



LSU Health Shreveport

CENTER FOR CARDIOVASCULAR DISEASES AND SCIENCES

Annual Report 2015

CONTENTS

- 1 DIRECTOR'S LETTER
 - 2 CCDS BOARD OF DIRECTORS
 - 3 MONTHLY CCDS ACTIVITIES
 - 6 CCDS MEMBERS IN FOCUS GROUPS
 - 8 GRANTS TO CCDS MEMBERS
 - 10 TRAINEE HIGHLIGHTS
 - 14 CCDS SPECIAL EVENTS
 - 17 CCDS PUBLICATION HIGHLIGHTS
 - 20 CCDS MEMBER TECHNOLOGY DISCLOSURES
-

DIRECTOR'S LETTER

Chris Kevil, PhD.

Dear Colleagues and Friends,
As many of you may know, cardiovascular disease remains the primary cause of death and disability in Louisiana. Moreover, Louisiana is the 5th highest state in the nation for the prevalence of cardiovascular disease. These two facts highlight the importance of continuing advanced research into mechanisms of cardiovascular disease, as well as increasing cardiovascular health awareness and education. The Center for Cardiovascular Diseases and Sciences here at LSU Health- Shreveport is leading the charge in these areas both locally and at the national level.

Over the past year, members of the Center for Cardiovascular Diseases and Sciences (CCDS) have made significant advances in research and provided top notch cardiovascular care to the Ark-La-Tex, all while educating and mentoring the next generation of research scientists and physicians. Some brief highlights from this year were the continuation of highly successful programs including the CCDS seminar series and the Malcolm Feist Lecture, establishing the 1st LSUHSC Cardiovascular Centers Joint Retreat between Shreveport and New Orleans, achieving a 76% increase in extramural research grant funding from the National Institutes of Health, the American Heart Association, and the American Diabetes Association to CCDS members, and increasing technology development disclosures from new research advances.

Cardiovascular research, care and education continue to make significant advances here at our institution that extends to the rest of the nation. I look forward to sharing our future accomplishments with you knowing that the best is yet to come.



Mrs. Sara Kryzwanski, Dr. Chris Kevil, Mrs. Norma Phillips

CCDS BOARD OF DIRECTORS

D. Neil Granger, PhD, Chair (Physiology)

G E Ghali, DDS, MD, FACS, FRCS(Ed) (Interim Chancellor)

Horacio D'Agostino, MD (Radiology)

Norman R. Harris, PhD (Physiology)

Sushil Jain, PhD (Pediatrics)

Christopher Kevil, PhD, Director (Pathology)

Steven Levine, MD (Medicine)

William Mayhnan, PhD (Cell Biology and Anatomy)

Alireza Minagar, MD (Neurology)

Glenn Mills, MD (Hematology/Oncology)

Anil Nanda, MD (Neurosurgery)

Dennis O'Callaghan, PhD (Microbiology)

Pratap Reddy, MD (Cardiology)

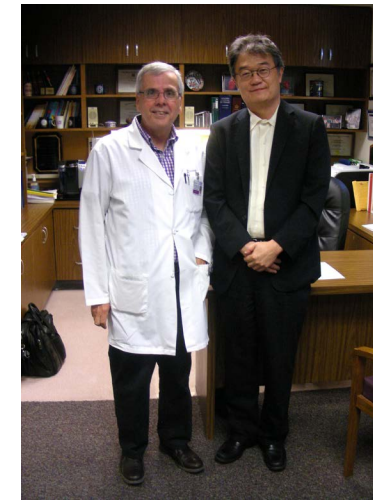
Sandra Roerig, PhD (Pharmacology)

Andrew Yurochko, PhD (Microbiology)

Wayne Zhang, MD, FACS (Vascular Surgery)

MONTHLY CCDS ACTIVITIES

CCDS Seminar Series



Dr. Neil Granger,
Chair of the CCDS Board. *(left)*
Dr. Junichi Sadoshima,
Rutgers University. *(right)*

