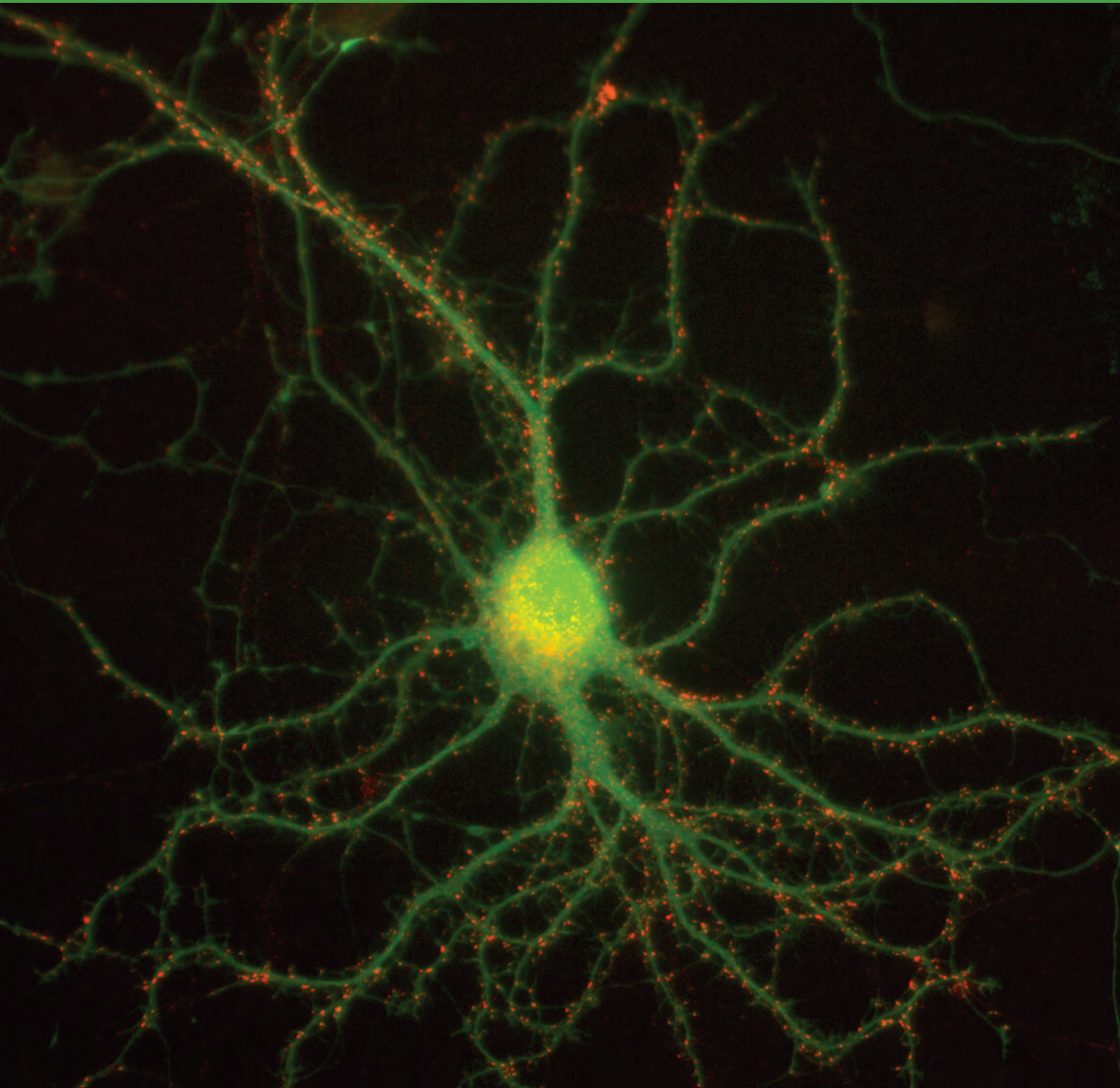


MCDB NEWS

DEPARTMENT OF MOLECULAR, CELLULAR AND DEVELOPMENTAL BIOLOGY

2007



UNIVERSITY OF CALIFORNIA SANTA BARBARA

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2007

Chair's Corner

As we prepared this newsletter we decided to contact alumni of MCDB (and the former Department of Biological Sciences) via email, using a list from our Alumni Association. David Kohl, the longest serving faculty member in our department, sent out over 1500 emails and was a bit dismayed when 400 bounced back as incorrect addresses. After a few days, however, the response was overwhelming, with 250 emails, faxes and letters! We were amazed at the interesting lives and varied and distinguished careers our alums have experienced, and we share some of these with you on pages 12-14. We also present a sample of the latest research in the department, and bring you up to date on faculty and student achievements. Finally, we take this opportunity to sincerely thank our many donors.

About the picture on the right: it doesn't happen often enough!

We hope you enjoy our newsletter, and hope you will stay in touch with us and stop by to visit the department next time you are in town!



Dennis O. Clegg, Chair

About the Cover

Photomicrograph of a rat hippocampal neuron expressing the green fluorescent protein (green), with synapses indicated by the protein PSD95 (red) (Linda Soo Hoo, Carol Vandenberg Lab)



Department Chair Dennis Clegg and Vice Chair David Low

From the arabinose operon ... to human embryonic stem cells: Stem cell research flourishes in MCDB

The laboratories on the fourth floor of Biological Sciences 2 that housed Professor Nancy Lee's laboratory in the 1970's and 80's used an army of undergraduate researchers to conduct groundbreaking research on *E. coli* genes involved in arabinose metabolism. Dr. Lee and Dr. Ellis Englesberg were the first to demonstrate positive gene regulation to a skeptical field that thought the lac repressor model of Jacob and Monod was the only mechanism controlling genes. Now the labs have been retooled for another kind of groundbreaking research using human embryonic stem cells (hESC).

Stem cell research at UC Santa Barbara is flourishing with a unique, interdisciplinary flavor that has become a trademark of the campus. The effort has been bolstered by the award of a \$1.2 M training grant from the newly formed California Institute for Regenerative Medicine, with MCDB Chair Dennis Clegg serving as director of the training program. Research includes work on both adult and embryonic stem cells, and topics range from stem cell competence (Joel Rothman) to the role of micro RNAs in hESC differentiation (Ken Kosik). UCSB bio-engineers are also collaborating with biologists to tackle challenges in stem cell culture and sorting.

