

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
<http://www.medschool.lsuhschool.edu/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	5
4. Purchasing	5
5. Personnel	6
6. Research Compliance Approval Processes	6
a. Institutional Biosafety	6
b. Radiation Safety	7
c. Institutional Animal Care and Use	7
d. Institutional Review Board (Clinical Studies)	7
e. HIPAA	8
7. Animal Care Facility	8
8. Material Transfer Agreements	8
9. Core Facilities	9
a. Proteomics	9
b. Immunology	9
c. Morphology & Imaging	10
d. Genomics	10
e. Molecular Interaction	10
f. Microarray & Bioinformatics	11
g. Vaccine Technology/Vector Development	11
h. Tissue/Biospecimen Repository	12
i. Clinical Trails & Translational	12
j. Off Campus Collaboration Core Facilities	13
i. Xavier Nanotechnology	13
10. Major Equipment	13
11. Funding Sources	14
a. Internal	14
b. External	15
12. Grants and Contracts Submission Process	19
13. Publications	20
14. Travel	20
15. Disclosure of Outside Reimbursement and Compensation	20
16. Technology Development	21
17. Access Grid Conference Facilities	21

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 which complement your own efforts.

How do you find these people? The School of Medicine (SOM) is currently in the process of developing a searchable database of faculty research, Faculty Research Interest Project (FRIP). Unfortunately, the database is not yet operational. However, there are still ways of identifying potential collaborators. First, where would the person with the expertise you are looking for most likely be located, departmentally? Once you decide on the departments of interest, then go to the SOM website and investigate those departments. Contact information and research interests are available for each faculty member.

Still not finding who you are looking for? Contact the office of the Associate Dean for Research, Dr Wayne Backes (wbacke@lsuhsc.edu). He and his staff are knowledgeable about the ongoing research in the SOM and in many of the other schools within LSUHSC.

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. But 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.

That is because, at its core, mentoring is a personal as well as professional relationship. At different times, for different purposes, a mentor may function as an advisor, supporter, tutor, sponsor, or collaborator. A mentor may be your supervisor, a more experienced colleague, a teacher, or even a peer. Mentoring is a learning relationship grounded in mutual self-reflection and can be a powerful growth experience for both the mentee and mentor.

The SOM has a mentoring program which provides assistance in identifying mentors for faculty members. Go to the www.medschool.lsuhs.edu/research website. Under Academic Career Development, complete and submit a mentoring form.

Library Resources

LSUHSC has two libraries which service all six schools in the Health Sciences Center. The John P. Isché Library is located on the 3rd floor of the Resource Center building on the main campus (www.lsuohsc.edu/no/library) and the School of Dentistry Library is located on the 3rd floor of the dental school administration building (www.lsusd.lsuohsc.edu/libr). 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 userid & 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 (www.lsuohsc.edu/no/library/ss&d/remote.html) 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.

Purchasing

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

External purchasing may be done using both 1) La Carte Purchasing credit cards and 2) Purchase Orders. Both 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.

La Carte Purchasing credit cards (p-cards) allow you to purchase items under \$1,000 without obtaining a purchase order. The card is in your name and must be reconciled on a monthly basis with paid receipts. There are specific guidelines on what may or may not be purchased with this card. Ms. Danielle Burlison in the LSUHSC Purchasing Department is in charge of all p-cards (dburli@lsuohsc.edu). Please contact her and/or your business manager about obtaining a card and training on its use. More information about p-cards can be found at www.lsuohsc.edu/no/administration/supplychain/lacarte/default_files/lacartehome.aspx.

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 at www.lsuhs.edu/no/administration/supplychain/purchasing/default.aspx

Lab Personnel

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. Postdocs are normally advertised for on a national level. Research associates are advertised on a local level. 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.).

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 Kathleen McDonough, PhD, Associate Dean For Graduate Studies regarding your eligibility. More information is also online at www.graduatestudies.lsuhs.edu.

