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"It is one thing to read about it in the textbooks or answer a question of two on a test, but once you are in the lab and have to do it for yourself, day in and day out, you'll really learn what science is about."

- Brent Cameron, pp. 4.

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Summer 2005 Volume 4 Issue 1

Seeing The big picture

Presenting posters enables students to examine project, skills

Joseph Chapes
Editor

While working in a lab is an essential part of doing research, one of the most important experiences for a research student does not take place in the laboratory.

This experience is presenting research to others at poster events such as the KU Summer Research Symposium that took place on Tuesday, Aug. 2.

K-INBRE students at the symposium believed that presenting their posters was an essential part of the research experience.

"It's a good way to step back and take a look at the big picture of what I've been working on this summer," chemistry major Tim Welch said. "It gives me a chance to think about ways to

explain to other people the project I've been working on."

Biochemistry major Stuart Ashley agreed.

"There is no point in doing research if you can't communicate your results and this is a great way to practice doing something like that," he said, "working on your

(Continued on Pages 2 and 3)



The symposium took place in Marlott Hall on the KU campus.

K-INBRE Administration

Director

Dr. Joan Hunt

Associate Director

Dr. Paul Terranova

Undergraduate Support Core Coordinator

Dr. Stephen K. Chapes

Bioinformatics Core Director

Dr. Peter Smith

Administrative Officer

Ms. Heiata Chapman

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Mr. Joseph Chapes

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 Dr. Eric Munson, KU
 Dr. Virginia Rider, PSU
 Dr. Larry Williams, KSU (Co)
 Dr. Sonya J. Williams, LU

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Questions and comments can be sent to jchapes@ksu.edu.



Stuart Ashley

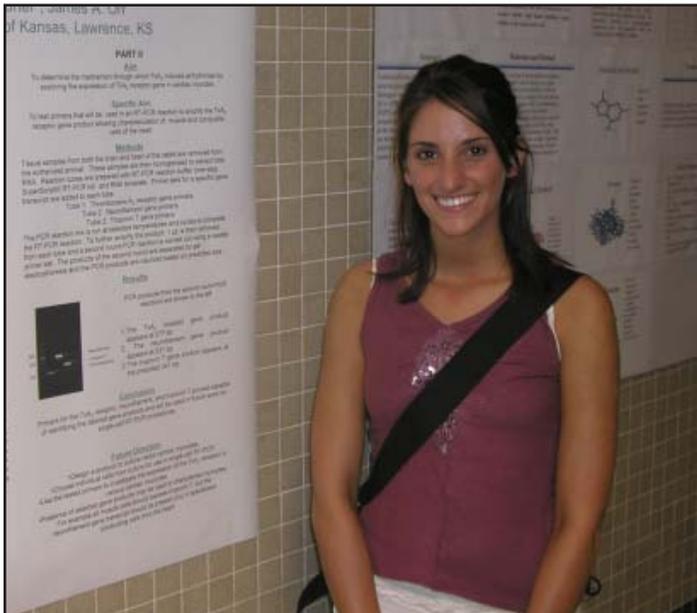
communication of what you've actually done, conveying that to other people and having them understand what you're doing, what you're trying to accomplish with your research."

Presenting posters allows the student to learn much more about their project. Jennifer Guerra, whose majors include chemistry, believed she was able to learn a lot from her poster experience.

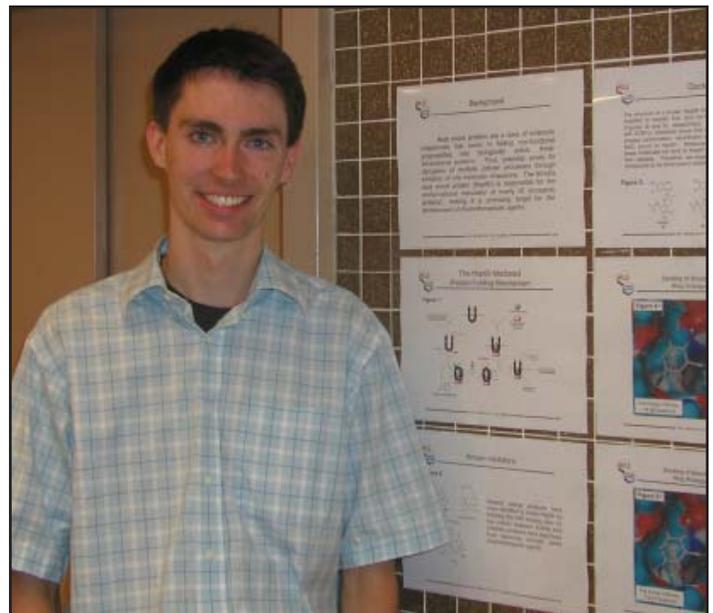
"You learn a lot about the behind the scenes work in the chemistry world. You understand a lot more about the synthesis of drugs and everything that goes into



Jennifer Guerra



Lisa Kosloski



Tim Welch

preparing a presentation and being able to understand all the work behind it,” she said. “It helps you to extend your skills in public speaking and presenting your work.”

