Cardiovascular Division
Washington University
School of Medicine

Faculty Research Interests
2016-2017
Introduction

The Cardiovascular Division and related disciplines at the Washington University School of Medicine have a distinguished track record of research productivity in both the clinical and basic sciences. The objectives of this document are twofold:

1.) To provide an overview of current research activities of individual investigators within the Cardiovascular Division, as well as investigators in related fields of research; and

2.) To assist residents, fellows, graduate students, MSTPs and junior faculty members in identifying potential mentors with specific research interests.

The document is updated at least annually to reflect evolving research interests. Questions regarding ongoing or proposed research projects should be directed to individual investigators. General questions about the Mentorship Program should be addressed to members of the Mentorship Committee, comprising Drs. Barger, D. Brown, Kates, Mann, Davila, Peterson, and Rich.

Comments or suggestions about the utility of this document and how it could be improved should be addressed to Michael W Rich, MD, Professor of Medicine, at mrich@wustl.edu.

How to Use This Document

Residents, fellows, and others who wish to identify potential mentor(s) are encouraged to browse through the Index, which lists investigators according to their areas of interest. Names in the Table of Contents and in the Index are hyperlinked to the Investigator’s page within the document. Names on each Investigator’s page are hyperlinked to the Cardiology website (or Washington University faculty website for investigators outside the Cardiovascular Division). The website provides additional details about each investigator’s training, publications, and clinical activities. Key words at the bottom of each investigator’s page indicate terms listed in the Index.
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Dana R. Abendschein, PhD

Associate Professor of Medicine, Cell Biology, and Physiology
Assistant Vice-Chancellor / Dean for Animal Affairs

Current research interests

- Inhibition of thrombosis during treatment of myocardial infarction and stroke with use of targeted antithrombotic agents and nanoparticles to increase efficacy and decrease bleeding.

- Role of phospholipase A$_2$γ in vascular reactivity, arrhythmogenesis, and myocardial infarction during diabetes.

- Targeting unstable atherosclerotic plaque and myocardial fibrosis after infarction with use of novel probes and optical imaging or MRI.

- Identification of electrical activation patterns in the uterus associated with pre-term delivery.

Representative publications


Key words: antithrombotics, imaging, animal models, calcium independent phospholipases, and thrombosis
Amit Amin, MD

Assistant Professor of Medicine

Current Research Interests

- Improving outcomes of percutaneous coronary intervention (PCI)
- Reducing PCI complications, including bleeding and acute kidney injury
- Reducing costs of PCI and acute coronary syndromes
- Cost-effectiveness of adjunctive therapies in interventional cardiology
- Cost-effectiveness of radial access PCI

Representative publications


Key words: cost-effectiveness analysis, interventional cardiology, outcomes research
Richard G. Bach, MD

Professor of Medicine

Current Research Interests

- Hypertrophic cardiomyopathy: physiology, treatment, and genetics
- Acute coronary syndromes
- Diabetes and CAD
- Coronary physiology and imaging

Representative publications


Key words: coronary artery disease, diabetes, hypertrophic cardiomyopathy, imaging
Philip M. Barger, MD, MSc

Associate Professor of Medicine

Current research interests

• Molecular mechanisms of cardiac reverse remodeling and recovery
• Adult congenital heart disease

Representative Publications


Key words: reverse remodeling, congenital heart
Anita Bhandiwad, MD
Assistant Professor of Medicine

Current Research Interests

- Cardiac magnetic resonance imaging
- Echocardiography
- Nuclear cardiology

Representative publications


Key words: imaging, cardiac MRI, echocardiography
Joseph J. Billadello, MD

Associate Professor of Medicine

**Current Research Interests**

- Adult congenital heart disease

**Representative publications**


**Key words:** congenital heart disease
Alan C. Braverman, MD

Alumni Endowed Professor in Cardiovascular Diseases, Department of Medicine

Current research interests
- Genetically triggered aneurysm syndromes (Marfan, Loeys-Dietz, Familial TAA disease)
- Aortic dissection
- Bicuspid aortic valve and aortopathy
- Aortic disease in pregnancy

Representative publications
5. Braverman AC. Clinical Manifestations and Diagnosis of Bicuspid Aortic Valve. In UpToDate, Basow DS (Ed), UpToDate, Waltham, MA, September 1014.
6. Braverman AC. Treatment of Bicuspid Aortic Stenosis in Adults. In: UpToDate, Basow DS (Ed), UpToDate, Waltham, MA, August 2014.

