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. 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 super-resolution images 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 for pulse laser illumination. It can be used 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, YFP, and others. It is ideal 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). This machine is in 809HN.

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 fluorescence 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.

JEOL JEM-100CX 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 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.

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 NIS-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 and $10 for Imaris.

Gemini EM Microplate Spectrofluorometer
The Molecular Devices SpectraMax Gemini EM Microplate Spectrofluorometer features top and bottom reading optics, dual excitation wavelengths, dual emission wavelengths, 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 labels, from chemiluminescence to dye-based, utilizing 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 7000

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. It is equipped with a 635 nm diode laser, which is a powerful tool for analyzing western blots, chemiluminescence, and fluorescence.

The charge for this instrument is $5/scan.

Odyssey Infrared Imager

The Odyssey replaces traditional methods of analyzing western blots, chemiluminescence, and fluorescence with the ability to detect multiple targets simultaneously. It is equipped with two infrared channels at 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 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

The GloMax®-96 Microplate Luminometer is a state-of-the-art Microplate Luminometer with a high sensitivity and broad dynamic range for making: absorbance, fluorescence, luminescence and bioluminescent assays, eliminating the need to dilute samples or manage detector-driven gain changes. The charge for this instrument is $5/scan.
### Objectives of Microscopes in the Bio-imaging Facility

<table>
<thead>
<tr>
<th>Microscope Type</th>
<th>Wavelength</th>
<th>Mode</th>
<th>Miscellaneous</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nikon Eclipse Ti Mosaic/MicroPoint System &amp; FRAP</td>
<td>457nm/488nm/561nm</td>
<td>SIM module</td>
<td>640 nm</td>
</tr>
<tr>
<td>Perkin Elmer spinning disk microscope</td>
<td>473 nm</td>
<td>Solid State Laser</td>
<td>594 nm</td>
</tr>
<tr>
<td>HeNe Laser</td>
<td>561 nm</td>
<td>Argon Ion Laser</td>
<td>514 nm</td>
</tr>
<tr>
<td>Leica SP2 Confocal, Room 826 HN</td>
<td>640 nm</td>
<td>Solid State Laser</td>
<td>640 nm</td>
</tr>
<tr>
<td>Nuclear Instruments</td>
<td>405 nm</td>
<td>Solid State Laser</td>
<td>561 nm</td>
</tr>
<tr>
<td>Nikon TIRF/SIM</td>
<td>514 nm</td>
<td>Solid State Laser</td>
<td>640 nm</td>
</tr>
<tr>
<td>Nikon SIM/TIRF</td>
<td>561 nm</td>
<td>Solid State Laser</td>
<td>640 nm</td>
</tr>
<tr>
<td>300-650 nm</td>
<td>10x/0.3</td>
<td>In-cell Western Assay</td>
<td>Endpoint/Kinetics</td>
</tr>
<tr>
<td>Ligand-based assays</td>
<td>20x/0.5</td>
<td>Proliferation, and Cytotoxicity Enzyme Assays</td>
<td>250-850nm</td>
</tr>
<tr>
<td>ELISA Enzyme Kinetics</td>
<td>60x/1.4/oil</td>
<td>Quantitative Phosphorimaging ECL Plus Westerns</td>
<td>250-850nm</td>
</tr>
<tr>
<td>In-cell Western</td>
<td>100x/1.49/oil</td>
<td>Quantitative Western</td>
<td>250-850nm</td>
</tr>
</tbody>
</table>

- **For scheduling the above remote instrumentation service**, please check the following guidelines:
  - Perkin Elmer spinning disk microscope: besides the regular 2D & 3D fixed slide scanning, it is ideal for regular 2D & 3D scanning for fixed slide experiments.
  - Leica SP2 confocal microscope: for imaging needs, especially for live cell imaging.

