

**PRODUCT DATA SHEET**
**Pierce FlexMix Calibration Solution**
**Product Number:** A39239

**Lot Number:** 3241152

**Expiration:** March 06, 2027

**Summary:**

The Thermo Scientific™ Pierce™ FlexMix Calibration Solution is a room-temperature stable, ready-to-use liquid formulation for the calibration of all Thermo Scientific Tribrid™ mass spectrometers. The only additional materials required are a 500µL Hamilton syringe and a liquid infusion line, both supplied with the instrument.

**Visual:**

Clear, colorless liquid

Components	Accurate Mass (m/z)	Specification (neat)	Results
*LC-MS grade acetonitrile (90% v/v)	--	Purity ≥ 99.9%	Pass
*LC-MS grade water (10% v/v)	--	LC-MS Grade	Pass
LC-MS grade acetic acid	59.0139 <sup>b(-)</sup>	Purity ≥ 99.7%	Pass
Imidazole	69.0447 <sup>a(+)</sup>	Purity ≥ 99.0%	Pass
Triethylamine	102.1277 <sup>a(+)</sup>	Purity ≥ 99.5%	Pass
Trifluoroacetic acid (TFA)	112.9856 <sup>b(-)</sup>	Purity ≥ 99.5%	Pass
Tetramethylpiperidine	142.1590 <sup>a(+)</sup>	Purity ≥ 97.5%	Pass
Pentafluoropropionic acid	162.9824 <sup>b(-)</sup>	Purity ≥ 97.0%	Pass
Caffeine	195.0876 <sup>a(+)</sup>	Purity ≥ 97.0%	Pass
Hexamethoxyphosphazene	322.0481 <sup>a(+)</sup>	Purity ≥ 99.0%	Pass
Perfluoroheptanoic acid	362.9696 <sup>b(-)</sup>	Purity ≥ 96.0%	Pass
MRFA	524.2649 <sup>a(+)</sup>	Purity ≥ 98%	Pass
2,4,6-Tris(heptafluoropropyl)-1,3,5-triazine	601.9779 <sup>c(-)</sup>	Purity ≥ 95.0%	Pass
Hexakis(2,2-difluoroethoxy) phosphazene	622.0290 <sup>a(+)</sup>	Purity ≥ 97.0%	Pass
Hexakis(2,2,3,3-tetrafluoropropoxy) phosphazene	922.0098 <sup>a(+)</sup> , 1033.9881 <sup>d(-)</sup>	Purity ≥ 95.0%	Pass
Ultramark 1621	See note below	Purity ≥ 95.0%	Pass
Hexakis(1h,1h,7h-perfluoroheptoxy) phosphazene	2121.9331 <sup>a(+)</sup> , 2233.9115 <sup>d(-)</sup>	Purity ≥ 95.0%	Pass
Hexakis(1h,1h,9h-perfluorononyloxy) phosphazene	2721.8948 <sup>a(+)</sup> , 2833.8731 <sup>d(-)</sup>	Purity ≥ 95.0%	Pass

<sup>a</sup>[M+H]<sup>+</sup>
<sup>b</sup>[M-H]<sup>-</sup>
<sup>c</sup>[M+OH]<sup>-</sup>
<sup>d</sup>[M+TFA]<sup>-</sup>

\*Combined concentration of all other components listed is less than 1% w/v

**Note:** Ultramark 1622 is a well-defined mixture of compounds producing a well-defined peak envelope in the range of 900-2200 m/z in the positive and negative ion modes.

**Important Product Information:**

- For best results, use a dedicated syringe and infusion line.
- Before and after calibration, flush the syringe and infusion line with 1:1 water/acetonitrile solution to clean.
- Turn on the mass spectrometer and wait for it to enter ready state.
- Infuse the calibration solution and optimize spray conditions until a spray stability of ≤ 15% RSD is achieved before initiating calibration routine.