UC Santa Barbara's efforts in stem cell research have been energized by collaborations with James Thomson, the University of Wisconsin professor who first isolated hESC in 1998. Dr. Thomson, who is now an Adjunct Professor in MCDB, is opening a laboratory in the California NanoSystems Institute at UCSB while maintaining his principal appointment and laboratory in Madison. "That's a great coup for Santa Barbara and a great coup for California," said Dale Carlson, a spokesman for the California Institute for Regenerative Medicine. "Thomson is one of the big names in the field and one of the best stem cell researchers in the country."



Photo: Sherry Hikita

Undergraduate researcher Kathryn Blaschke examines a colony of human embryonic stem cells.

Nancy Lee's old lab has been transformed into a shared stem cell lab using gifts from private donors to provide the needed technology. "It's been a challenge to get everything up and running," said Dr. Sherry Hikita, Lab Director, "But it's exhilarating to see the research catch fire on the Santa Barbara campus."

Some things in this laboratory, however, have not changed: undergraduates are still engaged in important research at UCSB. Meet Kathryn Blaschke, the recipient of the Chancellor's Award for Excellence in undergraduate research, who is the first UCSB undergraduate to carry out research on hESC. "Working with the human embryonic stem cells is time consuming," she said, "but it's exciting to be part of research that has so much potential for treating disease." Kathryn, a CCS Chemistry major, will graduate this June, and pursue her PhD at UCSF where she will study – what else – stem cell differentiation.

New Faculty

James "Jamie" Thomson



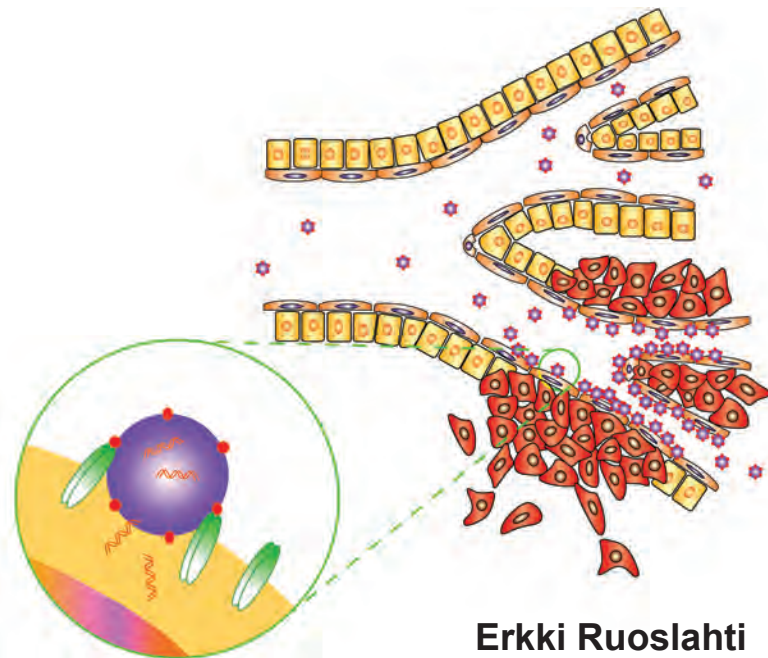
Stem cell pioneer James "Jamie" Thomson has accepted an Adjunct Professor appointment in MCDB and will operate a satellite laboratory in UCSB's California NanoSystems Institute, where he will carry out collaborative projects with UCSB biologists and engi-

neers. Professor Thomson's main laboratory will remain at the University of Wisconsin, where he is the John D. MacArthur Professor of Anatomy in the UW-Madison School of Medicine and Public Health, and is the holder of the Jim Kress Endowed Chair. He has appointments at the Wisconsin National Primate Research Center, the Genome Center of Wisconsin, and the Department of Obstetrics and Gynecology, and he serves as the scientific director of the WiCell Research Institute. Professor Thomson was the first to isolate human embryonic stem cells in 1998 and continues to be a leader in the field of stem cell research. "I am attracted by UCSB's strengths in materials science, instrumentation, and by the availability of marine model organisms for comparative studies," said Thomson.

Learn More About MCDB Faculty

Visit the MCDB departmental web site to find out more about our faculty and their research.

www.lifesci.ucsb.edu/mcdb



Erkki Ruoslahti

Internationally renowned cell biologist Erkki Ruoslahti has established a branch of the Burnham Institute for Medical Research at UCSB, which will be known as the Vascular Mapping Center. Ruoslahti retains his primary appointment as Distinguished Professor with the Burnham, and will also be Distinguished Professor in the MCDB Department. His lab will focus on developing applications for vascular "zip codes," based on technology discovered in his laboratory. Vascular zip codes are molecular signatures in blood and lymphatic vessels that are specific to individual tissues and disease sites. Ruoslahti has discovered ways to selectively target drugs to tumor blood vessels in mice and suppress the growth of those tumors. The National Institutes of Health has now recognized a partnership of 25 scientists, primarily from Burnham and UCSB, as a Program of Excellence in Nanotechnology with a \$13 million grant to design nanotechnologies that detect, monitor, treat, and eliminate "vulnerable" plaque, the probable cause of death in sudden cardiac arrest.



Awards & Recognition



Dan Morse and Angela Belcher Honored by Scientific American

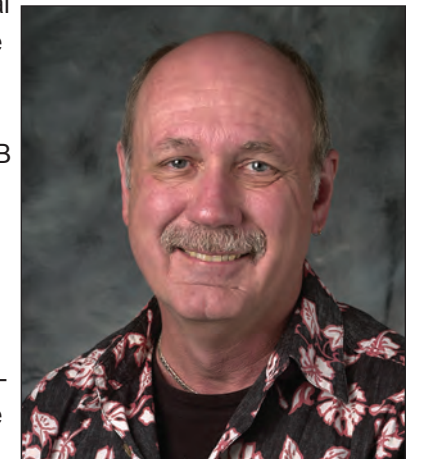
MCDB professor Dan Morse and one of his former graduate students, Angela Belcher, have appeared on the 2006 list "Scientific American 50", published annually by the Scientific American magazine. This highly prestigious list names individuals, groups or companies that have demonstrated outstanding leadership through their pioneering research and is annually selected by the magazine's Board of Editors. Angela Belcher, now a professor at the Massachusetts Institute of Technology, was named "Researcher of the Year" by the magazine.

