

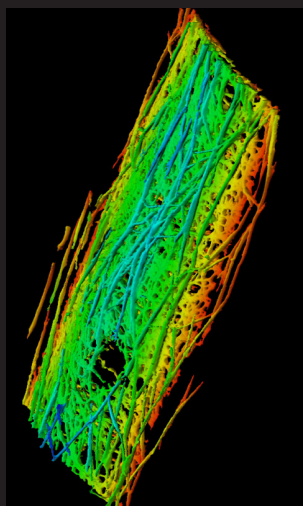
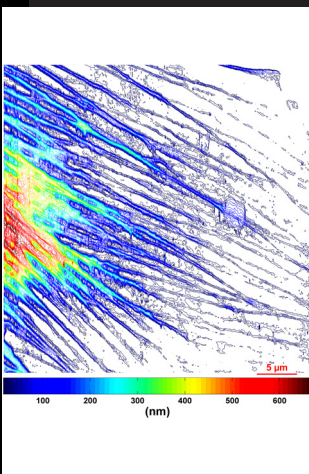
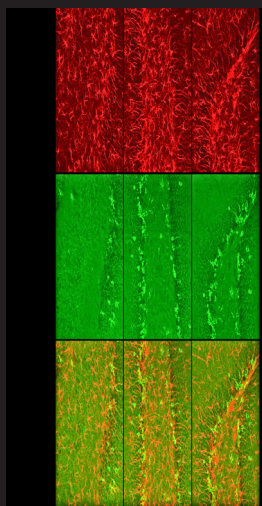
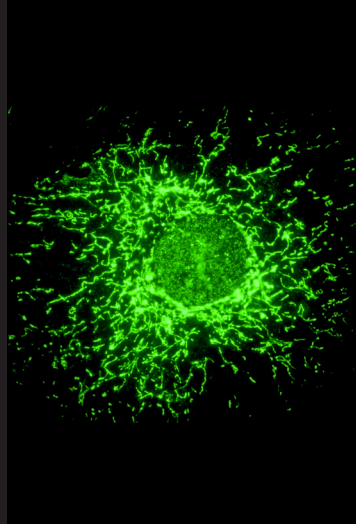
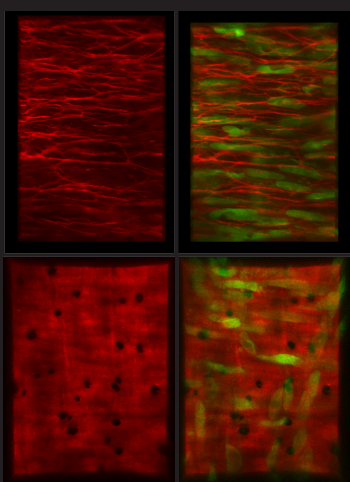
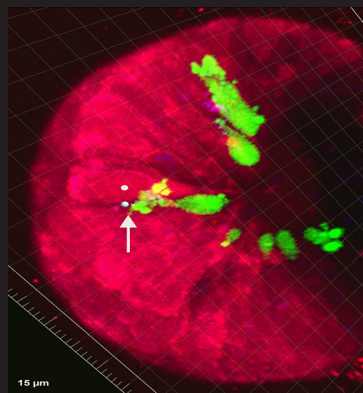
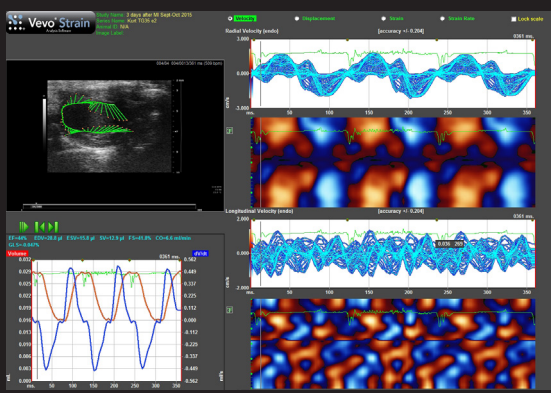


Dalton Cardiovascular
Research Center



*Committed to Interdisciplinary
Collaboration in Research and Teaching*

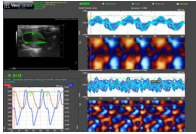
2016



DCRC

From the front cover

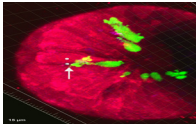
1



Left ventricular stress/strain analyses using high-resolution echocardiography (Visualsonics Vevo 2100). In this particular case, the mouse displays apical akinesia/dyskinesia after a large myocardial infarction. Regional velocity data are shown in all panels, with vectors at the top left and color-coded on the right.

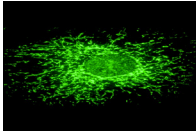
(Courtesy of Maiké Krenz Laboratory)

2



(Courtesy of Lane Clarke Lab)

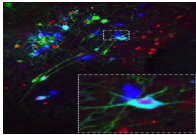
3



Imaging the mitochondrial network. Mouse embryonic fibroblasts were immunostained for the mitochondrial matrix protein complement 1q binding protein (C1qbp) to reveal that mitochondria are not single entities but rather form a reticular network.

