**Microscopy Imaging Center (MIC)**

The Microscopy Imaging Center (MIC) is a Larner College of Medicine Core Facility designed as a multi-user resource for educating and assisting investigators in all aspects of sample preparation and collection and analysis of images for biological and materials applications. The MIC consists of multiple microscopy-based imaging systems, computers and software for image analysis, providing state of the art, rigorous, quality assured, morphologically oriented services. It is operated on a fee for service basis and provides professional consultation and assistance with experimental design, equipment use, and interpretation and analysis of results. The MIC is staffed by multiple talented and experienced laboratory technologists and research professionals who can provide guidance with experimental design, sample preparation, tissue sectioning, high-resolution microscopy-based imaging, and data analysis and interpretation. The instruments provided in the MIC are state of the art tools that are used with the assistance and guidance from laboratory technologists for optimal results. Currently, this equipment includes a JEOL 1400 transmission electron microscope, JEOL 6060 scanning electron microscope with attached Oxford INCA EDS system, FEI Tecnai T12 cryoelectron microscope, Nikon N-STORM super-resolution microscopy system, Nikon A1R HD confocal scanning laser microscope with spectral detector and high-throughput imaging upgrades, Nikon C2 confocal scanning laser microscope, Yokogawa CSU-W1 spinning disk confocal system, Zeiss LSM-7 MP multiphoton confocal microscope, Olympus BX50 widefield fluorescence imaging system, Olympus IX70 inverted microscope, Arcturus XT-TI laser capture microdissector, Asylum Instruments MFP-3D-BIO atomic force microscope, Asylum Instruments Cypher ES atomic force microscope, Leica-Aperio VERSA-8 whole slide imager, Caliper Life Sciences IVIS Lumina whole animal imaging system, multiple dedicated computer workstations for image analysis and processing, including the image analysis software packages NIS Elements, MetaMorph , Volocity, HALO, and Stereo Investigator. The MIC also contains a full histology suite of instrumentation, including a Lecia Bond RMx autostainer, RNAScope for automated in situ hybridization, ultramicrotomes, paraffin microtomes, cryostats, and bench-top histochemistry station. The MIC, conveniently located in the heart of the medical school campus, occupies ~2,600 ft2 on the second floor in the Health Science Research Facility (HSRF) encompassing 7 microscope/preparation rooms, rooms with computer workstations, printers, scanners, filing cabinets and desk space for personnel. Each microscope room is individually climate controlled and contains storage shelves and cabinets. Variable lighting controls are provided with overhead fluorescence bulbs and canned conventional bulbs connected to a dimmer switch to provide complete darkness to full room luminance. Air tables for the light, confocal, and atomic force microscopes and accompanying air supply inlet line are conveniently located and can be rearranged if necessary as can countertops. Ample shelf space and file cabinets are installed for storage of manuals and accessories. The rooms maintain their own temperature thermostat control for adjustments within +/- 6.0 oF. The rooms are biohazard safety level II certified by the Department of Risk Management.

From a regional (and even national perspective), the MIC provides possesses some unique attributes. Unlike many microscopy-based core facilities which specialize in a specific area of microscopy, such as various light microscopies or electron microscopy, the MIC incorporates in one location multiple types of high resolution instrumentation including electron microscopy, confocal microscopies, super-resolution microscopy, laser-trap combined with confocal scanning laser microscopy, laser microdissection, atomic force microscopy, whole slide imaging, and whole animal imaging. Moreover, a full MIC staff not only train investigators in the use of the imaging and analysis equipment, they also perform experiments, develop new protocols and procedures, and analyze client images using a variety of analysis software packages (“All-Inclusive Services”). Finally, the MIC serves as a diagnostic electron microscopy facility, with a CLIA license and accreditation from the College of American Pathologists, and the New York State Department of Health to perform this service. The stringent requirements for clinical diagnostic work, such as standard operating procedures, laboratory safety, and quality control are incorporated into our client-associated research activities as well, assuring a reproducible and quality outcome in our imaging and experimental services.