BioImaging Facility Reopening

The facility has reopened. Below are post COVID rules.

Post COVID 19 Rules

- Reserving equipment at [http://bookit.hunter.cuny.edu](http://bookit.hunter.cuny.edu) prior to use is mandatory
- There is a 15 min buffer between bookings for any instrument
- Only one person at a time can use any instrument
- Masks must be used in the facility at all times
- Keep a 6ft distance from others while in the facility
- All users must complete the Hunter COVID screening checklist. [http://hunter.cuny.edu/covidscreening](http://hunter.cuny.edu/covidscreening) prior to coming to the facility
- Users must wipe down the equipment with an ethanol cleaning solution after each use. Ethanol spray bottle and paper towels are available in the facility

Several instruments are too close to be booked at the same time
The machines listed below should not be reserved at the same time. To check bookings use the resource calendar on the booking website

- Imaris 8.41 Imaging Station and the Imaris 9.12 Imaging Station
- Seahorse, Odyssey and BioTek PowerWave Microplate Reader
- GloMax®-96 Microplate Luminometer, Typhoon 9410 and Autoquant Deconvolution Station

When using the systems listed below please use the curtains that separate the instruments

- Nikon Eclipse Ti Mosaic System
- Nikon Eclipse TE 200 Calcium Ratio
- Leica TCS Confocal
- Perkin Elmer Spinning Disk Confocal
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
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.

This machine is in 826HN

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 images with high resolution, sensitivity, and enhanced sensitivity. The acquisition software is NIS-Elements. The system is located at Belfer Research Building.

The charge for this instrument is $20/hr.

Nikon Eclipse Ti Mosaic System

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.

This machine is in 826HN

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, RFP, YFP, and CHERRY. This machine is in 830HN. The charge for this machine is $20/hr.

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). This machine is in 830HN. 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. This machine is in 826HN. 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 micromanipulator, 510nm imagesetters, and computer imaging software with Calcium & FRET plug-in. The system also is equipped with a Narishige micromanipulator system.

This machine is in 826HN

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 digital camera. It has filter sets for DAPI FITC and RFP filters.

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 charge for this instrument is $5/hr.
Nikon Eclipse E 400  Color Image Analysis System

The Nikon Color Imaging system consists of a Nikon Eclipse E400 upright microscope, and Nikon DXM 1200F high-resolution camera. This system also utilizes Nikon Imaging Software. The system also has Adobe Photoshop installed for image acquisition and manipulation. The charge for this instrument is $5/hr.

Imaris 8.41 Imaging Station

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.

Imaris 9.12 Imaging Station

This Imaging workstation is a high-power workstation with Nikon’s NIS-Elements Imaging software installed. It also has Imaris 9.12 installed. The charge for these instruments is $5/hr for Elements and $10 per hour for Imaris.
Autoquant Deconvolution 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. This machine also has a floating license of Imaris 9.6. The charge for this instrument is $5/hr for Elements and $10 for Imaris and AutoQuant.

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 for Elements.

Gemini EM Microplate Spectrofluorometer
The Molecular Devices SpectraMax Gemini EM Microplate Spectrofluorometer features top and bottom reading optics, dual excitation 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 multiple detection systems with high sensitivity. It offers both 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 FLA
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 Belfer GE FLA 7000 Typhoon FLA is equipped with a 12-channel laser system and a high-resolution charge-coupled device (CCD) camera for high-speed imaging. It is capable of capturing images with high contrast and dynamic range.

The charge for this instrument is $5/scan.

Odyssey Infrared Imager
The Odyssey replaces traditional methods of analyzing western blots, chemiluminescence, and fluorescence. It is equipped with two infrared channels at 700 nm and 800 nm, allowing for the simultaneous detection of two different targets in the same experiment. The Odyssey is a high-performance imaging system designed for post-PCR analysis, allowing researchers to rapidly and accurately visualize the results of their experiments.

The charge for this instrument is $5/scan.
Biotek PowerWave Microplate Reader
PowerWave HT is a multi-channel reader for maximum speed in both 96- and 384-well plate formats. The PowerWave HT supports absorbance, fluorescence, luminescence, and surface plasmon resonance measurements. 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. This instrument is in room BB 453.
The charge for this instrument is $3/scan.

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

**Magnification/NA**

- HT Plate Reader
- DLS TwinFlect 2.5mm, 5mm, 7.8mm (water) 7.8mm (glycerin)
- The Leica SP8 also has the following DLS objectives: 1.6x/0.05, 5x/0.15, 10x/0.3, 25x/0.95

**Cell staining protocol**

A simple cell staining protocol is posted here as an example:

- PVX video conferencing for real-time consultation: during imaging experiments, PVX video conferencing operational guide.
- Microscope remote control: Webex is used to setup the remote desktop sharing for microscope control.
- Utilize PVX monitoring system to setup Internet video conferencing for remote operations:
  - Leica SP2 confocal microscope: it is ideal for regular 2D & 3D scanning for fixed slide biomedical research.
  - PerkinElmer Spinning Disk Microscope
  - All Other Nikon Upright & Inverted Microscopes:
  - Nikon SIM/TIRF
  - Leica Sp2 Confocal
  - Leica Sp8 Confocal
  - PerkinElmer Spinning Disk Microscope
  - PowerWave HT Plate Reader:
  - Volocity Analysis Workstation:
  - Imaris Analysis Workstation:

**Remote Instrumentation**

- PVX video conferencing operational guide.
- Webex remote control guide
- Email Lloyd Williams (williams@genectr.hunter.cuny.edu) in advance for applying this policy.

**License Use**

- Charge for use of the core facilities version of Imaris is $10 /hour. Satellite analysis package. There is a $10 minimum charge, and fractions of an hour count as whole hours.

**Usage Restrictions**

- Users may have no more than 2 reservations made on a calendar at one time for any single machine.
- H. Do not leave your samples in the facility.
- E. When using the Cryostat, you must complete the training course your account will be activated for the microscope.
- D. Training is required before using all machines. This can be done by individually with the instructor.
- C. The facility is available for use 7 X 24. After normal working hours (9-5 Mon-Fri) lock the computer attached to the machines.
- B. Your use of the facility will be recorded. For the optical microscopes and the Gel and Blot scanners, you must obtain a “Gene Center” computer account. This is required to sign the logbook.
- A. The facility charges $10 per hour for use of this microscope. There is a $15 minimum charge, and fractions of an hour count as whole hours.

**Equipment Details**

- Leica CM 3050S Cryostat: features motorized sectioning and programmable defrost cycles. The cryostat can cut sections in the range 0.5 to 300 μm.
- In-Gel Western Assay
- On-cell Western Assay
- In-cell Western Assay
- Cell Viability
- Nucleic Acid Quantitation
- ELISA Enzyme Kinetics
- Colorimetric assays
- SYAG laser
- 514 nm Solid State Laser
- 633 nm Argon Ion Laser
- 561 nm Solid State Laser
- 640 nm Solid State Laser
- 488 nm Solid State Laser
- 100x/1.49/oil HC PL APO
- 63x/1.40/oil HC PL APO
- 10x/0.4 oil
- 20x/0.45 oil
- 40x/1.3/oil
- 60x/1.4/oil
- 100x/0.15, 10x/0.3, 25x/0.95

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