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Artwork provided by Rhonda 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 5 years, we have increased our publications per year from ~40 to over 180, and we have increased our annual research funding from $5 million to over $15 million.

Despite the continued struggles brought about by COVID-19, we recruited two new faculty to LSU over the past year, Dr. Arif Yurdagul (Columbia University) and Dr. Oren Rom (University of Michigan). CCDS faculty received $4.3 million in new research funding for 2020-2021, including new funding for the COBRE Center for Applied Immunology and Pathological Processes led by Dr. Andrew Yurochko. The COBRE Center for Redox Biology and Cardiovascular Disease continued to support early career faculty projects and has expanded their core facilities with new personnel and equipment purchases. The CCDS core facilities have expanded our offerings for surgical and viral models of cardiovascular disease, and we have established a CCDS Biobank for the storage and dissemination of blood and tissue samples from clinical CCDS studies. Six CCDS trainees received American Heart Association fellowships for the past year, and Dr. Karen Stokes and I received funding from the National Heart, Lung, and Blood Institute to establish a Multidisciplinary Training in Cardiovascular Pathophysiology T32 program, the only NHLBI funded T32 in the state of Louisiana supporting graduate student training.

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.
YEAR AT A GLANCE

57 CCDS Faculty Members and 9 CCDS-Funded Fellows

CCDS Faculty Published 181 Research Articles in 2020-2021.


The CCDS Awarded over $300K in Intramural Grants and provided over $890K in additional research support in 2020-2021.

CCDS Faculty and Trainees Brought in over $15 million in Extramural Funding in 2020-2021.

CCDS Clinical Faculty Participated in 26 Clinical Studies in 2020-2021.
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
Monica Jepkemboi (right)
Clinical Research Coordinator

Shantel Vital (left)
Research Associate
Robert Dayton (right)
Research Associate
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

Tarek Helmy, MD  
Professor and Division Chief of Cardiology

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

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

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

David Lewis  
Interim Chancellor  
Dean for School of Medicine  
Professor and Chair of Obstetrics and Gynecology
Kevin McCarthy, PhD  
Professor and Chair of Cellular Biology and Anatomy

Sarah Thayer, MD  
Director of the Feist Weiller Cancer Center

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

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

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

**Vascular Biology and Inflammation**
Mabruka Alfaidi, PhD  
April Brown, PT, DPT  
Prangthip Charoenpong, MD, MPH  
Yufeng Dong, MD, PhD  
Tanja Dudenbostel, MD  
Megan Flavin, PT, DPT  
Norman Harris, PhD  
Sushil Jain, PhD, FACN, FICN  
Jeremy Kamil, PhD  
Christopher Kevil, PhD  
Alok Khandelwal, PhD  
Gopi Kolluru, PhD  
David Krzywanski, PhD  
Kevin McCarthy, PhD  
Sarah Murnane, PT, DPT  
A. Wayne Orr, PhD  
Changwon Park, PhD  
Christopher Pattillo, PhD  
Brent Reed, PhD  
Oren Rom, PhD, RD  
Rodney Shackelford, DO, PhD  
Xinggui Shen, PhD  
James Traylor, MD  
Chiranjiv Virk, MD  
Robert Walter, MD, MPH, FCCP  
Yuping Wang, MD  
R. Keith White, MD, FACS  
Matthew Woolard, PhD  
Art Yurdagul, Jr., PhD  
Andrew Yurochko, PhD

**Cardiac Biology**
Steven Bailey, MD, MSCAI, MACP, FACC, FAHA  
MD Shenuarin Bhuiyan, PhD  
Steven Conrad, MD, PhD  
Diana Cruz-Topete, PhD  
Horacio D’Agostino, MD, FACR, FSIR  
Paari Dominic, MD  
Tarek Helmy, MD  
Sumitra Miriyala, PhD  
Kalgi Modi, MD  
Manikandan Panchatcharam, PhD

**Neurovascular Biology and Stroke**
J. Steven Alexander, PhD  
Connie Arnold, PhD  
Terry Davis, PhD  
Elizabeth Disbrow, PhD  
Nicolas Goeders, PhD  
Bharat Guthikonda, MD, MBA, FACS, FAANS  
Hui-Chao (Reggie) Lee, PhD  
Kevin Lin, PhD  
Xiaohong Lu, PhD  
Kevin Murnane, PhD  
Hyung Nam, PhD  
Krista Rodgers, PhD  
Karen Stokes, PhD  
Hong Sun, MD, PhD  
Krystle Trosclair, PhD  
Yin-Chieh Wu, PhD  
Quanquang Zhang, MD
**Post-Doctoral Fellows**

Nicole Hall  
Mentor: Dr. Kevin Murnane  
Pharmacology, Toxicology, and Neuroscience  
*MTCP T-32 Fellow*

Lauren Henderson  
Mentor: Dr. Jeremy Kamil  
Microbiology and Immunology  
*MTCP T-32 Fellow*

Ashton Jorgenson  
Mentor: Dr. Hyung Nam  
Pharmacology, Toxicology and Neuroscience

Gaganpreet Kaur  
Mentor: Dr. Norman Harris  
Molecular and Cellular Physiology

Jiyu Li  
Mentor: Dr. Hong Sun  
Cellular Biology and Anatomy

Sudha Sharma  
Mentor: Dr. Sumitra Miriyala  
Cellular Biology and Anatomy

**Post-Doctoral Fellows**

Mabruka Alfaidi, PhD  
Mentor: Dr. A. Wayne Orr  
Pathology  
*AHA Fellow*

Minseong Kim, PhD  
Mentor: Dr. Changwon Park  
Molecular and Cellular Physiology

Matthew Scott, PhD  
Mentor: Dr. A. Wayne Orr  
Pathology  
*AHA Fellow*
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 ongoing faculty mentoring from the COBRE Mentoring Committee and access to COBRE Core Facilities that enable both COBRE and non-COBRE researchers to establish nationally competitive research programs in cardiovascular redox biology.

**COBRE Projects**

- **Paari Dominic, MD**  
  Associate Professor  
  Department of Cardiology  
  "Role of Hydrogen Sulfide and Oxidative Stress in Methamphetamine-Induced Cardiac Arrhythmias"

- **Manikandan Panchatcharam, PhD**  
  Associate Professor  
  Department of Cell Biology and Anatomy  
  "Oxidative Stress Mediated Myocardial Lipid Dysfunction."

- **Hugh Nam, PhD**  
  Associate Professor  
  Department of Pharmacology, Toxicology, & Neuroscience  
  "Neurogranin Regulation in Cardiovascular Disease."

- **Sumitra Miriyala, PhD**  
  Assistant Professor  
  Department of Cell Biology and Anatomy  
  "4-Hydroxy-2-Noenal in Mitochondrial Damage and Mediating Heart Failure."

**COBRE Graduated Projects**

- **Christopher Pattillo, PhD**  
  Associate Professor  
  Department of Molecular and Cellular Physiology  
  "Cellular Reductive State Regulates Arteriogenesis."

- **David Krzywanski, PhD**  
  Assistant Professor  
  Department of Cellular Biology and Anatomy  
  "Nicotinamide Nucleotide Transhydrogenase Regulates Redox Balance in Atherosclerosis."
COBRE Pilot Projects

Alok Khandelwal, PhD
Assistant Professor
Feist Weiller Cancer Center

“Targeting CXCL 17 (C-X-C Motif Chemokine Ligand 17) in Atherosclerosis.”

Gopi Kolluru, PhD
Assistant Professor
Department of Pathology

“CSE and Hydrogen Sulfide Role in Aging Vasculature.”

Kevin Murnane, PhD
Associate Professor
Department of Pharmacology, Toxicology and Neuroscience.

“Elucidating the Role of Oxidative Stress and Inflammation in Methamphetamine-Induced Neurovascular Damage.”

