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Welcome back readers and fans. This is our fourth year to publish the BCMB Department newsletter. We have used this publication to showcase students and faculty and to tell you about many of the excellent things going on in the department. Now we will change direction a bit—the focus of my comments and much of this issue are on YOU! You can make a difference in what is going on at the University of Tennessee. Chancellor Jimmy Cheek reminds us about our challenge from the state of Tennessee to be a “Top 25” university. Our campus strategic plan is “VolVision” (www.utk.edu/volvision-top25/index.php) and it outlines specific goals for our undergraduate education, graduate program, faculty and staff recruitment and retention, research portfolio, and facilities. We are mindful of these objectives in BCMB, and we want this newsletter to communicate with you about our achievements and new initiatives. Many of our recent accomplishments can be attributed to investments from supporters like you.

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After more than 30 years on the faculty at UT Knoxville, Dr. Beth Mullin has retired and been named Professor Emerita in August 2011.

The timing was perfect. When I was asked to write a few words reflecting on my tenure as a faculty member here at UT Knoxville. I was in the midst of combing through a large chest freezer in the lab. I was looking for antibody that was produced in the lab years ago, requested that morning by a colleague in Sweden. I didn’t find the antibody in that freezer but I did find box after box of DNA, RNA, protein, clones, plasmids, primers, glycerol cultures, aliquoted reagents etc. from some 34 years of research on the molecular biology of Frankia and its host plants. Names on the boxes included all of my past graduate students and postdocs, undergraduates and highschool students in the lab, visiting scientists from around the world and a few technicians and rotation students. Each box I handled brought back a flood of memories about the individual as well as the experiments.

Some experiments led to publications, patent applications, and continued grant support; other experiments were dropped in frustration because of insurmountable technical problems. Most of the individuals moved on to productive careers, remaining in science, some now having reached full professor status at their respective institutions. It had not been my intention to clean out the freezer when I started looking for the antibody, but the timing was right for that to be done and I began emptying the contents of boxes into biohazard bags for disposal.

Things were very different in 1977 when I arrived at UT Knoxville. My starting salary was $19,000 and my start up “package” was $5,000. My lab was on the 6th floor of the East wing of Hesler and the nearest women’s room was on the first floor. When I recruited my first female graduate student we converted the 6th floor men’s room to a unisex restroom with a dial posted on the door to indicate the gender of the person using the facilities. My sons, Nathan and Matt, were born within my first seven years on the faculty and both stayed in a crib in my office, the legs of which were kept in cups of oil to discourage the many cockroaches, ants and other insects from reaching them. When my sons were older they enjoyed coming to work with me on days when school was out. From Paul Twigg they learned how to make dry ice microfuge tube bombs and how much fun it was to roll them down the hall or drop them down the stairwell. From Susan Swensen they learned about swearing. It was the practice in my lab to read data from sequencing gels into a tape recorder and then transcribe the data later. Nathan and Matt both would help out by reading gels and transcribing them. One time they were transcribing from a tape that Susan had made when all of a sudden instead of “AGCCGTACG...” they heard “S......!” Apparently Susan had lost her place when reading a gel and was expressing her frustration. My kids thought it was hysterical and played that section of the tape over and over. In those early days we distilled our own phenol for RNA and DNA extractions and isolated plasmids on CsCl gradients. That was before the availability of molecular biology kits and high copy number plasmids.

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Focus on an Alumna: Dr. Carole Dabney-Smith

Dr. Carole Dabney-Smith is an assistant professor in 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.

Journey from an Undergrad to a Postdoc:

I have always been fascinated by biology. My mother was the most influential person in my decision to pursue college because in reality there was no decision as far as she was concerned. Education was always (and continues to be) extremely important in my family. When I went to college, I thought that I was pre-med. I took the usual classes and did well in them. But when I was a junior I started undergraduate research. I really enjoyed the research experience and realized that I could make a career of it. I really liked plant science, but I was also interested in membranes and proteins, especially protein folding and molecular interactions. Dr. Beth Mullin had a strong influence on helping me find a lab that fit with my interests. At that time Dr. Barry Bruce was new to UT Knoxville and was doing the kind of research that Dr. Mullin knew I would like so she sent me over to talk to him.

