Researchers Describe Clinical Trials In A Dish

BY KRISTA CONGER

Researchers at the Stanford University School of Medicine describe a “clinical trial in a dish” using patient-specific induced pluripotent stem, or iPS, cells to predict whether a drug will dangerously affect the heart’s function.

The technique may be more accurate than the current in vitro drug-safety screening assays used by pharmaceutical companies, say the researchers, and may better protect patients from deadly side effects of common medications.

The technique allows scientists for the first time to test drugs directly on cells with mutations that cause hereditary cardiac diseases, rather than on the genetically modified human embryonic kidney cells or the Chinese hamster ovarian cells currently being used to detect cardiac toxicity.

The use of patient-specific iPS cells may help drug designers winnow heart-safe medications from those like the blockbuster anti-inflammatory drug Vioxx, which was withdrawn from the market because of unanticipated adverse cardiovascular events. It may also allow clinicians to identify sub-groups of patients, such as those with certain types of cardiac conditions, who should not be given certain drugs.

The researchers anticipate that the technique, if adopted, could save millions of dollars and thousands of lives by streamlining the drug-testing process and increasing its sensitivity.

It may also lead, simply, to better medicine, said Joseph Wu, MD, PhD, who co-directs the Stanford Cardiovascular Institute, where the research was conducted, and who is also a professor of cardiovascular medicine and of radiology. “Our hope is that, instead of a physician using a patient as a guinea pig, trying one medication after another until something is found to be effective, this method will one day lead to personalized drug screening to find out exactly which medication is the best for you.”

In the present study, human heart cells were created by taking painless, noninvasive skin samples from people with and without inherited cardiac diseases, such as familial hypertrophic cardiomyopathy, familial dilated cardiomyopathy and hereditary long QT syndrome. The skin cells were first coaxed to become iPS cells and then differentiated into beating heart cells.

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Online Tool for Heart Surgery Options

BY RINA SHAIKH-LESKO

Researchers at the Stanford University School of Medicine have developed a method of predicting which patients with heart disease would benefit more from surgery and which would benefit more from angioplasty.

Drawing on Medicare records of more than 100,000 patients with heart disease, the team demonstrated that the effectiveness of coronary bypass surgery varied widely based on each individual’s characteristics. The data enabled them to predict which type of intervention — coronary bypass surgery or coronary angioplasty — increased the chances of an individual patient living longer, based on a half-dozen traits.

ONLINE continues on p. 2
A new online tool can help seniors with advanced heart disease decide between two possible medical interventions - Coronary Artery Bypass Graft surgery or Percutaneous Coronary Intervention, a.k.a. angioplasty. To use the tool, seniors enter in their age, gender, diabetes status, tobacco use and heart disease history. The tool then calculates a predicted five-year survival rate, based on outcomes of similar patients who underwent these procedures.

For more visit: http://tinyurl.com/cgpddoo

Online from p. 1

such as gender, age and diabetes and smoking history. Lead author Mark Hlatky, MD, professor of medicine and of health research and policy, and his team developed an interactive online tool (see ‘Bypass or Angioplasty? There’s an App for That’ below) to help clinicians precisely predict how much a patient’s survival might change by choosing coronary bypass surgery or angioplasty.

Hlatky said the study results could help doctors make better decisions about the treatments likely to be most effective for individual patients, rather than relying on medical guidelines that work best for the typical patient. “If we could identify the individuals in the population who would benefit the most, and target treatment more precisely, we could have really good outcomes at much lower cost,” Hlatky said.

The study showed that patients with severe heart disease — those who had two or more blocked arteries — lived longer, on average, when treated with coronary bypass surgery instead of angioplasty, but how much longer varied widely. For patients with certain conditions, including diabetes, heart failure, a history of smoking and a recent heart attack, coronary bypass surgery extended their lives by a few weeks to a few months beyond how long they would have been expected to live had they undergone angioplasty. On the other hand, patients without any of these conditions lived longer if they had angioplasty instead of surgery.