Past COBRE Pilot Projects

Diana Cruz-Topete, PhD
Assistant Professor
Department of Molecular and Cellular Physiology

“Redox State and Sex Differences in Cardiac miR-34a Expression.”
COBRE Leadership

Christopher Kevil, PhD
COBRE Principal Investigator

Andrew Yurochko, PhD
Director of the Mentoring Committee

A. Wayne Orr, PhD
Redox Molecular Signaling Core Director

Karen Stokes, PhD
Animal Models and Histology Core Director

External Advisory Committee

David Fulton, PhD
Augusta University

Hong Wang, MD, PhD, EMBA
Temple University

Peter Mohler, PhD
Ohio State University

COBRE Education Series

Mark Kohr, PhD, FAHA, FCVS
Associate Professor, Department of Environmental Health and Engineering
Bloomberg School of Public Health
Whiting School of Engineering
John Hopkins University
“S-nitrosoglutathione reductase in myocardial ischemia-reperfusion injury: What does biological sex have to do with it?”
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, while 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, pressure-volume loop, treadmill with gas analyzer to monitor respiratory metabolism and ultra high frequency ultrasound housed in separate rooms of a dedicated lab suite, along with dedicated analysis stations. Our newest additions to our capabilities include a Perimed Periflux system. Both cores have full-time staff to perform measurements.

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. A highly sensitive EcoPhysics NO Analyzer is used to measure nitric oxide and its metabolites in a variety of biological samples, and a recently purchased Orbitrap Exploris 480 will be used to expand the mass spectrometry capabilities of the core. 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. This core can also produce CRISPR/Cas9 knockout cells for CCDS investigators. In addition, this core provides access to equipment and expertise for exposing vascular cells to hypoxia/reoxygenation injury (Coy Hypoxic Chamber).
CCDS Core Facilities

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.

Shantel Vital’s years of experience were vital to establishing the CCDS Surgical Models Core.

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 his custom AAV preparations are currently in use by several investigators at LSU Health Shreveport and at other universities around the country.

Robbie Dayton brings his experience making viruses for collaborative CCDS studies to the CCDS Virus Production Core facility.
Andrew Yurochko, PhD  
NIH COBRE  
$10,529,128  
“Center for Applied Immunology and Pathological Processes (CAIPP)”

Diana Cruz, PhD  
NIH/NHLBL Supplement  
$191,000  
“Molecular Mechanisms of Stress Signaling in the Female Heart.”

Sushil Jain, PhD  
NIH/NCCIH  
$1,500,200  
“Optimization of 25-Hydroxy-Vitamin D Levels in African Americans.”

Xiao-Hong Lu, PhD  
NASA  
$750,000  
“Evaluate the Impact of Space Radiation on the Human Body.”

Christopher Kevil, PhD  
NIH/Sequencing of COVID-19 Supplement  
$730,000  
“SARS-CoV-2 Genomic Surveillance in North Louisiana.”

Kevin Murnane, PhD  
NIH/NINDS R01  
$2,600,000  
“Exploring the Role of Oxytocin in the Regulation of Neuronal Excitability.”

A. Wayne Orr, PhD  
Karen Stokes, PhD  
NIH/NHLBI  
$730,000  
“Multidisciplinary Training in Cardiovascular Pathophysiology.”
This year, the Center of Excellence for Cardiovascular Diseases and Sciences was awarded an NIH T32 grant from the National Heart, Lung and Blood Institute. The Principle Investigators are Dr. A. Wayne Orr, Ph.D., and Dr. Karen Stokes, Ph.D. This is the first grant of its kind on our campus and will fund the Multidisciplinary Training in Cardiovascular Pathophysiology (MTCP) Training Program for graduate students. The program begins on July 1st, 2021, and will offer a host of training opportunities that are currently only available to our more advanced Malcolm Feist Predoctoral Fellowship awardees. The program will accept two new students per year, so that from next year onwards we will have a total of four trainees at any time. They will be in the program for two years, and it is anticipated that the enhanced training will make the T32 fellowship recipients more competitive for subsequent fellowships, in particular extramural fellowships from the American Heart Association and the National Institutes of Health. We are privileged to have three outstanding cardiovascular scientists as members of our External Advisory Committee: Dr. Rakesh Patel, Ph.D., Professor, and Vice Chair for Research, Dept. of Pathology, Division of Molecular & Cellular Pathology, at The University of Alabama at Birmingham; Dr. Brant Isakson, Ph.D., Professor, Dept. of Molecular Physiology and Biophysics, and Resident Faculty of the Robert M. Berne Cardiovascular Research Center at the University of Virginia School of Medicine; Viola Vaccarino, M.D., Ph.D., Wilton Looney Professor of Cardiovascular Research, Dept. of Epidemiology, Rollins School of Public Health, Emory University, with a joint appointment in the Dept. of Medicine, Division of Cardiology, Emory University School of Medicine. We have just awarded our first two fellowships to Ms. Lauren Henderson, Dept. of Microbiology and Immunology (Mentor: Dr. Jeremy Kamil, Ph.D.), and Ms. Nicole Hall, Dept. of Pharmacology, Toxicology and Neuroscience (Mentor: Dr. Kevin Murnane, Ph.D.).
In 2019, the Center of Excellence for Cardiovascular Diseases and Sciences introduced 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. Although we could not hold the program in the summer of 2020, due to COVID-19, we accepted 10 students for the program, starting in May 2021. The students came from six different universities (five universities in Louisiana). They 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 (for both students and faculty) was our guest seminar speaker, Dr. Ayotunde Dokun, MD, PhD, FACE, POEDRC Verna Funke Chair in Diabetes Research, Director of the Division of Endocrinology and Metabolism, Program Director PREP Iowa, Associate Professor of Medicine and Endocrinology, and of Molecular Physiology and Biophysics, University of Iowa, Carver College of Medicine. Dr. Dokun also met with the CURIOUS students over lunch, and everyone engaged a very active discussion. 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. 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. We look forward to hosting students again next year.
The COBRE Center for Applied Immunology and Pathological Processes (CAIPP) was established in 3/1/2022 with a ~$10,000,000 grant from NIH. The PI and Director is Dr. Andrew D. Yurochko. The new CAIPP is focused around the broad topic of immunology and hopes to promote both infrastructure growth and development and retention of faculty on the LSUHS campus. Dr. Rona S. Scott is the Director of the Modeling Core, which is the first core on campus that can do complex modeling of multiple bioinformatics data sets as well as use machine learning to make predictive models for members of the COBRE and the entire school. All of the high end computers have been purchased and a day-to-day director (Dr. Jian Wang) has been hired in partnership with the FWCC. Dr. Matthew D. Woolard is the Director of the Immunophenotyping Core, which will help members of the COBRE and the entire school on developing and implementing any immunological technique from flow cytometry, to microscopy, to cytokine arrays, and more. The Immunophenotyping core is also providing salary support for the LSUHS research core. All of the equipment including a new Isoplexis Isospark that was purchased as part of a collaboration between both COBREs on campus and the CCDS is in the core, and the new day-to-day director, Dr. Shushma Bharrhan has been hired. Dr. Martin Sapp is the Mentoring Committee Director and is instrumental in driving one of the other key elements of the COBRE, the development of junior faculty on campus. Three junior faculty are currently members of the COBRE, Dr. Xiaohong, Lu, Dr. Ana Dragoi, and Dr. Monica Cartelle Gestal. The COBRE and cores are up and running and the center has successfully completed its first year. Via the establishment of strong collaborations with multiple centers on campus including the CCDS, the CEVT and the FWCC, the CAIPP is ready to advance the overall mission of the center and to grow and expand the research enterprise on the LSUHS campus.
9th Annual Malcolm Feist Lecture on Translational Research in Cardiovascular Disease

As part of the CCDS Seminar Series, one lecture a year is designated as the Malcolm Feist Lecture on Translational Research in Cardiovascular Medicine. This 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. Coleen McNamara, MD, from the University of Virginia. For the clinical seminar, Dr. McNamara spoke about the how the immune system can be modulation for the treatment of cardiovascular disease, with members of the CCDS. Previous Malcolm Feist lecture speakers were: Dr. William Robert Taylor, MD, PhD; Cornelia M. Weyand, MD, PhD, MBA; Monte Willis, MD, PhD; Joseph C. Wu, MD, PhD; Costantino Iadecola, MD; Brian Annex, MD; and David Harrison, MD.

