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Artwork provided by Randa Eshaq, Barbara Thompson, and Andrew Yurochko.
Dear Friends and Colleagues,

Since its establishment in 2013, the Center for Cardiovascular Diseases and Sciences has significantly expanded cardiovascular research on the LSU Health Shreveport campus, gaining recognition with internationally competitive research programs, providing access to clinical trials vital to the local community, and training future physicians and scientists for the growth of the local biomedical workforce. Over the past year, we were officially recognized by the LSU Board of Regents as a Center of Excellence, making the Center for Cardiovascular Diseases and Sciences the third Center of Excellence on the LSU Health Shreveport campus.

CCDS faculty have again increased their productivity over the last year, bringing in more grant dollars and publishing more research papers this year than any in CCDS history. The COBRE Center for Redox Biology and Cardiovascular Disease expanded to include pilot pilots and graduated its first faculty when Dr. Chris Pattillo received his first R01 grant. Together with other faculty, Dr. Karen Stokes established the NIH-funded CURIOUS program to provide under-represented minority students with access to research experience in the CCDS laboratories. The CCDS expanded its core facilities to facilitate CCDS research expansion into novel areas, and our clinician scientists continue to advance treatment of cardiovascular disease in the Ark-La-Tex by participating in clinical trials, offering cutting-edge treatments, and providing additional training to the Ark-La-Tex healthcare workforce. I hope you enjoy this update, and thank you for your support.

The Mission of the CCDS is to invest in the future of cardiovascular research on this campus through identifying and enhancing research opportunities for the faculty, creating a strong environment for mentoring trainees and to facilitate clinical scientists to increase translational research on our campus.
CCDS Faculty Published **106 Research Articles** in 2018-2019.

CCDS Faculty and Trainees Brought in **over $9.2 million** in Extramural Funding in 2018-2019.

CCDS Investigators Filed **12 Technology Disclosures** and Were Awarded **4 New Patents** in 2018-2019.

CCDS Clinical Faculty Participated in **20 Clinical Trials** (5 Industry-Sponsored Trials) in 2018-2019.

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**YEAR AT A GLANCE**

**38 CCDS Faculty Members and 14 CCDS-Funded Fellows**

The CCDS Awarded over **$475K** in Intramural Grants and provided over **$230K** in additional research support in 2018-2019.
CCDS Leadership

A. Wayne Orr, PhD
CCDS Director
Professor and Director
Division of Research
Department of Pathology and Translational Pathobiology

Karen Stokes, PhD
CCDS Assistant Director for Scientific Excellence
Associate Professor
Department of Molecular and Cellular Physiology

Paari Dominic, MD
CCDS Assistant Director for Clinical and Translational Research
Assistant Professor
Division of Cardiology
Department of Medicine

From left to right: Karen Stokes, PhD, A. Wayne Orr, PhD, Paari Dominic, MD

CCDS STAFF

Danielle Hartman, MBA (left)
Academic Coordinator
Monicah Jepkemboi (right)
Clinical Research Coordinator

Shantel Vital (left)
Research Associate
Robert Dayton (right)
Research Associate
Board of Directors

Steven Bailey, MD, MSCAI, FACC, FACP
Professor and Chair of Internal Medicine

Elizabeth Disbrow, PhD
Associate Professor of Neurology
Director of Center for Brain Health

Paari Dominic, MD
Assistant Professor of Cardiology
CCDS Assistant Director for Clinical and Translational Research

Ghali Ghali, DDS, MD, FACS, FRCS (Ed)
Chancellor
Professor and Chair of Oral and Maxillofacial Surgery

Norman Harris, PhD
Professor and Chair of Molecular and Cellular Physiology

Christopher Kevil, PhD
Vice Chancellor of Research
Dean of School of Graduate Studies
Professor of Pathology and Translational Pathobiology

Kevin McCarthy, PhD
Professor and Chair of Cellular Biology and Anatomy
Glen Mills, MD
Professor of Internal Medicine
Director of Medical Service at Feist Weiller Cancer Center

Karen Stokes, PhD
Director of the CCDS in Scientific Excellence
Associate Professor of Molecular and Cellular Physiology

A. Wayne Orr, PhD
CCDS Director
Professor and Research Division Director of Pathology and Translational Pathobiology

R. Keith White, MD, FACS
Chairman and Professor of Surgery
John C. McDonald MD Endowed Chair of Surgery

Pratap Reddy, MD, FACC
Professor of Cardiology

Andrew Yurochko, PhD
Professor and Carroll Feist Endowed Chair of Viral Oncology
Department Vice Chair of Microbiology and Immunology
CCDS Faculty & Research Focus Groups

Vascular Biology and Inflammation
Yufeng Dong, PhD
Norman Harris, PhD
Sushil Jain, PhD
Jeremy Kamil, PhD
Christopher Kevil, PhD
Gopi Kolluru, PhD
David Krzywanski, PhD
Kevin McCarthy, PhD
A. Wayne Orr, PhD
Christopher Pattillo, PhD
Brent Reed, PhD
Xinggui Shen, PhD
James Traylor, PhD
Chiranjiv Virk, PhD
Robert Walter, MD, MPH, FCCP
Yuping Wang, MD
R. Keith White, MD, FACS
Matthew Woolard, PhD
Andrew Yurochko, PhD

Neurovascular Biology and Stroke
J. Steven Alexander, PhD
Connie Arnold, MD
Terry Davis, PhD
Elizabeth Disbrow, PhD
Bharat Guthikonda, PhD
Kevin Lin, PhD
Xiaohong Lu, PhD
Hyung Nam, PhD
Karen Stokes, PhD
Hong Sun, PhD

Cardiac Biology
Steven Bailey, MD, MS, FACC, FACP
MD Shenuarin Bhuiyan, PhD
Diana Cruz, PhD
Horacio D’Agostino, MD, FACS, FSIR
Paari Dominic, MD
Pavan Katikaneni, PhD
Sumitra Miriyala, PhD
Mani Panchatcharam, PhD
Pratrap Reddy, PhD
**Predoctoral Fellows**

Richa Aishwarya  
Mentor: Md Shenuarin Bhuiyan, Pathology

Zaki Al-Yafeai (AHA Fellow)  
Mentor: A. Wayne Orr, Pathology

Alex Finney (AHA Fellow)  
Mentor: A. Wayne Orr, Pathology

Heather Fulkerson  
Mentor: Andrew Yurochko, Microbiology & Immunology

Chris Nguyen  
Mentor: Jeremy Kamil, Microbiology and Immunology

Alex Couto di Silva (AHA Fellow)  
Mentor: Kevin Lin, Neurology

Krystle Trosclair  
Mentor: Edward Glasscock, Cellular Biology and Anatomy

**Post-doctoral Fellows**

Jungmi Winny Yun  
Mentor: J. Steve Alexander, Molecular and Cellular Physiology

Aimee Vozenilek (AHA Fellow)  
Mentor: Matt Woolard, Microbiology and Immunology

Chowdhury Abdullah  
Mentor: Md Shenuarin Bhuiyan, Pathology

Mabruka Alfaidi  
Mentor: A. Wayne Orr, Pathology

Rajesh Parsanathan  
Mentor: Sushil Jain, Pediatrics

Saranya Rajendran  
Mentor: Chris Kevil, Pathology

Bandana Shrestha  
Mentor: Chris Pattillo, Cellular and Molecular Physiology
The Center for Redox Biology and Cardiovascular Disease was started in 2018 through the NIH Centers of Biomedical Research Excellence (COBRE) grant mechanism. The mission of the COBRE Center for Redox Biology and Cardiovascular Disease is to advance the understanding of redox biology control of heart and vascular disease processes that may lead to new and better ways to detect or treat cardiovascular disease. The Center for Redox Biology and Cardiovascular Disease COBRE provides substantial research support to faculty who have not yet received major extramural funding to allow for programmatic development. This research support is coupled with an ongoing faculty mentoring from the COBRE Mentoring Committee and access to COBRE Cores facilities that enable both COBRE and non-COBRE researchers to establish nationally competitive research programs in cardiovascular redox biology.

