Managing Director
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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

Instruments
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.

To book time, use the SharePoint Calendar at http://biosharepoint.hunter.cuny.edu/Bio-Imaging/Lists/TIRF%20SIM%20Calendar/calendar.aspx

Belfer Nikon A1 Confocal Microscope

The Nikon A1 Confocal microscope is Nikon’s powerful fully-automated confocal imaging system, capable of capturing 4D data sets, high-speed imaging, 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.

To book time use the SharePoint Calendar at http://biosharepoint.hunter.cuny.edu/Bio-Imaging/Lists/Nikon%20A1%20confocal%20microscope%20Belfer%20Building/calendar.aspx

Nikon Eclipse Ti Mosaic System for FRAP

The Nikon Eclipse Ti scope is a wide-field fluorescent microscope. It is equipped with Andor iXon EMCCD camera and a DG530 dual laser. It has an Andor Mosaic/MicroPoint system for Optogenetics, Opto physiology, photobleaching/activation and uncaging applications.

The charge for this instrument is $15/hr.

To book time on this system use the Sharepoint Calendar at http://biosharepoint.hunter.cuny.edu/Bio-Imaging/Lists/Nikon%20Eclipse%20Ti%20With%20Ulttra%20High%20Speed%20Wavelength/calendar.aspx
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 capable of high-speed, multiple-probe, time-lapse experiments; NIS-Elements software is used for image acquisition and analysis.

The charge for this instrument is $20/hr.
To book time on this system use the SharePoint Calendar at
http://biosharepoint.hunter.cuny.edu/Bio-Imaging/Lists/Spinning%20Disk%20Calendar/calendar.aspx

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.
To book time on this system use the SharePoint Calendar at
http://biosharepoint.hunter.cuny.edu/Bio-Imaging/Lists/Leica%20Confocal%20Calendar/calendar.aspx

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 900 laser scanning unit, a Hamamatsu ORCA-ER camera, a Hamamatsu C10400-10 monochrome photomultiplier, an Orca-ER 16-bit cooled CCD camera, Perkin-Elmer liquid nitrogen cooled camera, and a Nikon Laser Scanning Spectral Confocal microscope.

The system also is equipped with a NIS-Elements software with Calcium & FRET plug-in. The system also is equipped with a Narishige micromanipulator system.

The charge for this instrument is $10/hr.
To book time on this system use the Calcium Imager SharePoint Calendar at
http://biosharepoint.hunter.cuny.edu/Bio-Imaging/Lists/Calcium%20Imager%20Calendar/calendar.aspx
Belfer Nikon Ti-S Fluorescence Microscope

The Belfer Nikon Ti-S Fluorescence Microscope is equipped with a SOLA Light Engine solid state light source and a Nikon DigiSight camera. It features 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 a stable ZEMAX design. It enables magnifications up to 100,000X. 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 color digital camera. The system utilizes Nikon Imaging Software. The charge for this instrument is $5/hr.
Imaris 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. To book time on this system use the Imaris SharePoint Calendar at http://biosharepoint.hunter.cuny.edu/Bio-Imaging/Lists/Imaris%20Calendar/calendar.aspx

NIS-Elements 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 these instruments is $5/hr. To book time on these systems use the Bioimaging SharePoint Calendar at:

http://biosharepoint.hunter.cuny.edu/Bio-Imaging/Lists/NIS%20Elements%20Calendar/calendar.aspx

Autoquant and NIS-Elements Imaging Analysis 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:

http://biosharepoint.hunter.cuny.edu/Bio-Imaging/Lists/AutoQuant%20NIS%20Elements%20Calenda...
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 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 both optical and radiographic materials. The Typhoon 9410 can 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 traditional methods of analyzing western blots, chemiluminescence, and fluorescence with a system that produces more qualitative and quantitative data. 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.

PowerWave HT Microplate Spectrophotometer

PowerWave HT is a multi-channel reader for maximum speed in both 96- and 384-well plate formats. The instrument has a built-in 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.
The max specimen size is 55 X 70 mm and can cool samples down to -50°C.

