

Collaboration is key to research

In order to properly address the problems posed by her research, **Dr. Cynthia Peterson**, Professor in BCMB and a faculty member in the Graduate School of Genome Science and Technology (GST), has spent much effort expanding her repertoire



of methods. Her interest has always been focused on circulatory proteins that aid in the formation and breakdown of blood clots.

Dr. Peterson was raised as an "Air Force Brat" touring the country. However, the family roots were in Louisiana and that is where she spent most of her college years. She received her undergraduate degree at Louisiana State University (LSU), Baton Rouge. Her Ph.D. work was completed in 1986 at LSU Medical Center in Shreveport, her home town.

She left Louisiana to complete her post-doctoral work at the University of California at Berkley. It was here that she changed her focus from protein biochemistry to molecular biology and biophysical methods. Her goal was to expand her research methods to

include gene cloning and mutagenesis. Because of her efforts, she came to UT in 1992 as a self-titled "jack of all trades."

Her approach has returned to studying the functions of the protein vitronectin. It is a circulatory protein that interacts with many molecules in the blood stream. The results of these interactions are that vitronectin breaks down blood clots, has a role in the body's immune response to infection, and has a key role in the progression of cancer.

Her focus is threefold: Identify the interacting partners that bind to vitronectin, determine how specific those interactions are, and determine what sets of interactions are mutually exclusive. She feels that these objectives can be achieved by looking at the "big picture" of the complexes that vitronectin forms. She will be able to do this through her collaborations with the Center of Excellence for Structural Biology (CESB) that is directed by **Dr. Engin Serpersu**.

Dr. Peterson said, "CESB is helping us to get a very detailed picture of structure of vitronectin, especially as to how it is folded, the space it takes up, defining how it interfaces with other molecules, and

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From the Director

By Otto J. Schwarz, Ph.D.



We are off and running, well into the fall semester 2003. The Division is well, if not somewhat bursting at the seams for lack

of expansion space to place new faculty and their research programs. Early this year I was afforded the opportunity to join an ad hoc committee tasked with evaluating "space" in the College of Arts and Sciences. We ended up essentially touching the teaching and research space of every department in the college. It was an eye-opening experience.

The take home message was fairly straight forward; the college is in need of a great deal of expansion space as well as renovation of existing facilities. The last great building spree on the UTK campus ended in the early 70's, with renovation of existing facilities proceeding at a pace not keeping up with need. Fortunately, the Division is currently the site of a major renovation of the Hesler building complex. The interior of the elder wing of Hesler has

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From the Head

By Jeffery Becker, Ph.D.



The ORNL-UT School of Genome Science and Technology (GST) continues to grow and mature. We

have been successful in recruiting a robust group of new students for the Class of 2003.

In the past year we have added new faculty, revised our curriculum, submitted a training grant, and taught new courses.

I would like to recognize the GST faculty and students who give extraordinary service as committee chairs and committee members: Graduate Recruitment [Ed Michaud (Chair), Liz Howell, Engin Serpersu, Mitch Doktycz, and Ranjan Ganguly], First-year advisory [Naima Moustaid-Moussa (Chair), MaryAnn Handel, Ed Michaud, Beth Mullin, Steve Wilhelm, Loren Hauser and Yesim Son], Colloquium [Barry Bruce (Chair), Barry Bervan, Chris Dealwis, George Kabalka, Pam Small, Gary Truett, and Albrecht Von Arnim], Curriculum [Cynthia Peterson (Chair), Bem Culiat, MaryAnn Handel, Dabney Johnson, Bruce McKee, Gene Rinchik, Jay Snoddy, Oakley Crawford, and Josh Sharp], Retreat [Doug Gilman, Ron Wetzel, Gary van Berkel, Robert Wang, Salil Niyogi, and Leif Hanson], and Steering [Barry Berven, Cynthia Peterson, Dabney Johnson, Ed Michaud, Frank Larimer, Frank Harris, John Koontz, MaryAnn Handel, Bruce McKee, Michelle Buchanan, and Naima Moustaid-Moussa]. Many thanks are due to all these folks for their work for GST.

