

CTSCconnections

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Explore the FUTURE

Helping postdoctoral fellows and graduate students investigate career options

POST-DOCTORAL FELLOWS and graduate students in the biological sciences are usually too busy planning experiments, collecting data, and writing manuscripts to spend much time considering their goals after graduating or finishing their fellowships. However, “what to do with my life” is a big decision that should be adequately explored throughout their training, and not left to the end, according to Jen Greenier, Director of FUTURE, a Clinical and Translational Science Center (CTSC) program designed to help graduate students learn about – and prepare for – the variety of careers available to Ph.D.’s in science.

The cornerstone of the program is a series of 10 two-hour workshops. The instructors expose students to a broad spectrum of careers, work with them to develop an individual plan, and provide guidance on how to network and conduct an effective job search. A network of professionals share their experiences and provide mentoring.

(Continued on page 2)

THE FUTURE PROGRAM

PARTICIPANTS SINCE 2015

194 Graduate students and postdoctoral fellows



REPRESENTING

27 Graduate Programs

38 Departments

2 Schools:

- Medicine
- Veterinary Medicine

4 Colleges:

- Agriculture and Environmental Sciences
- Biological Sciences
- Engineering
- Letters and Sciences

An innovative pathway to develop the next generation of physician faculty researchers

THE **ACCELERATED RESEARCH CAREERS FOR MDs** (ARC-MD) is a new training pathway designed for medical students and resident physicians who aspire to become faculty engaged in research. ARC-MD responds to a national need for the next generation of physician faculty to be exposed to mentored opportunities in clinical and translational research, committed to high impact team science, cognizant of the ethical and societal issues of health care and biomedical research, and attentive to

personal and professional development – all in service to the community.

“The ARC-MD program will recruit and develop a cadre of diverse, inclusive, and resilient medical students and residents, many drawn from communities underrepresented in medicine (URiM) and the STEM fields,” noted Fred Meyers. Meyers envisioned the program and is joined by Co-Directors Fernando Santana and Saul Schaefer as well as many faculty, staff, trainees, and deans from the Clinical and Translational Science

Center (CTSC), Office of Medical Education (OME), Graduate Medical Education, Academic Personnel, and the Office of Student Diversity.

The UC Davis School of Medicine is ideally suited to train the next generation of faculty because of success in recruiting diverse students combined with the remarkable growth in research programs. ARC-MD is supported by the comprehensive range of schools and colleges at UC Davis. In addition,

(Continued on page 2)

Explore the FUTURE *Continued from page 1*

“One of the most important components of FUTURE is the connection we provide to our Partner Network – a pool of 112 professionals with Ph.D.’s who work in a wide range of careers,” said Greenier. “They are a great resource and expose participants to options that they often know little or nothing about.”

Beyond the starting gate

FUTURE started with funding from the NIH BEST (Broadening Experiences in Scientific Training) Initiative, which was created to expand traditional training for early career scientists and prepare them for diverse career options. FUTURE’s five-year, one-time grant, led by Principal Investigators Lars Berglund, Frederick Meyers, and Andrew Hargadon ended last fall, but support has been continued by the CTSC and the School of Medicine.

“The FUTURE program is highly relevant in the long run, not just for five years,” explained Berglund, Vice Dean of Research and founding director of the CTSC. “It is important to heed NIH’s call to help meet the nation’s needs for biomedical researchers.”

As of Spring quarter, 194 graduate students and postdoctoral fellows have participated in the program. About half have now completed their training at UC Davis. One-quarter have gone on to academic postdoctoral or faculty positions, but the majority have entered a variety of careers in industry, government, academia, and non-profit organizations.

“This program got me thinking about a trajectory that I would like my career to take,” said Parul Dayal, a graduate student in the departments of epidemiology and pediatrics,

who recently completed FUTURE. “As a result, I have more clarity on the type of roles to target and have developed a job search strategy and timeline for transitioning into a career that I’ll enjoy.”

The future of FUTURE

Greenier aims to broaden support for the program. She notes that graduate students and postdoctoral fellows throughout the university community have benefited from the program. FUTURE has drawn participants from 27 graduate programs and 38 departments across UC Davis, representing the Schools of Medicine and Veterinary Medicine, and the Colleges of Agriculture and Environmental Sciences, Biological Sciences, Engineering, and Letters and Sciences. In addition, multiple FUTURE events – such as Campus-side Career Chats and a series of science communication workshops – are open to all.

She is also seeking outside support, such as from biotech and pharmaceutical companies that hope to attract UC Davis’s excellent graduates. “We have developed a successful model that benefits our Ph.D. trainees as well as the locations where they will eventually work and contribute,” Greenier added. “The career support we offer in FUTURE should be institutionalized as a part of everyone’s graduate training experience.” §

FUTURE is offered in Sacramento (fall) and Davis (winter and spring). UC Davis postdoctoral fellows and graduate students conducting health-related research are invited to apply. The program offers one unit of credit. More information and an application can be found at future.ucdavis.edu.

ARC-MD *Continued from page 1*

UC Davis is one of only 9 universities in the United States that is both a top tier research university and a Hispanic Serving Institution (HSI). These attributes provide the opportunity to recruit a broad spectrum of participants into ARC-MD to advance the growing research portfolio at UC Davis.

The ARC-MD program provides specific tracks for medical students and residents. Both tracks will include protected time for mentored research, integration of translational research with clinical training, and personal and professional development. The medical student track will include the option to pursue a master’s degree in clinical research. The resident track prepares the resident to enter the master’s degree program after clinical training.

The first class of ARC-MD medical students will matriculate in July 2019, with residents joining the program soon thereafter. Students will participate in a targeted curriculum that is designed to be longitudinal

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—Fred Meyers

and with expertly mentored curriculum supported by a team of faculty within the School of Medicine, the CTSC, and many other UC Davis research centers and programs. Program evaluation will assess both the diverse curricular experiences and the career outcomes of the scholars.

