

UC Davis Biotechnology Program's

Biotech Times

October 2016 Issue
Marianne Hunter, Editor

NIH/BIOTECH TRAINEES

MEET THE 2016-
2017 TRAINEES

DEB GRADUATES

RECENTLY MINTED PHDS

See who recently
graduated and where
they are now



plus
10

FAQS

FROM FELLOW DEBS

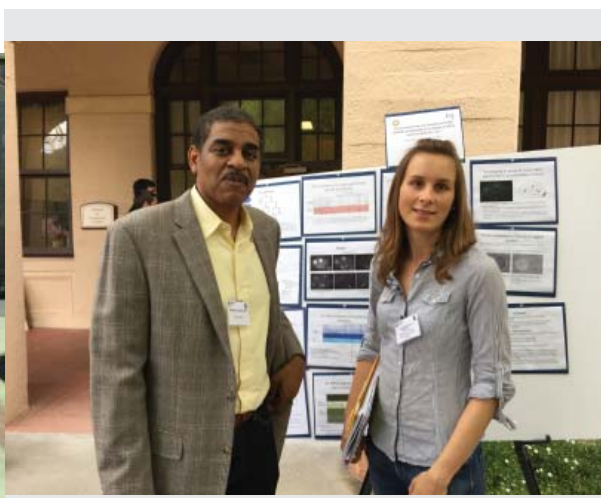
"How soon should I
start preparing for my
internship?"



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FROM THE DIRECTOR



We hope you enjoy the 2016 edition of the Biotech Times. This has been a very busy year due to the 5 year competitive renewal for the NIH T32 Biotechnology Training Grant. We submitted the 500 page document in May and now are preparing for a NIH site visit this October. We assembled a new team of directors (Prof. Kent Leach, Associate Prof Joanna Chiu and Assistant Prof. Luis Carvajal-Carmona) for the grant proposal and refocused our training to include big data analysis, prototyping, precision medicine, foods for health and entrepreneurship. We selected our 2016-2017 Fellows in June, they represent the cross disciplinary nature of our training program. More information on current and past fellows can be found on our website at http://www.niht32.ucdavis.edu/Current_Fellows.

Our highly innovative Designated Emphasis in Biotechnology (DEB) program continues to grow in the number of students, faculty and graduate programs. I was invited to talk about the DEB as a successful model at SIBER (Society of International Bioentrepreneurship Education and Research) at USF in June. As a result of the conference, we were invited to submit a paper to the journal Bioentrepreneurship Education (special issue in March 2017). The DEB was up to 230 PhD students at the end of the school term. They come from 29 different STEM disciplines. 37 students graduated in the 2015-16 academic year. This gives us 245 graduates since the beginning of the program in 1997. We continue to be the largest DE on campus offering a unique pre-doctoral graduate training program that addresses the needs of the 21st Century. The DEB serves as a powerful recruitment tool for the campus. We are very proud of the fact that over 20% of our DEB students are from underrepresented minority populations. We strongly believe that the additional mentoring, strategic career development, public service opportunities and the industrial internship are critical elements in helping them earn their PhDs and secure career positions. In the 2015-16 academic year, we placed 33 students in internships (industry and campus). Most were placed in California, but a couple were out of state and a few were international (Denmark and London). Please see the newsletter for more information.

Community Outreach activities are an important part of our efforts to reaching out to the community. The BioTech SYSTEM, Teen Biotech Challenge, SPARK Program, Picnic Day Biotech Event, ESTEME outreach, advisory roles for High School Biotech Academies and the Power House Science Center, Science Communication Fellows, presentations and campus tours keep Denneal, the DEB students and me very busy. Since 2012, Denneal and I have served on the Education Committee for the new PowerHouse Science Center in Sacramento. I serve as chair the Education Committee. We are getting closer to breaking ground for the new science center on the Sacramento River. This promises to be a wonderful regional hub for STEM research, education and career explorations. Our DEB students demonstrated their science communication skills at the Angels for Hearts "When I Grow Up" event again this summer and were a big hit. As a result of our successful Teen Biotech Challenge competition, Dr. Jan Nolte and Dr. Gerhard Bauer from the Institute of Regenerative Cures in the School of Medicine and the Biotechnology Program submitted a grant to the California Institute for Regenerative Medicine (CIRM) last fall to continue offering paid summer research experiences for high school students. We received funding for another 5 years. The new name for the program is SPARK. These high school students love this opportunity to do research and present a scientific poster at the annual conference.

ESTEME (Equity in STEM and Entrepreneurship) had a productive year under the leadership of DEB students: Samantha Feng, Doug Gettel and Anna Marie Tuazon. Samantha and Dustin Heeney really got involved in entrepreneurship... they won second place in the Big Bang! Business Plan competition this spring. In 2016-2017, DEB students: Nicole Coggins, Jasmin Corbin and Jesse Lopez will lead the ESTEME program.

In closing, I even won a prestigious award from the Sacramento Business Journal. I was selected as one of the 2016 Women Who Mean Business awards. It seems strange to receive such an award, but when I discovered that is for women who get things done, I graciously accepted. Our Biotechnology Program is committed to serving our faculty, students and community.

With warmest regards,

Dr. Judy Kjelstrom



NIH: Karan Agrawal
Pharmacology & Toxicology



NIH: Jasmine Corbin
Chemical Engineering



NIH: Maika Malig
Integrative Genetics & Genomics



NIH: Sana Vaziri
Computer Science



Biotech: Akhila
Biochem, Mol, Cell & Dev. Biology



Biotech: Joshua Cohen
Food Science

NIH-NIGMS Training Program in Biomolecular Technology - Fellowships

The NIH Training Program in Biomolecular Technology is a graduate level training grant awarded in recognition of the quality of multidisciplinary research and training provided by the campus.

The BTP (Biotechnology Training Program) NIH T32 grant is currently under the directorship of J. Kent Leach, a professor of Biomedical Engineering and Orthopaedic Surgery. The two Associate Directors are Joanna Chiu, an Associate Professor of Entomology and Nematology and Luis Carvajal-Carmona, an Assistant Professor in Biochemistry and Molecular Medicine in the School of Medicine. The Program Coordinator is Judith Kjelstrom, Director of the UC Davis Biotechnology Program. The DEB is the formal training program for the trainees and the UC Davis Biotechnology Program is the administrative home. A separate newsletter is published each year for the NIH BTP and can be found [HERE](#)

The NIH/Biotech trainees for the 2016-17 academic year were selected in May and the NIH Executive Committee had a tough time selecting only 10 of the outstanding applicants, as they were all exceptional candidates! The 2016-17 fellows are:

NIH

Karan Agrawal, Pharmacology & Toxicology (John Newman, Preceptor). Investigating sweat lipid mediator profiling: biological origins and clinical potential.



NIH: Linda Su
Biochem, Mol, Cell &
Dev. Biology



NIH: Cody Watson Yothers
Chemistry



Biotech: Amanda Dang
Materials Science &
Engineering



Biotech: Daniel Lewis
Integrative Genetics &
Genomics



... tough time
 selecting only 10
 of the outstanding
 applicants, as
 they were all
 were exceptional
 candidates.”

