

Nora Eccles Harrison Cardiovascular Research & Training Institute (CVRTI)

2024-2025 Annual Newsletter
Volume 4



NORA ECCLES HARRISON

CVRTI

THE UNIVERSITY OF UTAH®



HEALTH
UNIVERSITY OF UTAH

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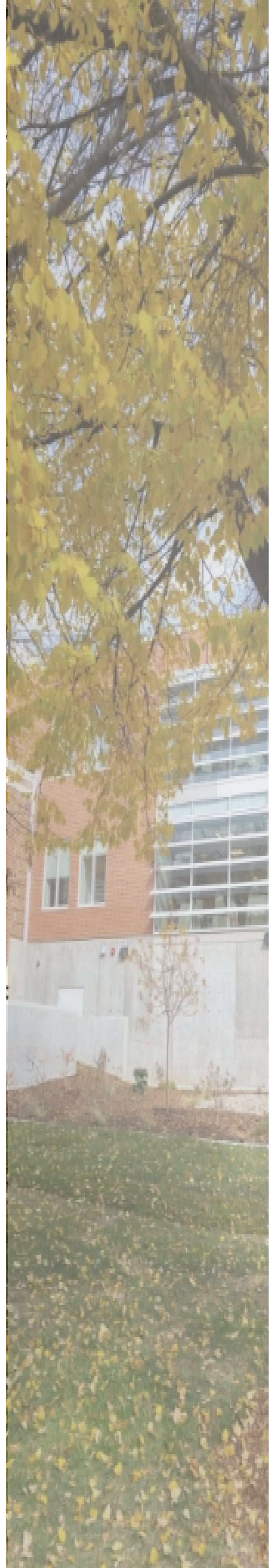
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A MESSAGE FROM THE DIRECTOR

I am fortunate.

Almost six years ago I arrived at the CVRTI with a vision and incredible substrate in place, backed by clear-eyed guidance from the Nora Eccles Treadwell Foundation and University of Utah Leadership. My charge was to use the generosity and existing substrate to build a cardiovascular research institute that will be the country's cutting edge of cardiovascular science. We have collectively achieved that goal.

Please take a few minutes to review the pages of this newsletter, highlighting progress which includes:

- Fivefold increase in annual extramural funding to the CVRTI over six years.
- Growth to 18 faculty labs and 200 researchers.
- Development of a clinical trials unit here at the CVRTI which is advancing CVRTI discoveries from the lab bench, providing therapies that answer major unmet medical needs including chronic heart failure, ischemia-reperfusion injury, and arrhythmia syndromes. Clinical trials of CVRTI discoveries will begin by Spring 2026.
- Strengthening the uniquely American model that, in a mission focused University environment, discoveries made from NIH sponsored basic research combined with biotechnology corporate support for translation, will lead to rapid innovation that benefits millions of patients.

Much gratitude to the members of the Nora Eccles Treadwell Foundation (Spencer Eccles, Katie Eccles, Larry Harrison, Dr. Kathryn Econome, and Dr. Ken Spitzer) as well as to University of Utah President Taylor Randall, Senior Vice-President of Health Sciences Dr. Bob Carter, Vice-President for Research Dr. Erin Rothwell, and Associate Vice-President of Research-Health Sciences Dr. Rachel Hess. Your vision and faith got us here.

Most importantly, thank you to the researchers and staff of the CVRTI. The message we keep hearing from distinguished extramural speakers and visitors is that the CVRTI is unique, both in facilities and warmth of our community. Much appreciation for this community we have built together.



A handwritten signature in black ink that reads "Robin Shaw". The signature is written in a cursive style with a long horizontal line extending to the right.

Robin Shaw, MD, PhD

Director, Nora Eccles Harrison Cardiovascular Research and Training Institute

Nora Eccles Harrison Presidential Endowed Chair

Professor of Medicine, Adjunct Professor of Biomedical Engineering

VALUES & MISSION

- **RIGOR**
- **FUNDAMENTAL
DISCOVERIES**
- **THERAPEUTIC
SOLUTIONS**

NORA ECCLES HARRISON
CARDIOVASCULAR RESEARCH AND
TRAINING INSTITUTE
BUILDING 500

The Nora Eccles Harrison Cardiovascular Research and Training Institute (CVRTI) integrates professors and trainees across academic departments to nucleate a campus wide cell-to-bedside approach in cardiovascular education and research.



ABOUT US

The Nora Eccles Harrison Cardiovascular Research and Training Institute (CVRTI) at the University of Utah offers an exceptional interdisciplinary environment with world-class scientific resources and a highly collaborative culture. Following our recent expansion to 40,000 square feet, CVRTI continues to grow in both size and research diversity. Our investigators drive major advances in cardiac biology, metabolism, vascular, and electrophysiology, building on a legacy that includes the first implanted total artificial (Jarvik) heart and the discovery of the genetic basis of long QT syndrome. Today, CVRTI is home to 18 faculty investigators and 200 researchers and staff, making it the largest, freestanding cardiac research institute in the nation.



CVRTI LEADERSHIP



Robin Shaw, MD, PhD
Director, CVRTI



Tara Hitzeman, MPH
Associate Director, CVRTI



Ademuyiwa Aromolaran, PhD
Director, CVRTI Electrophysiology



Dipayan Chaudhuri, MD, PhD
Director, CVRTI Metabolism



Stavros Drakos, MD, PhD
Director, CVRTI Muscle Biology



Lisa Lesniewski, PhD
Director, CVRTI Vascular & Genetics

CVRTI ELECTROPHYSIOLOGY PROGRAM

The CVRTI Electrophysiology Program investigates how electrical activity forms and coordinates each heartbeat, the origins of dangerous arrhythmias, and how electrical signals can help diagnose cardiac events.

Ademuyiwa Aromolaran, PhD (Cardiothoracic Surgery) is director of the program, which includes Derek Dossall, PhD (Cardiothoracic Surgery), Rob MacLeod, PhD (Biomedical Engineering), and Ravi Ranjan, MD, PhD (Medicine/Cardiology).

- **Aromolaran Lab:** Targets sudden cardiac death and arrhythmias at a cellular level using advanced techniques to discover new therapeutic targets.
- **Dossall Lab:** Develops innovative therapies for failing hearts and develops therapies to limit dangerous heart arrhythmias.
- **MacLeod Lab:** Continues the CVRTI tradition of cardiac and body surface electrocardiographic mapping and computational modeling.
- **Ranjan Lab:** Explores arrhythmia mechanisms and anti-arrhythmia strategies using clinical and advanced disease models.



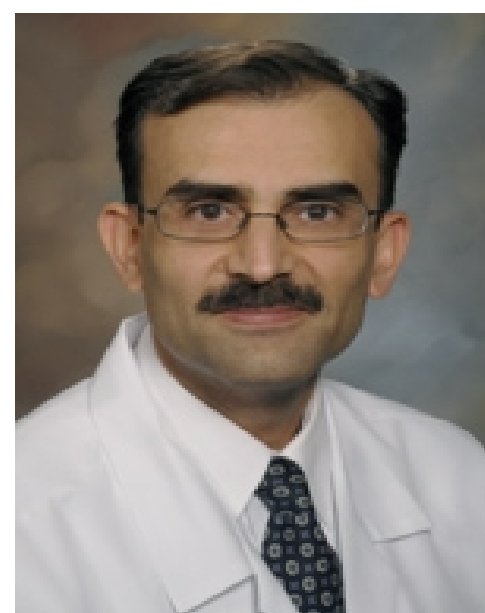
Ademuyiwa Aromolaran, PhD
Director, CVRTI Electrophysiology



Derek Dossall, PhD
Investigator, CVRTI



Rob Macleod, PhD
Investigator, CVRTI



Ravi Ranjan, MD, PhD
Investigator, CVRTI

CVRTI METABOLISM

PROGRAM

The CVRTI Metabolism Program investigates how metabolic dysfunction contributes to heart failure and related diseases. Using advanced imaging, proteomics, metabolomics, and electrophysiology, the team explores novel therapeutic pathways.

Dipayan Chaudhuri, MD, PhD (Medicine/Cardiology), is director of the program, which includes Sarah Franklin, PhD (Medicine/Cardiology), Guillaume Hoareau, DVM, PhD (Emergency Medicine), and Joseph Palatinus, MD, PhD (Medicine/Cardiology).

- **Chaudhuri Lab:** Targets mitochondrial ion transport to understand and develop therapies for heart failure and metabolic disease.
- **Franklin Lab:** Studies transcriptional control and modification of the proteins that regulate cardiac disease progression, with an emphasis on metabolism.
- **Hoareau Lab:** Develops mitochondria-based therapies for hemorrhagic shock and cardiac injury, especially in military settings.
- **Palatinus Lab:** Investigates how inflammation progresses arrhythmogenic cardiomyopathy, a rare untreatable genetic heart disease.



Dipayan Chaudhuri, MD, PhD
Director, CVRTI Metabolism



Sarah Franklin, PhD
Investigator, CVRTI



Guillaume Hoareau, DVM, PhD
Investigator, CVRTI



Joseph Palatinus, MD, PhD
Investigator, CVRTI

CVRTI MUSCLE BIOLOGY PROGRAM

The CVRTI Muscle Biology Program investigates how individual cardiac muscle cells are organized and regulated, and how these muscle cells change as the heart starts to fail with the goal of curing heart failure.