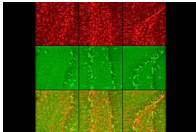
(Courtesy of Christopher Baines Laboratory)

4



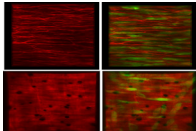
(Courtesy of Eileen Hasser Lab)

5



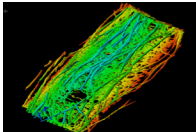
(Courtesy of Shinghua Ding Lab)

6



Structure of small renal arteries as shown by 3D confocal microscopy and image processing. Red staining shows the distribution of the extracellular matrix protein, elastin and green highlights nuclei of smooth muscle (horizontal) and endothelial (vertical) cells. Significant elastin staining between smooth muscles cells (upper panels) is characteristic of renal blood vessels. Holes/fenestrae in the internal elastic lamina are evident in the lower left panel. (Courtesy of Michael Hill Laboratory)

7



(Courtesy of Michael Hill Lab)

1500 Research Park Drive
Columbia, MO 65211
573-882-7588
dalton.missouri.edu

From the *Director*

The Dalton Cardiovascular Research Center (DCRC) supports the objectives of the University of Missouri in its mission of teaching, research and service. Yet it is unique in its commitment to interdisciplinary collaborative research and teaching among various colleges, schools and departments across the Columbia campus. Under the auspices of DCRC, scientists from the fields of biochemistry, biological engineering, biological sciences, biomedical sciences, electrical engineering, medicine, pharmacology, physiology, physics, and veterinary medicine and surgery all come together and apply their particular expertise to research problems.

Our commitment to collaboration is grounded in the belief that interactions among scientists of diverse backgrounds will lead to multidisciplinary research producing meaningful, far-reaching results. Our commitment to collaboration is grounded in the belief that interactions among scientists of diverse backgrounds will lead to multidisciplinary research producing meaningful, far-reaching results. Research programs at DCRC include investigations into cardiac functions, cystic fibrosis, exercise, kidney failure, membrane transport, muscular dystrophy, neurohumoral control of the circulation, shock, vascular wall biology, diabetes, hypertension, biomedical engineering, protein-protein interactions, and tumor angiogenesis. Because the mission of DCRC is to promote interaction and collaboration, no single group completely defines the research activity of its members.

The center is committed to excellence in cardiovascular research and in the education of students and fellows. Our investigators provide service to the University, the State of Missouri, and the nation through memberships on committees, peer review panels and editorial boards of scientific journals.

The Dalton Cardiovascular Research Center is accredited by both the American Association for the Advancement of Laboratory Animal Care and the American Association of Laboratory Animal Sciences.

Michael A. Hill, PhD
Director, Dalton Cardiovascular Research Center
Professor, Medical Pharmacology & Physiology



.....CONTENTS.....

2. Facts and Figures
5. Resident Investigators
8. Non Resident Investigators
12. Publications

Focused on Understanding the Cardiovascular System During Development, Aging, & Disease Through Interdisciplinary Collaboration in Research and Teaching with Academic and Industry Partners

Investigators

Resident Non-Resident

Interdisciplinary Research Interest Groups

Professors	9	13
Associate Professor	6	1
Assistant Professor	1	4
Asst. Research Prof.	1	1
Asst. Teaching Prof.		1
Assoc. Research Prof.	1	
Academic Res. Scientist	6	
Other Prof.-Adjunct		
Emeritus, Visiting	1	10
Other Personnel	13	
Research Staff	18	
Post-Doctoral Fellows	16	
Students-GRA/GTA	21	
Students-Undergraduate	20	
Administrative Staff	9	
Visiting Scientist	3	

Biomedical Engineering

Microcirculation

Exercise/Inactivity

Vascular Biology

Membrane Transport

Cystic Fibrosis

Tumor Angiogenesis

Neurohumoral Control of Circulation

Cardiac Muscle, Development & Disease

Patents-Applications/Issued 5/2

Invention Disclosures-

Filed/Licensed 3/4

Scholarly and Professional

Service Activities

01/16-07/16

Publications	35
Presentations	20
Editorial Reviews	30
Grant Review Panels	7
Post Grad. Student Completions	6

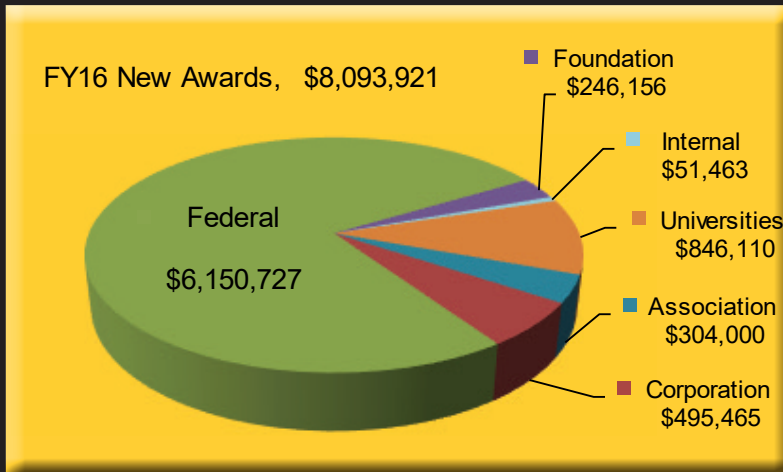


Facilities

Erected 1967-1969
33,456 Square Feet
21 Research Labs

Sponsored Research Funding FY16

- FY16 New Awards \$ 8,093,921
- FY16 Funded \$ 4,709,961
- FY16 Cumulative Funding \$20,369,800
- FY16 Expended
 - o Salaries \$ 1,592,435
 - o Benefits \$ 461,961
 - o Dept Operating \$ 441,437
 - o Student Aid \$ 17,946
 - o Animal Care \$ 181,042
 - o F&A Indirects \$ 1,134,924
 - o **Expended Totals \$ 3,829,745**



