

Shared Duke Comprehensive Cancer Center resources



MARCH 2009

The Duke Comprehensive Cancer Center supports 17 shared resources. These resources and four additional campus resources benefit researchers by providing high-tech instruments or specialized staff members to conduct quality research effectively. Products and services range from bio-

statisticians who may help design the studies and interpret the results to state-of-the-art machines to a frozen tumor bank. Many of these products or services would be cost prohibitive for one researcher or for a department, but as a shared resource, they are affordable.

For more information about these shared resources or to receive this monthly newsletter via email, visit

cancer.duke.edu/sharedresources

The Light Microscopy Shared Resource offers a wide range of confocal and fluorescence microscopes and image analysis resources to all members of the University and the Medical Center. Located in the Levine Science Research Center and the French Family Science Center, this centrally funded shared resource offers affordable and efficient access to standard and advanced imaging instrumentation for users of all levels of experience and from any discipline. Dedicated staff provide training and full technical support for all the instruments. Trained users can access the equipment 24 hours a day. [The Light Microscopy Shared Resource](#) is funded by the Cancer Center, the Duke University School of Medicine, and the Duke University Office of the Provost.

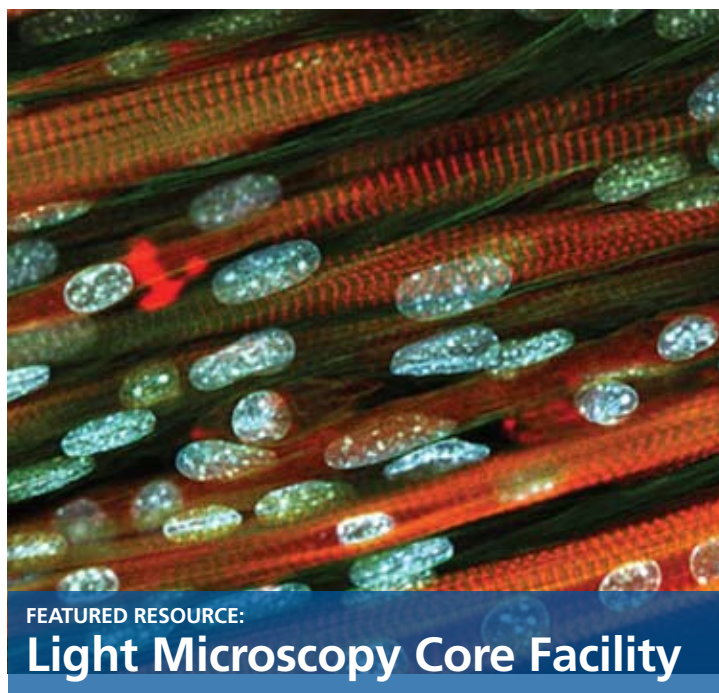
Leadership:

Daniel Lew, PhD
Sam Johnson, PhD

For more information including training requests, fees and online booking, visit microscopy.duke.edu

CAPABILITIES

- Fluorescence imaging of a huge range of samples – macroscopic to single molecule, virtually all wavelengths available (UV to NIR)
- Transmitted light imaging - DIC, phase contrast, brightfield, color
- Live-cell imaging – incubators for mammalian cells
- Time lapse, including multiposition time lapse
- FRAP, FLIP, Photoactivation/conversion



FEATURED RESOURCE:

Light Microscopy Core Facility

Skeletal C2C12 myoblasts differentiated to form myotubes. I-Chien Liao and Kam Leong, PhD

- FRET
- Deconvolution
- Image analysis and quantification

EQUIPMENT

The facility has microscopes of various configurations and modalities allowing users to image a large range of samples on microscopes optimal for the needs of the sample being imaged.

Confocals

- Multi-channel imaging of

- diverse samples
- Excellent optical sectioning
- Inverted and upright confocal microscopes
- Large variety of laser lines
- Variety of objectives – 2.5x to 100x; dry, water and oil
- Spectral imaging

Spinning disk confocal

- Green/red/far-red
- 4D acquisition

Fluorescence Microscopes

- Versatile widefield systems for

fluorescence and transmitted light imaging

- Filter sets for wide variety of fluorophores
- Brightfield, phase contrast, DIC and color transmitted images
- 5x dry to 100x oil objectives

Stereoscope

- Red/green fluorescence
- Transmitted and reflected light images
- Time lapse and z-stack

Live Cell Systems

Systems with environmental chambers for temperature and CO2 regulation

Fluorescence microscope

- Range of objective with DIC optics
- Filter sets for all fluorescent proteins
- EMCCD (high sensitivity) and high resolution CCD cameras
- Scanning stage - multiposition time lapse