Key Words: aorta and great vessels, aortic stenosis, valvular heart disease
Angela L. Brown, MD

Associate Professor of Medicine

Current research interests

- Hypertensive Heart Disease
- Resistant hypertension
- Tools/strategies for implementing community education on cardiovascular disease prevention

Representative publications


Key words: hypertension, prevention, women and minorities
David L. Brown, MD

Professor of Medicine

Current Research Interests

- Use of Existing Public and Proprietary Databases to Answer Clinical Questions in Cardiovascular Disease
- Comparative effectiveness research of treatments for cardiovascular disease
- Health services/health policy research for cardiovascular disease
- Meta-analysis
- Machine learning and predictive analytics

Representative Publications


Key Words: Outcomes research, comparative effectiveness research, meta-analysis, coronary artery disease, health services research, patient-centered care
George J. Broze, Jr., MD

Professor of Medicine and Cell Biology and Physiology

Current Research Interests

- Regulation of coagulation
- Thrombosis
- Atherosclerosis

Representative Publications


Key words: thrombosis, atherosclerosis, basic science
Robert M. Carney, PhD

Professor of Psychiatry

Current Research Interests

- The effects of psychiatric depression on the course and outcome of coronary heart disease
- Potential mechanisms underlying the risk of depression on cardiac related morbidity and mortality
- The effects of treating depression on course and outcome of coronary heart disease

Representative publications


Key words: behavioral medicine, coronary artery disease, depression, sleep disorders
Murali M. Chakinala, MD

Associate Professor of Medicine

Current Research Interests

- Therapeutics in pulmonary arterial hypertension
- Non-invasive evaluation in pulmonary hypertension

Representative publications


Key words: pulmonary hypertension, pulmonary arterio-venous malformations, right heart failure
Sharon Cresci, MD

Assistant Professor of Medicine and Genetics

Current Research Interests

- Association of genetic variation with clinical outcomes in individuals with both diabetes mellitus and coronary artery disease.
- Role of genetic variation in the variable response to pharmacologic treatment (i.e., pharmacogenomics).
- Determination of modifier genes that influence phenotypic expression in patients with hypertrophic cardiomyopathy.

Representative Publications


Key words: coronary artery disease, diabetes, echocardiography, genetics, hypertrophic cardiomyopathy, molecular cardiology, pharmacogenomics, risk factors, translational research
Phillip S. Cuculich, MD

Associate Professor of Medicine

Current Research Interests

- Noninvasive cardiac imaging to guide noninvasive radioablation of arrhythmias
- Surgical/ablation techniques for atrial fibrillation and ventricular tachycardia
- Noninvasive electrophysiologic imaging of uterine contractions to study preterm birth

Representative publications

7. Cuculich PS, Cooper DH. Pericardial Invasion: Lessons learned from SAVR and TAVR. J Am Coll Cardiol 2014; 63: 1520-1. PMID: 24486274.

Key words: arrhythmias, atrial fibrillation, electrophysiology, translational research
Victor G. Davila-Roman, MD

Professor of Medicine, Anesthesiology, and Radiology

Current Research Interests

- Cardiovascular imaging: echocardiography, vascular ultrasound, nuclear cardiology, cardiac CT
- Cardiac metabolism, Hypertensive heart disease, Diastolic function
- Cardiovascular genetic epidemiology

Representative publications


Key words: cardiac imaging, cardiac metabolism, hypertension, genetic epidemiology, translational research, diastolic function, echocardiography
Lisa de las Fuentes, MD

