

Louisiana State University

*School of Medicine*



**Guide to Research at LSUHSC-NO  
School of Medicine (SOM)**

Dear New Faculty Members,

I would like to welcome you to the Louisiana State University Health Sciences Center School of Medicine (LSUHSC-SOM). A primary mission of the SOM is to nurture a climate that encourages and facilitates research. This institution is strongly committed to the protection of research subjects, investigators, and the environment during the conduct of research.

For those of you who will be engaging in research – basic or clinical – I would like to give you a “heads up” on some of the issues that you will be facing and resources that are available to help you. As a researcher at LSUHSC, you are required to pass web-based courses on several aspects on the conduct of research. The [SOM Research Web Page](#) also provides links to many of the institutional offices and SOM departments which you will need to conduct research.

Additionally, one of the methods by which I develop an appreciation for the expertise of individual faculty members is by reading articles that they have written. Thus, I would appreciate that, upon acceptance, copies of all full-length manuscripts to be published in peer-reviewed journals be sent to me. The procedure for this is found under the Publications section of this booklet and on the SOM Research website.

Again, welcome! I am glad you have joined our faculty.

Sincerely,



Steve Nelson, MD  
Dean

## **Table of Contents**

1. Potential Collaborators 4
2. Mentors 4
3. Library Resources 4
4. Purchasing 4-5
5. Lab Personnel 5
6. Research Compliance Approval Processes 6-7
  - a. Institutional Biosafety Committee (IBC) 6
  - b. Radiation Safety Committee 6
  - c. Institutional Animal Care and Use Committee (IACUC) 6
  - d. Institutional Review Board (IRB) 7
  - e. HIPAA 7
7. Animal Care Facility 7
8. Material Transfer Agreements 7
9. Core Facilities 8-11
  - a. Proteomics Core 8
  - b. HIV-Clinical/Tumor Biorepository Core 8
  - c. Molecular Histopathology and Analytical Microscopy Core 8
  - d. Translational Genomics Core 8
  - e. Cellular Immunology and Immune Metabolism Core 8
  - f. Biostatistics and Bioinformatics Core 9
  - g. Biospecimen Core Laboratory 9
  - h. Morphology & Imaging Core 9
  - i. Genomics Core 9
  - j. Vector Core 9
  - k. The Epidemiology Data Center (EDC) 9-10
  - l. Clinical & Translational Research Center 10
  - m. Off Campus Collaboration Core Facilities 10-11
    - i. Xavier Nanotechnology 10
    - ii. Imaging Core-LSU Baton Rouge 11
10. Major Equipment 11
11. Funding Sources 11-15
  - a. Internal 11-12
  - b. External 12-15
12. Contract Research 15
13. Conflicts of Interest in Research 16
14. Grants and Contracts Submission Process 16
15. Office of Research Services 16
16. School of Medicine Office of Research 16
17. Publications 16
18. Statistical Analysis 17
19. Travel 17
20. Disclosure of Outside Reimbursement and Compensation 17
21. Technology Development 17
22. Room Reservations 18

## **1- Potential Collaborators within SOM and LSUHSC-NO**

In addition to your departmental faculty, you may want to collaborate with other faculty members who are conducting similar research or have areas of expertise that complement your own efforts.

How do you find these people? The School of Medicine (SOM) has developed a searchable database of faculty research, the [Faculty Interest Database \(FID\)](#). This database can be used to identify potential collaborators – searching by keyword, name of faculty member, department or equipment item. This database has recently been expanded to include all of the schools of the Health Sciences Center.

Another method for identifying collaborators is to utilize the SOM website. This can be done by searching the website for a particular department, and investigate the departments of interest. Contact information and research interests are available for each faculty member. This link will take you to a [SOM listing of the Basic Science and Clinical Departments](#).

Still not finding who you are looking for? Then contact the Office of the Associate Dean for Research, [Dr. Wayne Backes](#). He and his staff are knowledgeable about the ongoing research in the SOM and in many of the other schools within LSUHSC.

## **2- Mentors**

Academic careers are lifelong journeys that require professional skill sets to navigate successfully. To help you develop the professional skill set you need to optimize your career, the SOM has implemented a mentoring program. In traditional health sciences training, mentoring is often identified as academic advising and guidance, coming most often from a research or faculty adviser. Nevertheless, true mentoring is not at all limited to formal relationships, or even a single person. In fact, one should strive to build an informal network of mentors with a range of life experiences and diverse areas of expertise.

## **3- Library Resources**

LSUHSC has two libraries that service all six schools in the Health Sciences Center. The [John P. Isché Library](#) is located on the 3<sup>rd</sup> floor of the Resource Center building on the main campus and the [School of Dentistry Library](#) is located on the 3<sup>rd</sup> floor of the dental school administration building. Both libraries have on-line catalog access systems, an interlibrary loan service, and a number of electronic database resources. Both PubMed and Ovid on-line search systems are available, although the Ovid system requires your LSUHSC User ID & Password for use. The search systems can be accessed both on-campus and remotely via the internet. For more information regarding the libraries, hours and extensive resources please see their websites. [Remote Access](#) to journal articles requires a library ID number. Library IDs, which consist of a bar code attached to the back of your LSUHSC ID, can be obtained from the front desk of either library.

## **4- Purchasing**

In house purchasing at LSUHSC SOM includes items purchased from Medical Center Stores, Campus Office Stores, and the Animal Care Facility. Approved users of active accounts may make these purchases. Your department business manager sets up the approved user list and active accounts.

External purchasing may be done using either 1) La Carte Purchasing credit cards, 2) Purchase Orders, or 3) Buy-U. These purchasing mechanisms are routed through your departmental business manager to the main LSUHSC area of Supply Chain Management, where the Purchasing and Accounts Payable departments are located.

