

Reprogrammed arachidonic acid metabolism by α -terpineol to alleviate asthma: insights from metabolomics

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Table S1 Major differential compounds and change trend in mouse lung tissue samples.

Differential compound	Rt (min)	m/z	Formula	Adducts	Ion Mode	Fold change	
						M vs. C	Ter vs. M
Arachidonic acid	19.07	303.2330		[M-H]- [M-H]-	ESI ⁻	1.63 ↑	0.50 ↓
LTB4	16.61	335.2228		[M-H]- [M+H] ⁺	ESI ⁻	1.64 ↑	0.81 ↓
LTD4	19.20	495.2534		[M+H] ⁺ [M+H] ⁺	ESI ⁻	2.46 ↑	0.28 ↓
5-HPETE	9.72	337.2373	C20H32O2 C20H32O4	[M+H] ⁺ [M+H] ⁺	ESI ⁺	1.64 ↑	0.57 ↓
L-Tryptophan	3.68	205.0972	C25H40N2O6S C20H32O4	[M-H]- [M-H]-	ESI ⁺	1.38 ↑	0.87 ↓
Hypoxanthine	1.41	137.0458	C11H12N2O2 C5H4N4O	[M+H] ⁺ [M+H] ⁺	ESI ⁺	1.86 ↑	0.42 ↓
Ornithine	0.85	133.0972	C5H12N2O2 C6H9N3O2	[M-H]- [M-H]-	ESI ⁺	3.60 ↑	0.75 ↓
Histidine	0.86	156.0768	C20H30O2 C9H12N2O6	[M-H]- [M+H] ⁺	ESI ⁺	1.67 ↑	0.81 ↓
Abietic acid	1.03	301.2173	C4H4N2O2 C20H32O5	[M+H] ⁺ [M+H] ⁺	ESI ⁻	1.74 ↑	0.72 ↓
Uridine	1.24	243.0623	C20H32O3 C18H30O2	[M+H] ⁺ [M+H] ⁺	ESI ⁻	2.16 ↑	0.57 ↓
Uracil	1.40	113.0346	C18H32O2 C10H12N2O3	[M+H] ⁺ [M+H] ⁺	ESI ⁺	1.62 ↑	0.86 ↓
LXA4	8.55	353.2322	C5H4N4O2 C10H13N5O4	[M+H] ⁺ [M-H]-	ESI ⁺	0.64 ↓	1.38 ↑
5-HETE	17.52	319.2279	C10H12N4O5 C10H17N3O6S	[M+H] ⁺ [M-H]-	ESI ⁻	0.82 ↓	1.37 ↑
α-Linolenic acid	18.66	277.2173	C5H7NO3 C5H9N3		ESI ⁻	0.89 ↓	1.24 ↑
Linoleic acid	19.02	279.2330	C5H5N5 C5H4N4O3		ESI ⁻	0.79 ↓	1.32 ↑
Kynurenine	2.15	209.0921	C20H32O5 C20H32O5		ESI ⁺	0.76 ↓	1.64 ↑
Xanthine	1.40	153.0407			ESI ⁺	0.74 ↓	1.18 ↑
Adenosine	1.41	268.1040			ESI ⁺	0.81 ↓	1.23 ↑
Inosine	1.46	269.0880			ESI ⁺	0.78 ↓	1.23 ↑

Glutathione	7.76	308.0911	ESI ⁺	0.18 ↓	2.94 ↑
Pyroglutamic acid	1.41	130.0499	ESI ⁺	0.48 ↓	1.29 ↑
Histamine	0.81	112.0869	ESI ⁺	0.69 ↓	1.12 ↑
				0.65 ↓	1.56 ↑
Adenine	3.01	136.0618	ESI ⁺	2.18 ↑	0.54 ↓
Uric acid	0.88	167.0210	ESI ⁻		
PGD2	8.55	353.2322	ESI ⁺	0.62 ↓	1.45 ↑
TXA2	12.92	351.2178	ESI ⁻	1.89 ↑	0.43 ↓

Rt represents the retention time of the compound.

Table S2 Major differential compounds in mouse lung tissue samples and their specific information.

Differential compound	Annotation level	CV in QCs (%)	P-Value		Corrected P-value		Biochemical class
			M vs C	Ter vs M	M vs C	Ter vs M	
Arachidonic acid	Level 2	13.6	<0.01	<0.01	0.05	0.02	Fatty acids
LTB4	Level 2	19.7	0.01	0.02	0.05	0.22	Unsaturated acid
LTD4	Level 2	15.4	<0.01	<0.01	0.01	<0.01	Unsaturated acid
5-HPETE	Level 2	13.5	0.02	0.02	0.05	0.21	Hydroperoxyeicosatetraenoic acids
L-Tryptophan	Level 2	18.9	<0.01	0.01	<0.01	0.11	Alpha-amino acid
Hypoxanthine	Level 2	8.9	<0.01	<0.01	0.38	0.38	Purines
Ornithine	Level 2	19.9	<0.01	0.02	<0.01	0.02	L-alpha-amino acids
Histidine	Level 2	6.7	<0.01	0.02	<0.01	0.02	Alpha-amino acid
Abietic acid	Level 2	4.2	0.03	0.01	0.05	0.17	Diterpenoids
Uridine	Level 2	17.0	<0.01	0.01	<0.01	0.59	Pyrimidine nucleosides

Uracil	Level 2	18.3	0.03	0.03	0.04	0.38	Pyrimidones
LXA4	Level 2	12.1	<0.01	0.03	<0.01	0.05	Eicosanoid chemical mediators
5-HETE	Level 2	19.9	0.03	0.01	0.31	0.05	Eicosanoid
α -Linolenic acid	Level 2	13.5	0.05	<0.01	0.59	0.03	Omega-3 fatty acid
Linoleic acid	Level 2	17.3	0.05	0.03	0.05	0.03	Omega-6 fatty acid
Kynurenine	Level 2	16.4	0.04	0.04	0.44	0.04	Alkyl-phenylketone
Xanthine	Level 2	12.0	<0.01	0.01	0.01	0.19	Xanthines
Adenosine	Level 2	19.8	0.05	0.01	0.05	0.12	Nucleoside
Inosine	Level 2	13.4	0.04	0.10	0.04	0.10	Purine nucleosides
Glutathione	Level 2	18.8	<0.01	0.03	<0.01	0.03	Tripeptide
Pyroglutamic acid	Level 2	18.8	<0.01	0.19	<0.01	0.19	Amino acid derivative
Histamine	Level 2	19.4	<0.01	0.28	<0.01	0.28	Amine
Adenine	Level 2	10.1	0.02	0.01	0.03	0.19	6-Aminopurines
Uric acid	Level 2	19.5	<0.01	0.01	<0.01	0.02	Heterocyclic purine derivative
PGD2	Level 2	16.2	0.04	0.02	0.04	0.24	Prostaglandin
TXA2	Level 2	17.7	<0.01	0.01	0.01	0.02	Thromboxane

Table S3 Major differential compounds and change trend in mouse serum samples.

Differential compound	Rt (min)	<i>m/z</i>	Formula	Adducts	Ion Mode	Fold change	
						M vs. C	Ter vs. M
Arginine	0.84	175.1190	C ₆ H ₁₄ N ₄ O ₂	[M+H] ⁺ [M+H] ⁺	ESI ⁺	1.32 ↑	0.60 ↓
Kynurenine	2.11	209.0921	C ₁₀ H ₁₂ N ₂ O ₃	[M+H] ⁺ [M+H] ⁺	ESI ⁺	1.22 ↑	0.60 ↓
Glutamate	1.06	148.0604	C ₅ H ₉ NO ₄	[M+H] ⁺ [M+H] ⁺	ESI ⁺	1.22 ↑	0.42 ↓
Uric acid	1.33	169.0356	C ₅ H ₄ N ₄ O ₃	[M+H] ⁺ [M-H] ⁻	ESI ⁺	1.83 ↑	0.43 ↓
LTA4	11.13	319.2267	C ₂₀ H ₃₀ O ₃	[M-H] ⁻ [M+H] ⁺	ESI ⁺	2.50 ↑	0.45 ↓
Histidine	0.82	156.0768	C ₆ H ₉ N ₃ O ₂	[M+H] ⁺ [M+H] ⁺	ESI ⁺	1.30 ↑	0.36 ↓

Histamine	0.79	112.0869	C ₅ H ₉ N ₃	[M-H] ⁻	ESI ⁺	1.30 ↑	0.34 ↓
Arachidonic acid	19.04	303.2330	C ₂₀ H ₃₂ O ₂	[M-H] ⁻	ESI ⁻	2.03 ↑	0.33 ↓
Uridine	1.22	243.0623	C ₉ H ₁₂ N ₂ O ₆	[M+H] ⁺	ESI ⁻	1.66 ↑	0.45 ↓
Xanthine	1.34	153.0407	C ₅ H ₄ N ₄ O ₂		ESI ⁺	0.36 ↓	6.60 ↑
Tryptophan	3.67	205.0972	C ₁₁ H ₁₂ N ₂ O ₂		ESI ⁺	0.71 ↓	1.38 ↑
5-HPETE	9.72	337.2373	C ₂₀ H ₃₂ O ₄		ESI ⁺	0.39 ↓	2.37 ↑
α-Linolenic acid	18.50	277.2173	C ₁₈ H ₃₀ O ₂		ESI ⁻	0.18 ↓	3.98 ↑
linoleic acid		279.2330	C ₁₈ H ₃₂ O ₂			0.62 ↓	1.89 ↑
Valine	18.97	118.0863	C ₅ H ₁₁ NO ₂		ESI ⁻		
	1.35				ESI ⁺	0.57 ↓	2.05 ↑

Rt represents the retention time of the compound.

Table S4 Major differential compounds in mouse serum samples and their specific information.

Differential compound	Annotation level	CV in QCs (%)	P-Value		Corrected P-value		Biochemical class
			M vs C	Ter vs M	M vs C	Ter vs M	
Arginine	Level 2	5.2	<0.01	0.02	0.04	0.05	L-alpha-amino acids
Kynurenine	Level 2	19.0	0.01	0.12	0.05	0.19	Alkyl-phenylketone
Glutamate	Level 2	17.9	0.03	<0.01	0.12	<0.01	Alpha-amino acid
Uric acid	Level 2	9.3	<0.01	<0.01	0.04	0.06	Heterocyclic purine derivative
LTA4	Level 2	16.3	<0.01	<0.01	<0.01	<0.01	Leukotrienes
Histidine	Level 2	19.3	<0.01	<0.01	0.05	<0.01	Alpha-amino acid
Histamine	Level 2	15.5	<0.01	0.02	0.18	0.02	Amine
Arachidonic acid	Level 2	20.0	<0.01	0.02	<0.01	0.02	Fatty acids
Uridine	Level 2	19.5	<0.01	0.24	0.04	0.24	Pyrimidine nucleosides
Xanthine	Level 2	19.6	<0.01	0.01	<0.01	0.01	Xanthines
Tryptophan	Level 2	7.3	<0.01	0.01	0.05	0.01	Alpha-amino acid
5-HPETE	Level 2	12.8	<0.01	0.03	<0.01	0.03	Hydroperoxyeicosatetraenoic acids
α -Linolenic acid	Level 2	13.2	<0.01	0.01	<0.01	0.01	Omega-3 fatty acid
linoleic acid	Level 2	19.2	<0.01	<0.01	0.03	0.08	Omega-6 fatty acid
Valine	Level 2	19.5	<0.01	<0.01	<0.01	<0.01	Alpha-amino acid

Table S5 Summary of results of pathway analysis of differential metabolites in lung tissue.

Pathway Name	Match Status	p	FDR	Impact
Arachidonic acid metabolism	7/36	5.1766E-7	4.3484E-7	0.4644
Purine metabolism	6/65	0.2004E-4	0.010454	0.00754
Glutathione metabolism	3/28	0.0082928	0.2322	0.26305
Biosynthesis of unsaturated fatty acids	3/30	0.016662	0.34989	0.0
Histidine metabolism	2/16	0.024162	0.40592	0.40983
beta-Alanine metabolism	2/21	0.040341	0.56477	0.0
Linoleic acid metabolism	1/5	0.075153	0.90183	1.0

Table S6 Results of enrichment analysis of major differential compounds in mouse lung tissue samples.

Metabolite Set	Total	Hits	Expect	P value	FDR
Arachidonic acid metabolism	69	8	1.62	8.76E-5	0.00858
Purine metabolism	74	6	1.73	0.00549	0.269
Alpha-linolenic and linoleic acid metabolism	19	3	0.445	0.00858	0.28
Glutathione metabolism	21	2	0.492	0.0843	1.0

Table S7 Summary of results of pathway analysis of differential metabolites in serum.

Pathway Name	Match Status	P	FDR	Impact
Aminoacyl-tRNA biosynthesis	5/48	5.4905E-5	0.0046121	0.0
Histidine metabolism	3/16	3.8127E-4	0.016013	0.40983
Biosynthesis of unsaturated fatty acids	3/36	0.0043244	0.090813	0.0
Arachidonic acid metabolism	3/36	0.0043244	0.090813	0.49613
Arginine biosynthesis	2/14	0.0074414	0.12502	0.19289
Linoleic acid metabolism	1/5	0.04752	0.48448	1.0
Arginine and proline metabolism	2/38	0.050279	0.48448	0.14386

Table S8 Results of enrichment analysis of major differential compounds in mouse serum samples.

Metabolite Set	Total	Hits	Expect	P value	FDR
Alpha-linolenic and linoleic acid metabolism	19	3	0.278	0.00214	0.21
Arachidonic acid metabolism	69	4	1.01	0.0146	0.717
Histidine metabolism	43	3	0.63	0.0221	0.721
Tryptophan metabolism	60	3	0.879	0.0526	0.884
Methylhistidine Metabolism	4	1	0.0586	0.0574	0.884
Urea cycle	29	2	0.425	0.0647	0.884
Ammonia Recycling	32	2	0.469	0.0771	0.884

Fig S1 The representative total ion chromatograms (TICs) of lung tissue samples in ESI⁺ and ESI⁻ modes.

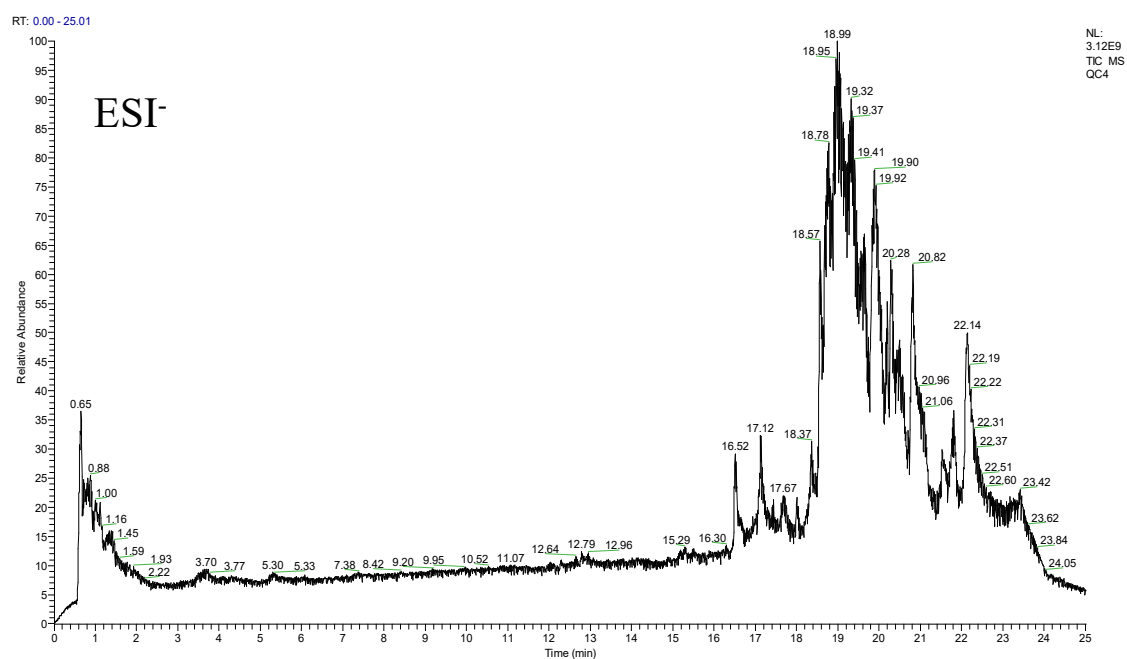
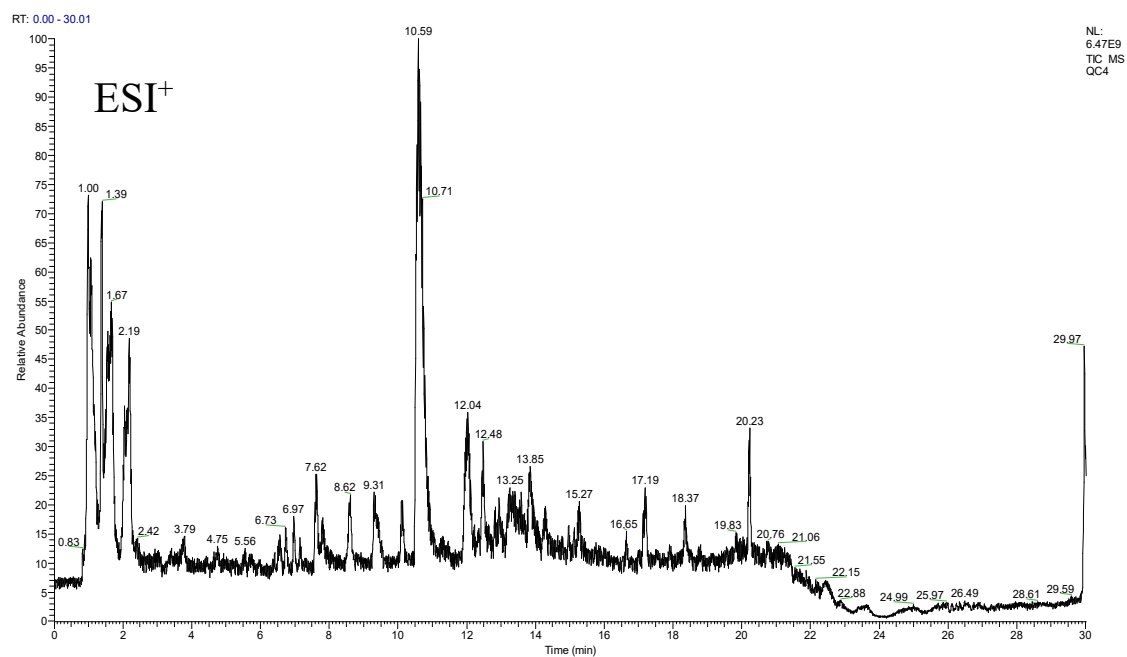


Fig S2 The representative total ion chromatograms (TICs) of serum samples in ESI⁺ and ESI⁻ modes.

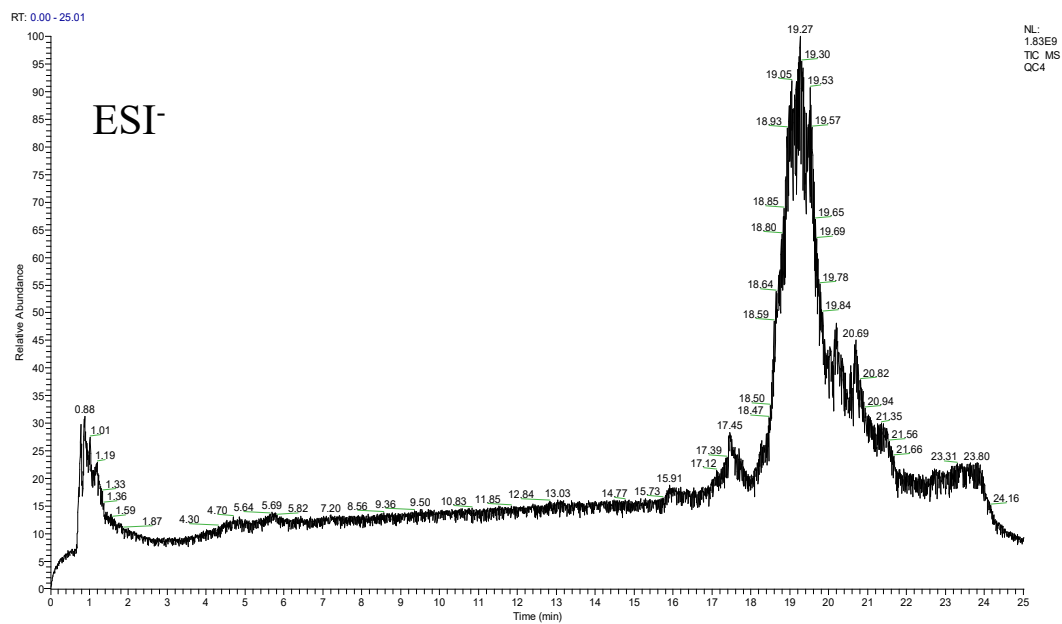
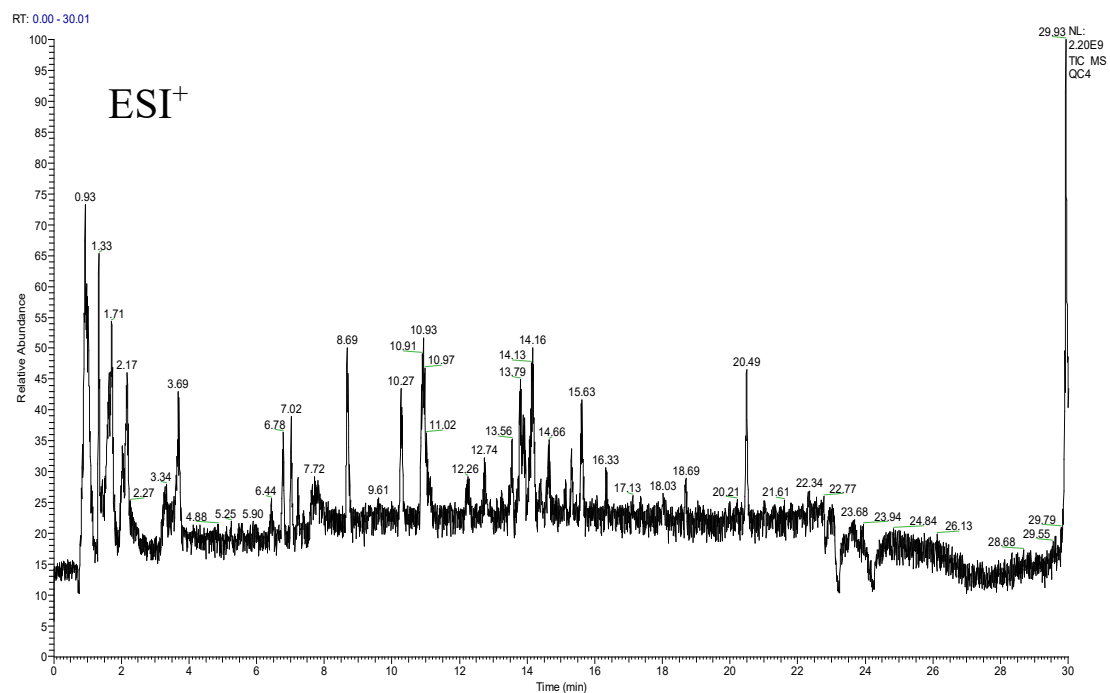


Fig S3 The PCA analysis of QCs samples of lung tissue and serum samples in both positive (ESI⁺) and negative (ESI⁻) ion modes.

