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Artwork provided by Rhonda Eshaq, Barbara Thompson, and Andrew Yurochko.

Director's Letter



A. Wayne Orr, Ph.D. Director, Center for Cardiovascular Diseases and Sciences Professor and Director, Division of Research, Department of Pathology

a. Wayne OM

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



Leadership

A. Wayne Orr, PhD

CCDS Director Professor and Director Division of Research Department of Pathology and Translational Pathobiology

Karen Stokes, PhD

CCDS Assistant Director for Scientific Excellence Associate Professor Department of Molecular and Cellular Physiology

Paari Dominic, MD

CCDS Assistant Director for Clinical and Translational Research Assistant Professor Division of Cardiology Department of Medicine



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

CCDS STAFF



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



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

Board of Directors



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





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



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

Board of Directors



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 Quanguang Zhang, MD

Fellows

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





COBRE Center for Redox Biology and Cardiovascular Diseases

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 Center for Redox Biology and Cardiovascular Diseases

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?"

COBRE Core Facilities

Animal Models and Histology Core

The COBRE Animal Models and Histology Core facility provides services for mouse genotyping and tissue histology, as well as access to state-of-the-art tools for analyzing cardiovascular function. Dr. Karen Stokes serves as the Overall Core Director, 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 Both cores have full-time staff to perform system. measurements.



Ron Maloney provides extensive experience in cardiovascular imaging and analysis in the COBRE Cardiovascular Phenotyping Sub-Core.



Dr. Xinggui Shen leads and provides hands-on expertise for the measurement of reactive oxygen, nitrogen, and sulfur species for the Analytic Redox Biology Sub-Core.

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.

New Funding in 2020-2021



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."

Multidisciplinary Training in Cardiovascular Pathophysiology (MTCP) Training Program







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 Multi-Disciplinary 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.).



CURIOUS Summer Research Program

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.













COBRE Center for Applied Immunology and Pathological Processes

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.



LSU Health Shreveport CENTER FOR APPLIED IMMUNOLOGY AND PATHOLOGICAL PROCESSES

COBRE LEADERSHIP



Andrew Yurochko, PhD COBRE Principal Investigator



Martin Sapp, PhD Director of the Mentoring Committee



Rona Scott, PhD Modeling Core Director



Matthew Woolard, PhD Immunophenotyping Core Director

Malcolm Feist Cardiovascular Seminar Series

Gregory T. Collins, PhD

Assistant Professor Department of Pharmacology University of Texas Health Science Center at San Antonio; Research Health Scientist South Texas Veterans Health Care System "Cardiovascular complications of (poly)substance abuse" (Held jointly with the Louisiana Addiction Research Center (LARC) at LSU Health Shreveport)

Hind Lal, PhD

Associate Professor of Medicine Division of Cardiovascular Disease UAB | The University of Alabama at Birmingham "Molecular Mechanisms of Cancer Therapeutic Kinase Inhibitors Mediated Cardiotoxicity"

Aikaterini Kontrogianni-Konstantopoulos, PhD

Professor of Biochemistry and Molecular Biology Director, Interdisciplinary Program in Muscle Biology University of Maryland School of Medicine "Obscurins: giant cytoskeletal regulators in heart disease"

Josef Anrather, VMD

Professor of Neuroscience Brain and Mind Research Institute Weill Cornell Medical College "The Landscape of Immune Cells in Ischemic Stroke"

Irena Levitan, PhD, FAIMBE

Professor of Medicine and Bioengineering Associate Head for Research, Department of Medicine University of Illinois at Chicago "Critical role of endothelial shear-stress sensitive K+ channels in NO production and vasodilation: implications for vascular dysfunction in hypercholesterolemia and obesity"

Katey Rayner, PhD

Associate Professor Director, Cardiometabolic microRNA Laboratory University of Ottawa Heart Institute "Inflammation in vascular disease: The balance between life and death"

Pilar Alcaide, PhD

Kenneth and JoAnn G. Wellner Professor Associate Professor of Immunology Director, Immunology Graduate program Tufts University School of Medicine "Understanding T cell immune responses in heart failure"

Richard W. Smalling, MD, PhD, FACC, MSCAI

Professor of Medicine, Division of Cardiovascular Medicine, Univ. of Tx Medical School-Houston, Director of Interventional Cardiovascular Medicine, Univ. of Texas Medical School-Houston and the Memorial Hermann Heart and Vascular Institute "Mechanical Circulatory Devices: Assuring Next Generation Performance"

Paco S. Herson, PhD

Professor and Vice Chair for Research Department of Anesthesiology Director, Neuronal Injury & Plasticity Program University of Colorado Denver | Anschutz Medical Campus "Pharmacological rehabilitation to enhance cognitive recovery following cerebral ischemia" Due to COVID-19, all seminars were held virtually. However, our

faculty and trainees still had the opportunity to meet with the speakers on-line"

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"*

News & Events

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 Mabruka Alfaidi, Neurology and 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.







Joined LSUHS - 1994

Education/Training

BS – Boston University PhD – Boston University Postdoctoral – Vanderbilt University

Honors/Awards

2016-17 President, Vice President 2015-16, International Society for Neurovascular Disease Grant Review, Deutsche Forschung Gemeinschafte (2008-2020) Editor in Chief, Pathophysiology President, LSUHSC-S Faculty Senate (2019-2020)

Honors/Awards Trainees Mansoureh Barzegar

Travel Award to American Society for Sleep Research *Luke White* Dialysis ClinicsInc. *J. Winny Yun, PhD* Annette Funicello Research Fund Research Award COBRE Supplement Award 'Alzheimer's disease and Sulfide Metabolism" LSUHSC-S COVID Intramural Award on Stem cell therapy for COVID related strokes

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

Boltersdorf T, Ansari J, Senchenkova EY, et al. Targeting of Formyl Peptide Receptor 2 for *in vivo* imaging of acute vascular inflammation. *Theranostics*. 2020;10(15):6599-6614. doi:10.7150/thno.44226

Cananzi SG, White LA, Barzegar M, et al. Obstructive sleep apnea intensifies stroke severity following middle cerebral artery occlusion. *Sleep Med.* 2020;67:278-285. doi:10.1016/j.sleep.2020.01.014

Zhang Y., Sharma A., Joo D.J., Nelson E., AbuRmilah A., Amiot BP Boyer C.J., **Alexander J.S.**, Jalan-Sakrikar N., Martin J., Moreira R., Chowdhury S.A., Smart M., Dietz A.B., Nyberg S.L., Heimbach J.K., and R.C. Huebert. (2020) Autologous Adipose Tissue-Derived Mesenchymal Stem Cells Introduced by Biliary Stents or Local Immersion in Porcine Bile Duct Anastomoses. <u>Liver</u> <u>Transpl.</u> 26(1):100-112. doi: 10.1002/lt.25682.

Becker F., Romero E., Goetzmann J., Hasselschwert D.L., Dray B., Vanchiere J., Fontenot J., Yun J.W., Norris P.C., White L., Musso M., Serhan C.N., **Alexander J.S**., and F.N.E. Gavins. (2019) Endogenous Specialized Proresolving Mediator Profiles in a Novel Experimental Model of Lymphatic Obstruction and Intestinal Inflammation in African Green Monkeys. <u>Am J Pathol.</u> 189(10):1953-1972.

Samant H., Manatsathit W., Dies D., Shokouh-Amiri H., Zibari G., Boktor M., and **J.S. Alexander**. (2019) Cholestatic liver diseases: An era of emerging therapies. W <u>orld J Clin Cases</u>. 7(13):1571-1581.

Yun J.W., Barzegar M., Boyer C.J., Minagar A., Couraud P.O., and **J.S. Alexander** (2019) Brain Endothelial Cells Release Apical and Basolateral Microparticles in Response to Inflammatory Cytokine Stimulation: Relevance to Neuroinflammatory Stress? <u>Front Immunol</u>. 10:1455.

Becker F., Gavins F.N.E., Fontenot J., Jordan P., Yun J.Y., Scott R., Polk P.R., Friday R.E., Boktor M., Musso M., Romero E., Boudreaux S., Simmons J., Hasselschwert D.L., Goetzmann J.E., Vanchiere J., Cvek U., Trutschl M., Kilgore P., and **J.S. Alexander**. (2019) Dynamic gut microbiome changes following regional intestinal lymphatic obstruction in primates. <u>Pathophysiology</u>. 26(3-4):253-261.

Ballard DH, Tappa K, Boyer CJ, et al. Antibiotics in 3D-printed implants, instruments and materials: benefits, challenges and future directions. *J 3D Print Med*. 2019;3(2):83-93. doi:10.2217/3dp-2019-0007



Joined LSUHS - 2017

Education/Training

MD – Benghazi School of Medicine, Libya. PhD – University of Sheffield, UK. Post-Doctoral – LSUHS, USA.

Service/Honors

Grant Review, American Heart Association (AHA).

Member of the ATVB Early Career Committee, ATVB Council of American Heart Association (AHA).

Member, North American Vascular Biology Association (NAVBO)

Membership Committee/ Online Program Committee.

Editorial Board, Arteriosclerosis, Thrombosis and Vascular Biology (ATVB).

Review Editor, Frontiers in Cardiovascular Medicine.

Ordinary Membership of British Atherosclerosis Society (BAS).

<u>Awards</u>

British Atherosclerosis Society Young Investigator Award, 2020. ATVB Elaine Raines Young Investigator Award Finalist, 2020. NAVBO Outstanding Poster Award, 2020.

AHA Career Development Award.

Mabruka Alfaidi, PhD

Instructor Department of Pathology Center for Cardiovascular Diseases and Sciences <u>mabruka.alfaidi@lsuhs.edu</u>

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-1ß 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-1 β 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

Alfaidi M, Wilson H, Daigneault M, Burnett A, Ridger V, Chamberlain J, Francis S. Neutrophil elastase promotes interleukin-1beta secretion from human coronary endothelium. J Biol Chem. 2015;290:24067-24078.

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. <u>JACC Basic Transl Sci</u>. 2017;2(4):398-414.

Alfaidi M, Chamberlain J, Rothman A, Crossman D, Villa-Uriol MC, Hadoke P, Wu J, Schenkel T, Evans PC, Francis SE. Dietary docosahexaenoic acid reduces oscillatory wall shear stress, atherosclerosis, and hypertension, most likely mediated via an IL-1-mediated mechanism. J Am Heart Assoc. 2018;7

Alfaidi M, Acosta CH, Wang D, Traylor JG, Orr AW. Selective role of nck1 in atherogenic inflammation and plaque formation. <u>J Clin Invest</u>. 2020;130:4331-4347

Iqbal J, Chamberlain J, **Alfaidi M**, Hughes M, Alizadeh T, Casbolt H, Evans P, Mann B, Motterlini R, Francis S, Gunn J. Carbon monoxide releasing molecule a1 reduces myocardial damage after acute myocardial infarction in a porcine model. J Cardiovasc Pharmacol. 2021. doi:10.1097/FJC.000000000001067

Invited Seminars:

Cell Biology & Physiology Departmental Seminar. <u>Washington University</u> <u>School of Medicine in St. Louis</u>, MO, USA. *Endothelial IL-1β Induced Activation: Double-Edged Roles of The Leaderless Cytokine in Vascular Wall Inflammation and Atherosclerosis Progression*. (01/2021).



Joined LSUHS - 1992

Education/Training

BS – LA Tech University MS – Texas A&M University PhD – Texas A&M University

Honors/Awards

Excellence in Extramural Research, Office of Research – LSU Health Shreveport

Selected to Serve on Governor's COVID-19 Inequity Task Force

Invited member, LA DHHS. Take Aim at Cancer in Louisiana Initiative Clinical Committee on Breast and Colon Cancer

American Cancer Society Champion of Hope

Invited faculty of the Principles and Practice of Cancer Prevention and Control Course, part of the National Cancer Institute Summer Curriculum in Cancer Prevention

Southern American Federation for Clinical Research/Southern Society for Clinical Investigation Student Research Award

Review Panels

NIH, Scientific Review Panel American Cancer Society - Cancer Prevention and Control, Scientific Panel Review HRSA, Scientific Review Panel

Connie Arnold, PhD

Professor

Departments of Medicine and Feist-Weiller Cancer Center Chief, Division of Health Disparities <u>connie.arnold@lsuhs.edu</u>

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 (LA CaTS), where provide training statewide in communicating understandable and useful information to patients and the public, an unprecedented collaborative effort among eleven academic institutions in Louisiana.

SELECTED PUBLICATIONS

Höchsmann C, Dorling J, Martin CK, Newton Jr. RL, Apolzan JW, Myers CA, Denstel KD, Mire EF, Johnson WD, Zhang D, Stat MA, **Arnold CL**, Davis TC, Fonseca V, Lavie CJ, Price-Haywood EG. Effects of a 2-Year Primary Care Lifestyle Intervention on Cardiometabolic Risk Factors: A Cluster-Randomized Trial. Circulation 2021;143:00–00. DOI: 10.1161/CIRCULATIONAHA.120.051328 (PMID: 33557578 PMCID: PMC7987882)

Myers C, Martin C, Apolzan J, **Arnold C**, Davis T, Johnson W, Katzmarzyk P. Food Insecurity and Weight Loss in an Underserved Primary Care Population: A Post-hoc Analysis of a Cluster-Randomized Trial. Annals of Internal Medicine. 2021 Mar 9. doi: 10.7326/M20-6326. Epub ahead of print. PMID: 33683931.

Davis T, Singh J, Lance JG, Latiolais L, Kevil C, Yurochko A, Bodily J, Sapp M, Scott R, Weinberger P, Vanchiere J and **Arnold C**. COVID-19 Community Testing in Rural Areas: A Partnership between an Academic Medical Center and Community Clinics. Journal of Community Medicine & Health Education. 2020;10(4):1-2.

Katzmarzyk PT, Martin CK, Newton, Jr. RL, Apolzan JW, **Arnold C**L, Davis TC, et al. Two-Year Weight Loss in an Underserved Primary Care Population: A Cluster-Randomized Trial. New England Journal of Medicine. 2020 Sept 3. 383:909-918. DOI: 10.1056/NEJMoa2007448.

Davis TC, **Arnold CL**. Health Literacy Research in Rural Areas. Studies in Health Technology and Informatics. 2020 Jun 25;269:241-247. doi: 10.3233/SHTI200038. PMID: 32593998.

Kevil CG, Goedders N, Woolard MD, Bhuiyan MD, Dominic P, Kolluru G, Arnold CL, Traylor G, and Orr AW Orr. Methamphetamine Use and Cardiovascular Disease: In Search of Answers. Arteriosclerosis, Thrombosis, and Vascular Biology. 2019;39:1739–1746. DOI: 10.1161/ATVBAHA.119.312461 2019.

Arnold C.L., Rademaker A., Morris J., Wiltz G., Ferguson L.A., and T.C. Davis. (2019) Follow-up Approaches to a Health Literacy Intervention to Increase Colorectal Cancer Screening in Rural Community Clinics: A Randomized Control Trial. Cancer. 2019 125(20):3615-3622.



Joined LSUHS - 2019

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 Marguis 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

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 <u>steven.bailey@lsuhs.edu</u>

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

Perepu US, Chambers I, Wahab A, Ten Eyck P, Wu C, Dayal S, Sutamtewagul G, **Bailey SR**, Rosenstein LJ, Lentz SR. (2021) Standard prophylactic versus intermediate dose enoxaparin in adults with severe COVID-19: A multi-center, open-label, randomized controlled trial. J Thromb Haemost. 2021 Sep; 19(9):2225-2234. PMID: 34236768.

Dhaibar HA, Carroll NG, Amatya S, Kamberov L, Khanna P, Orr, AW, **Bailey SR**, Oakley RH, Cidlowski JA, Cruz-Topete D. (2021) Glucocorticoid Inhibition of Estrogen Regulation of the Serotonin Receptor 2B in Cardiomyocytes Exacerbates Cell Death in Hypoxia/Reoxygenation Injury. J Am Heart Assoc. 2021 Sep. 7;10(17). PMID: 34472367.

Dominic P, Ahmad J, Bhandari R, Pardue S, Solorzano J, Jaisingh K, Watts M, **Bailey SR**, Orr AW, Kevil CG, Kolluru GK. (2021) Decreased availability of nitric oxide and hydrogen sulfide is a hallmark of COVID-19. Redox Biol. 2021 Jul;43:101982. PMID: 34020311.

Abreo AP, **Bailey SR**, Abreo K. Associations between calf, thigh, and arm circumference and cardiovascular and all-cause mortality in NHANES 1999-2004. Nutr Metab Cardiovasc Dis. 2021 May 6;31(5):1410-1415. PMID: 33762151.

Kadavath S, Mohan J, Ashraf S, Kassier A, Hawwass N, Salehi N, Bernardo M, Mawri S, Rehman KA, Ya'qoub L, Strobel A, Dixon SR, Siraj A, Messenger J, Spears JR, Lopez-Candales A, Madder R, **Bailey SR**, Alaswad K, Kim MC, Safian RD, Alraies, MC. Am J Cardiol. 2020 Sep 1;130:168-169. PMID: 32665133.

Anuwatworn A, **Bailey SR**. Predicting who benefits from mitral valve percutaneous repair: It's not just the valve. Catheter Cardiovasc Interv. 2020 Sep 1;96 (3):698. PMID: 32935948.

Bailey, SR. Next-Generation Coronary Stents: Thin Is In; Subacute Thrombosis Is Where It Is At; Restenosis Is Not Hopeless. JACC Cardiovasc Interv. 2020 Apr 13;13(7):831-832. PMID: 32273095.

Rodriguez R, Hasoon M, Eng M, Michalek J, Liu Q, Hernandez B, Bansal S, **Bailey SR**, Prasad A. Incidence and Predictors of Acute Kidney Injury Following Transcatheter Aortic Valve Replacement: Role of Changing Definitions of Renal Function and Injury. J Invasive Cardiol. 2020 Apr;32(4):138-141. PMID: 31941833

DeGregorio J, **Bailey SR**. Ischemia from a clinicans perspective: Treating the patient or the investigator? Catheter Cardiovasc Interv. 2020 Mar 1;95(4):711-712. PMID:32096891



Joined LSUHS - 2015

Education/Training

B. Pharm. - University of Dhaka M.Sc. - Tohoku University Ph.D. - Tohoku University Post-Doctoral - Cincinnati Children's Hospital

Honors/Awards

APS Cardiovascular Section New Investigator Award APS Award Committee Member K99/R00 NIH/NHLBI Award The Richard J. Bing Award-Young Investigators (Finalist) Mechanisms of Vasodilation and NO Society of Japan-Young Investigators Award (Finalist) Tohoku University President Award-Best Doctoral Student Sikander Gold Medal- Best Bachelor Student (Faculty of Pharmacy) Editorial Board- JMCC, Sci Rep, Frontiers Physiology, J Pharmacol Sci

Honors/Awards Trainees Chowdhury S Abdullah

APS-Cardiovascular Section Outstanding Trainee Awards-2021 AHA Postdoctoral Fellowship-2020 BCVS Abstract Travel Grant-2018 BCVS Travel Award-2018 ISHR Travel Award-2017

Md. Shenuarin Bhuiyan, PhD

Associate Professor Division for Pathology and Translational Pathobiology <u>shenu.bhuiyan@lsuhs.edu</u>

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

Abdullah CS, Aishwarya R, Alam S, Morshed M, Remex NS, Nitu S, Kolluru GK, Traylor J, Miriyala S, Panchatcharam M, Hartman B, King J, Bhuiyan MAN, Chandran S, Woolard MD, Yu X, Goeders NE, Dominic P, Arnold CL, Stokes K, Kevil CG, Orr AW, **Bhuiyan MS**. Methamphetamine induces cardiomyopathy by Sigmar1 inhibition dependent impairment of mitochondrial dynamics and function. *Commun Biol* 2020 Nov 17;3(1):682.

Abdullah CS, Priyanka R, Alam S, Richa A, Morshed M, Nitu SS, <u>Bhuiyan MS</u>*, Quadir M*. Chemical Architecture of Block Copolymers Differentially Abrogate Cardiotoxicity and Maintain Anticancer Efficacy of Doxorubicin. *Mol Pharm.* 2020 Nov 5; doi: 10.1021/acs.molpharmaceut.0c00963. PMID: 33151075.* <u>Corresponding author</u>

Alam S, Abdullah CS, Richa A, Morshed M, Nitu SS, Miriyala S, Panchatcharam M, Kevil CG, Orr WA, **Bhuiyan MS**. Dysfunctional mitochondrial dynamic and oxidative phosphorylation precedes cardiac dysfunction in R120G-αB-crystallin induced desmin-related cardiomyopathy. *J Am Heart Assoc.* 2020;9:e017195.

Richa A, Alam S, Abdullah CS, Morshed M, Nitu SS, Panchatcharam M, Miriyala S, Kevil CG, **Bhuiyan MS**. Pleiotropic effects of mdivi-1 in altering mitochondrial dynamics, respiration, and autophagy in cardiomyocytes. *Redox Biol*. 2020 Jul 26;36:101660.

Abdullah CS, Alam S, Aishwarya T, Miriyala S, Bhuiyan MAN, Panchatcharam M, Pattillo CB, Orr AW, Sadoshima J, Hill JA, **Bhuiyan MS**. Doxorubicin-induced cardiomyopathy associated with inhibition of autophagic degradation process and defects in mitochondrial respiration. *Sci Rep.* 2019 Feb 14;9(1):2002. doi: 10.1038/s41598-018-37862-3.

Abdullah CS, Alam S, Aishwarya T, Miriyala S, Panchatcharam M, Bhuiyan MAN, Peretik JM, Orr AW, James J, Osinska H, Robbins J, Lorenz JN, **Bhuiyan MS**. Cardiac dysfunction in the Sigmar1 knockout mouse associated with impaired mitochondrial dynamics and bioenergetics. *J Am Heart Assoc.* 2018;7:e009775

Alam S, Abdullah CS, Aishwarya T, Miriyala S, Panchatcharam M, Peretik JM, Orr AW, James J, Robbins J, **Bhuiyan MS**. Aberrant mitochondrial fission is maladaptive in Desmin mutation-induced cardiac proteotoxicity. *J Am Heart Assoc.* 2018;7:e009289.

