

# Tissue sampling guide for metabolic phenotyping

## Precautions

Tissue sampling strongly depends on the downstream application and metabolites under investigation. Our application note “A high-throughput method for targeted metabolomics analysis of different tissue samples using AbsoluteIDQ® kit”<sup>1</sup> and the publication from Römisch-Margl et al., 2012<sup>2</sup>, provide an excellent overview on the different and tissue specific processing parameters and extraction buffers which should be considered when dealing with tissue sampling.

To obtain best results from your metabolomics experiment, sampling must be performed as rapidly as possible. Tissues should be collected on ice to minimize further metabolism. Samples should be snap-frozen and stored at lowest available temperature in order to avoid loss of unstable metabolites. For contract research (CR) please send tissue pieces.

### Sample collection, handling and storage

- Cut the frozen tissue rapidly into small pieces. Additionally, separate aliquots will allow minimizing freeze-thaw cycles. Target weight for p180 kit should be approximately 50 mg (for other applications please contact [sales@biocrates.com](mailto:sales@biocrates.com)).
- Transfer frozen tissue piece into a pre-cooled standard cryovial, seal the vial and record weight, date, etc. of the tissue.
- Snap-freezing of tissue samples - below a selection of appropriate protocols:
  - Recommended: freezing in liquid nitrogen (-196 °C)
  - Freezing in isopentane cooled with liquid nitrogen (-150 °C)
  - Freezing in isopentane cooled with dry ice (-80 °C)
  - Store the cryovials at lowest available temperature (at least -80 °C)

### Sample collection, handling and storage

- Homogenize the tissue samples using an appropriate homogenization system (e.g. Precellys homogenizer) according to the manufacturer’s protocols.
- As extraction buffer we recommend ethanol/0.01 M phosphate buffer, 85:15 (v/v)
- After homogenization centrifuge the samples for 5 min at 5000 x *g* at 4 °C.
- Transfer the supernatant into a pre-cooled and labeled storage vial., e.g. Biozym 1.5 ml vial for screw caps, Item no. 710020; Biozym screw cap, transparent, Item no. 710030.
- Store the supernatant immediately at lowest available temperature (-80 °C) until shipment.

## Sample shipment

- Please inform the analytical laboratory about the sample shipment 2 to 3 days before the actual shipment.
- Please provide a tracking number.
- Please provide an electronic sample list (Excel format).
- Package the samples on enough dry ice (minimum 10 kg, thick-walled Styrofoam container); the samples should be in labeled boxes protected by a plastic bag.
- The analytical lab will be able to receive samples on working days (8 a.m. to 5 p.m.).

## Literature

- 1) Biocrates Application Note 1004-1; A High-Throughput Method for Targeted Metabolomics Analysis of Different Tissue Samples using Absolute IDQ™ Kit
- 2) Römisch-Margl, Werner; Prehn, Cornelia; Bogumil, Ralf; Röhring, Cornelia; Suhre, Karsten; Adamski, Jerzy (2012): Procedure for tissue sample preparation and metabolite extraction for high-throughput targeted metabolomics. In: *Metabolomics* 8 (1), S. 133–142. <https://doi.org/10.1007/s11306-011-0293-4>.