**Storage:**

Upon receipt store at room temperature

**Compatible with these Thermo Scientific™ Instruments:**

Orbitrap Fusion™ MS

Orbitrap Fusion™ Lumos™ MS

Orbitrap ID-X MS

Orbitrap Tribrid™ Series 3.1 Instrument Control Software (or later)

**Additional information:**

For MSDS please visit

[www.thermoscientific.com/pierce](http://www.thermoscientific.com/pierce)

For calibration procedure use:

*Orbitrap Tribrid Series Getting Started Guide (June 2018)*
**Technical Support:**

For hardware related support: 1-800-532-4752

For reagent support: 1-800-874-3723

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Analysis	Specification	Results
<b>Positive Mode Target Ions (m/z)</b>  <b>69, 102, 142, 195, 322, 524, 622, 922, 1122, 1222, 1322, 1422, 1522, 1622, 1722, 1822, 2122, and 2722 m/z.</b>	All calibration ions are present in the spectrum	<b>Pass</b>
<b>Negative Mode Target Ions (m/z)</b>  <b>113, 163, 363, 602, 1034, 1234, 1334, 1434, 1534, 1634, 1734, 1834, 1934, 2234, and 2834 m/z</b>	All calibration ions are present in the spectrum	<b>Pass</b>
<b>Positive Mode Target Ions (m/z)</b>  <b>69, 102, 142, 195, 322, 524, 622, 922, 1522, 2122, and 2722 m/z</b>	Ratio to Reference is between 0.5 and 2.0 for all ions listed below in positive ion mode:  <b>69, 102, 142, 195, 322, 524, 622, 922, 1522, 2122, and 2722 m/z</b>	<b>Pass</b>
<b>Negative Mode Target Ions (m/z)</b>  <b>113, 163, 363, 602, 1034, 1534, 2234, and 2834 m/z</b>	Ratio to Reference is between 0.5 and 2.0 for all ions listed below in negative ion mode:  <b>113, 163, 363, 602, 1034, 1534, 2234, and 2834 m/z</b>	<b>Pass</b>
<b>Positive Mode Target Ions (m/z)</b>  <b>69, 102, 142, 195, 322, 524, 622, 922, 1122, 1222, 1322, 1422, 1522, 1622, 1722, 1822, 2122, 2722</b>  <b>Negative Mode Target Ions (m/z)</b>  <b>113, 163, 363, 602, 1034, 1234, 1334, 1434, 1534, 1634, 1734, 1834, 1934, 2234, 2834</b>	Contaminant ions are not > 30% of the intensity of the target reference peak within +/- 10 m/z in both positive and negative mode*.	<b>Pass</b>

Publish Date: 19-Jun-2025  
 Timothy Morton, Sr. Quality Chemist, Mass Spectrometry