Bhuiyan MS, McLendon P, James J, Osinska H, Gulick J, Bhandary B, Lorenz JN, Robbins J. In vivo definition of cardiac myosin-binding protein C's critical interactions with myosin. *Pflugers Arch* 2016;468 (10):685–1695.

Bhuiyan MS, Pattison JS, Osinska H, James J, Gulick J, McLendon PM, Hill JA, Sadoshima J, Robbins J. Enhanced autophagy ameliorates cardiac proteinopathy. *J Clin Invest* 2013;123(12):5284-97.

Bhuiyan MS, Gulick J, Osinska H, Gupta M, Robbins J. Determination of the critical residues responsible for cardiac myosin binding protein C's interactions. *J Mol Cell Cardiol.* 2012;53(6):838-847.



Joined LSUHS - 2018

Education/Training

BS – University of Miami (FL) DPT, MSCI – Washington University in St. Louis School of Medicine Fellow in Training American Academy of Orthopedic Manual Physical Therapy

Service/Honors

Member, American Physical Therapy Association Member, Louisiana Physical Therapy Association CEAR Grant Recipient

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

Brown AJ, Gonzalez A. Osteosarcoma in a man referred for lumbar radiculopathy. J Orthop Sports Phys Ther. 2020 Apr; 50(4):214.



Joined LSUHS - 2020

Education/Training

MD – Siriraj Hospital, Mahidol University, Thailand MPH – Harvard T.H. Chan School of Public Health Internal Medicine Residency – Advocate Illinois Masonic Medical Center Pulmonary and Critical Care Fellowship

- SUNY Downstate Medical Center Heart-Lung and Lung Transplant Fellowship – Stanford University Medical Center

Prangthip Charoenpong, MD, MPH

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

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

Ungprasert P, **Charoenpong P**, Ratanasrimetha P, Thongprayoon C, Cheungpasitporn W, Suksaranjit P. Risk of coronary artery disease in patients with systemic sclerosis: a systematic review and meta-analysis. Clin Rheumatol. 2014 Aug;33(8):1099-104. doi: 10.1007/s10067-014-2681-4. Epub 2014 May 25. PMID: 24859783.

Ungprasert P, Srivali N, Wijarnpreecha K, **Charoenpong P**, Knight EL. Non-steroidal antiinflammatory drugs and risk of venous thromboembolism: a systematic review and meta-analysis. Rheumatology (Oxford). 2015 Apr;54(4):736-42. doi: 10.1093/rheumatology/keu408. Epub 2014 Sep 24. PMID: 25252703.

Mahatanan R, Tantisattamo E, **Charoenpong P**, Ferrey A. Outcomes of C difficile infection in solid-organ transplant recipients: The National Inpatient Sample (NIS) 2015-2016. Transpl Infect Dis. 2021 Feb;23(1):e13459. doi: 10.1111/tid.13459. Epub 2020 Sep 18. PMID: 32894617.

Martínez-Lapiscina EH, Mahatanan R, Lee CH, **Charoenpong P**, Hong JP. Associations of serum 25(OH) vitamin D levels with clinical and radiological outcomes in multiple sclerosis, a systematic review and meta-analysis. J Neurol Sci. 2020 Apr 15;411:116668. doi: 10.1016/j.jns.2020.116668. Epub 2020 Jan 25. PMID: 32004798.



Joined LSUHS -

Education/Training

BS – University of Louisiana, Lafayette MD – LSU Health Shreveport MS – Case Western Reserve University MSE – Louisiana Tech University PhD – Case Western Reserve University MSST – Louisiana State University MBA – Louisiana State University MSc – University of Manchester Residency – LSU Health Shreveport Fellowship – Mayo Graduate School

Service/Honors

Master of Critical Care Medicine, American College of Critical Care Medicine Life Senior Member, Institute of **Electrical and Electronics** Engineers **Excellence in Translational** Research Award, LSUHS Section Editor, Clinical Critical Care, American Society of Artificial Internal Organs Distinguished Alumnus, Dept. of **Biomedical Engineering, Louisiana Tech** University Fellow, American Medical Informatics Association MD/PhD Supervisory Committee, LSUHS

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

Conrad SA, Wang D: Evaluation of recirculation during venovenous extracorporeal membrane oxygenation using computational fluid dynamics incorporating fluid-structure interaction. *ASAIO J*, 2020.

Conrad SA, Broman LM, Taccone FS, Lorusso R, Malfertheiner MV, Pappalardo F, et al. The Extracorporeal Life Support Organization Maastricht Treaty for Nomenclature in Extracorporeal Life Support. A Position Paper of the Extracorporeal Life Support Organization. *Am J Respir Crit Care Med*, 2018;198(4):447-451.

Conrad SA, Rycus PT: Extracorporeal membrane oxygenation for refractory cardiac arrest. *Ann Card Anaesth* 2017;20, Suppl S1:4-10.

Conrad SA, Grier LR, Scott LK, Green R, Jordan M: Percutaneous cannulation for extracorporeal membrane oxygenation by intensivists. *Crit Care Med* 2015;43(5):1010-1015.

Vaira S, Friday E, Scott K, **Conrad S**, Turturro F: Wnt/β-catenin signaling pathway and thioredoxin-interacting protein (TXNIP) mediate the "glucose sensor" mechanism in metastatic breast cancer derived cells MDA-MB-231. *J Cell Physiol*. 2012;227(2):578-86.

Chittiboina P, Guthikonda B, Wollblad C, **Conrad SA**: A computational simulation of the effect of hemodilution on oxygen transport in middle cerebral artery vasospasm. *J Cereb Blood Flow Metab* 2011;31(11):2209-17.

Ptitsyn A, Zvonic S, **Conrad SA**, Scott L, Mynatt R, Gimble J: Circadian Clocks are Resounding in Peripheral Tissues. *PLos Computational Biology* 2006;2(3):e16

Conrad SA, Bidani A: Finite element mathematical model of fluid and solute transport in hemofiltration membranes. *Proceedings of the IEEE Engineering in Medicine and Biology Society*, Vol 1, pp. 423-426, 2003

29



Joined LSUHS - 2016

Education/Training

BS – University of Las Americas-Puebla PhD – University of Notre Dame Post-Doctoral – Ohio University and National Institute of Environmental Health Sciences

Honors/Awards

Member, Trainee and Career Development Core Committee. Endocrine Society. Grant Review, American Heart Association, Graduate Women in Science Editorial board, Biomedicine & Pharmacotherapy

Honors/Awards Trainees Ricardo Costa, PhD

Ricardo Costa, PhD Research work featured by several national and international media outlets at Experimental Biology 2021 *Shripa Amatya* Travel Award to ENDO 2020 *Natalie Carroll*

LSU Graduate Student Research Day 2019 – Best Poster Category

Diana Cruz-Topete, PhD

Assistant Professor Department of Molecular and Cellular Physiology <u>diana.cruz@lsuhs.edu</u>

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

Dhaibar, H, Carroll, NG., Amatya, S., Kamberov, L., Khanna, P., Orr, AW., Bailey, SR., Oakley, RH, Cidlowski, JA., and **Cruz-Topete, D.** Glucocorticoids inhibition of Estrogen regulation of the Serotonin Receptor 2B in Cardiomyocytes exacerbates Cell Death in Hypoxia/Reoxygenation Injury. J Am Heart Assoc. 2021 Accepted/in press.

Dhaibar, H., and **Cruz-Topete**, **D**. Predisposition of women to cardiovascular diseases: A side-effect of increased glucocorticoid signaling during the COVID-19 Pandemic? Review, Front. Glob. Women's Health, 16 February 2021 https://doi.org/10.3389/fgwh.2021.606833

Cruz-Topete, D.*, Oakley, R.H., Cidlowski, J.A. Glucocorticoid Signaling and the Aging Heart. Frontiers in Endocrinology. Front Endocrinol (Lausanne). 2020; 11: 347.

* First and Corresponding author

Cruz-Topete D*, Oakley RH, Carroll NG, He B, Myers PH, Xu X, Watts MN, Trosclair K, Glasscock E, Dominic P, Cidlowski JA*. (2019) Deletion of the Cardiomyocyte Glucocorticoid Receptor leads to Sexually Dimorphic Changes in Cardiac Gene Expression and Progression to Heart Failure. J Am Heart Assoc. 8(15):e011012. doi: 10.1161/JAHA.118.011012.

* First and Corresponding author



Joined LSUHS - 1999

<u>Education/Training</u> MD – University of La Plata, Argentina

Honors/Awards Society of Interventional Radiology

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 proceduralimprovements.

SELECTED PUBLICATIONS

Ballard DH, Flanagan ST, Brown RW, Vea R, Ahuja C, D'Agostino HB. (2019) Paired drainage catheter insertion: Feasibility of placing two catheters within the same complex abscess cavity as a primary and salvage percutaneous drainage technique. Acad Radiol. 27(2):e1-e9. doi: 10.1016/j.acra.2019.03.010. Epub

D'Agostino HB, Hamidian Jahromi A, Jafarimehr E, Johnson P, Do D, Henderson B, Chu Q, Shokouh-Amiri H, Zibari G. J. (2013) Strategy for effective percutaneous drainage of pancreatic collections: results on 121 patients. <u>La State</u> Med Soc. 165(2):74-81

Ballard DH, Gates MC, Hamidian Jahromi A, Harper DV, Do DV, D'Agostino HB. (2019) Transrectal and transvaginal catheter drainages and aspirations for management of pelvic fluid collections: technique, technical success rates, and outcomes in 150 patients. <u>Abdom Radiol (NY)</u>. 44(7):2582-2593. doi: 10.1007/s00261-019-01974-9.



Joined LSUHS - 1980

Education/Training

BA – Emory University MA – LSU – New Orleans PhD – The Fielding Institute

National Leadership

National Academy of Medicine, Health Literacy Roundtable Healthy People 2020, Health Literacy/Health Communication Section US Pharmacopeial Convention, Expert Panel on Health Literacy Health Literacy Advisory Boards, AMA and American College of Physicians FDA, Drug Safety and Risk management Committee

Honors/Awards

NINR Strategic Plan Working Group Excellence in Extramural Research,LSUHSC-S Doak Health Literacy Champion Award Allen A. Copping Excellence in Teaching Award

Significant Achievement in Public Health Research, LA Public Health Assoc. W.H.O. Innovative Practice Award for Childhood Vaccine Communication Package Pfizer Visiting Professor in Health Literacy

- University of New Mexico
- Cincinnati Children's Hospital

Baylor School of Medicine

Director, N LA Community Foundation

Review Panels

NIH Stage 1 Reviewer, Challenge Grants in Health Science Research NIH Study Section, Scientific Review Panel National Research Council, Reviewer Office of Women's Health, Scientific Review Panel

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

Li J, Clouser JM, Brock J, **Davis T**, Jack B, Levine C, Mays G, Mittman B, Nguyen H, Sorra J, Stromberg A, Du G, Dai C, Adu A, Vundi N, Williams MV. Effects of Different Transitional Care Strategies on Outcomes after Hospital Discharge—Trust Matters, Too. *Jt Comm J Qual Patient Saf* 2021; in press.

Sorra J, Zebrak K, Carpenter D, Famolaro T, Rauch J, Li J, **Davis TC**, Nguyen HQ, McIntosh M, Mitchell S, Hirschman KB, Levine C, Clouser JM, Brock J, Williams M. Development and psychometric properties of surveys to assess patient and family caregiver experience with care transitions. *BMC Health Services Research*. In press July 2021.

Myers CA, Martin CK, Apolzan JW, Arnold CL, **Davis TC**, Johnson WD, Katzmarzyk PT. Food Insecurity and Weight Loss in an Underserved Primary Care Population: A Cluster Randomized Trial. *JAMA*. Accepted January 2021.

Li J, Du G, Miller Clouser J, Stromberg A, Mays G, Sorra J, Brock J, **Davis T**, Mitchell S, Nguyen HQ, Williams MV. Improving Evidence-Based Grouping of Transitional Care Strategies in Hospital Implementation Using Statistical Tools and Expert Review. *BMC Health Services Research.* 2021; 21:35. <u>https://doi.org/10.1186/s12913-020-06020-9</u>

Hochsmann C, Dorling JL, Martin CK, Newton Jr. RL, Apolzan JW, Myers CA, Denstel KD, Mire EF, Johnson WD, Zhang D, Arnold CL, **Davis TC**, Fonseca V, Lavie CJ, Price-Haywood EG, & Katzmarzyk PT. Effects of a Two-Year Primary Care Lifestyle Intervention on Cardiometabolic Risk Factors - A Cluster-Randomized Trial. *Circulation*. 2021;143:00-00

Disbrow EA, Arnold CL, Glassy N, Tilly CM, Langdon KM, Gungor D, **Davis TC**. Alzheimer Disease and Related Dementia Resources: Perspectives of African American and Caucasian Family Caregivers in Northwest Louisiana. *Journal of Applied Gerontology*. 2021;40(2):209-219. doi:<u>10.1177/0733464820904568</u> (PMID: 32046583)

Dos Santos Marques IC, Theiss LM, Baker SJ, Liwo A, Wood LN, **Davis TC**, et al. Low health literacy exists in the inflammatory bowel disease (IBD) population and is disproportionately prevalent in older African-Americans. *Crohn's & Colitis 360*. October 2020. <u>https://doi.org/10.1093/crocol/otaa076</u>

Swaminathan R, Morris J, **& Davis TC**. Rural-Urban Disparities in Colorectal Cancer Screening Among Louisiana Adults. J Clinical Oncology 2020 38(4).

Katzmarzyk PT, Martin CK, Newton RL, Apolzan JW, Arnold CL, **Davis TC**, et al. Weight Loss in Underserved Patients—A Cluster-Randomized Trial. *N Engl J Med.* 2020Sept;383:909-918.

Davis TC, Singh J, Lance JG, Latiolais L, Kevil C, Yurochko A, Bodily J, Sapp M, Scott R, Weinberger P, Vanchiere J, Arnold C. COVID-19 Community Testing In Rural Areas: A Partnership between an Academic Medical Center and Community Clinics. *Journal of Community Medicine & Health Education.* 2020 Jul;10(4).



Joined LSUHS - 2013

Education/Training

BS – University of California Davis MS – California State University Sacramento PhD – University of California, Davis Postdoctoral Fellow – University of California, San Francisco

Honors/Awards

President, Society for Neuroscience

Honors/Awards Trainees Tyler Reekes

LSU Graduate Student Research Day 2019 – Best Poster, Graduate Student Category - Poster Award *Caymen Hawkins* Research and Industry Day 2019 – Best Poster, High School Category -Poster Award *Niroshan Sathivadivel, MD* Research and Industry Day 2019 –

Best Poster, Resident Category -Poster Award

Elizabeth Disbrow, PhD

Associate Professor Department of Neurology Director, Center for Brain Health (CBH) <u>elizabeth.disbrow@lsuhs.edu</u>

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

Nguyen HM, Aravindakshan A, Ross JM, Disbrow EA. 2020. Time Course of Cognitive Training in Parkinson Disease. NeuroRehabilitation, 46(3):311- 320. doi: 10.3233/NRE-192940

Disbrow ED, Arnold CL, Glassy N, Tilly CM, Langdon KM, Gungor D, and Davis TC. 2020. Alzheimer's Disease and Related Dementia Resources: Perspectives of African American and Caucasian Family Caregivers in Northwest Louisiana. J Appl Gerontol. 11;733464820904568. doi: 10.1177/0733464820904568

Abstracts

Lana F. Larmeu, Tyler H. Reekes, Vinita Batra, Christina R. Ledbetter, James

C. Patterson II, Pradeep Garg, Richard M. Zweig Elizabeth A. Disbrow. 2020. Basal Ganglia Amyloid Beta Accumulation and Cognitive Dysfunction in Parkinson Disease. Research and Industry Day, LSU Health Shreveport. Tyler H Reekes, Christopher I Higginson, Karen A Sigvardt. David S King, Dawn Levine, Vicki L Wheelock, and Elizabeth A Disbrow. 2020. Sex Differences in Memory Subtype Deficits in Parkinson Disease. Research and Industry Day, LSU Health Shreveport.

Nathaniel Glassy, Leighton Hinkley, Elizabeth Disbrow. 2020. MEG, Parkinson's Disease, and Compensation Mechanisms Research and Industry Day, LSU Health Shreveport.



Joined LSUHS - 2014

Education/Training

MBBS – Stanley Medical College, India MD - Chicago Medical School Clinical Electrophysiology – Yale

Honors/Awards

Excellence in Translational Research, LSUHSC Shreveport- 2020 Kenneth M. Rosen Fellowship in Cardiac Pacing & Electrophysiology from Heart Rhythm Society Max Schaldach Fellowship in Cardiac Pacing and Electrophysiology from Heart Rhythm Society f Dr. Lyle. A. & Mable. R. Baker Award University of Iowa Paul Neuhauser Award. University of Iowa Alpha Omega Alpha

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 metaanalytical 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

Udani K, Chris-Olaiya A, Ohadugha C, Malik A, Sansbury J, <u>Dominic P</u>. Cardiovascular manifestations in hospitalized patients with hemochromatosis in the United States. <u>Int J Cardiol</u>. 2021 Jul 31:S0167-5273(21)01205-5. doi:10.1016/j.ijcard.2021.07.060. Epub ahead of print. PMID: 34343533.

Nemec-Bakk A.S., Sridharan V., Landes R., Singh P., Cao M., Seawright J., Liu X., Zheng G., <u>Dominic P</u>., Pathak R., and Boerma M. Mitigation of late cardiovascular effects of oxygen ion radiation by γ -tocotrienol in a mouse model. <u>Life Sciences in Space Research</u>, Volume 31, 2021, Pages 43-50. https://doi.org/10.1016/j.lssr.2021.07.006.

<u>Dominic P</u>*, Ahmad J, Bhandari R, Pardue S, Solorzano J, Jaisingh K, Watts M, Bailey SR, Orr AW, Kevil CG, Kolluru GK*. Decreased availability of nitric oxide and hydrogen sulfide is a hallmark of COVID-19. <u>Redox Biol</u>. 2021 May 8;43:101982. doi: 10.1016/j.redox.2021.101982. Epub ahead of print. PMID: 34020311 (*equally contributing and co-corresponding authors).

Sheth A, Modi M, Dawson D, <u>Dominic P</u>. Prognostic value of cardiac biomarkers in COVID-19 infection. <u>Sci Rep</u>. 2021 Mar 2;11(1):4930. doi: 10.1038/s41598-021-84643-6. PMID: 33654230; PMCID: PMC7925599.

Watts M, Kolluru GK, Dherange P, Pardue S, Si M, Shen X, Trosclair K, Glawe J, Al-Yafeai Z, Iqbal M, Pearson BH, Hamilton KA, Orr AW, Glasscock E, Kevil CG, <u>Dominic P</u>. Decreased bioavailability of hydrogen sulfide links vascular endothelium and atrial remodeling in atrial fibrillation. <u>Redox Biol</u>. 2021 Jan;38:101817. doi: 10.1016/j.redox.2020.101817. Epub 2020 Dec 3. PMID: 33310503; PMCID: PMC7732878.

Apte N, Dherange P, Mustafa U, Yaqoub L, Dawson D, Higginbotham K, Boerma M, Morin DP, Gupta D, McLarty J, Mansour R and <u>Dominic P</u>. Cancer Radiation Therapy May Be Associated With Atrial Fibrillation. <u>Front Cardiovasc Med</u>. 2021 Jan 22;8:610915. doi: 10.3389/fcvm.2021.610915. PMID: 33553271; PMCID: PMC7862558.



Joined LSUHS - 2014

Education/Training

BS – Weifang University PhD – Shanghai Jiaotong University Post-Doctoral – University of Rochester

Honors/Awards

2011 Airlift Research Foundation Award 2013 Lonza Stem Cell Challenge Award 2016, 2021 Review Panel Member, Medical Research Councils UK 2014-2020 Review Panel Member, Department of Defense-Congressionally Directed Medical Research Programs (CDMRP) 2016 Orthopedic Research and Education Foundation Award 2019 Review Panel Member, NIH small business grant, ZRG1 MOSS D10 2019 Review Panel Member, NIH R15 grant, ZRG1 MOSS D82 2020 COVID-19 Intramural Award

Yufeng Dong, MD, PhD

Associate Professor, Director of Translational Research Department of Orthopaedic Surgery <u>yufeng.dong@lsuhs.edu</u>

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

Xu Y, Tian Y, Tong D, Zhang H, Luo Z, Shang X and Dong Y. (2020) Wnt Signaling Inhibits High-Density Cell Sheet Culture Induced Mesenchymal Stromal Cell Aging by Targeting Cell Cycle Inhibitor p27. <u>Front. Bioeng. Biotechnol.</u> 8:946. doi: 10.3389/fbioe.2020.00946

Luo Z, Shang X, Wang G, Zhang H, Massey P, Barton S, Kevil CG, Dong Y. (2019) Notch signaling in osteogenesis, osteoclastogenesis, and angiogenesis. A<u>merican Journal of Pathology</u>. 189(8):1495-1500. PubMed PMID: 31345466; PubMed Central PMCID: PMC6699068.

