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Up to 630 Endogenous and Microbiome-Derived Metabolites

MxP® Quant 500 Kit

Unique Pathway Coverage

Functional Microbiomics

KIT

Ready-to-Use

Quantitative & Reproducible

Metabolomics Between Nutrition – Microbiome – Disease

For Research Use Only. Not for use in diagnostic procedures.

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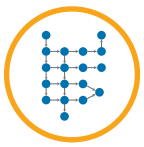
Key Benefits

Most Comprehensive Information - Quantitative and Reliable

MxP® Quant 500 is the most comprehensive kit for targeted metabolic profiling. With a coverage of up to 630 metabolites from 26 biochemical classes, the kit is a breakthrough that brings the most advanced metabolomics technology to researchers. Fast turnaround times and reliable quantification of a broad range of metabolites, including substances related to nutrition and host-microbiota interaction, ensure innovative scientific findings with sustainable impact.



Unique Pathway Coverage

- up to 630 metabolites from 26 biochemical classes quantified from 10 µL sample
- Increased coverage of biologically important pathways

Functional Microbiomics

- Includes dozens of metabolites known to be synthesized and modulated by microbiota
- Provides profound functional understanding about host-microbiota interaction

Ready-to-Use

- Fully integrated workflow
- No method development required
- Implementation in less than 2 days

Quantitative & Reproducible

- Automated signal identification and quantification
- Designed for use with biofluids (serum, plasma, …), suitable for use with fecal samples
- Up to 240 samples per week per instrument

Key Features

Quantitative Analysis of up to 630 Metabolites from 26 Analyte Classes

Metabolite Coverage

Small Molecules

- Alkaloids (1)
- Amine oxides (1)
- Amino acids (20)
- Amino acid related (30)
- Bile acids (14)
- Biogenic amines (9)
- Carbohydrates and related (1)
- Carboxylic acids (7)
- Cresols (1)
- Fatty acids (12)
- Hormones (4)
- Indoles and derivatives (4)
- Nucleobases and related (2)
- Vitamins and cofactors (1)

Lipids

- Acylcarnitines (40)
- Phosphatidylcholines (76)
- Lysophosphatidylcholines (14)
- Sphingomyelins (15)
- Ceramides (28)
- Dihydroceramides (8)
- Hexosylceramides (19)
- Dihexosylceramides (9)
- Trihexosylceramides (6)
- Cholesteryl esters (22)
- Diglycerides (44)
- Triglycerides (242)

Kit Components

Reagents & Consumables

- Patented 96-well filter plates
- Calibration standards
- Quality controls
- Test sample

Methods & Protocols

- Sample preparation protocol
- Instrument-specific acquisition & quantification methods
- System suitability test

Workflow Manager Met*IDQ*™

- Process guidance
- Automated quantification and technical validation
- Improved data analysis
- Basic statistics (optional)

Instrument Platforms*

- Sciex 5500 UHPLC

Applicable Matrices

- Validated for human EDTA plasma
- Also applicable to rat plasma, feces, mouse liver tissue

** further platforms in preparation*

Unique Pathway Coverage

A Deeper Understanding of Biology

MxP® Quant 500 has been designed to provide broad coverage of the metabolome and to maximize the information that can be obtained from the pathways targeted by the kit.

Reliable quantification of metabolites has important implications besides increasing the reproducibility of findings. Quantification of up to 630 metabolites allows to calculate thousands of metabolite sums and ratios. A large number of published sums and ratios have been shown to be biologically relevant (Steiner et. al. PLoS One 2018). The table below shows an example metabolic pathway and selected ratios with their biological significance.

Pathway	**Tryptophan Metabolism**	
Description	Tryptophan (Trp) is a proteinogenic amino acid, and one of seven essential amino acids in humans. Sufficient levels of tryptophan must be supplied via tryptophan containing food. A variety of gut microbiota species can synthesize and/or catabolize tryptophan.	
Pathway coverage	Tryptophan Serotonin Kynurenine Tryptophan betaine	3-Indoleacetic acid 3-Indolepropionic acid Indole Indoxyl sulfate
Significance	Tryptophan, as well as tryptophan metabolites, are involved in a large variety of pathophysiological processes. For instance, tryptophan metabolism is implicated in immune regulation, vasodilation, and metabolism of neurotransmitters.	
Selected sums and ratios	**Sum or Ratio** Kynurenine/Trp Serotonin/Trp Sum of essential amino acids	**Biological Significance** Activity of indoleamine-2,3-dioxygenase (IDO) Activity of tryptophan hydroxylase (TPH) Indicator of nutritional status

Functional Microbiomics and Foodomics

Unraveling the Interaction of Lifestyle, Microbiota, Metabolism, and Health

Investigations of the gut-liver, gut-heart, and gut-brain axis have become of increased interest as researchers become to understand 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 MxP® Quant 500 includes microbiota-derived secondary bile acids, which have different signaling properties than primary bile acids which are synthetized by the liver.