Buy-U is the University's easy to use e-procurement system that centralizes university contracts with specific suppliers. This provides end users with the ability to shop a supplier's catalog and transmit purchase orders directly to the supplier. Three roles exist in Buy-U. They are Shopper, Requester and Approver. Shoppers search for goods and assign the shopping cart to a Requester. The Requester adds accounting and submits the order to the supplier. Approvers are involved only if purchases exceed \$1,000 at the line level or \$5,000 for the total requisition. Buy-U can be used for scientific supplies, office supplies, computers or maintenance supplies.

La Carte Purchasing credit cards (p-cards) allow you to purchase items within your authorized spending limits without obtaining a purchase order. Training is required prior to receiving a University issued LaCarte card. [Danielle Burlison](#) is the Assistant Director in the LSUHSC Purchasing Department and is in charge of all p-cards. Please contact her and/or your business manager about obtaining a card and training on its use. More information about La Carte Purchasing credit cards (p-cards) can be found [here](#) or reach out to [Supply Chain Management](#).

Purchase orders for items not allowed on p-cards or over \$1,000 are requested by requisition forms prepared and submitted by your business manager. Your business manager will need complete vendor and item information to complete the requisition. A number of purchasing regulations must be followed, as we are a state agency. Some purchases will be required to go out on bid. Items where a specific vendor is needed require "sole source" letters of documentation from the vendor. More detailed purchasing information can be found [here](#).

## **5- Lab Personnel**

### **Technicians**

All hiring of personnel is done through your business manager. There are several types of support personnel you can hire – postdocs, research associates, research assistants, and student workers. Postdoc positions are normally advertised on a national level. Research associates are advertised on a local level.

### **Work-Study**

Student workers are available from the local undergraduate universities (University of New Orleans, Tulane, and Xavier). Each University has a job placement office where you can advertise. Placement information is available on each school's website. Additionally, an advertisement sent to a specific department is also helpful (i.e. chemistry, etc.).

### **Graduate Students**

Some graduate students are available in basic science departments or from the interdisciplinary graduate program in the School of Graduate Studies of the LSUHSC. You must be a member of the Graduate School Faculty to mentor a graduate student. Please contact [Angela Amedee, PhD](#), Associate Dean for Graduate Studies regarding your eligibility. You may find more information on [Graduate Studies](#) and [Graduate Research Opportunities](#).

### **Medical Students**

Medical students having completed their first year of training are eligible to work on a summer research project during the 8 weeks between their first and second year. This program is designed for both students who have had research experience and those who have not. Students can choose any LSUHSC-NO faculty member with an active research program as their Mentor Dr. Please contact [Dr. Paula Gregory](#) for more information or visit [Medical Student Research Webpage](#).

## **6- Research Compliance Approval Processes**

### **a- Institutional Biosafety Committee (IBC)**

All research projects must be registered with the Office of Research Services via the IRB, IACUC and/or IBC. The IBC reviews Research Registration Forms and IBC applications to determine whether all bio-safety concerns are resolved or managed, or that the project is exempt from further IBC oversight. Where applicable, IRB and IACUC approvals are contingent upon IBC review and approval. Prior to using bloodborne pathogens, biohazardous materials, or animals every faculty member and lab personnel must attend and pass a Biosafety/Bloodborne pathogens training session. See the [training session schedule](#). The Office of Risk Management (ORM) oversees the administration of the classes.

Applicable IBC forms include the following:

[Research Registration Form](#)- Use this form only to register a project that does not require institutional oversight by the IRB, IACUC or IBC.

[IBC - Clinical Studies Application](#)- Use this application form for human clinical studies where human biological samples will be collected, processed, or shipped for clinical testing by LSUHSC study personnel.

[IBC Application and Amendment Form](#)- Use this application for all research projects that cannot use the Registration Form, IBC-Clinical Studies Application or meets *a specific criteria on the IRB Section II.D table for IBC exemption*. A renewal application must be submitted after the fifth annual review. Use this form to submit an amendment prior to initiating any changes to an approved IBC application.

[IBC Annual Update Form](#)- This form will be emailed to the PI one month prior to the annual due date unless the project was “Exempted from LSUHSC-NO IBC Oversight”. IBC annuals may not always coincide with corresponding IACUC or IRB annual reviews.

For more additional information [email](#) or visit the [IBC Webpage](#).

### **b- Radiation Safety Committee**

Radiation Safety, a division of the Institutional Environmental Health and Safety, oversees the use of ionizing radiation on the Health Sciences Center campus. Every person wanting to use radiation must participate in and pass a radiation-training course, which is held quarterly. [Jim Davis](#) is the Institutional Radiation Safety Officer. You can contact Jim Davis for the radiation safety course schedule. After passing the course faculty members must submit a Radiochemical Use application to the Radiation committee for a 3 year permit for radiation purchase and use. The application can be found [here](#).

### **c- Institutional Animal Care and Use Committee (IACUC)**

The IACUC provides oversight for the welfare of animals used in research. All animal purchases and use must be pre-approved by the IACUC. The applications should be submitted by the last Monday of every month for review by the Committee on the 3<sup>rd</sup> Monday of the following month. There are two types of application forms: 1) Research Protocol Application Form and 2) Breeding Colony Application Form, and an IACUC Amendment. The forms can be found [here](#).

IACUC approval will not be given until IBC approval is received. (*Note: there is never an IBC exemption for animal projects*) Even though they are reviewed independently, it is helpful to prepare and submit the IBC and IACUC forms simultaneously to their respective committees. For additional information, contact the [IACUC Coordinator](#).

## **d- Institutional Review Board (IRB)**

The Institutional Review Board (IRB) is responsible for reviewing all research projects involving the use of human subjects, with the purpose of protecting the rights and welfare of individuals participating in those projects. It is the policy of LSUHSC-NO that all projects involving human beings and/or information or tissue collected from human beings must be presented to the IRB for a determination as to whether: 1) the project is human subjects research, 2) the human subjects research project can be given Exempt status under the Federal regulations, or 3) the human subjects research project must have IRB review, approval, and continued oversight.