Jasmine Corbin, Chemical Engineering (Karen McDonald, Preceptor), Process development for the production of a heterologous glycoprotein in transgenic rice cell culture.

Maika Malig, Integrative Genetics and Genomics (Frédéric Chédin, Preceptor), Developing novel genomic tools to characterize RNA:DNA hybrid formations on mammalian genomes.

Linda Su, Biochemistry, Molecular, Cellular and Developmental Biology (Alex Nord, Preceptor). Analysis of single cells in brain development using genetic labeling and single-cell RNA-sequencing.

Cody Watson Yothers, Chemistry (Annaliese Franz, Preceptor). Sustainable

bioproduction of therapeutic lipids from microalgae.

Sana Vaziri, Computer Science (Sharon Aviran, Preceptor). Algorithms for improved RNA structure analysis from sequence and probing data.

Biotech

Akhila Bettadapur, Biochemistry, Molecular, Cellular and Developmental Biology (Katherine Ralston, Preceptor). Identifying novel inhibitors of human cell killing by *entamoeba histolytica*.

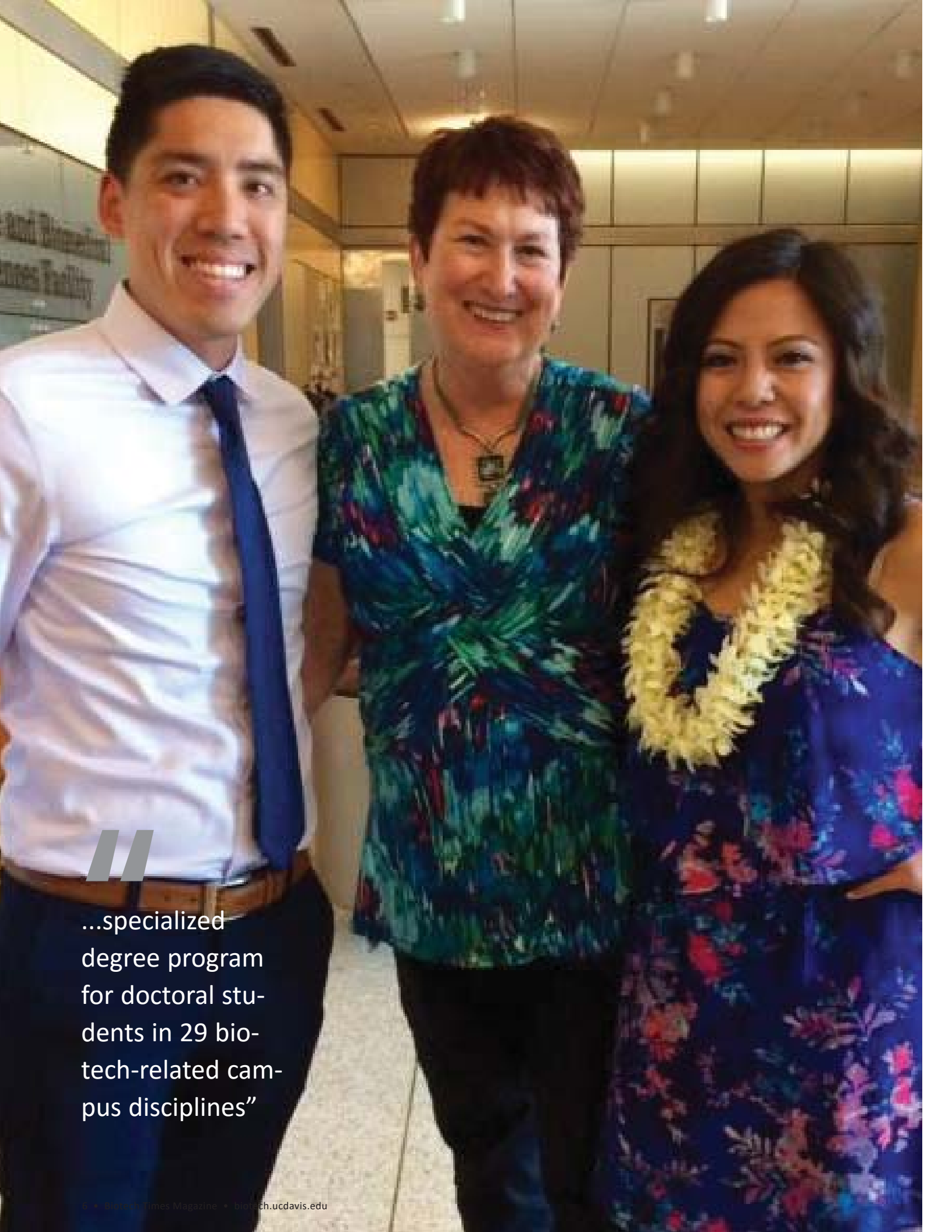
Joshua Cohen, Food Science (Daniela Barile, Preceptor). Cloning of a recombinant enzyme from *Bifidobacterium* for pilot-

scale isolation of bioactive glycans from dairy co-products.

Amanda Dang, Materials Science and Engineering (Tonya Kuhl, Preceptor). Applications of supported lipid bilayers: towards crystallization of integral membrane proteins and new fundamental insights.

Daniel Lewis, Integrative Genetics and Genomics (Cheemang Tan, Preceptor). Spatial distribution of microbial aggregates controls competition between yeast and bacteria.

We are grateful to Monsanto for their industry fellowship as well as to the campus for their NIH fellowship matching support!



...specialized
degree program
for doctoral stu-
dents in 29 bio-
tech-related cam-
pus disciplines”

THE DEB (DESIGNATED EMPHASIS IN BIOTECHNOLOGY)

What is the DEB?

It is a specialized degree program for doctoral students in 29 biotech-related campus disciplines. Students completing degree requirements receive a notation on their diploma (Ex: PhD in Genetics with a Designated Emphasis in Biotechnology).

Why Join the DEB Program?

- Training in interdisciplinary team science and responsible conduct of research (RCR)
- Professional career development specific for biotech-related fields
- Exposure to business networking & entrepreneurship
- Opportunity to apply for fellowships and training programs
- Assistance in finding paid internships
- Training in scientific communication to diverse audiences via Chalk Talks, symposia, K-14 outreach, networking events, industry tours, etc.

DEB Academic Training Plan

Here is a sample DEB academic training plan, which may vary between students:

Year 1

- Make an appointment with Dr. Judy Kjelstrom (jakjelstrom@ucdavis.edu) to discuss DEB program admission.
- Begin required coursework (must take DEB263, MCB/ECH294 seminar series and an approved ethics course prior to the Qualifying Exam).
- Apply for relevant DEB-related fellowships and traineeships.

Years 2-3

- Finish required coursework and prepare

to take the Qualifying Exam. Make sure at least one DEB faculty member is included on the QE committee.