My undergraduate degree is in Microbiology also from Tennessee. Choosing to stay at Tennessee for grad school was the right thing for me because I found a lab that was doing research on things I was really interested in.

I had really good experiences at UT. There were the usual grad student stresses of too much to do in too little time, but overall it was a good experience. I received a lot of support and encouragement from BCMB faculty and grad students. Dr. Bruce’s lab was quite collaborative, meaning we worked well together and respected each other. Even though we worked on different projects, we were constantly talking to each other about our work and sharing ideas, which Dr. Bruce encouraged. He also encouraged us to be creative and learn all we could to fill up our ‘toolbox’ of science. These are things I try to implement now in my own lab.

I definitely did not always know that academics was what I wanted. I really planned to go to graduate school and then find a job in industry. I realized toward the end of my graduate career and during my time as a postdoc that I like the combination of cutting edge research and teaching that only an academic career could provide.

While I was a grad student Dr. Bruce and Dr. Jeff Becker (Microbiology) ran a “Membrane transport processes” Special Topics course. They managed to invite some of the biggest names in membrane biology at the time and it was probably my favorite course to have taken while in grad school. Anyway, I got to meet and interact with many of those speakers and as a result, when I started applying for post-docs I applied to labs of a few of those speakers and found a postdoc position that way.

Experience as a College Professor:

Time is the greatest challenge in working with undergraduates. Many undergraduates are already overextended with extra-curricular demands and are surprised that open-ended research doesn’t occur in defined 3-hour blocks of time like Biochem Lab does.

I mostly teach biochemistry to about 80 students per semester. In the classroom I have to admit I am a little traditional in that I like to use the chalkboard supplemented with slides or animations. Out of the classroom I am more modern, holding chat-type office hours and using online homework assignments. I do try to get students engaged while I lecture, which means I stop to ask questions frequently and like to present case studies when I can to encourage discussion. I have also been known to spend some time discussing a topical question asked by a student. Out of the classroom, I really like discussion forums and online office hours in addition to physical office hours.

The most exciting part of being a college professor is playing a part in “turning on the light bulb” in a student’s mind both in class and in the lab. I really enjoy when a student can put seemingly disparate ideas or concepts together and make connections that previously she or he could not make.

Hands down the most challenging part of my job, as a college professor, is time management.

Exciting News!

Dr. Dabney-Smith was recently selected to receive a 2010 Presidential Early Career Award in Science and Engineering (PECASE). This award is the highest honor given by the United States government for science and engineering professionals in the early stages of their independent research careers. For more information, please visit: http://www.whitehouse.gov/the-press-office/2011/09/26/president-obama-honors-outstanding-early-career-scientists.

“I frequently give the advice to keep your mind and eyes open. Opportunities can present themselves in different forms and you want to be able to recognize those opportunities.”

- Dr. Dabney-Smith
Brent Sterling, an undergraduate BCMB major and a member of the UT diving team, has made strides both in and out of the water.

The Student-Athlete: Brent Sterling

**Why did you choose UT Knoxville? What was most important in making that decision?**

A lot of factors contributed to choosing UT; proximity to home, having a lot of friends who go here, and of course, in-state tuition helps. What really kept me at home though was the swim program; growing up around one of the country's top programs, already knowing the head coach, and seeing the new Allan Jones facility being built definitely had me excited about starting my freshman year at UT.

**When did you first become interested in competitive diving?**

I started around age 12, taking private lessons, then joined a competitive club team a year or so later. Since then, I have been diving continuously for about nine years now. Before that, I didn't even know it was a collegiate sport – I only signed up because I couldn't dive off the side of the pool.

**Once you got involved, how much time did you find yourself devoting to training and competition in diving?**

It's a sport that relies heavily on technique that you have to perfect, and thus requires quite a lot of time and repetition. Since I started competing around 13 or 14, I would practice five days a week for a few hours after school. It's a year-round sport too, and I practiced twice every weekday in the summer growing up. Now that I'm in college, we have practices and weight training before class and then also in the afternoon, and we only get a few weeks off every year as a break.

