INBRE INROADS

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

Six BRIN scholars recognized with Future Scientist award

Pictured from left to right are: (front row) Sandy Goodman, Nebraska Coalition for Lifesaving Cures president, Kelly Wanzeck, Katie Peterson, Kyla Ronhovde. Back row: Richie Nelson, John Olley, Timothy Smith and James Turpen, Ph.D., director of the Nebraska INBRE/BRIN program.

"We want to encourage students to pursue careers in research and reward excellence," said Sandy Goodman, president of the Nebraska Coalition for Lifesaving Cures.

"BRIN is a great opportunity to explore the world of research. I would encourage any student who is interested in research to give it a try," said Richie Nelson, a biochemistry and molecular biology double major at Nebraska Wesleyan University.

Winners of the 2008 Richard Holland Future Scientist Award for undergraduate students from the Nebraska Coalition for Lifesaving Cures were announced at the annual INBRE conference Aug. 13 in Grand Island.

First, second and third place awards were given out to winners of the oral and poster presentations. The awards were accompanied by a $500, $450 or $400 cash prize.

BRIN Scholars John Olley, Creighton University; Kelley Wanzeck, Creighton University; and Kyla Ronhovde, Doane College, took first, second and third place respectively for oral presentations; and Richie Nelson, Nebraska Wesleyan; Katie Peterson, Wayne State College; and Tim Smith, Creighton University; were the top three winners in the poster session.

The awards were named as such to acknowledge the generous donation and support of Omaha philanthropist Richard Holland.

"We want to encourage students to pursue careers in research and reward excellence," said Sandy Goodman, coalition president.

Nelson, who won first place for his poster looking into what increases the motility of ovarian cancer cells, said he is definitely going to pursue a career in research once he graduates from Nebraska Wesleyan University.

"Because of the experience I've had as a BRIN scholar I have decided that research is something I definitely want to do," he said.

Nelson has spent the past two years working in the lab of Surinder Batra, Ph.D., a professor of biochemistry and molecular biology at the Eppley Institute at the University of Nebraska Medical Center.

"BRIN is a great opportunity to explore the world of research. I would encourage any student who is interested in research to give it a try," he said.

Nebraska Wesleyan biology professor Therese McGinn, Ph.D., said she feels lucky to be able to pursue both of her passions: teaching and scientific research.

Biology professor finds happy medium between teaching and research

Nebraska Wesleyan University biology professor Therese McGinn, Ph.D., has the best of both worlds.

As an instructor to undergraduate students Dr. McGinn has the pleasure of sharing her passion for science.

As one of the newest INBRE associates, she gets to share her excitement for scientific research with many of those same students in the lab.

"I find it extremely rewarding to be able to do both," said Dr. McGinn, an assistant professor of biology.

At the prompting of fellow INBRE associate, Gary Duncan, Ph.D., Dr. McGinn formulated a research plan and joined the program in 2007.

Her research focuses on toll-like receptors, proteins that reside on the exterior and interior of cells that are used to recognize pathogens and initiate an immune response.

For the most part, the receptors are helpful and fight illness, said Dr. McGinn, and there are times when they do more harm than good.

An example would be asthma, she said.

The immune response during an asthma attack is detrimental to the individual even though the body is simply responding to whatever triggered it, Dr. McGinn said.

Joining INBRE has allowed her not only to get back into academic research, Dr. McGinn said, but to interact with scientists who have very successful research programs.

"So the more we understand about these receptors and the way they communicate in cells the more we can use them to enhance beneficial immune responses and down regulate unwanted responses," she said.

Dr. McGinn said she shares lab space with another INBRE associate, Jeff Isaacson, D.V.M., Ph.D., an associate professor of biology at Nebraska Wesleyan.

Joining INBRE has allowed her not only to get back into academic research, Dr. McGinn said, but to interact with scientists who have very successful research programs.

"To be able to do that is very intellectually stimulating," she said.

Creighton professor receives NIH grant

If the health of living cells depends on their ability to produce energy needed for normal cell function, can health care professionals better diagnose and treat disease by directly measuring the energy production of a cell?

And can changes in cell metabolism help explain the onset and progression of age-related hearing loss, cancer or other human diseases?

Mike Nichols, Ph.D., would like to find out.

An associate professor of physics at Creighton University and a research associate in the INBRE program, Dr. Nichols, is studying an imaging technique that would let him study the metabolic rate of human cells.

"Our goal is to do this with living cells in their natural environment as much as possible," Dr. Nichols said.

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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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Participating undergraduate institutions: the University of Nebraska-Lincoln, the University of Nebraska at Omaha, the University of Nebraska at Kearney, Creighton University, Nebraska Wesleyan University, Chadron State College, Doane College, Wayne State College, Little Priest Tribal College and Western Nebraska Community College.

www.unmc.edu/inbre

Former BRIN scholar is the first to graduate with a Ph.D.

Always seeking answers to how and why, Marko Jovic's pursuit of science started at a young age.

The son of an anesthesiologist and oral surgeon, Jovic, is a graduate student working in Dr. Steven Caplan's lab at the University of Nebraska Medical Center.

Steve Caplan, Ph.D., is an associate professor of biochemistry and molecular biology in the UNMC College of Medicine doing research on cellular trafficking.

"We are looking at how different molecules move around in the cells," Jovic said.

In January Jovic will defend his dissertation to earn his Ph.D.

An accomplishment that Jovic and his family look forward to with pride, along with someone else.

As director of the INBRE/BRIN program, James Turpen, Ph.D., is happy to see one of his former BRIN scholars do so well.