Coleen McNamara, MD
Director of the Carter Immunology Center
Beirne B. Carter Professor of Immunology
Cardiovascular Division
Department of Medicine
University of Virginia

Malcolm Feist Lecture on Translational Research in Cardiovascular Medicine
“B cells and Atherosclerosis”
LSUHS Researchers Lead Identification of New Biomarkers for Alzheimer's Disease and Related Dementias (ADRD)

A team of scientists and clinicians at LSU Health Shreveport, collaborating across the Centers for Brain Health and Cardiovascular Diseases and Sciences, had their groundbreaking findings on a new blood biomarker for Alzheimer’s disease and related dementia published in the prestigious “Alzheimer’s & Dementia, The Journal of the Alzheimer’s Association”. LSUHS faculty Drs. Elizabeth Disbrow, PhD, Chris Kevil, PhD, Steve Alexander, PhD, and Karen Stokes, PhD were joined by colleagues from the Vascular Medicine Institute at the University of Pittsburgh Medical Center and the Department of Computer Science at Louisiana State University in Shreveport.

LSUHS Postdoctoral Fellows receive Career Awards from the American Heart Association

Celeste Y.C. Wu, PhD (Postdoctoral Fellow in Neurology and Mabruka Alfaidi, PhD, (Postdoctoral Fellow in Pathology) at LSU Health Shreveport, have been selected as recipients of an American Heart Association Career Development Award. This prestigious award supports highly promising healthcare and academic professionals in the early years of their career by funding innovative research and training to assure the future success of the awardee as a cardiovascular independent scientist.

LSUHS Scientists and Researchers Develop Tidal Volume Monitor

A tidal Volume Monitor project was a collaborative effort with LSUHS faculty (Dr. Steve Alexander, PhD and Dr. Steven Conrad, MD, PhD and Dr. Giovanni Solitro, PhD) and two medical students (Luke White and Ben Maxey) to increase the safety and efficacy of emergency ventilation. The device uses a series of sounds and light to rapidly train operators and emergency responders to more accurately administer hand respiration support for patients that are in transit to a more sophisticated ventilator. The device also prevents injury and ensures that patient does not sustain lung damage from improper use of the flow monitor.
JanOne Appoints Internationally Renowned Expert on Addiction Dr. Nicholas Goeders, PhD to Scientific Advisory Board

JanOne Inc., a company focused on developing treatments for conditions that cause severe pain and drugs with non-addictive, pain-relieving properties, announced the appointment of Nicholas E. Goeders, PhD to its Scientific Advisory Board. Dr. Goeders is considered one of the world's leaders on the role of stress in drug addiction and states that he is looking forward to working with their distinguished members to fight against opioid addiction.

LSUHS PhD Graduates write Children’s Book

Microbiology for Kids: From A to Z is a microbiology-themed alphabet book designed to introduce our youngest learners to the fascinating world of microbes. Authors, Heather Fulkerson, PhD and Sadie Rice, PhD used kid friendly sentences and engaging illustrations with the goal of making science fun and accessible to people of all ages.

AHA Heart Walk

Dr. Steven Bailey, MD, MSCAI, MACP, FACC was named the 2021 Northwest Louisiana (NWLA) Heart Walk Chair. LSU Health Shreveport raised over $19,000 and was the top participating company in the NWLA. Over a hundred supporters walked with Dr. Bailey on the newly instituted outdoor trail to support the AHA in raising funds for research to prevent heart disease and stroke.
J. Steven Alexander, PhD

Professor
Departments of Molecular and Cellular Physiology, Medicine, and Neurology
Center for Tissue Engineering and Regenerative Medicine
jonathan.alexander@lsuhs.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, especially relevant to COVID19 pathophysiology. 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
Mabruka Alfaidi, PhD
Instructor
Department of Pathology
Center for Cardiovascular Diseases and Sciences
mabruka.alfaidi@lsuhs.edu

CURRENT RESEARCH
I am a vascular biologist with a long-standing interest in vascular wall inflammation and treatment of ischemic heart disease, with originally being trained as a clinical cardiologist then as a basic science researcher, I have skill-sets in various fields, including translational cardiovascular pathologies, molecular biology, and inflammation. I obtained my PhD from the University of Sheffield, UK in 2016, after discovering that in ischemic heart disease patients, the leaderless cytokine interleukin-1β is predominantly processed and released by the endothelium. I am currently investigating the molecular mechanisms that underlie progression of atherosclerosis and endothelial activation in the laboratory of Dr. A. Wayne Orr at Louisiana State University in Shreveport. My research vision is to develop a targeted therapy to the endothelium and that will reduce atherosclerosis within the vascular wall, without affecting the systemic immune response. This is important because the CANTOS trial suggests potential immunosuppressive side effects to the anti-interleukin-1β antibody, despite the promising local effects. The short term goals of my research program, for which I received an AHA Career Development Award, are to understand how endothelial-to-mesenchymal transition develops in response to the atherogenic disturbed blood flow and how that influences atherosclerosis progression and plaque instability.

SELECTED PUBLICATIONS
Smith SA, Samokhin AO, Alfaidi M, Murphy EC, Rhodes D, Holcombe WML, Kiss-Toth E, Storey RF, Yee SP, Francis SE, Qwarnstrom EE. The IL-1RI Co-Receptor TILRR (FREM1 Isoform 2) Controls Aberrant Inflammatory Responses and Development of Vascular Disease. JACC Basic Transl Sci. 2017;2(4):398-414.

Invited Seminars:
Cell Biology & Physiology Departmental Seminar. Washington University School of Medicine in St. Louis, MO, USA. Endothelial IL-1β Induced Activation: Double-Edged Roles of The Leaderless Cytokine in Vascular Wall Inflammation and Atherosclerosis Progression. (01/2021).
Connie Arnold, PhD
Professor
Departments of Medicine and Feist-Weiller Cancer Center
Chief, Division of Health Disparities
connie.arnold@lsuhs.edu

CURRENT RESEARCH
As a health services researcher for the past 29 years, I have co-led an interdisciplinary team investigating the impact of patient literacy on health and healthcare. I am Principal Investigator of a NIH-funded R01 (1 R01 CA240496-01A1) to investigate health literacy intervention, shared decision-making strategy to overcome disparities in colorectal cancer screening in resource limited, rural community health clinics in North Louisiana. 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 (LaCaTS), 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, MSCAI, MACP, FACC, FAHA

Professor and Chairman, Department of Internal Medicine
Malcolm Feist Chair of Interventional Cardiology
Professor of Emeritus, UT Health San Antonio
steven.bailey@lsuhs.edu

CURRENT RESEARCH

My clinical focus is in Adult Congenital/Structural and Valvular heart disease in addition to Coronary Atherosclerotic Disease. His research laboratory is involved in investigating the effects of NOX subtypes in promoting cardiovascular disease and Pulmonary Endothelial cell prothrombic response to Covid 19 viral infection. He has translational research in the field of nanotechnologies and nanosensors and holds several patents in these fields.

