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# K-BRIN

Kansas Biomedical Research Infrastructure Network

## Training and Mentoring Newsletter

Summer 2003 Volume 2 Issue 1

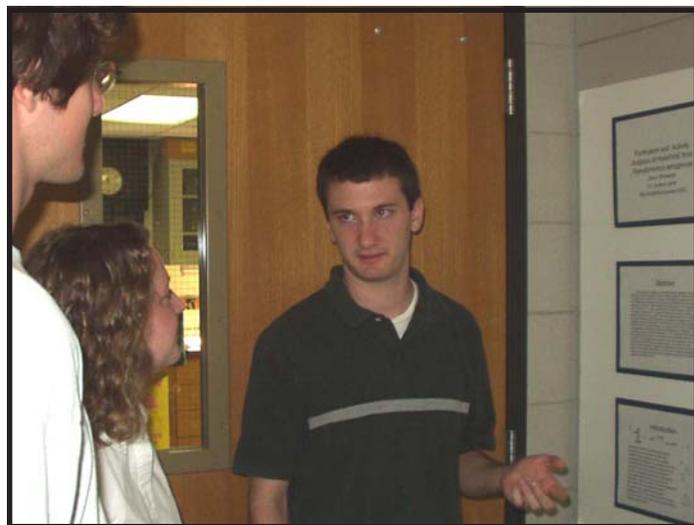
### KU Summer Undergraduate Research Symposium

**Cynthia Beall**

*Contributing Writer*

Five departments at the University of Kansas joined together to hold the Summer Undergraduate Research Symposium on the Lawrence, KS, campus on July 29. The event featured poster presentations on original research conducted by 58 undergraduate students. It was hosted by the departments of Chemistry, Pharmaceutical Chemistry, Medicinal Chemistry, Pharmacology and Toxicology, and Molecular Biosciences.

The Kansas Biomedical Research Infrastructure Network (K-BRIN) program sponsored 12 of those 58  
*(Continued on Page 3)*



*Jason Shimanek explains his poster to visitors to the symposium. (Photo by Cynthia Beall)*

**14 students presented  
with STAR Trainee Award**  
Information provided by Heiata Chapman  
*Administrative Officer*



*Anthony Brewer presents his summer project on July 29. (Photo by Cynthia Beall)*

This year, 14 students at Kansas universities were awarded the STAR Trainees award from the K-BRIN program.

The award gives each student a \$10,000 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. Then the winners were chosen by a committee of people throughout the state.

A list of this year's winners and their mentors is provided on page 3.

**INSIDE:**

- *STAR Trainee awardees, page 3*
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# 12 K-BRIN students present summer projects

**Joseph Chapes**  
*Editor*

Twelve K-BRIN sponsored KU students presented their summer projects during the Summer Undergraduate



Nicholas Avallone

Research Symposium. Pharmacy major **Barlas Buyuktimkin** believes he learned a lot from his K-BRIN sponsored project. "K-BRIN has given me an opportunity to develop some laboratory skills that I may not have learned in a classroom. It has also enabled me to see that research takes time and is not an overnight phenomenon. K-BRIN has also shown me that experiments can be and must be modified as one goes along," Buyuktimkin said.

Chemistry major Jason Sanders shared this belief.

"K-BRIN has been a wonderful experience for me, providing me with the time I needed to explore scientific research. My mentor and lab group have been outstanding to work with and have taught me many things over the course of just a few months. I've been able to learn 'hands on' a lot about organic chemistry, NMR, and the research process in general," Sanders said.

Biology and chemistry major Edlira Bashari also gained knowledge from



Susan Banks

her summer research.

"Before this internship I had no idea about what it meant to do research in a biomedical field. Now I have a lot better understanding of it because of the hands on



Edlira Bashari

lab experience. I got the chance to interact with the graduate student and post-doc as well as other undergraduates in Dr. Staudinger's lab and this helped me see other people's points of view on research. This experience will help me decide if graduate school is the best option for me or not," Bashari said.

The summer research provided the students knowledge that will be helpful in the future.

