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“The Division of Cardiology pursues clinical and academic excellence through superior patient care and groundbreaking scientific discoveries, positioning the Division as an international leader in the field of cardiovascular medicine.”

As part of the Department of Medicine and UPMC’s Heart and Vascular Institute (HVI), the Division of Cardiology pursues clinical and academic excellence through superior patient care and groundbreaking scientific discoveries, positioning the Division and HVI as an international leader in the field of cardiovascular medicine. With more than 70 physicians and scientists located in facilities throughout Western Pennsylvania, HVI combines outstanding community-based care with the most advanced technology and treatments available. The Division’s training program graduates 8 general cardiology fellows per year, with additional subspecialty clinical fellowships available. Cardiology faculty also remain engaged in research, with total sponsored project funding for HVI research efforts exceeding $19 million this year.
The division was honored to have the following faculty join the staff this past year:

- Robert Baumgartner, MD, Clinical Assistant Professor
- Jason Becker, MD, Director, UPMC Inherited Heart Disease Program, Visiting Associate Professor of Medicine
- Tiffany Chen, MD, Assistant Professor of Medicine
- Mark Nathan Estes, MD, Visiting Professor of Medicine
- Mary Keebler, MD, Director, Advanced Heart Failure Program, Visiting Associate Professor of Medicine
- Venmathi Indramohan, MD, Clinical Assistant Professor
- Manling Zhang, MD, MS, Assistant Professor of Medicine

Some faculty highlights of the year include:

- William Barrington, MD, was appointed Vice President, Medical Affairs, Shadyside Hospital
- Stephen Chan, MD, PhD, was awarded the Medical Student Resident Mentoring Merit award from the University of Pittsburgh School of Medicine
- N. A. Mark Estes, MD, was awarded the Distinguished Achievement Award by the European Society of Cardiology, the Cardiology Teaching Award by Tufts Medical Center, the Career Teaching Award by Tufts Medical Center/Tufts University School of Medicine, and the UPMC Cardiology Teaching Award by UPMC HVI.
- Michael Mathier, MD, was awarded the Joe Beretta Foundation Award of Distinction

The Division of Cardiology serves as a resource for patients, families, students, and physicians. By pursuing excellence in clinical care, research, and education, Cardiology faculty are inspired to discover and deliver the innovations needed now and in the future.
FACULTY

Samir Saba, MD  
Chief, Division of Cardiology  
Professor of Medicine  
Co-Director, UPMC Heart and Vascular Institute

Gur C. Adhar, MD  
Clinical Assistant Professor of Medicine

Saleem Ahmed, MD  
Clinical Assistant Professor of Medicine

Aryan N. Aiyer, MD  
Assistant Professor of Medicine

Imad Al Ghouleh, PhD  
Assistant Professor of Medicine  
Principal Investigator, Vascular Medicine Institute  
Director, Hypoxia Core

Christopher C. Allen, MD  
Clinical Associate Professor of Medicine

Carolyn J. Anderson, PhD  
Professor of Medicine

George J. Aromatorio, MD  
Clinical Assistant Professor of Medicine

Ihsan H. Awan, MD*  
Clinical Assistant Professor of Medicine

Khaled Bachour, MD  
Clinical Assistant Professor of Medicine

William Barrington, MD  
Professor of Medicine  
Chief, Section of Cardiology, UPMC Shadyside, 2016-present

Robert A. Baumgartner, MD  
Clinical Assistant Professor of Medicine

Raveen R. Bazaz, MD  
Assistant Professor of Medicine

Jason R. Becker, MD  
Visiting Associate Professor of Medicine  
Principal Investigator, Vascular Medicine Institute

Monica M. Benavides, MD  
Clinical Assistant Professor of Medicine

Kathryn L. Berlacher, MD, MS  
Assistant Professor of Medicine  
Director, Cardiology Fellowship Program  
Subspecialty Education Coordinator, Cardiology

Jennifer I. Berliner, MD  
Clinical Assistant Professor of Medicine

Aditya Bhonsale, MBBS, MD, MHS  
Assistant Professor of Medicine

Stephen Bowser, MD  
Clinical Assistant Professor of Medicine

Susan E. Brode, MD  
Instructor of Medicine
Dennis C. Bruemmer, MD, PhD*
Associate Professor of Medicine
Principal Investigator, Vascular Medicine Institute

Sam A. Buffer, Jr., MD
Assistant Professor of Medicine
Chairman, Department of Cardiology, UPMC Passavant Hospital
Director, Cardiac Rehab, UPMC Passavant Hospital
Director, Echocardiography Lab, UPMC Passavant Hospital

Diana M. Cantellops, MD
Clinical Assistant Professor of Medicine

João L. Cavalcante, MD*
Assistant Professor of Medicine

Stephen Y. Chan, MD, PhD
Professor of Medicine
Principal Investigator, Vascular Medicine Institute
Director, Center for Pulmonary Vascular Biology and Disease
Associate Program Director, Fellowship Research, Cardiovascular Fellowship Training Program

Tiffany Chen, MD*
Assistant Professor of Medicine

Xucai Chen, PhD
Research Associate Professor of Medicine

Simon Chough, MD
Clinical Instructor of Medicine

Jeffrey S. Cohen, MD
Assistant Professor of Medicine

Chelcie L. Costabile, MD
Clinical Instructor of Medicine

Paola Corti, PhD
Assistant Professor of Medicine
Vascular Medicine Institute

Peter J. Counihan, MD
Associate Professor of Medicine

Frederick W. Crock, MD†
Assistant Professor of Medicine

Michael J. Curren Jr., MD, MS
Clinical Instructor of Medicine

Lydia S. Davis, MD
Clinical Assistant Professor of Medicine

Eric J. Dueweke, MD
Clinical Instructor of Medicine

Partha Dutta, DVM, PhD
Assistant Professor of Medicine
Principal Investigator, Vascular Medicine Institute

William P. Edwards Jr., MD
Clinical Assistant Professor of Medicine

Yvonne S. Eisele, PhD
Assistant Professor of Medicine
Principal Investigator, Aging Institute
Department of Medicine
Division of Cardiology

2019 Annual Report

Andrea M. Elliott, MD
Clinical Instructor of Medicine

Francis Lee Ergina, MD
Clinical Assistant Professor of Medicine

N. A. Mark Estes, MD
Visiting Professor of Medicine

Tulio Estrada-Quintero, MD
Clinical Assistant Professor of Medicine

Michael A. Fallert, MD
Clinical Assistant Professor of Medicine

Ning Feng, MD, PhD
Assistant Professor of Medicine

Toren Finkel, MD, PhD
Director, Aging Institute of UPMC Senior Services
and the University of Pittsburgh
Professor of Medicine
G. Nicholas Beckwith III and Dorothy B. Beckwith
Chair in Translational Medicine

William P. Follansbee, MD
Professor of Medicine and Radiology
Master Clinician Professor of Cardiovascular Medicine
Director, The Master Clinicians Center for Medical Decision Making

Jeffrey A. Fowler, DO
Assistant Professor of Medicine

Dennis K. Gabos, MD
Clinical Assistant Professor of Medicine

Rina A. Gandhi-Kulkarni, MD*
Clinical Instructor of Medicine

Thomas Generalovich, MD
Clinical Assistant Professor of Medicine

Rabindra Girdhar, MD
Clinical Assistant Professor of Medicine

Delphine A. H. Gomez, PhD
Assistant Professor of Medicine
Principal Investigator, Vascular Medicine Institute

Vijay K. Gulati, MD
Assistant Professor of Medicine

Matthew E. Harinstein, MD
Assistant Professor of Medicine
Vice President Medical Affairs/Chief Medical Officer,
UPMC McKeensport
Chief, Cardiology, UPMC McKeensport

Bradley T. Heppner, MD
Clinical Assistant Professor of Medicine

Darla B. Hess, MD
Clinical Associate Professor of Medicine

Gavin W. Hickey, MD
Assistant Professor of Medicine
Jonathan Holtz, MD
Clinical Assistant Professor of Medicine

Venmathi Indramohan, MD
Clinical Assistant Professor of Medicine

Sandeep K. Jain, MD
Associate Professor of Medicine

Amber E. Johnson, MD, MBA, MS
Assistant Professor of Medicine

Krishna Kancharla, MBBS
Assistant Professor of Medicine

William E. Katz, MD
Associate Professor of Medicine
Clinical Director of Echocardiography

Brett A. Kaufman, PhD
Associate Professor of Medicine
Principal Investigator, Vascular Medicine Institute

Mary Keebler, MD
Visiting Associate Professor of Medicine
Medical Director, Advanced Heart Failure Program

Kang Kim, PhD
Associate Professor of Medicine and Biomedical Engineering

Dustin E. Kliner, MD
Clinical Instructor of Medicine

Jeffrey D. Krackow, MD
Clinical Assistant Professor of Medicine

William J. Lauer, MD
Clinical Assistant Professor of Medicine

Ashley Lee, MD
Assistant Professor of Medicine

Jenifer E. Lee, MD
Professor of Medicine
Director of Medical Student Education, Division of Cardiology

Joon S. Lee, MD
Associate Professor of Medicine
Chief Medical Officer, UPMC Insurance Division

Joshua E. Levenson, MD
Clinical Assistant Professor of Medicine
Associate Director, Cardiology Fellowship Program

Gang Li, PhD
Assistant Professor of Medicine
Principal Investigator, Aging Institute

Avinash Linganna, MD
Clinical Assistant Professor of Medicine

Jie Liu, PhD
Visiting Research Associate Professor of Medicine
Principal Investigator, Aging Institute
James P. Lynch, MD  
Clinical Instructor of Medicine

Jared W. Magnani, MD, MSc  
Associate Professor of Medicine

Janet R. Manning, PhD  
Research Assistant Professor of Medicine  
Vascular Medicine Institute

Oscar C. Marroquin, MD  
Associate Professor of Medicine, Epidemiology, and Clinical and Translational Sciences  
Chief Clinical Analytics Officer, UPMC Health Services Division

Michael A. Mathier, MD  
Professor of Medicine  
Director, Pulmonary Hypertension Program  
Associate Director, Cardiovascular Fellowship Program

Dennis M. McNamara, MD  
Professor of Medicine  
Director, Center for Heart Failure Research  
Co-Director, Peripartum Cardiomyopathy Network

Charles F. McTiernan, PhD  
Research Associate Professor of Medicine  
Vascular Medicine Institute

Lindsay D. Mehring, DO  
Clinical Instructor of Medicine

Ure L. Mezu-Chukwu, MD  
Clinical Instructor of Medicine

Matthew F. Muldoon, MD, MPH  
Professor of Medicine

Suresh R. Mulukutla, MD  
Associate Professor of Medicine

Tapas R. Nayak, PhD*  
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Assistant Professor of Medicine

Oladipupo Olafiranye, MD, MS  
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John J. Pacella, MD, MS  
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Brittany A. Palmer, MD  
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Elizabeth A. Piccione, MD  
Clinical Assistant Professor of Medicine

John Power, MD  
Clinical Assistant Professor of Medicine

Martha A. (Bowman) Pullins, DO  
Clinical Instructor of Medicine
Aref M. Rahman, MD
Clinical Assistant Professor of Medicine
Director, Peripheral Vascular Disease, VA Pittsburgh Healthcare System
Director, Cardiac Catheterization Lab, VA Pittsburgh Healthcare System

Guy Salama, PhD
Professor of Medicine

Erik B. Schelbert, MD, MS
Assistant Professor of Medicine
Director, Cardiovascular Magnetic Resonance

Ravi N. Ramani, MD
Assistant Professor of Medicine
Director, UPMC Integrated Heart Failure Program

John T. Schindler, MD
Assistant Professor of Medicine

Makum L. Ramesh, MD
Assistant Professor of Medicine

Mark Schmidhofer, MD
Professor of Medicine
Director, Coronary Intensive Care Unit

Boyanapalli V. Rao, MD
Clinical Assistant Professor of Medicine

Iain Scott, PhD
Assistant Professor of Medicine
Principal Investigator, Vascular Medicine Institute

Shivdev K. Rao, MD
Clinical Instructor of Medicine

Shiori Sekine, PhD
Assistant Professor of Medicine
Principal Investigator, Aging Institute

P. S. Reddy, MD
Professor of Medicine

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Director of Cardiac Electrophysiology, VA Pittsburgh Healthcare System

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Director, University of Pittsburgh Clinical & Translational Institute
Professor of Medicine and Emergency Medicine
Director, LHAS Women’s Heart Center

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Clinical Instructor of Medicine

Bryan J. Robertson, MD
Clinical Instructor of Medicine

Saul J. Silver, MD
Clinical Assistant Professor of Medicine
Marc A. Simon, MD, MS
Associate Professor of Medicine and Clinical & Translational Science

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Director, Cardiac Catheterization Labs

Prem Soman, MD, PhD
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Director, Cardiac Amyloidosis Center
Director, Nuclear Cardiology
Director, Advanced Cardiac Imaging Fellowship