In February 2019, Dr. Christopher Pattillo became the first faculty member to graduate from the Center for Redox Biology and Cardiovascular Disease COBRE, receiving an independent R01 grant from the National Heart, Lung, and Blood Institute to study how the “cellular reductive state regulates arteriogenesis.

COBRE Projects

- **Paari Dominic, MD**
  Assistant Professor of Cardiology
  “Role of hydrogen sulfide and oxidative stress in methamphetamine-induced cardiac arrhythmias”

- **Hugh Nam, PhD**
  Assistant Professor of the Department of Pharmacology, Toxicology, & Neuroscience
  “Neurogrannin regulation in cardiovascular disease”

- **David Krzywanski, PhD**
  Assistant Professor of the Department of Cell Biology and Anatomy
  “Nicotinamine nucleotide transhydrogenase regulates redox balance in atherosclerosis”

- **Manikandan Panchatcharam, PhD**
  Associate Professor, of the Department of Cell Biology and Anatomy
  “Oxidative stress mediated myocardial lipid dysfunction”

COBRE Pilot Projects

- **Diana Cruz-Topete, PhD**
  Assistant Professor of the Department of Molecular & Cellular Physiology
  “Redox state and sex differences in cardiac miR-34a expression”

- **Sumitra Miriyala, PhD**
  Assistant Professor of the Department of Cell Biology and Anatomy
  “AIFM2: A novel mediator of heart failure development and progression”
External Advisory Committee

From left to right: Dr. Mark Anderson (Johns Hopkins), Dr. David Fulton (Augusta University) and Dr. Hong Wang (Temple)
COBRE Core Facilities

Animal Models and Histology Core

The COBRE Animal Models and Histology Core facility provides services for mouse genotyping and tissue histology, as well as access to state-of-the-art tools for analyzing cardiovascular function. Dr. Karen Stokes serves as the Overall Core Director, whereas Dr. Hugh Price serves as the Leader of the Histology and Genotyping Subcore and Dr. Shenuarin Bhuiyan serves as the Leader of the Cardiovascular Phenotyping Subcore.

The genotyping component of the Histology and Genotyping Subcore will genotype mice for the COBRE projects and as a fee-for-service for other CCDS investigators. This subcore also includes a centralized histology service to provide several cardiovascular-relevant histological stains and to serve as an information hub for sharing mouse strains and tissues. The Cardiovascular Phenotyping Subcore includes modalities for radio telemetry, laser speckle imaging, and ultra high frequency ultrasound housed in separate rooms of a dedicated lab suite.

Redox Molecular Signaling Core

The COBRE Redox Molecular Signaling Core facility provides services for vascular cell model generation and quantitative analysis of reactive oxygen, nitrogen, and sulfur species. Dr. Wayne Orr serves as the Overall Core Director, whereas Dr. Xinggui Shen serves as the Leader of the Analytical Redox Biology Subcore and Dr. Yunfeng Zhao serves as the Leader of the Molecular Signaling Subcore.

The Analytic Redox Biology Sub-Core provides high quality, accurate measurements of reactive oxygen, nitrogen, and sulfide species. High performance liquid chromatography (HPLC) systems are used to specifically quantify cellular and mitochondrial superoxide production, hydrogen sulfide pools, and thiols. In addition, a highly sensitive EcoPhysics NO Analyzer is used to measure nitric oxide and its metabolites in a variety of biological samples. The Molecular Signaling Sub-Core offers services for molecular cloning and site-directed mutagenesis. This core provides services for endothelial, smooth muscle, and cardiac myocyte cell isolation, for generation of vascular cell lines, and for lentivirus production for transient or stable modification of cardiovascular cells. In addition, this core provides access to equipment and expertise for exposing vascular cells to hypoxia/reoxygenation injury (Coy Hypoxic Chamber).
CCDS Core Facilities

New CCDS Surgical Models Core

Many cardiovascular disease models, such as the middle cerebral artery occlusion model of ischemic stroke, the coronary artery ligation model of myocardial infarction, the femoral artery ligation model of peripheral artery disease, and the partial carotid ligation model of disturbed flow, require surgical expertise that can be difficult to develop for individual laboratories and can be highly susceptible to technician turnover. To alleviate this issue, we established the CCDS Surgical Models Core facility to provide technical support for these surgical techniques. This type of facility provides consistent surgical techniques across multiple research projects to ensure data quality. The Surgical Models Core Research Associate, Ms. Shantel Vital, has extensive experience in surgical models of cardiovascular disease through multiple years of service to CCDS laboratories. This core is housed in the same area as the COBRE Animal Models Phenotyping Core, with each core enhancing the functionality of the other.

New CCDS Virus Production Core

Modulation of gene expression by viral gene therapy represents a long-standing target for cardiovascular disease research. Recently, AAV delivery of a PCSK9 mutant has facilitated the speed at which investigators can perform cardiovascular disease research by providing an inducible model of hypercholesterolemia without the need to backcross mouse strains to the ApoE or LDL receptor knockout background. The goal of the CCDS Virus Production Core is to provide commercial quality AAV particles for cardiovascular studies at a reduced rate. This service is housed in the same facility as the COBRE Molecular Signaling Core. This core facility is run by Mr. Robbie Dayton, a Research Associate with extensive experience in AAV production. Mr. Dayton has produced all AAVs for cardiovascular studies at LSU Health Shreveport to date, and he will expand these services to custom AAV preparations for future gene delivery applications.
NEW CCDS FUNDING IN 2018-2019

**Chris Pattillo, PhD**
NIH/NHLBI R01  
$1,825,000  
Cellular Reductive State Regulates Arteriogenesis

**Karen Stokes, PhD**
NIH/NHLBI R25  
$574,990  
Cardiovascular Undergraduate Research Initiative for Under-represented Minorities (CURIous)

**A. Wayne Orr, PhD**
NIH/NHLBI R01  
$1,781,908  
EphA2 Signaling in Atherosclerotic Fibroproliferative Remodeling

**Shenuarin Bhuiyan, PhD**
NIH/NIDDK R01  
$1,825,000  
Sigmar1 in Lipid Metabolism

**Sumitra Miriyala, PhD**
NIH/NHLBI R15 Supplement  
$73,000  
Prenatal Ethanol Mediated Regulation of Bioactive Lipid: Role in Autotaxin and LPP3 in Alzheimer’s Disease

**Yunfeng Dong, PhD**
NIH/NIAMS R01  
$1,825,000  
NOTCH-Enriched Mesenchymal Stromal Cells for Bone Allograft Repair

**Manikandan Panchatcharam, PhD**
NIH/NIAAA R15 Supplement  
$70,000  
Alcohol-autotaxin-LPP3 axis in Alzheimer’s Disease