"Marko represents a major milestone for the INBRE program in Nebraska. He was a member of the first class of BRIN scholars and the first of the scholars to go on to graduate school," Dr. Turpen said. "He now is the first scholar to graduate with a Ph.D."

Jovic joined the INBRE program as a scholar in 2003. The program, he said helped him develop the critical thinking skills essential for doing scientific research.

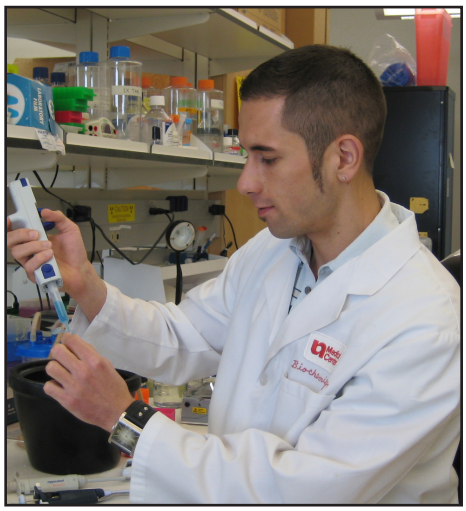
Initially a computer science major, Jovic said it was INBRE that introduced him to the world of molecular biology.

"That is the real strength of the program," he said. "INBRE gives students a chance to explore science in a fun and educational atmosphere."

Dr. Caplan has enjoyed watching Jovic grow into a confident junior investigator.

"Marko was the first student to join my lab when I came to UNMC and I have enjoyed observing and helping to facilitate his transition from a very inexperienced beginner to an outstanding Ph.D. student," he said.

Jovic, Dr. Caplan points out, has successfully published several research papers and is being courted by top labs both in the U.S. and in Europe to carry out his post-doctoral studies.



Marko Jovic

Both Jovic and Dr. Caplan represent how the interaction between the two IDeA programs – INBRE and CoBRE – work for the benefit of both scholars and faculty, Dr. Turpen said.

"Dr. Caplan, who started under the CoBRE grant, acquired his own NIH funding with the support of that grant. Both Jovic's and Dr. Caplan's successes clearly show that IDeA and INBRE are having an impact in Nebraska," he said.

Creighton professor continued from page 2

The National Institutes of Health seems to think he is on to something and awarded Dr. Nichols a R15 grant for a total of $150,000 for three years.

Dr. Nichols said he is excited to have his own grant, especially since this is the first time he is the primary investigator.

"I've been a co-investigator on several other grants, but never the P.I., until now," he said.

Dr. Nichols hopes his research will help further understanding about how cells produce energy and the rate at which they produce energy.

Three undergraduates are currently working in the lab with Dr. Nichols, all of whom he said plan to apply to the INBRE program when they are eligible.

"The interest in research and the INBRE program is so high that our students need to work in the lab for a year just to be competitive enough to apply to the program," he said.

Mike Nichols, Ph.D., (far left) with students who have worked in his lab. Pictured left to right are: Robbie Thomen (seated next to Dr. Nichols), Jorge Vergen, Maria Hansen, Matt Bassett, Jeff Tonniges, Tim Smith and Sarah Smith.

Since he joined the INBRE program as an associate in 2003, Dr. Nichols has worked with Rick Hallworth, Ph.D., a professor of biomedical sciences at Creighton University.

Under Dr. Hallworth's mentorship, Dr. Nichols did the research that he used to apply for the R15 grant.

"The INBRE program has had a huge impact on our campus," he said. "The demand from the students to do research is growing and the institution is recognizing the value of faculty doing high quality research and sharing that with students."

INBRE success reflected in accomplishments of faculty and students

James Turpen, Ph.D.

As the final year of funding for this phase of the INBRE program draws to a close, I would like to highlight a few of our accomplishments over the past five years.

One of our primary goals is to provide undergraduate students with the opportunity to determine if they have the talent and interest to pursue a career in biomedical research.

I am pleased to say that a large fraction of our students (29%) have pursued research careers and another large group (32%) is enrolled in health professions programs.

Marko Jovic joined the program during its first year and has successfully followed that long and challenging road to completion of his Ph.D. degree. He is the first, but won't be the last, as there are many more former scholars who are also pursuing a Ph.D.

Not only are a large percentage of our students pursuing professional careers but many are entering the biomedical workforce.

The feedback I am getting from laboratories that have hired our former scholars is that these students are really smart and well trained.

Along with keeping talented Nebraska students in the state, another goal is to increase the research accomplishments of our undergraduate faculty.

In past issues we have had features on two of our faculty who received national funding and that trend continues with Creighton University physics professor, Michael Nichols, Ph.D.

Dr. Nichols' awarding of NIH funding is a further indication that we can do serious research on our undergraduate campuses.

An overriding aspect of the INBRE program is related to developing a culture in Nebraska that recognizes the importance of biomedical research to the future of our citizens. While this is a challenging task, I believe the generous support of the Nebraska Coalition for Lifesaving Cures provides evidence of progress in this rather subjective area.

Thanks to the coalition we were able to provide six more scholars with the Richard Holland Future Scientist Award for a second year. These awards document community involvement with our project, demonstrate an investment by the community in supporting our next generation of scientists and highlight the abilities of our INBRE scholars.

This phase of the INBRE will end on April 30, 2009. We submitted our competitive renewal in July and are waiting to learn the results of the review. Thanks to the combined efforts of all our faculty and students I am optimistic that our efforts will be well reviewed.

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