Targeted Metabolomics - HM700 Panel

- unlock even greater targeted metabolomics insight with our comprehensive panel

Service Description

We provide one of the most comprehensive panels for targeted metabolomics research. The HM700 panel uses LC-MS/MS technology for high-throughput targeted metabolomics detection. It covers 700 metabolites including 30 metabolite classes addressing key pathophysiological processes relevant in gut microbiota research and cancer research areas. This enables greater in-depth mining of metabolome information, while providing accurate quantification, excellent reproducibility, and high throughput. Each metabolite is quantitatively determined using the standard curve.

Key Features

Comprehensive Coverage of the Metabolic Network with 30 Metabolite Classes		Waters ACQUITY UPLC, SCIEX QTRAP 6500+		
Amino acids and Peptides Fatty acids Organic acids and derivatives Bile acids Carbohydrates Benzenoids Carnitines or Acyl carnitines	い125 い110 い63 い99 い51 い69 い23			
Indoles and derivatives Nucleosides Organoheterocyclic Phenylpropanoids and polyketides Organooxygen other	∽24 ∽19 ∽25 ∽35 ∽10 ∽47	High Throughput	Reproducible	

Unique Pathway Coverage for A Deeper Understanding of Biology

Metabolic Pathway	Related Metabolites	Function Application
Tryptophan metabolism	Tryptophan, Melatonin, Kynurenine, Indoleacetic acid, etc.	Gut - brain axis signaling, immune response, gut barrier, nervous system protection or toxicity, microbiota - host bridge, etc.
Tricarboxylic acid cycle	Pyruvic acid, Malic acid, Citric acid, Isocitric acid, Succinic acid, Fumaric acid, Oxoglutaric acid, Aconitic acid, etc.	Provide metabolic intermediates, body functions, affect cancer cell metastasis, etc.
Glycolysis / gluconeogenesis	Glucose 6-phosphate, Fructose 6-phosphate, Pyruvate, L-Lactic acid, Acetic acid, etc.	Provide metabolic intermediates, body function, tumor occurrence and development, metabolic diseases, etc.
Amino acid metabolism	L-Threonine, Glycine, Creatine, Sarcosine, Dimethylglycine, L-Leucine, L-Aspartic acid, L-Glutamine, L-Glutamic acid, etc.	Nutritional assessment, metabolic syndrome, immune regulation, cardiovascular disease progression, tumor suppression, etc.
Fatty acid synthesis	Lauric acid, Myristic acid, Stearic acid, Oleic acid, Caprylic acid etc.	Metabolic syndrome, cardiovascular disease, tumor immune regulation, gut health, etc.
Phosphopentose pathway	Pyruvic acid, D-Gluconolactone, Gluconic acid, Glyceric acid, Fructose 1,6-bisphosphate, etc.	Provide reducing power, prevent membrane lipid peroxidation, provide raw materials for substance synthesis, etc.

Targeted Metabolomics - HM700 Panel

Glutathione metabolism	Ascorbic acid, Oxidized glutathione, Glycine, Dehydroascorbic acid, L-Glutamic acid, etc.	Resist oxidative stress, regulate cell apoptosis, and maintain immune system function
Nucleotide metabolism	Xanthosine, Hypoxanthine, Thymine, Adenosine monophosphate, etc.	Active intermediate metabolite, participate in coenzyme composition and signal transduction
Metabolism of cofactors and vitamins	L-Aspartic acid, Nicotinic acid, Gamma-Aminobutyric acid, Maleic acid , Quinolinic acid, etc.	Participate in body metabolism as a coenzyme, play a role in transferring electrons, atoms or chemical groups.
Nervous system function	L-Glutamine, L-Tyrosine, L-Dopa, Homovanillic acid, L-Tryptophan, 5-Hydroxy-L-tryptophan, etc.	GABAergic synapse, Dopaminergic synapse, Parkinson's disease, serotonergic synapse

Functional Microbiomics and Foodomics for Unraveling the Interaction of Lifestyle, Microbiota, Metabolism, and Health

Investigations of the gut-brain, gut-liver and gut-heart axis are increasingly important as researchers learn more about the role of the microbiota and its effect on many organ systems. As metabolic profiles can be obtained from biofluids, metabolomics can provide information about microbiota-related processes where metagenomics studies may not be possible. The HM700 panel covers a wide range of gut microbiota related metabolites.

Brial et al., Bacteria-Produced Metabolites Affect Distant Organs. Cell. Mol. Life Sci. 2018

Research Applications



- Disease biomarkers research
- · Pathogenesis and prognosis study on diseases
- Drug target research
- · Animal special behavior mechanism and food/medicinal value research
- Gut microbiota research

Analysis Workflow



Bioinformatics Analysis

Standard:

01	LC Chromatogram XIC diagram of standard metabolites and target metabolites from samples		02	Quantita The stan the conce
03	 Statistical Analysis and Function Analysis Sample correlation analysis Correlation analysis between metabolites Screening of differential metabolites Statistical analysis of differential metabolites 	• F • D • C • P	PCA anal Data dist Correlatio athway	ysis ribution on analysis analysis of

Customized:

- 16S/Metagenome + metabolome correlation analysis
- Transcriptome + metabolome correlation analysis
- Proteome + metabolome correlation analysis

ative Analysis

dard curve is drawn to calculate entration of metabolites

- PLS-DA analysis
- OPLS-DA analysis
- of differential metabolites differential metabolites



Examples of Bioinformatics Analysis

General Sample Requirements

Sample Type	Recommended Sample Amount	Minimum Sample Amount
Serum, plasma, urine	≥ 100 µL	≥ 50 µL
Urine Animal and clinical tissues Feces and intestinal contents	≥ 50 mg	≥ 20 mg
Cell	≥ 1×10^7	≥ 1×10^5
Cultureliquid, fermentationliquid	≥ 500 µL	≥100µL

Biological Replicates Requirements

Sample Type	Recommended Biological Duplicates	Minimum Biological Duplicates
Cell and Microorganism	≥ 6	≥ 3
Animal	≥ 10	≥ 6
Human	≥ 30	≥ 10

Turn Around Time

Sample size: 1-50, 4-5 weeks

To Learn More

If you have any questions or would like to discuss how our services can help you with your research, please don't hesitate to contact us at P_contact@innomics.com. We look forward to hearing from you!

Innomics Inc. 750 N. Pastoria Ave Sunnyvale, CA 94085 USA

For Research Use Only. Not for use in diagnostic procedures (except as specifically noted).

Copyright© Innomics Inc. 2023. All trademarks are the property of Innomics Inc. or their respective owners. This material contains information on products targeted to a wide range of audiences and could contain product details or information otherwise not accessible or valid in your country. Please be aware that we do not take any responsibility for accessing such information, which may not comply with any legal process, regulation, registration, or usage in the country of your origin. Please get in touch with a representative for regional availability. The company reserves the right of final interpretation.