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. For more information on how to become a research mentor contact the SOM Office of Student Affairs. There is also a medical student Honors Research Program which is directed by Michael Levitzky, PhD (mlevit@lsuhsc.edu). Please contact him for more information.

Research Compliance Approval Processes

Institutional Biosafety Committee (IBC)

All research conducted at this institution must undergo an IBC Review. 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. The training session schedule is available at www.is.lsuhs.edu/safety/class.aspx. The Office of Risk Management (ORM) oversees the administration of the classes.

Additionally, an IBC protocol form must be submitted for every project (www.lsuhs.edu/no/administration/rs/IBC_Protocol_Submittal_Form.doc). There is also an annual update form (www.lsuhs.edu/no/administration/rs/IBC_Annual_Update_Form.doc). For more additional information contact James Thompson, PhD, head of the IBC.

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. Mr. Jim Davis is in the Institutional radiation officer. Contact him for the course schedule or see www.is.lsuhs.edu/safety/radiation.aspx. After passing the course faculty members must submit a Radiochemical Use application to the Radiation committee for a 3 year permit for radiation purchases. The application can be found at www.is.lsuhs.edu/safety/permit.aspx.

Institutional Animal Care and Use Committee (IACUC)

The IACUC provides oversight for the welfare of animals used in research. All animal purchase and use must be pre-approved by the IACUC. The applications should be submitted by the last Monday of every month for review at the Committee on the 3rd Monday of the following month. There are three types of application forms: 1) Research Protocol Application Form; 2) Breeding Colony Application Form, and 3) Protocol Amendment Form. The forms can be found at www.lsuhs.edu/no/administration/rs/IACUC_Forms.htm. However, IACUC approval will not be given until IBC exemption or approval (see above) is received. Even though they are reviewed independently, it is helpful to prepare and submit the IBC and IACUC forms simultaneously to their respective committees. Ms. Rose Castay is the IACUC Coordinator in the Office of Research. Contact her for further information at rcasta@lsuhs.edu.

Institutional Review Board (IRB)

The IRB provides oversight for the protection of human subjects used in research. All clinical studies, even chart reviews, must be approved by the IRB prior to initiation of the work. The IRB forms can be found at

www.lsuohsc.edu/no/administration/rs/irb/default.htm. Ms. Charlene Walvoord is the senior IRB coordinator in the Office of Research. Contact her for further information at cwalvo@lsuohsc.edu.

HIPAA

The Office of Compliance Programs (OCP), www.lsuohsc.edu/no/administration/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 which can be found at www.lsuohsc.edu/no/administration/ocp/hipaa.aspx. Additionally, all employees must read and send a signed Code of Conduct Attestation to the OCP. The Code of Conduct can be found at www.lsuohsc.edu/no/administration/ocp/conduct.aspx.

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. Reynaldo Gonzales, DVM is the Director of the Animal Care Facility. 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 (Ms. Merrill Frost, mfrost@lsuohsc.edu). The forms and additional information on husbandry services, veterinary services, animal charges, and per diem rates may be found at https://intranet.lsuohsc.edu/animalcare/Admin_Services.htm.

Material Transfer Agreements

When transferring or receiving any Biological Material to or from another investigator outside of LSUHSC-NO or any company, a Material Transfer Agreement must be executed through the Office of Technology Transfer, Mr. James Hardy (jhardy@lsuohsc.edu). Biological Material refers to any virus or bacteria strain as well as all clones, mutants, progeny and derivatives thereof. The basic Material Transfer Agreement can be found at <http://www.lsuohsc.edu/no/administration/otd/forms.htm> or <http://www.lsuohsc.edu/no/administration/otd/MTA.pdf>

Also 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 (http://www.autm.net/aboutTT/aboutTT_umbtaSigs.cfm) may opt to use a UVMTA Implementing Letter (http://www.lsuhs.edu/no/administration/otd/UBMTA_implementing_letter.doc) in lieu of individual institutional MTAs to simplify the inter-institutional materials transfer process.

