# **Histology and Comparative Pathology Shared Resource**

The Histology and Comparative Pathology Shared Resource (HCPSR) of the Albert Einstein Cancer Center provides comprehensive, expert, and cost-effective pathology support to AECC investigators as well as to the Institute for Animal Studies Shared Facility. The facility routinely processes samples from animal models of cancer and disease, but also handles human tissue samples to promote excellence in translational research and provides the following services:

**Comprehensive histology services** – These services are provided by experienced histotechnicians and include tissue processing, embedding, and sectioning of paraffin and frozen samples. The facility offers routine hematoxylin and eosin staining, as well as an extensive inventory of special histochemical stains, enzyme histochemistry, and immunohistochemistry services. The facility offers numerous routine immunohistochemical stains such as those for cell proliferation and apoptosis, cell type including endothelial cells, and many other markers that are important in the study of cancer. In addition, the facility routinely optimizes antibodies for immunohistochemistry for investigators or makes available unusual histochemical or enzyme stains as requested; these projects involve extensive interaction with the researcher to define appropriate tissue collection methods, researcher expectations, and positive and negative tissue controls.

**Pathology services** – Both anatomic and histopathologic evaluation of animals and tissues are available to researchers and are performed by Dr. Neyens Elizabeth, an american & european board-certified toxicologist and trained board-eligible veterinary pathologist with extensive rodent pathology experience and a scientific research background involving animal model of human disease. All such services culminate in a detailed report of findings, with or without gross photos or photomicrographs, and commentary on the significance of the findings and any recommendations for further studies. Dr. Neyens Elizabeth is also certified in digital pathology technology and promotes digital pathology consultation upon demand.

Dr. Neyens’ experience and knowledge promote valuable insight and close interactions with investigators regarding data interpretation and protocol development. In addition, her experience in pre-clinical toxicologic pathology has helped drive a number of animal studies at Einstein to translation to first in human clinical trials. Finally, a specific expertise in ocular pathology is available to all faculty members.

**Study design, data interpretation, and documentation** – The facility routinely interacts with investigators for consultation regarding study design (e.g. numbers of animals, ages, sex, strain), sample handling and submission, and histology protocols to best address the study objectives. Dr. Neyens evaluates the samples submitted, interprets the data, and generates pathology reports for the researcher. She is available for supporting your grant submissions through grant support letters following scientific discussions with all faculty members.

**Training** - The facility provides training in animal necropsy, tissue fixation, tissue processing, tissue sectioning, and immunohistochemical techniques. Once trained, investigators can utilize the facility’s diverse equipment for a variety of purposes including tissue preparation, tissue arrays, etc. Equipment such as cryostat, microtome and Nikon Coolscope are made available at a designated hourly rate.

**Key Instruments:**

* Leica tissue processors (models ASP300 and TP1050).
* Tissue-Tek embedding stations (2 total)
* Microtomes
* Leica cryostats (models CM1900 and CM3050S) (3 total)
* DAKO Autostainer Plus for automated immunohistochemistry
* Chemicon ATA-100 tissue arrayer
* Programmable Leica XL Autostainer (for uniform tissue staining) and coverslipper (CV 5030)
* Leica IPS slide printer
* Leica CTR MIC Laser capture microdissection system.
* Oxford Scientific Hematology Analyzer (to perform complete blood counts
* Microscopes
  + Olympus CH30 microscope; Zeiss Primo Star microscope
  + Zeiss Axioskop 2 microscope with digital imaging system
  + Olympus S2X12 dissecting microscope with film camera