



Inside



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WELCOME From the Program Chair AND Late-Breaking Science schedule

Learning Studio and Symposia schedule 12



Smile for the virtual photo booth

Get a professional business photo, a fun snapshot or a silly group shot on the #AHA21 platform in the virtual photo booth, brought to you by Bristol Myers Squibb. Share photos of your time at #AHA21 on social networks.



Rapid advances in AF management improve treatment

Advances in the management and treatment of atrial fibrillation have a direct bearing on patient care.

Atrial Fibrillation in 2021: Prepare for New Directions” (3-4 p.m. EST Saturday) will focus on the changing and expanding targets to better control AF rhythm, including earlier rhythm control strategies, lifestyle modifications and stroke and dementia

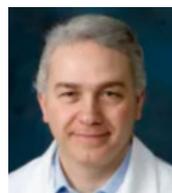
EA.ME.452
Atrial Fibrillation in 2021: Prepare for New Directions Saturday, Nov. 13 3-4 p.m. EST

prevention. Session moderator Rakesh Gopinathannair, MD, MA, FAHA, cardiac EP lab director for the Kansas City Heart Rhythm Institute and professor of medicine at the University of Missouri-Columbia, said the hour-long session features four talks highlighting the state-of-the-art with regards to:

- AF screening
- Advantages of early rhythm control



Gopinathannair



Natale



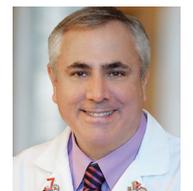
Bunch

- Possibilities of AF treatment preventing dementia and reducing stroke
 - The effectiveness of lifestyle and risk-factor modification in improving AF-related outcomes. “Overall, this is a must-watch session for
- See **AF MANAGEMENT**, page 9

LIVE Today

Opening Session Scientific Discovery as the Guiding Light: Moving Toward a Post-COVID World

8-9 a.m. EST



Lloyd-Jones



Patel

Don't miss the Opening Session today with Manesh R. Patel, MD, and Donald Lloyd-Jones, MD, ScM. View the event in real-time on the 2021 Scientific Sessions **virtual platform**.

Stay after the event closes for the Fireside Chat. Attendees can engage with faculty and hear live commentary from leaders in the field.

AHA selects 6 Distinguished Scientists

Recipients of this prestigious award are a prominent group of scientists and clinicians whose work has importantly advanced our understanding of cardiovascular diseases and stroke.

See page 5 for full coverage of Distinguished Scientists.

Session explores cancer and heart health links



Kikkan Randall

What can an Olympic champion skier teach us about the connections between cancer and heart health? If that champion is five-time Olympian, gold-medal winner and cancer survivor Kikkan Randall, the answer is plenty.

Randall will talk about her experience during “Cardio-Oncology: From a Science Journey

to a Patient Journey” 9:30-10:30 a.m. EST, Saturday. She was diagnosed with cancer just four months after winning an Olympic gold medal in the cross-country skiing team sprint event.

As a lifelong athlete, Randall said she was concerned about how her cancer treatments might affect her heart and was committed to doing everything she could to support good heart health.

CO.ME.04

Cardio-Oncology: From a Science Journey to a Patient Journey Saturday, Nov. 13 9:30-10:30 a.m. EST

Randall said her presentation will focus on the importance of exercising whenever possible during cancer treatment.

See **CARDIO-ONCOLOGY**, page 9

Landmark trial changes the game for treatments in stable coronary patients

Two years out from the landmark ISCHEMIA trial that was presented at the 2019 Scientific Session, the methods for treating stable patients with coronary artery disease have changed in many ways.

“Managing Stable CAD in a Post-Ischemia World,” which takes place live 9:30-10:30 a.m. EST, Saturday, will take a closer look at those changes and how they

can impact the decisions physicians make when it comes to treating those patients.

Gregg W. Stone, MD, director of academic affairs for the Mount Sinai Heart Health System in New York City, will answer the question of whether revascularization can



Stone

reduce the rate of myocardial infarction among patients with certain types of lesions.

“Revascularization in patients who have had a heart attack saves lives, prevents further heart attacks, saves heart muscle and is the best way to treat those patients,” he said. “But what about patients with stable coronary disease, who have blockages that may cause angina, shortness of breath and other conditions? These patients have

AC.ME.487

Managing Stable CAD in a Post-Ischemia World
Saturday, Nov. 13
9:30-10:30 a.m. EST

relatively low rates of death and heart attacks. And we’ve known for a long time
See **LANDMARK TRIAL**, page 6

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Have you considered hypertrophic cardiomyopathy (HCM) as part of your differential diagnosis?

Clinical suspicion of HCM includes the presence of symptoms,* an abnormal EKG, a systolic ejection murmur, or family history.¹

Approximately 700,000 people in the US have HCM.²

*symptoms of HCM can include: dyspnea, fatigue, palpitations, chest pain^{3,4}



Learn more about HCM at our microsite:

<https://bmsbcmcongresses.com/aha>

Thanks for attending our Learning Studio!

Heart failure isn’t the only type of “failure” in cardiology: Raising the Clinical Suspicion for Hypertrophic Cardiomyopathy (HCM)



Sara Saberi, MD



David Fermin, MD



Matthew Martinez, MD



Anjali Tiku Owens, MD (moderator)

This event is not part of the official Scientific Sessions 2021 as planned by the AHA Committee on Scientific Sessions Programming.

HCM, hypertrophic cardiomyopathy

References:

1. Ommen SR et al. *J Am Coll Cardiol.* 2020;76(25):e159-e240.
2. Maron et al. *Am J Cardiol.* 2016;117:1651-4.
3. Argulian E et al. *Am J Med.* 2016;129:148-52.
4. Wexler RK et al. *Am Fam Physician.* 2009;79:778-84.

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If you missed our Learning Studio, view it on demand at <https://ahasessions.heart.org/live-stream/23144726/Heart-Failure-Isnt-the-Only-Type-of-Failure-in-Cardiology-Raising-the-Clinical-Suspicion-for-Hypertrophic-Cardiomyopathy-HCM> starting Nov. 15th.

Visit our virtual booth **BMS Medical Affairs**, <https://bmsbcmcongresses.com/aha>



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OnDemand Extended Access is available for FREE to all paid levels of AHA Members, and available for purchase to those who choose to remain non-Members. OnDemand content will be accessible for one year after the conference ends.

Today at Sessions



WELCOME FROM THE PROGRAM CHAIR

Manesh R. Patel, MD, FAHA, Chair, Committee on Scientific Sessions Program

Welcome to the first day of Scientific Sessions 2021!

It is my great pleasure to welcome you to the American Heart Association's Scientific Sessions 2021. This year's meeting is centered on renewed connections and passionate discussions on the year's most groundbreaking updates in the fields of cardiovascular clinical, basic and population science.

Regardless of your location, you have the opportunity to participate in group discussions and debates, engage with interactive sessions featuring cutting-edge topics across an array of specialties and meaningfully connect with peers, mentors and friends from around the world.

The scope and quality of the scientific exchange is what makes AHA Scientific Sessions the premier

cardiovascular research and instructional meeting in the world.

- Watch as the most highly anticipated breakthroughs in patient care are announced during Late-Breaking Science sessions.
- Immerse yourself in cutting-edge CV science topics during our Main Event sessions.
- Stay on top of the latest trends in health care technology with the 3-day Health Technology & Innovation offerings.
- Over 400 sessions including subspecialty and cross-specialty programming, and 4,000 abstracts!
- Engage with the world's resuscitation science elite at the 3-day Resuscitation Science Symposium (ReSS).
- Connecting with colleagues has never been easier with numerous ways to engage your colleagues. So, please join in on the conversation happening online by following #AHA21. I can't wait to see you there! •

LATE-BREAKING SCIENCE

Check the Mobile Meeting Guide app for updates.

9:30-10:30 a.m. EST

LBS.01 | Valves, Veins and New Viewpoints in Cardiothoracic Surgery

- Aortic Valve Replacement Versus Watchful Waiting in Asymptomatic Severe Aortic Stenosis: The Avatar Trial(AVATAR)
- Evaluating the Benefit of Concomitant Tricuspid Repair During Mitral Valve Surgery
- A Randomized Study of Early Versus Standard Coronary Artery Bypass Surgery Among Patients Presenting With Acute Coronary Syndromes Treated With Ticagrelor (RAPID CABG)
- Efficacy and Safety of an External Support Device for Saphenous Vein Coronary Bypass Grafts: The VEST Trial (VEST)

3-4 p.m. EST

LBS.02 | Hypertension: Local, Global and Pandemic Impacts

- A Remotely Delivered Hypertension and Lipid Program in 10,000 Patients Across a Diverse Health Care Network
- Disruption in Blood Pressure Control With the COVID-19 Pandemic: A Study of 24 U.S. Health Systems in the Pcornet Blood Pressure Control Laboratory (BP Track)
- A Cluster Randomized Trial of a Village Doctor-Led Intervention on Blood Pressure Control: China Rural Hypertension Control Project (CRHCP)

For up-to-the-minute coverage of Late-Breaking Science click here to visit sessions.hub.heart.org.



Your Scientific Sessions registration also gives you access to the **Resuscitation Science Symposium (ReSS)**, which takes place Nov. 12-14, and the **Quality of Care and Outcomes Research (QCOR Conference)** on Nov. 15.

Visit the virtual Exhibit Hall

Open daily Nov. 13-15, 2021.

