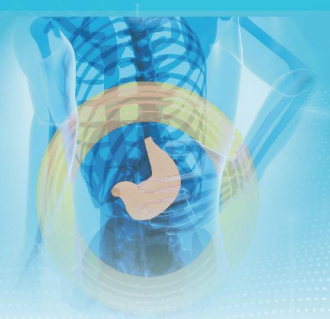
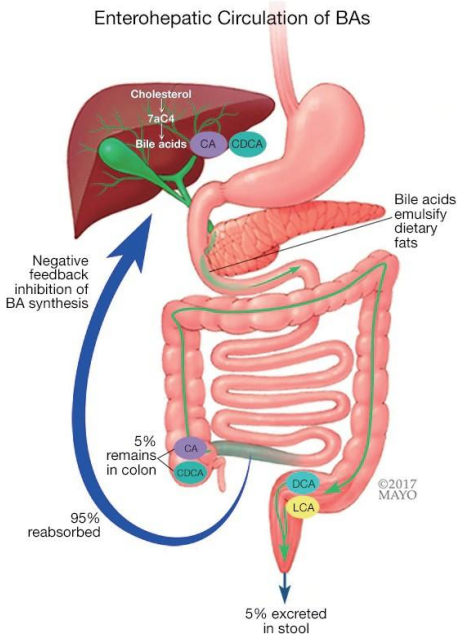


# Bile Acid

## Targeted Metabolomics




## Technology introduction

Bile acids, also known as 24-carbon sterols, are synthesized in the liver from cholesterol and are the primary components of bile. These alkanoic acids play a crucial role in regulating metabolism by maintaining cholesterol balance, promoting lipid digestion and absorption, and possessing anti-inflammatory and antiseptic properties.With our own bile acid database, **MetwareBio offers absolute quantification of 65 bile acids in a single run.**

## Product superiority

### Absolute quantification

65 standard curves, r > 0.99,
13 isotope internal standards.

### High sensitivity

Able to detect at ng/ml concentrations.

### Wide coverage

Covering large number of essential bile acids.

## Applications

### ♦ Biomaker screening

Screen for differential bile acids, establish diagnostic markers and validation models.

### ♦ Functional studies

Linking differential bile acids to observed phenotype.

### ♦ Mechanism research

Understand mode of action through pathway analysis and combining with other Omics data.

## Database (partial list)

| Index | Compounds | CAS | Abbreviation | Index | Compounds | CAS | Abbreviation |
|---|---|---|---|---|---|---|---|
| 1 | taurolithocholic acid-3-sulfate | 15324-65-9 | TLCA-3S | 12 | Isodeoxycholic acid | 566-17-6 | IDCA |
| 2 | Dehydrolithocholic acid | 1553-56-6 | DLCA | 13 | 3β-deoxycholic acid | 570-63-8 | 3β-DCA |
| 3 | Isoallolithocholic acid | 2276-93-9 | IALCA | 14 | 3β-Ursodeoxycholic Acid | 578919-26-3 | 3β-UDCA |
| 4 | Lithocholic acid | 434-13-9 | LCA | 15 | Ursodeoxycholic acid | 128-13-2 | UDCA |
| 5 | isolithocholic acid | 1534-35-6 | ILCA | 16 | β-Hyodeoxycholic Acid | 570-84-3 | 3β-HDCA |
| 6 | Nor-Deoxycholic Acid | 53608-86-9 | 23-DCA | 17 | Hyodeoxycholic acid | 83-49-8 | HDCA |
| 7 | 3-oxodeoxycholic acid | 4185-01-7 | 3-oxo-DCA | 18 | Chenodeoxycholic acid | 474-25-9 | CDCA |
| 8 | 7-ketolithocholic acid | 4651-67-6 | 7-KLCA | 19 | norcholic acid | 60696-62-0 | NCA |
| 9 | 12-ketolithocholic acid | 5130-29-0 | 12-KLCA | 20 | Dehydrocholic acid | 81-23-2 | DHCA |
| 10 | murideoxycholic acid | 668-49-5 | MDCA | 21 | ... | ... | ... |
| 11 | Deoxycholic acid | 83-44-3 | DCA | | | | |

## Bile acids related diseases

**Gastrointestinal disease**

Gastric cancer, colon cancer, ulcerative colitis, irritable bowel syndrome, etc.

**Hepatic disease**

Hepatitis, fatty liver, cirrhosis, hepatic encephalopathy, etc.

**Metabolic disease**

Hyperlipidemia, diabetes, obesity, nutrition, etc.

**Other disease**

Gallstones, fetal survival, neurological diseases, cardiovascular diseases, etc.

## Sample requirements

| Sample | Recommended sample | Minimum Sample | Biological replicate |
|---|---|---|---|
| Plasma, serum, hemolymph, bile | 100μL | 20μL | human≥30<br>animal≥8 |
| Animal tissue, placenta, thrombus | 100mg | 20mg | |
| Feces, iIntestinal contents | 200mg (wet weight) | 50mg (wet weight) | |

For other sample types, please contact us!

## Application: Biomarker and NASH research

**Metagenomic and metabolomic analyses reveal distinct stage-specific phenotypes of the gut microbiota in colorectal cancer**

1. Metagenomics and metabolomics approach on large cohort found defining microbiome species and metabolites for colorectal tumorigenesis.
2. Branched-chain amino acids and phenylalanine were significant in intramucosal carcinomas.
3. Bile acids (deoxycholate) were significant in multiple polypoid adenomas.

Yachida et al. Nat Med.2O19 Jun;25(6):968-976.

**Disulfiram ameliorates nonalcoholic steatohepatitis by modulating the gut microbiota and bile acid metabolism**

1. Disulfiram (DSF) ameliorates NASH by inhibiting *Clostridium* and 7α-dehydroxylation activity.
2. Clinical trial of DSF administration in 23 healthy individuals showed reduced *Clostridium*-mediated 7α-dehydroxylation activity

Lei et al. Nat Commun. 2022 Nov 11;13(1):6862.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