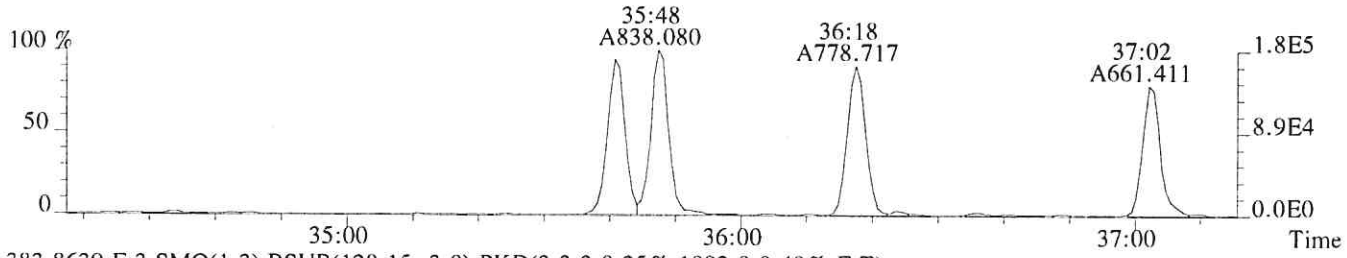


RIGHT SOLUTIONS | RIGHT PARTNER

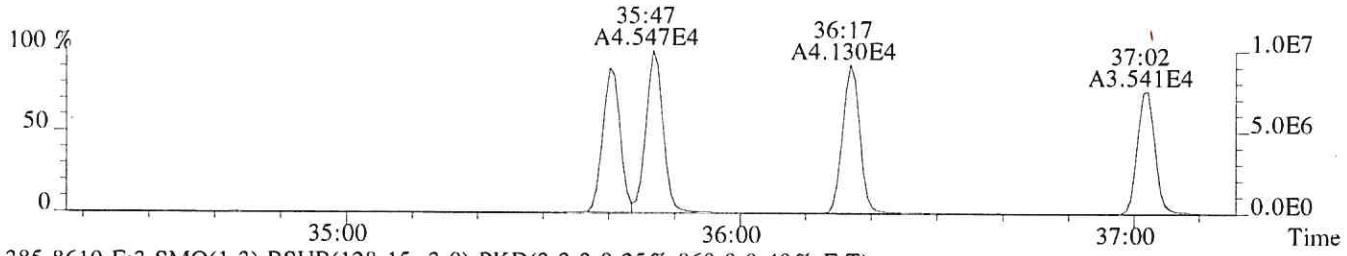
File:P521510 #1-268 Acq:25-APR-2019 23:48:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:193431
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,912.0,0.40%,F,T)



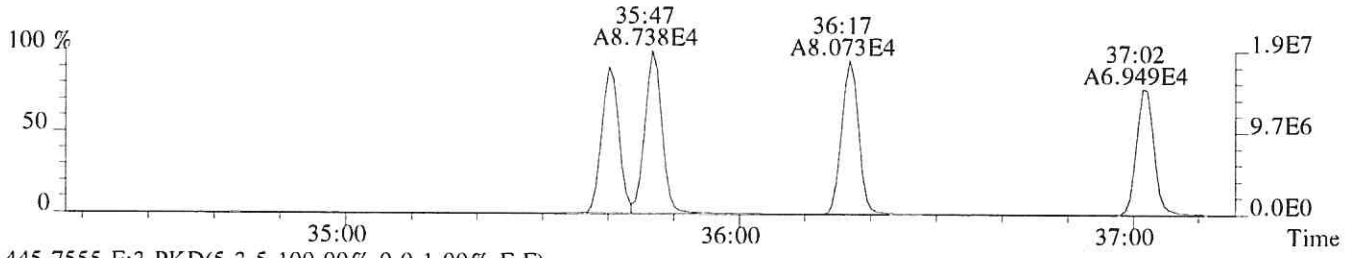
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,756.0,0.40%,F,T)



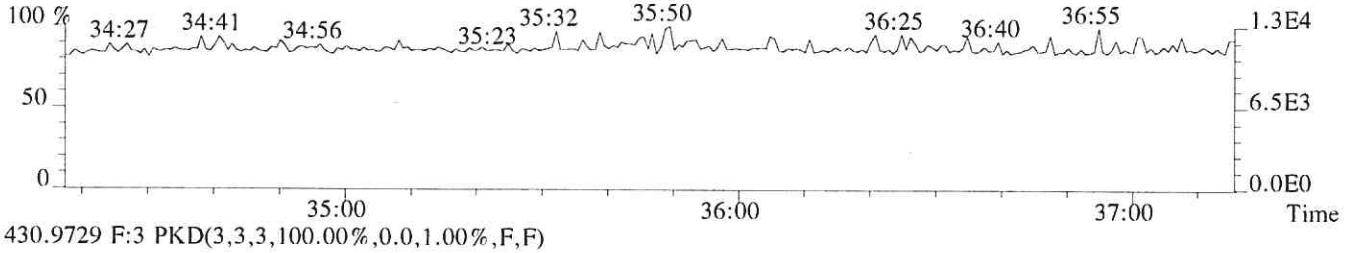
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1092.0,0.40%,F,T)



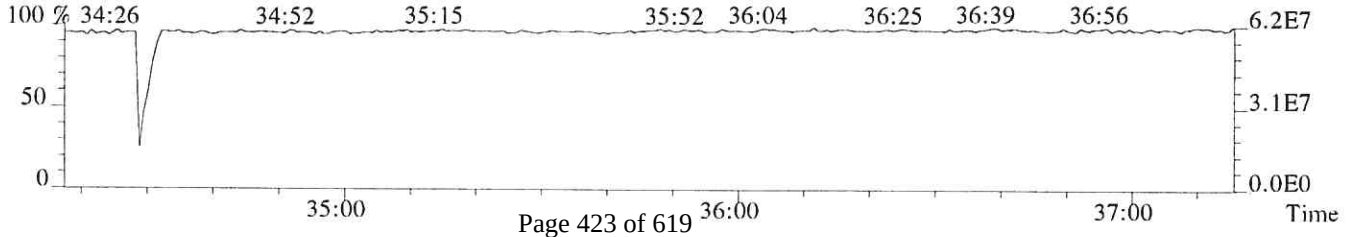
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,860.0,0.40%,F,T)



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

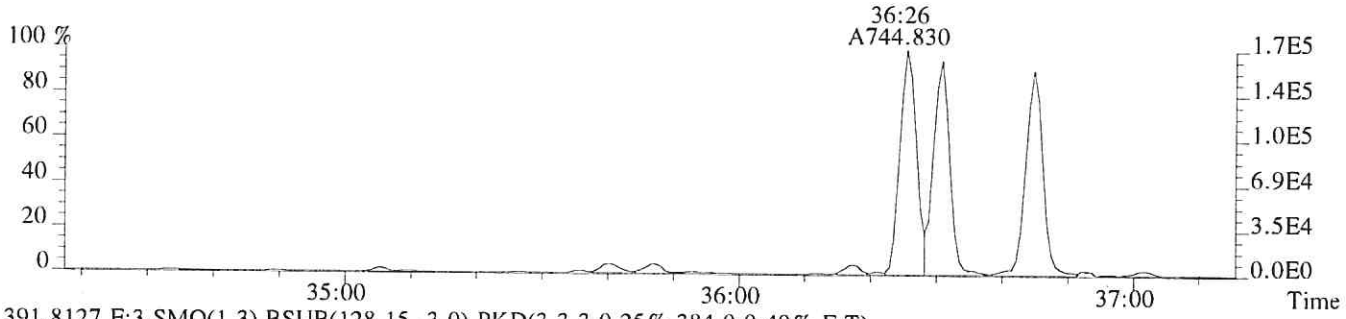


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

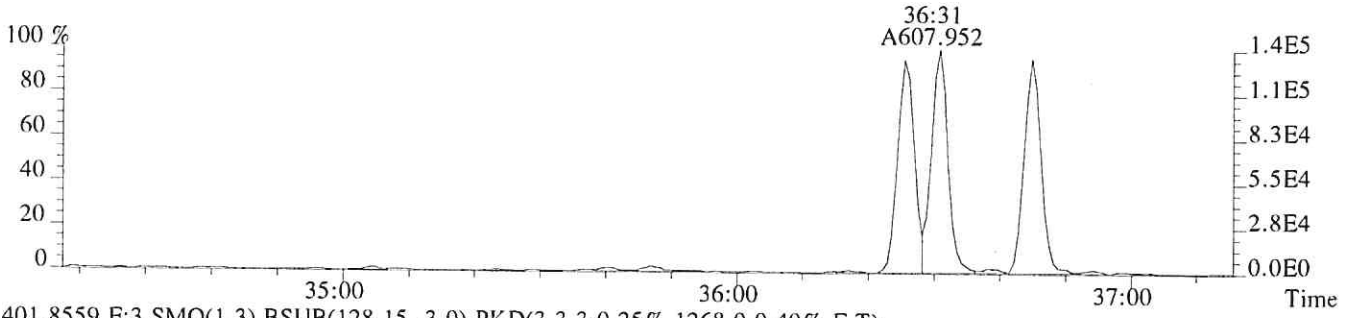


RIGHT SOLUTIONS | RIGHT PARTNER

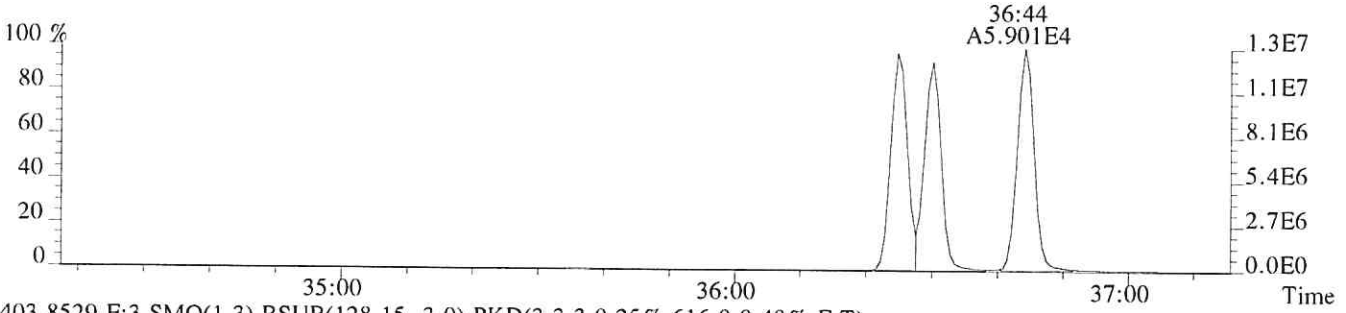
File:P521510 #1-268 Acq:25-APR-2019 23:48:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:193431
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,512.0,0.40%,F,T)



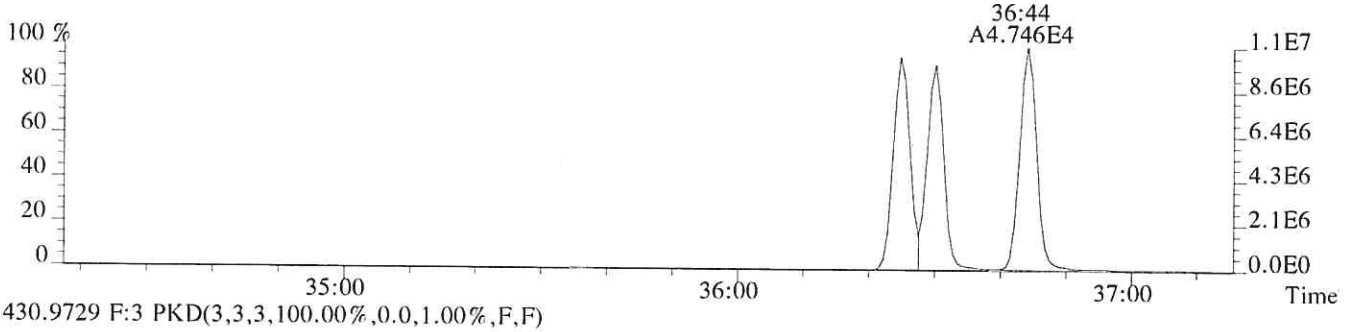
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,384.0,0.40%,F,T)



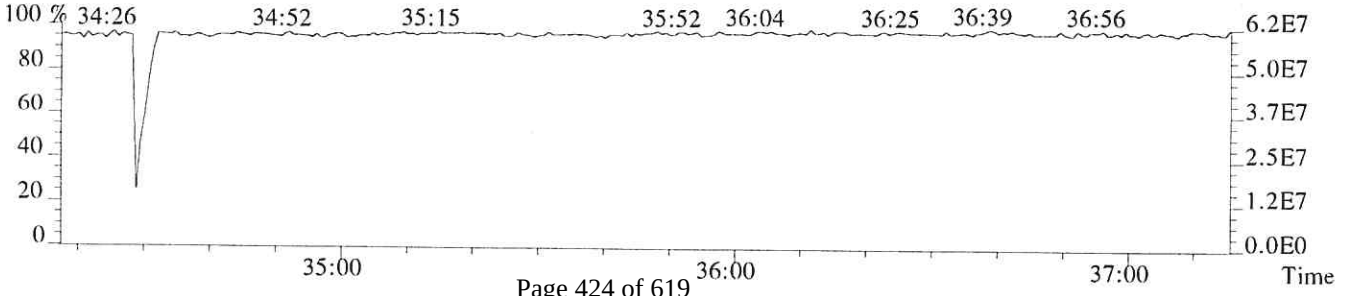
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1268.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,616.0,0.40%,F,T)

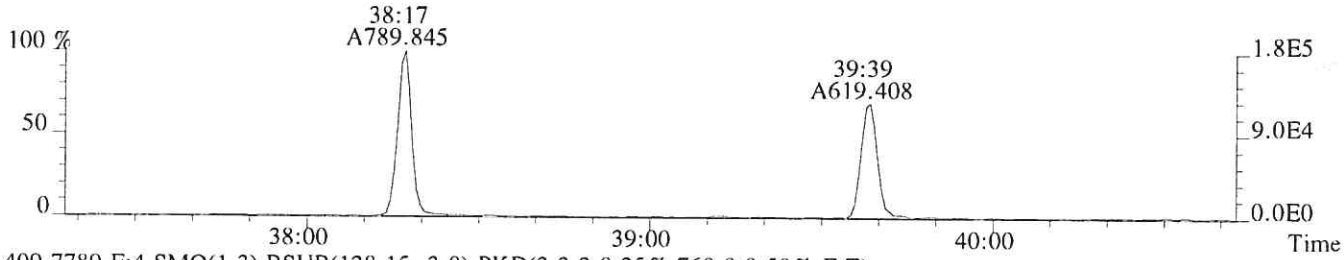


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

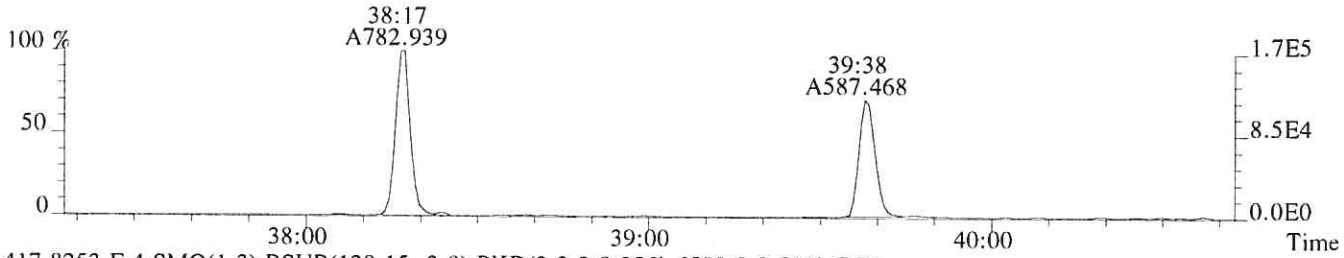


RIGHT SOLUTIONS | RIGHT PARTNER

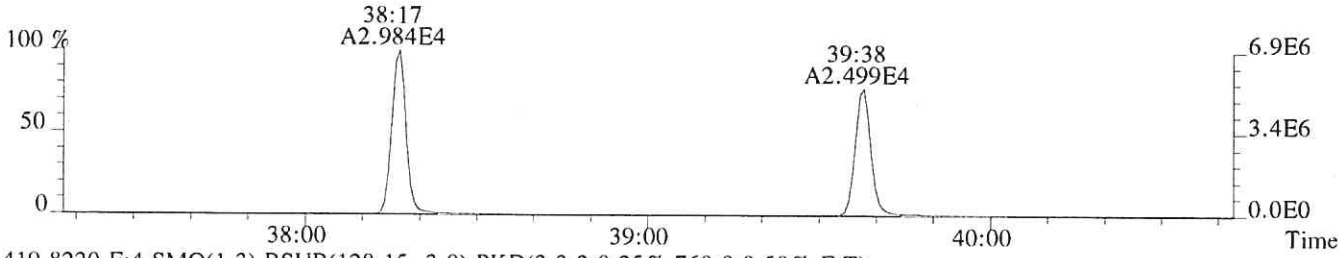
File:P521510 #1-308 Acq:25-APR-2019 23:48:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:193431
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,392.0,0.50%,F,T)



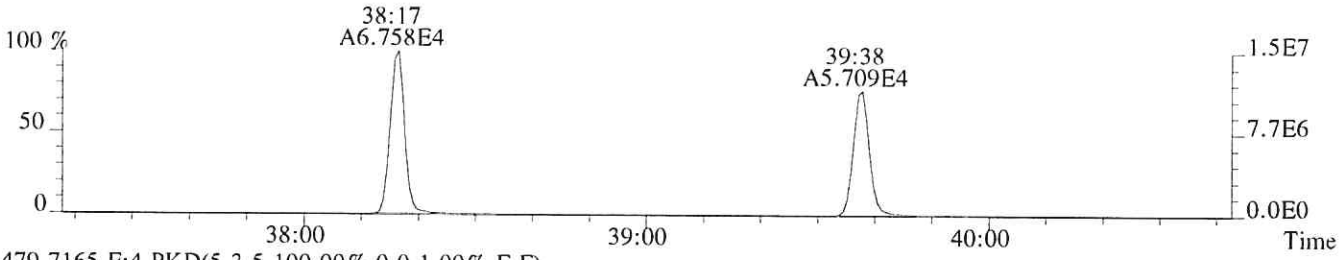
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,760.0,0.50%,F,T)



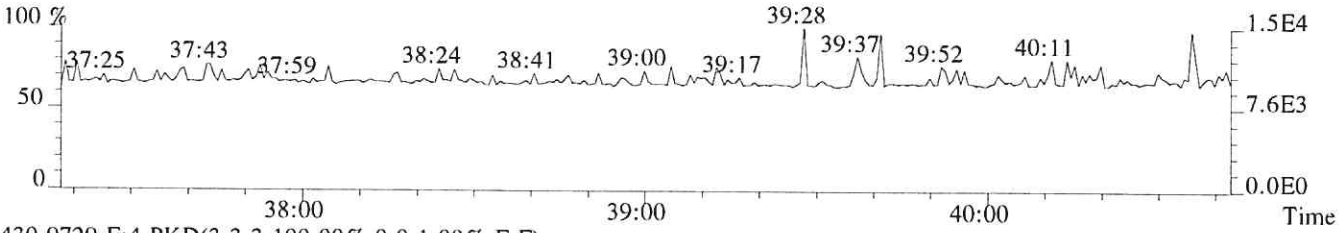
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6580.0,0.50%,F,T)



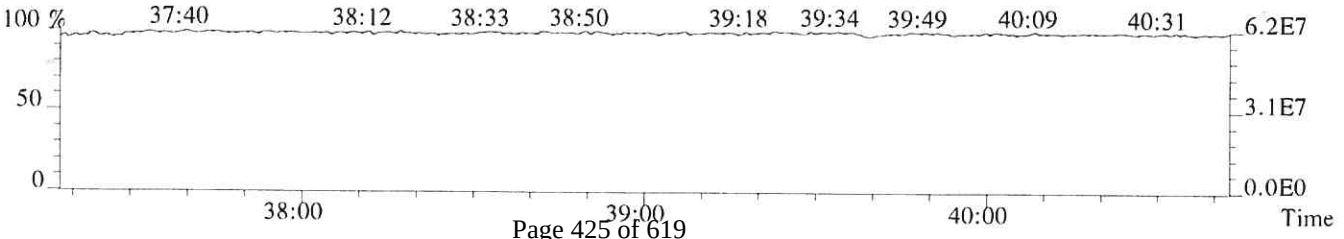
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,760.0,0.50%,F,T)



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

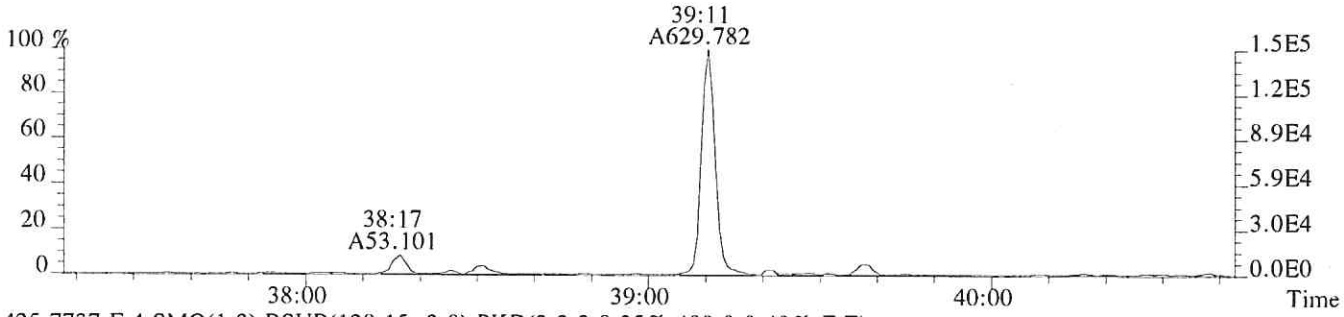


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

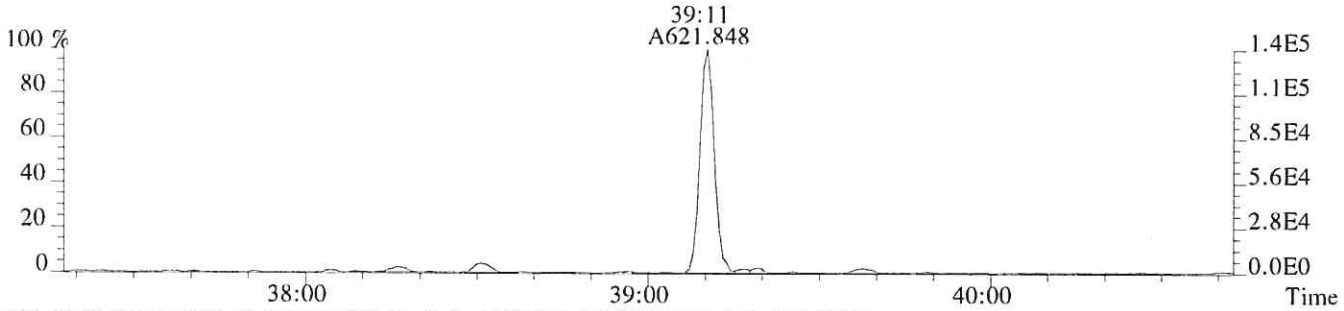


RIGHT SOLUTIONS | RIGHT PARTNER

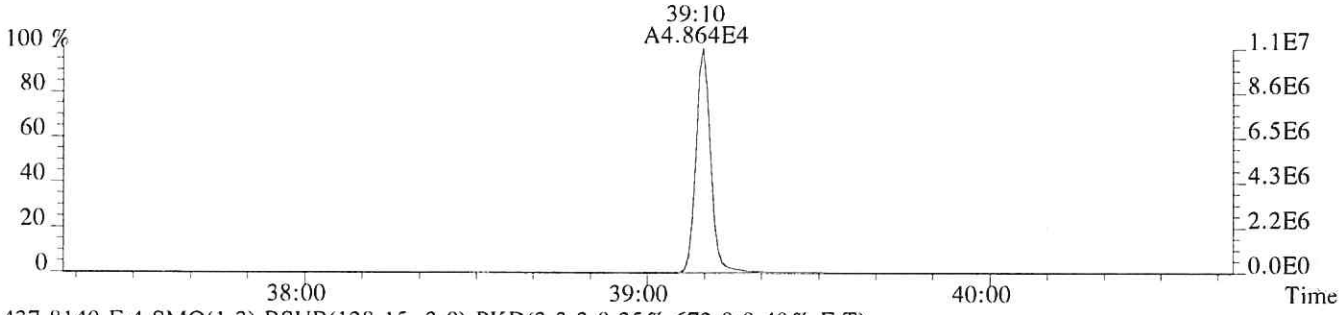
File:P521510 #1-308 Acq:25-APR-2019 23:48:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:193431
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,440.0,0.40%,F,T)



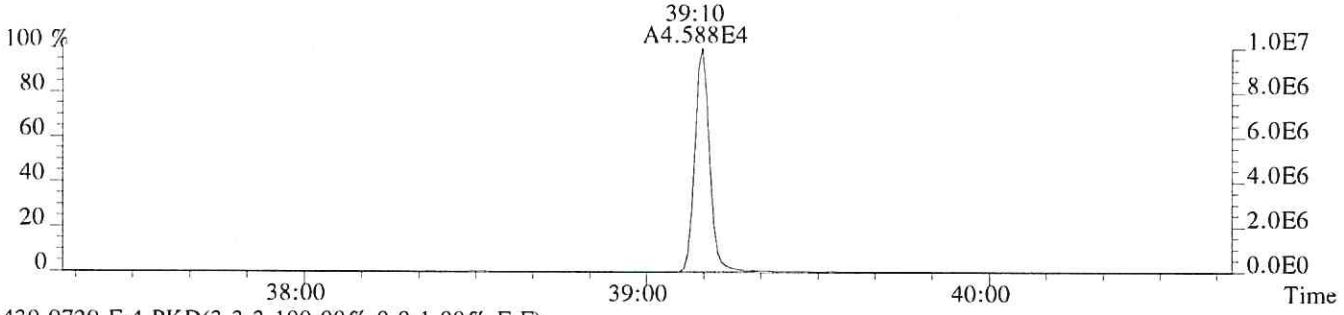
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,400.0,0.40%,F,T)



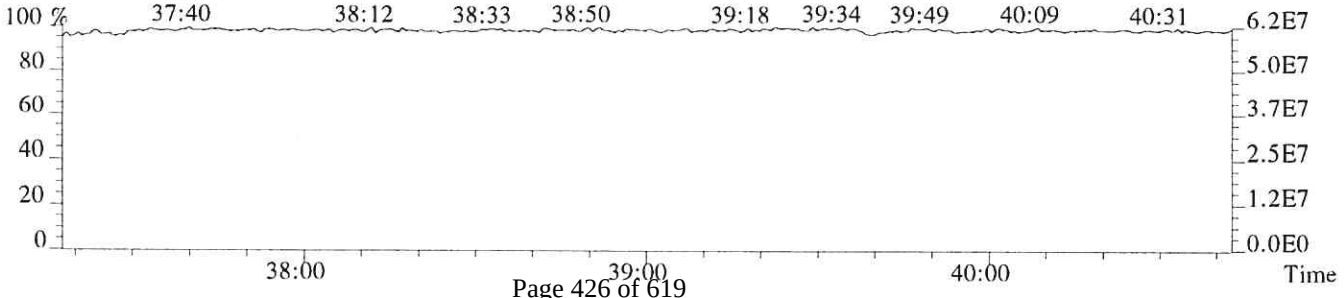
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,816.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,672.0,0.40%,F,T)



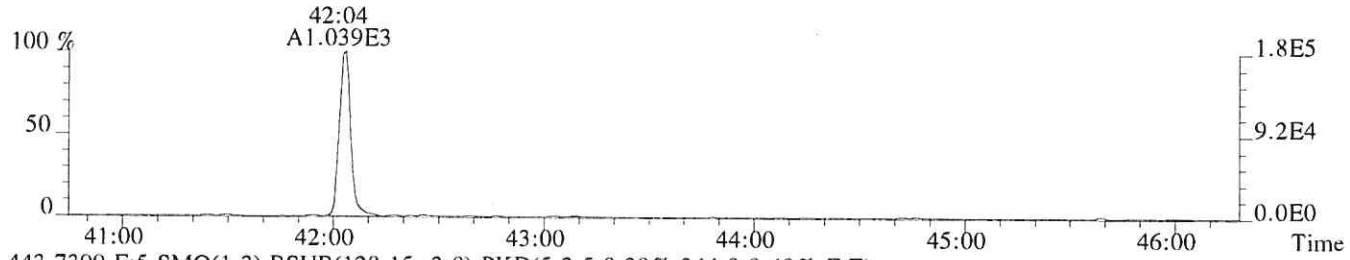
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



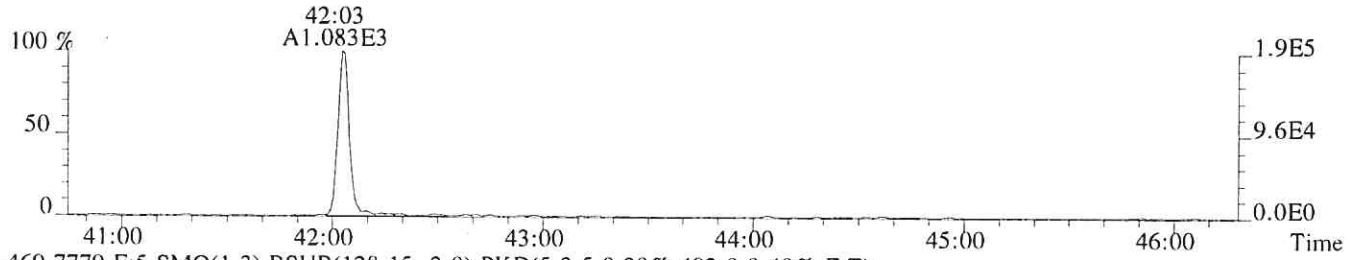
RIGHT SOLUTIONS | RIGHT PARTNER

File:P521510 #1-501 Acq:25-APR-2019 23:48:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:193431

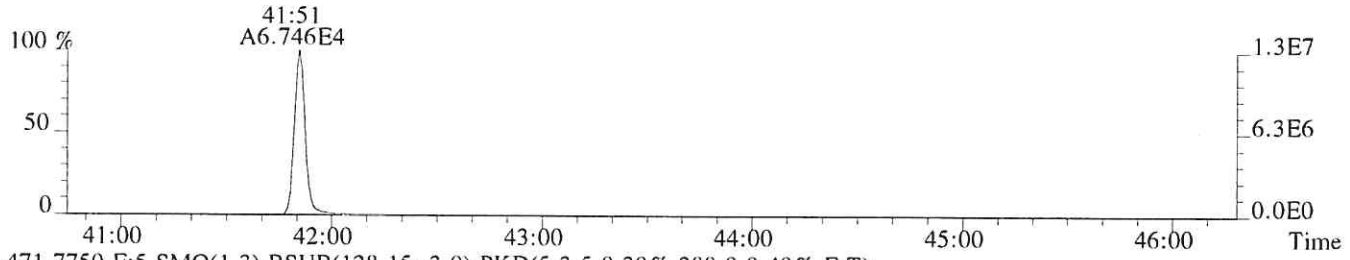
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,640.0,0.40%,F,T)



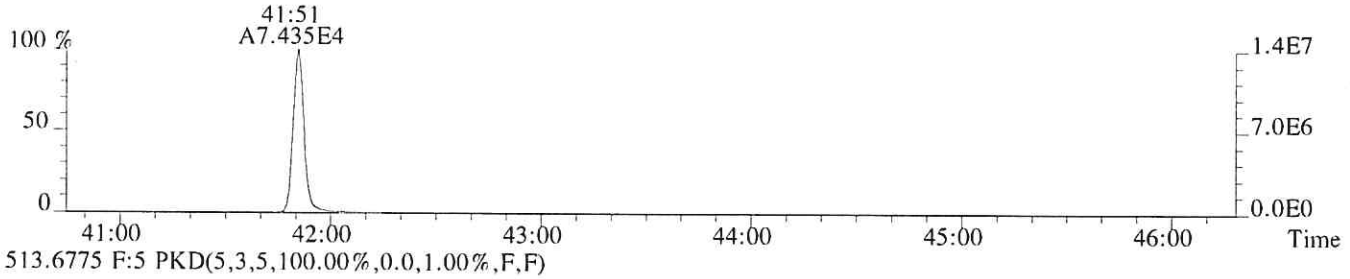
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,344.0,0.40%,F,T)



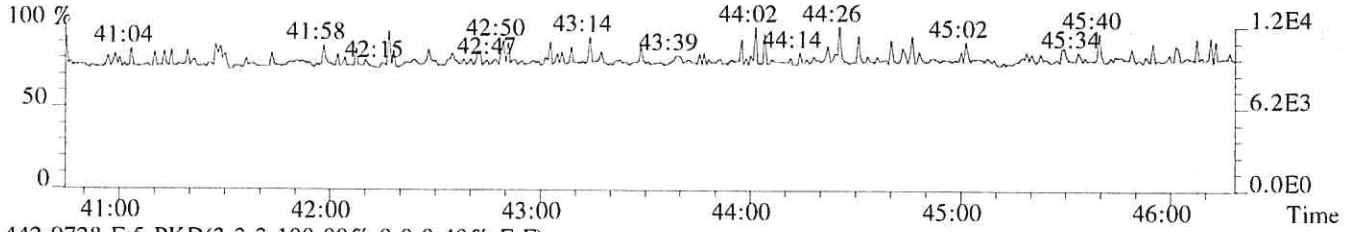
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,492.0,0.40%,F,T)



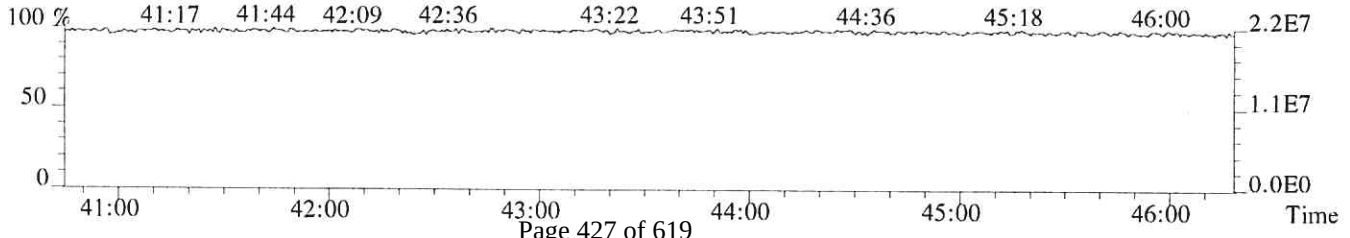
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,388.0,0.40%,F,T)



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

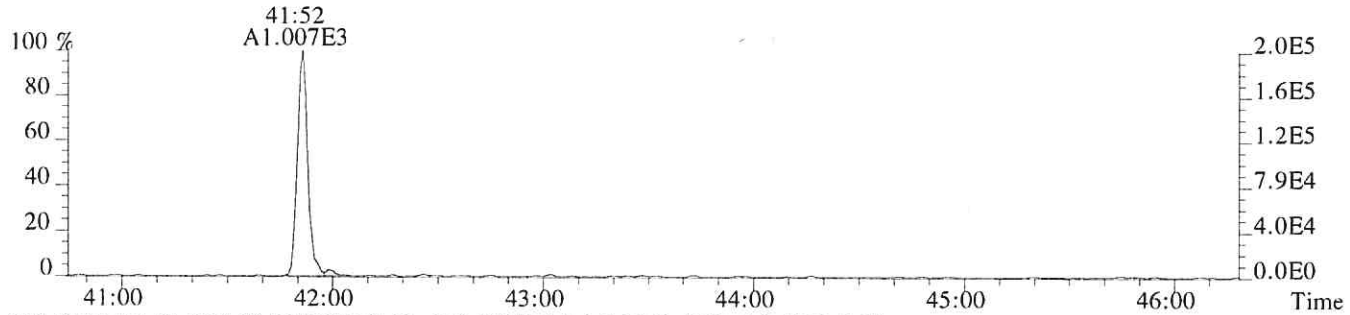


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

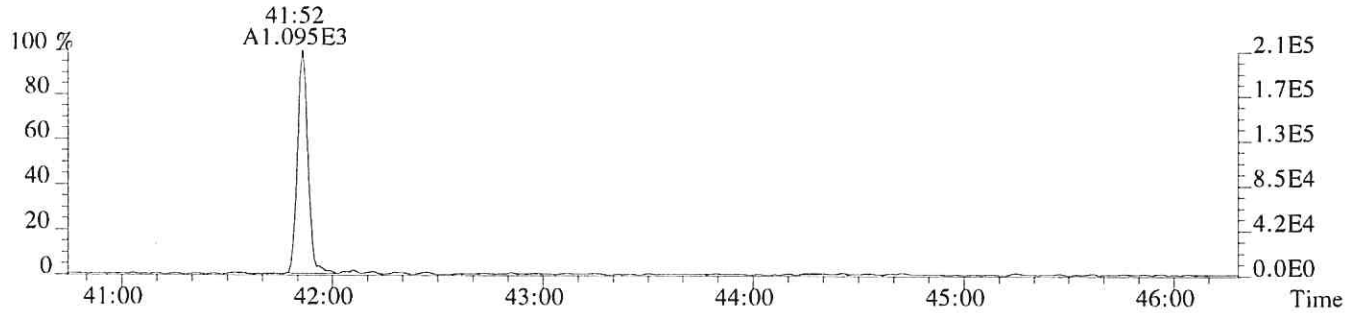


RIGHT SOLUTIONS | RIGHT PARTNER

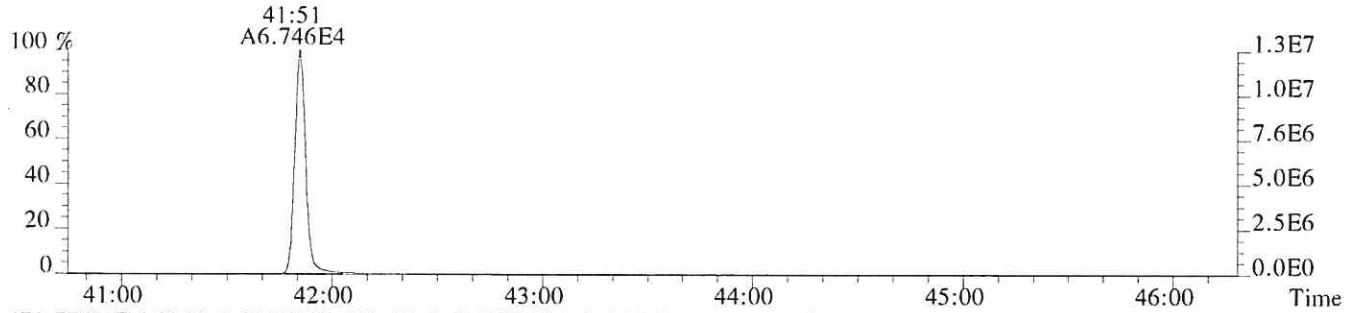
File:P521510 #1-501 Acq:25-APR-2019 23:48:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:193431
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,656.0,0.40%,F,T)



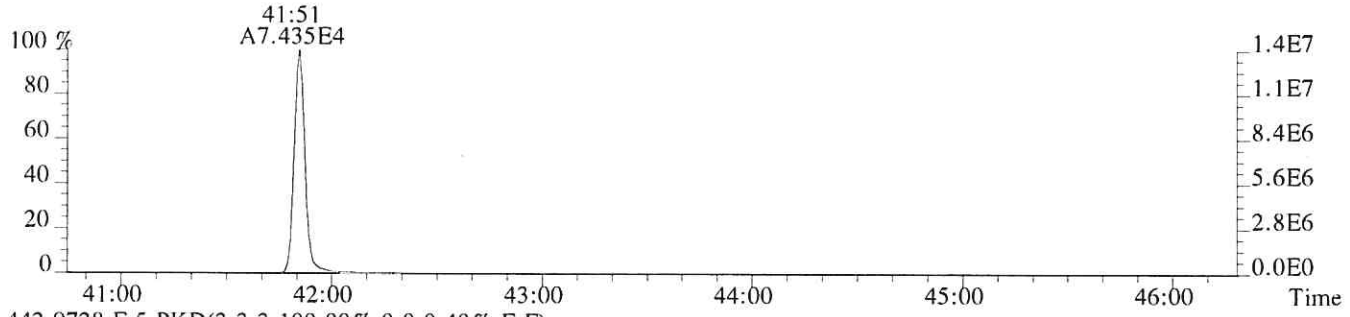
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1392.0,0.40%,F,T)



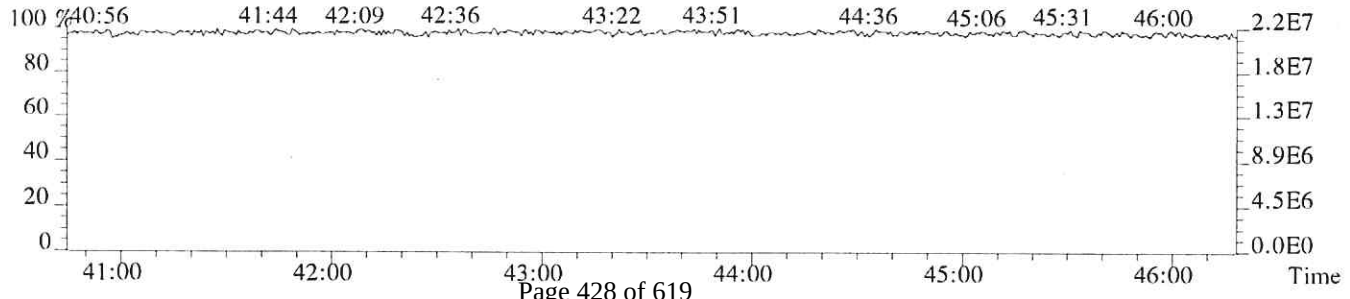
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,492.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,388.0,0.40%,F,T)



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



RIGHT SOLUTIONS | RIGHT PARTNER

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
193432

Run #2 Filename P521511 Samp: 1 Inj: 1 Acquired: 26-APR-19 00:37:08
Processed: 26-APR-19 07:12:43 Sample ID: CS1

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:49	3.636e+02	4.718e+02	0.77	yes	no	0.962
2	Unk	1,2,3,7,8-PeCDF	32:06	2.503e+03	1.673e+03	1.50	yes	no	0.968
3	Unk	2,3,4,7,8-PeCDF	33:00	2.424e+03	1.566e+03	1.55	yes	no	0.919
4	Unk	1,2,3,4,7,8-HxCDF	35:41	2.125e+03	1.717e+03	1.24	yes	no	1.161
5	Unk	1,2,3,6,7,8-HxCDF	35:48	2.220e+03	1.801e+03	1.23	yes	no	1.073
6	Unk	2,3,4,6,7,8-HxCDF	36:18	1.881e+03	1.722e+03	1.09	yes	no	1.069
7	Unk	1,2,3,7,8,9-HxCDF	37:02	1.724e+03	1.545e+03	1.12	yes	no	1.096
8	Unk	1,2,3,4,6,7,8-HpCDF	38:17	1.741e+03	1.711e+03	1.02	yes	no	1.281
9	Unk	1,2,3,4,7,8,9-HpCDF	39:38	1.362e+03	1.371e+03	0.99	yes	no	1.192
10	Unk	OCDF	42:03	2.348e+03	2.465e+03	0.95	yes	no	1.204
11	Unk	2,3,7,8-TCDD	28:38	2.910e+02	3.633e+02	0.80	yes	no	1.077
12	Unk	1,2,3,7,8-PeCDD	33:18	1.936e+03	1.239e+03	1.56	yes	no	0.971
13	Unk	1,2,3,4,7,8-HxCDD	36:26	1.569e+03	1.264e+03	1.24	yes	no	1.024
14	Unk	1,2,3,6,7,8-HxCDD	36:31	1.535e+03	1.309e+03	1.17	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:45	1.580e+03	1.347e+03	1.17	yes	no	1.055
16	Unk	1,2,3,4,6,7,8-HpCDD	39:11	1.267e+03	1.255e+03	1.01	yes	no	0.989
17	Unk	OCDD	41:52	2.083e+03	2.312e+03	0.90	yes	no	1.094
18	IS	13C-2,3,7,8-TCDF	27:48	7.382e+04	9.389e+04	0.79	yes	no	1.287
19	IS	13C-1,2,3,7,8-PeCDF	32:05	1.121e+05	7.144e+04	1.57	yes	no	1.416
20	IS	13C-2,3,4,7,8-PeCDF	33:00	1.091e+05	6.916e+04	1.58	yes	no	1.374
21	IS	13C-1,2,3,4,7,8-HxCDF	35:40	4.650e+04	8.995e+04	0.52	yes	no	1.114
22	IS	13C-1,2,3,6,7,8-HxCDF	35:47	5.230e+04	1.010e+05	0.52	yes	no	1.245
23	IS	13C-2,3,4,6,7,8-HxCDF	36:17	4.915e+04	9.493e+04	0.52	yes	no	1.146
24	IS	13C-1,2,3,7,8,9-HxCDF	37:02	4.181e+04	8.091e+04	0.52	yes	no	0.986
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:17	3.485e+04	7.862e+04	0.44	yes	no	0.915
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:38	2.872e+04	6.538e+04	0.44	yes	no	0.746
27	IS	13C-2,3,7,8-TCDD	28:37	5.331e+04	6.750e+04	0.79	yes	no	0.929
28	IS	13C-1,2,3,7,8-PeCDD	33:16	8.072e+04	5.101e+04	1.58	yes	no	1.017
29	IS	13C-1,2,3,4,7,8-HxCDD	36:25	6.594e+04	5.139e+04	1.28	yes	no	0.945
30	IS	13C-1,2,3,6,7,8-HxCDD	36:30	6.418e+04	5.068e+04	1.27	yes	no	0.924
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:10	5.616e+04	5.316e+04	1.06	yes	no	0.876
32	IS	13C-OCDD	41:51	8.060e+04	8.919e+04	0.90	yes	no	0.662
33	RS/RT	13C-1,2,3,4-TCDD	28:01	5.720e+04	7.228e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:44	7.090e+04	5.464e+04	1.30	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:38	6.569e+02				no	1.010

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www.alsglobal.com

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
193432

Run #2 Filename P521511 Samp: 1 Inj: 1 Acquired: 26-APR-19 00:37:08
Processed: 26-APR-19 07:12:43 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	6.37e+04	8.12e+02	7.8e+01	8.92e+04	1.43e+03	6.2e+01
2	1,2,3,7,8-PeCDF	4.93e+05	1.11e+03	4.4e+02	3.28e+05	1.37e+03	2.4e+02
3	2,3,4,7,8-PeCDF	5.07e+05	1.11e+03	4.6e+02	3.29e+05	1.37e+03	2.4e+02
4	1,2,3,4,7,8-HxCDF	4.63e+05	8.28e+02	5.6e+02	3.81e+05	5.88e+02	6.5e+02
5	1,2,3,6,7,8-HxCDF	4.86e+05	8.28e+02	5.9e+02	3.91e+05	5.88e+02	6.6e+02
6	2,3,4,6,7,8-HxCDF	4.25e+05	8.28e+02	5.1e+02	3.72e+05	5.88e+02	6.3e+02
7	1,2,3,7,8,9-HxCDF	3.77e+05	8.28e+02	4.6e+02	3.39e+05	5.88e+02	5.8e+02
8	1,2,3,4,6,7,8-HpCDF	3.96e+05	3.64e+02	1.1e+03	3.85e+05	4.36e+02	8.8e+02
9	1,2,3,4,7,8,9-HpCDF	2.66e+05	3.64e+02	7.3e+02	2.75e+05	4.36e+02	6.3e+02
10	OCDF	4.29e+05	5.52e+02	7.8e+02	4.57e+05	9.68e+02	4.7e+02
11	2,3,7,8-TCDD	6.32e+04	2.57e+03	2.5e+01	6.90e+04	1.61e+03	4.3e+01
12	1,2,3,7,8-PeCDD	3.97e+05	1.46e+03	2.7e+02	2.54e+05	6.76e+02	3.8e+02
13	1,2,3,4,7,8-HxCDD	3.56e+05	6.32e+02	5.6e+02	2.91e+05	5.72e+02	5.1e+02
14	1,2,3,6,7,8-HxCDD	3.44e+05	6.32e+02	5.4e+02	2.95e+05	5.72e+02	5.2e+02
15	1,2,3,7,8,9-HxCDD	3.52e+05	6.32e+02	5.6e+02	2.92e+05	5.72e+02	5.1e+02
16	1,2,3,4,6,7,8-HpCDD	2.83e+05	4.92e+02	5.7e+02	2.82e+05	6.20e+02	4.6e+02
17	OCDD	3.96e+05	4.24e+02	9.3e+02	4.31e+05	9.68e+02	4.5e+02
18	13C-2,3,7,8-TCDF	1.38e+07	6.13e+03	2.3e+03	1.74e+07	3.84e+03	4.5e+03
19	13C-1,2,3,7,8-PeCDF	2.16e+07	7.40e+02	2.9e+04	1.38e+07	1.08e+03	1.3e+04
20	13C-2,3,4,7,8-PeCDF	2.18e+07	7.40e+02	3.0e+04	1.39e+07	1.08e+03	1.3e+04
21	13C-1,2,3,4,7,8-HxCDF	1.05e+07	1.06e+03	9.9e+03	2.03e+07	1.49e+03	1.4e+04
22	13C-1,2,3,6,7,8-HxCDF	1.13e+07	1.06e+03	1.1e+04	2.21e+07	1.49e+03	1.5e+04
23	13C-2,3,4,6,7,8-HxCDF	1.11e+07	1.06e+03	1.0e+04	2.15e+07	1.49e+03	1.4e+04
24	13C-1,2,3,7,8,9-HxCDF	9.14e+06	1.06e+03	8.6e+03	1.77e+07	1.49e+03	1.2e+04
25	13C-1,2,3,4,6,7,8-HpCDF	7.82e+06	6.80e+02	1.1e+04	1.76e+07	4.28e+02	4.1e+04
26	13C-1,2,3,4,7,8,9-HpCDF	5.84e+06	6.80e+02	8.6e+03	1.33e+07	4.28e+02	3.1e+04
27	13C-2,3,7,8-TCDD	1.03e+07	6.13e+03	1.7e+03	1.29e+07	2.30e+03	5.6e+03
28	13C-1,2,3,7,8-PeCDD	1.64e+07	1.12e+03	1.5e+04	1.05e+07	1.25e+03	8.4e+03
29	13C-1,2,3,4,7,8-HxCDD	1.51e+07	1.51e+03	1.0e+04	1.18e+07	7.84e+02	1.5e+04
30	13C-1,2,3,6,7,8-HxCDD	1.42e+07	1.51e+03	9.4e+03	1.12e+07	7.84e+02	1.4e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.22e+07	7.72e+02	1.6e+04	1.14e+07	4.96e+02	2.3e+04
32	13C-OCDD	1.49e+07	8.24e+02	1.8e+04	1.65e+07	5.20e+02	3.2e+04
33	13C-1,2,3,4-TCDD	1.08e+07	6.13e+03	1.8e+03	1.37e+07	2.30e+03	5.9e+03
34	13C-1,2,3,7,8,9-HxCDD	1.55e+07	1.51e+03	1.0e+04	1.24e+07	7.84e+02	1.6e+04
35	37Cl-2,3,7,8-TCDD	1.30e+05	1.71e+03	7.6e+01			

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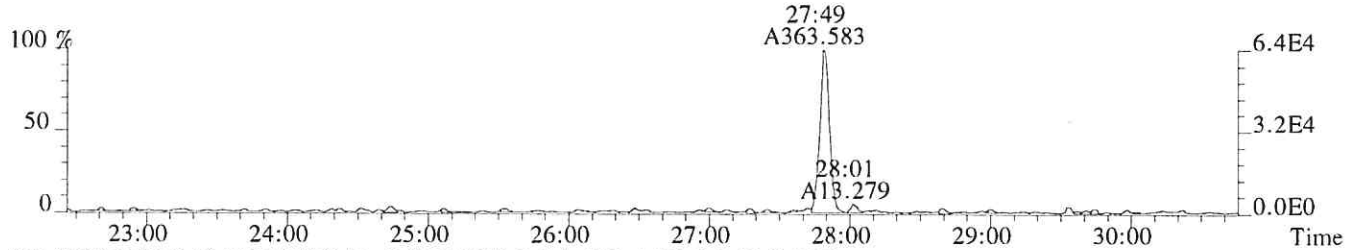
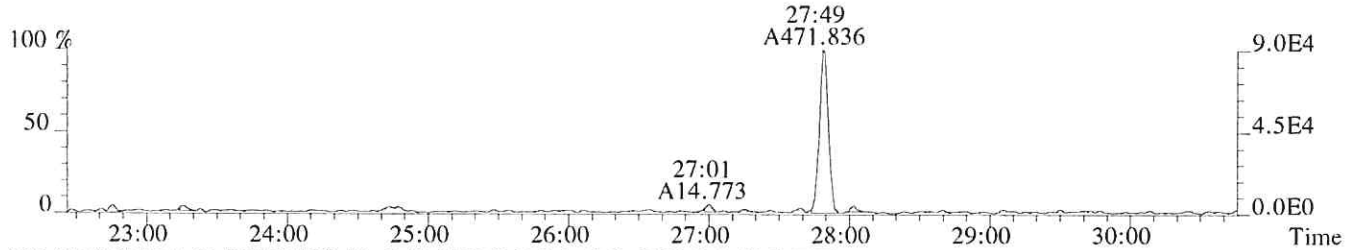
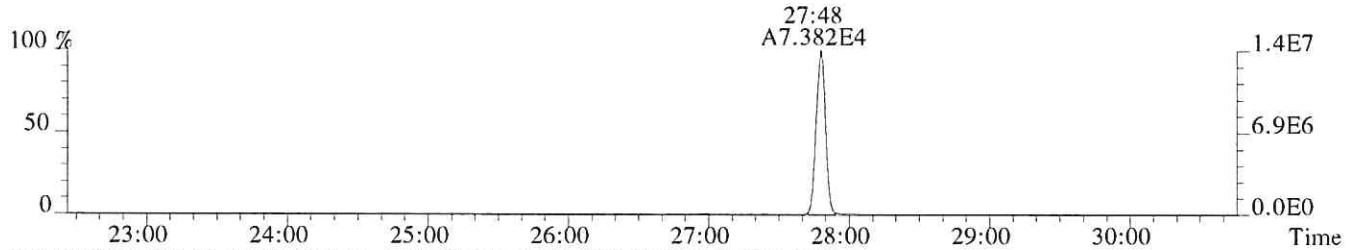
File:P521511 #1-591 Acq:26-APR-2019 00:37:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:193432
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,812.0,1.00%,F,T)



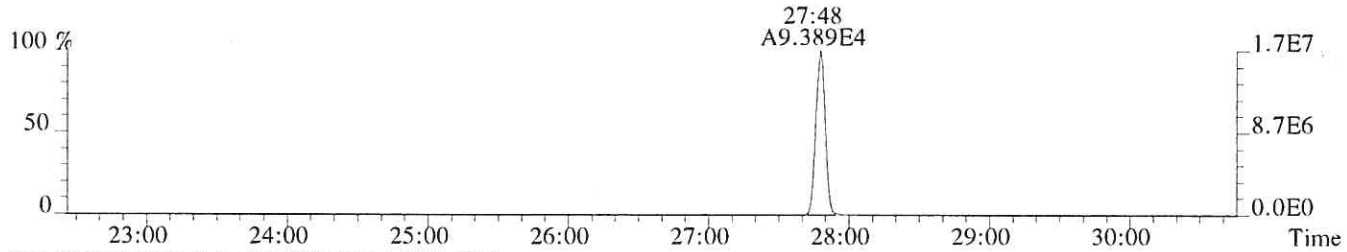
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1428.0,1.00%,F,T)



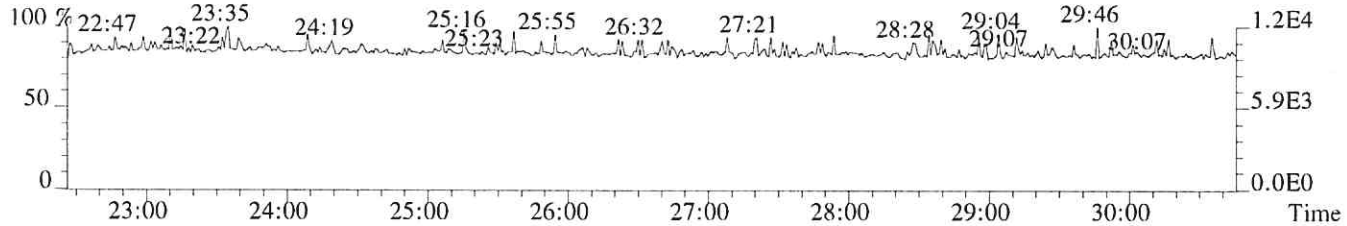
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6128.0,1.00%,F,T)



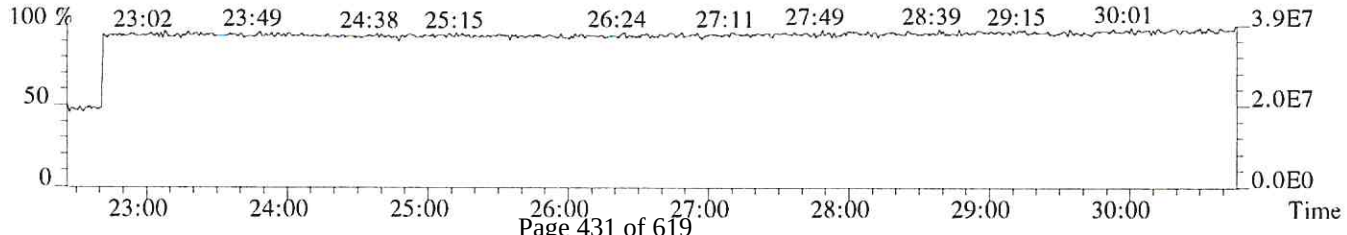
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3840.0,1.00%,F,T)



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



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



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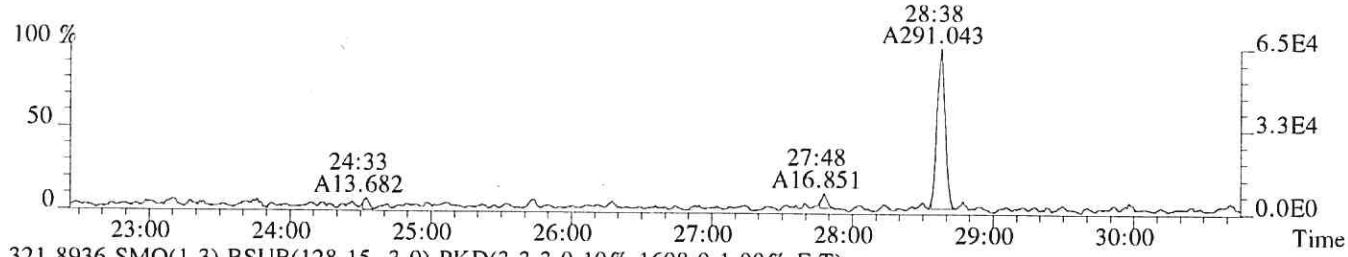
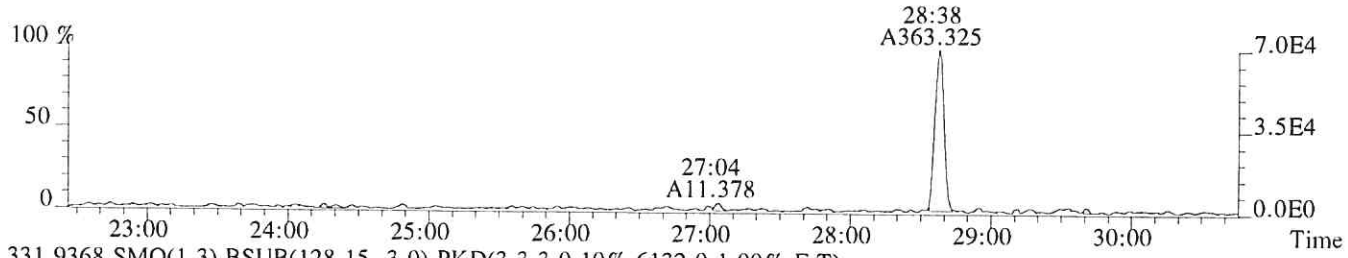
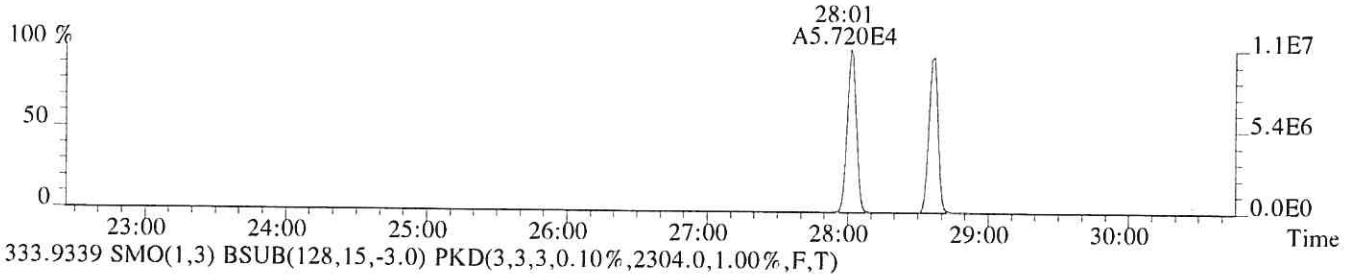
File:P521511 #1-591 Acq:26-APR-2019 00:37:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:193432
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2568.0,1.00%,F,T)



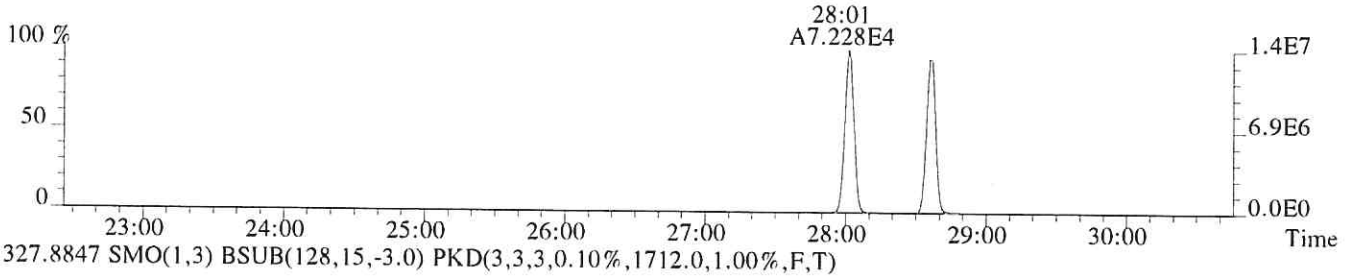
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1608.0,1.00%,F,T)



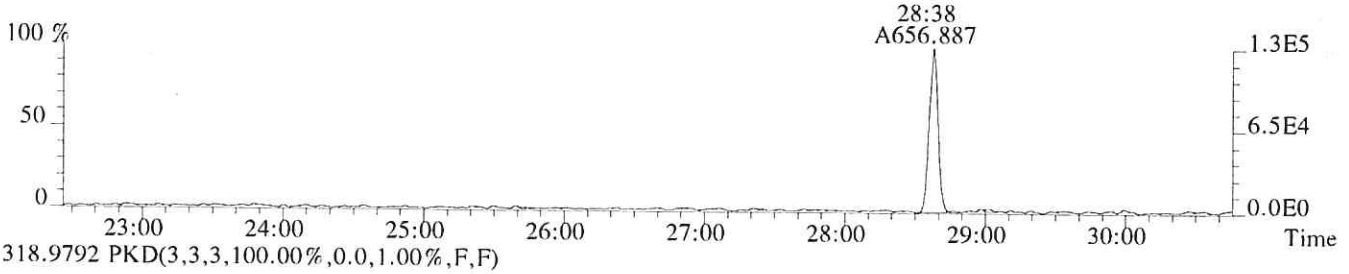
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6132.0,1.00%,F,T)



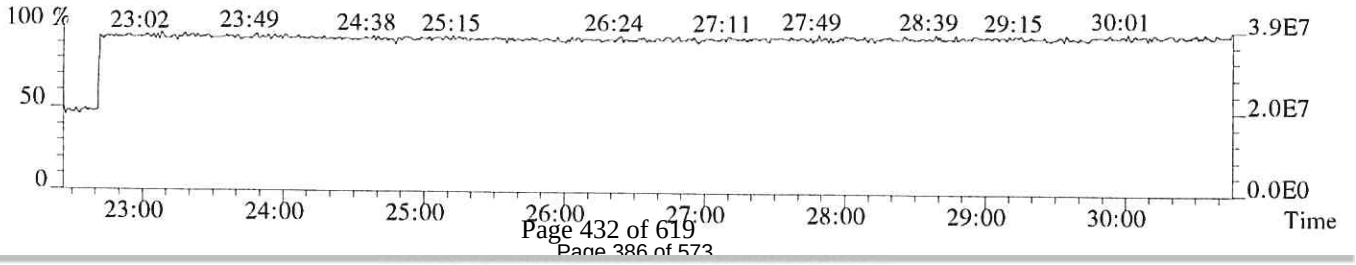
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2304.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1712.0,1.00%,F,T)



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



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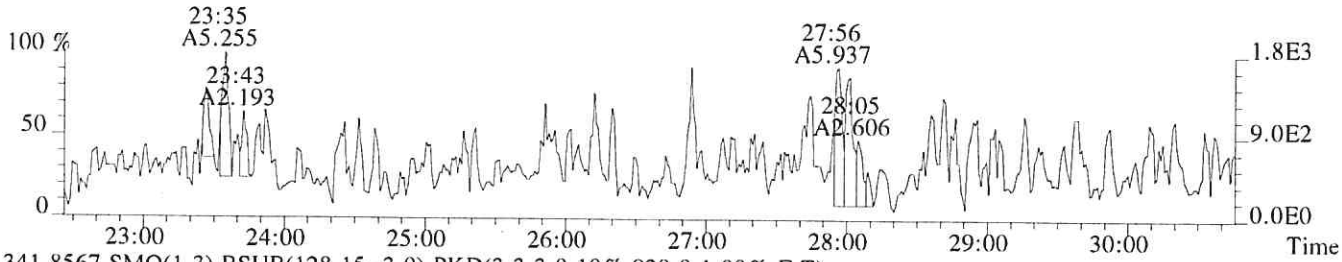
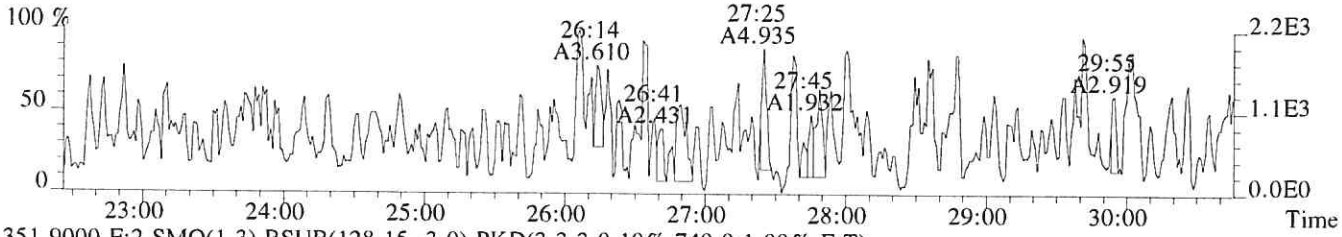
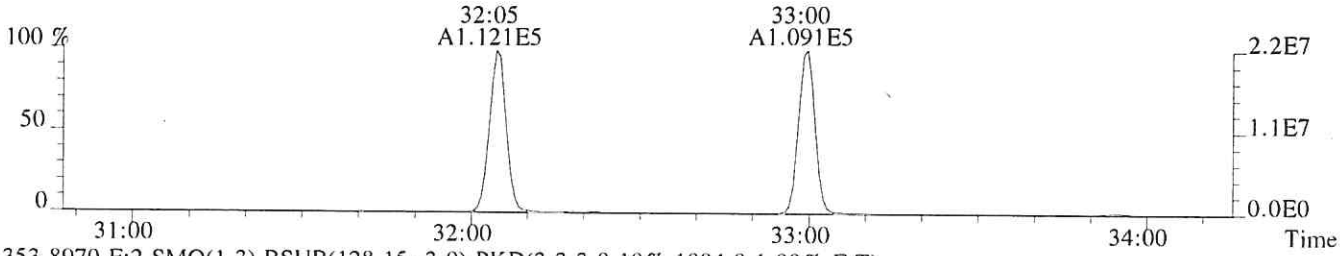
File:P521511 #1-591 Acq:26-APR-2019 00:37:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:193432
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,716.0,1.00%,F,T)



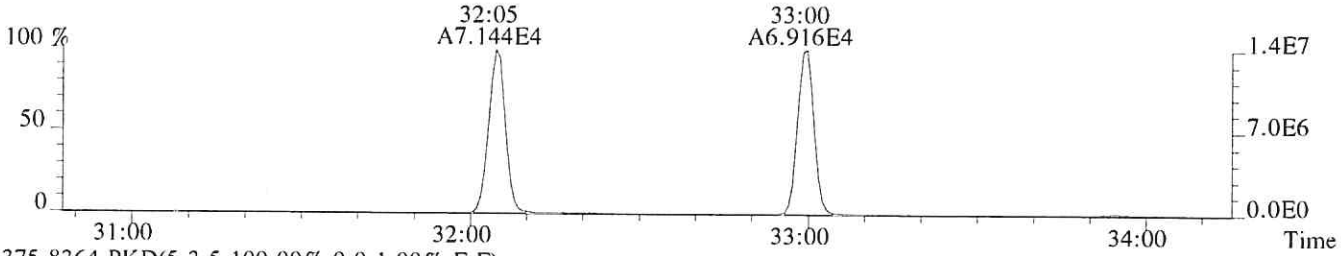
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,928.0,1.00%,F,T)



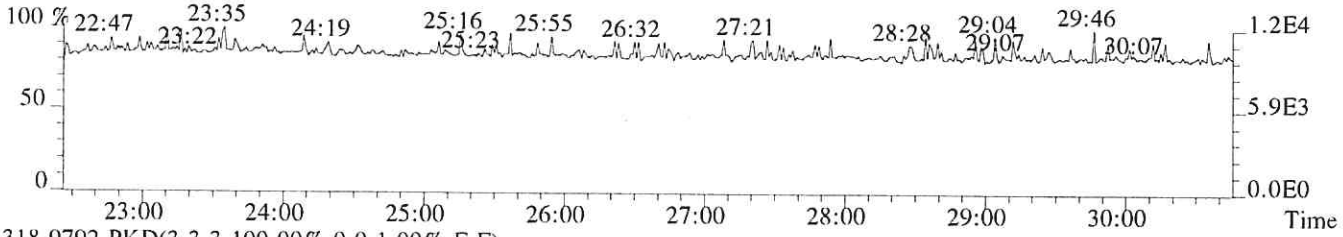
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,740.0,1.00%,F,T)



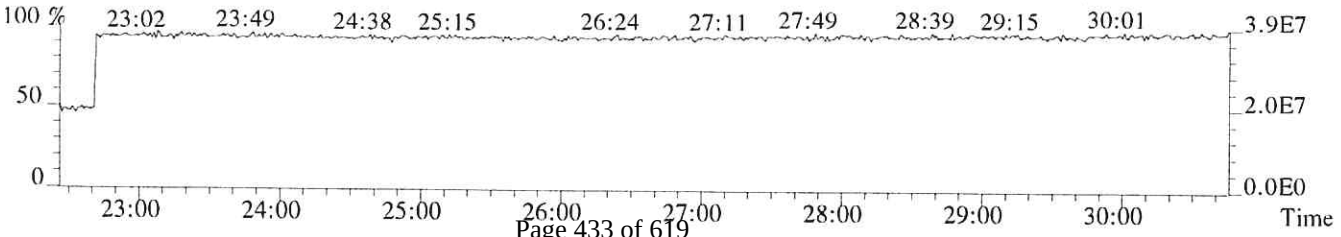
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1084.0,1.00%,F,T)



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



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



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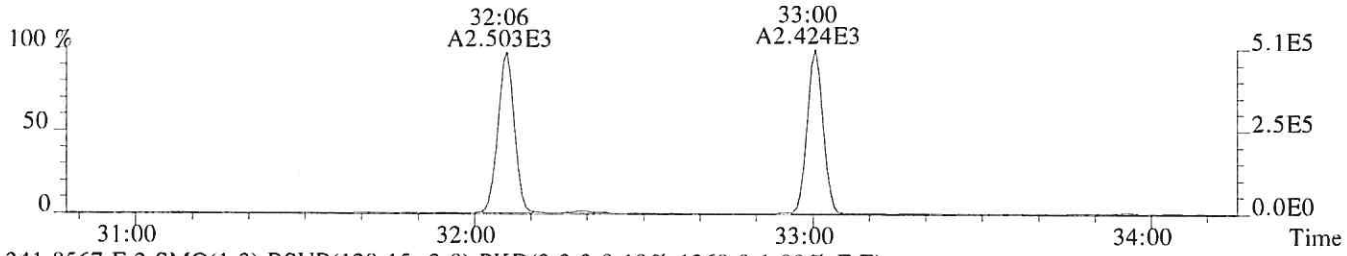
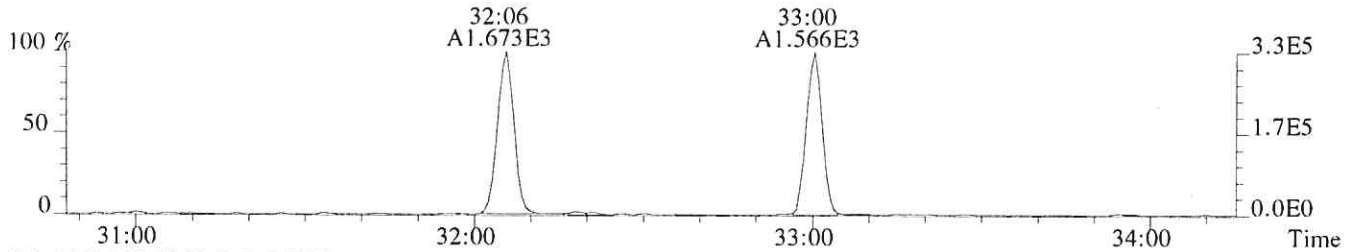
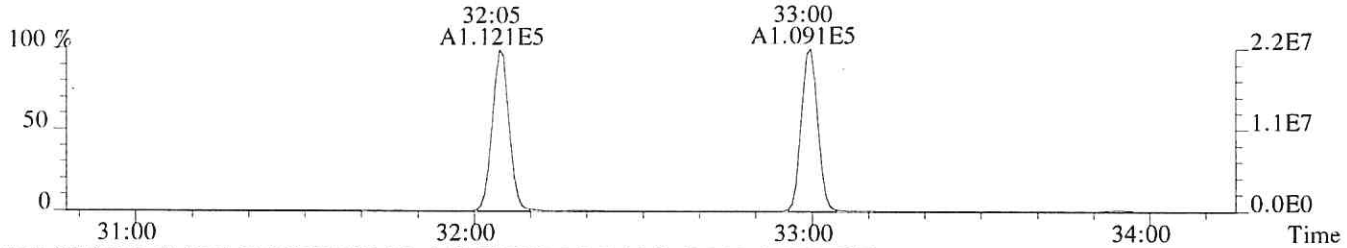
File:P521511 #1-312 Acq:26-APR-2019 00:37:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:193432
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1108.0,1.00%,F,T)



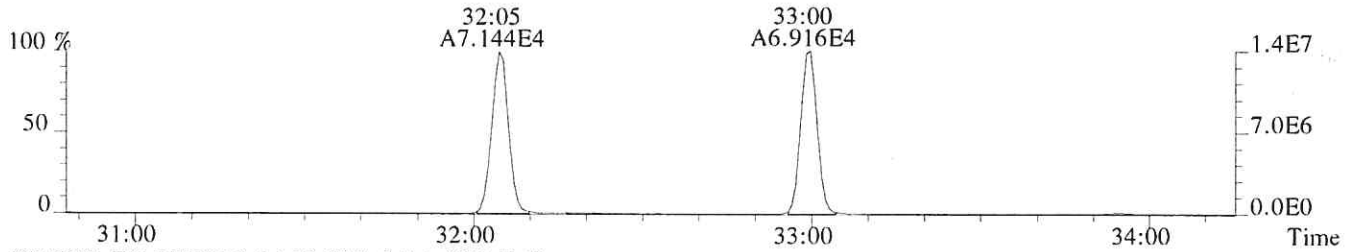
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1368.0,1.00%,F,T)



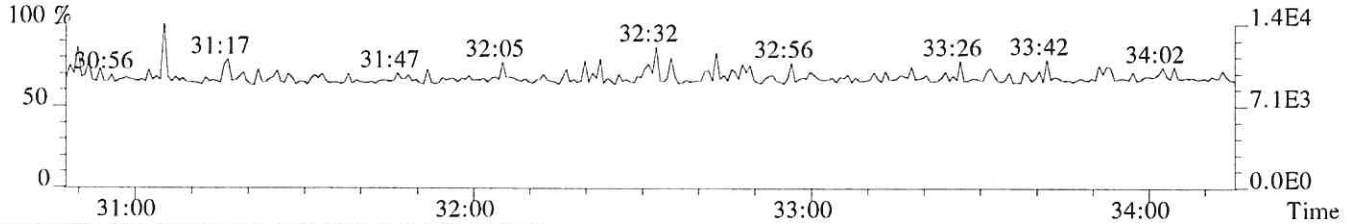
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,740.0,1.00%,F,T)



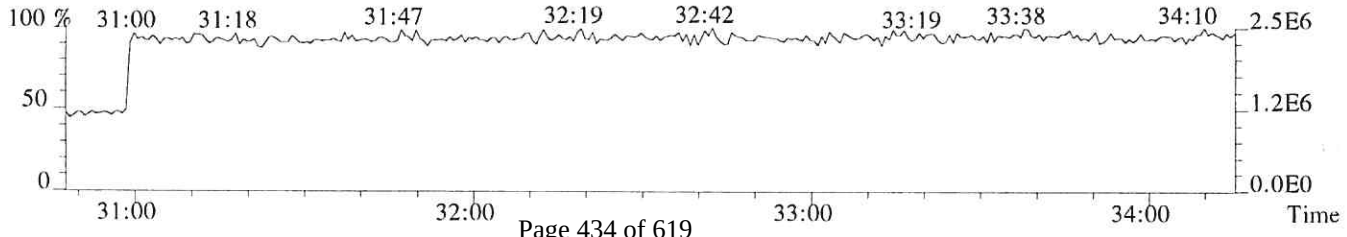
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1084.0,1.00%,F,T)



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

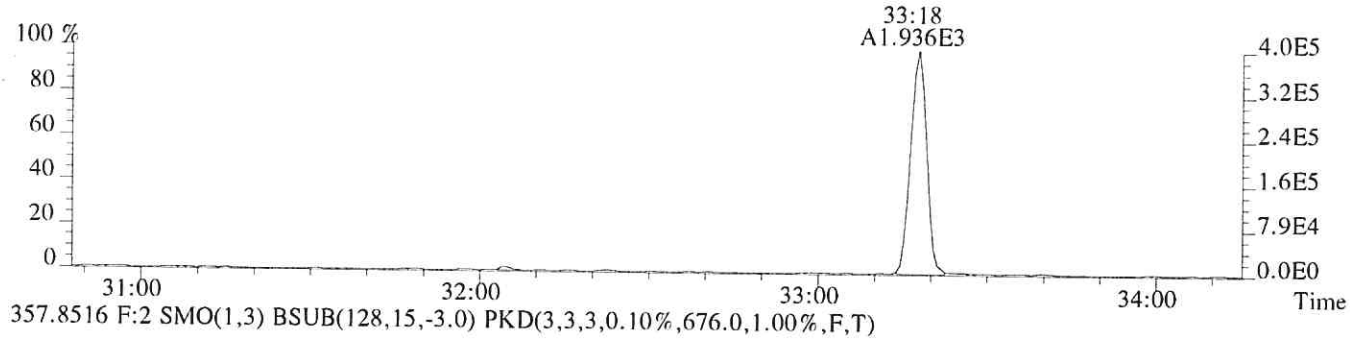


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

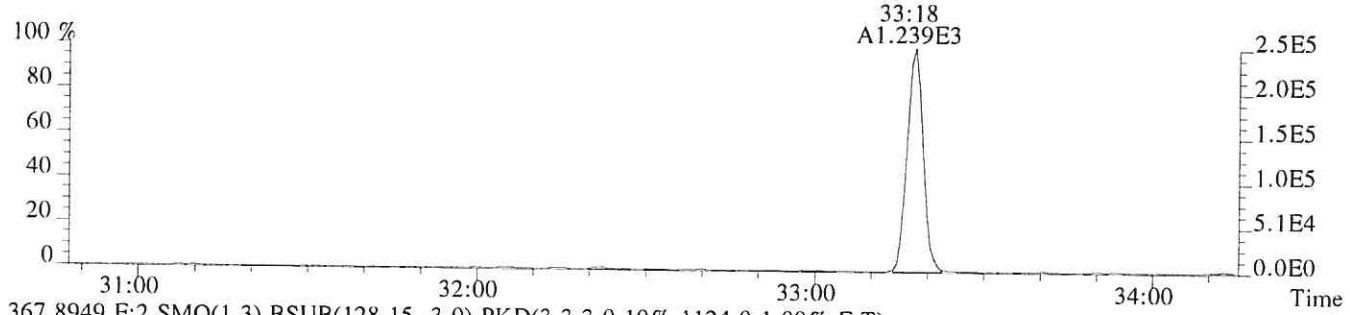


RIGHT SOLUTIONS | RIGHT PARTNER

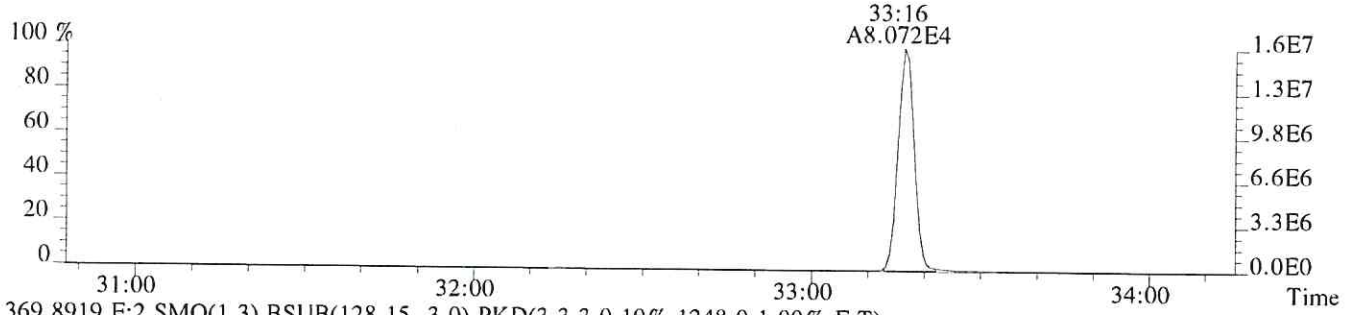
File:P521511 #1-312 Acq:26-APR-2019 00:37:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:193432
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1456.0,1.00%,F,T)



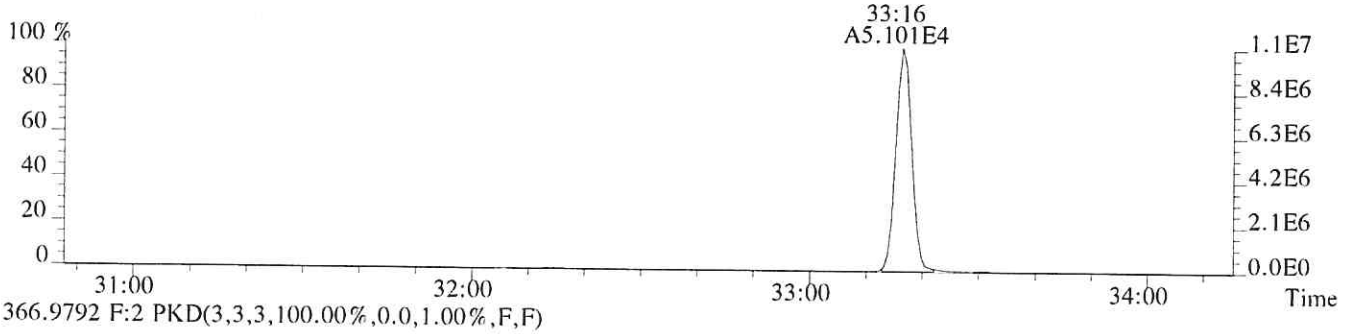
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,676.0,1.00%,F,T)



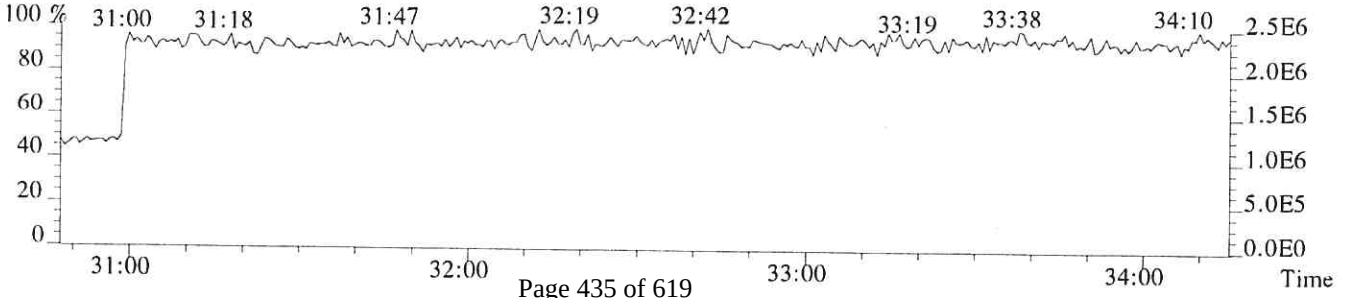
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1124.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1248.0,1.00%,F,T)

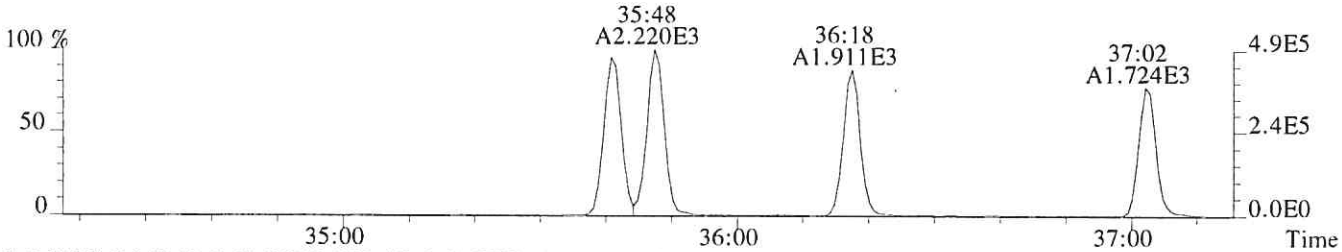


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

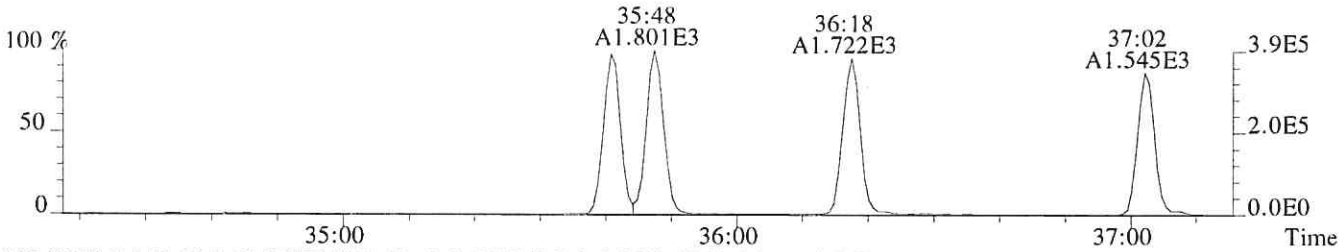


RIGHT SOLUTIONS | RIGHT PARTNER

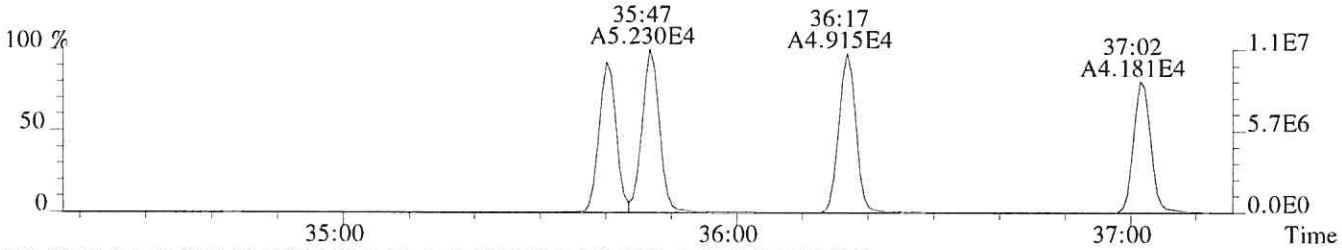
File:P521511 #1-268 Acq:26-APR-2019 00:37:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:193432
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,828.0,0.40%,F,T)



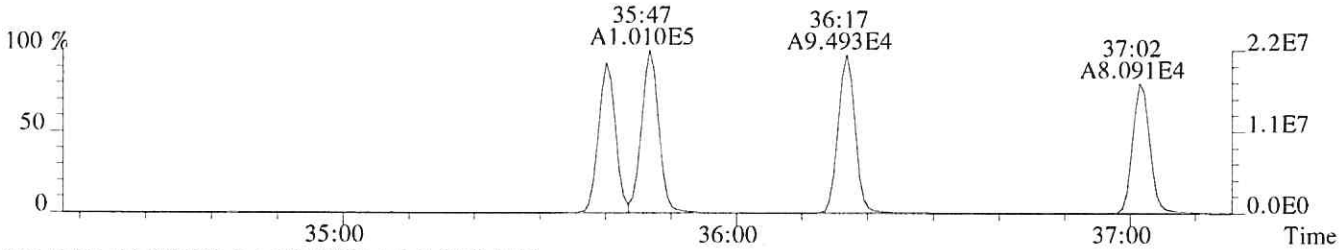
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,588.0,0.40%,F,T)



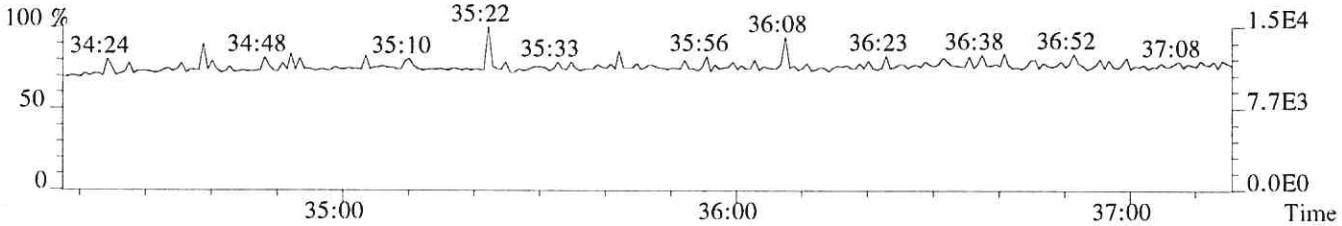
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1060.0,0.40%,F,T)



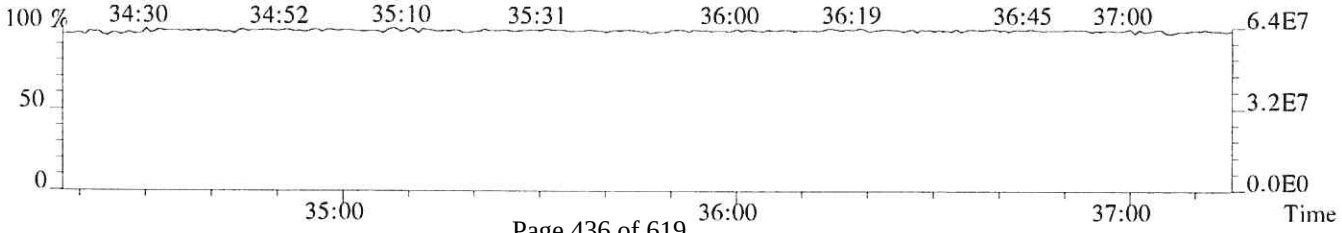
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1488.0,0.40%,F,T)



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

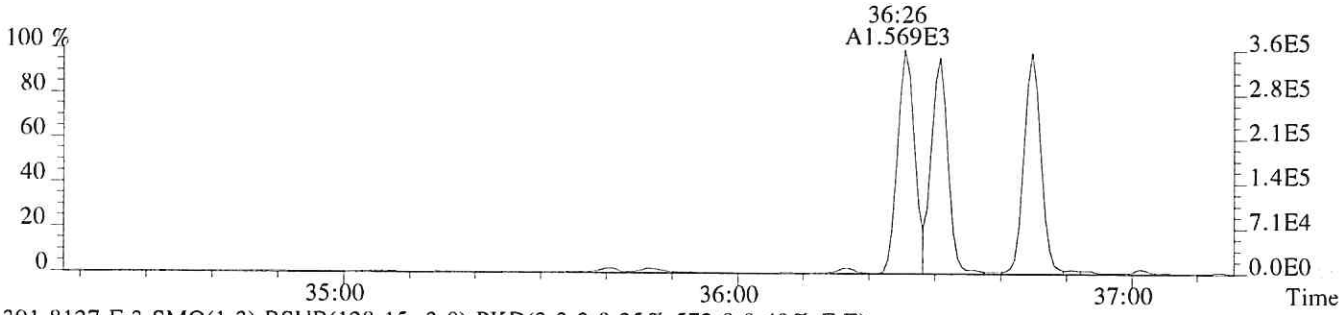


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

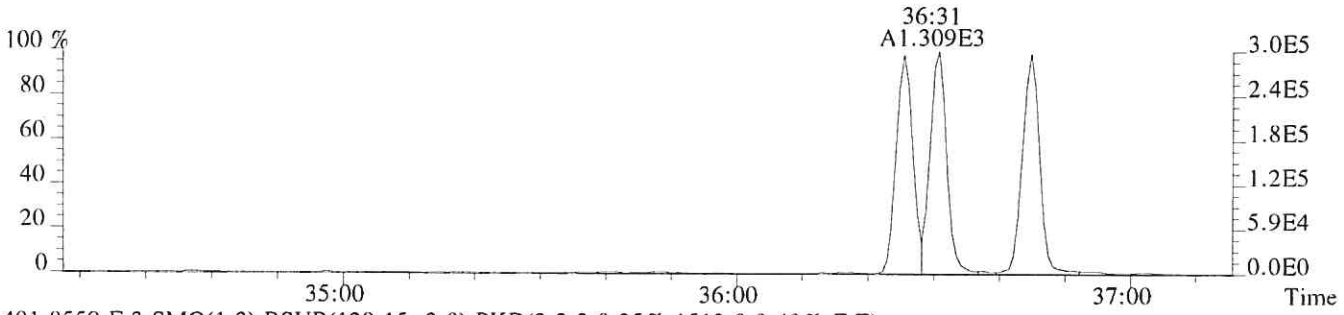


RIGHT SOLUTIONS | RIGHT PARTNER

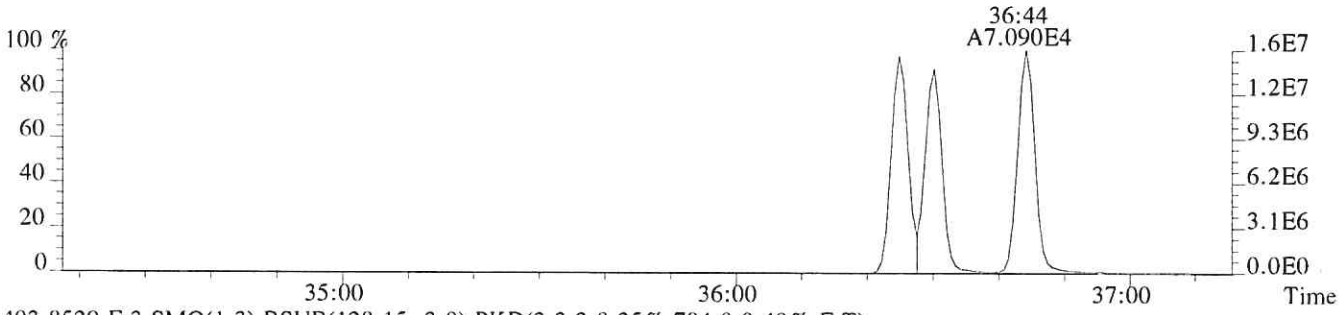
File:P521511 #1-268 Acq:26-APR-2019 00:37:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:193432
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,632.0,0.40%,F,T)



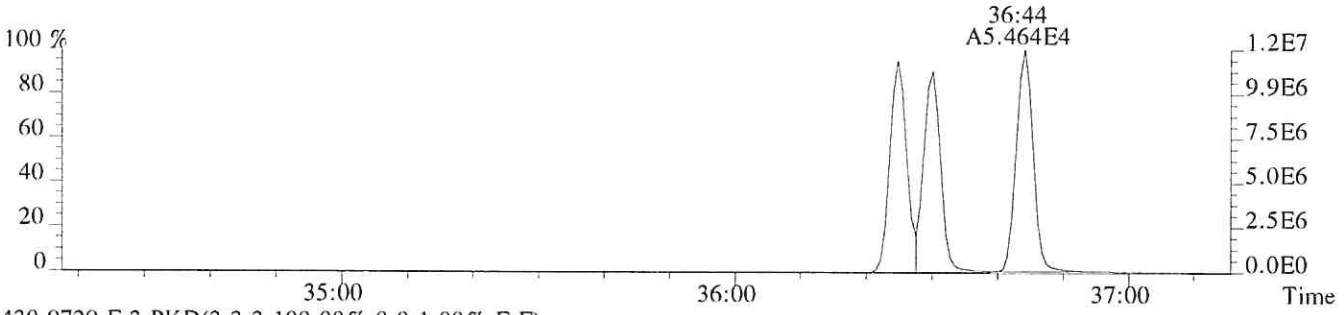
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,572.0,0.40%,F,T)



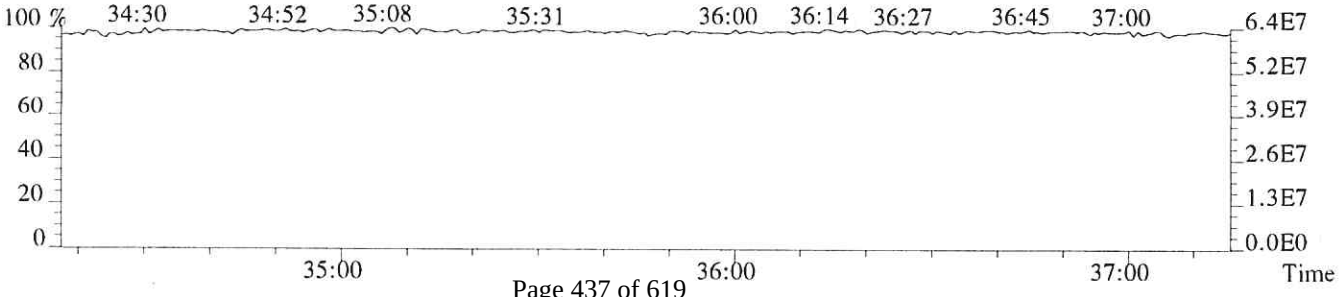
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1512.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,784.0,0.40%,F,T)



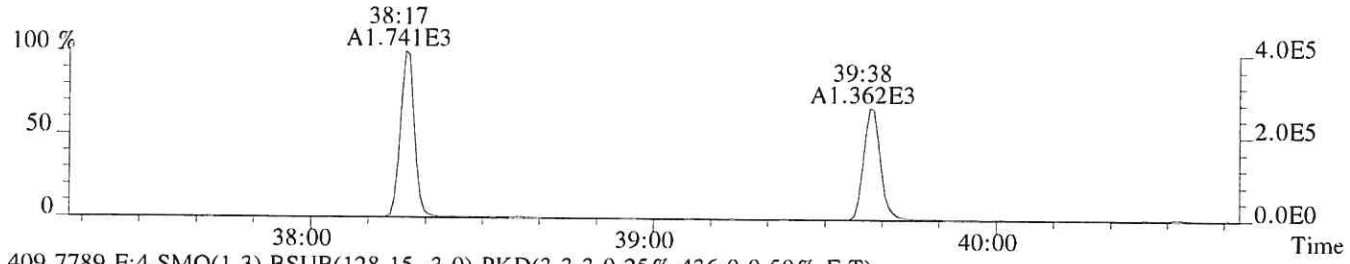
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



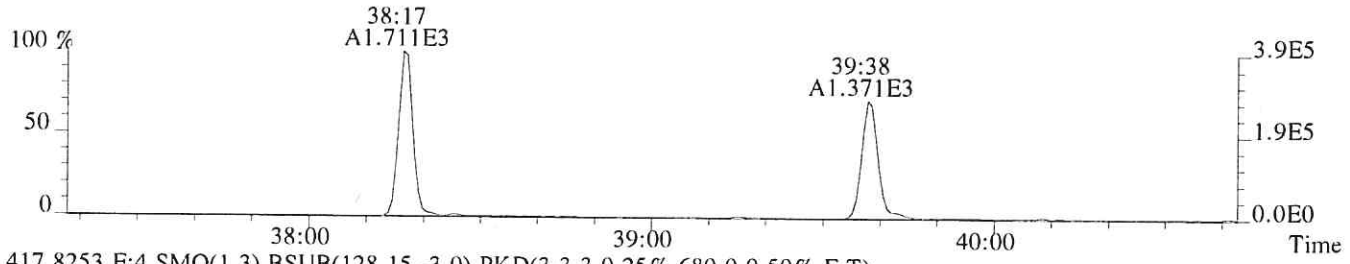
RIGHT SOLUTIONS | RIGHT PARTNER

File:P521511 #1-308 Acq:26-APR-2019 00:37:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:193432

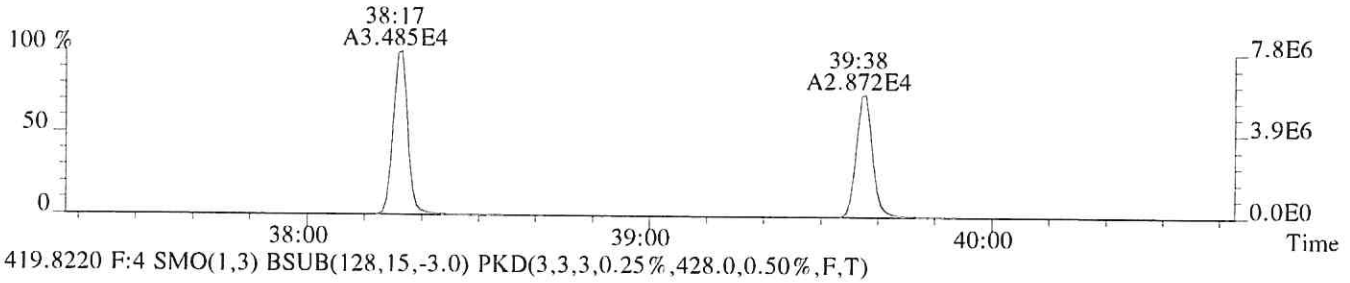
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,364.0,0.50%,F,T)



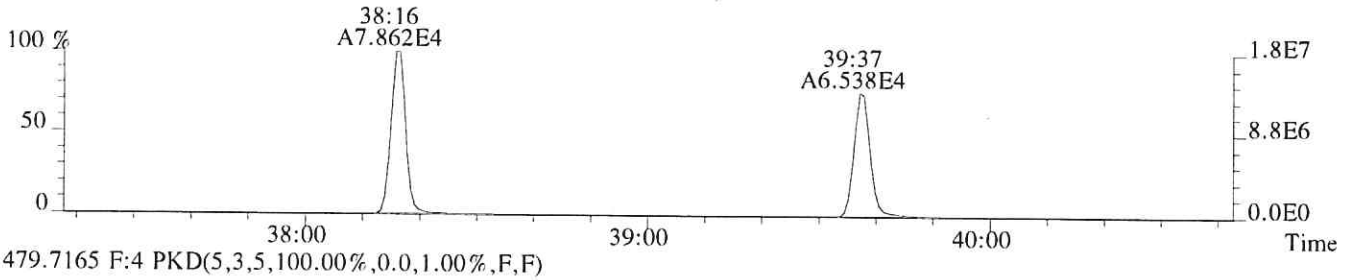
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,436.0,0.50%,F,T)



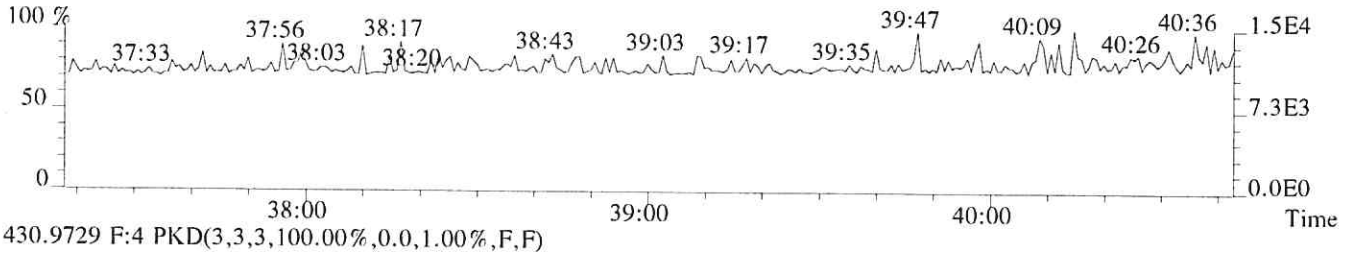
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,680.0,0.50%,F,T)



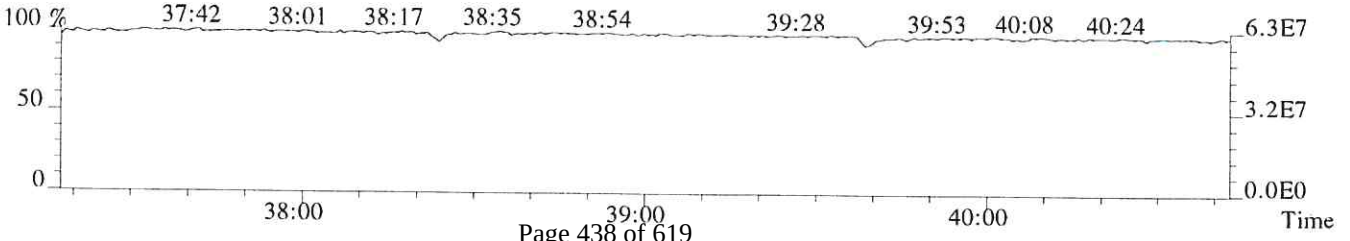
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,428.0,0.50%,F,T)



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

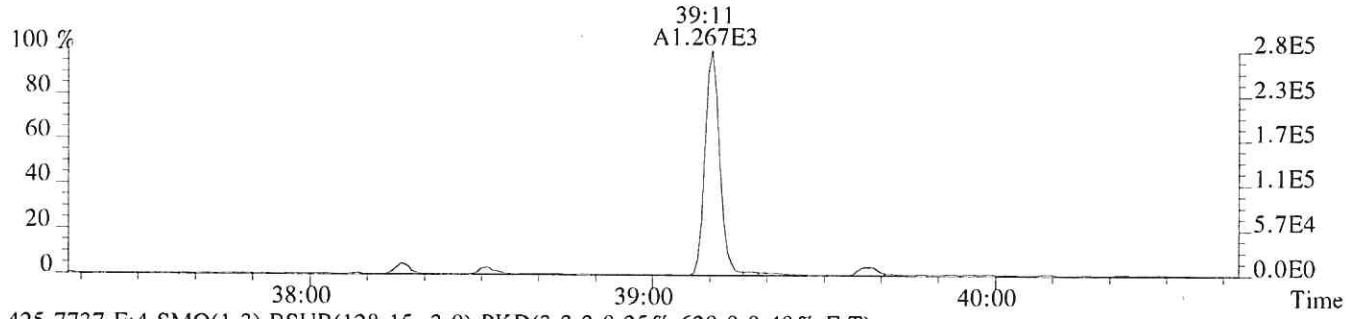


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

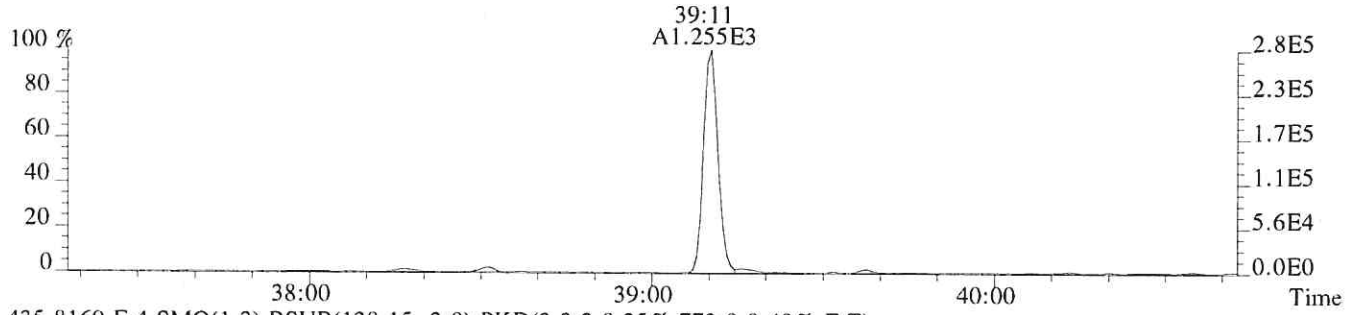


RIGHT SOLUTIONS | RIGHT PARTNER

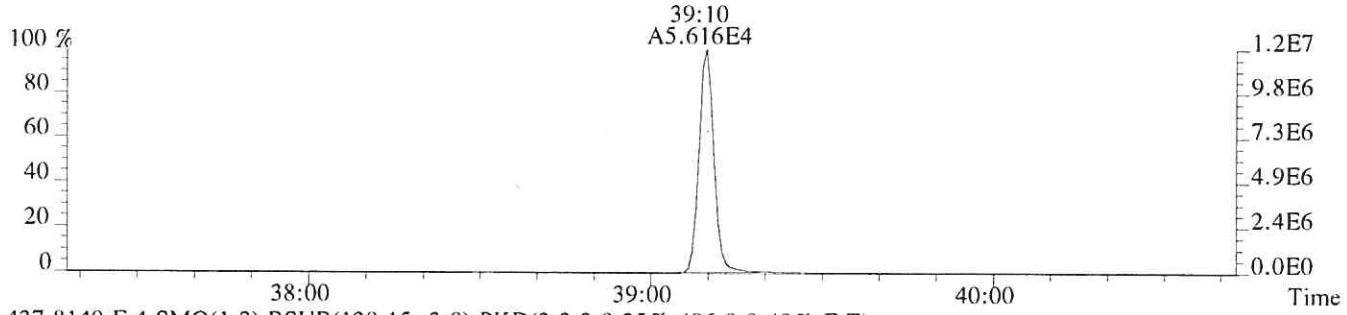
File:P521511 #1-308 Acq:26-APR-2019 00:37:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:193432
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,492.0,0.40%,F,T)



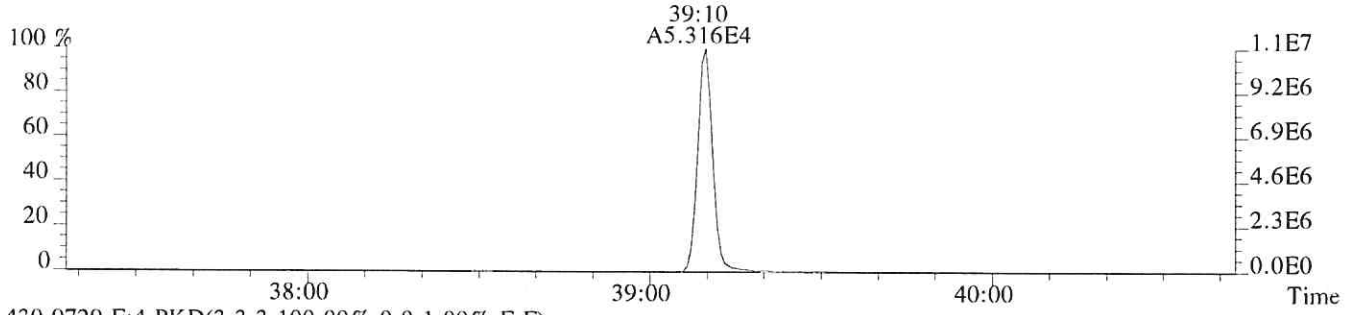
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,620.0,0.40%,F,T)



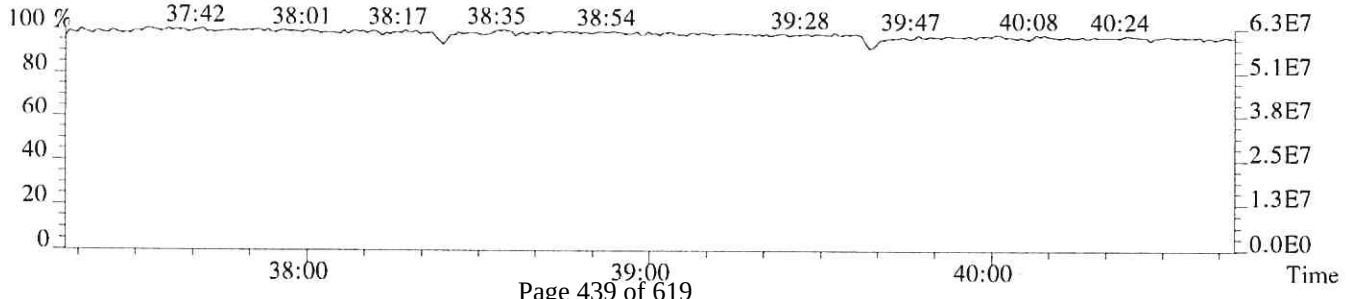
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,772.0,0.40%,F,T)



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

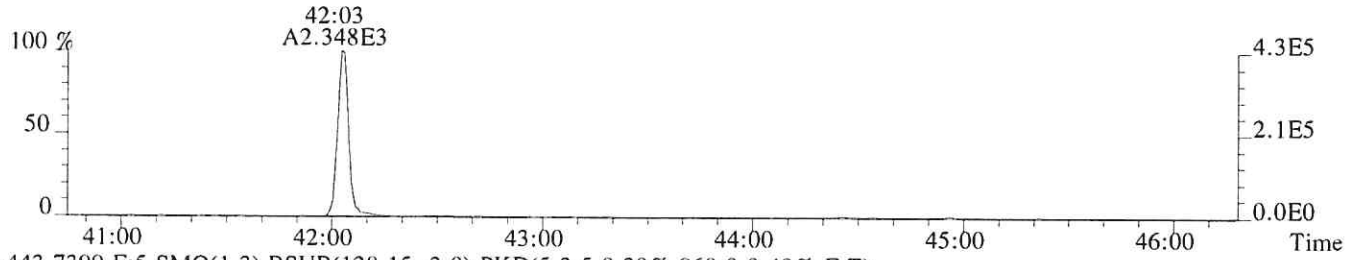


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

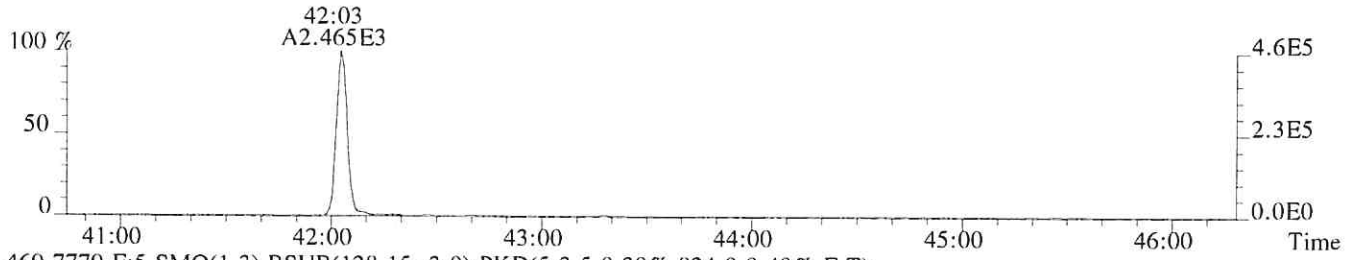


RIGHT SOLUTIONS | RIGHT PARTNER

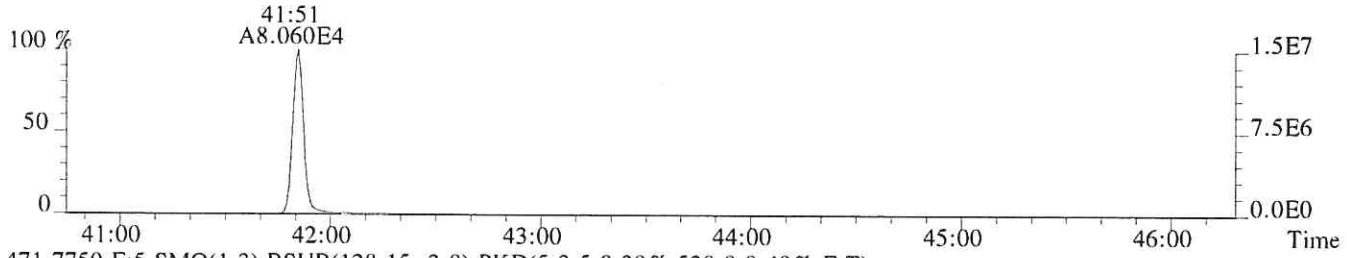
File:P521511 #1-501 Acq:26-APR-2019 00:37:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:193432
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,552.0,0.40%,F,T)



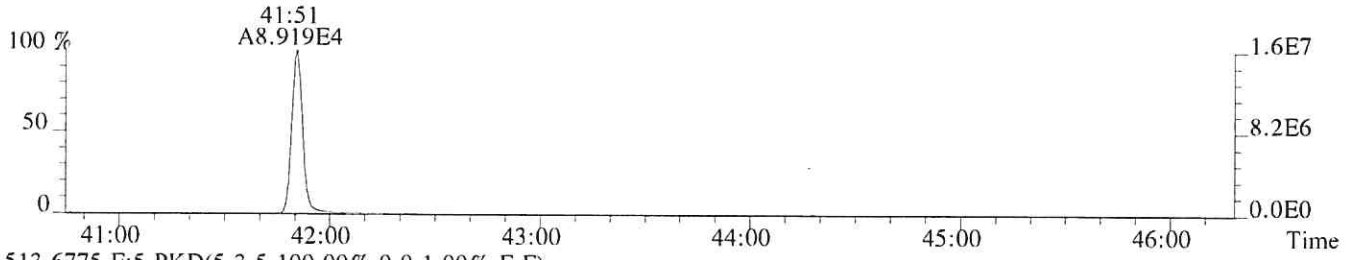
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,968.0,0.40%,F,T)



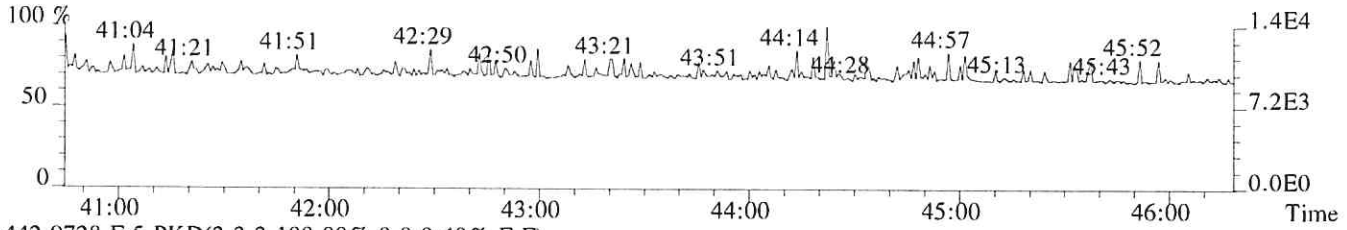
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,824.0,0.40%,F,T)



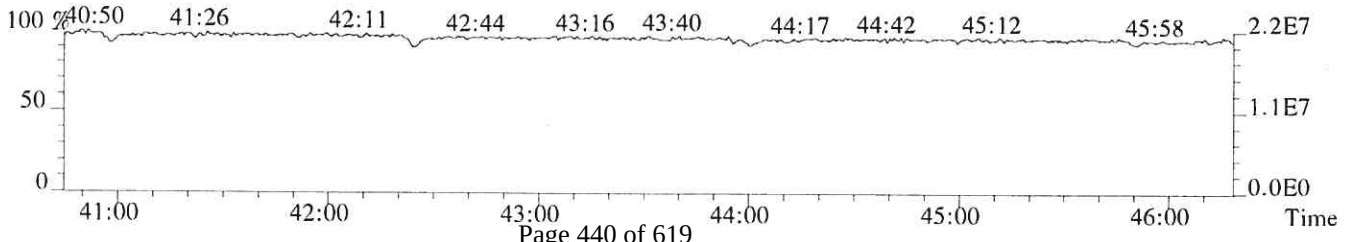
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,520.0,0.40%,F,T)



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

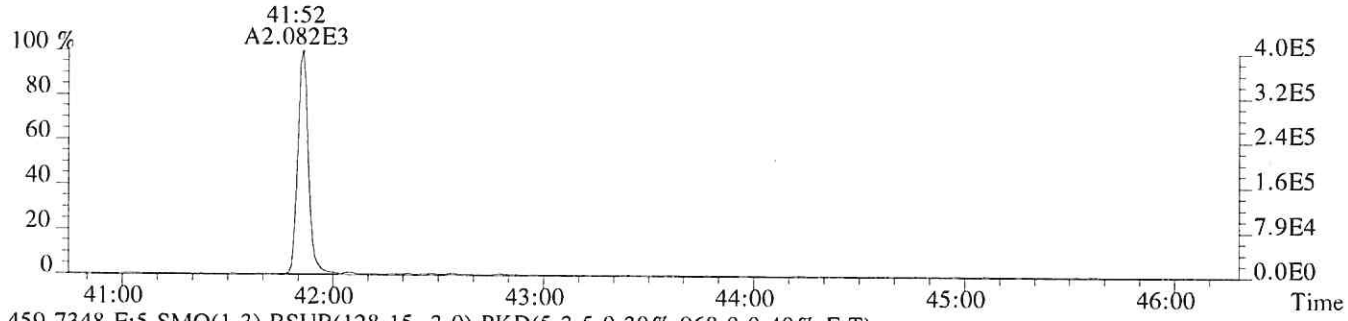


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

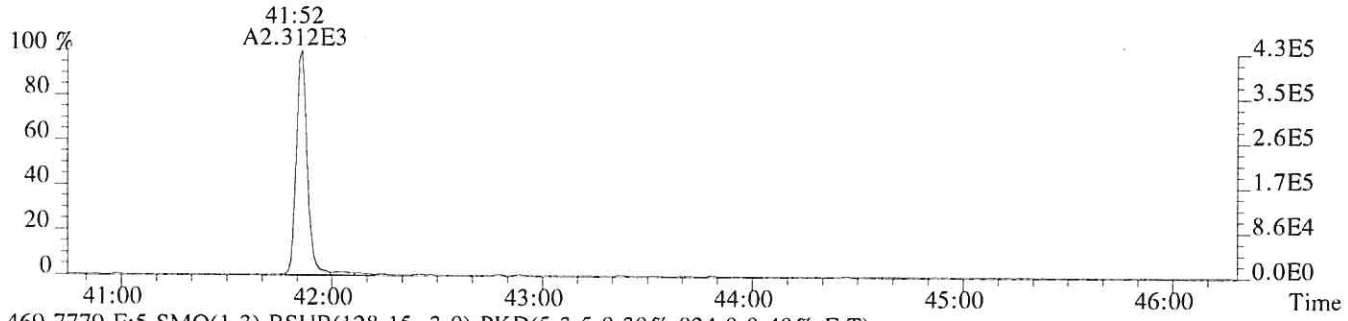


RIGHT SOLUTIONS | RIGHT PARTNER

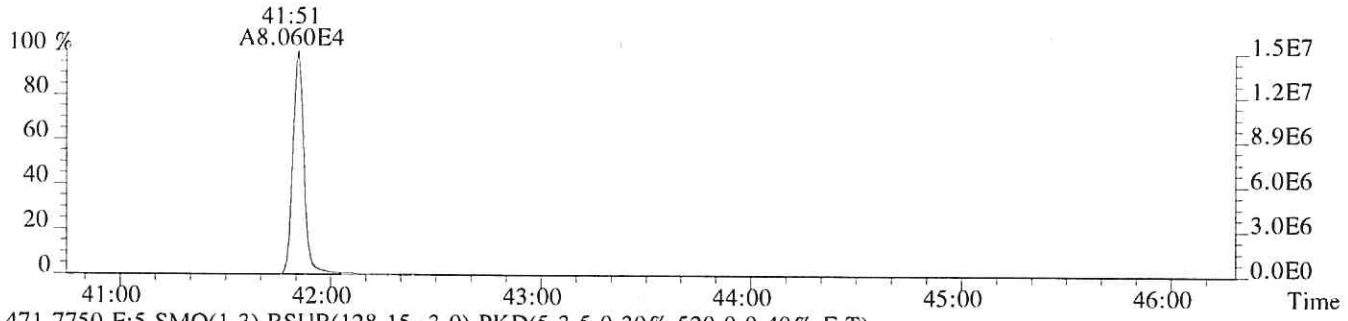
File:P521511 #1-501 Acq:26-APR-2019 00:37:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:193432
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,424.0,0.40%,F,T)



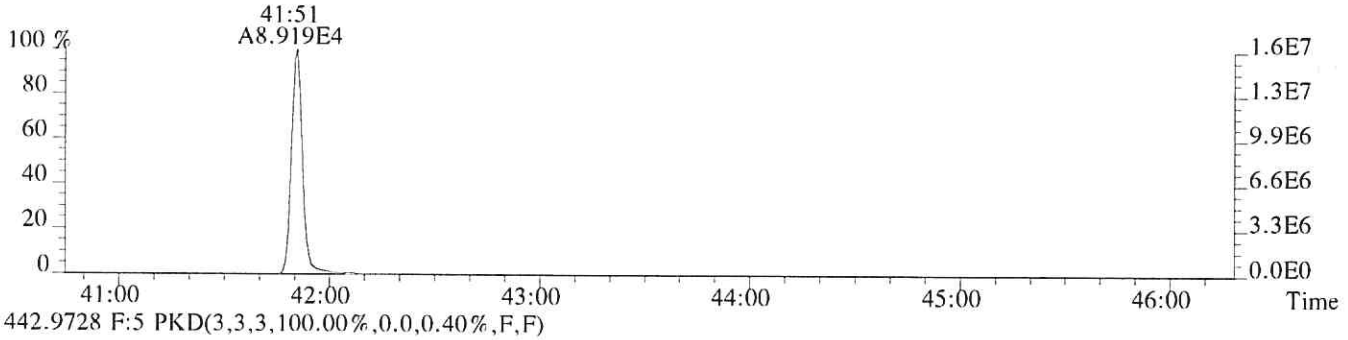
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,968.0,0.40%,F,T)



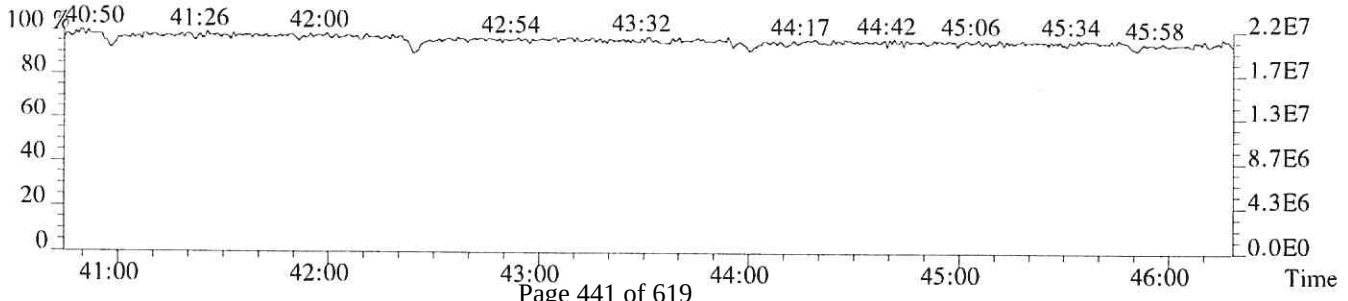
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,824.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,520.0,0.40%,F,T)



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



RIGHT SOLUTIONS | RIGHT PARTNER

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
193434

Run #3 Filename P521512 Samp: 1 Inj: 1 Acquired: 26-APR-19 01:25:47
Processed: 26-APR-19 07:12:43 Sample ID: CS2

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:49	1.904e+03	2.573e+03	0.74	yes	no	0.962
2	Unk	1,2,3,7,8-PeCDF	32:06	1.466e+04	9.670e+03	1.52	yes	no	0.968
3	Unk	2,3,4,7,8-PeCDF	33:00	1.349e+04	9.150e+03	1.47	yes	no	0.919
4	Unk	1,2,3,4,7,8-HxCDF	35:41	1.234e+04	1.022e+04	1.21	yes	no	1.161
5	Unk	1,2,3,6,7,8-HxCDF	35:48	1.278e+04	1.062e+04	1.20	yes	no	1.073
6	Unk	2,3,4,6,7,8-HxCDF	36:18	1.155e+04	9.500e+03	1.22	yes	no	1.069
7	Unk	1,2,3,7,8,9-HxCDF	37:02	9.859e+03	8.407e+03	1.17	yes	no	1.096
8	Unk	1,2,3,4,6,7,8-HpCDF	38:17	9.919e+03	1.009e+04	0.98	yes	no	1.281
9	Unk	1,2,3,4,7,8,9-HpCDF	39:38	7.635e+03	7.477e+03	1.02	yes	no	1.192
10	Unk	OCDF	42:03	1.236e+04	1.405e+04	0.88	yes	no	1.204
11	Unk	2,3,7,8-TCDD	28:38	1.562e+03	2.040e+03	0.77	yes	no	1.077
12	Unk	1,2,3,7,8-PeCDD	33:18	1.096e+04	6.951e+03	1.58	yes	no	0.971
13	Unk	1,2,3,4,7,8-HxCDD	36:26	9.366e+03	7.406e+03	1.26	yes	no	1.024
14	Unk	1,2,3,6,7,8-HxCDD	36:31	9.597e+03	7.429e+03	1.29	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:45	9.166e+03	7.753e+03	1.18	yes	no	1.055
16	Unk	1,2,3,4,6,7,8-HpCDD	39:11	7.350e+03	7.193e+03	1.02	yes	no	0.989
17	Unk	OCDD	41:52	1.113e+04	1.270e+04	0.88	yes	no	1.094
18	IS	13C-2,3,7,8-TCDF	27:48	1.080e+05	1.355e+05	0.80	yes	no	1.287
19	IS	13C-1,2,3,7,8-PeCDF	32:05	1.595e+05	1.022e+05	1.56	yes	no	1.416
20	IS	13C-2,3,4,7,8-PeCDF	33:00	1.510e+05	9.721e+04	1.55	yes	no	1.374
21	IS	13C-1,2,3,4,7,8-HxCDF	35:40	6.659e+04	1.282e+05	0.52	yes	no	1.114
22	IS	13C-1,2,3,6,7,8-HxCDF	35:47	7.616e+04	1.452e+05	0.52	yes	no	1.245
23	IS	13C-2,3,4,6,7,8-HxCDF	36:17	6.946e+04	1.327e+05	0.52	yes	no	1.146
24	IS	13C-1,2,3,7,8,9-HxCDF	37:02	5.816e+04	1.130e+05	0.51	yes	no	0.986
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:17	4.906e+04	1.098e+05	0.45	yes	no	0.915
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:38	3.945e+04	8.815e+04	0.45	yes	no	0.746
27	IS	13C-2,3,7,8-TCDD	28:36	7.572e+04	9.691e+04	0.78	yes	no	0.929
28	IS	13C-1,2,3,7,8-PeCDD	33:16	1.137e+05	7.276e+04	1.56	yes	no	1.017
29	IS	13C-1,2,3,4,7,8-HxCDD	36:25	9.269e+04	7.249e+04	1.28	yes	no	0.945
30	IS	13C-1,2,3,6,7,8-HxCDD	36:30	9.198e+04	7.164e+04	1.28	yes	no	0.924
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:10	7.884e+04	7.283e+04	1.08	yes	no	0.876
32	IS	13C-OCDD	41:51	1.094e+05	1.215e+05	0.90	yes	no	0.662
33	RS/RT	13C-1,2,3,4-TCDD	28:01	8.293e+04	1.043e+05	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:44	9.812e+04	7.695e+04	1.28	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:38	3.711e+03				no	1.010

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Houston, TX 77099
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www.alsglobal.com

RIGHT SOLUTIONS | RIGHT PARTNER

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
193434

Run #3 Filename P521512 Samp: 1 Inj: 1 Acquired: 26-APR-19 01:25:47
Processed: 26-APR-19 07:12:43 LAB. ID: CS2

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	3.45e+05	1.11e+03	3.1e+02	4.70e+05	1.58e+03	3.0e+02
2	1,2,3,7,8-PeCDF	2.82e+06	3.24e+02	8.7e+03	1.86e+06	9.24e+02	2.0e+03
3	2,3,4,7,8-PeCDF	2.82e+06	3.24e+02	8.7e+03	1.87e+06	9.24e+02	2.0e+03
4	1,2,3,4,7,8-HxCDF	2.76e+06	1.08e+03	2.5e+03	2.29e+06	1.03e+03	2.2e+03
5	1,2,3,6,7,8-HxCDF	2.82e+06	1.08e+03	2.6e+03	2.36e+06	1.03e+03	2.3e+03
6	2,3,4,6,7,8-HxCDF	2.62e+06	1.08e+03	2.4e+03	2.14e+06	1.03e+03	2.1e+03
7	1,2,3,7,8,9-HxCDF	2.14e+06	1.08e+03	2.0e+03	1.83e+06	1.03e+03	1.8e+03
8	1,2,3,4,6,7,8-HpCDF	2.26e+06	6.28e+02	3.6e+03	2.27e+06	4.56e+02	5.0e+03
9	1,2,3,4,7,8,9-HpCDF	1.56e+06	6.28e+02	2.5e+03	1.52e+06	4.56e+02	3.3e+03
10	OCDF	2.27e+06	4.88e+02	4.7e+03	2.60e+06	8.80e+02	3.0e+03
11	2,3,7,8-TCDD	3.09e+05	2.38e+03	1.3e+02	4.17e+05	1.42e+03	2.9e+02
12	1,2,3,7,8-PeCDD	2.24e+06	1.27e+03	1.8e+03	1.39e+06	3.44e+02	4.1e+03
13	1,2,3,4,7,8-HxCDD	2.17e+06	8.12e+02	2.7e+03	1.75e+06	6.44e+02	2.7e+03
14	1,2,3,6,7,8-HxCDD	2.16e+06	8.12e+02	2.7e+03	1.67e+06	6.44e+02	2.6e+03
15	1,2,3,7,8,9-HxCDD	2.06e+06	8.12e+02	2.5e+03	1.69e+06	6.44e+02	2.6e+03
16	1,2,3,4,6,7,8-HpCDD	1.58e+06	5.60e+02	2.8e+03	1.56e+06	4.20e+02	3.7e+03
17	OCDD	2.06e+06	4.08e+02	5.0e+03	2.35e+06	5.40e+02	4.4e+03
18	13C-2,3,7,8-TCDF	2.02e+07	6.56e+03	3.1e+03	2.52e+07	3.64e+03	6.9e+03
19	13C-1,2,3,7,8-PeCDF	3.05e+07	1.66e+03	1.8e+04	1.96e+07	1.09e+03	1.8e+04
20	13C-2,3,4,7,8-PeCDF	3.07e+07	1.66e+03	1.8e+04	1.96e+07	1.09e+03	1.8e+04
21	13C-1,2,3,4,7,8-HxCDF	1.47e+07	1.05e+03	1.4e+04	2.86e+07	1.48e+03	1.9e+04
22	13C-1,2,3,6,7,8-HxCDF	1.68e+07	1.05e+03	1.6e+04	3.18e+07	1.48e+03	2.2e+04
23	13C-2,3,4,6,7,8-HxCDF	1.56e+07	1.05e+03	1.5e+04	2.98e+07	1.48e+03	2.0e+04
24	13C-1,2,3,7,8,9-HxCDF	1.24e+07	1.05e+03	1.2e+04	2.43e+07	1.48e+03	1.6e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.12e+07	8.84e+02	1.3e+04	2.46e+07	3.96e+02	6.2e+04
26	13C-1,2,3,4,7,8,9-HpCDF	8.03e+06	8.84e+02	9.1e+03	1.79e+07	3.96e+02	4.5e+04
27	13C-2,3,7,8-TCDD	1.47e+07	6.20e+03	2.4e+03	1.89e+07	2.23e+03	8.5e+03
28	13C-1,2,3,7,8-PeCDD	2.32e+07	2.88e+02	8.0e+04	1.49e+07	8.84e+02	1.7e+04
29	13C-1,2,3,4,7,8-HxCDD	2.14e+07	1.36e+03	1.6e+04	1.69e+07	7.64e+02	2.2e+04
30	13C-1,2,3,6,7,8-HxCDD	2.01e+07	1.36e+03	1.5e+04	1.56e+07	7.64e+02	2.0e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.70e+07	9.68e+02	1.8e+04	1.57e+07	1.21e+03	1.3e+04
32	13C-OCDD	2.01e+07	5.36e+02	3.7e+04	2.23e+07	4.24e+02	5.3e+04
33	13C-1,2,3,4-TCDD	1.56e+07	6.20e+03	2.5e+03	1.97e+07	2.23e+03	8.8e+03
34	13C-1,2,3,7,8,9-HxCDD	2.20e+07	1.36e+03	1.6e+04	1.72e+07	7.64e+02	2.3e+04
35	37Cl-2,3,7,8-TCDD	7.32e+05	1.99e+03	3.7e+02			

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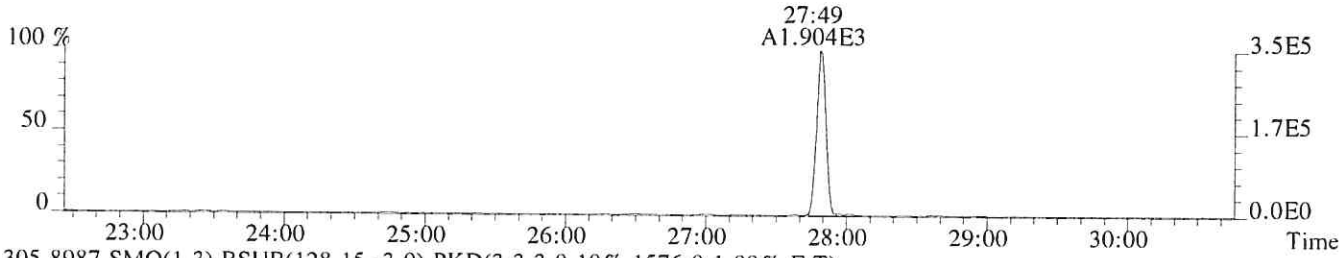
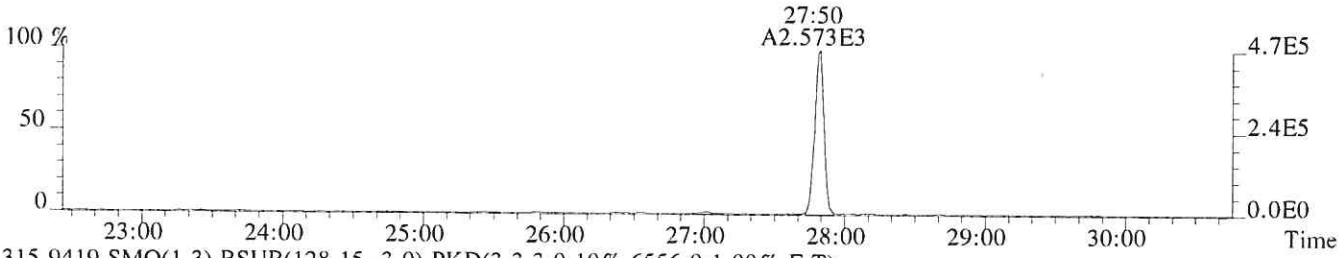
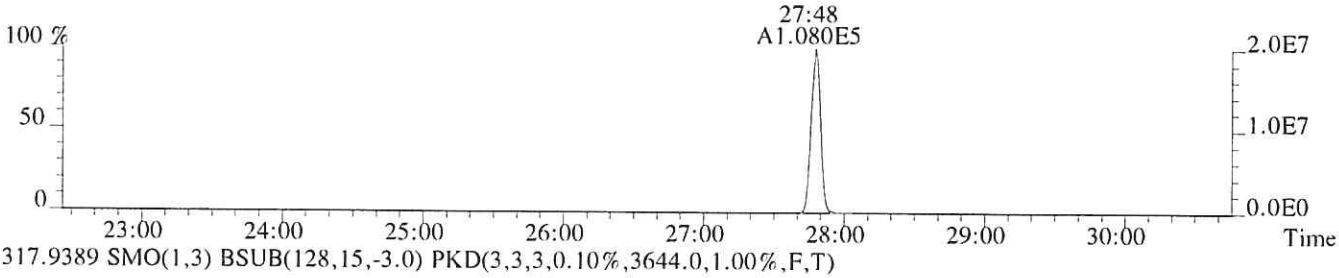
File:P521512 #1-591 Acq:26-APR-2019 01:25:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:193434
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1108.0,1.00%,F,T)



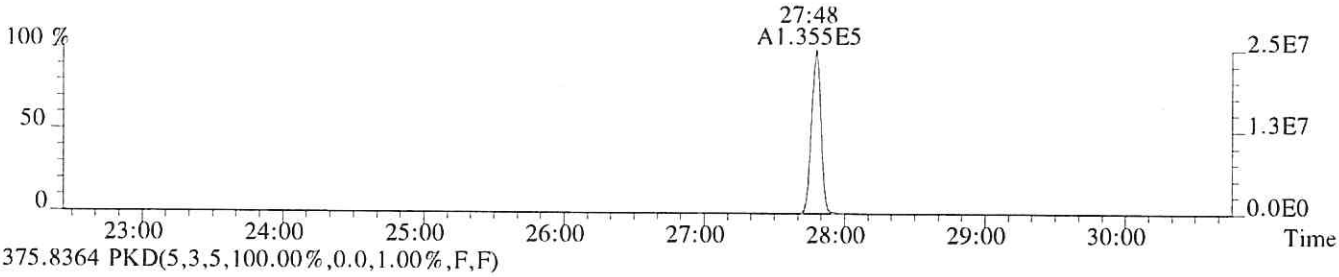
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1576.0,1.00%,F,T)



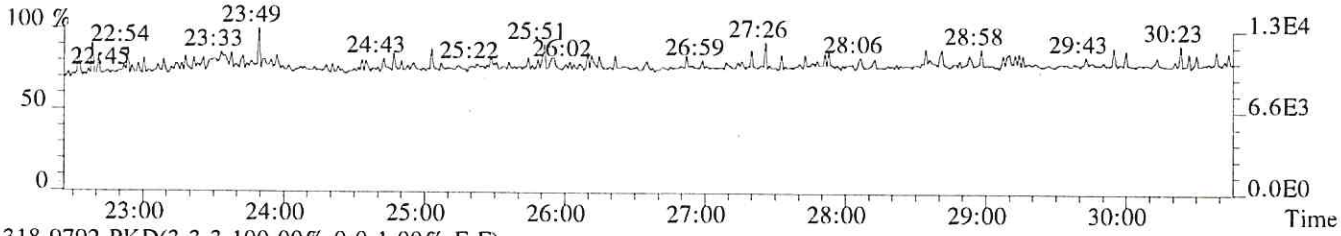
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6556.0,1.00%,F,T)



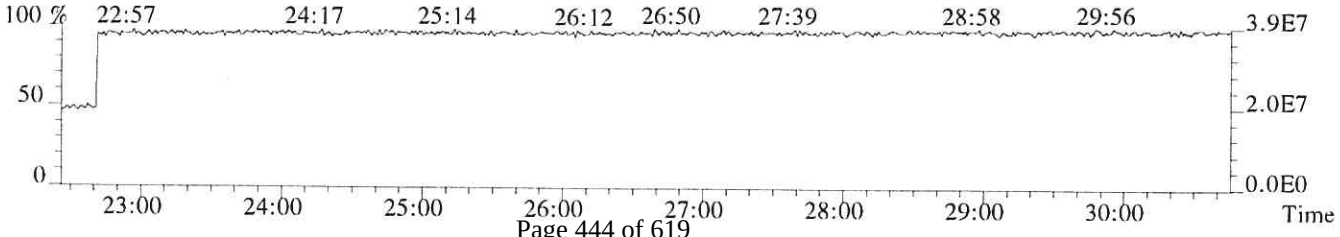
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3644.0,1.00%,F,T)



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



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



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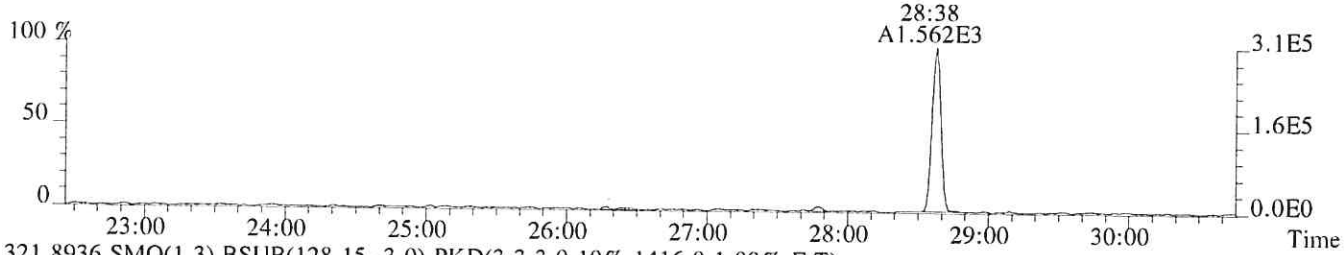
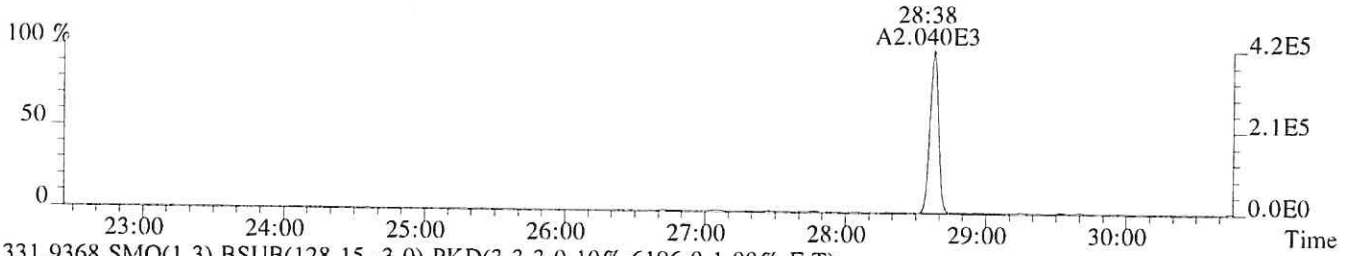
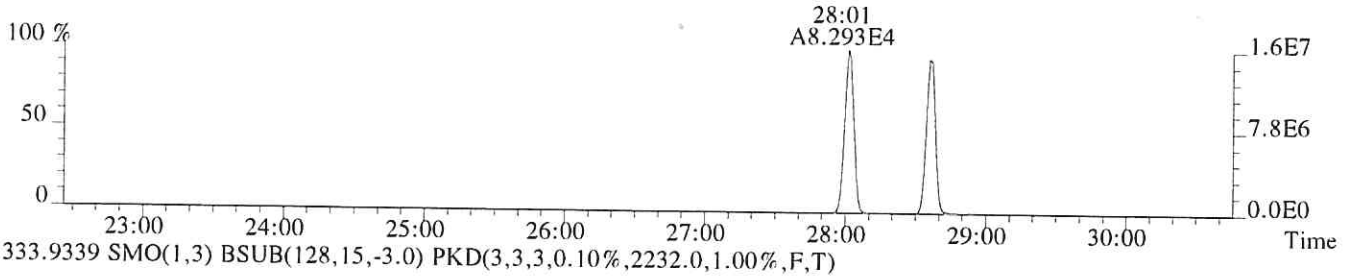
File:P521512 #1-591 Acq:26-APR-2019 01:25:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:193434
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2380.0,1.00%,F,T)



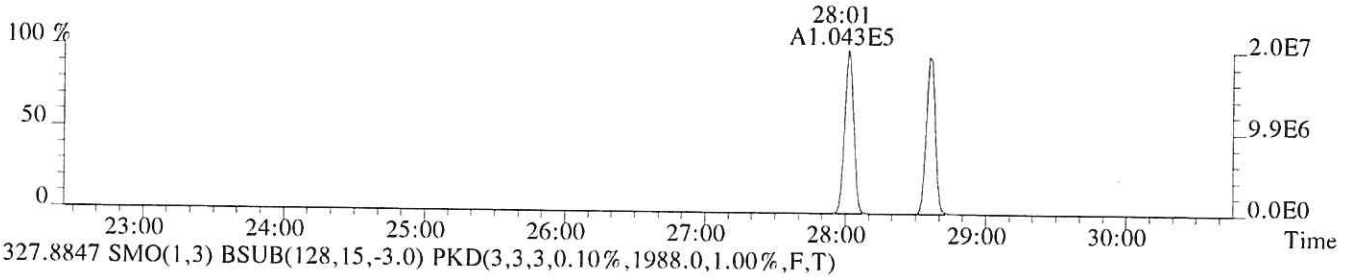
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1416.0,1.00%,F,T)



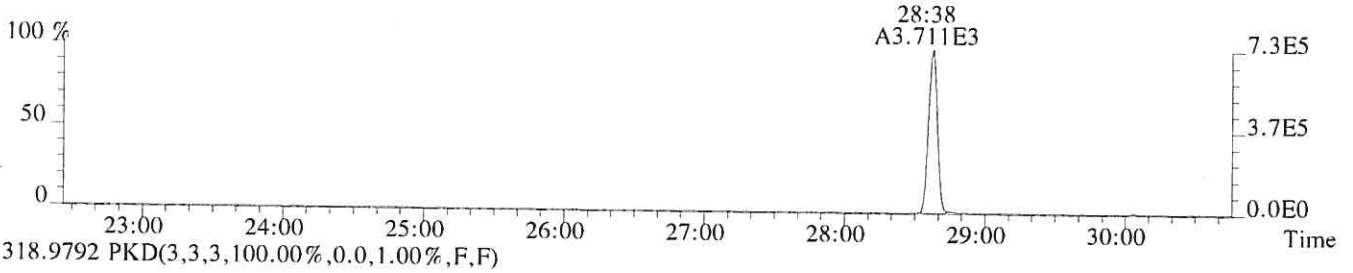
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6196.0,1.00%,F,T)



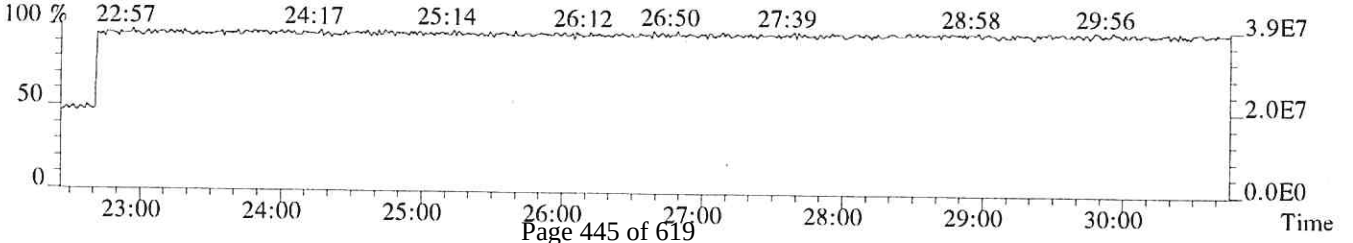
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2232.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1988.0,1.00%,F,T)



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



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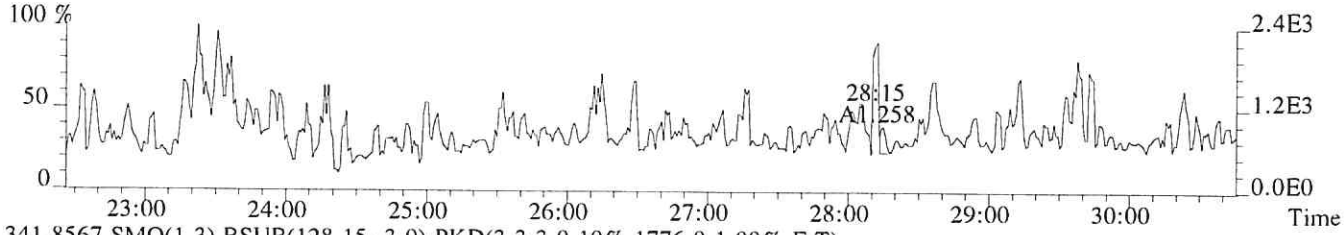
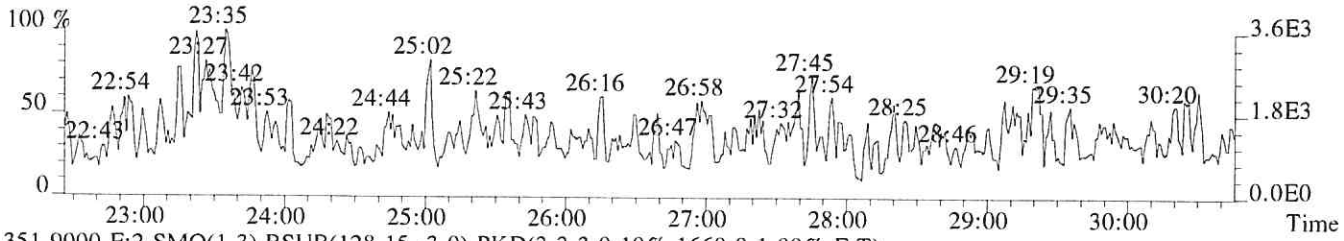
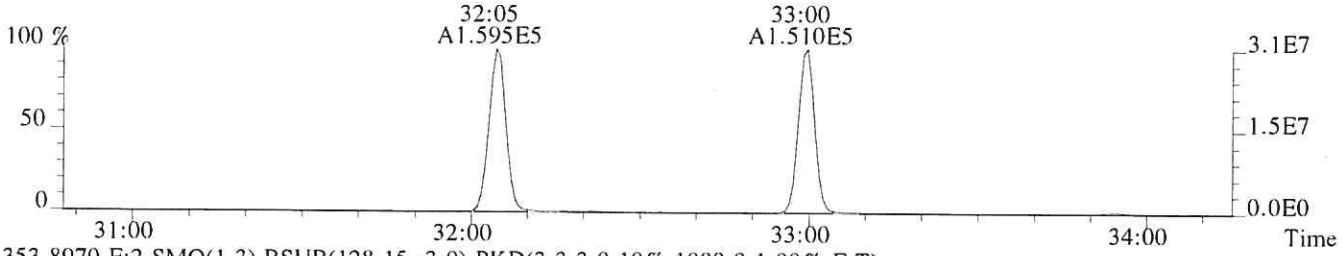
File:P521512 #1-591 Acq:26-APR-2019 01:25:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:193434
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1156.0,1.00%,F,T)



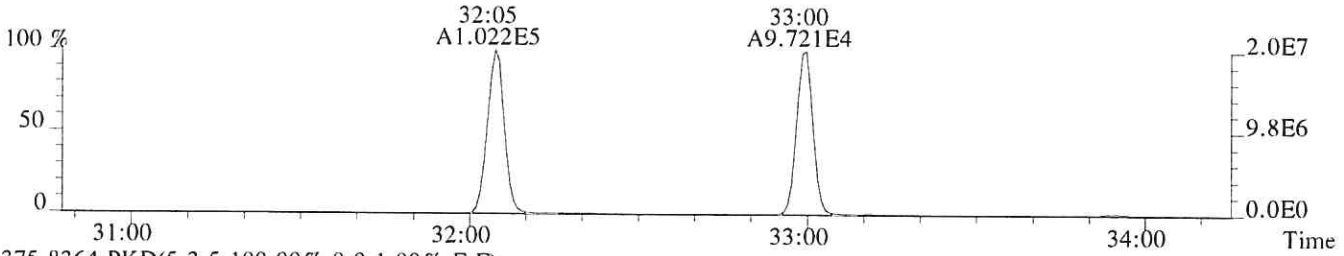
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1776.0,1.00%,F,T)



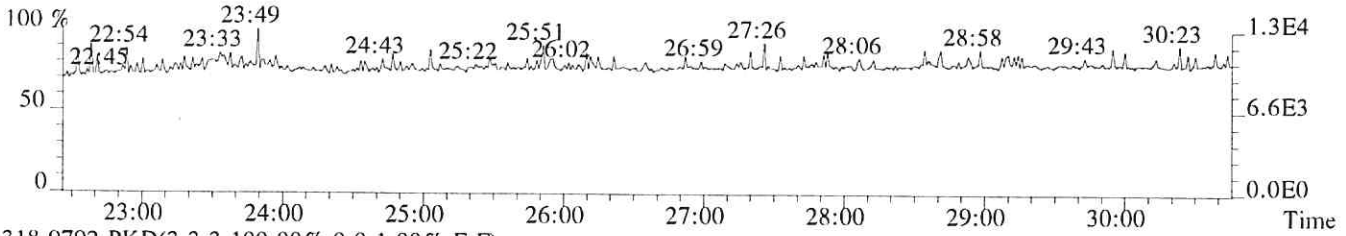
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1660.0,1.00%,F,T)



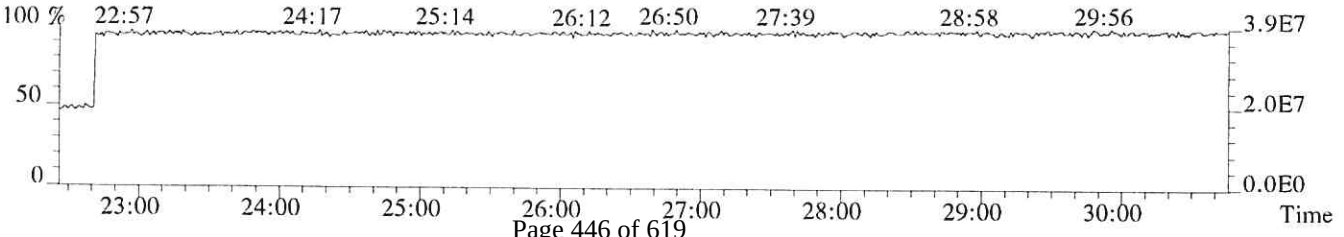
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1088.0,1.00%,F,T)



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



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



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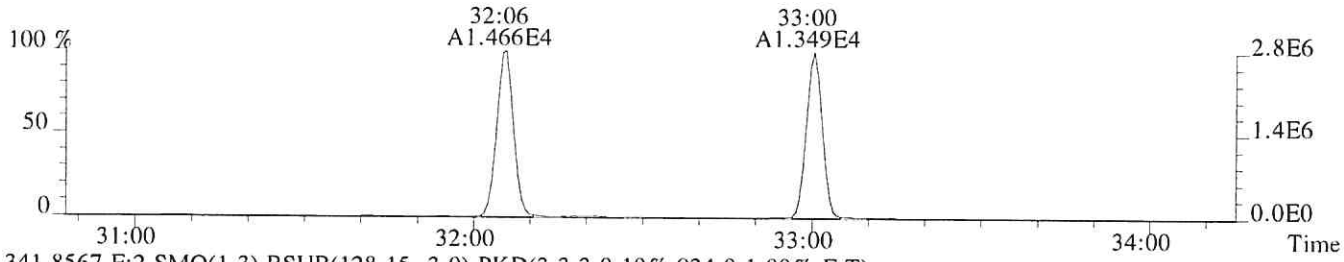
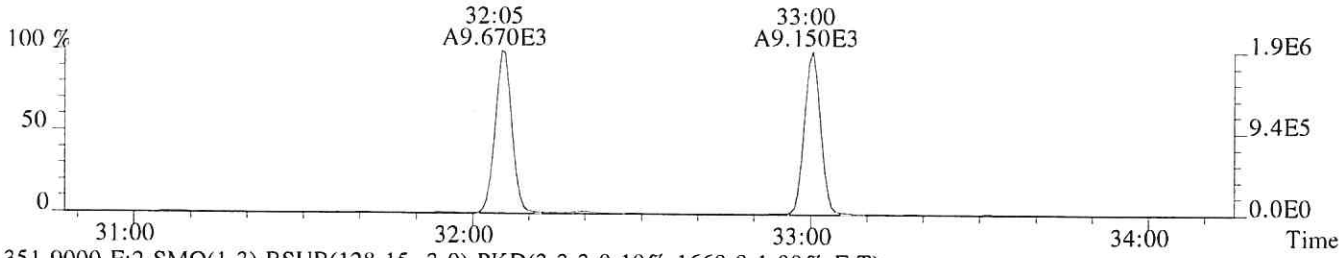
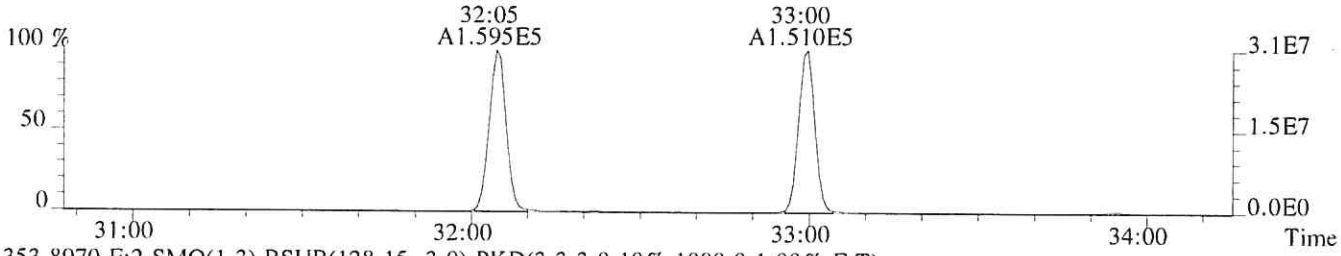
File:P521512 #1-312 Acq:26-APR-2019 01:25:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:193434
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,324.0,1.00%,F,T)



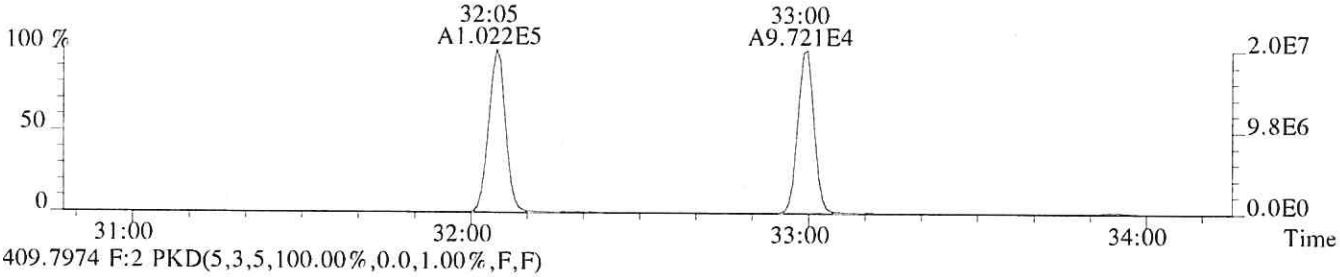
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,924.0,1.00%,F,T)