Leica SP5 confocal

- Resonant scanner (faster and less damaging)
- Sensitive spectral detectors (3 channels)
- FRAP/photoactivation

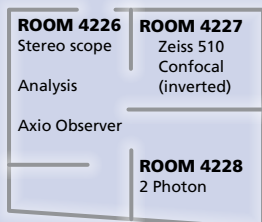
TIRF

- Image thin section close to the coverslip
- EMCCD camera
- 4 Channels

Analysis workstations

- Dedicated fast computer workstations for analysis and processing of data (eg object intensity, size, number, tracking, 3D measurements and rendering)
- Software available - MetaMorph, Huygens SVI deconvolution, Volocity 3D visualization and quantitation, Huygens Visualization and analysis, Zeiss and Leica confocal software

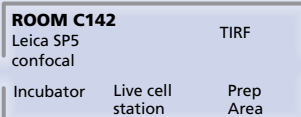
French Family Science Center



ROOM 4215
Sam Johnson's
office

ROOM 4323
Zeiss 510
Confocal
(upright)

Levine Science Research Center (LSRC)



ROOM C138
Yasheng Gao's
office

ROOM C268
Spinning disk
(Microinjection)

**ROOM
C171**
Axio
imager

cancer center resources

BIOINFORMATICS

Offers collaboration with investigators on projects using genomic data: including transcriptome (microarray, SAGE) data, proteomic data, and sequence data.

Contact: William Barry, PhD
919-681-5047
bill.barry@duke.edu

Location: Hock Plaza, 8th Floor

BIOSTATISTICS

Offers consultation and collaboration in the area of biostatistics including short and long-range collaboration on statistical design, conduct, and analysis of cancer research projects.

Contact: Bercedis Peterson, PhD
919-681-5418
bercedis.peterson@duke.edu

Location: Hock Plaza, 8th Floor

CLINICAL BIOLOGICS MANUFACTURING AND CELL CULTURE

Provides manufacturing of biologics for clinical use and also processes fresh tumor specimens from patients for the isolation of specific cell populations for laboratory research.

Contact: Tim Clay, PhD
919-684-0350
tim.clay@duke.edu

Location: Medical Sciences Research Building (MSRB) 201A and MSRB 201B

Web site: cancer.duke.edu/ccf/

CLINICAL TRIALS

Oversees Protocol Administration, Clinical Trials Quality Assurance (Monitoring Team and Safety Desk), and Clinical Trials Operations.

Contact: Jo Ann Proper
Administrative Director
919-681-3072
joann.proper@duke.edu

Location: Administration Office, Hock Plaza, 7th Floor

Web site: cancer.duke.edu/SBR

DNA ANALYSIS/AUTOMATED SEQUENCING AND PHOSPHORIMAGING

Offers an integrated set of DNA analysis services including gene structure and expression studies, DNA sequencing assays, mutation and SNP discovery or screening techniques, and genotyping assays.

Contact: Scott Langdon, PhD
919-668-5128
langd002@mc.duke.edu

Location: DNA Analysis Facility - Jones Cancer Research Building Phosphorimager Facility - 333 Jones DNA Sequencing Facility - 135 Jones

Web site: cancer.duke.edu/dna/

DNA MICROARRAY

Provides access to various platforms for gene expression analysis, such as Affymetrix GeneChip arrays, custom spotted microarrays, microRNA arrays, and RT-PCR. Experimental design consultation, data management and analysis support and tools are provided.

Contact: Holly K. Dressman, PhD
919-668-1583
dress002@mc.duke.edu or
microarray@duke.edu

Location: CIEMAS Building, Room 2208B

Web site: genome.duke.edu/cores/microarray/

FLOW CYTOMETRY

Operates, maintains, and upgrades instrumentation for flow cytometric analysis and cell sorting.

Contact: Michael Cook, PhD
919-613-7818
cook0016@mc.duke.edu

Location: Edwin Jones Cancer Research Building, Rooms 306 - 307, 336

Levine Sciences Research Center, Room C313

Web site: cancer.duke.edu/flow

HIGH RESOLUTION NMR SPECTROSCOPY/X-RAY CRYSTALLOGRAPHY

Offers state-of-the-art instrumentation and methods including two fully equipped X-ray crystallography systems with R-Axis IV and R-Axis II area detectors, focusing mirrors, and liquid nitrogen cooling systems.

Contacts: Len Spicer, PhD
919-684-4327
spicer@biochem.duke.edu

Lorena Beese, PhD

919-681-5267
lsb@biochem.duke.edu

Location: Levine Science Research Center, Ground Floor

Web sites:

Duke NMR Center website:
nmrcenter.mc.duke.edu/
X-Ray Crystallography website:
biochem.duke.edu/crystallography/main.html

IMMUNOINCOMPETENT RODENT AND BIOHAZARD FACILITY

Houses biohazardous agents such as chemical carcinogens, human tumors propagated in immunoincompetent animals, radionuclides, and hazardous infectious agents such as HIV and the related HTLV viruses.

