2023
Dalton Cardiovascular Research Center
Committed to Interdisciplinary Collaboration in Research and Teaching
Image on front courtesy of Gabrielle Hofmann, DVM, PhD

"Astrocytes in the nucleus tractus solitarii (nTS) of the brainstem 7 days after vagal nerve transection in the rat (glial fibrillary acidic protein, GFAP). The vagus nerve transmits sensory information from the heart and lungs to the nTS, where it is integrated and modulated in part by astrocytes. The astrocytes here display increased GFAP expression and augmented branching, which may contribute to altered cardiorespiratory regulation following vagotomy."

Eileen Hasser, PhD & David Kline, PhD Laboratories
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, neurotrauma, 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. 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 AAALAC International and the American Association of Laboratory Animal Sciences.

R. Scott Rector, PhD, FTOS, FACSM

Professor of Nutrition & Exercise Physiology and Medicine
Director, NextGen Precision Health Building
Associate Dean for Basic Sciences and Research Infrastructure, School of Medicine
Interim Director, Dalton Cardiovascular Research Center
CENTER INFORMATION

CORE TECHNOLOGIES
Atomic Force microscopy
Confocal/multiphoton microscopy
Chronic instrumentation
Electrophysiology
Quantitative PCR
Cell tissue culture
Gene expression
Manipulation of protein expression
Fluorescence spectroscopy
Cardiovascular and microvascular models
High Frequency Ultrasound Imaging

CORE FACILITIES
Leica SP5 confocal multiphoton system
FV 1000 Olympus confocal systems
High Speed Spinning disk confocal
Atomic Force Microscopy Systems
Research grade florescence microscopes
Molecular and cellular technology core
Information technology core
Vevo LAZR Photoacoustic Imaging System
Telemetry
Laser Speckle Imaging
Any-Maze System
Ivis Imaging
Metabolic Cages
gentleMACS Octo Dissociator
Odyssey DLx
Real-Time PCR System
Agilent BioTek Synergy Multi-Mode Reader
Avanti JE High Speed Centrifuge

Interdisciplinary Research Interest Groups
Biomedical Engineering
Microcirculation
Exercise/Inactivity
Vascular Biology
Membrane Transport
Cystic Fibrosis
Tumor Angiogenesis
Neurohumoral Control of Circulation
Cardiac Muscle, Development & Disease

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

College of Agriculture, Food and Natural Resources
Food, Nutrition & Exercise Sciences

College of Health Sciences
Speech, Language & Hearing Sciences

External Sector Collaborations

International
Univ of Calgary (CA),
Univ of Oxford (UK)
National Yang Ming Chiao Tung University Taiwan
Southwest Medical Univ(CN)
National Taiwan University
Univ of Guanajuato

Domestic
ABBVIE Inc
Novopyxis, Inc
Case Western University
State University of IOWA
Tufts University
University of IL Urbana, Champaign
Pennington Biomed Research Ctr,
Washington University, St. Louis
University of IL, Chicago
Univ of Alabama, Birmingham
West Virginia University
Univ of CA, San Francisco
Stony Brook University (SUMY)
Univ of NC, Chapel Hill
Texas Tech University
Yale University
Albert Einstein College of Medicine
Indiana University
University of Texas Southwestern Medical Center
UT Health San Antonio
Tulane University
Texas A&M University
Soterix Medical
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Gerald A. Meininger, PhD, Emeritus Professor
Professor, Department of Medical Pharmacology & Physiology
Former Director, Dalton Cardiovascular Research Center 2005-2015
"Hypertension, heart failure, and salt and water balance."

Discovered of Angiotensin converting enzyme inhibitor

1962 NFL Draft, Offensive Line Green Bay Packers, retired after 5th season with the Philadelphia Eagles to come back to Mizzou for his doctorate. (5 years, a promise to mentor, Clint Conaway)
Distinguished Eagle Scout by the Boy Scouts of America, 2009
Missouri Sports Hall of Fame, 2011

Edward H. Blaine, PhD, DSc(Hon), Emeritus Professor
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Former Director, Dalton Cardiovascular Research Center 1990-2005
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Gerald A. Meininger, PhD, Emeritus Professor
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Former Director, Dalton Cardiovascular Research Center 2005-2015
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Professor, Department of Biomedical Sciences

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Non-Resident Investigators

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Assistant Professor, Nutrition and Exercise Physiology

Camila Manrique Acevedo, MD
Associate Professor, Endocrinology/Metabolism/Diabetes, Internal Medicine

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Jaume Padilla, PhD
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Lakshmidevi Pulakat, PhD
Professor, Department of Medicine - Cardiology

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

James R Sowers, MD
Adjunct Professor of Clinical Medicine


29. The effect of orexin on the hypoxic ventilatory response of female rats is greatest in the active phase during diestrus Ruwaida Ben Musa, Jennifer Cornelius-Green, Eileen M Hasser, Kevin J Cummings PMID: 36656978


Publications


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. Scott Rector: rectors@health.missouri.edu or 573-882-9482 to learn more.