Stavros Drakos, MD, PhD (Medicine/Cardiology) is director of the program, which includes Erik Blackwood, PhD (Nutrition and Integrative Physiology), TingTing Hong, MD, PhD (Pharmacology and Toxicology), and Craig Selzman, MD (Cardiothoracic Surgery).

- **Blackwood Lab:** Studies how cardiac proteostasis machinery protects against chronic diseases such as heart failure and metabolic syndrome.
- **Drakos Lab:** Uses human heart tissue to uncover therapeutic targets for myocardial recovery, uncovering critical metabolic pathways.
- **Hong Lab:** Explores how heart muscle cells organize and remodel to identify new molecular targets for heart failure therapy.
- **Selzman Lab:** Studies ischemia-reperfusion injury, heart failure, and cardiac recovery, with a focus on therapeutic development.



Stavros Drakos, MD, PhD
Director, CVRI Muscle Biology



Erik Blackwood, PhD
Investigator, CVRTI



TingTing Hong, MD, PhD
Investigator, CVRTI



Craig Selzman, MD
Investigator, CVRTI

CVRTI VASCULAR & GENETICS PROGRAM

The CVRTI Vascular & Genetics Program investigates how blood vessels age and develop atherosclerosis as well as takes a population and cellular genetics approach to understand both inherited and acquired cardiovascular disease.

Lisa Lesniewski, PhD (Medicine/Geriatrics), is director of the program, which includes Anthony Donato, PhD (Medicine/Geriatrics), Hongchao Guo, PhD (Cardiothoracic Surgery), Yan-Ting Shiu, PhD (Medicine/Nephrology), and Martin Tristani-Firouzi, MD (Pediatrics/Cardiology).

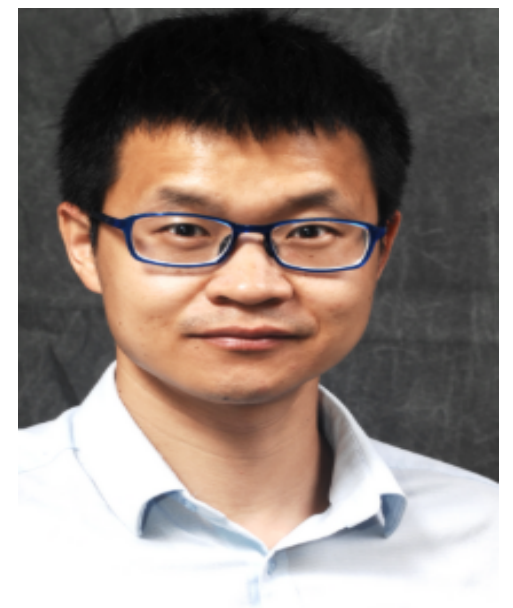
- **TVP Lab (Donato/Lesniewski):** Focuses on age-related vascular dysfunction and the search for therapies to reduce cardiovascular risk in older adults.
- **Guo Lab:** Studies genetic and epigenetic mechanisms driving cardiovascular development and disease to advance precision medicine.
- **Shiu Lab:** Investigates the pathophysiology of hemodialysis vascular access and the progression of cardiovascular disease in individuals with kidney disease.
- **Tristani-Firouzi Lab:** Explores the origins of cardiac arrhythmias using tools from the Utah Population Database to model systems.



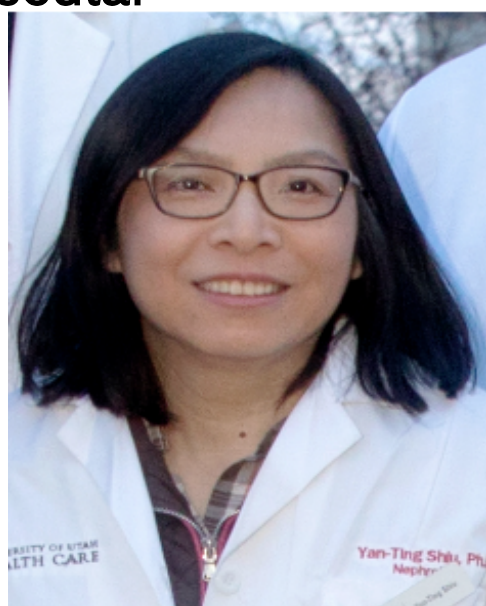
Lisa Lesniewski, PhD
Director, CVRTI Vascular
and Genetics