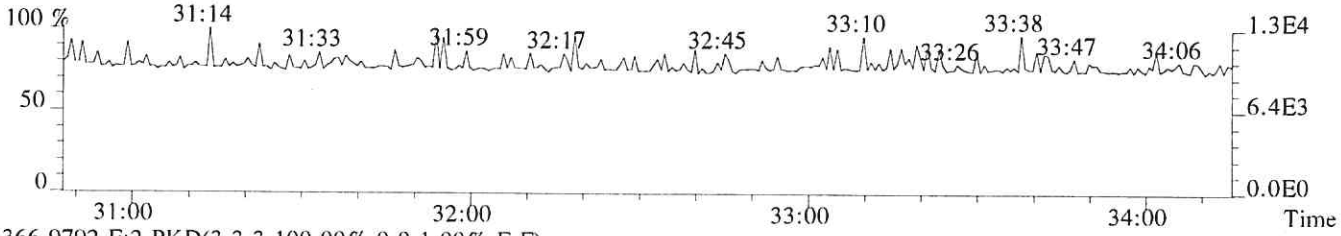
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1660.0,1.00%,F,T)



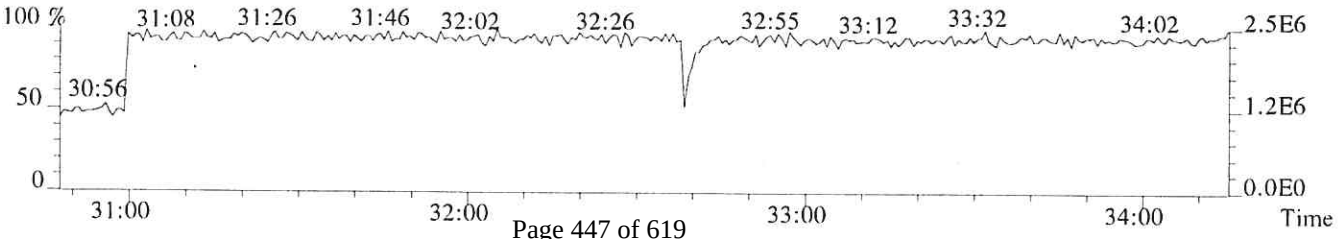
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1088.0,1.00%,F,T)



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

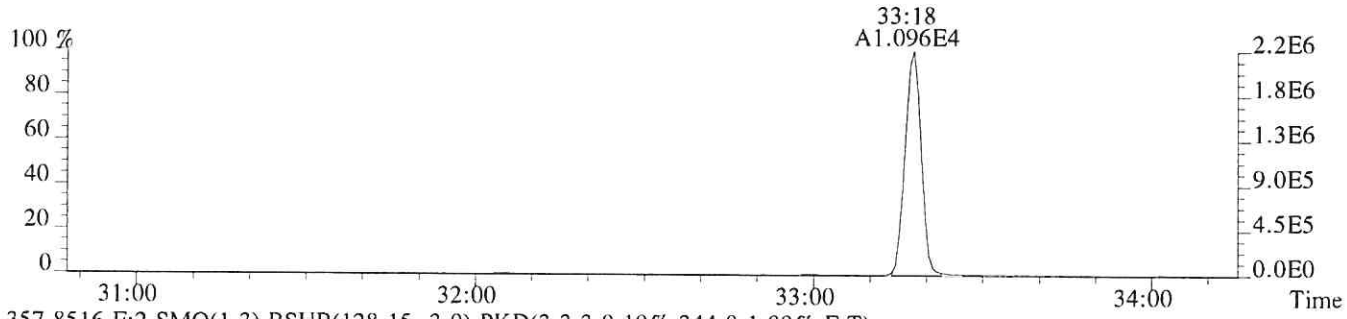


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

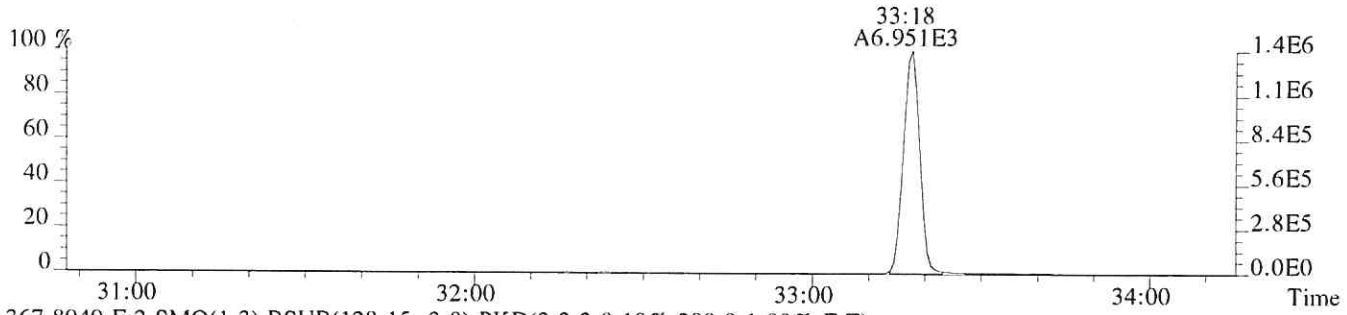


RIGHT SOLUTIONS | RIGHT PARTNER

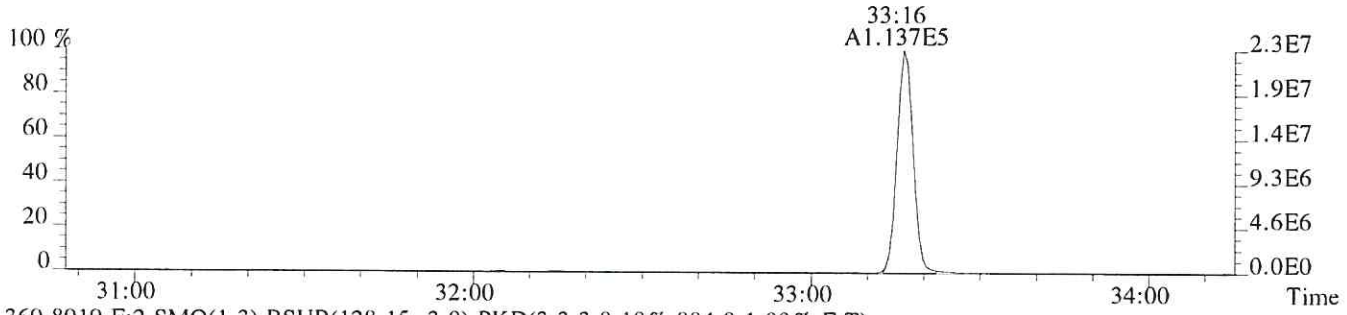
File:P521512 #1-312 Acq:26-APR-2019 01:25:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:193434
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1268.0,1.00%,F,T)



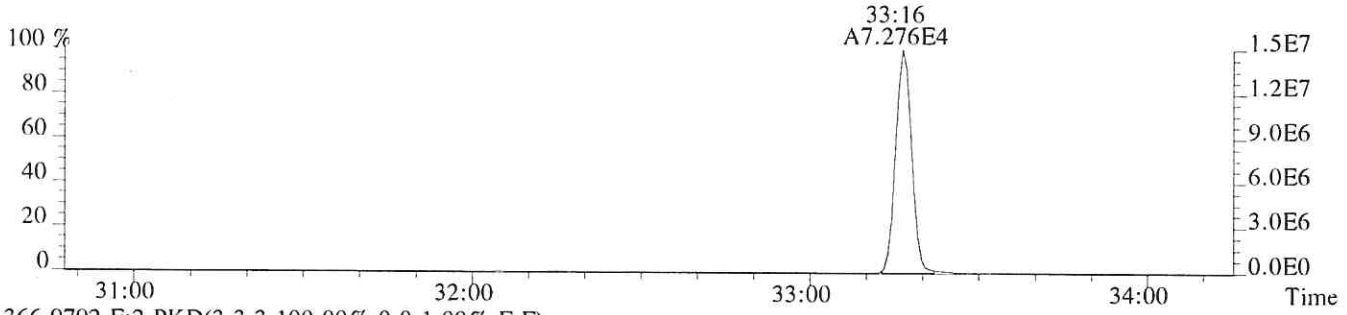
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,344.0,1.00%,F,T)



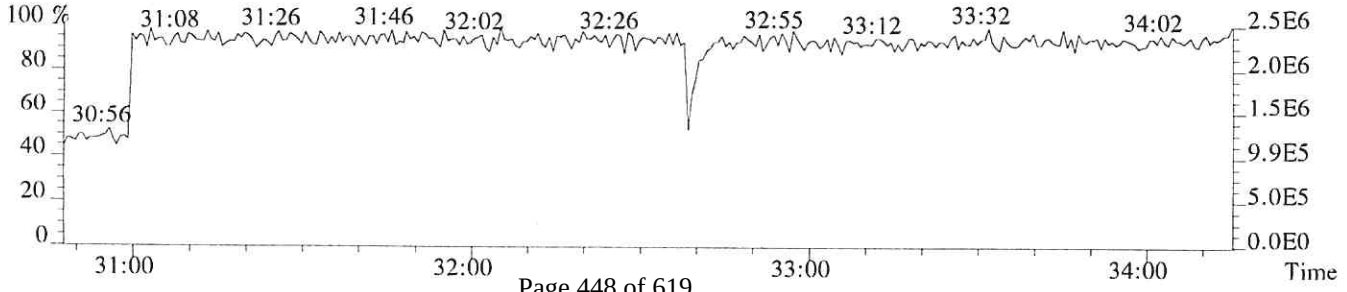
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,288.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,884.0,1.00%,F,T)

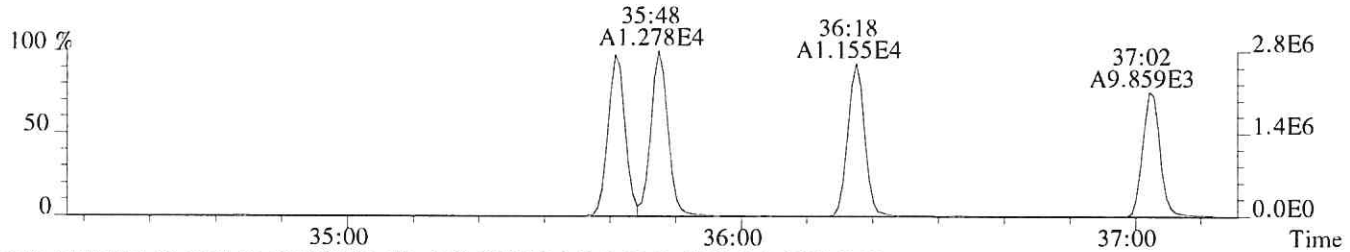


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

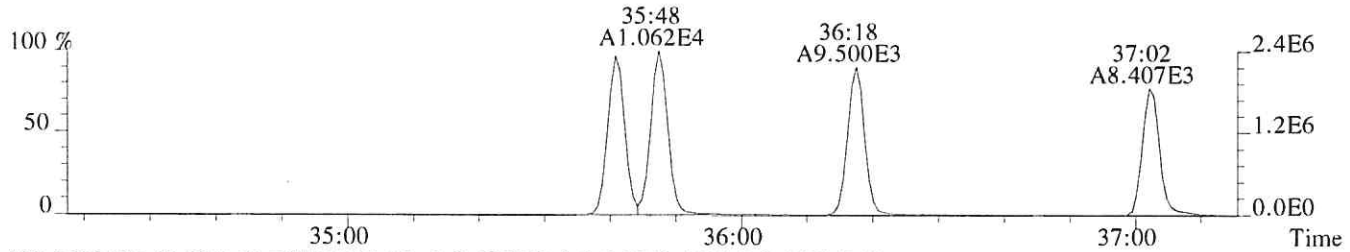


RIGHT SOLUTIONS | RIGHT PARTNER

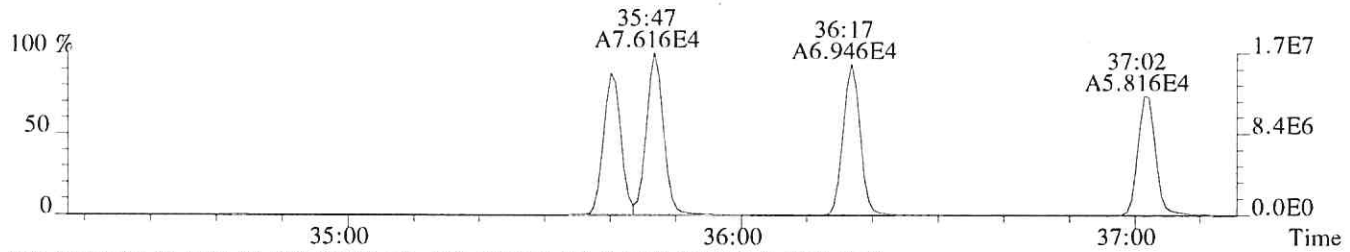
File:P521512 #1-268 Acq:26-APR-2019 01:25:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:193434
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1084.0,0.40%,F,T)



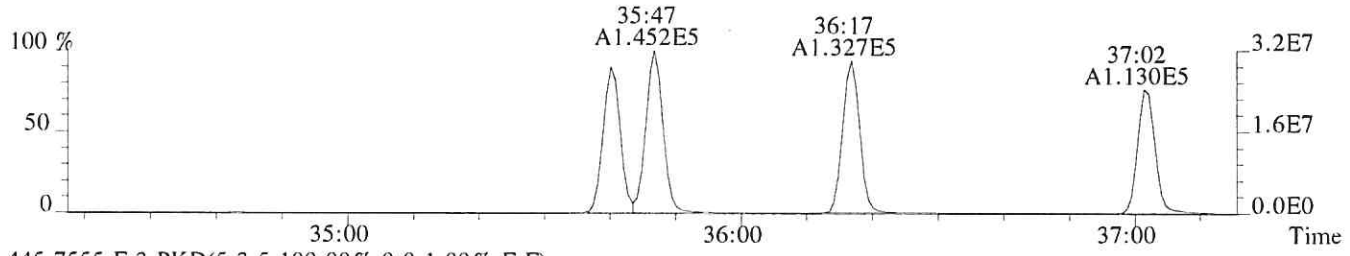
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1028.0,0.40%,F,T)



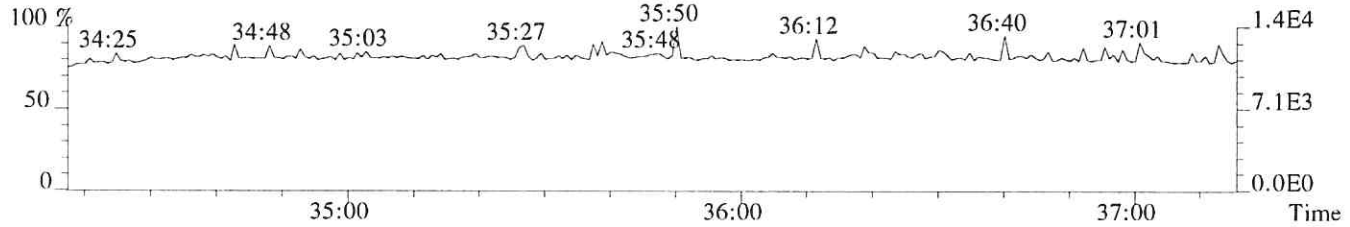
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1052.0,0.40%,F,T)



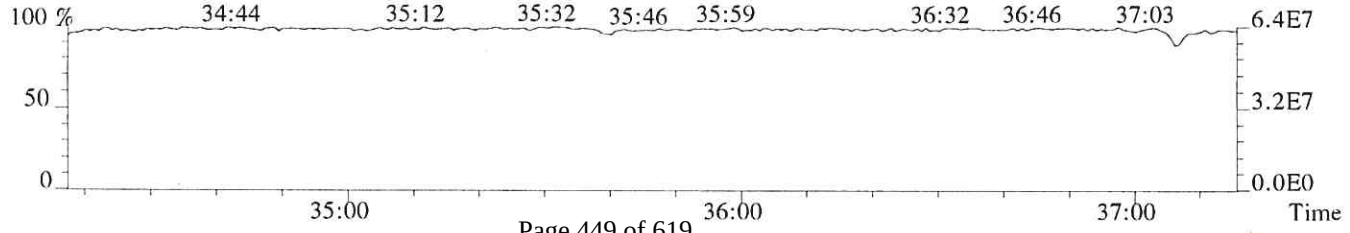
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1476.0,0.40%,F,T)



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

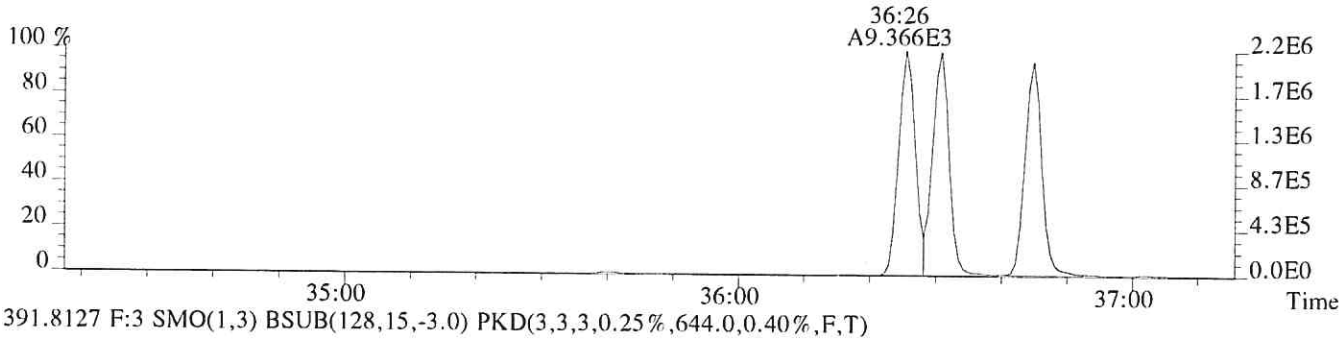


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

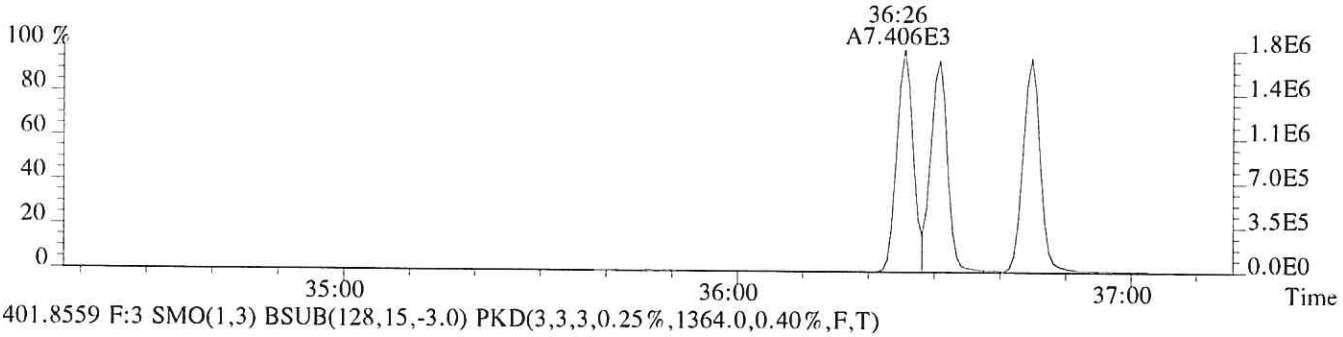


RIGHT SOLUTIONS | RIGHT PARTNER

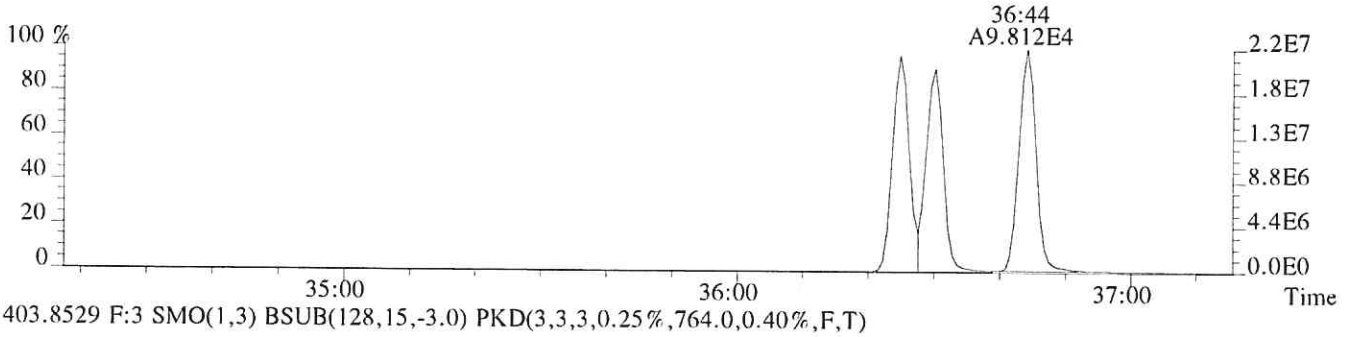
File:P521512 #1-268 Acq:26-APR-2019 01:25:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:193434
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,812.0,0.40%,F,T)



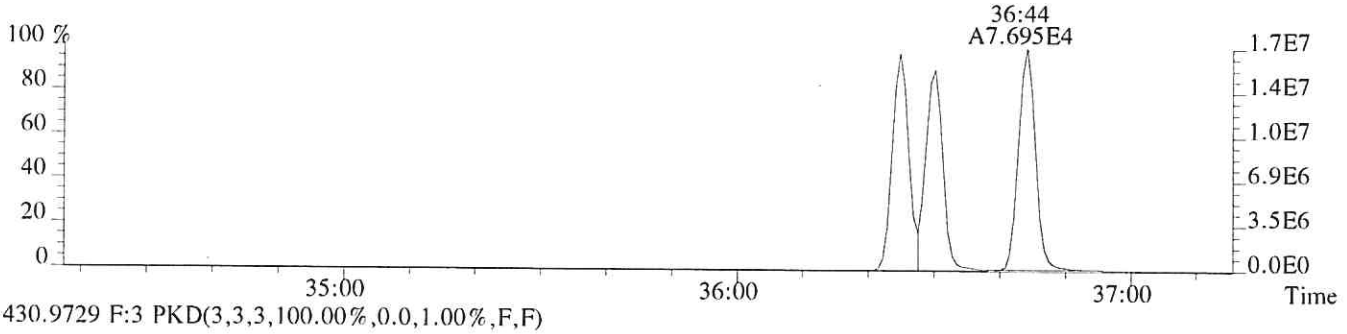
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,644.0,0.40%,F,T)



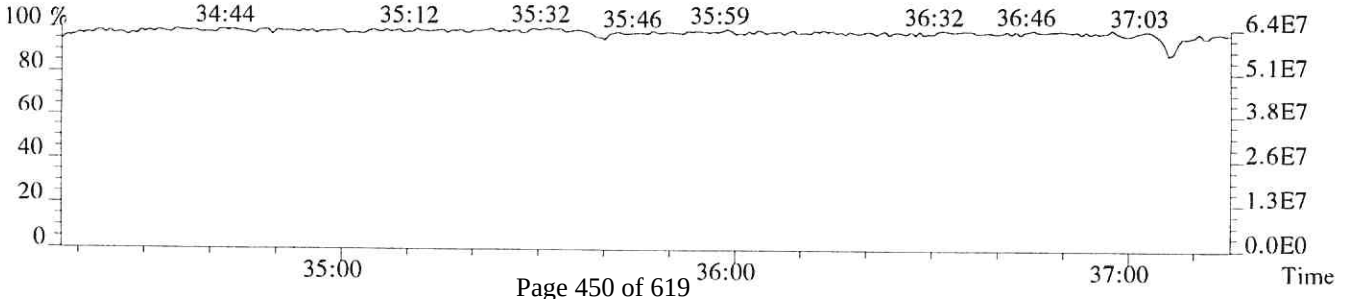
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1364.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,764.0,0.40%,F,T)

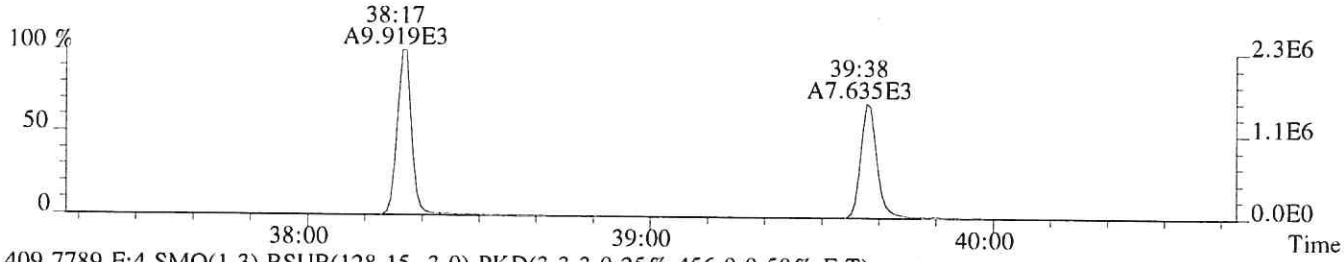


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

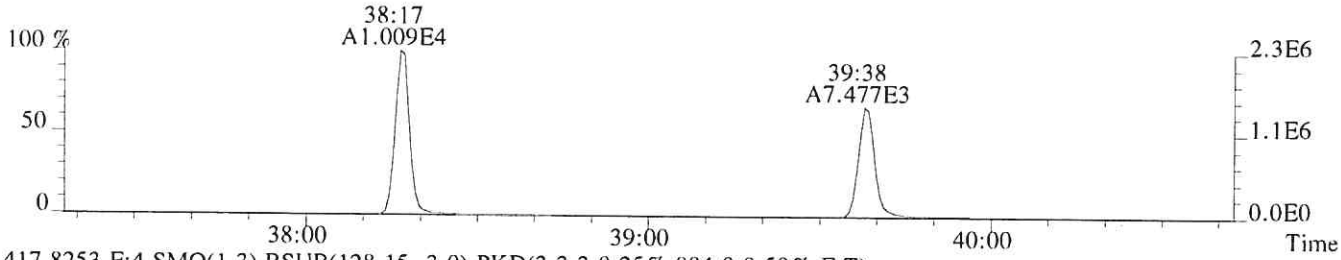


RIGHT SOLUTIONS | RIGHT PARTNER

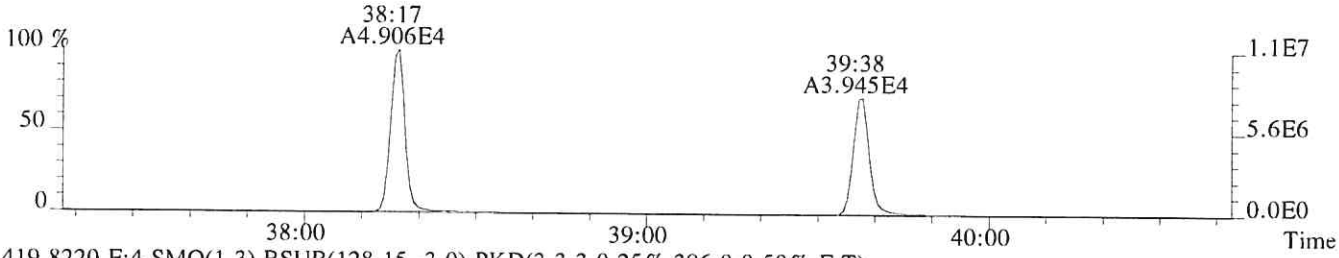
File:P521512 #1-308 Acq:26-APR-2019 01:25:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:193434
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,628.0,0.50%,F,T)



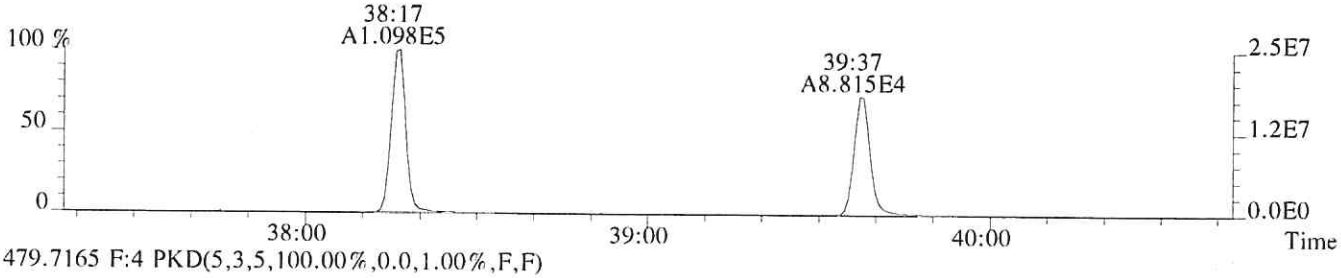
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,456.0,0.50%,F,T)



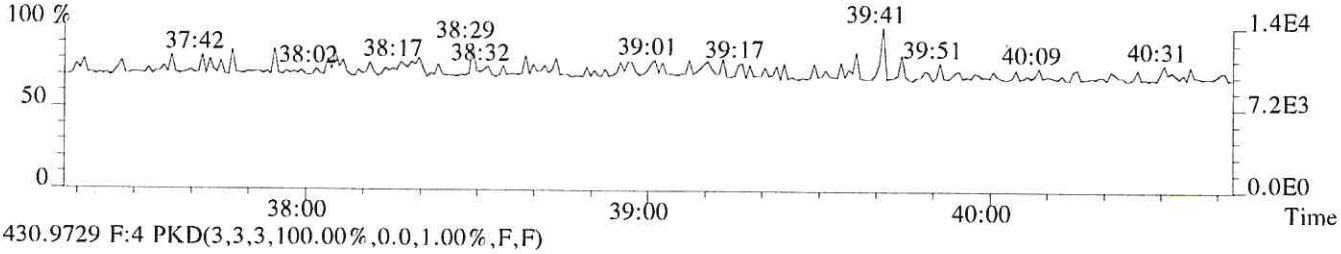
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,884.0,0.50%,F,T)



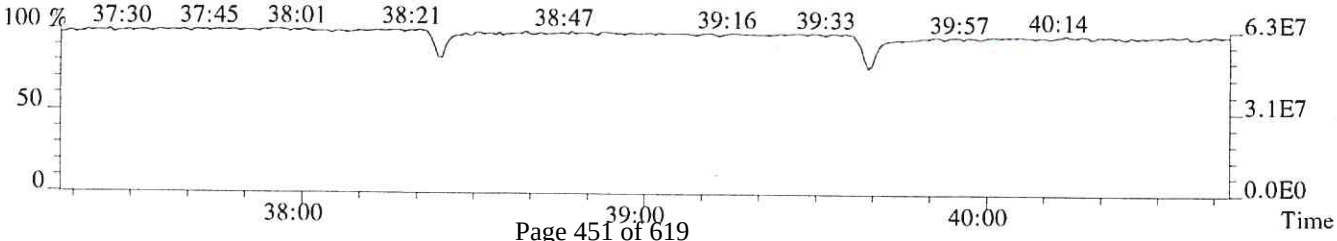
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,396.0,0.50%,F,T)



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

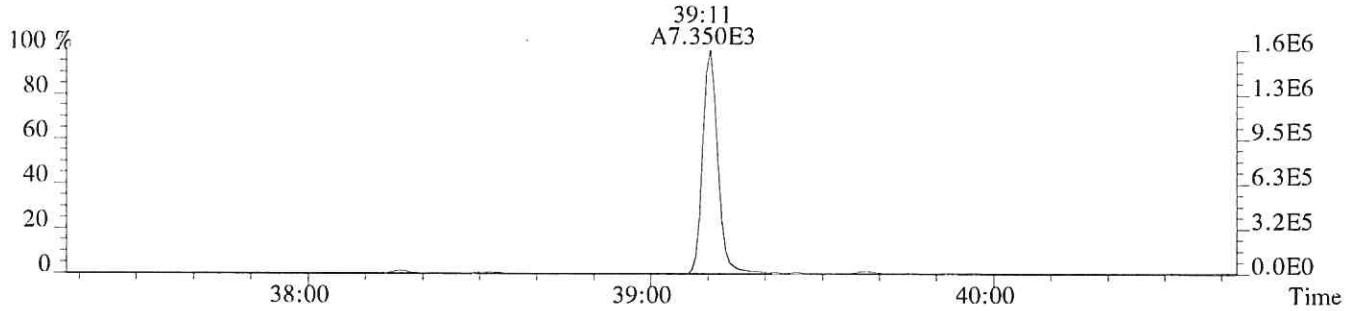


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

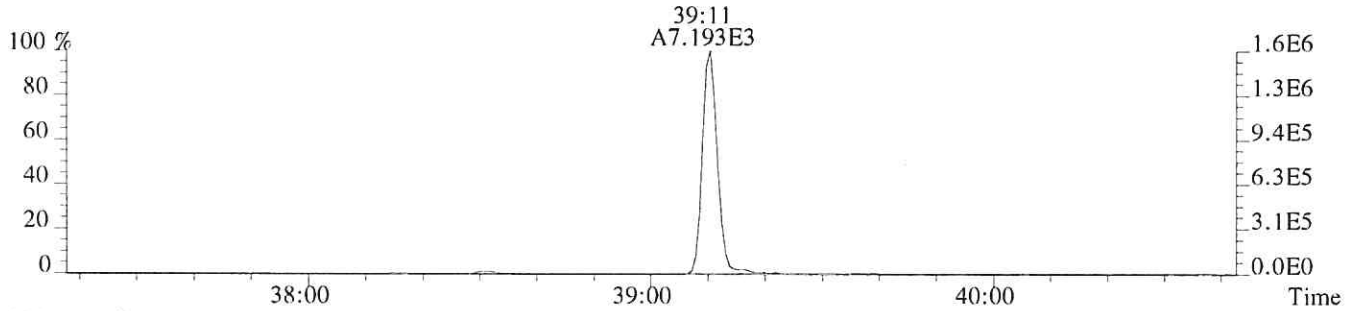


RIGHT SOLUTIONS | RIGHT PARTNER

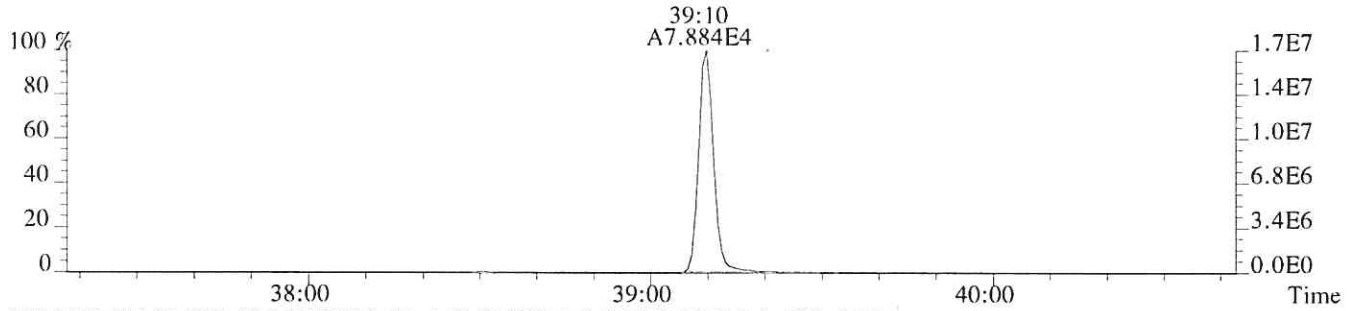
File:P521512 #1-308 Acq:26-APR-2019 01:25:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:193434
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,560.0,0.40%,F,T)



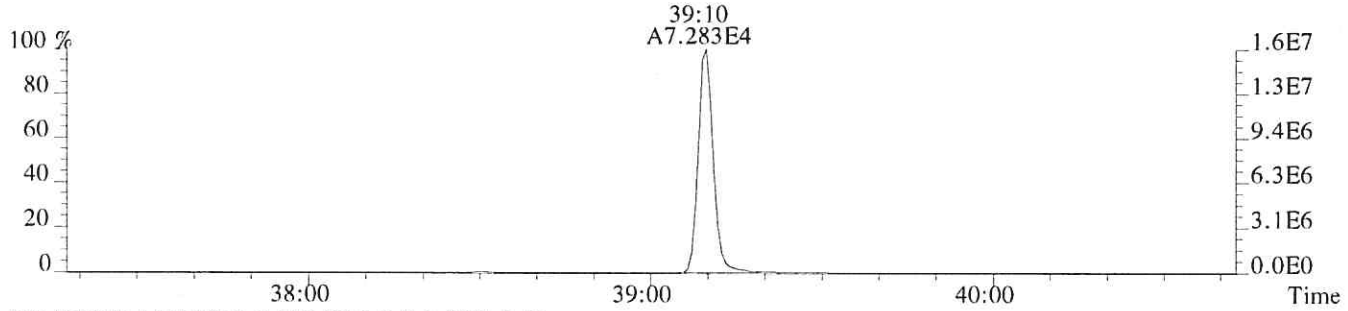
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,420.0,0.40%,F,T)



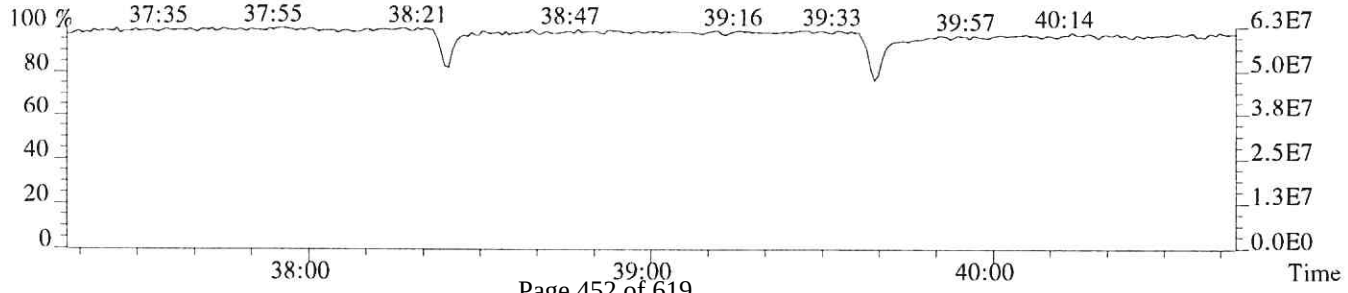
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,968.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1212.0,0.40%,F,T)

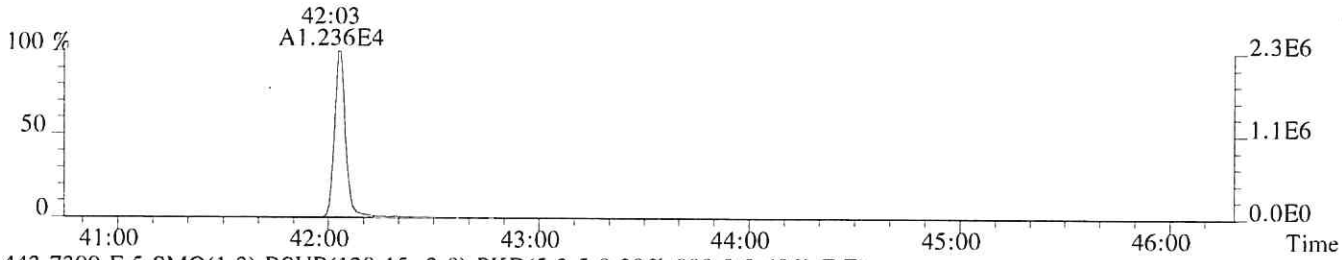


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

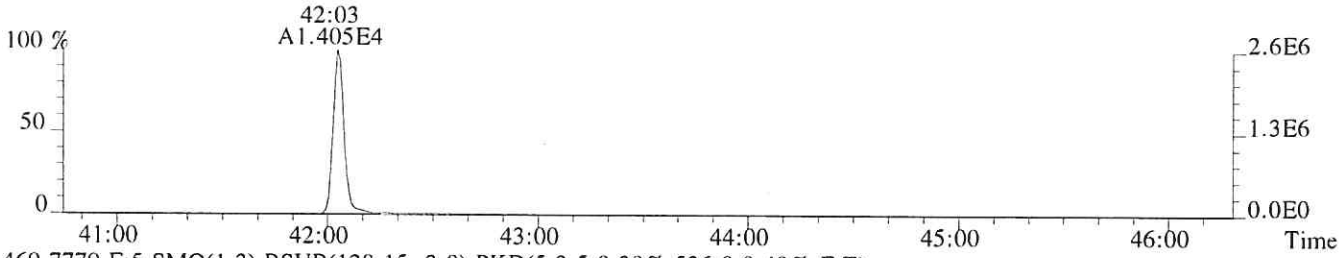


RIGHT SOLUTIONS | RIGHT PARTNER

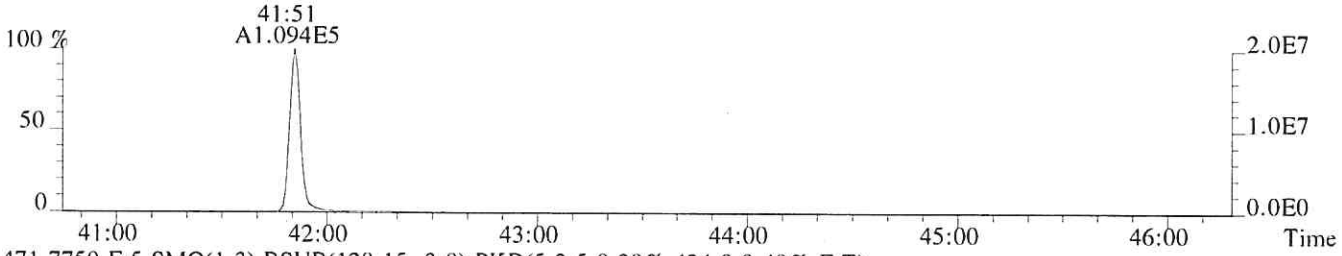
File:P521512 #1-501 Acq:26-APR-2019 01:25:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:193434
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,488.0,0.40%,F,T)



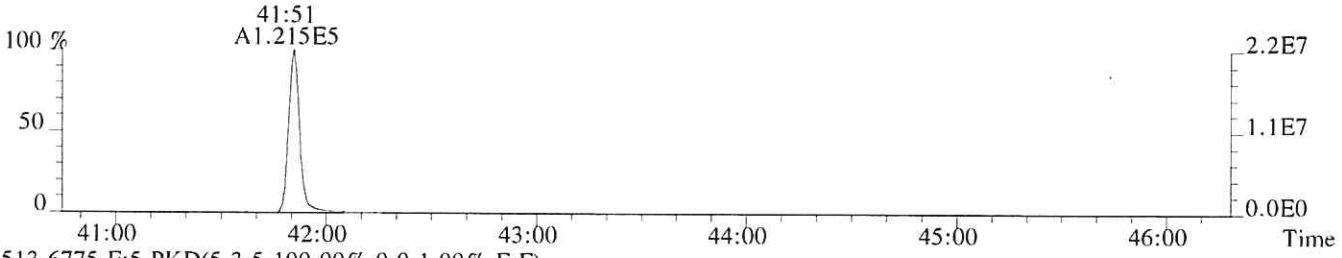
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,880.0,0.40%,F,T)



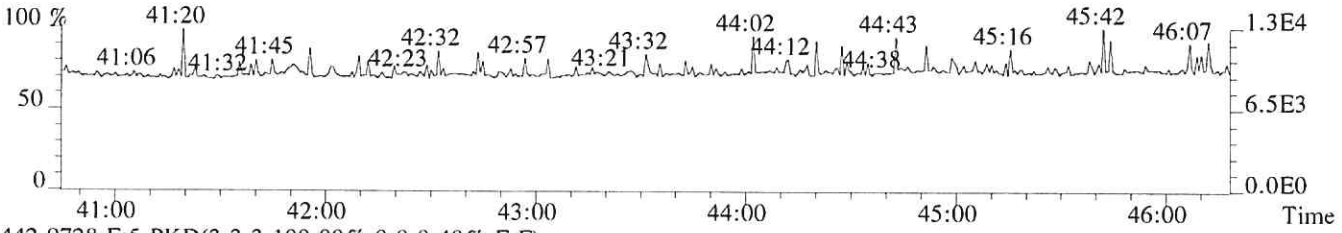
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,536.0,0.40%,F,T)



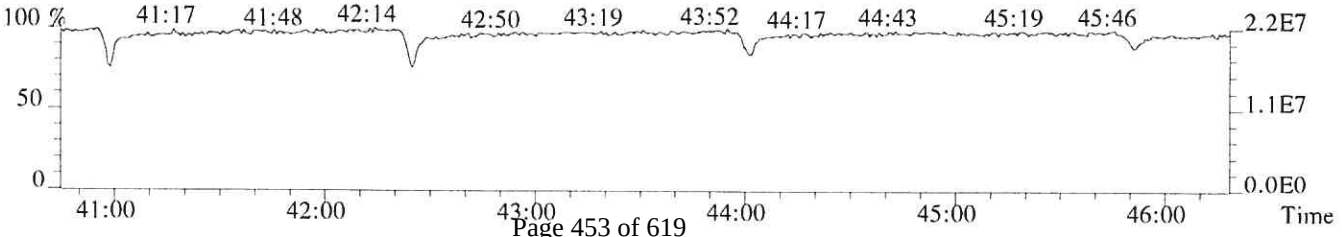
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,424.0,0.40%,F,T)



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

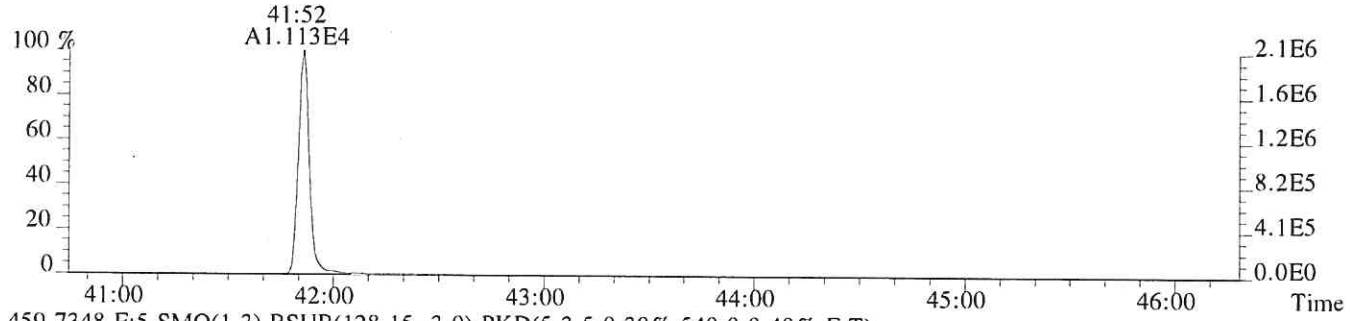


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

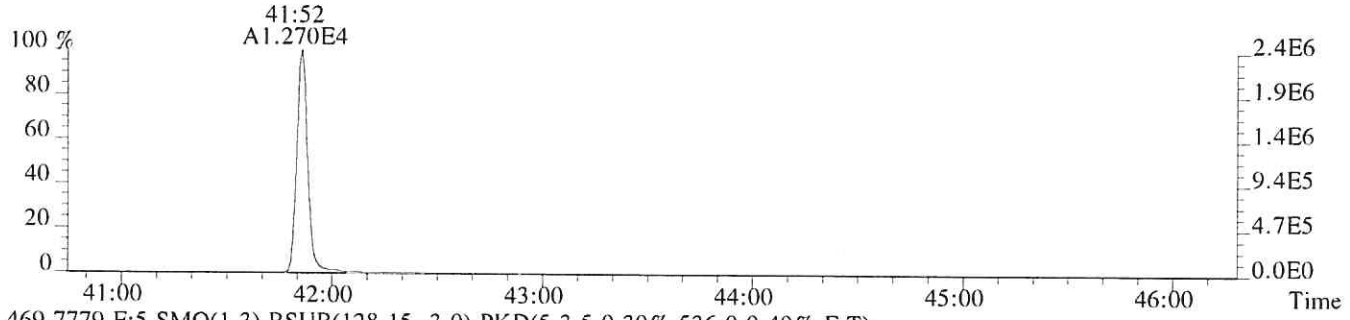


RIGHT SOLUTIONS | RIGHT PARTNER

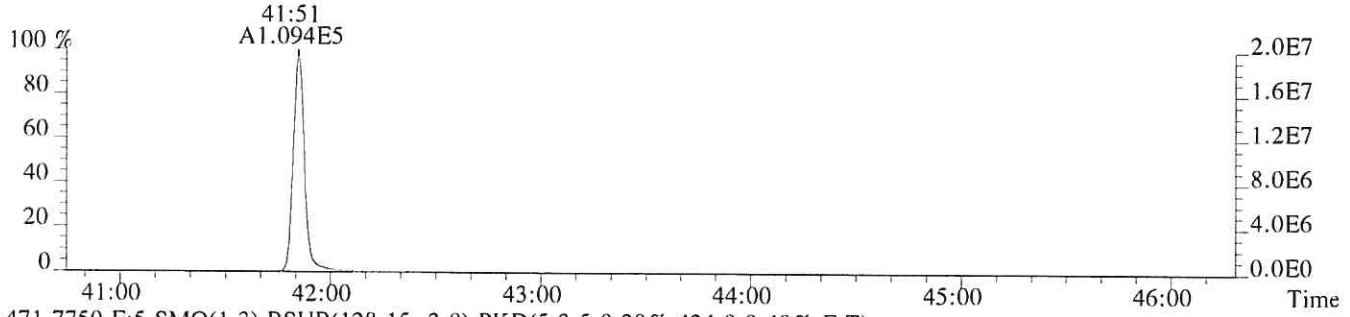
File:P521512 #1-501 Acq:26-APR-2019 01:25:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:193434
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,408.0,0.40%,F,T)



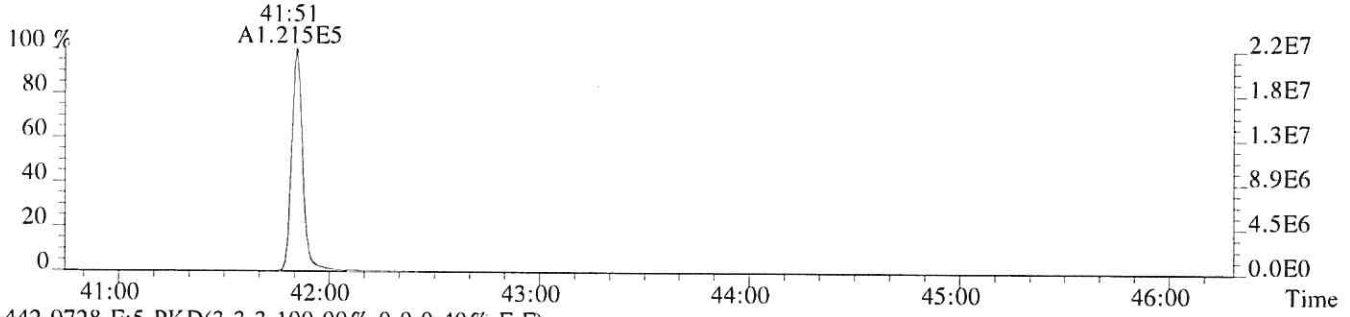
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,540.0,0.40%,F,T)



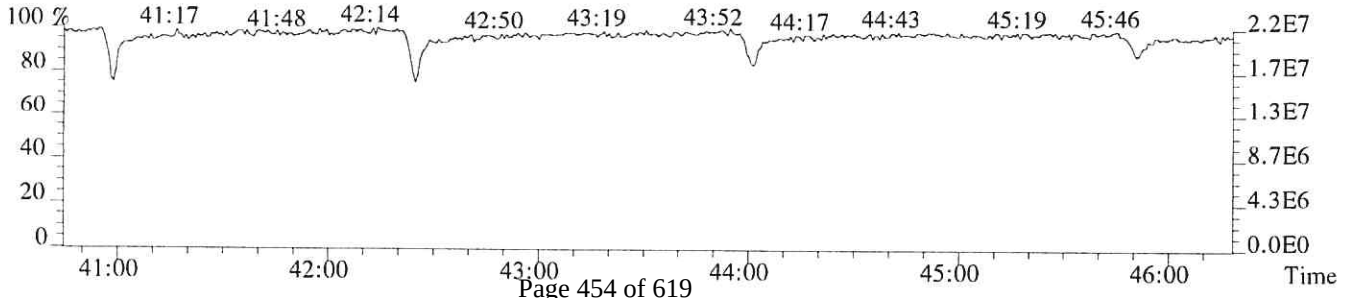
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,536.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,424.0,0.40%,F,T)



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



RIGHT SOLUTIONS | RIGHT PARTNER

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
193435

Run #4 Filename P521513 Samp: 1 Inj: 1 Acquired: 26-APR-19 02:14:26
Processed: 26-APR-19 07:12:43 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:49	7.604e+03	1.018e+04	0.75	yes	no	0.962
2	Unk	1,2,3,7,8-PeCDF	32:05	6.342e+04	4.234e+04	1.50	yes	no	0.968
3	Unk	2,3,4,7,8-PeCDF	33:00	5.833e+04	3.892e+04	1.50	yes	no	0.919
4	Unk	1,2,3,4,7,8-HxCDF	35:41	5.390e+04	4.472e+04	1.21	yes	no	1.161
5	Unk	1,2,3,6,7,8-HxCDF	35:48	5.567e+04	4.587e+04	1.21	yes	no	1.073
6	Unk	2,3,4,6,7,8-HxCDF	36:18	5.063e+04	4.211e+04	1.20	yes	no	1.069
7	Unk	1,2,3,7,8,9-HxCDF	37:02	4.462e+04	3.627e+04	1.23	yes	no	1.096
8	Unk	1,2,3,4,6,7,8-HpCDF	38:17	4.475e+04	4.459e+04	1.00	yes	no	1.281
9	Unk	1,2,3,4,7,8,9-HpCDF	39:38	3.347e+04	3.310e+04	1.01	yes	no	1.192
10	Unk	OCDF	42:03	5.611e+04	6.309e+04	0.89	yes	no	1.204
11	Unk	2,3,7,8-TCDD	28:38	6.266e+03	8.098e+03	0.77	yes	no	1.077
12	Unk	1,2,3,7,8-PeCDD	33:18	4.594e+04	2.943e+04	1.56	yes	no	0.971
13	Unk	1,2,3,4,7,8-HxCDD	36:26	4.046e+04	3.247e+04	1.25	yes	no	1.024
14	Unk	1,2,3,6,7,8-HxCDD	36:31	3.971e+04	3.134e+04	1.27	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:45	4.164e+04	3.361e+04	1.24	yes	no	1.055
16	Unk	1,2,3,4,6,7,8-HpCDD	39:11	3.245e+04	3.157e+04	1.03	yes	no	0.989
17	Unk	OCDD	41:52	4.975e+04	5.667e+04	0.88	yes	no	1.094
18	IS	13C-2,3,7,8-TCDF	27:48	8.764e+04	1.108e+05	0.79	yes	no	1.287
19	IS	13C-1,2,3,7,8-PeCDF	32:05	1.335e+05	8.461e+04	1.58	yes	no	1.416
20	IS	13C-2,3,4,7,8-PeCDF	32:59	1.300e+05	8.269e+04	1.57	yes	no	1.374
21	IS	13C-1,2,3,4,7,8-HxCDF	35:40	5.769e+04	1.119e+05	0.52	yes	no	1.114
22	IS	13C-1,2,3,6,7,8-HxCDF	35:47	6.488e+04	1.234e+05	0.53	yes	no	1.245
23	IS	13C-2,3,4,6,7,8-HxCDF	36:17	5.867e+04	1.119e+05	0.52	yes	no	1.146
24	IS	13C-1,2,3,7,8,9-HxCDF	37:02	5.056e+04	9.749e+04	0.52	yes	no	0.986
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:16	4.256e+04	9.593e+04	0.44	yes	no	0.915
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:37	3.400e+04	7.706e+04	0.44	yes	no	0.746
27	IS	13C-2,3,7,8-TCDD	28:36	6.339e+04	7.990e+04	0.79	yes	no	0.929
28	IS	13C-1,2,3,7,8-PeCDD	33:16	9.668e+04	6.122e+04	1.58	yes	no	1.017
29	IS	13C-1,2,3,4,7,8-HxCDD	36:25	7.983e+04	6.241e+04	1.28	yes	no	0.945
30	IS	13C-1,2,3,6,7,8-HxCDD	36:30	7.747e+04	6.054e+04	1.28	yes	no	0.924
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:10	6.758e+04	6.317e+04	1.07	yes	no	0.876
32	IS	13C-OCDD	41:51	9.183e+04	1.018e+05	0.90	yes	no	0.662
33	RS/RT	13C-1,2,3,4-TCDD	28:01	6.962e+04	8.783e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:44	8.298e+04	6.651e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:38	1.507e+04				no	1.010

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www.alsglobal.com

RIGHT SOLUTIONS | RIGHT PARTNER

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
193435

Run #4 Filename P521513 Samp: 1 Inj: 1 Acquired: 26-APR-19 02:14:26
Processed: 26-APR-19 07:12:43 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	1.41e+06	5.04e+02	2.8e+03	1.86e+06	9.64e+02	1.9e+03
2	1,2,3,7,8-PeCDF	1.22e+07	1.01e+03	1.2e+04	8.15e+06	1.04e+03	7.8e+03
3	2,3,4,7,8-PeCDF	1.19e+07	1.01e+03	1.2e+04	7.87e+06	1.04e+03	7.6e+03
4	1,2,3,4,7,8-HxCDF	1.22e+07	9.68e+02	1.3e+04	1.01e+07	6.92e+02	1.5e+04
5	1,2,3,6,7,8-HxCDF	1.23e+07	9.68e+02	1.3e+04	1.00e+07	6.92e+02	1.4e+04
6	2,3,4,6,7,8-HxCDF	1.13e+07	9.68e+02	1.2e+04	9.37e+06	6.92e+02	1.4e+04
7	1,2,3,7,8,9-HxCDF	9.60e+06	9.68e+02	9.9e+03	7.89e+06	6.92e+02	1.1e+04
8	1,2,3,4,6,7,8-HpCDF	1.02e+07	5.48e+02	1.9e+04	1.02e+07	3.56e+02	2.9e+04
9	1,2,3,4,7,8,9-HpCDF	6.90e+06	5.48e+02	1.3e+04	6.86e+06	3.56e+02	1.9e+04
10	OCDF	1.03e+07	6.40e+02	1.6e+04	1.15e+07	6.92e+02	1.7e+04
11	2,3,7,8-TCDD	1.21e+06	2.09e+03	5.8e+02	1.63e+06	1.34e+03	1.2e+03
12	1,2,3,7,8-PeCDD	9.20e+06	9.52e+02	9.7e+03	5.91e+06	7.80e+02	7.6e+03
13	1,2,3,4,7,8-HxCDD	9.21e+06	5.52e+02	1.7e+04	7.42e+06	4.76e+02	1.6e+04
14	1,2,3,6,7,8-HxCDD	8.82e+06	5.52e+02	1.6e+04	6.88e+06	4.76e+02	1.4e+04
15	1,2,3,7,8,9-HxCDD	9.26e+06	5.52e+02	1.7e+04	7.43e+06	4.76e+02	1.6e+04
16	1,2,3,4,6,7,8-HpCDD	7.03e+06	3.40e+02	2.1e+04	6.78e+06	7.04e+02	9.6e+03
17	OCDD	9.04e+06	5.56e+02	1.6e+04	1.02e+07	7.84e+02	1.3e+04
18	13C-2,3,7,8-TCDF	1.62e+07	6.52e+03	2.5e+03	2.05e+07	3.47e+03	5.9e+03
19	13C-1,2,3,7,8-PeCDF	2.60e+07	6.60e+02	3.9e+04	1.65e+07	4.48e+02	3.7e+04
20	13C-2,3,4,7,8-PeCDF	2.61e+07	6.60e+02	4.0e+04	1.68e+07	4.48e+02	3.7e+04
21	13C-1,2,3,4,7,8-HxCDF	1.29e+07	1.44e+03	8.9e+03	2.50e+07	9.08e+02	2.7e+04
22	13C-1,2,3,6,7,8-HxCDF	1.43e+07	1.44e+03	9.9e+03	2.72e+07	9.08e+02	3.0e+04
23	13C-2,3,4,6,7,8-HxCDF	1.30e+07	1.44e+03	9.0e+03	2.47e+07	9.08e+02	2.7e+04
24	13C-1,2,3,7,8,9-HxCDF	1.09e+07	1.44e+03	7.5e+03	2.11e+07	9.08e+02	2.3e+04
25	13C-1,2,3,4,6,7,8-HpCDF	9.52e+06	1.38e+03	6.9e+03	2.16e+07	7.16e+02	3.0e+04
26	13C-1,2,3,4,7,8,9-HpCDF	6.99e+06	1.38e+03	5.1e+03	1.59e+07	7.16e+02	2.2e+04
27	13C-2,3,7,8-TCDD	1.23e+07	4.37e+03	2.8e+03	1.56e+07	2.86e+03	5.4e+03
28	13C-1,2,3,7,8-PeCDD	1.98e+07	9.92e+02	2.0e+04	1.26e+07	1.08e+03	1.2e+04
29	13C-1,2,3,4,7,8-HxCDD	1.81e+07	1.92e+03	9.5e+03	1.40e+07	9.24e+02	1.5e+04
30	13C-1,2,3,6,7,8-HxCDD	1.70e+07	1.92e+03	8.9e+03	1.32e+07	9.24e+02	1.4e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.44e+07	1.11e+03	1.3e+04	1.34e+07	6.84e+02	2.0e+04
32	13C-OCDD	1.64e+07	4.84e+02	3.4e+04	1.81e+07	6.16e+02	2.9e+04
33	13C-1,2,3,4-TCDD	1.31e+07	4.37e+03	3.0e+03	1.65e+07	2.86e+03	5.8e+03
34	13C-1,2,3,7,8,9-HxCDD	1.85e+07	1.92e+03	9.6e+03	1.46e+07	9.24e+02	1.6e+04
35	37Cl-2,3,7,8-TCDD	2.98e+06	1.66e+03	1.8e+03			

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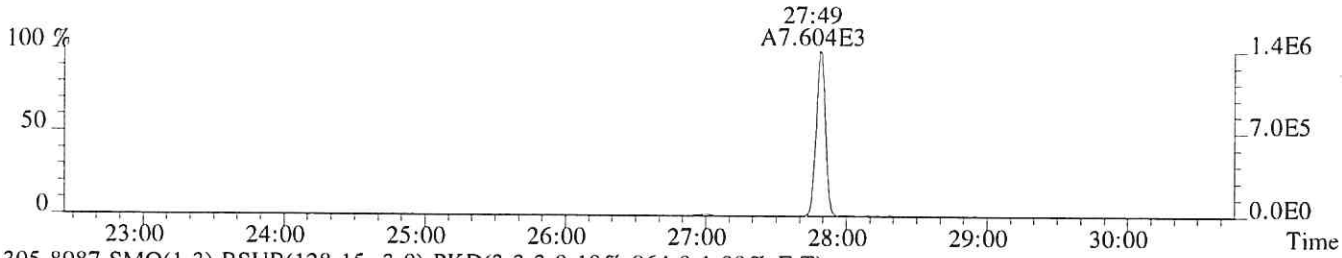
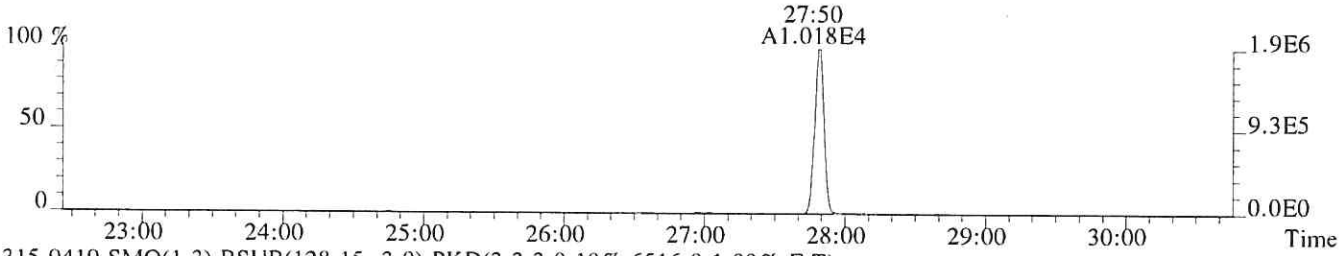
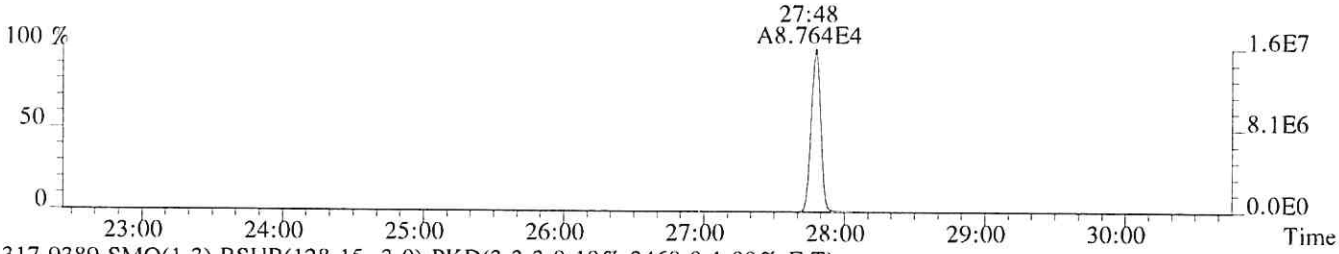
File:P521513 #1-591 Acq:26-APR-2019 02:14:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:193435
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,504.0,1.00%,F,T)



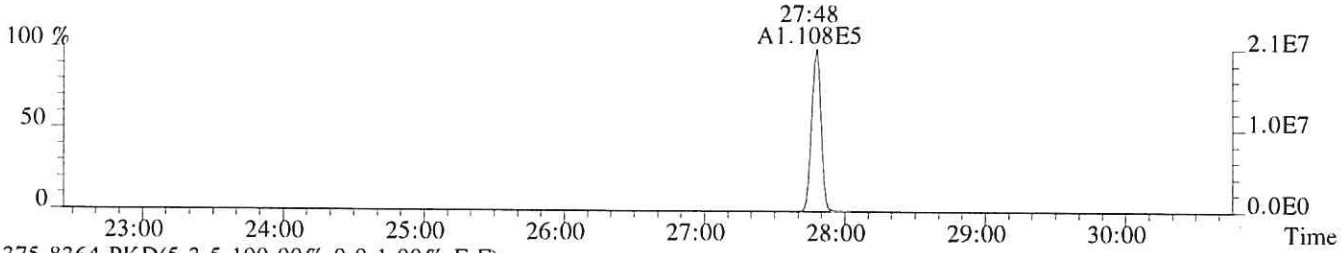
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,964.0,1.00%,F,T)



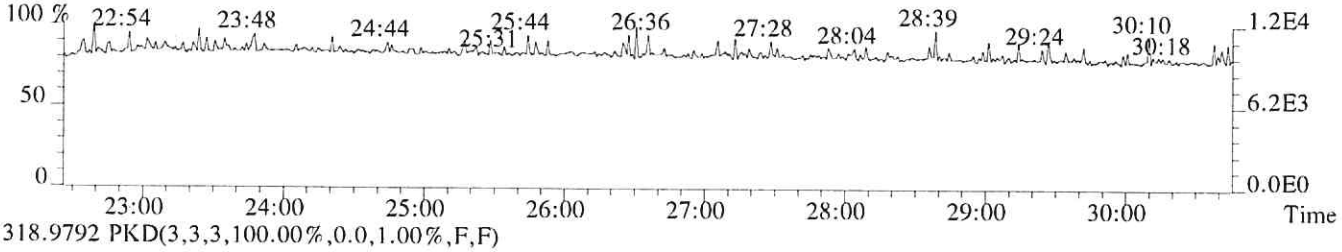
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6516.0,1.00%,F,T)



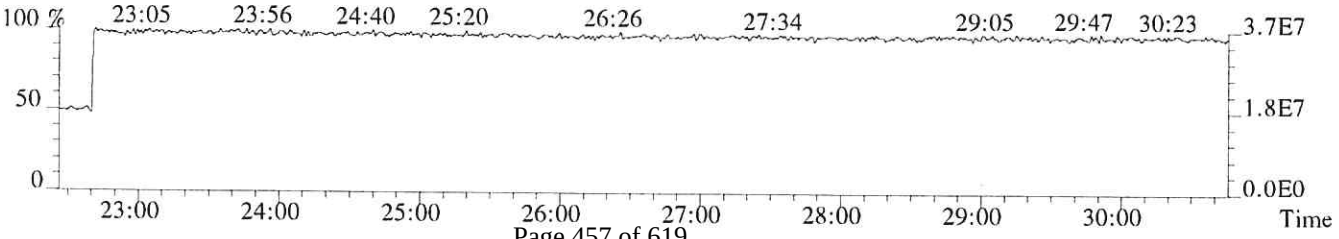
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3468.0,1.00%,F,T)



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



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



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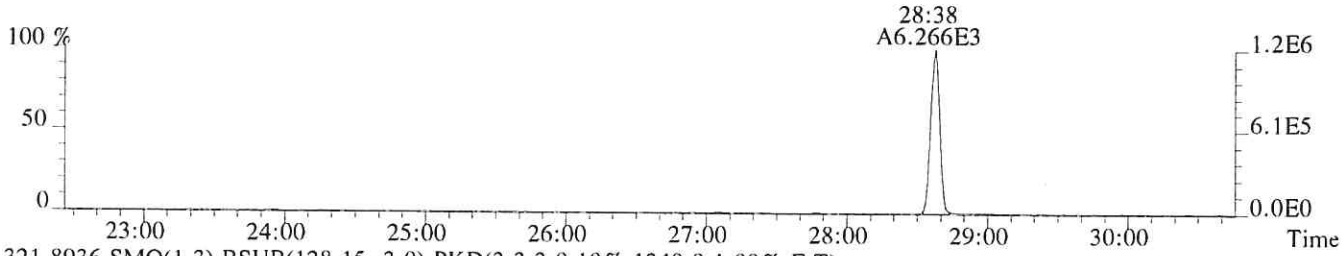
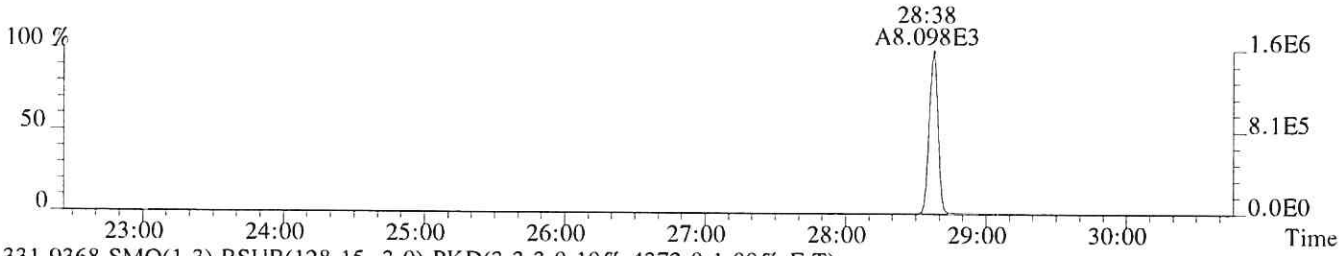
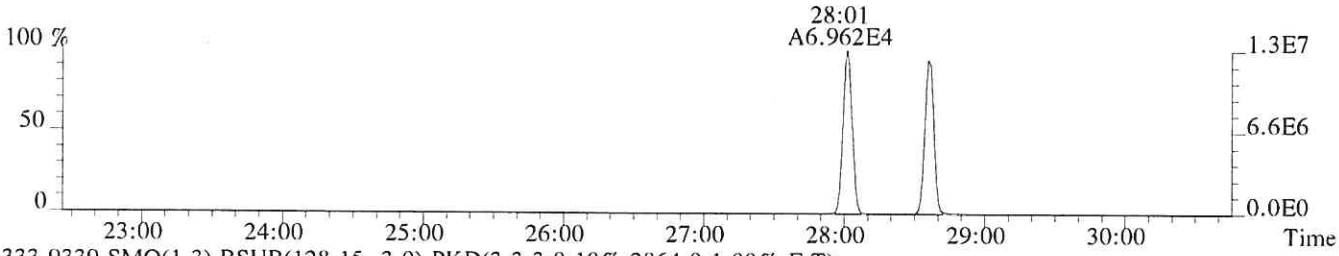
File:P521513 #1-591 Acq:26-APR-2019 02:14:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:193435
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2088.0,1.00%,F,T)



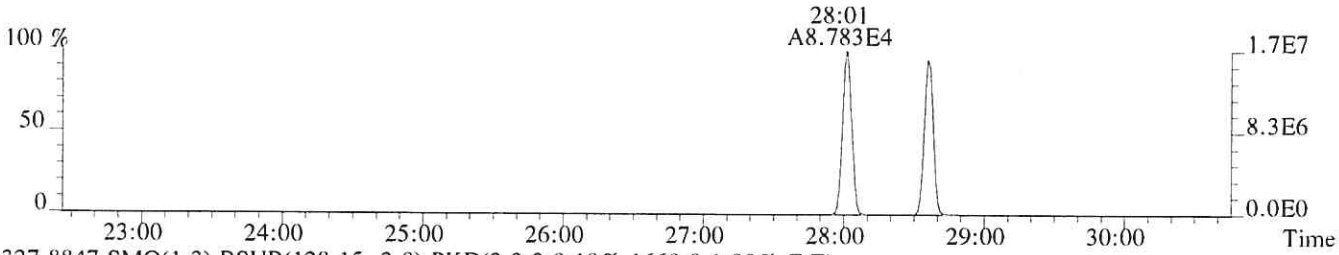
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1340.0,1.00%,F,T)



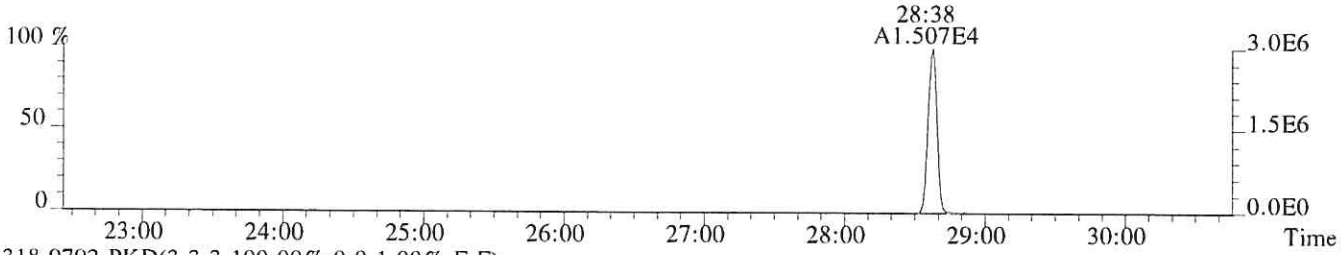
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4372.0,1.00%,F,T)



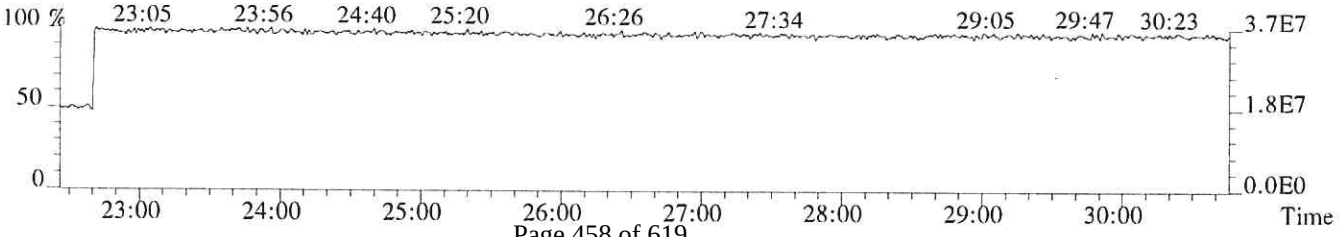
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2864.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1660.0,1.00%,F,T)

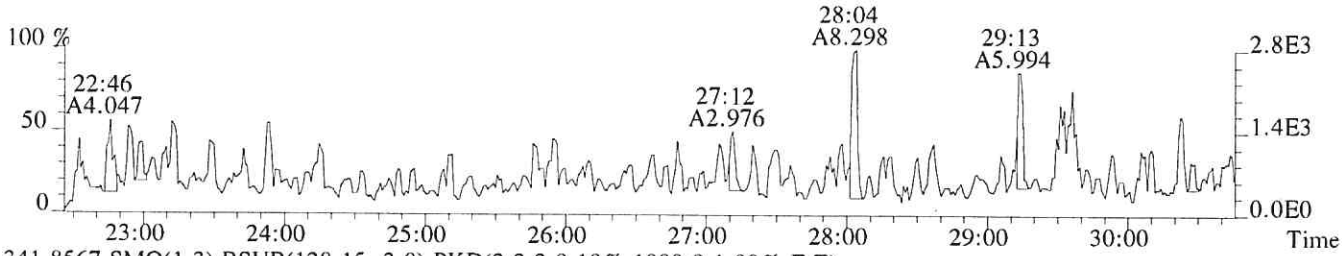


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

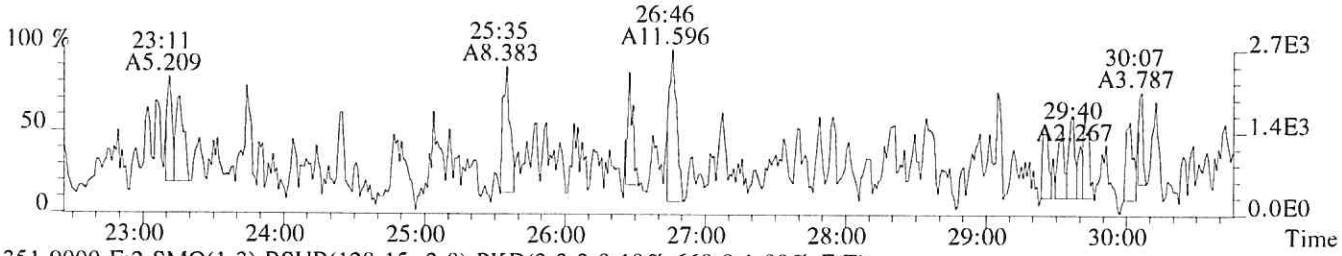


RIGHT SOLUTIONS | RIGHT PARTNER

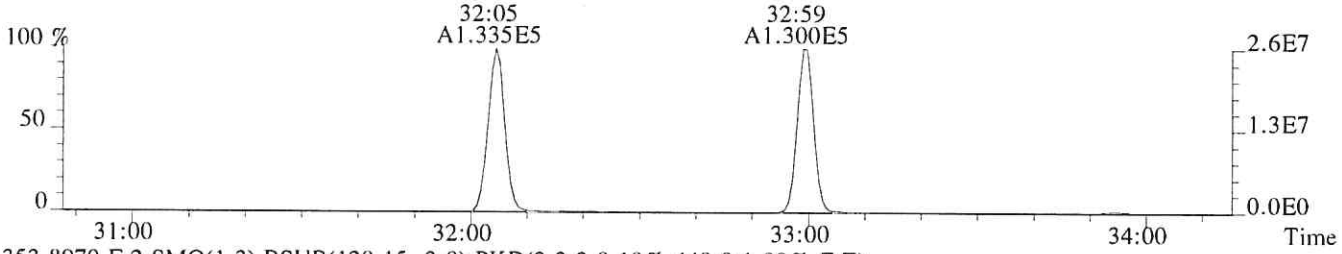
File:P521513 #1-591 Acq:26-APR-2019 02:14:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:193435
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,688.0,1.00%,F,T)



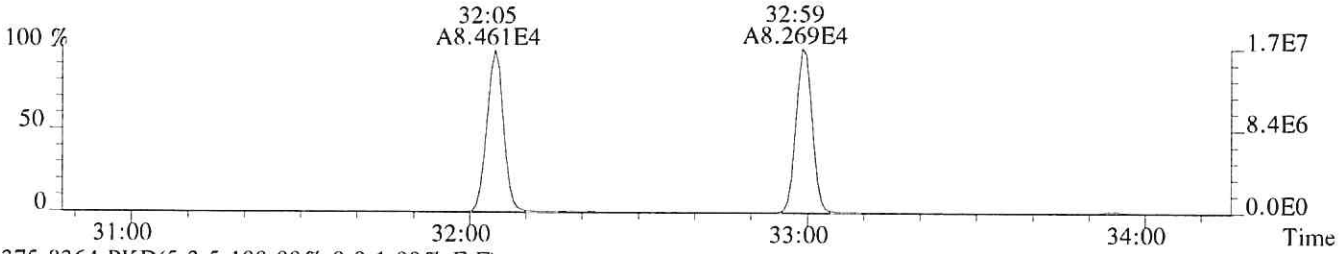
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1000.0,1.00%,F,T)



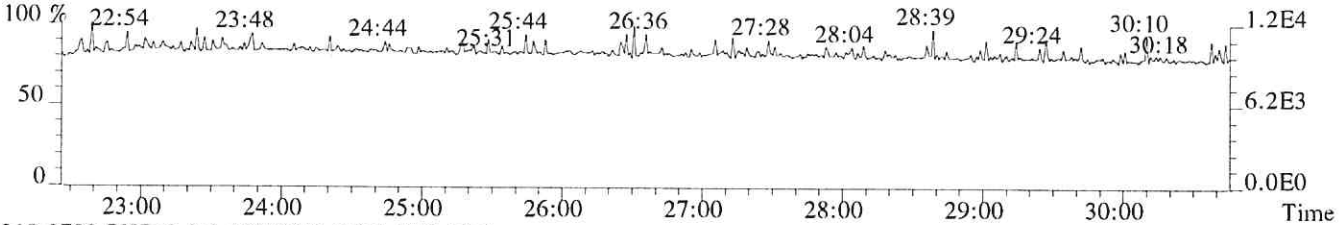
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,660.0,1.00%,F,T)



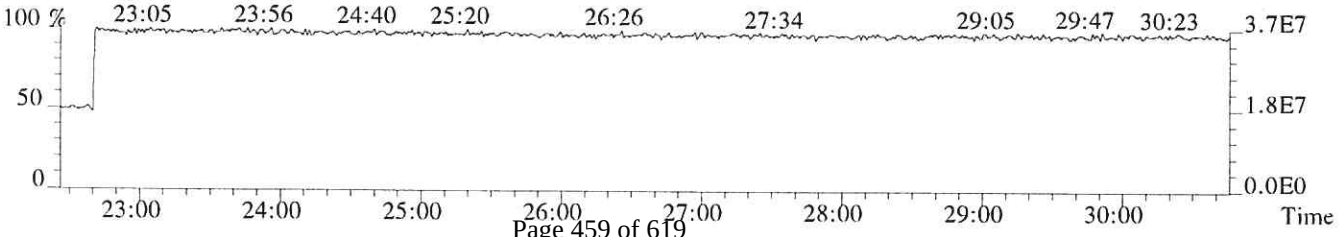
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,448.0,1.00%,F,T)



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)



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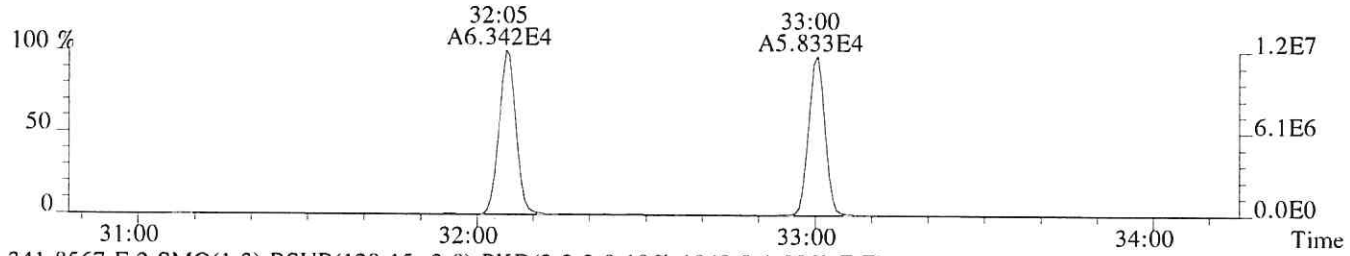
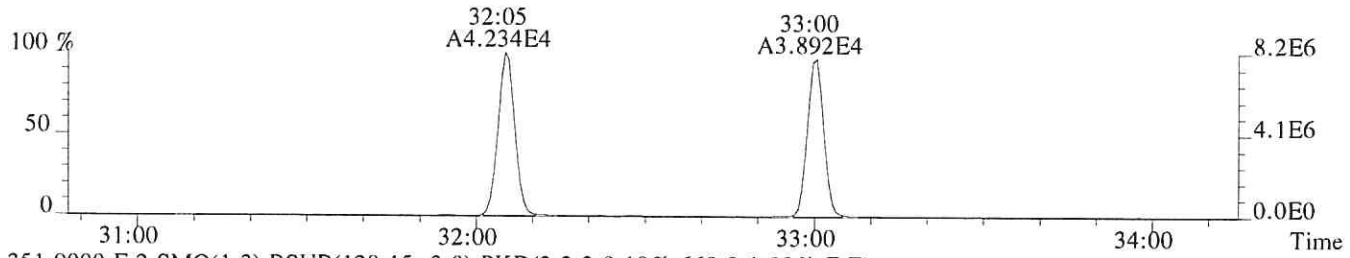
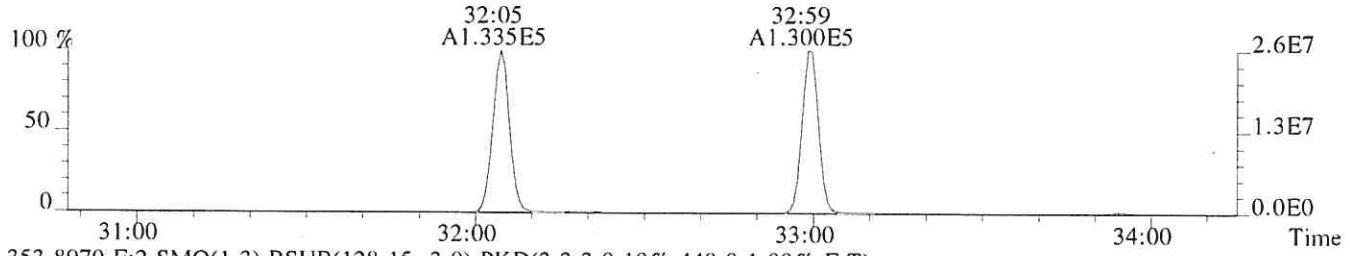
File:P521513 #1-312 Acq:26-APR-2019 02:14:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:193435
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1008.0,1.00%,F,T)



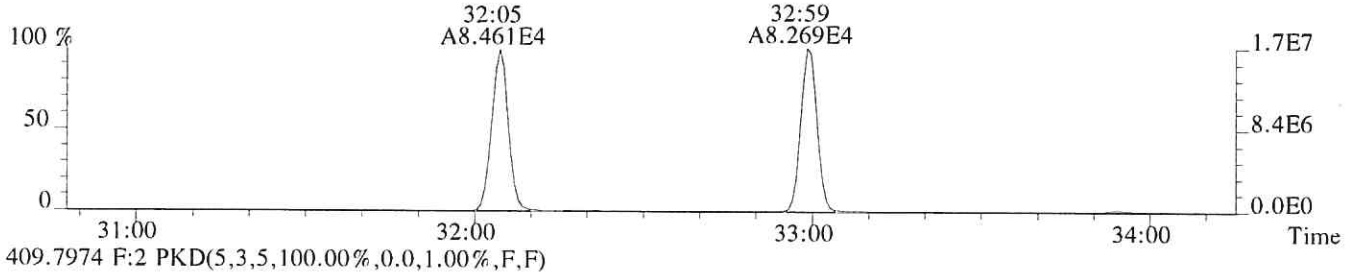
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1040.0,1.00%,F,T)



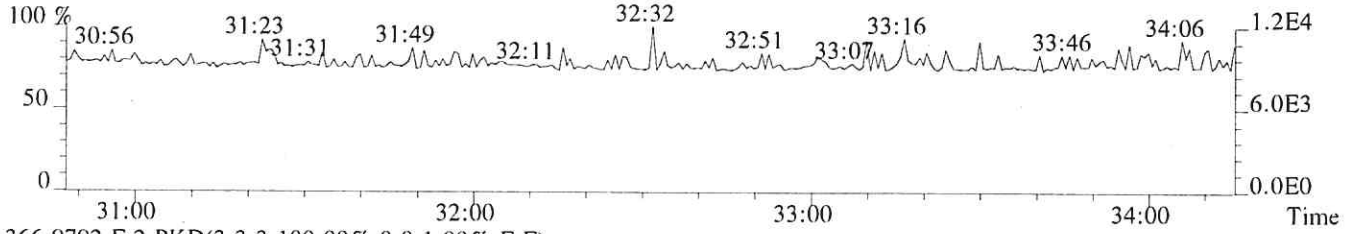
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,660.0,1.00%,F,T)



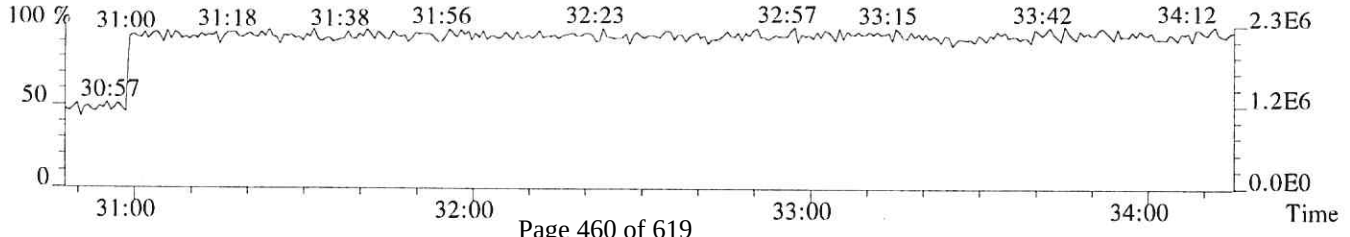
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,448.0,1.00%,F,T)



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



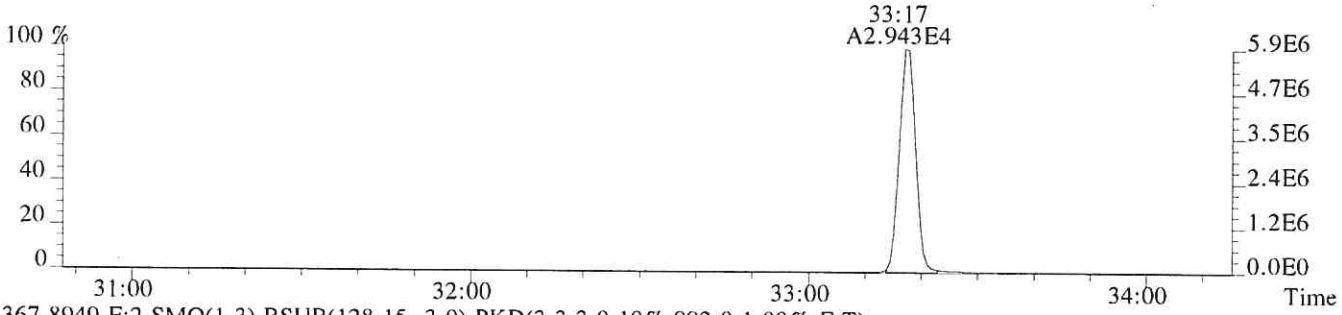
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



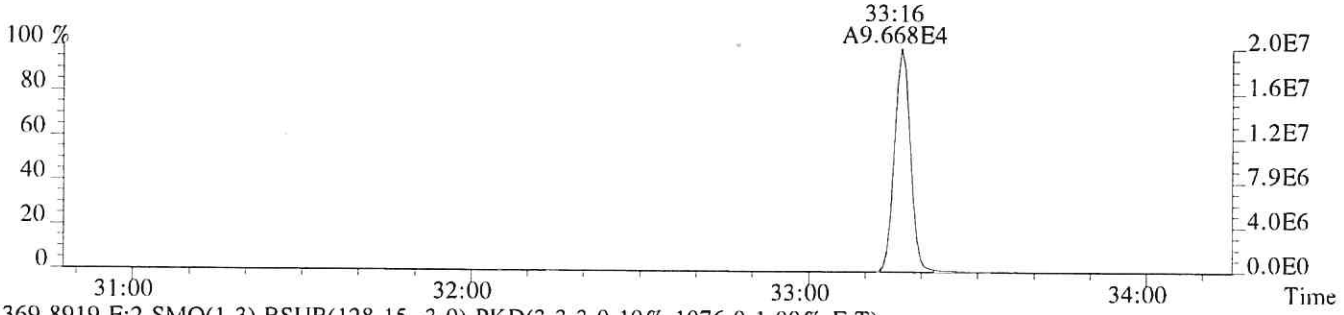
RIGHT SOLUTIONS | RIGHT PARTNER

File:P521513 #1-312 Acq:26-APR-2019 02:14:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:193435
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,952.0,1.00%,F,T)

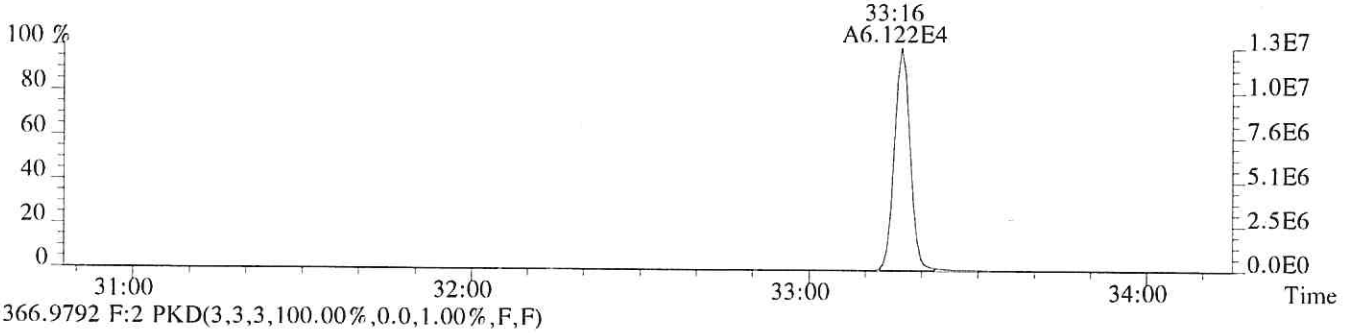
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,780.0,1.00%,F,T)



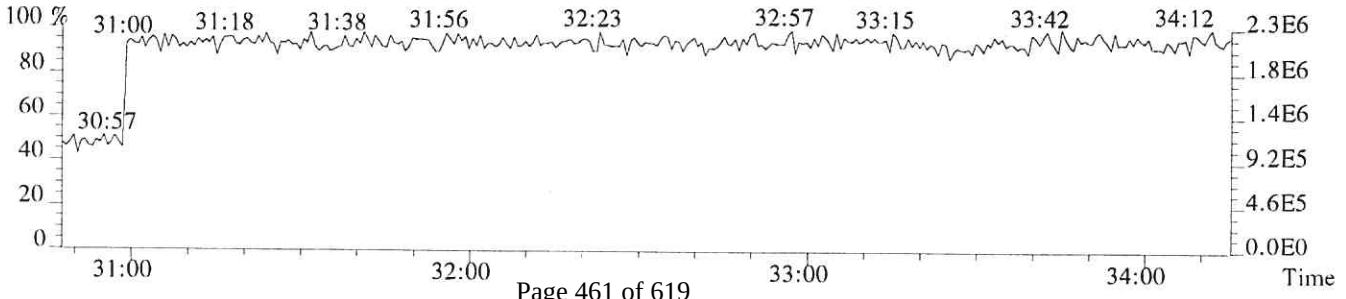
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,992.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1076.0,1.00%,F,T)



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



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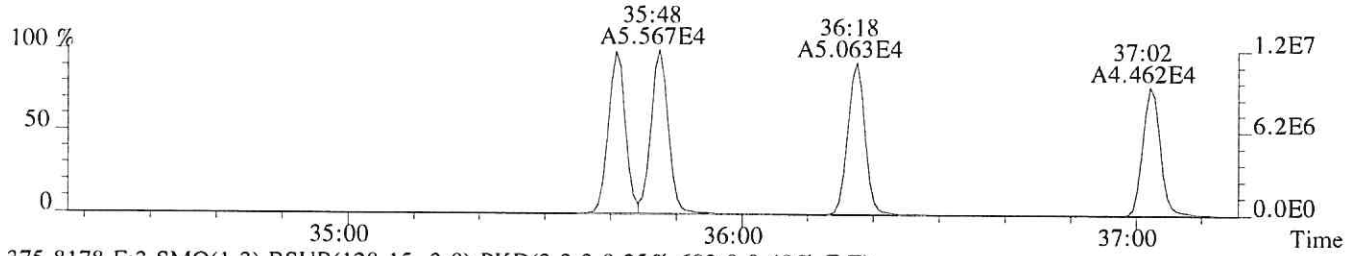
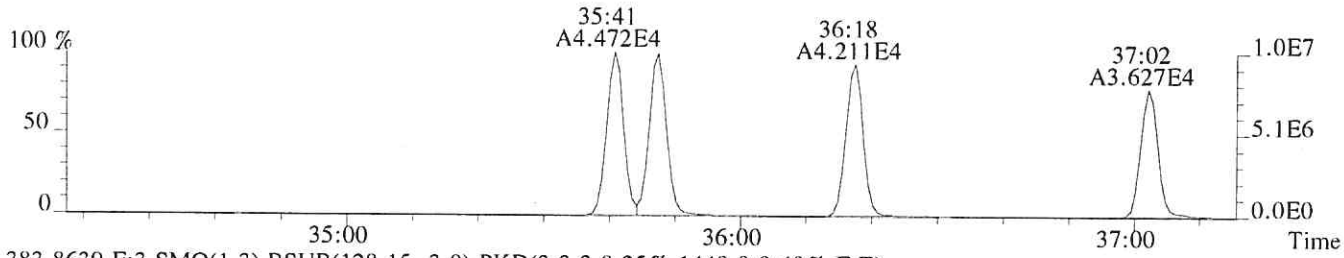
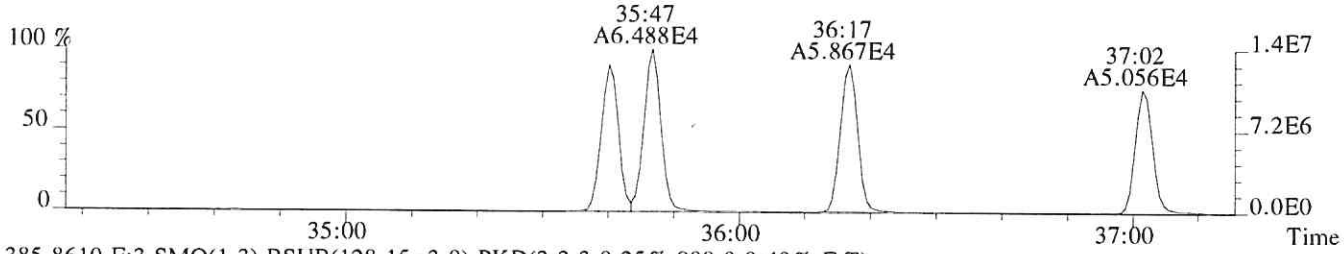
File:P521513 #1-268 Acq:26-APR-2019 02:14:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:193435
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,968.0,0.40%,F,T)



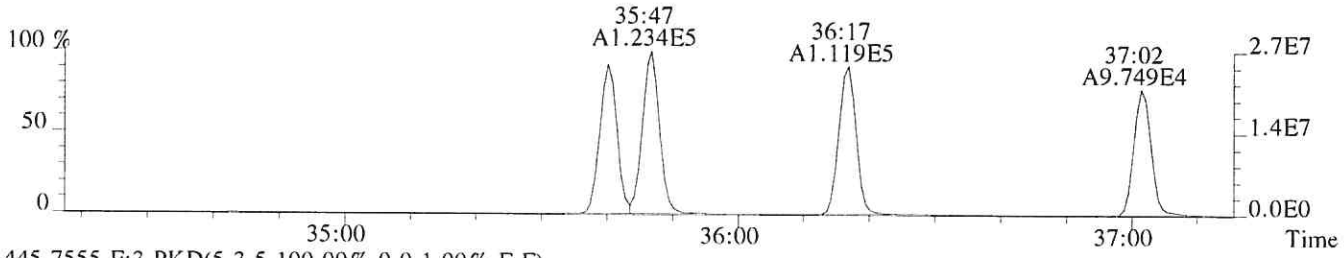
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,692.0,0.40%,F,T)



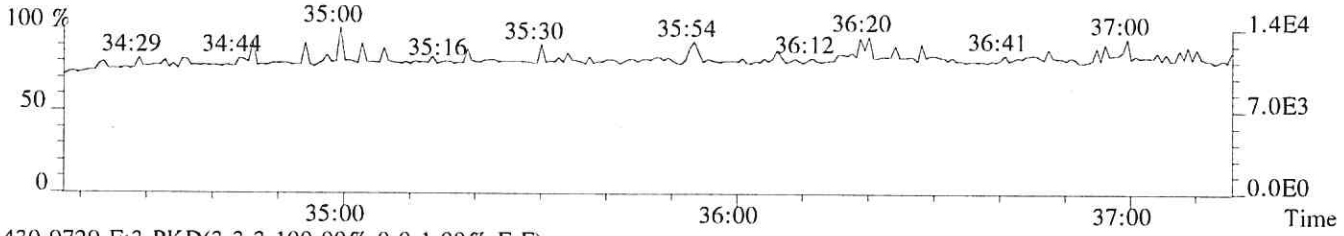
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1440.0,0.40%,F,T)



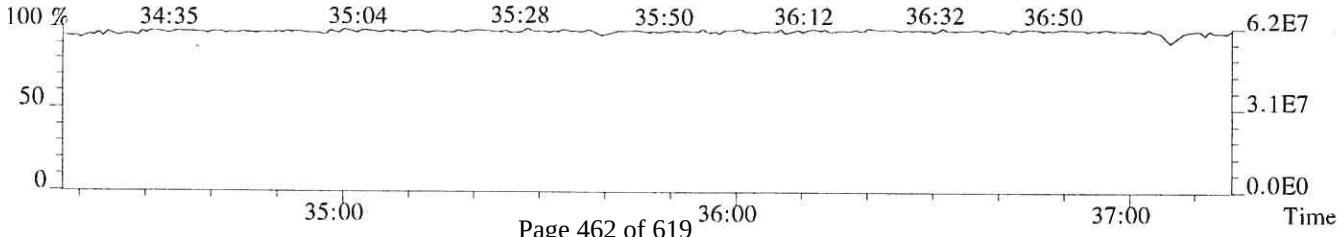
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,908.0,0.40%,F,T)



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

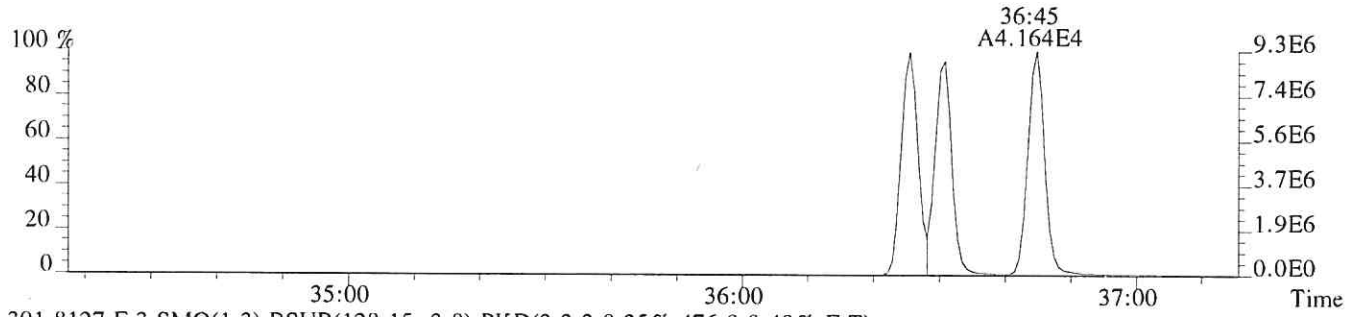


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

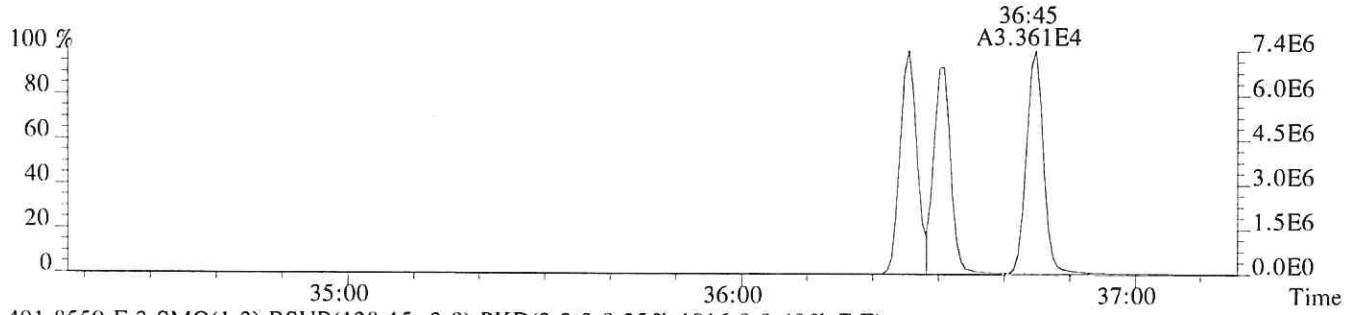


RIGHT SOLUTIONS | RIGHT PARTNER

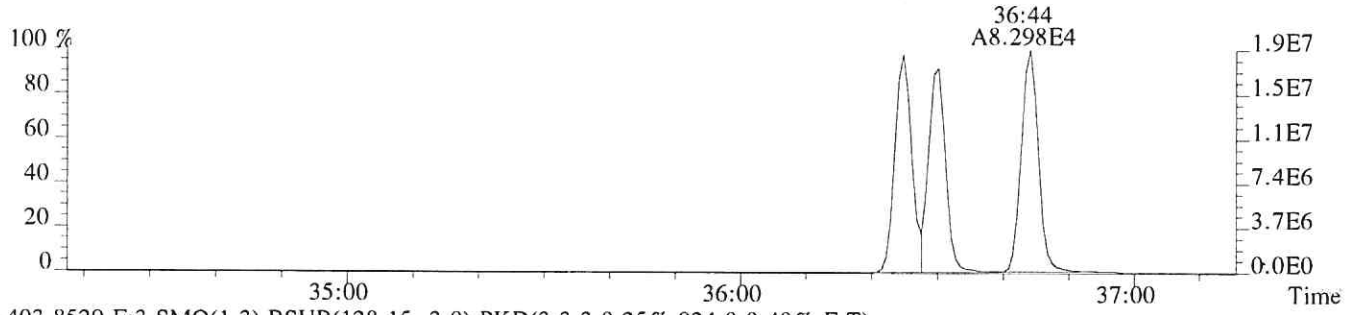
File:P521513 #1-268 Acq:26-APR-2019 02:14:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:193435
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,552.0,0.40%,F,T)



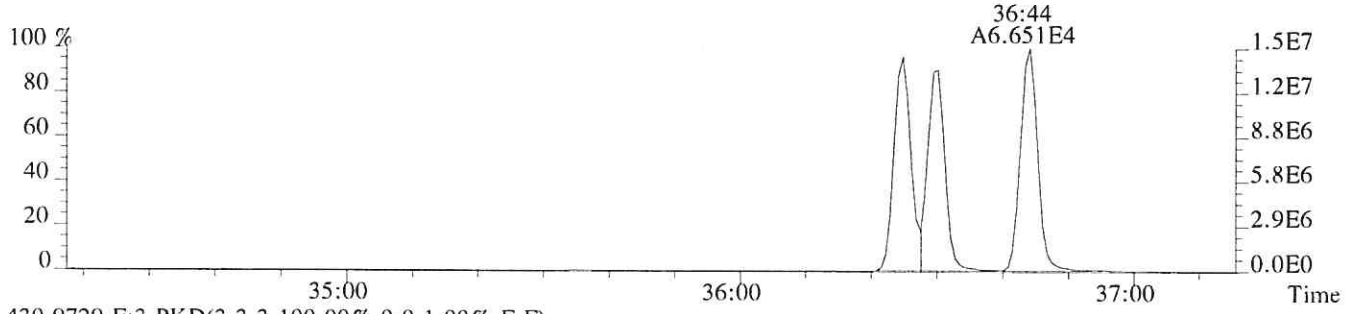
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,476.0,0.40%,F,T)



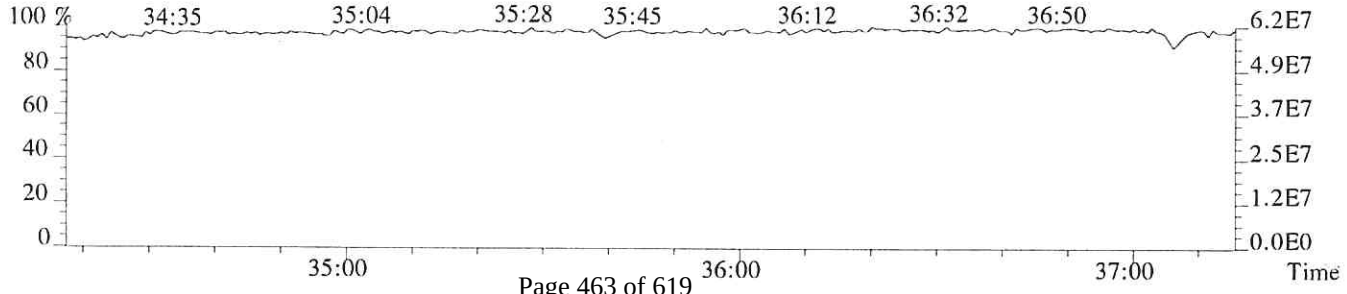
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1916.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,924.0,0.40%,F,T)

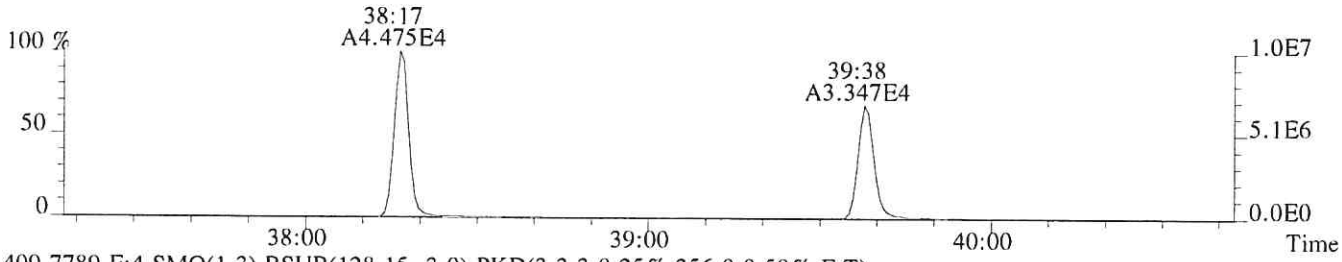


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

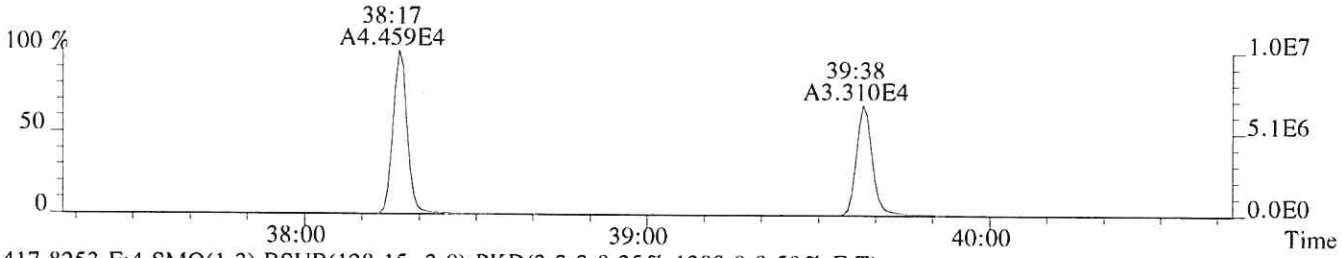


RIGHT SOLUTIONS | RIGHT PARTNER

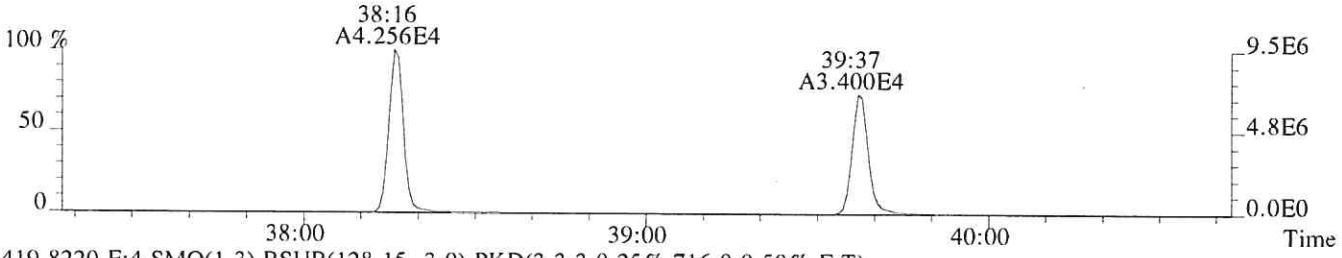
File:P521513 #1-308 Acq:26-APR-2019 02:14:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:193435
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,548.0,0.50%,F,T)



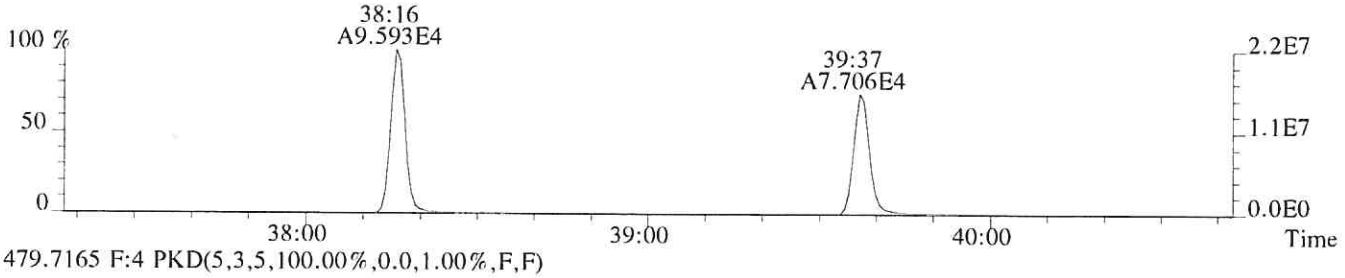
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,356.0,0.50%,F,T)



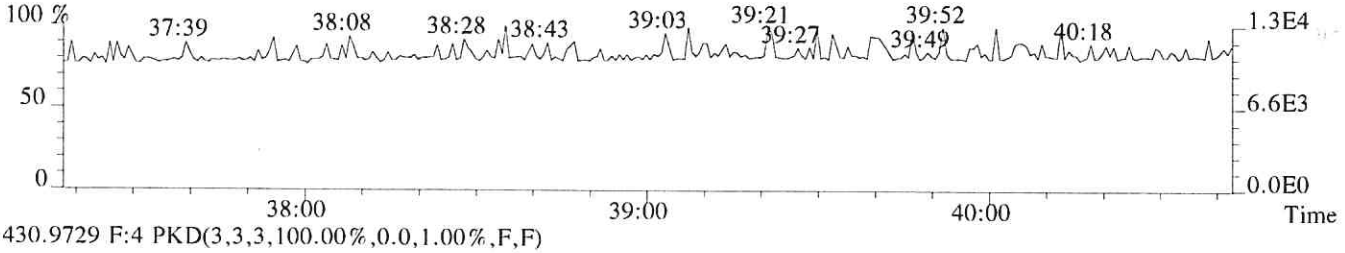
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1380.0,0.50%,F,T)



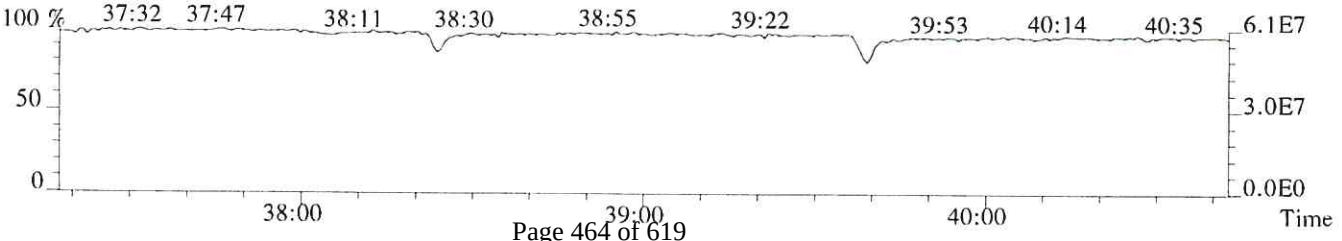
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,716.0,0.50%,F,T)



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

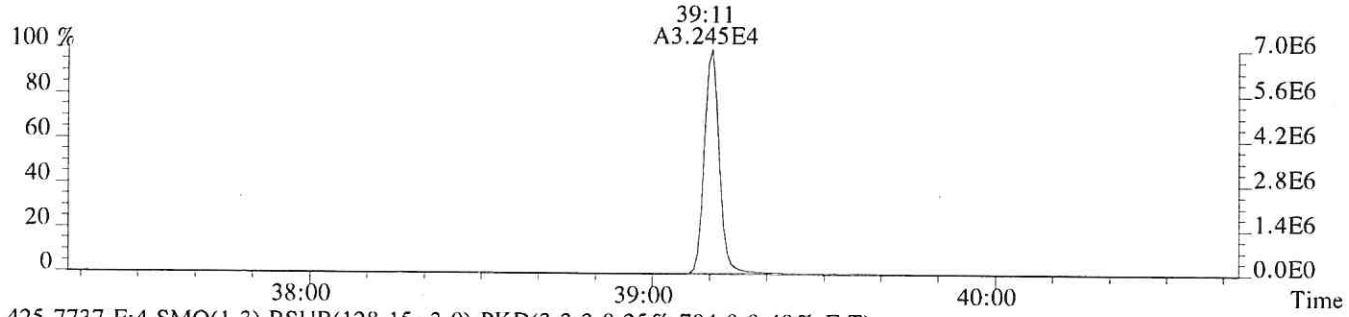


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

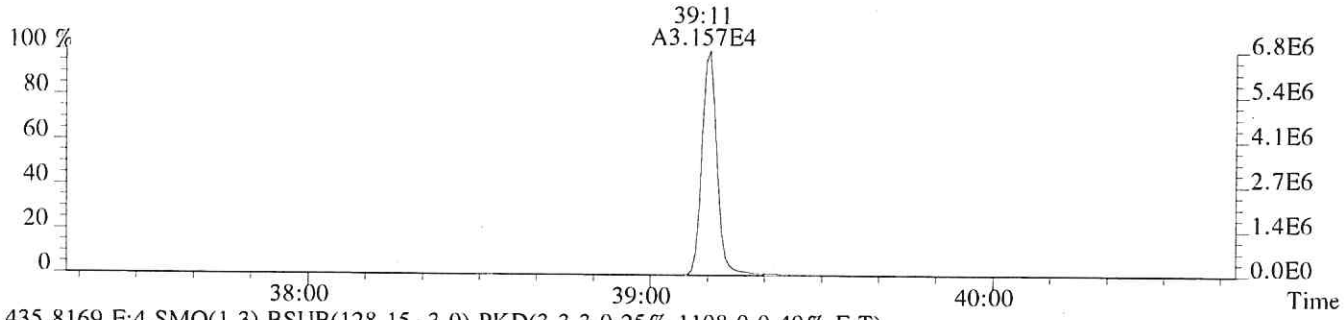


RIGHT SOLUTIONS | RIGHT PARTNER

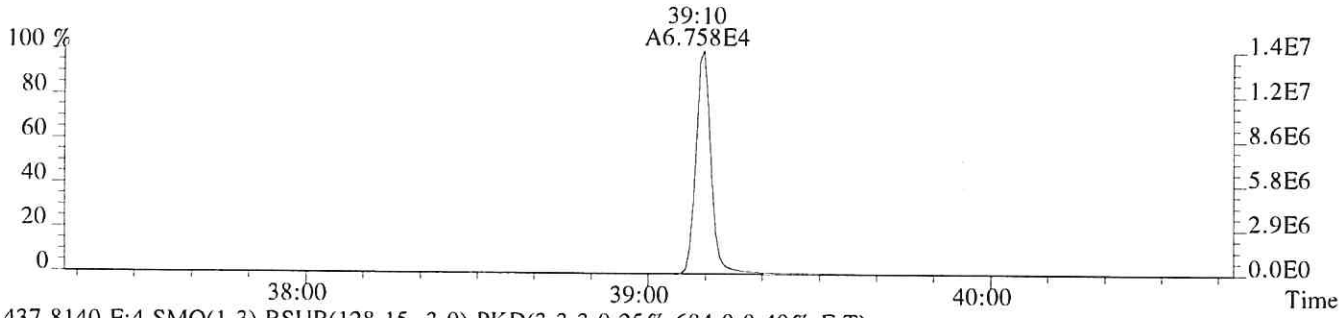
File:P521513 #1-308 Acq:26-APR-2019 02:14:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:193435
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,340.0,0.40%,F,T)



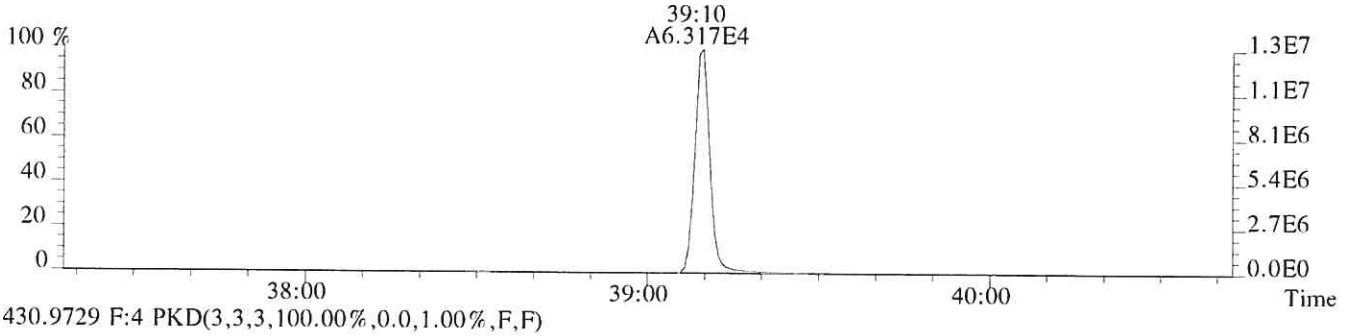
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,704.0,0.40%,F,T)



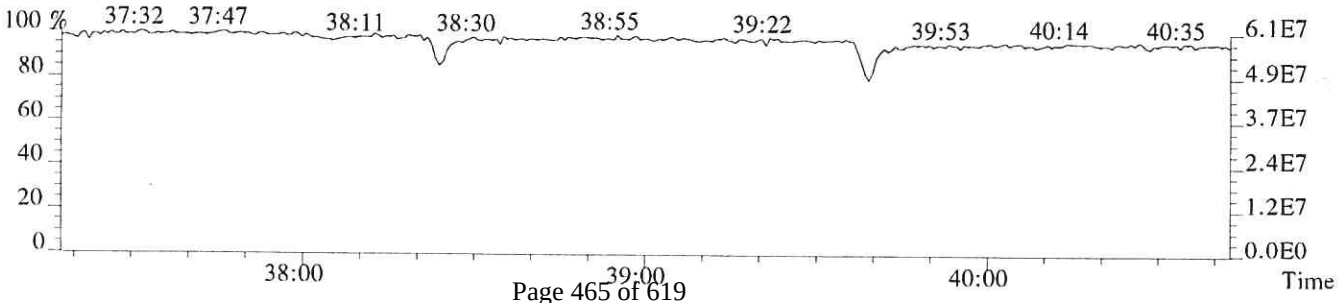
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1108.0,0.40%,F,T)



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

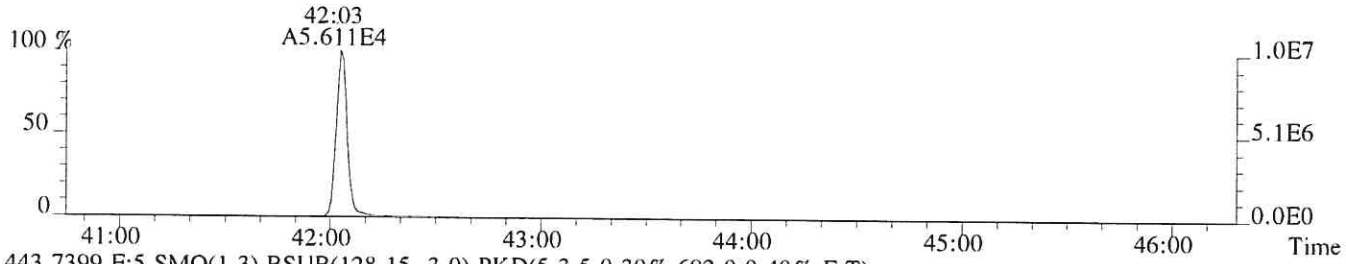


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

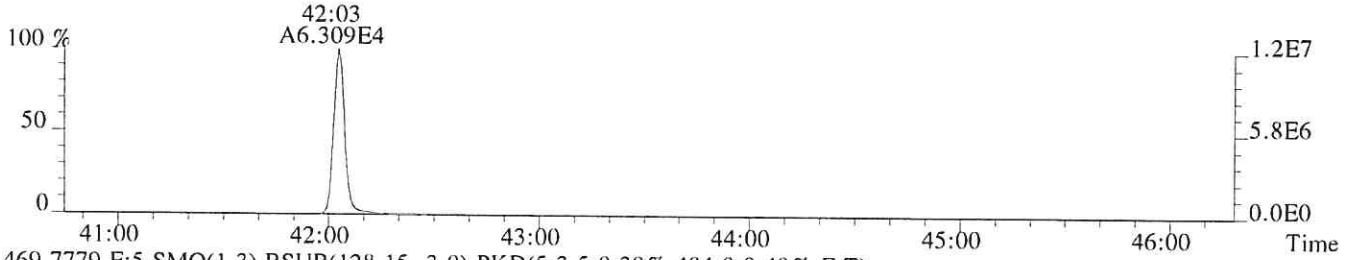


RIGHT SOLUTIONS | RIGHT PARTNER

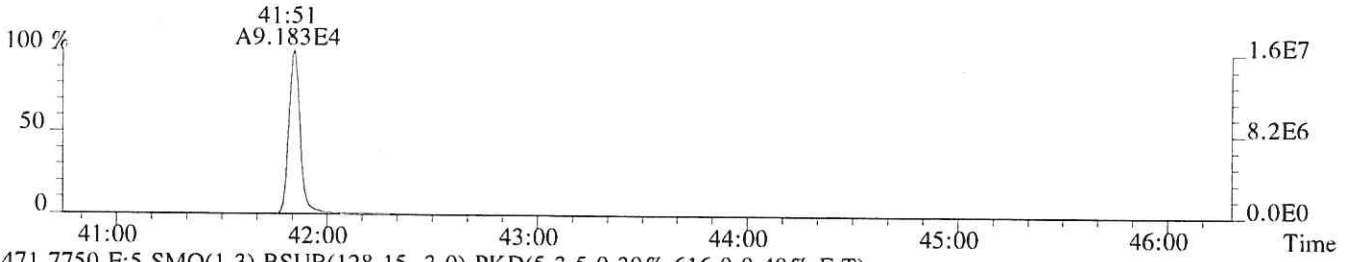
File:P521513 #1-501 Acq:26-APR-2019 02:14:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:193435
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,640.0,0.40%,F,T)



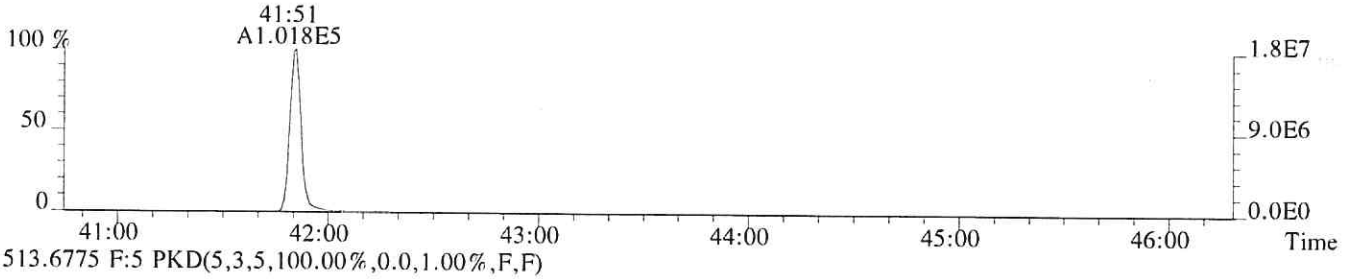
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,692.0,0.40%,F,T)



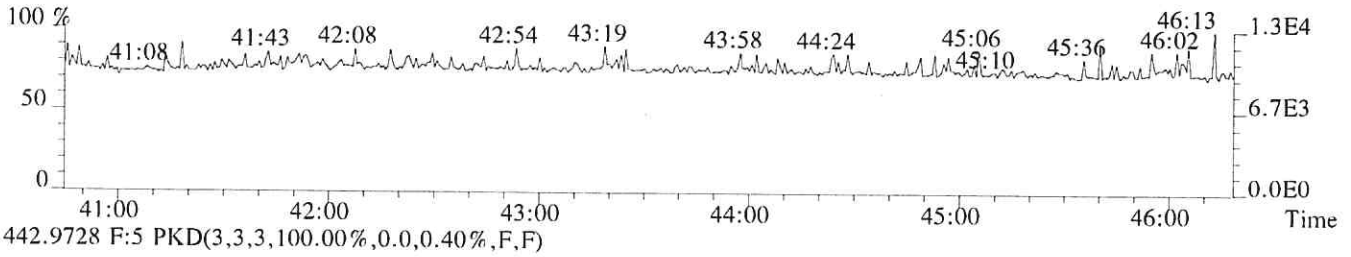
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,484.0,0.40%,F,T)



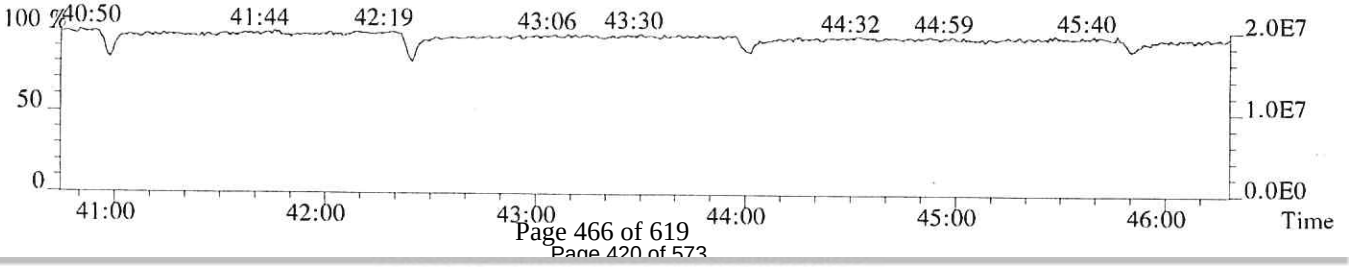
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,616.0,0.40%,F,T)



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

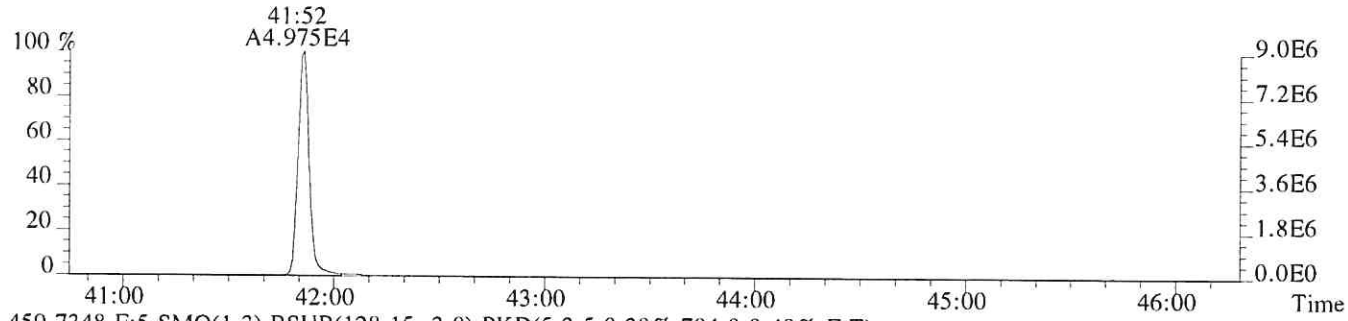


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

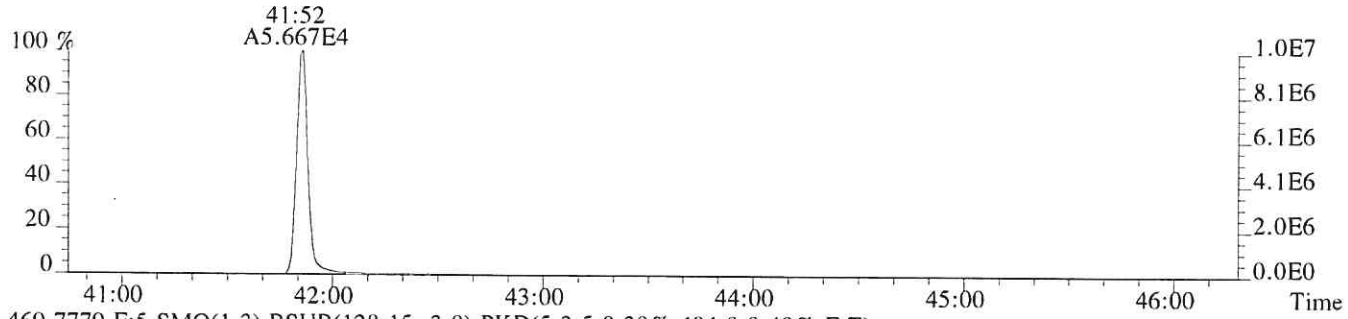


RIGHT SOLUTIONS | RIGHT PARTNER

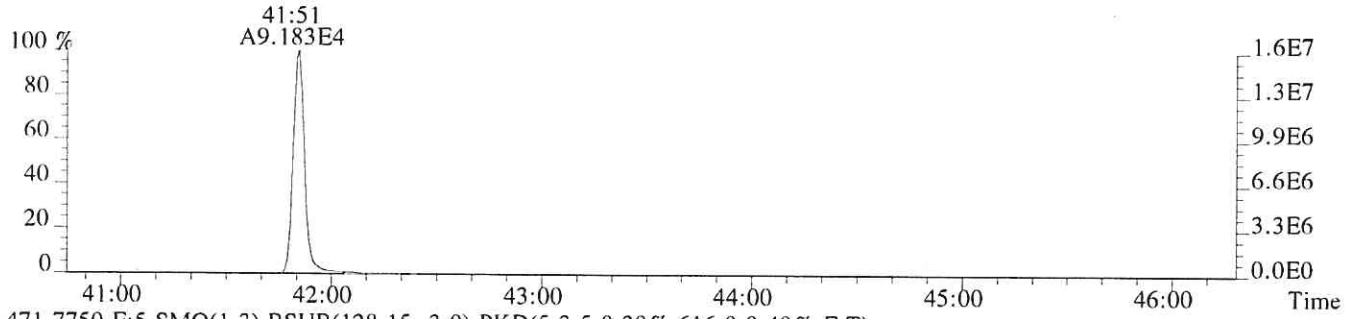
File:P521513 #1-501 Acq:26-APR-2019 02:14:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:193435
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,556.0,0.40%,F,T)



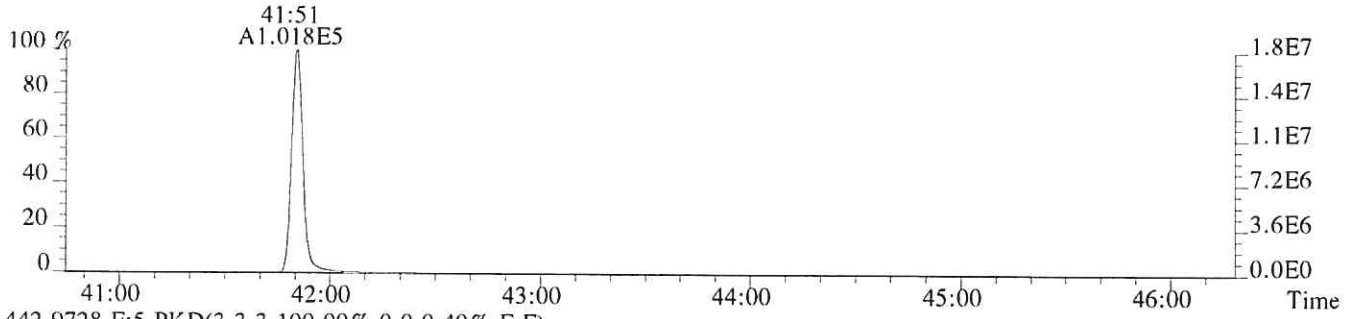
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,784.0,0.40%,F,T)



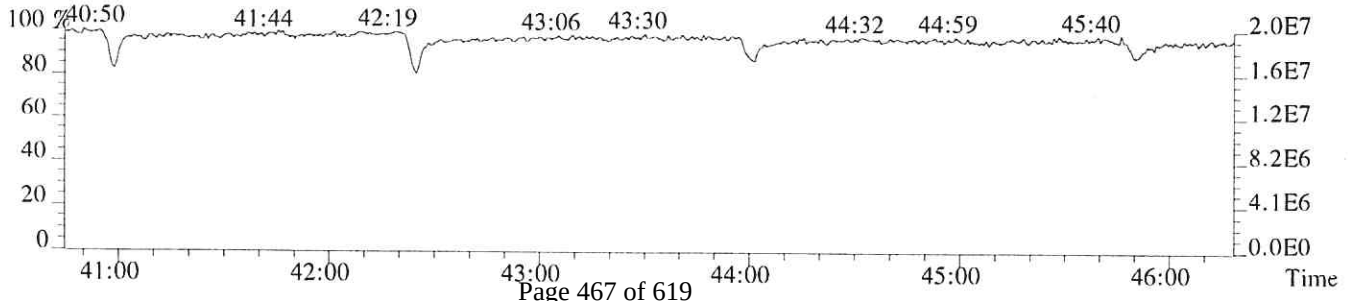
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,484.0,0.40%,F,T)



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



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



RIGHT SOLUTIONS | RIGHT PARTNER

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
82167

Run #5 Filename P521514 Samp: 1 Inj: 1 Acquired: 26-APR-19 03:03:05
Processed: 26-APR-19 07:12:44 Sample ID: CS4

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:49	5.785e+04	7.771e+04	0.74	yes	no	0.962
2	Unk	1,2,3,7,8-PeCDF	32:06	4.756e+05	3.145e+05	1.51	yes	no	0.968
3	Unk	2,3,4,7,8-PeCDF	33:00	4.411e+05	2.910e+05	1.52	yes	no	0.919
4	Unk	1,2,3,4,7,8-HxCDF	35:41	4.143e+05	3.401e+05	1.22	yes	no	1.161
5	Unk	1,2,3,6,7,8-HxCDF	35:48	4.269e+05	3.516e+05	1.21	yes	no	1.073
6	Unk	2,3,4,6,7,8-HxCDF	36:18	3.899e+05	3.219e+05	1.21	yes	no	1.069
7	Unk	1,2,3,7,8,9-HxCDF	37:02	3.464e+05	2.836e+05	1.22	yes	no	1.096
8	Unk	1,2,3,4,6,7,8-HpCDF	38:17	3.506e+05	3.423e+05	1.02	yes	no	1.281
9	Unk	1,2,3,4,7,8,9-HpCDF	39:38	2.662e+05	2.615e+05	1.02	yes	no	1.192
10	Unk	OCDF	42:03	4.555e+05	5.100e+05	0.89	yes	no	1.204
11	Unk	2,3,7,8-TCDD	28:38	4.774e+04	6.107e+04	0.78	yes	no	1.077
12	Unk	1,2,3,7,8-PeCDD	33:18	3.406e+05	2.173e+05	1.57	yes	no	0.971
13	Unk	1,2,3,4,7,8-HxCDD	36:26	3.096e+05	2.497e+05	1.24	yes	no	1.024
14	Unk	1,2,3,6,7,8-HxCDD	36:31	3.054e+05	2.449e+05	1.25	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:45	3.164e+05	2.553e+05	1.24	yes	no	1.055
16	Unk	1,2,3,4,6,7,8-HpCDD	39:11	2.564e+05	2.479e+05	1.03	yes	no	0.989
17	Unk	OCDD	41:52	4.011e+05	4.499e+05	0.89	yes	no	1.094
18	IS	13C-2,3,7,8-TCDF	27:48	1.614e+05	2.027e+05	0.80	yes	no	1.287
19	IS	13C-1,2,3,7,8-PeCDF	32:05	2.473e+05	1.568e+05	1.58	yes	no	1.416
20	IS	13C-2,3,4,7,8-PeCDF	33:00	2.400e+05	1.539e+05	1.56	yes	no	1.374
21	IS	13C-1,2,3,4,7,8-HxCDF	35:40	1.088e+05	2.082e+05	0.52	yes	no	1.114
22	IS	13C-1,2,3,6,7,8-HxCDF	35:47	1.217e+05	2.320e+05	0.52	yes	no	1.245
23	IS	13C-2,3,4,6,7,8-HxCDF	36:17	1.118e+05	2.124e+05	0.53	yes	no	1.146
24	IS	13C-1,2,3,7,8,9-HxCDF	37:02	9.676e+04	1.858e+05	0.52	yes	no	0.986
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:17	8.170e+04	1.816e+05	0.45	yes	no	0.915
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:37	6.638e+04	1.486e+05	0.45	yes	no	0.746
27	IS	13C-2,3,7,8-TCDD	28:36	1.167e+05	1.475e+05	0.79	yes	no	0.929
28	IS	13C-1,2,3,7,8-PeCDD	33:16	1.777e+05	1.128e+05	1.58	yes	no	1.017
29	IS	13C-1,2,3,4,7,8-HxCDD	36:25	1.507e+05	1.177e+05	1.28	yes	no	0.945
30	IS	13C-1,2,3,6,7,8-HxCDD	36:30	1.462e+05	1.159e+05	1.26	yes	no	0.924
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:10	1.279e+05	1.222e+05	1.05	yes	no	0.876
32	IS	13C-OCDD	41:51	1.815e+05	2.019e+05	0.90	yes	no	0.662
33	RS/RT	13C-1,2,3,4-TCDD	28:01	1.267e+05	1.585e+05	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:44	1.572e+05	1.243e+05	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:38	1.128e+05				no	1.010

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RIGHT SOLUTIONS | RIGHT PARTNER

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
82167

Run #5 Filename P521514 Samp: 1 Inj: 1 Acquired: 26-APR-19 03:03:05
Processed: 26-APR-19 07:12:44 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	1.06e+07	6.00e+02	1.8e+04	1.42e+07	1.38e+03	1.0e+04
2	1,2,3,7,8-PeCDF	9.08e+07	2.72e+03	3.3e+04	6.01e+07	1.68e+03	3.6e+04
3	2,3,4,7,8-PeCDF	9.10e+07	2.72e+03	3.4e+04	5.93e+07	1.68e+03	3.5e+04
4	1,2,3,4,7,8-HxCDF	9.28e+07	1.46e+03	6.4e+04	7.63e+07	1.09e+03	7.0e+04
5	1,2,3,6,7,8-HxCDF	9.36e+07	1.46e+03	6.4e+04	7.68e+07	1.09e+03	7.0e+04
6	2,3,4,6,7,8-HxCDF	8.88e+07	1.46e+03	6.1e+04	7.30e+07	1.09e+03	6.7e+04
7	1,2,3,7,8,9-HxCDF	7.53e+07	1.46e+03	5.2e+04	6.16e+07	1.09e+03	5.6e+04
8	1,2,3,4,6,7,8-HpCDF	7.86e+07	5.36e+02	1.5e+05	7.73e+07	4.44e+02	1.7e+05
9	1,2,3,4,7,8,9-HpCDF	5.53e+07	5.36e+02	1.0e+05	5.45e+07	4.44e+02	1.2e+05
10	OCDF	8.30e+07	4.36e+02	1.9e+05	9.42e+07	1.08e+03	8.7e+04
11	2,3,7,8-TCDD	9.38e+06	2.60e+03	3.6e+03	1.20e+07	1.16e+03	1.0e+04
12	1,2,3,7,8-PeCDD	6.97e+07	7.12e+02	9.8e+04	4.42e+07	4.44e+02	9.9e+04
13	1,2,3,4,7,8-HxCDD	7.20e+07	5.12e+02	1.4e+05	5.77e+07	5.88e+02	9.8e+04
14	1,2,3,6,7,8-HxCDD	6.80e+07	5.12e+02	1.3e+05	5.42e+07	5.88e+02	9.2e+04
15	1,2,3,7,8,9-HxCDD	7.10e+07	5.12e+02	1.4e+05	5.69e+07	5.88e+02	9.7e+04
16	1,2,3,4,6,7,8-HpCDD	5.58e+07	1.12e+03	5.0e+04	5.37e+07	5.96e+02	9.0e+04
17	OCDD	7.61e+07	5.12e+02	1.5e+05	8.53e+07	7.64e+02	1.1e+05
18	13C-2,3,7,8-TCDF	2.98e+07	6.50e+03	4.6e+03	3.76e+07	3.82e+03	9.8e+03
19	13C-1,2,3,7,8-PeCDF	4.79e+07	9.20e+02	5.2e+04	3.06e+07	3.12e+02	9.8e+04
20	13C-2,3,4,7,8-PeCDF	4.86e+07	9.20e+02	5.3e+04	3.09e+07	3.12e+02	9.9e+04
21	13C-1,2,3,4,7,8-HxCDF	2.41e+07	9.40e+02	2.6e+04	4.64e+07	1.26e+03	3.7e+04
22	13C-1,2,3,6,7,8-HxCDF	2.66e+07	9.40e+02	2.8e+04	5.09e+07	1.26e+03	4.0e+04
23	13C-2,3,4,6,7,8-HxCDF	2.51e+07	9.40e+02	2.7e+04	4.76e+07	1.26e+03	3.8e+04
24	13C-1,2,3,7,8,9-HxCDF	2.07e+07	9.40e+02	2.2e+04	4.00e+07	1.26e+03	3.2e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.82e+07	1.16e+03	1.6e+04	4.05e+07	1.18e+03	3.4e+04
26	13C-1,2,3,4,7,8,9-HpCDF	1.35e+07	1.16e+03	1.2e+04	3.09e+07	1.18e+03	2.6e+04
27	13C-2,3,7,8-TCDD	2.25e+07	6.75e+03	3.3e+03	2.88e+07	2.44e+03	1.2e+04
28	13C-1,2,3,7,8-PeCDD	3.63e+07	6.52e+02	5.6e+04	2.32e+07	1.25e+03	1.9e+04
29	13C-1,2,3,4,7,8-HxCDD	3.49e+07	1.27e+03	2.8e+04	2.71e+07	9.04e+02	3.0e+04
30	13C-1,2,3,6,7,8-HxCDD	3.24e+07	1.27e+03	2.6e+04	2.56e+07	9.04e+02	2.8e+04
31	13C-1,2,3,4,6,7,8-HpCDD	2.78e+07	1.22e+03	2.3e+04	2.61e+07	5.64e+02	4.6e+04
32	13C-OCDD	3.42e+07	6.56e+02	5.2e+04	3.77e+07	4.68e+02	8.1e+04
33	13C-1,2,3,4-TCDD	2.44e+07	6.75e+03	3.6e+03	3.05e+07	2.44e+03	1.3e+04
34	13C-1,2,3,7,8,9-HxCDD	3.52e+07	1.27e+03	2.8e+04	2.78e+07	9.04e+02	3.1e+04
35	37Cl-2,3,7,8-TCDD	2.23e+07	1.77e+03	1.3e+04			

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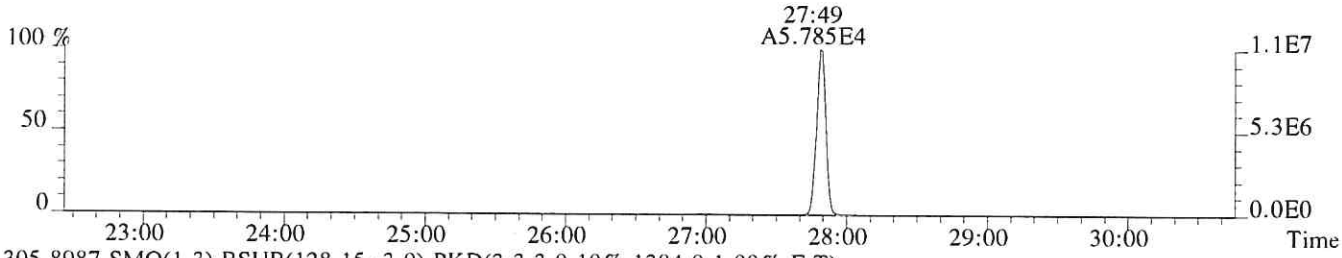
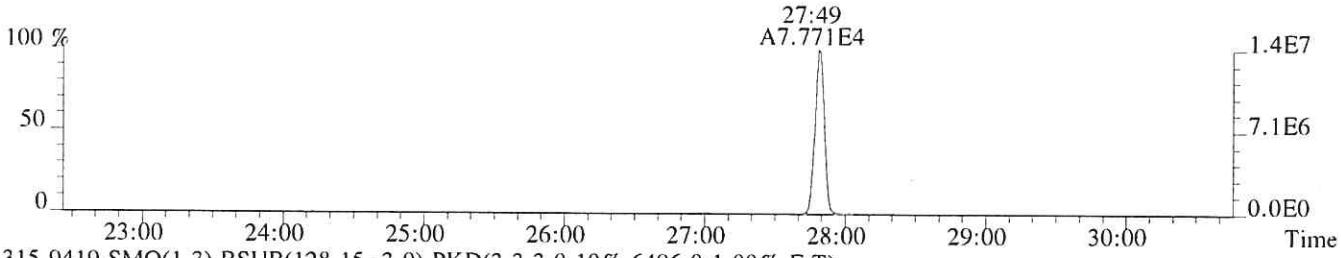
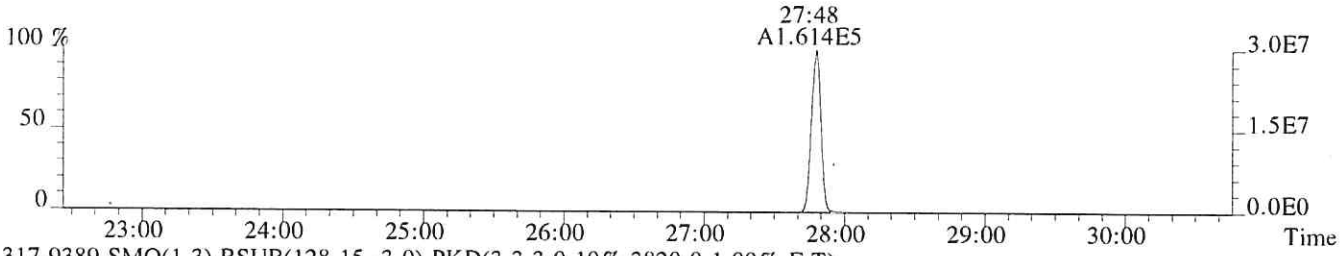
File:P521514 #1-591 Acq:26-APR-2019 03:03:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:82167
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,600.0,1.00%,F,T)



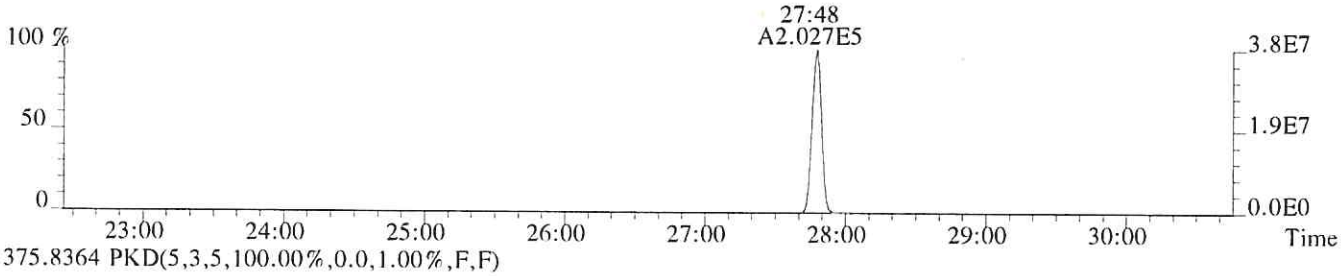
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1384.0,1.00%,F,T)



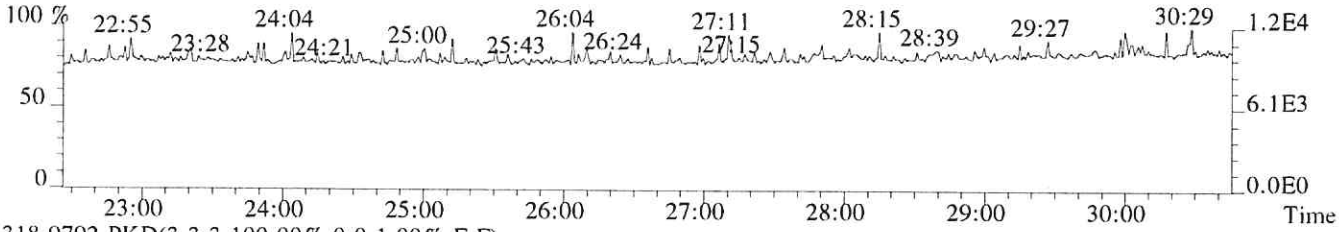
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6496.0,1.00%,F,T)



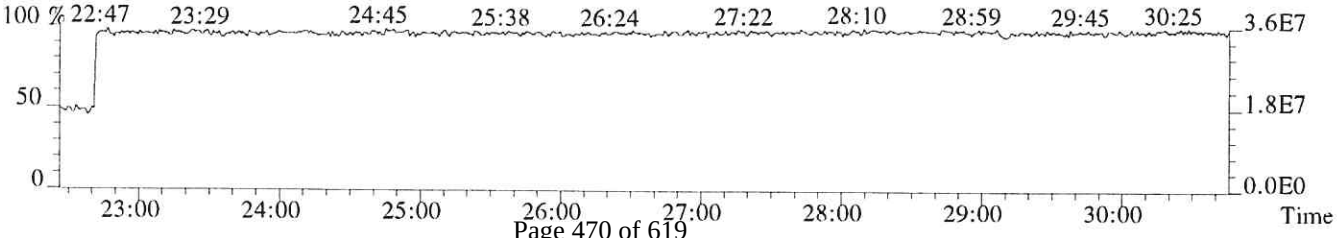
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3820.0,1.00%,F,T)



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

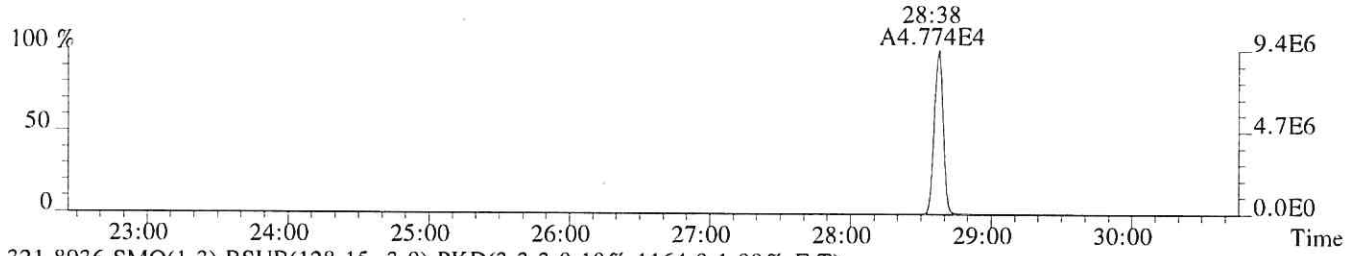


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

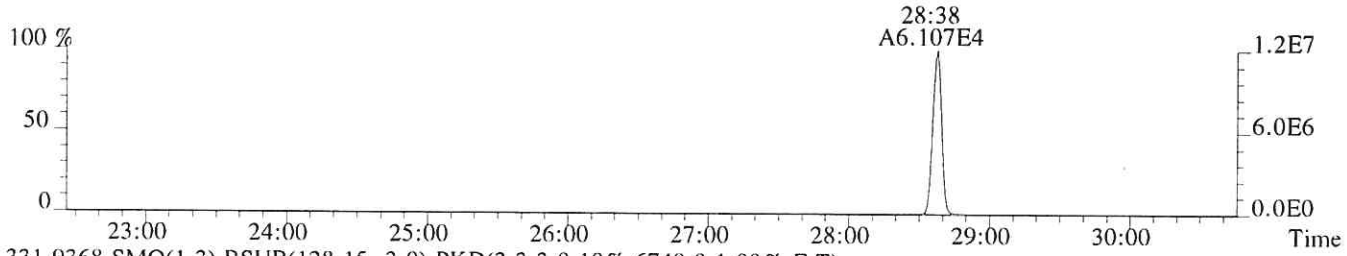


RIGHT SOLUTIONS | RIGHT PARTNER

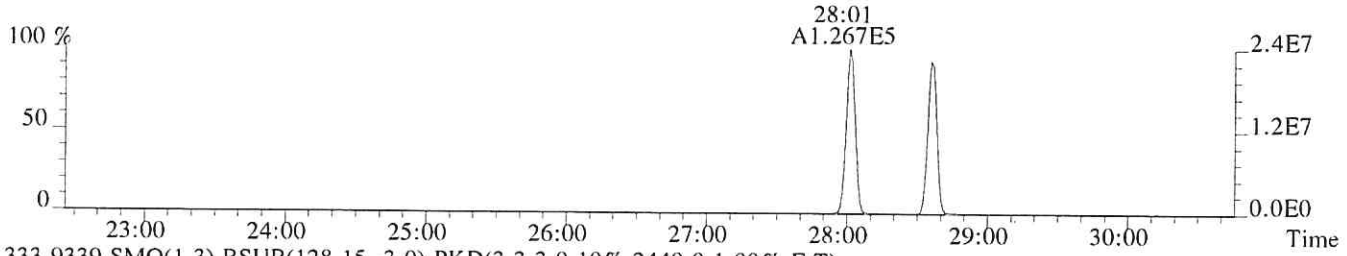
File:P521514 #1-591 Acq:26-APR-2019 03:03:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:82167
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2596.0,1.00%,F,T)



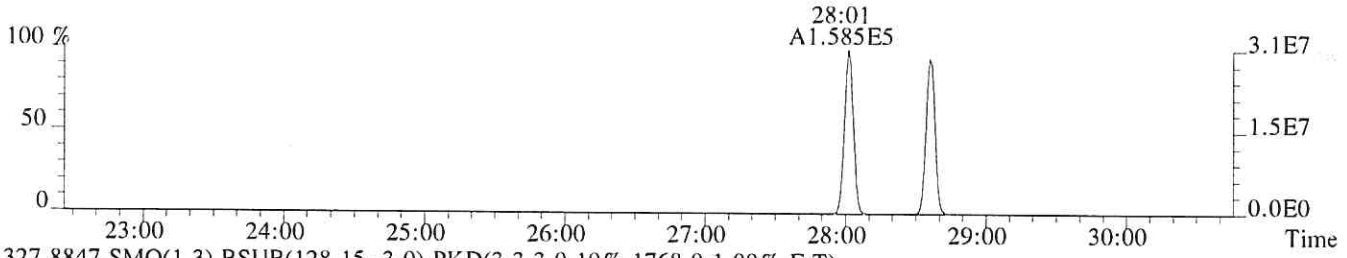
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1164.0,1.00%,F,T)



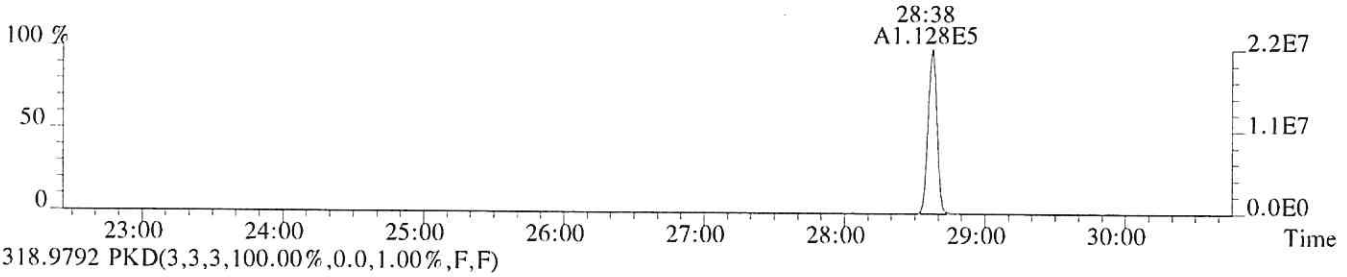
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6748.0,1.00%,F,T)



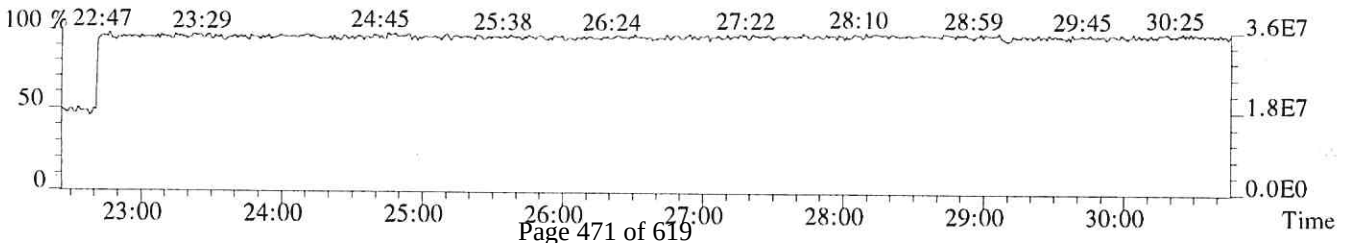
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2440.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1768.0,1.00%,F,T)

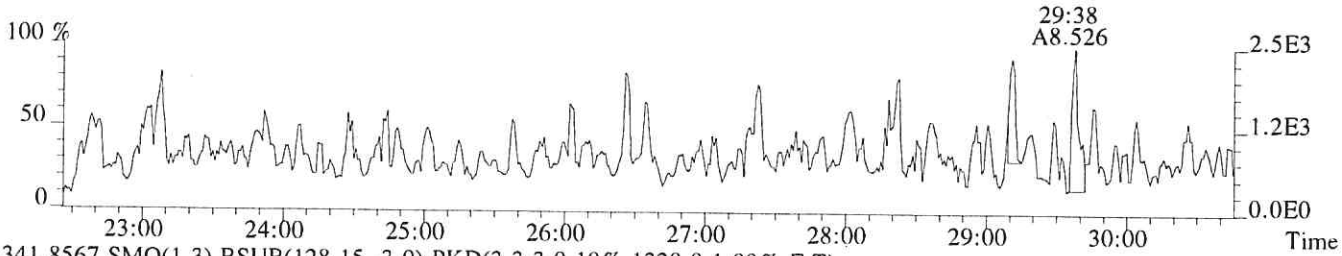


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

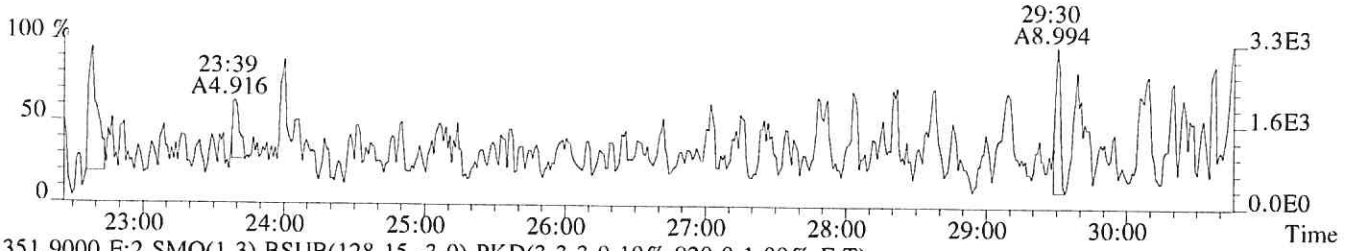


RIGHT SOLUTIONS | RIGHT PARTNER

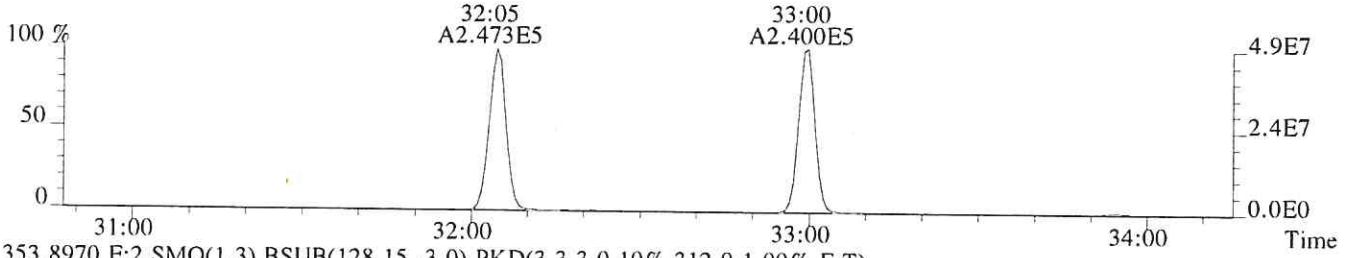
File:P521514 #1-591 Acq:26-APR-2019 03:03:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:82167
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1100.0,1.00%,F,T)