Instead of running a randomized clinical trial the researchers simulated a clinical trial using Medicare patient records from 1992 to 2008. One of the drawbacks of randomized clinical trials is that they tend to be small and limit the type of patients who can participate. Hlatky’s method used a much larger and more diverse pool of patients, and the treatments were chosen by patients and their doctors, not assigned by a strict research protocol. The researchers matched patients based on more than three-dozen characteristics, except the kind of coronary heart disease surgery they received. This is the first study to quantify how much those characteristics contribute, and to develop an assessment tool to help doctors decide on a treatment plan for their patients.

For more visit: http://tinyurl.com/bsetsxh

Link to full article in Circulation:

Bypass or Angioplasty? There’s an App for That

By KRIS NEWBY

A new online tool can help seniors with advanced heart disease decide between two possible medical interventions - Coronary Artery Bypass Graft surgery or Percutaneous Coronary Intervention, a.k.a. angioplasty. To use the tool, seniors enter in their age, gender, diabetes status, tobacco use and heart disease history. The tool then calculates a predicted five-year survival rate, based on outcomes of similar patients who underwent these procedures.

For more visit: http://tinyurl.com/cgpddoo

For the Online Tool visit:
http://med.stanford.edu/hsr/cabg-pci/

Link to full article in Ann Intern Med:
www.ncbi.nlm.nih.gov/pubmed/23609014
### Data Mining Shows Safety of PAD Treatment

**BY RINA SHAIKH-LESKO**

In a paper published in PLOS ONE, Nigam Shah, Assistant Professor of Biomedical Informatics, and co-authors Nicholas Leeper, MD, a Stanford cardiologist and vascular medicine specialist, and Anna Bauer-Mehren, PhD, an informaticist, used a new methodology to answer a nagging question about the safety of Cilostazol, the only drug with the American Heart Association’s highest effectiveness rating – Class 1A - for treating the symptoms of peripheral arterial disease, a condition that affects millions of Americans.

Regulators fear the drug might have side effects on the cardiovascular system that could lead to death, so the drug has historically carried a “black-box warning.” As a result, the use of this drug has been limited.

Looking at a specialized system that includes health-research data from millions of patients seen at Stanford Hospital over 18 years, the researchers found no evidence that patients with peripheral arterial disease who took Cilostazol suffered the side effects about which doctors were worried, compared with patients who didn’t receive the drug.

By querying these records, the researchers identified a subset of patients they felt were at highest risk – a group which is often excluded from company-sponsored trials – and found no evidence of the side effects. This paper is one example of how data “unlocked” from previous patients’ records can aid doctors making decisions for future patients.

Shah and Leeper say that further research about Cilostazol’s safety is needed, but this study is a good building block because it suggests further clinical studies are likely to be safe for the patients who participate. Finding that out any other way would have been expensive and labor-intensive.

For more visit: [http://tinyurl.com/qbukdj9](http://tinyurl.com/qbukdj9)


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### Results Promising For New Anti-clotting Drug

**BY TRACIE WHITE**

Research published in the New England Journal of Medicine shows a novel anti-clotting drug to be superior at preventing blood clots during coronary stenting procedures compared to the currently used medication.

The study included about 11,000 patients from 153 centers around the world and was led by co-investigators Robert Harrington, MD, chair of the Department of Medicine at Stanford, and Deepak Bhatt, MD, at Harvard. The results of the trial showed that the drug, called cangrelor, reduced the odds of negative outcomes from stenting procedures such as blood clots, heart attacks and strokes, by 22 percent compared to the routinely used anti-clotting drug Plavix.

Coronary artery stents are used in the majority of patients who undergo percutaneous coronary intervention. In the United States, an estimated 600,000 of these procedures are done per year on patients who suffer from coronary artery disease.

Bhatt said, “We need a very potent agent to prevent clotting when we are putting things in the heart artery like wires and stents. We want a fast acting reversible agent, which is why a drug like cangrelor could be useful and why we tested it.”

New Jersey-based The Medicines Company, which makes cangrelor, sponsored the study and plans to apply for FDA approval of the drug following the results of this trial.

