



Final Program

June 6-7, 2024

University of Vermont Davis Center

June 6, 9:00 am- 3:25 PM EDT

- 9:00 -9:10 **Welcome** Co-Directors: Mary Cushman, MD MSc and Mark Nelson, PhD
Opening Remarks from Dean Page and Drs Cushman and Nelson
- 9:10-10:30 **Population Cardiovascular and Brain Health** Moderators: Mary Cushman, MD MSc, Katharine Cheung, MD, PhD
Donald M Lloyd-Jones, MD, ScM, Chair, Department of Preventive Medicine, Eileen M Foell Professor of Medicine (Cardiology), and Pediatrics, Northwestern University
Defining the Life Course of Cardiovascular and Brain Health: Mechanisms and Outcomes
Debora Kamin Mukaz, PhD, Assistant Professor of Medicine
Cardiovascular Health and Inflammation: Intersectional Impact of Structural Racism, Sexism and Classism
Diego Adrianzen, MD, MSc, Assistant Professor of Medicine
Risk Prediction and Inflammatory Biomarkers of Cardiovascular Disease in Myelodysplastic Syndromes
- 10:30-10:45 **Coffee Break**
- 10:45-12:01 **Pipeline Investigator Flash Talks** Moderators: Diego Adrianzen, MD MSc, David Punihaole, PhD
Yanguang Ou, PhD, Assistant Professor of Chemistry
Measuring Reactive Oxygen Species from Cells Incubated with Different Fibril Polymorphs
Ajit Singh, PhD, Postdoctoral Fellow, Pharmacology
PfBDP1: a Master Regulator of Red Blood Cell Invasion Genes
Emily Belarmino, PhD, Assistant Professor of Nutrition and Food Sciences
Potential of Plant-based Diets to Improve Rural Heart Health
David Coggin-Carr, MD, PhD, Assistant Professor of Obstetrics and Gynecology
Effects of Electroacupuncture on Skeletal Muscle Akt Expression in a Rat Model of Maternal Obesity
Nicole Habel, MD, PhD, Clinical Cardiac Electrophysiology Fellow, Medicine
The Electrician's Approach to Heart Failure
Karlyn Martin, MD, MS, Associate Professor of Medicine
Optimizing The Delivery of Treatment and Preventive Care for Venous Thromboembolism
Chris Skinner, PhD, Assistant Professor of Nutrition and Food Sciences
Untangling the Intersection of Diet and Alcohol-Driven Liver Disease
Maria Noterman-Soulinthavong, PhD, Postdoctoral Associate, Pharmacology
Protecting and Perturbing PIP₂ in Brain Capillary Endothelial Cells: Implications for Neurovascular Coupling
- 12:01-12:45 **Lunch Break**
- 12:45-2:00 **Poster Session:** Please enjoy poster displays and be sure to join the moderated poster session. Don't miss posters from our Research Cores in the COBRE Corner!
1:00: Moderated Posters: Basic Science Moderator: Elizabeth M. C. Hillman, PhD
Wendy Memishian *Cerebral Blood Flow Autoregulation in Adult Offspring: Testing the Effects of Experimental Preeclampsia and Sevoflurane*

Gabe Speidel *High Cholesterol Model of Preeclampsia Does Not Demonstrate Changes in Postpartum Common Carotid Artery Structure*

Uma Nudurupati *Developing and Optimizing A Small, Rapid Cu(II)-Sensitive and Selective Biosensor for Elucidating the Role of Cu(II) in Amyloid-B Aggregation in Real Time*

Daniel Penados Richter *DCBLD Protein Family Regulates the Eye and Vascular Development of Zebrafish*

