

Biotechnology TIMES

An Annual Newsletter From the UC Davis Biotechnology Program
Marianne Hunter, Editor



In this issue

**Biotechnology Training Retreat in Napa
Internships
DEB Student Accolades**

Fall 2011 Issue

A Message From The Director



Deans Burtis and Gibeling attended the ADP Luncheon



Biotechnology Program's Picnic Day Event



CIRM Creativity Awards at CHORI

As I write this 2011 message, I can tell you that the **Biotechnology Program** has survived three challenging years, but we are still standing! With the support of Chancellor Katehi, Vice Chancellor of Research Harris Lewin and key faculty leaders, we have been assured that our program is valued as a unique campus resource. Although we are short-staffed, we continue to grow our successful programs due to our committed Biotech Team: Denneal, Marianne and Demian. In addition, our DEB graduate students and affiliated faculty enable us to magnify our impact in the community.

The **Designated Emphasis in Biotechnology (DEB)** program continues to grow in the number of students, faculty and graduate programs. The DEB currently has over 200 PhD students from 28 different disciplines and has 105 graduates. We have invited Biostatistics and Computer Science to join as new DEB graduate programs. As stated many times, we continue to be the largest DE on campus. This program still is unique among pre-doctoral graduate training programs in the world. The DEB is undergoing a Program Review in 2011-2012. We submitted our self-review this summer, with interviews to follow later in the year. Let's make sure that the DEB continues to be a relevant graduate program for many years to come. A competitive renewal of the **NIH T32 Graduate Training Program in Biomolecular Technology** was submitted in May and a renewal for the **NSF CREATE-IGERT Graduate Training Program** will be completed in 2012. Please see the newsletter for more information on our students and graduates.

The **Advanced Degree Program (ADP)** for corporate employees is still growing in its numbers of participants as well as company affiliates. We added the Immunology Graduate Group as a new partner this year in order to expand the PhD programs available to the biomedical industry employees. The newsletter has more details on the participants.

A Message From The Director (Cont.)



Our **Outreach** activities keep expanding. The **BioTech SYSTEM**, **Teen Biotech Challenge**, **Picnic Day Event**, advisory roles for High School Biotech Academies, presentations and campus tours keep us very busy. Denneal and I were asked to serve on the Education Action Team for the new PowerHouse Science Center in Sacramento. This promises to be a wonderful regional hub for STEM research, education and career explorations. As a result of our successful Teen Biotech Challenge competition, Dr. Jan Nolta from the Institute of Regenerative Cures in the School of Medicine, offered paid summer research opportunities for four of the winners of the TBC. I was able to join them at the CIRM symposium at CHORI in Oakland, where they presented their research posters. These high school students were very impressive. We are hoping to expand this program through a grant from the California Institute for Regenerative Medicine (CIRM) as well as find other laboratories for engineering or ag biotech focused research. All of us are committed to providing hands-on training for our budding young scientists in the region.

As the years pass, Denneal and I find ourselves getting more and more involved in leadership and mentorship issues. There is a need for strategic career planning, entrepreneurship and advanced level network development. Denneal has initiated a pilot formal mentoring program for the CREATE IGERT Trainees, which may be expanded to all of the DEB students. I continue to serve the DEB students as an advisor on strategic career planning and professional networking. We have created a Biotech Program Facebook page, a LinkedIn site and an After College site for post graduates to formally network. As an alumna of Leadership California, Dr. Clare Hasler, director of the RMI, and I co-hosted the Genentech Women Professionals (GWP) on campus this July and Chancellor Katehi was our luncheon speaker. In September, I was part of a Leadership California team who met with a delegation of Africa Women Entrepreneurs at the State Capitol. These women were part of the U.S. Department of State's "100 Women Initiative: Empowering Women and Girls through International Exchanges". It was an honor to share our Best Practices in education, technology and business development as well as leadership.

With warmest wishes,

Dr. Judy Kjelstrom



Genentech Women Professionals event on campus

Biotechnology TIMES

An Annual Newsletter From the UC Davis Biotechnology Program

FEATURES

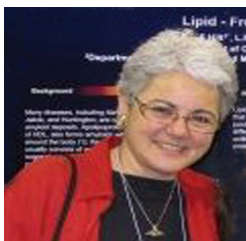
- 1 NIH-NIGMS Training Program in Biomolecular Technology Trainee Fellowship Recipients
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NIH-NIGMS TRAINING PROGRAM IN BIOMOLECULAR TECHNOLOGY BIOTECHNOLOGY TRAINEE FELLOWSHIP RECIPIENTS



Mateo Hernandez



Silvia Hilt



Regina MacBarb



Nancy Zeng



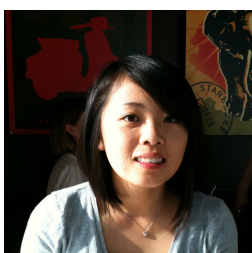
Wade Zeno



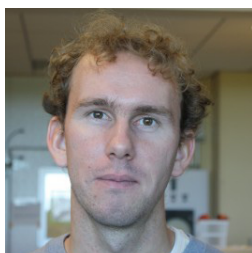
Sean Gilmore



Jared Moore



Diana Lac



Michael Starr

Congratulations to the outstanding students who were selected as the 2011-2012 NIH and Biotech Fellows. There were over 22 fellowship applicants this year and all were exceptional candidates!

2011-2012 NIH Fellows:

Mateo Hernandez, Chemistry (Donald Land, Preceptor). Transduction Dynamics of Lipid Bilayers Containing Additives.

Silvia Hilt, Biochemistry, Molecular, Cellular & Developmental Biology, (John Voss, Preceptor). A Nanoparticle Platform For Incorporating GPCRs Generated In a Cell-Free System.

Regina MacBarb, Biomedical Engineering (Kyriacos Athanasiou, Preceptor). Comparison of Stem Cell Sources in Cartilage Tissue Engineering For the Equine Athlete.

Nancy Zeng, Chemical Engineering (Bill Ristenpart, Preceptor). Microfluidic Investigation of Mechanotransduction and Vasodilatory Signaling in Human Erythrocytes.

