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The K-INBRE Newsletter

K-INBRIEF

Kansas IDeA Network of Biomedical Research Excellence

Fall 2005 Volume 4 Issue 2

Consider All your possibilities

Joseph Chapes
Editor

As a K-INBRE Scholar, life is good. Working in the lab, presenting posters and giving presentations are second nature to you, but now you have to consider if you want to continue your education and go to graduate school. Where do you go? What do you consider? These are some of the many questions that must be answered before deciding.

In a new series of articles, graduate students will provide advice garnered from their experience entering graduate school. In this issue, Washington University in St. Louis grad student Kerri Burson, formerly of Pittsburg State University, and Kansas State University grad student Sarah Schul, from Emporia State University, contribute their advice on graduate school.

Burson, who was awarded a STAR Trainee grant, found that her experience with K-BRIN helped in her decision to go the graduate school.

"The K-BRIN STAR program influenced my decision greatly," she said. "The scholarship

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

allowed me to continue my research project without worrying about balancing a job, as well as family and school. Therefore, I was able to determine that I truly loved doing research and decided to continue my education."

Burson found there is a lot to consider when looking at possible schools to attend.

"As an undergrad, I would suggest that students really focus on the faculty at the institutions that they are interested in and make sure that they are doing research in your area of interest," she said. "Also, ALWAYS ask for some time to speak with current grad students without faculty or staff present, even if it is not part of the interview schedule.

"It is very important to talk with current students, they will tell you if there are any down sides to attending that school because they don't have any reasons to lie. Then go with your gut instinct. If you weren't comfortable at any time during your interview weekend, then it probably isn't the right place for you."

Burson decided to attend Washington University because "of the breadth of scientific research being conducted" there. She is currently working on analyzing the evolution of microorganisms in the low diversity, high temp/pH environment of Yellowstone silica depositing hot springs under the mentorship of Dr. Carrine Blank.

If you decide to attend grad school, there is a lot you can do to prepare.

"Get as much hands-on experience with research as possible," Burson said. "Read and analyze a lot of scientific papers and textbooks. Make sure that you LOVE doing both because you will be doing A LOT of both in grad school. Try to get a summer internship/ fellowship and talk to as many grad students as possible about the requirements for a PhD.

"Go into it with your eyes open regarding the workload and the political environment at various universities. Large research universities that receive a lot of government grant funding tend to be very political and the teaching is usually suboptimal, so know what you want most from a program and settle for a smaller school if you are more comfortable there."

Schul also had much advice to give to those who are considering graduate school.

"Advice that I would offer those who are deciding

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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 Wichita State University. (Photo submitted)

Seth Perkins, Student

Mentor: Dr. Mark Schneegurt
Major: Biology

What is your current project?

"[I'm working at] the Salt Plains Microbial Observatory in Oklahoma. [The goal of the project is] to determine the presence of bacteria, that are responsible for the ammonia oxidizing portion of the nitrogen cycle in the soil of the salt plains."

How does your mentor help you?

"He is helping me develop my skills a laboratory researcher. He is also providing me with an atmosphere in which I can expand my knowledge in research techniques and helped me to understand the commitment that is necessary for a career in biology."

Seth Perkins (Photo Submitted)

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

"The best things about learning about science at Wichita State are the hands-on experience that I get from laboratories from my classes, and my undergraduate research."

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

"This experience will give me an advantage in competition for graduate programs. It has also given me a better idea on what I would like to pursue as a career in biology."

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

"I would like more training in molecular cloning, soil microbiology, and antibiotics synthesis and discovery."

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

"After I graduate, I plan on attending graduate school and pursuit of a Ph.D. I would like to teach on the university level. This could possibly include biomedical research."

Focus on Wichita State University

Mark Schneegurt, Mentor

Time at Wichita: Six years
Specialty/expertise: Applied and environmental microbiology. Molecular microbial ecology. Hypersaline microbiology. Nitrogen fixation. Metal-microbe interactions.

Where did you get your training?

BS/MS in Biology at Rensselaer Polytechnic Institute in Troy NY. PhD in Biology from Brown University in Providence RI. Postdoc (agrichemical discovery) at Eli Lilly in Indianapolis. Then postdoc/res. asst. prof. (cyanobacteria/bioregenerative life support systems) at Purdue University. Then res. asst. prof. at University of Notre Dame (applied and environmental microbiology).

How did you get interested in scientific research?

"It was the space program that got me interested in science. I was fascinated by the moon program and planetary science. I still am. I follow every one of those missions closely. I had a lab notebook when I was 7 and did experiments on plants in the backyard. I used to pull off leaves to see if/where they grew back. Turns out, when I was at Rensselaer, the lab did work like this to study determinance for flowering in tobacco."

How do you help the K-INBRE students at WSU?

"Students that work in my lab get broad exposure to the research environment. I work with them to develop project ideas that they help generate. This way, they are invested in the project. We regularly meet informally in the lab in small groups for wide ranging discussions that are not always limited to science and research. I work with them to find their strengths and identify areas that can be improved. They need to define their next career step and I try to help. I encourage my students to attend seminars and to accompany me to scientific gatherings. My undergraduate students have been coauthors on journal articles and they have presented at national meetings."

Why do you think K-INBRE is a beneficial program?

"The K-INBRE program brings a focus for the research community in Kansas. Students are part of something bigger. It gives them an audience for which to direct their presentations. There are meetings with deadlines that they can present at. This is motivating. The funding has allowed us to explore projects, such as our West Nile Virus work, that we never would have been able to attempt. It has also been great to have the videoconferencing setup in the department. This allows me to have virtual meetings with collaborators. And of course, students appreciate the opportunity for funding."

