

Oxidized Phospholipids

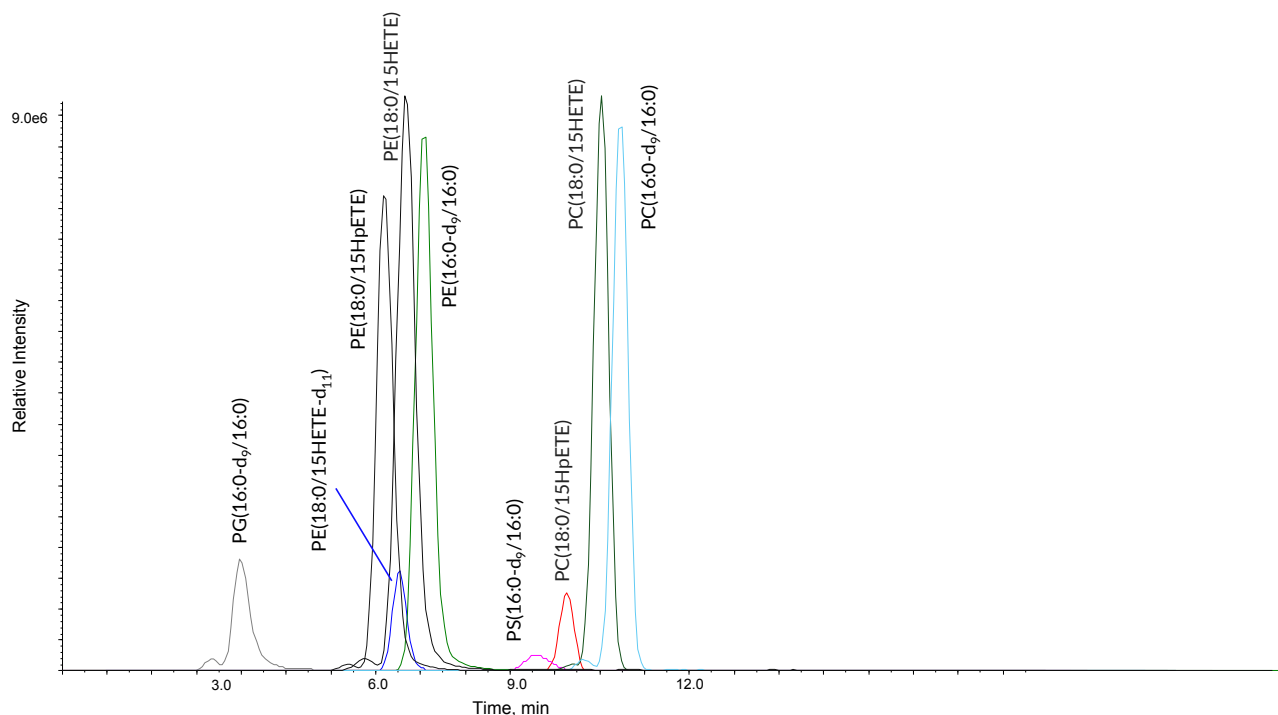
Phospholipids, including glycerophospholipids, are key components of all cellular membranes. It is common for glycerophospholipids to contain polyunsaturated acyl chains which are susceptible to oxidation through enzymatic and nonenzymatic reactions. Oxidized phospholipids play key roles in health and disease, both as a result of unique structural properties and as sources of potent lipid mediators. For example, phosphatidylethanolamine containing oxidized arachidonoyl or adrenoyl chains is implicated in ferroptosis in a variety of experimental models, including tumor cell death.

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

This service provides semiquantitative LC-MS/MS analysis of a panel of 45 molecular species of oxidized glycerophospholipids and their precursors across the subclasses phosphatidylcholine (PC), phosphatidylethanolamine (PE), phosphatidylglycerol (PG), phosphatidylinositol (PI), and phosphatidylserine (PS). The method can also chromatographically resolve *bis*(monoacylglycerol)phosphate (BMP) and PG isomers.

Phosphatidylcholine	Phosphatidylethanolamine	Phosphatidylglycerol	Phosphatidylinositol	Phosphatidylserine
PC(18:0_18:2)	PE(18:0_18:2)	PG(18:0_18:2)	PI(18:0_18:2)	PS(18:0_18:2)
PC(18:0_18:2;O)	PE(18:0_18:2;O)	PG(18:0_18:2;O)	PI(18:0_18:2;O)	PS(18:0_18:2;O)
PC(18:0_18:2;O2)	PE(18:0_18:2;O2)	PG(18:0_18:2;O2)	PI(18:0_18:2;O2)	PS(18:0_18:2;O2)
PC(18:0_20:4)	PE(18:0_20:4)	PG(18:0_20:4)	PI(18:0_20:4)	PS(18:0_20:4)
PC(18:0_20:4;O)	PE(18:0_20:4;O)	PG(18:0_20:4;O)	PI(18:0_20:4;O)	PS(18:0_20:4;O)
PC(18:0_20:4;O2)	PE(18:0_20:4;O2)	PG(18:0_20:4;O2)	PI(18:0_20:4;O2)	PS(18:0_20:4;O2)
PC(18:0_22:4)	PE(18:0_22:4)	PG(18:0_22:4)	PI(18:0_22:4)	PS(18:0_22:4)
PC(18:0_22:4;O)	PE(18:0_22:4;O)	PG(18:0_22:4;O)	PI(18:0_22:4;O)	PS(18:0_22:4;O)
PC(18:0_22:4;O2)	PE(18:0_22:4;O2)	PG(18:0_22:4;O2)	PI(18:0_22:4;O2)	PS(18:0_22:4;O2)



LC-MS chromatogram traces of a mixture of phospholipid standards.

Our Approach


Samples are extracted using a liquid-liquid method. Our lab is equipped to handle large sample sets from a variety of matrices including cells or animal tissues such as spinal cord or liver.

Normal-phase HPLC and tandem mass spectrometry resolve all analytes and enable independent integration and relative quantitation.

The use of isotopically labeled internal standards helps achieve quantitation of the oxidized glycerophospholipids present in biological samples. Some authentic standards of oxidized lipids, including PE(18:0/15-HETE) help in unequivocally identifying endogenous analytes.

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 reliable quantitation.
- Collaborative, flexible approach. The method can be customized to include, remove or substitute analytes, or to be used with samples other than plasma. Please inquire for specific details.

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