For more visit: [http://tinyurl.com/cnz67ja](http://tinyurl.com/cnz67ja)

Nano-Hitchhikers Track Stem Cells Entering Heart

BY BRUCE GOLDMAN

The promise of repairing damaged hearts through regenerative medicine — infusing stem cells into the heart in the hope that these cells will replace worn out or damaged tissue — has yet to meet with clinical success. But a highly sensitive visualization technique developed by Stanford University School of Medicine scientists may help speed that promise’s realization. Testing the new imaging method in humans is probably three to five years off.

Human and animal trials in which stem cells were injected into cardiac tissue to treat severe heart attacks or substantial heart failure have largely yielded poor results, said Sam Gambhir, PhD, MD, senior author of the study and professor and chair of radiology. “We’re arguing that the failure is at least partly due to faulty initial placement,” he said.

“All stem cell researchers want to get the cells to the target site, but up until now they’ve had to shoot blindly,” said Gambhir, who is also the Virginia and D.K. Ludwig Professor in Cancer Research and director of the Molecular Imaging Program at Stanford. “With this new technology, they wouldn’t have to. For the first time, they would be able to observe in real time exactly where the stem cells they’ve injected are going and monitor them afterward.”

To make this possible, the Gambhir lab designed and produced a specialized imaging agent in the form of nanoparticles whose diameters clustered in the vicinity of just below one-third of a micron.

The acoustical characteristics of the nanoparticles’ chief constituent, silica, allowed them to be visualized by ultrasound; they were also doped with the rare-earth element gadolinium, an MRI contrast agent.

The Stanford group showed that mesenchymal stem cells — a class of cells often used in heart-regeneration research — were able to ingest and store the nanoparticles without losing any of their ability to survive, replicate and differentiate into living heart cells.

The nanoparticles were impregnated with a fluorescent material, so Gambhir’s team could determine which mesenchymal stem cells gobbled them up. (Mesenchymal stem cells, which are able to differentiate into beating heart cells, can sometimes be harvested from the very patients about to undergo a procedure. This could, in principle, alleviate concerns about the cells being rejected by a patient’s immune system.)

Upon infusing the imaging-agent-loaded stem cells from mice, pigs or humans into the hearts of healthy mice, the scientists could watch the cells via ultrasound after they left the needle tip and, therefore, better direct them to the targeted area of the heart wall. Two weeks later, the team could still get a strong MRI signal from the cells.

No signs of toxicity or behavior differences were seen in mice receiving the agent-containing stem cells compared with control animals receiving stem cells without the agent. Still, further toxicity tests will be needed, said Gambhir.

Stanford has filed for provisional patents on intellectual property associated with this research.

For more visit: http://tinyurl.com/booq9r6 and http://tinyurl.com/cpqyh4a

Link to full article in Science Translational Medicine:
A “tsunami of digital data” now surges through medical research and health care, Lloyd Minor, MD, dean of the School of Medicine, told a packed auditorium May 22 at the start of the Big Data in Biomedicine Conference at Stanford. The goal of the conference, held May 22-24 in the Li Ka Shing Center for Learning and Knowledge, was to harness the power of that tsunami.

The conference was presented by Stanford Medicine and the University of Oxford, and sponsored by the Li Ka Shing Foundation. More than 40 speakers from across the United States and several foreign countries brainstormed ways to improve health care by using “big data.”

Vast increases in data-processing capacity have coupled with accelerated data-transmission capability to make possible prospects for improving patients’ compliance, providers’ diagnostic and therapeutic marksmanship and researchers’ ability to tease apart causality from mere correlation. “The amount of data being generated worldwide each year now falls in the zettabyte range,” said Atul Butte, MD, PhD, chief of systems medicine and associate professor of pediatrics and of genetics, and the conference’s principal organizer. The prefix “zetta-“ refers to the number 1 followed by 21 zeroes.

“An entire revolution is coming from us measuring ourselves,” Butte told the crowd, noting that by using one such gadget to tally his caloric intake and exercise output, he has dropped more than 3 units in body mass index, a measure of whether a person’s weight is healthy for his or her height. Such gadgetry, which can also transmit personal medical data, such as pulse rate and blood sugar levels, in real time will become increasingly useful to medical practitioners and researchers, Butte said.