Certain research projects involving human subjects must be submitted for Institutional Biosafety Committee (IBC) review to allow a determination of whether all bio-safety concerns are resolved or managed. For these studies, IRB approval is contingent upon IBC review and approval. The types of research studies that do or do not require IBC approval are tabulated at the [IRB website](#), which also contains additional guidance, information, and application forms for submitting studies to the IRB for review.

## **e- HIPAA**

Its primary purpose is to place restrictions on what can be categorized as pre-existing conditions when an employee moves from one job to another. However, Title II of the Act, entitled Administrative Simplification, sets new requirements for healthcare providers, payers and clearinghouses in the areas of privacy, information security, and electronic data interchange. The [Office of Compliance Programs](#) (OCP) was established to ensure the comprehensive conformity with all Federal and State laws and regulations for the handling of clinical information. All employees of LSUHSC are required to complete [HIPAA training](#). Additionally, all employees must read and send a signed [Code of Conduct Attestation](#) to the OCP.

## **7- Animal Care Facility**

Animal Care had three facilities prior to Hurricane Katrina. Currently, only the main facility, housed on the first 2 floors of the Clinical Sciences Research Building (CSRB), is fully functional. The facility is capable of housing rodents, mice, rabbits, cats, monkeys and some pigs. [Dr. Leslie Birke, DVM](#), the clinical veterinarian, makes rounds on all the animals. Any request for animal purchase requires the submission of an Animal Care Protocol Form to the Animal Care Office. The forms and additional information on husbandry services, veterinary services, animal charges, and per diem rates may be found [here](#).

## **8- Material Transfer Agreements**

Material Transfer Agreements (MTAs) are contracts governing the transfer of tangible research property from one entity to another. You can find more information on what an MTA is and when and why they are used [here](#). The Material Transfer Process begins when you would like to receive material from another entity, or you have received a request from someone for access to your material. For both situations, a Material Transfer Initiation Form *must* be completed and returned to the Office of Technology Management. OTM will use this form to determine what type of agreement is needed and will work *directly* with the other party to negotiate and execute that agreement. [LSUHSC Outgoing Material Transfer Initiation Form](#) or [LSUHSC Incoming Material Transfer Initiation Form](#). The Material Transfer Agreement can be found [here](#).

In addition, LSUHSC-NO is a signatory of the UBMTA (Uniform Biological Material Transfer Agreement), published in the Federal Register on March 8, 1995. Other [signatory institutions](#) may opt to use a [UBMTA Implementing Letter](#) in lieu of individual institutional MTAs to simplify the inter-institutional materials transfer process.

For questions, please contact [Office of Technology Management](#). [Patrick Reed, MS, RTTP](#) is the Director, Office of Technology Management.

## **9- Core Facilities**

Core facilities are research units within the SOM with specialized equipment and personnel to facilitate data generation.

a. **Proteomics Core** - [Dr. Arthur Haas PhD](#), Director. The Proteomics Core Facility is a resource of LSU Health Science Center New Orleans, sponsored by the SOM. It is located on the 3rd floor of the CSR. The Proteomics Core Facility is equipped with gel electrophoresis units, image analyzers and digitizers, multi-dimensional liquid chromatography, and robotics for mass spectrometry sample preparation. Currently, a Matrix-Assisted Laser Desorption/Ionization Mass Spectrometer instrument implements protein identification. The various applications include the studies of protein expression profiles, post-translational modifications, and partial sequencing of novel proteins. The staff will also consult with researchers about their particular research interests and assist with the development of specific applications and the solution to problems. For more specifics contact Dr. Haas or visit the [webpage](#) or department [Contact Information](#).

b. **HIV-Clinical/Tumor Biorepository Core** – [Dr. Sukanthini Subbiah MD](#), Director. This Core was initially created to support clinical trials however; it will be expanded with this new addition of new program projects to assist Private Junior Investigators (PJIs) with patient enrollment and subsequent collection, storage, and retrieval of linked clinical data and biospecimens for laboratory analyses. Personnel servicing this Core will be positioned within assigned space at the LSUHSC HIV Outpatient (HOP) Clinic. Clinical data and biospecimens will be linked through established alpha-numeric coding procedures and routine interactions between clinic-based data managers and research associates performing patient enrollment, as well as repository technicians who receive and store biospecimens within the nearby Louisiana Cancer Research Center. The Core will also assist PJIs with creation of IRB protocols and sample shipment to collaborators off campus through interface with clinic-based regulatory personnel. Dr. Subbiah’s close ties to the HOP Clinic and his role as an active HIV clinical provider will facilitate these interactions and support for PJIs.

c. **Molecular Histopathology and Analytical Microscopy Core (MHAM)**- [Dr. Luis Del Valle, MD](#), Director. This core was established in response to high-demands for pathology expertise and laboratory analyses of a large number of clinical and animal tumor samples. This core is critical for Center for Translational Viral Oncology (CTVO) and is/will be heavily utilized by all investigators involved in this project. The core will assist PJIs and their mentors with histopathological evaluation of clinical materials, and will determine how different molecular pathways are altered in the context of carcinogenesis. The highly trained core staff will perform routine tissue processing for paraffin and frozen section preparation, H&E staining, immuno-histochemistry, immunohistofluorescence, *in-situ* hybridization, and will assist PJIs in all technical challenges and pathological evaluation of the obtained results. In addition, small animal Imaging based on optical imaging (Xenogen IVIS 200), and laser-capture micro-dissection will be available to scientists as a collaborative effort between MHAM and Morphology/Imaging Core.

d. **Translational Genomics Core (TGC)** - [Dr. Jovanny Zabaleta, PhD](#), Director. This core supports genomic analyses. In 2008, the School of Medicine in association with the COBRE “Mentoring Translational Research in Louisiana” expanded the capabilities of the initial Genomics Core by purchasing a full complement of Illumina technology. It was updated in 2013 and is currently being updated again. With this technology, it provides a range of assays from single nucleotide polymorphism (SNP) analysis, methylation studies, up to high throughput sequencing. These techniques are essential for genomic analysis in viral carcinogenesis.