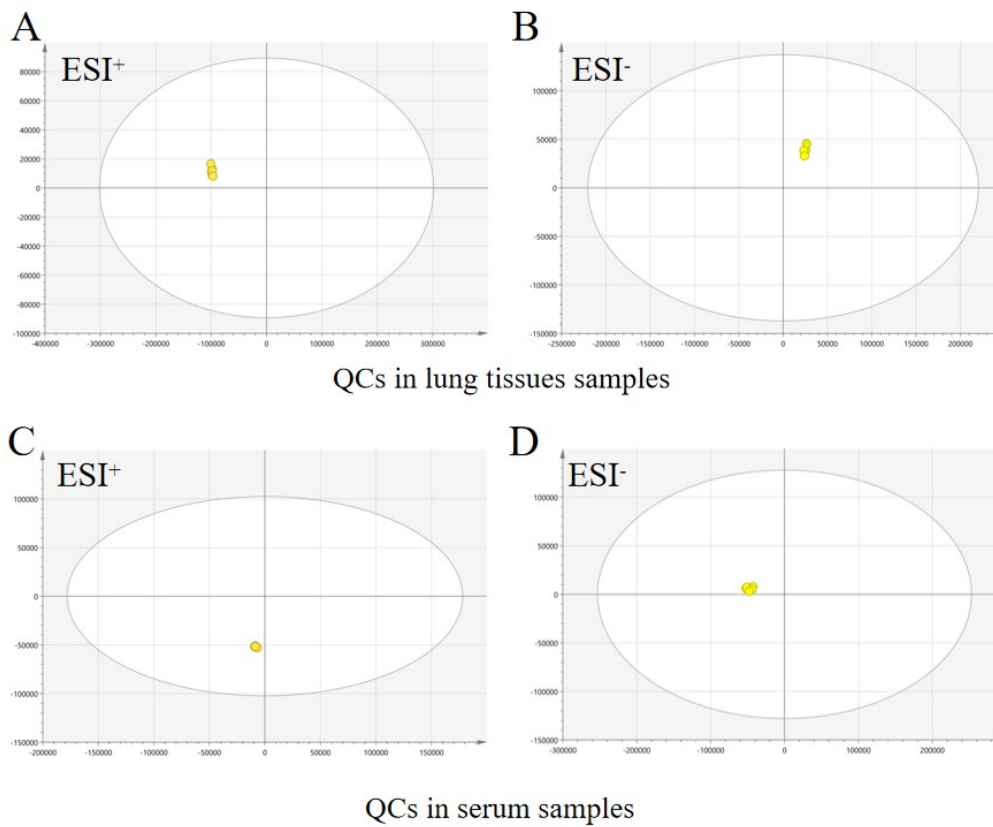
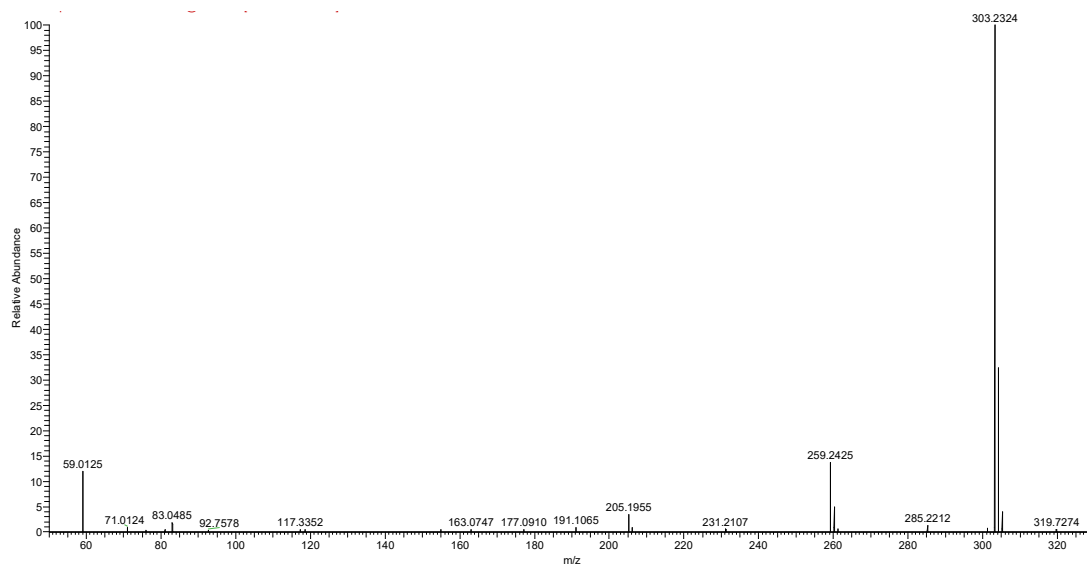


Fig S4 MS/MS spectra of different metabolites in lung tissues detected by UPLC-MS/MS.

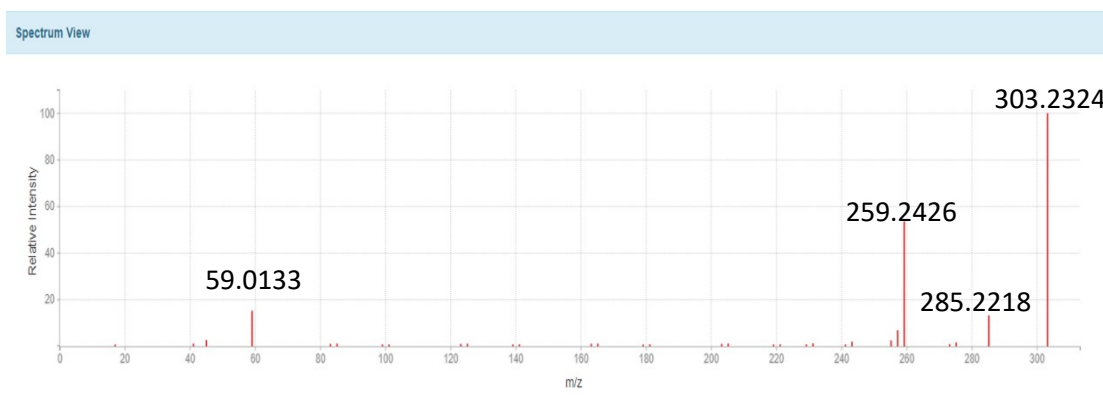
1.Arachidonic Acid (AA)

[M-H] :303.2329

MS/MS spectrum of arachidonic acid detected in mouse lung tissue

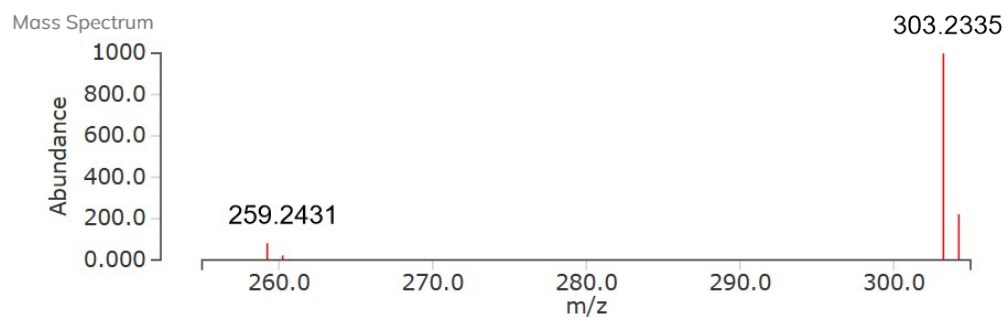


MS/MS spectrum of arachidonic acid from HMDB



MS/MS spectrum of arachidonic acid from MassBank

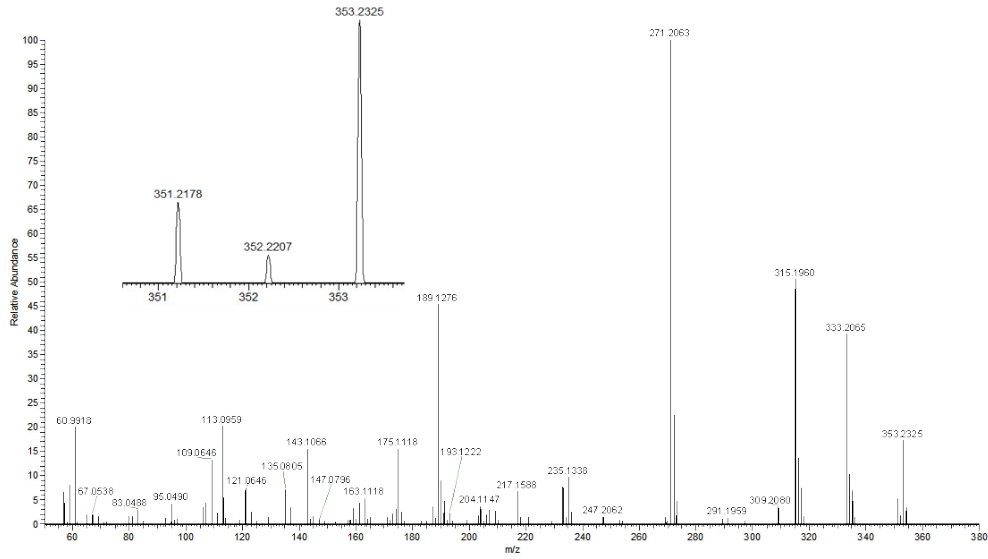
Arachidonic acid; LC-ESI-QTOF; MS2; CE:20 eV; [M-H]-



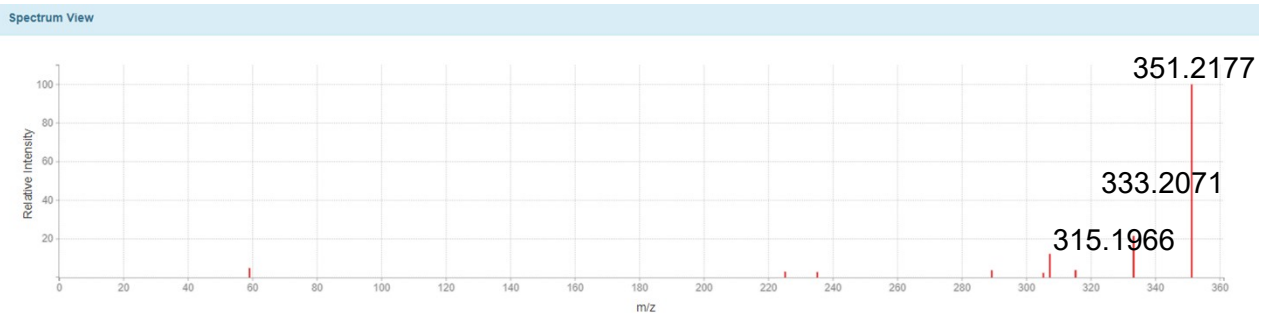
2.Thromboxane A2 (TXA2)