- Start building science communication skills and polishing a professional curriculum vitae (CV).
- Give a Pizza Chalk Talk – good practice for the QE
- Develop a professional CV with guidance of program administrators (DEB template)
- Present a poster at the Annual Biotech Retreat
- Attend the MCB/ECH294 Current Progress in Biotechnology seminars (3 quarters for credit)
- Volunteer for 1-2 outreach events or activities per year. Each quarter, opportunities are sent to the listserv (E-mentoring, HS Lab Tours, Picnic Day, Career Fairs, Teen Biotech Challenge science competition)
- Apply for relevant DEB-related fellowships and traineeships

Year 4

- Set internship goals (Skills you'd like to acquire? Location? Industry?) and meet with program administrators to begin looking for opportunities at least one year prior to the ideal internship start date. Timing varies between students - the internship may be completed post-QE thru graduation. Student must enroll in MCB282 to receive credit hours.
- Finalize your professional CV and template cover letter with help of program administrators.
- Audit MCB/ECH294 seminars of interest to network with speakers re: internship possibilities at lunch.

THE DEB IS THE

LARGEST DESIGNATED

EMPHASIS PROGRAM

ON CAMPUS!

- Continue building science communication skills, volunteering for outreach and updating the professional CV.

Year 3-5

- Internship (...and sometimes...a job offer ☺)
- Dissertation and Exit Seminar!

Required Coursework:

DEB 263 "Biotechnology Fundamentals and Application" (2 unit lecture course)
GGG 296 or other approved bioethics course

MCB/ECH 294 "Current Progress in Biotechnology" (1 unit seminar for 3 quarters, may sub MIC292*)

MCB282 "Biotechnology Internship" (min 3 months, may be taken after QE)

*See [DEB website](#)



25TH BIOTECH RETREAT

OUR NIH/BIOTECH
TRAINEES ARE VERY
TECH & SOCIAL
MEDIA SAVVY!

Held each year in Napa

This past March, the Biotechnology Program held their 25th Silver Anniversary Annual Training Retreat at the Christian Brothers Retreat and Conference Center in the Napa Valley.

During the retreat, the NIH and Biotech Fellows gave presentations on their research and invited industry affiliates also gave talks about their company's latest projects. Poster Sessions were held throughout the day and it was the perfect time for all to interact and network. This retreat has spawned the beginning of several collaborations

NIH/Biotech speakers included:

Karan Agrawal-NIH, **Joshua Cohen**-Biotech, **Jasmine Corbin**-NIH, **Rosanna Kwok**-NIH, **Daniel Lewis**-Biotech, **Debika Mitra**-Biotech, **Nicole Nozzi**-NIH, **Anna Marie Tuazon**-NIH, **Sana Vaziri**-NIH, and **Sam Westreich**-Biotech.

Industry speakers included:

Dr. Kristin Bernick from Agilent Technologies in Santa Clara.

Dr. Elenor Castillo and **Dr. Abigail Yu** (both are DEB graduates) from Sutro Biopharma, Inc. in San Francisco.

Dr. Sara Gaucher from Amyris, Inc. in Emeryville.

Dr. Sabina Gude from Novozymes, Inc. in Davis.

Dr. René Meisner from OncoMed Pharmaceuticals, Inc. in Redwood City.

Dr. Juan Sanchez (DEB graduate) from Monsanto in Woodland.

Mark your calendars for the 2017 Retreat which will be held on March 18th!



L-R Retreat Photos: NIH/Biotech trainees

Prof. Abhaya Dandekar & Dr. Juan Sanches (DEB grad)

NIH/Biotech Trainees

ADP PROGRAM

The ADP (Advanced Degree Program for Corporate Employees) Program enables employees at regional biotechnology, biomedical or bioscience corporations to pursue a doctoral degree in one of the following programs:

College of Biological Sciences

Includes Biochemistry, Molecular, Cellular & Developmental Biology; Integrative Genetics & Genomics; Molecular, Cellular & Integrative Physiology; Neuroscience; Plant Biology

College of Engineering

Includes Chemical Engineering; Materials Science & Engineering

School of Veterinary Medicine

Includes Immunology

College of Agricultural & Environmental Sciences

Includes Pharmacology & Toxicology

The ADP is coordinated by the Biotechnology Program in conjunction with Graduate Studies, the College of Biological Sciences, the College of Engineering, the School of Veterinary Medicine, and the College of Agricultural and Environmental Sciences.

For more information, contact Dr. Judith Kjelstrom, ADP Director at jakjelstrom@ucdavis.edu

CONGRATS RECENT GRADS!

Thirty-seven DEB received
their degrees this past year!

2015 - 2016 DEB GRADUATES

In the 2015-16 academic years, there were 37 students in the DEB Program who received their PhDs along 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 these students and would like to recognize them in this magazine. They are:

Johnathan Anderson (PI: Jan Nolte) PhD Integrative Genetics & Genomics, now Stem Cell & Exosome Researcher at UC Davis Medical Center – Institute of Regenerative Cures

Kristen Beck (PI: Ian Korf) PhD Biochemistry, Molecular, Cellular & Developmental Biology, now Staff Scientist, IBM Almaden Research Center, Department of Computer Science, San Jose, CA

Geoffrey Benn (PI: Katayoon Dehesh) PhD Plant Biology, now Academic Coordinator at UC Davis. He instructs/oversees BIS 2C (Introduction to Biology: Biodiversity and the Tree of Life) course.

Marta Bjornson (PIs: Abhaya Dandekar & Katayoon Dehesh) PhD Horticulture & Agronomy, now Marie Curie research fellow (postdoc scholar) at The Sainsbury Laboratory, Norwich Research Park, Norwich - UK

Brandon Brown (PI: Heike Wulff) PhD Pharmacology & Toxicology, now Postdoc Fellow at UCSF

Elenor Castillo (PI: Florence Negre-Zakharov) PhD Plant Biology, now Associate Scientist at Sutro Biopharma, San Francisco

Sum Ying (Annie) Chiu (PI: Damian Geneto) PhD Biochemistry, Molecular, Cellular & Developmental Biology, now a Scientist in Cell Line Development in the Process Sciences group at OncoMed Pharmaceuticals, Inc. in Sacramento, CA

Shuchi Desai (PI: Shota Atsumi) PhD Microbiology, now working at Metabolic Engineering at Renewable Energy Group, Inc., San Francisco

Marjannie Eloi-Akintunde (PI: Judy Van de Water) PhD Immunology, now working at the Internship and Career Center at UC Davis.

Kateryna Feoktistova (PI: Christopher Fraser) PhD Biochemistry, Molecular, Cellular & Developmental Biology, now Post Doc

Scientist, R&D at BioVision, Milpitas CA

Amanda Fox Xu (PI: Lorena Navarro) PhD Immunology, now MESA Director at Mendocino College, Ukiah, CA

Douglas Gettel (PI: Atul Parikh) PhD Chemical Engineering, currently interviewing for industry positions.

Ben Golumb (PI: Maria Marco) PhD Food Science, now Postdoc at BayerCrop Science, W. Sacramento, CA

Hossein Gouran (PI: Abhaya Dandekar) PhD Plant Biology, now Postdoc researcher with USDA-ARS (UC Davis Plant Pathology)

Silvia Hilt (PI: John Voss) PhD Biochemistry, Molecular, Cellular & Developmental Biology, continues Alzheimer's research in John Voss lab and collaborator at CBST.

