I know I keep saying this, but 2007 was the “Best Year Ever” for the Biotechnology Program. Let me count the ways. First of all, our Biotech Team is growing due to the increased campus support of the many graduate training programs which we are involved in. We hired a wonderful Program Assistant in September and she is a recent graduate of UC Davis. We are in the final stages of hiring Dr. Denneal Jamison McClung as the Associate Director. As you all know, she has been with us as a contract employee for the past year and has done an outstanding job. Denneal graduated from UC Davis with a PhD in Genetics with a Designated Emphasis in Biotechnology. These women possess the qualities that the Biotechnology Program embraces: Competence, Passion and Compassion. Having a stellar team with a Can-Do spirit, we can even accomplish more!

Speaking of Training Grants, the NIH-NIGMS Training Grant in Biomolecular Technology was renewed in the spring for another 5 years. In addition, the NSF CREATE-IGERT Graduate Training Program was funded in August. Karen McDonald is the director and Denneal serves as Program Manager. Since both of these grants require students to be members of the DEB, I will also participate in the CREATE-IGERT Training Grant as a member of the Executive committee. Although the HHMI-IMBS Graduate Training Grant does not require membership in the DEB, we continue to have many IMBS scholars who are also DEB members. It feels great to be part of these wonderful training programs in cutting edge areas of biotechnology and translational science as well as to offer fellowships to outstanding scholars.

Regarding Karen McDonald, the members of the BAC selected her to be the new chair of the Biotechnology Advisory Committee (BAC). She is a tireless supporter of the Program, so I am very pleased to have her as a key advisor. I would also like to thank Bruce Hammock for filling in as the interim chair when George Bruening stepped down in 2004.

The DEB keeps growing at a fast pace. We now have 150 PhD students in the program and over 100 training faculty. Marianne Hunter is working hard to keep track of the DEB students as well as our graduates. Once a member of the DEB family, always a member! The ADP continues to attract industry employees who desire a PhD from UC Davis. Brooks Hayes from Expression Systems in Woodland was admitted in January and Meiye Wu from Sandia Labs will start in the Fall.

On a personal note, Denneal and I wrote a chapter about UC Davis Biotechnology Program in a recently published book: Best Practices in Biotechnology Education (Yali Friedman, editor). Denneal and I also were quoted in the November Issue of Comstock’s Business Magazine. It was the third of three months of coverage on the importance of STEM education for our emerging Technology Industry in the Valley. Our focus was the BioTECH SYSTEM and the Teen Biotech Challenge as vehicles to improve teacher training as well as student awareness. In December of 2007, I was selected to take part in the 2008 California Issues & Trends Program (CIT). This is a prestigious, year-long program for 60 women leaders from across the state of California. I will practice what I preach by collecting business cards and creating many new networks. As I said before, 2007 was a very Productive Year. I can hardly wait to see what 2008 brings.
We received many outstanding applicants for the Biotechnology Trainee Fellowship awards and had a challenging time deciding on the recipients. The final recipients for the 2007-2008 school year are:

NIH Fellows:

**Don Barkauskas**, Biostatistics (David Rocke; Preceptor) “Membrane Fusion, Polymer-Linked Surfaces and Interaction Forces”

**Michael Howland**, Chemical Engineering (Atul Parikh; Preceptor) “Substrate and Leaflet Interactions in Supported Lipid Membranes”

**Joseph Ramahi**, Cell & Developmental Biology (Simon Chan; Preceptor) “How epigenetic factors effect chromosome behavior during cell division. Epigenetic requirements for proper centromere assembly and function”

**David Sela**, Microbiology (David Mills; Preceptor) “The Genomics and Genetics of Human Milk Oligosaccharide Utilization by Bifidobacterium longum ssp. infantis”

**Erin Tapley**, Cell & Developmental Biology (Daniel Starr; Preceptor) “Characterizing the Molecular Interaction Between the C. elegans Proteins UNC-83 and UNC-84 and Their Role in Nuclear Positioning”

Biotech Fellows (Funded by campus & industry):

**Matthew Hoope**, Biophysics (Marjorie Longo and Roland Faller; Preceptors) “Optical and Molecular Dynamic Analysis of Phospholipid Bilayers on Porous Supports”

**Christina Takanishi**, Cell & Developmental Biology (Matthew Wood; Preceptor) “Designing a protein-based fluorescent activity reporter (biosensor) that can be used to monitor oxidative stress in live cells and intact organisms.”