Exhibits accessible OnDemand through Dec. 15, 2021.



For complete exhibitor information, view or download **Your Event Guide**.

HBCU and HSI Scholars Program



To address the critical lack of diversity in the health care workforce in the United States, Quest Diagnostics has committed to supporting the AHA in its ongoing pursuit to build a pipeline of health care professionals representing the Black and Hispanic communities.

Forty-seven students have been selected to participate in the **Historically Black Colleges and Universities Scholars Program** for the 2021-22 academic year, and 30 students have been selected to

participate in the inaugural year of the Hispanic Serving Institutions Scholars program. All scholars are awarded a \$7,000 stipend to cover costs for tuition, fees and other expenses related to school.

STEM studies are a required focus for all scholars, and throughout the academic year, they will participate in mentorship with leading researchers, leadership development, the AHA's annual Scientific Sessions, and they will present their research at the Spring Symposium, which takes place in April. •

Claim your CE credits

1 Log in

- Go to AHA's Lifelong Learning and Education
- Click Activities in Progress
- Enter your username and password and Sign In.

2 Select the Scientific Sessions 2021 activity.

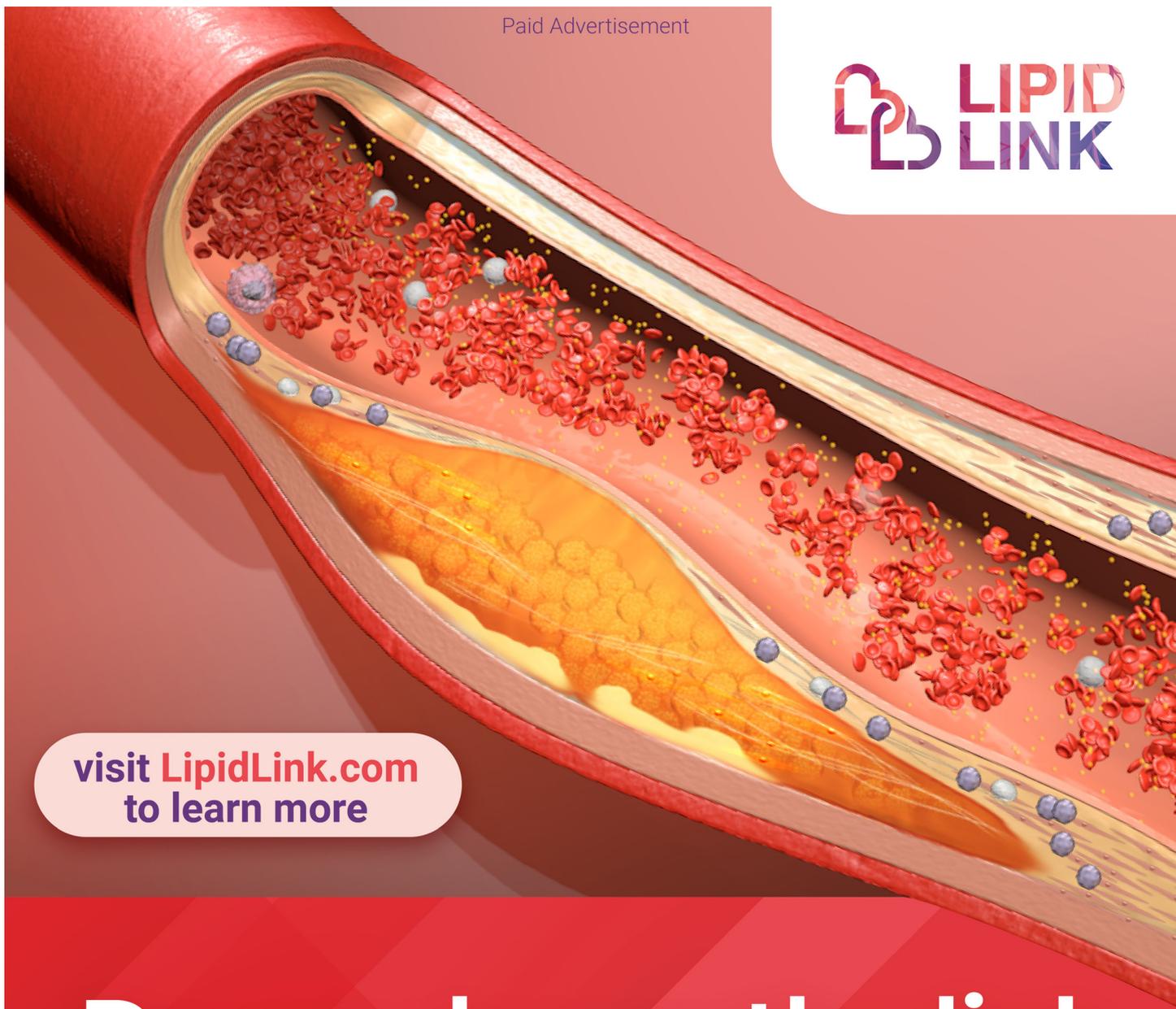
- Select the Scientific Sessions 2021 activity
- Review the Activity Overview, scroll to the bottom and click Continue.
- View the contents of the Activity Material page and click Continue
 - *Pharmacists will select the specific sessions attended, click Register Selected Sessions and click Continue.*

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- Complete the conference evaluation, which is required to claim credit. Once complete, click Submit and Continue.
- Click the Claim button for the appropriate accreditation.
- Click Continue to generate your certificate.
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Scientific Sessions
DAILY NEWS



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AHA selects 6 Distinguished Scientists

Recipients of this prestigious award are a prominent group of scientists and clinicians whose work has importantly advanced our understanding of cardiovascular diseases and stroke.

Arteriosclerosis, Thrombosis and Vascular Biology



Kathryn J. Moore, PhD
New York University
Grossman School of Medicine

Dr. Moore's groundbreaking work has helped to identify new therapeutic targets for the treatment of arteriosclerosis. Throughout her career, she has explored how the immune system affects arteriosclerosis and, more recently, the links between myocardial infarction and cancer progression. She is internationally recognized for her research on the molecular pathogenesis of cardiometabolic diseases, and the roles that non-coding RNAs and dysregulated immune responses play in those settings. By forging new links between lipids, metabolism and innate immunity, her discoveries have revealed fundamental insights into pathways that regulate cholesterol homeostasis and vascular inflammation.

She is the Jean and David Blechman Professor of Cardiology, professor in the department of cell biology and the director of the Cardiovascular Research Center at New York University Grossman School of Medicine in New York City. She also leads The Kathryn Moore Lab at NYU, focused on identifying molecular mechanisms that underpin metabolic dysregulation and chronic inflammation in cardiometabolic diseases and integrating basic science discovery, preclinical and translational research in the areas of noncoding RNA biology, innate immunity and lipid metabolism.

Dr. Moore earned her PhD from McGill University in Montreal, Canada. Her early research focused on the immune response to pathogens, and she became fascinated with the mechanisms of "sterile" inflammation and pursued postdoctoral training at Harvard Medical School in the areas of autoimmunity and atherosclerosis. She joined the Harvard Medical School faculty as an assistant professor in 2001, before moving to New York University in 2009.

Basic Cardiovascular Sciences



Elizabeth M. McNally, MD, PhD, FAHA
Northwestern University

Dr. McNally was selected for this honor because of her multiple discoveries around the heredity of musculoskeletal and cardiovascular disorders. Her work impacts both scientific research and patient care. She also discovered new techniques for identifying and mapping genetic modifiers for inherited cardiovascular and myopathic disorders.

She directs the Center for Genetic Medicine at Northwestern University's Feinberg School of Medicine in Chicago and is the Elizabeth J. Ward Professor of Genetic Medicine — a cardiologist with expertise in cardiovascular genetics. As a clinician, she developed one of the first cardiovascular genetics clinics in the nation, integrating genetic testing into cardiovascular care for patients and families.

Her research team at Northwestern discovers genetic causes of cardiac disorders and then works to define the mechanisms of how these genetic variants cause disease. By developing a deeper understanding as to how these genetic mutations exert their effects, she is using these genetic signals to drive the development of new treatments for cardiovascular disease. She has a special interest in neuromuscular genetic diseases like muscular dystrophy since these disorders often have accompanying cardiovascular complications.

"Genetic treatments are becoming a reality," said Dr. McNally. "As a physician scientist, it's amazing to see some of these treatments beginning to make it to patients. In Duchenne Muscular Dystrophy, there are now multiple ongoing trials of gene therapy, and this will also be gene therapy that treats the heart. We also know about all the newly developing gene editing tools, and how these can be adapted to treat patients with genetic cardiovascular diseases and one day to also change genes to treat even more common forms of heart disease."

Dr. McNally's translational accomplishments have been recognized through an award from the Burroughs Wellcome Foundation and as a recipient of the Distinguished Clinical Scientist Award from the Doris Duke Charitable Foundation. She serves on the Board of Directors for the Muscular Dystrophy Association and is currently the chair of the Association's Council on Basic Cardiovascular Sciences. She is a past president of the American Society for Clinical Investigation and currently president of the Association of American Physicians. Earlier this year, she was elected to the American Academy of Arts and Sciences.