[M-H] :351.2176

MS/MS spectrum of TXA2 detected in mouse lung tissue



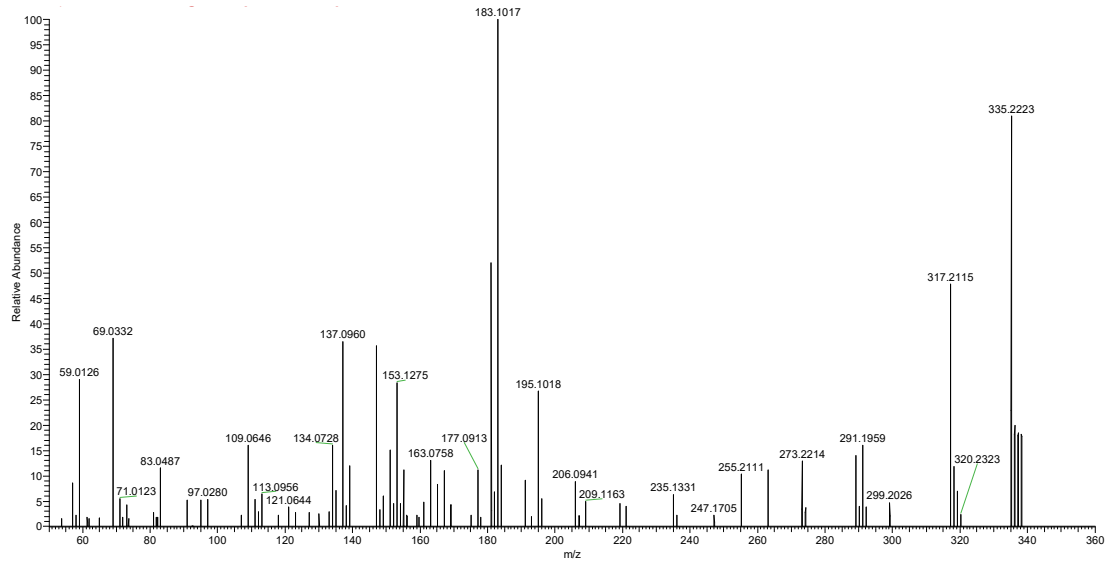
MS/MS spectrum of TXA2 from HMDB



3.LTB4

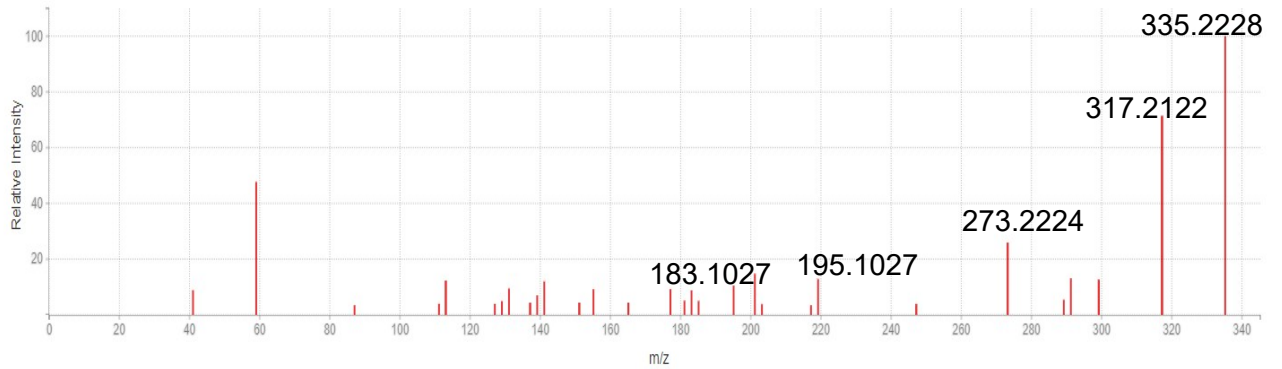
[M-H] :335.2227

MS/MS spectrum of LTB4 detected in mouse lung tissue



MS/MS spectrum of LTB4 from HMDB

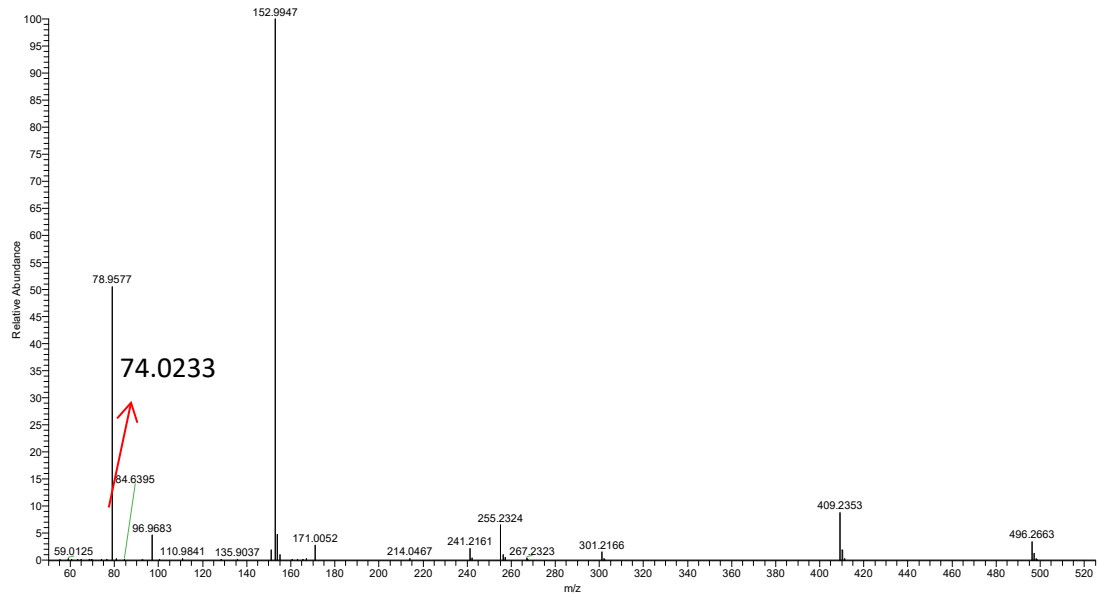
Spectrum View



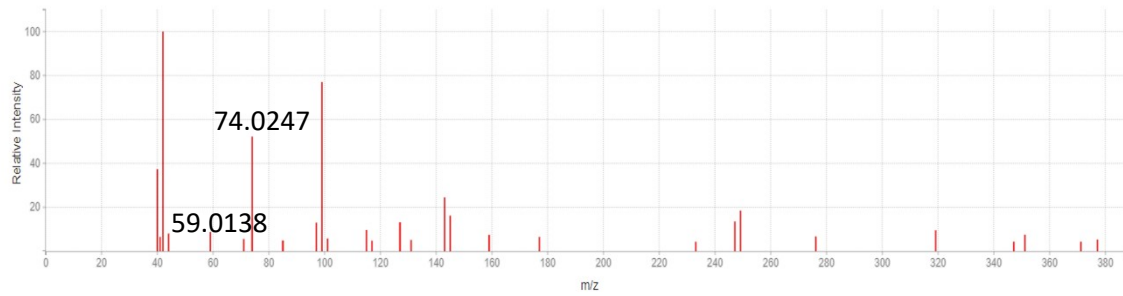
4.LTD4

[M-H] :495.2534

MS/MS spectrum of LTD4 detected in mouse lung tissue



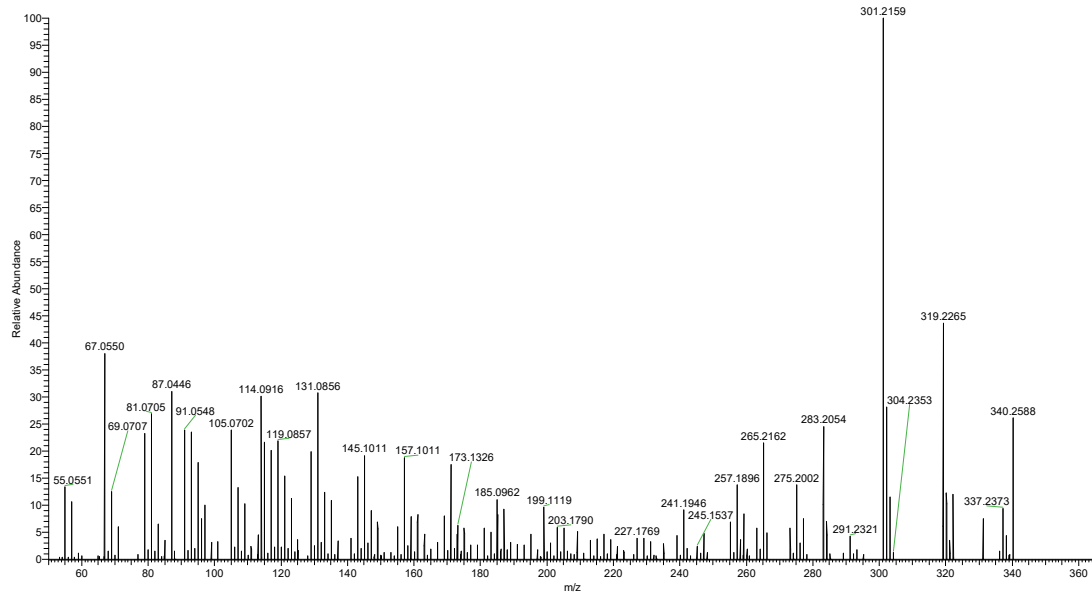
MS/MS spectrum of LTD4 from HMDB



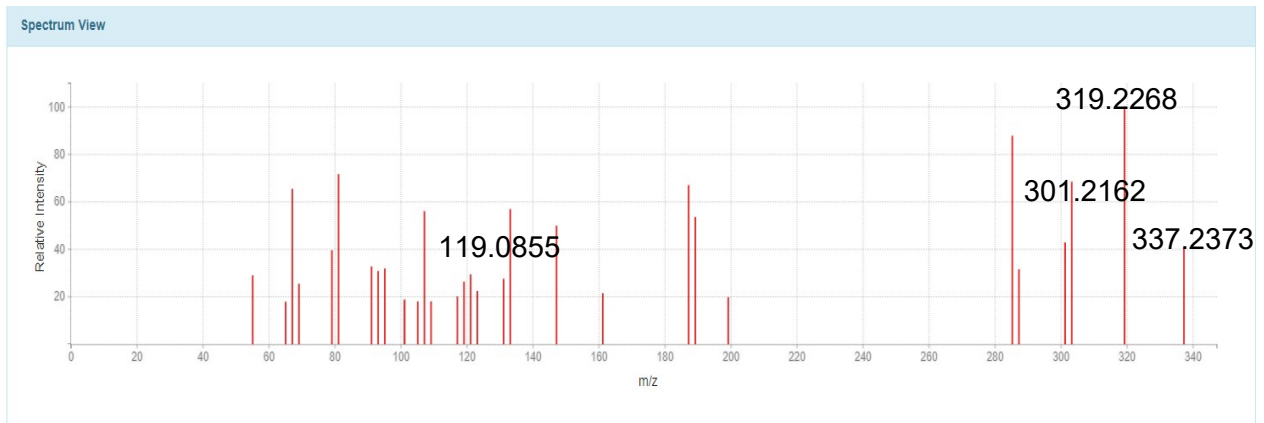
5.5-HPETE

[M+H]:337.2373

MS/MS spectrum of 5-HPETE detected in mouse lung tissue



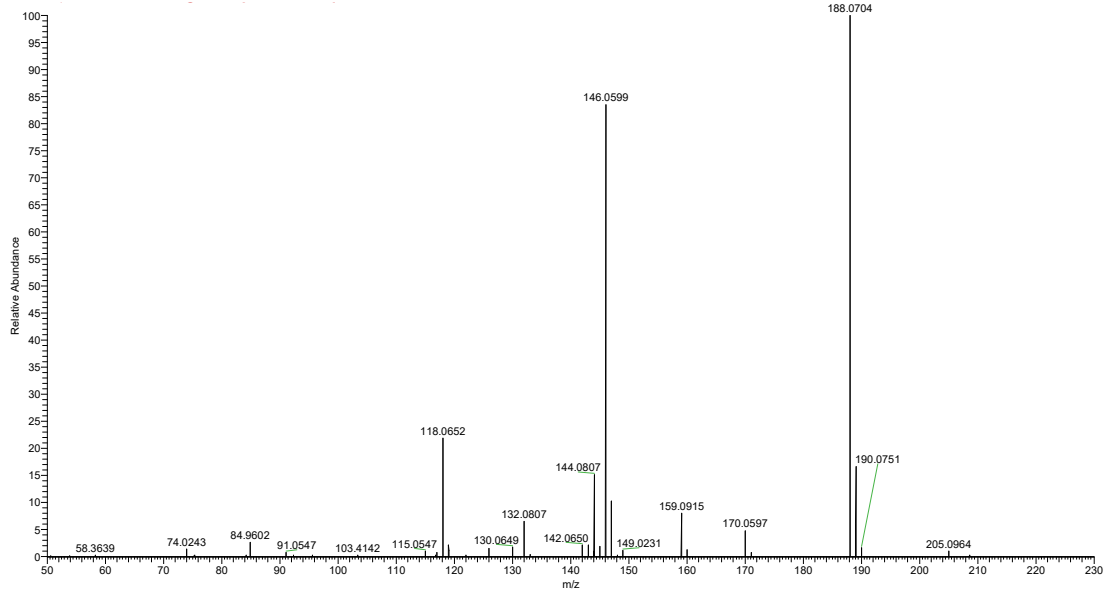
MS/MS spectrum of 5-HPETE from HMDB



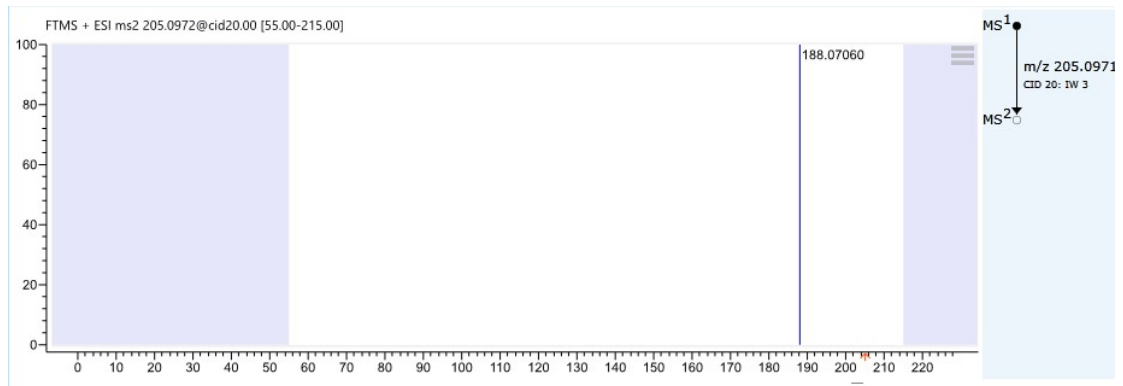
6.L-Tryptophan

[M+H]⁺:205.0971

MS/MS spectrum of L-Tryptophan detected in mouse lung tissue

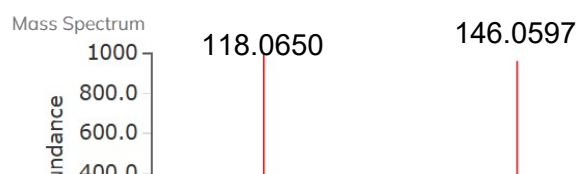


MS/MS spectrum of L-Tryptophan from mzCloud



MS/MS spectrum of L-Tryptophan from Mass Bank

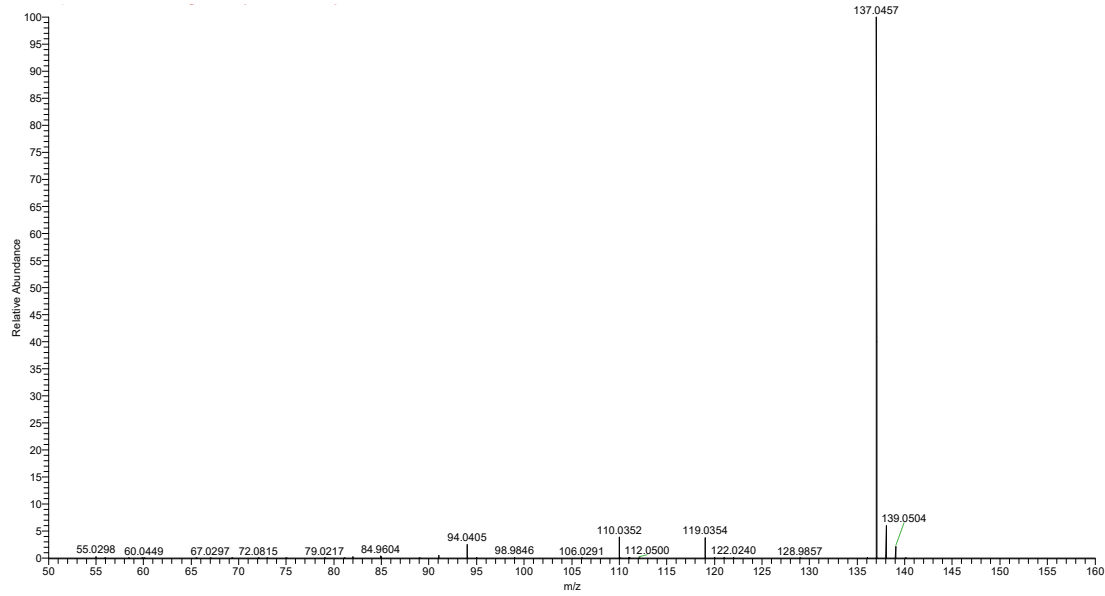
L-Tryptophan; LC-ESI-QTOF; MS2; CE 20 ev; [M+H]⁺



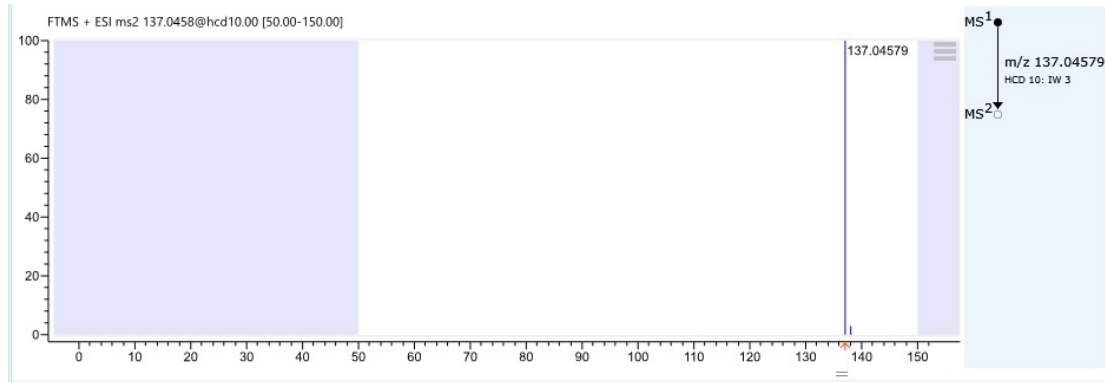
7.Hypoxanthine

[M+H]⁺:137.0457

MS/MS spectrum of Hypoxanthine detected in mouse lung tissue



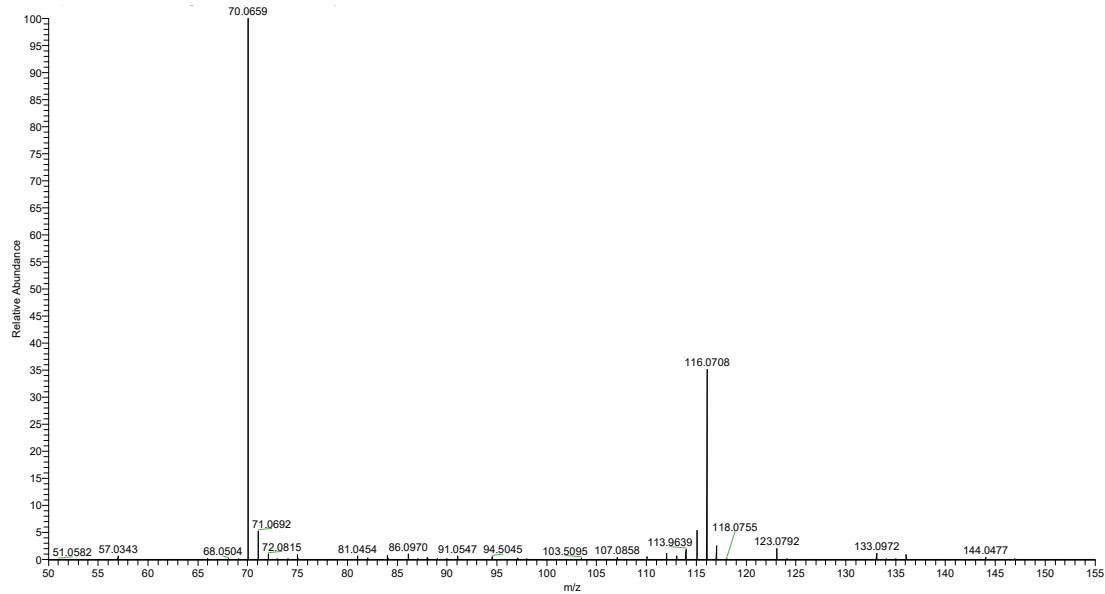
MS/MS spectrum of Hypoxanthine from mzCloud



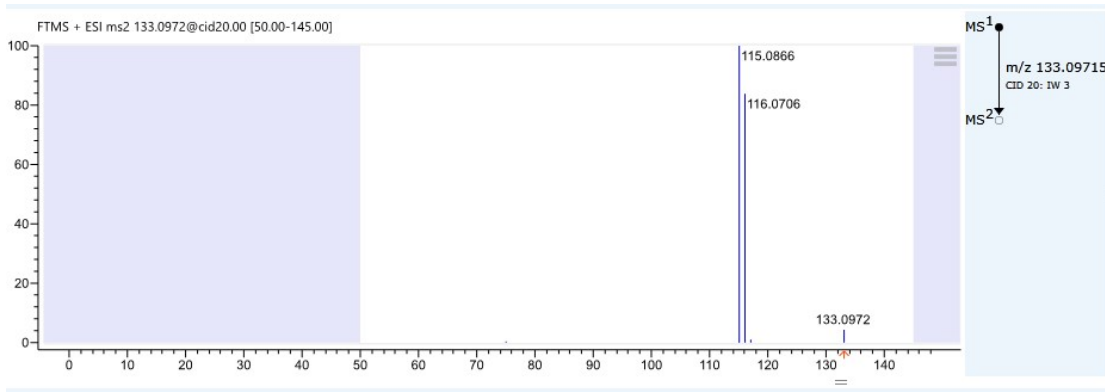
8. Ornithine

[M+H]:133.0971

MS/MS spectrum of Ornithine detected in mouse lung tissue



MS/MS spectrum of Ornithine from mzCloud



MS/MS spectrum of Ornithine from MassBank

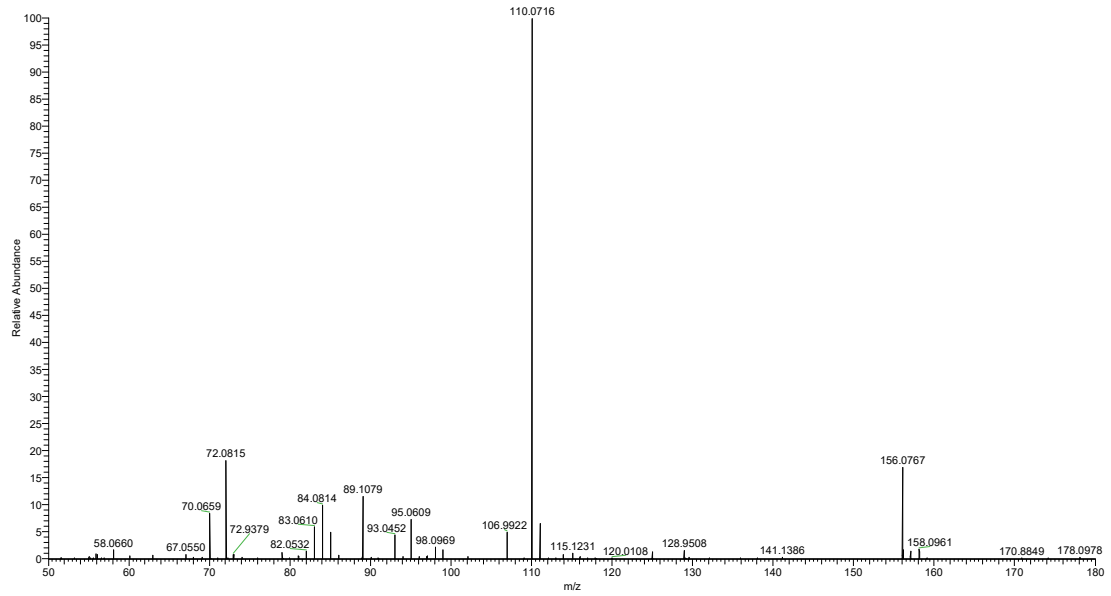
L-Ornithine; ESI-QTOF; MS2; POSITIVE; [M+H]⁺; CID; 10 V



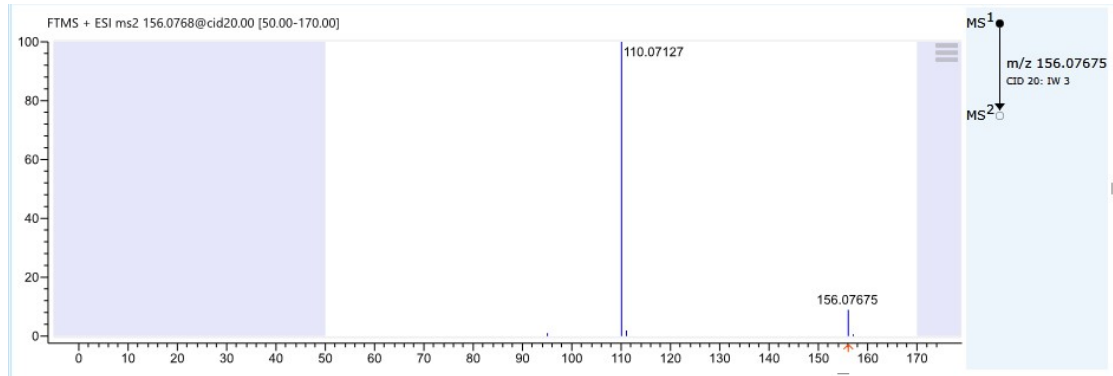
9. Histidine

[M+H]:156.0767

MS/MS spectrum of Histidine detected in mouse lung tissue



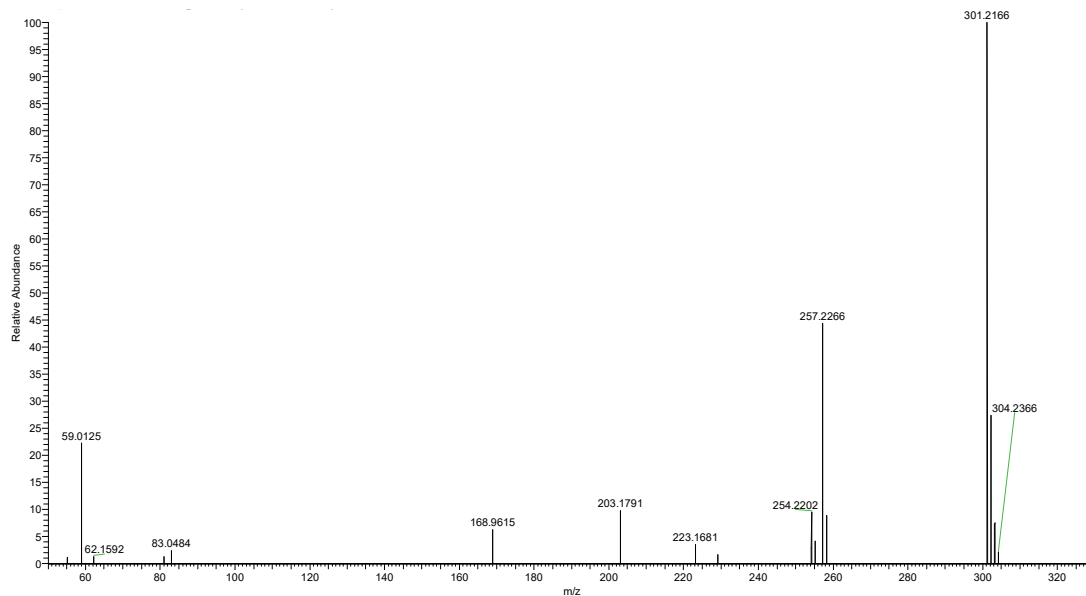
MS/MS spectrum of Histidine from mzCloud



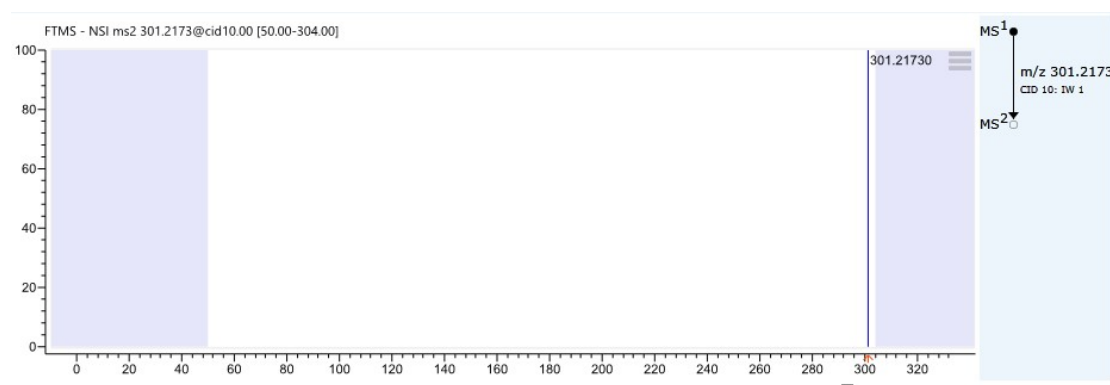
10.Abietic acid

[M-H] : 301.2173

MS/MS spectrum of Abietic acid detected in mouse lung tissue

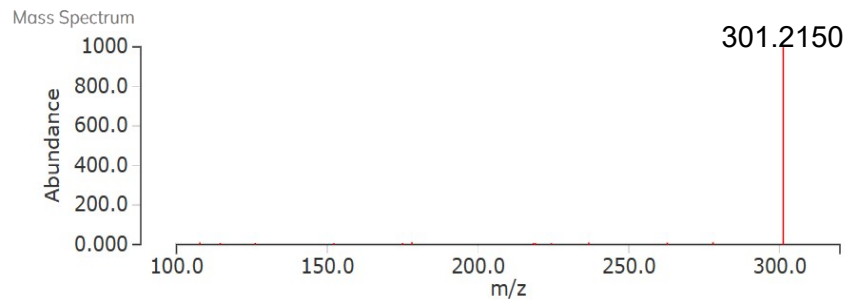


MS/MS spectrum of Abietic acid from mzCloud



MS/MS spectrum of Abietic acid from MassBank

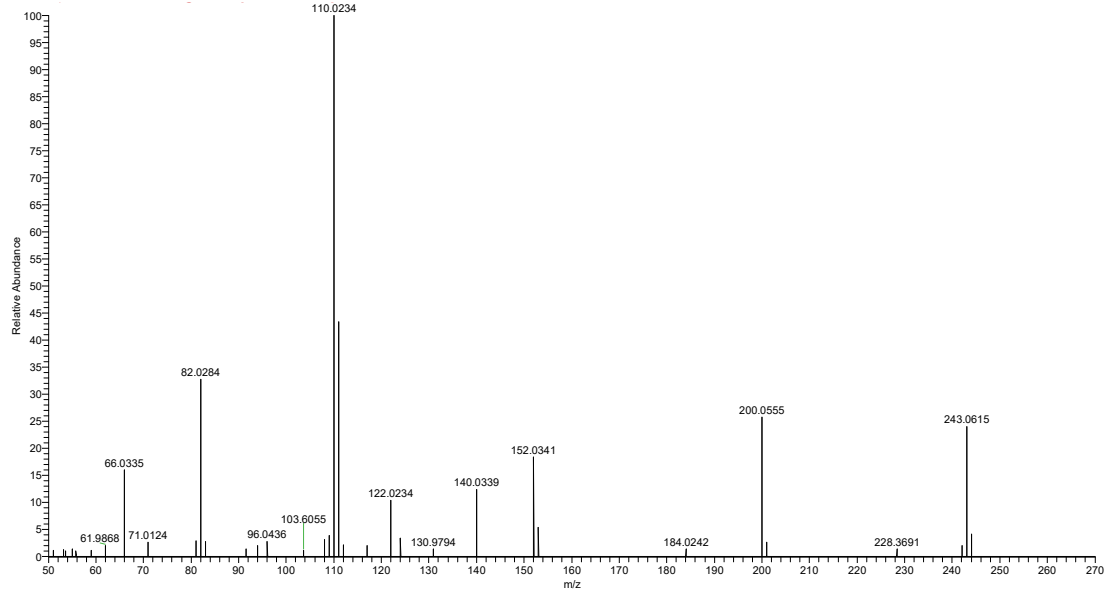
Abietic acid; LC-ESI-QTOF; MS2; CE 20 ev; [M-H]-