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Chief of Staff, VA Pittsburgh Healthcare System

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Principal Investigator, Vascular Medicine Institute

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Clinical Assistant Professor of Medicine

Edward T. Szabo, MD, MS
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Sina Tavakoli, MD, PhD
Assistant Professor of Radiology and Medicine

Mark E. Thompson, MD
Professor of Medicine

Catalin Toma, MD
Assistant Professor of Medicine

Krishna V. Tummala, MD
Clinical Instructor Professor of Medicine

Isik Turker, MD
Clinical Assistant Professor of Medicine

Kenneth D. Vesio, MD
Clinical Assistant Professor of Medicine

Flordeliza S. Villanueva, MD
Vice Chair for Pre-Clinical Research, Department of Medicine
Professor of Medicine
Director, Non-Invasive Cardiovascular Imaging
Director, Center for Ultrasound Molecular Imaging and Therapeutics

Andrew H. Voigt, MD
Associate Professor of Medicine

Norman C. Wang, MD, MS
Associate Professor of Medicine
Director, Cardiac Electrophysiology Fellowship Program
John R. Ward, DO  
Clinical Assistant Professor of Medicine  
Vice Chair of Internal Medicine, UPMC Mercy  
Treasurer of Medical Executive Committee, UPMC Mercy  
Osteopathic Program Director, UPMC Mercy

Christopher Miller Wentz, MD  
Clinical Instructor Professor of Medicine

Timothy C. Wong, MD, MS  
Assistant Professor of Medicine  
Director, UPMC Hypertrophic Cardiomyopathy Center  
Associate Director, UPMC Cardiovascular Magnetic Resonance Center

Manling Zhang, MD, MS  
Assistant Professor of Medicine

* Faculty who left the division over the course of FY 2019.
CLINICAL ACTIVITIES

During FY2019, the cardiology program achieved continued success in the Heart and Vascular Institute (HVI). The HVI is an integrated service line that provides patients with world-class cardiovascular services, including cardiology, cardiac surgery and vascular surgery. This collaboration solidifies the HVI as the strongest provider of heart and vascular services in western Pennsylvania. We offer unparalleled quality, service and efficiency.

Some highlights of the year include:

• A joint Quality Improvement project with Boston Scientific to identify the most effective methods to detect patients who may benefit from improved disease management of Atrial Fibrillation (AF). The project will develop and test new care pathway improvements to reduce variability in care and improve outcomes for patients while making a positive impact on the total cost of care. This initiative is being led by Sandeep Jain, MD, and Suresh Mulukutla, MD.
• First heart transplant with hepatitis C donor in western Pennsylvania
• Rated as High Performing from US News and World Report for Heart Failure
• Achieved 3-year patient survival of 90% compared to the national average of 85% for Heart Transplant according to the July 2019 release of the Scientific Registry of Transplant Recipients.
• Completed 100 Watchman device implantations and first TAVR implantation at HVI Altoona
• Performed over 1,400 TAVR procedures and 1,250 VAD implantations
• Completed 150 Mitral Clip implants
• Completed a successful Check Your Heart Campaign with a six-fold increase in blog pageviews
• Continued Rapid Access program and doubled Emergency Room referrals for OP follow up
• Initiated Inherited Heart Disease Program focusing on Hypertrophic Cardiomyopathy, inherited arrhythmias, aortopathies, and familial hyperlipidemia
• Expanded Virtual Centers of Excellence to include eConsultation, Telemedicine, Remote Monitoring, and Virtual Visits

Several faculty also undertook new clinical leadership roles in key areas:

• William Barrington, MD, Physician Partner, UPMC Shadyside, 4 Pavilion/4 South
• Gavin Hickey, MD, Associate Director, VAD Transplant and Program Director for the CHF Fellowship program
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• William Barrington, MD, Physician Partner, UPMC Shadyside, 4 Pavilion/4 South

• Gavin Hickey, MD, Associate Director, VAD Transplant and Program Director for the CHF Fellowship program

• Michael Mathier, MD, Physician Partner, UPMC Presbyterian, 4/5D

• Mark Schmidhofer, MD, Physician Partner, UPMC Presbyterian, 3F

• Marc Simon, MD, MS, Physician Partner, UPMC Presbyterian, 6NE

• Timothy Wong, MD, MS, Director, HCM

CLINICAL QUALITY IMPROVEMENT INITIATIVES

In collaboration with the UPMC Health Plan, HVI has implemented the Health Help Initiative. This program is designed to promote appropriate use by establishing peer review panels to educate ordering physicians on the most effective treatments and clinical guidelines.

This year, the Division also held two clinical care symposia: the 5th Annual Advanced Transradial and Complex Cardiac Interventions Symposium (Course Directors included John Schindler, MD, FACC, FSCAI; Krishna Tummalapalli, MD, FACC, FSCAI; and Dustin Kliner, MD, FACC) and the 5th Annual Advances in Cardiovascular Care Symposium (Course Directors included Michael A. Fallert, MD, FACC, and Maggie Lattanzio, MSN, RN, CCRN).
HVI researchers continue to strive for the cutting edge, employing new technologies and treatments for the benefit of patients. This year, HVI researchers continued their strong tradition of procuring research funding from federal, industry, and foundation sources. The major strengths of the research program center on translational genetics, heart failure, sudden death, molecular imaging, and outcomes research. In addition, there are robust and active cardiology clinical trials that include sponsor initiated drug trials and IDE trials.

HVI physicians continued to present at national and international cardiology meetings, including the American Heart Association, the American College of Cardiology, the Heart Rhythm Society, the American Society of Echocardiography, the American Society for Nuclear Cardiology, Heart Failure Society of America, Transcatheter Cardiovascular Therapeutics (TCT), and the International Society for Heart and Lung Transplantation. Additionally, HVI researchers and physicians published important manuscripts in top cardiovascular journals such as The New England Journal of Medicine, Circulation Research, Circulation, and the Journal of the American College of Cardiology. Moreover, representatives from the HVI continue to hold prominent roles in national and international cardiovascular organizations.

In just 2 years, the Division has nearly doubled its research expenditures, surpassing 32 million in FY19

Research News and Awards

- The Division of Cardiology welcomed Jason Becker, MD, this September. Since his arrival, Dr. Becker has focused on setting up his laboratory, developing relationships with collaborators, and learning the details about conducting research at Pitt. He joins our division from Vanderbilt University School of Medicine. He has an NIH R01 research grant titled “Cell State Specific modifiers of pathological cardiac remodeling.”
- This past February, the Division of Cardiology, in conjunction with the VMI, held its fifth annual fellows retreat, featuring a keynote presentation by Dr. Thomas Wang of Vanderbilt Heart and
Vascular Institute. With focused presentations by research faculty, new fellows were exposed to potential areas of research while also afforded the opportunity to develop burgeoning mentor-mentee relationships outside of an academic setting. New cardiology trainees had the opportunity to formally present their work and interests, as well as informally socialize with other trainees and faculty during dinner, bowling, and skiing. Spanning two days, the retreat aimed to build a congenial atmosphere between VMI and HVI fellows and faculty, highlighting the general collaborative spirit of the medical community at the University of Pittsburgh. The retreat was held at Seven Springs from February 20-22, 2019.

- Five new HVI Fellows Grant applications have been funded in FY19
  - Laith Alkukhun, MD, “Role of microvascular endothelial dysfunction in predicting atrial fibrillation recurrence in patients on antiarrhythmic medical therapy” (Mentor: Samir Saba, MD).
  - Amr Barakat, MD, “Atrial Telomere Length and the Risk of Prevalent and Incident Atrial Fibrillation” (Mentor: Samir Saba, MD).
  - Emily Guhl, MD, “Social Determinants of Health and Atrial Fibrillation” (Mentor: Jared Magnani, MD, MSc).
  - Amy Marino, MD, “Investigating the Link Between Preeclampsia and Peripartum Cardiomyopathy: A Cross Sectional Evaluation of Cardiac Dysfunction in Women with Severe Preeclampsia” (Mentor: Dennis McNamara, MD).
  - Brian Pierce, MD, “Pulmonary Hypertension in Secondary Mitral Regurgitation: Effects of LVAD Unloading” (Mentors: Tiffany Chen, MD, and Stephen Chan, MD, PhD).

- Three new VMI/HVI Innovator applications were funded for FY19
  - Imad Al Ghouleh, PhD; Charles McTiernan, PhD; and Marc Simon, MD, MS, FACC: “Mechanistic Insights into Right Ventricular Dysfunction”
  - Yvonne Eisele, PhD, and Prem Soman, MD, PhD: “Cardiac ATTR Mechanisms: A pilot study to define the target of 99mTc PYP binding and characterize TTR aggregate subtypes in comparison with TTR neuropathy and AL amyloidosis”
  - Charlies McTiernan, PhD; Partha Dutta, DVM, PhD; and Dennis McNamara, MD: “NK Cells in Paripartum Cardiomyopathy”

Additionally, several new extramural funding for Cardiology researchers was secured in FY19:

- Carolyn Anderson, PhD, is a co-Principal Investigator with Enrico Novelli, MD, MS, of the Vascular Medicine Institute on a grant from the Pittsburgh Foundation titled “PET Imaging of Vaso-Occlusion in Sickle Cell Disease: From Mice to Humans.”
- Stephen Chan, MD, PhD, started an industry collaboration with Pfizer Inc. titled “Palbociclib in Su/HY Rats.”
- Delphine Gomez, PhD, was awarded her first R01 from NHLBI titled “Epigenetic Control of Smooth Muscle Cell Phenotype During Microvascular Remodeling.”
- Brett Kaufman, PhD, was awarded an R01 from NIMH as a part of a multi-PI team, titled “Transduction of Psychological Stress into Systematic Inflammation by Mitochondrial DNA Signaling.”
- Jared Magnani, MD, MSc, was awarded an R56 from NHLBI, “Mobile Health Intervention for
Rural Atrial Fibrillation,” and an R61/R33 clinical trial from NHLBI titled “A Mobile Relational Agent to Enhance Atrial Fibrillation Self-care.”

- **Cynthia St. Hilaire, PhD**, was awarded her first R01 from NHLBI titled “The Role of Telomerase in Calcific Aortic Valve Disease.”
- **Flordeliza Villanueva, MD**, was awarded an R01 from NHLBI titled “Biological and Physical Mechanisms of Ultrasound/Microbubble-Mediated Therapeutic Gene Delivery Across the Endothelial Barrier.”

**Faculty Research Interests and Activities**

**Samir Saba, MD  Division Chief**

Dr. Saba’s research interests include cardiac device therapy for heart failure and signal processing of intracardiac electrical signals for ischemia detection. The author of more than 250 manuscripts in peer-reviewed journals, he has been issued 3 patents for inventions in the field of cardiac electrophysiology. Dr. Saba has also received research grants from the National Institutes of Health, the American Heart Association, the American Heart Foundation, and the American College of Cardiology.

**Study Sections**

- Grants Reviewer, American Heart Association, 2009-present

**Advisory Committee Memberships and Leadership Positions**

- Director, UPMC Cardiac Electrophysiology Laboratory, 2004-present
- Chief, Cardiac Electrophysiology Section, 2005-present
- Task Force Member, American Heart Association Fellows Research Day, 2014-present

**Professional Affiliations and Society Memberships**

- Member, Massachusetts Medical Society, 1993-present

**Editorships**

- Editorial Board, *Heart Rhythm Journal*, 2010-present
- Editorial Board, *Circulation*, 2018-present

**Honors and Awards**

- Fellow, American College of Cardiology, 1998-present
- Fellow, American Heart Association, 2000-present
- Fellow, Heart Rhythm Society, 2000-present
- Honoree, Best Doctors, *Pittsburgh Magazine*, 2018-present

**Aryan N. Aiyer, MD**

Dr. Aiyer’s academic interests focus on preventive cardiology with a special interest on novel cardiac risk factors and the use of coronary calcium scoring in the assessment of subclinical atherosclerosis. He is a co-investigator on the Heart SCORE study, an ongoing observational study involving an ambulatory biracial cohort of adults in Pittsburgh.

**Imad Al Ghouleh, PhD**

Dr. Al Ghouleh’s lab studies pulmonary hypertension, with a particular focus on defining the mechanisms that underlie right ventricular phenotypic changes in this disease. Current research is designed to test this pathway in the RV following pressure overload challenge and to delineate the upstream and downstream molecules involved. The long-term goal is to translate mechanistic insights into therapeutic strategies aimed
at the RV.