Sun J, Luo Z, Wang G, Wang Y, Wang Y, Olmedo M, Morandi MM, Barton S, Kevil CG, Shu B, Shang X, Dong Y. (2018) Notch ligand Jagged1 promotes mesenchymal stromal cell-based cartilage repair. <u>Experimental & Molecular</u> Medicine. 50 (9): 126. PMID: 30242147

Tian Y, Xu Y, Xue T, Chen L, Shi B, Shu B, Xie C, Max Morandi M, Jaeblon T, Marymont JV, Dong Y. (2017) Notch activation enhances mesenchymal stem cell sheet osteogenic potential by inhibition of cellular senescence. <u>Cell death & disease</u>. PMID: 28151468

Tian Y, Xu Y, Fu Q, Chang M, Wang Y, Shang X, Wan C, Marymont JV, Dong Y. (2015) Notch inhibits chondrogenic differentiation of mesenchymal

Dong Y, Long T, Wang C, Mirando AJ, Chen J, O'Keefe RJ, Hilton MJ. (2014) NOTCH-Mediated Maintenance and Expansion of Human Bone Marrow Stromal/Stem Cells: A Technology Designed for Orthopedic Regenerative Medicine. Stem Cells Transl Med. PMID: 25368376

Long T, Zhu Z, Awad H, Schwarz E, Hilton M, **Dong Y**. (2014) Mesenchymal stem cell sheets enhance structural allograft healing of critical-sized femoral defects in mice. <u>Biomaterials</u>. 35(9):2752-9. PMID: 24393269

Dong Y, Jesse A, Kohn A, Gunnell L, Honjo T, Zuscik M, O'Keefe R, Hilton

M (2010) RBPJk-dependent Notch signaling maintains and expends mesenchymal stem/progenitor cells during skeletal development, <u>Development</u>. 137(9):1461-71



Joined LSUHS - 2021

Education/Training MD – University of Göttingen Fellowship – University of Alabama

Honors/Awards

2021 International Society Hypertension – Women in Hypertension Research, Invited Member

2020 Southern Society of Clinical Investigators, Invited Member

2021 Re-appointment Editorial Board, Hypertension (IPF 10.190)

2020 Re-appointment Associate Editor, Blood Pressure (5-year term)

Honors/Awards Trainees

Nitin Gharpure Fulbright Scholarship, 2021

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, obesityrelated 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

Ghazi L, Gaddam KK, Pimenta E, Dell'Italia L, Lloyd SG, Lin CP, Calhoun DA, Oparil S, Dudenbostel T. High dietary sodium blunts effects of mineralocorticoid receptor antagonism on left ventricular hypertrophy in resistant hypertensive patients. Eur Heart J. 2016;37:6350.

Ghazi L, Dudenbostel T, Oparil S, Calhoun DA. Urinary sodium excretion predicts blood pressure response to spironolactone in patients with resistant hypertension independent of aldosterone status. J Hypertens. 2016;34(5):1005-1010. PMID:26886564 PMCID: PMC5636624

Dudenbostel T, Ghazi L, Liu M, Li P, Oparil S, Calhoun DA. Body mass index predicts 24-hr urinary aldosterone levels in patients with resistant hypertension. Hypertension. 2016;68(4):995-1003. PMID:27528066 PMCID: PMC5016255.

Mayfield J, Peng Li, Oparil S, Calhoun D, Dudenbostel T. High prevalence of atrial fibrillation in a large cohort of European American and African American patients with apparent resistant hypertension and primary aldosteronism. J Investig Med. 2018 66(2):351-353. PMID: 29419455

Halade GV, Kain V, Dillion C, Beasley M, Dudenbostel T, Oparil S, Limdi NA. Race-based and sex-based differences in bioactive lipid mediators after myocardial infarction. ESC Heart Fail. 2020;7(4):1700-1710. PMID: 32363774 PMCID: PMC7373890

Liu E, Li P, Dudenbostel T. Characteristics of young patients with resistant hypertension and premature ischemic stroke. Stroke. 2020;50:A471.

Ghazi L, Oparil S, Calhoun DA, Lin CP, Dudenbostel T. Distinctive risk factors and phenotype of younger patients with resistant hypertension: Age is relevant. Hypertension. 2017;69(5):827-835. PMID: 28348010 PMCID: PMC5402755

Dudenbostel T, Siddiqui M, Oparil S, Calhoun DA. Refractory hypertension: A novel phenotype of antihypertensive treatment failure. Hypertension. 2016 Jun;67(6):1085-92. PMID:27091893 PMCID: PMC5425297


Joined LSUHS - 2017

Education/Training

BS – Louisiana State University DPT – LSUHSC– Shreveport Orthopaedic Residency – LSUHSC -Shreveport

Megan Flavin PT, DPT, OCS, TPS

Board Certified Specialist in Orthopaedic Physical Therapy Therapeutic Pain Specialist Clinical Instructor Department of Physical Therapy <u>megan.flavin@lsuhs.edu</u>

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.



Joined LSUHS - 1985

Education/Training

BS – Louisiana State University PhD – Louisiana State University Medical Center Post-Doctoral – The Johns Hopkins University School of Medicine Staff Fellow - National Institute on Drug Abuse

Honors/Awards

Recipient of 2021 Excellence in Innovation award from the Office of Research, LSU Health Shreveport, 2021.

Board of Directors, Council on Alcoholism and Drug Abuse of Northwest Louisiana (CADA)

Recipient of 2020 Wayne Drewry Award for outstanding and distinguished contributions to the field of addictions.

Panel member – Let's Talk About Meth – 2018

Panel member – Let's Talk About the Opioid Crisis – 2018

Invited Speaker - NIDA Clinical Trials Network (CTN) Stimulant Task Force - 2020

Nicholas Goeders, PhD

Professor and Head

Department of Pharmacology, Toxicology and Neuroscience Executive Director, Louisiana Addiction Research Center (LARC) <u>nicholas.goeders@lsuhs.edu</u>

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 lifethreatening disease. Some of his other research involves the effects of environmental stress on the acquisition and maintenance of dug taking and seeking as well as the effects of stress on drug-induced changes in drug selfadministration. 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

Kevil, C.G., **Goeders, N.E**, Woolard, M.D., Bhuiyan, M.S., Dominic, P., Kolluru, G.K., Arnold, C.L., Traylor, J.G., and Orr, A.W. Methamphetamine Use and Cardiovascular Disease. <u>Arterioscler Thromb Vasc Biol</u>. 39(9):1739-1746, 2019. PMID: 31433698.

Keller, C.M. and **Goeders, N.E**. Lack of effect of the combination of metyrapone and oxazepam on brain dopamine. <u>Brain Res.</u> 1724:146435. 2019, in press, PMID: 31491421.

Tian, X., Richard, A., El-Saadi, M.W., Bhandari, A., Latimer, B., Van Savage, I., Holmes, K., Klein, R.L., Dwyer, D., **Goeders, N.E**., Yang, X.W., Lu, X.H.. Dosage sensitivity intolerance of VIPR2 microduplication is disease causative to manifest schizophrenia-like phenotypes in a novel BAC transgenic mouse model. <u>Mol</u> <u>Psychiatry</u> 24(12):1884-1901, 2019. PMID: 31444475.

Keller, C.M., Spence, A.L., Stevens, M.W., Owens, S.M., Guerin, G.F., and Goeders, N.E. Effects of a methamphetamine vaccine, IXT-v100, on methamphetamine-related behaviors. Psychopharmacology (Berl). 237(3):655-667, 2020. PMID: 31758209.

Abdullah, C.S., Aishwarya, R., Alam, S., Morshed, M., Remex, N.S., Nitu, S., Kolluru, G.K., Traylor, J., Miriyala, S., Panchatcharam, M., Hartman, B., King, J., Bhuiyan, M.A.N., Chandran, S., Woolard, M.D., Yu, X., Goeders, N.E., Dominic, P., Arnold, C.L., Stokes, K., Kevil, C.G., Orr, A.W., and Bhuiyan, M.S.

Methamphetamine induces cardiomyopathy by Sigmar1 inhibition-dependent impairment of mitochondrial dynamics and function. Commun. Biol. 3(1):682. 2020. PMID: 33203971



Joined LSUHS - 2007

Education/Training

BS – Cornell University MD – SUNY Upstate Medical University Residency – Baylor College of Medicine Fellowship – The Mayfield Clinic MBA - The Heller School for Social Policy and Management, Brandeis University

Honors/Awards

Scientific Program Committee Primer Course Chair, North American Skull Base Society (2021)

Scientific Program Committee, North American Skull Base Society (2020-2023), American Association of Neurological Surgeons (2019-2022), and Congress of Neurological Surgeons (2020-2021)

Research Committee, North American Skull Base Society (2020)

Nominating Committee, Council of State Neurosurgical Societies (2021)

Honors/Awards Trainees Racheal Peterson, MD,

Louisiana Neurosurgical Societies Annual Meeting John Jackson Award for Best Presentation, 2021 Gadolinium retention in patients undergoing routine postoperative surveillance for pituitary adenomas

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

Kaye AD, Kandregula S, Kosty J, Sin A, **Guthikonda B**, Ghali GE, Craig MK, Pham AD, Reed DS, Gennuso SA, Reynolds RM, Ehrhardt KP, Cornett EM, Urman RD. Chronic pain and substance abuse disorders: Preoperative assessment and optimization strategies. *Best Pract Res Clin Anaesthesiol*. 2020 Jun;34(2):255-267. doi: 10.1016/j.bpa.2020.04.014.

Adeeb N, Terrell DL, Whipple SG, Thakur JD, Griessenauer CJ, Adeeb A, Aslan A, Mamilly A, Mortazavi MM, Dossani RH, **Guthikonda B**, Ogilvy CS, Thomas AJ, Moore JM. The Reproducibility of Cerebrovascular Randomized Controlled Trials. *World Neurosurg*. 2020 Aug;140:e46-e52. doi: 10.1016/j.wneu.2020.04.106.

Whipple SG, Savardekar AR, Rao S, Mahadevan A, **Guthikonda** B, Kosty JA. Primary Tumors of the Posterior Pituitary Gland: A Systematic Review of the Literature in Light of the New 2017 World Health Organization Classification of Pituitary Tumors. *World Neurosurg*. 2021 Jan;145:148-158. doi: 10.1016/j.wneu.2020.09.023.

Adeeb N, Storey C, Vega AJ, Aslan A, **Guthikonda B**, Cuellar-Saenz H. Pediatric Middle Cerebral Artery Occlusion with Dissection Following a Trampoline Trauma. *World Neurosurg*. 2020 Nov;143:428-433. doi: 10.1016/j.wneu.2020.07.175.

Kandregula S, **Guthikonda B**. The Cover Page - Endoscopic-view of Supra-Cerebellar Infratentorial Approach. *Neurol India*. 2020 Nov-Dec;68(6):1277-1278. doi: 10.4103/0028-3886.304085.

Kandregula S, Savardekar AR, Sharma P, McLarty J, Kosty J, Trosclair K, Cuellar H, **Guthikonda** B. Direct thrombectomy versus bridging thrombolysis with mechanical thrombectomy in middle cerebral artery stroke: a real-world analysis through National Inpatient Sample data. *Neurosurg Focus*. 2021 Jul;51(1):E4. doi: 10.3171/2021.4.FOCUS21132. PMID: 34198246.



Joined LSUHS – 1991 Rejoined - 2004

Education/Training

BS – Tennessee Tech University PhD – Vanderbilt University Post-Doctoral – LSU Health Sciences Center in Shreveport

Grant Awards/Review Boards

National Institutes of Health R01s:

2016-2021; Loss of the retinal glycocalyx in diabetes 2011-2015; Retinal blood flow regulation in early diabetes 2007-2011; Venular control of retinal blood flow

NIH Study Sections: AICS (2007); HM (2008-2016); DPVS ad-hoc (2016-2020) Special Emphasis Panels (2009-2020); Mentored Scientist Awards (2020-2021)

Honors/Awards Trainees Gaganpreet Kaur

Center for Cardiovascular Diseases and Sciences Predoctoral Award 2019-2022

Outstanding ePoster Award at Vascular Biology 2020

Graduate Poster Presentation Winner at the LSUS Regional Scholars Forum 2021

Regeneron Award at the Association for Ocular Pharmacology and Therapeutics conference 2021

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

Eshaq RS and **Harris NR**. The role of tumor necrosis factor- α and interferon- γ in the hyperglycemia-induced ubiquitination and loss of platelet endothelial cell adhesion molecule-1 in rat retinal endothelial cells. Microcirculation. May 19:e12717, 2021.

Lee M, Leskova W, Eshaq RS and **Harris NR**. Retinal hypoxia and angiogenesis with methamphetamine. Experimental Eye Research. Mar 15; 206:108540, 2021.

Eshaq RS, Watts MN, Carter PR, Leskova W, Aw TY, Alexander JS, and **Harris NR**. Candesartan normalizes changes in retinal blood flow and p22phox in the diabetic rat retina. Pathophysiology Mar 2; 28:86-97, 2021.

Leskova W, Warar R, and **Harris NR**. Altered retinal hemodynamics and mean circulation time in spontaneously hypertensive rats. IOVS. Aug 3; 61(10):12, 2020.

Wright WS*, Eshaq RS*, Lee M, Kaur G, and **Harris NR**. Retinal physiology and circulation: effect of diabetes. Comprehensive Physiology 10:933-974, 2020. Published online July 8, 2020. (Review). *Co-first authors.

Lee M, Leskova W, Carter PR, Eshaq RS, and **Harris NR**. Acute changes in the retina and central retinal artery with methamphetamine. Exp Eye Res 193:107964, 2020.

Eshaq RS and **Harris NR**. Hyperglycemia-induced ubiquitination and degradation of β -catenin with the loss of platelet endothelial cell adhesion molecule-1 in retinal endothelial cells. Microcirculation 27:e12596, 2020.

Harris NR, Leskova W, Kaur G, Eshaq RS and Carter PR. Blood flow distribution and the endothelial surface layer in the diabetic retina. Biorheology 56:181-189, 2019. (Review)

Eshaq RS and **Harris NR**. Loss of platelet endothelial cell adhesion molecule-1 (PECAM-1) in the diabetic retina: role of matrix metalloproteinases. IOVS 60: 748-760, 2019.

Leskova W, Pickett H, Eshaq RS, Shrestha B, Pattillo CB, and **Harris NR**. Effect of diabetes and hyaluronidase on the retinal endothelial glycocalyx in mice. Experimental Eye Research 179: 125-131, 2019.



Joined LSUHS – 2020

Education/Training

MD – University of Texas Medical Branch Clinical Internship – Cairo University, Egypt

Honors/Awards

Board of Trustees of the Society of Coronary Angiography and Intervention Top Doctors, St. Louis Top Doctors, Cincinnati

Tarek Helmy, MD, FACC, FSCAI

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

Abo-Salem E, Chaitman B, Helmy T, Boakye EA, Alkhawam H, Lim M. Patent foramen ovale closure versus medical therapy in cases with cryptogenic stroke, meta-analysis of randomized controlled trials. J Neurol. 2018 Mar;265(3):578-585. doi: 10.1007/s00415-018-8750-x. Epub 2018 Jan 22

Alkhawam H, Abo-Salem E, Zaiem F, Ampadu J, Rahman A, Sulaiman S, Zaitoun A, Helmy T, et al. Effect of digitalis level on readmission and mortality rate among heart failure reduced ejection fraction patients. Heart Lung 2018 Aug 29 (epub ahead of print). PMID: 30172414

Ampadu J, Alkawaham H, Helmy T, Abo-Salem E. A comparison of digitalis use on mortality and morbidity among special populations with heart failure reduced ejection fractions. J Card Fail 2018;24(8):S29-S30. August



Joined LSUHS - 1981

Education/Training

BS- Punjab University, Chandigarh, India Ph.D. Post graduate Medical Institute, Chandigarh, India Post-doctoral- USC in Los Angeles, and Univ Calif. in San Francisco

Grant Awards/Review Boards

Outstanding Investigator Award (2013) – Amer. Soc. Nutr. Founders Award (1992), Becham Award from SSPR (1988), Rosss Award (1988) -South. Soc. Ped. Res Charter Member (2013-17), VA Merit Review Chair (2014-15)-American Society Ntrition Assoc. Editor (2015-) - J Amer Coll of Nutr Editorial Board Member: FRBM (1998-13), Diabetes (2001-03), Diabetes Care (2009-11), Antioxidant Redox Signal (1999-) 2020-23: PI of clinical trial on vitamin

D in African Americans funded by the NCCIH/NIH

Honors/Awards Trainees

Rajesh Parsanathan, Ph.D. Young Investigator Award (2016)- Annual Meeting of SfRBM, San Francisco Travel Award (2018) - Annual Meeting of SfRBM, Chicago

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 <u>sushil.jain@lsuhs.edu</u>

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

Parsanathan R, **Jain SK.** (2021) G6PD deficiency shifts polarization of monocytes/macrophages towards a proinflammatory and profibrotic phenotype. **Cell Mol Immunol**. 18:770-772.

Jain SK, Parsanathan R. (2020) Can Vitamin D and L-Cysteine Co-Supplementation Reduce 25(OH)-Vitamin D Deficiency and the Mortality Associated with COVID-19 in African Americans? **J Am Coll Nutr**.39:694-699.

Parsanathan R, Achari AE, Manna P, Jain SK. (2020) I-Cysteine and Vitamin D Co-Supplementation Alleviates Markers of Musculoskeletal Disorders in Vitamin D-Deficient High-Fat Diet-Fed Mice. Nutrients. 6:3406.

Jain SK, Parsanathan R, Levine SN, Bocchini JA, Holick MF, Vanchiere JA. (2020) The potential link between inherited G6PD deficiency, oxidative stress, and vitamin D deficiency and the racial inequities in mortality associated with COVID-19. Free Radic Biol Med. 161:84-91.

Parsanathan R, **Jain SK.** (2020) Glucose-6-phosphate dehydrogenase (G6PD) deficiency is linked with cardiovascular disease. <u>Hypertens Res</u>. PMID: 31974484. Parsanathan R, **Jain SK.** (2020) Novel Invasive and Noninvasive Cardiac-Specific Biomarkers in Obesity and Cardiovascular Diseases. <u>Metab Syndr Relat</u> Disord.;18:10-30.

Parsanathan R, Jain SK. (2019) Glutathione deficiency induces epigenetic

alterations of vitamin D metabolism genes in the livers of high-fat diet-fed obese mice. S <u>ci Rep</u>. 9:14784.

Parsanathan R, **Jain SK.** (2019) Hydrogen sulfide regulates circadian-clock genes in C(2)C(12) myotubes and the muscle of high-fat-diet-fed mice. <u>Arch Biochem</u> B <u>iophys.672</u>:108054.

Parsanathan R, **Jain SK**. (2019) Glutathione deficiency alters the vitamin Dmetabolizing enzymes CYP27B1 and CYP24A1 in human renal proximal tubule epithelial cells and kidney of HFD-fed mice. Free Radic Biol Med. 131:376-381.

Jain SK, Parsanathan R, Achari AE, Kanikarla-Marie P, Bocchini JA Jr. (2018)

Glutathione Stimulates Vitamin D Regulatory and Glucose-Metabolism Genes, Lowers Oxidative Stress and Inflammation, and Increases 25-Hydroxy-Vitamin D Levels in Blood: A Novel Approach to Treat 25-Hydroxyvitamin D Deficiency. Antioxid Redox Signal. 29:1792-1807.

Achari AE, **Jain SK.** (2017) Adiponectin, a Therapeutic Target for Obesity, Diabetes, and Endothelial Dysfunction. Int J Mol Sci. 18. E1321.



Joined LSUHS - 1985

Education/Training

BS – Louisiana State University PhD – Louisiana State University Medical Center Post-Doctoral – The Johns Hopkins University School of Medicine Staff Fellow - National Institute on Drug Abuse

Honors/Awards

Recipient of 2021 Excellence in Innovation award from the Office of Research, LSU Health Shreveport, 2021.

Board of Directors, Council on Alcoholism and Drug Abuse of Northwest Louisiana (CADA)

Recipient of 2020 Wayne Drewry Award for outstanding and distinguished contributions to the field of addictions.

Panel member – Let's Talk About Meth – 2018

Panel member – Let's Talk About the Opioid Crisis – 2018

Invited Speaker - NIDA Clinical Trials Network (CTN) Stimulant Task Force - 2020

Nicholas Goeders, PhD

Professor and Head

Department of Pharmacology, Toxicology and Neuroscience Executive Director, Louisiana Addiction Research Center (LARC) <u>nicholas.goeders@lsuhs.edu</u>

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 lifethreatening disease. Some of his other research involves the effects of environmental stress on the acquisition and maintenance of dug taking and seeking as well as the effects of stress on drug-induced changes in drug selfadministration. 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

Kevil, C.G., **Goeders, N.E**, Woolard, M.D., Bhuiyan, M.S., Dominic, P., Kolluru, G.K., Arnold, C.L., Traylor, J.G., and Orr, A.W. Methamphetamine Use and Cardiovascular Disease. <u>Arterioscler Thromb Vasc Biol</u>. 39(9):1739-1746, 2019. PMID: 31433698.

Keller, C.M. and **Goeders, N.E**. Lack of effect of the combination of metyrapone and oxazepam on brain dopamine. <u>Brain Res.</u> 1724:146435. 2019, in press, PMID: 31491421.

Tian, X., Richard, A., El-Saadi, M.W., Bhandari, A., Latimer, B., Van Savage, I., Holmes, K., Klein, R.L., Dwyer, D., **Goeders, N.E**., Yang, X.W., Lu, X.H.. Dosage sensitivity intolerance of VIPR2 microduplication is disease causative to manifest schizophrenia-like phenotypes in a novel BAC transgenic mouse model. <u>Mol</u> <u>Psychiatry</u> 24(12):1884-1901, 2019. PMID: 31444475.

Keller, C.M., Spence, A.L., Stevens, M.W., Owens, S.M., Guerin, G.F., and Goeders, N.E. Effects of a methamphetamine vaccine, IXT-v100, on methamphetamine-related behaviors. Psychopharmacology (Berl). 237(3):655-667, 2020. PMID: 31758209.

Abdullah, C.S., Aishwarya, R., Alam, S., Morshed, M., Remex, N.S., Nitu, S., Kolluru, G.K., Traylor, J., Miriyala, S., Panchatcharam, M., Hartman, B., King, J., Bhuiyan, M.A.N., Chandran, S., Woolard, M.D., Yu, X., Goeders, N.E., Dominic, P., Arnold, C.L., Stokes, K., Kevil, C.G., Orr, A.W., and Bhuiyan, M.S.