General Preventive Medicine



Vasam S. Ramachandran, MD
Boston University

Dr. Ramachandran was selected for this honor because of the impact of his work on clinical practice in hypertension, and his significant contributions to the genetic and non-genetic epidemiology of high blood pressure and heart failure. He has implemented population-based vascular testing (endothelial function and arterial stiffness), echocardiography and exercise testing at scale in community-based programs. He has raised awareness of the lifetime risk for high blood pressure — examining young adult and midlife blood pressures as significant determinants of an individual's risk for heart disease and stroke.

Dr. Ramachandran is the Jay and Louise Coffman Professor of Vascular Medicine, and chief of the preventive medicine and epidemiology section in the department of medicine, and a professor of medicine and epidemiology at Boston University's

School of Medicine and School of Public Health. He is the principal investigator and founder of the Risk Underlying Rural Areas Longitudinal (RURAL) cohort study, a six-year research project focused on identifying why some people in the rural areas of the southeastern U.S. may live shorter and less healthy lives, particularly as it relates to heart and lung disorders. The study includes researchers from 16 universities with efforts concentrated on 10 rural counties in Alabama, Kentucky, Louisiana and Mississippi and is funded by the National Heart, Lung, and Blood Institute of the National Institutes of Health.

He is also the principal investigator and director of the Framingham Heart Study, which he joined in 1993 as a research fellow. He has been at Boston University School of Medicine since 1998, has been a professor of medicine since 2006 and was appointed professor of epidemiology at Boston University's School of Public Health in 2013. Dr. Ramachandran earned his medical degree and completed his residency in internal medicine and a fellowship in cardiology at the All India Institute of Medical Sciences in New Delhi, India.

See **SCIENTISTS**, page 13

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American Heart Association.

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LANDMARK TRIAL

continued from page 2

that revascularization will make them feel better, but it has been less certain whether it would prolong their life or prevent heart attacks.”

Until recently there has been very little evidence that myocardial infarction was reduced in patients with stable coronary disease, Dr. Stone said, but there is a growing body of information which suggests that you can prevent heart attacks in the right kind of patients.

“The question is, who are these patients

and what are the types of lesions that can benefit from revascularization?” he said. “It’s important we start to look beyond just the coronary angiogram and identify the specific type of atherosclerosis and blockages in the heart to differentiate lesions that aren’t as dangerous from those prone to rupture and occlude the artery, causing irreversible loss of heart muscle, heart failure and death. Revascularization of these types of lesions (termed “vulnerable plaques”) may prevent myocardial infarction and death.”

Elsewhere in the session, Jacqueline Tamis-Holland, MD, FAHA, associate

professor of medicine and cardiology at the Icahn School of Medicine at Mount Sinai, will tackle the question of “Guidelines and Clinical Trials: Do They Always Align?”

Dr. Tamis-Holland said guidelines include recommendations for care based on the results of the clinical trials, and therefore they should align. Sometimes, however, that is not the case.

“There are sometimes circumstances when the guidelines don’t align with clinical



Tamis-Holland

trial data,” she said. “For example, they sometimes don’t align if the clinical trials don’t all show consistent results. So, one might have to create a recommendation that is a balance of all data that are available. Additionally, since guidelines are only published once every 5 to 7 years, trial data will be published and change the way we practice before the guidelines are able to be updated. For this reason, they don’t always align.”

What that means in relation to the ISCHEMIA trial, according to Dr. Tamis-Holland, is that the clinical approach for managing patients with stable CAD has changed since the publication of the ISCHEMIA trial results. The information we now have based on this and other trials may inform future updates of the guidelines as well.

“I think the session as a whole will give us insight into the optimal management of patients with stable ischemic heart disease and help provide us with an understanding of best practices based on data from clinical trials,” she said. “The guidelines for managing stable ischemia may differ from the way one may consider managing ischemia in contemporary times based on the new trial data.”

In addition to Drs. Gregg and Tamis-Holland, Yulanka Castro Dominguez, MD, will present a case of a patient with chest pain; Wael A. Jaber, MD, will address the question of whether stress tests are still relevant when dealing with chest pain; and Akiko Maehara, MD, will explore intravascular imaging. •

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Please Join Us for Virtual Learning Studio Presentations at AHA Scientific Sessions 2021

SATURDAY, NOVEMBER 13, 2021 • 1:45 PM - 2:30 PM (ET)

**Clinical Insights in CAD and/or PAD:
Reducing the Risk of Major Cardiovascular Events**

Vamsi S. Krishna, MD

Interventional Cardiology and Endovascular Medicine
Director of Cardiac Catheterization Laboratory
Director of Cardiac Rehabilitation
Seton Heart Institute
Kyle, Texas

PROGRAM DESCRIPTION

Patients with coronary artery disease (CAD) and/or peripheral artery disease (PAD) are at risk for major cardiovascular events, including cardiovascular death, myocardial infarction, and stroke. This lecture will discuss an approach to reducing the risk of these events.

This event is not part of the official Scientific Sessions 2021 as planned by the AHA Committee on Scientific Sessions Programming.

SUNDAY, NOVEMBER 14, 2021 • 11:00 AM - 11:45 AM (ET)

**Clinical Insights in NVAf:
Reducing the Risk of Stroke and Systemic Embolism**

**Dharmesh Patel, MD, MBBS (LON),
FACC, FNLA, FACP, FASPC**

Cardiologist
Stern Cardiovascular Foundation
Memphis, Tennessee

PROGRAM DESCRIPTION

Patients with nonvalvular atrial fibrillation (NVAf) are at risk of stroke. This lecture will present options for reducing the risk of stroke in patients with NVAf and in patients with NVAf and obesity.

This event is not part of the official Scientific Sessions 2021 as planned by the AHA Committee on Scientific Sessions Programming.

In adherence with PhRMA guidelines, spouses or other guests are not permitted to attend company-sponsored programs.

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New strategies promote healthy vascular aging

Current research can tell us a lot about the future of detecting and reducing the risk of cardiovascular disease.

“Novel Strategies to Promote Healthy Vascular Aging,” a live broadcast session 11 a.m.-Noon EST, Saturday, Nov. 13, will link current research with future preventive strategies for healthy vascular aging, dietary recommendations and determining polygenic risk.

Cathy Shanahan, PhD, professor of cellular signaling at the King’s College School of Cardiovascular Medicine and Sciences in London, will explore age-associated vascular calcification and whether it can be considered a friend or foe to physicians and patients alike.

“Overwhelming data from clinical studies have shown that vascular calcification is associated with a higher risk of morbidity and mortality. So, calcification has really been considered a foe to the patient and to the physician as there are no treatments for it, and its presence can interfere with invasive clinical interventions,” she said. “However, recent studies have shown statins actually lead to increased calcification. This has led to renewed speculation that calcification might stabilize plaques and therefore be protective.”



Shanahan

Researchers and clinicians are beginning to understand more about calcification, Dr. Shanahan noted. It doesn’t come in one variety, saying its impact on cardiovascular health is dependent on where it is in the vessel, what form it takes and the associated disease.

There is new evidence, according to Dr. Shanahan, that could change the way physicians look at calcification.

“Calcification increases with age. Previously, it was thought to be a non-modifiable end-stage pathology,” she said. “We know now that it is a cell-mediated process orchestrated by vascular smooth muscle cells that can take on bone-like (osteoblastic) properties. Emerging evidence shows that cellular aging is associated with increased osteogenic differentiation of smooth muscle cells, and these



aging pathways can be analyzed and interfered with experimentally. Moreover, cellular aging can be uncoupled from chronological age, such that in children with calcified arteries there is evidence for premature aging of their smooth muscle cells. These aging pathways have the possibility to be impacted by lifestyle changes and potentially therapeutics.”

Encouraging patients to eat a proper diet has long been one of the best tools in a physician’s arsenal for managing a number of conditions — and promoting healthy vascular aging is no exception. Walter Willett, MD,



Willett

PhD, professor of epidemiology and nutrition at Harvard University in Cambridge, Massachusetts, will outline the

“Best Evidence for Specific Diets to Prolong Healthy Life.”

Dr. Willett said he primarily recommends what has become known as a “flexitarian” diet.

“I recommend diets that are mainly, but not necessarily entirely, comprised of healthy plant foods, including fruits, vegetables, nuts, beans, soy foods and optional modest amounts of fish, dairy foods, poultry and small amounts of red meat,” he said.

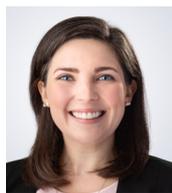
These diets are supported by an overwhelming amount of evidence showing their efficacy, according to Dr. Willett.

“The advantages of such diets are supported by dozens of randomized studies with risk factors as outcomes, long-term epidemiologic studies and a few

randomized trials with health outcomes,” he said. “I hope attendees will learn that these diets can reduce risks of important disease and contribute to additional years of healthy life.”

Secondarily, Dr. Willett said these diets also contribute to a healthy planet.

“We are now aware that slowing climate change is an existential issue,” he said. “And shifting to mainly plant-based diets is a necessary, although not sufficient, part of the solution.”



Wolford

Brooke Wolford, PhD, postdoctoral research fellow at Norwegian University of Science and Technology

in Trondheim, Norway, will take a more targeted approach to the topic with her presentation: “Polygenic Risk Scores for Coronary Artery Disease: Are We Ready for Personalized Medicine?”

Dr. Wolford said the idea of personalized medicine means treating the right people at the right time with the right drug.