Wade Zeno, Chemical Engineering (Marjorie Longo, Preceptor). Biofuels, Membrane Interaction, and Drug Delivery Systems.

2011-2012 Biotech Fellows:

Sean Gilmore, Applied Science, (Atul Parikh, Preceptor). Recapitulating Coupling Between Membrane Physical Properties and Biological Function Towards Synthetic Biology.

Jared Moore, Chemistry, (Jared Shaw, Preceptor). Natural Product Analogues as Inhibitors of Filamenting Temperature Sensitive Protein Z (FtsZ).

Diana Lac, Pharmacology & Toxicology (Kit Lam, Preceptor). Identification of cell penetrating peptide sequences upon binding to cell surface receptors.

Mike Starr, Biomedical Engineering (Marc Facciotti, Preceptor). Use of gene-metabolic-network modeling tools to analyze behavior of synthetic gene circuits in prokaryotes.

BIOTECHNOLOGY INTERNSHIPS, MCB 282



National University of Ireland, Maynooth

One of the requirements to receiving a **Designated Emphasis in Biotechnology** is interning for at least three months at a cooperating biotechnology company, government agency or a cross-college site. Many DEB students have completed their internships (**MCB 282**) and several have started this fall.

We wish to thank all of our industry partners who offered internships for our DEB students. The following students have recently completed their internships in the 2010-11 academic year:

Abbott Diabetes Care, Inc. (Alameda, CA): **Scott Hamilton**

Agilent Technologies (Santa Clara, CA): **Shuai Wu**

American River College (Sacramento, CA): **Shannon Ceballos**

Bayer Healthcare (Richmond, CA): **Raquel Orozco-Alcaraz**

Caliber Biotherapeutics (G-Con, LLC) (College Station, Texas): **Kittipong Rattanaporn**

California Healthcare Inst. (CHI) (Sacramento): **Sarah Lockwood**

Center for Biophotonics Science and Technology (CBST) Research Facilities (UC Davis): **Padmini Sirish**

Celgene Corp. (South San Francisco, CA): **Erin Schwartz**

Cytokinetics (San Francisco): **Darren Hwee**

Genentech (South San Francisco, CA): **Neha Dixit, Rashida Lathan, Thomas Luu, Maria Ogunyankin, Joseph Ramahi, John Strum, and Ambrose Williams**

Isador Cohen Elementary School (Sacramento, CA): **Nathaniel Kingsbury**

National Inst. of Bioprocess Research and Training, (NIBRT) (Dublin City University, Ireland): **Michelle Lozada-Contreras**

National University of Ireland, Maynooth (Ireland): **Lucas Arzola**

Nestle (Switzerland): **David Dallas**

Novozymes (Davis, CA): **TuAnh Huynh**

OncoMed Pharmaceuticals (Redwood City, CA): **Laura Hoang, Vu Trinh and Breanna Wallace**

Pfizer (Pearl River, New York): **Zahra Khedri**

Takeda Pharmaceutical Co., Limited (South San Francisco, CA): **Charles Nwosu**

University of Alabama at Birmingham Research Foundation (Alabama): **Stephanie Crockett**



Designated Emphasis in Biotechnology

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 210 students. The UC Davis 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. The DEB helps:

- 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 Ph.D. 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](#).



HHMI-IMBS TRAINING PROGRAM

The **Integrating Medicine into Basic Science** (IMBS) Training Program is a Howard Hughes Medical Institute (HHMI) sponsored initiative led by Executive Associate Dean of the School of Medicine, Dr. Fred Meyers. It provides 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. Dr. Judith Kjelstrom is a co-director and the point of contact for recruitment. Please visit the website [here](#). We are pleased to announce that five of our own DEB students have received HHMI-IMBS scholarships this year. Congratulations to the 2011-2012 HHMI-IMBS Scholars, and a special congrats to our own DEB students, Nicole De Jesus, Pasha Hadidi, Alan Lombard, Dipali Patel and Benjamin Yuen!

Welcome 2011-2012 Scholars:

Samuel Chung, Pharmacology & Toxicology, Preceptor: Tzipora Goldkorn

Nicole De Jesus, Biomedical Engineering, Preceptor: Crystal Ripplinger

Pasha Hadidi, Biomedical Engineering, Biomechanics Emphasis, Preceptor: Kyriacos Athanasiou

Anthony Herren, Molecular, Cellular & Integrative Physiology, Preceptor Donald Bers

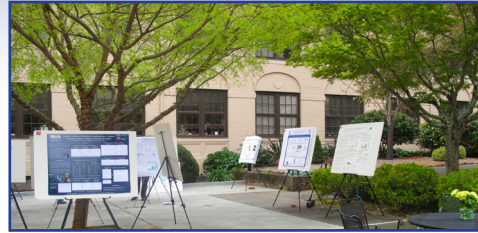
Alan Lombard, Biochemistry, Molecular, Cellular & Developmental Microbiology, Preceptor: Maria Mudryj

Elizabeth Martin, Molecular, Cellular & Integrative Physiology, Preceptor: Helen Raybould

Dipali Patel, Biomedical Engineering, Preceptor: Alexander Revzin

Benjamin Yuen, Biochemistry, Molecular, Cellular & Developmental Microbiology, Preceptor: Paul Knoepfler