SELECTED PUBLICATIONS


Education/Training
BA-Univ. of Oregon
MD-Univ. of Oregon
Residency-Fitzsimmons Army Medical
Internship-Fitzsimmons Army Medical
Fellowship-Fitzsimmons Army Medical

Honors/Awards
Mason F. Sones Jr. MD Distinguished Service Award by SCAI 2021
2021 Chairperson for Northwest LA American Heart Association Walk
Mastership Recipient by American College of Physicians (ACP) 2021
America’s Top Doctors 2017-2021
President’s Distinguished Service in Medicine Award 2017
Albert Nelson Marquis Lifetime Achievement Award 2017
The Life Time Achievement Award: The Trustees of Interventional Cardiology Foundation of India 2017
American Heart Association Research Grant Honor 2016
Best Doctors in America 2007-2021
Master Interventionist of SCAI 2014
Editor-in-Chief, Catheterization & Cardiovascular Interventions (CCI) Journal
Ad Hoc Member, Harvard Medical School Professional Ad Hoc Evaluation Committee
Md. Shenuarin Bhuiyan, PhD
Associate Professor
Division for Pathology and Translational Pathobiology
shenu.bhuiyan@lsuhs.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
April Brown, PT, DPT, MSCI

Board-Certified Specialist in Orthopedic Physical Therapy
Clinical Assistant Professor
Department of Physical Therapy
april.brown@lsuhs.edu

CURRENT RESEARCH
Dr. Brown’s current research involves the functional effects of blood flow restriction training (BFRt) on individuals with rheumatological conditions as well as the effects of BFRt on individuals with type 2 diabetes mellitus. Our current proposal compares high-load resistance training to blood flow restriction with low load resistance training to determine an optimal or alternative exercise program to decrease the risk of cardiovascular events in individuals with type 2 diabetes mellitus.

SELECTED PUBLICATIONS
Prangthip Charoenpong, MD, MPH

Assistant Professor
Division of Pulmonary and Critical Care Medicine
Department of Internal Medicine
prangthip.charoenpong@lsuhs.edu

CURRENT RESEARCH
My clinical focus is on pulmonary hypertension, interstitial lung disease, and lung transplant. I am interested in clinical outcomes and risk factors for mortality of pulmonary arterial hypertension in systemic sclerosis patients, modified by ethnicity/sex as there is limited data suggesting different outcomes and different responses to targeted therapy of PAH. My current research project focuses on mechanism of estrogen paradox in methamphetamine associated pulmonary arterial hypertension (PAH) in binge and crash animal model and to study the effect and mechanism of methamphetamine on pulmonary circulation and right ventricle, modified by sex.

SELECTED PUBLICATIONS


Steven A. Conrad, MD, PhD

Professor
Departments of Medicine, Emergency Medicine, Pediatrics, Surgery, and Biochemistry and Molecular Biology
Ike Muslow, MD Endowed Chair in Healthcare Informatics
Vice Chair for Research, Department of Medicine
Director, Division of Clinical Informatics, Department of Medicine
steven.conrad@lsuhs.edu

CURRENT RESEARCH
Dr. Conrad’s research is multidisciplinary. One area targets mass and momentum transport in artificial organs, with publications on oxygen transport in during cerebral vasospasm and blood recirculation during extracorporeal membrane oxygenation, with a current focus on finite element analysis of transport mechanisms during hemofiltration and hemodialysis. These research findings assist in operationalizing patient care procedures. The second area targets machine learning and predictive analytics, with a current focus on risk prediction of pulmonary embolism in patients presenting to the emergency department. The aims of this research are the identification of high-risk patients using artificial intelligence approaches. The third area is focused on the use of extracorporeal circulation for the treatment of sepsis, including plasma-based therapies, adsorption of infectious organisms, and adsorption of endotoxin during endotoxic shock.

SELECTED PUBLICATIONS
Diana Cruz-Topete, PhD
Assistant Professor
Department of Molecular and Cellular Physiology
diana.cruz@lsuhs.edu

CURRENT RESEARCH
Our current research is focused on understand the association between gender/sex, stress, and heart disease risk and outcomes during the aging process. Our long-term goal is to elucidate if mental stress is a major risk factor for cardiac disease and failure, in particular in women.

Cardiovascular Projects
• Effects of mental stress on the severity of myocardial infarction in females (stress hormones inhibition of estrogen's cardioprotection)
• Long-term Effects of acute and chronic mental stress on pathological cardiac gene expression and function
• Effects of the COVID-19 associated mental stress on female cardiovascular health

Other Projects
• Stress hormone receptors regulation of adipose tissue inflammation and its implications in metabolism
• Finding diagnostic and therapeutic targets for Adult and Pediatric NAFLD/NASH

SELECTED PUBLICATIONS


* First and Corresponding author

* First and Corresponding author
Horacio D’Agostino, MD, FACR, FSIR

Professor
Department of Radiology, Surgery and Anesthesiology
horacio.dagostino@lsuhs.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


RESEARCHER PROFILES

Terry C. Davis, PhD

Professor
Departments of Medicine, Pediatrics, and Feist Weiller Cancer Center
terry.davis@lsuhs.edu

CURRENT RESEARCH

My research focuses on the impact of Health 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 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. We founded the N Louisiana /LSUHS Research Community Advisory Board and were appointed to serve on the Governor’s COVID-19 Health Equity Task Force. Our current research includes assessing low-income patients’ beliefs and behavior related to COVID-19 and vaccines.

SELECTED PUBLICATIONS


Elizabeth Disbrow, PhD
Associate Professor
Department of Neurology
Director, Center for Brain Health (CBH)
elizabeth.disbrow@lsuhs.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
Reekes TH, Higginson CI, Ledbetter CR, Sathivadivel N, Zweig RM, and Disbrow ED. 2020. Sex Specific Cognitive Differences in Parkinson’s Disease. npj Parkinson’s Disease. 8(6:7) doi: 10.1038/s41531-020-0109-1


Abstracts

Paari Dominic, PhD
Associate Professor
Department of Internal Medicine, Division of Cardiology
Director, Cardiac Electrophysiology
Assistant Director, CCDS, Clinical and Translational Research
paari.dominic@lsuhs.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, Director of Translational Research
Department of Orthopaedic Surgery
yufeng.dong@lsuhs.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

Tanja Dudenbostel, MD
Associate Professor
Director of Clinical Hypertension
Department of Medicine
tanja.dudenbostel@lsuhs.edu

CURRENT RESEARCH
Dr. Dudenbostel’s clinical research focuses on the mechanisms of hypertension, obesity-related hypertension and early vascular aging. Hypertension is the most modifiable risk factor for cardiovascular disease morbidity and mortality worldwide. Her research seeks to understand how endogenous (hormones) and exogenous factors (lifestyle, nutrition) affect vascular and cardiac remodeling. Work from her group has identified upregulation of aldosterone and cortisol in obesity and paradox salt regulation as a major factor for early vascular aging and cerebrovascular and cardiovascular complications. Furthermore, her group identified aldosterone–sodium interaction as a main driver for blunting efficacy of mineralocorticoid receptor antagonists - the first line therapy for resistant hypertension and heart failure. Furthermore, aldosterone-sodium interaction and its blunting effects of estrogen-associated vascular health has become the most recent focus of her work further elucidating sex and gender differences in hypertension and the role of neuroendocrine dysregulation.

SELECTED PUBLICATIONS
Dudenbostel T, Li P, Calhoun DA. Paradoxical increase of 24-hour urinary aldosterone levels in obese patients with resistant hypertension on a high salt diet. Am J Hypertens. 2020 Dec 8; DOI:10.1093/ajh/hpaa208 PMID: 33290515
Megan Flavin PT, DPT, OCS, TPS
Board Certified Specialist in Orthopaedic Physical Therapy
Therapeutic Pain Specialist
Clinical Instructor
Department of Physical Therapy
megan.flavin@lsuhs.edu

CURRENT RESEARCH
Dr. Flavin’s research focuses on the use of blood flow restriction therapy to improve function in patients with peripheral vascular disease, chronic pain, musculoskeletal impairments and diabetes. She has a robust clinical practice within the Faculty Practice Clinic in the School of Allied Health treating a wide variety of patient’s with musculoskeletal diagnoses due to physical deconditioning and inflammation.

