

Stanford MEDICINE

DECEMBER 2021

Donate to the CVI 🛛 🕑 🗾 in

Standord Cardiovascular Institute Members Excel at AHA Scientific Sessions

Members of the Stanford Cardiovascular Institute were out in force at the 2021 American Heart Association (AHA) Scientific Sessions. With participation in over 80 events, CVI members shared their research on topics as wide-ranging as vascular disease, e-cigarette toxicology, pulmonary arterial hypertension, health disparities, congential heart disease, clinical trials, heart failure, biomarkers, cardio-oncology, and wearables. Numerous CVI members were recognized for their exceptional contributions to cardiovascular research and medicine through the bestowing of AWA Awards. See page 4 for more information on community engagement.



The American Heart Association's 2021 Clinical Research Prize was awarded to Joseph Woo, MD, Norman E. Shumway Professor & Chair of Cardiothoracic Surgery. The Clinical Research Prize is awarded annually and recognizes an individual making outstanding contributions to the

advancement of clinical science relevant to the AHA's mission. Dr. Woo has pioneered novel operations and minimally invasive approaches for valve repair and reconstruction.

"I am deeply honored and humbled to be receiving this award and do so on behalf of my team of students, trainees, faculty and staff who have dedicated countless hours, years of their lives, to the tireless pursuit of scientific discovery," said Dr. Woo. "Daily, we witness [...] the profound impact of cardiovascular therapies on saving lives and restoring health and happiness. Advances in cardiovascular care are propelled by basic science, engineering, translational and clinical investigation."





Ronglih Liao, PhD

Mark Robert Nicolls, MD Dickinson W. Richards Memorial Lecture

Paul Cheng, MD, PhD







Yuanjia Zhu, MD Winner of Vivien Thomas Early Career Investigator Award



Faculty Position Open: Cardio-Oncologist

The Division of Cardiovascular Medicine in the Department of Medicine and the Cardiovascular Institute at Stanford Medicine are seeking a board-certified Cardiologist with expertise in Cardio-Oncology to join the faculty as Assistant, Associate or Professor in the Medical Center Line or University Tenure Line. Criteria for appointment include a major commitment to research and teaching, excellence in clinical care, scholarly activity that advances clinical medicine, and institutional service. *Find out more!*



Faculty Position Open: VA Palo Alto Health Care System and CVI

The VA Palo Alto Health Care System (VAPAHCS) and the Cardiovascular Institute at Stanford Medicine are seeking to recruit an outstanding academic cardiologist to join their full-time faculties. This appointment will be at the rank of Assistant Professor in the Medical Center Line at Stanford University School of Medicine. The successful candidate will be expected to lead a prolific research group with a focus on structural heart disease, cardiovascular imaging, or stem cell biology. *Find out more!*



SDDS 2022 Stanford Drug Discovery Symposium

April 25-26, 2022

Virtual event Free registration





Drug discovery is an exciting and rapidly evolving field.

The Stanford Drug Discovery Symposium (SDDS), now in its 6th year, provides a unique and highly valuable platform for inspiring interdisciplinary exchange at the forefront of drug research. SDDS provides a critical resource and opportunity for networking among researchers, pharmaceutical companies, investment groups, and others in the wider biomedical community.

James (Jay) Bradner, MD

Novartis Institutes for BioMedi-

President

cal Research



Karen Akinsanva, PhD Chief Biomedical Scientist Schrödinger, Inc.



Lisa Coussens, PhD President, AACR: Associate Director for Basic Research Knight Cancer Institute, OHSU



David Goel Founder & Managing General Partner Matrix Capital Management



Daphne Koller, PhD Founder & CEO Insitro, Inc.



Michelle McMurry-Heath, MD President & CEO Biotechnology Innovation Organization



John Reed, MD, PhD Executive VP, Global Head of R&D Sanofi S.A



Randy Schekman, PhD Professor, University of California, Berkeley 2013 Nobel Laureate



Maria Millan, MD President and CEO California Institute of Regenerative Medicine (CIRM)

Claude Bertrand, PhD

Executive Vice President.

Servier Pharmaceuticals

Rav Deshaies, PhD

Aida Habtezion, MD

Dean Li, MD, PhD

Executive VP and President

Merck Research Laboratories

Sr. Vice President.

Global Research

Amgen, Inc.

СМО

Pfizer, Inc.

CSO, R&D











Mathai Mammen, MD, PhD Global Head, R&D Janssen Pharmaceutical Companies of Johnson & Johnson

Vern Norviel Patent Attorney Wilson Sonsini Goodrich & Rosati

Madhuri Roy, PhD, JD Patent Attorney Cooley LLP



Daniel Skovronsky, MD, PhD President, Lilly Research Labo ratories; CSO and CMO Eli Lilly and Company



Patrizia Cavazzoni, MD Director, Center for Drug Evaluation and Research Food & Drug Administration



Christopher Gibson, PhD Co-Founder, CEO Recursion Pharmaceuticals



Katalin Karikó, PhD Senior VF BioNTech Lifetime Achievement Awardee

Peter Marks, MD, PhD Director, Center for Biologics Evaluation and Research Food and Drug Administration



Merdad Parsey, MD, PhD СМО Gilead Sciences





Richard Tillyer, PhD Global Head of Discovery, Product Dev & Supply, Janssen R&D. Johnson & Johnson

tinyurl.com/SDDS2022

Announcing the Stanford Advancement of Women in Medicine Program



The "Stanford Advancement of Women in Medicine Program" (SAWM) is sponsored by the Department of Medicine and has the mission of uniting physician leaders across disciplines at Stanford to study and engage in interventions to promote the advancement of women in medicine.

Last month, the SAWM Leadership Accelerator Class of 2021 was announced, comprised of 15 early career faculty from across the university, including 3

faculty from Cardiovascular Medicine: Dr. Tina Baykayner, Dr. Risheen Reejhsinghani, and Dr. Han Zhu. They are participating in a year-long leadership training academy. SAWM will also soon be announcing a call for grant proposals for seed funding to study equity in the field of medicine.

SAWM is currently seeking nominations for senior faculty leaders who are committed to promoting equity in medicine to join the Founding Advisory Board. SAWM is also seeking early career faculty to serve on the Early Career Advisory Board, to help shape programmatic efforts. Nominations (including self-nomination) can be sent to Director Celina Yong at cyong@stanford.edu or Program Manager Nicholas Vesom nvesom@stanford.edu. https://sawm.sites.stanford.edu/

Donate to the Stanford Cardiovascular Institute

The Institute currently consists of over 240 faculty members representing physicians, surgeons, engineers, basic science and clinical researchers. The Institute's mission is integrating fundamental research across disciplines and applying technology to prevent and treat cardiovascular disease. To support cardiovascular research and education at CVI, please contact: Joseph C. Wu, MD, PhD, Director of the Stanford Cardiovascular Institute, at joewu@stanford.edu or Cathy Hutton, Senior Associate Director, Medical Center Development at cathy.hutton@stanford.edu.



Joseph C. Wu. MD, PhD

Cathy Hutton, MBA

For more: http://med.stanford.edu/cvi/support-our-research.html and http://cvi.stanford.edu

Virtual event Free registration



Frontiers in Cardiovascular Sciences Seminar Series

Join us from 1:00 - 2:00 pm PST Tuesday afternoons to hear the latest in cardiovascular and pulmonary research.

Zoom links and additional details available at https://med.stanford.edu/cvi/mission/frontiers-in-cv-science.html



January 11, 2022 FRANK L. CONLON, PHD Professor, Departments of Biology & Genetics Director, Biological & Genome Sciences University of North Carolina



March 8, 2022

BERNHARD KÜHN, MD Associate Professor of Pediatrics & Director, Pediatric Institute for Heart Regeneration & Therapeutics (I-HRT) Associate Director, Richard King Mellon Foundation Institute for Pediatric Research University of Pittsburg School of Medicine



J**anuary 18, 2022** DAZHI WANG, PHD Professor & Director, Heart Institute College of Medicine Internal Medicine University of South Florida



March 15, 2022 LIOR ZANGI, PHD Associate Professor of Medicine, Cardiology Associate Professor of Genetics & Genomic Sciences Icahn School of Medicine at Mount Sinai



January 25, 2022 COURTNEY GRIFFIN, PHD Scott Zarrow Chair in Biomedical Research Scientific Director, Oklahoma Center for Adult Stem Cell Research Oklahoma Medical Research Foundation



February 1, 2022

JOY LINCOLN, PHD Professor, Department of Pediatrics; Associate Chief & Research Director, Pediatric Cardiology, Medical College of Wisconsin Peter Sommerhauser Chair of Quality, Outcomes &

Research; Director, Cardiovascular Research, Herma Heart Institute, Children's Wisconsin Milwaukee Hospital



February 8, 2022 HUA LINDA CAI, MD, PHD Professor of Anesthesiology & Professor of Medicine University of California, Los Angeles



February 15, 2022 KE CHENG, PHD Professor, Regenerative Medicine North Carolina State University



February 22, 2022 PAUL B. YU, MD, PHD Associate Professor of Medicine Brigham & Women's Hospital Harvard University



March 1, 2022 STEPHANIE W. WATTS, PHD Professor, Pharmacology and Toxicology Michigan State University



March 22, 2022 CHULAN KWON, PHD Director, Cardiovascular Stem Cell Program, Associate Professor of Medicine and Biomedical Engineering and Cell Biology, Heart & Vascular Institute, John Hopkins University



March 29, 2022 JEFFREY D. MOLKENTIN, PHD Director, Division of Molecular Cardiovascular Biology Co-Director, Heart Institute Professor, UC Department of Pediatrics Cincinnati Children's Hospital Medical Center



April 5, 2022

ELIZABETH MCNALLY, MD, PHD Director, Center for Genetic Medicine Elizabeth J. Ward Professor of Genetic Medicine Professor of Medicine (Cardiology) and Biochemistry and Molecular Genetics Northwestern University Feinberg School of Medicine



April 12, 2022 CALUM MACRAE, MD, PHD Vice Chair, Scientific Innovation Associate Professor

Harvard Medical School



April 19, 2022 PRADEEP NATARAJAN, MD Director of Preventive Cardiology, Massachusetts General Hospital Paul & Phyllis Fireman Endowed Chair in Vascular Medicine, Massachusetts General Hospital Associate Professor of Medicine, Harvard Medical School

CVI Members Spread the Word About AHA Scientific Sessions



Joseph C Wu, MD, PhD @Joseph_C_Wu · Nov 12 ···· 2021 AHA Scientific Sessions starts this weekend! Tune in to hear @StanfordCVI members share their exciting research. For a full list of talks, please visit tinyurl.com/cviaha2021 @StanfordDeptMed @StanfordCTSurg @StanCVFellows @Stanford_ChEMH @SeanM_Wu @HeartBobH @StanfordVasc

CVI Members Presenting at AHA Scientific Sessions @StanfordCVI #AHA21 November 13-15 Virtual Event



1 Robert Harrington Retweeted

Harriette Van Spall, MD MPH @hvanspall · Nov 14 A real honour to discuss Day 2 #AHA21 highlights w/ @HeartBobH @NMHheartdoc @manesh_pateIMD & to meet @kofi_larry.

Brilliant moderation, @manesh_pateIMD!

Stanford V Cardiovascular Institute

#Day2 belonged to #healthequity, #digitalhealth, #HF, innovative #RCTDesign.. & might I add, #coffee?

Your highlights?