**Steven Alexander, PhD**
Aphios Corporation  
$25,000  
Aphios Corp Scientific Research Agreement targeted nanoparticles
The Center of Excellence for Cardiovascular Diseases and Sciences is excited to introduce our new Cardiovascular Undergraduate Research Initiative for Underrepresented Students (CURIOUS) Program. The CURIOUS program is an NIH-funded 8-week summer research program in cardiovascular disease for undergraduate students who are interested in pursuing research as part of their scientific or clinical career goals. Principle investigators in our Center serve as mentors, and this year they hosted 10 students from six universities (three universities in our region of Northwest Louisiana). The students participated in an extensive enrichment program designed to include training in the Responsible Conduct of Research, Career development workshops, cardiovascular basics and cutting-edge techniques, joint lab meetings and life lunches. One of the highlights of the summer program was our guest seminar speaker, Dr. Russell DeBose-Boyd, PhD, Beatrice and Miguel Elias Distinguished Chair in Biomedical Science, Professor of Molecular Genetics, UT Southwestern Medical Center. Dr. DeBose-Boyd also met with the CURIOUS students over lunch, and everyone engaged a very active discussion. Based on their feedback, this was one of the highlights of the program for the students! The program ended with a poster session at which all student presented their work not only to faculty and trainees at LSU Health Shreveport, but also to faculty from regional universities, members of our K-12 educators, and local politicians. Two students were selected to attend a national conference with their mentor, and two students were chosen to return to the program for a second year.
Malcolm Feist Cardiovascular Seminar Series

Sanjiv M. Narayan, MD, PhD
Co-Director, Stanford Arrhythmia Center
Director, Atrial Fibrillation Program
Director, Electrophysiology Research
Professor of Medicine, Medical Center Line
Stanford University
“Mechanistic Treatment of Human Atrial Fibrillation”

Eduardo Candelario – Jalil, PhD
Assistant Professor
Department of Neuroscience
University of Florida, Gainesville
“Neurovascular Protection by Adropin in Experimental Ischemic Stroke”

Jian-Xing (Jay) Ma, MD, PhD
Laureate Professor
Chairman, Department of Physiology
University of Oklahoma Health Sciences Center
Director of Research, Harold Hamm Diabetes Center
“Endogenous Angiogenic Inhibitors and Pathological Angiogenesis in Diabetic Complications”

Martin Young, D. Phil.
Professor of Medicine
Jeanne V. Marks Endowed Chair of Cardiovascular Disease
Vice Director of Research, Division of Cardiovascular Disease
University of Alabama at Birmingham
“Circadian Influences on Cardiac Physiology and Pathology”

Masanori Aikawa, MD, PhD
Yoshihiro Miwa Associate Chair & Founding Director, Center for Interdisciplinary Cardiovascular Sciences
Principal Investigator, Center for Excellence in Vascular Biology
Brigham and Women’s Hospital
Associate Professor of Medicine, Harvard Medical School
“Systems-based Approach to Target Discovery for Macrophage Activation and Vascular Inflammation

Mark S. Shaprio, PhD
Professor, Department of Cellular and Integrative Physiology
Neuroscience Program
University of Texas Health Science Center
UT Health San Antonio
“Regulation of Ion Channels of the Nervous System in Health and Disease: Cellular Mechanisms and Functional Roles”

Masuko Ushio-Fukai, PhD, FAHA
Professor, Director of Redox Signaling Program
Vascular Biology Center
Medical College of Georgia at Augusta University
“Redox Signaling, Endothelial metabolism and Angiogenesis”

Viola Vaccarino, MD, PhD
Wilton Looney Professor and Chair in Cardiovascular Research
Department of Epidemiology, Rollins School of Public Health
Professor, Department of Medicine, School of Medicine
Emory University
“Women, Stress and Early-Onset Coronary Heart Disease”

Zinaida S. Vexler, PhD, FAHA
Professor
Director of Research, Neonatal Brain Disorders Center
Department of Neurology
University of California, San Francisco
“Neurovascular-microglial interactions in stroke: Effects of brain maturation”
As part of the CCDS Seminar Series, one lecture a year is designated as the Malcolm Feist Lecture on Translational Research in Cardiovascular Medicine. The special day honors the late Mr. Malcolm Feist and offers a venue to showcase the impact his gift had made to LSU Health Shreveport and cardiovascular research. A prominent translational cardiovascular researcher is invited to give a morning clinical seminar to residents and fellows, an afternoon translational lecture, visit with the Malcolm Feist fellows and attend a poster session highlighting the work of the CCDS trainees. This year’s lecturer was Dr. Cornelia M. Weyand, MD, PhD, from Stanford University. For the clinical seminar, Dr. Weyand spoke about her work on Immunometabolism in Inflammatory Disease to members of the CCDS and Center of Excellence in Arthritis and Rheumatology. Previous Malcolm Feist lecture speakers have included Monte Willis, MD, PhD; Joseph C. Wu, MD, PhD; Costantino Iadecola, MD; Brian Annex, MD; and David Harrison, MD.

Cornelia M. Weyand, MD, PhD, MBA
Professor of Medicine
Chief, Division of Immunology and Rheumatology
Stanford University School of Medicine

Malcolm Feist Lecture on Translational Research in Cardiovascular Medicine
“Immunopathogenic Mechanisms in Aortitis and Large Vessel Vasculitis”
CCDS News & Events

CCDS Center of Excellence
At the February 2019 Board of Regents meeting, the board unanimously approved the continuation of the CCDS as a newly designated Center of Excellence, recognizing the CCDS as a statewide leader for cardiovascular research and innovation. The CCDS Center of Excellence is the third on the LSU Health Shreveport Campus joining the Feist Weiller Cancer Center (FWCC) of the Center of Excellence in Arthritis and Rheumatology (CEAR).

Pictured from left to right: Shafiul Alam, Ph.D., Zaki Al-Yafeai, Yin-Chieh (Celeste) Wu, Ph.D., and Alexandre do Couto e Silva.

AHA Fellowships
Four CCDS trainees recently received American Heart Association Fellowships to fund their Pre-doctoral and Post-doctoral Training. Dr. Shafiul Alam, a Post-doctoral Fellow in Dr. Shenuarin Bhuiyan’s laboratory, received a fellowship to fund his work on cardiac proteotoxicity, a buildup of proteins in the heart that can result in heart failure. Zaki Al-Yafeai, a graduate student in Dr. Wayne Orr’s laboratory, received a Predoctoral Fellowship to fund his work on atherosclerotic plaque development, the most common cause of heart attacks and strokes. Two members of Dr. Kevin Lin’s laboratory received fellowships, with Dr. Yin-Chieh (Celeste) Wu receiving a Post-doctoral Fellowship and Alexandre do Couto e Silva receiving a Predoctoral Fellowship to fund their work on mechanisms to reduce brain injury following stroke.

AHA Events
Our CCDS trainees and faculty participated in the American Heart Walk on April 6, 2019. Prior to the walk, and as part of the trainee-led initiative to support the AHA, our CCDS trainees raised $877.87 for the American Heart Association with a Bake Sale and a Zumbathon – we’re very proud of their efforts!

Many of our CCDS trainees and faculty participated in the Go Red for Women Luncheon that was held at the Shreveport Convention Center on February 15, 2019. This event focuses on preventing heart disease and stroke by promoting a healthy lifestyle.
Research and Industry Day (RAID)

Since 2014, the CCDS and the Center for Biomedical Engineering and Rehabilitation Science (CBERS) at Louisiana Tech University have partnered to host an annual Industry Day conference. Several years ago, this partnership expanded to include the Center for Brain Health. Two years ago, the name of the event was changed from Industry Day to Research and Industry Day (RAID).

RAID serves as a forum for trainees to learn about research careers outside academia and for CCDS researchers to learn about the translation of biomedical research to industry. Each year, RAID brings together over 100 students, trainees, scientists and clinicians interested in research in the commercial sector. This year’s conference was centered around the theme of Imaging.

Gulf Coast Vascular Research Consortium (GVRC) Meeting

The Gulf Coast Vascular Research Consortium is the annual conference highlighting cutting edge research in Vascular Biology from world-renowned laboratories across the Gulf Coast region. This consortium provides the latest advances in key areas of vascular biology – including vascular development and differentiation, endothelia biology and inflammation, vascular aging and regeneration, genetic and epigenetic mechanisms of vascular disease, lymphatic and venous pathobiology, vascular imaging and bioengineering and how these insights are being translated into novel therapies for patients.