**Professional Affiliations and Society Memberships**
- Member, Society for Free Radical Biology and Medicine, USA/International, 2010-present
- Member, American Heart Association, 2010-present

**Editorships**
- Reviewer, *American Journal of Hypertension*, 2010-present
- Reviewer, *Journal of Cardiovascular Medicine*, 2011-present
- Reviewer, *Arteriosclerosis, Thrombosis, and Vascular Biology*, 2012-present
- Reviewer, *International Journal of Molecular Sciences*, 2013-present
- Reviewer, *Antioxidants and Redox Signaling*, 2013-present

**Carolyn J. Anderson, PhD**
Dr. Anderson’s research interests include development of novel radiometal tracers for diagnostic imaging and targeted radiotherapy of cancer, pulmonary and cardiovascular diseases. Dr. Anderson pioneered the development of radiometal-labeled receptor-targeted PET imaging agents, leading the first human study of a 64Cu-labeled somatostatin analog in patients with neuroendocrine tumors. A current focus of her research lab is in the development of imaging agents for upregulated receptors on immune cells that are involved in inflammation related to lung diseases including tuberculosis, primary tumor growth, and cancer metastasis. Another area of interest in is the development of targeted radionuclide therapy agents for prostate cancer and melanoma.

**Study Sections**
- Grant Reviewer, Cancer Prevention and Research Institute of Texas, 2010-present

**Advisory Committee Memberships and Leadership Positions**
- Sub-Chair for Programming, Society of Nuclear Medicine and Molecular Imaging Annual Meeting, 2017

**Editorships**
- Editorial Board, *Cancer Biotherapy and Radiopharmaceuticals*, 1999-present
- Associate Editor, *Molecular Imaging and Biology*, 2015-present
- Editorial Board, *Molecular Imaging*, 2017-present

**William Barrington, MD**
Dr. Barrington’s interests involve clinical cardiology and electrophysiology. He participates in a variety of clinical studies examining the role of new pharmacologic agents, devices, or therapies in the treatment of cardiac arrhythmias.

**Advisory Committee Memberships and Leadership Positions**
- Member, UPMC Cardiology Fellowship/Education Committee, 2001-present
• Member, Cardiology Cabinet (Leadership Committee), UPMC Shadyside, 2005-present

Honors and Awards
• Honoree, Best Doctors, Pittsburgh Magazine, 2019

Raveen R. Bazaz, MD
Dr. Bazaz is initiating innovative animal research with the goal of linking cardiac anatomy, histology, and pathology to function. His current research efforts focus on the atria, with the intention to expand his focus to the more complex ventricular chambers in the near future.

Advisory Committee Memberships and Leadership Positions
• Member, Association for Advancement of Medical Instrumentation, Development of International Standards for Lead Testing: Consortium of FDA, NIST, Biotronik, Boston Scientific, Medtronic, Sorin and St. Jude Medical: Primary Investigator, Human Use Condition Study, 2013-present

Jason Becker, MD
Dr. Becker’s research focuses on the molecular processes central to inherited and acquired cardiomyopathies. He is currently studying cell state specific modifiers of pathological cardiac remodeling and is the principal investigator in clinical trials to determine treatment for cardiomyopathy.

Advisory Committee Memberships and Leadership Positions
• Zebrafish Advisory Committee, 2012-present
• Cardiology Fellowship Interview Committee, 2015-present
• Graduate Student Qualifying Committee, Cell and Developmental Biology, 2015-present

Professional Affiliations and Society Memberships
• American Heart Association, 2003-present

Kathryn L. Berlacher, MD, MS
Dr. Berlacher’s primary research interest revolves around medical education, specifically innovative curriculum development and outcome based program development. She is also involved in research pertaining to women’s cardiology and pregnancy in cardiology.

Advisory Committee Memberships and Leadership Positions
• Volunteer, UPMC COACH events, 2009-present
• Member, UPSOM Admissions Interviewing Committee, 2012-present
• Participant, ABIM Pilot Study, American College of Cardiology Foundation, 2012-present
• Participant, Medical Documentation Task Force, 2012-present
• Member, Women’s Health in Emergency Medicine, UPMC MWH, 2012-present
• Participant, Medical Documentation Technology Development, 2012-present
• Member, Faculty Development Task Force, American College of Cardiology Foundation, 2012-present
• Participant, ABIM Competency-Based Pilot Program, American College of Cardiology, 2013-present
• Co-Director, CardioTalk, 2013-present
• Member, American Heart Association, 2014-present
• Member, Laennec/Postgraduate Education Committee, American Heart Association, June 2014-
Dennis Bruemmer, MD, PhD*
Dr. Bruemmer’s research program centered on the basic investigation of mechanisms underlying tissue remodeling during atherosclerosis and neointima formation. His laboratory investigated the role of telomerase and telomere attrition in obesity, diabetes, and cardiovascular disease. Specifically, he sought to determine the transcriptional mechanisms by which telomere biology impacts cell proliferation and inflammation in diabetes and cardiovascular disease.

Study Sections
- Member, Permanent Grant Review Panel, American Diabetes Association, 2003-present

Advisory Committee Memberships and Leadership Postitions
- Permanent Member, Region I Vascular Wall Biology Peer Review Committee, American Heart Association, 2008-present
- Member, Great Rivers Affiliate Research Committee, American Heart Association, 2015-present

Professional Affiliations and Society Memberships
- Member, American Heart Association, 2001-present
- Member, National Committee, American Diabetes Association, 2003-present
- Member, American Society of Hypertension, 2004-present
- Member, American College of Cardiology, 2012-present
- Member, Endocrine Society, 2011-present
- Member, American College of Cardiology, 2013-present

Editorships
- Editorial Board Member, Clinical Sciences, 2009-present
- Editorial Board Member, Arteriosclerosis, Thrombosis, and Vascular Biology, 2012-present
- Editorial Board Member, Molecular Metabolism, 2012-present

Stephen Y. Chan, MD, PhD
Dr. Chan leads a basic science and translational research group that is studying the molecular mechanisms of pulmonary vascular disease and pulmonary hypertension (PH)—an example of an enigmatic disease where reductionist studies have focused primarily on end-stage molecular effectors. To capitalize on the emerging discipline of network medicine, the group’s research uses a combination of network-based bioinformatics and unique experimental reagents derived from genetically altered rodent and human subjects to accelerate systems-wide discovery in PH. The group’s published findings were among the first to identify the systems-level functions of microRNAs (miRNAs), which are small, non-coding RNAs that negatively regulate gene expression, as a root cause of PH. Dr. Chen’s lab developed novel in silico approaches to analyzing gene
network architecture coupled with in vivo experimentation. The results now offer methods to identify persons at risk for PH and to develop therapeutic RNA targets. This work is the cornerstone of the lab’s evolving applications of network theory to the discovery of RNA-based origins of human diseases, in general.

**Study Sections**
- Permanent Member, RIBT Study Section, NHLBI, NIH, 2018-2022

**Advisory Committee Memberships and Leadership Positions**
- Member, Advisory Board, Simpatica Medicine, 2016-present
- Member, 3CPR Early Career Committee, American Heart Association, 2016-present

**Professional Affiliations and Society Memberships**
- Member, American Heart Association, 2008-present
- Member, American College of Cardiology, 2008-present
- Fellow, Pulmonary Vascular Research Institute, 2012-present
- Fellow, American Heart Association, 2012-present

**Editorships**
- Editorial Board Member, microRNA Diagnostics and Therapeutics, 2013-present
- Editorial Board Member, Pulmonary Circulation, 2015-present
- Consulting Editor, JCI Insight, 2015-present
- Editorial Board Member, Scientific Reports, 2016-present

**Honors and Awards**
- Fellow, American Society for Clinical Investigation, 2016-present

**Tiffany Chen, MD***
Dr. Chen researches valvular heart disease, Structural/interventional imaging, 3D echocardiography, advanced cardiovascular imaging (cardiac CT and MRI).

**Advisory Committee Memberships and Leadership Positions**
- Education Committee Member, Society of Cardiovascular Computed Tomography, July 2018-July 2021

**Xucai Chen, PhD**
Dr. Chen’s research interests focus on three areas: ultrasound imaging, ultrasound mediated therapy, and ultra-high-speed digital microscopy. Within ultrasound imaging, he focuses on (1) Ultrasound molecular imaging of angiogenesis using vascular endothelial growth factor-conjugated microbubbles and ischemic memory imaging with targeted microbubbles; (2) Novel intravascular ultrasound system (IVUS) for contrast-enhanced imaging of coronary vasa vasorum for quantification of plaque neovascularization during atherosclerosis progression; and (3) Stem cell imaging with ultrasound to track the trafficking of mesenchymal stem cells by uptake of the microbubbles. Regarding ultrasound mediated therapy, Dr. Chen studies ultrasound-assisted gene and drug delivery and therapy for cancer and cardiovascular diseases, such as hypertrophic cardiomyopathy. He also investigates sonoreperfusion and microvascular reperfusion therapy by using ultrasound and microbubbles to resolve microvascular obstruction post-percutaneous coronary intervention of acute myocardial infarction (AMI). A High-Speed Digital Microscopy Laboratory has been developed to support the functions of the Pittsburgh Center for Ultrasound Molecular Imaging and Therapeutics. The center houses the fastest multi-frame digital microscopy laboratory (UPMC Cam, 25 million frames per second, 128 frames) in North America dedicated to biomedical research. When combined with
the Acoustics Laboratory, researchers can observe microbubble oscillations when they are exposed to ultrasound energy as well as their interactions with biological cells at very high temporal resolutions. This system is used to investigate mechanisms of ultrasound mediated bioeffects, such as sonoporation for drug delivery and gene transfection for cancer therapy, sonothrombolysis for reperfusion therapy for microvascular obstruction, and the phase transition phenomena for photoacoustic imaging and contrast ultrasound imaging.

Paola Corti, PhD
Dr. Corti is studying the role of the cellular globins and the nitrite signaling in vertebrate metabolism and cardiac signaling. He is investigating the description of the chemical biology, signaling, and biological function of the globins, as well as their interactions with nitrite during the embryonic development and during the regeneration of the heart after amputation.

Peter J. Counihan, MD
Dr. Counihan investigates the efficacy and safety of erythropoietin and darbopoetin in animal models of ischemia and reperfusion. This research may lead to further therapies in humans to improve clinical outcomes.

Frederick W. Crock, MD†
Dr. Crock was involved in research pertaining to the use of echocardiography in percutaneous treatment of valvular disease and atrial fibrillation.

Honors and Awards
- Honoree, Best Doctors, Pittsburgh Magazine, 2019

Eric J. Dueweke, MD
Eric Dueweke’s academic interest focuses on care efficiency - analyzing processes, strategies, organizational data, and new technologies to determine the safest and most cost effective approaches to delivering high quality cardiac care. He is particularly interested in the insights that business analytics can offer physicians in areas of patient care. He currently sits on the Quality Review Committee for UPMC and advises on several initiatives within the HVI.

Partha Dutta, DVM, PhD
Dr. Dutta researches cardiovascular disease, which is the leading cause of death in developed countries. Inflammation aggravates outcome of cardiovascular disease, including atherosclerosis and infarct healing after myocardial infarction (MI). During progression of atherosclerosis, myeloid cells destabilize lipid-rich plaques in the arterial wall and cause their rupture, thus triggering myocardial infarction and stroke. Survivors of acute coronary syndromes have a high risk of recurrent events for unknown reasons. Another area of research interest is the differentiation of hematopoietic stem and progenitor cells in cardiovascular disease. Hematopoietic stem cells get activated after acute or chronic inflammation and give rise to exaggerated myelopoiesis. However, most hematopoietic stem cells (HSC) are quiescent, and it is currently unknown whether they respond to ischemic organ injury. We identified a CCR2+HSC subset, which has a four-fold higher proliferative rate than CCR2-HSC, as the most upstream contributor to myelopoiesis after myocardial infarction. CCR2+HSC display bias toward the myeloid lineage and dominate the migratory HSC population after myocardial infarction and in steady-state. These data shed new light on the regulation of emergency
hematopoiesis after ischemic injury and identify novel therapeutic targets to modulate leukocyte output after myocardial infarction. Another area of interest is the role inflammatory macrophage expansion in pulmonary hypertension. Pulmonary inflammation, characterized by the presence of perivascular macrophages, has been proposed as a key pathogenic driver of pulmonary hypertension (PH), a vascular disease with increasing global significance. However, the mechanisms of expansion of lung macrophages and the role of blood-borne monocytes in PH are poorly understood. Using multicolor flow cytometric analysis of blood in mouse and rat models of PH and patients with PH, an increase in blood monocytes was observed. We found chemotaxis of blood monocytes and their subsequent recruitment into lung perivascular space leads to macrophage expansion and inflammation. This study defines a direct mechanism by which interstitial macrophages expand in PH. It also demonstrates a pathway for pulmonary vascular remodeling in PH that depends upon interstitial macrophage-dependent inflammation yet at least is partially dissociated from hemodynamic consequences, thus offering guidance on future anti-inflammatory therapeutic strategies in this disease.

**Professional Affiliations and Society Memberships**
- Member, American Heart Association, 2017-present

**Yvonne S. Eisele, PhD**
The Eisele lab focuses on age-related amyloid diseases, such as Alzheimer’s disease and cardiac transthyretin amyloidosis. Dr. Eisele’s team is interested in characterizing the protein aggregates that cause these diseases and then delineating the molecular and cellular changes they elicit in affected tissue. The lab’s goal is to identify novel biomarkers and therapeutic targets. It collaborates closely with the clinical team at the recently founded Cardiac Amyloidosis Center at the University of Pittsburgh and UPMC.