Associate Professor of Medicine and Biostatistics

Current Research Interests

- Genetic epidemiology of cardiovascular disease and drug response
- Hypertensive heart disease
- Metabolic and inflammatory cardiovascular risk factors

Representative publications


Key words: hypertension, risk factors, genetic epidemiology, diastolic function, echocardiography
Abhinav Diwan, MD, MBBS

Associate Professor of Medicine, Cell Biology and Physiology

**Current Research Interests**

- Role of lysosomes in organelle quality control and cell survival under starvation stress
- Regulation of lysosome function in cardiac macrophages in heart failure
- Regulation of lysosomal machinery in Alzheimer’s disease and amyloid heart disease
- Role of autophagy in hypertrophic cardiomyopathy (Danon disease)

**Representative publications**


**Key words**: autophagy, lysosome, amyloid, ischemia-reperfusion, heart failure, cell death
Gerald W. Dorn, II, MD

Philip and Sima K. Needleman Professor of Medicine

**Current Research Interests**

- Biology of mitochondria in the heart; metabolic remodeling
- Molecular and biochemical signaling for cardiac hypertrophy and heart failure
- Genetic diseases affecting mitochondrial dynamism and mitophagy

**Representative Publications**


**Key words:** mitophagy, heart failure, molecular cardiology
Gregory A. Ewald, MD

Associate Professor of Medicine

Current Research Interests
- Mechanical circulatory support in advanced heart failure
- Medical therapy in patients with heart failure
- Device therapy in patients with heart failure
- Remote monitoring in management of heart failure
- Cardiac transplantation/donor evaluation and management
- Depression in heart failure

Representative publications

Key words: heart failure, heart transplantation
Mitchell N. Faddis, MD, PhD

Associate Professor of Medicine

Current Research Interests

• Catheter ablation techniques
• Treatment of atrial fibrillation
• Cardiac resynchronization therapy for advanced heart failure

Representative publications

8. Marrus SB, Andrews CM, Cooper DH, Faddis MN, Rudy Y. Repolarization changes underlying long-term cardiac memory due to right ventricular pacing: noninvasive mapping with electrocardiographic imaging. Circ Arrhythm Electrophysiol 2012 August 1;5(4):773-81

Key words: arrhythmias, atrial fibrillation, electrophysiology, heart failure, implantable devices
Kenneth E. Freedland, PhD

Professor of Psychiatry

Current Research Interests

- Depression, anxiety, stress, and physical inactivity in patients with coronary heart disease or heart failure
- Role of depression in heart failure rehospitalizations
- Clinical trials in behavioral medicine and behavior trial methodology
- Sleep apnea and other sleep problems in depressed cardiac patients

Representative publications


Key words: behavioral medicine, coronary artery disease, depression, depressive disorders, heart failure, sleep disorders
Brian F. Gage, MD, MSc

Professor of Medicine

Current Research Interests

- Anticoagulants
- Atrial fibrillation
- Pharmacogenomics

Representative publications


Key words: aging, atrial fibrillation, epidemiology, pharmacogenomics
Edward M. Geltman, MD

Professor of Medicine

Current Research Interests

- New pharmacologic agents for the management of systolic and diastolic heart failure
- Importance of biomarkers for predicting events for CHF

Representative publications


Key words: diastolic function, heart failure, implantable devices
Marye J. Gleva, MD

Professor of Medicine

Current Research Interests

- Complications associated with cardiac implantable electronic devices
- Outcomes after radiofrequency ablation of atrial fibrillation: CABANA
- Implantable cardioverter-defibrillators in heart failure: SCD-HeFT

Representative publications


Presentations


Key words: atrial fibrillation, electrophysiology, implantable devices
Jeffrey I. Gordon, MD

Dr. Robert J. Glaser Distinguished University Professor of Pathology and Immunology

Current Research Interests

- Genomic and metabolic foundations of the mutually beneficial relationship between gut microbes and humans
- Effects of diet, lifestyle, and biosphere on the human gut microbiome and the impact of these effects on human health and predisposition to disease
- Interventions designed to alter the gut microbial community to maximize health and reduce disease