With patient medical records, census data, environmental samplings and more increasingly available, a big challenge will be to integrate those disparate sources. One speaker, John Bell, MD, of Oxford, referred to this challenge as “big data in the wild: not necessarily well-controlled, carefully collected or consistently organized.” Bell highlighted the need to create “safe data havens,” where data can be stored and retrieved for research purposes under conditions that absolutely ensure patients’ privacy — a precondition for obtaining their buy-in — and to give patients a sense that this research will pay dividends to them in the form of a more efficient health-care system and fewer adverse drug effects, for example.

Keynote speaker Anne Wojcicki, co-founder and CEO of the personalized genomics company 23andme, described her business’s success in connecting people with their genetic data, which she said has often been discouraged in the past.

People who have been genotyped, Wojcicki said, are remarkably willing to share their personal data if they can be sure that they’re still in control of who, exactly, makes use of it; if privacy is ensured; if it’s really going to do some good; and if they’re going to get feedback about the results of the studies in which their data plays a part. Wojcicki offered several examples of customers’ willingness to enroll in studies, answer survey questions and even, in some cases, submit to biopsies.

Euan Ashley, MD, PhD, assistant professor of cardiovascular medicine discussed the difficulty inherent in ultra-detailed personalized analysis. “Most people are average in most things,” he said. “What you want to know is where people are not average. ... You're looking for not needles in haystacks, but needles in stacks of needles.” With 6 million data points in each person’s genome, accuracy is an imperative. Fortunately, accuracy is increasing as costs are plummeting.

Among this conference’s final announcements: the next one, in what is expected to become annual event, is already scheduled to take place in the same building on May 21-23, 2014. 


Anne Wojcicki, co-founder/CEO of the personalized genomics company 23andme
Atul Butte, Associate Professor of Pediatrics - Systems Medicine, has been elected as a member of the American Society of Clinical Investigation (ASCI).

Rajesh Dash, MD, PhD, Assistant Professor of Cardiovascular Medicine, was awarded ‘Best Poster’ at ACC.13 for his abstract, “Sustained Restoration of LV Function in a Porcine Ischemia-Reperfusion Injury Model Using Human Placental Mesenchymal Stem Cells and Manganese-Enhanced MRI”.

François Haddad, MD, Clinical Assistant Professor of Cardiovascular Medicine, will lead the CVI Biomarker and Phenotype Core Laboratory.

Mai Lam, PhD, a Cardiovascular Imaging at Stanford (CVIS) T32 trainee, has accepted an Assistant Professorship in the Department of Biomedical Engineering at Wayne State University.

Stephen Quake, PhD, the Lee Otterson Professor in the School of Engineering and a professor of bioengineering, of applied physics and, by courtesy, of physics, was one of six Stanford faculty members elected to the National Academy of Sciences.

Marcia Stefanick, PhD, was appointed co-Director of the new Stanford Center for Health Research on Women and Sex Differences in Medicine (the WSDM or “wisdom” center), which will encourage scientists to study sex differences in cells, tissues, animal models and human health outcomes. For more: http://tinyurl.com/kaaq9h4.

Jennifer Tremmel, MD, Assistant Professor of Cardiovascular Medicine, was recently featured on the Dr. Oz Show: http://tinyurl.com/mb7j9yr.

Brian Kobilka, MD, Professor and Chair of Molecular and Cellular Physiology and winner of the 2012 Nobel Prize in Chemistry, will deliver the keynote address at the medical school’s commencement ceremony on June 15th.
**Drug screening using a library of human induced pluripotent stem cell-derived cardiomyocytes reveals disease-specific patterns of cardiotoxicity**
Circulation. 2013;127(16):1677-91

**Association between the chromosome 9p21 locus and angiographic coronary artery disease burden: a collaborative meta-analysis**
Chan K, Patel RS, Newcombe P, [+18 authors], Goldstein BA, Hlatky MA, [+9 authors], Assimes TL, [+18 authors], Ye S
J Am Coll Cardiol. 2013;61(9):957-70

**Hypoxia-inducible factor-1α in pulmonary artery smooth muscle cells lowers vascular tone by decreasing Myosin light chain phosphorylation**
Kim YM, Barnes EA, Alvira CM, Ying L, Reddy S, Cornfield DN