Methamphetamine induces cardiomyopathy by Sigmar1 inhibition-dependent impairment of mitochondrial dynamics and function. Commun. Biol. 3(1):682. 2020. PMID: 33203971



Joined LSUHS - 2010

Education/Training

B.A. – Cornell University Ph.D. – University of California, Davis Post-Doctoral- Cornell University Post-Doctoral-Harvard Medical School

Honors/Awards

Editorial Board, *Journal of Virology* Ad hoc, NIH VIRB reviewer Ad hoc, NIH COVID-19 reviewer Ad hoc, DoD reviewer (Viral Diseases) DoD CDMRP COVID-19 reviewer Charles C. Randall Lectureship (ASM-SCB) Priscilla A. Schaffer Lectureship (IHW) Jamie McNew Lectureship (UMN) Expert Panel on SARS-CoV-2 Variants (BioNTech) Scientific Impact Award (LSUHS)

Honors/Awards Trainees

Christopher Nguyen Malcolm Feist Fellowship *Lauren Henderson* NIH T32 MTCP Fellowship ASM-SCB Poster Prize (2016) IHW Travel Award, Belgium (2017)

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 locallybased expertise necessary to rapidly respond to emerging viral diseases in the future.

SELECTED PUBLICATIONS

Siddiquey MNA, Schultz EP...Merola M, **Kamil JP**, The human cytomegalovirus protein UL116 interacts with the viral endoplasmic-reticulum-resident glycoprotein UL148 and promotes the incorporation of gH/gL complexes into virions. <u>J. Virol</u>. **95**, e0220720 (2021). Hodcroft EB, Domman DB, ...Cooper VS, **Kamil JP**. (2021) Emergence in late 2020 of multiple lineages of SARS-CoV-2 Spike protein variants affecting amino acid position 677. <u>medRxiv</u>.

Ikegame S, Siddiquey MNA, ...Perandones C, **Kamil JP**, Lee B, (2021) Neutralizing activity of Sputnik V vaccine sera against SARS-CoV-2 variants. <u>Nat. Commun</u>. 12, 1–11. Zeller M, Gangavarapu K.,.. **Kamil JP**, Garry RF, Suchard MA, Andersen KG. (2021) Emergence of an early SARS-CoV-2 epidemic in the United States. *Cell*. **184**, 4939–4952.e15.

Nguyen CC, Domma AJ, Zhang H, **Kamil JP**. (2020) Endoplasmic Reticulum (ER) Reorganization and Intracellular Retention of CD58 Are Functionally Independent Properties of the Human Cytomegalovirus ER-Resident Glycoprotein UL148. J Virol. e01435-19

Zhang H, Read C, Nguyen CC, Siddiquey MNA, Shang C, ...**Kamil JP**. (2019) The human cytomegalovirus nonstructural glycoprotein UL148 reorganizes the endoplasmic reticulum. <u>mBio</u> 10:e02110-19.

Collins-McMillen D...Igarashi-Hayes S, **Kamil JP**, Moorman NJ, Goodrum F. (2019) Alternative promoters drive human cytomegalovirus reactivation from latency. <u>Proc Natl</u> <u>Acad Sci U S A</u>. 116:17492-17497.



Joined LSUHS - 2002

Education/Training

BS – Northwestern State University PhD – LSU Health-Shreveport Post-Doctoral – University of Alabama at Birmingham

Honors/Awards

Malcolm Feist Endowed Chair for Cardiovascular Disease Fellow of the Society, Society for Redox **Biology and Medicine** Fellow, American Physiology Society-Heart and Circulatory Section Past Chairman, Society for Redox **Biology and Medicine** Board of Directors, Nitric Oxide Society Vice President of Research and Scientific Excellence, Society for Redox **Biology and Medicine** President of General Faculty, LSUHS **NHLBI** Mentored Transition to Independence Study Section NIH Atherosclerosis, Inflammation and Cardiovascular Sciences Study Section

<u>Funding</u>

NIH GM121307 Center for Redox Biology and Cardiovascular Disease NIH HL149264 CSE regulation of vascular remodeling

Chris Kevil, PhD

Vice Chancellor of Research Dean for School of Graduate Studies <u>chris.kevil@lsuhs.edu</u>

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

Kolluru GK, **Kevil CG**. It's a "Gut Feeling": Association of Microbiota, Trimethylamine N-Oxide and Cardiovascular Outcomes. *J Am Heart Assoc.* 2020 May 18;9(10):e016553. doi: 10.1161/JAHA.120.016553. Epub 2020 May 5. PMID: 32366196.

Cheriyan VT, Alfaidi M, Jorgensen AN, Alam MA, Abdullah CS, Kolluru GK,Bhuiyan MS, **Kevil CG**, Orr AW, Nam HW. Neurogranin regulates eNOS function and endothelial activation. *Redox Biol.* 2020 Jul;34:101487. doi:10.1016/j.redox.2020.101487. Epub 2020 Mar 5. PMID: 32173345; PMCID: PMC7327963.

Kolluru GK, Shen X, **Kevil CG**. Reactive Sulfur Species: A New Redox Player in Cardiovascular Pathophysiology. *Arterioscler Thromb Vasc Biol*. 2020 Apr;40(4):874-884. doi: 10.1161/ATVBAHA.120.314084. Epub 2020 Mar 5. PMID: 32131614; PMCID: PMC7098439.

Pardue S, Kolluru GK, 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 Jul;34:101447. doi: 10.1016/j.redox.2020.101447. Epub 2020 Jan 30. PMID: 32035920; PMCID: PMC7327988.

Yurdagul A Jr, Subramanian M, Wang X, Crown SB, Ilkayeva OR, Darville L, Kolluru GK, Rymond CC, Gerlach BD, Zheng Z, Kuriakose G, **Kevil CG**, Koomen JM, Cleveland JL, Muoio DM, Tabas I. Macrophage Metabolism of Apoptotic Cell-Derived Arginine Promotes Continual Efferocytosis and Resolution of Injury. *Cell Metab.* 2020 Mar 3;31(3):518-533.e10. doi: 10.1016/j.cmet.2020.01.001. Epub 2020 Jan 30. PMID: 32004476; PMCID: PMC7173557.



Joined LSUHS - 2016

Education/Training

BPharm – Pune University, India PhD – LSU Health Shreveport Post-Doctoral – Boston University Medical Center

Honors/Awards Trainees Janmaris Marin Fermin

AHNS Outstanding poster award, 2021

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 effets 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

Xiaoyong Tong , **Alok R Khandelwal**, Xiaojuan Wu, Zaicheng Xu, Weimin Yu, Caiyu Chen, Wanzhou Zhao, Jian Yang, Zhexue Qin, Robert M Weisbrod, Francesca Seta , Tetsuro Ago, Kin Sing Stephen Lee, Bruce D Hammock, Junichi Sadoshima, Richard A Cohen, Chunyu Zeng. Proatherogenic role of smooth muscle Nox4-based NADPH oxidase. J Mol Cell Cardiol. 2016 Mar;92:30-40

Pingping Hu*, Xiaojuan Wu*, **Alok R Khandelwal***, Weimin Yu, Zaicheng Xu, Lili Chen, Jian Yang, Robert M Weisbrod, Kin Sing Stephen Lee, Francesca Seta, Bruce D Hammock, Richard A Cohen, Chunyu Zeng, Xiaoyong Tong. Endothelial Nox4-based NADPH oxidase regulates atherosclerosis via soluble epoxide hydrolase. Biochim Biophys Acta Mol Basis Dis. 2017

Xiaoyong Tong^{*}, **Alok R Khandelwal**^{*}, Zhexue Qin, Xiaojuan Wu, Lili Chen, Tetsuro Ago, Junichi Sadoshima, Richard A Cohen. Role of smooth muscle Nox4-based NADPH oxidase in neointimal hyperplasia. J Mol Cell Cardiol. 2015 Dec;89(Pt B):185-94.

Yurdagul A Jr, Kleinedler JJ, McInnis MC, **Khandelwal AR**, Spence AL, Orr AW, Dugas TR. Resveratrol promotes endothelial cell wound healing under laminar shear stress through an estrogen receptor- α -dependent pathway. Yurdagul A Jr, Kleinedler JJ, McInnis MC, Khandelwal AR, Spence AL, Orr AW, Dugas TR. Am J Physiol Heart Circ Physiol. 2014 Mar;306(6):H797-806.

Khandelwal AR., Y. Hebert, James J. Kleinedler, Lynette K. Rogers, Sara L. Ullevig, Reto Asmis, and Tammy R. Dugas. Resveratrol and quercetin interact to reduce neointimal hyperplasia in mice with carotid injury. J Nutr. 2012 Aug;142(8):1487-94. Epub 2012 Jun 20.



Joined LSUHS - 2017

Education/Training

BS – Andhra University MS – Andhra University PhD – Anna University Post-Doctoral – LSUHS

Honors/Awards

IUBMB Wood Whelan Fellowship Award Society for Free Radical Biology and Medicine (SFRBM) Mini Fellowship Award Second Best Poster Award, LSU – Shreveport, USA PVD Council Travel Award 2014, American Heart Association Malcolm-Feist Cardiovascular Disease Fellowship, LSU– Shreveport, USA NIA-Butler Williams Research Program

Editorial Board: Pharmaceutics Journal, MDPI International Journal of Diabetology, MDPI

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 H₂S, including the role of cystathionine gamma-lyase (CSE) in regulation of ischemic vascular remodeling. I aim to identify the regulation of gasotransmitters (NO and H₂S) and associated signaling involved in vascular and metabolic functions in aging cardiovascular system, diabetes and pregnancy complications including preeclampsia. I approach this with the aid of diseased/transgenic mouse models, advanced analytical and non-invasive imaging techniques.

SELECTED PUBLICATIONS

Dominic P, Ahmad J, Bhandari R, Pardue S, Solorzano J, Jaisingh K, Watts M, Bailey SR, Orr AW, Kevil CG, **Kolluru GK**. Decreased Availability of Nitric Oxide and Hydrogen Sulfide is a Hallmark of COVID-19. Redox Biol. 2021

Kolluru GK, Watts M, Dherange P, Pardue S, Si M, Shen X, Trosclair K, Glawe J, Al-Yafeai Z, Iqbal M, Pearson BH, Hamilton KA, Orr AW, Glasscock E, Kevil CG, Dominic P. Decreased bioavailability of hydrogen sulfide links vascular endothelium and atrial remodeling in atrial fibrillation. Redox Biol. 2020 Dec 3;38:101817. doi: 10.1016/j.redox.2020.101817.

Abdullah CS, Aishwarya R, Alam S, Morshed M, Remex NS, Nitu S, **Kolluru G**K, Traylor J, Miriyala S, Panchatcharam M, Hartman B, King J, Bhuiyan MAN, Chandran S, Woolard MD, Yu X, Goeders NE, Dominic P, Arnold CL, Stokes K, Kevil CG, Orr AW, Bhuiyan MS. Methamphetamine induces cardiomyopathy by Sigmar1 inhibition-dependent impairment of mitochondrial dynamics and function. Commun Biol. 2020 Nov 17;3(1):682.

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.

Kolluru GK, Shen X, Kevil CG. Reactive Sulfur Species: A New Redox Player in Cardiovascular Pathophysiology. Arterioscler Thromb Vasc Biol. 2020 Apr;40(4):874-884.

Rajpal S, Katikaneni P, Deshotels M, Pardue S, Glawe J, Shen X, Akkus N, Modi K, Bhandari R, Dominic P, Reddy P, **Kolluru GK**, Kevil CG. (2018) Total sulfane sulfur bioavailability reflects ethnic and gender disparities in cardiovascular disease. Redox Biol. 15:480-489.

Kolluru GK, Bir SC, Yuan S, Wang R, Kevil CG. (2015) Cystathionine γ -lyase regulates arteriogenesis through NO dependent monocyte recruitment. C <u>ardiovasc. Res</u>. 107(4):590-600.

Kolluru GK, Shen X, Kevil CG. (2013) A tale of two gases: NO and H2S, foes or friends for life? Redox Biol. 1:313-8

Bir SC, **Kolluru GK**, McCarthy P, Shen X, Pardue S, Pattillo CB, Kevil CG. (2012) Hydrogen sulfide stimulates ischemic vascular remodeling through nitric oxide synthase and nitrite reduction activity regulating hypoxia- inducible factor- 1α and vascular endothelial growth factor-dependent angiogenesis. J Am Heart A ssoc. 1(5):e004093.



Joined LSUHS - 2012

Education/Training

BS – Millersville University PhD – University of Alabama Post-Doctoral – University of Alabama

Honors/Awards

Member and Grant Review American Heart Association (AHA) Member and Reviewer Society forFree Radical Biology and Medicine Member North American Vascular Biology Association (NAVBO)

David Krzywanski, PhD

Assistant Professor Department of Cellular Biology and Anatomy <u>david.krzywanski@lsuhs.edu</u>

CURRENT RESEARCH

Our current research focuses on the contribution ofmitochondrial 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

Adgent, M.A., Squadrito, G.L., Ballinger, C.A., **Krzywanski, D.M.**, Lancaster Jr., J.R., Postlethwait, E.M. (2012) Desferrioxamine inhibits membrane nitration by nitrogen dioxide via facile protein tyrosyl radical reduction. <u>Free Radic Biol Med</u>. 53(4):951-61.

Krzywanski, D.M., Westbrook, D.G., Moellering, D.R., Snary, K.D., Lipsey, C., Schurr, T.G., Vita, J., Dell'Italia, L., Ballinger, S.W. (2016) Endothelial Cell Bioenergetics and Mitochondrial DNA Damage Differ in Humans Having African or West Eurasian Maternal Ancestry. <u>Circ Cardiovasc Genet</u>. 9(1):26-36.

Leskov, I., Neville, A., Shen, X., Pardue, S., Kevil, C.G., Granger, D.N., **Krzywanski**, **D.M.** (2017) Nicotinamide nucleotide transhydrogenase activity impacts mitochondrial redox balance and the development of hypertension in mice. J <u>Am Soc Hypertens</u>. 11(2):110-121.

Vozenilek, A.E., Vetkoetter, M., Green, J.M., Shen, X., Traylor, J.G., Klein, R.L., Orr, A.W., Woolard, M.D., **Krzywanski, D.M.** (2018) Absence of Nicotinamide Nucleotide Transhydrogenase (Nnt) in C57BI/6J Mice Exacerbates Experimental Atherosclerosis. J Vasc Res. 55(2):98-110.

Chen YF, Hebert VY, Stadler K, Xue SY, Slaybaugh K, Luttrell-Williams E, Glover MC, **Krzywanski DM**, Dugas TR. Coenzyme Q10 Alleviates Chronic Nucleoside Reverse Transcriptase Inhibitor-Induced Premature Endothelial Senescence. Cardiovasc Toxicol. 2019 Dec;19(6):500-509.

Rao KNS, Shen X, Pardue S, **Krzywanski DM.** (2020) Nicotinamide nucleotide transhydrogenase (NNT) regulates mitochondrial ROS and endothelial dysfunction in response to angiotensin II. Redox Biol. 2020 Sep;36:101650. doi: 10.1016/j.redox.2020.101650. Epub 2020 Jul

Chen PY, Wu CY, Clemons GA, Citadin CT, Couto E Silva A, Possoit HE, Azizbayeva R, Forren NE, Liu CH, Rao KNS, **Krzywanski DM**, Lee RH, Neumann JT, Lin HW. Stearic acid methyl ester affords neuroprotection and improves functional outcomes after cardiac arrest. Prostaglandins Leukot Essent Fatty Acids. 2020 Aug;159:102138. doi: 10.1016/j.plefa.2020.102138. Epub 2020 May 23.

Schilke RM, Blackburn CMR, Rao S, **Krzywanski DM**, Finck BN, Woolard MD. Macrophage-Associated Lipin-1 Promotes β -Oxidation in Response to Proresolving Stimuli. Immunohorizons. 2020 Oct 19;4(10):659-669. doi: 10.4049/immunohorizons.2000047.

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Joined LSUHS - 2016

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

Postdoctoral Research Fellowship, The Malcolm Feist Cardiovascular Research Endowment

Hui-Chao (Reggie) Lee, PhD

Assistant Professor Department of Neurology <u>huichao.lee@lsuhs.edu</u> 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

Lee RH, Wu CY, Citadin CT, Couto E Silva A, Possoit HE, Clemons GA, Acosta CH, de la Llama VA, Neumann JT, Lin HW. Activation of Neuropeptide Y2 Receptor Can Inhibit Global Cerebral Ischemia-Induced Brain Injury. <u>Neuromolecular Med</u>. 2021 May 21; PMID: 34019239.

Lee RH (*Corresponding author*), Grames MS, Wu CY, Lien CF, Couto E Silva A, Possoit HE, Clemons GA, Citadin CT, Neumann JT, Pastore D, Lauro D, Della-Morte D, Lin HW. (2020) Upregulation of serum and glucocorticoid- regulated kinase 1 exacerbates brain injury and neurological deficits after cardiac arrest. <u>Am J Physiol Heart Circ Physiol</u> 2020 Nov 1;319(5):H1044-H1050. PMID: 32946263.

Wu CY, Couto E Silva A, Citadin CT, Clemons GA, Acosta CH, Knox BA, Grames MS, Rodgers KM, **Lee RH**, Lin HW. Palmitic acid methyl ester inhibits cardiac arrest-induced neuroinflammation and mitochondrial dysfunction. <u>Prostaglandins Leukot Essent Fatty</u> <u>Acids</u>. 2021 Feb;165:102227. PMID: 33445063.

Wu CY, Clemons GA, Lopz-Toledano MA, Citadin CT, **Lee RH**, Lin HW. (2020) SC411 enhances cerebral blood flow after ischemia in the Townes mouse model of sickle cell disease. <u>Prostaglandins, leukotrienes, and</u> essential fatty acids. 2020 Jul;158:102110. PMID: 32447175.

Couto E Silva A, Wu CY, Citadin CT, Clemons GA, Possoit HE, Grames MS, Lien CF, Minagar A, Lee RH, Frankel A, Lin HW. (2019) Protein Arginine Methyltransferases in Cardiovascular and Neuronal Function. <u>Molecular Neurobiology</u>. Dec 10. doi: 10.1007/s12035-019-01850-z. PMID: 31823198.

Wu CY, Lerner FM, Couto E Silva A, Possoit HE, Hsieh TH, Neumann JT, Minagar A, Lin HW, and **Lee RH**. (2018) Utilizing the modified T-maze to assess functional memory outcomes after cardiac arrest. J. Vis. Exp. (131), e56694, doi:10.3791/56694. PMID: 29364254.

Lee RH, Lee MH, Wu CY, Couto E Silva A, Possoit HE, Hsieh TH, Minagar A, Lin HW. (2018) Cerebral ischemia and neuroregeneration. <u>Neural Regen Res</u>. Mar; 13(3): 373–385. PMID: 29623912.

Lee RH, Couto E Silva A, Possoit HE, Lerner FM, Azizbayeva R, Citadin CT, Wu CY, Neumann JT, Lin HW. (2018) Palmitic acid methyl ester is a novel neuroprotective agent against cardiac arrest. <u>Prostaglandins, leukotrienes, and essential fatty acids</u> (<u>PLEFA</u>). Nov 23. pii: S0952-3278(18)30212-6. PMID: 30514597.

Lee RH, Couto E Silva A, Lerner FM, Wilkins CS, Valido SE, Klein DD, Wu CY, Neumann JT, Della-Morte D, Koslow SH, Minagar A, and Lin HW. (2017) Interruption of Perivascular Sympathetic Nerves of Cerebral Arteries Offers Neuroprotection Against Ischemia. <u>Am J Physiol Heart Circ Physiol</u> 312(1): H182-188. PMID: 27864234.



Joined LSUHS - 2016

Education/Training

BS – Biochemistry, University of Wisconsin-Madison, Madison, WI PhD – Pharmacology, Southern Illinois University School of Medicine, Springfield, IL Post-Doc – Neurology, University of Miami Miller School of Medicine, Miami, FL

Honors/Awards

Joanna G. Magale Endowed Professorship 4th annual AHA – Philips Resuscitation Fellowship Award

Grant Peer Review AHA Peer Review Committee:

Basic Cell Genetics and Epigenetics 2 Brain 1 Allen Initiative in Brain Health and Cognitive Impairment Career Development Award Organ Basic Sciences 1 and 2 (Chairman 2). Vascular Endothelial Biology Basic Sciences. Transformational Project Award (Brain, Lung, Cardiorenal or Cardiac Arrest Sciences Global Brain Disorders II. Alzheimer's Association Peer Review Committee

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

Lee RHC, Couto e Silva A, Possoit HE, Lerner FM, Chen PY, Azizbayeva R, Citadin CT, Wu CYC, Neumann JT, **Lin HW**. (2019) Palmitic Acid Methyl Ester is a Novel Neuroprotective Agent Against Cardiac Arrest. <u>Prostaglandins Leukot</u> E <u>ssent Fatty Acids</u>. 147:6-14.

Lee RHC, Couto e Silva A, Lerner FM, Wilkins CS, Valido SE, Klein DD, Wu CY, Neumann JT, Della-Morte D, Koslow SH, Minagar A, **Lin HW**. (2017) Interruption of Perivascular Sympathetic Nerves of Cerebral Arteries Offers Neuroprotection Against Ischemia. A<u>m J Physiol Heart Circ Physiol</u>. 312(1): H182-H188.

Lin HW, Gresia VL, Stradecki HM, Alekseyenko A, Dezfulian C, Neumann JT, Dave KR, Perez-Pinzon MA. (2014) Protein kinase c delta modulates endothelial nitric oxide synthase after cardiac arrest. <u>J Cereb Blood Flow Metab</u>. 34(4): 613-620. (Corresponding author)

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. <u>Transl Stroke Res</u>. 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. <u>CNS and Neurological</u> Disorders-Drug Targets. 12(3):316-324. (Corresponding author) Lin HW, DeFazio RA, Della Morte D, Thompson JW, Narayanan SV, Raval AP, Saul I, Dave KR, Perez-Pinzon MA. (2010) Derangements of post-ischemic cerebral blood flow by protein kinase C delta. <u>Neuroscience</u>. 171(2):566-576. Lin HW, Liu CZ, Cao D, Chen PY, Chen MF, Lin SZ, Mozayan M, Chen AF, Premkumar LS, Torry DS, Lee TJ. (2008) Endogenous methyl palmitate modulates nicotinic receptor-mediated transmission in the superior cervical ganglion. Proc Natl Acad Sci U S A. 105(49):19525-19530.



