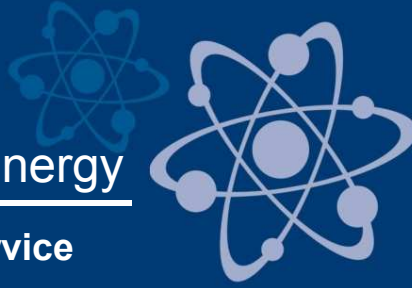


BAYGEN

Institute for Plant Genomics,
Human Biotechnology and Bioenergy

Imaging and Microdissection Core Service
Laboratory



FLUORESCENT IMAGING

The principal equipment of our core facility is a Zeiss Axio Observer Z.1 inverted fluorescence microscope, which represents the highest level of fluorescence microscopes. Its various polarizers allow not only phase-contrast, but the so-called DIC (Differential Interference Contrast) imaging.

Detection of most of the fluorescent proteins (GFP, YFP and CFP) and a number of fluorescent dyes (DAPI, FITC, Cy3, Rhodamine, TRITC) is possible with the use of its filters. It has a self-adjusting HBO high pressure mercury lamp and a high speed shutter, which are gentle to the cells and dyes. The fully-motorized filter changer is required for rapid multi-channel imaging. Its stage is also fully motorized allowing multi-dimensional imaging.



LASER MICRODISSECTION

Our Zeiss Axio Observer Z.1 inverted fluorescence microscope is also equipped with PALM MicroBeam laser microdissection module. This module enables isolation of microscopic particles (eg, portions of tissue, individual cells, chromosomes) from fixed or live tissue samples or cell culture (1 μm to 200 μm thickness). The microdissection procedure, both the cutting and the moving, catapulting of the cut sample is performed by UV laser light (LMPC = Laser Microdissection and Pressure Catapulting). This advanced contact-free technology ensures that the isolated sample is not damaged during the process, remains free from contamination and degradation. Collection of isolated samples is done by CapMover. The fully automated system is highly precise, able to isolate more than one area, and to perform three-dimensional cuts.

Head of Core Facility:

Dr. Éva Bálint

Ph.D. in molecular, cellular and developmental biology, 9 years of research in the USA

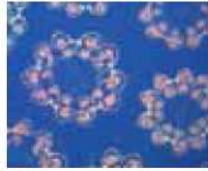
Objectives: 5x - 100x, in fully motorized nosepiece.

The microscope is equipped with a high-resolution color camera and a high-sensitivity monochrome camera that are able to do fluorescence imaging in video (time lapse) mode.



APPLICATION FIELDS OF LASER MICRODISSECTION :

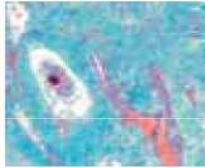
Laser microdissection can be used in cell biological, genetic / genomic and molecular biological research, as well as in pathological and forensic examinations and mineralogical analysis. Microdissection can be combined with fluorescent imaging, this way a number of experimental combinations are possible, such as selection of transfected adherent cells - without FACS - simply from the culture dish.



Plant Research



Neurology



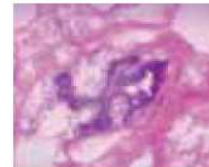
Pathology



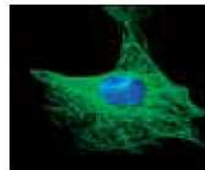
Cytospin



Cytogenetics



Oncology

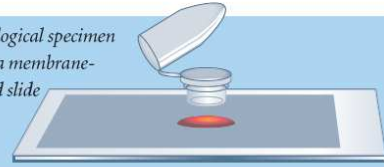


Cell Biology

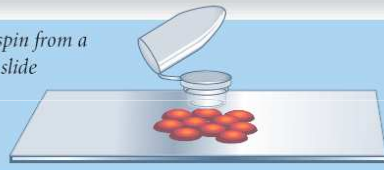


Cell Cultures

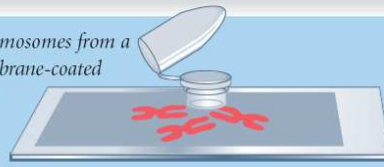
Histological specimen
from a membrane-
coated slide



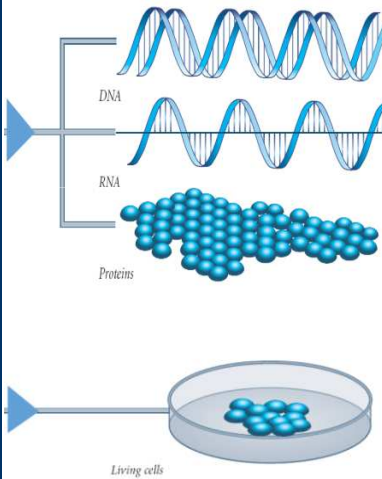
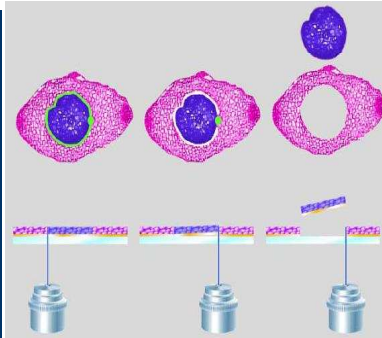
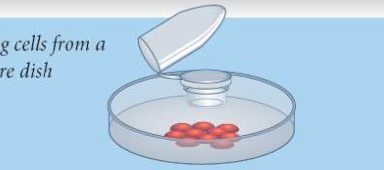
Cytospin from a
glass slide



Chromosomes from a
membrane-coated
slide



Living cells from a
culture dish



Source materials:

pathological, histological samples
cryopreserved tissues
formalin-fixed paraffin-embedded
sections
living cells or tissues
stained or fluorescently marked
cells
chromosome preparations
plant samples
forensic samples

Possible subsequent analyses:

DNA: PCR, traditional or next-
generation sequencing,
mutational analysis, SNP,
genotyping, FISH
RNA: RT-PCR, expression analysis
with sequencing or microarray
protein: immunoblot, 2D gel analysis,
proteomic analysis
living cells: recultivation, generation of
cell lines, isolation of stem cells



We also have a
Micron HM 650V
vibrotome for
preparing
microscopic
sections.

Contact person:

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