e. **Cellular Immunology and Immune Metabolism Core (CIMC)** – [Dr. Dorota Wyczechowska, PhD](#), Director. This core currently provides state-of-the-art instrumentation and expertise in flow cytometry and cell sorting, and immune cell function. In addition to the BD FACSAria sorter, the core houses advanced analyzers such as BD LSRII, Auto MACS cell sorter, BioRad Bio-plex system, Elispot reader and Luminoscan. It will provide consulting services on experimental design technical assistance, trouble shooting, and data analysis. This core also will provide services to PJIs from other participating institutions to facilitate the collaborative efforts of this proposal.

f. **Biostatistics and Bioinformatics Core** – [Dr. Chindo Hicks, PhD](#), Director. The Biostatistics and Bioinformatics Core provides support to investigators in traditional experimental planning and design, power analysis, statistical analysis, and data interpretation. [Dr. Claudia Leonardi](#) from the School of Public Health, LSUHSC, will facilitate access to an extended Louisiana State network of computational resources. In addition, Dr. Chindo Hicks, bioinformatician, and Professor of the Department of Genetics, LSUHSC, will support bioinformatics component of the Core.

g. **Biospecimen Core Laboratory (BCL)** – [Dr. Arnold Zea, PhD](#), Co-Director. The BCL is a part of the Louisiana Cancer Research Center (LCRC) infrastructure with mission to collect high quality samples of normal and diseased human material (e.g., whole blood, cellular blood components, bone marrow, plasma, serum, urine, benign and malignant tissue) with appropriate pathological data. The material collected is available to qualified researchers at the LCRC while ensuring ethical informed consent, safety, donor anonymity, and all regulatory safeguards are in place. We will also provide access to the unique clinical samples to support translational aspects of the research programs that are crucial to investigate how molecular and cellular pathways identified *in vitro* or in experimental animals correlate with human disease. Since its creation in 2008, the BCL has become a vital resource for researchers from LSUHSC, Tulane, Xavier and Dillard Universities conducting cancer research. Our core provides leadership, tools and resources to investigators, to enable translational research and precision medicine for patients. More information can be found [here](#).

h. **Morphology and Imaging Core** - [Dr. Luis Marrero, Ph.D.](#), Director. The Morphology and Imaging Core (MIC) is a comprehensive histopathology and specialized imaging center. The purpose of this core laboratory is to assist investigators requiring detection, imaging, and morphometric analysis of gene and protein expression in any type of cell and tissue. The facility will provide services for sample preparation and analysis as well as training to users. One of the goals is to assure high quality, consistent reproducibility, and technical expertise to produce valid microscopy studies for presentation, publications, and grant proposals to investigators throughout the LSUHSC, Tulane, and neighboring/national academic communities. MIC is located on the 5th floor of the Clinical Sciences Research Building. More information can be found [here](#).

i. **Genomics Core** - [Dr. Judy Crabtree PhD](#), Director or [Dr. Christopher Taylor](#), Co-Director. The Genomics Core Facility is a core resource of LSU Health Sciences Center, sponsored jointly by the Cancer Center and Gene Therapy Program. The 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 3130XL Genetic Analyzers) and the latest protocols to ensure high quality results at reasonable prices. The Facility also houses an ABI Prism 7900 HT (a high throughput real-time PCR system) and a Biomek2000 liquid handling robot. The Genomics Core Facility is located in the CSRB, room 738D. For further information, visit the [webpage](#).

j. **Vector Core** - The Vector Core is based at LSUHSC in the MEB and facilitates research through the preparation of stocks of pre-existing vaccine delivery vectors, and the provision of facilities for vector preparation. Current core services include large-scale preparation and quality control of replication-defective poxvirus vectors, including recombinant MVA (modified vaccinia Ankara strain) vectors and FPV (fowlpox virus) vectors. Dedicated space, including biohazard hoods, incubators and centrifuges, is also available for qualified investigators to prepare and grow their recombinant adenovirus stocks under Core supervision. The Core also maintains an inventory of plasmids and cell lines that are useful in the development of recombinant vectors. For more information contact [Dr. Alistair Ramsay](#) or [Olga Nichols](#).

k. **The Epidemiology Data Center (EDC)** - The Epidemiology Data Center (EDC) provides biostatistical, epidemiological, and study design support for health-related research projects sponsored by federal agencies, industry, and other funding sources. The staff at the EDC can assist with questionnaire and data collection form design, implementation of study protocols, data management, data entry, and statistical, database programming.

The EDC hosts and provides research support for an LSU Health REDCap (Research Electronic Data Capture) installation. This secure, web-based software was first developed by researchers at Vanderbilt University, and is currently supported by an international consortium of users. Using REDCap, the research team can design web-based surveys and engage potential respondents using a variety of notification methods, including email survey invitations and text messages. REDCap provides flexible features that can be used for a variety of research projects and provides an intuitive interface to enter data with real time validation (automated data type and range checks). The system offers easy data manipulation with audit trails, reports for monitoring and querying participant records, and an automated export mechanism to common statistical packages (SPSS, SAS, Stata, R/S-Plus). For those conducting clinical trials, the EDC designs and manages data management projects using REDCap Cloud, a HIPAA compliant, web-based software ideal for early phase trials requiring FDA compliant electronic data management systems. In addition, The EDC designs high-quality scannable paper forms using OpenText Teleform v10.7 software. Once data has been verified as accurate and complete, it is exported to any standard format for data analysis purposes. The EDC also creates electronic online forms and surveys using SurveyGizmo® software. Additionally, the center can provide epidemiologic methodologic and statistical support for all phases of study design, execution and analyses. More information can be found [here](#) or [email](#).

