BioImaging Facility Reopening

The facility has reopened. Below are post COVID rules.

Post COVID 19 Rules

- Reserving equipment at 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 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
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.

To book time on any of the instruments go to http://bookit.hunter.cuny.edu
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.

The Belfer Nikon A1 Confocal Microscope is Nikon’s powerful fully-automated confocal imaging system, capable of high-resolution imaging with enhanced sensitivity. The acquisition software is NIS-Elements. The system is located at Belfer Research Building. The charge for this instrument is $20/hr.

The Nikon Eclipse Ti Mosaic System is a wide-field fluorescent microscope. It is equipped with Andor iXon EMCCD camera and a DG5 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, mCherry, and DsRed and have NIS-Elements software 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). This machine is in 809HN.

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.
The calcium ratio imaging system consists of: a Nikon Eclipse TE 200 inverted epifluorescence microscope, Sutter Lambda 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.

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.

The JEOL JEM-100C/CX 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 9.12 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. 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.

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 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 labels with a single scan, achieving higher sensitivity and dynamic range than traditional 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 traditional methods of analyzing western blots, chemiluminescence, and fluorescent probes with infrared imaging. It is equipped with two infrared channels 700 nm and 800 nm, and can thus probe 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 includes detection for absorbance, fluorometry, and time-resolved fluorescence. 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, AlphaScreen/AlphaLISA, and kinetic scans. The Synergy HTX can be used in plate formats from 6-well to 384-well.

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 wavelength range for making: absorbance, fluorescence, luminescence, AlphaScreen/AlphaLISA, and kinetic scans. The GloMax®-96 Microplate Luminometer provides a variety of functional modes for enzyme activity, cell proliferation, and bioluminescent assays, eliminating the need to dilute samples or manage detector-driven gain changes.

The charge for this instrument is $5/scan.
A confirmation email will be sent before the experiment date. A WebEx meeting link will
be included in this email for remote connection.

- Utilize WebEx to setup remote desktop sharing for microscope control.
- Utilize PVX monitoring system to setup Internet video conferencing for remote
  operations:
  - (ii) Perkin Elmer spinning disk microscope: besides the regular 2D & 3D fixed slide
  scanning, the microscope system has fast scanning speed, it is ideal for cellular
  dynamic studies. Please check the following link for Leica SP2 system:

Objectives of Microscopes in the Bio-imaging Facility

<table>
<thead>
<tr>
<th>Microscope</th>
<th>Description</th>
<th>Purpose</th>
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| Leica CM 3050S Cryostat  | Features motorized sectioning and programmable
  defrost cycles. The cryostat can cut sections in
  the range 0.5 to 300 μm.                      | Experiments requiring
  cryosectioning.                          |
| All Other Nikon Upright &
  Inverted Microscopes      | Most popular microscopes in the facility.        | General microscopy and
  research.                                 |
| Nikon SIM/TIRF            | Confocal microscopes with TIRF module.           | Multifocal imaging       |
| Leica SP2 Confocal        | Confocal microscopes with Leica SP2 software.    | Confocal imaging         |
| Nikon A1R Resonant Confocal | Confocal microscopes with
  resonant scanning.                     | Resonant scanning        |
| GE FLA 7000 Typhoon       | Confocal microscopes with GE FLA 7000 software.  | Confocal imaging         |
| Biotek PowerWave SpectraMax | Enzyme kinetics and
  ELISA analysis.                          | Enzyme kinetics and
  ELISA analysis.                        |
| TIRF Module               | TIRF module for confocal microscopy.              | TIRF imaging             |
| In-Gel Western Assay      | Western blotting and in-gel protein digestion.   | Western blotting and
  in-gel protein digestion.                |
| Reporter Gene Assays      | Reporter gene assays for gene expression studies.| Reporter gene assays for
  gene expression studies.                  |
| Transporter Assays        | Transporter assay for investigating transporter
  function.                                  | Transporter assay for
  investigating transporter function.        |
| Phosphatases/Kinases      | Phosphatase and kinase assays for enzyme function
  studies.                                   | Phosphatase and kinase
  assays for enzyme function studies.        |
| Microbial Growth          | Analysis of microbial growth.                    | Analysis of microbial
  growth.                                   |
| Proliferation, and
  Cytotoxicity               | Proliferation and cytotoxicity assays for
  cell biology.                              | Proliferation and
  cytotoxicity assays for cell biology.      |
| Enzyme Assays             | Enzyme assays for enzyme function studies.       | Enzyme assays for
  enzyme function studies.                  |
| Protein Quantitation      | Quantitation of proteins using ELISA and other
  methods.                                   | Protein quantitation using
  ELISA and other methods.                   |
| Cell Viability, ELISA     | ELISA analysis for cell biology.                  | ELISA analysis for cell
  biology.                                   |
| Enzyme Kinetics           | Enzyme kinetics analysis for enzyme function
  studies.                                   | Enzyme kinetics analysis for
  enzyme function studies.                   |
| Quantitative Phororimaging| Quantitative phosphorimaging for protein
  expression studies.                        | Quantitative phosphorimaging for
  protein expression studies.                |
| Western blot sample       | Western blot sample for protein expression
  studies.                                   | Western blot sample for
  protein expression studies.                |
| ELISAs and Immunoassays   | ELISAs and immunoassays for disease diagnosis.   | ELISAs and immunoassays for
  disease diagnosis.                         |
| N/A                      | N/A                                              | N/A                       |
| Image                     | Image                                            | Image                     |
| 20x/0.75                  | 20x/0.75                                         | 20x/0.75                  |
| 20x/0.45                  | 20x/0.45                                         | 20x/0.45                  |
| 200-999nm                 | 200-999nm                                        | 200-999nm                 |
| 10x/0.3                   | 10x/0.3                                          | 10x/0.3                   |
| 10-100x                   | 10-100x                                          | 10-100x                   |
| 250-850nm                 | 250-850nm                                        | 250-850nm                 |
| 500-685nm                 | 500-685nm                                        | 500-685nm                 |
| 457nm/488nm/561nm         | 457nm/488nm/561nm                                | 457nm/488nm/561nm         |
| 450-560nm                 | 450-560nm                                        | 450-560nm                 |
| 457nm/488nm/561nm         | 457nm/488nm/561nm                                | 457nm/488nm/561nm         |
| 405nm                     | 405nm                                            | 405nm                     |
| 633nm                     | 633nm                                            | 633nm                     |
| 63x/1.4/oil               | 63x/1.4/oil                                      | 63x/1.4/oil               |
| 100x/1.49/oil            | 100x/1.49/oil                                    | 100x/1.49/oil            |
| 640nm                     | 640nm                                            | 640nm                     |
| 561nm                     | 561nm                                            | 561nm                     |
| 561nm                     | 561nm                                            | 561nm                     |
| 488nm                     | 488nm                                            | 488nm                     |
| 488 nm                   | 488 nm                                           | 488 nm                   |
| 485nm/488nm/561nm        | 485nm/488nm/561nm                               | 485nm/488nm/561nm        |
| 488 nm                   | 488 nm                                           | 488 nm                   |
| 405 nm                   | 405 nm                                           | 405 nm                   |
| 532 nm                   | 532 nm                                           | 532 nm                   |

The facility charges $5 per hour for use of this image. The facility charges $10 per
hour for use of this image. The facility charges $10 per hour for use
of this image.