Contact: John Norton, DVM, PhD
919-684-4204
john.norton@duke.edu

Location: Cancer Center Isolation Facility

INFORMATION SYSTEMS

Provides computer systems, applications, and desktop support and provides a validated platform on which to conduct clinical research, ensures secure and accurate databases for analysis.

Contact: Robert P. Annechiarico
919-668-5188
bob.annechiarico@duke.edu

Location: Hock Plaza, 7th Floor

Web site: ccis.mc.duke.edu/

LIGHT MICROSCOPY

Offers a wide range of confocal and conventional fluorescence microscopes and image analysis resources.

Contact: Sam Johnson, PhD
919-613-8216
sam.johnson@duke.edu

Location: French Family Science Center and LSRC

Web site: microscopy.duke.edu

OPTICAL MOLECULAR IMAGING AND ANALYSIS

In vivo optical imaging (luciferase, GFP, RFP) and spectroscopy of cancer in animal models.

Contact: Greg Palmer, PhD
919-684-3907
greg.palmer@duke.edu

Location: Medical Sciences Research Building, Room 252
Immunoincompetent Rodent Biohazard Facility, Room X183

PHARMACEUTICAL RESEARCH

Maintains drug accountability records and investigational drug inventories according to FDA and CTEP guidelines. Conducts analysis of drugs, metabolites and biomolecules in bodily fluids and tissues. Provides pharmacokinetic/pharmacodynamic modeling and clinical research design consultation and education.

Contact: Ashley Morris, PharmD
919-668-1018
morri054@mc.duke.edu

Francis Ali-Osman, DSc

919-684-8756
Francis.aliosman@duke.edu

Location: Duke South, Room 5320

PROTEOMICS

Provides the wide scope of proteins analysis methods and sufficient capacity for clinical biomarker discovery and biomarker verification studies.

Contact: Arthur Moseley, PhD
919-684-4456

arthur.moseley@duke.edu

Location: Levine Sciences Research Center

Web site: proteomics.mc.duke.edu/

RADIOCHEMISTRY

Provides expertise and facilities for the radiolabeling and quality control of molecules of potential interest for molecular imaging in animal models of human cancer as well as cancer radio-diagnosis and targeted radiotherapy.

Contact: Michael Zalutsky, PhD
919-684-7708
zalut001@mc.duke.edu

Location: Cancer Center Isolation Facility, Room 126

TISSUE AND BLOOD PROCUREMENT

Focuses on the demands of contemporary investigators on tissue procurement.

Contacts: Alan Proia, MD
919-684-2482
proia001@mc.duke.edu

Rajesh Dash, MD
919-668-3352
r.dash@duke.edu

Location: Duke Hospital South

TRANSGENIC AND KNOCK OUT MOUSE

Provides services for the production of genetically altered mice.

Contact: Cheryl Bock
919-684-3197
cbock@duke.edu

Location: GSRBI, Third Floor, Rooms 3022 and 3038

Web Site: cancer.duke.edu/tmf/

additional campus resources

CAMPUS IRRADIATION FACILITY

Includes a Cesium irradiator and two orthovoltage irradiators. These are suitable for irradiating anything from cells to whole animals or partial body irradiation. One irradiator is located behind a barrier in GSRB2.

Contact: Linda Rogers
919-684-4180
linda.rogers@duke.edu

Location: Sands Research Building & GSRBII

CENTER FOR IN VIVO MICROSCOPY

Develops medical technologies with applications for small animal imaging at microscopic resolution.

Contact: G. Allan Johnson, PhD
919-684-7755
gaj@orion.duhs.duke.edu

Location: Bryan Research Building, 1st Floor

Web site: civm.duhs.duke.edu/

HUMAN VACCINE INSTITUTE FLOW CYTOMETRY

Serves the analytical and cell sorting needs of the HVI as well as support for researchers throughout the Duke Community.

Contact: John Whitesides, PhD
919-684-4895
jwhtsds@duke.edu

Location: Medical Sciences Research Building II

Web site: humanvaccine.duke.edu/modules/core/index.php?id=1

SHARED MATERIALS INSTRUMENTATION FACILITY

Provide researchers with high quality and cost-effective access to advanced materials characterization and fabrication capabilities.

Contact: Mark Walters, PhD
919-660-5486
mark.walters@duke.edu

Location: Fitzpatrick Center, First Floor

Web site: smif.lab.duke.edu/