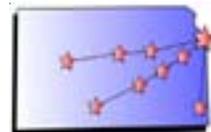
"This has been a major learning experience for me; my participation in research, working on my own project,



Barlas Buyuktimkin

has opened my eyes to many aspects of research that I was unaware of. The chance to work through a problem with all of the successes and also the frustrations has served to solidify my desire to seek a career involving research. This experience has been very helpful in giving me the opportunity to gain

*(Continued on Page 4)*



# Summer Undergraduate Research Symposium

(Continued from Page 1)

participating in the Symposium. Other students were sponsored by National Science Foundation-sponsored Research Experience for Undergraduates Program at KU Department of Chemistry, various industrial, foundation and institutional grants, and the departments themselves. Robert Hanzlik, KU campus coordinator for the K-BRIN Training and Mentoring Program, was pleased with the interactions of the students at the event. "I saw a great deal of excitement and enthusiasm from the students for conducting research and for their projects," he said.

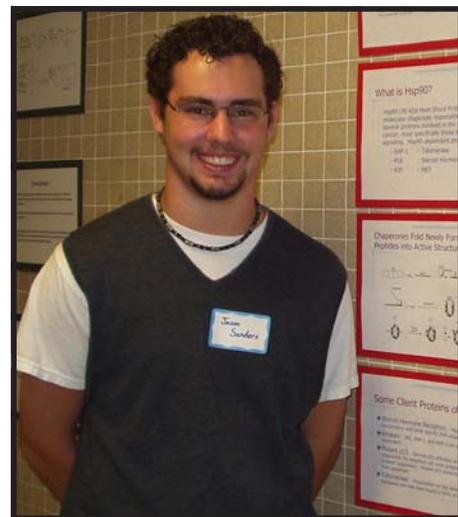
The posters were displayed in two sessions that morning. Students were asked to stand by their posters for 45 minutes to explain their research and results to faculty, students and staff who crowded the poster areas in Malott and Haworth Halls. Each student's poster described and illustrated the research they had done during the summer, and a lot of spirited discussion took place.

This summer each student worked full time in the

laboratory to obtain an understanding of what a career in research would encompass.

Students learned laboratory techniques such as microdialysis, high performance liquid chromatography, protein expression and purification, and protein crystallization

with assistance from faculty mentors and graduate students. Areas of research explored ranged from heat shock proteins, that could serve as possible cancer-fighting agents, to a better understanding of how mammalian organs, such as kidneys develop, to exploring possible new drugs.



*Jason Sanders stands with his poster.*

## STAR Trainee Awardees

University of Kansas

Medical Center

Student: Megan Kaba

Mentor: Dr. Doug Wright

Nicholas McWilliams

Dr. Robert C. De Lisle

Kansas State University

Joseph Coolon

Dr. Mike Herman

Jessica Morton

Dr. Jyoti Shah

Sherry Rhoades

Dr. Sue Brown

University of Kansas

Jason Sanders

Dr. Brian S. J. Blagg

Emporia State University

Jeri Howard

Dr. Scott S. Crupper

Fort Hays State University

Ryan Ausborn

Dr. Duane A. Hinton

Jeff Berry

Dr. Duane Hinton

Carmen Winter

Dr. Greg Kandt

Pittsburg State University

Kerri Burson

Dr. Nancy Brooker

Wichita State University

Crystal Cox

Dr. Karen Brown-Sullivan

Benjamin Weaver

Dr. William J. Hendry

Paige Hatcher

Dr. Mark Schneegurt





# KU Students present summer research

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the skills and knowledge necessary to continue in research,” biochemistry major Wenjia Wang said.

