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Creative Proteomics

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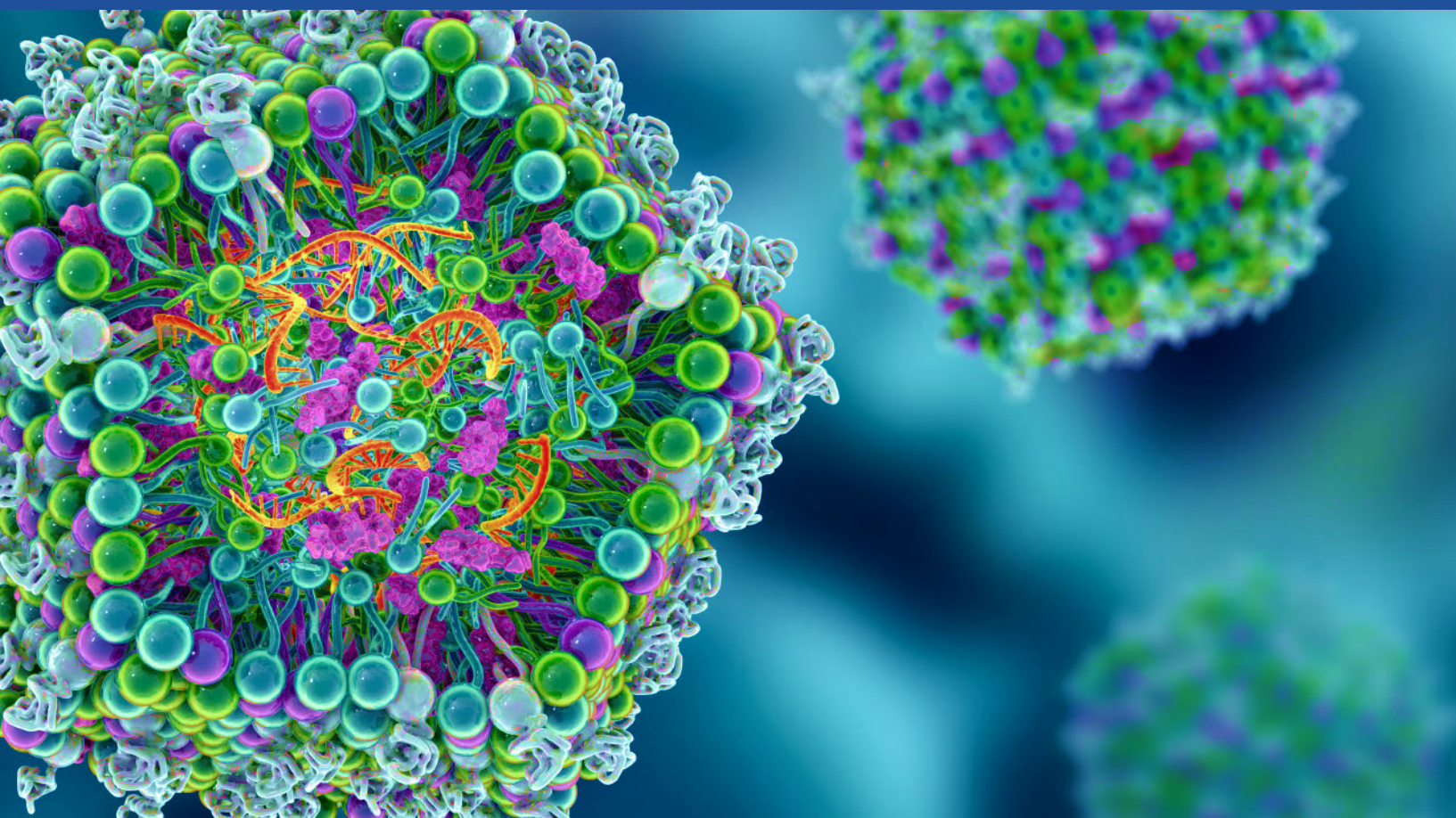
Lipidomics Solutions



Lipidomics Solutions

Explore the mysteries of the lipidome and decipher the intricate regulation of lipid metabolism.

Lipidomics is a large-scale study of lipid molecules in biological systems. Creative Proteomics provides a comprehensive lipidomics analysis platform. By comparing changes in lipid metabolism networks under different physiological conditions, key lipid biomarkers involved in metabolic regulation can be identified. Ultimately, this approach can reveal the mechanisms by which lipids function in various life activities.