**My understanding is that you are a premed student? Who or what was most influential in your decision to pursue this? Was this decision made prior to college or after you started college?**

I always enjoyed the science classes growing up and took a lot of extra science classes in high school as electives. My parents are both in the medical field, and their interest in their work I think is what really made me consider it. My mom is a pharmacist, and she always comes home talking about her work, about mixing drugs and specific patient cases. It always sounded pretty cool to me when I was younger. In organic lab, I was part of a group that got to mimic the process of drug-making, and I was pretty excited to tell her about it...she loves that stuff.

Premed students can pursue many different majors and still be accepted into medical school so why did you choose BCMB as opposed to something else? Did you know anything about BCMB before starting at UT? Was there some event or person who was influential in that decision?

I didn't even know what BCMB stood for before starting out. Our athletic academic adviser recommended BCMB for premed. I had also heard by word of mouth in some of my classes that BCMB prepares you very well for med school. A few of the swimmers, too, are BCMB majors, and it helps to know people and have friends in your classes.

**What was your greatest challenge as a new undergraduate?**

My greatest challenge was definitely my first semester. Especially as an athlete, the first semester is very, very busy. There are endless meetings for freshman. Meetings to keep you on track, to make sure your classes are going okay, to teach you about NCAA rules and violations, and so on. It was exhausting. I remember fighting to stay awake in my classes and sleeping whenever there was a spare moment.

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Andrianne Norris, a postdoc with Dr. Serpersu, puts her whole heart into her work. Her dad once told her, “If it were easy, everybody would have a Ph.D.”

What event or person was most influential in your decision to pursue science in school?

My high school chemistry teacher, Mrs. Barbara Summers, really brought chemistry to life and made it exciting. She was a tough teacher and expected nothing but the best performance out of her students. She worked very hard to make sure that everyone understood the material and took whatever steps necessary to help.

Where did you do your undergraduate work and why there?

I received my B.S. degree in Chemistry from Tennessee Technological University in Cookeville, Tennessee. I chose Tennessee Tech because I wanted to be close to home and my family and still be able to pursue a higher degree. Also, in those days there were no Tennessee lottery scholarships to help pay for college, but Tech offered me several scholarships. I worked part time as a grocery store cashier and also as an assistant in the chemistry departmental office to make up the rest.

What was your undergraduate major and what led you to choose that?

My major was chemistry with a biochemistry concentration so I took not only the required chemistry courses but also biochemistry plus lab and other biology based courses such as microbiology, immunology and genetics. I fell in love with chemistry in high school, but wanted to have a more biological perspective and applications of it in my college education. The chemistry/biochemistry major was perfect.

Why did you decide to come to graduate school as opposed to other options like medical school or another type of postgraduate education?

Going into my undergraduate education, I initially wanted to go to medical school. After shadowing several physicians, I realized that I didn’t quite have the stomach for it because the sight of needles and blood makes me very queasy to say the least. Research offered me a way to still be medically involved but on a more global level than a one-on-one level which was perfect for me. Plus I got to avoid the needles.

What led you to BCMB as opposed to a program in something like chemistry or pharmacology or microbiology?

I wanted to study biochemistry because it is the chemistry of life. As disciplines, chemistry alone or biology alone were not interesting enough to me for pursuit of a higher degree in one of those fields.

Why did you choose UTK? What was most important in making that decision?

As with the decision to do my undergrad work at Tennessee Tech, UTK was close to home. After looking at the BCMB web site and discovering there were so many different research areas to choose from, there was no doubt in my mind that I wanted to come here for graduate school.

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On July 18-22, Dr. Jae Park hosted a five day workshop on gene cloning and DNA sequence analyses for six teachers from Knox County high schools. For three hours each day, the teachers learned about various subjects such as agarose gel electrophoresis, plasmid DNA purification, restriction enzyme digestion and analysis, bacterial transformation, and web-based sequence data analysis tools. Dr. Park noted that although five days is a bit short to cover other interesting topics, it was important to him to teach the participants what he could so they could take what they learned from the workshop and apply it in their classrooms.

During the workshop, Dr. Park noticed the teachers were more relaxed than his normal students. “Perhaps because it did not involve any grading, but they took this very seriously as the knowledge is important for them to teach high school students,” he said. Dr. Park also noticed that as time went by, the teachers were getting more excited about the hands-on experiments. He said the teachers had very diverse backgrounds in terms of their ages, teaching experience, and previous experience in the topics but they all were very interested in the topics of the workshop.

