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THE TRIbune

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UNIVERSITY OF ARKANSAS FOR MEDICAL SCIENCES

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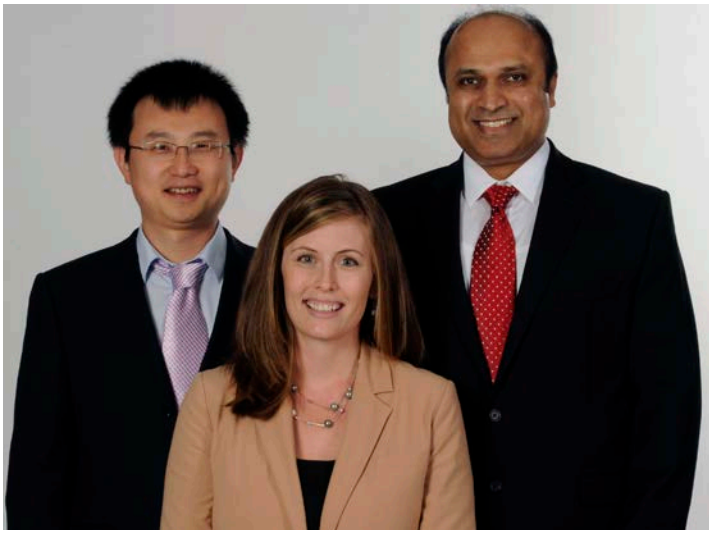
ACCELERATING DISCOVERIES TOWARD BETTER HEALTH

TRIfecta

Three Promising New Researchers Receive KL2 Awards



Ming Li, Ph.D., Taren Swindle, Ph.D., and Satish Kenchaiah, M.D., M.P.H., will receive two years of research and salary support as TRI's 2014 KL2 Career Development Award recipients.

The Translational Research Institute (TRI) has selected Satish Kenchaiah, M.D., M.P.H., F.A.C.C., Ming Li, Ph.D., and Taren Swindle, Ph.D., as the KL2 Career Development Award recipients for 2014.

They are among 16 KL2 recipients selected by TRI since 2010 and will receive two years of protected time, research support and training to help them quickly develop their research programs.

"I just can't imagine a better support system to help me go from being a junior investigator with some experience to an independent lead investigator with the training I need," said Swindle, whose comments were echoed by Li and Kenchaiah.

"We're very excited about this year's group of KL2 scholars," said TRI Director Laura James, M.D. "They're ready to launch innovative research programs that will translate to improved health, and we are here to help them."

Below is a summary of each of their research programs:

SATISH KENCHAIAH

Kenchaiah is excited by the potential for assessing heart health and risk for heart-related conditions using cardiac magnetic resonance imaging (MRI). He is pursuing his goal by first analyzing MRI scans using a new custom-designed measurement tool and then combining his expertise in advanced cardiac imaging and cardiovascular epidemiology.

A cardiologist and epidemiologist who joined UAMS in 2013, he is as an Associate Professor of Medicine and Director of the Preventive Cardiology Program. Kenchaiah's novel research approach will involve the first known MRI measurements of heart mass (thickness) in 16 sections of the left ventricle – the largest and thickest of the 4 heart chambers – among living individuals rather than from autopsy specimens.

Based on his preliminary findings, Kenchaiah has been granted access to MRI scans of about 1,800 participants in the esteemed Framingham Heart Study located in Framingham, Massachusetts, where he initially received his training in cardiovascular epidemiology and

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Message from Dr. James

A priority for the Translational Research Institute (TRI) is to improve and expand the research resources and services available to you, whether at UAMS, UAMS-Northwest, Arkansas Children's Hospital, or the Central Arkansas Veterans Healthcare System.

During the last three months, TRI has been evaluating our existing services and looking for opportunities to collaborate with other research support services and to network with a broader group of researchers within Arkansas. As we prepare for the future, our aim is to become an integrated and virtual hub for researchers, allowing us to fulfill our mission, "to create an efficient and responsive network to support translational research initiatives that accelerate the transformation of research into improved health outcomes for Arkansas and the nation."