Annual Joe E. Holoubek ARK-LA-TEX Cardiovascular Conference

The Joe. E. Holoubek, MD, Endowed Professorship was started by the Holoubek family of Shreveport in honor of Dr. Holoubek. Dr. Holoubek was the first internist to establish the practice of Clinical Cardiology in the Shreveport-Bossier community. He was also instrumental in establishing the LSU School of Medicine in Shreveport. The annual Ark-La-Tex Cardiovascular Conference is held in his honor.

This is a Continuing Medical Education activity of the Department of Medicine and the Center for Cardiovascular Diseases and Sciences, in conjunction with University Health Shreveport Standards.
J. Steven Alexander, PhD
Center for Tissue Engineering and Regenerative Medicine
Professor Molecular & Cellular Physiology, Medicine and Neurology
jalexa@lsuhsc.edu

CURRENT RESEARCH
My current research focuses on the mechanisms of stroke injury and the use of stem cells to suppress brain damage, a major cause of neurovascular-mediated disability. I am a member of the Center for Tissue Engineering and Regenerative Medicine and am helping to develop IP related to stem cell therapies in stroke. We also have patent technology related to the development of a vascular stabilizer, Bryostatin-1 which is in development for neurovascular stress in Alzheimer’s disease and in transplantation. We also have patented technology related to crosslinked polyvinyl alcohol 3D bioprinting for synthetic bone, esophagus, biliary duct replacements.

SELECTED PUBLICATIONS


RESEARCHER PROFILES

Connie Arnold, PhD
Professor of Medicine and Feist-Weiller Cancer Center
Specialty in Health Literacy
carnol@lsuhsc.edu

CURRENT RESEARCH
As a health services research for the past 28 years, I have co-led an interdisciplinary team investigating the impact of patient literacy on health and healthcare. I was the principal investigator (PI) on a five-year American Cancer Society health literacy intervention to evaluate follow-up strategies to improve regular colorectal screening in rural Federally Qualified Health Centers in the state. Along with Dr. Terry Davis, I have a productive record of federally funded research developing and implementing interventions to reduce disparities and improve health outcomes of vulnerable populations. Our wide-ranging work focuses on improving cancer screening in rural Federally Qualified Health Centers, self-management of diabetes in safety net settings and use of health coaches to facilitate weight loss in community clinics as well as developing strategies to improve medication adherence. We are the Health Literacy Principal Investigators for the NIH funded Louisiana Clinical and Translational Science Center (LA CaTS), where provide training statewide in communicating understandable and useful information to patients and the public, an unprecedented collaborative effort among eleven academic institutions in Louisiana.

SELECTED PUBLICATIONS


Steven Bailey, MD, MS, CCI, FACC, FACP
Professor and Chairman, Department of Internal Medicine
Malcolm Feist Chair of Interventional Cardiology
Professor Emeritus, UT Health San Antonio
sbail8@lsuhsc.edu

CURRENT RESEARCH
My clinical focus is in Adult Congenital/Structural and Valvular heart disease in addition to Coronary Atherosclerotic Disease. My research laboratory is involved in investigating inflammation and cardiovascular disease in diabetes, specifically the role of NOX subtypes in promoting cardiovascular disease. I have translational research in the field of nanotechnologies and nanosensors and hold several patents in these fields.

SELECTED PUBLICATIONS


Gupta A, Bailey S. Updated on Devices for Diastolic Dysfunction: Options for a No Option Condition? Current Cardiology Reports. 2018. PMID 30112586


Md. Shenuarin Bhuiyan, PhD
Assistant Professor
Division for Pathology and Translational Pathobiology
mbhuiy@lsuhsc.edu

CURRENT RESEARCH
I have an NIH R01 funded established laboratory to understand the regulatory mechanism of cardiac lipid metabolism under metabolic stress condition using integrated molecular, genetic and functional approaches in genetically modified mice. My overarching research goal is to elucidate novel physiological functions of the Sigma-1 receptor (Sigmar1) in the heart and to discover its molecular functions during adverse cardiac remodeling and failure. My laboratory has the expertise in working with cardiovascular biology and equipped with all the techniques and skills necessary to measure all aspects of molecular cardiovascular biology need to study cardiomyopathy, and genetic models of heart failure including cardiac functional analysis such as echocardiography, invasive hemodynamics, and blood pressure measurements.

SELECTED PUBLICATIONS


CURRENT RESEARCH
Heart failure is a leading cause of death in the United States. Understanding the association between gender/sex and heart disease risk and outcomes is becoming a topic of increasing interest. The traditional and emerging risk factors for heart disease are the same in men and women, but the cardiovascular reactivity to these risks factors differ significantly among sexes. Stress is part of our daily lives. Through years of evolution, our body has developed a sophisticated neuroendocrine response to restore homeostasis in response to stress. However, chronic activation of the stress response leads to cardiovascular complications, including heart and metabolic disease. Our research is focused on understanding the effects of stress on the heart and adipose tissue.

SELECTED PUBLICATIONS


Horacio D’Agostino, MD, FACR, FSIR
Professor of Radiology, Surgery and Anesthesiology
hdagos@lsuhsc.edu

CURRENT RESEARCH
Dr. D’Agostino is an experienced physician with a background in surgery and radiology, subspecialized in minimally invasive image-guided procedures. His main areas of focus are oncological, hepatobiliary and gastrointestinal interventions. He participates in both academics and organized medicine. Dr. D’Agostino has also taught overseas in several countries including Argentina, Bolivia, Brazil, Colombia, Mexico, Paraguay, Uruguay, France, Spain, Italy, Japan and Iraq. In some of those countries, he performed live interventional procedures as part of courses or symposia. Since the early 1990s, Dr. D’Agostino has been involved in ultrasound education participating and organizing workshops and courses nationally and internationally. His participation as instructor in a “hands-on” course in Argentina has continued for more than a decade and now has been expanded to Europe. Dr. D’Agostino’s laboratory research includes optimization of drainage catheters and connections designs and procedural improvements.

SELECTED PUBLICATIONS


Terry C. Davis, PhD
Professor of Medicine, Pediatrics, and Feist-Weiller Cancer Center
tdavis1@lsuhsc.edu

CURRENT RESEARCH
As a health services research for the past 38 years, I have led an interdisciplinary team investigating the impact of patient literacy on health and healthcare. Seminal achievements include the development of the Rapid Estimate of Adult Literacy in Medicine (REALM) and creation of user-friendly patient education and provider training materials that are used nationally. Along with Dr. Connie Arnold, I have a productive record of federally funded research developing and implementing interventions to reduce disparities and improve health outcomes of vulnerable populations. Our wide-ranging work focuses on improving cancer screening in rural Federally Qualified Health Centers, self-management of diabetes in safety net settings and use of health coaches to facilitate weight loss in community clinics as well as developing strategies to improve medication adherence. We are the Health Literacy Principal Investigators for the NIH-funded Louisiana Clinical and Translational Science Center (LACaTS), where provide training statewide in communicating understandable and useful information to patients and the public.

SELECTED PUBLICATIONS


Chang ME, Liwo A, Sebastian K, Chung BA, Richman JS, Ma M, Knight SJ, Fouad MN, Gakumo CA, Davis TC, Chu DI. (2019) "Health Literacy in Surgery: A Systematic Review" (HLRP-2018-074R1), has been accepted for publication in HLRP.