As always, we are in debt to our two wonderful assistants, Gaynelle Russell and Kay Gardner, who always know the best way to carry out

our tasks performing them with great skill in a professional manner.

I would also like to give special recognition to Cynthia Peterson who worked very hard to put together a training grant submitted to NIH and who spearheaded a revision of our curriculum.

Below I list three of our GST goals for the coming year.

Goals of The Graduate School of Genome Science and Technology

1. Recruit high quality graduate students whose contributions to the research of their mentor's laboratories will fuel and drive the overall research endeavors of UT-ORNL in an exciting and important area of science in the 21st century.

At our current funding levels we support about 20 graduate students (10 students/year in their first two years in the program; in subsequent years the students are funded by their mentors) at the starting stipend of \$18,000 plus tuition remission. Continued vigorous recruiting activities are carried out including sponsoring a recruiting weekend to bring top applicants to visit UT/ORNL and posting of attractive web pages.

2. Develop excellent graduate courses delivered by new technologies and presenting knowledge at the cutting edge created by the advances in genome sciences and associated technologies. UT Faculty and ORNL staff participate in GST over and above their normal Departmental and ORNL workloads.

In the past year we have initiated a summer institute in computational biology, taught a second round of biological mass spectrometry, and initiated a series of journal clubs in computational biology, mammalian genetics, and mass spectrometry. We are hopeful that two new faculty positions shared with Microbiology and

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Graduate School of Genome Science and Technology

F339 Walters Life Sciences Bldg.
Knoxville, TN 37996
(865) 974-153 Fax (865) 974-0361
<http://bio.lsd.ornl.gov/gst/index.html>

Becker, Jeff - Director jbecker@utk.edu
Gardner, Kay – Program Specialist
Russell, Gaynelle – Sr. Adm. Serv. Asst.
russellg@utk.edu

Genetics:

Culiat, Cymbeline culiatct@ornl.gov
Ganguly, Ranjan rganguly@utk.edu
Handel, Mary Ann mhandel@utk.edu
Johnson, Dabney johnsondk@ornl.gov
Jones, Brynn bhe@ornl.gov
Kim, Jung Han jhkim@utk.edu
Klebig, Mitch klebigml@ornl.gov
Koontz, John jkoontz@utk.edu
Lamour, Kurt klamour@utk.edu
Liu, Yie liuy3@ornl.gov
McKee, Bruce bdmckee@utk.edu
Mendis-Handagama, Charmi
mendisc@utk.edu
Michaud, Edward michaudjiii@bio.ornl.gov
Moustaid-Moussa, Naima
moustaid@utk.edu
Niyogi, Salil niyogisk@ornl.gov
Prosser, Rebecca rprosser@utk.edu
Rinchik, Gene rinchikem@ornl.gov
Russell, Liane russelllb@ornl.gov
Saxton, Arnold asaxton@utk.edu
Schuller, Hildegard hschulle@utk.edu
Truett, Gary gtruett@utk.edu
Wang, Haw-Chain (Robert)
hcrwang@utk.edu
Wang, Yisong wangy1@ornl.gov
Wimalasena, Jay jwimalas@mc.utmck.edu
You, Yun youy@ornl.gov

Computational Biology and Bioinformatics:

Berry, Mike mberry@utk.edu
Crawford, Oakley crawfordoh@ornl.gov
Guo, Hung hguo1@utk.edu
Hauser, Loren hauserlj@ornl.gov
Hingerty, Brian hingertybe@ornl.gov
Langston, Mike mlangsto@utk.edu
Larimer, Frank larimerfw@ornl.gov
Snoddy, Jay snoddyj@ornl.gov
Uberbacher, Ed uberbacherec@ornl.gov
Xu, Dong dong@cecs.missouri.edu
Xu, Ying xyn@bmb.uga.edu
Zhou, Jizhong zhouj@ornl.gov

Structural Biology /Proteomics:

Becker, Jeff jbecker@utk.edu
Bruce, Barry bbruce@utk.edu
Buchanan, Michelle
 buchananmv@ornl.gov
Bunick, Gerard bunickgj@ornl.gov
Dealwis, Chris cdealwis@utk.edu
Greenbaum, Elias greenbaum@ornl.gov
Hanson, Leif hansonl@ornl.gov
Hartman, Fred hartmanfc@ornl.gov
Howell, Elizabeth lzh@utk.edu
Kennel, Steve kennelsj@ornl.gov
Mazur, Peter pmazur@utk.edu
McKee, Bruce bdmckee@utk.edu
Mullin, Beth bmullin@utk.edu
Nebenführ, Andreas
 nebenfuehr@utk.edu
Peterson, Cynthia
 cynthia-peterson@utk.edu
Roberts, Dan drobert2@utk.edu
Sayler, Gary sayler@utk.edu
Serpersu, Engin eserpersu@utk.edu
Small, Pamela psmall@utk.edu
Solomon, Alan
 asolomon@mc.utmck.edu
Stevens, Audrey niyogias@ornl.gov
Von Arnim, Albrecht vonarnim@utk.edu
Wetzel, Ronald rwetzel@mc.utmck.edu
Wilhelm, Steven wilhelm@utk.edu
Xu, Xuemin xmx@utk.edu
Zemel, Michael mzemel@utk.edu

Bioanalytical Technologies:

Buchanan, Michelle
 buchananmv@ornl.gov
Chambers, James
 chambers@novell.chem.utk.edu
Cook, Kelsey cook@novel.chem.utk.edu
Doktycz, Mitch doktyczmj@ornl.gov
Fernandez, Elias
 elias.fernandez@utk.edu
Gilman, S. D. gilman@novell.chem.utk.edu
Hettich, Bob hettichrl@ornl.gov
Hurst, Greg hurstgb@ornl.gov
Jacobson, Steve jacobsonsc@ornl.gov
Jain, Nitin njain@utk.edu
Kabalka, George
 kabalka@novell.chem.utk.edu
Knapp, Rus knappffjr@ornl.gov
Paulus, Mike paulusmj@ornl.gov
Ramsey, Mike ramseyjm@ornl.gov
Sepaniak, Michael msepaniak@utk.edu
Stephenson, James
 stephensonjl@ornl.gov
Van Berkel, Gary vanberkelgj@ornl.gov
Vo Dinh, Tuan vodinh@ornl.gov

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determining what is located where.”

She counts herself as a protein biochemist first, and a structural biologist second based on her interactions with the CESB and other GST faculty. She began her study of the physical structure of vitronectin with **Dr. Ying Xu** and **Dr. Dong Xu** of the Bioinformatics branch of the GST program.

Their computer methods of predicting protein shapes and folding patterns gave Dr. Peterson her first “look” at vitronectin. She used these computational methods of prediction before initiating experiments.

From the bioinformatics group, she was able to find out that vitronectin has three domains with separate functions, the intermolecular orientation, and what the folds look like.

Aided by her post-doctoral student, **Dr. Anand Mayasundari**, they have been able to substantiate these predictions with the help of NMR in the CESB laboratory. They are looking at vitronectin at the atomic level in 3-D.

She said, “We started with the smallest domain first, it had 50 amino acids out of the total 450. We have been able to go from the computational model to the experimental structure of this domain quickly, and now hope to proceed to the 3-D structure of the entire protein in a few short years.”


From here she will take the entire protein and use x-ray crystallography methods with **Dr. Chris Dealwis’** laboratory, and x-ray and neutron scattering methods with **Dr. Gary Lynn** at ORNL to further explore the various vitronectin complexes.

This is not her only route, as Dr. Peterson is taking a multi-pronged approach to answer her questions regarding vitronectin. She is also working with other GST adjunct faculty members, **Dr. Greg Hurst** and **Dr. Bob Hettick** of ORNL, looking at chemical cross-linkers as chemical rulers, and

mass spectography to ascertain the proximity of domains.