**Kristina Mahan**, Biochemistry & Molecular Biology (Rebecca Parales; Preceptor) “Characterization of the Protein-Protein Interactions of Nitrobenzene Dioxygenase”

**Scott Hamilton**, Biochemistry & Molecular Biology (Noelle L'Etoile; Preceptor) “Genetically Malleable C. elegans Neural Circuits Cultured in Microfluidic Devices”

**Sarah Lockwood**, engineered zinc vate homologous Biochemistry & Molecular Biology (David Segal; Preceptor) “Use of novel fingers as a disease diagnostic tool and target double stranded breaks to acti-recombination and their potential for future gene therapeutics”

The Biotechnology Program would like to thank Genentech and Monsanto. Each provided a $20 - $25K fellowship for the 2007-2008 school year in support of the Training Program.
One of the requirements to receiving a Designated Emphasis in Biotechnology is interning for at least 3 months at a cooperating biotechnology company or a cross-college site. Several DEB students have already completed their internships and some are about to start theirs.

We want to thank all of our industry partners who offered internships for our DEB students. The following students have completed their internships in 2007 or are currently in one:

**Aqua Bounty**

Wong, Genetics

Technologies - **Andrew Wong** (Alison Van Eenennaam)

**AgraQuest**

– **Erin Easlon**, Biochemistry & Molecular Biology (Su-Ju Lin)

– **Gian Oddone**, Chemical Engineering (David Blocke)

**Amyris Biotechnologies**

– **Warren Place**, Microbiology (Linda Bisson)

**Amyris Biotechnologies** – **Kou-San Ju**, Microbiology (Rebecca Parales)

**BioMarin Pharmaceuticals**

– **Sandra Bennun Serrano**, Chemical Engineering (M. Longo & R. Faller)

**Carollo** (a leading environmental engineering firm) – **Jennifer Warren**, Civil & Environmental Engineering (Stefan Wuertz)

**Center for Biophotonics, UCD** - **Laura Higgins**, Molecular, Cellular and Integrative Physiology (John Rutledge)

**Hoffmann Eitle** (law firm in Munich, Germany - **Kristina Herzberg**, Biochemistry & Molecular Biology (Wolf-Dietrich Heyer)

**Genencor** – **Xianxian (Janice) Liu**, Microbiology (Rebecca Parales)

**Genentech** – **Don Barkauskas**, Statistics (David Rocke)

**Genentech** – **Craig Blackmore**, Comparative Pathology (Patricia Wakenell)

**Genentech** – **Artem Loukoianov**, Genetics (Reen Wu)

**Genentech** – **Caroline Meloty-Kapella**, Cell & Developmental Biology (Richard Tucker)

**Institut Charles Sadron**, Centre National De La Recherche Scientifique in Strasbourg (France) - **Suzanne Barber**, Chemical Engineering (Tonya Kuhl)

**Monsanto, Calgene Campus** – **Ying Peng**, Genetics (Pamela Ronald)

**Monsanto, Calgene Campus** – **Andres Schwember**, Plant Biology (Kent Bradford)

**Novartis**

– **Ting-Kuo Huang**, Chemical Engineering (Karen McDonald)

**Novartis**

– **Vannarith Leang**, Chemical Engineering (Robert Powell)

**Novartis - Bei Xiang**, Chemical Engineering (Kit Lam & Gang Sun)

**Novozymes, Inc.** - **Zachary Bent**, Microbiology (Glenn Young)

**Novozymes, Inc.** – **Monica Britton**, Genetics (Abhaya Dandekar)

**Novozymes, Inc.** – **Kevin Holden**, Microbiology (Stephen Barthold)
BIOTECHNOLOGY INTERNSHIPS (MCB 282) cont.

Raybould Lab, Veterinary School of Medicine; UC Davis - Riccardo LoCascio, Microbiology
(David Mills)