Application Area

- Clinical research: biomarkers, disease mechanisms, etc.
- Biomedicine: drug mechanisms of action, efficacy evaluation, drug development, etc.
- Microbiology: drug resistance mechanism, pathogen-host interaction research, etc.
- Marine Aquaculture: Fisheries resources, mariculture, fisheries environment and aquatic product safety, etc.
- Food nutrition: food storage, quality identification, functional food development, etc.
- Bioenergy: fermentation process optimization, biofuel production, environmental risk assessment, etc.
- Agroforestry: stress resistance, growth and development mechanisms, breeding and conservation research, etc.

Our Advanced Analytics Platform

Thermo Q ExactiveTM series

AB Sciex 6500+

Thermo Orbitrap Fusion Lumos

Thermo TRACE 1310-ISQ LT

Agilent 6495 Triple Quadrupole LC/MS Coupled with the Agilent 1290 Infinity II LC System

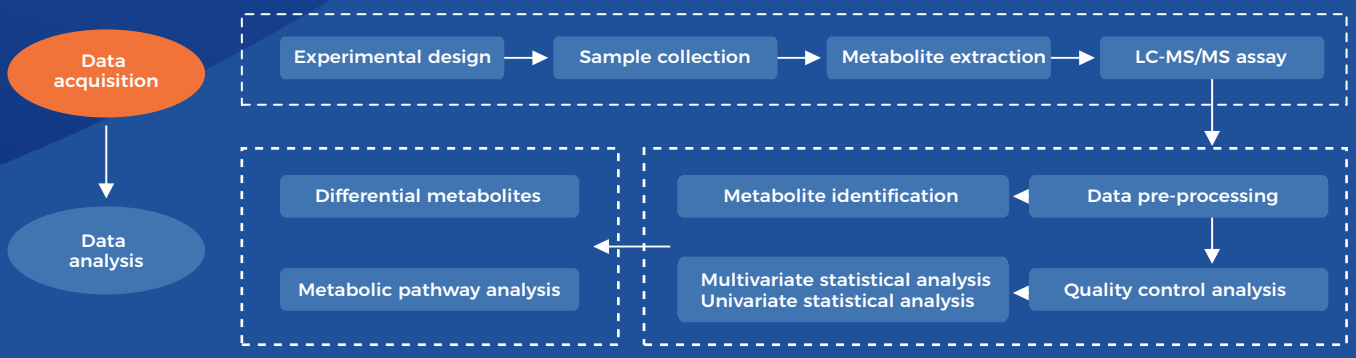
Waters Xevo TQ-s

Untargeted Lipidomics

Untargeted lipidomics is based on LC-MS/MS technology for ultra-high-throughput analysis of lipids in biological samples. Using targeted lipid extraction methods and lipid-affinity chromatography systems with high-resolution mass spectrometry, it maximizes high-throughput analysis of lipid molecules and enables absolute quantification by adding lipid subclass internal standards. The assay and LipidSerach database are matched for primary and secondary information to achieve the characterization and quantification of lipid molecules.

Creative Proteomics has established an untargeted lipidomics analysis platform that can systematically resolve the research patterns of changes in lipid composition and expression in organisms, effectively study the alterations and functions of lipid families and lipid molecules in various biological processes, and elucidate the mechanisms and mechanisms of related life activities. It provides high-quality assays for applications in agricultural science, biomarkers, Alzheimer's disease, atherosclerosis, cardiovascular disease, cancer, diabetes, and obesity research, clinical diagnosis, drug discovery, and systems biology.

Detection Technology	Instrument Model	Software	Project Cycle
LC-MS	Thermo Q Exactive Series	Compound Discoverer	25 working days
	Waters Xevo G2-xS Q-Tof	Progenesis QI	25 working days