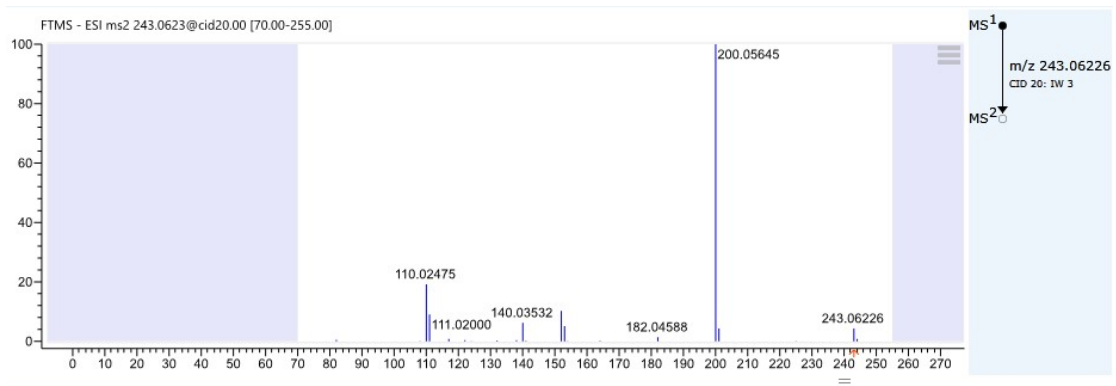
11.Uridine

[M-H]⁻:243.0622

MS/MS spectrum of Uridine detected in mouse lung tissue

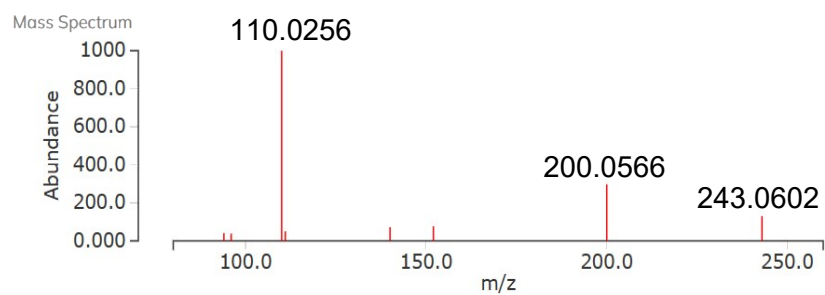


MS/MS spectrum of Uridine from mzCloud



MS/MS spectrum of Uridine from MassBank

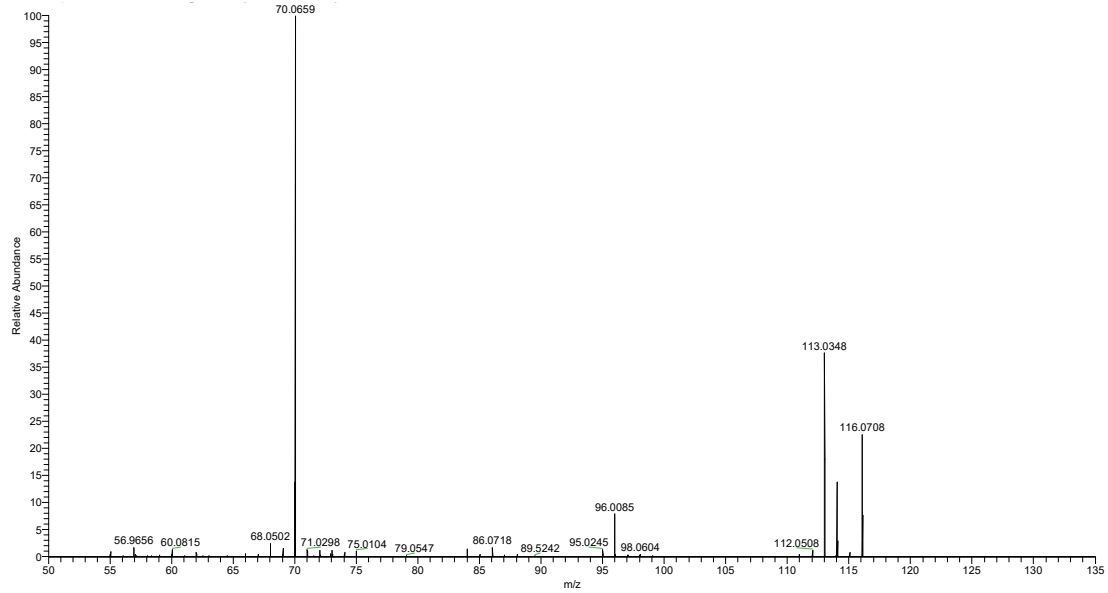
Uridine; LC-ESI-QTOF; MS2; CE: 20; R=; [M-H]-



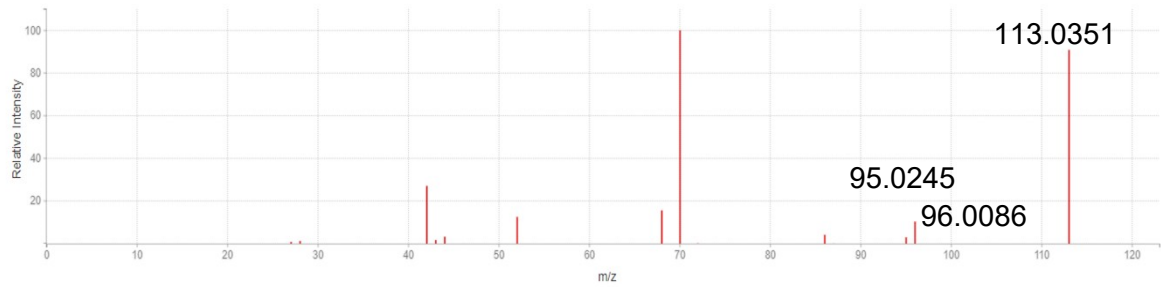
12.Uracil

[M+H]:113.0345

MS/MS spectrum of Uracil detected in mouse lung tissue

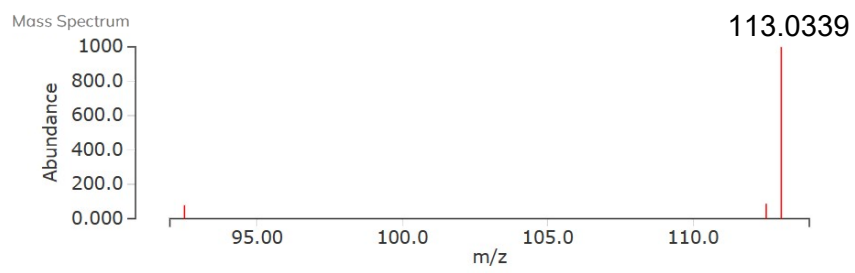


MS/MS spectrum of Uracil from HMDB



MS/MS spectrum of Uridine from MassBank

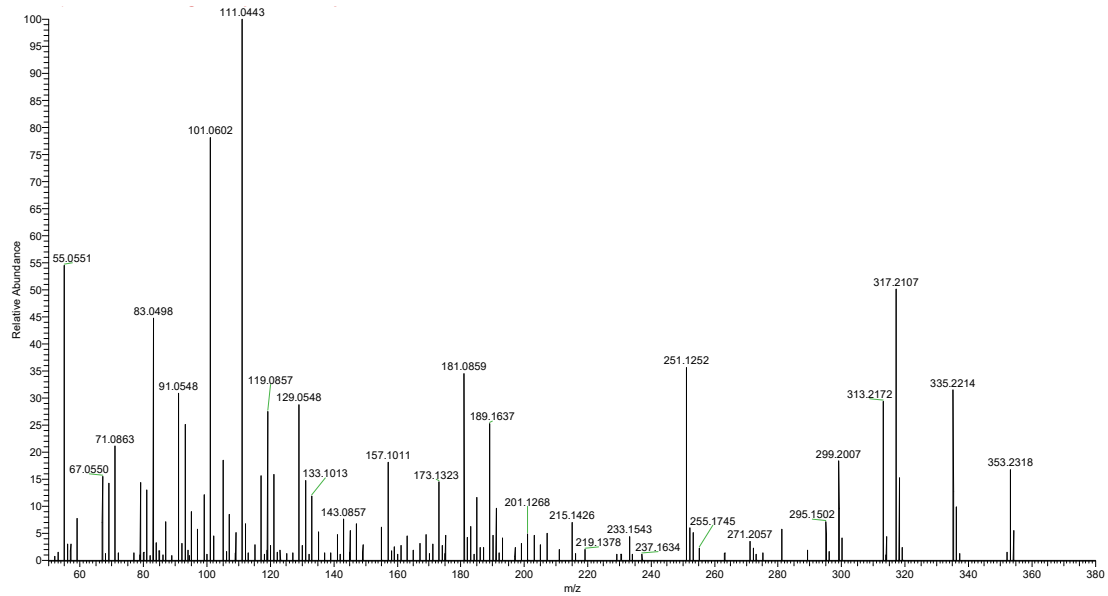
Uracil; LC-ESI-QTOF; MS2; CE:Ramp 5-60 V; [M+H]⁺



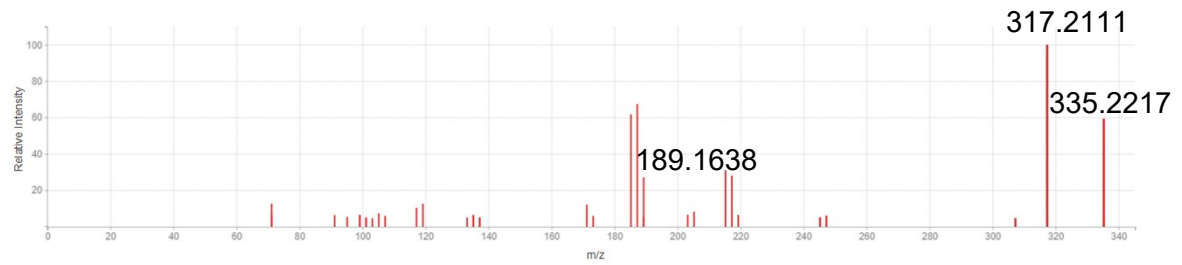
13. Lipoxin A4 (LXA4)

[M+H]:353.2322

MS/MS spectrum of LXA4 detected in mouse lung tissue



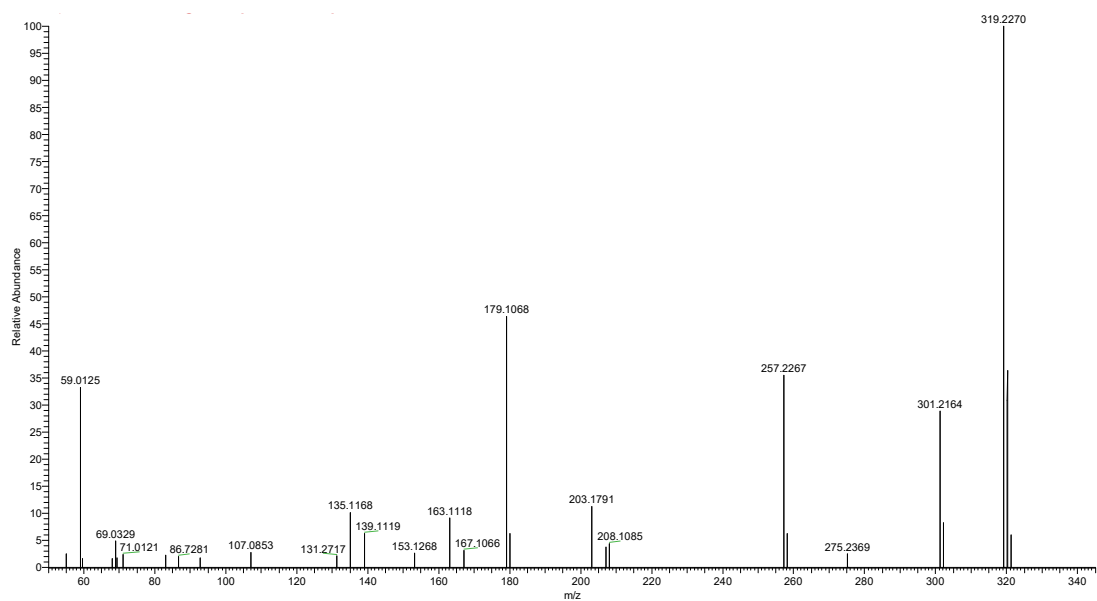
MS/MS spectrum of LXA4 from HMDB



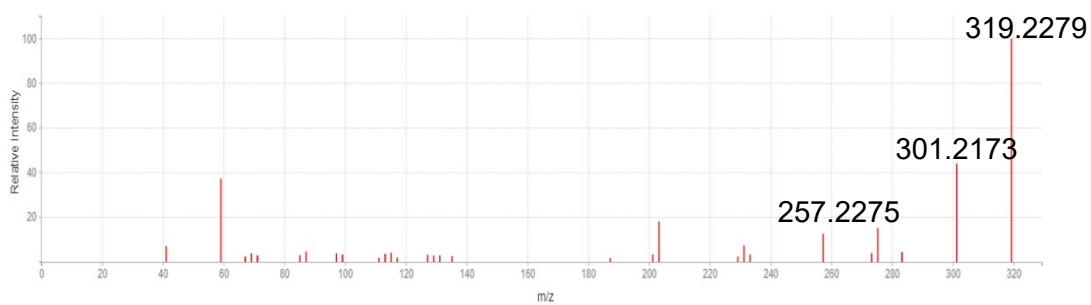
14.5-HETE

[M-H] :319.2278

MS/MS spectrum of 5-HETE detected in mouse lung tissue



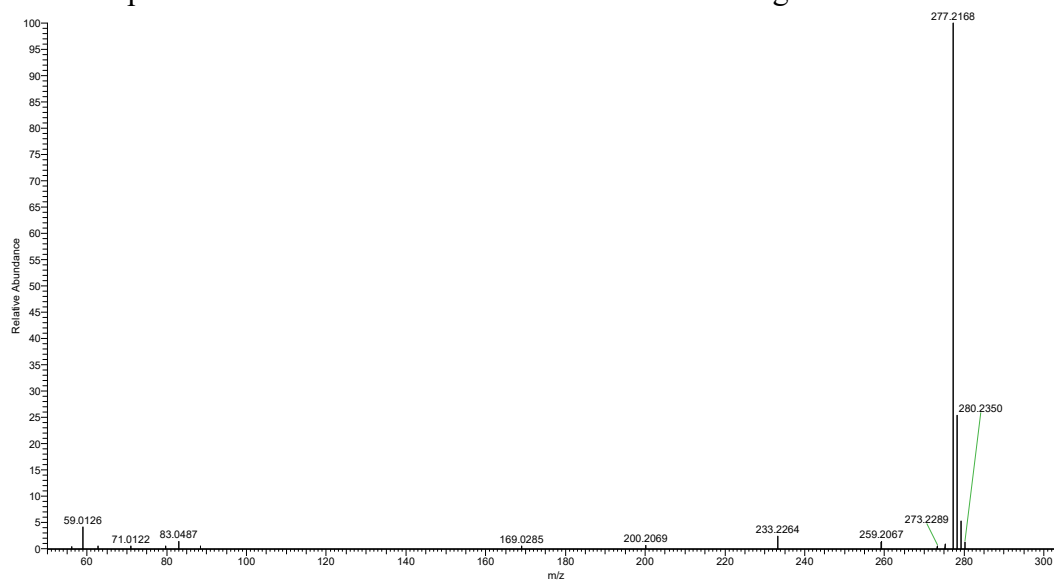
MS/MS spectrum of 5-HETE from HMDB



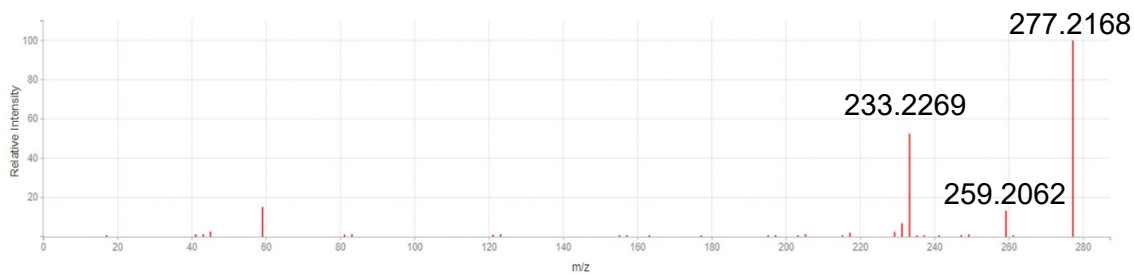
15. α -Linolenic acid

[M-H] :277.2173

MS/MS spectrum of α -Linolenic acid detected in mouse lung tissue



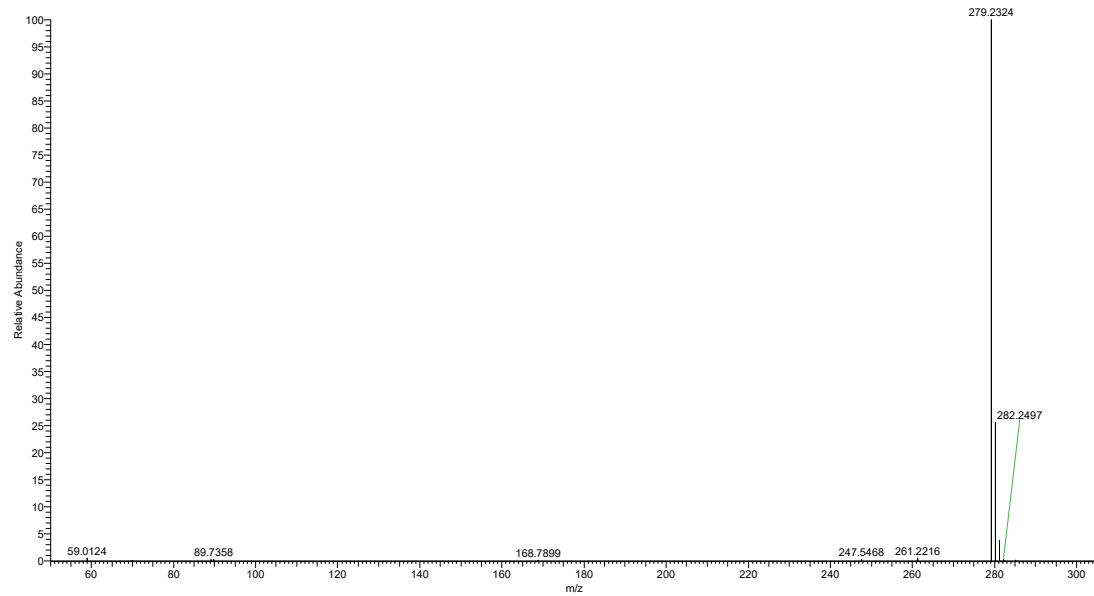
MS/MS spectrum of α -Linolenic acid from HMDB



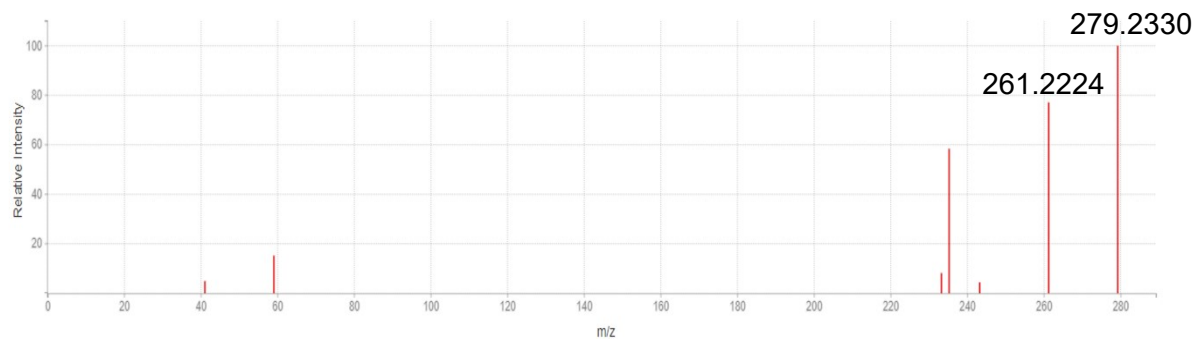
16. Linoleic acid

[M-H] :279.2329

MS/MS spectrum of Linoleic acid detected in mouse lung tissue

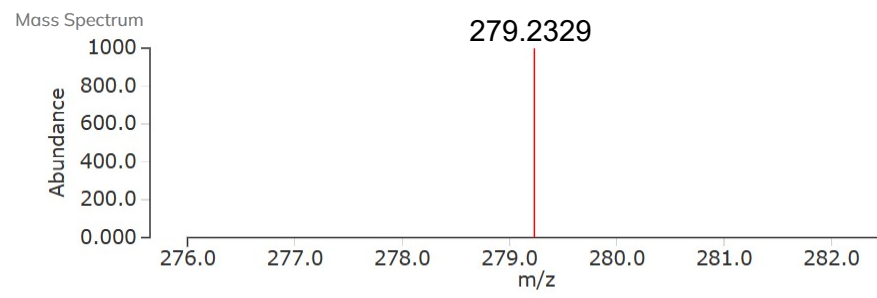


MS/MS spectrum of Linoleic acid from HMDB



MS/MS spectrum of Linoleic acid from MassBank

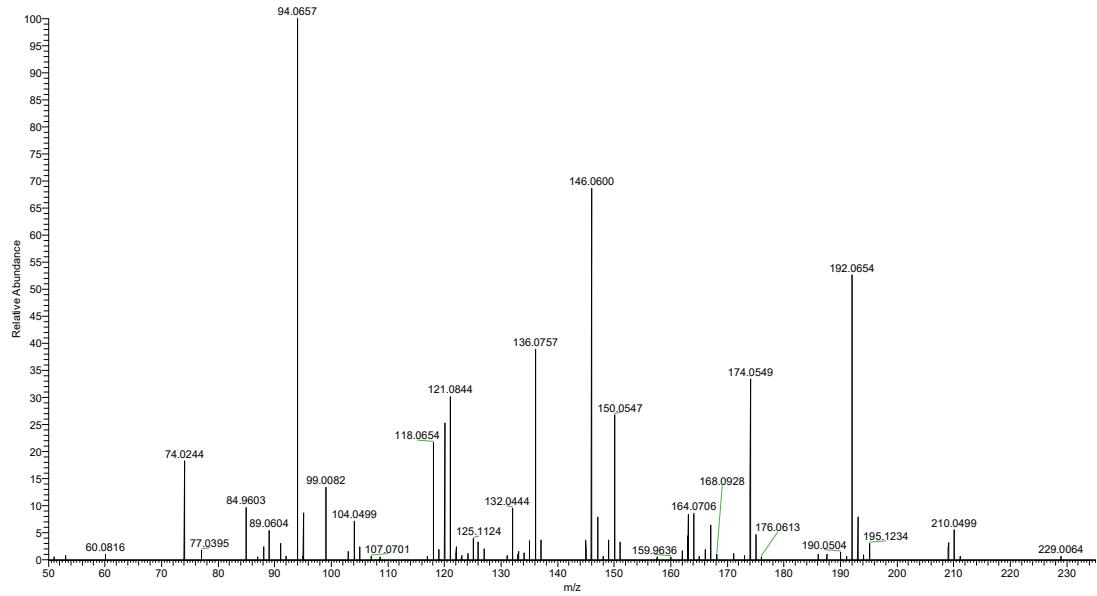
Linoleic acid; LC-ESI-QTOF; MS2; CE: 20; R=; [M-H]-