Somagenics – Pavan Kumar, Plant Biology (Abhaya Dandekar)

State Water Control Resources Board - Robin GrayMerod, Civil & Environmental Engineering (Stefan Wuertz)

Unilever (in the U.K.) - Matthew Hoopes, Biophysics (Marjorie Longo/Rolland Faller)

Contact Dr. Judy Kjelstrom for assistance on CVs and cover letter, as well as possible locations.
For more information on DEB Internship requirements: www.deb.ucdavis.edu/internships.cfm

“This internship is definitely one of my best experiences during my graduate studies.” Ying Peng

DESIGNATED EMPHASIS IN BIOTECHNOLOGY (DEB)

The Designated Emphasis in Biotechnology (DEB) graduate program is an inter-graduate group program that allows Ph.D. students to receive and be credited for training in the area of biotechnology. There are currently 150 students. The UCD Biotechnology Program is the administrative home for this program.

The DEB provides a nurturing interactive environment to promote integration of multiple disciplinary approaches to the conduct of research and to promote learning in biotechnology.

DEB Mission:
• To provide well-coordinated, cross-disciplinary training of graduate students in critical areas of biomolecular technology research.
• To promote interdisciplinary research environments that integrate basic biological science, engineering and computational disciplines.
• To allow cross-disciplinary training and trainee experience in a biotechnology company or cross-college laboratory.

This program supplements a student’s PhD. curriculum and those completing the DEB program will obtain an official designation on their diploma and transcript indicating a qualification in biotechnology.

Course requirements are covered on the DEB website at: www.deb.ucdavis.edu/coursereqs.cfm

DEB STUDENTS WIN TOP AWARDS

Raquel Orozco, a Bridges to Doctorate fellow and DEB graduate student in chemical engineering (PI is Tonya Kuhl) is the HENNAC/Duke Energy Foundation Scholarship & Top Graduate Recipient.

Cecilia Osorio, also a Bridges to Doctorate fellow and DEB student in Plant Biology (PI is Andrew Groover) has been awarded a SACNAS Genome Scholars Fellowship, with $25,000 funding for graduate research.

Dominik Green, a former NIH fellow is the recipient of the prestigious Lawrence Scholars Program (LSP) fellowship, from Lawrence Livermore National Security (formerly Lawrence Livermore National Laboratories). Dominik is a student in Biochemistry & Molecular Biology and his PI is R. Holland Cheng.
Looking back at the 2006-2007 school year, there were a number of students who graduated with a PhD and DEB on their diplomas. These exemplary students had taken the required DEB courses as well as satisfied the requirement of interning with a biotech company or a cross college lab for at least 3 months. We recognize all the hard work they did to achieve their goals and proudly acknowledge them below:

**James Evans** (Biochemistry & Molecular Biology), Post-doc in the section of MCB in the College of Biological Sciences at UC Davis.

**Ruixiao Lu** (Statistics), Biostatistician at Affymetrix, Inc.

**Carolyn Meloty-Kapella** (Cell & Developmental Biology, Post-doc at UCSF.

**Ying Peng** (Genetics), R & D Scientist at Monsanto's Calgene Campus.

**Esra Talu** (Chemical Engineering), very prestigious Novartis BPO Post-doc position.

**Scott Wong** (Biochemistry & Molecular Biology), Post-doc, USDA-Western Human Nutrition Research Center.

In addition to these oral presentations, poster sessions (open to all attendees) are held to stimulate one-to-one interactions. All first-year Biotechnology Fellows are invited to the conference. The Retreat has the reputation for outstanding interactions of both academic and industrial trainers in the many and varied disciplines of biotechnology. It also offers new perspectives on how academic research can contribute to advancing industrial biotechnology and vice versa.

Considerable time is allotted for casual interactions and discussions and at least one research project has been conceived due to such interactions.