Robert Harrington @HeartBobH · Nov 14



Wrap up of #AHA21 day 2 by masterful moderator @manesh_patelMD Commentary from @hvanspall and @NMHheartdoc Discussed #RCTs including digital and pt engagement. Tech. N=1. #SGLT2i #HealthEquity #prevention Check it out.Photo by @kofi_larry

Stanford Department of Medicine

Join us in congratulating #StanDOM's Ronglih Liao (@RonglihL), winner of @American_Heart's BCVS Distinguished Achievement Award for major contributions to the scientific council & substantial professional contributions to the cardiovascular science! #AHA21



Eldrin Lewis @EldrinL · Nov 15

So happy to be a part of such an important session: "Male Champions for Change" in the @American_Heart Women's Lounge @MCarnethon @HeartBobH @mmamas1973 @NMHheartdoc and others. So many amazing women in cardiology. Be the change we want to see! #Equity. #AHA2021

🔮 Clyde Yancy, MD, MSc 🤣 @NMHheartdoc · Nov 15

I'm in; #redshoes #AHA21 - in session: "Male Champions for Change" in the @American_Heart Women's Lounge @MCarnethon @HeartBobH @mmamas1973 @EldrinL sharing success stories of amazing women and critical steps for leaders RE: sex/gender #Equity. Be an ally;listen;advocate; & fund. twitter.com/dmljmd/status/...

1, Robert Harrington Retweeted

and Future Directions"

Vinicio de Jesus @Viniciodjperez · Nov 12 The AHA Young Investigator Event is this evening! Please join us at 6:30 pm EST November 12 to hear an incredible talk by Dr. Marina Del Rios "A Roadmap for Equity in Resuscitation Outcomes: Barriers, Opportunities,



Sean M Wu @SeanM_Wu · Nov 13

Happening now! BCVS Early Career Session on "Strategies for Career Success by Highly Effective Scientists". >140 ppl attending already. #AHA21 @AHAScience @AHA_Research @AHAMeetings @ElizabethMcNall @nhpetunia @SusmitaSahooPhD @PilarAlcaidePhD @pnatarajanmd @jct_ucb @Hinaheartdoc



Early Career Symposium

On November 3rd 2021, CVI hosted the 4th AnnualEarly Career Symposium as a hybrid event! With over 100 attendees from across the world, the Early Career Symposium was a huge success.

22 speakers participated in total - both in person and virtually - covering topics ranging from population research, to clinical and translational research, in vitro and ex vivo research, to "how to get published" and future careers. Six fantastic early career trainees presented lightning talks including Kenzo Ichimura, MD, PhD; Neil Manohar Kalwani, MD; Xuan Yu, MD, PhD; Heyjun Park, PhD; Hye Sook Shin; and Narelli Paiva. Hye Sook Shin and Narelli Paiva won awards for Best CVI Early Career Sympoisum Lightning Talk Awards

The event was organized by CVI's Early Career Committee, and spearheaded by AJ Pedroza, MD; Carlos Vera, PhD; Danielle Mullis, Domenico Mastrodicasa, MD; James Jahng, PhD; Katharina Schimmel, PhD; and Mirwais Wardak, PhD.



How mutations in a single gene can prematurely age heart muscle cells By Adrienne Mueller, PhD



Duchenne muscular dystrophy (DMD) is a rare but deadly disease that causes severe muscle degeneration and eventually leads to heart and lung failure. There is no specific treatment for DMD, mainly due to the inability to compensate for the missing protein dystrophin.

Helen Blau, PhD

The lab of Helen Blau previously identified that the heart muscle cells of patients with DMD have shorter telomeres: regions of DNA that cap and protect the ends of our chromosomes. Telomere-shortening is a natural process for many of the cells in our body, but it is not

natural for heart muscle cells. In a study recently published in Stem Cell Reports and led by first author Alex C. Y. Chang, PhD, and senior author Helen Blau, PhD, researchers identified that,

contraction in stiff heart tissue without the presence of the key structural contractile protein dystrophin is causally linked to telomere-shortening and the triggering of a senescence-like state in DMD heart muscle cells. New therapies should help protect heart muscle cells from telomere-shortening.

Dystrophin is a key component of heart muscle cells' cellular architecture. The absence of dystrophin causes shortening of chromosome-capping telomeres, poor calcium handling, impaired contraction, and an increase in reactive oxygen species.



Inaugural VICTOR J. DZAU

DISTINGUISHED I FCTURE IN CARDIOVASCULAR MEDICINE

On December 8th, 2021, Eugene Braunwald, MD, presented the inaugural Victor J. Dzau Distinguished Lecture in Cardiovascular Medicine. The annual lecture series honors the extensive contributions of Dr. Victor Dzau to the field of cardiovascular medicine.



Dr. Braunwald is the Distinguished Hersey Professor of Medicine at Harvard Medical School, and Chair Emeritus of the Department of Medicine and Founding Chair of the TIMI Study Group at Brigham and Women's Hospital. To an audience of over 900, Dr. Braunwald presented on "The War Against Heart Failure," in which he honored the legacy

of Dr. Dzau, summarized the history of advances in the field, and highlighted four major paradigm shifts in heart failure treatment inclding the recent discovery of SGLT2 inhibitors. The presentation honoring the legacy of Dr. Braunwald was followed by lively Q& A session featuring Dr. Braunwald, Dr. Victor Dzau and Stanford Cardiovascular Institute Director, Dr. Joseph Wu. Watch a recording of the seminar.



Victor J. Dzau, MD is an internationally acclaimed leader and physician scientist who has performed seminal research in cardiovascular medicine and genetics. His work laid the foundation for the development of the class of lifesaving drugs used globally to treat hypertension and heart failure. Dr. Dzau is President of the US National Academy of Medicine (NAM), Vice Chair of the US National Research Council, and Chancellor Emeritus and James B. Duke Distinguished Professor of Medicine at Duke University.

Nominations Open for 2022 **Distinguished Lecturerer** Find Out More!

Good Mentorship is Instrumental for Career Development

By Amanda Chase, PhD

There continues to be gaps in promoting women in science and continued diversity in the field. Mentorship can provide meaningful, mutually beneficial partnership for sharing of experiences and knowledge, can create a community of like-minded individuals, and can provide a larger network to leverage for continued career development.

The American Heart Association Council on Arteriosclerosis (ATVB) Council's Women's Leadership Committee aims to promote excellence in women in science and to raise new leaders. The Committee provided fantastic insights into mentorship, and being a mentee, from 11 individuals previously recognized for their exceptional service in mentorship, sponsorship, and support of women, published in <u>Arteriosclerosis,</u> <u>Thrombosis, and Vascular Biology</u>.

It is commonly understood that mentorship and sponsorship are important to career development. Less understood is what makes a good mentor. It was agreed that a top quality for mentors is honesty, linked to



Interconnected trains of effective mentorship.

authenticity and integrity, to create a space that is genuine and allows for difficult conversations, if needed. This also means that mentors can, and should, be open to learn from their mentees. Mentors also need to be flexible and recognize that each individual needs mentorship tailored to their unique experiences. It is also important to understand the difference between Mentorship and Sponsorship. Mentorship often focuses on support a mentor can directly provide, including guidance, advice, feedback, or coaching. Sponsorship is more external facing support, including advocacy, visibility, promotion, and connections. Sponsorship is usually a relationship that develops over time, and it is important to understand that mentorship and sponsorship do not always go hand in hand. Career promotion in academic medicine is greatly aided by mentors and sponsors, and this is especially true when working to promote women in science to continue to promote diversity.

2021 MAVENS ALUMNI



June Rhee, MD

Assistant Professor, Department of Medicine, City of Hope National Cancer Center

"MAVENS really helped me to prioritize

my academic and personal goals and helped me strategize and execute these goals. MAVENS also helped me to increase my visibility as well as expand my network."



Seema Dangwal, PhD

Principal scientist, preclinical R&D at Elixir Medical Corp

"Stanford MAVENS program provided me an exceptionally supportive platform

to learn and discuss both research and career-oriented matters with two independent mentors at Stanford.

Overall, I feel fortunate and thankful to find mentors with friendship that goes long way and looking forward to welcome new fellows in next year. I strongly recommend all eligible postdocs, instructors and scientists to apply for this program."



Our mission is to inspire, empower, and support women in academic medicine throughout their career progression in order to create an integrated community of scientists.

Instructors and Assistant Professors are encouraged to apply!

Applications Due February 1, 2022

Apply Now!





Assistant or Associate Professor Stanford University

Interdisciplinary Search for the: **Basic Science and Engineering (BASE) Initiative Betty Irene Moore Children's Heart Center**

Seeking up to two new faculty members in biological or engineering research to join the Basic Science and Engineering (BASE) Initiative at the Betty Irene Moore Children's Heart Center at Stanford University.

The BASE Initiative aims to make and apply discoveries in basic science and engineering to address the challenges we face in caring for children with heart disease.

Full Description and Online Application http://www.med.stanford.edu/base

Stanford Byers Center for Biodesign celebrates 20 years of innovation education By Stacey McCutcheon ín

A training program for health technology innovators, the center has generated medical technologies that have helped millions of patients and inspired similar training programs worldwide.



a host of innovations, including a faster, more accurate way to diagnose heart arrythmias. "Stanford **Biodesign's**

The Stanford Byers Center

for Biodesign has launched

Paul Yock, left, and Josh Makower co-founded Stanford Byers Center for Biodesign, a training ground for health-technology innovators. Image credit: Rod Searcey

deep connections to the Silicon Valley innovation critical ecosystem are enablers to this program's

success," said Lloyd Minor, MD, dean of the Stanford School of Medicine. "The ability to interact with a network of experienced health technology innovators adds tremendous value for faculty, fellows and other trainees interested in making medical innovation a reality."

Multi-omics Approach Sheds Light on the Leading Inherited Cause of Heart Failure By Adrienne Mueller

Hypertrophic cardiomyopathy, or HCM, is the leading inherited cause of heart failure. Many of the genetic mutations associated with HCM involve the sarcomere - the contractile element of heart muscle cells - requiring more energy. How does the the heart cope with the increase in energey demand and how do those changes contribute to HCM heart failure?



Daniel Ranjbarvaziri, Bernstein, MD

PhD

To address these questions, a team of researchers led by Sara Ranjbarvaziri, PhD and Daniel Bernstein, MD used a novel multi-omics approach to profile all cellular metabolic pathways, and to determine which specific mechanisms

are dysfunctional in patients with HCM. In their study, just published in *Circulation*, the investigators identified several key differences between HCM and control hearts; among the most striking were that HCM heart muscle cells had 1) markedly perturbed metabolic function across nearly all metabolite classes, and 2) an increase in severely defective mitochondria. New therapeutics could treat HCM by directly acting on these shared pathologies.



Biodesign fellows Amanda White and Dimitri Augustin develop a medical device prototype. Image credit: Rod Searcey



Metabolic and mitochondrial alterations in hypertrophic cardiomyopathy.

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Interested in a write-up of your publication?

Contact: cvi_communications@stanford.edu

Or visit: https://med.stanford.edu/cvi/translational-research/memberpubs.html



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Isthmin-1 (Ism1) was identified as a protein with the ability to both increase sugar (glucose) uptake and decrease lipid synthesis. Ism1 has the potential to be a T2DM therapy with advantages over current treatment options.

Data-powered consult service shown to help doctors diagnose illness, guide treatments By Hanae Armitage

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Stanford Medicine researchers created a new type of medical consult that harnesses millions of electronic health records to bring new insights to patient care.

Researchers at Stanford Medicine have breathed new life into old electronic health records to help doctors stumped by tough cases. They created the Clinical Informatics Consult Service, a resource for physicians seeking insights into illnesses that are challenging to diagnose and treat. Unlike a standard physician-to-physician consultation, doctors can tap into findings from thousands, and sometimes millions, of cases to find information that might help them understand their patients' cases.

Steps towards simultaneously treating diabetes and fatty liver disease By Amanda Chase, PhD

Type 2 diabetes melilites (T2DM) is increasing in prevalence,

currently affecting about 1 in 10 people. Current treatments aim to decrease blood sugar levels, but have unwanted side effects, including increased lipid (fat) synthesis that can lead to nonalcoholic fatty liver disease. Treatment of T2DM, and longer-term patient health, would greatly benefit from a therapy that can both increase sugar uptake and suppress lipid accumulation.