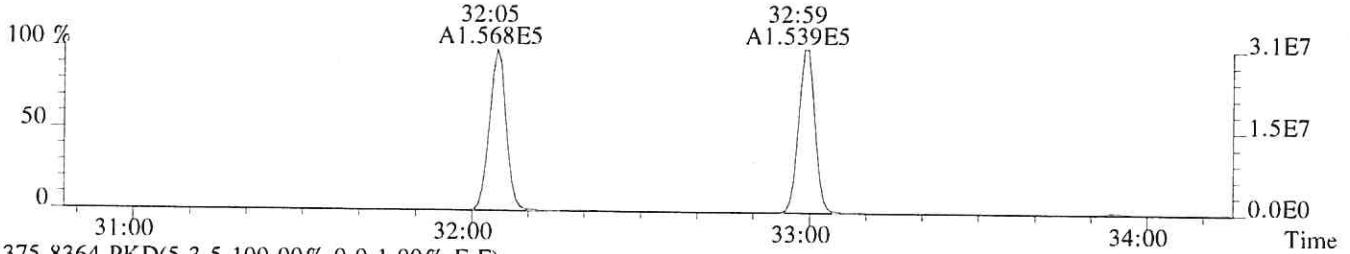
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1328.0,1.00%,F,T)



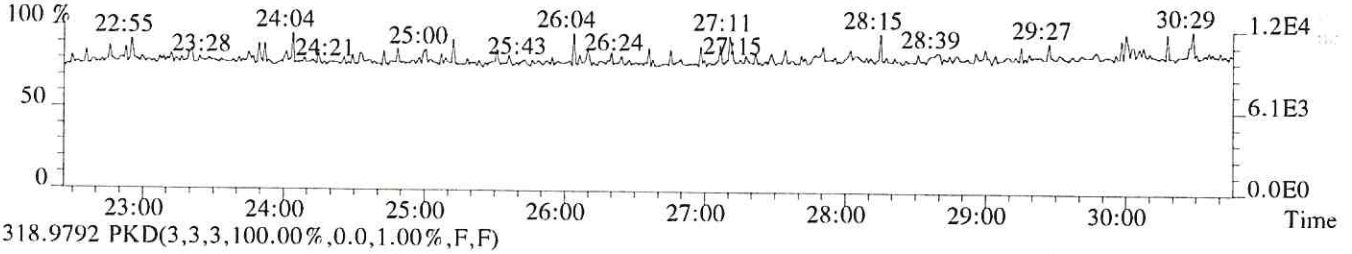
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,920.0,1.00%,F,T)



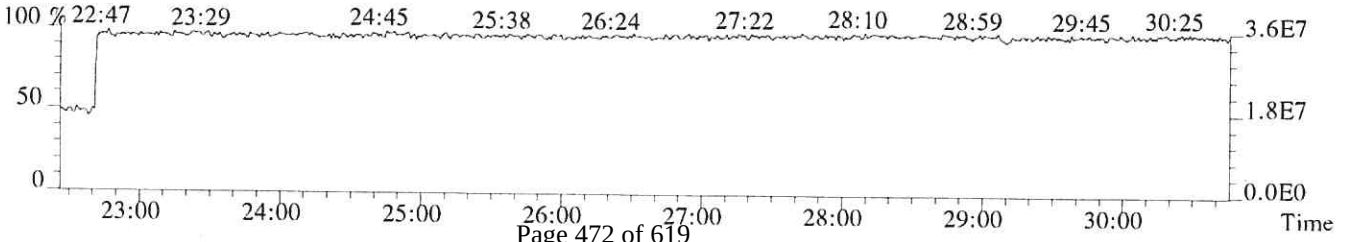
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,312.0,1.00%,F,T)



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

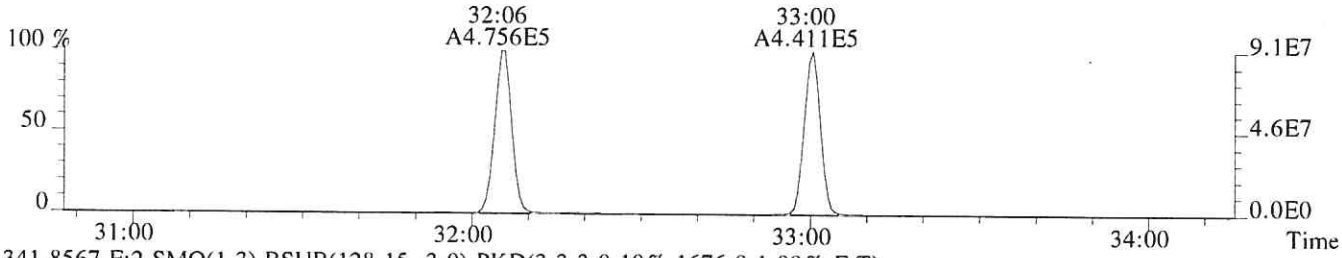


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

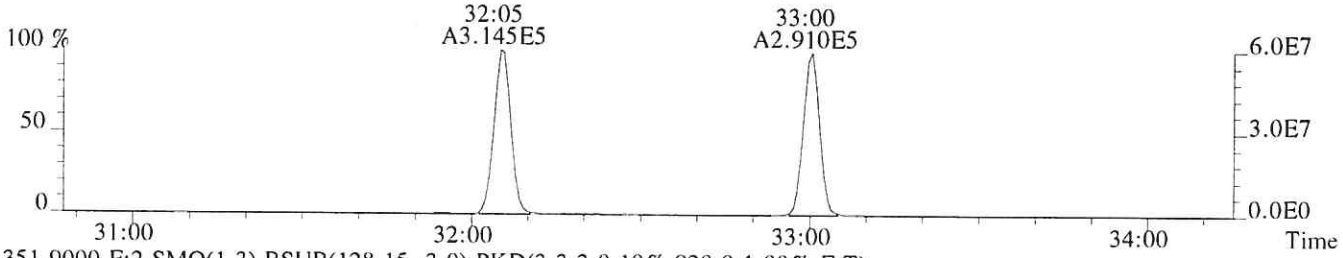


RIGHT SOLUTIONS | RIGHT PARTNER

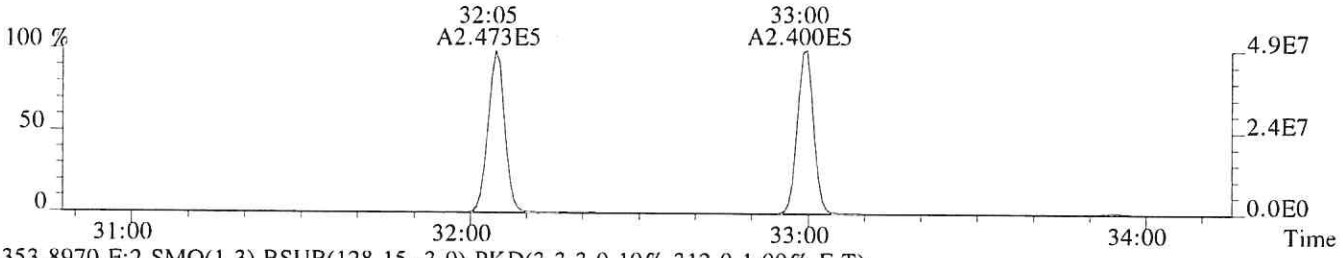
File:P521514 #1-312 Acq:26-APR-2019 03:03:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:82167
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2716.0,1.00%,F,T)



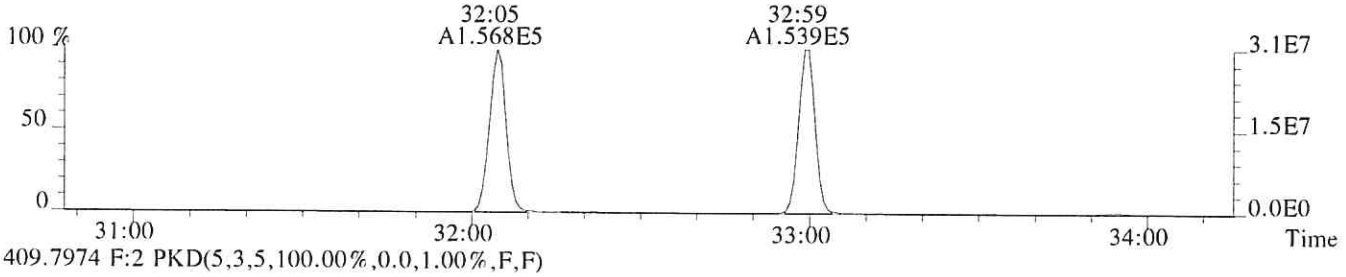
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1676.0,1.00%,F,T)



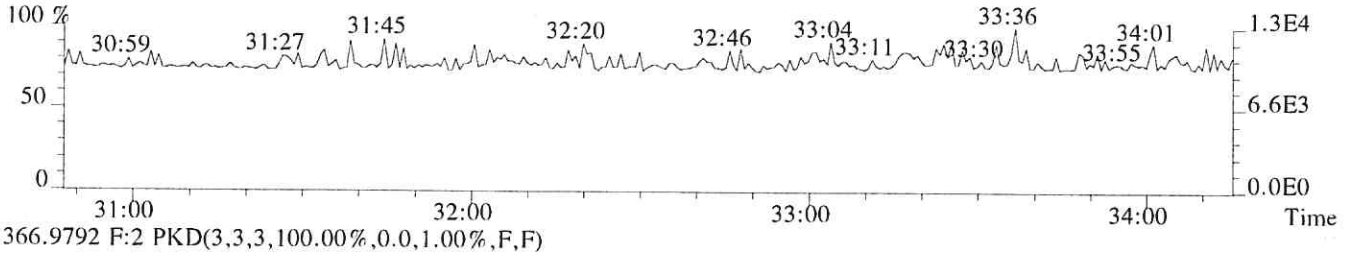
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,920.0,1.00%,F,T)



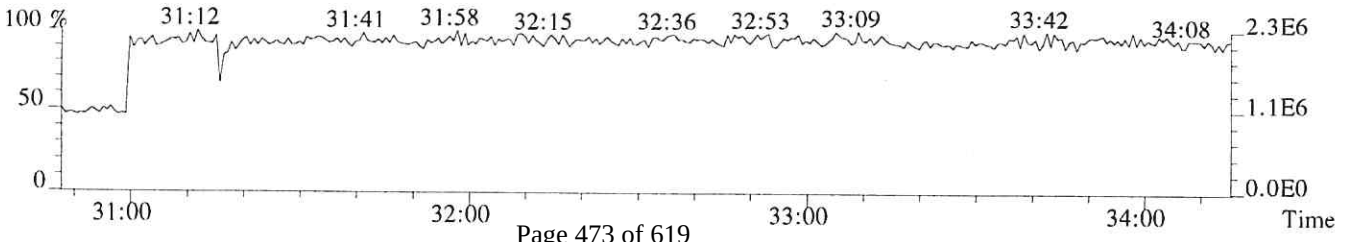
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,312.0,1.00%,F,T)



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

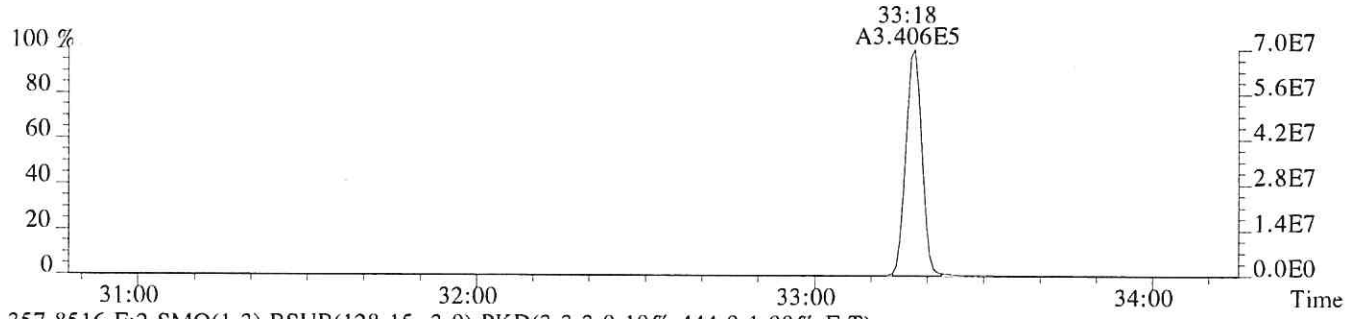


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



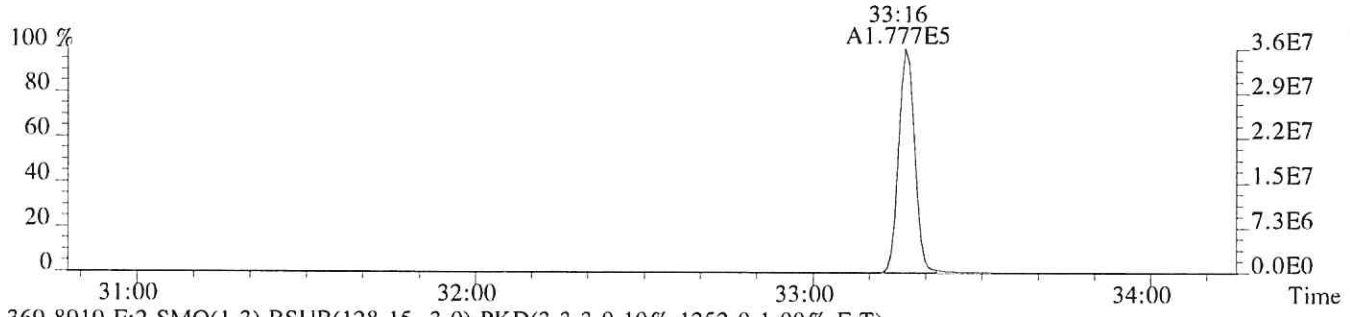
RIGHT SOLUTIONS | RIGHT PARTNER

File:P521514 #1-312 Acq:26-APR-2019 03:03:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:82167
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)

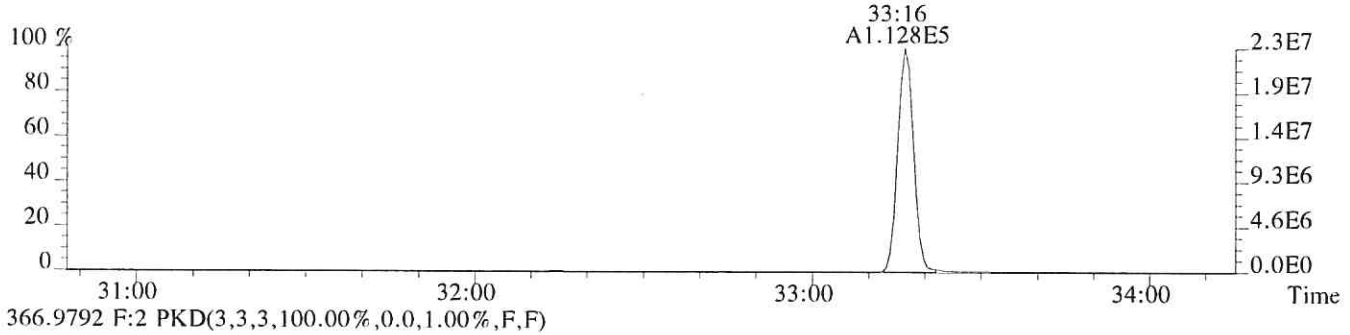


357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,444.0,1.00%,F,T)

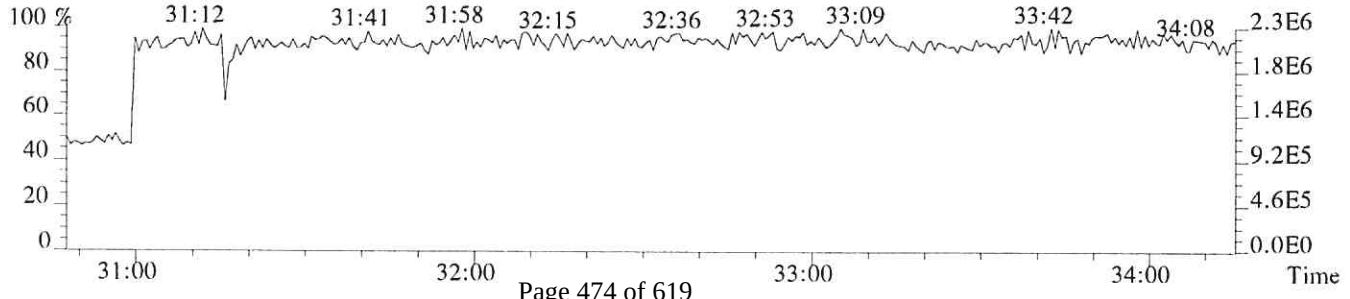
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,652.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1252.0,1.00%,F,T)

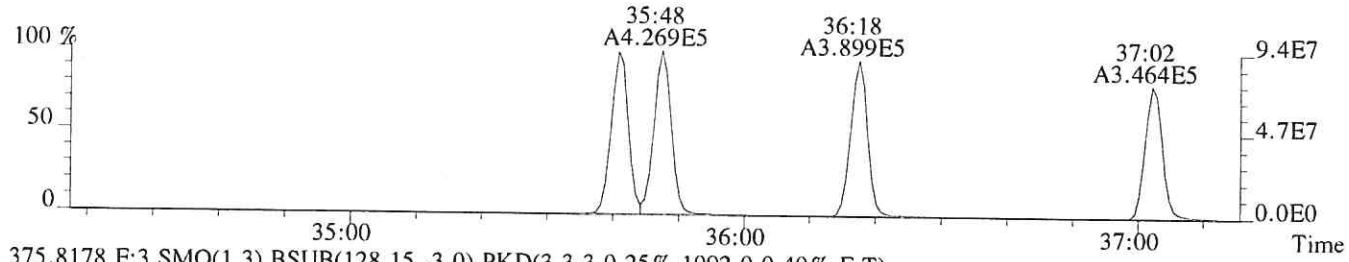


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

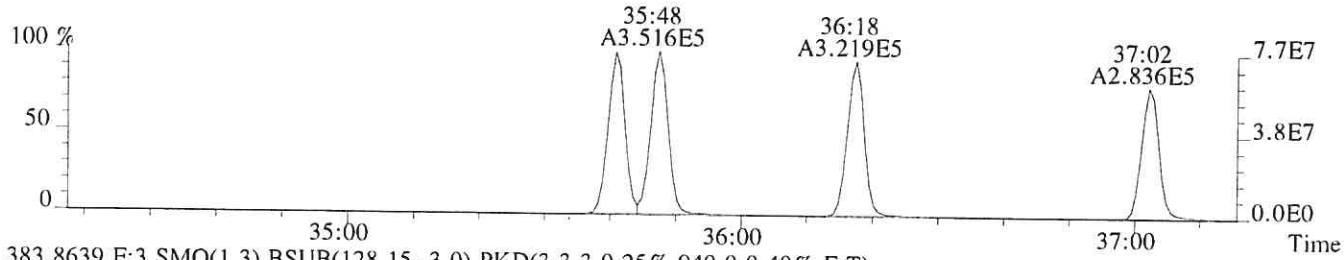


RIGHT SOLUTIONS | RIGHT PARTNER

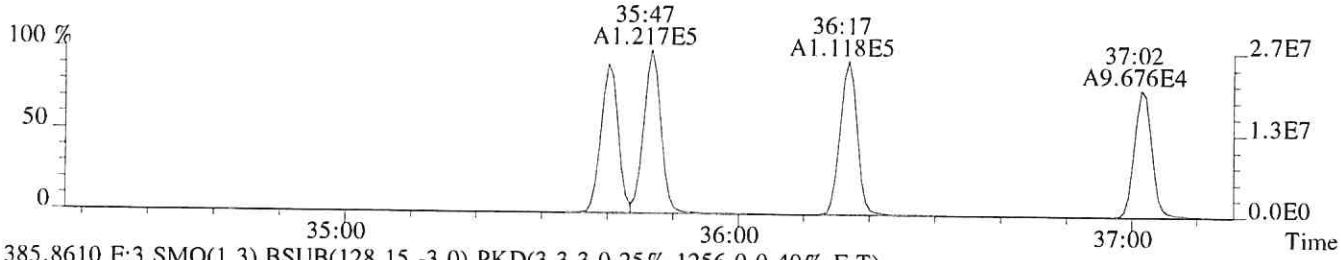
File:P521514 #1-268 Acq:26-APR-2019 03:03:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:82167
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1460.0,0.40%,F,T)



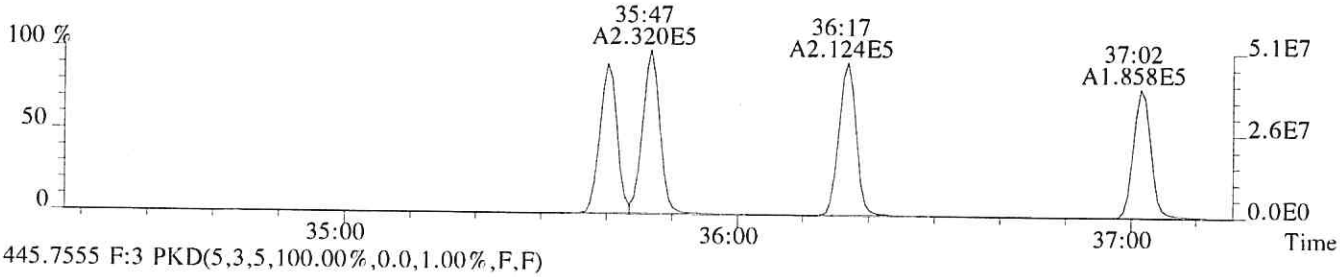
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1092.0,0.40%,F,T)



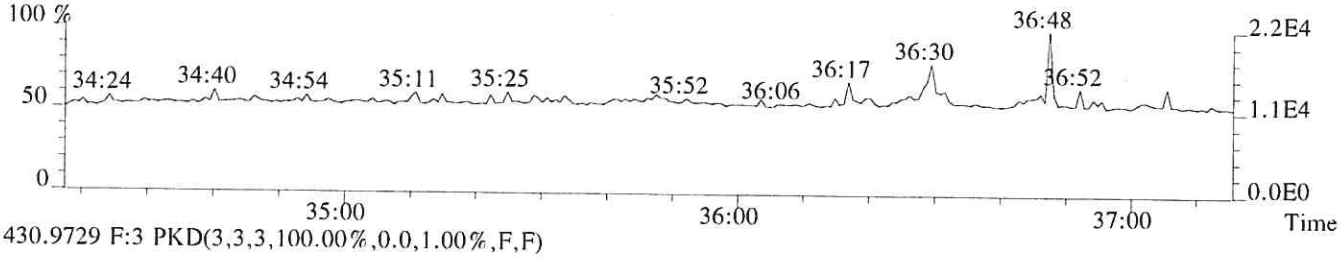
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,940.0,0.40%,F,T)



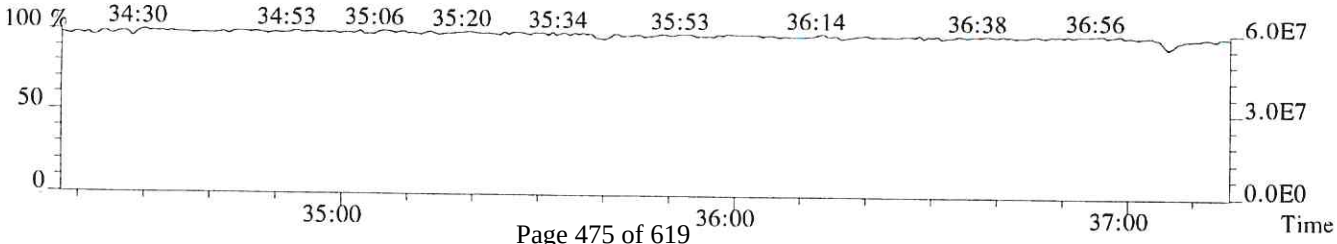
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1256.0,0.40%,F,T)



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

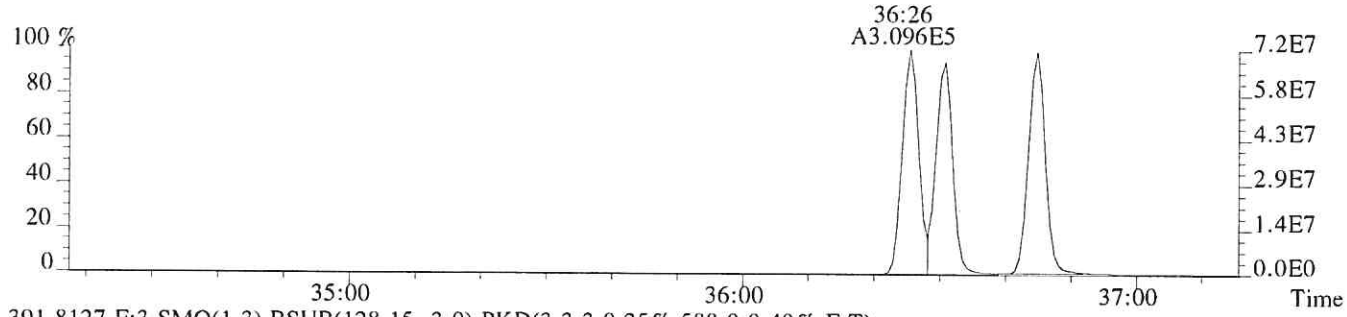


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

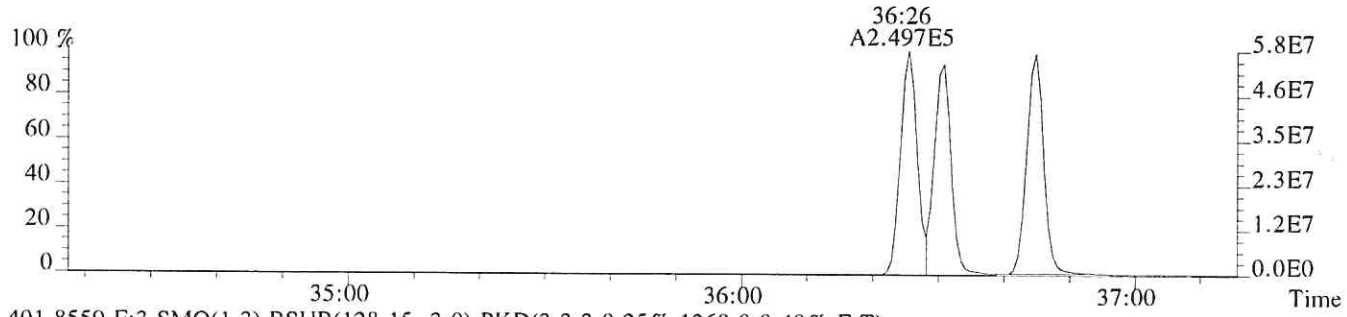


RIGHT SOLUTIONS | RIGHT PARTNER

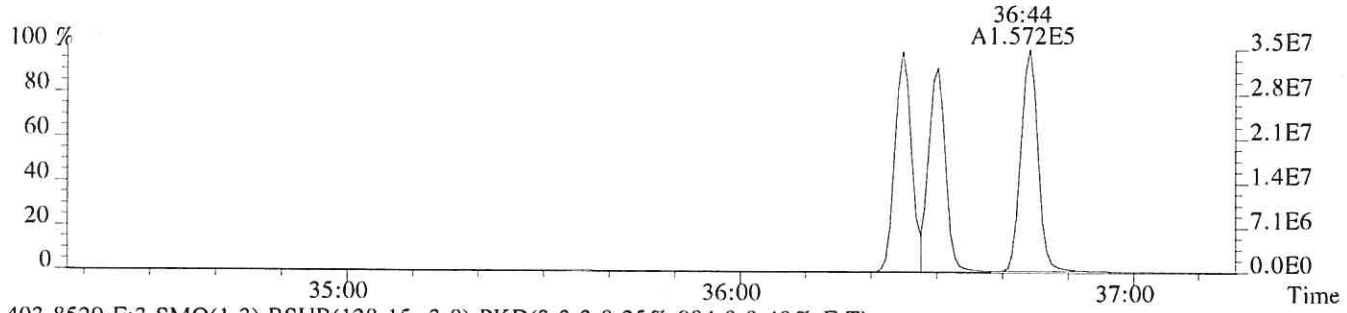
File:P521514 #1-268 Acq:26-APR-2019 03:03:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:82167
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,512.0,0.40%,F,T)



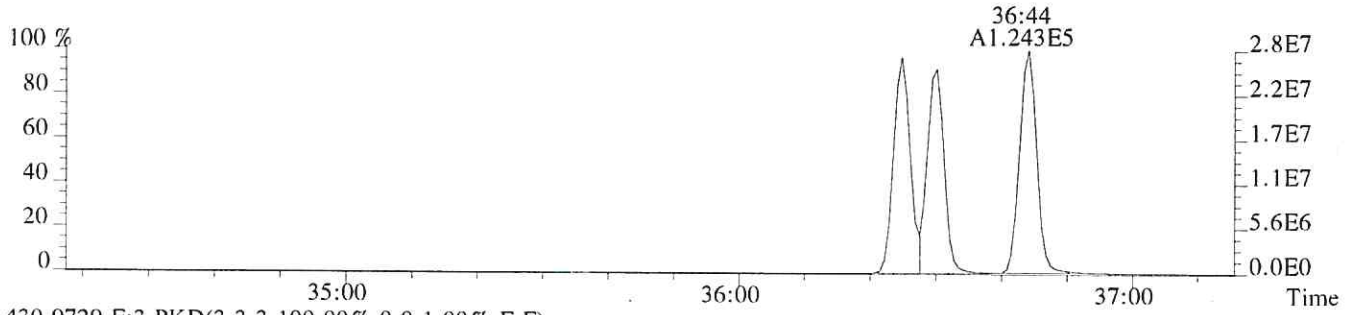
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,588.0,0.40%,F,T)



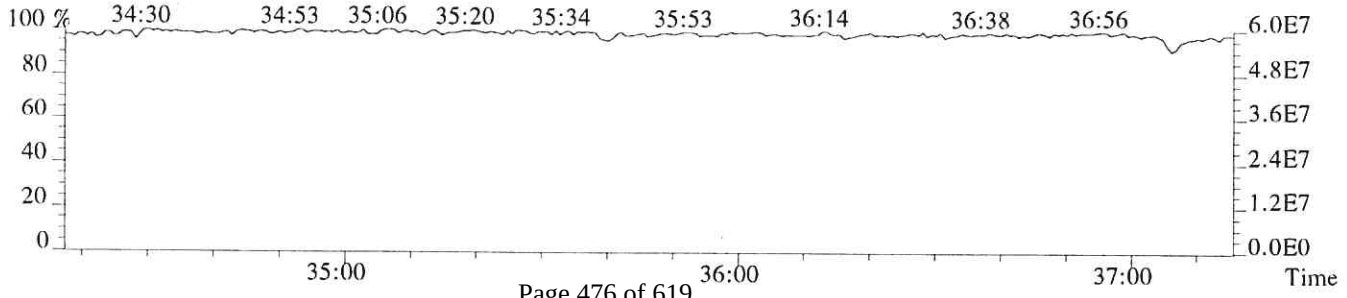
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1268.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,904.0,0.40%,F,T)

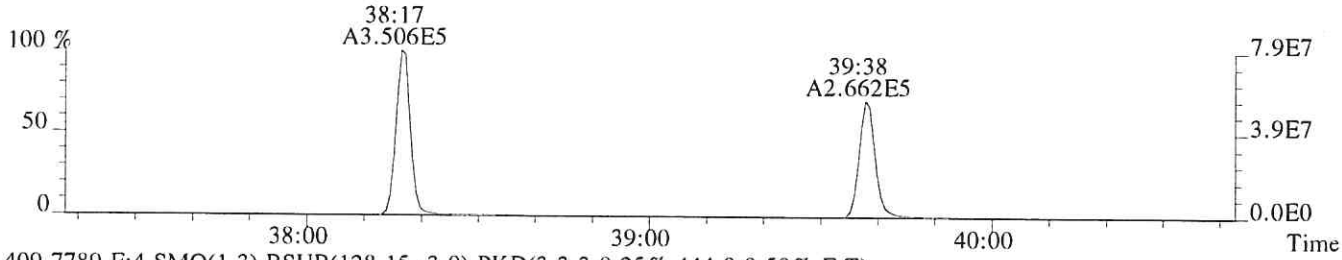


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

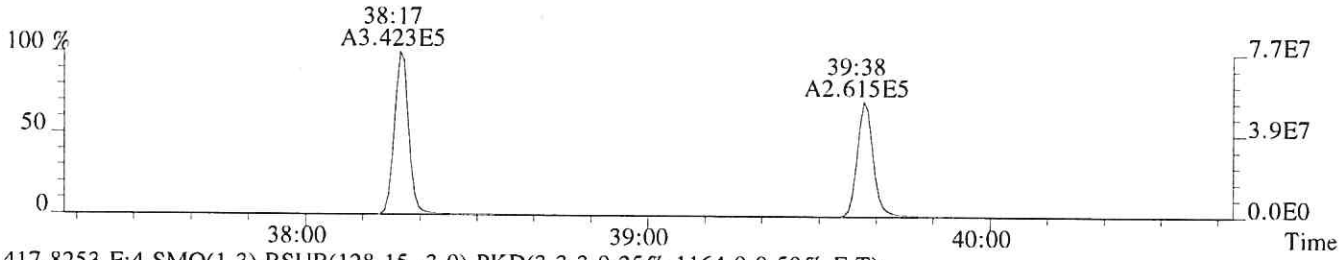


RIGHT SOLUTIONS | RIGHT PARTNER

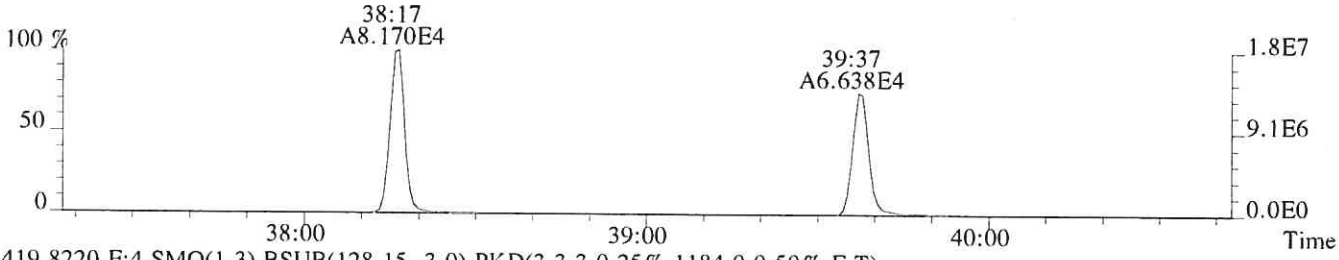
File:P521514 #1-308 Acq:26-APR-2019 03:03:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:82167
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,536.0,0.50%,F,T)



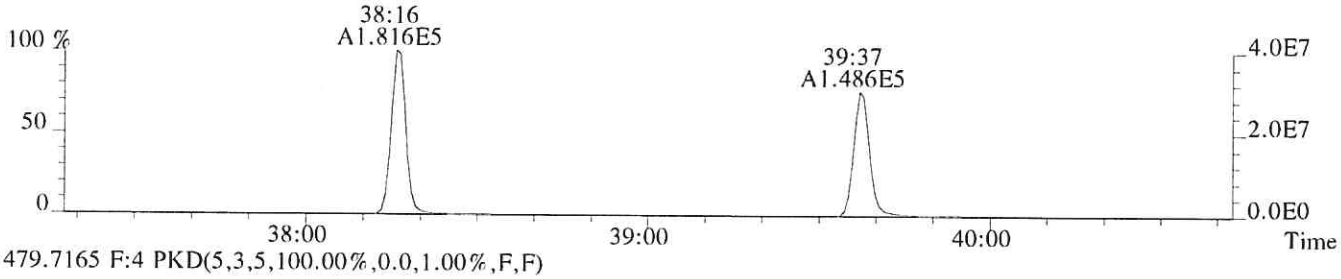
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,444.0,0.50%,F,T)



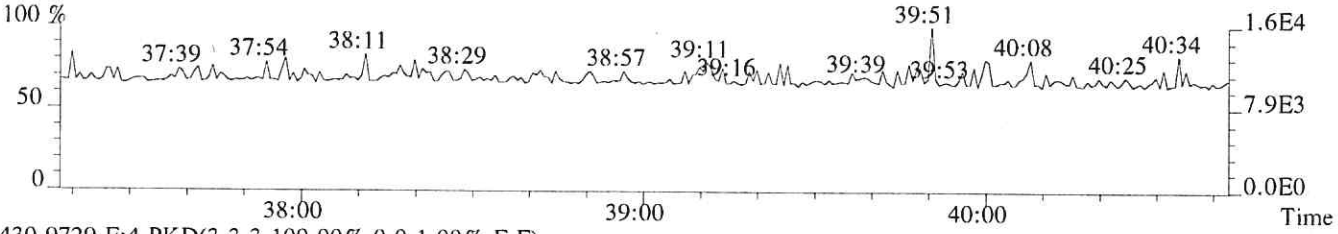
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1164.0,0.50%,F,T)



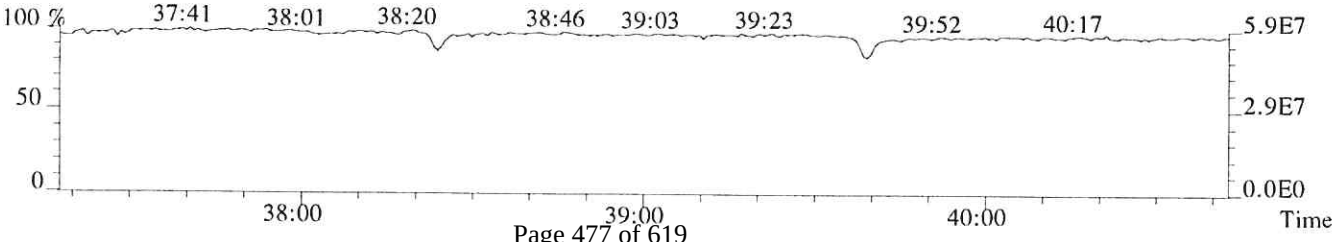
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1184.0,0.50%,F,T)



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

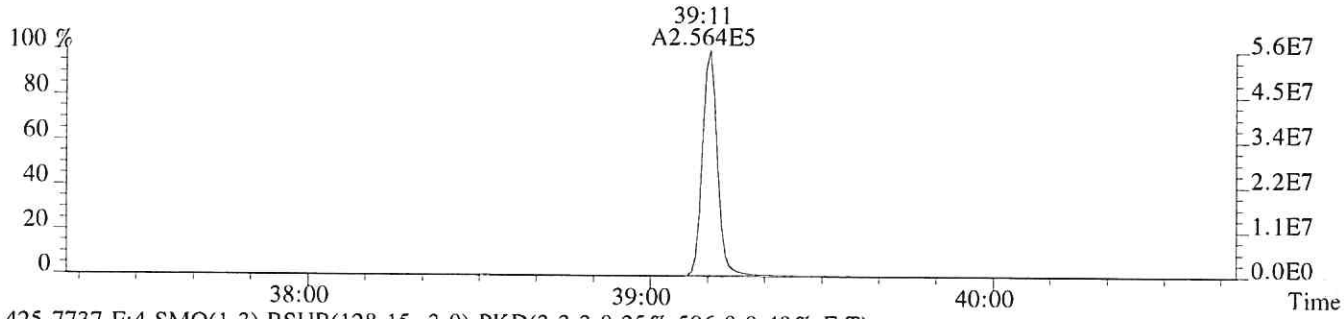


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

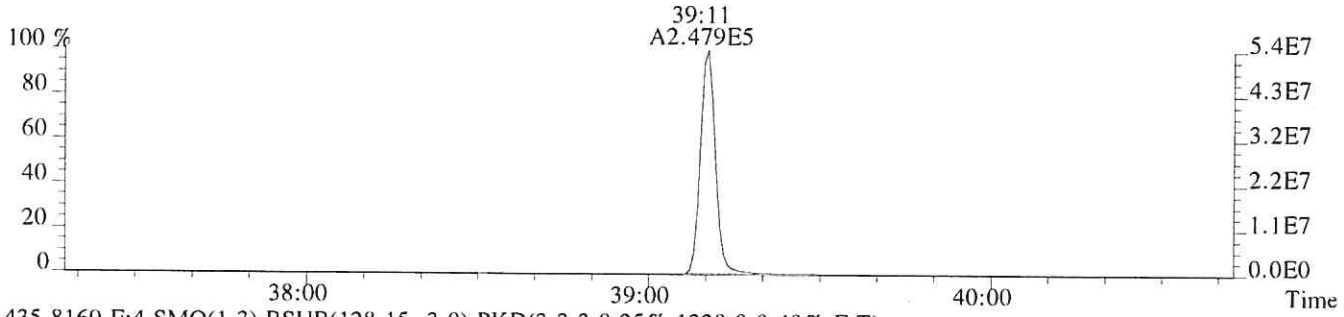


RIGHT SOLUTIONS | RIGHT PARTNER

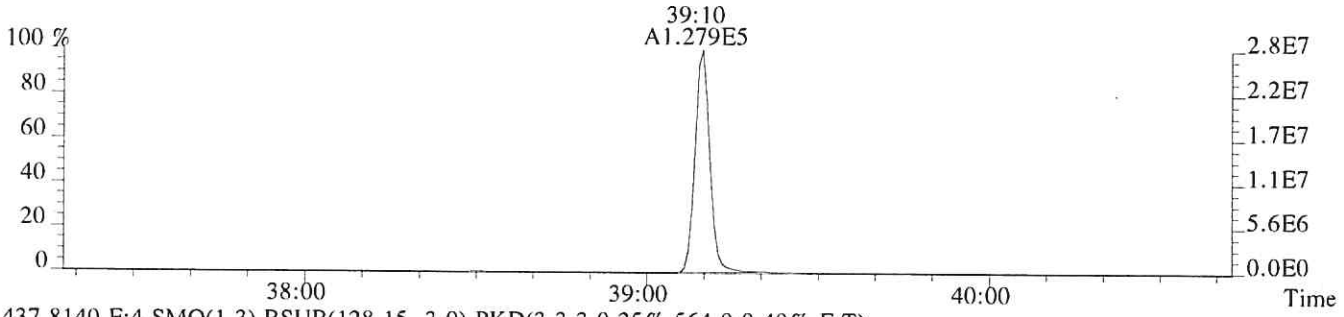
File:P521514 #1-308 Acq:26-APR-2019 03:03:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:82167
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1116.0,0.40%,F,T)



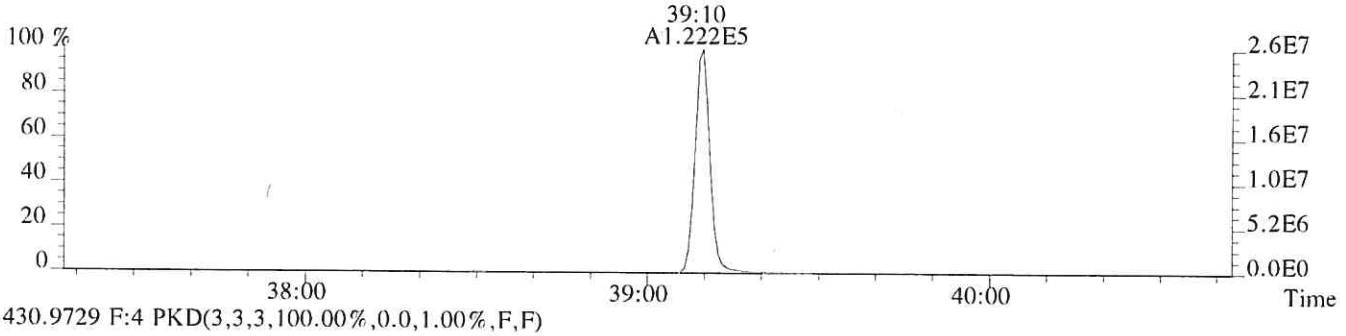
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,596.0,0.40%,F,T)



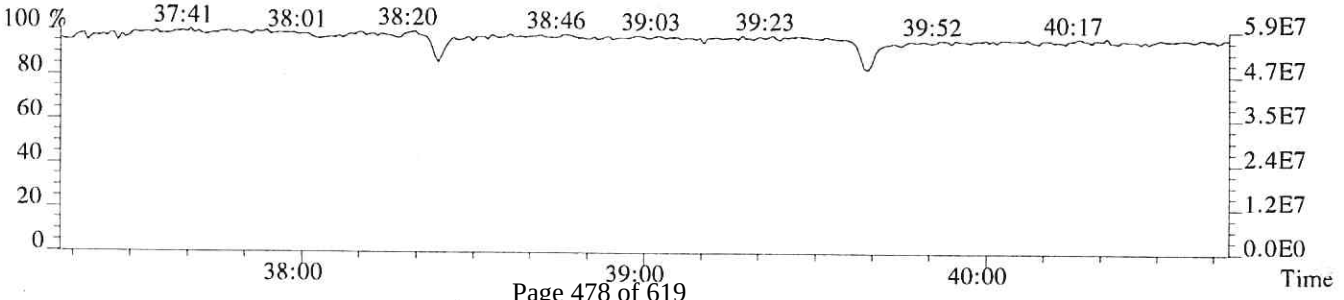
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1220.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,564.0,0.40%,F,T)

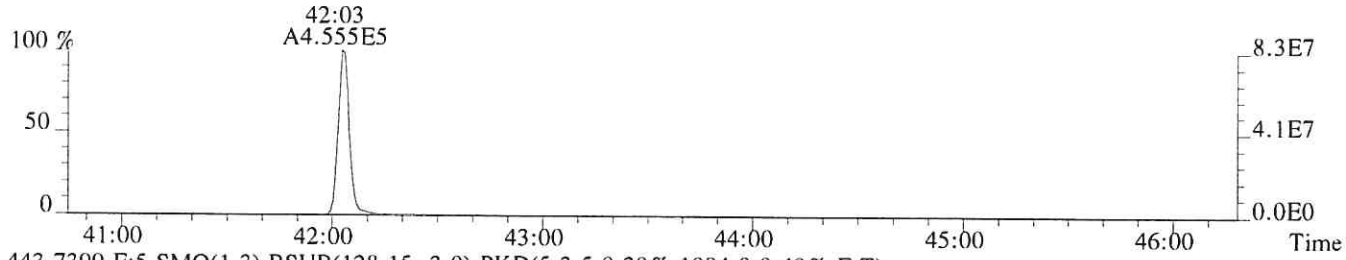


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

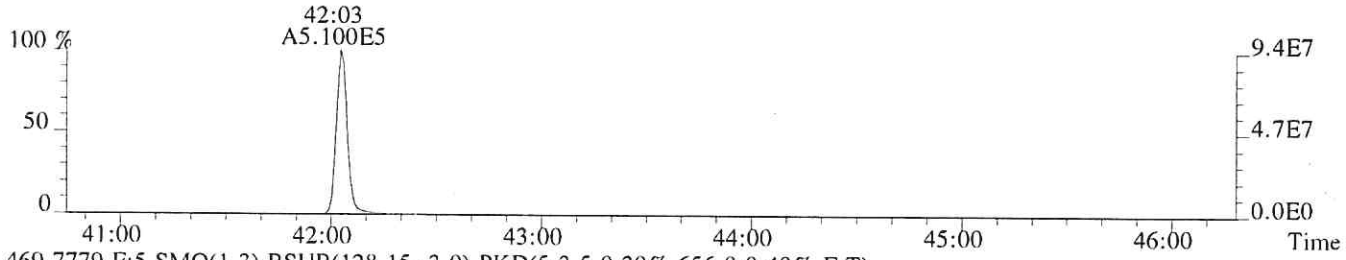


RIGHT SOLUTIONS | RIGHT PARTNER

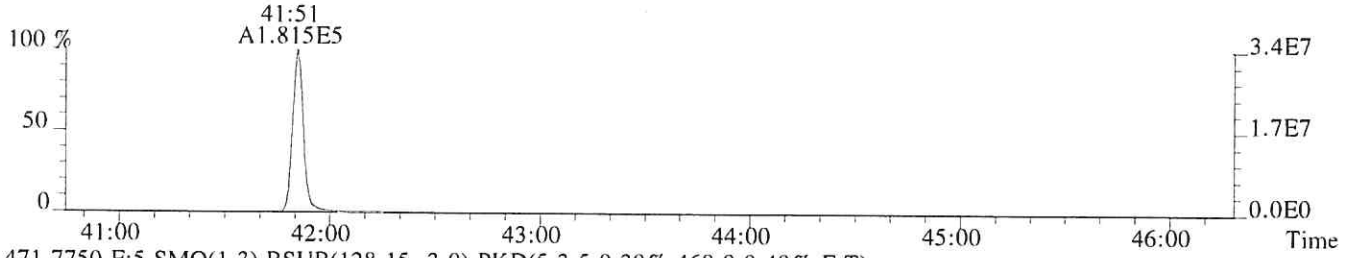
File:P521514 #1-501 Acq:26-APR-2019 03:03:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:82167
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,436.0,0.40%,F,T)



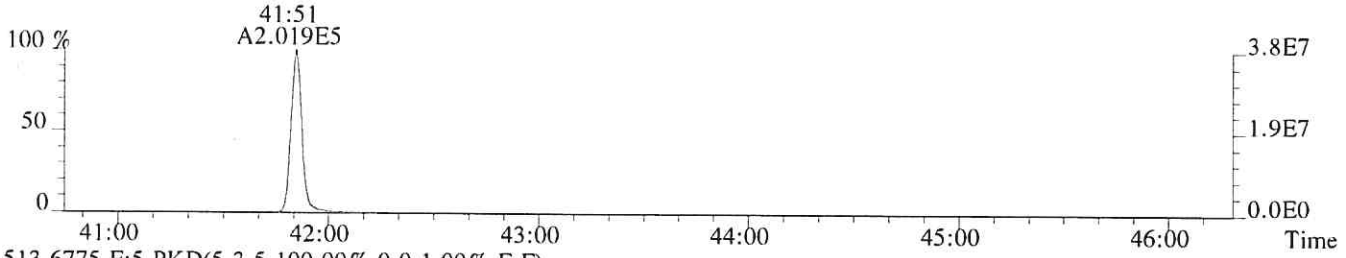
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1084.0,0.40%,F,T)



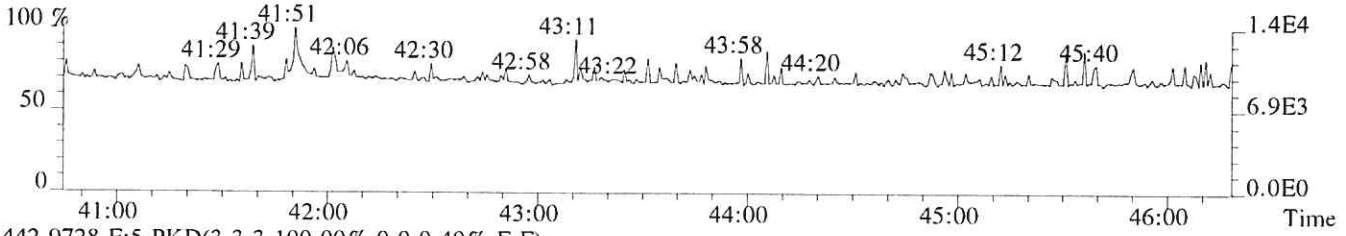
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,656.0,0.40%,F,T)



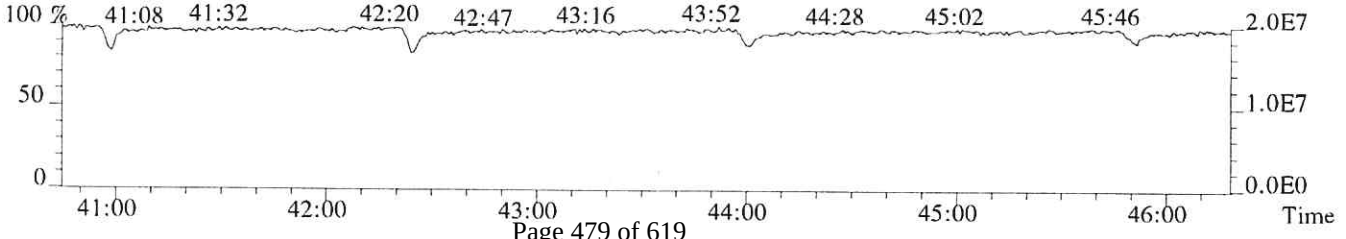
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,468.0,0.40%,F,T)



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

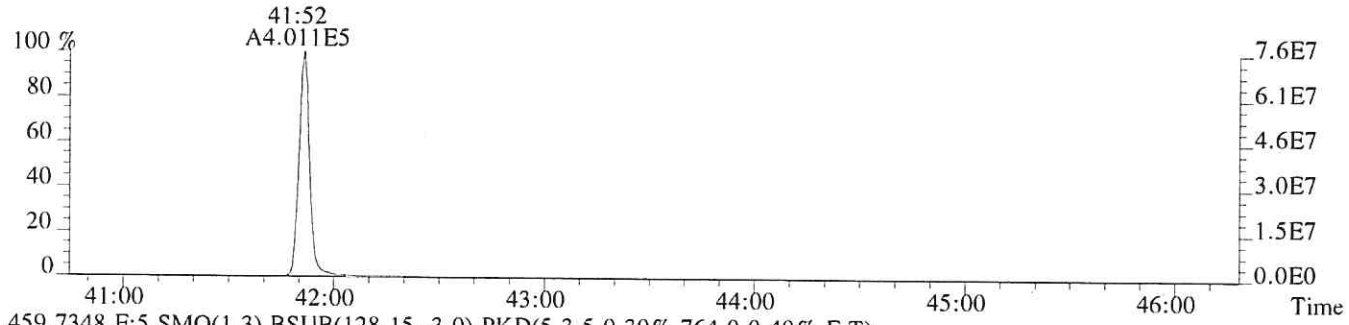


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

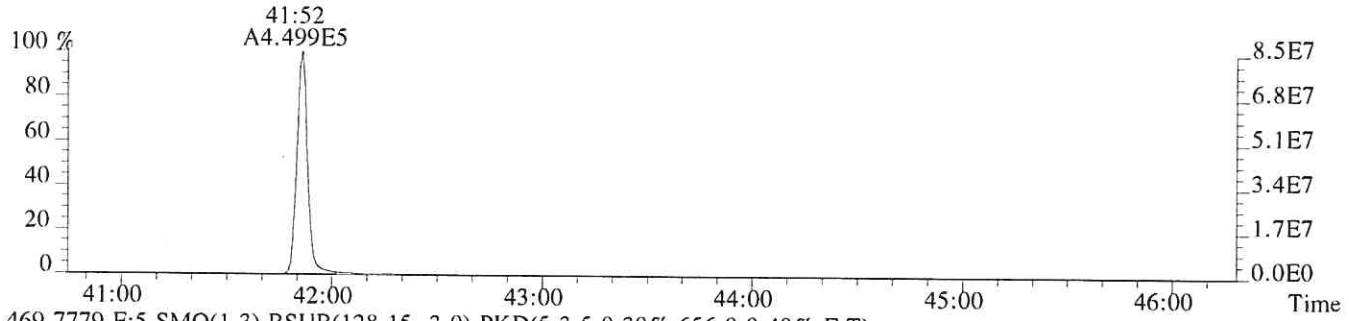


RIGHT SOLUTIONS | RIGHT PARTNER

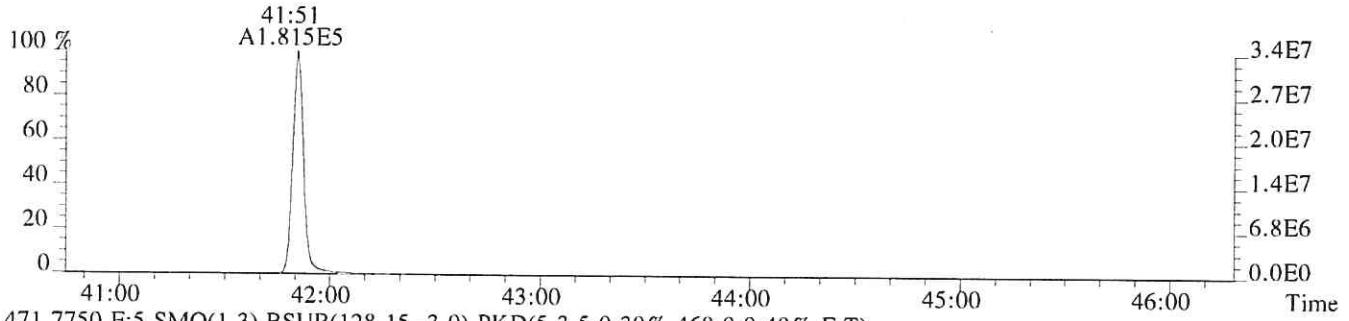
File:P521514 #1-501 Acq:26-APR-2019 03:03:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:82167
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,512.0,0.40%,F,T)



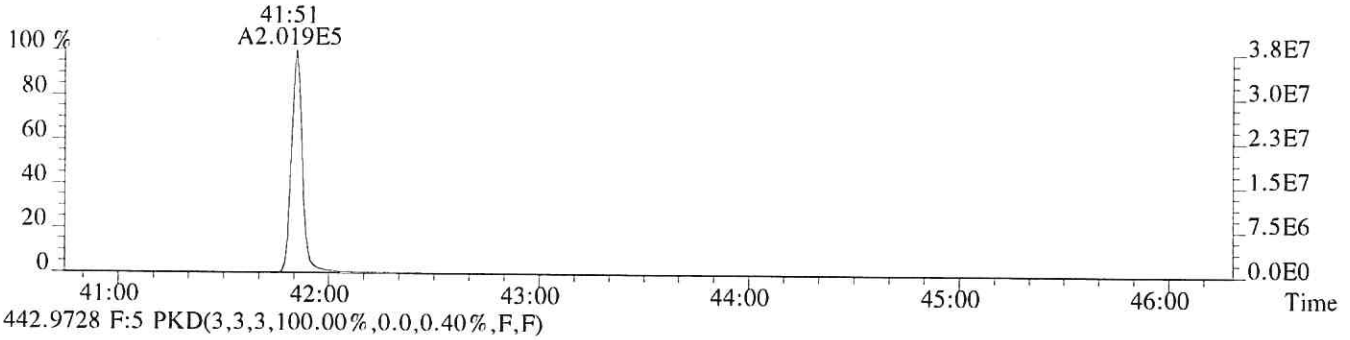
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,764.0,0.40%,F,T)



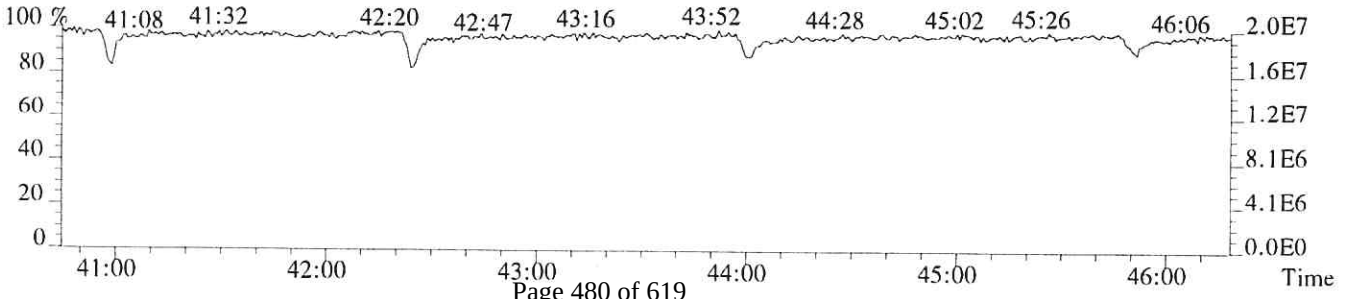
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,656.0,0.40%,F,T)



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)



RIGHT SOLUTIONS | RIGHT PARTNER

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
185657

Run #6 Filename P521515 Samp: 1 Inj: 1 Acquired: 26-APR-19 03:51:44
Processed: 26-APR-19 07:12:44 Sample ID: CS5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:50	2.406e+05	3.190e+05	0.75	yes	no	0.962
2	Unk	1,2,3,7,8-PeCDF	32:06	2.055e+06	1.333e+06	1.54	yes	no	0.968
3	Unk	2,3,4,7,8-PeCDF	33:01	1.876e+06	1.230e+06	1.53	yes	no	0.919
4	Unk	1,2,3,4,7,8-HxCDF	35:42	1.722e+06	1.414e+06	1.22	yes	no	1.161
5	Unk	1,2,3,6,7,8-HxCDF	35:48	1.779e+06	1.451e+06	1.23	yes	no	1.073
6	Unk	2,3,4,6,7,8-HxCDF	36:18	1.620e+06	1.330e+06	1.22	yes	no	1.069
7	Unk	1,2,3,7,8,9-HxCDF	37:03	1.446e+06	1.179e+06	1.23	yes	no	1.096
8	Unk	1,2,3,4,6,7,8-HpCDF	38:17	1.427e+06	1.388e+06	1.03	yes	no	1.281
9	Unk	1,2,3,4,7,8,9-HpCDF	39:39	1.044e+06	1.020e+06	1.02	yes	no	1.192
10	Unk	OCDF	42:04	1.817e+06	2.024e+06	0.90	yes	no	1.204
11	Unk	2,3,7,8-TCDD	28:38	1.994e+05	2.552e+05	0.78	yes	no	1.077
12	Unk	1,2,3,7,8-PeCDD	33:18	1.426e+06	9.061e+05	1.57	yes	no	0.971
13	Unk	1,2,3,4,7,8-HxCDD	36:26	1.294e+06	1.042e+06	1.24	yes	no	1.024
14	Unk	1,2,3,6,7,8-HxCDD	36:32	1.252e+06	9.978e+05	1.25	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:46	1.316e+06	1.063e+06	1.24	yes	no	1.055
16	Unk	1,2,3,4,6,7,8-HpCDD	39:11	1.058e+06	1.016e+06	1.04	yes	no	0.989
17	Unk	OCDD	41:52	1.584e+06	1.786e+06	0.89	yes	no	1.094
18	IS	13C-2,3,7,8-TCDF	27:49	1.324e+05	1.665e+05	0.80	yes	no	1.287
19	IS	13C-1,2,3,7,8-PeCDF	32:05	2.102e+05	1.330e+05	1.58	yes	no	1.416
20	IS	13C-2,3,4,7,8-PeCDF	33:00	2.039e+05	1.301e+05	1.57	yes	no	1.374
21	IS	13C-1,2,3,4,7,8-HxCDF	35:41	9.022e+04	1.731e+05	0.52	yes	no	1.114
22	IS	13C-1,2,3,6,7,8-HxCDF	35:48	9.995e+04	1.903e+05	0.53	yes	no	1.245
23	IS	13C-2,3,4,6,7,8-HxCDF	36:18	9.262e+04	1.773e+05	0.52	yes	no	1.146
24	IS	13C-1,2,3,7,8,9-HxCDF	37:02	8.003e+04	1.537e+05	0.52	yes	no	0.986
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:17	6.642e+04	1.480e+05	0.45	yes	no	0.915
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:38	5.246e+04	1.186e+05	0.44	yes	no	0.746
27	IS	13C-2,3,7,8-TCDD	28:37	9.644e+04	1.217e+05	0.79	yes	no	0.929
28	IS	13C-1,2,3,7,8-PeCDD	33:17	1.505e+05	9.471e+04	1.59	yes	no	1.017
29	IS	13C-1,2,3,4,7,8-HxCDD	36:26	1.250e+05	9.791e+04	1.28	yes	no	0.945
30	IS	13C-1,2,3,6,7,8-HxCDD	36:31	1.197e+05	9.452e+04	1.27	yes	no	0.924
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:11	1.068e+05	9.988e+04	1.07	yes	no	0.876
32	IS	13C-OCDD	41:52	1.442e+05	1.609e+05	0.90	yes	no	0.662
33	RS/RT	13C-1,2,3,4-TCDD	28:02	1.019e+05	1.282e+05	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:45	1.325e+05	1.054e+05	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:38	4.674e+05				no	1.010

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www.alsglobal.com

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
185657

Run #6 Filename P521515 Samp: 1 Inj: 1 Acquired: 26-APR-19 03:51:44
Processed: 26-APR-19 07:12:44 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	4.50e+07	8.88e+02	5.1e+04	5.93e+07	1.20e+03	4.9e+04
2	1,2,3,7,8-PeCDF	3.99e+08	5.44e+03	7.3e+04	2.58e+08	3.83e+03	6.8e+04
3	2,3,4,7,8-PeCDF	3.76e+08	5.44e+03	6.9e+04	2.47e+08	3.83e+03	6.5e+04
4	1,2,3,4,7,8-HxCDF	3.90e+08	6.62e+03	5.9e+04	3.18e+08	2.83e+03	1.1e+05
5	1,2,3,6,7,8-HxCDF	3.93e+08	6.62e+03	5.9e+04	3.19e+08	2.83e+03	1.1e+05
6	2,3,4,6,7,8-HxCDF	3.59e+08	6.62e+03	5.4e+04	2.92e+08	2.83e+03	1.0e+05
7	1,2,3,7,8,9-HxCDF	3.17e+08	6.62e+03	4.8e+04	2.58e+08	2.83e+03	9.1e+04
8	1,2,3,4,6,7,8-HpCDF	3.22e+08	8.04e+02	4.0e+05	3.14e+08	6.12e+02	5.1e+05
9	1,2,3,4,7,8,9-HpCDF	2.22e+08	8.04e+02	2.8e+05	2.17e+08	6.12e+02	3.5e+05
10	OCDF	3.38e+08	7.36e+02	4.6e+05	3.69e+08	1.25e+03	3.0e+05
11	2,3,7,8-TCDD	3.89e+07	2.81e+03	1.4e+04	5.02e+07	1.29e+03	3.9e+04
12	1,2,3,7,8-PeCDD	2.91e+08	9.24e+02	3.1e+05	1.86e+08	3.52e+02	5.3e+05
13	1,2,3,4,7,8-HxCDD	2.92e+08	6.52e+02	4.5e+05	2.34e+08	5.44e+02	4.3e+05
14	1,2,3,6,7,8-HxCDD	2.78e+08	6.52e+02	4.3e+05	2.22e+08	5.44e+02	4.1e+05
15	1,2,3,7,8,9-HxCDD	2.97e+08	6.52e+02	4.5e+05	2.36e+08	5.44e+02	4.3e+05
16	1,2,3,4,6,7,8-HpCDD	2.26e+08	6.28e+02	3.6e+05	2.15e+08	6.24e+02	3.5e+05
17	OCDD	2.88e+08	5.16e+02	5.6e+05	3.27e+08	7.84e+02	4.2e+05
18	13C-2,3,7,8-TCDF	2.40e+07	5.21e+03	4.6e+03	3.05e+07	3.23e+03	9.4e+03
19	13C-1,2,3,7,8-PeCDF	4.10e+07	7.52e+02	5.5e+04	2.59e+07	9.28e+02	2.8e+04
20	13C-2,3,4,7,8-PeCDF	4.13e+07	7.52e+02	5.5e+04	2.64e+07	9.28e+02	2.8e+04
21	13C-1,2,3,4,7,8-HxCDF	2.02e+07	1.36e+03	1.5e+04	3.85e+07	2.72e+03	1.4e+04
22	13C-1,2,3,6,7,8-HxCDF	2.19e+07	1.36e+03	1.6e+04	4.15e+07	2.72e+03	1.5e+04
23	13C-2,3,4,6,7,8-HxCDF	2.04e+07	1.36e+03	1.5e+04	3.85e+07	2.72e+03	1.4e+04
24	13C-1,2,3,7,8,9-HxCDF	1.74e+07	1.36e+03	1.3e+04	3.34e+07	2.72e+03	1.2e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.47e+07	5.88e+02	2.5e+04	3.28e+07	5.92e+02	5.5e+04
26	13C-1,2,3,4,7,8,9-HpCDF	1.12e+07	5.88e+02	1.9e+04	2.52e+07	5.92e+02	4.3e+04
27	13C-2,3,7,8-TCDD	1.89e+07	5.50e+03	3.4e+03	2.37e+07	2.34e+03	1.0e+04
28	13C-1,2,3,7,8-PeCDD	3.09e+07	8.40e+02	3.7e+04	1.95e+07	1.24e+03	1.6e+04
29	13C-1,2,3,4,7,8-HxCDD	2.81e+07	1.08e+03	2.6e+04	2.19e+07	1.16e+03	1.9e+04
30	13C-1,2,3,6,7,8-HxCDD	2.64e+07	1.08e+03	2.5e+04	2.09e+07	1.16e+03	1.8e+04
31	13C-1,2,3,4,6,7,8-HpCDD	2.26e+07	1.17e+03	1.9e+04	2.13e+07	1.24e+03	1.7e+04
32	13C-OCDD	2.58e+07	1.40e+03	1.8e+04	2.91e+07	7.20e+02	4.0e+04
33	13C-1,2,3,4-TCDD	1.89e+07	5.50e+03	3.4e+03	2.36e+07	2.34e+03	1.0e+04
34	13C-1,2,3,7,8,9-HxCDD	2.93e+07	1.08e+03	2.7e+04	2.32e+07	1.16e+03	2.0e+04
35	37Cl-2,3,7,8-TCDD	9.18e+07	1.41e+03	6.5e+04			

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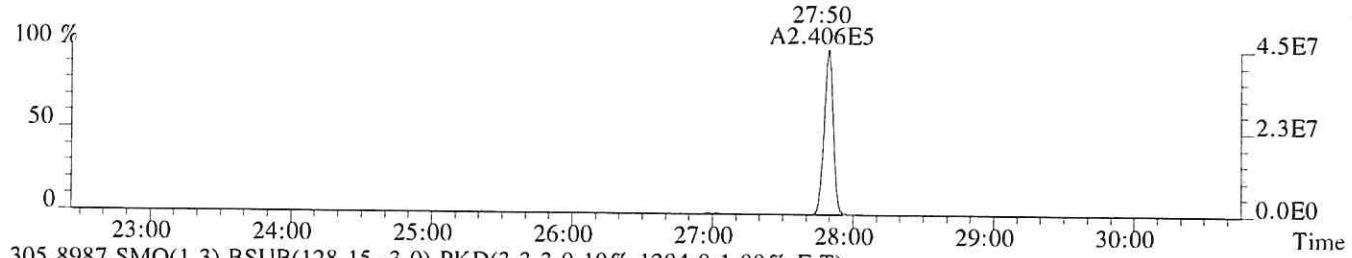
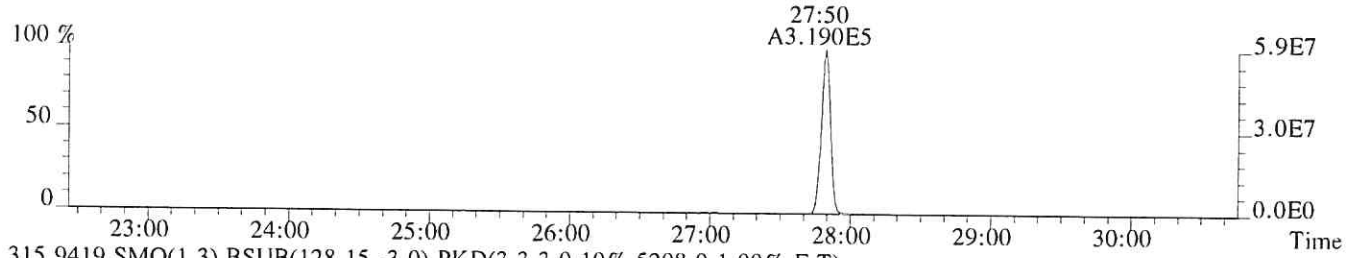
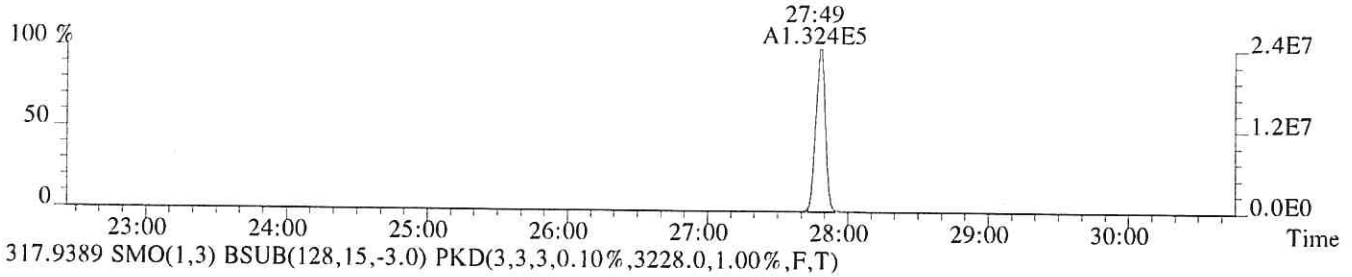
File:P521515 #1-591 Acq:26-APR-2019 03:51:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,888.0,1.00%,F,T)



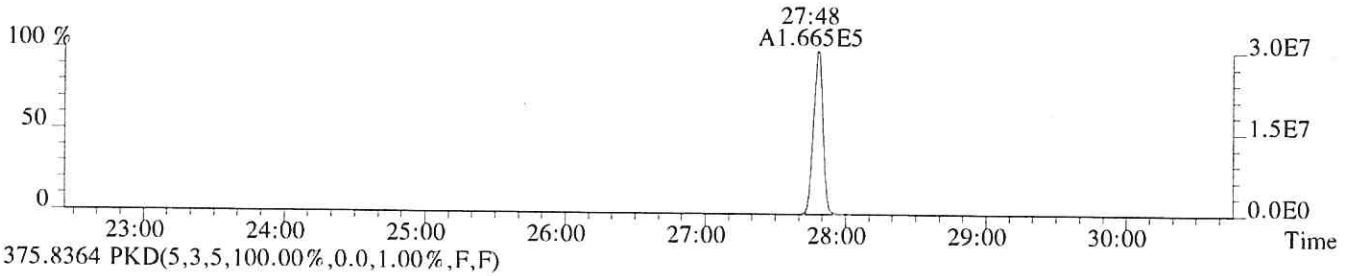
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1204.0,1.00%,F,T)



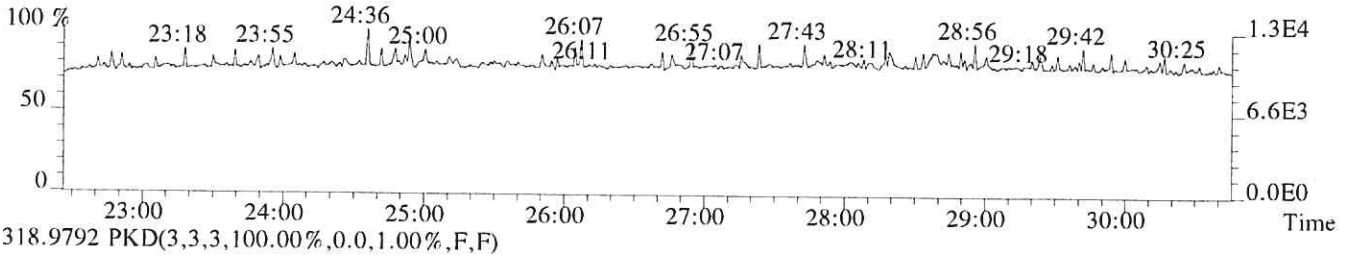
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5208.0,1.00%,F,T)



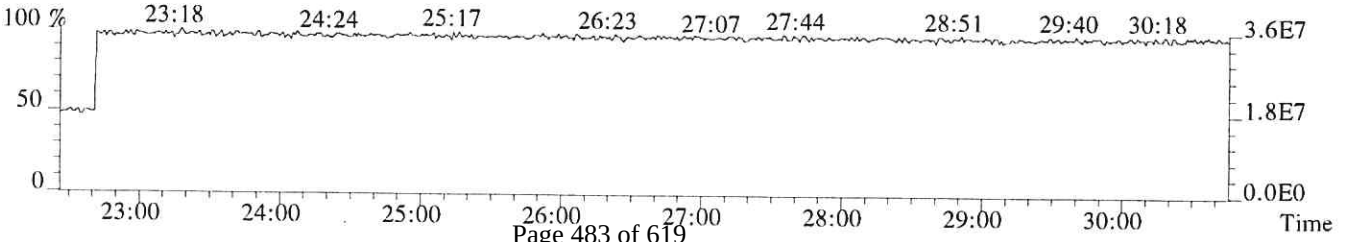
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3228.0,1.00%,F,T)



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

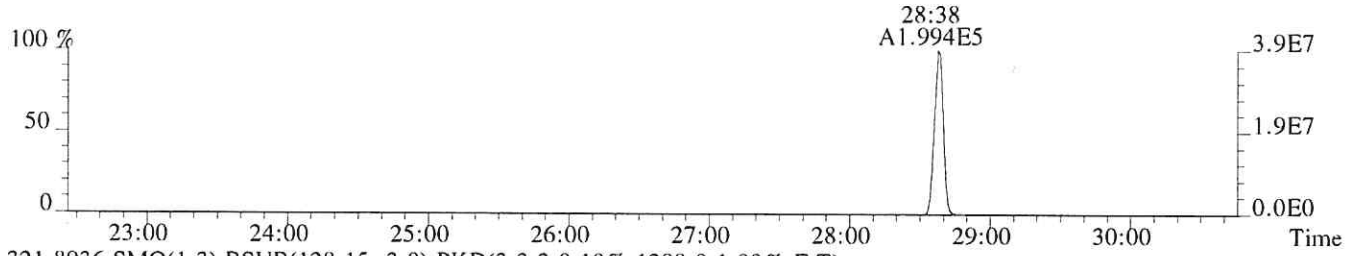


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

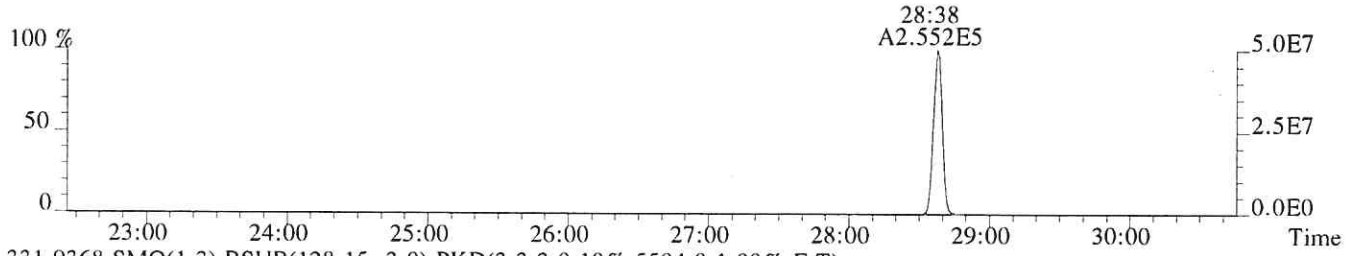


RIGHT SOLUTIONS | RIGHT PARTNER

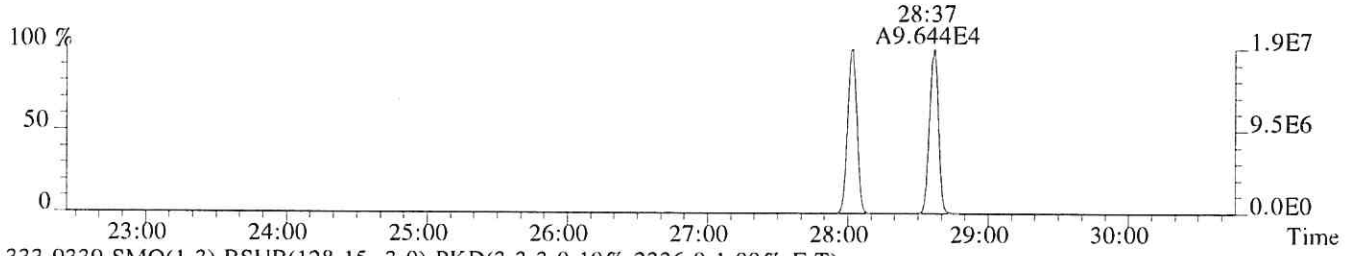
File:P521515 #1-591 Acq:26-APR-2019 03:51:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2808.0,1.00%,F,T)



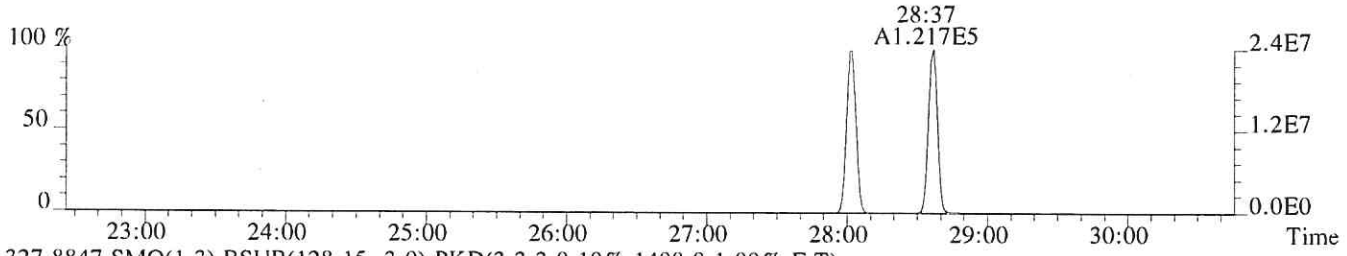
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1288.0,1.00%,F,T)



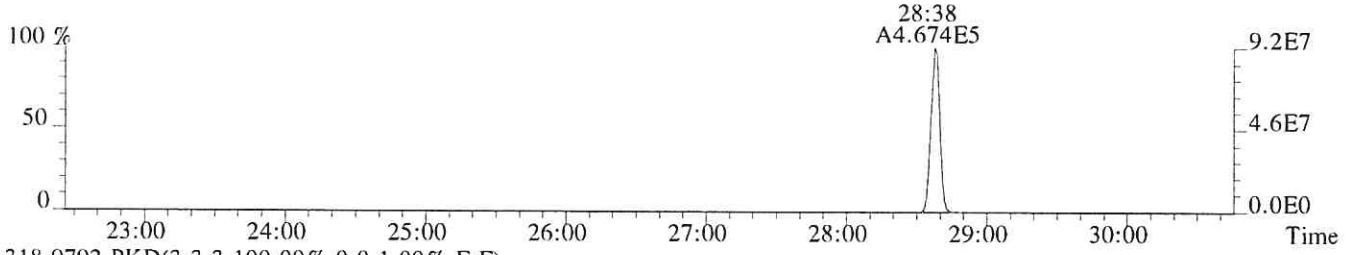
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5504.0,1.00%,F,T)



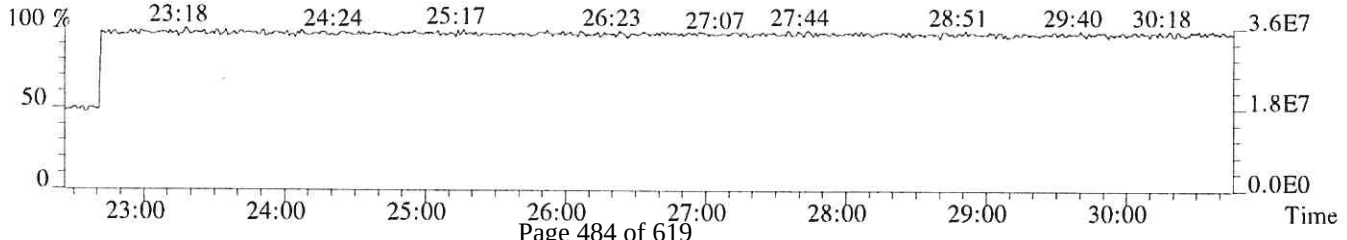
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2336.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1408.0,1.00%,F,T)

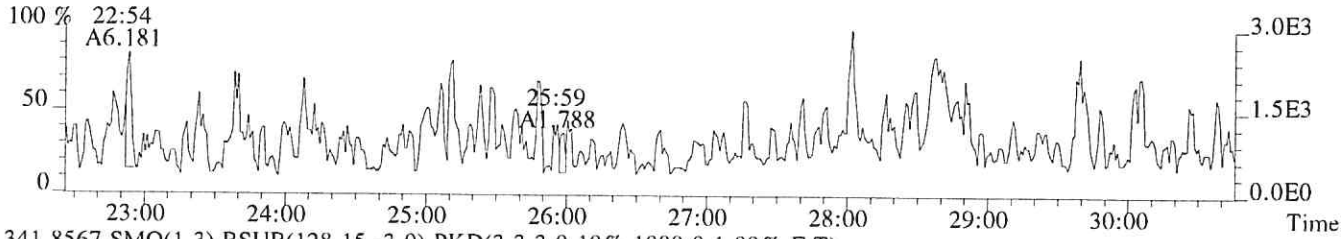


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

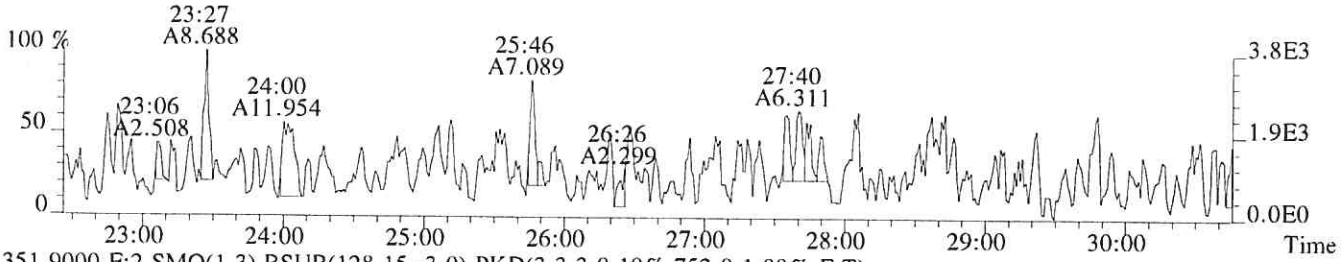


RIGHT SOLUTIONS | RIGHT PARTNER

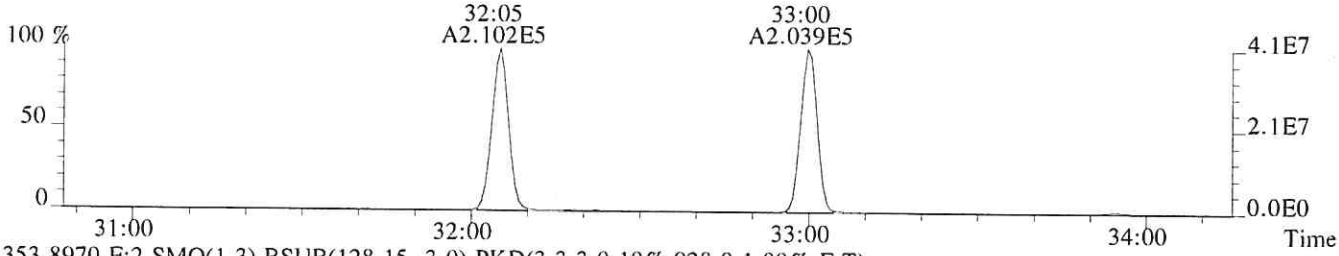
File:P521515 #1-591 Acq:26-APR-2019 03:51:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1104.0,1.00%,F,T)



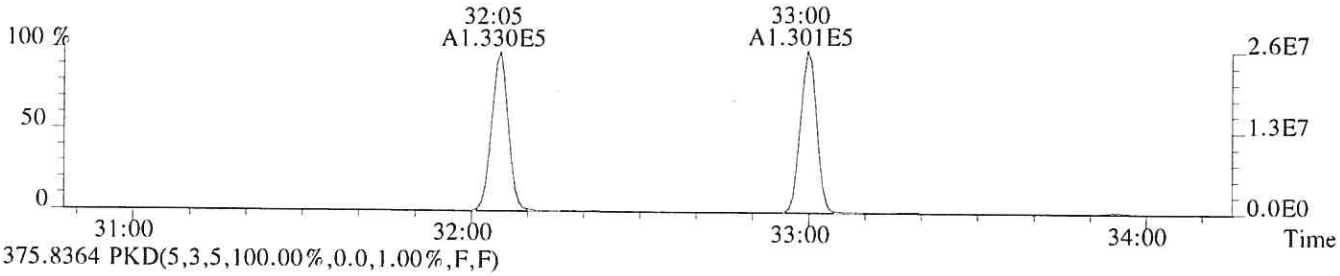
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1088.0,1.00%,F,T)



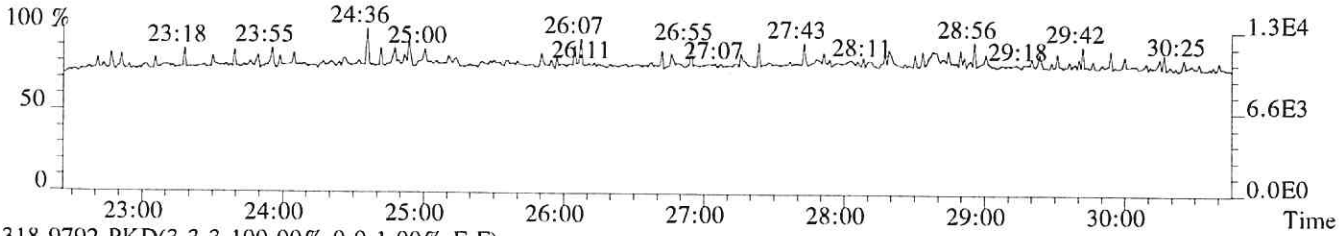
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,752.0,1.00%,F,T)



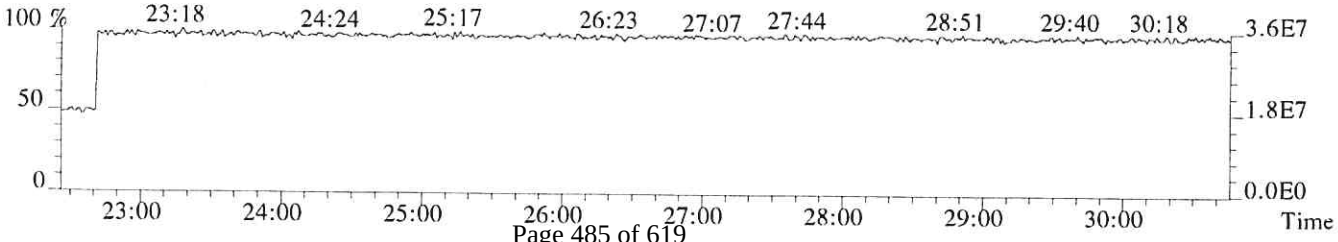
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,928.0,1.00%,F,T)



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

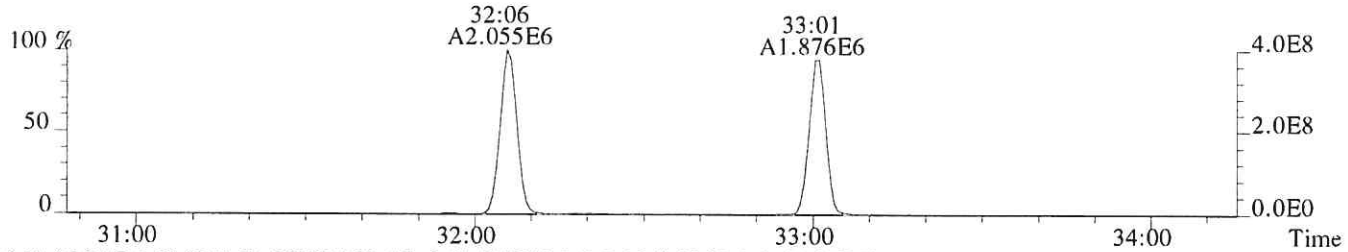


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

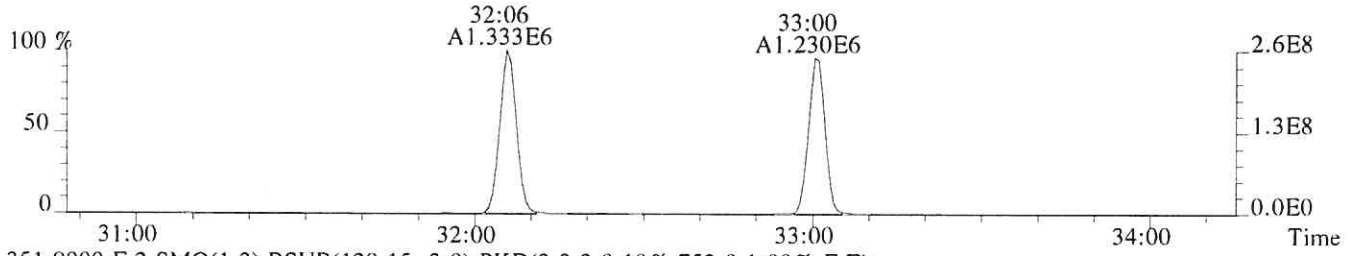


RIGHT SOLUTIONS | RIGHT PARTNER

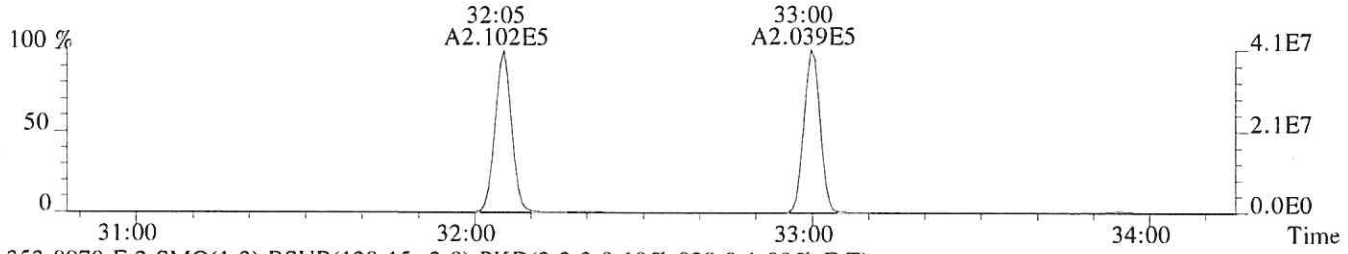
File:P521515 #1-312 Acq:26-APR-2019 03:51:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5444.0,1.00%,F,T)



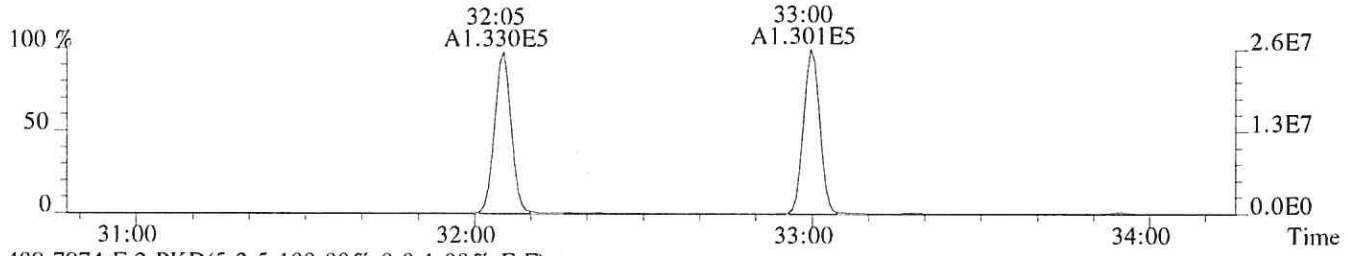
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3828.0,1.00%,F,T)



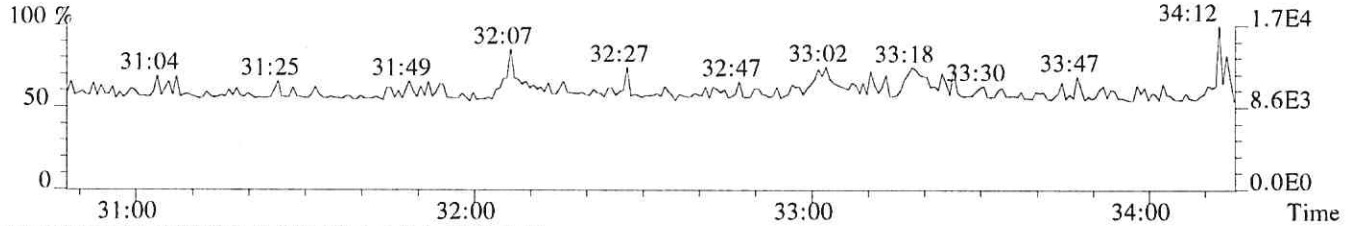
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,752.0,1.00%,F,T)



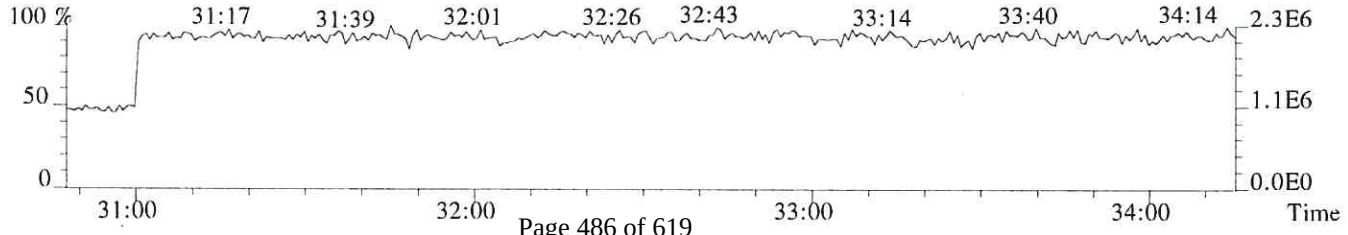
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,928.0,1.00%,F,T)



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

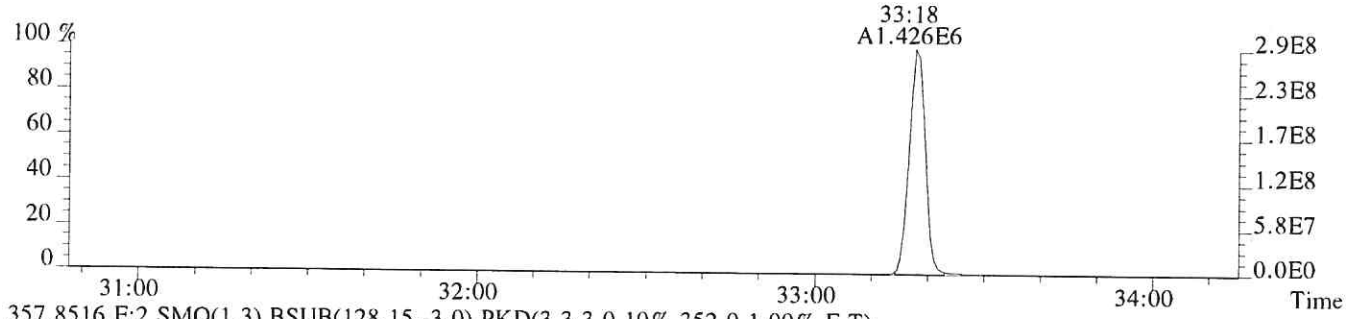


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

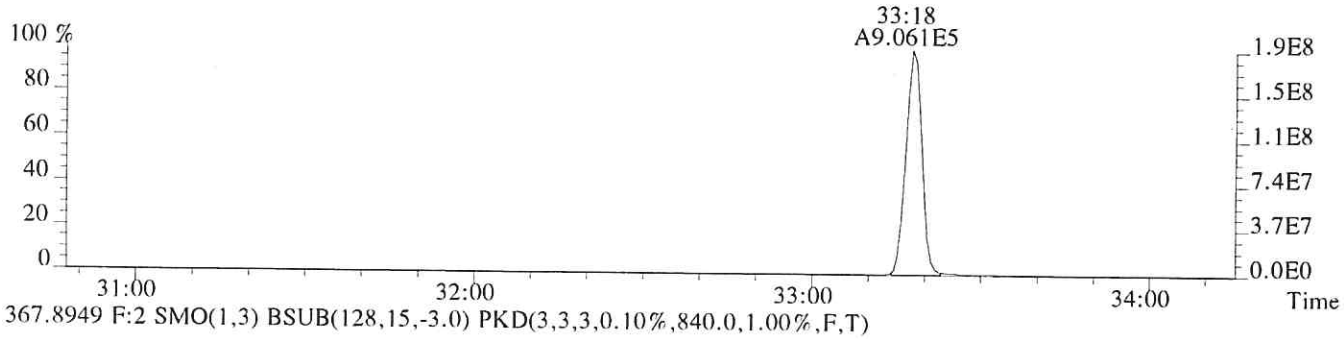


RIGHT SOLUTIONS | RIGHT PARTNER

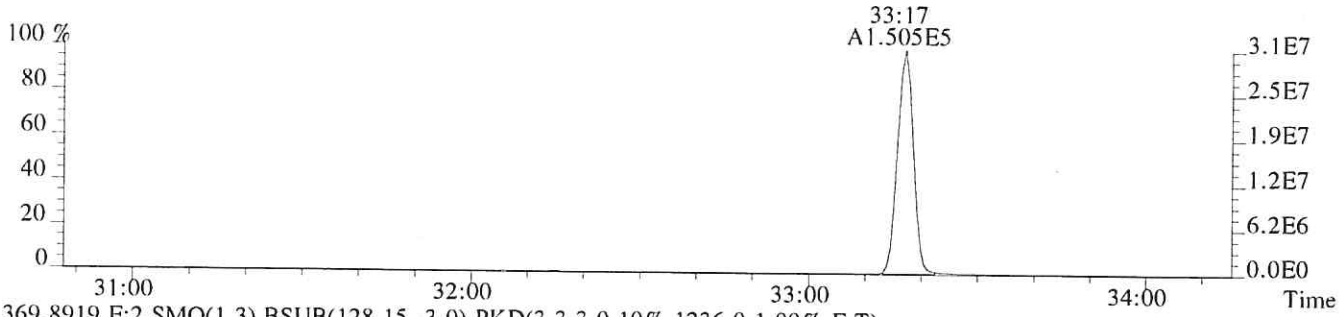
File:P521515 #1-312 Acq:26-APR-2019 03:51:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,924.0,1.00%,F,T)



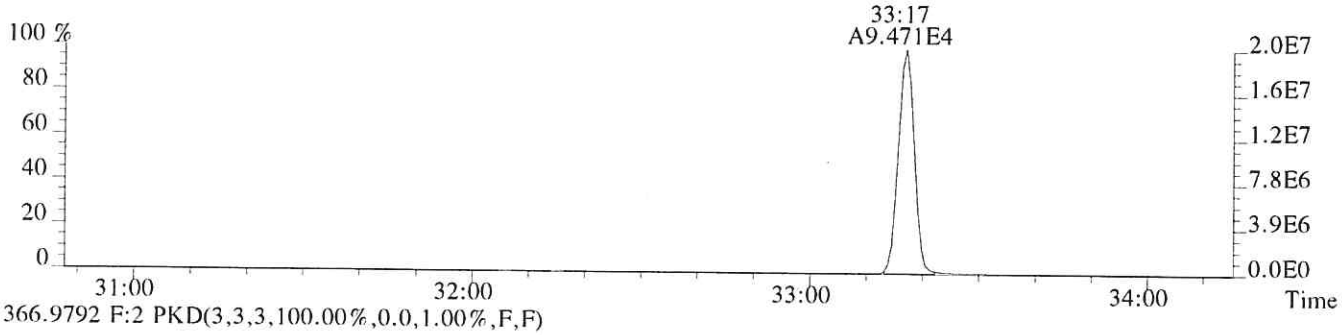
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,352.0,1.00%,F,T)



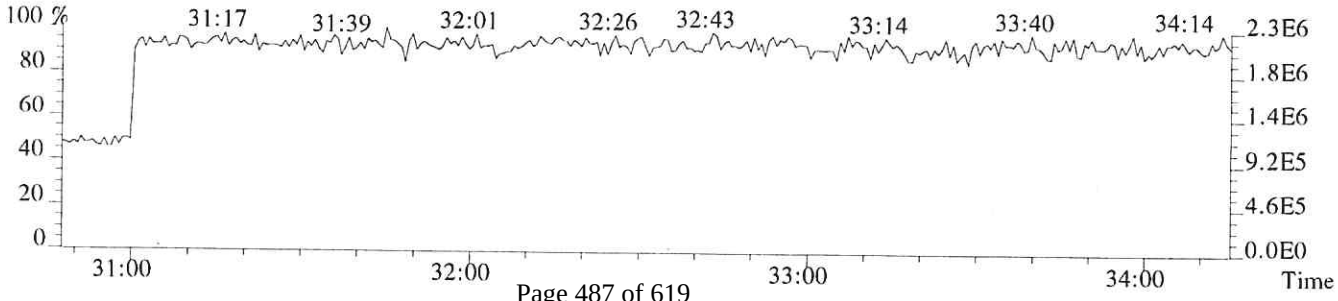
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,840.0,1.00%,F,T)



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

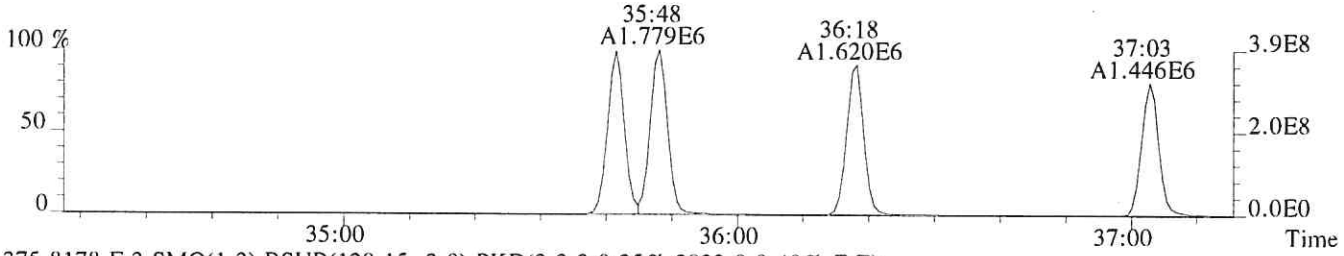


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

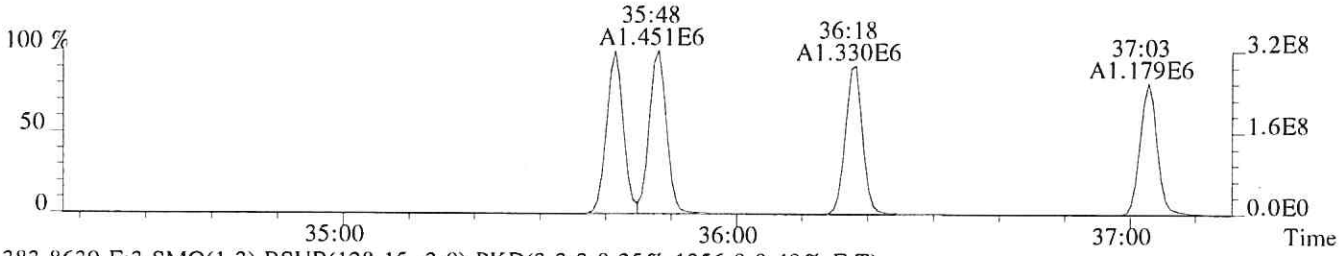


RIGHT SOLUTIONS | RIGHT PARTNER

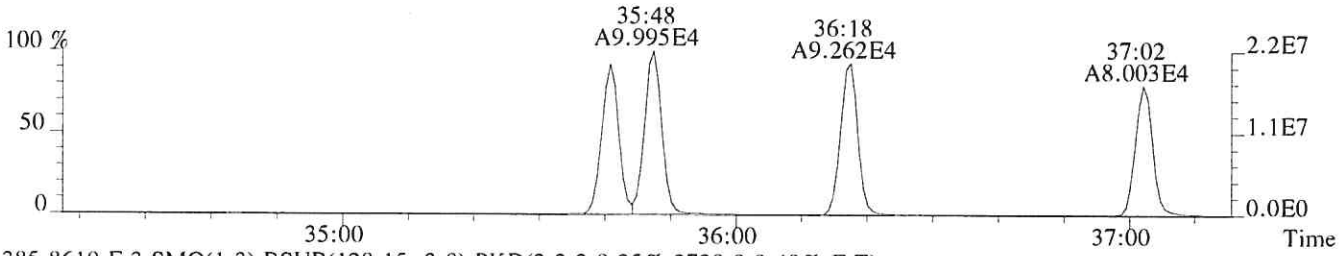
File:P521515 #1-268 Acq:26-APR-2019 03:51:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6616.0,0.40%,F,T)



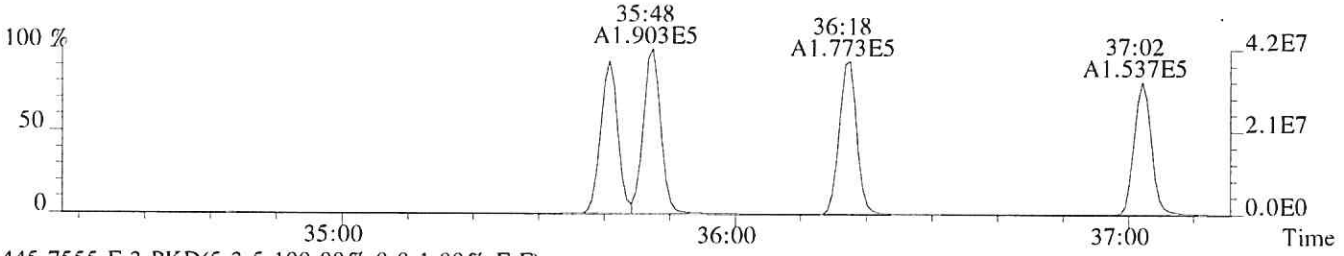
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2832.0,0.40%,F,T)



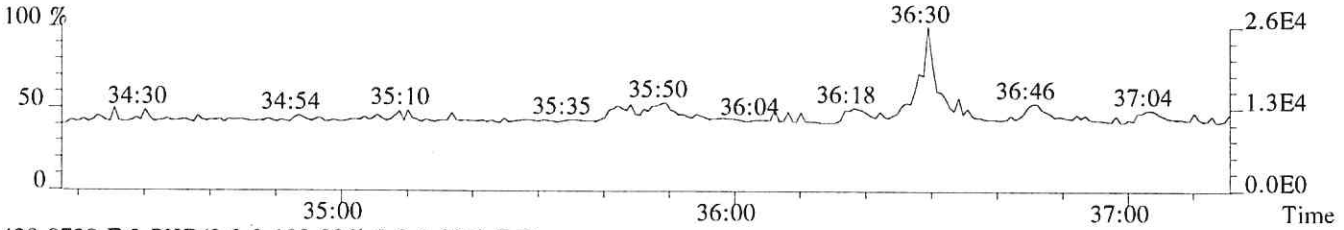
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1356.0,0.40%,F,T)



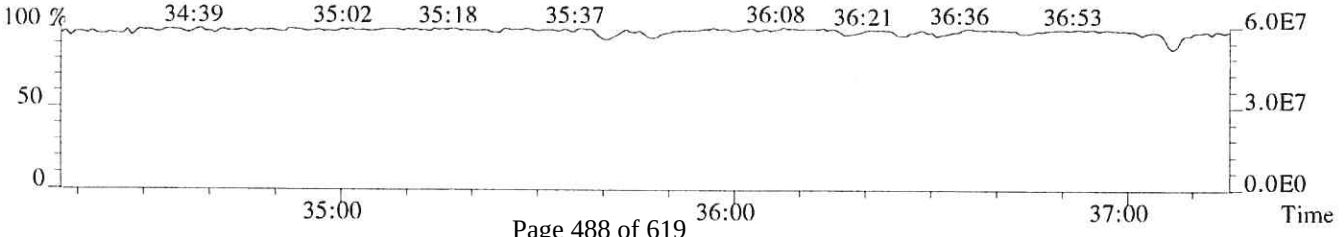
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2720.0,0.40%,F,T)



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

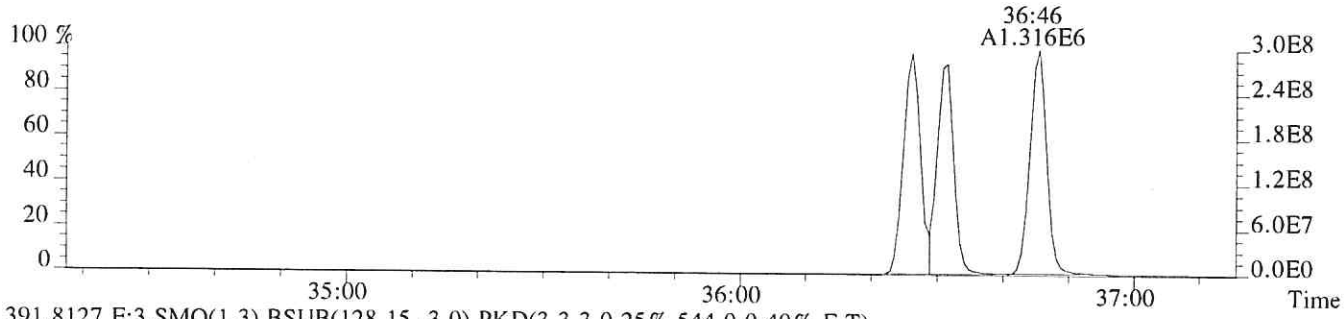


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

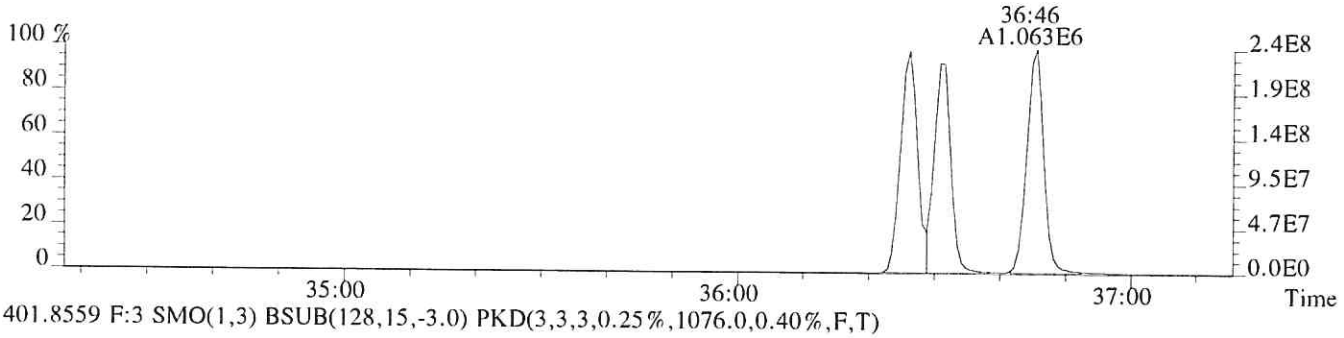


RIGHT SOLUTIONS | RIGHT PARTNER

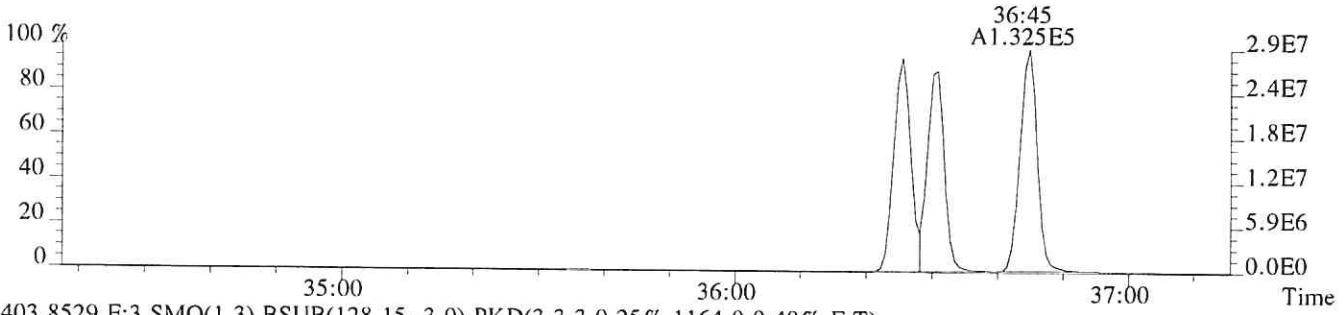
File:P521515 #1-268 Acq:26-APR-2019 03:51:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,652.0,0.40%,F,T)



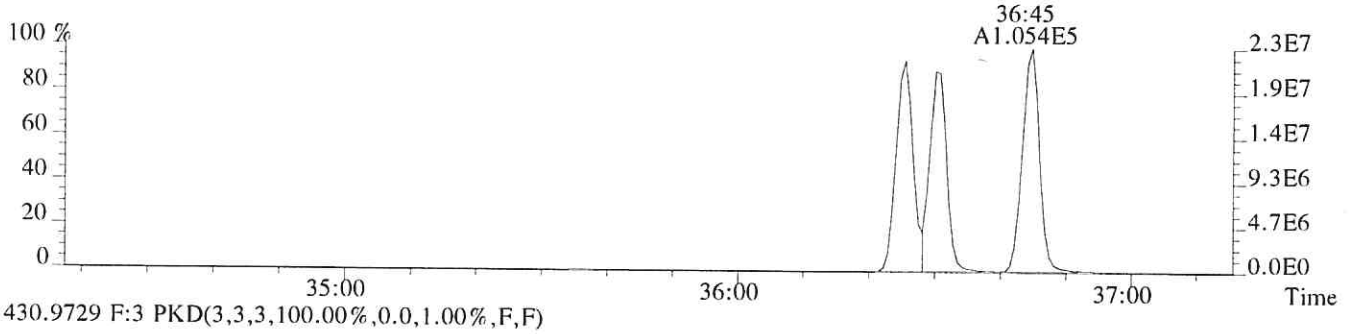
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,544.0,0.40%,F,T)



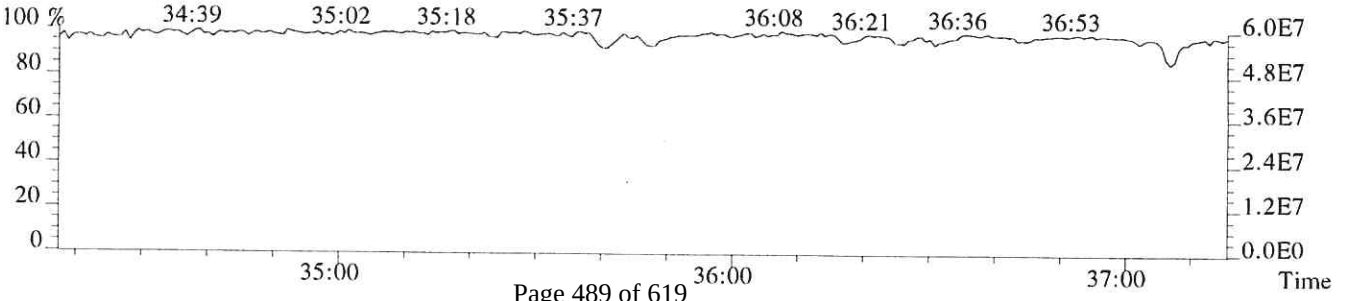
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1076.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1164.0,0.40%,F,T)

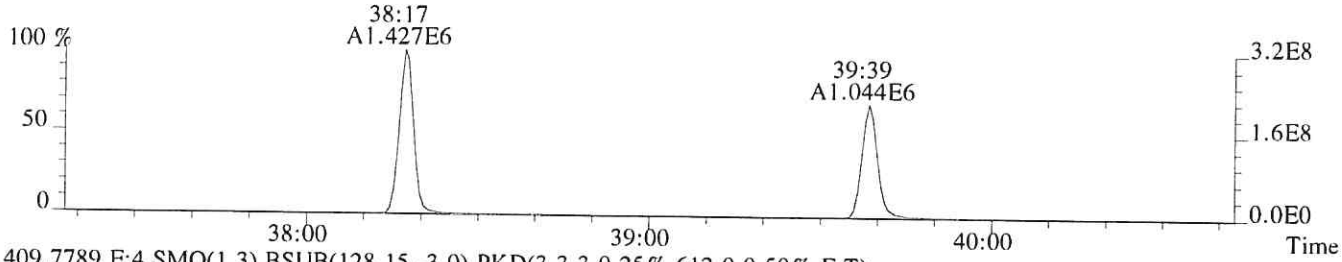


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

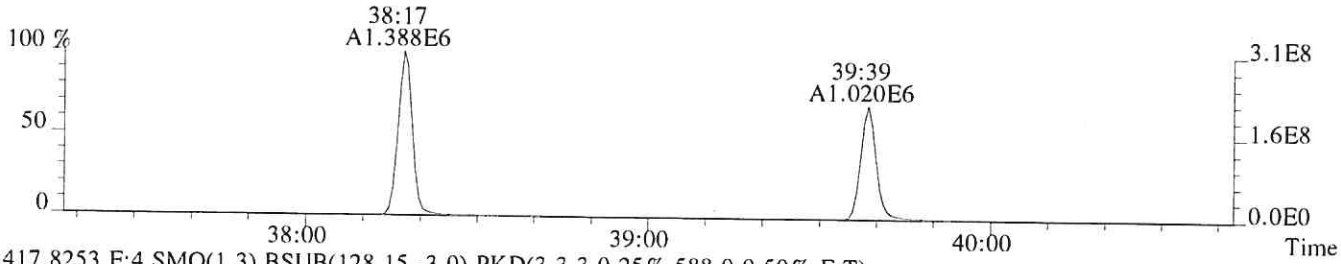


RIGHT SOLUTIONS | RIGHT PARTNER

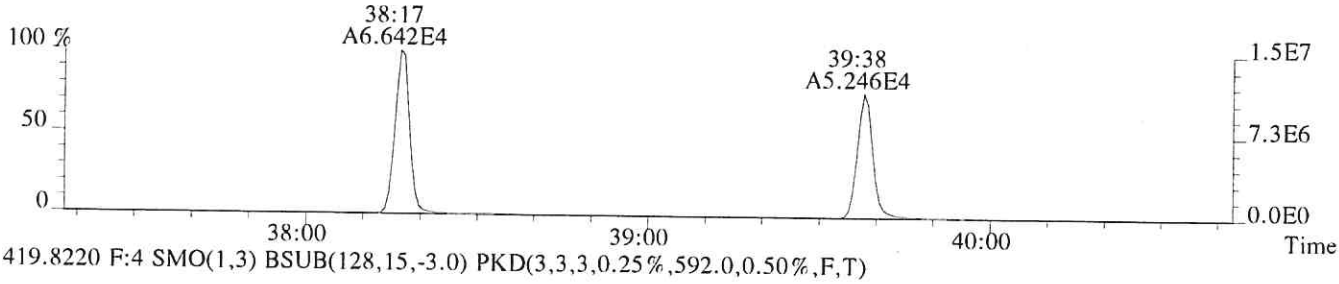
File:P521515 #1-308 Acq:26-APR-2019 03:51:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,804.0,0.50%,F,T)



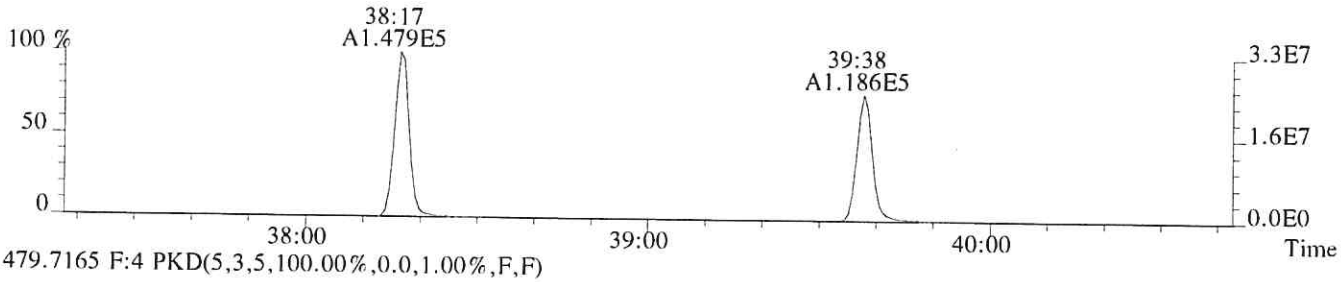
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,612.0,0.50%,F,T)



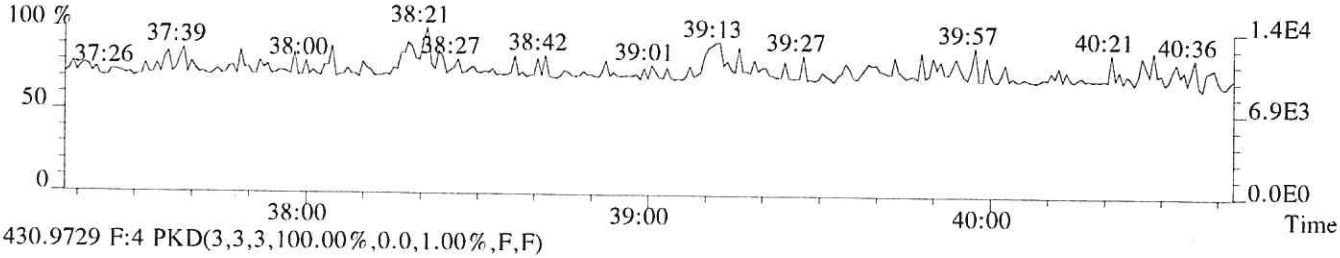
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,588.0,0.50%,F,T)



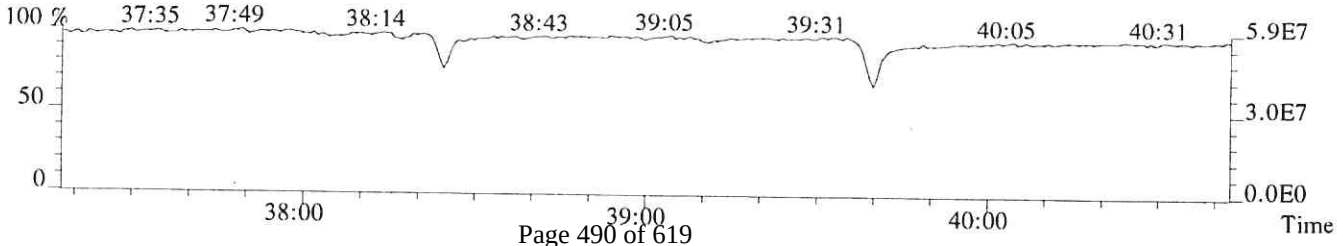
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,592.0,0.50%,F,T)



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

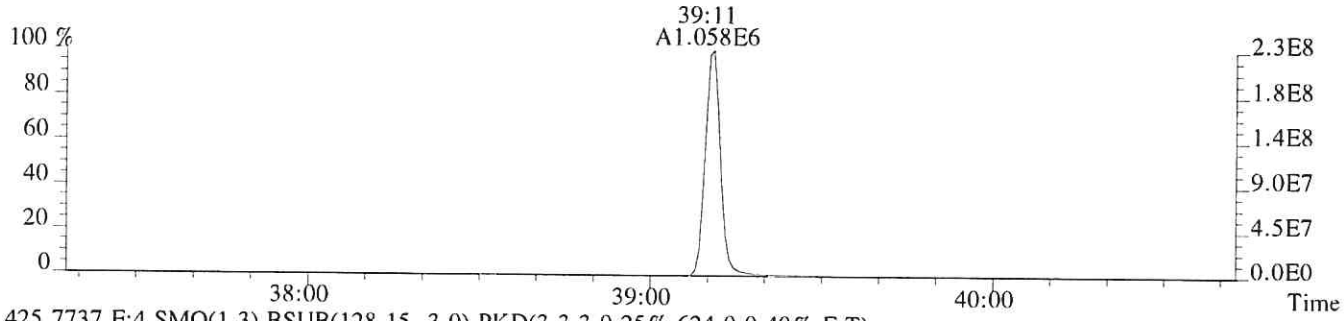


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

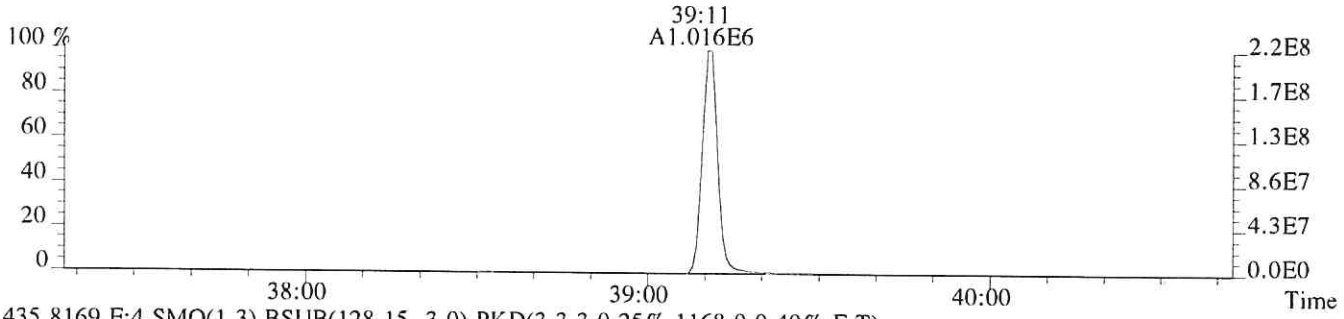


RIGHT SOLUTIONS | RIGHT PARTNER

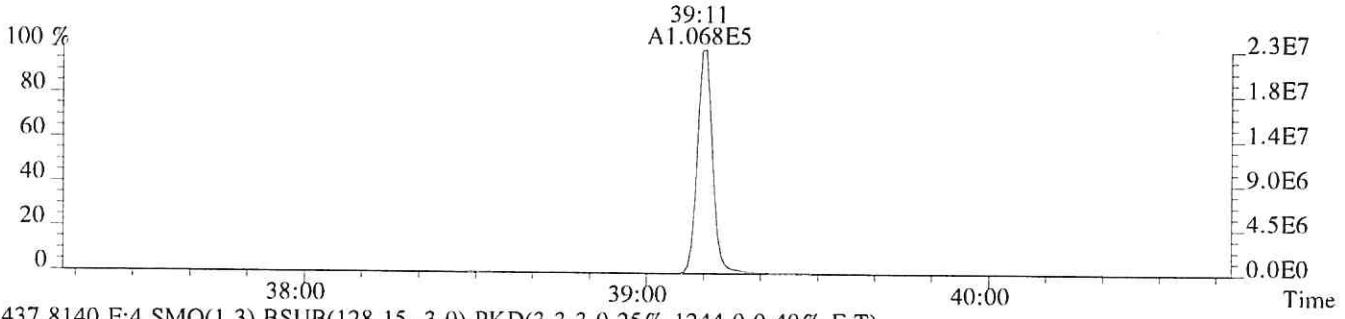
File:P521515 #1-308 Acq:26-APR-2019 03:51:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,628.0,0.40%,F,T)



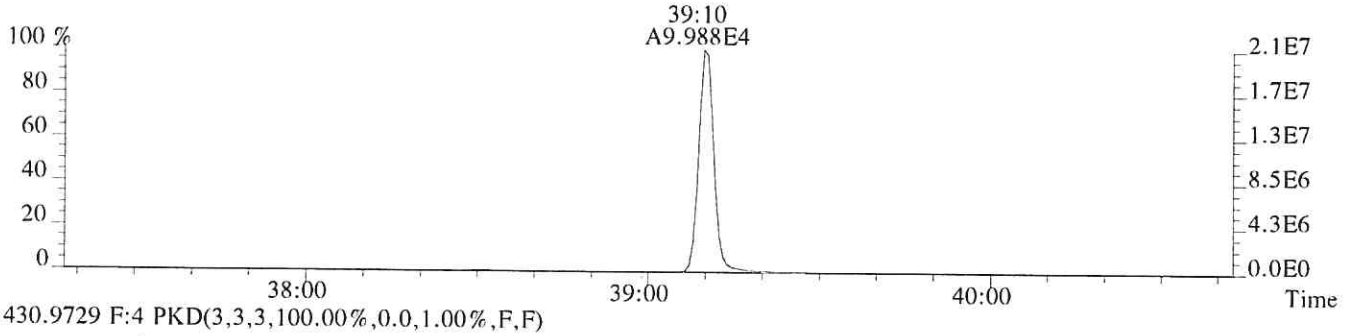
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,624.0,0.40%,F,T)



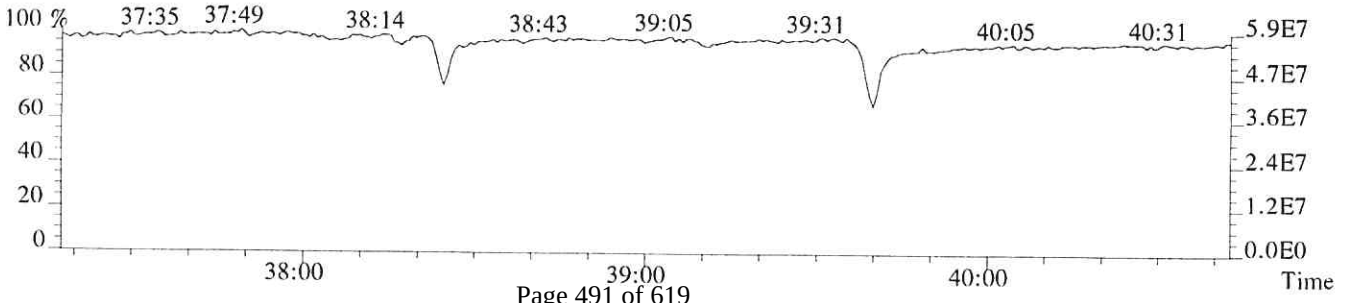
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1168.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1244.0,0.40%,F,T)

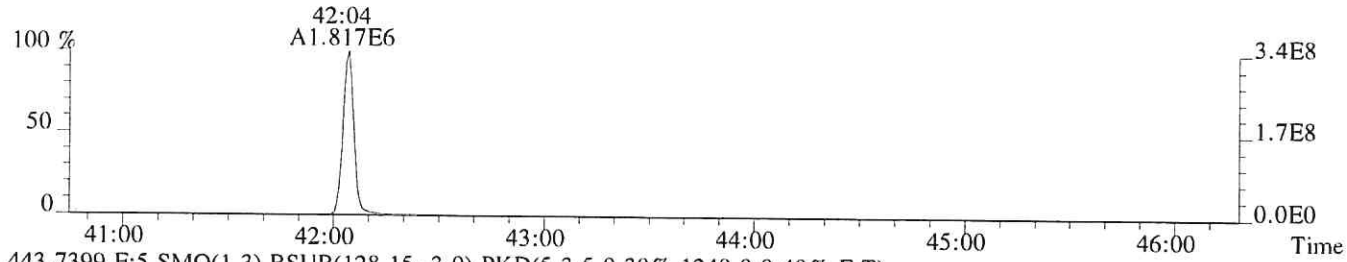


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

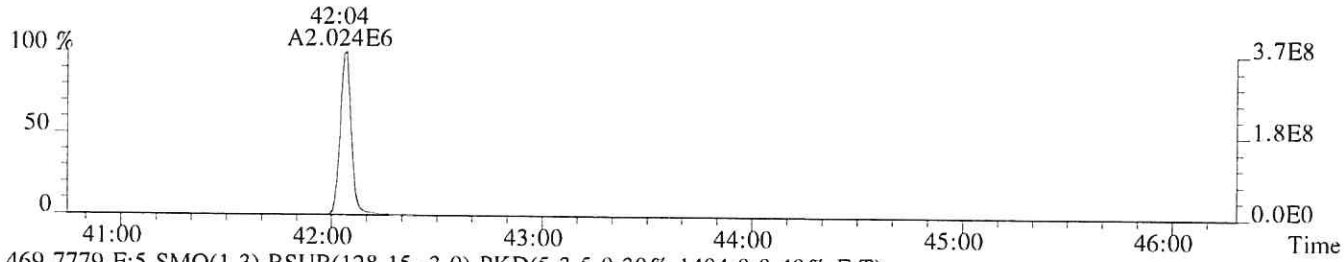


RIGHT SOLUTIONS | RIGHT PARTNER

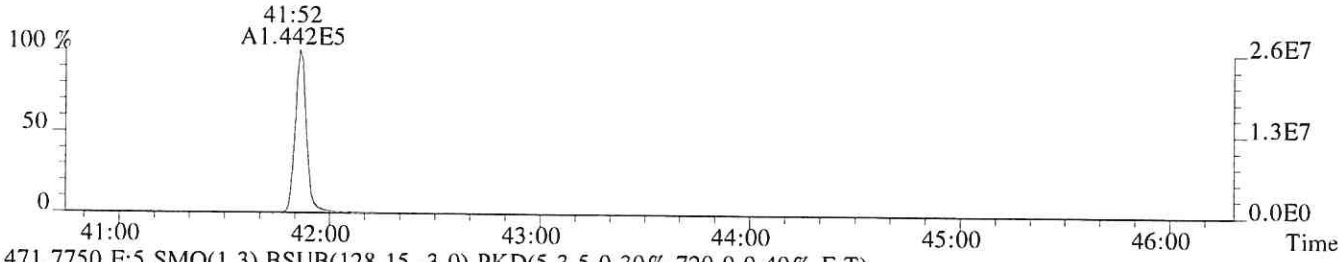
File:P521515 #1-501 Acq:26-APR-2019 03:51:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,736.0,0.40%,F,T)



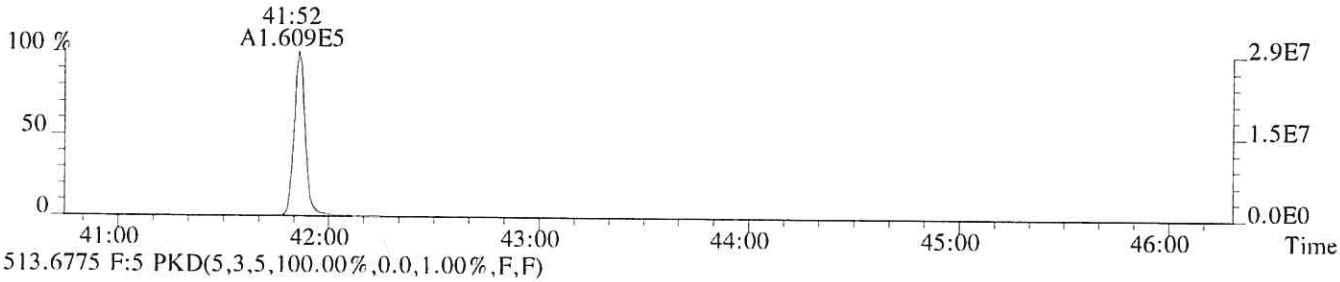
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1248.0,0.40%,F,T)



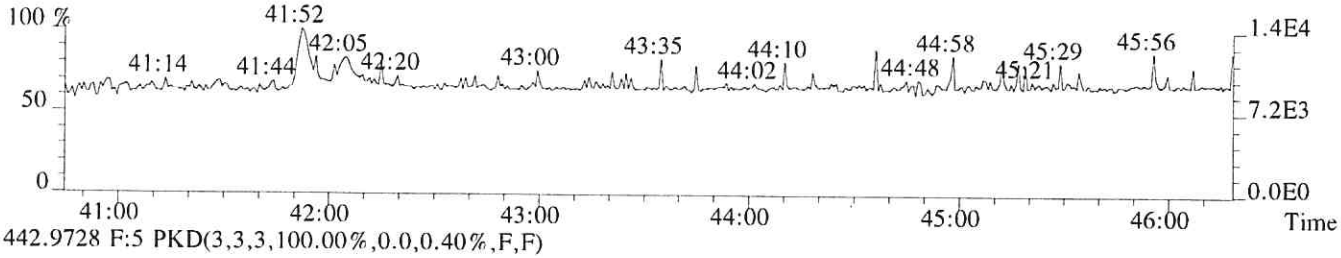
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1404.0,0.40%,F,T)



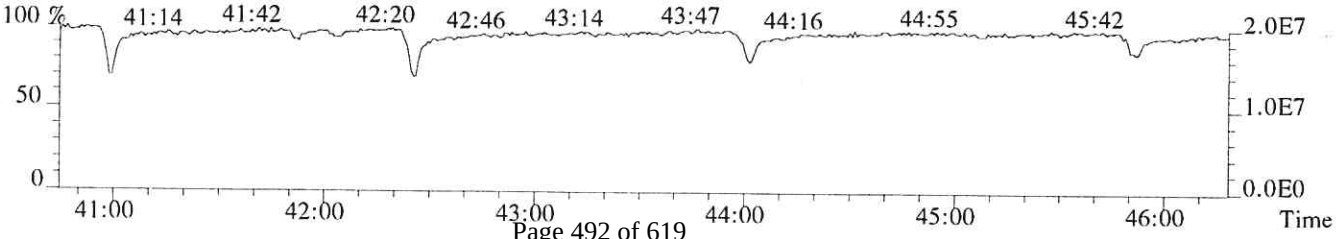
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,720.0,0.40%,F,T)



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

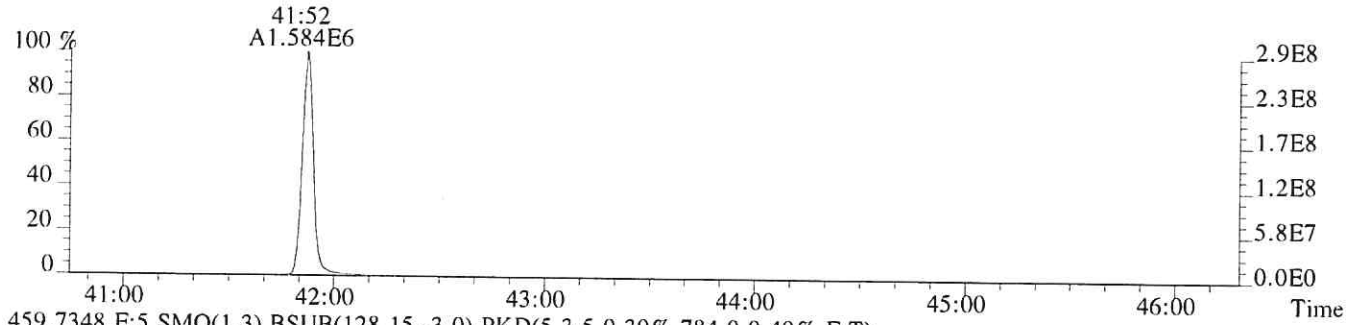


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

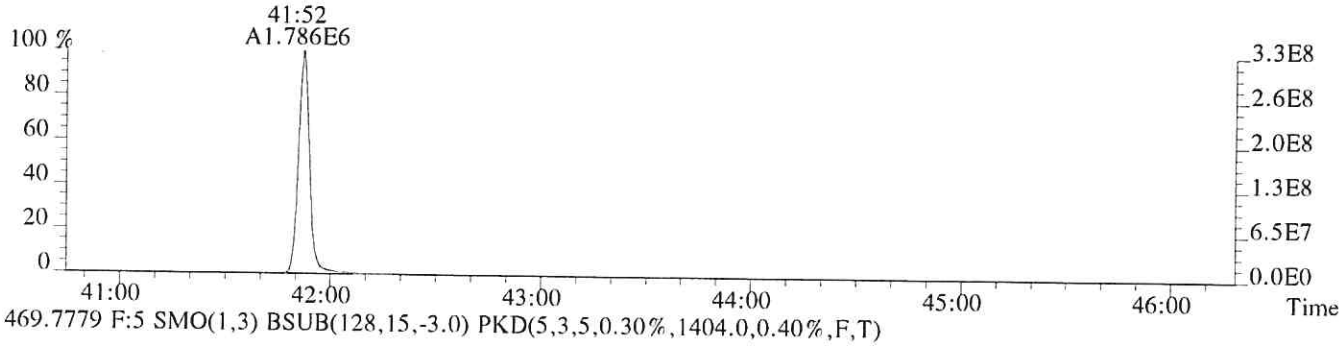


RIGHT SOLUTIONS | RIGHT PARTNER

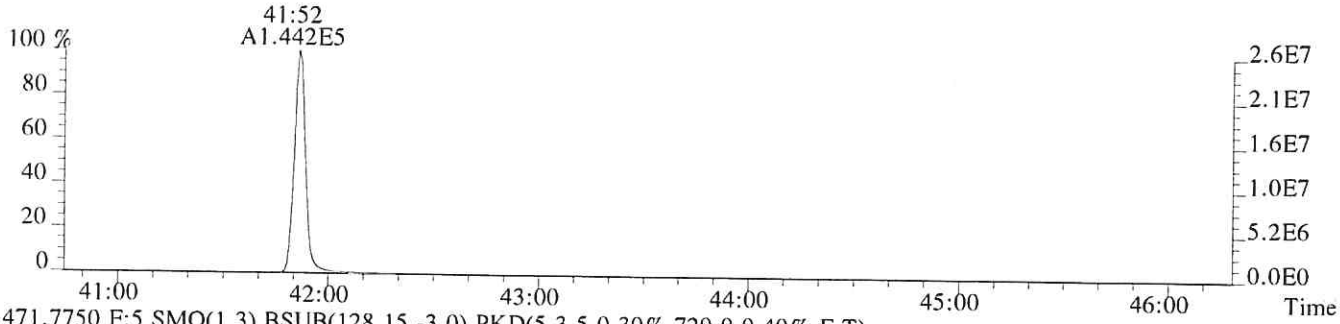
File:P521515 #1-501 Acq:26-APR-2019 03:51:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,516.0,0.40%,F,T)



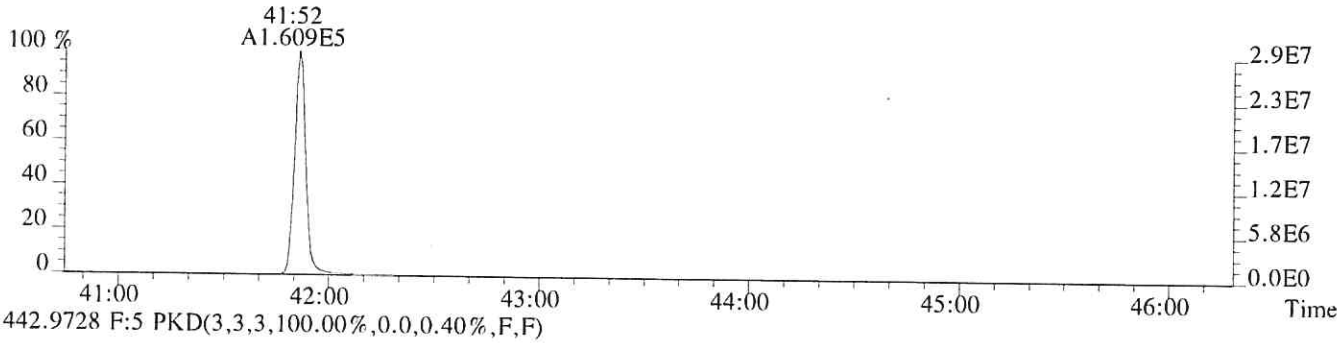
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,784.0,0.40%,F,T)



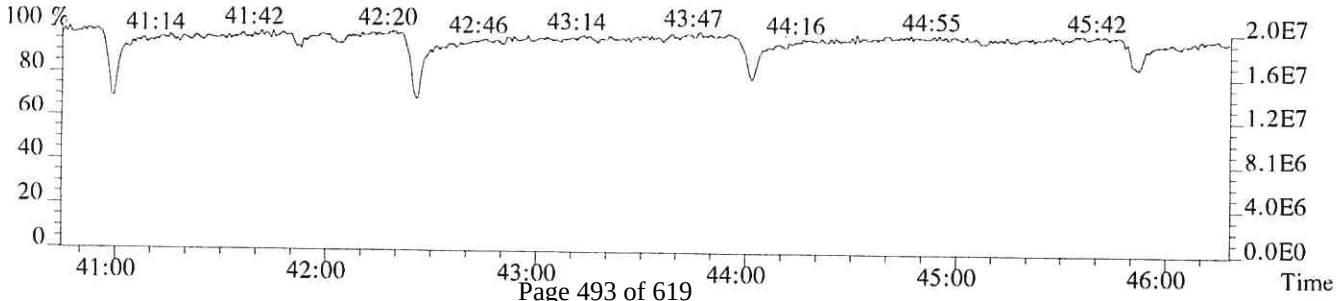
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1404.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,720.0,0.40%,F,T)



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



RIGHT SOLUTIONS | RIGHT PARTNER

USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 04/25/17

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

VER Data Filename: P521518 Analysis Date: 26-APR-19 Time: 06:25:55

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	9.6	7.8 - 12.9	-4.4
1,2,3,7,8-PeCDD	M+2/M+4	1.57	1.32-1.78	49	39 - 65	-1.5
1,2,3,4,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	51	39 - 64	1.8
1,2,3,6,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	50	39 - 64	-0.6
1,2,3,7,8,9-HxCDD	M+2/M+4	1.29	1.05-1.43	50	41 - 61	1.0
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	51	43 - 58	1.6
OCDD	M+2/M+4	0.89	0.76-1.02	102	79 - 126	1.8
2,3,7,8-TCDF	M/M+2	0.75	0.65-0.89	9.4	8.4 - 12.0	-5.6
1,2,3,7,8-PeCDF	M+2/M+4	1.53	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	0.6
1,2,3,4,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	51	45 - 56	2.1
1,2,3,6,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	51	44 - 57	1.3
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	1.21	1.05-1.43	51	44 - 57	2.2
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.01	0.88-1.20	51	45 - 55	2.4
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.00	0.88-1.20	51	43 - 58	1.4
OCDF	M+2/M+4	0.87	0.76-1.02	103	63 - 159	3.2

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

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

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

(4) 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

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USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 04/25/17

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

VER Data Filename: P521518 Analysis Date: 26-APR-19 Time: 06:25:55

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	98	82 - 121	-2.4
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	98	62 - 160	-2.0
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	97	85 - 117	-3.1
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	105	85 - 118	5.3
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	100	72 - 138	0.3
13C-OCDD	M+2/M+4	0.90	0.76-1.02	203	96 - 415	1.6
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	99	71 - 140	-0.9
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	99	76 - 130	-1.0
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	98	77 - 130	-2.1
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.51	0.43-0.59	100	76 - 131	0.0
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	101	70 - 143	1.3
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	99	74 - 135	-0.6
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	100	73 - 137	-0.1
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	100	78 - 129	0.0
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	102	77 - 129	2.2
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.5	7.8 - 12.7	-5.2

(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

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ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
188969

Run #9 Filename P521518 Samp: 1 Inj: 1 Acquired: 26-APR-19 06:25:55
Processed: 26-APR-19 08:47:44 Sample ID: 2ND SOURCE

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:50	5.936e+03	7.886e+03	0.75	yes	no	0.962
2	Unk	1,2,3,7,8-PeCDF	32:06	4.933e+04	3.223e+04	1.53	yes	no	0.968
3	Unk	2,3,4,7,8-PeCDF	33:00	4.496e+04	2.932e+04	1.53	yes	no	0.919
4	Unk	1,2,3,4,7,8-HxCDF	35:42	4.073e+04	3.344e+04	1.22	yes	no	1.161
5	Unk	1,2,3,6,7,8-HxCDF	35:48	4.222e+04	3.485e+04	1.21	yes	no	1.073
6	Unk	2,3,4,6,7,8-HxCDF	36:18	3.843e+04	3.186e+04	1.21	yes	no	1.069
7	Unk	1,2,3,7,8,9-HxCDF	37:03	3.380e+04	2.780e+04	1.22	yes	no	1.096
8	Unk	1,2,3,4,6,7,8-HpCDF	38:17	3.396e+04	3.348e+04	1.01	yes	no	1.281
9	Unk	1,2,3,4,7,8,9-HpCDF	39:39	2.594e+04	2.584e+04	1.00	yes	no	1.192
10	Unk	OCDF	42:04	4.383e+04	5.010e+04	0.87	yes	no	1.204
11	Unk	2,3,7,8-TCDD	28:38	4.910e+03	6.228e+03	0.79	yes	no	1.077
12	Unk	1,2,3,7,8-PeCDD	33:18	3.480e+04	2.212e+04	1.57	yes	no	0.971
13	Unk	1,2,3,4,7,8-HxCDD	36:26	2.977e+04	2.384e+04	1.25	yes	no	1.024
14	Unk	1,2,3,6,7,8-HxCDD	36:31	3.124e+04	2.513e+04	1.24	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:45	3.182e+04	2.472e+04	1.29	yes	no	1.055
16	Unk	1,2,3,4,6,7,8-HpCDD	39:11	2.552e+04	2.409e+04	1.06	yes	no	0.989
17	Unk	OCDD	41:52	3.960e+04	4.460e+04	0.89	yes	no	1.094
18	IS	13C-2,3,7,8-TCDF	27:49	6.700e+04	8.523e+04	0.79	yes	no	1.287
19	IS	13C-1,2,3,7,8-PeCDF	32:05	1.023e+05	6.506e+04	1.57	yes	no	1.416
20	IS	13C-2,3,4,7,8-PeCDF	33:00	9.797e+04	6.263e+04	1.56	yes	no	1.374
21	IS	13C-1,2,3,4,7,8-HxCDF	35:41	4.224e+04	8.291e+04	0.51	yes	no	1.114
22	IS	13C-1,2,3,6,7,8-HxCDF	35:47	4.824e+04	9.346e+04	0.52	yes	no	1.245
23	IS	13C-2,3,4,6,7,8-HxCDF	36:18	4.407e+04	8.455e+04	0.52	yes	no	1.146
24	IS	13C-1,2,3,7,8,9-HxCDF	37:02	3.799e+04	7.222e+04	0.53	yes	no	0.986
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:17	3.172e+04	7.112e+04	0.45	yes	no	0.915
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:38	2.640e+04	5.925e+04	0.45	yes	no	0.746
27	IS	13C-2,3,7,8-TCDD	28:37	4.695e+04	6.121e+04	0.77	yes	no	0.929
28	IS	13C-1,2,3,7,8-PeCDD	33:17	7.297e+04	4.602e+04	1.59	yes	no	1.017
29	IS	13C-1,2,3,4,7,8-HxCDD	36:26	5.762e+04	4.528e+04	1.27	yes	no	0.945
30	IS	13C-1,2,3,6,7,8-HxCDD	36:30	6.102e+04	4.829e+04	1.26	yes	no	0.924
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:10	5.082e+04	4.795e+04	1.06	yes	no	0.876
32	IS	13C-OCDD	41:51	7.180e+04	7.938e+04	0.90	yes	no	0.662
33	RS/RT	13C-1,2,3,4-TCDD	28:02	5.303e+04	6.633e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:44	6.345e+04	4.893e+04	1.30	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:38	1.143e+04				no	1.010

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Signal/Noise Height Ratio Summary

CLIENT ID.
188969

Run #9 Filename P521518 Samp: 1 Inj: 1 Acquired: 26-APR-19 06:25:55
Processed: 26-APR-19 08:47:44 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	1.08e+06	5.84e+02	1.9e+03	1.46e+06	1.12e+03	1.3e+03
2	1,2,3,7,8-PeCDF	9.36e+06	1.06e+03	8.8e+03	6.16e+06	2.21e+03	2.8e+03
3	2,3,4,7,8-PeCDF	8.94e+06	1.06e+03	8.4e+03	5.84e+06	2.21e+03	2.6e+03
4	1,2,3,4,7,8-HxCDF	8.74e+06	7.40e+02	1.2e+04	7.06e+06	1.12e+03	6.3e+03
5	1,2,3,6,7,8-HxCDF	8.69e+06	7.40e+02	1.2e+04	7.30e+06	1.12e+03	6.5e+03
6	2,3,4,6,7,8-HxCDF	8.08e+06	7.40e+02	1.1e+04	6.76e+06	1.12e+03	6.1e+03
7	1,2,3,7,8,9-HxCDF	7.16e+06	7.40e+02	9.7e+03	5.84e+06	1.12e+03	5.2e+03
8	1,2,3,4,6,7,8-HpCDF	7.67e+06	8.96e+02	8.6e+03	7.56e+06	5.68e+02	1.3e+04
9	1,2,3,4,7,8,9-HpCDF	5.26e+06	8.96e+02	5.9e+03	5.20e+06	5.68e+02	9.1e+03
10	OCDF	7.66e+06	6.64e+02	1.2e+04	8.71e+06	8.48e+02	1.0e+04
11	2,3,7,8-TCDD	9.25e+05	2.31e+03	4.0e+02	1.21e+06	1.17e+03	1.0e+03
12	1,2,3,7,8-PeCDD	6.89e+06	1.21e+03	5.7e+03	4.43e+06	6.04e+02	7.3e+03
13	1,2,3,4,7,8-HxCDD	6.67e+06	8.08e+02	8.3e+03	5.30e+06	8.68e+02	6.1e+03
14	1,2,3,6,7,8-HxCDD	6.56e+06	8.08e+02	8.1e+03	5.28e+06	8.68e+02	6.1e+03
15	1,2,3,7,8,9-HxCDD	6.43e+06	8.08e+02	8.0e+03	5.19e+06	8.68e+02	6.0e+03
16	1,2,3,4,6,7,8-HpCDD	5.35e+06	4.20e+02	1.3e+04	5.14e+06	4.24e+02	1.2e+04
17	OCDD	7.05e+06	5.92e+02	1.2e+04	7.95e+06	8.52e+02	9.3e+03
18	13C-2,3,7,8-TCDF	1.17e+07	6.62e+03	1.8e+03	1.49e+07	2.69e+03	5.5e+03
19	13C-1,2,3,7,8-PeCDF	1.94e+07	3.88e+02	5.0e+04	1.23e+07	1.00e+03	1.2e+04
20	13C-2,3,4,7,8-PeCDF	1.94e+07	3.88e+02	5.0e+04	1.24e+07	1.00e+03	1.2e+04
21	13C-1,2,3,4,7,8-HxCDF	8.87e+06	7.44e+02	1.2e+04	1.72e+07	1.24e+03	1.4e+04
22	13C-1,2,3,6,7,8-HxCDF	1.00e+07	7.44e+02	1.3e+04	1.96e+07	1.24e+03	1.6e+04
23	13C-2,3,4,6,7,8-HxCDF	9.23e+06	7.44e+02	1.2e+04	1.79e+07	1.24e+03	1.4e+04
24	13C-1,2,3,7,8,9-HxCDF	7.98e+06	7.44e+02	1.1e+04	1.52e+07	1.24e+03	1.2e+04
25	13C-1,2,3,4,6,7,8-HpCDF	7.11e+06	8.76e+02	8.1e+03	1.59e+07	6.24e+02	2.6e+04
26	13C-1,2,3,4,7,8,9-HpCDF	5.34e+06	8.76e+02	6.1e+03	1.20e+07	6.24e+02	1.9e+04
27	13C-2,3,7,8-TCDD	9.10e+06	5.09e+03	1.8e+03	1.18e+07	2.33e+03	5.1e+03
28	13C-1,2,3,7,8-PeCDD	1.41e+07	8.08e+02	1.7e+04	8.89e+06	1.12e+03	7.9e+03
29	13C-1,2,3,4,7,8-HxCDD	1.28e+07	1.74e+03	7.4e+03	9.98e+06	2.67e+03	3.7e+03
30	13C-1,2,3,6,7,8-HxCDD	1.27e+07	1.74e+03	7.3e+03	1.01e+07	2.67e+03	3.8e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.07e+07	5.48e+02	1.9e+04	1.02e+07	8.36e+02	1.2e+04
32	13C-OCDD	1.28e+07	2.16e+02	5.9e+04	1.42e+07	6.16e+02	2.3e+04
33	13C-1,2,3,4-TCDD	9.92e+06	5.09e+03	1.9e+03	1.23e+07	2.33e+03	5.3e+03
34	13C-1,2,3,7,8,9-HxCDD	1.28e+07	1.74e+03	7.4e+03	1.03e+07	2.67e+03	3.9e+03
35	37Cl-2,3,7,8-TCDD	2.23e+06	1.80e+03	1.2e+03			

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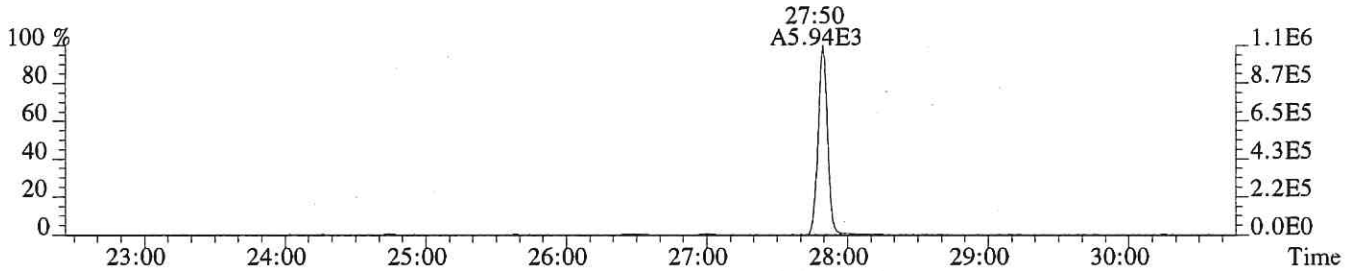
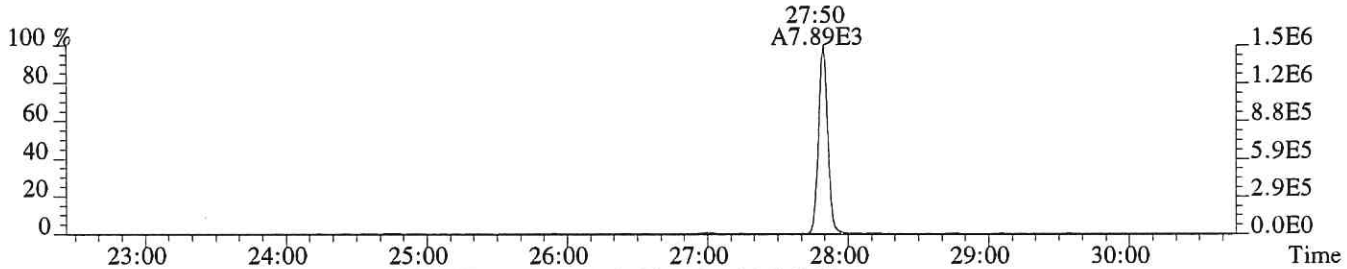
File:P521518 #1-591 Acq:26-APR-2019 06:25:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:188969

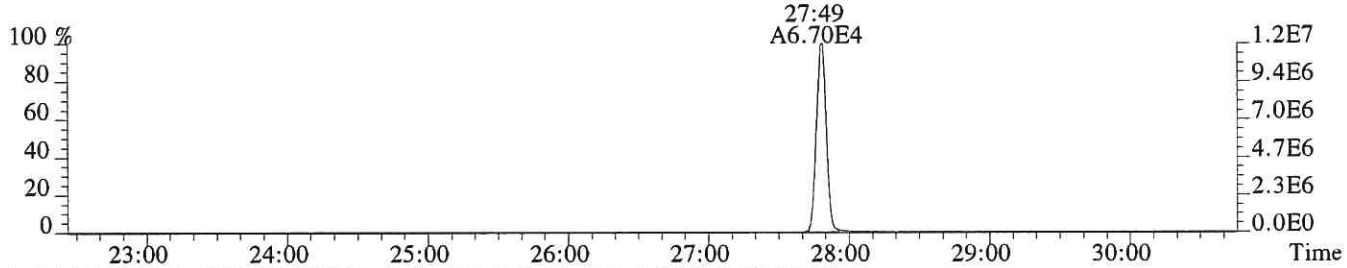
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,584.0,1.00%,F,T)