- August 3, 2015: Junichi Sadoshima, MD, PhD, Rutgers New Jersey Medical School. "Regulation of Myocardial Growth and Death by the Hippo Signaling Pathway."
- September 14, 2015: Patrick Pagano, PhD, University of Pittsburgh. "Phenotypic Switching of Vascular Smooth Muscle: Role of MEF2B and MEF2C."
- October 5, 2015: Thomas N. Wight, PhD, University of Washington. "Targeting the Extracellular Matrix in the Treatment of Cardiovascular Disease."
- November 2, 2015: Mat Daemen, MD, PhD, Academic Medical Center. "The Heart Brain Connection: A Missing Link in the Pathophysiology of Cognitive Impairment."
- December 7, 2015: Elizabeth "Tish" Murphy, PhD, NIH. "The Role of S-Nitrosylation in Cardioprotection."
- January 4, 2016: Xander Wehrens, MD, PhD, Baylor College of Medicine. "The Role of Abnormal Calcium Handling in Atrial Fibrillation."
- February 1, 2016: 4th Annual Malcolm Feist Lecture on Translational Research in Cardiovascular Medicine. Keith Pennypacker, PhD, University of South Florida. "Developing Stroke Treatments Beyond Cell-based Therapies."
- March 7, 2016: Roy Silverstein, MD, Medical College of Wisconsin. "CD36: A Multi-Ligand Scavenger Receptor Involved in the Pathogenesis of Athero-Thrombotic Disease."
- April 4, 2016: Kathleen Martin, PhD, Yale University School of Medicine. "Novel Effectors of mTOR Signaling in Vascular Smooth Muscle Phenotypic Modulation."
- May 2, 2016: James Farber, PhD, University of North Carolina Chapel Hill. "Genetic and Environmental Determinants of the Murine Collateral Circulation in Stroke and Myocardial Ischemia."
- June 6, 2016: David Gutterman, MD, Medical College of Wisconsin. "Flow-Induced Vasodilation: A Window Into Vascular Health and Disease."
- July 11, 2016: Gregory J. del Zoppo, MD, University of Washington School of Medicine. "Matrix Adhesion Processes and Hemorrhagic Transformation During Ischemic Stroke."

CCDS Clinical Conferences

- 1/12/2015: Department of Cardiology- Dr. Katikaneni
“ST Elevation: Varied Clinical Scenarios”
- 2/9/2015: Department of Nephrology- Dr. Abreo
“The Swollen Arm or Leg in the Hemodialysis Patient”
- 3/9/2015: NeuroInterventional Radiology -Dr. Cuellar-Saenz
“New Strategies in the Management of Stroke”
- 4/20/2015: Interventional Radiology - Dr. Vea
“Contemporary Interventions for Pulmonary Embolism”
- 7/6/2015: Neurointerventional Radiology -Dr. Cuellar-Saenz
“Percutaneous Management of Pain”
- 8/10/2015: Department of Surgery -Dr. Zhang
“CEA vs. CAS for Carotid Artery Stenosis”
Case Presentation: “Coil Embolization of Symptomatic Hepatic Artery Pseudoaneurysm”
- 9/21/2015: Department of Interventional Radiology- Dr. Ahuja
“Current Role of Interventional Radiology in the Management of Hepatocellular Carcinoma.”
- 10/19/2015: Department of Cardiology -Dr.Abdulbaki
“NSTEMI and Acute Heart Failure”
- 11/9/2015: Department of Nephrology -Dr. Abreo
“The Swollen Arm”
- 12/14/15: Neurointerventional Radiology -Dr. Cuellar-Saenz
“Interesting Cases”

CCDS Cardiovascular Trainee Group

The Cardiovascular Trainee Group (CVTG) meets on the last Monday of each month (the week prior to the Cardiovascular Seminar Series) to discuss relevant literature from key articles provided by the CCDS invited seminar speaker.

- August 2015: Hippo Signaling in myocardial proliferation.
- September 2015: MEF2B/2C Signaling in SMC phenotype.
- October 2015: V3 Versican and extracellular matrix in inflammation.
- November 2015: CVD Risk factors and cognition.
- December 2015: S-nitrosothiols and cardioprotection.
- January 2016: Calcium handling and arrhythmias in mice.
- February 2016: SOD3 and human cord cells in ischemia reperfusion injury.
- March 2016: CD36 in atherothrombotic disease.
- April 2016: mTOR signaling in vascular smooth muscle cell phenotype.
- May 2016: Mouse collateral circulation in stroke and the ischemic heart.
- June 2016: Flow induced dilation in human disease.
- July 2016: Matrix adhesion in hemorrhage and ischemic stroke.