Researchers at Stanford, led by first authors Zewen Jiang, Meng Zhao, and Laetitia Voilquin and senior author Katrin Svensson, identified a protein that may address that need. Their work, recently published in Cell Metabolism, identified isthmin-1 (Ism1) as a



PhD a

protein that works like insulin in regulating blood sugar levels, but surprisingly also counteracts lipid accumulation in the liver. This study compellingly argues that Ism1 be explored for therapeutics and may be useful in combination with other T2DM treatment options.



Nigam Shah and colleagues created a service that draws from thousands of electronic patient records to answer physicians' questions about diagnosis and treatment. Image credit: Steve Fisch

In a new paper published *NEJM Catalyst*, Nigam Shah, MBBS, PhD, and his team describe the first 100 of those consults, which took place in 2017 and 2018, documenting diagnoses, enhanced patient care and even cases in which patients' courses of treatment changed entirely. "Medicine has been dreaming about doing this for 50 years," said Shah.

Scaffolding as a Platform for Cell Delivery for Abdominal Aortic Aneurysm Therapy By Amanda Chase, PhD

Abdominal Aortic Aneurysm (AAA) is diagnosed in about 200,000 individuals in the US per year. When the wall of the aorta weakens, it gradually bulges - becoming an aneurysm. Larges can burst, which can be life-threatening. Targeted treatment to slow aneurysm progression would have a profound impact on the lives of patients with AAA.

AAAs occur when the artery becomes weaker because of the loss of smooth muscle cells (SMCs) that help the aorta contract, along with degradation of the extracellular matrix (ECM) components. An attractive AAA therapy, therefore, is to regrow and deliver parts of the cell and ECM components. A group researchers, led by first authors Joscha Mulorz and Mahdis Shayan and senior author Ngan F. Huang, recently highlighted a promising means of cell delivery to serve as a therapeutic strategy for AAA treatment in a study published

in Biomaterials Science. In a mouse model, they showed that primary SMCs delivered by these collagen scaffolds, which provide ECMlike cues, could decrease the rate of aneurysm expansion. This technique has potential for the future of slowing AAA disease progression using a minimally invasive procedure.



Joscha Mulorz,

MD



Overview of cell-seeded scaffold on the aortic aneurysm. The scaffold with cells was implanted onto an

AAA (D) and a protective cover was added (E).

Ngan Huang, PhD

CVI Grant Writing Workshops

CVI Grant Writing Workshops are participation-based and provide feedback and a support network to enable you to prepare your strongest proposal!

> March 22 - May 24 Find Out More!

> > C



Chance to win a PRIZE!

Explore the Stanford Cardiovascular Institute's website to learn more about its history, opportunities, and initiatives - and have the chance to win a prize!

CVI Virtual Tour

Congratulations to the 2021 Summer Quarterly Virtual Tour Prize Winner Jennifer Phung Woo, MD!

Machine-learning to predict right ventricular heart failure in LVAD patients By Roxanna Van Norman

A Stanford study found using a deep learning system could predict right ventricular failure after cardiac surgery, significantly outperforming a team of human experts conducting the same evaluation.

While a heart transplant remains the gold standard for treating patients with end-stage heart failure, an alternative is receiving an LVAD, a battery-powered mechanical pump implanted in the patient. Unfortunately, a third of all patients implanted with LVADs develop a clinically significant degree of RV failure soon after the procedure. "We wanted to know if there is a way to figure out, before we even take anybody into the operating room, which patients are more likely to suffer from these right-sided heart problems," said William Hiesinger, MD, senior author on the study.



Rohan Shad, MD



William Hiesinger, MD

The research team looked at various clinical scoring systems to identify patients at risk for RV failure in LVAD candidates. The team then compared the performance of their AI system against clinical risk scores. By training their artificial intelligence (AI) system to identify abnormal motions in the heart videos, it could conclude who was more likely to suffer from right heart failure after surgery. "What excites me the most is thinking about where we can go from here and how we can design deep learning systems that can better represent these complex



diseases," said Dr. Rohan Shad, lead author on the study. This study was published in <u>Nature</u> <u>Communications</u>.

Mahdis Shayan,





CVI Proposal Development Resource

Questions about how to apply for a grant at Stanford? Steps for a fellowship, career development award, research, or collaborative grant? Templates to guide your proposal development?

Visit <u>our new website</u>, or contact: cvi_grants@stanford.edu, to find anwers to those questions and more.

More Hearts, Shorter Waits, and Fewer Deaths—with a Great

Bottom Line By Adrienne Mueller, PhD

A heart undergoes a lot of scrutiny before it can be used in a transplant. How well does the tissue match the transplant recipient? Does the heart seem to function normally? Was the donor healthy – or did they have any diseases that could be passed on to the host? Hearts that pass all of these tests are rare – and far too few to meet the demand of patients. But what if we could find a way to make more hearts cleared for transplant?





Brian Wayda, MD

Kiran Khush, MD

Hepatitis C is a disease that affects approximately 2.5 million people in the US; and about 2.7% of potential heart donors are Hepatitis C-positive. The good news is that current anti-viral therapies for Hepatitis C are extremely effective – and have cure rates of approximately 95%. First-author Brian Wayda, MD, and senior author Kiran Khush, MD led a



Khush lab demonstrates that transplanting Hepatitis C-positive hearts is cost-effective for the healthcare system. Image credit: Victoria Rodrigues

study, recently published in the *Journal of Heart and Lung Transplantation*, simulating what would happen if approximately 20,000 heart transplant candidates were willing to also accept Hepatitis C-positive donor hearts. They found that 232 more transplants were able to be performed and 132 individuals were able to receive transplants before being 'delisted' from the waitlist due to deterioration. Moreover, there were 50 fewer waitlist deaths and wait times were reduced by 3-11%. Critically, this simulated intervention was also cost-effective: patients experienced an increase in quality-adjusted life years at low additional cost from the anti-viral therapy and care. Hospitals and policy-makers should strongly consider updating their protocols to allow transplanting of Hepatitis C-positive hearts and the saving of more lives.

Smartwatches alert wearers to bodily stress, including COVID-19 By Hanae Armitage



Michael Snyder is one of the senior authors of a study showing a smartwatch can warn wearers they may be infected with a virus. Image credit: Paul Sakuma

Stanford Medicine researchers created an algorithm to notify smartwatch wearers of stress, capturing events such as air travel, extended exercise and illness.

Researchers led by Michael Snyder, PhD, have enrolled thousands of participants in a study that employs the algorithm to look for extended periods during which heart rate is higher than normal — a telltale sign that something may be amiss. But figuring out what may be wrong takes a little sleuthing. During the study, many stressors triggered an alert. Some folks received them while traveling; some while running a marathon; others after over-indulging at the bar. The most exciting finding, Snyder said, was that the algorithm was able to detect 80% of confirmed COVID-19 cases before or when participants were symptomatic. "The idea is for people to eventually use this information to decide whether they need to get a COVID-19 test or selfisolate," Snyder said. A paper detailing the study was published in <u>Nature Medicine</u>.

Allergies to mRNA-based COVID-19 vaccines rare, generally mild By Erin Digitale

Allergic reactions to the new mRNA-based COVID-19 vaccines are rare, typically mild and treatable, and they should not deter people from becoming vaccinated, according to a study led by researchers at the Stanford University School of Medicine.The findings were published online in *JAMA Network Open*.



"We wanted to understand the spectrum of allergies to the new vaccines and understand what was causing them," said the study's senior author, Kari Nadeau, MD, PhD.

Kari Nadeau, MD, PhD

The study analyzed 22 potential allergic reactions to the first 39,000 doses of Pfizer

and Moderna COVID-19 vaccines given to health care providers at Stanford soon after the vaccines received emergency use authorization from the Food and Drug Administration.

Jordan Sproul receives a dose of Moderna's COVID-19 vaccine at Stanford. A new study found that allergies to mRNA-based COVID-19 vaccines are rare and generally mild. Steve Fisch



Most of those in the study who developed reactions were allergic to an ingredient that helps stabilize the COVID-19 vaccines; they did not show allergies to the vaccine components that provide immunity to the SARS-COV-2 virus. Furthermore, these allergic reactions occurred via an indirect activation of allergy pathways, which makes them easier to mitigate than many allergic responses.

"It's nice to know these reactions are manageable," said Nadeau. "Having an allergic reaction to these new vaccines is uncommon, and if it does happen, there's a way to manage it."

Connect with CVI on LinkedIn



Pulmonary Hypertension Grand Rounds

12-1pm - 1st Friday of the Month

CME-accredited series featuring case presentations and lectures from the Stanford community and other medical centers.

Understanding How Statins Prevent Cardiovascular Disease but Increase Diabetes Risk

By Amanda Chase, PhD

Data from clinical trials suggests that taking statins, a medication to help reduce cholesterol, can lead to a small increased risk of type 2 diabetes (T2DM). A team of researchers led by first author Fahim Abbasi, MD, and senior author Joshua Knowles, MD, PhD, conducted a clinical trial to understand *how* statins can lead to T2DM. Their findings were recently published in <u>Artheriosclerosis,</u> <u>Thrombosis, and Vascular Biology</u>.



Fahim Abbasi, MD



MD, PhD

The team found that treatment with a highlevel of statin for 10 weeks can lead to diabetes

by increasing insulin resistance. They also identified a, likely compensoatory, increase in insulin secretion. This information will make it easier to develop means to avoid such side-effects.



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Does major surgery impact the development

of Alzheimer's Disease? By Adrienne Mueller, PhD

After major surgery, patients often exhibit cognitive problems resembling symptoms of Alzheimer's Disease. This has caused speculation whether undergoing major surgery contributes to chronic neurocognitive disorders.



Recent research indicates that plasma levels of tau protein phosphorylated at residue 181 (pTau181) are

MD, PhD

Greicius, MD MD

highly predictive for developing AD in the future. A team of Stanford scientists led by first author Igor Feinstein, MD, PhD,

and co-senior authors Michael Greicius, MD, MPH and Martin Angst, MD investigated the relationship between major surgery, and plasma pTau181 and neurofilament light (NfL), a marker



Undergoing major surgery significantly increases Alzheimer's Diseaseassociated pTau181 levels.

of neuronal death. Their study, recently reported in JAMA *Neurology*, measured pTau181 in patients undergoing either cardiac surgery ror hip replacement surgery before, during, and after surgery. For both types of surgeries, all patients exhibited low pre-surgical levels of pTau181. However, pTau181 levels significantly increased over 5-fold in cardiac surgery, and about 2.5-fold in hip surgery. This study provides evidence that major surgery may contribute to neurodegenerative brain pathology echoing Alzheimer's Disease.

Statins may be effective treatment for patients with ulcerative

Colitis By Hanae Armitage

People with ulcerative colitis who are also taking statins have about a 50% decreased risk of colectomies and



hospitalization, according to a Stanford Medicine study.

Purvesh Khatri. PhD

There may be good news for the nearly 1 million people battling ulcerative colitis, a type of inflammatory bowel condition with no real cure: Statins, a commonly prescribed cholesterollowering drug, seem to be an effective, if

Currently, the only lines of defense against ulcerative colitis are anti-inflammatory drugs, which don't always work, and a

unexpected, treatment for the condition.