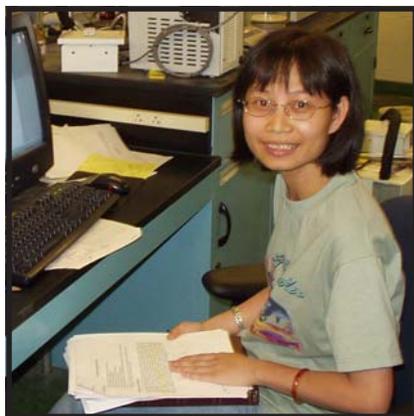


Todd Funke

Professors in this department, but I feel more educated and have at least a little bit of background on what goes on at this level. It also gives me an opportunity to help decide whether or not I want to pursue a career in research or become a Pharmacist,” Buyuktimkin said.

The names of all of the student who presented their projects at the symposium, their mentors and project names are in the list below.

(S)tudent: Nicholas Avallone  
(M)entor: Dr. Lisa Timmons  
(P)roject: Investigation of tRNAs as targets of RNAi in *Caenorhabditis elegans*.



To-Nga Huynh

S: Susan Banks  
M: Dr. Victoria Corbin  
P: Characterization of a Two-part Mutation that Prevents Muscle Fusion.

S:Edlira Bashari  
M:Dr. Jeffrey Staudinger  
P: Large-Scale Purification of Human and Mouse PXR. 1.

Buyuktimkin believes the experience will help him decide what to do in the future.

“This experience has given me an opportunity to see what kind of research is being done at the University level. Granted, I have not talked to most of the

S: Anthony Brewer  
M: Dr. Brian S.J. Blagg  
P: Inhibition of Hsp90 Molecular Chaperone by Natural Products.

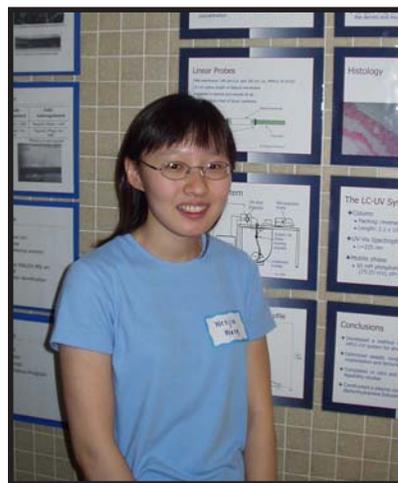
S: Barlas Buyuktimkin  
M: Dr. J. Howard Rytting  
P: Solid State Characterization of Lyophilized Formulations.

S: Todd Funke  
M: Dr. Ernst Schonbrunn  
P: Protein Structures: From DNA to Crystals.



Chad Schroeder

S:Andrew Geissel  
M: Dr. Krzysztof Kuczera



Wenjia Wang

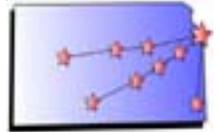
S: To-Nga Huynh  
M: Dr. Brian S.J. Blagg  
P: Chimera: A New Approach Toward Hsp90 Inhibition.

S: Jason Sanders  
M: Dr. Brian S.J. Blagg  
P: Inhibition of the Molecular Chaperone Hsp90.

S: Chad Schroeder  
M: Dr. Paul Hanson  
P: The Scope and Utility of Enol Phosphoramidates in the Ring-Closing Metathesis Reaction.

S: Jason Shimanek  
M: Dr. Audrey Lamb  
P: Overexpression and Purification of an Essential Component of the *P. aeruginosa* Pyochelin Synthesis Complex

S: Wenjia Wang  
M: Dr. Craig E. Lunte  
P: Determination of Diphenhydramine Delivery to the Dermis and Muscle Following Intravenous Injection Utilizing In Vivo Microdialysis.



# Vet Students work in K-BRIN labs

**Joseph Chapes**

*Editor*

Many K-BRIN mentors are usually associated with other programs at their respective institutions. This is especially true at Kansas State University.



*Amy Lomas*

Both K-BRIN and the Veterinary Scholars Programs share many goals.

“I think that the Veterinary Scholars Program compliments K-BRIN by promoting the formation of learning communities within the biomedical research laboratory. The Veterinary Scholar and the undergraduate scholars (and the research support staff, graduate students, post-docs etc.) all bring different skill sets and different life experiences to the research laboratory. Providing these different individuals with the opportunity to interact allows each one to be both a learner and a teacher, and thus empowers everyone in the lab,” Freeman said.

