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Valuable Vaccine Research

From Bangladesh to Fargo-Moorhead, Concordia students are playing a valuable role in vaccine research.

Their work targeting potential vaccines for global diseases may help not only people across the world, but the local economy as well.

This summer in Bangladesh, a group of students will help **Dr. Jennifer Bath**, assistant professor of biology, assess the nutritional status and the prevalence of certain tropical infections in adults and children living in this impoverished tropical country.

Specifically, Bath is looking to target molecules that cause helminth diseases passed on by chronic, intestinal roundworms, for which a new vaccine might be developed in her Concordia biology lab, known as the Global Vaccine Institute.

It will be the first time a Concordia faculty member takes students abroad to assist with faculty-led research, says **Dr. Per Anderson**, associate dean for Global Learning.

"But not the last," he predicts. "Faculty and student research abroad is an opportunity for Concordia to distinguish itself."

Bath agrees. "We are fortunate to have so many talented, high-caliber students to draw from at Concordia," she says. "These students are performing critical research in vaccine design, production and testing."

The Greater Fargo-Moorhead Economic Development Corporation gave the Global Vaccine Institute a $10,000 grant so 10 students can spend the year focusing on vaccine design, which may help create a thriving local industry in vaccine research and development.

The local development group wants to utilize the expertise and research abilities of higher education, and has intentionally targeted the bioscience industry as having high potential for job creation. It already likes what Bath and her students are doing.

"We're thrilled with the results and want to continue to support this kind of research," says Brian Walters, president of the development group.

Walters says the vaccine initiative has created national interest, and several companies are looking closely at what's being done here because they prefer to locate near sources of expertise.

The research conducted in Concordia labs is an initial step in helping to build the critical mass of intellectual infrastructure that is necessary to support scientific businesses and create good paying jobs.

"Our economic strategy is to choose areas of specialization to excel in," Walters says. "Our educational institutions are assets to our community, and this kind of knowledge makes students' diplomas more valuable as well."

Bath envisions a continual flow of students will be able to gain valuable experience in Concordia research labs.
"Their research experience doesn't end when they leave the lab," she says. In addition to sharpening critical thinking skills and learning invaluable research techniques, students see that the world of global health, though long neglected, is interconnected.

"Comprehending the complexity of targeting global diseases means understanding how these diseases impact poverty, infant mortality, women's education and many of the United Nations millennium development goals," adds Bath.

Erin Maetzold '10, Dickinson, N.D., says her three years as a vaccine researcher enhances her applications to medical schools in hopes of becoming a physician-scientist.

Maetzold participated in several projects, including cell culture work. She investigated cellular responses from mice where she looked for differences in treated and untreated cells.

"We want to know why and how cells respond to different vaccines," says Maetzold. "This has been a really good experience for me and hopefully will help get me accepted into a top M.D./Ph.D. program."

Bath says one of the big advantages of the local grant is that her researchers earn salaries, which is important for students because it keeps them working in academic disciplines rather than taking off-campus jobs unrelated to their vocational interests.

"It's a nice benefit to have," says Maetzold. "The money pays for my medical school applications and apartment rent."

The long-term goal of the Global Vaccine Institute is to select and optimize vaccine candidates that might be transferred to biotech industries that bring vaccines to market.

Walters feels this work is good for Fargo-Moorhead, which is looking for megatrend economic events that will drive job growth. The growing possibilities of pandemics like H1N1 and threats of biological terrorism are rapidly driving interest in developing manufacturing capacity for vaccines in this country.

"We have many common scientific goals and academic specialties in Fargo-Moorhead," says Bath. "There is great potential to grow new industries through these kind of community partnerships."

Story: Sheldon Green / Photos: Sheldon Green/Submitted