Anthony Donato, PhD
Investigator, CVRTI



Hongchao Guo, PhD
Investigator, CVRTI



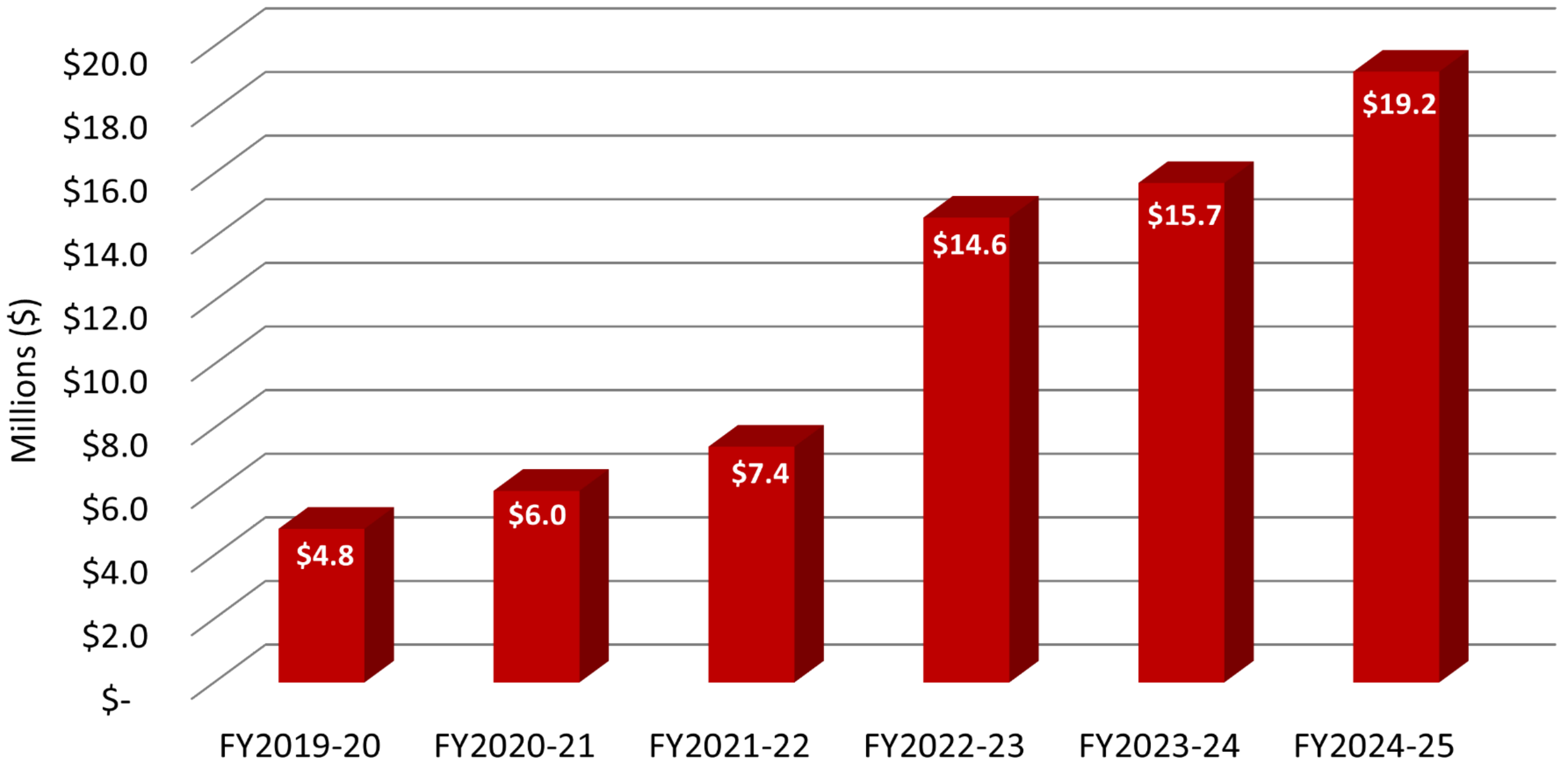
Yan-Ting Shiu, PhD
Investigator, CVRTI



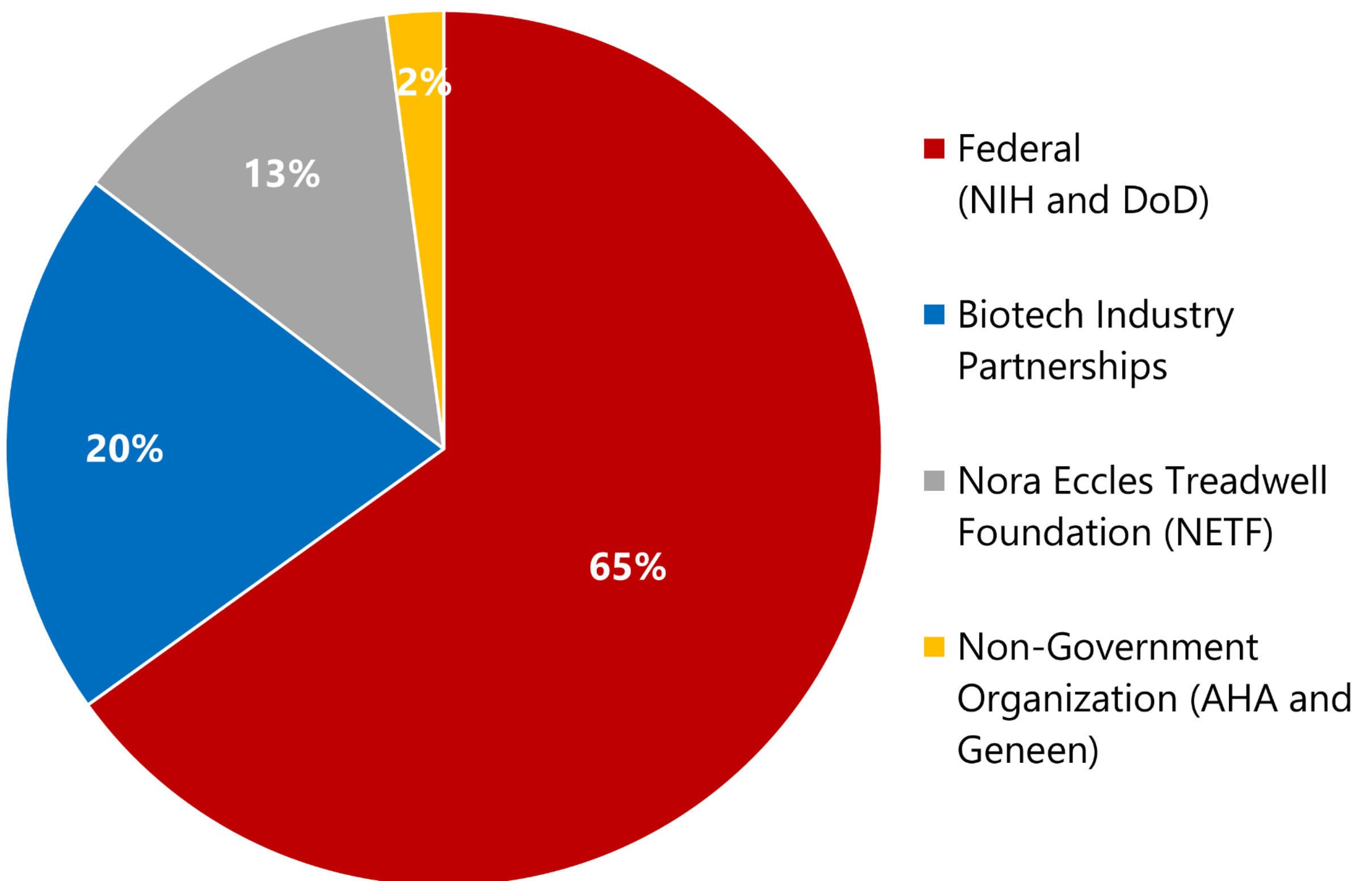
Martin Tristani-Firouzi, MD
Investigator, CVRTI

ANNUAL EXTRAMURAL FUNDING

Annual Grant Income



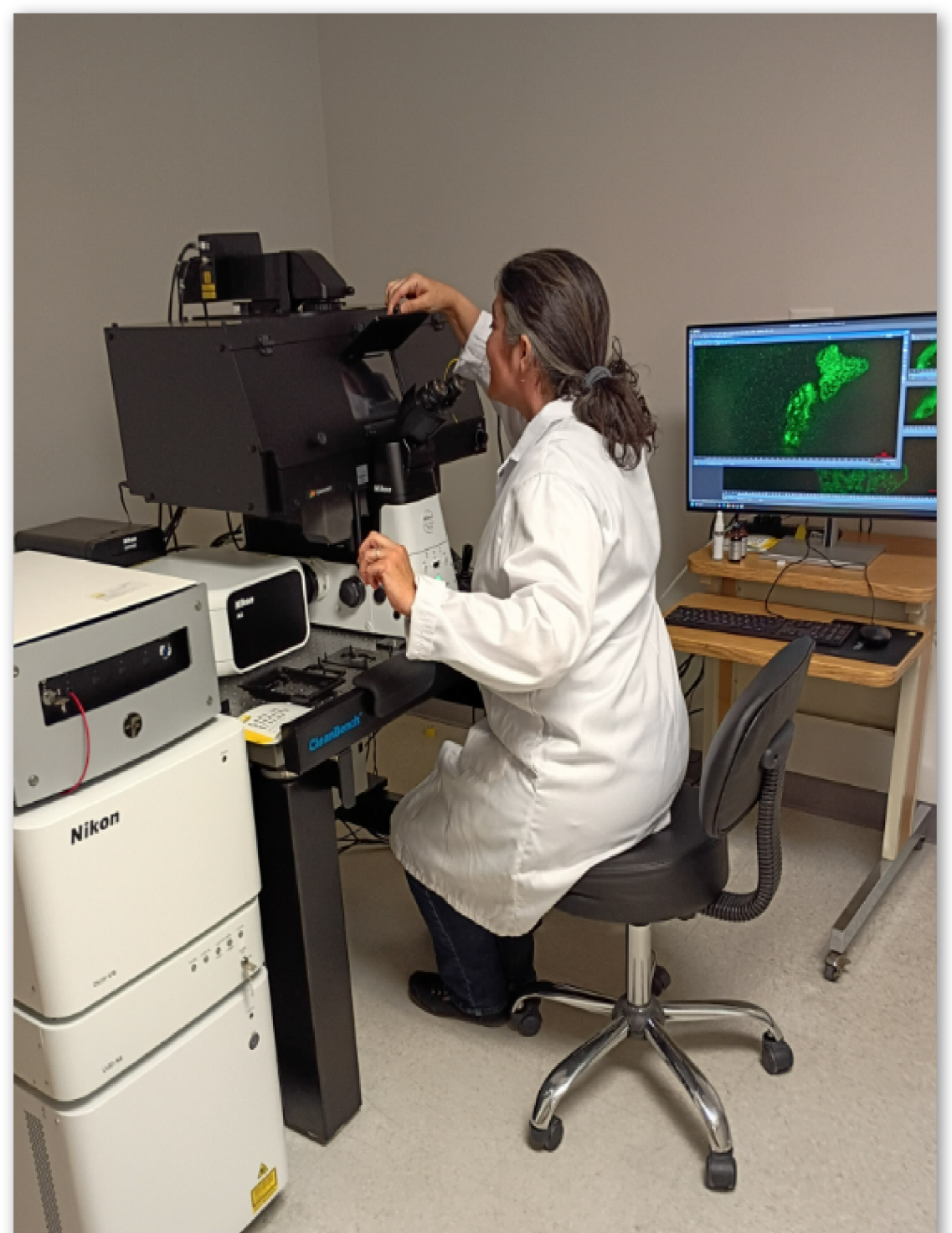
FY2024-2025 Extramural Funding Agency



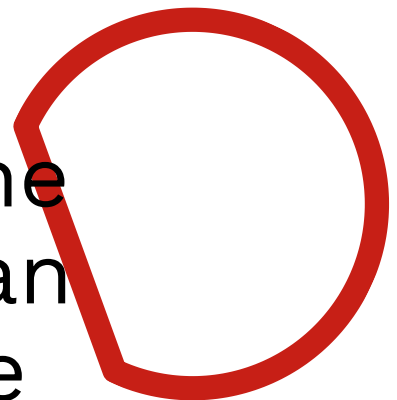
NEW EQUIPMENT

With much appreciation to the generous support of the Nora Eccles Treadwell Foundation, CVRTI purchased an advanced Nikon AXR confocal microscope to meet the imaging demands of our investigators and an advanced liquid nitrogen system from DJB Gas Services. The Nikon AXR offers ultra-high resolution and high-speed scanning that reduces light exposure by over 20-fold. It enables cardiac research across scales from subcellular structures to preclinical models, both fixed and live cell. The liquid nitrogen system has an external conduit that allows its tanks in the freezer room to be filled by a truck parked on the street outside. This is the future for liquid nitrogen delivery.

This new equipment joins an already impressive suite of CVRTI resources, including a freezer room, three existing confocal microscopes, multiple patch clamp rigs, a mass spectrometer, two qPCR stations, an Oroboros metabolic profiler, and an operating room equipped for thoracotomies and catheter-based procedures, providing CVRTI investigators with a state-of-the-art environment for cardiovascular research.



Natalia Torres, PhD



REBUILDING THE FAILING HEART: cBIN1 THERAPY AT CVRTI

A New Frontier in Heart Failure Treatment

Heart failure disrupts the microscopic structure of heart cells, impairing their ability to contract. At CVRTI, researchers are targeting this root cause using **cBIN1**, a protein that helps maintain the cell's architecture and calcium signaling. cBIN1 (cardiac Bridging Integrator 1) organizes t-tubules, which control calcium cycling in heart muscle cells. In heart failure, cBIN1 levels drop, contributing to dysfunction and arrhythmias.



“We’re not just treating symptoms; we’re restoring cardiomyocyte structure and function.”