Core Facilities

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

Proteomics

The Proteomics Core Facility is a resource of LSU Health Science Center New Orleans, sponsored by the SOM. It is located on the 5th floor of the CSRB and is managed by Chau-Wen Chou, PhD. 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. Chou (cchou@lsuhsc.edu) or visit the webpage at www.medschool.lsuhs.edu/physiology/proteomics.

Immunology

The SOM has two Immunology Cores to assist investigators in the measurement of immune responses in cancer- and vaccine-related studies and data analysis.

The Oncology Immunology Core occupies approximately 500 square feet on the 4th floor of the LSU Stanley Scott Cancer Center in the Clinical Sciences Building. The Core is open 8am-5pm Monday-Friday and services are available to all researchers. Assays include complete flow cytometry, cell purification (AutoMacs & FACS Aria), and cytokine production services. Beatriz E. Finkel-Jimenez, PhD (bfinke@lsuhsc.edu) is the director of the core.

The Vaccine Immunology Core is directed by and has a fully qualified FACS operator (Constance Porretta, MS). Full FACS acquisition services are provided. Additionally, the Core facilitates the study of the immune dysfunction in T cells

and macrophages of patients with infectious disease. The Core is located in the CSRB on the 3rd floor in room 3B10.

Morphology and Imaging

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 6th floor of the Clinical Sciences Research Building. This resource is affiliated with the Department of Medicine, the Stanley S. Scott Cancer Center and the Center for Human and Molecular Genetics. More information can be found at www.medschool.lsuhs.edu/GeneTherapy/MIC/Home/index.html.

Genomics

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 through-put real-time PCR system) and a Biomek2000 liquid handling robot. The Genomics Core Facility is located in the CSRB, room 3G1 (357). For further information please contact Angela Flynn at apitts@lsuhsc.edu or www.medschool.lsuhs.edu/genetics/genomicscore.

Molecular Interaction

This core is located at the Research Institute for Children (Children's Hospital Campus, Uptown) and utilizes Biacore technology (www.biacore.com) to study intermolecular interactions in real time. Core Directors are Seth Pincus, MD and M. Corti, PhD. They can be contacted at spincu@lsuhsc.edu and mcorti@chnola-research.org, respectively.

Using the principle of surface plasmon resonance, this technique can be used to determine association and dissociation kinetics, and perform concentration analyses. This technology has proven extremely useful in determining affinities of monoclonal antibodies and of polyclonal antisera.

Because antibody affinity is often a correlate of protective activity, this presents a method for analyzing the quality of the antibody response elicited by experimental vaccines. Other uses for this technique include defining interactions between peptides and other low molecular weight ligands and larger molecules including antibodies, receptors, and enzymes. More details about this methodology may be obtained on the company's website.

Microarray and Bioinformatics

The Microarray Core provides researchers with the expertise and instrumentation necessary for RNA transcript profiling using Affymetrix's *GeneChip* technology. Consultation on RNA extraction, experimental design, data analysis, and data mining options are available. The Bioinformatics Core allows researchers to use the Rosetta Biosoftware Resolver software to analyze their own data. Other available data analysis packages include *GCOS* and Data Mining Tools (DMT), *GeneSpring*, and *BioConductor/R*. Other equipment available in the core includes the Nanodrop and the Agilent Bioanalyzer 2100 to assess RNA quality, two *GeneChip* fluidics stations, a *GeneChip* Hybridization Oven 640, and a *GeneChip* Scanner 3000 (*G7*). The Bioinformatics Center also is developing a web service (<http://gene2function.com>) that users can use to mine their gene- and protein-related data, and the ability to add additional public as well as user's databases. *Gene2function* will also enable users to search and extract annotated PubMed literatures through the *GeneRif* database. More information on both aspects of this Core can be found at www.medschool.lsuhs.edu/genetherapy/microarray.aspx.