Stefanos Kalomoiris (PI: Jan Nolte) PhD Biochemistry, Molecular, Cellular & Developmental Biology, now Product Development Regulatory Intern at Genentech, San Francisco

Rosanna Kwok (PI: Joanna Chiu) PhD Entomology, interned at OncoMed Pharmaceuticals, Inc. in Sacramento, CA, then accepted a Scientist position.

Ingrid Leth (PI: Karen McDonald) PhD Chemical Engineering, now taking time off with new baby – congratulations!

Kristina Mahan (PI: Rebecca Parales) PhD Biochemistry, Molecular, Cellular & Developmental Biology, was Postdoc Researcher Microbial Physiology Group - Oak Ridge National Lab, Tennessee and currently interviewing for career positions.

Amelia Manlove (PI: Sheila David) PhD Chemistry, interned at Amyris and getting married before interviewing for a position.

Jordan McEwen (PI: Shota Atsumi) PhD Chemistry, now Postdoc at Sandia National Laboratories, Albuquerque, New Mexico

Angela Monterrubio (PI: Veronica Martinez-Cerdeno) PhD Biochemistry, Molecular, Cellular & Developmental Biology. She is currently completing her internship in Regulatory Affairs at Genentech in San Francisco.

Sucheta (Rinti) Mukherjee (PI: Wolf Dietrich-Heyer) PhD Pharmacology & Toxicology, now Postdoc at UCSF

Alice Ngo (PI: Xi Chen) PhD Chemistry, now NSF Postdoc Fellow at Sonanutech, Sacramento, CA



Prof. Eduardo Silva,
Dr. Judy Kjelstrom,
Prof. Erken Seker

Angela Papalamprou (PI: Leigh Griffiths) PhD Molecular, Cellular & Integrative Physiology, now Scientist at Allergan, Orange County, CA

Dipali Patel (PI: Alex Revzin) PhD Biomedical Engineering, now Scientist, Analytical Development at Aduro Biotech, Inc., SF

Özge Polat (Kurtuluş) (PIs: Atul Parikh & Erkin Şeker) PhD Chemical Engineering, interned at Innovation Access.

Shailise Ross (PI: Gang-yu Liu) PhD Chemistry, now Program Management Intern at Genentech, San Francisco

Esther Shin Patchin (PI: Kent Pinkerton) PhD Pharmacology & Toxicology, now Regulatory Documentation Intern at Genentech, San Francisco

Christian Siltanen (PI: Alex Revzin) PhD Biomedical Engineering, now Postdoc under Prof. Adam Abate at UCSF in Bioengineering and Therapeutic Sciences

Priyashiela Singh (PI: Kate Scow) PhD Soils & Biogeochemistry

Tang Tang (PI: Angelique Louie) PhD Chemistry, now finishing internship at Genentech, San Francisco

Elyse Towns (PI: Donald Land) PhD Chemistry, now Process

Analytical Technology Scientist at GlaxoSmithKline Pharma GmbH, New York City, NY

Anna Marie Tuazon (PI: Luis Carvajal-Carmona) PhD Biochemistry, Molecular, Cellular & Developmental Biology, internship was at BioMarin Pharmaceuticals Inc. in San Francisco, now a career position with them in Clinical Regulatory Affairs.

Natasha Worden (PI: Georgia Drakakaki) PhD Plant Biology, interned at Monsanto, Calgene Campus.

Garrick Yuen (PI: Donald Bers) PhD Biochemistry, Molecular, Cellular & Developmental Biology, now at BluePrint Research Group as a biotech consultant

Wade Zeno (PIs: Marjorie Longo & Subhash Risbud) PhD Chemical Engineering, now Postdoc Researcher in Biomedical Engineering Dept, at University of Texas, Austin

BIOTECH INTERNSHIPS

33 INTERNSHIPS OVER LAST YEAR

One of the requirements of the Designated Emphasis in Biotechnology graduate program is interning for at least three months at a cooperating biotechnology company, government agency or a cross-college site. Thirty-three DEB students have completed their internships over the past year and several have started this fall. We are sending our students to diverse locations, even international sites.

Remember, you should begin looking for opportunities at least one year prior to when you want to intern. Contact Dr. Judy Kjelstrom (jakjelstrom@ucdavis.edu) with your intention and she will begin to help get your CV in good shape as well as help narrow down alternatives based on your skills, knowledge and experience.

Note: You cannot sign up for MCB 282 (the internship) when you are on filing fee so plan carefully. You must enroll in MCB282 to receive credit hours.

A good plan of action is to attend MCB/ECH 294 (it's open to the public so don't worry if you have already taken it for credit) seminars of interest to network with speakers re: internship possibilities at lunch. The annual Biotechnology Training Retreat is also a great place to network.

We wish to thank all of our industry partners who offered internships for our DEB students. See where our students interned during the 2015-16 academic year:

Allergan, Inc., Irvine, CA – Angela Papalamprou
Allied Minds, Boston, MA – Garrick Yuen
Amyris Biotechnologies, Emeryville, CA – Amelia Manlove
American River College, Sacramento, CA – Amanda Fox Xu
Astrona Biotechnologies, Berkeley, CA (Bryce Falk startup) – Marc Pollack
Bayer HealthCare, Berkeley, CA – Doug Gettel
BioMarin, San Rafael, CA – Anna Marie Tuazon
CA Family Health Council (CFHC), Research Division, Berkeley, CA – Esther Shin Patchin
Celgene, Summit, NJ - Brian Avanzino
Chr. Hansen, Hoersholm, Denmark – Xiaochen (Ellie) Yin
Desktop Genetics, London, UK – Keith Dunaway
Genentech, SF, CA – Stefanos Kalomoiris, Angela Monterrubio, Juan Reyes, Elyse Towns

BIOTECH EVENT

Biotech Internships (Continued)

General Automation Lab Technologies (GALT)

Inc., SF, CA – Rita Luu

Gilead, Foster City, CA – Nicole Nuñez (nee Chaffee)

HM Clause, Woodland, CA – Nicholas Thomas
Innovation Access, UC Davis – Scott Strobel
(this Fall), Aiza Cathe Go, Özge Polat (nee Kurtuluş)

Lawrence Livermore National Labs, Oakland, CA - Chris Chapman

NASA Johnson Space Center, Houston Texas – Forrest Ryan Dowdy

Novozymes, Davis CA – Akshata Mudinoor

NSF Resource Fellowship Foothill Oaks & AM Winn Elementary – Ingrid Leth

Office of Corporate Relations, UCD – Elizabeth Edmiston (nee Fox)

OncoMed Pharmaceuticals, Inc., Sacramento, CA – Sum Ying (Annie) Chiu, Rosanna Kwok

REG Life Sciences, SF, CA – Shuchi Desai

Sac City College, Sacramento, CA – Andrew Burch

Starkey, Berkeley, CA – Britt Yazel

Stem Cell Partners LLC, Sacramento, CA – Johnathon Anderson

This Picnic Day Biotech Event has been designed to showcase and celebrate the richness of campus life, the diverse achievements of UCD students, information and entertainment to all who attend. The general public get to have a hands-on experience in various biotech-related experiments, including cheese making, DNA extraction, and the new developments for stonewashed jeans dye.