— Dr. Robin Shaw

Robin Shaw, MD, PhD, and TingTing Hong, MD, PhD
Image Credit: Charlie Ehlert/University of Utah Health

From Discovery To Therapy

- **Mechanistic Insight**

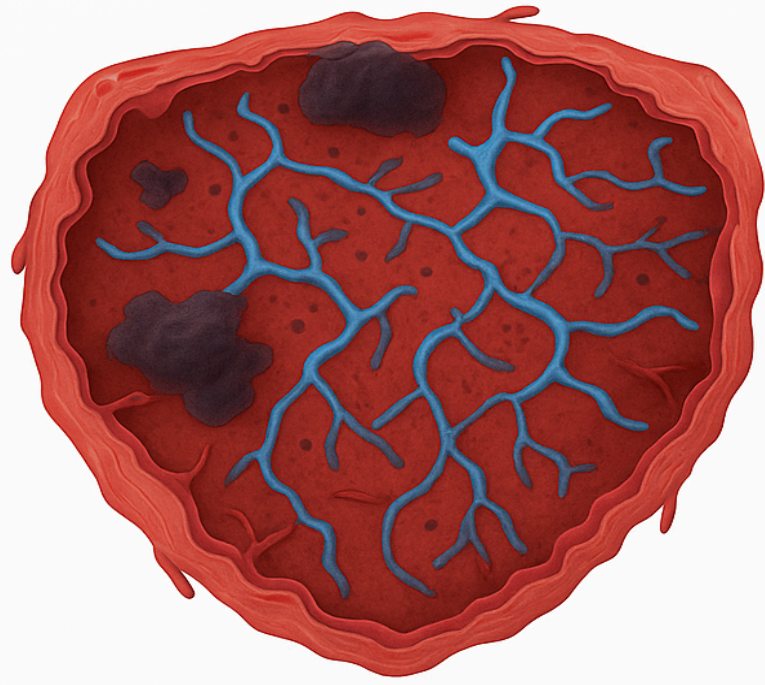
Foundational studies identified cBIN1 as a key regulator of calcium microdomains and electrical stability in cardiomyocytes.

- **Biomarker Development**

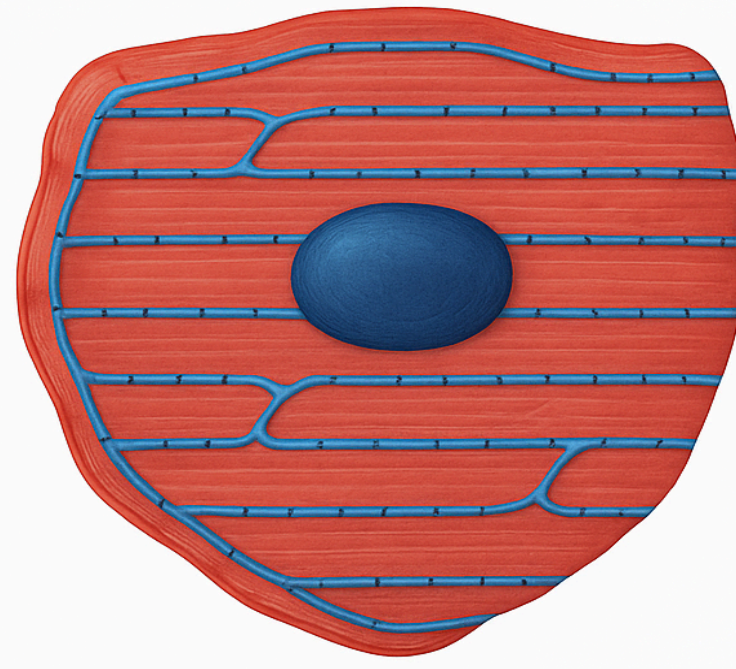
The **cBIN1 Score**, a blood test, was created to track heart failure progression non-invasively in both HFrEF and HFpEF.

- **Preclinical Gene Therapy**

Gene therapy using **AAV9-cBIN1** reversed heart failure in two critical models covering both ischemic and non-ischemic heart failure that closely replicate human disease.



BEFORE
Failing Heart Cell



AFTER
Healthy Heart Cell
(cBIN1 restored)

Key cBIN1 Publications This Year

- Balmaceda P, et al.
Design of the FIGHT-HF human trial.
JACC Basic Transl Sci. 2025
- Khan MS, et al.
cBIN1 gene therapy reverses ischemic HF in canines.
Commun Med (Lond). 2024
- Li J, et al.
Gene therapy rescues non-ischemic HF in minipigs.
NPJ Regen Med. 2024

What's Next

The CVRTI team is preparing to launch the first-in-human clinical trial of cBIN1 gene therapy, FIGHT-HF, in 2026. This milestone trial will test whether restoring cBIN1 in patients with chronic heart failure can improve function and long-term outcomes.

For more information regarding CVRTI's cBIN1 breakthroughs, click [here](#).

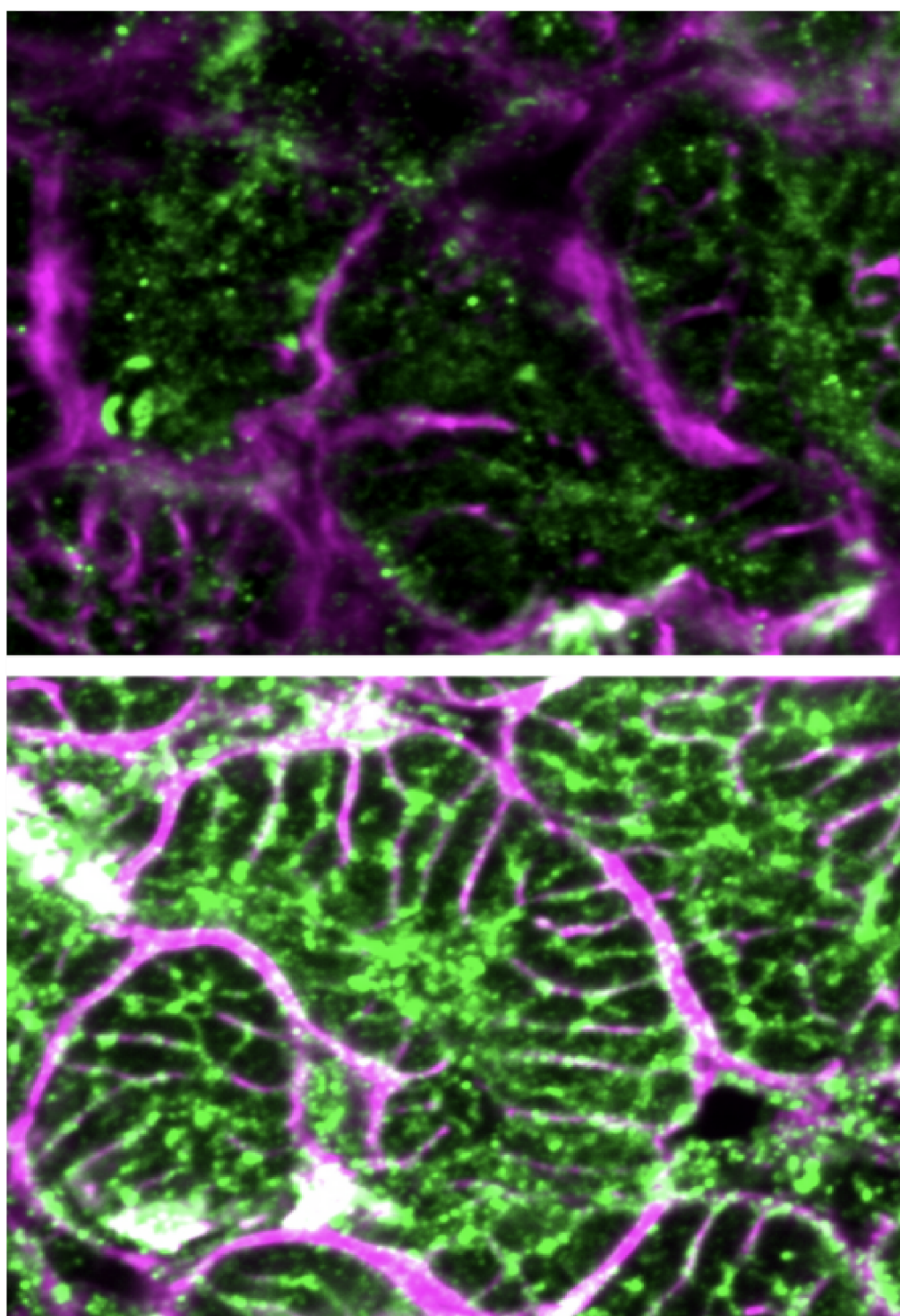


RECENT PUBLICATIONS

Cardiac Bridging Integrator 1 gene Therapy Rescues Chronic Non-ischemic Heart Failure in Minipigs

Hong Laboratory

A groundbreaking study published by the Hong Laboratory in NPJ Regenerative Medicine showcases the potential of gene therapy to reverse chronic heart failure. The Hong Lab used a large-animal model to demonstrate that a single low-dose intravenous injection of gene therapy targeting cardiac bridging integrator 1 (cBIN1), a protein critical for heart muscle cell structure and calcium handling, significantly improved heart function and survival in minipigs with non-ischemic heart failure. The therapy restored cardiac cell architecture, reduced fluid retention, and normalized heart performance, offering a promising new avenue for treating heart failure by directly repairing failing heart muscle at the cellular level. These findings support future clinical trials using cBIN1 gene therapy in human patients with heart failure.



Microscope images of failing heart cells (top) and heart cells that received gene therapy (bottom). Cell boundaries, labeled in magenta, are more organized after gene therapy, and the level of cBIN1 protein (green) is higher.

