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Description of the Facility

Background Overview
The BioImaging Facility at Hunter College is centered in a multi-room facility of 1024 sq. ft. located in the Biological Sciences Department on the 8th Floor of Hunter North building. A satellite facility also includes a number of instruments on the 4th Floor of the Belfer Research building (at 69th Street and York Ave). Faculty and students have access to a broad spectrum of instruments, ranging from simple white light wide-field microscopes to fluorescent multidimensional super-resolution and confocal imaging systems. The Faculty supervisor and Scientific Director is Dr. Diana P. Bratu. Dr. Lloyd Williams is the Managing Director of the facility. The facility staff has expertise in many areas of microscopy including the laser scanning confocal microscopy, super-resolution microscopy, two-photon microscopy. They are also familiar with many image analysis software packages, including, Imaris, Volocity, Autoquant, MetaMorph, and NIS-Elements. Detailed descriptions of the equipment in the facility is given below. All equipment is located at Rm 826 HN or at the 4th floor of the Belfer Research Building where designated
To book time on any of the instruments go to http://bookit.hunter.cuny.edu

**Instruments**

**Nikon Eclipse Ti, TIRF/SIM**
The Nikon TIRF SIM microscope allows the users to do both Total Internal Reflection Microscopy and SIM super-resolution microscopy. The acquisition software is Nikon NIS-Elements.
The charge for this instrument is $20/hr.

**Belfer Nikon A1 Confocal Microscope**
The Nikon A1 Confocal microscope is Nikon's powerful fully-automated confocal imaging system, capable of capturing high-resolution images.
The charge for this instrument is $20/hr.
**Nikon Eclipse Ti Mosaic System for FRAP**
The Nikon Eclipse Ti scope is a wide-field fluorescent microscope. It is equipped with Andor iXon EMCCD camera and a DG5... an Andor Mosaic/MicroPoint system for Optogenetics, Opto physiology, photobleaching/activation and uncaging applications.
The charge for this instrument is $15/hr.

**Perkin Elmer UltraView ERS**
The UltraView is a spinning disk confocal microscope equipped with five laser lines, which allow visualization of GFP, YFP, CFP, RFP, and DsRed. It is equipped with NIS-Elements software for high-speed, multiple-probe, time-lapse experiments.

**Leica Confocal TCS SP8 DLS**
The Leica TCS SP8 DLS is a dual function fluorescence microscope that can be used as a conventional laser scanning confocal microscope (LSCM) or as a lightsheet fluorescence microscope (LSFM).
The charge for this instrument is $20/hr.

**Leica Confocal Microscope TCS SP2**
The TCS SP2 Laser Scanning Spectral Confocal Microscope can do measurements of transmitted light, fluorescence, and laser scanning fluorescence imaging.
The charge for this instrument is $20/hr.

Nikon Eclipse TE 200 Calcium Ratio & Micro Injection

The calcium ratio imaging system consists of: a Nikon Eclipse TE 200 inverted epifluorescence microscope, Sutter Lambda 10-20 microinjection system, customized imaging software with Calcium & FRET plug-in. The system also is equipped with a Narishige micromanipulator system.

The charge for this instrument is $10/hr.

Belfer Nikon Ti-S Fluorescence Microscope

The Nikon Ti-S microscope has a SOLA Light Engine solid state light source and a Nikon DigiSight camera. It has filter sets for DAPI FITC and RFP. The charge for this instrument is $5/hr.

JEOL JEM-100C/CX Transmission Electron Microscope

JEOL JEM-100CX II transmission electron microscope is an advanced high-performance electron microscope...
The Nikon Color Imaging system consists of a Nikon Eclipse E400 upright microscope, and Nikon DXM 1200F high-resolution digital color camera. The system also utilizes Nikon Imaging Software. The charge for this instrument is $5/hr.

The Imaris Imaging station is a high-power workstation with Bitplane's Imaris Imaging software installed. Imaris provides functionality for the visualization, segmentation, and interpretation of 3D and 4D microscopy datasets. The charge for this instrument is $10/hr.