- **Categories of Detectable Lipids**

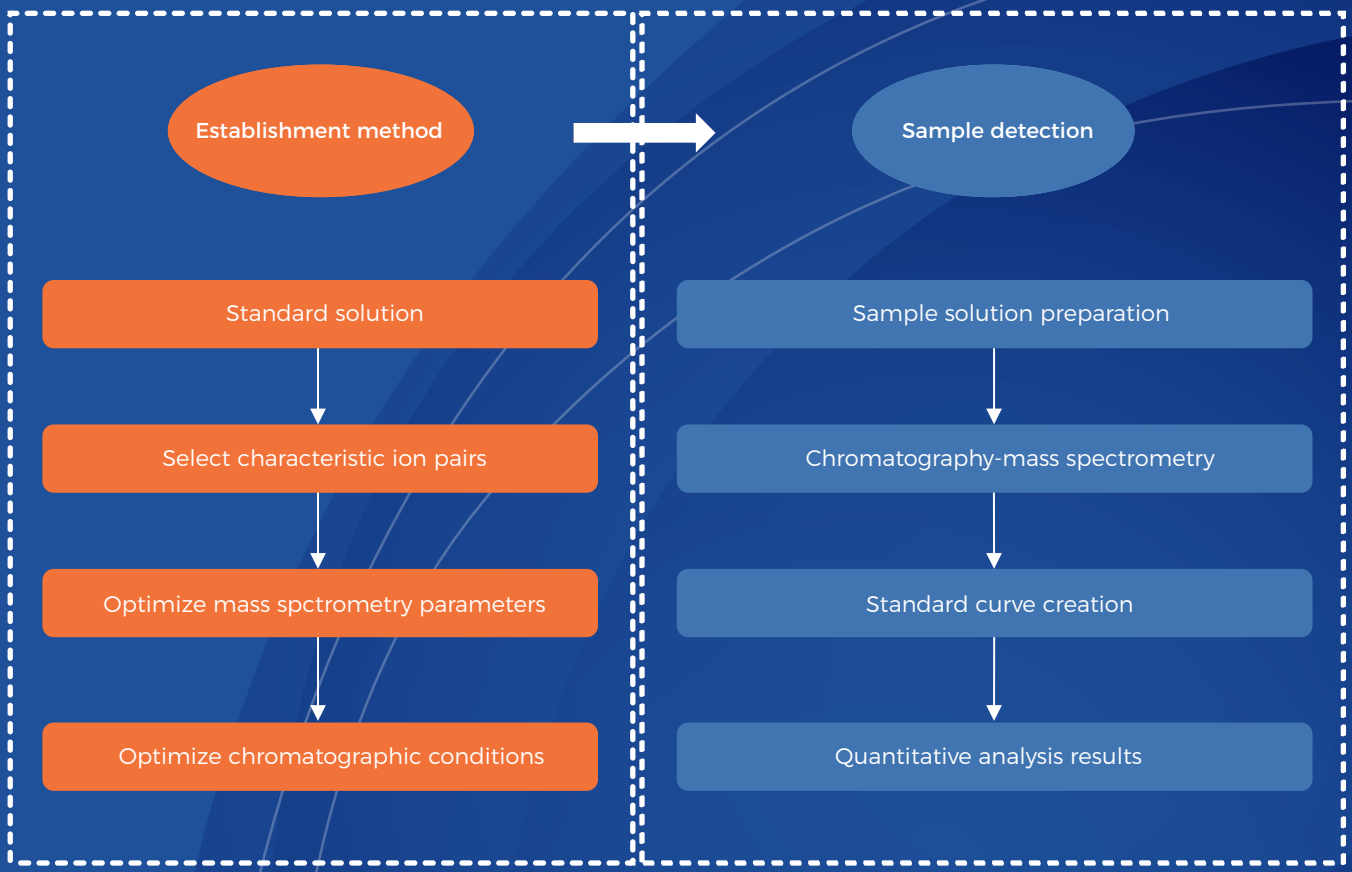
The lipids we can detect include, but are not limited to, the following categories:

Detection Technology	Instrument Model
FATTY ACIDS	Short Chain Fatty Acids, Very Long Chain Fatty Acids, Total Fatty Acids, Free Fatty Acids (FFAs), Straight Chain Fatty Acids, Branched Chain Fatty Acids, Saturated Fatty Acids, Omega-3 Fatty Acids, Omega-6 Fatty Acids, Medium-chain and Long-chain Fatty Acids, Unsaturated Fatty Acids
FATTY ACIDS DERIVATIVES	Eicosanoids, Hydroxy-eicosatetraenoic Acids (HETEs), Prostaglandins, Leukotrienes, Lipoxygenase Products, Mycolic Acids, Endocannabinoids
SPHINGOLIPIDS	Ceramides, Sphingosine Base, Sphingosine 1-phosphate, Sphingomyelins, Ganglioside, Sulfatides, Hexosylceramide, Globoside, Inositol-P-Ceramide, Dihexosylceramides, Acylceramides, Ceramide 1-Phosphates, Glycosphingolipid
STEROL LIPIDS	Steroids, Cholesterol Ester, Hydroxycholesterols, Cholesterol, Bile Acids, Ergosteryl Esters, Ergosterol, Phytosterols
GLYCEROLIPIDS	Glycerolipids, Diacylglycerol, Triglyceride
GLYCEROPHOSPHOLIPIDS	Phosphatidylcholine, Phosphatidylethanolamine, Phosphatidylserine, Phosphatidic Acid, Phosphatidylglycerol, Phosphatidylinositol, Phosphoinositides, Cardiolipins, Lysophosphatidic Acid, Lysophosphatidylcholine, Lysophosphatidylserine, Lysophosphatidylglycerol, Lysophosphatidylethanolamine, Lysophosphatidylinositol, Ether-linked Phosphatidylcholine, Ether-linked Phosphatidylethanolamine
OTHERS	Saccharolipids, Polyketides, Wax Esters, Olive Oil Phenols, Polyprenols

