



FIGHTING
INFECTIOUS
DISEASES
FOR
SEVEN
DECADES



THE PUBLIC HEALTH RESEARCH INSTITUTE
at the International Center of Public Health
New Jersey Medical School
Rutgers, The State University of New Jersey

PHRI Analytical Imaging Facility Equipment and their Specifications

Equipment	Service	For more information (see page below)
- Nikon A1Rsi	<i>Confocal imaging system</i>	page 2
- Zeiss Axio Observer Z1	<i>Live cell imaging system</i> <i>Confocal imaging (Limited)</i> <i>Fluorescence imaging</i> <i>Microinjection systems</i>	page 3
- Zeiss Axiovert 123M	<i>Fluorescence microscope</i>	page 4
- Bio-Rad Confocal	<i>Confocal imaging system</i>	page 5
- Nikon Diaphot	<i>Microinjection systems</i>	page 6
- Nikon Diaphot, (BSL2)	<i>Microinjection systems</i>	page 7
- (2) Low resolution microscope/camera	<i>Light microscopy</i> <i>Low Magnification</i>	N/A
- Electron Microscopy Services (SEM/TEM)	<i>Rates upon request</i>	page 8
- MALDI-MSI Imaging System	<i>MALDI-MSI system</i>	page 9
- Caliper IVIS Spectrum, (Non-Invasive)	<i>Animal imaging system</i>	page 10
- Imaging Analysis Work Stations (Nikon, Zeiss, Image 6)	<i>Image analysis</i>	page 11

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Nikon A1Rsi

Microscope: Nikon Ti A1 confocal microscope with spectrum detection system; Inverted microscope with fully motorized, soon to have incubation and microinjection system for studies of BSL2 pathogens.



Objectives:

10XNA=0.45 Air
20XNA=0.75 Air
40XNA=1.30 Oil
63XNA=1.40 Oil

Filters	All. Fully DIC. Spectrum detection system; unmixing resident scanner, Fast scanning.
Image detection	NIS elements
Lasers	405, 480, 561, 638
X-Y stage	motorized

Additional features Z-stacking, time lapse, multiple stage positions, anti-vibration table, and DIC with full range of objectives. Soon to include Incubations system with CO₂ control, and Microinjection and micromanipulators (Eppendorf and Molecular Device systems, upon request).



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Zeiss Axio Observer Z1

Microscope: Observer Z1 fully motorized, incubation and microinjection system

For studies of BSL2 pathogens and in the near future also for BSL3 pathogens

Objectives:

10XNA=0.3 Air
20XNA=0.5 Air
20XNA=0.75 Oil
40XNA=0.75 Air
40XNA=1.3 Air
63XNA=1.4 Oil



Filters	DAPI, FITC, Cy3, Cy5 and Cy7
Image detection	Zeiss AxioCam MRm Camera
Software	Zen (Zeiss)
X-Y stage	Motorized

Additional features DIC, Z-stacking, time lapse, multiple stage position, tiles software, autofocus, Incubation system: CO₂ / O₂ control, dual chamber for better temperature and humidity control; anti-vibration table, Tiles program, multiple sites of analysis, and microinjection capabilities (Eppendorf system)



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Zeiss Axiovert 123M

Microscope: Observer semi motorized, Z planes motorized, and high resolution camera

Only for use in BSL2 spaces

Objectives:

10XNA=0.3 Air
20XNA=0.5 Air
40XNA=0.75 Air
40XNA=1.3 Air
63XNA=1.4 Oil
100XNA=1.4 Oil



Filters	DAPI, FITC, Cy3, Cy5 (upon request) and Cy7 (upon request)
Image detection	Cooled Q-imaging Retiga SRV camera
Software	Volocity
X-Y stage	Manual

Additional features Z-stacking, and high resolution camera



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Bio-Rad confocal microscope

Nikon iS confocal microscope
Inverted Microscope and Fluorescent Microscope:



Objectives:

4XNA= 0.3 air
10XNA=0.3 Air
20XNA=0.5 Air
40XNA=0.75 Air 40XNA=1.3 Air
63XNA=1.4 Oil
100XNA=1.5 Oil

Filters DAPI, FITC, Cy3, Cy5 (upon request) and Cy7
(upon request). Fully DIC.

Image detection Biorad/Zeiss software

Lasers Three lasers. Green, red and far red

X-Y stage motorized

Additional features Microinjection and micromanipulators (Eppendorf and
Molecular Device systems, upon request). DIC full range of
objectives. Color Cameras for Tissue Section imaging.