This particular work is being funded by the American Heart Association, while other areas of her research are sponsored by NIH.

Dr. Peterson is also very active within the GST program. She was an original member of the steering committee when GST went through its reorganization. She is also a member of the GST curriculum committee and Associate Director of the CESB.


The myriad of support available to her through her GST collaborations has been essential in moving her work to the next level. However, for these many years of her research career, she has personally, and more importantly, been sustained by her husband, **Edward**, and her two children, **Caroline** and **Betsy**. 

cynthia-peterson@utk.edu

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Biochemistry, Cellular, and Molecular Biology Departments will be created to bring bioinformatics/genomics expertise to GST.

3. Foster collaborative research among UT and ORNL scientists leading to new funding and scientific advances. Students and post-doctoral fellows act as links between collaborating laboratories allowing accomplishment of this goal.

Many grants have been submitted in the past year in which GST was the catalyst for the research. We are confident that many of these grants will be funded. 

jbecker@utk.edu

Mice are keys to unlocking human gene function

The completion of the human and mouse genome sequences is revolutionizing many aspects of biological research. The next major challenge will be to determine the functions of the estimated 30,000 human and mouse genes. **Dr. Ed Michaud** and colleagues in the Mammalian Genetics and Genomics Program (MGGP) at ORNL are developing high-throughput approaches to making mutations in mouse genes for the purpose of determining the functions of the corresponding human genes.

Michaud said, "This is a very exciting time to be a researcher in the field of mouse genetics and functional genomics. The DNA sequence informa-

This work is made possible by significant collaborations with the laboratories of **Drs. Bem Culiat, Dabney Johnson, Yie Liu, Yisong Wang, and Gene Rinchik**. In the Michaud lab, **Ann Wymore** and **Carmen Foster** carry out these experiments.

The Michaud lab is also working on a new method to increase the speed and efficiency of making conditional gene-targeted mutations in mice. "Traditional gene knockouts in embryonic stem cells or ENU mutations alter the function of a gene in all tissues. However, conditional mutations allow you to knock out or alter the function of a gene in any selected tissue or at specific times during

development", he said. **Sujata Agarwal** is conducting these experiments.

Michaud and colleagues are applying these high-throughput mutagenesis methods for determining the functions of mouse genes that are

homologous to the human genes on chromosomes 5, 16, and 19. "The Department of Energy is our primary sponsor and they sequenced these three human chromosomes as part of the Human Genome Project. Our goal is to determine the whole-animal biological functions of these genes", said Michaud.

The Michaud lab is also interested in using these mutagenesis tools to gain a greater understanding of skin biology and disease, with an emphasis on skin cancer. He said, "The skin is a remarkable organ. It protects our body from physical and chemical damage, infection, and dehydration. The skin maintains this barrier by undergoing continual self-renewal and repair. The ease of accessibility of the skin and the ability to grow skin cells *in vitro* make it an ideal organ system for studying such complex processes as pigmentation, stem cell biology, cellular growth, differentiation, apoptosis, DNA repair, and cancer."

His lab recently demonstrated that the mouse *agouti* gene is a tumor promoter in two-stage skin carcinogenesis. "We are now using cDNA microarrays containing 15,000 mouse genes to determine the molecular genetic pathways involved in agouti-induced skin cancer", he said. Genome Science and Technology (GST) graduate student **Yesim Aydin Son** is carrying out this work. The microarray research was initiated in collaboration with **Drs. Brynn Voy, Bem Culiat, Peter Hoyt, and Mitch Doktycz**.

The Michaud lab is also performing phenotypic and molecular characterization of numerous new mouse models of skin and hair disease. One of these mutations results in the hyperproliferation of epithelial cells of the skin and the eye. The mice lose their hair, have skin disease, and become blind. GST graduate student **Heather Dech** is analyzing these mice.

First-year GST student **Melissa Thompson** is currently performing a rotation in the Michaud lab. She is cloning and sequencing the *melanocortin 1 receptor (Mc1r)* gene from several new lines of mutant mice. Mutations in the *Mc1r* gene result in altered pigmentation of the skin and hair, and skin cancer.