Chuck Samuel Named as AAAS Fellow and to Microbiology Academy

MCDB professor and Charles A. Storke II Chair Chuck Samuel has been honored as a Fellow of both the American Association for the Advancement of Science and the American Academy of Microbiology. Chuck was recognized for "pioneering studies in the interferon field, particularly biochemical analyses that provided understanding of how interferons inhibit virus multiplication and how viruses antagonize interferon action."

MCDB Professor Steve Fisher Named 2006-07 Faculty Research Lecturer

The Faculty Research lecturer title is the highest honor the UCSB faculty bestows upon one of its own members. Professor Fisher moved to UCSB in 1971 after earning his PhD at Purdue and doing postdoctoral studies at Johns Hopkins. His research focuses on retinal injury and disease, particularly the relationship between cone photoreceptors and the retinal pigment epithelium. He is also part of a group of biological and computer scientists at UCSB funded by the National Science Foundation for research in the area of bio-image informatics. He was the founding director of the Neuroscience Research Institute at UCSB.



Ed Orias Receives Chancellor's Award

Ed Orias is the recipient of the 2007 "Chancellor's Award for Excellence in Undergraduate Research Mentoring" at UCSB. The award will be presented at the Math, Life and Physical Sciences Commencement, which will be held on Saturday, June 16 at 9am.

"The initials of dozens of students are immortalized in the names of more than 400 DNA polymorphisms that they discovered and mapped. Ed continues to be an outstanding mentor to undergraduate students."

Mary Baum (BA BioSci '78; MA, Bio '80)
Former Research Associate, Ed Orias Lab

STUDENT ACHIEVEMENTS



Photo: Andrew Kröes

MCDB Vice-Chair David Low addresses students, faculty, family and friends at the annual graduating seniors' reception.

Morgan Tenwick Receives Sinsheimer Award

This award was initiated in 1997 through the generosity of MCDB Professor Robert L. Sinsheimer, a prominent molecular biologist and former UCSC Chancellor. It distinguishes the graduating senior with the highest academic performance in genetics and biochemistry. In addition to her outstanding academic performance, Morgan worked in MCDB Professor Peggy Cotter's Lab. The research that she did was aimed at understanding how bacteria cause respiratory disease – specifically, how *Bordetella pertussis* causes whooping cough. Morgan is planning on working in the biotech industry for the next year before applying to a Ph.D program. She is particularly interested in the field of molecular pathology and hopes to work in a hospital as a clinical pathologist.

Distinction in the Major is Awarded to Fourteen MCDB Seniors

Students who have engaged in creative research projects with an MCDB faculty member and have completed a senior honors thesis summarizing their work are awarded this distinction. Congratulations to: Benjamin Cloyd, Joseph Collins, Brittney Dautremont, Brittany Dixon, Andrew Findlay, Jennifer Gin, Cynthia Gomez, Jonathan Jazayeri, Justin Roberts, Todd Schneberk, Katie Shanley, Brian Slizgi, Woo Suh and Jenna Wiley.

Areo Saffarzadeh Receives the Thomas More Storke Award

The campus's highest student honor, the Thomas More Storke Award for Excellence, is awarded each year to one graduating senior who has demonstrated outstanding scholarship and extraordinary service to the University, its students, and the community. The basic criteria are courage, persistence, and achievement. Nominees must have earned a cumulative GPA of 3.5 or above. Areo is an honors student double majoring in Biological Sciences and Business Economics. He is the founder of the student organization "Musicians Making a Difference", a youth mentoring program that provides free music lessons and homework tutoring to Isla Vista Elementary School children. After graduating, he plans on attending a medical school that offers a joint MBA/MD program. Areo's goal is to work as a pediatrician and launch his own non-profit organization with other doctors and provide medical aid to regions around the world in need of assistance.

Justin Roberts and Brittany Dixon Share Cancer Federation Scholarship Award

Established in 1985, this award is given to undergraduate seniors doing research in microbiology, immunology or oncology. With MCDB Professor Duane Sears as mentor, Justin's and Brittany's primary research focus has been to genetically engineer recombinant receptors that will facilitate the analysis of macrophage phagocytosis, an important immune-mediated process that protects the body against the invasion of pathogens and other foreign substances. Both are candidates to receive Biochemistry-Molecular Biology B.S. degrees with distinction in the major and have eventual plans to attend medical school.

The 17th Annual Undergraduate Research Colloquium Celebrates the Scholarly Achievements of Students

Honoring outstanding research and creative activities at UCSB is a hallmark of our undergraduates' educational experiences. The following outstanding MCDB students presented their research at the UCSB Annual Undergraduate Research Colloquium: Andrew Findlay, Kathryn Blaschke, Cynthia Gomez, Amy Collins, Jacob Levy, Justin Roberts, Brittany Dixon, David Li, and Carolyn Powers.

The Chancellor's Award for Excellence in Undergraduate Research Goes to Kathryn Blaschke

This award is presented by UCSB Chancellor Henry Yang to an outstanding graduating senior with distinction as an undergraduate researcher. Kathryn works as an honors student in MCDB Professor Dennis Clegg's Lab and is the first undergraduate at UCSB to work on human embryonic stem cells. "Kathryn is an extraordinary Chemistry and Biochemistry major who is blazing new trails in stem cell research," said Clegg. "Very few undergraduates in the country have her level of expertise in this exciting new field of research." After graduating Kathryn is bound for graduate school at UCSF, with a goal to continue in cutting-edge stem cell research.

Jennifer Gin Selected as Stipanich Research Scholar

Through the generosity of the Stipanich family, this award is given every summer to a top MCDB undergraduate. Jennifer will experimentally arrest protein synthesis and examine how this treatment affects the stability and degradation of messenger RNA molecules, which are the "blueprints" for protein construction. Many clinically useful antibiotic drugs, such as tetracycline and erythromycin, specifically interfere with bacterial protein synthesis. Jennifer is pursuing a double major in Art Studio and Cell & Developmental Biology, with a goal to attend medical school.