**Study Sections**
- Grant reviewer, French National Research Agency (ANR), 2013-present
- Grant reviewer, Alzheimer’s Society UK, 2018

**Professional Affiliations and Society Memberships**
- Member, Society for Neuroscience (SfN), 2009-present
- Member, International Society to Advance Alzheimer’s Research and Treatment (ISTAART), 2018-present

**Editorships**
- Ad hoc reviewer, Acta Neuropathologica, 2007-present
- Ad hoc reviewer, Neurobiology of Aging, 2007-present
- Ad hoc reviewer, EMBO Journal, 2007-present
- Ad hoc reviewer, American Journal of Respiratory and Critical Care Medicine, 2018-present

**Major Lectureships and Seminars**
- Invited speaker, Panel on ‘Contemporary Evaluation and Management of Cardiac Amyloidosis,’ American Society of Nuclear Cardiology, 2018
- Invited speaker, Pittsburgh Institute for Neurodegenerative Diseases Seminar, April 2019
• Invited speaker, Department of Medicine Grand Rounds, University of Pittsburgh, February 2019
• Invited speaker, 8th Annual University of Pittsburgh and Tsinghua University Joint Symposium on the Biology of Aging, May 2019
• Invited speaker, Senior Vice Chancellor Research Seminar Series, University of Pittsburgh, June 2019

N. A. Mark Estes, MD
Dr. Estes's research interests are in prediction and prevention of sudden cardiac death, cardiovascular disease and arrhythmias in athletes, and prevention and treatment of atrial fibrillation.

Major Lectureships and Seminars
• Mark Josephson Lecture, European Society of Cardiology, 2019

Honors and Awards
• Honoree, Best Doctors, Pittsburgh Magazine, 2019
• Cardiology Teaching Award, UPMC Heart and Vascular Institute, 2019

Ning Feng, MD, PhD
Dr. Feng's research focuses on cardiac epigenetics in heart failure development. Specifically, he investigates the impact of dynamic DNA methylation and mRNA methylation in transcriptional genes reprogramming in heart failure using genetic mouse models.

Toren Finkel, MD, PhD
The Director of the UPMC-University of Pittsburgh Aging Institute and a Professor of Medicine in the Division of Cardiology, Dr. Finkel is a physician-scientist renowned for his research on the basic science of aging. For more than 20 years, his research group has focused on issues involved in mitochondrial function, cellular metabolism, oxidative stress, and aging. Due to the wide span of biological interests, his lab has developed expertise in mitochondrial assays, cell and molecular biology approaches, and the generation of mouse models along with whole-animal physiological measurements. A long-term goal is to uncover the molecular basis of mammalian aging and age-related diseases through the study of different cellular pathways, including stem cell self-renewal, reactive oxygen species, sirtuins, autophagy, mTOR signaling, and mitochondrial metabolism. A particular focus in the last several years has been the role that a decline in autophagy might phenocopy vascular aging. His lab has also developed novel strategies to measure mitophagy in vivo.

Advisory Committee Memberships
• Member, Steering Committee for the NIH Bone Marrow, 2010-present
• Member, Stromal Cell Transplantation Center, NHLBI iPS Oversight Committee, 2011-present
• Coordinator, Leducq Transatlantic Network, 2014-2019
• Member, Board of Directors Foundation for Advanced Education in the Sciences, 2015-present

Editorships
• Editorial Board, Science, 2015-present
William P. Follansbee, MD
Dr. Follansbee’s career focus has been as a clinician-educator, but he has also participated actively in research. Early in his career, his research focused on cardiac involvement in systemic diseases, particularly systemic sclerosis. His research interests in nuclear cardiology centered on the application of the technologies to study pathophysiology of diseases. In more recent years, his participation in research has been in facilitating projects of colleagues and particularly younger faculty members. The initiative in medical decision making has resulted in multiple national presentations by younger faculty members in the last couple years.

Honors and Awards
- Honoree, Best Doctors, Pittsburgh Magazine, 2018-present

Delphine A. H. Gomez, PhD
The Gomez lab is focused on studying the functional role of epigenetic and transcriptional mechanisms in controlling key properties of vascular cells including cell differentiation, lineage memory and plasticity in the context of major cardiovascular diseases including atherosclerosis and peripheral artery disease. We developed an integrated approach combining epigenetic and transcriptional profiling, epigenome editing and in vivo lineage tracing and fate mapping to decipher epigenetic and transcription mechanisms regulating SMC phenotype.

Advisory Committee Memberships and Leadership Positions
- Member, American Heart Association, Council on Arteriosclerosis, Thrombosis, and Vascular Biology, 2009-present
- Member, Awards and Membership Committee, Histochemical Society, 2014-present

Professional Affiliations and Society Memberships
- Member, American Heart Association, 2009-present
- Member, Histochemical Society, 2014-present
- Member, North American Vascular Biology Organization, 2015-present

Major Lectureships and Seminars
- Invited Lecturer, ATVB meeting, San Francisco, CA, 2018
- Invited Lecturer, International MADS Box Conference. Lake Placid, NY, 2018

Matthew E. Harinstein, MD
Dr. Harinstein studies acute heart failure syndromes, transcatheter aortic valve replacement outcomes, assessment of right ventricular function in liver transplant candidates, cardiac risk assessment of solid organ transplant candidates, clinical trials studying new pharmacologic agents, and assessment of mechanical dyssynchrony with gated SPECT. He also is a reviewer and Editorial Board member of the American Journal of Cardiology.

Advisory Committee Memberships and Leadership Positions
- Member, Membership Committee, American Society of Nuclear Cardiology, 2015-present
- Medical Director, CCAC Cardiac Sonography Program, 2015-present
- Member, Education Committee, American Society of Nuclear Cardiology, 2016-present
- Co-Director, Noninvasive Imaging, UPMC Shadyside, 2016-present
- Member, Item Development Working Group, Certification Board of Nuclear Cardiology, 2016-present
• Vice President Medical Affairs/Chief Medical Officer, UPMC McKeesport, 2017-present
• Program Committee Member, American Society of Nuclear Cardiology Scientific Sessions, 2017-2018
• Member, Assessment Committee, Certification Board of Nuclear Cardiology, 2018-present

**Editorships**
• Reviewer, *American Journal of Cardiology*, 2012-present
• Editorial Board, *American Journal of Cardiology*, 2014-present

**Honors and Awards**
• Fellow, American College of Cardiology, 2013-present
• Fellow, American Society of Echocardiography, 2013-present

**Gavin W. Hickey, MD**
Dr. Hickey researches congestive heart failure/transplant, specifically among congenital heart disease patients. He is currently investigating outcomes (morbidity and mortality) of congenital heart disease patients evaluated for heart transplants as well as variables that predict candidacy for transplant and transplant outcomes. Additionally, he is investigating the underlying causes of heart failure readmission and patients at greatest risk, including patients with sleep disordered breathing.

**Major Lectureships and Seminars**
• Invited Speaker Grand Rounds, VA Pittsburgh Healthcare System, March, 2019

**Sandeep K. Jain, MD**
Dr. Jain’s research interests comprise novel therapies for atrial fibrillation, such as newer mapping systems and ablation techniques, including the region’s largest cryoballoon experience. He is the site PI for the NIH PCORI AF cohort within the PaTH network. He oversees an atrial fibrillation ablation database from which newer techniques and predictors of response and complications are continually being evaluated.

**William E. Katz, MD**
Dr. Katz participated in the research study titled Echocardiography to Predict Recurrent IMR after Surgical Mitral Valve Repair, an NIH grant with the University of Pennsylvania (2011-2015). He is currently involved in multiple research studies, including the following TAVR aortic valve trials: CoreValve US Pivotal Trial (2011-present), Medtronic SURTAVI Trial TAVR vs Surgical AVR for Moderate Risk Patients (2013-present), Reprise III Boston Scientific Lotus TAVR valve (2014-present), and the St. Jude Portico TAVR valve study (2014-present). Among his other studies are COAPT Trial Evaluating MitrClip for Functional Mitral Regurgitation (2014-present) and REATA Trial Mitochondrial Disease. Cardiologist subinvestigator reading echoes and EKGs (2015 to present).

**Advisory Committee Memberships and Leadership Positions**
• Clinical Director, Echocardiography Laboratory, 2004-present
• Fellowship Committee, UPMC, 2015-present

**Editorships**
• Reviewer, *American Journal of Cardiology*, 1999-present
• Reviewer, *European Heart Journal*, 2006-present

**Major Lectureships and Seminars**
• Presenter, Three Rivers Echo Society meeting “Challenging Echo Cases”, October 2018
• Presenter, UPMC System Wide Collaborative Care Conference, May 2019
Brett A. Kaufman, PhD
Dr. Kaufman’s long-standing research interest is to understand the contribution of mtDNA metabolism to disease progression. For 20 years, he has been investigating the fundamental processes that underlie mitochondrial respiratory deficiency, with a focus on mtDNA stability and copy number control-processes essential for respiratory function and viability. Dr. Kaufman’s major research goals are 1) to define the biochemical events responsible for the maintenance of mtDNA content, 2) to understand how distinct pathways influence mtDNA maintenance, and 3) to understand mechanisms of mtDNA damage and resistance to damage in the context of disease.

Study Sections
- Grant Reviewer, Pilot Project Program in Hemostasis and Vascular Biology, Vascular Medicine Institute, 2016-present
- Grant Review Committee, United Mitochondrial Disease Foundation, 2016-2020

Professional Affiliations and Society Memberships
- Member, American Society for Cell Biology, 2003-present
- Member, Mitochondria Research Society, 2009-present
- Member, United Mitochondria Disease Foundation, 2009-present
- Member, Genetics Society of America, 2017-present

Editorships
- Review Editor, Frontiers in Genetics of Aging, 2011-present

Kang Kim, PhD
Dr. Kim’s laboratory seeks to develop and translate state-of-the-art noninvasive imaging technologies to improve disease diagnosis, guide therapeutic strategies, and to evaluate therapeutic efficacy. Its research emphasis is on the development and application of hybrid ultrasound imaging systems that are based on a fundamental understanding of how sound and light interact with soft tissue, and that are capable of assessing their mechanical, compositional, and biological characteristics. Three independent, but related, imaging technologies are under active investigation: (1) Ultrasound elasticity imaging (UEI)/shear wave elasticity imaging (SWEI), which non-invasively assesses the global and regional mechanical properties of the soft tissues and organs; (2) Ultrasound Thermal Strain Imaging (TSI), which strongly contrasts lipids from the surrounding non-lipid tissues; and (3) Photoacoustic Imaging (PAI)/Photoacoustic molecular imaging (PMI), which combines laser and ultrasound technologies to detect optical contrast in tissues and to identify specific biomarkers that may enable early detection of disease and its treatment evaluation. These three imaging modalities may also be combined to provide a more complete characterization of disease. Noninvasive imaging technologies such as these will also be pivotal for preclinical animal studies, significantly reducing animal numbers, variation between subjects, and shortening the study period. Dr. Kim’s research team envisions a noninvasive hybrid imaging system, integrating all these technologies into a single bed-side ultrasound platform. This will provide a powerful, safe, and cost-effective adjunct to clinical practice by identifying patients at early stages of disease and improving treatment strategies.

Study Sections
- Study Section Reviewer, National Institute of Health, 2009-present
- Grant Reviewer, NIH CSR, Member of Medical Imaging, ZRG1 SBIB-T (10), 2011-present

Advisory Committee Memberships and Leadership Positions
- Reviewer and Interviewer, Doctoral Program, Department of Bioengineering, 2010-present
- Reviewer and Interviewer, Medical Scientist Training Program (MSTP, MD/PhD) and Physician
Scientist Training Program (PSTP, MD), 2010-present

**Editorships**
- Editorial Board, *International Journal of Medical Engineering and Informatics*, 2008-present

**Joon S. Lee, MD**
Dr. Lee has a specific research interest in the role of gene therapy in cardiovascular disease and has been involved in organizing local and multicenter trials regarding the potential role of these novel therapies in the treatment of coronary disease. Dr. Lee has also been active in establishing the Transcatheter Aortic Valve Replacement (TAVR) program at UPMC in conjunction with the cardiac surgical colleagues, leading to one of the top TAVR programs in the country.

**Gang Li, PhD**
Dr. Gang Li’s lab is conducting post-GWAS functional studies by identifying and characterizing the disease-associated functional SNPs and the fSNP-bound regulatory proteins. His team will collect all the functional data to build a disease-associated risk gene transcriptional regulation network for drug target identification.

**Major Lectureships and Seminars**
- Invited speaker, Division of Rheumatology, UPMC, January 2019
- Invited speaker, University of North Carolina, Chapel Hill, NC, 2019

**Jie Liu, PhD**
Dr. Liu is a research associate professor who studies the biology of aging and the aging-related diseases using various cell biology approaches and various mouse genetic models. Currently, she is focusing on the generation and characterization of BioID2 transgenic mice, which are important tools in the study of in vivo alterations in proteins secretion and chronic inflammation during aging.