CCDS MEMBERS

IN RESEARCH FOCUS GROUPS

Vascular Biology

BASIC

Jonathan Steven Alexander, PhD (Physiology)
Tak Yee Aw, PhD (Physiology)
Felicity Gavins, PhD (Physiology)
D. Neil Granger, PhD (Physiology)
Norman R. Harris, PhD (Physiology)
Lynn Harrison, PhD (Physiology)
Sushil Jain, PhD (Pediatrics)
Christopher Kevil, PhD (Pathology)
David M. Krzywanski, PhD (Anatomy)
William G. Mayhan, PhD (Anatomy)
Kevin McCarthy, PhD (Pathology)
Sumitra Miriyala, PhD (Anatomy)
Wayne Orr, PhD (Pathology)
Manikandan Panchatcharam, PhD (Anatomy)
Christopher Pattillo, PhD (Physiology)
Brent C. Reed, PhD (Biochemistry)
Karen Stokes, PhD (Physiology)
Hong Sun, PhD (Anatomy)
Matthew Woolard, PhD (Microbiology)
Andrew Yurochko, PhD (Microbiology)
Wayne Zhang, MD (Vascular Surgery)

CLINICAL

Paari Dominic, MD (Cardiology)
Horacio D'Agostino, MD (Radiology)
Sushil Jain, PhD (Pediatrics)
Pavan Katikanini, MD (Cardiology)
Christopher Kevil, PhD (Pathology)
Mary Mancini, MD (Cardiothoracic Surgery)
Wayne Orr, PhD (Pathology)
Tze-Woei Tan, MD (Vascular Surgery)
Henock Zabher, MD (Cardiology)
Wayne Zhang, MD (Vascular Surgery)

Cardiac Biology

BASIC

Paari Dominic, MD (Cardiology)
Shenu Bhuiyan, PhD (Pathology)
Edward Glasscock, PhD (Anatomy)
Sumitra Miriyala, PhD (Anatomy)
Manikandan Panchatcharam, PhD (Anatomy)
Ikuo Tsunoda, MD, PhD (Microbiology)

CLINICAL

Paari Dominic, MD (Cardiology)
Horacio D'Agostino, MD (Radiology)
Pavan Katikanini, MD (Cardiology)
Mary Mancini, MD (Cardiothoracic Surgery)
Kalgi Modi, MD (Cardiology)
Pratap Reddy, MD (Cardiology)
Henock Zabher, MD (Cardiology)

Neurovascular Biology

BASIC

Felicity Gavins, PhD (Physiology)
D. Neil Granger, PhD (Physiology)
Kathryn Hamilton, PhD (Anatomy)
Christopher Kevil, PhD (Pathology)
Guohong Li, MD, PhD (Neurosurgery)
William G. Mayhan, PhD (Anatomy)
Alireza Minagar, MD (Neurology)
Dr. Hyung Nam (Pharmacology)
Christopher Pattillo, PhD (Physiology)
Karen Stokes, PhD (Physiology)
Hong Sun, PhD (Anatomy)

CLINICAL

Horacio D'Agostino, MD (Radiology)
Bharat Guthikonda, MD (Neurosurgery)
Alireza Minagar, MD (Neurology)
Dr Hyung Nam (Pharmacology)
Anil Nanda, MD (Neurosurgery)
Hugo Humberto Cuellar Saenz, MD (Neurosurgery)

GRANTS TO CCDS MEMBERS

In 2015, members of the CCDS received 22 research grant awards from the National Institutes of Health and other organizations such as the American Heart Association and the American Diabetes Association for a combined total of \$4,980,567. Grant award information is listed below with respective CCDS members.

- J. Steven Alexander • Neurolymphatic biomarker analysis in multiple sclerosis (NIH)
- Shenu Bhuiyan • Sigma-1 receptor and cardioprotection (NIH)
- Felicity Gavins • Cerebral microvascular dysfunction in sickle cell disease (NIH)
- Edward Glasscock • Complex genetic interactions in a mouse model of sudden death in epilepsy (NIH)
 - Pharmacogenetic interactions in the Kena-1 null mouse model (Epilepsy Foundation)
 - Characterization of in vivo biosignal dynamics as quantitative biomarkers of SUDEP (Citizens United for Research in Epilepsy)
- Norman Harris • Retinal blood flow in early diabetes (NIH)
- Sushil Jain • L-cysteine, PIP3 and insulin signaling in diabetes (NIH)
- Jeremy Kamil • Roles of the UL148 glycoprotein in human cytomegalovirus cell tropism (NIH)
 - Role of viral and host factors in regulation of the HCMV lytic cycle (AHA)
- Chris Kevil • Hydrogen sulfide and vascular remodeling (NIH)
 - Louisiana Biomedical Research Network (NIH)
 - Robo-1 regulation of diabetogenic T cell recruitment (ADA)
- David Krzywanski • Mitochondrial function variation in human cardiovascular disease development (BoR)
- Guohong Li • The role of CD147 in ischemic inflammation and brain injury (NIH)
 - Therapeutic targeting of the class IB PI3 kinase gamma for treatment of acute ischemic stroke (NIH)
 - The PI3K gamma inhibitor AS605240 for treatment of acute ischemic stroke (AHA)
- Wayne Orr • Matrix signaling in endothelial cell dysfunction (NIH)
 - Integrin-specific signaling in endothelial cell activation (AHA)
 - EphA/Ephrin A interactions in atherosclerotic inflammation (AHA)
 - Integrin signaling in oxLDL-induced inflammation (AHA predoctoral fellowship)
- Chris Pattillo • Influence of glutathione on ischemic angiogenesis (AHA)
- Karen Stokes • Cytomegalovirus exacerbates microvascular responses to hypercholesterolemia (AHA)
- Matthew Woolard • Exploring potential link between bacterial flora and myeloid derived suppressor cells (DOD)
 - Lipin-1 lipid synthesis regulates CVD inflammation (Louisiana Clinical & Translational Science Center)
 - Inhibition of lipid droplet formation to block cardiovascular disease (Pennington Biomedical Research Center)
- Andrew Yurochko • Analysis of HCMV infection of monocytes and macrophages (NIH)
 - The role Bcl-2 family proteins in the survival and differentiation of HCMV infected monocytes (AHA predoctoral fellowship)