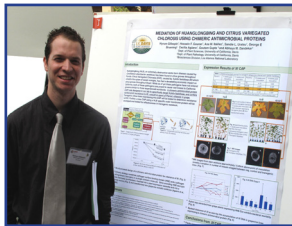
BIOTECHNOLOGY TRAINING RETREAT



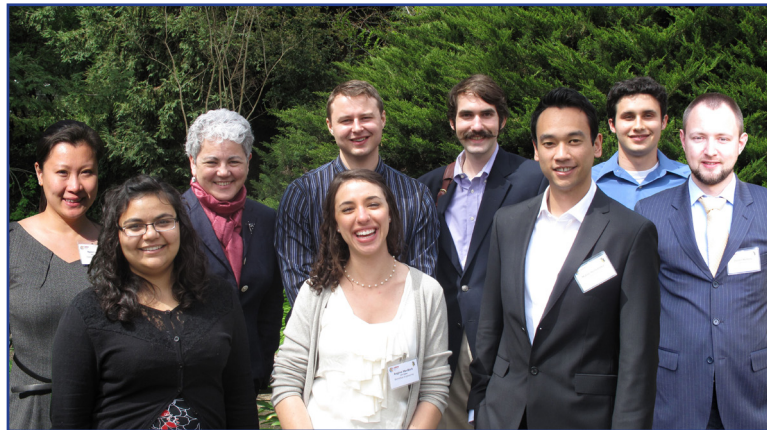
For the past 20 years, the Biotechnology Program has organized a **Training Retreat** for fellowship recipients and their mentors, industrial affiliates and our DEB students and faculty members. The retreat is held each Winter or Spring Quarter at Christian Brothers Retreat and Conference Center in the Napa Valley. At the retreat, the fellows and the industry affiliates give oral presentations on their research. In addition to these oral presentations, poster sessions (open to all attendees) are held to stimulate one-to-one interactions. We were thrilled to have Provost Ralph Hexter and Vice Chancellor of Research, Harris Lewin join us at this year's retreat!



Dr. Martina Newell-McGloughlin
& VC Harris Lewin



Pictured below are 2010-11 NIH and Biotech Fellows: L-R: Nancy Zeng, Geetika Joshi, Silvia Hilt, Regina MacBarb, Dmitry Grapov, Sean Gilmore, Mateo Hernandez, Jared Moore and Daniël Melters.



All Biotechnology Fellows are invited to the conference. The retreat has the reputation for outstanding interactions of both academic and industrial trainers in 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 which has been known to foster subsequent research projects. For more photos, access the [website here](#).





Dr.'s Alan Korman (Bristol Meyers Squibb),
Judy Kjelstrom, Dean Jeff Gibeling

The Advanced Degree Program for Corporate Employees (ADP) is an innovative program that allows the working professional to complete a doctorate in a number of graduate programs within the Biological Sciences and Engineering programs. The ADP is coordinated by the Biotechnology Program in conjunction with Graduate Studies, the College of Biological Sciences, and the College of Engineering. This year the Immunology Graduate Group was welcomed as a new affiliate. The ADP is a very successful academic-industry partnership and one of the highlights of the year is our annual luncheon in which the faculty and administrators interact with ADP students and the corporate mentors. It is also a time to introduce the program to prospective company employees.

Current ADP Participants and Mentors: (Pictured in this order)

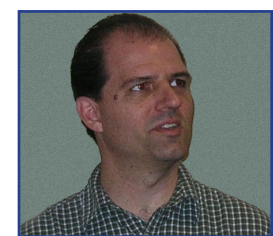
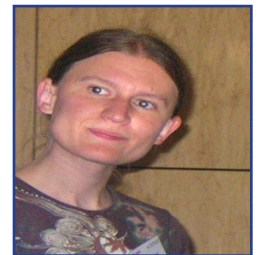
- **Daniel Bedinger** (MCIP Graduate Group) and Marina Roell, PhD (Xoma, LLC, in Berkeley). UC Davis mentor: Professor Sean Adams.
- **Brooks Hayes** (CDB Graduate Group) and Thera Mulvania, PhD (Expression Systems, Inc. in Woodland). UC Davis mentor: Professor Bruce Hammock, Entomology
- **Joseph Jacobs** (GGG Graduate Group) and Jovan Djordjevic, PhD (Harris Moran Seed Co., in Davis). UC Davis mentor TBA
- **Shaunese Lambel** (Genetics Graduate Group) and Eileen Kabelka, PhD (Harris Moran Seed Co., in Davis). UC Davis mentor: Professor Roger Chetelat, Plant Sciences.
- **Meiye “Mei” Wu** (BMB Graduate Group) and Steven Branda, PhD (Sandia National Labs in Livermore). UC Davis mentor: Professor Kit Lam (Chemistry & School of Medicine).

Congratulations go to:

James “Jim” Langston (from BMCDB Graduate Group) – UCD mentor: Professor John Labavitch (Plant Sciences) on his recent graduation! Kim Brown and Feng Xu, PhD, were his corporate sponsors from Novozymes, Inc.



Deans Burtis & Gibeling, Alan Korman & Poonan Yakkundi (Bristol Meyers Squibb)



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 Event allows the general public to have a hands-on experience in various biotech-related experiments, including cheese making, DNA extraction, and the new developments for stonewash jeans dye. This year, DEB student, **Geoffrey Benn**, (pictured below) came up with a new experiment that we entitled, "The Geoff Benn Experience" and it was an instant hit with the public - all 1,500 of them!!!!



To see more photos, click on the link for this year's [Picnic Day Biotech Event](#).

We wish express our appreciation to all our industry partners for their donations, as well as the DEB graduate students for running the experiments. A very special thank you goes out to our good friends and collaborators at this event, **Linda Curro** (pictured above) and Barbara Soots from [Partnership for Biotechnology & Genomics Education](#) (PBGE) for leading the DNA extraction from strawberries experiments!

Industries who donated to the event included: **Genentech, Monsanto-Calgene Campus, and Novozymes.**



DEB STUDENTS AND VOLUNTEERISM



Many of our DEB students donate their “spare time” on behalf of the **Biotechnology Program** and **BioTech SYSTEM** outreach activities. These include annual activities such as Picnic Day, Teen Biotech Challenge, under-represented minority recruitment, high school e-mentoring, etc. Our thanks go out to them for lending us their expertise, time, hard work, and dedication to these activities. Some of them that have helped us out this past year include:

High school student e-mentoring: Barbara Bailus, Candace Burke, Timothy Butterfield, Neha Dixit, Kateryna Feoktistova, Rashida Lathan, Samuel McMahon, Angela Monterrubio, Sucheta Mukherjee, Bernadette Nera, Amy Schroeder, and Michelle Tu.