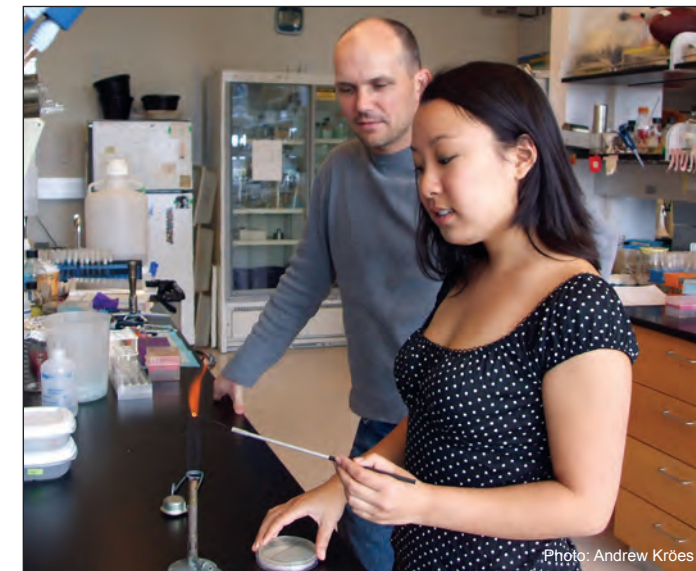


Photo: Andrew Kröes

Working with MCDB faculty mentor Chris Hayes, Jennifer will spend her summer researching protein synthesis in the bacterium, *Escherichia coli*.

Biology Undergraduate Program

The Class of 2007 will be awarded 320 undergraduate degrees in biological sciences, biochemistry-molecular biology, cell and developmental biology, microbiology, and pharmacology.

www.lifesci.ucsb.edu/undergrad

Microbiology Senior Delivers the Science and Mathematics Commencement Address

Brook Vander Stoep Hunt was selected as the student commencement speaker for the 2007 Science and Mathematics Commencement Ceremony. She has served as a research assistant in Kevin Plaxco's lab, where she was involved in a project to develop a reusable biosensor for detecting nucleic acid molecules in complex biological samples. This device may have future applications as a medical diagnostic tool. Brook's academic achievements and her participation in a science outreach program for elementary school students were outstanding. She plans to attend graduate school after working for the next year in a cell biology lab that is focused on cancer research.

Eight MCDB Students Inducted into Phi Beta Kappa this Year

Founded in 1776, Phi Beta Kappa is generally considered the most prestigious American college honor society, and membership is one of the highest honors that can be conferred on undergraduate liberal arts and science students. Congratulations go to: Shannon Beaty, Matthew Dailey, Craig Fellers, Rebecca Gayle, Natalie Hohmann, Kathleen Laning, Krista Ruggiero, and Pa Soua Xiong for having been selected in 2007.



Former Student Wins Lasker Award

Former UCSB student Carol Greider (B.A., 1983) was awarded the 2006 Lasker Award for Basic Medical Research for her research on telomerase, the enzyme responsible for maintaining the telomeric repeats on the ends of chromosomes. Greider, who is currently a professor at Johns Hopkins University, shared the award with Liz Blackburn (UCSF) and Jack Szostak (Harvard). While an undergraduate, she carried out research in MCDB Professor Les Wilson's lab.

Investment in Teaching Labs pays Huge Dividends for Students



Photo: Tanja Stoyan
Rachael Olsufka and Henry Hymanson enjoying a short break during Pharm Lab.

Steve Morris (Pharmacology '06) will not soon forget his pharmacology lab courses. "They were a lot of work ... scheduled for a whole day!" said Steve, now a research associate at Allergan. But the long hours hovering over tissue baths, scatchard plots, and mouse ears paid off for Steve and the thousands of other MCDB undergraduates who have gained valuable experience in teaching labs that led to jobs after graduation. "I was able to get my foot in the door because they knew the UCSB programs pretty much everywhere I applied," said Steve, who works with Dr. Allison Vickers, a senior scientist at Allergan and UCSB Pharmacology graduate. The MCDB department offers two upper division labs in pharmacology, two in biochemistry, and one each in recombinant DNA, microbiology, bacterial pathogenesis, cell biology and immunology. Students carry out RT-PCR to isolate novel tunicate genes, purify restriction enzymes, express dominant-negative genes in mammalian cells, carry out fluorescence microscopy, and make monoclonal antibodies.

Lab courses are a top priority in MCDB. In 2005, the department christened a new teaching lab in the LST building, equipped with computer work stations, grass analyzers, tissue culture hoods, and additional state-of-the-art equipment. This year, MCDB received a grant to develop flow cytometry exercises in pharmacology, immunology

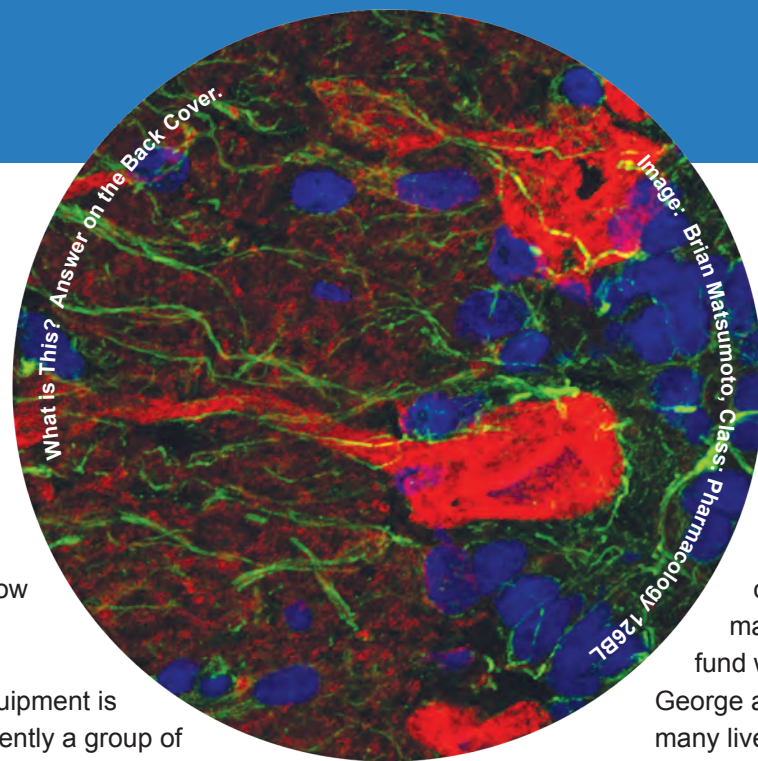
and cell biology. A new, five-year BS/MS program in Biotechnology and Pharmacology is now being developed.