Vaccine Technology/Vector Development

The Vaccine Technology/Vector Core facilitates research through the design, engineering, preparation, and purification of new recombinant vaccine vectors and novel vector technology. The Vector Core is based at LSUHSC in the Gene Therapy Program, and Robert Kutner (rkutne@lsuhsc.edu) is the Core Director. Core services include construction of new recombinant vectors, and large-scale preparation of recombinant vectors for use, and quality control. The Core

maintains an extensive inventory of plasmids and cell lines that are useful in the development of recombinant vectors.

Several vaccine vector systems are currently available through the Core: DNA vaccines, replication-defective adenoviral vectors, lentiviral vectors, and vectors based on oncogenic retroviruses including mouse stem cells virus (MSCV). More recent additions include vectors based on poxviruses (vaccinia or fowlpox) and adeno-associated virus (AAV). Current serotypes of the latter include AAV1, 2, 5, 7, 8, 9 and AAVrh10.

Tissue/Biospecimen Repository

The mission of the Biospecimen Core is to collect high quality samples of Fluids (i.e. whole blood, cellular blood components, plasma, serum, urine) and tissue from patients with tumors complied with an appropriate clinical data. This core is the primary interface with the clinical sites at which donors are enrolled and tissue samples and clinical data are collected. The core utilizes caBIG's Tissue Suite for biospecimen inventory, tracking, and basic annotation. This database permits researchers to track the collection, storage, quality assurance, and distribution of specimens as well as the derivation and aliquotting of new specimens from existing ones. Dr. Arnold Zea is the director and can be contacted at azea@lsuhsc.edu. More information can be found at <http://www.lcrc.info/research/biospecimen.htm>

Clinical Trials and Translational Research

The Clinical and Translational Research, Education, and Commercialization Project (CTRECP) is a joint effort of the Louisiana State University Health Sciences Center-New Orleans and Tulane University Health Sciences Center with funding from the Louisiana Board of Regents' Research Commercialization and Educational Enhancement Program (RC/EEP). The **CTRECP Research Core** includes the Clinical and Translational Research Center (CTRC) and the Core Laboratory, facilitating a broad range of patient-oriented scientific inquiry. The CTRC provides staffing for conduct of research protocols, including nursing staff, nutritional support, administrative assistance, and biostatistician support. The Core Laboratory develops and performs laboratory assays for clinical research projects. In addition, the Education/Training Core and Commercialization Core are available to support clinical research. All clinical trials require IRB approval (see above). Additional information on CTRECP may be found at ctrecp.neworleansbio.com. Dr.

John Estrada is the LSUHSC Associate Director and can be contacted at jestra@lsuhsc.edu.

Off Campus Collaborative Core Facilities:

Xavier Nanotechnology

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 pre-formulation 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 also 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. Contact Tarun Mandal, PhD for more information, tmandal@xula.edu.

Major Equipment within the SOM

A complete listing of the major equipment found in both private and core facilities can be found at www.medschool.lsuhs.edu/research/equipment_list.xls. The spread sheet is downloadable and searchable using the "Find" function under the "Edit" dropdown window. Not only 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.

Funding Sources

Internal-

The Dean of the School of Medicine has implemented three programs to provide institutional support for faculty research, (1) a Bridge Grant Program, (2) a New Project Grant Program, and (3) Laboratory Supplements for Competitive Proposals Program. The guidelines for these Research Enhancement Funds (REFs), can be found at

www.medschool.lsuhschool.edu/research/ResearchEnhancementGuidelines.pdf The deadlines for submission to the Bridge Grant and New Project Grant Programs are March 1, July 1, and Nov. 1. There is no deadline for submission to the Laboratory Supplements for Competitive Proposals Program.

