The BCMB Buzzzzzz

Why do students choose to come to the University of Tennessee? There are a variety of reasons, including growing up with orange as their favorite color and spending Saturdays in the fall with 100,000 of their closest friends cheering their cherished Volunteers on to victory. Our students also come for a high quality academic experience, and the statistics on students who have entered UTK over the past several years attest to this. Why do students choose to major in Biochemistry and Cellular and Molecular Biology? Our majors are highly motivated students who boast a good track record of success after graduating, proceeding on to careers in biomedical sciences, pharmaceutical sales, education and graduate training in biological sciences, medicine, pharmacy, and other fields. There also is another motivator... RESEARCH. The Carnegie Foundation classifies the University of Tennessee, Knoxville, as a “Research 1” Institution. This categorization means that the research enterprise is a key element that defines UTK and shapes the quality educational experiences that are available to its students. The active pursuit of research by our faculty provides opportunities for students to gain hands-on scholarly experience as a part of their education at UTK. This is a (Continued on page 5)

The Tyler Duke Foundation Scholarship

In 2010 the BCMB Department received its newest gift to sponsor a scholarship for one of our undergraduate majors. The gift came in memory of a talented BCMB undergraduate major, Tyler Duke, who died unexpectedly at the end of 2009, which was the middle of his senior year at UTK. Tyler had planned to attend pharmacy school after graduating. Therefore, this scholarship was established by Tyler’s family in the amount of $1000 to recognize an outstanding BCMB undergraduate major who likewise intends to attend pharmacy school after graduation from UTK. This award is intended for a rising senior who has declared a BCMB major and who has an overall GPA of 3.6 or above and a score on the PCAT of at least 80. Our first recipient of this award (Continued on page 10)
Interview with Assistant Professor Dr. Brad Binder

Brad Binder came to the BCMB department as a new faculty member in 2009. Prior to that he was at the University of Wisconsin, in Madison.

Q: What got you interested in Science?
B: It was actually a combination of my father and a couple of teachers. My father used to buy me all sorts of science kits and that kind of stuff. My father was not a scientist; he is a dentist by training, and an artist and a violinist and he had an inquisitive mind. He encouraged that in his kids. The grammar school teachers, biology teachers were Mr. Ulak, and Mr. Jackson. They just made it interesting and fun, and at times, like real-life.

Q: Where did you go to college?
B: George Washington University, in DC. I grew up in the New York City area, not in the, DC area. But I had no desire to stay in the New York City area, so I moved a little bit. I got a Bachelor’s and a Master’s there. Both were in Zoology. I didn’t want to take any plant classes.

Q: Why was that?
B: At the time, all of them were on systematics, sort of descriptive, and that wasn’t really what I was interested in. Now, looking back on it, I probably would have liked it fine, but I just didn’t want to take that kind of class. I finished my B.S. and then my M.S. at GW. Following that I went to the University of Wisconsin and completed my Ph.D. in Neurosciences. I’m a plant biologist now. I took one plant class at George Washington and that was a plant biochemistry class. I went to UW Madison and worked on phototransduction in vertebrate rod photoreceptors. I finished my Ph.D. in Neurosciences in 1989. And then I switched fields and obtained a postdoctoral position with Mike Sussman who worked on calcium signaling in plants.

Then I became a staff scientist with Tony Bleecker, and started working on ethylene in the mid nineties.

Q: You must have liked Madison and the environment of the university there.
B: Yes, it was a combination of liking Madison and personal circumstances. I got married at the end of my Ph.D. and my spouse was still working on her Master’s degree in Social Work. So ideally, I needed to find something locally.

Q: Had you done any teaching in your post-doctoral career, before coming to UT?
B: Yes. I’ve done a lot of teaching. As an undergraduate I was a Teaching Assistant for Comparative Vertebrate Anatomy. While working for my Master’s, I was a Graduate Teaching Assistant and taught the labs in Introductory Biology for non-majors as well as labs in Electron Microscopy. And then at Wisconsin I worked as a Teaching Assistant in the Neurobiology class.

Q: What about the transition on coming to UT?
B: Professionally it’s been great. The thing that has been hardest professionally is the time-management while teaching, to get the lab going, supervise people, and keep the course going. Of course teaching 401 has been a chore because I had to develop all the lectures. But Dan [Roberts] has helped me. He shared all his Power Points and I redid them for myself. I also sat in on his class. So that’s been a big help. The transition from Madison to Knoxville as a community has been more difficult than the professional transition simply because it’s really a different kind of city, even though it’s about the same size.

Q: What have you enjoyed most about the teaching?
B: Oh, the crazy questions that I get! I actually like lecturing; I don’t enjoy giving tests or quizzes. And the evaluation part is a chore for all of us.