Representative publications


Key words: human microbiome; host-microbial symbioses in the gut; ecology; systems biology; metabolism; obesity; childhood undernutrition; immunology; global health; prebiotics/probiotics/synbiotics; anthropology of microbes
Robert J. Gropler, MD

Professor of Radiology, Medicine, and Biomedical Engineering

Current Research Interests

- Imaging of myocardial metabolic remodeling using PET, magnetic resonance spectroscopy, and other modalities
- Development of new cardiovascular molecular imaging agents

Representative publications


Key words: molecular imaging, cardiac metabolism
Richard Gross, MD, PhD

Professor of Medicine, Chemistry, and Developmental Biology

Current Research Interests

- Bioenergetics and Mitochondria
- Diabetic cardiomyopathy
- Cardiac ischemia
- Heart failure
- Phospholipases as mediators of membrane dysfunction
- Metabolomics

Representative Publications


Key words: basic science, cardiac metabolism, diabetes, heart failure, lipid metabolism, molecular cardiology
Xuntian Jiang, PhD

Assistant Professor of Medicine

Current Research Interests

- Development and application of LC-MS/MS methods for metabolomics in biomarker screening and validation
- Development and application of LC-MS/MS methods for clinical diagnosis and clinical trial.
- Identification of unknown molecules from biological extracts by LC-MS/MS and interpretation of mass spectra
- Synthesis of heavy isotope-labeled small organic molecules as internal standards in quantification of target analytes

Representative publications


Key words: Biomarker, diagnostics, lipid metabolism
Attila Kovacs, MD
Associate Professor of Medicine

Current Research Interests

- cardiovascular phenotyping in mice
- ultrasonic tissue characterization

Representative publications


Key words: basic science, imaging, molecular cardiology, vascular biology
Sándor Kovács, Jr., MD, PhD

Professor of Medicine, Cell Biology and Physiology
Adjunct professor of Physics and Biomedical Engineering

Current Research Interests

- Mathematical models of cardiac physiology and function/complexity theory
- Theoretical and applied cardiac physiology/pathophysiology
- Multimodal cardiac imaging: echo/magnetic resonance/catheterization/angiography

Representative publications


Key words: cardiac physiology, complexity theory, diastolic function, imaging, mathematical modeling
Ronald J. Krone, MD

Professor of Medicine

Current Research Interests

- Cardi-oncology (cardiac toxicity from cancer)
- Cardiac protection during doxorubicin therapy
- Cardiac imaging in cancer patients

Representative publications


Key words: cancer and the heart, coronary artery disease, cardiomyopathy
Gregory M. Lanza, MD, PhD

Oliver M. Langenberg Distinguished Professor of the Science and Practice of Medicine

Current Research Interests

- Nanomedicine
- Targeted Drug Delivery
- Molecular Imaging
- Magnetic Resonance Imaging
- Echocardiography
- Spectral CT
- Photoacoustic Tomography

Representative publications


Key words: basic science, imaging, molecular cardiology, nanomedicine
John M. Lasala, MD, PhD

Professor of Medicine

Current Research Interests

- Interventional cardiology with complex coronary interventions
- Drug-eluting stents
- Percutaneous aortic valve replacement and mitral valve repair
- Structural heart/congenital heart defects

Representative publications


Key words: coronary artery disease, interventional cardiology, valvular heart disease
Kory Lavine, MD, PhD

Assistant Professor in Medicine

Current Research Interests

- Immune mechanisms governing cardiac recovery and heart failure pathogenesis
- Mechanisms that distinguish pediatric from adult cardiomyopathy
- Pathogenesis of primary graft dysfunction
- Role of macrophages in coronary development and collateral growth

Representative Publications


Key words: coronary development, collateral, cardiac recovery, heart failure, macrophage, transplant vasculopathy
**Kathryn Lindley, MD**

Assistant Professor of Medicine

**Current Research Interests**

- Women's Heart Disease
- Heart Disease in Pregnancy
- Peripartum cardiomyopathy
- Contraception in women with heart disease
- Cardiovascular sequelae of pre-eclampsia