We wish to express our appreciation to all our industry partners for their donations, as well as the DEB graduate students for running the experiments. Industries who donated to the event included: Genentech, Monsanto-Calgene Campus, and Novozymes.

Our very own DEB students ran all the experiments, they were:

Brittany Anderson, Mina Azimi, Andrew Burch, Annie Chiu, Josh Cohen, Jasmine Corbin, Jon Flynn, Doug Gettel, Kuei-Pin Huang, Mittal Jasoliya, Malgorzata Liro, Jordan Mancuso, Ali Rahimian Mashhadi, Lucas McKinnon, Debika Mitra, Charles Mordaunt, Akshata Mudinoor, Nicole Nunez, Sonia Reveco, Juan Reyes, Cintia Helena Duarte Sagawa, David Silberstein

Thanks again DEB Volunteers - you rock!



Above: Akshata Mudinoor

Below: Annie Chiu

Below (middle): Andrew Burch



BIOTECH SYSTEM UPDATE

ACADEMIC YEAR 2015-2016

BY DENNEAL JAMISON-MCCLUNG, PHD

Thanks to the volunteer efforts of DEB students and support of community sponsors, we had another great year sharing the latest in biotech research and education with K-14 partners and the public. Annually, BioTech SYSTEM engages hundreds of California students, teachers and community members in informal science learning activities via Biotech Seminar Days, HS student e-mentoring programs, career fairs, science fairs, student contests and special outreach events hosted by collaborators (e.g. Angels for Hearts, Dinner with A Scientist, Expanding Your Horizons, Powerhouse Science Center). The centerpiece of BioTech SYSTEM regional outreach efforts is the Teen Biotech Challenge (TBC) web design competition and Research Scholar Awards, a summer research experience offered by Gerhard Bauer and the Nolte research team at the UC Davis Institute for Regenerative Cures.

Biotech Seminar Days – a Win-Win!

DEB students have a number of opportunities to hone science communication skills, including Biotech Seminar Days, where they deliver brief “elevator pitch” research talks designed for non-specialist audiences. Biotech Seminar Days also provide regional high school teachers and students the opportunity to keep up with the latest in biotech research. In 2015-2016, over 200 Northern California high school students participated in Biotech Seminar Days. Many thanks to the DEB volunteers who prepared “elevator pitches” and led walking tours: Karan Agrawal, Adam Contreras, Jasmine Corbin, Ailsa Dalgliesh, Amanda Dang, Shea Feeney, Jenna Gallegos, Prema Karunanithi, Jordan Mancuso, Alice Martinic, Debika Mitra, Jessica Moore, Allison Stevens, Justin Thomas and Erica Vonasek-Eco.

Participating high schools included: American Canyon HS, Antelope HS, Clear Lake HS, Colusa HS, James Enochs HS (Modesto), Piner HS (Santa Rosa) and Sheldon HS (Elk Grove).



Left: Juan Reyes, e-mentor at Sheldon

E-Mentoring, Science Fairs & Career Fairs

Regional K-14 students benefit from early exposure to STEM career paths and hearing from diverse voices further along in their STEM journeys. We're very grateful that many DEB students are keen on sharing career advice and personal stories with students at partner high schools and middle schools, touching hundreds of K-14 students in our region every year. Last year, BioTech SYSTEM supported regional career fairs and science fairs, including Douglass MS (Woodland), Lee MS (Woodland), Smythe Academy of Arts and Sciences (Sacramento) and the regional Expanding Your Horizons (EYH) event for middle school girls, held at Sacramento State University. We supported eight-week e-mentoring programs at Sheldon HS (Elk Grove) and Vallejo HS, culminating with mentor-mentee mixers. 2015-2016 Science and Career Fair Volunteers: Mina Azimii, Katie Beglinger, Amanda Dang, Shea Feeney, Doug Gettel, Jenna Harvestine, Stefanos Kalomoiris, Alice Martinic, Angela Monterrubio, Jennifer Nill, Megan Showalter, Linda Su-Feher, Sara Sukenik, Elyse Towns, Gina Turco, Sana Vaziri and Xinjun Zhang. Spring 2016 E-mentors: Brian Avanzino, Krishna Choudhary, Adam Contreras, Brent Foster, Jenna Gallegos, Jisoo Han, Jenna Harvestine, Dustin Heeney, Kuei-Pin Huang, Pui Yan Ho, Malgorzata Liro, Gena Hoffman Lurvey, Lucas McKinnon, Debika Mitra, Alan Nguyen, Nicole Nunez, Anita Rajamani, Sonia Revecó, Megan Showalter, Sara Sukenik, Kim Truong, Anna Marie Tuazon, Sana Vaziri and Sam Westreich.



DR. DENNEAL JAMISON-MCCLUNG

Director: BioTech SYSTEM

Assoc. Director: Biotechnology Program

Teen Biotech Challenge 2016

The Teen Biotech Challenge 2016 web design competition received registrations for 427 preliminary websites from 21 sponsor teachers at 11 California high schools. Of these, 76 websites advanced to the final round of judging by DEB volunteers and 49 entries won awards across seven focus areas. The efforts of Biotech Program staff, Jacki Balderama and Jacqueline Phillips, as well as many DEB volunteers for website judging and event hosting made TBC2016 possible. Many thanks to these volunteers and to the TBC2016 community sponsors of student prizes and the award reception, Bayer CropScience, Novozymes and the UC Davis Biotechnology Program.

TBC2016 First Place Websites

- **Agricultural Biotechnology Winner** - "Saving Lives With Crops" by Tahea Hossain, Sheldon HS
- **Computational & Systems Biology Winner** - "3D Modeling in Biology" by Jacob Miller, Davis HS
- **Drug Discovery & Biomanufacturing Winners (tie)** "Drug Discovery: HIV/AIDS" by Daisy Bacatan, Sheldon HS, and "HIV to AIDS: the Ultimate Evolver" by Buddhika Ratnasiri, Davis HS
- **Environmental Biotechnology Winner** - "Bioremediation: The Treatment of the Future" by Dean Vo and Peng Xiao, Sheldon HS
- **Nanobiotechnology Winner** - "Synthetic Biology: Engineering Reborn..." by Ranya Odeh, Sheldon HS (**GRAND PRIZE WINNER**)
- **Personal Genomics & Human Health Winner** - "Genes with the Perfect Fit" by Kyla Leacox and Annika Streeb, Davis HS
- **Regenerative Medicine Winner** - "Tissue Engineering: From Petri Dish to Patient" by Lauren Duan, Daniel Jiang and Andrea Zhang, Davis HS

TBC2016 Judges: Douglas Banda, Adam Contreras, Jasmine Corbin, Amanda Dang, Keith Dunaway, Cintia Helena Duarte Sagawa, Amanda Fox, Jenna Gallegos, Hyun Tae Hwang, Mirko Ledda, Malgorzata Liro, Yulong Liu, Amory Meltzer, Charles Mordaunt, Natasha Shroff, Breanne Sparta, Allison Stevens, Anna Marie Tuazon, Kim Truong, Erica Vonasek-Eco, Natasha Worden and Eric Zheng.