Cordova High School Cyber Buddy Mentoring: Barbara Bailus, Katherine Byrne, Milo Careaga, Nicole De Jesus, Rena Goodman, Mateo Hernandez, Silvia Hilt, Gena Hoffman, Jon Hughes, Nate Kingsbury, Tim Kwa, Jeni Lee, Amory Meltzer, Alexi Morris, Meghan Murphy, Richard Osibanjo, Ben Yuen, and Steve Zicari.

Expanding Your Horizons Event at Sacramento State University: Dawn Fedor, Vicki Hwang, Brenna Kinery, Angela Monterrubio, Angela Papalamprou, and Priyashiela Singh.

Career Fairs: Thanks to Tom Luu for manning the UC Davis Biotechnology booth at the Hiram Johnson HS annual Health and Medical Sciences Academy casreer fair. Barbara Bailus let us know that she participated at the Edward Harris MS College and Career Fair (independent outreach find/effort!)

High School Visitors - Research Lab Tours: Barbara Bailus, Jesse Bakke, Geoffrey Benn, Marta Bjornson, Nicole De Jesus, Amanda Hildebrand, Shirin Jenkins, Jeni Lee, Karen LeGrand, Ingrid Leth, Zac Lewis, Angela Monterrubio, Andrew Murley, Tarit Nimmanwudipong, Nadia Ono, Richard Osibanjo, Nat Rattanaporn, Ron Runnembaum, Erin Schwartz, Gordon Walker, Diana Wong, and Tracy Zeng.

International Visitors - Research Lab Tours: Geoffrey Benn, Marta Bjornson, Tiffany Glavan, Mark Lemos, Natasha Worden, and Steve Zicari.

Biotech Event at Picnic Day Volunteers: Lisa Anderson, Barbara Bailus, Geoff Benn, Crystal Berger, Barbara Blanco, Shannon Ceballos, Yu-Shen Cheng, Marjannie Eloi, Anna Erickson, Kateryna Feotistova, Aiza Go, Kristen Hewett, Silvia Hilt, Marissa Hirst, Laura Hoang, Allison Hoch, Geetika Joshi, Rachel Kerwin, Jeni Lee, Tom Luu, Amelia Manlove, Sam McMahon, Bernadette Nera, Alice Ngo, Joseph Ramahi, Nat Rattanaporn, JohnPatrick Rogers, Shailise Ross, Amy Schroeder, Chelsea Snyder, Wesley Sughrue, Vu Trinh, and Nancy Zeng.

TBC volunteers: Lisa Anderson, Aarati Asundi, Brian Avanzino, Jesse Bakke, Marta Bjornson, Megan Choi, Mitch Elmore, Erin Fong, Erik Fostvedt, Amanda Fox, Aiza Go, Dmitry Grapov, Alex Gulevich, Mitch Harkjnriider, Kristen Hewett, Silvia Hilt, Laura Hoang, Allie Hoch, Kanaga, Sayoni Lahiri, Ueni Lee, Mark Lemos, Alan Lombard, Amelia Manlove, Kevin Martin, Angela Monterrubio, Alexi Morris, Patrick O'Dell, Bobby Oldt, Alanna O'Leary, JohnPatrick Rogers, Shailise Ross, Mira Patel, Erin Schwartz, John Strum, Vu Trinh, Michelle Tu, Erica Vonasek, and Diana Wong.



NSF CREATE-IGERT NEWS

by Denneal Jamison-McClung, Associate Director

The **Collaborative Research and Education in Agricultural Technologies** (CREATE), a NSF IGERT training program, supports doctoral students at UC Davis and Tuskegee University, working in three focus areas of plant biotechnology: Biofuels & Biorefineries; Plant-Made Products; and Environmental Sustainability.

Congratulations to two of our NSF CREATE-IGERT trainees on their recent NSF National Collegiate Inventors & Innovators Alliance (NCIIA) awards!

IGERT Trainee Lucas Arzola and team:

Inserogen - University of California-Davis <http://nciia.org/taxonomy/term/1388>

“Inserogen is a biotech startup that aims to commercialize SwiftVax, a technology that enables the use of non-transgenic tobacco plants as protein biofactories. This proprietary technology platform is a disruptive innovation that can revolutionize biomanufacturing. Our capabilities of high-volume, cost-efficient, and accelerated manufacturing would enable the production of live saving vaccines in response to outbreaks, such as the H1N1 pandemic. The SwiftVax manufacturing platform can be customized for production of any high-value recombinant protein, and it would enable new markets in both developed and developing countries.”

IGERT trainee Mark Lemos and team:

Helios - University of California-Davis <http://nciia.org/node/1708>

“Despite the indisputable need for the development of renewable energy sources, the current options for renewable fuel (ethanol, butanol, biodiesel, methane, and hydrogen) are heavily based on food crops. One promising option is cellulosic biofuels, which have the potential to replace 30% of current demand for transportation fuels. However, the decomposition of cellulosic biomass presents a formidable challenge that requires costly, energy-intensive and environmentally detrimental pretreatment steps....This team is researching the viability of duckweed, a tiny, stem-less monocot plant that grows on the surface of ponds, as a cellulosic biofuel. Duckweed has a 2-3 day doubling time, utilizes non-arable land, can grow all year round and does not require extensive biomass pretreatment for biofuel production.”

2011 Trainees (Cohort 4): Hyrum Gillespie (Abhaya Dandekar Lab, Genetics); Mitch Harkenrider (Pam Ronald Lab, Plant Biology); Mark Lemos (Katie Dehesh Lab, Plant Biology); Patrick O’Dell (Tina Jeoh Lab, Biological Systems Engineering); Erica Vonasek (Nitin Nitin Lab, Biological Systems Engineering); Natasha Worden (Georgia Drakakaki Lab, Plant Biology); and Steve Zicari (Ruihong Zang Lab, Biological Systems Engineering).

2010 Trainees (Cohort 3): Marta Bjornson (Dandekar & Dehesh Labs, Horticulture & Agronomy); and Geoffrey Benn (Katie Dehesh Lab, Plant Biology).