All of the students were happy with the research experience they were able to get through K-INBRE.

“It was really good as a summer program because you can concentrate solely on your research which is a lot nicer than having to work or go to classes,” human biology major Lisa Kosloski said. “It was really nice to have contact with other students who were doing the same thing you are, just in different areas.”

Biochemistry major Sean Whittier also appreciated K-INBRE’s help.

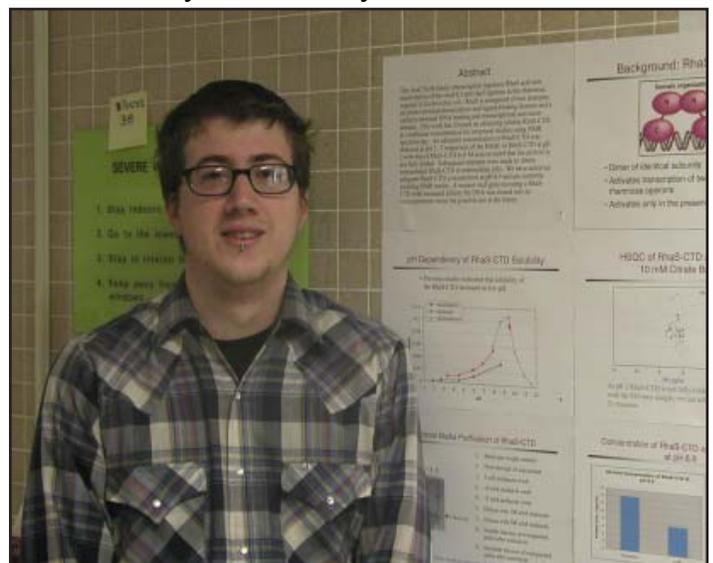
“For me, learning to become a scientist has a lot to do with learning how to do research, learning how to think in a research environment and you can only really achieve that through experience,” He said. “The scholarship has allowed me to spend a significant amount of time in the lab and gain valuable experience doing research.”

The KU K-INBRE students who presented at the symposium and their projects were Stuart Ashley, “Crystallization of PchE2 from *Pseudomonas aeruginosa*,” Jennifer Guerra, “Facilitated Protocols for Library Generation of Novel-S-Heterocycles” and Lisa Kosloski, “An Investigation of Thromboxane A2 Induced Arrhythmias Using Integrative and Molecular

Techniques”

Other K-INBRE students at the event were Jennifer Thomas, “Evaluation of Lipid Peroxidation in Rat Brains Utilizing In Vivo Microdialysis,” Tim Welch, “Hsp90 Inhibition and the Development of Novel Chemotherapeutic Agents” and Sean Whittier, “Structural Studies of the E. coli RhaS Protein C-terminal Domain.”

KU student Jennifer Jones was unable to be at the poster presentation but did submit a research report. Her project was “Cloning and Purification of a Protein Involved in Pyochelin Biosynthesis.”



Sean Whittier



Pittsburg State University

The "Focus on" section is made up of features on students and/or faculty at different K-INBRE Universities and how they see the K-INBRE Organization. This issue looks at Pittsburg State University. (Photo by Malcom Turner)

Brent Cameron

Mentor: Dr. Virginia Rider

Major: Chemistry and Biology

What got you interested in scientific research?

"I have always been interested in science, but it was not until I arrived at PSU that I became interested in research. Several of my professors suggested that I try working in a lab to see how I liked it. Turns out, I was very interested in research. I have always been a good student, but by the time I reached college I was tired of reading textbooks and memorizing facts. I wanted to see how the information was discovered itself, and maybe discover something myself."

What is the best thing about learning about science at your institution?

"The best thing about learning science at PSU is the faculty and the students. The entire faculty is very helpful outside of the classroom. Every professor that I have had has been willing to take time out of their busy schedule to explain a topic more in depth to me or explain something I did not quite understand in class. The students are also great. We all work very well together and are happy to see

each other succeed. There is great sense of camaraderie rather than competition here at PSU."

How has K-INBRE helped you to expand your scientific knowledge and experience?

"K-INBRE has helped me to expand my scientific knowledge and experience by providing the opportunity



Brent Cameron (photo submitted)

for me to get in the lab and practice science for myself. It is one thing to read about it in the textbooks or answer a question of two on a test, but once you are in the lab and have to do it for yourself, day in and day out, you'll really learn what science is about. I also believe that my K-INBRE experience helped me earn a summer internship position at one of the top biomedical research institutes in the world."

In what ways do you think this experience will help you in the future?

