



**UNC SCHOOL OF MEDICINE
CORE FACILITIES**

ANNUAL REPORT

Prepared By :

UNC School of Medicine
Office of Research Technologies



Welcome

We are proud to share the FY25 report on the activities of the UNC-Chapel Hill School of Medicine (SOM) Office of Research Technologies (ORT). Our commitment to the shared research resources (core labs) in the SOM can be described with three words - **Support, Advocate, and Educate**. ORT supports all aspects of core lab operations, advocates for resources and continuous improvement for all core labs, and educates core scientists and customers on policy, process, and performance. Through the efforts of the Core Facility Advocacy Committee (CFAC), we provide funding for new method development, equipment purchases, emergency repairs, continuing education, conference attendance, and recognition of outstanding performance by core staff.

In this report, you will appreciate the tremendous role that UNC SOM core labs played in the research enterprise during FY25. By providing technical knowledge, staff expertise, and access to specialized equipment, the core labs in the UNC SOM are indispensable for our researchers.

Christopher W. Gregory



Dr. Christopher Gregory, PhD

Director, Office of Research Technologies
Professor and Senior Associate Chair
Department of Genetics



Kara Clissold

Associate Director, Office of Research
Technologies

Who We Are

Office of Research Technologies

The Office of Research Technologies (ORT) is based in the **School of Medicine (SOM) Office of Research** and staffed by Dr. Christopher W. Gregory (Director) and Kara Clissold (Associate Director). During FY25 we provided:

Operational Support

- Support core directors in **navigating** UNC compliance and administration **systems** for rate setting, industry contracting, vendor relations, and more
- Support **core improvement opportunities** including customer surveys, website development, and more

Advocacy and Education

- Provides access to **continuing education** for core directors through an institutional license to the Association of Biomedical Resource Facilities and internal core director meetings
- **Represent** the core facility infrastructure at research events
- Host events to **elevate** core technologies across campus

Funding

- **Funding for core facilities** through RFAs for equipment and method development as well as 24/7 emergency funds
- **Funding for PIs** through a core voucher program
- **Funding for core staff** through travel awards and staff recognition awards
- **Funding for new technology** through matching funds for grants to place instrumentation in core facilities

Strategic Support

- **Negotiate** purchases for instrumentation housed within cores
- Manage **institutional genomics bioinformatics licenses**, and subsidized access to these licenses for UNC SOM investigators
- Provided infrastructure for decisions around strategic core mergers, sunseting, and creation

Core Facility Advocacy Committee

The Core Facility Advocacy Committee (CFAC) comprises senior faculty members from the SOM who **support and advocate for core facilities and allocate funding**, organized broadly by technology. The current CFAC categories are: Animal Models, Clinical/Translational, Genomics, Imaging, and Biochemistry.

Managed by ORT, the CFAC receives **funding from the SOM Dean's Office and the University Cancer Research Fund**. CFAC manages several funding mechanisms, including **biannual funding opportunities for core directors** to request funds for equipment purchases, method development, and other core needs.

CFAC also manages **emergency funding requests** and provides **institutional support** for state and federal instrumentation funding opportunities, as well as intra-institutional cost shares.

Finally, CFAC supports a **voucher program** that funds pilot data collection by researchers utilizing core facilities.

Dr. Richard Cheney
Imaging

Dr. Dominic Ciavatta
Genomics



Dr. Zoe McElligott
Animal Models



Dr. John Sondek
Biochemistry



Dr. Neeta Vora
Clinical/Translational

CFAC also values the knowledge, insight, and contributions of core facility stakeholders across campus. Non-voting members of CFAC include core facility research leadership from the Lineberger Comprehensive Cancer Center, College of Arts and Sciences, Office of Sponsored Programs, and the Office of the Vice Chancellor for Research.

Core Facility Advocacy Committee

At the end of 2024, Dr. Li Qian and Dr. Terry Furey rotated off the committee. Li (Animal Models) and Terry (Genomics) have been valued and integral members of CFAC for many years and provided thoughtful guidance to and representation for the core facilities they supported. On behalf of our community, we extend our thanks to Li and Terry for their commitment to and belief in our core facilities.



Dr. Li Qian
Animal Models



Dr. Terry Furey
Genomics

After 3 years serving on CFAC, Neeta Vora rotated off the committee at the end of FY25. On behalf of all of the Clinical/Translational core facilities and core stakeholders, we extend our thanks to Neeta for providing excellent advocacy and thoughtful conversation and suggestions around supporting translational research.

Advocacy, Outreach and Education

The Office of Research Technologies is often called upon both internally and externally to provide expert perspective on core facility operations, availability, importance, and science. You could find us out and about at...