Education/Training
BS – Louisiana State University
DPT – LSUHSC– Shreveport
Orthopaedic Residency – LSUHSC - Shreveport
Nicholas Goeders, PhD
Professor and Head
Department of Pharmacology, Toxicology and Neuroscience
Executive Director, Louisiana Addiction Research Center (LARC)
nicholas.goeders@lsuhs.edu

CURRENT RESEARCH
Dr. Goeders’ research involves investigations of the neurobiology of drug reinforcement using intravenous and intracranial drug self-administration, neurotoxin lesions, receptor analysis, and pharmacological, behavioral, and environmental interventions. His laboratory is also collaborating with several clinical and basic science laboratories within the CCDS to identify potential mechanisms involved in the effects of methamphetamine on the cardiovascular system. A better understanding of these effects may lead to better treatments for methamphetamine-induced CVD and may also help in the prevention of this life-threatening disease. Some of his other research involves the effects of environmental stress on the acquisition and maintenance of drug taking and seeking as well as the effects of stress on drug-induced changes in drug self-administration. This research has been translated into Phase 2 clinical trials by Embera NeuroTherapeutics, Inc. (founder and scientific board: N.E. Goeders; www.emberaneuro.com). Finally, selected physio-sexual sexual effects of methamphetamine in female rats are also under investigation.

SELECTED PUBLICATIONS


Bharat Guthikonda, MD, MBA, FAANS, FACS

Professor and Chair
Department of Neurosurgery
bharat.guthikonda@lsuhs.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


Norman R. Harris, PhD

Professor and Chair
Department of Molecular and Cellular Physiology
norman.harris@lsuhs.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


Tarek Helmy, MD, FACC, FSChAI
Holoubek Endowed Professor of Medicine
Chief of Division of Cardiology
Co-Director of the Heart and Vascular Institute
tarek.helmy@lsuhs.edu

CURRENT RESEARCH

My clinical focus is in interventional cardiology, coronary disease, cardiogenic shock and structural heart disease. I am involved in clinical studies with coronary devices, as well as analysis of large data bases investigating cardiac outcomes. I am also interested in strategies targeting ischemia reperfusion injury. I am focused on promoting translational research by getting clinical faculty and trainees involved in ongoing projects in the basic arena.

SELECTED PUBLICATIONS

Sushil K. Jain, PhD, FACN, FICN

Professor
Departments of Pediatrics, Molecular and Cellular Biology, and Biochemistry and Molecular Biology
Malcolm Feist Endowed Chair in Diabetes
sushil.jain@lsuhs.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 16400 citations with an H index of 67.

SELECTED PUBLICATIONS


Nicholas Goeders, PhD
Professor and Head
Department of Pharmacology, Toxicology and Neuroscience
Executive Director, Louisiana Addiction Research Center (LARC)
nicholas.goeders@lsuhs.edu

CURRENT RESEARCH
Dr. Goeders’ research involves investigations of the neurobiology of drug reinforcement using intravenous and intracranial drug self-administration, neurotoxin lesions, receptor analysis, and pharmacological, behavioral, and environmental interventions. His laboratory is also collaborating with several clinical and basic science laboratories within the CCDS to identify potential mechanisms involved in the effects of methamphetamine on the cardiovascular system. A better understanding of these effects may lead to better treatments for methamphetamine-induced CVD and may also help in the prevention of this life-threatening disease. Some of his other research involves the effects of environmental stress on the acquisition and maintenance of drug taking and seeking as well as the effects of stress on drug-induced changes in drug self-administration. This research has been translated into Phase 2 clinical trials by Embera NeuroTherapeutics, Inc. (founder and scientific board: N.E. Goeders; www.emberaneuro.com). Finally, selected physio-sexual sexual effects of methamphetamine in female rats are also under investigation.

SELECTED PUBLICATIONS


Jeremy Kamil, PhD
Associate Professor
Department of Microbiology and Immunology
jeremy.kamil@lsuhs.edu

CURRENT RESEARCH
We are broadly interested in how viruses infect cells and cause disease. Our focus is mainly on human cytomegalovirus (HCMV) which tragically remains the #1 viral cause of birth defects. The virus is also a serious threat to organ transplant recipients and to other immunocompromised patients. Our research centers on how HCMV enters cells and how its genes are regulated during infection. We identified a viral protein, UL148, that regulates which types of cells the virus infects and reorganizes the endoplasmic reticulum, a fundamental organelle that forms the base of the eukaryotic cell secretory system. Our work on viral gene expression focuses on how the virus interacts with host cell signaling and stress response pathways. During the COVID-19 pandemic, we established a viral sequencing program that has made LSUHS the #1 contributor of SARS-CoV-2 genome data from Louisiana. In early 2021, we gained international media attention for our collaborative study identifying convergent evolution at position 677 of the spike gene. We continue to work closely with genetic epidemiologists and the GISAID community to analyze the ongoing evolution of SARS-CoV-2. In collaboration with Dr. Benhur Lee (Mt. Sinai School of Medicine, NYC), we have established a system to evaluate spike variants escape from neutralizing antibody responses. Finally, with generous support from The Rockefeller Foundation, we are working to enhance equity and representativeness in coronavirus sequencing and viral genomic surveillance. We are interested in increasing access to and to broaden participation in viral sequencing, not only to bolster our response to COVID-19 but also to establish the vital relationships, community trust and locally-based expertise necessary to rapidly respond to emerging viral diseases in the future.

SELECTED PUBLICATIONS
RESEARCHER PROFILES

Chris Kevil, PhD
Vice Chancellor of Research
Dean for School of Graduate Studies
chris.kevil@lsuhs.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. The lab has 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


Alok Khandelwal, PhD

Research Assistant Professor
Department of Otolaryngology, Head and Neck Surgery
alok.khandelwal@lsuhs.edu

CURRENT RESEARCH

Dr. Khandelwal's research focuses on elucidating the role of and mechanism for CXCL17 (C-X-C Motif Chemokine Ligand 17)-induced effects in atherosclerotic plaque formation, a major cause of cardiovascular disease worldwide. His research seeks to understand how CXCL17 affects vascular cell signaling during pathological processes such as atherosclerosis, angiogenesis and ischemia-reperfusion injury.

SELECTED PUBLICATIONS


Gopi Kolluru, PhD

Research Assistant Professor
Department of Pathology
gopi.kolluru@lsuhs.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 more than 15 years. I have examined the role of gasotransmitters NO and H$_2$S, including the role of cystathionine gamma-lyase (CSE) in regulation of ischemic vascular remodeling. I aim to identify the regulation of gasotransmitters (NO and H$_2$S) 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


Kolluru GK, Pardue S, Shen X, Lewis SE, Saffle CB, Kelley EE, Kevil CG. Hydrogen sulfide stimulates xanthine oxidoreductase conversion to nitrite reductase and formation of NO. Redox Biol. 2020 Jan 30;101447.