Dr. Park is interested in holding another workshop. He is going to gather teachers’ feedback near the end of the semester to evaluate how the workshop helped them teaching. If the feedback is very positive, he will consider doing another workshop in the future.
Once again the BCMB Department offered a special summer research program from June 5 through July 29. The aim of the summer program, Research Experience for Undergraduates (REU), was to provide hands-on research opportunities for undergraduate students majoring in the sciences, with an introduction to cutting-edge research in the broad area of “Sensing and Signaling.” The topic of the REU program “Sensing and Signaling in the Biological Sciences” incorporated ways in which living organisms sense their environment by perceiving external cues that are processed by elaborate signaling mechanisms. These signaling mechanisms are used for survival and scientists are constantly searching for a better understanding of these mechanisms.

Even though the majority of REU students’ time was spent doing hands-on research during the eight weeks, they were also involved in several “Sensing and Signaling” seminars/discussions on signal transductions, as well as, various panels and presentations for professional development and social activities. Through the REU students research and seminars, they were able to grasp concepts such as: the way the structure of biological molecules mediates their function, the flow of information outside and inside a cell, the way energy is transformed as signals are processed, and the way sophisticated sensing structures and mechanisms have evolved in systems.

The event that wrapped up the REU students summer experience was the final symposium, which was devoted exclusively to the students. This summer, students organized their own “pre-symposium” so they could shake off their nerves and practice before the real symposium. This initiative is what BCMB likes to see in students! Each student had to prepare a 15 minute oral presentation for faculty mentors and lab members. They were then given five minutes for questions. Ultimately, the symposium gives students the chance to learn more about their colleagues’ summer research and allows them to learn good presentation skills.

BCMB dedicates much of its efforts in supporting undergraduate research for its majors during the school year and the summer. Within the last five years, BCMB has had more than 600 students involved in research for credit. BCMB’s research efforts have expanded beyond the campus partly due to REU, which in return fulfills the role of UT Knoxville as a research university.
The BCMB Department has much to be proud of and recently celebrated research achievements by hosting a symposium and seminar on September 20-21. The symposium took place at The Foundry where guests munched on hors d’oeuvres and viewed research from the students and their respective labs. Following the poster presentations, guests enjoyed a sit-down dinner.

Dr. Suzanne Pfeffer, professor of biochemistry at Stanford University, was the guest of honor and the featured speaker for the “From the Top-Trends in Biosciences” seminar that took place on Wednesday, Sept. 21. Dr. Pfeffer’s topic was, “How the Golgi Works: Rab GTPase Regulation of Protein Secretion.” Dr. Pfeffer is a distinguished researcher whose interests overlap with several faculty, e.g., Andreas Nebenfuehr, Barry Bruce, Elias Fernandez, Jeff Becker and Tim Sparer. She is also the current president of the American Society for Biochemistry and Molecular Biology (ASBMB), an association in which several BCMB professors are members. BCMB also has an undergraduate affiliate within our department, the ABMBM UT UAN.

“Overall, the event and seminar went well. There was enthusiastic participation from both the grad students and faculty. We had visitors from the university administration who got to see how we’ve managed our research programs and graduate training.”

- Dr. Elias Fernandez
New for BCMB this year is a program to honor distinguished alumni who have graduated from our department at the University of Tennessee, Knoxville. We have established the “BCMB Outstanding Alumni” award. The individual who receives this award will be recognized at our annual awards reception to be held in the spring of 2012. We welcome your recommendations of BCMB alumni for this honor. We recognize that individuals who graduated from the former Biochemistry, Zoology or Botany departments, which existed prior to the merger to form Biochemistry and Cellular and Molecular Biology, will be suitable for this award. To submit your nominations, please send information to Cynthia Peterson, Head of the BCMB Department (cbpeters@utk.edu, M407 Walters Life Science Building, University of Tennessee, Knoxville, TN 37996). Included in the nomination should be a letter of recommendation and a resume for the nominee. Please include contact information for both the recommender and the nominee.
BCMB has Close Ties with TN-SCORE

In order to stimulate competitiveness and raise science functionality in the state of Tennessee, Tennessee became an EPSCoR (Experimental Program to Stimulate Competitive Research) state (TN-SCORE). EPSCoR is a program designed to assist states in boosting research efforts and science activities by using funds provided by the National Science Foundation (NSF). TN-SCORE is a statewide program that works closely with the solar industry in the state. Objectives of this program are to increase research initiatives at all Tennessee institutions and to create partnerships that will strengthen these initiatives.