Q: You mentioned earlier that the transition, with respect to your professional life, has been pretty smooth. I’m curious, in what context? That is, easier to get your laboratory up and running, or good cadre of colleagues to interact with?
B: I’d say both of those, and more. Getting the lab set up has been a lot of work and it’s not done, really. I used to be in space across the hall from my office. When I got my grant my lab moved downstairs to a slightly bigger space. I came here with a fair amount of equipment and a fair amount of the biological stocks, including seeds that are lying around here. So I was able to get up and running. Within a couple of months I was starting to do experiments. I won’t say that part was easy, but it was smooth. Colleagues have been great. Within the department, collegial support and interactions have been good. Obviously, getting a grant right away has taken some pressure off me. I hired a post-doc, I’ve got a lab-manager at the moment, who’s leaving for nursing school. She also made the transition very smooth. The lab-manager is great. Cynthia [Peterson] has been very supportive. And, as you know, having a supportive head of department can be a make-or-break issue.

Q: Well, what sort of role should people in

(Continued on page 7)
External Advisory Board

Over the last several months, Dr. Peterson has been busy assembling an outstanding group of individuals who come from across the country to serve as an External Advisory Board for the BCMB Department. The purpose of the Board is to provide input on our departmental mission and goals and to give feedback on a variety of issues regarding our curriculum, our preparation of students for future careers, the research activities in the department, and our outreach activities. On May 27th and 28th some of members came to Knoxville for the first meeting of the Board. On Thursday night the BCMB faculty and Board had an informal get-together to become acquainted and introduce the department to the visitors. On Friday morning, the Board members met at Walters Life Sciences Building for a tour of our facilities, a presentation by Dr. Peterson with an overview of department activities, and a presentation by Randy Atkins on development activities in the College of Arts and Sciences and in BCMB. This continued with a research presentations by Barry Bruce, Rebecca Prosser and Jeremy Smith. The Board enjoyed a luncheon with many of our BCMB graduate students. The day continued with presentations highlighting our graduate student and undergraduate student research activities. The department looks forward to hosting the External Advisory Board for a visit again during the current academic year.

Please meet our board members:

Mr. William G. Beasley, BS, CCRP is the Vice President of Clinical Research at BioMimetic Therapeutics, Inc., located in Franklin, TN. He received a B.S. in Biology (cum laude) from the University of Tennessee, Knoxville.

Dr. Carole Dabney-Smith is an Assistant Professor for the Department of Chemistry and Biochemistry at Miami University located in Oxford, OH. She received her Ph.D from the University of Tennessee, Knoxville in Biochemistry, Cellular and Molecular Biology in 2001.

Dr. Mary Ann Handel received her Ph.D. in Biology from Kansas State University. Her current position is Senior Research Scientist and Director of Cooperative Predoctoral Program at the Jackson Laboratory in Bar Harbor, Maine. She is also an Adjunct Professor at the University of Maine and a Professor Emeritus at the University of Tennessee, Knoxville.

Dr. Mary Kot, Professor and Director of Global Health Systems. She is also the former Chair of Biology has been at Mercer University since 1991. She received her Ph.D. from the University of Tennessee, Knoxville. Her specialty is Cell Biology and her research interest is the contribution of *Candida albicans* to biofilm formation. Dr. Kot has written a paper, “The Hungry Gene as a Core Text in a Freshman Learning Community,” that was included in the book *The Place of Core*.

Dr. Paul T. Naylor is a practicing orthopedic surgeon in Knoxville, TN, who specializes in sports medicine, surgery of the shoulder, and total joint replacement. He received his PhD from UT Knoxville in 1981. After graduating with his MD from the University of Tennessee Medical Center in Memphis, Tennessee, he pursued his residency at the Wake Forest School of Medicine, North Carolina Baptist Hospital in Winston-Salem, North Carolina.

Mr. Paul J. Ottaviano has over 35 years of executive leadership, entrepreneurial, research, and teaching experience in the healthcare industry. In addition he has taught undergraduate and graduate college level courses, served on the boards of colleges, presidential advisory committees, and lead research efforts at the medical school level.

Dr. Richard Smith earned his M.D. at the University of Tennessee, Memphis in 1984. He did his Surgery internship and Orthopedic surgery residency at the University Hospital in Jacksonville, FL. Dr. Smith began his practice in 1990. He is a Board Certified Orthopedic Surgeon and possesses the American Board of Orthopedic Surgeons Certificate of Added Qualification in Surgery of the Hand.

Dr. Sean Michael Sullivan received his Ph.D. in 1984 in Biochemistry from the University of Tennessee, Knoxville, followed by postdoctoral training at California Institute of Technology from 1984-1987. In 2007 he became the Executive Director for Pharmaceutical Sciences at Vical, Inc. located in San Diego, CA.

Dr. Robert F. Tilton, Jr. has worked for PhytoCeutica, Inc., located in New Haven, CT since 2001. His current position is Chief Operating Officer. He received his Ph.D in 1984 in Pharmaceutical Chemistry at the University of California at San Francisco and pursued his postdoctoral work at MIT from 1984-1986.

Dr. Jason Grant Williams earned his Ph.D. in Biochemistry and Biophysics in 2001 at the University of North Carolina at Chapel Hill after graduating from the Biochemistry Department at UTK in 1996. Since 2004 he has been working for the National Institute of Environmental Health Sciences as the Director of the Protein Microcharacterization Core Facility (PMCF).
Focus on an alumnus: John Lamerdin

During the spring semester this year BCMB sponsored a graduate seminar course focusing on speakers from the pharmaceutical and biotechnology industry. John Lamerdin was one of those speakers. John is a patent attorney and his role in the course was to talk about the intellectual property issues associated with these industries. John earned his Ph.D. in BCMB, graduating in 1997. We took the opportunity to talk with John about the career path he took after successfully completing the graduate program in BCMB.