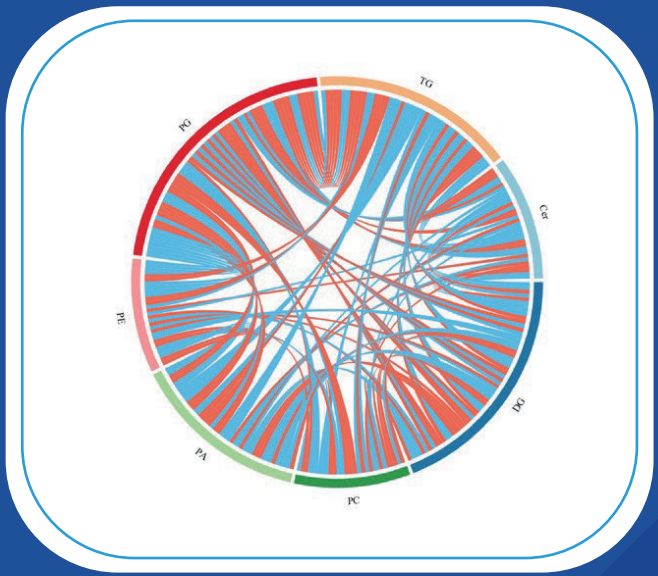
Targeted Lipidomics

Based on high-resolution mass spectrometry and an isotope internal standard, Creative Proteomics uses parallel reaction monitoring (PRM) targeting analysis technology to simultaneously acquire the signals of multiple lipid molecules (such as dozens of target lipid molecules) specifically and simultaneously to obtain their absolute contents to meet the needs of targeted detection and validation of target lipids.

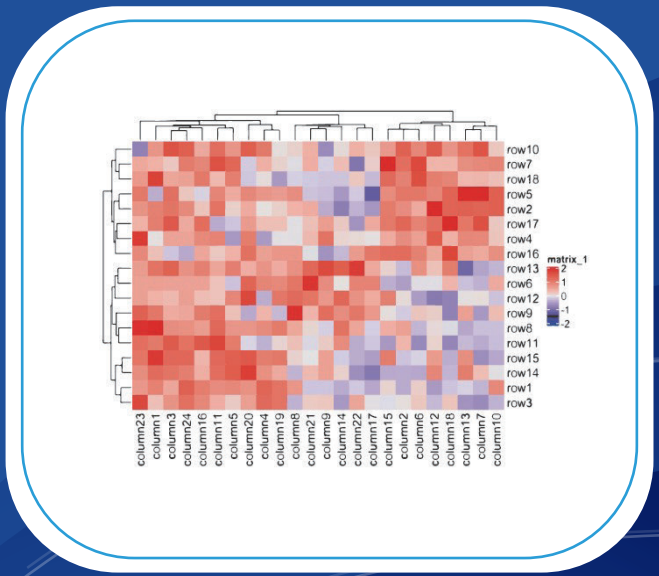
- **Workflow of Targeted Lipidomics Analysisv**



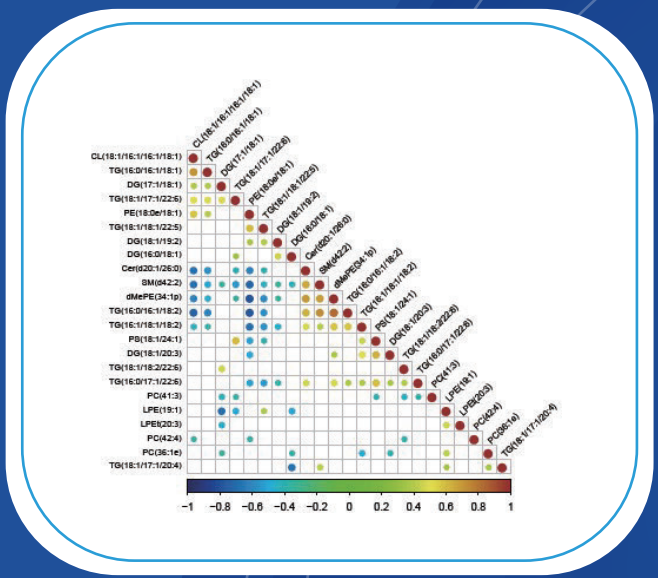
- **Bioinformatics Analysis and Results Presentation**