Dr. David Millhorn, UT Executive Vice President, is a TN-SCORE Principal Investigator (PI). Dr. Millhorn oversees many aspects of the program, including meeting milestones and reporting to NSF. He provides guidance and input for strategic decisions, and his office is the source for $2 million of the required program cost-share. In addition, Dr. Millhorn’s office has established a UT Knoxville Energy Scholars Fellowship program to complement TN-SCORE and drive doctoral-level energy research at UT and the Oak Ridge National Laboratory (ORNL). He also actively works with the Co-PIs and TN-SCORE team to ensure the research and day-to-day management of the program is working toward stated goals and objectives.

Dr. Barry Bruce, a Co-PI for TN-SCORE and professor in BCMB, is responsible for a thrust that consists of about 15 people across the state. His thrust works together in supporting students and faculty in research initiatives and science related activities. Following the underlying theme for TN-SCORE, which is “building a culture of collaboration”, thrusts are positioned to make a difference across the state. Thrusts for TN-SCORE work to encourage more students to enter STEM (science, technology, engineering and mathematics) disciplines of study, provide opportunities for undergraduate students to participate in hands-on research, improve research opportunities for faculty that enhances their institution and broadens opportunities for their students, make student intern experiences available with industry partners, and develop innovative technology that is relevant to the Tennessee industry.

We are off to a good start, having just started year two with 24 current institutional partners, and we expect to see many successes over the next four years.

-Dr. David Millhorn

Did you know?
Out of the four PI/Co-PIs in TN-SCORE, two, Dr. Millhorn and Dr. Bruce, hold faculty positions in BCMB!

BCMB Buzzzzzzzz….. continued:

How can you make a difference? Several articles in this newsletter highlight initiatives that would not be possible without the generosity of our donors. Please see the article on our annual awards reception in the spring of 2011 (p. 9). You will note several undergraduates and graduate students who have received scholarships or fellowships funded by gifts. These include donations from the Fite, Duke, Wright, Holton and Staley families. We also feature an article on recipients of the Hunsicker Research Incentive Award (p. 12), a program that funds pilot research projects for our faculty and postdoctoral trainees. This has been a successful program that has fueled new research and eventual grants that have brought over a million dollars in funding to the department. Also, in September 2011 we held our inaugural “From the Top: Trends in Biosciences” symposium, and we give more details about this event in this newsletter (p. 8). With the help of an anonymous donation, we were able to bring a national leader in science from Stanford University as our keynote speaker when the department gathered for this symposium to celebrate our research endeavors in BCMB. These are a few examples of the big impact that your giving to the department can have.

What about the annual alumni giving campaign for fall 2011? This year the College of Arts and Sciences is directing its annual giving campaign to departments. Many of you will soon receive a letter about this initiative, and we welcome your support. In the letter, we highlight three target areas in BCMB for your annual giving:

- Support research opportunities for undergraduates
- Seed grants for faculty research
- Support community outreach with local schools

You will find information in this newsletter about a special undergraduate research program for the summer (p. 7) and a new outreach to local schools spearheaded by a BCMB major (p. 11). These are great examples of areas where we could use your help.

How can you manage a gift to BCMB? In addition to the annual campaign, there are many different forms of gifts that can be made. We receive sums ranging from $5 to $10,000 that are made as one-time 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. All of the gifts to BCMB are coordinated through the development officials at UT Knoxville, and appropriate tax benefits are always considered. For more information about gift giving to BCMB, please contact the Development Head, Cynthia Peterson (cbpeters@utk.edu, 974-5148) or Cathy Dodge in the College of Arts and Sciences Development Office (cdodge@utk.edu, 974-4321). Thanks again for your continued support! Together, we will continue striving for the “Top 25” goal.
Ryan Rickels, a senior majoring in Biochemistry, Cell and Molecular Biology, chose the BCMB major because he had become extremely interested in how life operates down at the molecular level. After graduating in December, Rickels plans to carry on his work for Dr. Mariano Labrador and will continue to lead the high school biology outreach program. Next fall, he will be leaving for graduate school.

