Since its establishment at the University of Nebraska Medical Center in 2001, the Idea Networks of Biomedical Research Excellence (INBRE) program has captured the excitement, imagination and vigor of students across Nebraska. It’s the only two-year program in the state that supports students financially in their pursuit of scientific research.

INBRE program elevates science in state

Nontraditional student takes atypical path to science career

2013 Richard Holland Future Scientist Award winners

Homegrown scientist

The Nebraska INBRE is funded by a grant from the National Institute of General Medical Sciences of the National Institutes of Health. The INBRE program builds research capacities in states that historically have had low levels of NIH funding by supporting basic, clinical and translational research; faculty development; and infrastructure improvements.

Six undergraduate students (pictured on back) recently received the 2013 Richard Holland Future Scientist Award from the Nebraska Coalition for Lifesaving Cures. The students received cash prizes totaling $2,700 Aug. 6 at the annual INBRE conference in Grand Island.

The students were judged in two categories representing oral and poster presentations of their summer research. The award winners are:

Oral
1st place – Karl Krieser
2nd place – Shanice Harris
3rd place – Lisa Poppe

Poster
1st place – Lana Zhouldeva
2nd place – Gloria Larson
3rd place – Taylor Mighell

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There was no formality or precision to the way Ken Bayles, Ph.D., got his first chance to work in a research lab.

It was a simple offer from a biology instructor who happened to ask Dr. Bayles if he would have any interest in coming to work in his lab.

“I did and it changed my perspective. I wanted to be a marine biologist, but after working in the lab I realized that it was something I could do and make a career out of,” Dr. Bayles said.

His career took him from Idaho to Nebraska where he built a research program studying Staphylococcus aureus, became the associate vice chancellor for research and the director of the Center for Staphylococcal Research at the University of Nebraska Medical Center.

As the associate vice chancellor for research, Dr. Bayles also took on the role of administrative representative to the Nebraska INBRE program last year.

And he’s impressed with what he’s seen.

So far Dr. Bayles said he is encouraged by the level of knowledge the students have, how well their mentors work with each one and know what the students are doing, and how graduates are tracked to see where their careers take them.

“It’s clear that everyone involved with the program cares very much about the students,” Dr. Bayles said.

Also, he said, it’s exactly the kind of program that elevates science in the state.

“There are very bright students in Nebraska who need the kind of exposure to the research environment that the INBRE program provides,” Dr. Bayles said.

The opportunities provided by the INBRE program offer experiences that change the students’ perspective possibly leading to new career paths that are better suited to these kids, he said.
Nontraditional student takes atypical path to science career

She’s working with Doug Christiansen, Ph.D., a scientist at Wayne State College, doing research on isolating a protein he hopes will lead to the development of a vaccine for chlamydia. She will graduate in May of 2014 and hopes to start graduate school that fall.

And in the middle of it all, Carrie Brown is raising four children, ages 4 to 13, with her husband, Jeremy, in Wayne, Neb.

It’s not the typical route to graduate school that most students take, but one that Brown is hoping inspires her children to never give up on their dreams.

“My dad always encouraged me to go to college and I never gave up that I would,” Brown said.

He’s exceptionally proud of her, as is the rest of her family. Even her two eldest daughters, Callie and Katie, who accompanied Brown, an INBRE scholar, to the annual INBRE conference in Grand Island, are excited about their mother’s involvement with the program.

They said going to the conference was the highlight of their summer,” Brown said laughing.

A career in biomedical research is her ultimate goal.

“Quite a bit of my family has been struck by cancer and that’s played a large role in what I want to do,” Brown said. The INBRE program has given her opportunities to explore that field in a meaningful way, she said.

“I never pictured myself doing what I’ve been able to do through the INBRE program. Attending conferences in Boston and Grand Island, giving presentations, it’s given me a level of experience and knowledge of the field that I would never get just by attending a typical college class,” she said.

Brown said she especially enjoys the hands-on aspect of working in the labs under the tutelage of mentors doing cutting edge research.

Brown spent the previous summer working in the lab of Youri Pavlov, Ph.D., an associate professor in the Epplie Institute at UNMC, learning about the complexities of DNA.

“I don’t know how anyone can go into a doctoral program without having this experience first,” she said. “It prepares you, inspires you and advances your knowledge. I am enjoying every minute of it.”

Homegrown scientist

Kate Dempsey, Ph.D., didn’t have to go far from home to pursue a career in bioinformatics. She didn’t have to go to southern California or MIT to earn her undergraduate and graduate degrees. She only had to walk out the front door of her southwest Omaha home.

The opportunities to pursue her degree in Omaha were endless for Dempsey. The former INBRE scholar wanted to combine her interests in computers, medicine and research somehow.

The Nebraska INBRE program brought all three interests together for Dempsey in a way that helped shape her career objectives.

“The program showed me exactly how bioinformatics helps scientists,” she said.

“And it gave me the inspiration to pursue a doctoral degree.”

With a degree from the University of Nebraska at Omaha in bioinformatics, Dempsey enrolled at the University of Nebraska Medical Center in a joint specialty track in pathology and microbiology with an emphasis on bioinformatics.

“It was the perfect degree for me,” Dempsey said.

With it Dempsey could combine her desire to help further medical research in some way by helping researchers understand the breadth of data they collect in a way that gives rise to answers to scientific questions.

Today Dempsey is research associate in the school of interdisciplinary informatics in the college of information sciences and technology at UNO where she teaches a class on informatics and algorithms.

“My goal was never to be a doctor or a nurse,” Dempsey said. “But I knew I wanted to be a part of finding solutions to complex medical problems. The INBRE program showed me how that was possible and UNO and UNMC helped make my vision a reality.”

Meet External Advisory Committee Member: James Jurgenson

What interests James Jurgenson, Ph.D., the most about the Nebraska INBRE program is how it involves both faculty and students in stellar research.

“After students get to spend invaluable time in a research laboratory and faculty at participating institutions are given opportunities to pursue projects that they never would have the chance to do,” Dr. Jurgenson said.

A professor of biology at the University of Northern Iowa (UNI), Dr. Jurgenson has wanted to be a part of finding solutions to complex medical problems. The INBRE program showed me how that was possible and UNO and UNMC helped make my vision a reality.”

In turn, those experiences can only enhance the classroom experience for their students, he said.

At UNI more than 50 students have worked alongside Dr. Jurgenson during the summer conducting research. A molecular biologist, Dr. Jurgenson studies the development of disease resistant agronomic crops. Corn and wheat, he said, are particularly susceptible to Fusarium, a white fungus that attacks the stem of the plant and leaves wacks havoc on crops.

He’s enjoyed sharing that knowledge with his students.

And that’s exactly what the INBRE program does, he said.

“It’s a great way to build a love of basic science research among students and fund faculty giving them the time to take part in something that drew them into the world of research in the first place,” Dr. Jurgenson said.