



INBRE INROADS

Winners of the 2009 Richard Holland Future Scientist award

Oral presentation category:

1st Catherine Sargus, LaVista, Neb.

UNL "Elongation of porcine embryos in vitro using alginate hydrogels as a three-dimensional extracellular matrix"

2nd Brandon Mizner, Grand Island, Neb.

UNK "Nox4 in Mitochondria: A possible link between NADPH oxidase and mitochondria in Angiotensin II Intraneuronal signaling"

3rd D.J. Narwandar, Omaha, Neb.

UNO "Knock down of CSCR2 enhances sensitivity to chemotherapy"

Poster presentation category:

1st Julia Warneke, Omaha, Neb.

UNO "A new graph theoretic approach to the assembly of short read sequences"

2nd Kyla Ronhovde, Lincoln, Neb.

Doane "The role of methylmalonate semi-aldehyde dehydrogenase in Arabidopsis thaliana germination"

3rd Andrea Gilkey, Lincoln, Neb.

UNL, Anthropometric evaluation of suit-seat Interface"

The Nebraska Coalition for Lifesaving Cures awards Third Annual Student Research Awards

Six undergraduate students from four Nebraska colleges and universities recently received the 2009 Richard Holland Future Scientist Award from the Nebraska Coalition for Lifesaving Cures.

The awards were announced Aug. 5 at the annual conference in Grand Island for students in the institutional Development Award (IDeA) Networks of Biomedical Research Excellence (INBRE) Program.

These top six students, selected by INBRE faculty associates, received monetary awards from the Nebraska Coalition for Lifesaving Cures, totaling \$2,700. The awards were named in honor of Richard Holland, an Omaha philanthropist and longtime supporter of research.

The students were honored in two categories representing oral and poster presentations. Awards were presented to the students who placed first, second and third.

"These students represent the future of research in the state of Nebraska," said Sanford Goodman, president of the Nebraska Coalition for Lifesaving Cures.

"The recognition that the Nebraska Coalition for Lifesaving Cures is providing goes a long way to reinforce the importance of this research experience. We appreciate the support NCLC has shown for our program," said James Turpen, Ph.D., vice chairman for genetics, cell biology and anatomy at the University of Nebraska Medical Center and director of the INBRE program.



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A newsletter of Nebraska's Institutional Development Awards (IDea) Networks of Biomedical Research Excellence (INBRE)

The Nebraska INBRE is funded through a grant from the National Center for Research Resources, a division of the National Institutes of Health.

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INROADS participating institutions 09

Creighton University College of Arts and Science; College of Saint Mary's, Doane College; Little Priest Tribal College; Nebraska Wesleyan University; the University of Nebraska at Kearney; the University of Nebraska at Omaha; the University of Nebraska-Lincoln; Wayne State College; Chadron State College; Western Nebraska Community College.

brin.unmc.edu

From the director

May 1, 2009 marked a milestone for the Nebraska INBRE. We were awarded a competitive renewal that will extend the INBRE project for another five years, through 2014 and enable us to continue to build the research capacity on the undergraduate campuses throughout the State.

As I was reflecting on our success I felt it was important to acknowledge the contributions of a number of participants in the project, people who have worked together since the initiation of BRIN in 2001.

Founders Award Recipients

Suzanne Ortega, University of New Mexico

Michael Johnson,
University of Illinois at Chicago

Richard Murphy and Sandor Lovas,
Creighton University Medical Center

Jack Morris and Charles Wood,
University of Nebraska-Lincoln

William Chaney, James Eudy, David Crouse,
Mary Helms and Penni Davis, University of
Nebraska Medical Center

Thus, at the annual meeting, the contributions of our "Founding Members," members who have served eight or more years in the INBRE, were recognized in what was to me a very special ceremony. These founders come from all phases of the project and their contributions have been essential to both our initial and our continuing success.

Again, I just want to say "thank you" to the following people and recognize their commitment to the INBRE.

William Tapprich and Donald Rowen, University of Nebraska-Omaha

Julie Shaffer, University of Nebraska-Kearney

Jeff Isaacson, Garry Duncan and
Angela McKinney-Williams,
Nebraska Wesleyan University

Shawn Percy and Doug Christensen,
Wayne State College

Kearney high school student focused on research

Cami Stoner's summer research experience at the University of Nebraska at Kearney had such an impact on her that she has already committed to pursuing a career in biomedical research.

The Kearney High School senior spent eight weeks working with Kim Carlson, Ph.D., an assistant professor of biology at UNK.

"It really opened my eyes to all the different scientific careers," Stoner said.

Dr. Carlson was equally impressed with Stoner's enthusiasm.

"Cami is a hard-worker who contributed to the ongoing research in the lab. I look forward to working with her again next summer," Dr. Carlson said.

Stoner was joined by two other high school students, two undergrads from UNK and two high school teachers.

Stoner said she has always been interested in science and this opportunity only fueled the fire.