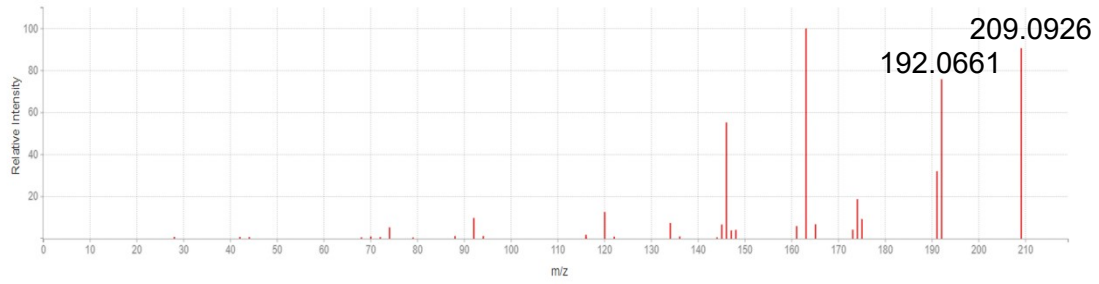
17.Kynurenine

[M+H]: 209.0920

MS/MS spectrum of Kynurenine detected in mouse lung tissue

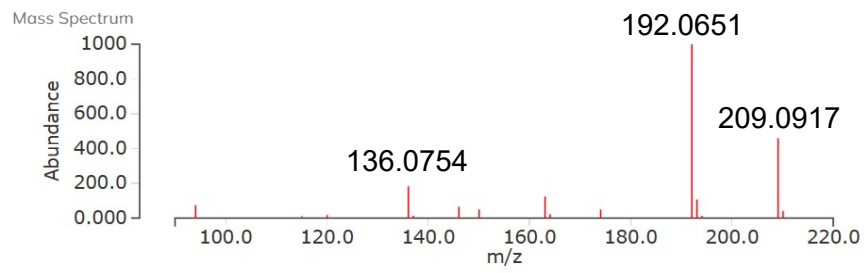


MS/MS spectrum of Kynurenine from HMDB



MS/MS spectrum of Kynurenine from MassBank

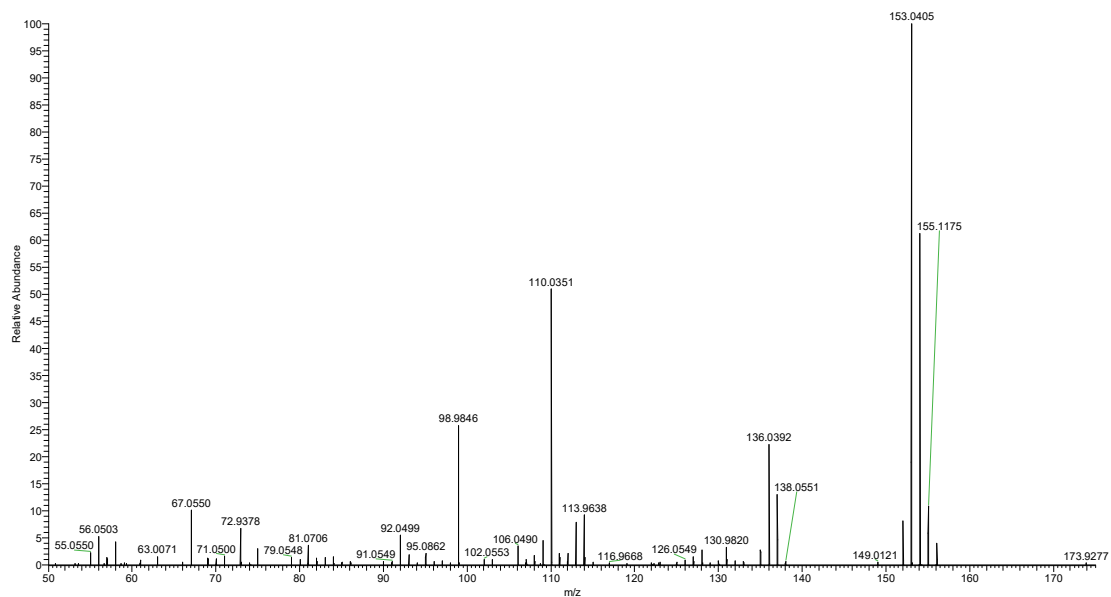
Kynurenine; LC-ESI-QTOF; MS2; [M+H]⁺; CE: 10eV



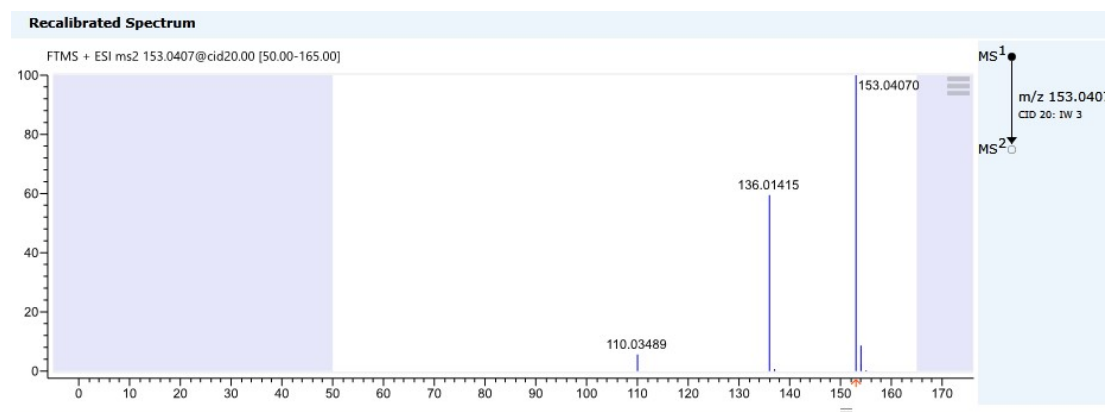
18.Xanthine

[M+H]:153.0407

MS/MS spectrum of Xanthine detected in mouse lung tissue

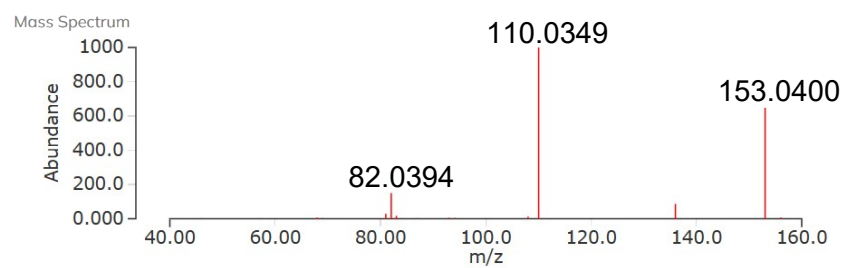


MS/MS spectrum of Xanthine from mzCloud



MS/MS spectrum of Xanthine from MassBank

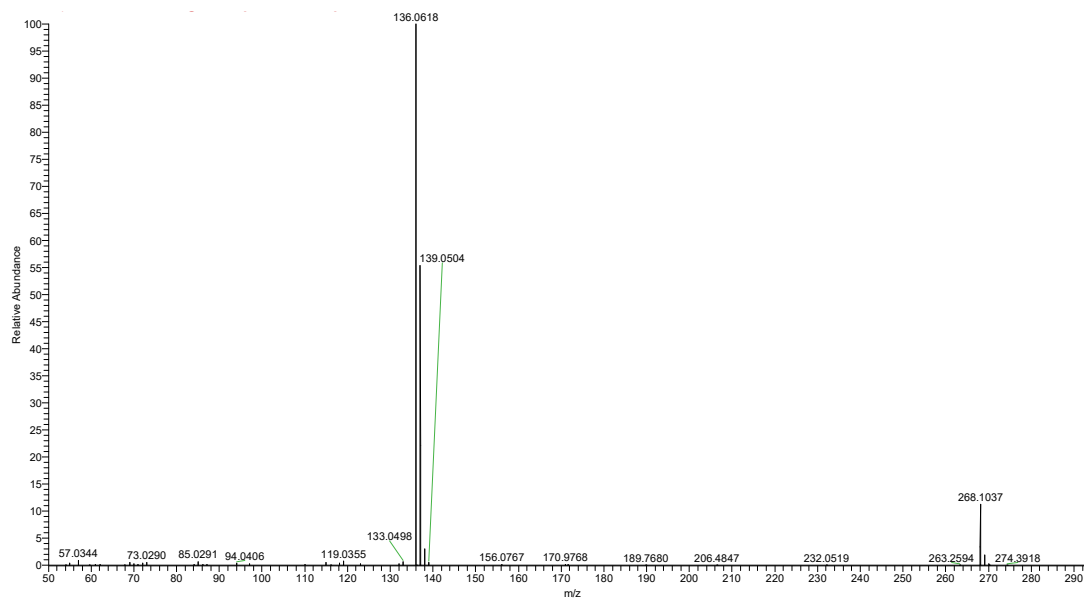
Xanthine; LC-ESI-QTOF; MS2; CE: 20; R=; [M+H]⁺



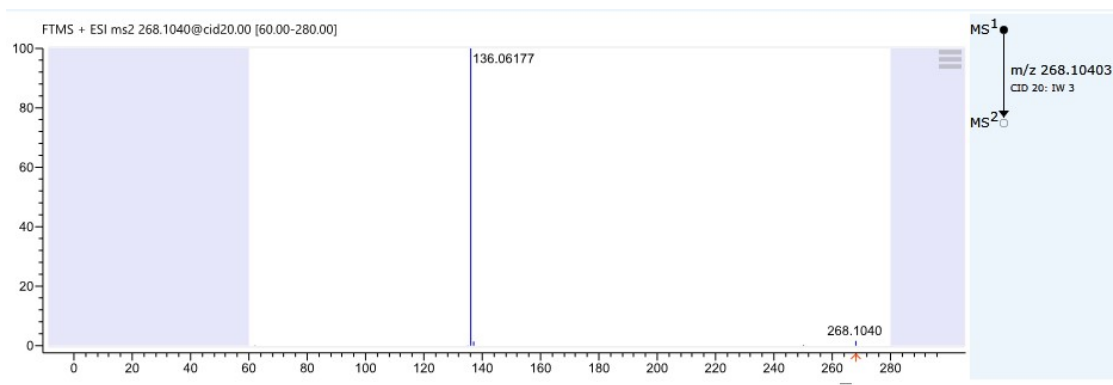
19. Adenosine

[M+H]:268.1040

MS/MS spectrum of Adenosine detected in mouse lung tissue

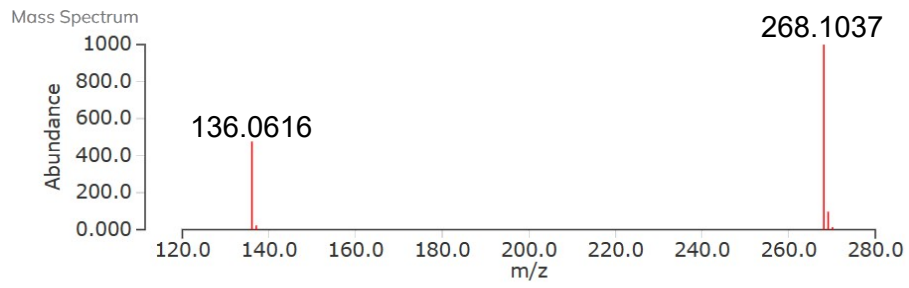


MS/MS spectrum of Adenosine from mzCloud



MS/MS spectrum of Adenosine from MassBank

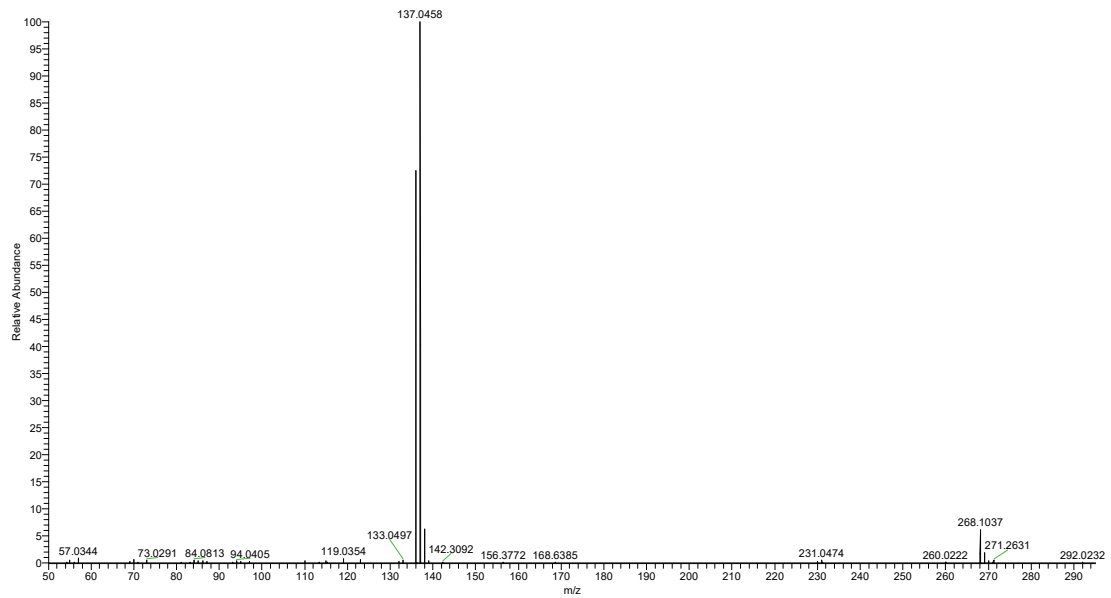
Adenosine; LC-ESI-QTOF; MS2; [M+H]⁺; CE: 10eV



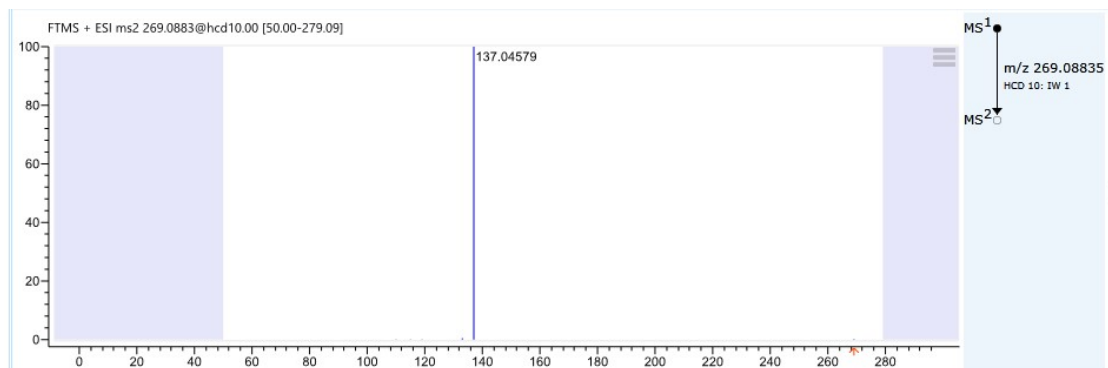
20. Inosine

[M+H]:269.0880

MS/MS spectrum of Inosine detected in mouse lung tissue



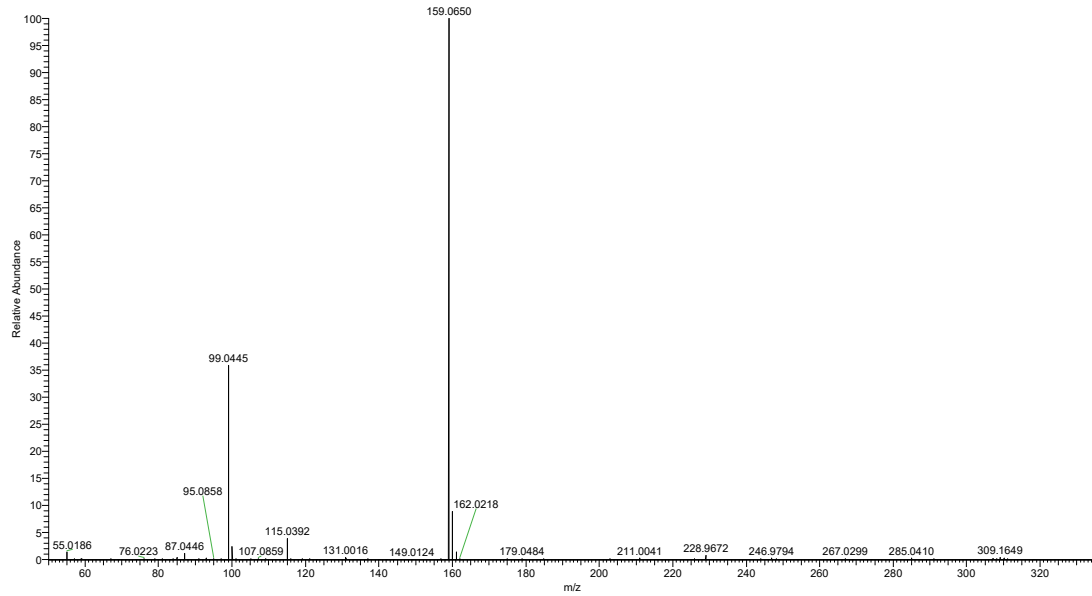
MS/MS spectrum of Inosine from mzCloud



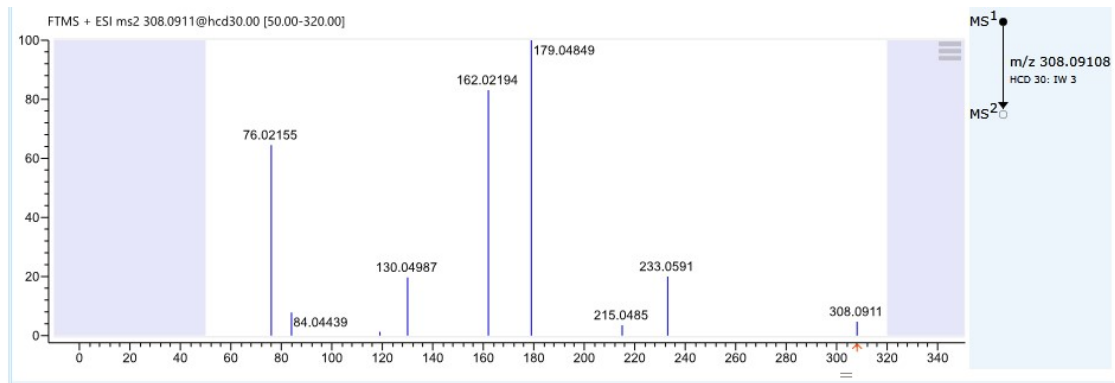
21. Glutathione

[M+H]⁺: 308.0910

MS/MS spectrum of Glutathione detected in mouse lung tissue



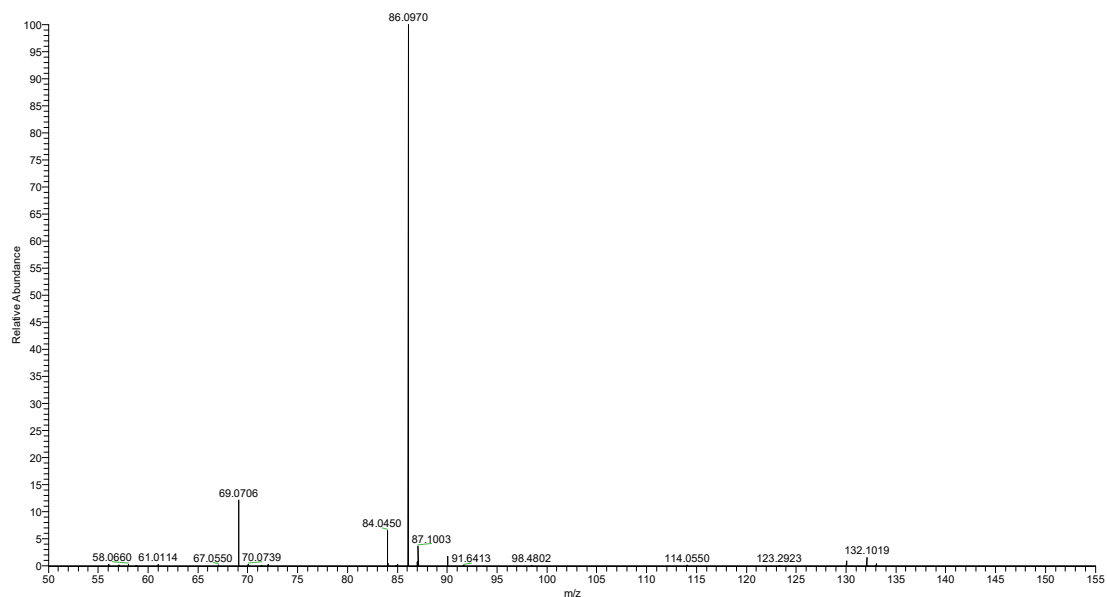
MS/MS spectrum of Glutathione from mzCloud



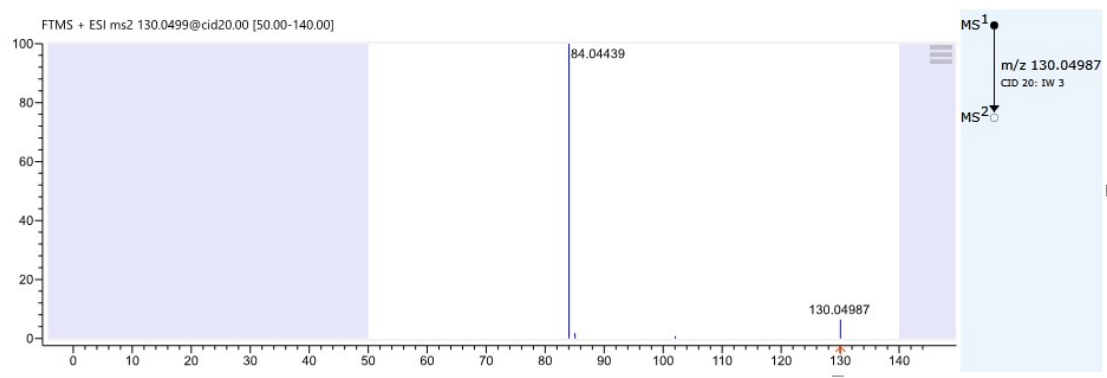
22. Pyroglutamic acid

[M+H]:130.0498

MS/MS spectrum of Pyroglutamic acid detected in mouse lung tissue



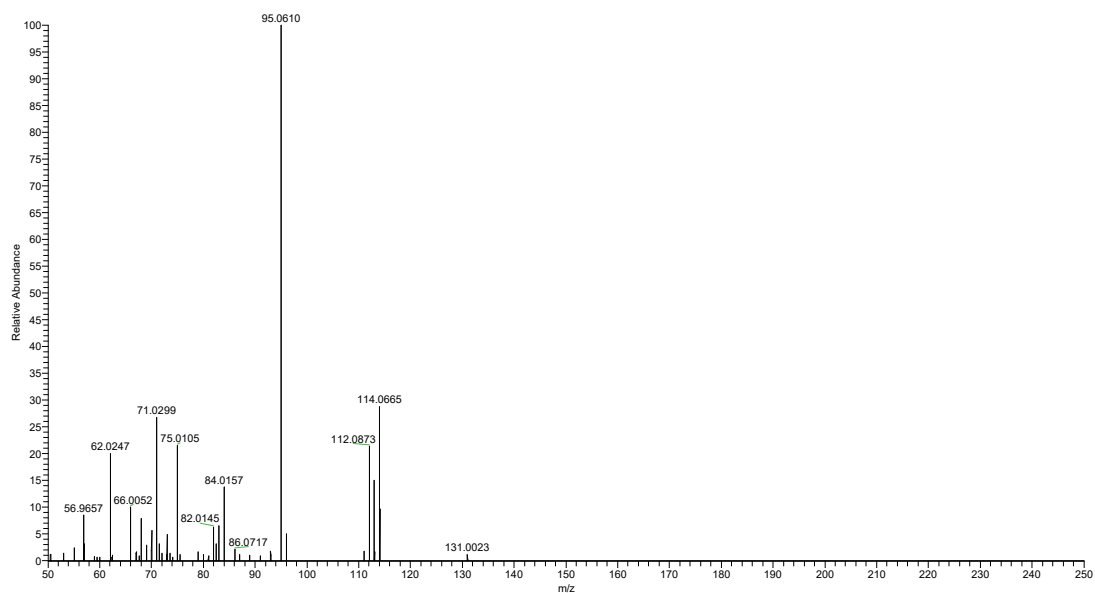
MS/MS spectrum of Pyroglutamic acid from mzCloud