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

"For students interested in graduate or professional school, research is one of the best possible experiences. It is not the book knowledge or techniques that are most valuable. It is learning about themselves. Learning that failure is part of the life of every successful scientist. Students are part of something, a lab family. They are doing 'the real stuff' and that is so exciting for them that it can really cement their goals firmly on careers in science. When they leave a research lab, they leave with confidence. Confidence in their ability to contribute, to learn by themselves, to work hard toward a goal despite setbacks and succeed."

What do you believe are the attributes of students who have successful undergraduate lab experiences?

"Committment is the key. Good grades are not a good indicator of success in research. A willingness to put in a good deal of time is critical. The best undergraduate students are the ones that drop their book bags in the lab in the morning and only leave to go to class. These students can be remarkably productive. But it all comes down to their committment to research and loyalty to the lab."

New initiatives for the Bioinformatics Network

Submitted by Peter Smith
Bioinformatics Core Director

The K-INBRE Bioinformatics Network has implemented new activities that promise to advance bioinformatics across the state of Kansas. Nivritha Gopathi has joined the network as a Bioinformatics Outreach Coordinator. Ms. Gopathi has a M.S. in bioinformatics and computer sciences from the University of Missouri-Kansas City. She is now working closely with bioinformatics staff at KUMC, KU-L, KSU and WSU in order to become familiar with programs in genomics microarray, proteomics, lipidomics and glycomics, as well as other activities at these scientific partner institutions. This fall, Nivritha began traveling to K-INBRE undergraduate institutions to assess their needs for bioinformatics in teaching and research, and will coordinate Bioinformatics Network activities to meet these needs. Arrangements for Nivritha Gopathi to visit your campus can be made by contacting Peter Smith, Bioinformatics Network Director (psmith@kumc.edu) or Nivritha Gopathi, Bioinformatics Outreach Coordinator (ngopathi@kumc.edu).

The Bioinformatics Network has also acquired new supercomputer capabilities. In partnership with the Information Technology and Telecomunications Center at KU-L, two multinode cluster computers are now operational at KU-L and KUMC. These consist of a 64 dualnode cluster with 25 terabytes of memory at KU-L, and a 16 dualnode cluster with 5 terabytes of memory at KUMC. These represent state of the art supercomputers that will be used for computationally intensive bioinformatics activities by the K-INBRE Bioinformatics Network.

However, investigators at all KINBRE institutions are invited to use these computers if they have a need for advanced computational processing. Access can be obtained by contacting Gerry Lushington, Director of the K-INBRE Bioinformatics Core at KU-L (glushington@ku.edu) or Peter Smith at KUMC (psmith@kumc.edu).

KUMC Faculty Scholars

Above: Paul Cheney, Ph.D., Chair of the department of Molecular and Integrative Physiology presented the Faculty Scholar plaque to V. Gustavo Blanco, M.D., Ph.D. (Photo submitted)

Below: Lowell Tilzer, M.D., Director of Laboratory Medicine and Clinical Laboratories presented the Faculty Scholar plaque to Shilpa Buch, Ph.D. (Photo Submitted)

Graduate Students

(Continued from Page 2)

on graduate schools to attend is set up a visit," she said. "Make sure to visit with as many individuals who are already part of the program as you can. Tell the individuals that you are speaking with to be honest and tell you what they like and dislike about the program they are involved in.

"I would also encourage those interested in graduate school to pick a program that you feel you will have interest in five years from now when you start. Graduate school is demanding and you must truly love what you do because your life starts to revolve around school and research. One last thing that I would encourage those interested to do, is to look into what would be required of you, for example, if you are required to teach or not. In my case, my program does not require me to, which is really nice because I can spend more time in the lab."

Schul is working in the microbiology lab of Dr. Roman R. Ganta investigating the growth obligate intracellular pathogens.

Schul found that graduate work is often more involved than undergraduate research.

"The first huge difference is the time I dedicate to my research. During my undergraduate time, I had a larger class load and less time to spend in the lab," Schul said. "In graduate school, I normally spend eight to five in the lab while still attending class. Another difference is the research tools that are available to students. At Emporia State University, I had one specific lab that I worked in where we completed all of our work. Up at Kansas State University, I work in three different labs and there are many more tools available to me, such as the electron microscope, confocal microscope, and various other tools that are needed to complete my project."

Sarah Schul

When deciding on whether to attend graduate school or where to attend, Schul summed up all the advice best, "Make sure and consider all your possibilities."

Knepper research published

Caleb Knepper was a coauthor on the paper, "Premature Leaf Senescence Modulated by theArabidopsis PHYTOALEXIN DEFICIENT4 Gene Is Associated with Defense against the Phloem-Feeding Green Peach Aphid, Plant Physiology doi: 10.1104/pp.105.070433," with his K-INBRE mentor Jyoti Shah.

ANNOUNCING

THE FOURTH ANNUAL

K-INBRE SYMPOSIUM

9:30 AM, SATURDAY, JANUARY 14, 2006
through
NOON, SUNDAY, JANUARY 15, 2006

ALUMNI CENTER
KANSAS STATE UNIVERSITY
MANHATTAN, KS

To register go to the KINBRE Website www.kumc.edu/kinbre. Contact Heiata Chapman at hchapman@kumc.edu with questions.

Registration Deadline: December 9, 2005