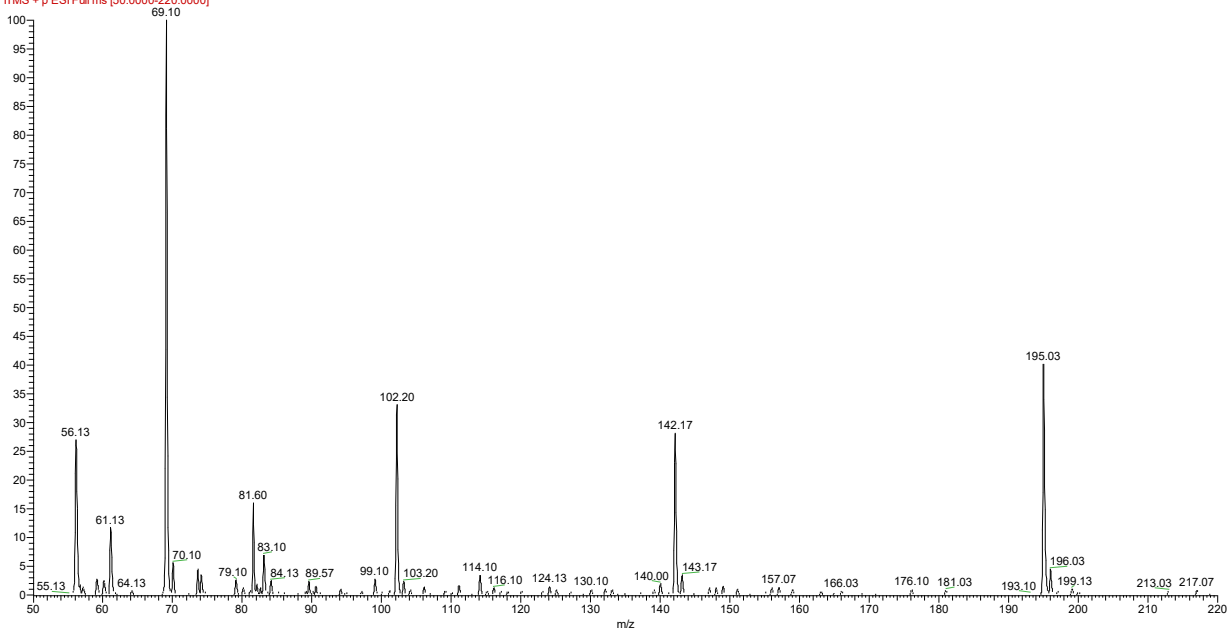
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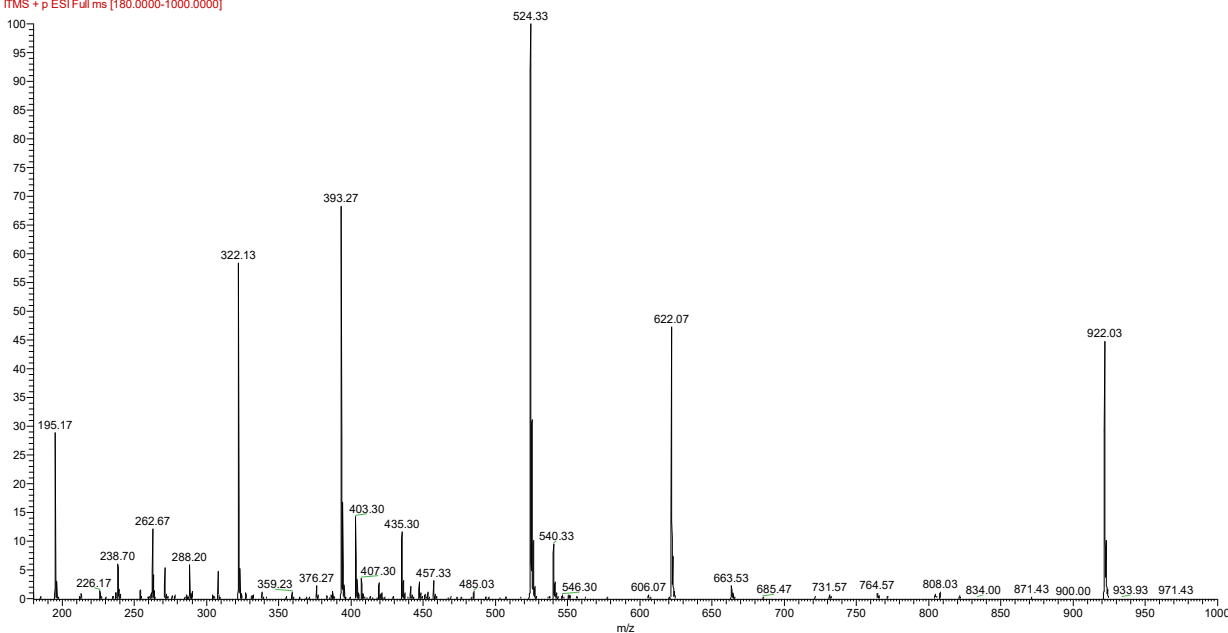
## Positive Ion Mode (Ion Trap, Normal Scan Mode), 50-220 m/z

07Mar2025 AB411434-F #1-5948 RT: 0.00-1.00 AV: 1298 NL: 1.39E6  
F: ITMS + p ESI Full ms [50.0000-220.0000]



## Positive Ion Mode (Ion Trap, Normal Scan Mode), 180-1000 m/z

07Mar2025 AB411434-F #1-5948 RT: 1.00-2.00 AV: 830 NL: 1.18E6  
F: ITMS + p ESI Full ms [180.0000-1000.0000]