Ulcerative colitis causes inflammation and ulcers in the bowel, leaving patients vulnerable to an array of unpleasant symptoms, including abdominal pain, blood in the stool, constipation and fatigue. Image credit: Marian Weyo/Shutterstock.com

colectomy, the surgical removal of part or all of the colon. Discovering another option is significant, said Purvesh Khatri, PhD, who led the research. By tapping into publicly available datasets of anonymized patient health information, Khatri and his team tracked down a connection between a handful of drugs and decreased symptoms of ulcerative colitis. As it turned out, atorvastatin, was one of the top performers, significantly decreasing the rate of surgical treatment for ulcerative colitis. A paper describing the study was published in the Journal of the American Medical Informatics Association.



med.stanford.edu/wallcenter

PH AT STANFORD PODCAST **RESEARCH • EDUCATION • TREATMENT • PATIENT CARE**

A new podcast series from the Vera Moulton Wall Center for Pulmonary Vascular Disease at Stanford, with the goal to eradicate pulmonary vascular disease by discovering fundamental causes, developing innovative therapies, disseminating crucial knowledge, and delivering transformative care.

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"The CVI Undergraduate Summer Research Program solidified my passions in wanting to pursue medicine and research. From getting to talk to visiting physician lecturers to working at an actual lab at Stanford, I was able to really get my feet wet with both the academic and clinical side of healthcare. Such experiences are super hard to come by, and I am grateful for the program for steering me in the right direction in regards to my future career goals and aspirations of a MD/PHD.

Using procedure he invented, surgeon at Stanford Health Care – Valley Care fixes patient's atrial fibrillation By Tracie White

Silas Richardson was in the hospital with a heart rhythm disorder that his doctors couldn't get under control. Surgery at Stanford Health Care – ValleyCare solved the problem.

Atrial fibrillation, a common heart-rhythm disorder, affects about 2.7 million Americans, according to the American Heart Association. Caused by abnormal electrical signals in the heart, it can lead to palpitations and fatigue. It can also increase the risk of stroke, heart failure and death. In most cases, atrial fibrillation can be managed with medications and lifestyle changes. But in a minority of cases, including Richardson's, those options don't work, and more invasive procedures are necessary. One such procedure, invented by a physician who now works at Stanford Health Care – ValleyCare, may have saved Richardson's life.

TT maze was invented by James Longoria, MD, a cardiothoracic surgeon and clinical associate professor now at Stanford School of Medicine. "What you want is to create roadblocks and allow the natural impulses to come back," Longoria said. "The scar tissue that we form creates blocks to these aberrant signals, and they self-terminate by going into the scar tissue."



Silas Richardson (with his wife, Lori Richardson) is no longer bothered by atrial fibrillation after undergoing a procedure at Stanford Health Care – ValleyCare. Photo courtesy of the Richardson family

Longoria performed Richardson's TT maze procedure on July 6, 2020. "I had about five or six tubes coming out of me," Richardson said. "They collapsed both lungs for the surgery. I was pretty beat up afterward." About two months later, he was able to get off his medications, Richardson said. "As far as my doctor is concerned, my heart is healed. I can't thank Dr. Longoria and his team enough."

Clinical Biomarker and Phenotype Core Laboratory

Quantitative assessment of clinical cardiovascular phenotypes for translational research and clinical trials

Assessment of cardiovascular and immune biomarkers

Development of novel biomarker platforms and new imaging modalities

Find Out More!



Cardiovascular Clinical Trials at Stanford

Cardiovascular research at Stanford University is diverse and spans over 240 clinical research studies in the division of Cardiovascular Medicine alone. Stanford faculty physicians and scientists, many of whom are recognized internationally for their contributions to advancing science and knowledge of cardiac disease, conduct research aimed to treat patients suffering from a wide variety of cardiovascular issues. Cardiovascular researchers have made significant progress towards the understanding of coronary and vascular disease, endothelial function, cardiac mechanics and heart failure. There are opportunities for patients to participate in studies that may change cardiovascular care for millions of patients.

<u>Cardiovascular Medicine's Clinical Research Office</u> and the <u>Cardiovascular Institute's Clinical Trials Core</u> support faculty with teams of talented Clinical Research Coordinators to move the trials and research forward in the most compliant and efficient way for the benefit of patients, and to ensure research goals are met even in the midst of COVID-19 pandemic.







Introduction to the Stanford Arrhythmia Service: Linda K. Ottoboni, PhD, CNS, founded the Atrial Fibrillation Prevention and Lifestyle Management Program to help individuals reduce their cardiovascular risk. Research has shown that reducing cardiovascular risk improves atrial fibrillation outcomes. Dr. Ottoboni is also testing strategies to help patients manage the unpredictability of arrhythmias. In collaboration with Dr. Paul Wang, Dr. Sanjiv Narayan, Dr. Mintu Turakhia, and the other members of the Stanford Arrhythmia Service, Dr. Ottoboni is pursuing several research projects including: evaluating symptom management strategies that may improve patient quality of life; a multi-center clinical trial on whether bariatric surgeries improve patient outcomes; and an assessment of whether a digital health platform targeting a patient's psychometric profile can help modify behaviors to reduce cardiovascular risk factors and thereby improve access for underrepresented populations.

Introduction to Dr. William Fearon's Late-breaking FAME-3 Clinical Trial: On November 4th, 2021 Dr. William Fearon presented an investigator-initiated clinical trial coordinated by Stanford in which 1500 patients with three-vessel CAD warranting revascularization were randomly assigned to fractional flow reserve-guided PCI with a current generation stent or CABG. The primary endpoint of the one-year rate of death, myocardial infarction, stroke, and repeat revascularization (MACCE) was 10.6% for PCI and 6.9% for CABG (hazard ratio [HR] 1.5, 95% CI 1.1–2.2, p=0.35 for non-inferiority). The one-year rate of death, myocardial infarction, and stroke were not significantly different between the two strategies. The improved ischemic outcomes of CABG was balanced with safety endpoints that were all lower with PCI compared to CABG. The study is unique because it was coordinated and run by Stanford with research grants to support it. It will likely change practice and be reflected in new guidelines.

Introduction to Dr. Alex Sandhu's Patient-reported Outcome Research: Heart failure negatively affects the quality of life for millions of patients with heart failure. The NIH-funded Patient-Reported Outcomes in Heart Failure (PRO-HF) randomized trial, led by Dr. Alexander Sandhu, will evaluate the impact of routinely collecting patient-reported health status during clinic visits among patients seen in the Stanford Heart Failure Clinic. All patients with clinic visits in Stanford heart failure will be contacted for potential enrollment. Consented patients will be randomized to routine Kansas City Cardiomyopathy Questionnaire-12 (KCCQ-12) assessment in clinic versus usual care. The study will evaluate the effect of routine KCCQ-12 assessment on patient experience, clinician interpretation of quality of life, and patient quality of life at 1 year. The results of this study will provide insight into the integration of patient-reported outcomes in heart failure care.

2021 CVI EARLY CAREER SYMPOSIUM LIGHTNING TALK AWARDEES



Narelli de Paiva Narciso Graduate PhD Student Lab of Sarah Heilshorn Injectable hydrogels for mechanically active tissues



Hye Sook Shin

Life Science Research Professional Labs of Yasuhiro Shudo & Y. Joseph Woo Naturally aligned cell delivery platform to limit post-infarction ventricular remodeling and improve ventricular function by augmenting mature neovascularization via CXCL12 activation

(7)

For severe heart disease, bypass surgery slightly better than stenting — with caveats By Ruthann Richter

Among heart-disease patients in a study who received stents, the incidence of a major complication — death, heart attack, stroke or the need for a repeat procedure — was 10.6% after a year. Among bypass patients, the rate was 6.9%.



William Fearon, MD

Patients with severe coronary artery disease generally fared better with bypass surgery than with stents to open blocked arteries, according to a major new multinational study led by Stanford Medicine investigators. However, some patients benefited more from stents, particularly if their disease wasn't complex, the researchers

found. "The good news for patients is that both groups did better than what was found in previous studies, and the differences between the two strategies has lessened," said William Fearon, MD. He said the trial, the largest of its kind, will serve as a guide for determining which approach is best for individual patients. A paper describing the study, called the FAME 3 trial, was published in <u>The New England Journal of Medicine</u>.



Hoping to Improve Heart Failure - the HECTOR Stem Cell Clinical Trial

Patient recruitment will start in January 2022 for a new clinical trial (CIRM CLIN2) to test a therapy for left-sided heart failure resulting from a heart attack.

Because the adult heart cannot replenish muscle cells, heart attack-affected muscle tissue forms a scar that can ultimately cause the heart to fail. In a first-in-human trial in the US, the HECTOR team will use human embryonic stem cells to generate new heart muscle cells that will be administered to patients at the site of the heart damage. The research team consists of Joseph C. Wu MD, PhD (PI), Phillip C. Yang, MD (co-PI), Manisha Desai, PhD (Director of the Quantitative Sciences Unit), Kenneth Mahaffey, MD (Director of the Stanford Center for Clinical Research), David Lee (Director of Interventional Platform/Cardiac Catheterization and Intervention Laboratories), MD, Joseph Woo, MD (Chair of Cardiothoracic Surgery), Eldrin F. Lewis, MD (Chief of





The HECTOR Clinical Trial Team: Joseph C. Wu MD, PhD, Phillip C. Yang, MD, Manisha Desai, PhD, Kenneth Mahaffey, MD, David Lee, MD, Joseph Woo, MD, Eldrin F. Lewis, MD, Fatima Rodriquez, MD, Evgenios Neofytou, MD, & Fouzia Khan, MBBS.







Cardiovascular Medicine), Fatima Rodriquez (Assistant Professor in Cardiovascular Medicine), MD, Evgenios Neofytou, MD (Project Director), and Fouzia Khan, MBBS (CRC). This initial trial will evaluate the safety and feasibility of the therapy and the effect upon heart function. The ultimate aim of this trial is to improve heart function for patients suffering from heart failure.

WELCOME

New Cardiovascular Institute Staff



Helen Zhuang Lie Financial Analyst Helping manage CVI's grants, awards, contracts and accounts



Micaela Harris

Education and Outreach Administrator Helping manage CVI's training programs, courses, outreach initiatives and events



Daniel Bernstein Lab

Find out more!

Seeking a postdoctoral scientist to join a multidisciplinary project utilizing hiPSC-cardiomyocytes to explore the mechanisms of genetic cardiomyopathies. Our team utilizes an array of multi-scale approaches, ranging from single molecule to single myofibril to

single and multiple cell platforms. We also apply a unique multi-omics approach integrating genomics, metabolomics and lipidomics. Candidate must have strong laboratory, analytical, and communication skills and enjoy working in a small but highly collaborative environment.



Michael Kapiloff Lab

Find out more!

Recruiting highly motivated cellular and molecular biologists with interests in either neuronal or cardiac signal transduction. Current research addresses how the formation of multimolecular protein complexes confers specificity in intracellular signaling and how

these complexes are important for the function of cardiac myocytes in pathological remodeling and for the survival of retinal neurons in diseases like glaucoma. Research in the Kapiloff laboratory spans the breadth of signal transduction research from biochemistry to in vivo animal physiology.



Jayakumar Rajadas Lab Find out more!

Seeking postdoctoral researchers to contribute to the biophysics of in vivo protein folding, protein formulation, and drug delivery. The Rajadas lab has cutting research tools like Atomic force microscopes, Raman spectroscopic equipment with nanoprobes,

Masspecs, cell Vizio/ confocal imaging equipment, Spray dryers, and protein production, and purification systems. Mentees in our lab will have the opportunity to interact with many high-profile collaborators. Past trainees of Dr. Rajadas are well-placed in both academia and industry.



Nazish Sayed Lab

Find out more!

Seeking a postdoctoral researcher with a background in vascular biology and cellular signaling to perform cutting-edge research on endothelial biology. The Sayed Lab conducts translational research in vascular biology and aims to understand the role of the

vasculature in the development of cardiac diseases. The lab employs iPSC technology, bioengineering tools and CRISPR to investigate human vascular diseases. Candidates should have past experience in molecular and cellular biology and mouse models. Knowledge of bioinformatics is a plus.