Academic Partners

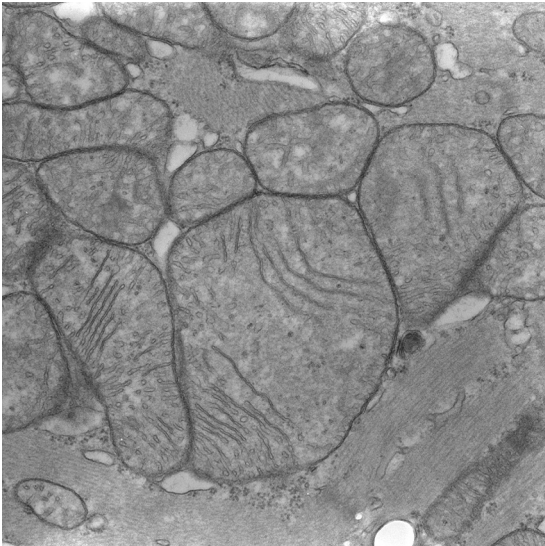
College of Arts and Science
Physics & Astronomy

College of Engineering
Bioengineering, Electrical &
Computer Engineering

College of Veterinary Medicine
Biomedical Sciences

School of Medicine
Biochemistry
Center for Gender Physiology
Medical Pharmacology & Physiology
Internal Medicine
Pathology and Anatomical Sciences

Nutrition & Exercise Physiology



Christopher Baines Laboratory

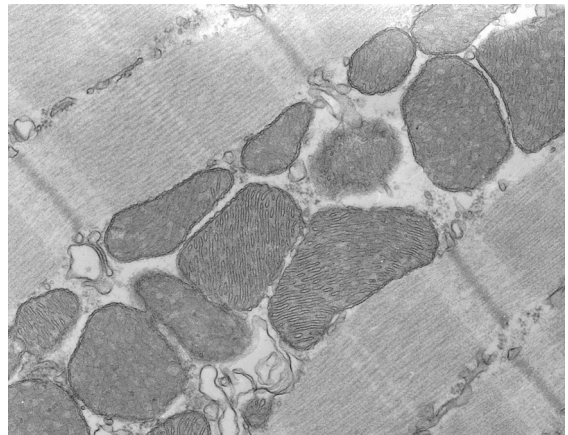
External Sector Collaborations

Domestic

Cornell University
Tensive Controls, Inc
Exocytronics, LLC
Case Western Univ.
ABBVIE Inc.
Washington University, St Louis
Univ. of IL Urbana, Champaign
TX A&M Engineering Experiment Station
Vertex Pharmaceuticals, Inc.
Gilead Sci, Inc.
Tufts University
Flatley Discovery Lab
Univ. of IL, Chicago

International

Univ. of Oxford (UK)
Sichuan University(CN)
Univ. of Calgary (CA)
Univ. of Sheffield (UK)
RMIT Univ. (Australia)



RESIDENT INVESTIGATORS



Christopher P. Baines, PhD
Associate Professor, Department of Biomedical Sciences



Edward H. Blaine - Emeritus Professor
Department of Medical Pharmacology and Physiology



Lane L. Clarke, DVM, PhD, Professor
Department of Biomedical Sciences



Shinghua Ding, PhD
Associate Professor, Biological Engineering



Kevin D. Gillis, DSc, Professor Biological Engineering Professor
Medical Pharmacology and Physiology



Li-Qun (Andrew) Gu, PhD Associate
Professor, Bioengineering



Chetan P. Hans, Ph.D.
Assistant Professor, Department of Medicine-Cardiology

RESIDENT INVESTIGATORS



Eileen M. Hasser, PhD
Professor, Department of Biomedical Sciences
Adjunct Professor, Medical Pharmacology and Physiology



Cheryl M. Heesch, PhD, Professor,
Department of Biomedical Sciences



Michael A. Hill, PhD
Interim Director, Dalton Cardiovascular Research Center
Professor, Department of Medical Pharmacology and
Physiology



Tzyh-Chang Hwang, PhD
Professor, Department of Medical Pharmacology and
Physiology



Salman M. Hyder, PhD
Zalk Missouri Professor of Tumor Angiogenesis
Professor, Department of Biomedical Sciences



David D. Kline, PhD
Associate Professor, Department of Biomedical Sciences



Maike Krenz, M.D.
Associate Professor, Department of Medical Pharmacology and
Physiology

RESIDENT INVESTIGATORS



Yayun Liang, PhD
Research Associate Professor, Department of Biomedical Sciences, Investigator, Dalton Cardiovascular Research Center



Luis Martinez-Lemus, PhD, DVM
Associate Professor, Department of Medical Pharmacology and Physiology



Gerald A. Meininger, PhD
Margaret Proctor Mulligan Professor in Medical Research
Professor, Department of Medical Pharmacology and Physiology
Adjunct Professor, Department of Biomedical Sciences
Adjunct Professor, Department of Biological Engineering



Luis Polo-Parada, PhD
Associate Professor, Department of Medical Pharmacology and Physiology



Zhe Sun, PhD
Assistant Research Professor, Dalton Cardiovascular Research Center



Xiaoqin Zou, PhD
Professor, Department of Physics and Department of Biochemistry

Non- Resident Investigators



Shawn B. Bender, Ph.D.
Assistant Professor, Department of Biomedical Sciences



Silvia G. Bompadre, PhD
Assistant Professor, Department of Physics & Astronomy



Frank W. Booth, PhD
Professor, Department of Biomedical Sciences



Douglas K. Bowles, PhD
Professor, Department of Biomedical Sciences
Adjunct Professor, Department of Medical Pharmacology and Physiology



Nicola J. Brown, Ph.D.
Adjunct Dalton Investigator
Sheffield Cancer Research Centre



Chandrasekar Bysani, D.V.M., Ph.D.
Margaret Proctor Mulligan Endowed Professor

Non- Resident Investigators



Kevin J. Cummings, Ph.D.
Assistant Professor, Department of Biomedical Sciences



George E. Davis, MD, PhD
Professor of Medical Pharmacology and Physiology
Margaret Proctor Mulligan Professor in Medical Research



