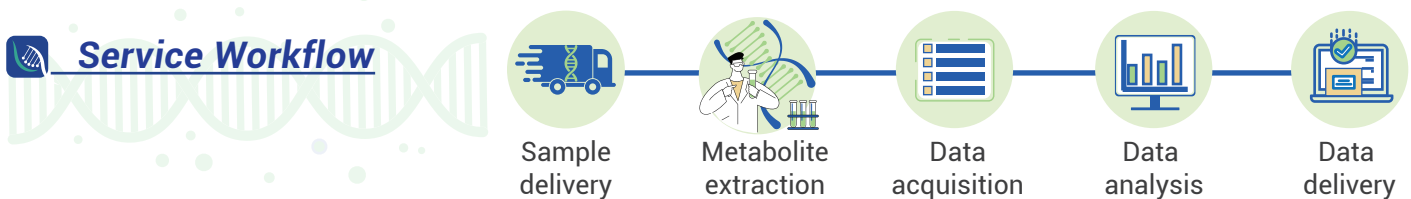


# Metabolomics

Metabolomics is an advancing field focusing on comprehensively studying small-molecule metabolites in biological samples. These metabolites play a crucial role in cellular metabolism, providing valuable insights into responses to stimuli, genetic changes, and pathological conditions. Through advanced analytical techniques like mass spectrometry, metabolome analysis enables the elucidation of complex metabolic networks, identification of new biomarkers, and serves as a critical link connecting genomics and phenotypic traits. BMKGENE offers advanced metabolomics service, facilitating precise and swift analysis of metabolites across diverse sample types.

## Service Workflow



## Metabolomics Solutions

### Non-Targeted Metabolomics

- LC-MS
- LC-MS for lipidome

### Wide-targeted Metabolomics

- For plants

### Targeted Metabolomics

- For amino acid
- For plant hormones
- For bile acids

## Service Advantages

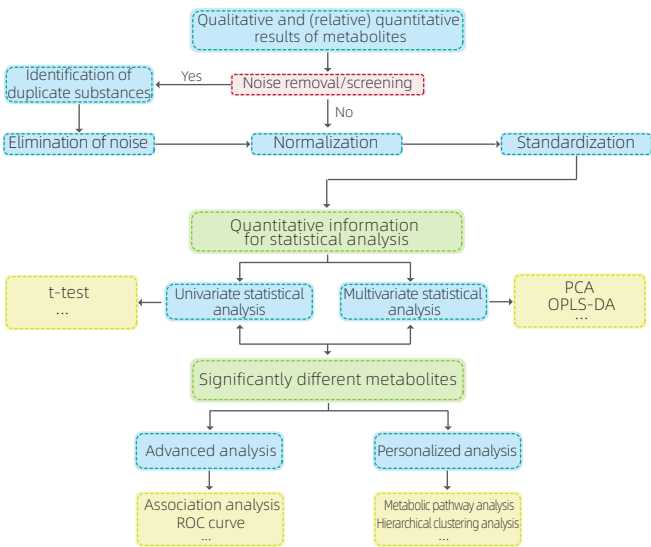
- Non-targeted metabolomics enables comprehensive comparison of metabolites between control and experimental samples, facilitating detection of complex metabolites, identification of potential biomarkers, and exploration of unknown metabolites in diverse biological samples.
- Targeted metabolomics utilizes reference standards to quantitatively analyze specific metabolites or metabolite classes with high specificity, sensitivity, and accuracy.

### **Comprehensive Database**

- **Public Databases** •
- 500,000+** compounds

- **In-house Databases** •
- 50,000+** compounds for Wide-Targeted Metabolomics
- 10,000+** compounds for Non-targeted metabolomics

## Bioinformatics



## Service Specifications

Solution	Platform	Recommended Biological replicates
Non-Targeted Metabolomics	UHPLC-TOF-MS (Waters Xevo G2-XS QToF)	Plant and microbial sample: ≥ 6 Animal sample: ≥ 10 Clinical sample: ≥ 30 All biological replicate samples analyzed independently.
Wide-Targeted Metabolomics	Water Xevo G2-XS QTOF + AB Sciex QTRAP 6500+	Plant sample: ≥ 3
Targeted Metabolomics	UHPLC-QQQ-MS AB Sciex QTRAP 6500+	Plant sample: ≥ 3 Animal sample: ≥ 6

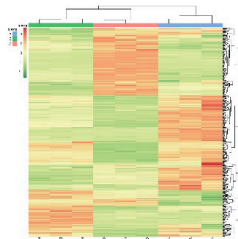


## Sample Requirements

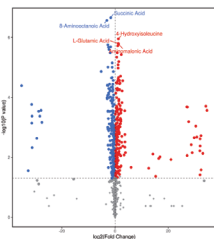
Sample Type	Recommended Amount
Serum/Plasma	200 µL / Sample
Urine	1 mL / Sample
Animal Tissue	200 mg / Sample
Plant Tissue	200 mg - 4 g / Sample

Sample Type	Recommended Amount
Feces	200 mg / Sample
Gut Contents	200 mg / Sample
Cells, Microbes	1x10 <sup>7</sup> Cells / Sample
Culture Media	200 µL / Sample

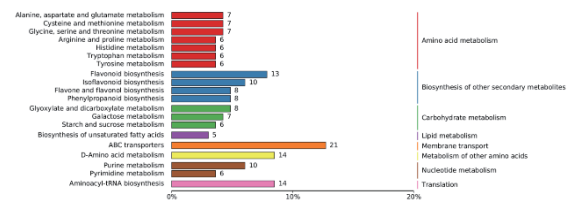
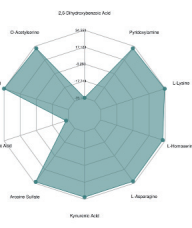
## Demo Results



Hierarchical Clustering on Metabolites



Differential Metabolites Analysis



KEGG/HMDB/LIPID MAPS Database Annotation Analysis

## Featured Publications

Year	Journal	Title	Applications
2024	Journal of Hazardous Materials	Flumethrin exposure perturbs gut microbiota structure and intestinal metabolism in honeybees ( <i>Apis mellifera</i> )	Non-Targeted Metabolomics
2024	Environment International	Insights into the effect of benzotriazoles in liver using integrated metabolomic and transcriptomic analysis	Non-Targeted Metabolomics
2024	Horticulture Research	Chromosome-scale genome, together with transcriptome and metabolome, provides insights into the evolution and anthocyanin biosynthesis of <i>Rubus rosaefolius</i> Sm. (Rosaceae)	Wide-Targeted Metabolomics



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### Global Locations

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