Last year's Retreat was a huge success and we are looking forward to the 17th Annual Biotechnology Training Retreat which takes place March 29th.

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**THE ADVANCED DEGREE PROGRAM (ADP)**

This PhD program is offered through the Biotechnology Program in conjunction with Graduate Studies, the College of Biological Sciences and the College of Engineering. It is designed to meet the special needs of corporate employees while maintaining the campus' high standards for graduate education.

We are proud to announce two new students, **Brooks Hayes** from Expression Systems in Woodland and **Meiye Wu**, who comes to the program from Sandia National Labs. Brooks will be joining the Cellular & Developmental Biology graduate group and Meiye will be joining the Biochemistry & Molecular Biology graduate program.

Photo courtesy of Sandia National Laboratory
The IMBS Training Program is a Howard Hughes Medical Institute (HHMI)-sponsored initiative led by Executive Associate Dean, Ann Bonham, to provide an innovative, cost-effective, and sustainable model for training a new cadre of Ph.D. biologists and engineers who will have productive careers in clinically-relevant basic research. Please visit the website at: www.ucdmc.ucdavis.edu/imbs/

We are pleased to announce that 5 of our DEB students have received fellowships for 2007-08. They are: Jennifer Phipps, Stephanie Pulford, Padmini Sirish, Brianna Wallace and Mary Saunders (no picture).

NIH and HHMI have both targeted the national need to fund research in ways that accelerate the translation of basic discoveries into novel therapies and clinical practices. The strong skill sets in team/translational science provided by IMBS training will strongly advantage its participants in preparing for successful careers in academia or industrial/pharmaceutical settings. The Biotechnology Program is very pleased to be a partner with the School of Medicine. Dr. Kjelstrom serves as co-director for this program.

The Integrative Graduate Education Research & Traineeship (IGERT) program, entitled Collaborative Research and Education in Agricultural Technologies and Engineering (CREATE) is directed by Prof. Karen McDonald, Assoc. Dean in the College of Engineering and the Chair of the Biotech Advisory Committee. This training program’s administrative home is in the Biotechnology Program and is designed to provide a structured and well-integrated graduate research and educational training program focused on a unifying theme of transgenic plants and invitro plant systems for the production of industrial non-food products and biopharmaceuticals. Research focus areas are 1) Rapid Vaccine Production and Cost-Effective Therapeutics, 2) Biofuels and Biorefineries, and 3) Phytoremediation.

Across the three broad focus areas, specific attention will be paid to the scientific, engineering, environmental, regulatory, economic, intellectual property, societal and global issues associated with plant biotechnology. The 2008-2009 CREATE-IGERT Trainees are: Timothy Butterfield, Dawn Chiniquy, Tiffany Glavan, Ben Lindenmuth and Christopher Simmons. To apply for CREATE-IGERT support, students must be a member of the DEB and their PI’s must be affiliated with the Training Grant.

Log onto http://create-igert.ucdavis.edu for further details or contact: Dr. Denneal Jamison-McClung, Program Coordinator at dsjamison@ucdavis.edu or (530) 752-5090.

Little Bang & Big Bang! Competitions

The Little Bang poster competition, which links research results to market opportunity, encourages graduate students in the sciences and engineering to explore the commercial potential of their research. In addition to exploring the commercial impact of their innovations, the winners earn a cash prize and a berth in the Big Bang! semi-finals. Riccardo LoCascio was on the winning team, “Foods for Health & Wellness” in 2007 and also competed in the Big Bang! contest. Riccardo’s research looks at how beneficial bacteria in infants’ intestines interact with complex sugar found exclusively in human breast milk. His goal is to find ways to improve infant formulas.

The Big Bang! Business Plan competition helps you transform your ideas into action, by developing a complete business plan. In total, a $35,000 prize pool is available to winning teams!