2009 Trainees (Cohort 2): Lucas Arzola (Karen McDonald Lab, Chemical Engineering); Elenor Castillo (Negre-Zakarov Lab, Plant Biology); James “Mitch” Elmore (Gitta Coaker lab, Plant Biology); Rachel Kerwin (Dan Kliebenstein Lab, Plant Biology); and Mark Wolf (Rebecca Parales Lab, Biochemistry & Molecular Biology).

2008 Trainees (Cohort 1): Tim Butterfield (Lagarias & Dandekar Labs, Plant Biology); Dawn Chiniquy (Pam Ronald Lab, Plant Biology); Tiffany Glavan (Satya Dandekar Lab, Microbiology & Immunology); Ben Lindenmuth (Karen McDonald Lab, Chemical Engineering); and Chris Simmons (Jean VanderGheynst Lab, Biological Systems Engineering).

Tuskegee Trainees: Dominique Gales (Yates Lab); Dalya Lateef (Bovell-Benjamin Lab); Sonni-Ali Miller (Martinez Lab); Steven Samuels (Egnin Lab); and Raymon Shange (Ankumah & Zabawa Labs).

Congratulations to Tuskegee trainees, Dalya Lateef, LaKisha Odom, and Raymon Shange (Ankumah Lab) for completion and award of their doctoral degrees who was awarded her PHD this May!! Further kudos for the newly minted Dr. Dalya Lateef for securing a prestigious NIH fellowship at the National Institute of Diabetes and Digestive and Kidney Disease (NIDDK).

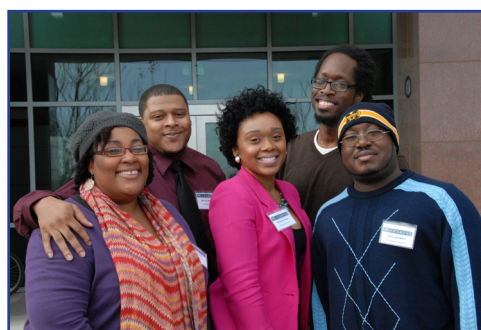
To see the program website for complete details, [click here](#).

All UC Davis trainees must be members of the DEB.



Top: CREATE-IGERT attendees from UC Davis and Tuskegee to the 2011 IGERT Symposium

Bottom: Protein Recovery & Purification course taught by Prof. Larry Joh (L-R: Tracy Zeng, Steven Samuels (Tuskegee), Hyrum Gillespie, Patrick O'Dell, Larry Joh, Sonni Ali Miller (Tuskegee), and Mark Lemos



Top: LaKisha Odom, Steven Samuels, Dominique Gales, Raymon Shange and Sonni-Ali Miller

Bottom: Dayla Lateef





NSF CREATE-REU NEWS

by Denneal Jamison-McClung, Associate Director

The **NSF CREATE-REU** program is a summer research experience offered to undergraduate students from across the US. Like the NSF CREATE-IGERT, focus is on plant biotechnology.

In addition to conducting independent research projects, the NSF CREATE-REU participants benefit from a Plant Transformation lab course taught by NSF CREATE-IGERT Program Engineer, **Dr. Larry Joh**. Larry's course is a rigorous boot camp focused on plant tissue culture and transformation techniques. We start the REU summer off with a bang...just like the armed forces "break them down...then build them back up". The result is a **lean** (sometimes too late for meals at the DC), **mean** "plant transformation" **team**. Go Larry!

In 2011, we hosted nine students and NSF CREATE-IGERT trainees played a key role in providing research mentorship for these undergraduates.

- **Jeffrey Brown, Ohio State University (Nitin Nitin Lab)** – Research Mentor: Erica Vonasek, "Studies of Bacterial Attachment to Lettuce"
- **Devin Humpal, American River College (Pam Ronald Lab)** – Research Mentor: Manoj K. Sharma, "Genotypic and Phenotypic Analysis of *Oryza sativa* Mutant Lines"
- **Sanchia Mills, Tuskegee University (Georgia Drakakaki Lab)** – Research Mentor: Natasha Worden, "Studying Endomembrane Trafficking of Cell Wall Material"
- **Debika Mitra, Georgia Tech (Karen McDonald Lab)** – Research Mentor: Mark S. Lemos, "Transient Expression of Human AAT in *N. benthamiana* and GUS in *L. minor*"
- **Sara Pace, Penn State University (Jean VanderGheynst Lab)** – Research Mentor: Farzaneh Rezaei, "Presence of Phenolic Acid in Winery Wastewater: Effects on Electricity Generation from MFC"
- **Tim Pattyson, Arizona State University (Julia Fan Lab)** – Research Mentor: Amanda Hildebrand, "Cellobiose Dehydrogenase Expression and Oxidizing Potential of Redox Mediators"
- **Tiffany Saphiphack, Chabot College (Diane Beckles Lab)** – Research Mentor: Wentao Li, "Molecular Cloning and Sequence Analysis of a Dof Transcription Factor from Tomato (*Solanum*) Species"
- **Maya P. Scott, Tuskegee University (John Labavitch Lab)** – Research Mentor: John M. Labavitch, "Bacterial Xylanases and Digestion of Cell Wall Xylan Polysaccharides"
- **Scott Strobel, Penn State University (Tina Jeoh Lab)** – Research Mentor: Patrick O'Dell, "Assessing Cellulose Activity on Cellulose Substrates by Atomic Force Microscopy"

To see the program website for complete details, [click here](#).



1st Photo: CREATE- REU Group Photo

2nd Photo: Dr. Larry Joh

CONGRATULATIONS TO RECENT DEB GRADUATES!



Kevin Holden, Breanna Wallace, Erin Tapley and Cheng-Yuk Lee are among the recently graduated

Throughout the 2010-2011 academic year, there were many students in the **DEB Program** who received their PhDs with a Designated Emphasis in Biotechnology. These exemplary students took the full DEB coursework, including the 3 – 6 months internship (**MCB 282**). The **Biotechnology Program** is very proud of the hard work they put in to achieve their goals and would like to recognize them in this newsletter.

