

Histology Service, Consulting and Application Development

LLS ROWIAK LaserLabSolutions GmbH is your partner for advanced histology services performed with laser microtomy.

We offer:

- Qualified consulting service for specimen hard to cut with mechanical methods.
- Complete tissue preparation from fixation, resin embedding, cutting and staining.
- Broad range of histological, histochemical and immunohistochemical stainings.
- Development of embedding protocols and staining methods for plastic embedded sections.
- Customized sectioning e.g. for synchrotron or μ CT analysis.

Also ask for customized specimen preparation beyond histology, e.g. 3D cutting of native tissue!

Also visit our labtube.tv channel:



Contact:
LLS ROWIAK LaserLabSolutions GmbH
Garbsener Landstraße 10 | 30419 Hannover
+49 (0)511-2772952
info@lls-rowiak.de | www.lls-rowiak.de

Embedding and Specimen Preparation

For routine sectioning of non-decalcified hard and soft tissue we perform embedding in Methyl Methacrylate.

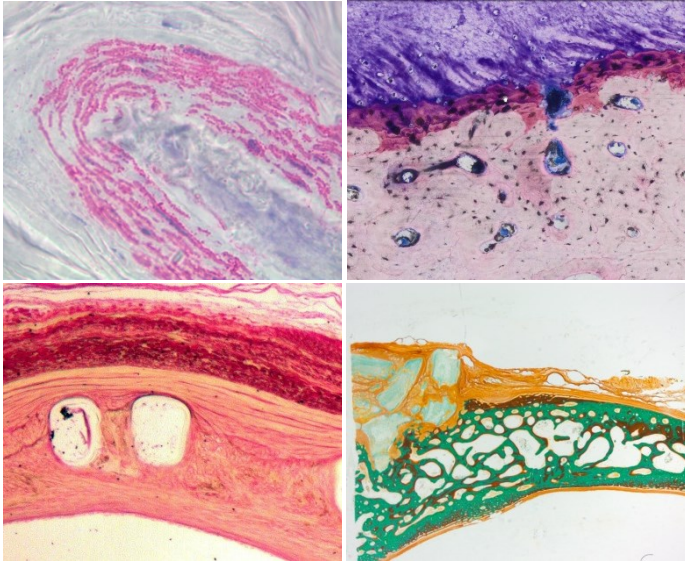
In the case of solvent non-resistant samples, we choose alternative embedding materials (e.g. JB-4, LR White or epoxy resins). Special embedding and cutting protocols are developed adjusted to your requests.



Sheep spine embedded into MMA



Advanced Histology Services



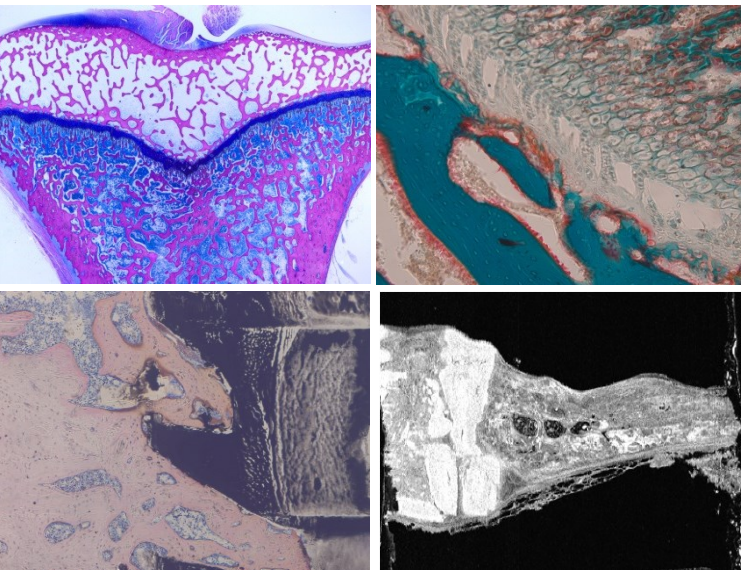
Osteology
Oro-facial research
Cardio-Vascular Medicine
Regenerative Medicine
Tissue Engineering

Hard Tissue
Implants
Biomaterials

Laser Microtomy for Histology

Laser microtomy can overcome fundamental limits of classic (hard tissue) microtomy and ground sectioning technology. Laser microtomy as a non-contact laser-based process to prepare histological thin sections facilitates:

- Fast and easy cutting of undecalcified hard tissue and a broad range of implants and biomaterials.
- Semi-serial sectioning based on minimal material loss possible.
- Quality control of sectioning via Optical Coherence Tomography.
- Minimization of sectioning artefacts thanks to contact free cutting.
- Preservation of the tissue structure of implant-tissue interface.