David Krzywanski, PhD

Assistant Professor
Department of Cellular Biology and Anatomy
david.krzywanski@lsuhs.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, PhD
Assistant Professor
Department of Neurology
huichao.lee@lsuhs.edu
Website: reggielab.com

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


Education/Training
Ph.D. – Tzu Chi University College of Medicine, Hualien, Taiwan
Post-Doctoral – University of Miami
LSUHSC-Shreveport

Honors/Awards
Career Development Award, AHA
Grant-in-Aid, Center for Brain Health, Louisiana State University
Grant-in-Aid, Louisiana State University Research Council
Postdoctoral Research Fellowship, AHA
Postdoctoral Research Fellowship, The Malcolm Feist Cardiovascular Research Endowment

Joined LSUHS – 2016
Kevin Lin, PhD
Associate Professor
Department of Neurology and Cellular Biology & Anatomy
hungwen.lin@lsuhs.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
Associate Professor
Department of Pharmacology, Toxicology and Neuroscience
xiaohong.lu@lsuhs.edu

CURRENT RESEARCH

Lu lab’s research focuses on molecular genetics and genetic engineering. 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. Lu lab is funded by NIEHS, NASA, NIGHS, and LSUHS

SELECTED PUBLICATIONS


Kevin McCarthy, PhD
Professor and Chairman
Department of Cellular Biology and Anatomy
kevin.mccarthy@lsuhs.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
Department of Cellular Biology and Anatomy
sumitra.Miriyala@lsuhs.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 LSUHS. how the pathophysiology of diabetes mellitus causes failure of this capillary bed.

SELECTED PUBLICATIONS

*corresponding author


Kalgi Modi, MD, FACC, FSCAI, FASE

Professor
Department of Medicine
Director, Cardiology and Interventional Cardiology Fellowship Programs
Director, Echocardiography Laboratory
kalgi.modi@lsuhs.edu

CURRENT RESEARCH

Dr. Modi’s research interest include cardiovascular disease in pregnancy and risk factors associated with premature cardiovascular disease in young adults. She has published more than 70 peer reviewed articles. She is a Fellow of American College of Cardiology, Fellow of Society of Coronary Angiography and Intervention, and Fellow of American Society of Echocardiography. She serves as a reviewer for Echocardiography, Open Cardiovascular Imaging, Journal at Neurology Imaging, Pathophysiology, Macedonian Journal of Medical Sciences, American Journal of Case Reports, and Yonsei Medical Journal, Transplant Infectious Disease, American Journal of Cardiology, and Journal of Critical Care Research.

SELECTED PUBLICATIONS

Flow-Driven Right-to-Left Cardiac Shunting in a Patient with Carcinoid Heart Disease and Patent Foramen Ovale without elevated Right Atrial Pressure: A Case Report and Literature Review, 00378R5 European Heart Journal, Accepted


Renal Denervation in the Management of Hypertension: A Meta-Analysis of Sham-Controlled Trials, June 2019, Cardiovascular Revascularization Medicine, DOI: 10.1016/j.carrev.2019.07.012, Khagendra B Dahal, Maria Khan, Najam Siddiqui, Ju young Lee, Kalgi Modi, CRM, July, 2019 (peer)

Acute De Novo Multivessel Spontaneous Coronary Artery Dissection, May 2019 DOI: 10.1016/j.jaccas.2019.05.001, Lina Ya’qoub, Kalgi Modi, JACC Case Reports, May 2019 (peer)


Gender Based Differences in Outcomes of Percutaneous Coronary Intervention versus Coronary Artery Bypass Grafting for Multivessel Disease. A Meta-Analysis of Randomized Controlled Trials. August 2018, Journal of the American College of Cardiology 72(13): B241, George Mina, Khagendra B Dahal, Pavan Katikaneni, Kalgi Modi

Aldosterone Antagonist Therapy and Mortality in Patients with ST-Segment Elevation Myocardial Infarction without Heart Failure: A Systematic Review and Meta-analysis, May 2018, JAMA Internal Medicine 178(7), Khagendra B Dahal, Aditya Hendrani, Sharan P. Sharma, Kalgi Modi (peer)

Kevin Murnane, PhD

Associate Professor
Department of Pharmacology, Toxicology & Neuroscience
Department of Psychiatry
Director, Basic Sciences Research, Louisiana Addiction Research Center (LARC)
kevin.Murnane@lsuhs.edu

CURRENT RESEARCH

Dr. Murnane’s research is focused on the etiology, pathophysiology, pharmacology, neurobiology, and treatment of substance use disorders. Areas of special emphasis include novel pharmacotherapeutics for substance use disorders, mood changes and cognitive impairments comorbid to addiction, neurodegenerative decline following exposure to abused substances, and the cardiovascular insults induced by substance abuse and addiction. Recent studies have focused on how new drug targets modulate inflammation, oxidative stress, and monoamine systems to affect mood, motivation, and cognition. Our long-term ambition is that the knowledge gained in these studies will allow for the development of new therapeutics with first-in-class disease modifying effects for substance use disorders.

SELECTED PUBLICATIONS

Murnane KS (Accepted) Chapter 24: Natural products and addiction. Medicinal Plants in Global Human Health and Disease. Taylor and Francis


Gannon BM, Rice KC, and Murnane KS (2021) MDPV “High-Responder” rats also self-administer more oxycodone than their “Low-Responder” counterparts under a fixed ratio schedule of reinforcement. Psychopharmacology 238(4):1183-1192 PMID: 33484299


Sarah Murnane, PT, DPT, CWS

Professor
Clinical Assistant Professor
Department of Physical Therapy
Director, Center of Academic Excellence in Patient Centered Rehabilitation
Director, Wound Management Residency
Certified Wound Specialist (CWS)
sarah.murnane@lsuhs.edu

CURRENT RESEARCH

Dr. Murnane’s research focuses on the use of blood flow restriction therapy to improve function in patients with peripheral vascular disease and diabetes. She has a robust clinical practice within the Faculty Practice Clinic in the School of Allied Health treating a wide variety of patient’s with wounds due to compromised blood flow and inflammation

SELECTED PUBLICATIONS

Edinoff, A; Fitz-Gerald, J; Murnane, S; Holland, KA; Reed, JG; Minter, SG; Kaye, AJ;; Kaye, AM; Cornett, EM; Kaye, AD; Viswanath, O; Urits, I. *Adjuvant drugs for peripheral nerve blocks: the role of NMDA Antagonists, neostigmine, epinephrine, and sodium bicarbonate*. Anesthesia and Pain Medicine. Vol 11 (3). 2021

Natural Products in the Treatment of Unremitting Wounds Secondary to Diabetes or Peripheral Vascular Disease (Accepted 2021). Taylor and Francis Books
Hugh Nam, PhD
Associate Professor
Department of Pharmacology, Toxicology & Neuroscience
hyung.nam@lsuhs.edu

CURRENT RESEARCH

We are studying that endothelial nitric oxide synthetase (NOS) mechanism using calcium-dependent neurogranin (Ng) signaling. Our study has been focusing on how Ng-eNOS pathway regulates endothelial activation and cardiovascular disease. Ng expression in the brain attenuates Ca2+-CaM complex formation, and plays a critical role in regulating neuronal nitric oxide synthase (nNOS) activation. Interestingly, our new results indicate that Ng expression is significantly decreased in the left anterior descending artery of coronary artery disease patients. Ng knockdown in human aortic endothelial cells (HAEC) and that it also suppresses both endothelial nitric oxide synthase (eNOS) expression and AKT-mediated eNOS activity during shear stress. We therefore hypothesize that Ng expression in the endothelium regulates both eNOS activity and expression. Dysfunction in Ng expression decreases NO production, resulting in endothelial activation and inflammation, thus contributing to the promotion of atherosclerosis. We have used both in vitro and in vivo model systems using a combination of cutting-edge techniques including CRISPR/Cas9, flow-mediated dilation, partial carotid ligation, and label-free proteomics. Overall, our studies will have a broad impact on the field by dissecting the crucial roles of Ng-mediated eNOS regulation in regulating endothelial activation and atherosclerosis. In the long term, these studies may reveal novel NO therapeutic targets in the treatment of 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


Nahar L, Delacroix BM, Nam HW. The Role of Parvalbumin Interneurons in Neurotransmitter Balance and Neurological Disease. Front Psychiatry.;12:679960, 2021
A. Wayne Orr, PhD

Professor
Department of Pathology
Director, Pathology Research Division
Director, Center for Cardiovascular Diseases and Sciences
wayne.orr@lsuhs.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
Department of Cellular Biology and Anatomy
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CURRENT RESEARCH
Dr. Panchatcharam’s research focuses on lipids which play a major factor in blocking blood vessels leading to heart attack and stroke. Among those major lipids, Lysophosphatidic acid (LPA) is being regulated and controlled by Autotaxin (ATX) and Lipid Phosphate Phosphatases (LPPs) which plays a pivotal role. His laboratory focuses on the role of ATX-LPA-LPP axis involved in cerebro-cardiovascular functions. He is a PI and Co-Investigator on NIH R01, R21, R15 and COBRE grants at LSUHS.