Dr. Michaud believes that the main strength of the Mouse Genetics and Genomics Program is the teamwork displayed by all members of the group. He said, "The group also benefits enormously from the diverse areas of expertise possessed by colleagues and graduate students in the UT-ORNL GST program."

Dr. Michaud is an adjunct faculty member of GST and he participates in numerous activities. He is a member of the Steering Committee, the Student Advisory Committee, and Chair of the Student Recruiting and Admissions Committee. He also participates in teaching several GST courses. Dr. Michaud receives funding for his work from ORNL and from the DOE.

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tion and new analytical technologies are giving us unprecedented opportunities for examining the interactions between genetic pathways and environmental factors in the determination of human health and disease."

This is an obviously daunting task; therefore, the group utilizes various new tools and strategies for high-throughput mutagenesis. For many years the MGGP has generated new mouse mutations with the chemical ethylnitrosourea (ENU), and screened the mice for numerous diseases. This work is under the direction of **Drs. Gene Rinchik and Dabney Johnson**. More recently, Michaud and colleagues generated a Cryopreserved Mutant Mouse Bank consisting of DNA, tissues, and frozen sperm from 4,000 offspring of mice highly mutagenized with ENU. "This resource gives us the flexibility to screen for DNA mutations in any gene in the entire mouse genome," said Michaud.

Biologists and computer scientists unite



Dr. Jay Snoddy has always had an interest in biology. Growing up on a dairy farm in Pennsylvania

was particularly helpful in shaping his future. As a child he would follow the veterinarian around whenever he visited and ask a lot of pointed and skeptical questions about how that pill or shot in one part of the cow would actually do anything useful for a completely different part of the cow.

He completed his Bachelor of Science degree with Honors in Biology at Bucknell University in nearby Lewisburg. He knew he wanted to go into research and was even then fascinated about the intersection of biology, information, and regulation. He was interested in how cells in a multicellular animal used surrounding information to regulate cell use of genome information.

Even then, it was clear that this differential use of genome information was very important in multicellular animals. He went on to Yale University for graduate studies in biology. His graduate work included studying how interferons and hormones interact with cells to control gene expression.

Dr. Snoddy conducted his post-doctoral work at the Howard Hughes Medical Institute at the University of Chicago and also at the Argonne National Laboratory. In 1993 he moved to Washington D.C. to work for DOE's part of the NIH/DOE Human Genome Project. He became a Program Manager for a bioinformatics and molecular biology program at the DOE headquarters of the Office of Energy (now Office of Science) in Germantown, Maryland.

As the human genome project was nearing completion, he moved to Tennessee in 1997 to conduct research based on the sequences from the genome program. He is currently

located at ORNL but is a UT employee. He is the Principal Investigator (PI) of two NIH grants to UT that total three million dollars over the life of the grants.

He serves as the Coordinator for Bioinformatics for the Tennessee Mouse Genome Consortium (www.tnmouse.org), and a PI of the informatics core for the Integrative Neuroscience Initiative on Alcoholism (www.iniastress.org). He is also the Principal Investigator for the state-wide planning grant to build up bioinformatics collaborations across Tennessee (www.ccbioinfo.org).

Teaching is also a big part of his life. He is currently teaching the Introduction to Bioinformatics course and a Bioinformatics Journal Club. The latter is an attempt to bring together biologists and computer scientists to develop a common language and understanding.

Moreover, he worked with others to develop a summer course along those same collaborative lines to bring biologists and computer scientists together in teams to construct useful bioinformatics systems. Both the journal club and summer course will probably be continued; he is interested in new participants and students.

His research interest remains at the intersection of biology and its use of information, although time and new discoveries have fine-tuned it over the years. His current work is divided roughly in two areas.

The first area is applied and collaborative bioinformatics that helps bring together different research groups with the aid of the Internet to share data and collaborate. For example, his group made the MuTrack database for use by the Tennessee Mouse Genome Consortium.