**Jared W. Magnani, MD, MSc**
The Magnani Lab focuses on social determinants of health and cardiovascular disease and outcomes. There is tremendous evidence that social factors significantly influence health care access and outcomes. Identifying social determinants of health can provide avenues for community-based interventions and insight regarding the etiologies for disparities. To this end, our health services research uses a smartphone-based relational agent to improve health care utilization and medication adherence in patients with atrial fibrillation. We conduct this study in urban and rural settings with the aim of improving patient-centered outcomes in vulnerable patients with limited social resources and health literacy. We intend to expand these activities to heart failure and secondary prevention of cardiovascular disease. Second, we are using the electronic health record to examine social determinants of cardiovascular diseases, specifically atrial fibrillation and heart failure. These investigations leverage the extensive geography of UPMC and community-level data. Dr. Magnani has led investigations in the Framingham Heart Study, the ARIC Study, and Health ABC, and is supported by a Doris Duke Foundation Clinical Scientist Development Award. He chairs the American Heart Association (AHA) writing group statement on health literacy and cardiovascular disease and serves on the AHA Council Operations Committee.
Janet R. Manning, PhD
Nutritive status may drive posttranslational non-nuclear protein acetylation in the heart, and can alter the recovery of the myocardium from ischemic injury. Dr. Manning’s research is focused on the enzymatic acetylation of proteins localized to the mitochondria and endoplasmic reticulum, and the subsequent impact of these acetylated proteins on metabolism, calcium handling, and survival signaling in the heart.

Oscar C. Marroquin, MD
Dr. Marroquin focuses on turning real world data into real world evidence by applying analytics to derive insights that can be used to drive care delivery.

**Advisory Committee Memberships and Leadership Positions**
- Associate Director for Research, Cardiology Fellowship Program, University of Pittsburgh Medical Center, 2008-present
- Member, Quality Patient Care Committee, UPMC’s Center for Quality Improvement and Innovation, 2010-present
- Member, Data Governance Council, 2012-present

Michael A. Mathier, MD
Dr. Mathier’s research is directed at clinical studies of emerging therapies in heart failure and pulmonary hypertension patients.

**Study Sections**
- Abstract Reviewer, ACC Scientific Sessions, 2000-present
- Abstract Reviewer, AHA Scientific Sessions, 2000-present

**Advisory Committee Memberships and Leadership Positions**
- Fellowship Committee, University of Pittsburgh, 2002-present
- Interviewer, Medical School Applicants, University of Pittsburgh, 2002-present
- Director, Pulmonary Hypertension Program, 2005-present
- Member, Six City Tour Steering Committee, Pulmonary Hypertension Association, 2006-present
- Member, Scientific Leadership Council, Pulmonary Hypertension Association, 2006-present
- Member, Graduate Medical Education Committee, 2006-present
- Founder and Director, Cardiology Free Clinic, subspecialty clinic of the Birmingham Free Clinic, Program for Healthcare to Underserved Populations, University of Pittsburgh, 2009-present
- Member, Board of Directors, Program for Healthcare to Underserved Populations, University of Pittsburgh, 2010-present
- Chairman, PHA Online University, 2011-present
- Medical Director, Community Outreach and Cardiovascular Health, 2011-present
- Section Head, Heart Failure and Pulmonary Hypertension, 2013-present
- Associate Director, Cardiovascular Fellowship Program, Heart and Vascular Institute, 2015-present
- Cardiology Medical Director, UPMC HVI Canterbury Post-Acute Care Facility, 2016-present
- Medical Director, Outpatient Cardiology Clinic, 2016-present
- Director, UPMC HVI Online Board Review Course, 2016-present
- Program Director, Advanced Heart Failure and Transplant Cardiology Fellowship Program, 2016-present
- Member, PUH Medical Executive Committee, 2018-present
- Member, PUH Collaborative Practice Committee, 2018-present
• Member, PUH Physician Unit Partner, 2018-present
• Member, HVI Executive Leadership Committee, 2018-present
• Member, Cardiology Quality Committee, 2018-present
• Member, HVI PUH Cardiology Operations Committee, 2018-present
• Organizer, HVI Workplace Harassment Training Program, 2018-present

**Editorships**

• Reviewer, Multiple journals (Annals of Internal Medicine, Journal of the American College of Cardiology, Circulation Research, Coronary Artery Disease, Journal of Cardiac Failure, Cardiovascular Research), 1997-present

**Honors and Awards**

• Fellow, American College of Cardiology, 2003-present
• Honoree, Best Doctors, Pittsburgh Magazine, 2012-present

**Dennis M. McNamara, MD**

Dr. McNamara’s research interests center on the impact of genomics on clinical outcomes and the use of genetic variation for targeting therapeutic interventions. In addition, he is interested in the use of genetic background and biomarker assessment for predicting myocardial recovery in recent onset non-ischemic cardiomyopathy.

**Study Sections**

• Abstract Grader, American College of Cardiology and Heart Failure Society of America, 2008-present

**Advisory Committee Memberships and Leadership Positions**

• Program Committee, American College of Cardiology, 2010-present

**Major Lectureships and Seminars**

• Invited Lecturer, Heart Failure Society of America Scientific Session, Nashville, TN, September 2018
• Invited Lecturer, American Heart Association Scientific Session, Chicago, IL, November 2018
• Invited Lecturer, University of Iowa Medical Grand Rounds, Iowa City, IA, March 2019
• Invited Lecturer, University of Michigan Cardiology Grand Rounds, Ann Arbor, Michigan, May 2019

**Honors and Awards**

• Honoree, Best Doctors, Pittsburgh Magazine, 2018-present

**Charles F. McTiernan, PhD**

Dr. McTiernan’s laboratory studies the molecular basis of cardiac remodeling in heart failure, as well as the use of cardiac function, cellular, molecular biology, and microscopic techniques. The lab’s publications have appeared in Circulation Research, Circulation, Journal of the American College of Cardiology, Cardiovascular Research, and PNAS, among others. One of the primary areas of Dr. McTiernan’s research has focused on proinflammatory cytokines in heart failure. His lab demonstrated that transgenic overexpression of TNF generated a heart failure phenotype resembling that observed in human heart failure. Additional studies examined TNF effects on fibrosis and calcium handling. Dr. McTiernan is also interested in TIMPs and MMPs.
Dr. Olafiranye is interested in understanding the mechanisms by which remote ischemic conditioning mitigate cardiovascular risk. His early involvement with the Dynamic Registry has resulted in several high-impact publications. Over the last several years, Dr. Olafiranye has taken on an increased role in using system-wide data across the UPMC Health System to identify opportunities for operational improvements and efficiencies within the Heart and Vascular Institute while simultaneously providing high level care to our patients. He focuses on the evaluation of cardiovascular outcomes with focus on clinical end points, cost-effectiveness, patient preferences, and quality of life as well as issues surrounding the development, introduction, and use of medical technology.

Currently, Dr. Olafiranye oversees the Heart and Vascular Institute (HVI) Analytics and directs the Center for Outcomes and Innovation for the HVI. This has been responsible for the foundation for several initiatives across the health system to improve care as well as academic and research activities in outcomes across the HVI. In this role, Dr. Olafiranye and his team in collaboration with UPMC Clinical Analytics help others within the HVI in the creation of dashboards to understand care processes and in developing datasets for analysis. These revolve around areas of clinical decision-making, readmissions in heart failure populations, treatment of complex coronary artery disease, among others.

Matthew F. Muldoon, MD, MPH
Dr. Muldoon conducts clinical research examining the interface of behavioral and biological risk factors for cardiovascular disease. Cardiovascular risk conveyed by hypertension, lipid disorders, insulin resistance and pre-clinical atherosclerosis are studied in relation to individual differences in health behaviors (diet and exercise), cognition (attention, working memory, executive function, and impulsivity), and in mood (depression and anxiety). In addition, Dr. Muldoon has tested interventions to treat or prevent hypertension, including prescribed pharmacotherapies and nutritional supplements. He has led or co-led investigations using randomized and double-blind trial design, physiologic and ambulatory recordings, biomarker assessment, genomics, and functional brain imaging. His most recent work leverages e-health technologies to aid patients in self-management of their hypertension through an automated and bidirectional short-messaging system.

Suresh R. Mulukutla, MD
Dr. Mulukutla has established himself as a well-recognized investigator in the field of cardiovascular outcomes research. His early involvement with the Dynamic Registry has resulted in several high-impact publications. Over the last several years, Dr. Mulukutla has taken on an increased role in using system-wide data across the UPMC Health System to identify opportunities for operational improvements and efficiencies within the Heart and Vascular Institute while simultaneously providing high level care to our patients. He focuses on the evaluation of cardiovascular outcomes with focus on clinical end points, cost-effectiveness, patient preferences, and quality of life as well as issues surrounding the development, introduction, and use of medical technology.

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Advisory Committee Memberships and Leadership Positions
• Governor, Western Chapter of the Pennsylvania ACC Chapter, 2016-2019

Oladipupo Olafiranye, MD, MS
Dr. Olafiranye is interested in understanding the mechanisms by which remote ischemic conditioning mitigate cardiovascular risk.
contrast-induced acute kidney injury in patients undergoing cardiac catheterization and percutaneous coronary intervention. He is also investigating ways to better characterize measures of vascular/endothelial function and emerging subclinical risk factors for cardiovascular disease, particularly in racial/ethnic minority populations.

**Advisory Committee Memberships and Leadership Positions**
- Member, STEMI Quality Improvement Committee, 2017-present

**Editorships**
- Reviewer, *Clinical Cardiology*, 2015-present
- Reviewer, *Journal of Clinical Chemistry and Laboratory Medicine*, 2012-present
- Reviewer, *Journal of Cardiovascular Disease Research*, 2012-present
- Reviewer, *Cardiac Catheterization and Intervention*, 2015-present
- Reviewer, *American Heart Journal*, 2016-present

**Major Lectureships and Seminars**
- Invited Presenter, First Live Demonstration of Percutaneous Coronary Intervention in Nigeria, Third Annual Nigerian Cardiovascular Symposium, 2017
- Speaker, Third Annual Nigerian Cardiovascular Symposium, October 2018

John J. Pacella, MD, MS
Dr. Pacella’s research interests include the development of therapy to optimize microvascular perfusion. He has received NIH R01 funding to develop the technique of sonorepuffusion, which is the application of ultrasound to intravascular microbubbles to relieve microvascular obstruction and restore myocardial perfusion in the setting of percutaneous coronary intervention of acute myocardial infarction.

**Advisory Committee Memberships and Leadership Positions**
- Task Force Member, Fellow’s Research Day, Pennsylvania Affiliate, American Heart Association, 2011-present
- Committee Member, American Heart Association PA Affiliate Fellow’s Research Day Task Force, 2011-Present

**Professional Affiliations and Society Memberships**
- Member, American Medical Association, 1994-present
- Member, American Society of Echocardiography, 2009-present
- Member, International Contrast Ultrasound Society, 2009-present

**Major Lectureships and Seminars**
- Invited Faculty/Presenter, 34th Annual Advances in Contrast Ultrasound - International Bubble Conference, September 2018
- Invited Faculty/Presenter, 24th European Symposium on Ultrasound Contrast Imaging, January 2019

**Honors and Awards**
- Fellow, American College of Cardiology, 2000-present
- Fellow, American Heart Association (Council on Clinical Cardiology), 2006-present
- Fellow, Society for Coronary Angiography and Intervention, 2007-present
- Honoree, Best Doctors, *Pittsburgh Magazine*, 2018-present
Ravi N. Ramani, MD
Dr. Ramani studies the mechanisms of myocardial recovery after development of heart failure through the use of mechanical circulatory support. It focuses on reversible and irreversible alterations in pathways of myocyte hypertrophy and fibrosis, with emphasis on microRNA signatures of recovery potential.

Steven Reis, MD
Dr. Reis’s research interests include cardiovascular health and heart disease in women, racial disparities in cardiovascular disease, microvascular angina, endothelial function, and cardiovascular risk. Dr. Reis, who has experience as a volunteer firefighter, has also conducted cardiovascular research on firefighters, a group prone to cardiac arrest given firefighting’s combination of heat, exertion, and dehydration. He and other researchers have explored methods and technologies to regulate body temperature and reduce inflammation and cardiovascular strain on active firefighters. He is the founding director of the Clinical and Translational Science Institute (CTSI), which improves efficiency and reduces the time it takes to translate biomedical advances into societal health practices. Pitt’s CTSI is part of a national consortium of research institutes funded by the National Institutes of Health. CTSI fosters collaborative research that advances new medical therapies and technologies in clinical care while training clinical scientists and ensuring greater access to clinical trials for patients and the public.