Q: After you graduated from UT with your Ph.D. you went to law school. Where was that?
A: I went to Franklin Pierce Law Center (now University of New Hampshire Law School). Franklin Pierce is really small. At the time it was the smallest law school in the country. I think we graduated 95 people in my class. And probably two-thirds were patent people, or trademark people, or copyright people, some form of IP (intellectual property). We always thought there was a little cache to being the smallest, and at the time we were the best, for whatever stock you put in those rankings. We were number one for patents and IP law. People who know Franklin Pierce know it for patent and IP law.

Q: I'm curious how your training and Ph.D. in the sciences has fit in with your law degree, and has that really been a benefit to you?
A: Oh, it's the only way I could do my job. What I do in my job, in the patent world, is take the science that the inventors develop, translate it into patent applications, and then argue the merits of the science to the Patent Office, in favor of patentability. So it's vital that you can understand and talk about the science at the same level that the scientists are thinking about it. So absent my Ph.D. and scientific training, that would be more difficult.

Q: Is your combination of degrees typical for many of the people doing patent work for biotech companies now? That is, they have a Ph.D. in basic sciences, and then get their law degree?
A: I wouldn't say it's typical, but it's not uncommon. I think there are a fair number of patent agents and attorneys out there who have either a Bachelor's degree or a Master's degree, mostly a Master's, but didn’t want to take the big leap to earn the Ph.D. And I can understand that. Of course there is another side of that. When I first graduated law school, I practiced with a firm. When I was practicing with the firm, some clients said, "I don't want to work with somebody who doesn’t have a Ph.D."

Q: Is that right?
A: Yeah. Sometimes it’s justified, because you do need the insight, and sometimes you do need to have been in the laboratory to understand and appreciate what your inventors did. And some of it is image, because some inventors take comfort knowing they've got someone with a Ph.D on the other end of the pencil writing the application. So, I wouldn't say it's typical, but it's not uncommon.

Q: Do you think it's offered you a competitive advantage, then, in the context of the job?
A: Oh, absolutely! Yes, definitely. Like I said, some inventors feel more comfortable working with someone who has gotten their hands dirty in the lab. Just the theory, the way a bench scientist thinks about things, the wide variety of work. As a patent attorney you don’t get pigeon -holed as someone who “worked on Enzyme X.” You have to understand Enzyme X, but you also have to understand NMR, crystallography, chromatography, protein purification, molecular biology, etc. So, it’s been a tremendous benefit.

Q: But you earned it, I mean you worked for it.
A: Oh, absolutely. I gave blood for this!
Q: Well, maybe not quite! I’m sure it felt like it at the time.
A: Actually, I did once, at the Blood Bank, I needed money! It was fantastic training, and as you say, I feel like I worked pretty hard for it. But in the patent world, in my career, I believe it’s opened doors. I think it’s really been instrumental in getting me where I am today. I feel so fortunate that I came through when I did, made the decisions and took the chances, and wound up where I did. It’s a pretty good place to be.

Q: Amgen is a good place to work?
A: It’s a fantastic place to work with fantastic cutting-edge science and brilliant scientists. And it’s a solid company, and in a rocky economy that’s nice. I’m in Thousand Oaks, just north of LA, and my wife and I live in Ventura, a beach town south of Santa Barbara.

Q: My recollection is that you got your Master's degree in San Francisco, at San Francisco State.
A: That’s right.
Q: And so you’re a California guy, anyway?
A: Yes, we came back for family. You know, of all the places we’ve been though, I actually like Knoxville the best. It’s a really nice place to live.
feature that makes us proud in BCMB. Over the past five years, the BCMB Department has hosted over 600 undergraduate researchers in our laboratories! The individuals who take advantage of undergraduate research in BCMB have some of the best career trajectories. Our students often receive accolades from the University and beyond, and these speak to the high quality of our students. In this issue of our newsletter, we have an article on p. 8 and 9 focusing on our spring awards reception in 2010, which recognized our award-winning students and the outstanding participation they have in research activities sponsored by the Chancellor’s Honors Program and the Office of Research. In the last academic year, our top graduate from BCMB was also named one of the top Natural Sciences graduates from the College of Arts and Sciences. This student, Kevin Kuo, was active in undergraduate research and is now in his first year of dental school. Please see the article on Kevin on p. 6. Last year, UTK had two undergraduate Goldwater Scholarship winners, Michael Jungwirth and Nathan Stebbins. Both are pursuing undergraduate research in BCMB and will graduate in the spring of 2011. One hopes to pursue an MD-PhD, and the other is determined to go to graduate school and become a college professor. He has been in an undergraduate research lab in the department since his sophomore year. One of our newest programs, an intensive summer Research Experience for Undergraduates, is also highlighted in this issue on p. 5. We have several departmental scholarships for BCMB undergraduate majors that are announced each spring. One is a research scholarship that provides a stipend to fund an undergraduate research project in addition to tuition support. We value our research tradition in BCMB and consider this a hallmark of a healthy, successful university. We are proud to have such active undergraduate researchers.