"I believe the experience that K-INBRE has provided is the groundwork for me to go on and do great things in graduate school. It has provided me with the basic science background to start graduate school running. I also believe that the K-INBRE conferences have provided a great avenue for me to practice speaking about my research and to hear other students present their work."

Focus on **Pittsburg State University**

Stacy Jones

Mentor: Dr. Virginia Rider

Major: Biology with an emphasis in pre-medicine & Spanish

How does your mentor help you?

“Dr. Rider demands much from her students. She challenges us to think for ourselves, but is always willing to lend us a helping hand. Through her support, she gives us confidence to tell what we know. I think she is a



Stacy Jones speaking at January's State Symposium

Meryl Twarog

Mentor: Dr. Virginia Rider

Major: Chemistry and Biology

What got you interested in scientific research?

“I’ve always been interested in science but it wasn’t until college that I pursued research. During my sophomore year, my advisor suggested I try to get involved in undergraduate research. The following summer, I participated in K-INBRE under the guidance of Dr. Rider. It was a great experience and served to introduce me to scientific research. My summer research experience sparked my interest in research and led me to participate in K-INBRE the following year.”

wonderful mentor because she doesn’t just give us the answers, but rather she makes us go find them. In this manner, I believe she gives us “real world” experience that will be useful as we further ourselves in the field.”

How has K-INBRE helped you to expand your scientific knowledge and experience?

“Without K-INBRE, I would not have had the opportunity to do research at all. Thanks to the program, I am learning new research techniques and a new way of thinking that could not be obtained from a classroom.”

In what ways do you think this experience will help you in the future?

“Through this experience, I am learning how to be more analytical in my thought process, a capability that will be most beneficial, as well as significant, should I become a doctor.”

What do you plan to do after you graduate? Does it include a possible career choice in biomedical research?

“Right now my post-graduate plans are to go to medical school. Certainly, the medical field will rely heavily upon biomedical research as a means for its own advancement. Therefore, I could see myself having a possible career in biomedical research. At this point, however, I am not certain.”

What kind of research would you like to get training in?

“I am interested in all kinds of research, as long as it’s good research. More specifically, I am interested in biomedical research, bioengineering, and bioinformatics. I’ve

(Continued on Page 6)



Meryl Twarog (photo submitted)

Focus on **Pittsburg State University**

Meryl Twarog, continued

had considerable training in biomedical research and some training in bioinformatics. However, I am completely unfamiliar with bioengineering and would like to have training in it at some point.”

What is the best thing about learning about science at your institution?

“The best thing about learning science at Pittsburg

State is its small size compared to other state universities. Because of this, I was able to have my own research project as a sophomore allowing me to be an active participant in the lab and in research. Its small size also allows for me to get to know most professors on a personal level and to discuss my research projects with them.”

What do you plan to do after you graduate? Does it include a possible career choice in biomedical research?

“I am in the process of applying to medical school. However, I plan to still participate in biomedical research and possibly pursue a career in clinical research.”

Dan Zurek, Mentor

Time at PSU: 7 years

Specialty/expertise: Molecular Biology

“I’ve been interested in science for as long as I can remember, performing experiments in chemistry and tinkering with electronics (with varying degrees of success) from childhood on. I continued down that path in college, changing majors from chemistry to biochemistry along the way, but while the material was interesting, it didn’t really come to life for me until I began research as an undergraduate in the Genetics Department at UW-Madison in Phil Anderson’s lab. This was absolutely a wonderful experience.”

“I was excited and eager to learn and do new things, and that enthusiasm for research I first found in Phil’s lab in Madison has continued and carried me through graduate school and postdoctoral work in San Diego, postdoctoral work at MU in Columbia, and on into the seven years I have been here at PSU.”

“My experiences as an undergraduate taught me that hands-on research is an excellent way for a student to learn and become excited about science. Numerous individuals, undergraduate, graduate, and international have been involved in these projects as well as others in my lab. Students are sometimes intimidated when considering approaching a professor to do research with them, thinking that they don’t

know enough, or lack the experience to do well. I know I was a pretty nervous when I first went out looking for a professor to take me into a lab. Having experienced it now from both sides of the office desk I can say that the only things a student needs to bring with them are curiosity and eagerness to learn new things—everything else will come if you have those attributes.

“The K-INBRE program provides a smooth pathway into a supported lab project, and heightens the visibility of research as a route for students who often are focused on the daunting load of courses and grades, and don’t always realize that this additional opportunity is what makes taking all those courses worthwhile. As K-INBRE students pass through they have an opportunity to provide mentorship and role models for new students. Many of those students won’t go on to have a career in research, but the exposure will forever change the way they approach scientific questions and empower them with new intellectual tools to bring to their lives and their careers.”



Dan Zurek (photo submitted)

Network Steering Committee meets in Kansas City

Staff Report

The K-INBRE Network Steering Committee met in Kansas City on August 29, 2005 to review program progress over the last several months.