Study Sections
- Ad Hoc Grant Reviewer, NIH, 2005-present

Advisory Committee Memberships and Leadership Positions
- Member, Consortium Oversight Committee, Executive Committee, Consortium Steering Committee, 2006-present
- Member, NIH National Clinical and Translational Science Award Programs, 2008-present
- Member, Harvard Clinical and Translational Science Center, 2008-present
- Member, External Advisory Boards, Washington University Institute of Clinical and Translational Sciences, 2008-present
- Member, North Carolina Translational and Clinical Sciences Institute, 2008-present
- Member, National Clinical and Translational Science Award Steering Committee, 2013-present

Editorships
- Editorial Board, Journal of Women’s Health and Gender-Based Medicine, 1999-present
- Editorial Board, Current Controlled Trials in Cardiovascular Medicine, 1999-present
- Editor, Clinical and Translational Science Award, NIH, 2008-present

Honors and Awards
- Member, American Society for Clinical Investigation, 1999-present
- Honoree, Best Doctors, Pittsburgh Magazine, 2010-present

Guy Salama, PhD
A central goal of Dr. Salama’s laboratory is to elucidate the mechanisms responsible for the initiation and termination of cardiac arrhythmias. To achieve this, they have developed the use of voltage-sensitive dyes and high temporal and spatial resolution optical techniques to map patterns of action potential (AP) propagation and repolarization. These novel methods are used to illuminate the mechanisms that generate spatial heterogeneities of AP durations and the interplay between dispersion of repolarization (DOR) and anisotropic conduction velocities (CV). Animal models for cardiac arrhythmias include: acute ischemia in the guinea pig heart and 2 rabbit models of the long QT syndrome (LQTS). A number of
mechanisms are being investigated as factors that promote arrhythmias in the LQTS: elevation of extracellular K+, sympathetic stimulation, and the role of spontaneous Ca2+ oscillation from the sarcoplasmic reticulum. Mapping spatial heterogeneities of intracellular Ca2+ transients in mammalian hearts using Ca2+ indicator dyes and imaging techniques. Once the normal heterogeneities of Ca2+ are determined, changes in Ca2+ transients will be analyzed in a wide range of physiological conditions to determined parameter that modulate Ca2+ transients. This laboratory has been at the forefront of the investigation of the role of sulfhydryl oxidation-reduction as a mechanisms to regulate Ca2+ release from the sarcoplasmic reticulum (SR).

Advisory Committee Memberships and Leadership Positions
- Promotion Committee, Department of Medicine, University of Pittsburgh, 2013-present

Professional Affiliations and Society Memberships
- Member, Biophysical Society, 1977-present
- Member, Marine Biological Laboratory, 1980-present
- Member, Basic Science Council, American Heart Association, 1986-present
- Member, Heart Rhythm Society, 2003-present

Erik B. Schelbert, MD, MS
Dr. Schelbert's research interests focus on cardiovascular magnetic resonance (CMR), which is a versatile technology that permits robust characterization of cardiovascular disease. The accuracy of the diagnostic information facilitates matching the patient to the right treatment, thereby streamlining a patient’s care. The ability of CMR to establish the correct diagnosis, as well as quantify future risk, offers unique advantages compared to other modalities. A particularly useful application of CMR is its ability to detect and quantify disease related to the myocardium that is difficult to otherwise detect. For example, CMR can detect clinically unrecognized myocardial infarction, infiltrative disease related to excess iron, glycosphingolipid, or amyloid protein. Dr. Schelbert’s team has focused on myocardial fibrosis, which results from varying degrees of excess collagen. Myocardial fibrosis appears to be a reversible indicator of myocardial health that is prevalent and predicts adverse events (e.g., mortality or hospitalization for heart failure) in proportion to its severity. Dr. Schelbert is trying to understand its optimal measurement, its association with other conditions, its impact on prognosis, and its response to therapy.

Study Sections
- Scientific Peer Reviewer, for CTSI HVI IRB submissions, 2010-present

Advisory Committee Memberships and Leadership Positions
- Member, Cardiology Fellowship Evaluation Committee, 2010-present

Editorships
- Ad hoc Reviewer, Circulation, 2012-present
- Ad hoc Reviewer, Circulation: Cardiovascular Imaging, 2012-present
- Appointed Senior Associate Editor, Journal of the American Heart Association, 2014-present
- Editorial Board, Circulation: Cardiovascular Imaging, 2015-present
- Editorial Board, Journal of Cardiovascular Magnetic Resonance, 2016-present
- Editorial Board, JACC: Cardiovascular Imaging, 2017-present

Major Lectureships and Seminars
- Invited Speaker, LondonCMR, September 2018
- Speaker, Heart Failure Society of America, September 2018
- Speaker, Society for Cardiovascular Magnetic Resonance, February 2019
Dr. Scott and his team’s future work will aim to elucidate the mechanism that mediates the removal of dysfunctional mitochondrial organelles. Researchers recently discovered that GCN5L1, a mitochondrial protein that promotes lysine acetylation, regulates the mitophagy process. Mitophagy is a quality control machinery of mitophagy, responsible for eliminating damaged or unnecessary mitochondria. This process is essential for maintaining mitochondrial homeostasis and overall cellular health. Dysfunctional mitochondria can lead to various pathologies in which mitochondrial dysfunction is a causative factor. Mitochondria are highly susceptible to environmental stresses, with overnutrition being a particular problem in the developed world. A high caloric intake leads to a surge in available acetyl-CoA (the final breakdown product of fats, carbohydrates, and proteins in the mitochondria), which cannot be used for energetic or synthetic purposes.

Dr. Scott's research focuses on the intrinsic mechanisms that regulate mitochondrial protein acetylation and how this fundamental alteration affects organelle function at the cellular and tissue level. Mitochondria are ubiquitous organelles, playing a vital role in bioenergetics, metabolite biosynthesis, and overall cellular homeostasis. Their activity needs to be tightly regulated, as evidenced by the growing number of pathologies in which mitochondrial dysfunction is a causative factor. Mitochondria are highly susceptible to environmental stresses, with overnutrition being a particular problem in the developed world. A high caloric intake leads to a surge in available acetyl-CoA (the final breakdown product of fats, carbohydrates, and proteins in the mitochondria), which cannot be used for energetic or synthetic purposes. In particular, Dr. Scott's lab is interested in the coordination between acetylation levels and mitophagy, a quality control mechanism that mediates the removal of dysfunctional mitochondrial organelles. Researchers recently discovered that GCN5L1, a mitochondrial protein that promotes lysine acetylation, regulates the transcriptional machinery of mitophagy. Dr. Scott and his team's future work will aim to elucidate the pathways that link nutritional inputs, GCN5L1-mediated lysine acetylation, and mitochondrial quality control.
Mitochondria dysfunction is associated with various diseases and aging. To maintain a healthy mitochondrial network, mitochondria are equipped with several systems that can evoke stress-signaling pathways. Dr. Sekine's lab studies the stress-sensing mechanisms of mitochondrial proteins and, in particular, the stress-dependent regulation of mitochondrial proteases and mitochondrial import machineries. Her research goal is to provide therapeutic targets for mitochondria dysfunction-related diseases through the manipulation of stress-signaling in mitochondria.

**Professional Affiliations and Society Memberships**

- Member, The Molecular Biology Society of Japan, 2006-present
- Member, The Japanese Biochemical Society, 2006-present

**Honors and Awards**

- Fellow, American College of Cardiology, 1999-present

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**Alaa A. Shalaby, MD**

Dr. Shalaby's research interests include the utilization of implantable devices and biomarkers of risk for sudden cardiac death, as well as utilization of devices for assessment and treatment of congestive heart failure and sleep-related breathing disorders.

**Professional Affiliations and Society Memberships**

- Member, North American Society for Pacing and Electrophysiology, 1999-present

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**Drs. Schindler and Schmidhofer**

Both researchers have contributed to the field of nuclear cardiology, with Dr. Schindler focusing on valvular heart disease and Dr. Schmidhofer specializing in myocardial perfusion stress testing. Their work has led to advancements in the diagnosis and treatment of cardiovascular conditions.

**Honors and Awards**

- Distinguished Alumnus Award, University of Iowa Cardiovascular Medicine, 2019
Marc A. Simon, MD, MS
As a translational scientist, Dr. Simon’s research focus is understanding right ventricular (RV) adaptation and eventual failure in heart failure and pulmonary hypertension (PH). His labs focus on 1) advanced analysis of clinical hemodynamics, 2) integration of imaging and hemodynamics to better assess right ventricular function, and 3) early phase clinical trials in pulmonary hypertension and heart failure. His recent projects include a phase II study of inhaled nitrite for pulmonary hypertension (ClinicalTrials.gov NCT01431313), assessment of right ventricular-pulmonary arterial coupling in pulmonary hypertension patients and its relation to outcomes, right ventricular strain analysis by echocardiographic speckle tracking to screen a variety of patients for right ventricular dysfunction, assessment of right ventricular myocardial biaxial biomechanics in a murine model of pressure overload, and phenotyping a nonhuman primate model of HIV-associated pulmonary hypertension. He is involved with multiple clinical trials in pulmonary hypertension and heart failure and he holds several leadership roles, including 1) PI for the clinical core of a translational program project grant in pulmonary vascular disease (PI: Gladwin), 2) overseeing the Advanced Heart Failure and Cardiac Transplantation section’s clinical research portfolio of over 30 protocols with three full time clinical research coordinators, and 3) director of the Montefiore University Hospital Clinical & Translational Research Center, a core lab in the University of Pittsburgh’s Clinical Translational Science Institute that supports over 120 clinical research protocols for investigators. Dr. Simon has received research support from NIH, AHA, the Clinical Translational Science Institute of the University of Pittsburgh, and The Pittsburgh Foundation.

Advisory Committee Memberships and Leadership Positions
- Member, Committee for Oversight of Research Involving the Dead, 2006-present
- Member, Cardiovascular Institute Research Committee, 2007-present
- Member, Review Panel for Bioengineering, Bioeng BSc 4, AHA, 2012-present
- Task Force, Judge, AHA Fellows Research Day, 2012-present
- Appointed Co-Chair, Task Force, American Heart Association (AHA) Fellows Research Day, 2014-present

Major Lectureships and Seminars
- Lecturer, NYU Cardiology Grand Rounds, 2018
- Lecturer, American Heart Association Scientific Sessions, 2018
- Lecturer and moderator, Heart Failure Society of America Annual Scientific Meeting, 2018
- Lecturer and panelist, PRIME trial investigators meeting, Scottsdale, AZ, 2019
- Lecturer, Gordon Research Conference, 2019

A. J. Conrad Smith, MD
Dr. Smith’s research interests are primarily in the area of analysis of outcomes after percutaneous coronary intervention. As the Director of the Cardiac Catheterization Laboratory, he oversees the development of the cath lab database system which will provide a wealth of research potential to evaluate various aspects in interventional cardiology. He has worked with Dr. Dennis McNamara in developing a database of coronary intervention patients with which they are currently evaluating the potential genetic basis of cardiac disease. Dr. Smith has also served as the Governor of the Western Pennsylvania Chapter of the American College of Cardiology where he had the unique opportunity to directly impact the practice of cardiology in this region.

Advisory Committee Memberships and Leadership Positions
- Member, UPMC HVI Educational Committee, 2018-present
• Member, UPMC Diversity and Inclusion Committee, 2018-present

**Major Lectureships and Seminars**

• Invited Speaker, UPMC System-Wide HVI Collaborative Care Teleconference, September 2018
• Invited Discussant, Transcatheter Cardiovascular Therapeutics Conference, September 2018
• Invited Speaker, University of Pittsburgh Update in Internal Medicine Course, October 2018
• Invited Speaker, UPMC Stroke Update Conference, October 2018
• Invited Speaker, UPMC Shadyside Grand Rounds, January 2019
• Invited Speaker, UPMC System-Wide HVI Collaborative Care Teleconference, February 2019
• Invited Speaker, UPMC System-Wide HVI Collaborative Care Teleconference, May 2019
• Invited Speaker, UPMC Neurology Grand Rounds, June 2019

**Honors and Awards**

• Honoree, Best Doctors, *Pittsburgh Magazine*, 2015-present

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**Prem Soman, MD, PhD**

Dr. Soman’s research focuses on the use of radionuclide-based imaging techniques in cardiac diseases, particularly heart failure. Current interests include the use of myocardial SPECT imaging for left ventricular dyssynchrony assessment, an area in which his group has contributed seminal work (Mati Friehling, Young Investigator Award, ASNC 2010; Saurabh Malhotra, Young Investigator Award, ASNC 2013).