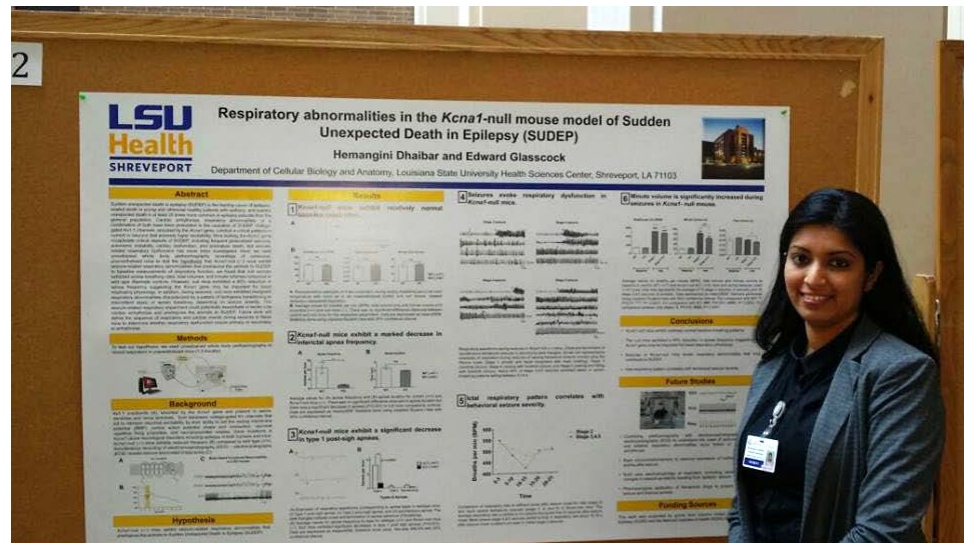
TRAINEE HIGHLIGHTS

Graduate student highlights

Hemangini Dhaibar

Graduate Student Research Day 2nd place poster award winner

Sudden unexpected death in epilepsy (SUDEP) is the leading cause of epilepsy-related death in young and otherwise healthy patients with epilepsy. Cardiac arrhythmias, respiratory abnormalities, or a combination of both have been postulated in the causation of SUDEP. My research uses unrestrained whole-body plethysmography to record respiration in conscious, unanaesthetized mice to test the hypothesis that seizure-related respiratory abnormalities contribute to SUDEP in mice lacking voltage-gated Kv1.1 channels, a well-characterized mouse model of SUDEP. I found that Kv1.1-deficient mice exhibited significant reduction in apnea frequency suggesting Kv1.1 channels may be important for basal respiratory physiology. In addition, during seizures, Kv1.1-deficient mice exhibited malignant respiratory abnormalities characterized by a pattern of hyperpnoea transitioning to intermittent apneic breathing, depending on seizure severity. This seizure-related respiratory impairment could potentially exacerbate or evoke cardiac arrhythmias and predispose the animals to sudden unexpected death.

