Leica

MICROSYSTEMS

Brain Research: Correlation of sample morphology and protein analysis

Collect 100% pure starting material for proteomics with cellular precision

Many brain diseases result from protein malfunction, misfolding and agglutination. For this reason protein expression analysis is the key to understanding causes of and discovering therapies for many cerebral defects.

Leica laser microdissection (LMD) systems help you easily obtain sufficient sample quantities from your brain specimen under visual control. Simply identify your regions of interest and directly cut the areas with a guided laser beam for downstream analysis. Areas can be distinct brain regions, single cells or even sub-cellular structures. You can also dissect Alzheimer's Plaques, as depicted in the image, and analyze them by mass spectrometry.

Typical fields of research

- Amyloidosis
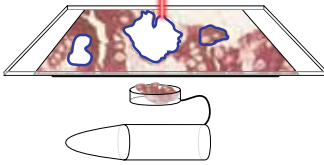- Cancer
- Other diseases
- Plant research

References

- Hondius et al., Alzheimers Dement, 2016, 12 (6)
- Cahill et al., Analytical Chemistry, 2016, 88 (11)
- Valleix et al., Nature Commun, 2016, 7
- Drummond et al., Sci Rep, 2015, 5
- Gilbertson et al., J Clin Pathol, 2015, 68 (4)

Improve your protein analysis workflow

Sample preparation
Sectioning and preparation of sections on special LMD slides.

Fixation and staining
Fixation and staining of tissue for microscopy and LMD application. Can be automated with a stainer.

Visualization and ROI definition
Automatic generation of sample overview. The regions of interest (ROI), can be identified and marked automatically or easily manual.

Laser microdissection
The ROIs will be automatically dissected and collected via gravity into standard, cost-effective consumables such as PCR tubes or 8-strip tubes (e.g. Leica LMD7).
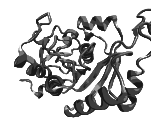
Extraction of proteins
Preparation for downstream analysis can be performed with the established protocols.

Protein analysis
Obtain reproducible and specific results of protein analysis using a LC-MS/MS system (e.g. Sciex).

**Collect pure material via gravity:
LMD by Leica Microsystems**

Leica provides: Automatic plaque identification & excision

The Leica LMD systems cut your automatically identified ROIs precisely under visual control. You can isolate diseased material with a few mouse clicks and pool as much as you want in one reaction vessel if necessary. The collection via gravity makes special and cost-intensive consumables obsolete.
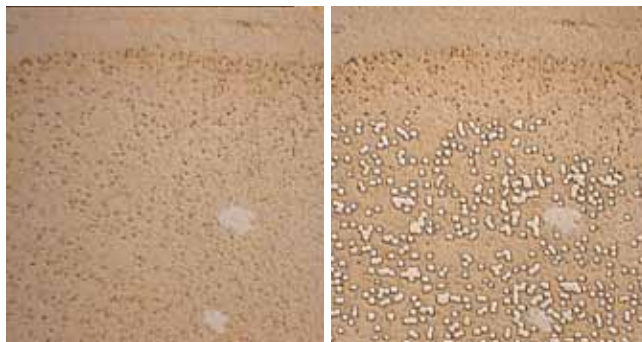
Mouse brain cryosection before and after laser microdissection. DAB staining.

DEMO AND DETAILS

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