Dr. Chris Gregory:

“Rigor, Reproducibility, and Transparency Practices for Shared Resources”, Association of Biomedical Resource Facilities (ABRF) Annual Meeting, Las Vegas NV, March 23, 2025

“Quality Audits – Awareness and Preparedness”, presented as a module in the Business Skills Workshop, Association of Biomedical Resource Facilities (ABRF) Annual Meeting, Las Vegas NV, March 23, 2025

“Audit Preparedness”, Mid-Atlantic Directors and Staff of Scientific Cores (MAD SSCi) Annual Meeting, New Brunswick NJ, August 16, 2024

“Stakeholder Analysis, Demand Assessment, Resource Building – Spatial Technologies as a Case Study”, Mid-Atlantic Directors and Staff of Scientific Cores (MAD SSCi) Annual Meeting, New Brunswick NJ, August 15, 2024

Kara Clissold:

“Best Practices to Improve Rigor and Reproducibility in Cores: A round table discussion” Mid-Atlantic Directors and Staff of Scientific Cores, August 14, 2024, New Brunswick, NJ

“Core Facility Billing and Accounts Receivable” Panel discussion at the UNC Symposium for Research Administration, September 26, 2024, Chapel Hill, NC

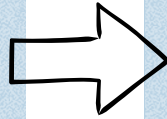
The Office of Research Technologies also serves as a resource to give talks throughout the year at departmental and center retreats and research days, at faculty meetings, trainee orientation days, Please reach out to our office to inquire about scheduling:



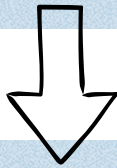
By The Numbers

Impact of School of Medicine Cores on Research

In FY25, UNC School of Medicine core facilities supported 1,490 different sponsored projects and clinical trials across UNC Chapel Hill with core services



In FY25, \$27.9M from those sponsored projects were spent on services from UNC SOM cores



These sponsored projects brought \$1.15B in Total Direct Costs to UNC Chapel Hill

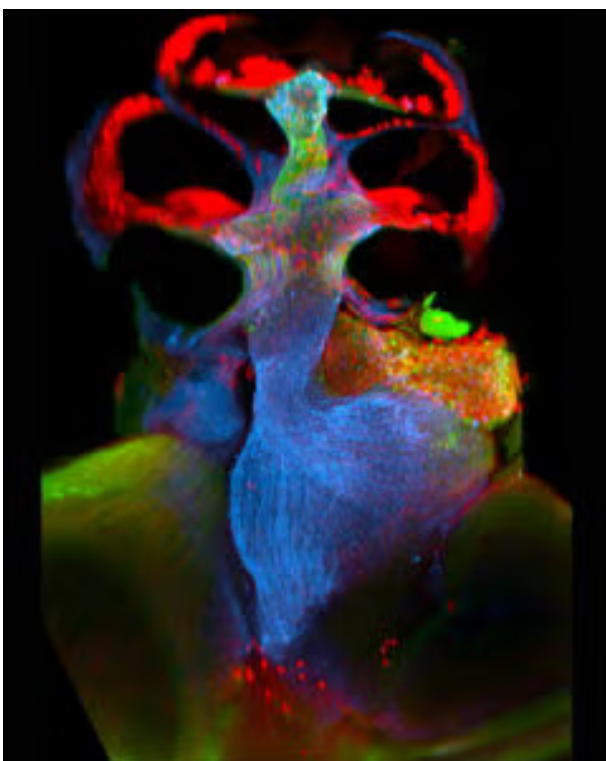
In FY25, UNC School of Medicine core facilities provided over 2,700 trainings and consultations to their customers

By The Numbers

Impact of Cores on Research in the School of Medicine

In FY25, \$1.59B in direct costs were associated with SOM grants that utilized core facilities university-wide.

In FY25, 585 clinical trials associated with the SOM utilized UNC core facilities.



“Ear Steps” (Dr. Ken Hutson, Department of Otolaryngology / Head and Neck Surgery, School of Medicine)

Light sheet microscopic image from a mouse illustrating the cochlea (end organ for hearing) and its constituents, including spiral ganglion cells and their axons that form the auditory nerve, carrying information about sounds to the brain. The image was acquired using the light sheet microscope in the **UNC Microscopy Services Laboratory**.

Winner of a UNC School of Medicine Art in Science Award in FY25.

CFAC FY25 Funding: Fall RFA



The Core Facility Advocacy Committee RFA programs provided core directors with an opportunity to request funds to support instrumentation purchases, develop or validate new methods, provide funds for specific core needs outside of those categories, and for matching funds for external instrumentation grants.

In the Fall, **\$455,818** was spent on...

The Preclinical Research Unit to purchase equipment to outfit a new space to support **BSL2+ rodent surgery, necropsies, and tissue processing** to provide more support to faculty engaging in infectious disease research.

The Respiratory TRACTS Core to provide institutional support for a **successful NCBC grant** to purchase the readout equipment for **Olink mid-plex biomarker** assays and to optimize the method and protocol within the core.

The Chemistry Mass Spectrometry (CAS) core to support the purchase of a **Triple Quadrupole Mass Spectrometer**.