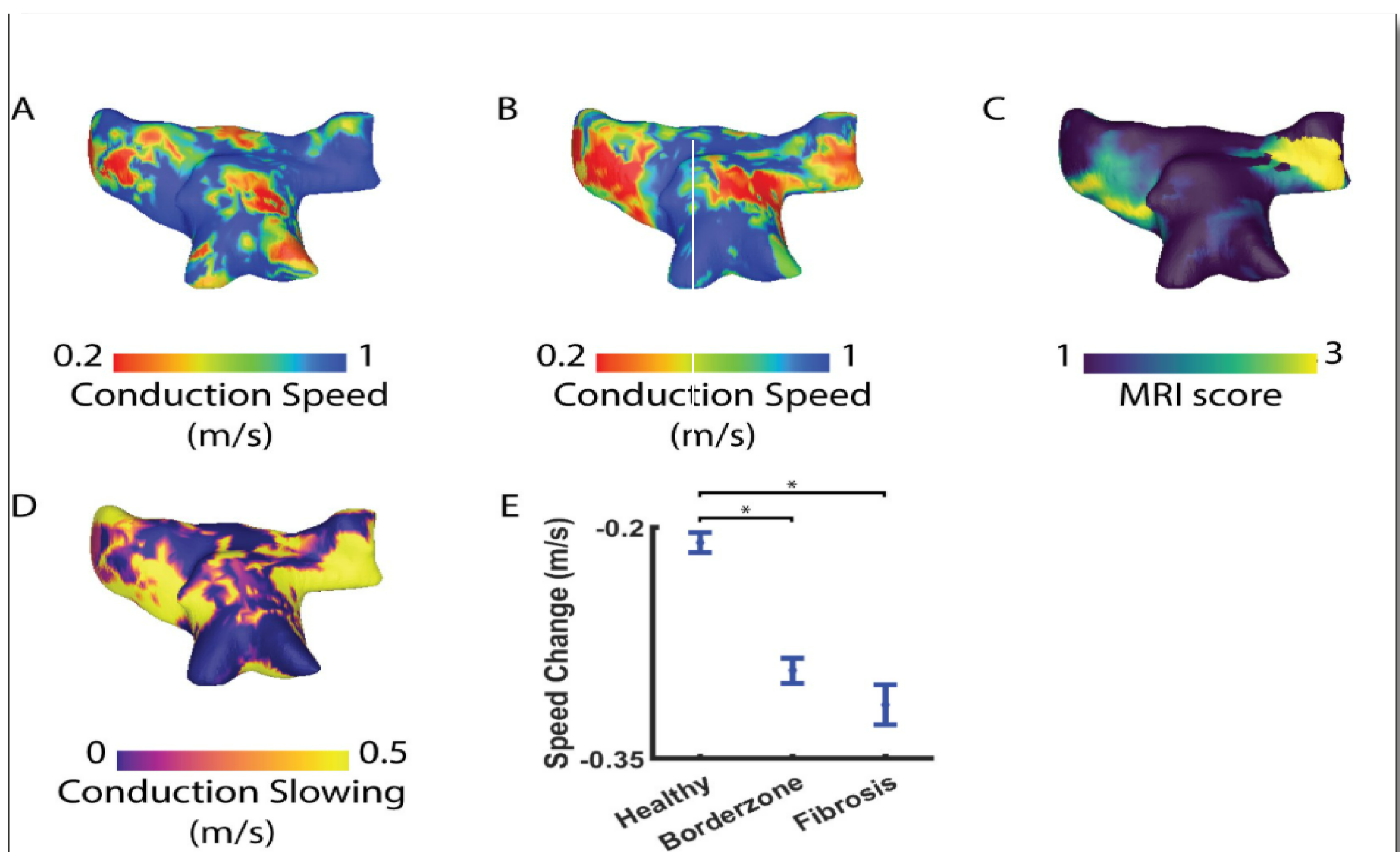
Li et al., NPJ Regen Med, 2024

RECENT PUBLICATIONS

Functional and Structural Remodeling as Atrial Fibrillation Progresses in a Persistent Atrial Fibrillation Canine Model

Ranjan Laboratory

A recent study published by the Ranjan Laboratory in JACC: Clinical Electrophysiology sheds light on the progressive functional and structural changes in the heart associated with sustained atrial fibrillation (AF). Using a large-animal model of persistent AF, researchers conducted serial electrophysiological studies and advanced MRI imaging to track changes over six months. They found that as AF progressed, regions of the left atrium developed fibrosis, which was associated with slower electrical conduction and more uniform propagation directions, conditions conducive to sustaining arrhythmias. Notably, these changes were not confined to fibrotic areas but occurred throughout the atria, suggesting a diffuse remodeling process. These findings highlight the complexity of treating persistent AF and emphasize the need for new therapeutic strategies beyond targeting localized fibrosis.



Functional and structural remodeling as atrial fibrillation progresses. Conduction speeds at A) baseline prior to AF induction and B) after 6 months of sustained AF. C) The fibrosis map from LGE-MRI. MRI score (scaled MRI intensity) of greater than 3 labeled fibrosis. D) Decrease of conduction speed after 6 months of sustained AF. E) Slowing occurs within the fibrotic region but also slows throughout the atria. *p<0.001.

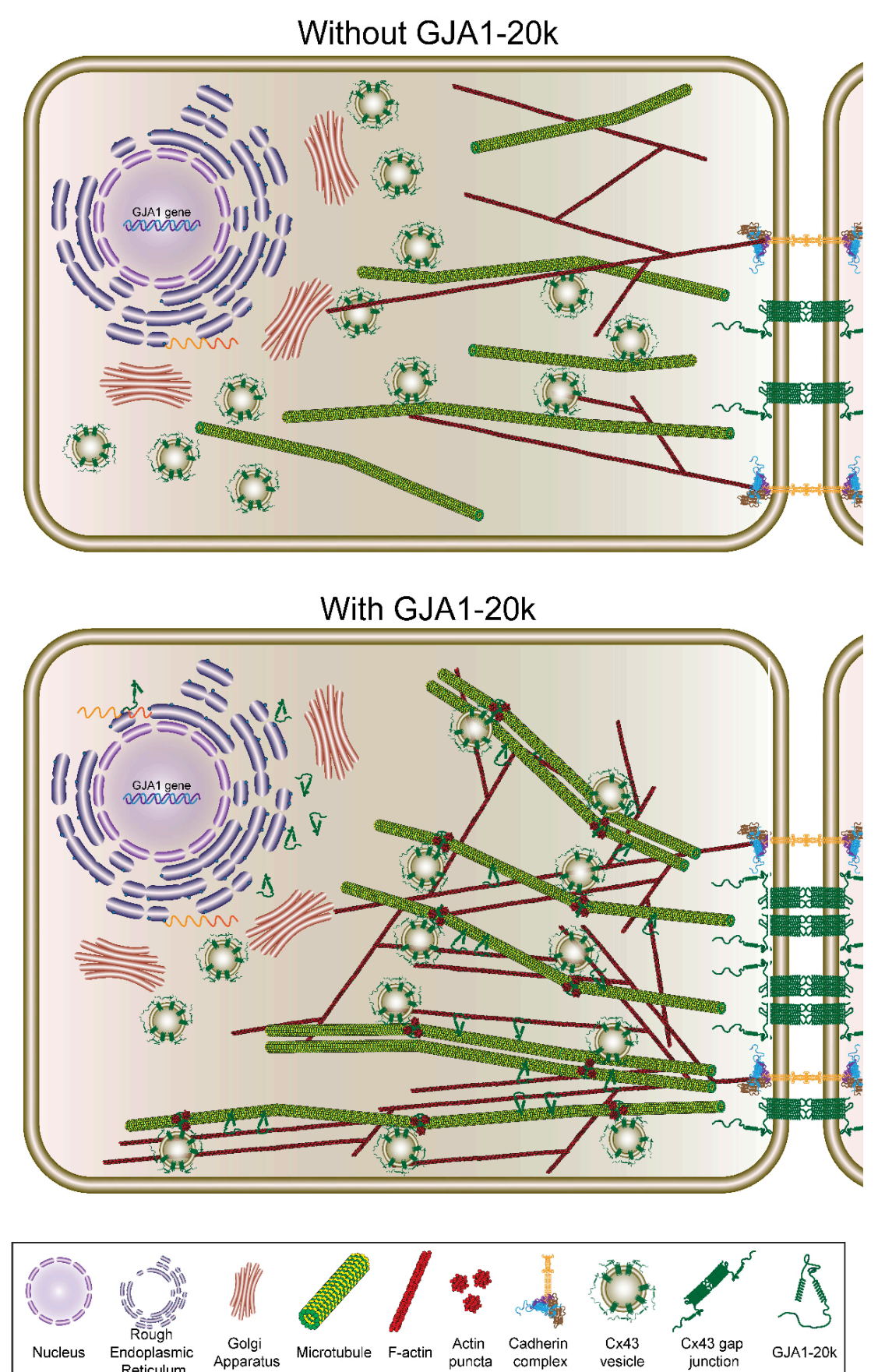
Kwan et al., JACC Clin Electrophysiol, 2025

RECENT PUBLICATIONS

A Truncated Isoform of Connexin43 Caps Actin to Organize Forward Delivery of Full-length Connexin43

Shaw Laboratory

The Shaw Laboratory published a study that reveals how a small protein they discovered now called GJA1-20k plays a crucial role in heart health by guiding proper delivery of the heart's communication channels to areas of cell-cell contact. Each heartbeat, billions of individual heart muscle cells have to contract in synchrony, and it is these communication channels known as Cx43 that are responsible for maintaining near simultaneous contraction, allowing the heart to work as a single effective organ. Although GJA1-20k is a shortened version of Cx43 made from the same genetic instructions, it doesn't form the channels itself. Instead, it reshapes the cell's internal skeleton (actin) to build pathways that help transport full-sized Cx43 to the cell-cell contact sites. Without GJA1-20k, Cx43 can't reach its destination, disrupting cell-to-cell communication and increasing the risk of electrical disturbances in the heart known as arrhythmias. This discovery not only uncovers a new function for GJA1-20k as an actin-capping protein but also opens doors for new therapies designed to prevent dangerous arrhythmias from occurring and also to eliminate them when they do occur.