Elizabeth Disbrow, PhD
Director, Center for Brain Health
Associate Professor of Neurology
edisb@lsuhsc.edu

CURRENT RESEARCH
My work focuses on cognitive deficits in human age-related neurodegenerative disease. For example, while Parkinson’s disease has traditionally been considered a motor disorder, it has become clear that significant cognitive impairments are common, even in the early stages of the disease. Over the past 15 years I have used behavioral and brain imaging methods to study the interface between cognitive and motor dysfunction in PD. Furthermore I have recently extended my previous work on cognitive deficits in PD to include racial and socioeconomic differences in neurodegenerative disease progression and health care. We recently completed a study conducting patient and care giver focus groups at churches and eldercare facilities to identify community barriers to care seeking for neurodegenerative disease. This work in the community sparked my interest in Alzheimer’s disease because of the growing crisis in the African American population. I am also currently part of a team studying blood biomarkers of cognitive deficits associated with dementia and type 2 diabetes. This project is funded through a supplement to the Redox Biology COBRE.

SELECTED PUBLICATIONS


Abstracts

Paari Dominic, MD  
Assistant Director of the CCDS, Clinical and Translational Research  
Assistant Professor of Cardiology  
Director of Cardiac Electrophysiology  
pdomi2@lsuhsc.edu

CURRENT RESEARCH
My research focuses on the pathogenesis of atrial fibrillation, specifically the role of oxidative stress mediated by the gasotransmitters hydrogen sulfide and nitric oxide in the electrical and structural remodeling of the heart leading to atrial fibrillation. In addition, I collaborate with a group of investigators studying the cardiovascular effects of methamphetamine. My lab particularly explores the risk of ventricular arrhythmias and sudden cardiac death in methamphetamine users and the role of hydrogen sulfide mediated oxidative stress in the pathogenesis of such heart rhythm problems. Clinically, I am very interested in the association between cancer and cancer treatments and atrial fibrillation. Using bio-informatics we have explored the link between specific cancer types, cancer chemotherapy, and radiation therapy and atrial fibrillation. We have developed a mouse model of radiation therapy to study the effects of radiation on the atrial substrate as it pertains to atrial fibrillation. In addition, I have a particular interest in using meta-analytical techniques to study outcomes of treatment strategies in cardiac electrophysiology. Finally, I am the site principal investigator for a variety of clinical trials.

SELECTED PUBLICATIONS


Yufeng Dong, MD, PhD
Associate Professor and Director of the Translational Research in Department of Orthopaedic Surgery
Co-Director of the Center for Tissue Engineering and Regenerative Medicine.
ydong@lsuhsc.edu

CURRENT RESEARCH
My research interest includes 1. The molecular and cellular events underlying stem cell differentiation that leads to skeletal tissue regeneration, including Notch, Wnt and TGF beta signaling. 2. The molecular mechanism underlying human osteoarthritis. 3. An emphasis on challenging clinical problems and translational solutions, including stem cell based cartilage, bone defect and fracture repair. Work from my group have identified a critical role for the Notch signaling in the regulation of angiogenesis and stem cell osteogenic differentiation during skeletal tissue development and regeneration.

SELECTED PUBLICATIONS


Bharat Guthikonda, MD, FACS, FAANS
Professor and Chairman of the Department of Neurosurgery
bguthi@lsuhsc.edu

CURRENT RESEARCH
My research focuses on the complexities of the clinical diagnosis, pre-operative assessment, intraoperative participation, and postoperative management of patients with skull base lesions including complex tumors at the base of the skull, complex aneurysms located at the cranial base, and other such conditions as they relate to the skull base. My most recent research project examined the history of the condition penduncular hallucinosis and potential neurological causes of this condition including the possibility of it being a presenting symptom of brain tumors and resolving or improving the condition with neurosurgical resection. Although anatomic skull base research has always been my primary research interest, I am also interested in the socioeconomics and medical-legal aspect of neurosurgery.

SELECTED PUBLICATIONS


RESEARCHER PROFILES

Norman R. Harris, PhD
Professor & Chair
Department of Molecular & Cellular Physiology
nharr6@lsuhsc.edu

CURRENT RESEARCH
My research career has focused on the physiology and pathophysiology of the microcirculation, and in recent years, much of our work has been an investigation of the retinal microvascular complications of diabetes. Our lab is currently funded with an NIH R01 entitled "Loss of the retinal glycocalyx in diabetes", and we also have ongoing projects related to other retinal pathologies. Techniques that we use in the laboratory include intravital microscopy, measurement of microvascular flow, computerized video analysis of microscope images, immunostaining of tissue sections, culturing of retinal microvascular endothelial cells, and various molecular biology techniques.

SELECTED PUBLICATIONS


Eshaq RS, Wright WS and Harris NR. (2014) Oxygen delivery, consumption, and conversion to reactive oxygen species in experimental models of diabetic retinopathy. Redox Biology 2: 661-666


Sushil K. Jain, PhD, FACN, FICN
Professor of Pediatrics, Physiology and Biochemistry & Molecular Biology
Malcolm Feist Endowed Chair in Diabetes
sjain@lsuhsc.edu

CURRENT RESEARCH
Our research interests focus on investigating the role of oxidative stress and micronutrition in the pathophysiology of obesity, insulin resistance, and diabetes. We are studying how micronutrients (L-cysteine and Vitamin D) and hydrogen sulfide regulate insulin signaling pathways of glucose metabolism and insulin resistance in type 2 diabetes. We have characterized that the widespread glucose-6-phosphate dehydrogenase-deficiency could play a critical role in the higher incidence and severity of CVD in the African-American population. Our team has recently discovered that the deficiency of 25(OH)VD is linked with deficiency of major antioxidant glutathione, and that combined supplementation of vitamin D and glutathione precursor is a novel and successful approach to treat VD deficiency in the minority populations. Our research publications have over 13500 citations with an H index of 62.

SELECTED PUBLICATIONS


Jeremy Kamil, PhD  
Associate Professor of Microbiology and Immunology  
jkamil@lsuhsc.edu

CURRENT RESEARCH

My laboratory is broadly interested in how viruses infect cells and cause disease. Our focus is on human cytomegalovirus (HCMV), a common human herpesvirus that infects most of the population. In most cases, HCMV establishes a lifelong infection that goes unnoticed in healthy people. Tragically, however, HCMV is the #1 viral cause of birth defects. The virus is also a serious threat to organ transplant recipients and other immunocompromised patients. For instance, HCMV infection causes heart transplants to fail prematurely. We are studying how the virus enters cells and how its genes are regulated during infection. Our research is funded by two R01 grants from the National Institutes of Health. Our laboratory identified a viral protein, "UL148," that regulates which types of cells the virus infects. We also recently discovered that UL148 reorganizes the endoplasmic reticulum, a fundamental eukaryotic organelle that forms the base of the cell's secretory system. In collaboration with two other laboratories, we also discovered that a pair of newly identified viral promoters regulate HCMV reactivation from latency, and we recently identified cellular transcription factors activate them in response to stress and/or differentiation signals. Ongoing studies in the laboratory are focused on how the virus interacts with host cell signaling and stress response pathways to modulate its gene expression as well as its infectivity for different cell types.

SELECTED PUBLICATIONS


Pavan Katikaneni, MD
Assistant Professor of Cardiology
pkatik@lsuhsc.edu

SELECTED PUBLICATIONS


K Dahal, A Njoku, G Mina, P Katikaneni, K Modi. 100.43 Dedicated Bifurcation Stenting in Coronary Bifurcation Lesions: A Meta-Analysis of Randomized Trials. JACC: Cardiovascular Interventions. 12 (4 Supplement), S13

Education/Training
BS – University of Health Sciences, India
MD - LSUHS

Honors/Awards
Fellow of Society for Coronary Angiography and Interventions
Edgar E Hull Award for Excellence in Cardiology
American College of Cardiology
Chris Kevil, PhD
Vice Chancellor of Research
Dean for School of Graduate Studies
ckevil@lsuhsc.edu

CURRENT RESEARCH

Research in my laboratory centers around endothelial dysfunction during atherosclerosis, arteriogenesis, and angiogenesis. Studies are focused on chemical biology regulation of hydrogen sulfide and nitric oxide, and their associated enzymes during vascular and endothelial cell dysfunction associated with cardiovascular disease. We also employ novel approaches of tissue protection against chronic tissue ischemia through stimulation of arteriogenesis and angiogenesis involving these gasotransmitter molecules. We have discovered that nitrite anion serves a critical role as an NO prodrug to attenuate tissue ischemia invoking numerous signaling and transcriptional responses, and that hydrogen sulfide generation is required for subsequent NO formation. These discoveries have led to many patents and new therapies.