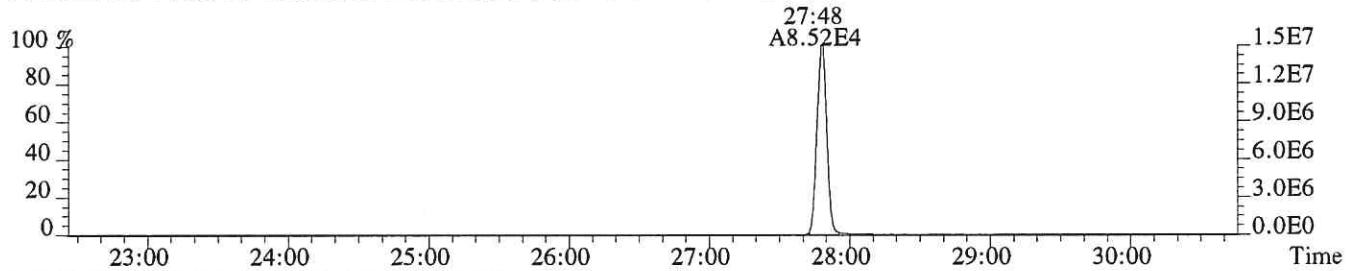
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1120.0,1.00%,F,T)



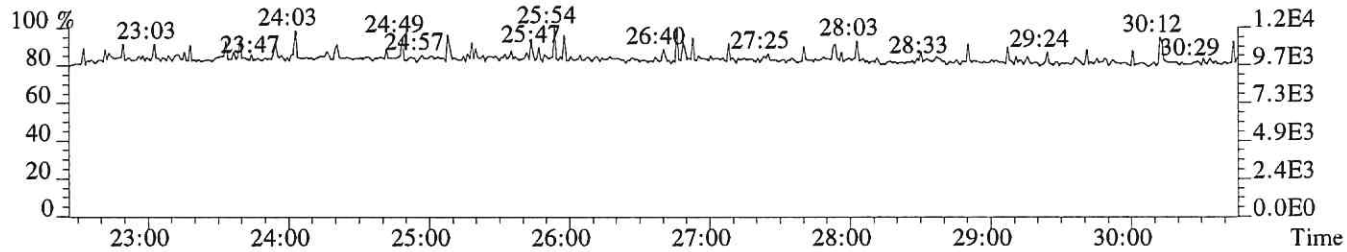
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6624.0,1.00%,F,T)



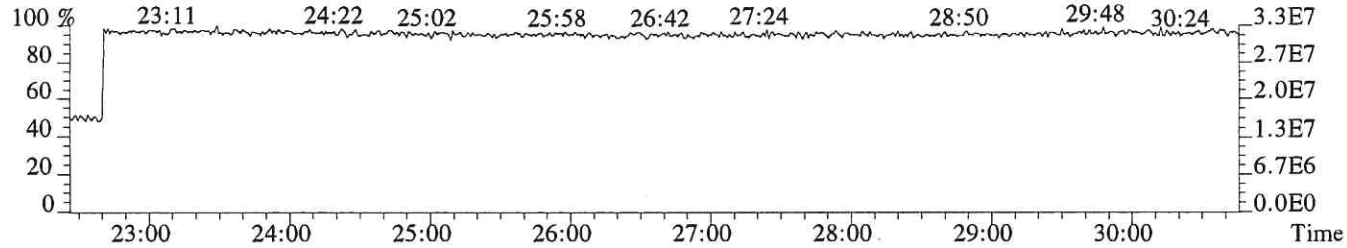
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2692.0,1.00%,F,T)



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



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



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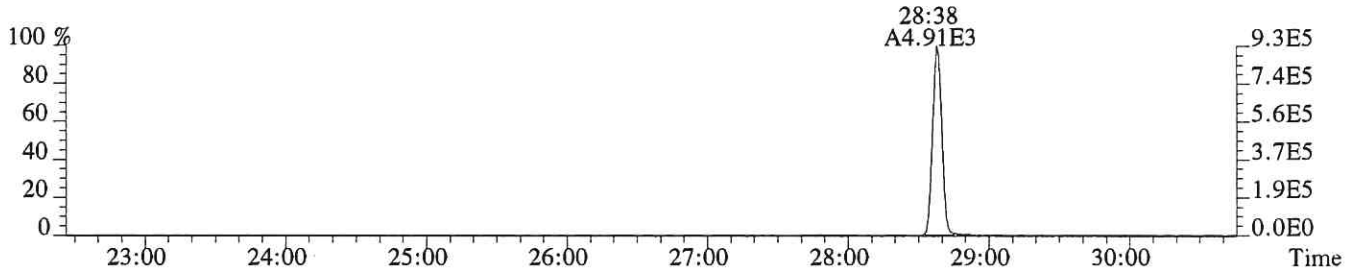
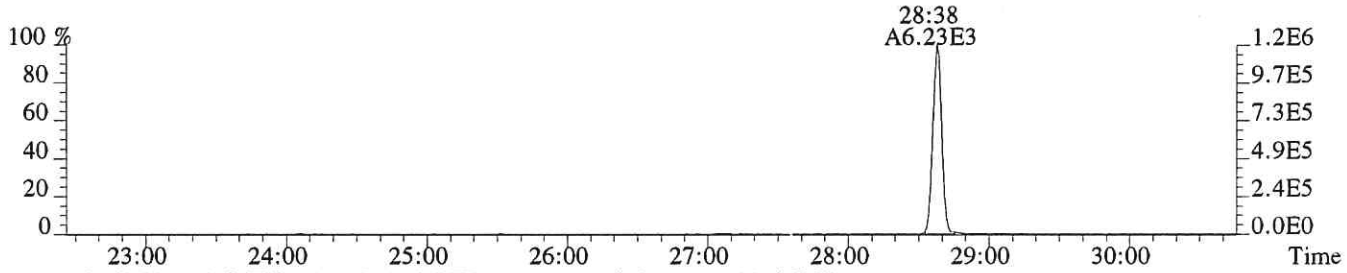
File:P521518 #1-591 Acq:26-APR-2019 06:25:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:188969

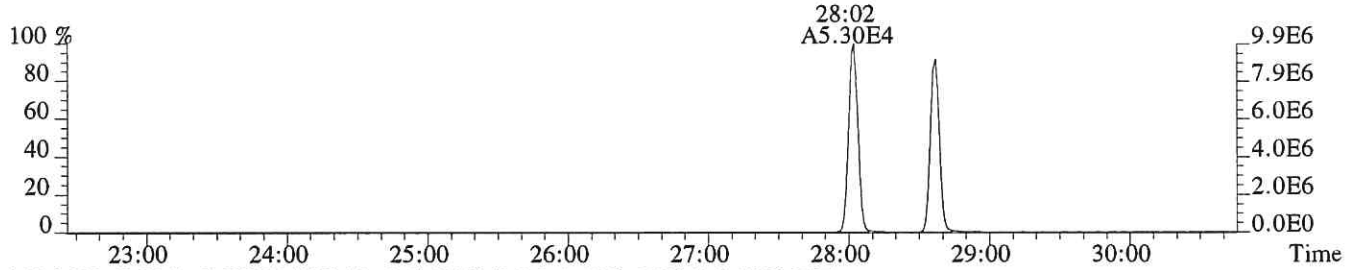
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2312.0,1.00%,F,T)



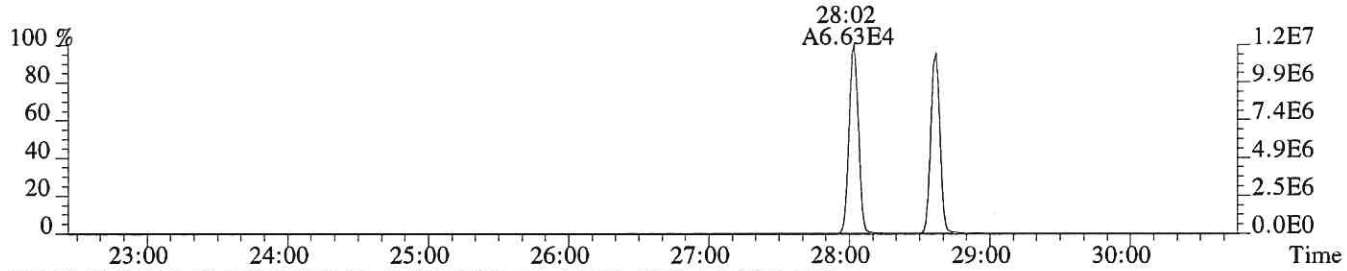
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1172.0,1.00%,F,T)



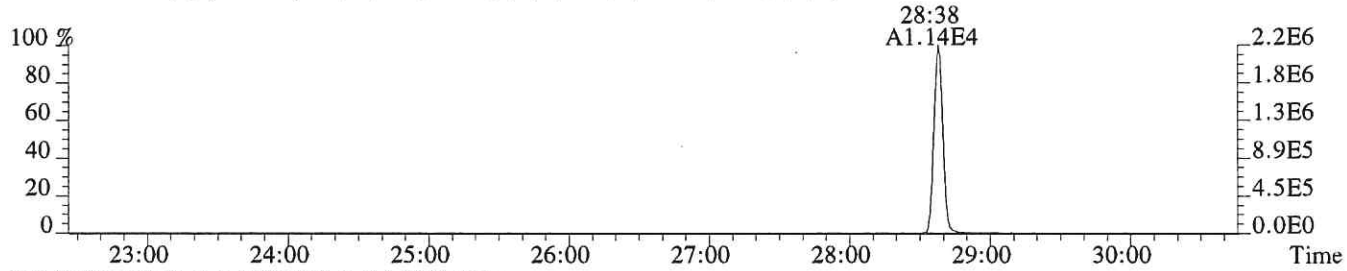
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5088.0,1.00%,F,T)



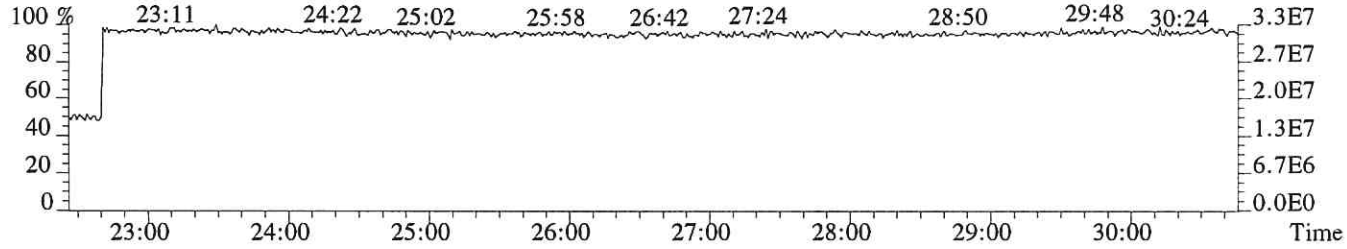
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2332.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1800.0,1.00%,F,T)



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



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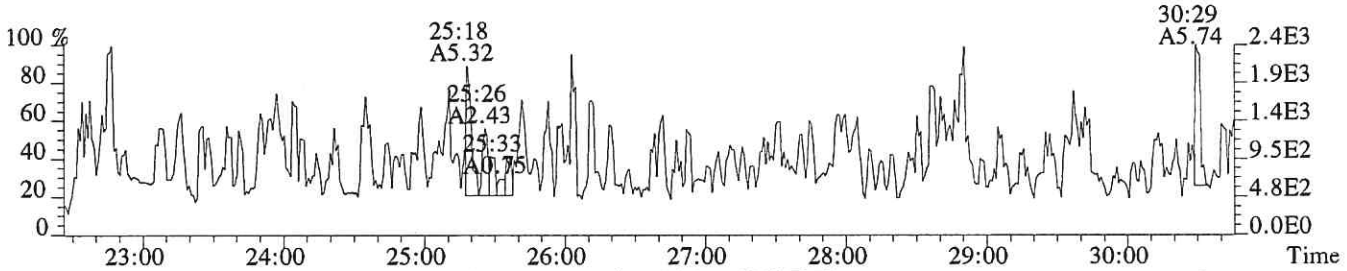
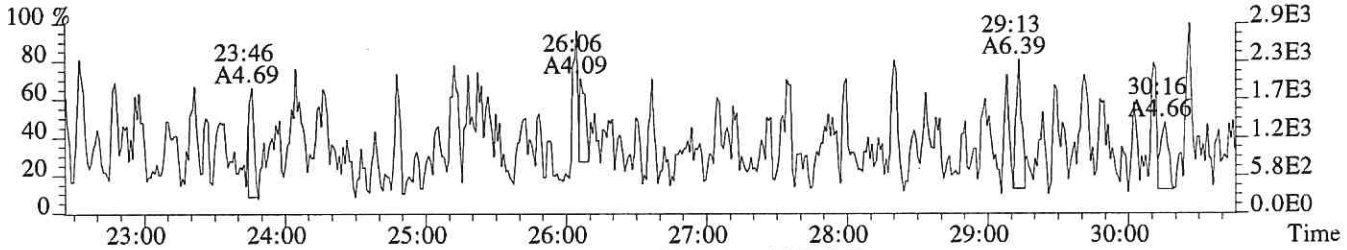
File:P521518 #1-591 Acq:26-APR-2019 06:25:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:188969

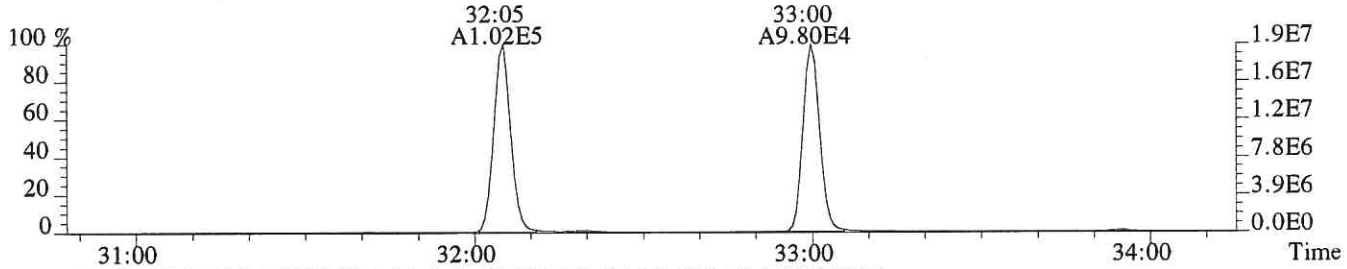
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1156.0,1.00%,F,T)



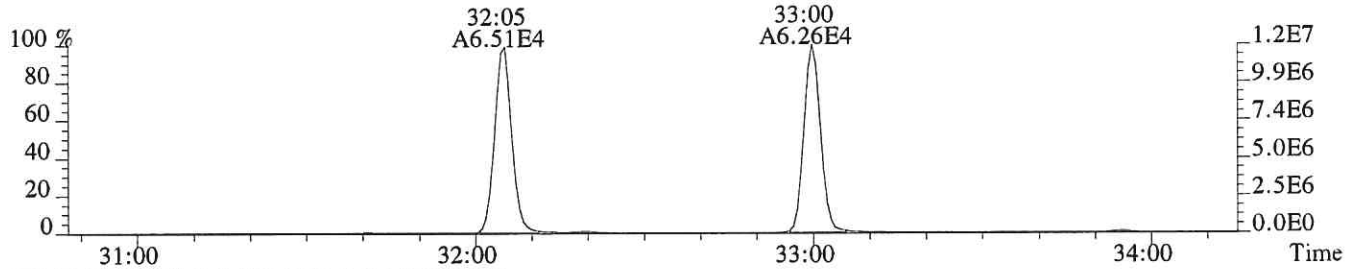
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1236.0,1.00%,F,T)



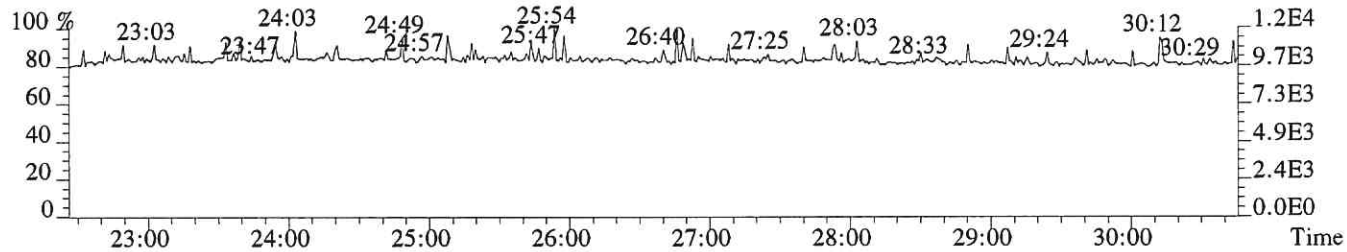
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,388.0,1.00%,F,T)



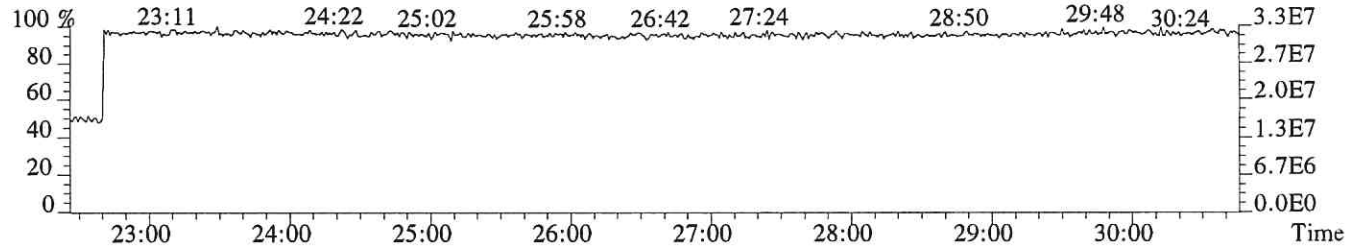
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)



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



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



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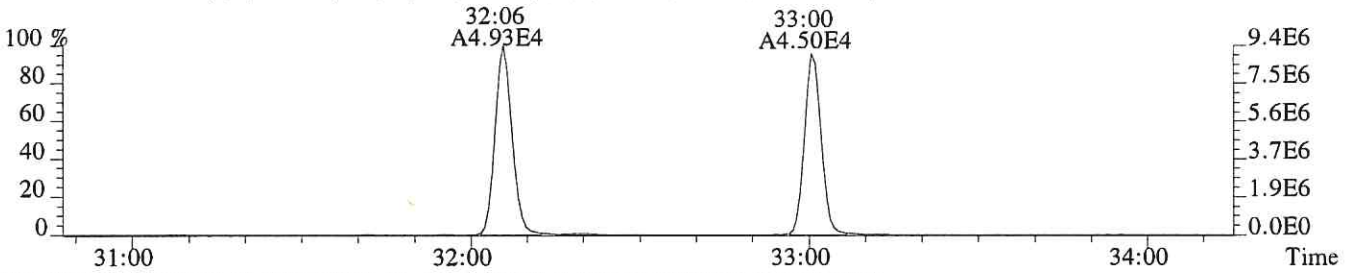
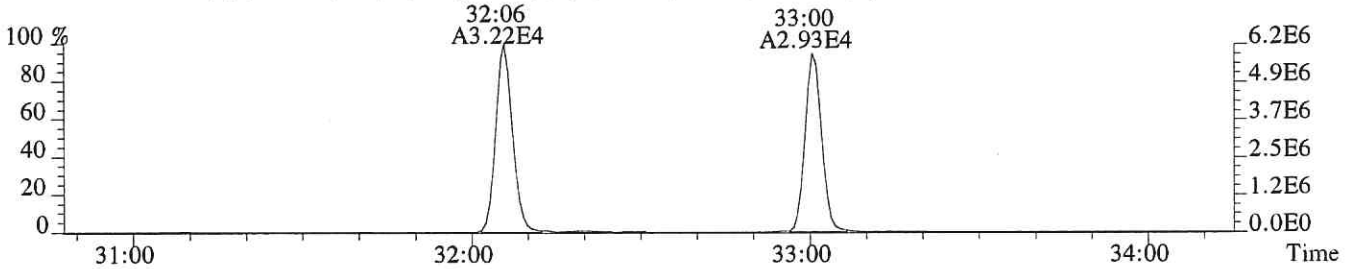
File:P521518 #1-312 Acq:26-APR-2019 06:25:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:188969

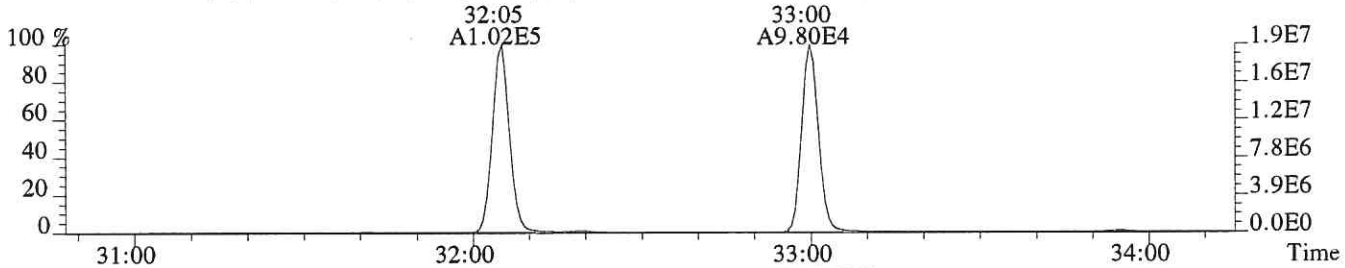
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1060.0,1.00%,F,T)



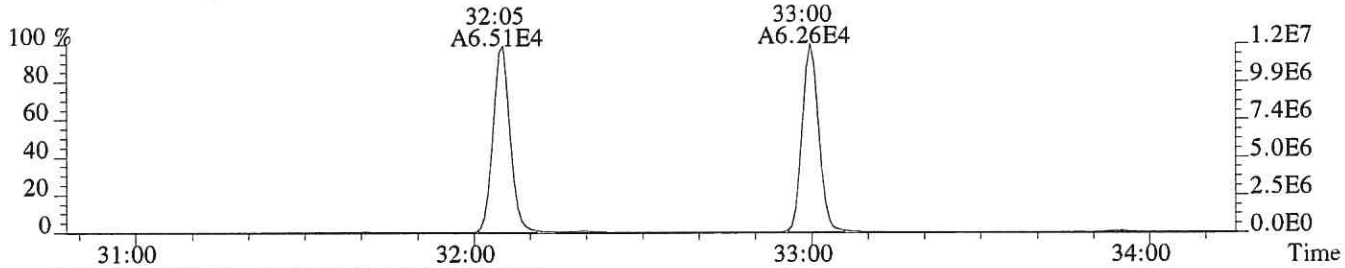
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2212.0,1.00%,F,T)



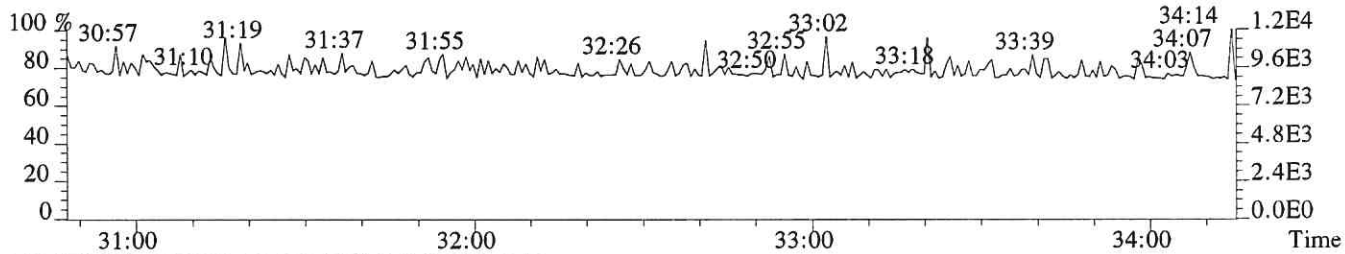
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,388.0,1.00%,F,T)



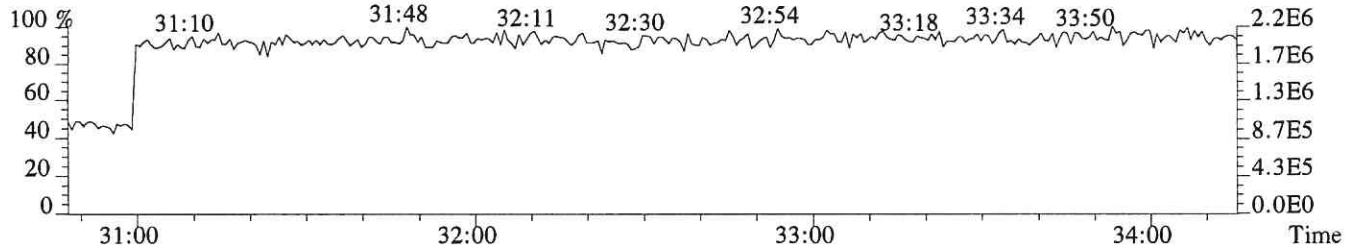
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)



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



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



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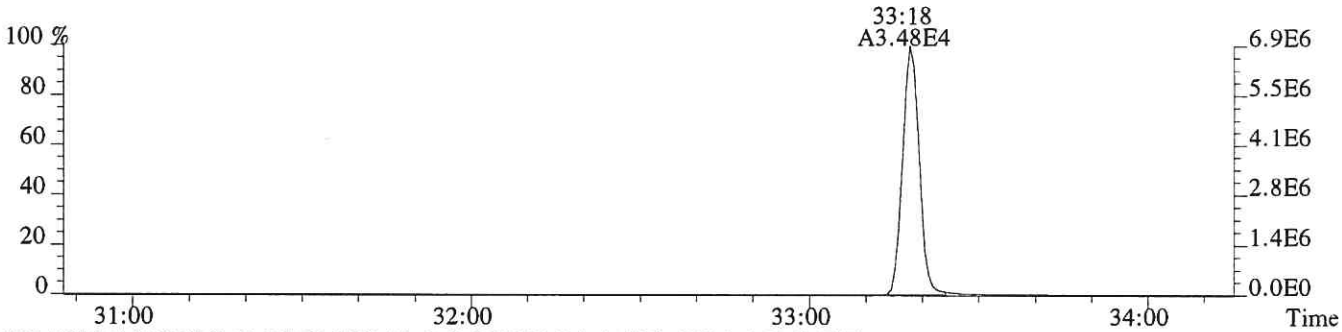
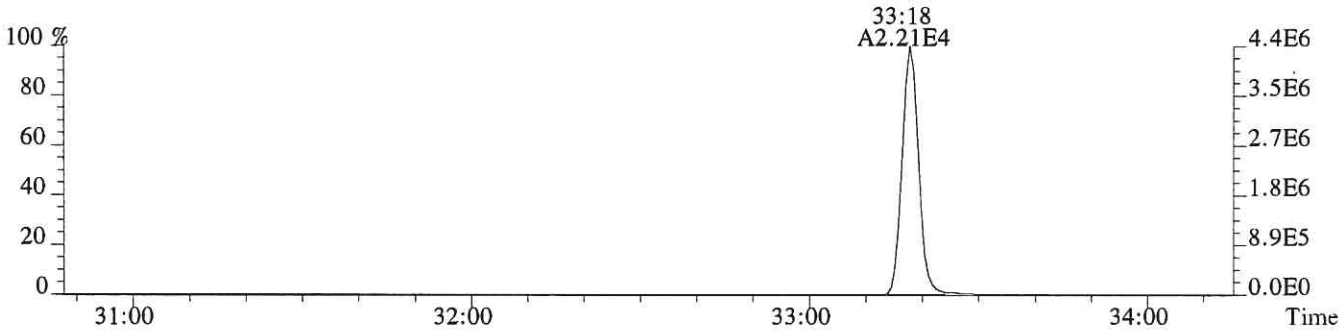
File:P521518 #1-312 Acq:26-APR-2019 06:25:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:188969

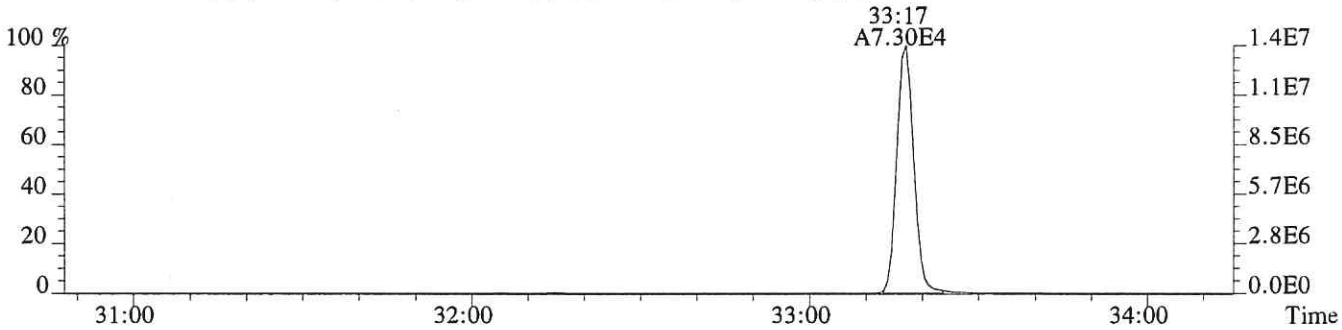
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1212.0,1.00%,F,T)



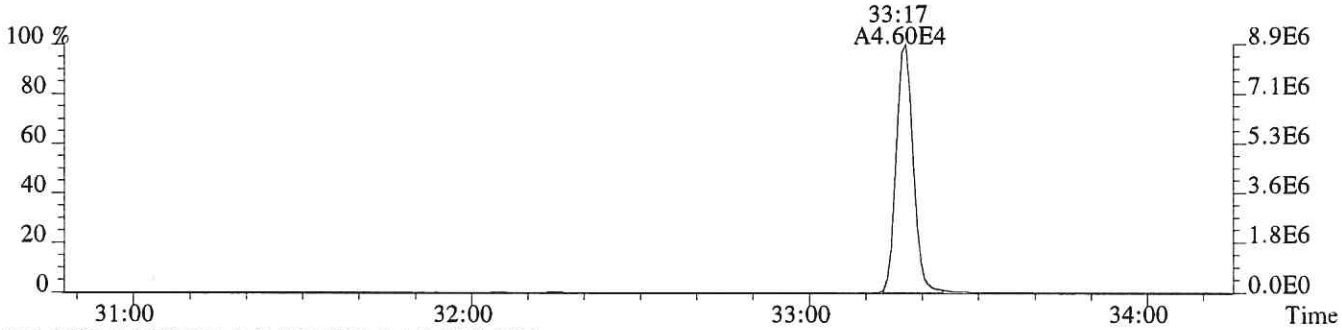
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



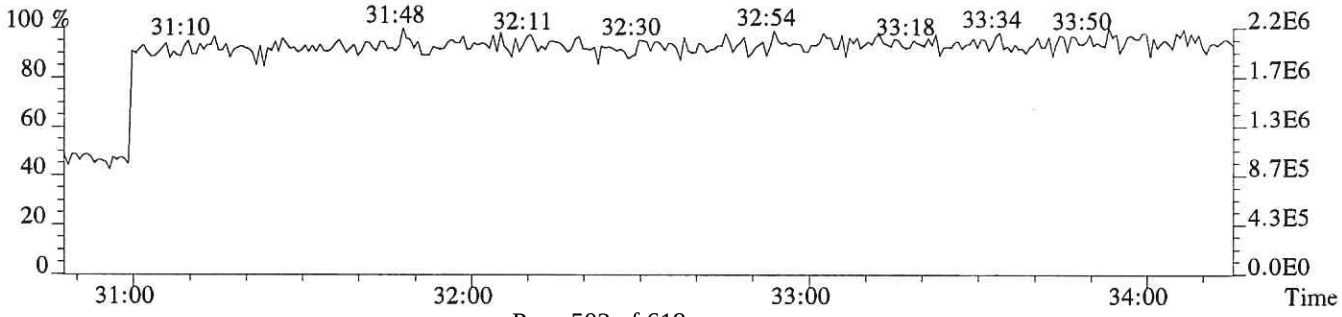
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,808.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1120.0,1.00%,F,T)



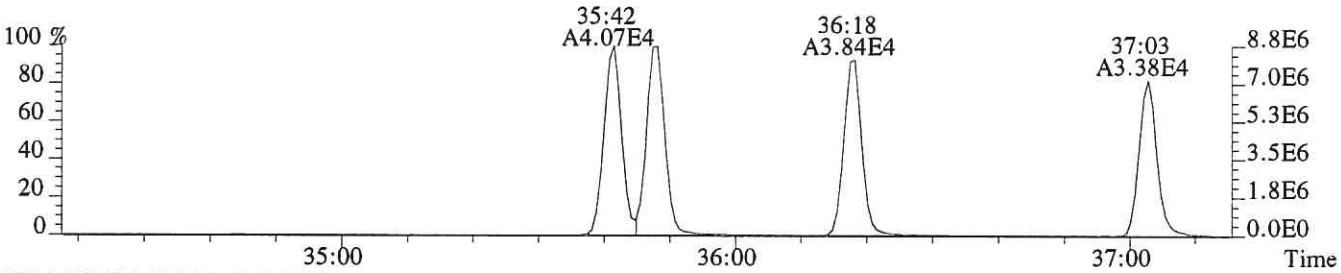
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



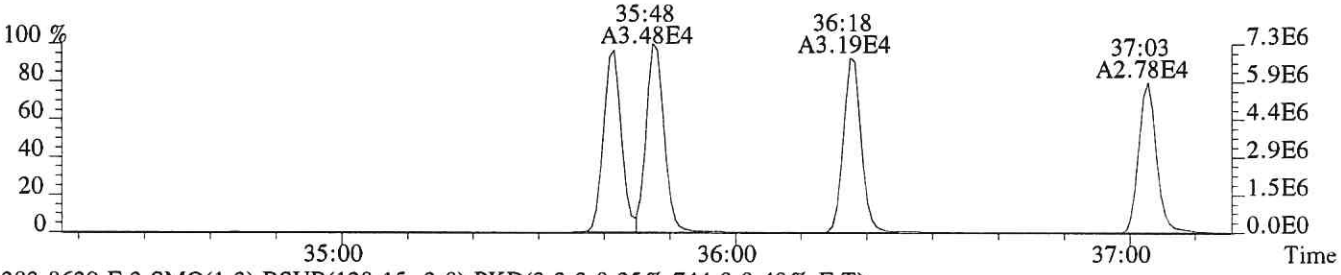
RIGHT SOLUTIONS | RIGHT PARTNER

File:P521518 #1-268 Acq:26-APR-2019 06:25:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:188969

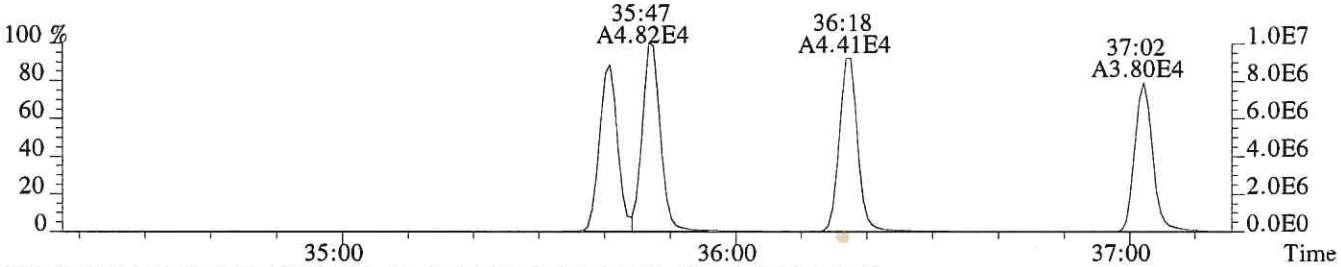
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,740.0,0.40%,F,T)



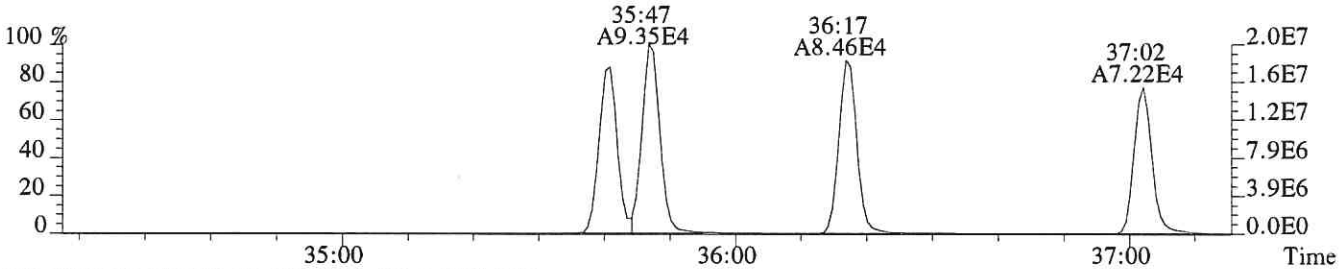
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1116.0,0.40%,F,T)



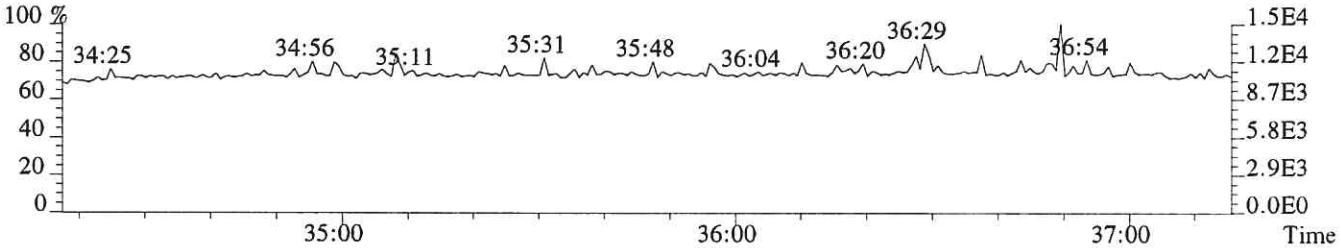
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,744.0,0.40%,F,T)



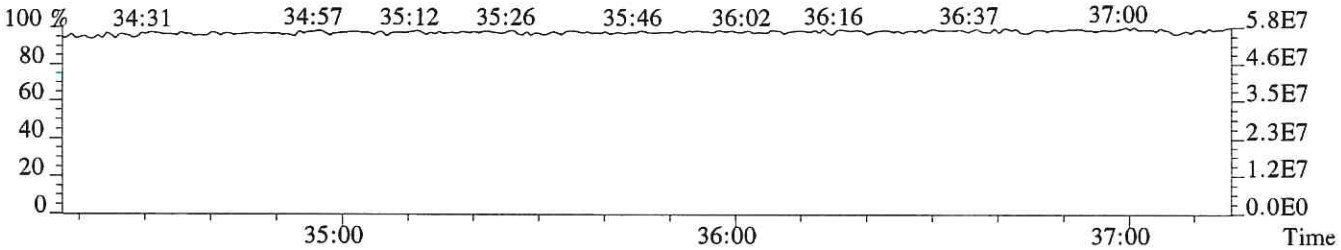
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1244.0,0.40%,F,T)



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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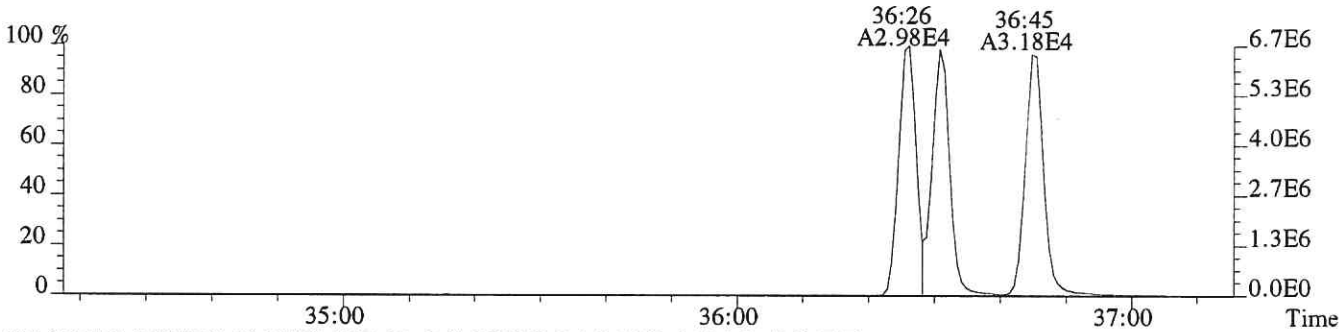
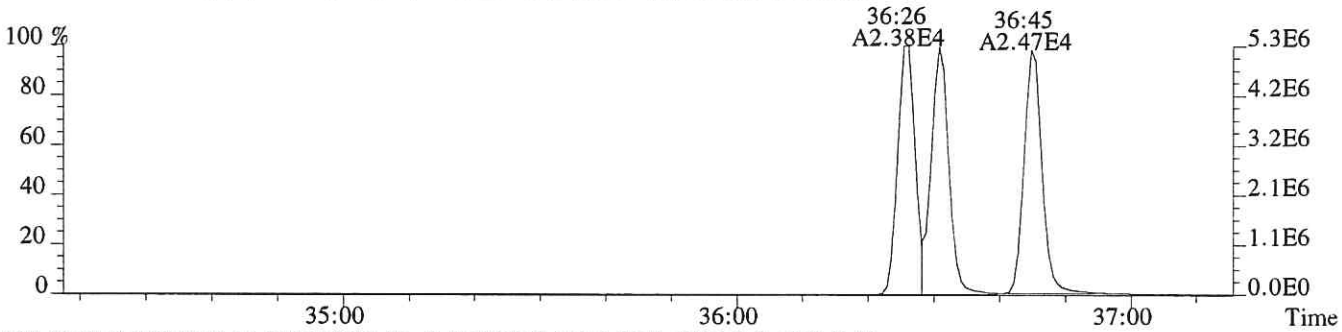
File:P521518 #1-268 Acq:26-APR-2019 06:25:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:188969

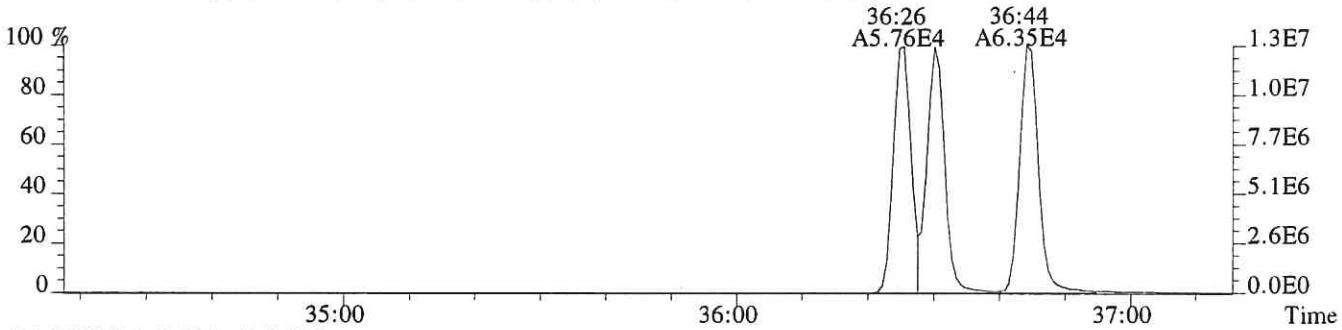
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,808.0,0.40%,F,T)



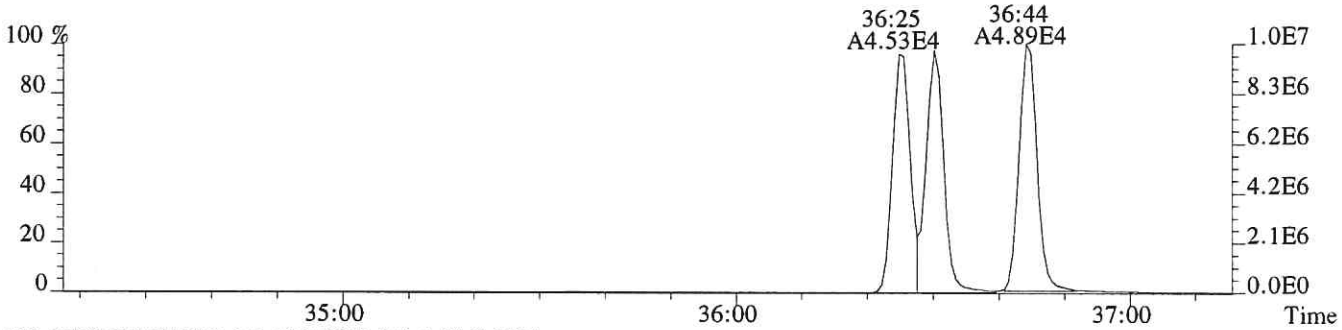
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,868.0,0.40%,F,T)



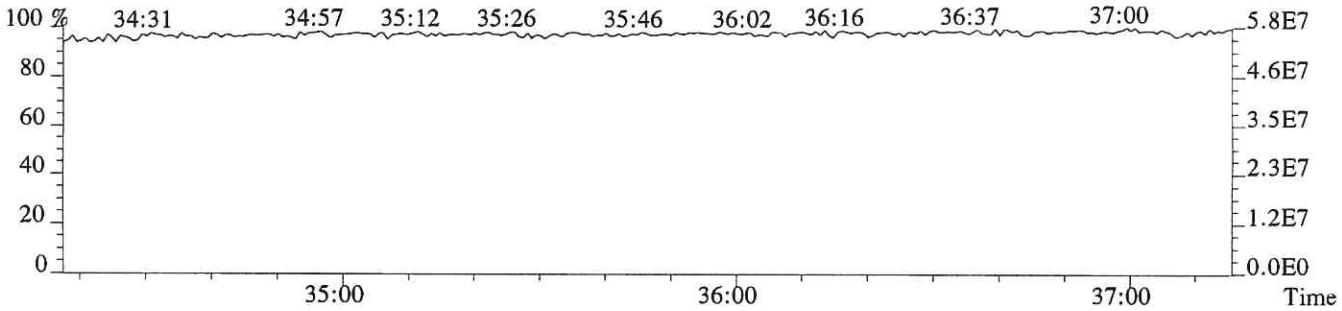
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1736.0,0.40%,F,T)



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)



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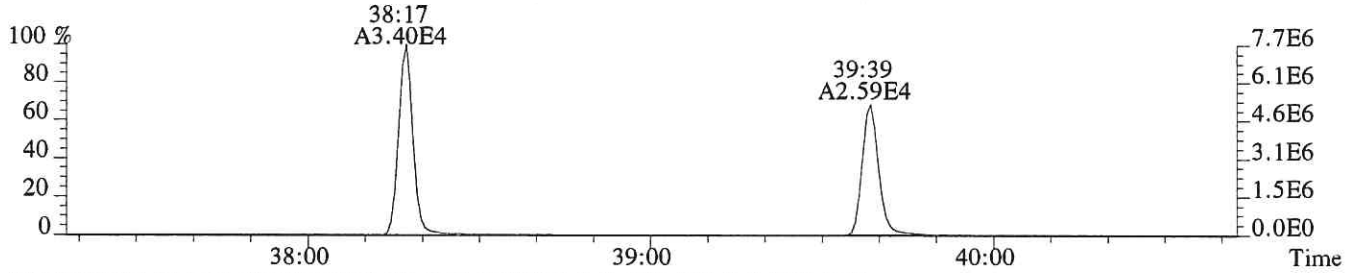
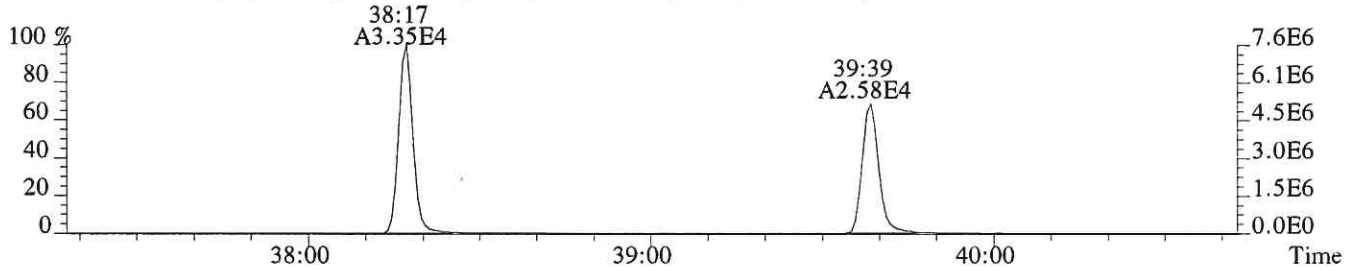
File:P521518 #1-308 Acq:26-APR-2019 06:25:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:188969

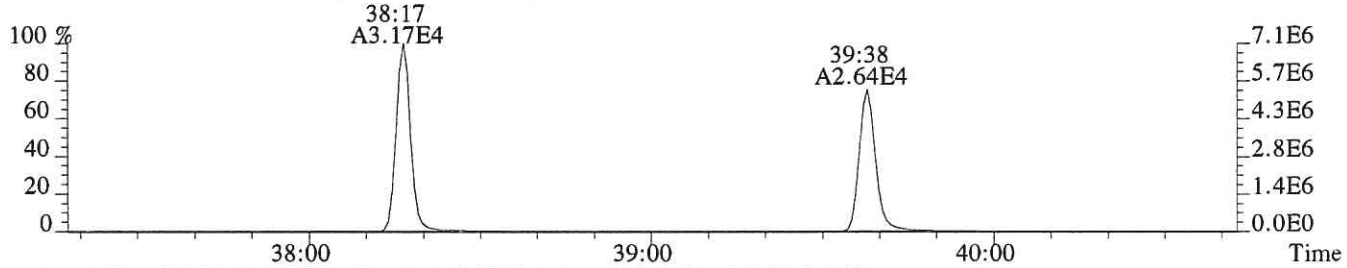
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,896.0,0.50%,F,T)



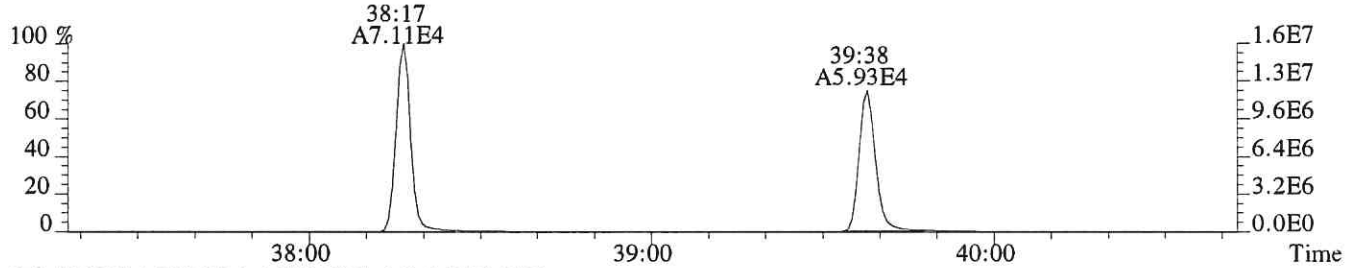
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,568.0,0.50%,F,T)



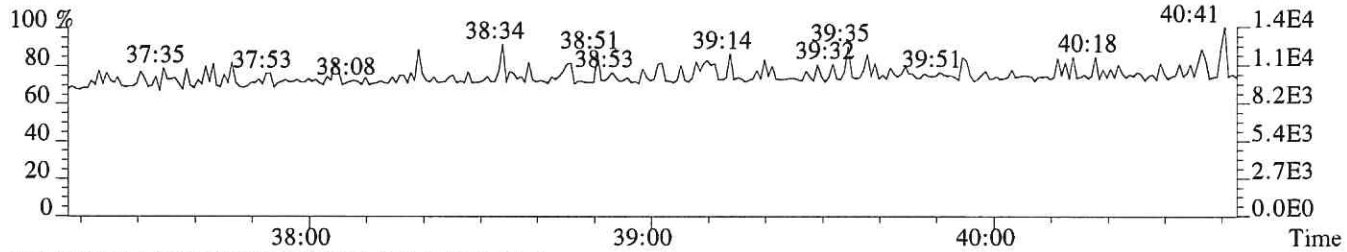
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,876.0,0.50%,F,T)



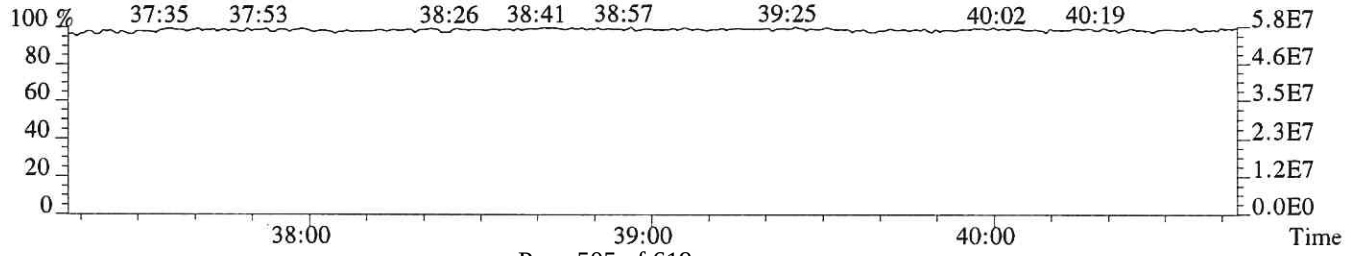
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,624.0,0.50%,F,T)



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



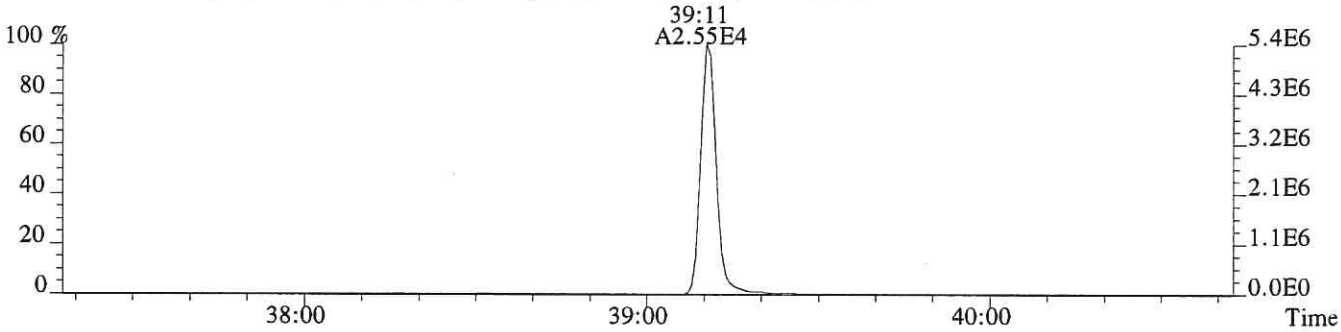
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



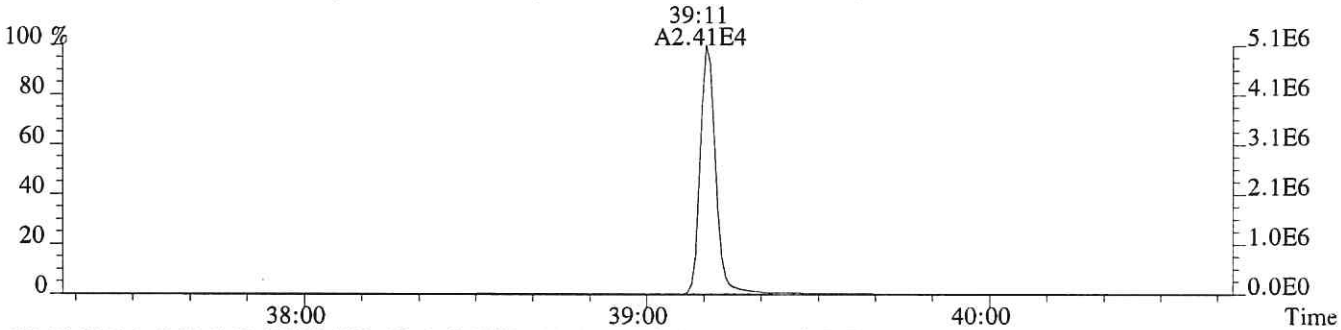
RIGHT SOLUTIONS | RIGHT PARTNER

File:P521518 #1-308 Acq:26-APR-2019 06:25:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:188969

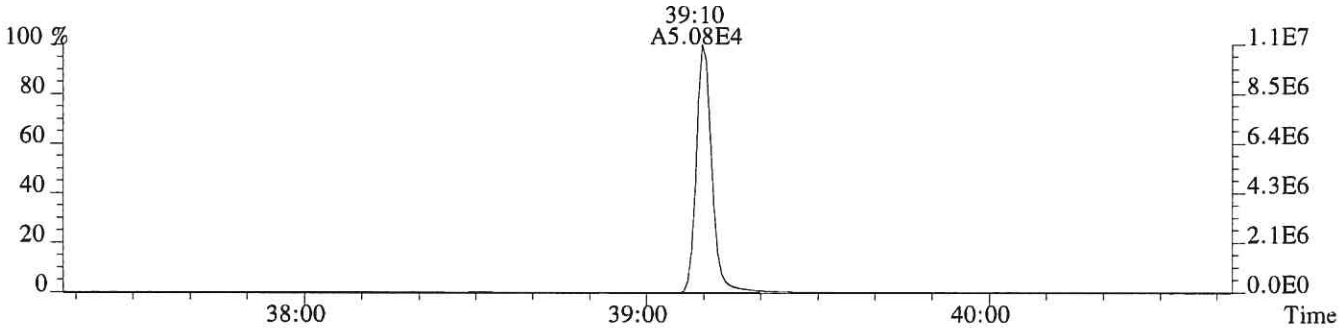
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,420.0,0.40%,F,T)



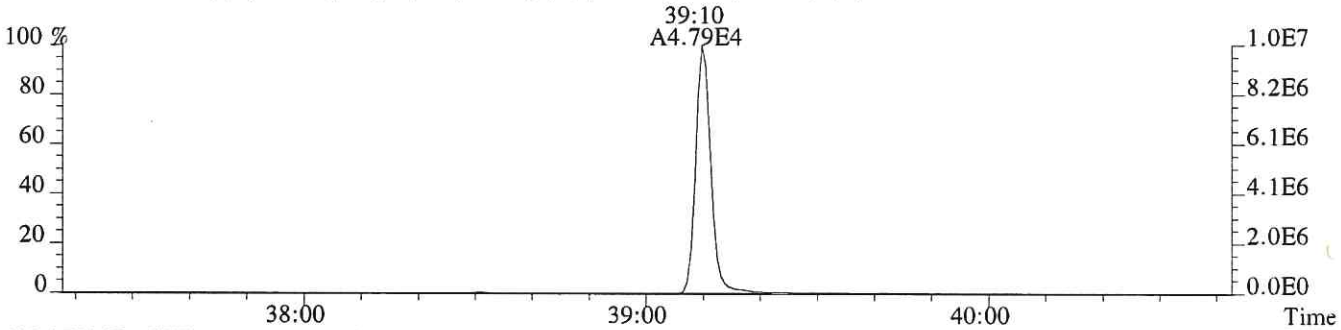
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,424.0,0.40%,F,T)



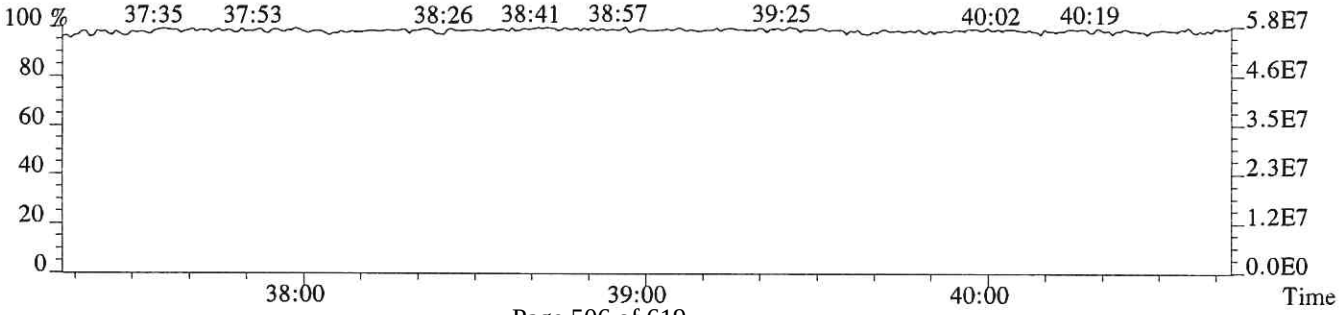
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,548.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,836.0,0.40%,F,T)



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



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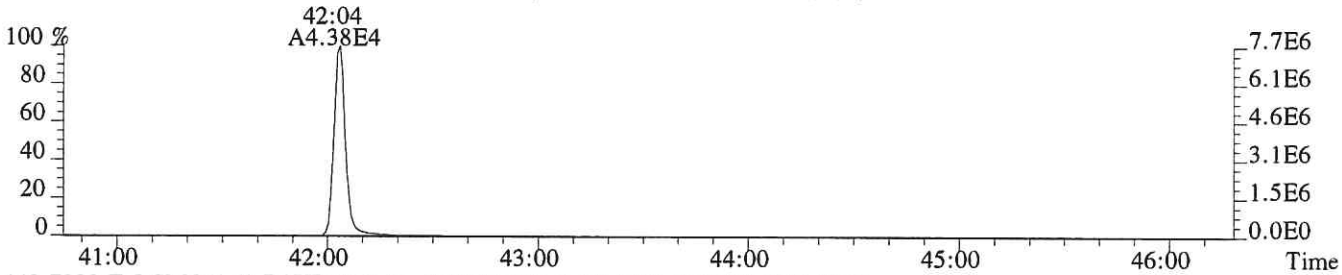
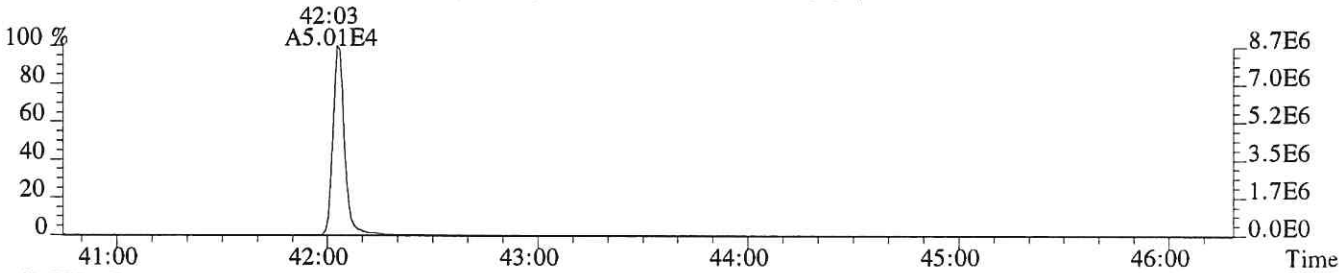
File:P521518 #1-501 Acq:26-APR-2019 06:25:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:188969

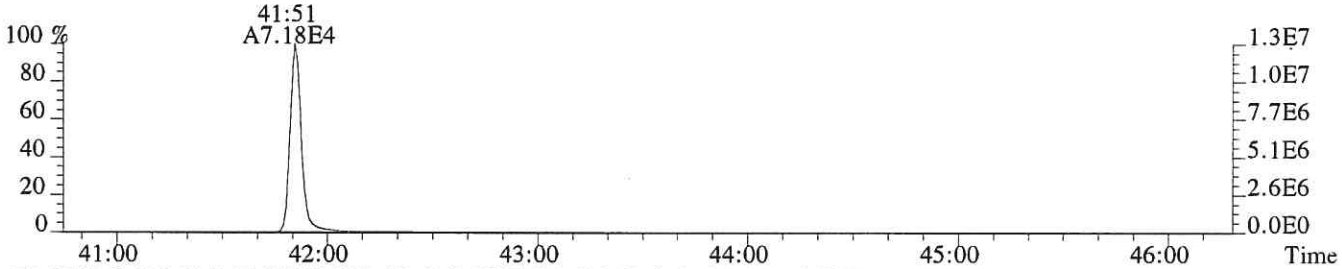
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,664.0,0.40%,F,T)



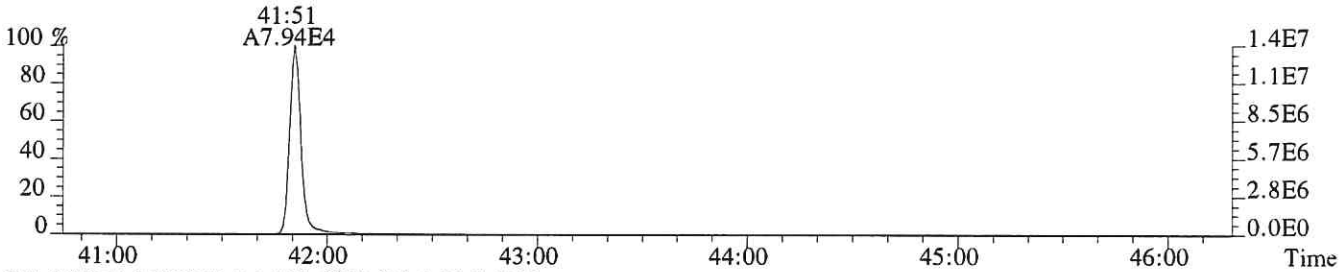
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,848.0,0.40%,F,T)



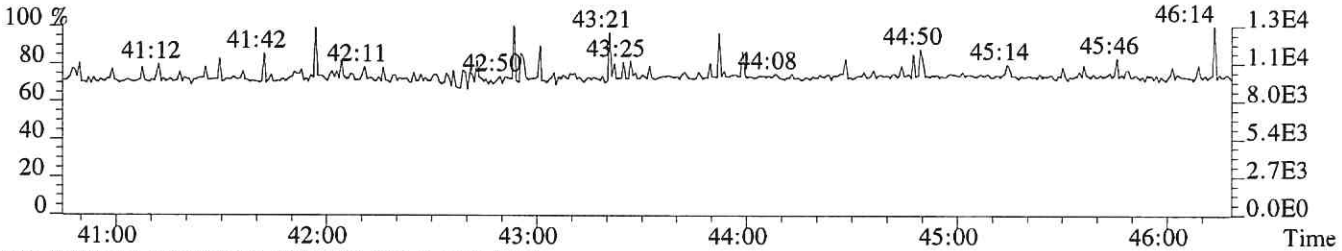
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,216.0,0.40%,F,T)



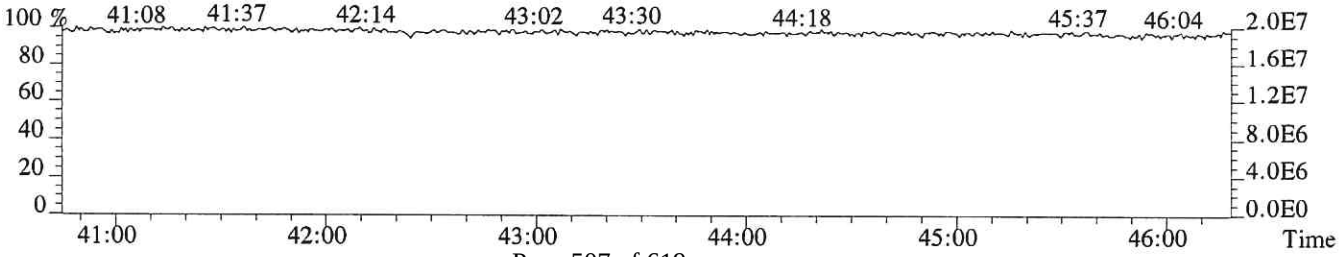
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,616.0,0.40%,F,T)



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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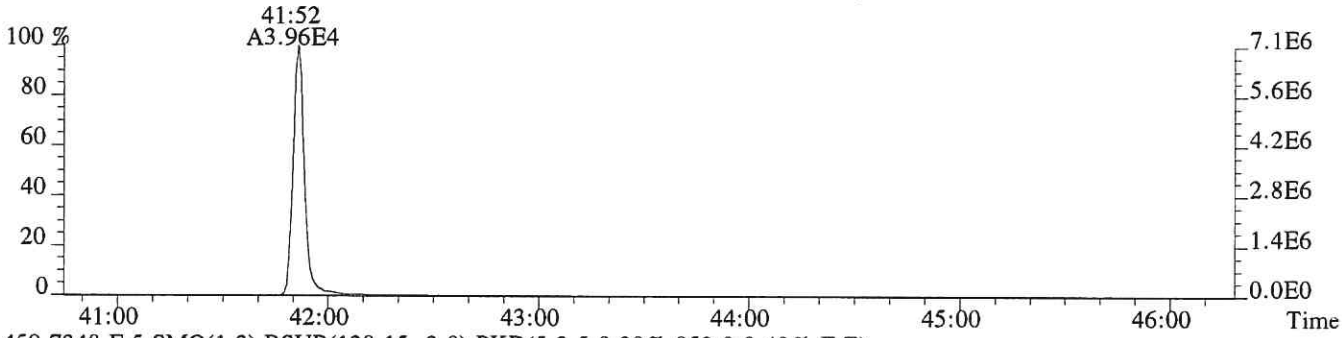
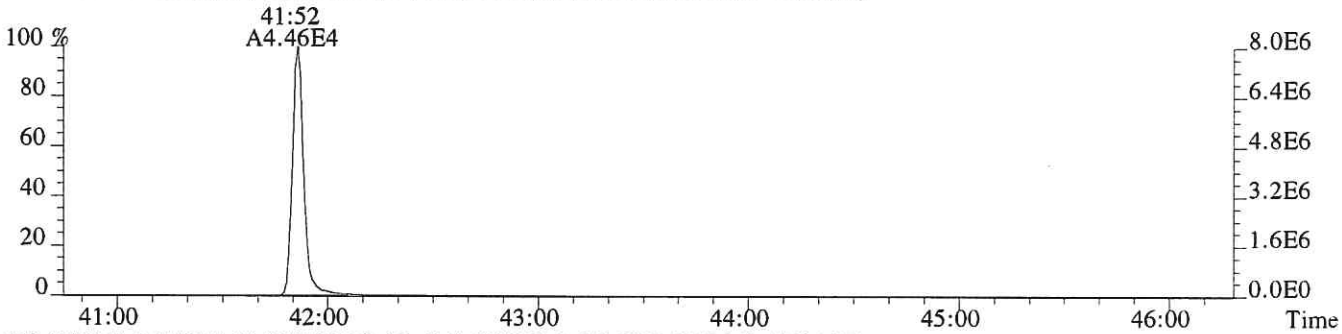
File:P521518 #1-501 Acq:26-APR-2019 06:25:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:188969

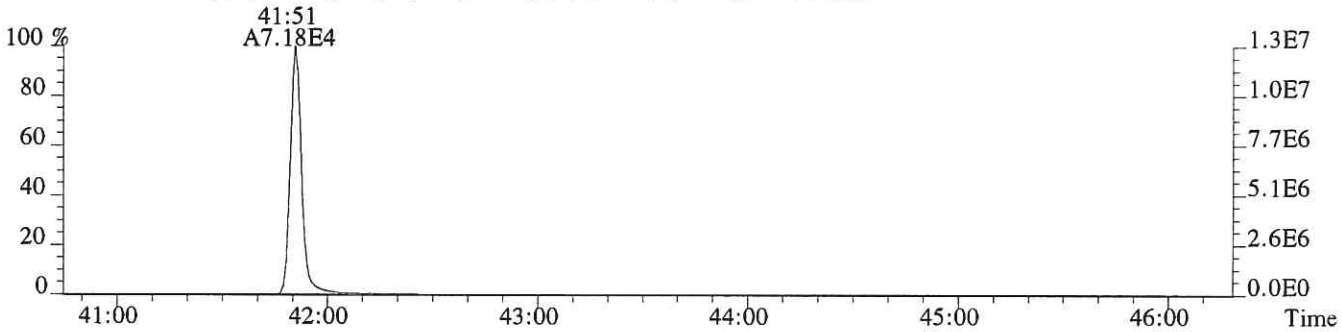
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,592.0,0.40%,F,T)



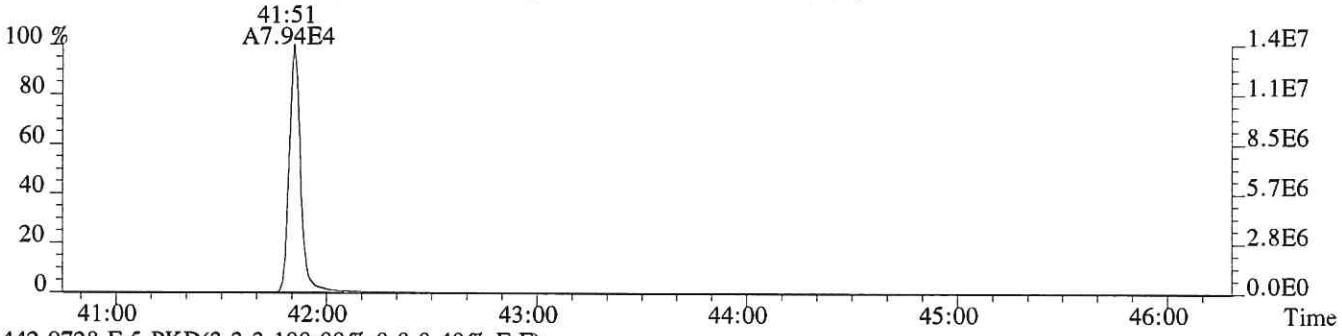
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,852.0,0.40%,F,T)



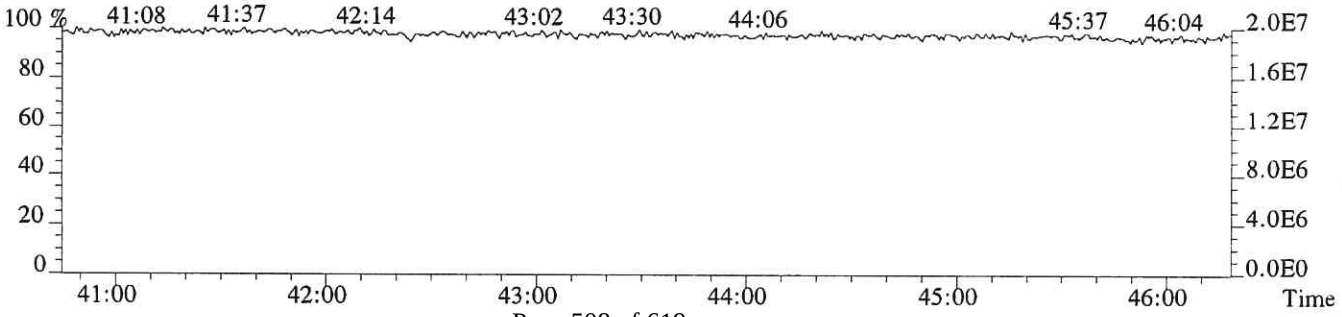
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,216.0,0.40%,F,T)



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



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



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Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613\8290	Process Date: 10/04/19
Instrument Name: E-HRMS-08	Calibration File Name: P6-1910041613I
Processor Name: JIMMY CHAU	Reviewer Name: Loan Luong
Supervisor: Kristin Peir	

	Yes	No	NA	NR	ER#
Description					
Analytical Sequence					
Does the analytical sequence summary accurately reflect the instrument run log, including ICV?	√				
Was a Mass Resolution Check performed at the beginning and end of the 12-hour sequence?	√				
Were all calibration standards and the ICV analyzed within the same 12-hour sequence?	√				
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?	√				

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Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613\8290	Process Date: 10/04/19
Instrument Name: E-HRMS-08	Calibration File Name: P6-1910041613I
Processor Name: JIMMY CHAU	Reviewer Name: Loan Luong
Supervisor: Kristin Neir	

Description	Yes	No	NA	NR	ER#
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: 10/04/19
Instrument Name: E-HRMS-08	Calibration File Name: P6-1910041613I
Processor Name: JIMMY CHAU	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).

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5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Episode No.: SDG No.:

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

Init. Calib. Date: 10/04/19

Init. Calib.Times: 02:18:06

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
202629	WINDOW DEFINE	P619246	4-OCT-19	00:33:11
193431	CS0.50	p619248	4-OCT-19	02:18:06
193432	CS1	p619249	4-OCT-19	03:07:16
193434	CS2	p619250	4-OCT-19	03:56:26
193435	CS3	p619251	4-OCT-19	04:45:35
82167	CS4	p619252	4-OCT-19	05:34:45
185657	CS5	p619253	4-OCT-19	06:23:55
188969	2ND SOURCE	P619254	4-OCT-19	07:13:04

RIGHT SOLUTIONS | RIGHT PARTNER

Sample List Report **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS08.PRO\SampleDB\20191004A.SPL
Last Modified: Friday, October 04, 2019 08:01:08 Central Daylight Time
Printed: Friday, October 04, 2019 08:01:11 Central Daylight Time

Page Position (1, 1)

ORUS-5: 86-191004I613I/RES

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	10/04/19	00:33	P619246	202629	WINDOW DEFINE	EPA1613_ALS	Dioxin_ALS	Tray1:1	JC	HRMS CHECK 01:29
2		01:04	P619247	193431	CS0.5	EPA1613_ALS	Dioxin_ALS	Tray1:22		
3		02:18	P619248	193431	CS0.5	EPA1613_ALS	Dioxin_ALS	Tray1:22		
4		03:07	P619249	193432	CS1	EPA1613_ALS	Dioxin_ALS	Tray1:23		
5		03:56	P619250	193434	CS2	EPA1613_ALS	Dioxin_ALS	Tray1:24		
6		04:45	P619251	193435	CS3	EPA1613_ALS	Dioxin_ALS	Tray1:25		
7		05:34	P619252	82167	CS4	EPA1613_ALS	Dioxin_ALS	Tray1:26		
8		06:23	P619253	185657	CS5	EPA1613_ALS	Dioxin_ALS	Tray1:27		
9		07:13	P619254	188969	2ND SOURCE	EPA1613_ALS	Dioxin_ALS	Tray1:2		HRMS CHECK 08:10

JC 10/04/19

045

RIGHT SOLUTIONS | RIGHT PARTNER

Printed: Friday, October 04, 2019 01:29:42 Central Daylight Time

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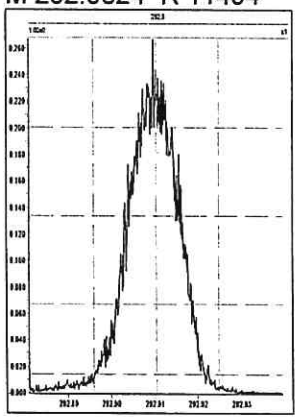

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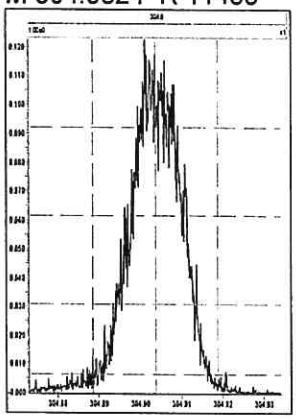

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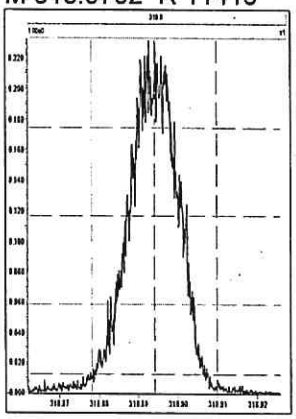

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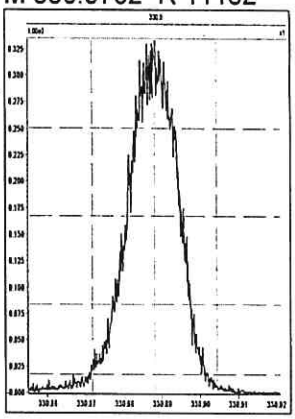

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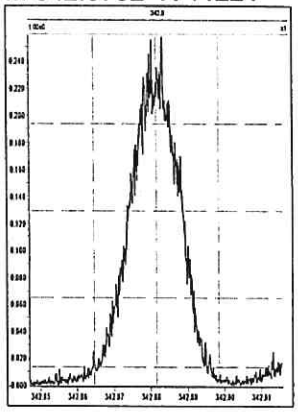

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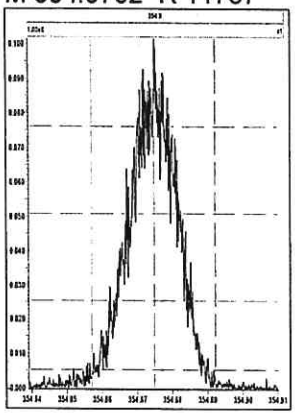

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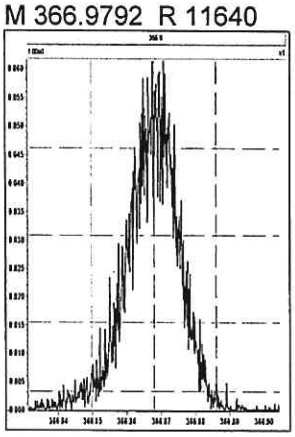

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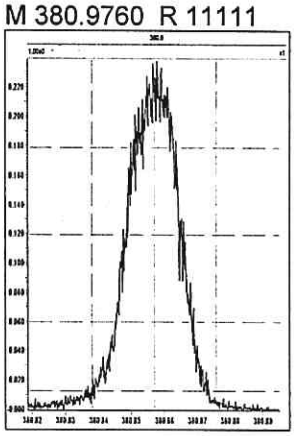

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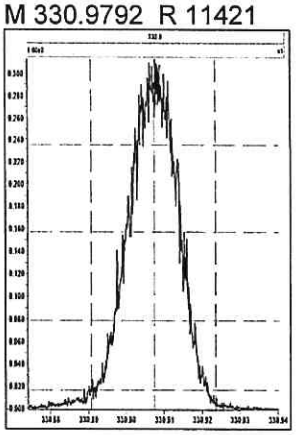

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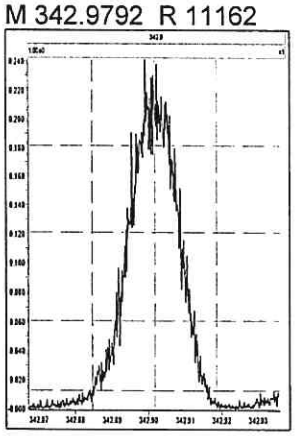

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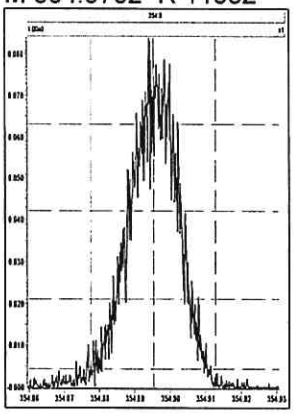

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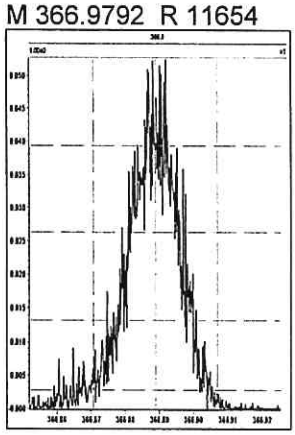

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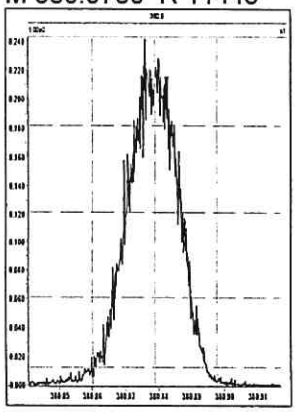

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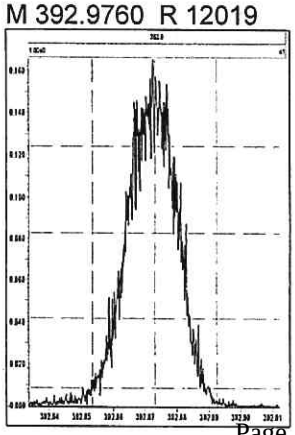

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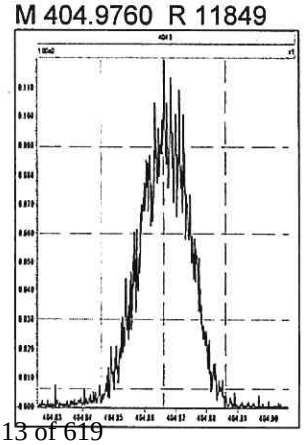

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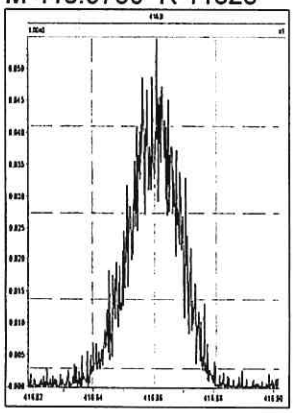

RIGHT SOLUTIONS | RIGHT PARTNER

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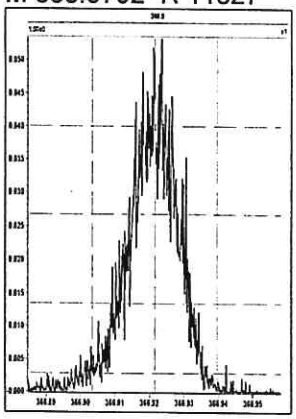

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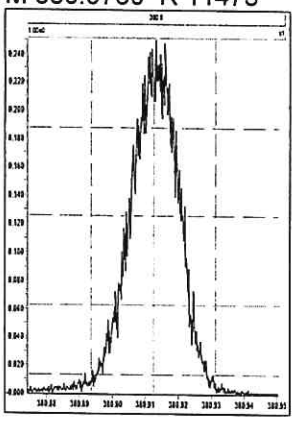

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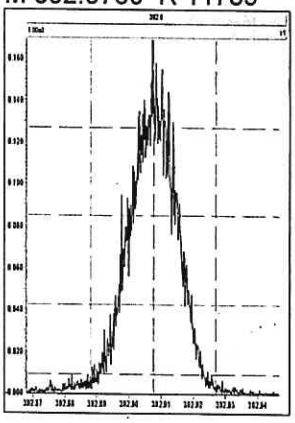

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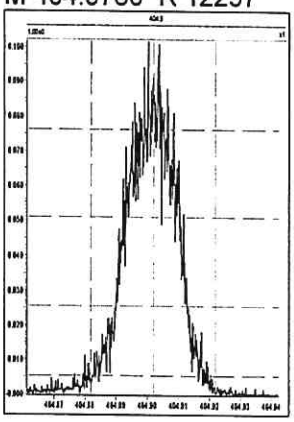

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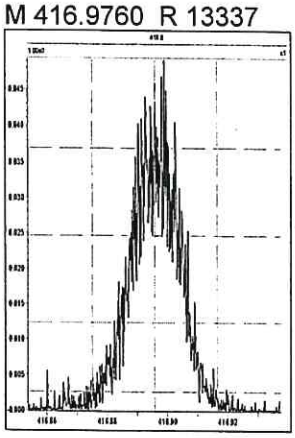

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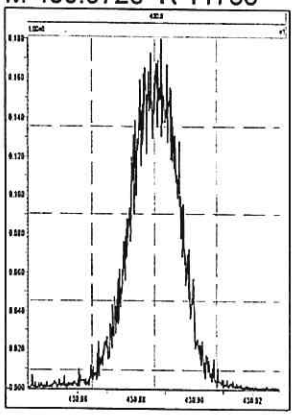

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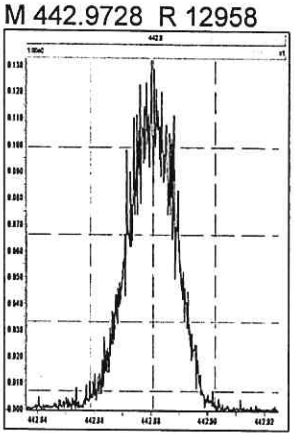

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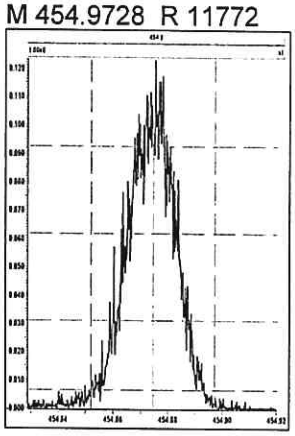

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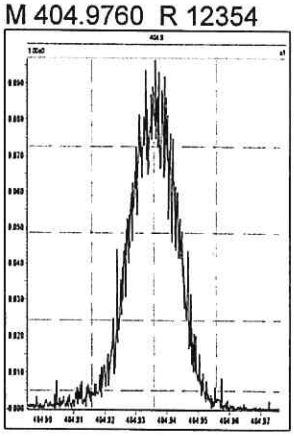

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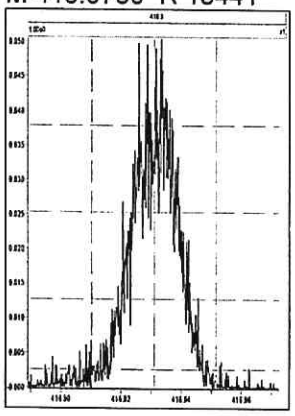

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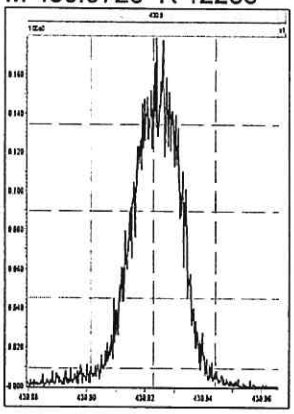

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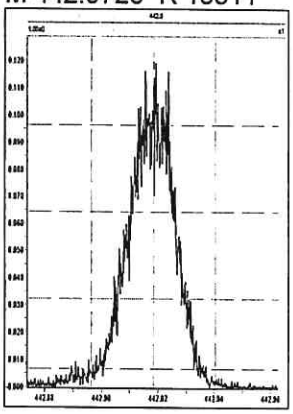

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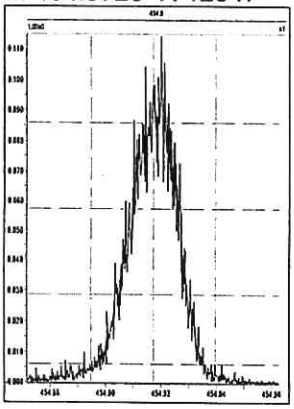

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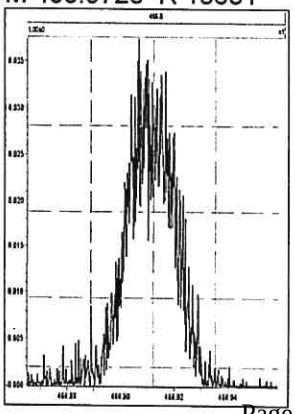

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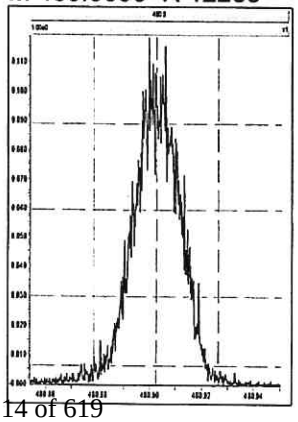

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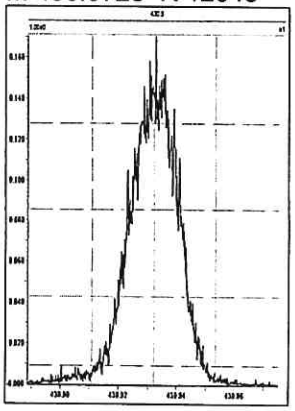

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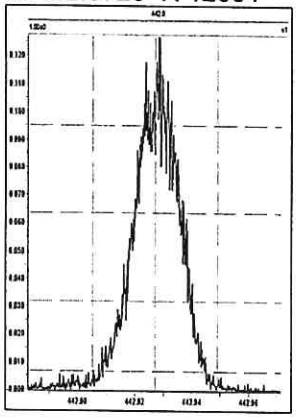

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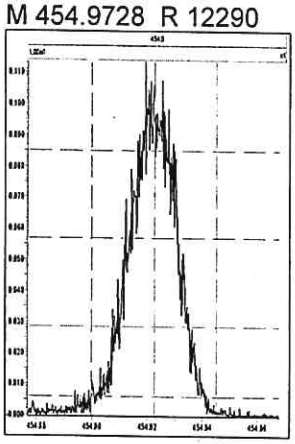

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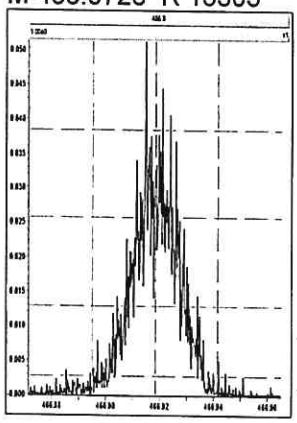

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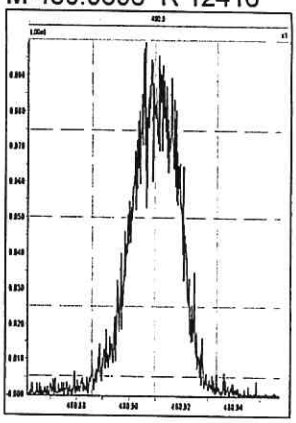

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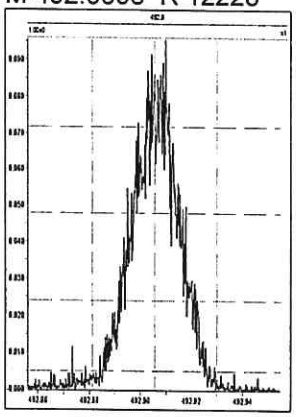

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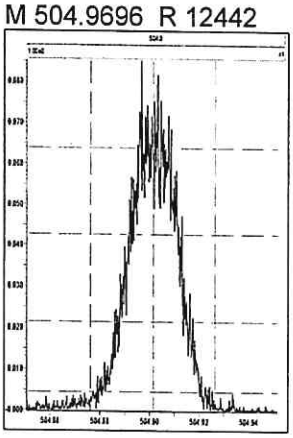

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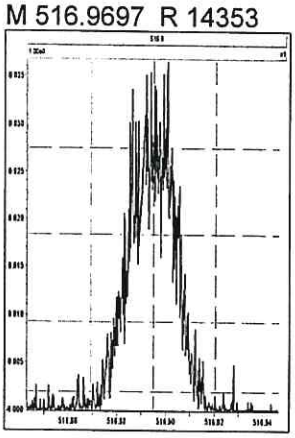

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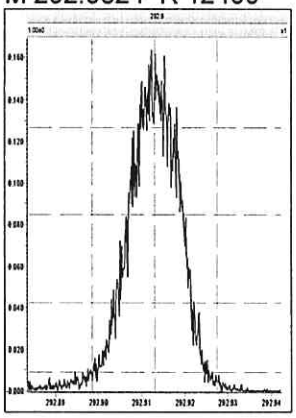

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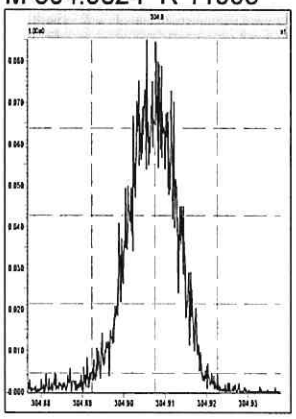

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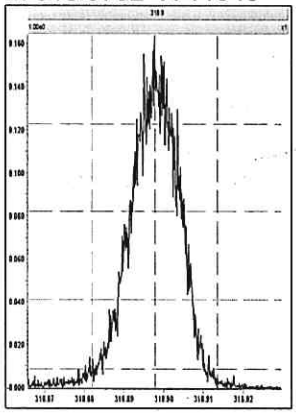

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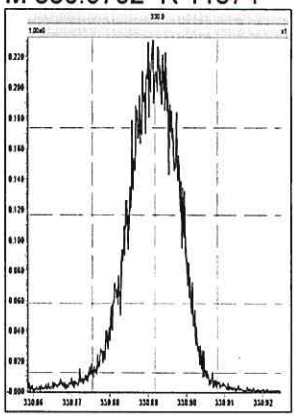

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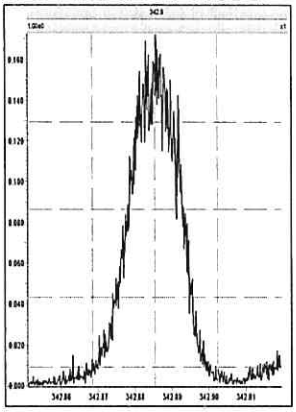

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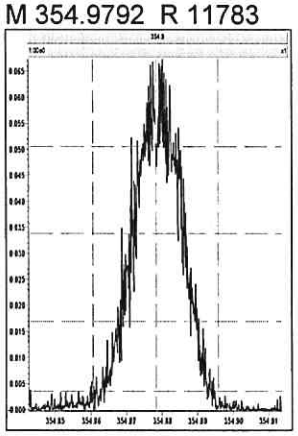

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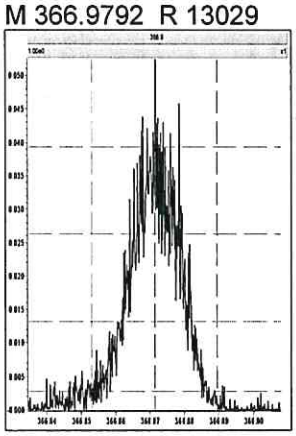

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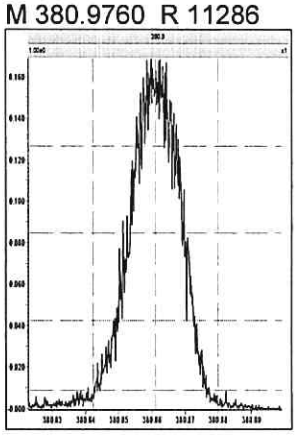

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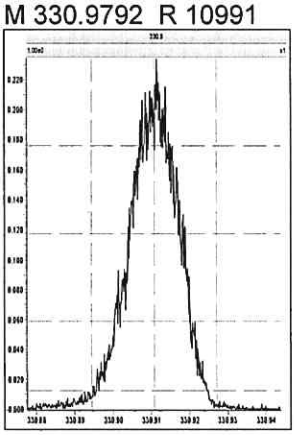

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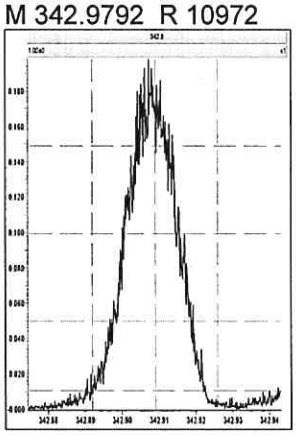

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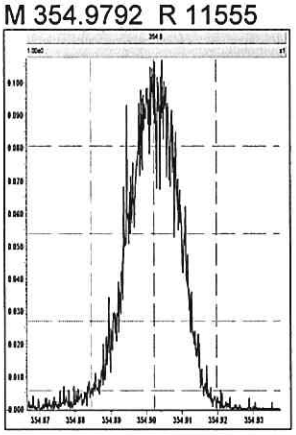

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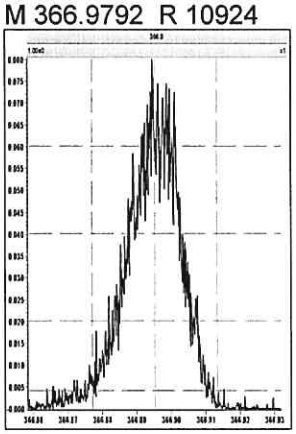

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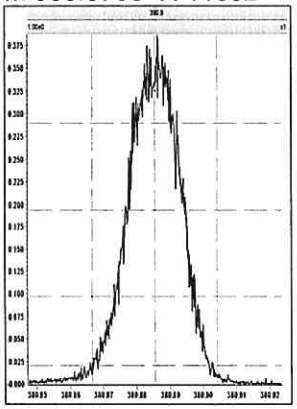
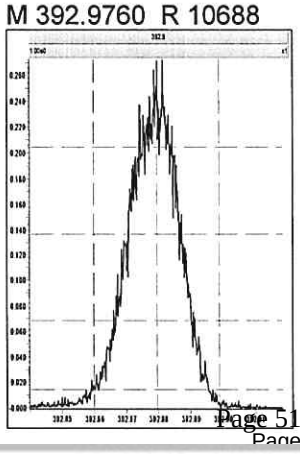
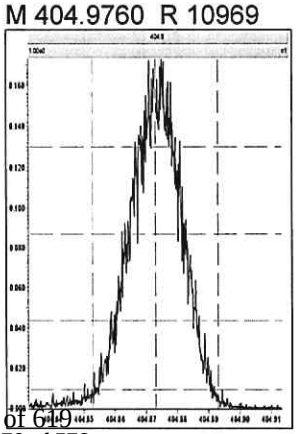


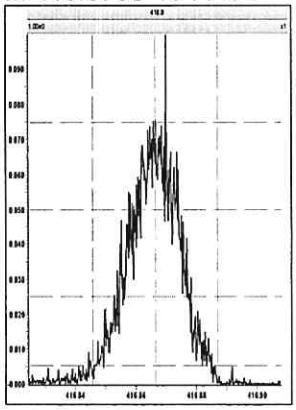
M 392.9760 R 10688



M 404.9760 R 10969



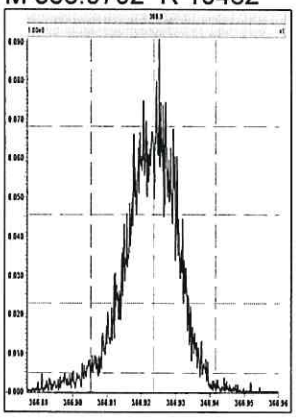
M 416.9760 R 11174



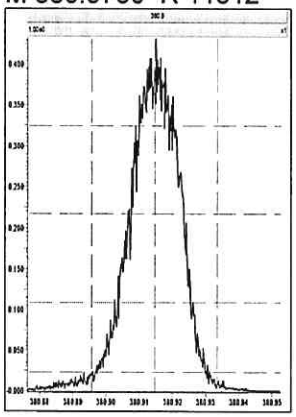
RIGHT SOLUTIONS | RIGHT PARTNER

Printed: Friday, October 04, 2019 08:10:23 Central Daylight Time

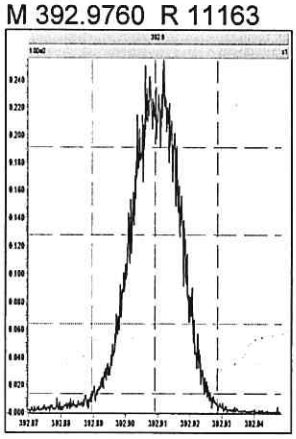
M 366.9792 R 10462



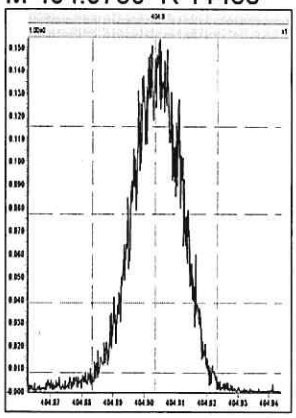
M 380.9760 R 11312



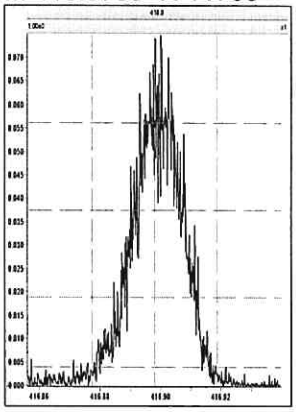
M 392.9760 R 11163



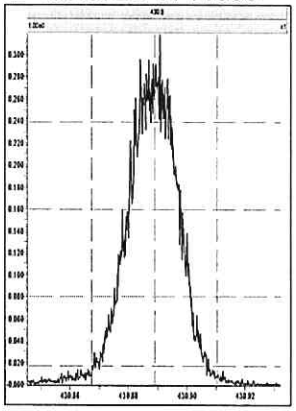
M 404.9760 R 11468



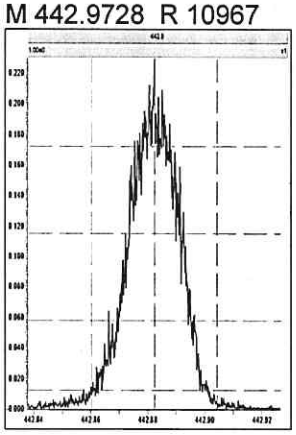
M 416.9760 R 11765



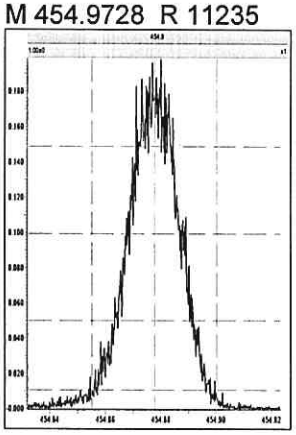
M 430.9728 R 11993



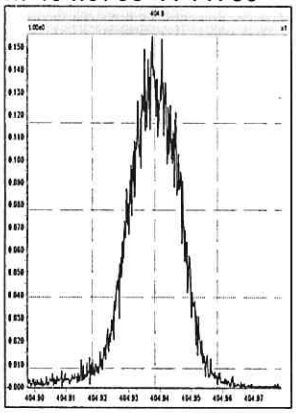
M 442.9728 R 10967



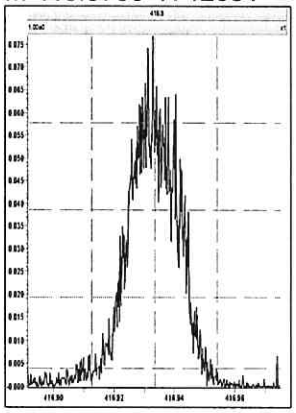
M 454.9728 R 11235



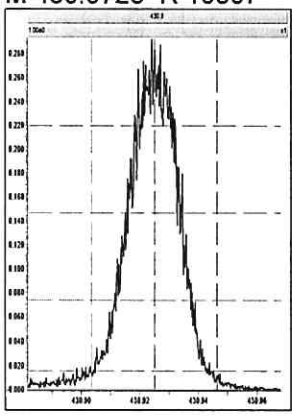
M 404.9760 R 11739



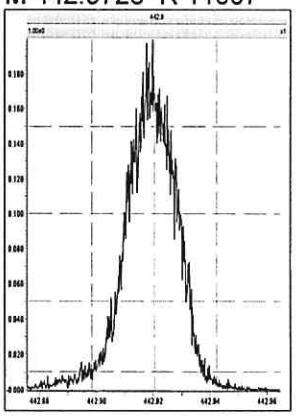
M 416.9760 R 12531



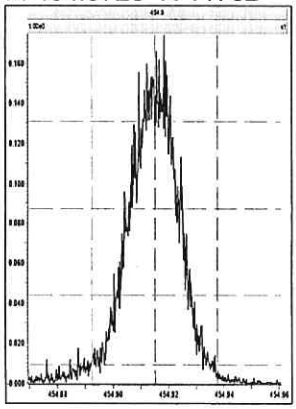
M 430.9728 R 10807



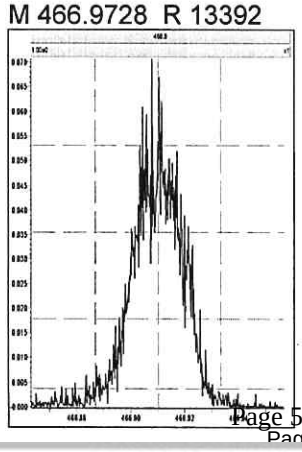
M 442.9728 R 11007



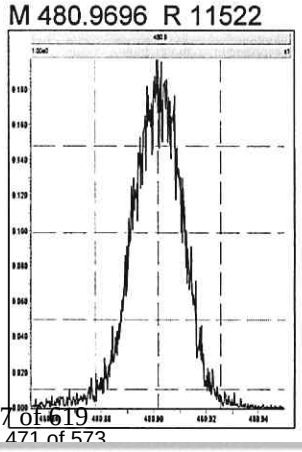
M 454.9728 R 11762



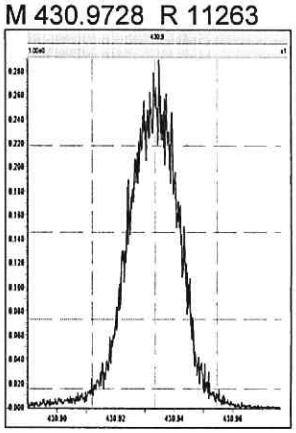
M 466.9728 R 13392



M 480.9696 R 11522



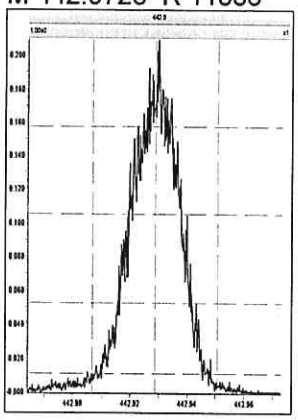
M 430.9728 R 11263



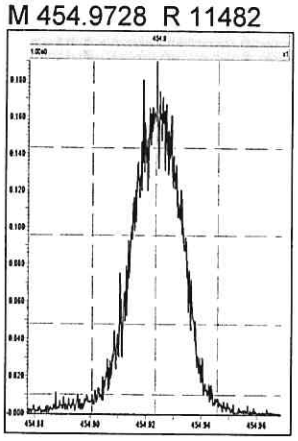
RIGHT SOLUTIONS | RIGHT PARTNER

Printed: Friday, October 04, 2019 08:10:23 Central Daylight Time

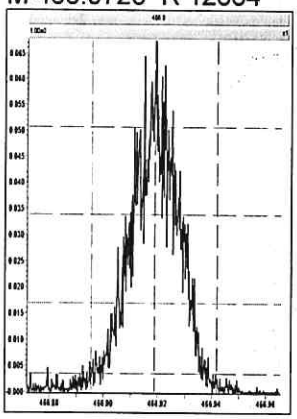
M 442.9728 R 11836



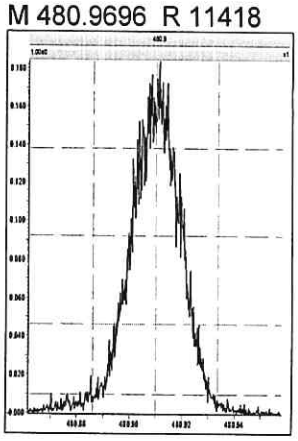
M 454.9728 R 11482



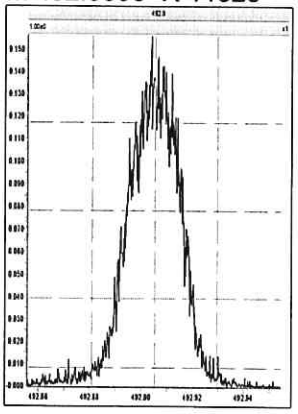
M 466.9728 R 12664



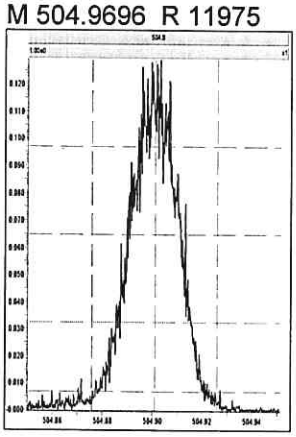
M 480.9696 R 11418



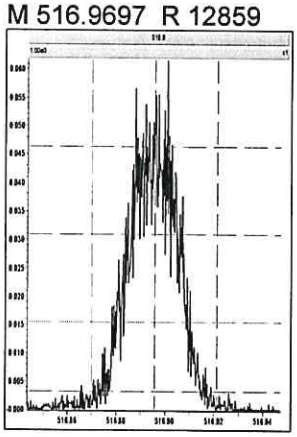
M 492.9696 R 11526



M 504.9696 R 11975



M 516.9697 R 12859



RIGHT SOLUTIONS | RIGHT PARTNER

5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

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

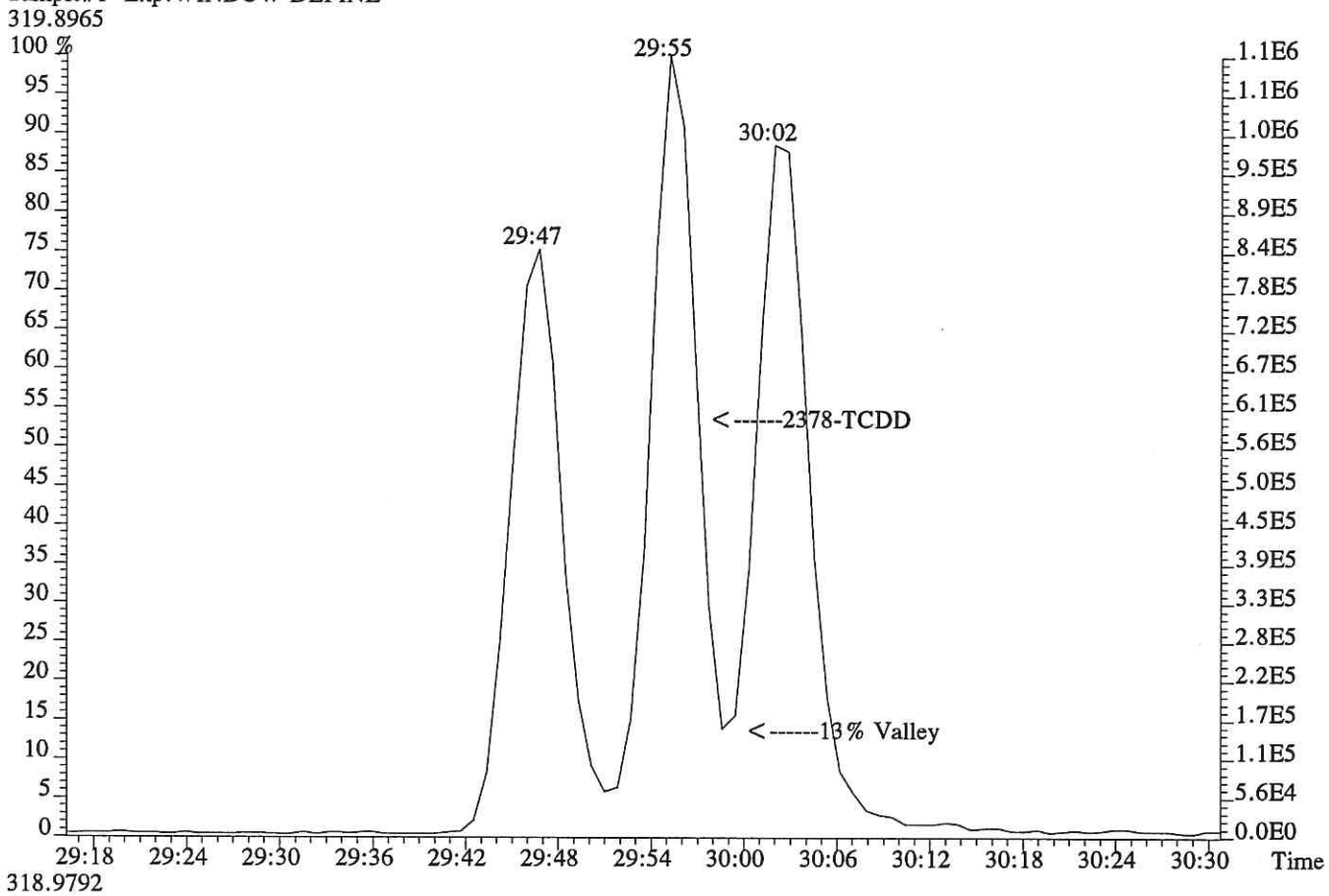
Case No.: _____ SDG No.:
ID: 0.25 (mm)
Lab File ID: P619246
Date Analyzed: 4-OCT-19
Time Analyzed: 00:33:11

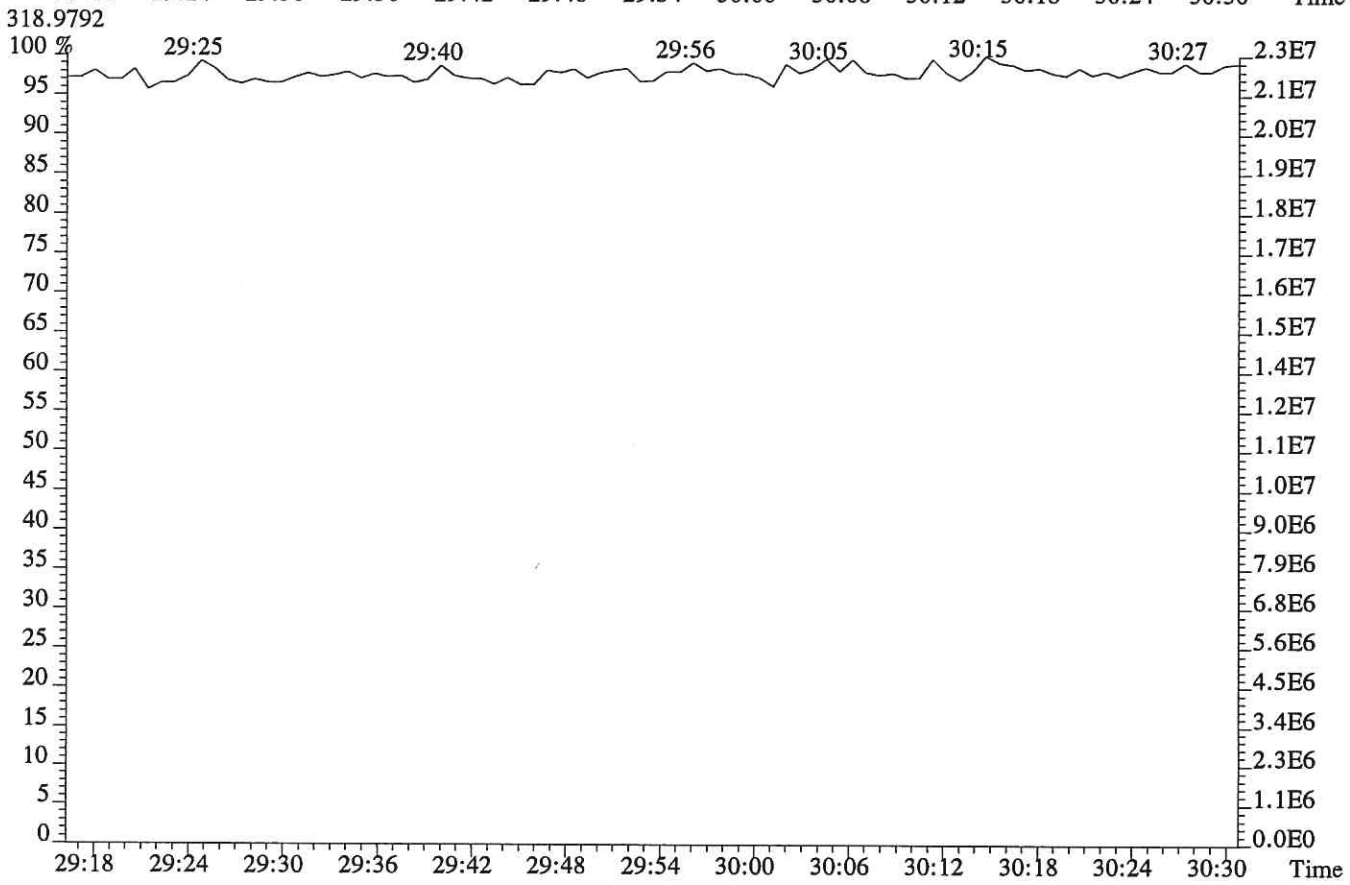
Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	25:08	31:01
TCDD	26:56	30:51
PeCDF	30:56	34:59
PeCDD	32:22	34:43
HxCDF	35:35	38:00
HxCDD	36:04	37:36
HpCDF	39:12	40:39
HpCDD	39:27	40:08

% Valley 2378-TCDD: 13 %

RIGHT SOLUTIONS | RIGHT PARTNER

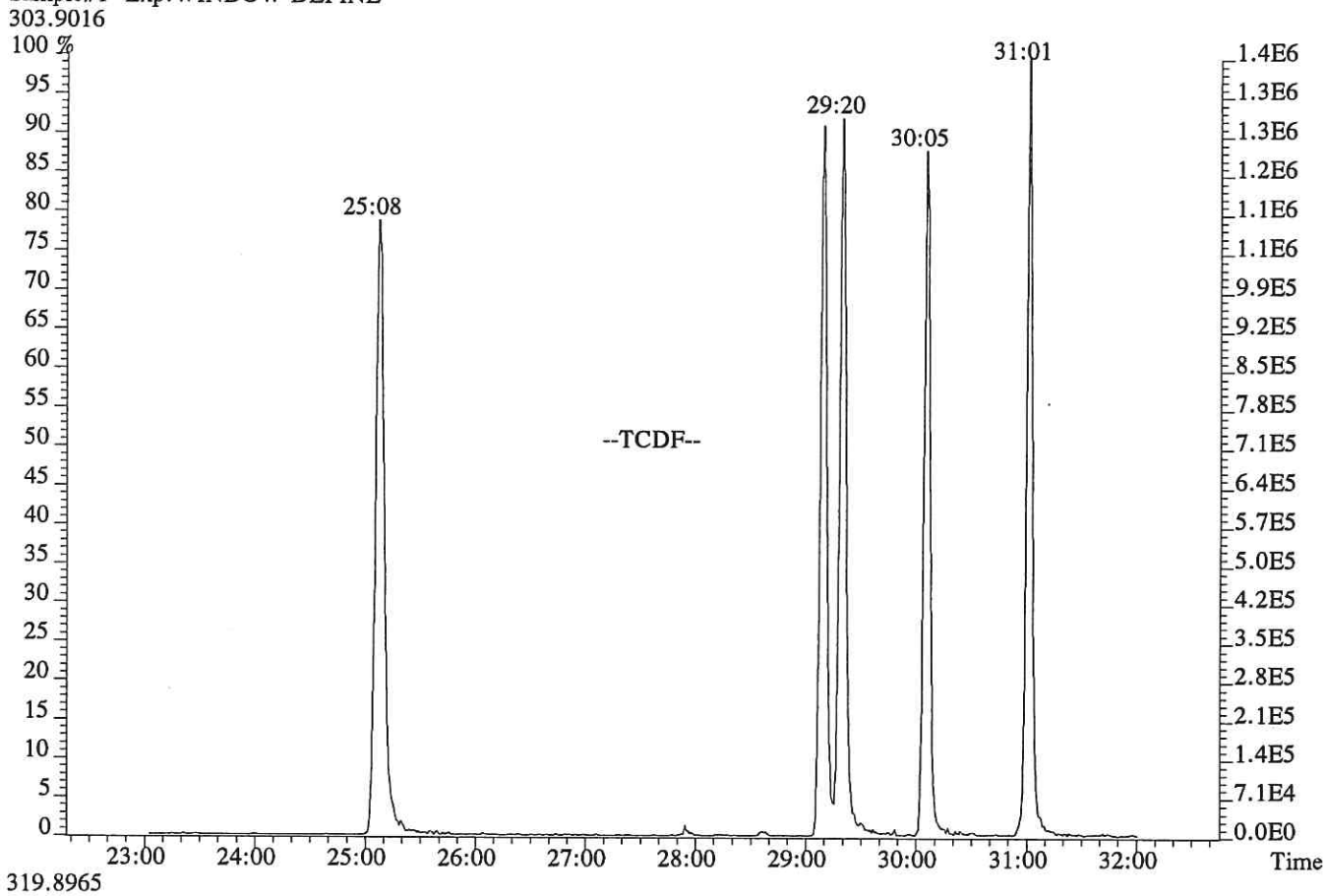
File:P619246 #1-637 Acq: 4-OCT-2019 00:33:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE

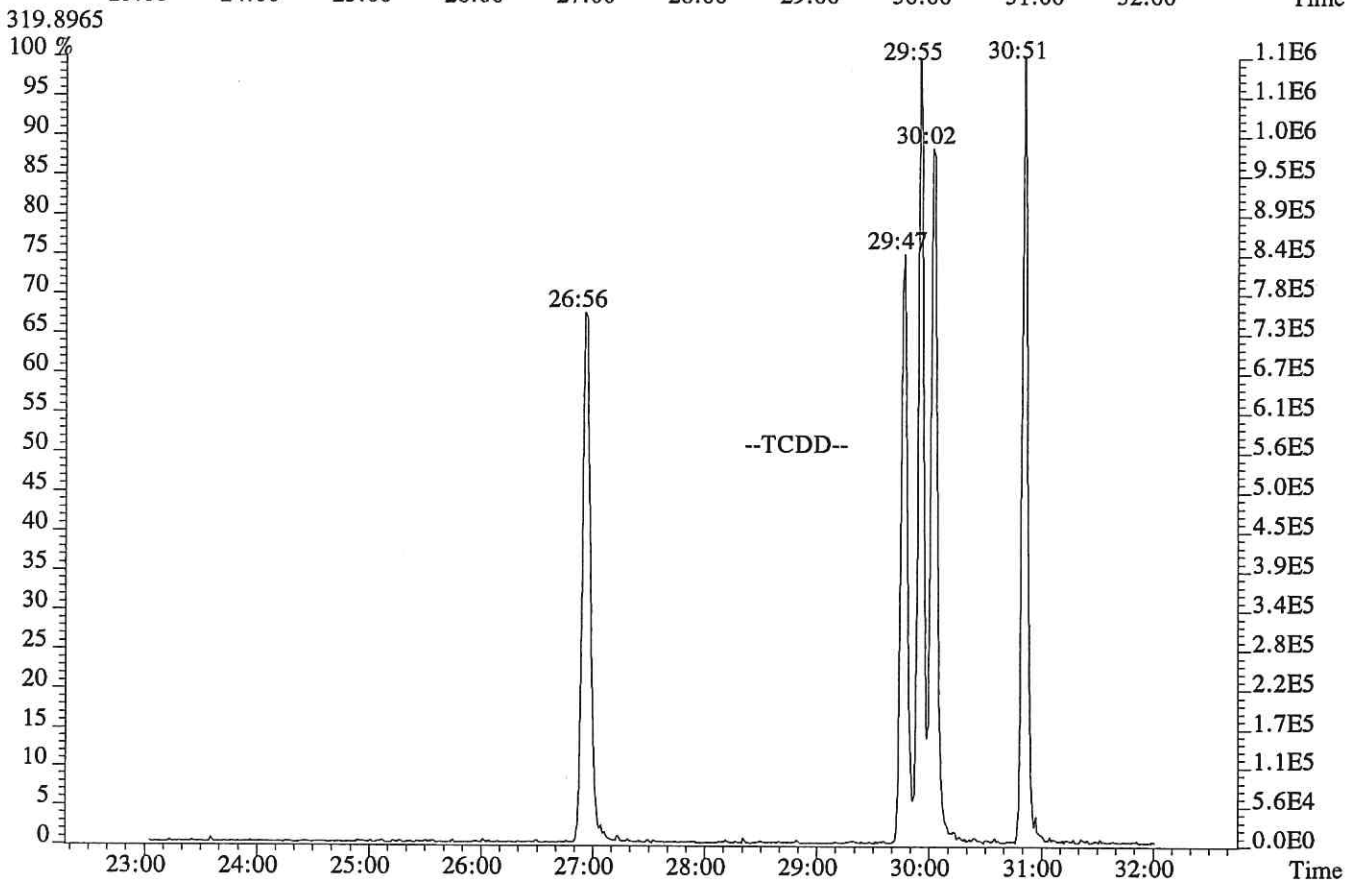




RIGHT SOLUTIONS | RIGHT PARTNER

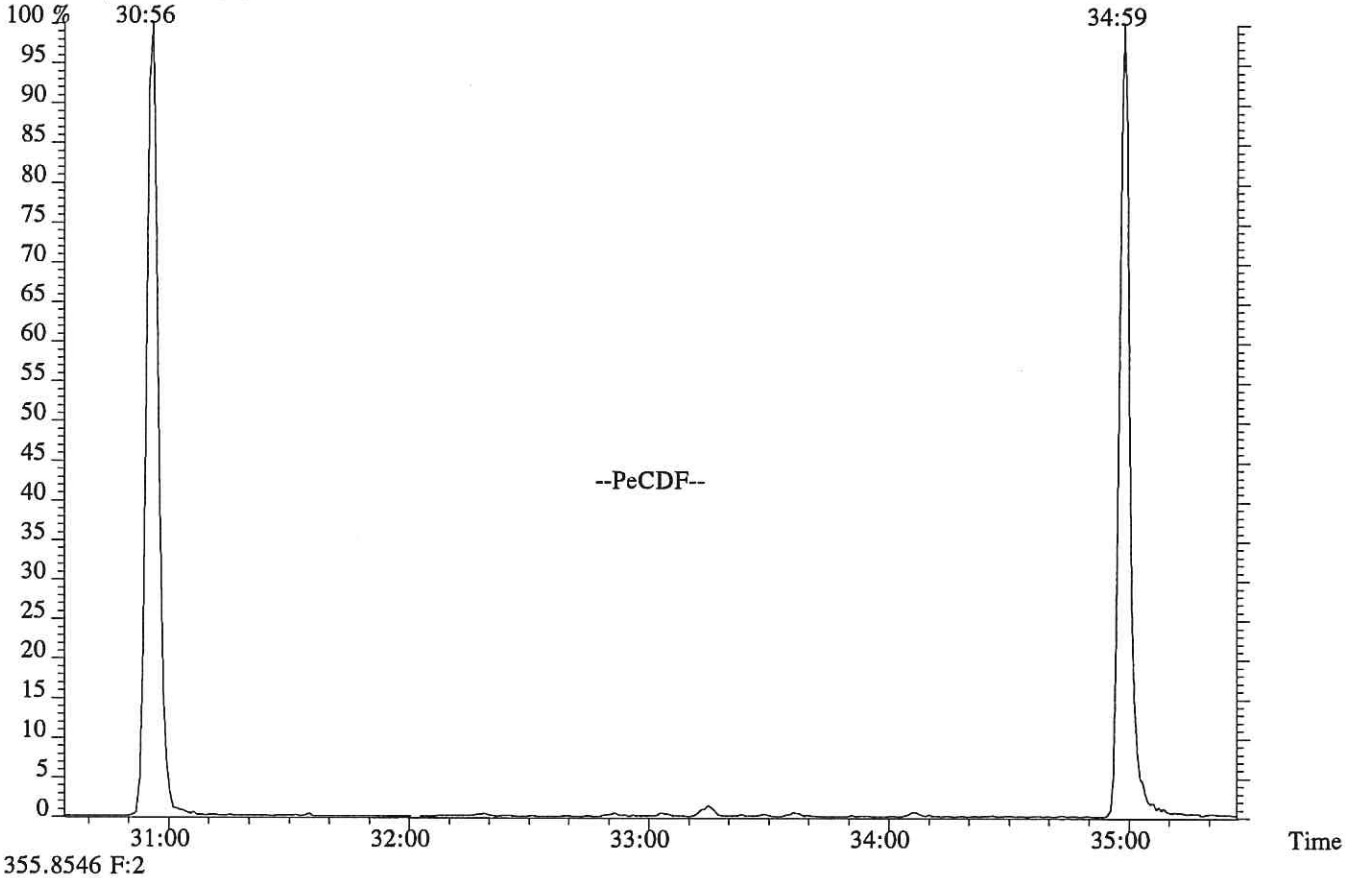
File:P619246 #1-637 Acq: 4-OCT-2019 00:33:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE



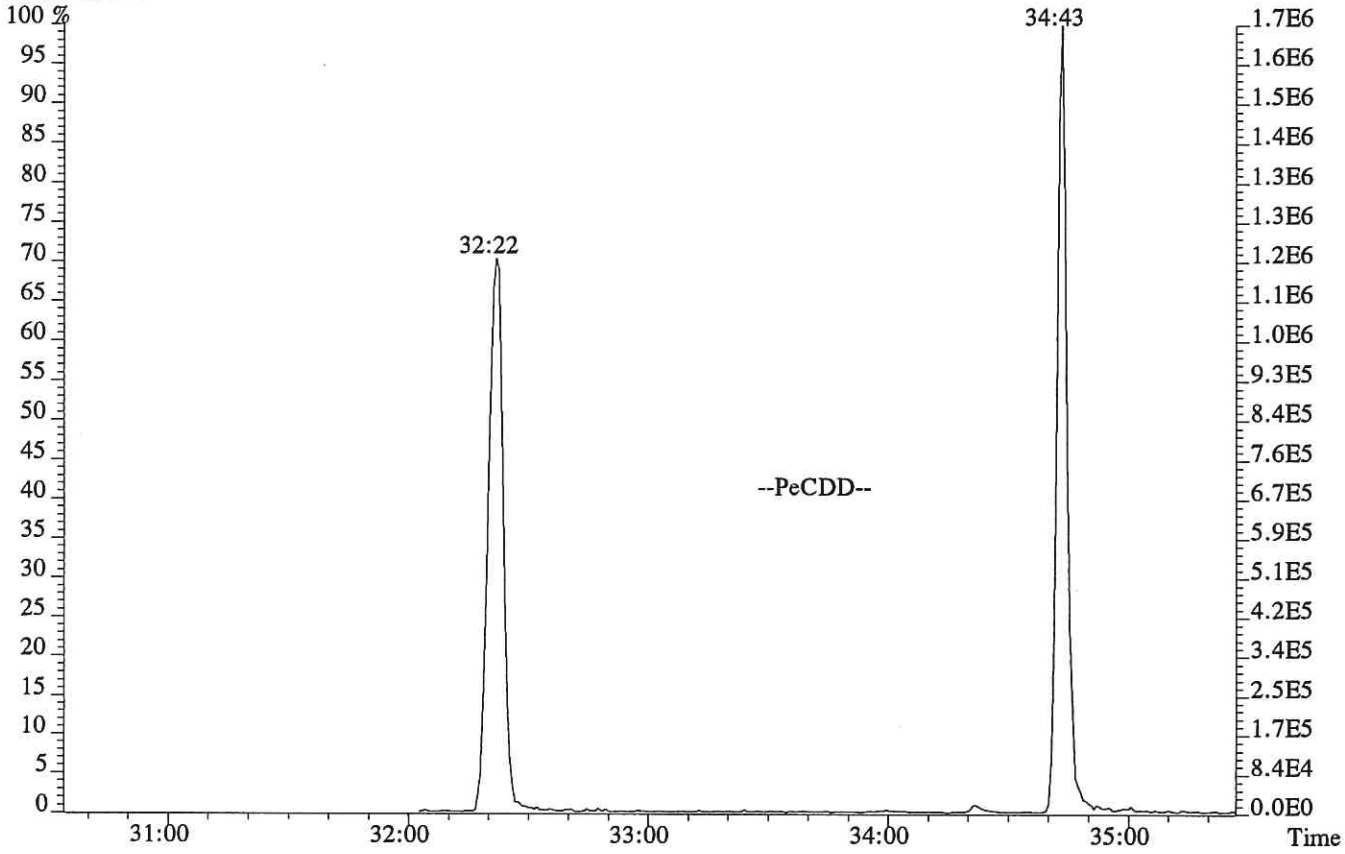


RIGHT SOLUTIONS | RIGHT PARTNER

File:P619246 #1-637 Acq: 4-OCT-2019 00:33:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
339.8597,339.8597 F:2

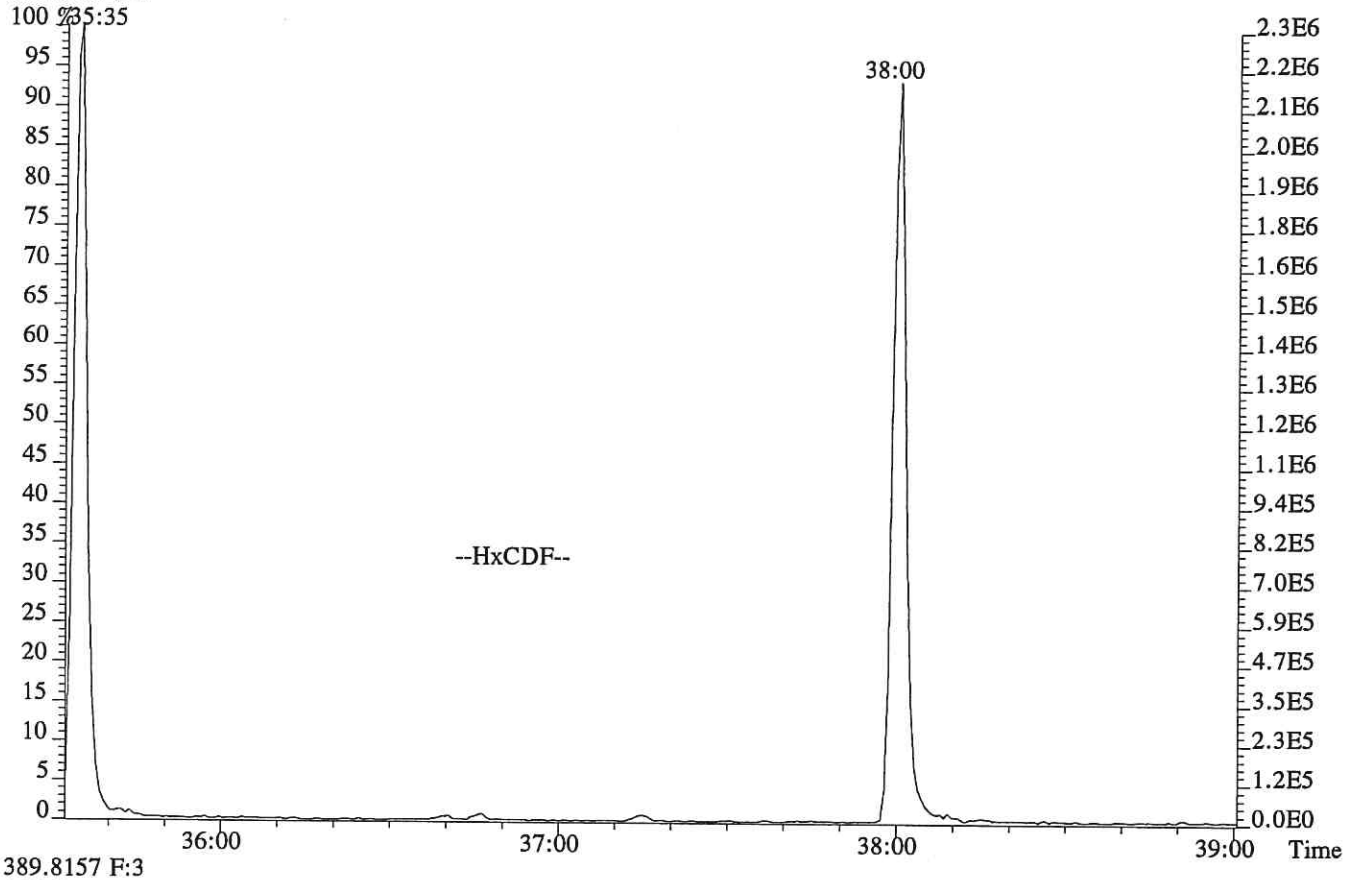


355.8546 F:2

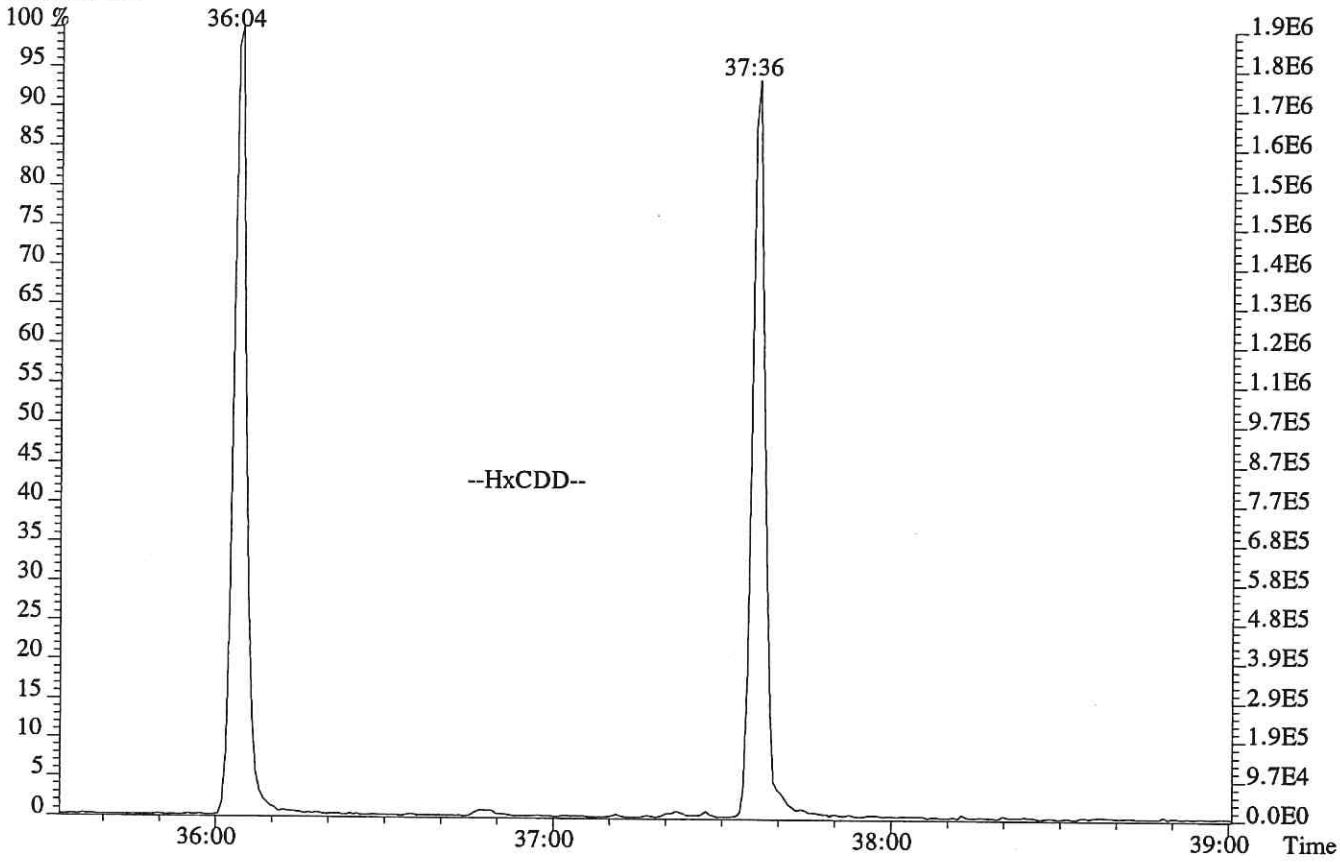


RIGHT SOLUTIONS | RIGHT PARTNER

File:P619246 #1-313 Acq: 4-OCT-2019 00:33:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
373.8208 F:3

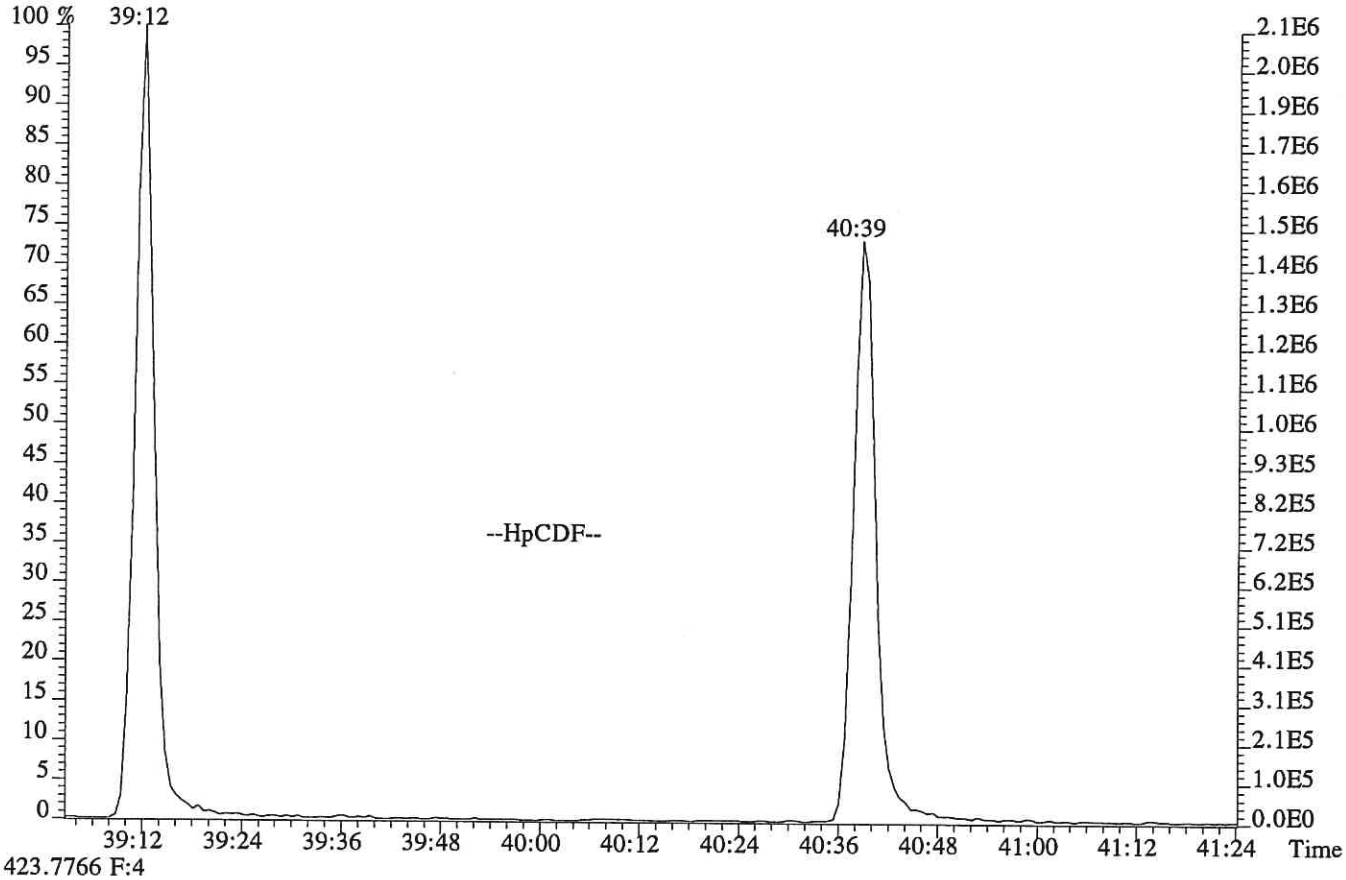


389.8157 F:3

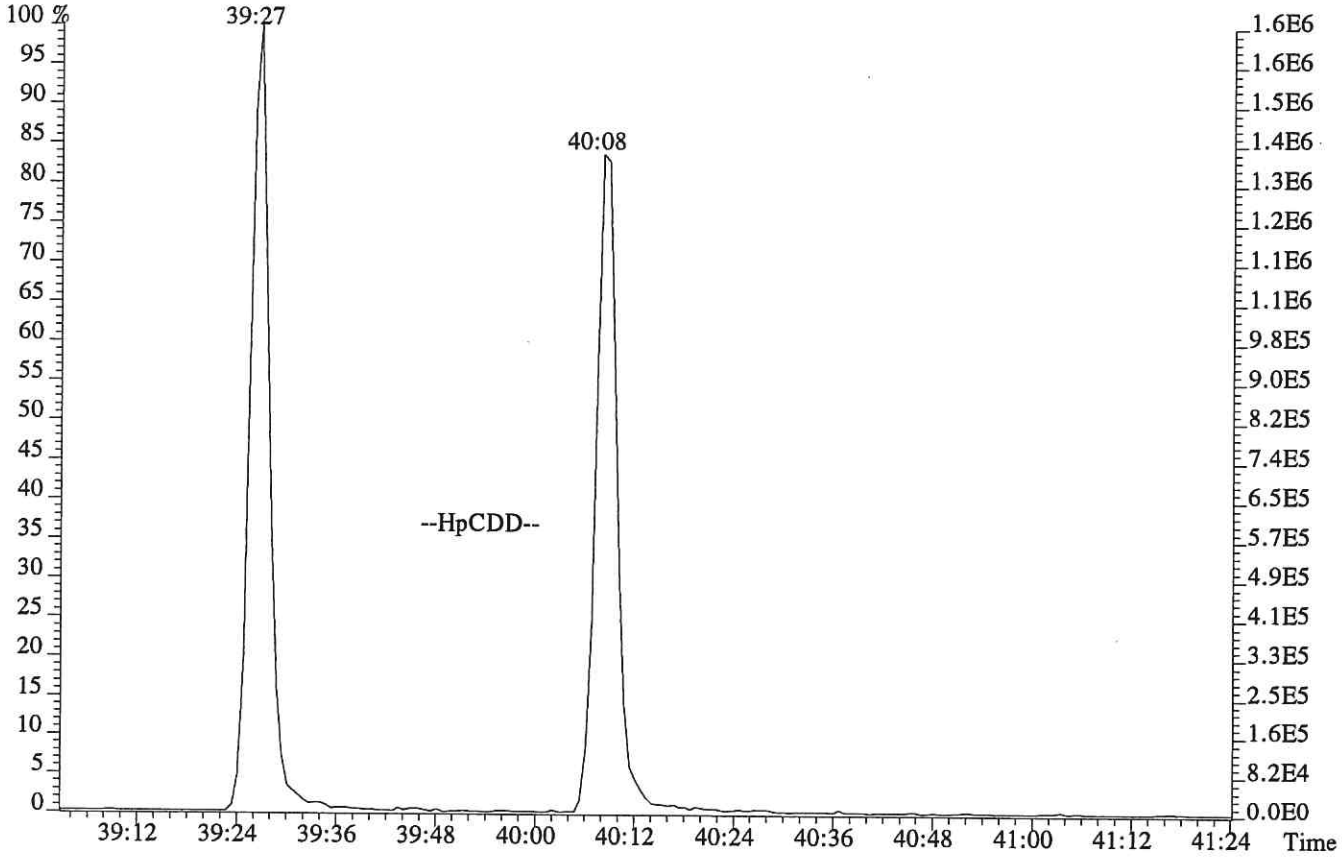


RIGHT SOLUTIONS | RIGHT PARTNER

File:P619246 #1-213 Acq: 4-OCT-2019 00:33:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
407.7818 F:4



423.7766 F:4



RIGHT SOLUTIONS | RIGHT PARTNER

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).: 10/04/19
Method 8290/1613
Init. Calib. Time.: 02:18:06

Target Analytes	RR/RRF CS0.5	CS1	CS2	CS3	CS4	CS5	MEAN RR/RRF	%RSD	QC LIMITS
2,3,7,8-TCDD	1.05	1.00	0.97	1.00	1.02	1.04	1.01	3.14	+/-20%
2,3,7,8-TCDF	1.09	1.00	1.02	0.97	1.00	1.02	1.02	4.05	+/-20%
1,2,3,7,8-PeCDF	1.03	0.96	0.99	1.04	1.04	1.06	1.02	3.77	+/-20%
1,2,3,7,8-PeCDD	1.02	0.98	1.01	0.98	0.99	0.99	0.99	1.59	+/-20%
2,3,4,7,8-PeCDF	0.97	0.97	0.99	0.99	0.98	0.99	0.98	1.15	+/-20%
1,2,3,4,7,8-HxCDF	1.22	1.23	1.22	1.24	1.23	1.24	1.23	0.60	+/-20%
1,2,3,6,7,8-HxCDF	1.04	1.10	1.11	1.14	1.13	1.13	1.11	3.06	+/-20%
1,2,3,4,7,8-HxCDD	1.06	1.06	1.07	1.10	1.10	1.12	1.08	2.27	+/-20%
1,2,3,6,7,8-HxCDD	1.02	1.05	1.12	1.10	1.09	1.10	1.08	3.47	+/-20%
1,2,3,7,8,9-HxCDD	1.19	1.15	1.16	1.20	1.17	1.18	1.17	1.51	+/-20%
2,3,4,6,7,8-HxCDF	1.11	1.10	1.13	1.14	1.13	1.15	1.13	1.57	+/-20%
1,2,3,7,8,9-HxCDF	1.12	1.09	1.17	1.16	1.16	1.15	1.14	2.73	+/-20%
1,2,3,4,6,7,8-HpCDF	1.30	1.31	1.28	1.35	1.34	1.36	1.32	2.39	+/-20%
1,2,3,4,6,7,8-HpCDD	1.06	1.03	1.01	1.07	1.08	1.07	1.05	2.69	+/-20%
1,2,3,4,7,8,9-HpCDF	1.27	1.18	1.29	1.25	1.26	1.27	1.25	3.00	+/-20%
OCDD	1.23	1.10	1.10	1.18	1.17	1.17	1.16	4.31	+/-20%
OCDF	1.36	1.31	1.32	1.42	1.41	1.41	1.37	3.67	+/-20%
Labeled Compounds									
13C-2,3,7,8-TCDD	0.96	0.97	0.96	0.95	0.97	1.01	0.97	2.09	+/-35%
13C-1,2,3,7,8-PeCDD	1.14	1.16	1.08	1.14	1.13	1.22	1.14	3.85	+/-35%
13C-1,2,3,4,7,8-HxCDD	0.93	0.92	0.91	0.92	0.91	0.89	0.91	1.67	+/-35%
13C-1,2,3,6,7,8-HxCDD	0.91	0.87	0.89	0.91	0.92	0.90	0.90	1.80	+/-35%
13C-1,2,3,4,6,7,8-HpCDD	1.04	0.98	1.01	1.00	0.98	0.97	1.00	2.56	+/-35%
13C-OCDD	0.85	0.81	0.83	0.78	0.81	0.81	0.82	2.70	+/-35%
13C-2,3,7,8-TCDF	1.35	1.35	1.33	1.33	1.32	1.36	1.34	1.07	+/-35%
13C-1,2,3,7,8-PeCDF	1.61	1.66	1.55	1.61	1.62	1.72	1.63	3.53	+/-35%
13C-2,3,4,7,8-PeCDF	1.65	1.68	1.55	1.64	1.64	1.73	1.65	3.59	+/-35%
13C-1,2,3,4,7,8-HxCDF	1.15	1.11	1.12	1.17	1.15	1.13	1.14	1.91	+/-35%
13C-1,2,3,6,7,8-HxCDF	1.32	1.27	1.32	1.36	1.31	1.26	1.31	2.67	+/-35%
13C-2,3,4,6,7,8-HxCDF	1.25	1.22	1.22	1.24	1.23	1.17	1.22	2.22	+/-35%
13C-1,2,3,7,8,9-HxCDF	1.16	1.14	1.12	1.16	1.13	1.12	1.14	1.55	+/-35%
13C-1,2,3,4,6,7,8-HpCDF	1.10	1.08	1.08	1.08	1.06	1.03	1.07	2.02	+/-35%
13C-1,2,3,4,7,8,9-HpCDF	1.00	0.96	0.96	0.96	0.96	0.93	0.96	2.23	+/-35%
37Cl-2,3,7,8-TCDD	0.97	0.98	1.02	0.98	1.00	1.07	1.00	3.60	+/-35%

1. 123789-HxCDD Relative Response (RR) is calculated based on the labeled analog of the other two HxCDDs.
2. OCDF RR is calculated based on the labeled analog of OCDD

FORM VI-HR CDD-1 DLM02.2

RIGHT SOLUTIONS | RIGHT PARTNER

USEPA - CLP
6DFB6
CDD/CDF INITIAL CALIBRATION ION ABUNDANCE RATIO SUMMARY
HIGH RESOLUTION

Lab Name: ALS Environmental
Lab Code: ALSTX Case No.:
GC Column: DB-5MSUI ID: 0.25(mm)
Init. Calib. Date(s).: 10/04/19
Init. Calib. Time.: 02:18:06

Contract No.:
TO No.: SDG No.:
Instrument ID: E-HRMS-08
Method 8290/1613

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	0.71	0.72	0.75	0.78	0.77	0.78		0.65-0.89
2,3,7,8-TCDD	320/322	0.72	0.81	0.73	0.77	0.79	0.79		0.65-0.89
1,2,3,7,8-PeCDF	340/342	1.51	1.58	1.59	1.55	1.54	1.55		1.32-1.78
2,3,4,7,8-PeCDF	340/342	1.64	1.45	1.52	1.54	1.55	1.54		1.32-1.78
1,2,3,7,8-PeCDD	356/358	1.47	1.58	1.63	1.59	1.60	1.58		1.32-1.78
1,2,3,4,7,8-HxCDF	374/376	1.26	1.29	1.25	1.24	1.23	1.23		1.05-1.43
1,2,3,6,7,8-HxCDF	374/376	1.28	1.22	1.23	1.24	1.24	1.24		1.05-1.43
2,3,4,6,7,8-HxCDF	374/376	1.30	1.22	1.24	1.24	1.24	1.22		1.05-1.43
1,2,3,7,8,9-HxCDF	374/376	1.23	1.27	1.22	1.25	1.25	1.25		1.05-1.43
1,2,3,4,7,8-HxCDD	390/392	1.23	1.22	1.25	1.32	1.25	1.26		1.05-1.43
1,2,3,6,7,8-HxCDD	390/392	1.14	1.36	1.21	1.20	1.27	1.26		1.05-1.43
1,2,3,7,8,9-HxCDD	390/392	1.20	1.29	1.25	1.25	1.25	1.26		1.05-1.43
1,2,3,4,6,7,8-HpCDF	408/410	1.10	1.01	1.03	1.02	1.03	1.02		0.88-1.20
1,2,3,4,7,8,9-HpCDF	408/410	0.93	1.02	1.00	1.02	1.01	1.03		0.88-1.20
1,2,3,4,6,7,8-HpCDD	424/426	1.16	1.02	1.06	1.06	1.05	1.04		0.88-1.20
OCDF	442/444	0.90	0.89	0.90	0.91	0.90	0.90		0.76-1.02
OCDD	458/460	0.86	0.87	0.91	0.90	0.90	0.90		0.76-1.02
13C-2,3,7,8-TCDD	332/334	0.78	0.78	0.77	0.78	0.77	0.79		0.65-0.89
13C-1,2,3,7,8-PeCDD	368/370	1.56	1.57	1.58	1.58	1.56	1.56		1.32-1.78
13C-1,2,3,4,7,8-HxCDD	402/404	1.29	1.28	1.28	1.34	1.28	1.28		1.05-1.43
13C-1,2,3,6,7,8-HxCDD	402/404	1.28	1.25	1.25	1.22	1.28	1.27		1.05-1.43
13C-1,2,3,4,6,7,8-HpCDD	436/438	1.07	1.06	1.07	1.08	1.07	1.07		0.88-1.20
13C-OCDD	470/472	0.91	0.91	0.91	0.92	0.91	0.91		0.76-1.02
13C-2,3,7,8-TCDF	316/318	0.80	0.80	0.80	0.80	0.80	0.80		0.65-0.89
13C-1,2,3,7,8-PeCDF	352/354	1.59	1.60	1.58	1.61	1.59	1.59		1.32-1.78
13C-2,3,4,7,8-PeCDF	352/354	1.59	1.59	1.59	1.61	1.59	1.60		1.32-1.78
13C-1,2,3,4,7,8-HxCDF	384/386	0.52	0.52	0.52	0.53	0.52	0.52		0.43-0.59
13C-1,2,3,6,7,8-HxCDF	384/386	0.52	0.53	0.52	0.53	0.53	0.53		0.43-0.59
13C-2,3,4,6,7,8-HxCDF	384/386	0.53	0.53	0.53	0.53	0.53	0.53		0.43-0.59
13C-1,2,3,7,8,9-HxCDF	384/386	0.52	0.53	0.52	0.52	0.53	0.53		0.43-0.59
13C-1,2,3,4,6,7,8-HpCDF	418/420	0.45	0.45	0.45	0.45	0.45	0.44		0.37-0.51
13C-1,2,3,4,7,8,9-HpCDF	418/420	0.45	0.45	0.45	0.45	0.45	0.45		0.37-0.51
13C-1,2,3,4-TCDD	332/334	0.79	0.79	0.79	0.78	0.79	0.79		0.65-0.89
13C-1,2,3,7,8,9-HxCDD	402/404	1.29	1.27	1.27	1.26	1.25	1.28		1.05-1.43

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

FORM VI-HR CDD-2 DLM02.2

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Sample Response Summary

CLIENT ID.
193431

Run #1 Filename p619248 #1 Samp: 1 Inj: 1 Acquired: 4-OCT-19 02:18:06
Processed: 4-OCT-19 09:01:52 LAB. ID: CS0.50

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	29:21	9.643e+01	1.360e+02	0.71	yes	no	1.017
2	Unk	1,2,3,7,8-PeCDF	33:15	7.859e+02	5.193e+02	1.51	yes	no	1.021
3	Unk	2,3,4,7,8-PeCDF	34:07	7.848e+02	4.788e+02	1.64	yes	no	0.983
4	Unk	1,2,3,4,7,8-HxCDF	36:40	7.774e+02	6.185e+02	1.26	yes	no	1.229
5	Unk	1,2,3,6,7,8-HxCDF	36:46	7.736e+02	6.026e+02	1.28	yes	no	1.109
6	Unk	2,3,4,6,7,8-HxCDF	37:15	7.878e+02	6.060e+02	1.30	yes	no	1.125
7	Unk	1,2,3,7,8,9-HxCDF	38:00	7.159e+02	5.810e+02	1.23	yes	no	1.143
8	Unk	1,2,3,4,6,7,8-HpCDF	39:13	7.436e+02	6.787e+02	1.10	yes	no	1.323
9	Unk	1,2,3,4,7,8,9-HpCDF	40:39	6.119e+02	6.549e+02	0.93	yes	no	1.253
10	Unk	OCDF	43:15	1.092e+03	1.213e+03	0.90	yes	no	1.373
11	Unk	2,3,7,8-TCDD	30:03	6.700e+01	9.263e+01	0.72	yes	no	1.012
12	Unk	1,2,3,7,8-PeCDD	34:22	5.421e+02	3.678e+02	1.47	yes	no	0.993
13	Unk	1,2,3,4,7,8-HxCDD	37:22	5.429e+02	4.428e+02	1.23	yes	no	1.082
14	Unk	1,2,3,6,7,8-HxCDD	37:27	4.932e+02	4.337e+02	1.14	yes	no	1.083
15	Unk	1,2,3,7,8,9-HxCDD	37:41	5.958e+02	4.957e+02	1.20	yes	no	1.174
16	Unk	1,2,3,4,6,7,8-HpCDD	40:09	5.895e+02	5.078e+02	1.16	yes	no	1.053
17	Unk	OCDD	43:02	9.667e+02	1.119e+03	0.86	yes	no	1.160
18	IS	13C-2,3,7,8-TCDF	29:20	3.800e+04	4.726e+04	0.80	yes	no	1.341
19	IS	13C-1,2,3,7,8-PeCDF	33:14	6.220e+04	3.900e+04	1.59	yes	no	1.627
20	IS	13C-2,3,4,7,8-PeCDF	34:06	6.383e+04	4.019e+04	1.59	yes	no	1.651
21	IS	13C-1,2,3,4,7,8-HxCDF	36:39	3.125e+04	6.037e+04	0.52	yes	no	1.137
22	IS	13C-1,2,3,6,7,8-HxCDF	36:46	3.607e+04	6.930e+04	0.52	yes	no	1.307
23	IS	13C-2,3,4,6,7,8-HxCDF	37:14	3.456e+04	6.566e+04	0.53	yes	no	1.222
24	IS	13C-1,2,3,7,8,9-HxCDF	37:59	3.179e+04	6.063e+04	0.52	yes	no	1.137
25	IS	13C-1,2,3,4,6,7,8-HpCDF	39:12	2.722e+04	6.048e+04	0.45	yes	no	1.069
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:39	2.462e+04	5.511e+04	0.45	yes	no	0.961
27	IS	13C-2,3,7,8-TCDD	30:02	2.660e+04	3.395e+04	0.78	yes	no	0.970
28	IS	13C-1,2,3,7,8-PeCDD	34:21	4.362e+04	2.800e+04	1.56	yes	no	1.142
29	IS	13C-1,2,3,4,7,8-HxCDD	37:22	4.200e+04	3.268e+04	1.29	yes	no	0.914
30	IS	13C-1,2,3,6,7,8-HxCDD	37:26	4.065e+04	3.181e+04	1.28	yes	no	0.899
31	IS	13C-1,2,3,4,6,7,8-HpCDD	40:08	4.295e+04	4.008e+04	1.07	yes	no	0.997
32	IS	13C-OCDD	43:01	6.445e+04	7.095e+04	0.91	yes	no	0.817
33	RS/RT	13C-1,2,3,4-TCDD	29:30	2.781e+04	3.524e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:40	4.508e+04	3.491e+04	1.29	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	30:04	1.536e+02				no	1.005

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Signal/Noise Height Ratio Summary

CLIENT ID.
193431

Run #1 Filename p619248 Samp: 1 Inj: 1 Acquired: 4-OCT-19 02:18:06
Processed: 4-OCT-19 09:01:521 LAB. ID: CS0.50