Baum et al., J Cell Biol, 2025

Click [here](#) to check out all CVRTI Publications



CVRTI SPOTLIGHT

Vitae 2025



Dr. Hoareau's Vitae 2025 presentation highlighted a pioneering shift in trauma medicine targeting the cellular "battery" to save lives after severe hemorrhage. His work bridges fundamental science and frontline application, making emergency care smarter and more effective.

You can view his Vitae 2025 Talk *"Emergency Mode: Recharging Life After Severe Blood Loss"* [here](#).

Guillaume Hoareau, PhD, DVM

2025 THT Shark Tank Innovation Competition

CVRTI Director Robin Shaw, MD, PhD, was the winner of the 2025 THT Shark Tank Innovation Competition for his project, *FIGHT-HF: First-in-Human Gene Therapy Trial of TLT-101*. Featured in JACC: Basic to Translational Science, the project introduces TLT-101, a gene



Robin Shaw, MD, PhD

therapy aimed at restoring cBIN1 levels critical for calcium handling in heart cells. In preclinical models, TLT-101 improved heart function and survival in both ischemic and non-ischemic cardiomyopathy. The first human trial is planned for 2026. Watch Dr. Shaw's presentation [here](#).

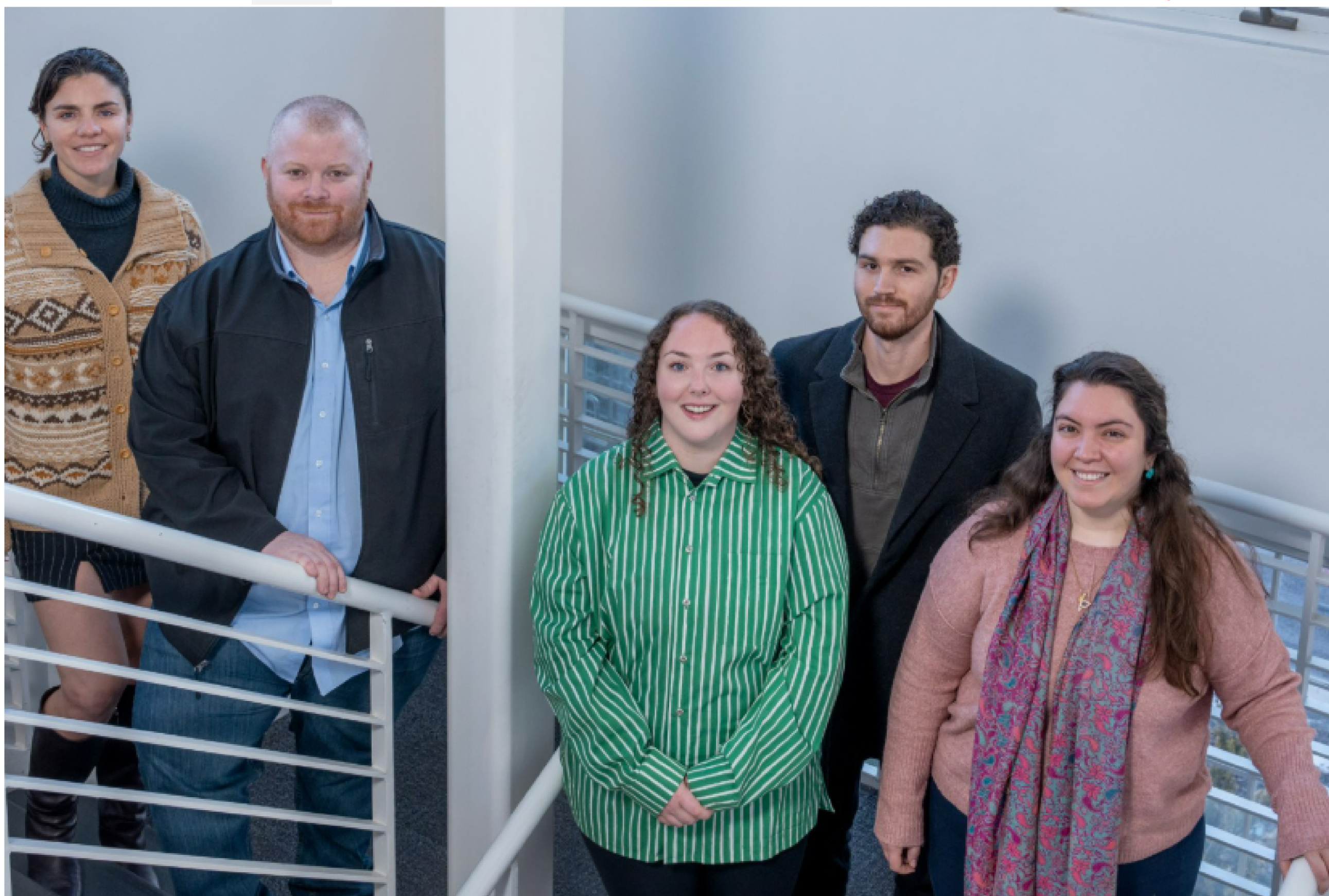
NEW LAB SPOTLIGHT

The Blackwood Lab

Dr. Erik Blackwood joined the University of Utah and CVRTI in Fall 2024 as an Investigator and Assistant Professor of Nutrition and Integrative Physiology. His lab studies how cardiac proteostasis machinery protects against chronic diseases like heart failure and metabolic syndrome, aiming to develop and test new therapeutics in preclinical models.

The Blackwood Lab includes postdoctoral researcher Jesse Velasco, PhD students Alina Bilal and Sean Noudali, lab manager Lyndsay Campbell, and research associates Abbey Mahnke and Sabarna Chowdhury. Dr. Blackwood holds an NIH R56 award and recently received competitive scores on two NIH R01 proposals starting in 2025. He was also invited to join the editorial board of the Journal of Cardiovascular Aging and was nominated for the University of Utah College of Health New Investigator Award.

[Click *here*](#) to learn more about The Blackwood Laboratory



Blackwood Lab Research Team from left: Lyndsay Campbell, BS, Erik Blackwood, PhD, Abbey Mahnke, BS, Sean Noudali, MS, and Alina Bilal, MS

NEW LAB SPOTLIGHT

The Shiu Lab



Shiu Lab Research Team from left: Amani Oumar, BA, Yuxia He, MD, Yan-Ting Shiu, PhD, Alec Tzeng, BA, Hannah Northrup, PhD, Josh Chang, BS, Bing Li, MD/PhD, Nick Thomson, BS

Dr. Shiu's Vascular Access & Health Laboratory joined the CVRTI in Fall 2024. Dr. Shiu is a Professor of Internal Medicine (Division of Nephrology). The Shiu Laboratory integrates medicine, engineering, and bioscience to investigate the pathophysiology of hemodialysis vascular access dysfunction and the progression of cardiovascular disease (CVD) in individuals with chronic kidney disease (CKD). Employing a Bedside-to-Bench-to-Bedside approach, the lab's mission is to enhance patient outcomes, prolong access longevity, and improve vascular function. Dr. Shiu's primary focus is on hemodialysis vascular access and elucidating mechanisms linking vascular dysfunction and CVD in CKD patients, ultimately striving to improve the quality of life for individuals affected by these interrelated conditions. The Shiu Lab is thrilled to be a part of CVRTI, an incredible organization that leads cutting-edge cell-to-bedside research and education in cardiovascular disease!

[Click *here* to learn more about The Shiu Laboratory](#)

AWARDS & HONORS



Joshua Chang, BS

2025 ASN Tutored Research and Education for
Kidney Scholars (TREKS) Fellow

Shiu Lab

Hongchao Guo, PhD

Geneen Foundation Award
*Targeting Acetaldehyde Dehydrogenase 2 in
Smoking-Induced Coronary Artery Disease*

Guo Lab



Muhammad S. Kahn, PhD

AHA 2023 Career Development Award
*Exogenous cBIN1 Gene Therapy Rescues Myocardium in
Ischemic Heart Failure*

Dosdall Lab

Mario Maalouf, MD

Courts K. Cleveland, Jr. SADS Foundation
Young Investigator Award in Basic Science

Shaw Lab



Kiana Schulze, PhD

VA-Geriatric Special Fellowship

TVP Lab

AWARDS & HONORS



Ankur Shah, PhD

Heart Rhythm 2025 Research Fellowship Award

Dosdall Lab

Daisuke Shimura, PhD

Hiroshi and Aya Irisawa Memorial Promotion Award for
Young Physiologists

Shaw Lab



Natalia Torres, PhD

K01 Award

*A Novel Regulator of Ca²⁺ Homeostasis and Arrhythmia
Susceptibility*

Tristani-Firouzi Lab

Eleni Tseliou, PhD

K08 Award

The Role of Glycosyl Ceramides in Heart Failure and Recovery

Tseliou-Drakos Labs



Steven Valdez, BS

NIH F31 Diversity Grant

Palatinus Lab

DISSERTATION DEFENSES



Hossein Abdeahad, MS, PhD

Aging and Endothelial Cell Fate: The Role of Senolytics, Mitochondrial ROS, and DNA Damage on Senescence and Clonal Expansion

Graduate Research Assistant, TVP Lab (Donato)



Jiawei Dong, PhD

Left Atrial Mechanical Function in Atrial Fibrillation Patients underwent Repeated Ablations

Research Assistant, Ranjan Lab



Shelby Hall, PhD

The Role of GPX4 and Senescence in Vascular Dysfunction

Graduate Research Assistant, TVP Lab



Bram Hunt, PhD

Cracking Atrial Fibrillation with the Endocardial Electrogram.