Words from Rickels:

Calling it “oUTreach” was just kind of a cheeky thing I came up with. I started doing the high school outreach program because I remember my lack of interest in science as a teenager, partly due to misconceptions I had. Part of my mission is to address misunderstandings of science by raising consciousness of what a scientist does at his or her job and why he or she does it. I feel that by speaking about my personal experience in the lab I can convey the good intentions behind scientific research. Hopefully those students will then go home and talk to their parents about it too. I recently had a conversation with my friend’s father who sincerely believed cancer will never be cured. Not because of the relentless nature of the disease, but because too many oncologists would be put out of work and hospitals would lose money. I don’t believe this exact sentiment is shared by the broad public, but I do think there is a lot of suspicion out there due to misunderstandings partly propagated by misinformation in the media. So, one of my goals is to address these concerns indirectly.

The main goal is to get young people excited about science, in hopes they’ll consider furthering their education in a STEM field. Most of my presentations revolve around the molecular mechanisms of cancer. I like presenting on this topic because it is one that interests me greatly, I’ve learned a lot about it, and it’s something every student in every class can relate to in some way or another. At the end of every presentation, I want students to have a “big picture” idea of how cancer works and the challenges associated with treating and curing it. I’m trying to mitigate the gloom and doom of the topic by talking more about what’s happening on the front lines of scientific research aimed at stopping the disease.

I think my favorite part of doing outreach is the challenge associated with teaching advanced topics to younger students using only the foundational concepts the high school students are learning, such as Mendelian inheritance and the central dogma of molecular biology. I really strive to identify with the students through using language they understand, incorporating humor, etc. I want them to be thinking, “Hey, that’s something I could do, or see myself doing.” So, while talking about advanced stuff I’m also simplifying as much as possible.

My hope for the program is that it continues, and grows, once I’ve left Knoxville. That is one reason why I make a point to bring along other undergraduate researchers such as, Caryn Brehm and Danielle Jeong with me to let them see what works, maybe what doesn’t work, and let them get their feet wet. I believe this is the only way this program will be able to continue because very few people will suddenly summon the courage one day to go speak before 30 high school students. It takes a lot of mentoring which is what I’m trying to provide so that the program can live on.

This whole experience has been extremely rewarding. I’ve gotten the opportunity to confront my nervousness about public speaking and develop my communication skills. I’ve also enjoyed the freedom and flexibility to tweak my presentation as my understanding of cancer changes. Through this experience I’ve come to realize that I really enjoy teaching.

Jill Shinlever, Karns High School teacher, enjoys the outreach program because she likes her students to relate what they are learning in class to what is going on in the real world. The program allows Shinlever’s students to witness university students who are excited about science and have cool research to present.
Beth Mullin: continued

Other things have changed as well. Among them, class sizes have increased and PowerPoint lectures are the norm. Students haven’t changed all that much though. In 1980 when asked to write a short essay on Selfish DNA based on an assigned journal article, later discussed in class, one student wrote several paragraphs on Shellfish DNA! Some answers that I have gotten on tests and quizzes in the past couple of years reach about the same level of absurdity.

In 1998, expecting a research grant not to be renewed I signed up to be a “Scholar in the School” at Ritta Elementary. I spent the summer setting up a science lab at the school and designing experiments that would help teachers reach the achievement goals for each grade level. During the academic year I spent Mondays, Wednesdays, and Fridays at Ritta and Tuesdays and Thursdays I was on campus teaching undergraduate as well as graduate classes. It was a grueling schedule, but a wonderful experience working with the students. That year we reinvigorated Family Science Night, started the Ritta Science Beat, a science newsletter, held the first school-wide science fair and developed a landscaping plan for the school based on native plants. As it turns out my grant was renewed after all and the following year my attention returned to my own research lab.

