

INBRE INROADS



Holland award winners

Undergraduate students from five Nebraska colleges and universities recently received the 2015 Richard Holland Future Scientist Award from the Nebraska Coalition for Lifesaving Cures.

The students received cash prizes totaling \$2,500 at the annual INBRE conference on Aug. 4 in Lincoln, where they were judged for their oral presentations of the research work they conducted this summer as part of the INBRE program. The award winners are:

1st: Christina Miller, Creighton University

2nd: Riley Jones, Doane College

3rd: Kari Heck, University of Nebraska-Lincoln



Honorable mention: Alexis Page, University of Nebraska at Kearney; and Austin Sanford, University of Nebraska at Omaha

Left to right: Alexis Page, Riley Jones, Kari Heck, Christine Miller and Austin Sanford

Overcoming the odds

As a child, Thanh Nguyen never dreamed she would one day be standing before a crowded room filled with scientists discussing her research on the effects of Beta 2 macroglobulin knockdown on APLP2 expression and pancreatic cancer cell migration.

"I grew up in a place where studying science is uncommon, and extremely rare to be able to do so," Nguyen said.

That place was the remote agricultural village of Dong Thap in the Mekong Delta region of southern Vietnam.

When she entered first grade Thanh was often disciplined harshly by her teacher who made her kneel during recess and hit her with a stick because of Thanh's lack of following directions and poor handwriting skills.

It wasn't until her father brought her to the United States and enrolled her in elementary school that the family discovered Thanh suffers from hearing loss in both ears.

Assisted by hearing aids and encouraged by her parents, Thanh excelled in school, graduating in 2014 having earned the Marie Curie scholarship to attend the College of Saint Mary, where she is a junior majoring in biology.

As a 2015 INBRE Scholar, Thanh joined the lab of Joyce Solheim, Ph.D., a professor in the Eppley Cancer Institute at the University of Nebraska Medical Center, to study pancreatic cancer.

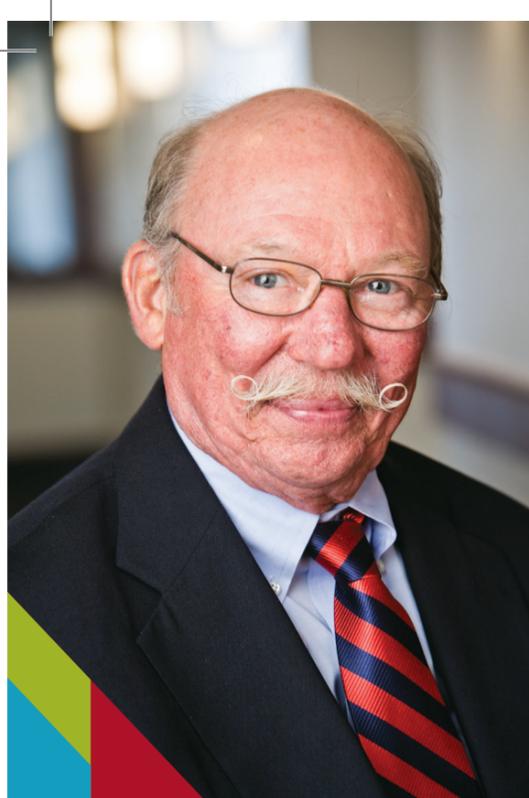
"I'm so grateful for this program," Thanh said. "I have always shied away from working in a lab because I thought I

"I grew up in a place where studying science is uncommon, and extremely rare to be able to do so."

couldn't handle it. What INBRE has proven to me is that I can not only do the work but it's sparked a new interest in biomedical research in me."

Thanh said that while she wants to pursue a career as a physician assistant, she also wants to continue to pursue biomedical research.

"Research can provide new insights, and I want to continue to learn long after I've earned my professional degree," she said.



From the director

As many of you now know, our NIH-NIGMS supported INBRE Project has been funded for another 5 years, through April 2020. This is great news and I wish to thank and congratulate all of you who have made this renewal possible. The focus of our project continues to be on our undergraduate institutions and developing the research capacity and culture on these campuses. This in turn provides students with opportunities to become engaged in biomedical research early in their academic careers.