PhD Candidate, Ranjan Lab



Eugene Kwan, PhD

Structural Remodeling as a Potential Substrate Basis for Sustaining Atrial Fibrillation

Postdoc, Ranjan Lab

CVRTI LAB RECOGNITION

● Blackwood Lab

Alina Bilal, MS and Sean Noudali, MS were each awarded an abstract travel award to present their research at the International Society for Heart Research World Congress in Nara, Japan.

● Franklin Lab

Bridger Bodily received “Best Poster Presentation Award” at the Annual Biomedical Research Conference for Minoritized Scientists (ABRCMS) meeting where he presented Franklin Lab Research.

● Guo Lab

Awarded the 2024 Center for Genomic Medicine Pilot Award.

● Hoareau Lab

Recipient of the RAC Grand Challenge in collaboration with military and private sector partners. Established a successful partnership with the U.S. Air Force’s COSMIC Lab (Clinical and Operational Space Medicine Innovation Consortium).

● Palatinus Lab

Lindsey Taylor received 3rd place at the International Gap Junction Conference for her oral presentation titled "Left Ventricular Mechanical Unloading Recovers GJA1-20K Expression in Patients with Arrhythmogenic Cardiomyopathy".

● Shiu Lab

Hannah Northrup, PhD was selected into the highly competitive Karen L. Campbell, PhD, Travel Support Program for Fellows.

Stay up to date with all of CVRTI's Research Labs on our [website!](#)

2024-2025 Seminar Series



Hossein Ardehali, MD, PhD, FACC, FAHA, FISHR

Thomas D. Spies Professor of Cardiac Metabolism
Professor of Medicine–Cardiology
Director, Center for Molecular Cardiology
Northwestern University School of Medicine



Henry M. Colecraft, PhD

John C. Dalton Professor
Department of Physiology and Cellular
Biophysics Columbia University



Björn C. Knollmann, MD, PhD

William Stokes Professor of Medicine and Pharmacology
Director, Vanderbilt Center for Arrhythmia Research and
Therapeutics (VanCART)
Vanderbilt University School of Medicine



Ghouelson Lyon, MD, PhD

Principal Investigator,
The New York State Institute for Basic Research
in Developmental Disabilities (IBR)
Professor (Adjunct) CUNY Graduate Center, New York



Caitlin O'Meara, PhD

Associate Professor of Physiology
Cardiovascular Center
Genomics Sciences and Precision Medicine Center
Medical College of Wisconsin

2024-2025 Seminar Series



Crystal M. Ripplinger, PhD, FHRM, FAHA

Professor and Vice Chair for Research and Administration
Department of Pharmacology
University of California Davis School of Medicine



Lakshmi Santhanam, PhD

Associate Professor Departments of Anesthesiology and Critical Care Medicine Biomedical Engineering and Chemical and Biomolecular Engineering Associate
Johns Hopkins University School of Medicine



Corina Amor Vegas MD, PhD

Assistant Professor and Co-Chair
Department of Cellular Communication in Cancer
Cold Spring Harbor Laboratory



Joseph C. Wu, MD, PhD

Director, Stanford Cardiovascular Institute
Simon H. Stertzer, MD Professor of Medicine & Radiology
Stanford University School of Medicine

Visit the [CVRTI website](#) and subscribe for updates. Check out our [Youtube channel](#) to watch past seminars and discover upcoming speakers and events for 2025-2026.



NIH Ruth L. Kirchstein Cardiovascular Training Grant (T32) Fellowship 2024-2025



Christopher Audu, MD, PhD

Examining the Role of Sirtuin-1, 3, and 6 on Diabetic Macrophage – Endothelial Cell Cross Talk.

Nora Eccles Harrison CVRTI/Dept. of Surgery,
Mentor: Anthony Donato, PhD



Jake Bergquist, PhD

Computational Modeling of Atypical Left Arterial Flutter to Improve Clinical Outcomes.

Nora Eccles Harrison CVRTI,
Mentor: Ravi Ranjan, MD, PhD



Marlayna Despres, MD

Interactions Between Fetal Cerebrovascular Autoregulation, Neonatal Neurobehavior, and Genetic Variants in Critical Congenital Heart Disease.

Nora Eccles Harrison CVRTI/Dept. of Pediatrics,
Mentors: Martin Tristani-Firouzi, MD; Whitnee Hogan, MD

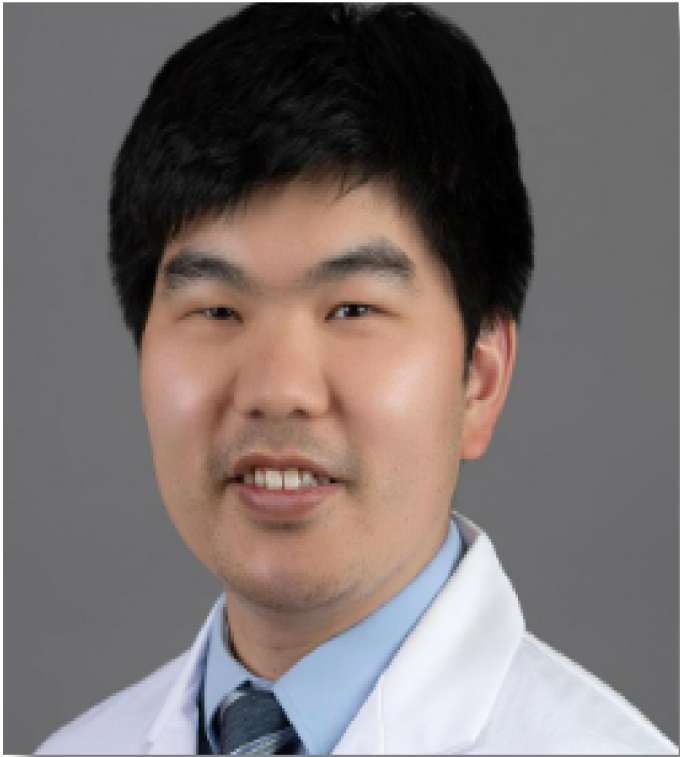


Sydney Hartsell, MD, MPH

The Role of Hypertension in Heart Failure with Preserved Ejection Fraction (HFpEF) in Veterans with Type 2 Diabetes Mellitus and Chronic Kidney Disease.

Dept. of Internal Medicine, Division of Nephrology,
Mentors: Srinivasan Beddhu, MD; Tom H. Greene, PhD; Jincheng Shen, PhD

NIH Ruth L. Kirchstein Cardiovascular Training Grant (T32) Fellowship



Vincent Huang, MD

Characterizing Regulation of Cardiomyocyte Proliferation in LVAD Unloaded Hearts of Pediatric and Adult Patients Suffering from Heart Failure.

Nora Eccles Harrison CVRTI, Mentor: Stavros Drakos, MD, PhD



Ian Nickel, MD

Novel Approaches for Heart Preservation.

Dept. of Surgery, Division of CT Surgery,
Mentor: Craig Selzman, MD



Travis Tu'ifua, PhD

Genetic Determinants of Cardiovascular-Kidney-Metabolic Syndrome in Native Hawaiians and Pacific Islanders.

Dept. of Human Genetics, Mentor: Marcus G. Pezzolesi, PhD, MPH



Sara Wong, PhD

Regulation of Mitochondrial Health by Mitochondrial Derived Compartments in Cardiomyocytes.

Dept. of Biochemistry, Mentor: Adam Hughes, PhD

If you are interested in learning more about the T32 Program, trainee expectations, or how you can apply in the future, visit the link [here](#).

U-CARS

Utah Cardiac
Recovery Symposium

FEBRUARY 20 & 21, 2025



"Utah Cardiac Recovery Symposium (U-CARS) brings together thought leaders from around the world to exchange ideas, debate paradigms, and share information directly focused on issues related to myocardial recovery and regeneration.

Topics expand across the basic, translational, and clinical sciences to provide a unique forum to push the field of heart recovery forward."

In February 2025, the 14th annual symposium took place in-person and virtually, hosting a total of more than 1,000 participants.

2025 Keynote Speaker



Michael R. Bristow, MD, PhD

Professor Of Medicine (Cardiology)

Director, Pharmacogenomics,

Cardiovascular Institute

University of Colorado Anschutz Medical Campus

30 + years of Gene Expression Measurements in the Intact Human Heart: What Have We Learned?

Michael Bristow MD, PhD

*Professor of Medicine (Cardiology), CU AMC, Aurora, CO
Director, Pharmacogenomics CU CVI, Boulder & Aurora, CO
Chairman and CSMO, Genvara Biopharma, Westminster, CO*

Save the Date!

The 14th annual U-CARS will take place

February 5th & 6th, 2026

Notable past keynote addresses: Eugene Braunwald, MD; Michael Bristow, MD, PhD; Christine Seidman, MD; Eric Olsen, PhD; Lynne Stevenson, MD; and Sir Magdi Yacoub, MD.