**Representative publications**


**Key words:** Women and minorities, Pregnancy, Cardiomyopathy
Brian R. Lindman, MD

Associate Professor of Medicine

Current Research Interests

- Clinical and translational research on calcific aortic stenosis
- Medical therapy for aortic stenosis
- Building a tissue bank for aortic stenosis with blood, valve, and LV tissue; role of biomarkers in risk stratification of patients with AS
- Prediction models for clinical outcomes in AS
- LV Function and aortic stenosis – investigating novel echo and MRI indices of systolic and diastolic function and cardiac fibrosis
- Right heart function and pulmonary vascular load in patients with AS
- Impact of diabetes mellitus on LV remodeling and outcomes in AS

Representative publications


Key words: aortic stenosis, valve disease, translational research, echocardiography
Majesh Makan, MD

Associate Professor of Medicine

Current Research Interests:

- 3-dimensional echo and transesophageal echo
- Echocardiographic assessment of right ventricular function
- 2-dimensional speckle Doppler and strain rate imaging
- Quantification of mitral regurgitation severity

Representative Publications:


Key Words: echocardiography, imaging, valvular heart disease
Douglas L. Mann, MD

Professor of Medicine, Cell Biology and Physiology
Lewin Chair and Chief, Cardiovascular Division

**Current Research Interests**

- Cardiac inflammation and innate immunity
- LV remodeling and reverse LV remodeling
- Heart failure, clinical trials, and circulatory assist devices
- Translational research (T1 or T2)

**Representative publications (2012 - 2015)**


**Key words:** basic science, heart failure, translational research
James G. Miller, PhD

Albert Gordon Hill Professor of Physics, Medicine, and Biomedical Engineering

Current Research Interests

- Echocardiography
- Myocardial tissue characterization with ultrasound
- Basic Science

Representative publications


Key words: echocardiography, imaging
Jeanne M. Nerbonne, Ph.D.

Professor of Medicine, Alumni Endowed Professor of Molecular Biology and Pharmacology in Developmental Biology and Medicine
Director, Center for Cardiovascular Research

Current Research Interests

• Regulation/modulation of voltage-gated ion channels and membrane excitability in cardiac and neuronal cells

• Inherited/acquired membrane excitability disorders in the cardiovascular and nervous systems

• Molecular mechanisms controlling electrical remodeling in physiological and pathological cardiac hypertrophy

Representative Publications


Key words: ion channels, electrophysiology, molecular genetics, proteomics, arrhythmias, hypertrophy, remodeling
Colin G. Nichols, PhD

Carl Cori Professor of Cell Biology and Physiology
Director of the Center for the Investigation of Membrane Excitability Diseases

Current Research Interests

- Ion channels and cardiac arrhythmias
- Ion channels and cardiovascular disease
- Ion channels and blood pressure control

Representative publications


Key words: arrhythmias, basic science, cardiac development, electrophysiology, hypertension, ion channels
Daniel S. Ory, M.D.

Alan A. and Edith L. Wolff Professor of Medicine, Cell Biology and Physiology

Current Research Interests

- Cholesterol biology
- Atherosclerosis and diabetes
- Niemann-Pick C disease
- Small RNA regulation of metabolism

Representative publications


Key words: atherosclerosis, cholesterol, diabetes, lipid metabolism, RNA
Hua Pan, Ph.D.

