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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 images with incredible depth-of-field 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 DG5 laser. The system includes an Andor Mosaic/MicroPoint system for Optogenetics, Optophysiology, 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%20Ultra%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, 
... for 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 . . . 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.
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 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

The JEOL JEM-100CX II transmission electron microscope is an advanced high-performance electron microscope. It is equipped with a new CMOS detector for high-speed imaging and a 10M-pixel HAMAMATSU C4742-95 digital camera 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 and Adobe Photoshop for image acquisition and manipulation.

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:
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 an extensive range of chemiluminescence, autoradiography technology and direct imaging of chemiluminescence. The Typhoon 9410 can also be used to analyze microarrays. The charge for this instrument is $5/scan.
Belfer GE FLA 7000 Typhoon 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.
The Odyssey 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 PowerWave HT features powerful Gen5 PC-based software for system control and data analysis.
The charge for this instrument is $3/scan.
The Digital Bio-Imaging Facility is supported by a Research Centers in Minority Institutions Program grant from the National Institute on Minority Health and Health Disparities (MD007599) of the National Institutes of Health. This project was supported by a Research Centers in Minority Institutions Program grant from the National Institutes of Health.

Remote Instrumentation

Remote Instrumentation provides an opportunity for remote users to solve on-site experimental issues. Please check the following link for PVX Elements Analysis Workstation:

- **Purpose**: Remote Instrumentation analysis package. There is a $10 minimum charge, and fractions of an hour count as whole hours.
- **4 - 10 hours**: $10/hour
- **More than 10 hours**: $15/hour

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

1. **Utilize WebEx to setup remote desktop sharing for microscope control.**
2. **Training is required before using all machines.** This can be done by individually with the facility staff. For example, Monday 12-4pm, Tues 9-1pm. After Monday’s session, the user may schedule your reservation. You will need a “Gene Center” network account to access the site.
3. **Turn off all microscope lamps after use.** It is particularly important to turn off the mercury lamps. Once mercury lamps have been turned off do not turn them back on until they have been checked by a trained individual.
4. **When using the Cryostat, the facility charges $10 per hour for use.** There is a $10 minimum charge, and fractions of an hour count as whole hours.

**Remote Instrumentation Fee Schedule**

<table>
<thead>
<tr>
<th>Duration</th>
<th>Rate</th>
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<tbody>
<tr>
<td>4 - 10 hours</td>
<td>$10/hour</td>
</tr>
<tr>
<td>More than 10</td>
<td>$15/hour</td>
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</tbody>
</table>

**For long time duration experiment, we have a $20/hour charge.**

E. **When using the Cryostat**, there is a $10/hour minimum charge, and fractions of an hour count as whole hours. For long time duration experiment, we have a $20/hour charge.

**Remote Instrumentation Directions for Various Instruments**

**Biotek PowerWave**

- **Fluorescence Detection**
  - **Application**: Quantitative Phosphorimaging ECL Plus Westerns Multifluorescence applications (such as 2-D DIGE and ECL Plex)
  - **Excitation**: 300-650nm

**Glomax 96 Microplate Luminometer**

- **Detection Mode**: 405nm/532nm/633nm

**Plate/Gel/Blot**

- **Detection Mode**: 40x/0.6

**Protein Quantitation**

- **Detection Mode**: 40x/1.25/oil

**RNA quantitation**

- **Detection Mode**: 40x/1.0/oil

**Elements Analysis Workstation**

- **Detection Mode**: 635 nm

For any additional questions or concerns, please contact Zhong Wang, Biology Department, or the Bio-Imaging Facility (Zhong Wang: 212-854-8699).