1. ***Clinical Trials and Translational Research Core*** - The LSUHSC Clinical and Translational Research Center (CTRC) is approximately 2,000 square feet. This space is located in the LSUHSC Seton Building at 2025 Gravier Street, Room 652. It includes five exam rooms, two interview rooms, two offices, medical records room, core lab, lobby, and a nurse's station. Any LSU investigator or their affiliates conducting an Institutional Review Board (IRB) approved clinical research project may apply to use the LSU CTRC on a fee-for-service basis. The cost for using the CTRC and its services for a pharmaceutical or investigator-initiated study will vary according to the services utilized and available funding. The CTRC will provide a cost analysis for study implementation, which is subject to review and approval prior to study initiation. Study submission begins with the completion of the CTRC application in SPARC at [sparc.lacats.org](http://sparc.lacats.org). CTRC has the following equipment for use: KoKo Spirometry, Bod Pod (Total Body Composition), Welch Allyn Spot Vital Signs machines with pulse oximetry, Interview rooms equipped with computers for questionnaire and data input, EKG, Hemocu, Glucometer, and Indirect Calorimetry.

## **m- Off Campus Collaborative Core Facilities**

1. ***Xavier Nanotechnology Core- Dr. Tarun Mandal, PhD, Director***. It is the mission of the Vaccine Delivery/Nanotechnology Core facility to support and advance vaccine research capacity by providing novel and innovative vaccine delivery formulations. The major goal of the Core, located at Xavier University, is to maintain a state-of-the-art innovative polymeric vaccine delivery research facility in order to support inter-disciplinary research.

Core personnel will provide leadership in planning, designing, and implementing innovative nanotechnology and will also assist investigators in conducting preformulation and formulation studies of any potential novel vaccine delivery system for preclinical and NDA studies (New Drug Application following USFDA guidelines). Nano-delivery technology can be developed and/or adapted, in collaboration with researchers, to address the special requirements of either systemic or mucosal (i.e., intranasal, pulmonary, oral, or intra-vaginal) particle-mediated delivery of peptides, proteins and/or recombinant DNA vaccines in preclinical and, ultimately, clinical studies. Targeted particle- or lipid-mediated delivery either of proteins via novel routes (e.g., transcutaneous) or of alternative recombinant vaccine vectors is already under development in the Core and this technology will be made available to other investigators.

Currently, the NIH-funded nanotechnology research laboratory is equipped with R&D-scale pharmaceutical formulation equipment, with a research staff that has developed unique skills in micro-encapsulation for controlled release.

2. **Imaging Core – LSU Baton Rouge** - [Dr. Xiaochu Wu, PhD](#), Director. The SVM Microscopy Center is a suite of rooms housed on the third floor of the LSU School of the Veterinary Medicine Building on the LSU Baton Rouge Campus. The entry points for the Center are rooms 3444 and 3434. The Microscopy Center welcomes visitors and users from all areas. The Microscopy Center is a cost service center. The center provides service from sample preparation to image analysis. Currently, the center has transmission electron microscopy (TEM), scanning electron microscopy (SEM), confocal laser scanning microscopy (CLSM), laser capture microdissection (LCM), and several fluorescence microscopes. All of these instruments are fully functional for regular and advanced research. Training can be provided by the Microscopy Center. With more than 20 years of experience, we provide high quality and user-satisfied service.

## **10- Major Equipment within the School of Medicine (SOM)**

A complete listing of the major equipment found in both private and core facilities can be found using the [Faculty Interest Database](#). Not only is the type of equipment is listed, but also the faculty member in charge of it, and where it is located. Contact the faculty member directly for more information on the possible shared use of the equipment.

## **11- Funding Sources**

### **a. Internal**

The Dean of the School of Medicine has implemented several programs to provide institutional support for faculty research, (1) a **Bridge Grant Program**, (2) a **New Project Grant Program**, (3) **Clinical Research Grants Program**, (4) **Resident Research Grants Program**, (5) **LSUHSC School of Medicine/LSU Collaborative Grants Program**, and (6) **Laboratory Supplements for Successful Grant Proposals Program**. The guidelines for these Research Enhancement Funds (REFs), can be found [here](#). *The deadlines for submission to the Bridge Grant, New Project Grant Program, and Clinical Resident Research Grants Program are March 9, July 9, and Nov. 9.* There is no deadline for submission to the Laboratory Supplements for Competitive Proposals Program, or Resident Research Grants Program. LSUHSC School of Medicine/LSU Collaborative Grants Program are offered annually, with deadlines TBA (generally in the Fall).

- (1) The purpose of the **Bridge Grant** program is to assist investigators who have previously been funded and are experiencing a temporary disruption in their extramural support. These investigators can request up to two years of support (lab personnel and supplies but no faculty) through this mechanism. The guidelines containing the requirements for preparation of these proposals can be found [here](#).
- (2) The purpose of the **New Project Grant** program is primarily focused on support for new faculty whose start-up funding could not effectively support their current research programs. Funding of new research directions from established faculty without current extramural funding will also be considered. These grants will provide funding for one year, and will require a commitment of Departmental/Center support. Submission details may be obtained [here](#).
- (3) The purpose of the **Clinical Research Grant Program** was established to provide funding necessary for the development of clinical research projects into competitive applications that are supported by extramural agencies. The goal of this program is to provide institutional support for full-time clinical faculty on either the clinical- or tenure-track who have a research idea that needs to be better developed before it can be submitted for extramural support. Submission details can be obtained [here](#).