CVRTI ALUMNI

In April 2025, CVRTI was honored to welcome back Dr. Michael Sanguinetti as a distinguished speaker in the CVRTI Seminar Series. A renowned leader in the field of cardiac electrophysiology, Dr. Sanguinetti has made seminal contributions to our understanding of Long QT Syndrome, including the first identification of genetic mutations that disrupt LQT related cardiac ion channels. His groundbreaking work has paved the way for new insights into inherited and acquired arrhythmias and the mechanisms underlying sudden cardiac death. His seminar, *A Tale of Two Potassium Channels in Cardiac Electrophysiology and Arrhythmia*, reflects



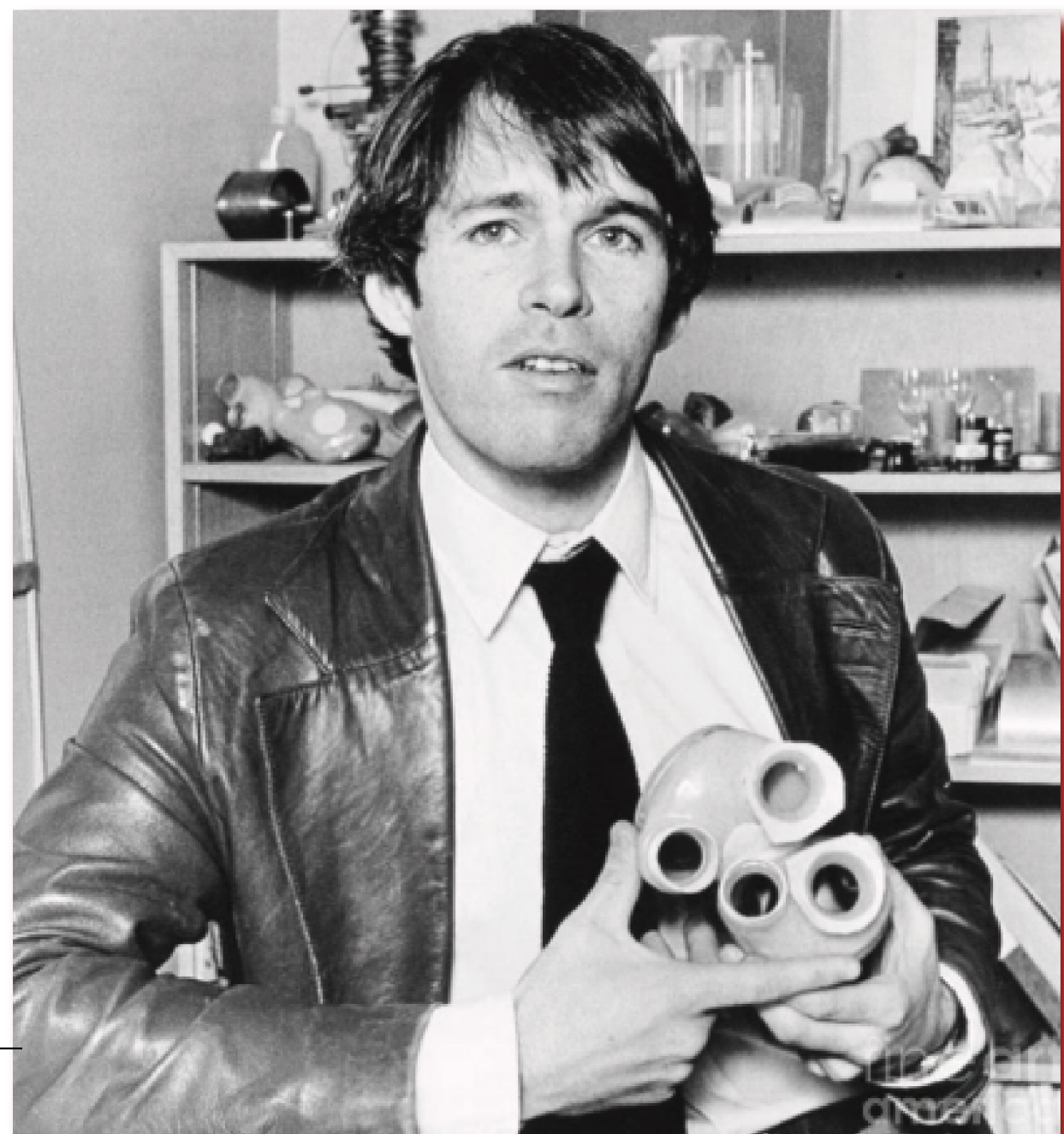
Robin Shaw, MD, PhD, Ademuyiwa Aromolaran, PhD, Martin Tristani-Firouzi, MD, and Michael Sanguinetti, PhD

decades of influential research that continues to shape the field. You can view the full presentation [here](#).

In Memoriam: Robert Jarvik, MD, PhD

CVRTI joins the scientific community in mourning Dr. Robert Jarvik, a pioneer whose work reshaped cardiovascular medicine. As a graduate student under Dr. Willem Kolff, a key figure in CVRTI's legacy, Dr. Jarvik helped develop the Jarvik-7, the first permanent total artificial heart implanted in a human. This historic 1982 procedure at the University of Utah was the result of groundbreaking collaboration involving many CVRTI-affiliated researchers. Though best known for the artificial heart, Dr. Jarvik's impact extended far beyond a single device, inspiring generations to push the boundaries of cardiac innovation.

We honor his legacy and extend our deepest condolences to his family, friends, and colleagues.



CVRTI CORE STAFF

The CVRTI Core Staff is vital to maintaining our productive, collaborative research environment. The team includes a research operations specialist who manages the operating room and building, an IT specialist, grants analysts who provide pre- and post-award support, along with staff who coordinate accounting, human resources, and events.



Back row from left:
Nuria Anderson, Kade Roberts, Terrence Ulibarri, Megan Woodard, & Anja Petrovic

Front row from left:
Lynn Kolhepp, Kat Cannon, Tara Hitzeman, MPH, Stefanie Lehman, Angelos Antonopoulos, & Haonan Yang, MS

CAREER OPPORTUNITIES

WE'RE HIRING!

To explore specific opportunities, visit the CVRTI Career page [here](#). For additional inquiries, please contact CVRTI's Administrative Manager, Kat Cannon, at kat.cannon@utah.edu.



CVRTI EVENTS



Staff Enjoying the Annual Summer CVRTI BBQ



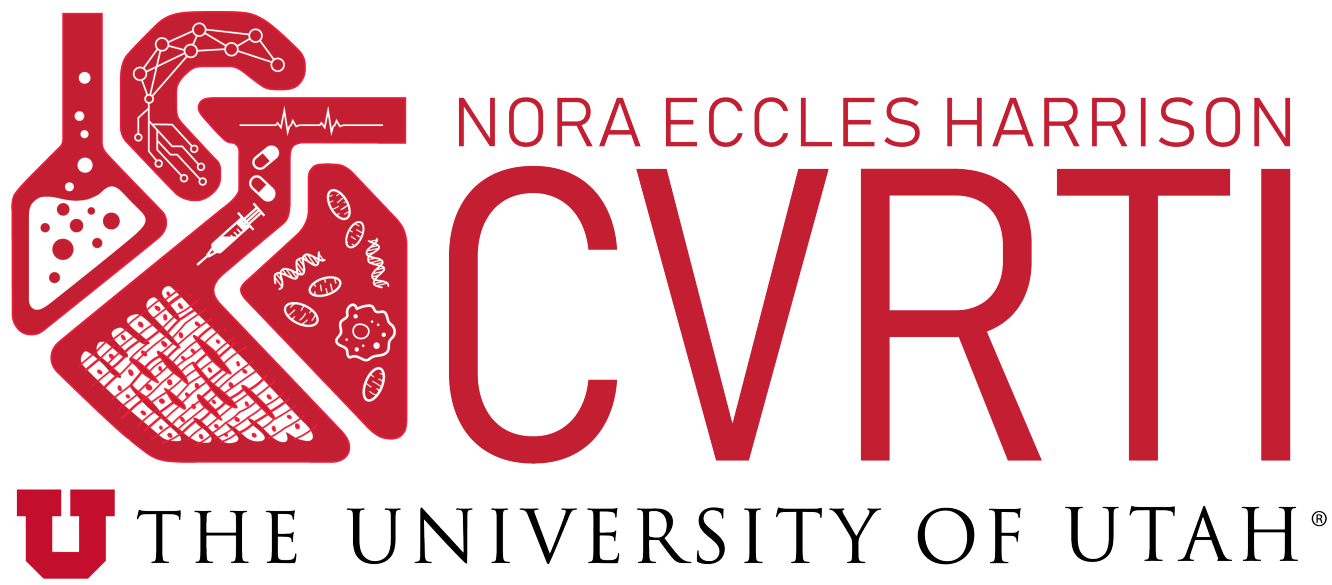
2025 National Wear Red Day



CVRTI Holiday Party

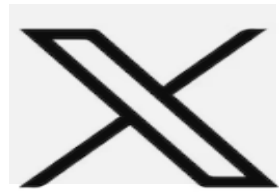


2025 Administrative Professionals Day



✦ Acknowledgements:
Stefanie Lehman- editor, layout,
and content.
Haonan Yang- technical content
and distribution.

<https://cvrti.utah.edu/>



○ **CONTACT US** ○



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