Chao Yu (Joy) – PhD in Pharmacology & Toxicology, now working at OncoMed.

Yu-Shen Cheng – PhD in Biological Systems Engineering, now a postdoc in the Biological & Ag Engineering department at UC Davis.

Wen-Ying Feng – PhD in Statistics, now a Risk Analyst at eBay.

Dominik Green – PhD in Biochemistry, Molecular, Cellular & Developmental Biology, teaching at Sacramento State University.

Pradeepa Gunathilake-Bandaranayake – PhD in Plant Biology, now a postdoc in Plant Sciences Dept. at UC Davis.

Huilan Han – PhD in Materials Science and Engineering, now a postdoc in the Pharmacology department at UC Davis.

Victor Haroldsen – PhD in Biochemistry and Molecular Biology.

Kevin Holden – PhD in Microbiology, now a scientist at LS9 Inc. in San Francisco.

Matthew Hoopes – PhD in Biomedical Engineering, now a postdoc fellow at the University of Waterloo

Connie Jen - PhD in Biochemistry, Molecular, Cellular & Developmental Biology, now a postdoc in Molecular & Cellular Biology dept. at UC Davis.

Cheng-Yuk Lee – PhD in Chemical Engineering, now a postdoc in the Department of Biomedical Engineering at UC Davis.

Ben Lindenmuth – PhD in Chemical Engineering, now a Process Development engineer at Bayer Healthcare in Berkeley.

Meghan Rosen – PhD in Biochemistry, Molecular, Cellular & Developmental Biology, now a postdoc in microbiology at UC Davis.

Sunny Shah – PhD in Biomedical Engineering, now a senior scientist at the University of Notre Dame in the Advanced Diagnostics and Therapeutics department.

Christina Takanishi – PhD in Biochemistry, Molecular, Cellular & Developmental Biology, now a postdoc in the Environmental Toxicology dept. at UC Davis.

Erin Tapley – PhD in Biochemistry, Molecular, Cellular & Developmental Biology, now a postdoc in the Starr Lab at UC Davis.

Breanna Wallace – PhD in Molecular, Cellular & Integrative Physiology, now the 1st ever postdoc fellow at OncoMed (despite hiring freeze).

DEB STUDENT NEWS & ACCOLADES



Erica Andreozzi's paper, "Novel Method to Radiolabel Solid Lipid Nanoparticles with Copper-64 for Positron Emission Tomography Imaging" was published in Bioconjugate Chemistry. Erica is also a T32 Molecular Imaging Training Grant Fellow as well as the Floyd and Mary Schwall Dissertation Year Fellowship recipient.

Geoffrey Benn passed his QEs and is glad that hurdle is now over. He is in the Plant Biology graduate group and his major professor is Katie Dehesh. You may remember that it was Geoff that introduced the "Geoff Benn Experience" last Picnic Day and his experiment was a smash hit.

Elenor Castillo, a Plant Biology DEB grad student in Florence Negre-Zakharov's lab passed her QEs, congratulations Elenor!

Silvia Hilt, an NIH Biotech Fellow from the Biochemistry, Molecular, Cellular & Developmental Biology graduate group, is happier now that her QEs are passed. Her major professor is John Voss.

Ben Lindenmuth and his wife, Ji-eun, welcomed their first child. Natalie was born on December 31st, 2010 – Congrats Ben and Ji-eun!!

Gina MacBarb received an NIH Biotech Fellowship award for the 2nd consecutive year and has recently passed her Qualifying Exams! Professor Kyriacos Athanasiou is Gina MacBarb's major professor in the Biomedical Engineering graduate group.

Amelia Manlove is a GAANN Fellow for the 2011-12 academic year. Last she was a Corson Fellow and won a Crellin Pauling Student Teaching Award just before her admission into the Chemistry Graduate Group at UC Davis. The Crellin Pauling Award is a very competitive award that acknowledges outstanding student achievements by a California State University student in biotechnology related settings, courses and programs. Professor Sheila David is Amelia's major professor here on campus.

Charles Nwosu had his paper, "Simultaneous and Extensive Site-specific N- and O-Glycosylation Analysis in Protein Mixtures" published in the Journal of Proteome Research in 2010 and it was selected as one of the most read articles in 2010.

Ron Runnebaum and Tarit Nimmanwudipong, both Chemical Engineering PhD students in Bruce Gates and David Block's lab recently had their paper on, "Catalytic conversion of compounds representative of lignin-derived bio-oils: a reaction network for guaiacol, anisole, 4-methylanisole, and cyclohexanone conversion catalysed by Pt/ γ -Al₂O₃" published in Catalysis Science & Technology.

Photo L-R: Charles Nwosu, Silvia Hilt, Elenor Castillo, Ron Runnebaum, Amelia Manlove, Ben Lindenmuth, Erica Andreozzi, and Tarit Nimmanwudipong

BIOTECH SYSTEM NEWS

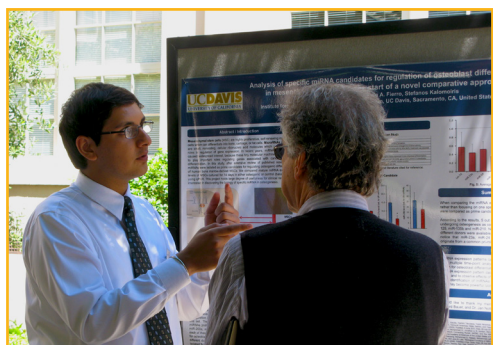
by Denneal Jamison-McClung, Associate Director



BioTech SYSTEM has continued to engage with K-14 students and educators, academic and industry research groups and community leaders throughout 2011, supporting STEM education in our region. One of the best ways to inspire and educate teens about science and higher education is to let them witness campus life in person. With that in mind, we host numerous school visits throughout the year. While on campus, students participate in a seminar covering UC Davis life science and engineering resources, college life, and biotech-related career paths. With the help of DEB student volunteers, visitors view research facilities and centers of campus activity, such as the MU and Shields Library. In 2011, over 150 students from Antelope HS, Dixon HS, El Molino HS (Forestville), Hiram Johnson HS (Sacramento), James Enochs HS (Modesto), and Wilson MS (Fairfield) trekked across UC Davis (they are always foot-weary and suitably impressed by the acreage) and came away with a better understanding of the mysterious ivory tower, how they might scale the walls, and the benefits of scientific endeavor for society.