Michael J. Davis, PhD
Professor and Associate Department Head, Department of
Medical Pharmacology and Physiology



William P. Fay, M.D.
Professor of Internal Medicine and Medical Pharmacology &
Physiology



Shubra Gangopadhyay, PhD
LaPierre Chair and Joint Professor, Departments of Electrical
Engineering, Biological Engineering and Physics



Kenneth A. Gruber, Ph.D.
Adjunct Professor, Department of Medical Pharmacology and
Phys-iology

Non- Resident Investigators



Virginia H. Huxley, PhD
Director, National Center for Gender Physiology
Professor, Department of Medical Pharmacology and Physiology
Adjunct Professor, Department of Biomedical Sciences



Ronald J. Korthuis, PhD
Bolm Distinguished Professor
Chairman, Department of Medical Pharmacology and Physiology



M. Harold Laughlin, PhD
Professor and Chair, Department of Biomedical Sciences Adjunct
Professor, Department of Medical Pharmacology and Physiology



Mark A. Milanick, PhD
Professor, Department of Medical Pharmacology and Physiology



Nicole L. Nichols, Ph.D.
Assistant Professor, Department of Biomedical Sciences



Jaume Padilla, Ph.D.
Assistant Professor Nutrition & Exercise Physiology

Non- Resident Investigators



Leona J. Rubin, PhD
Associate Professor, Department of Biomedical Sciences
Adjunct Professor, Department of Medical Pharmacology
and Physiology



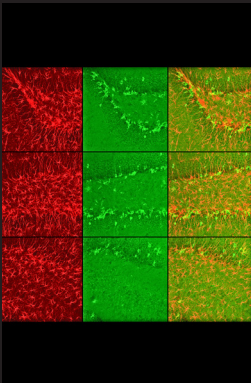
Steven S. Segal, PhD
Professor of Medical Pharmacology and Physiology



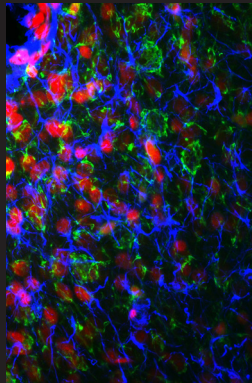
Yoshiro Sohma, MD, PhD
Visiting Professor, Dalton Cardiovascular Research Center



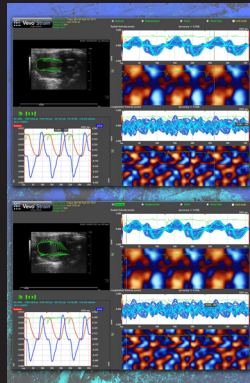
James R Sowers, M.D.
Vice Chair, Professor of Medicine



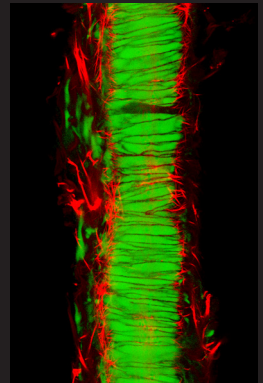
Shinghua Ding
Laboratory



David Kline
Laboratory



Maike Krenz
Laboratory



Michael Hill
Laboratory

Publications

Mu-opioid receptor inhibition decreases voluntary wheel running in a dopamine-dependent manner in rats bred for high voluntary running. Ruegsegger GN, Brown JD, Kovarik MC, Miller DK, **Booth FW**. Neuroscience. 2016 Dec 17;339:525-537. doi: 10.1016/j.neuroscience.2016.10.020. PMID: 27743985

Performance of MDockPP in CAPRI Rounds 28-29 and 31-35 including the prediction of water-mediated interactions. Xu X, Qiu L, Yan C, Ma Z, Grinter SZ, **Zou X**. Proteins. 2016 Nov 1. doi: 10.1002/prot.25203. [Epub ahead of print] PMID: 27802576

Increased monocyte derived reactive oxygen species in type 2 diabetes: Role of endoplasmic reticulum stress. Restaino RM, Deo SH, Parrish AR, Fadel PJ, **Padilla J**. Exp Physiol. 2016 Nov 18. doi: 10.1113/EP085794. [Epub ahead of print] PMID: 27859785

Targeting CITED2 for Angiogenesis in Obesity and Insulin Resistance. Jia G, **Sowers JR**. Diabetes. 2016 Dec;65(12):3535-3536. No abstract available. PMID: 27879404

Non-enzymatic glycation interferes with fibronectin-integrin interactions in vascular smooth muscle cells. Dhar S, **Sun Z, Meininger GA, Hill MA**. Microcirculation. 2016 Dec 22. doi: 10.1111/micc.12347. [Epub ahead of print] PMID: 28005306

Fascin2 regulates cisplatin-induced apoptosis in NRK-52E cells. Wang X, Nichols L, Grunz-Borgmann EA, **Sun Z, Meininger GA, Domeier TL, Baines CP**, Parrish AR. Toxicol Lett. 2017 Jan 15;266:56-64. doi: 10.1016/j.toxlet.2016.11.021. PMID: 27989596

Enhanced functional sympatholysis through endothelial signalling in healthy young men and women. **Segal SS**. J Physiol. 2016 Dec 15;594(24):7149-7150. doi: 10.1113/JP273454. No abstract available. PMID: 27976390

Loss of UCP1 exacerbates Western diet-induced glycemic dysregulation independent of changes in body weight in female mice. Winn NC, Vieira-Potter VJ, Gastecki ML, Welly RJ, Scroggins RJ, Zidon TM, Gaines TL, Woodford ML, Karasseva NG, Kanaley JA, Sacks HS, **Padilla J**. Am J Physiol Regul Integr Comp Physiol. 2017 Jan 1;312(1):R74-R84. doi: 10.1152/ajpregu.00425.2016. PMID: 27881400