Summer Explorations into “Sensing and Signaling”

On Sunday, June 6, 2010, eighteen undergraduate students arrived on the UTK campus for a new adventure. They came from all over the United States, ranging from New Hampshire to Florida, Minnesota and Arizona. These students were selected from over 500 applicants to participate in a summer research experience for undergraduates (REU) program in the BCMB Department. Thirteen faculty, led by Dan Roberts as the REU organizer, served as mentors for these students. These students, with background interests and undergraduate majors ranging from physics to modern languages, took advantage of this unique summer research opportunity to work in BCMB laboratories on projects that helped them to hone their skills in biochemistry, cellular and molecular biology. The REU participants gained new insight into the way cues from the environment are sensed by living organisms. These students immersed themselves into research, with creative project themes such as “Sensing and Signaling in the Six-Protein ‘Brain’ of Bacteria,” “Ethylene Perception: What a Gas?” and “Keeping Nanoscale Motors Under Control.” In addition to conducting an original research project, the students participated in interactive lectures and panel discussions that focused on modern scientific developments and multidisciplinary approaches to studying sensing and signaling.
A Dentist in the Making: Kevin Kuo

Tell the readers about yourself.
I am originally from Kingsport, TN. I majored in BCMB and received my B.S. degree in Biological Sciences from the University of Tennessee, Knoxville. Currently, I am a first year dental student at the University of Michigan School of Dentistry.

Did you always want to be a dentist?
I looked into dentistry as a possible career beginning in high school. Although there were numerous reasons, my main motivation to pursue dentistry was to be a part of today’s enormous transition in healthcare. Right now, we are in a unique era when the world is socially, technologically, and scientifically changing at an extremely rapid rate. All of these factors are affecting the healthcare system in the U.S. Practicing dentistry now will certainly be challenging, but having a chance to make a difference during this time will make all my hard work worthwhile.

While at UTK, when did you start working in Dr. Nebenfuehr’s lab?
I began working in Dr. Nebenfuehr’s lab in the summer between my junior and senior year for the Summer Internship Program where students received a stipend to participate in a research project with a UTK faculty mentor. I wanted to work with Dr. Nebenfuehr because I really enjoyed his BCMB 240 course. I would later continue my research project that I started this summer during my senior year.

What did you work on? Did you enjoy this experience?
My research project focused on how myosin proteins affected root hair development in Arabidopsis thaliana. The purpose of this project was to understand more about the functions that myosin proteins play in plants. I used protomer-GUS staining to analyze the patterning of a transcription factor involved in cell-fate determination in seedling roots. My goal was to determine if there was a difference in staining patterning between wild-type and mutant (knockout) for a specific isoform of myosin proteins. Overall, I had a great experience working in Dr. Nebenfuehr’s lab. I learned not only about techniques in cell biological research, but also developed skills in critical thinking, scientific writing, oral and poster presenting, and statistical analysis. Moreover, my research project was particularly interesting. The implications of intracellular cellular trafficking go beyond basic science in plant biology. For example, it has potential practical applications in optimizing yields in agriculture by using myosin proteins as a means to improve nutrition and water absorptions in roots. I would highly recommend other students to work in Dr. Nebenfuehr’s lab.

Do you plan to continue doing research?
Yes, one of the main reasons why I chose the University of Michigan was for its research opportunities. In fact, the School recently changed their curriculum to give students the option to participate in a research-focused pathway. In the past, students normally just did research during their summer breaks in between their first and second years. However, with this new curriculum option, students can engage in research during all four years. I am definitely excited about doing research only subjects directly involved with the orofacial complex. Besides having the opportunity to learn from world-renowned dentists in the profession, engaging in research is an important attribute for future healthcare providers. In order to best treat patients, dentists and other healthcare providers much keep their knowledge and skills, which involves being able to recognize good research studies from bad ones.

Can you tell us about your trip to Nashville? What was it for?
During my spring semester of my senior year, I, along with five others, represented UTK at an event called “Posters at the Capitol.” Students from various universities in Tennessee presented their research posters to members of the Tennessee Legislature. The purpose of this annual event was to not only showcase the hard work done by students in the state, but also to demonstrate the importance of research to the state policymakers. The event in Nashville was a great experience. I was able to meet several State Representatives and Senators and enjoy the posters made by other students.

Who has been most influential to you at UT?
In general, I liked all the BMCB faculty that I was fortunate enough to encounter, whether it was in class or during my time in lab. It is the faculty (Continued on page 7)
Faculty Awards & Recognitions

Dr. Elizabeth Howell was honored with the 2009 Arts & Sciences Convocation Research Award & the 2010 Chancellor’s Research & Creative Achievement Award.

Dr. Daniel Roberts received the Chancellor’s Award for the 2010 Alexander Prize at the Chancellor’s Award Banquet in 2010.

The Department had three QUEST Scholars of the Week in 2009-2010 Academic Year.