The vet students involved in the program gain valuable experience from their lab research.

“My lab experience will help me as a veterinarian because I’ve learned more about immunology as it relates to disease. Additionally, if I chose a career in industry, I would understand the importance of developing compounds to stimulate the immune system rather than just introducing an antibody response,” Lomas said.

Lomas worked in Dr. Chapes’ lab on a project entitled “Effects of Adoptive Transfer and Interferon Gamma Injection on the Clearance of *Ehrlichia chaffeensis* in Mice.”

Three K-BRIN Mentors, Drs. Stephen Chapes, Rollie Clem, and Lisa Freeman, are involved in the Veterinary Scholars Program. This program allows vet students to work in a laboratory for a summer.

Both K-BRIN and the

Dr. Freeman’s student, Jessica Hoffman, also believes her experience helped her.

“I think that my experience will help me as a veterinarian in several ways. I think that mainly it has given me a new perspective of the possibilities for what I can do with my veterinary education. Also, it has given me a better scientific understanding of a topic I’m quite interested in because of my clinical and practical experiences with horses,” Hoffman said.

Hoffman’s project was called “Intestinal Epithelial Cell Expression of Voltage-gated Potassium Channels is Altered in Reponse to

Non-steroidal Anti-inflammatory Drug Treatment.”

Jeremy Stuart, Dr. Clem’s student, believes he learned much about lab research.

“I have realized that lab work is not easy and it does not always work as planned. But that is the way it works, sometimes your project works and sometimes it was never meant to happen. The great thing about it is that you control your own project. You make the decisions on what experiments to try and what direction you should take your project,” Stuart said.

Stuart worked on a project called “The Cloning of a Plasmid Vector to Increase the Efficiency of RNAi in Insect Cells.”

Dr. Clem thinks there are several reasons why it is important for vet students to have lab experience.

“[It is important] For two reasons: 1) Most veterinarians have little exposure to research. Having a better understanding of how research is done and how results are interpreted will help them be better veterinarians. 2) Veterinarians acquire a unique set of skills and knowledge during their training, and if they apply these skills and knowledge to biomedical research this will be very valuable to the biomedical research community,” Clem said.



*Jessica Hoffman*



*Jeremy Stuart*



## *Focus on* Wichita State University

The "Focus on" section is made up of features on students and/or faculty at different K-BRIN Universities and how they see the K-BRIN organization. This issue looks at Wichita State University.

### Kristy Egbert, student

Mentor: Dr. Wendell Leavitt

Project: Working on the effects of a particular cytokine on uterine decidual tissue in the hamster

*What got you interested in scientific research?*

"Honestly, movies got me interested in scientific research. I'm a huge movie buff and in the process of growing up and watching the massive amount of movies I did, I became increasingly interested in the things I was seeing. However, I wasn't naive and believed that what I was seeing on the big screen was actually how it worked, so often afterwards I would begin to research the real life practical applications of what I had seen in a movie, such as genetic engineering/gene therapy, stem cell research, etc. I have always been fascinated with living organisms, especially the human body for it is a remarkable piece of machinery. Our future of scientific research is limitless with the possibilities of gene therapy, biomechanical organs, stem cell research and the like. It truly enthalls me and I am glad to be entering into the scientific field at a time of such great potential."

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

"The best thing about learning about science at WSU

### Paige Hatcher, student

Mentor: Dr. Mark Schneegurt

Project: Genetic Analysis of the Microbial Community of the Salt Plains of Oklahoma

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

"Dr. Mark Schneegurt is my mentor and he got me interested in research during a tour of his lab for my intro. to biology class."



*Kristy Egbert and her dog, Loki*

has to be the faculty. Without the talented faculty in the Biology Department my education wouldn't be what it is today. They are a brilliant staff and teach exceptionally well with the materials that they have. They seem to genuinely care about my education which makes learning from them even easier."

