

# Lipidomics

## Lipidomics research methods

Lipidomics is a comprehensive discipline that intends to elucidate the way lipids are metabolized at the cellular level by studying the composition, structure and quantification of lipids in biological samples such as tissues or cells, to search for biomarkers, and to study the mechanism of the role of lipid molecules at the overall level in various life phenomena.



## Research Methods of Lipidomics

### Untargeted lipidomics analysis

Untargeted lipidomics allows the isolation and identification of all lipid compounds and their metabolites in biological samples to screen for biomarkers. Suitable for a wide range of complex biological samples. A single assay can provide overall comprehensive lipidomic information.

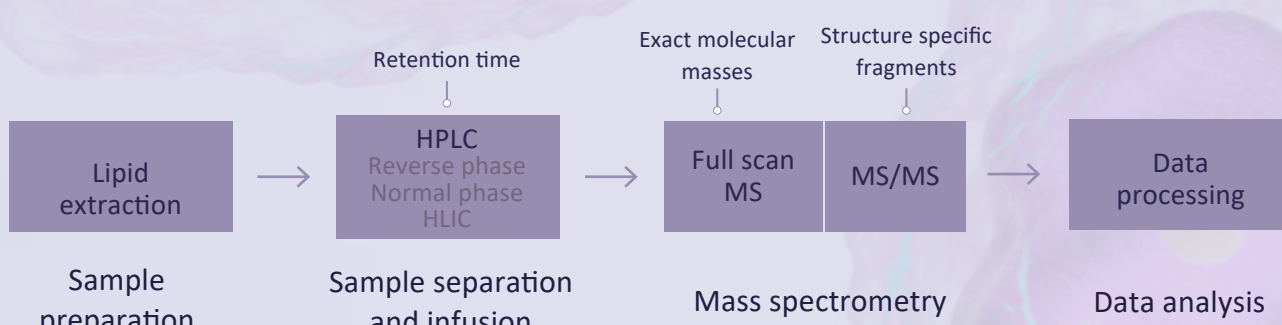
#### Shotgun lipidomics

- Direct, fast and simple
- Molecular ion peak and fragment ion assisted identification
- Cannot distinguish isomers and can be affected by fragmentation kinetics



#### LC-MS

- Good reproducibility and resolution
- Chromatographic separation reduces complexity
- Multiple chromatograms to meet different needs



### Targeted lipidomics analysis

Targeted lipidomics is available if you want to study a specific target lipid or class of lipids. Precise method development allows the inclusion of an equivalent amount of isotope labeling or odd chain internal standards selected from a customizable lipid panel. Lipids are extracted from each sample for analysis using a standardized protocol. The analyte concentration is determined from a calibration curve prepared from authentic standards. Standard statistical analysis tools can reveal trends in lipid species between experimental groups, which can be visualized by heat maps or other available graphical tools.

- MRM, PRM processing mode
- Suitable for validation of pre-screening data
- Suitable for purposeful detection of certain species or classes of lipid molecules (dependent on prior biological hypotheses)
- Method optimization (extraction, separation, detection) for lipid molecules of interest

With years of experience in lipidomics, bioinformatics, and applications ranging from food, agriculture, and disease research to pharmacology, the experts at Creative Proteomics can provide you with complete trial protocols and detailed reporting of results.