

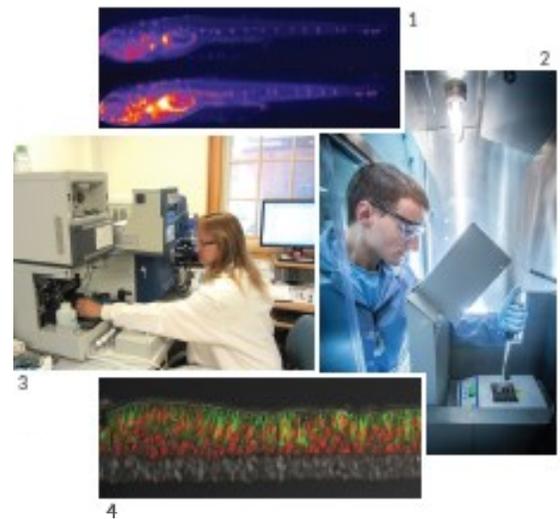
Biomedical Core Facilities at UNC

February
2019

Access State-of-the-Art Technologies and Expertise

UNC offers more than 40 core facilities, available to both internal and external users. These facilities are a significant resource for faculty research and student training and offer a wide range of services, high-end instrumentation, and technical support.

The broad array of equipment and technical expertise supports basic and translational R&D at UNC-Chapel Hill and in the wider research community. Academic, government and industry partners are welcome to take advantage of the robust research infrastructure offered through the UNC Research Core Facilities.



For more information on the UNC biomedical cores and to access the searchable core database including available equipment listings, please visit the core facilities website: www.med.unc.edu/corefacilities.

UNC Cores are independently managed and run; please feel free to reach out to each core to discuss your project with them directly.

We look forward to partnering with you!

1.Zebrafish Aquaculture Facility / 2. BRIC Radiochemistry core/ 3. Biomarker Mass Spectrometry Facility/
4. Airway epithelia (Dr. Alessandra Livraghi) image from the MH Microscopy Facility



UNC Animal Models Cores provide numerous state-of-the-art approaches to utilize small animals as models for human disease.

Collectively, these cores (a) assist investigators with the design, generation and genotyping of new genetically modified stem cell/small animal models (b) provide advice, assistance, and services for high-quality functional phenotyping of mice and rats (c) perform sophisticated non-invasive imaging (echocardiography, laser doppler Imaging, MRI, PET, CT) and (d) provide histological services to evaluate disease-related changes at the cellular level.

Animal Models Core

www.med.unc.edu/amc/

Mouse and rat genetic modification services, reagents and related technologies

Animal Studies Core

www.unclineberger.org/research/core-facilities/animal-studies

Central facility staffed by skilled technicians to promote reproducible experimentation in lab animals

Animal Metabolism Phenotyping Core

www.sph.unc.edu/norc/animal/

Technical support and expertise for measuring traits related to metabolism in mouse models of obesity and nutritionally relevant disease

Animal Surgery Core Lab

www.med.unc.edu/mhi/adv surgmodels

Established and experiment-specific animal surgical/microsurgical models for research applications

Animal Histopathology and Lab Medicine Core

www.med.unc.edu/animalpathlab

Full range of seamless services for animal pathology needs, from tissues to biologic fluids

Histology Research Core Facility

www.med.unc.edu/cellbiophysio/research-facilities/histology-facility

Expertise and consultation on histological and immunohistochemical methods.

Human Pluripotent Stem Cell Core

www.med.unc.edu/humanstemcellcore

Assistance with basic and translational research using human embryonic stem cells and human induced pluripotent stem cells.

Mouse Behavioral Phenotyping Core

www.cidd.unc.edu/Research/default.aspx?id=25#mouse

Behavioral tasks for studies in genetic, environmental, and pharmacological models of human disorders, and preclinical efficacy testing of novel therapeutic agents.

Mutant Mouse Resource and Research Center

www.med.unc.edu/mmrrc/

Distribution and cryopreservation of genetically engineered mouse strains and mouse ES cell lines

UNC Systems Genetics Core

www.csbio.unc.edu/CCstatus/index.py

Distribution of Collaborative Cross mice

Zebrafish Aquaculture Facility

www.zebrafish.web.unc.edu/

Zebrafish husbandry and training services

Biomedical Research Imaging Center (BRIC)

Biomedical Research Imaging Center:

Human Imaging

www.med.unc.edu/bric/human-imaging

Research imaging services utilizing 3T Magnetic Resonance (MR) and 3T MR/PET whole body scanners

Small Animal Imaging

www.med.unc.edu/bric/small-animal-imaging/

Complete animal imaging facility including MRI and MR/PET

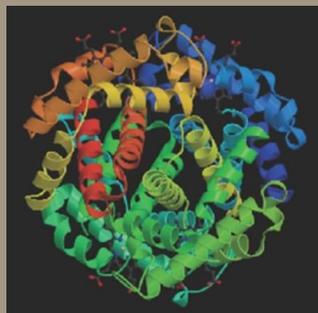
Radiochemistry

www.med.unc.edu/bric/radiochemistry/

Radiopharmaceutical development and production for molecular imaging studies



UNC Biochemistry Cores offer state-of-the-art resources for biophysical studies of nanomaterials, metabolites, and biological macromolecules. Approaches include mass spectrometry, NMR spectrometry, X-ray crystallography, and structural bioinformatics.