On a personal note... in April, I was invited to take part in the U.S. Department of Education's Community College Regional Summit in San Diego, CA, where I shared the BioTech SYSTEM consortium model of community engagement in K-14 STEM outreach, highlighting the importance of on-going teacher professional development, student connection to "real world" research applications and key skill sets for secondary > post-secondary > technical workforce participation. In our region, we are fortunate to have renowned and successful biotech programs at Solano Community College and American River College, fed by high school biotech academy programs in Napa, Sacramento, Solano, Sonoma and Yolo counties. As an advisor to these secondary and post-secondary programs, it is heartening to see state and national interest in expanding community-engaged models of STEM education. Amidst the "Waiting for Superman" buzz, many educators at the summit reiterated (paraphrase), "we are not 'Waiting for Superman'...we can fix problems in STEM education by scaling up small programs with successful track records". Indeed! Now we just need the cash and political will...

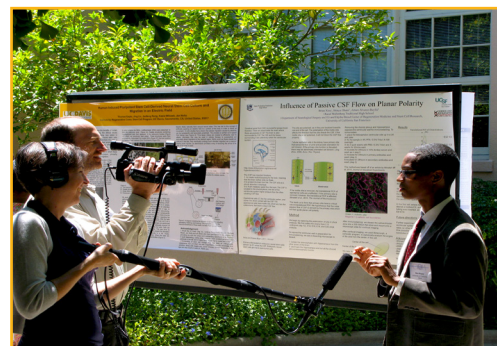
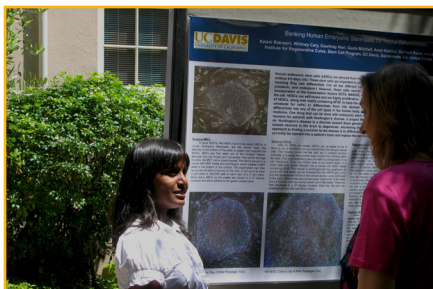
In May, we hosted the 7th annual **Teen Biotech Challenge** web design competition for N. California high school students. With the help of corporate (Genentech, Bio-Rad, HDR Architecture, Novozymes) and academic sponsors (UC Davis Biotech Program and College of Engineering, North Valley Biotech Center at American River College), TBC reached over 300 students. Thanks to Dr. Jan Nolta and Gerhardt Bauer for taking four TBC winners (Jaskaran Dhillon – Sheldon HS, Thomas Gepts – Davis HS, Kalani Ratnasiri – Davis HS, Rex Reyes – Hogan HS) under their wing for a CIRM-sponsored summer research program in stem cell technologies. Students worked with lentiviral vectors for gene therapy and induced pluripotent stem cells! Truly the cutting edge...



Jaskaran Dhillon explaining his research at the CIRM Creativity Awards Symposium

Over the past year, **BioTech SYSTEM** meetings have offered secondary and post-secondary educators a glimpse into the world of life sciences research. In June, members toured the UC Davis Genome Center and Metabolomics Core Facility with Dr. Tobias Kind. We focused on the interdisciplinary breadth and collaborative nature of research at the site—from human diseases to secondary metabolites found in wine. Later that month, Gordon Walker (DEB, Bisson lab), led a group of educators on a fact-filled tour of the Robert Mondavi Institute for Food and Wine’s new brewery. The teachers wound up with a lively discussion of yeast strains, best sources of educational slides and a peek through the microscope at some of Gordon’s favorite strains. This fall, we had a great discussion and lab tour at Arcadia Biosciences, hosted by Dr. Jos van Boxtel, Cassie Hilder and colleagues. Arcadia’s emphasis on engineering crops with environmental benefits resonated with the educators and will certainly be incorporated as “real world” exemplars in related courses. Many thanks to our hosts for taking time to convey their expertise and passion for research to the group, and for sharing resources with educators.

Looking ahead to 2012, we will continue our outreach efforts via the Biotech Expo Poster Competition for middle school students (Gr 6-9), the Teen Biotech Challenge web design contest (Gr 9-12) and many opportunities for teachers and students to share in the mind-boggling array of projects ongoing at UC Davis. Sincere thanks to the DEB students for their enthusiasm and community spirit—their willingness to share their research expertise and passion for science with teens and teachers during tours, events and via e-mentoring programs is inspiring. We are lucky to have so many “good apples in our barrel”!



Top Left: Kalani Ratnasiri, Top Right: Rex Reyes
Bottom Left: Thomas Gepts

DEB PIZZA CHALK TALKS



All DEB graduate students are encouraged to present one chalk talk. It is a venue where students interact with other trainees and present their own research work and hear about the research of other DEB students. See below for the list of 2011-2012 **Chalk Talks** scheduled.

Chalk Talks are strictly for DEB Students and Faculty members.

October 5th, 2011

Prof. Stephen Cramer (Applied Science) & Aubrey Scott (Applied Science)

October 26th, 2011

Prof. Kent Pinkerton (Anatomy, Physiology & Cell Biology) & Laura Hoang (Pharmacology & Toxicology)

November 30th, 2011

Prof. Wolf-Dietrich Heyer (Microbiology) & Shannon Ceballos (Biochemistry, Molecular, Cellular & Developmental Biology)

January 11th, 2012

Prof. Daniel Starr (Molecular & Cellular Biology) & Alan Lombard (Molecular & Cellular Biology)

February 8th, 2012

Prof. Shota Atsumi (Chemistry) & Jordan McEwen (Chemistry)

February 22nd, 2012

Prof. Kent Bradford (Plant Sciences) & FeiYian Yoong (Plant Biology)

March 7th, 2012

Prof. Jared Shaw (Chemistry) & Jared Moore (Chemistry)

March 21st, 2012

Prof. J. Clark Lagarias (Molecular & Cellular Biology) & Alex Gulevich (Biochemistry, Molecular, Cellular & Developmental Biology)

April 11th, 2012

Prof. David Segal (Pharmacology) & Barbara Bailus (Genetics)

May 9th, 2012

Prof. Darshan Kelley (Nutrition) & Dawn Fedor (Nutritional Biology)

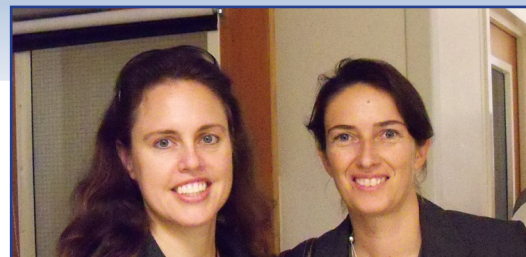
All DEB students are encouraged to present one chalk talk.

