

## Targeted Metabolomics

A targeted analysis covers either detection or quantification of pre-defined analytical goals. This approach allows measurement of selected sets of metabolites and answers to specific biochemical questions.



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for Experimental Therapeutics

## workflow - targeted metabolomics

Design experiment

Sample collection

Sample preparation

LC-MS/MS analysis  
(chromatography, mass spectrometry, data acquisition)

Data processing  
(integration, normalization, quantification)

Report





## amino acids and its derivatives

- Ethanolamine
- Glycine
- Alanine
- $\gamma$ -Amino-n-butyric acid
- Serine
- Creatinine
- Proline
- Valine
- Threonine
- Hydroxyproline
- Isoleucine
- Leucine
- Ornithine
- Aspartic acid
- Lysine
- Glutamic acid
- Glutamine
- Asparagine
- Methionine
- Histidine
- Phenylalanine
- Arginine
- Citrulline
- Tyrosine
- Tryptophan
- Cystathione
- Cystine
- ADMA
- NMMA
- SDMA



UPLC Nexera/ QTRAP 5500  
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sample matrix: plasma, cell lysate, tissue homogenate



## acetylcarnitines

- Carnitine
- Acetylcarnitine (C2)
- Propionylcarnitine (C3)
- Butyrylcarnitine (C4)/Isobutyrylcarnitine (C4)
- Valeryl carnitine /Isovaleryl carnitine (C5)
- 2-Methylbutyrylcarnitine (C5)
- Hexanoylcarnitine (C6)
- Octanoylcarnitine (C8)
- Decanoylcarnitine (C10)
- Lauroylcarnitine (C12)
- Myristoylcarnitine (C14)
- Palmitoylcarnitine (C16)
- Stearoylcarnitine (C18)
- Oleoylcarnitine (C18:1)
- Linoleoylcarnitine (C18:2)



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## TCA metabolites and others

- Pyruvate
- Lactate
- Citrate
- Isocitrate
- $\alpha$ -KG
- Succinate
- Fumarate
- Malate
- Hydroxyglutamate
- Ketoisoleucine
- Ketovaline
- B-hydroxybutarate
- Hexose (sum)
- 3P-glicerate



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sample matrix: plasma, cell lysate, tissue homogenate, urine



## nicotinic acid and nicotinamide metabolites

- nicotinic acid
- nicotinamide
- MNA (1-Methylnicotinamide)
- 2PY (1-methyl-2-pyridone-5-carboxamide)
- 4PY (1-methyl-4-pyridone-5-carboxamide )

sample matrix: plasma, cell lysate, tissue homogenate, urine



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## polyunsaturated fatty acids (PUFAs)

- arachidonic acid (AA)
- eicosapentaenoic acid (EPA)
- docosahexaenoic acid (DHA)
- docosapentaenoic acid (DPA)

sample matrix: plasma, cell lysate, tissue homogenate



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## eicosanoids

- prostanoids
  - (TXB<sub>2</sub>, 6-keto-PGF<sub>1α</sub>, PGE<sub>2</sub>, PGD<sub>2</sub>, PGF<sub>2α</sub>)
- hydroxyeicosatetraenoic acids
  - (5-, 12-, 15- and 20-HETE)
- epoxyeicosatrienoic acids
  - (8,9-, 11,12- and 14,15-EET)
- dihydroxyeicosatrienoic acids
  - (8,9-, 11,12- and 14,15-DHET)
- isoprostane (8-iso-PGF<sub>2α</sub>)

sample matrix: plasma, cell lysate, tissue homogenate



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## NO metabolites

- nitrite ( $\text{NO}_2^-$ )
- nitrate ( $\text{NO}_3^-$ )



NOx Analyzer, ENO-20  
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sample matrix: plasma, cell lysate, tissue homogenate, urine



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