“For example, we would ideally find individuals early in life who have a high risk of heart disease and consider lifestyle interventions or prescription of a cholesterol reducing medication before they have decades of exposure to high cholesterol levels,” she said. “Polygenic risk scores are a metric that represent an individual’s genetic burden of risk conferring or protective common genetic variation. If we can harness this additional

AT.ME.235

Novel Strategies to Promote Healthy Vascular Aging
Saturday, Nov. 13
11 a.m.-Noon EST

information in the same way we have harnessed biomarkers like cholesterol measurements, we may be able to improve our precision when screening the population to prevent disease.”

Dr. Wolford said her presentation will also explore Norway’s Nord Trøndelag Health (HUNT) Study and how information gained can tie into the prevention of coronary artery disease.

“We have demonstrated clinical utility of several polygenic scores in the HUNT Study,” she said. “This is above and beyond existing metrics for estimating heart disease risk, such as the atherosclerotic cardiovascular disease risk estimator. However, I will highlight questions to be answered before we are ready to deploy polygenic scores in the clinic.”

Including those scores could change outcomes for patients, but there is still a lot to learn before that can happen, she said.

“Ten percent of participants in HUNT who would be reclassified as high risk upon inclusion of a polygenic score using an existing risk calculator will experience a coronary artery disease event in 10 years,” she said. “But what do we do about the individuals who are reclassified as having lower risk upon inclusion of the polygenic score? Would physicians advocate for the removal of treatment or intervention?” •

Visit the Center for Health Technology & Innovation

Your opportunity to explore the leading edge of innovation and collaboration in the cardiovascular and digital health space. Key thought leaders will discuss solutions that span the cardiovascular health spectrum, with a goal of leveraging health tech for longer, healthier lives.

Saturday, Nov. 13

9:30 a.m. EST
Advanced Digital Therapeutics for Chronic Conditions

FEATURED EVENT

11 a.m. EST
Potential Impact of Virtual Longitudinal Studies

1 p.m. EST
Digital Cardiac Rehab

3 p.m. EST
Self-Measured Blood Pressure Platforms and Devices

Nurses will play a critical role in AHA goals for 2024



The COVID-19 pandemic brought a lot of changes to the medical community, and one of those changes was to the AHA's Impact Goal for 2030. In fact, the goal was re-evaluated and set for 2024: "The AHA will advance cardiovascular health for all, including identifying and removing barriers to health care access and quality."

Nursing will play a large role in achieving

that goal, and the On-Demand session "AHA 2024 Impact Goal: Role for Nursing and Nurses" provides further detail.

Nancy Artinian, PhD, RN, FAHA, visiting professor at the Michigan State University College of Nursing, said the National Institutes of Health defines health disparities as differences in the incidents, prevalence, mortality and burden of diseases and other adverse conditions that exist among specific

NR.CVS.100

**AHA 2024 Impact Goal:
Role for Nursing and Nurses**
Saturday, Nov. 13
On-Demand



Artinian

population groups in the United States.

"Those disparities are a particular type of health difference that's closely linked with economic or environmental disadvantages," she said.

"There's an urgent need to reduce health disparities because people of under-represented races and ethnicities in this country are growing. The percentage of racial and ethnic minorities in the U.S. will almost double by the year 2050."

Although there have been notable improvements in the overall health of the U.S. in the past two decades, there are "striking disparities" in the burden of illness and experienced by people of under-represented races and ethnicities, including Black, Hispanic, Native American, Alaska Native and Asian American people, she said.

Black adults, for example, are 32% more likely to die from cardiovascular disease and 45% more likely to die from stroke than white adults. Dr. Artinian said aiming for health equity is key to resolving these health disparities and that collaboration will be the cornerstone of achieving that goal.

"That means collaborating with community members, housing authorities, schools, religious institutions and other social networks and associations that allow health and human service providers to better support their clients," she said. "Nurses can help this along by developing a greater understanding of the context within which health occurs, advocating for policy changes that promote safe work and living conditions and creating community prevention programs."

Maria Teresa Lira, RN, MScN, FPCNA, will explore the environmental influences on health equity and cardiovascular health — including natural, social and personal environments. Natural environment can include anything from seasons to sunlight and day and night cycles. Social environment can include pollution, social networks and socioeconomic status. And the personal environment can include personal choices such as physical activity, nutrition and smoking.

"Each of these environments can have an effect on cardiovascular health," she said. "For example, the health impact of pollution in the air has been compared to the effects of hypertension, smoking and physical inactivity."

Social media in recent years has played a growing role in the health choices that people make. Lira said this includes so-called influencers promoting junk foods and

See **NURSES**, page 12

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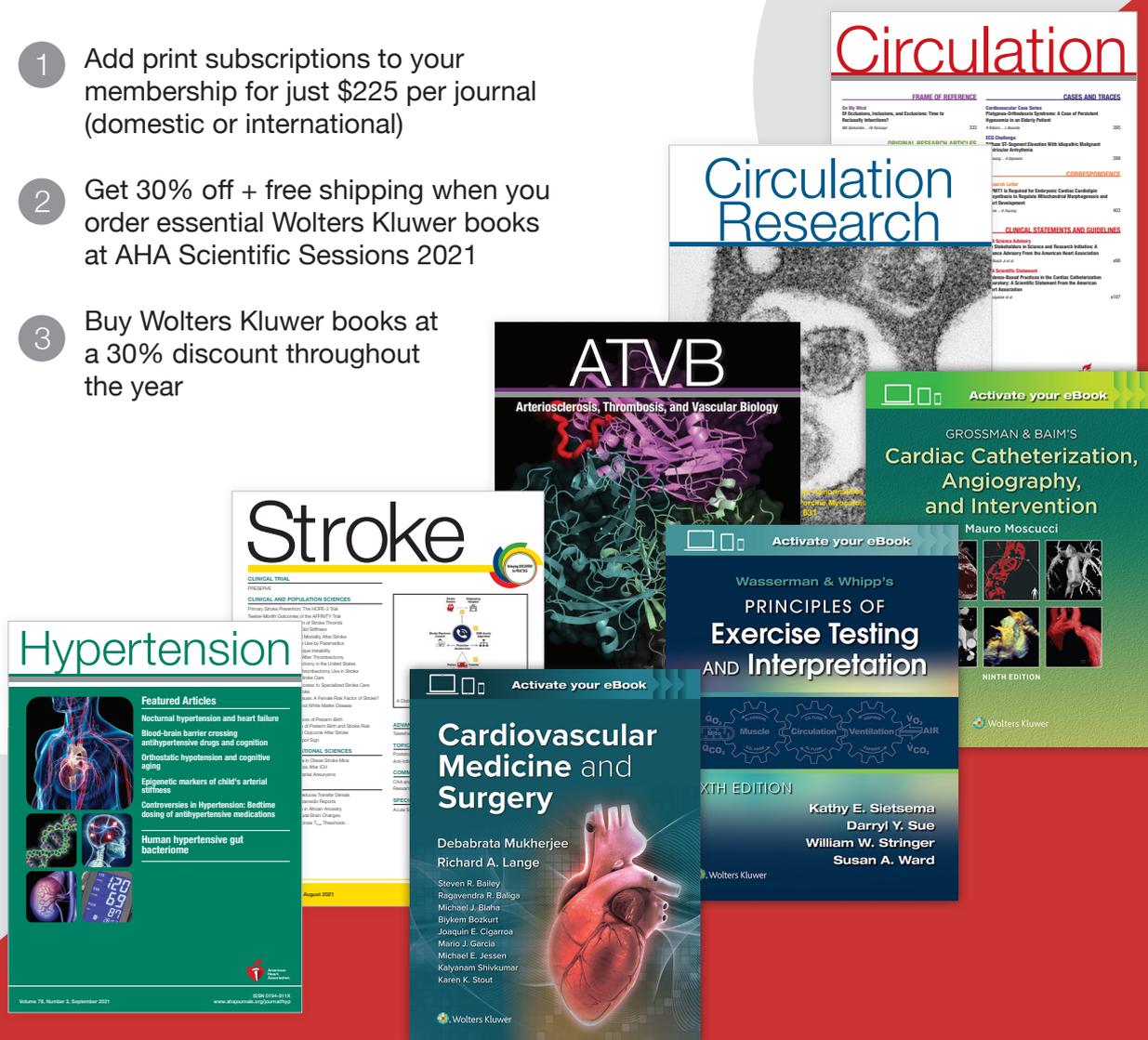
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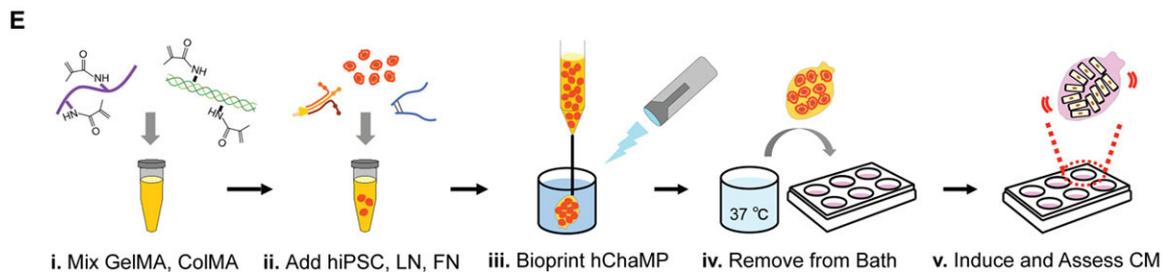
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Organ on demand technology leads to new CVD treatments



Optimization of an ECM (extracellular matrix)-based bioink for printing geometrically complex cardiac structures. A, Bioink formulations delineated in the Table were combined with human induced pluripotent cells (hiPSCs) and pipetted into wells to form gels.