Reflecting on my 34 years at UT Knoxville, I think first of the individuals with whom I have worked most closely, that is my graduate and undergraduate students. They, and the research in which they participated, are inextricably linked to my psyche. I have marvelous vivid memories of all of them and am thankful for all that they have taught me. Next I think of the graduate and undergraduate students from both East and West Campuses that I have gotten to know through classroom teaching and through advising. I get enormous satisfaction hearing from former students or advisees that they have landed a job or gotten into the professional school of their choice.

My faculty colleagues in the Biology Division, including those in Botany, BCMB, EEB and Micro have served as a valued support system as I have progressed through the ranks, and remain so as I prepare for retirement. I am fortunate to have served under five very supportive department heads (Ray Holton, Karen Hughes, Ed Schilling, Bruce McKee and Cynthia Peterson), all of whom have governed with vision, grace and a light hand. I wish to acknowledge three talented women who have served as incredible role models for me over the years; Mary Ann Handel, Karen Hughes and Eunice Turner. Thanks to each of you.

In retirement I’ll still be regularly reading Nature and Science, marveling at each new discovery, and expect also to continue to explore microbial databases at JGI and Genoscope. I’ll be able to spend more time with husband, Brad Whitfield (Ph.D. Immunology & Medical Micro) for whom I left a faculty position in Ohio that I loved. Joining the Botany Department here at UT Knoxville and marrying Brad were two of the best decisions I have ever made.

I have loved every minute of my time with Brad, and have lived the career of my dreams as a teacher/researcher first in the Botany Department and more recently in BCMB.

The Hunsicker Research Incentive Award

A generous gift from a departmental supporter, Pat Hunsicker, has made it possible for BCMB to offer incentive awards to researchers in the department for second year. This award fund has been established to provide critical seed money for new and innovative projects proposed from the department. The goal is to provide initial funding that can support work to generate preliminary or proof-of-principle data. This data can then be leveraged to secure extramural funding from federal granting agencies to continue the work. This is the second year this program has been available to BCMB researchers. An obvious bragging point for the program is its across-the-board success in the first year. All three of the researchers who were awarded funding from the Hunsicker Research Incentive Award in its inaugural year had secured grant funding on these projects within a year of the award. These faculty members are Brad Binder, Jae Park, and Engin Serpersu. Altogether this has amounted to more than $1 million dollars in funding that has come to UT Knoxville through these projects.

The 2011-2012 award winners submitted proposals in the spring of 2011 describing new avenues of research they would like to pursue. In all cases, a plan for generating data and applying for new funding was critical. This year, funds were also made available on a competitive basis to postdoctoral researchers who have not yet achieved faculty status. The process of applying for the Hunsicker Award provides a valuable professional development opportunity for these postdoctoral trainees before they step into fully independent positions as faculty members at universities across the country. The winners of the Hunsicker Research Incentive Award for 2011 are:

- Daniel M. Roberts, Ph.D. Professor. “Calcium sensors and Adaptation to Hypoxia/Flooding Stress in Arabidopsis thaliana”
- Ranjan Ganguly, Ph.D. Professor. “Molecular analysis of the enhancer function of Accord transposable element that upregulates the expression of insecticide resistance gene Cyp6g1 of Drosophila”
- Krysztof Bobik, Ph.D. postdoctoral trainee in the laboratory of Dr. Andreas Nebenführ, “Identification and Functional Study of Plant Myosin Phosphorylation Sites”
Brent Sterling continued:

What do you enjoy most about being a student-athlete? What motivates you the most in your studies?

I've really enjoyed being on a team, and having the close community that a strong program requires. These are people you spend hours and hours with every day (often earlier than 7 a.m., when you really get to know them) and hang out with on the weekends. Fortunately, I like them! As far as my studies go, I think the dedication required in sports is easily transferred to school, in my case at least. Diving in particular is a sport which aims at perfection—each tiny movement you make is corrected if done the wrong way. After years of being coached this way, a lot of us are somewhat compulsive perfectionists, which is kind of a blessing and a curse, but it definitely helps me out in school.

Do you think you are a better student because you are a student-athlete?

Undoubtedly. The pros absolutely outweigh the cons. The work ethic you gain from athletics will stay with you the rest of your life. While you are putting in a lot of time working out every day, other students work jobs instead or take more hours a semester, so it is not necessarily more strenuous than others. The main downside is the physical tiredness that comes with athletics, but with good time management it's not that big of a deal.

