

Endocannabinoids and Related Molecules

The endocannabinoid signaling system is found in nearly all animals. Mediators such as 2-arachidonoylglycerol (2AG) or anandamide (AEA, NAE(20:4)) act through G-protein-coupled cannabinoid receptors, and they provide homeostatic balance to the nervous and immune systems. Cannabinoid receptors are the pharmacological targets of a wide variety of therapeutic treatments, as well as of some illicit drugs. Other related molecules, although not necessarily acting through cannabinoid receptor signaling, are being investigated as important biological mediators, such as palmitoylethanolamine (PEA, NAE(16:0)) in gastrointestinal disease or acyltaurines in glucose metabolism.

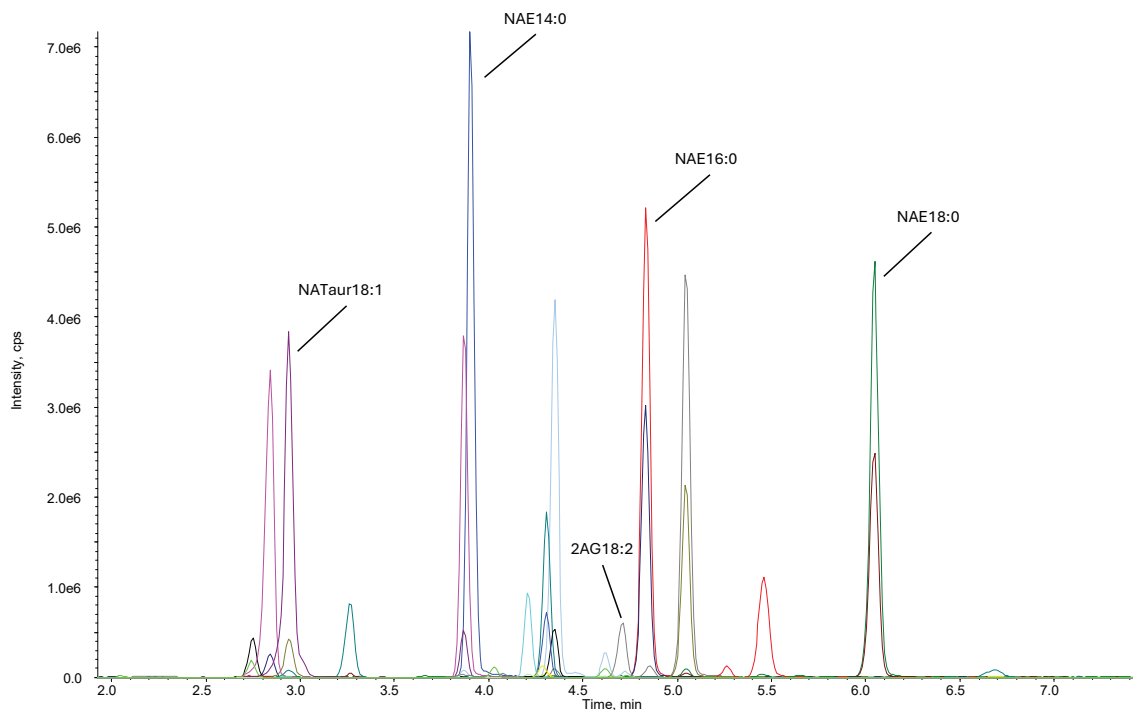
This service can be of interest to a wide variety of scientists, including researchers exploring the fundamental mechanisms of biology, clinicians looking for biomarkers or following up on a treatment, or companies testing potential therapeutic tools.

Analyte Coverage

This service provides quantitative information of the level of known endocannabinoids such as 2AG or AEA, as well as related molecules. The list can be customized with additional analytes if necessary.

N-Acylethanolamines	Acylglycerols*	N-Acyltaurines
NAE(14:0)	2AG(16:0)	NATaur(16:0)
NAE(16:0)	2AG(18:1)	NATaur(18:0)
NAE(18:0)	2AG(18:2)	NATaur(18:1)
NAE(18:1)	2AG(20:4)	NATaur(20:4)
NAE(18:2)	2AG(14:0)	NATaur(14:0)
NAE(18:3)	2AG(18:0)	NATaur(18:2)
NAE(20:4)	2AG(18:3)	NATaur(18:3)
NAE(20:5)	2AG(20:3)	NATaur(20:5)
NAE(22:6)	2AG(20:5)	NATaur(22:6)
NAE(20:3)	2AG(22:6)	
NAE(22:4)		
NAE(24:1)		

**In most cases, 1AG species can be resolved chromatographically from the 2AG species and can be quantified separately.*



LC-MS chromatogram of a mixture of 17 authentic endocannabinoid standards supplemented with stable isotope-labeled internal standards. For clarity, only some analytes are labeled.

Our Approach

An efficient solid-phase extraction method has been developed in a 96-well format, and it has been validated from as little as 100 μ l plasma, 25 mg tissue, or one million cells.

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

The use of authentic standards and internal standards labeled with stable isotopes helps achieve accurate and precise absolute quantitation of the endocannabinoids and related molecules 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