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.79e+04	2.56e+02	7.0e+01	2.57e+04	3.20e+02	8.0e+01
2	1,2,3,7,8-PeCDF	1.57e+05	4.20e+02	3.7e+02	9.30e+04	6.80e+02	1.4e+02
3	2,3,4,7,8-PeCDF	1.65e+05	4.20e+02	3.9e+02	9.73e+04	6.80e+02	1.4e+02
4	1,2,3,4,7,8-HxCDF	1.78e+05	8.24e+02	2.2e+02	1.45e+05	1.02e+03	1.4e+02
5	1,2,3,6,7,8-HxCDF	1.77e+05	8.24e+02	2.1e+02	1.29e+05	1.02e+03	1.3e+02
6	2,3,4,6,7,8-HxCDF	1.90e+05	8.24e+02	2.3e+02	1.39e+05	1.02e+03	1.4e+02
7	1,2,3,7,8,9-HxCDF	1.53e+05	8.24e+02	1.9e+02	1.31e+05	1.02e+03	1.3e+02
8	1,2,3,4,6,7,8-HpCDF	1.69e+05	7.84e+02	2.2e+02	1.58e+05	9.12e+02	1.7e+02
9	1,2,3,4,7,8,9-HpCDF	1.25e+05	7.84e+02	1.6e+02	1.30e+05	9.12e+02	1.4e+02
10	OCDF	1.85e+05	1.60e+02	1.2e+03	2.06e+05	7.28e+02	2.8e+02
11	2,3,7,8-TCDD	1.44e+04	7.88e+02	1.8e+01	1.77e+04	2.96e+02	6.0e+01
12	1,2,3,7,8-PeCDD	1.06e+05	4.60e+02	2.3e+02	7.83e+04	2.60e+02	3.0e+02
13	1,2,3,4,7,8-HxCDD	1.21e+05	1.72e+02	7.0e+02	9.76e+04	2.48e+02	3.9e+02
14	1,2,3,6,7,8-HxCDD	1.10e+05	1.72e+02	6.4e+02	9.53e+04	2.48e+02	3.8e+02
15	1,2,3,7,8,9-HxCDD	1.25e+05	1.72e+02	7.3e+02	1.10e+05	2.48e+02	4.4e+02
16	1,2,3,4,6,7,8-HpCDD	1.25e+05	1.11e+03	1.1e+02	1.03e+05	2.84e+02	3.6e+02
17	OCDD	1.73e+05	2.64e+02	6.6e+02	2.05e+05	4.96e+02	4.1e+02
18	13C-2,3,7,8-TCDF	7.14e+06	3.36e+03	2.1e+03	8.83e+06	1.91e+03	4.6e+03
19	13C-1,2,3,7,8-PeCDF	1.21e+07	7.32e+03	1.6e+03	7.57e+06	6.48e+02	1.2e+04
20	13C-2,3,4,7,8-PeCDF	1.30e+07	7.32e+03	1.8e+03	8.11e+06	6.48e+02	1.3e+04
21	13C-1,2,3,4,7,8-HxCDF	6.97e+06	4.84e+02	1.4e+04	1.35e+07	8.48e+02	1.6e+04
22	13C-1,2,3,6,7,8-HxCDF	7.92e+06	4.84e+02	1.6e+04	1.51e+07	8.48e+02	1.8e+04
23	13C-2,3,4,6,7,8-HxCDF	7.89e+06	4.84e+02	1.6e+04	1.49e+07	8.48e+02	1.8e+04
24	13C-1,2,3,7,8,9-HxCDF	6.84e+06	4.84e+02	1.4e+04	1.29e+07	8.48e+02	1.5e+04
25	13C-1,2,3,4,6,7,8-HpCDF	5.99e+06	1.01e+04	5.9e+02	1.34e+07	2.03e+04	6.6e+02
26	13C-1,2,3,4,7,8,9-HpCDF	4.93e+06	1.01e+04	4.9e+02	1.11e+07	2.03e+04	5.5e+02
27	13C-2,3,7,8-TCDD	5.45e+06	3.50e+03	1.6e+03	6.84e+06	8.92e+02	7.7e+03
28	13C-1,2,3,7,8-PeCDD	9.02e+06	2.68e+02	3.4e+04	5.76e+06	5.12e+02	1.1e+04
29	13C-1,2,3,4,7,8-HxCDD	9.70e+06	7.88e+02	1.2e+04	7.47e+06	5.56e+02	1.3e+04
30	13C-1,2,3,6,7,8-HxCDD	9.15e+06	7.88e+02	1.2e+04	7.25e+06	5.56e+02	1.3e+04
31	13C-1,2,3,4,6,7,8-HpCDD	8.83e+06	5.00e+02	1.8e+04	8.31e+06	5.32e+02	1.6e+04
32	13C-OCDD	1.15e+07	2.40e+02	4.8e+04	1.26e+07	2.08e+02	6.0e+04
33	13C-1,2,3,4-TCDD	5.64e+06	3.50e+03	1.6e+03	7.13e+06	8.92e+02	8.0e+03
34	13C-1,2,3,7,8,9-HxCDD	9.80e+06	7.88e+02	1.2e+04	7.80e+06	5.56e+02	1.4e+04
35	37Cl-2,3,7,8-TCDD	2.98e+04	2.52e+02	1.2e+02			

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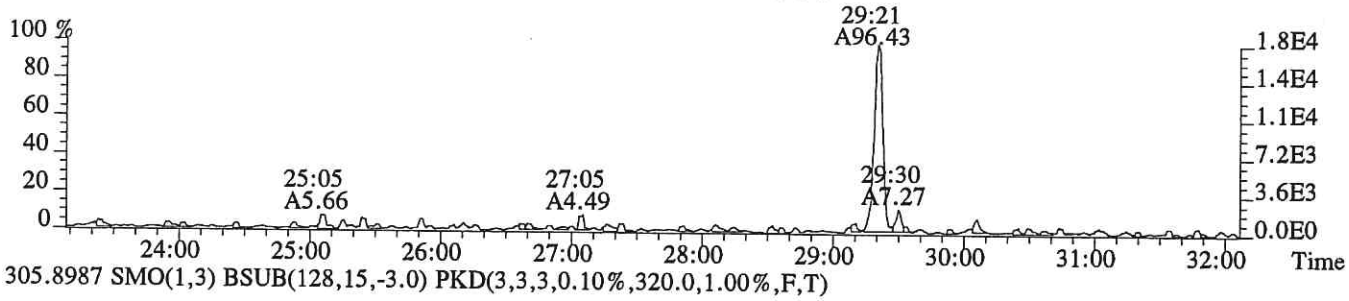
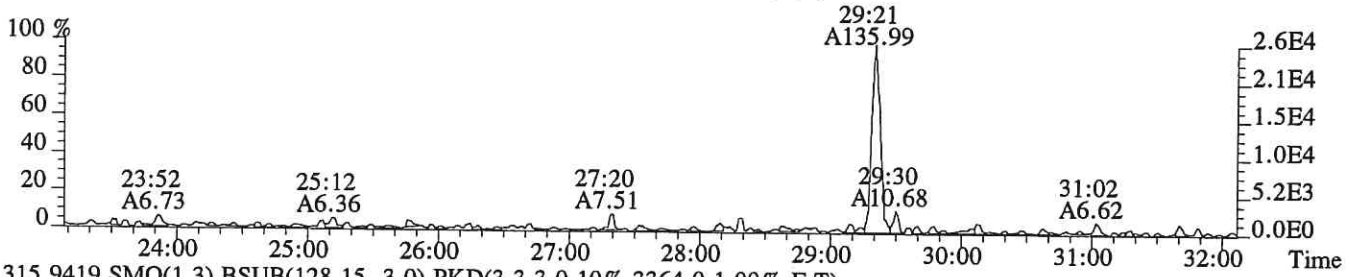
File:P619248 #1-637 Acq: 4-OCT-2019 02:18:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5

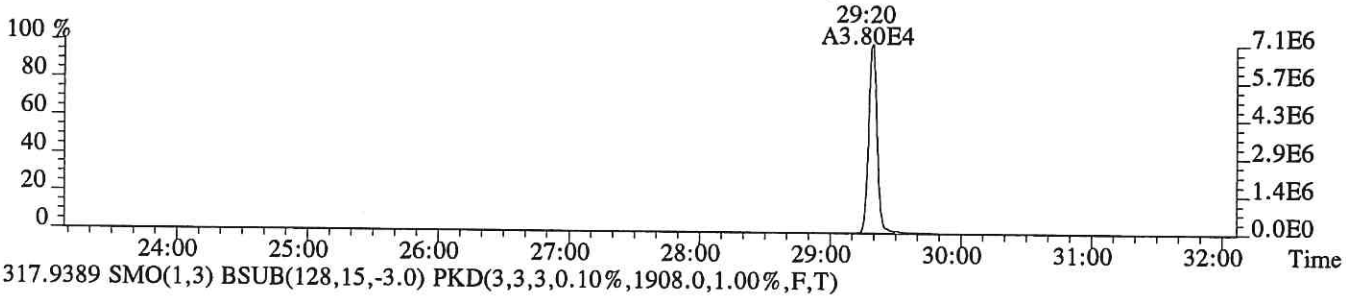
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,256.0,1.00%,F,T)



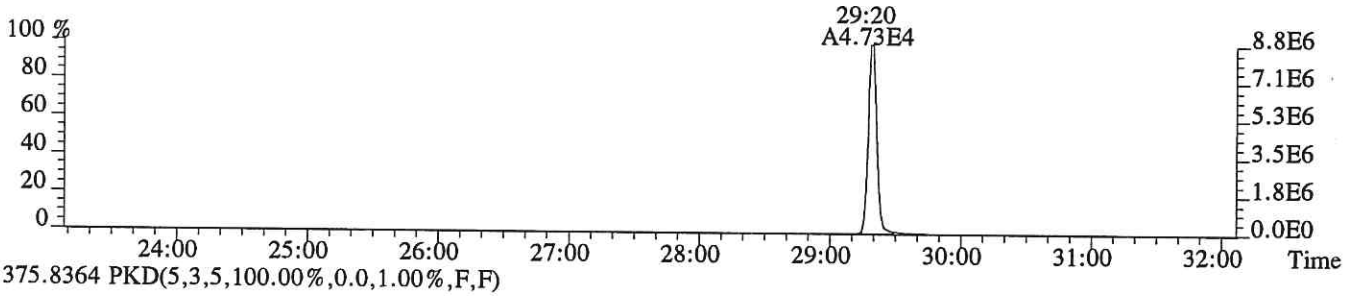
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,320.0,1.00%,F,T)



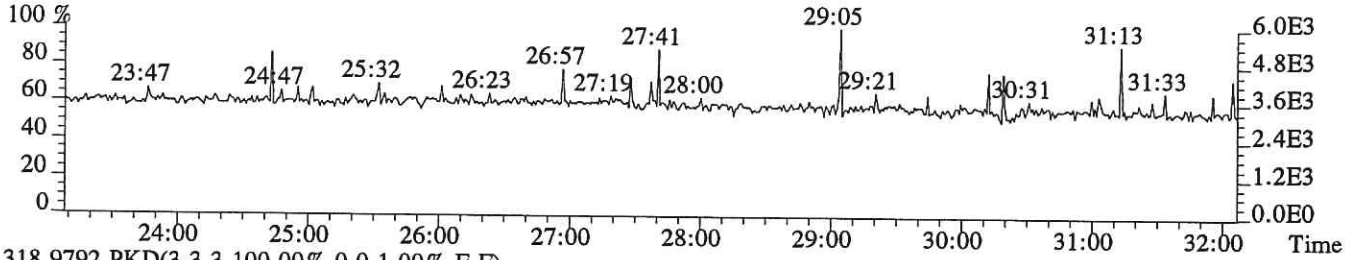
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3364.0,1.00%,F,T)



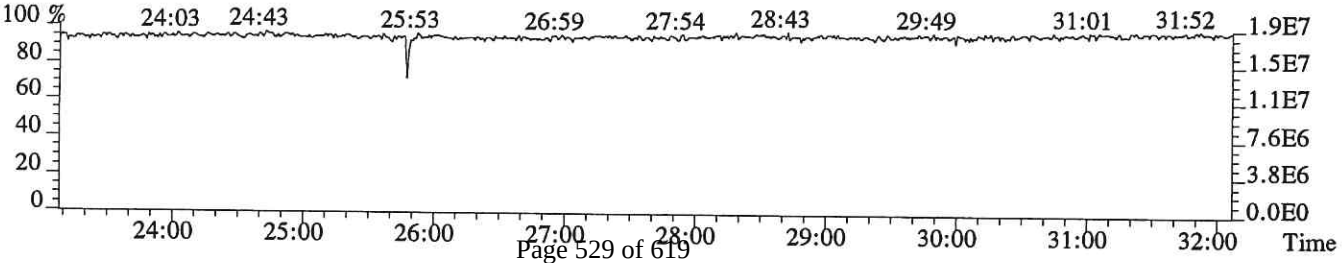
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1908.0,1.00%,F,T)



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



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



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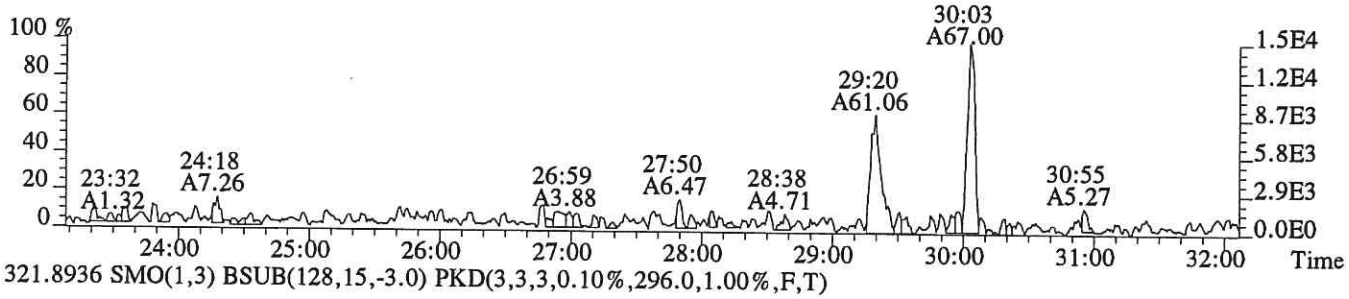
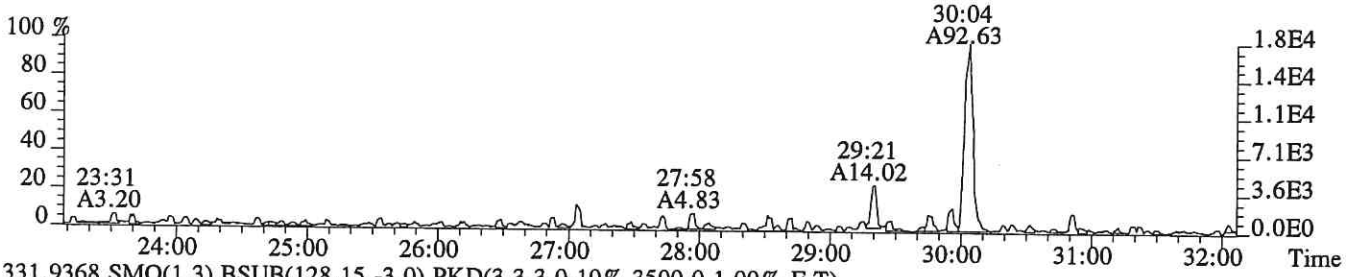
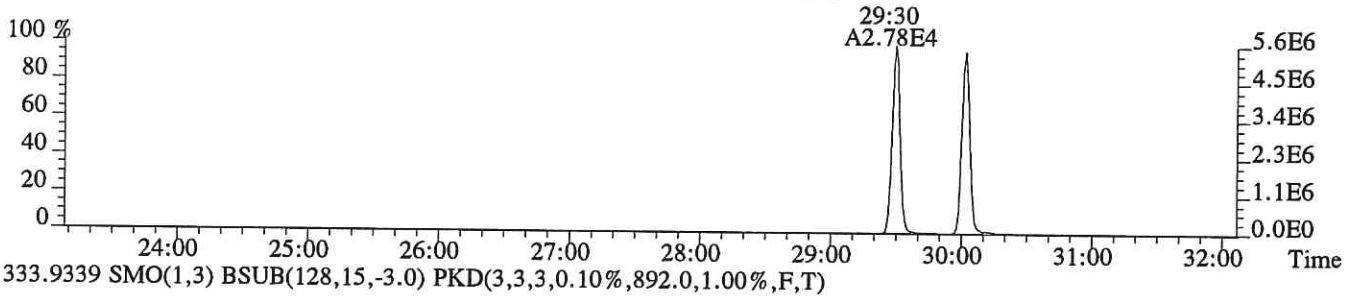
File:P619248 #1-637 Acq: 4-OCT-2019 02:18:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,788.0,1.00%,F,T)



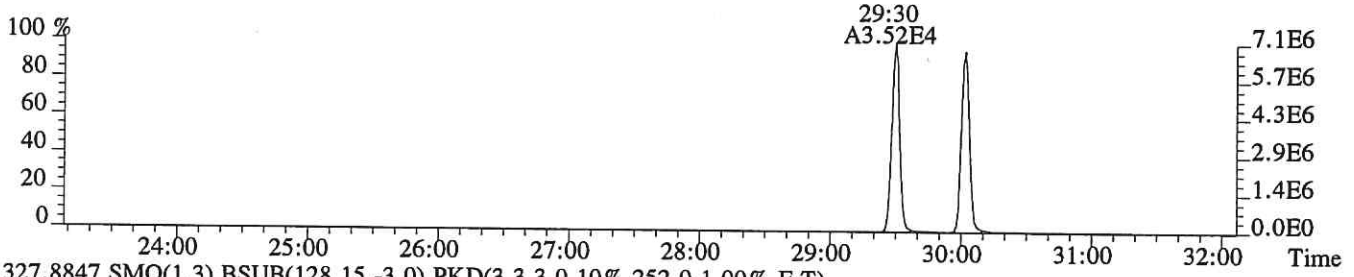
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,296.0,1.00%,F,T)



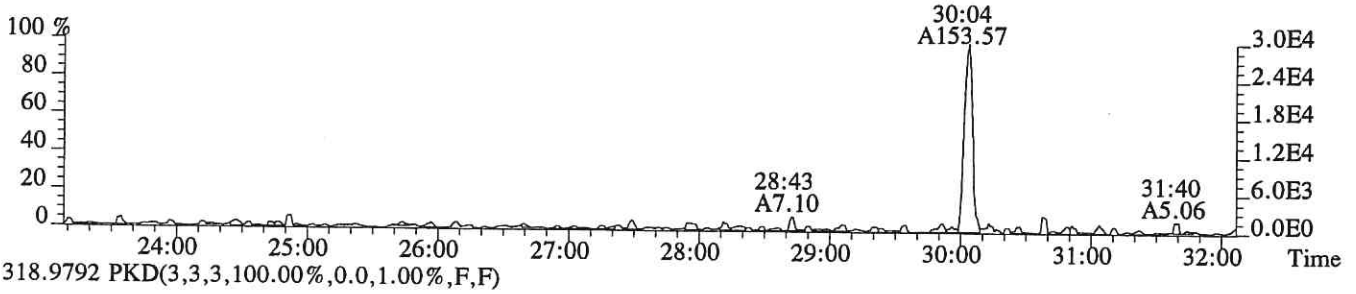
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3500.0,1.00%,F,T)



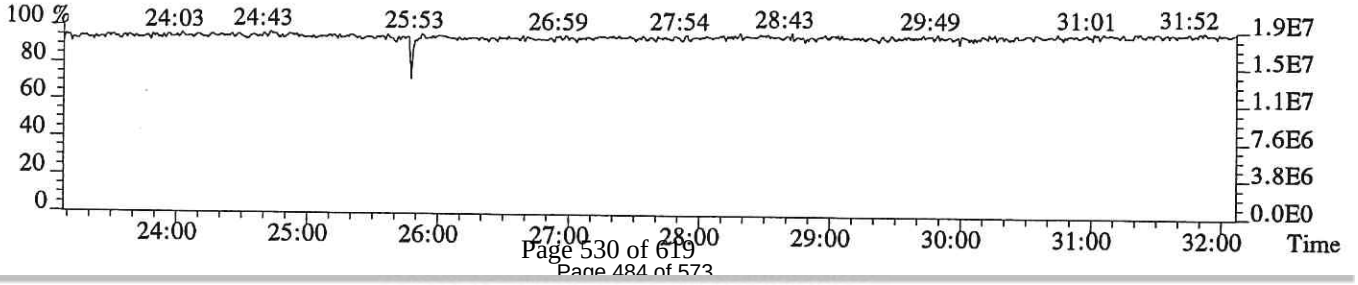
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,892.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,252.0,1.00%,F,T)

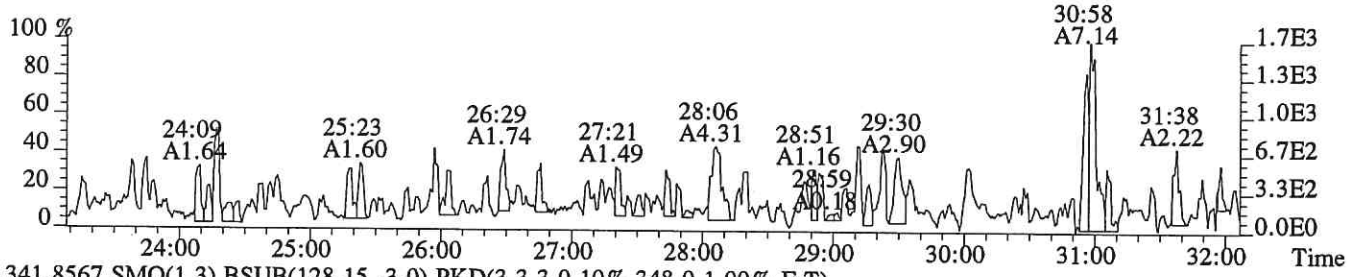


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

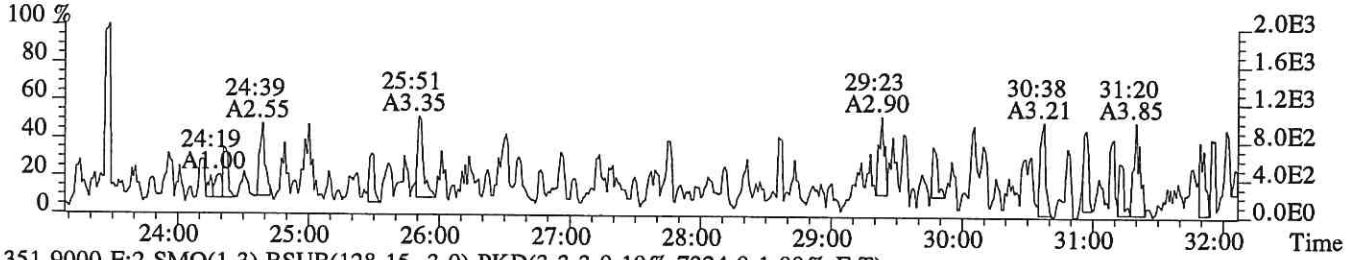


RIGHT SOLUTIONS | RIGHT PARTNER

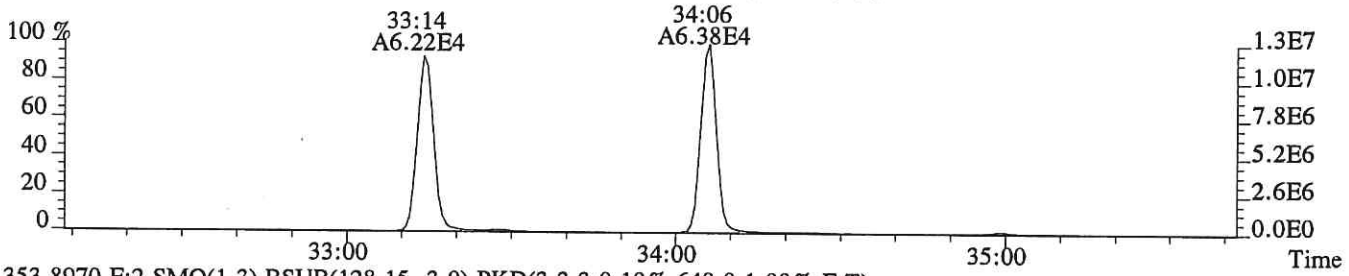
File:P619248 #1-637 Acq: 4-OCT-2019 02:18:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,240.0,1.00%,F,T)



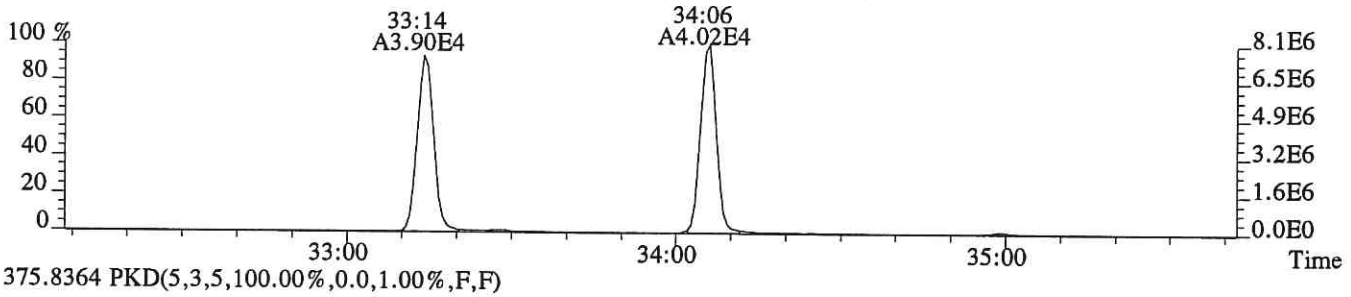
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,348.0,1.00%,F,T)



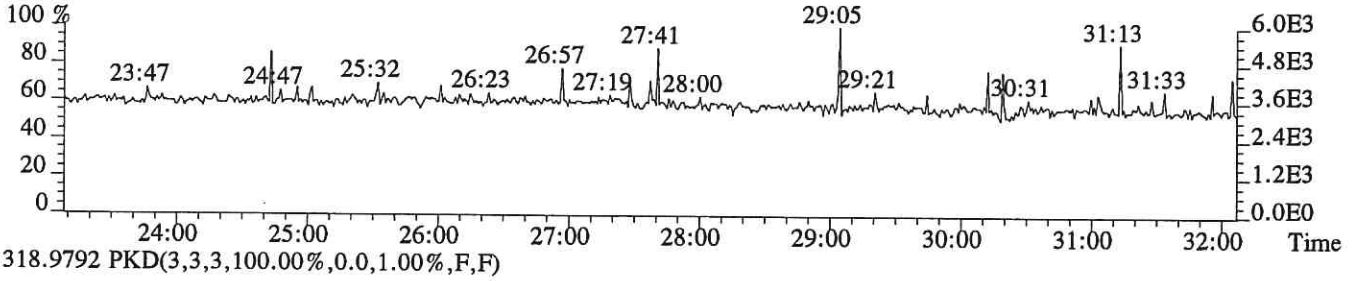
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7324.0,1.00%,F,T)



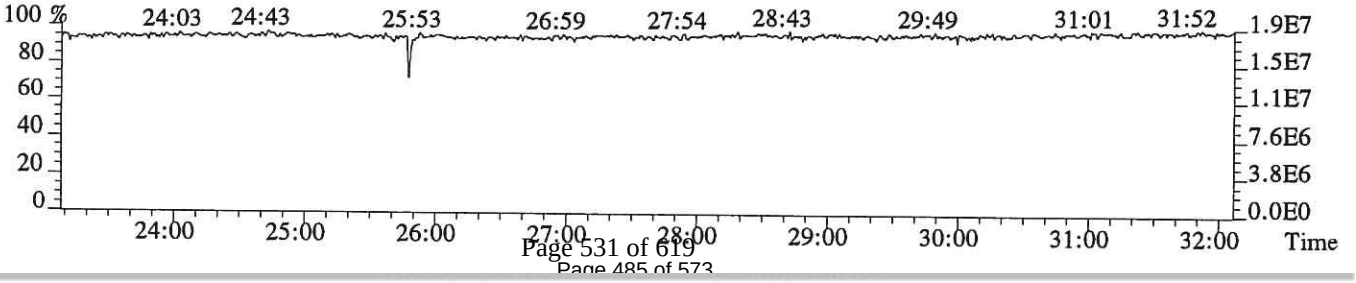
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



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



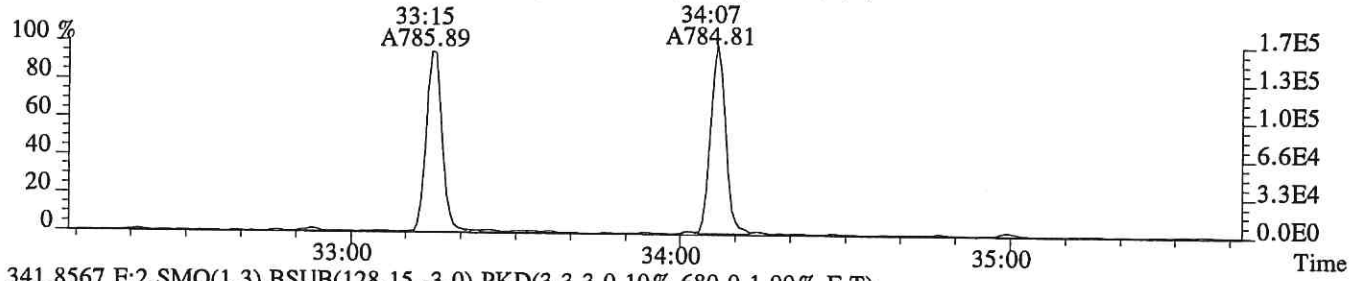
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



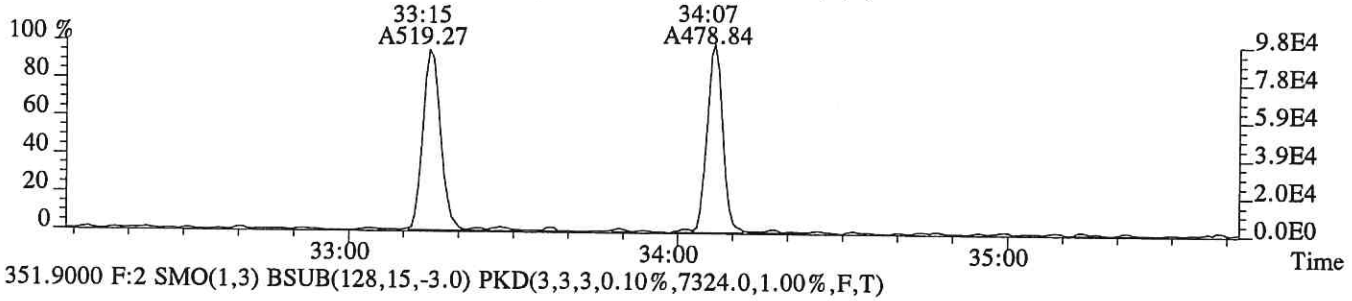
RIGHT SOLUTIONS | RIGHT PARTNER

File:P619248 #1-321 Acq: 4-OCT-2019 02:18:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5

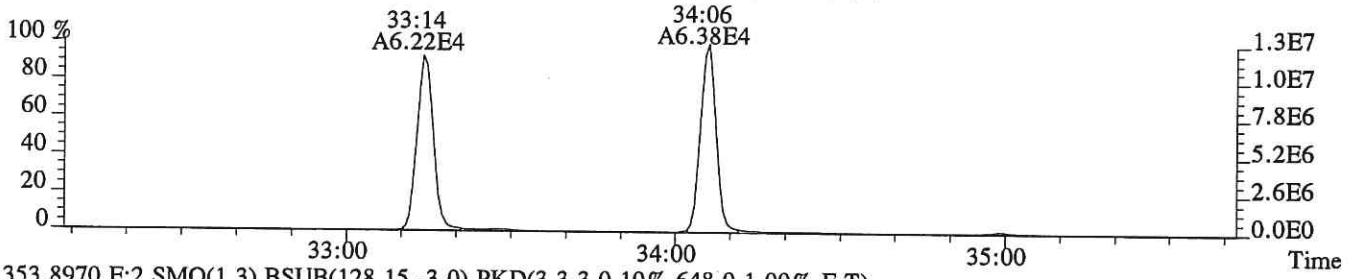
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,420.0,1.00%,F,T)



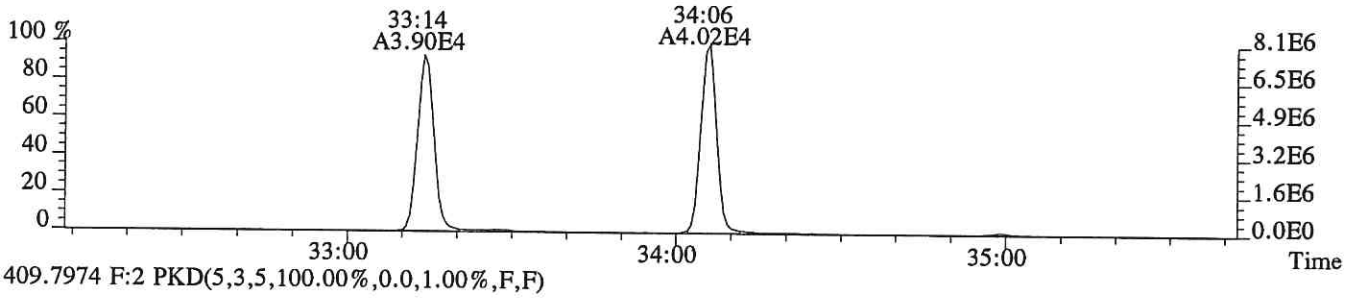
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,680.0,1.00%,F,T)



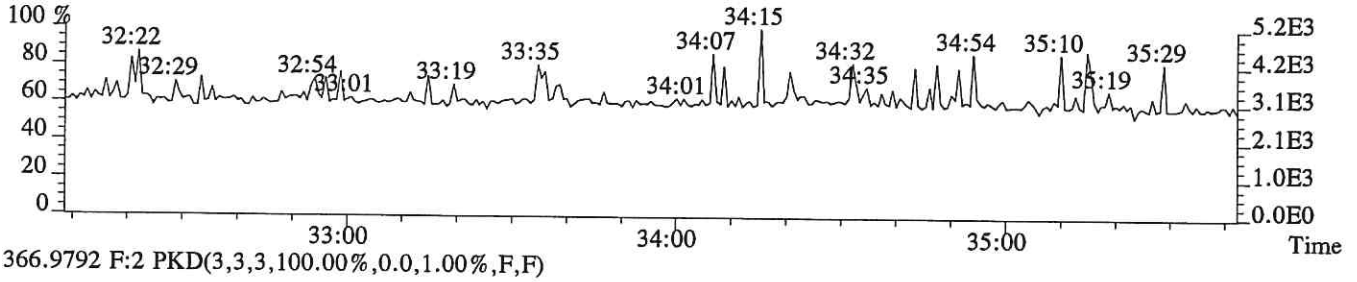
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7324.0,1.00%,F,T)



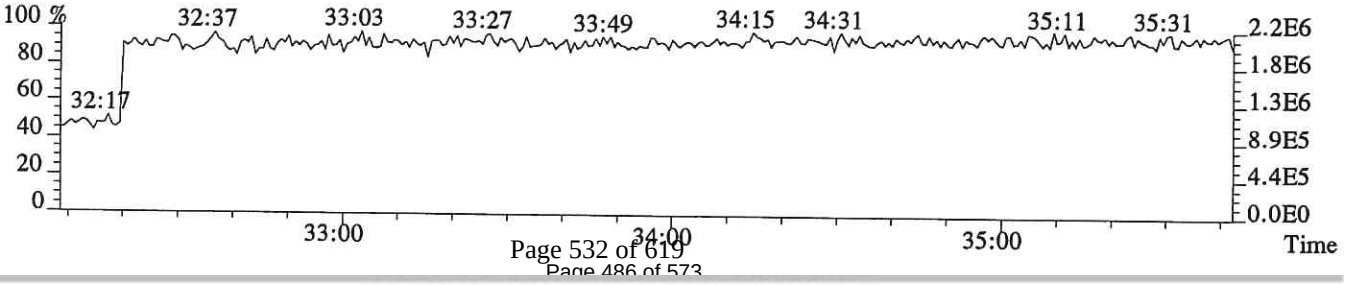
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



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



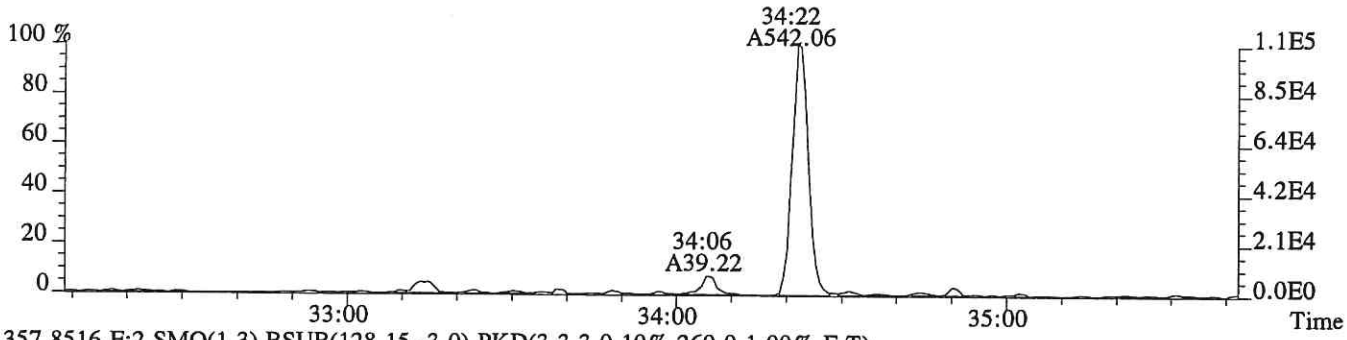
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



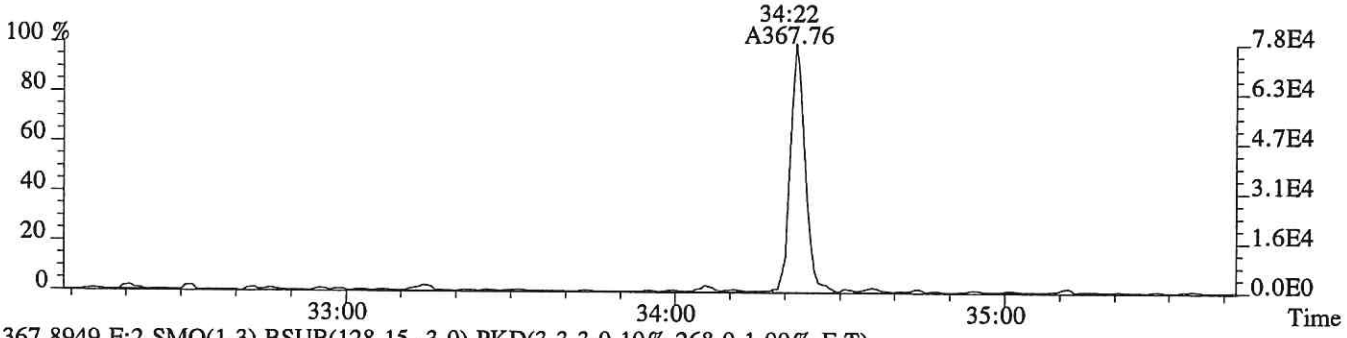
RIGHT SOLUTIONS | RIGHT PARTNER

File:P619248 #1-321 Acq: 4-OCT-2019 02:18:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5

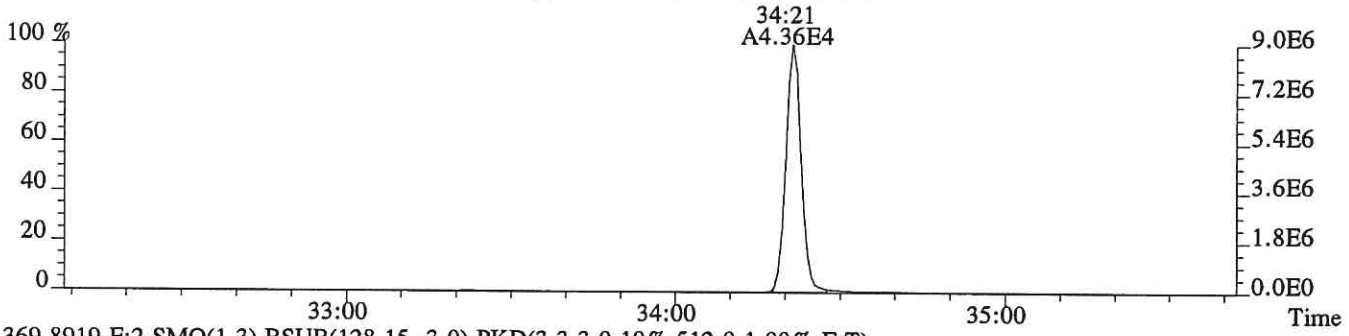
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,460.0,1.00%,F,T)



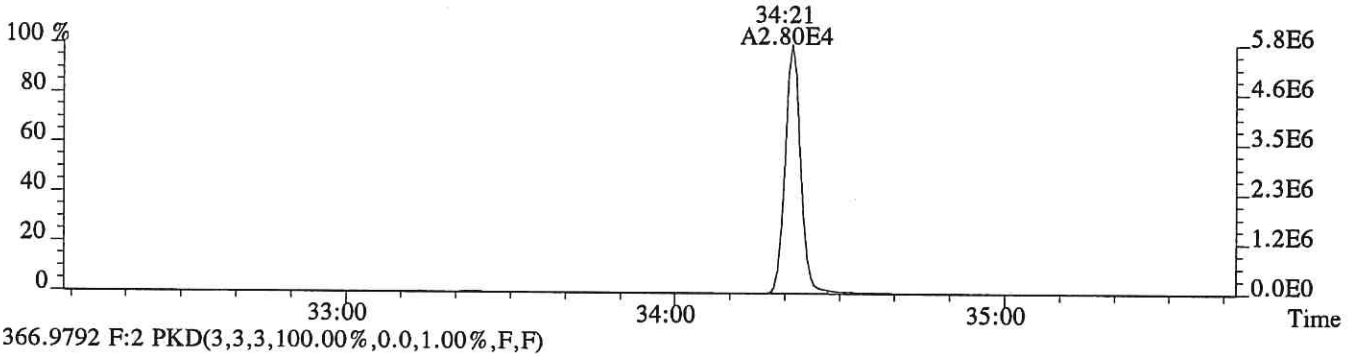
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,260.0,1.00%,F,T)



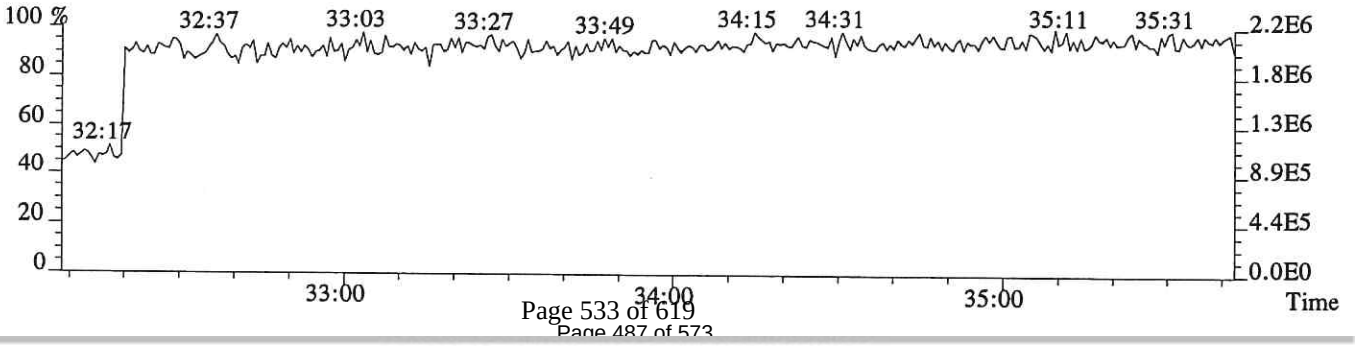
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,268.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,512.0,1.00%,F,T)



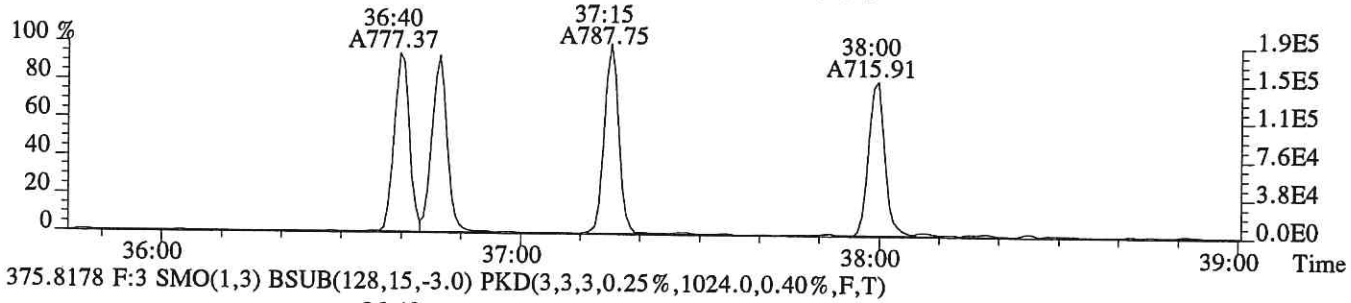
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



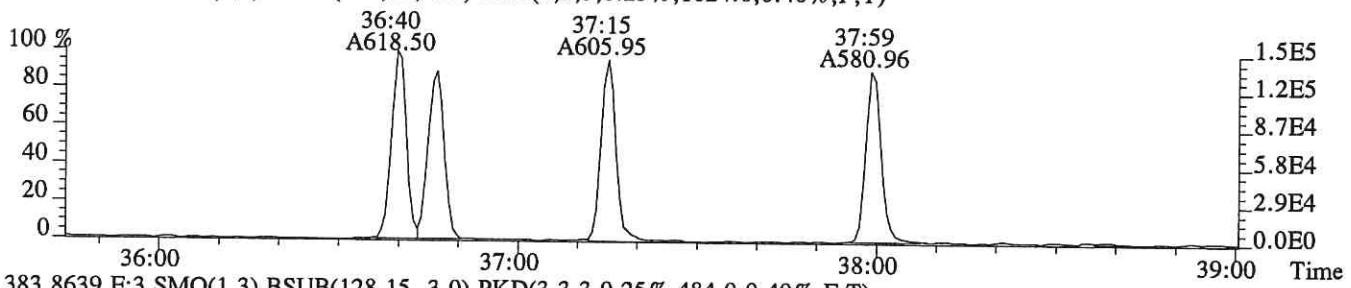
RIGHT SOLUTIONS | RIGHT PARTNER

File:P619248 #1-295 Acq: 4-OCT-2019 02:18:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5

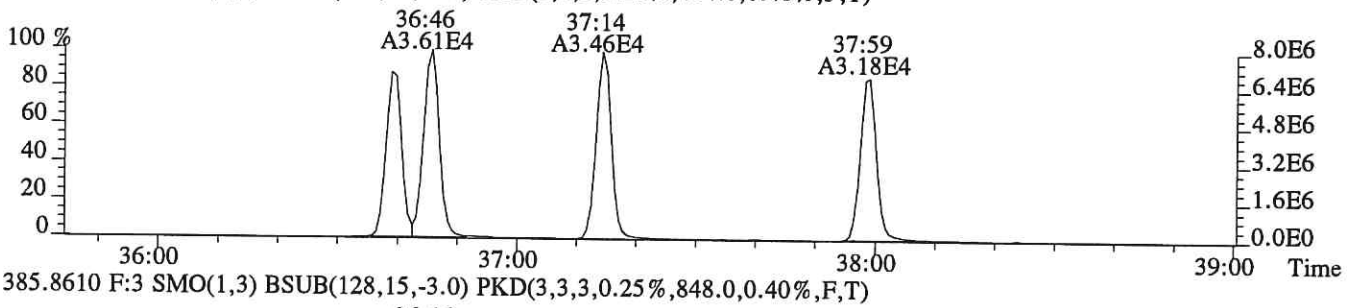
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,824.0,0.40%,F,T)



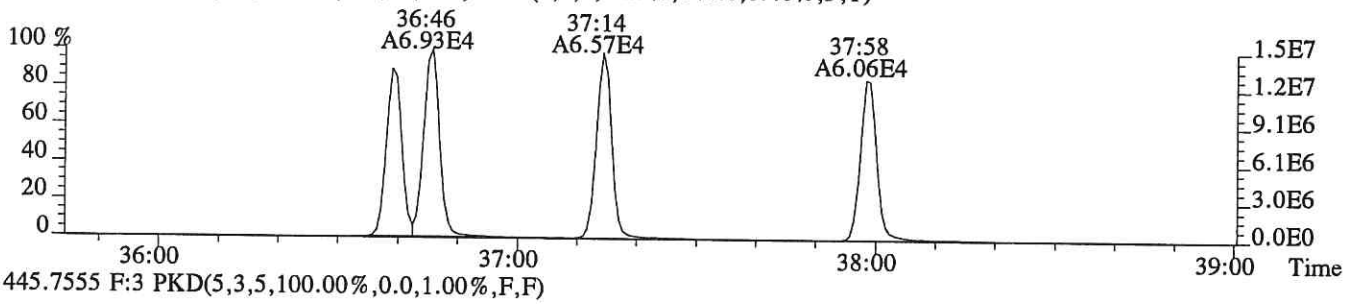
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1024.0,0.40%,F,T)



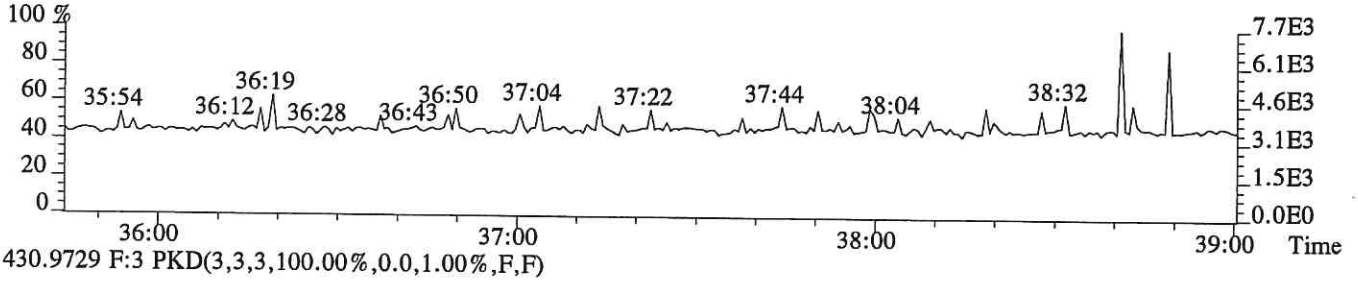
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,484.0,0.40%,F,T)



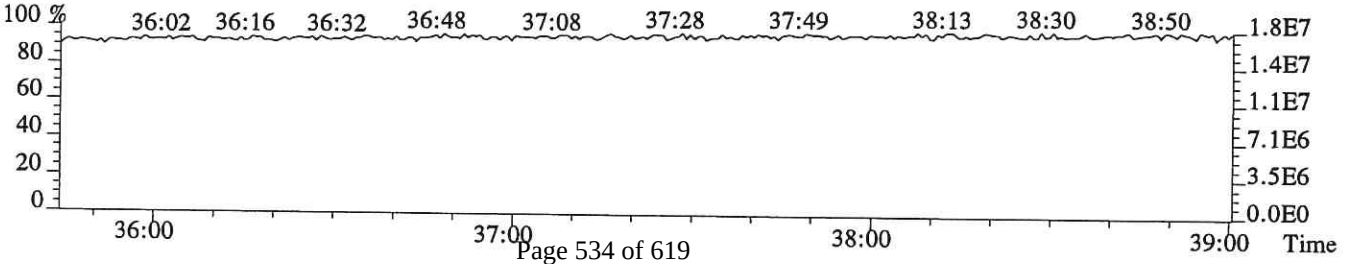
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,848.0,0.40%,F,T)



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



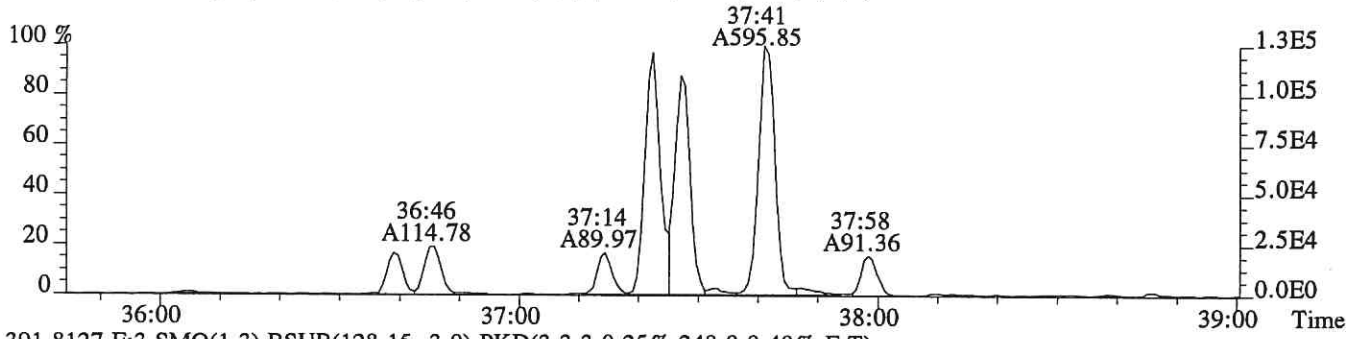
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



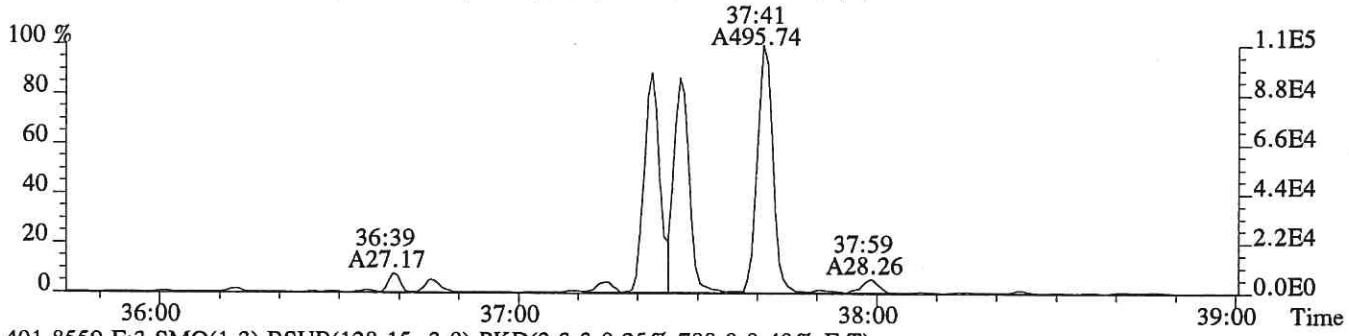
RIGHT SOLUTIONS | RIGHT PARTNER

File:P619248 #1-295 Acq: 4-OCT-2019 02:18:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5

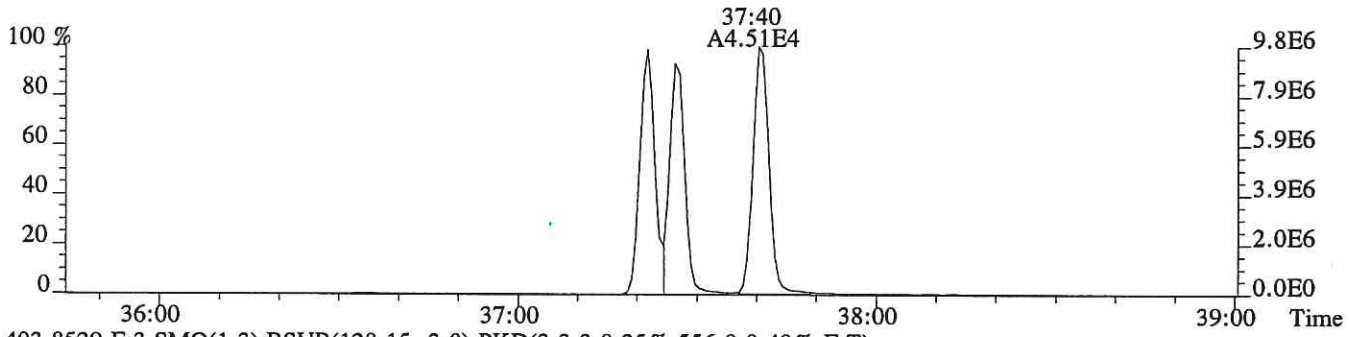
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,172.0,0.40%,F,T)



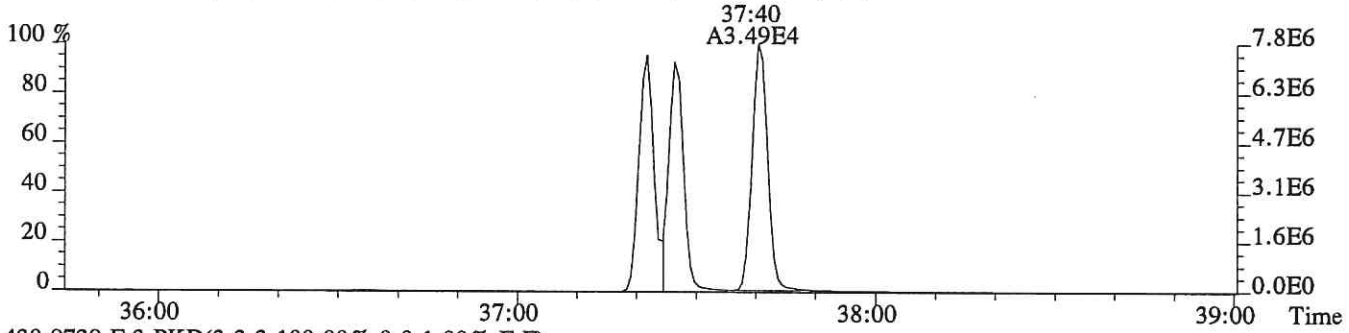
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,248.0,0.40%,F,T)



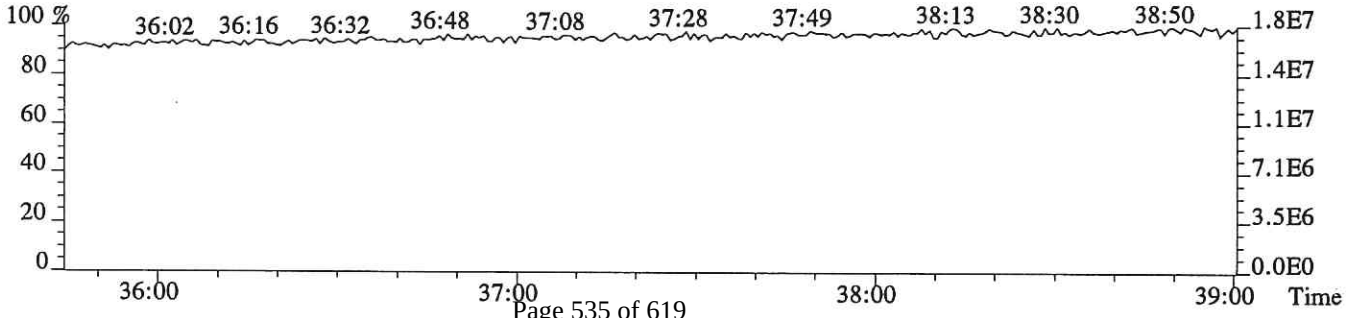
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,788.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,556.0,0.40%,F,T)



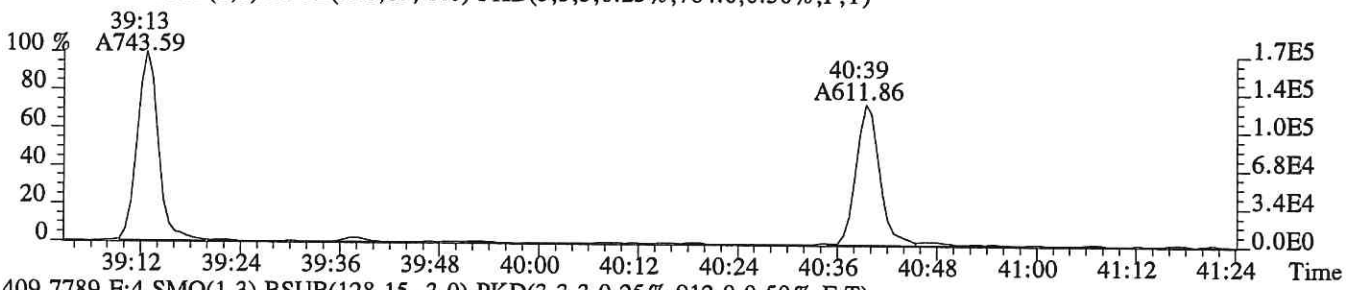
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



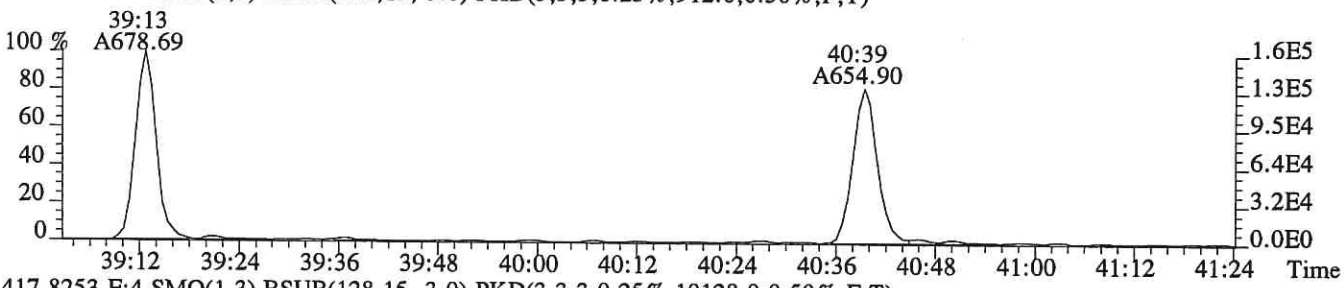
RIGHT SOLUTIONS | RIGHT PARTNER

File:P619248 #1-213 Acq: 4-OCT-2019 02:18:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5

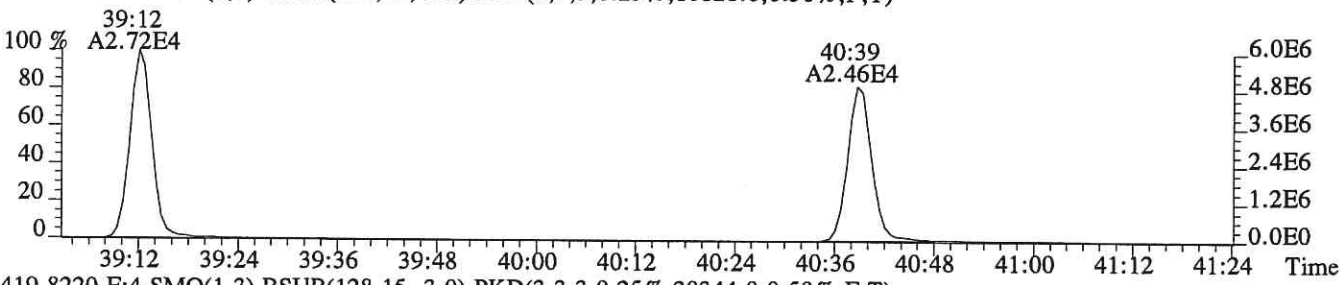
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,784.0,0.50%,F,T)



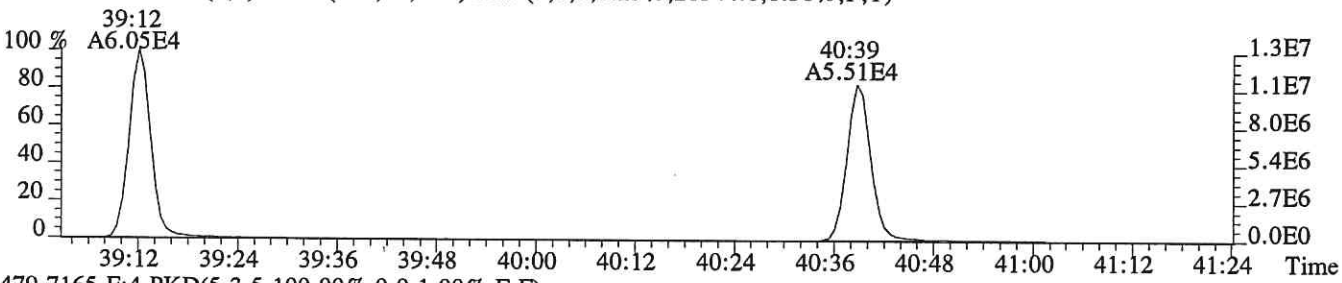
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,912.0,0.50%,F,T)



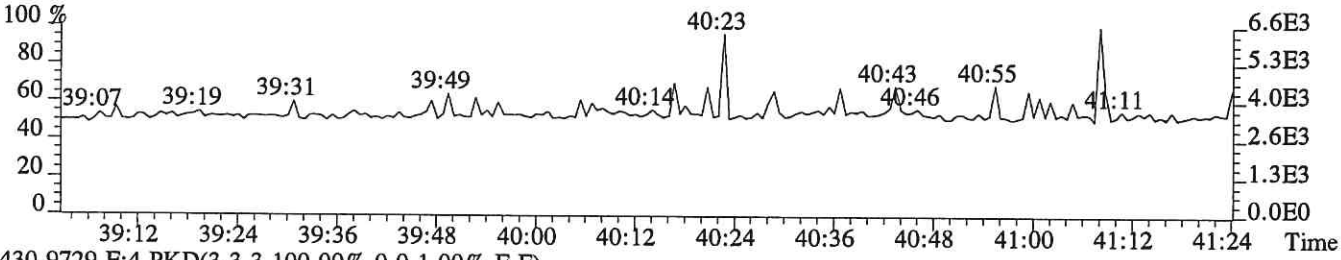
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,10128.0,0.50%,F,T)



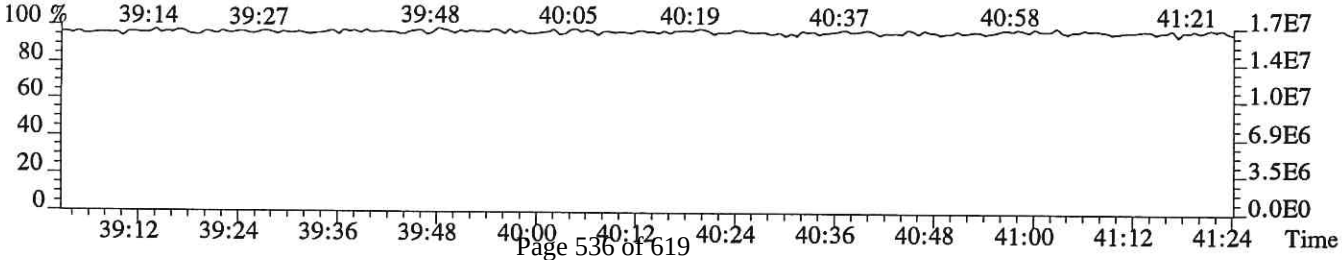
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,20344.0,0.50%,F,T)



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



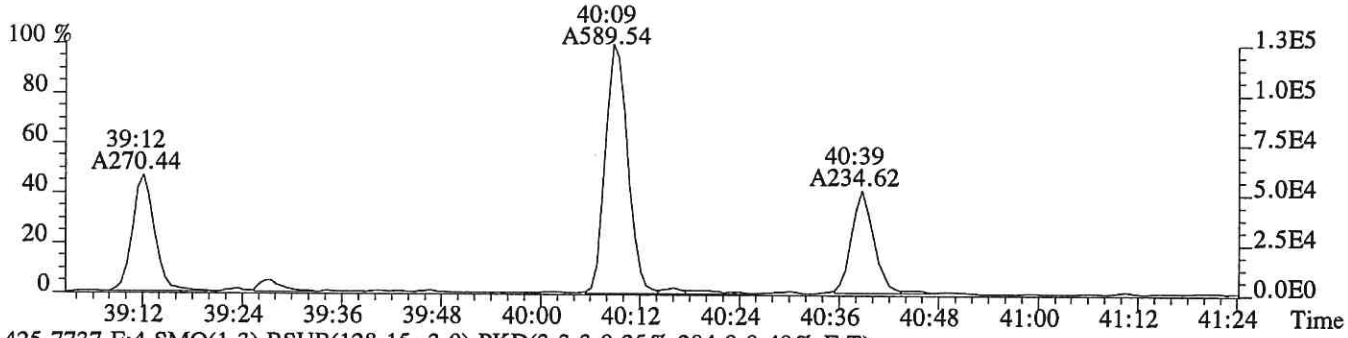
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



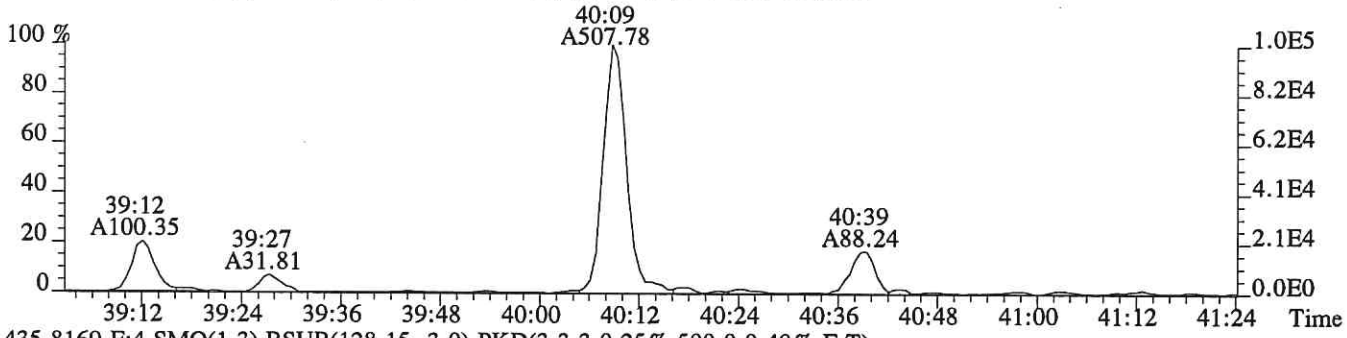
RIGHT SOLUTIONS | RIGHT PARTNER

File:P619248 #1-213 Acq: 4-OCT-2019 02:18:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5

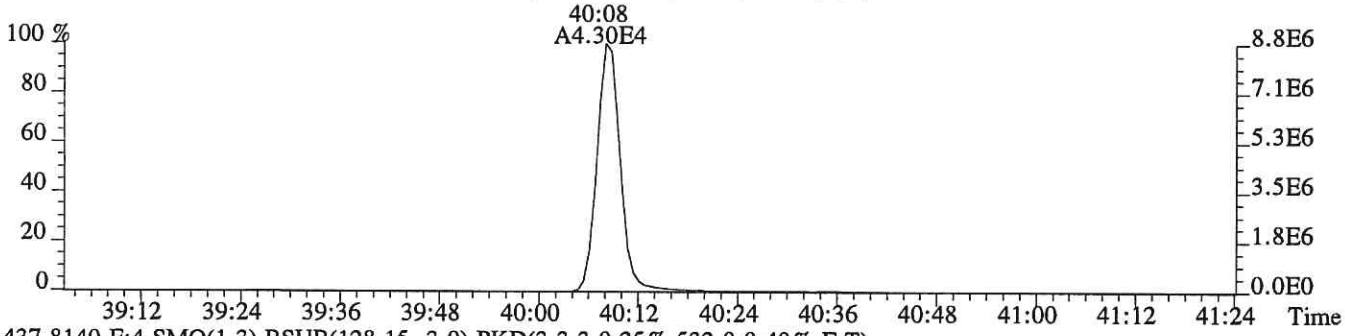
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1112.0,0.40%,F,T)



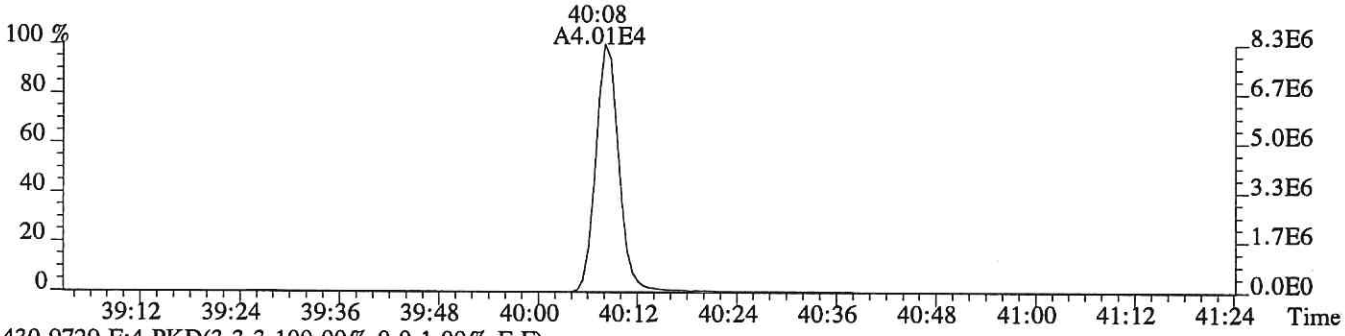
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,284.0,0.40%,F,T)



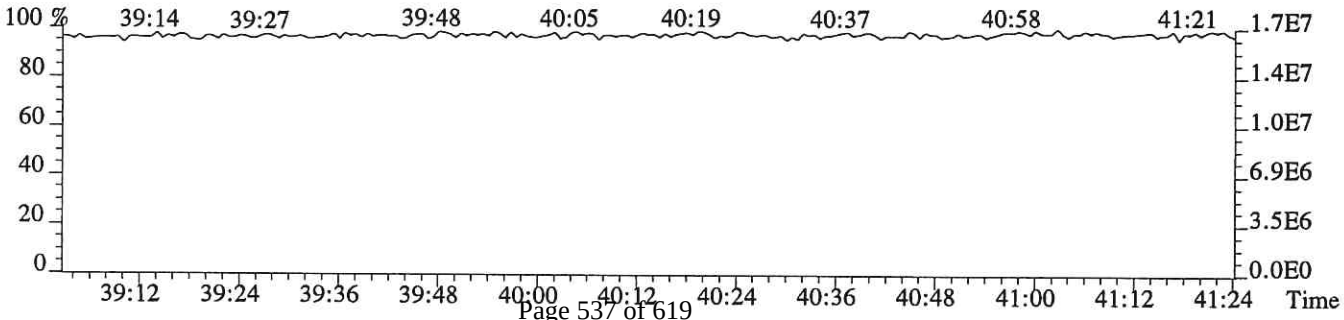
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,500.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,532.0,0.40%,F,T)



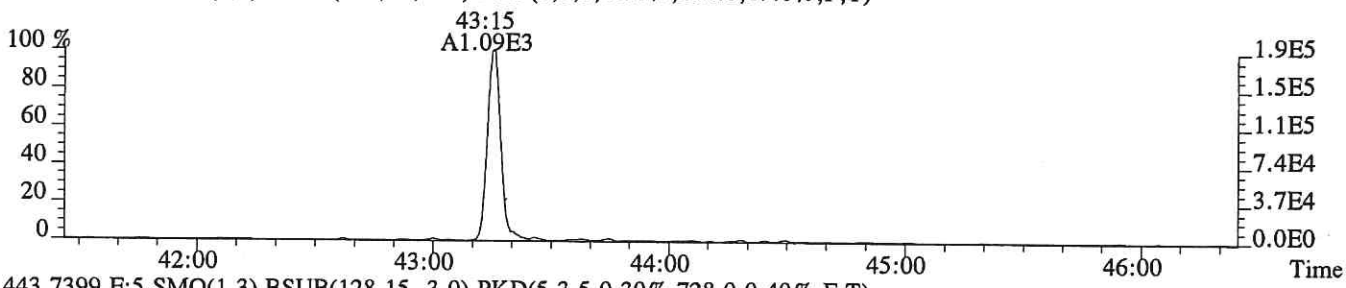
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



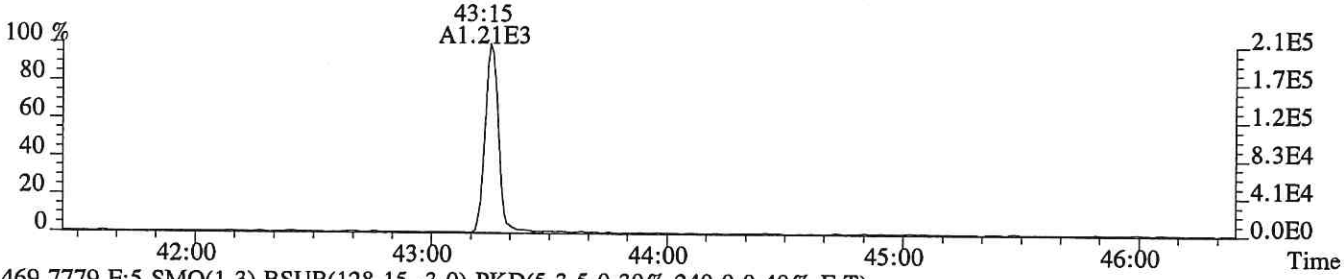
RIGHT SOLUTIONS | RIGHT PARTNER

File:P619248 #1-448 Acq: 4-OCT-2019 02:18:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5

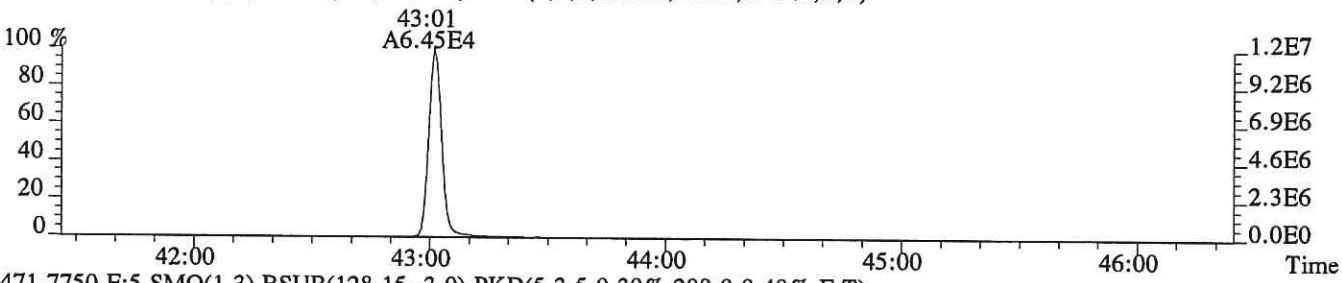
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,160.0,0.40%,F,T)



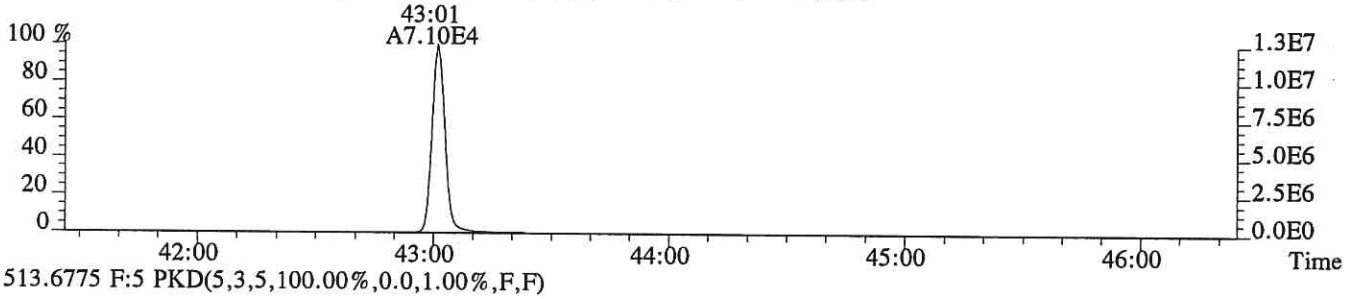
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,728.0,0.40%,F,T)



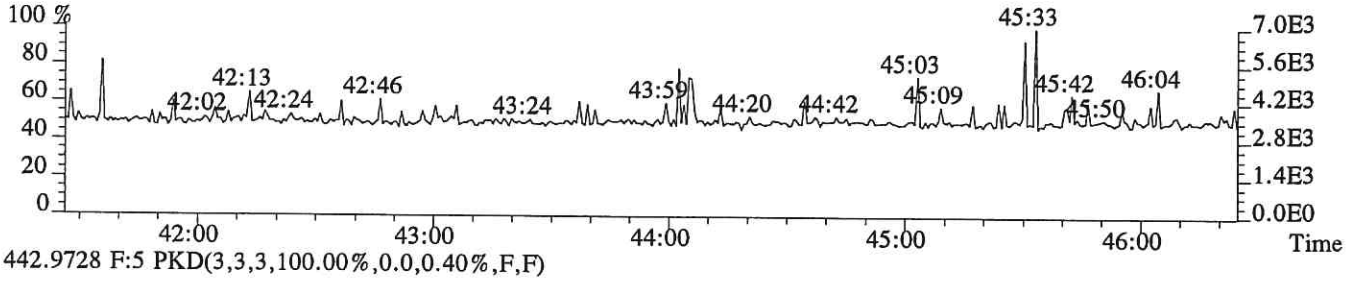
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,240.0,0.40%,F,T)



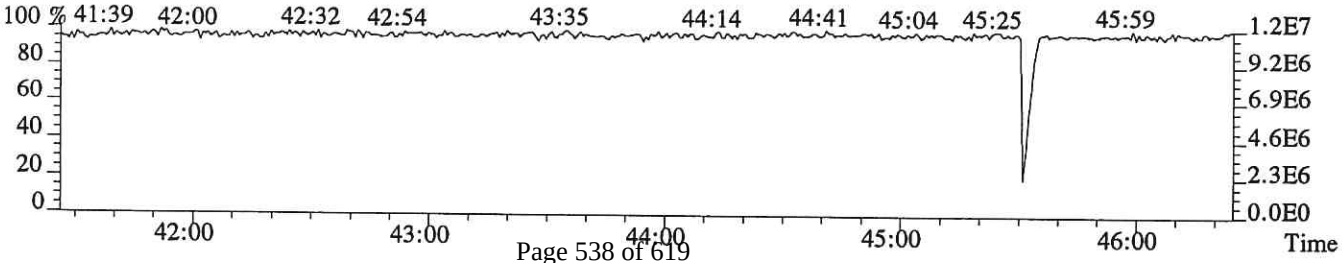
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,208.0,0.40%,F,T)



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



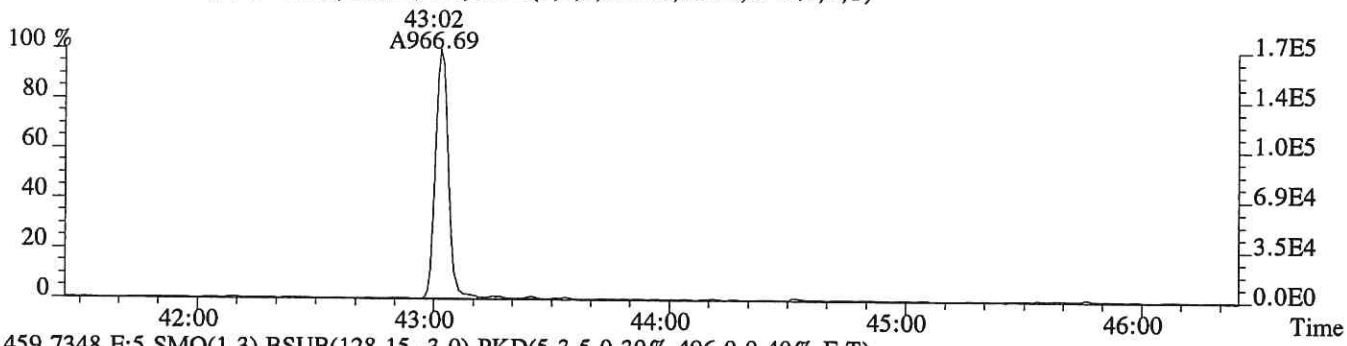
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



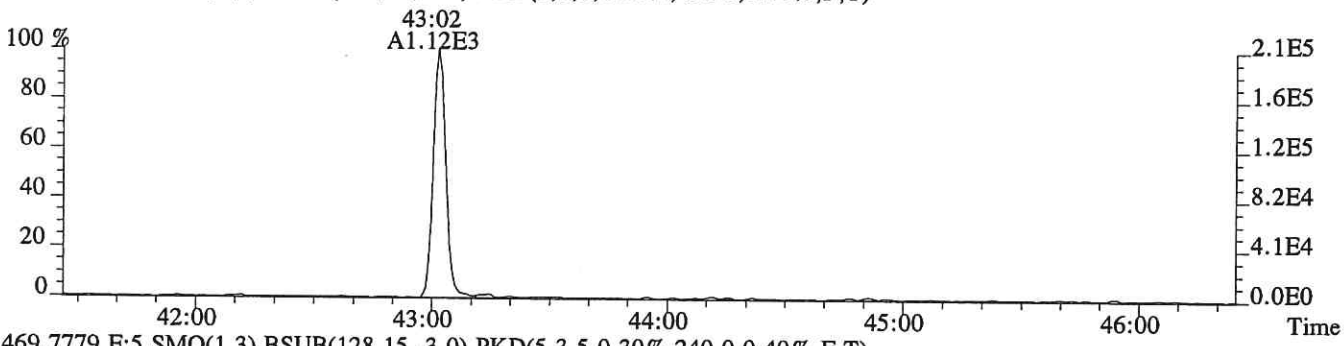
RIGHT SOLUTIONS | RIGHT PARTNER

File:P619248 #1-448 Acq: 4-OCT-2019 02:18:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5

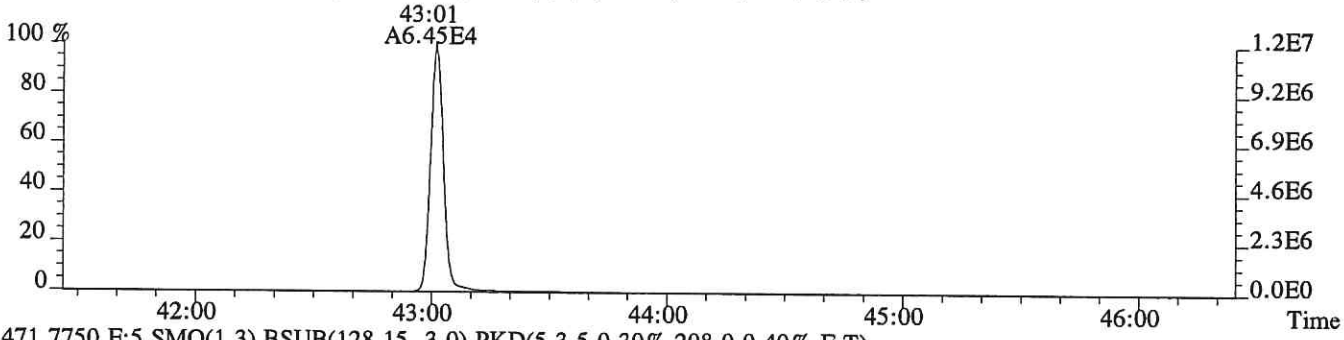
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,264.0,0.40%,F,T)



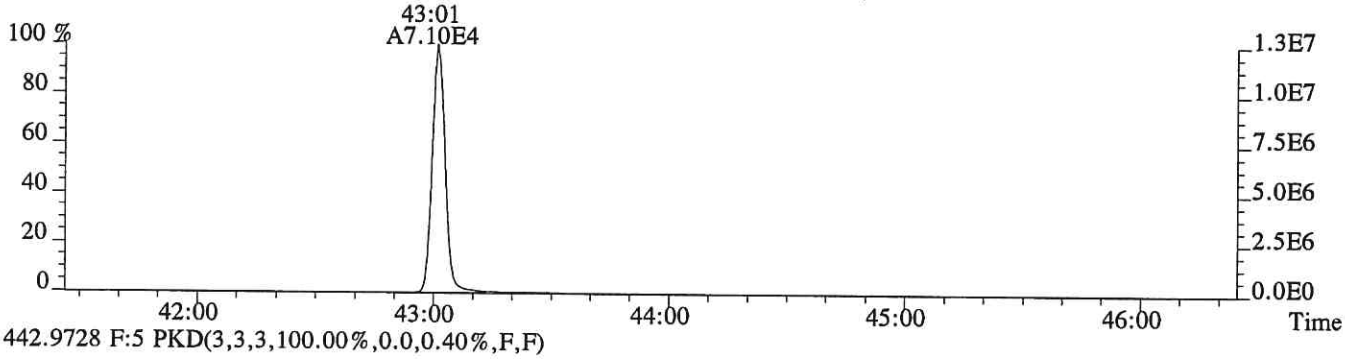
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,496.0,0.40%,F,T)



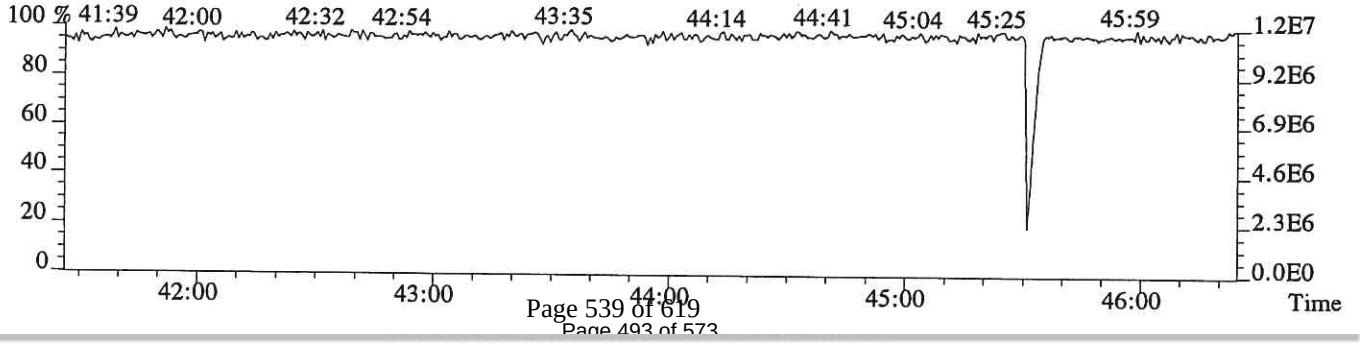
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,240.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,208.0,0.40%,F,T)



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



RIGHT SOLUTIONS | RIGHT PARTNER

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
193432

Run #2 Filename p619249 #1 Samp: 1 Inj: 1 Acquired: 4-OCT-19 03:07:16
Processed: 4-OCT-19 09:01:54 LAB. ID: CS1

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	29:20	3.156e+02	4.396e+02	0.72	yes	no	1.017
2	Unk	1,2,3,7,8-PeCDF	33:14	2.726e+03	1.723e+03	1.58	yes	no	1.021
3	Unk	2,3,4,7,8-PeCDF	34:06	2.693e+03	1.852e+03	1.45	yes	no	0.983
4	Unk	1,2,3,4,7,8-HxCDF	36:39	2.795e+03	2.165e+03	1.29	yes	no	1.229
5	Unk	1,2,3,6,7,8-HxCDF	36:46	2.793e+03	2.290e+03	1.22	yes	no	1.109
6	Unk	2,3,4,6,7,8-HxCDF	37:14	2.653e+03	2.178e+03	1.22	yes	no	1.125
7	Unk	1,2,3,7,8,9-HxCDF	37:58	2.497e+03	1.970e+03	1.27	yes	no	1.143
8	Unk	1,2,3,4,6,7,8-HpCDF	39:12	2.555e+03	2.521e+03	1.01	yes	no	1.323
9	Unk	1,2,3,4,7,8,9-HpCDF	40:39	2.058e+03	2.017e+03	1.02	yes	no	1.253
10	Unk	OCDF	43:14	3.632e+03	4.070e+03	0.89	yes	no	1.373
11	Unk	2,3,7,8-TCDD	30:02	2.428e+02	3.008e+02	0.81	yes	no	1.012
12	Unk	1,2,3,7,8-PeCDD	34:21	1.933e+03	1.225e+03	1.58	yes	no	0.993
13	Unk	1,2,3,4,7,8-HxCDD	37:22	1.935e+03	1.584e+03	1.22	yes	no	1.082
14	Unk	1,2,3,6,7,8-HxCDD	37:26	1.905e+03	1.405e+03	1.36	yes	no	1.083
15	Unk	1,2,3,7,8,9-HxCDD	37:40	2.094e+03	1.629e+03	1.29	yes	no	1.174
16	Unk	1,2,3,4,6,7,8-HpCDD	40:08	1.853e+03	1.811e+03	1.02	yes	no	1.053
17	Unk	OCDD	43:01	3.015e+03	3.462e+03	0.87	yes	no	1.160
18	IS	13C-2,3,7,8-TCDF	29:18	6.752e+04	8.393e+04	0.80	yes	no	1.341
19	IS	13C-1,2,3,7,8-PeCDF	33:13	1.145e+05	7.158e+04	1.60	yes	no	1.627
20	IS	13C-2,3,4,7,8-PeCDF	34:05	1.155e+05	7.250e+04	1.59	yes	no	1.651
21	IS	13C-1,2,3,4,7,8-HxCDF	36:38	5.519e+04	1.055e+05	0.52	yes	no	1.137
22	IS	13C-1,2,3,6,7,8-HxCDF	36:45	6.355e+04	1.205e+05	0.53	yes	no	1.307
23	IS	13C-2,3,4,6,7,8-HxCDF	37:14	6.059e+04	1.153e+05	0.53	yes	no	1.222
24	IS	13C-1,2,3,7,8,9-HxCDF	37:58	5.667e+04	1.075e+05	0.53	yes	no	1.137
25	IS	13C-1,2,3,4,6,7,8-HpCDF	39:11	4.842e+04	1.070e+05	0.45	yes	no	1.069
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:38	4.264e+04	9.556e+04	0.45	yes	no	0.961
27	IS	13C-2,3,7,8-TCDD	30:01	4.770e+04	6.135e+04	0.78	yes	no	0.970
28	IS	13C-1,2,3,7,8-PeCDD	34:21	7.912e+04	5.036e+04	1.57	yes	no	1.142
29	IS	13C-1,2,3,4,7,8-HxCDD	37:21	7.450e+04	5.842e+04	1.28	yes	no	0.914
30	IS	13C-1,2,3,6,7,8-HxCDD	37:26	7.010e+04	5.587e+04	1.25	yes	no	0.899
31	IS	13C-1,2,3,4,6,7,8-HpCDD	40:07	7.316e+04	6.877e+04	1.06	yes	no	0.997
32	IS	13C-OCDD	43:00	1.117e+05	1.234e+05	0.91	yes	no	0.817
33	RS/RT	13C-1,2,3,4-TCDD	29:29	4.955e+04	6.237e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:40	8.095e+04	6.358e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	30:02	5.494e+02				no	1.005

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RIGHT SOLUTIONS | RIGHT PARTNER

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
193432

Run #2 Filename p619249 Samp: 1 Inj: 1 Acquired: 4-OCT-19 03:07:16
Processed: 4-OCT-19 09:01:541 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	6.32e+04	1.64e+02	3.9e+02	8.55e+04	4.24e+02	2.0e+02
2	1,2,3,7,8-PeCDF	5.50e+05	6.84e+02	8.0e+02	3.48e+05	4.36e+02	8.0e+02
3	2,3,4,7,8-PeCDF	5.66e+05	6.84e+02	8.3e+02	3.99e+05	4.36e+02	9.2e+02
4	1,2,3,4,7,8-HxCDF	6.30e+05	9.72e+02	6.5e+02	4.86e+05	9.36e+02	5.2e+02
5	1,2,3,6,7,8-HxCDF	6.25e+05	9.72e+02	6.4e+02	5.16e+05	9.36e+02	5.5e+02
6	2,3,4,6,7,8-HxCDF	6.20e+05	9.72e+02	6.4e+02	5.12e+05	9.36e+02	5.5e+02
7	1,2,3,7,8,9-HxCDF	5.40e+05	9.72e+02	5.6e+02	4.26e+05	9.36e+02	4.6e+02
8	1,2,3,4,6,7,8-HpCDF	5.74e+05	7.60e+02	7.6e+02	5.49e+05	8.20e+02	6.7e+02
9	1,2,3,4,7,8,9-HpCDF	4.27e+05	7.60e+02	5.6e+02	4.15e+05	8.20e+02	5.1e+02
10	OCDF	6.36e+05	4.04e+02	1.6e+03	7.33e+05	5.08e+02	1.4e+03
11	2,3,7,8-TCDD	4.68e+04	8.92e+02	5.2e+01	5.83e+04	2.40e+02	2.4e+02
12	1,2,3,7,8-PeCDD	3.96e+05	5.80e+02	6.8e+02	2.48e+05	2.76e+02	9.0e+02
13	1,2,3,4,7,8-HxCDD	4.46e+05	1.68e+02	2.7e+03	3.62e+05	2.80e+02	1.3e+03
14	1,2,3,6,7,8-HxCDD	4.38e+05	1.68e+02	2.6e+03	3.34e+05	2.80e+02	1.2e+03
15	1,2,3,7,8,9-HxCDD	4.73e+05	1.68e+02	2.8e+03	3.61e+05	2.80e+02	1.3e+03
16	1,2,3,4,6,7,8-HpCDD	3.90e+05	2.80e+02	1.4e+03	3.88e+05	1.72e+02	2.3e+03
17	OCDD	5.56e+05	2.24e+02	2.5e+03	6.38e+05	3.16e+02	2.0e+03
18	13C-2,3,7,8-TCDF	1.31e+07	3.30e+03	4.0e+03	1.64e+07	2.28e+03	7.2e+03
19	13C-1,2,3,7,8-PeCDF	2.30e+07	8.23e+03	2.8e+03	1.45e+07	6.75e+03	2.1e+03
20	13C-2,3,4,7,8-PeCDF	2.38e+07	8.23e+03	2.9e+03	1.49e+07	6.75e+03	2.2e+03
21	13C-1,2,3,4,7,8-HxCDF	1.24e+07	6.00e+02	2.1e+04	2.39e+07	1.99e+04	1.2e+03
22	13C-1,2,3,6,7,8-HxCDF	1.42e+07	6.00e+02	2.4e+04	2.70e+07	1.99e+04	1.4e+03
23	13C-2,3,4,6,7,8-HxCDF	1.40e+07	6.00e+02	2.3e+04	2.67e+07	1.99e+04	1.3e+03
24	13C-1,2,3,7,8,9-HxCDF	1.22e+07	6.00e+02	2.0e+04	2.31e+07	1.99e+04	1.2e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.07e+07	1.53e+04	7.0e+02	2.40e+07	3.27e+04	7.3e+02
26	13C-1,2,3,4,7,8,9-HpCDF	8.78e+06	1.53e+04	5.7e+02	1.96e+07	3.27e+04	6.0e+02
27	13C-2,3,7,8-TCDD	9.92e+06	3.81e+03	2.6e+03	1.26e+07	1.54e+03	8.2e+03
28	13C-1,2,3,7,8-PeCDD	1.68e+07	5.16e+02	3.3e+04	1.07e+07	2.32e+02	4.6e+04
29	13C-1,2,3,4,7,8-HxCDD	1.72e+07	4.68e+02	3.7e+04	1.33e+07	2.92e+02	4.6e+04
30	13C-1,2,3,6,7,8-HxCDD	1.60e+07	4.68e+02	3.4e+04	1.30e+07	2.92e+02	4.4e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.54e+07	4.52e+02	3.4e+04	1.45e+07	6.60e+02	2.2e+04
32	13C-OCDD	2.00e+07	3.56e+02	5.6e+04	2.21e+07	1.96e+02	1.1e+05
33	13C-1,2,3,4-TCDD	1.02e+07	3.81e+03	2.7e+03	1.29e+07	1.54e+03	8.4e+03
34	13C-1,2,3,7,8,9-HxCDD	1.83e+07	4.68e+02	3.9e+04	1.45e+07	2.92e+02	5.0e+04
35	37Cl-2,3,7,8-TCDD	1.14e+05	4.68e+02	2.4e+02			

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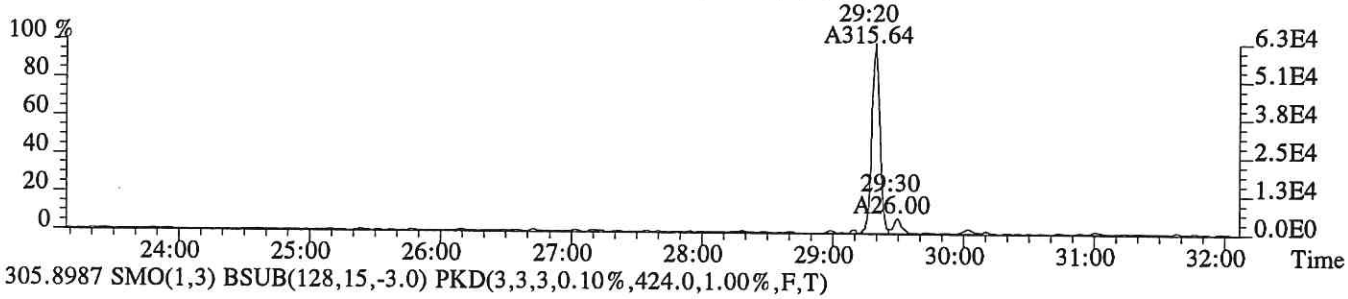
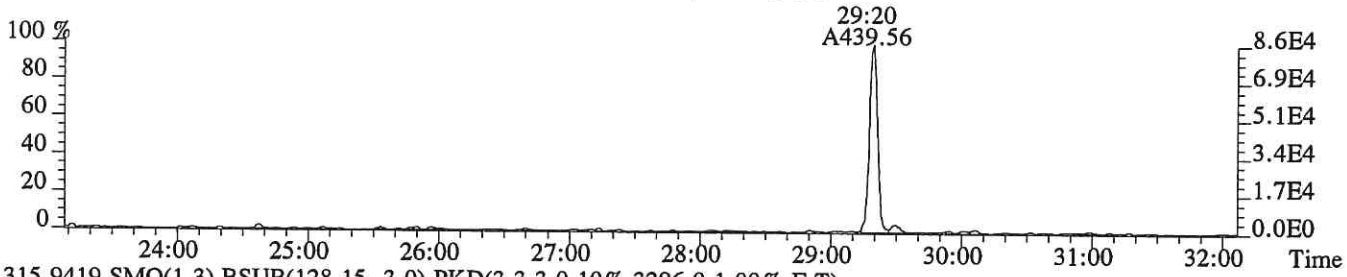
File:P619249 #1-637 Acq: 4-OCT-2019 03:07:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1

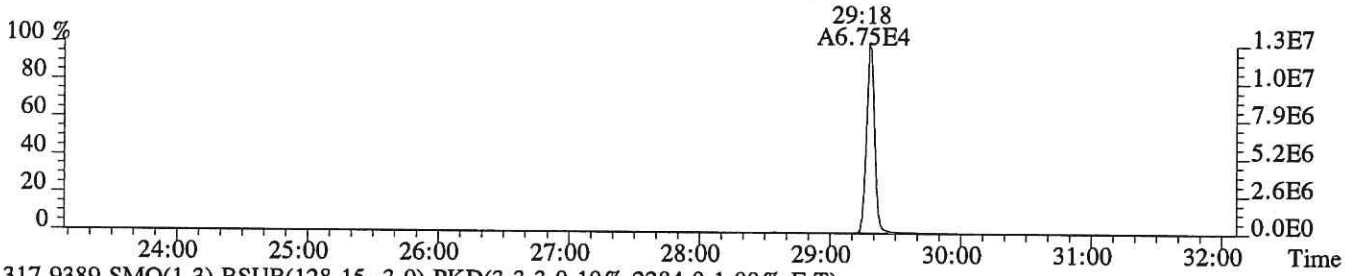
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,164.0,1.00%,F,T)



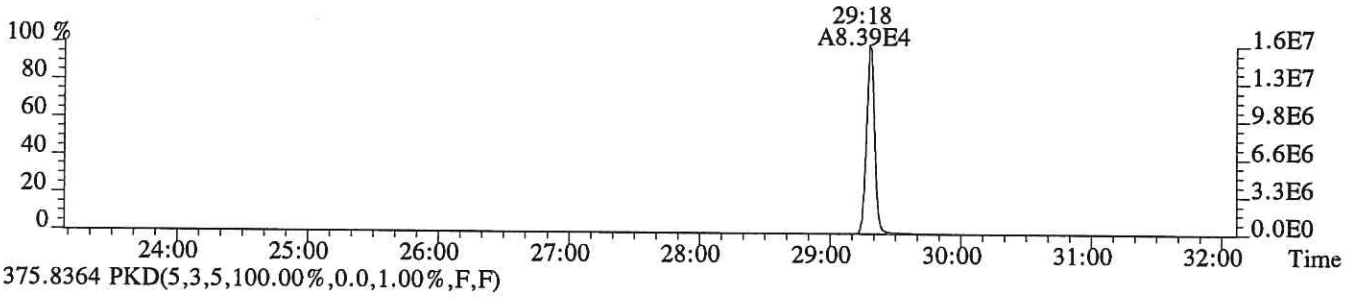
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,424.0,1.00%,F,T)



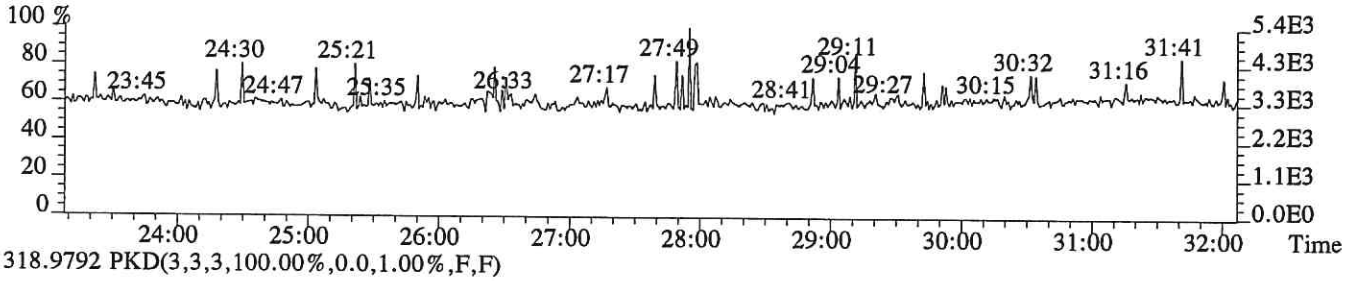
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3296.0,1.00%,F,T)



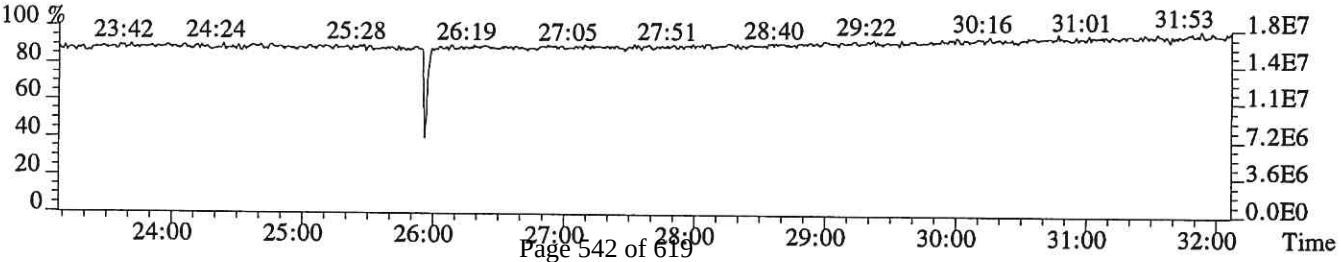
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2284.0,1.00%,F,T)



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

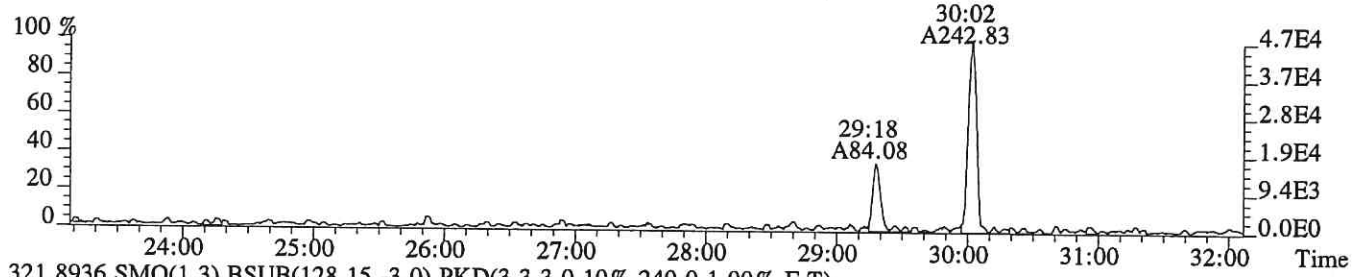


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

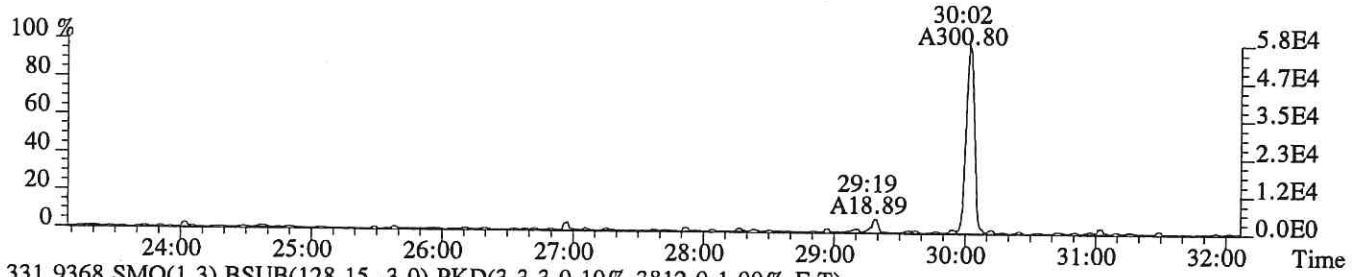


RIGHT SOLUTIONS | RIGHT PARTNER

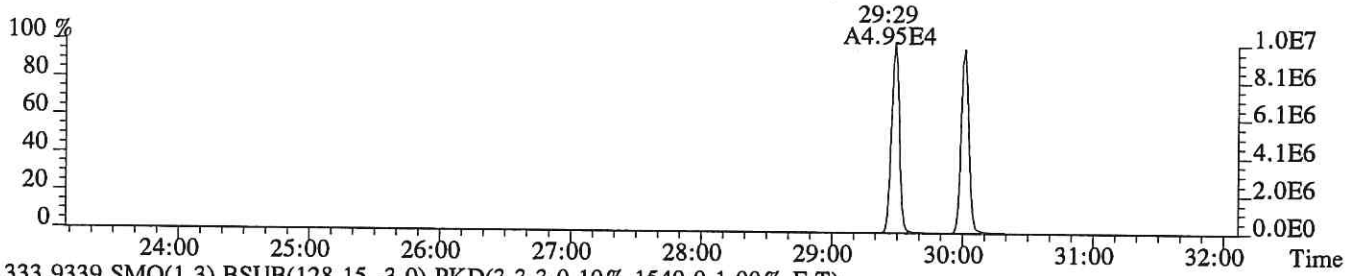
File:P619249 #1-637 Acq: 4-OCT-2019 03:07:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,892.0,1.00%,F,T)



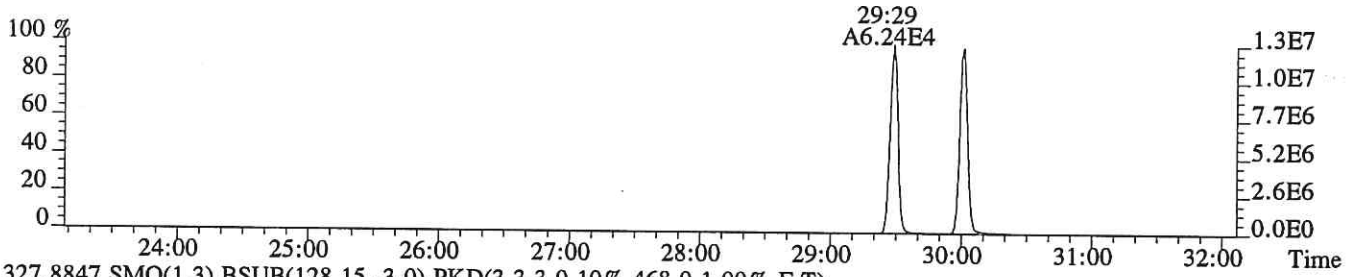
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,240.0,1.00%,F,T)



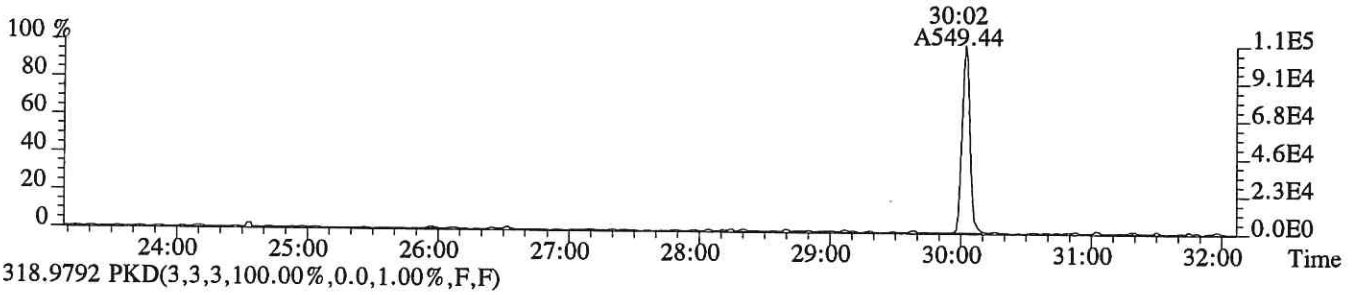
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3812.0,1.00%,F,T)



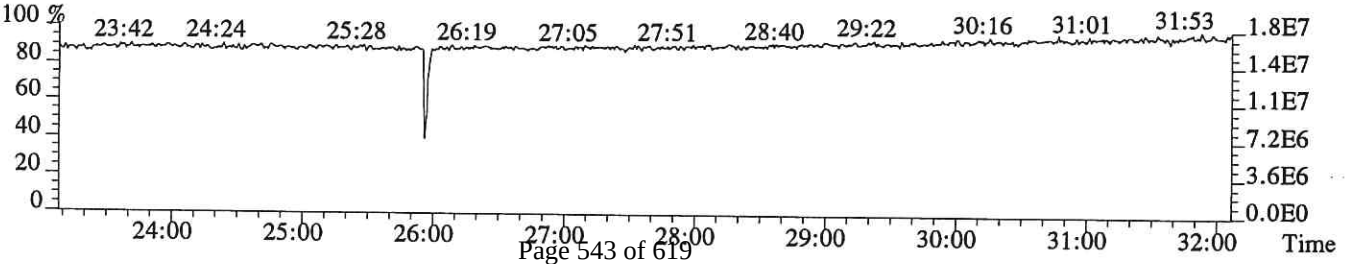
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1540.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,468.0,1.00%,F,T)

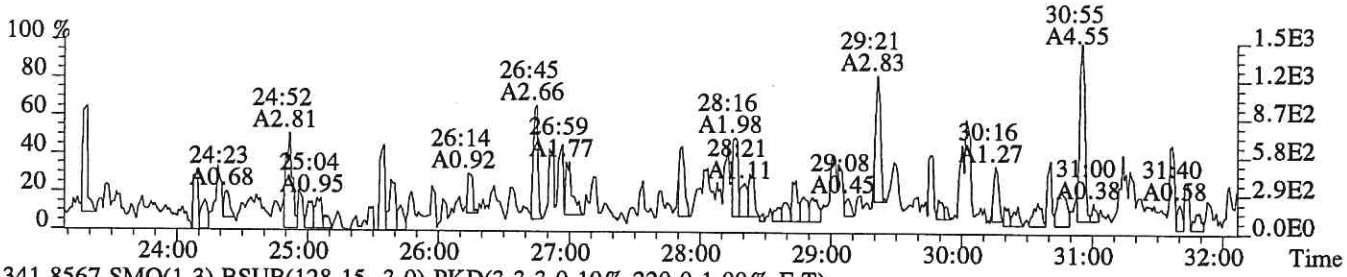


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

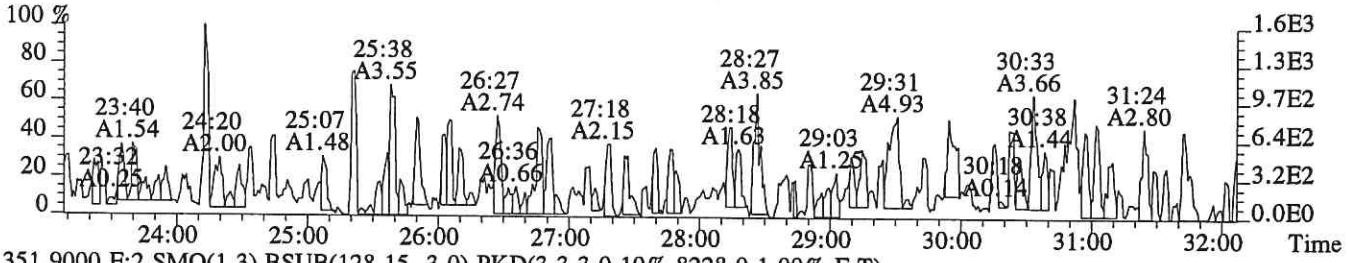


RIGHT SOLUTIONS | RIGHT PARTNER

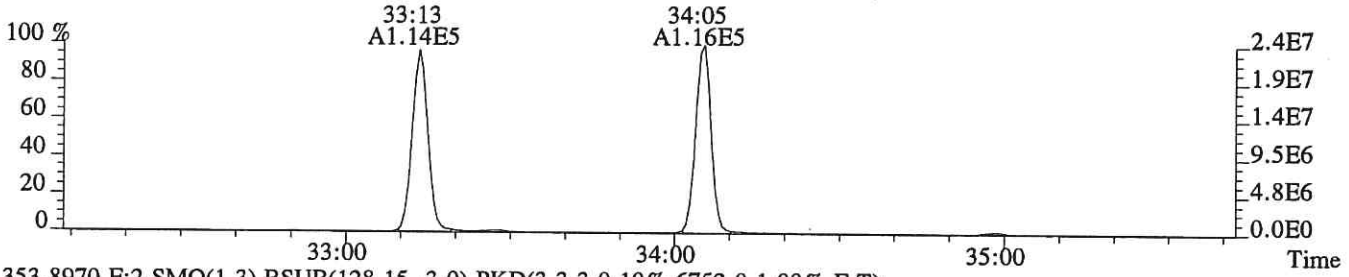
File:P619249 #1-637 Acq: 4-OCT-2019 03:07:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,224.0,1.00%,F,T)



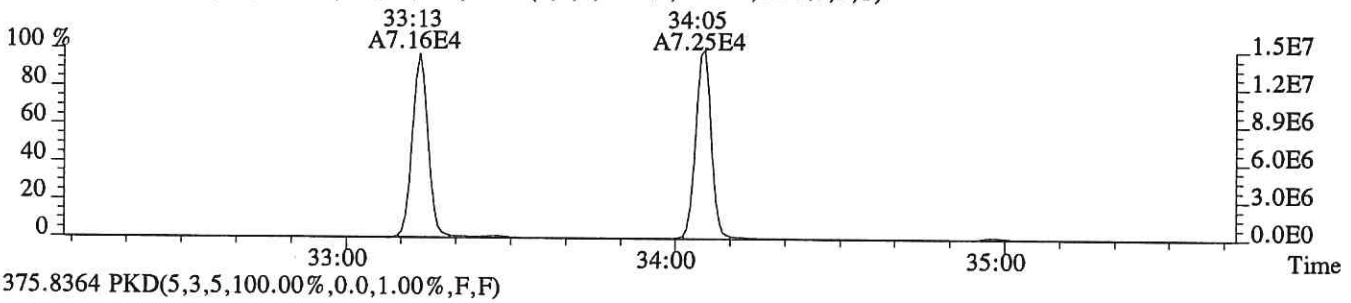
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,220.0,1.00%,F,T)



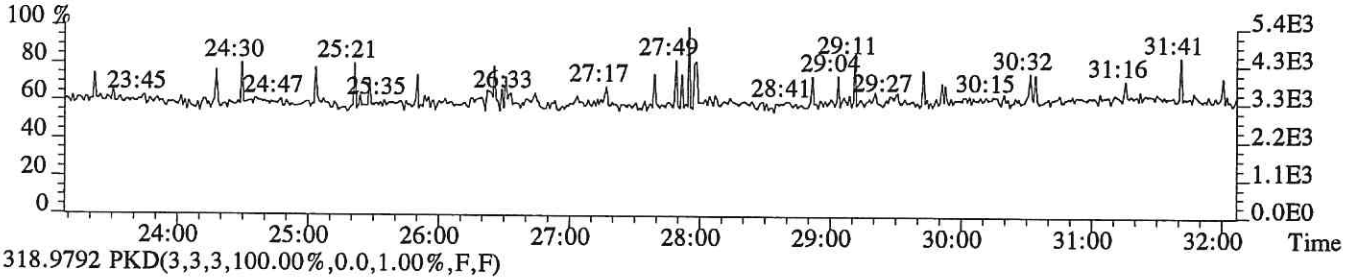
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8228.0,1.00%,F,T)



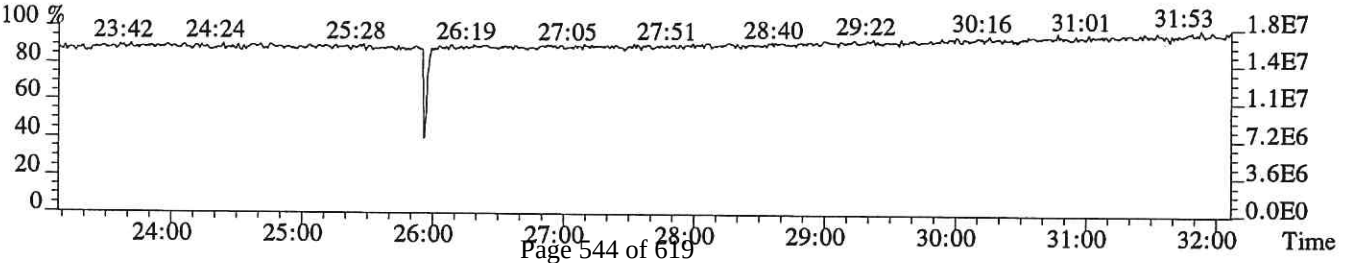
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6752.0,1.00%,F,T)



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



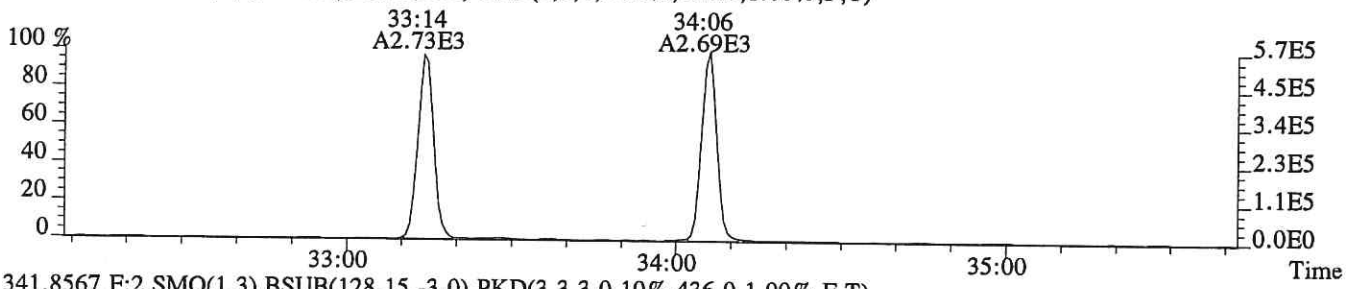
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



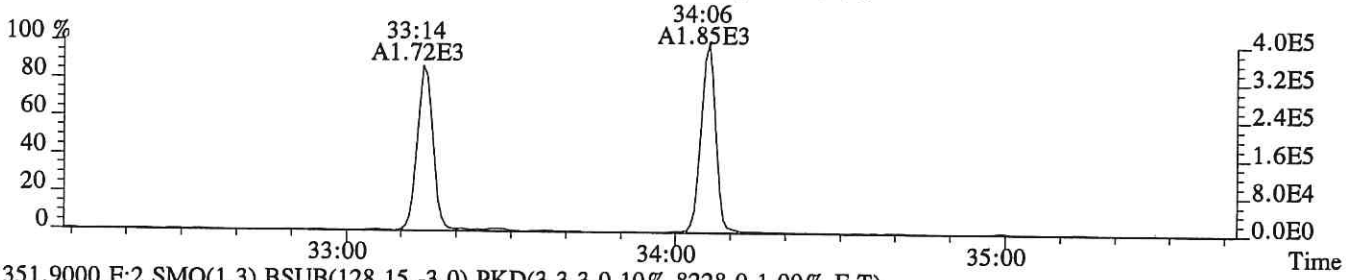
RIGHT SOLUTIONS | RIGHT PARTNER

File:P619249 #1-321 Acq: 4-OCT-2019 03:07:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1

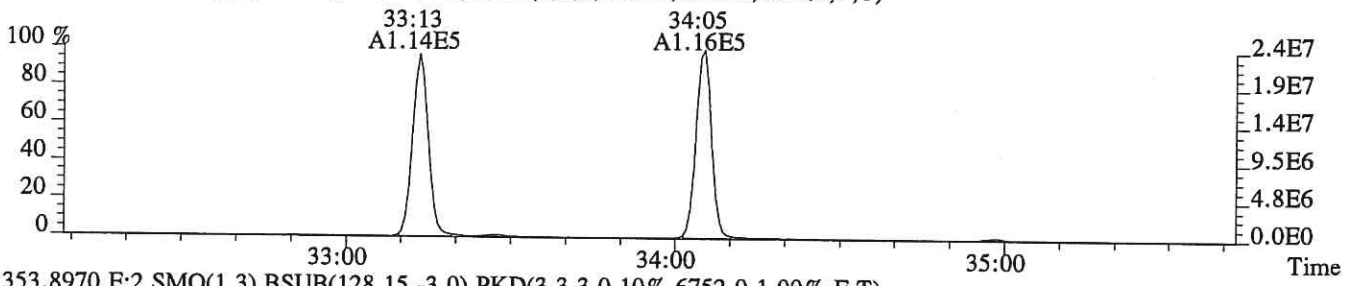
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,684.0,1.00%,F,T)



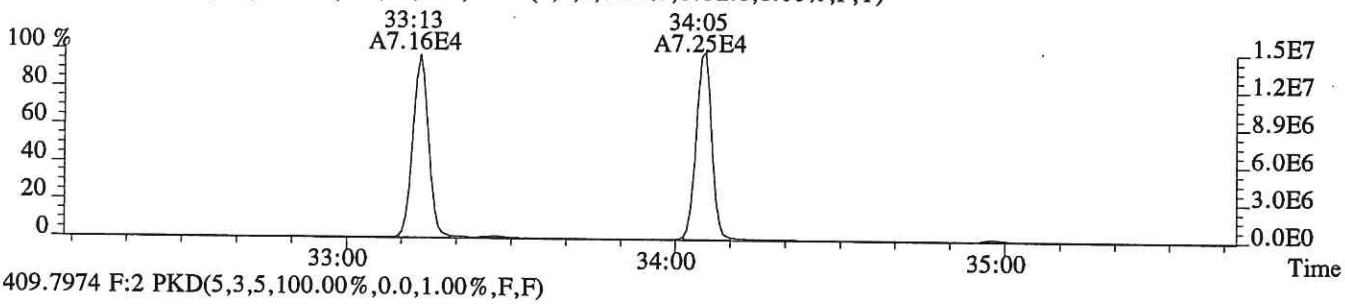
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,436.0,1.00%,F,T)



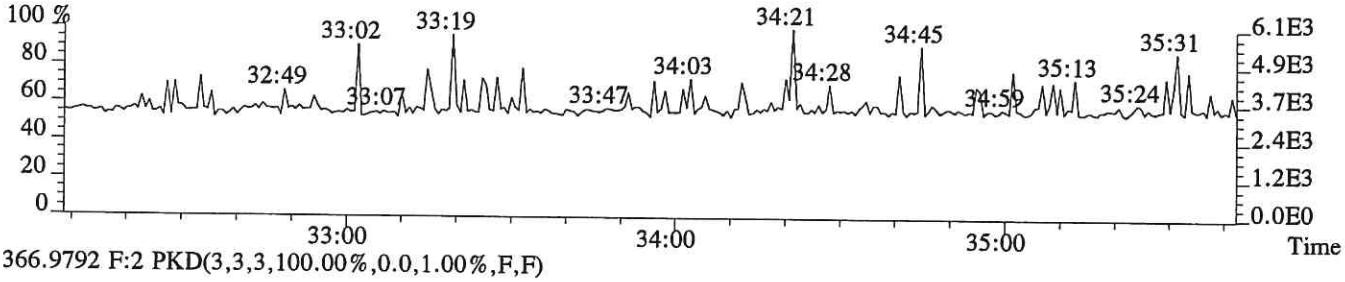
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8228.0,1.00%,F,T)



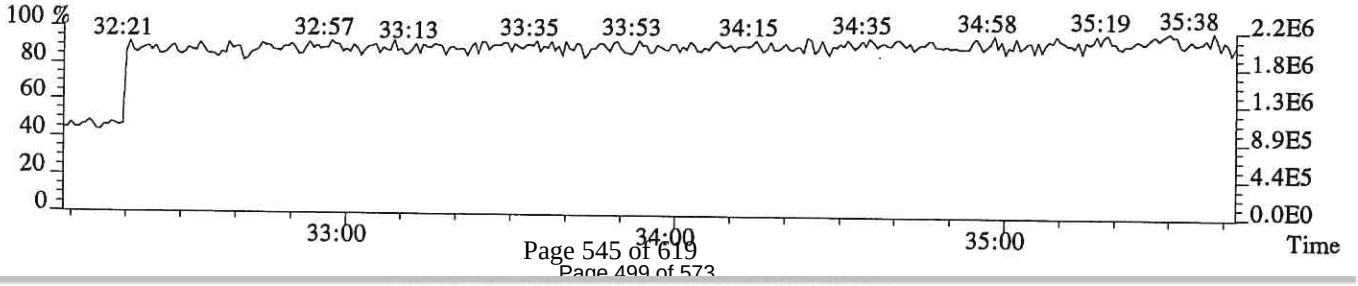
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6752.0,1.00%,F,T)



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



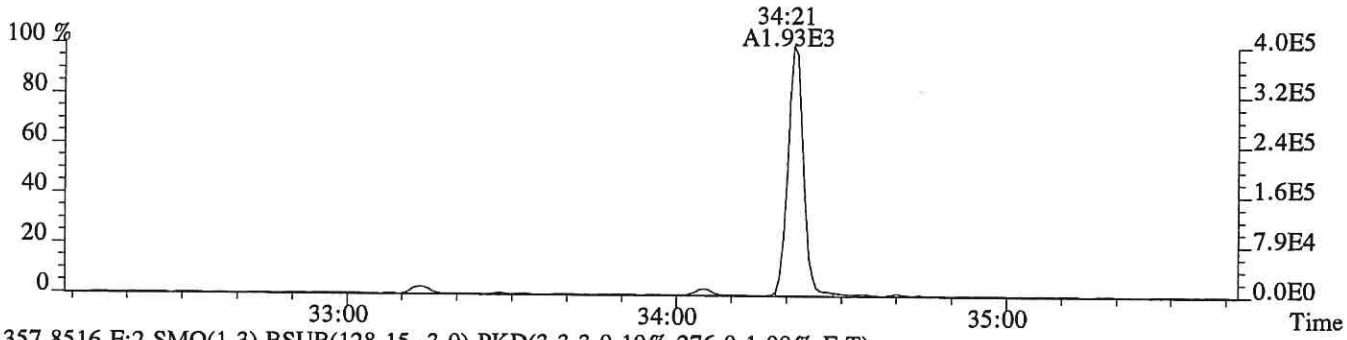
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



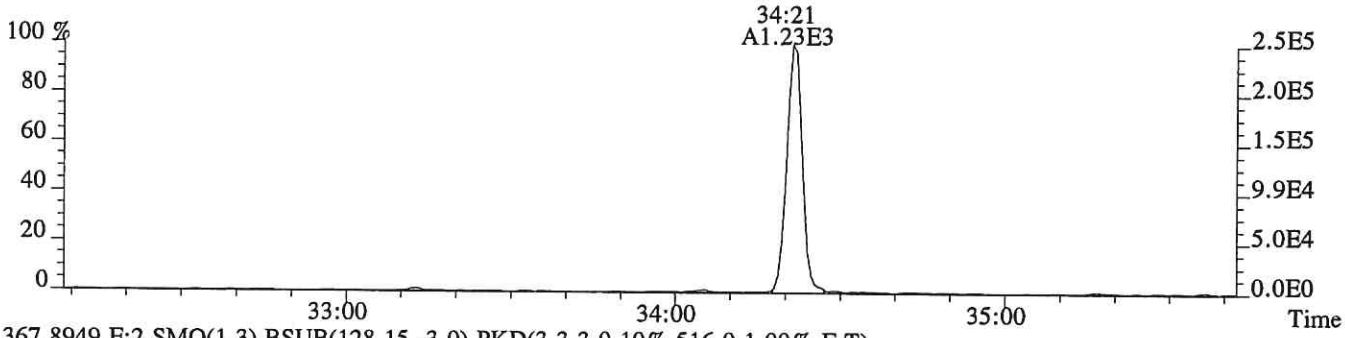
RIGHT SOLUTIONS | RIGHT PARTNER

File:P619249 #1-321 Acq: 4-OCT-2019 03:07:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1

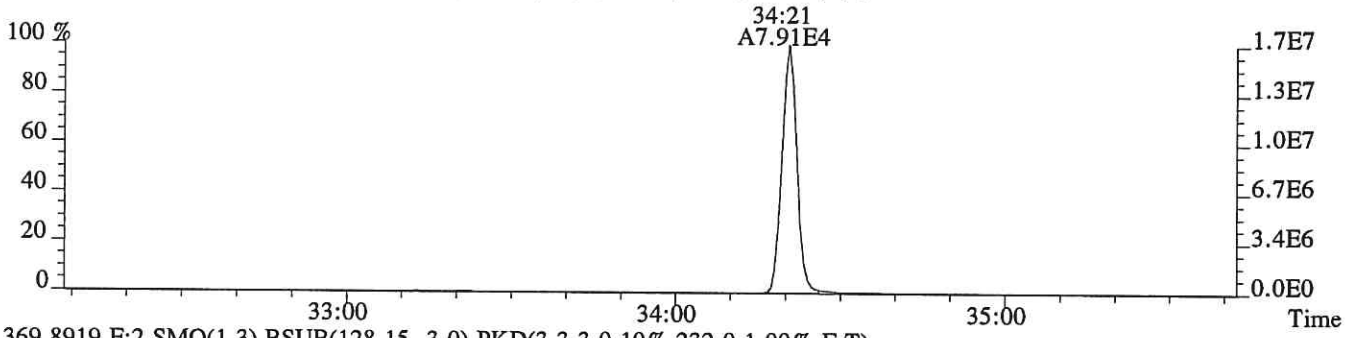
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,580.0,1.00%,F,T)



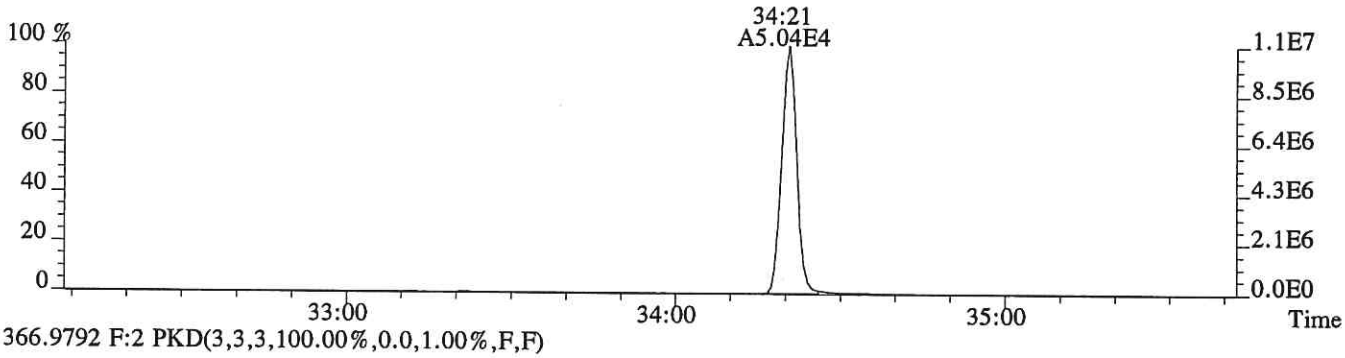
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,276.0,1.00%,F,T)



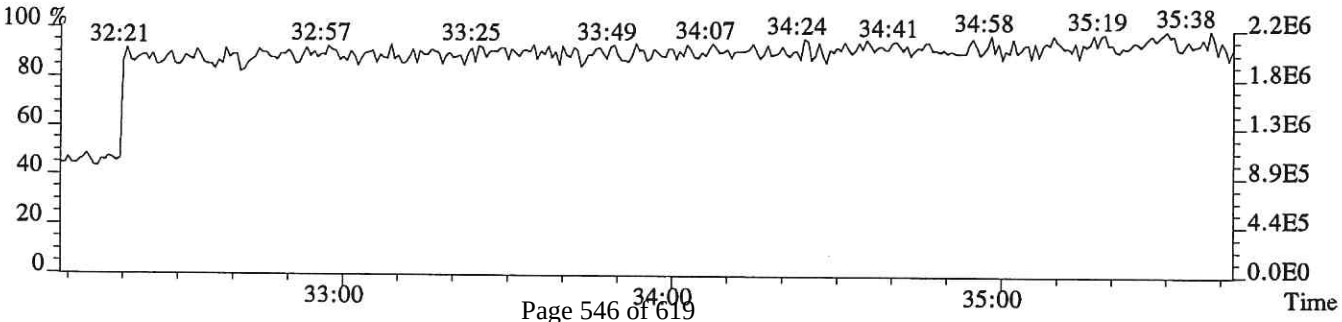
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,516.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,232.0,1.00%,F,T)



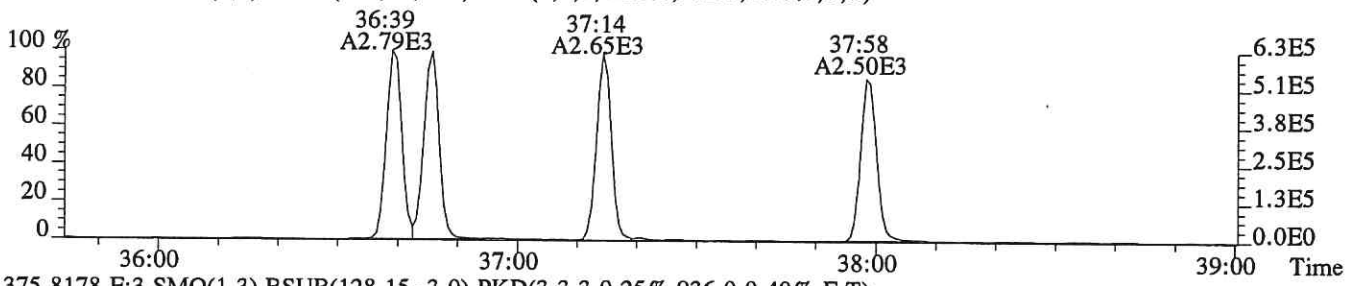
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



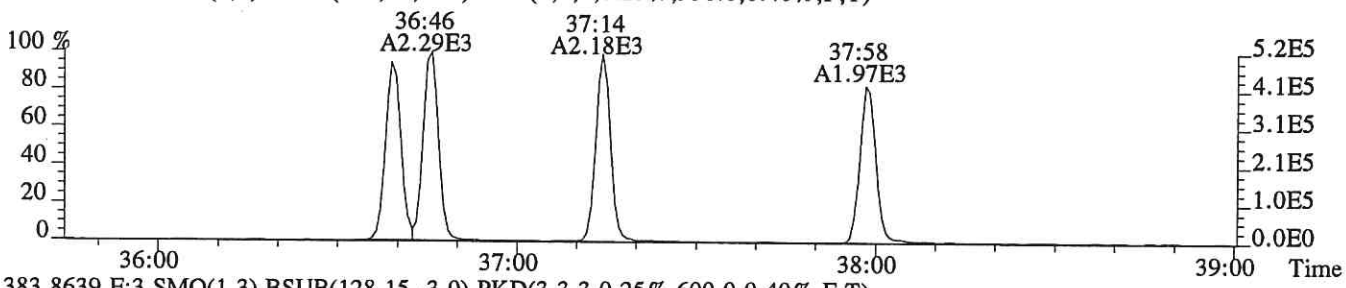
RIGHT SOLUTIONS | RIGHT PARTNER

File:P619249 #1-295 Acq: 4-OCT-2019 03:07:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1

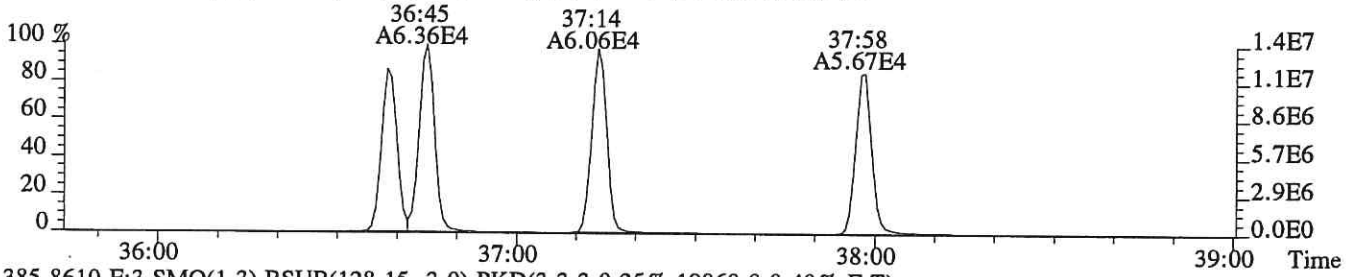
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,972.0,0.40%,F,T)



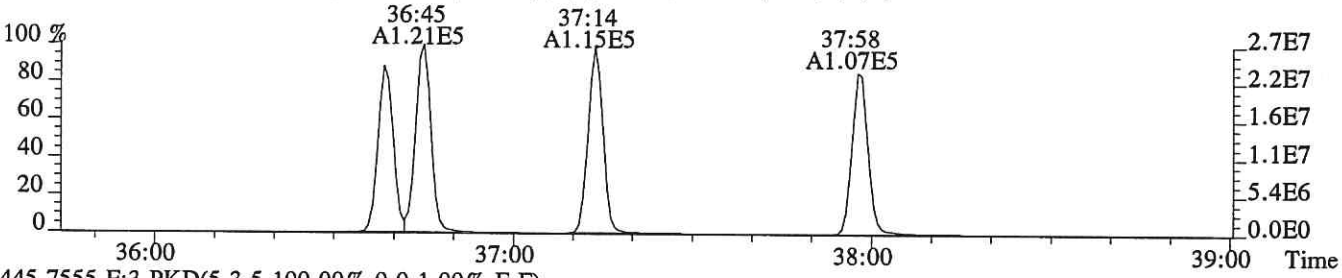
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,936.0,0.40%,F,T)



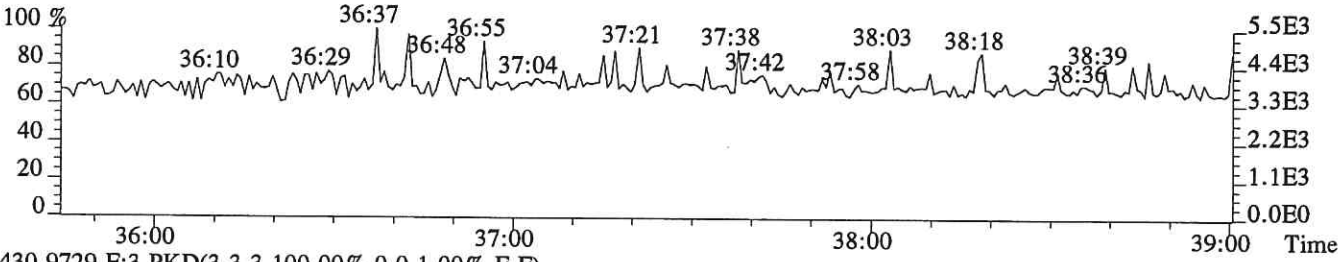
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,600.0,0.40%,F,T)



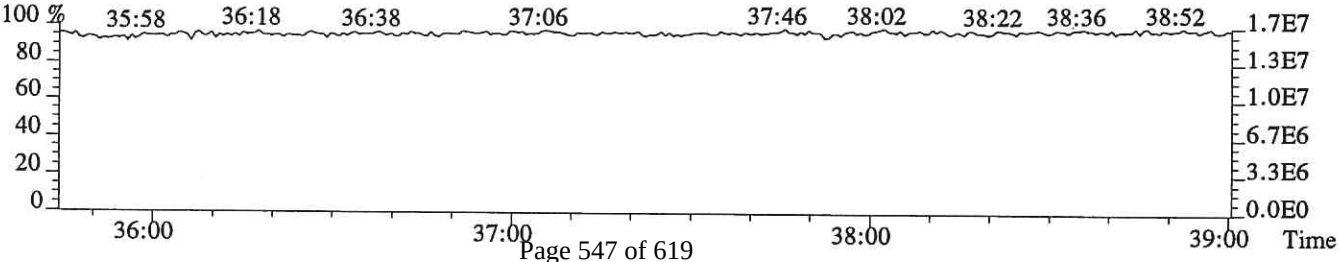
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,19860.0,0.40%,F,T)



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

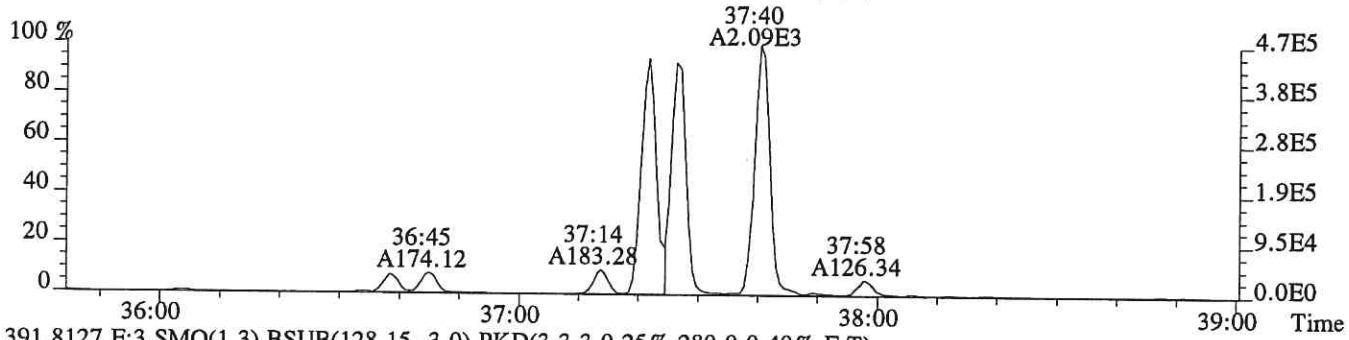


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

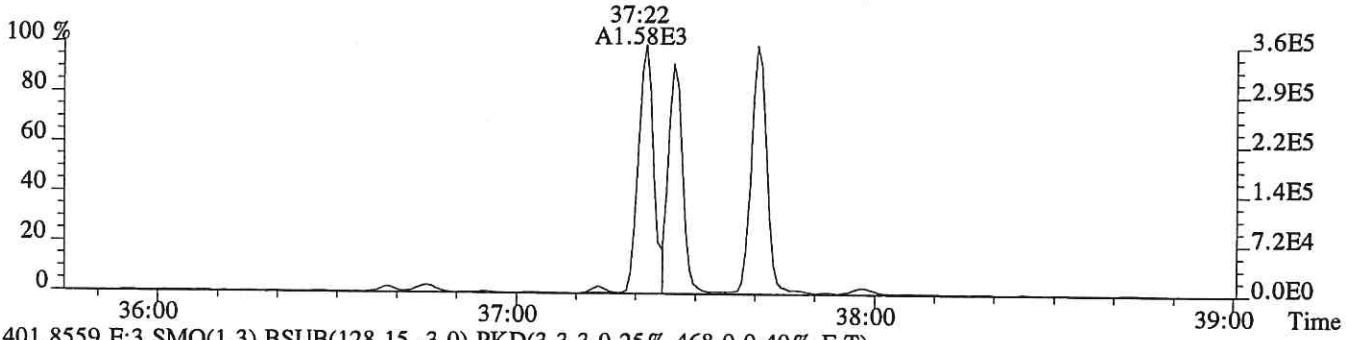


RIGHT SOLUTIONS | RIGHT PARTNER

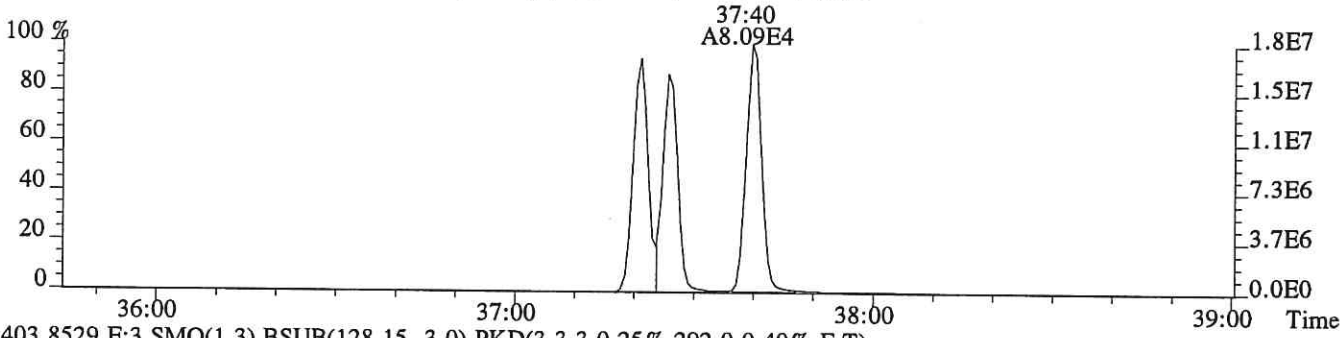
File:P619249 #1-295 Acq: 4-OCT-2019 03:07:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,168.0,0.40%,F,T)



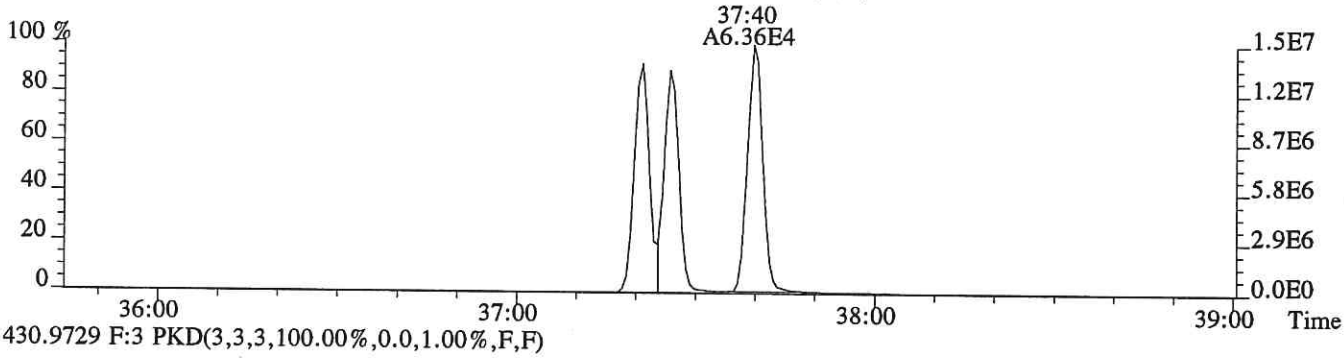
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,280.0,0.40%,F,T)



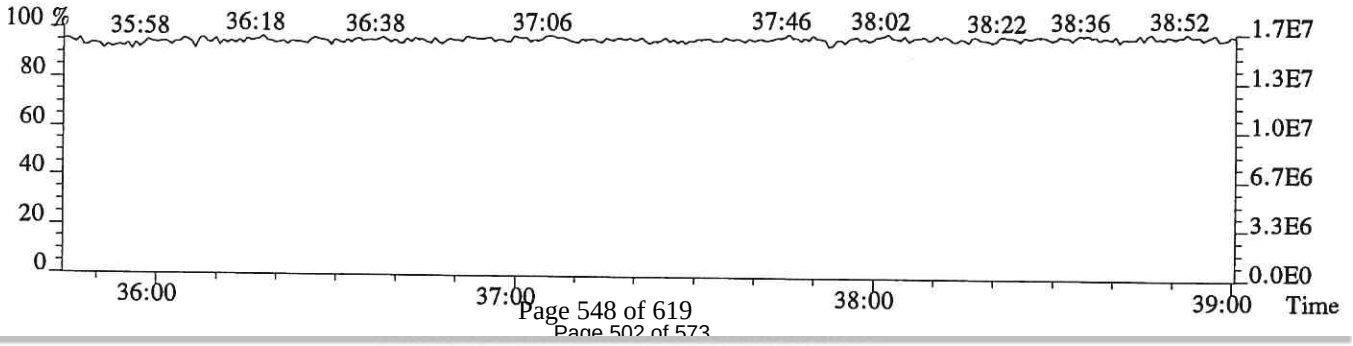
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,468.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,292.0,0.40%,F,T)



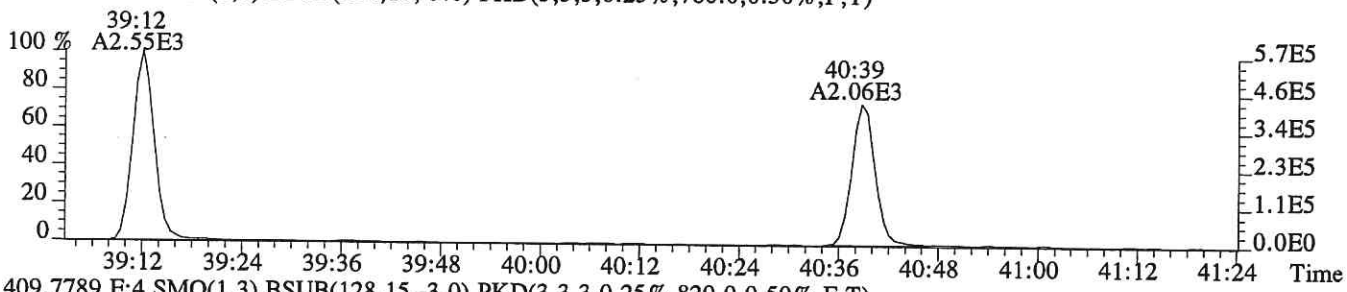
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



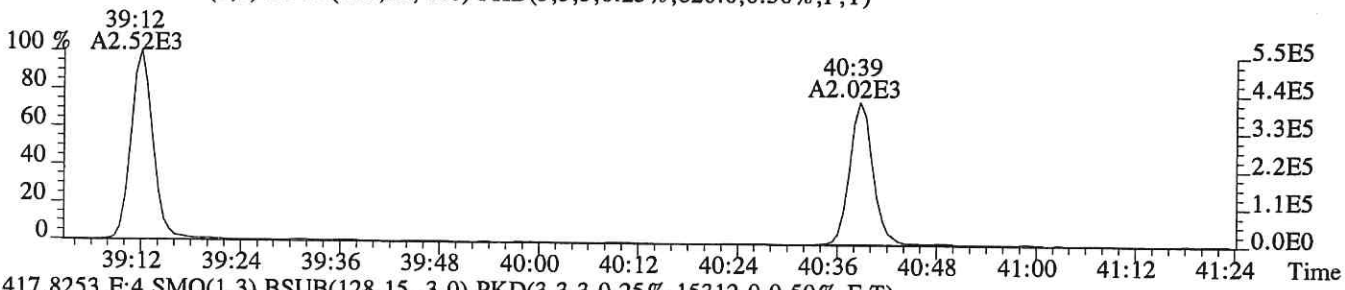
RIGHT SOLUTIONS | RIGHT PARTNER

File:P619249 #1-213 Acq: 4-OCT-2019 03:07:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1

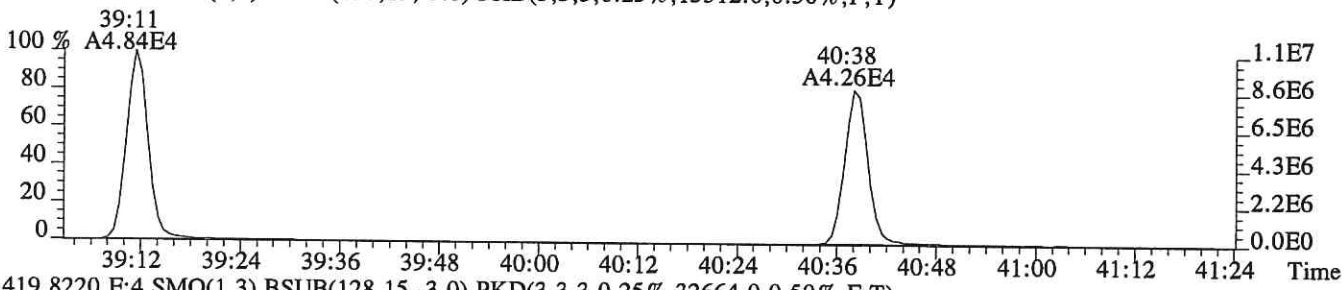
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,760.0,0.50%,F,T)



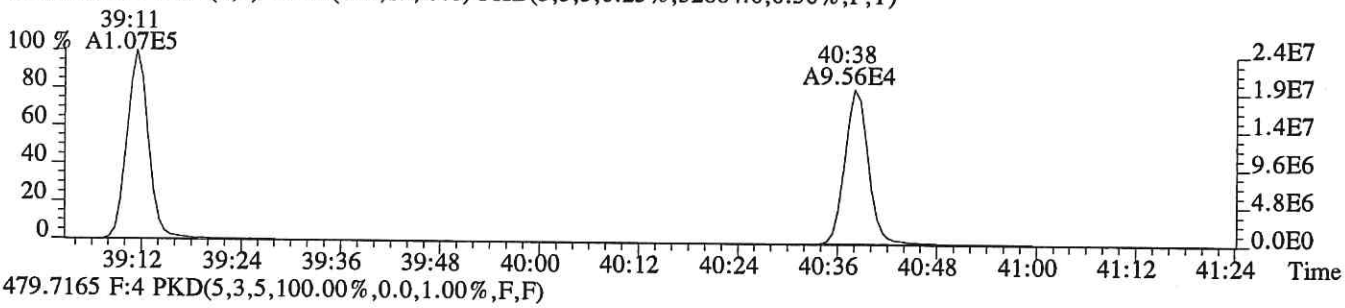
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,820.0,0.50%,F,T)



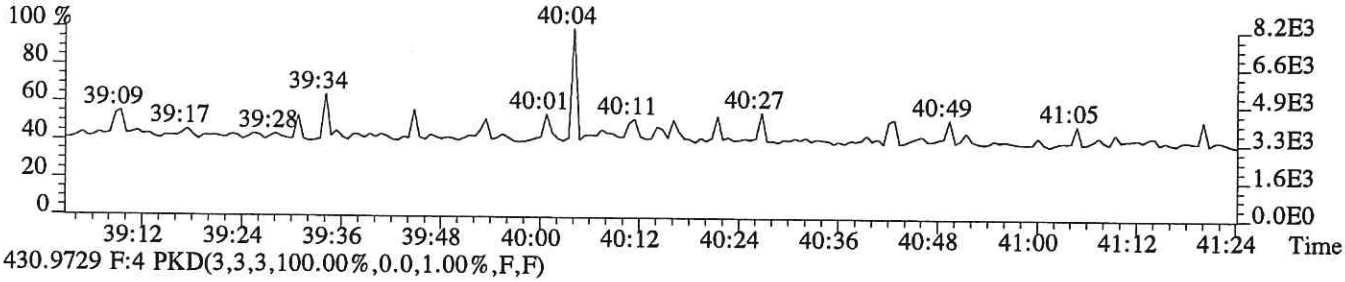
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,15312.0,0.50%,F,T)



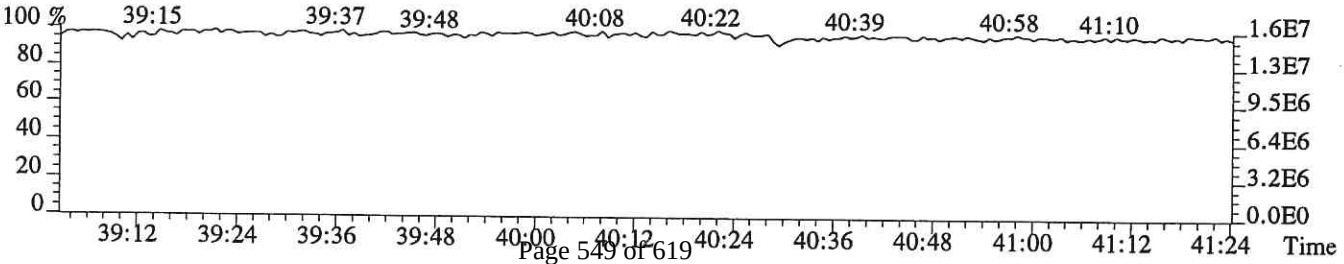
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,32664.0,0.50%,F,T)



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

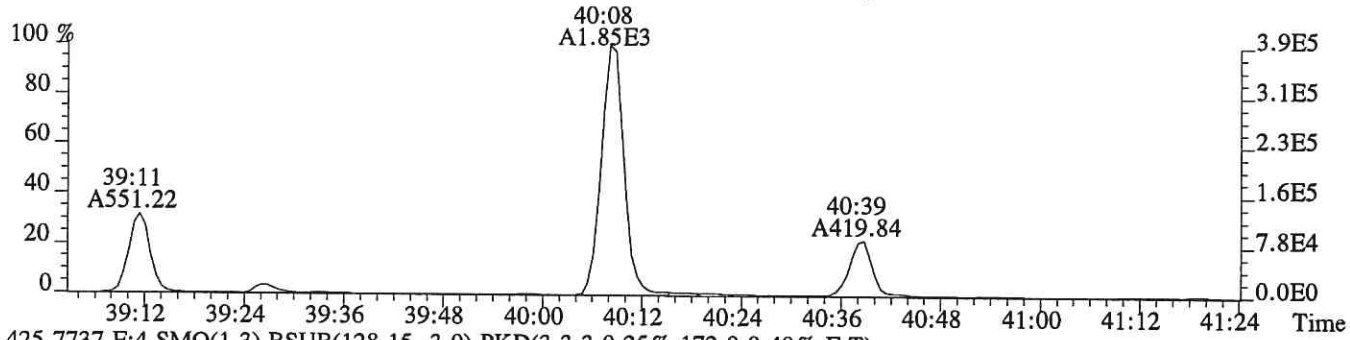


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

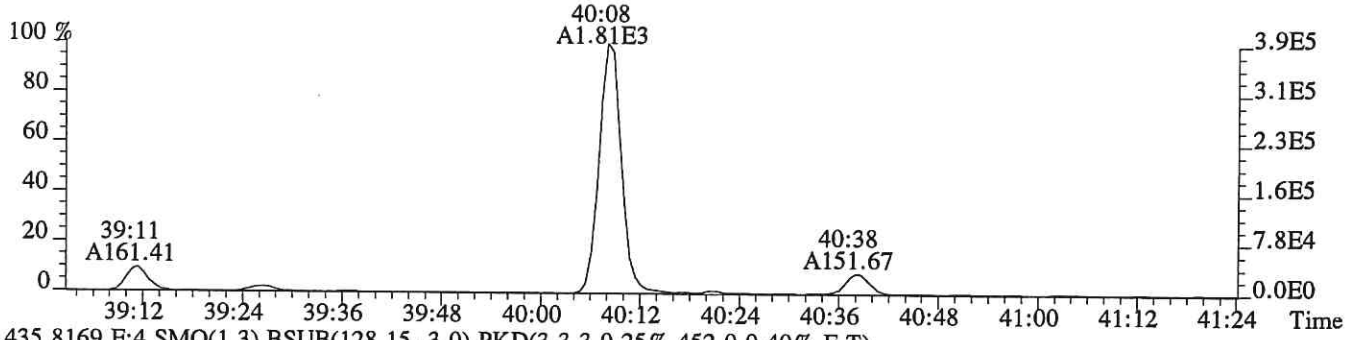


RIGHT SOLUTIONS | RIGHT PARTNER

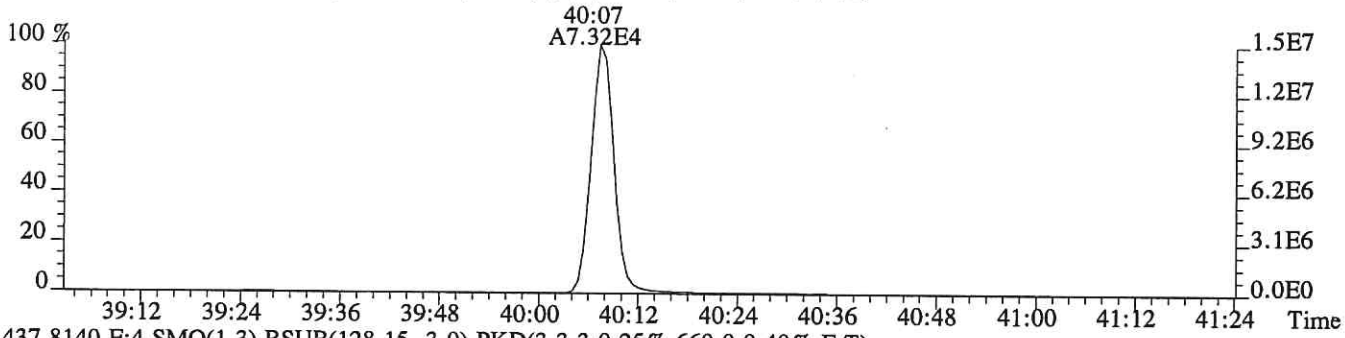
File:P619249 #1-213 Acq: 4-OCT-2019 03:07:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,280.0,0.40%,F,T)