Vivek Bhalla Lab

Seeking a highly motivated postdoctoral candidate to join a laboratory focusing on hormone-induced signaling pathways active in diabetic kidney disease. Specific areas of interest include elucidating the role of genes in podocyte and endothelial cell function in

diabetic glomeruli. Elucidating the important regulators of these pathways will involve biochemical, molecular, and genetic approaches. This work will involve multidisciplinary collaborations with leading scientists in nephropathology, cardiovascular medicine, and protein biochemistry.



Sanjiv Narayan Lab

Find out more!

Seeking a self-motivated postdoctoral researcher to join an interdisciplinary team using computational and mathematical approaches to treat patients with heart rhythm disorders. The successful applicant will have formal training in any of these disciplines: medicine,

physiology, biophysics, computational modeling, and/or machine learning. At the end of their training, fellows should be well positioned to apply for NIH K-level or similar funding, and prior fellows have moved on to top research positions in academia and industry worldwide.



Joseph C. Wu Lab

Find out more!

Seeking a creative and motivated postdoctoral researcher to perform cutting-edge research on epigenetics of heart disease using iPSCs and genome editing. We also study stem cell immunogenicity and tumorigenicity and identify novel therapeutic targets.

Candidate must hold a PhD and/or MD in a relevant field and have strong laboratory, analytical, organizational, and communication skills. Successful candidates will work independently in a dynamic research team of molecular and cell biologists, biochemists, and imaging specialists.



CVI Trainee Mentorship Program



- First-hand advice on career and research goals
- 53 faculty mentors, spanning 16 Stanford departments
- Structured program makes mentorship easy and effective

Join the program!

Eligibility: early career scientists working or studying at Stanford.

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Training Programs for Postdocs and Residents

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T32 Training Program for Postdocs Comprehensive training in labs spanning 18 departments addressing fundamental questions about vascular disease

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T32 Training Program for Postdocs Multi-disciplinary and collaborative training in imaging technologies and cardiovascular biology

Find out more

Research Training in Myocardial Biology

T32 Training Program for Postdocs

Multi-disciplinary training across diverse departments and divisions studying the biology of the heart muscle itself

Find out more

Research Training Fellowship in Lung Biology

T32 Training Program for Postdocs A supportive and invigorating training environment for the next generation of pulmonary physician-scientists

Find out more

Stanford Integrated Cardiovascular/Pulmonary Residency Research

R38 Training Program for Residents Designed to train resident-investigators in cardio-pulmonary research and to accelerate their development into independent clinician-investigators

Find out more

Applications Due January 15th, 2022

Cardiovascular Medicine Fellowship Program

Fellowship Program for Residents Intensive and individually tailored training in clinical cardiology as well as in basic science and/or clinical cardiovascular research

Find out more

Watch the Video

MED223 | Cardiovascular and Pulmonary Sciences Seminar



The purpose of this course is to familiarize students with the spectrum of basic, clinical and translational CVP research beyond their specific area of chosen investigation. After a Tuesday seminar, students will meet informally with the seminar speaker. Examples of thematic topics that will be covered include how genetics and developmental biology address mechanisms of congenital heart disease, the rationale for new drug development in atherosclerosis, principles of biomechanics in device and biomaterial development, ion channel physiology leading to the design of clinical trials, evidence based medicine, and design of new

treatment or diagnostic algorithms. Fall and Winter Quarter - Tuesdays and Thursdays, 12:30 - 1:20 pm | 2 credits

Course Directors: Ngan Huang, PhD; Vinicio de Jesus Perez, MD; Edda Spiekerkoetter, MD; Ioannis Karakikes, PhD *https://med.stanford.edu/cvi/education/cvi-courses/med223.html*

CTS 225 | Stem Cells in Cardiovascular Regenerative Medicine



This cardiovascular course focuses on the basic principles and translational applications of stem cells for treatment of cardiovascular diseases. Topics include the genetic modification of stem cells for precision medicine, as well as the science underlying how stem cells can be applied to regenerative medicine and drug development. Students will have the opportunity to develop their scientific reasoning and presentation skills as well as expand their professional portfolios through student-led journal club presentations and the development of a research proposal. This course is open to graduate students, medical students, and

upper-division undergraduates. Spring Quarter - Tuesdays and Thursdays, 2:00 - 3:00 pm | 2 credits

Course Director: Ngan Huang, PhD https://med.stanford.edu/cvi/education/cvi-courses/cts225.html

MED 225 | Drug Development: From a Concept to the Clinic



Drug Development: From a Concept to the Clinic (MED225) is designed for medical students, trainees, basic scientists, clinicians, and clinician-scientists to provide an educational and practical perspective on the essential issues in drug development. The curriculum is focused on educating the audience on all stages of drug development and related research and business processes—from discovery and translational science and how to launch new projects to analyzing data, communication and interpretation of results of clinical trials, regulatory issues, and commercial considerations in product development. The emphasis will be on

cardiovascular applications. Spring Quarter | 1 credit

Course Directors: Peter DiBattiste, MD; Jonathan Fox, MD, PhD; Alexander Gold, MD; Jayakumar Rajadas, PhD; Philip Sager, MD *https://med.stanford.edu/cvi/education/cvi-courses/med225.html*

REGISTER NOW!



CATCH: ARING FOR ADULTS AND TEENS WITH CONGENITAL HEART DISEASE

Thursday, February 17-Saturday, February 19, 2022 Honolulu, Hawai'i

CATCH Hawai'i 2022

The Seventh CATCH Conference will focus on improving the quality of life of patients with congenital heart disease. We will discuss patient experience during the period of transitioning from childhood to adulthood, discover unique aspects of disease perception and emphasize the benefits of individualized care in a rapidly evolving field of medicine.

Who Should Attend: Physicians including cardiologists, emergency room physicians, internists, family practitioners, pediatricians, anesthesiologist, intensivists, advanced practitioners such as physician assistants and nurse practitioners, nurses working in adult care as well as pediatric settings, cardiac sonographers, cardiac catheterization laboratory technicians and pharmacists. It's also appropriate for any health care professional actively involved in the care of, or interested in, patients with congenital heart disease.

For more information: HawaiiPacificHealth.org/CATCH or Hawai'i Pacific Health Conference Services at 808-522-346









Fatima Rodriguez Receives Distinguished Young Scientist Award

The American College of Cardiology recently honored Fatima Rodriguez, MD, MPH, FACC, Assistant Professor of Medicine (Cardiovascular Medicine), with the 2022 Douglas P. Zipes Distinguished Young Scientist Award in celebration of her contributions to the cardiovascular profession.

The award recognizes rising stars among the next

generation of cardiologists who have made outstanding contributions to the field and have gathered noteworthy research in either the basic or clinical domains. Rodriguez has strong depth and breadth of published work, exploring topics such as increases in SARS-CoV-2 test positivity rates among Hispanic people, racial and ethnic group underreporting and underrepresentation in cholesterol treatment trials, telehealth programs for preventive cardiology and more. Through her research, she aims to develop novel interventions to target racial, ethnic and gender disparities.

Cardiologists Ronglih Liao and Paul Cheng Receive Awards

Ronglih Liao, PhD, Professor of Cardiovascular Medicine, and Paul Cheng, MD, PhD, cardiologist and instructor in Medicine, have recently been honored with prestigious awards. Dr. Liao won the BCVS (Council on Basic Cardiovascular Sciences) Distinguished Achievement Award, which "recognizes individuals who have made major contributions to the affairs of a scientific council over a continuing period, and who have made substantial professional contributions to the field represented by the council." This mid-career award highlights Liao's professional leadership and innovation. Ron Witteles, MD, professor of cardiovascular medicine, praised Liao as "a true scientist's scientist."

Cheng received his recognition in the form of the Louis N. and Arnold M. Katz Basic Research Prize, which awards early-career scientists and "encourages new investigators to continue research careers in basic cardiovascular science." Colleagues on Twitter called the award "so well-deserved" and a recognition of his "fantastic work."



Maya Kasowski receives New Innovator Award

Maya Kasowski, MD, PhD, Assistant Professor of Medicine in the division of Pulmonary, Allergy, & Critical Care

Medicine, received the NIH Director's New Innovator Award (DP2) to develop a novel methodology to study the genetics of allergic disease at the single cell level. Kasowski's laboratory studies how immune cells grown in the laboratory react to the presence of allergens to map the molecular basis of food allergies. "We plan to use this powerful system to pinpoint genetic variants that make some individuals susceptible to the environmental factors that cause allergic disorders," Kasowski said.



CVI Manuscript Awards Deadline: January 31, 2022

- Awarded to authors of outstanding manuscripts published in 2021
- Up to 4 Awards at \$750 per Award
- Manuscript must reference the first or last author's affiliation with CVI





CVI Travel Awards

Deadline: January 15, 2022

- Supports the travel of eligible researchers to conferences dedicated to cardiovascular research.
- \$750 of travel expenses
- Additional "Outreach Travel Award" exclusive to candidates from underrepresented groups.



Investigators leading the Human Heart Atlas of Diverse Ancestry project include several faculty: Joseph Wu, MD, PhD; Leah Backhus, MD; Wing Wong, PhD; William Greenleaf, PhD; James Zou, PhD; and Fatima Rodriguez, MD, from Stanford, and Andrew Connolly, MD, PhD from UCSF.



Kristy Red-Horse announced as Howard Hughes investigator

By Holly Alyssa MacCormick, Bruce Goldman and Erin Digitale

HHMI investigators receive roughly \$9 million over a seven-year appointment which may be renewed for additional terms. Red-Horse's research focuses

on blood vessels of the heart and a special subtype called collateral arteries, which can function as natural coronary artery bypasses. Red-Horse and her team have been studying how and when collateral arteries form, and whether inducing their growth might pave the way for a therapy for individuals with coronary heart disease.

"Ischemic heart disease is a leading cause of death worldwide. Our group studies how mouse and human embryos construct cardiac blood vessels from scratch. We then use this information to reconstruct them in diseased adult hearts," said Red-Horse. "The HHMI appointment will allow us to add a new tool to our toolbox – comparative biology, which reveals similarities and differences between species – to discover how some species naturally develop highly protective coronary artery architectures."

Joseph Wu, Leah Backhus, and other Stanford and UCSF faculty to receive grant from Chan Zuckerberg Initiative

By Roxanna Van Norman

The Chan Zuckerberg Initiative recently announced grant recipients of the Ancestry Networks for the Human Cell Atlas, a collection of projects to help solve some of society's toughest challenges in human cells and diseases.

Among the projects is the Human Heart Atlas of Diverse Ancestry, led by a team of investigators from Stanford University and University of California, San Francisco (UCSF). Joseph Wu, MD, PhD, Professor of Medicine and Radiology, and Leah Backhus, MD, Associate Professor of Cardiothoracic Surgery, are two of the co-principal investigators on the project. The Ancestry Networks for the Human Cell Atlas projects support researchers to contribute healthy, single-cell reference data from ancestrally diverse tissue samples to the Human Cell Atlas, with the aim of creating a more globally representative resource to understand disease.