The Cardiovascular Physiology and Phenotyping Core to develop **proficiency in microvascular ligation, incision, and anastomosis surgical services**.

The BioSpecimen Processing Facility (GSPH) to assist in service maintenance and freezer temperature mapping required to maintain **CAP accreditation** and a benchtop fume particulate system to optimize lab operations with an emphasis on safety.

The Hooker Imaging Core to replace the stage-top incubation system on the super transmission (STED) microscope to **improve the high-resolution imaging of live cells**.

The Zebrafish Aquaculture Core to **develop fish phenotyping capabilities** through investment in 2D and 3D tracking and a Zantiks LT behavioral rig.

The Histology Research Core to develop an in-house workflow for multiplexed protein (IF) and nucleotide detection (FISH) to provide **highly customizable multiplexed staining and imaging** service to evaluate 12+ protein targets on the same tissue sample.

The IDDRC Brain and Behavior Measurement Laboratory to purchase equipment to facilitate **peripheral nervous system and positional monitoring** simultaneous with EEG recordings and a high-quality camera system to allow **video-enabled EEG** research.

The High-Throughput Sequencing Facility to compare the sensitivity and specificity of Oxford Nanopore PromethION chips and EMseq technologies on detecting 5mC, and 5hmC sequence variations and to purchase an additional P2 Solo to **double the core's long-read sequencing throughput**.

The BRIC Center for Animal MRI to upgrade the **helium and magnet monitoring** systems.

The Pathology Services Core to **replace** an aging **autostainer** for immunohistochemistry and to purchase a refrigerated **centrifuge** required by their spatial biology Xenium assay.

The Biomolecular NMR Laboratory to develop **RNA-targeted fragment-based drug discovery capabilities**.

The CGIBD Histology Core to support the **training of their new director** by the Histology Research Core.

The CFAR HIV/STD Laboratory to **replace a cell counter** which has aged beyond the ability to be serviced, a requirement of their funding agency.

The CGIBD Advanced Analytics Core to purchase a **TapeStation** for **QC of RNA and DNA samples**.

The Flow Cytometry Core to **repair the ImageStream Mark II** flow cytometer.

CFAC FY25: Funding Spring RFA

In the Spring, **\$256,258** was spent on...

The Microscopy Services Laboratory to purchase a **replacement transmission electron microscope** to address a model aging out of service contract coverage.

The BRIC Human Imaging Core to purchase a **door alarm system** to ensure metal does not enter the rooms where MRI magnets are located, ensuring the **safety of patients and personnel**.

The High-Throughput Sequencing Facility to provide proof-of-concept testing of the **NovaSeqX sequencer platform** for several major users and to replace several aged thermocyclers.

The Serology Service Center to purchase a **new ULT freezer** for customer samples.

The Pathology Services Core to purchase a **computing workstation** dedicated to support the Halo AI software package for **AI-driven histopathology image analysis**.

The National Gnotobiotic Rodent Resource Center to purchase a Whitley A85 **Anaerobic Workstation** as **lifecycle replacement** for an aged unit.

The Nanomedicine Characterization Core (ESOP) to purchase a tangential flow filtration system. This system will improve the functionality and **reduce a known source of potential error** in traditional filtration systems.

The BioSpecimen Processing Facility (GSGPH) to **compare** several manufacturer's RNA and DNA **extraction kits** and purchase a rack scanner to improve the **efficiency for sample tracking** in 2D Matrix tubes.

The BRIC Center for Animal MRI to purchase a 15 mm head coil to allow both small animal MRI machines to operate simultaneously and to **develop ocular photometry** as a core technique.

The Animal Models Core, to replace an aged and malfunctioning **stereo microscope** for performing and training on surgical procedures.

The Metabolomics and Proteomics Core to support the **development of untargeted metabolomics** as a core service.

The Respiratory TRACTS Core to purchase a **bead homogenizer** for in-house sample preparation.



CFAC FY25 Funding: Emergency Requests

A key purpose of the CFAC is to provide timely funding decisions to core directors experiencing a need for funding that does not align with a funding cycle and which cannot wait until the next cycle. This can include a broad swath of needs, from equipment repairs to a need for matching funds to support a short-term funding opportunity. In FY25, \$82,964 was spent to support the following:



Repair multiple equipment damaged in the Biomolecular NMR Laboratory after a power surge event in Marsico Hall



Replace malfunctioning ancillary equipment for the spinning disk microscope in the Biology Microscopy Core



Replace the battery and cables for the EEG recording system within the IDDRC Clinical/Translational Core



Repair a surgical microscope in the Zebrafish Aquaculture Core



Service and transport an ultracentrifuge that came available from a lab closure to the Lenti shRNA Core



Replace the veterinary hematology analyzer in the Animal Clinical Chemistry Core after a catastrophic failure



Repair to FACS Melody Sorter in the Flow Cytometry Core



Funding to support the purchase of a power injector for the BRIC to support work proposed in a DARPA-H award to a PI In the Department of Cell Biology and Physiology

FY25 Core Voucher Program

Eighty-five applications to receive core voucher program funding were received in FY25. **Eighteen projects were funded**, providing award recipients with **\$168,475** in total funding to support pilot data collection in new core facilities, to use new technology, or to develop pipeline projects. The funded projects and the cores where the funds will be spent are described below.

