Lipid Analysis Services

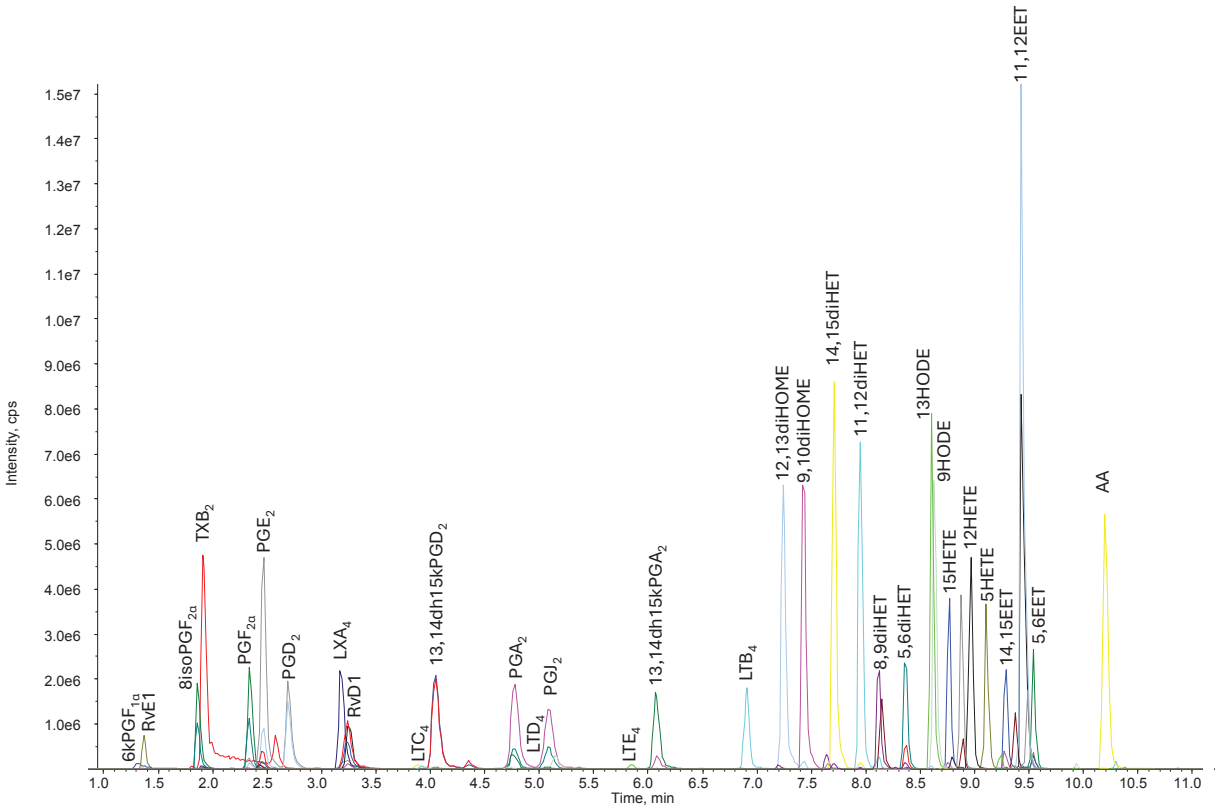
Oxylipins

Oxylipins are oxidized metabolites of polyunsaturated fatty acids (PUFAs). The best studied are eicosanoids derived from arachidonic acid and produced by several enzymatic (cyclooxygenases, lipoxygenases, P450) as well as nonenzymatic pathways. They include well-known mediators of inflammation such as prostaglandins (PGs), thromboxanes (TXs), leukotrienes (LTs), lipoxins (LXs), or hydroxyeicosatetraenoic (HETE) acids. Due to their potent biological activities and roles in many diseases, there is great interest in oxylipin detection at low levels in many different biological matrices.

Analyte Coverage

We offer an exploratory analytical oxylipin panel covering the major metabolic pathways as well as some of the precursor unoxidized fatty acids. Depending on the specific area of research, the panel can be customized by adding or substituting from hundreds of additional analytes.

Analytes (Abbreviation)	
6-Ketoprostaglandin $F_{1\alpha}$ (6kPGF$_{1\alpha}$)	Lipoxin A_4 (LXA$_4$)
Thromboxane B_2 (TXB$_2$)	Resolvin E1 (RvE1)
Prostaglandin D_2 (PGD$_2$)	5,6-Epoxyeicosatetraenoic Acid (5,6-EET)
Prostaglandin E_2 (PGE$_2$)	8,9-Epoxyeicosatetraenoic Acid (8,9-EET)
Prostaglandin $F_{2\alpha}$ (PGF$_{2\alpha}$)	11,12-Epoxyeicosatetraenoic Acid (11,12-EET)
12-Hydroxyheptadecatrienoic Acid (12-HHT)	14,15-Epoxyeicosatetraenoic Acid (14,15-EET)
Prostaglandin A_2 (PGA$_2$)	5,6-Dihydroxyeicosatrienoic Acid (5,6-DiHET)
Prostaglandin J_2 (PGJ$_2$)	8,9-Dihydroxyeicosatrienoic Acid (8,9-DiHET)
13,14-Dihydro-15-ketoprostaglandin D_2 (13,14-dhk-PGD$_2$)	11,12-Dihydroxyeicosatrienoic Acid (11,12-DiHET)
13,14-Dihydro-15-ketoprostaglandin E_2 (13,14-dhk-PGE$_2$)	14,15-Dihydroxyeicosatrienoic Acid (14,15-DiHET)
13,14-Dihydro-15-ketoprostaglandin A_2 (13,14-dhk-PGA$_2$)	18-Hydroxyeicosapentaenoic Acid (18-HEPE)
8-Isoprostaglandin $F_{2\alpha}$ (8-*iso*-PGF$_{2\alpha}$)	9-Hydroxyoctadecadienoic Acid (9-HODE)
Leukotriene B_4 (LTB$_4$)	13-Hydroxyoctadecadienoic Acid (13-HODE)
Leukotriene C_4 (LTC$_4$)	9,10-Dihydroxyoctadecenoic Acid (9,10-DiHOME)
Leukotriene D_4 (LTD$_4$)	12,13-Dihydroxyoctadecenoic Acid (12,13-DiHOME)
Leukotriene E_4 (LTE$_4$)	17-Hydroxydocosahexaenoic Acid (17-HDHA)
5-Hydroxyeicosatetraenoic Acid (5-HETE)	Resolvin D1 (RvD1)
12-Hydroxyeicosatetraenoic Acid (12-HETE)	Arachidonic Acid (AA)
15-Hydroxyeicosatetraenoic Acid (15-HETE)	Docosahexaenoic Acid (DHA)
20-Hydroxyeicosatetraenoic Acid (20-HETE)	Eicosapentaenoic Acid (EPA)
5-Oxoeicosatetraenoic Acid (5-oxoETE)	Oleic Acid (OA)
15-Oxoeicosatetraenoic Acid (15-oxoETE)	Linoleic Acid (LA)



LC-MS chromatogram traces of a mixture of oxylipins after solid-phase extraction.

Our Approach

An efficient and high-recovery solid-phase extraction has been developed for use in a 96-well format. The method has been validated with as little as 50 µl plasma or 5 mg tissue.

Reversed-phase HPLC and tandem mass spectrometry resolve the vast majority of isomeric species and enable independent integration and quantitation.

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**

Cayman Chemical · 1180 East Ellsworth Road · Ann Arbor, MI, 48108 · (800) 364-9897