Untargeted Metabolomics

Untargeted metabolomics is the unbiased detection of dynamic changes in most small molecule metabolites in an organism in response to external stimuli. Using Liquid Chromatography-Mass Spectrometry (LC-MS), uncover comprehensive insights into biological systems in response to environmental, genetic or therapeutic variation. Our untargeted metabolomics services offer the latest LC-MS technologies together with cutting-edge bioinformatics analyses to provide you with the data you need.

Our Key Features and Advantages

Ultra-high Resolution and Sensitivity
• The Q Exactive HF-X mass spectrometry platform offers only the best quality of results.

High Quality Database
• Standard product database boasts 6000+ metabolites
• Secondary spectrum library contains 150,000+ metabolites and is constantly expanding.
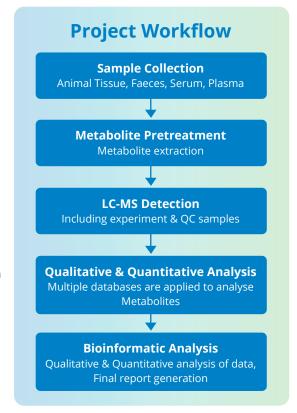
Accurate Identification
• We are able to identify 700+ metabolites (Level 1: MS1+MS2+RT) and detect 4400+ substances with high precision and accuracy.

Comprehensive Metabolite Information
• Equipped with multiple in-depth information including CAS number, InChIKey identifiers, classification details of your metabolites, etc.

Project Workflow

Sample Collection
Animal Tissue, Faeces, Serum, Plasma

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Metabolite Pretreatment
Metabolite extraction

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LC-MS Detection
Including experiment & QC samples

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Qualitative & Quantitative Analysis
Multiple databases are applied to analyse Metabolites

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Bioinformatic Analysis
Qualitative & Quantitative analysis of data, Final report generation

Q Exactive™ HF-X Platform Performance Parameters

Resolution	Mass Range	Scan Rate	Mass Accuracy	Sensitivity	Dynamic Range
240,000 @ m/z 200	50 - 6,000 m/z	Up to 40 Hz	Internal standard <1 ppm RMS; External standard <3 ppm RMS	Full scan MS: 100 fg on-column with a signal-to-noise ratio (S/N) of 150:1 SIM: 50 fg on-column with a signal-to-noise ratio (S/N) of 150:1	>5,000 : 1

Areas of Application

Application	Major Research Categories	Research Topics
Agriculture	Stress Resistance Research	Study of stress resistance mechanisms in plants under different conditions, i.e. high temperature, high salinity, and drought during specific growth stages
	Breeding Mechanisms	Mechanistic study of metabolites and lipid compounds during seed development in crops
	Plant Growth & Development	Metabolic regulation mechanisms during plant growth
Clinical & Medical Research	Biomarker Screening	Disease diagnosis, progression, and prognosis
		Drug action targets
	Pathological Mechanisms	Mechanisms of pathogenesis and drug treatment interventions
		Gut microbiome research
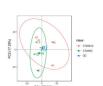
Bioinformatic Analysis

QC Correlation Analysis

Total Sample PCA Analysis

Differential Metabolite Clustering Heatmap

Box Plot of Differential Metabolites

Correlation Plot of Differential Metabolites

Z-score Chart

Differential Metabolite Chord Diagram

ROC Curve of Differential Metabolites

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