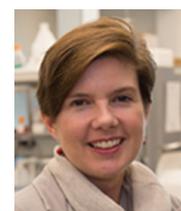
Kupfer et al. *Circ Res.* 2020;127:207–224. doi: CIRCRESAHA.119.316155. © 2020 American Heart Association, Inc. Used with permission.

“This advance moves the field one step closer to a cardiac graft that does not depend on a matched donor organ.”

– Brenda Ogle, PhD

The relatively new technology of 3D printing has already taken hold in the worlds of manufacturing, education and construction, and it is continuing to make inroads in medicine as well.

“Organ on Demand: 3D Printing for CVD,” 4:30-5:30 p.m. EST, Saturday, will take a closer look at the progress made in using 3D printing for heart and lung vessels



Ogle

to develop both research models and alternative transplant solutions.

Brenda Ogle, PhD, professor and head of

the Department of Biomedical Engineering at the University of Minnesota in Minneapolis-St. Paul, said the technology has developed to such a point that it can be used to generate centimeter-scale muscle. This in turn has allowed for a new approach to generating a living, human cardiac muscle pump.

“The pump can be used to impose and study changes in volumetric pressure dynamics with health and disease,” she said. “In addition, it serves as a prelude to a therapeutic tissue graft capable of compensating for the decreased function of failing hearts.”

Dr. Ogle’s presentation, “In Situ Expansion, Differentiation

and Electromechanical Coupling of Human Cardiac Muscle in a 3D Bioprinted, Chambered Organoid,” will take a closer look at this technology and how it could impact the treatment of cardiovascular disease going forward.

“This advance moves the field one step closer to a cardiac graft that does not depend on a matched donor organ,” she said. “The primary learning objective of this presentation is to understand the interplay between the extracellular matrix scaffold and cardiac cell types in the context of engineered tissues.”

In addition to Dr. Ogle, the session will explore updates on the first full-size, 3D bioprinted human heart by Adam Feinberg, PhD, Carnegie Mellon University, and 3D bioprinting of pre-vascularized tissue constructs with complex microarchitecture by Shaochen Chen, BS, University of California. ●

CARDIO-ONCOLOGY

continued from page 1

“Exercise is a key part of helping cancer treatment be as successful as possible,” she said. “For as much as it helped me physically, the exercise really helped my mental state through one of the toughest times in my life. If I exercised — even a short amount — I could tell I was able to stay more positive and optimistic and stay focused on keeping healthy habits like diet, sleep and hydration going every day to support my training.”

Stressing the importance of exercise is a critical message for both doctors and patients alike, according to Randall.

She further emphasized, “A doctor is like a coach — they have tremendous influence on how the patients view physical activity during treatment. If physicians are advocating for their patients to stay active, I believe that will get more patients to see that daily activity is as integral to their treatment as the other therapies.”

Saro Armenian, DO, MPH, a pediatric hematologist in Duarte, California, will offer another perspective on heart health and cancer survival in her



Armenian

presentation, “From Birth to Life — The Heart Journey of Cancer Survivorship.”

Dr. Armenian said there is a strong connection between heart health and cancer survivorship. “Cardiovascular disease is a leading cause of non-cancer related morbidity in cancer

“I hope attendees will come to understand the relative risk of CVD in cancer survivors compared to the general population.”

– Saro Armenian, DO, MPH

survivors,” he said. “The risk for CVD in cancer survivors is multifaceted.”

“I hope attendees will come to understand the relative risk of CVD in cancer survivors compared to the general population,” he said. “I also want them to be able to understand the specific cancer treatments associated with CVD during and after completion of cancer treatment and recognize the high-risk subgroups for surveillance and intervention to mitigate CVD risk.”

Dr. Armenian said there is still much to be learned about the connection between cancer treatments and cardiovascular disease.

“It is increasingly recognized that cancer and its treatments may contribute to accelerated cardiovascular aging in certain high-risk populations,” he said. “The biology of accelerated cardiovascular aging is not fully elucidated. There are a number of bench-to-bedside studies examining the pathology of CVD in the context of cancer.”

Dr. Armenian hopes to draw a line between cancer survivors and an increased risk of cardiovascular disease. ●

AF MANAGEMENT

continued from page 1

“#AHA21 attendees,” Dr. Gopinathannair said. “As it provides a 2021 update on the hot topics with regard to AF”

Andrea Natale, MD, executive medical director of the Texas Cardiac Arrhythmia Institute at St. David’s Medical Center in Austin, Texas, is presenting “Lifestyle and Risk Modification for AF: Mainstream or Pie in the Sky?”

There are several risk factors that contribute to the development and progression of AF, including obesity, obstructive sleep apnea, diabetes, hypertension, alcohol, smoking and physical inactivity. Although most of these are modifiable, changing them is often easier said than done, Dr. Natale said.

“The evidence from different studies evaluating the risk-factor management approach has been so compelling that major guidelines now strongly recommend it is a key component of AF management,” he said. “However, it is easier to contemplate than implement this strategy in real life because of poor patient compliance and other circumstantial, social and economic hurdles.”

The path to bringing these changes into the mainstream, Dr. Natale said, is a coordinated effort involving the patient, the doctor and all involved medical professionals, as well as the use of the latest technology.

“A synchronized and holistic approach involving patients as well as health care providers,

including nurses, primary care physicians and specialists, is key to making these changes mainstream,” he said. “Motivated patients as well as regular monitoring of the health behaviors of the patients by the treatment providers is very important in accomplishing sustainable results. In this context, it is also noteworthy to mention the critical role of digital apps in keeping close contact with the patients — regularly reminding them of the health targets and encouraging them to remain compliant.”

T. Jared Bunch, MD, head of Heart Rhythm Services at University of Utah Health in Salt Lake City, will tackle the question of how AF treatment could help prevent stroke and dementia. AF is the most common sustained

heart rhythm abnormality in clinical practice and is a known cause of strokes that can result in significant disability. The timing and the way AF is treated could significantly lower the risk of those strokes, Dr. Bunch said.

“The timing of the use of anticoagulants (the earlier the better), the type of anticoagulant and the efficacy of the anticoagulant all influence the risk of cognitive decline and dementia,” he said. “We have also learned that the way we treat the rhythm of atrial fibrillation may also lower risk. Early treatment (within 12 months of diagnosis) is associated with lower rates in stroke. In patients selected and treated with ablation in the community, their rates of dementia over time are lower

compared to patients not referred and treated with ablation. “

The key is early diagnosis and treatment, Dr. Bunch said, and new information is coming that will help better define those treatments to help lower the risk of brain injuries.

“Early diagnosis and treatment of atrial fibrillation are important if we are going to improve long-term risks of stroke, cognitive decline and dementia. It is critical in those patients at moderate to high risk of stroke that effective anticoagulation use is started at the initial diagnosis,” he said. “There are a lot of emerging data that will help define ways in which treatment of atrial fibrillation will lower the broad spectrum of brain injuries. The benefit will likely be the greatest when the treatment is started early.” ●

Welcome New 2021 American Heart Association Fellows

Election as a Fellow of the American Heart Association recognizes the recipient's scientific accomplishments, volunteer leadership and service. Earning the FAHA credential demonstrates to colleagues and patients that the recipient has been welcomed into one of the world's most eminent organizations of cardiovascular and stroke professionals. Please join us as we celebrate the accomplishments of the new 2021 Fellows of the American Heart Association (FAHA).

3CPR

Anne-Marie Guerguerian, MD, PhD, FAHA
James M. Horowitz, MD, FAHA
Clauden Louis, MD, MS, FAHA
Naomi Kondo Nakagawa, MSc, PhD, FAHA
Robert M. Sutton, MD, MSCE, FAHA
Justin R. Walzl, RN, BSN, MSN, FAHA
Carolyn M. Zelop, MD, FAHA

ATVB

Po-Yuan Chang, MD, PhD, FAHA
Gabriel T. Faz, MD, FAHA
Julie Freed, MD, PhD, FAHA
Kapil Kapoor, MD, PhD, FAHA
Gregory A. Payne, MD, PhD, FAHA
Miao Wang, PhD, FAHA

BCVS

Sangita Choudhury, BSc, MSc, PhD, FAHA
Anindita Das, PhD, FAHA
Hiranmoy Das, PhD, FAHA
Dominic Del Re, PhD, FAHA
Morten O. Jensen, MD, PhD, FAHA
Deok-Ho Kim, PhD, FAHA
Jonathan A. Kirk, PhD, FAHA
Nitish R. Mahapatra, PhD, FAHA
Shouji Matsushima, MD, PhD, FAHA
Liming Pei, PhD, FAHA
Enkhsaikhan Purevjav, MD, PhD, FAHA
Sebastiano Sciarretta, MD, PhD, FAHA
Markus Wallner, MD, PhD, FAHA
Leo Q. Wan, PhD, FAHA
Zhao Wang, PhD, FAHA