But maintaining equipment is expensive, and recently a group of pharmacology alumni began a campaign to permanently endow the teaching labs. The goal is to raise \$1M and to name the new LSTB laboratory in honor of a remarkable leader and role model: Jean M. Devlin. Jean served as the pharmacology lab coordinator for over 25 years, and touched thousands of lives at UCSB. During Jean's tenure, and with the leadership of Professor Bob Jacobs, UCSB established the first undergraduate major in pharmacology in the country. She was instrumental in its successful development: she designed experiments, advised students, and launched innovative internship and exchange programs with pharmaceutical and biotechnology companies - which served to catapult students on their way to highly successful careers.

On July 2, 2003, Jean M. Devlin passed away at the age of 66, following a long battle with cancer. This Endowment will provide undergraduate scholarships and graduate fellowships in perpetuity. In addition, the funding will help maintain modern, top-notch teaching facilities for future MCDB undergraduates.

"We strive to offer instruction in cutting edge research methods useful to students in their future careers ... emphasizing teamwork, scientific writing and communication skills."

Dr. Tanja Stoyan, MCDB teaching lab coordinator



New Life Science Building Auditorium Honors Biotechnology Pioneer George Rathmann

This past fall, the lecture hall in the new Life Science and Technology building was officially named in honor of George and Joy Rathmann, in commemoration of the establishment of a \$1 million endowment that will fund Rathmann Graduate Fellowships. Contributions to this fund were generously donated by the many friends of George and Joy, to honor their inspirational impact on so many lives.

George Rathmann is one of the Biotechnology Industry's true pioneers, and his work has helped to revolutionize drug discovery. George served as President and CEO and then Chairman at Amgen in its early days, and he is credited with instilling a unique camaraderie that still exists there today. George also helped to found the Biotech Companies Hyseq (now called Nuvelo) and ICOS. Amgen and UCSB have had a long relationship, as John Carbon was on the first Scientific Advisory Board, and many UCSB alumni have gone on to successful and productive careers at Amgen.

Graduate students Anubhav Arora, Andrew Bonham, Qiang Gong, Poornima Kolhar, Fernando Santiago, and



George and Joy Rathmann celebrate the inauguration of the new Rathmann Lecture Auditorium in the Life Sciences Building at UCSB.

Erica Sommermann are the first recipients of the George and Joy Rathmann Fellowships. "I am deeply honored and grateful to receive this award," said MCDB graduate student Erica Sommerman, who earned an undergraduate degree in Biology at Stanford. "It will allow me to experience a greater level of quality in my studies."



Photo: Peter Allen



Photo: Shane Anderson

California purple sea urchin, *Strongylocentrotus purpuratus*, has been a premier model system for studying fertilization and early development.

Purple Sea Urchin Genome Decoded

MCDB professor Kathy Foltz led a group that was part of an international consortium that sequenced and annotated the genome of the California purple sea urchin, *Strongylocentrotus purpuratus* (pictured above). The new genome sequence, published in *Science*, is the first to be accompanied by a comprehensive analysis of when and where genes are expressed (the transcriptome). The sea urchin is also the first non-chordate deuterostome to be sequenced, and is a useful model system for studying fertilization, development, and gene regulation. The genome sequence has already accelerated research in these areas and provided key evolutionary insights. Over 70% of the 23,300 sea urchin genes are found in human. Somewhat surprisingly, the sea urchin appears to have an incredibly sophisticated repertoire of genes that encode immune system proteins as well as proteins that sense and protect against environmental stressors (aptly named the defensome). In accompanying articles in *Developmental Biology*, Foltz and coworkers analyzed the nearly 400 sea urchin protein kinases, as well as the suite of genes crucial for regulating calcium levels and initiating development after fertilization. The relative simplicity of the sea urchin embryo and the reduced complexity of its genome will allow detailed analyses of the signaling pathways and gene networks that regulate key developmental events.

Tetrahymena Genome Sequencing Completed; Development Culminates 12 Years of Research

Tetrahymena, a microscopic predatory protozoan, has yielded the secrets of its genome in a collaborative project spearheaded and co-authored by MCDB Research Professor Eduardo Orias. The newly published genome sequence reveals that thousands of genes are shared by the protozoan and humans, thus enhancing the value of Tetrahymena as an important model organism for biomedical research. Major significant scientific discoveries have been made using this organism, including the discovery of catalytic RNAs (a Nobel Prize-winning discovery). One unique aspect of the UCSB component of this study was the participation of numerous undergraduate students who since went on to graduate school or medical or veterinary programs, or have obtained jobs in biotech companies. Some undergraduate researchers co-authored published scientific articles and many presented their results (and won some prizes) in national or regional Undergraduate Research Colloquia. Professor Orias joined the faculty of UCSB's Department of Biological Sciences in July 1959, and has worked with Tetrahymena for over 50 years. The genome sequencing results were published in the September 2006 issue of the prestigious peer-reviewed journal, the Public Library of Science Biology.



Photo: Rod Rolle

Orias research group. From left to right: Eileen P. Hamilton, Eduardo Orias, Jenna Wiley, Tai Lee, Sevewandi DeSilva, Andrew Findlay, Teisha Rowland and Melanie Williams.

Graduate Awards & Fellowships

Carbon/Clarke Fellowship

Awarded to an outstanding doctoral student doing research in Biochemistry and Molecular Biology, this fellowship is provided through the generosity of John Carbon and Louise Clarke, emeriti of the MCDB Department. This year's fellowship went to Erin Folchi, who received a B.S. in Biological Sciences from Cal Poly, San Luis Obispo in 2002. She is interested in how misregulation in signal transduction pathways can lead to disease.

Outstanding Teaching Award

The Outstanding Teaching Assistant Award, given to outstanding TAs by the UCSB Academic Senate, was awarded to Erin Tolhurst Dunkle, (Clegg Lab) who just completed her PhD on extracellular matrix proteins in the nervous system. Erin plans a career in teaching, and is currently a lecturer in the MCDB department.

Charles A. Storke II Graduate Fellowships

This award is given to a doctoral student(s) with the highest grade point average in the MCDB core courses. This year two awards were made to Nicholas Doerr and Erin Folchi (Dr. Thomas Weimbs' lab). They posted GPAs of 3.95 and 3.96 in challenging courses in protein chemistry, cell biology, signal transduction and development. Both investigate signaling in polycystic kidney disease for their doctoral research.

