From the lab to the university classroom

By Marco Poggio, Staff Writer | August 6, 2015 | Updated: August 6, 2015 11:13pm

Researcher Jesus Segovia, left, demonstrates for Jacob Vosberg Wednesday morning Aug. 5, 2015 a technique for removing RNA from a solution after it has been put through a centrifuge process. Segovia is mentoring Vosberg as part of a five-year, $3.5 million grant from the National Institutes of Health (NIH) to The University of Texas Health Science Center at San Antonio. The grant will enable postdoctoral research scientists to hone their teaching capabilities and skills at three undergraduate universities in San Antonio, including UTHSCSA.

The University of Texas Health Science Center at San Antonio has received a $3.5 million federal grant that will turn first-class researchers into professors — inspiring a new generation of college students to take up research and challenge the limits of science, officials said.

The five-year Institutional Research and Academic Career Development Award from the National Institutes of Health will pay for training, mentoring and salaries of a selected group of researchers who will spend the next four years alternating their lab practices with teaching at two local universities, Our Lady of the Lake and St. Mary’s, officials said.

The grant will fund the San Antonio Biomedical Education and Research Program, allowing nine post-doctoral researchers in various branches of science to develop teaching skills and begin careers as faculty.

Three fellows, all trainees at UTHSC, will begin this fall. Six more will join in the next two years, an official said.

“This is about training post-docs to not only have skills in science and research but also in teaching,” said Dr. Linda McManus, director of the Office of Postdoctoral Affairs and distinguished professor of pathology at UTHSC.

“Our trainees are going to go there and have the time of their life, because they’re going to see students who are interested, and they’re going to be able to make a difference and influence how they see the excitement of science. We will be enabling a lot more students to enter into the sciences,” said McManus, who co-directs the program with two other professors James Lechleiter and Kay Oyajobi.

The health science center was among 20 research-intensive institutions around the country to be awarded the grant, designed for the academic career development of post-doctoral trainees. The selection process was highly competitive, involving a 500-page grant application that took several years to put together, McManus said.

“We had to show them that we had the infrastructure for research and investigators here, and that our partnering institutions had enough depth to support the teaching,” she said.

Mentoring programs and workshops, some of which will be at Trinity University, will help researchers transition from the meticulous, quiet, sometimes detached environment of the science lab to the classroom. With their
experience and enthusiasm in science, the post-doctoral researchers will try to foster a passion for research in undergraduate students, McManus said.

The researchers will attend a three-tier program in which they will be exposed to more teaching while still conducting research said Dr. Timothy Raabe, associate dean, chair and professor of biological sciences at St. Mary’s. The program will target women and minorities, still largely underrepresented in in scientific research, Raabe said.

During the first year of the program, the researchers will learn the basics of teaching and will shadow more experienced faculty members. They will learn how to talk to students, put together a syllabus and design lectures and tests. In the second year, they will give guest lectures and help in lab sessions. In the last phase, they will be responsible for designing and teaching their own courses, according to their areas of expertise, Raabe said.

“I really want to spend the majority of my career teaching,” said Dr. Megan Borror, one of the postdoctoral fellows.

During her research on cell dysfunctions at UTHSC, Borror has studied how metabolism and energy production play a role in the aging process. Borror said she’s eager to show undergraduate students how powerful and important science can be in their lives, no matter what career they choose.

“There are a lot open questions in scientific research,” Borror said. “We need more scientists in order to gain a better understanding of each of those areas and solve any number of problems that we have, whether it’s cancer, or making less pollution in the environment, or growing the appropriate amount of food for our growing population.”

“Getting the skills to be a strong educator in science is something that would help me down the line,” said Dr. Rheaclare Fraser-Spears, also selected to take part in the program.

Fraser-Spears has been studying how specific proteins regulating brain chemicals react to novel compounds, with the purpose of finding new possible ways to treat depression, she said.

“Everything that involves human health, I believe, is incredibly important, and serves as a great driving factor for research,” said Dr. Jesus Segovia, a Laredo native and post-doctoral fellow selected for the grant.
Under the guidance of Dr. Joel Baseman, Segovia has run experiments testing the response of the immune system to respiratory pathogens. The ultimate aim of his study is to help devise a cure for acute and chronic airway diseases, including asthma, he said. Besides adding researchers to their faculties, undergraduate institutions also will have a chance to send some of their best students to UTHSC for some lab work, Raabe said.

“The health science center is huge and has lots of equipment that we could never dream of having. Partnering with them and getting our students’ exposure over there is a big help,” he said.

The University of Texas Health Science Center at San Antonio is home to five graduate schools with programs in biomedical sciences, dentistry, health professions, medicine and nursing. More than 200 physicians, 400 nurses, 100 dentists, 300 health professionals and 125 scientists graduate with master’s and doctoral degrees each year, said Will Sansom, a spokesman for the center.

Aging, cancer, cardiovascular disease and neuroscience are among the research areas for which the center is nationally recognized, Sansom said. The health science center, one of the 69 facilities in the country to possess National Cancer Institute designation, is the engine for a $30.6 billion biosciences and health-care industry, Samson said.

“If you think about San Antonio’s workforce needs, the city requires more than professors; it also requires people working in academic, industry and clinical labs,” McManus said. “We anticipate that our IRACDA program will enhance the educational programs of our partner institutions, strengthen collaborations in research and prepare the local workforce of tomorrow.”

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