- (4) The purpose of the **Resident Research Opportunities** is to provide institutional support to foster the resident research and scholarly activities. Eligibility requires the applicant to be an LSUHSC School of Medicine resident. The application must also include a sponsoring faculty member who will take responsibility for the research training of the applicant. The School of Medicine will provide up to \$2,500 for resident research, which is contingent on a statement from the department head committing at least an equal amount in matching funds. Submission details can be obtained [here](#).
- (5) The purpose of the **LSUHSC School of Medicine/LSU Collaborative Grants Program** is to promote interdisciplinary and other team approaches to biomedical research. Following the NIH multi-PI format, applications are required to include two co-Principal Investigators from two different participating campuses (e.g., 1 Co-PI from LSU A&M and 1 from LSUHSC-NO, 1 from LSU A&M and 1 from PBRC, or 1 from PBRC and 1 from LSUHSC-NO). Funding will be awarded as an internal grant by each participating campus. It is anticipated that 6-8 pilot projects will be awarded. Project budgets should not exceed \$75,000 in direct costs over a one-year period. Indirect costs are not allowed. Awarded funds will be distributed equally between the collaborating investigators (i.e. \$37,500 to the PI from each campus). The project period is February 1, 2018, through January 31, 2019. For more information [click here](#).
- (6) The purpose of the **Laboratory Supplements for Successful Grant Proposals** program is to provide direct laboratory support for investigators receiving grants from the NIH, NSF, or DOD. For more information [click here](#).

## **b. External- Grant Resources: Locating Funding Opportunities**

Locating funding for research is critical to any medical and/or academic institution. Understanding the funding process and the types of research being funded is essential for success, as is successfully searching available resources.

The funding environment is extremely complex. One must understand how to navigate the governmental versus privately funded processes. Budget development, grant-writing skills, submission of periodic reports, and follow up of application deadlines are an essential part of the process. One must be astute in knowing what is being funded and how to seek those opportunities that are available.

Grants.gov and Community of Science (COS) cover biomedical research and science education. Governmental funding is readily located using these two databases. InfoEd: SPIN/Smarts covers a wide variety of opportunities from the government and private sector. Search each of the databases. After a review of the brief summaries, determine which database(s) would be most effective to search.

1. **NIH RePORT (Research Portfolio Online Reporting Tools)** is a searchable database of federally funded biomedical research projects conducted at universities, hospitals, and other research institutions. Other searchable fields are available making RePORTer an essential tool in the search for funding opportunities. NIH RePORTer information is available online [here](#).
2. **InfoEd: SPIN/Smarts** is a searchable database from more than 2,500 different sponsoring agencies, which comprise more than 11,000 separate opportunities. To ensure integrity, all SPIN information is obtained directly from the sponsoring agencies. [Click here](#).
3. **Community of Science** is the world's most comprehensive funding resource, with more than 22,000 records representing nearly 400,000 opportunities, worth over \$33 billion. [Click here](#).

4. **GrantsNet** provides research-funding information from the American Association for the Advancement of Science. [Click here.](#)
5. **Grants.gov** allows organizations to electronically find and apply for competitive grant opportunities from all Federal grant-making agencies. Grants.gov is the single access point for over 1000 grant programs offered by the 26 Federal grant-making agencies. [Click here.](#)
6. **Guidestar** is the leading source of information on U.S. nonprofits, with a searchable database of more than 1.7 IRS-recognized nonprofit organizations. [Click here.](#)
7. **Conafay Group:** Consulting group from Washington, D.C. that works with NIH and Department of Defense, and attempts to link researchers with federal funding sources. [Click here.](#)

## **Federal Funding**

The most common federal research funding agencies are the National Institutes of Health (NIH), National Institute of Science and Technology (NIST), National Science Foundation (NSF), and Department of Defense (DOD). Each has different funding mechanisms and funding divisions. The LSUHSC Office of Research Services, as well as the SOM Research Office, and your Departmental Chairman, should be able to help you identify appropriate funding divisions.

### **NIH – National Institute of Health**

The NIH funds the largest number of biomedical research grants of any federal agency. It has 27 funding divisions or Institutes. Below is a listing of all the NIH Institutes and their web links. You should determine which institute is the most appropriate for your research type.

<b>Institute</b>	<b>Web Link</b>
<b>National Cancer Institute</b> (NCI)	<a href="http://www.cancer.gov">www.cancer.gov</a>
<b>National Eye Institute</b> (NEI)	<a href="http://www.nei.nih.gov">www.nei.nih.gov</a>
<b>National Heart, Lung, and Blood Institute</b> (NHLBI)	<a href="http://www.nhlbi.nih.gov">www.nhlbi.nih.gov</a>
<b>National Human Genome Research Institute</b> (NHGRI)	<a href="http://www.genome.gov">www.genome.gov</a>
<b>National Institute on Aging</b> (NIA)	<a href="http://www.nia.nih.gov">www.nia.nih.gov</a>
<b>National Institute on Alcohol Abuse and Alcoholism</b> (NIAAA)	<a href="http://www.niaaa.nih.gov">www.niaaa.nih.gov</a>
<b>National Institute of Allergy and Infectious Diseases</b> (NIAID)	<a href="http://www.niaid.nih.gov">www.niaid.nih.gov</a>
<b>National Institute of Arthritis and Musculoskeletal and Skin Diseases</b> (NIAMS)	<a href="http://www.niams.nih.gov">www.niams.nih.gov</a>
<b>National Institute of Biomedical Imaging and Bioengineering</b> (NIBIB)	<a href="http://www.nibib.nih.gov">www.nibib.nih.gov</a>
<b>Eunice Kennedy Shriver National Institute of Child Health and Human Development</b> (NICHD)	<a href="http://www.nichd.nih.gov">www.nichd.nih.gov</a>
<b>National Institute on Deafness and Other Communication Disorders</b> (NIDCD)	<a href="http://www.nidcd.nih.gov">www.nidcd.nih.gov</a>
<b>National Institute of Dental and Craniofacial Research</b> (NIDCR)	<a href="http://www.nidcr.nih.gov">www.nidcr.nih.gov</a>
<b>National Institute of Diabetes and Digestive and Kidney Diseases</b> (NIDDK)	<a href="http://www.niddk.nih.gov">www.niddk.nih.gov</a>
<b>National Institute on Drug Abuse</b> (NIDA)	<a href="http://www.drugabuse.gov">www.drugabuse.gov</a>
<b>National Institute of Environmental Health Sciences</b> (NIEHS)	<a href="http://www.niehs.nih.gov">www.niehs.nih.gov</a>
<b>National Institute of General Medical Sciences</b> (NIGMS)	<a href="http://www.nigms.nih.gov">www.nigms.nih.gov</a>
<b>National Institute of Mental Health</b> (NIMH)	<a href="http://www.nimh.nih.gov">www.nimh.nih.gov</a>
<b>National Institute of Neurological Disorders and Stroke</b> (NINDS)	<a href="http://www.ninds.nih.gov">www.ninds.nih.gov</a>
<b>National Institute of Nursing Research</b> (NINR)	<a href="http://www.ninr.nih.gov">www.ninr.nih.gov</a>
<b>U.S. National Library of Medicine</b> (NLM)	<a href="http://www.nlm.nih.gov">www.nlm.nih.gov</a>
<b>Center for Information Technology</b> (CIT)	<a href="http://www.cit.nih.gov">www.cit.nih.gov</a>
<b>Center for Scientific Review</b> (CSR)	<a href="https://public.csr.nih.gov">https://public.csr.nih.gov</a>
<b>Fogarty International Center for Advancing Science for Global Health</b> (FIC)	<a href="http://www.fic.nih.gov">www.fic.nih.gov</a>
<b>National Center for Complementary and Integrative Health</b> (NCCIH)	<a href="http://www.nccih.nih.gov">www.nccih.nih.gov</a>
<b>National Institute on Minority Health and Health Disparities</b> (NIMHD)	<a href="http://www.nimhd.nih.gov">www.nimhd.nih.gov</a>
<b>National Center for Research Resources</b> (NCRR)	<a href="http://www.nih.gov/research-training">www.nih.gov/research-training</a>
<b>NIH Clinical Center</b> (CC)	<a href="https://clinicalcenter.nih.gov/">https://clinicalcenter.nih.gov/</a>