**Dynamic tissue engineering scaffolds with stimuli-responsive macroporosity formation**
Han LH, Lai JH, Yu S, Yang F.
Biomaterials. 2013;34(17):4251-8

**The modulation of endothelial cell morphology, function, and survival using anisotropic nanofibrillar collagen scaffolds**
Huang NF, Okogbaa J, Lee JC, Jha A, Zaitseva TS, Paukshto MV, Sun JS, Punya N, Fuller GG, Cooke JP
Biomaterials. 2013;34(16):4038-47

**Dissecting the molecular relationship among various cardiogenic progenitor cells**

**Intermediate-term outcomes after combined heart-liver transplantation in children with a univentricular heart**
Hollander SA, Reinhartz O, Maeda K, Hurwitz M, N Rosenthal D, Bernstein D
J Heart Lung Transplant. 2013;32(3):368-70

**Effective of β-blockers in heart failure with left ventricular systolic dysfunction and chronic kidney disease**
Chang TI, Yang J, Freeman JV, Hlatky MA, Go AS

**Hemodynamic assessment after complete repair of pulmonary atresia with major aortopulmonary collaterals**
Mainwaring RD, Reddy VM, Peng L, Kuan C, Palmon M, Hanley FL

**Patient safety strategies targeted at diagnostic errors: a systematic review**
McDonald KM, Matesic B, Contopoulou-Ioannidis DG, Lonhart J, Schmidt E, Pineda N, Ioannidis JP

**Through the looking glass: the first 20 years of thoracic aortic stent-grafting**
Miller DC

**Physiologic and molecular characterization of a murine model of right ventricular volume overload**
Reddy S, Zhao M, Hu DQ, Fajardo G, Katzenelson E, Punn R, Spin JM, Chan FP, Bernstein D

**Integration of multiple signaling regulates through apoptosis the differential osteogenic potential of neural crest-derived and mesoderm-derived Osteoblasts**
Li S, Meyer NP, Quarto N, Longaker MT

**Microfluidic serial digital to analog pressure converter for arbitrary pressure generation and contamination-free flow control**
Yu F, Horowitz MA, Quake SR.
Lab Chip. 2013;13(10):1911-8
Identification of heart rate-associated loci and their effects on cardiac conduction and rhythm disorders

Nat Genet. 2013 [Epub ahead of print]

Peptide inhibitor of CXCL4-CCL5 heterodimer formation, MKEY, inhibits experimental aortic aneurysm initiation and progression


Fractional flow reserve assessment of left main stenosis in the presence of downstream coronary stenoses

Yong AS, Daniels D, De Bruyne B, Kim HS, Ikeno F, Lyons J, Pijls NH, Fearon WF

Sustained safety and effectiveness of paclitaxel-eluting stents for femoropopliteal lesions: two-year follow-up from the Zilver PTX randomized and single-arm clinical studies

Dake MD, Ansel GM, Jaff MR, Ohki T, Saxon RR, Smouse HB, Snyder SA, O'Leary EE, Tepe G, Scheinert D, Zeller T
J Am Coll Cardiol. 2013 [Epub ahead of print]

Apelin-APJ Signaling is a Critical Regulator of Endothelial MEF2 Activation in Cardiovascular Development

Circ Res. 2013 [Epub ahead of print]

Forecasting the Impact of Heart Failure in the United States: A Policy Statement From the American Heart Association

Circ Heart Fail. 2013 [Epub ahead of print]

Walking Impairment Questionnaire Improves Mortality Risk Prediction Models in a High-Risk Cohort Independent of Peripheral Arterial Disease Status

Circ Cardiovasc Qual Outcomes. 2013 [Epub ahead of print]

Comparative effectiveness of coronary artery bypass grafting and percutaneous coronary intervention for multivessel coronary disease in a community-based population with chronic kidney disease

Chang TI, Leong TK, Kazi DS, Lee HS, Hlatky MA, Go AS
Am Heart J. 2013;165(5):800-808.e2

Echocardiographic Methods, Quality Review, and Measurement Accuracy in a Randomized Multicenter Clinical Trial of Marfan Syndrome