"This was one of the best summers I've ever had, there was never a dull day."

Benjamin Klein, a high school science teacher from Lexington can't wait to get back into the lab.

"Dr. Carlson is one of the best scientists to do research for," Klein said. "Once she is sure you have the basics she lets you go."

Klein should know he also did his undergraduate research with Dr. Carlson. During that time he picked up a lot of scientific study skills, but in the four years since he graduated and began teaching he felt those skills slipping away.

The summer research opportunity quickly brought Klein back up to speed and fed his scientific intellect.

"As teachers we often have to simplify many things to allow our students to grasp concepts quickly. This research gave me an opportunity to engage in some very intellectually stimulating conversations with some of the smartest people in Nebraska," he said.

High schoolers work with researchers

Mixing vinegar and baking soda in biology class is the closest some high school students come to conducting scientific research.

But for two months this summer eight lucky students had the chance to do more.

A \$600,000 educational supplement through the National Center for Research Resources, (a division of the National Institutes of Health), provided summer research opportunities for the high school students and five high school science teachers.

INROADS in the lab at Doane College

The summer research project made Laura Turner feel just like the high school students she teaches at Waverly High.

Unsure, nervous and excited.

"It was a good reminder of what it's like to be the student and not the teacher. To be the one who doesn't get it when an expert is teaching a concept," Turner said.

It was also the best summer vacation she's had in years, she said.

Working in the lab of Andrea Holmes, Ph.D., a professor of chemistry at Doane College, Turner got to not only see how the scientific process works but participate in a collaborative research project between Dr. Holmes and the electrical engineering department at the University of Nebraska-Lincoln.

"The opportunity to learn the latest trends in technology, to refresh and refine lab techniques and network with researchers is priceless to me as a high school science teacher," Turner said.

She was joined by three high school students from Missouri and three undergraduate students from Doane.

"It was a very enriching experience to have them in the lab," Dr. Holmes said.

In particular for the high school students.

"All three girls were unable to talk articulately about science when they walked into the lab, and when they left they were talking about gene mutations," she said.

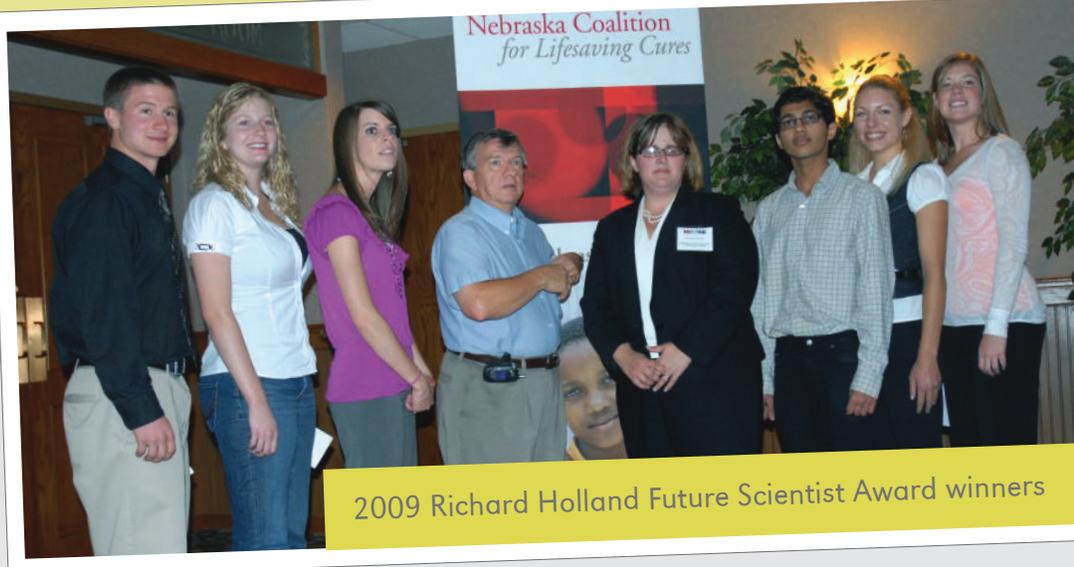
For eight weeks they conducted research alongside scientists at Doane College, the University of Nebraska at Omaha, the University of Nebraska at Kearney and Nebraska Wesleyan University.

The educational supplement,

"Recovery Act Funds for Administrative Supplements Providing Summer Research Experiences for Students and Science Educators,"

is designed to recruit students and science teachers to spend two summers doing research in INBRE-supported laboratories on undergraduate campuses.

University professors, Kim Carlson, Ph.D., at the University of Nebraska at Kearney, Therese McGinn, Ph.D., at Nebraska Wesleyan University, and Andrea Holmes, Ph.D., at Doane College, opened their labs to the teachers and students with surprising results. Students share their experiences through the stories in this publication.



2009 Richard Holland Future Scientist Award winners

Students explore science at Nebraska Wesleyan

Toll like receptors, western blotting, gel electrophoresis. Whoa!