Dr. Bruce McKee was recognized for his research group’s paper published in the Journal of Cell Biology.

Dr. Andreas Nebenfuehr was selected for having two of the top 100 most-cited articles in the journal Plant Physiology.

Dr. Rebecca Prosser was acknowledged for winning a $1.4 million NIH grant to study the effects of alcohol on the brain.

Dr. Peter Mazur has been re-elected to the Board of Governor’s of the Society for Cryobiology after a 12 year hiatus.

Dr. Rose Goodchild was selected as one of the faculty participants in the inaugural UTK Grant Writing Institute for summer, 2010. Her student Kristen Holbrook also participated.

Dr. Gladys Alexandre had a high-profile publication appear recently in the Proceedings of the National Institutes of Science entitled, “The paper, titled “A PAS-domain containing chemoreceptor couples dynamic changes in metabolism and chemotaxis.” This paper was highlighted in Tennessee Today on January 14, 2010.

that makes a department great, and BCMB is undoubtedly exceptional. With that said, three faculty members in BCMB were particularly influential to me. For instance, my favorite course at UT was BMCB 401, which was taught by Dr. Roberts at the time. Dr. Roberts taught in a manner that made biochemistry both fun and interesting. We will be studying biochemistry beginning in the fall term here at the University of Michigan, and Dr. Roberts is a big reason why I feel confident that I can succeed in the course. Furthermore, Dr. Koontz played a major role in preparing me for life after undergrad. He really helped me overcome my fears about dental school and actually got me really excited about pursuing dentistry again. Dr. Nebenfuehr, of course, had a big influence as he spent an enormous amount of time working with me in lab. I learned so much in just one year and one summer. My experience with Dr. Nebenfuehr will certainly help me while I continue to do research in dental school and to practice dentistry later in my career.

Dr. Rebecca Prosser

Dr. Peter Mazur
Dr. Bruce McKee
Dr. Mariano Labrador
Dr. Elias Fernandez
Dr. Hong Guo

B: I talked with people about it, including Barry Bruce, my mentor. I am currently involved with service activities outside the department but I’m not on college- or university-wide committees. I have two high-schoolers in my lab right now. I’ll have one, maybe both, throughout the summer. One is going to be an undergrad here next fall. I’ve already encouraged her to work for me, starting freshman year. I judged the Statewide Humanities and Science Fair last year. I mentor for an on-line mentoring program for plant biologists that is sponsored by NSF and other organizations called plantingscience.org. It’s for K-16 so it gets me involved with a wide range of potential age groups. I’ve got a mobile time-lapse imaging set-up that I want to get out in the community for demonstrations. It could be used in a high-school classroom, say, to do time-lapse imaging, and then get the students to help analyze what’s going on. This work with the community also plays a role in my ability to get grants. I will get more involved with things like Faculty Senate once I have tenure.

Q: Sure. Well, actually it seems to me that one of the comments you just made is a good example of why service activities have value other than just for the grant. That is, you’ve identified this high school student who’s going to come here and work in your lab.

B: Right. And my other high school student says he wants to come here, too.

Q: And so the value of that, depending upon the student, could have great value for the university as well, in the context of being able to attract really high-quality students to come here.

B: Yes, I think so. And they’re going to be one-up on their classmates, because they have already identified that, “Oh, I can work in a lab,” whereas, most don’t get engaged in undergraduate research until they are juniors or seniors. By senior year, as far as I’m concerned, it’s too late.
Spring Award Time in BCMB

On May 3rd, 2010 the BCMB department gathered together at the East Skybox in Neyland Stadium. The view was magnificent. Dr. Peterson reviewed our success for the year. The department was blessed with generous donations, and because of this we were able to offer scholarships and cash awards to our students, faculty and staff at our spring awards ceremony. The faculty is recognized for their distinguished records in teaching and research, and we offer recognition to our staff for working with our faculty to help accomplish their teaching and academic mission. Kevin Kuo, top BCMB graduate, also received the same honor from the College of Arts and Sciences in the Natural Sciences Division. Our BCMB Research Scholarship recognizes a student who has been actively engaged in undergraduate research with aid towards tuition and a stipend to support their lab work. The C. W. Fite Fellowship for Outstanding Professional Promise recognizes an undergraduate student who demonstrates excellence in their academics and professional development activities. For graduate students, we have three awards for research and teaching, endowed with gifts by the Holton, Wright and Kouns families. We have a new award this year called the Tyler Duke Foundation Scholarship.

Staff Awards from BCMB:
- Teaching: Purnima Pinnaduwage
- Non-Technical Service: Rachel Lewis
- Technical Service: David Pratt

Undergraduate Awards and Scholarships from BCMB:
- Top BCMB Graduate for 2010: Kevin Kuo
- BCMB Research Scholarship: Cameron Landers
- C.W. Fite Fellowship for Outstanding Professional Promise: Michael Jungwirth
- Tyler Duke Foundation Scholarship: Rachel Childers
- BCMB Graduate Student Awards:
  - Holton Plant Sciences Award: Stephanie Madison
  - Wright Research Award: Sumit Goswami
  - Kouns Excellence in Teaching Award: Ansul Lokdarshi

Division of Biology Awards:
- Hollaender Fellowship: Adrienne Norris
- Cokkinias Award: Heather Wallace
- Science Alliance Award: Seth Albright & Bijoyita Roy

BCMB Faculty Awards:
- Junior Faculty Outstanding Teaching Award: Assistant Professor Elena Shpak
- Senior Faculty Teaching Award: Associate Professor Gladys Alexandre
- Junior Faculty Distinguished Scholarship Award: Associate Professor Mariano Labrador
- Senior Faculty Distinguished Scholarship Award: Professor Bruce McKee
More Student Kudos

Our student accomplishments went beyond those that were awarded in the BCMB Department. Our students thrived in many areas.