The NIS-Elements Imaging station is a high-power workstation with Nikon's NIS-Elements Imaging software installed. NIS-Elements provides cutting-edge tools for image manipulation and data management. The charge for this instrument is $5/hr.
Autoquant and NIS-Elements Imaging Analysis Station

This Imaging workstation has both AutoQuant and Nikon’s NIS-Elements Imaging software installed. AutoQuant is used to deconvolve images acquired in the facility. The charge for this instrument is $10/hr.

To book time on these systems use the Bioimaging SharePoint Calendar at:

Belfer NIS-Elements Analysis with Deconvolution

This Imaging workstation has Nikon’s NIS-Elements Imaging software installed. Additionally, it has Element’s deconvolution module installed. The charge for this instrument is $5/hr.

Gemini EM Microplate Spectrofluorometer

The Molecular Devices SpectraMax Gemini EM Microplate Spectrofluorometer features top and bottom reading optics, dual λ wavelength scanning, well scanning, auto PMT gain and is driven by Softmax Pro software on a Windows-based controller. The charge for this instrument is $5/scan.
Amersham Biosciences Typhoon 9410

Typhoon is a highly sensitive variable-mode gel imager. The Typhoon 9410 unites the ability to detect an extensive range of substrates in both chemiluminescence and autoradiography technology and direct imaging of chemiluminescence. The typhoon can also be used to analyze microarrays.

The charge for this instrument is $5/scan.

Belfer GE FLA 7000 Typhoon

Typhoon FLA 7000 is a fast laser scanner for biomolecular imaging applications including sensitive and quantitative measurements of radioisotopic labels, chemifluorescent Western blots, and single fluorescence.

The charge for this instrument is $5/scan.

Odyssey Infrared Imager

The Odyssey replaces traditional methods of analyzing western blots, chemiluminescence, and fluorescence detection, offering the advantage of being able to probe two different targets in the same experiment. It is equipped with two infrared channels (700 nm and 800 nm).

The charge for this instrument is $5/scan.
PowerWave HT Microplate Spectrophotometer

PowerWave HT is a multi-channel reader for maximum speed in both 96- and 384-well plate formats. The PowerWave HT supports kinetic and spectral scanning mode. Powerful Gen5 PC-based software is used for system control and data analysis. The charge for this instrument is $3/scan.

Belfer Bio Tek Synergy HTX Microplate Reader

Synergy HTX is a Multi-Mode Microplate Reader for making: absorbance, fluorescence, luminescence and AlphaScreen/AlphaLISA measurements on 6- to 384-well microplates. The charge for this instrument is $3/scan.

GloMax®-96 Microplate Luminometer

GloMax®-96 Microplate Luminometer is a state-of-the-art Microplate Luminometer with a high sensitivity and broad dynamic range. It is used to detect and measure chemiluminescent, bioluminescent and bioluminescent assays, eliminating the need to dilute samples or manage detector-driven gain changes. The charge for this instrument is $5/scan.
The max specimen size is 55 X 70 mm and can cool samples down to -50°C.

Remote Instrumentation

- **Imaris Analysis Workstation:** Utilize PVX monitoring system to setup Internet video conferencing for remote control of the microscope for their experiment through a simple Internet connection. Our analysis package. There is a $10 minimum charge, and fractions of an hour count as whole hours.
- **Volocity Analysis Workstation:** 4 - 10 hours $10/hour
- **Leica CM 3050S Cryostat:** The facility charges $20 per hour for use of this microscope. There is a $15 minimum charge, and fractions of an hour count as whole hours. For long time duration experiment, we have a 4 - 10 hours $10/hour

Other equipment:

- **Nikon Eclipse Ti With Ultra High-Speed Wavelength Source:** The facility charges $20 per hour for use of the confocal. There is a $15 minimum charge, and fractions of an hour count as whole hours.
- **Nikon TIRF/SIM:** The facility charges $5 per scan. Use is monitored by the Gene Center account.