Publications

Oxidant signaling underlies PKG α modulation of Ca²⁺ sparks and BKCa in myogenically active arterioles. **Hill MA**, Braun AP. *Sci Signal*. 2016 Oct 11;9(449):fs15. Review. PMID: 27729549

Vascular mineralocorticoid receptor regulates microRNA-155 to promote vasoconstriction and rising blood pressure with aging. DuPont JJ, McCurley A, Davel AP, McCarthy J, Bender SB, Hong K, Yang Y, Yoo JK, Aronovitz M, Baur WE, Christou DD, **Hill MA**, Jaffe IZ. *JCI Insight*. 2016 Sep 8;1(14):e88942. doi: 10.1172/jci.insight.88942. PMID: 27683672

Small Artery Mechanobiology: Roles of Cellular and Non-Cellular Elements. **Hill MA**, Meininger GA. *Microcirculation*. 2016 Sep 28. doi: 10.1111/micc.12323. [Epub ahead of print] PMID: 27681605

Fully Blind Docking at the Atomic Level for Protein-Peptide Complex Structure Prediction. Yan C, Xu X, **Zou X**. *Structure*. 2016 Oct 4;24(10):1842-1853. doi: 10.1016/j.str.2016.07.021. PMID: 27642160

Severe familial hypercholesterolemia impairs the regulation of coronary blood flow and oxygen supply during exercise. **Bender SB**, de Beer VJ, Tharp DL, **Bowles DK**, **Laughlin MH**, Merkus D, Duncker DJ. *Basic Res Cardiol*. 2016 Nov;111(6):61. doi: 10.1007/s00395-016-0579-9. Epub 2016 Sep 13. PMID: 27624732

A Fatty Liver Is Neither Appetizing Nor Healthy. **Booth FW**, Ruegsegger GN. *Exerc Sport Sci Rev*. 2016 Sep 3. [Epub ahead of print] No abstract available. PMID: 27603437

Loss of Nlrp3 Does Not Protect Mice from Western Diet-Induced Adipose Tissue Inflammation and Glucose Intolerance. Ringling RE, Gastecki ML, Woodford ML, Lum-Naihe KJ, Grant RW, Pulakat L, Vieira-Potter VJ, **Padilla J**. *PLoS One*. 2016 Sep 1;11(9):e0161939. doi: 10.1371/journal.pone.0161939. eCollection 2016. PMID: 27583382

Pre-B-cell colony-enhancing factor protects against apoptotic neuronal death and mitochondrial damage in ischemia. Wang X, Li H, **Ding S**. *Sci Rep*. 2016 Aug 31;6:32416. doi: 10.1038/srep32416. PMID: 27576732

Publications

Regular Exercise Reduces Endothelial Cortical Stiffness in Western Diet-Fed Female Mice. Padilla J, Ramirez-Perez FI, Habibi J, Bostick B, Aroor AR, Hayden MR, Jia G, Garro M, De-Marco VG, Manrique C, **Booth FW, Martinez-Lemus LA, Sowers JR.** Hypertension. 2016 Aug 29. pii: HYPERTENSIONAHA.116.07954. [Epub ahead of print] PMID: 27572153

Cocaine self-administration and reinstatement in female rats selectively bred for high and low voluntary running. Smethells JR, Zlebnik NE, Miller DK, Will MJ, **Booth F, Carroll ME.** Drug Alcohol Depend. 2016 Oct 1;167:163-8. doi: 10.1016/j.drugalc-dep.2016.08.020. Epub 2016 Aug 21. PMID: 27567437

Administration of tauroursodeoxycholic acid prevents endothelial dysfunction caused by an oral glucose load. Walsh LK, Restaino RM, Neuringer M, Manrique C, **Padilla J.** Clin Sci (Lond). 2016 Nov 1;130(21):1881-8. doi: 10.1042/CS20160501. Epub 2016 Aug 8. PMID: 27503949

Differential α -adrenergic modulation of rapid onset vasodilatation along resistance networks of skeletal muscle in old versus young mice. Sinkler SY, Fernando CA, **Segal SS.** J Physiol. 2016 Aug 8. doi: 10.1113/JP272409. [Epub ahead of print] PMID: 27501249

Loss of Cdk5 function in the nucleus accumbens decreases wheel running and may mediate age-related declines in voluntary physical activity. Ruegsegger GN, Toedebusch RG, Childs TE, Grigsby KB, **Booth FW.** J Physiol. 2016 Jul 27. doi: 10.1113/JP272489. [Epub ahead of print] PMID: 27461471

Arterial Stiffening in Western Diet-Fed Mice Is Associated with Increased Vascular Elastin, Transforming Growth Factor- β , and Plasma Neuraminidase. Foote CA, Castorena-Gonzalez JA, Ramirez-Perez FI, Jia G, Hill MA, Reyes-Aldasoro CC, **Sowers JR, Martinez-Lemus LA.** Front Physiol. 2016 Jul 7;7:285. doi: 10.3389/fphys.2016.00285. eCollection 2016. PMID: 27458385

Endothelium-Derived Hyperpolarizing Factors: A Potential Therapeutic Target for Vascular Dysfunction in Obesity and Insulin Resistance. Jia G, Durante W, **Sowers JR.** Diabetes. 2016 Aug;65(8):2118-20. doi: 10.2337/dbi16-0026. No abstract available. PMID: 27456617

Publications

Mu-opioid receptor inhibition decreases voluntary wheel running in a dopamine-dependent manner in rats bred for high voluntary running. Ruegsegger GN, Brown JD, Kovarik MC, Miller DK, **Booth FW**. Neuroscience. 2016 Oct 13;339:525-537. doi: 10.1016/j.neuroscience.2016.10.020. [Epub ahead of print] PMID: 27743985