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 at www.medschool.lsuhschool.edu/research/BridgeGrantProgram.pdf.

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 can be obtained at www.medschool.lsuhschool.edu/research/NewProjectApplication.pdf.

The purpose of the **Laboratory Supplements for Competitive Proposals** program is to provide direct laboratory support for investigators submitting grants to the NIH, NSF, or DOD that receive a competitive score. Details can be found at www.medschool.lsuhschool.edu/research/LaboratorySupportSupplements.pdf.

The Chancellor of LSUHSC, Dr. Larry Hollier, has established an Executive Research Council which oversees the administration of **Research Grants for Translational Research Initiatives**. These grants are investigator solicited. A basic scientist teamed with clinician(s) is required. One member should have a strong track record in extramural funding and one member should be a promising investigator with strong potential for extramural funding. The less experienced investigator will identify an experienced investigator who will serve as an advisor/mentor in addition to the co-investigator. Projects periods should be 2

years in length. A three-page concept sheet, biosketches, and budget are required. A signed statement that funded investigators and mentors will attend a half day meeting every 2 months to share progress must be included in the submission. The Executive Committee members will guide the development of these sessions 6 times a year. The Executive Research Council serves as the review committee. Proposals will be reviewed for innovation, quality/originality, feasibility, likelihood for extramural federal funding, and research foci (strength within the institution). The submission deadline is September 1, announcement of awardees October 1 and start date November 1. Fifteen copies of the proposal should be submitted to Dr. Nicolas Bazan (LSU Neuroscience Center, 2020 Gravier, 8th floor, New Orleans, Louisiana 70112) no later than September 1. Also an electronic copy should be emailed to zdavis@lsuhsc.edu.

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.

Community of Science (COS) and Grants.gov 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.

CRISP (Computer Retrieval of Information on Scientific Projects) is a searchable database of federally-funded biomedical research projects conducted at universities, hospitals, and other research institutions. The database searches "current and historical" awards given from 1972-2008. Key search fields include types of activities ranging from research grants, research projects, and fellowships to program projects, and more. New, competing and non-competing are the three types of awards. Other searchable fields are available making CRISP an

essential tool in the search for funding opportunities. CRISP is available on the Internet at <http://crisp.cit.nih.gov>.

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. <http://www.infoed.org/home/officemenu.asp>

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. <http://www.cos.com/>

GrantsNet provides research funding information from the American Association for the Advancement of Science.

http://sciencecareers.sciencemag.org/funding/funding_news#research

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. <http://www.grants.gov/>

Guidestar is the leading source of information on U.S. nonprofits, with a searchable database of more than 1.7 IRS-recognized nonprofit organizations.

<http://www.guidestar.org/>

Federal Funding

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

NIH

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 weblinks. You should determine which institute is the most appropriate for your research type.

Institute	Web Link
National Cancer Institute (NCI)	www.cancer.gov
National Eye Institute (NEI)	www.nei.nih.gov
National Heart, Lung, and Blood Institute (NHLBI)	www.nhlbi.nih.gov
National Human Genome Research Institute (NHGRI)	www.genome.gov
National Institute on Aging (NIA)	www.nia.nih.gov
National Institute on Alcohol Abuse and Alcoholism (NIAAA)	www.niaaa.nih.gov
National Institute of Allergy and Infectious Diseases (NIAID)	www3.niad.nih.gov
National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS)	www.niams.nih.gov
National Institute of Biomedical Imaging and Bioengineering (NIBIB)	www.nibib.nih.gov
Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD)	www.nichd.nih.gov
National Institute on Deafness and Other Communication Disorders (NIDCD)	www.nidcd.nih.gov
National Institute of Dental and Craniofacial Research (NIDCR)	www.nidcr.nih.gov
National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK)	www2.niddk.nih.gov
National Institute on Drug Abuse (NIDA)	www.nida.nih.gov
National Institute of Environmental Health Sciences (NIEHS)	www.niehs.gov
National Institute of General Medical Sciences (NIGMS)	www.nigms.nih.gov
National Institute of Mental Health (NIMH)	www.nimh.nih.gov
National Institute of Neurological Disorders and Stroke (NINDS)	www.ninds.gov
National Institute of Nursing Research (NINR)	www.ninr.nih.gov
National Library of Medicine (NLM)	www.nlm.nih.gov
Center for Information Technology (CIT)	www.cit.nih.gov
Center for Scientific Review (CSR)	cms.ccr.nih.gov
John E. Fogarty International Center for Advanced Study in the Health Sciences (FIC)	www.fic.nih.gov
National Center for Complementary and Alternative Medicine (NCCAM)	www.nccam.nih.gov
National Center on Minority Health and Health Disparities (NCMHD)	www.ncmd.nih.gov
National Center for Research Resources (NCRR)	www.ncrr.nih.gov
NIH Clinical Center (CC)	clinicalcenter.nih.gov