Top Graduate in Natural Science Division, College of Arts & Sciences: Kevin Kuo
All SEC Scholarships/Award: Phoebe Wright,
Goldwater Scholarships for 2010-11: Michael Jungwirth and Nathan Stebins

Summer Research Awards for 2010 from the Office of Research:
Carey Cantrell, William Conner, Michael James, Heather Joyhnson, Lauren Kindle, Cameron Landers, Sadie Marnon, Aaron Mauner, Sooah Park, Soojung Park, Ryan Rickels, Anna Ruivinskaya, Nathan Stebbins, Evgeniya Teterina, and Michael Jungwirth

Undergraduate Pre-Health Scholarships from the College of Arts & Sciences: Ryan Barns, Brittany Nicole Wiseman, Michael Massaro, Amanda DeBuhr, Benjamin Spires, Matthew Ramsey, Brandon Birckhead, Chelsea Fizzano, Ukpedo Rebecca Onosigbo, Christina Treadwell, Natasha Malenko, Brett George, and Treadwell, Christina

BCMB Majors Selected to Participate in the Summer Research Experience for Undergraduates on “Sensing and Signaling”:
Azin Delavari, Alaina Willet, and Danielle Young Jeong

NSF Pre-doctoral Fellowship from NSF for three years: Todd Schoborg

EURECA (Exhibition of Undergraduate Research & Creative Achievement) Awards:
Michael Jungwirth (William Harris III Undergraduate Research Award), Kyle Gabrick and Sooah Park

EURECA Participants:
John Bouchillon, William Craig Conner, Dai Choi, Alison Charruf Frey, Kyle Gabrick, Jordan Grubbs, Michael Jungwirth, Kevin Kuo, Jonathan Lockhart, Jenna McKinnie, Sooah Park, Tarah McClain, Sharghi Rahmanian, Cody Richardson, Rex Siu, Nathan Stebbins, and Alaina Willet

Featured Presenters at 2010 Honors Symposium:
Michael Jungwirth, Kevin Kuo, Jonathan Lockhart, and Jenna McKinnie

Spring 2010 Graduates Involved in Undergraduate Research:
Mark Bundy, James Brett Case, Alison Charruf, Dereldia Clendening, William Craig Conner, Kaitlin Dewhirst, Ann Herron, Reem Hussein, Kevin Kuo, Jonathan Lindsay, Jonathan Lockhart, Jenna McKinnie, Tarah McClain, Sharghi Rahmanian, Cody Richardson, Christopher Rosson, Christina Schmitt, Joshua Schrecker, and Marty (Blaine) Stalans

Spring 2010 Graduates with BCMB Honors:
Alison Charruf, Kaitlin Dewhirst, Reem Hussein, Jenna McKinnie, Kevin Kuo, Sharghi Rahmanian, and Cody Richardson

BCMB Graduates in the Chancellor’s Honors Program:
Lauren DeSain, Kaitlin Dewhirst, Kevin Kuo, Stacey Lee, and Jonathan Lockhart

In the Spring it will be time to apply for the various scholarships and awards for undergraduate and graduate students. Go to the following webpage to find out more and to find out the deadlines.
http://web.bio.utk.edu/bcmb/support.shtml
The Tyler Duke Foundation Scholarship

(Continued from page 1)
was Rachel Childers, an outstanding student who is pursuing independent research with a BCMB faculty member. Rachel is a native of Tullahoma with a 3.92 GPA at UTK. She has been active in a variety of campus activities, representing a “well rounded” approach to her undergraduate education. Rachel also volunteered at Middle Tennessee Pharmacy Services in Shelbyville, and she relied on her interest in pharmaceutics as a volunteer on a Global Medical Training trip to Nicaragua that offered free health care to locals in need. The scholarship announcement was made at the BCMB Departmental Awards reception on May 3, 2010. The department will accept applications for the 2011 award in March.