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Nikon Diaphot

Microscope: Manual Nikon microscope for microinjection and single cell electroporation

Objectives:

10XNA=0.3 Air
20XNA=0.5 Air
40XNA=0.75 Air
40XNA=1.3 Air
63XNA=1.4 Oil



Filters	DAPI, FITC, Cy3, Cy5 (upon request) and Cy7 (upon request)
Image detection	Nikon DXM 1200
Software	NIS Elements
X-Y stage	Manual
Additional features	Microinjection and micromanipulators (Eppendorf and Device systems)



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Nikon Diaphot for BSL2 studies (In the HIV laboratory)

Microscope: Manual Nikon microscope for microinjection and single cell electroporation

Objectives:

10XNA=0.3 Air
20XNA=0.5 Air
40XNA=0.75 Air
40XNA=1.3 Air
63XNA=1.4 Oil



Filters	DAPI, FITC, Cy3, Cy5 (upon request) and Cy7 (upon request)
Image detection	Nikon DXM 1200
Software	NIS Elements
X-Y stage	Manual
Additional features	Microinjection and micromanipulators (Eppendorf and Molecular Device systems, upon request)



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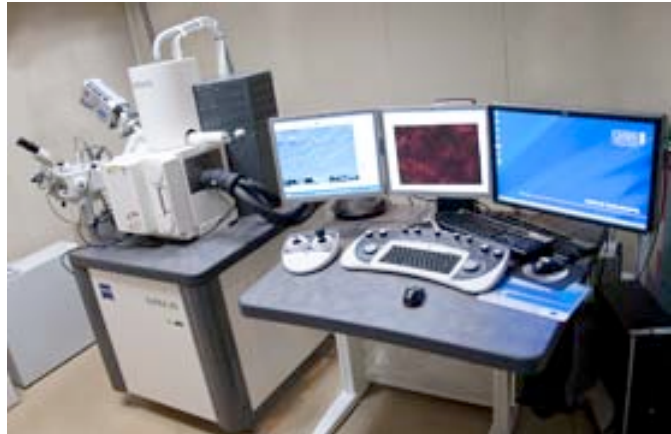


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Electron microscopy (SEM and TEM) in collaboration with Albert Einstein College of Medicine

Featuring:

- Operating voltage range from 0.02- 30kV.
- High brightness field-emission gun.
- Windows based Smart SEM control Software.
- Everhart Thornley and in-lens secondary electron detectors.
- Backscatter and STEM detectors.
- ATLAS- large area mapping.
- Shuttle & Find for correlative fluorescence and SEM
- Gatan Alto 2500 cryotransfer system
- Oxford INCA energy dispersive x-ray microanalysis



Featuring:

- 100 kV transmission electron microscope
- Side entry goniometer stage
- High image contrast

Additional information obtained from the Albert Einstein College of Medicine



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MALDI-MSI Imaging System

Imaging system: Fully automatic MALDI-MSI system to analyze distribution of lipids/protein/drugs in tissue sections and cell culture. This system allows analysis of BSL2 and BSL3 pathogens.

Equipment: Thermo Scientific MALDI LTQ Orbitrap and Sunchrom Suncollect-Automated matrix application device for MALDI imaging.



Services provided:

- Localization of molecules in tissue and cell cultures by Matrix-Assisted Laser Desorption
- Ionization Mass Spectrometry Imaging (MALDI-MSI)
- Quantitation of pharmaceutical compounds by HPLC
- Analysis of drug biodistribution and pharmacokinetics of drugs, peptides and small molecules
- Sample pre-processing (tissue sectioning, desiccation, matrix application)
- Identification of molecules in biological tissues (tandem MS, high mass accuracy and resolution analysis)
- Software support and advanced data processing



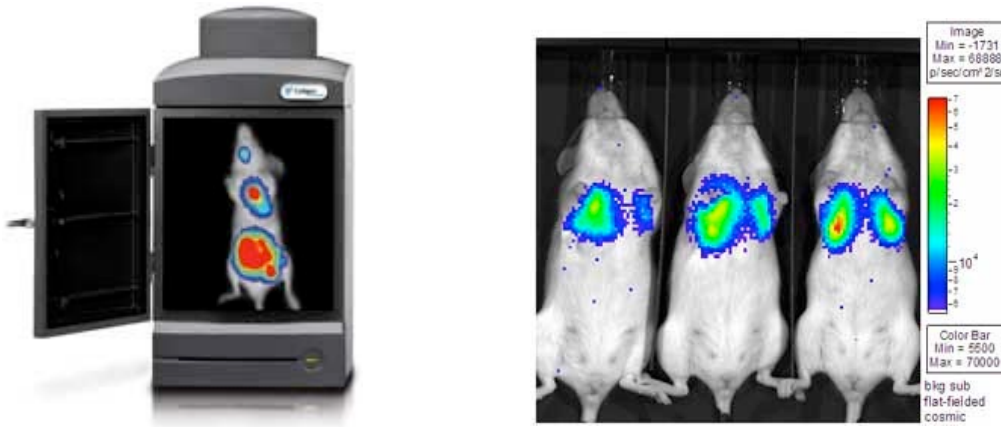
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Caliper IVIS Spectrum

Non invasive animal imager: Xenogen optical imaging technology to facilitate non-invasive longitudinal monitoring of disease progression, cell trafficking and gene expression patterns in living animals



Caliper IVIS® Spectrum

-Dyes Available upon Request



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Imaging work stations for analysis

Work station for Image Analysis:

- 2 complete work stations
- Nikon software (NIS elements, basic and advance research)
- Zeiss software (Axiovision and ZEN)
- Perkin Elmer (Volocity and Volocity 3D)
- Image G (NIH free software)

