

Info Sheet:

Targeting metabolites and lipids by LC-MS

General description

Targeted metabolomics is a quantitative approach allowing accurate relative quantification of a predefined set of metabolites across a large number of samples. The workflow requires previous knowledge about the physical and chemical properties of the metabolites of interest. Typical applications focus on metabolites for specific pathways (e.g. central carbohydrates, hormones, lipids, secondary metabolites) or conditions (biomarkers). Based on a target list, up to 50 compounds could be quantified in parallel by Selected Reaction Monitoring (SRM). Targeted metabolomics is also combinable with a profiling approach using Data Independent Acquisition (DIA). The metabolomics group have already established extraction methods; analytical procedure and data analysis for several metabolite classes (steroids, prostaglandins, amino acids, organic acids, nucleotides, TCA metabolites, glycolysis metabolites, energy metabolism). For these, sample processing protocols can be provided. For other metabolites of interest, we are able to establish customized workflows for specific projects.

Deliverables/Options

- Experimental design: extraction protocol and consulting experimental design
- Method: Calibration curve, lower limits of detection (LLD), covered concentration range
- Data analysis: Concentrations values of target molecules. Statistical analysis.
- Data storage: Raw data storage for 5 years and provided to customer
- Publication: All required raw data, analytical and statistical methods protocols

Customer Requirements

- Samples processed by customer with provided protocol from FGCZ
> 1mio cells, > 10mio bacterial cells, > 25mg tissue (wet weight), > 200uL body fluid (serum, plasma, urine, csf, saliva)
- Target list of metabolites
- Standards of metabolites, if not available at FGCZ. Potentially labelled metabolites

Standard Experimental design

- Consulting on the project, potentially performing a pilot study
- Measurement of min. 12 samples or multiples of 12
- Data storage and annotation
- Report of data analysis, Comparison of up to 4 conditions and 3 comparisons
- Concluding discussion