

## REACH Hubs' Resources for Innovators

### LIBH

#### Brookhaven National Laboratory

- [National Synchrotron Light Source II](#) (NSLS-II) uses X-ray and energy analysis to enable study, with nanoscale resolution and high sensitivity of material properties and functions.
- [Center for Functional Nanomaterials](#) (CFN) Funded by DoE Office of Science. Create and study materials with billionth-of-a-meter measures. Focus areas include: electronic nanomaterials, catalysts, electron microscopy, nanofabrication, theory, and advanced computation.
- [Proximal Probes Facility](#) includes labs for microscopy, spectroscopy, and probing of nanostructured materials. Instruments enable studies in-situ and in-operando.
- [Materials Synthesis and Characterization Facility](#) has labs for the production of nanostructured materials and characterization of their properties. Solution phase chemistry of nanocrystal and nanowire materials, inorganic synthesis by chemical vapor deposition, physical vapor deposition, and atomic layer deposition, nanoscale fabrication by self-assembly, processing of organic thin films, and characterization of materials.
- [Advanced UV and X-ray Probes](#) is part of the National Synchrotron Light Source (NSLS). Capable of small and wide-angle X-ray scattering and ambient pressure photoelectron spectroscopy.
- [Advanced Optical Spectroscopy and Microscopy](#) combines many optical instruments for a broad range of study on hard, soft, and biological materials. Capable of five-channel fluorescence imaging and fluorescence lifetime measurements.
- [Computational Science Center](#) (CSC) houses two supercomputers, including New York Blue Gene. Main function is visual and statistical data analysis. Also includes the High Performance Computing (HPC) Code Center, where scientists can bring codes to be parallelized on HPC platforms.

#### Stony Brook University

- [Center of Excellence in Wireless and Information Technology](#) (CEWIT) facility that houses 40 research labs fostering research and development in all areas of information technology. Research topics include mobile networks, protocol designs, cyber security, augmented reality, 3D visualization, medical imaging, modeling, and error detection, and big data.
- [Center for Biotechnology – A NYS Center for Advanced Technology](#) facilitates the development of bioscience innovations into fully-fledged biomed products and form a company around it. Aims to support a relevant bioscience industry in New York.
- [Center for Sensor Systems – A NYS Center for Advanced Technology](#) helps technology companies “achieve R&D goals faster and with less risk.” Research and technology areas include: fluorescent detection, sensors, and imaging; fiber- powered sensors; accelerometer sensors; uncooled infrared sensors; superconductor electronics; stats processing; and magnetic sensors and materials.

- [Discovery Chemistry Laboratory – Chemical Library Synthesis](#) provides chemical library synthesis. Equipped with:
  - Agilent 1100 LS-MSD electrospray ionization single quadrupole mass spectrometer
  - Agilent 5973 MSD/6890 Series GC
  - Shimadzu Semi-Preparative LC-6AD HPLC
  - BrandTech VARIO Pumping Systems (Oil-free membrane pump)
  - Millipore Vaccum manifold for separations system.
  - Pure-Solv 400 Solvent Purification System
  - Microwave Reactor, Explorer 48-position Automation System.
  - Spex Fluorolog 3-21 Fluorescence Spectrophotometer
  - Beckman Coulter XL-1 Analytical Ultracentrifuge.
  - Isothermal Titration Calorimeter.
  - Aviv Model 62A circular dichroism spectrometer
  - High-speed centrifuges, preparative ultracentrifuges, a scintillation counter, a French press, an ultrasonicator for cell disruption, variable Temperature preparative shakers and incubators, – 80 °C freezers, and an autoclave, and a 600 ft 2 cold room.
- [Living Skin Bank](#) The cGMP facility is a state of the art facility designed for the manufacture of clinical grade cells and cell-based products for treatment of acute and chronic injuries, tissue engineering products, as well as drug delivery systems.
- [Long Island High Technology Incubator](#) helps new technology companies grow and conduct R&D by leasing/renting office and lab space in Stony Brook with wet labs, high-speed internet, access to SBU libraries, conference rooms, and other features.
- [Marine Animal Disease Laboratory](#) is equipped with necropsy facilities, microscopy equipment, incubators, centrifuges, chemical hoods, and wet lab space. Also available are analytical and technical services such as molecular sequencers and trace element analysis.
- [NAn0-RAMAN Molecular Imaging Laboratory](#) supports research in marine, atmospheric, environmental, biological, chemical, geological, and material sciences, as well as biomedical engineering. Equipped with Renishaw inVia Confocal Raman Microscope, Bruker Innova Atomic Force Microscope, and Limkam THMS600 Stage (-196 to 600C).
- [PET/MRI - Siemens Biograph mMR system](#) is one of only 10 in the country. Allows two modalities on one machine simultaneously. This allows accurate tumor localization with high precision and image quality by eliminating the variance in successive scans due to minute changes and movements in the body. Also available for research purposes.
- [Translational Experimental Therapeutics Lab](#) facilitates drug discovery pipeline with in vivo data on absorption, distribution, metabolism, excretion, and toxicity. Also provides pharmacokinetic data on lead compounds through the Division of Laboratory Animal Research and the Mass Spectrometry Facility.
- [Visualization Laboratory](#) facilitates research involving development of volume visualization techniques used in scientific visualization and virtual reality. Equipped with the flexible and robust VolVis system, which unites numerous visualization methods in a single visualization system.