Advanced Analytics Core

www.med.unc.edu/cgibd/cores/advanced-analytics

High-quality, quantitative solutions for studying proteins and nucleic acids

Biomarker Mass Spectrometry Core

sph.unc.edu/cehs/facility-cores/bms-sub-core/

Qualitative and quantitative assessment of biomarkers using liquid chromatography and mass spectrometry

Biomolecular NMR Lab

www.med.unc.edu/csb/nmr Spectrometer use and training; Protein structure and dynamics; fragment-based drug discovery

CRITCL: Mass Spectrometry Facility

chem.unc.edu/critcl-mass-main/ Specializing in small molecule analysis

CRITCL: NMR Facility

chem.unc.edu/critcl-nmr/

Training and access to facility spectrometers

High Throughput Peptide Synthesis and Array Facility

www.med.unc.edu/csb/unc-peptides

Custom synthesis and purification of high-quality peptides including peptidomimetics

Macromolecular X-Ray Crystallography & Protein Expression Facility

www.med.unc.edu/csb/mx

Crystallization and diffraction services and training;

Macromolecular Interactions Facility www.med.unc.edu/csb/macinfac

Instrumentation and resources for biophysical quantification of biological macromolecules and complexes

Michael Hooker Proteomics Center

www.med.unc.edu/proteomics/

Analysis of proteins from cells and tissues using mass spectrometry

Nanomedicines Characterization Core Facility

ncore.web.unc.edu/

Physicochemical quantification of nanomaterials including nanoparticles, nanogels, and drug conjugates

Pharmacy NMR Facility

pharmacy.unc.edu/nmr-facility/

Small molecules and natural products studied using NMR; protein structure and dynamics

R.L. Juliano Structural Bioinformatics Core

www.med.unc.edu/csb/sbi

Consultations and collaborations on projects using computational structural biology methods

UNC Genomics Cores provide a full spectrum of genomics based services. From multiple high throughput sequencing systems and real time PCR and in situ hybridization support, to genotyping, microbiome analysis, stem cell services, and RNAi screening, UNC has highly skilled core facilities that can meet most needs

Functional Genomics

www.med.unc.edu/functionalgenomics/

Expression profiling and SNP genotyping (Affymetrix) services

High Throughput Genomics Sequencing Facility

www.med.unc.edu/genomics

Full-service sequencing facility offering multiple platforms

Mammalian Genotyping Core

mgc.unc.edu/

Cost-efficient, high quality genotyping and methylation services

UNC Microbiome Core Facility

www.med.unc.edu/microbiome/

Characterization of complex microbial communities

Vector Core

www.med.unc.edu/genetherapy/vectorcore

[vectorcore](http://www.med.unc.edu/genetherapy/vectorcore)

Full-service research grade viral vector production

Vironomics Core

www.med.unc.edu/vironomics

Real-time qPCR arrays for viruses and miRNAs profiling

UNC Clinical/Translational Cores offer numerous resources to investigators working specifically on correlative sciences as part of a clinical or translational program or on evaluations that focus on the use of human tissues. These include the NC TraCS CTRC program that provides critical infrastructure to a large number of clinical and translational efforts at UNC, and cores with a significant focus on the collection and analysis of human cells, serum and tissues.



Biobehavioral Lab

www.bbl.unc.edu/

Non-invasive monitoring and portable instrumentation; enzyme immunoassay analysis of salivary biomarkers

Biospecimen Processing Facility

bsp.web.unc.edu/

Centralized, quality controlled and assured facility for the processing, storage and disbursement of human specimens

Clinical and Translational Research Center (CTRC)

tracs.unc.edu/index.php/services/ctrc

Inpatient and outpatient examination rooms, nursing and certified phlebotomy staff, specimen processing, short term storage facilities

Cytokine and Biomarker Core Facility

barrow.web.unc.edu/

Measurement of biomarkers (cytokines and other proteins) using specialized immunochemistry techniques

CGBID Histology Core

www.med.unc.edu/cgibd/cores/histology

Full range of histology services

NORC Diet and Physical Activity Core

sph.unc.edu/norc/dpac/

Diet data collection and analysis and physical activity data collection and analysis

Organ Injury Biomarker Core

hammerbiomarkercore.web.unc.edu/

Study design, quantification, and interpretation of biomarkers of organ injury with a primary focus on the liver, kidney and heart

Tissue Procurement Facility

<http://unclineberger.org/research/core-facilities/tissue-procurement>

Centralized, quality-controlled, quality-assured facility for procurement, processing, storage, and distribution of normal and malignant human specimens

Translational Pathology Laboratory

www.med.unc.edu/pathology/tpl/

Human tissues from UNC Hospitals surgical pathology archive, histopathology services, digital image analysis technologies

UNC Imaging Cores provide access and training to a range of methodologies, from light and electron microscopy to flow cytometry to image analysis techniques. These methods can be used on specimens ranging from molecules to cells to whole animals including humans.

Chapel Hill Analytical and Nanofabrication Lab (CHANL)

www.chanl.unc.edu/

Analytical and nanofabrication instrumentation including AFM

Flow Cytometry Core Facility

flowcytometry.med.unc.edu/

Analysis instrumentation and cell sorting services

Neuroscience Center Microscopy Core

www.med.unc.edu/neuroscience/core-facilities/confocal-and-multiphoton-imaging

Full spectrum of advanced systems for cellular and molecular imaging of in vitro and in vivo samples

Hooker Imaging Core

www.med.unc.edu/cellbiophysio/research-facilities/hic

Microscopy systems including super-resolution confocal, widefield, live-cell, and high-throughput

Microscopy Services Laboratory

www.med.unc.edu/microscopy/

Electron and light microscopy including confocal, widefield, light sheet, and image analysis