**Advisory Committee Memberships and Leadership Positions**

• Member, Board of Directors, Intersocietal Commission for the Accreditation of Nuclear Medicine Laboratories, 2010-present
• Member, Board of Directors, American Society of Nuclear Cardiology, 2010-present
• Member, Board of Directors, Society of Nuclear Medicine, Cardiovascular Council, 2010-present
• Member, American College of Cardiology Annual Scientific Program Committee, 2010-present
• Chair, Leadership Development Program, 2015-present
• President, American Society of Nuclear Cardiology, 2018-2019

**Editorships**

• Editorial Board and Section Editor, *Journal of Nuclear Cardiology*, 2009-present
• Associate Editor, *Journal of Nuclear Cardiology*, 2013-present
• Editorial Board, *Journal of the American College of Cardiology: Cardiovascular*
Dr. Villanueva’s research focuses on the development of medical diagnostic and therapeutic strategies based on ultrasound and ultrasound contrast agents (gas-filled microspheres, or microbubbles). Her work has consistently bridged fundamental imaging sciences with translational biomedical research. As an Established Investigator of the American Heart Association, she has been a leader in the development of microbubbles for the detection of inflammatory and angiogenic endothelial markers in pre-clinical models of heart disease.

Cynthia L. St. Hilaire, PhD

The St. Hilaire lab research program stems from the previous discovery of the genetic disease Calcification due to Deficiency of CD73 (ACDC), which identified a novel role for the enzyme CD73, and its substrate adenosine, in vascular calcification and vascular remodeling. Moving forward, research in the St. Hilaire lab will explore the role of CD73 and adenosine signaling in more complex vascular pathologies, such as atherosclerosis, calcific aortic valve disease, and aneurysms using in vitro (primary human and mouse cells and patient-specific induced-pluripotent stem cells) and in vivo (genetically defined murine models and surgical manipulations), with the goal of translating findings in ACDC to more common vascular diseases and pathologies.

Advisory Committee Memberships and Leadership Positions

- Member, Early Career Committee, Council on Arteriosclerosis, Thrombosis, and Vascular Biology, American Heart Association, 2014-present
- Member, ATVB (Arteriosclerosis, Thrombosis and Vascular Biology) Nomination and Awards Committee, 2016-2018

Professional Affiliations and Society Memberships

- Member, International Society for Applied Cardiovascular Biology, 2016-present
- Member, Women in Bio, Pittsburgh Chapter, 2015-present
- American Physiological Society, 2017-present

Major Lectureships and Seminars

- Lecturer, International Society for Applied Cardiovascular Biology, Bordeaux, France, 2018
- Moderator, Vascular Research Initiatives Conference, Society for Vascular Surgery, Boston, MA, 2019
- Lecturer, Heart Valve Society Annual Meeting, Sitges, Spain, 2019

Honors and Awards

- Lab of the Month, North American Vascular Biology Organization, July 2018
- Outstanding New PI, New PI Slack – a community for new faculty, December 2018

Catalin Toma, MD

Dr. Toma’s investigates cell therapy for cardiac applications, bioabsorbable vascular scaffolds, intracoronary imaging, and pulmonary embolism.

Study Sections

- Ad hoc Grant Reviewer, NIH, 2008-present

Advisory Committee Memberships and Leadership Positions

- Director, Interventional Cardiology Research, 2013-present
- Director, Interventional Cardiology Fellowship Program, 2014-present
- Director, Interventional Cardiology, HVI, 2016-present

Flordeliza S. Villanueva, MD

Dr. Villanueva’s research focuses on the development of medical diagnostic and therapeutic strategies based
on ultrasound and ultrasound contrast agents (gas-filled microspheres, or microbubbles). Her work has consistently bridged fundamental imaging sciences with translational biomedical research. As an Established Investigator of the American Heart Association, she has been a leader in the development of microbubbles for the assessment of myocardial perfusion, and ultrasound molecular imaging with targeted microbubbles for the detection of inflammatory and angiogenic endothelial markers in pre-clinical models of heart disease. Dr. Villanueva's lab has pioneered the development and application of microbubbles as molecular probes and acoustic detection strategies for optimizing imaging sensitivity. Her lab group has applied fundamental principles of ultrasound and the physics of microbubble acoustic behaviors to develop novel targeted molecular therapeutics, whereby nucleic acid loaded microbubbles (siRNA, miRNA, plasmid), in the presence of precisely tuned ultrasound, selectively enhance membrane permeability and deliver payloads to the target site. These studies are conducted at the Center for Ultrasound Molecular Imaging and Therapeutics, a translational multidisciplinary research facility which epitomizes the reciprocal relationship between imaging sciences and biomedical translational research.

**Study Sections**

- Grant Reviewer, American Heart Association, 2004-present
- Ad hoc Grant Reviewer, NIH, 2008-present
- BMIT-B Study Section Standing Member, National Institutes of Health, 2017-2019
- ITD Study Section Standing Member, National Institutes of Health, 2019-present

**Advisory Committee Memberships and Leadership Positions**

- Member, Interview Committee for Medicine, University of Pittsburgh, 1993-present
- Member, National Task Forces/Committees, 1998-present
- Member, Abstract Grading Committee, National Scientific Sessions, American Heart Association, 2003-present
- Member, Abstract Grading Committee, National Scientific Sessions, American Society of Echocardiography, 2004-present
- Member, Junior Scholar Awards Committee, Department of Medicine, 2007-present
- Member, Research Committee, American Heart Association Great Rivers Affiliate, 2007-present
- Member, American Society for Clinical Investigation, Association of University Cardiologists, 2007-present
- Member, Department of Medicine Mentoring Program for Junior Faculty, 2008-present
- Member, Extra-Mural Research Committee, American Society of Echocardiography, 2009-present
- Committee Member, Pittsburgh Research and Investigation Summer Experience (PRISE), 2012-present
- Member, Telemedicine and New Technology Task Force, American Society of Echocardiography, 2014-present
- Member, Executive Leadership Group, Heart and Vascular Institute, University of Pittsburgh Medical Center, 2015-present
- Leader, Grant Writing Workshop (K grants), 2015-present
- T32 Training Grant Director, National Institutes of Health, 2016-present
- Session Chair, American Society of Echocardiography Annual Scientific Sessions, 2018
- Session Panelist, American College of Cardiology Annual Scientific Sessions, 2018
- Session Co-Chair, American College of Cardiology Annual Scientific Sessions, 2018

**Professional Affiliations and Society Memberships**

- Member, American Association for the Advancement of Science, 2018
Editorships
- Editorial Board, *Circulation–CV Imaging*, 2008-present

Major Lectureships and Seminars
- Invited Faculty, 34th Annual Advances in Contrast Ultrasound - International Bubble Conference, September 2018
- Invited Faculty, 24th European Symposium on Ultrasound Contrast Imaging, January 2019
- Invited Speaker, University of Cincinnati Heart, Lunch, and Vascular Institute Seminar Series, May 2019
- Invited Faculty, American Society of Echocardiography, June 2019

Honors and Awards
- Elected Member, American Society for Clinical Investigation, 2004-present
- Elected Member, Association of University Cardiologists, 2008-present

Andrew H. Voigt, MD
Dr. Voigt’s research interests include cryoablation for atrial fibrillation and patterns of cardiovascular implantable electronic device utilization. He was one of the earliest physicians in the United States to implant a leadless pacemaker during a first in human multicenter trial.

Advisory Committee Memberships and Leadership Positions
- Member, Continued Development of AF Catheter Ablation Program, Shadyside University Hospital, 2013-present

Norman C. Wang, MD, MS
Dr. Wang’s research interest focuses on the epidemiology of cardiovascular disease, with an emphasis on the interaction between heart rhythm disorders and heart failure. He has a MS in epidemiology from the University of Pittsburgh Graduate School of Public Health.

Honors and Awards
- Fellow, American College of Cardiology, 2012-present
- Fellow, Heart Rhythm Society, 2013-present

Timothy C. Wong, MD, MS
Dr. Wong’s research interests include the comparative effectiveness of cardiovascular imaging modalities, as well as the role of a novel cardiac MRI biomarker of diffuse myocardial fibrosis in cardiovascular diseases, including hypertrophic cardiomyopathy. His work has been published in major scientific journals, including Circulation and the European Heart Journal. He also participates as a site investigator in several multi-center research protocols, while serving as a scientific reviewer for numerous journals. Additionally, Dr. Wong is a member of an American Heart Association grant review committee and several imaging society working groups.

Advisory Committee Memberships and Leadership Positions
- Member, Radiology and Imaging-Clinical Grant Review Committee, American Heart Association (National), 2014-present
- Member, Fellow’s Research Day Task Force, American Heart Association (Three Rivers Affiliate), 2015-Present

Editorships
- Ad hoc Manuscript Reviewer, Multiple journals, (*Circulation: Cardiovascular Imaging, JACC: Cardiovascular Imaging, Hypertension, Journal of the American Heart Association, Journal of Cardiovascular Magnetic Resonance*), 2012-present

Manling Zhang, MD, MS
Dr. Zhang’s research focuses on the role of mitochondria protein acetylation in heart failure development.
• Ad hoc Manuscript Reviewer, Multiple journals, *(Circulation: Cardiovascular Imaging, JACC: Cardiovascular Imaging, Hypertension, Journal of the American Heart Association, Journal of Cardiovascular Magnetic Resonance)*, 2012-present

**Honors and Awards**

• Honoree, Best Doctors, *Pittsburgh Magazine*, 2019

**Manling Zhang, MD, MS**

Dr. Zhang’s research focuses on the role of mitochondria protein acetylation in heart failure development.
TEACHING ACTIVITIES

The UPMC Cardiovascular Fellowship is one of the nation’s most innovative fellowships, and it is an integral part of the Division. Fellows from across the country and throughout the world pursue training in state-of-the-art cardiovascular care, including the latest advances in imaging, interventional procedures, and electrophysiological techniques.

The HVI strives to train the future leaders of cardiac care. We focus not only on the traditional spaces within cardiology—such as heart failure, electrophysiology, and interventional and imaging—but we also pave the path for the evolving areas of cardiology as the specialty integrates with critical care, palliative care, quality improvement, education, and information technology. The HVI has created a dynamic, diverse, and academically challenging environment for its fellows who will serve as the thought leaders for the next generation of cardiac care. Katie Berlacher, MD, MS, serves as the fellowship program director, with Mark Schmidhofer, MD, Michael Mathier, MD, Josh Levenson, MD, and Stephen Chan, MD, PhD, serving as associate program directors.

Accomplished faculty, who are valued for their clinical acumen as well as their teaching skills, oversee the fellows as they train across the breadth of cardiovascular care. Simultaneously, all fellows take a leadership role in their own individual research projects with close mentorship from faculty across the institution. These projects span a range of areas, including clinical, basic, translational, educational, and health information technology. Cardiology trainees also have the option to pursue master’s coursework and more specialized training through the division’s NHLBI T32 training grant directed by Flordeliza Villanueva, MD.

The HVI also provides training, mentorship, and oversight for the University of Pittsburgh School of Medicine medical students as well as the UPMC Internal Medicine, Emergency, and Vascular Surgery residents. The second-year medical school cardiovascular course continues to be one of the top-rated sections, led by Jenifer Lee, MD. This year, Stephen Chan, MD, PhD, was honored for his mentorship of medical students, with a Mentoring Merit Award, and Mark Estes, MD, received the UPMC HVI Teaching Award. The HVI Cardiac Intensive Care Unit, Pavilion, and consult rotations are favorites among many residents who report being inspired by the fellows and faculty—and who cite this as a factor in their decisions to become
cardiologists themselves.

Recently, Dr. Katie Berlacher has also launched a program aimed at local high school students to encourage females and underrepresented minorities to enter the field. Due to the success of the initial event, this program, “I look like a cardiologist,” will be offered again this fall.