## Cold Spring Harbor Laboratory

- [A significant aggregation of common but powerful cancer-related resources/facilities](#)
- **Pre-Clinical Experimental Therapeutic (PETx) facility** (under construction) is a comprehensive cancer facility in affiliation with North Shore-LIJ.
- Millipore Vacuum manifold for separations system. The PureSolv 400 Solvent Purification System Microwave Reactor, Explorer.

#### UofL-ExCITE

- [Center for Predictive Medicine](#) (CPM) is a BSL-3 facility focused on developing therapeutics against highly pathogenic infectious agents.
- [Owensboro Cancer Research Program \(OCRP\)-Kentucky Bioprocessing LLC](#) (KBP) partnership specializes in the discovery and cGMP manufacture of novel vaccines and biologics by expressing proteins in transgenic tobacco plants.
- [Cardiovascular Innovation Institute](#) (CII) is a multidisciplinary venture offering unique capabilities for finding solutions to cardiovascular problems.
- [Brown Cancer Center](#) (BCC) is a world class treatment facility that has embraced translational research focusing on drug discovery/development and which has also developed innovative business models for public-private partnerships.
- [Micro/Nanotechnology and Rapid Prototyping Cores at the Speed School of Engineering](#) support the development of innovative devices and sensors.
- [UofL-Kentucky DataSeam Initiative](#) collaboration has established a statewide distributed computational grid in the K-12 school districts of Kentucky. This greatly facilitates virtual screening efforts and a 21,000,000 compound library can be screened with full flexibility and full analysis against any target in less than four days.
- UofL's integrated drug discovery and development resources include **structure-based drug design and virtual screening, medicinal chemistry, biophysical characterization and structural biology, and several in vivo testing core facilities.**

#### MN-REACH

- [Institute for Engineering in Medicine](#) (IEM) is an interdisciplinary research institute that facilitates collaborations between engineering faculty and biomedical faculty at the UMN and industry. IEM members include 150 faculty members from 31 departments in engineering, medical and health related schools.
- [Medical Device Center](#) (MDC) is an interdisciplinary program that sits within the IEM and combines basic research, applied and translational research, education and training, and outreach and public engagement all related to medical devices.
- [Institute for Therapeutics Discovery and Development](#) (ITDD) is a drug discovery and development center consisting of five scientific cores (Medicinal Chemistry, High-Throughput Screening, Lead and Probe Discovery, Pharmacology and Biomarkers, and Therapeutics Process Development).

- The [Center for Translational Medicine](#) (CTM) facilitates the development of drugs, biologics and devices by providing access to expertise, resources and services, including technology evaluation and development planning, laboratory testing (in vitro through IND/IDE-enabling studies), regulatory support and program management.
- [Molecular and Cellular Therapeutics](#) (MCT) facility is a state-of-the-art current good manufacturing practices (cGMP) facility located on UMN campus. MCT has scale up, production assistance, cell manufacture, and related functions.
- The [Center for Translational Drug Delivery](#) (CTDD) assists with all aspects of drug delivery and complex development challenges. Its services include pre-formulation, formulation development, preclinical biological testing and analytical services.
- The [Center for Orphan Drug Research](#) (CODR) focuses on Orphan Drugs and current research is on rare pediatric neurological disorders.
- The [Mill City Innovation Collaboration Center](#) (ICC) provides a real-world venue for evaluating system integration and effectiveness of technologies in ambulatory clinical care, assisted care, and home settings. Building on UMN expertise in practice-based research, the ICC provides simulated environments, community engagement, and access to the clinical settings that deliver most US health care.
- [Production Assistance for Cellular Therapy](#) (PACT) is an NHLBI-sponsored program designed to develop novel cellular therapies that will aid investigators by providing production assistance for the scale-up of a product that is intended for use in IND human clinical trials.
- [Medical Industry Leadership Institute](#) (MILI) at the Carlson School of Management gives MBA students opportunities to prepare for leadership-track careers in functional areas of the medical industry including finance, marketing, consulting, operations, and information technology.