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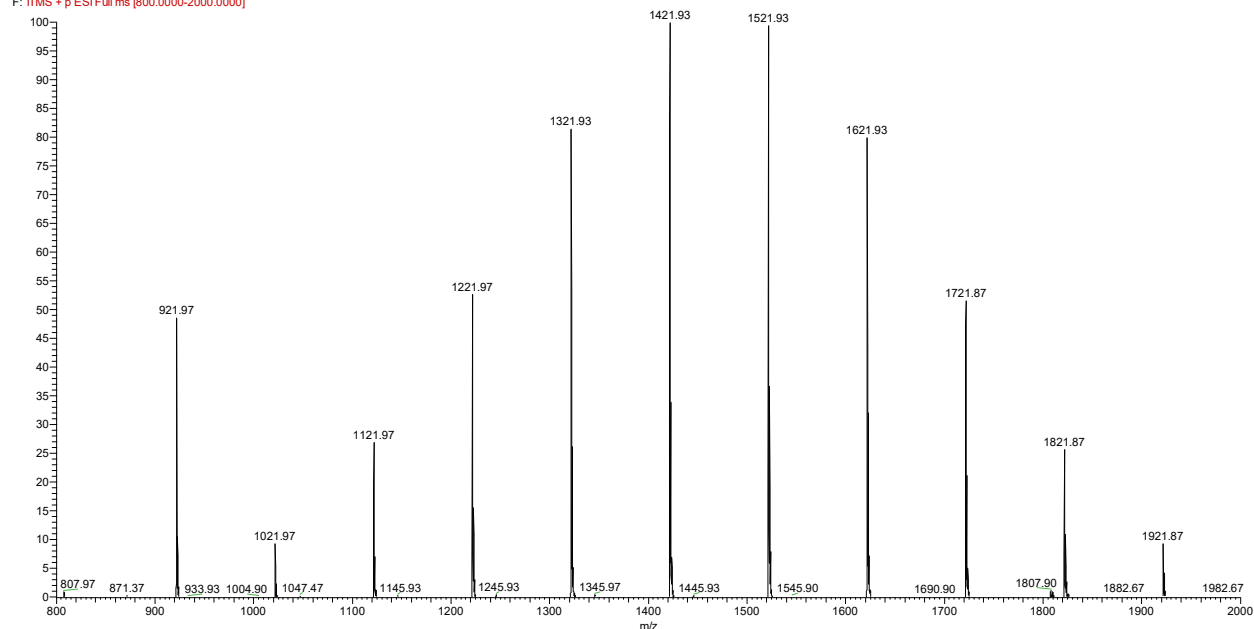
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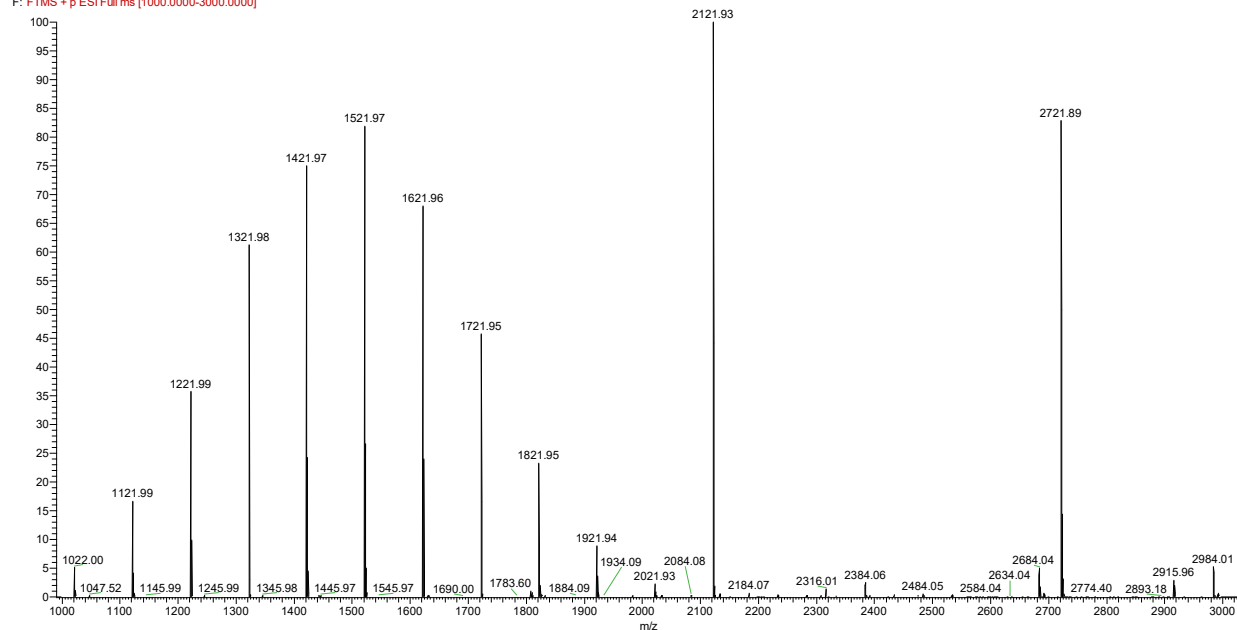
## Positive Ion Mode (Ion Trap, Normal Scan Mode), 800-2000 m/z