TRI's recent administrative supplemental application to the National Center for Advancing Translational Sciences (NCATS) will allow our site and other CTSA sites to expand and standardize research training opportunities. Additional NCATS supplemental funding opportunities will be released during the upcoming year to build a stronger national workforce for translational research. We look forward to engaging with more investigators within Arkansas as we translate science into practice to improve the health of our state and nation.

Laura James, M.D.
Director, TRI

KL2 Recipients (continued from cover)

subsequently continued as a co-investigator. He will analyze the 10-year-old MRI scans to determine normal and abnormal variations in the distribution of heart muscle mass and link them to a person's heart health including risk for heart failure and sudden death. He will also look for genetic underpinnings and other factors related to variations in the distribution of heart muscle mass.

"If we can quantify muscle mass in various regions of the heart, we would potentially be able to predict poor outcomes, such as heart failure, much better than just by assessing the global mass of the left ventricle," he said.

MING LI

Inspired by his collaborations with Robert C. Elston, Ph.D., considered the founding father of modern statistical genetics, Li is using his KL2 to refine and develop novel statistical methods to detect gene interactions and gene and environmental interactions that are associated with congenital heart defects.

Li joined UAMS in 2012 as an assistant professor in the Division of Biostatistics, Department of Pediatrics.

Congenital heart defects can be caused by both genetic and environmental factors, including possible interactions between them. Most current studies have been focused on a genetic or environmental factor alone, and his research will investigate how the genes and environmental factors can jointly increase the disease risk.

He will apply his novel statistical method to samples from the Centers for Disease Control and Prevention (CDC) National Birth Defects Prevention Study (NBDPS), which includes Arkansas, where the study is led by UAMS' Charlotte A. Hobbs, M.D., Ph.D. Li's study involves approximately 1,000 affected babies and their parents and 1,000 unaffected babies and their mothers.

"Eventually we want to be able to identify individuals that are at high risk for congenital heart defects," Li said. "The ultimate goal is personalized treatment. We're going to identify the genetic profile of individuals and predict their risk of having a congenital heart defect."

TAREN SWINDLE

Swindle's obesity and nutrition research was inspired by observing the interactions between early childhood educators and their students. Her KL2 study will explore the role of these educators in establishing children's lifelong food attitudes and eating behaviors.

Swindle, who received a doctorate in educational psychology and research from the University of Memphis, became an assistant professor in 2013 in the Department of Family and Preventive Medicine. She was working on a nutrition and obesity intervention program for students from low-income families when she observed that educators may need guidance on how to model and promote healthy attitudes and behaviors.

Her mixed-methods study initially involves interviews with 30 educators in Arkansas to better understand their backgrounds and beliefs related to nutrition and obesity. The interviews will be used to help develop a statewide survey of teachers.

"We hope these data can inform policies to provide training and support to help teachers become healthy role models for kids," Swindle said.

KL2 awards provide up to $52,000 a year salary support and up to $25,000 a year in research funds, as well as travel funds, graduate-level tuition, and assistance from mentors.

TRI Key Player in $2.1 Million PCORI Award

A UAMS research team has received $2.1 million from the Patient-Centered Outcomes Research Institute (PCORI) to study how to improve diabetes self-management in the Marshallese community of northwest Arkansas.

UAMS Northwest Vice Chancellor Peter Kohler, M.D., principal investigator, used a Translational Research Institute (TRI) pilot research award that provided data to support the application. TRI also provided critical biostatistics support to ensure the application met PCORI's methodology standards, and sponsored a Community Review Board that included Marshallese residents who helped design the study intervention.

Peter Kohler, M.D.

The study will focus on bridging the gap between knowledge of effective diabetes self-management education and actual implementation of that knowledge among the Pacific Islander community, whose diabetes rate is 400 percent higher than the general U.S. population. The study is being conducted in partnership with the Arkansas Coalition of Marshallese and the Gaps in Services to the Marshallese Task Force.

The TRIbune is produced for UAMS-affiliated investigators by the UAMS Translational Research Institute (TRI).