(Continued from page 5 - REU)
how to make career choices, what opportunities exist in the 21st century biology landscape, and professional ethics. Outside of the laboratory, they enjoyed a group hike in the Smoky Mountains, an outing to see a Smokies baseball game, a July 4th barbecue, and weekly soccer games and yoga classes. The REU program ran from June 7 through July 30th. Students were housed in UTK dormitories and developed a strong bond over the summer. The REU participants for 2010 included Tess Branon (Western Carolina University), Alysa Conway (Mount Aloysius College), Brian DeAngelis (Dartmouth University), Azin Delavari (UTK), Alexa DeLuca (James Madison University), David Eckre (University of Wisconsin, River Falls), Danielle Jeong (UTK), Jamie King (North Carolina A&T University), Rachel Martin (Kenyon College), Lily Moncrief (Hendrix College), Allison Murawski (Dickinson College), Fatima Nagaya (SUNY Binghamton), Rose Ndeto (Benedict College), Andrew Patterson (University of North Carolina at Chapel Hill), Brenda Ramirez (Arizona Western College), Kemper Talley (Clemson University), and Alaina Willet (UTK). The summer REU experience culminated in a formal research symposium at which each participant presented a research paper describing their project and findings from their summer experience.
The Program for Excellence & Equity in Research (PEER) is shifting the paradigm of graduate education training at the University of Tennessee in Knoxville. PEER, funded by the National Institute of Health, has an initiative to maximize student diversity in science, technology, engineering and mathematics (STEM) disciplines. This program provides graduate students access to developmental activities and benefits that are designed to strengthen research skills and to facilitate their transition into teaching and research careers. The academic year begins with the Administrators expending much time and planning to prepare for our new graduate students orientation. The orientation, thoughtfully entitled, “Skills for Success” has the goal of providing students knowledge, skills, and introductions that will facilitate a smooth transition into graduate school at UT and build a foundation for success. To have an institutional impact beyond the university, our orientation is striving to become. Graduates are later challenged to participate in various aspects of the workshops. The popularity of the orientation can be attributed to a commitment from the departments to promote professional activities that will advance the level of graduate training to make the graduate school more competitive.

The seven day orientation began with “Just What the PhD Ordered” seminar presented by Samuel E. Jones, Ph.D who motivated the graduate students to envision themselves in their chosen profession and provided an 18 month template with steps and information graduate students could utilize to succeed in a doctoral program. Some seminar topics of discussion ranged from: getting the department handbook, know your program of study, the qualities of a good advisor, learning to be political and dissertation tips. During his talk, Dr. Jones used a quote by Dr. Paul J. Myers that says, “Whatever you can vividly imagine, ardently desire, and enthusiastically act upon, it will come to pass.” During this seminar, students were empowered to encourage themselves, seek answers from the experts, and persevere toward their goal in spite of the challenges. Next, students participate in a Self-Efficacy workshop which reiterated the importance of our belief in our own abilities and seeing oneself as the expert that he/she is striving to become. Graduate students were later challenged by Dr. Bob Porter to develop a successful pre-doctoral fellowship application. Dr. Porter, the Director of Research and Development at the UT Office of Sponsored Research, gave key tips and strategies to developing an effective application. Afterwards, Rebecca Wilson, a doctoral student in Biochemistry, Cellular and Molecular Biology (BCMB), left a lasting impression on her audience when she shared her fellowship writing experience. Although she had some challenges that could have easily deterred her from completing the application, Rebecca stayed focused and labored through the process. Her commitment to achieving her goals led her to applying for a fellowship and earning a National Science Foundation (NSF) fellowship award. Our orientation ended with our 2nd annual Bioinformatics workshop, http://bioquest.org/peer2010/schedule/. In this workshop students are introduced to the rigors of graduate school through team-building exercises in which they use large data sets and computational tools to address complex biological problems. An orientation to the graduate school experience at UT is incomplete without social activities. One of the PEER goals is to establish a “Community” which allows the Scholars to share experiences, integrate their per-
Mr. Todd Schoborg was recently awarded a very competitive and prestigious National Science Foundation Fellowship. We are pleased to be able to attract such outstanding students and what follows is Todd’s perspective on how he became interested in science, why he chose UT and his view on life here as a graduate student.

Where did you do your undergraduate work and why there?
I did my undergraduate work at Murray State University, located in the far reaches of western Kentucky. I chose Murray because when I started there, I majored in wildlife biology and Murray has always had one of the best wildlife programs east of the Mississippi River. Plus, it was located close to Kentucky and Barkley Lakes—perfect for someone who loves to fish.

What was your undergraduate major and what led you to choose that?
As stated above, when I started at Murray I majored in wildlife biology mainly due to my love of the outdoors. To be honest, my biology background was actually quite poor coming out of high school, particularly in molecular and cellular biology. This was despite the fact that I actually went to the same high school as Phillip A. Sharp, the guy who discovered introns and eventually won the Nobel Prize in Physiology or Medicine in 1993. So when I started my freshman courses at Murray, particularly my introductory cell biology class. I was shell shocked. But, I absolutely loved it! I became so fascinated with life at the molecular level that I ended up switching my major during my sophomore year to biology with a concentration in molecular biology. Haven’t regretted it since.

Why did you decide to come to graduate school as opposed to other options like medical school or another type of postgraduate education?
Well, I have never really been interested in the medical field, not even clinical based research. I guess I have always been a “pure science” kind of guy, someone who loves to study the fundamental processes shared by all living things. The main reason was that I had been part of an undergraduate research program while at Murray, so I already had a taste of what it was like to carry out research independently and was familiar with the graduate lifestyle. Plus, I liked the fact that graduate school allowed me to be more of a “free thinker” when it came to science.