07Mar2025\_AB411434-F #1-5948 RT: 2.00-3.00 AV: 666 NL: 1.67E6  
F: FTMS + p ESI Full ms [800.0000-2000.0000]



## Positive Ion Mode (Orbitrap, High Scan Mode), 1000-3000 m/z

07Mar2025\_AB411434-F #1-5948 RT: 3.01-4.00 AV: 152 NL: 2.67E8  
F: FTMS + p ESI Full ms [1000.0000-3000.0000]



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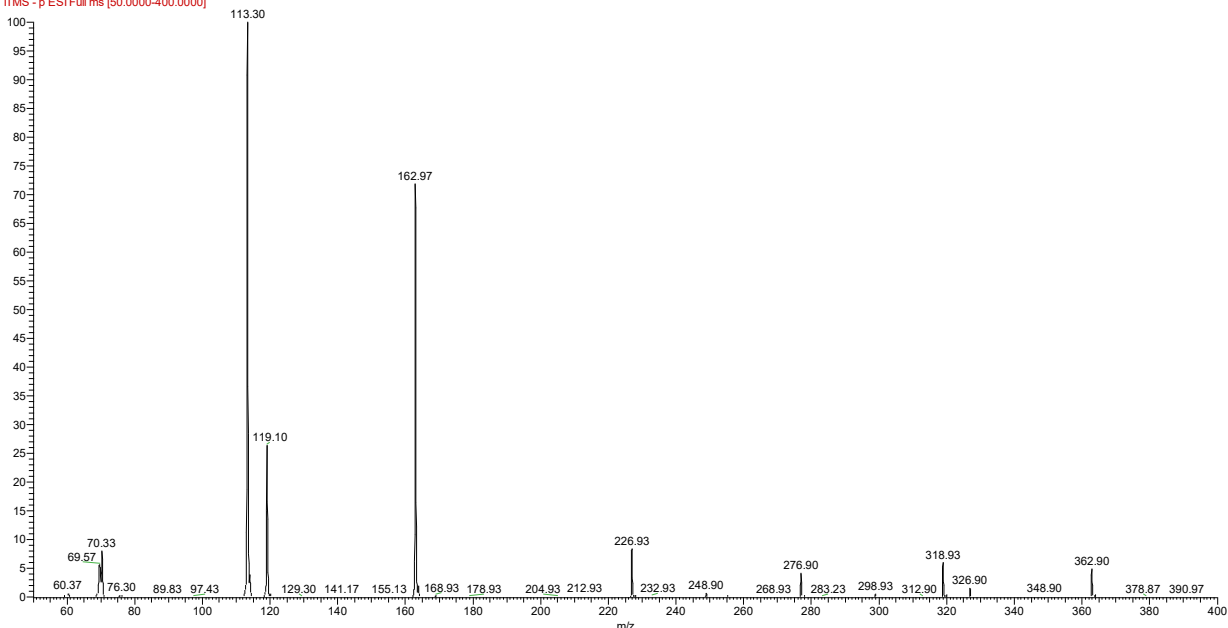
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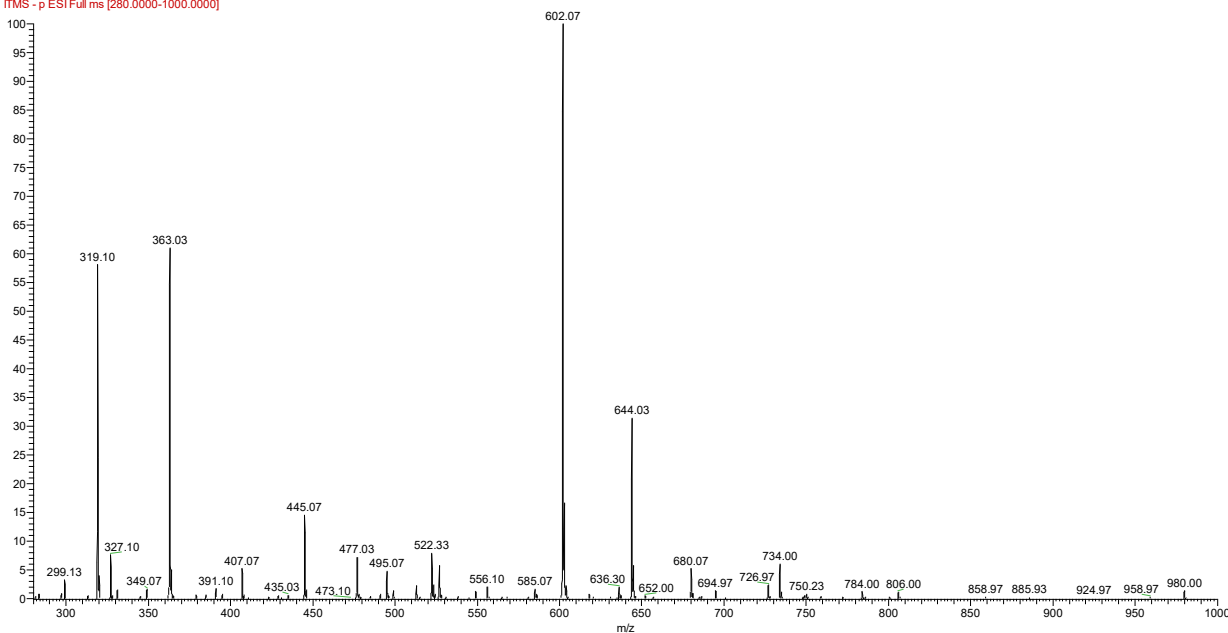
## Negative Ion Mode (Ion Trap, Normal Scan Mode), 50-400 m/z