2:00-3:20 **Fundamental Science to Improve Brain Health** Moderator: Maria Noterman, PhD
Elizabeth M. C. Hillman, PhD, Professor of Biomedical Engineering & Radiology (Physics), Department of Biomedical Engineering, Columbia University
Neurovascular Coupling in The Brain in Vivo
Nicholas Klug, PhD, Assistant Professor of Pharmacology
Role of Brain Pericyte KATP Channels in Physiological Hypoxia Sensing and Deficient Blood Flow Regulation in Ischemic Small Vessel Disease
David Punihaole, PhD, Assistant Professor of Chemistry
Determining How Amyloid-β Fibril Polymorphs Influence Cellular Toxicity

3:20-3:30 **Concluding Remarks / Announcements** Mary Cushman, MD, MSc

5:30-7:30 **Reception**
 Echo, Leahy Center for Lake Champlain, 1 College Street, Burlington, VT 05401

June 7, 9:00am-2:40 PM EDT

9:00-9:10 **Welcome** Mary Cushman, MD, MSc

9:10-10:10 **Pilot Grant Awardee Presentations** Moderators: Peter Durda, PhD, Osama Harraz, PhD
Adam Sprouse-Blum, MD, Assistant Professor of Neurological Sciences
Dura Mater Pericytes as a Target for Vascular Dysfunction during Migraine
Mansour Gergi, MD, Assistant Professor of Medicine
Cardiovascular Care Delivery and Bleeding in Individuals with Cancer
Matthew Caporizzo, PhD, Assistant Professor of Molecular Physiology and Biophysics
The Molecular Underpinnings of Diastolic Dysfunction

10:10-11:30 **Poster Session:** *Please enjoy poster displays and be sure to join the moderated poster session. Don't miss posters from our Research Cores!*
10:30: Moderated Posters: Population Science Moderator: Donald Lloyd-Jones, MD, ScM

Sarah Krumholtz *Soluble Receptor for Advanced Glycation End Products and incident Hypertension: The REasons for Geographic and Racial Differences in Stroke (REGARDS) study*

Brittney Palermo *Soluble Receptor for Advanced Glycation End Products (sRAGE) and Diabetes in a Biracial Cohort: The REasons for Geographic and Racial Differences in Stroke*

Massoud Saleki *Association Between Earlier SGLT2i Initiation and 30-Day Heart Failure-Related Readmission Rates: A Retrospective Study*

Jiachen Chen *Circulating Immune Cell Phenotypes Are Associated with Inflammatory Biomarkers in Dementia-free Participants: Framingham Heart Study Offspring cohort*

Krystal Ramos Barrera *Structural Racism and Diabetes Prevalence among Black and White US Populations*

11:30-12:10 **Diversity and Inclusion Keynote** Moderator: Debora Kamin Mukaz, PhD
Nanette K. Wenger, MD, Professor of Medicine (Cardiology) Emeritus, Emory University
Cardiovascular Disease in Woman: Epidemiology, Awareness, Access and Delivery of Equitable Healthcare

12:10-1:10 **Lunch Break**

1:10-1:50

Mid-Career & VCCBH Partner Investigator Flash Talks

Moderators: Julie Dumas, PhD, Ira Bernstein, MD

Caitlin Howe, PhD, Assistant Professor of Epidemiology, Dartmouth
Maternal Blood Pressure and Circulating miRNAs during Pregnancy

Sherrie Khadanga, MD, Assistant Professor of Medicine, Director of Cardiac Rehabilitation, UVM
Optimizing Training Response in Cardiac Rehabilitation

Hugo Pomares-Millan, MD, PhD, Postdoctoral Fellow, Dept of Epidemiology, Dartmouth
Modifiable risk Factors to Predict Susceptibility in Cardiometabolic Conditions

Nels Olson, PhD, Assistant Professor of Pathology and Laboratory Medicine, UVM
Circulating Biomarkers of Cardiovascular and Neurocognitive Diseases

Kalev Freeman, MD, PhD, Associate Professor of Surgery, UVM
Cardiovascular Sequelae of Traumatic Brain Injury

1:50-2:00

Closing Remarks

Mary Cushman, MD, MSc and Mark Nelson, PhD

Posters

Science Posters

There are no assigned spaces. Please note the moderated posters in the program

Jessica Badlam, MD

History of Adverse Pregnancy Outcomes in Women with Pulmonary Arterial Hypertension: A Single Center Pilot Study

