

Fatty Acids by GC-MS

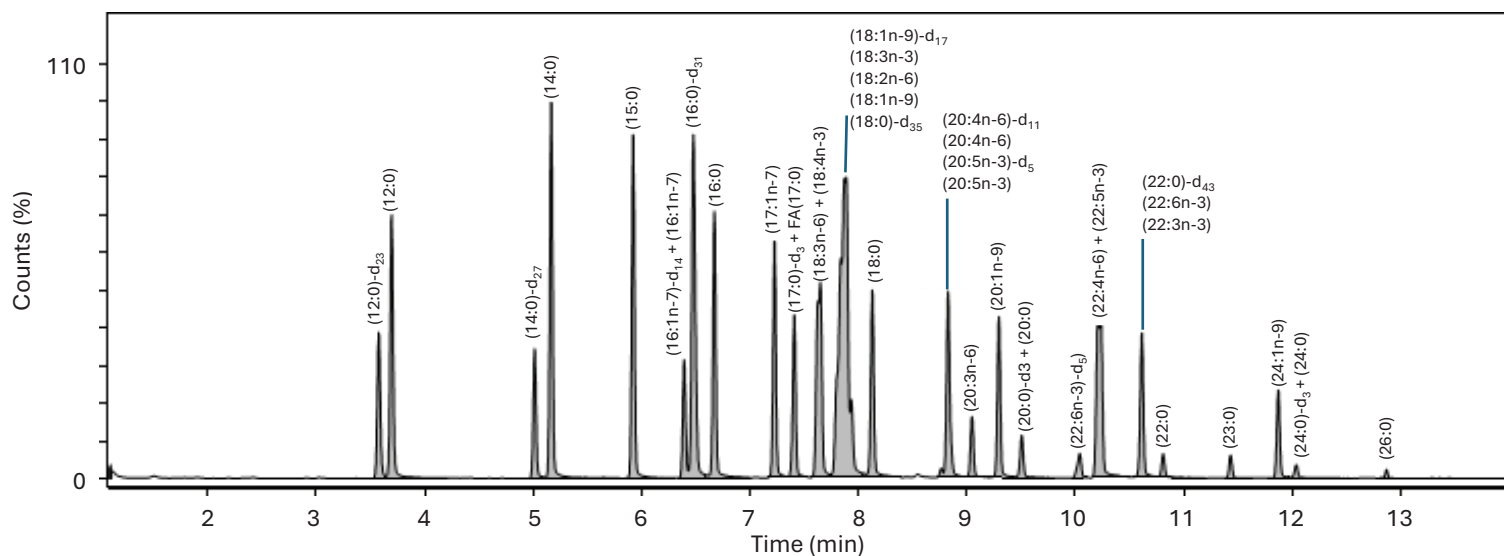
Fatty acids are key components of all cells. They provide a major source of energy that supports all cellular processes, and they are also building blocks of other essential lipids such as triglycerides, phospholipids, sphingolipids and cholesterol esters. In addition, they are also important lipid mediators and precursors of other lipid mediators that regulate cell and organism biology. Their levels in mammalian tissues and biofluids provide useful insight into pathological imbalances in a wide spectrum of inflammatory and metabolic diseases such as diabetes.

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 analytical service includes the quantification of 27 free or total fatty acids from plasma or other biological samples using negative chemical ionization mass spectrometry after gas chromatography (NCI-GC-MS).

Analyte	Common Name	Analyte	Common Name
FA(12:0)	Lauric Acid	FA(20:4n-6)	Arachidonic Acid
FA(14:0)	Myristic Acid	FA(20:3n-6)	Dihomo- γ -Linolenic Acid
FA(15:0)	Pentadecanoic Acid	FA(20:1n-9)	Gondoic Acid
FA(16:1n-7)	Palmitoleic Acid	FA(20:0)	Arachidic Acid
FA(16:0)	Palmitic Acid	FA(22:6n-3)	Docosahexaenoic Acid
FA(17:1n-7)	Heptadecenoic Acid	FA(22:5n-3)	Docosapentaenoic Acid
FA(17:0)	Heptadecanoic Acid	FA(22:4n-6)	Adrenic Acid
FA(18:4n-3)	Stearidonic Acid	FA(22:3n-3)	Docosatrienoic Acid
FA(18:3n-3)	α -Linolenic Acid	FA(22:0)	Behenic Acid
FA(18:3n-6)	γ -Linolenic Acid	FA(23:0)	Tricosanoic Acid
FA(18:2n-6)	Linoleic Acid	FA(24:1n-9)	Nervonic Acid
FA(18:1n-9)	Oleic Acid	FA(24:0)	Lignoceric Acid
FA(18:0)	Stearic Acid	FA(26:0)	Cerotic Acid
FA(20:5n-3)	Eicosapentaenoic Acid		



GC-MS chromatogram of a mixture of authentic standards supplemented with deuterated internal standards.

Our Approach

An efficient liquid-liquid-based extraction followed by derivatization has been developed to quantitate the derivatized pentafluorobenzyl esters of 27 free fatty acids from as little as 50 μ l plasma. Alkaline hydrolysis can be added for analysis of total (free and esterified) fatty acids.

Gas chromatography and mass spectrometry analysis resolve all analytes and enable their independent integration and quantitation.

Calibration curve preparation from authentic standards and the use of isotopically labeled internal standards helps achieve accurate and precise absolute quantitation of FAs 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, GC-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.

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