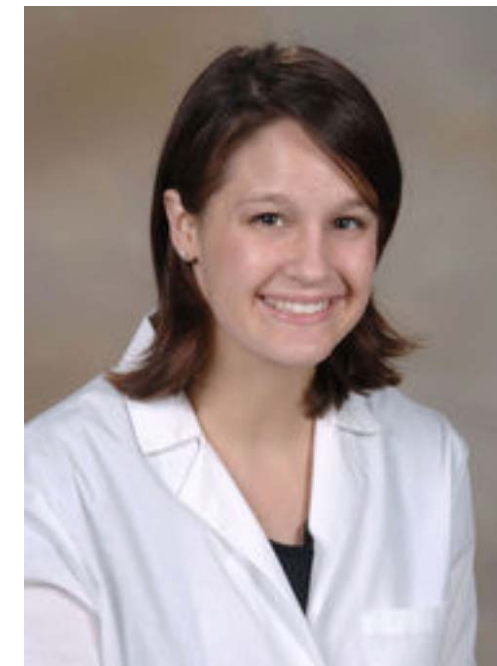


Medical student highlights

Eugina White

Sarnoff Cardiovascular Research Fellow finalist

My research interests include the development of novel biomedical technologies to improve the diagnosis and treatment of cardiovascular disease. My research experience began in undergraduate on targeted drug delivery and, through this project, I fostered an interest in developing technologies that challenge the current standard of care. This experience led me to work for a biotechnology company where I learned more about the testing of new technologies in preparation for the market. I applied to the Sarnoff Fellowship because I couldn't imagine a medical career that didn't include research and innovation. The Sarnoff Fellowship provides the opportunity and mentorship to grow as a physician scientist so that I can continue to work with a team innovating in biotechnology. The Sarnoff Cardiovascular Research Institute has a tremendous record of investing in the training of future physician scientists in order to influence positive contributions in healthcare and it would be an honor to be a part of it.



Medical student highlights

Eric Linville

Med Student Research Program 1st place award winner

My interest in research began shortly after starting medical school. While attending lectures in basic sciences I realized that my professors had a true passion for what they were teaching and that they dedicated their life's work to contributing to improving health care through research. After being encouraged to participate in research by my professors, I enrolled in the Medical Student Summer Research Program (MSRP). Prior to participating in this program I did not have any research experience. In the MSRP, I worked with Drs. Kevin McCarthy and Chris Kevil on a project to explore the mechanism and effects of diabetic nephropathy animal models resulting in my poster being selected as first place in the 2015 MSRP poster presentation. The aim of my study was to determine how the kidney is affected during diabetic kidney disease by the loss of gasotransmitter molecules nitric oxide and hydrogen sulfide, which are closely studied here at LSUHSC-Shreveport. Overall, I found that loss of either one of these gasotransmitters results in significant diabetic kidney tissue disease on the microscopic level and we are continuing work examining their impact on kidney functional responses. This research has the potential to make a significant impact on cardiovascular disease as diabetes and poor kidney function decreases cardiovascular health. Through our research we hope to discover how to alter levels of gasotransmitters to protect against diabetic kidney disease and improve cardiovascular health.



Graduate students/fellows

Other notable student and fellow accomplishments include:

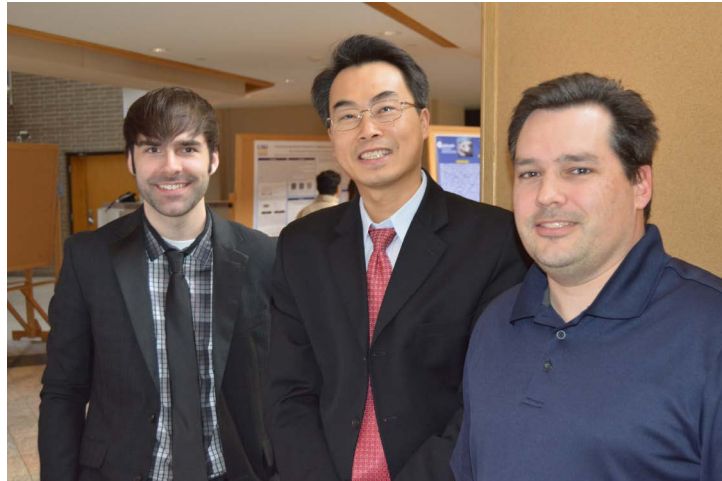
In May 2015, Prasenjit Manna, PhD, FACN, MRSC joined as a Faculty at the Department of Biotechnology, CSIR-NEIST, Jorhat, Assam, India. Dr. Manna was a post-doctoral fellow with Dr. Sushil Jain and was supported by the CCDS.

Jung Heon Kim received an award for his poster "HCMV binding induced signaling triggers a unique intracellular trafficking pattern during infection of primary blood monocytes" at Graduate Research Day in Shreveport LA. He also presented posters at the Barlow Symposium, the 40th Annual International Herpesvirus Workshop, and the 9th International Conference on HHV-6&7. Dr. Kim gave an oral presentation entitled, "Viral binding induced signaling drives a unique and extended intracellular trafficking pattern during infection of primary blood monocytes" at the American Society for Microbiology South Central Branch Meeting. Dr. Kim is a postdoctoral fellow in the Department of Microbiology and Immunology and Dr. Andrew Yurochko serves as his mentor.