Performance of MDockPP in CAPRI Rounds 28-29 and 31-35 including the prediction of water-mediated interactions. Xu X, Qiu L, Yan C, Ma Z, Grinter SZ, **Zou X**. Proteins. 2016 Nov 1. doi: 10.1002/prot.25203. [Epub ahead of print] PMID: 27802576

Comments on potential health effects of MRI-induced DNA lesions: quality is more important to consider than quantity. **Hill MA**, O'Neill P, McKenna WG. Eur Heart J Cardiovasc Imaging. 2016 Aug 22. pii: jew163. [Epub ahead of print] Review. PMID: 27550664

Differential α -adrenergic modulation of rapid onset vasodilatation along resistance networks of skeletal muscle in old versus young mice. Sinkler SY, Fernando CA, **Segal SS**. J Physiol. 2016 Aug 8. doi: 10.1113/JP272409. [Epub ahead of print] PMID: 27501249

Administration of tauroursodeoxycholic acid prevents endothelial dysfunction caused by an oral glucose load. Walsh LK, Restaino RM, Neuringer M, Manrique C, **Padilla J**. Clin Sci (Lond). 2016 Nov 1;130(21):1881-8. doi: 10.1042/CS20160501. PMID: 27503949

Cocaine self-administration and reinstatement in female rats selectively bred for high and low voluntary running. Smethells JR, Zlebnik NE, Miller DK, Will MJ, **Booth F**, Carroll ME. Drug Alcohol Depend. 2016 Oct 1;167:163-8. doi: 10.1016/j.drugalcdep.2016.08.020. PMID: 27567437

Regular Exercise Reduces Endothelial Cortical Stiffness in Western Diet-Fed Female Mice. Padilla J, Ramirez-Perez FI, Habibi J, Bostick B, Aroor AR, Hayden MR, Jia G, Garro M, DeMarco VG, Manrique C, **Booth FW**, **Martinez-Lemus LA**, **Sowers JR**. Hypertension. 2016 Nov;68(5):1236-1244. PMID: 27572153

Pre-B-cell colony-enhancing factor protects against apoptotic neuronal death and mitochondrial damage in ischemia. Wang X, Li H, **Ding S**. Sci Rep. 2016 Aug 31;6:32416. doi: 10.1038/srep32416. PMID: 27576732

Publications

Molecular Signaling Pathways Controlling Vascular Tube Morphogenesis and Pericyte-Induced Tube Maturation in 3D Extracellular Matrices. Bowers SL, Norden PR, **Davis GE**. Adv Pharmacol. 2016;77:241-80. doi: 10.1016/bs.apha.2016.04.005. Epub 2016 May 25. PMID: 27451100

Synergistic Potentiation of Cystic Fibrosis Transmembrane Conductance Regulator Gating by Two Chemically Distinct Potentiators, Ivacaftor (VX-770) and 5-Nitro-2-(3-Phenylpropylamino) Benzoate. Lin WY, **Sohma Y, Hwang TC**. Mol Pharmacol. 2016 Sep;90(3):275-85. doi: 10.1124/mol.116.104570. Epub 2016 Jul 13. PMID: 27413118

Dipeptidyl peptidase-4 inhibition with linagliptin prevents western diet-induced vascular abnormalities in female mice. Manrique C, Habibi J, Aroor AR, **Sowers JR**, Jia G, Hayden MR, Garro M, **Martinez-Lemus LA**, Ramirez-Perez FI, Klein T, **Meininger GA**, DeMarco VG. Cardiovasc Diabetol. 2016 Jul 8;15:94. doi: 10.1186/s12933-016-0414-5. PMID: 27391040

Small Artery Elastin Distribution and Architecture - Focus on Three Dimensional Organization. **Hill MA**, Nourian Z, Ho IL, Clifford PS, **Martinez-Lemus L, Meininger GA**. Microcirculation. 2016 Jun 30. doi: 10.1111/micc.12294. [Epub ahead of print] PMID: 27362628

Attenuated rapid onset vasodilation with greater force production in skeletal muscle of caveolin-2-/- mice. Fernando CA, Liu Y, Sowa G, **Segal SS**. Am J Physiol Heart Circ Physiol. 2016 Aug 1;311(2):H415-25. doi: 10.1152/ajpheart.00082.2016. Epub 2016 Jun 17. PMID: 27317631

Cholesterol biosynthesis inhibitor RO 48-8071 suppresses growth of hormone-dependent and castration-resistant prostate cancer cells. **Liang Y**, Mafuvadze B, Aebi JD, **Hyder SM**. Onco Targets Ther. 2016 May 30;9:3223-32. doi: 10.2147/OTT.S105725. eCollection 2016. PMID: 27313468

Publications

Effects of intrinsic aerobic capacity and ovariectomy on voluntary wheel running and nucleus accumbens dopamine receptor gene expression. Park YM, Kanaley JA, **Padilla J**, Zidon T, Welly RJ, Will MJ, Britton SL, Koch LG, Ruegsegger GN, **Booth FW**, Thyfault JP, Vieira-Potter VJ. *Physiol Behav.* 2016 Oct 1;164(Pt A):383-9. doi: 10.1016/j.physbeh.2016.06.006. Epub 2016 Jun 11. PMID: 27297873

Two approaches for addressing electrochemical electrode arrays with reduced external connections. Yao J, Liu XA, **Gillis KD**. *Anal Methods.* 2015 Jul 21;7(14):5760-5766. Epub 2015 Jun 22. PMID: 27293487