**Objectives of Microscopes in the Bio-imaging Facility**

- **Application Summary for Different Readers in Bio-Imaging Facility**
  - **Cell staining protocol**: a simple cell staining protocol is posted here as an example.
  - **PVX video conferencing for real-time consultation**: during imaging experiment, the PVX video conferencing system is used for real-time conversations between microscope operator and users remotely. The microscope system has a fast scanning speed, making it ideal for cellular dynamic studies.

**Remote Instrumentation**

- **Now a new service is ready for our remote users to get remote access to our advanced confocal microscopes for their own imaging purpose.**
- **Remote control of the microscope** for their experiment through a simple Internet connection.
- **Our approach for this remote instrumentation task is to combine the powers of WebEx and PVX.**

**Guidelines For using The Facility**

- **A. The facility is open for use by members of the CTBR, other CUNY departments, and University faculty.**
- **B. Your use of the facility will be recorded.**
- **C. The facility is available for use 7 X 24.**
- **D. After normal working hours (9-5 Mon-Fri), lock the facility.**
- **E. When using the Cryostat, you must obtain a “Gene Center” computer account. This is required to log on to the computers that control the equipment. Your use of the machine will then be automatically logged and you will be charged according to the fee schedule below.**
- **F. If you encounter problems with the facility, e-mail the facility director Lloyd Williams or his assistant Zhong Wang at facilities@genectr.hunter.cuny.edu.**
- **G. Equipment is available on a first come first serve basis. You can book 4 hours slots on the facility manager, or by experienced users in the various CTBR laboratories. For the three hours.**
- **H. Do not leave your samples in the facility or his assistant Zhong Wang at facilities@genectr.hunter.cuny.edu.**
- **I. Turn off all microscope lamps after use.**
- **J. When using the Cryostat, you must obtain a “Gene Center” computer account. This is required to log on to the machines. There is a $10 minimum charge, and fractions of an hour count as whole hours.**
- **K. Equipment is available on a first come first serve basis. You can book 4 hours slots on the facility manager, or by experienced users in the various CTBR laboratories.**
- **L. Your use of the facility will be recorded.**

**Remote Instrumentation Fee Schedule**

<table>
<thead>
<tr>
<th>Duration</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 4 hours</td>
<td>$10/hour</td>
</tr>
<tr>
<td>4 - 10 hours</td>
<td>$20/hour</td>
</tr>
<tr>
<td>10 - 24 hours</td>
<td>$40/hour</td>
</tr>
</tbody>
</table>

**Institution Programs**

- **A confirmation email will be sent before the experiment date. A WebEx meeting link will be shared with you.**
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**Equipment Specifications**

- **Belfer Bio Tek Synergy HTX Microplate Reader**
- **Gemini Spectrophotometer, Typhoon 9410 Imager**
- **All Other Nikon Upright & Inverted Microscopes**
- **Leica CM 3050S Cryostat**
- **Biotek PowerWave**
- **Volocity Analysis Workstation**
- **Imaris Analysis Workstation**
- **PE Spinning-disk**

**Wavelength Specifications for Various Instruments**

- **40x/0.6**
- **63x/1.4/oil**
- **488 nm**
- **561 nm**
- **640 nm**
- **635 nm**
- **514 nm**
- **476, 488, 514 nm**
- **458 nm**
- **514 nm**
- **HeNe Laser**
- **Argon Ion Laser**
- **Melles Griot Solid State Laser**

**Application**

- **ELISA Enzyme Kinetics**
- **Chemiluminescence Bioluminescent assay**
- **Direct DNA quantitation**
- **Purity testing**
- **Western blot sample**
- **In-cell Western Assay**
- **Reporter Gene Assays**
- **Proliferation, and Cytotoxicity Enzyme Assays**
- **Near-infrared detection 680-1000nm**
- **Fluorescence**
- **Absorbance**
- **Fluorescence**
- **Endpoint/Kinetics**
- **Near-infrared detection 680-1000nm**

**Contact emails:**

- **gams@genectr.hunter.cuny.edu**
- **http://biosharepoint.hunter.cuny.edu/Bio-Imaging/Lists/Leica%20CM3050S%20Cryostat/"