CLCD

Sandra Chaparro, MD, FAHA
Geoffrey W. Cho, MD, FAHA
Paul Dobesh, PharmD, FAHA
Andreas O. Doesch, MD, FAHA
Eman A. Hamad, MD, FAHA
Tevfik F. Ismail, MBBS, PhD, FAHA
Viet T. Le, PA-C, MPAS, FAHA
Mitchell Psotka, MD, PhD, FAHA
Odayme Quesada, MD, MHS, FAHA
Garima Sharma, MD, FAHA
Kamal O. Shemisa, MD, FAHA
Shashank S. Sinha, MD, MSc, FAHA
Jennifer T. Thibodeau, MD, MSCS, FAHA
Saraschandra Vallabhajosyula, MD, MSc, FAHA
Vlad G. Zaha, MD, PhD, FAHA

CVRI

Jeremy R. Burt, MD, FAHA

CVSA

Mario F. L. Gaudino, MD, PhD, MSCE, FAHA

CVSN

Brittany Butts, PhD, RN, FAHA
Nicolle W. Davis, PhD, RN, SCRNP, ASC-BC, FAHA
Quin E. Denfeld, PhD, RN, FAHA
Shannon Holloway, PhD, RN, FAHA
Jennifer L. Miller, PhD, MSNEd, RN, FAHA
Kari D. Moore, MSN, RN, APRN, AGACNP-BC, FAHA
Susan E. Wilson, DNP, MSN, RN, ANP-BC, FAHA

EPI

Kristen L. Knutson, PhD, FAHA
Nathalie Moise, MD, MS, FAHA
Connie W. Tsao, MD, MPH, FAHA
Kara Whitaker, PhD, MPH, FAHA

GPM

Wesley T. Abplanalp, PhD, FAHA
Mete Civelek, PhD, FAHA
Jasmine A. Luzum, PharmD, PhD, FAHA
Nathan R. Tucker, PhD, FAHA

HYPERTENSION

Dave Dixon, PharmD, FAHA
Vesna D. Garovic, MD, PhD, FAHA
Yuan Lu, ScD, FAHA
Junie P. Warrington, PhD, FAHA

KCVD

Nicole M. Bhave, MD, FAHA
Clintoria R. Williams, PhD, FAHA

LIFESTYLE

Nathaniel D. M. Jenkins, PhD, FAHA
Stephen P. Juraschek, MD, PhD, FAHA

PVD

Eri Fukaya, MD, PhD, FAHA
Raghu Kolluri, MD, MS, FAHA
Eric Secemsky, MD, MSc, FAHA

QCOR

Imo A. Ebong, MD, MS, FAHA
Louise Morgan, MSN, CPHQ, FAHA
Raja K. Mutharasan, MD, FAHA
Celina M. Yong, MD, MSc, MBA, FAHA

STROKE

Kimon Bekelis, MD, FAHA
Andrew P. Carlson, MD, FAHA
Alicia C. Castonguay, PhD, FAHA
Chandril Chugh, MD, FAHA
Hugo Cuellar-Saenz, MD, PhD, MBA, FAHA

Matthew J. Durand, PhD, FAHA
Mark Etherton, MD, PhD, FAHA
Kimberly Gannon, MD, PhD, FAHA
Gillian L. Gordon Perue, MBBS, DM, DABPN, FAHA
Karen Greenberg, DO, FAHA
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Pascal Jabbour, MD, FAHA
Amanda L. Jagolino-Cole, MD, FAHA
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Syed F. Zaidi, MD, FAHA
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YOUNG HEARTS

Lindsay R. Freud, MD, FAHA
Shuping Ge, MD, FAHA
Yuli Kim, MD, FAHA
Ashwin K. Lal, MD, FAHA
Chad Y. Mao, MD, FAHA
Mark D. Norris, MD, MS, FAHA
Amy L. Peterson, MD, MS, FAHA
Nelangi Pinto, MD, FAHA
Hirofumi Saiki, MD, PhD, FAHA
Adriana Tremoulet, MD, MAS, FAHA

NURSES

continued from page 8

unhealthy food product placement on some of their platforms.

“Regular social media daily use has been associated with a reinforcement of behaviors at both extremes of health behaviors,” she said.

Yvonne Commodore-Mensah, PhD, MHS, RN, FAHA, assistant professor at Johns Hopkins School of Nursing, said that equality and equity are different from one another, and it is important to recognize that difference.



Mensah

“Equality has to do with giving everyone the same resources, whereas equity involves distributing resources based on need,” she said. “Unfortunately, society’s playing field is not level. Some people start off life at a head start, and some start off at a disadvantage. Health equity is focused on making sure people have exactly what they need in order to be healthy.”

Dr. Commodore-Mensah pointed out racial and economic disparities arising from a number of conditions, including social conditions, economic policies, the physical environment and health system factors.

“When we talk about describing differences between Black and white people, for instance, we also have to acknowledge that these differences are not necessarily because of skin color but because of complex interactions between these factors,” she said.

Dr. Commodore-Mensah said that it was encouraging to see health equity featured in the AHA 2024 goal and that nurses will play a big part in achieving that goal.

“Nurses play a critical role in advancing health equity,” she said. “But we need the resources to do that effectively — we need robust education, we need supportive work environments. But we also need autonomy to be able to support patients appropriately.” •



Industry Events

Learning Studios and Industry Symposia

Saturday, Nov. 13

These events are not part of the official Scientific Sessions 2021 as planned by the AHA Committee on Scientific Sessions Program.

6:30-7:30 a.m. EST

- Making New Strides in Hypertrophic Cardiomyopathy: The Latest Guidelines, Science and Strategies for Early Diagnosis and Tailored Treatment

11-11:45 a.m. EST

- The Heart of the Matter: A New Treatment for Slowing CKD Progression and Reducing CV Risk in Patients With CKD Associated With T2D
- Heart Failure Isn't the Only Type of Failure in Cardiology: Addressing the Misdiagnosis of HCM

11 a.m.-12:30 p.m. EST

- Potential Impact of Virtual Longitudinal Studies

12:30-1:15 p.m. EST

- A Focus on Very High-Risk Patients in the Acute Setting: Understanding Vulnerable Plaque and Prioritizing LDL-C
- Jardiance® (empagliflozin) Tablets: A Review of the Latest Data
- Your Elderly Heart Failure Patient: Considerations, Management, and Future Directions

1:45-2:15 p.m. EST | Roundtable

- What's New When It Comes to Diagnosing and Treating Hypertrophic Cardiomyopathy

1:45-2:30 p.m. EST

- Clinical Insights in CAD and/or PAD: Reducing the Risk of Major Cardiovascular Events
- Opportunities to Improve Health Outcomes in ASCVD: A Focus on Population Health and a Call to Action for Health Equity

3-4:30 p.m. EST

- NHLBI Company Showcase: A live virtual pitch exhibition featuring six NHLBI-funded companies.

5:30-6:30 p.m. EST

- GLP-1 RAs in Type 2 Diabetes: Clinical and Practical Considerations in Cardiology

5:30-7 p.m. EST

- Managing the Heart Failure Patient With Reduced Ejection Fraction: New Perspectives and Emerging Evidence

6:30-8 p.m. EST

- Cases and Conversations™: Making the Most of Effective Antithrombotic Strategies in Patients with CAD and PAD

7:30-9 p.m. EST

- Antiplatelet Therapy in Patients With Coronary Artery Disease and Acute Ischemic Stroke/Transient Ischemic Attack: A Personalized Approach



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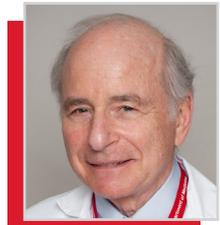
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SCIENTISTS*continued from page 5***Hypertension and Kidney and Cardiovascular Disease****Ernesto L. Schiffrin, MD, PhD**

Dr. Schiffrin was recognized for his nearly 40 years of research that has contributed to the understanding of the pathophysiology of hypertension, cardiovascular disease and vascular biology. His early work identified smooth muscle cell angiotensin receptors and their intracellular signaling and molecular pathways that lead to oxidative stress in hypertension. He also discovered the role of atrial natriuretic peptide in regulating aldosterone secretion, which led to the first report on the role of natriuretic peptides as a biomarker of heart failure in humans. This approach is now widely used to evaluate severity of heart failure in patients. He was among the first to implicate the immune system in the pathophysiology of hypertension. Dr. Schiffrin also demonstrated the protective role of some antihypertensive medications on blood vessels of hypertensive patients, which led in part to his discovery of the benefits of the association of an angiotensin receptor blocker and a neprilysin inhibitor on the blood vessels and the heart in experimental hypertension. This finding eventually resulted in the development of a highly effective medication for heart failure.

He currently serves in numerous roles, including physician-in-chief at the Jewish General Hospital, director of the Hypertension and Vascular Research Unit at the Lady Davis Institute, and Distinguished James McGill Professor and associate chair in the department of medicine at McGill University. Previously, he was professor of medicine at the University of Montreal, director of the Medical Research Council of Canada (now the Canadian Institutes of Health Research) Multidisciplinary Hypertension Group at the Institut de Recherches Cliniques de Montréal and a physician at Hôtel-Dieu Hospital.

Dr. Schiffrin was born in Buenos Aires, Argentina, and earned his doctor of medicine at Buenos Aires Medical School and a PhD in experimental medicine at McGill University.

His many years of volunteer leadership with the American Heart Association includes serving as chair of the Council on Hypertension. He also was previously recognized with the association's 2007 Irvine Page-Alva Bradley Lifetime Achievement Award and the 2011 Excellence Award in Hypertension Research, both from the Association's Council on Hypertension.