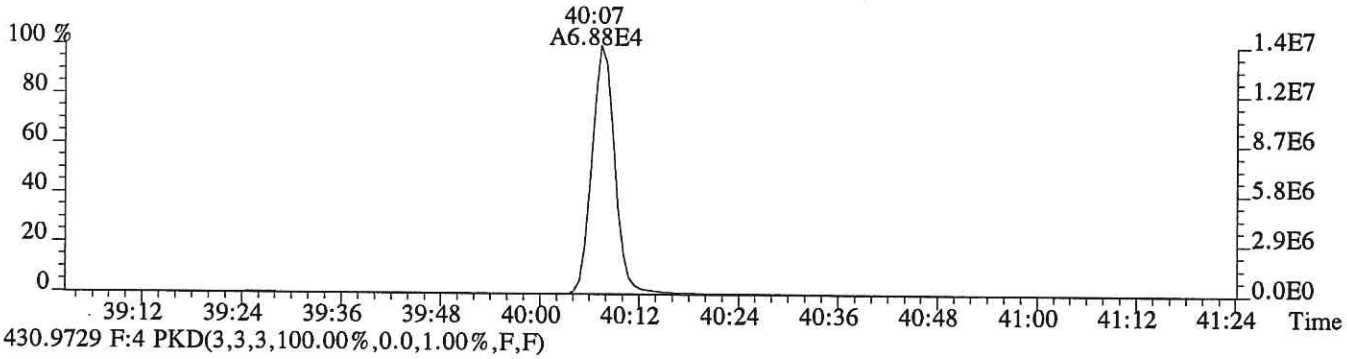
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,172.0,0.40%,F,T)



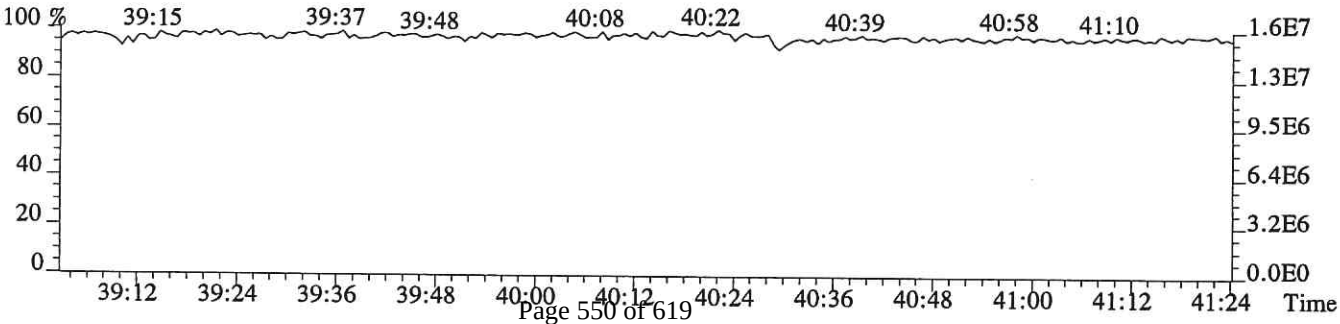
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,452.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,660.0,0.40%,F,T)



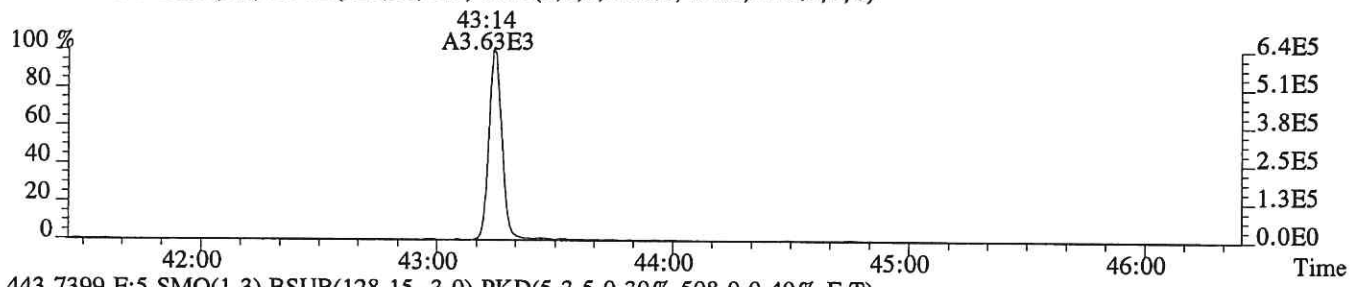
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



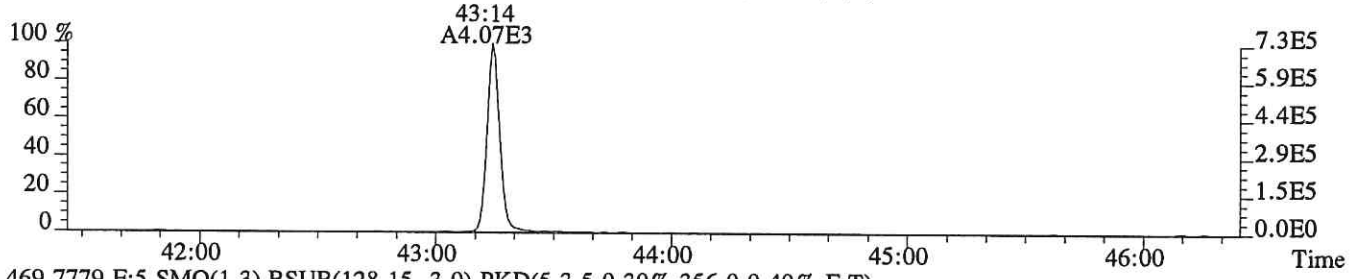
RIGHT SOLUTIONS | RIGHT PARTNER

File:P619249 #1-448 Acq: 4-OCT-2019 03:07:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1

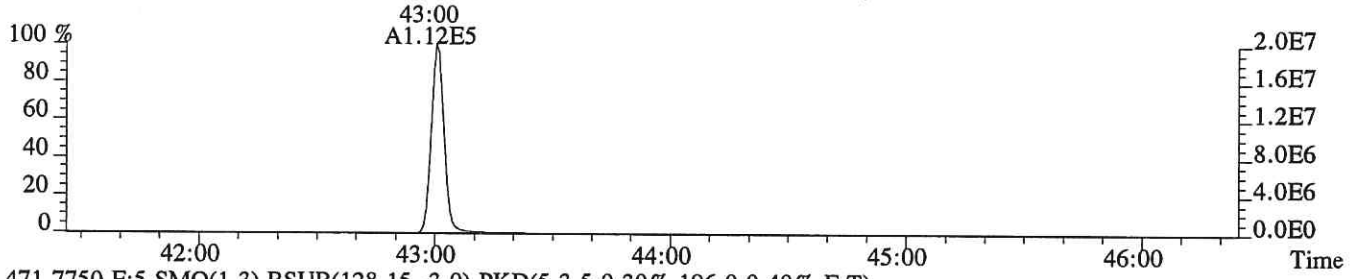
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,404.0,0.40%,F,T)



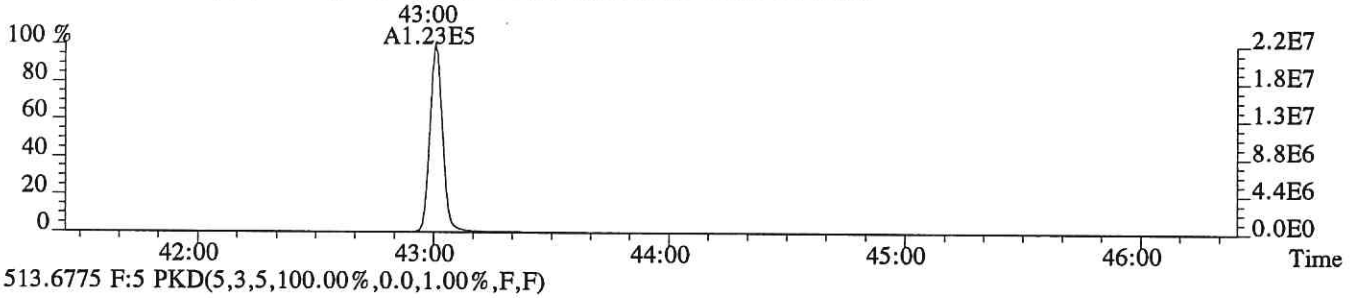
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,508.0,0.40%,F,T)



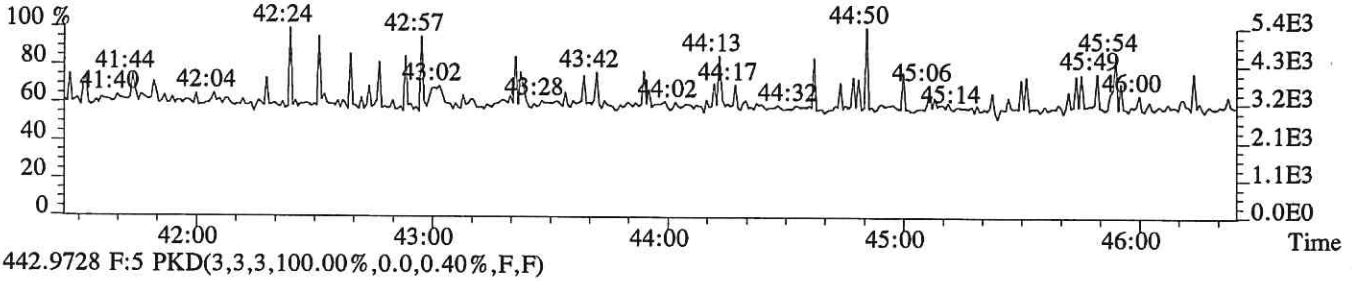
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,356.0,0.40%,F,T)



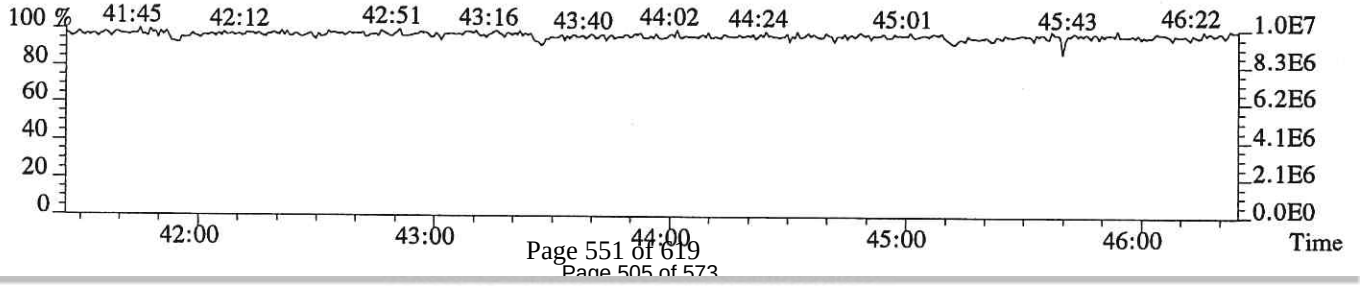
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,196.0,0.40%,F,T)



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

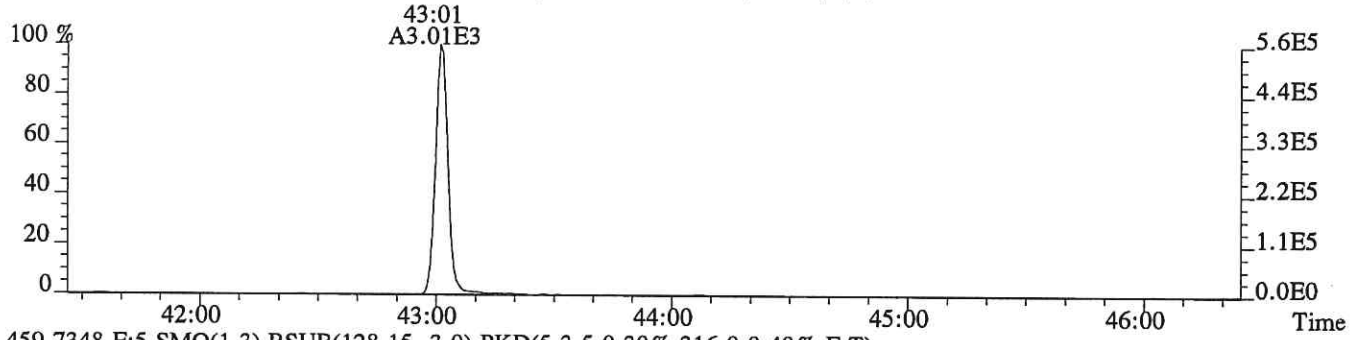


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

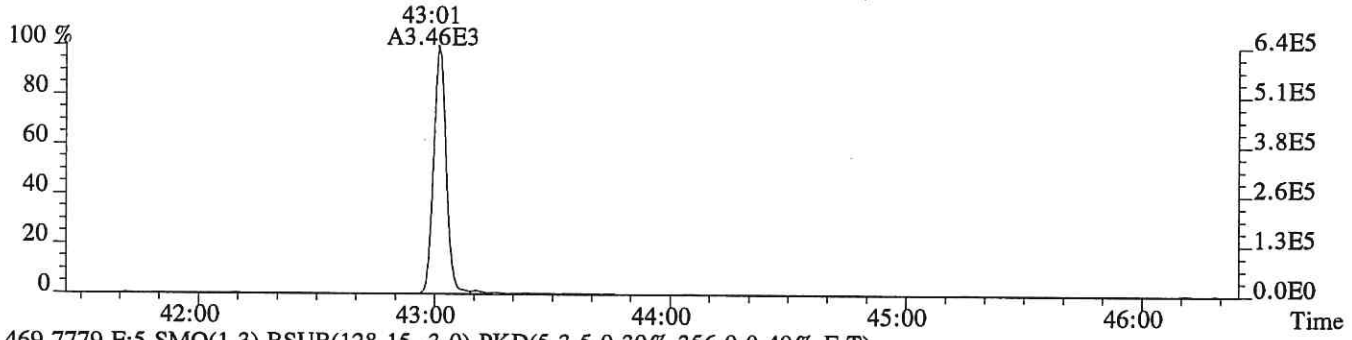


RIGHT SOLUTIONS | RIGHT PARTNER

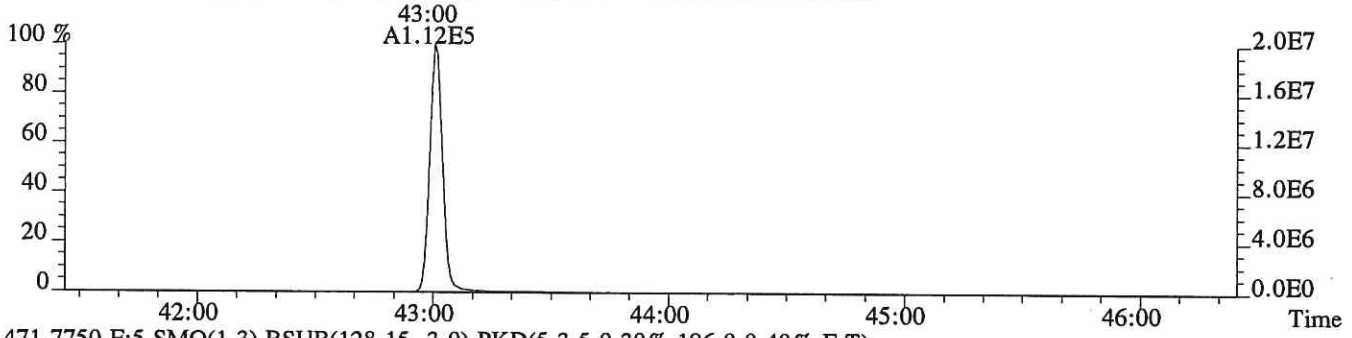
File:P619249 #1-448 Acq: 4-OCT-2019 03:07:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,224.0,0.40%,F,T)



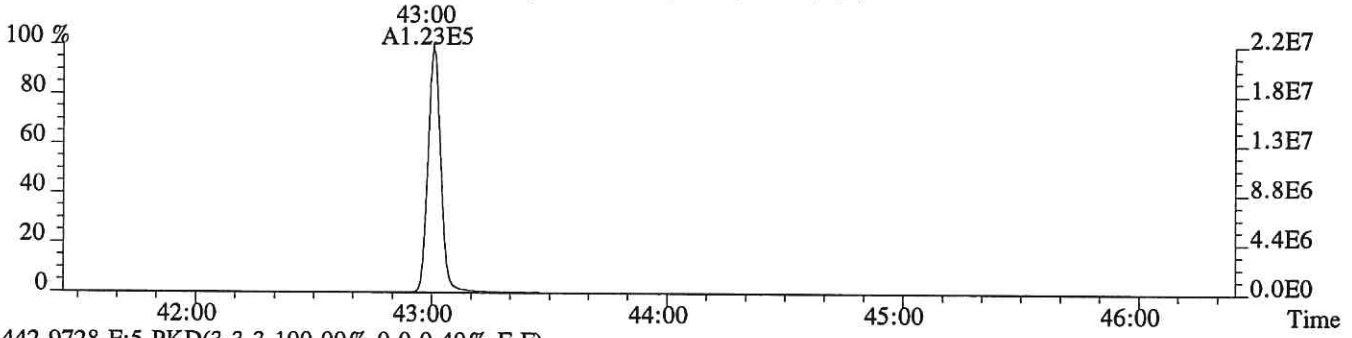
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,316.0,0.40%,F,T)



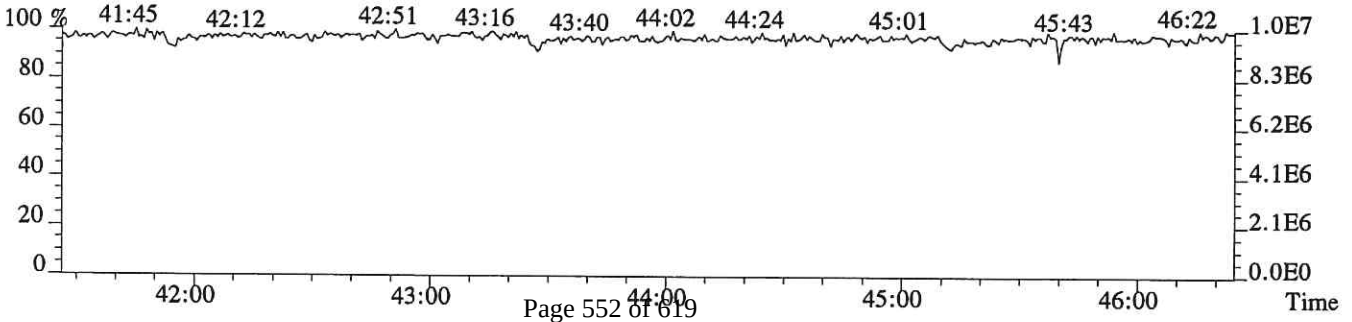
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,356.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,196.0,0.40%,F,T)



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



RIGHT SOLUTIONS | RIGHT PARTNER

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
193434

Run #3 Filename p619250 #1 Samp: 1 Inj: 1 Acquired: 4-OCT-19 03:56:26
Processed: 4-OCT-19 09:01:56 LAB. ID: CS2

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	29:20	1.000e+03	1.342e+03	0.75	yes	no	1.017
2	Unk	1,2,3,7,8-PeCDF	33:15	8.123e+03	5.113e+03	1.59	yes	no	1.021
3	Unk	2,3,4,7,8-PeCDF	34:06	7.932e+03	5.233e+03	1.52	yes	no	0.983
4	Unk	1,2,3,4,7,8-HxCDF	36:40	7.937e+03	6.354e+03	1.25	yes	no	1.229
5	Unk	1,2,3,6,7,8-HxCDF	36:46	8.444e+03	6.873e+03	1.23	yes	no	1.109
6	Unk	2,3,4,6,7,8-HxCDF	37:15	7.989e+03	6.446e+03	1.24	yes	no	1.125
7	Unk	1,2,3,7,8,9-HxCDF	37:59	7.521e+03	6.180e+03	1.22	yes	no	1.143
8	Unk	1,2,3,4,6,7,8-HpCDF	39:12	7.323e+03	7.124e+03	1.03	yes	no	1.323
9	Unk	1,2,3,4,7,8,9-HpCDF	40:39	6.476e+03	6.478e+03	1.00	yes	no	1.253
10	Unk	OCDF	43:15	1.086e+04	1.210e+04	0.90	yes	no	1.373
11	Unk	2,3,7,8-TCDD	30:03	6.703e+02	9.165e+02	0.73	yes	no	1.012
12	Unk	1,2,3,7,8-PeCDD	34:22	5.804e+03	3.567e+03	1.63	yes	no	0.993
13	Unk	1,2,3,4,7,8-HxCDD	37:22	5.659e+03	4.510e+03	1.25	yes	no	1.082
14	Unk	1,2,3,6,7,8-HxCDD	37:27	5.742e+03	4.761e+03	1.21	yes	no	1.083
15	Unk	1,2,3,7,8,9-HxCDD	37:41	6.066e+03	4.865e+03	1.25	yes	no	1.174
16	Unk	1,2,3,4,6,7,8-HpCDD	40:09	5.497e+03	5.167e+03	1.06	yes	no	1.053
17	Unk	OCDD	43:02	9.141e+03	1.009e+04	0.91	yes	no	1.160
18	IS	13C-2,3,7,8-TCDF	29:19	5.097e+04	6.354e+04	0.80	yes	no	1.341
19	IS	13C-1,2,3,7,8-PeCDF	33:14	8.159e+04	5.176e+04	1.58	yes	no	1.627
20	IS	13C-2,3,4,7,8-PeCDF	34:05	8.197e+04	5.146e+04	1.59	yes	no	1.651
21	IS	13C-1,2,3,4,7,8-HxCDF	36:39	4.002e+04	7.675e+04	0.52	yes	no	1.137
22	IS	13C-1,2,3,6,7,8-HxCDF	36:45	4.751e+04	9.070e+04	0.52	yes	no	1.307
23	IS	13C-2,3,4,6,7,8-HxCDF	37:14	4.407e+04	8.381e+04	0.53	yes	no	1.222
24	IS	13C-1,2,3,7,8,9-HxCDF	37:58	4.015e+04	7.691e+04	0.52	yes	no	1.137
25	IS	13C-1,2,3,4,6,7,8-HpCDF	39:12	3.473e+04	7.790e+04	0.45	yes	no	1.069
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:39	3.104e+04	6.970e+04	0.45	yes	no	0.961
27	IS	13C-2,3,7,8-TCDD	30:01	3.583e+04	4.631e+04	0.77	yes	no	0.970
28	IS	13C-1,2,3,7,8-PeCDD	34:21	5.692e+04	3.608e+04	1.58	yes	no	1.142
29	IS	13C-1,2,3,4,7,8-HxCDD	37:21	5.343e+04	4.169e+04	1.28	yes	no	0.914
30	IS	13C-1,2,3,6,7,8-HxCDD	37:26	5.208e+04	4.156e+04	1.25	yes	no	0.899
31	IS	13C-1,2,3,4,6,7,8-HpCDD	40:08	5.486e+04	5.106e+04	1.07	yes	no	0.997
32	IS	13C-OCDD	43:01	8.295e+04	9.134e+04	0.91	yes	no	0.817
33	RS/RT	13C-1,2,3,4-TCDD	29:29	3.789e+04	4.802e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:40	5.860e+04	4.603e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	30:03	1.749e+03				no	1.005

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RIGHT SOLUTIONS | RIGHT PARTNER

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
193434

Run #3 Filename p619250 Samp: 1 Inj: 1 Acquired: 4-OCT-19 03:56:26
Processed: 4-OCT-19 09:01:561 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	2.01e+05	1.80e+02	1.1e+03	2.64e+05	2.80e+02	9.4e+02
2	1,2,3,7,8-PeCDF	1.67e+06	6.32e+02	2.6e+03	1.02e+06	1.62e+03	6.3e+02
3	2,3,4,7,8-PeCDF	1.63e+06	6.32e+02	2.6e+03	1.10e+06	1.62e+03	6.8e+02
4	1,2,3,4,7,8-HxCDF	1.78e+06	5.00e+02	3.6e+03	1.45e+06	9.08e+02	1.6e+03
5	1,2,3,6,7,8-HxCDF	1.91e+06	5.00e+02	3.8e+03	1.55e+06	9.08e+02	1.7e+03
6	2,3,4,6,7,8-HxCDF	1.78e+06	5.00e+02	3.6e+03	1.45e+06	9.08e+02	1.6e+03
7	1,2,3,7,8,9-HxCDF	1.71e+06	5.00e+02	3.4e+03	1.38e+06	9.08e+02	1.5e+03
8	1,2,3,4,6,7,8-HpCDF	1.60e+06	1.62e+03	9.9e+02	1.59e+06	1.26e+03	1.3e+03
9	1,2,3,4,7,8,9-HpCDF	1.31e+06	1.62e+03	8.0e+02	1.28e+06	1.26e+03	1.0e+03
10	OCDF	1.94e+06	2.08e+02	9.3e+03	2.12e+06	7.24e+02	2.9e+03
11	2,3,7,8-TCDD	1.33e+05	9.08e+02	1.5e+02	1.94e+05	3.80e+02	5.1e+02
12	1,2,3,7,8-PeCDD	1.23e+06	5.44e+02	2.3e+03	7.55e+05	3.44e+02	2.2e+03
13	1,2,3,4,7,8-HxCDD	1.34e+06	5.60e+02	2.4e+03	1.08e+06	2.76e+02	3.9e+03
14	1,2,3,6,7,8-HxCDD	1.33e+06	5.60e+02	2.4e+03	1.07e+06	2.76e+02	3.9e+03
15	1,2,3,7,8,9-HxCDD	1.36e+06	5.60e+02	2.4e+03	1.07e+06	2.76e+02	3.9e+03
16	1,2,3,4,6,7,8-HpCDD	1.17e+06	2.24e+02	5.2e+03	1.12e+06	3.12e+02	3.6e+03
17	OCDD	1.59e+06	2.48e+02	6.4e+03	1.79e+06	3.44e+02	5.2e+03
18	13C-2,3,7,8-TCDF	9.98e+06	3.27e+03	3.1e+03	1.25e+07	2.08e+03	6.0e+03
19	13C-1,2,3,7,8-PeCDF	1.60e+07	8.77e+03	1.8e+03	1.01e+07	5.29e+03	1.9e+03
20	13C-2,3,4,7,8-PeCDF	1.70e+07	8.77e+03	1.9e+03	1.07e+07	5.29e+03	2.0e+03
21	13C-1,2,3,4,7,8-HxCDF	9.10e+06	4.72e+02	1.9e+04	1.73e+07	7.64e+02	2.3e+04
22	13C-1,2,3,6,7,8-HxCDF	1.04e+07	4.72e+02	2.2e+04	2.01e+07	7.64e+02	2.6e+04
23	13C-2,3,4,6,7,8-HxCDF	9.69e+06	4.72e+02	2.1e+04	1.83e+07	7.64e+02	2.4e+04
24	13C-1,2,3,7,8,9-HxCDF	8.97e+06	4.72e+02	1.9e+04	1.71e+07	7.64e+02	2.2e+04
25	13C-1,2,3,4,6,7,8-HpCDF	7.40e+06	1.02e+04	7.2e+02	1.68e+07	3.06e+04	5.5e+02
26	13C-1,2,3,4,7,8,9-HpCDF	6.25e+06	1.02e+04	6.1e+02	1.40e+07	3.06e+04	4.6e+02
27	13C-2,3,7,8-TCDD	7.42e+06	3.94e+03	1.9e+03	9.65e+06	1.32e+03	7.3e+03
28	13C-1,2,3,7,8-PeCDD	1.15e+07	5.48e+02	2.1e+04	7.35e+06	8.20e+02	9.0e+03
29	13C-1,2,3,4,7,8-HxCDD	1.26e+07	8.72e+02	1.4e+04	9.79e+06	3.80e+02	2.6e+04
30	13C-1,2,3,6,7,8-HxCDD	1.17e+07	8.72e+02	1.3e+04	9.32e+06	3.80e+02	2.5e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.16e+07	4.08e+02	2.8e+04	1.08e+07	4.44e+02	2.4e+04
32	13C-OCDD	1.45e+07	3.36e+02	4.3e+04	1.60e+07	3.60e+02	4.5e+04
33	13C-1,2,3,4-TCDD	7.54e+06	3.94e+03	1.9e+03	9.62e+06	1.32e+03	7.3e+03
34	13C-1,2,3,7,8,9-HxCDD	1.32e+07	8.72e+02	1.5e+04	1.04e+07	3.80e+02	2.7e+04
35	37Cl-2,3,7,8-TCDD	3.50e+05	5.76e+02	6.1e+02			

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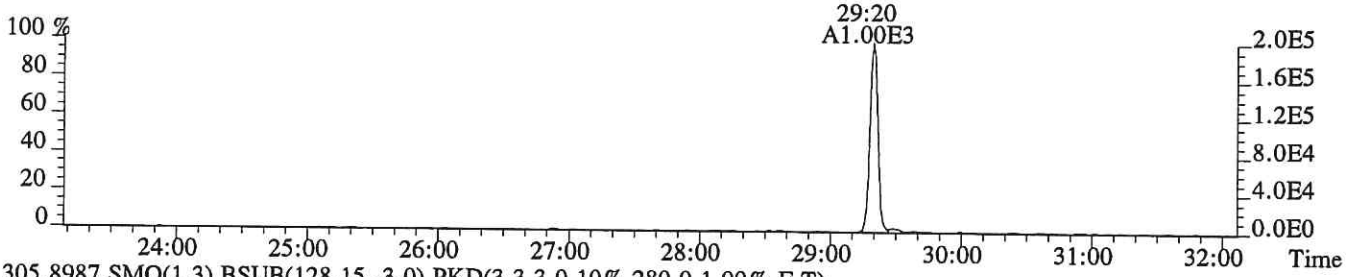
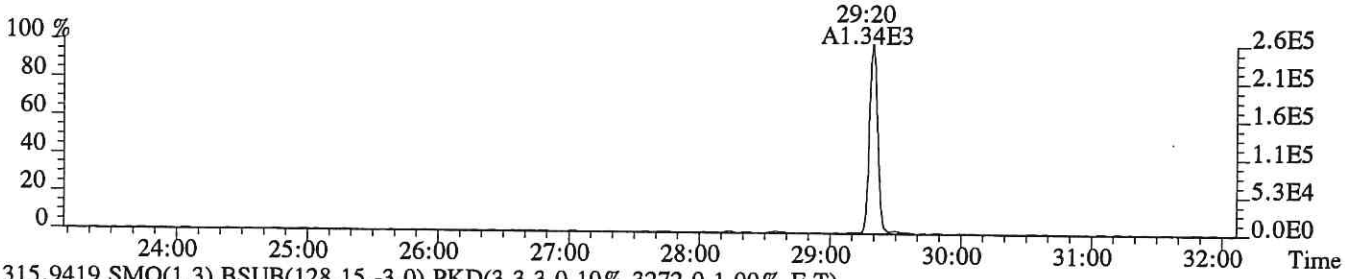
File:P619250 #1-637 Acq: 4-OCT-2019 03:56:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2

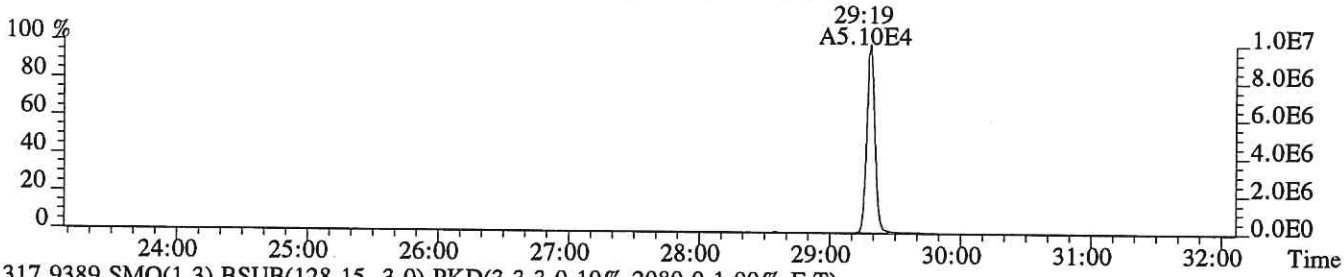
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,180.0,1.00%,F,T)



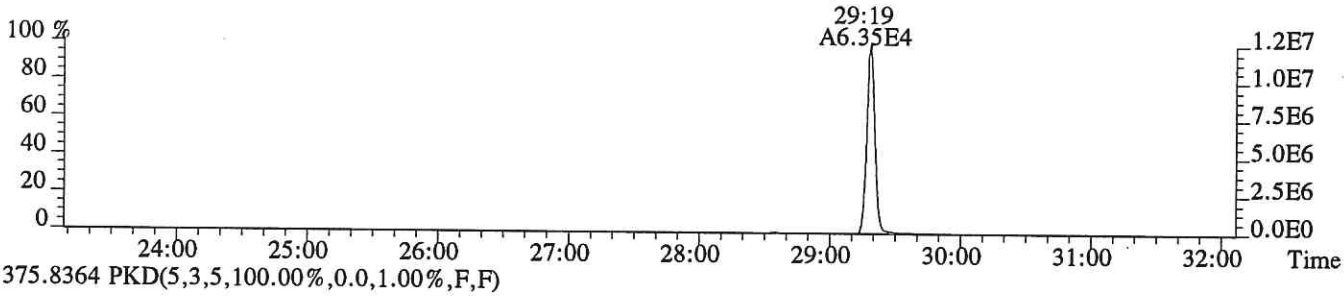
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,280.0,1.00%,F,T)



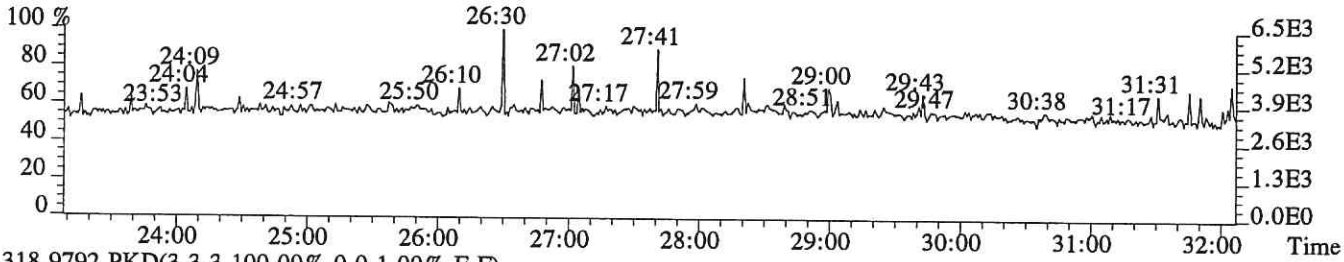
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3272.0,1.00%,F,T)



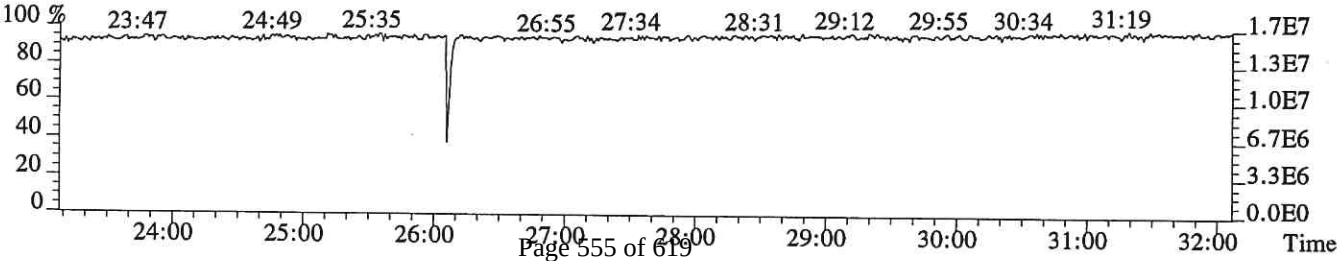
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2080.0,1.00%,F,T)



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

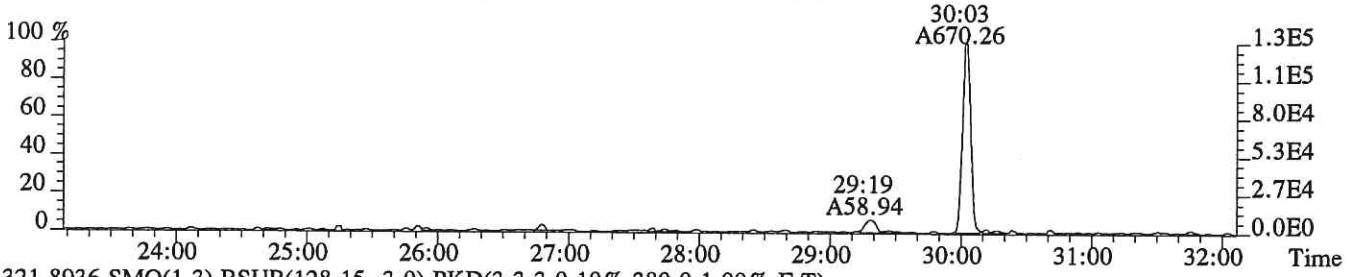


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

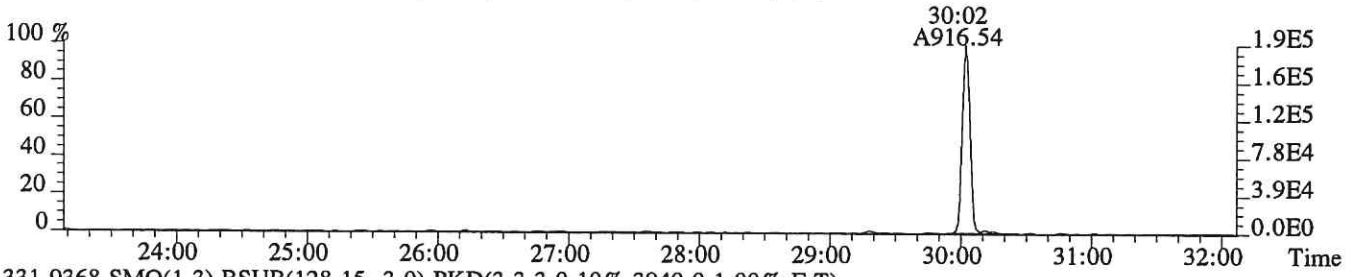


RIGHT SOLUTIONS | RIGHT PARTNER

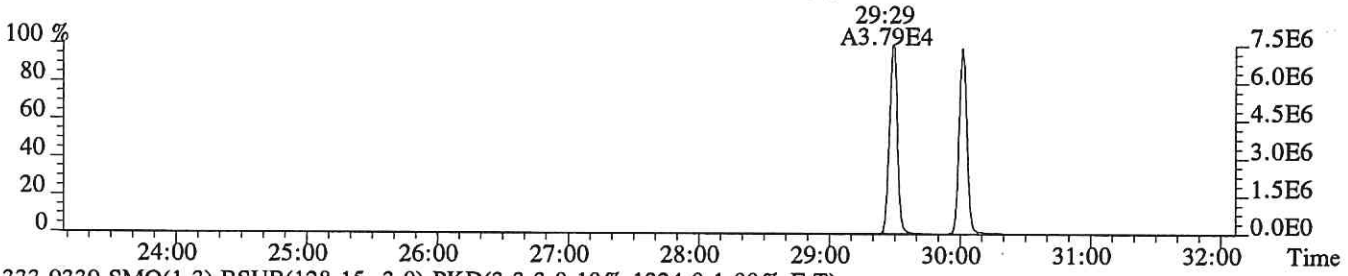
File:P619250 #1-637 Acq: 4-OCT-2019 03:56:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,908.0,1.00%,F,T)



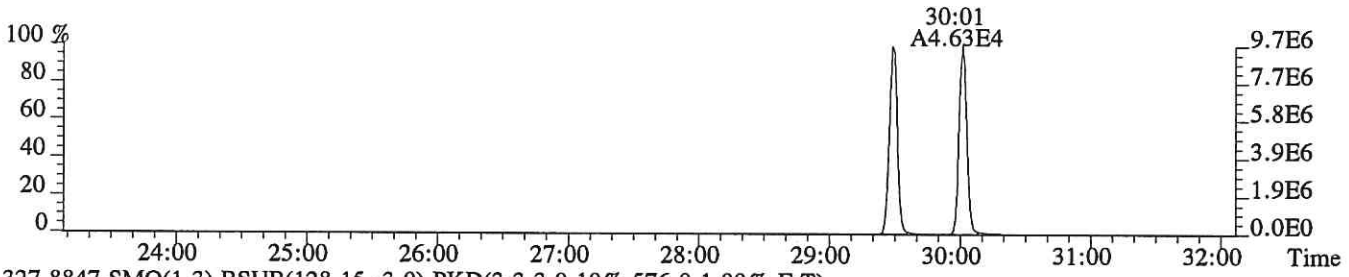
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,380.0,1.00%,F,T)



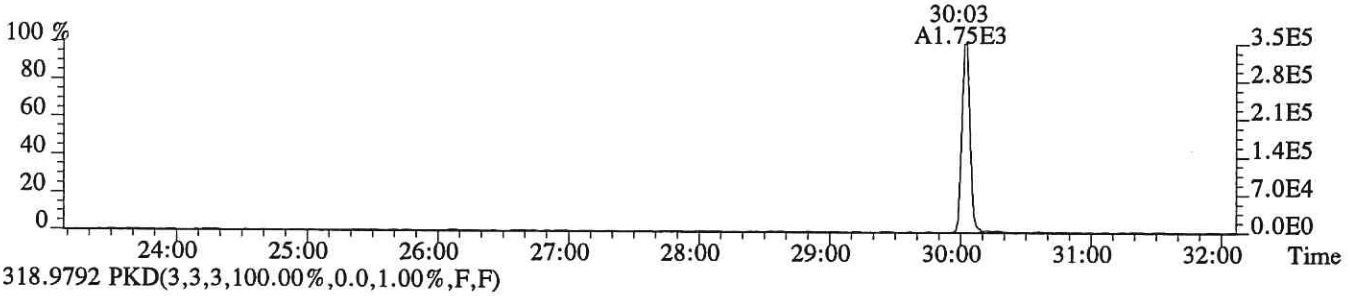
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3940.0,1.00%,F,T)



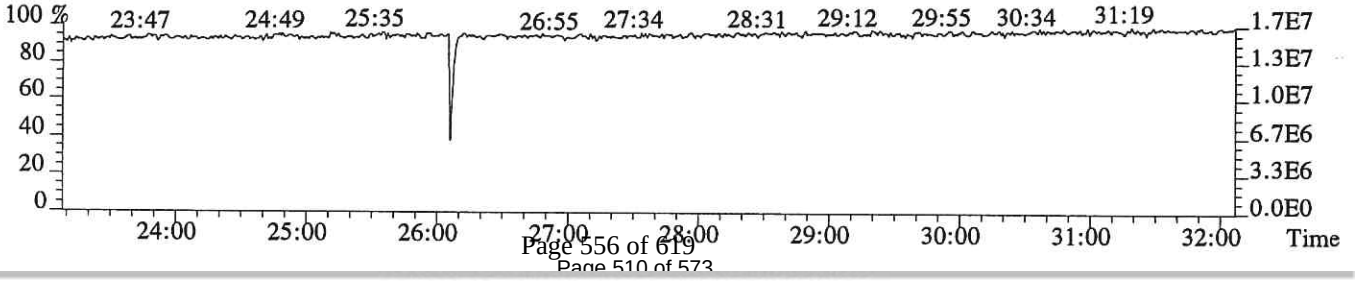
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1324.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,576.0,1.00%,F,T)

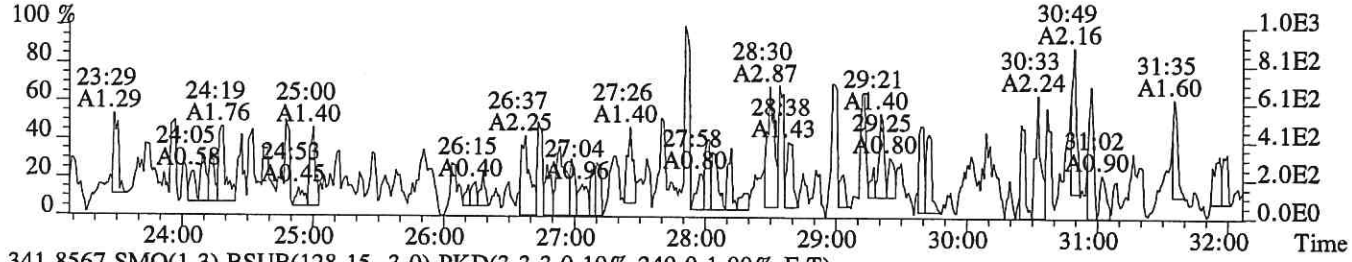


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

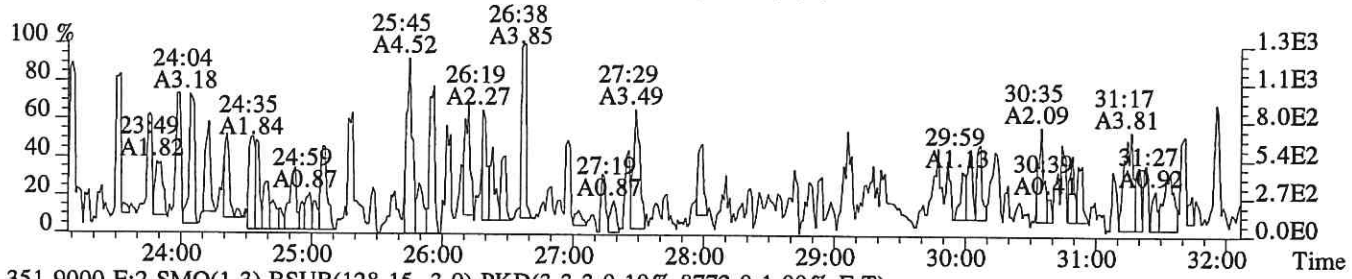


RIGHT SOLUTIONS | RIGHT PARTNER

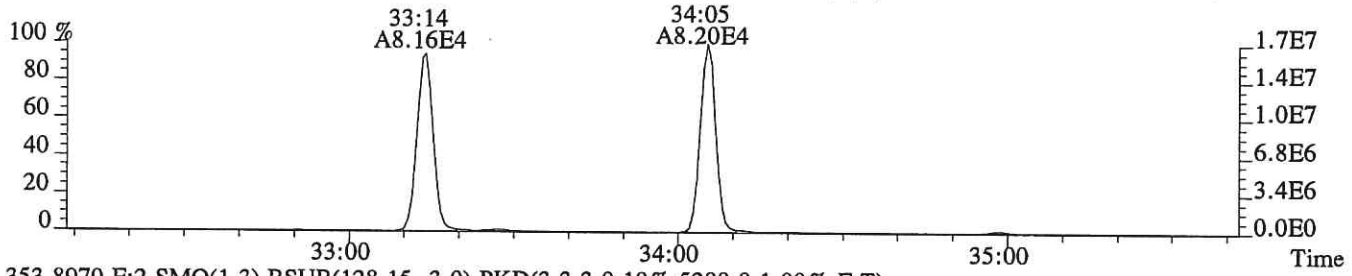
File:P619250 #1-637 Acq: 4-OCT-2019 03:56:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,208.0,1.00%,F,T)



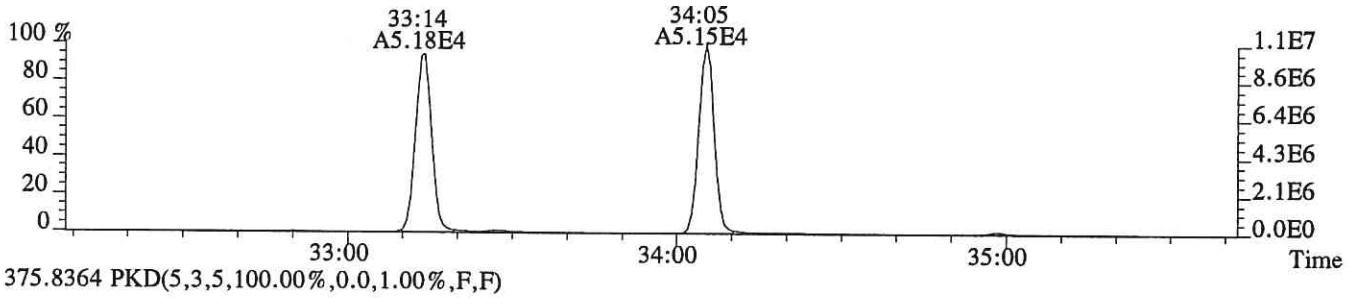
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,240.0,1.00%,F,T)



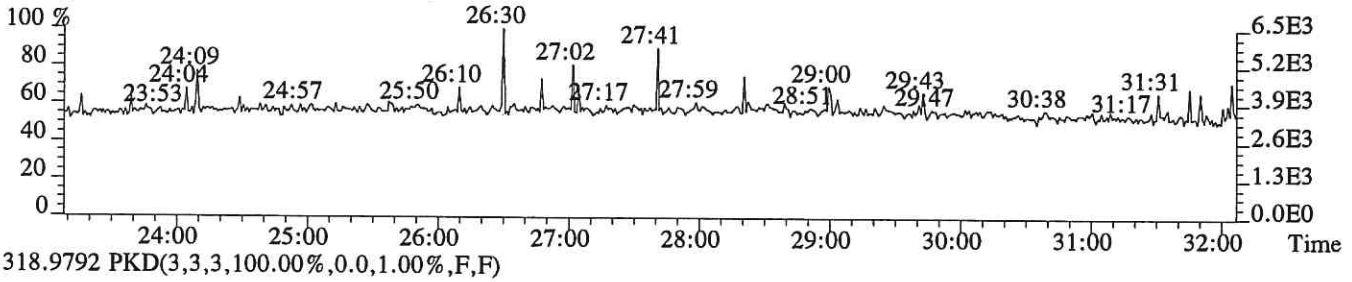
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8772.0,1.00%,F,T)



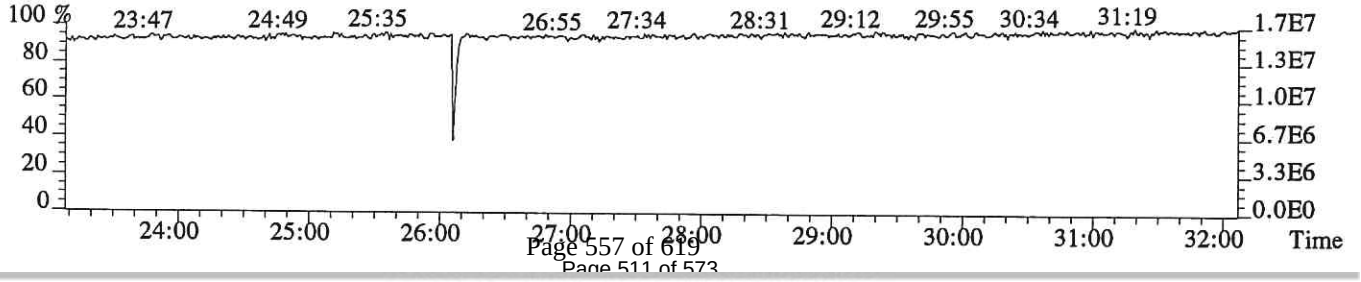
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5288.0,1.00%,F,T)



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



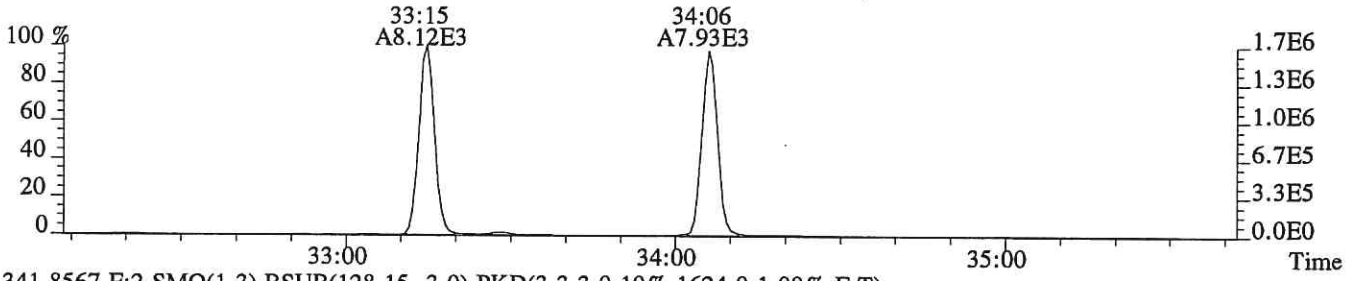
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



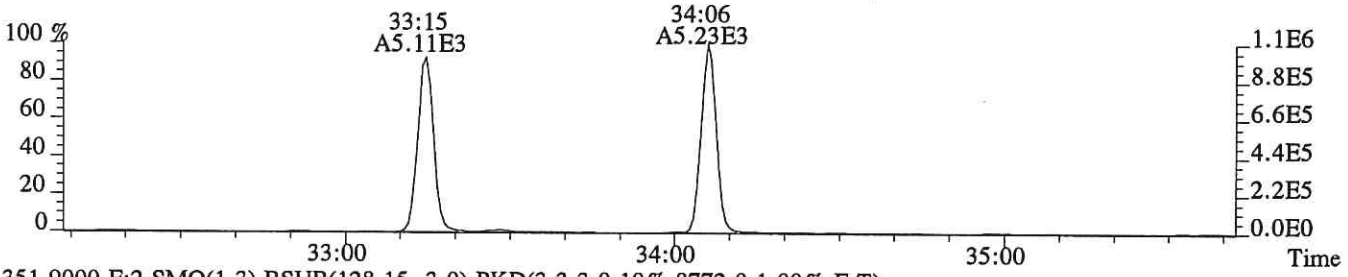
RIGHT SOLUTIONS | RIGHT PARTNER

File:P619250 #1-321 Acq: 4-OCT-2019 03:56:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2

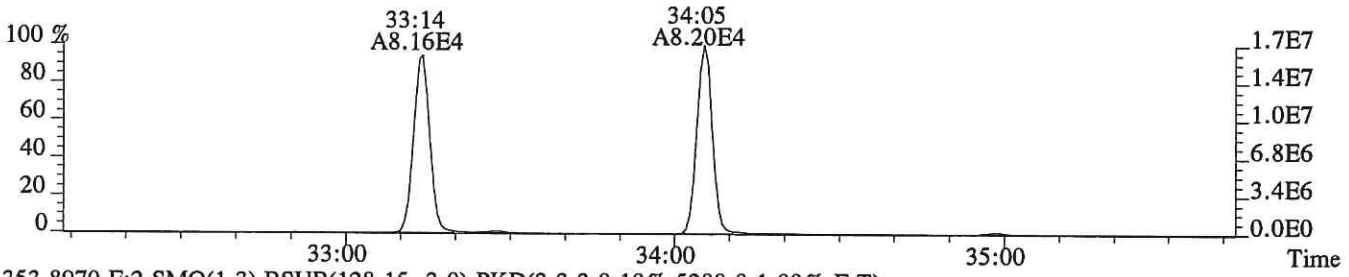
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,632.0,1.00%,F,T)



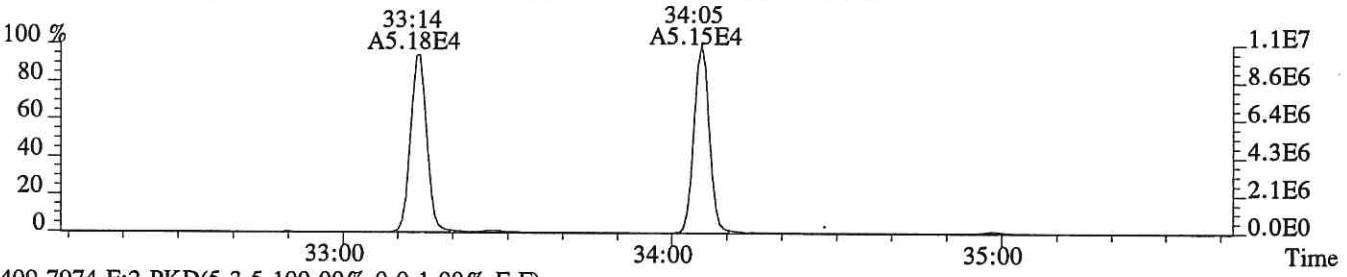
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1624.0,1.00%,F,T)



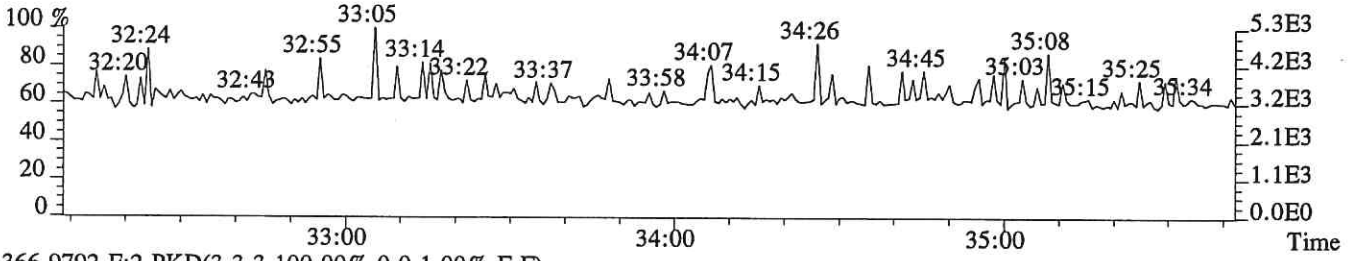
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8772.0,1.00%,F,T)



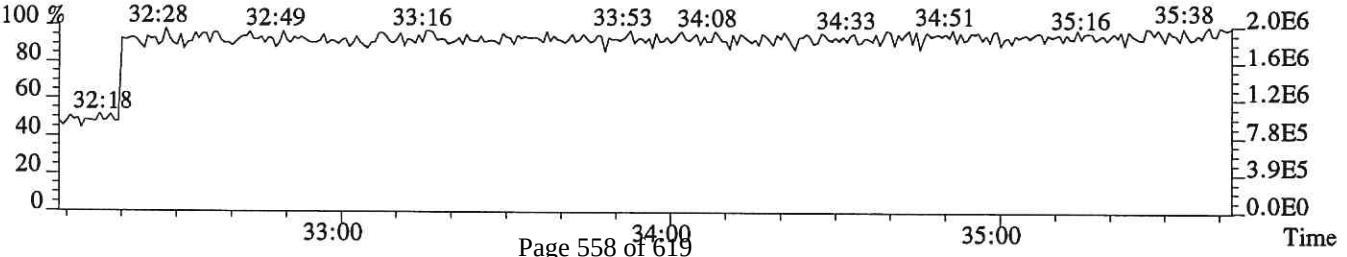
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5288.0,1.00%,F,T)



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



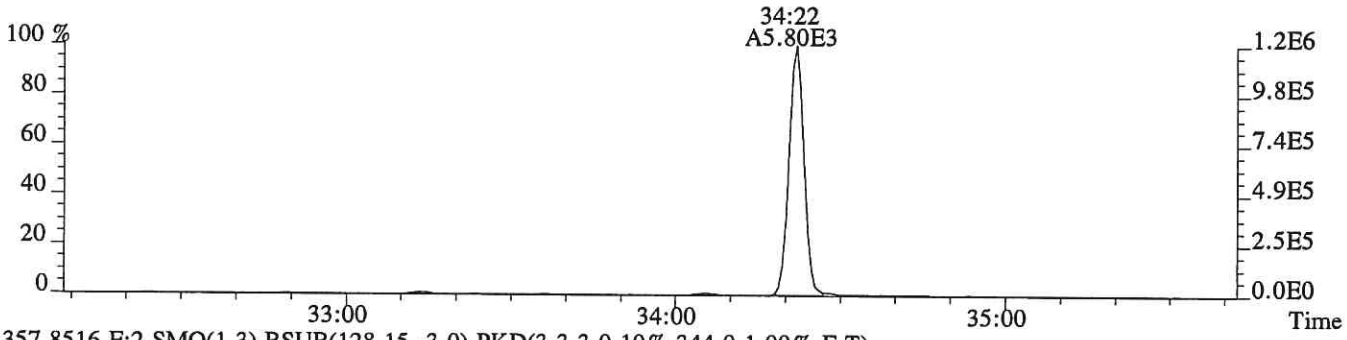
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



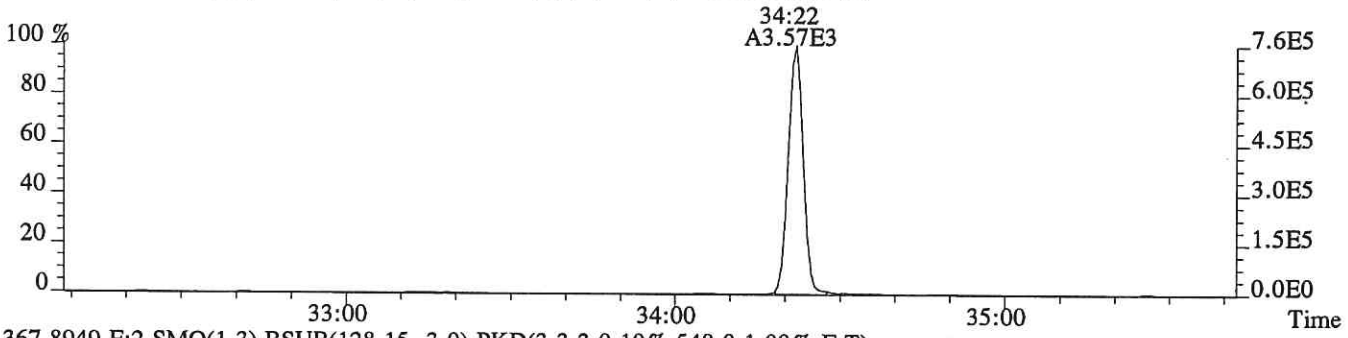
RIGHT SOLUTIONS | RIGHT PARTNER

File:P619250 #1-321 Acq: 4-OCT-2019 03:56:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2

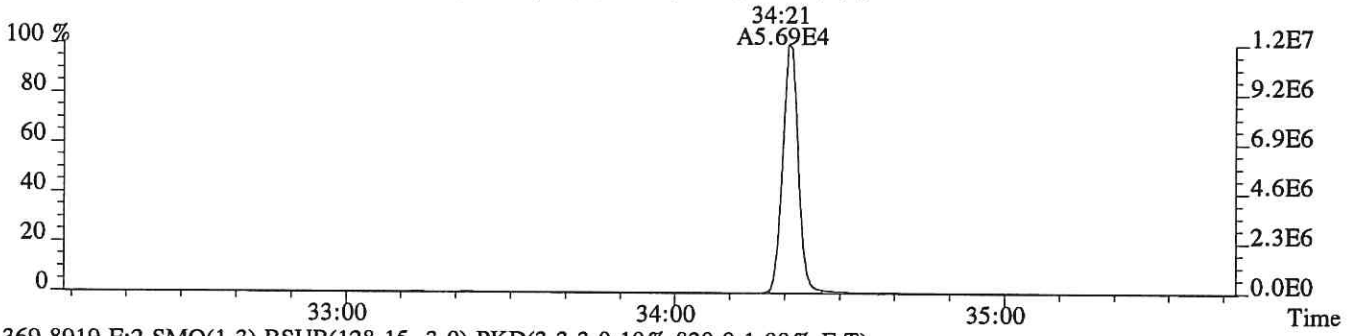
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,544.0,1.00%,F,T)



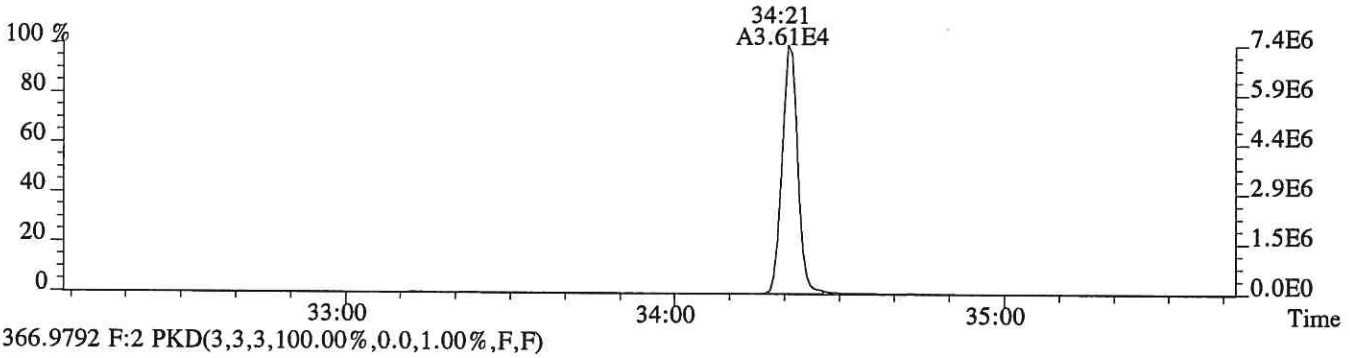
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,344.0,1.00%,F,T)



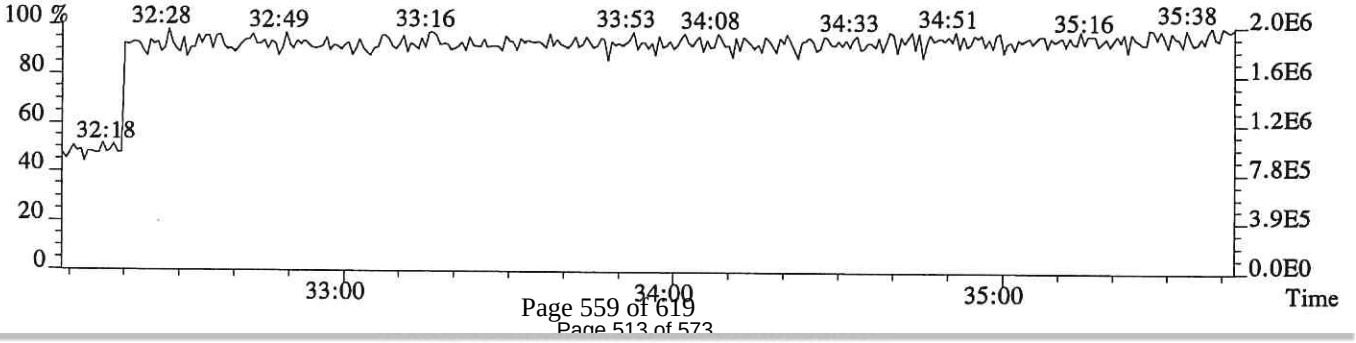
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,548.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,820.0,1.00%,F,T)



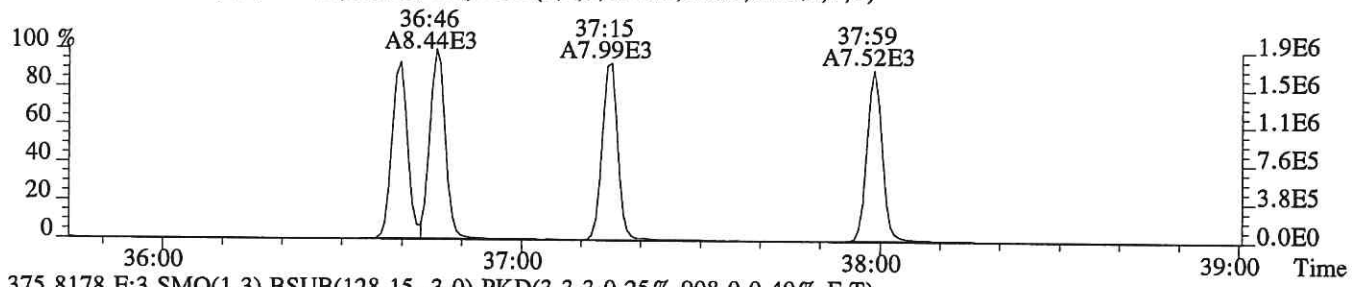
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



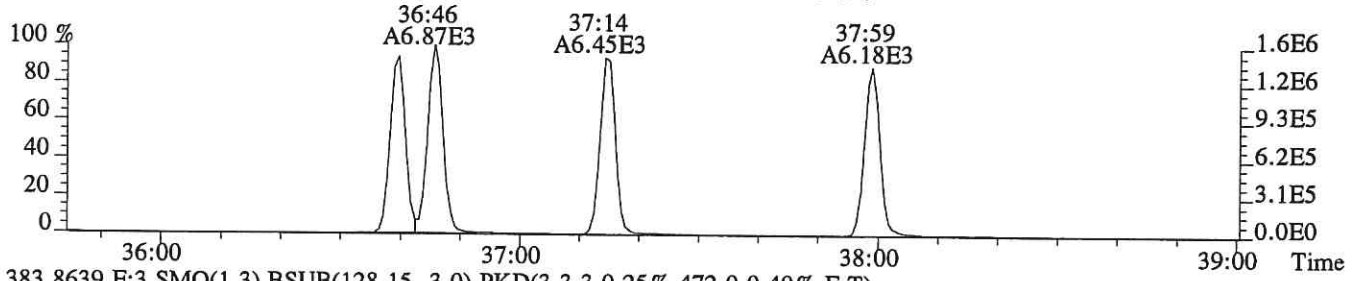
RIGHT SOLUTIONS | RIGHT PARTNER

File:P619250 #1-295 Acq: 4-OCT-2019 03:56:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2

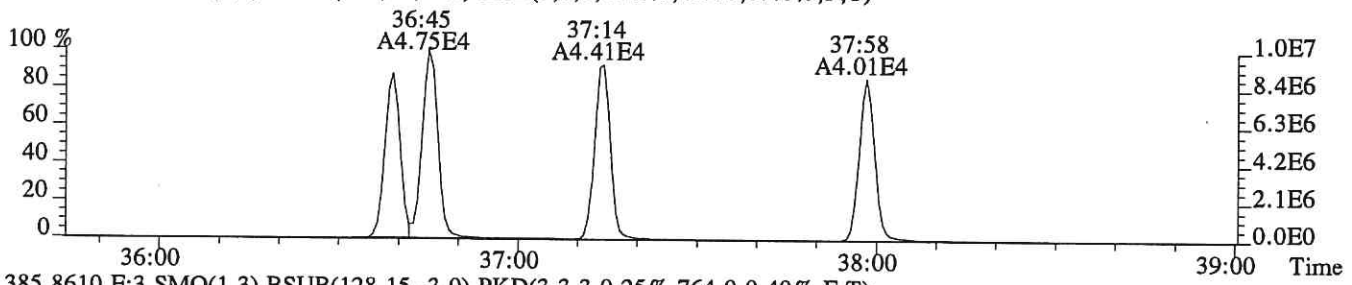
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,500.0,0.40%,F,T)



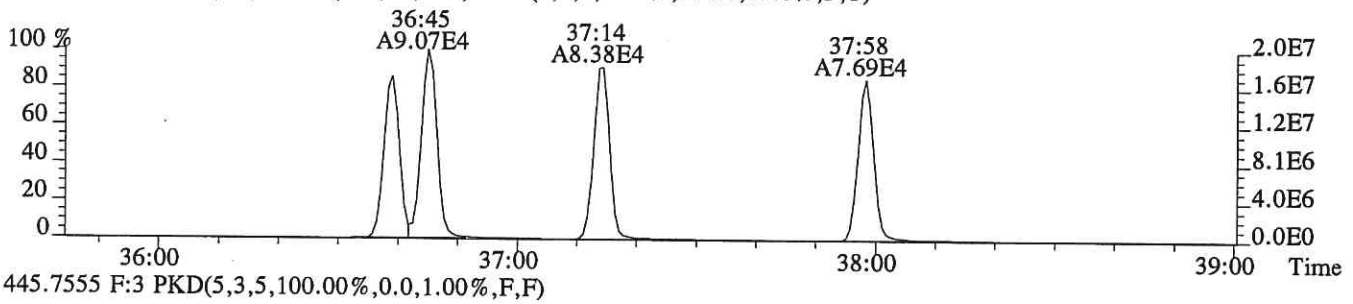
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,908.0,0.40%,F,T)



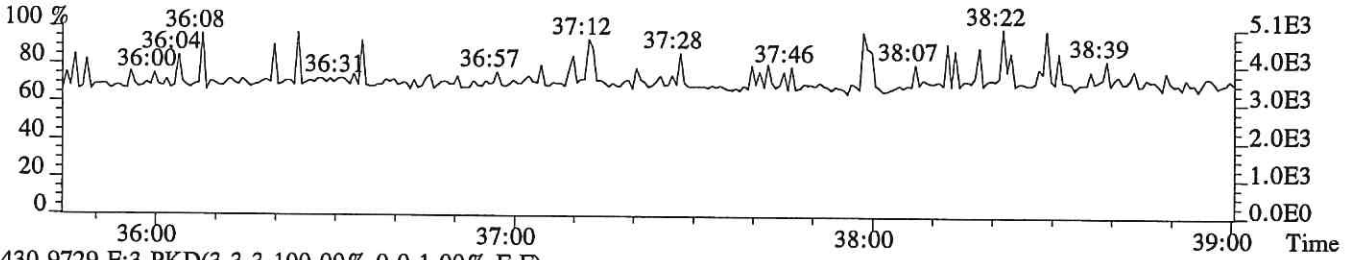
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,472.0,0.40%,F,T)



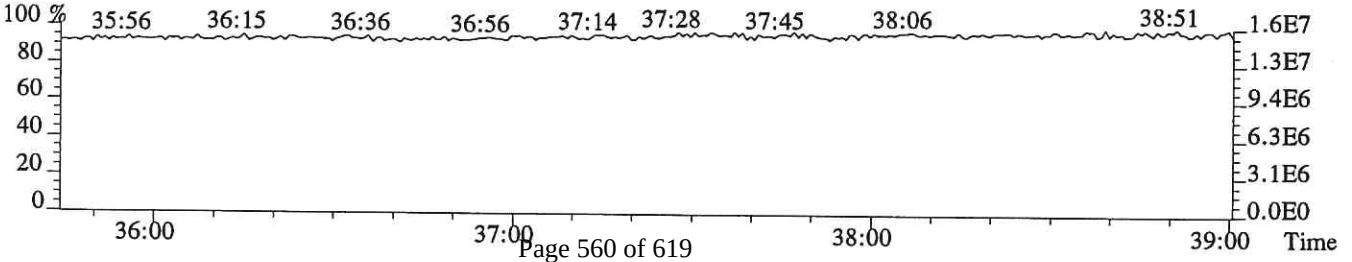
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,764.0,0.40%,F,T)



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

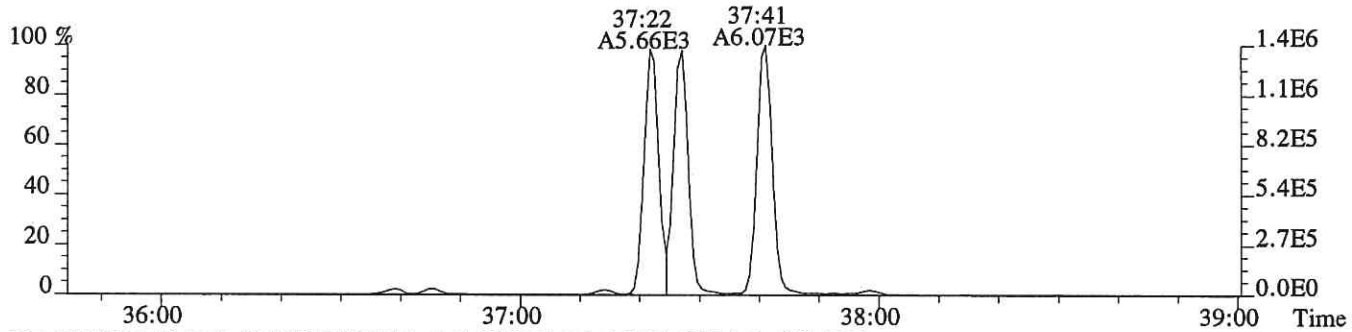


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

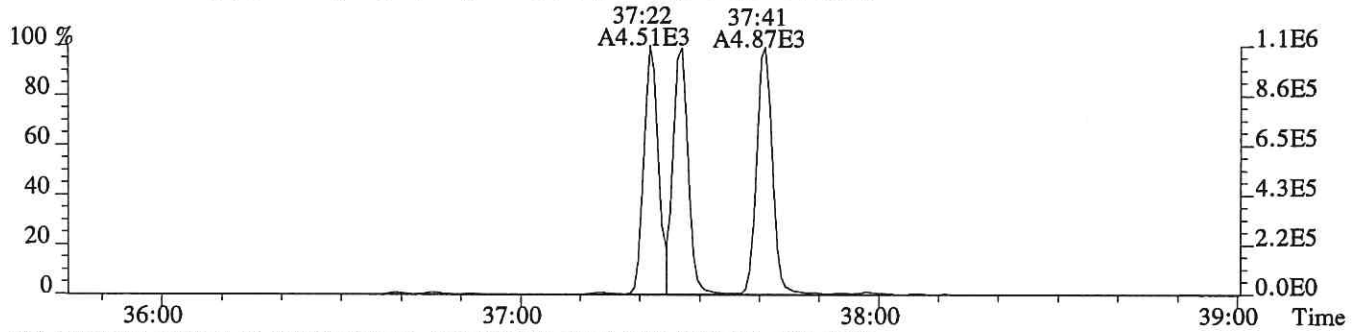


RIGHT SOLUTIONS | RIGHT PARTNER

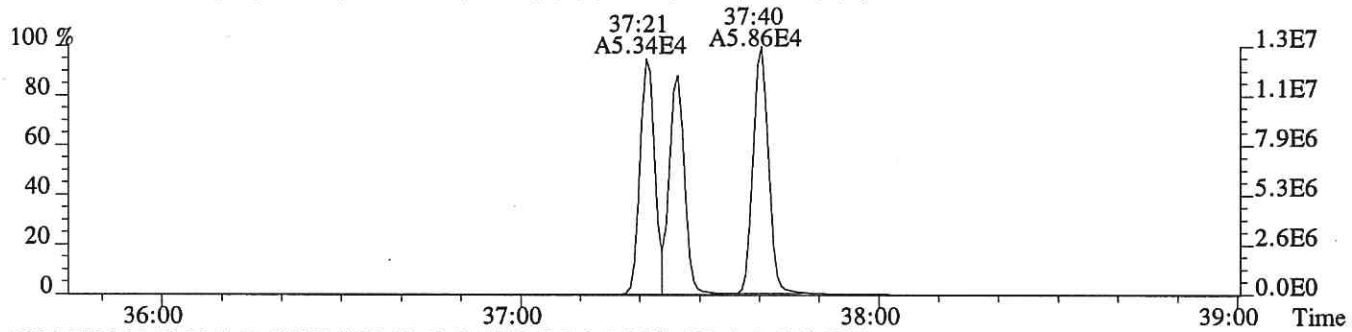
File:P619250 #1-295 Acq: 4-OCT-2019 03:56:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,560.0,0.40%,F,T)



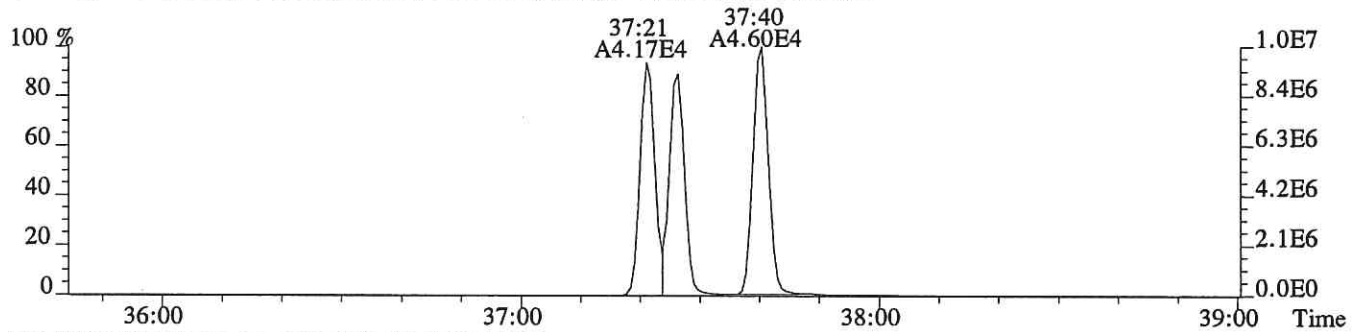
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,276.0,0.40%,F,T)



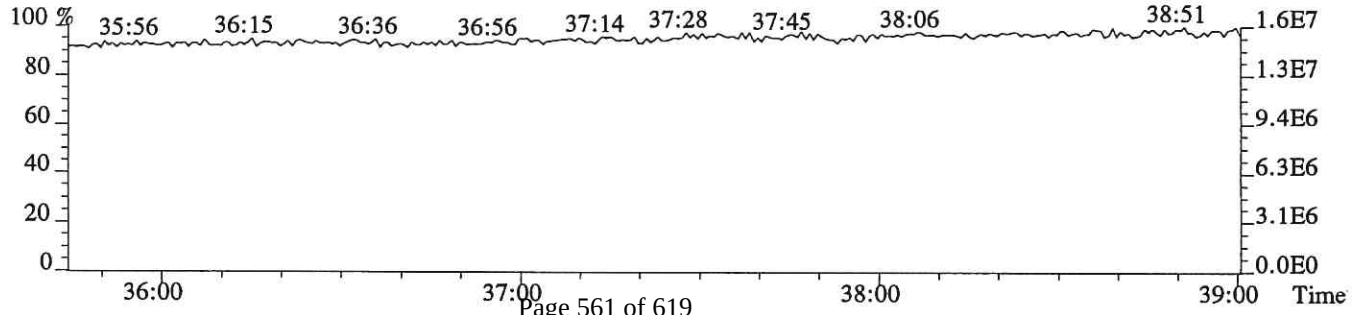
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,872.0,0.40%,F,T)



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



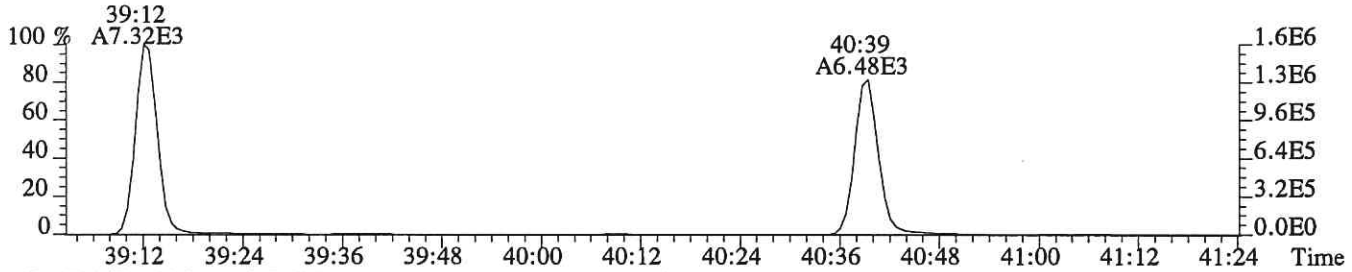
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



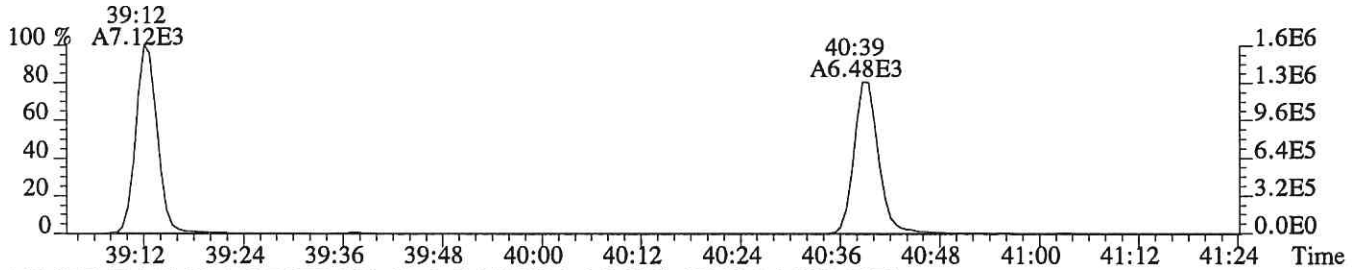
RIGHT SOLUTIONS | RIGHT PARTNER

File:P619250 #1-213 Acq: 4-OCT-2019 03:56:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2

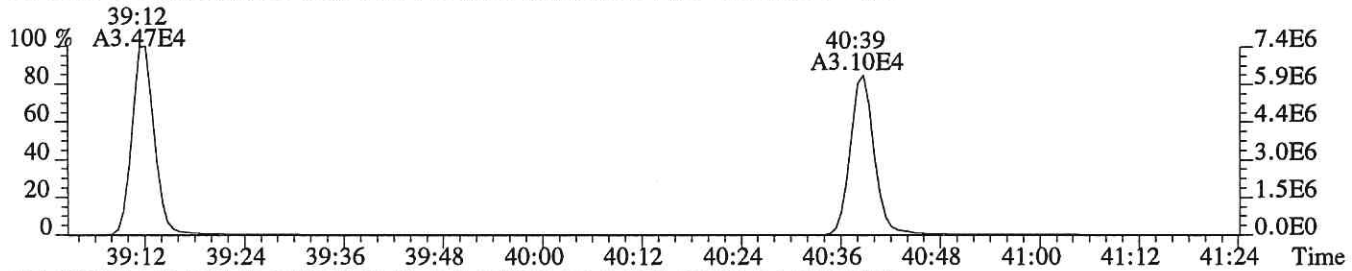
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1624.0,0.50%,F,T)



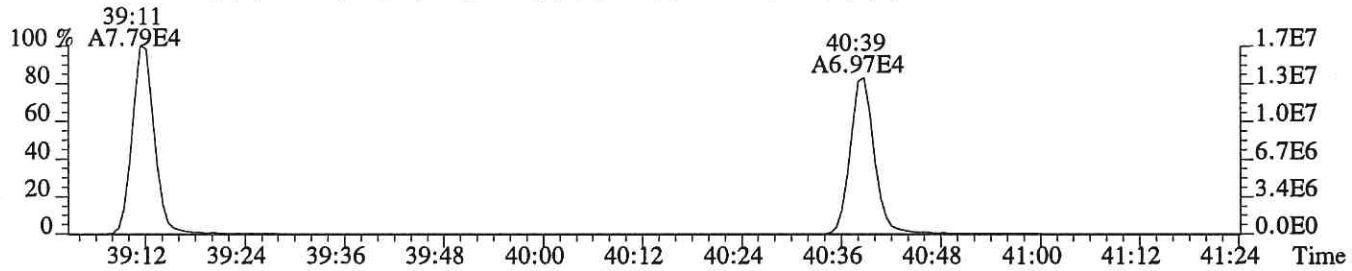
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1256.0,0.50%,F,T)



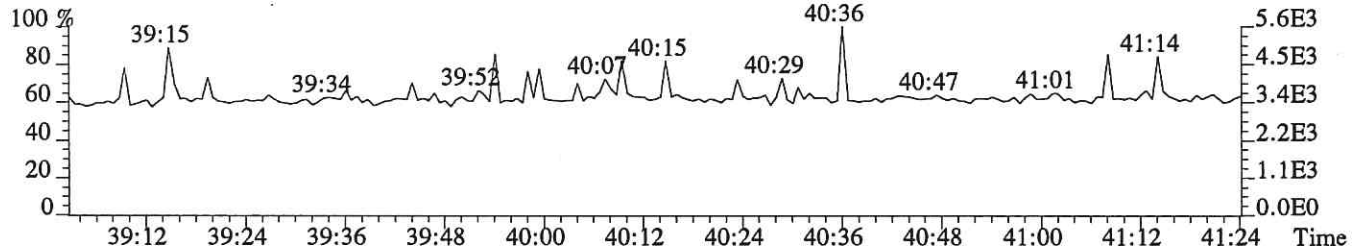
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,10212.0,0.50%,F,T)



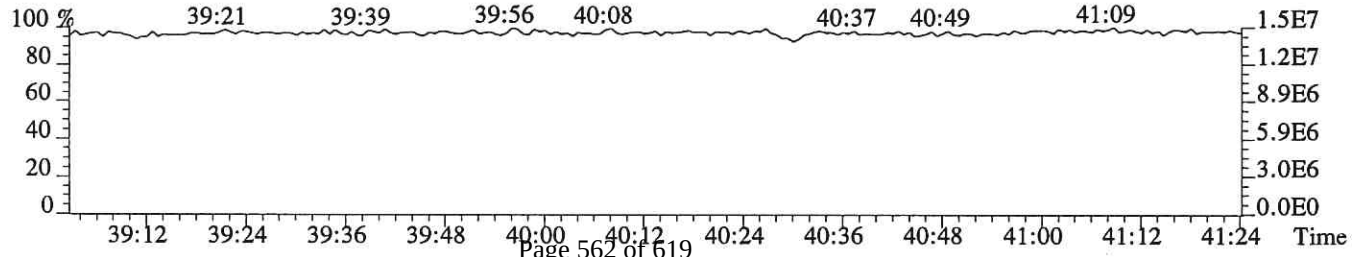
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,30556.0,0.50%,F,T)



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

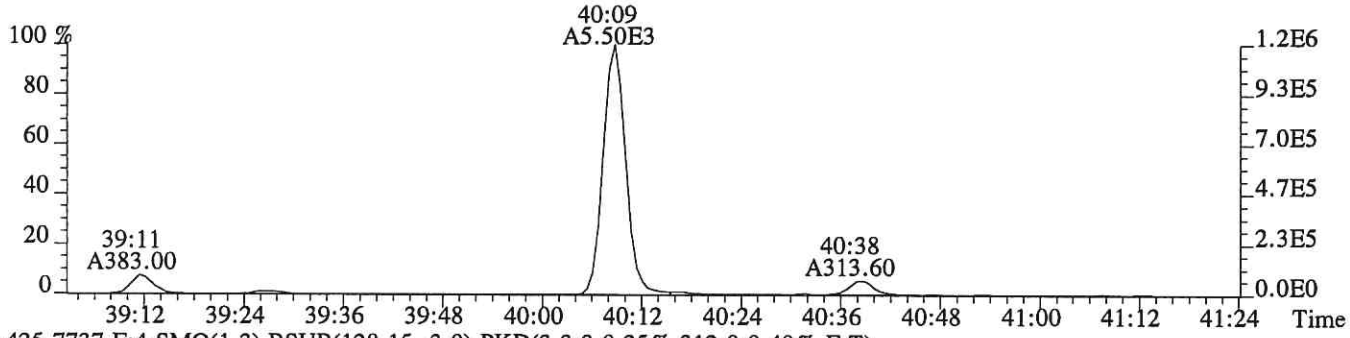


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

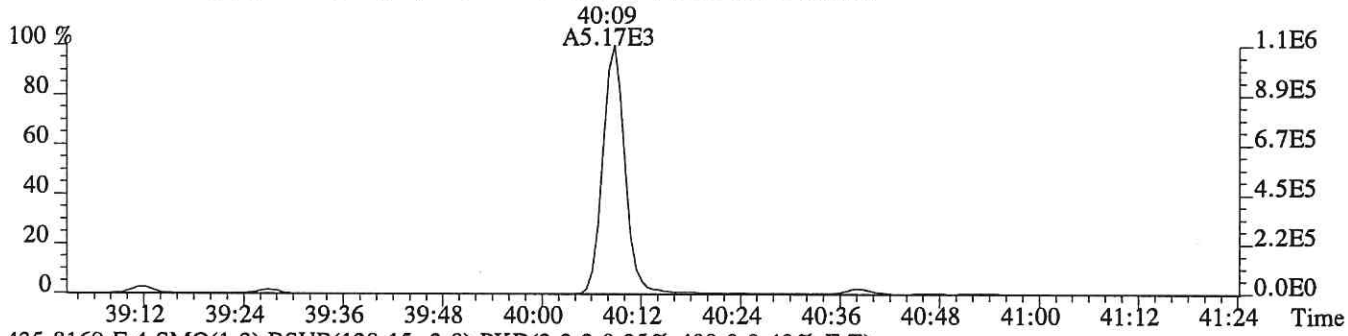


RIGHT SOLUTIONS | RIGHT PARTNER

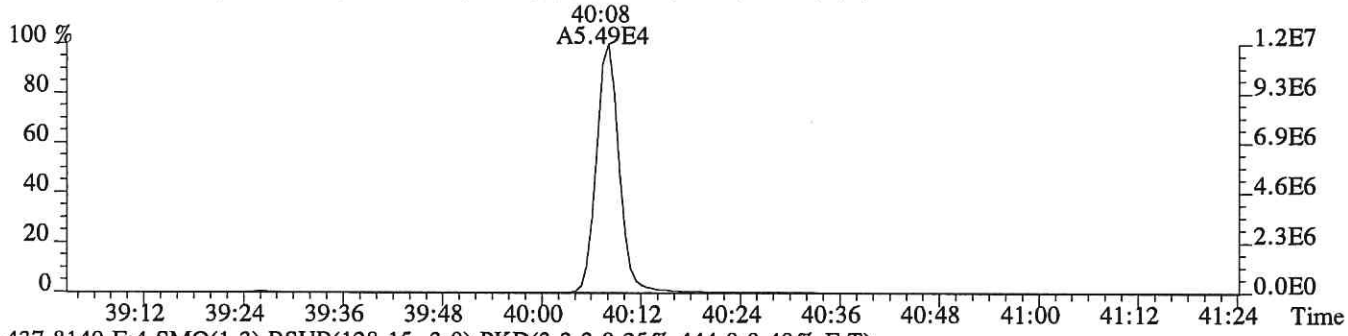
File:P619250 #1-213 Acq: 4-OCT-2019 03:56:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,224.0,0.40%,F,T)



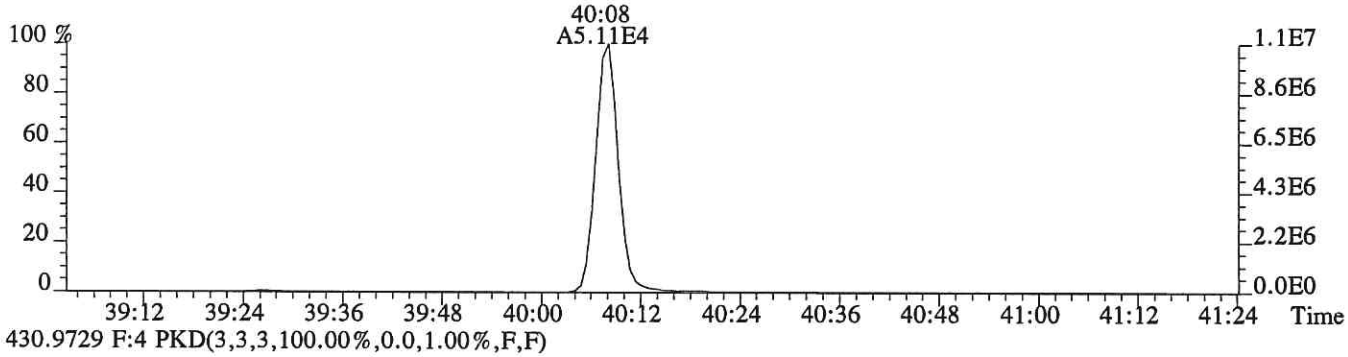
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,312.0,0.40%,F,T)



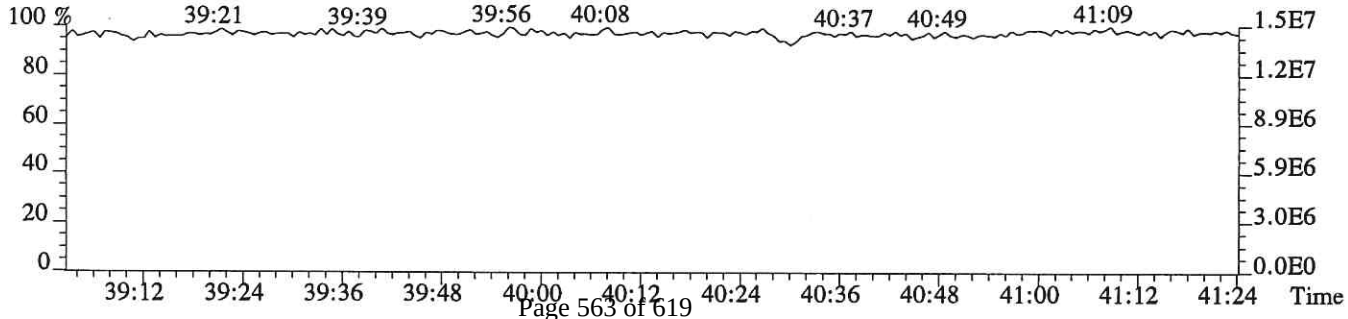
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,408.0,0.40%,F,T)



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



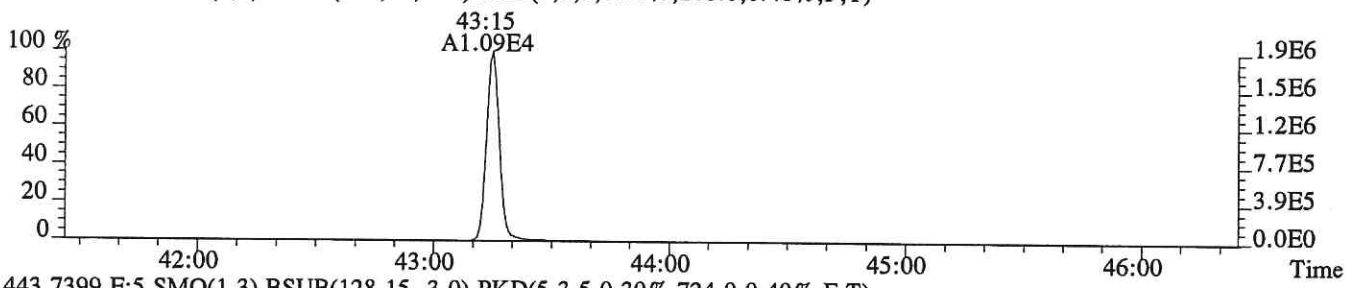
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



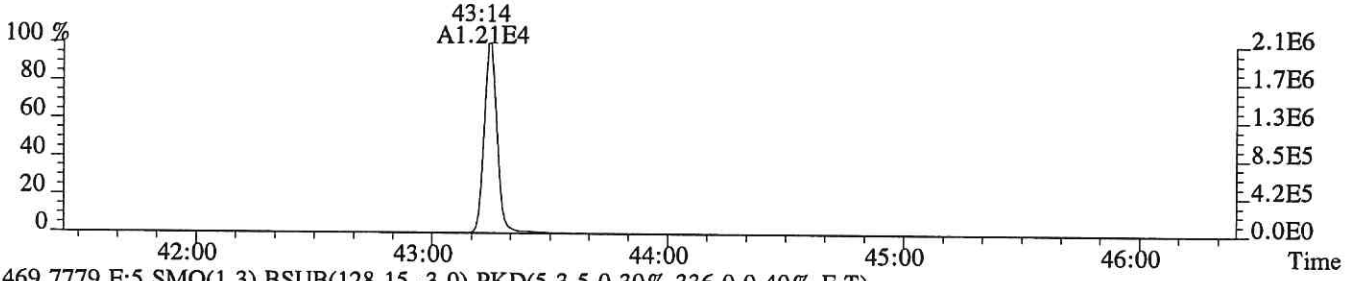
RIGHT SOLUTIONS | RIGHT PARTNER

File:P619250 #1-448 Acq: 4-OCT-2019 03:56:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2

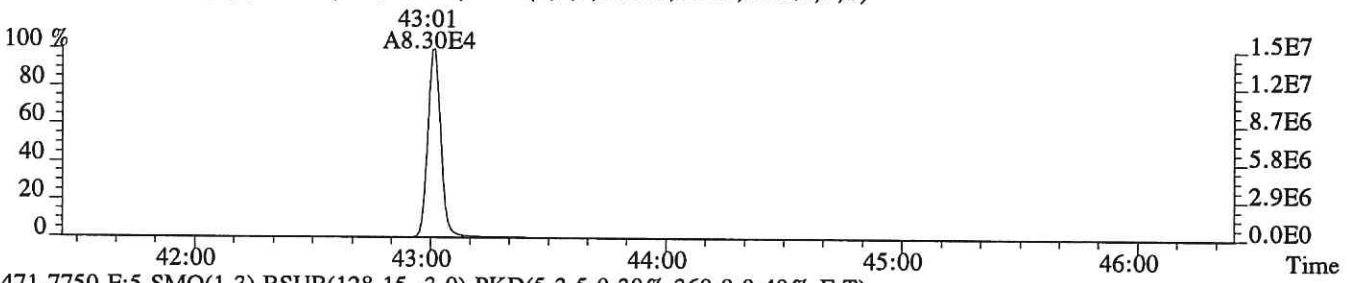
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,208.0,0.40%,F,T)



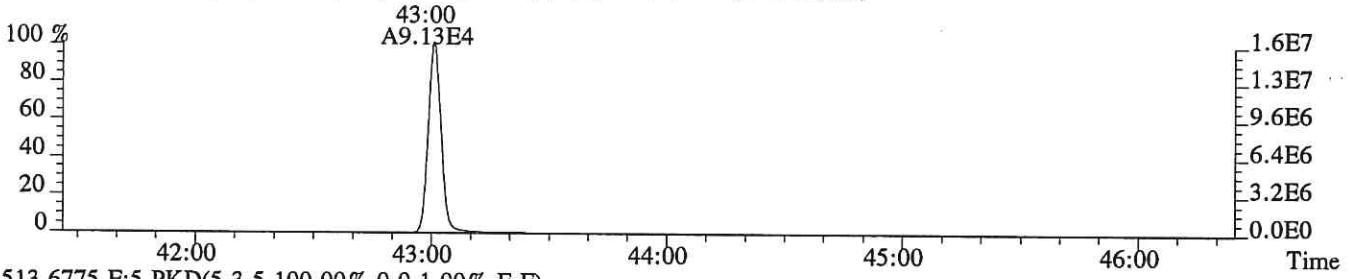
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,724.0,0.40%,F,T)



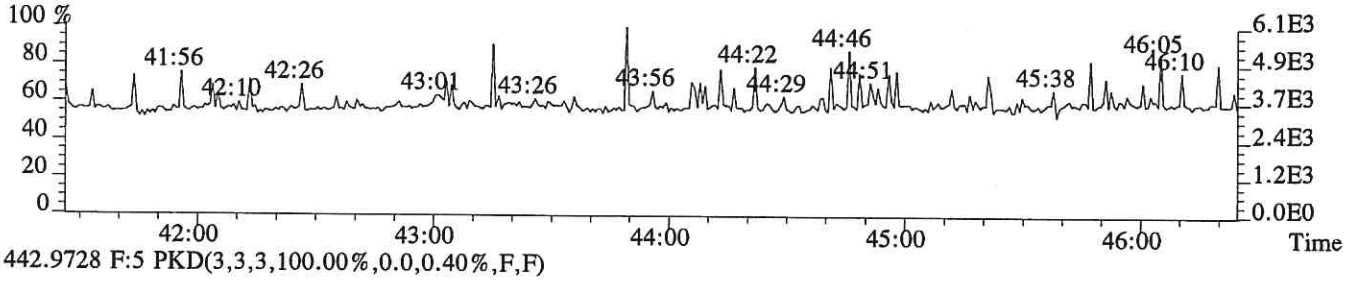
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,336.0,0.40%,F,T)



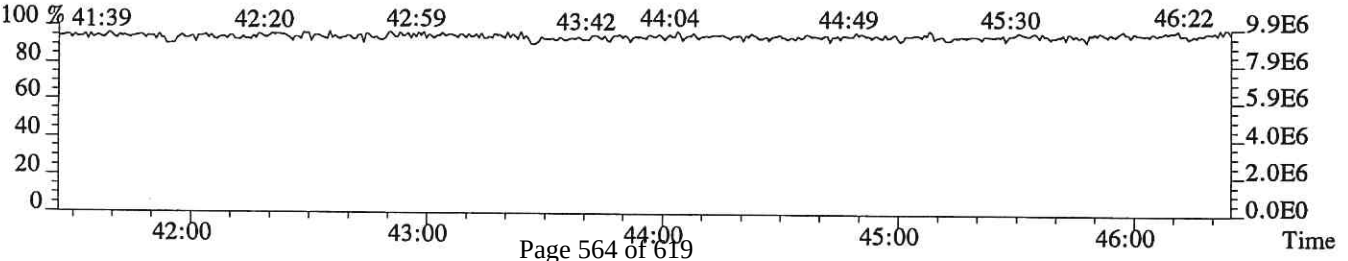
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,360.0,0.40%,F,T)



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

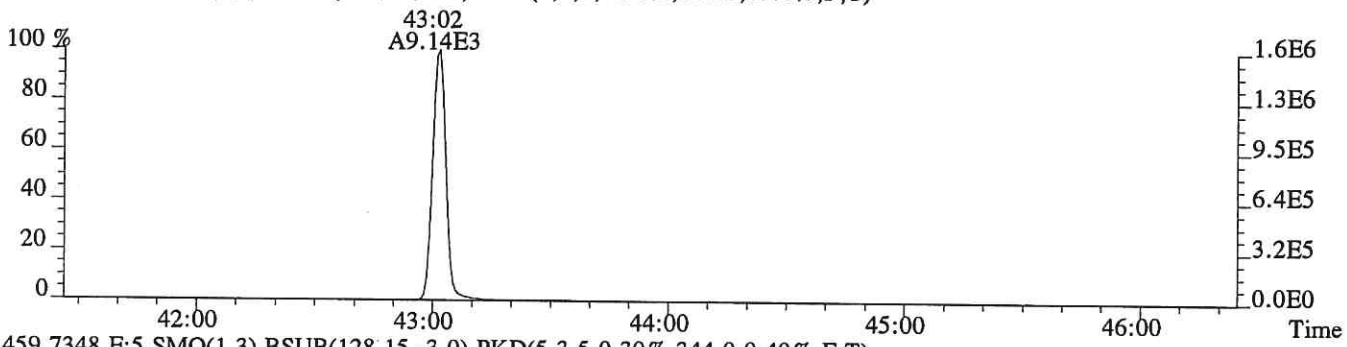


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

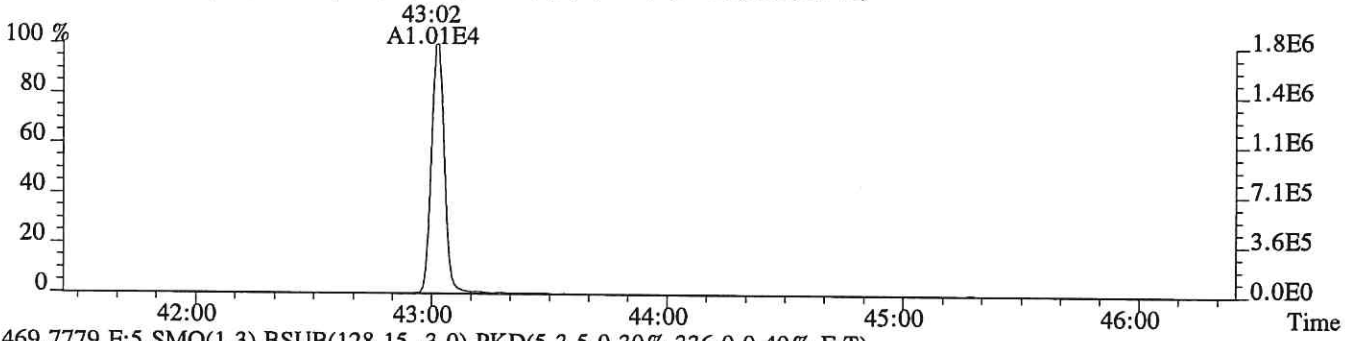


RIGHT SOLUTIONS | RIGHT PARTNER

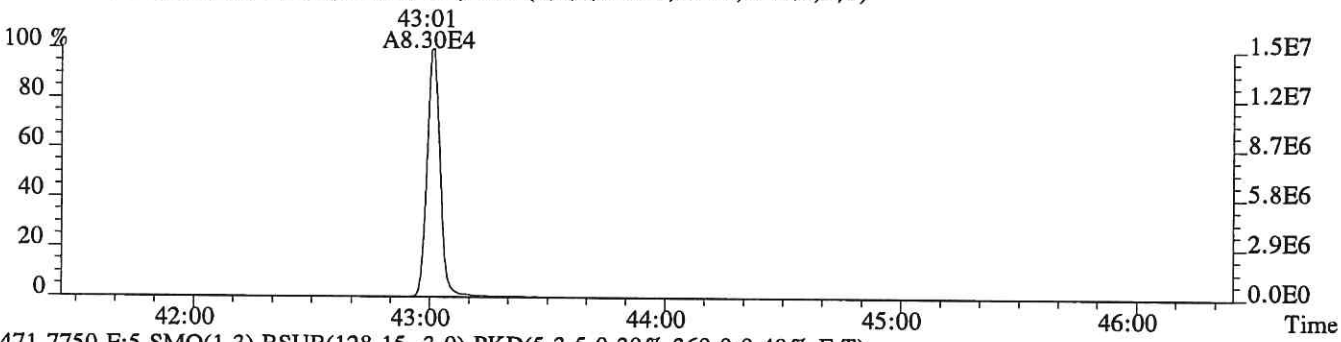
File:P619250 #1-448 Acq: 4-OCT-2019 03:56:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,248.0,0.40%,F,T)



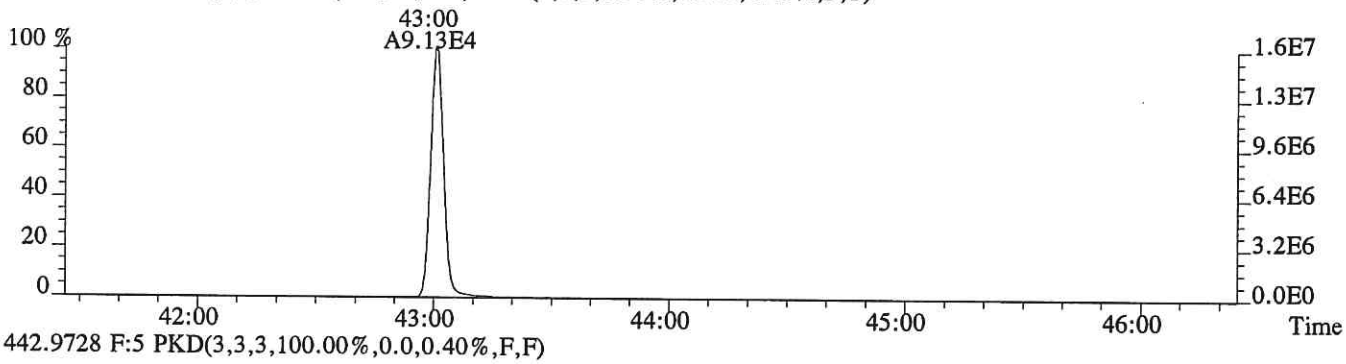
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,344.0,0.40%,F,T)



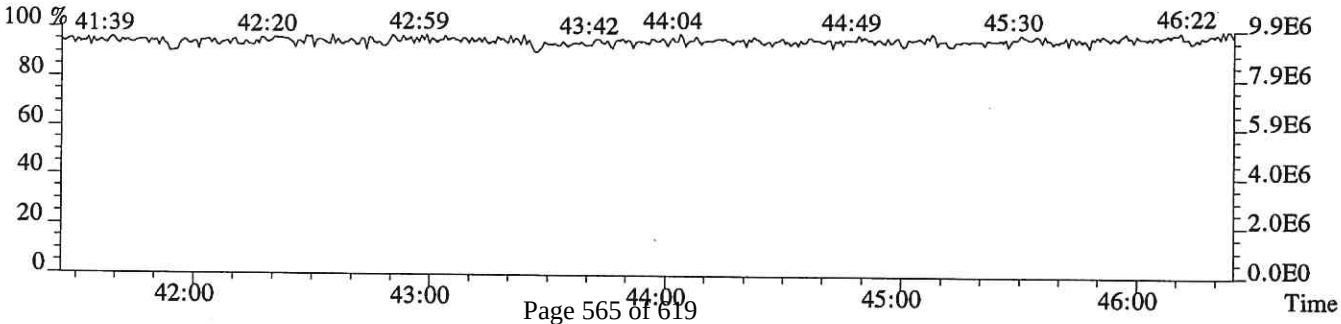
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,336.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,360.0,0.40%,F,T)



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



RIGHT SOLUTIONS | RIGHT PARTNER

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
193435

Run #4 Filename p619251 #1 Samp: 1 Inj: 1 Acquired: 4-OCT-19 04:45:35
Processed: 4-OCT-19 09:01:58 LAB. ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	29:20	4.985e+03	6.423e+03	0.78	yes	no	1.017
2	Unk	1,2,3,7,8-PeCDF	33:14	4.505e+04	2.906e+04	1.55	yes	no	1.021
3	Unk	2,3,4,7,8-PeCDF	34:06	4.373e+04	2.840e+04	1.54	yes	no	0.983
4	Unk	1,2,3,4,7,8-HxCDF	36:39	4.391e+04	3.540e+04	1.24	yes	no	1.229
5	Unk	1,2,3,6,7,8-HxCDF	36:46	4.704e+04	3.797e+04	1.24	yes	no	1.109
6	Unk	2,3,4,6,7,8-HxCDF	37:14	4.288e+04	3.467e+04	1.24	yes	no	1.125
7	Unk	1,2,3,7,8,9-HxCDF	37:58	4.131e+04	3.303e+04	1.25	yes	no	1.143
8	Unk	1,2,3,4,6,7,8-HpCDF	39:12	4.043e+04	3.958e+04	1.02	yes	no	1.323
9	Unk	1,2,3,4,7,8,9-HpCDF	40:39	3.353e+04	3.289e+04	1.02	yes	no	1.253
10	Unk	OCDF	43:14	5.820e+04	6.428e+04	0.91	yes	no	1.373
11	Unk	2,3,7,8-TCDD	30:02	3.656e+03	4.776e+03	0.77	yes	no	1.012
12	Unk	1,2,3,7,8-PeCDD	34:21	3.017e+04	1.898e+04	1.59	yes	no	0.993
13	Unk	1,2,3,4,7,8-HxCDD	37:22	3.171e+04	2.411e+04	1.32	yes	no	1.082
14	Unk	1,2,3,6,7,8-HxCDD	37:26	3.009e+04	2.517e+04	1.20	yes	no	1.083
15	Unk	1,2,3,7,8,9-HxCDD	37:40	3.360e+04	2.678e+04	1.25	yes	no	1.174
16	Unk	1,2,3,4,6,7,8-HpCDD	40:08	3.036e+04	2.857e+04	1.06	yes	no	1.053
17	Unk	OCDD	43:01	4.803e+04	5.358e+04	0.90	yes	no	1.160
18	IS	13C-2,3,7,8-TCDF	29:18	5.233e+04	6.520e+04	0.80	yes	no	1.341
19	IS	13C-1,2,3,7,8-PeCDF	33:13	8.746e+04	5.447e+04	1.61	yes	no	1.627
20	IS	13C-2,3,4,7,8-PeCDF	34:05	8.956e+04	5.559e+04	1.61	yes	no	1.651
21	IS	13C-1,2,3,4,7,8-HxCDF	36:38	4.435e+04	8.391e+04	0.53	yes	no	1.137
22	IS	13C-1,2,3,6,7,8-HxCDF	36:45	5.169e+04	9.791e+04	0.53	yes	no	1.307
23	IS	13C-2,3,4,6,7,8-HxCDF	37:14	4.721e+04	8.940e+04	0.53	yes	no	1.222
24	IS	13C-1,2,3,7,8,9-HxCDF	37:58	4.390e+04	8.378e+04	0.52	yes	no	1.137
25	IS	13C-1,2,3,4,6,7,8-HpCDF	39:11	3.673e+04	8.171e+04	0.45	yes	no	1.069
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:38	3.309e+04	7.304e+04	0.45	yes	no	0.961
27	IS	13C-2,3,7,8-TCDD	30:01	3.706e+04	4.725e+04	0.78	yes	no	0.970
28	IS	13C-1,2,3,7,8-PeCDD	34:21	6.144e+04	3.893e+04	1.58	yes	no	1.142
29	IS	13C-1,2,3,4,7,8-HxCDD	37:21	5.815e+04	4.348e+04	1.34	yes	no	0.914
30	IS	13C-1,2,3,6,7,8-HxCDD	37:26	5.508e+04	4.504e+04	1.22	yes	no	0.899
31	IS	13C-1,2,3,4,6,7,8-HpCDD	40:07	5.708e+04	5.303e+04	1.08	yes	no	0.997
32	IS	13C-OCDD	43:00	8.219e+04	8.980e+04	0.92	yes	no	0.817
33	RS/RT	13C-1,2,3,4-TCDD	29:29	3.866e+04	4.972e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:40	6.132e+04	4.872e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	30:02	8.673e+03				no	1.005

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RIGHT SOLUTIONS | RIGHT PARTNER

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
193435

Run #4 Filename p619251 Samp: 1 Inj: 1 Acquired: 4-OCT-19 04:45:35
Processed: 4-OCT-19 09:01:581 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	9.86e+05	2.76e+02	3.6e+03	1.27e+06	4.64e+02	2.7e+03
2	1,2,3,7,8-PeCDF	8.95e+06	3.33e+03	2.7e+03	5.81e+06	2.79e+03	2.1e+03
3	2,3,4,7,8-PeCDF	9.12e+06	3.33e+03	2.7e+03	5.85e+06	2.79e+03	2.1e+03
4	1,2,3,4,7,8-HxCDF	9.93e+06	3.00e+02	3.3e+04	7.96e+06	4.04e+02	2.0e+04
5	1,2,3,6,7,8-HxCDF	1.03e+07	3.00e+02	3.4e+04	8.24e+06	4.04e+02	2.0e+04
6	2,3,4,6,7,8-HxCDF	9.84e+06	3.00e+02	3.3e+04	7.99e+06	4.04e+02	2.0e+04
7	1,2,3,7,8,9-HxCDF	8.92e+06	3.00e+02	3.0e+04	7.18e+06	4.04e+02	1.8e+04
8	1,2,3,4,6,7,8-HpCDF	8.97e+06	4.52e+03	2.0e+03	8.81e+06	2.91e+04	3.0e+02
9	1,2,3,4,7,8,9-HpCDF	6.82e+06	4.52e+03	1.5e+03	6.75e+06	2.91e+04	2.3e+02
10	OCDF	1.02e+07	3.32e+02	3.1e+04	1.14e+07	5.08e+02	2.2e+04
11	2,3,7,8-TCDD	7.65e+05	7.84e+02	9.8e+02	9.93e+05	4.56e+02	2.2e+03
12	1,2,3,7,8-PeCDD	6.19e+06	5.28e+02	1.2e+04	3.90e+06	3.36e+02	1.2e+04
13	1,2,3,4,7,8-HxCDD	7.25e+06	2.56e+02	2.8e+04	5.82e+06	2.48e+02	2.3e+04
14	1,2,3,6,7,8-HxCDD	6.95e+06	2.56e+02	2.7e+04	5.60e+06	2.48e+02	2.3e+04
15	1,2,3,7,8,9-HxCDD	7.57e+06	2.56e+02	3.0e+04	6.10e+06	2.48e+02	2.5e+04
16	1,2,3,4,6,7,8-HpCDD	6.27e+06	1.00e+03	6.2e+03	5.97e+06	7.80e+02	7.6e+03
17	OCDD	8.62e+06	3.44e+02	2.5e+04	9.69e+06	6.56e+02	1.5e+04
18	13C-2,3,7,8-TCDF	1.01e+07	4.21e+03	2.4e+03	1.28e+07	1.75e+03	7.3e+03
19	13C-1,2,3,7,8-PeCDF	1.75e+07	1.05e+04	1.7e+03	1.09e+07	8.64e+02	1.3e+04
20	13C-2,3,4,7,8-PeCDF	1.83e+07	1.05e+04	1.7e+03	1.12e+07	8.64e+02	1.3e+04
21	13C-1,2,3,4,7,8-HxCDF	1.00e+07	5.08e+02	2.0e+04	1.90e+07	6.36e+02	3.0e+04
22	13C-1,2,3,6,7,8-HxCDF	1.14e+07	5.08e+02	2.3e+04	2.15e+07	6.36e+02	3.4e+04
23	13C-2,3,4,6,7,8-HxCDF	1.09e+07	5.08e+02	2.1e+04	2.06e+07	6.36e+02	3.2e+04
24	13C-1,2,3,7,8,9-HxCDF	9.40e+06	5.08e+02	1.9e+04	1.80e+07	6.36e+02	2.8e+04
25	13C-1,2,3,4,6,7,8-HpCDF	8.14e+06	1.13e+04	7.2e+02	1.81e+07	2.94e+04	6.2e+02
26	13C-1,2,3,4,7,8,9-HpCDF	6.72e+06	1.13e+04	6.0e+02	1.49e+07	2.94e+04	5.1e+02
27	13C-2,3,7,8-TCDD	7.57e+06	4.54e+03	1.7e+03	9.55e+06	7.36e+02	1.3e+04
28	13C-1,2,3,7,8-PeCDD	1.27e+07	2.52e+02	5.0e+04	8.01e+06	3.76e+02	2.1e+04
29	13C-1,2,3,4,7,8-HxCDD	1.33e+07	7.04e+02	1.9e+04	1.05e+07	6.16e+02	1.7e+04
30	13C-1,2,3,6,7,8-HxCDD	1.27e+07	7.04e+02	1.8e+04	9.96e+06	6.16e+02	1.6e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.20e+07	5.52e+02	2.2e+04	1.12e+07	4.88e+02	2.3e+04
32	13C-OCDD	1.48e+07	2.92e+02	5.1e+04	1.61e+07	2.68e+02	6.0e+04
33	13C-1,2,3,4-TCDD	7.91e+06	4.54e+03	1.7e+03	1.01e+07	7.36e+02	1.4e+04
34	13C-1,2,3,7,8,9-HxCDD	1.38e+07	7.04e+02	2.0e+04	1.10e+07	6.16e+02	1.8e+04
35	37Cl-2,3,7,8-TCDD	1.80e+06	5.32e+02	3.4e+03			

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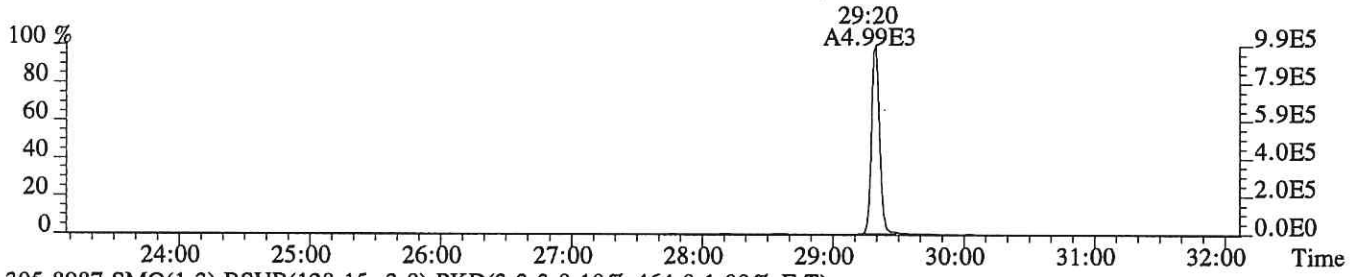
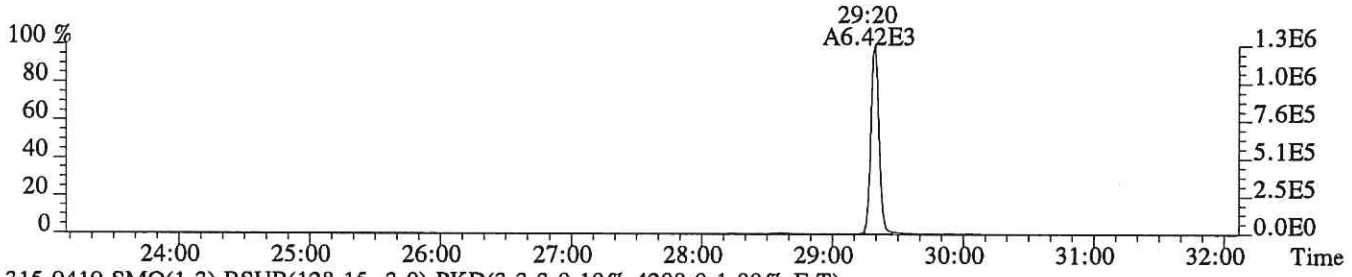
File:P619251 #1-637 Acq: 4-OCT-2019 04:45:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

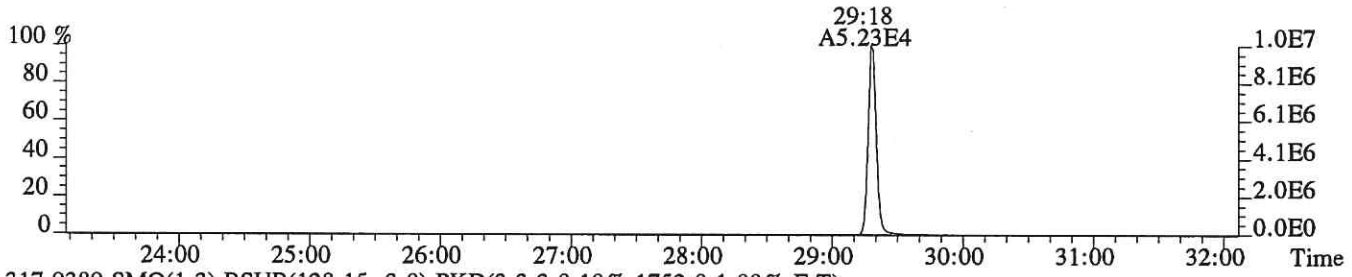
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,276.0,1.00%,F,T)



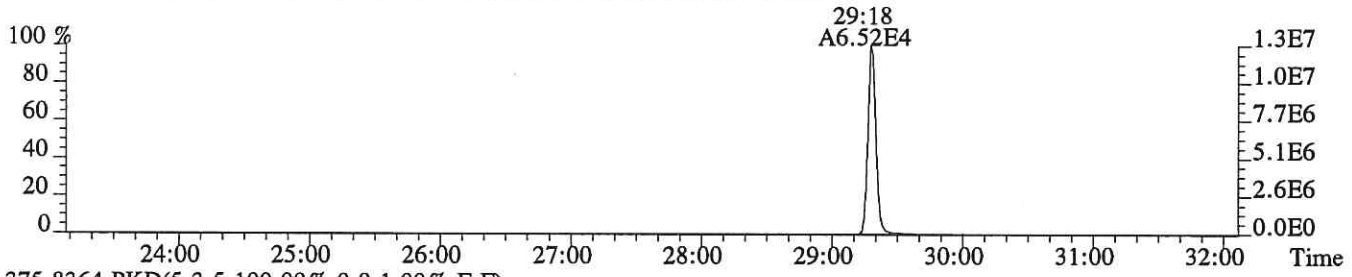
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,464.0,1.00%,F,T)



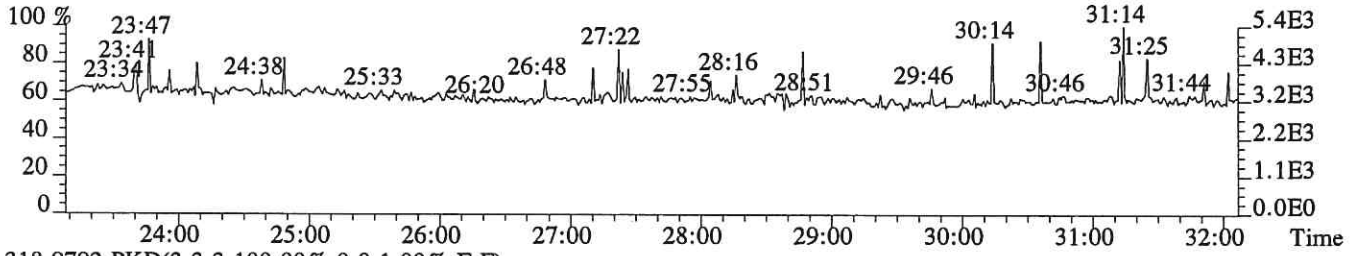
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4208.0,1.00%,F,T)



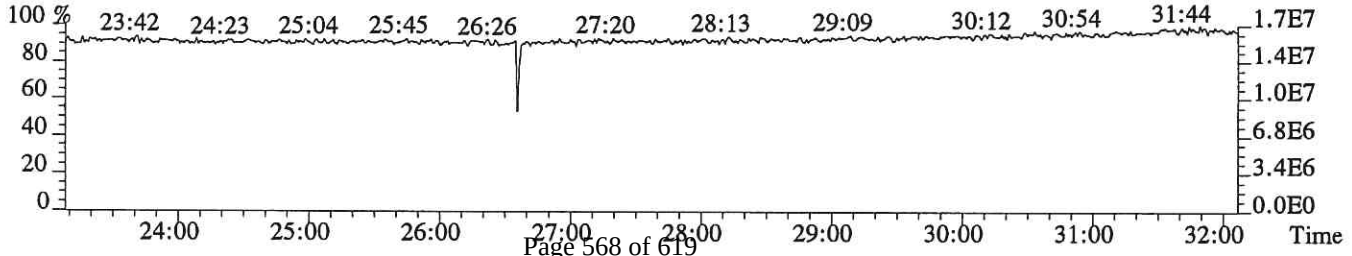
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1752.0,1.00%,F,T)



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



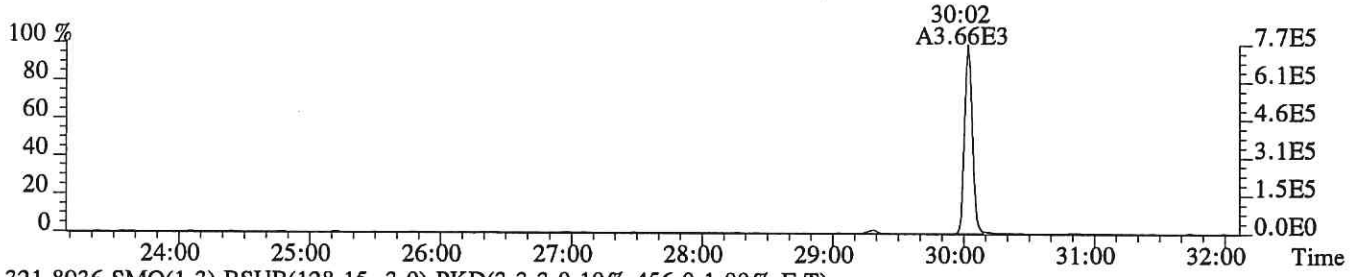
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



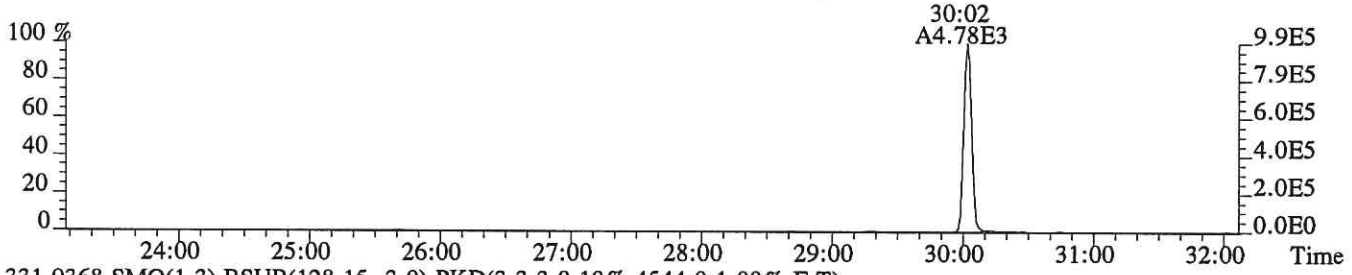
RIGHT SOLUTIONS | RIGHT PARTNER

File:P619251 #1-637 Acq: 4-OCT-2019 04:45:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

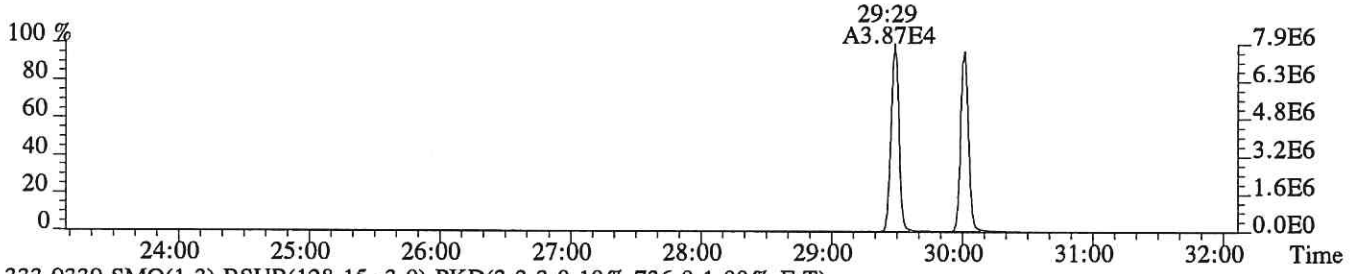
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,784.0,1.00%,F,T)



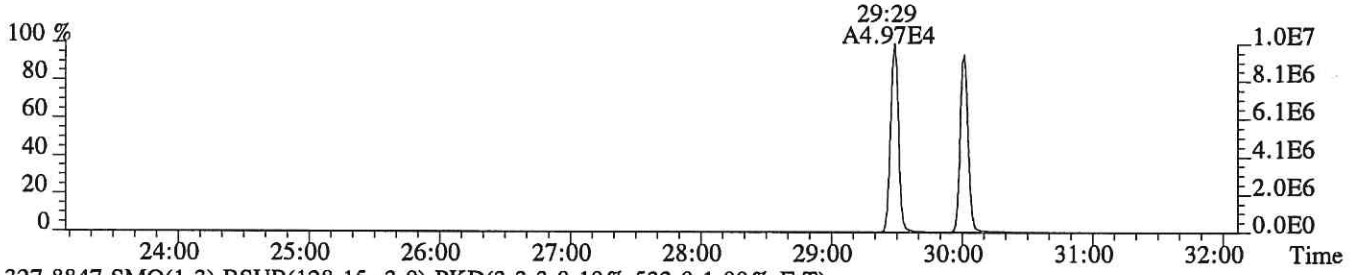
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,456.0,1.00%,F,T)



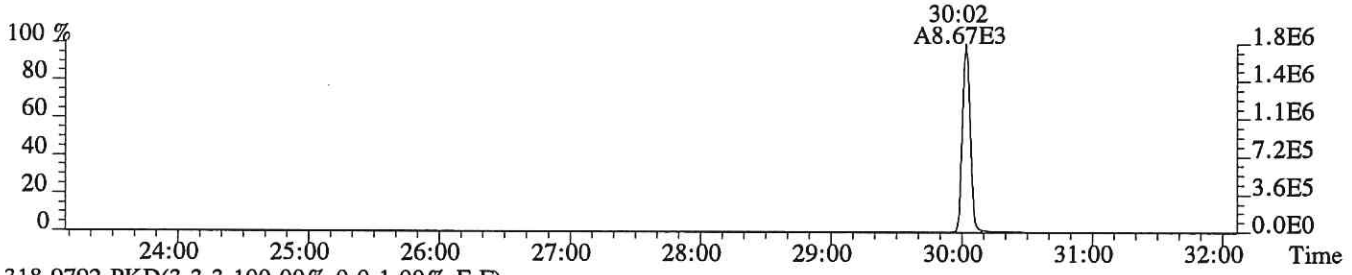
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4544.0,1.00%,F,T)



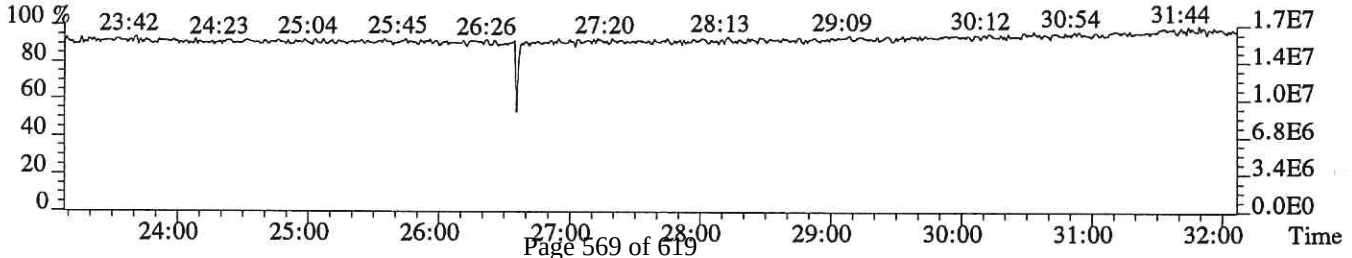
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,736.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,532.0,1.00%,F,T)

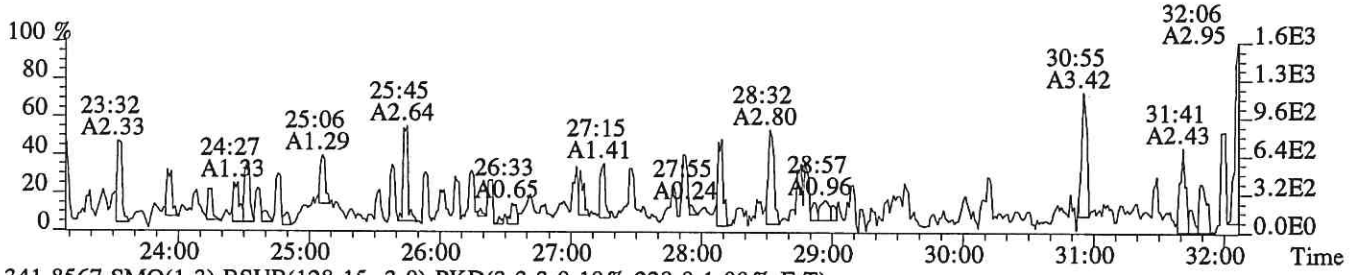


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

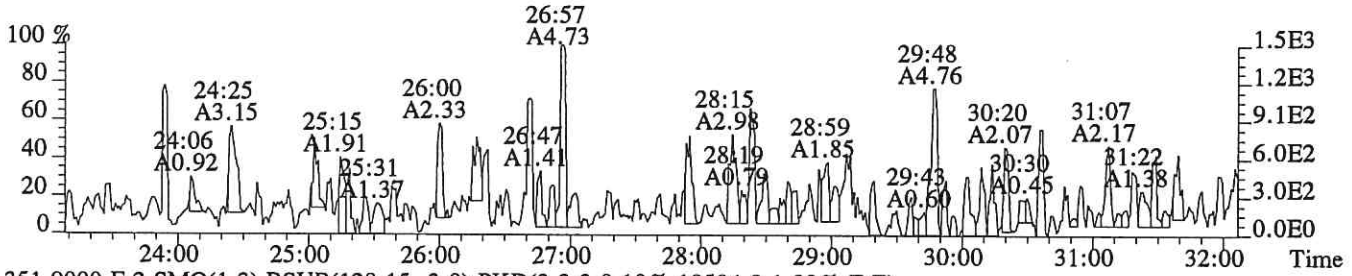


RIGHT SOLUTIONS | RIGHT PARTNER

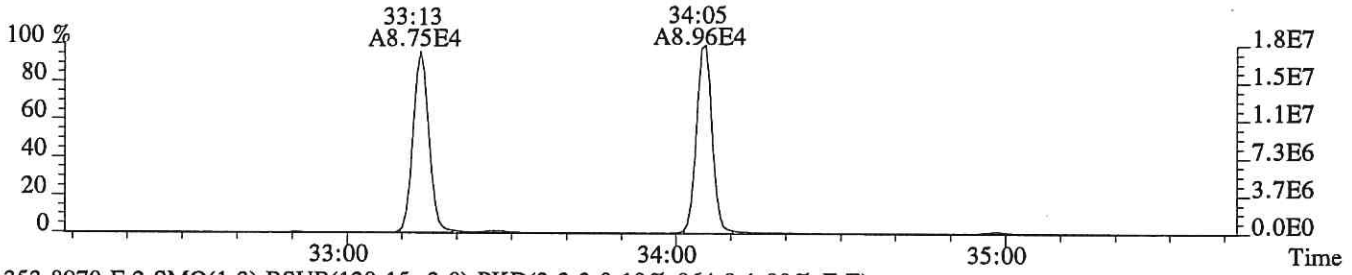
File:P619251 #1-637 Acq: 4-OCT-2019 04:45:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,192.0,1.00%,F,T)



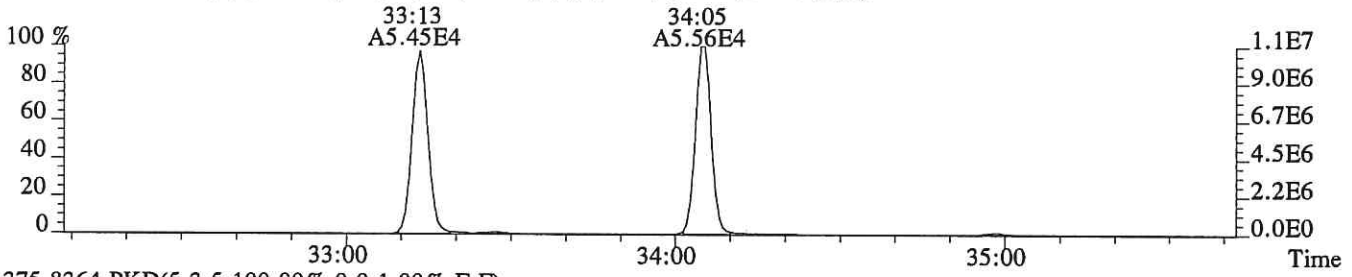
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,228.0,1.00%,F,T)



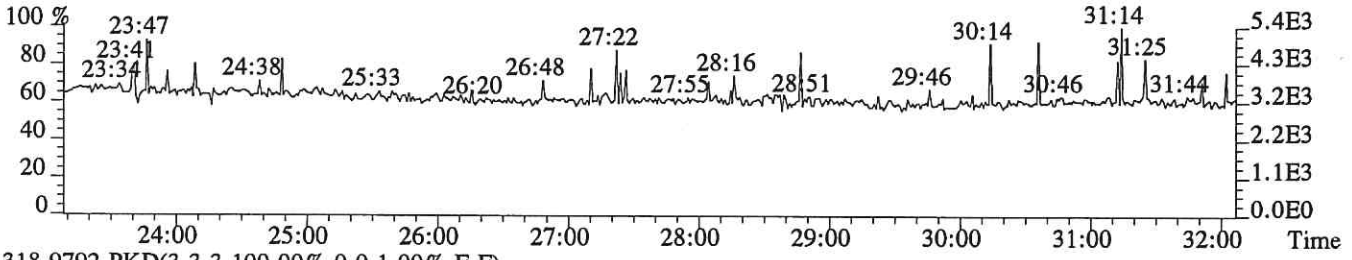
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10504.0,1.00%,F,T)



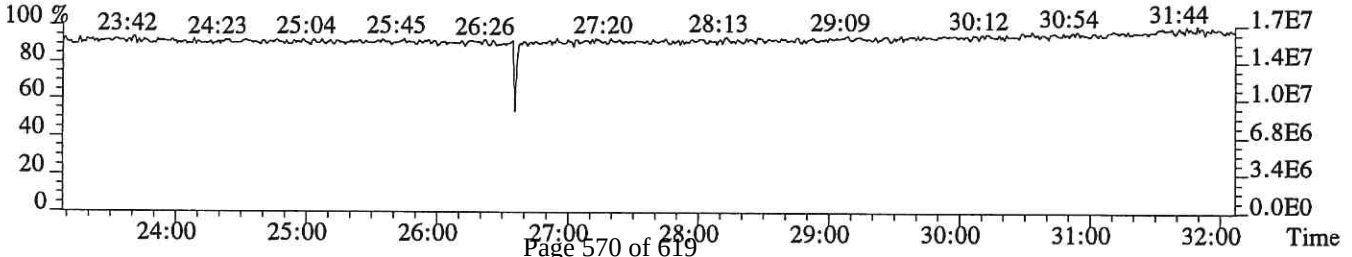
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,864.0,1.00%,F,T)



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



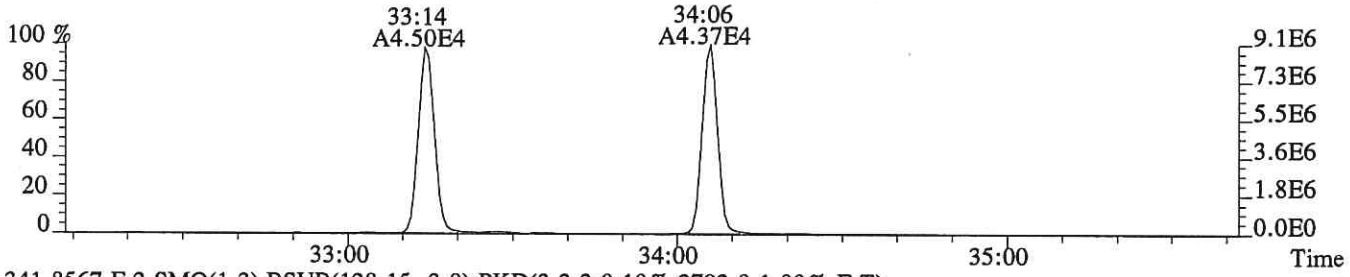
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



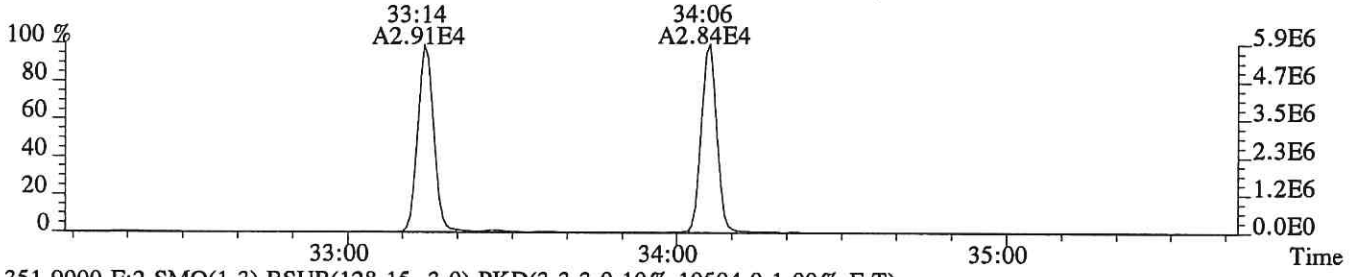
RIGHT SOLUTIONS | RIGHT PARTNER

File:P619251 #1-321 Acq: 4-OCT-2019 04:45:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

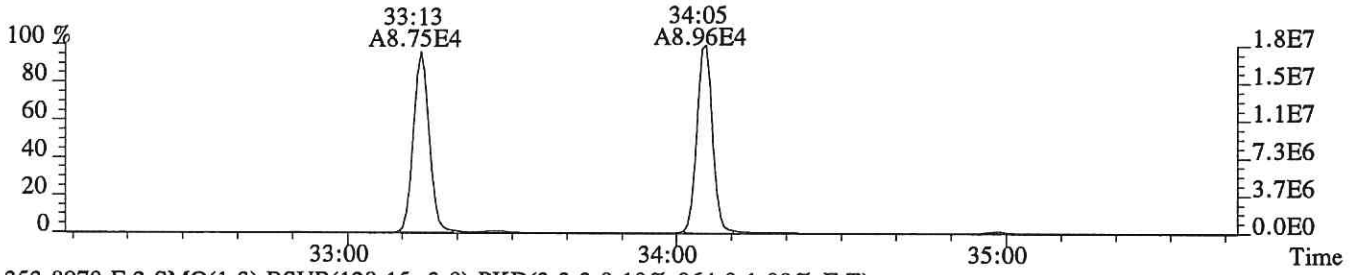
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3332.0,1.00%,F,T)



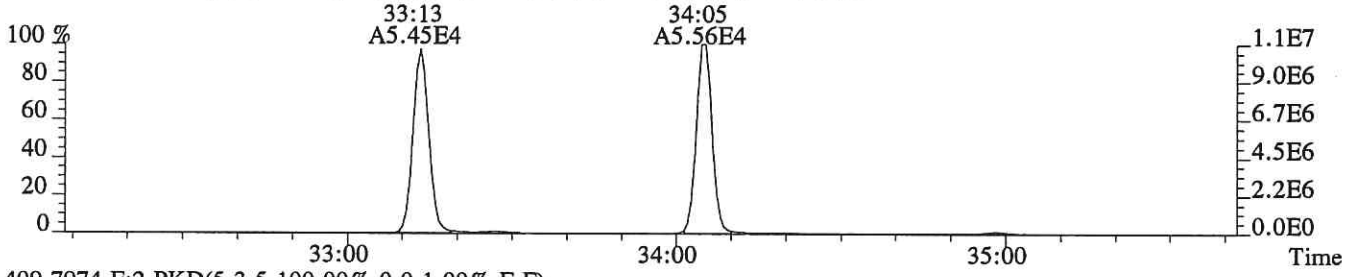
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2792.0,1.00%,F,T)



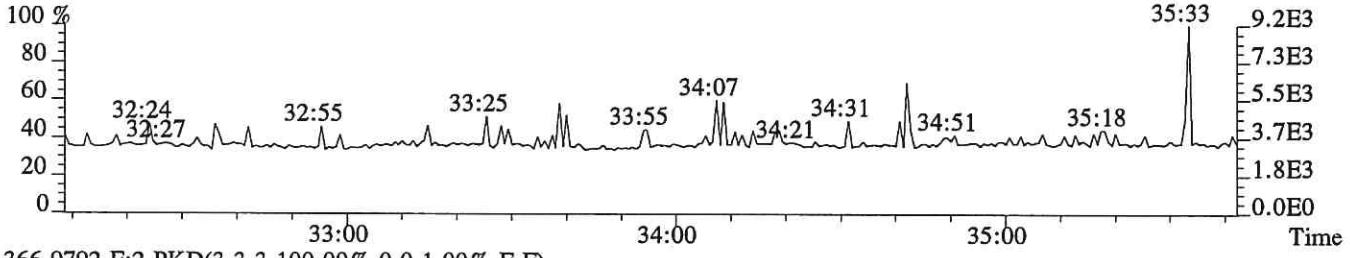
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10504.0,1.00%,F,T)



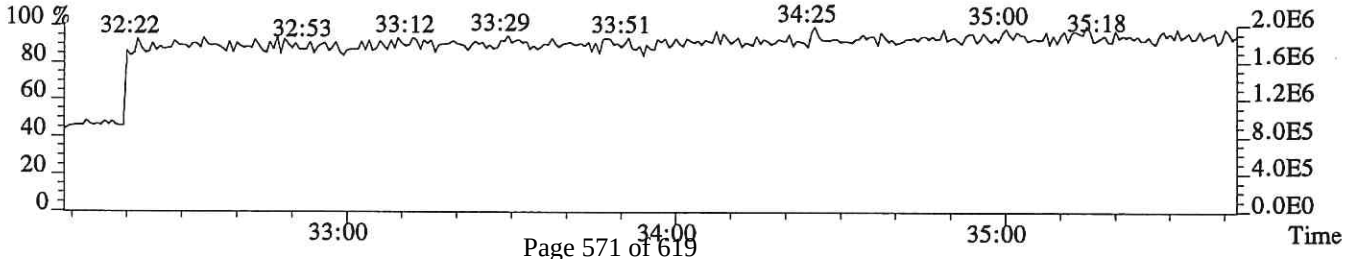
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,864.0,1.00%,F,T)



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



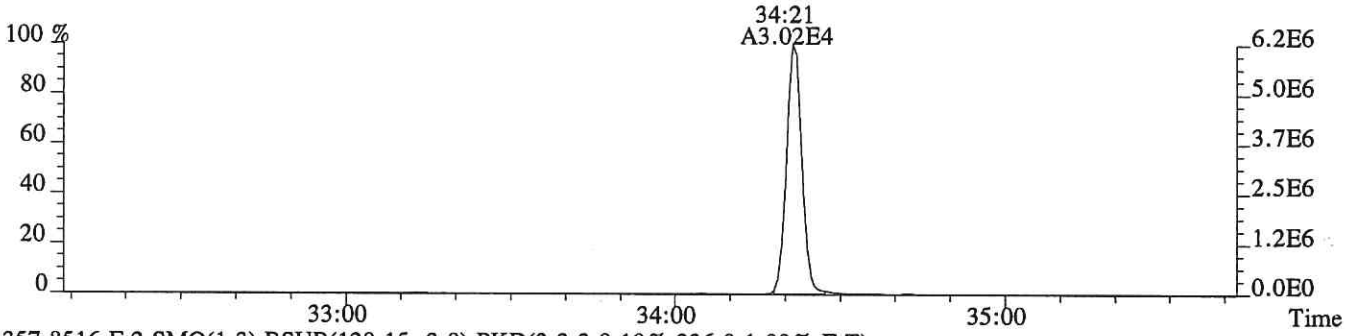
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



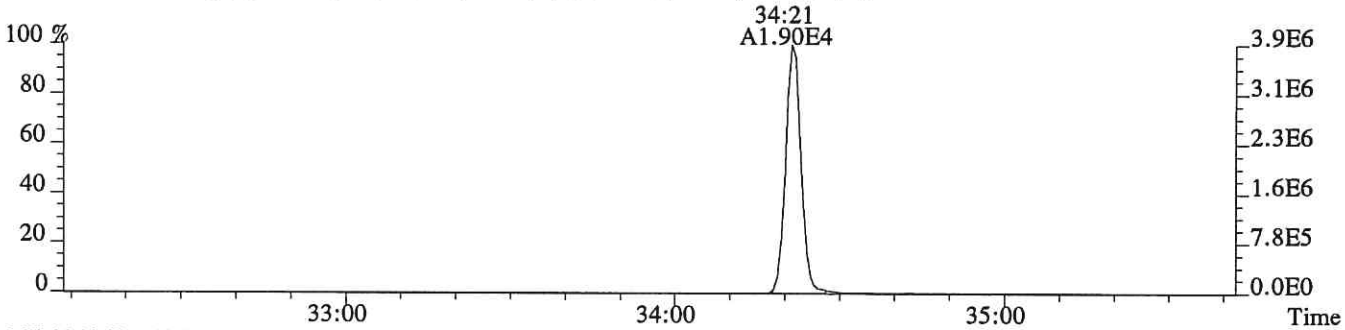
RIGHT SOLUTIONS | RIGHT PARTNER

File:P619251 #1-321 Acq: 4-OCT-2019 04:45:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

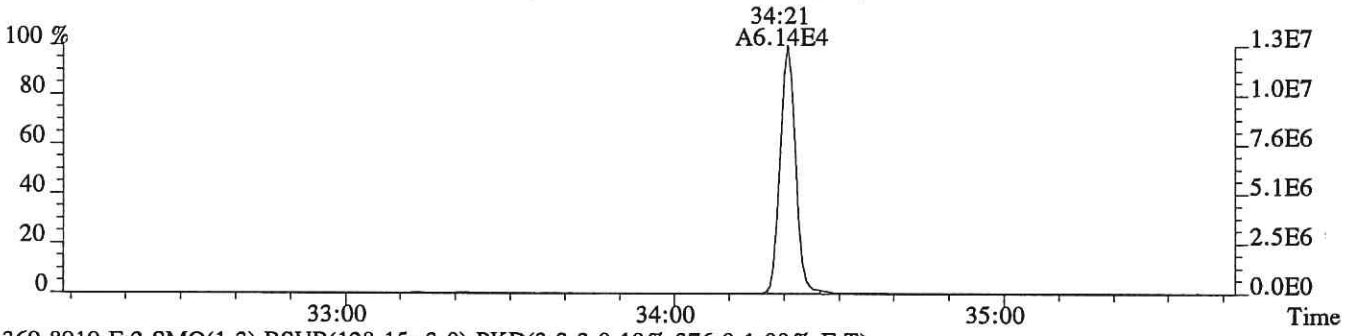
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,528.0,1.00%,F,T)



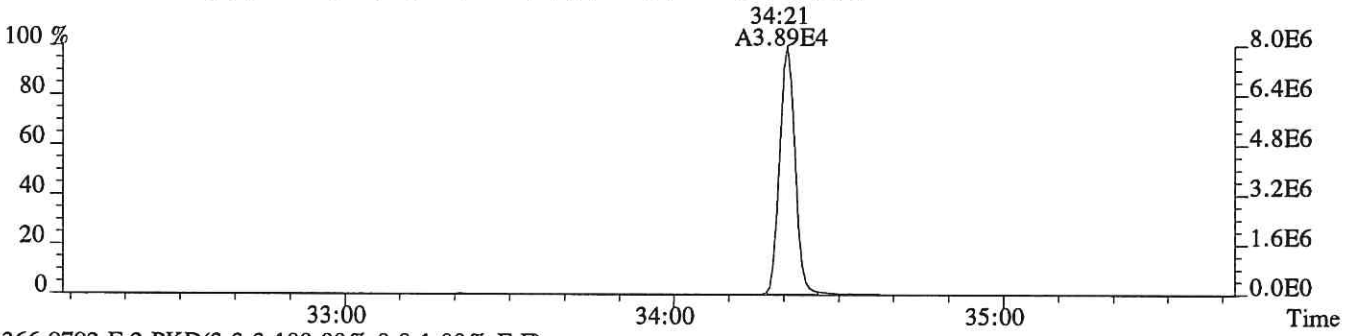
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,336.0,1.00%,F,T)



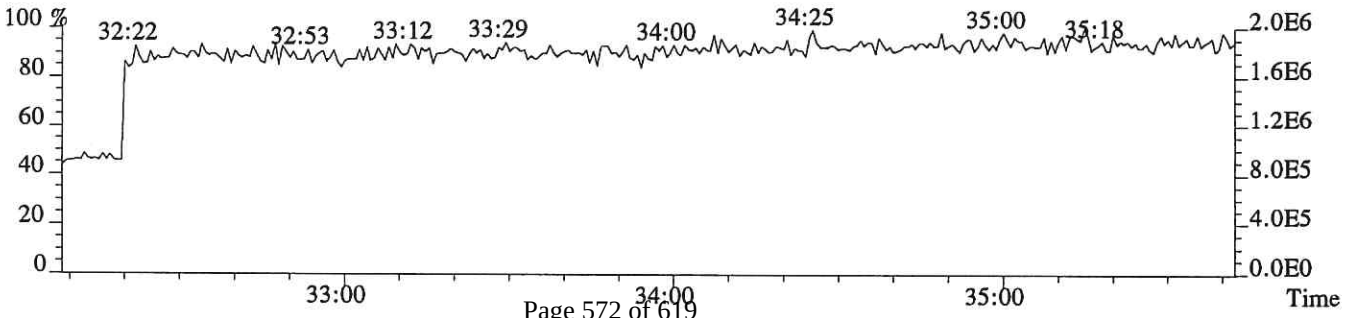
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,252.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,376.0,1.00%,F,T)



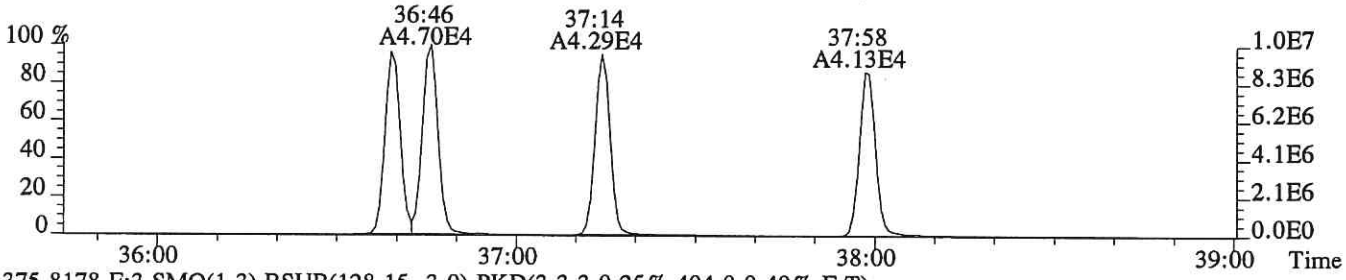
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



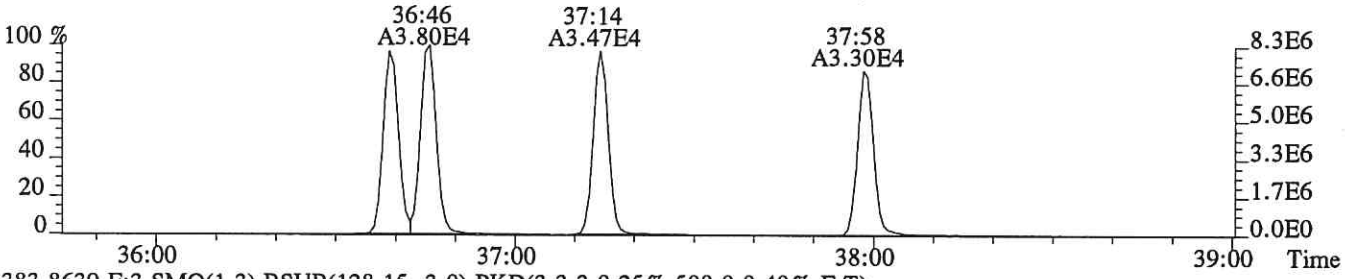
RIGHT SOLUTIONS | RIGHT PARTNER

File:P619251 #1-295 Acq: 4-OCT-2019 04:45:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

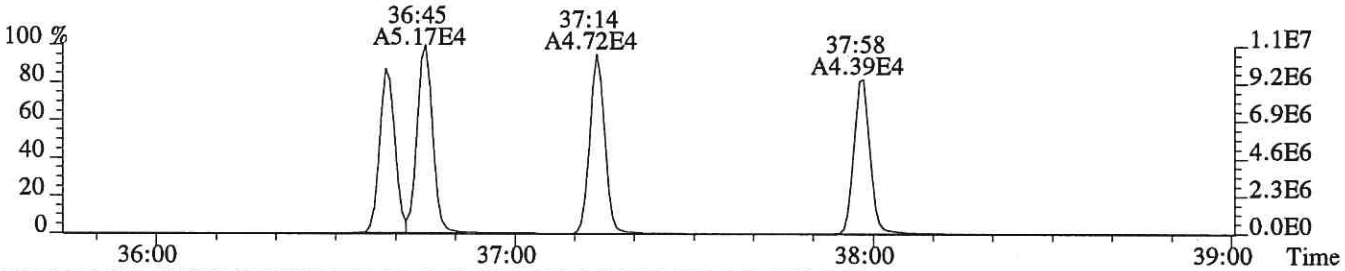
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,300.0,0.40%,F,T)