FRIDAY SEMINAR SERIES (MCB 294)



Left: Chris Haskell presenting

Right: Denneal Jamison-McClung
with speaker Laure Escoubet-
Lozach



One of the DEB course requirements is the successful completion of at least two quarters of **MCB/ECH 294** (Current progress in Biotechnology Seminar Course). **This seminar course is also open to the public.**

Here is a brief summary of the lecturers for fall quarter (held in 1022 LS from 11:00 am – noon).

September 23: Organizational Meeting

Dr. Judith Kjelstrom (DEB program coordinator), Prof. Karen McDonald (ECH) and Prof. Ray Rodriguez (MCB) - instructors

September 30: Big Bang Kickoff

Niki Davisson - Program Manager with Guest Prof. Paul Henderson (2011 Big Bang! winner)
Center for Entrepreneurship, UC Davis

October 7: Going from Haring Hall to a 3rd Quarter Earning's Call

James E. Brown, DVM, PhD, CEO, DURECT Corporation

October 14: Storer Lecturer Omega-3 Fatty Acids in Food and Pharma: The Enabling Role of Biotechnology

Dr. Peter Gillies, PhD, Director, New Jersey Institute for Food, Nutrition, and Health, Rutgers University, NJ

October 21: Biotech 2011- Looking Back to See Ahead

Mr. G. Steven Burrill, Chief Executive Officer, Burrill & Company

October 28: Plant Cellular Engineering for Natural Product Synthesis

Susan Roberts, PhD, Associate Professor, Dept. Chemical Engineering, Univ. of Massachusetts, Amherst

November 4: The UC Davis GMP Facility: Uniting a Successful Business Model with the Development of Life Saving Stem Cell Therapies

Gerhard Bauer, PhD, Laboratory Director GMP Facility, Adjunct Assistant Professor, Stem Cell Program, UCD School of Medicine

November 11: Veterans Day Holiday

November 18: My Circuitous Journey to CIRM

Arie Abo, PhD, Science Officer, California Institute for Regenerative Medicine (CIRM)

December 2: Facets of Drug Discovery and Development – USA vs. India,

Nilesh Dagia, PhD, Deputy General Manager, Piramal Life Sciences Limited

MIC 292 FROM DISCOVERY TO PRODUCT - WINTER 2012

This course is designed to provide a unique opportunity to gain insight into basic and applied biotechnology at the industrial level. Lectures will be presented by senior scientists/engineers from Novozymes, Inc. (<http://www.novozymes.com>) in Davis California.

Appropriate for graduate students in all areas of biology, engineering and agriculture, especially those in the **Designated Emphasis in Biotechnology Program**. MIC 292 is an approved seminar elective for the DEB program (CRN #42595).

Seminars are held from 12:10-1 PM in Room 1022, Life Sciences building

Jan 9, 2012	Organizational Meeting: Course Overview and Scientific Foundations of Industrial Enzymes (Kjelstrom, Yaver)
Jan 16, 2012	Holiday
Jan 23 2012	Discovery of enzymes from nature and improvement of enzymes by protein engineering (Aubrey Jones, Senior Scientist)
Jan 30, 2012	Bacillus Expression Hosts (Bill Widner, PhD, Staff Scientist)
Feb 6, 2012	Fungal Expression Hosts and Yield Improvement (Wendy Yoder, PhD, Staff Scientist)
Feb 13, 2012	Development of Bioprocessing Procedures (Audrey Diano, PhD, Scientist)
Feb 20, 2012	Holiday
Feb 27, 2012	Enzymology & Application Chemistry of Bioengineered Enzymes (Feng Xu, PhD, Staff Scientist)
March 5 2012	Phylogenomics and proteomics as discovery tools in bioenergy applications (Paul Harris, PhD, Staff Scientist)
March 12, 2012	Production of chemicals by microorganisms i.e. metabolic engineering (Steve Brown, PhD, Staff Scientist)
March 19, 2012	The Business of Enzyme Production & Future Developments (Debbie Yaver, PhD, Director)

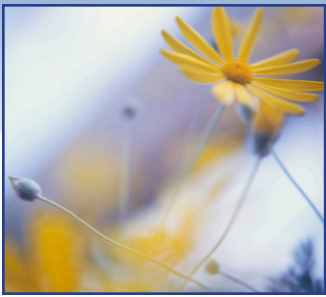


“This seminar series is open to the public”

MARK YOUR CALENDARS

February 3	4th Annual NSF-CREATE-IGERT Symposium
February 22	Biotechnology Retreat Attendance Forms Due
March 1	Retreat Abstracts & Oral Presentations Due
March 24	21st Annual Biotechnology Training Retreat in Napa
April 16	Picnic Day: Biotech Event in 148 Briggs Hall Student volunteers needed! Industry Donations Needed!
April 25	NIH Biotech Training Grant Fellowship Applications Due
May 1	HHMI-IMBS Scholarship Applications Due
May 11	Biotech Expo
May 22	Advanced Degree Program For Corporate Employees Luncheon/Meeting
June 1	Annual Teen Biotech Challenge Awards Banquet
July 25 – 29 (approx.)	Flow Cytometry Course
August 15 -19 (approx.)	Advanced PCR Course
TBA	New Imaging Course





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