He has held numerous professional leadership roles, including serving as the

president of the Canadian Hypertension Society; president of the InterAmerican Society of Hypertension; president of the International Society of Hypertension; and president of Hypertension Canada. Recognition of his work includes being named a Fellow of the Royal Society of Canada; Member of the Order of Canada; the Björn Folkow Award from the European Society of Hypertension; the Robert Tigerstedt Award from the American Society of Hypertension; the Distinguished Scientist Award from the Canadian Cardiovascular Society; the Margolese National Prize on Heart Disorders; the Prix Galien Recherche Award; and a Distinguished Fellow and the Franz Volhard Award and Lectureship from the International Society of Hypertension. Dr. Schiffrin is also a fellow of the American College of Physicians and the Royal College of Physicians of Canada.

Hypertension**Italo Biaggioni, MD, PhD, FAHA**
Vanderbilt University

Dr. Biaggioni was selected for this honor because of his research in autonomic disorders. He leads the Vanderbilt Autonomic Dysfunction Center, and his team has discovered four congenital disorders of autonomic failure including dopamine β -hydroxylase (DBH) deficiency, CYB561 deficiency, norepinephrine reuptake deficiency and familial autonomic ganglionopathy. He also showed that droxidopa could restore norepinephrine in DBH deficiency bypassing the enzymatic defect, and he defined the pathophysiological mechanisms of postural orthostatic tachycardia syndrome. His research in obesity has shown that hypertension and endothelial dysfunction can be reversed, and insulin resistance can be improved, by sympathetic blockade.

He is professor of medicine and pharmacology, the David Robertson Professor in Autonomic Disorders (endowed chair) and director of the Vanderbilt Autonomic Dysfunction Center at Vanderbilt University Medical Center in Nashville. He leads a research team focused on neural (autonomic) and metabolic (adenosine, nitric oxide and angiotensin) interactions in cardiovascular regulation, autonomic disorders and autonomic mechanisms in obesity-related hypertension, which has received continuous funding from the National Institutes of Health for more than 30 years and resulted in more than 325 peer-reviewed research publications.

Dr. Biaggioni earned his medical degree from Universidad Peruana Cayetano Heredia in Lima, Peru, where he also completed his internship and internal medicine residency. He joined Vanderbilt University in 1984 as a research fellow in the department of medicine and pharmacology.

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His volunteer leadership roles with the association include serving as member of the Council for High Blood Pressure Research and the Council on Hypertension, and he was the 2018 Paul Dudley White Awardee, recognizing his research as the highest-ranked abstract of Scientific Sessions, from the Council on Hypertension. His additional accolades include Vanderbilt's William J. Darby Award for Translational Research and the Hammer Award for IRB Educational Activities from Vice President Albert Gore's National Partnership for Reinventing Government.

He has also served with various professional organizations including serving as president of the American Autonomic Society, on the Advisory Board of the Chronic Fatigue Immune Dysfunction Syndrome Foundation, and with the Association of American Physicians.

Stroke**Eng H. Lo, PhD, FAHA**
Harvard Medical School

Dr. Lo was selected for this honor because of his research on finding ways to improve long-term outcomes for stroke patients with ischemic injury through translational research. Recently, he made a discovery about how circadian rhythm affects neuroprotectants during ischemia in mice, which has the potential to change animal models of cardiovascular disease. He leads a research team investigating the molecular mechanisms that underlie cell death after

stroke and trauma and assessing novel strategies for neuroprotection.

He is a professor of radiology and neuroscience at Harvard Medical School and has been a research scientist at Massachusetts General Hospital since 1991. In 30 years at MGH, Dr. Lo's lab has trained over 90 students and fellows, many of whom have gone on to establish their own labs worldwide.

Dr. Lo earned a B.S. in engineering at Yale, a PhD in biophysics from University of California Berkeley and completed a neuroscience postdoctoral fellowship at Stanford University. He was the Basic Science editor for *Stroke* from 2003-2015.

He has been recognized throughout the scientific community for his valuable research on stroke and brain function, detailed in more than 400 publications in peer-reviewed journals. He was previously recognized by the American Heart Association/American Stroke Association with the 2013 Thomas Willis Award for Stroke Research. In 2009, he was selected as the Jacob Javits Neuroscience Investigator by the National Institutes of Health. He was appointed as the Phyllis and Jerome Lyle Rappaport Scholar in 2012 and received the Xandra Breakefield Mentoring Award in 2019 from Massachusetts General Hospital.

His leadership roles include serving as president of the International Society for Cerebral Blood Flow & Metabolism in 2017-2019, and he is currently the lead coordinator of the *Consortium International pour la Recherche Circadienne sur l'AVC (CIRCA)*, a collaborative network dedicated to the investigation of circadian biology in cerebrovascular disease. •

Watch tomorrow's Scientific Sessions Daily News for additional award announcements.

AHA 2021 Awardees

Research Achievement Award

Daniel J. Rader, MD, FAHA, of the Perelman School of Medicine at the University of Pennsylvania, was named the recipient of the 2021 Research Achievement Award.

The Research Achievement Award is the association's highest scientific award, given each year in recognition of outstanding lifetime contributions to cardiovascular research and/or teaching. Dr. Rader's outstanding lifetime contributions to basic and translational research in the genetics and pathophysiology of lipid disorders have advanced our understanding of the molecular regulation of lipoprotein metabolism and the development of therapies for dyslipidemia. His research has used genetics and physiology in humans and focused on novel pathways regulating lipid and lipoprotein metabolism and atherosclerosis using genetics, and factors regulating the structure and function of high-density lipoproteins and reverse cholesterol transport.

Dr. Rader uses a variety of translational approaches to ensure human and clinical relevance to prevent cardiovascular disease. His lab at the Perelman School of Medicine at the University of Pennsylvania integrates "big human data science," targeted deep phenotyping in selected human subjects, and fundamental, mechanistic investigation in model systems to ensure bidirectional translation of research insights. Dr. Rader has broad expertise across these diverse domains, and he is one of only a few scientists who has integrated these domains to accelerate discovery. During his outstanding career, he has mapped genetic loci and then utilized functional genomics to learn more about the biologic components of these loci to increase understanding of the molecular architecture associated with metabolic traits. As a translational accomplishment, he rescued and developed a microsomal transfer protein inhibitor that received FDA approval for use in patients with homozygous familial hypercholesterolemia.

"I'm tremendously honored to be recognized by the AHA with the 2021 Research Achievement Award," said Dr. Rader. "I have committed my career to research, investigating the fundamental basis of lipid disorders and atherosclerotic cardiovascular disease and translating that information into how we can manage and prevent these conditions more effectively. Ensuring that knowledge gleaned from research is used to develop new approaches



Daniel J. Rader, MD, FAHA
Perelman School of Medicine
at the University of Pennsylvania

to unmet medical needs provides scientists like me great incentive, hoping to continue improving patient care and patient outcomes. The greatest achievement in medicine is to contribute to our constantly evolving understanding of the complexities of human health and disease. I'm proud of my research contributions to not only science but also to cardiovascular care and prevention."

Dr. Rader, trained and board certified in internal medicine, is the Seymour Gray Professor of Molecular Medicine, chair of the department of genetics and chief of the division of translational medicine and human genetics in the department of medicine at the Perelman School of Medicine at the University of Pennsylvania in Philadelphia. Dr. Rader directs the Penn Medicine BioBank and serves as associate director of the Institute of Translational Medicine the Therapeutics at Penn, as well as the chief of the division of human genetics at the Children's Hospital of Philadelphia.

Dr. Rader earned his medical degree from the Medical College of Pennsylvania. He completed his internship and residency in internal medicine at Yale-New Haven Hospital, and his fellowship at the Molecular Disease Branch of the National Heart, Lung, and Blood Institute of the National Institutes of Health, where he also served as a staff scientist in the Molecular Disease Branch until 1993. He joined the University of Pennsylvania in 1994 as an assistant professor in medicine.

Dr. Rader has authored more than 600 research papers published in peer-reviewed journals. Dr. Rader has been honored by the association twice before — in 2000 as an Established Investigator awardee and in 2012 with the Clinical Research Prize in recognition of his work to develop new methods of identifying factors that regulate fat metabolism within the bloodstream and testing its impact on the development of atherosclerosis. •

Chairman's Award



Clyde W. Yancy, MD, MSc
Northwestern
University in Chicago

Clyde W. Yancy, MD, MSc, FAHA, of Northwestern University in Chicago was awarded the 2021 Chairman's Award at Scientific Sessions 2021.

Dr. Yancy is vice dean of diversity and inclusion, chief of cardiology in the department of medicine, Magerstadt Professor, professor of medicine (cardiology), professor of medical social sciences, and associate medical director of the Bluhm Cardiovascular Institute at Northwestern University's Feinberg School of Medicine in Chicago. He is board certified in both internal medicine and cardiovascular disease, specializing in heart failure and heart transplantation.

Throughout his storied career, Dr. Yancy has focused on inspiring future generations of health care professionals, with a commitment to changing the face of medicine through diversity in all forms, especially though, for clinicians and scientists. He mentors and trains clinician scientists and physicians who are just starting their careers. He also volunteers to provide guidance to Chicago high school students from diverse racial and ethnic groups who are just beginning to dream about futures that seem out of reach. He helps to make their dreams a reality. His passion for improving the determinants of health in at-risk communities and working to provide a more equitable health care system are what sets him apart from others in the field.

