Managing Director
Dr. Lloyd Williams
Email: williams@genectr.hunter.cuny.edu
Office: 826B in the Hunter North Building
Phone: (212) 650 3872
Fax: (212) 650 3565
**Scientific Director**  
Prof. Diana Bratu, Associate Professor  
Email: bratu@genectr.hunter.cuny.edu  
Office: 914D in the Hunter North Building  
Phone: (212) 772 5235  
Fax: (212) 772 5227

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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 large fields of view with high resolution 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 DG550 laser. It is equipped with 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%20Ultira%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, FITC, Cy5, and Cy3. It is ideal 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 10-2 laser scanning system, a Coherent Chameleon Ti:Sapphire laser for excitation at 800 nm, a Spectra-Physics 491 argon laser for excitation at 488 nm, a Spectra-Physics Krypton-argon laser for excitation at 568 nm, and Nis-Elements 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

JEOL JEM-100CX II transmission electron microscope is an advanced high-performance electron microscope. It is capable of imaging samples up to 90,000X. 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 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.
**Bio-Imaging Facility - Biology**

Last Updated Thursday, 20 September 2018 14:30

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**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

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**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

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**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%20PC%20NIS-Elements%20Calendar/calendar.aspx

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6 / 9
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, dual emission, 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 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 traditional methods of analyzing western blots, chemiluminescence, and fluorescence detection. It is an imaging system equipped with two infrared channels (700 nm and 800 nm), enabling the probing of 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. This instrument is used for 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 Bio-Imaging Facility is a state-of-the-art facility for biological imaging research. It is open for use by members of the CTBR, other CUNY departments, and institutions. A short description of your experiment, time schedule, sample type, etc. is required for scheduling. Remote instrumentation service is available for use by remote users through the Internet.

Remote Instrumentation

Now a new service is ready for our remote users to get remote access to our advanced systems through the Internet (also called remote instrumentation): remote users can get the service if they have ever had the service before. The approach for this remote instrumentation task is to combine the powers of WebEx and PVX:

1. PVX video conferencing for real-time consultation: during imaging experiment, PVX is used for real-time conversations between microscope operator and administered staff.
2. Microscope remote control: Webex is used to setup the remote desktop sharing for microscope control. Please check the following link for WebEx-based remote control guide.
3. Perkin Elmer spinning disk microscope: besides the regular 2D & 3D fixed slide scanning, this microscope system has fast scanning speed, it is ideal for cellular dynamic studies. Please check the following link for more information.
4. Confocal microscopes: they are ideal for imaging live cells and high-resolution imaging. In addition, this type of microscopes is also equipped with an environment chamber for live cell imaging. Also, this type of microscopes using the facility's SharePoint Site:

Remote Instrumentation Policy

Remote users will be charged $3/scan. Use of the Belfer Bio Tek Synergy HTX Microplate Reader is also charged $3/scan. The facility charges $20 per hour for use of this microscope. There is a $20 minimum charge, and fractions of an hour count as whole hours. Email Zhong Wang (zwang@genectr.hunter.cuny.edu) in advance for applying this policy.

10 - 24 hours $5/hour
4 - 10 hours $10/hour
1 - 4 hours $15/hour

24 hours + $30/hour

Special rate policy is given to Remote Instrumentation users who own their own high-end or medium-end confocal microscopes using the facility's SharePoint Site:

A. The facility is open for use by members of the CTBR, other CUNY departments, and institutions Program grant from the National Institute on Minority Health and Health Disparities (MD007599) of the National Institutes of Health.
B. Your use of the facility will be recorded. For the optical microscopes and the Gel and Blot scanners, you must obtain a "Gene Center" computer account. This is required to log on to the computer system.
C. Users may have no more than 2 reservations made on a calendar at one time for any single microscope.
D. The charge for this instrument is $3/scan.
E. When using the Cryostat, you must complete the training course your account will be activated for the microscope.
F. Publications using data taken in this facility must acknowledge the RCMI program and the facility.
G. Do not wear latex gloves in the facility.
H. Do not leave your samples in the facility.
I. All users must sign the logbook.
J. Users of Nikon Microscopes must request an account with the CTBR's IT department before using the Nikon microscopes.
K. LEGO CM 3050S Cryostat
L. Users may have no more than 2 reservations made on a calendar at one time for any single microscope.
M. Clean oil off the microscope objective lenses after use.