More information

CVI Seed Grants Spring 2022

- Igniting and supporting new ideas that will change how we diagnose and treat cardiovascular disease
- \$20,000 per award
- Proposals that emphasize interdisciplinary collaborations and/or diversity are strongly encouraged

CVI Seed Grant Awardees Autumn 2021



Anson Lee, MD Assistant Professor of Cardiothoracic Surgery

Co-Is: Paul Wang, MD; Daniel Ennis, PhD; Sanjiv Narayan, MD, <u>PhD; Os</u>car Abilez, MD, PhD;

Phillip Yang, MD; Udi Nussinovitch, MD, PhD; Meghedi Babakhanian, PhD; Oluwatomisin Obafemi, MD

Understanding Ventricular Tachycardia: A Wholistic Approach Using Porcine and Isolated Perfused Human Heart Models

Research Funded by the Steven M. Gootter Foundation



Virginia Winn, MD, PhD Associate Professor, Obstetric and Gynecology

Co-Is: Ruth Lathi, MD; Brice Gaudillière, MD, PhD; Nima Aghaeepour, PhD

Determining Early Maternal Immune Predictors of Preeclampsia

Research Funded by the Stanford Maternal & Child Health Research Institute

D; Brice



Joshua Spin, MD, PhD Assistant Professor of Medicine Co-I: Philip Tsao, PhD

Maternal Vaping and Transgenerational Risk of Abdominal Aortic Aneurysm

Research Funded by the Stanford Maternal & Child Health Research Institute

Immune Aging Dynamics and Cardiovascular Health Monitored in a Newly Awarded P01 Grant

Drs. Mark Davis, Holden Maecker, Scott Boyd, Kari Nadeau, Francois Haddad and Patricia Nguyen were recently awarded a NIA/NIAID P01 Program Project Grant (\$17,8m) to study aging of the human immune system and its relation to cardiovascular health. The program entitled 'High resolution longitudinal immune monitoring for elucidating immune aging dynamics' is a collaboration between researchers at the Institute for Immunity, Transplantation and Infection (ITI) and CVI and will follow several existing and newly recruited cohorts longitudinally for 5 years through extensive immune monitoring by ITI's Human Immune Monitoring Center. Dr. Kari Nadeau will run the clinical core with Drs. Patricia Nguyen and Francois Haddad focused on cardiovascular health. The Stanford team is joined by Drs. Shai Shen-Orr (Technion, Israel), David Furman (The Buck Institute), Nir Barzilai (Albert Einstein College of Medicine) and Scott Hensley (University of Pennsylvania) contributing expertise in bioinformatics, aging and flu, respectively.





Maecker, PhD

Haddad, MD



Scott Boyd, MD, PhD



Kari Nadeau, MD, PhD





Patricia Nguyen, MD



Clockwise from top left, Ansuman Satpathy, MD, PhD Jesse Engreitz, PhD, Thomas Quertermous, MD, Anshul Kundaje, MD, PhD, and J. Mike Cherry, PhD are part of a consortium that is identifying and mapping the human genome to better understand disease.

Stanford researchers join national effort to learn how genetic variation affects health By Krista Conger

Five Stanford Medicine faculty members have received more than \$40 million from the National Institutes of Health as part of a five-year endeavor to understand how variations in the human genome — those affecting DNA sequence, three-dimensional structure and the pattern of chemical tags that regulate the expression of genes along its length — influence human health and disease. The research is expected to help clinicians better predict an individual's disease risk and to provide clues about the molecular causes of poorly understood diseases.

The researchers are Mike Cherry, PhD; Jesse Engreitz, PhD; Anshul Kundaje, PhD; Ansuman Satpathy, MD, PhD; and Thomas Quertermous, MD.

Engreitz and Quertermous were awarded nearly \$8.5 million to jointly head the Stanford Center for Connecting DNA Variants to Function and

Phenotype. Their goal is to interpret how noncoding regions of the human genome are associated with the development of specific cardiac diseases in adults and children. They will use genetic mapping, genetic engineering and computer methods to understand the connection between genomic variation in cardiovascular cells' regulatory elements and their structure and function. These new connections will be used to catalog the effect of variants in many human cell types and diseases.



Helen Blau, PhD, Donald E. and Delia B. Baxter Foundation Professor, and Director of the Baxter Laboratory for Stem Cell Biology, was

recently funded by The Milky Way Research Foundation to study Rejuvenation of Aged Muscle by 15-PGDH.



Phillip C. Yang, MD, Professor of Medicine (Cardiovascular Medicine), was awarded nearly \$1.5 million from the California Institute

for Regenerative Medicine to explore whether induced pluripotent stem cells under low-oxygen conditions release substances that can aid in the repair of damaged heart muscle tissue.

Dr. Yang was also awarded a Technology Development Grant (TDG) from the Stanford University Beckman Center for the project Fluorescent Lifetime Imaging Microscopy of Mitochondria-Rich Extracellular Vesicles for Direct Augmentation of Myocardial Bioenergetics. Mark Kasevich, PhD (Professor of Physics), and Soichi Wakatsuki, PhD (Professor, Photon Science and Structural Biology) are Co-PIs on the award.



Mintu Turakhia, MD, Associate Professor of Medicine (Cardiovascular Medicine), was awarded an FDA grant to study Post-Market Evaluation of Smartwatch Cardiovascular Notifications. This collaborative project with the FDA Office of Digital Health will aim to develop a conceptual framework for post- market evaluation of consumer-facing devices, understand the demographics and care settings where patients come

in for management of consumer-facing device notifications, and evaluate health care utilization and outcomes.

Dr. Turakhia was also selected as a winner of the Rock Health's Top 50 in Digital Health Luminaries award for his contribution to the digital health community.



Michelle Odden, PhD, Associate Professor of Epidemiology and Population Health, was awarded a Multiple PI RO1 to study Mitochondrial health, cardiovascular risk, and blood pressure targets in hypertensive adults.

Dr. Odden, Abby King, PhD (Professor of Epidemiology & Population Health), Sherri Rose, PhD (Associate Professor of Health Policy), and Jiajun Wu, PhD (Assistant Professor of Computer Science), were also awarded a 2021 Stanford AIMI-HAI grant for their project Place Matters: The Streetscape Environment and Health among African Americans.



Fatima Rodriguez, MD, Assistant Professor of Medicine (Cardiovascular Medicine), will serve as affinity lead for Preventive Cardiology.

This is in anticipation of growth of the preventive cardiology capabilities, including outreach, scope and five days/ week clinical care.



Nazish Sayed, MD, PhD, Assistant Professor of Surgery (Vascular Surgery), received NIH R01 award from NHLBI. This grant, *Deciphering*

the Endothelial Cell-Cardiomyocyte Crosstalk in LMNA Cardiomyopathy, will investigate the role of the vasculature in inherited cardiac diseases.



Nicholas Leeper, MD, Professor of Surgery (Vascular Surgery), was awarded the 2021 Jeffrey M. Hoeg Arteriosclerosis, Thrombosis, and Vascular Biology Award by the American Heart Association. The Hoeg Award recognizes "an established investigator in the prime of his/her career who has made an outstanding contribution to furthering understanding of the pathophysiology of atherosclerosis and/or the development of treatment strategies for its prevention through basic science and clinical research efforts."

Kevin Cyr Medical Student Lab of Paul Wang Heart Rhythm Society 2021 Evaluation of the 3-Dimensional Substrate of Ventricular Tachy-

cardia in a Langendorff Perfused Human Heart



Epigenetics Driven-EndMT

Chun Liu, PhD Instructor Lab of Joseph Wu

AHA Scientific Session 2021 Statins Improve Endothelial Function via Suppression of



Francisco Galdos MD-PhD Student Lab of Sean Wu AHA Scientific Session 2021 TBX5-Based Lineage Tracing Identifies a Propensity for Left

Modulation of WNT Signaling

CVI Travel Award Winners Autumn 2021

Yae Hyun Rhee, PhD Postdoctoral Researcher Lab of Philip Tsao AHA Scientific Session 2021 E-cigarette Nicotine Vapor In-



Kenzo Ichimura, MD, PhD Postdoctoral Researcher Lab of Edda Spiekerkoetter AHA Scientific Session 2021 Three-Dimensional Deep-Tissue Imaging of the Right Ventricle

Ventricular Cardiomyocyte Differentiation of Hu- Reveals Decreased Capillary-Cardiomyocyte Conman Induced Pluripotent Stem Cells Using Biphasic tact Surface in Decompensated Right Heart Failure

creases Aortic Stiffness in Mice



whether

Jennifer Camacho, MD, will be joining the PACCM division as Clinical Assistant Professor. Dr. Camacho was recruited from Columbia University Medical Center, and received her medical degree from Albert Einstein College of Medicine and her residency training at Columbia University Presbyterian Medical Center. Dr. Camacho is particularly interested in studying healthcare disparities and health care literacy amongst



Vivek Bhalla, MD. Associate Professor of Medicine (Nephrology), is co-Pl on an NIH U01 from NIDDK for the Renal Science

Core of the Chronic Kidney Diseases of UnceRtain Etiology (CkDu) in Agricultural Communities (CURE) research Consortium.



Victoria Parikh, MD, Assistant Professor of Medicine (Cardiovascular Medicine) received a sponsored award from Biomarin Pharmaceutical

to study Evaluation of variantspecific disease modalities in RBM20 cardiomyopathy.

Dr. Parikh also serves as Director of Inpatient Cardiology as of September 1st.



Roy John, MD, PhD, was appointed as Clinical Professor of Medicine (Cardiovascular Medicine) on November 1st.



Sean Wu, MD, PhD, Associate Professor of Medicine (Cardiovascular Medicine), received a National Science Foundation (NSF) award

to study Machine learning approaches to enhance chamber-specific cardiomyocyte differentiation from iPS cells.



Ermelinda Porpiglia, PhD, instructor in the lab of Dr. Helen Blau, will be starting as an Assistant Professor in the Department of

Biomedicine at Aarhus University in Denmark in January of 2022.



Michael Kapiloff, MD. PhD, was promoted Professor to in the Department of Opathomology of as 11/1/2021.



Alison Marsden, PhD, Professor of Pediatrics (Cardiology) and of Bioengineering, was elected fellow of the Biomedical Engineering

Society for her accomplishments, significant contributions, and service to the Society and the field of biomedical engineering.



Michael Salerno, MD, PhD, Professor of Medicine (Cardiovascular) and of Radiology (Cardiovascular Imaging), was appointed

minority populations with asthma and allergic conditions.

Joseph Wu, MD, PhD,

Director of the Stanford

Cardiovascular Institute

Stertzer, MD, Professor of

Medicine, received nearly

the

and

\$7 million from the California Institute

for Regenerative Medicine to investigate

muscle cells called cardiomyocytes can

improve heart function and heart failure

symptoms in people with chronic ischemic

cardiomyopathy. The researchers plan

to enroll 18 patients to evaluate three

different doses of the cells. "This phase 1

trial will determine whether transplanting

these stem-cell-derived cardiomyocytes

is safe and, if so, help us determine the appropriate dose to use in a subsequent

Dr. Wu was also awarded an \$850,000

grant from the UCSF-Stanford Center of

Excellence in Regulatory Science and

Innovation (CERSI) to study clinical drug

development for rare diseases.

phase 2 trial," Wu said.

stem-cell-derived

Simon

Η.

heart

as Section Chief of Cardiovascular Imaging on October 1, 2021.



Sushma Reddy, MD, Assistant Professor of Pediatrics (Cardiology), was recently awarded the Anne T. and Robert M. Bass Faculty Scholar award by the Maternal Child Health Research Institute to support her research on A Non-invasive Signature of Myocardial Signaling in Children with Single Ventricle Heart Failure.

CVI Staff Spotlight



ANDREA DANG will be celebrating her third year at CVI in June of 2022! Andrea's main responsibilities at CVI include 1) processing appointments and renewals for postdocs, instructors, visiting scholars, visiting postdocs and visiting student researchers, 2) terminating appointments, and 3) processing J-1 & H-1B visas.

One little-known fact about Andrea is she has an older sister and who also works at Stanford! At CVI, she really enjoys working with a diverse group of individuals.





Prash Ganesan, PhD, postdoc in the lab of Dr. Sanjiv Narayan, was selected as a Young Investigator Finalist and 2nd place winner at the Asia-Pacific Heart Rhythm Society 2021 International Meeting for his project Atrial Fibrillation Ablation Response Predicted by Area of Repetitive Electrograms.

Dr. Ganesan's poster Spatial Distribution of Repetitive Electrograms Identifies a Spectrum of Organization from Atrial Fibrillation to Flutter also won Best Poster Award at Atrial Signals 2021 organized by Karlsruhe Institute of Technology, Germany.