Funded Projects

Development of hidradenitis suppurativa mouse model with a floxed human SOX9 allele with conditional cutaneous SOX9 deletion
(**Animal Models Core**)

Noval single-cell spatial transcriptomic analysis of hepatitis A virus pathogenesis
(**Pathology Services Core**)

Aggressive and protective roles of dietary proteins in colitis
(**National Gnotobiotic Rodent Resource Center** and **CGIBD Histology Core**)

Use of NMR to study iron binding by RNA binding protein, PCBP1
(**Biomolecular NMR Laboratory**)

Unbiased Identification of Host Factors that Bind the AAV Inverted Terminal Repeats
(**Metabolomics and Proteomics Core** and **Vector Core**)

Novel strategy for therapeutic targeting of chromodomains via lipophilic cations
(**Macromolecular Interactions Facility** and **Microscopy Services Laboratory**)

Ciliary Proteomics of Neurons and Astrocytes using Human iPSC derived Organoids and Transgenic mice
(**UNC NeuroTools Core** and **Metabolomics and Proteomics Core**)

Haploinsufficiency for endothelial nitric oxide synthase (eNOS) aggravates preeclampsia-like phenotypes in mice with impaired kidney reserve
(**BRIC Small Animal Imaging** and **Metabolomics and Proteomics Core**)

Cont. on next page



Core Voucher Program

Defining Immunomodulatory Protein-Protein Interactions in Food Allergic Responses
(**Protein Expression and Purification Core** and **Macromolecular Interactions Facility**)

Analyzing the molecular signatures of RUNX2 expressing cells during branchial
arch patterning
(**Advanced Analytics, High-Throughput Sequencing Facility**, and **Bioinformatics
and Analytics Research Collaborative**)

Quantifying transcriptional changes driven by mutated RhoA in leukemias and
lymphomas
(**High-Throughput Sequencing Facility**)

Transcriptomics & proteomics of clathrin splicing in muscle cells
(**High-Throughput Sequencing Facility** and **Metabolomics and Proteomics Core**)

Single-cell RNA sequencing for the study of human immune responses
generated by a meningococcal vaccine
(**Advanced Analytics**)

Genetic diagnosis of monogenetic disorders in Hispanics/Latinos with chronic
kidney disease
(**Clinical Genomic Analysis Core**)

Imaging aqueous water exchange in the eye
(**BRIC Center for Animal MRI**)

A Novel Pipeline to Investigate Cardiac Hypertrophy-Induced Sarcomere Remodeling
(**Cardiovascular Physiology and Phenotyping Core**, **Microscopy Services Laboratory**,
Hooker Imaging Core, and **Neuroscience Microscopy Core**)

Integrating Electron Microscopy to Elucidate Lipid Droplet Functions in
Endothelial Cell Response to Shear Stress
(**Microscopy Services Laboratory**)

Develop FLIM-based methods to quantify membrane tension in neuronal
morphogenesis
(**Hooker Imaging Core**)

Staff Recognition Awards

Staff Recognition Awards recognize the contributions and commitment of non-faculty core facility staff and directors to the UNC research endeavor. Nominations and awards occur twice a year and recipients receive \$1,000 each.

Fall 2024: Customer Service

Jade Hollars
Abacus Evaluation



Fall 2024: Technical Achievement

Justin Fousek
LCCC Bioinformatics Core



Fall 2024: Performance Excellence

Aurora Cabrera
Michael Hooker
Metabolomics and
Proteomics Core



Spring 2025: Customer Service

Stew Little
BRIC Human Imaging

Spring 2025: Technical Achievement

Rachel Coble
Metabolomics and
Exposome Laboratory

Spring 2025: Performance Excellence

Justin Cromwell
Animal Clinical
Chemistry Core

Travel Awards

The Office of Research Technologies administers two cycles for core directors and staff to request funding to attend conferences and continuing education, keeping our core facilities as the **cutting edge** of their **science** and **administration**.