Race Differences in Ventricular Remodeling and Function Among College Football Players

Am J Cardiol. 2013
Not time to RELAX in acute heart failure
Ambrosy AP, Witteles RM
Lancet. 2013;381(9880):1813

Variation and genetic control of protein abundance in humans
Wu L, Candille SI, Choi Y, Xie D, Jiang L, Li-Pook-Than J, Tang H, Snyder M
Nature. 2013 [Epub ahead of print]

BAF complexes facilitate decatenation of DNA by topoisomerase Ilα
Nature. 2013 [Epub ahead of print]

Structure of active β-arrestin-1 bound to a G-protein-coupled receptor phosphopeptide
Nature. 2013;497(7447):137-41

Transplantation for Idiopathic Pulmonary Arterial Hypertension: Improvement in the Lung Allocation Score Era
Schaffer JM, Singh SK, Joyce DL, Reitz BA, Robbins RC, Zamanian RT, Mallidi HR
Circulation. 2013 [Epub ahead of print]

Prognostic Value of the Index of Microcirculatory Resistance Measured after Primary Percutaneous Coronary Intervention
Fearon WF, Low AF, Yong AC, McGeoch R, Berry C, Shah MG, Ho M, Kim HS, Loh JP, Oldroyd KG
Circulation. 2013 [Epub ahead of print]

Predictors of Mortality and Outcomes of Therapy in Low Flow Severe Aortic Stenosis: A PARTNER Trial Analysis
Circulation. 2013 [Epub ahead of print]

A Multi-Institutional Study of Implantable Defibrillator Lead Performance in Children and Young Adults: Results of the Pediatric Lead Extractability and Survival Evaluation (PLEASE) Study

Alternative ankle-brachial index method identifies additional at-risk individuals
Nead KT, Cooke JP, Olin JW, Leeper NJ
J Am Coll Cardiol. 2013 [Epub ahead of print]

Diagnostic Utility of a Novel Leadless Arrhythmia Monitoring Device
Turakhia MP, Hoang DD, Zimetbaum P, Miller JD, Froelicher VF, Kumar UN, Xu X, Yang F, Heidenreich PA
Am J Cardiol. 2013 [Epub ahead of print]

Cardiac Troponin after Percutaneous Coronary Intervention and 1-Year Mortality in NSTE ACS Using Systematic Evaluation of Biomarker Trends
J Am Coll Cardiol. 2013 [Epub ahead of print]

Anti-CD47 antibody-mediated phagocytosis of cancer by macrophages primes an effective antitumor T-cell response
Proc Natl Acad Sci U S A. 2013 [Epub ahead of print]

Visualizing cellular interactions with a generalized proximity reporter
Sellmyer MA, Bronsart L, Imoto H, Contag CH, Wandelless TJ, Prescher JA

MicroRNAs in Abdominal Aortic Aneurysm
Adam M, Raaz U, Spin J, Tsao PS
Curr Vasc Pharmacol. 2013
**Upcoming Grants**

**JUNE**

- **Children’s Heart Foundation Research Grants**
  $100,000/year for 2 years
  June 7, 2013

- **Child Health Research Institute CHRI Harman Endowed Faculty Scholar**
  $100,000/year for 3 years
  June 14, 2013

- **CHRI Faculty Scholar**
  $100,000/year for 5 years
  June 14, 2013

**JULY**

- **American Heart Association**
  $38-54,000/year for 2 years
  July 17, 2013

- **AHA/Myocarditis Foundation Post-doctoral Fellowship**
  $38-54,000/year for 2 years
  July 17, 2013

**AUGUST**

- **CVI Seed Grants**
  $20,000 - $40,000/year
  August 2, 2013

**SEPTEMBER**

- **Tobacco-Related Disease Research Program (TRDRP)**
  $125,000/year for 3 years
  September 5, 2013

- **American College of Cardiology**
  ACCF/William F. Keating, Esq. Endowment Career Development Award
  $70,000/year
  September 23, 2013

- **ACCF/Merck Research Fellowships in Cardiovascular Disease and Cardiometabolic Disorders**
  $70,000/year
  September 23, 2013