Clinical Fellows, FY2019

Current Fellows

Laith Alkukhun, MBBS
Medical School: Jordan University of Science and Technology Faculty of Medicine
Residency: Cleveland Clinic

Amr F. Barakat, MBBCh
Medical School: Ain Shams University Faculty of Medicine
Residency: Cleveland Clinic

Stephen T. Broughton, MD
Medical School: University of Arkansas
Residency: Wake Forest School of Medicine

Abdallah A. Bukari, MD
Medical School: Perelman School of Medicine at the University of Pennsylvania
Residency: University of Chicago

Lindsey Cilia, MD
Medical School: Albany Medical College
Residency: Brown University/Rhode Island Hospital

Emily N. Guhl, MD
Medical School: University of Chicago
Residency: UPMC
Arun M. Iyer, MD  
Medical School: Medical University of South Carolina College of Medicine  
Residency: Case Western University Hospitals

Rebecca F. Lolley, MD  
Medical School: Sidney Kimmel Medical College at Thomas Jefferson University  
Residency: University of Maryland

Amber Makani, MD  
Medical School: West Virginia University  
Residency: Case Western Reserve University Hospitals

Amy L. Marino, MD  
Medical School: George Washington University  
Residency: UPMC

Vinaya C. Mulkareddy, MD  
Medical School: St. Louis University  
Residency: Barnes Jewish Hospital-Washington University in St. Louis

Brian R. Pierce, MD†  
Medical School: Wayne State University  
Residency: Barnes Jewish Hospital

Jonathan P. Pollock, MD  
Medical School: Pennsylvania State University  
Residency: Wright State University

Anum Saeed, MBBS  
Medical School: Ziauddin Medical College  
Residency: Baylor College of Medicine

Daniel L. Shpilsky, MD  
Medical School: Lewis Katz School of Medicine Temple University  
Residency: UPMC

Daniel G. Wann, MD  
Medical School: East Tennessee State University  
Residency: Beth Israel Deaconess Medical Center

Adil A. Yunis, MD  
Medical School: Boston University  
Residency: Boston University

Advanced Fellowships
Brent A. Barnes, DO  
Medical School: Philadelphia College of Osteopathic Medicine  
Residency: Crozer-Chester Medical Center
Stephen J. D’Auria, MD  Interventional Cardiology
Medical School: University of Pittsburgh
Residency: UPMC

Rami Kafa, MD  Interventional Cardiology
Medical School: University of Tishreen Faculty of Medicine
Residency: Cleveland Clinic Foundation
University of Iowa

Jack Z. Li, MD, MBA  Clinical Cardiac Electrophysiology
Medical School: University of Michigan
Residency: University of Michigan

Bassel Sayegh, MD  Clinical Cardiac Electrophysiology
Medical School: University of Damascus
Residency: Loyola University Medical Center/Allegheny Health Network

Departing
George Cater, MD
Medical School: Case Western Reserve
Residency: Cardiovascular Fellow
Current Position: Advanced Cardiac Imaging Fellow, UPMC

Malamo Countouris, MD
Medical School: University of Pittsburgh
Residency: UPMC
Current Position: T32 Postdoctoral Scholar, Department of Medicine, University of Pittsburgh

Michael Genuardi, MD
Medical School: Tufts University
Residency: Massachusetts General
Current Position: Faculty, Heart Failure Division, University of Pennsylvania

Ahmad Masri, MD, MS
Medical School: Jordan University of Science and Technology Faculty of Medicine
Residency: Cleveland Clinic
Current Position: Assistant Professor, Oregon Health and Science University School of Medicine

Dingxin Qin, MD
Medical School: Peking Union Medical University
Residency: UPMC
Current Position: Electrophysiology Fellowship, Massachusetts General Hospital
Zachary Rhinehart, MD  
**Medical School:** University of Pittsburgh  
**Residency:** UPMC  
**Current Position:** Center for Connected Medicine Fellowship, UPMC

Mourad Senussi, MD  
**Medical School:** University of Tripoli Faculty of Medicine  
**Residency:** St. Joseph Hospital, Chicago/Cleveland Clinic  
**Current Position:** T32 Postdoctoral Scholar, Department of Medicine, University of Pittsburgh

Roy Sriwattanakomen, MD  
**Medical School:** University of Pittsburgh  
**Residency:** Beth Israel Deaconess  
**Current Position:** Advanced Heart Failure and Transplant Fellow, UPMC

Wei Sun, MD, PhD  
**Medical School:** Peking Medical University  
**Residency:** Mt. Auburn Hospital, Harvard Medical Center  
**Current Position:** T32 Postdoctoral Scholar, Department of Medicine, University of Pittsburgh

Alicia Topoll, MD  
**Medical School:** Northeast Ohio Medical University  
**Residency:** Texas Health Presbyterian Dallas Hospital  
**Current Position:** Palliative Care Fellowship, UPMC

Fellow Activities  
Laith Alkukhun, MBBS  
**Publications**  

**Presentations and Abstracts**  
- **Alkukhan L**, “Impact of Neurological Performance on Defibrillator Implantation Rates and Long-Term Mortality in Sudden Cardiac Arrest Survivors,” American College of Cardiology Annual Scientific Sessions, New Orleans, LA, March 2019

**Awards**  
- Cardiology Fellow Research Grant, “Role of microvascular endothelial dysfunction in predicting atrial fibrillation recurrence in patients on antiarrhythmic medical therapy” (Mentor: Samir Saba, MD), 2018

Amr F. Barakat, MBBCh  
**Publications**  


**Presentations and Abstracts**

- **Barakat AF**, “Wearable cardioverter-defibrillator therapy for the prevention of sudden cardiac death: a systematic review and meta-analysis,” European Society of Cardiology (ESC) Congress Munich, Germany, August 2018

- **Barakat AF**, “One-year Readmissions After Transcatheter Aortic Valve Implantation,” Transcatheter Cardiovascular Therapeutics (TCT), San Diego, CA, September 2018

**Awards**

- Cardiology Fellow Research Grant, “Atrial Telomere Length and the Risk of Prevalent and Incident Atrial Fibrillation” (Mentor: Samir Saba, MD), 2018

**Lindsey Cilia, MD**

**Presentations and Abstracts**

- **Cilia L**, “The Impact of Chronic Kidney Disease and Anemia Upon Outcomes in the Revascularized Patient Population,” University of Pittsburgh Medical Center’s Fellows Research Day, Pittsburgh, PA, January 2019


**Malamo Countouris, MD**

**Publications**

- **Countouris ME**, Demirci JR, Jeyabalan A, Catov JM, Schwarz EB. Relationship of Postpartum


**Presentations and Abstracts**

- **Countouris ME**, Jeyabal A, Caldwell J, Lee J, Hickey G, “Primary Presentation of Pulmonary Hypertension in the Peripartum: Preparing for Patients With Eisenmenger’s Physiology,” American Heart Association Scientific Sessions, Chicago, IL, November 2018
- **Countouris M**, “Hypertensive Disorders of Pregnancy and Subsequent Structural Changes by Echocardiography,” American College of Cardiology Annual Scientific Sessions, New Orleans, LA, March 2019

**Stephen J. D’Auria, MD**

**Presentations and Abstracts**


**Michael Genuardi, MD**

**Publications**


**Presentations and Abstracts**

• **Smith BM, Genuardi MV**, Koczo A, Zou RH, Thomas F, Handen A, Girard T, Althouse AD, Chan SY, “Atrial Arrhythmias Are Associated With Increased Mortality in Pulmonary Arterial Hypertension,” American Heart Association Scientific Sessions, Chicago, IL, November 2018


**Emily N. Guhl, MD**

**Publications**


**Presentations and Abstracts**

Have Lower Quality of Life,” American Heart Association Scientific Sessions, Chicago, IL, November 2018


**Awards**

- Cardiology Fellow Research Grant, “Social Determinants of Health and Atrial Fibrillation” (Mentor: Jared Magnani, MD, MSc), 2018

**Presentations and Abstracts**

- **Lolley R**, “Single-Center Outcomes of Cardiac Rehabilitation Referral Post-Myocardial Infarction,” American College of Cardiology Annual Scientific Sessions, New Orleans, LA, March 2019
- **Lolley R**, “2018 Cholesterol Guidelines Made Ridiculously Simple,” Internal Medicine Fellow’s Teaching Competition, University of Pittsburgh Medical Center, Pittsburgh, PA, April 2019

**Amber Makani, MD**

**Publications**


**Presentations and Abstracts**


**Amy L. Marino, MD**

**Publications**


**Awards**

- Cardiology Fellow Research Grant, “Investigating the Link Between Preeclampsia and Peripartum Cardiomyopathy: A Cross Sectional Evaluation of Cardiac Dysfunction in Women with Severe Preeclampsia” (Mentor: Dennis McNamara, MD), 2018

**Ahmad Masri, MD, MS**

**Publications**

**Presentations and Abstracts**

- Masri A, “Pulmonary Hypertension in Aortic and Mitral Valve Disease Pathophysiology and Outcomes,” American College of Cardiology Annual Scientific Sessions, New Orleans, LA, March 2019
Anum Saeed, MBBS
Zachary Rhinehart, MD
Dingxin Qin, MD
Brian R. Pierce, MD†

Division of Cardiology
Department of Medicine

Presentations and Abstracts

Awards
- Cardiology Fellow Research Grant, “Pulmonary Hypertension in Secondary Mitral Regurgitation: Effects of LVAD Unloading” (Mentors: Tiffany Chen, MD, and Stephen Chan, MD, PhD), 2018

Dingxin Qin, MD

Publications

Presentations and Abstracts

Zachary Rhinehart, MD

Presentations and Abstracts

Anum Saeed, MBBS

Presentations and Abstracts
- Saeed A, “So You Know Your Lipids! Let’s Ask Some Questions & Discuss Some Cases,” American College of Cardiology Annual Scientific Sessions, New Orleans, LA, March 2019
- Saeed A, “Top 3 Presentations in Global CVD Prevention Most Likely to Impact or Change Clinical Practice or Future Research Agenda,” American College of Cardiology Annual Scientific Sessions, New Orleans, LA, March 2019
- Saeed A, “Hypertriglyceridemia in Pregnancy Case Discussion,” Invited Faculty Panel, American College of Cardiology Scientific Sessions, New Orleans, LA, March 2019
of Medicine Research Day, University of Pittsburgh, Pittsburgh, PA, April 2019

Daniel L. Shpilsky, MD

Publications


Mourad Senussi, MD

Publications


Presentations and Abstracts


Roy Sriwattanakomen, MD

Presentations and Abstracts


Wei Sun, MD, PhD

Publications

BOLA (BolA Family Member 3) Deficiency Controls Endothelial Metabolism and Glycine Homeostasis in Pulmonary Hypertension. Circulation. 2019 May 7;139(19):2238-2255.


**Presentations and Abstracts**

- **Sun W,** “RNA-Sequencing of iPSC-Derived Endothelial Cells Carrying BMPR2 Mutations Identifies SCUBE1 as a Putative Pathogenic Effector in Pulmonary Arterial Hypertension,” Northwestern Cardiovascular Young Investigator Forum, Chicago, IL, October 2018

**Postdoctoral Fellows, FY2019**

**Andrea C. Braganza Jardini, PhD**
*Mentor: Sruti Shiva, PhD*
Dr. Braganza Jardini’s research focuses on elucidating the role played by the ubiquitin-proteasome system (UPS) and the mitochondria in age-dependent increases in platelet activation and thrombosis.

**Micol Falabella, PhD**
*Mentor: Brett A. Kaufman, PhD*
Dr. Falabella investigates the mechanism associated with mitochondrial genome stability. She also works on unresolved secondary DNA structures, known as G-quadruplexes, and their pathological implication on mitochondrial function.

**Jonathan Florentin, PhD**
*Mentors: Partha Dutta, DVM, PhD, and Stephen Y. Chan, MD, PhD*
Dr. Florentin is researching how innate immune myeloid cells are involved in the development of cardiovascular diseases.
Luca Giordano, PhD
Mentor: Brett A. Kaufman, PhD
Dr. Giordano studies mitochondrial genome stability.

Maureen Mburu, MD
Mentors: Solomon F. Ofori-Acquah, PhD, and Flordeliza Villanueva, MD
Dr. Mburu's research focuses on the role of chronic intravascular hemolysis in the progression of sickle cell cardiomyopathy.

Vinny Negi, PhD
Mentor: Stephen Y. Chan, MD, PhD
Dr. Negi researches the efficacy of re-purposing chemotherapeutics, such as such as I-BET and momelotinib, for Pulmonary Hypertension.

Lydia Perkins, PhD
Mentors: Carolyn J. Anderson, PhD, and Enrico M. Novelli, MD, MS
Dr. Perkins is investigating VLA-4 as a PET imaging biomarker of vaso-occlusive crisis in sickle cell disease.

Jairo Andrés Pulgarin Rocha, PhD
Mentors: Dennis Bruemmer, MD, PhD, and Imad Al Ghoulah, PhD
Dr. Pulgarin Rocha is studying L1 (long interspersed element-1 (L1) retrotransposons), an abundant class of DNA transposable elements, and their role in pulmonary artery hypertension (PAH).

Cody A Rutledge, MD
Mentor: Brett A. Kaufman, PhD
Dr. Rutledge's research focuses on the regulation of mitochondrial DNA and its role in cardiovascular disease.

Dharendra Thapa, PhD
Mentor: Iain Scott, PhD
Dr. Thapa studies the role of mitochondrial acetyltransferase GCN5L1 in regulating fatty acid oxidation proteins via acetylation in diabetic cardiomyopathy and heart failure.

Sathish B. Vasamsetti, PhD
Mentor: Partha Dutta, DVM, PhD
Dr. Vasamsetti is researching the role of sympathetic activation in triggering myelopoiesis in diseased conditions such diabetes. He also studies the role of visceral adipose tissue resident macrophages in heart failure-induced insulin resistance.

Chen-Shan Woodcock, PhD
Mentor: Stephen Y. Chan, MD, PhD
Dr. Woodcock seeks to determine the role of adenosine-to-inosine RNA editing in PH to provide insight into a significant new aspect of post-transcriptional modifications in the pathogenesis of PH.
**Bingxian Xie, PhD**  
*Mentor: Iain Scott, PhD*  
Dr. Xie’s research focuses on SGLT2 inhibitors and myocardial metabolism.

**Jimin Yang, PhD**  
*Mentor: Stephen Y. Chan, MD, PhD*  
Dr. Yang is researching the regulatory mechanism involving m6A RNA methylation in PAH.
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ACKNOWLEDGMENTS

This report was produced by the Office of Academic Affairs in the Department of Medicine.

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