Mid-Atlantic Directors and Staff of Scientific Cores

Ryan Robinson, Manager of the LCCC Tissue Procurement Facility

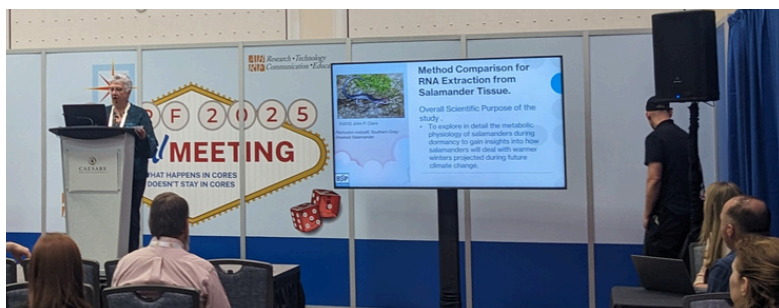
Quinn Fong, Staff Scientist in the Advanced Analytics Core

Kara Clissold, Associate Director, Office of Research Technologies

Global BioImaging Exchange of Experience 2024

Michelle Itano, Director of the Neuroscience Microscopy Core

National Society for Histotechnology
Nicholas Pankow, Research Specialist in the Pathology Services Core



Dr. Patricia Basta presents a Lightning Talk during ABRF 2025

EHA-SfPM Precision Medicine Meeting

Andrew Satterlee, Director of the Screening Live Cancer Explants Core

SciX

Whitney Stutts, Assoc. Director of the Michael Hooker Metabolomics and Proteomics Core

Association for Biomolecular Resource Facilities (ABRF)

Erin Wallace, Research Associate in the High-Throughput Sequencing Facility

Zoe Senn, Business Manager for the UNC NeuroTools Core

Patricia Basta, Director of the BioSpecimen Processing Facility

Kara Clissold, Associate Director of the Office of Research Technologies

Ben Wright, Director Research Core Development, Office of Sponsored Programs

Micro Imaging RF Coil Workshop

Matthew Verber, Electronics Engineer in the BRIC Center for Animal MRI

American Society for Mass Spectrometry

Crystal Pace, Research Associate in the MH Metabolomics and Proteomics Core

Cristina Arciniega, Research Associate in the Chemistry Mass Spectrometry Core

Michael Hooker Metabolomics and Proteomics (MAP Core) staff, including awardee Crystal Pace, at the 2025 American Society for Mass Spectrometry conference



CYTO 2025

Ken Fowler, Research Associate in the Mass Cytometry Core

National Center for Cryo-EM Access and Training (NCCAT) - MicroED Workshop

Josh Chen, Director of the Chemistry X-Ray Crystallography Core

CFAC Support for Cores Outside the SOM

UNC Chapel Hill has a robust core community outside of the School of Medicine. These cores are often critical collaborators to faculty labs within the SOM and important to the entire research ecosystem. CFAC's support of these cores in FY25 is summarized below.

College of Arts and Sciences

Biology Microscopy Core

- Emergency replacement of a bloomy box

Chemistry Mass Spectrometry

- Contribution to cost-share for a triple quadropole mass spectrometer
- Two staff travel awards for conference attendance and specialized training
- One leadership training

\$38,699

Eshelman School of Pharmacy

Nanomedicine Characterization Core

- µPULSE TFF system for protein concentration and buffer exchange

Screening Live Cancer Explants Core

- One staff travel award for conference attendance

\$18,463

Gillings School of Global Public Health

Biospecimen Processing Facility

- Benchtop fume particulate system
- Service and surveillance for BSP freezer monitoring systems
- 2D rack scanner
- Comparison of two RNA extraction kits
- Comparison of two DNA extraction kits
- Travel award for conference attendance

\$21,088

Department of Comparative Medicine

Zebrafish Aquaculture Core

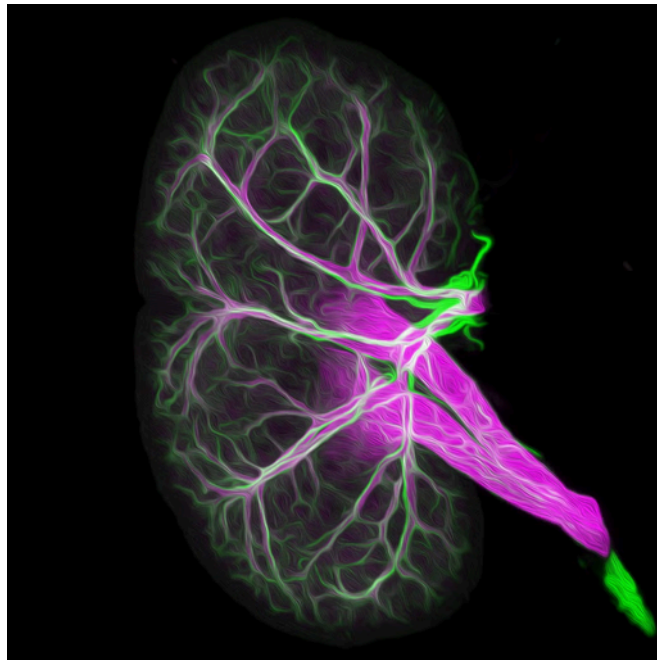
- Behavior rig, 3D and 2D tracking equipment
- Repair and replacement parts for surgical microscope

\$2,337

School of Medicine Core Facilities

This is a list of all core facilities and recharge centers which roll up to the SOM Dean's Office that are open to all investigators (i.e. not resources fully funded by a center or only open to center members) and operate on a fee-for-services basis to recover some or all of the core's operational costs.