Amgen Fellowships

Provided through the generosity of Amgen, Inc. to assist outstanding doctoral students within the MCDB graduate program. The Amgen Fellowships provide support for research supplies, living expenses and fees. Awardees were: Teisha Rowland, who graduated from the University of Colorado at Boulder, and joined the MCDB department with a particular interest in developmental biology and Cristine Campos Lee, who graduated from California State University, Channel Islands, and is interested in neurodegenerative and pathogen-borne diseases.

Technology Management Program

Doctoral students Raphael Simon, Christopher McAllister (both MCDB), Nathan Bouxsein (Materials) and Jerry Macala (Chemistry) were awarded second place and best pitch, including a \$4000 prize in the 7th annual TMP New Venture competition. The team has co-developed a business plan for a biotechnology company called Calipgen, which is based on technology developed in the Safinya lab. The Calipgen technology platform is based on novel, proprietary nanoscale materials that form advanced nucleic acid complexes useful in gene delivery. The students were mentored by Robin Campbell, CEO Naryx pharma and Steve DeGraw, CEO of Solulink Biosciences.

Otto J. Holmok Cancer Research Fellowship

This fellowship, provided through the generosity of the Estate of Otto Julius Holmok, supports an outstanding doctoral student conducting cancer research. This year's fellowship was awarded to Zachary Ruhe, who received his B.S. in Biology from MIT in 2004, where he worked on human genetic diseases.

Chang Awards for Research in Biochemistry and Molecular Biology

To promote excellence in Biochemistry and Molecular Biology, the Shing and Sheng-Yung Chang Awards recognize excellence in research by graduate students in the MCDB and BMSE Graduate Programs. Shing and Sheng-Yung are both graduates of MCDB, and are generous donors to the fund. Awards are based on presentation of research in the student-run seminar series, where students present their dissertation work to their peers. Awardees were: Michelle Roux (Foltz Lab) - 5th year, "Functional proteomic analysis of sea urchin egg activation," Chris McAllister (Samuel Lab) - 4th year, "Gene Silencing by RNAi: Non-specific Effects Associated with the Mode of Synthesis and Cationic Lipid-based Delivery of siRNAs," Luke Bawazer (Morse Lab) - 3rd year, "The Directed Laboratory Evolution of Biomineralizing Enzymes."

ALUMNI AND FRIENDS

Garvan Kuskey (BA Zool '64) left UCSB in 1955 to attend USC School of Dentistry from which he graduated in 1959. After 3 ½ years in the military in Germany, he returned to Santa Barbara to start a private practice. It was then that he decided to complete his bachelors degree. He and his wife Mariana (UCSB '58) have four children, two of whom graduated from UCSB. Of their 24 grandchildren (that's not a misprint) one is now a freshman at UCSB where she competes on both the volleyball and the track and field teams.

James Patrick (BA BioSci '65; PhD '68) did post-doctoral research at the Pasteur Institute in Paris, before returning to the Salk Institute in San Diego where he spent 17 years. He then moved to the Baylor College of Medicine in Houston to create a Department of Neurosciences, and now serves at Baylor as Senior Vice President and Dean of Research.

Allen Jones (BA BioSci '69) is lucky enough to still live in Santa Barbara. Having survived the turbulent late 60s at UCSB, Allen has been involved in the real estate profession and has owned his own company, Santa Barbara Real Estate and Investment Corp., for the past 19 years. Though no longer working in the field, he developed a real love for biology and the sciences while at UCSB and still reads about the discoveries and advancements that have occurred since his graduation.

Jon Norman (BA Cell Biology '70; MA Molecular Biology '72) went on to receive his doctoral degree in Biochemistry at the University of Calgary. He spent four years as a postdoctoral fellow at the Friedrich Miescher Institute in Basel, Switzerland before moving to CIBA-Geigy as a senior research scientist in 1981. Since that time Jon has worked as a senior scientist and executive officer with a number of pharmaceutical companies. He is currently the Senior Director in Development Research at Daiichi Sankyo Pharma Development in Edison, New Jersey.

Anthony Auerbach (BA Biochem '72) completed his PhD in Neuroscience in 1978 at the University of Oregon. He is now a professor of Physiology and biophysics at SUNY Buffalo. Dr. Auerbach investigates the molecular operations involved in protein activity in the nervous system and how synaptic receptors are activated by their transmitters. He is now studying how the subunits that form the receptor work together and how the protein limits its receptiveness to signaling mechanisms.

Steve Rich (BA BioSci, Anthro '74) went on to receive his medical degree at Boston University where he graduated AOA. He completed his residency in internal medicine at Kaiser San Francisco, where he now serves as chief of medicine since 1995. His daughter is considering attending UCSB this Fall and has been accepted into our honors program.

Daniel Cusator (BA Pharmacology '75) attended UCLA Medical School. He completed his post-graduate work in internal medicine at St. Mary Medical Center in Long Beach where he served as chief resident from 1986-87. After practicing in Orange County for over 10 years he has been managing a large Independent Physician Association in Orange County, and this September will be entering the Healthcare Executive MBA Program at UC Irvine.

Les Satin (BA BioSci '75) went on to receive his PhD from UCLA in 1992. After two post-doctoral stints at SUNY Stony Brook and U of Washington, he joined the faculty at the Medical College of Virginia where he continues as a Professor. His research is concerned with the role of ion channels in pancreatic beta cell oscillations and insulin secretion. He is married to a classmate from UCSB, **Donna (Barnett) Satin**.

John Flannery (BA BioSci '76; PhD Biology '82) continued his studies in vision science begun as a grad student with Steve Fisher. After completing a postdoctoral fellowship at the Jules Stein Eye Institute and serving as a young faculty member at the University of Florida, he joined the faculty at UC Berkeley where he teaches new optometry students, and serves as a professor of Vision Science and Acting Director of the Helen Wills Neuroscience Institute. His research is involved with developing gene therapies for inherited retinal diseases that cause blindness. He currently serves as postdoctoral mentors for another one of Steve Fisher's grad students, **Scott Geller** (PhD Biology '99).

Paul Viitanen (BA Pharmacology '76) is married to **Susan Erickson-Viitanen** (BA Pharmacology '76). Both received PhD's in pharmacology in 1981 and continued in the field as researchers at Roche Institute of Molecular Biology. Paul is currently a research fellow with Dupont Company and Susan is the Director of Virology Clinical Development at InCyte Corporation. They have two children, the older of which is a 3rd year student at UCSB in anthropology. Go Gauchos!!