- **ISCTR-ACCF Cardiovascular Translational Research Scholarship**
  $60,000/year
  September 23, 2013

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**Postdoctoral & Pre-doctoral Awards**

**JUNE**

- **CVI Postdoctoral Travel Award**
  $750 per awardee
  June 14, 2013

**JULY**

- **American Heart Association Postdoctoral Fellowship**
  $38-54,000/year for 2 years
  July 17, 2013

- **AHA/ASA/American Brain Foundation Lawrence M. Brass, M.D. Stroke Research Postdoctoral Fellowship Award**
  $38-54,000/year for 2 years
  July 17, 2013

- **Pre-doctoral Fellowship**
  $20,000/year for 1 or 2 years
  July 17, 2013

**AUGUST**

- **American Diabetes Assoc. - Merck Clinical/Translational Science Post-doctoral Fellowship Award**
  Up to $75,000/year for 2 years
  July 15, 2013

- **JDRF Postdoctoral Fellowship**
  Up to $44,000 - $59,000/year
  August 30, 2013

- **Helen Hay Whitney Foundation Research Fellowship**
  $49-51,000/year for 3 years
  July 1, 2013

**“Cardiovascular Disease”** is now on the left hand navigation table in the Research Management Group’s (RMG) Funding Information Resource webpage. This webpage provides links to recent announcements, internal Stanford funding opportunities, NIH, NSF, foundations, postdoctoral fellowships, graduate student funding opportunities, as well as to a searchable funding database. Visit this great resource at [http://med.stanford.edu/rmg/funding/](http://med.stanford.edu/rmg/funding/).

To be added to funding opportunity email distribution lists, please contact Jeanne Heschele at RMG at jheschele@stanford.edu.
Upcoming Meetings

**JUNE**

American Society of Echocardiography
June 29-July 2, 2013
Minneapolis, MN

International Society for Heart Research (ISHR)
June 30-July 4, 2013
San Diego, CA

Society for Vascular Medicine (SVM)
June 13-15, 2013
Cleveland, Ohio

**JULY**

AHA Basic Cardiovascular Sciences (BCVS)
July 22-25, 2013
Las Vegas, NV

**AUGUST**

European Society of Cardiology (ESC) Congress
August 31-September 4, 2013
Amsterdam, Netherlands

**SEPTEMBER**

CVI Annual Retreat
September 12-13, 2013
Stanford, CA

Heart Failure Society of America 17th Annual Scientific Meeting
September 22-25, 2013
Orlando, FL

Western Vascular Society
September 21-24, 2013
Jasper, AB, Canada

SAVE THE DATE
SEPTEMBER 12 & 13 2013

CVI Annual Retreat
Li Ka Shing Center for Learning & Knowledge
291 Campus Drive, Stanford, CA 94305

Keynote Speaker:
**Shaun R. Coughlin, MD, PhD**
Director, Cardiovascular Research Institute, UCSF

Shaun Coughlin
Cardiovascular Institute Leadership

Robert A. Harrington, MD
Arthur L. Bloomfield Professor of Medicine
Chair, Department of Medicine
Co-Director, Stanford Cardiovascular Institute

Joseph C. Wu, MD, PhD
Professor, Medicine and Radiology
Co-Director, Stanford Cardiovascular Institute

Robert Harrington  Joseph Wu

Ronald Dalman, MD
Walter C. and Elsa R. Chidester Professor of Surgery
Chief, Division of Vascular Surgery

Dominik Fleischmann, MD
Professor, Radiology
Chief, Cardiovascular Imaging

Philip E. Oyer, MD, PhD
Professor, Cardiothoracic Surgery
Interim Chair, Department of Cardiothoracic Surgery

Thomas Quertermous, MD
William G. Irwin Professor of Medicine
Co-Chief (Research), Division of Cardiovascular Medicine

Alan Yeung, MD
Li Ka Shing Professor in Cardiology
Co-Chief (Clinical), Division of Cardiovascular Medicine

To learn more about how you can support the Stanford Cardiovascular Institute please contact Joseph Wu (Co-Director of CVI) or Cathy Hutton (Senior Associate Director, Medical Center Development).

http://medicalgiving.stanford.edu