Dr. Peter Smith, Director of the Bioinformatics Core, gave an update on core activities and detailed that a new staff member, Nivritha Gopathi, will begin traveling to and working with various campus bioinformatics centers to enhance interactions between KUMC and the campus cores at KU-L, KSU and WSU. Gopathi will also travel to undergraduate partner institutions to help develop research at those campuses.

Dr. Chapes outlined the appointment of 5 new Star Trainees by the Undergraduate Support Core. He also outlined the Core's flexibility in attempting to meet the needs of the various campuses in funding summer/semester scholarships. Dr. Chapes indicated that the K-INBRE Undergraduate Symposium will be held in Manhattan on January 14-15 and that all campus coordinators should encourage their students to attend.

Dr. Hunt announced that the K-INBRE has funded \$107,000 in Core Facilities support, \$145,000 in Recruitment support and over \$470,000 in Pilot and Bridging grants in 2005. She also announced that the regional INBRE meeting will be held in South Dakota this year with dates to be announced.



Network steering committee meets in KC to review K-INBRE's progress over the last few months.

Mark Your Calenders for the Fourth Annual K-INBRE Student Symposium

at Kansas State University
Manhattan, KS

January 14 to 15

*More information
to be announced . . .*

STAR Trainee Awardees

Six students were awarded the STAR Trainee award from K-INBRE.

The award gives each student a \$7,500 scholarship for research in their senior year and support during their first year of graduate school.

The students who received the award were nominated by a campus coordinator.

Here is the list of winners.

John Anderson (KSU)

Brooke Barrett (KU, graduate student, year 2)

Ashley Burdex (LU)

Laura Fisher (FHSU)

Patrick Porubsky (WU)

Marquita Rowland (LU)

Faculty Scholar Awards

This summer, 10 individuals were named K-INBRE Faculty Scholars.

Faculty Scholars receive an award of \$10,000 to be used at their discretion in their research programs.

The scholars include the following:

Katsura Asano (KSU)

Gustavo Blanco (KUMC)

Sue Brown (KSU)

Shilpa Buch (KUMC)

Eric Gillock (FHSU)

Erik Lundquist (KU)

Jeff Staudinger (KU)

Eric Trump (ESU)

Sonya Williams (LU)

Daniel Zurek (PSU)

Announcements

W A S H B U R N UNIVERSITY

Three Washburn K-INBRE students took awards at the Kansas Academy of Science Meeting in April 2005 for their research presentations. Laura Ross took first place in the poster presentation and Patrick Porubsky took first in the oral presentation in the undergraduate competition. Taking third for the poster presentation was Scott Maley.

KANSAS STATE UNIVERSITY

Student Zack Brown, with several others in the L. Takemoto's lab, presented an abstract at the annual meeting of the Assoc. for Research in Vision and Ophthalmology at Ft. Lauderdale, Florida. The event took place from May 1-5, 2005. The abstract title was, "Mode of Alexa BSA internalization in the bovine lens."

Christen Buseman, a former K-BRIN scholar, received her BS/MS degrees in Biology (with a minor in Business). Her MS thesis is entitled, "New Arabidopsis Galactolipids Containing Esterified Oxylipins", and she defended her thesis in July 2005. She is the second student to complete the Division of Biology's new combined BS/MS program. She is currently a Ph.D. candidate at Univ. of Texas, Southwestern in Dallas.

Former STAR Trainee Jessica Morton presented a poster at the 16th International Conference on Arabidopsis Research that took place in Madison, Wisconsin from June 15-19. The poster was titled,



Three Washburn student placed at the Kansas Academy of Science Meeting. The students were Scott Maley, Laura Ross and Patrick Porubsky. (photo submitted)

"Lipases in Plant Defense and Death."

Morton and Buseman coauthored a recent publication, "Shah, J., Nandi, A., Buseman, C.M., Li, M., Krothapalli, K., Pegadaraju, V., Buffington, R., Morton, J., Omoluabi, O., Baughman, E., and Welti, R. (2004) Salicylic acid signaling in plant defense: the lipid connection. *Biology of Molecular Plant Microbe Interaction*, Vol. 4, pp 391-393, ed. I. Tikhonovich, B. Lugetenberg, and N. Provorov, ISMPMI, St Paul, MN."

K-INBRE student Nathan Hall is also coauthor of a recent publication, "Chingakham Ranjit Singh, Cynthia Curtis, Yasufumi Yamamoto, Nathan S. Hall, Dustin S. Kruse, Hui He, Ernst M. Hannig, and Katsura Asano (2005). eIF5 is critical for the integrity of scanning ribosomal preinitiation complex and accurate control of GCN4 translation. *Mol. Cell. Biol.* 25, pp 5480-5491."