Tenth grade biology doesn't come close to what Kellen Restau encountered when he stepped into a lab at Nebraska Wesleyan University this summer.

"It was a lot to take in," said the Lincoln High School junior, who spent eight weeks working in the lab of Terry McGinn, Ph.D., an assistant professor of biology at Wesleyan.

Restau was one of two high school students who worked in Dr. McGinn's lab along with high school science teacher, Betsy Barent, and four undergraduates from Wesleyan.

The experience gave him priceless skills he'll use this fall, he said, when he's working on his project for the school science fair.

"Kellen is a great student who took the knowledge he acquired in 10th grade biology class and ran with it in the research lab. I was very impressed with Kellen's ability to wrap his

head around some very abstract cell biology concepts," Dr. McGinn said.

Barent, an advanced biology teacher at Norris High School in Firth, Neb., said the experience reaffirmed her goal to incorporate more inquiry based learning in the classroom.

"It allowed me to think on a completely different level, which I haven't done since graduate school and offered me a greater understanding of cell biology and immunity," Barent said.

Both Barent and Restau will return to Dr. McGinn's lab next summer and she is happy to have them back.

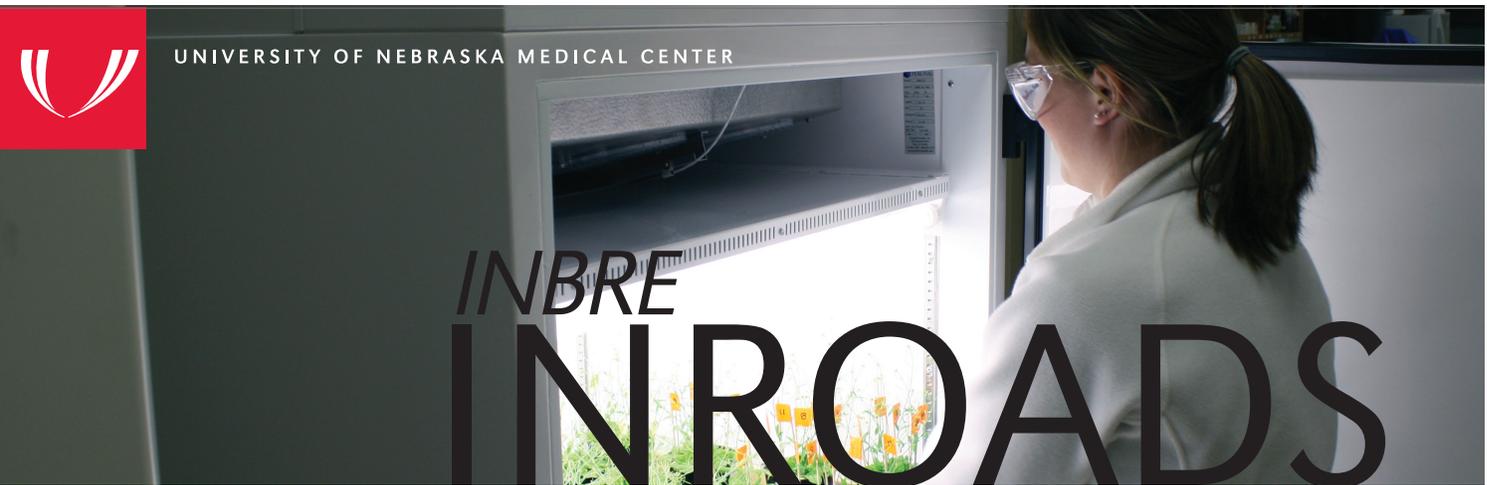
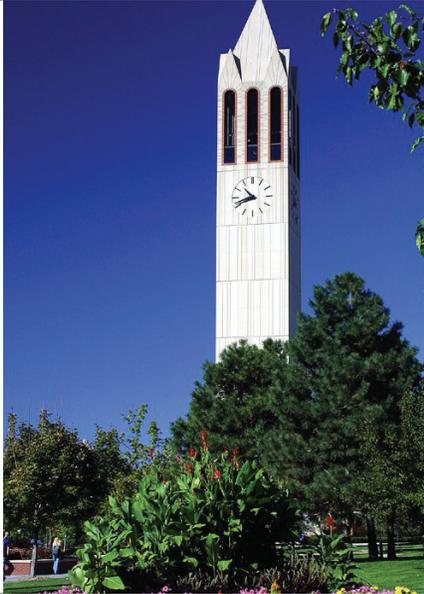
"I benefitted tremendously by having Betsy and Kellen in the lab. Not only have they helped me to move my research program forward, but I have learned a great deal about the level of training that students receive in high school," Dr. McGinn said.

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The Bell Tower at the University of
Nebraska at Omaha.



in this
issue

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The INBRE program is funded by the National Center for Research Resources. NCCR is part of the National Institutes of Health, U.S. Department of Health and Human Services.