SELECTED PUBLICATIONS


Gopi Kolluru, PhD
Asst. Professor, Research Division
Pathology and Translational Pathobiology
gkollu@lsuhsc.edu

CURRENT RESEARCH
My research is focused to identify the molecular signaling mechanisms involved in oxidative stress, and vascular growth and remodeling during cardiovascular pathology. I have been working towards bridging basic and clinical research for therapeutic revascularization in vascular diseases over the past 15 years. I have examined the role of gasotransmitters NO and H2S, including the role of cystathionine gamma-lyase (CSE) in regulation of ischemic vascular remodeling. I aim to identify the regulation of gasotransmitters (NO and H2S) and associated signaling involved in vascular and metabolic functions in aging cardiovascular system, diabetes and pregnancy complications including preeclampsia. I approach this with the aid of diseased/transgenic mouse models, advanced analytical and non-invasive imaging techniques.

SELECTED PUBLICATIONS


David Krzywanski, PhD
Assistant Professor of Cellular Biology and Anatomy
dkrzyw@lsuhsc.edu

CURRENT RESEARCH
Our current research focuses on the contribution of mitochondrial redox balance on the development of cardiovascular disease. Current projects in the lab seek to understand how novel regulators of existing antioxidant systems regulate the initiation and progression of cardiovascular diseases. Work from our group has identified a critical role for the mitochondrial enzyme nicotinamide nucleotide transhydrogenase (NNT) in regulating mitochondrial NADPH levels and further the contribution reactive oxygen species (ROS) in both hypertension and atherosclerosis.

SELECTED PUBLICATIONS


Hui-Chao (Reggie) Lee, Ph.D.
Assistant Professor of Neurology
hlee6@lsuhsc.edu

CURRENT RESEARCH
The overall research goal in my laboratory is to study potential therapeutics against cerebral ischemia. The major research focus in my laboratory is to investigate the pathophysiological role of serum/glucocorticoid-inducible kinase 1 (SGK1) in the context of cardiac arrest. We found that upregulation of SGK1 following cardiac arrest is responsible for cerebral blood flow derangements, neuronal cell death, and neurological deficits. We are currently investigating 1) the therapeutic potential of SGK1 inhibitor against cardiac arrest and 2) mechanisms underlying SGK1-mediated brain injury and neurological deficits after cardiac arrest.

SELECTED PUBLICATIONS


Kevin Lin, PhD
Associate Professor of Neurology
hlin2@lsuhsc.edu

CURRENT RESEARCH
As the Director of the Stroke Center for Research at LSU, my expertise is in the field of sympathetic modulation in cerebral circulation as it relates to stroke and global ischemia. The goals of my research focus are to further investigate sympathetic function as it relates to ischemia in hopes to develop novel therapies. I have dedicated over 15 years to investigate the cerebral vasculature with the focus on stroke, brain ischemia, and fatty acid metabolism.

SELECTED PUBLICATIONS


Lin HW, Saul I, Gresia VL, Neumann JT, Dave KR, Perez-Pinzon MA. (2014) Fatty acid methyl esters and solutol HS 15 confers neuroprotection after focal and global cerebral ischemia. Transl Stroke Res. 5(1):109-117. (Corresponding author)

Lin HW and Perez-Pinzon, MA. (2013) The role of fatty acids in the regulation of cerebral vascular function and neuroprotection in ischemia. CNS and Neurological Disorders-Drug Targets. 12(3):316-324. (Corresponding author)


Xiao-Hong Lu, PhD
Assistant Professor of Pharmacology, Toxicology and Neuroscience
xlu1@lsuhsc.edu

CURRENT RESEARCH
Lu lab’s research focuses on molecular genetics and development of innovative genetic engineering technologies. The overarching goal of Lu lab’s research is to combine genetics and pharmacology to develop genetically targeted drug/gene therapy for neuropsychiatric disorders, cerebrovascular disorders, and cardiovascular disorders related to Methamphetamine use. Dr. Lu developed the first BAC transgenic mouse model of Parkinson’s disease (PD). His translational study of Huntington’s disease (HD) identified a novel therapeutic strategy (Sci. Transl. Med., 2015; Highlighted in Nat Rev Drug Discov. and was selected as the most influential paper of 2015 by HD insight). Dr. Lu co-invented a single-cell transgenic technology (MORF, Mosaicism with Repeat Frameshift) that received support from the first round of the Brain Initiative award. Funded by a NARSAD Young Investigator Award, Lu lab generated the next-generation mouse model for schizophrenia (Mol Psychiatry, 2019). Lu lab has an ongoing collaboration with the National Center for Advancing Translational Sciences (NCATS) to develop the small molecule VPAC2 antagonists. Lu lab recently invented a robust method for efficient and precise CRISPR/Cas9 mediated therapeutic genome editing in the adult mammalian brain via intravascular administration of a neurotropic AAV. Lu lab is working with Keeling center of MD Anderson to generate somatic genome-edited Marmoset.

SELECTED PUBLICATIONS


Kevin McCarthy, PhD
Chairman of Cellular Biology and Anatomy
kmccar2@lsuhsc.edu

CURRENT RESEARCH
The normal function of the nephron is both key and critical in maintaining homeostasis in most higher organisms. In terms of vascular biology, the nephron regulates both vascular tone and blood pressure. Our work focuses on discerning mechanisms by which the nephron fails as a result of long-term, poorly controlled diabetes mellitus. One aspect of our research is to gain a better understanding of the mechanisms by which the glomerulus, a capillary bed in the nephron, maintains its integrity under homeostasis and how the pathophysiology of diabetes mellitus causes failure of this capillary bed.

SELECTED PUBLICATIONS


Sumitra Miriyala, PhD
Assistant Professor of Cellular Biology and Anatomy
Anatomy Lab Director
Ph.D./MS Program Recruiter
smiriy@lsuhsc.edu

CURRENT RESEARCH
Dr. Miriyala’s research involves evaluating prenatal genetic abnormalities of antioxidant enzymes, the mechanisms regulating gene expression. Her focus is to delineate the role of mitochondrial retrograde signaling with special reference to oxidative modification of proteins in cerebral microcirculation. She is a PI and Co-Investigator on NIH R15, AAA, R01, R21, R25 and COBRE grants at LSUHSC.

SELECTED PUBLICATIONS


Hugh Nam, PhD
Assistant Professor of Pharmacology, Toxicology and Neuroscience
hnam@lsuhsc.edu

CURRENT RESEARCH
We are studying that endothelial nitric oxide synthetase (NOS) mechanism using calcium dependent neurogranin signaling. Our study has been focusing on how Ng-eNOS pathway regulates endothelial activation and cardiovascular disease. The outcome of our study will contribute to our goal of establishing clinical interventions related neurogranin signaling and to positively impact pharmacological treatment strategies for cardiovascular disease.