### Guidelines For using The Facility

- **Email Lloyd Williams** (williams@genectr.hunter.cuny.edu) in advance for applying this policy.
- **Contact us by email** for scheduling a remote microscopic imaging experiment.
- **WebEx remote control guide**: available upon request.

### Microplate

<table>
<thead>
<tr>
<th>Plate Type</th>
<th>Range</th>
<th>Sample Type</th>
<th>Detection</th>
</tr>
</thead>
<tbody>
<tr>
<td>96 to 384-well plate</td>
<td>300-650 nm</td>
<td>Western blot sample</td>
<td>Phosphorimaging Chemiluminescence Fluorescence</td>
</tr>
<tr>
<td>96 &amp; 384-well plate</td>
<td>250-850nm</td>
<td>100x/1.49/oil</td>
<td>Fluorescence</td>
</tr>
<tr>
<td>10x/0.4</td>
<td>200-999nm</td>
<td>60x/1.4/oil</td>
<td>Fluorescence</td>
</tr>
<tr>
<td>10x/0.3</td>
<td>200-999nm</td>
<td>10x/0.4</td>
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</tr>
</tbody>
</table>

### Safety Instructions

- **Laminar flow**: keep all doors closed and turn on the air flow before opening the door.
- **No food and drinks**: in the laboratory area.
- **Proper packaging**: when shipping samples.
- **Health and Safety**: report accidents, spills, or fires immediately.
- **Oil cleaning**: after each use of the microscope.
- **Reservations**: all equipment must be reserved.
- **Reserve equipment online**: for future use.
- **First come, first serve**: policy for equipment reservation.
- **Log book**: sign the log book before leaving.

### Contact Information

- **Dr. Lloyd Williams**: williams@genectr.hunter.cuny.edu
- **Ricardo Franco**: x4462
- **Security**: x4444
- **Health and Safety**: Report all accidents.

### Policy Details

- **$5 minimum charge** for use of equipment.
- **Fractions of an hour count as whole hours**.
- **$20 per hour** charge for use of the confocal microscope.
- **$20 minimum charge** for use of any microscope.
- **$15 minimum charge** for use of the Nikon TIRF/SIM microscope.
- **$10 per hour** charge for use of the image analysis workstation.
- **$20 per hour** charge for use of the Gel and Blot system.
- **$20 per hour** charge for use of the nucleic acid sequencer.
- **$25 per hour** charge for use of the Mass Spectrometer.
- **$30 per hour** charge for use of the Infrared Spectrometer.
- **$20 per hour** charge for use of the Cryostat.

### Additional Notes

- **Computer account**: required for use of the machine.
- **PVX operations**: can be monitored through the Internet.
- **Remote instrumentation**: involves remote users solving on-site experimental issues.
- **WebEx and PVX combination**: for remote instrumentation tasks.
- **PVX installation**: required for remote users.
- **$20 minimum charge**: for computer reservations.
- **$20 per hour**: for use of the confocal microscope.
- **$15 minimum charge**: for use of the Nikon TIRF/SIM microscope.
- **$10 per hour**: for use of the image analysis workstation.
- **$20 per hour**: for use of the Gel and Blot system.
- **$20 per hour**: for use of the nucleic acid sequencer.
- **$25 per hour**: for use of the Mass Spectrometer.
- **$30 per hour**: for use of the Infrared Spectrometer.
- **$20 per hour**: for use of the Cryostat.

### Acknowledgment

- **Grant Funding**: from the National Institute on Minority Health and Health Disparities (MD007599) of the NCRR.
- **Suggested Language**: for acknowledgment.

### Equipment Availability

- **First come, first serve**: policy for equipment reservation.
- **3 hours slots** can be booked.
- **Reservation Confirmation**: can be created through the facility reservations website.
- **Contact**: the facility manager, or experienced users in the various CTBR laboratories.
- **Two sessions per day**: maximum for equipment usage.
- **50 N 70 mm** specimen size is ideal.
- **Cooling down**: samples to -50°C is possible.