Reply: Epithelial alkalinity and hyperproliferation in the Cfr KO intestine. Walker NM, Liu J, Stein SR, Strubberg AM, **Clarke LL**. *Am J Physiol Gastrointest Liver Physiol.* 2016 Jun 1;310(11):G1184. doi: 10.1152/ajpgi.00161.2016. No abstract available. PMID: 27281735

Prolonged sitting-induced leg endothelial dysfunction is prevented by fidgeting. Morishima T, Restaino RM, Walsh LK, Kanaley JA, Fadel PJ, **Padilla J**. *Am J Physiol Heart Circ Physiol.* 2016 Jul 1;311(1):H177-82. doi: 10.1152/ajpheart.00297.2016. Epub 2016 May 27. PMID: 27233765

Glucagon-Like Peptide 1 Receptor Activation and Platelet Function: Beyond Glycemic Control. Jia G, Aroor AR, **Sowers JR**. *Diabetes.* 2016 Jun;65(6):1487-9. doi: 10.2337/dbi16-0014. No abstract available. PMID: 27222394

Carotid Artery Vascular Mechanics Serve as Biomarkers of Cognitive Dysfunction in Aortic-Banded Miniature Swine That Can Be Treated With an Exercise Intervention. Olver TD, Klakotskaia D, Ferguson BS, Hiemstra JA, Schachtman TR, **Laughlin MH**, Emter CA. *J Am Heart Assoc.* 2016 May 20;5(5). pii: e003248. doi: 10.1161/JAHA.116.003248. PMID: 27207966

Publications

Maternal Hyperleptinemia Is Associated with Male Offspring's Altered Vascular Function and Structure in Mice. Pennington KA, Ramirez-Perez FI, Pollock KE, Talton OO, Foote CA, Reyes-Aldasoro CC, Wu HH, Ji T, **Martinez-Lemus LA**, Schulz LC. PLoS One. 2016 May 17;11(5):e0155377. doi: 10.1371/journal.pone.0155377. eCollection 2016. PMID: 27187080

Inherent rhythm of smooth muscle cells in rat mesenteric arterioles: An eigensystem formulation. Ho IL, Moshkforoush A, Hong K, **Meininger GA**, **Hill MA**, Tsoukias NM, Kuo W. Phys Rev E. 2016 Apr;93:042415. doi: 10.1103/PhysRevE.93.042415. Epub 2016 Apr 26. PMID: 27176337

Spatial positioning of CFTR's pore-lining residues affirms an asymmetrical contribution of transmembrane segments to the anion permeation pathway. Gao X, **Hwang TC**. J Gen Physiol. 2016 May;147(5):407-22. doi: 10.1085/jgp.201511557. PMID: 27114613

Saxagliptin and Tadalafil Differentially Alter Cyclic Guanosine Monophosphate (cGMP) Signaling and Left Ventricular Function in Aortic-Banded Mini-Swine. Hiemstra JA, Lee DI, Chakir K, Gutiérrez-Aguilar M, Marshall KD, Zgoda PJ, Cruz Rivera N, Dozier DG, Ferguson BS, Heublein DM, Burnett JC, Scherf C, Ivey JR, Minervini G, McDonald KS, **Baines CP**, **Krenz M**, Domeier TL, Emter CA. J Am Heart Assoc. 2016 Apr 20;5(4):e003277. doi: 10.1161/JAHA.116.003277. PMID: 27098966

Regulation of Coronary Endothelial Function by Interactions between TNF- α , LOX-1 and Adiponectin in Apolipoprotein E Knockout Mice. Chen X, Zhang H, **Hill MA**, Zhang C, Park Y. J Vasc Res. 2015;52(6):372-82. doi: 10.1159/000443887. Epub 2016 Apr 7. PMID: 27050429

SM-TF: A structural database of small molecule-transcription factor complexes. Xu X, Ma Z, Sun H, **Zou X**. J Comput Chem. 2016 Jun 30;37(17):1559-64. doi: 10.1002/jcc.24370. Epub 2016 Mar 24. PMID: 27010673

Publications

Soluble guanylate cyclase activation during ischemic injury in mice protects against postischemic inflammation at the mitochondrial level. Wang DZ, Jones AW, Wang WZ, Wang M, **Korthuis RJ**. Am J Physiol Gastrointest Liver Physiol. 2016 May 1;310(9):G747-56. doi: 10.1152/ajpgi.00323.2015. Epub 2016 Feb 25. PMID: 26950856

Advanced age decreases local calcium signaling in endothelium of mouse mesenteric arteries in vivo. Boerman EM, Everhart JE, **Segal SS**. Am J Physiol Heart Circ Physiol. 2016 May 1;310(9):H1091-6. doi: 10.1152/ajpheart.00038.2016. Epub 2016 Mar 4. PMID: 26945073

Hypothalamic Npy mRNA is correlated with increased wheel running and decreased body fat in calorie-restricted rats. Ruegsegger GN, Speichinger KR, Manier JB, Younger KM, Childs TE, **Booth FW**. Neurosci Lett. 2016 Apr 8;618:83-8. doi: 10.1016/j.neulet.2016.02.037. Epub 2016 Feb 26. PMID: 26921453

Extracellular Matrix Disarray as a Mechanism for Greater Abdominal Versus Thoracic Aortic Stiffness With Aging in Primates. Zhang J, Zhao X, Vatner DE, McNulty T, Bishop S, Sun Z, Shen YT, Chen L, **Meininger GA**, Vatner SF. Arterioscler Thromb Vasc Biol. 2016 Apr;36(4):700-6. doi: 10.1161/ATVBAHA.115.306563. Epub 2016 Feb 18. PMID: 26891739

