Lipid Analysis

Bile Acids

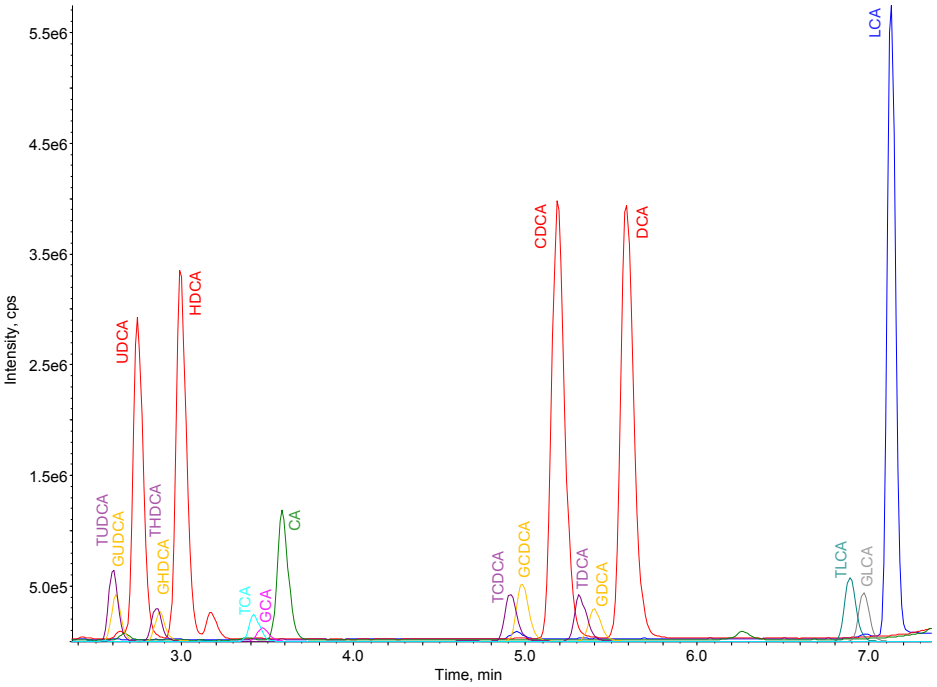
Bile acids are sterol lipid molecules that play key roles in cholesterol metabolism, lipid digestion and absorption, and activation of nuclear receptors (such as FXR or TGR5) to trigger cell signaling pathways involved in metabolic regulation. In the liver, cholesterol enters a complex metabolic pathway to form cholic acid and chenodeoxycholic acid. These primary bile acids can be conjugated to taurine or glycine, be secreted and enter the intestine, where the microbiota can transform them to secondary bile acids such as lithocholic or deoxycholic acids. Muricholic acids are additional secondary bile acids found only in rodents. Changes in the homeostasis of bile acids are observed in a variety of diseases, including cholestasis and fatty liver disease.

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 comprehensive analytical service covering 18 major human bile acids. Additional rodent-specific bile acids can be included if necessary.

Analyte (Abbreviation)		
Cholic Acid (CA)	Taurocholic Acid (TCA)	Glycocholic Acid (GCA)
Chenodeoxycholic Acid (CDCA)	Taurochenodeoxycholic Acid (TCDCA)	Glycochenodeoxycholic Acid (GCDCA)
Lithocholic Acid (LCA)	Taurolithocholic Acid (TLCA)	Glycolithocholic Acid (GLCA)
Deoxycholic Acid (DCA)	Taurodeoxycholic Acid (TDCA)	Glycodeoxycholic Acid (GDCA)
Ursodeoxycholic Acid (UDCA)	Tauroursodeoxycholic Acid (TUDCA)	Glycoursodeoxycholic Acid (GUDCA)
Hyodeoxycholic Acid (HDCA)	Taurohyodeoxycholic Acid (THDCA)	Glycohyodeoxycholic Acid (GHDCA)
α-Muricholic Acid (αMCA)	Tauro-α-Muricholic Acid (TαMCA)	
β-Muricholic Acid (βMCA)	Tauro-β-Muricholic Acid (TβMCA)	
ω-Muricholic Acid (ωMCA)	Tauro-ω-Muricholic Acid (TωMCA)	



LC-MS chromatogram traces of 18 bile acids extracted from human plasma supplemented with authentic standards.

Our Approach

An efficient protein precipitation-based extraction of plasma samples has been developed in a 96-well format, allowing for large sample sets. This method has been verified with 50 µl human and rodent plasma. Smaller amounts of sample may be suitable for analysis.

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

The Bile Acids and Deuterated Bile Acids MaxSpec® Discovery mixtures enable calibration curve preparation and the consistent addition of stable isotope-labeled internal standards to achieve accurate and precise absolute quantitation of the bile acids 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 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