Gary Anderson (BA Pharmacology '77) attended medical school at USUHS in Bethesda, before continuing his training through an anesthesiology residency. He was a Navy physician for 15 years including a period viewing Desert Storm in the mid-east. After completing active duty with the Navy, he settled in back in Santa Barbara, and is now putting patients to sleep at Cottage Hospital.

Ronald Cooper (BA Pharmacology '78) attended medical school at Northwestern University School of Medicine. After five years in general surgical training through UC San Francisco he has built his practice as a general, laparoscopic and trauma surgeon in the San Ramon-Walnut Creek area. He is married to a fellow gaucha who asked him to dance at Santa Cruz Dorm his very first night at UCSB. He has three daughters who he has taken on multiple college tours to UCSB.

Robert Gutierrez (BA Pharmacology '78) spent two years in the medical microbiology research labs at Stanford University studying transplant immunology before attending the University of Minnesota School of Medicine, where he received his M.D. degree in 1986. He continued with his residency program in pediatrics at Children's Hospital of Los Angeles. After three years in private practice he entered a neonatology fellowship program at Children's Hospital before becoming an attending neonatologist in Chicago at Christ Hospital Medical Center. In 2000 he moved to Phoenix, Arizona where he is in private practice and the medical director of a 65 bed neonatal intensive care unit.

Timothy McMahon (BA Pharmacology '79) began work at the Sansum Research Foundation and Cottage Hospital participating in diabetes research. After a year of research he made the unusual choice to apply to Law School and graduated from the University of Santa Clara in 1984. He is currently a trial lawyer representing injured people and families and has found that his practice regularly requires detailed knowledge of medicine, biology, chemistry and yes, even pharmacology. This year Tim was nominated to the American Board of Trial Advocates, an organization recognizing the most outstanding trial attorneys in America.

Wayne Montgomery (BS Pharmacology '80) began work as a research pharmacologist at Syntex (now Roche BioSciences). He later trained as a patent attorney and is currently a vice president and head of the intellectual property group of Nektar Therapeutics, the company that developed the first inhaled insulin product, Exubera. He is married to Denise Makishima, also a pharm grad from UCSB, who is a Quality Analyst with Roche.

Todd Peterson (BA Biochem '80; MA Biology '82) and **Michelle (Chunka) Peterson** (BA '82) are married and live in Coronado, California where Todd is a Vice President of cloning and protein expression with Invitrogen, a global life science research tools provider, while Michelle is the finance chief for the County of San Diego. Todd received his doctoral degree at USC and then went on to a post doctoral fellowship at the Max Planck Institute in Cologne, Germany. He worked as an industry scientist and manager before joining Invitrogen.

Richard Chudacoff (BA BioSci '83) began his medical education at Sackler School of Medicine in Tel Aviv and graduated from Albany Medical College. He completed his residency in OB/GYN at Bethesda Naval Hospital, and after serving a tour of duty at the Naval Hospital in Rota, Spain, joined the faculty at Baylor College of Medicine. He later moved into private practice first in Sugarland, Texas and most currently to the Las Vegas Area. Rich has received various distinctions including his listing in the Guide to America's Top Obstetricians and Gynecologists. He specializes in using focused ultrasound surgery, an advanced and minimally invasive tool in destroying uterine fibroids.

Benjamin Bahr (BA Biochem-Mol Biol '84; PhD Chemistry '89) served as a faculty member at the Center for the Neurobiology of Learning Memory at UC, Irvine. He then joined the faculty at the University of Connecticut as an Associate Professor in the Department of Pharmaceutical Sciences. He directs a multidisciplinary laboratory combining molecular, cellular and behavioral research on neural diseases. He is co-founder of the company Synaptic Dynamics that is developing drugs for Alzheimer's and other neurodegenerative disorders.

Ronald Navarro (BA Biology '84) received his Medical degree at the University of Illinois College of Medicine. He then completed training in orthopedic medicine and surgery at Harbor – UCLA, and fellowships in shoulder arthroscopy and sports medicine from the University of Pittsburgh and in joint replacement from UCLA/Sepulveda VA Medical Centers. He currently serves as clinical instructor to residents at Harbor UCLA as well as chief of the Department of Orthopaedics and Director of Orthopaedic Sports Medicine at Kaiser Permanente South Bay Medical Center in Harbor City.

Christopher Wheeler (BA BioSci '84) continued on to graduate school at UC Berkeley where he received his PhD in Immunology in 1990. After a number of years in postdoctoral work at Stanford he moved to Cedars-Sinai Medical Center in Los Angeles where he is currently Immunology Program head in the Department of Neurosurgery. He directs cancer vaccine research and oversees lab conduct of clinical vaccine trials for malignant brain tumor patients. He has published extensively in this field.

Bob Sanborn (BA Biology '85) attended Dartmouth Medical School, graduating AOA in 1990. He is since completing his anesthesiology residency at Stanford. He has been in private practice in Sacramento for the past 10 years. He is married with two children, having met his wife Sharon (BioPsychology '85) during their freshmen year in Anacapa Residence Hall.

Robert Turbow (BA BioSci '85) graduated from USC Medical School in 1989. He trained in pediatrics at Stanford and then in Neonatology at University of Colorado and UC Irvine. He is now an attending in the newborn intensive care unit at Phoenix Children's Hospital. It is one of the largest and busiest NICU's in the country. In 2001 Bob finished law school, passed the California Bar and moved back to California (though still works a week a month in Phoenix). Even more recently he started a medical device company to develop invention ideas for physicians and nurses. The company, called PatientPatents, Inc., is based in San Luis Obispo.

Steven Prager (BA BioSci '86) went on to USC School of Medicine and then on to a pediatric residency at Children's Hospital of Los Angeles. After working briefly as a pediatrician, he then returned to National Jewish Medical and Research Center to complete a fellowship in Allergy and Immunology. He is currently an allergist in Monterey County, where he reports that he is still using Dr. Ross' Biology of Fungi textbook as he does mold spore counts for the local area!