07Mar2025 AB411434-F #1-5948 RT: 4.50-5.50 AV: 1073 NL: 3.15E5  
F: ITMS - p ESI Full ms [50.0000-400.0000]



## Negative Ion Mode (Ion Trap, Normal Scan Mode), 280-1000 m/z

07Mar2025 AB411434-F #1-5948 RT: 5.50-6.50 AV: 846 NL: 3.21E5  
F: ITMS - p ESI Full ms [280.0000-1000.0000]



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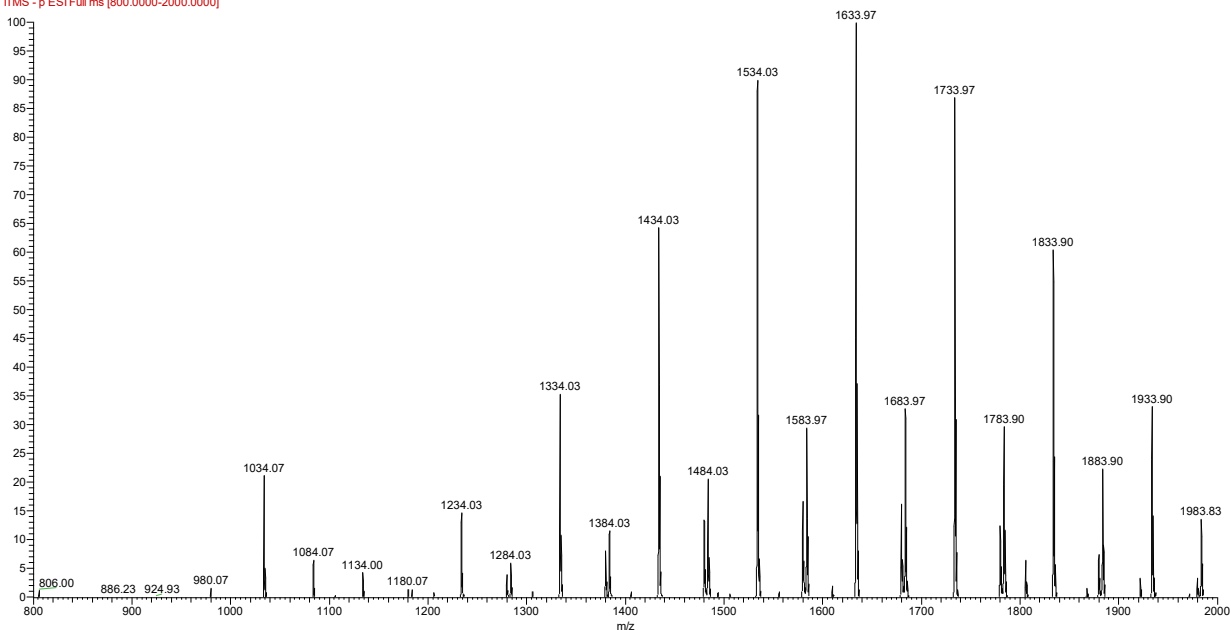
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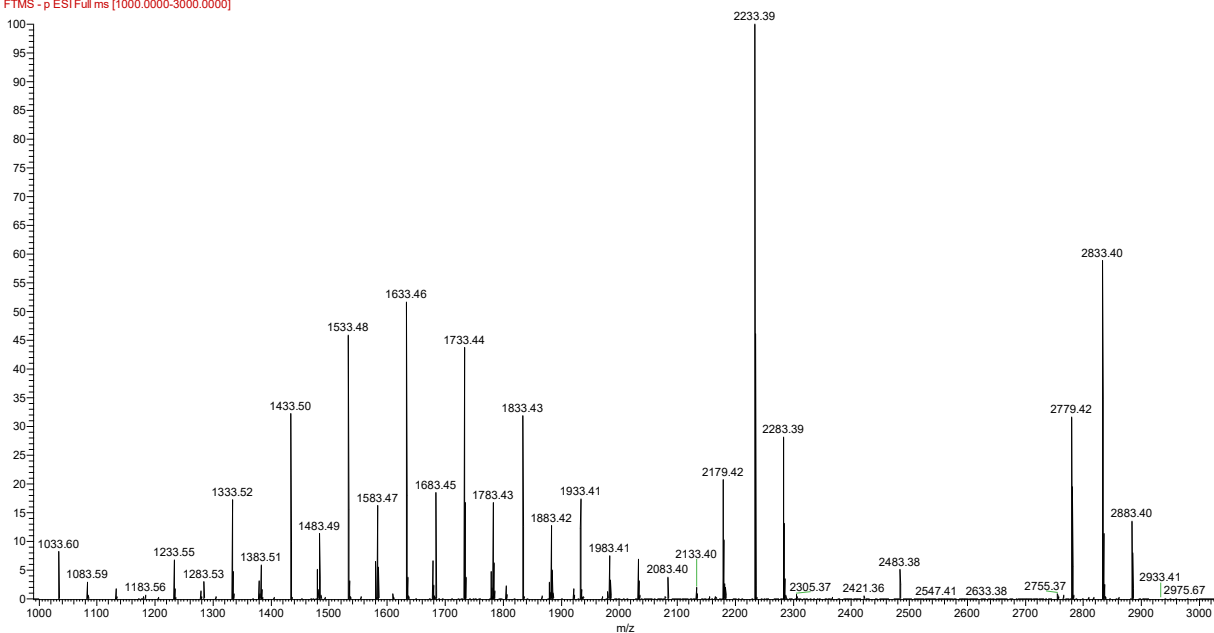
## Negative Ion Mode (Ion Trap, Normal Scan Mode), 800-2000 m/z

07Mar2025 AB411434-F #1-5948 RT: 6.50-7.50 AV: 667 NL: 9.63E5  
F: FTMS - p ESI Full ms [800.0000-2000.0000]



## Negative Ion Mode (Orbitrap, High Scan Mode), 1000-3000 m/z

07Mar2025 AB411434-F #1-5948 RT: 7.51-8.50 AV: 152 NL: 8.42E8  
F: FTMS - p ESI Full ms [1000.0000-3000.0000]



Spectra were acquired on a Thermo Scientific™ Orbitrap Eclipse Mass Spectrometer

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