FACILITIES AND RESOURCES

The Musculoskeletal Cell Biology facility consists of several labs in Wolf and McKinly Halls on the University of Delaware campus that are dedicated to different aspects of musculoskeletal research. The Cell/Molecular biology lab, located in 247 McKinly Hall, is an 551 sq.ft. lab with a 250 sq.ft. lab attached that is committed to cell culture. This lab is dedicated to cell and molecular techniques such as western blotting, rt-PCR, point mutations and cell assays. The Cytomechanics lab (1000 sq.ft) is a trio of labs in 026 Wolf Hall that is a core facility dedicated to in vitro loading of cells from numerous types of tissues. The Electrophysiology lab (413 sq.ft.) houses the patch clamp facility for the electrophysiologic study of ion channels in musculoskeletal tissues. This lab has two complete patch clamp systems, as well as equipment for the manufacture of micropipettes. The Single Cell Imaging lab is a 300 sq. ft. lab in 303 Wolf Hall that holds two InCyte 2™ cell imaging systems dedicated to the measure of changes in ion concentrations within the cell in response to a given stimulus.

Core Facilities: The Bio-imaging Center (http://www.dbi.udel.edu/bioimaging/) is a multi-user microscopy facility which contains state-of-the-art electron, confocal and light microscopes. The center is open to university researchers and collaborators on a fee-for-service basis. This facility has personnel dedicated to oversight of projects ongoing in the core facility and has multiphoton confocal microscopes, a field emission Scanning Electron Microscope (FE-SEM), a Transmission Electron Microscope (TEM), a Laser Capture Microdissection Microscope (LCM), two Atomic Force Microscopes (AFM), Digital Image Analysis and Enhancement and microtomy.

The Center for Translational Cancer Research (CTCR: http://www.udel.edu/ctcr/core/) is a core facility dedicated to cell and molecular equipment and in vivo imaging. This core has a full time director and a technician dedicated to oversight and maintenance of the equipment in the core. The equipment of this core include: a Beckman 126/166 High Performance Liquid Chromatograph (HPLC), Becton Dickinson FACSCalibur Flow Cytometer, Bio-Rad SELDI-TOF-Mass Spectrometer, Billups-Rothenberg Incubator Chambers, Dynex MRX ELISA Plate Reader, Dynex MLX Luminometer, Molecular Dynamics Phosphorimager, ABI Prism 7000 Real-Time PCR, Mar-Med Band Bone Saw, Caliper IVIS Lumina Quantitative Fluorescent and Bioluminescent Imager. Most important to this application is the GE Healthcare eXplore Locus Pre-Clinical in Vivo MicroCT Scanner that will be used in Aims 1 and 2.

Computer: There are 7 desktop computers in the laboratories and personnel offices available to lab personnel with software for word processing, spreadsheets, databases, graphics, scanning and statistical analysis. These are all connected to the University server for transfer of files and communication. In addition, 5 desktop computers are attached to patch clamp systems, single cell imaging systems and smooth muscle imaging apparatus. All computers have printer access.

Office: The PI is housed in a 300 sq.ft. office, complete with computer and printer. In addition, two 120 sq.ft. offices are available for senior personnel and a 180 sq.ft. office seats 4 post-docs and technicians. The Dept. of Biological Sciences has a full time business administrator, 2 accountants, 2 departmental secretaries, and a preawards professional.

Other: The research environment is excellent. We have a weekly musculoskeletal seminar series, weekly departmental seminars that invites outside investigators, graduate student seminars and lab meetings that include 36 faculty, 102 graduate students and 14 post-doctoral fellows. In addition, the Musculoskeletal Cell Biology lab is an important part of the newly formed Delaware Rehabilitation Institute, which is composed of collaborative faculty from numerous departments from four Colleges of the University of Delaware.