Contact us by email for scheduling a remote microscopic imaging experiment, including, a short description of your experiment, time schedule, sample type, etc. Please check the following link for PVX operations:

http://bookit.hunter.cuny.edu

Simulation of fluorescent protein expression in a specific region of the cell using various instruments:

- **NSC 1625 HN**
- **Leica TIRF:** Leica TIRF With SIM Module (Room Belfer BB 453)

Contact us by email for remote connection.

This project was supported by a Research Centers in Minority Institutions Program grant from the National Institute on Minority Health and Health Disparities (MD007599) of the NCRR. Suggested language for the acknowledgment would be,

O. You must log in to use the equipment using another session, thus obtaining another/2nd appointment on the calendar, say Wed 2-5pm.

L. Users may have no more than 2 reservations made on a calendar at one time for any single reservations on the site. You will need a “Gene Center” network account to use most instruments.

K. Equipment is available on a first come first serve basis. You can book 3 hours slots on the calendar.

H. Do not leave your samples in the facility

G. Do not wear latex gloves in the facility

D. Training is required before using all machines. This can be done by individually with the facility manager, or by experienced users in the various CTBR laboratories. For the three scanners, you must obtain a “Gene Center” computer account. This is required to log on to the computers that control the equipment. Your use of the machine will then be automatically logged and you will be charged according to the fee schedule below.

For colorful staining protocol

- In-cell Western Assay
- In-Gel Western Assay
- Microwestern
- RNA quantitation
- Colorimetric assays

For ELISAs and Immunoassays

- Western blot sample
- ELISA plate
- Luminescence
- 96-well plate
- Endpoint/Kinetics
- Plate/Gel/Blot
- Fluorescence

For various instruments:

- **Leica SP2 Confocal:**
  - 4x/0.13
  - 10x/0.4
  - 40x/1.0/oil
  - 60x/1.4/oil
  - 60x/1.49/oil
  - 640 nm
  - 561 nm
  - 360-850 nm
  - 532 nm
  - 488 nm
  - 405 nm
  - 633 nm
  - 457, 488 nm
  - 940 mn
  - 458, 476, 488, 514 nm

- **Amersham Biosciences Typhoon 9410 Room 826 HN**
  - SIM module
  - Solid State Laser
  - 300-650nm
  - 360-850nm
  - 200-999nm

- **Nikon Eclipse Ti Mosaic/MicroPoint System & FRAP Room 826 HN**
  - HeNe Laser
  - SYAG laser
  - Low Light Laser
  - 457, 488 nm

- **Leica Confocal**
  - HeNe Laser
  - 458, 476, 488, 514 nm
  - 300-650nm

- **Nikon A1R Resonant Confocal (Room Belfer BB 453).**
  - Jannsen A1R Resonant Confocal
  - HeNe Laser
  - 458, 476, 488, 514 nm
  - 300-650nm

- **Gemini EM**
  - 440 nm
  - 561 nm
  - 633 nm

- **Nikon TIRF/SIM**
  - 4x/0.13
  - 10x/0.4
  - 60x/1.49/oil
  - 60x/1.49/oil
  - 633 nm
  - 561 nm
  - 633 nm

- **Leica A2+ SP2 Confocal:**
  - 4x/0.13
  - 10x/0.4
  - 40x/1.0
  - 60x/1.49/oil
  - 60x/1.49/oil
  - 633 nm
  - 561 nm
  - 633 nm

- **Leica CM 3050S Cryostat:**
  - 4x/0.13
  - 10x/0.4
  - 40x/1.0
  - 60x/1.49/oil
  - 60x/1.49/oil
  - 633 nm
  - 561 nm
  - 633 nm

- **Leica CM 3050S Cryostat:**
  - 4x/0.13
  - 10x/0.4
  - 40x/1.0
  - 60x/1.49/oil
  - 60x/1.49/oil
  - 633 nm
  - 561 nm
  - 633 nm

- **Leica CM 3050S Cryostat:**
  - 4x/0.13
  - 10x/0.4
  - 40x/1.0
  - 60x/1.49/oil
  - 60x/1.49/oil
  - 633 nm
  - 561 nm
  - 633 nm