Kenneth Tran, MD, a resident in the Division of Vascular Surgery, working with Drs. Jason Lee (Vascular Surgery) and Alison Marsden

(Bioengineering), recently received the Young Researcher Prize at the 20th anniversary of the European Symposium on Vascular Biomaterials meeting (ESVB) in Strasbourg, France.

In addition, Dr. Tran was awarded the Frank J Veith LEAD Award for best resident presentation at the Vascular Techniques Thinktank (VAST3) & Technology meeting in Hilton Head, SC. His research, Patient-specific computational flow simulation for thrombotic risk prediction after fenestrated endovascular aneurysm repair, involves the novel application of fluid dynamic modelling for analyzing patient-specific hemodynamics after complex aortic repair.



Asuka Eguchi, PhD, postdoc in the lab of Dr. Helen Blau. received the TRAM Pilot Award for her project Treatment of

Contractile Deficits of Duchenne/Becker Muscular Dystrophy Cardiomyocytes with Microdystrophin.



Shoa L. Clarke, MD, PhD, instructor in Medicine, is a recipient of the 2021 Diversity Chair Investigator Award for his proposal

Addressing racial disparities in the clinical assessment of polygenic risk for coronary artery disease.



Daniel Gerber, MD, was appointed to Clinical Assistant Professor (Cardiovascular Medicine) on September 1st.



Christopher Madl, PhD,

postdoc in the lab of Dr. Helen Blau, received an NIH K99 Patheay Independance to Award for his project

Elucidating Effects of Fibrosis on Aged Stem Cells with Dynamic Biomaterials.

Dr. Madl will be starting as an Assistant Professor in the Department of Materials Science & Engineering at The University of Pennsylvania in Fall of 2022.





Han Zhu, MD, instructor in the lab of Sean Wu was a Finalist for the Melvin L. Marcus Early Career Investigator

Award in Cardiovascular Sciences at 2021 American Heart Association Scientific Sessions.



Seraina Anne Dual, PhD, postdoc in the lab of Dr. Daniel Ennis, has been appointed tenure-track Assistant Professor

in Biomedical Signal Processing at the Department of Biomedical Engineering and Health Systems at the KTH Royal Institute of Technology in Stockholm, Sweden.



Ying Shi, MD, PhD, postdoc in the lab of Dr. Vivek Bhalla, received a 3-year Larry L. Hillblom Foundation Postdoctoral Fellowship

grant to study mechanisms of regulation of SGLT2.



Alexander Perino, MD, was appointed to Clinical Assistant Professor (Cardiovascular Medicine) on

September 1st.

Valery L. Turner, MD, postdoc in the lab of Dominik Fleischmann, was a Finalist for the Melvin Judkins Early Career Clinical Investigator Award at 2021 American Heart Association Scientific Sessions.

WINNERS OF THE 2021 BORING TRUST AWARD



Jessica Herrmann **3rd Year Medical Student** Lab of Mark Skylar-Scott Developing a Perfusion Bioreactor to Train a Vascularized Fontan Assist Biopump



Danielle Mullis

2nd Year Medical Student Lab of Joseph Woo Intramyocardial Therapy to Induce Angiogenesis in a Transgenic Mouse Model of Coronary Heart Disease



Brian Yu

2nd Year Medical Student Lab of Joseph Wu Mechanisms of Autophagy in Diabetic Cardiomyopathy with Human Stem Cells

Funding Opportunities

For more information about funding opportunities or grant application support, please contact our Office of Research Development: cvi_grants@stanford.edu.

JANUARY 2022

MCHRI Transdisciplinary Initiatives Program (TIP). Letter of Intent Deadline: January 10, 2022

MCHRI Stanford Pediatric IBD and Celiac Disease Research Program Seed Grants. Letter of Intent Deadline: January 10, 2022

AHA Collaborative Sciences Award. Letter of Intent Deadline: January 11, 2022

AHA Institutional Research Enhancement Award (AIREA). Deadline: January 12, 2022

AHA Established Investigator Award. Letter of Intent Deadline: January 13, 2022

NHLBI Program Project Applications (P01 -Clinical Trial Optional). Deadline: January 25, 2022

Stephen I. Katz Early-Stage Investigator Research Project Grant (R01 Clinical Trial Not Allowed). Deadline: January 26, 2022. PAR-21-038

Stephen I. Katz Early-Stage Investigator Research Project Grant (R01 Basic Experimental Studies with Humans Required). Deadline: January 26, 2021. PAR-21-039

ISHLT/O.H. Frazier Award in MCS Translational Research (Sponsored by Abbott and Medtronic). Deadline: January 31, 2022

FEBRUARY 2022

AHA Research Supplement to Promote Diversity in Science. Deadline: February 1, 2022

MCHRI Clinical Trainee Support for Postdocs and Fellows (MD). Deadline: February 1, 2022

NIH Research Project Grant (Parent R01 Clinical Trial Not Allowed). Deadline: February 5, 2022. PA-19-056

NIH Research Project Grant (Parent R01 Clinical Trial Required). Deadline: February 5, 2022. PA-19-055

NIH Single-Site Investigator-Initiated Clinical Trials (R61/R33 Clinical Trial Required). Deadline: February 11, 2022. PAR-19-328

NIH Mentored Career Development Award to Promote Faculty Diversity in Biomedical Research (K01 Independent Clinical Trial Required). Deadline: February 11, 2022. RFA-HL-22-010

NIH Mentored Career Development Award to Promote Faculty Diversity in Biomedical Research (K01 Independent Clinical Trial Not Allowed). Deadline: February 11, 2022. RFA-HL-22-011

NIH Pathway to Independence Award (Parent K99/R00 Independent Clinical Trial Not Allowed). Deadline: February 12, 2022. PA-20-188

Maximizing Opportunities for Scientific and Academic Independent Careers (MOSAIC) Postdoctoral Career Transition Award to Promote Diversity (K99/R00 - Independent Clinical Trial Not Allowed). Deadline: February 12, 2022. PAR-21-271

NIH Tobacco Regulatory Science (R01 Clinical Trial Optional). Deadline: February 15, 2022. RFA-OD-21-002

NHLBI Outstanding Investigator Award (OIA) (R35 Clinical Trial Optional). Deadline: February 15th, 2022. RFA-HL-23-004

AHA Transformational Project Award. Deadline: February 16, 2022

NHLBI Clinical Trial Pilot Studies (R34 Clinical Trial Optional). Deadline: February 16th, 2021. PAR-21-079 NIDDK Small Grants for New Investigators to Promote Diversity in Health-Related Research (R21 Clinical Trial Optional). Deadline: February 16, 2022. PAR-21-313

NIH Exploratory/Developmental Research Grant Program (Parent R21 Clinical Trial Not Allowed). Deadline: February 16, 2022, PA-19-053

NIH Exploratory/Developmental Research Grant Program (Parent R21 Clinical Trial Required). Deadline: February 16, 2022. PA-19-054

NIH T32 Training Program for Institutions That Promote Diversity (T32 – Clinical Trial Not Allowed). Deadline: February 28, 2022. Letter of Intent due 30 days prior to the application due date. RFA-HL-22-001

ROLLING DEADLINE

Research Supplements to Promote Re-Entry into Biomedical and Behavioral Research Careers (Admin Supp - Clinical Trial Not Allowed). PA-18-592

Research Supplements to Promote Diversity in Health-Related Research (Admin Supp - Clinical Trial Not Allowed). PA-21-071

Research Supplements to Promote Diversity in Health-Related Research (Admin Supp - Clinical Trial Not Allowed). PA-20-166

National and Global Cardiovascular Conferences

Please note: some events may be canceled or postponed due to COVID-19. Please check directly with event organizers.

JANUARY 2022

27th Annual International AF Symposium January 13-15, 2022. New York, NY. *Find out more.*

Keystone Symposia – Tumor Metabolism January 16-20, 2022. Banff, AB, Canada / Hybrid. <u>Find out more.</u>

ICPC 2022: 16. International Conference on Pediatric Cardiology January 28-29, 2022. Virtual. *Find out more.*

Keystone Symposia - Antibodies as Drugs January 30 - February 2, 2022. Keystone, CO / Hybrid. *Find out more.*

Keystone Symposia - Computational Design and Modeling of Biomolecules January 30 - February 2, 2022. Keystone, CO / Hybrid. *Find out more.*

FEBRUARY 2022

Cancer Neoantigens, Vaccines and Viruses February 6-10, 2022. Banff, AB, Canada / Hybrid. *Find out more.*

Advancing the Cardiovascular Care of the Oncology Patient February 11-12, 2022. Virtual. <u>Find out more.</u>

Precision Genome Engineering February 13-17, 2022. Whistler, BC, Canada / Hybrid. *Find out more.*

Emerging Cellular Therapies February 13-17, 2022. Whistler, BC, Canada / Hybrid. *Find out more.*

CATCH - Caring for Adults and Teens with Congenital Heart Disease February 17-19, 2022. Honolulu, HI <u>Find out more.</u>

Cardiovascular Summit February 17-19, 2022. Washington, DC / Hybrid. *Find out more.*

Heart Failure: Mechanisms and Therapies.

February 26 - March 1, 2022. Breckenridge, CO / Hybrid. <u>Find out more.</u>

Mayo Clinic: Topics in Cardiology February 28 - March 4, 2022. Cancun, Mexico / Hybrid. *Find out more.*

MARCH 2022

Cancer Immunotherapy: Decoding the Cancer Immunity Interactome March 20-24, 2022. Whistler, BC, Canada / Hybrid. *Find out more.*

Transcatheter Interventions March 23-25, 2022. Virtual. *Find out more.*

Next Generation HIV Vaccines & Therapies March 27-30, 2022. Banff, AB, Canada / Hybrid. <u>Find out more.</u>

Cancer: Aging in the Driver's Seat March 27- 30, 2022. Snowbird, UT, USA. <u>Find out more.</u>

SAVE THE DATE

SDDS - Stanford Drug Discovery Symposium April 25-26, 2022. Stanford, CA / Hybrid *Find out more.*

CVI Resources

Stanford CVI Human iPSC Biobank Service



Normal and patient-derived reprogrammed cardiomyocytes are a tremendous resource for researchers and physicians here at Stanford and around the country. Understanding the disease process directly at the population level and observing these cells as surrogates under a myriad of conditions has the potential to be a game-changer for cardiovascular medical research.

To facilitate research in a dish that allows screening of new compounds or characterization of human disease phenotypes using cardiomyocytes, CVI created a service by which deidentified peripheral blood mononuclear cell (PBMC) samples from selected patients can be sent to Stanford CVI for reprogramming free of cost.

SCVI biobank is supported in part by the National Heart, Lung and Blood Institute (NHLBI) and the Stanford Cardiovascular Institute (CVI).

Contact: Joseph Wu, MD, PhD / joewu@stanford.edu or Biobank manager, Yan Zhuge, PhD / yanzhuge@stanford.edu with any questions.

Clinical Biomarker & Phenotyping Core Lab (BPCL)



BPCL provides quantitative assessment of clinical cardiovascular phenotypes for translational research and clinical trials. These cardiovascular phenotypes include evaluating cardiac structure and function, measuring carotid intimal thickness and arterial stiffness, testing endothelial function, and cardiopulmonary exercise testing.

In collaboration with the Human Immune Monitoring Center at Stanford and members of the Cardiovascular Institute, we also offer central blood processing and banking capabilities. In addition, we develop new biomarker platforms and imaging modalities.

