

Imaging Instrumentation and Facilities at Tufts University and the Affiliated Hospitals

Tufts School of Medicine

Jaharis 5 Keck Center (Contact: Stephen Bunnell)

1. Image Express Micro high content imaging system - 96 well-based system for the localization of fluorescent signals and other studies; useful for drug, small molecule, RNAi screens (currently located in Isberg lab)
2. Bunnell Lab Perkin Elmer spinning disk confocal microscope - useful for following cell-cell interactions and changes in signaling pathways in a dynamic fashion
3. Amnis flow cytometer – very fast separation of cells, ~10,000 in a few minutes; able to provide snap shots (images) of fluorescent signals within individual cells; not yet set up for cell collections
4. Tsien lab recombinant fluorophores

Tufts/NEMC Small Animal Imaging/Tumor Biology Facility (Contact: Gary Sahagian)

1. IVIS 200 Imager – for quantitative in vivo luminescence (luciferase, e.g.) and fluorescence (GFP, RFP, etc.); filters can be added for other fluorophores; whole body small animal imaging capability.
2. IVIS 3D Imager – similar to IVIS 200 but for 3D imaging in small animals. The instrument is scheduled for arrival in the September, 2006.
3. Leica MZFL-III Fluorescence Imaging System – for intravital imaging using fluorescent proteins and other fluorophores.
4. Various custom recombinant fluorophores
5. Several imagable xenograft models for analysis of tumor growth and metastasis in vivo.

Tufts/NEMC Imaging Facility (Contacts: Rob Jackson, Alenka Lovy-Wheeler, Shui-Ying Ng)

1. Leica TCS SP2 AOBS confocal/2-photon microscope
2. Inverted and upright Leica fluorescence microscopes
3. Arcturus PixCell Iie laser cell capture instrument
4. Zeiss Axiovert fluorescence microscope (located on Jaharis 7); outfitted for standard epifluorescence microscopy and FRET analysis (Contact: Shui-Ying Ng)
5. Volocity 3D image rendering software – running on a fast computer in the facility

Shirihai Laboratory Facilities (Contact: Orian Shirahai, Pharmacology)

1. Fluorescence microscopes – upright and inverted; Metamorph software; anisotropy studies possible; diffusion rate measurements, FRET capability
2. Molecular Cytomics Live cell array (now commercially available from Nalge Nunc) – good for non-adherent cells; flow through set up for manipulating and imaging single cells
3. Quantomix wet tissue scanning EM – can examine fixed and live cells; useful for ultrastructural studies in fixed cells with minimal sample preparation
4. Zeiss LSM510 software package – not the confocal, just the software for offline analysis, etc.
5. Technical help from Quantomix and Molecular Cytomics for SEM and live cell array experiments

Tufts Anatomy and Cell Biology

1. Transmission EM
2. Scanning EM

Neuroscience Departmental Equipment (in Stearns 2)

Ca²⁺ Imaging Microscope with perfusion setup; various filters; optimized for fura2

Tufts University Medford Campus

Leica TCS SP2 AOBS scanning confocal microscope in the Tissue Engineering Resource Center (Contacts: Irene Georgakoudi, David Kaplan)

New England Medical Center

1. EM facilities in Pathology
2. Zeiss Axioimager.Z1 fluorescence microscope in Tupper 513B (Contact: Robbie O'Connor). Filter cubes for DAPI, FITC GFP and TXRD; Objectives: 10, 40, 63, and 100X DIC and phase (also has an ultradarkfield condenser); Volocity version 3.6.1 on 2 computers for deconvolution (one connected to the microscope, one offline).

St. Elizabeth's Hospital

Zeiss LSM 510 scanning confocal microscope (Contact: Caroline Ward)