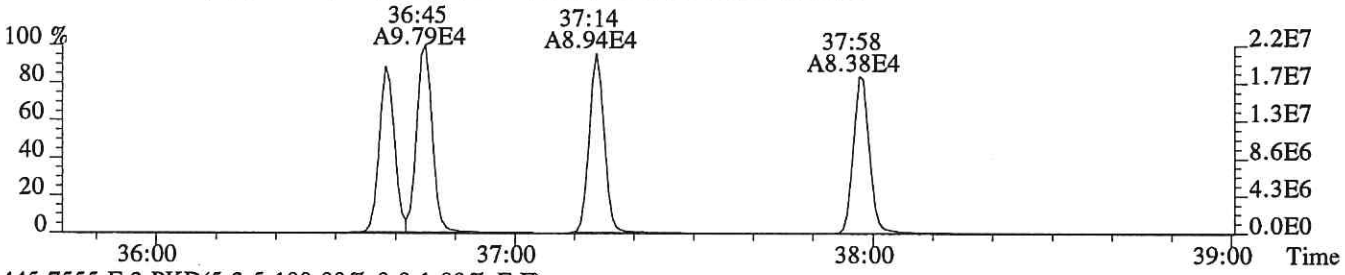
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,404.0,0.40%,F,T)



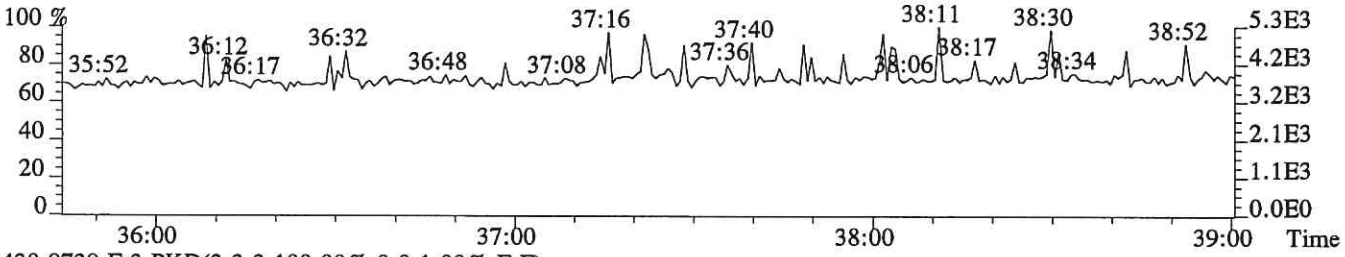
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,508.0,0.40%,F,T)



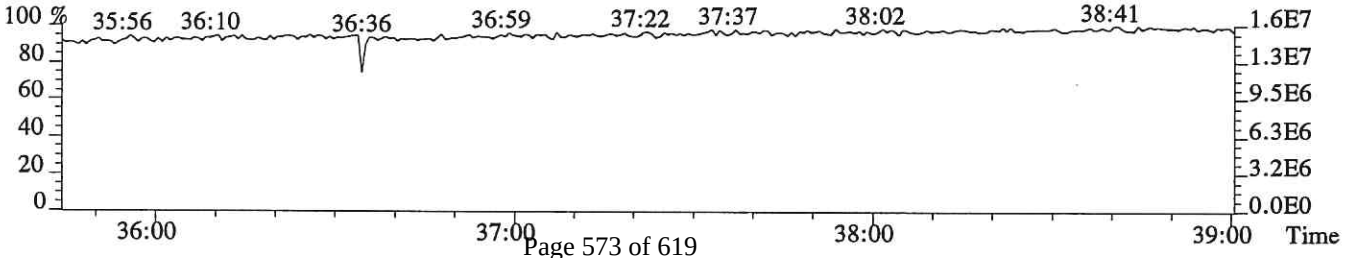
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,636.0,0.40%,F,T)



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



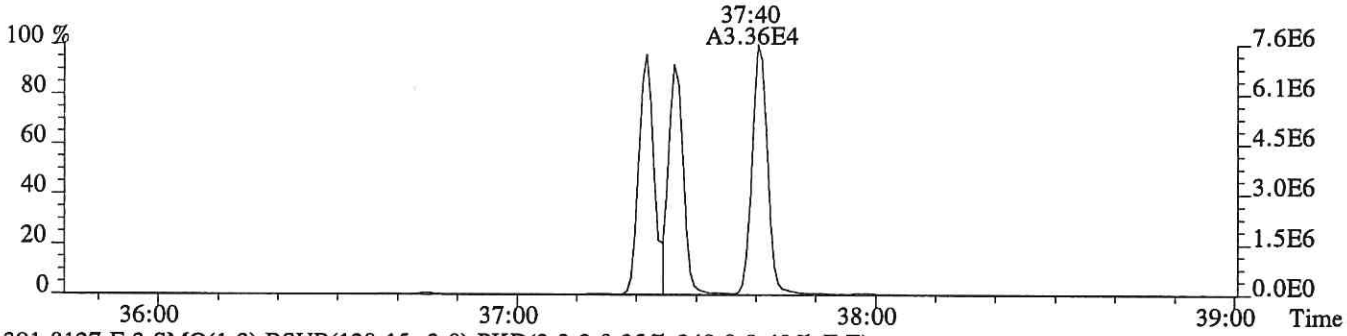
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



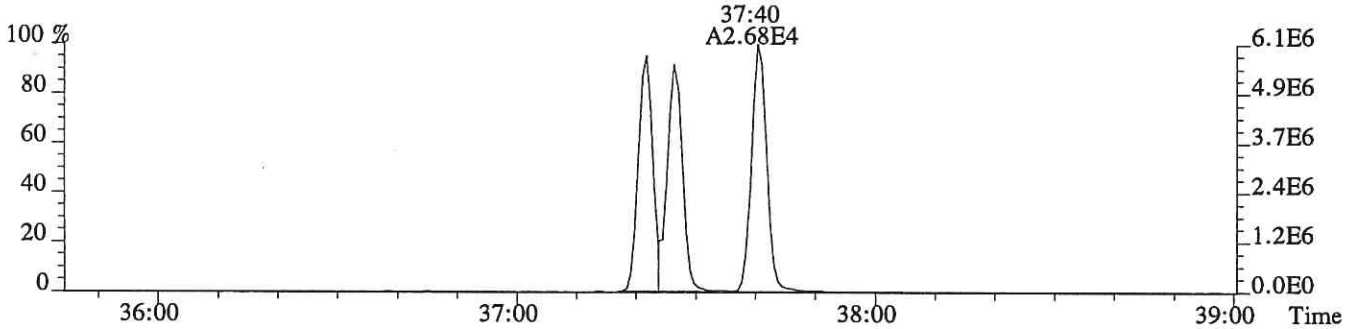
RIGHT SOLUTIONS | RIGHT PARTNER

File:P619251 #1-295 Acq: 4-OCT-2019 04:45:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

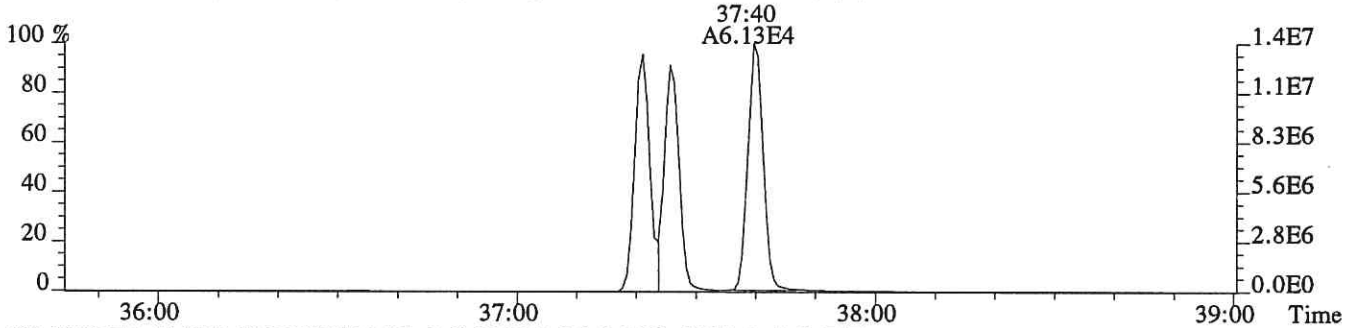
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,256.0,0.40%,F,T)



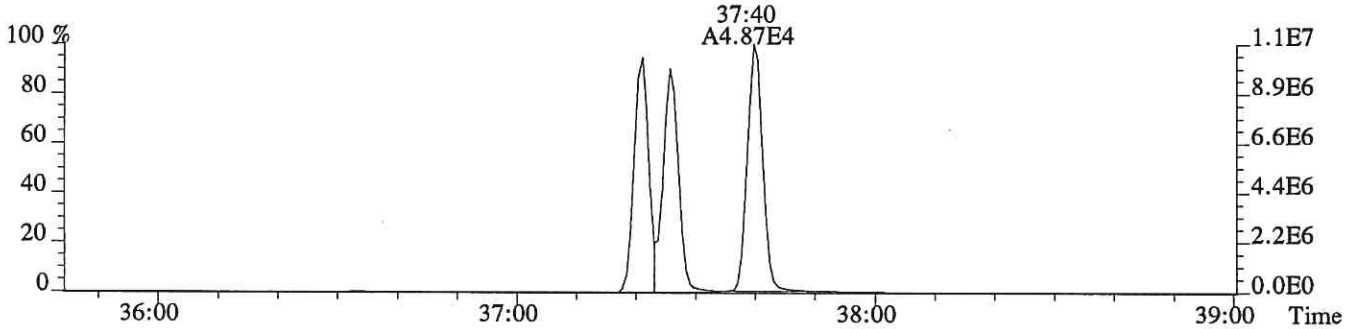
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,248.0,0.40%,F,T)



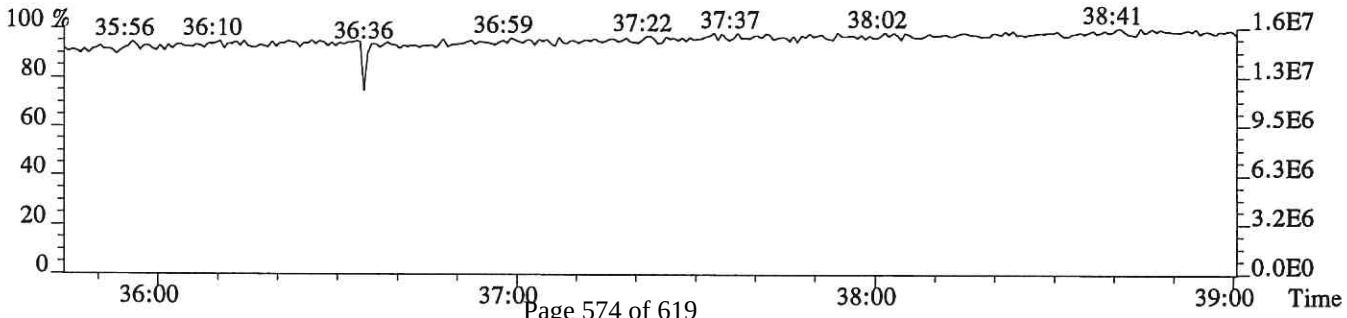
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,704.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,616.0,0.40%,F,T)



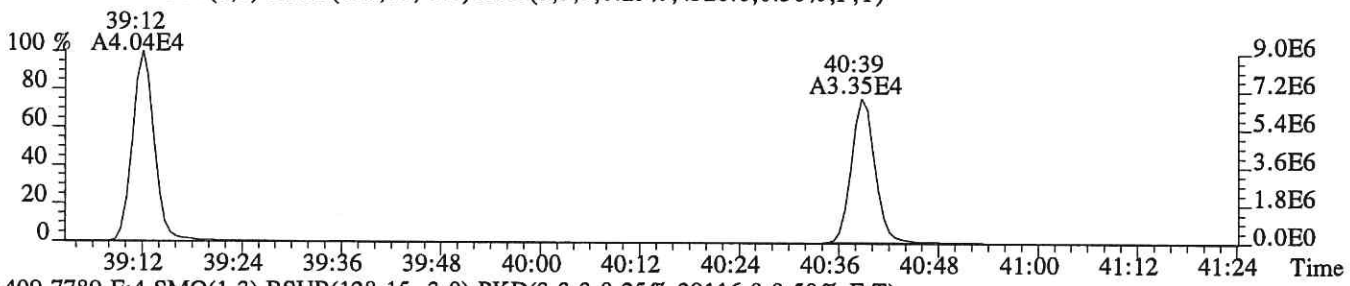
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



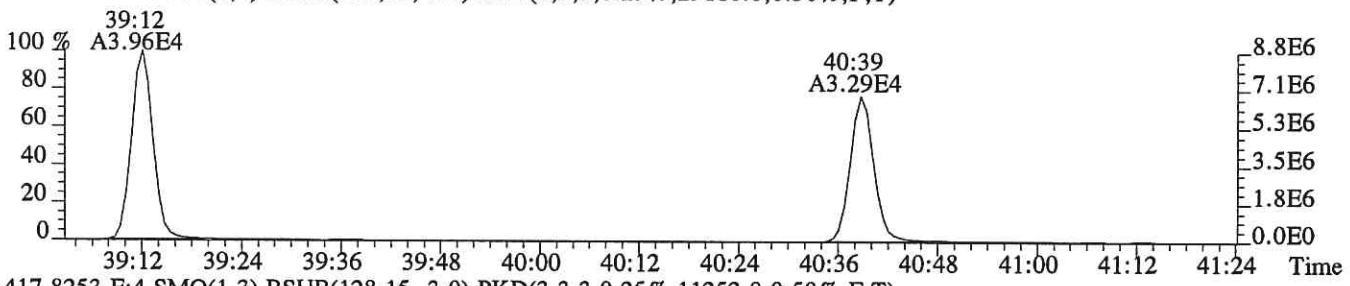
RIGHT SOLUTIONS | RIGHT PARTNER

File:P619251 #1-213 Acq: 4-OCT-2019 04:45:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

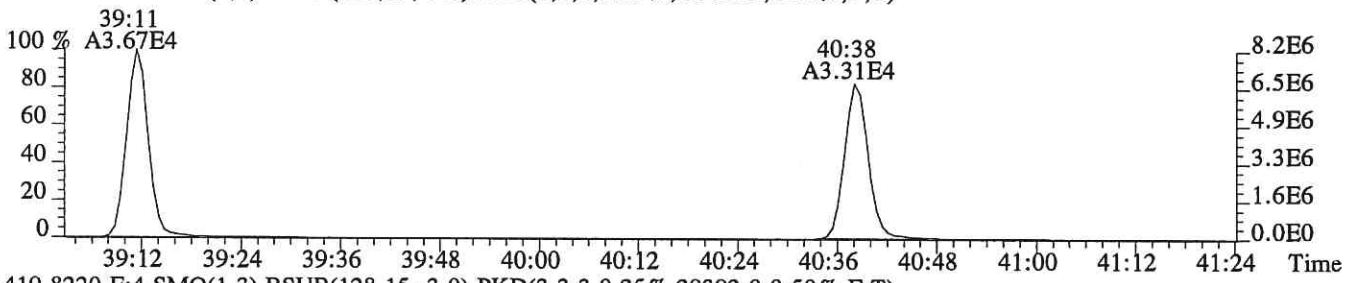
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4520.0,0.50%,F,T)



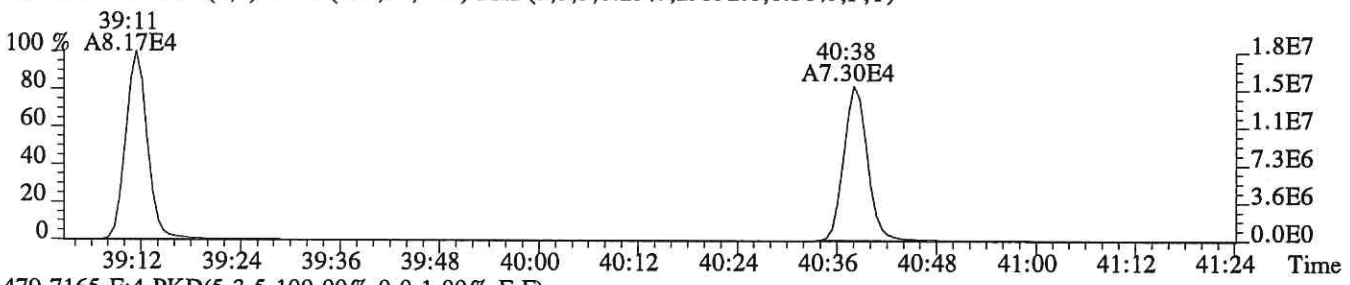
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,29116.0,0.50%,F,T)



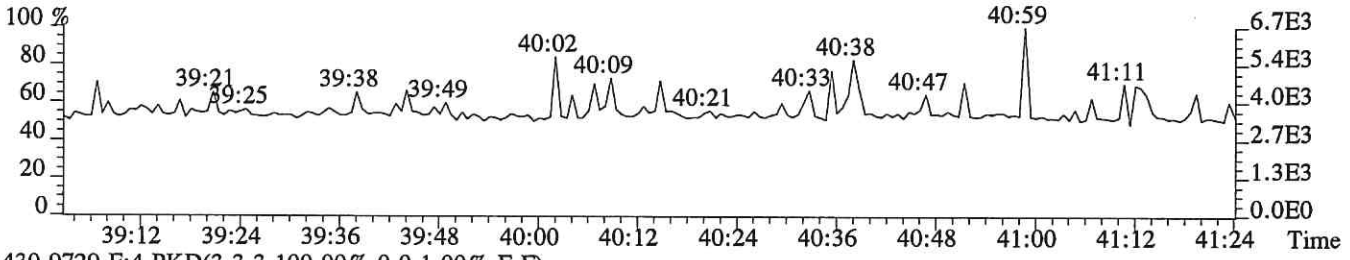
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11252.0,0.50%,F,T)



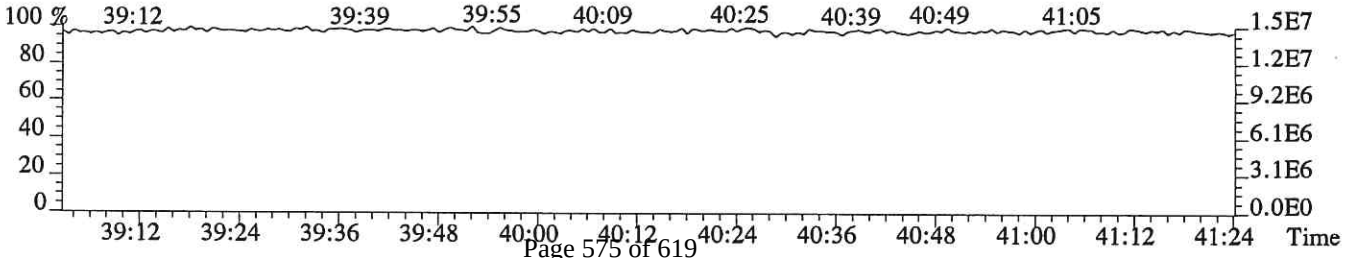
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,29392.0,0.50%,F,T)



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

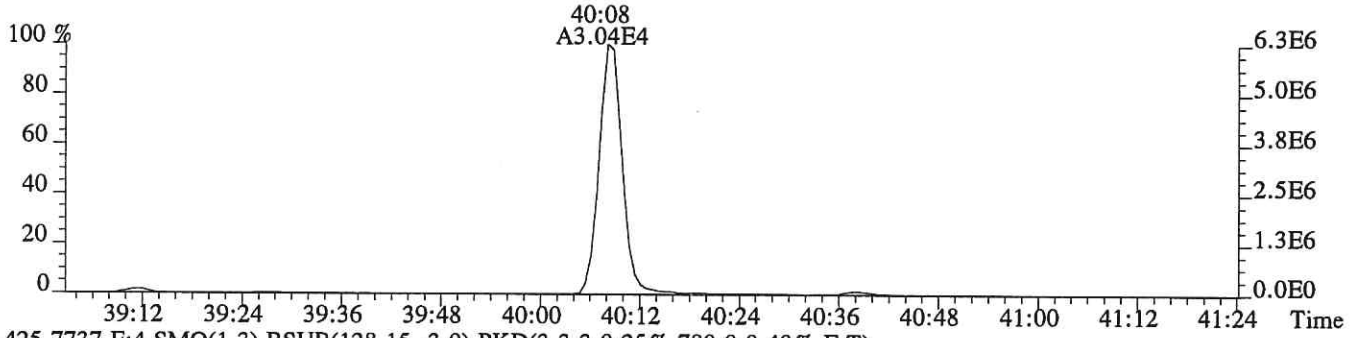


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

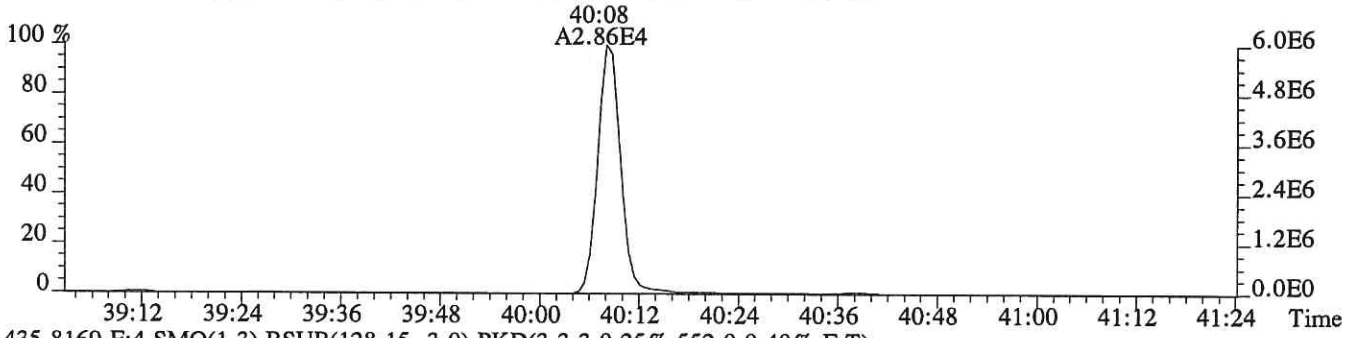


RIGHT SOLUTIONS | RIGHT PARTNER

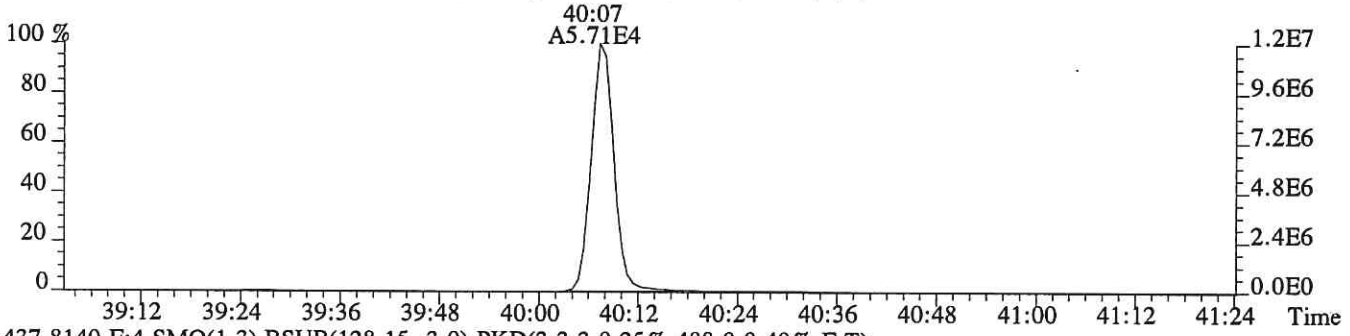
File:P619251 #1-213 Acq: 4-OCT-2019 04:45:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1004.0,0.40%,F,T)



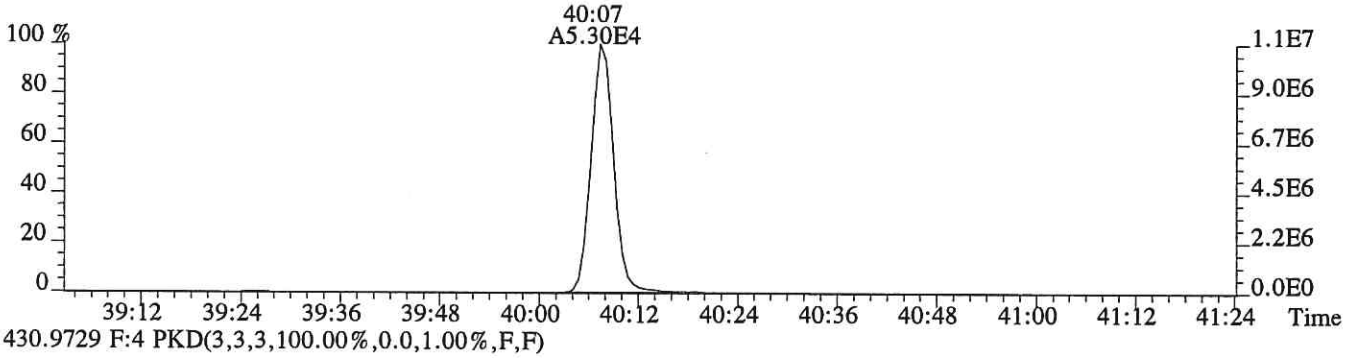
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,780.0,0.40%,F,T)



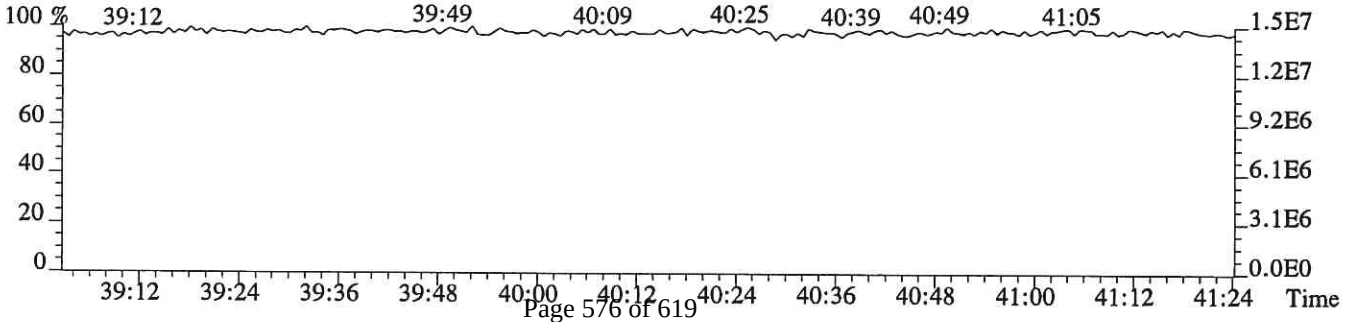
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,552.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,488.0,0.40%,F,T)



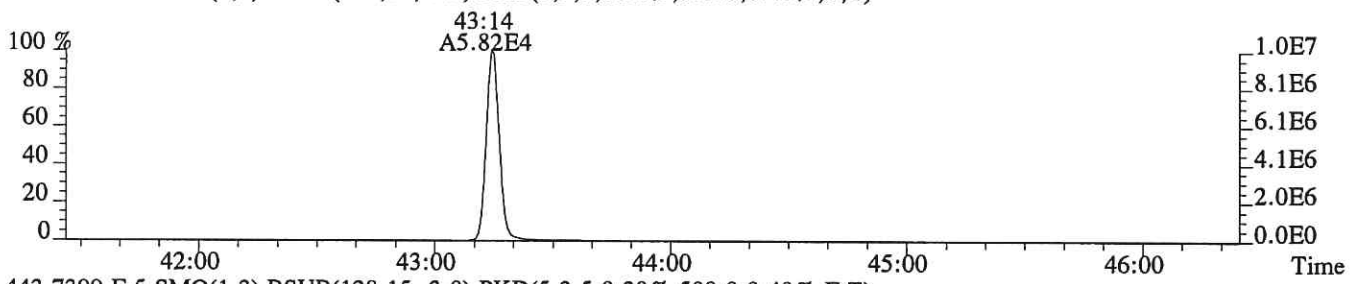
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



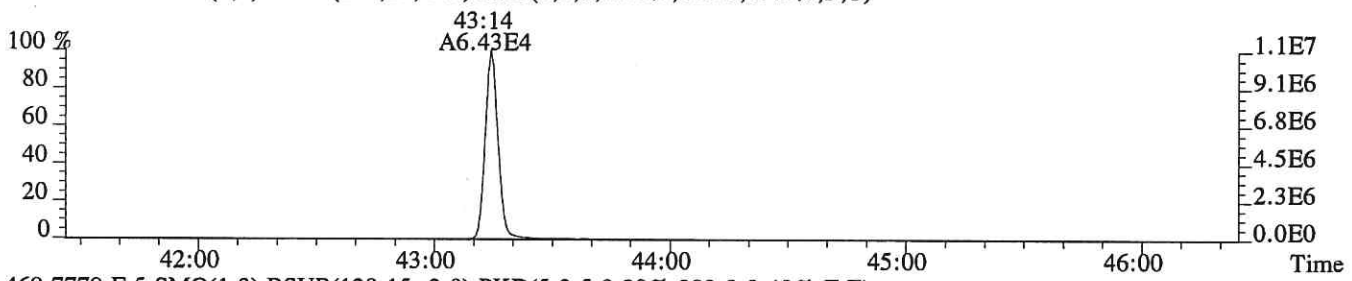
RIGHT SOLUTIONS | RIGHT PARTNER

File:P619251 #1-448 Acq: 4-OCT-2019 04:45:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

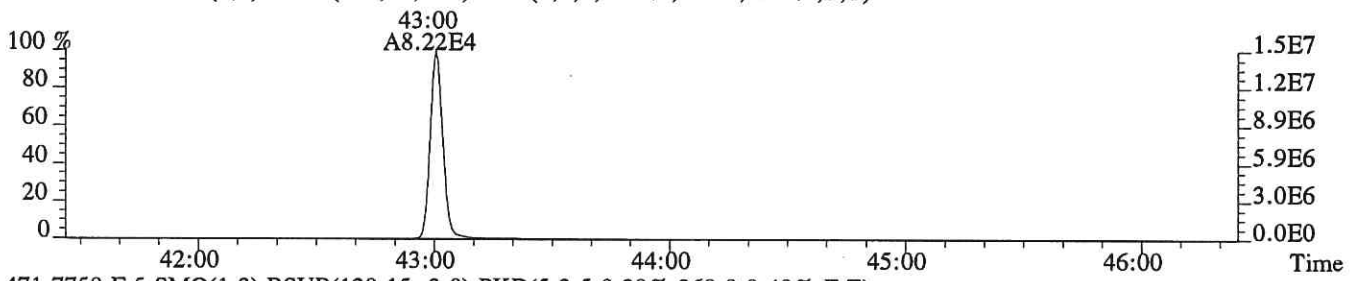
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,332.0,0.40%,F,T)



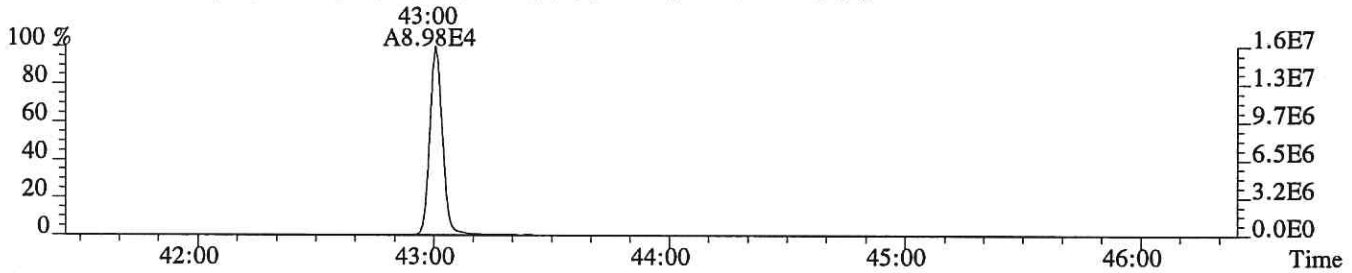
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,508.0,0.40%,F,T)



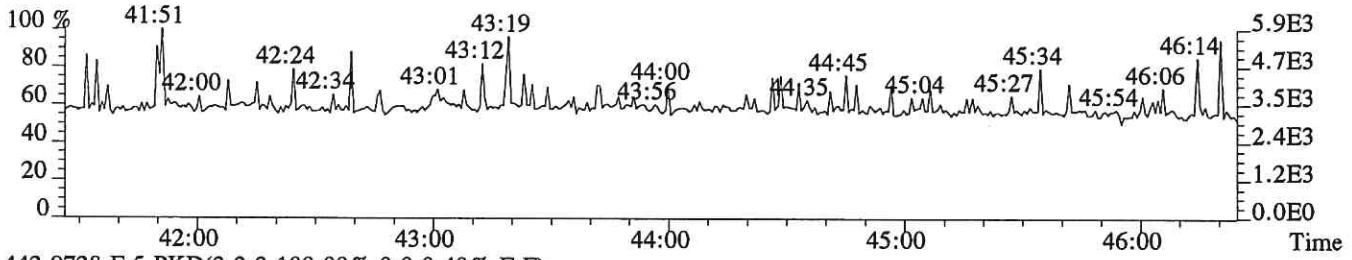
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,292.0,0.40%,F,T)



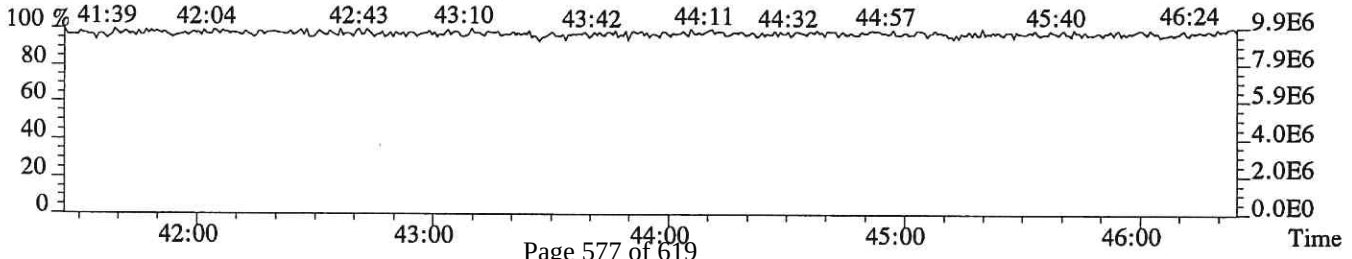
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,268.0,0.40%,F,T)



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



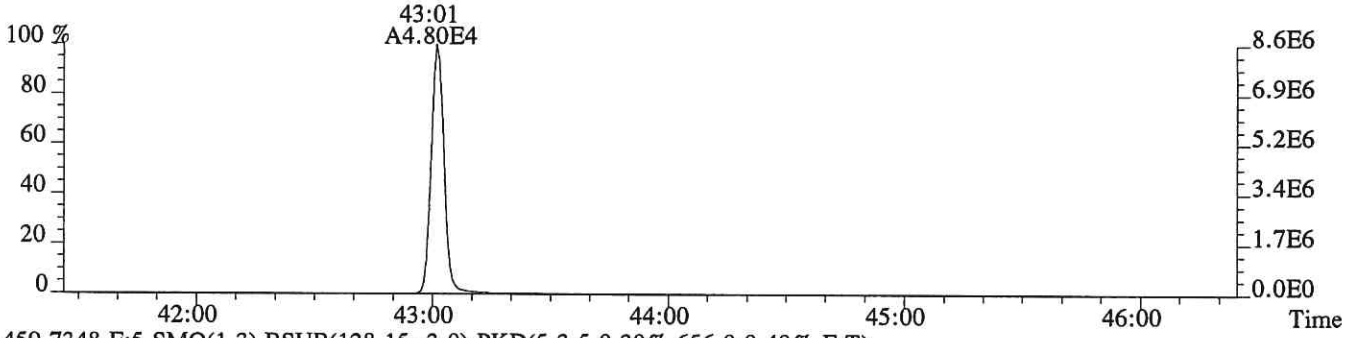
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



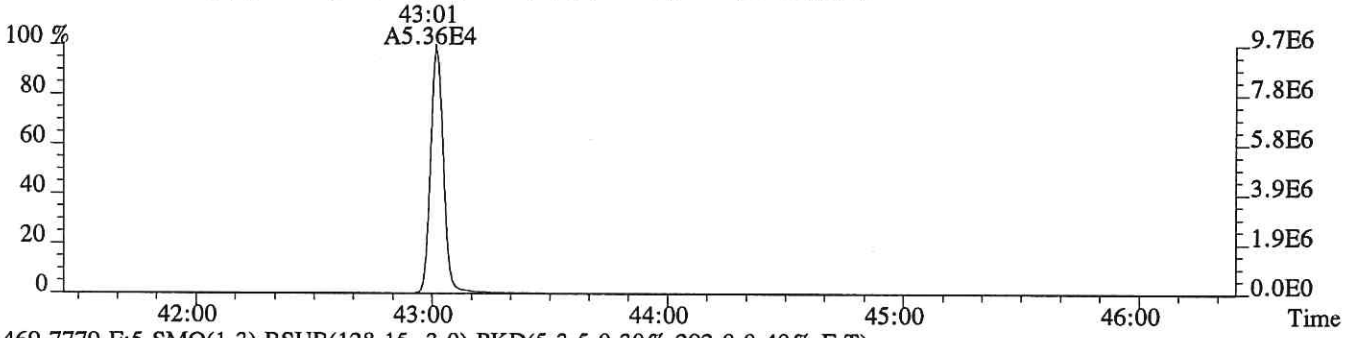
RIGHT SOLUTIONS | RIGHT PARTNER

File:P619251 #1-448 Acq: 4-OCT-2019 04:45:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

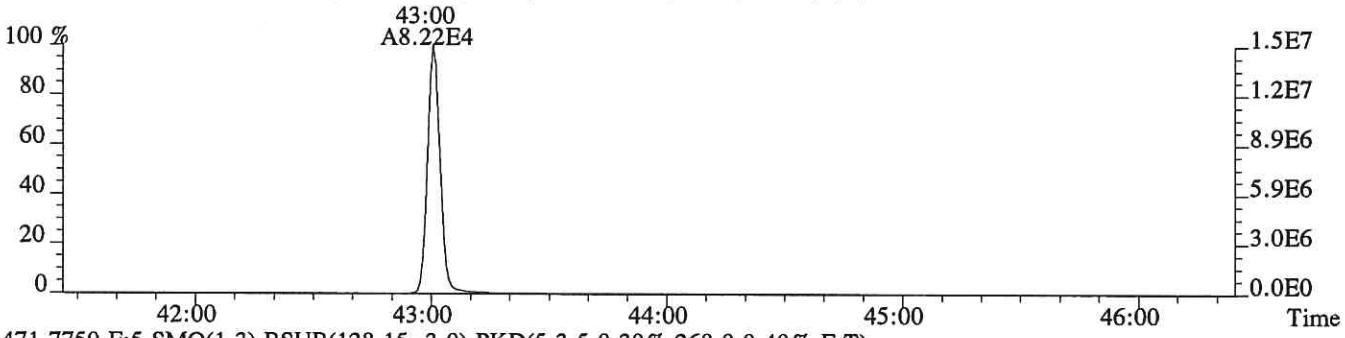
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,344.0,0.40%,F,T)



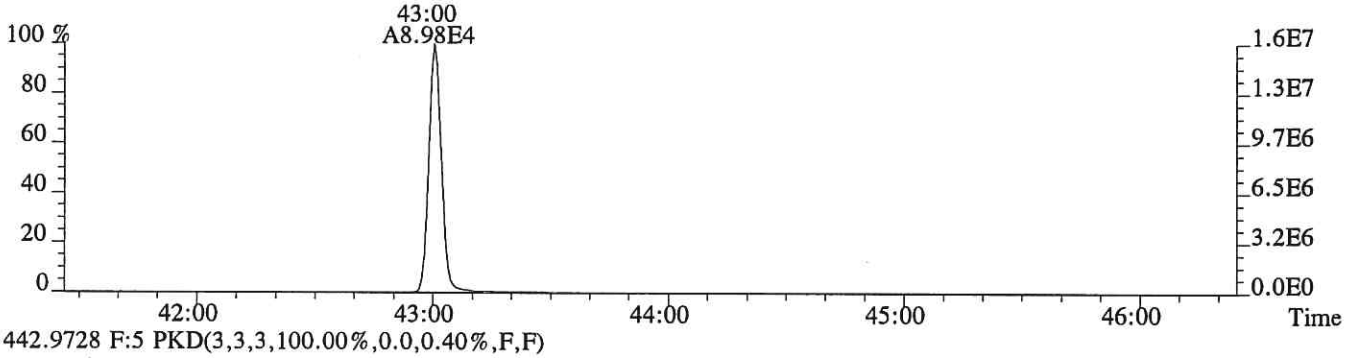
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,656.0,0.40%,F,T)



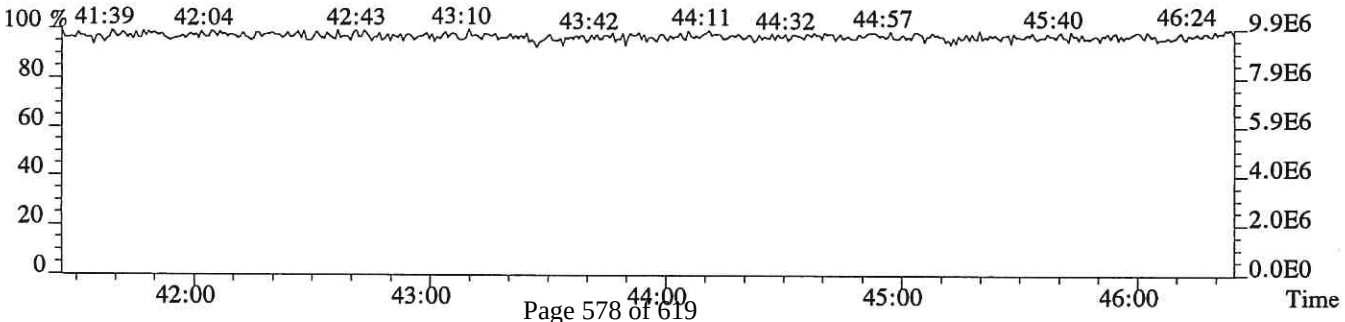
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,292.0,0.40%,F,T)



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)



RIGHT SOLUTIONS | RIGHT PARTNER

ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
82167

Run #5 Filename p619252 #1 Samp: 1 Inj: 1 Acquired: 4-OCT-19 05:34:45
Processed: 4-OCT-19 09:01:59 LAB. ID: CS4

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	29:20	2.159e+04	2.807e+04	0.77	yes	no	1.017
2	Unk	1,2,3,7,8-PeCDF	33:14	1.919e+05	1.244e+05	1.54	yes	no	1.021
3	Unk	2,3,4,7,8-PeCDF	34:06	1.854e+05	1.195e+05	1.55	yes	no	0.983
4	Unk	1,2,3,4,7,8-HxCDF	36:39	1.810e+05	1.471e+05	1.23	yes	no	1.229
5	Unk	1,2,3,6,7,8-HxCDF	36:46	1.899e+05	1.535e+05	1.24	yes	no	1.109
6	Unk	2,3,4,6,7,8-HxCDF	37:14	1.773e+05	1.425e+05	1.24	yes	no	1.125
7	Unk	1,2,3,7,8,9-HxCDF	37:58	1.687e+05	1.350e+05	1.25	yes	no	1.143
8	Unk	1,2,3,4,6,7,8-HpCDF	39:12	1.664e+05	1.621e+05	1.03	yes	no	1.323
9	Unk	1,2,3,4,7,8,9-HpCDF	40:39	1.405e+05	1.391e+05	1.01	yes	no	1.253
10	Unk	OCDF	43:14	2.526e+05	2.802e+05	0.90	yes	no	1.373
11	Unk	2,3,7,8-TCDD	30:02	1.624e+04	2.069e+04	0.79	yes	no	1.012
12	Unk	1,2,3,7,8-PeCDD	34:21	1.296e+05	8.092e+04	1.60	yes	no	0.993
13	Unk	1,2,3,4,7,8-HxCDD	37:22	1.280e+05	1.022e+05	1.25	yes	no	1.082
14	Unk	1,2,3,6,7,8-HxCDD	37:26	1.301e+05	1.028e+05	1.27	yes	no	1.083
15	Unk	1,2,3,7,8,9-HxCDD	37:40	1.375e+05	1.097e+05	1.25	yes	no	1.174
16	Unk	1,2,3,4,6,7,8-HpCDD	40:08	1.258e+05	1.196e+05	1.05	yes	no	1.053
17	Unk	OCDD	43:01	2.084e+05	2.323e+05	0.90	yes	no	1.160
18	IS	13C-2,3,7,8-TCDF	29:18	5.532e+04	6.935e+04	0.80	yes	no	1.341
19	IS	13C-1,2,3,7,8-PeCDF	33:13	9.349e+04	5.873e+04	1.59	yes	no	1.627
20	IS	13C-2,3,4,7,8-PeCDF	34:05	9.522e+04	5.976e+04	1.59	yes	no	1.651
21	IS	13C-1,2,3,4,7,8-HxCDF	36:38	4.591e+04	8.786e+04	0.52	yes	no	1.137
22	IS	13C-1,2,3,6,7,8-HxCDF	36:45	5.233e+04	9.934e+04	0.53	yes	no	1.307
23	IS	13C-2,3,4,6,7,8-HxCDF	37:14	4.901e+04	9.302e+04	0.53	yes	no	1.222
24	IS	13C-1,2,3,7,8,9-HxCDF	37:58	4.538e+04	8.603e+04	0.53	yes	no	1.137
25	IS	13C-1,2,3,4,6,7,8-HpCDF	39:11	3.782e+04	8.477e+04	0.45	yes	no	1.069
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:38	3.419e+04	7.681e+04	0.45	yes	no	0.961
27	IS	13C-2,3,7,8-TCDD	30:01	3.967e+04	5.130e+04	0.77	yes	no	0.970
28	IS	13C-1,2,3,7,8-PeCDD	34:21	6.469e+04	4.137e+04	1.56	yes	no	1.142
29	IS	13C-1,2,3,4,7,8-HxCDD	37:21	5.886e+04	4.608e+04	1.28	yes	no	0.914
30	IS	13C-1,2,3,6,7,8-HxCDD	37:26	5.971e+04	4.667e+04	1.28	yes	no	0.899
31	IS	13C-1,2,3,4,6,7,8-HpCDD	40:07	5.874e+04	5.499e+04	1.07	yes	no	0.997
32	IS	13C-OCDD	43:00	8.984e+04	9.883e+04	0.91	yes	no	0.817
33	RS/RT	13C-1,2,3,4-TCDD	29:29	4.158e+04	5.267e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:40	6.436e+04	5.147e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	30:02	3.782e+04				no	1.005

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Signal/Noise Height Ratio Summary

CLIENT ID.
82167

Run #5 Filename p619252 Samp: 1 Inj: 1 Acquired: 4-OCT-19 05:34:45
Processed: 4-OCT-19 09:01:591 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	4.30e+06	2.28e+02	1.9e+04	5.52e+06	3.68e+02	1.5e+04
2	1,2,3,7,8-PeCDF	3.92e+07	9.19e+03	4.3e+03	2.56e+07	6.46e+03	4.0e+03
3	2,3,4,7,8-PeCDF	3.87e+07	9.19e+03	4.2e+03	2.48e+07	6.46e+03	3.8e+03
4	1,2,3,4,7,8-HxCDF	4.14e+07	6.64e+02	6.2e+04	3.37e+07	4.60e+02	7.3e+04
5	1,2,3,6,7,8-HxCDF	4.17e+07	6.64e+02	6.3e+04	3.30e+07	4.60e+02	7.2e+04
6	2,3,4,6,7,8-HxCDF	4.08e+07	6.64e+02	6.1e+04	3.27e+07	4.60e+02	7.1e+04
7	1,2,3,7,8,9-HxCDF	3.71e+07	6.64e+02	5.6e+04	3.00e+07	4.60e+02	6.5e+04
8	1,2,3,4,6,7,8-HpCDF	3.76e+07	6.42e+04	5.9e+02	3.65e+07	9.37e+04	3.9e+02
9	1,2,3,4,7,8,9-HpCDF	2.91e+07	6.42e+04	4.5e+02	2.86e+07	9.37e+04	3.1e+02
10	OCDF	4.60e+07	1.88e+02	2.4e+05	5.11e+07	5.32e+02	9.6e+04
11	2,3,7,8-TCDD	3.38e+06	7.92e+02	4.3e+03	4.32e+06	3.72e+02	1.2e+04
12	1,2,3,7,8-PeCDD	2.77e+07	7.80e+02	3.6e+04	1.74e+07	3.36e+02	5.2e+04
13	1,2,3,4,7,8-HxCDD	3.05e+07	4.12e+02	7.4e+04	2.40e+07	2.20e+02	1.1e+05
14	1,2,3,6,7,8-HxCDD	2.92e+07	4.12e+02	7.1e+04	2.32e+07	2.20e+02	1.1e+05
15	1,2,3,7,8,9-HxCDD	3.18e+07	4.12e+02	7.7e+04	2.54e+07	2.20e+02	1.2e+05
16	1,2,3,4,6,7,8-HpCDD	2.68e+07	7.08e+02	3.8e+04	2.57e+07	1.08e+03	2.4e+04
17	OCDD	3.88e+07	2.64e+02	1.5e+05	4.33e+07	4.60e+02	9.4e+04
18	13C-2,3,7,8-TCDF	1.09e+07	3.72e+03	2.9e+03	1.38e+07	1.91e+03	7.2e+03
19	13C-1,2,3,7,8-PeCDF	1.92e+07	8.51e+03	2.3e+03	1.20e+07	3.77e+03	3.2e+03
20	13C-2,3,4,7,8-PeCDF	1.97e+07	8.51e+03	2.3e+03	1.24e+07	3.77e+03	3.3e+03
21	13C-1,2,3,4,7,8-HxCDF	1.05e+07	3.72e+02	2.8e+04	2.01e+07	1.33e+04	1.5e+03
22	13C-1,2,3,6,7,8-HxCDF	1.15e+07	3.72e+02	3.1e+04	2.15e+07	1.33e+04	1.6e+03
23	13C-2,3,4,6,7,8-HxCDF	1.13e+07	3.72e+02	3.0e+04	2.13e+07	1.33e+04	1.6e+03
24	13C-1,2,3,7,8,9-HxCDF	9.86e+06	3.72e+02	2.7e+04	1.89e+07	1.33e+04	1.4e+03
25	13C-1,2,3,4,6,7,8-HpCDF	8.53e+06	1.11e+04	7.7e+02	1.90e+07	2.23e+04	8.5e+02
26	13C-1,2,3,4,7,8,9-HpCDF	7.08e+06	1.11e+04	6.4e+02	1.58e+07	2.23e+04	7.1e+02
27	13C-2,3,7,8-TCDD	8.14e+06	3.46e+03	2.4e+03	1.04e+07	6.68e+02	1.6e+04
28	13C-1,2,3,7,8-PeCDD	1.37e+07	4.16e+02	3.3e+04	8.63e+06	3.96e+02	2.2e+04
29	13C-1,2,3,4,7,8-HxCDD	1.41e+07	5.00e+02	2.8e+04	1.09e+07	2.60e+02	4.2e+04
30	13C-1,2,3,6,7,8-HxCDD	1.33e+07	5.00e+02	2.7e+04	1.05e+07	2.60e+02	4.1e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.26e+07	1.37e+04	9.2e+02	1.19e+07	3.60e+02	3.3e+04
32	13C-OCDD	1.66e+07	4.16e+02	4.0e+04	1.83e+07	2.28e+02	8.0e+04
33	13C-1,2,3,4-TCDD	8.52e+06	3.46e+03	2.5e+03	1.07e+07	6.68e+02	1.6e+04
34	13C-1,2,3,7,8,9-HxCDD	1.49e+07	5.00e+02	3.0e+04	1.19e+07	2.60e+02	4.6e+04
35	37Cl-2,3,7,8-TCDD	7.84e+06	3.76e+02	2.1e+04			

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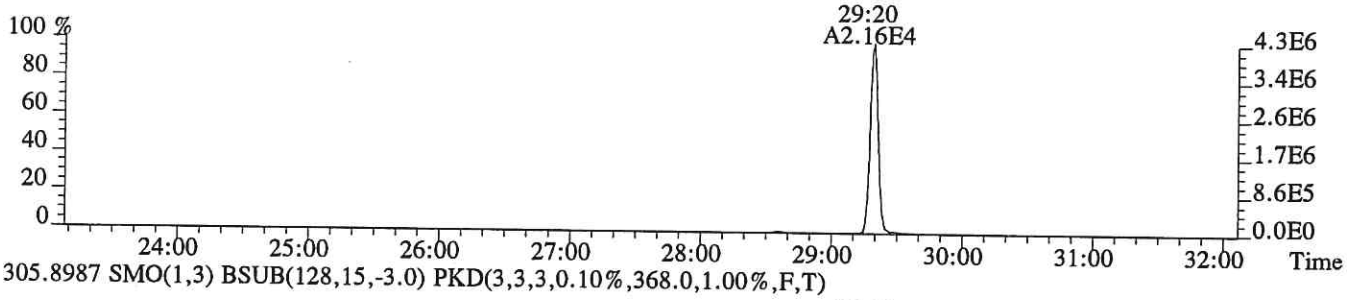
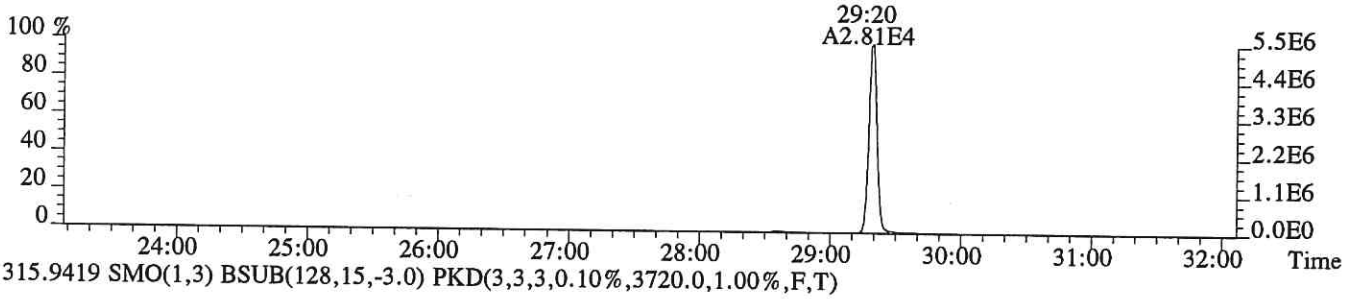
File:P619252 #1-637 Acq: 4-OCT-2019 05:34:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4

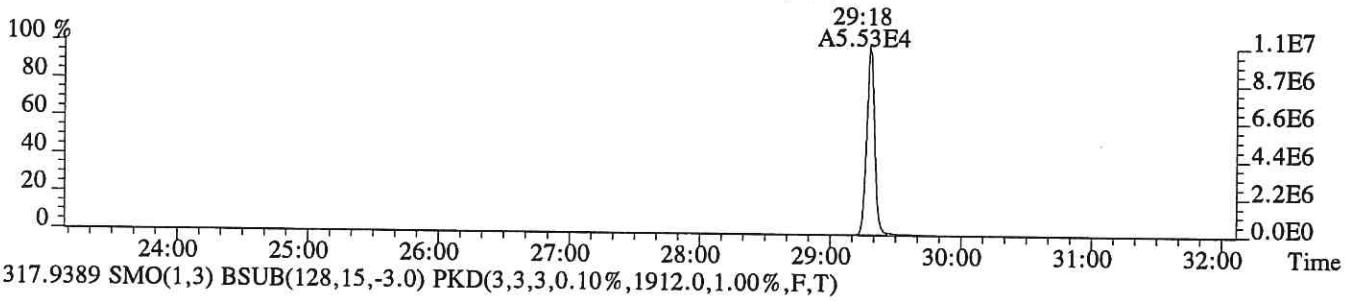
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,228.0,1.00%,F,T)



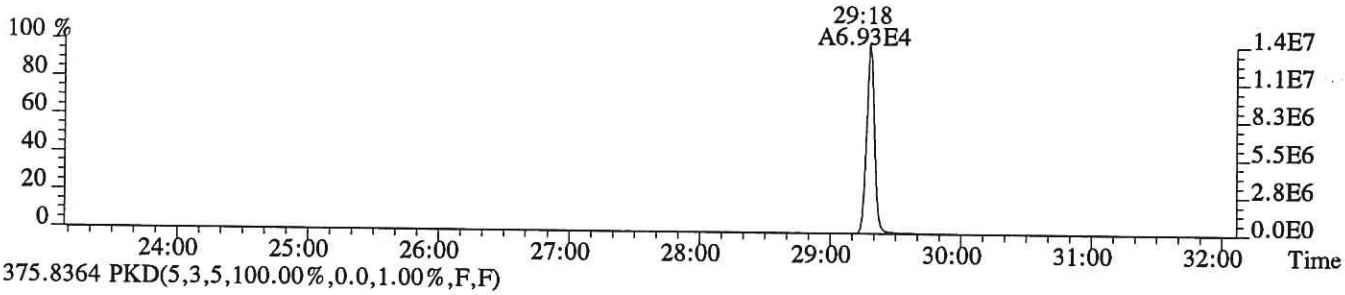
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,368.0,1.00%,F,T)



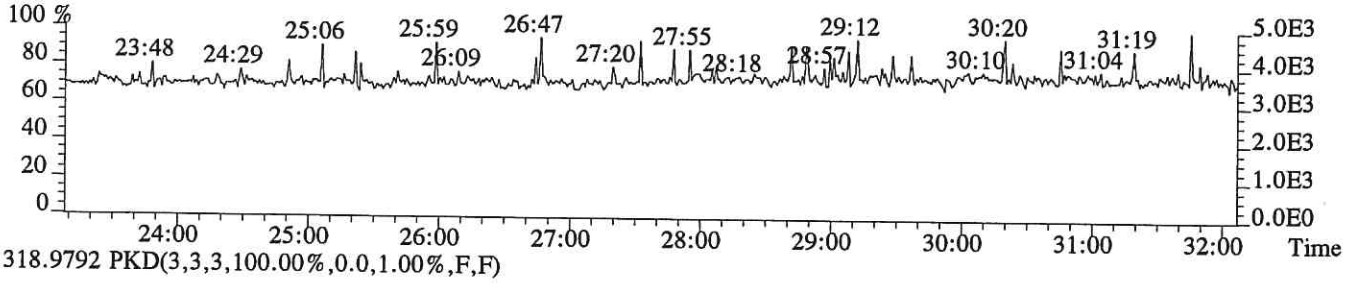
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3720.0,1.00%,F,T)



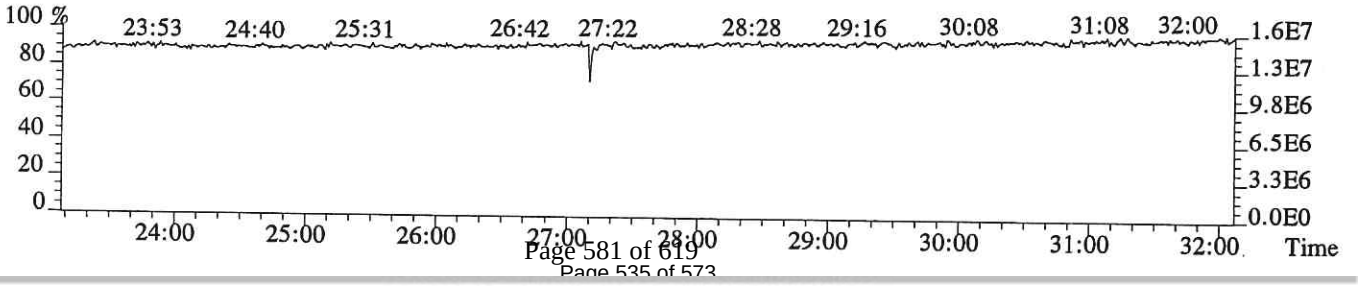
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1912.0,1.00%,F,T)



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



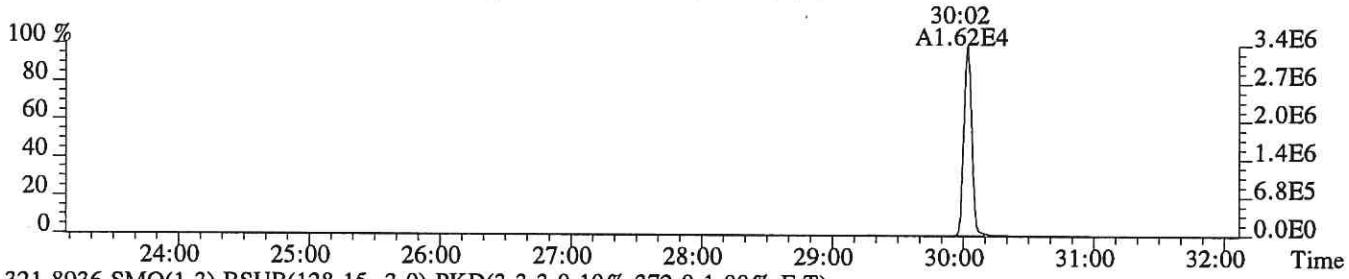
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



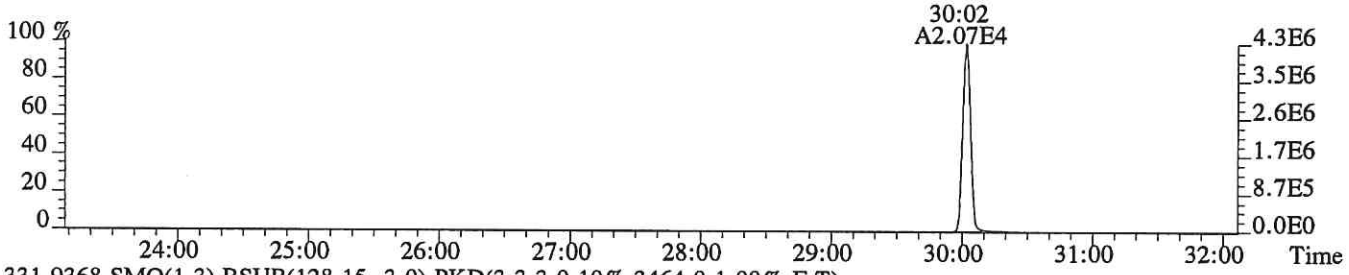
RIGHT SOLUTIONS | RIGHT PARTNER

File:P619252 #1-637 Acq: 4-OCT-2019 05:34:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4

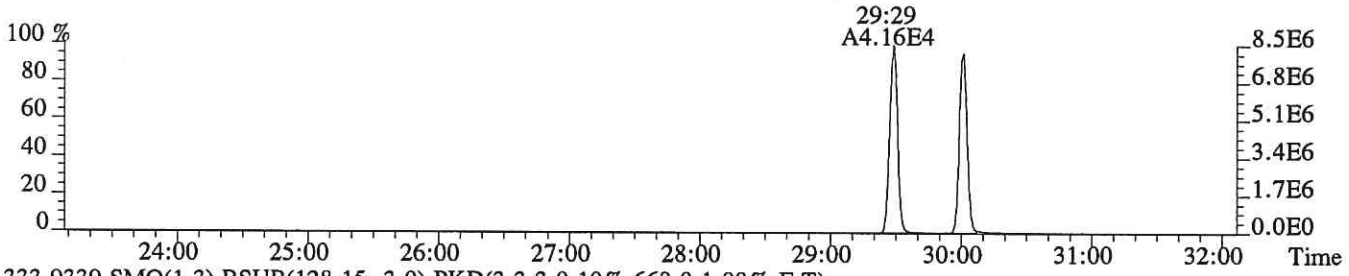
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,792.0,1.00%,F,T)



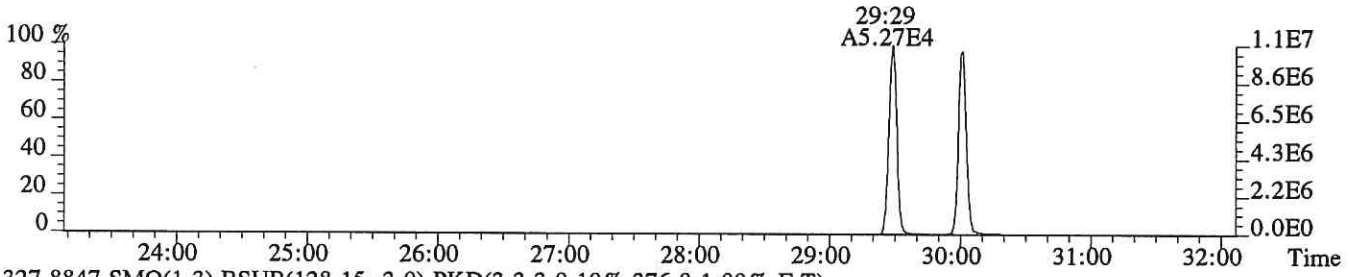
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,372.0,1.00%,F,T)



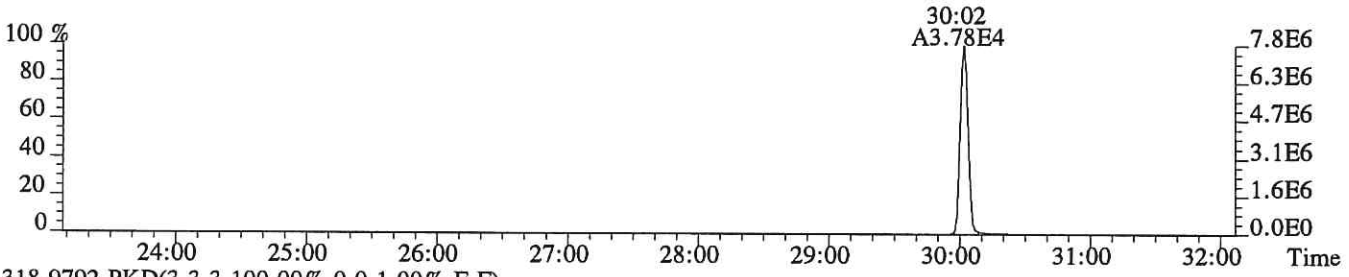
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3464.0,1.00%,F,T)



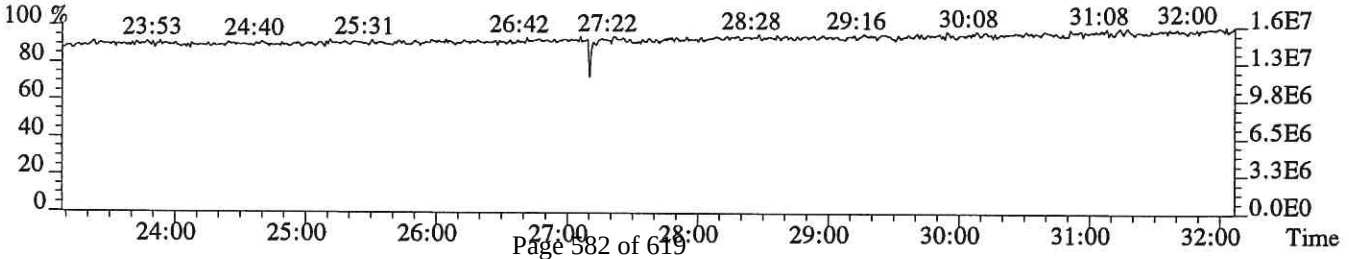
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,668.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,376.0,1.00%,F,T)

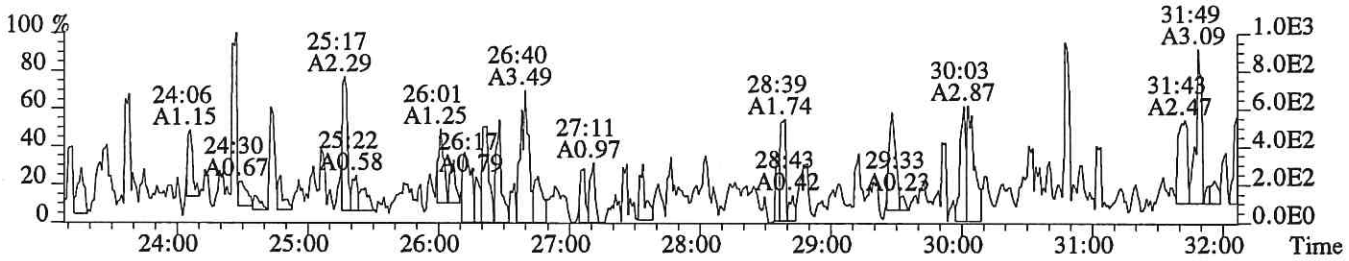


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

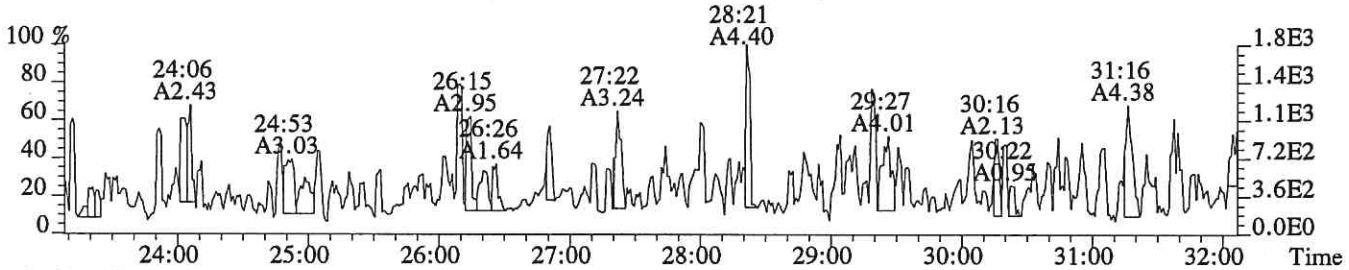


RIGHT SOLUTIONS | RIGHT PARTNER

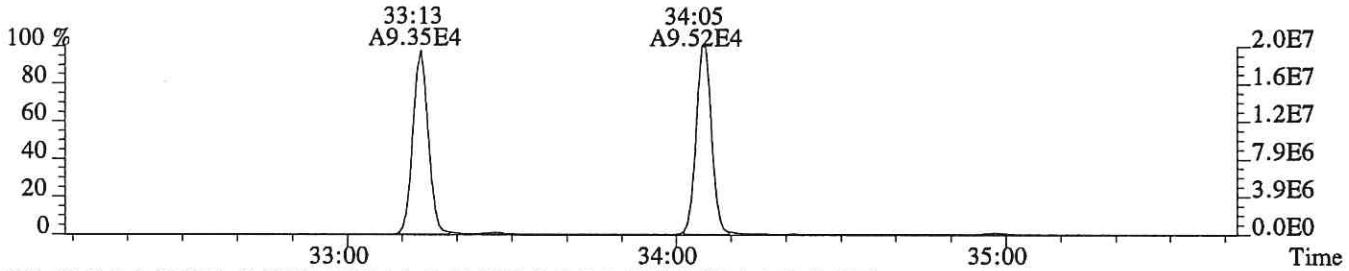
File:P619252 #1-637 Acq: 4-OCT-2019 05:34:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,204.0,1.00%,F,T)



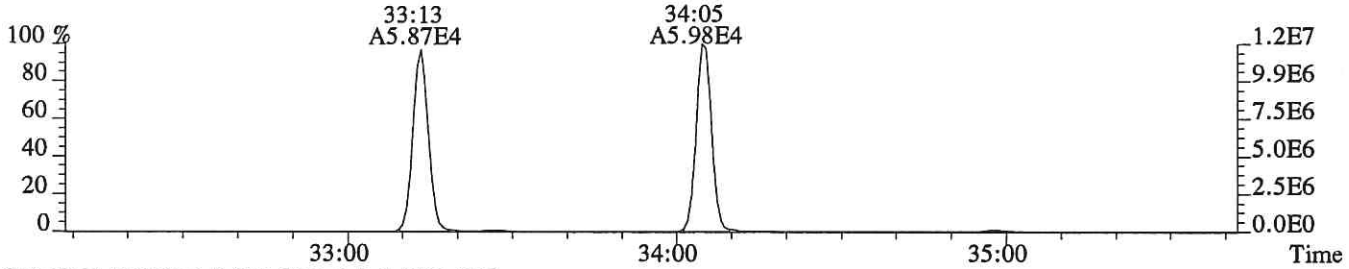
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,448.0,1.00%,F,T)



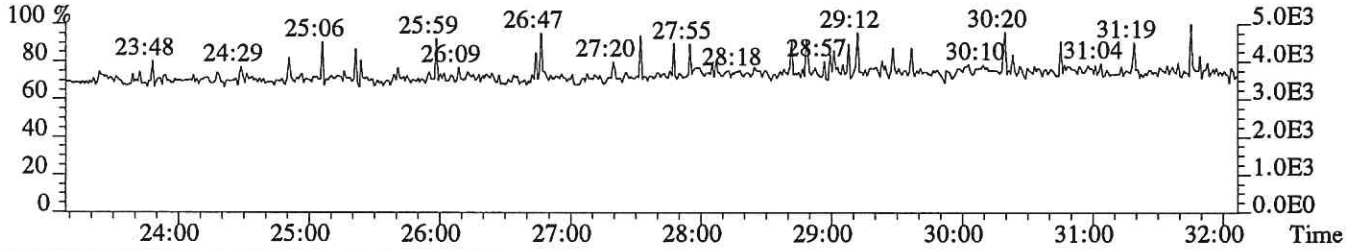
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8512.0,1.00%,F,T)



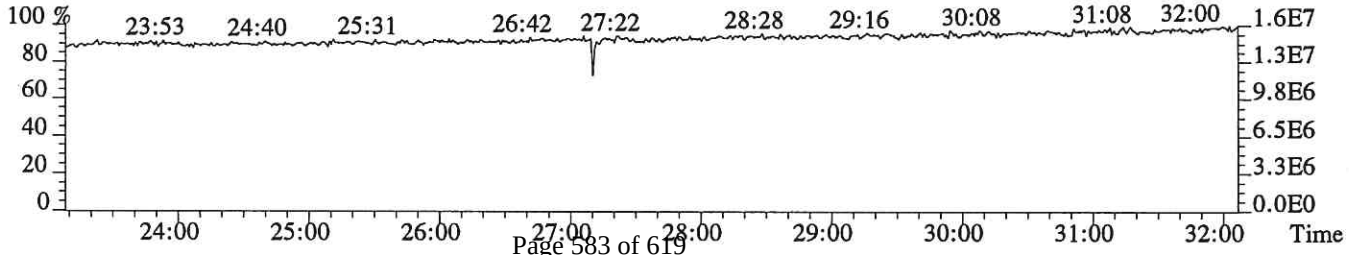
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3772.0,1.00%,F,T)



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



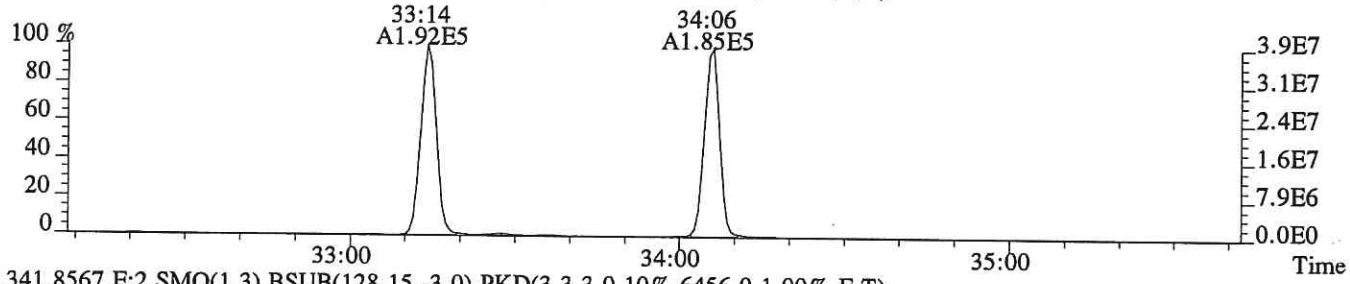
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



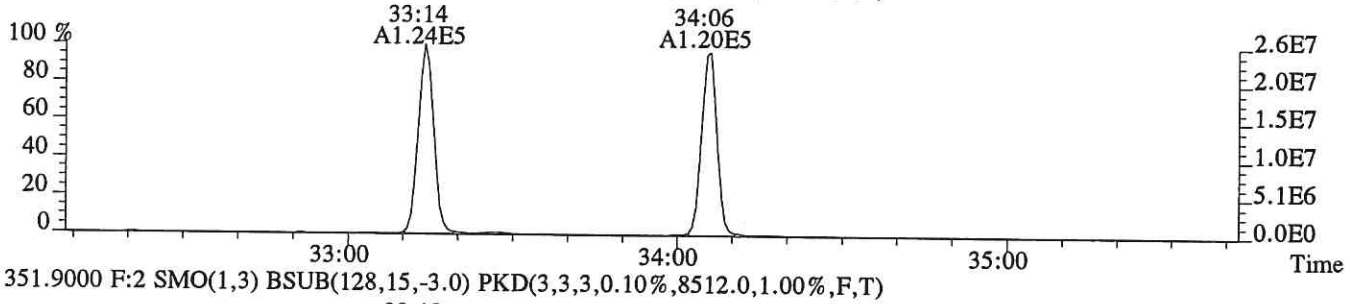
RIGHT SOLUTIONS | RIGHT PARTNER

File:P619252 #1-321 Acq: 4-OCT-2019 05:34:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4

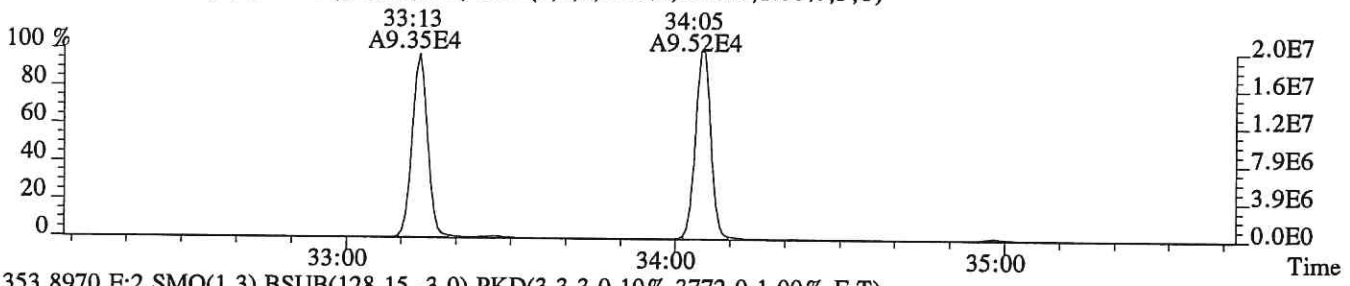
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9188.0,1.00%,F,T)



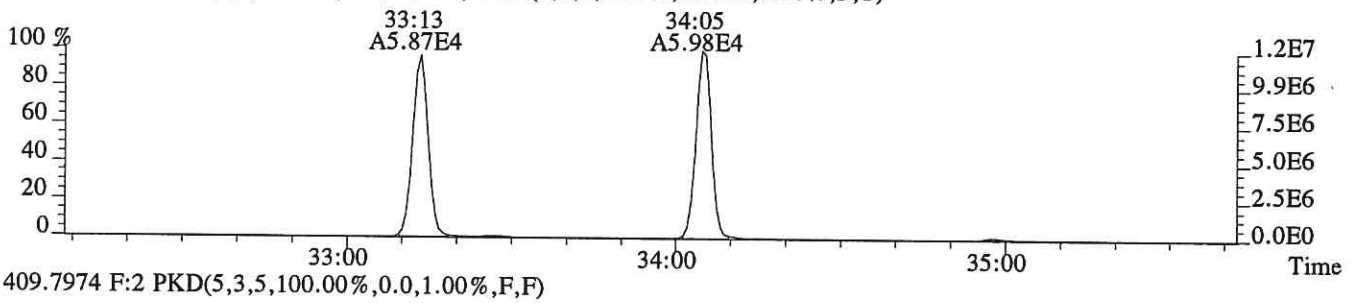
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6456.0,1.00%,F,T)



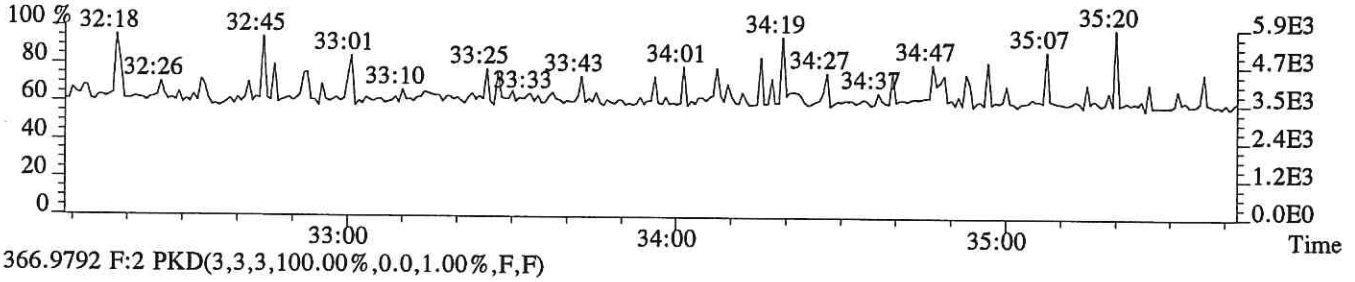
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8512.0,1.00%,F,T)



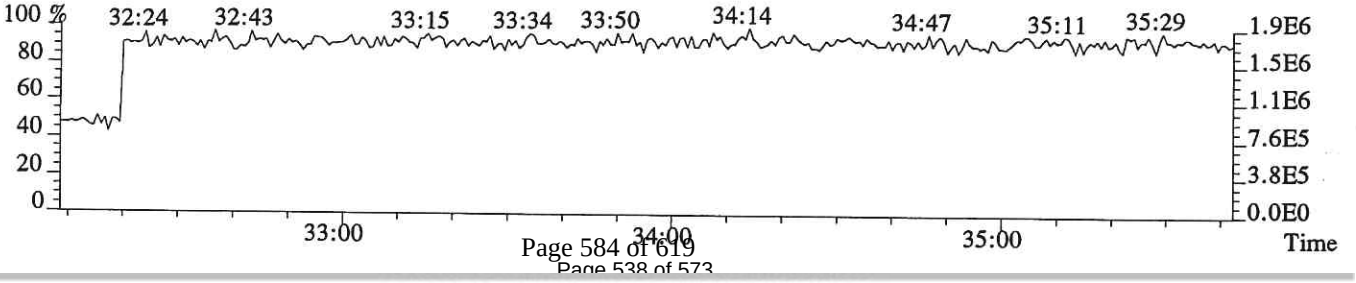
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3772.0,1.00%,F,T)



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



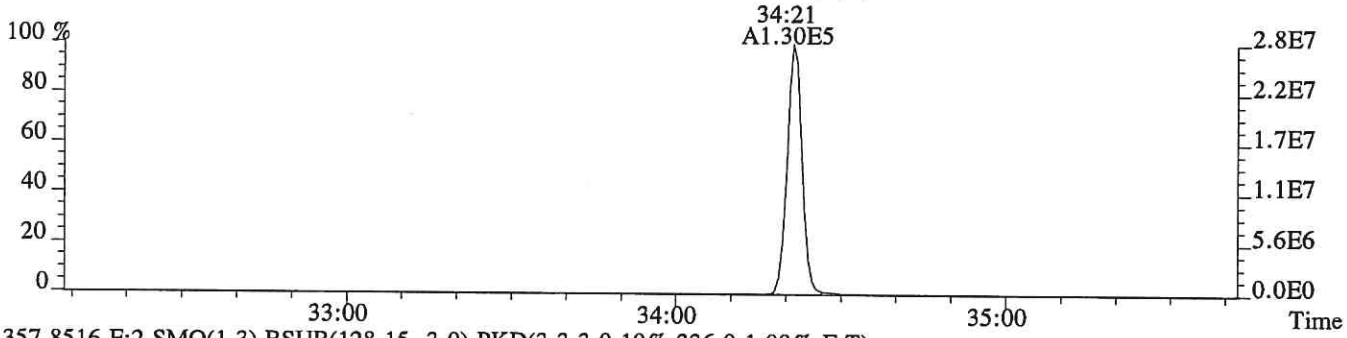
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



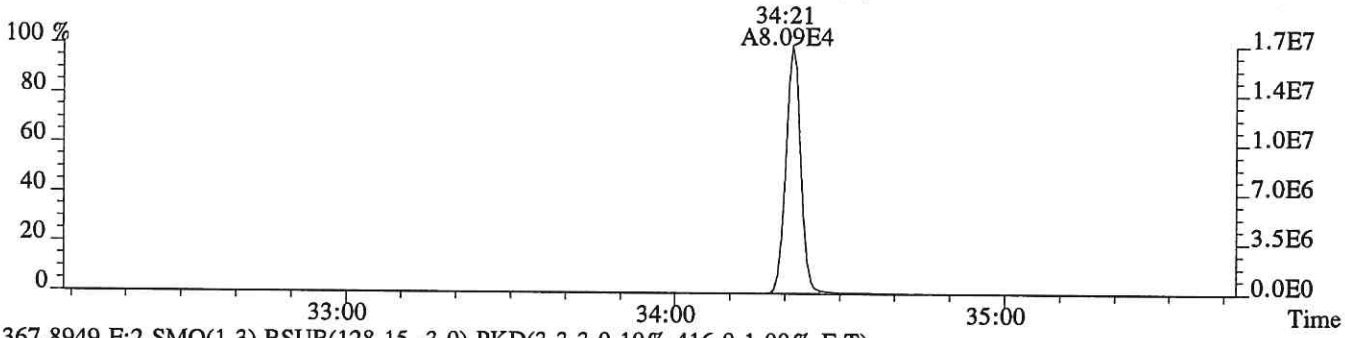
RIGHT SOLUTIONS | RIGHT PARTNER

File:P619252 #1-321 Acq: 4-OCT-2019 05:34:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4

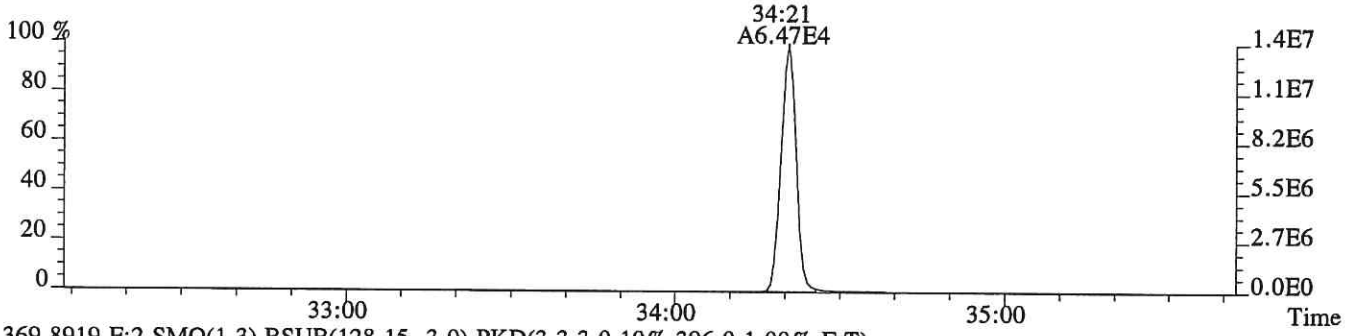
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,780.0,1.00%,F,T)



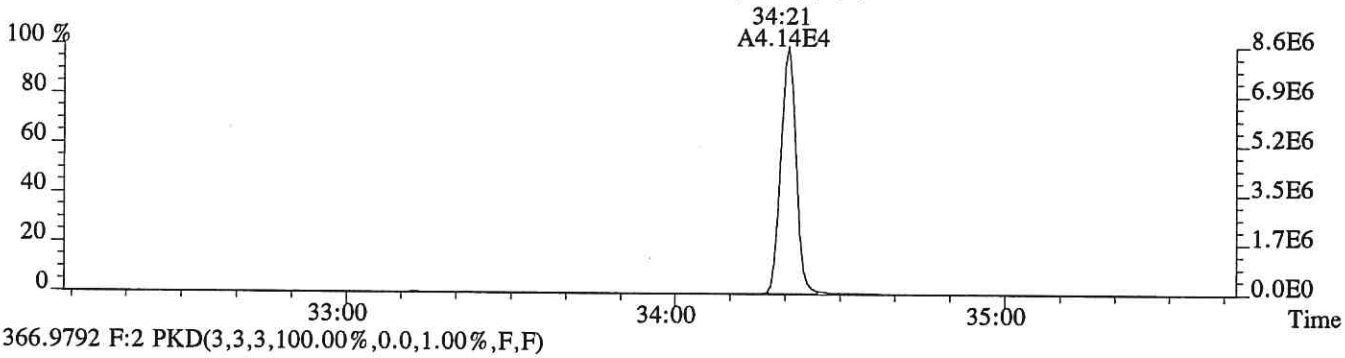
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,336.0,1.00%,F,T)



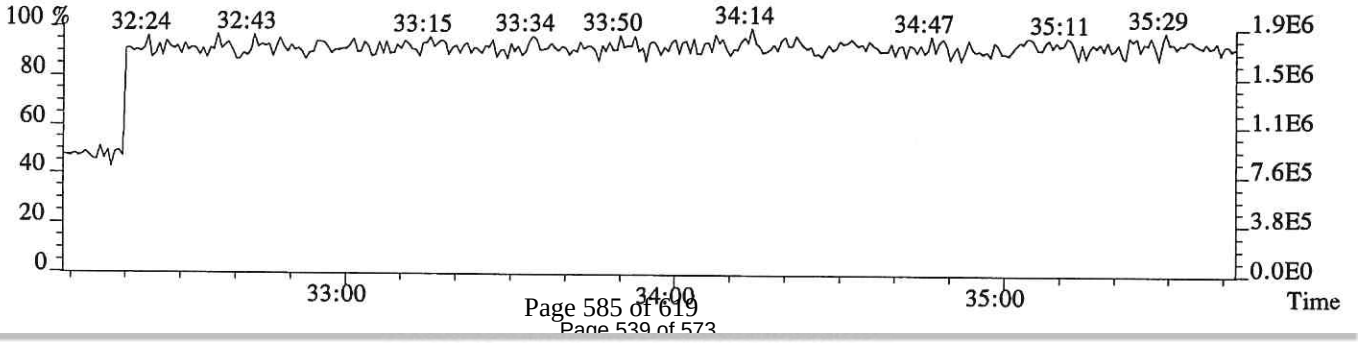
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,416.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,396.0,1.00%,F,T)



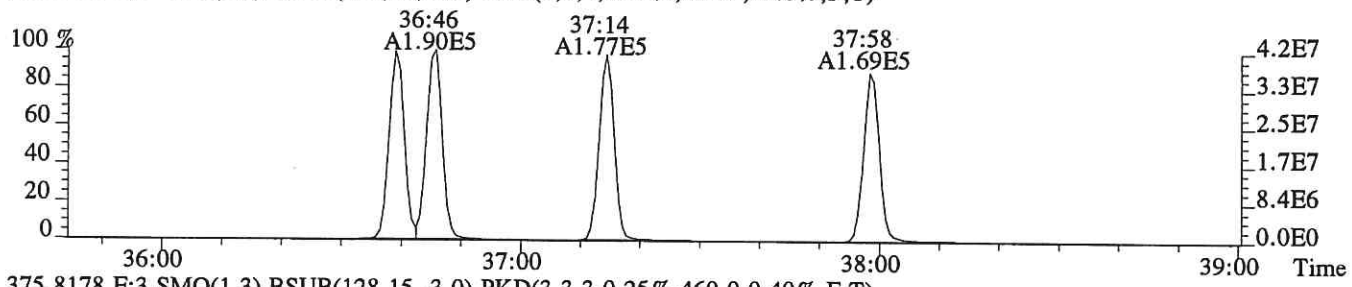
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



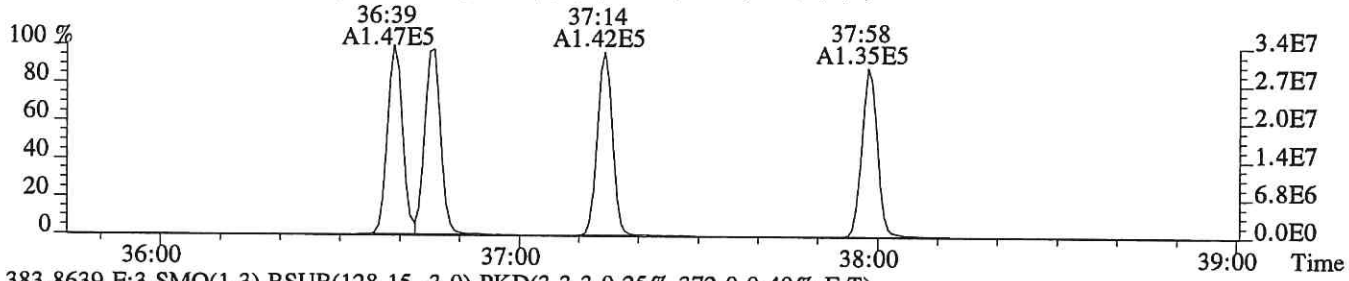
RIGHT SOLUTIONS | RIGHT PARTNER

File:P619252 #1-295 Acq: 4-OCT-2019 05:34:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4

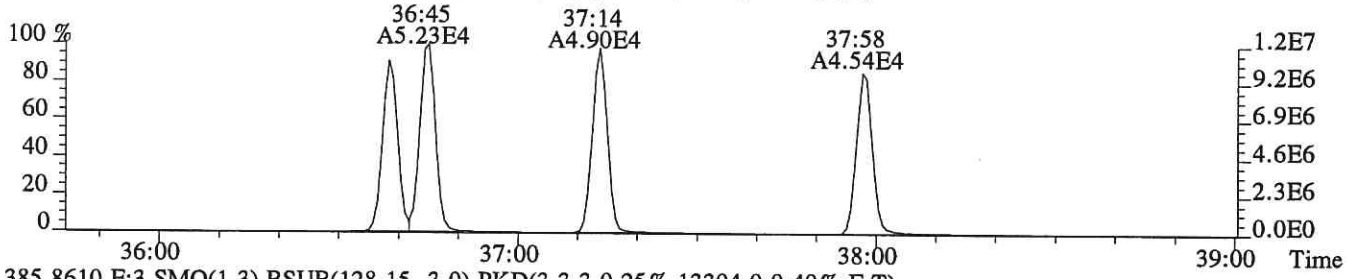
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,664.0,0.40%,F,T)



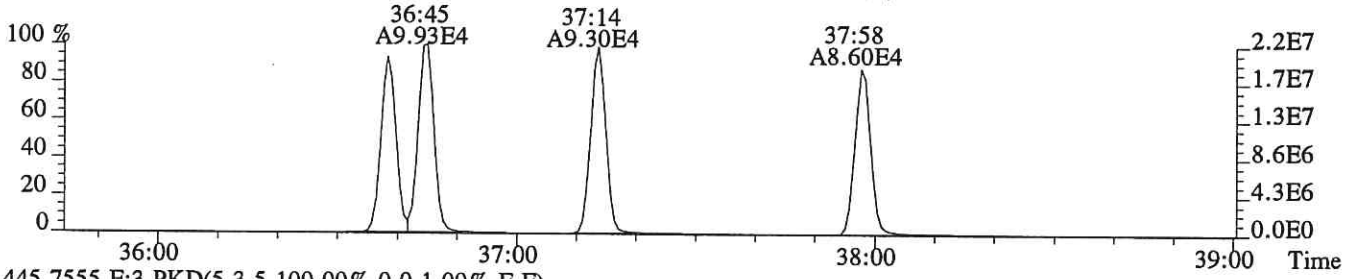
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,460.0,0.40%,F,T)



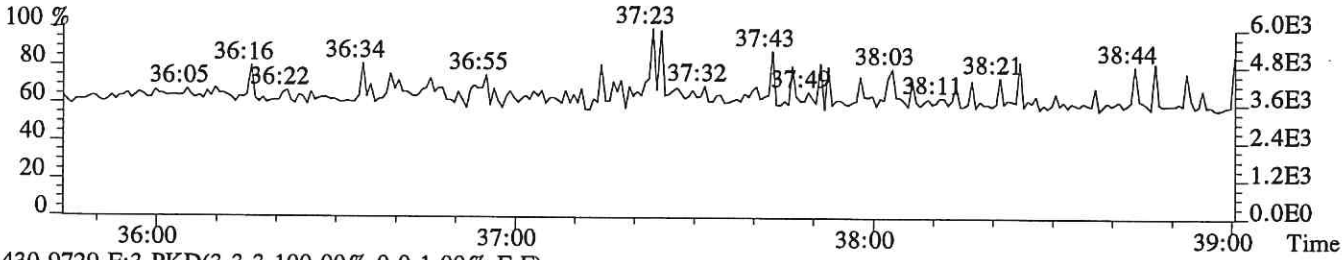
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,372.0,0.40%,F,T)



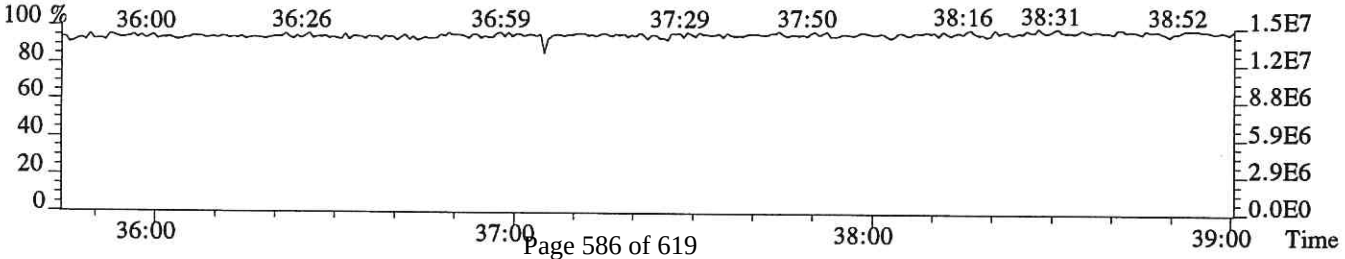
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,13304.0,0.40%,F,T)



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

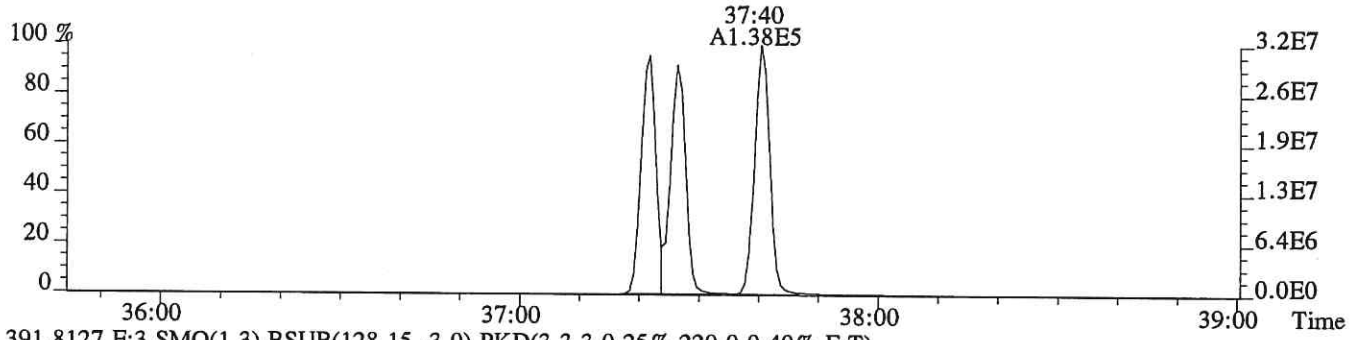


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

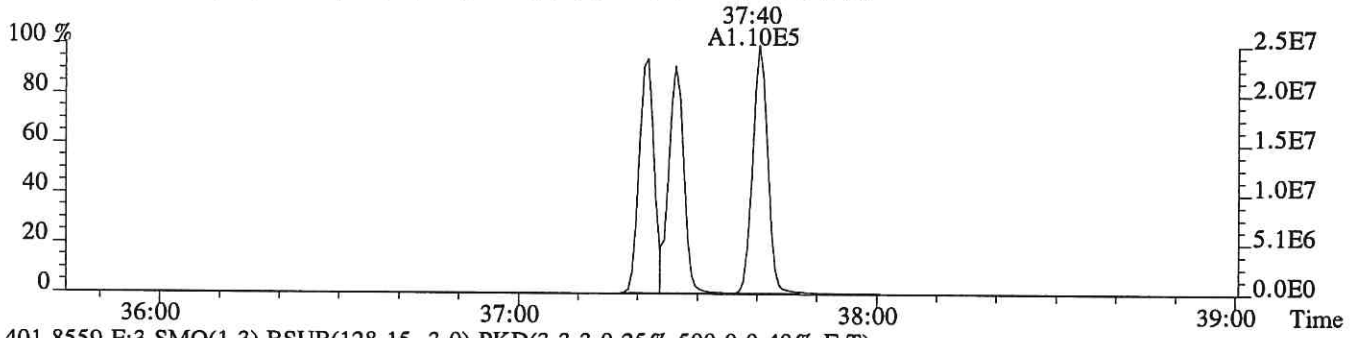


RIGHT SOLUTIONS | RIGHT PARTNER

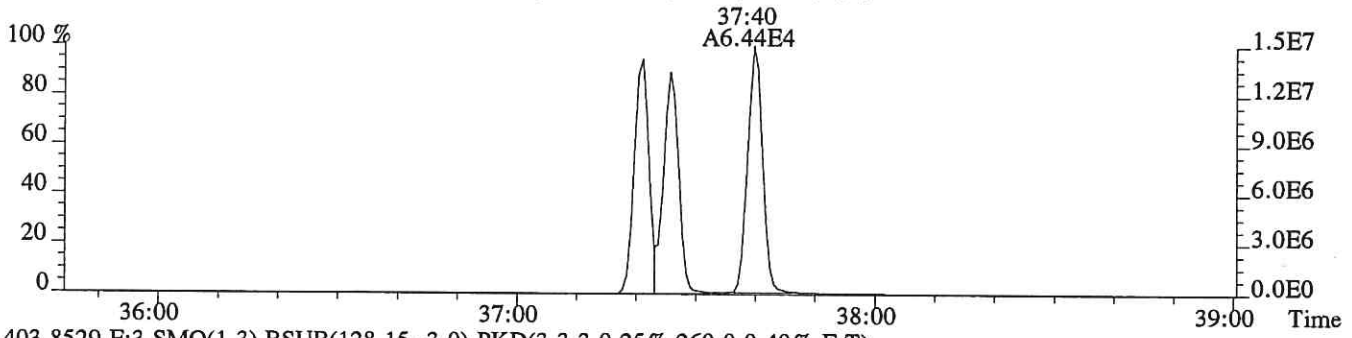
File:P619252 #1-295 Acq: 4-OCT-2019 05:34:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,412.0,0.40%,F,T)



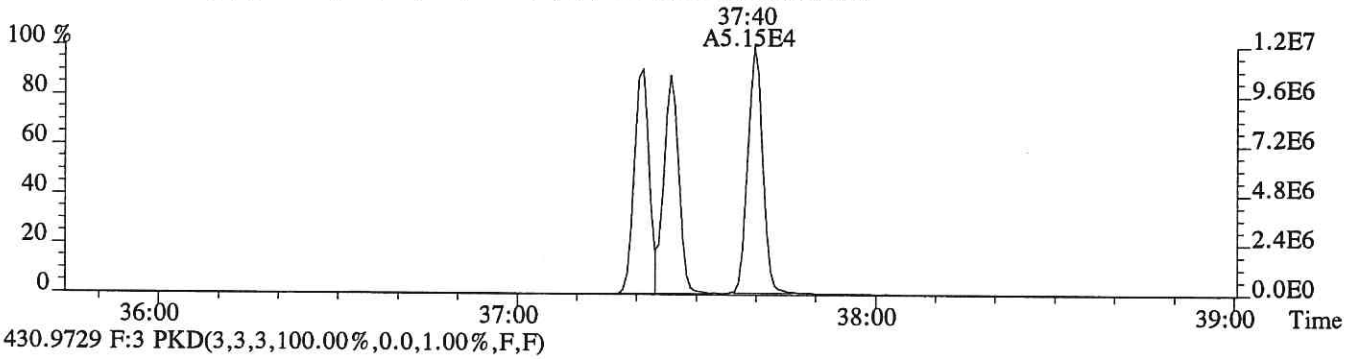
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,220.0,0.40%,F,T)



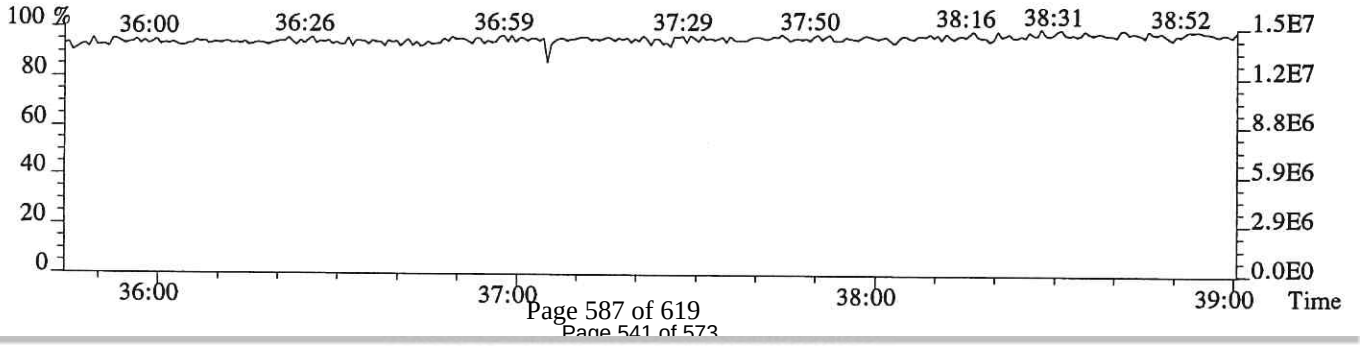
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,500.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,260.0,0.40%,F,T)



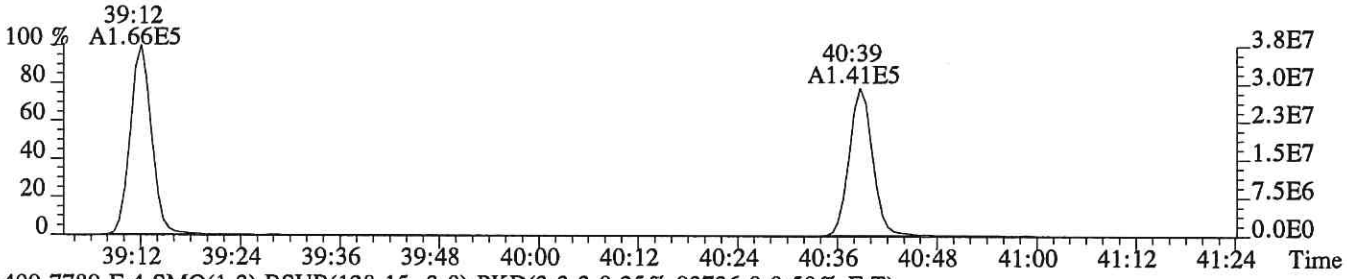
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



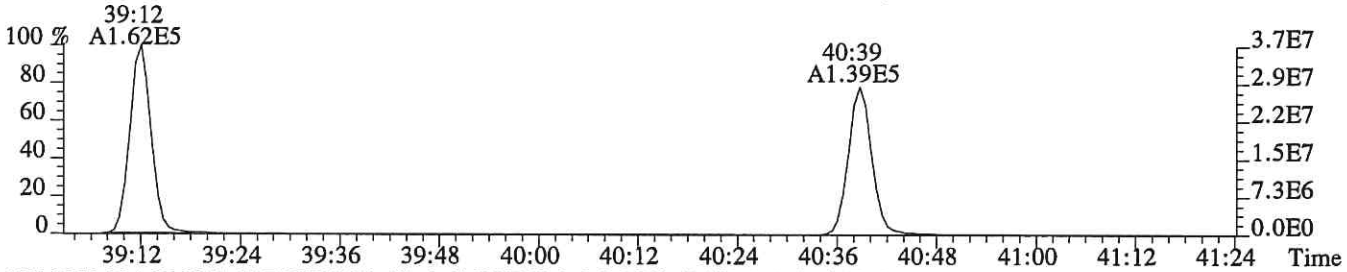
RIGHT SOLUTIONS | RIGHT PARTNER

File:P619252 #1-213 Acq: 4-OCT-2019 05:34:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4

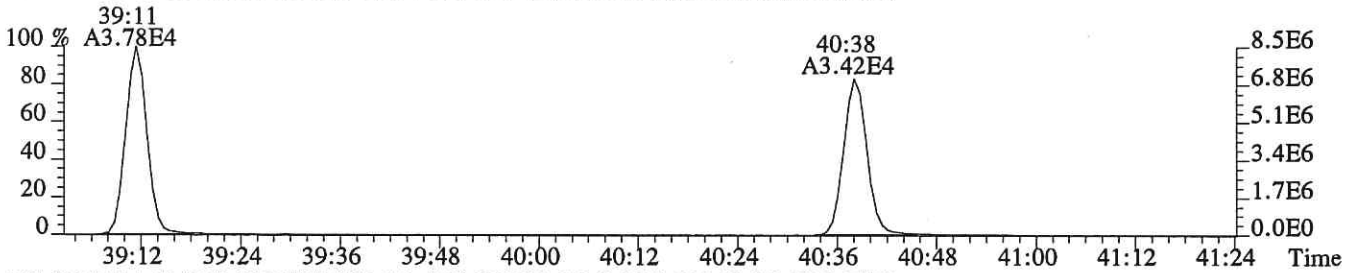
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,64164.0,0.50%,F,T)



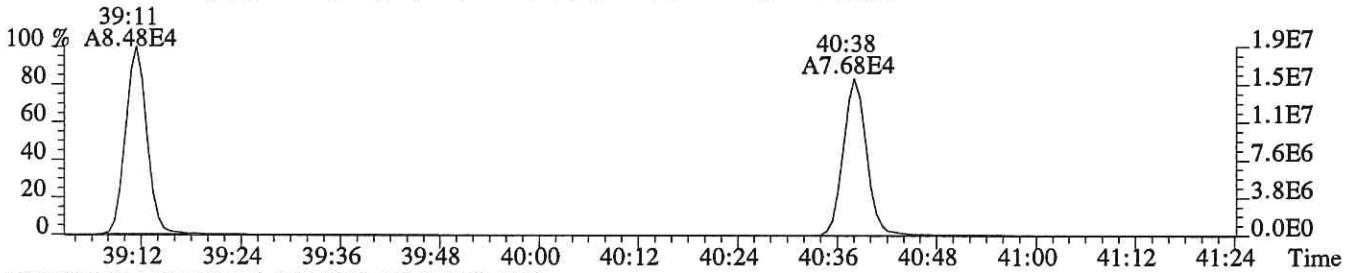
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,93736.0,0.50%,F,T)



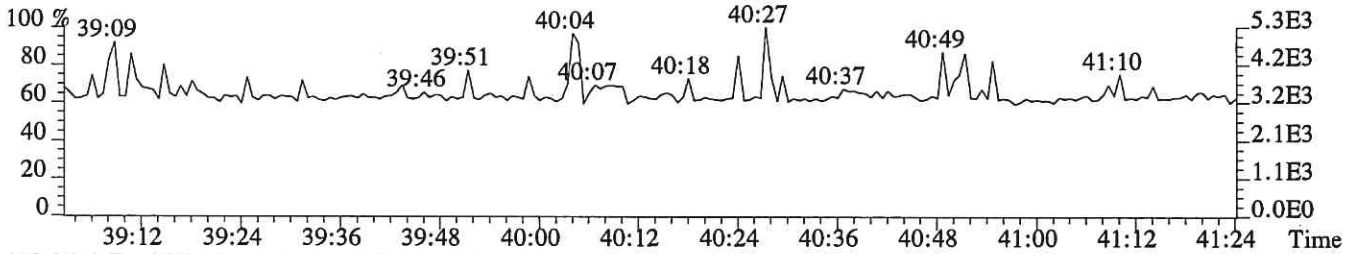
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11072.0,0.50%,F,T)



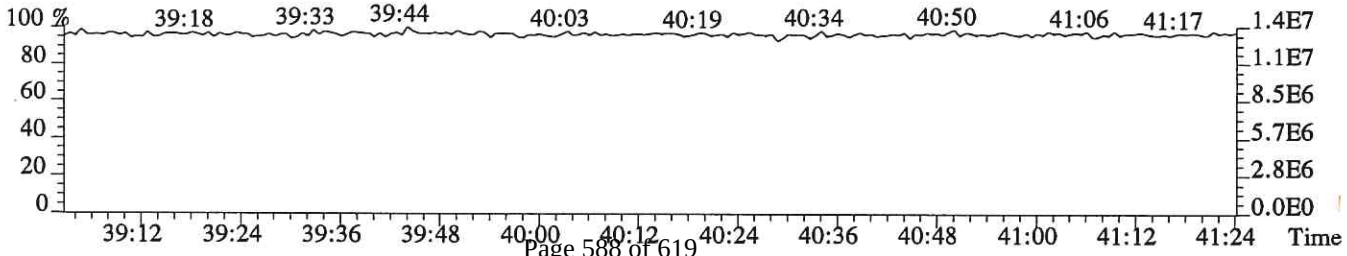
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,22340.0,0.50%,F,T)



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

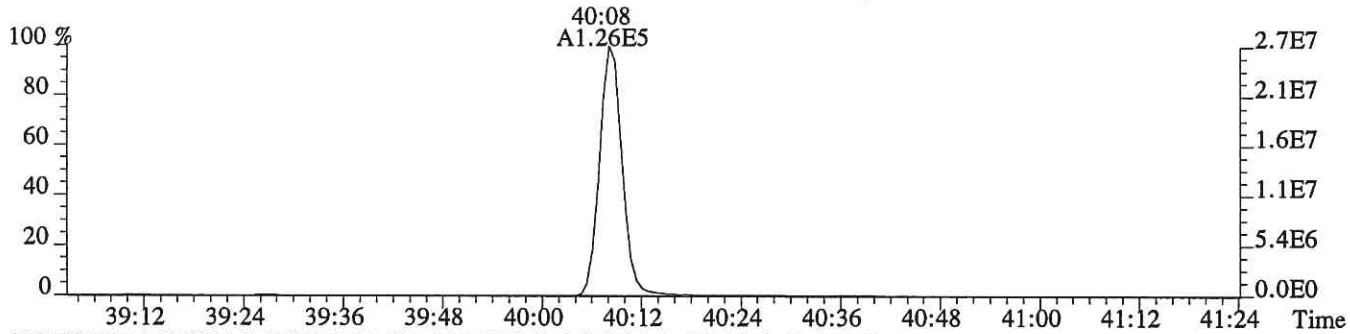


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

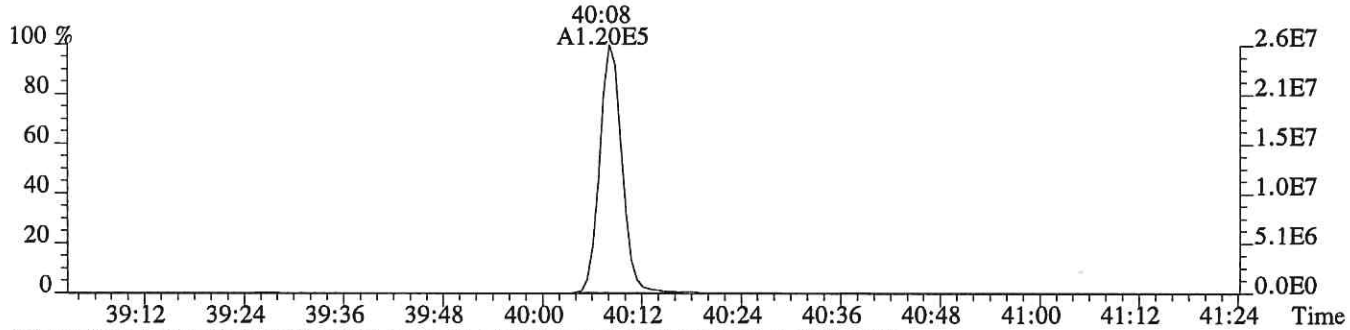


RIGHT SOLUTIONS | RIGHT PARTNER

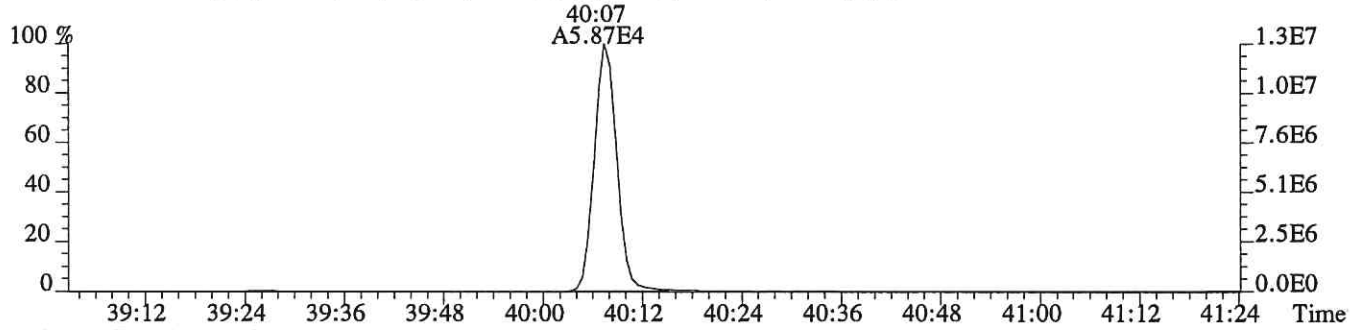
File:P619252 #1-213 Acq: 4-OCT-2019 05:34:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,708.0,0.40%,F,T)



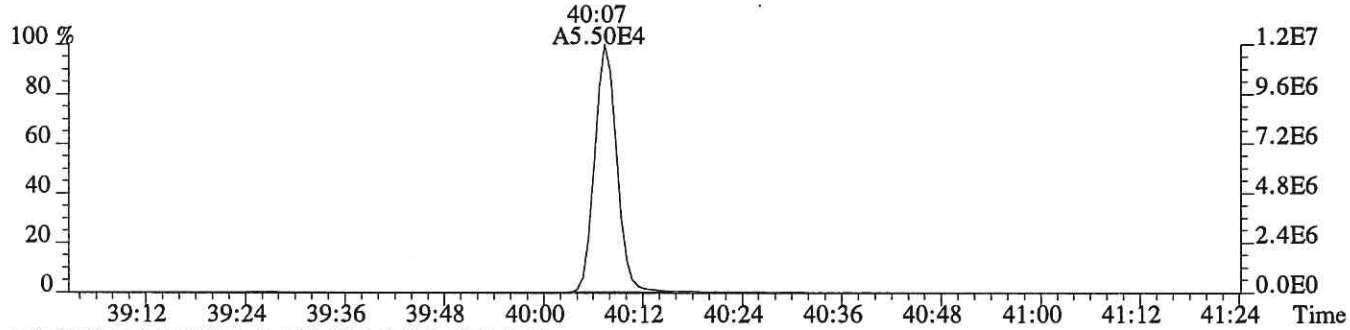
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1076.0,0.40%,F,T)



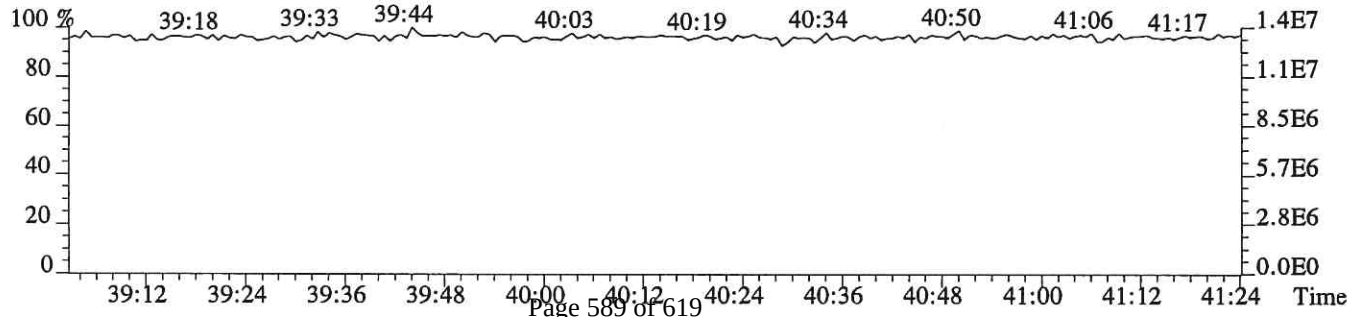
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,13720.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,360.0,0.40%,F,T)



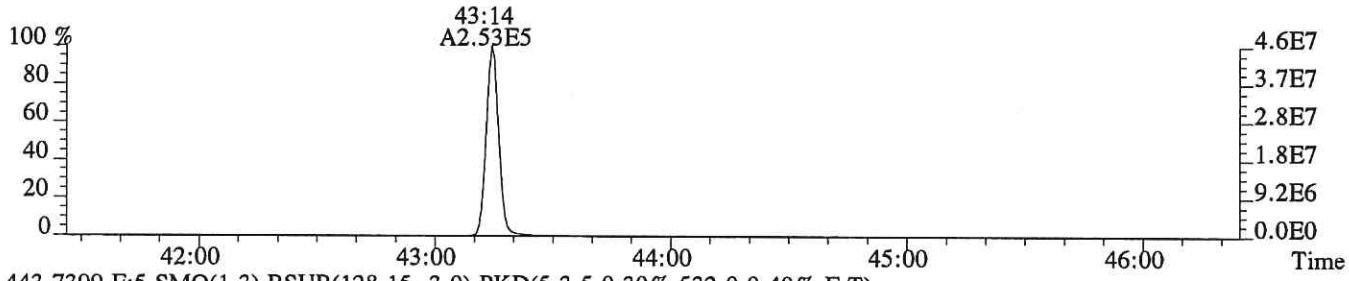
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



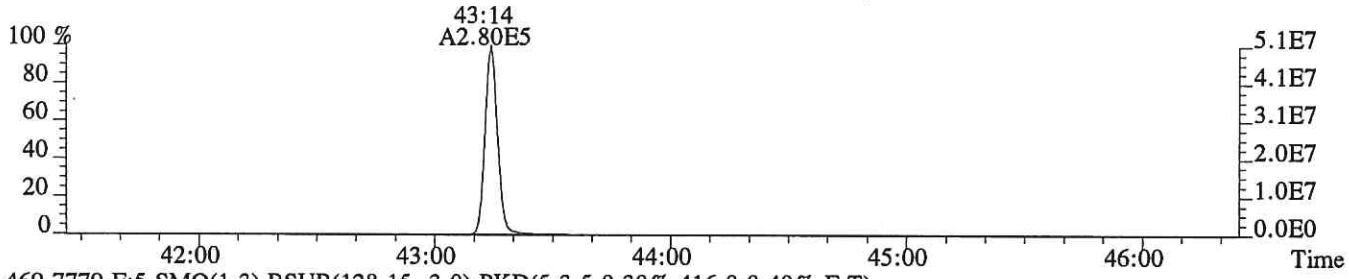
RIGHT SOLUTIONS | RIGHT PARTNER

File:P619252 #1-448 Acq: 4-OCT-2019 05:34:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4

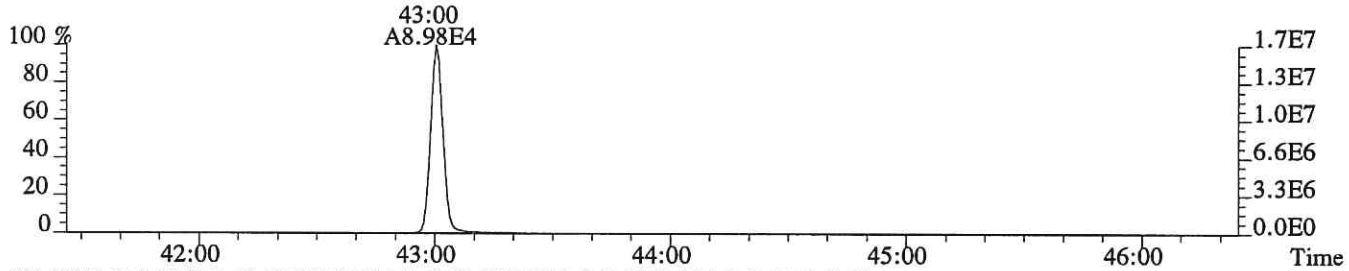
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,188.0,0.40%,F,T)



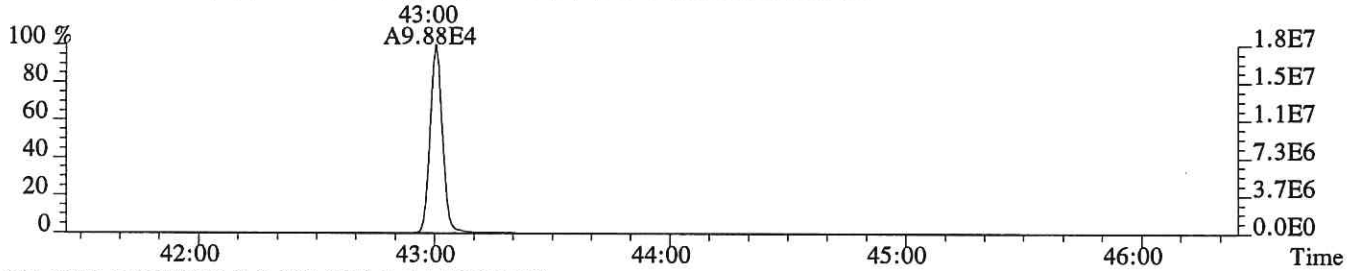
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,532.0,0.40%,F,T)



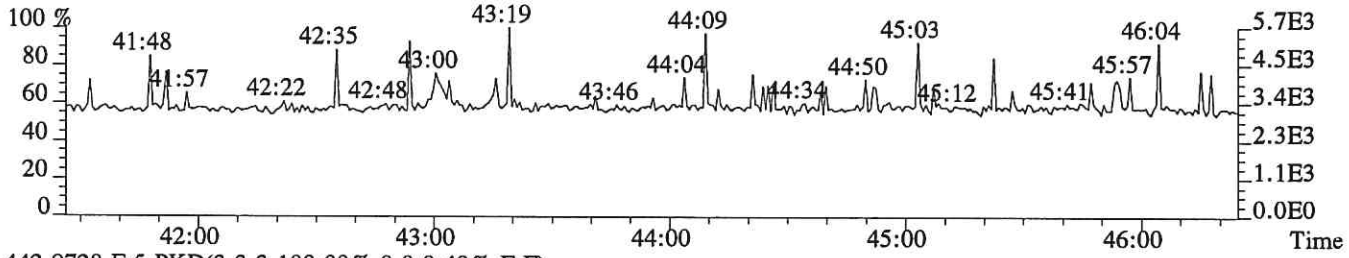
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,416.0,0.40%,F,T)



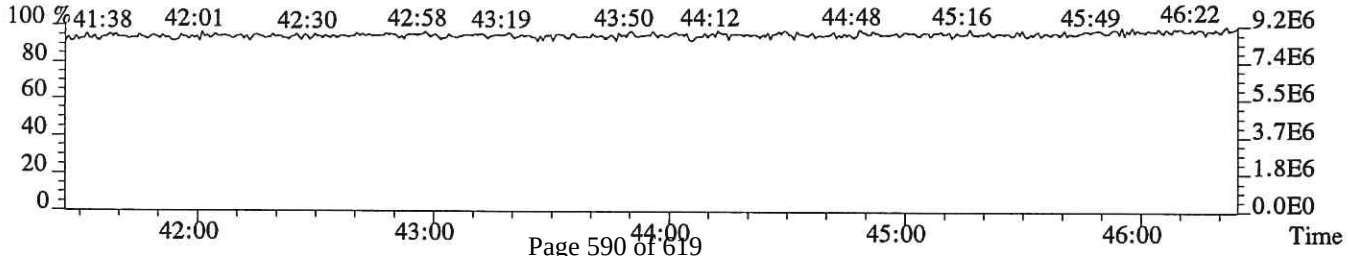
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,228.0,0.40%,F,T)



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



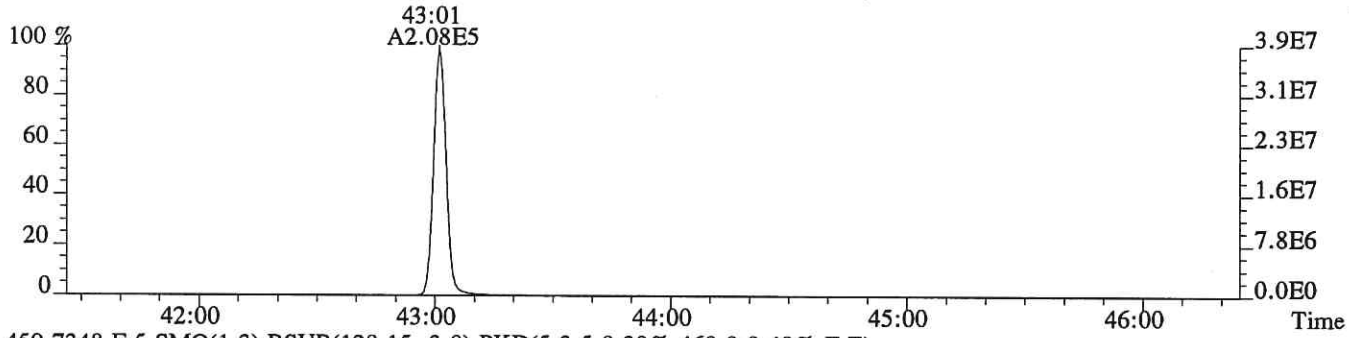
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



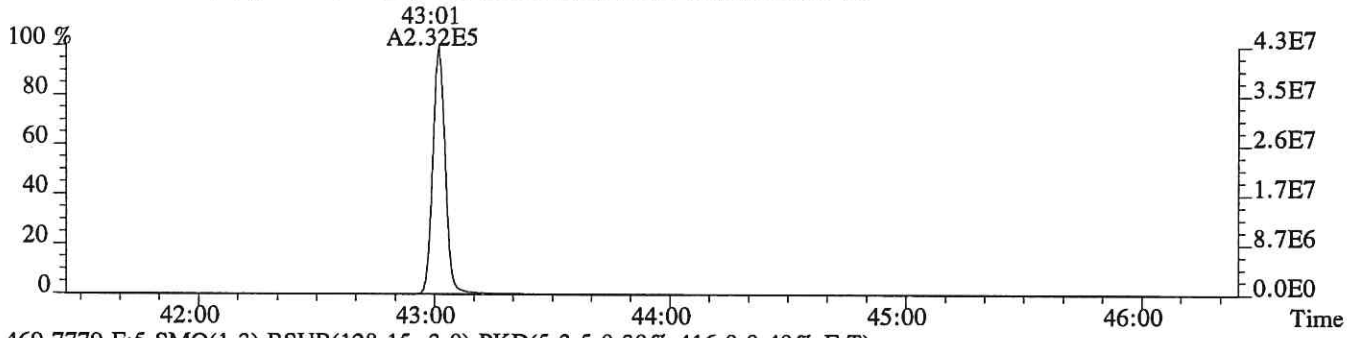
RIGHT SOLUTIONS | RIGHT PARTNER

File:P619252 #1-448 Acq: 4-OCT-2019 05:34:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4

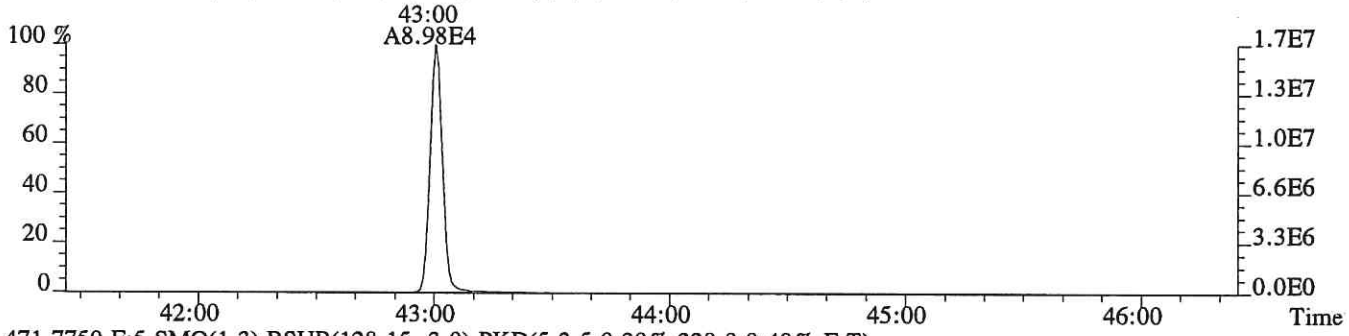
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,264.0,0.40%,F,T)



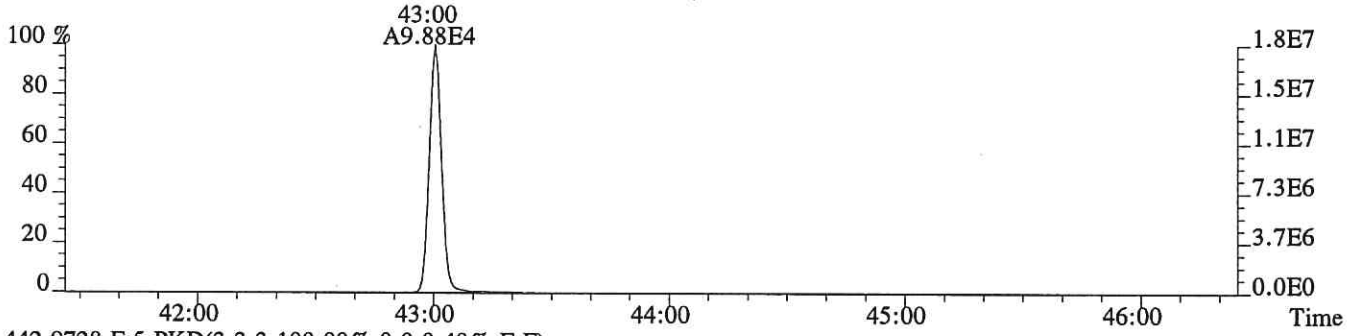
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,460.0,0.40%,F,T)



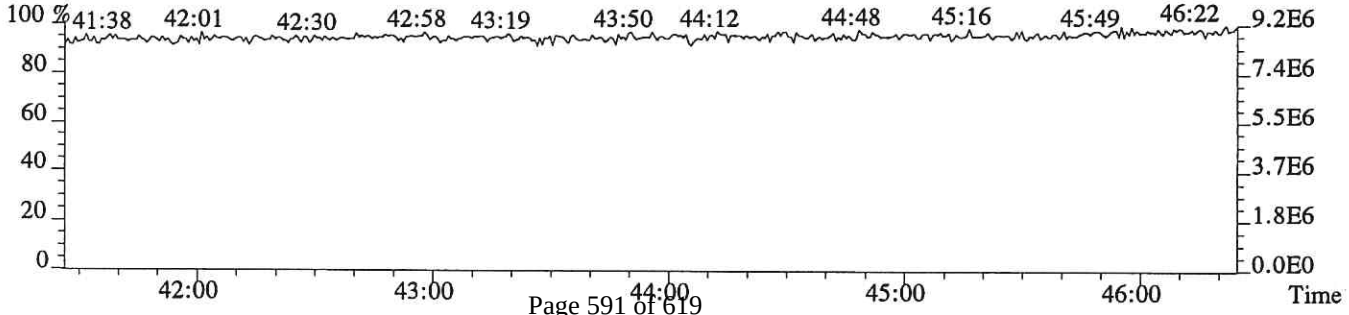
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,416.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,228.0,0.40%,F,T)



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



RIGHT SOLUTIONS | RIGHT PARTNER

ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
185657

Run #6 Filename p619253 #1 Samp: 1 Inj: 1 Acquired: 4-OCT-19 06:23:55
Processed: 4-OCT-19 09:02:01 LAB. ID: CS5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	29:20	1.264e+05	1.617e+05	0.78	yes	no	1.017
2	Unk	1,2,3,7,8-PeCDF	33:15	1.148e+06	7.412e+05	1.55	yes	no	1.021
3	Unk	2,3,4,7,8-PeCDF	34:06	1.083e+06	7.044e+05	1.54	yes	no	0.983
4	Unk	1,2,3,4,7,8-HxCDF	36:40	1.102e+06	8.927e+05	1.23	yes	no	1.229
5	Unk	1,2,3,6,7,8-HxCDF	36:46	1.127e+06	9.082e+05	1.24	yes	no	1.109
6	Unk	2,3,4,6,7,8-HxCDF	37:15	1.059e+06	8.710e+05	1.22	yes	no	1.125
7	Unk	1,2,3,7,8,9-HxCDF	37:59	1.025e+06	8.226e+05	1.25	yes	no	1.143
8	Unk	1,2,3,4,6,7,8-HpCDF	39:13	1.016e+06	9.919e+05	1.02	yes	no	1.323
9	Unk	1,2,3,4,7,8,9-HpCDF	40:39	8.555e+05	8.310e+05	1.03	yes	no	1.253
10	Unk	OCDF	43:16	1.549e+06	1.722e+06	0.90	yes	no	1.373
11	Unk	2,3,7,8-TCDD	30:02	9.573e+04	1.215e+05	0.79	yes	no	1.012
12	Unk	1,2,3,7,8-PeCDD	34:22	7.639e+05	4.835e+05	1.58	yes	no	0.993
13	Unk	1,2,3,4,7,8-HxCDD	37:22	7.931e+05	6.272e+05	1.26	yes	no	1.082
14	Unk	1,2,3,6,7,8-HxCDD	37:27	7.875e+05	6.260e+05	1.26	yes	no	1.083
15	Unk	1,2,3,7,8,9-HxCDD	37:41	8.399e+05	6.663e+05	1.26	yes	no	1.174
16	Unk	1,2,3,4,6,7,8-HpCDD	40:09	7.592e+05	7.274e+05	1.04	yes	no	1.053
17	Unk	OCDD	43:02	1.285e+06	1.435e+06	0.90	yes	no	1.160
18	IS	13C-2,3,7,8-TCDF	29:19	6.260e+04	7.796e+04	0.80	yes	no	1.341
19	IS	13C-1,2,3,7,8-PeCDF	33:14	1.093e+05	6.892e+04	1.59	yes	no	1.627
20	IS	13C-2,3,4,7,8-PeCDF	34:05	1.107e+05	6.911e+04	1.60	yes	no	1.651
21	IS	13C-1,2,3,4,7,8-HxCDF	36:39	5.539e+04	1.060e+05	0.52	yes	no	1.137
22	IS	13C-1,2,3,6,7,8-HxCDF	36:45	6.242e+04	1.182e+05	0.53	yes	no	1.307
23	IS	13C-2,3,4,6,7,8-HxCDF	37:14	5.806e+04	1.098e+05	0.53	yes	no	1.222
24	IS	13C-1,2,3,7,8,9-HxCDF	37:58	5.518e+04	1.048e+05	0.53	yes	no	1.137
25	IS	13C-1,2,3,4,6,7,8-HpCDF	39:12	4.547e+04	1.022e+05	0.44	yes	no	1.069
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:39	4.126e+04	9.171e+04	0.45	yes	no	0.961
27	IS	13C-2,3,7,8-TCDD	30:01	4.610e+04	5.842e+04	0.79	yes	no	0.970
28	IS	13C-1,2,3,7,8-PeCDD	34:21	7.694e+04	4.919e+04	1.56	yes	no	1.142
29	IS	13C-1,2,3,4,7,8-HxCDD	37:21	7.143e+04	5.588e+04	1.28	yes	no	0.914
30	IS	13C-1,2,3,6,7,8-HxCDD	37:26	7.172e+04	5.632e+04	1.27	yes	no	0.899
31	IS	13C-1,2,3,4,6,7,8-HpCDD	40:08	7.155e+04	6.679e+04	1.07	yes	no	0.997
32	IS	13C-OCDD	43:01	1.104e+05	1.215e+05	0.91	yes	no	0.817
33	RS/RT	13C-1,2,3,4-TCDD	29:29	4.566e+04	5.800e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:40	8.018e+04	6.282e+04	1.28	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	30:02	2.220e+05				no	1.005

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Signal/Noise Height Ratio Summary

CLIENT ID.
185657

Run #6 Filename p619253 Samp: 1 Inj: 1 Acquired: 4-OCT-19 06:23:55
Processed: 4-OCT-19 09:02:011 LAB. ID: CS5

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.59e+07	2.72e+02	9.5e+04	3.29e+07	3.60e+02	9.2e+04
2	1,2,3,7,8-PeCDF	2.36e+08	5.93e+04	4.0e+03	1.52e+08	2.43e+04	6.2e+03
3	2,3,4,7,8-PeCDF	2.32e+08	5.93e+04	3.9e+03	1.52e+08	2.43e+04	6.2e+03
4	1,2,3,4,7,8-HxCDF	2.54e+08	1.64e+03	1.6e+05	2.07e+08	1.73e+03	1.2e+05
5	1,2,3,6,7,8-HxCDF	2.52e+08	1.64e+03	1.5e+05	2.06e+08	1.73e+03	1.2e+05
6	2,3,4,6,7,8-HxCDF	2.47e+08	1.64e+03	1.5e+05	2.00e+08	1.73e+03	1.2e+05
7	1,2,3,7,8,9-HxCDF	2.36e+08	1.64e+03	1.4e+05	1.89e+08	1.73e+03	1.1e+05
8	1,2,3,4,6,7,8-HpCDF	2.27e+08	2.23e+04	1.0e+04	2.19e+08	2.66e+04	8.2e+03
9	1,2,3,4,7,8,9-HpCDF	1.79e+08	2.23e+04	8.0e+03	1.73e+08	2.66e+04	6.5e+03
10	OCDF	2.83e+08	2.48e+02	1.1e+06	3.18e+08	4.32e+02	7.4e+05
11	2,3,7,8-TCDD	2.00e+07	6.72e+02	3.0e+04	2.56e+07	4.28e+02	6.0e+04
12	1,2,3,7,8-PeCDD	1.65e+08	8.12e+02	2.0e+05	1.04e+08	4.24e+02	2.4e+05
13	1,2,3,4,7,8-HxCDD	1.83e+08	8.52e+02	2.2e+05	1.46e+08	3.68e+02	4.0e+05
14	1,2,3,6,7,8-HxCDD	1.84e+08	8.52e+02	2.2e+05	1.47e+08	3.68e+02	4.0e+05
15	1,2,3,7,8,9-HxCDD	1.96e+08	8.52e+02	2.3e+05	1.56e+08	3.68e+02	4.2e+05
16	1,2,3,4,6,7,8-HpCDD	1.66e+08	2.40e+03	6.9e+04	1.59e+08	3.52e+03	4.5e+04
17	OCDD	2.33e+08	3.64e+02	6.4e+05	2.62e+08	2.36e+02	1.1e+06
18	13C-2,3,7,8-TCDF	1.25e+07	4.38e+03	2.9e+03	1.56e+07	1.72e+03	9.1e+03
19	13C-1,2,3,7,8-PeCDF	2.18e+07	6.92e+03	3.2e+03	1.37e+07	5.42e+03	2.5e+03
20	13C-2,3,4,7,8-PeCDF	2.41e+07	6.92e+03	3.5e+03	1.51e+07	5.42e+03	2.8e+03
21	13C-1,2,3,4,7,8-HxCDF	1.26e+07	1.96e+02	6.4e+04	2.40e+07	8.08e+02	3.0e+04
22	13C-1,2,3,6,7,8-HxCDF	1.38e+07	1.96e+02	7.0e+04	2.65e+07	8.08e+02	3.3e+04
23	13C-2,3,4,6,7,8-HxCDF	1.34e+07	1.96e+02	6.8e+04	2.52e+07	8.08e+02	3.1e+04
24	13C-1,2,3,7,8,9-HxCDF	1.26e+07	1.96e+02	6.5e+04	2.40e+07	8.08e+02	3.0e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.02e+07	1.19e+04	8.6e+02	2.26e+07	2.63e+04	8.6e+02
26	13C-1,2,3,4,7,8,9-HpCDF	8.62e+06	1.19e+04	7.2e+02	1.89e+07	2.63e+04	7.2e+02
27	13C-2,3,7,8-TCDD	9.78e+06	4.36e+03	2.2e+03	1.24e+07	7.64e+02	1.6e+04
28	13C-1,2,3,7,8-PeCDD	1.60e+07	3.72e+02	4.3e+04	1.03e+07	4.20e+02	2.5e+04
29	13C-1,2,3,4,7,8-HxCDD	1.64e+07	8.08e+02	2.0e+04	1.29e+07	1.36e+02	9.5e+04
30	13C-1,2,3,6,7,8-HxCDD	1.66e+07	8.08e+02	2.1e+04	1.31e+07	1.36e+02	9.7e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.56e+07	7.28e+02	2.1e+04	1.45e+07	9.16e+02	1.6e+04
32	13C-OCDD	1.99e+07	4.80e+02	4.1e+04	2.19e+07	3.88e+02	5.6e+04
33	13C-1,2,3,4-TCDD	9.10e+06	4.36e+03	2.1e+03	1.17e+07	7.64e+02	1.5e+04
34	13C-1,2,3,7,8,9-HxCDD	1.85e+07	8.08e+02	2.3e+04	1.45e+07	1.36e+02	1.1e+05
35	37Cl-2,3,7,8-TCDD	4.66e+07	3.60e+02	1.3e+05			

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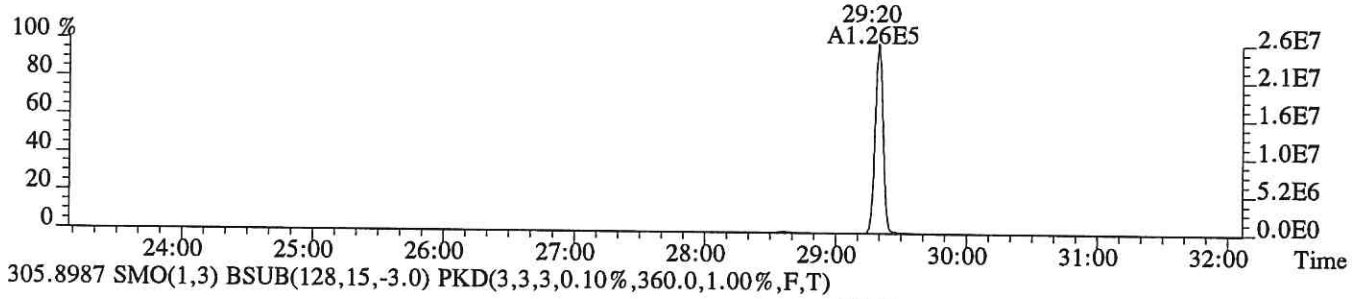
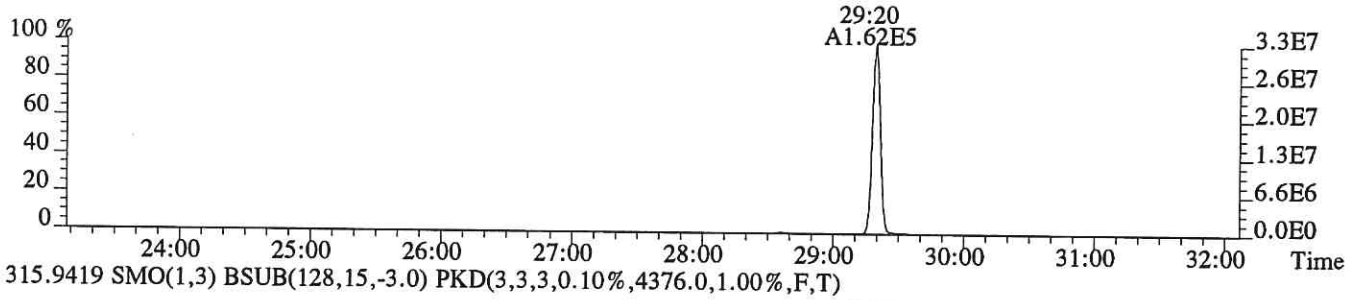
File:P619253 #1-637 Acq: 4-OCT-2019 06:23:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5

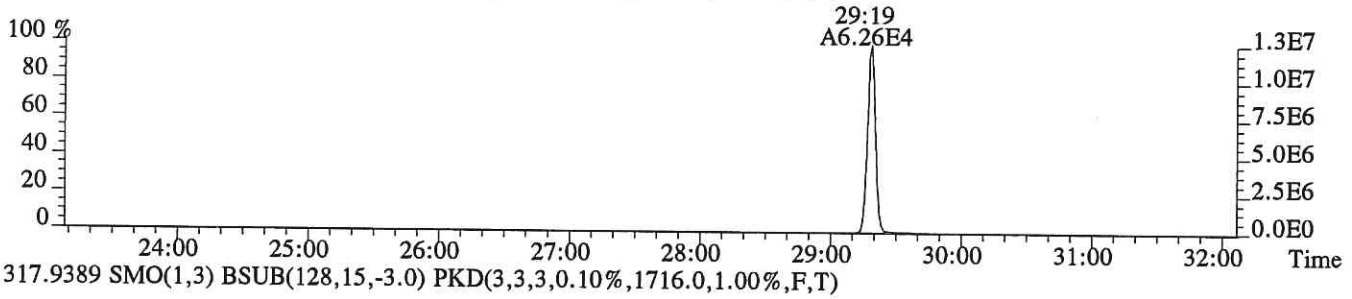
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,272.0,1.00%,F,T)



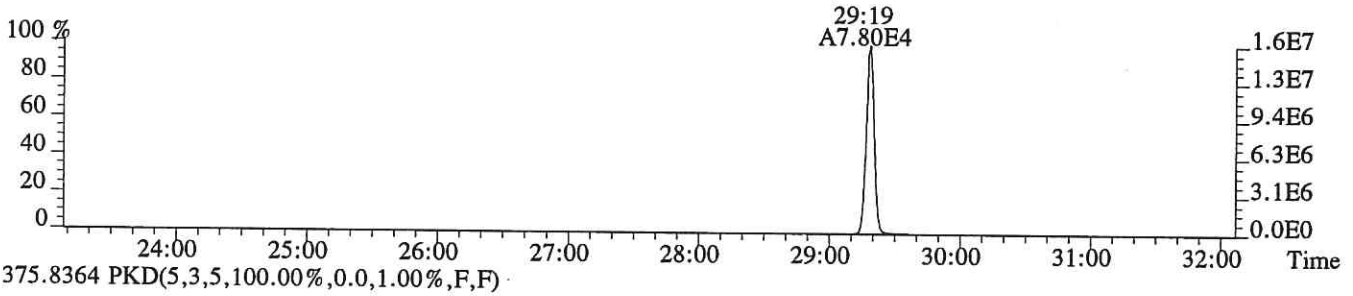
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,360.0,1.00%,F,T)



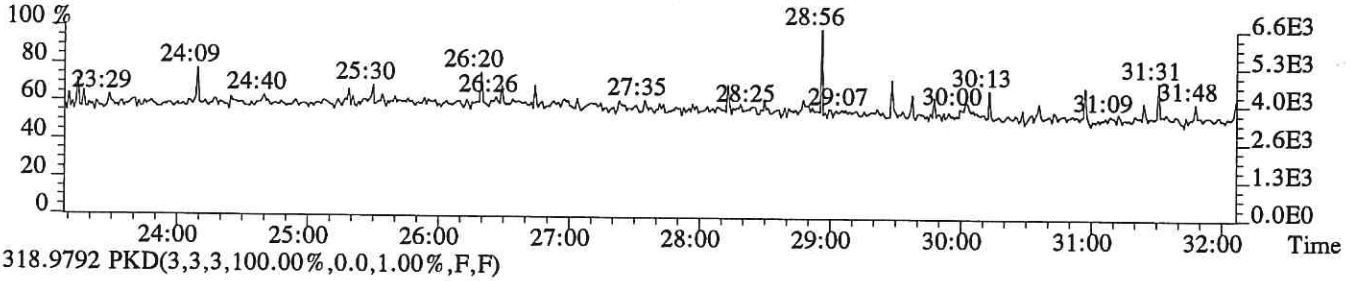
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4376.0,1.00%,F,T)



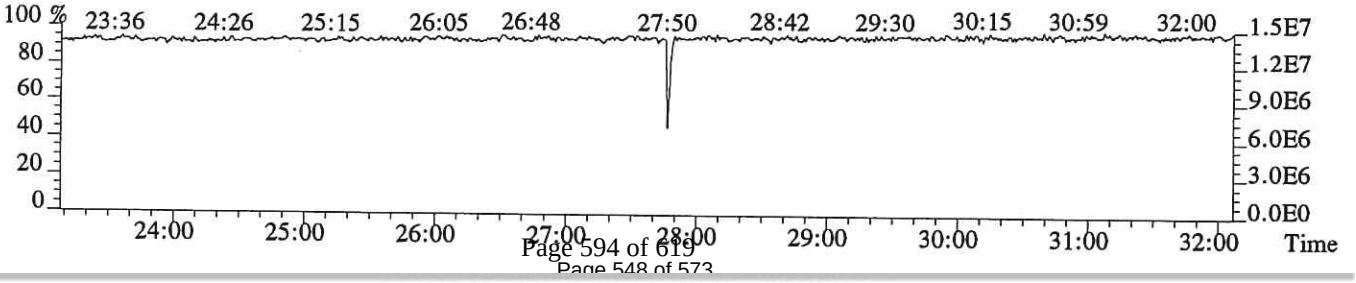
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1716.0,1.00%,F,T)



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



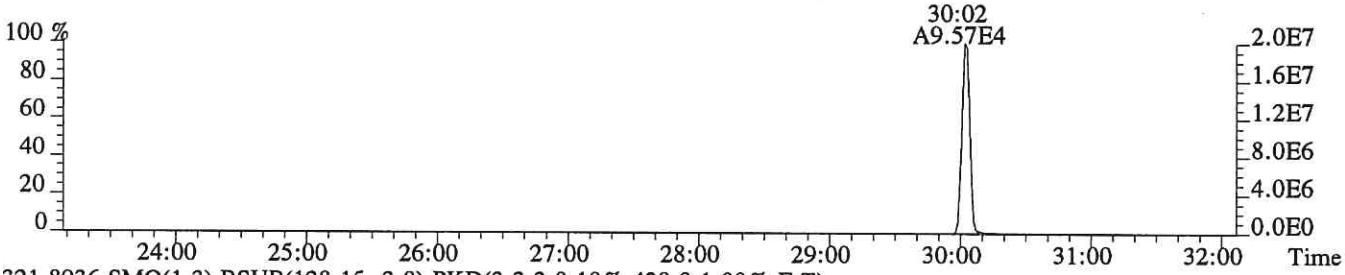
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



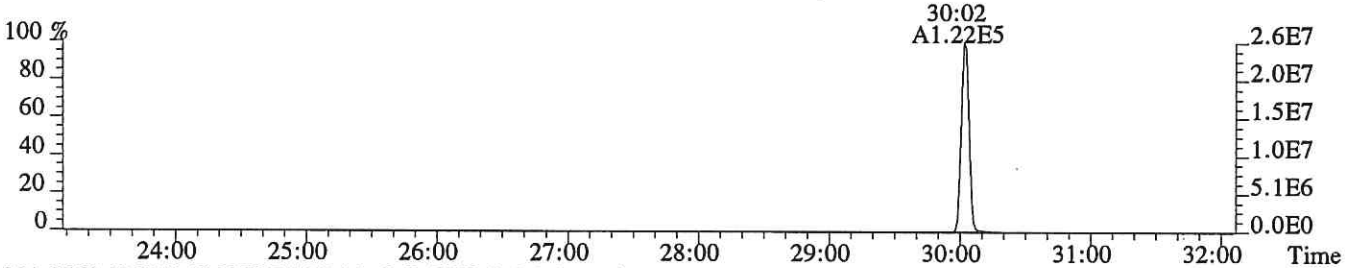
RIGHT SOLUTIONS | RIGHT PARTNER

File:P619253 #1-637 Acq: 4-OCT-2019 06:23:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5

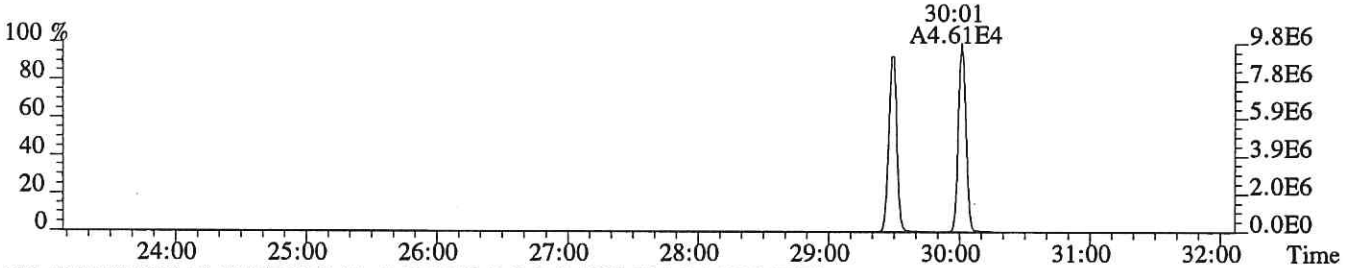
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,672.0,1.00%,F,T)



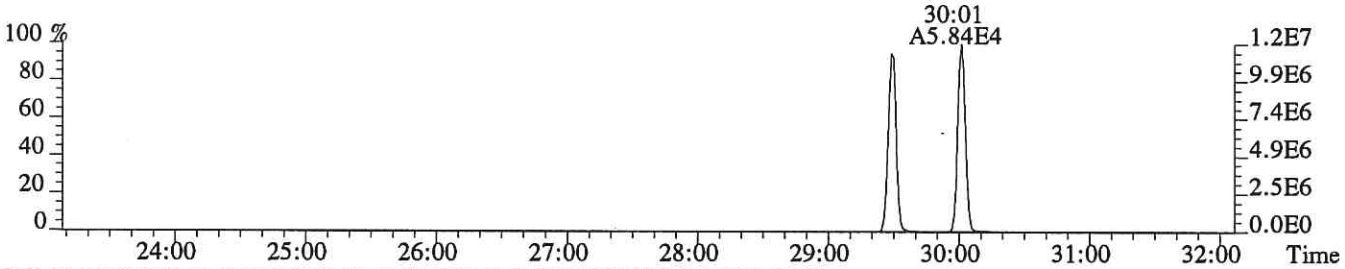
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,428.0,1.00%,F,T)



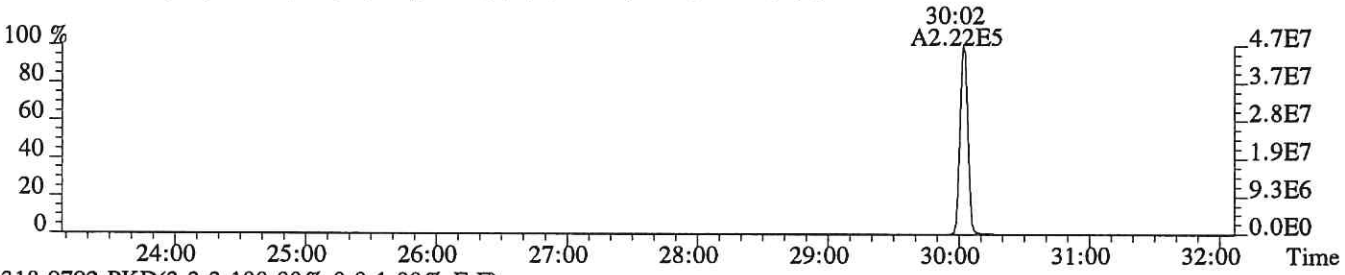
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4360.0,1.00%,F,T)



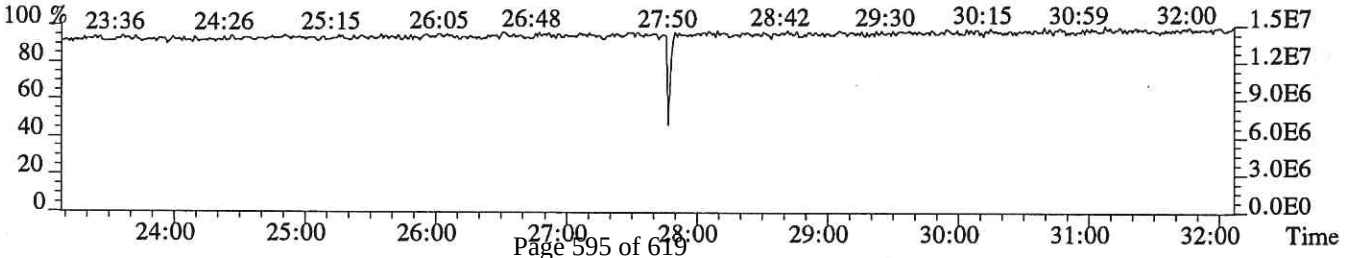
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,764.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,360.0,1.00%,F,T)



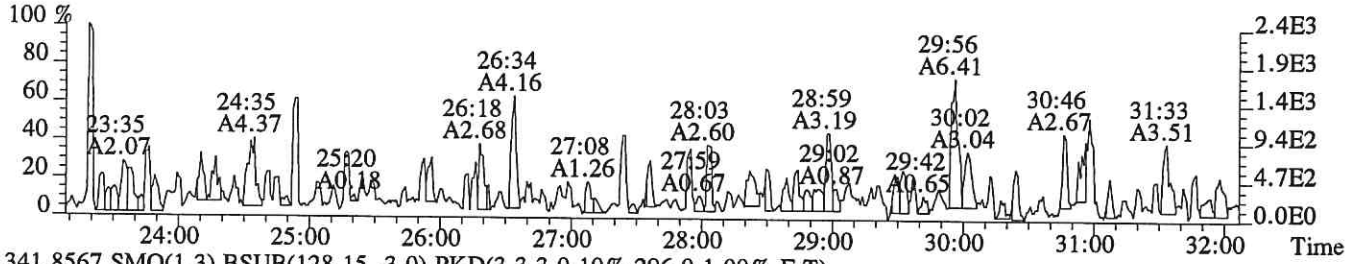
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



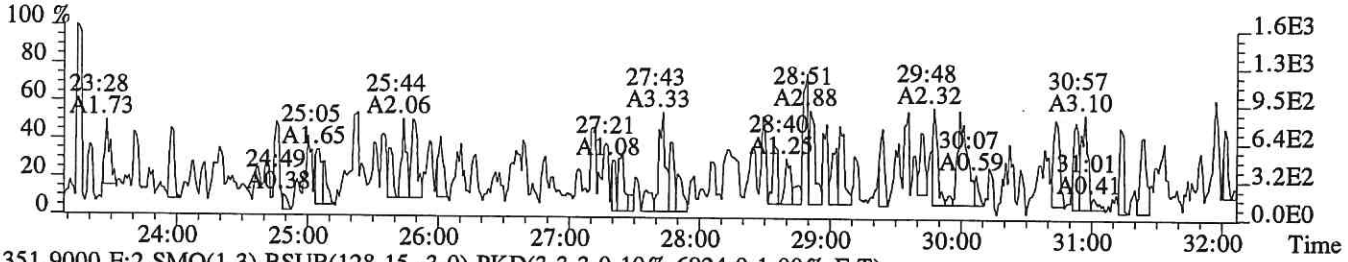
RIGHT SOLUTIONS | RIGHT PARTNER

File:P619253 #1-637 Acq: 4-OCT-2019 06:23:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5

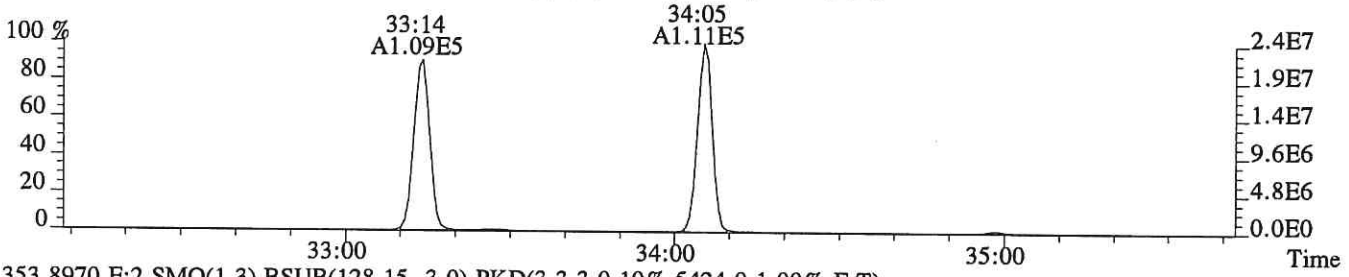
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,248.0,1.00%,F,T)



