Industrial-Strength Training


As a freshman biology major at Drew University, Yang Yang was interested in both biochemistry and neuroscience. She couldn’t decide where to focus her efforts.

Early that year, Yang attended a seminar by a small group of industry veterans who were part of a special program at Drew: The Charles A. Dana Research Institute for Scientists Emeriti (RISE) program. RISE fellows are retired scientists from pharmaceutical and telecommunications companies across New Jersey who receive lab space and equipment at Drew so they can continue doing research while introducing undergraduate students to life in the lab.

The RISE program, which has eight fellows and trains about 10 students a year, has been partially supported by HHMI since 2008. The scientists have mentored about 250 students since the program’s inception in 1980.

Yang saw new possibilities when she heard RISE fellow Barbara Petrack talk about Alzheimer’s disease. Petrack, a retired biochemist, worked for Ciba-Geigy (now Novartis) for 35 years before joining RISE. “In the RISE program at Drew, our primary interest is to get students excited to do research,” she explains. “Most of the students have gone on to medical or graduate school. I consider the RISE program a success.”

When Yang approached Petrack after her presentation, Petrack explained that she collaborates with Drew neuroscientist Roger Knowles to study the neurobiology of Alzheimer’s disease. Intrigued by the merging of the two fields, Yang immediately joined them to do her research; now, as a senior, she is writing her undergraduate dissertation. “Working with the RISE fellows gives us knowledge that goes beyond the textbook and beyond the classroom, knowledge that we could not get anywhere else.” Students get specific tips, for example, on how to effectively design and analyze experiments specific to pharmaceutical research.

“The RISE fellows spent years working at places like Merck and Novartis and are used to working in industrial settings where the research is focused on the development of new pharmaceuticals,” says Knowles, director of the HHMI program at Drew. They bring that industrial perspective to Drew where, at the end stages of their careers, they are able to continue their research and share their passion for science with the students. They also open some industry doors. For example, an entourage of 12 Drew students toured research labs at Merck (Kenilworth, NJ), and one student did her research on the premises at Novartis, incorporating the results into her honor’s thesis.

Vincent Gullo became a RISE fellow after a 30-year career at Merck and Schering-Plough. He and his RISE students are trying to identify novel antibiotics against resistant organisms, including methicillin-resistant *Staphylococcus aureus* (MRSA), a deadly bacterial infection. Gullo says he tries to give his students a “real research experience with all its trials and tribulations.” His aim is to better prepare them for graduate school and medical school, he says.

Christian Maggio, a senior studying in Gullo’s lab, entered college with plans to attend medical school. Since his freshman year, however, he’s done research with several RISE fellows and now plans to pursue a Ph.D. in microbiology and immunology. Maggio believes his work with RISE fellows will give him a head start in graduate school.

“The RISE fellows expect us to write up our own scientific work, which is great preparation for writing papers and theses in graduate school,” he says. “Also, because of my experience in the RISE program, I feel that I am very well versed in a lot of different areas, including microbiology and synthetic chemistry.”

The RISE program is also helpful to students who don’t plan on a basic science career. For example, Yang’s roommate was a student in the RISE program and is now attending dental school. “The critical thinking skills we are taught in the RISE program are applicable to any science field,” Yang says. □ —JAMES NETTERWALD