BioImaging Facility Reopening

The facility is currently closed but is preparing to reopen soon. Below are post COVID rules for reopening

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. 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 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 shutter pulse generator. It can be used with 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, RFP, and other fluorescent proteins. It is optimized for high-speed, multiple-probe, time-lapse experiments; NIS-Elements software is used for image acquisition and analysis.

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 Research Fluorescence Microscopy 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.
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 digital camera. The system also utilizes Nikon Imaging Software. 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 9.1 Imaging Station

This Imaging workstation 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 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. 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 excitation and emission wavelengths, 96- and 384-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 primary and secondary labels and a variety of different detection methods, including chemiluminescence, 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 charge for this instrument is $5/scan.

Odyssey Infrared Imager

The Odyssey replaces the traditional methods of analyzing western blots, chemiluminescence, and fluorescence with its infrared imaging technology. It is equipped with two infrared channels (700 nm and 800 nm), allowing for the probing of two different targets in the same experiment.

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 delivers the highest signal-to-noise ratio at any wavelength in a compact design. The instrument is used for 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

The GloMax®-96 Microplate Luminometer is a state-of-the-art Microplate Luminometer with a high sensitivity and broad excitation and emission wavelength range. It is ideal for bioluminescent and chemiluminescent 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.

For scheduling the above remote instrumentation service, please check the following guidelines:

1. Cell staining protocol: a simple cell staining protocol is posted here as an example:
   - For video conferencing system is used for real-time conversations between microscope operator and remote users to solve on-site experimental issues. Please check the following link for PVX real-time conferencing: PVX video conferencing operational guide.
   - Microscope system has fast scanning speed, it is ideal for cellular dynamic studies. Please check the following link for Leica SP2 system:

Now a new service is ready for our remote users to get remote access to our advanced instruments.

Nowadays, microscopic imaging techniques are becoming more and more popular in such system for their research. A solution to overcome this problem is to share the microscope among several users. Remote instrumentation service is one of the ways to achieve this goal.

- **Remote Instrumentation**
  - **Purpose**
  - **Remote Instrumentation Service**
  - **Instruments**
    - Imaris Analysis Workstation:
    - Volocity Analysis Workstation:
    - PowerWave HT Plate Reader:
    - All Other Nikon Upright & Inverted Microscopes:
    - Leica Sp8 Confocal:
    - Leica Sp2 Confocal:
    - PerkinElmer Spinning Disk Microscope
    - Leica CM 3050S Cryostat
    - Perkin Elmer MicroPoint System & EBAR Room 826 HN
    - Perkin Elmer PE Spinning-disk Room 826 HN

- **Guidelines For using The Facility**
  - **Rules of Operations**
    - Regular machine use: For example, Monday 12-4pm, Tues 9-1pm. After Monday’s session, the user may schedule for use of this microscope. There is a $10 minimum charge, and fractions of an hour count as whole hours.
    - Additional nights availability: After normal working hours (9-5 Mon-Fri), lock the microscope. There is a $15 minimum charge, and fractions of an hour count as whole hours.
    - 0-4 hours: $20/hour
    - 5-11 hours: $25/hour
    - 12-18 hours: $30/hour
    - 19+ hours: $35/hour
    - There is a $10 minimum charge, and fractions of an hour count as whole hours.
  - **Contact emails:** Contact us by email for scheduling a remote microscopic imaging experiment, contact emails: [Contact details]

- **Objectives of Microscopes in the Bio-imaging Facility**
  - **In-Gel Western Assay**
  - **In-cell Western Assay**
  - **Cell Viability**
  - **Protein Quantitation**
  - **Nucleic Acid Quantitation**
    - **RNA quantitation**
  - **ELISAs and Immunoassays**
  - **Image**
    - 96-well plate
    - 384-well plate
  - **Quantitative Western**
  - **Direct DNA quantitation Purity testing**
  - **Paperback**
  - **200-999nm**
  - **Western blot sample**
  - **Endpoint/Kinetics**
    - Fluorescence
    - Phosphorimaging Chemiluminescence
  - **Photometric**
    - Absorbance
  - **Absorbance**
    - 96 & 384-well plate

- **Charge for this instrument**
  - **Charge for this instrument is $5/hr.**
  - **Charge for this instrument is $20 per hour.**
  - **Charge for this instrument is $15 per hour.**

- **Contact us by email for scheduling a remote microscopic imaging experiment, contact emails:** [Contact details]