

# **Facility Statement- OIC**

## **Services:**

The UW Optical Imaging Core (UWOIC) offers imaging services on six microscopy systems: (1) a Leica SP8 3X STED Super-Resolution Microscope, (2) a Nikon A1RS Confocal Microscope, (3) a Nikon Spinning Disk Confocal Microscope, (4) Nikon Multiphoton/Confocal Microscope, (5) Mizar Tilt Lightsheet, and (6) 3i Lattice Lightsheet. Imaging techniques available through the core now include: super resolution microscopy, long-term live cell imaging, two-photon/intravital microscopy, spinning disk confocal imaging, deconvolution, fluorescence spectral detection, photoactivation/uncaging, FRAP, calcium imaging, and lightsheet imaging. Investigators can maintain and grow live cells in a culture room equipped with biosafety cabinets, hypoxia, and CO2 incubators (Room 2081). The facility manager, Mr. Rodenkirch, oversees the day-to-day operations of the UWOIC, and his duties include instrument training of users, scheduling, general maintenance of microscopes, and communication with Bruker, Nikon, Leica, 3i, and Mizar technicians for advanced maintenance issues.

## **Facilities:**

The UWOIC is located in the Wisconsin Institute for Medical Research (WIMR) building at the UW-Madison School of Medicine and Public Health. The WIMR complex is composed of two research towers, each containing over 325,000 square feet of modern research space and home to more than 100 investigators, including most of the major and minor users on this application. The WIMR complex is physically connected to the UW Hospital and the VA hospital and their associated research laboratories. The WIMR towers are state-of-the-art research facilities with imaging rooms specifically designed for sensitive cellular imaging studies. The UWOIC facility manager, Mr. Rodenkirch, oversaw the construction of six separate rooms (85-166 square feet each), with rubber static dissipative anti-vibrational flooring, acoustic tile ceilings, and non-reflective walls for low light imaging. A neighboring tissue culture room is fully equipped with two biosafety cabinets, two CO2 incubators (including a low oxygen incubator for organoid and brain slice maintenance), vacuum, air, and disposables. The UW-Madison Biobank is located across the corridor from the UWOIC and holds a large collection of cancerous and non-cancerous tissues amenable to confocal imaging. The WIMR vivarium is located directly below the UWOIC and easily accessible by a direct elevator. Longitudinal space for animals is available one floor above the UWOIC, which provides short-term housing and care and includes a surgical suite to prepare animals for intravital imaging. Anesthesia (including an isoflurane machine) and monitoring equipment (blood pressure, rectal temperature, oxygen saturation) is maintained on carts to support animals both during surgery and during microscopy. Overall, there is a significant amount of workspace available in the UWOIC, such that multiple investigators can perform sample preparation, sample imaging, and image analysis concurrently. Access to imaging suites is controlled by key cards, and the facility manager can permit access to those approved for unsupervised and after hours instrument use (expert users).