Who was (were) the most influential in helping shape your decision regarding coming to graduate school?
The most influential person, hands down, was my old undergraduate research mentor and a fantastic scientist by the name of Howard Whiteman. The undergraduate research program that I participated in was actually a biomathematics program, similar to the NIMBioS program here at UTK. Dr. Whiteman happened to be one of the PIs who were looking for someone to do some molecular stuff—mainly population genetics, but with a focus on evolutionary ecology. I really didn’t know what I was getting into when I started, but I realize now that the experience is probably the reason that I’m in graduate school right now. Dr. Whiteman was the one who taught me how to think like a scientist, and even though we study life from different perspectives, I’ll always be grateful to him for everything that he’s taught me.

What led you to BCMB as opposed to a program in something like chemistry or pharmacology or microbiology?
Well, I did get an offer to do graduate research in an organic lab as an undergraduate—if I had, I might actually have become a synthetic chemist and we wouldn’t have this conversation right now. But in all seriousness, I think I’ve just always been fascinated with studying life, particularly the fundamental processes responsible for every living thing, which is why I decided to join BCMB rather than microbiology or EEB.

Why did you choose UTK? What was most important in making that decision?
When I was looking for potential places to attend graduate school, UTK caught my eye because of the diversity of the department. Even though I love molecular biology, I also liked biochemistry and structural biology (thanks to my old biochemistry professor, Dr. Ricky Cox). I was still undecided which route I wanted to go, so I figured I would go somewhere that I could try out various labs in those disciplines during my rotations. Even though I settled in a molecular genetics lab, I still like the diversity of our department—usually makes for an interesting departmental seminar series every semester.

Why did you choose Dr. Labrador’s laboratory?
I mentioned above that I liked the idea of being a “free thinker”. The lab atmosphere created by Dr. Labrador is perfect for fostering this type of thinking. Rather than being handed a project upon entering the lab, Mariano allowed me to come up with my own set of projects, which was awesome. Additionally, I like the fact that Mariano comes into the lab everyday—usually multiple times—and talks to me about science and in the same manner that he would with any of his other colleagues. It also helps that we work on insulators—which seem to be esoteric to everyone else for some reason. Maybe that’s why I like studying them.

What excites you the most when you come to the lab every day?
Depends. If an experiment works, then I’m really happy by default. Even if it doesn’t, having a conversation with Mariano about transposons, gene regulation, chromatin structure or epigenetics, no matter how outrageous or untestable our ideas seem, usually makes my day. And fruit flies, of course.
person and professional lives, and break barriers that impede success. The Administrators of PEER posit when groups gather together regularly for meals, this allows interaction to take place, which establishes relationships and builds trust.

Many universities are shying away from the formal orientation and utilizing an online version only. We found there is significant value in ensuring that the incoming students are academically and socially connected to the UT community from day one. Graduate student orientation is essential to the graduate experience because it is usually an introduction to the type of education and experience a student can expect from the university. It is also the best time to abate the fears most students have about entering a doctoral program and/or majority institution. Our orientation is strategically designed to empower students and provide them with practical skills that will lead to their success as doctoral students.

BCMB Mission Statement

We strive to provide an excellent, comprehensive education and to perform high impact, fundamental research at the cutting edge of the molecular and cellular biological sciences. Our aim is to enhance existing strengths by increasing resources and recognition for our work, which integrates approaches spanning the continuum from molecular to organismal biology. We draw upon the diversity of the department to provide a collaborative environment with a breadth of expertise that fosters personalized mentoring and training at the undergraduate, graduate and postdoctoral levels. Our vision encompasses advancing the scientific literacy and understanding of the biological and biochemical sciences within the university and the community at large.”

How do you get involved?

Your gifts make a difference! Over the years, we have been fortunate to receive generous donations from a variety of supporters, including former graduates, corporate sponsors, and philanthropists. These gifts keep the donors involved in the mission of the BCMB department.

These gifts have made it possible for us to offer three new undergraduate scholarships for the 2009-2010 academic year. Three Research Incentive Awards have been made to faculty who propose pilot projects that promise to lead to extramural grant funding from national agencies. The gifts sponsor graduate fellowships that support dissertation research on cutting-edge topics in modern biology. As you see from our article entitled, “Celebrating Excellence,” we held a departmental awards reception to recognize our top students, faculty and staff. We were able to provide $17,000 in scholarships, fellowships, and awards at this event.

There are many different forms of gifts that can be made. We receive both large and small sums that can be made as one-time undesignated gifts to our BCMB enrichment fund. With a contribution of $25,000 or more, an endowment can be established for which the principal is invested and interest earned becomes available for departmental use. Endowments can be specified for use according to the donors’ wishes and they can be given over a 5-year period. Some examples include endowments specified to benefit graduate students in BCMB, to fund faculty research, or to sponsor undergraduate scholarships. All of the gifts to BCMB are coordinated through the development officials at UTK, and appropriate tax benefits are always considered. For more information about gift giving to BCMB, please contact the Department Head, Cynthia Peterson (cbpeters@utk.edu, 974-5148) or Randy Atkins in the College of Arts and Sciences Development Office (matkin11@utk.edu, 974-2365).
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