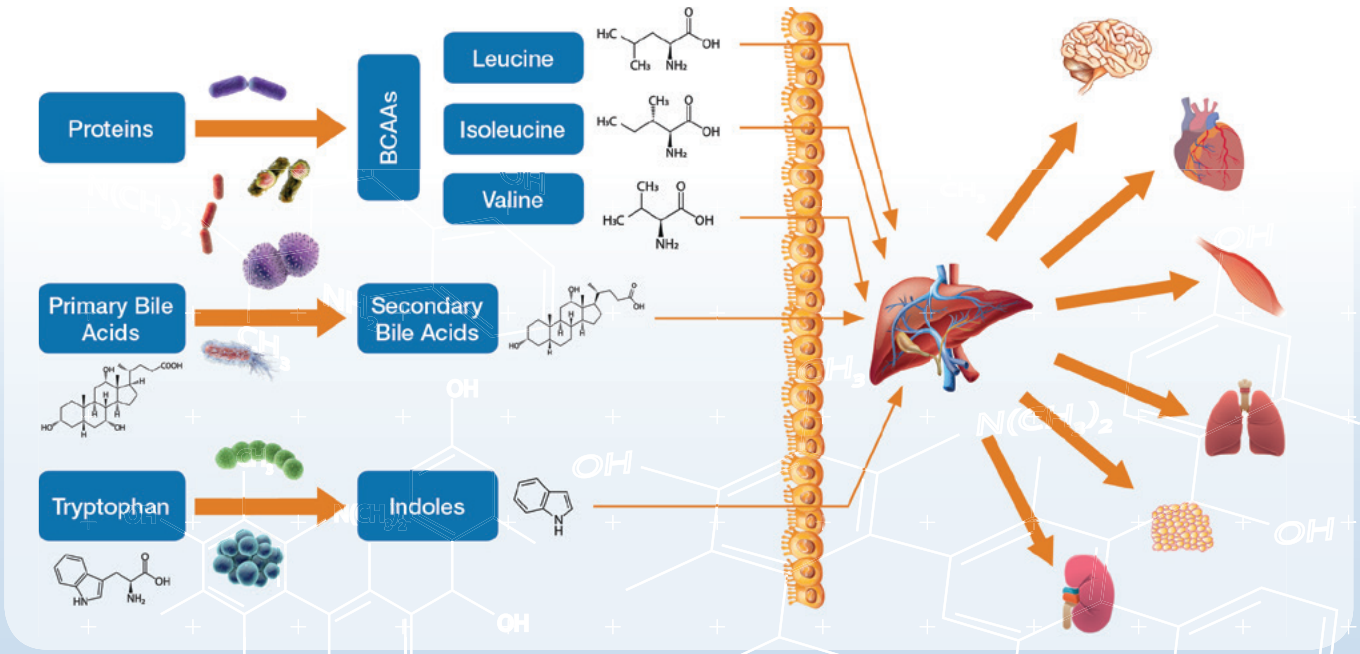


Figure: Bacteria-Produced Metabolites Affect Distant Organs. Adapted from Brial et al., Cell. Mol. Life Sci. 2018

Simple, Guided, Automated Workflow

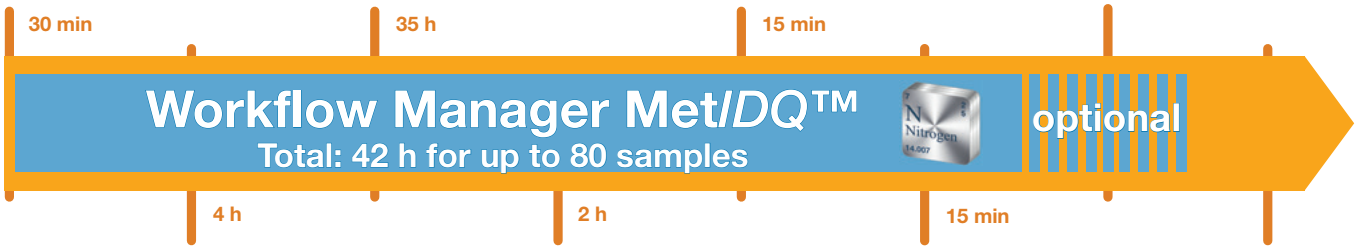
Standardized and Automated Workflow Designed for High Throughput and Robustness

Sample Registration
- Register samples
- Define plate layout
- Generate worklist

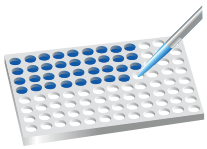
Sample Measurement
- Run samples with LC- and FIA-MS
- Instrument-specific acquisition methods are provided

Technical Validation
- Perform automated sensitivity and accuracy check
- Inter-plate monitoring of QC results and precision

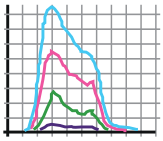
Statistics
- Perform tests with Met*IDQ*™ StatPack Module
- Use statistical programs of your choice
- On demand data analysis by Biocrates



Sample Preparation
- Perform system suitability test
- Prepare plates (loading of samples, derivatization & extraction)



Quantification & Data Processing
- Automated signal identification and quantification
- Direct data processing for LC and FIA data.



Data Evaluation & Export
- Normalize data
- Export results in various file formats

Biological Interpretation
- HMDB
- Consult Biocrates for support

Quantitative and Reproducible

Confidence in Scientific Findings

The MxP® Quant 500 provides highly robust, quantitative metabolomics data with excellent accuracy and precision from just 10 µL sample. The kit combines flow injection analysis (FIA) with liquid chromatography (LC)-based triple quadrupole mass spectrometry. Depending on the sample matrix, up to 630 metabolites can be quantified with the kit.

The kit contains a range of internal standards and a set of calibration standards. These standards, together with quality controls at three concentration levels, ensure reliable quantification and reproducibility of results.

MxP® Quant 500 Ordering Information

Products	Product Number
MxP® Quant 500 Kit	9120052121094
MxP® Quant 500 Starter Kit	9120052121087
MxP® Quant 500 Column System	9120052121117
MxP® Quant 500 Setup Box	9120052121124
Met*IDQ*™ StatPack Module	9120052120189
Data Analysis Service	Upon request

If you want to learn more, contact us!

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