While many School of Medicine PIs and their trainees utilize core facilities outside of the School of Medicine and non-SOM core facilities provide significant value to the biomedical community, they are not described in this section.



"Postnatal Duplex Mouse Kidney Neurovasculature" (Pierre-Emmanuel N'Guetta, Jake Roetcisoender, Dr. Lori O'Brien, Dept. of Cell Biology and Physiology, School of Medicine)

This image shows a postnatal P0 mouse kidney immunostained for the renal arterial tree with alpha-Smooth Muscle Actin (SMA, magenta) and nerve with Tubulin Beta Class-III (Tubb3, green) overlayed with oil filter. The image depicts a rare urinary tract congenital defect resulting in ureteral duplication (duplicated collecting system). The kidney was imaged with the LaVision Ultramicroscope II LightSheet using an Olympus MVPLAPO 2X/.5 objective at the **UNC Microscopy Service Laboratory**.

Winner of a UNC School of Medicine Art in Science Award in FY25.

SOM Animal Models

Core Facilities

Animal Clinical Chemistry Core

Preclinical
hematological and blood
chemistry testing

Cardiovascular Phys. and Phenotyping Core

Provides surgical and
nonsurgical services for
developing preclinical
models with
cardiovascular
phenotypes including
ischemia, infarct,
transplant, injury, etc.

Animal Models Core

Transgenic and
knockout rat and mouse
development, strain
rederivation,
cryopreservation

BRIC Center for Animal MRI

Provides preclinical MRI
imaging services
primarily for rodent
imaging

BRIC Small Animal Imaging Facility

Provides preclinical
PET, CT, ultrasound, and
optical imaging
platforms for small
animals

Histology Research Core

Frozen and paraffin
histology, IHC and IF,
routine and special
staining, ISH

Systems Genetics Core


Provides access to and
quality control for
Collaborative Cross
mouse models

Mutant Mouse Rodent Resource Center

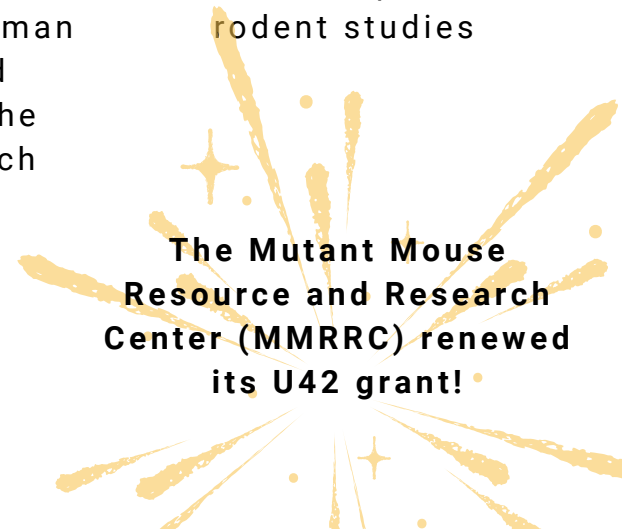
The MMRRC distributes
and cryopreserves
scientifically valuable,
genetically engineered
mouse models of human
development and
disease to serve the
biomedical research
community

Preclinical Research Unit

Provides a
comprehensive suite of
preclinical procedures
and techniques for
rodent studies



**The BRIC Small Animal
Imaging Core acquired a
Sapphire Biomolecular
Imager and nanoScan
SPECT/CT in FY25!**



**The Mutant Mouse
Resource and Research
Center (MMRRC) renewed
its U42 grant!**

SOM Animal Models

Core Facilities

Pathology Services Core

Frozen and paraffin histology, IHC and IF, spatial biology assays, pathology review

National Gnotobiotic Rodent Resource Center

Provides access to germ-free and gnotobiotic mice and expertise

Mouse Behavioral Phenotyping Core

Expertise and apparatus for a myriad of rodent behavioral testing paradigms

CGIBD Histology Core

Provides paraffin processing, embedding, and histology services

Research Radiation Core

Provides irradiation services, expertise, and access for biomedical research using cells, tissues, and animals

Pulmonary Inhalation Research Core

Provides rodent models of pulmonary disease and services to study environmental exposure, injury, and therapeutics
New core in 2025!

Three staff members from the Pathology Services Core presented at the National Society for Histotechnology annual meeting!

Congrats to the Gnotobiotic Rodent Resource Center on the renewal of its P40!