CCDS SPECIAL EVENTS

Malcolm Feist Lecture

As part of the CV Seminar Series, one lecture a year in February is designated to be 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 has made to LSU Health Shreveport and cardiovascular research. A prominent translational cardiovascular researcher is invited to give the noon lecture, visit with the Malcolm Feist fellows, and attend a poster session highlighting the work of the CCDS trainees.



Dr. Joseph Wu, Stanford Cardiovascular Institute (*center*)



Industry Day

The CCDS serves as a resource for CV faculty to learn and promote commercialization of their discoveries, which may in turn lead to new approaches for treating CV disease. In addition to working with faculty in this area, the Center sponsors a yearly "Industry Day" for students, post-doctoral trainees, and faculty to learn about CV careers outside academia and the transition of biomedical research to industry.



Dr. Jan Sumerel, Stratsys
(far right)
Mr. Matthew Womack, Medtronic
(2nd from the right)

CCDS PUBLICATION HIGHLIGHTS

LSUHSC Cardiovascular Centers Joint Retreat

The inaugural LSUHSC Cardiovascular Centers Joint Retreat was held in New Orleans, Louisiana. Members of the LSUHSC-Shreveport Center for Cardiovascular Diseases and Sciences and LSUHSC- New Orleans Cardiovascular Center of Excellence came together to discuss the latest basic and clinical research findings from both institutions. The joint retreat gave faculty and trainees an opportunity to share ideas and forge new collaborations.

Guest speakers:

Dr. Spencer King, St. Joseph's Atlanta

Dr. Nicholas Leeper, Stanford University School of Med

Dr. John Elrod, Temple Univ School of Medicine

Dr. Marvin Slepian, Univ of Arizona School of Medicine



Woolard MD, Kevil CG. Paying the Toll for Glucose Regulation: A Central Role for TLR3. *Diabetes*. 2015 Oct;64(10):3345-6.

Kolluru GK, Bir SC, Yuan S, Shen X, Pardue S, Wang R, Kevil CG. Cystathionine γ -lyase regulates arteriogenesis through NO-dependent monocyte recruitment. *Cardiovasc Res*. 2015 Sep 1;107(4):590-600.

Chen J, Leskov IL, Yurdagul A Jr, Thiel B, Kevil CG, Stokes KY, Orr AW. Recruitment of the adaptor protein Nck to PECAM-1 couples oxidative stress to canonical NF- κ B signaling and inflammation. *Sci Signal*. 2015 Feb 24;8(365):ra20.

Jiang Z, Li C, Manuel ML, Yuan S, Kevil CG, McCarter KD, Lu W, Sun H. Role of hydrogen sulfide in early blood-brain barrier disruption following transient focal cerebral ischemia. *PLoS One*. 2015 Feb 19;10(2):e0117982.

Montoya LA, Shen X, McDermott JJ, Kevil CG, Pluth MD. Mechanistic investigations reveal that dibromobimane extrudes sulfur from biological sulfhydryl sources other than hydrogen sulfide. *Chem Sci*. 2015 Jan 1;6(1):294-300.

Becker F, Potepalov S, Shehzahdi R, Bernas M, Witte M, Abreo F, Traylor J, Orr AW, Tsunoda I, Alexander JS. Downregulation of FoxC2 Increased Susceptibility to Experimental Colitis: Influence of Lymphatic Drainage Function? *Inflamm Bowel Dis*. 2015 Jun;21(6):1282-96.

Al-Kofahi M, Becker F, Gavins FN, Woolard MD, Tsunoda I, Wang Y, Ostanin D, Zawieja DC, Muthuchamy M, von der Weid PY, Alexander JS. IL-1 β reduces tonic contraction of mesenteric lymphatic muscle cells, with the involvement of cyclooxygenase-2 and prostaglandin E2. *Br J Pharmacol*. 2015 Aug;172(16):4038-51.

Alexander JS, Becker F. Dual signals underlying diabetic lymphatic barrier dysregulation. *Cardiovasc Res*. 2015 Jul 1;107(1):3-4.