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Basic Research Prize



Costantino Iadecola, MD
Weill Cornell
Medicine in
New York City

Costantino Iadecola, MD, FAHA, of Weill Cornell Medicine in New York City, was recognized for his outstanding work in cerebrovascular biology, particularly in the areas of stroke and dementia, with the 2021 Basic Research Award.

Dr. Iadecola is a board-certified neurologist whose research focuses on ischemic brain injury, neurodegeneration and cognitive impairment. He is the director and chair of the Feil Family Brain and Mind Research Institute and the Anne Parrish Titzell Professor of Neurology at Weill

Cornell Medicine in New York City.

Dr. Iadecola is recognized to have pioneered and validated the concept of the neurovascular unit, a widely accepted notion that neurons and cerebrovascular cells work together to maintain the health of the brain. This concept inspired new research on mechanisms that regulate cerebral perfusion and on how their failure causes brain diseases. His discovery of the cerebrovascular effects of the amyloid-beta peptide and tau established that neurovascular dysfunction is an early biomarker for Alzheimer's disease. His research demonstrates a relationship between innate immunity and the deleterious effects of hypertension on neurovascular regulation and cognitive function, and found that high-salt diets cause dementia through the Alzheimer protein tau, bridging the age-old gap between neurovascular and neurodegenerative diseases. Dr. Iadecola's work also details how microbiota of the gut can influence a patient's susceptibility to ischemic stroke.

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Clinical Research Prize



Joseph Woo, MD
Stanford University

Joseph Woo, MD, of Stanford University, was awarded AHA's 2021 Clinical Research Prize. The Clinical Research Prize recognizes an individual making outstanding contributions to the advancement of clinical science relevant to the association's mission. Dr. Woo's expertise as a surgeon includes thoracic aortic surgery, mitral and aortic valve repair, mechanical circulatory support and thoracic transplant. He has pioneered novel operations and minimally invasive approaches for valve repair and reconstruction.

Dr. Woo was recognized with the association's Vivien Thomas Young Investigator Award in 1997 for his postdoctoral research fellowship in novel molecular strategies for attenuating myocardial ischemic injury. One of Dr. Woo's recent clinical studies evaluated the long-term outcomes for patients receiving aortic or mitral valve replacement and was published in *The New England Journal of Medicine*. The study's results demonstrated a marked reduction in mortality with a mechanical valve implant in patients up to 70 years of age, leading to changes in the AHA/ACC 2020 Valve Guidelines that impact clinical practice and hopefully improve patient survival.

Dr. Woo also leads the Stanford Advanced Cardiovascular Therapeutics

AHA 2021 Awardees

and Surgical Biomechanics Translational Research Laboratory, which is focused on angiogenic, stem cell and myocardial regenerative approaches to heart failure, and biomechanical engineering approaches to optimize valve repair operations and novel intracardiac device design.

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Eugene Braunwald Academic Mentorship Award



Leslie A. Leinwand, PhD
University of Colorado Boulder

Leslie A. Leinwand, PhD, of the University of Colorado Boulder, was presented with the 2021 Eugene Braunwald Academic Mentorship Award. She is chief scientific officer of the BioFrontiers Institute, and a distinguished professor of molecular, cellular and developmental biology at the University of Colorado Boulder, professor of cardiology at the University of Colorado School of Medicine and Howard Hughes Medical Institute professor. Her contributions have revolutionized our understanding of heart failure by using molecular techniques in heart and muscle biology. She was selected as this year's recipient of the Eugene Braunwald Academic Mentorship Award because of her instrumental role in mentoring young cardiovascular scientists and physician scientists.

Throughout her career, she has been passionate about science education and advancement, she encourages pure scientific discovery, and she fosters career development, which she emphasizes through mentorships. She has provided invaluable support and guidance to scientists and researchers including her active mentees, as well as her previous students, many of whom remain in contact with her as their career-long mentor.

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Population Research Prize



Tiffany M. Powell-Wiley, MD, MPH
National Heart, Lung, and Blood Institute

Tiffany M. Powell-Wiley, MD, MPH, of the National Heart, Lung, and Blood

Institute was awarded the 2021 Population Research Prize.

The Population Research Prize recognizes an individual who is making outstanding contributions to the advancement of cardiovascular science and who currently leads an exceptional laboratory focused on cardiovascular population research.

Dr. Powell-Wiley was selected as this year's Population Research Prize because of her ongoing work to improve understanding of the social determinants of obesity and cardiovascular disease, which is the focus of her laboratory and research group. She is currently leading three multiyear clinical trials aimed at better understanding the determinants of health in at-risk communities in Washington, DC.

Dr. Powell-Wiley is a Stadtman Investigator and chief of the Social Determinants of Obesity and Cardiovascular Risk Laboratory in the Cardiovascular Branch of the Division of Intramural Research at the National Heart, Lung, and Blood Institute at the National Institutes of Health in Bethesda, Maryland. She is an adjunct investigator in the Intramural Research Program at the National Institute on Minority Health and Health Disparities, and she is a staff cardiologist at the National Institutes of Health Clinical Center.

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Joseph A. Vita Award



Kiran Musunuru, MD, PhD, MPH, ML, FAHA
Penn Center for Inherited Cardiovascular Disease



Katey Rayner, PhD
University of Ottawa Heart Institute

Kiran Musunuru, MD, PhD, MPH, ML, FAHA, and Katey Rayner, PhD, received the 2021 Joseph A. Vita Award.

The award is given annually in honor of the late cardiovascular scientist Joseph A. Vita, MD, to recognize research that had a major impact on the field of cardiovascular biology or cardiovascular health during the last five years. Dr. Vita was the founding editor of the Association's Open Access, peer-reviewed, *Journal of the American Heart Association (JAHA)*. Dr. Musunuru is professor of medicine, scientific director of the Penn Center for Inherited Cardiovascular Disease and director of Genetic and Epigenetic Origins of Disease Program at the

Cardiovascular Institute at the Perelman School of Medicine at the University of Pennsylvania in Philadelphia. Dr. Rayner is a research scientist and director of the Cardiometabolic microRNA Laboratory at the University of Ottawa Heart Institute and assistant professor of biochemistry, microbiology and immunology at the University of Ottawa in Ottawa, Canada.

Dr. Musunuru was selected as a 2021 recipient of the Joseph A. Vita Award because of his impressive work in therapeutic gene editing to combat cardiovascular disease. Other key achievements include discovering an LDL cholesterol regulating gene, inspiring development of multiple ANGPTL3-inhibiting drugs, using gene-edited human stem cells for disease modeling, and his pivotal work in functional genomics. In his lab, Dr. Musunuru developed processes to use gene editing technology to permanently reduce cholesterol levels and therefore provide protection against heart attack and stroke through a one-time injection. This strategy, which he likens to a vaccination, has been very successful in mice and monkeys, and he is working diligently to advance it to human trials.

Dr. Rayner was selected because of her contributions to cardiovascular research and her discovery of the critical role microRNAs play in regulating HDL cholesterol. She is dedicated to improving the understanding of the causality between inflammation and cardiometabolic disease. Dr. Rayner's work, as well as the work of her research group, is continually recognized. Under her direction in the Cardiometabolic microRNA Laboratory at the University of Ottawa Heart Institute, research is focused on how to use plaque instability triggered by inflammation in diagnosing patients with atherosclerotic disease, how macrophage function can be altered by microRNAs and how metabolic dysregulation in inflammatory cells and energy metabolism contribute to atherosclerosis. She is currently studying how to promote inflammation resolution and plaque regression within the aspects of atherosclerotic lesion dynamics.

Her research is focused on dysregulated inflammation in metabolic diseases, such as atherosclerotic vascular disease and exploring how RNA biology can be used in future therapies. Dr. Rayner is a graduate of the University of Ottawa. She completed her fellowship at Harvard Medical School and New York University School of Medicine. Dr. Rayner is part of the peer-review committees for the Canadian Institutes of Health Research, National Institutes of Health and the Heart and Stroke Foundation of Canada. She is an editorial board member for *Arteriosclerosis, Thrombosis and Vascular Biology*; and *Circulation Research*.

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Dr. Nanette K. Wenger Goes Red® Award



Clare Oliver-Williams, PhD
Early Career Research Scientist

The inaugural Dr. Nanette K. Wenger Research Goes Red® Award for Best Scientific Publication on Cardiovascular Disease and Stroke in Women was given to Clare Oliver-Williams, PhD, MPH.

The Dr. Nanette K. Wenger Research Goes Red® Award for Best Scientific Publication on Cardiovascular Disease and Stroke in Women is given annually in recognition of the best research article focused on cardiovascular disease and stroke in women published during the previous year in any of the AHA's 14 peer-reviewed, scientific journals. The association's Research Goes Red® initiative aims to empower women to contribute to health research.

Dr. Oliver-Williams, who is an early career research scientist, was selected for the inaugural Nanette K. Wenger Award in recognition of her manuscript, "Future Cardiovascular Disease Risk for Women With Gestational Hypertension: A Systematic Review and Meta-Analysis," published on July 7, 2020, in the *Journal of the American Heart Association*. This article was ranked the highest out of 54 papers selected from the Go Red collection of research on women and cardiovascular disease and published in one of the AHA's 12 scientific journals between June 1, 2020, and May 29, 2021. Her manuscript was selected by a group of 50 experts in cardiovascular disease and stroke. Of the submitted papers, six countries were represented, and 61% of first authors were female. Papers were graded based on scientific impact, innovation, methodology and quality of the data and evidence supporting the hypothesis and conclusions.

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