Assistant Professor of Medicine

Current Research Interests

- Atherosclerosis treatment
- Nanomedicine - delivery platform development
- Ion Channel in atherosclerosis management

Representative publications:


Key words: atherosclerosis, ion channels, basic science, nanomedicine
Julio E. Perez, MD

Professor of Medicine

Current Research Interests

- Echocardiographic assessment of ventricular function
- Applications of contrast echocardiography and myocardial perfusion imaging
- Applications of myocardial strain measurements

Representative publications


Key words: echocardiography, imaging
Linda R. Peterson, MD

Associate Professor of Medicine and Radiology

Current Research Interests

- Nutritional treatments for myocardial and skeletal muscle
- Lipidomics
- Effects of obesity and diabetes on cardiac metabolism, structure, and function
- The obesity paradox
- Insulin resistance

Representative publications


Key words: cardiac metabolism, inorganic nitrate, lipidomics, diabetes, obesity, skeletal and cardiac muscle performance, heart failure
Nishath Quader, MD

Assistant Professor of Medicine

Current Research Interests

- Valvular heart disease: Aortic valve, Mitral valve, Tricuspid valve
- Structural heart disease
- 3D echocardiography
- Echocardiographic assessment of left and right ventricular function and strain analysis

Representative publications


Key words: Valvular and structural heart disease, 3D echocardiography
Babak Razani, MD, PhD

Assistant Professor of Medicine

Current Research Interests

- Mechanisms of atherosclerosis and insulin resistance (with emphasis on macrophage dysfunction)
- Focus on emerging cellular pathways critical for atherosclerotic progression
  - dysfunction in autophagy
  - lysosomal dysfunction
  - activation of inflammasomes
  - inclusion body formation
- Disorders of cardiac metabolism in heart failure (with emphasis on De novo Lipogenesis)

Representative publications


Key words: atherosclerosis, cardiac metabolism, insulin resistance, macrophage, autophagy, lysosomes, basic science, translational research, lipid metabolism, obesity, vascular biology
Katherine M. Reeder, PhD, RN

Adjunct Assistant Professor of Medicine (voluntary),
Research Associate Professor at Goldfarb School of Nursing, Barnes-Jewish College

Current Research Interests

- Self-management of Chronic Cardiovascular Disease
- Symptom Management in Chronic Heart Failure
- Transitory Care for Re-hospitalization Prevention
- Post-hospital Discharge Environment
- Social Networks in Symptom Management & Decision-making
- Treatment-seeking Behavior

Representative Publications


Key words: Heart Failure, Self-management, Health Care Seeking Behavior, Hospital Readmission, Community-based Interventions
Stacey L. Rentschler, MD, PhD

Assistant Professor of Medicine, Developmental Biology, and Biomedical Engineering

Current Research Interests

- Transcriptional and epigenetic basis of arrhythmias
- Development of the cardiac conduction system
- Reprogramming cardiomyocytes to pacemaker-like cells
- Notch and Wnt signaling
- Human organotypic slice culture as a translational platform

Representative publications


Key words: basic science, cardiac development, molecular cardiology, electrophysiology, arrhythmias, conduction system, reprogramming, epigenetics, translational research
Michael W. Rich, MD

Professor of Medicine

Current Research Interests

- Cardiovascular disease in the elderly, esp. heart failure, atrial fibrillation, coronary artery disease, valvular heart disease, hypertension, epidemiology, and prevention
- Cardiovascular aging, including interventions designed to slow the aging process
- Heart failure disease management

Representative publications


Key words: aging, atrial fibrillation, epidemiology, heart failure, prevention
Yoram Rudy, PhD

Fred Saigh Distinguished Professor of Engineering; Professor of Biomedical Engineering, Medicine, Cell Biology & Physiology, Radiology, and Pediatrics
Director, Cardiac Bioelectricity and Arrhythmia Center (CBAC)

Current Research Interests

- Mechanisms of cardiac arrhythmias
- Noninvasive imaging (ECGI) of cardiac arrhythmias in patients

Representative publications


Key words: basic science, electrocardiography, electrophysiology
Jean E. Schaffer, MD

Virginia Minnich Distinguished Professor of Medicine

Current Research Interests

- Role of small non-coding RNAs in metabolic (lipotoxic and oxidative) stress
- Pathophysiological responses of the heart to the diabetic environment
- Metabolomic biomarkers for heart disease
- Lipids as a therapeutic target for cardiovascular disease in diabetics

Representative publications


Key words: basic science, cardiac metabolism, diabetes, heart failure, lipid metabolism, RNA
**Joel D. Schilling, MD, PhD**