TBC Event Hosts: Katie Beglinger, Jasmine Corbin, Keith Dunaway, Doug Gettel, Prema Karunanithi, Kori Lay, Kantharakorn Macharoen, Leanna Monteleone, Charles Mordaunt, Chuong Nguyen, Anita Rajamani, Cintia Helena Duarte Sagawa, Robert Stolz, Tang Tang, Sana Vaziri and Britt Yazel. The TBC Awards Symposium provides a great opportunity for high school students, parents and teachers to interact with biotech researchers and visit a university campus, which is a novel experience for many.



BIOTECH SYSTEM NEWS (CONT.)

CIRM-SPARK Research Scholar Awards

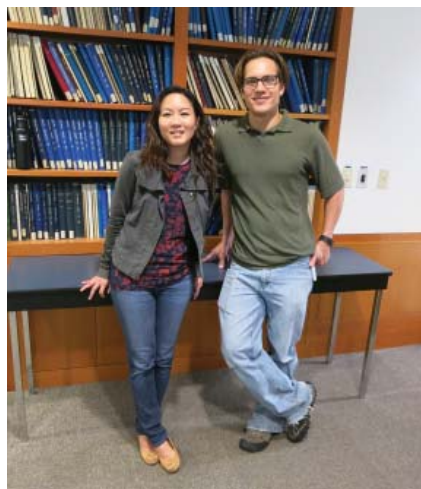
Ten BioTech SYSTEM students, including TBC2016 winners, applied for Research Scholar Awards funded by a California Institute of Regenerative Medicine Summer Program to Accelerate Regenerative Medicine Knowledge (SPARK). This eight week adventure in stem cell biology research was headed by PI Gerhard Bauer at the UCDMC Institute for Regenerative Cures. In addition to independent research projects, SPARK Research Scholars benefited from visits to UC Davis Health System clinics, inclusion in the Nolte research group lab meetings, training in social media and blogging, and participation at the 2016 SPARK Conference held at the Claremont Hotel in Berkeley, California. SPARK trainees were in great company at the final conference, networking with bright high school students from across California. UC Davis is one of seven inaugural SPARK institutions, including the California Institute of Technology, Cedars Sinai, Children's Hospital Oakland Research Institute (CHORI), City of Hope, Stanford University School of Medicine and UC San Francisco. <https://cirmsparkucdavis.wordpress.com/>



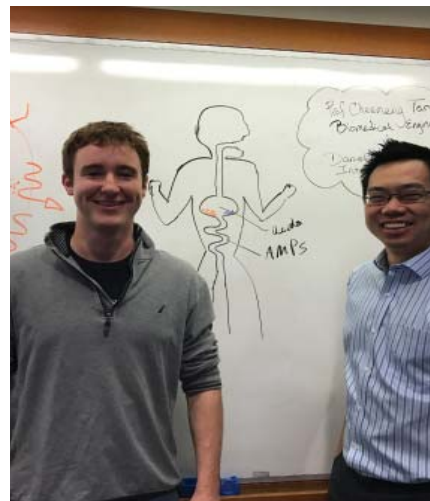
SPARK Research Scholars and Biotech Program directors– Claremont Hotel, Berkeley, CA – August 7, 2016

We attempt to recognize all DEB volunteers by name, but given the volume of activities and events, may have missed recognizing all contributions. For DEB students reading the newsletter – let us know if we inadvertently missed showcasing your 2015-2016 volunteer service and we'll gladly update our records. Remember to highlight informal science education and science communication on your CV – participating in STEM outreach is a vital and sincerely appreciated professional service to the community!

For more information on the BioTech SYSTEM, check out the latest happenings on our [website](#).



LFT: Prof. Joanna Chiu, Adam Contreras
RT: Daniel Lewis, Prof. Cheemeng Tan



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 2016-2017 Chalk Talks scheduled. All Chalk Talks are held in 1022 Life Sciences from 12:10 – 1:00 pm.

- Thursday, Sept. 29 Daniel Lewis (Integrative Genetics & Genomics), PI: Cheemeng Tan
- Monday, Oct. 24 Eric Zheng (Chemistry), PI: Prof. Peter Beal
- Monday, Nov. 14 Cintia Helena Duarte Sagawa (Plant Biology), PI: Abhaya Dandekar
- Monday, Nov. 28 Jasmine Corbin (Chemical Engineering), PI: Prof. Karen McDonald
- Monday, Jan. 23 David Merriam (Microbiology), PI: Prof. Dennis Hartigan-O'Connor
- Monday, Jan. 30 Natasha Shroff (Integrative Genetics & Genomics), PI: Prof. Frank Sharp
- Monday, Feb. 13 Alice Martinic (Nutritional Biology), PI: Prof. Carolyn Slupsky
- Monday, Feb. 27 Cody Yothers (Chemistry), PI: Prof. Annaliese Franz
- Monday, Mar. 13 Kay Watt (Genomics), PI: Prof. Paul Gepts
- Monday, April 10 Maika Malig (Integrative Genetics & Genomics), PI: Prof. Frédéric Chédin
- Monday, April 24 Michael Fong (Biomedical Engineering), PI: Prof. Dominik Haudenschild
- Monday, May 8 Sophie Kiss (Pharmacology & Toxicology), PI: Prof. Paramita Ghosh
- Monday, May 22 Anna Case (Chemistry), PI: Prof. Shota Atsumi



LFT: Prof. Georgia Drakakaki, Natasha Worden
RT: Jenna Harvestine, Prof. Kent Leach



RIGHT:
KSENIYA ZAKHARYEVICH,
DR. KJELSTROM

BELOW:
KEVIN HOLDEN

BOTTOM:
DR. ZANE STARKEWOLFE



MCB/ECH 294 SEMINARS

MCB/ECH 294, Current Progress in Biotechnology, Friday seminars is open to the public as well as enrolled graduate students. Course instructors are Dr. Judy Kjelstrom (Director Biotechnology Program), Prof. Karen McDonald (College of Engineering & ADVANCE Program), and Prof. Raymond Rodriguez (Molecular & Cellular Biology).

IN 2016, THREE

DEB GRADUATES CAME

BACK TO GIVE TALKS

AT OUR MCB/ECH 294

FRIDAY SEMINARS



MCB/ECH 294 FRIDAY SEMINARS

Fridays, 11:00 AM, Room LS 1022

Sept. 23	Organizational Meeting Dr. Judy Kjelstrom (Biotechnology Program Director & DEB program coordinator) Instructors Prof. Karen McDonald (ECH) & Prof. Ray Rodriguez (MCB)
Sept. 30	Big Bang Kickoff Niki Peterson, Program Manager, UCD Institute Innovation & Entrepreneurship ImmunoTag presentation (2016 Big Bang! 2nd Place Winner) Samantha Feng and Dustin Heeney, DEB Students
Oct. 7	What is Intellectual Property? Nancy E. Rashid, PhD, Registered Patent Agent Intellectual Property Officer UC Davis InnovationAccess
Oct. 14	How to turn your research and ideas into commercial success and public benefit Zane Starkewolfe, PhD (Former DEB Student), Associate Director-New Venture Resources Venture Catalyst, UC Davis
Oct. 21	Biotechnology as a way of life Nola Masterson, MSc, Managing Director Science Futures Management Co Adjunct Professor, USF Business School
Oct. 28	BioBusiness Internships Lonnie Bookbinder, MBA, PhD, CEO Ariz BioPharma, Davis (Located at the UCD/HM Clause Innovation Center)
Nov. 4	From Academia to Industry, my alternative path to success Aleisha T. Dobbins, MBA, Ph.D., Associate Director, Regulatory Affairs Policy, Learning & Development BioMarin Pharmaceutical Inc., Novato
Nov 11	VETERAN'S DAY
Nov. 18	Making Silk without Silkworms: Using Industrial Biotechnology to Make Performance Protein-Based Fibers David Breslauer, PhD, Chief Science Officer Bolt Threads, Emeryville
Nov. 25	THANKSGIVING
Dec. 2	Discovering and understanding novel cancer therapeutics, a voyage into the unknown Daniel Anderson, PhD, Director, Biology Cleave Biosciences, Burlingame