23.Histamine

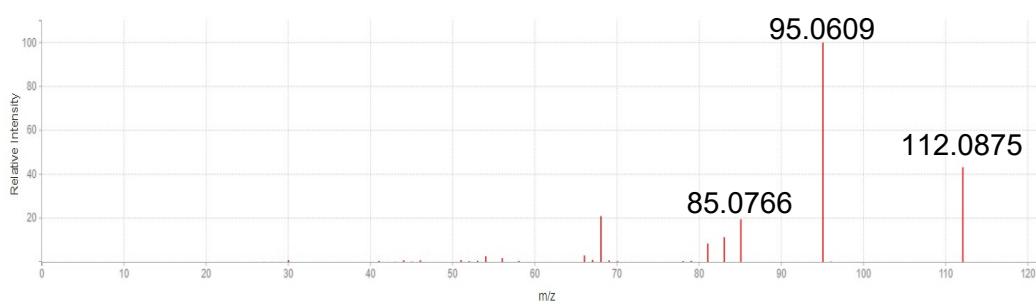
[M+H]:112.0869

MS/MS spectrum of Histamine detected in mouse lung tissue



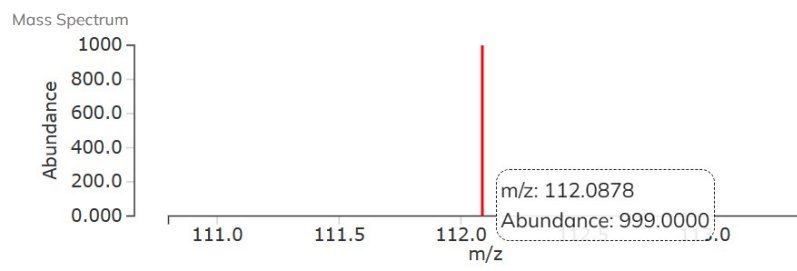
MS/MS spectrum of Histamine from HMDB

Spectrum View



MS/MS spectrum of Histamine from MassBank

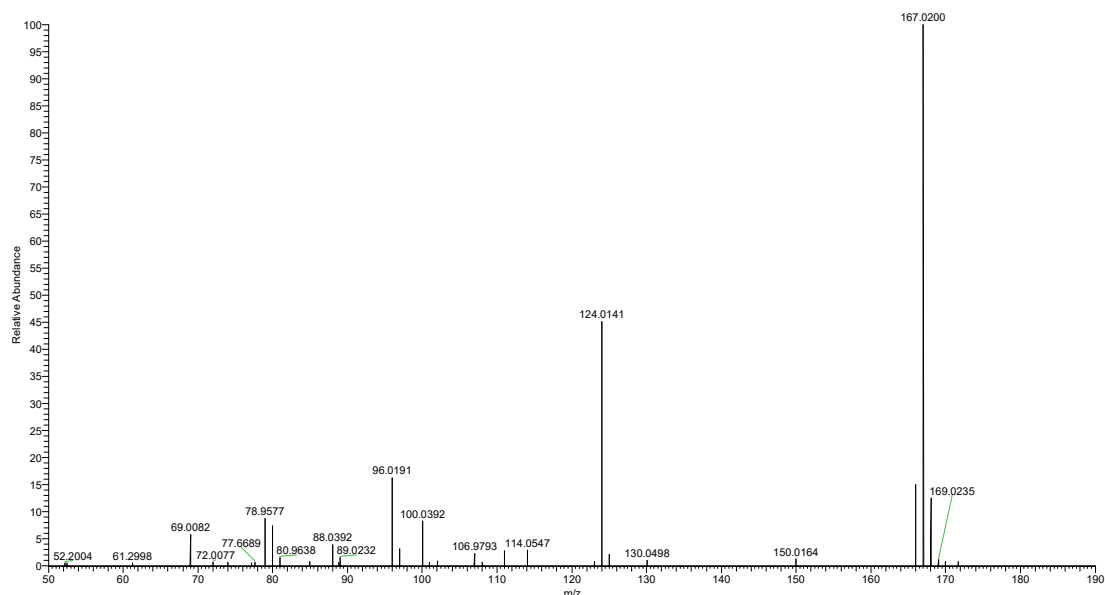
Histamine; LC-ESI-QTOF; MS2; HILIC; CE: 10 eV; R=35000; [M+H]⁺



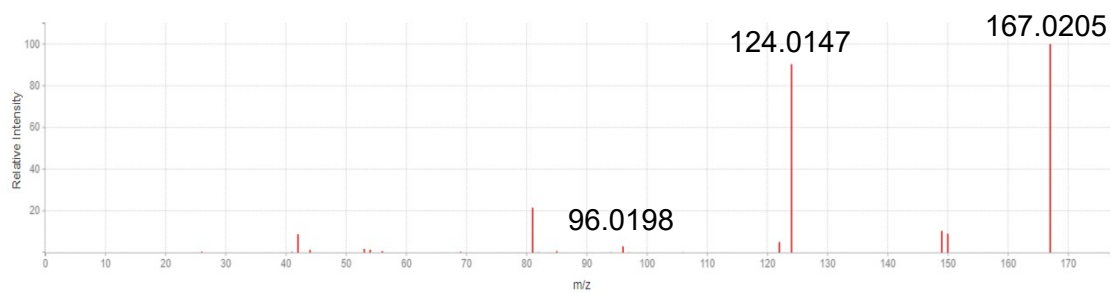
24.Uric acid

[M-H]:167.0210

MS/MS spectrum of Uric acid detected in mouse lung tissue



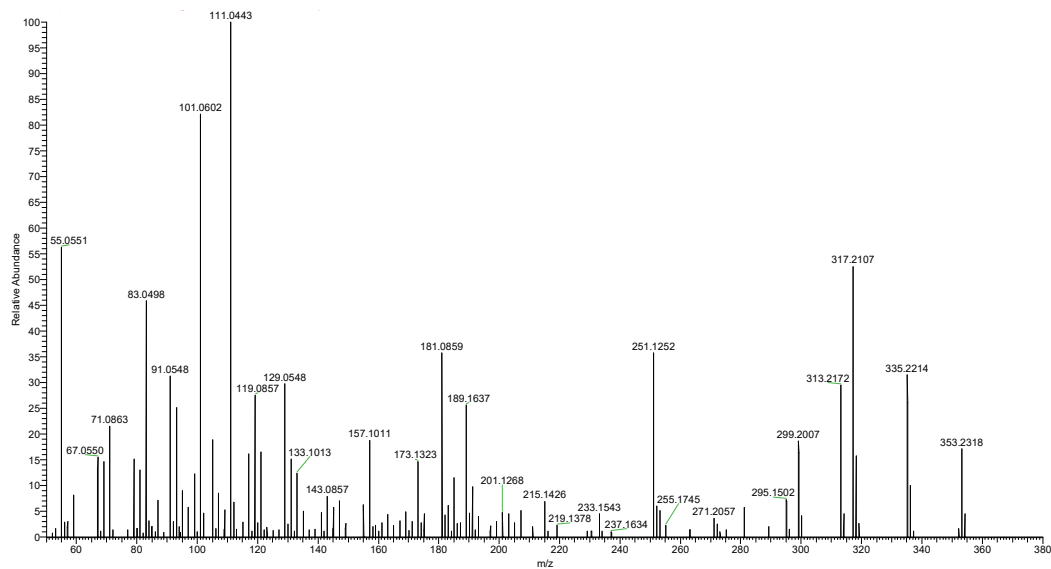
MS/MS spectrum of Uric acid from HMDB



25. PGD2

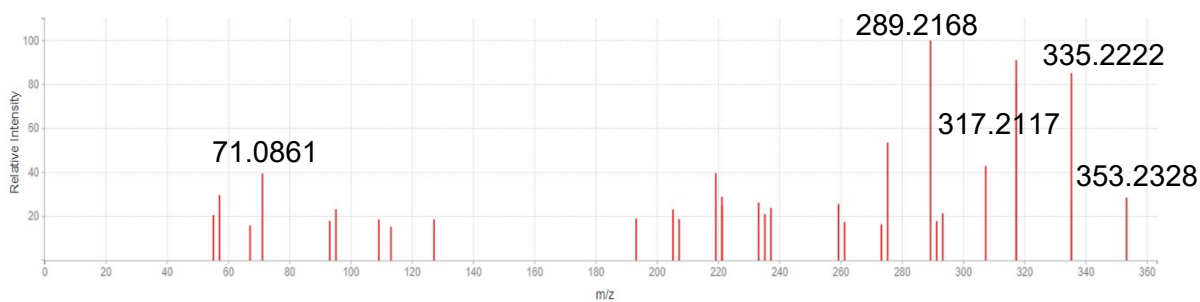
[M+H]:353.2322

MS/MS spectrum of PGD2 detected in mouse lung tissue



MS/MS spectrum of PGD2 from HMDB

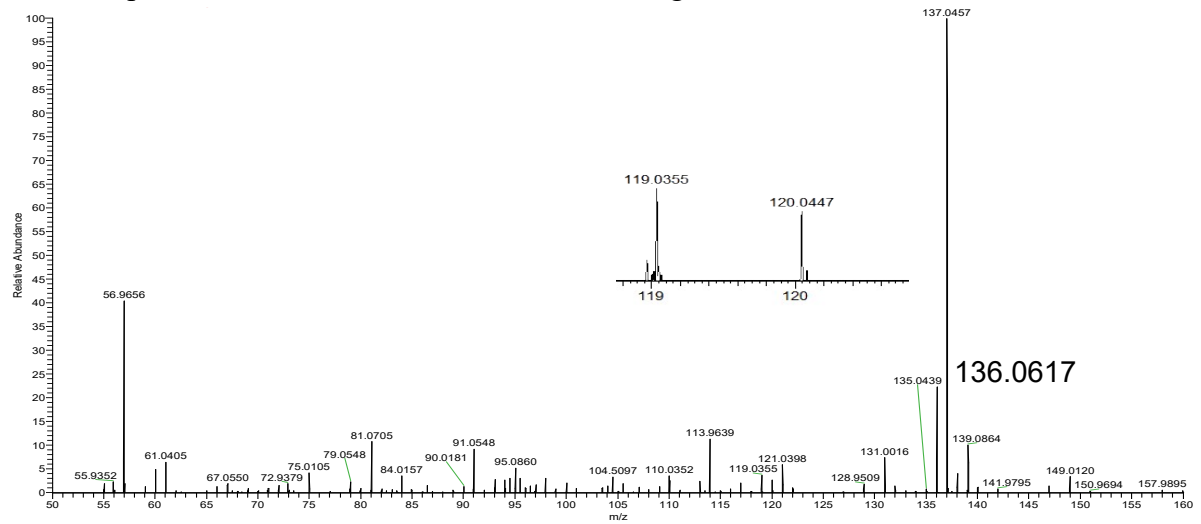
Spectrum View



26. Adenine

[M+H]:136.0617

MS/MS spectrum of Adenine detected in mouse lung tissue



MS/MS spectrum of Adenine from MassBank

Adenine; LC-ESI-QTOF; MS2; CE:30 V; [M+H]⁺

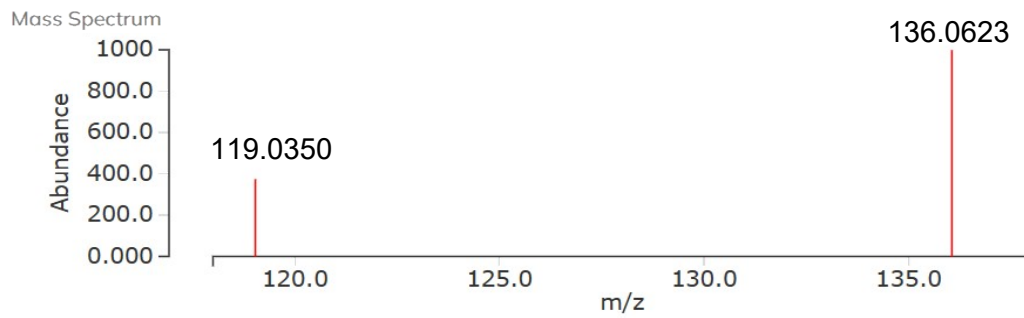
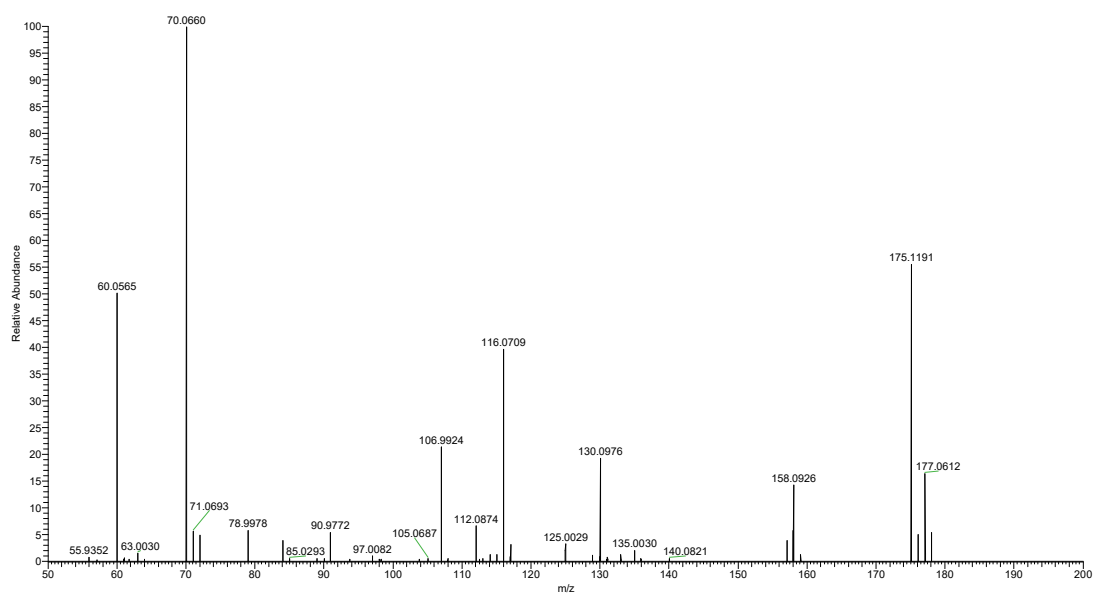


Fig S4 MS/MS spectra of different metabolites in serum detected by UPLC-MS/MS.

1.L-Arginine

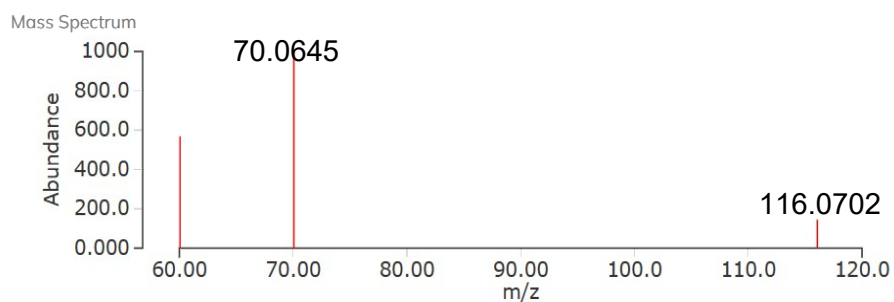
[M+H]:175.1189

MS/MS spectrum of L-Arginine detected in mouse serum



MS/MS spectrum of L-Arginine from MassBank

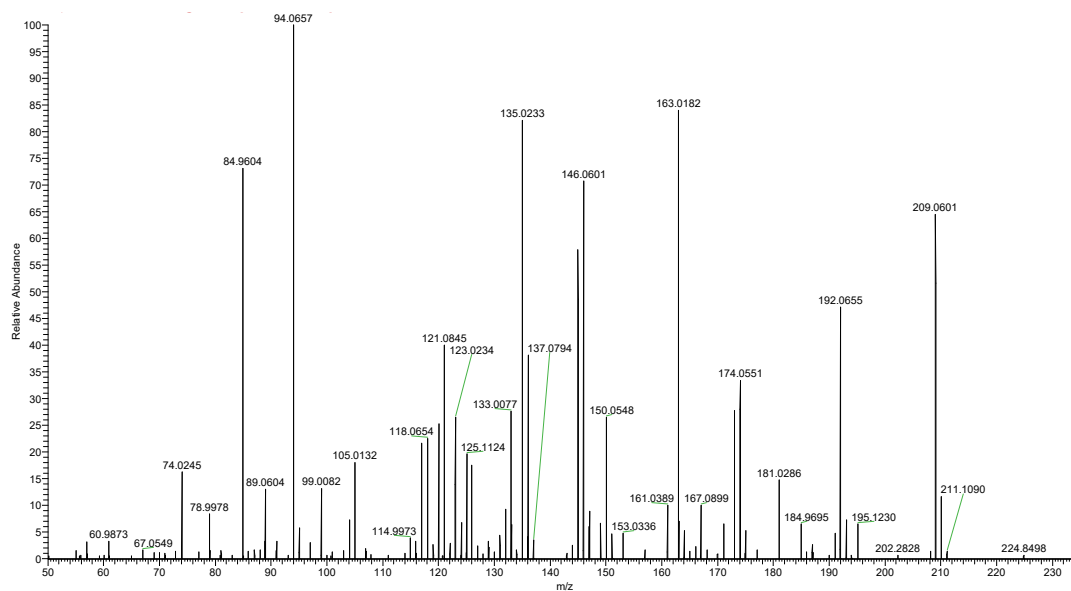
L-Arginine; ESI-QTOF; MS2; POSITIVE; [M+H]⁺; CID; 10 V



2. Kynurenine

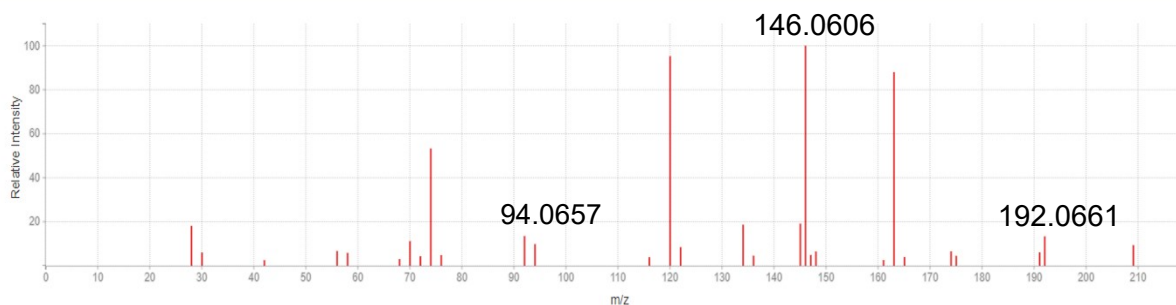
[M+H]: 209.0920

MS/MS spectrum of Kynurenine detected in mouse serum



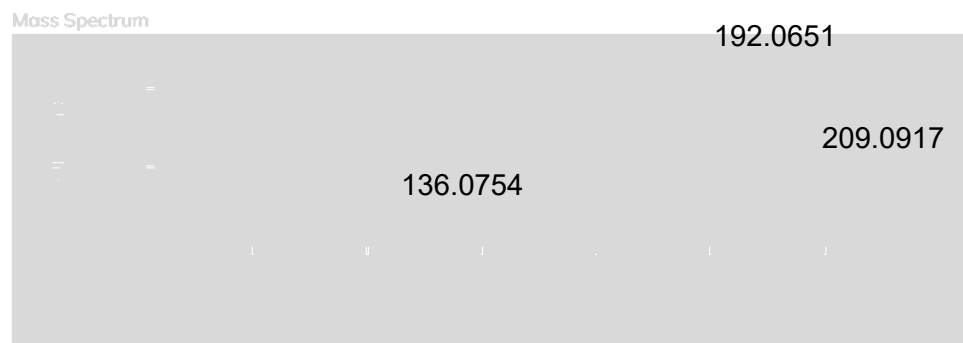
MS/MS spectrum of Kynurenine from HMDB

Spectrum View



MS/MS spectrum of Kynurenine from MassBank

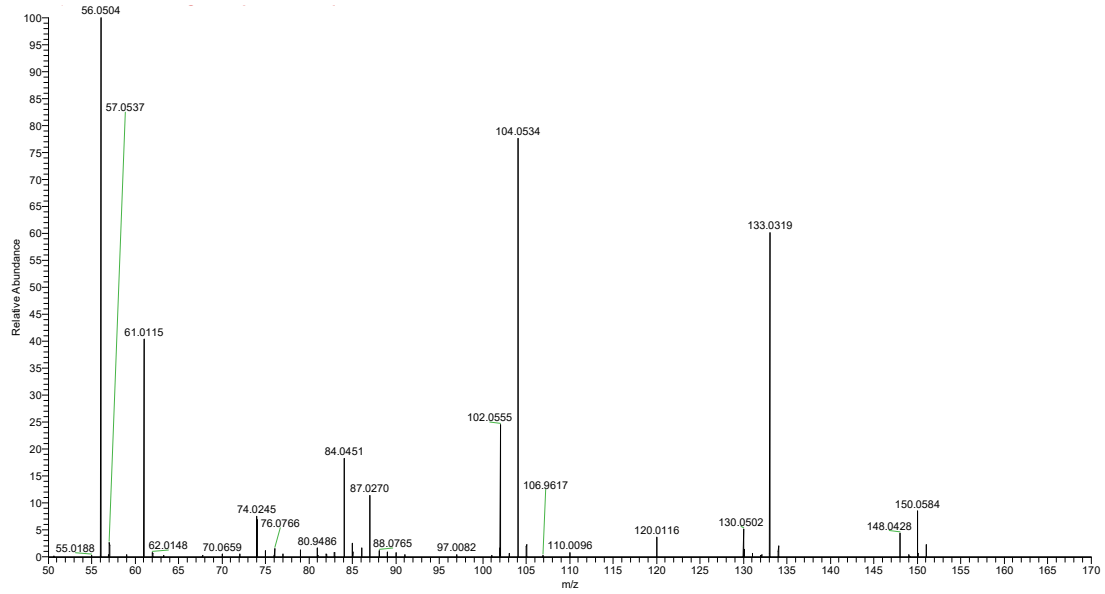
Kynurenine; LC-ESI-QTOF; MS2; [M+H]⁺; CE: 10eV