Joined LSUHS - 2015

Education/Training

M.D.– Central South University, Xiangya School of Medicine Ph.D. – LSU Health, Shreveport Post-Doctoral – University of California, Los Angeles (UCLA) Assistant Researcher-University of California, Los Angeles (UCLA)

Honors/Awards

2020 NASA Space Biology Award 2020 Interviewed and featured in a Louisiana Public Broadcasting TV-series (Interview funded by PBS Ken Burns' documentary, "Gene: An Intimate Portrait) 2019 News report by SPECTUM NEWS about novel brain genome editing 2019 Chair of symposium, 3rd Molecular Psychiatry Association meeting at San Francisco 2019 Selected Hot Topic and press release at Society for Neuroscience meeting, Chicago 2015 Research highlighted by Nature **Review Drug Discovery** 2015 Most influential paper of the year

2015 Most influential paper of the year 2014 NARSAD young investigator

Editorial/Review Board

NWO, the Dutch Research Council VA Special Emphasis Panel/Scientific Review Group 2018/08 ZRD1 NURA-F(01) Executive government agency of National Science Centre (Narodowe Centrum Nauki – NCN), Poland

Editorial Board: BMC Neuroscience, PLoS ONE, International Review of Neurobiology, Frontier in Neuroscience

Xiao-Hong Lu, PhD

Associate Professor Department of Pharmacology, Toxicology and Neuroscience <u>xiaohong.lu@lsuhs.edu</u>

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, and cardiovascular cerebrovascular disorders. 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

El-Saadi MW, Tian X, Ren M, Huang, S, **Lu XH**. Tracing environment-driven brain somatic mosaicism in Parkinson's disease with a novel single-cell probe of DNA surveillance and repair errors in post-mitotic neurons. <u>Science Advances</u>, in second revision. (Impact factor 14.1)

Tian X, Richard A, El-Saadi MW, Bhandari A, Latimer B, Van Savage I, Holmes K, Klein RL, Dwyer D, Goeders NE, Yang XW, **Lu XH**. (2019) Dosage sensitivity intolerance of VIPR2 microduplication is disease causative to manifest schizophrenia-like phenotypes in a novel BAC transgenic mouse model. **Molecular Psychiatry-Nature**. PMID: 31444475. (Impact factor 13.2)

Richard AD, Tian XL, El-Saadi MW, **Lu XH**. (2018) Erasure of striatal chondroitin sulfate proteoglycan-associated extracellular matrix rescues aging-dependent decline of motor learning. **Neurobiology of Aging**. PMID: 30099347.

Lu XH, Yang XW. (2017) Genetically-directed Sparse Neuronal Labeling in BAC Transgenic Mice through Mononucleotide Repeat Frameshift. Scientific Report-Nature. PMID: 28272512 (Brain Initiative award).

Lu XH, Mattis VB, Wang N, Al-Ramahi I, van den Berg N, et al. (2015) Targeting ATM ameliorates mutant Huntingtin toxicity in cell and animal models of Huntington's disease. <u>Science Translational Medicine.</u> 24;6(268):268ra178. PMID: 25540325. (Impact factor; 17.1).

Wang N, Gray M, Lu XH, Cantle JP, Holley SM, Greiner E, Gu X, Shirasaki D, Cepeda C, Li Y, Dong H, Levine MS, Yang XW. (2014) Neuronal targets for reducing mutant huntingtin expression to ameliorate disease in a mouse model of Huntington's disease. Nature Medicine, (Impact factor: 49.2)

Lu XH, Yang XW. (2013) "Huntingtin holiday": Progress toward an antisense therapy for Huntington's disease. Neuron. 1;74(6):964-6. PMCID: PMC3513277 (Impact factor: 14.4).

Lu XH, Fleming SM, Meurers B, Ackerson LC, Mortazavi F, Lo V, Hernandez D, Sulzer D, Jackson GR, Maidment NT, Chesselet MF, Yang XW. BAC transgenic mice expressing a truncated mutant parkin exhibit age-dependent hypokinetic motor deficits, dopaminergic neuron degeneration, and accumulation of proteinase K-resistant alpha-synuclein. **J. Neuroscience**, 29: 1962–1976, 2009.



Joined LSUHS - 1997

Education/Training

BS Pharm – Duquesne University PhD – Albany Medical College Post-Doctoral – University of Alabama at Birmingham

Honors/Awards

Chairman and Grant Reviewer, NIDDK Special Emphasis Panel for the George O'Brien Renal Research Centers

Chairman, Grant Reviewer Department of Defense

Grant Reviewer, ADA Grant Reviewer, NIH/NIDDK

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

Sharma S, Bhattarai S, Ara H, Sun G, St. Clair DK, Kevil CG, Watts MN, Dominic P, Shimizu T, Bhuiyan MS, **McCarthy KJ**, Sun H, Panchatcharam, Miriyala S*(2020) SOD2 deficiency incardiomyocytes defines defective mitochondrial bioenergetics as a cause of lethal dilatedcardiomyopathy. Redox Biology 37: 101740

KJ McCarthy (2020) Syndecan-4: major player or innocent bystander of the endothelial glycocalyx?. Kidney International 97: 858-860.

Chandra, M., D Escalante-Alcalde, MS Bhuiyan, AW Orr, C Kevil, AJ Morris, H Nam, P Dominic, **KJ McCarthy**, S Miriyala, M. Panchatcharam (2018). Cardiac-specific inactivation of LPP3 in mice leads to myocardial dysfunction and heart failure. Redox Biology 14: 261-271.

Jackson, KL, Lin, W, M Panchatcharam, , S Miriyala, **KJ McCarthy**, R Klein. (2017) Pathology model in the rat substantia nigra with filamentous inclusions and progressive neurodegeneration. PLOSone 12: e0169291.

Sugar T, DJ Wassenhove-McCarthy, J. Green, AW Orr, T van Kuppevelt, and **KJ McCarthy**. (2016) N-sulfation of heparan sulfate glycosaminoglycans is a key, critical component in podocyte cell-matrix interactions. <u>American Journal of</u> Physiology-<u>Renal</u> <u>Physiology</u>, 310: F1123-F1135.

Sugar T, DJ Wassenhove-McCarthy, JD Esko, T van Kuppevelt, L Holzman, and **KJ McCarthy.** (2014) Podocyte-specific deletion of NDST1, a key enzyme in the sulfation of heparan sulfate glycosaminoglycans, leads to abnormalities in podocyte organization in vivo. <u>Kidney International</u> 85:307-318

Chen, S, Wassenhove-McCarthy, A Woods, L Holzman, Y Yamaguchi, T van Kuppevelt, and **KJ McCarthy**. (2010) Cell surface heparan sulfate glycosaminoglycans are important in mediating cell-matrix adhesion in podocytes.

Kidney International 78: 1088-1099.

KJ McCarthy and DJ Wassenhove-McCarthy. (2012) The glomerular basement membrane as a model system to study the bioactivity of heparan sulfate glycosaminoglycans. Microscopy and Microanalysis 18:3-21.

Chen, S, Wassenhove-McCarthy, A Woods, L Holzman, Y Yamaguchi, T van Kuppevelt, and KJ McCarthy. (2010) Cell surface heparan sulfate glycosaminoglycans are important in mediating cell-matrix adhesion in podocytes. Kidney International 78: 1088-1099

Chen, S, Y Yamaguchi, A Woods, L Holzman, DJ Wassenhove-McCarthy, T Van Kuppelvelt, G Jenniskens, T Winjhoven and McCarthy KJ, (2008) Loss of heparan sulfate glycosaminoglycan assembly in glomerular podocytes does not lead to rapidly developing proteinuria. Kidney International. Kidney International 74 (3): 289-299.



Joined LSUHS – 2013

Education/Training

BS – University of Madras MS - University of Madras PGDCA - Loyola Institute of Business Administration MPhil – University of Madras PhD – University of Madras Post-Doctoral – Emory University Post-Doctoral – University of Kentucky MBA - Louisiana State University Shreveport

Honors/Awards

Member, American **Diabetes Association (ADA)** Member, Council and Grant Review, American Heart Association (AHA) Member, North American Vascular **Biology Association (NAVBO)** Member, Council and Grant Review, American Association of Anatomists Member of The National Society of Leadership and Success (MBA Honors Selection) Member of The Sigma lota Epsilon (MBA Honors Selection) Member, International Society of Heart Research Member, Society of Free Radical **Biology and Medicine** Member, Member of American Physiological Society

Sumitra Miriyala, PhD

Assistant Professor Department of Cellular Biology and Anatomy <u>sumitra.Miriyala@lsuhs.edu</u>

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

Chandra M, Escalante-Alcalde D, Bhuiyan MS, Orr AW, Kevil CG, Morris AJ, Nam H, Dominic P, McCarthy KJ, **Miriyala S***, Panchatcharam M. (2018) Cardiac- specific inactivation of LPP3 in mice leads to myocardial dysfunction and heart failure. R <u>edox</u> Biology. 14, 261-271; (<u>PMID: 28982073</u>). ***corresponding author**

Alam S, Abdullah CS, Aishwarya R, **Miriyala S**, Panchatcharam M, Peretik JM, Orr AW, James J, Robbins J, Bhuiyan MS. (2018) Aberrant Mitochondrial Fission Is Maladaptive in Desmin Mutation-Induced Cardiac Proteotoxicity. Journal of theAbdullah CS, Alam S, Aishwarya R, **Miriyala S**, Panchatcharam M, Bhuiyan MAN, Peretik JM, Orr AW, James J, Osinska H, Robbins J, Lorenz JN, Bhuiyan MS. (2018) Cardiac Dysfunction in the Sigma 1 Receptor Knockout Mouse Associated With Impaired Mitochondrial Dynamics and Bioenergetics. Journal of the American Heart Association. 7(20):e009775; (PMID: 30371279)

Ren X, Keeney JTR, **Miriyala S**, Noel T, Powell DK, Chaiswing L, Bondada S, St Clair DK, Butterfield DA. (2018) The triangle of death of neurons: Oxidative damage, mitochondrial dysfunction, and loss of choline-containing biomolecules in brains of mice treated with doxorubicin. Advanced insights into mechanisms of chemotherapy induced cognitive impairment ("chemobrain") involving TNF- α . Free radical biology & medicine.134:1-8; (PMID: 30593843)

Abdullah CS, Alam S, Aishwarya R, **Miriyala S**, Bhuiyan MAN, Panchatcharam M, Pattillo CB, Orr AW, Sadoshima J, Hill JA, Bhuiyan MS. (2019) Doxorubicininduced cardiomyopathy associated with inhibition of autophagic degradation process and defects in mitochondrial respiration. <u>Scientific reports</u>. 9(1): (<u>PMID:</u> 3 <u>0765730</u>)

Xiao AY, Maynard MR, Piett CG, Nagel ZD, Alexander JS, Kevil CG, Berridge MV, Pattillo CB, Rosen LR, **Miriyala S**, Harrison L. (2019) Sodium sulfide selectively induces oxidative stress, DNA damage, and mitochondrial dysfunction and radiosensitizes glioblastoma (GBM) cells. <u>Redox Biol</u>. 16;26:101220: (<u>PMID:</u> 31176262)

Sharma S, Bhattarai S, Ara H, Sun G, St. Clair DK, Kevil CG, Watts MN, Dominic P, Shimizu T, Bhuiyan MS, McCarthy KJ, Sun H, Panchatcharam M*, Miriyala S*. SOD2 deficiency in cardiomyocytes defines defective mitochondrial bioenergetics as a cause of lethal dilated cardiomyopathy. Redox Biology 2020 Sep 30;37:101740. doi: 10.1016/j.redox.2020.101740.(PMID: 33049519)

Bhattarai S, Sharma S, Ara H, Subedi U, Sun G, Li C, Bhuiyan MS, Kevil C, Armstrong W, Minvielle M, Miriyala S, Panchatcharam M. Disrupted bloodbrain barrier and mitochondrial impairment by ATX-LPA axis in post-ischemic stroke. Journal of the American Heart Association (Online), https://www.ahajournals.org/doi/10.1161/JAHA.121.021511



Joined LSUHS - 2002

Education/Training

Cardiology – LSUHSC, Shreveport Interventional Cardiology– University of Alabama

Services and Awards

Fellow, American College of Cardiology Fellow, Society of Coronary Angiography and Intervention Fellow, American Society of Echocardiography Director, Cardiology Fellowship Program Director, Interventional Cardiology Fellowship Program Member, Women In Cardiology, ACC Council Member, Women In Innovation Grant Reviewer, Council Member, LAACC

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 Cardivascular 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

Ischemic and bleeding outcomes of triple therapy in patients on chronic anticoagulation undergoing percutaneous coronary intervention: A meta-analysis of randomized trials, Khagendra Dahal, Usman Mustafa, Sharan P Sharma, Nachiket Apte, Hari Bogabathina, Magdy Hanna, Hussam Watti, Michael Azrin, Juyong Lee, Goerge Mina, Pavan Katikaneni, and Kalgi Modi, JRSM Cardiovascular Disease, November 2019 (peer)

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, Juyong 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)

Who benefits from percutaneous closure of patent foramen ovale vs medical therapy for stroke prevention? In-depth and updated meta-analysis of randomized trials, April 2019, World Journal of Cardiology (WJC) 11(4):126-136, Khagendra B Dahal, Adil Yousuf, Hussam Watti, Kalgi Modi (peer) Mineralocorticoid Receptor Antagonism Treatment for All Patients with ST-Segment Myocardial Infarction? —Reply, October 2018, JAMA Internal Medicine 178(11):1567, JAMA internmed.2018.5964 Khagendra B Dahal, Kalgi Modi (peer)

Patent Foramen Ovale Closure for Recurrent Stroke Prevention: A Network Meta-Analysis of Randomized Controlled Trials, Journal of Structural Heart, October 2018, Volume 4, Issue 5:222-227 George Mina, Demiana Soliman, Kalgi Modi (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)

Poor outcome of indigent patients with Peripartum Cardiomyopathy in the United States. Kalgi A Modi, Sandra Illum, Karim Jariatul, Gloria Caldito, Pratap C Reddy: American journal of obstetrics and gynecology 07/2009; 201(2): 171.e1-5/j.ajog.2009.04.037 (peer)



Joined LSUHS – 2020

Education/Training

BS – University of Georgia PhD – Emory University Post-Doctoral – Yerkes National Primate Research Center

Services and Awards

Invited Member, NIH Standing Study Section – Neurobiology of Motivated Behavior (NMB)

NIDA Special Emphasis Panel ZDA1 GXM-A for HEAL Initiative: America's Startups and Small Businesses Build Technologies to Stop the Opioid Epidemic

Treasurer and Executive Committee, International Society for Research on Psychedelics

Executive Committee and Internal Advisory Committee, Program of Multidisciplinary Training in Cardiovascular Pathophysiology (T32), LSU Health Sciences Center

Honors/Awards Trainees

Neha Chitre

Hewitt T. Matthews OutstandingGraduate Student Award (2021)

Bo Wood

Awarded Best Rapid Fire Presentation, Research in Industry Day (RAID)

Nicole Hall

Awarded T32 Fellowship under the Program of Multidisciplinary Training in Cardiovascular Pathophysiology

Kevin Murnane, PhD

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

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

Scott ML, Murnane KS, and Orr AW (In Press) Young at heart? Drugs of abuse cause early-onset cardiovascular disease in the young. Heart

Maier J, Rauter L, Rudin D, Niello M, Holy M, Gannon BM, Blough BE, Murnane KS, and Sitte HH (In Press) α -PPP and its derivatives are selective partial releasers at the human norepinephrine transporter: A pharmacological characterization of interactions between pyrrolidinopropiophenones and high and low affinity monoamine transporters. Neuropharmacology

Wong JC, Shapiro L, Thelin JT, Heaton E, Zaman RU, D'Souza MJ, Murnane KS, and Escayg A (In Press) Nanoparticle encapsulated oxytocin increases resistance to induced seizures and restores social behavior in Scn1a-derived epilepsy. Neurobiology of Disease PMID: 33189882

Bhattaccharjee SA, Murnane KS, and Banga AK (In Press) Transdermal delivery of breakthrough therapeutics for the management of treatment-resistant and post-partum depression. International Journal of Pharmaceutics PMID: 33191204

Manigault KR, McKinley D, Patel S, Truong C, Nguyen S, Akil A, Newsom L, Murnane KS, and Thurston MM (In Press) The impact of a pharmacist-designed mobile application on blood pressure control and medication adherence in patients with hypertension. Journal of the American College of Clinical Pharmacy

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

De Jesús VR, Milan DF, Yoo YM, Zhang L, Zhu W, Bhandaria D, Murnane KS, and Blount BC (2021) Examination of xylene exposure in the U.S. population through biomonitoring: NHANES 2005-2006, 2011-2016 Biomarkers 26(1):65-73 PMID: 33284648

Jiang Y, Murnane KS, Blough BE, and Banga AK (2020) Transdermal delivery of the free base of 3-fluoroamphetamine: In vitro skin permeation and irritation potential. AAPS PharmSciTech 25;21(3):109 PMID: 32215773



Joined LSUHS -2020

Education/Training Education/ Training BS- University of Georgia DPT- Emory University

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) <u>sarah.murnane@lsuhs.edu</u>

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



Joined LSUHS - 2014

Education/Training

BS– Yonsei University, South Korea MS– Yonsei University, South Korea PhD – Yonsei University, South Korea Post-Doctoral – Mayo Clinic College of Medicine, Rochester, MN

Honors/Awards

2008 Post Doctoral Research Award, Korea Research Foundation. 2009 Travel Award, Behavior, Biology, and Chemistry (BBC) Conference. 2012 Finalist for Ziskind-Somerfeld Research Award, Society of Biological Psychiatry.

2013 Travel Award, Behavior, Biology, and Chemistry (BBC) Conference. 2014 NARSAD Young Investigator Award 2017 NARSAD Young Investigator

Award

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 Ngmediated eNOS regulation in regulating endothelial activation and atherosclerosis. In the long term, these studies may reveal novel NO therapeutic targets in the treatment of cardiovasculardisease.

SELECTED PUBLICATIONS

Germany CE, Reker AN, Hinton DJ, Oliveros A, Smith K, Cvek U, Choi DS, **Nam HW**. (2018) Pharmacoproteomics identifies the drug efficacy mechanism in acamprosate treatment and alcoholism., <u>Proteomics</u>. *18*(7), *e1700417*

Reker AN, Oliveros A, Hinton DJ, Kim T, Bruner RC, Sullivan JM, Choi DS, Goeders NE, **Nam HW.** (2018) Neurogranin in the nucleus accumbens regulates NMDA receptor tolerance and motivation for ethanol seeking. Neurophamacology. *131: 58-67.*

Sulivan JM, Grant C, Reker AN, Nahar L, Goeders NE, **Nam HW**. (2019) Neurogranin regulates sensory motor gating through cortico-striatal circuitry, N <u>europharmacology</u>. *150:91-99*

Nam HW, Grant CA, Jorgensen AN, Holtz-Heppelmann CJ, Trutschl M, Cvek U, (2020) Neurogranin regulates alcohol sensitivity through AKT pathway in the nucleus accumbens. P<u>roteomics</u>. 20(1):e1900266.

Cheriyan V, Alfaidi M, Jorgensen AN, Alam MA, Abdullah CS, Kolluru GK, Bhuiyan MD, Kevil CG, Orr AW, **Nam HW**. (2020) Neurogranin regulates eNOS function and endothelial activation. <u>Redox Biology</u>, 34: 101487, 2020

Lailun N, Grant CA, Hewett C, Cortes D, Reker AN, Kang S, Choi DS, **Nam HW**. (2020) Regulation of Pv-Specific Interneurons in the Medial Prefrontal Cortex and Reward-Seeking Behaviors, <u>J Neurochem</u>, 156(2):212-224, 2021

Nahar L, Delacroix BM, Nam HW. The Role of Parvalbumin Interneurons in Neurotransmitter Balance and Neurological Disease. <u>Front Psychiatry</u>.;12:679960, 2021



Joined LSUHS - 2007

Education/Training

BS – Hendrix College PhD – University of Alabama Post-Doctoral – University of Virginia

Services and Honors

Charter Member, AVI Study Section, NIH

Grant Review, American Diabetes Association (ADA)

Member of the Irvine H. Page Award Committee, ATVB Council of American Heart Association (AHA)

Member, North American Vascular Biology Association (NAVBO) Meritorious Awards Committee

Editorial Board, Arteriosclerosis, Thrombosis and Vascular Biology (ATVB)

Associate Editor, American Journal of Pathology

<u>Honors/Awards Trainees</u> *Mabruka Alfaidi* British Atherosclerosis Society Young Investigator Award, 2020

ATVB Elaine Raines Young Investigator Award Finalist, 2020

NAVBO Outstanding Poster Award, 2020

Dongdong Wang

Outstanding Poster Award, Graduate Student Research Day 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

Yurdagul Jr. A., Finney A.C., Woolard M.D., and **A.W. Orr**. (2016) The Arterial Microenvironment: The Where and Why of Atherosclerosis. <u>Biochem J.</u>, 473: 1281- 1295.

Finney A.C., Funk S.D., Green J.M., Yurdagul A. Jr., Rana M.A., Pistorius R., Henry M., Yurochko A.D., Pattillo C.B., Traylor J.G., Chen J., Woolard M.D., Kevil C.G., and **A.W. Orr**. (2017) EphA2 expression regulates inflammation and fibroproliferative remodeling in atherosclerosis. <u>Circulation</u>, 136: 566-582.

Yuan S.*, Yurdagul Jr. A.*, Peretik J.M., Alfaidi M., Al Yafeai Z., Pardue S., Kevil C.G., and

A.W. Orr. (2018) Cystathionine □-lyase modulates flow-dependent vascular remodeling. <u>Arterioscler. Thromb. Vasc. Biol.</u>, 38: 2126-2136. *co-authors

Al-Yafaei Z.*, Yurdagul Jr. A.*, Peretik J.M., Alfaidi M., Murphy P., and **A.W. Orr**. (2018) Endothelial $\Box 5 \Box 1$ integrins regulate fibronectin deposition, inflammation, and early atherosclerosis: a novel regulatory role for cell-derived fibronectin. <u>Arterioscler.</u> Thromb. Vasc. Biol., 38: 2601-2614. *co-authors

Finney A.C. and **A.W. Orr**. (2018) Guidance molecules in vascular smooth muscle function. <u>Frontiers Physiol.</u>, 9: 1311.