SELECTED PUBLICATIONS


Changwon Park, PhD

Associate Professor
Department of Molecular and Cellular Physiology
changwon.park@lsuhs.edu

CURRENT RESEARCH

We previously demonstrated that unlike other ETS factors exhibiting varying degree of redundancy, Etv2 deficient mice die early in gestation due to complete block in blood and blood vessel formation. Further, our studies have revealed that ETV2 acts as a direct upstream inducer of genes critical for generation and function of endothelial cells (ECs). In a subsequent report, we have successfully shown that the dormant ETV2 in adult ECs is reactivated to trigger the angiogenic program in response to ischemic injury. We have also reported that ETV2 alone can directly reprogram terminally differentiated somatic cells into functional ECs, inarguably supporting the idea that ETV2 is a highly specific and potent vasculo-angiogenic factor. We are currently deciphering molecular mechanisms behind ETV2-mediated vascularization by employing basic molecular biology, epigenetics and genetically modified mice coupled with several angiogenesis mouse models.

SELECTED PUBLICATIONS


**Chris Pattillo, PhD**

Associate Professor  
Department of Molecular and Cellular Physiology  
cristopher.pattillo@lsuhs.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
Department of Biochemistry and Molecular Biology
brent.reed@lsuhs.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 γ-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
Department of Cellular Biology and Anatomy
krista.rodgers@lsuhs.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


Oren Rom, PhD, RD
Assistant Professor
Department of Pathology and Translational Pathobiology
oren.rom@lsuhs.edu

CURRENT RESEARCH
Atherosclerotic cardiovascular disease (CVD) remains a leading cause of death due to increasing rates of cardiometabolic risk factors including obesity, diabetes and non-alcoholic liver disease (NAFLD). Dr. Rom’s research focuses on elucidating metabolic and molecular mechanisms of cardiometabolic diseases to identify novel therapeutic targets. While the association between cardiometabolic diseases and lipid metabolism is well-established, recent evidence indicates that dysregulated metabolism of specific amino acids links the pathogenesis of atherosclerosis and NAFLD. Nevertheless, the causes for dysregulated amino acid metabolism, its role as a causative factor or its therapeutic potential remain unclear. We aim to shed light on yet undefined metabolic pathways linking amino acid with lipid metabolism in cardiometabolic diseases that will lead to the development of novel treatments. To achieve this, we apply a multidisciplinary approach combining newly-generated animal models, samples from patients with CVD and NAFLD and genome-wide association studies with a variety of research tools including metabolomics, transcriptomics, animal pathophysiology as well as cellular and molecular biology.

SELECTED PUBLICATIONS
Rodney Shackelford, DO, PhD
Associate Professor
Department of Pathology
rodney.shackelford@lsuhs.edu

CURRENT RESEARCH
Dr. Shackelford’s research focuses on the functions of the DNA Damage Response (DDR) and related proteins on hydrogen sulfide and the cellular sulfur pool regulation. Specifically, the functions of these proteins in relation to the hydrogen sulfide are being applied to cancer initiation and progression, and to cardiovascular disease. His research seeks to understand how changes in the activities and expression of the DDR and related proteins influences cancer cell growth, viability, and metastatic potential. Additionally, the role of the DDR proteins in hydrogen sulfide regulation and cardiovascular disease are being examined with an emphasis on endothelial cell function and viability. His work has identified a central role of the ATR kinase in maintaining cell viability, hydrogen sulfide levels, and in responding to changes in cellular hydrogen sulfide levels through changes in ATR kinase activity.

SELECTED PUBLICATIONS
Semlitsch, M., Shackelford, R.E., Zirkl, S., Malle E. (2011) ATM protects against oxidative stress induced by oxidized low-density lipoprotein. DNA Repair, 10: 848-860.
Xinggui Shen, PhD
Director, Mass Spectrometry & Analytical Redox Biology Core
Research Assistant Professor
Department of Pathology and Translational Pathobiology
xinggui.shen@lsuhs.edu

CURRENT RESEARCH
My current research focuses on elucidating the role of sulfide metabolites and targeted proteins during the pathogenesis of pancreatic cancer, and endothelial dysfunction under hyperglycemic conditions through using proteomics and metabolomics. My laboratory has the expertise in working with analytical redox biology, and current main equipment includes Shimadzu HPLC with UV and fluorescence detector, Thermo Scientific Orbitrap Exploris 480, and ECO PHYSICS nCLD 88.

SELECTED PUBLICATIONS


Karen stokes, PhD
Professor
Department of Molecular and Cellular Physiology
Assistant Director, CCDS, Scientific Excellence
karen.stokes@lsuhs.edu

CURRENT RESEARCH
My research focuses on microvascular responses to cardiovascular risk factors, most recently in the brain. My lab is currently NIH-funded. Much of my current research revolves around understanding the crosstalk between platelets, leukocytes and the vascular endothelium of the brain in the setting of diabetes and sickle cell disease, with specific interest in how platelets mediate the resulting inflammation, and how leukocytes participate in thrombosis. Our recent work highlighted the role of dicarbonyl stress in diabetes not only in the exacerbated brain injury following stroke, but also the enhanced risk for thrombosis. Our newer research is revealing how redox imbalances mediate vascular contributions to Alzheimer’s Disease. I also direct the Cardiovascular Undergraduate Research Initiative for Underrepresented Students (CURIOUS), funded by an NIH R25 grant, and co-direct the Multi-Disciplinary Training in Cardiovascular Pathophysiology (MTCP), funded by an NIH T32 grant.

SELECTED PUBLICATIONS
RESEARCHER PROFILES

Hong Sun, PhD, MD
Associate Professor
Department of Cellular Biology and Anatomy
hong.sun@lsuhs.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


Chun Li, Jiyu Li, Guodong Xu, *Hong Sun. (2020) Influence of chronic ethanol consumption on apoptosis and autophagy following transient focal cerebral ischemia in male mice. Scientific Reports. 10(1): 6164, 2020


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 PPARγ. PLoS One. 7(7): e41716
James Traylor, MD
Clinical Associate Professor
Department of Pathology
james.traylor@lsuhs.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
Krystle Trosclair, PhD
Research Assistant Professor
Department of Neurology
krystle.trosclair@lsuhs.edu

CURRENT RESEARCH
As the Director of Neurosurgical Research, Dr. Trosclair aims to amplify and diversify the research endeavors of the LSUHS Department of Neurosurgery by working closely with clinical faculty and residents to develop well-rounded, comprehensive answers to the neurological questions of our day. With a background in basic science (neurophysiology, cardiac electrophysiology, gross anatomy, and cellular biology), she works to bridge the clinical dilemmas presented within neurosurgery (i.e. strokes, aneurysms, tumor biology, spinal deformities, epilepsy, etc.) with the calculated, scientific approaches and advanced technologies common to the basic science arena.

