

About Short Chain Fatty Acids

Short-chain fatty acids (SCFAs), especially acetate, propionate and butyrate, are end products of microbial fermentation of dietary fibers from anaerobic intestinal microbiota in the colon. Branched chain fatty acids are mainly derived from protein fermentation and are present in lower amounts.

SCFAs exert multiple beneficial effects on mammalian metabolism. Besides their function as primary energy sources for luminal colon cells, they are involved in different host-signaling mechanisms.

SCFAs play a significant role in regulating glucose, lipid and energy metabolism, and may reduce the risk of developing gastrointestinal disorders, cancer, and cardiovascular disease, among others.

Applications

- Providing novel insights on how microbiome impacts host's disease and health status in clinical or experimental studies
- Evaluating the changes of the host microbiome through dietary, nutraceutical, prebiotics, probiotics, and biopharmaceutical intervention
- Assessing the homeostasis of gut health wellness

Key Advantages - Reproducible Results

- Fully quantitative LC-MS/MS method with minimum of 6 to 8 calibrators per metabolite
- Wide range of sample matrices
- Proprietary technology facilitates low level quantitation in plasma/serum samples
- Matching stable labeled internal standards for each analyte

Key Advantages Continued

- Analyte panel customizable with additional metabolites such as lactate and other organic acids
- Calibrator and quality control sample precision (% CV) typically <10%

Analytical Method and Instrumentation

- Analysis by LC-MS/MS
- Sciex Exion UHPLC, coupled to a Sciex 5500+ Triple Quadrupole Mass Spectrometer

Panel Analytes

Measured Metabolites

acetate	propionate
butyrate	isobutyrate
2-methylbutyrate	isovalerate
valerate	caproate (hexanoate)
lactate*	other organic acids*

*available for customization

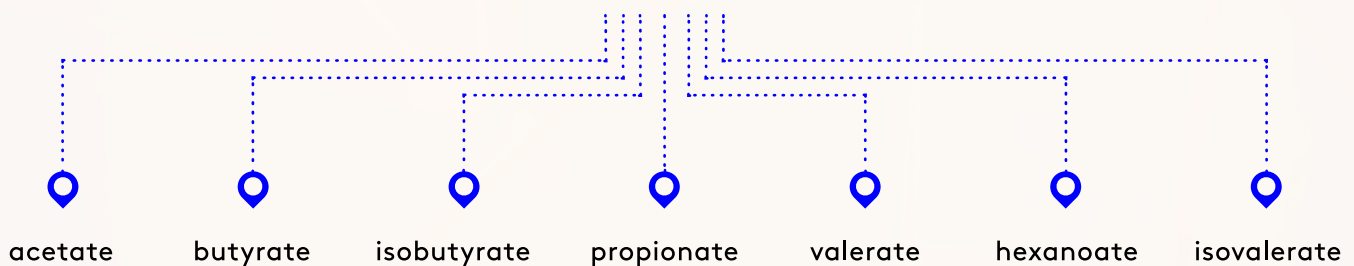
Sample Requirements

Sample Matrix	Sample Amount
Plasma/Serum	100 - 200 µL
Feces/Intestinal Content	200 - 500 mg
Bacterial Cultures	200 - 500 µL
Urine	200 - 500 µL
Others upon request	



Short Chain Fatty Acids

dietary carbohydrates/proteins



KEY

- Bacterial Reaction
- ⋮ Multiple Reaction Steps