I believe that one of the strongest points of our renewal application was the way our campuses leverage their INBRE support to include additional undergraduate student in their research enterprise. For example, a campus may only have three INBRE Scholars per year for a total of six students supported by INBRE.

However, the INBRE supported laboratories are not limited in the number of students who can conduct research projects in them and many additional students are attracted to and join these productive labs. Over the previous five years of the project we supported 125 INBRE Scholars on our participating campuses.

During that same period an additional 455 undergraduate students participated in research projects in the INBRE laboratories. Like our Scholars, many of these students developed an interest in research and health-related careers and are now pursuing advanced degrees in many biomedical areas.

Our new 2015 class of INBRE Scholars have now completed their research foundations workshop and made their presentations at our annual meeting. They will return to their campuses having received advanced training and become involved in their own research activities.

These Scholars will now be in a position to serve as trainers, role models and mentors to other students who join their mentor's laboratories looking for research experience. Thus, the continuum continues and we are well on our way to providing students throughout Nebraska with meaningful research experiences and opportunities to advance in their chosen careers.

Good job and a heartfelt thank you to all of our faculty and students.



Gary Gerald discusses his research with an undergraduate student in his lab at Nebraska Wesleyan University.

External advisory member: Suzanne Ortega

Social scientist Suzanne Ortega, Ph.D., was on the ground when the INBRE program first began in 2001.

Her interest in the program stems from her desire to find more ways for students to enter graduate school,



especially those from underserved or underrepresented backgrounds.

"This notion of breaking down barriers and finding ways for more people to enter graduate school is really interesting and the challenges are most pronounced in the physical sciences, engineering and life sciences," Dr. Ortega said.

Much of her career has been spent working on projects that are pathways to graduate education for first generation, low income, rural students who have not traditionally gone into graduate education in the sciences.

That work is at the heart of what she does as president of the Council of Graduate Schools (CGS), based in Washington, D.C. The CGS is an organization of more than 500

institutions of higher education in the U.S. and Canada engaged in graduate education, research, and the preparation of candidates for advanced degrees.

"We know that poverty and being a member of an underrepresented group is associated with stress and one of the best ways of reducing poverty is through advanced education," Dr. Ortega said.

The INBRE program is a prime example of how to successfully nurture undergraduate students' interests in the sciences in a way that encourages them to pursue a graduate degree, she said.

"The program has gotten progressively better and better and the students have gotten so much more sophisticated," she said after attending the 2015 INBRE annual conference.

Nebraska Wesleyan professor brings his reptile research to INBRE

If it weren't for bumping into another student in the biology building at Middle Tennessee State University where Gary Gerald, Ph.D., was just starting his junior year, he isn't sure he'd be conducting research on reptiles right now.

"I ran into a teaching assistant from one of my classes and asked him where he was going," Dr. Gerald said. "He said he was going to catch salamanders for research and invited me to join him."

It was during that afternoon of catching salamanders and conversation that the now assistant professor of biology at Nebraska Wesleyan University in Lincoln decided to pursue a doctoral degree.

However, instead of salamanders, Dr. Gerald ended up studying the modes of locomotion of snakes.

"I really enjoyed graduate school and found it fascinating how a reptile with no legs could move so well in their habitat."

He also became a teaching assistant and discovered he liked sharing his enthusiasm for research and reptiles with students.

After graduating from Miami University in Ohio with a Ph.D., he found himself looking for a position at a mid-size college and found one at Nebraska Wesleyan. There he teaches vertebrate zoology, human anatomy and physiology lab, human comparative anatomy and physiology and biology of animals.

Through Nebraska Wesleyan Dr. Gerald became involved with INBRE. At first he wasn't sure if he was a good fit for a program that featured mostly biomedical research. But after meeting Jim Turpen, Ph.D., principal investigator of the NIH grant that supports the program, he realized it was a perfect fit.

"The whole focus of the program is helping nurture undergraduate students' love of scientific research, which is exactly what I enjoy doing."

And with INBRE funding, Dr. Gerald has been able to spend more time in his lab, purchase much needed equipment and share his research with more than 15 students.

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Editor: Lisa Spellman

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For additional printed copies, please contact:
UNMC Public Relations
985230 Nebraska Medical Center
Omaha, NE 68498-5230

402.559.4353

unmc.edu/inbre