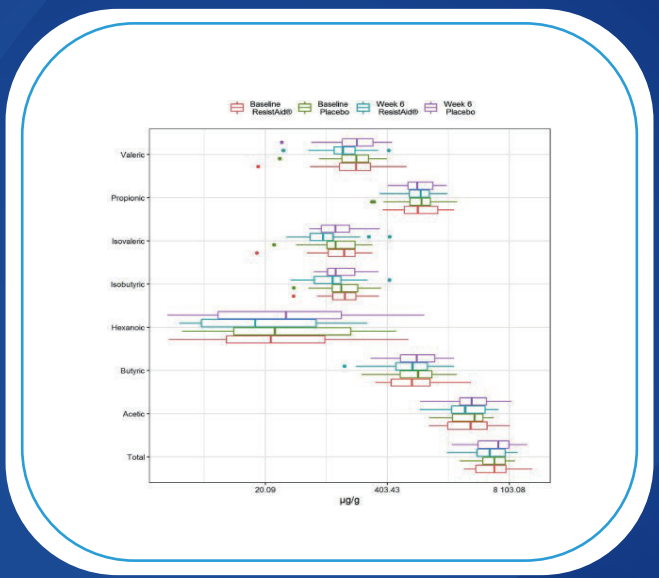
Differential lipid association chord diagram



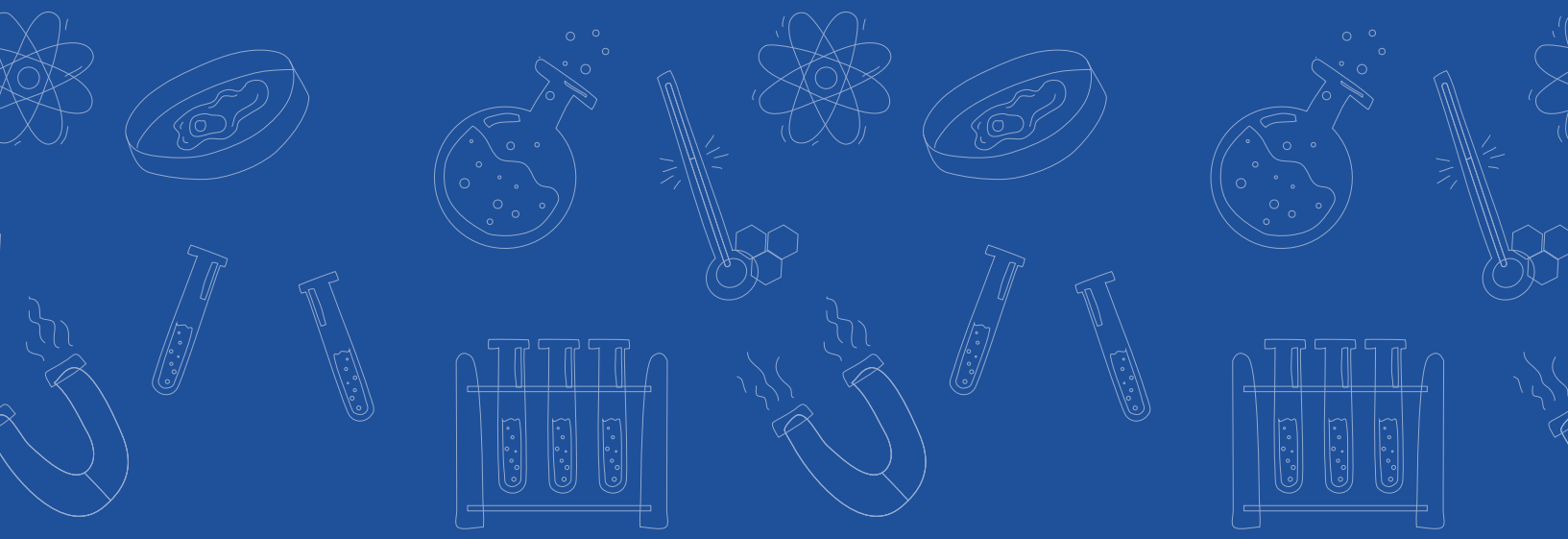
Differential lipid heat map



Correlation analysis plot



Fecal SCFA content analysis



CONTACT US

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