For more information, visit the Big Bang! & Little Bang web sites: http://bigbang.gsm.ucdavis.edu/ & http://littlebang.ucdavis.edu/home.cfm?id=OVC,15

Brought to you by the UC Davis Graduate School of Management and UC Davis InnovationAccess.
Interested in K-14 science outreach? The BioTech SYSTEM has recently launched the Biotech Speakers Bureau, a resource for local science teachers interested in bringing biotech guest speakers to their classrooms. Our goal is to familiarize students with careers in science and technology, while demonstrating that scientists come from diverse backgrounds. If you would like to convey your passion and enthusiasm for science, please consider joining the Biotech Speakers Bureau. Annual estimated time commitment is 2-3 hours.

**2008 TEEN BIOTECH CHALLENGE**

The 2008 Teen Biotech Challenge webpage design contest is underway! Over 130 local teens participated in 2007, and we expect a fierce competition in 2008. TBC2007 was made possible through generous sponsorships from the region’s biotech community and we are currently seeking sponsors for 2008, as well as event volunteers. Student preproposal applications are due on March 5, final entries are due on April 1, and participants will be honored at the 4th Annual Biotech Symposium, to be held May 20, 2008, at Freeborn Hall, UC Davis. See http://teenbiotechchallenge.ucdavis.edu for contest details and to view the 2007 winning web-pages.

For more information on these and other K-14 biotech outreach programs, contact Dr. Denneal Jamison-McClung dsjamison@ucdavis.edu or visit the BioTech SYSTEM consortium website http://biotechsystem.ucdavis.edu for more details.

**BIOTECHNOLOGY EVENT AT PICNIC DAY**

This hallmark event has been designed to showcase and celebrate the richness of campus life, the diverse achievements of UCD students, staff and faculty to provide a day of education, information and entertainment to all who attend. The Biotechnology Program exhibit allows the general public to have a hands on experience in various biotech related experiments including cheesemaking, DNA extraction and the new developments for stonewash jeans dye. We want to thank all of our industry partners for their donations as well as the DEB students and Biotech in the Classroom for running the experiments!

Come join us on April 19, 2008 in 148 Briggs Hall!
Please send us your personal updates for the newsletter! Feel free to include honors or positions that you may have received, as well as any special events (new baby, new job, etc.). Please contact the Biotechnology Program at biotechnology-program@ucdavis.edu and we will be happy to include it in the next newsletter!

Kristina Herzberg who is interning at Hoffmann Eitle, a law firm in Munich, Germany (where she’ll be specializing in patent laws) recently shared a picture of her son Adrian with us. Adrian is just turning one year old!

March 29, 2008 - 17th Annual Biotechnology Training Retreat in Napa

April 19, 2008 - Picnic Day, Biotech Event in 148 Briggs Hall
Student volunteers needed! Industry Donations Needed!

April 21, 2008 - 2008-09 Biotech Fellowship Applications Due

May 1, 2008 (tent.) - HHMI-IMBS Training Grant Fellowship Applications Due

May 20, 2008 - Annual Teen Biotech Challenge awards ceremony
Student volunteers needed! Sponsors needed!

Biotechnology Program’s Summer Short Courses:

Advanced PCR Techniques, July 28-August 1
Lead Instructor - Emir Hodzic, DVM, PhD

Flow Cytometry, July 14-18
Lead Instructors - Barbara Shacklett, PhD & Carol Oxford

Bioinformatics, to be determined
Lead Instructor - Dawei Lin, PhD

DNA Microarrays, to be determined
Lead Instructor - Satya Dandekar, PhD

Proteomics, late August
Lead Instructor - Brett Phinney, PhD

Full information will be provided on our website: http://www.biotech.ucdavis.edu/SummerCourses/courses.cfm when dates are finalized.

Biotechnology Program Contact Information:

Judith Kjelstrom, Ph.D.
Director
jakjelstrom@ucdavis.edu

Marianne Hunter
Program Manager
mahunter@ucdavis.edu

Denneal Jamison-McClung, PhD
Assistant Director
dsjamison@ucdavis.edu

Program Assistant
(530) 752-3260

www.biotech.ucdavis.edu
www.deb.ucdavis.edu