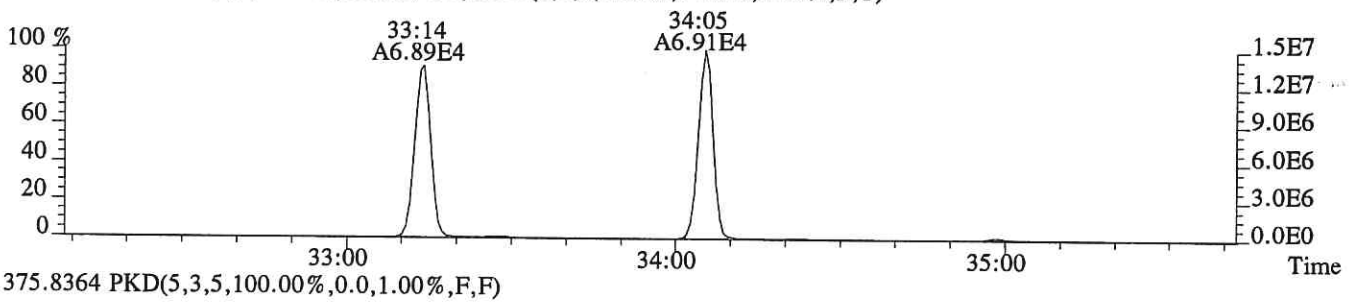
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,296.0,1.00%,F,T)



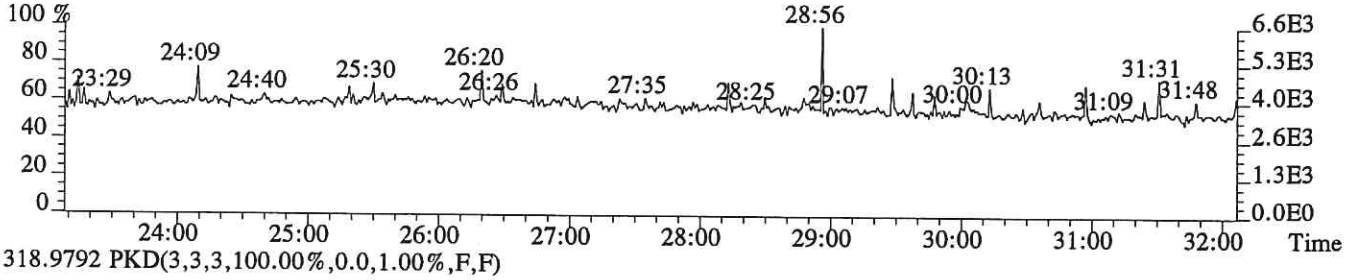
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6924.0,1.00%,F,T)



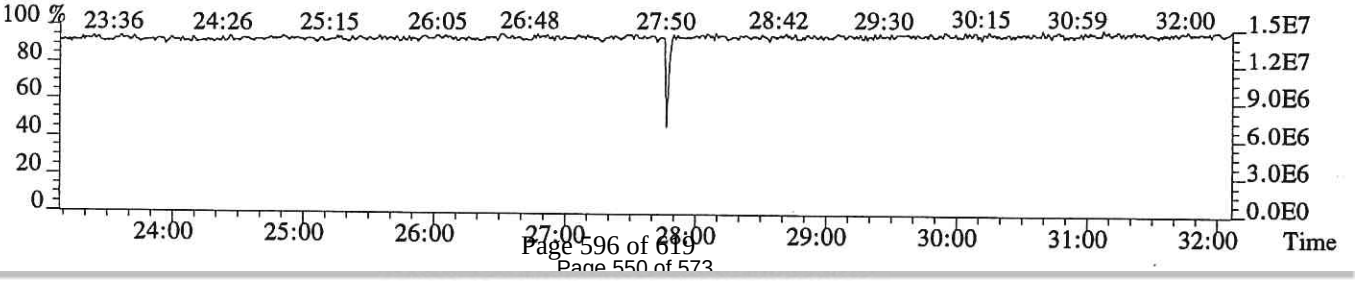
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5424.0,1.00%,F,T)



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



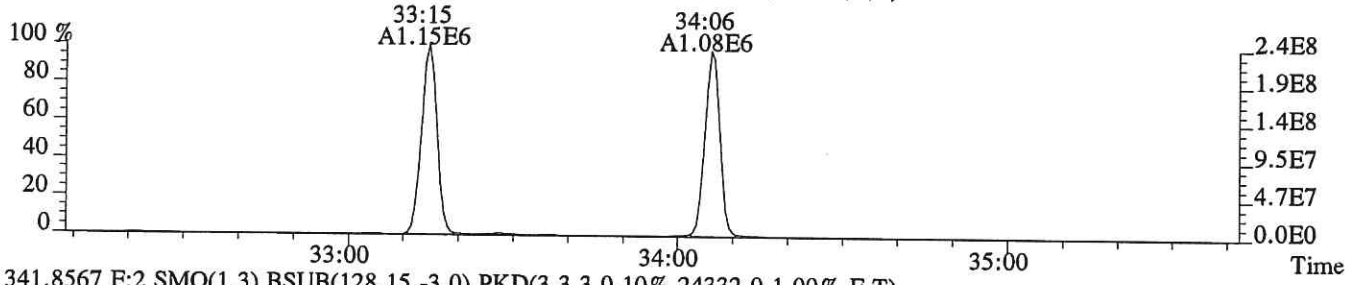
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



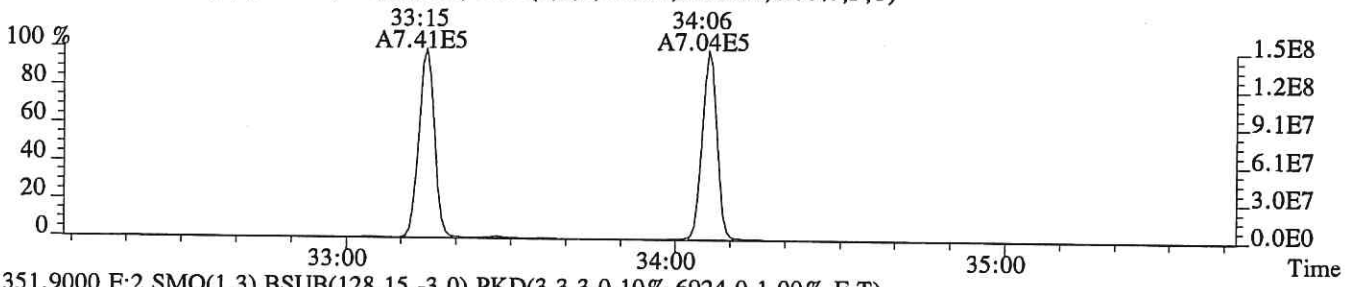
RIGHT SOLUTIONS | RIGHT PARTNER

File:P619253 #1-321 Acq: 4-OCT-2019 06:23:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5

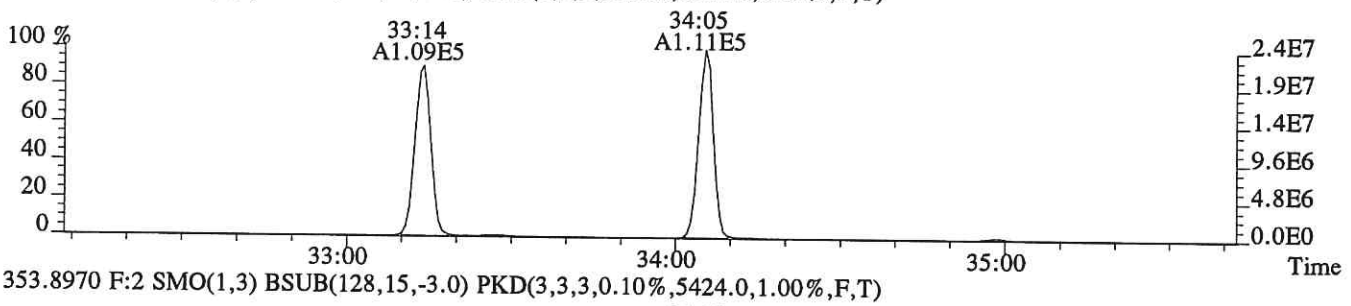
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,59276.0,1.00%,F,T)



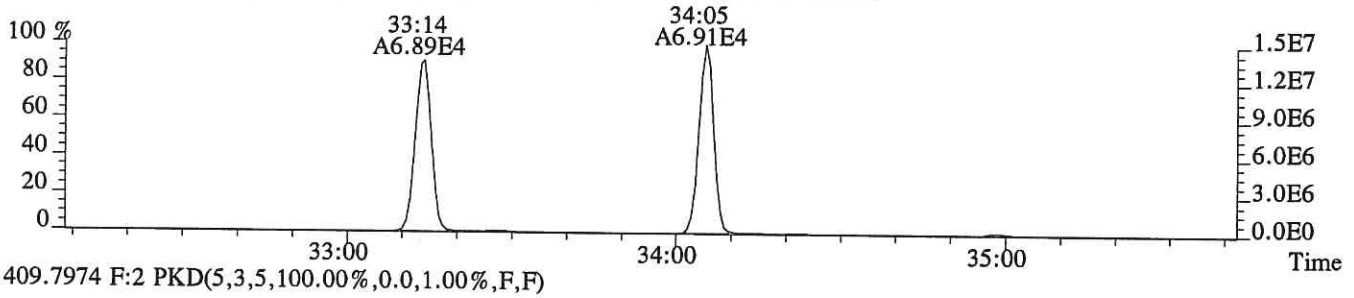
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,24332.0,1.00%,F,T)



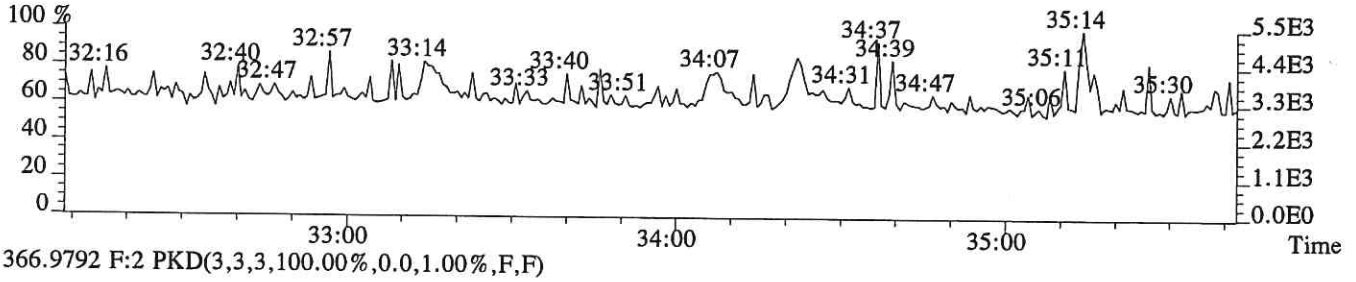
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6924.0,1.00%,F,T)



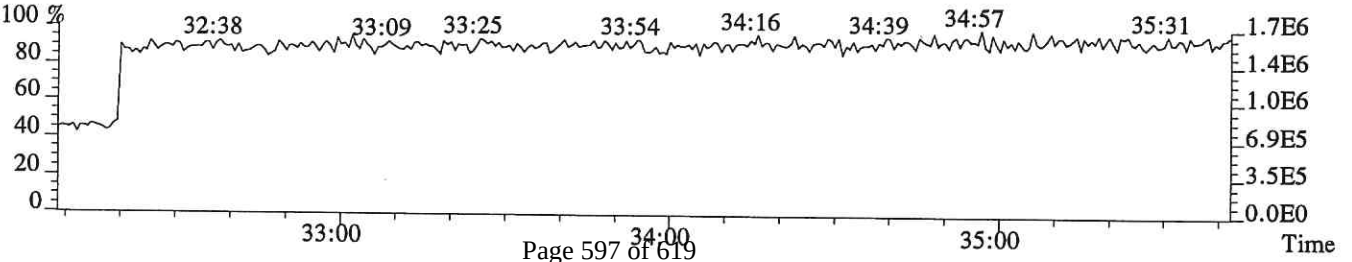
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5424.0,1.00%,F,T)



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



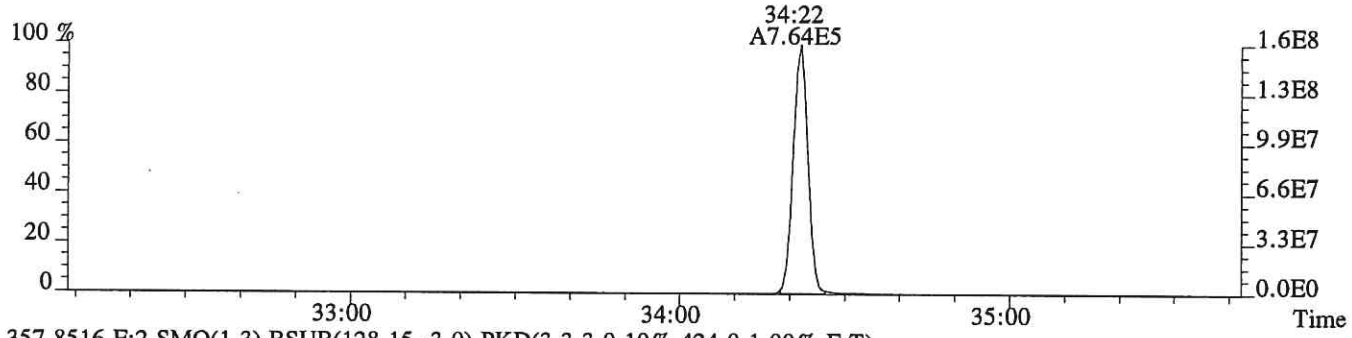
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



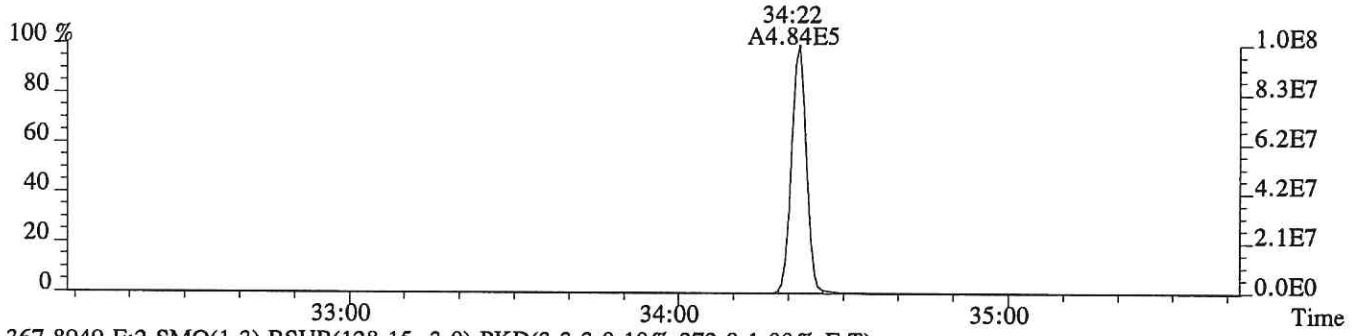
RIGHT SOLUTIONS | RIGHT PARTNER

File:P619253 #1-321 Acq: 4-OCT-2019 06:23:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5

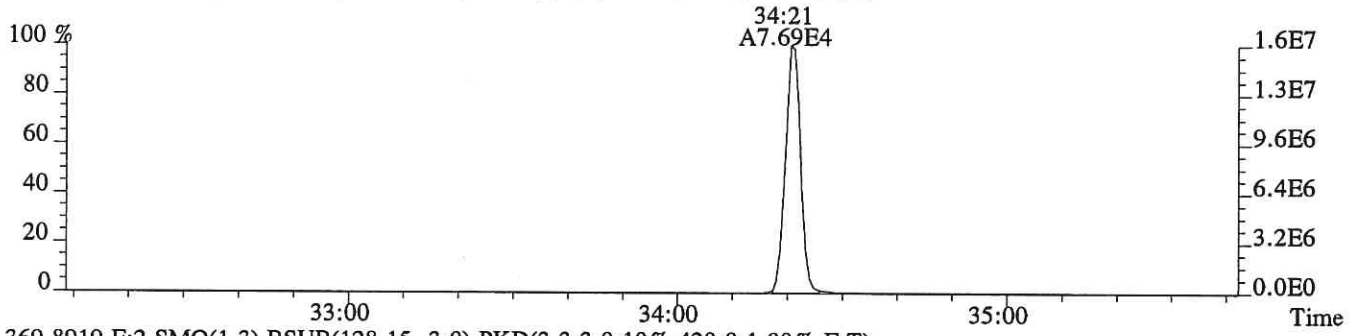
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,812.0,1.00%,F,T)



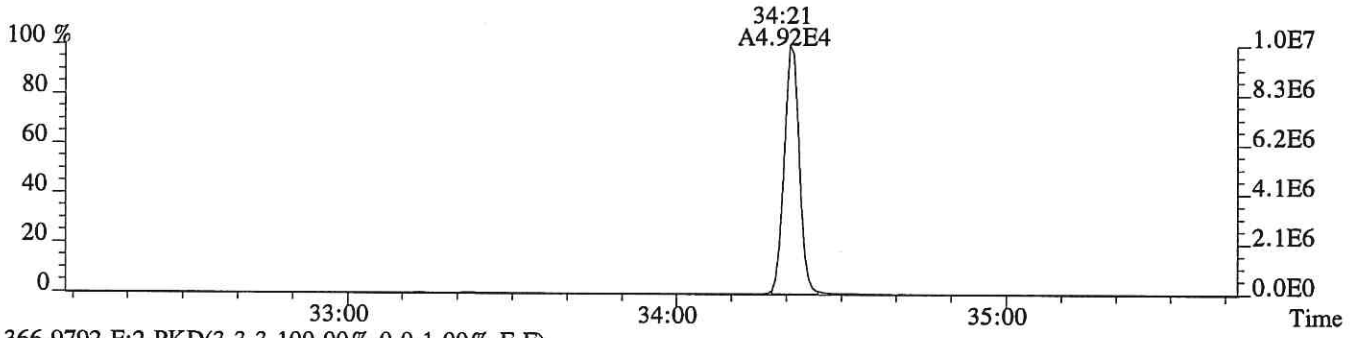
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,424.0,1.00%,F,T)



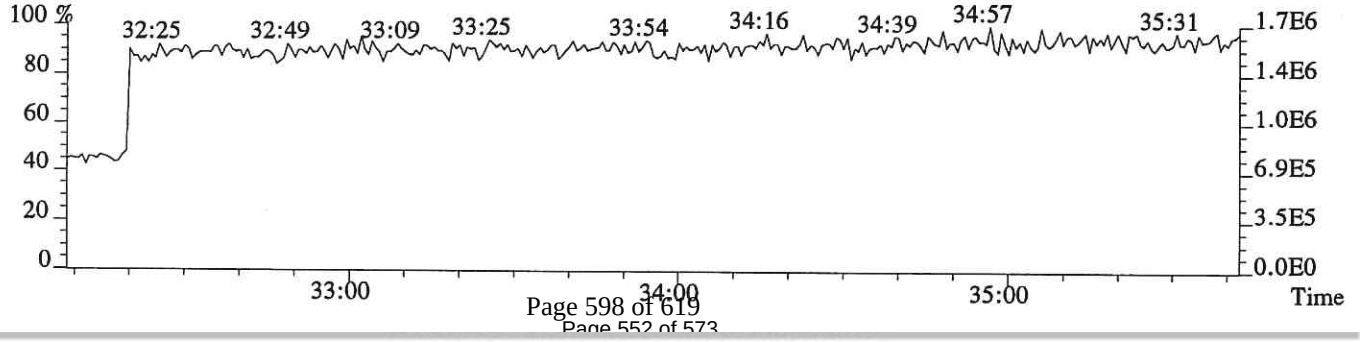
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,372.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,420.0,1.00%,F,T)



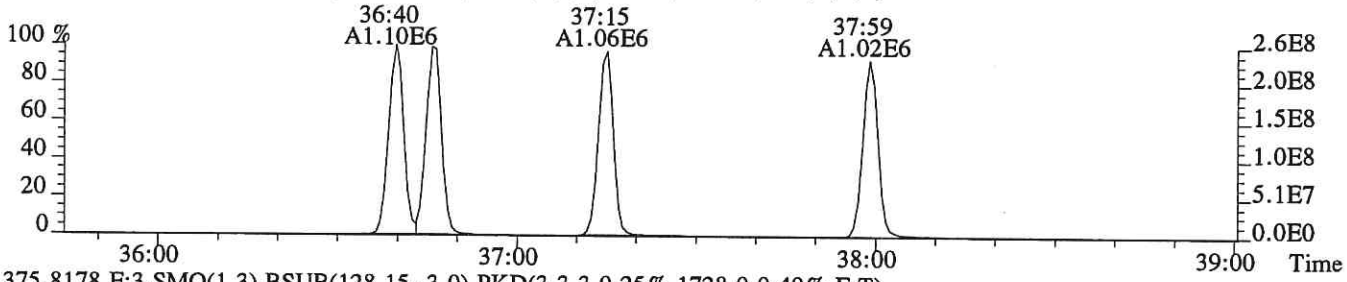
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



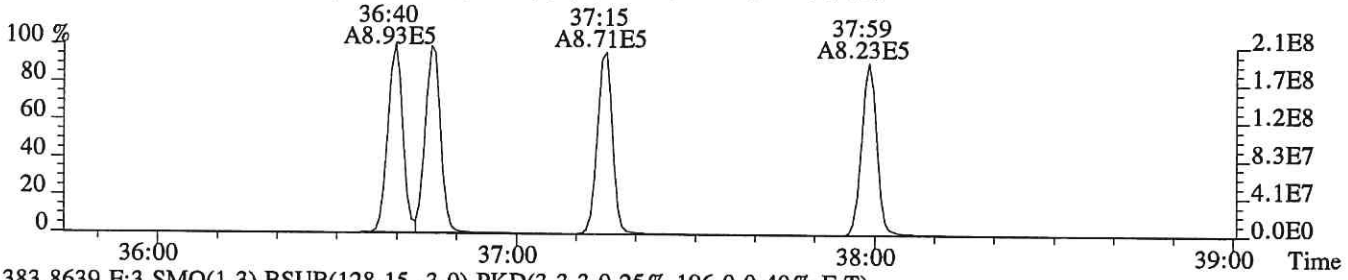
RIGHT SOLUTIONS | RIGHT PARTNER

File:P619253 #1-295 Acq: 4-OCT-2019 06:23:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5

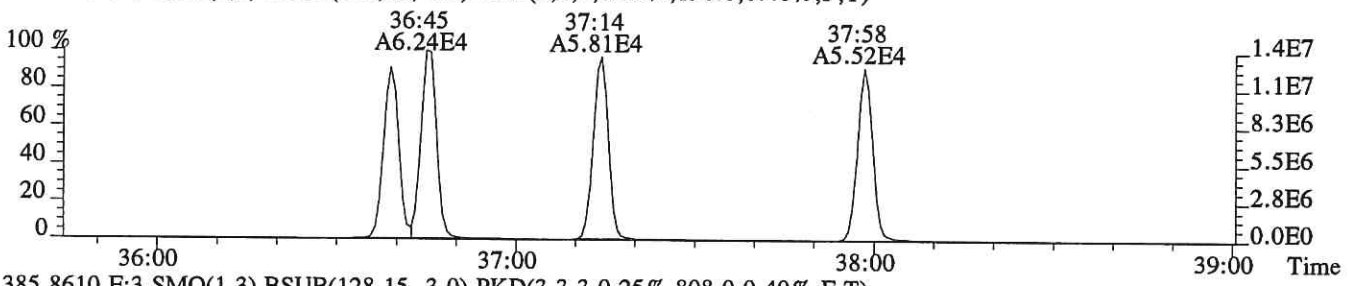
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1640.0,0.40%,F,T)



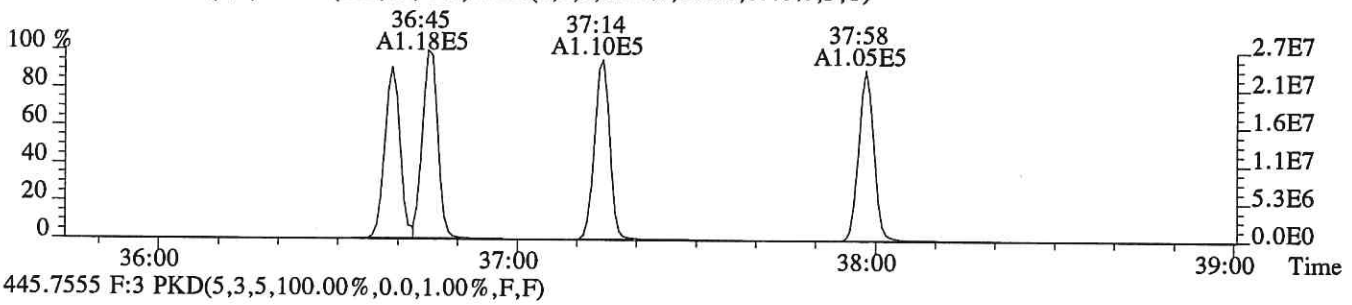
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1728.0,0.40%,F,T)



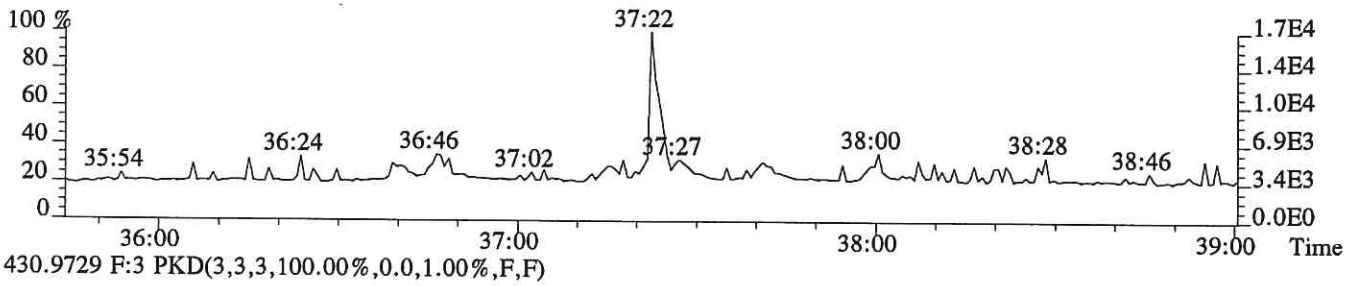
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,196.0,0.40%,F,T)



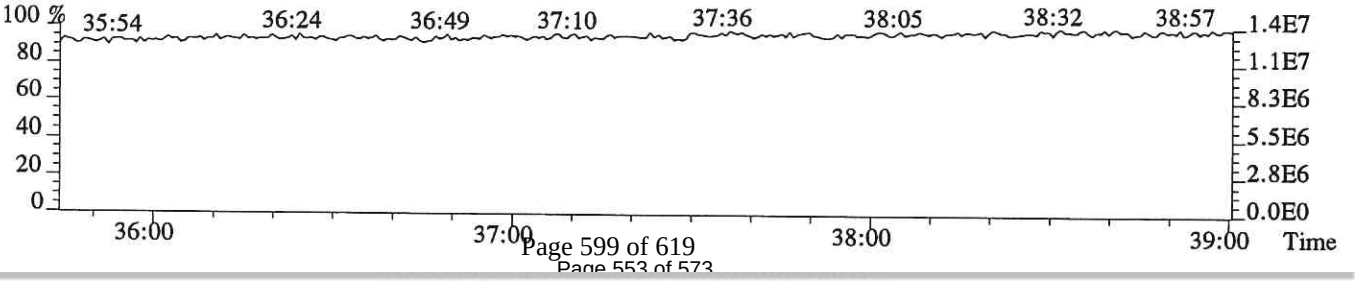
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,808.0,0.40%,F,T)



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

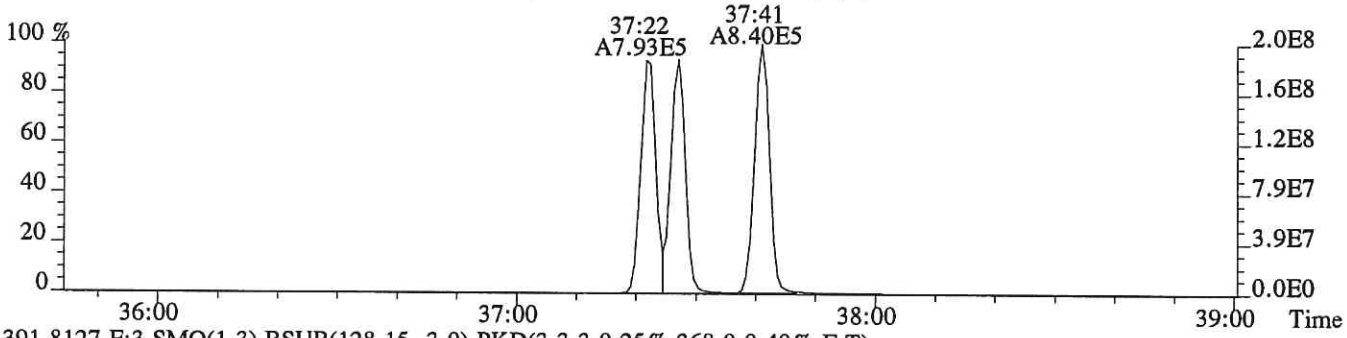


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

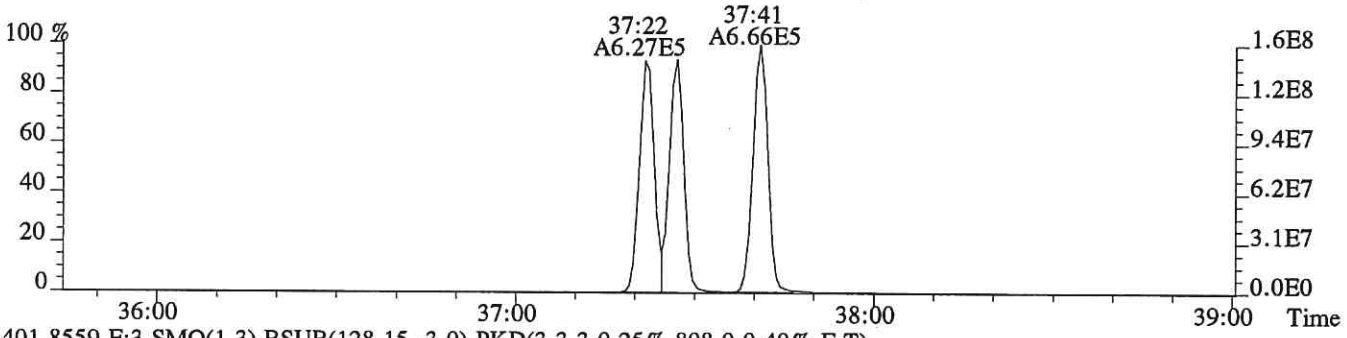


RIGHT SOLUTIONS | RIGHT PARTNER

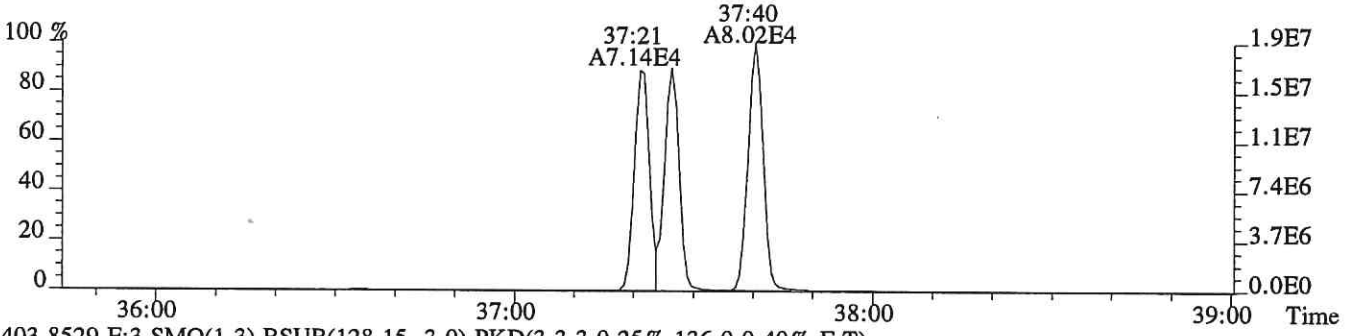
File:P619253 #1-295 Acq: 4-OCT-2019 06:23:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,852.0,0.40%,F,T)



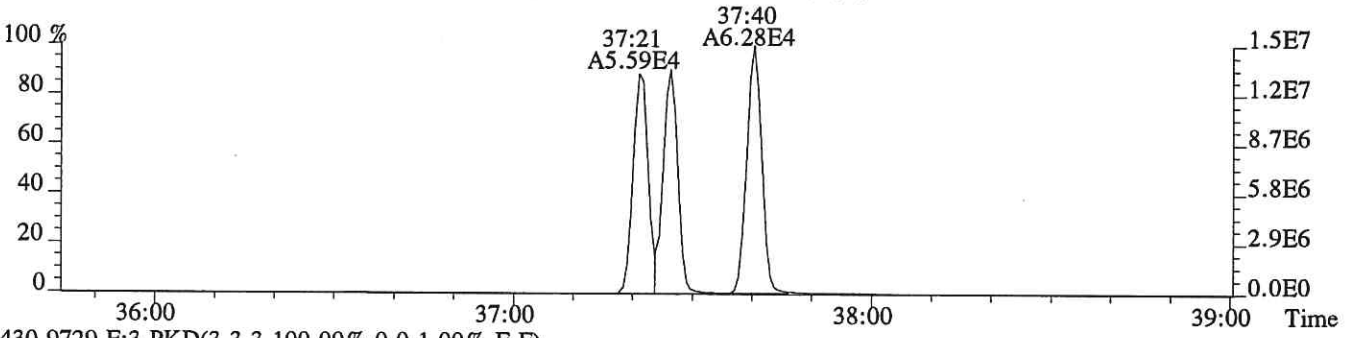
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,368.0,0.40%,F,T)



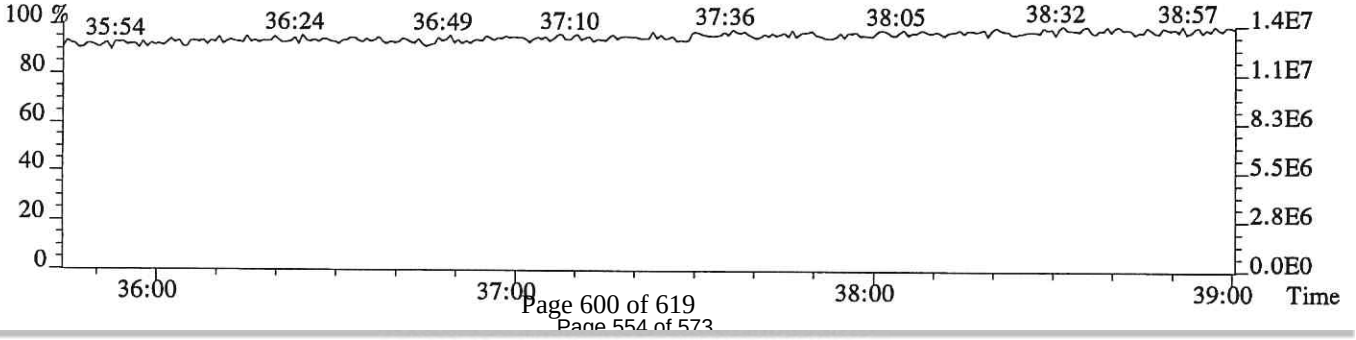
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,808.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,136.0,0.40%,F,T)



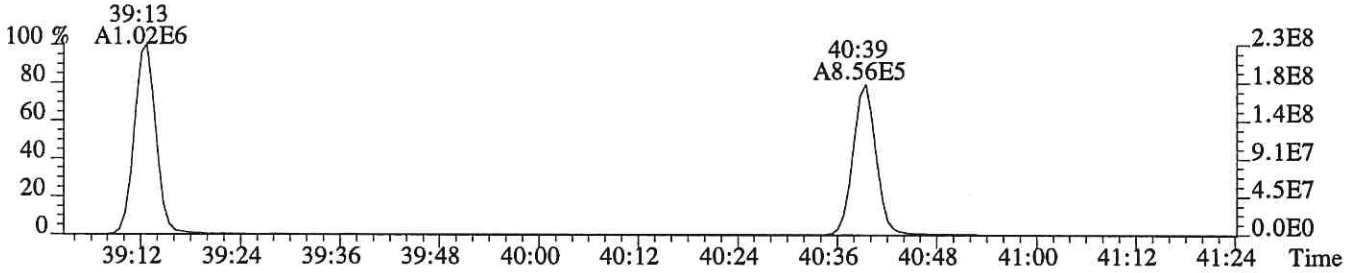
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



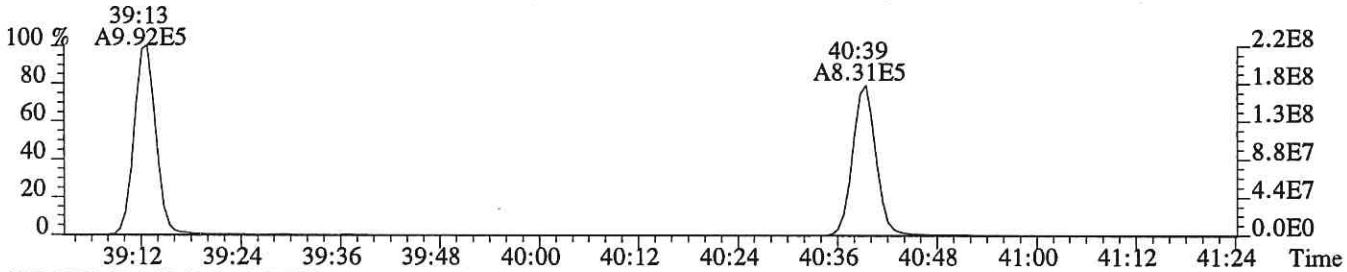
RIGHT SOLUTIONS | RIGHT PARTNER

File:P619253 #1-213 Acq: 4-OCT-2019 06:23:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5

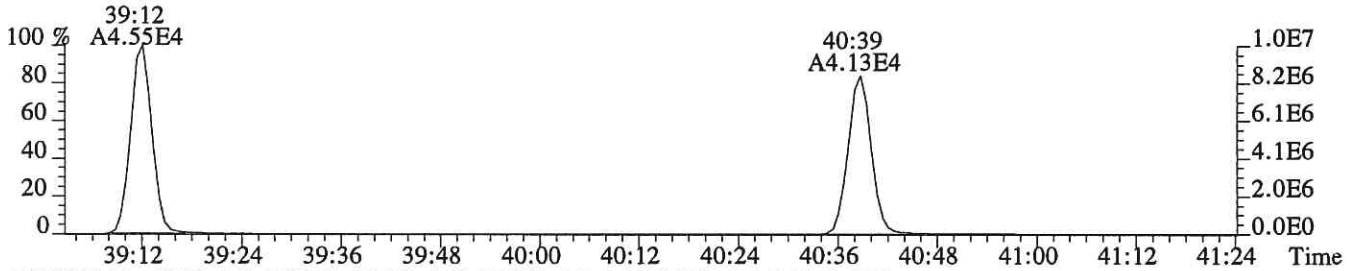
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,22300.0,0.50%,F,T)



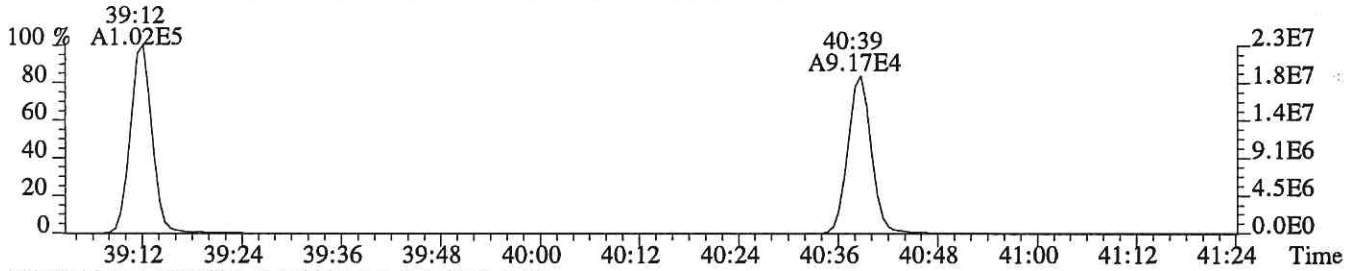
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,26636.0,0.50%,F,T)



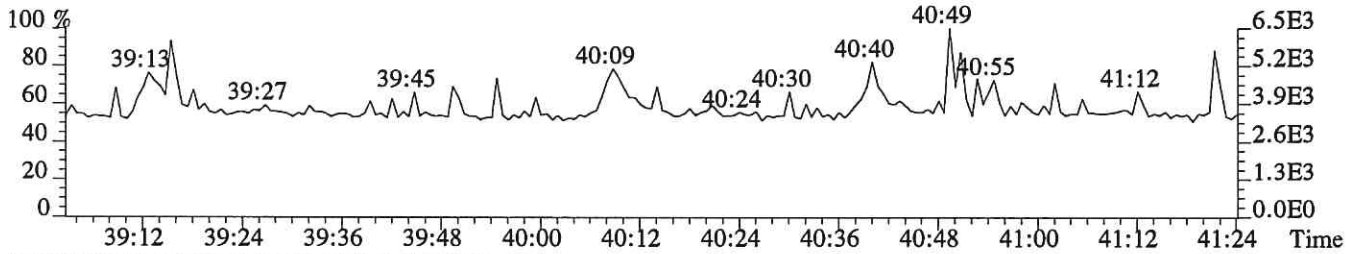
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11936.0,0.50%,F,T)



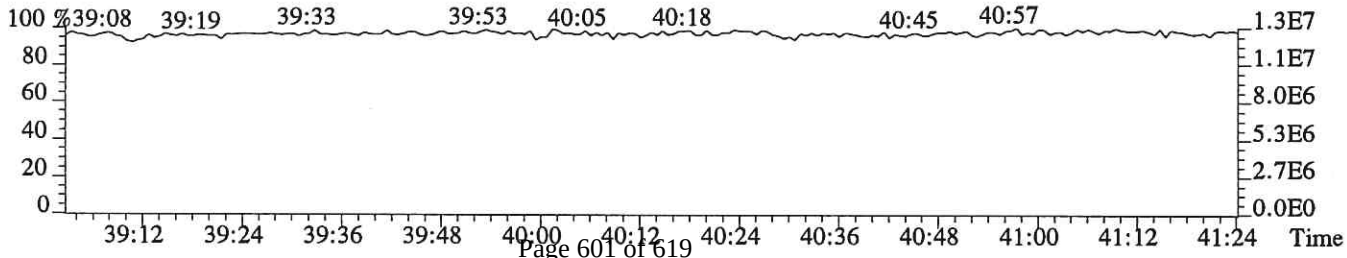
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,26336.0,0.50%,F,T)



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

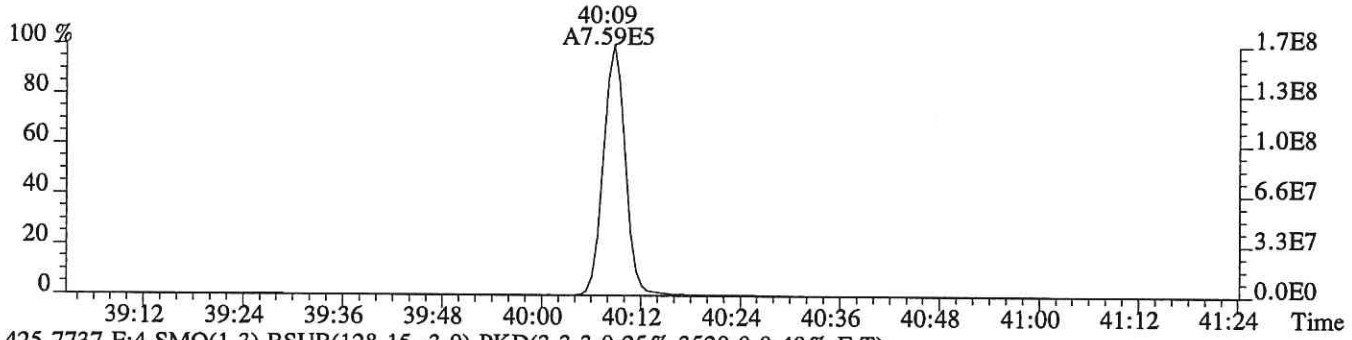


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

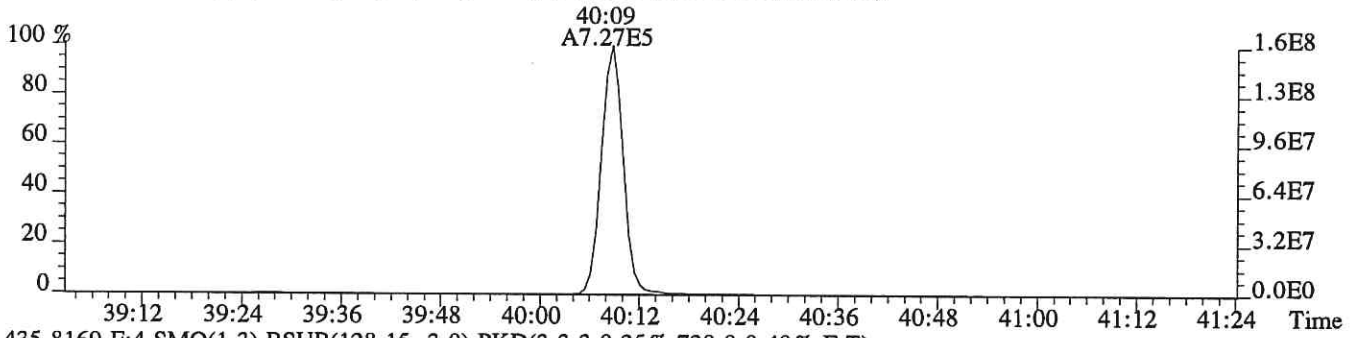


RIGHT SOLUTIONS | RIGHT PARTNER

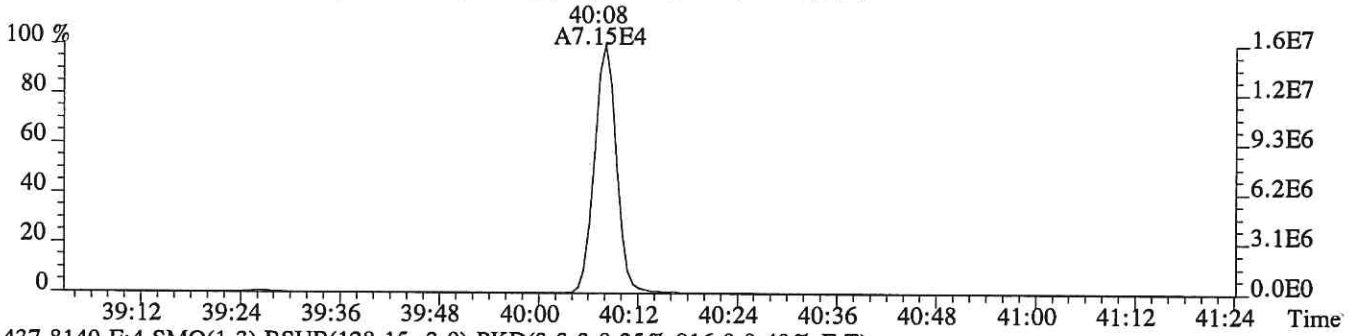
File:P619253 #1-213 Acq: 4-OCT-2019 06:23:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2396.0,0.40%,F,T)



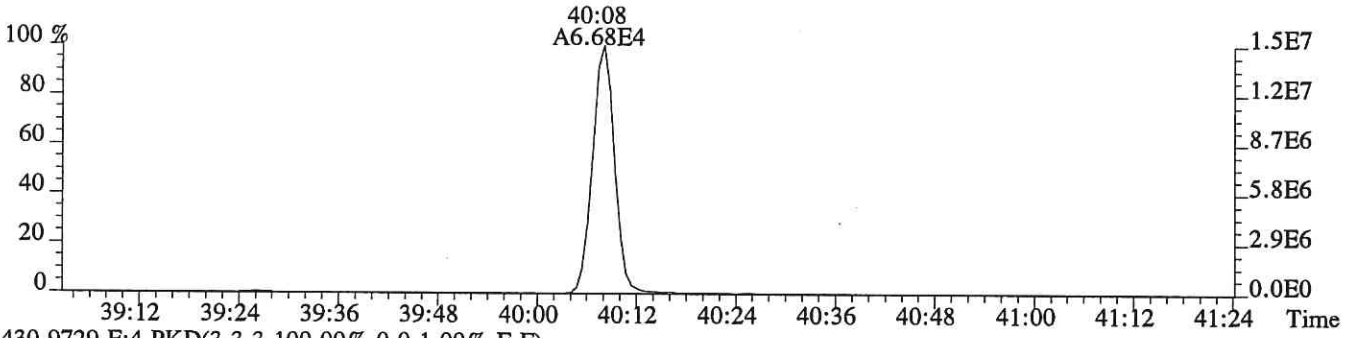
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3520.0,0.40%,F,T)



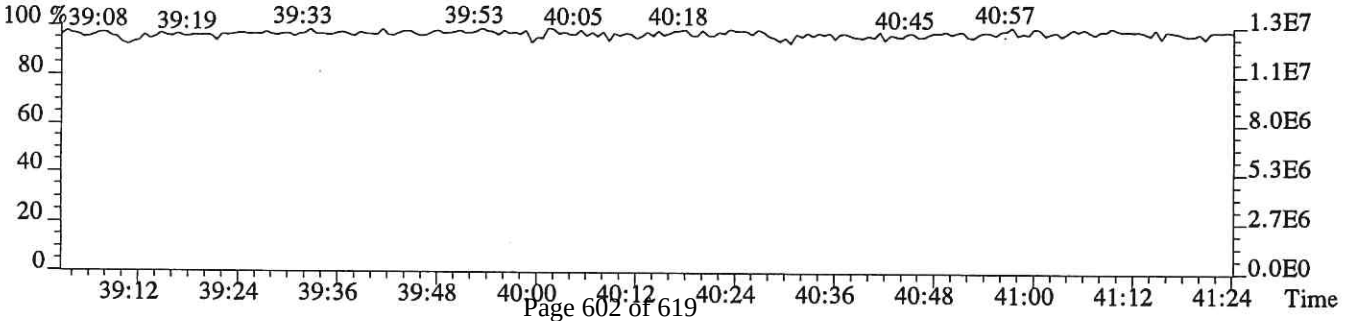
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,728.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,916.0,0.40%,F,T)



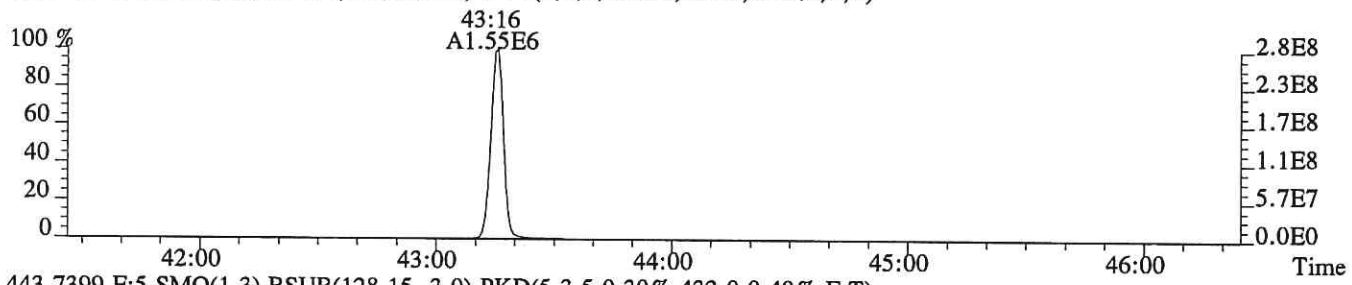
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



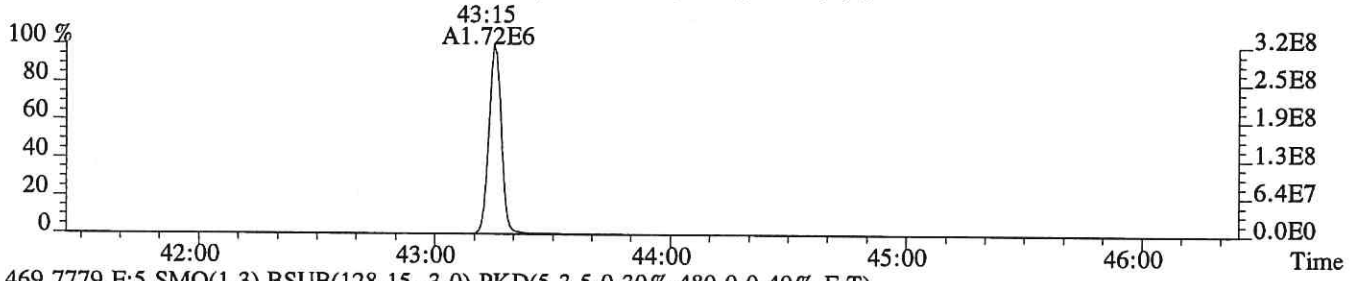
RIGHT SOLUTIONS | RIGHT PARTNER

File:P619253 #1-448 Acq: 4-OCT-2019 06:23:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5

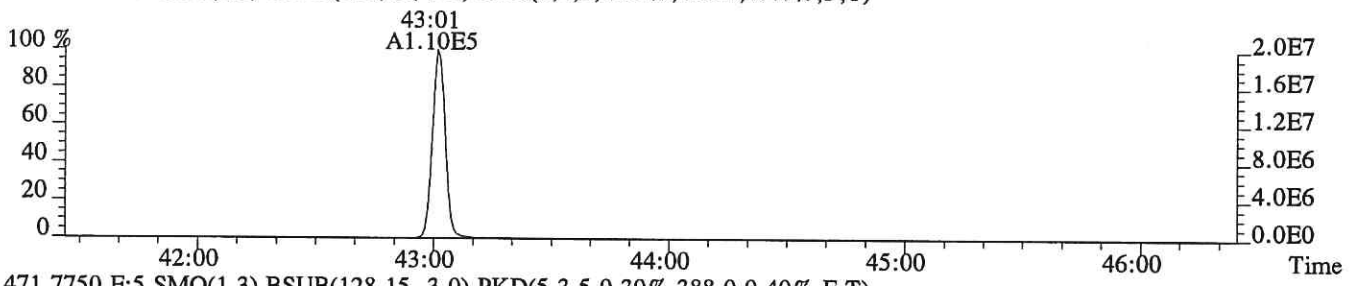
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,248.0,0.40%,F,T)



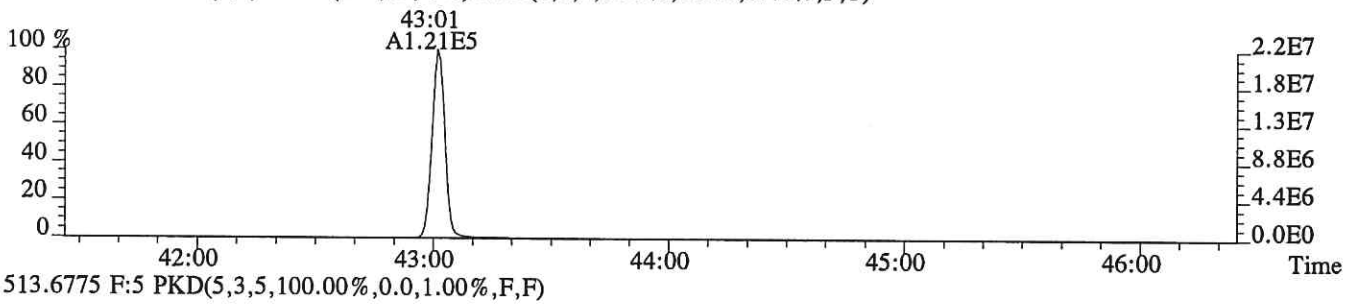
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,432.0,0.40%,F,T)



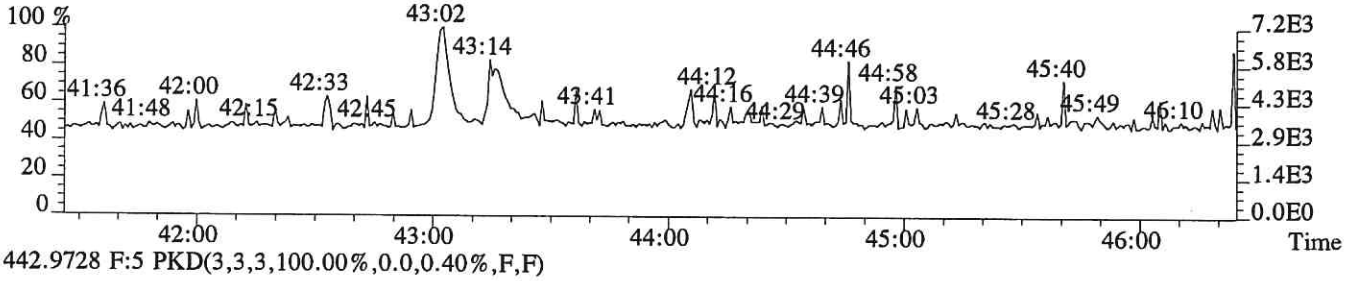
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,480.0,0.40%,F,T)



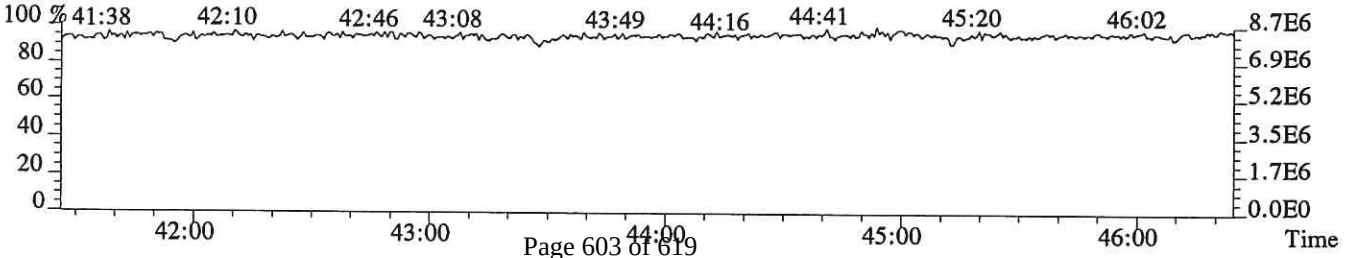
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,388.0,0.40%,F,T)



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

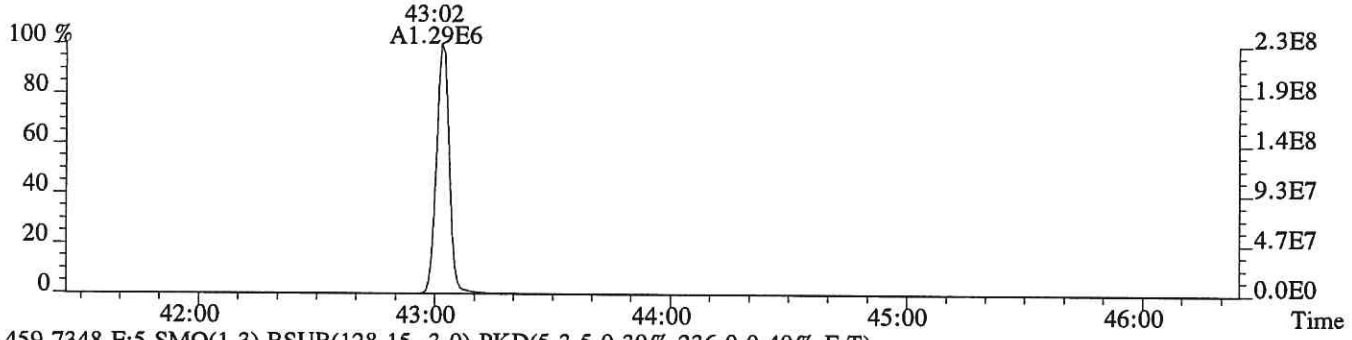


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

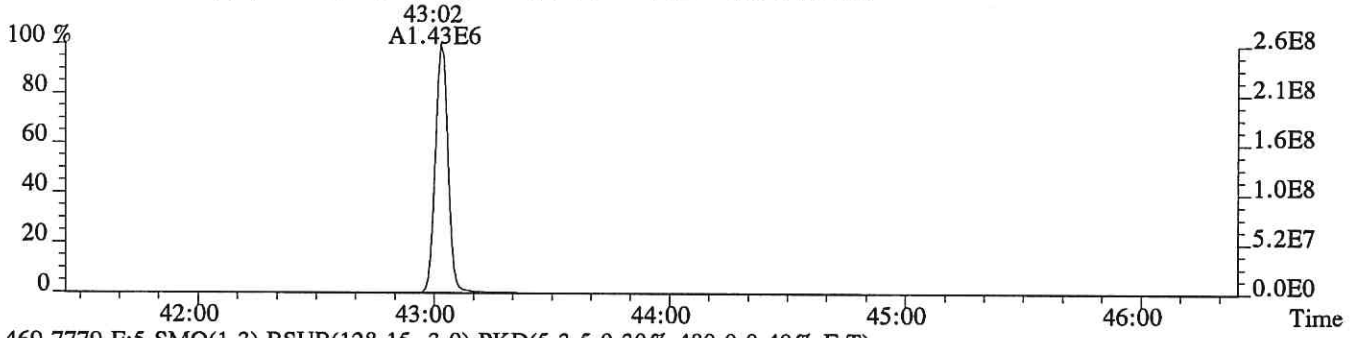


RIGHT SOLUTIONS | RIGHT PARTNER

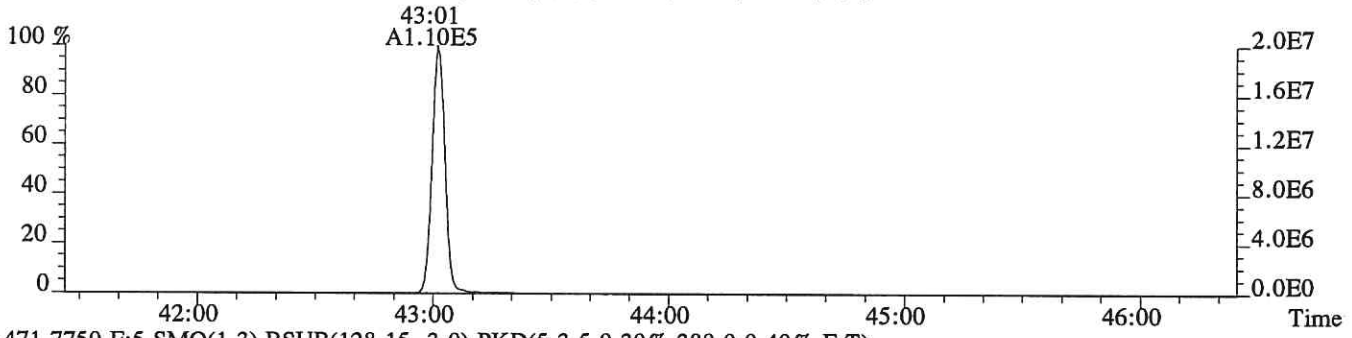
File:P619253 #1-448 Acq: 4-OCT-2019 06:23:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,364.0,0.40%,F,T)



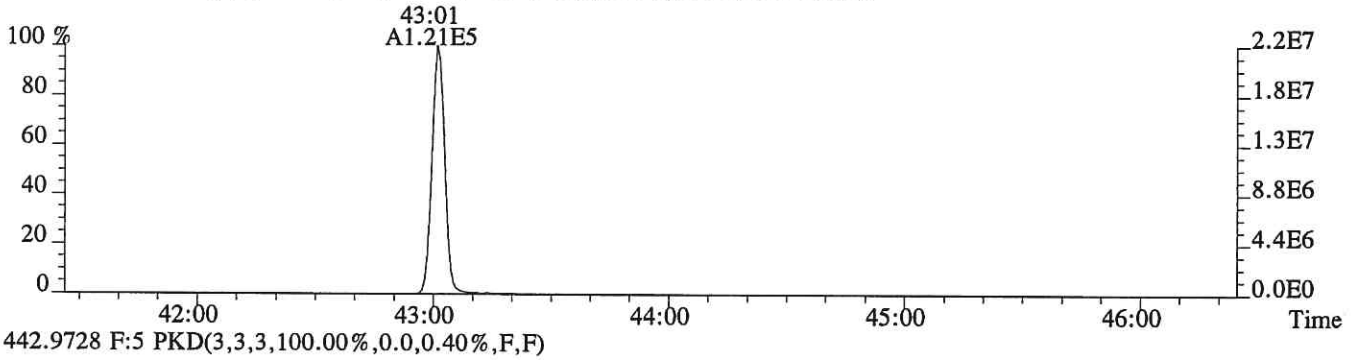
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,236.0,0.40%,F,T)



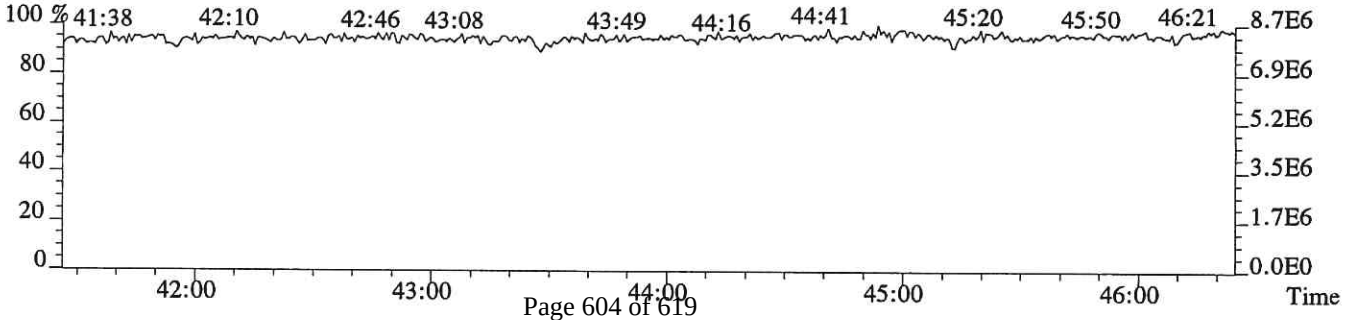
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,480.0,0.40%,F,T)



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)



RIGHT SOLUTIONS | RIGHT PARTNER

USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 10/04/19

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

VER Data Filename: P619254 Analysis Date: 4-OCT-19 Time: 07:13:04

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	10.2	7.8 - 12.9	1.9
1,2,3,7,8-PeCDD	M+2/M+4	1.58	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	52	39 - 64	3.2
1,2,3,6,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	52	39 - 64	3.5
1,2,3,7,8,9-HxCDD	M+2/M+4	1.26	1.05-1.43	51	41 - 61	1.1
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	52	43 - 58	4.3
OCDD	M+2/M+4	0.88	0.76-1.02	103	79 - 126	2.5
2,3,7,8-TCDF	M/M+2	0.73	0.65-0.89	10.1	8.4 - 12.0	0.6
1,2,3,7,8-PeCDF	M+2/M+4	1.55	1.32-1.78	52	41 - 60	4.9
2,3,4,7,8-PeCDF	M+2/M+4	1.54	1.32-1.78	52	41 - 61	3.7
1,2,3,4,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	51	45 - 56	1.5
1,2,3,6,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	52	44 - 57	3.5
1,2,3,7,8,9-HxCDF	M+2/M+4	1.27	1.05-1.43	51	45 - 56	3.0
2,3,4,6,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	51	44 - 57	2.3
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.03	0.88-1.20	51	45 - 55	1.9
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.02	0.88-1.20	51	43 - 58	1.1
OCDF	M+2/M+4	0.88	0.76-1.02	103	63 - 159	3.0

(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

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USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 10/04/19

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

VER Data Filename: P619254 Analysis Date: 4-OCT-19 Time: 07:13:04

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	97	82 - 121	-2.6
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.59	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	101	85 - 117	0.5
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	1.05	0.88-1.20	97	72 - 138	-3.0
13C-OCDD	M+2/M+4	0.91	0.76-1.02	192	96 - 415	-4.0
13C-2,3,7,8-TCDF	M/M+2	0.80	0.65-0.89	97	71 - 140	-2.9
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	97	76 - 130	-3.3
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	97	77 - 130	-3.0
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	103	76 - 131	2.6
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	102	70 - 143	1.9
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	99	74 - 135	-1.4
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	101	73 - 137	1.2
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.44	0.37-0.51	96	78 - 129	-4.1
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	97	77 - 129	-3.4
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD	M+2/M+4			9.8	7.8 - 12.7	-1.8

(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

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ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
188969

Run #7 Filename P619254 Samp: 1 Inj: 1 Acquired: 4-OCT-19 07:13:04
Processed: 4-OCT-19 09:27:19 Sample ID: 2ND SOURCE

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	29:20	3.074e+03	4.195e+03	0.73	yes	no	1.017
2	Unk	1,2,3,7,8-PeCDF	33:15	2.792e+04	1.801e+04	1.55	yes	no	1.021
3	Unk	2,3,4,7,8-PeCDF	34:06	2.699e+04	1.754e+04	1.54	yes	no	0.983
4	Unk	1,2,3,4,7,8-HxCDF	36:40	2.623e+04	2.124e+04	1.23	yes	no	1.229
5	Unk	1,2,3,6,7,8-HxCDF	36:46	2.744e+04	2.247e+04	1.22	yes	no	1.109
6	Unk	2,3,4,6,7,8-HxCDF	37:15	2.577e+04	2.071e+04	1.24	yes	no	1.125
7	Unk	1,2,3,7,8,9-HxCDF	37:59	2.410e+04	1.895e+04	1.27	yes	no	1.143
8	Unk	1,2,3,4,6,7,8-HpCDF	39:13	2.294e+04	2.217e+04	1.03	yes	no	1.323
9	Unk	1,2,3,4,7,8,9-HpCDF	40:39	1.933e+04	1.904e+04	1.02	yes	no	1.253
10	Unk	OCDF	43:15	3.389e+04	3.846e+04	0.88	yes	no	1.373
11	Unk	2,3,7,8-TCDD	30:03	2.350e+03	2.969e+03	0.79	yes	no	1.012
12	Unk	1,2,3,7,8-PeCDD	34:22	1.864e+04	1.177e+04	1.58	yes	no	0.993
13	Unk	1,2,3,4,7,8-HxCDD	37:22	1.856e+04	1.491e+04	1.24	yes	no	1.082
14	Unk	1,2,3,6,7,8-HxCDD	37:27	1.870e+04	1.511e+04	1.24	yes	no	1.083
15	Unk	1,2,3,7,8,9-HxCDD	37:41	1.989e+04	1.576e+04	1.26	yes	no	1.174
16	Unk	1,2,3,4,6,7,8-HpCDD	40:09	1.773e+04	1.695e+04	1.05	yes	no	1.053
17	Unk	OCDD	43:02	2.854e+04	3.232e+04	0.88	yes	no	1.160
18	IS	13C-2,3,7,8-TCDF	29:19	3.161e+04	3.946e+04	0.80	yes	no	1.341
19	IS	13C-1,2,3,7,8-PeCDF	33:14	5.285e+04	3.298e+04	1.60	yes	no	1.627
20	IS	13C-2,3,4,7,8-PeCDF	34:05	5.379e+04	3.357e+04	1.60	yes	no	1.651
21	IS	13C-1,2,3,4,7,8-HxCDF	36:39	2.613e+04	4.996e+04	0.52	yes	no	1.137
22	IS	13C-1,2,3,6,7,8-HxCDF	36:45	2.985e+04	5.709e+04	0.52	yes	no	1.307
23	IS	13C-2,3,4,6,7,8-HxCDF	37:14	2.786e+04	5.289e+04	0.53	yes	no	1.222
24	IS	13C-1,2,3,7,8,9-HxCDF	37:58	2.506e+04	4.810e+04	0.52	yes	no	1.137
25	IS	13C-1,2,3,4,6,7,8-HpCDF	39:12	2.039e+04	4.650e+04	0.44	yes	no	1.069
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:39	1.880e+04	4.183e+04	0.45	yes	no	0.961
27	IS	13C-2,3,7,8-TCDD	30:01	2.252e+04	2.905e+04	0.78	yes	no	0.970
28	IS	13C-1,2,3,7,8-PeCDD	34:21	3.688e+04	2.323e+04	1.59	yes	no	1.142
29	IS	13C-1,2,3,4,7,8-HxCDD	37:21	3.364e+04	2.628e+04	1.28	yes	no	0.914
30	IS	13C-1,2,3,6,7,8-HxCDD	37:26	3.362e+04	2.666e+04	1.26	yes	no	0.899
31	IS	13C-1,2,3,4,6,7,8-HpCDD	40:08	3.233e+04	3.077e+04	1.05	yes	no	0.997
32	IS	13C-OCDD	43:01	4.879e+04	5.354e+04	0.91	yes	no	0.817
33	RS/RT	13C-1,2,3,4-TCDD	29:30	2.393e+04	3.064e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:40	3.665e+04	2.860e+04	1.28	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	30:03	5.383e+03				no	1.005

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
188969

Run #7 Filename P619254 Samp: 1 Inj: 1 Acquired: 4-OCT-19 07:13:04
Processed: 4-OCT-19 09:27:19 LAB. ID: 2ND SOURCE

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.84e+05	3.52e+02	1.7e+03	8.21e+05	4.92e+02	1.7e+03
2	1,2,3,7,8-PeCDF	5.51e+06	1.99e+03	2.8e+03	3.57e+06	9.76e+02	3.7e+03
3	2,3,4,7,8-PeCDF	5.36e+06	1.99e+03	2.7e+03	3.56e+06	9.76e+02	3.6e+03
4	1,2,3,4,7,8-HxCDF	5.89e+06	1.24e+03	4.7e+03	4.75e+06	2.92e+03	1.6e+03
5	1,2,3,6,7,8-HxCDF	5.92e+06	1.24e+03	4.8e+03	4.91e+06	2.92e+03	1.7e+03
6	2,3,4,6,7,8-HxCDF	5.90e+06	1.24e+03	4.7e+03	4.62e+06	2.92e+03	1.6e+03
7	1,2,3,7,8,9-HxCDF	5.40e+06	1.24e+03	4.3e+03	4.26e+06	2.92e+03	1.5e+03
8	1,2,3,4,6,7,8-HpCDF	5.03e+06	1.64e+04	3.1e+02	4.87e+06	1.79e+04	2.7e+02
9	1,2,3,4,7,8,9-HpCDF	3.96e+06	1.64e+04	2.4e+02	3.84e+06	1.79e+04	2.1e+02
10	OCDF	6.06e+06	3.44e+02	1.8e+04	6.65e+06	9.60e+02	6.9e+03
11	2,3,7,8-TCDD	4.80e+05	8.44e+02	5.7e+02	5.97e+05	3.60e+02	1.7e+03
12	1,2,3,7,8-PeCDD	3.95e+06	6.24e+02	6.3e+03	2.51e+06	2.32e+02	1.1e+04
13	1,2,3,4,7,8-HxCDD	4.27e+06	4.12e+02	1.0e+04	3.50e+06	7.76e+02	4.5e+03
14	1,2,3,6,7,8-HxCDD	4.26e+06	4.12e+02	1.0e+04	3.45e+06	7.76e+02	4.4e+03
15	1,2,3,7,8,9-HxCDD	4.55e+06	4.12e+02	1.1e+04	3.58e+06	7.76e+02	4.6e+03
16	1,2,3,4,6,7,8-HpCDD	3.77e+06	5.00e+02	7.5e+03	3.61e+06	1.04e+03	3.5e+03
17	OCDD	5.17e+06	6.60e+02	7.8e+03	5.77e+06	8.24e+02	7.0e+03
18	13C-2,3,7,8-TCDF	6.15e+06	2.80e+03	2.2e+03	7.69e+06	1.95e+03	3.9e+03
19	13C-1,2,3,7,8-PeCDF	1.03e+07	4.56e+02	2.3e+04	6.43e+06	3.48e+03	1.8e+03
20	13C-2,3,4,7,8-PeCDF	1.10e+07	4.56e+02	2.4e+04	6.89e+06	3.48e+03	2.0e+03
21	13C-1,2,3,4,7,8-HxCDF	5.90e+06	2.36e+02	2.5e+04	1.12e+07	9.92e+02	1.1e+04
22	13C-1,2,3,6,7,8-HxCDF	6.52e+06	2.36e+02	2.8e+04	1.25e+07	9.92e+02	1.3e+04
23	13C-2,3,4,6,7,8-HxCDF	6.33e+06	2.36e+02	2.7e+04	1.19e+07	9.92e+02	1.2e+04
24	13C-1,2,3,7,8,9-HxCDF	5.62e+06	2.36e+02	2.4e+04	1.08e+07	9.92e+02	1.1e+04
25	13C-1,2,3,4,6,7,8-HpCDF	4.54e+06	4.94e+03	9.2e+02	1.01e+07	2.02e+04	5.0e+02
26	13C-1,2,3,4,7,8,9-HpCDF	3.78e+06	4.94e+03	7.7e+02	8.47e+06	2.02e+04	4.2e+02
27	13C-2,3,7,8-TCDD	4.54e+06	3.35e+03	1.4e+03	5.87e+06	7.16e+02	8.2e+03
28	13C-1,2,3,7,8-PeCDD	7.61e+06	2.92e+02	2.6e+04	4.83e+06	4.12e+02	1.2e+04
29	13C-1,2,3,4,7,8-HxCDD	7.79e+06	4.36e+02	1.8e+04	6.09e+06	4.00e+02	1.5e+04
30	13C-1,2,3,6,7,8-HxCDD	7.60e+06	4.36e+02	1.7e+04	5.97e+06	4.00e+02	1.5e+04
31	13C-1,2,3,4,6,7,8-HpCDD	6.83e+06	5.60e+02	1.2e+04	6.54e+06	2.36e+02	2.8e+04
32	13C-OCDD	8.79e+06	3.60e+02	2.4e+04	9.62e+06	3.72e+02	2.6e+04
33	13C-1,2,3,4-TCDD	4.70e+06	3.35e+03	1.4e+03	5.97e+06	7.16e+02	8.3e+03
34	13C-1,2,3,7,8,9-HxCDD	8.31e+06	4.36e+02	1.9e+04	6.59e+06	4.00e+02	1.6e+04
35	37Cl-2,3,7,8-TCDD	1.07e+06	3.28e+02	3.2e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (8.440e{+}02 + 3.600e{+}02) \times 100}{(4.539e{+}06 + 5.868e{+}06) \times (\qquad\qquad) \times 1.012} =$$

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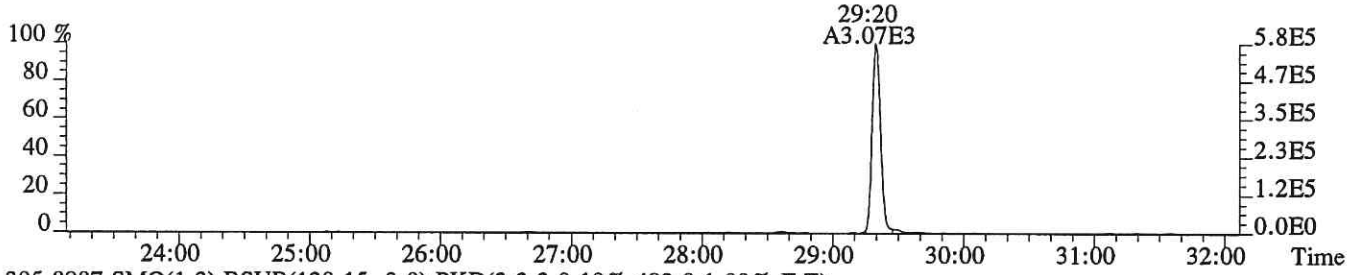
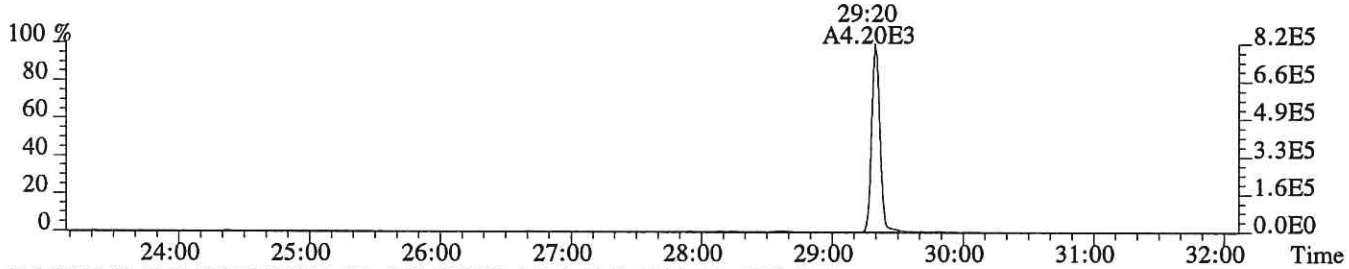
File:P619254 #1-637 Acq: 4-OCT-2019 07:13:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE

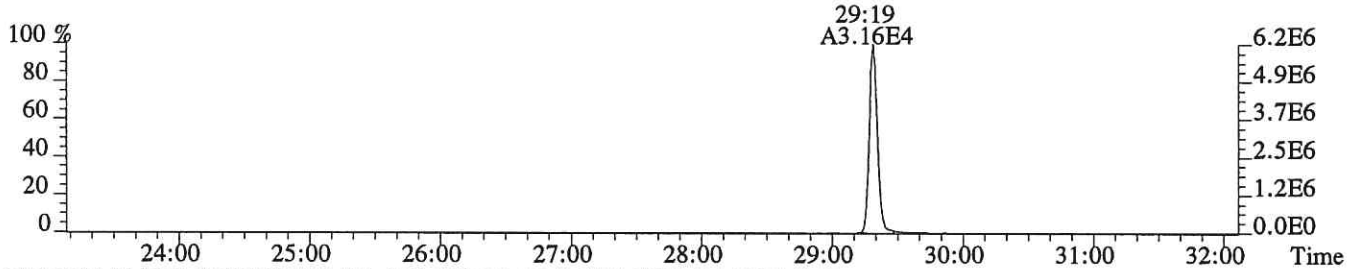
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,352.0,1.00%,F,T)



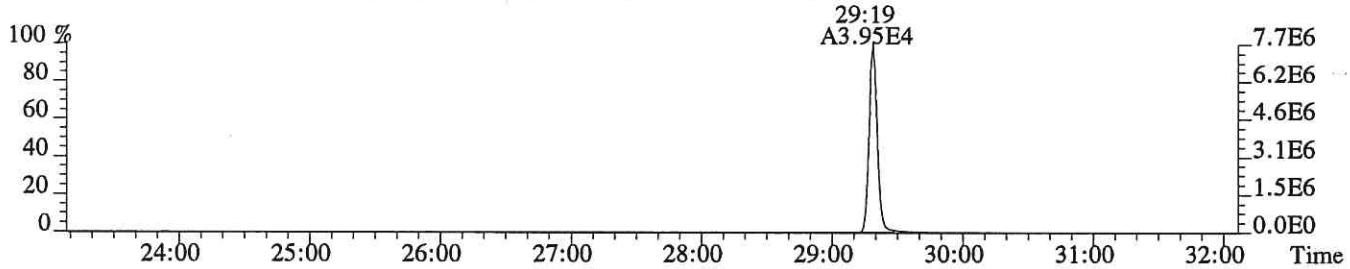
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,492.0,1.00%,F,T)



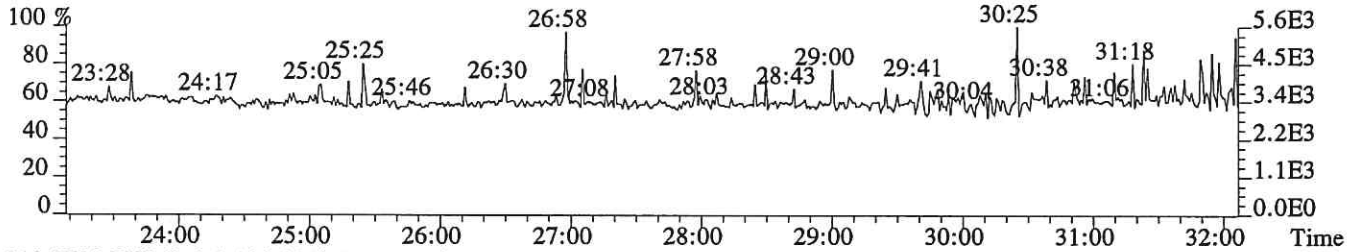
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2804.0,1.00%,F,T)



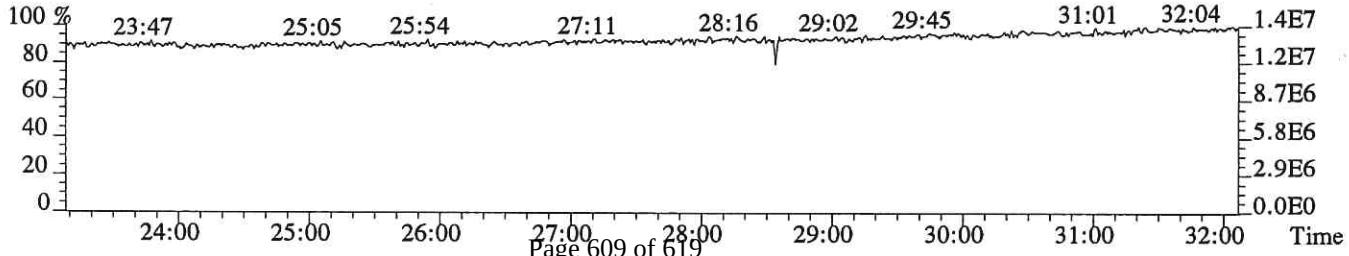
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1952.0,1.00%,F,T)



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



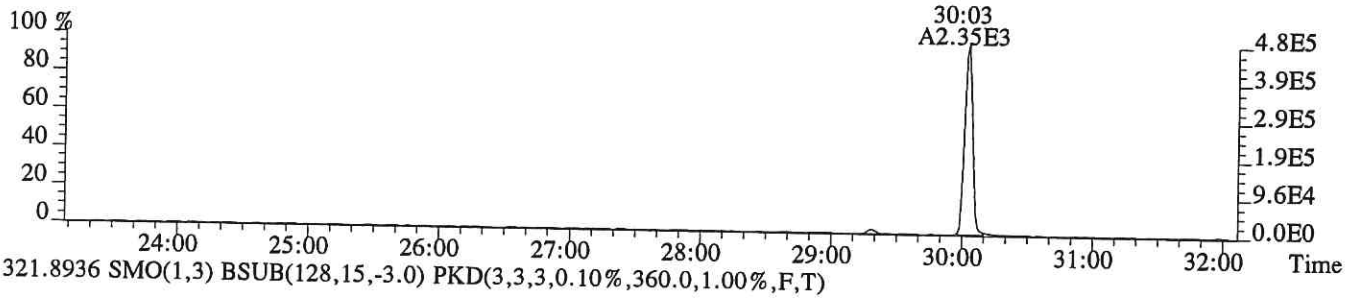
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



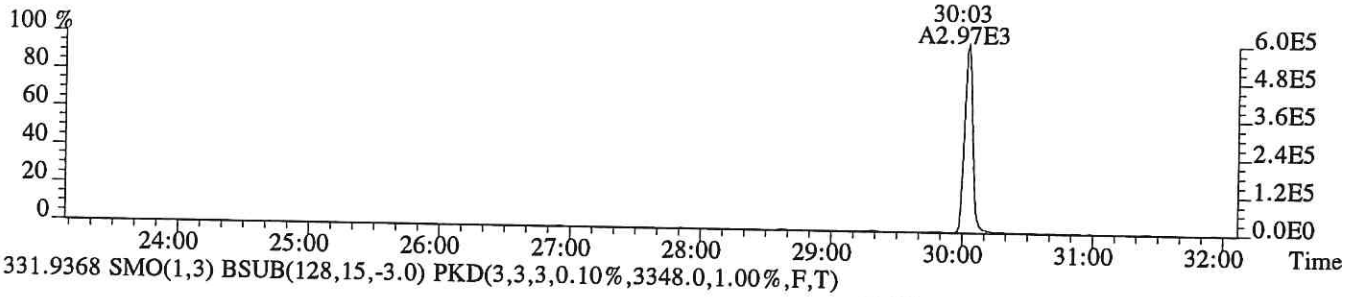
RIGHT SOLUTIONS | RIGHT PARTNER

File:P619254 #1-637 Acq: 4-OCT-2019 07:13:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE

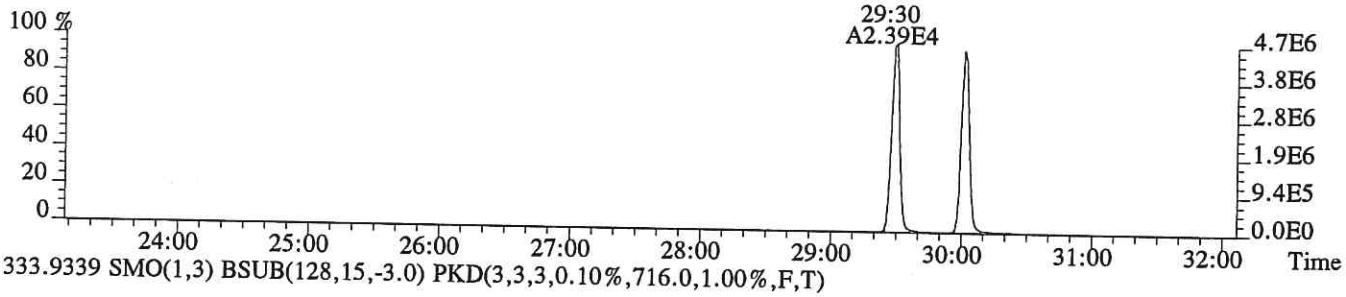
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,844.0,1.00%,F,T)



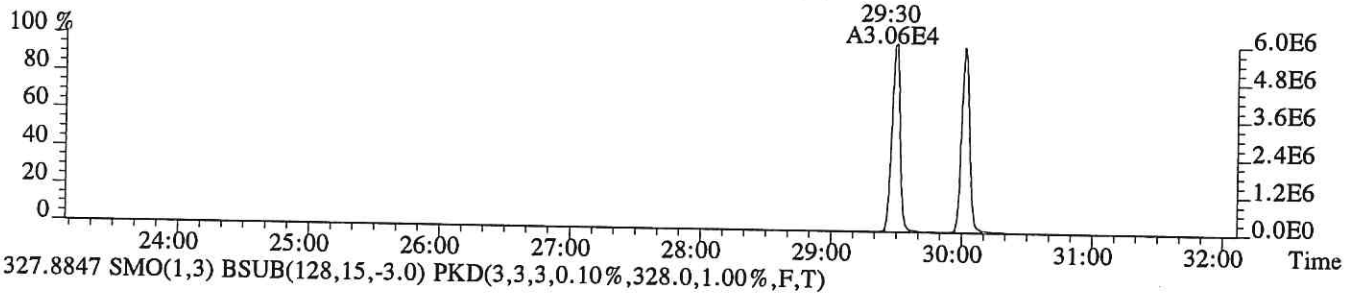
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,360.0,1.00%,F,T)



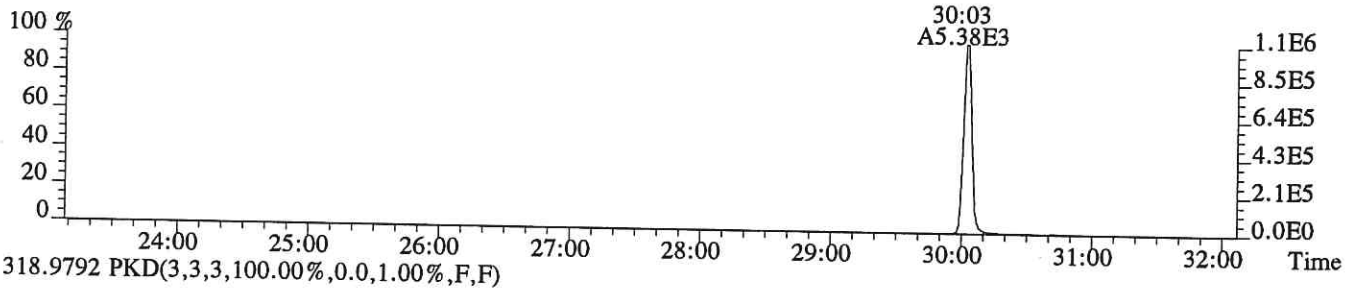
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3348.0,1.00%,F,T)



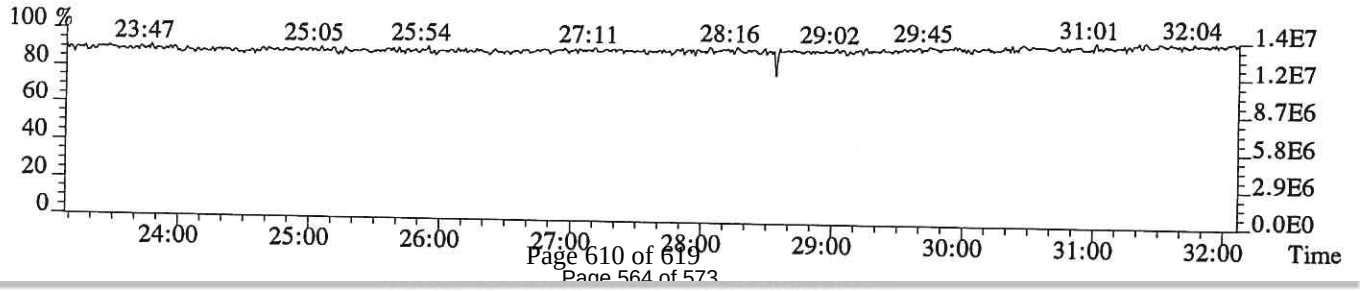
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,716.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,328.0,1.00%,F,T)

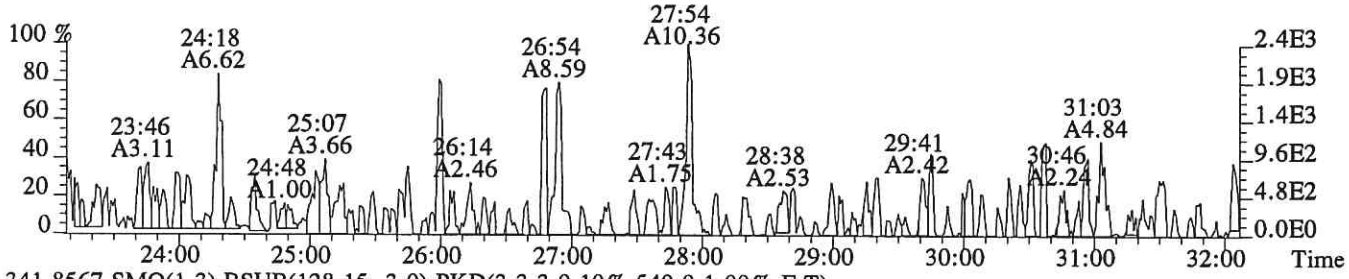


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

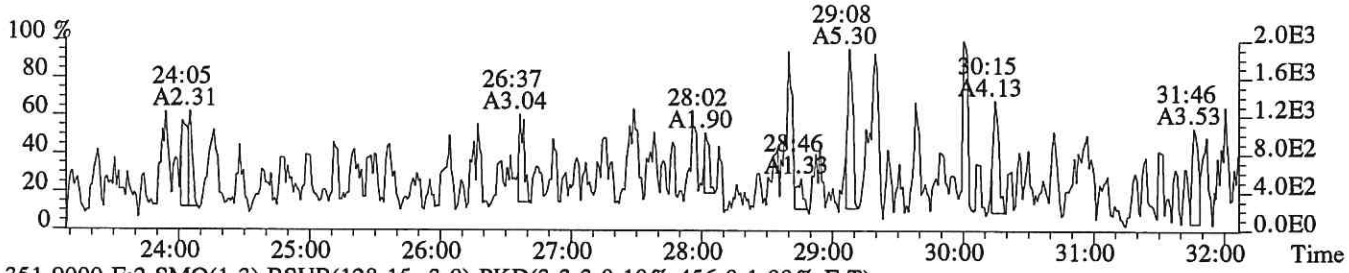


RIGHT SOLUTIONS | RIGHT PARTNER

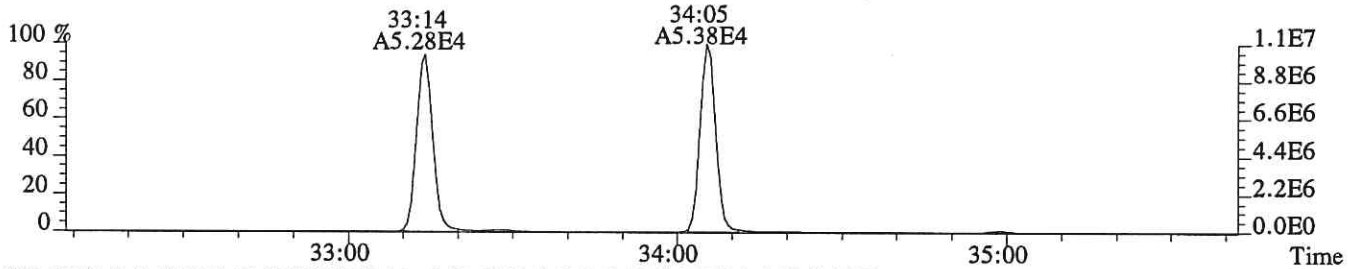
File:P619254 #1-637 Acq: 4-OCT-2019 07:13:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,144.0,1.00%,F,T)



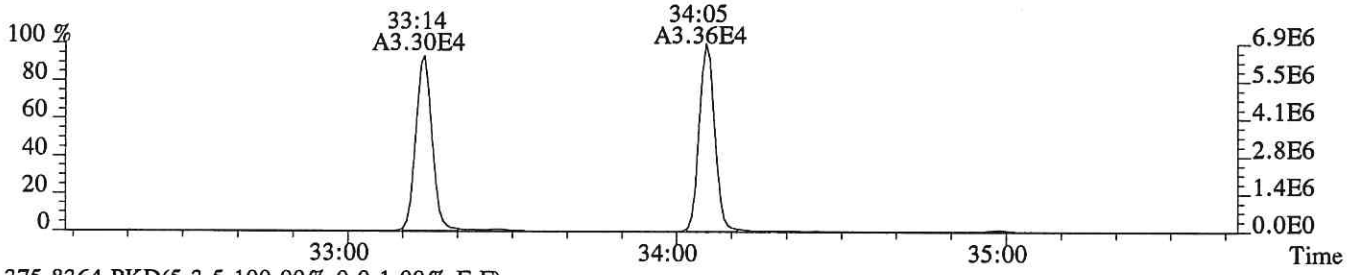
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,540.0,1.00%,F,T)



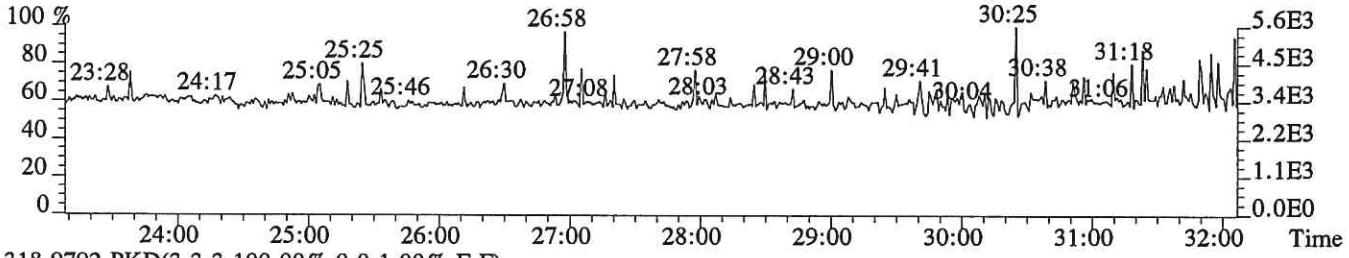
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,456.0,1.00%,F,T)



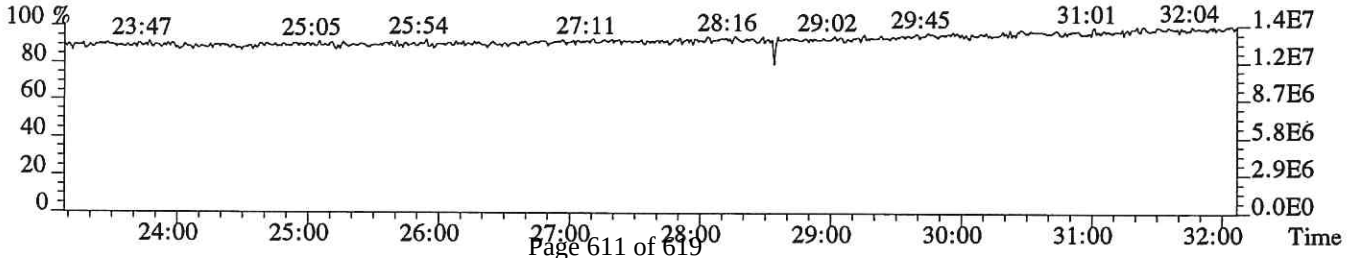
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3484.0,1.00%,F,T)



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



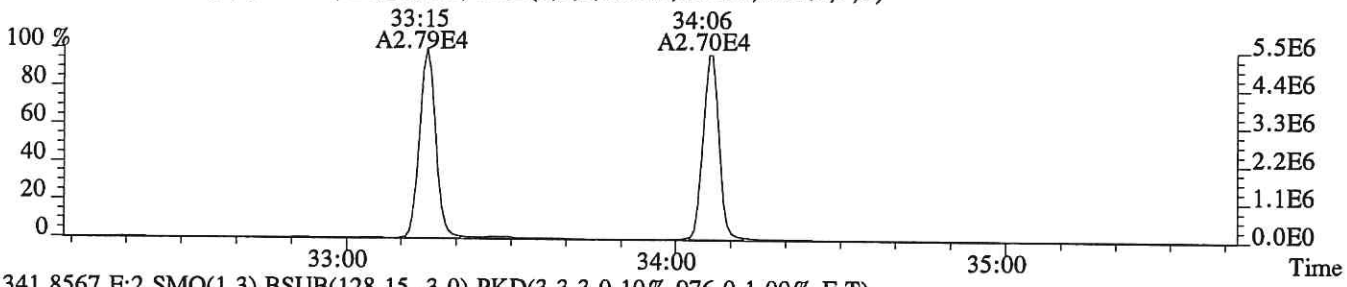
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



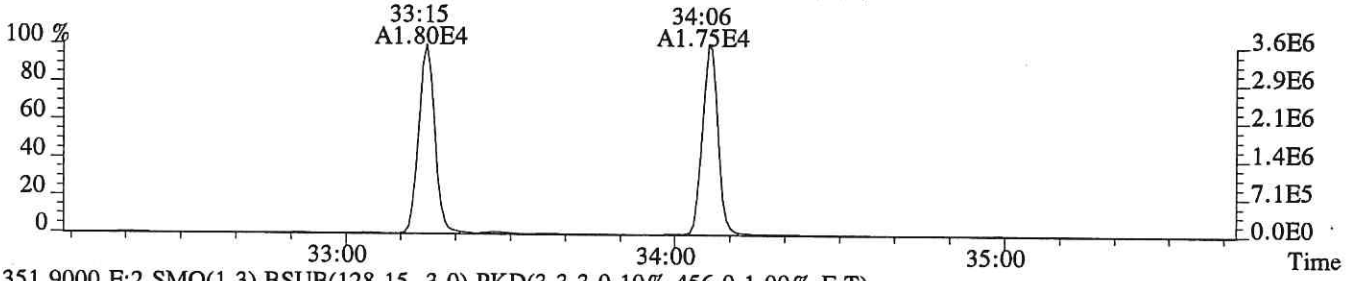
RIGHT SOLUTIONS | RIGHT PARTNER

File:P619254 #1-321 Acq: 4-OCT-2019 07:13:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE

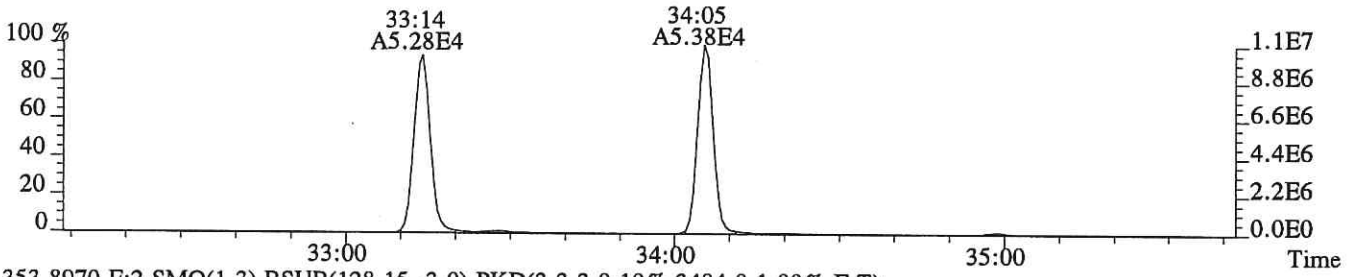
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1992.0,1.00%,F,T)



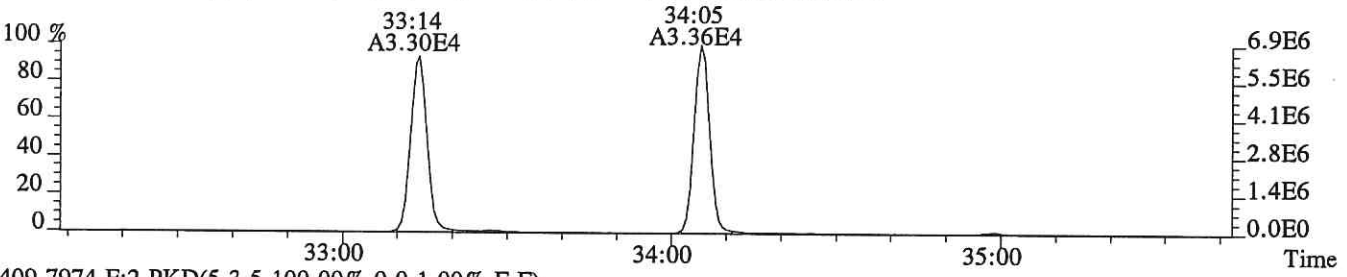
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,976.0,1.00%,F,T)



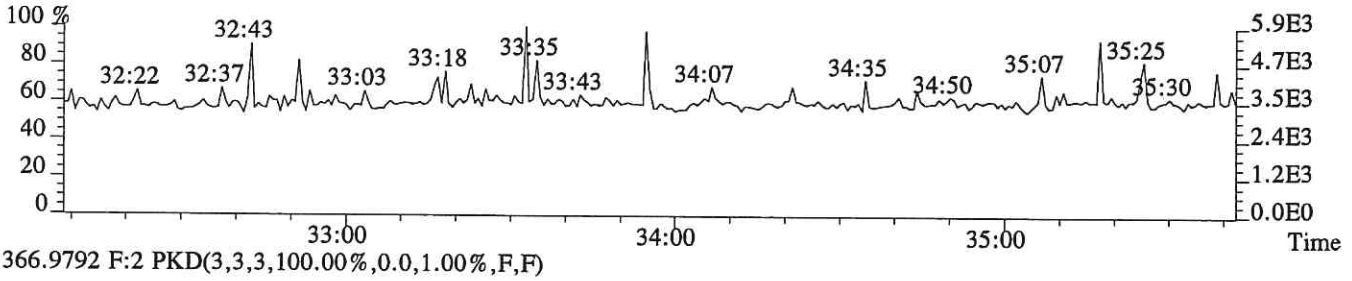
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,456.0,1.00%,F,T)



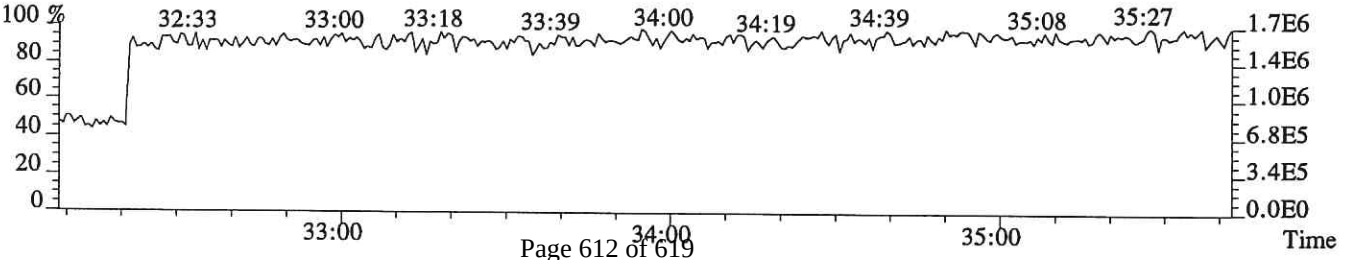
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3484.0,1.00%,F,T)



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



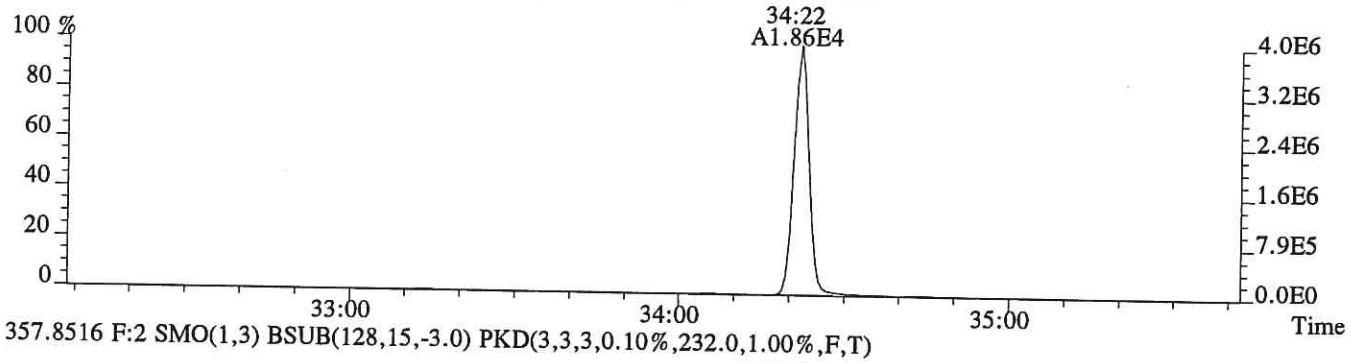
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



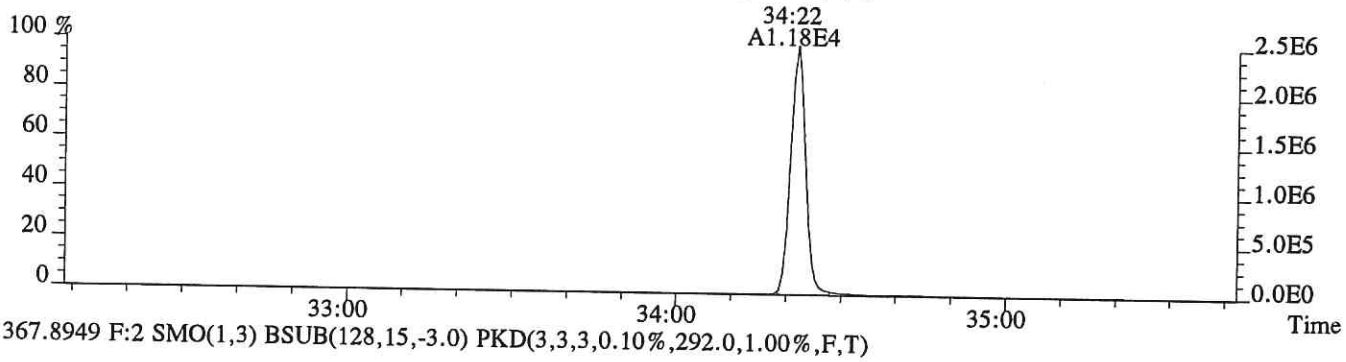
RIGHT SOLUTIONS | RIGHT PARTNER

File:P619254 #1-321 Acq: 4-OCT-2019 07:13:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE

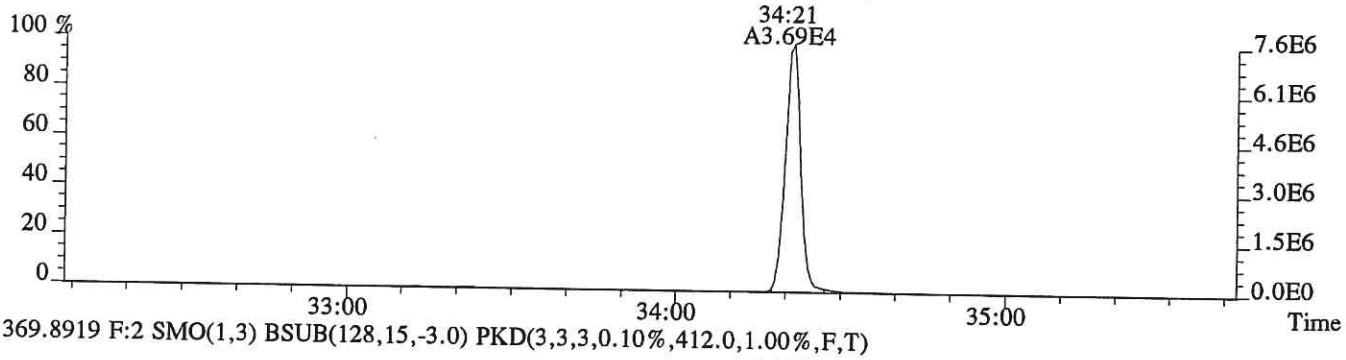
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,624.0,1.00%,F,T)



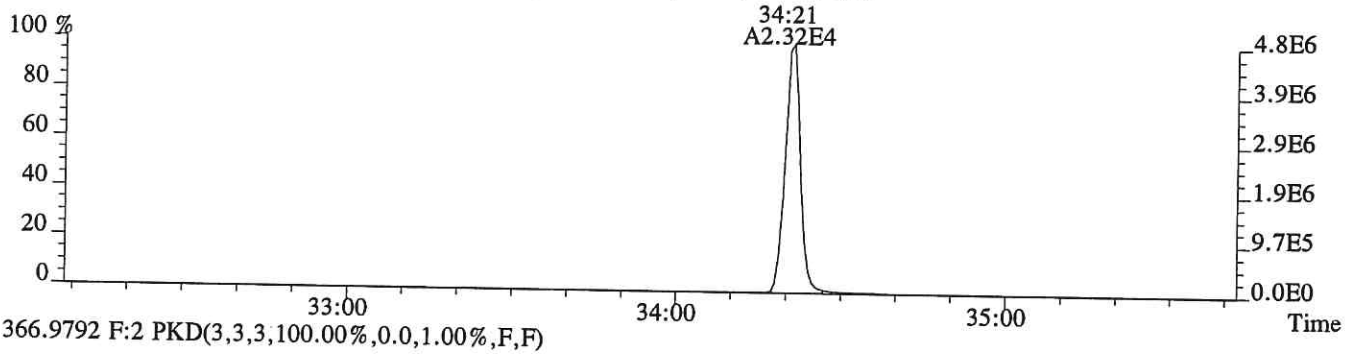
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,232.0,1.00%,F,T)



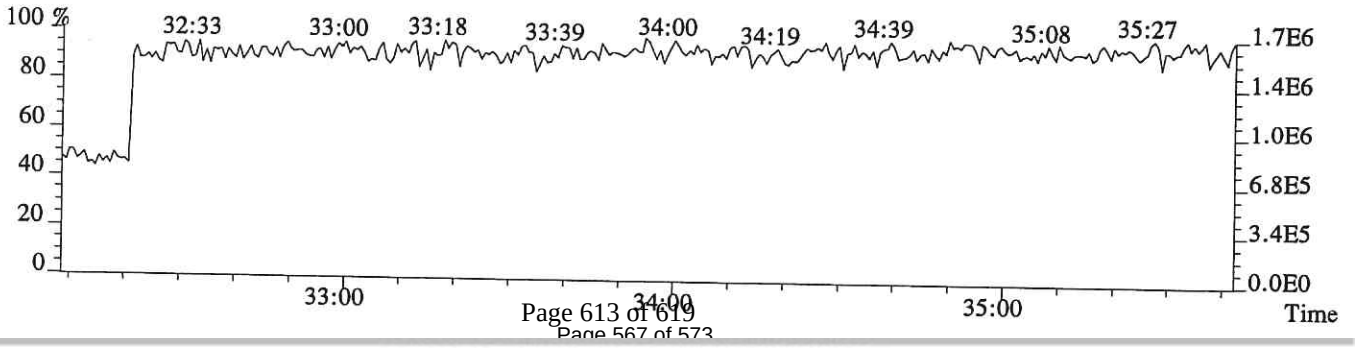
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,292.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,412.0,1.00%,F,T)



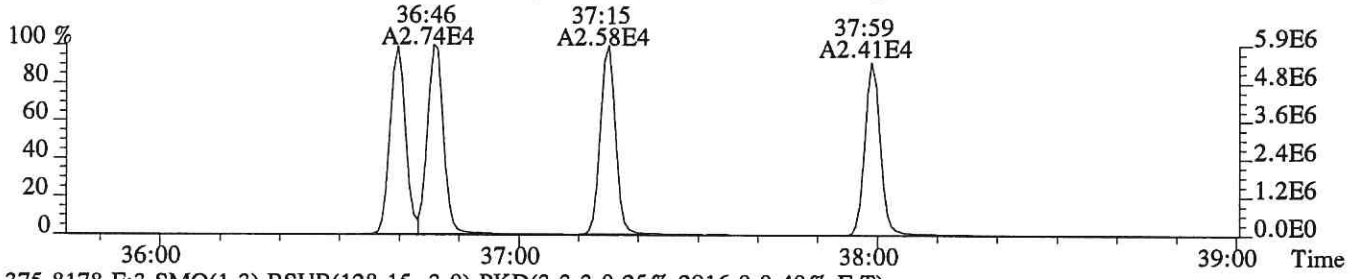
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



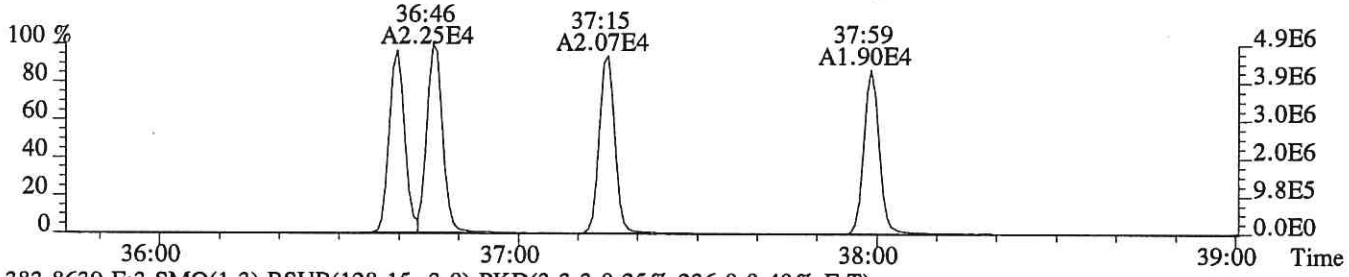
RIGHT SOLUTIONS | RIGHT PARTNER

File:P619254 #1-295 Acq: 4-OCT-2019 07:13:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE

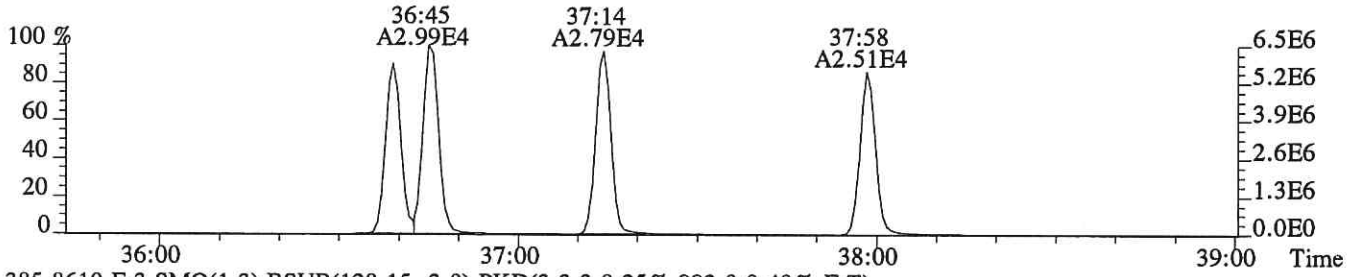
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1244.0,0.40%,F,T)



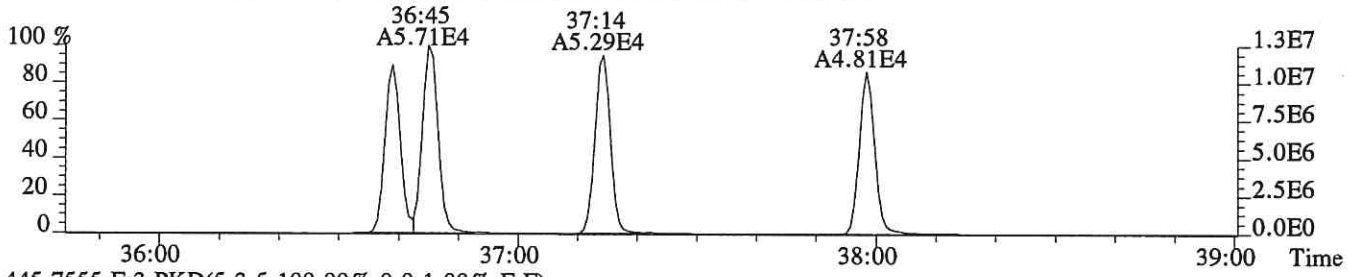
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2916.0,0.40%,F,T)



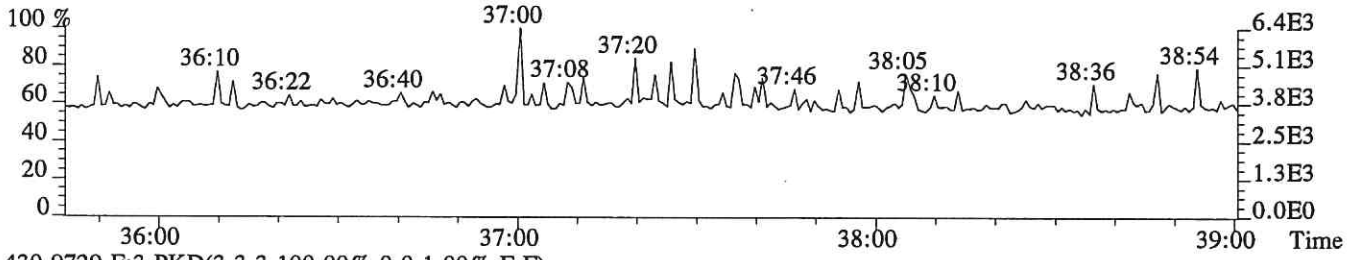
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,236.0,0.40%,F,T)



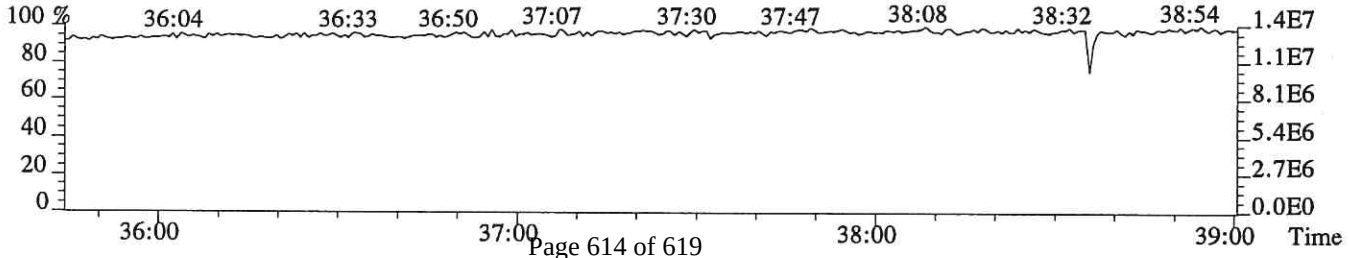
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,992.0,0.40%,F,T)



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

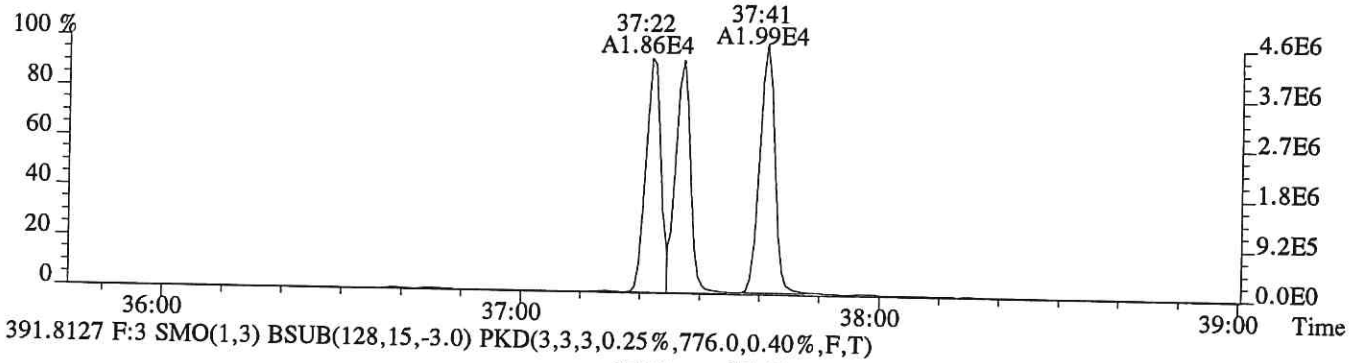


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

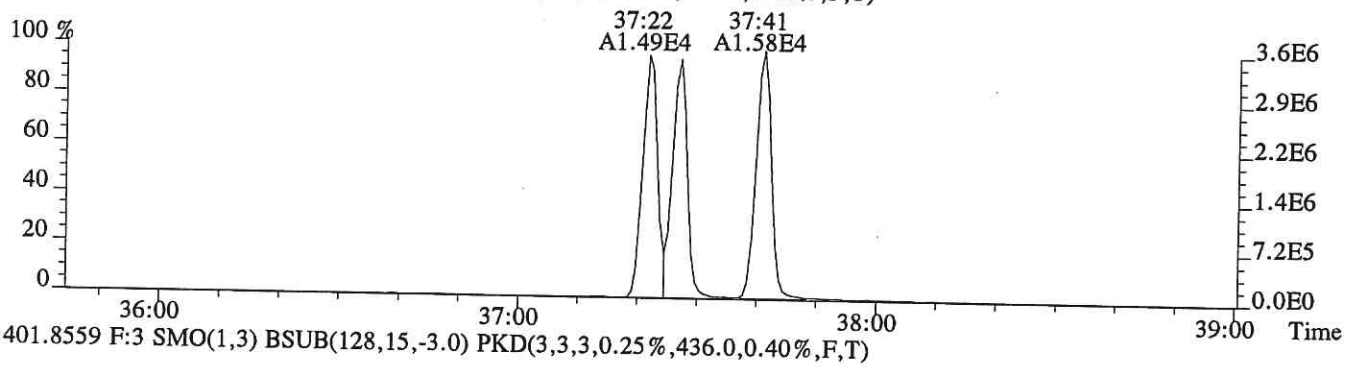


RIGHT SOLUTIONS | RIGHT PARTNER

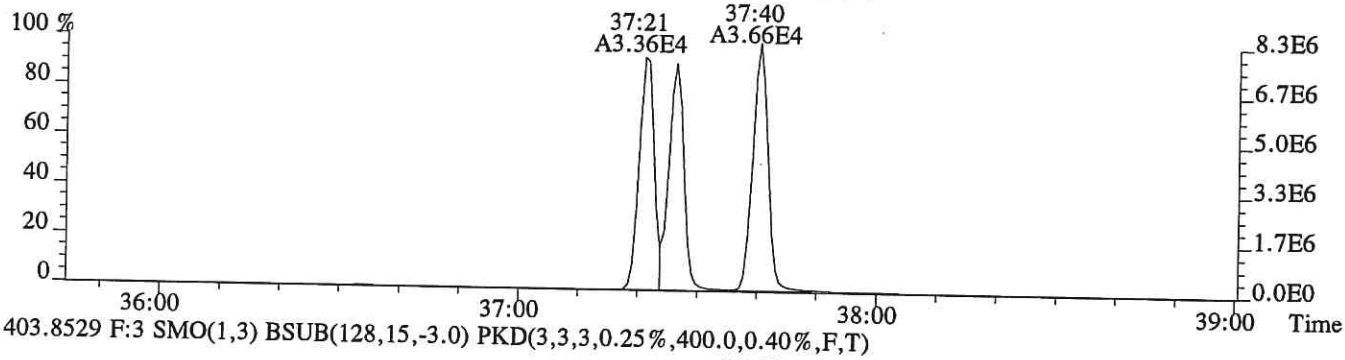
File:P619254 #1-295 Acq: 4-OCT-2019 07:13:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,412.0,0.40%,F,T)



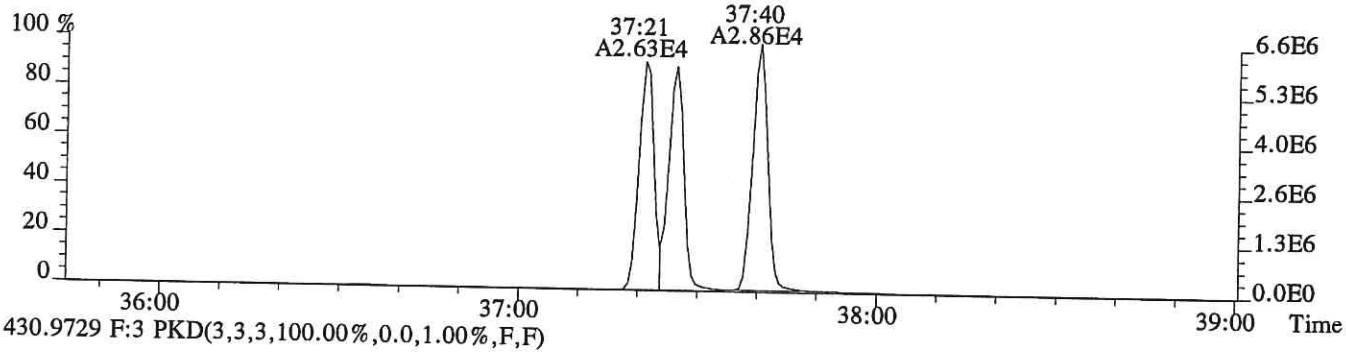
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,776.0,0.40%,F,T)



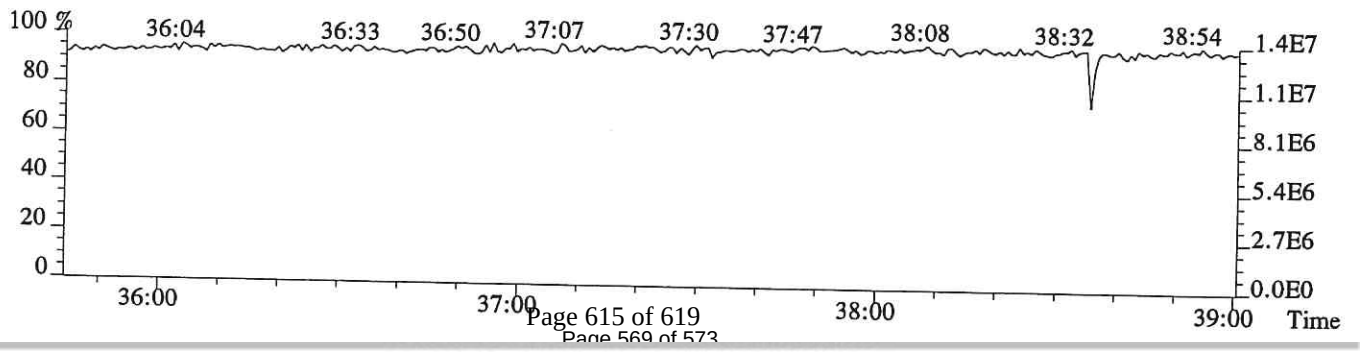
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,436.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,400.0,0.40%,F,T)



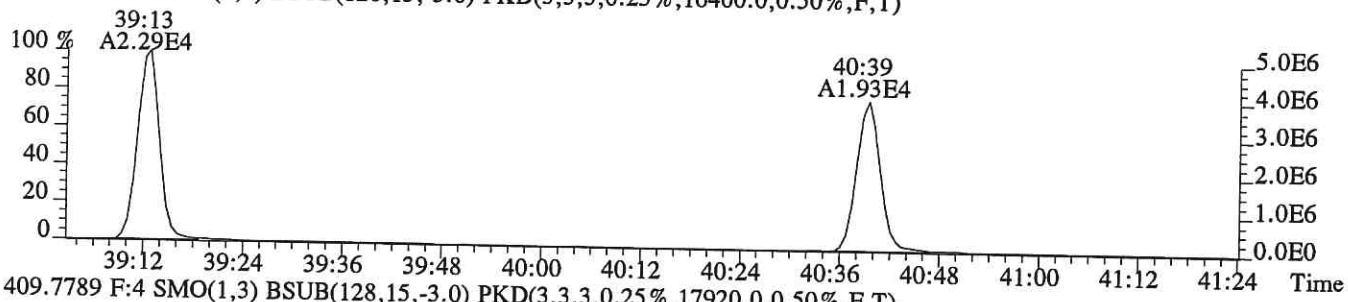
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



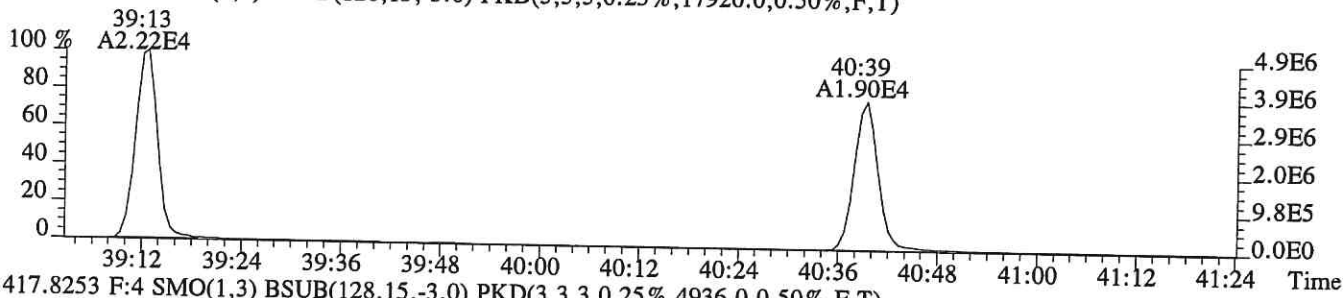
RIGHT SOLUTIONS | RIGHT PARTNER

File:P619254 #1-213 Acq: 4-OCT-2019 07:13:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE

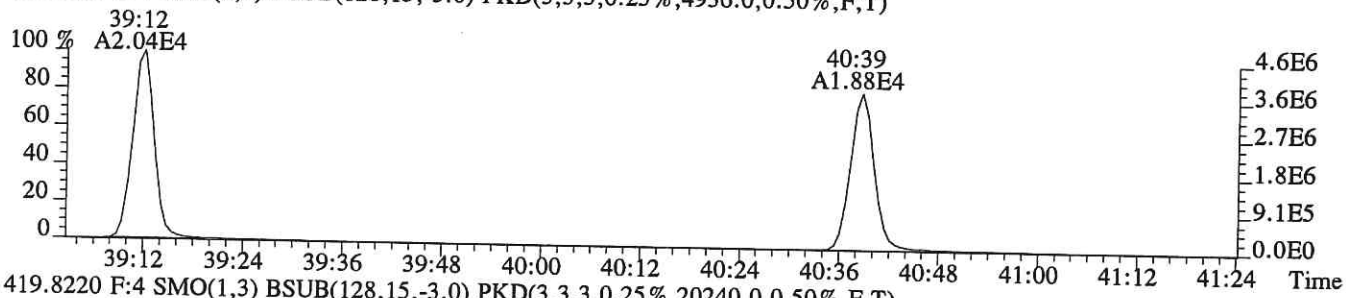
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,16400.0,0.50%,F,T)



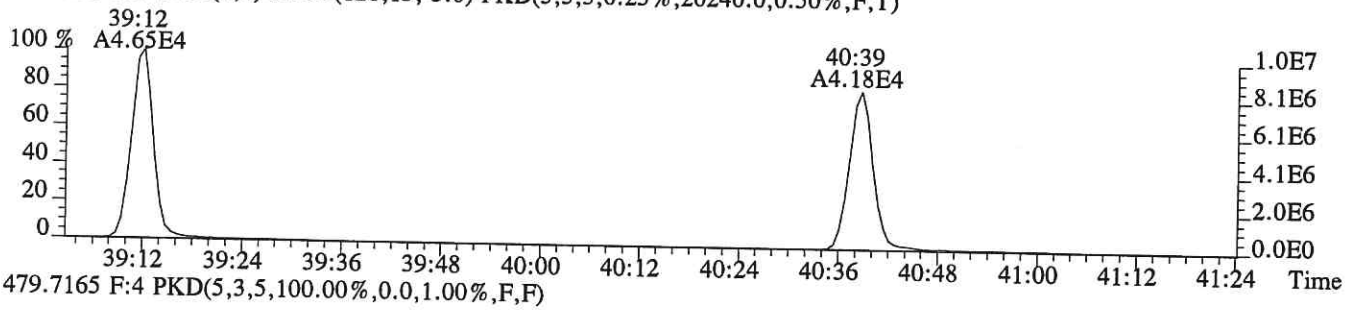
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,17920.0,0.50%,F,T)



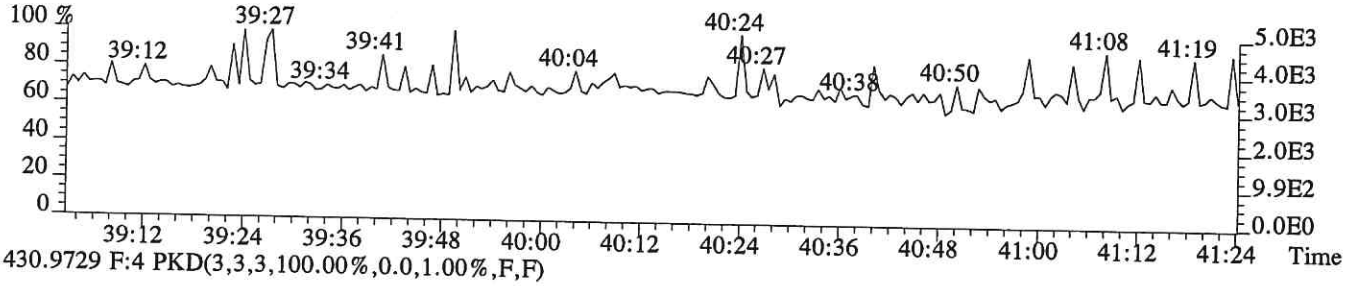
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4936.0,0.50%,F,T)



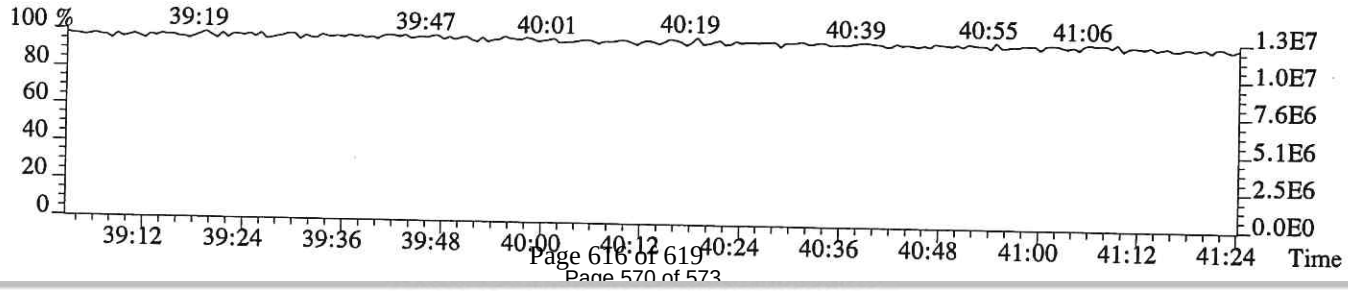
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,20240.0,0.50%,F,T)



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

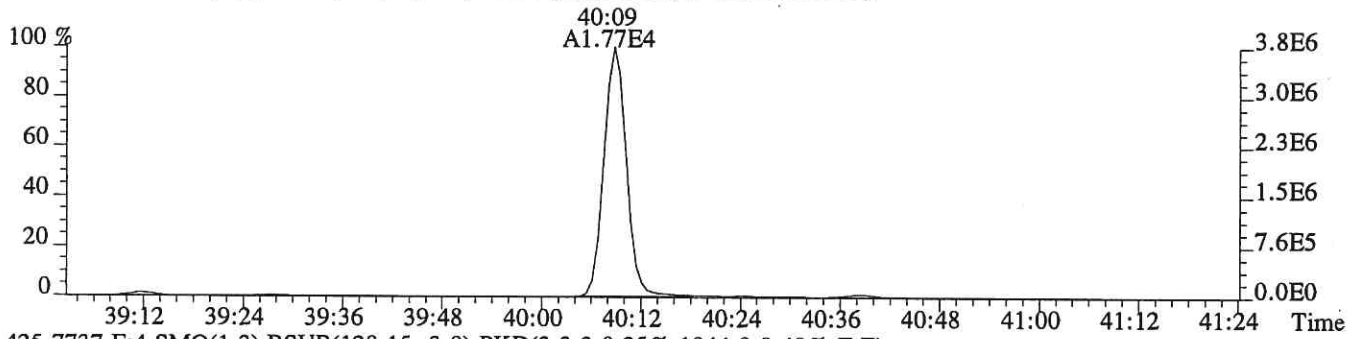


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

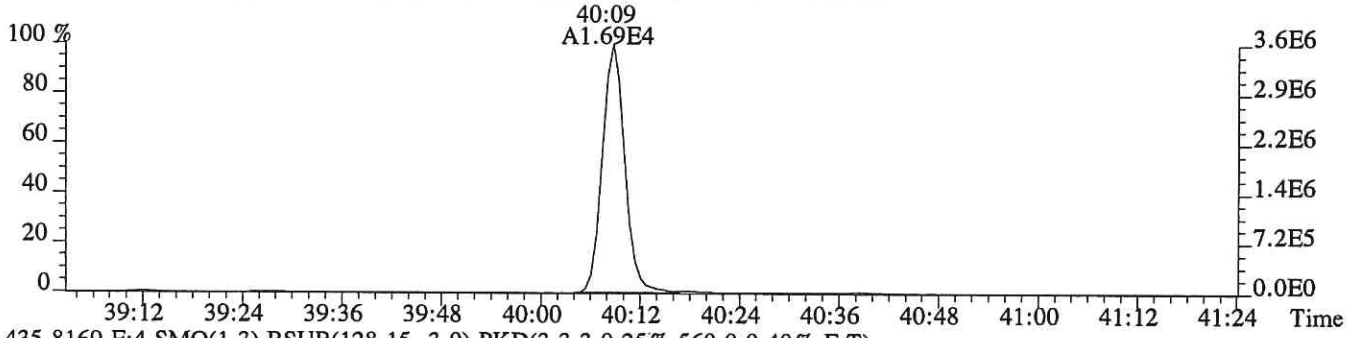


RIGHT SOLUTIONS | RIGHT PARTNER

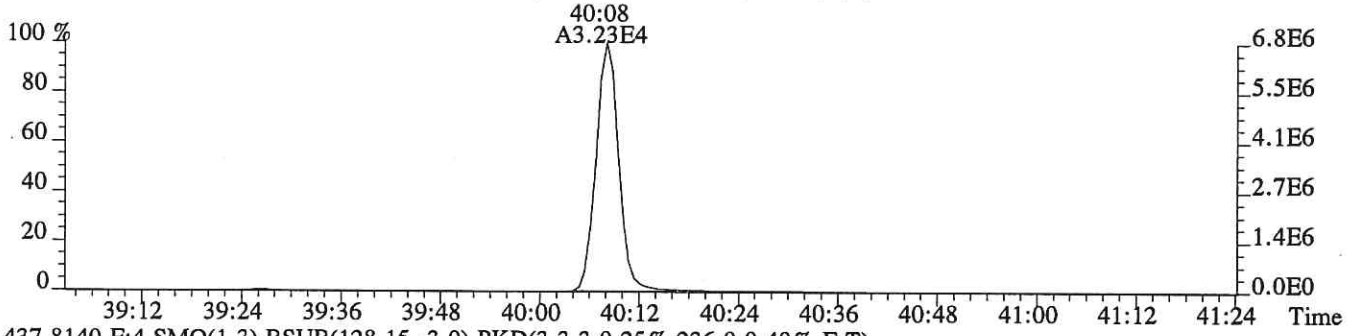
File:P619254 #1-213 Acq: 4-OCT-2019 07:13:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,500.0,0.40%,F,T)



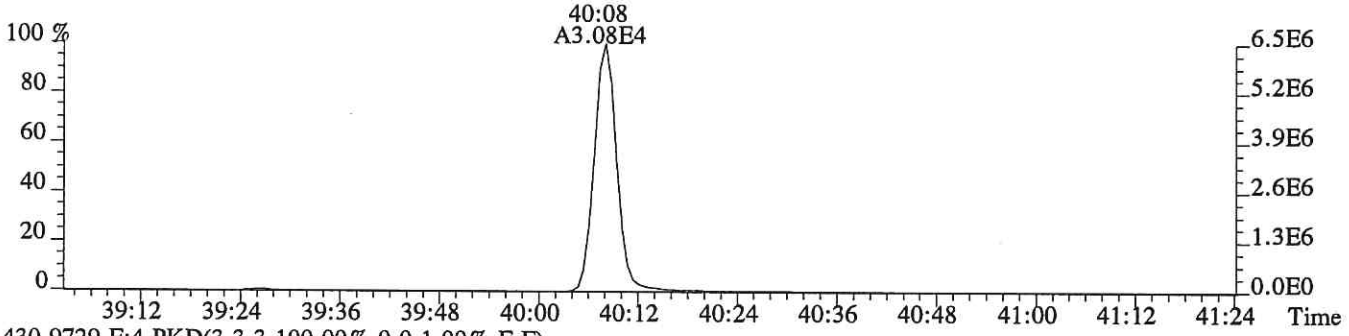
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1044.0,0.40%,F,T)



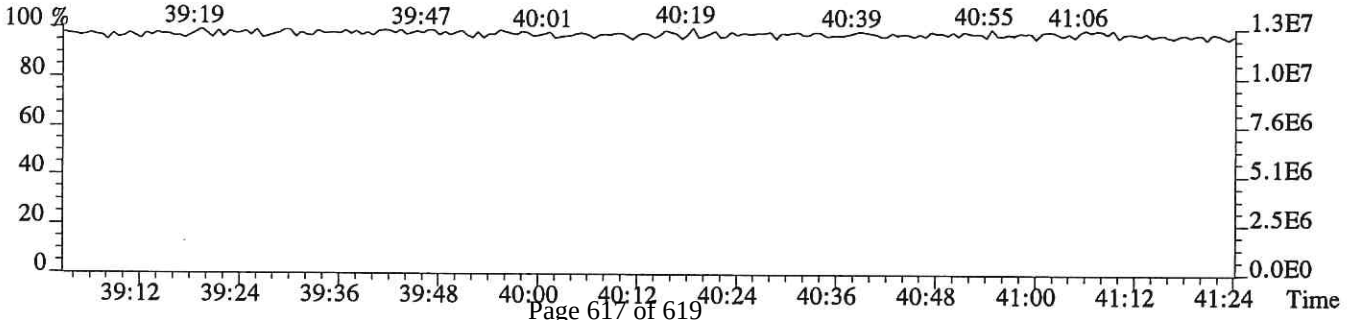
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,560.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,236.0,0.40%,F,T)



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



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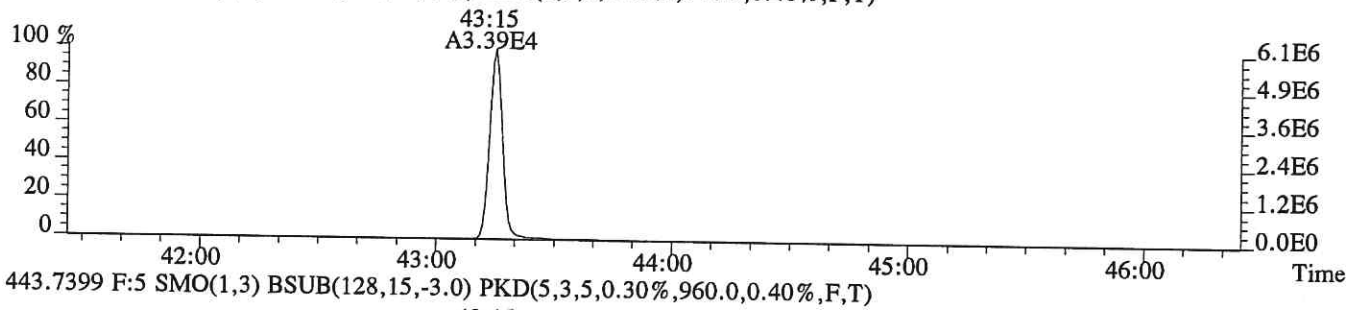
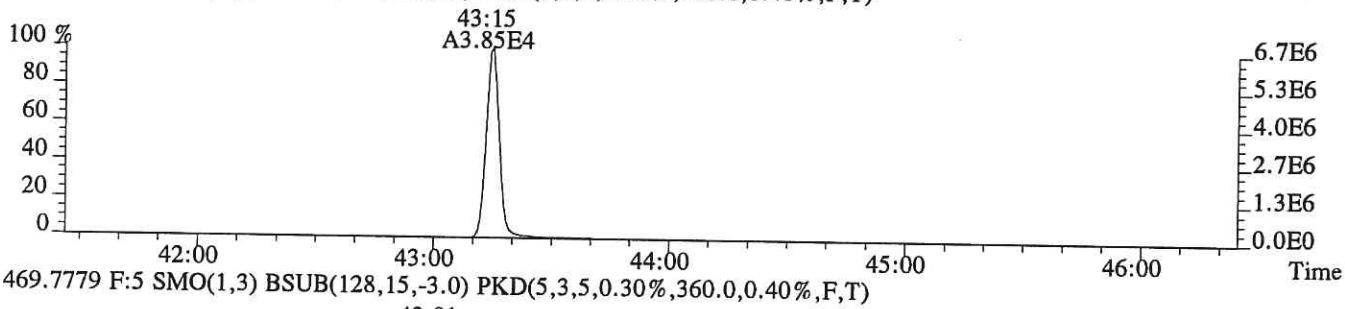
File:P619254 #1-448 Acq: 4-OCT-2019 07:13:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE

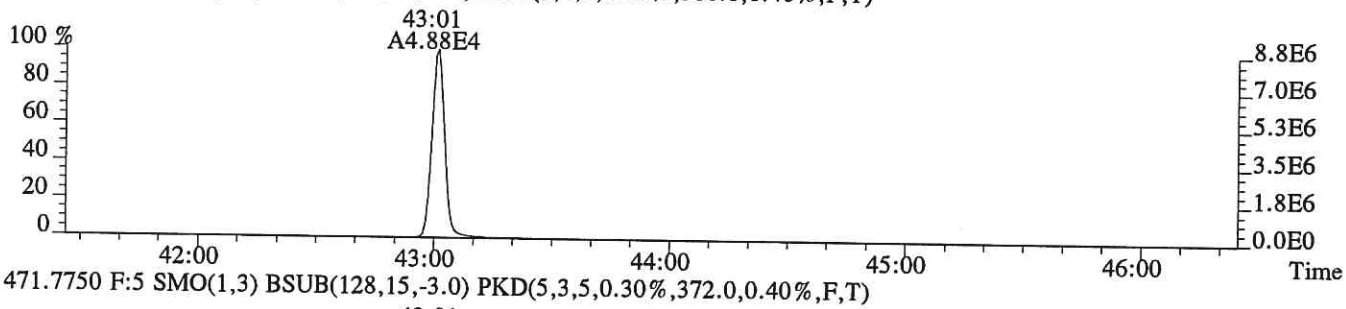
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,344.0,0.40%,F,T)



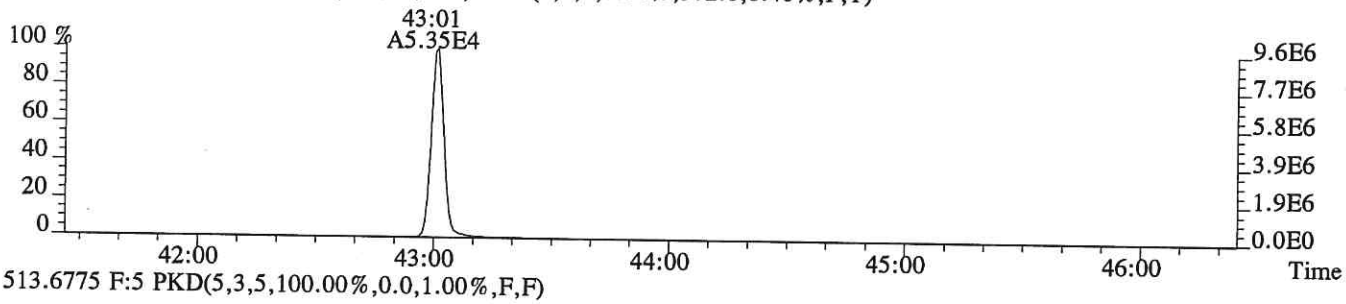
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,960.0,0.40%,F,T)



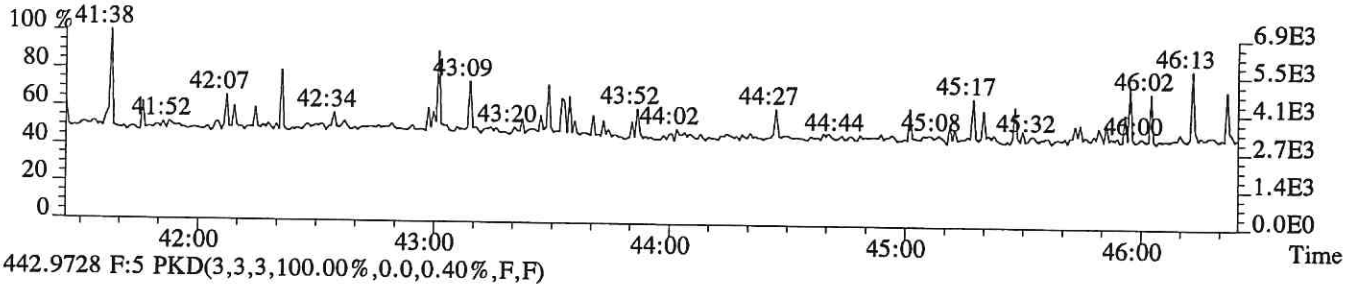
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,360.0,0.40%,F,T)



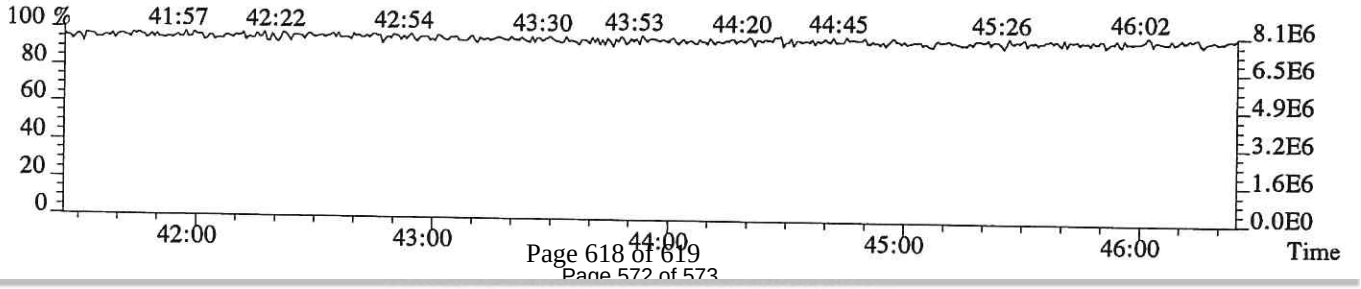
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,372.0,0.40%,F,T)



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)



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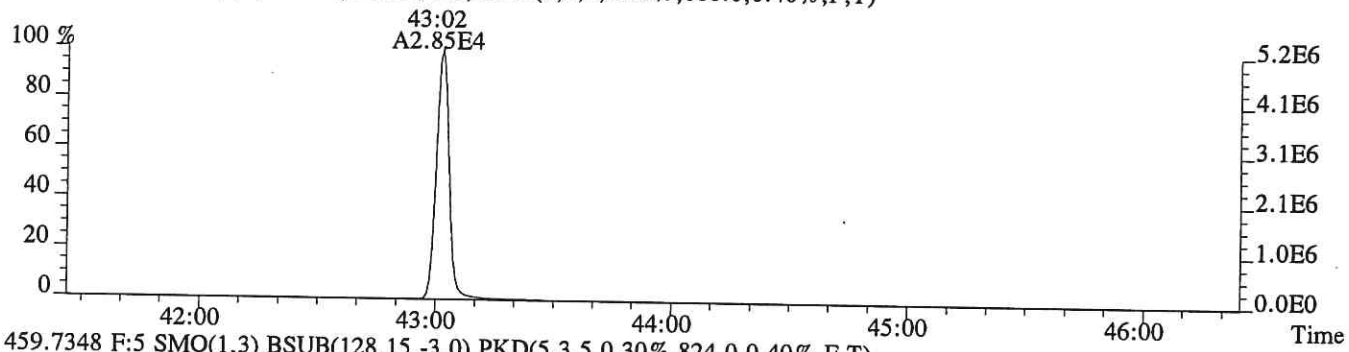
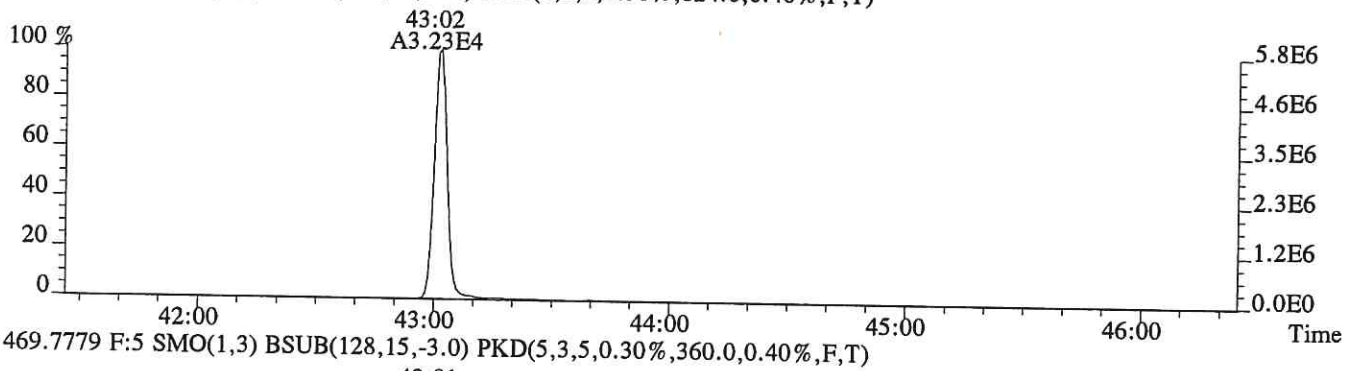
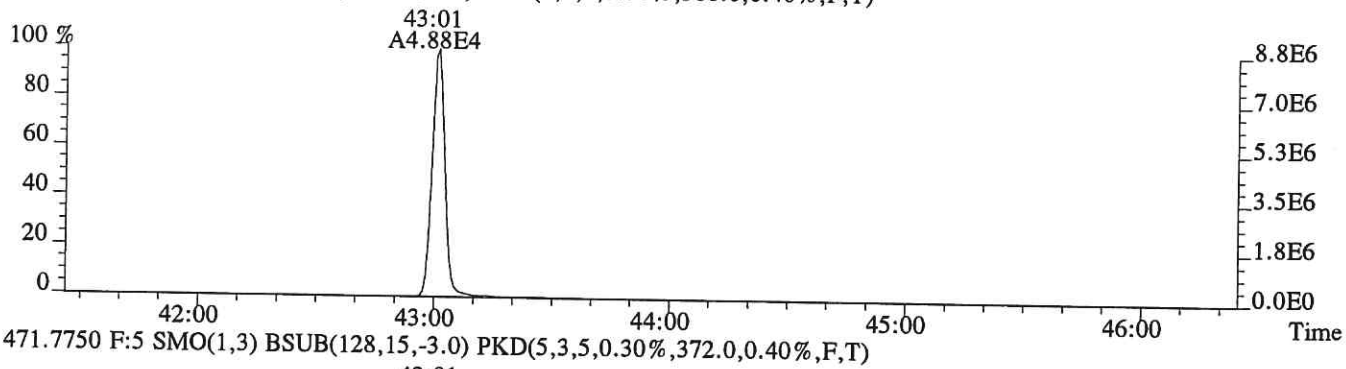
File:P619254 #1-448 Acq: 4-OCT-2019 07:13:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,660.0,0.40%,F,T)



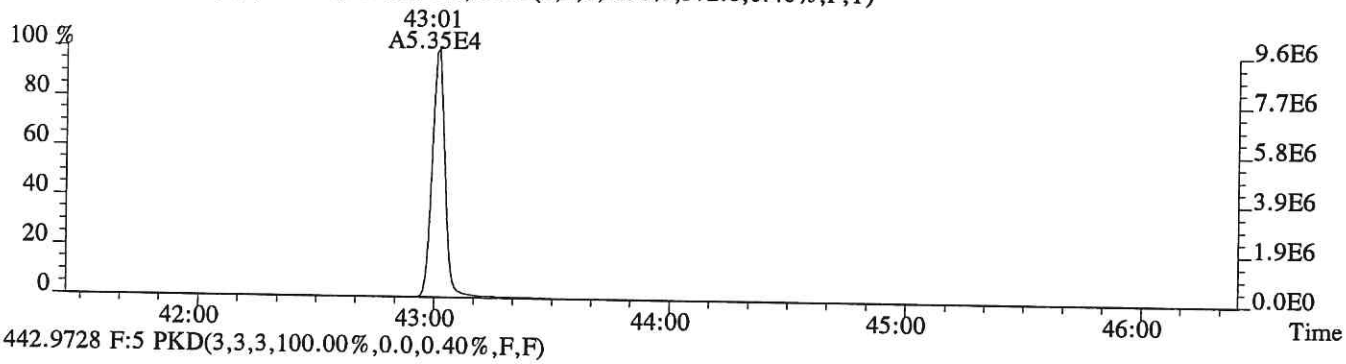
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,824.0,0.40%,F,T)



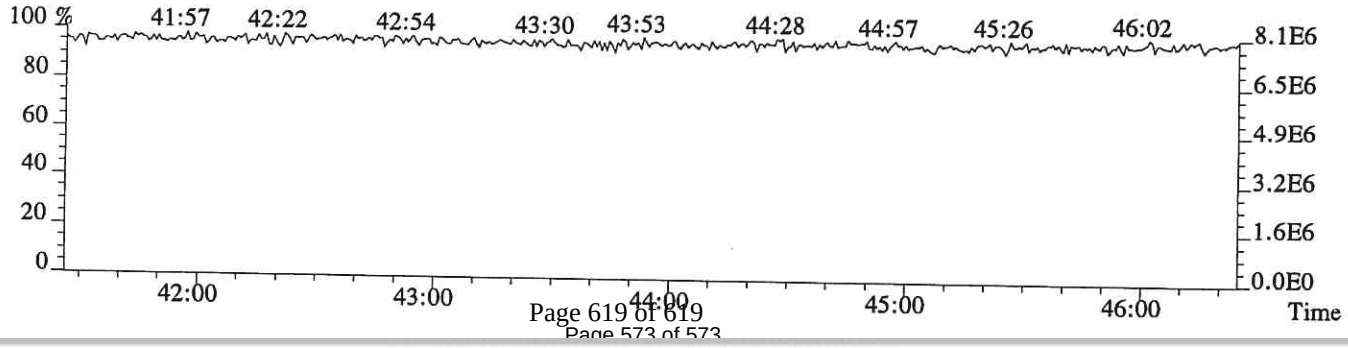
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,360.0,0.40%,F,T)



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)



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