

¹³C tracing analysis via GC-TOF

Description: GC-TOF (Leco BT) based analysis of mass isotopologue distribution (MID), monitoring the incorporation of ¹³C tracers (¹³C₆-Glucose; ¹³C₅-Glutamine) into metabolites of major central metabolic pathways.

Detection limits depend on matrix type and sample quantity. Samples are extracted using a mixture of methanol, chloroform and water, and derivatized using methoximation/silylation (to increase volatility) and measured by GC-MS.

Currently, we are able to determine the incorporation of ¹³C into 30-40 compounds.

For any ¹³C tracing study a detailed project discussion with our team is mandatory.

Container: ground tissue or cell pellets - Eppendorf Tube; adherent cells on petri dishes¹

Optimal Volume: Tissue (30 to 50 mg)² or Cells (6 - 10 mio).

Sample Collection: Please see our detailed sample collection protocols.

Quantification: Relative quantification (fold-change of 12C vs 13C distribution)

Please note: For human material, note any known presence of infectious agents

Examples of compounds that can be analyzed

| type | Examples |
|----------------------|---|
| Amino acids | all proteinogenic AAs except His, Trp, Arg |
| Glycolysis | Glc-6-P, Fru-6-P, PEP, pyruvic acid, etc. |
| TCA | Citrate, Ketoglutarate, Succinate, Fumarate, Malate |
| Carbohydrates | Fructose, Glucose, Sucrose |

Notes

Samples need to be snap-frozen and stored at -80°C.

Variations in sampling procedures will affect metabolite measurements.

¹ protocol for pre-analytic preparation of petri dishes available on request

² Pulverized/crushed (deep-frozen) with exact weight indicated