Are you satisfied with the environment for students-athletes here at UT? What about for BCMB majors?

The athletic environment is great. The administration, at least the people I have been around most, are all concerned and helpful. They clearly want the best for us and for the school. As for the BCMB department, I have no complaints. I haven't taken too many BCMB courses yet, but so far I am enjoying them and my BCMB adviser is very helpful.

Anything else you would like to comment on? Go Vols!

Sterling was honored at the spring 2011 meeting of the UT Athletic Board as one of the top student-athletes at UT Knoxville with a grade point average of 3.97.
Adrianne Norris continued:

Why did you choose Dr. Serpersu’s laboratory?

I knew I wanted to do research in an area that had some direct connection with medicine and Dr. Serpersu’s research on antibiotic resistance enzymes was very appealing in that respect. He also had several papers published and my potential dissertation project looked promising for more. Coming into grad school, I was also an extremely shy person but from the get-go I felt comfortable in Dr. Serpersu’s lab. He would always stop whatever he was doing to answer my questions or to help me whenever I needed it. He became a real mentor and not just a research adviser and never failed to give me that encouraging pat on the back when things went well and when they didn’t. He never pushed me to work long hours or on weekends which would have been counter-productive for me.

What motivated you most as a graduate student?

My parents always taught me that no matter what you do in life, whether it is scrubbing toilets or curing cancer, you do it to the very best of your ability. Graduate school was not easy, and to be honest, there were many discouraging times when I wasn’t sure if I could make it through or even if I wanted to. But I would get up and come to lab and do the best I could. Sometimes things would work and I’d get some data. Other times they wouldn’t but I would learn from those and move forward.

Now that you have defended your dissertation and earned your Ph.D. what is next for you? If you are going elsewhere for a postdoctoral position, what factors were most important in deciding to whom you would apply? For example, was it the area of the country, the institution itself or the investigator?

I am a post-doc with Dr. Serpersu right now because the last of my graduate work showed some very promising and exciting results and I do not wish to leave the project half-done. As for what comes next, I’ll just have to wait and see what opportunities arise. Ultimately, I wish to end up in an academic faculty position in Tennessee.

What advice would you give to other students as they begin to think about the decision making process you have just completed?

My dad told me more than once, “If it were easy, everybody would have a Ph.D.” So if you really want it, go after it full speed. That being said, the first and most important decision that a graduate student makes is which lab to call home. There is a scripture that says, “Where your treasure is, there will your heart be also.” It is a good idea to talk to other graduate students as well as the PI of a lab you are considering. Make sure that you choose the lab where you will feel comfortable working but also challenge you and allow you to make your dissertation project your “treasure”. When that happens, you will put your whole heart into it and everything else will fall into place.

What excites you the most when you come to the lab every day?

With research, the most exciting thing is knowing that whatever you discover, you alone are the first person in the entire world to learn about it. That is so awesome!
The Program for Excellence and Equity in Research or "PEER" is a grant of over $4 million funded by the National Institutes of Health for the purpose of increasing diversity among students in STEM disciplines earning Ph.D. degrees from the University of Tennessee. The focus is on STEM (science, technology, engineering and mathematics) degrees. Cynthia Peterson, Head of the BCMB Department, is the principle investigator who was awarded this grant. It is now in its third year, with a total of 21 Ph.D. students from several science and engineering departments supported by PEER fellowships.

Last year the second cohort of PEER students planned a spring symposium with a variety of activities aimed at giving Ph.D. students opportunities for professional development in many areas. BCMB student Letitia Olson was one of the PEER students who helped plan this symposium. The symposium was open to graduate students from all STEM disciplines.

Dr. Clifton D. Poodry was the keynote speaker for the symposium and is the director of the Division of Minority Opportunities in Research at the National Institute of Health. Prior to joining the National Institute of General Medical Sciences (NIGMS), Dr. Poodry had 22 years of experience in research and teaching in cell biology and genetics at the University of California, Santa Cruz.

Letitia Olson, PEER scholar in Biochemistry, Cellular and Molecular Biology, helped organize the First Annual PEER Spring Symposium.
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BCMB Vision 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.

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