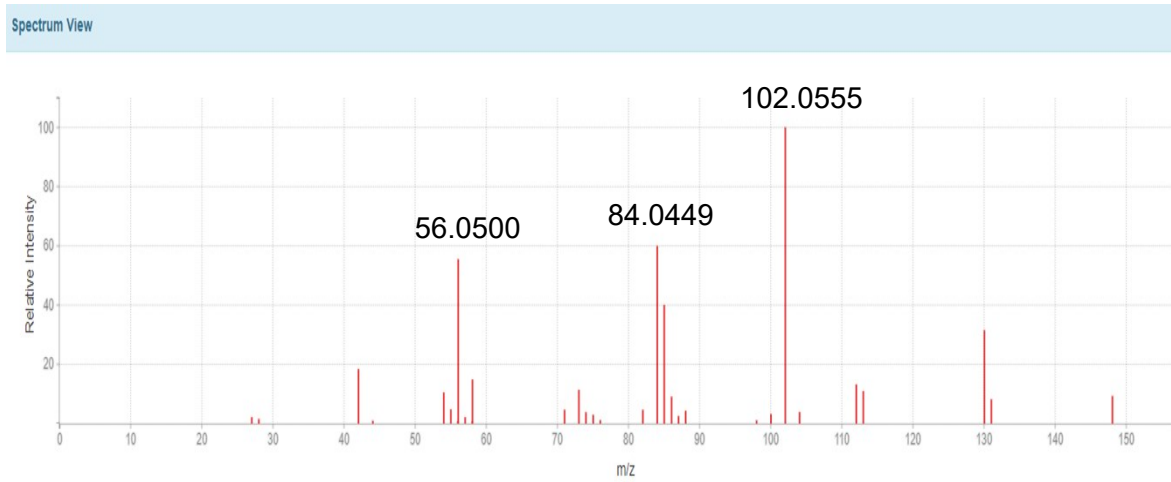
3. Glutamate

[M+H]: 148.0604

MS/MS spectrum of Glutamate detected in mouse serum



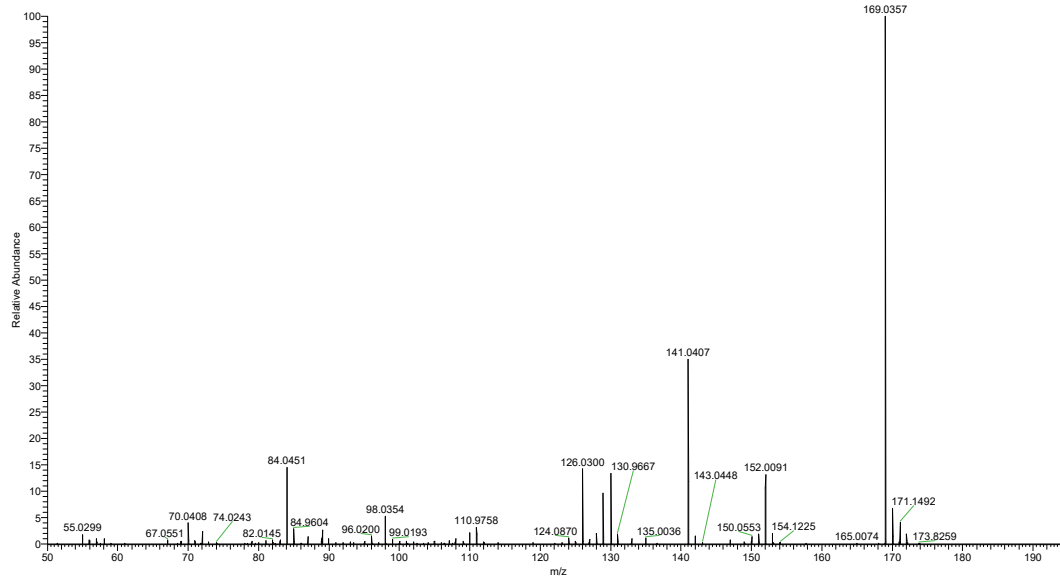
MS/MS spectrum of Glutamate from HMDB



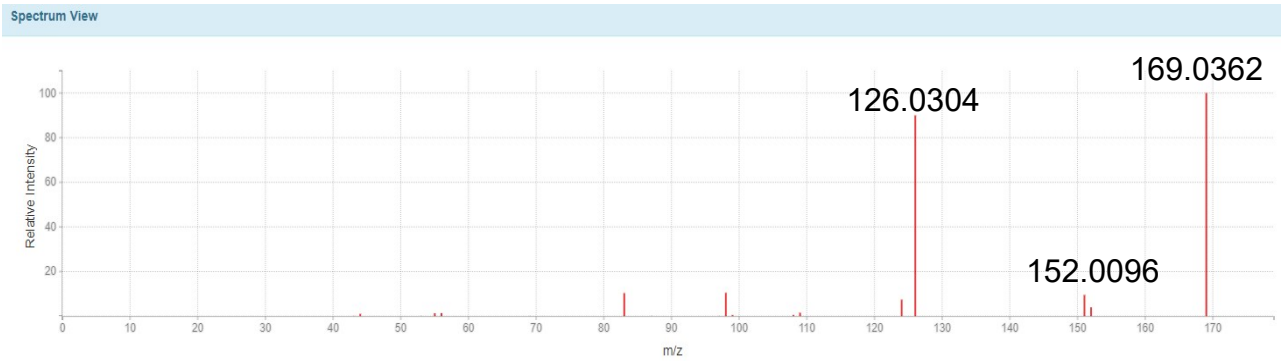
4. Uric acid

[M+H]: 169.0356

MS/MS spectrum of Uric acid detected in mouse serum



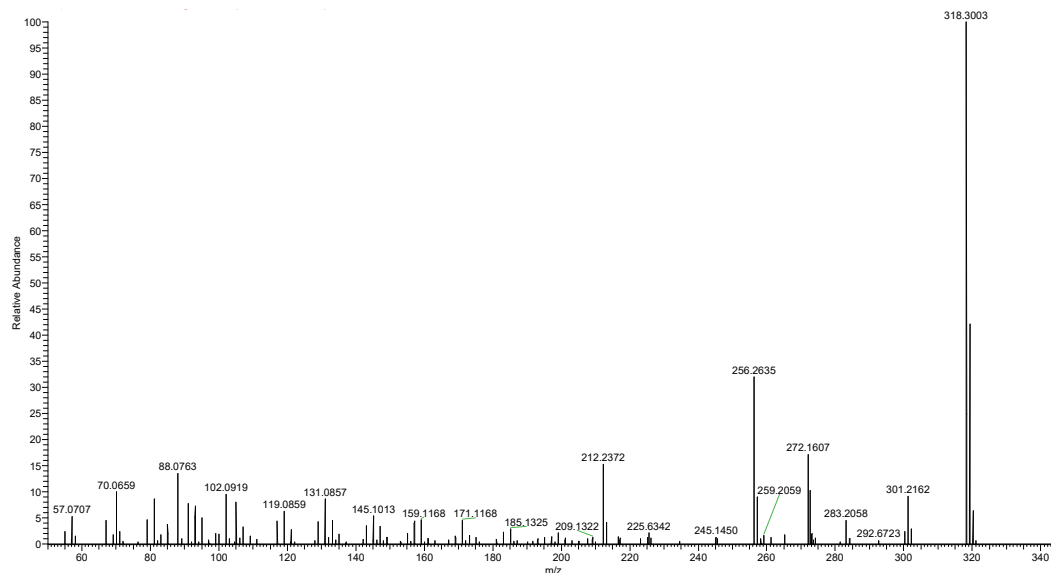
MS/MS spectrum of Uric acid from HMDB



5. LTA4

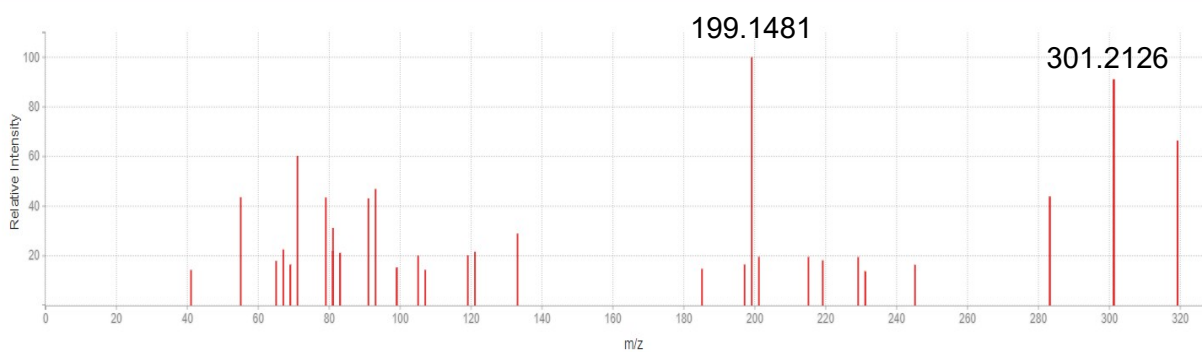
[M+H]: 319.2267

MS/MS spectrum of LTA4 detected in mouse serum



MS/MS spectrum of LTA4 from HMDB

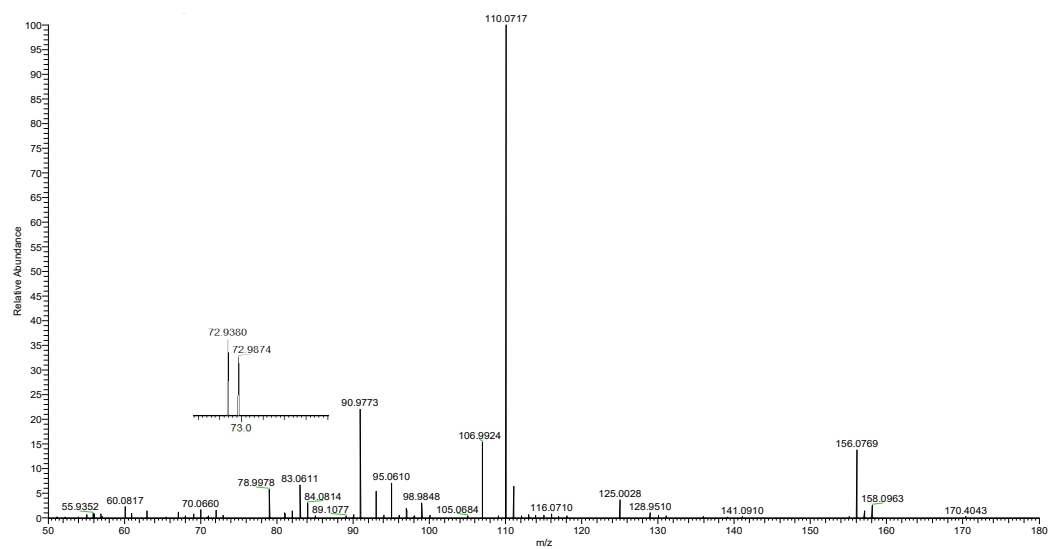
Spectrum View



6. Histidine

[M+H]: 156.0767

MS/MS spectrum of Histidine detected in mouse serum



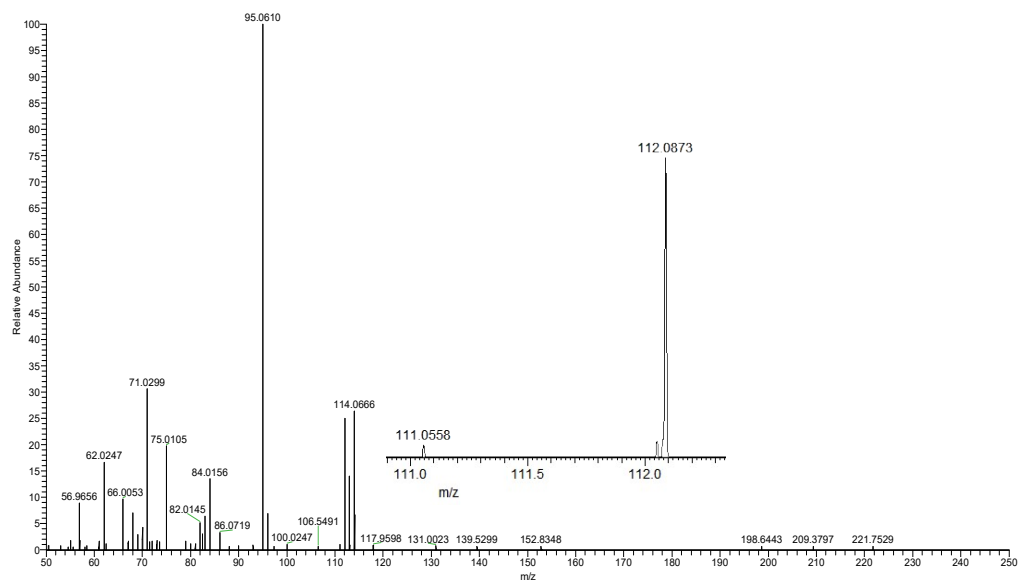
MS/MS spectrum of Histidine from mz cloud



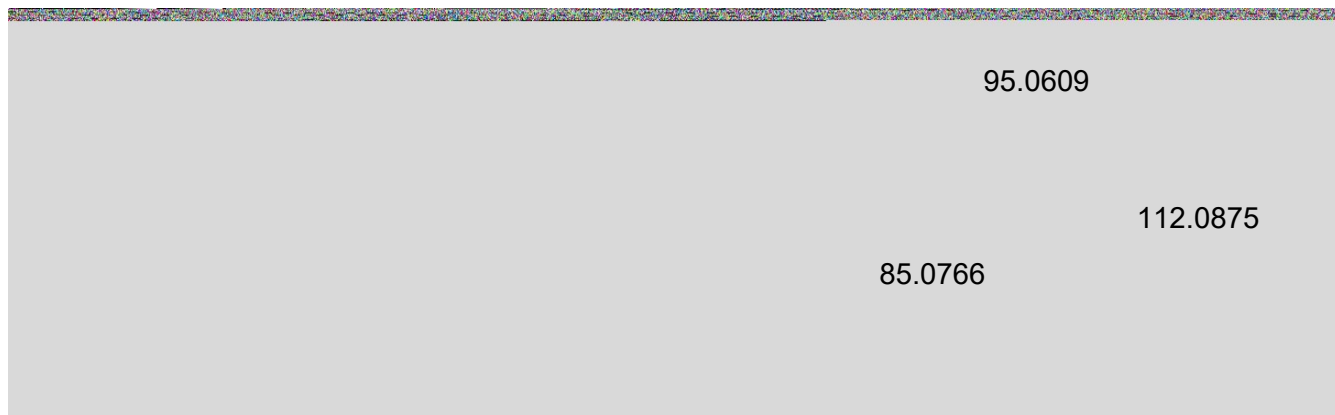
7. Histamine

[M+H]: 112.0869

MS/MS spectrum of Histamine detected in mouse serum



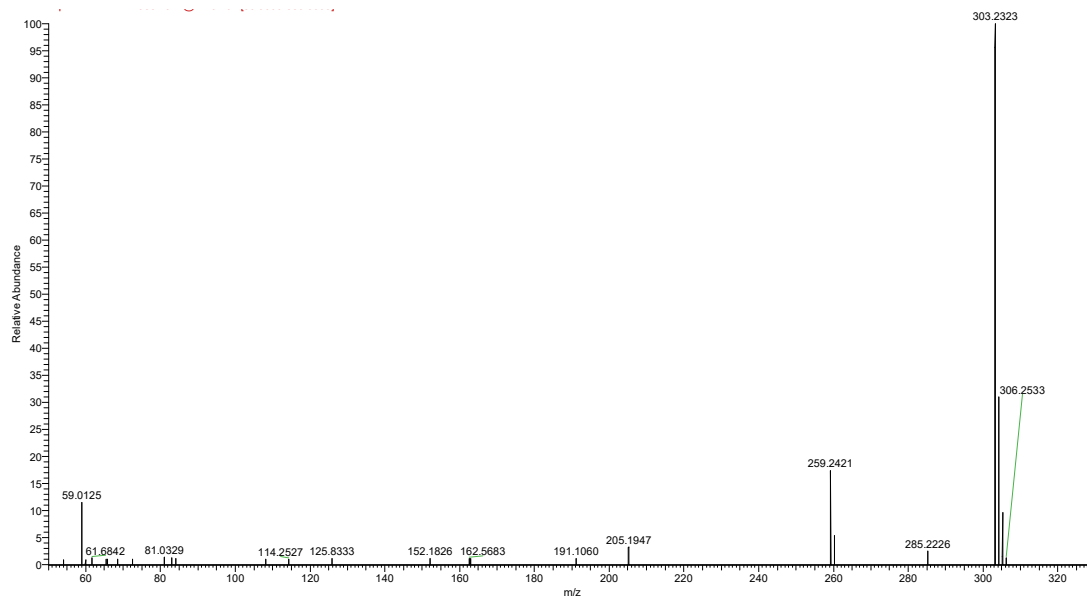
MS/MS spectrum of Histamine from HMDB



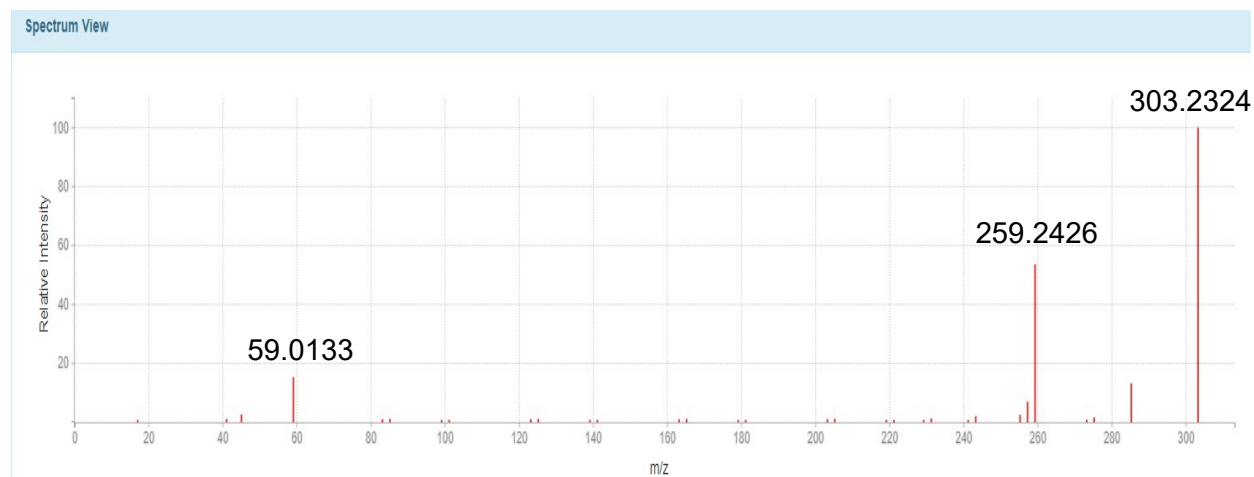
8. Arachidonic acid

[M-H]: 303.2329

MS/MS spectrum of Arachidonic acid detected in mouse serum

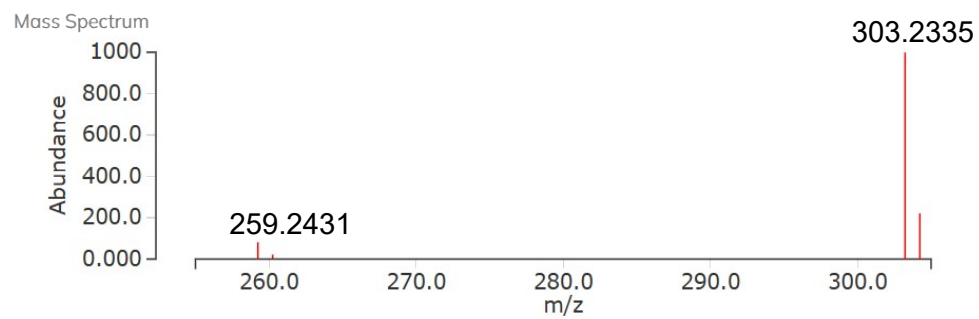


MS/MS spectrum of Arachidonic acid from HMDB



MS/MS spectrum of Arachidonic acid from MassBank

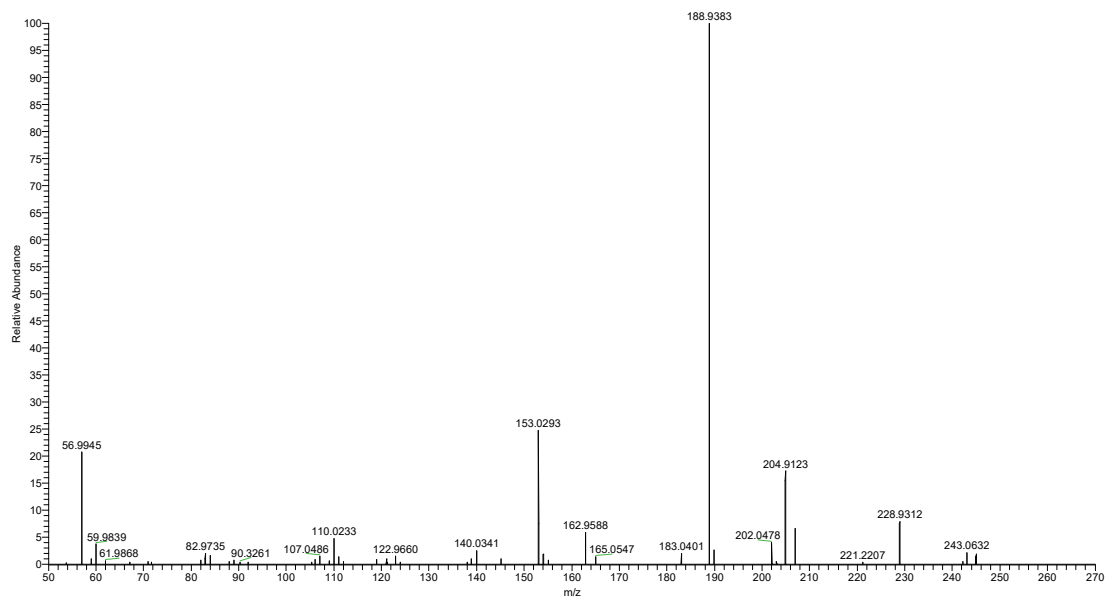
Arachidonic acid; LC-ESI-QTOF; MS2; CE:20 eV; [M-H]-