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

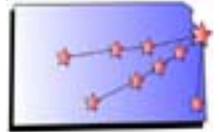
"This experience has given me training in bioscience that will be beneficial and most likely invaluable in my future studies and research in the science field."

*What areas of scientific research training interests you?*

"My favorite research topics are genetics, virology, and epidemiology."

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

"My K-BRIN grants (summer scholar and STAR trainee) have allowed me to continue to pursue academic pursuits that I could not afford to otherwise. As I pay for school myself, without the grant, I would be working a part-time job, instead of in the lab."



## Focus on Wichita State University

### Laurice Miller, student

Mentor: Dr. Bobbie Pettress  
Project: Examining clinical isolates of Methicillin-Resistant Staphylococcus aureas and Methicillin-Sensitive Staphylococcus aureas strains to determine their MICs to benzalkonium chloride

*What got you interested in scientific research?*

“The opportunities for research at WSU were first introduced to me by Ms. Ellie Skokan, the Undergraduate Program Coordinator. Since my freshman year at WSU, I wanted to conduct my own research. The opportunity for me to pursue research arose my senior year with the funding of



Laurice Miller

the K-BRIN scholarship.”  
*What were the goals of your project?*  
“My initial goal for the project was to learn proper experimental techniques. I believe this experience has allowed me to achieve this goal and now I would like to continue conducting research at the graduate level.”  
*How has K-BRIN helped you expand your scientific knowledge and experience?*  
“The K-BRIN scholarship offered me the opportunity to immerse myself in scientific research without having to worry about funding. I was taught the basic laboratory techniques necessary to carry out an experiment. I was also able to read various journal articles to increase my knowledge of scientific material.”

### Dan Tran, student

Mentor: Dr. Jeff May  
Project: Measuring the effects of endocrine disruptors on ovarian senescence

*What got you interested in scientific research?*

“I was intrigued by the concepts presented in my biology classes and wanted a way to apply them in a lab setting.”



Dan Tran

*How does your mentor help you?*  
“Dr. May has instructed me on the various techniques and procedures used in lab. He also assists me in evaluating potential problems that have occurred in the experiments.”  
*In what ways do you think this experience will help you in the future?*  
“I plan on attending medical school in the future. With my research experience I believe that I will be able to better understand future medical developments. In addition, if I pursue biomedical research my experience at WSU will have given me a strong knowledge base to build on.”



## Focus on Wichita State



### Dr. William Hendry, mentor and campus coordinator

*How did you get interested in scientific research?*

“My dad directed clinical labs in various Boston hospitals so I had early access to medical books, microscopes, etc.”

*Why do you think K-BRIN is a good program?*

“I think that the K-BRIN program is very valuable because it compliments an established departmental strength. Prior to my arrival at WSU, the Department of Biological Sciences decided to enhance its research presence and to include undergraduate students in that activity. Consequently, formal courses were established where students received credit for participating in original research in faculty labs and then preparing a final written report of their results. By also providing scholarship incentive for our top students, K-BRIN has enhanced the status of an already very successful activity.

*Why do you think it is important to involve undergraduates in research?*

“I think that most successful scientists became launched firmly on their career path only after they had a hands-on opportunity to actually muck around in a lab. So, the earlier the process is set in motion and the closer it approximates the real thing, the sooner a happy lab animal can be created.”

## Editor's Note:

Wow! Another edition of the K-BRIN Training and Mentoring Newsletter! This was an interesting one to put together. Much of it was assembled on my way to and from my trip to visit Charleston, South Carolina. If you have not been there, you should. Great history and beaches!

I would like to extend a personal thank you to Cythia Beall at KU. Without her help, our feature on the KU Summer Undergraduate Research Symposium would not be possible. If you see her, tell her thank you!

As always, if you have any suggestions or comments, please feel free to contact me.

Look forward to our next issue when we will have a feature on Dr. Joan Hunt, the director of K-BRIN!

Joseph Chapes  
jchapes@ksu.edu



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Dr. Stephen K. Chapes, Training & Mentoring Core Coordinator  
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**Funded by NIH RR16475**