A FEW DEB ACCOLADES

We like to brag about our DEBs. If you have anything interesting you'd like to share, please contact us so we can put on social media!

AS OF 2016, THERE
ARE 230 DEB STUDENTS
AND 276 DEB FACULTY!

1.

Congratulations go to **Christopher Chapman**, a stellar DEB graduate student in Prof. Erkin Seker's lab and a member of the biomedical grad group. Chris was offered a Swiss Government Excellence Program Scholarship and travel award through the

NSF GRFP Graduate Research Opportunities Worldwide program to work at the Swiss Federal Institute of Technology in Zurich for the 2016-17 academic year. Chris will be working in Professor Janos Voros' lab.

2.

Congratulations to **Sara Sukenik** for winning first place in the graduate division of the 2016 International Society for Pharmaceutical Engineering (ISPE) Student Poster Competition held in Atlanta, GA on September 18-21, 2016!

Sara qualified to compete at the international level by first winning the San Francisco Bay Area ISPE chapter's local competition. Her winning poster was titled "Modeling Monoclonal Antibody Production in Nicotiana Benthamiana Plant Cell Suspension Culture".

Sara is a Ph.D. candidate in Biomedical Engineering with a Designated Emphasis in Biotechnology and is advised by Professor Karen McDonald in the Department of Chemical Engineering.

3.

Nicole Nozzi (2015-16 NIH trainee) was recently awarded Best Poster Winner (5 winners awarded) at the Chemical Biology in the Bay Area (CBBA) Day. Nicole is in Prof. Shota Atsumi's lab and is a member of the chemistry graduate group. Her poster was

"Developing Product on of a Plant Alkaloid in a Microbial Host".

This year's CBBA event was hosted by Prof. Chris Change from UC Berkeley. During the day, scientific exchanges involving chemical biology research from UCSF and University of California campuses at Berkeley, Davis, and Santa Cruz occur.

Congratulations Nicole!!!

4.

Dustin Heeney Earns Student Award at ISAPP! Dustin Heeney, a DEB graduate student in Prof. Maria Marco's lab (microbiology graduate group) recently attended the 2016 ISAPP (International Scientific Association for Probiotics and Prebiotics) meeting in Turku, Finland. Dustin won the 2016 Best Poster presentation! His poster topic was "Lactobacillus plantarum improves metabolic outcomes and informs colonic immune state in mice fed a high fat diet."

Dustin also met Dr. Gonca Pasin who is the Executive Director of the California Dairy Research Foundation (CDRF) and had his picture taken with her and Prof. Marco. Dr. Pasin had this to say of Dustin Heeney, "We are very proud of him, and what an honor and testimony of Dr. Marco's leadership".

Congratulations Dustin!!!



5.

Congratulations to **Angela Monterrubio & Jessica Moore** - (SMDP) Biotech Scholars

Congratulations go out to two of our DEB students, Angela Monterrubio and Jessica Moore, for being named two of the 2016 SMDP Biotech Scholars! SMDP Biotech is a one-year career mentoring program that "pairs diverse graduate students and post-doctoral researchers with industry mentors who work at biotech companies".

Angela is in the Biochemistry, Molecular, Cellular & Developmental Biology graduate group and her PI is Prof. Veronica Martinez-Cerdeno. Her research interest is in enhancing the homing capabilities of hMSC: a potential non-invasive therapeutic for neurodegenerative disease.

Jessica is in the Chemistry graduate group in Prof. Donald Land's lab. Her research interest includes the characterization of nanlipoprotein particles secondary structure using attenuated total reflectance fourier transform infrared spectroscopy.

Last year, another of our DEB student was chosen as a 2015 SMDP Biotech Scholar - JohnPatrick Rogers (PhD in Chemistry, Prof. Sheila David's lab).



A FEW DEB ACCOLADES (CONT.)

CHECK OUT OUR FACEBOOK PAGE, TWITTER,

LINKEDIN GROUPS, AND GOOGLE+ FOR MORE ACCOLADES!

6.

Congrats to DEB Student Jared Nigg! Jared Nigg recently received a 2016 National Science Foundation (NSF) Graduate Research Fellowship Program (GRFP) Fellowship. Jared is in the microbiology graduate group in Prof. Falk's lab. His research interest is in metabolic engineering, synthetic biology, applied microbiology and viral surveillance

The NSF GRFP provides a stipend and is awarded on the basis of demonstrated potential to strengthening the vitality of the U.S. science and engineering enterprise.

Congrats Jared!

7.

Ryan Dowdy, a stellar DEB graduate student that comes from Professor Christopher Simmons' (a former DEB graduate) lab has received the 2016 prestigious Arla Foods Graduate Fellowship in Food Science. This award took place at the Robert Mondavi Institute for Wine and Food Science. Ryan received a one year \$40,000 Arla Foods Fellowship for his research project on combining renewable desalination of dairy waste streams with improved membrane technology. Ryan is in the Food Science graduate group in his second doctoral year.

The Biotechnology Program offers their congratulations to Ryan Dowdy and his mentor, Prof. Chris Simmons, for their excellence in research!

8.

Its official, the DEB (Designated Emphasis in Biotechnology) students and faculty have voted grad student, Donald Gibson, as the new DEB Executive Committee Student Representative. Donald is in the Integrative Genetics & Genomics graduate group in Prof. Siobhan Brady's lab.

Don is replacing Johnathon Anderson, who was a stellar student representative and a recent graduate whose contributions will long be remembered. Welcome Don!



9.

Amelia Manlove (2012-14 NIH Trainee) will be exchanging nuptials on Oct 8 with James Biggs-Houck, who was also in a Chemistry PhD program at UC Davis and now works at Intel, outside of Portland.

Amelia, who is mentored by Sheila David in the Chemistry graduate group recently completed her internship at Amyris Technologies in Emeryville, CA.

10.

Christian Siltanen (2014-15 NIH Trainee) recently received his degree in Biomedical Engineering with a designated emphasis in biotechnology. His mentor was Alexander Revzin.

