Lipid Analysis

Sphingolipids I: Sphingosine, Sphinganine, Sphingosine-1-Phosphate, and Ceramide Phosphates

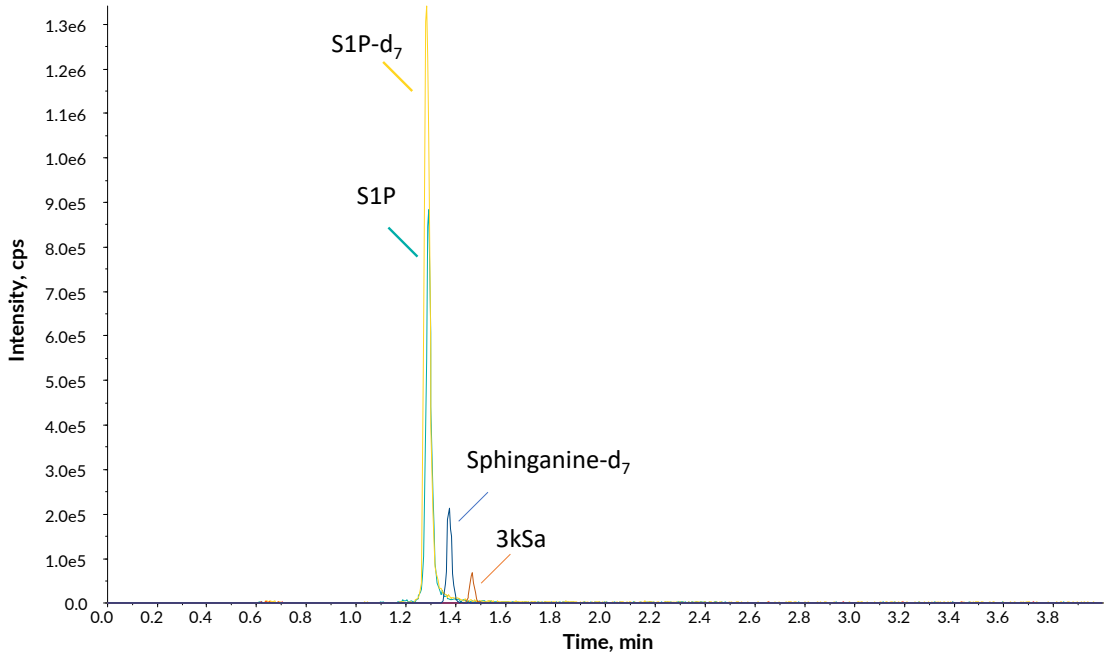
The sphingolipid (SP) category of lipids is very structurally diverse due to the multitude of combinations of sphingoid bases, N-acyl chains, and polar heads, so comprehensive analysis of all relevant sphingolipids in a biological system is not achievable with a single analytical approach. Sphingoid bases such as sphingosine or sphinganine are key building blocks of all SPs, while ceramide phosphates and sphingosine-1-phosphate (S1P) are potent signaling molecules involved in biological processes like vascularization, and diseases like cancer or multiple sclerosis.

This service can be of interest to a wide variety of scientists, including researchers exploring the fundamental mechanisms of biology, clinicians looking for biomarkers or following up on a treatment, or companies testing potential therapeutic tools.

Analyte Coverage

We offer a targeted analytical service that allows for the extraction and quantitation of sphingosine (d18:1), sphinganine (d18:0), and 3-ketosphinganine, as well as S1P. The same extraction and LC-MS method is suitable for the analysis of several molecular species of ceramide phosphates. Additional analytes can be added or substituted if necessary.

Sphingolipid	Abbreviation
Sphingosine	So, SPB(d18:1) or SPB(18:1;O2)
Sphinganine	Sa, SPB(d18:0) or (18:0;O2)
3-Ketosphingosine	3kSa or SPB(18:1;O3)
Sphingosine-1-phosphate	S1P or SPBP(18:1;O2)
Ceramide Phosphates	CerP(18:1;O2/16:0)
	CerP(18:1;O2/16:1)
	CerP(18:1;O2/18:0)
	CerP(18:1;O2/18:1)
	CerP(18:1;O2/20:0)
	CerP(18:1;O2/22:0)
	CerP(18:1;O2/23:0)
	CerP(18:1;O2/24:0)
	CerP(18:1;O2/24:1)
	CerP(18:1;O2/26:0)
	CerP(18:1;O2/26:1)



LC-MS chromatogram traces of a mixture of authentic sphingolipid standards and internal standards.

Our Approach

Samples are extracted using an established liquid-liquid method. Our lab is equipped to handle large sample sets, and the method has been tested with as little as 50 µl plasma or 50 mg liver tissue.

Reversed-phase HPLC and tandem mass spectrometry resolve all analytes and enable independent integration and quantitation and/or semiquantitation by panel.

The use of isotopically labeled internal standards helps achieve accurate and precise quantitation of the sphingolipids present in biological samples.

Our Advantages

- Our scientists are expertly trained and have decades of collective experience in the analysis, synthesis, and evaluation of biological roles of lipids.
- State-of-the-art instrumentation, reagents, and methods for all aspects of sample preparation, lipid extraction, LC-MS analysis, and data review ensure consistent, high-quality data.
- Method is scalable, from pilot studies with a few samples to high-throughput studies with hundreds of samples.
- High-quality standards produced in-house enable accurate calibration curve preparation and absolute quantitation.
- Collaborative, flexible approach. The method can be customized to include, remove or substitute analytes, or to be used with samples other than plasma. Inquire for specific details.

Contact us for more information at **www.caymanchem.com/lipidomics**

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