Kevil C.G., Goeders N.E., Woolard M.D., Bhuiyan M.S., Dominic P., Arnold C.L., Kolluru G., Traylor J.G., and **A.W. Orr**. (2019) Methampehtamine Use and Cardiovascular Disease: in search of answers. <u>Arterioscler. Thromb. Vasc. Biol.</u>, 39: 1739-1746.

Alfaidi M., Acosta C.H., Wang D., Traylor J.G., and **A.W. Orr**. (2020) Selective role of Nck1 in atherogenic inflammation and plaque formation. <u>J. Clin. Invest.</u>, 130: 4331-4347.

Al-Yafeai Z., Pearson B.H., Peretik J.M., Cockerham E.D., Reeves K.A., Bhattarai U., Wang D.D., Petrich B.G., and **A.W. Orr**. (2020) Integrin affinity modulation critically regulates atherogenic endothelial activation in vitro and in vivo. <u>Matrix Biol.</u>, 96: 87-103.

Scott M.L., Murnane K.S., and **A.W. Orr**. (2021) Young at heart? Drugs of abuse cause early-onset cardiovascular disease in the young. <u>Heart</u>, 107: 604-606.



Joined LSUHS - 2013

Education/Training

BS – University of Madras MS - University of Madras PGDCA - Loyola Institute of Business Administration MPhil – University of Madras PhD – University of Madras Post-Doctoral – UNC-Chapel Hill Post-Doctoral – University of Kentucky MBA - Louisiana State University Shreveport FAHA-Fellow of the American Heart Association FCVS-Fellow of American Physiological Society-Cardiovascular Section

Honors/Awards

Member, American Diabetes Association (ADA) Member, Council and Grant Review, American Heart Association (AHA) ATVB Young Investigator Award -**American Heart Association** Member, North American Vascular **Biology Association (NAVBO)** Member of The National Society of Leadership and Success (MBA Honors Selection) Member of The Sigma lota Epsilon (MBA Honors Selection) Member, International Society of Heart Research Member, Society of Free Radical **Biology and Medicine** Member, American Physiological Society

Manikandan Panchatcharam, PhD

Associate Professor Department of Cellular Biology and Anatomy manikandan.panchatcharam@lsuhs.edu

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 been 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

Bhattarai S, Sharma S, Ara H, Subedi U, Sun G, Li C, Bhuiyan MS, Kevil C, Armstrong W, Minvielle M, Miriyala S, **Panchatcharam M**. Disrupted bloodbrain barrier and mitochondrial impairment by ATX-LPA axis in post-ischemic stroke. Journal of the American Heart Association (Online), https://www.ahajournals.org/doi/10.1161/JAHA.121.021511

Sharma S, Bhattarai S, Ara H, Sun G, St. Clair DK, Kevil CG, Watts MN, Dominic P, Shimizu T, Bhuiyan MS, McCarthy KJ, Sun H, **Panchatcharam M***, Miriyala S*. SOD2 deficiency in cardiomyocytes defines defective mitochondrial bioenergetics as a cause of lethal dilated cardiomyopathy. Redox Biology 2020 Sep 30;37:101740. doi: 10.1016/j.redox.2020.101740.(PMID: 33049519)

Chandra M, Escalante-Alcalde D, Bhuiyan MS, Orr AW, Kevil CG, Morris AJ, Nam H, Dominic P, McCarthy KJ, Miriyala S, **Panchatcharam M**. Cardiac-specific inactivation of LPP3 in mice leads to myocardial dysfunction and heart failure. Redox Biology. 14, 261-271; 2018

Alam S, Abdullah CS, Aishwarya R, Miriyala S, **Panchatcharam M**, Peretik JM, Orr AW, James J, Robbins J, Bhuiyan MS. (2018) Aberrant Mitochondrial Fission Is Maladaptive in Desmin Mutation-Induced Cardiac Proteotoxicity. Journal of the American Heart Association. 7(14).

Abdullah CS, Alam S, Aishwarya R, Miriyala S, **Panchatcharam M**, Bhuiyan MAN, Peretik JM, Orr AW, James J, Osinska H, Robbins J, Lorenz JN, Bhuiyan MS. Cardiac Dysfunction in the Sigma 1 Receptor Knockout Mouse Associated With Impaired Mitochondrial Dynamics and Bioenergetics. <u>Journal</u> of the <u>American Heart Association</u>. 7(20):e009775;2018.

Abdullah CS, Alam S, Aishwarya R, Miriyala S, Bhuiyan MAN, **Panchatcharam M**, Pattillo CB, Orr AW, Sadoshima J, Hill JA, Bhuiyan MS. (2019) Doxorubicininduced cardiomyopathy associated with inhibition of autophagic degradation process and defects in mitochondrial respiration. <u>Scientific reports</u>. 9(1):



Joined LSUHS - 2020

Education/Training

BS - Korea University MS - Seoul National University PhD - Washington University Post-Doctoral – Washington University

Services and Awards

Grant Review, American Heart Association (AHA)

Changwon Park, PhD

Associate Professor Department of Molecular and Cellular Physiology <u>changwon.park@lsuhs.edu</u>

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

Kabir, A., Subramanian, M. Lee, D.H., Wang, X., , Krchma, K., Wu, J., Naismith, T., Halabi, C.M., Kim, J.Y., Pulous, F., Petrich, B., Kim, S., Park, H-C., Hanson, P.I., Pan, H., Wickline, S.A., Fremont, D.H., ***Park, C.,** and *Choi, K. (**2021**) Dual role of endothelial *Myct1* in tumor angiogenesis and tumor immunity. *Sci. Transl. Med.* **13**, eabb6731. <u>*Corresponding authors.</u> Published with cover image

Ju, S., Lim, L., Wi, K., **Park, C.,** Ki Y-J., Choi, D-H., Song, H. (**2021**) LRP5 Regulates HIF-1 α Stability via Interaction with PHD2 in Ischemic Myocardium. *Int. J. Mol. Sci.* 22(12):6581.

Lee, T.J., Kang, H.K., Berry, J.C., Joo, H.G., **Park, C.,** Miller, M.J., and Choi, K. (**2021**) ER71/ETV2 Promotes Hair Regeneration from Chemotherapeutic Drug-Induced Hair Loss by Enhancing Angiogenesis. *Biomol. Ther.* 2021 Apr 5. doi: 10.4062/biomolther.2021.022.

Jang, A., Chang, S., **Park, C.,** Lee, C-M., Benza, R., Passineau, M., Ma, J., Archer, D., Sutliff, R., Hart, C.M., and Kang, B-Y. (**2021**) PPAR γ Activation Increases HUWE1 to Attenuate NF- κ B/p65 and Sickle Cell Disease with Pulmonary Hypertension. *Blood Advances* 5(2):399-413.

Wongtrakool, C., Ko, J., Jang, A.J., Grooms, K., Chang, S., Kosmider, B., Bahmed, K., Blackburn, M.R., Sutliff, R., Hart, C.M., **Park, C.**, Nyunoya, T., Lu, Q., and Kang, B-Y. (**2020**) MicroRNA-98 reduces nerve growth factor expression in nicotine-induced airway remodeling. *J. Biol. Chem.* 295(52):18051-18064.

Kim, J.Y., Lee, D., Kim, J.K., Choi, H., Dwivedi, B., Rupji, M., Kowalski, J., Green, J.S., Park, W., Chang, C., Song, H., Kim, T-M., and **Park, C. (2019)** ETV2/ER71 regulates the generation of FLK1+ cells from mouse embryonic stem cells through miR-126-MAPK signaling. *Stem Cell Res. Ther.* 10(1):328.

Lee, D.H., Kim, T.M., Kim, J.K., and **Park, C. (2019)** ETV2/ER71 transcription factor as a therapeutic vehicle for cardiovascular disease. *Theranostics* 9:5694-5705.



Joined LSUHS - 2012

Education/Training

BS – Centenary College of Louisiana MS – University of Tennessee Health Science Center PhD – Temple University Post-Doctoral - LSUHSC

Honors/Awards

Grant Review: VA CARB (*ad hoc*) NIH IVPP (*ad hoc*) NIH AVI (*ad hoc*) Member, APS Member, American Heart Association (AHA) Member, SFRBM Member, Microcirculation

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 playa role in both the inflammatory and the cellular signaling cascades responsible for artery remodeling

SELECTED PUBLICATIONS

Rashdan NA, Shrestha B, **Pattillo CB.** (2020) S-glutathionylation, friend or foe in cardiovascular health and disease. <u>Redox Biol.</u> Oct;37:101693. doi: 10.1016. PubMed PMID: 32912836.

Rashdan NA, **Pattillo CB**. (2020) Hydrogen peroxide in the ER: A tale of triage. <u>Redox Biol</u>. Jan;28:101358. doi: 10.1016. PubMed PMID: 31685402; PubMed Central PMCID: PMC6920092.

Abdullah CS, Alam S, Aishwarya R, Miriyala S, Bhuiyan MAN, Panchatcharam M, **Pattillo CB**, Orr AW, Sadoshima J, Hill JA, Bhuiyan MS. (2019) Doxorubicininduced cardiomyopathy associated with inhibition of autophagic degradation process and defects in mitochondrial respiration. <u>Sci Rep</u>. doi: 10.1038/s41598-018-37862-3. PubMed PMID: 30765730; PubMed Central PMCID: PMC6376057.

Gopalakrishnan P, Shrestha B, Kaskas AM, Green J, Alexander JS, **Pattillo CB**. (2019) Hydrogen sulfide: Therapeutic or injurious in ischemic stroke? <u>Pathophysiology</u>. (1):1-10. doi: 10.1016. 10.005. Review. PubMed PMID: 30528175.

Leskova W, Pickett H, Eshaq RS, Shrestha B, **Pattillo CB**, Harris NR. (2019) Effect of diabetes and hyaluronidase on the retinal endothelial glycocalyx in mice. <u>Exp Eye Res</u>. 179:125-131. doi: 10.1016/j.exer.2018.11.012. PubMed PMID: 30445048; PubMed Central PMCID: PMC6360107.

Prasai PK, Shrestha B, Orr AW, **Pattillo CB**. (2018) Decreases in GSH:GSSG activate vascular endothelial growth factor receptor 2 (VEGFR2) in human aortic endothelial cells. Redox Biol. 19:22-27. doi: 10.1016. PubMed PMID: 30096614; PubMed Central PMCID: PMC6086407.

Shrestha B, Prasai PK, Kaskas AM, Khanna A, Letchuman V, Letchuman S, Alexander JS, Orr AW, Woolard MD, **Pattillo CB**. (2018) Differential arterial and venous endothelial redox responses to oxidative stress. <u>Microcirculation</u>. (7):e12486. doi: 10.1111/micc.12486. PubMed PMID: 29923664; PubMed Central PMCID: PMC6226026.



Joined LSUHS -1988

Education/Training

BS – University of Utah PhD – University of Utah Post-Doctoral – John Hopkins University School of Medicine

Honors/Awards

National Institutes of Health Fellowship

Brent Reed, PhD

Associate Professor Department of Biochemistry and Molecular Biology <u>brent.reed@lsuhs.edu</u>

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 b-catenin as a new interacting partner and have implicated the \Box -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

Grudzien-Nogalska, E., **Reed, B. C**., and Rhoads, R. E. (2014) CPEB1 promotes differentiation and suppresses EMT in mammary epithelial cells. <u>J Cell Sc</u>i. 127, 2326-2338

Reed, B. C., Cefalu, C., Bellaire, B. H., Cardelli, J. A., Louis, T., Salamon, J., Bloecher, M. A., and Bunn, R. C. (2005) GLUT1CBP(TIP2/GIPC1) Interactions with GLUT1 and Myosin VI: Evidence Supporting an Adapter Function for GLUT1CBP. Mol. Biol. Cell. 16, 4183-4201

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. <u>The Journal of biological chemistry</u>. 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. <u>Arch Biochem</u> B <u>iophys.</u> 279, 261-274

Reed, D. K., Newton, C., Fraga, M., Glastad, K., Bagheri, A., Harris, S., and **Reed, B. C**. (1989) An analysis of the relationship between the cellular distribution and the rate of turnover for the separate classes of unoccupied, noncovalently occupied, and covalently occupied insulin receptor. <u>The Journal of biological</u> c <u>hemistry.</u> 264, 12673-12679

Zuber, M. X., Wang, S. M., Thammavaram, K. V., Reed, D. K., and **Reed, B. C**. (1985) Elevation of the number of cell-surface insulin receptors and the rate of 2-deoxyglucose uptake by exposure of 3T3-L1 adipocytes to tolbutamide. <u>The</u> J <u>ournal of biological chemistry.</u> 260, 14045-14052

Reed, B. C., Glasted, K., and Miller, B. (1984) Direct comparison of the rates of internalization and degradation of covalent receptor-insulin complexes in 3T3-L1 adipocytes. Internalization of occupied receptors is not the rate-limiting step in receptor-hormone complex degradation. <u>The Journal of biological chemistry</u>. 259, 8134-8143



Joined LSUHS - 2019

Education/Training

PhD – University of Colorado Boulder Post-Doctoral – University of Colorado, Anschutz Medical Campus

Honors/Awards

American Heart Association, Scientist Development Grant Center for Cardiovascular Diseases and Sciences, Grant-In-Aid Award Editorial Board: Frontiers in Neurology - Stroke

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

Wu C.Y., Couto E Silva A., Citadin C.T., Clemons G.A., Acosta C.H., Knox B.A., Grames, M.S., **Rodgers K.M.**, Lee R.H., Lin H.W. (2021) Palmitic acid methyl ester inhibits cardiac arrest induced neuroinflammation and mitochondrial dysfunction. <u>Prostaglandins Leukot</u> <u>Essent Fatty Acids</u>, 165:102227.

Orfila JE, Dietz RM, **Rodgers KM**, Dingman A, Patsos O, Cruz-Torres, Grewal H, Strnad F, Schroeder C, Herson PS. (2020) Experimental pediatric stroke shows age-specific recovery of cognition and role of hippocampal Nogo-A receptor signaling. <u>Journal of Cerebral Blood Flow & Metabolism</u>, 40(3): 588-599.

Orfila J.E., Grewal H., Dietz R.M., Strnad F., Shimizu T., Moreno M., Schroeder C., Yonchek J., **Rodgers K.M.**, Dingman A., Bernard T.J., Quillinan N., Macklin W.B., Traystman R.J., Herson P.S. (2019) Delayed inhibition of tonic inhibition enhances functional recovery following experimental ischemic stroke. <u>Journal of Cerebral Blood</u> <u>Flow & Metabolism</u>, 39(6): 1005-1014.

Dingman A.L., **Rodgers K.M.**, Dietz R.M., Hickey S.P., Frazier A.P., Clevenger A.C., Yonchek J.C., Traystman R.J., Macklin W.B., Herson P.S. (2019) Oligodendrocyte Progenitor Cell Proliferation and Fate after White Matter Stroke in Juvenile and Adult Mice. <u>Developmental Neuroscience</u>, 12:1-16.

Rodgers K.M., Ahrendsen J.T., Patsos O.P., Strnad F.A., Yonchek J.C., Traystman R.J., Macklin W.B., Herson P.S. (2018) Endogenous Neuronal Replacement in the Juvenile Brain Following Cerebral Ischemia. <u>Neuroscience</u>, 9(380): 1-13.

Dietz R.M., Orfila J.E., **Rodgers K.M.**, Patsos O.P., Deng G., Chalmers N., Quillinan N., Traystman R.J., Herson P.S. (2018) Juvenile cerebral ischemia reveals age-dependent BDNF-TrkB signaling changes: Novel mechanism of recovery and therapeutic intervention. Journal of Cerebral Blood Flow & Metabolism, 38(12): 2223-2235.

Clevenger A.C., Kim H., Salcedo E., Yonchek J.C., **Rodgers K.M.**, Orfila J.E., Dietz R.M., Quillinan N., Traystman R.J., Herson P.S. (2018) Endogenous Sex Steroids Dampen Neuroinflammation and Improve Outcome of Traumatic Brain Injury in Mice. <u>Journal of Molecular Neuroscience</u>, 64 (3): 410-420.

Taylor JA, **Rodgers KM**, Bercum FM, Booth CJ, Dudek FE, Barth DS. (2017) Voluntary Control of Epileptiform Spike-Wave Discharges in Awake Rats. <u>Journal of Neuroscience</u>, 37(24):5861-5869.

Deng G., Orfila J.E., Dietz R.M., Moreno-Garcia M., **Rodgers K.M.**, Coultrap S.J., Quillinan N., Traystman R.J., Bayer K.U., Herson P.S. (2017) Autonomous CaMKII Activity as a Drug Target for Histological and Functional Neuroprotection after Resuscitation from Cardiac Arrest. <u>Cell Reports</u>, 18(5): 1109-1117.



Joined LSUHS - 2021

Education/Training

BSc – Tel-Hai College, Israel MSc – Technion – Israel Institute of Technology RD – Ministry of Health, Israel PhD – Technion – Israel Institute of Technology Post-Doctoral – University of Michigan

Honors/Awards

NIH/NHLBI K99/R00 Grant AHA Postdoc Fellowship Michigan-Israel Research Grant Young Researcher Award, Israeli Society for Treatment and Prevention of Atherosclerosis

Services and Honors

Editorial Review Board: Frontiers in Cardiovascular Medicine, International Journal of Molecular Sciences Session Chair: Metabolic Disorders, Frontiers in Biomedical Research

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 nonalcoholic 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

Liu Y, Zhao Y, Shukha Y, Lu H, Wang L, Liu Z, Liu C, Zhao Y, Wang H, Zhao G, Liang W, Fan Y, Chang L, Yurdagul A Jr, Pattillo CB, Orr AW, Aviram M, Wen B, Garcia-Barrio MT, Zhang J, Liu W, Sun D, Hayek T, Chen YE, <u>Rom O</u>. Dysregulated oxalate metabolism is a driver and therapeutic target in atherosclerosis. *Cell Rep*. 2021 Jul 27;36(4):109420.

Nielsen JB, <u>Rom O</u>, Surakka I, Graham SE, Zhou W, Roychowdhury T, et al. Loss-offunction genomic variants with impact on liver-related blood traits highlight potential therapeutic targets for cardiovascular disease. *Nat Commun*. 2020 Dec 18;11(1):6417.

Rom O, Liu Y, Liu Z, Zhao Y, Wu J, Ghrayeb A, Villacorta L, Fan Y, Chang L, Wang L, Liu C, Yang D, Song J, Rech JC, Guo Y, Wang H, Zhao G, Liang W, Koike Y, Lu H, Koike T, Hayek T, Pennathur S, Xi C, Wen B, Sun D, Garcia-Barrio MT, Aviram M, Gottlieb E, Mor I, Liu W, Zhang J, Chen YE. Glycine-based treatment ameliorates NAFLD by modulating fatty acid oxidation, glutathione synthesis, and the gut microbiome. *Sci Transl Med*. 2020 Dec 2;12(572):eaaz2841.

Lu H, Sun J, Liang W, Chang Z, <u>Rom O</u>, Zhao Y, Zhao G, Xiong W, Wang H, Zhu T, Guo Y, Chang L, Garcia-Barrio MT, Zhang J, Chen YE, Fan Y. Cyclodextrin Prevents Abdominal Aortic Aneurysm via Activation of Vascular Smooth Muscle Cell TFEB. *Circulation*. 2020 Aug 4;142(5):483-498

Rom O, Xu G, Guo Y, Zhu Y, Wang H, Zhang J, Fan Y, Liang W, Lu H, Liu Y, Aviram M, Liu Z, Kim S, Liu W, Wang X, Chen YE, Villacorta L. Nitro-fatty acids protect against steatosis and fibrosis during development of nonalcoholic fatty liver disease in mice. *EBioMedicine*. 2019 Mar;41:62-72.

Xiong W, Zhao X, Villacorta L, <u>Rom O</u>, Garcia-Barrio MT, Guo Y, Fan Y, Zhu T, Zhang J, Zeng R, Chen YE, Jiang Z, Chang L. Brown Adipocyte-Specific PPAR γ (Peroxisome Proliferator-Activated Receptor γ) Deletion Impairs Perivascular Adipose Tissue Development and Enhances Atherosclerosis in Mice. *Arterioscler Thromb Vasc Biol.* 2018 Aug;38(8):1738-1747.

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<u>Rom O</u>, Korach-Rechtman H, Hayek T, Danin-Poleg Y, Bar H, Kashi Y, Aviram M. Acrolein increases macrophage atherogenicity in association with gut microbiota remodeling in atherosclerotic mice: protective role for the polyphenol-rich pomegranate juice. *Arch Toxicol*. 2017 Apr;91(4):1709-1725.



Joined LSUHS -

Education/Training

BS- Western Washington University PhD – Duke University DO - Des Moines University Pathology Residency – LSU Health Sciences Shreveport Molecular Pathology – John Hopkins Board Certified via the American Board of Dathology in Anatomic Clinical and

Pathology in Anatomic, Clinical and Molecular Pathology

Honors/Awards

Roche Diagnostics Award: Diagnostic Laboratory Services as Roche Molecular Center of Excellence 2016 Received the Albert G. Smith Resident Research Forum Award 2007 Stowell-Orbison Award Certificate of Merit, for poster presentation, the United States and Canadian Academy of Pathology Meeting 2006

"Young Investigator Award" from the Association for Molecular Pathology 2003 and 2004.

Chosen to display a poster at the Eighth Annual American Medical Student Associations Poster Session 2003 Accepted into the "Summers of Discovery Program" at the National Institute of Environmental Health Sciences 2000 Merit Scholarship Award, Des Moines University of Osteopathic Medicine 1999 Awarded free associate membership in American Association for Cancer Research, 1999.

Recipient of a travel award from the American Association for Cancer Received a National Research Service Award 1996.