SOM Biochemistry

Core Facilities

Biomolecular NMR Laboratory

Offers expertise and access to 500, 600, 700, and 850 MHz NMR spectrometers, fragment-based and RNA libraries for drug discovery, and NMR metabolomics software

Cryo-EM Core

Support for cryoEM sample preparation, screening and high-resolution data collection as well as cryoTEM analysis of nanoparticles and cryo-electron tomography

High-Throughput Peptide Synthesis and Array Core

Provides services and expertise in a comprehensive suite of services and collaborative expertise in peptide design, synthesis, and characterization

Macromolecular Interactions Facility

Provides instrumentation and resources for biophysical characterization of biological macromolecules and their interactions with ligands

Macromolecular X-Ray Crystallography Core

Enable individual investigators of any experience level to initiate and successfully complete a structural biology or structural chemistry project utilizing x-ray crystallography

Peptide Expression and Purification Core

Specializes in the production of pure, functional proteins for structural, biophysical, and biochemical studies

Dr. Ash Tripathy, Director of the Macromolecular Interactions Facility, retired this year after 25 years as core director. Thank you Ash, and we welcome Dr. Chris Travis as the new director.

Dr. Krzysztof Krajewski, Director of the High-Throughput Peptide Synthesis and Array Core, is co-PI on the UNC Creativity Hub project "The Human MHC Project: Revolutionizing Cancer Therapy by Total Sequencing of the MHC Peptidome"

SOM Biochemistry

Core Facilities

Michael Hooker
Metabolomics and
Proteomics Core

Offers comprehensive, mass-spectrometry based metabolomics and proteomics analyses from tissues, cells, and biofluid.

R.L. Juliano Structural
Bioinformatics Core

Provides consultations and collaborations on research studies requiring computational structural biology method for static structures, molecular dynamics studies, and modeling studies

NMR Helium Recovery
and Liquefaction Plant

Provides recovered helium to the three NMR cores on campus

The Biomolecular NMR Laboratory now can support NMR-based metabolomics and RNA-based drug discovery

The Michael Hooker Metabolomics and Proteomics Core received a Thermo Fisher Center of Excellence in Multi-Omics designation and now offers targeted and untargeted metabolomics services.

The R.L. Juliano Structural Bioinformatics Core now offers services related to machine learning and AI-based drug design.

SOM Clinical/Translational Core Facilities

CFAR Advanced Technology Laboratory Core

Provides a GCLP environment for HIV, STD, and infectious sample biorepositories, sample processing, and immunoassays

MLI Tissue Procurement and Cell Culture Core

Serves as a central source of normal, cystic fibrosis, and disease control pulmonary cells, tissues and fluids for a wide array of uses

Tissue Procurement Facility

Provides a centralized, coordinated, quality-controlled, quality-assured facility for procurement, processing, storage, and distribution of normal and malignant human specimens

Respiratory TRACTS Core

Supports biomarker discovery and validation through focused and multiplex technologies and can support BSL-2+ samples

Serology Service Center

Provides customized immunoassay services to the UNC community

Tissue Culture Facility

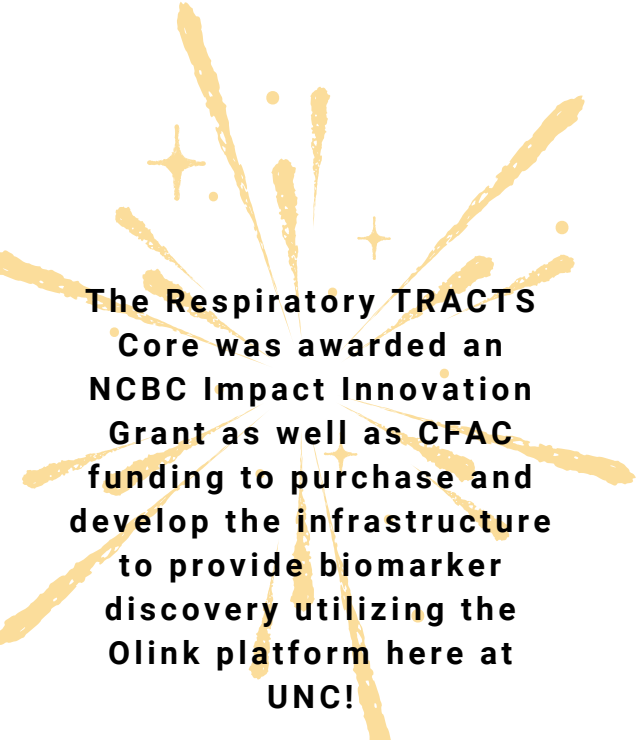
Provides on-demand access to media, reagents, supplies, cell lines, etc. to support molecular biology

AHS DEXA Imaging

Provides DEXA body scanner access to the research community

Clinical Genomic Analysis Core (GENYSIS)

Provides variant analysis, bioinformatics support, clinical reporting, and other support for clinicians and their patients



The Respiratory TRACTS Core was awarded an NCBC Impact Innovation Grant as well as CFAC funding to purchase and develop the infrastructure to provide biomarker discovery utilizing the Olink platform here at UNC!