Mice are first mutagenized by the ORNL Functional Genetics and Genomics groups. The mice are then generated, cleaned up, and shipped across the state (UT Memphis, University of Memphis, and elsewhere) to be screened for abnormal phenotypes. Studies are done to try

to find mutants in complex and phenotypes that that would not be seen by simple inspection of the mice, including altered and complex responses to such stimuli as alcohol and cocaine. MuTrack tracks the mice through these steps, accumulates the screening data, and makes automated statistical comparisons to find potentially mutant pedigrees. MuTrack not only helps in the work of the collaboration, it also puts the screening information and progress on creating these mutants on the internet, making it available to any scientist. There are other systems that are being developed to use the internet to get better access to distributed resources—including computational and experimental resources.

Dr. Snoddy is also interested in basic research in comparative bioinformatics. His group and collaborators are comparing genes that might be co-regulated in variant animals from the same species and from different species. Some of the shared data sets from the collaborative bioinformatics are useful in this more basic research, as some of the data includes potentially co-regulated genes.

Researchers in his group—together with several collaborators—are building large-scale data visualization, data mining, and data analysis environments, including an analysis pipeline to help find the DNA-encoded controls for gene expression. He said, "The differences among the multicellular animals are frequently not in the proteins, per se, but the genome-encoded differences that often make a difference are believed to come from changes in gene regulatory networks and cell to cell communication networks. There are pieces of DNA—often upstream of transcribed genes—that help define this regulation. While it is difficult to do, understanding these pieces of DNA and the regulation they help encode may be even more rewarding than understanding the protein-coding parts of the

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Combining personal interest with skill

Animal Facility Manager, **Sally Fridge**, was born in Dhahran, Saudi Arabia. Her father was a linguist for the Aramco Oil Company, teaching English to the local Arabs and Arabic to the American workers. Sally lived there for



eight years and during this time her fascination for animals was born. Her family had cats, gerbils and a nightingale. Her mother could call to the bird and it would respond, thus she was dubbed the “witch of Dhahran.”

Sally’s family moved back to the states to Boston, where her family added a chinchilla to the list of pets. Eventually, they moved to Pullman, Washington, where Sally finally got a dog. She began to show her poodle and learned care and grooming techniques. During this time she married and had three children: **Peter, Bruce and Aurora**.

When they moved to Spokane, she began to work as a ward secretary in a local hospital. This was a life changing experience for Sally. Up to this point she called herself an animal rights advocate. She was against hunting and animal research. However, as she worked in the intensive care unit at the hospital, she began to see that animal research was justified. She changed her views and realized that her main concern would be that the animals used in research should receive the best care possible.

She made these changes in her way of thinking, but did not include herself in the equation until 1973 when she moved to Denver, Colorado and began working at a kennel. It was not an ordinary kennel because some of the dogs housed there were used by the local

V.A. Hospital for heart research.

Sally and the children moved back to Washington after her divorce. She later married **Evan** and had her fourth child **Cory**. She took an assessment of her life and decided that she needed to put her love of animals and interest in research together into a real career. She began to attend Washington State University in Animal Science with an emphasis on beef cattle management and husbandry.


She said, “It was neat being immersed in animal physiology and other animal-related courses for the first time.” While in school, she worked in university research laboratories, including a pharmaceutical lab doing cancer research where she worked extensively with mice. After graduation, she worked for the University of Idaho in a research laboratory in embryonic work with sheep and mice. Sally was promoted to supervisor of the animal research facility at UI where she handled mice, rabbits, rats, ferrets, skunks, rattlesnakes and gophers.

On a whim she applied at UT in 1991 for the manager position in the Division of Biology Animal Facility. It turned out to be a good move for her. She said, “I fell in love with Knoxville right as I stepped off the plane.”

While her professional life was finding direction, personally, her arrival in Knoxville was full of ups and downs. Her husband, Evan, had surgery as a result of back problems. Ultimately, this resulted in a career change for him that incorporated his artistic talents and he is now an accomplished glassblower. In 1995 she was reunited with her first son, Peter, whom she had given up for adoption and continues to have an ongoing friendly relationship with him.