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 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

Shackelford R.E., Mohammad I.Z., Meram A.T., Kim D., Alotaibi F., Patel S., Ghali G.E., Kevil C.G. (2021) Molecular Functions of Hydrogen Sulfide in Cancer. Accepted to Pathophysiology.

Chen J., Shen X., Pardue S., Meram A.T., Rajendran S., Ghali G., Kevil C.G., Shackelford R.E. (2019) The Ataxia-telangiectasia and Rad3-related Protein Kinase Regulates Cellular Hydrogen Sulfide Concentrations. DNA Repair, 73: 55-63.

Shackelford R., Ozluk E., Islam M., Hopper B., Meram A., Ghali G., Kevil G.C. (2021) Hydrogen sulfide and DNA repair. Redox Biology, 38: 101675.

Meram A.T., Chen J., Patel S., Kim D.D., Shirley B., Covello P., Coppola D., Wei E., Ghali G., Kevil C.G., Shackelford R.E. (2018) Hydrogen Sulfide is Increased in Oral Squamous Cell Carcinoma Compared to Adjacent Benign Oral Mucosae. Anticancer Research, 38: 3843-3852.

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.

Shackelford R.E., Mansuszak R.P., Johnson C.D., Hellrung D.J., Steele T.A., Link C.J., Wang S. (2003) Desferrioxamine treatment increases the genomic stability of Ataxia-telangiectasia cells. DNA Repair, 2: 971-981.

Qi J., Shackelford R., Manuszak R., Cheng D., Link C.J., Wang S. Functional expression of ATM gene carried by HSV amplicon vector In Vitro and In Vivo. (2004) Gene Ther. 1: 25-33.

Shackelford R.E., Manuszak R.P., Johnson C.D., Hellrung D.J., Link C.J., Wang S. (2004) Iron chelators increase the resistance of ataxia-telangiectasia cells to oxidative stress. DNA Repair, 3: 1263-72.

Shackelford R.E., Innes C.L., Seiber S.O., Heinloth A.N., Leadon S.A., Paules R.S. (2001) The ataxia telangiectasia gene product is required for oxidativestress induced G1 and G2 checkpoint function in human fibroblasts. J. Biol. Chem. 276: 21951-9.



Joined LSUHS -2008

Education/Training

BS – Jilin University, China PhD – Jilin University, China Post-Doctoral – LSUHSC

Honors/Awards

Member for American Society for Mass Spectrometry (ASMS) Member for American Heart Association (AHA)

Xinggui Shen, PhD

Director, Mass Spectometry & Analytical Redox Biology Core Research Assistant Professor Department of Pathology and Translational Pathobiology <u>xinggui.shen@lsuhs.edu</u>

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

Pardue S, Kolluru GK, Shen X, Lewis SE, Saffle CB, Kelley EE, Kevil CG. Hydrogen sulfide stimulates xanthine oxidoreductase conversion to nitrite reductase and formation of NO. <u>Redox Biol</u>. 2020 Jul;34:101447. doi:10.1016/j.redox.2020.101447.

Rao KNS, Shen X, Pardue S, Krzywanski DM. Nicotinamide nucleotide transhydrogenase (NNT) regulates mitochondrial ROS and endothelial dysfunction in response to angiotensin II. <u>Redox Biol.</u> 2020 Sep;36:101650. doi:10.1016/j.redox.2020.101650.

Watts M, Kolluru GK, Dherange P, Pardue S, Si M, Shen X, Trosclair K, Glawe J, Al-Yafeai Z, Iqbal M, Pearson BH, Hamilton KA, Orr AW, Glasscock E, Kevil CG, Dominic P. Decreased bioavailability of hydrogen sulfide links vascular endothelium and atrial remodeling in atrial fibrillation. <u>Redox Biol.</u> 2021 Jan;38:101817. doi: 10.1016/j.redox.2020.101817.

Herrera GA, Del Pozo-Yauner L, Teng J, Zeng C, Shen X, Moriyama T, Ramirez Alcantara V, Liu B, Turbat-Herrera EA. Glomerulopathic Light Chain-Mesangial Cell Interactions: Sortilin-Related Receptor (SORL1) and Signaling. <u>Kidney Int Rep</u>. 2021 Mar 13;6(5):1379-1396.

Marutani E, Morita M, Hirai S, Kai S, Grange RMH, Miyazaki Y, Nagashima F, Traeger L, Magliocca A, Ida T, Matsunaga T, Flicker DR, Corman B, Mori N, Yamazaki Y, Batten A, Li R, Tanaka T, Ikeda T, Nakagawa A, Atochin DN, Ihara H, Olenchock BA, Shen X, Nishida M, Hanaoka K, Kevil CG, Xian M, Bloch DB, Akaike T, Hindle AG, Motohashi H, Ichinose F. Sulfide catabolism ameliorates hypoxic brain injury. <u>Nat Commun</u>. 2021 May 25;12(1):3108. doi: 10.1038/s41467-021-23363-x



Joined LSUHS -1998

Education/Training

BAMod – Trinity College Dublin, Ireland PhD – Trinity College Dublin, Ireland Post-Doctoral – LSUHSC, Shreveport

Honors/Awards

Co-chair, Kaley Award Committee

Member Awards Committee, Microcirculatory Society, Inc.

Associate Editor, Microcirculation

Co-Chair, Career Development Award Vasc 2, AHA Peer Review

Ad Hoc member, NIH/NHLBI MCBS/OA Study section

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

Disbrow E, **Stokes KY**, Ledbetter C, Patterson J, Kelley R, Pardue S, Reekes T, Larmeu L, Batra V, Yuan S, Cvek U, Trutschl M, Kilgore P, Alexander JS, Kevil CG. (2021) Plasma hydrogen sulfide: A biomarker of Alzheimer's disease and related dementias. Alzheimers Dement. 17(8):1391-1402. Epub 2021 Mar 12.

Barzegar M, Wang Y, Eshaq RS, Yun JW, Boyer CJ, Cananzi SG, White LA, Chernyshev O, Kelley RE, Minagar A, **Stokes KY**, Lu X-H, Alexander JS. (2021) Human placental mesenchymal stem cells improve stroke outcomes via extracellular vesicle-mediated preservation of cerebral blood flow. <u>EBioMedicine</u>, 63:103161. Epub 2020 Dec 19

Barzegar M, Vital S, **Stokes KY**, Wang Y, Yun JW, White LA, Chernyshev O, Kelley RE, Alexander JS. (2021) Human placenta mesenchymal stem cell protection in ischemic stroke is angiotensin converting enzyme-2 and masR receptor-dependent. <u>Stem Cells</u>. 39(10):1335-1348. Epub 2021 Jun 22.

Abdullah CS, Aishwarya R, Alam S, Morshed M, Remex NS, Nitu S, Kolluru GK, Traylor J, Miriyala S, Panchatcharam M, Hartman B, King J, Bhuiyan MAN, Chandran S, Woolard MD, Yu X, Goeders NE, Dominic P, Arnold CL, **Stokes K**, Kevil CG, Orr AW, Bhuiyan MS. (2020) Methamphetamine induces cardiomyopathy by Sigmar1 inhibition-dependent impairment of mitochondrial dynamics and function. <u>Commun Biol.</u> 3(1):682.

Cruz-Topete D., Dominic P., **Stokes K.Y**. (2020) Uncovering sex-specific mechanisms of action of testosterone and redox balance. <u>Redox Biol.</u> 31:101490.

Wang B., Aw T.Y., **Stokes K.Y**. (2018) N-acetylcysteine attenuates systemic platelet activation and cerebral vessel thrombosis in diabetes. <u>Redox Biol.</u> 4:218-228.

Wang B., Aw T.Y., **Stokes K.Y**. (2016) The protection conferred against ischemia-reperfusion injury in the diabetic brain by N-acetylcysteine is associated with decreased dicarbonyl stress. <u>Free Radic Biol Med.</u> 96:89-98.



Joined LSUHS -2011

Education/Training

MD – Xuzhou Medical University PhD – Mie University Post-Doctoral – University of Nebraska Medical Center

Honors/Awards

Member, Council and Grant Review: American Heart Association Editorial Board: Scientific Report, Med One Postdoctoral Fellowship: American Heart Association Predoctoral Fellowship: Japanese Government (Monbusho)

Honors/Awards Trainees Jiyu Li

South Central Society of Toxicology 2019 – Best Poster Predoc

Category - 1st place

Kimberly McCarter North Louisiana Neuroscience

Conference 2017 – Best Poster Predoc Category - 1st place

Chun Li

LSU Graduate Research Day 2017 – Best Poster Postdoc Category - 2nd place

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, Ethyn G. Loreno, Sumitra Miriyala, Manikandan Panchatcharam, Xiaohong Lu, and ***Hong Sun**. Chronic low-dose alcohol consumption attenuates post-ischemic inflammation via PPARγ in mice. Int J Mol Sci. 22: 10, 2021

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

Guodong Xu, Chun Li, Anne Parsiola, Jiyu Li, Kimberly D. McCarter, Runhua Shi, William G. Mayhan, **Hong Sun**. (2019) Dose-dependent influences of ethanol on ischemic stroke: role of inflammation. <u>Front. Cell. Neurosci</u>. 13:6 Kimberly D. McCarter, Chun Li, Jiyu Li, Guodong Xu, **Hong Sun**. (2019)

Influence of low-dose alcohol consumption on post-ischemic inflammation: Role of cystathionine γ -lyase. <u>Alcohol.</u> 76(5):81-89

Chun Li, **Hong Sun**, Guodong Xu, Kimberly D. McCarter, Jiyu Li, William G. Mayhan. (2018) Mito-Tempo prevents nicotine-induced exacerbation of ischemic brain damage. J. Appl. Physiol. 125(1): 49-57

Kimberly D. McCarter, Chun Li, Zheng Jiang, Wei Lu, Hillary C. Smith, Guodong Xu, William G. Mayhan, **Hong Sun**. (2017) Effect of low-dose alcohol consumption on inflammation following transient focal cerebral ischemia in rats. Scientific Reports. 7(1): 12547

Chun Li, Zheng Jiang, Wei Lu, Denise M. Arrick, Kimberly D. McCarter, **Hong Sun**. (2016) Effect of obesity on early blood-brain barrier disruption following transient focal cerebral ischemia. Obesity Science & Practice. 2(1): 58-68 Zheng Jiang, Chun Li, Morganne L. Manuel, Shuai Yuan, Christopher G. Kevil, Kimberly D. McCarter, Wei Lu, **Hong Sun**. (2015) Role of hydrogen sulfide in early-stage blood-brain barrier disruption following transient focal cerebral ischemia. PLoS One. 10(2): e0117982.

Zheng Jiang, Chun Li, Denise M. Arrick, Shu Yang, Alexandra E. Baluna, **Hong Sun**. (2014) Role of nitric oxide synthases in early-stage blood-brain barrier disruption following transient focal cerebral ischemia. <u>PLoS One</u>. 9(3): e93134 **Hong Sun**, Wanfen Xiong, Denise M. Arrick, William G. Mayhan. (2012) Low- Dose Alcohol Consumption Protects Against Transient Focal Cerebral Ischemia in Mice: Role of PPAR γ . PLoS One. 7(7): e41716



Joined LSUHS -2006

Education/Training

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

Board Certified via the American Board of Pathology in Anatomic Pathology and Forensic Pathology

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

Suresh Govatati, Prahalathan Pichavaram, Jagadeesh Janjanam, Baolin Zhang, Nikhlesh K. Singh, Arul M. Mani, James G. Traylor, Jr., A. Wayne Orr, Gadiparthi N. Rao. (2019) NFATc1-E2F1-LMCD1–Mediated IL-33 Expression by Thrombin Is Required for Injury-Induced Neointima Formation. <u>Arterioscler Thromb Vasc</u> Biol. 39:00-00. DOI: 10.1161/ATVBAHA.119.312729.

Janjanam J, Zhang B, Mani AM, Singh NK, Traylor JG Jr, Orr AW, Rao GN. (2018) LIM and cysteine-rich domains 1 is required for thrombin-induced smooth muscle cell proliferation and promotes atherogenesis. <u>J Biol Chem.</u> 293(9):3088-3103. doi: 10.1074/jbc.RA117.000866.

Vozenilek A, E, Vetkoetter M, Green J, M, Shen X, Traylor J, G, Klein R, L, Orr A, W, Woolard M, D, Krzywanski D, M. (2018) Absence of Nicotinamide Nucleotide Transhydrogenase in C57BL/6J Mice Exacerbates Experimental Atherosclerosis. J <u>Vasc Res</u>. 55:98-110

Alam S, Abdullah CS, Aishwarya R, Orr AW, Traylor J, Miriyala S, Panchatcharam M, Pattillo CB, Bhuiyan MS. (2017) Sigmar1 regulates endoplasmic reticulum stressinduced C/EBP-homologous protein expression in cardiomyocytes. <u>Biosci</u> R<u>ep.</u> 16;37(4). pii: BSR20170898. doi: 10.1042/BSR20170898.

Finney A.C., Funk S.D., Green J.M., Yurdagul A. Jr., Rana M.A., Pistorius R., Yurochko A.D., Pattillo C.B., Traylor J.G., Chen J., Woolard M.D., Kevil C.G., and A.W. Orr. (2017) EphA2 expression regulates inflammation and fibroproliferative remodeling in atherosclerosis. <u>Circulation</u>. 8; 136(6):566-582. doi: 10.1161/CIRCULATIONAHA. 116.02664.

Singh N, Kotla S, Dyukova E, **Traylor JG Jr**, Orr WA, Chernoff J, Marion T, Rao G. (2015) Disruption of p21-activated kinase 1 gene diminishes atherosclerosis in apolipoprotein E-deficient mice. <u>Nat Commun</u>. 6:7450. doi: 10.1038/ncomms8450 Becker F, Potepalov S, Shehzahdi R, Bernas M, Witte M, Abreo F, **Traylor JG Jr**, Orr WA, Tsunoda I, Alexander JS. (2015) Downregulation of FoxC2 Increased Susceptibility to Experimental Colitis: Influence of Lymphatic Drainage Function? I nflamm Bowel Dis. (6):1282-96. doi: 10.1097/MIB.00000000000371

Cromer WE, Ganta CV, Patel M, **Traylor J**, Kevil CG, Alexander JS, Mathis JM. (2013) VEGF-A isoform modulation in an preclinical TNBS model of ulcerative colitis: protective effects of a VEGF164b therapy. Journal of Translational Medicine . 11(1):207. DOI:10.1186/1479-5876-11-207



Joined LSUHS -2008

Education/Training

BS – Louisiana State University in Shreveport MS – LSU Health Science Center in Shreveport PhD – LSU Health Shreveport

Services and Awards

Member, Curriculum Evaluation Sub-Committee at LSU Health Shreveport Faculty Advisor, LSU Health Shreveport chapter of Science Matters Donations Coordinator, Center for **Cardiovascular Diseases and Sciences** (CCDS) Heart Health Day Columnist, "Bench to Bedside" articles in Center for Cardiovascular Diseases and Sciences (CCDS) Newsletters First Place, Poster Presentation Award, Research and Industry Day (RAID) Second Place, Poster Presentation Award, 18th Annual ArkLaTex **Cardiology Conference** Awardee, Center for Cardiovascular Diseases and Sciences (CCDS) Malcom Feist Predoctoral Fellowship

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 neurosurgical 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-inflammatoryinfused 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

Trosclair K, Si M, Watts M, Gautier NM, Voigt N, Traylor J, Bitay M, Baczko I, Dobrev D, Hamilton KA, Bhuiyan MS, Dominic P, Glasscock E. Kv1.1 potassium channel subunit deficiency alters ventricular arrhythmia susceptibility, contractility, and repolarization. Physiol Rep. 2021.

Adeeb N, Hattab T, Savardekar A, Jumah F, Griessenauer CJ, Musmar B, Adeeb, **Trosclair K**, Guthikonda B. Venous Thromboembolism Prophylaxis in Elective Neurosurgery: A Survey of Board-Certified Neurosurgeons in the United States and Updated Literature Review. World Neurosurg. 2021.

LeFever D, Demand A, Kandregula S, Vega A, MS1, Hodley B, Paterson S, **Trosclair K,** Menger R, Kosty J, and Guthikonda B. Status of Current Medicolegal Reform in the United States: A neurosurgical perspective. Neurosurgical Focus. 2020.

Trosclair K, Dhaibar H, Gautier N, Mishra V, and Glasscock E. Neuron-specific Kv1.1 deficiency is sufficient to cause epilepsy, sudden death, and cardiorespiratory dysregulation. Neurobiology of Disease. Volume 137, 2020.

Cruz-Topete D, Oakley RH, Carroll NG, He B, Myers PH, Xu X, Watts MN, **Trosclair K,** Glasscock E, Dominic P, and Cidlowski JA. Deletion of the Cardiomyocyte Glucocorticoid Receptor leads to Sexually Dimorphic Changes in Cardiac Gene Expression and Progression to Heart Failure. Journal of the American Heart Association. 2019.

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



Joined LSUHS -2017

Education/Training

MBBS – Stanley Medical College Residency – Surgery – LSUHSC, New Orleans, LA Fellowship- Vascular/Endo Vascular – LSUHSC, New Orleans, LA

Honors/Awards

Alpha Omega Alpha Medical Honor Society Best Teaching Faculty Award Warren L. Gottsegen Award Outstanding Vascular Surgery Resident Vascular Surgery Excellence Award Administrative Chief Resident Dean's Commendation (TsunamiRelief Camp)

Chiranjiv Virk, MD

Assistant Professor Department of Surgery <u>chiranjiv.virk@lsuhs.edu</u>

SELECTED PUBLICATIONS

Early results of trans-oral endoscopic plication and revision of the gastric pouch and stoma following Roux-en-Y gastric bypass surgery. Leitman IM, Virk CS, Avgerinos DV, Patel R, Lavarias V, Surick B, Holup JL, Goodman ER, Karpeh MS Jr. JSLS. 2010 Apr-Jun;14(2):217-20.

Endoscopic gastric pouch plication - a novel endoluminal incision free approach to revisional bariatric surgery. Virk CS, Leitman IM, Goodman ER.J Surg Case Rep. 2010 Apr 1;2010(2):1

Racial Disparities in Irritable Bowel Syndrome Gastroenterology journal May 2009Volume 136, Issue 5, Supplement 1, A-482–483 Ramune Garniene, Chiranjiv S. Virk,Madhavi Ambati,Howard Cabral,Horst C. Weber

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 JeanLucDelafontaine1BoHu Tze-WoeiTan Gale L.TangBenjamin W.Starnes ChiranjivVirk Warren B.Chow Wayne W.Zhang July2019

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

Catheter Cardiovasc Interv 2021 April Catheter-directed thrombolytic infusion for thrombosed arteriovenous fistulas with a large clot burden: A case series Ittikorn Spanuchart, Bakhtiare Amin, Adrian Sequeira, Chiranjiv Virk, Kenneth Abreo, Bharat Sachdeva J Vasc Access 2021 May



Education/Training MD – University of Texas Medical School

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

Rhodes CJ, Batai K, Bleda M, Haimel M, Southgate L, Germain M, Pauciulo MW, Hadinnapola C, Aman J, Girerd B, Arora A, Knight J, Hanscombe KB, Karnes JH, Kaakinen M, Gall H, Ulrich A, Harbaum L, Cebola I, Ferrer J, Lutz K, Swietlik EM, Ahmad F, Amouvel P, Archer SL, Argula R, Austin ED, Badesch D, Bakshi S, Barnett C, Benza R, Bhatt N, Bogaard HJ, Burger CD, Chakinala M, Church C, Coghlan JG, Condliffe R, Corris PA, Danesino C, Debette S, Elliott CG, Elwing J, Eyries M, Fortin T, Franke A, Frantz RP, Frost A, Garcia JGN, Ghio S, Ghofrani HA, Gibbs JSR, Harley J, He H, Hill NS, Hirsch R, Houweling AC, Howard LS, Ivy D, Kiely DG, Klinger J, Kovacs G, Lahm T, Laudes M, Machado RD, MacKenzie Ross RV, Marsolo K, Martin LJ, Moledina S, Montani D, Nathan SD, Newnham M, Olschewski A, Olschewski H, Oudiz RJ, Ouwehand WH, Peacock AJ, Pepke-Zaba J, Rehman Z, Robbins I, Roden DM, Rosenzweig EB, Saydain G, Scelsi L, Schilz R, Seeger W, Shaffer CM, Simms RW, Simon M, Sitbon O, Suntharalingam J, Tang H, Tchourbanov AY, Thenappan T, Torres F, Toshner MR, Treacy CM, Vonk Noordegraaf A, Waisfisz Q, Walsworth AK, Walter RE, Wharton J, White RJ, Wilt J, Wort SJ, Yung D, Lawrie A, Humbert M, Soubrier F, Trégouët DA, Prokopenko I, Kittles R, Gräf S, Nichols WC, Trembath RC, Desai AA, Morrell NW, Wilkins MR; UK NIHR BioResource Rare Diseases Consortium; UK PAH Cohort Study Consortium; US PAH Biobank Consortium. (2019) Genetic determinants of risk in pulmonary arterial hypertension: international genome-wide association studies and meta-analysis. Lancet Respir Med. 7(3):227-238. doi: 10.1016/S2213-2600(18)30409-0. PMID: 30527956 Smith TR, Heldmann MG, Walter RE. (2010) Unusual bronchial foreign body. Am J Respir Crit Care Med. 182(12):1563. doi: 10.1164/rccm.201007-1158IM. PMID: 21159905

D'Armiento JM, Scharf SM, Roth MD, Connett JE, Ghio A, Sternberg D, Goldin JG, Louis TA, Mao JT, O'Connor GT, Ramsdell JW, Ries AL, Schluger NW, Sciurba FC, Skeans MA, Voelker H, **Walter RE**, Wendt CH, Weinmann GG, Wise RA, Foronjy RF. (2009) Eosinophil and T cell markers predict functional decline in COPD patients. <u>Respir Res</u>. 10:113. doi: 10.1186 PMID: 19925666


Joined LSUHS -1997

Education/Training

MS – Harbin Medical University, China MD – Harbin Medical University, China PhD – Medical College of Virginia

Honors/Awards

Grant review for Preeclampsia Foundation NIH Study section member, Obstetric and Maternal-Fetal Biology

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

Wang Y, Lewis DF. Vitamin D and immune tolerance in pregnancy and beyond. <u>Open Access Government</u>, October 2020, edition 28, 202-203.