The CFAR HIV/STD Laboratory was rebranded as the CFAR Advanced Technology Laboratory Core

SOM Clinical/Translational Core Facilities

CFAR Social/Behavioral Core

Supports biomedical and social science researchers interested in exploring the social, psychological, and structural factors influencing the HIV epidemic

Patient-Reported Outcomes (PRO) Core

Supports and facilitates the use of PRO data and endpoints particularly in cancer research

CHAI: Interventions
Supports behavioral science interventions aimed at health promotion and disease prevention in populations at risk

Perinatal Research
Service Center
Provides integrated datasets for perinatal research

NC TraCS
Maintains several recharge services to support translational research and clinician scientists, including data and analytics, protocol development, device design, and outpatient exam space

Multidisciplinary
Surgery Simulation Lab
Supports the surgical training of medical students through surgery simulation and dissection

Miracles in Sight
Surgical Skills Lab
Supports the surgical training of medical students through surgery simulation and dissection with an emphasis in ophthalmology and neurology

Eastowne Clinical
Research Unit
Provides outpatient space, imaging technologies, pharmacy, and other resources for clinical trials and research



SOM Genomics

Core Facilities

Bioinformatics and Analytics Research

Collaborative

Provides bioinformatician access and services particularly, but not exclusively, for genomic data analysis

UNC Vector Core

Provides full-service research-grade vector production for AAV vectors

UNC Microbiome Core

Provides the facilities and expertise to characterize complex microbial communities and microbial interactions

Vironomics Core

Provides real-time qPCR assays for viruses and miRNAs profiling and access to long-read sequencing technology

BRAIN Initiative Viral Vector Core

Provides viral vectors for primarily neuroscience-focused research as part of the BRAIN Initiative

Functional Genomics Core

The Functional Genomics Core performs expression profiling, SNP genotyping and copy number microarray services

Translational Genomics Laboratory

TGL performs sample processing and genomic analyses for the molecular, pathologic, and genomic characterization of patient-derived specimens in preclinical research projects and clinical protocols

Lenti-SHRNA Core

Produces glycerol bacterial stocks, small and large scale lenti-viral preps, and custom vector construction

High-Throughput Sequencing Facility

Offers comprehensive library services, NextGen sequencing and alternative technologies including long reads

The High-Throughput Sequencing Facility and Translational Genomics

Laboratory jointly acquired an Illumina NovaSeq X Sequencer through funding from the UNC SOM OoR, LCCC, and OVCR!

The Mammalian Genotyping Core and the Immune Monitoring and Genomics Facility were sunsetted during FY25

SOM Imaging Core Facilities

BRIC: Human Imaging and Radiochemistry

Provides access to 3T and 7T MRI technology as well as mMR and mCT and in-house radiochemistry tracer production

Hooker Imaging Core

Provides training and access to light and transmission electron microscopy technology

UNC Flow Cytometry Core

Provides access and training to cell sorting and flow cytometer technologies

BRIC: Preclinical Molecular Imaging and Animal MRI

Provides access to many modalities and support for animal imaging, including 9.4T MRIs and optical, CT, PET, DEXA Imaging and more

Neuroscience
Microscopy Core
Provides training and access to light microscopy technology

Mass Cytometry Laboratory

Provides assistance with mass cytometry panel design, protocol support, antibody procurement, data acquisition and basic support for single cell data analysis

The BRIC Small Animal Imaging Facility was re-branded as the Preclinical Molecular Imaging Facility.

BRIC Image Storage and Analysis

Provides analysis support for imaging modalities at the BRIC

Microscopy Services Laboratory

Provides training and access to light and both scanning and transmission electron technology

The Microscopy Services Laboratory secured a new transmission electron microscope with support from the SOM OoR, LCCC, OVCR, Department of Path. & Lab Med, and CFAC.

They are just some of the publications that utilized
UNC-CH SOM Core Facilities in FY2025!

Jasmine L. King¹, Alain Valdivia², Shawn D. Hingtgen² and S. Rahima Benhabbour^{1,2,*}

Thank You

The Office of Research Technologies thanks all of those who made the year possible:

Dr. Blossom Damania, Dr. Jennifer Brennan, and Dr. Janelle Cross for providing support and funding from the UNC School of Medicine Office of Research.

Dr. Robert Ferris, Dr. Shelley Earp and leadership in the Lineberger Comprehensive Cancer Center for providing funding through the University Cancer Research Fund.

The Core Facility Advocacy Committee for their thoughtful commitment and conversations over the year and all recruited secondary reviewers for the UNC Core Voucher Program for their efforts in evaluating funding proposals.

The Office of the Vice Chancellor for Research Research Core Development team for critical collaboration.

All of the core directors and staff in our biomedical core facilities without whom UNC-Chapel Hill School of Medicine research would not be the research powerhouse that it is.



corefacilities@med.unc.edu



<https://www.med.unc.edu/corefacilities>