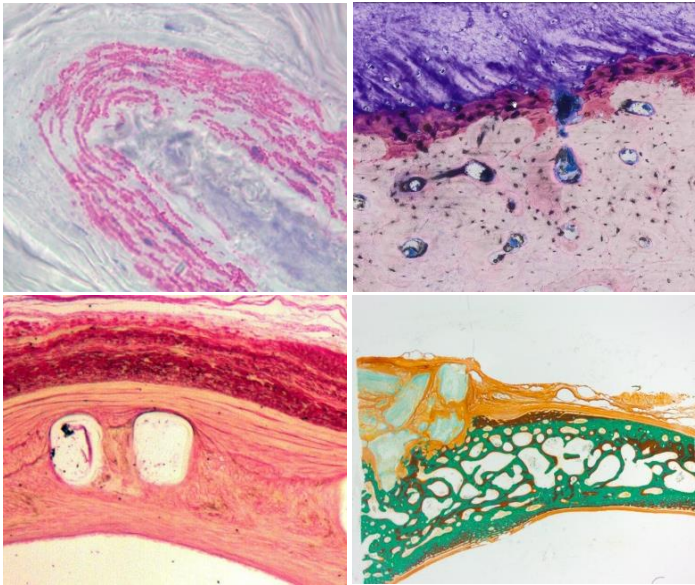


## Advanced Histology Services



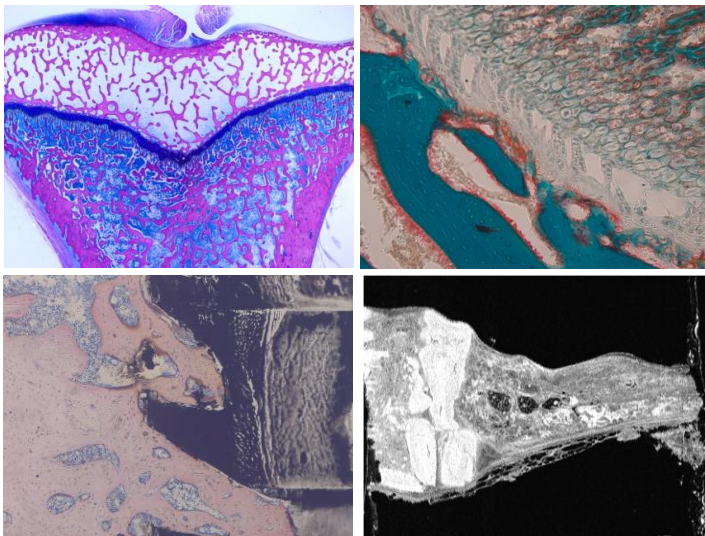
**Osteology**  
**Oro-facial research**  
**Cardio-Vascular Medicine**  
**Regenerative Medicine**  
**Tissue Engineering**

**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

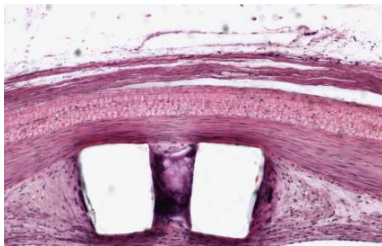
Lower left: Rat tibia with dental screw, SRS/van Gieson

Lower right: OCT of rat tibia with polymer implant

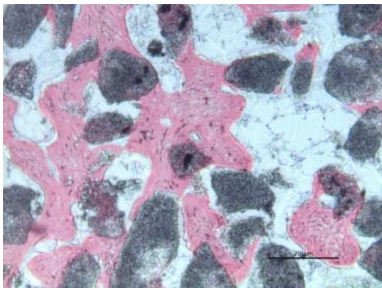
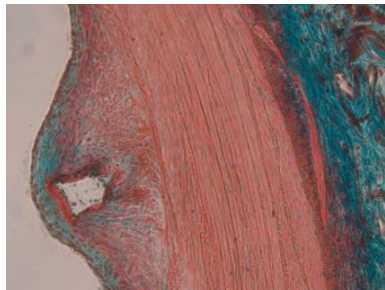
## Laser Microtomy – Fields of Applications

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.



Courtesy of MED Institute



In collaboration with INM - Montpellier - Plateforme Histologie, Ms. Chantal Ripoll

Upper left: Pig artery with stent, H&E

Upper right: Rabbit artery, Masson Goldner

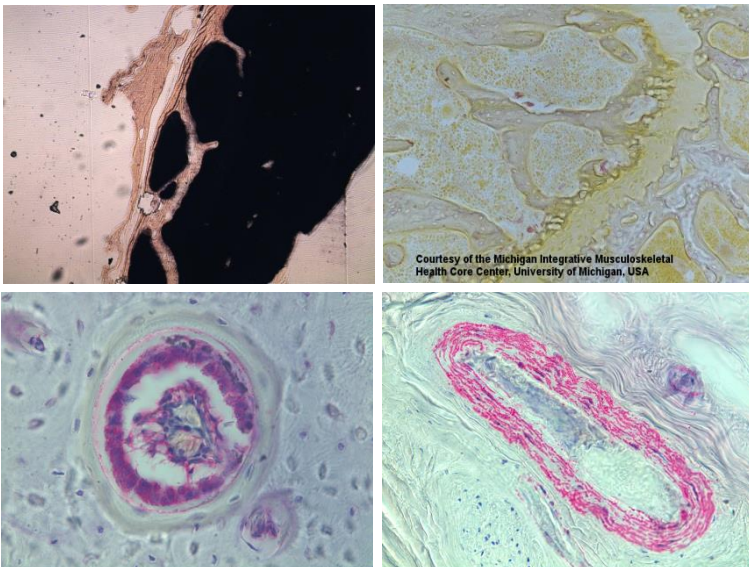
Lower left: Bone regeneration on TCP particles, SRS/van Gieson

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

## 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

# 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  $\mu$ CT analysis.

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

**Also visit our [labtube.tv](https://www.youtube.com/channel/UCv8v8v8v8v8v8v8v8v8v8v8) channel:**



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