



HISTORICALLY BLACK COLLEGES AND UNIVERSITIES

NASA TECHNOLOGY INFUSION

ROAD TOUR



AND MINORITY-SERVING INSTITUTIONS

Xavier University of Louisiana

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Office of
Small Business
Mentor-Protégé Program

Research and Core Competencies

- **Louisiana Cancer Research Center (LCRC)** - Consortium for Cancer research and education programs that will optimize discovery and development of innovative cancer therapies; lead to innovative clinical treatment programs, offer new opportunities for early detection and prevention; and promote economic growth. LCRC core research capabilities include:
- The **Tissue Procurement and Biospecimen Core Facility (TPBCF)** is a part of the infrastructure to support the conduct of basic and clinical research for members of the LCRC. The goal of the repository is to support LCRC programmatic research in order to further improve our understanding of those molecular factors that contribute to cancer and that may lead to prevention, early detection, and cure.
- **The Cell Analysis & Immunology Core Facility** is a customer oriented service dedicated to supporting the research needs of the investigators of the Louisiana Cancer Research Consortium (LCRC). It provides state-of-art instrumentation and expertise for addressing experimental issues related to single cells, nuclei and chromosomes. In addition to the most powerful cell sorter BD FACSaria, the Facility owns advanced analyzers such as BD LSRII and BD FACSArray.
- The **Genomics Core Facility** is committed to providing quality service by fulfilling the needs of the research community in a consistently rapid, dependable, and economical fashion. Services include automated DNA sequencing, using state-of-the-art instrumentation (ABI PRISM 3100 Genetic Analyzers) and the latest protocols to ensure high quality results at reasonable prices.
- The purpose of the **Imaging core laboratory** is to assist investigators requiring detection, imaging, and morphometric analysis of gene and protein expression in any type of cell and tissue. Services, expertise and state-of -the-art biomedical imaging services will be provided with the hope of broadening and streamlining all morphological research.
- The mission of **Proteomics Core Facility** is to help researchers advance their biomedical research programs. The Facility is equipped with gel electrophoresis units, image analyzers and digitizers, and robotics for mass spectrometry sample preparation. Currently, a Matrix-Assisted Laser Desorption/Ionization Mass Spectrometer instrument implements protein identification.
- The purpose of the **Adult Stem Cell Core** is to propagate, expand and supply high quality samples of normal mesenchymal stem cells (MSCs) from in vitro cultures with appropriate quality control assurances for use by LCRC investigators who are studying any aspect of MSCs in relationship to cancer.
- For additional information go to <http://lcrc.info/research/sharedResources.html>

Research and Core Competencies

- **Research Centers in Minority Institutions (RCMI)** – Center for Cancer Research enhances support for innovative, collaborative research with translational potential. Key focuses: Cancer Research; Health Disparities; Translational Research; Cell, Molecular and Bioinformatics Core; In Vitro Bioassay; Drug Design, Synthesis, & Delivery; Therapeutics for Human Diseases.
- **The Major Instrumentation Core** provides technical services and consumable supplies necessary for the operation and maintenance of a variety of major instruments that support biomedical research at Xavier.
- **The Cell and Molecular Biology Core** offers focused services in tissue culture, proteomics and molecular biology techniques to RCMI Investigators, provides Xavier faculty and staff with training in cell and molecular biology techniques, and provides access to an equipped facility with well maintained “state-of-the-art” cell and molecular biology equipment.
- **The Molecular Structure and Modeling Core** performs small molecule X-ray crystallographic services in addition to providing support for ligand-based and structure-based drug design projects.
- **Louisiana Biomedical Research Network (LBRN)** – Established with Biomedical Research Infrastructure Networks (BRIN). Additional Affiliations: National Center for Research Resources (NCRR); IDeA Networks of Biomedical Research Excellence (INBRE); National Institute of General Medical Sciences (NIGMS).
- **Xavier Center for Minority Health and Health Disparities Research and Education (CMHDRE)** – Focuses on Diabetes; Heart Disease; Asthma; Nutrition; Men’s Health; Women’s Health; Cancer; Cultural Competence.
- **College of Pharmacy – Health Resources & Services Administration (HRSA) Center of Excellence (COE)** – Basic and Clinical Research; Biomedical Research.
- **Building Infrastructure Leading to Diversity (BUILD)** – Improve Xavier’s capacity and efficacy to educate and engage students from under-represented groups in the pathways to a biomedical research career.

Major Instrumentation

- Thermal Analyzer
- X-ray Diffractometer
- Chemical Vapor Deposition (CVD) System
- Thermogravimetric Analysis (TGA)
- Differential Scanning Calorimetry (DSC)
- High Temperature Furnace
- Scanning Electron Microscopy (SEM)
- Electrochemical Analyzer
- Electrical Impedance Spectroscopy (EIS)
- Transmission Electron Microscopy (TEM)
- Dynamic Thermal Analysis (DTA)
- Dynamic Mechanical Analysis (DMA)
- Nuclear magnetic Resonance (NMT) Spectrometer
- Atomic Force Microscopy (AFM)

Recent NASA Funded Research

- Development of a Solid High Energy Lithium Battery
- Tetra II: An Experiment to Study Terrestrial Gamma Flashes and the Role of Energetic Particle Acceleration in Lightning and Severe Weather Events
- Space Grant Innovative Project in STEM Education
- Student High Altitude Balloon Pilot Program
- LaACES Student Team
- LASPACE Institutional Scholars Program