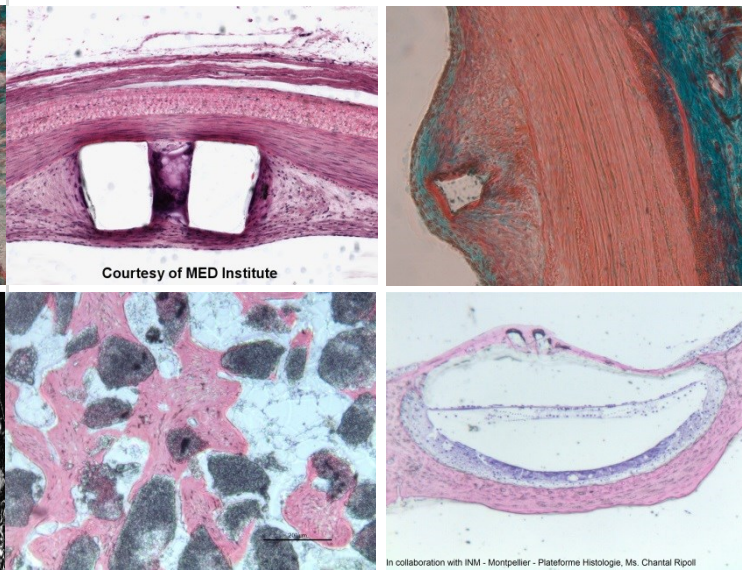


Upper left: Dog tibia, McNeal
 Upper right: Rat knee, Masson Goldner
 Lower left: Rat tibia with dental screw, SRS/van Gieson
 Lower right: OCT of rat tibia with polymer implant

Laser Microtomy – Fields of Applications

Main applications of laser microtomy derive from:

- Osteology and Orthopedics (non-decalcified hard tissue and implant interface research).
- Cardiology and Cardiovascular Research and Medicine (soft tissue with biomaterials and stents, calcified plaques).
- Regenerative Medicine and Tissue Engineering (implants, scaffolds).
- Oro-facial and Dental Medicine (non-decalcified hard tissues with metal, ceramic or polymer implants).
- Oto-laryngeology and Audiology (e.g. cochlea, implants).
- Preclinical studies from mouse to large animal models.

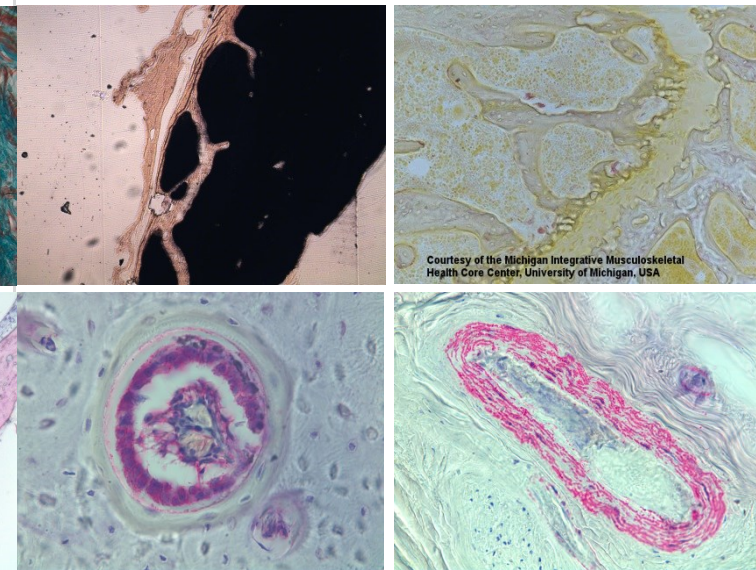


Upper left: Pig artery with stent, H&E
 Upper right: Rabbit artery, Masson Goldner
 Lower left: Bone regeneration on TCP particles, SRS/van Gieson
 Lower right: Mouse cochlea, SRS/van Gieson

Histological Staining and Imaging

Laser microtomy of plastic embedded samples open new horizons in research of calcified tissue and tissue with implants:

- Broad range of routine stainings available.
- Histochemistry and immunohistochemistry on non-decalcified specimen and/or specimen containing implants.
- Transmitted light microscopy, phase contrast and fluorescence microscopy.
- Optical Coherence Tomography for 2D-imaging and 3D-reconstruction.
- Sections can be used for histomorphometry.



Upper left: Rabbit skull, von Kossa
 Upper right: Mouse tibia, TRAP
 Lower left: Dog mandible, Osteopontin IHC
 Lower right: Dog mandible, SMA IHC