Assistant Professor of Medicine

**Current Research Interests**

- Macrophage biology in post-MI remodeling and heart failure
- Macrophage dysfunction in diabetes and obesity
- The interplay between macrophage metabolism and effector function
- Diabetic cardiovascular disease

**Representative publications**


**Key words:** basic science, cardiac metabolism, macrophage, diabetes, heart failure
Clay F. Semenkovich, MD

Professor of Medicine, Cell Biology and Physiology

Current Research Interests

- Lipid metabolism
- Atherosclerosis
- Diabetes

Representative publications


Key words: atherosclerosis, basic science, diabetes, lipid metabolism
Jasvindar Singh, MD

Associate Professor of Medicine

Current Research Interests

- Interventional cardiology, especially complex interventions
- Outcomes from intervention procedures
- Stent design
- Coronary Physiology
- FFR/IVUS

Representative publications


Key words: coronary artery disease, interventional cardiology
Timothy W. Smith, MD, DPhil

Associate Professor of Medicine

Current Research Interests

- Techniques of ICD/pacemaker implantation
- New approaches to therapy (especially ablation) of ventricular tachycardia
- Prevention of sudden death and ICD utilization
- Electrocardiography and ECG education
- Cardiac Resynchronization

Representative publications


Key words: arrhythmias, electrocardiography, electrophysiology
Phyllis K. Stein, PhD

Associate Professor of Medicine

Current Research Interests

- Heart rate variability (HRV) and outcomes in different populations
- HRV as a marker for autonomic dysfunction in genetic disorders
- HRV as a marker for autonomic dysfunction in genetically modified mice
- Detection of sleep-disordered breathing, circadian rhythm disorders, and sinoatrial node function from ambulatory ECG recordings
- Clinical applications of HRV from bedside monitoring in the NICU and PICU

Representative publications


Key words: aging, ambulatory ECG, heart rate variability, autonomic function assessment, cancer and the heart, depression, diabetes, epidemiology, heart failure, epidemiology, sleep disorders, circadian rhythm, hypertension, risk factors, trauma, women and minorities
Nathan Stitziel, MD, PhD

Assistant Professor of Medicine and Genetics

Current Research Interests

- Genetics of Mendelian cardiovascular disease
- Genetics of complex cardiovascular disease
- Clinical application of genetics

Representative Publications


Key words: atherosclerosis, basic science, genetics, translational research
Carla J. Weinheimer, MS

Associate Professor of Medicine

Current Research Interests

- Mouse cardiovascular phenotyping through surgery, hemodynamic evaluations, imaging, and histology
- Models of ischemic disease and heart failure in mice

Representative publications


Key words: cardiovascular phenotyping, novel surgical models, heart failure, ischemia, imaging, molecular cardiology
Samuel A. Wickline, MD

James R. Hornsby Family Professor of Medicine, Adjunct Professor of Physics, Professor of Biomedical Engineering, and Cell Biology and Physiology

Current Research Interests

- Nanotechnology
- Cardiac MRI
- Ultrasound

Representative publications


Key words: basic science, imaging, nanomedicine
Pamela K. Woodard, MD

Professor of Radiology and Biomedical Engineering

Current Research Interests

- Molecular Imaging of atherosclerosis
- Cardiac MRI
- Cardiac CT – coronary CT angiography

Representative publications


Key words: atherosclerosis, cardiac MRI, cardiac CT, molecular imaging
Alan Zajarias, MD

Associate Professor of Medicine
Associate Professor in Surgery (Cardiothoracic)

Current Research Interests

• Transcatheter aortic valve implantation (TAVI)
• Use of CT for procedural planning of TAVI
• Echocardiographic assessment of RV function in patients with pulmonary hypertension undergoing TAVI for aortic stenosis
• Racial differences in aortic stenosis
• Mitral regurgitation and outcomes in patients with cardiomyopathy
• Patient selection and procedural outcomes in patients undergoing TAVI

Representative publications


Key words: aortic stenosis, interventional cardiology, valvular heart disease