The NIH has a number of different funding mechanisms. You should review each mechanism and determine which is right for your project. Some grant mechanisms are Principal Investigator initiated and some are training grants.

### **R01 Research Project Grant**

The [Research Project Grant \(R01\)](#) is an award made to an institution/organization to support a discrete, specified, circumscribed project to be performed by the named investigator(s) in areas representing the specific interests and competencies of the investigator(s). The R01 research plan proposed by the applicant institution/organization must be related to the stated program interests of one or more of the NIH Institutes and Centers (ICs) based on descriptions of their programs. All research project grant applications described in this announcement will be assigned to NIH ICs according to standard Public Health Service (PHS) referral guidelines and specific program interests. Investigators are encouraged to consult the participating NIH ICs [websites](#).

### **R03 Grant**

The R03 grant supports small research projects that can be carried out in a short period of time with limited resources. The R03 small grant supports discrete, well-defined projects that realistically can be completed in two years and that require limited levels of funding. Because the research project usually is limited, an R03 grant application may not contain extensive detail or discussion. Accordingly, reviewers should evaluate the conceptual framework and general approach to the problem. Appropriate justification for the proposed work can be provided through literature citations, data from other sources, or from investigator-generated data. Preliminary data are not required, particularly in applications proposing pilot or feasibility studies. Limited to two years of funding. Direct costs generally up to \$50,000 per year. Not renewable. For more information [click here](#).

### **R21 NIH Exploratory/Development Research Grant Program**

The [Exploratory/Developmental Grant \(R21\)](#) mechanism is intended to encourage exploratory and developmental research projects by providing support for the early and conceptual stages of these projects. These studies may involve considerable risk but may lead to a breakthrough in a particular area, or to the development of novel techniques, agents, methodologies, models, or applications that could have a major impact on a field of biomedical, behavioral, or clinical research.

### **K01 Mentored Research Scientist Development Award**

The purpose of the [Mentored Research Scientist Development Award \(K01\)](#) is to provide support and “protected time” (three, four, or five years) for an intensive, supervised career development experience in the biomedical, behavioral, or clinical sciences leading to research independence. Awards are not renewable, nor are they transferable from one principal investigator to another.

### **K02 Independent Scientist Award**

In general, the [Independent Scientist Award \(K02\)](#) provides support for newly independent scientists (see IC provisions) who can demonstrate the need for a period of intensive research focus as a means of enhancing their research careers.

### **K08 Mentored Clinical Scientist Research Career Development Award**

The [Mentored Clinical Scientist Research Career Development Award \(K08\)](#) represents the continuation of a long-standing NIH program that provides support and “protected time” to individuals with a clinical doctoral degree for an intensive, supervised research career development experience in the fields of biomedical and behavioral research, including translational research. An award is for a period of 3 to 5 years and provides support for salary and research-related costs. The amount funded as salary for a career development award varies among the NIH participating Institutes and Centers (ICs).

### **K23 Mentored Patient-Oriented Research Career Development Award**

The purpose of the [Mentored Patient-Oriented Research \(POR\) Career Development Award \(K23\)](#) is to support the career development of investigators who have made a commitment to focus their research endeavors on patient-oriented research. This mechanism provides support for three to five years of supervised study and research for clinically trained professionals who have the potential to develop into productive, clinical investigators focusing on patient-oriented research. Applicants must justify the need for a period of mentored research experience and provide a convincing case that the proposed period of support and career development plan will substantially enhance their careers as independent investigators in patient-oriented research.

### **K99/R00 NIH Pathway to Independence (PI) Award**

The [K99/R00 award](#) provides an opportunity for promising postdoctoral scientists to receive both mentored and independent research support from the same award. The initial phase will provide 1-2 years of mentored support for highly promising, postdoctoral research scientists followed by up to 3 years of independent support contingent on securing an independent research position. Award recipients will be expected to compete successfully for independent R01 support from the NIH during the career transition award period.

## **12- Contract Research**

A source of funding for research may evolve from a relationship between an LSUHSC investigator and a healthcare company (sponsor) interested in outsourcing some of its research. Once you have negotiated the Scope of Work and budget (to include university-negotiated fringe benefit rates and facilities and administrative cost rates (42% for FY2009), an electronic version of the agreement must be emailed to [Dr. Alam](#) in the Office of Research Services for additional review.