SELECTED PUBLICATIONS


Sulivan JM, Grant C, Reker AN, Nahar L, Goeders NE, Nam HW. (2019) Neurogranin regulates sensory motor gating through cortico-striatal circuitry, Neuropharmacology. 150:91-99


Sreedhar A, Cassell T, Smith P, Lu D, Nam HW, Lane AN, Zhao Y. UCP2 Overexpression Redirects Glucose into Anabolic Metabolic Pathways. Proteomics. 19(4): e1800353, 2019

Nahar L, Grant CG, Hewett CN, Cortes D, Reker AN, Choi DS, Nam HW. (2019) Regulation of Pv-Specific Interneurons in the Medial Prefrontal Cortex and Alcohol-Seeking Behaviors. Neuropharmacology, Under Revision
A. Wayne Orr, PhD
Director of the Center for Cardiovascular Diseases and Sciences
Professor and Director of the Research Division for Pathology and Translational Pathobiology
aorr@lsuhsc.edu

CURRENT RESEARCH
Dr. Orr’s research focuses on the mechanisms of atherosclerotic plaque formation, a major cause of cardiovascular disease worldwide. His research seeks to understand how the local microenvironment affects vascular cell signaling during pathological processes such as atherosclerosis, angiogenesis and ischemia-reperfusion injury. Work from his group has identified a critical role for the extracellular matrix in the regulation of vascular cell function, characterizing novel signaling mechanisms and identifying specific receptors involved in this response. His laboratory studies the signaling mechanisms regulating endothelial activation, with a current focus on integrins and the adaptor protein Nck1, and the role of the guidance molecule EphA2 in smooth muscle regulation in atherosclerosis.

SELECTED PUBLICATIONS


Manikandan Panchatcharam, PhD
Associate Professor of Cellular Biology and Anatomy
Vice-Chair for Institutional Biosafety Committee
mpanch@lsuhsc.edu

CURRENT RESEARCH
Dr. Panchatcharam’s research focuses on lipids which play a major factor in blocking blood vessels leading to heart attack. Among those major lipids, Lysophosphatidic acid (LPA) is been regulated and controlled by Lipid Phosphate Phosphatases (LPPs) which plays a pivotal role. His laboratory focuses on the role of LPA-LPP axis involved in cardiovascular function. He is a PI and Co-Investigator on NIH R15, AAA, AHA, R01, R21 and COBRE grants at LSUHSC.

SELECTED PUBLICATIONS


**Chris Pattillo, PhD**
Associate Professor of Molecular and Cellular Physiology
cpatt7@lsuhsc.edu

**CURRENT RESEARCH**
Arteriogenesis is the process that occurs when small caliber arterioles become larger and capable of carrying much more blood flow. This process usually occurs due to increased shear rates in the arterial tree. Our R01 is focused on the effect that glutathione plays on proteins involved in the process of arteriogenesis. Preliminary data suggest that protein glutathionylation may play a role in both the inflammatory and the cellular signaling cascades responsible for artery remodeling.

**SELECTED PUBLICATIONS**


Brent Reed, PhD
Associate Professor of Biochemistry
breed@lsuhsc.edu

CURRENT RESEARCH
Our current efforts are focused upon examining the function of GLUT1CBP(GIPC1) in regulating the distribution and movement of GLUT1 and other interacting proteins within the cell. Several of the newly identified interacting proteins participate in important pathways that regulate cell adhesion, cell division, motility, tight junction integrity, and the availability of sugar as an energy source for the cell. In particular, we have identified β-catenin as a new interacting partner and have implicated the β-catenin interacting proteins E-cadherin in prostate cancer cells, and PECAM1 in endothelial cells in GIPC1 dependent regulation. Therefore, our laboratory is interested in understanding the regulatory functions that GIPC1 might exert in these pathways that could alter diverse disease processes, e.g., tumor progression in cancer and disrupted endothelial barrier function in cardiovascular disease.

SELECTED PUBLICATIONS


Bunn, R., Jensen, M., and Reed, B. (1999) Protein interactions with the glucose transporter binding protein GLUT1CBP that provide a link between GLUT1 and the cytoskeleton. Molecular biology of the cell, 10, 819-832

Dauterive, R., Laroux, S., Bunn, R. C., Chaisson, A., Sanson, T., and Reed, B. C. (1996) C-terminal mutations that alter the turnover number for 3-O-methylglucose transport by GLUT1 and GLUT4. The Journal of biological chemistry. 271, 11414-11421

Reed, B. C., Shade, D., Alperovich, F., and Vang, M. (1990) 3T3-L1 adipocyte glucose transporter (HepG2 class), sequence and regulation of protein and mRNA expression by insulin, differentiation, and glucose starvation. Arch Biochem Biophys. 279, 261-274


Krista Rodgers, PhD
Assistant Professor of Cellular Biology and Anatomy
krodoge@lsuhsc.edu

CURRENT RESEARCH
My research aims to improve our understanding of the processes underlying brain repair and regeneration following cerebral ischemia, which is critical given the lack of reparative treatments and high rates of stroke-related disabilities among survivors. Neurogenesis is a process involving the generation of new neurons from neural progenitor cells, and may hold promise as a therapeutic target for neuronal regeneration. Our laboratory has found marked newborn neuron survival in the ischemic core at long-term time points following stroke, along with improved functional outcomes. Investigation of the inherent capacity for neuronal replacement and the mechanisms that underlie functional recovery is essential to the development of novel therapies for the treatment of stroke.

SELECTED PUBLICATIONS


**Xinggui Shen, PhD**
Assistant Professor of Research in Pathology and Translational Pathobiology
Core Director of Analytical Redox Biology Sub-Core for Redox Biology and Cardiovascular Disease

xshen@lsuhsc.edu

**CURRENT RESEARCH**

I am a biochemist with strong interest in elucidating and the fundamental mechanism of sulfide metabolites in human disease. My lab extensively uses proteomics technologies and analytical redox biology approaches to identify sulfide-regulated proteins which are associated with disease progression among cardiovascular disease, diabetes and cancer. I have published over 30 peer reviewed original manuscripts utilizing analytical redox biology approaches, including several highly cited manuscripts describing novel methods of quantifying hydrogen sulfide bioavailability. In addition, I also investigated protein tyrosine phosphatase related signaling in hydrogen sulfide biology, and perform molecular modeling and structure prediction for H2S-modified proteins.

**SELECTED PUBLICATIONS**


Karen Stokes, PhD
Assistant Director of the CCDS, Scientific Excellence
Associate Professor of Molecular and Cellular Physiology
Director of the CURIOUS, Cardiovascular Undergraduate
Research Initiative for Underrepresented Students
kstoke@lsuhsc.edu

CURRENT RESEARCH
My research focuses on microvascular responses to cardiovascular risk factors,
most recently in the brain as it relates to stroke risk and outcome. My lab is
currently R01-funded, and I also direct the Cardiovascular Undergraduate
Research Initiative for Underrepresented Students (CURIOUS), funded by an NIH
R25 grant. My research revolves around understanding the crosstalk between
platelets, leukocytes and the vascular endothelium in the setting of diabetes,
hypercholesterolemia, and cytomegalovirus infection, with specific interest in how
platelets mediate the resulting inflammation, and how leukocytes participate in
thrombosis. Our group was the first to show the chronic responses of arterioles
and venules to cytomegalovirus, and how this virus (which a majority of the
population has) alters how the microvasculature reacts to hypercholesterolemia.
Our recent work has also highlighted the role of dicarbonyl stress in diabetes not
only in the exacerbated brain injury following stroke, but also the enhanced risk for
thrombosis.

SELECTED PUBLICATIONS
Chen J., Leskov I.L., Yurdagul A. Jr., Thiel B., Kevil C.G., Stokes K.Y., Orr A.W.
(2015) Recruitment of the adaptor protein Nck to PECAM-1 couples oxidant stress

Lohman A.W., Leskov I.L., Butcher J.T., Johnstone S.R., Stokes T.A., Begandt D.,
DeLallo I.J., Best A.K., Penuela S., Leitinger N., Ravichandran K.S., Stokes K.Y.,
Isakson B.E. (2015) Pannexin 1 channels regulate leukocyte emigration through the
venous endothelium during acute inflammation. Nat Commun. 6:7965.

