New Kind of Science is Advancing Prevention and Treatment of Heart Disease

University of Arizona scientists routinely make discoveries that hold the potential for new drugs, medical treatments or medical devices. Because medical doctors and research scientists often speak different languages—even when they study the same diseases—it can take years for such a discovery to make it from the laboratory “bench” to the “bedside” in the form of a new treatment that benefits patients.

The UA has a new science initiative under way to accelerate its bench-to-bedside science and position itself in a more competitive place to acquire translational research funding from the National Institutes of Health. The Clinical and Translational Sciences Institute (CTSI), which provides the groundwork for therapeutic medical advances at the UA, has selected cardiovascular disease and the UA Sarver Heart Center as one of its priority areas for support.

“Our priorities are based on leveraging our current strengths, particularly in fields that hold great interest for the next 50 years in terms of preventing and treating important diseases that affect the United States,” says Fernando D. Martinez, MD, who leads the translational institute’s efforts. He also is director of the BIO5 Institute and head of the Arizona Respiratory Center.

“One of the UA’s research strengths is in heart disease, especially sudden cardiac arrest. This combined with the support received from the Gootter Foundation, makes the Sarver Heart Center very competitive when it comes to committing university resources to recruit critically important translational researchers to the UA,” says Dr. Martinez.

While the Sarver Heart Center is a leader in resuscitation research that has led to doubling a person’s chance of survival from sudden cardiac arrest, we still don’t know who will experience sudden death, despite years of strong basic-science research focused on heart development and function.

By recruiting physician scientists who are considered renowned researchers in sudden cardiac arrest, the Sarver Heart Center will be moving to a new level that includes the missing link of translational medicine. “In this case, we will have someone who can provide a bridge between a physician researcher in the center and the great basic-science researchers,” says Dr. Martinez.

“Ideally we will find ways to predict who is likely to have sudden death and we’ll develop preventive devices or treatments. The ultimate goal would be to make the need for the new CPR obsolete because we will learn how to predict and prevent sudden cardiac arrest,” adds Dr. Martinez.

“Translational medicine makes research more efficient,” says Carol Gregorio, PhD, director of the UA College of Medicine’s Molecular Cardiovascular Research Program and a co-director of the Sarver Heart Center.

With the current model, health care practitioners have first-hand knowledge about their patients’ concerns and how current treatments affect them. Physicians often struggle with balancing clinical obligations and pursuing efficient, outcome-oriented lab research. The
Congratulations to Wanda Moore, recipient of the 2011 Mary Anne Fay Heart Health Advocate of the Year Award from the UA Sarver Heart Center. The award was established to honor the advocacy and leadership of Mary Anne Fay, a Sarver Heart Center Advisory Board member and chair of the Women’s Heart Health Education Committee. It was given to Wanda this year to recognize her energetic and enthusiastic outreach and advocacy for all women, especially women of color. Wanda, who also serves on the advisory board and women’s education committee, leads the Community Coalition for Heart Health Education for Women of Color (Minority Outreach Program). She is pictured with Dr. Gordon A. Ewy, who presented the award in October at the Heart of the Matter Luncheon, which focuses on women’s heart health issues.

Congratulations to Leslie Ritter, PhD, RN, FAAN, who received the Extraordinary Faculty Award from the UA College of Nursing for bringing “honor and distinction to the UA College of Nursing through her work with nursing, neurosciences, physiology and medicine at the UA.” Dr. Ritter has earned multiple awards and honors, including the August Krogh Young Investigator Award in 1995, the Presidential Early Career Award for Scientists and Engineers in 2000 and most recently, the UA Sarver Heart Center’s William M. Feinberg Endowed Chair for Stroke Research. She led efforts to establish The University of Arizona Medical Center as the first certified Primary Stroke Center in Tucson and Southern Arizona. She provides extensive professional development opportunities to graduate and undergraduate students by catalyzing connections with alumni and faculty members and engages with various communities to promote knowledge about preventing and managing stroke.

Congratulations to Marvin J. Slepian, MD, UA Sarver Heart Center member and chairman of SynCardia Systems, Inc. The company was founded based on technology that was researched and developed by Dr. Jack Copeland and Richard Smith, a biomedical engineer at the University of Arizona Medical Center. Syncardia manufactures the FDA-approved temporary total artificial heart and was named “Arizona Bioscience Company of the Year” by the Arizona BioIndustry Association (AZBio). It also has been inducted into the World Technology Network (WTN) as a new corporate member. Membership occurs through the annual awards process, in which individuals and companies are selected via the judgment of the current WTN fellows. SynCardia was selected as one of six finalists for the 2011 World Technology Award in Health & Medicine, presented in association with TIME, Fortune, CNN, Science/AAAS and Technology Review.

CTSI provides opportunities for practitioners to interact with scientists engaging in basic research.

“The CTSI provides an environment for an exciting, new kind of science, which you could call use-inspired research,” says Dr. Martinez. Physicians who want to be able to apply the most recent findings in their patient care have to have a much deeper understanding of molecular biology than has been required in a traditional clinical setting.

The UA Sarver Heart Center is obtaining CTSI support to recruit another physician scientist with research strengths in developmental cardiovascular biology and the molecular and genetic basis of muscle disease. Under the leadership of Dr. Gregorio, the Center is seeking a tenure-track scientist who will develop or bring an independent and sustainable research program in the field of integrative and translational cardiovascular research.

In the meantime, knowing how to respond if you witness a sudden cardiac arrest is the best prevention we have against sudden death, so visit the “Be A Lifesaver” page on the website, www.heart.arizona.edu for information on upcoming training sessions and to view a six-minute training video.

UA Sarver Heart Center, Winter 2011 | 9