When she started at UT, the animal facility had a much smaller animal population. It was not even half full. In 1999 many changes came to animal research at UT with the alliance with ORNL, NIH Human Genome Research project and the increased emphasis on transgenics. The facility went from maintaining 600 mouse cages to 2,700. It also has a small population of guinea

pigs, rabbits and frogs. All 32 rooms of the facility are now occupied. Sally said, “It is much more complex now than when I first came.” New to the facility is a quarantined area for mutant mice, an additional cage washer, a bedding disposal unit, new guinea pig caging, and four new animal changing stations. This new equipment has helped cut down on allergies for the workers and has increased the protection of the animals.

She feels settled now personally and professionally and is part of a thriving facility within the Division. 

sfridge@utk.edu

Division websites of note

Dr. Neil Greenberg of Ecology and Evolutionary Biology, is partnered with University Studies on campus. His website <http://notes.utk.edu/bio/greenberg.nsf> contains a link to his DEEP Ethology page.

DEEP stands for the disciplines of Development, Ecology, Evolution and Physiology and their impact on behavioral traits in organisms.

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genome.”

First, the human genome was sequenced, then work was done to annotate what parts of the genome code for protein and RNA gene products, and now Dr. Snoddy wants the science to progress to understand what the elements that help regulate the expression of gene products over developmental time.

To him the bigger picture includes an understanding of how our phenotypic diversity and complexity comes from similar genes in different species. This is a large problem that will require training a new generation of cross-trained researchers that are both fluent in the fundamental biology and in the use of computation in biology.



snoddyj@ornl.gov

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been completely gutted and is in the process of being reborn from the outside walls inward into a modern teaching and research facility. The renovation is on schedule and so should be ready to reoccupy by mid-summer 2004.

The plans are to house the entire Botany Department as well as a portion of Ecology and Evolutionary Biology. Botany will move from its present quarters in the newer wing of Old Hesler, vacating that space for immediate renovation to state of the art teaching space for essentially all of the lower division courses offered by the Division and the Departments. This final bit of biology renovation should be on line a little under two years hence. The only other effort involving bricks and mortar should take place beginning in October and result in useful renovated space for the Division's MBRF support group. This facility is currently across campus in the Science and Engineering building, but will find its permanent home on the first floor of Walters Life Science building.

As you look through this issue of IN VIVO you will find a new feature targeting some of the more interesting web pages brought forth by our faculty, staff and students. Take a moment and explore this month's featured site, I believe your time will be well spent.


Although not a featured site this month, I can't resist urging you to call up UT's homepage and get acquainted with this resource provided by your university, but more to the point, go to the Botany

Department's homepage and find the section devoted to the Herbarium and its offerings. If you appreciate the flora of the Southeastern United States, you will be introduced to a resource that will provide you with seemingly endless information about the plants of Tennessee and surrounding states. Yes, there are lots of pictures as well as written information.

On a more serious note, the continued functioning of the newly established state wide Centers of Excellence Program is currently in question. These centers are of extreme importance to the University as they provide the needed research focus for our continuing efforts towards research prominence. As I understand, their current year's funding was left out of the budget and as yet the state has not seen fit to reinstate funding.

These programs have just begun to function and have and are attracting top researchers and students (see lead article, this issue). As far as I can ascertain, these centers were on track to be self sustaining within a year or two and not too far in the future would more than pay back the original investment of tax dollars.

This issue is focused on one of our most recent and most successful collaborative efforts between UTK's Biology and ORNL in the ORNL-UT Graduate School of Genome Science and Technology (GST). Through the untiring efforts of **Dr. Jeff Becker** and the very capable cadre of professional colleagues that comprise the GST faculty, great progress has been made in establishing and maintaining a truly outstanding academic and research unit. Much of the research they are accomplishing was, twenty years ago, the stuff of science fiction. These folks are truly on the forefront of biology.