Some of her current projects include: computational neurosurgery systemization for predictive modeling/machine learning, epidural stimulation as a means of regaining motor function in patients with chronic spinal cord injury, human primary adult neuronal stem cell harvest and culture optimization, neoadjuvant stereotactic radiosurgery for metastatic lesions, medicolegal matters in neurosurgery, “smart” ventriculoperitoneal shunt development, anti-inflammatory-infused matrix coating for chronic intracranial electrode implantation, atypical meningioma incidence dissimilarities across gender and race, factors influencing female surgical trainees, virtual reality/holography and 3D printing applications for resident training, surgical planning, and patient education.

SELECTED PUBLICATIONS
Si M, Trosclair K, Hamilton KA, and Glasscock E. Genetic ablation or pharmacological inhibition of Kv1.1 potassium channel subunits impairs atrial repolarization in mice. American Journal of Physiology-Cell Physiology 2019 316:2, C154-C161
Chiranjiv Virk, MD
Assistant Professor
Department of Surgery
chiranjiv.virk@lsuhs.edu

SELECTED PUBLICATIONS


Endoluminal Surgery in Gastric Bypass Patients Who Regained Weight: A Feasibility Study Elliot Goodman, Chiranjiv Virk British Journal of Surgery Volume 96, Issue S6, 15 OCT 2009

ESRD patients undergoing angioplasty and bypass for CLI have worse outcomes compared to non-ESRD patients: A meta-analysis. Desiree Dawson, Jessica Atkins, Nelson Telles Garcia, George Mina, Adrian Abreo, Chiranjiv Virk and Paari Dominic Journal of the American College of Cardiology, Volume 70, Issue 18 Supplement, October 2017

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

Outcome comparison of TEVAR with and without Left Subclavian Artery Revascularization from Analysis of Nationwide Inpatient Sample Database Annals of Vascular Surgery Jean Luc Delafontaine 1BoHu Tze-Woei Tan Gale L Tang Benjamin W Starnes Chiranjiv Virk Warren B Chow Wayne W Zhang July 2019

End-stage renal disease patients undergoing angioplasty and bypass for critical limb ischemia have worse outcomes compared to non-ESRD patients: Systematic review and meta-analysis Desiree B Dawson, Nelson A Telles-Garcia, Jessica L Atkins, George S Mina, Adrian P Abreo, Chiranjiv S Virk, Paari S Dominic

Robert Walter, MD, MPD, FCCP

Associate Professor
Department of Medicine
Bryn Professor of Medicine
Chief, Section of Pulmonary & Critical Care Medicine
robert.walter@lsuhs.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
Department of Clinical Obstetrics and Gynecology
yuping.wang@lsuhs.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
Department of Surgery
John C. McDonald, MD Endowed Chair of Surgery
Director, Division of Cardiothoracic and Vascular Surgery
keith.white@lsuhs.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, 19911111.


Matthew Woolard, PhD
Associate Professor
Department of Microbiology and Immunology
O’Callaghan Family Endowed Professor in Microbiology
matthew.woolard@lsuhs.edu

CURRENT RESEARCH
My research focuses on the mechanisms of macrophage activity within disease pathogenesis. Currently my laboratory investigates the contribution of lipid metabolism towards macrophage inflammatory responses during atherosclerosis. Specifically we are examining how the lipid metabolic and transcriptional coregulatory protein Lipin-1 regulates macrophage pro-inflammatory and pro-resolving function. Currently my research is funded by a National Institute of Health R01 grant.

SELECTED PUBLICATIONS


Education/Training
BS – Austin College
PhD – University of North Texas Health Sciences Center in Fort Worth
Post-Doctoral – University of North Carolina

Honors/Awards
Member and Grant Review American Heart Association (AHA0)
Member American Association of Immunologists
Ad Hoc Member AICS NIH

Honors/Awards Trainees
Cassidy Blackburn
LSU Graduate Student Research Day – 2nd Place Best Poster Junior Graduate Student Malcolm Feist Fellow

Joined LSUHS -2009
Yin-Chieh (Celeste) Wu, PhD
Research Assistant Professor
Department of Neurology
yinchieh.wu@lsuhs.edu

CURRENT RESEARCH

My current research focus is to explore the physiological role of fatty acid synthase in the aged brain. We are investigating if fatty acid synthase is an important aged-related regulatory element to delay neuronal senescence in vascular dementia. This study can lead to novel therapies/targets against Alzheimer’s disease brain progression.

SELECTED PUBLICATIONS


Arif Yurdagul, PhD
Assistant Professor
Department of Molecular and Cellular Physiology
arif.yurdagul@lsuhs.edu

CURRENT RESEARCH

Despite advances in surgical intervention and cholesterol-lowering drugs over the last few decades, atherosclerotic cardiovascular disease remains the leading cause of death worldwide. Atherosclerosis forms when modified low-density lipoproteins (LDL) accumulate in the subendothelial matrix of medium-sized arteries in areas of branch points, curvatures, and bifurcations, which generate a sustained inflammatory response in endothelial cells and drive leukocyte recruitment. Many of these infiltrating leukocytes become apoptotic, and while these dead cells are efficiently cleared by macrophages (termed “efferocytosis”) early in lesion formation, efferocytosis begins to fail as atherosclerosis progresses, resulting in an overabundance of post-apoptotic dead cells in an area of the atheroma called the necrotic core. In humans, plaques with large necrotic cores and thin fibrous caps are vulnerable to rupture, leading to myocardial infarction and stroke. Therefore, revealing the mechanisms by which efferocytosis fails as atherosclerosis progresses and how effecocytosis is restored during atherosclerosis regression are important objectives in the Yurdagul lab. With these goals in mind, we hope to identify new therapeutic approaches to curb atherosclerotic cardiovascular disease.

SELECTED PUBLICATIONS


Education/Training
BS – Louisiana Tech University
PhD – LSUHSC-Shreveport
Post-Doctoral – Columbia University

Services and Awards
K99/R00-Pathway to Independence Award, NIH-NHLBI
Reviewer for Immunology BSc2 Fellowships, American Heart Association (AHA)
Early Career Editorial Board, Arteriosclerosis, Thrombosis and Vascular Biology (ATVB)
Member, North American Vascular Biology Association (NAVBO) Online Programming Committee
Associate Editor, Frontiers of Cardiovascular Medicine-Atherosclerosis and Cardiovascular Medicine

Joined LSUHS - 2021
Andrew Yurochko, PhD
Vice Chair
Department of Microbiology and Immunology
Professor and Carroll Feist Endowed Chair, Viral Oncology
Associate Director & Director, Research, Feist-Weiller Cancer Center
Director, Center of Excellence for Emerging and Pathological Processes
andy@lsuhs.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


Quan G. Zhang, PhD

Professor
Department of Neurology
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CURRENT RESEARCH

Dr. Zhang studies non-invasive “early/preventive and “late/therapeutic” strategies for brain protection and repair against neurodegenerative and psychiatric disorders. His group has demonstrated the beneficial effects of photobiomodulation therapy, continuous Theta Burst Stimulation (cTBS)/repeated Transcranial Magnetic Stimulation (rTMS) therapy, as well as aerobic exercise. The animal models in the laboratory include: cerebral ischemia (cardiac arrest and focal ischemia, neonatal hypoxia-ischemia), brain trauma [Traumatic Brain Injury (TBI), Posttraumatic Stress Disorder (PTSD)], vascular dementia & depression, as well as transgenic Alzheimer rat model. The overall goal of his research is to develop new non-invasive therapies to protect the brain against neurodegeneration from ischemia, dementia and other forms of brain injury, including psychiatric disorders.

SELECTED PUBLICATIONS


Yunfeng Zhao, PhD

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

SELECTED PUBLICATIONS


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[Image of people gathering at an event]

[Image of people standing outside]

[Image of people posing for a photo]

[Image of people wearing masks]