Wang B., Aw T.Y., Stokes K.Y. (2016) The protection conferred against ischemia-
reperfusion injury in the diabetic brain by N-acetylcysteine is associated with

platelet activation and cerebral vessel thrombosis in diabetes. Redox Biol. 4:218-
228.

Gillespie S., Holloway P.M., Becker F., Rauzi F., Vital S.A., Taylor K.A., Stokes
modulates platelet function and protects against cerebral thrombotic dysfunction.

Senchenkova E.Y., Ansari J., Becker F., Vital S.A., Al-Yafeai Z., Sparkenbaugh
Sun H., Cuellar-Saenz H.H., Rubinstein M.R., Han Y.W., Orr A.W., Perretti M.,
Signaling Axis as a Key Regulator of Platelet Function to Promote Resolution of
Inflammation. Circulation. 140(4):319-335
Hong Sun, PhD, MD
Associate Professor of Cellular Biology and Anatomy
hsun1@lsuhsc.edu

CURRENT RESEARCH
I have specific expertise in vascular biology and neuroscience. My research focuses largely on developing novel strategies for the prevention and treatment of ischemic stroke. Alcohol is one of the most commonly used and abused chemical substances. I have found that heavy alcohol consumption worsens, whereas light alcohol consumption reduces mortality and brain injury from ischemic stroke. My lab currently is investigating the mechanisms underlying the beneficial effect of light alcohol consumption and detrimental effect of heavy alcohol consumption on ischemic stroke. Obesity is another serious public health problem. The increased risk of ischemic stroke in obese individuals is also accompanied by a poorer prognosis after the ischemic insult. Blood-brain barrier (BBB) permeability and cerebral vasoreactivity are two important factors associated with brain injury following ischemic stroke. Another major direction of my lab is to investigate the influence of obesity on BBB disruption and cerebral vasoreactivity following ischemic stroke. My lab is currently supported by the National Institute of Health.

SELECTED PUBLICATIONS


Hong Sun, Wanfen Xiong, Denise M. Arrick, William G. Mayhan. (2012) Low-Dose Alcohol Consumption Protects Against Transient Focal Cerebral Ischemia in Mice: Role of PPAR γ. PLoS One. 7(7): e41716

James Traylor, MD
Clinical Associate Professor of Pathology
jtrayl1@lsuhsc.edu

CURRENT RESEARCH
As a board certified anatomic/forensic pathologist I have 20 years of experience in diagnostic histopathology with particular interest and expertise in cardiac pathology. Over the past decade at the LSU Health Sciences Center – Shreveport, I have provided research support for a number of collaborators for the procurement of human pathological samples and for the scoring of tissues derived from animal models of disease. As part of this work, I have contributed to the design of a histopathology score index for experimental colitis and implemented a classic system for scoring human atherosclerotic plaques (Stary scoring system) for the assessment of mouse atherosclerosis. I am currently concentrated on atherosclerosis and the effects of methamphetamine on the cardiovascular system.

SELECTED PUBLICATIONS


Education/Training
BS – Southeastern Louisiana University
MD – Louisiana State University Medical Center, New Orleans
Forensic Pathology – Louisiana State University Medical Center, New Orleans

Board Certified via the American Board of Pathology in Anatomic Pathology and Forensic Pathology
Chiranjiv Virk, MD  
Assistant Professor of Surgery  
cvirk@lsuhsc.edu

**SELECTED PUBLICATIONS**


Aaron Bogart, Meghna Chadha, Shehanaz Ellika, **Chiranjiv Virk**, Chaitanya Ahuja, Zhiyun Yang. The role of indium-111 WBC SPECT/CT in the definitive diagnosis of a mycotic aortic aneurysm (MAA). *SCIAEON Journal of Radiology*

Robert Walter, MD, MPH, FCCP
Associate Professor of Medicine
Bryn Professor of Medicine
Chief for Section of Pulmonary & Critical Care Medicine
Program Director of Pulmonary & Critical Care Medicine Fellowship Program
rwalt1@lsuhsc.edu

CURRENT RESEARCH
Having established our Pulmonary Hypertension, we are working to develop a research program particularly around this disease. Pulmonary arterial hypertension (PAH) is an arteriopathy of the pulmonary circulation, characterized by endothelial cell proliferation and smooth muscle hypertrophy. Our research effort are centered around the genetic epidemiology of the disease, using the PAH Registry listed below. In a somewhat tangential effort, Drs. Kevil, Kolluru and I are working on a multi-institutional project exploring the association between enzymes involved in the metabolism of H2S and cardiovascular disease, utilizing the Jackson Heart Study dataset.

SELECTED PUBLICATIONS


Yuping Wang, MD, PhD
Professor of Clinical Obstetrics and Gynecology
ywang1@lsuhsc.edu

CURRENT RESEARCH
Dr. Wang's research focuses on studying the mechanisms of vascular endothelial and placental trophoblast dysfunction in preeclampsia. Preeclampsia is a hypertensive disorder unique to human pregnancy and it is also a recognized risk factor for cardiovascular disorders later in life in women who experienced preeclampsia during their pregnancy.

SELECTED PUBLICATIONS


R. Keith White, MD, FACS
Chairman and Professor of Surgery
John C. McDonald, MD Endowed Chair of Surgery
Director, Division of Cardiothoracic and Vascular Surgery
rwhi17@lsuhsc.edu

CURRENT RESEARCH
I have obtained an educational grant for surgical robotic simulation and would like to develop effective methods of mitigating stress induced errors in real-time operative settings.

SELECTED PUBLICATIONS
White RK, Olsen DB. Total artificial heart development at the University of Utah. Lekar A. Technika (USSR), 1;22, 1-5, 1991


Matthew D. Woolard, PhD
O’Callaghan Family Endowed Professor in Microbiology
Associate Professor, Department of Microbiology and Immunology
mwoola@lsuhsc.edu

CURRENT RESEARCH
My research focuses on the mechanisms of atherosclerotic plaque formation, a major cause of cardiovascular disease worldwide. I currently run an internationally renowned research laboratory and am the first investigator at LSU Health Shreveport to hold three concurrent National Institute of Health RO1 grants. My research seeks to understand how the local microenvironment affects vascular cell signaling during pathological processes such as atherosclerosis, angiogenesis and ischemia-reperfusion injury. Work from my group have identified a critical role for the extracellular matrix in the regulation of vascular cell function, characterizing novel signaling mechanisms and identifying specific receptors involved in this response.

SELECTED PUBLICATIONS


Andrew Yurochko, PhD
Professor and Carroll Feist Endowed Chair in Viral Oncology
Vice Chair, Department of Microbiology and Immunology
Associate Director & Dir. Research, Feist-Weiller Cancer Center
ayuroc@lsuhsc.edu

CURRENT RESEARCH
My current research focuses on the investigation of how human cytomegalovirus infects and utilizes bone marrow progenitor cells, and monocytes and macrophages to promote life-long viral persistence and how infection of these critical in vivo targets contributes to the serious acute and chronic viral-mediated diseases observed in infected people. HCMV is the leading infectious cause of birth defects in the United States and a leading cause of morbidity and mortality in solid organ and bone marrow transplant recipients. HCMV infection is also associated with the development and severity of the cardiovascular diseases, atherosclerosis and restenosis.

SELECTED PUBLICATIONS


Yunfeng Zhao, PhD
Associate Professor of Pharmacology, Toxicology and Neuroscience
yzhao1@lsuhsc.edu

CURRENT RESEARCH
Targeting metabolic enzymes and mitochondrial uncoupling for cancer prevention and therapy.

SELECTED PUBLICATIONS


LSU Health Shreveport
CENTER FOR CARDIOVASCULAR DISEASES AND SCIENCES