If necessary, Dr. Alam will send the agreement to the Office of Technology Development to ensure that all of the intellectual property and patent clauses are acceptable. The revised version is then sent back to you, at which time you should contact the sponsor and ask them if they will accept our changes.

Once the Office of Research Services and the sponsor reach an agreement, the final version (4 originals) is sent to the sponsor for signatures and returned to you for execution. You then bring the copies of the agreement to the Office of Research Services for university approval and signatures. Full IBC/IRB/IACUC is required before a contract can be executed. For additional information, please see [Procedures for Processing Agreements and Contracts](#).

## **13- Conflicts of Interest in Research**

LSUHSC-NO encourages faculty, staff, students, house officers, and other employees to participate in meaningful professional relationships with industry, government, and private entities. These relationships are established for mutually beneficial reasons and many times produce knowledge and intellectual property that will help the community at large. However, these relationships may create financial or non-financial interests that have the potential to create a bias in decisions. For webpage and forms [click here](#).

## **14- Grants and Contracts Submission Process**

Depending on where you are submitting a grant, the process is slightly different. Your first resources should be the LSUHSC Office of Research, the SOM Associate Dean for Research office, and your departmental business manager.

## **15- Office of Research Services**

All electronic grant submissions to the NIH, NSF, and DOD are uploaded by this office. At least 10 working days in advance of an application deadline, principal investigators (PIs) should provide to the Office of Research Services:

1. A Routing Sheet
2. A Project Abstract
3. A Face Page
4. A Budget and Budget Justification
5. A Checklist
6. Information on Regulatory Approvals (IRB/IACUC/IBC)
7. Consortium Letters (If Applicable)

*Copies of these forms and other helpful administrative information may be found [here](#).*

Final versions of grants (with institutional approved budgets) must be sent to this office 5 working days before the grant submission deadline. Your business manager will be able to help you with your budget pages and will route them for institutional signatures.

## **16- School of Medicine Office of Research (SOM)**

The Office of Research was established to foster research within the LSUHSC-New Orleans School of Medicine, to advise the Dean of the School of Medicine on matters related to research at LSUHSC-NO, serve as a liaison between faculty and the Dean, and serve as a liaison among the Department Heads, Center Directors and the Dean on research-related matters. Within this office, the Director of Research Development is available to assist the faculty in determining funding and collaborative opportunities. You may reach them by email [School of Medicine Research](#).

## **17- Publications**

In an effort to keep up-to-date on the expertise of our faculty, the SOM requires that, upon acceptance, copies of all full-length manuscripts to be published in peer-reviewed journals be sent to the SOM Research Office. These can be submitted electronically to [SOMResearch@lsuhsc.edu](mailto:SOMResearch@lsuhsc.edu).

## **18- Statistical Analysis**

[Dr. Zhide Fang](#), Professor of Biostatistics, and some of his colleagues in the School of Public Health offer statistical consulting services. Specifically, they will offer assistance with initial (pre-data collection) experiment and project planning, experimental design and power analysis, statistical analysis; assistance in writing of statistical methods sections for grant and paper methods and result sections. Dr. Fang is an expert in DNA array analysis and other aspects of bioinformatics.

## **19- Travel**

Prior approval for all domestic travel must be obtained before any business trip is taken, including travel that you will not be reimbursed for. The approval form ensures that LSUHSC's workman's compensation insurance covers you while you are away. Your business manager will have the prior approval form electronically for you to fill out and route for appropriate approval signatures. This form should be filled out and routed at least two weeks prior to travel.

Additionally, international travel requires the SOM International Travel Committee approval. These approval forms are a little more extensive and need to be submitted for SOM approval at least 2 months prior to travel. Your business manager will have the electronic forms you need. All travel paid for by companies and/or meeting organizers must also be disclosed in [Permanent Memorandum Form Number 11 \(PM11\)](#).

## **20- Disclosure of Outside Reimbursements and Compensation**

The President of the LSU System and LA State Board of Regents have put in place a number of [Presidential Permanent Memoranda \(PM\)](#) that govern faculty behavior. PM 11 covers the disclosure of outside income. Louisiana State University recognizes that certain outside employment activities are of benefit to the University, to the State of Louisiana and to the private sector as well as to individual employees. Although the University recognizes a right of employees to engage in outside employment, it has established policies and procedures requiring that such outside employment be disclosed and submitted for administrative review and approval. Outside employment is defined as any non-University activity for which economic benefit is received. A [PM 11 Disclosure Form](#) must be submitted for all income received as a result of your LSUHSC employment, such as consulting fees and travel reimbursement. Complete information on this memorandum and the appropriate forms can be found [here](#). The completed form should be routed to the office of the Vice-Chancellor of Academic Affairs.

## **21- Technology Development**

The primary responsibility of the Office of Technology Development is to facilitate the research enterprise. Specifically, the office assists faculty, staff, and students whose research leads to inventions with the process of transferring significant novel intellectual property from the laboratory to the market place. Inventors are strongly encouraged to disclose inventions to the Office of Technology Development before submitting manuscripts for publishing. Disclosure forms can be found at [here](#). Inventors are asked to present their disclosed inventions to the Technology Transfer committee which reviews all disclosed inventions. The evaluation process is helpful in clarifying the scope and range of the invention. The major steps in technology transfer are: disclosure of inventions; evaluation and marketing; patent prosecution; finding a licensee, negotiation of license agreements; and management of active licenses.

Additionally, the office is charged with establishing and enabling the relationships necessary for certain aspects of research and collaboration to occur, including Material Transfer Agreements, Confidential Disclosure Agreements, and InterInstitutional Agreements. [Patrick E. Reed, MS, RTTP](#) is the Director of the office, and you may contact him with any questions.

## **22- Room Request Reservations**

To reserve rooms/classrooms please go to the links below for more information.

To request room reservation for the **Downtown Campus** [click here](#) or [email](#).

To request room reservation for the **Dental Campus** [click here](#) or [email](#).