ARC-MD receives significant support from the School of Medicine, the CTSC, and the OME. In the future, Meyers hopes that similar faculty development pathways will build on this innovation to develop master educators and master clinicians steeped in implementation science and quality improvement. §

Scholar career path leads to the Dean's Office

A background well-suited to help lead the School of Medicine Office of Research

ANUURAD ERDEMBILEG traveled a circuitous route to his current position as Assistant Dean for Research of the UC Davis School of Medicine Office of Research. Born in Mongolia, he went to medical school in the capital city of Ulaanbaatar (graduating in the top 2% of his class of 600), and then trained as a pediatric surgeon. But he set his sights on expanding his opportunities and seeing more of the world by accepting the chance to study and pursue research in Japan.



There, he earned a Ph.D. while investigating lipid physiology and conducting cross-population epidemiological studies. He found intriguing differences among Asian ethnic groups, including Japanese, Koreans and Mongolians, the latter of whom he found had healthy lipid profiles despite the presence of obesity.

After seven years in Japan, he joined Lars Berglund's laboratory at UC Davis as a postdoctoral fellow and performed more in-depth research on lipids, thus expanding his population studies to include African-Americans and European-Americans. With Berglund's encouragement, he was selected for the Mentored Clinical Research Training Program (MCRTP) and KL2 program – two of the several research education and career development programs at the CTSC.

"It became apparent early on that Anu was extremely bright and a quick learner, and had exceptional analytical and organizational skills," said Berglund, who is the Vice Dean for Research, and served as Interim Dean of the

UC Davis School of Medicine and the founding principal investigator and director of the CTSC.

After Erdembileg joined the faculty as an assistant professor, Berglund asked him for help in the Office of Research. There, he proceeded to organize and analyze large datasets to increase the accessibility and transparency of data upon which to make strategic and operational decisions. According to Berglund, this led to multiple publications and enhanced the functioning of the office.

Former Assistant Dean for Research, Ted Wandzilak, who retired in 2016 after 40 years at the SOM, expressed great fondness and respect. "Anu has a vast knowledge base of medical research, is technologically savvy, and very creative," he said. "This combination of qualities in a single person is very unusual and a huge asset to the School of Medicine Office of Research."

Those who know Erdembileg often mention his uncommon hobbies and generosity. It is not unusual for friends and colleagues to receive one of his elaborate origami creations or be invited to a Japanese tea ceremony. Others wax poetic about his amazing tropical fish collection. "My outside interests calm me and provide my mind with a concentrated focus," he says of these endeavors. The benefits, he says, serve him well as he supports investigators who perform biomedical research across the UC Davis School of Medicine and main campus.

"My unusual career path has trained me perfectly for this job," said Erdembileg. "I am very grateful to be in a position to help others in all aspects of bringing their ideas to advance scientific discovery." §

Training scientists to think like entrepreneurs

CTSC program helps move discoveries to market

"**ENTREPRENEURSHIP 101**" is not a course offered at many academic research institutions. But it should be, according to Nicholas Kenyon, lead trainer for the of the I-Corps@NCATS program at UC Davis – a partner site established in collaboration with the University of Alabama, Birmingham. Based on a successful program created by the National Science Foundation (NSF) in 2011, the premise of I-Corps@NCATS is to move projects



funded by the National Center for Advancing Translational Science (NCATS) to the commercial market. Brought to UC Davis by the Clinical and Translational Science Center (CTSC), I-Corps@NCATS represents a novel approach to extend the research pathway from bench to bedside.

The "I" represents innovation and I-Corps@NCATS teaches budding entrepreneurs the skills required to turn healthcare discoveries into products or obtain third party funding for further development. The 5-week UC Davis course provided teams of scientists who had a potential new biomedical product or service with infrastructure, advice,

(Continued on page 4)

Training scientists to think like entrepreneurs *Continued from page 3*

resources, networking opportunities, and training. Basics of corporate law, intellectual property, venture capital financing, and FDA regulations were also covered.

A key aspect of the program encouraged extensive research about the marketability of a project through multiple interviews, according to James Kovach, an instructor for the UC Davis I-Corps program. “Commercial success cannot be accomplished alone – it takes a network,” said Kovach, a lawyer and physician with extensive experience in high-tech business development who now serves as Assistant Dean for Entrepreneurship and Industry Alliances at the UC Davis School of Medicine Office of Research.

Teams reached out to dozens of experts, potential funders, and customers about how a product or service might fulfill their needs. This exploratory process is intended to help minimize the potential of overlooking key considerations when making product adjustments.

Thirteen teams participated in the UC Davis course, which concluded in October 2018. Projects encompassed pharmaceuticals, medical devices, software applications, and research services, according to Kenyon, who drew several of the CTSC TL1 program scholars into the I-Corps@NCATS course.

Examples of projects included one that uses an inhalable statin to treat asthma, and another that developed racially diverse models to teach lactating mothers to improve milk yield.

Developing an idea into a marketable product is a challenge. “There’s no guarantee that someone can sell even a lifesaving new device just because they have invented it,” said Kenyon. “Succeeding in a commercial venture takes an entirely different skill set.” As the division chief of Pulmonary, Critical Care, and Sleep Medicine who is also an entrepreneur, he should know.

Kenyon is optimistic that the program will continue at UC Davis. “Helping researchers navigate the long,

complex journey of entrepreneurship should be an important goal of academic research institutions,” said Kenyon. He envisions that a version of the program will eventually become a regular feature of the “innovation hub” at the UC Davis/City of Sacramento Aggie Square project on the UC Davis Sacramento campus. §



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