Contact: Francois Haddad, MD / fhaddad@stanford.edu

CVI Clinical Trials Core

The CVI Clinical Trials Core provides a full spectrum of support to CVI members and their clinical trials. The coordinator has extensive clinical research experience in both industry and academia. The team provides services and support to principal investigators and sponsors, including:

- Consultation
- Data management
- Study start-up management, including IRB applications, budget development
- Regulatory compliance and documentation
- Closeout
- Subject recruitment, site visits, and follow-ups (AE reporting and queries)

Contact: Ed Finn, Clinical Trials Manager, efinn@stanford.edu





Cardiovascular Pharmacology (ADD-ReB)

The Advanced Drug Delivery & Regenerative **Biomaterials** (ADD-ReB) Laboratory. is a cutting edge research facility that specializes in the creation of biomaterials and drug delivery agents. The lab lends its expertise toward designing and analyzing biomaterials, developing drug delivery devices and formulations, pharmacokinetic pharmacodynamic and studies. and developing smart materials for biomedical applications. CVI Cardiovascular Pharmacology also offers trainings and lectures.

Contact: Jayakumar Rajadas, PhD jayraja@stanford.edu



3DQ Imaging Laboratory

Stanford's 3DQ Imaging Laboratory develops new approaches to exploration, analysis and quantitative assessments of diagnostic images that result in new and/or more cost-effective diagnostic approaches, and new techniques for the design and monitoring of therapy. The lab processes over 1,200 clinical cases to deliver relevant visualization and analysis of medical imaging data at Stanford. The lab is co-directed by Dominik Fleischmann, MD, Roland Bammer, PhD and Sandy Napel, PhD. **Contact: Dominik Fleischmann, MD** / d.fleischmann@stanford.edu Communication is at the heart of scientific advancement and innovation. Between September 1st and November 30th, Stanford Cardiovascular Institute members published 509 original manuscripts and reviews, further contributing to our understanding of cardiovascular biology and disease. Here, we highlight selected manuscripts by our members.

September

Cardiomyocytes From Doxorubicin Injury: Insights Into the SENECA Trial. O'Brien CG, Ozen MO, Ikeda G, Vaskova E, Jung JH, Bayardo N, Santoso MR, Shi L, Wahlquist C, Jiang Z, Jung Y, Zeng Y, Egan E, Sinclair R, Gee A, Witteles R, Mercola M, Svensson KJ, Demirci U, Yang PC. *JACC CardioOncol.* 2021 Jul 27;3(3):428-440. doi: 10.1016/j.jaccao.2021.05.006. eCollection 2021 Sep. PMID: 34604804

Computational simulation-derived hemodynamic and biomechanical properties of the pulmonary arterial tree early in the course of ventricular septal defects. Dong ML, Lan IS, Yang W, Rabinovitch M, Feinstein JA, Marsden AL. *Biomech Model Mechanobiol.* 2021 Sep 28. doi: 10.1007/s10237-021-01519-4. PMID: 34585299

An integrated approach to identify environmental modulators of genetic risk factors for complex traits. Balliu B, Carcamo-Orive I, Gloudemans MJ, Nachun DC, Durrant MG, Gazal S, Park CY, Knowles DA, Wabitsch M, Quertermous T, Knowles JW, Montgomery SB. *Am J Hum Genet*. 2021 Sep 22:S0002-9297(21)00335-9. doi: 10.1016/j.ajhg.2021.08.014. PMID: 34582792

From hardware store to hospital: a COVID-19-inspired, cost-effective, opensource, in vivo-validated ventilator for use in resource-scarce regions. Park MH, Zhu Y, Wang H, Tran NA, Jung J, Paulsen MJ, Imbrie-Moore AM, Baker S, Wilkerson R, Marin-Cuartas M, Mullis DM, Woo YJ. *Biodes Manuf.* 2021 Sep 22:1-8. doi: 10.1007/s42242-021-00164-1. PMID: 34567825

Using synthetic data generation to train a cardiac motion tag tracking neural network. Loecher M, Perotti LE, Ennis DB. *Med Image Anal.* 2021 Sep 10;74:102223. doi: 10.1016/j.media.2021.102223. PMID: 34555661

A design-based model of the aortic valve for fluid-structure interaction. Kaiser AD, Shad R, Hiesinger W, Marsden AL. *Biomech Model Mechanobiol.* 2021 Sep 21. doi: 10.1007/s10237-021-01516-7. PMID: 34549354

Outcomes of Participants with Diabetes in the ISCHEMIA Trials. Newman JD, Anthopolos R, Mancini GBJ, Bangalore S, Reynolds HR, Kunichoff DF, Senior R, Peteiro J, Bhargava B, Garg P, Escobedo J, Doerr R, Mazurek T, Gonzalez-Juanatey J, Gajos G, Briguori C, Cheng H, Vertes A, Mahajan S, Guzman LA, Keltai M, Maggioni AP, Stone GW, Berger JS, Rosenberg YD, Boden WE, Chaitman BR, Fleg JL, Hochman JS, Maron DJ. *Circulation.* 2021 Sep 15. doi: 10.1161/CIRCULATIONAHA.121.054439. PMID: 34521217

Deciphering pathogenicity of variants of uncertain significance with CRISPRedited iPSCs. Guo H, Liu L, Nishiga M, Cong L, Wu JC. *Trends Genet*. 2021 Sep 8:S0168-9525(21)00233-X. doi: 10.1016/j.tig.2021.08.009. PMID: 34509299

Predictors of sac regression after fenestrated endovascular aneurysm repair. Li M, Stern JR, Tran K, Deslarzes-Dubuis C, Lee JT. *J Vasc Surg.* 2021 Sep 8:S0741-5214(21)02009-7. doi: 10.1016/j.jvs.2021.08.067. PMID: 34506890

Statin Use in Older Adults for Primary Cardiovascular Disease Prevention Across a Spectrum of Cardiovascular Risk. Sarraju A, Spencer-Bonilla G, Chung S, Gomez S, Li J, Heidenreich P, Palaniappan L, Rodriguez F. *J Gen Intern Med.* 2021 Sep 10. doi: 10.1007/s11606-021-07107-7. PMID: 34505981

Head-to-head comparison of quantitative measurements between intravascular imaging systems: An in vitro phantom study. Nishi T, Imura S, Kitahara H, Kobayashi Y, Yock PG, Fitzgerald PJ, Honda Y. *Int J Cardiol Heart Vasc.* 2021 Sep 1;36:100867. doi: 10.1016/j.ijcha.2021.100867. PMID: 34504947

Initial Outcomes of CardioClick, a Telehealth Program for Preventive Cardiac Care: Observational Study. Kalwani NM, Johnson AN, Parameswaran V, Dash R, Rodriguez F. *JMIR Cardio.* 2021 Sep 9;5(2):e28246. doi: 10.2196/28246. PMID: 34499037

Recombinant Interleukin-19 Suppresses the Formation and Progression of Experimental Abdominal Aortic Aneurysms. Tanaka H, Xu B, Xuan H, Ge Y, Wang Y, Li Y, Wang W, Guo J, Zhao S, Glover KJ, Zheng X, Liu S, Inuzuka K, Fujimura N, Furusho Y, Ikezoe T, Shoji T, Wang L, Fu W, Huang J, Unno N, Dalman RL. *J Am* *Heart Assoc.* 2021 Sep 7;10(17):e022207. doi: 10.1161/JAHA.121.022207. PMID: 34459250

Comparison of Days Alive Out of Hospital With Initial Invasive vs Conservative Management: A Prespecified Analysis of the ISCHEMIA Trial. White HD, O'Brien SM, Alexander KP, Boden WE, Bangalore S, Li J, Manjunath CN, Lopez-Sendon JL, Peteiro J, Gosselin G, Berger JS, Maggioni AP, Reynolds HR, Hochman JS, Maron DJ. *JAMA Cardiol.* 2021 Sep 1;6(9):1023-1031. doi: 10.1001/ jamacardio.2021.1651. PMID: 33938917

Improving Right Ventricular Function by Increasing BMP Signaling with FK506. Boehm M, Tian X, Ali MK, Mao Y, Ichimura K, Zhao M, Kuramoto K, Dannewitz Prosseda S, Fajardo G, Dufva MJ, Qin X, Kheyfets VO, Bernstein D, Reddy S, Metzger RJ, Zamanian RT, Haddad F, Spiekerkoetter E. *Am J Respir Cell Mol Biol.* 2021 Sep;65(3):272-287. doi: 10.1165/rcmb.2020-0528OC. PMID: 33938785

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Graft Type and Routing for Repair of Aortoesophageal Fistula. Zhu Y, Lee AM. *Ann Thorac Surg.* 2021 Sep;112(3):1033-1034. doi: 10.1016/j.athoracsur.2021.01.062. PMID: 33631152

Isthmin-1 is an adipokine that promotes glucose uptake and improves glucose tolerance and hepatic steatosis. Jiang Z, Zhao M, Voilquin L, Jung Y, Aikio MA, Sahai T, Dou FY, Roche AM, Carcamo-Orive I, Knowles JW, Wabitsch M, Appel EA, Maikawa CL, Camporez JP, Shulman GI, Tsai L, Rosen ED, Gardner CD, Spiegelman BM, Svensson KJ. *Cell Metab.* 2021 Sep 7;33(9):1836-1852.e11. doi: 10.1016/j.cmet.2021.07.010. Epub 2021 Aug 3. PMID: 34348115

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Long-Term Exposures to Air Pollution and the Risk of Atrial Fibrillation in the Women's Health Initiative Cohort. Hart JE, Hohensee C, Laden F, Holland I, Whitsel EA, Wellenius GA, Winkelmayer WC, Sarto GE, Warsinger Martin L, Manson JE, Greenland P, Kaufman J, Albert C, Perez MV. *Environ Health Perspect*. 2021 Sep;129(9):97007. doi: 10.1289/EHP7683. PMID: 34523977

Assessment of Allergic and Anaphylactic Reactions to mRNA COVID-19 Vaccines With Confirmatory Testing in a US Regional Health System. Warren CM, Snow TT, Lee AS, Shah MM, Heider A, Blomkalns A, Betts B, Buzzanco AS, Gonzalez J, Chinthrajah RS, Do E, Chang I, Dunham D, Lee G, O'Hara R, Park H, Shamji MH, Schilling L, Sindher SB, Sisodiya D, Smith E, Tsai M, Galli SJ, Akdis C, Nadeau KC. *JAMA Netw Open.* 2021 Sep 1;4(9):e2125524. doi: 10.1001/ jamanetworkopen.2021.25524. PMID: 34533570

October

Mistaken Identity: Using Bone Scintigraphy to Diagnose Cardiac Amyloidosis in Patients With a Monoclonal Gammopathy. Nguyen AT, Alexander KM. *JACC CardioOncol.* 2021 Oct 19;3(4):594-597. doi: 10.1016/j.jaccao.2021.06.002. PMID: 34729533

Patched 1 reduces the accessibility of cholesterol in the outer leaflet of membranes. Kinnebrew M, Luchetti G, Sircar R, Frigui S, Viti LV, Naito T, Beckert F, Saheki Y, Siebold C, Radhakrishnan A, Rohatgi R. *Elife*. 2021 Oct 26;10:e70504. doi: 10.7554/eLife.70504. PMID: 34698632

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Machine learning approaches improve risk stratification for secondary cardiovascular disease prevention in multiethnic patients. Sarraju A, Ward A, Chung S, Li J, Scheinker D, Rodríguez F. *Open Heart*. 2021 Oct;8(2):e001802. doi: 10.1136/openhrt-2021-001802. PMID: 34667093

Impact of Diastolic Vessel Restriction on Quality of Life in Symptomatic Myocardial Bridging Patients Treated With Surgical Unroofing: Preoperative Assessments With Intravascular Ultrasound and Coronary Computed Tomography Angiography. Hashikata T, Honda Y, Wang H, Pargaonkar VS, Nishi T, Hollak MB, Rogers IS, Nieman K, Yock PG, Fitzgerald PJ, Schnittger I, Boyd JH, Tremmel JA. *Circ Cardiovasc Interv.* 2021 Oct;14(10):e011062. doi: 10.1161/ CIRCINTERVENTIONS.121.011062. PMID: 34665656

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