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. For example,

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 and their Web sites (see <http://www.nih.gov/icd>).

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.

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 Nicole Barron (nbarro@lsuhsc.edu) and Dr. Ken Kratz (kkratz@lsuhsc.edu) in the Office of Research Services for additional review. If necessary, Ms. Barron or Dr. Kratz 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 for approval of 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 www.lsuhs.edu/no/Administration/rs/Procedures_for_Processing_Agreements_Contracts.pdf.

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's office, and your departmental business manager.

Office of Research

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 at www.lsuhs.edu/no/administration/rs/GrantsContractsProcessing.htm.

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.

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. Complete a Publication Form and submit the form along with 3 copies of your paper to your department chairman. The Publication Form is available on the SOM Research site www.medschool.lsuhschool.edu/research.

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 one month 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).

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 Memorandums (PM) which govern faculty behavior. The complete list of these memorandum can be found on the LSUHSC website (<http://www.lsuhschool.edu/no/Administration/pm> or <http://www.lsusystem.lsu.edu/permanentmemoranda.html>).

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 PM11 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 at

<http://www.lsuhs.edu/no/Administration/pm/pm-11.aspx>. The completed form should be routed to the office of the Vice-Chancellor of Academic Affairs.

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 www.lsuhs.edu/no/administration/otd. 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 Inter-Institutional Agreements. Mr. James Hardy is the Director of the office. Contact him with any questions, jhardy@lsuhs.edu.

Access Grid Conference Facilities

The Access Grid Conference Facilities at the LSUHSC are a suite of hardware, software, and tools to facilitate collaboration over the internet. At the Access Grid Conference Facilities, you can participate in lectures, seminars, tutorials, and conferences. Access Grid technology is a versatile tool that allows true collaboration, from distant learning to virtual experiments, among all LBRN sites and other Access Grid sites around the world. In the SOM, there are four Access Grid Conference Rooms: Room 401 Lion's - will hold up to 15 people; Room

307/314 Lion's - will hold up to 60 people; Room 563 CSRB - will hold up to 90 people; and Room 835 Lion's - will hold up to 90 people.

The following procedure needs to be followed to reserve the rooms on the School of Medicine campus. Room 563 - This room can be reserved online by selecting http://www.lsuhscc.edu/no/administration/room_request/.

Room 401 - this room can be reserved by contacting Mr. Quang Tran (qtran3@lsuhscc.edu or enterpriseAVGroup@lsuhscc.edu). Room 307/314 - Currently, this room can be reserved by contacting Ms. Debra Brazley (dbrazl@lsuhscc.edu or 504-568-3156). Room 835 is reserved by contacting Ms. Zevie Davis (zdavis@lsuhscc.edu or 504-599-0831). Once the room has been reserved, the access grid can be scheduled by contacting enterpriseAVGroup@lsuhscc.edu. Please try to contact the enterprise group at least 1 week prior to the seminar or meeting.