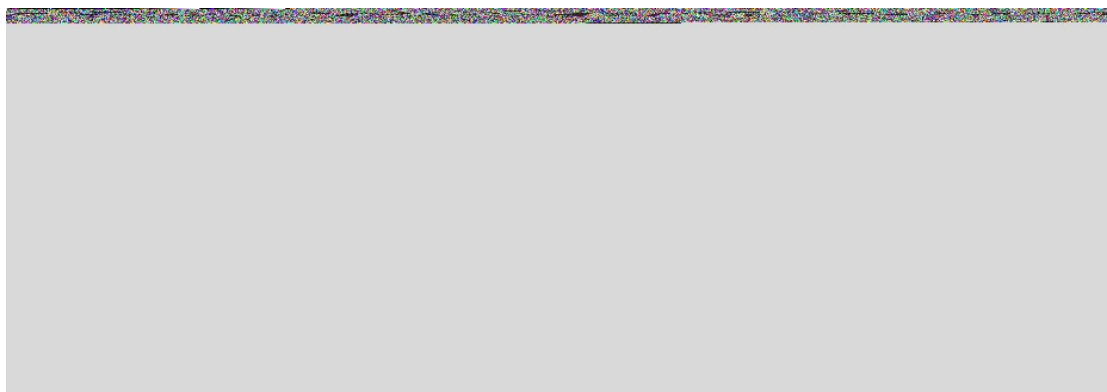
9. Uridine

[M-H]: 243.0622

MS/MS spectrum of Uridine detected in mouse serum



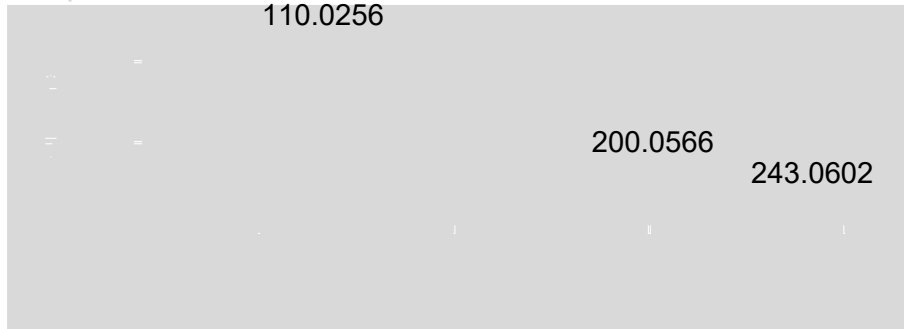
MS/MS spectrum of Uridine from mz cloud



MS/MS spectrum of Uridine from MassBank

Uridine; LC-ESI-QTOF; MS2; CE: 20; R=; [M-H]-

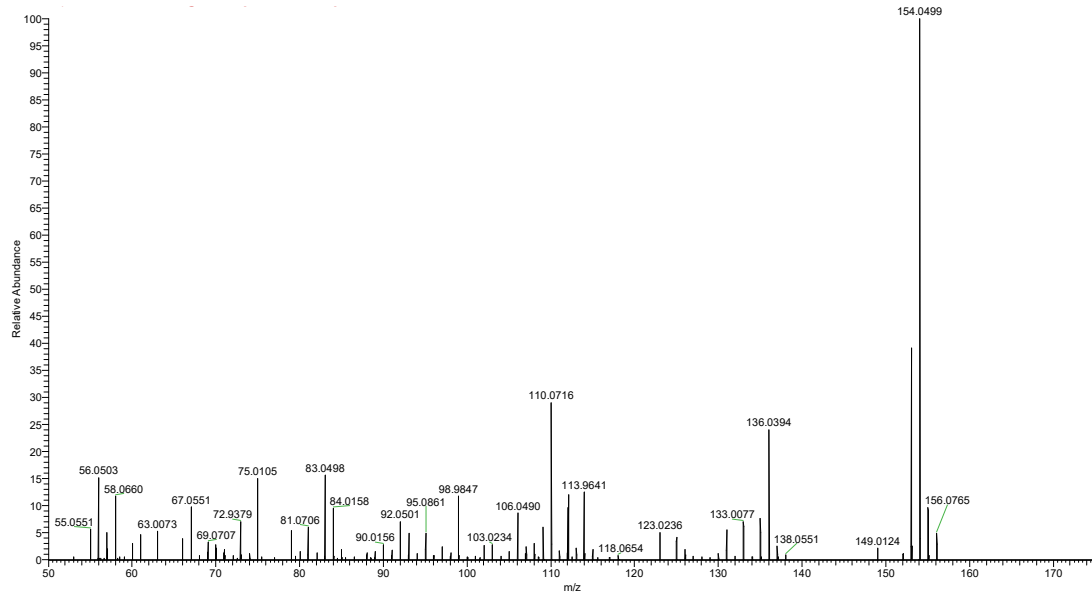
Mass Spectrum



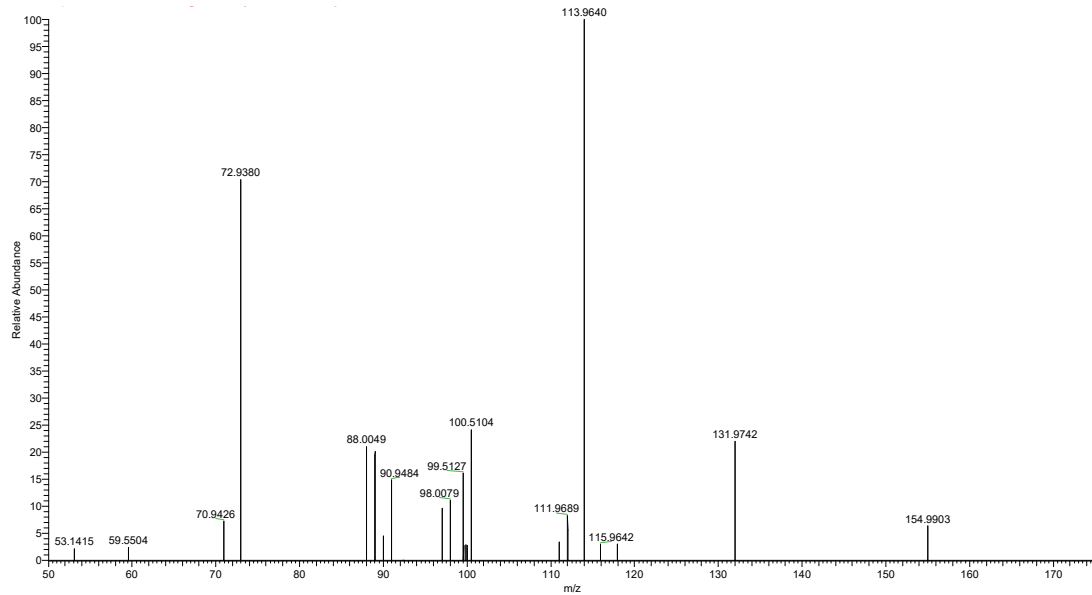
10. Xanthine

[M+H]: 153.0407

MS/MS spectrum of Xanthine detected in mouse serum

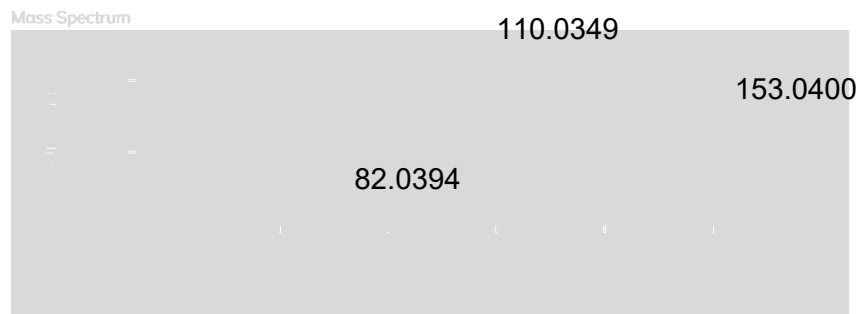


MS/MS spectrum of Xanthine standard



MS/MS spectrum of Xanthine from MassBank

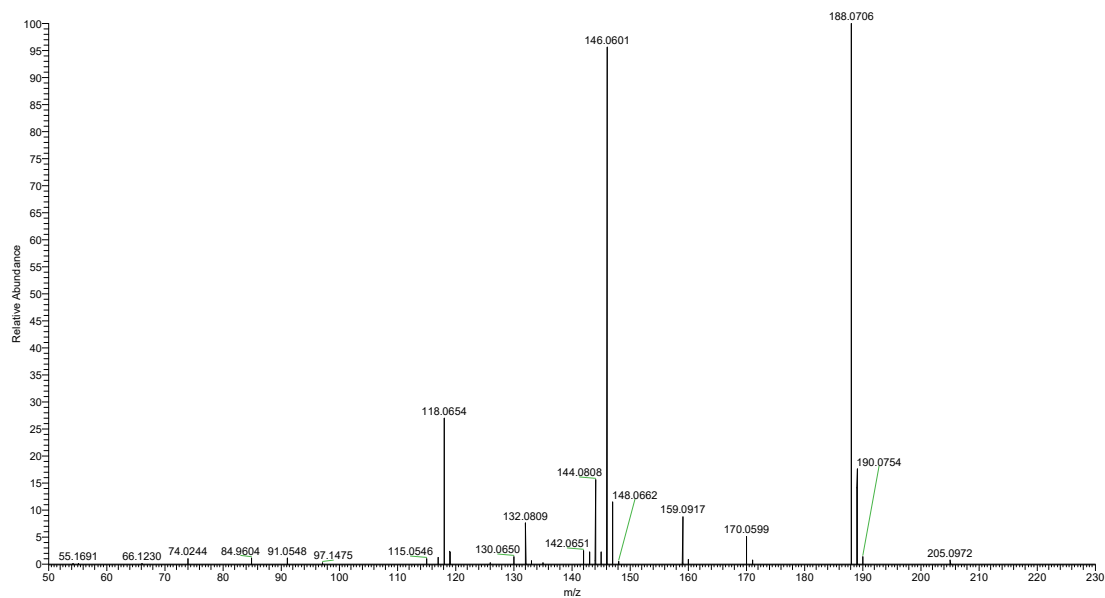
Xanthine; LC-ESI-QTOF; MS2; CE: 20; R=; [M+H]⁺



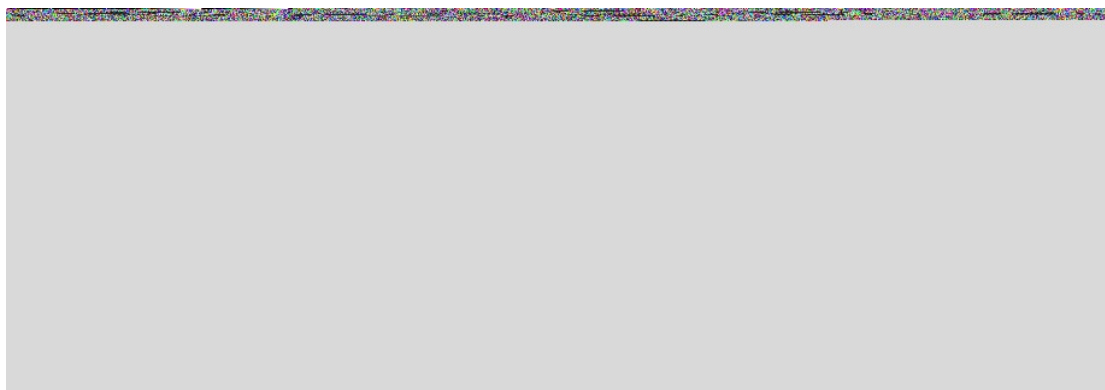
11. Tryptophan

[M+H]: 205.0971

MS/MS spectrum of Tryptophan detected in mouse serum

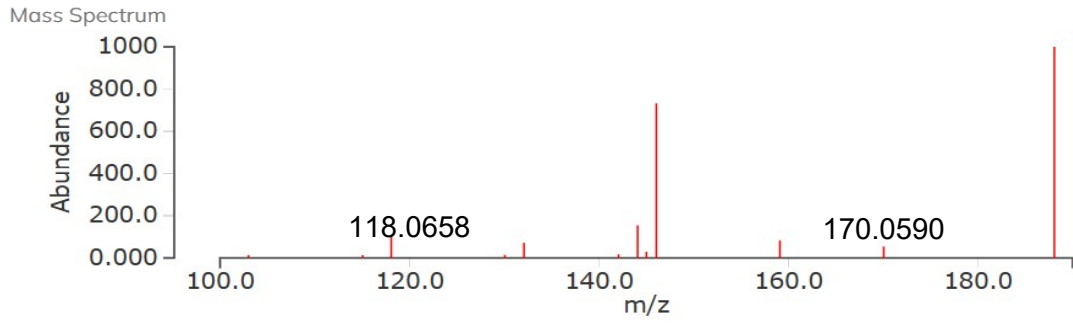


MS/MS spectrum of Tryptophan from mz cloud



MS/MS spectrum of Tryptophan from MassBank

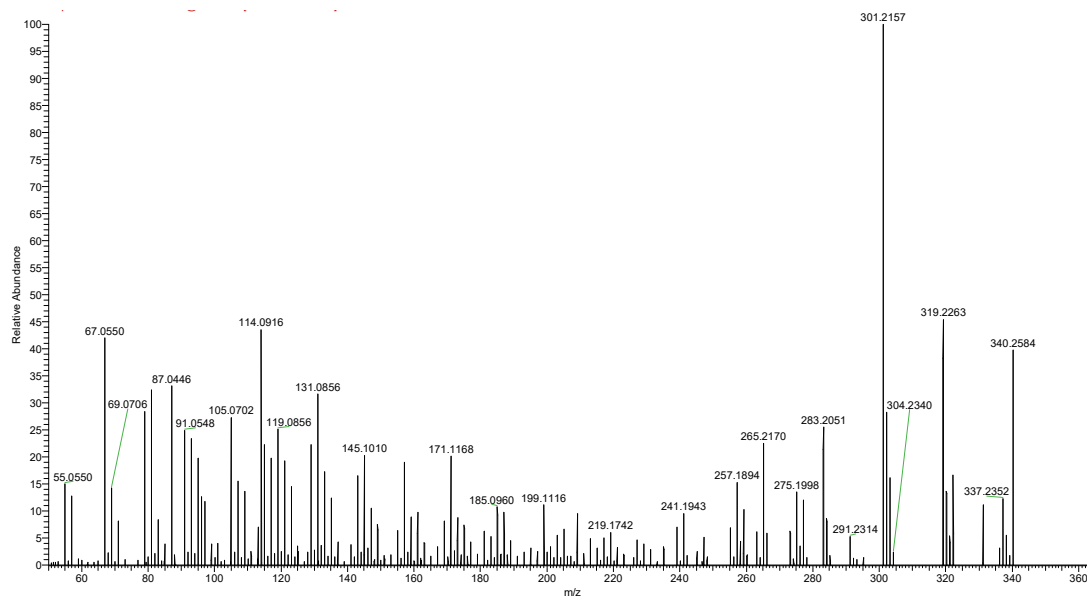
L-Tryptophan; LC-ESI-QTOF; MS2; CE 10 ev; [M+H]⁺



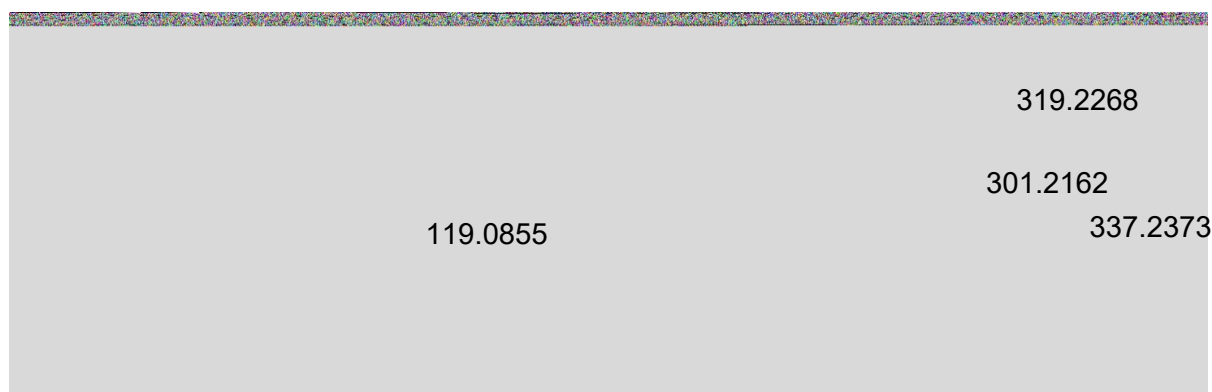
12. 5-HPETE

[M+H]: 337.2373

MS/MS spectrum of 5-HPETE detected in mouse serum



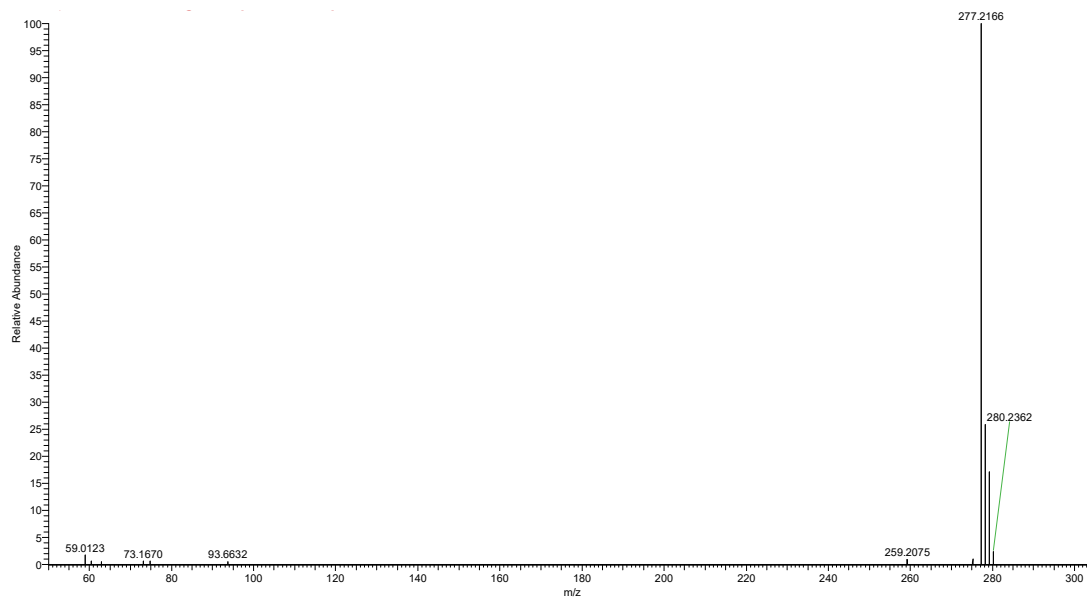
MS/MS spectrum of 5-HPETE from HMDB



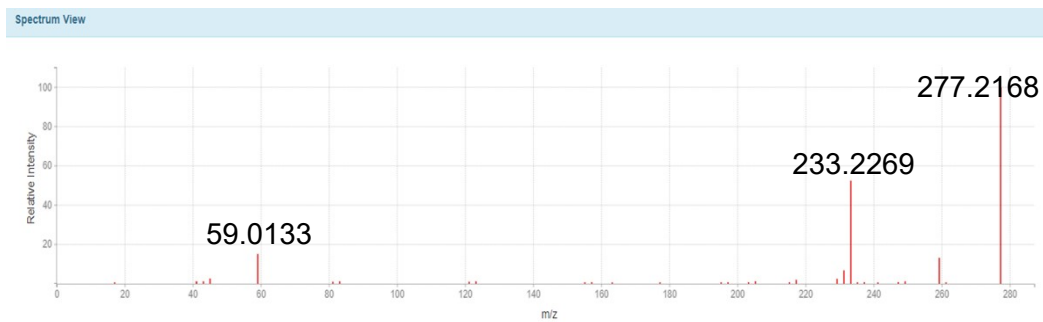
13. α -Linolenic acid

[M-H]: 277.2173

MS/MS spectrum of α -Linolenic acid detected in mouse serum



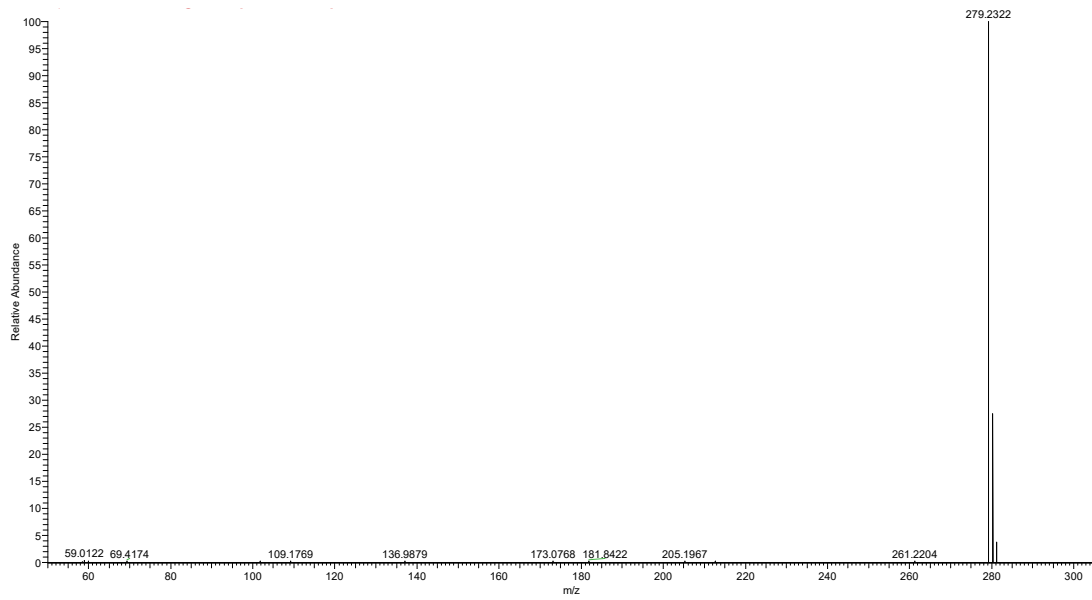
MS/MS spectrum of α -Linolenic acid from HMDB



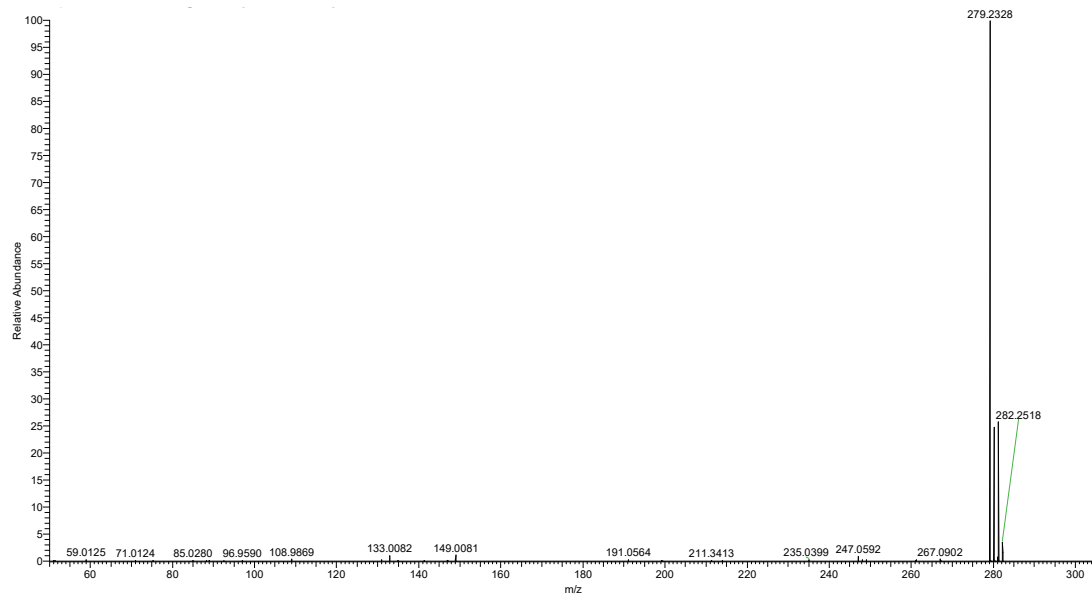
14. Linoleic acid

[M-H]: 279.2329

MS/MS spectrum of linoleic acid detected in mouse serum



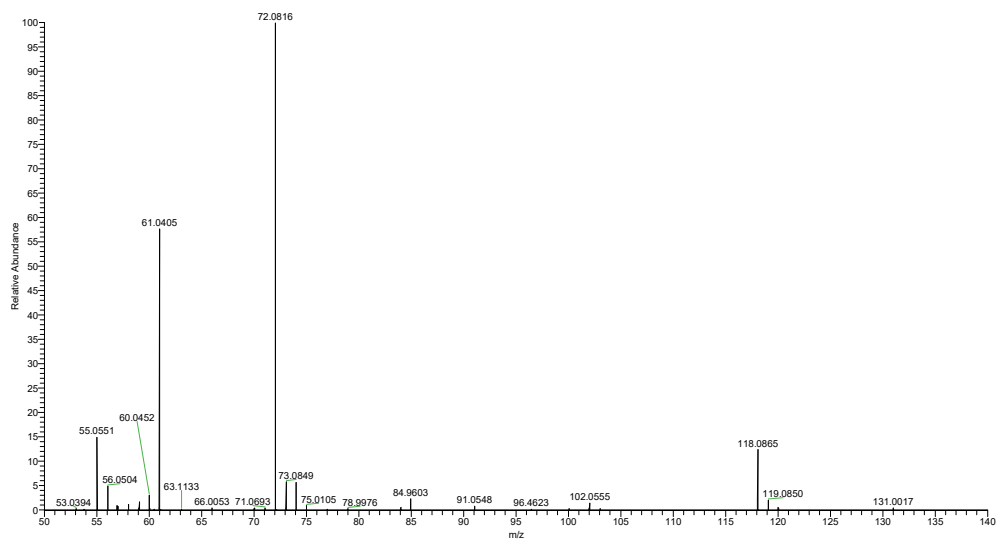
MS/MS spectrum of linoleic acid standard



15. Valine

[M+H]: 118.0863

MS/MS spectrum of Valine detected in mouse serum



MS/MS spectrum of Valine from HMDB

Spectrum View