Michael Molony (BA Microbiology '88) began work at Genentech shortly after his graduation from UCSB. After earning a Masters degree in Molecular Biology at San Francisco State University he joined Xoma Ltd. as a technical specialist and then became a senior scientist at Applied Biosystems. He is currently the senior Manager for Analytical Development at Biogen Idec in San Diego, where he oversees global testing and support operations.

John Mason (BA Biochem, MolecBiol '89) attended medical school at Washington University in St. Louis and continued there for his surgery residency which he finished in 2002. John is currently in group practice in St. Louis at St. Luke's Hospital primarily involved in laproscopic surgery, surgical oncology, colorectal surgery, and hernia repairs. John, who worked in Dennis Clegg's lab, rowed on the crew at UCSB and is still pulling those oars with the St. Louis Rowing Club.

Continued next page



Geraldine O'Shea (BS Microbiology '89) graduated from the College of Osteopathic Medicine of the Pacific in 1993 and has been in private practice in the Bay area. She currently is serving as President of the Osteopathic Medical Board of California.

Lisa Russell (BA BioSci, Anthro '91) took a very different path after finishing her degree at UCSB. She is now an independent filmmaker and social activist whose background in humanitarian and international development work has inspired her to produce films about the health and well-being of our global society. Lisa has produced films and news segments that address issues such as obstetric fistula in Niger, food insecurity and HIV/AIDS in Malawi, AIDS activism in Africa, refugee resettlement in post 9/11 America, population and the environment in Ghana and Brazil's controversial AIDS policy. While some of Lisa's work has been broadcast on public television, most of Lisa's films are tied into advocacy, fundraising or legislative efforts with UN and international agencies. She actively screens her films around the country at universities, conferences, festivals and hill briefings and has reached thousands of students, young people and others with her message about U.S. responsibility in global affairs. (www.governessfilms.com)

Michael Gazzaniga (BA BioSci '91) attended Dartmouth Medical School. After graduating in 1996, he did a surgical residency at UCI. He is currently in private practice in Orange County and is still on clinical staff at Irvine. Last year he was voted by his peers into Orange Coast Magazine as a "Physician of Excellence."

Jack Salerno (BA BioSci '92) attended medical school and completed a pediatric residency at UC San Diego. He then moved to Houston and did a pediatric cardiology fellowship at Baylor College of Medicine/Texas Children's Hospital. Jack is currently an Assistant Professor in the Department of Pediatrics at the University of Washington School of Medicine. He specializes in pediatric electrophysiology.

David Woodhouse (BA Pharmacology '92) has very close family ties to UCSB. Granddad Charles Woodhouse was a professor in Geology since the founding of UCSB and both parents were alums as well. David received his PhD in molecular pharmacology at Stanford studying ion channels. After Stanford he spent a year pursuing a long-standing interest in business by working in corporate development at a biotech start-up in Berkeley before pursuing an MBA at the Tuck School of Business at Dartmouth. Upon graduation he joined the investment banking division of Goldman Sachs in New York before transferring back to the San Francisco area four years ago. He is now a VP in the investment banking division specializing in biotech and life sciences tools. He is married to **Susan Perissinotto** (BA '92), an attorney in San Francisco.

Holger Behrsing (BA Biology, German '94) remained in Germany after a year in EAP and gained research experience at the Max-Planck Institute. He then attended graduate school at UC Davis where he received his PhD in Pharmacology and Toxicology in 2000. He began his professional career at SRI International in Menlo Park developing in vitro models that are predictive of human toxicity. More recently he moved down to the Irvine area where he has founded his own startup company, Advanced In Vitro. He has also accepted a position of senior scientist at an east coast company where he will continue developing in vitro 3D models for the National Cancer Institute.

Julie Jameson (BA BioSci '94) fell in love with immunology during her junior year immunology class with Duane Sears. She received her PhD in immunology/virology from the University of Massachusetts Medical Center. Since completing post doctoral work with Dr. Wendy Havran

at Scripps Research Institute in La Jolla, she has now started her own research group at Scripps, examining the function of epithelial T cells in processes such as tissue repair. Julie is also director of the Immunology Summer Internship Program at Scripps and through that has recruited another of our recent grads, **Katie Podshivalova** (BS Microbiology '06) to study at Scripps.

Todd Wierzbowski (BS Microbiology '96) began working in quality control laboratories of various biotech companies throughout California. Since 2000 he has traveled from San Diego to Seattle to Fremont to South San Francisco consulting for some of the top BioTech companies such as Amgen and Genentech. More recently he has moved in a new direction and is heavily involved in real estate investing.

James Mautner (BS BioSci '97) received his medical degree from Jefferson Medical College in 2002. He is now completing his residency in orthopedic surgery at Louisiana State University, and was at Charity Hospital the day that Hurricane Katrina hit. He also serves in the army and anticipates that he will be spending some time in either Afghanistan or Iraq next year.

Michael Zastrow (BS Microbiology '97) worked as a food microbiologist and research technician in the Department of Hematology/Oncology at Children's Hospital in Los Angeles. He went on to earn a PhD in cell biology at Johns Hopkins University working under Katherine Wilson studying the nuclear lamina. He is currently a postdoctoral fellow at Stanford with Ann Villeneuve studying chromosome pairing and segregation in *C. elegans* meiosis.

Jason Prystowky (BA Biology, Philosophy '98) attended Northwestern Medical School where he earned a combined MD and MPH in 2002. His residency was in emergency medicine at Emory University and Grady Memorial Hospital. After completing his residency he enrolled as a grad student in philosophy at Emory studying medical ethics and human rights. Jason has practiced his belief in ethics and human rights by extending his medical work to clinics in Nicaragua, El Salvador, Cuba, Guatemala as well as Uganda and Haiti. Last year he published a wonderful article, entitled "Reflections on My Residency Training: A New Graduate's Perspective on Emergency Medicine" in the Annals of Emergency Medicine, which served to emphasize his combined involvement in medicine, public health and medical ethics. Jason is currently a physician with the Indian Health Service in Arizona, and plans to spend some time beginning this month in the Department of Emergency Medicine here in Santa Barbara.

Patrick Lausch (BS BioSci '99) is currently working as an M.D. and microbiologist working in Eastern Europe. He hopes to work with the World Health Organization in Africa or in South America in the near future.

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Answer to Question on Page 8

Section of rat cerebellum stained for the metabotropic glutamate receptor (red), glial fibrillary acidic protein (green) and nuclei (blue). If you guessed right, you deserve an honorary PhD!



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