Grace Bonson, PhD

Endothelial-specific Ablation of the Scramblase TMEM16f Reduces In Vivo Clot Formation in Mice

Matt Caporizzo, PhD

Isolating the Cellular and Extracellular Contributions To Diastolic Mechanics

Jade Cleary

Histone-Induced Calcium Events and Plasma Membrane Activation Do Not Require Store-Operated Calcium Entry

Andres Cordova, MD

Patent Foramen Ovale Closure vs Medical Therapy in Patients ≥ 60 Years of Age with Ischemic Stroke: A Retrospective Cohort Study

Caity Decara

Investigation of Capillary Density Changes during Chronic Hypertension as an Underlying Mechanism of Reduced Hippocampal Perfusion and Memory Dysfunction

Julie Dumas, PhD

Effects of Choline on Brain Functioning in Postmenopausal Women

Grace Ebner

TBD

Michael Forster, PhD

Empowering genomics with proteomics to improve understanding of common complex diseases

Mansour Gergi, MD

Antithrombotic use for cardiovascular disease after a cancer diagnosis

Nicole Habel, MD

Physiologic Accelerated Pacing as a Treatment for Heart Failure with Preserved Ejection Fraction

Maddy Hatch

Towards Direct Assessment of Amyloid Fibril Structures in Brain Tissue

Jenan Husain

Urinary Bladder Dysfunction in a Novel Model of Neuroendocrine Stress

Michael Ippolito

Vascular Interoception and Cerebral Blood Flow Control

David Jangraw, PhD

fMRI Inter-Subject Correlation Techniques Increase Sensitivity to Individual Differences in Narrative Processing

Wen Ma, PhD

Multiscale Models of Myosin Modulation: Insights for Treating Cardiomyopathy

Stephen Paige

Activatable MR Contrast Agent Sensitive to Oxidative Stress

Sophia Piffard

Overcoming Limitations of Fluorescent Intensity and Background Analysis of Confocal Microscopy Images by Differential Standard Deviation Analysis

Tim Plante, MD, MHS

Life's Essential 8 and Severe Covid-19 among Adults without Cardiovascular Disease in C4R

Clemens Probst

Characterization of Blood Flow Deficits in a Mouse Model of Cerebral Autosomal Dominant Arteriopathy with Subcortical Infarcts and Leukoencephalopathy (CADASIL)

Nicole Roode

Size-Specific Nanoparticles as Treatment for Vascular Disease

Adrian Sackheim

Mild Repetitive Blast Traumatic Brain Injury Causes Behavioral Spatial Accuracy Deficits in Mice

Anna Pace

Activation of mTOR Signaling in the Paraventricular Nucleus of the Hypothalamus (PVN) Contributes to Stress- and BDNF-induced Hypertensive Responses

COBRE Corner Posters

Owen Nadeau, PhD

Todd Clason, MS

Peter Durda, PhD

Margaret Karagas, PhD

Vermont Center for Cardiovascular and Brain Health

VCCBH Customized Physiology and Imaging Core

VCCBH Study Design and Molecular Epidemiology Core

Dartmouth Center on Molecular Epidemiology

GRATITUDE

Thank you to the VCCBH External Advisory Board!

Manuel F. Navedo, PhD

Suzanne Judd, PhD MPH

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Professor of Pharmacology, University of California, Davis

Professor of Biostatistics, Director: Lister Hill Center for Health Policy, University of Alabama, Birmingham

Professor of Pharmacology, University of Nevada, Reno

Professor of Medicine, Professor of Pathology and Laboratory Medicine, Brown University

Thank you to the Organizing Committee!

Ira Bernstein, MD; Julie Dumas, PhD; Peter Durda, PhD; Debora Kamin Mukaz, PhD; Nicholas Klug, PhD; Owen Nadeau, PhD; David Punihaoale, PhD; Mary Cushman, MD, MSc

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