Alexander JS, Chervenak R, Weinstock-Guttman B, Tsunoda I, Ramanathan M, Martinez N, Omura S, Sato F, Chaitanya GV, Minagar A, McGee J, Jennings MH, Monceaux C, Becker F, Cvek U, Trutschl M, Zivadinov R. Blood circulating microparticle species in relapsing remitting and secondary progressive multiple sclerosis. A case-control, cross sectional study with conventional MRI and advanced iron content imaging outcomes. *J Neurol Sci*. 2015 Aug 15;355(1-2):84-9.

Li W, Maloney RE, Aw TY. High glucose, glucose fluctuation and carbonyl stress enhance brain microvascular endothelial barrier dysfunction: Implications for diabetic cerebral microvasculature. *Redox Biol*. 2015 Apr 2;5:80-90.

Holloway PM, Durrenberger PF, Trutschl M, Cvek U, Cooper D, Orr AW, Perretti M, Getting SJ, Gavins FN. Both MC1 and MC3 Receptors Provide Protection From Cerebral Ischemia-Reperfusion-Induced Neutrophil Recruitment. *Arterioscler Thromb Vasc Biol*. 2015 Sep;35(9):1936-44.

Gavins FN, Smith HK. Cell tracking technologies for acute ischemic brain injury. *J Cereb Blood Flow Metab*. 2015 Jul;35(7):1090-9.

Smith HK, Gil CD, Oliani SM, Gavins FN. Targeting formyl peptide receptor 2 reduces leukocyte-endothelial interactions in a murine model of stroke. *FASEB J*. 2015 May;29(5):2161-71.

Granger DN, Kvietys PR. Reperfusion injury and reactive oxygen species: The evolution of a concept. *Redox Biol*. 2015 Dec;6:524-51.

Granger DN, Holm L, Kvietys P. The Gastrointestinal Circulation: Physiology and Pathophysiology. *Compr Physiol*. 2015 Jul 1;5(3):1541-83.

Tang YH, Vital S, Russell J, Seifert H, Neil Granger D. Interleukin-6 mediates enhanced thrombus development in cerebral arterioles following a brief period of focal brain ischemia. *Exp Neurol*. 2015 Sep;271:351-7.

Smith HK, Russell JM, Granger DN, Gavins FN. Critical differences between two classical surgical approaches for middle cerebral artery occlusion-induced stroke in mice. *J Neurosci Methods*. 2015 Jul 15;249:99-105.

Souza DG, Senchenkova EY, Russell J, Granger DN. MyD88 mediates the protective effects of probiotics against the arteriolar thrombosis and leukocyte recruitment associated with experimental colitis. *Inflamm Bowel Dis*. 2015 Apr;21(4):888-900.

Manna P, Jain SK. Obesity, Oxidative Stress, Adipose Tissue Dysfunction, and the Associated Health Risks: Causes and Therapeutic Strategies. *Metab Syndr Relat Disord*. 2015 Dec;13(10):423-44.

Jain SK, Kahlon G, Bass P, Levine SN, Warden C. Can L-Cysteine and Vitamin D Rescue Vitamin D and Vitamin D Binding Protein Levels in Blood Plasma of African American Type 2 Diabetic Patients? *Antioxid Redox Signal*. 2015 Sep 10;23(8):688-93.

Li C, Sun H, Arrick DM, Mayhan WG. Chronic Nicotine Exposure Exacerbates Transient Focal Cerebral Ischemia-Induced Brain Injury. *J Appl Physiol* (1985). 2015 Dec 10:jap.00663.2015.

Mayhan WG, Scott JP, Arrick DM. Influence of type 1 diabetes on basal and agonist-induced permeability of the blood-brain barrier. *Physiol Rep*. 2015 Dec;3(12). pii: e12653.

Miriyala S, Chandra M, Maxey B, Day A, St Clair DK, Panchatcharam M. Arjunolic acid ameliorates reactive oxygen species via inhibition of p47(phox)-serine phosphorylation and mitochondrial dysfunction. *Int J Biochem Cell Biol*. 2015 Nov;68:70-7.

Navratil AR, Vozenilek AE, Cardelli JA, Green JM, Thomas MJ, Sorci-Thomas MG, Orr AW, Woolard MD. Lipin-1 contributes to modified low-density lipoprotein-elicited macrophage pro-inflammatory responses. *Atherosclerosis*. 2015 Oct;242(2):424-32.

Chen J, Green J, Yurdagul A Jr, Albert P, McInnis MC, Orr AW. $\alpha\beta 3$ Integrins Mediate Flow-Induced NF- κ B Activation, Proinflammatory Gene Expression, and Early Atherogenic Inflammation. *Am J Pathol*. 2015 Sep;185(9):2575-89.