Enjoy this issue. And again, let us hear from you. 
Peace
Otto

oschwarz@utk.edu

MICHAUD, from page 4**Diverse background**


It seems a stretch from studying turtles and lizards on the Florida coast to becoming the Functional Genomics Group Leader in the Life Sciences Division at ORNL, but **Dr. Ed Michaud** did just that. He began his research career at the University of Central Florida where he received his B.S. degree in Zoology in 1979. He spent his time with **Dr. Llewellyn Ehrhart** tagging sea turtles and studying manatee behavior.

After brief employment with the National Oceanic and Atmospheric Administration, he went to Texas A&M University to work with **Dr. Jim Dixon** on snake systematics and taxonomy, and received his M.S. degree in 1984.

From there he came to UT where he received his Ph.D. in 1990 in Ecology and Evolutionary Biology under the tutelage of **Dr. Sandy Echternacht**. He joined Dr. Echternacht in his study of the life history of the Green Anole lizard in field sites ranging from east Tennessee to south Florida.

After completing his Ph.D. degree, he wanted additional training in molecular genetics and went to work for **Dr. Rick Woychik** at ORNL. Dr. Michaud was an Alexander Hollaender Distinguished Postdoctoral Fellow in Woychik's lab and participated in the cloning of the mouse *agouti* gene. Mutations in the *agouti* gene cause altered skin and hair color, obesity, diabetes, and cancer.

Dr. Michaud became a Staff Scientist in the Mammalian Genetics and Genomics Program in 1996 and the Functional Genomics Group Leader in 2001. He said, "I originally intended to bring my experience in molecular biology back to the field and continue my work on the ecology and evolutionary biology of reptiles.

What I do now, though, is equally exciting. The mouse is an ideal model organism for studying gene function and gene-environment interaction at the level of DNA, proteins, cells, tissues, and the whole animal." 

michaudjiii@bio.ornl.gov

In Vivo

An alumni newsletter published by the Division of Biology
Otto Schwarz, Director
Laura Maples, Primary Writer/Editor
lmables@utk.edu

The University of Tennessee
Division of Biology
M303 Walters Life Science Building
Knoxville, TN 37996-0830
(865) 974-6841 Fax (865) 974-4057
<http://web.bio.utk.edu/Division>



The University of Tennessee
Division of Biology
M303 Walters Life Science Bldg.
Knoxville TN 37996-0830

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Become a “Friend of the University”

UT Undergraduate Admissions is launching a new effort to recruit top students and it involves the personal touch. They are calling on all alumni, faculty and staff to notify them of any good student prospects for recruiting. Please see the insert in this newsletter for more specific information.

Once this form is received by the Undergraduate Admissions Office, they will contact the students directly to give them information and offer assistance including campus tours.

Please consider becoming a “Friend of the University” by sending your budding scholar our way. Particularly those who are interested in Life Sciences. If you want to use our envelope inserted in this newsletter, we will be glad to forward your form to Admissions for you.

The University of Tennessee does not discriminate on the basis of race, sex, color, religion, national origin, age, disability, or veteran status in provision of education programs and services or employment opportunities and benefits. This policy extends to both employment by and admission to the University. • The University does not discriminate on the basis of race, sex, or disability in the education programs and activities pursuant to the requirements of Title VI of the Civil Rights Act of 1964, Title IX of the Education Amendments of 1972, Section 504 of the Rehabilitation Act of 1973, and the Americans with Disabilities Act (ADA) of 1990. • Inquiries and charges of violation concerning Title VI, Title IX, Section 504, ADA, the Age Discrimination in Employment Act (ADEA), or any of the other above referenced policies should be directed to the Office of Equity and Diversity; 2110 Terrace Avenue; Knoxville, TN 37996-3560; telephone (865) 974-2498 (TTY available). Requests for accommodation of a disability should be directed to the ADA Coordinator at the Office of Human Resources Management; 600 Henley Street; Knoxville, TN 37996-4125. • PA#R01-1011-01-001-04