Gu Y, Chu X, Morgan JA, Lewis DF, **Wang Y**. Upregulation of METTL3 expression and m6A RNA methylation in placental trophoblasts in preeclampsia. Placenta 2021,103:43-49. doi: 10.1016/j.placenta.2020.10.016. PMID: 33070036

Barzegar M, **Wang Y**, Eshag RS, Yun JW, Boyer CJ, Cananzi SG, White LA, Stokes KY, Lu XH, Alexander JS. Human placental mesenchymal stem cells improve stroke outcomes via extracellular vesicle-mediated preservation of cerebral blood flow. EBioMedicine by the Lancet, 2021, 63: 103161. PMID: 33348090, PMCID: PMC7753936. <u>https://doi.org/10.1016//j.ebiom.2020.103161</u>.

Sheng W, Gu Y, Chu X, Morgan JA, Cooper DB, Lewis DF, McCathran CE, **Wang Y**. Upregulation of histone H3K9 methylation in fetal endothelial cells from women with preeclampsia. <u>J Cell Physiol</u> 2021, 236:1866-1874. PMID: 32700783. https://doi.org/ 10.1002/jcp.29970.

Chu X, Gu Y, Sheng W, Sun J, Morgan JA, Lewis DF, Copper DB, McCathran CE, **Wang Y**. Downregulation of miR-126 expression contributes to increased inflammatory response in placental trophoblasts in preeclampsia. <u>J Reprod Immunol</u> 2021, 144: 103281. PMID: 33549904. <u>https://doi.org/10.1016/j.jri.2021.103281</u>.

Wang Y, Gu Y, Alexander JS, Lewis DF. Preeclampsia status controls interleukin-6 and soluble IL-6 receptor release from neutrophils and endothelial cells: Relevance to increased inflammatory responses. <u>Pathophysiology-MDPI</u> 2021, 28(2): 202-211. https://doi.org/ 10.3390/pathophysiology28020013



Joined LSUHS -2018

Education/Training

BS – LSU, Baton Rouge, LA MD – LSU Medical Center, Shreveport, LA Gen Surg – Univ of Missouri, LSUHSC, Shreveport Cardiothoracic Surg-University of Utah Research Associate –Artificial Heart Laboratory

Honors/Awards

First Surgical Team in Louisiana to Implant Mitral Valve with **Minimally Invasive Heartport** Mitral Valve HealthGrades #1 Cardiovascular Surgical Hospital in Louisiana, **Director, Glenwood Regional Medical Center** Alpha Omega Alpha Honor Med Soc Gold Humanism Honor Soc Society of Thoracic Surgeons Southern Thoracic Surgical Association Surgical Quality Council Ochsner/LSU Medical Executive Council Chairman, Physicians Compensation Committee Fellow, American College of Surgeons Member, Society of Surgical Chairs

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.

White RK, Bliss RS, Everett SD, Pantalos G, Marks JD, Kinoshita M, Olsen DB. Comparison of microsphere and intraoperative quantitation of bronchial blood flow. Trans Am Soc Artif Inter Organs 37;3: M507-509, 1991.

Pantalos GM, Burns GL, Mohammad F, Dew P, Kinoshita M, Long J, White RK, Olsen DB. Current experience with reinforced PTFE vascular prosthesis as artificial heart outflow grafts. <u>Am Soc Artif Inter Organs</u> 21:13, 1992.

White RK, Pantalos GM, Olsen DB: Total Artificial Heart Development at the University of Utah: The Utah-100 and Electrohydraulic Cardiac Replacement Devices. In: Cardiac Mechanical Assistance Beyond Balloon Pumps. Quaal SJ (ed). Mosby Year Book Incorporated, St. Louis, Missouri, pp181-193, 1993.

Olsen DB, Khanwilkar PS, Hansen CA, White RK. Development of a biventricular replacement device, NIH Grant #No1-HV-88106, Report #4, September, 1991.



Joined LSUHS -2009

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

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

Chandran S, Shilke R.M., Blackburn, C.M.R., Yurochko A., Mirza R., Scott R.S., Finck B.N., **Woolard M.D**. (2020) Lipin-1 Contributes to IL-4 Mediated Macrophage Polarization. Front Immunology. 2020 May 5;11:787.

Shrestha B., Prasai P.K., Kaskas A.M., Khanna A., Letchuman V., Letchuman S., Alexander J.S., Orr A.W., **Woolard M.D.**, and C.B. Pattillo. (2018) Differential arterial and venous endothelial redox responses to oxidative stress. Microcirculation. E12486

Grames M.S., Dayton R.D., Lu X.H., Schilke R., Alexander J.S., Orr A.W., Barmada S.J., **Woolard M.D.**, and R.L. Klein. (2018) Large increase in cholesterol levels via mutant PCSK9 gene transfer to amyloid mice is concomitant to a small increase in amyloid plaques in the hippocampus. <u>J.</u> Alzheimer's Disease, 65: 1079-1086.

Kevil CG, Goeders NE, **Woolard MD**, Bhuiyan MS, Dominic P, Kolluru GK, Arnold CL, Traylor JG, Orr AW. (2019) Methamphetamine Use and Cardiovascular Disease.

Orr AW, **Woolard MD.** (2019) Cardiovascular disease is obNOXious: New insights into NoxA1 in smooth muscle phenotype. Redox Biol. 101081.doi: 10.1016 101081. PMID: 30594486

Al-Kofahi M, Omura S, Tsunoda I, Sato F, Becker F, Gavins FNE, **Woolard MD**, Pattillo C, Zawieja D, Muthuchamy M, Gashev A, Shihab I, Ghoweba M, Von der Weid PY, Wang Y, Alexander JS. (2018) IL-1 β reduces cardiac lymphatic muscle contraction via COX-2 and PGE induction: Potential role in myocarditis Biomed Pharmacother. 107:1591-1600. doi: 10.1016 PMID: 30257377

Vozenilek AE, Blackburn CMR, Schilke RM, Chandran S, Castore R, Klein RL, **Woolard MD**. (2018) AAV8-mediated overexpression of mPCSK9 in liver differs between male and female mice. <u>Atherosclerosis</u>. 278:66-72. doi: 10.1016 PMID: 30253291



Joined LSUHS -2016

Education/Training

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

Honors/Awards

Career Development Award, AHA Postdoctoral Research Fellowship, AHA New Investigator Award, The 13th Congress of the International Society for the Study of Fatty Acids and Lipids (ISSFAL), Las Vegas, USA

Yin-Chieh (Celeste) Wu, PhD

Research Assistant Professor Department of Neurology <u>yinchieh.wu@lsuhs.edu</u>

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 agedrelated 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

Lee RH, <u>Wu CY</u> (*Co-first author*), Citadin CT, Couto E Silva A, Possoit HE, Clemons GA, Acosta CH, de la Llama VA, Neumann JT, Lin HW. Activation of Neuropeptide Y2 Receptor Can Inhibit Global Cerebral Ischemia-Induced Brain Injury. <u>Neuromolecular</u> <u>Med</u>. 2021 May 21; PMID: 34019239.

Couto e Silva A, <u>Wu CY</u>, Clemons GA, Acosta CH, Chen CT, Possoit E, Citadin CT, Lee RH, Frankel A, Lin H. Protein arginine methyltransferase 8 can modulate mitochondrial bioenergetics and neuroinflammation after hypoxic stress. <u>Journal of Neurochemistry</u>. 2021; PMID: 34216036

<u>Wu CY</u> (*Corresponding author*), Couto e Silva A, Citadin CT, Clemons GA, Acosta CH, Knox BA, Grames MS, Rodgers KM, Lee RH, Lin HW. Palmitic acid methyl ester inhibits cardiac arrest-induced neuroinflammation and mitochondrial dysfunction. <u>Prostaglandins</u> Leukot Essent Fatty Acids. 2021. PMID: 33445063.

Lee RH, Grames MS, <u>Wu CY</u>, Lien CF, Couto E Silva A, Possoit HE, Clemons GA, Citadin CT, Neumann JT, Pastore D, Lauro D, Della-Morte D, Lin HW. (2020) Upregulation of serum and glucocorticoid- regulated kinase 1 exacerbates brain injury and neurological deficits after cardiac arrest. <u>Am J Physiol Heart Circ Physiol</u> 2020 Nov 1;319(5):H1044-H1050. PMID: 32946263.

<u>Wu CY</u>, Clemons GA, Lopz-Toledano MA, Citadin CT, Lee RH, Lin HW. (2020) SC411 enhances cerebral blood flow after ischemia in the Townes mouse model of sickle cell disease. <u>Prostaglandins, leukotrienes, and</u> essential fatty acids. 2020 Jul;158:102110. PMID: 32447175.

Couto E Silva A, <u>Wu CY</u>, Citadin CT, Clemons GA, Possoit HE, Grames MS, Lien CF, Minagar A, Lee RH, Frankel A, Lin HW. (2019) Protein Arginine Methyltransferases in Cardiovascular and Neuronal Function. <u>Molecular Neurobiology</u>. Dec 10. doi: 10.1007/s12035-019-01850-z. PMID: 31823198.

Wu CY, Lerner FM, Couto E Silva A, Possoit HE, Hsieh TH, Neumann JT, Minagar A, Lin HW, and Lee RH. (2018) Utilizing the modified T-maze to assess functional memory outcomes after cardiac arrest. <u>J. Vis. Exp</u>. (131), e56694, doi:10.3791/56694. PMID: 29364254.

Lee RH, Lee MH, <u>Wu CY</u>, Couto E Silva A, Possoit HE, Hsieh TH, Minagar A, Lin HW. (2018) Cerebral ischemia and neuroregeneration. <u>Neural Regen Res</u>. Mar; 13(3): 373–385. PMID: 29623912.

Lee RH, Couto E Silva A, Possoit HE, Lerner FM, Azizbayeva R, Citadin CT, <u>Wu CY</u>, Neumann JT, Lin HW. (2018) Palmitic acid methyl ester is a novel neuroprotective agent against cardiac arrest. <u>Prostaglandins, leukotrienes, and essential fatty acids</u>. Nov 23. pii: S0952-3278(18)30212-6. PMID: 30514597.

Lee RH, Couto E Silva A, Lerner FM, Wilkins CS, Valido SE, Klein DD, <u>Wu</u> <u>CY</u>, Neumann JT, Della-Morte D, Koslow SH, Minagar A, and Lin HW. (2017) Interruption of Perivascular Sympathetic Nerves of Cerebral Arteries Offers Neuroprotection Against Ischemia. <u>Am J Physiol Heart Circ Physiol</u> 312(1): H182-188. PMID: 27864234.



Joined LSUHS -2021

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

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 efferocytosis 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

Yurdagul A Jr*, Kong N, Gerlach BD, Wang X, Ampomah P, Kuriakose G, Tao W, Shi J, Tabas I (2021). ODC-Dependent Putrescine Synthesis Maintains MerTK Expression to Drive Resolution. Arterioscler. Thromb. Vasc. Biol. Doi: 10.1161/ATVBAHA.120.315622. **Co-Corresponding Author.* ***Selected as the cover of the journal issue.*

Tao Wei^{*}, Yurdagul A Jr^{*}, Kong N, Li W, Wang X, Doran AC, Feng C, Wang J, Islam MA, Farokhzad OC, Tabas I, Shi J (2020). siRNA Nanoparticles Targeting CaMKIIγ in Lesional Macrophages Improve Atherosclerotic Plaque Stability in Mice. Science Translational Medicine. Doi: 10.1126/scitransImed.aay1063.

Yurdagul A Jr*, Subramanian M, Wang X, Crown SB, Ilkayeva O, Darville L, Kolluru G, Rymond CC, Gerlach BD, Zheng Z, Kuriakose G, Kevil CG, Koomen JM, Cleveland JL, Muoio DM, Tabas I. (2020) Macrophage Metabolism of Apoptotic Cell-Derived Arginine Promotes Continual Efferocytosis and Resolution of Injury. Cell Metabolism. doi: 10.1016/j.cmet.2020.01.001. *Selected by Faculty Opinions.

Doran AC, Yurdagul A Jr, Tabas I. (2019) Efferocytosis in Health and Disease. *Nature Reviews Immunology*. doi: 10.1038/s41577-019-0240-6

Back M, Yurdagul A Jr, Tabas I, Oorni K, Kovanen PT. (2019) Inflammation and its Resolution in Atherosclerosis: Mediators and Therapeutic Opportunities. Nature Reviews Cardiology. doi: 10.138/s41569-019-0169-2. *Selected by Faculty of 1000

Yurdagul A Jr*, Doran AC, Cai B, Fredman G, Tabas IA. (2018) Mechanisms and Consequences of Defective Efferocytosis in Atherosclerosis. Frontiers in Cardiovascular Medicine. doi: 10.3389/fcvm.2017.00086. *Corresponding Author

Wang Y.*, Subramanian M.*, Yurdagul A Jr*, Maxfield FR., Nomura M., Tabas IA. (2017) Mitochondrial Fission Promotes the Continued Clearance of Apoptotic Cells by Macrophages. Cell. 171(2): 331-345. *Co-first author. *Selected by Faculty of 1000



Joined LSUHS -1999

Education/Training

B.S., Biochemistry, Virginia Tech B.S., Biology, Virginia Tech Ph.D., Immunology, Virginia Tech. Postdoctoral Fellowship: Lineberger Comprehensive Cancer Center, UNC at Chapel Hill

Honors/Awards

Director and PI, CoBRE Center for Applied Immunology and Pathological Processes

Charles C. Randall Outstanding Young Scientist Award: South Central Branch – American Society of Microbiology (SCB- ASM)

Invited Guest Professor: University of Ulm, Germany; International Graduate School in Molecular Medicine Treasurer and Past President, SCB-ASM C-Director, Emerging Viral Threat Lab Assistant Director, Dir. Research, Center

of Excellence for Arthritis and Rheumatology Fundraising Chair, International Herpesvirus Workshop Editorial Board, Journal of Virology

Honors/Awards Trainees

Heather Fulkerson Invited Talk, 17th International CMV Workshop McCleskey Award Winner, top presentation by a PhD student, 2019 SCB-ASM.

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

andrew.yurochko@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

Fulkerson, H.L, L. Chesnokova, J.H Kim, J. Mahmud, L.E. Frazier, G.C. Chan, and **A.D. Yurochko**. 2020. Human cytomegalovirus-induced signaling through gB- EGFR engagement is required for viral trafficking and nuclear translocation in primary human monocytes. P<u>roc. Natl. Acad. Sci. U.S.A</u>. 202003549. doi:10.1073/pnas.2003549117.

Min, C.-K., A.K. Shakya, B.J. Lee, D.N. Streblow, P. Caposio and **A.D. Yurochko**. 2020. The differentiation of human cytomegalovirus infected-monocytes is required for viral replication. <u>Frontiers in Cellular and Infection Microbiology</u>, Virus and Host, 10:368.

Crawford, L.B., R. Tempel, D.N. Streblow, **A.D. Yurochko**, F.D. Goodrum, J.A. Nelson and P. Caposio. 2020. Human cytomegalovirus infection suppresses CD34+ progenitor cell engraftment in humanized mice. <u>Microorganisms</u> 8, 525.

Hancock, M.H., L.B.Crawford, A.H. Pham, J. Mitchell, H.M. Struthers, **A.D. Yurochko**, P. Caposio, and J.A. Nelson. (2019) Human cytomegalovirus miRNAs regulate TGF- β to mediate myelosuppression while maintaining viral latency in CD34⁺ hematopoietic progenitor cells. C<u>ell Host & Microbe</u> 104-114.e4.

Crawford, L.B. P. Caposio, C. Kreklywich, A. Pham, M.H. Hancock, T. Jones, P.P. Smith, **A.D. Yurochko**, J.A. Nelson D.N. Streblow. (2019) Human cytomegalovirus US28 ligand binding activity is required for latency in CD34⁺ hematopoietic progenitor cells and humanized NSG mice. <u>mBio</u>. 10:e01889-19.

E, X., P. Meraner, P. Lu, J.M. Perreira, A.M. Aker, W.M. McDougall, R. Zhuge,

G.C. Chan, R. Gerstein, P. Caposio, **A.D. Yurochko**, A.L. Brass, T.F. Kowalik. (2019) Identification of a new human cytomegalovirus receptor that binds the pentameric complex and defines epithelial tropism. <u>Proc. Natl. Acad.</u> <u>Sci. U.S.A.</u> 116:7043-7052.

Crawford, L.B., J.H. Kim, D. Collins-McMillen, B.-J. Lee I. Landais, C. Held, J.A. Nelson, **A.D. Yurochko**, and P. Caposio. (2018) HCMV encodes a novel FLT3 receptor ligand necessary for hematopoietic cell differentiation and viral reactivation. m<u>Bio</u>. 9:e00682-18. Collins-McMillen*, D., E.V. Stevenson*, J.H. Kim, B.-J. Lee, S.J. Cieply, M.T. Nogalski, G.C. Chan, R.W. Frost, III, C.R. Spohn, and **A.D. Yurochko**. (2017) Human cytomegalovirus utilizes a nontraditional signal transducer and activator of transcription 1 activation cascade via signaling through epidermal growth factor receptor and integrins to efficiently promote the motility, differentiation, and polarization of infected monocytes. J. Virol. 91:e00622-17.



Joined LSUHS -2021

Education/Training

 BS – Xuzhou Medical University
PhD – University of Science and Technology of China (USTC)
Post Doc – Medical College of Georgia

Services and Awards

Brain Injury and Neurovascular Pathologies (BINP) Study Section, NIH Academic Research Enhancement Award (AREA) R15 Review panel, NIH Peer review committee. American Heart Association nationwide, BRAIN 3 Grant reviewer, Lundbeck Foundation, Denmark

Review for the Case Western Reserve Scholarship in Teaching Award Grant reviewer, University of Medicine and Pharmacy, Romania Committee member of IACUC at MCG MD/PhD candidate interview committee at MCG Editorial Board, Journal of Alzheimer's Disease, Journal of Psychology and Psychotherapy Research

<u>Honors/Awards Trainees</u> Luodan Yang Sigma Xi Grants in Aid of Research (GIAR)

Quan G. Zhang, PhD

Professor Department of Neurology <u>guangguang.zhang@lsuhs.edu</u>

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

Zhang Q, Han D, Wang RM, Dong Y, Yang F, Vadlamudi RK, Brann DW. C terminus of Hsc70-interacting protein (CHIP)-mediated degradation of hippocampal estrogen receptor-a and the critical period hypothesis of estrogen neuroprotection. <u>Proc Natl Acad Sci USA</u> 2011 Aug 30;108(35):E617-24.

Zhang Q, Wang R, Scott E, Han D, Yan, D, Tu J, Yang F, Sareddy GR, Vadlamudi RK, Brann DW. Hypersensitivity of the hippocampal CA3 region to stress-induced neurodegeneration and amyloidogenesis in a rat model of surgical menopause. <u>Brain.</u> 2013 May;136(Pt 5):1432-45.

Jiang P, Chen C, Wang R, Chechneva OV, Chung SH, Rao MS, Pleasure DE, Liu Y, **Zhang Q**, Deng W. hESC-derived Olig²⁺ progenitors generate a subtype of astroglia with protective effects against ischaemic brain injury. <u>Nat Commun</u>. 2013 July;4:2196.

Lu Y, Wang R, Dong Y, Tucker D, Zhao N, Ahmed M, Zhu L, Liu T, Cohen RM, **Zhang Q**. Low-level Laser Therapy for b-Amyloid Toxicity in Rat Hippocampus. <u>Neurobiol Aging</u>. 2016 Oct 11;49:165-182.

Yang B, Xu J, Li Y, Dong Y, Li Y, Tucker L, Yang L, Zong X, Wu C, Xu T, Hu S, **Zhang Q**, Yan X. Photobiomodulation Therapy for Repeated Closed Head Injury in Rats. <u>J Biophotonics</u>. 2020 Feb;13(2):e201960117.

Zong X, Li Y, Liu C, Qi W, Han D, Tucker L, Hu S, Yan X, **Zhang Q**. Theta-burst Transcranial Magnetic Stimulation Promotes Stroke Recovery by vascular Protection and Neovascularization. <u>Theranostics.</u> 2020 Oct 26;10(26):12090-12110.

Yang L, Dong Y, Wu C, Youngblood H, Li Y, Zong X, Li L, Xu T, **Zhang Q**. Effects of prenatal photobiomodulation treatment on neonatal hypoxic ischemia in rat offspring. <u>Theranostics.</u> 2021 Jan 1;11(3):1269-1294.

Li Y, Dong Y, Yang LD, Tucker L, Zong XM, Brann D, Hamblin M, Vazdarjanova A, **Zhang Q.** Photobiomodulation prevents PTSD-like memory impairments in rats. <u>Molecular Psychiatry</u>. 2021. doi: 10.1038/s41380-021-01088-z.

Li Y, Dong Y, Yang LD, Tucker L, Yang B, Zong XM, Hamblin M, **Zhang Q**. Transcranial photobiomodulation prevents PTSD-like comorbidities in rats experiencing underwater trauma. <u>Translational Psychiatry</u>. 2021 May 5;11(1):270.

Yang L, Wu C, Tucker L, Xu Pei, **Zhang Q**. Photobiomodulation Therapy Attenuates Anxious-Depressive-Like Behavior in Alzheimer Rat. <u>J Alzheimers Dis.</u> 2021 Jul 2. doi: 10.3233/JAD-201616.



Joined LSUHS -2006

Education/Training

BS – Jilin University MS – Jilin University PhD – Jilin University Post-Doctoral – University of Kentucky

Honors/Awards

Melissa K. Bambino Memorial Award, Skin Cancer Foundation

Yunfeng Zhao, PhD

Associate Professor Department of Pharmacology, Toxicology and Neuroscience <u>yufeng.zhao@lsuhs.edu</u>

CURRENT RESEARCH

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

SELECTED PUBLICATIONS

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