Singh NK, Kotla S, Dyukova E, Traylor JG Jr, Orr AW, Chernoff J, Marion TN, Rao GN. Disruption of p21-activated kinase 1 gene diminishes atherosclerosis in apolipoprotein E-deficient mice. *Nat Commun*. 2015 Jun 24;6:7450.

Kolluru GK, Prasai PK, Kaskas AM, Letchuman V, Pattillo CB. Oxygen tension, H₂S, and NO bioavailability: Is there an interaction? *J Appl Physiol* (1985). 2015 Sep 17:jap.00365.2015.

Polhemus DJ, Li Z, Pattillo CB, Gojon G Sr, Gojon G Jr, Giordano T, Krum H. A novel hydrogen sulfide prodrug, SG1002, promotes hydrogen sulfide and nitric oxide bioavailability in heart failure patients. *Cardiovasc Ther*. 2015 Aug;33(4):216-26.

Lohman AW, Leskov IL, Butcher JT, Johnstone SR, Stokes TA, Begandt D, DeLalio LJ, Best AK, Penuela S, Leitinger N, Ravichandran KS, Stokes KY, Isakson BE. Pannexin 1 channels regulate leukocyte emigration through the venous endothelium during acute inflammation. *Nat Commun*. 2015 Aug 5;6:7965.

Li C, Sun H, Arrick DM, Mayhan WG. Chronic Nicotine Exposure Exacerbates Transient Focal Cerebral Ischemia-Induced Brain Injury. *J Appl Physiol* (1985). 2015 Dec 10:jap.00663.2015.

Jiang Z, Li C, Manuel ML, Yuan S, Kevil CG, McCarter KD, Lu W, Sun H. Role of hydrogen sulfide in early blood-brain barrier disruption following transient focal cerebral ischemia. *PLoS One*. 2015 Feb 19;10(2):e0117982.

Collins-McMillen D, Kim JH, Nogalski MT, Stevenson EV, Chan GC, Caskey J, Cieply SJ, Yurochko AD. HCMV Promotes Survival of Infected Monocytes via a Distinct Temporal Regulation of Cellular Bcl-2 Family Proteins. *J Virol*. 2015 Dec 16. pii: JVI.01994-15.

Yao L, Dong H, Zhao CX, Gu X, Tan TW, Hamidian Jahromi A, Zhang WW. Evaluation of urine fibrinogen level in a murine model of contrast-induced nephropathy. *Vascular*. 2015 Jun 30. pii: 1708538115593039.

Hamidian Jahromi A, Coulter AH, Bass P 3rd, Zhang WW, Tan TW. Pharmacomechanical thrombectomy and catheter-directed thrombolysis of acute lower extremity deep venous thrombosis in a 9-year-old boy with inferior vena cava atresia. *Vasc Med*. 2015 Apr;20(2):139-42.

Glasscock E, Voigt N, McCauley MD, Sun Q, Li N, Chiang DY, Zhou XB, Molina CE, Thomas D, Schmidt C, Skapura DG, Noebels JL, Dobrev D, Wehrens XH. Expression and function of Kv1.1 potassium channels in human atria from patients with atrial fibrillation. *Basic Res Cardiol*. 2015 Sep;110(5):505.

Gautier NM, Glasscock E. Spontaneous seizures in Kcna1-null mice lacking voltage-gated Kv1.1 channels activate Fos expression in select limbic circuits. *J Neurochem*. 2015 Oct;135(1):157-64. doi: 10.1111/jnc.13206. Epub 2015 Jul 14. PubMed PMID: 26112121.

Miller DH, Fox RJ, Phillips JT, Hutchinson M, Havrdova E, Kita M, Wheeler-Kingshott CA, Tozer DJ, MacManus DG, Yousry TA, Goodsell M, Yang M, Zhang R, Vignietta V, Dawson KT; CONFIRM study investigators. Effects of delayed-release dimethyl fumarate on MRI measures in the phase 3 CONFIRM study. *Neurology*. 2015 Mar 17;84(11):1145-52.

CCDS MEMBER TECHNOLOGY DISCLOSURES

- Yuping Wang- Generation of CD24+/CD133+/Oct-4+ Stem Cells/Podocyte Progenitor Cells from Urine Specimen
- Sushil Jain- Vitamin D and L-cysteine Complex Supplementation to Increase Vitamin D and VDBP Levels in the Blood and Tissue
- Jeremy Kamil- Method to Improve Cytomegalovirus Vaccines by Manipulating the UL148 Gene
- Edward Glasscock- Novel Biomarkers of Susceptibility to SUDEP
- Horacio D'Agostino- Thoracic Catheter Device

