Bio-Imaging 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
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
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 capturing high-quality images 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 system for Optogenetics, Optophysiology, 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 a range of other fluorophores. This instrument 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.
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. The charge for this instrument is $5/hr.

JEOL JEM-100C/CX Transmission Electron Microscope

The JEOL JEM-100CX II transmission electron microscope is an advanced high-performance electron microscope with stable and precise specimen alignment. A 10M-pixel HAMAMATSU C4742-95 digital camera is integrated into the system for high-resolution image acquisition.
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 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 and $10 for Imaris.

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 an extensive range of labels, from 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 tradition of analyzing western blots, chemiluminescence, and fluorescence methods with a single instrument offering 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 supports fast kinetics, 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 for making: absorbance, fluorescence, luminescence, ATP, protein, and bioluminescent assays, eliminating the need to dilute samples or manage detector-driven gain changes. The charge for this instrument is $5/scan.
The Leica CM 3050S Cryostat features motorized sectioning and programmable defrost cycles. The cryostat can cut sections in the range 0.5 to 300 microns. The charge for this instrument is $5/hr.

Please check the following link for WebEx-based remote control of Perkin Elmer spinning disk microscope. It is ideal for cellular dynamic studies.

Our service includes:

1. Utilize PVX monitoring system to setup Internet video conferencing for remote communication purpose.
2. PVX video conferencing for real-time consultation: during imaging experiment, PVX will control. Please check the following link for WebEx-based remote control operational guide.
3. Perkin Elmer spinning disk microscope: besides the regular 2D & 3D fixed slide scanning, microscope system has fast scanning speed, it is ideal for cellular dynamic studies. Please check the following link for WebEx-based remote control operational guide.

F. If you encounter problems with the facility, E-mail the facility director Lloyd Williams at williams@genectr.hunter.cuny.edu.

Guidelines for using the facility:

1. Sign the log book when you use this system.
2. There is a $10 minimum charge, and fractions of an hour count as whole hours.
3. You must log in to use the equipment using your "Gene Center" network account.
4. Email Lloyd Williams in advance for applying this policy.
5. Report all accidents (injuries, spills, fires) to the Security (x4444) and Health and Safety Manager.
6. Users may have no more than 2 reservations made on a calendar at one time for any single microscope. There is a $10 minimum charge, and fractions of an hour count as whole hours.
7. Users may reserve a maximum of 48 hours in one call. There is a $10 minimum charge, and fractions of an hour count as whole hours.
9. Equipment is available on a first come first serve basis. You can book 3 hours slots on the site. You will need a "Gene Center" network account to use most microscopes using the facility reservations website.

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.

Leica CM 3050S Cryostat:

1. Range 0.5 to 300 microns
2. Motorized sectioning and programmable defrost cycles
3. Charge for this instrument is $5/hr.

Nikon Eclipse Ti With Ultra High-Speed Wavelength Source:

1. Sample Type
2. Read Mode
3. Detection
4. Application
5. Range
6. Detection
7. Sample Type
8. Absorbance
9. Luminescence
10. Image

A. The facility charges $20 per hour for use of this image analysis package. There is a $5 minimum charge, and fractions of an hour count as whole hours.

Bio-Imaging Facility - Biology

Purpose:

Remote Instrumentation

Imaris Analysis Workstation:

Leica CM 3050S Cryostat:

Nikon Eclipse Ti With Ultra High-Speed Wavelength Source:

Leica Confocal:

Nikon TIRF/SIM:

Nikon A1R Resonant Confocal:

Rayleigh laser:

405 nm

561 nm

488 nm

640 nm

TIRF module

Frozen specimen sections can be cut with a section thickness as small as 0.5 microns.

5. The maximum specimen size is 55 mm x 70 mm and can cool samples down to -50°C.

6. Li-COR Odyssey

7. Western blot sample

8. Qualitative Westerns

9. Quantitative Phosphorimaging ECL Plus Westerns

10. Multifluorescence applications (such as 2-D DIGE and ECL Plex)

These are a few applications for various instruments:

- Typhoon 9410 Imager
- LI-COR Odyssey
- Microwestern
- On-cell Western Assay
- Transporter Assays
- Phosphatases/Kinases
- Microbial Growth
- Reporter Gene Assays
- Cell Viability
- RNA quantitation
- Spectroscopy