Feeding the Pipeline of Clinical and Translational Researchers

To translate promising bench science into practices that improve health, researchers must have broad expertise at the intersection of the basic, clinical, and population sciences. NCRR's Clinical and Translational Science Awards (CTSAs) help institutions provide new and enhanced training programs that give researchers the skills they need for successful careers at these crossroads of science. Details of the programs vary, but the key, according to representatives of 2 of the first 12 programs to be funded, is to combine flexibility with rigor.

"People who come out of medical or graduate school are unusually valuable commodities," says Columbia University Medical Center (CUMC) faculty member Robert Winchester. "Let's invest a bit of time in individualizing the options to help applicants make informed choices about their careers."

Since receiving a CTSA in 2006, the university has unveiled a variety of programs aimed at enhancing skills in multidisciplinary and translational research. One example is a one-year certificate program in translational research for predoctoral students with requirements that vary according to each student's needs. Faculty advisors are on hand to discuss the types of courses and training needed by each applicant to achieve his or her career goals.

A key component of the CTSA is the K12 program that funds junior faculty members conducting research under the mentoring of an established translational researcher. All K12 scholars must complete a number of courses, with some needing to enroll in the master's program.

In addition, all CTSA trainees take part in weekly colloquia, which draw audiences with an array of skills. "We try to break down artificial barriers between divisions and disciplines," Winchester explains. "Sometimes the best research is done with other people; it can be catalytic." To further encourage cross-discipline interactions, the university is building a physical home for all CUMC students and postdocs interested in translational research. The spacious area will feature conference rooms, work centers, and sophisticated computer resources.

Across the country, the University of California, San Francisco (UCSF), is creating "a smorgasbord" of curriculum and approaches, according to Jeff Martin, who heads the training program there. In addition to a two-year comprehensive master's degree in clinical and translational research, UCSF offers a comprehensive one-year certificate program and an eight-week summer clinical research workshop. These programs address common deficiencies in M.D.- or Ph.D.-trained researchers, from expertise in epidemiology and biostatistics to knowledge of ethical and regulatory issues.

In addition to the existing programs, UCSF is developing a one-month course on designing clinical research, aimed primarily at clinical residents, "who heretofore have generally been forgotten in terms of induction and maintenance of research skills," Martin explains. The university also has plans to develop discrete tracks within the existing master's program in the two NIH-defined areas of translational research: 1) laboratory to human subjects and 2) evidence to clinical and public health practice.

This year alone, UCSF training programs support 30 master's students, 26 certificate candidates, and 132 summer workshop participants. Martin attributes this strong interest to a high level of rigor in the programs and an emphasis on practical application. "We want our scholars to understand the process of knowledge creation from start to finish with firsthand experience in all the steps along the way."

The CTSA Program supports similar clinical research initiatives at institutions across the country that will place budding translational and clinical scientists in the educational environments that lead to successful careers. ■

A STUDENT'S PERSPECTIVE

After graduating from UCSF's master's program in clinical and translational science, Ari Green, who also received his residency training at UCSF, is a faculty member at the university's Multiple Sclerosis Center. "Traditionally, clinician-scientists had to forge their own career paths, but many would repeat the same mistakes, and some would never gain adequate skills to answer clinical questions in a rigorous manner," Green says. He praises the UCSF program for giving him access to specialists across the university who could share their knowledge of the skills and resources needed to succeed in translational research.