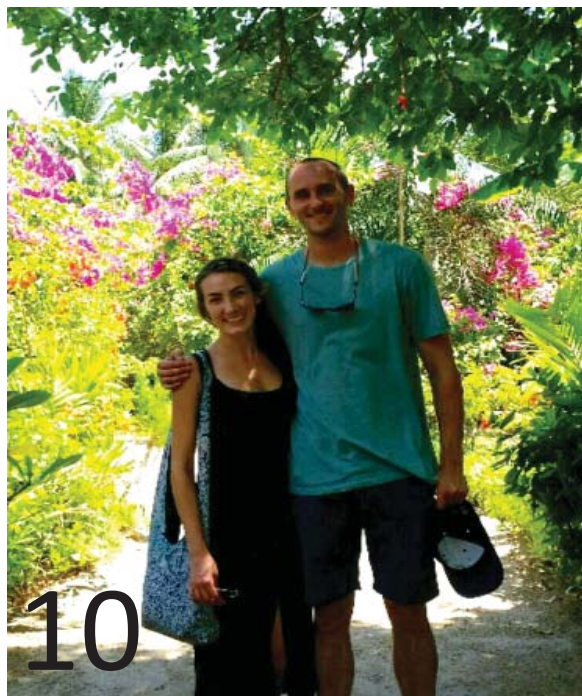
Christian's internship was at Genentech in South San Francisco and is in a postdoc position under Professor Adam Abate at UCSF in the department of Bioengineering and Therapeutic Sciences. He and his wife, Hayley, just finished their honeymoon.

ANGELS FOR HEARTS

Thank you to some of our DEB Students for spending a day at Jesuit High School in support Kimberly Kauffman's Angels For Hearts event: "When I Grow Up".

DEB grad students: **Donnelly West, Sana Vaziri, Brittany Blankenship, Britta Heiss, Pui Yan Ho, and Rebecka Sepela** ran science experiments and talked to the public about being scientists to these kids with heart conditions. Donnelly and her friend brought reptiles and they were definitely a hit!

For more information on [Angels for Hearts, Inc:](#)



LFT: Pui, Donnelly, Sana

GENENTECH OPEN HOUSE

Every other year, Genentech opens its doors to the UC Davis Biotechnology Program's DEB students. On October 5, a chartered bus picked up 56 attendees here on campus and transported them to the Genentech campus in San Francisco.

Besides touring the facility and hearing presentations on

research topics relating to the participants' expressed interests, they also provided breakfast and lunch.

Thank you Rami Hannoush and Molly Taylor for being such wonderful hosts!



TOP: Research Tour participants at Genentech's San Francisco campus

BELOW: ESTEME panel participants and organizers

ESTEME

The Equity in STEM and Entrepreneurship (ESTEME) program, is a graduate student-initiated organization under the guidance of the UCD Biotechnology Program with Dr. Kjelstrom as the faculty advisor. ESTEME is an outreach and leadership training program that teaches valuable skills to emerging graduate student leaders.

Their vision is to facilitate an increase in underrepresented professionals in STEM leadership positions. The first annual ESTEME Biotechnology Colloquium, Diversity and Innovation in

STEM, was held on April 22, 2016, and featured Dr. Kristen Beck, former NIH BTP graduate and current staff scientist with IBM, Almaden Research group. Over 100 graduate students were in attendance. Jasmine Corbin and Samantha Feng are current co-leaders. The ESTEME website can be found [here](http://www.esteme.ucdavis.edu).

If you would like to get involved or find out more information on ESTEME meetings and upcoming events, you may contact the organization at ESTEME.UCD@gmail.com



WOMEN WHO MEAN BUSINESS



Dr. Judy Kjelstrom, Director of the UC Davis Biotechnology Program, was recently named one of the 2016 Women Who Mean Business (WWMB) by the Sacramento Business Journal. Dr. Kjelstrom is instrumental in attracting biotechnology industry support in the form of funded internships for the 230 PhD students in the DEB (Designated Emphasis in Biotechnology) Program that she runs. She acts as a liaison between the biotechnology industry and UC Davis and is a sought after public speaker for a wide range of audiences, including the State Capitol Assembly Committee (in support of AB 422 to strengthen STEM programs), Keynote for Bioscience Career Track at Oregon Bio 2015 in Portland, Oregon, and many STEM outreach events. She is a board member of the Sacramento Powerhouse Science Center and passionate about reaching under-represented populations and encouraging them into STEM education/disciplines. In 2015 her efforts were recognized when she received the Chancellor's Achievement Award for Diversity. Her contributions to the university and to public service have left a lasting mark and subsequently she has been recognized as a leader in biotechnology.

Michele Wong, CEO of Synergex had this to say about Dr. Kjelstrom, "She has an incredible passion for teaching and mentoring young people." She also stated, "She wants to do what she can to pay it forward and get kids interested in the same kind of career."

Congratulations "Dr. Judy" on a well-deserved award!



2016 BIG BANG! COMPETITION

Congratulations Samantha Feng & Dustin Heeney! Samantha Feng and Dustin Heeney, two of our DEB graduate students took home 2nd place in last night's Big Bang! Awards Ceremony! Their company, ImmunoTag, walked away with \$5,000 in start-up funds as well as \$10,000 in-kind services. Forty-two teams (120 entrants) participated in this year's Big Bang! competition.

Samantha (Sam) is in the Pharmacology & Toxicology graduate group and her PI is Prof. Kit Lam. Dustin is in the Microbiology graduate group and Prof. Maria Marco is his PI. Sam and Dustin did a "bang" up job presenting their start-up's research mission. Sam describes ImmunoTag's project as follows, " We have developed a novel conjugation technology that could improve the current antibody-based targeted drug delivery platform to treat various cancer types and prevent infectious disease. Our special linker technology allows payloads to specifically attach to any commercialized available antibody. This simple-to- use linker allows us to easily conjugate drugs to commercial antibodies, thereby streamlining the synthesis process from three months to just 15 minutes." To view a short video on ImmunoTag, click on this [link](#).

MARK YOUR CALENDARS!

February 17	Retreat Attendance Forms Due
February 24	Retreat Abstracts & Oral Presentations Due
March 18	26th Annual Biotechnology Training Retreat in Napa
April 21	NIH Biotech Training Grant Fellowship Applications Due (conditional upon renewal acceptance)
April 22	Picnic Day: Biotech Event in 148 Briggs Hall
May 25	TBC 2017
July ~17 – 21	Flow Cytometry Course
July ~1 – Aug 4	Proteomics Course

SOCIAL MEDIA OUTLETS

Facebook: UC Davis Biotechnology Program Facebook Page

Linked In Groups: UCD Biotechnology Program
UC Davis Biotechnology Program NIH Fellows

Twitter:

Dr. Judy Kjelstrom: @JKjelstrom

Dr. Denneal Jamison-McClung: @yggdrasil13751

Marianne Hunter: @mythodology

BIOTECHNOLOGY PROGRAM'S WEBSITES

Biotechnology Program Website: <http://biotech.ucdavis.edu/>

DEB Website: <http://deb.ucdavis.edu/>

BTP NIH T32 Website: <http://www.niht32.ucdavis.edu/index.html>

Teen Biotech Challenge Website: <http://teenbiotechchallenge.ucdavis.edu/>

BioTech SYSTEM Website: <http://biotechsystem.ucdavis.edu/>



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