Endothelial Mineralocorticoid Receptor Mediates Diet-Induced Aortic Stiffness in Females. Jia G, Habibi J, Aroor AR, **Martinez-Lemus LA**, DeMarco VG, Ramirez-Perez FI, Sun Z, Hayden MR, **Meininger GA**, Mueller KB, Jaffe IZ, Sowers JR. Circ Res. 2016 Mar 18;118(6):935-43. doi: 10.1161/CIRCRESAHA.115.308269. Epub 2016 Feb 15. PMID: 26879229

Endothelial Estrogen Receptor- α Does Not Protect Against Vascular Stiffness Induced by Western Diet in Female Mice. Manrique C, Lastra G, Ramirez-Perez FI, Haertling D, DeMarco VG, Aroor AR, Jia G, Chen D, Barron BJ, Garro M, **Padilla J**, **Martinez-Lemus LA**, **Sowers JR**. Endocrinology. 2016 Apr;157(4):1590-600. doi: 10.1210/en.2015-1681. Epub 2016 Feb 12. PMID: 26872089

Publications

Ablation of eNOS does not promote adipose tissue inflammation. Jurrissen TJ, Sheldon RD, Gastecki ML, Woodford ML, Zidon TM, Rector RS, Vieira-Potter VJ, **Padilla J**. Am J Physiol Regul Integr Comp Physiol. 2016 Apr 15;310(8):R744-51. doi: 10.1152/ajp-regu.00473.2015. Epub 2016 Feb 10. PMID: 26864812

On the mechanism of gating defects caused by the R117H mutation in cystic fibrosis transmembrane conductance regulator. Yu YC, **Sohma Y, Hwang TC**. J Physiol. 2016 Jun 15;594(12):3227-44. doi: 10.1113/JP271723. Epub 2016 Mar 23. PMID: 26846474

Cdc42 and k-Ras Control Endothelial Tubulogenesis through Apical Membrane and Cytoskeletal Polarization: Novel Stimulatory Roles for GTPase Effectors, the Small GTPases, Rac2 and Rap1b, and Inhibitory Influence of Arhgap31 and Rasa1. Norden PR, Kim DJ, Barry DM, Cleaver OB, **Davis GE**. PLoS One. 2016 Jan 26;11(1):e0147758. doi: 10.1371/journal.pone.0147758. eCollection 2016. PMID: 26812085

Activation of 5-hydroxytryptamine 7 receptors within the rat nucleus tractus solitarius modulates synaptic properties. Matott MP, **Kline DD**. Brain Res. 2016 Mar 15;1635:12-26. doi: 10.1016/j.brainres.2016.01.017. Epub 2016 Jan 15. PMID: 26779891

Endothelial dysfunction following prolonged sitting is mediated by a reduction in shear stress. Restaino RM, Walsh LK, Morishima T, Vranish JR, **Martinez-Lemus LA**, Fadel PJ, **Padilla J**. Am J Physiol Heart Circ Physiol. 2016 Mar 1;310(5):H648-53. doi: 10.1152/ajpheart.00943.2015. Epub 2016 Jan 8. PMID: 26747508

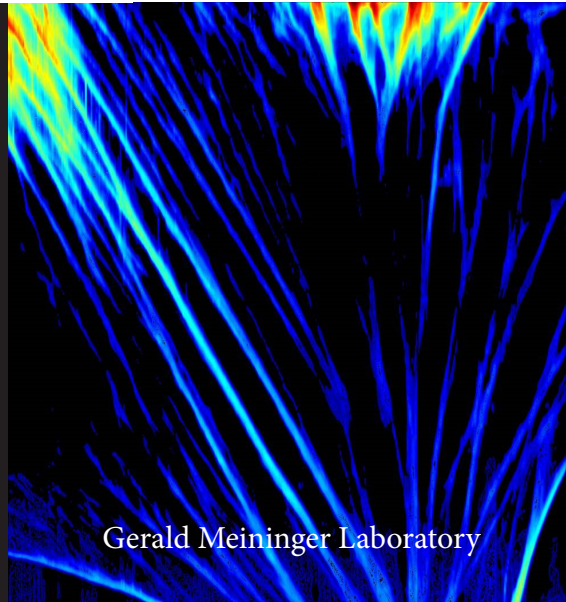
Adiponectin Receptor Agonist, AdipoRon, Causes Vasorelaxation Predominantly Via a Direct Smooth Muscle Action. Hong K, Lee S, Li R, Yang Y, Tanner MA, Wu J, **Hill MA**. Microcirculation. 2016 Apr;23(3):207-20. doi: 10.1111/micc.12266. PMID: 26728950

Excitatory amino acid transporters tonically restrain nTS synaptic and neuronal activity to modulate cardiorespiratory function. Matott MP, Ruyle BC, **Hasser EM, Kline DD**. J Neurophysiol. 2016 Mar;115(3):1691-702. doi: 10.1152/jn.01054.2015. Epub 2015 Dec 30. PMID: 26719090



Dalton Cardiovascular Research Center
1500 Research Park Drive
Columbia, MO 65211

573-882-7588
dalton.missouri.edu



Giving to Dalton

Investigators at Dalton Cardiovascular Research Center seek understanding and information about some of the most prevalent health issues of the day - hypertension; heart disease; adult-onset (Type II) diabetes; obesity; muscular dystrophy; cystic fibrosis; and breast, uterine and prostate cancer. Teams of investigators from medicine, engineering, biomedical sciences, veterinary medicine, physiology and other disciplines work together to find answers to questions that will directly affect the understanding of disease prevention and treatment. Your contribution to Dalton supports this work.

You can now give directly to Dalton Cardiovascular Research Center and the [Franklin Lecture Endowment](#) by going to our Giving to [Mizzou page](#).

Dalton welcomes partnerships with the private sector.
Please contact Dr. Michael Hill at hillmi@missouri.edu or 573-882-9482 to learn more.