

Biomaterials, Medical Devices, and Regenerative Medicine Laboratory

Facilities

Dr. Jayasuriya's laboratory is capable to conduct biomaterial fabrication and processing, mechanical analysis, drug delivery experiments, biochemical assays, and cell culture experiments. Dr. Jayasuriya's laboratory is equipped with an analytical balance, pH meter, several stirrer hot plates, Spec freezer mill, UV spectrophotometer, general incubator, refrigerator with freezer, ultrasonicator and dessicator, stirred-type spinner flasks, stir table, centrifuge, and microcentrifuge. She also has CO₂ incubator, Class II biological safety cabinet, water bath, lyophilizer, an inverted microscope, and ADMET eXpert 2611 mechanical testing system. Dr. Jayasuriya can share 2000 sq. ft. Orthopaedic research laboratory which contains three freezers, micro CT, RT-PCR, and several biomechanical instruments including MTS 858 Bionix in the Department of Orthopaedic Surgery. In addition, she has an access to use core-research facilities in the University of Toledo Health Science Campus and College of Engineering.

Flow Cytometry Facility: The Flow Cytometry facility offers all services in advanced flow cytometry including high-speed cell sorting, analysis, consultation, experimental design, and generation of publication-quality graphics to the University community and outside businesses. The facility uses the BD FACSCalibur (analysis only) and the newest and technologically advanced BD FACSAria for analysis and sorting. Analysis can be performed by facility staff or alternatively users can have unlimited access to the instrument once properly trained for self-operation. Multi-parameter (up to 15 parameters) cell sorting is also available (staff operation only) with scheduled appointment. Cell sorting and analysis can be done with little preparation and minimal cost to the user.

Advanced Microscopy & Imaging Center: The University of Toledo Advanced Microscopy & Imaging Center on the Health Science Campus is a 3,000 square foot facility designed to bring together advanced light and fluorescence microscopy systems and "state of the art" image analysis software to perform biomedical research. The Center consists of a 1,000 sq. ft. General Microscopy Laboratory with 12 separate "work stations" housing individual, computer-based microscopy systems. The center also includes an 800 square foot, Tissue-culture Microscopy Laboratory with 6 separate "work stations" for microscopy systems dedicated to the study of living cells. Current systems running in the facility include: Confocal Microscopy with 3-D Construction, Fluorescence Microscopy, Time Lapse Imaging with Fluorescence, Multi-photon Microscopy in Real-Time, TIRF Microscopy, Laser Capture Microscopy, Transmission Electron Microscopy, Basic Light Microscopy, Absorption Cytometric Measurement of DNA Content and Fluorescence in situ Hybridization (FISH).

The Center for Clinical Research (CCR): The Center for Clinical Research (CCR) was established in July 2005. The mission of the CCR is to promote and facilitate clinical and translational research designed to generate new knowledge and improve the human condition. The

CCR supports the training and development of current and future clinical investigators and the growth of research centers that are aligned with the mission and strategic goals of the University of Toledo. The strategic goal of the CCR is to increase clinical research capacity at the University of Toledo.

Animal Facility: The University of Toledo animal care program is accredited by the Association for Assessment and Accreditation of Laboratory Animal Care International (AAALACI) and is in compliance with all municipal, state and federal laws and regulations governing animal research. The Institutional Animal Care and Use Committee (IACUC) is constituted with regard to and is operated in accordance with the USDA and HHS standards and policies. The animal care facility is a centralized resource called the Department of Laboratory Animal Resources (DLAR). It is directed by a full-time veterinarian, Philip Robinson, D.V.M., who is a member of the American College of Zoological Medicine. DLAR management and staff are responsible for the care, husbandry, and veterinary medicine for all teaching and research animals housed within the unit.

On the Health Science Campus, the DLAR facilities are centralized in the Health Education Building with a satellite facility located in the Block Health Science Building. DLAR maintains rooms, equipment and trained personnel for the maintenance of most common laboratory animal species. Cage washing, postmortem, and storage areas are available. Specialized facilities for survival surgery, intensive care and biohazard containment are available. Microbiological barrier facilities are available for hazard containment and for protection of rodents from murine pathogens. DLAR Facilities occupies approximately 39,000 square feet.

The Center for Materials and Sensor Characterization (CMSC): This center is located in the University of Toledo main campus North Engineering Building. This center houses various material characterization equipments including Scanning Electron Microscopy (SEM), Atomic Force Microscopy (AFM), Scanning Transmission Electron Microscope (STEM), PerkinElmer Diamond Differential Scanning Calorimeter (DSC), Rigaku Ultima III X-ray Diffractometer with Small Angle X-ray Scattering (SAXS).