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TRIBUTARY

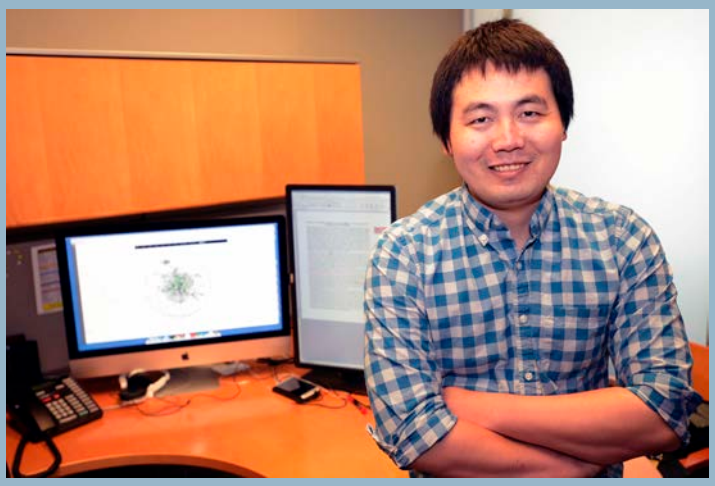
Analytics Tools Help TRI Size Up UAMS' Research Past, Future

A recent analysis found that TRI has played an important and effective role in promoting collaborative research at UAMS.

Led by Jiang Bian, Ph.D., the social network analysis looked at researcher collaborations based on grant data from 2006 to 2012. UAMS received its Clinical and Translational Science Award (CTSA) in 2009.

Bian's work has led to new informatics tools for measuring the efficiency of UAMS' research environment, whether it is improving, and whether external factors are playing a role. The analysis was published in the February 2014 *Journal of Biomedical Informatics*.

"We found that the CTSA and the establishment of TRI has had a positive impact," said Bian, a researcher in the Division of Biomedical Informatics whose analysis was supported by TRI.



Jiang Bian, Ph.D., found that TRI has had a positive impact on research at UAMS.

"Prior to the TRI, there were far fewer collaborations and smaller, more isolated groups of researchers."

PREDICTION MODEL

An intriguing element to his work is a statistical model showing which researchers should collaborate. The model was developed using 80 percent of the researcher population and then verified by applying it to the other 20 percent.

"Being able to predict is pretty exciting," Bian said. "It helps people understand what sort of collaboration environment we have and whether the things we're doing are enriching the environment for collaboration."

Bian said TRI will reach out to researchers who are not collaborating but who should be based on the prediction model. "We'll share our results with them so that they're aware of the opportunity."

In addition, Bian is developing visual analytics for TRI. The visualization tool, based on collaborations found in grant data, is designed to help any audience understand the nature of research networks and how they may evolve over time. The tool can track individual UAMS researchers as well as groups of researchers over time.

TRI Awards $300,000 for Six Pilot Studies

The Translational Research Institute (TRI) has awarded six UAMS researchers approximately $50,000 each for pilot studies. The annual awards are made to those with the strongest likelihood of leading to improved health and health care.

The researchers and their project titles are:

- Paul Gottschall, Ph.D., College of Medicine (COM), Department of Pharmacology and Toxicology: *Targeting lecticans to enhance synaptic plasticity in Alzheimer's disease*
- Gur Kaushal, Ph.D., COM, Department of Internal Medicine: *Antifibrotic therapy by upregulation of autophagy to reverse renal fibrosis in chronic kidney disease*
- Dennis Kuo, M.D., COM, Department of Pediatrics: *Barriers and facilitators to health care transition from pediatric to adult health care*
- Lee Ann MacMillan-Crow, Ph.D., COM, Department of Pharmacology and Toxicology: *Novel therapy to reduce injury to human donor kidneys prior to transplant*
- Mark Mennemeier, Ph.D., COM, Department of Neurobiology & Developmental Sciences: *A joint CTSA (Clinical and Translational Science Award) project with Washington University School of Medicine (St. Louis)) leading to a Phase II clinical trial for tinnitus*
- Steven Post, Ph.D., COM, Department of Pathology: *Pathological features that predict clinical outcome in vulvar squamous cell carcinoma patients*

TRI utilizes National Institutes of Health (NIH) Study Section review criteria in making its selections. Reviewers are not involved in the review and scoring of applications where potential conflicts of interest exist.

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Thank you for remembering to cite TRI in your publications resulting from studies that receive TRI support.