

UC Davis Biotechnology Program's

BIOTECH TIMES

December 2017 Issue
Marianne Hunter, Editor



“...plan to retire in June”
Dr. Judy Kjelstrom

Recent DEB Graduates
Students' Philanthropic Efforts with the DEB
ESTEME News



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A Message From The Director

Happy Holidays! We scrambled to finish the 2017 edition of the Biotech Times by mid- December. I can't believe how quickly the year has gone. The Biotechnology Program endured our first formal Program Review in the spring along with another formal review of the Designated Emphasis in Biotechnology (DEB) graduate program. We also had to resubmit a revised grant proposal for the NIH T32 Biotechnology Training Grant. More information can be found on our [website](#) .

We were thrilled to receive a very positive review of our Program. The DEB continues to be the jewel in the crown of graduate education at UC Davis. Our 20-year-old DEB graduate program continues to grow in the number of students, faculty and graduate programs. Dr. Jamison McClung and I were invited to submit a paper to the journal Bioentrepreneurship Education ("A Cross-Disciplinary Doctoral Emphasis in Biotentrepreneurship: A Case Study of the University of California Davis Biotechnology Program., Technology Transfer and Entrepreneurship, 2017, 4,99-104). The current enrollment in the DEB is 230 PhD students. They come from 29 different STEM disciplines. 18 students graduated in the 2016-17 academic year. We have had 269 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 2016-17 academic year, we placed over 30 students in internships (industry and campus). Most were placed in California, but some were out of state and a few were international (Denmark and London). Our DEB graduates continue to secure positions in industry without a formal post-doc. Close to 60% of our graduates work in biotech or pharma. Please see the magazine for more information.

Our personnel in the office has undergone some changes. Jackie Phillips move to Portland Oregon last spring, so she could be closer to her son, Thomas, who is completing his medical residency. We hired Lorella Gino as her replacement this fall. If you call the front desk, you will hear an Italian accent instead of a British one. We also secured increased funding for Kelly Meade, our financial analyst. We have a committed team, who strive to serve our students, faculty, campus administrators and industry partners with utmost professionalism and excellent service. When you interact with them, thank them for their service as well as their warm smiles.

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 co- chair the Education Committee. We have received important support from the City of Sacramento and should break ground for the new science

“I have decided to retire next June”



Dr. Kjelstrom at a speaking engagement

center on the Sacramento River in early 2018. This will 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 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: Linda Su Feher, Katy Beglinder, Amanda Dang and Matt McNulty. Past co-leaders Samantha Feng, Nicole Coggins, Jasmine Corbin and Jesse Lopez continue to serve as mentors to the new co-hort. They understand the importance of paying it forward as well as institutional memory in leadership transitions.

In closing, it has been a distinct honor to direct the Biotechnology Program for close to 20 years. This has been a life-changing journey and one that I will never forget. Together, we changed how we educate STEM graduate students and better prepare them for the 21st century. I have decided to retire next June, but plan to continue



Dr. Kjelstrom with Stem Cell Program Director and GMP Lab Manager

to serve on special projects as director emerita. One of my new endeavors is to oversee a new course, Biotechnology Industry Immersion in the Graduate School of Management to bring MBA students together with PhD students in STEM to analyze real case studies in biotechnology. Stay tuned... I am not really going away; it will be my 4th reinvention. We still have much to accomplish in creating an entrepreneurial culture at UC Davis.

Happy Holidays,
Dr. Judy Kjelstrom



Program Director Dr. Jan Nolte
Dr. Gerhard Bauer

DEB Program: 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, DEB (formerly 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 DEB (formerly 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 out through the listserve (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 DEB (formerly MCB) 282 to receive credit hours.

DEB Program (Cont.)

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

Years 3-5

- Internship (...and sometimes...a job offer)
 - Dissertation and Exit Seminar!
- Required Coursework:

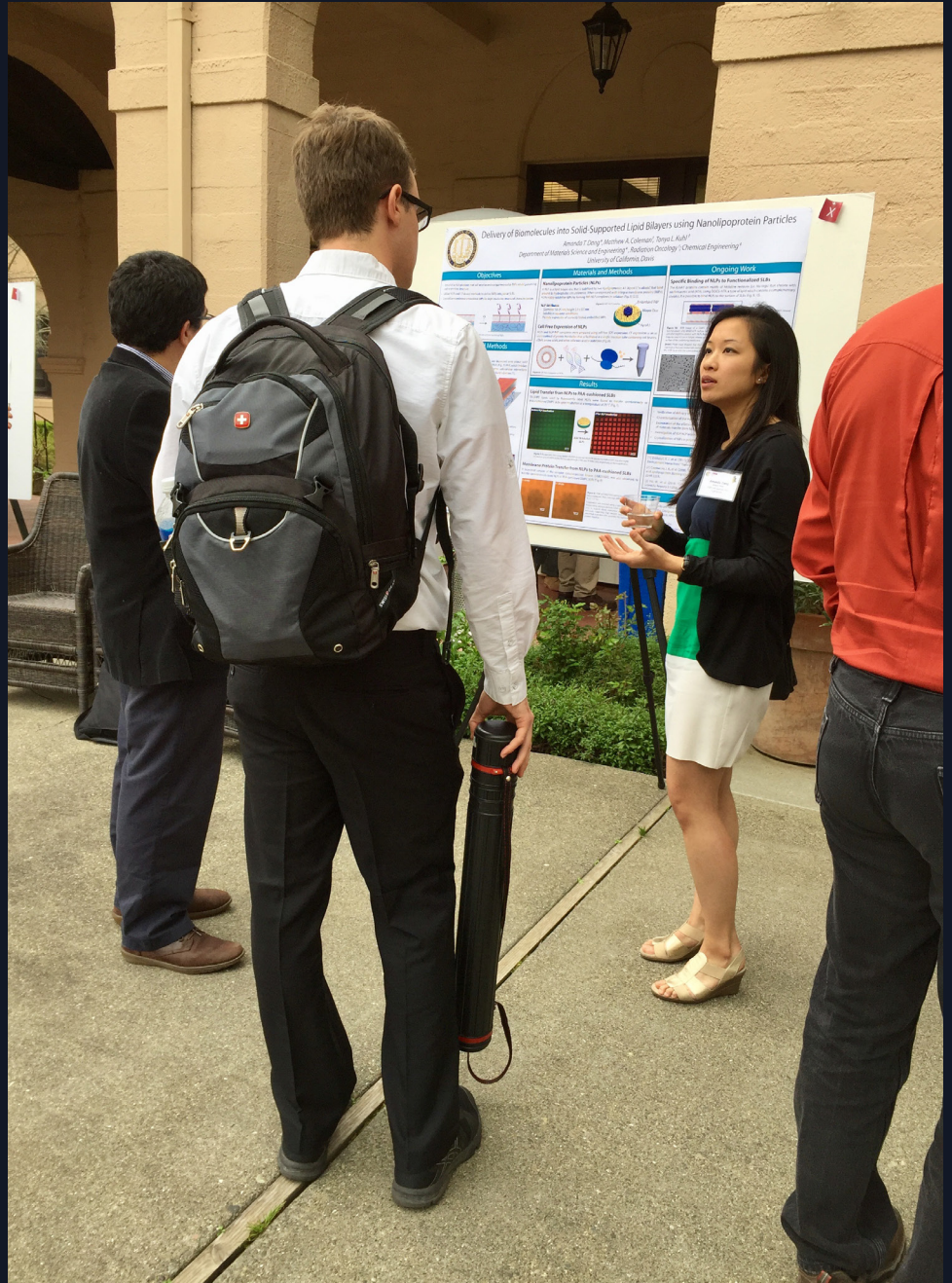
DEB 263 “Biotechnology Fundamentals and Application” (2 unit lecture course)

GGG 296 or other approved bioethics course

DEB (formerly MCB)/ECH 294 “Current Progress in Biotechnology” (1 unit seminar for 3 quarters, may substitute one quarter of MIC292*)

DEB (formerly MCB) 282 “Biotechnology Internship” (min 3 months, may be taken after QE)

*See [DEB website](#)



Amanda Dang during Poster Session

26th Annual Biotechnology Training Retreat



This past March 18, the Biotechnology Program held their 26th annual Biotech Retreat in the Napa Valley and we were pleasantly rewarded with excellent weather for the outdoor Poster Sessions. These sessions are the perfect time for all to interact and network, indeed this retreat has spawned the beginning of several successful collaborations!

During the retreat, the NIH and Biotech Fellows gave presentations on their research. This forum is an excellent opportunity for them to talk in front of an audience that comes from many diverse backgrounds. They must be able to speak about their research in such a way that the audience will be able to understand it.

Our invited industry affiliates also gave talks about their company's latest projects and they were able to visit with the attendees during the Poster Sessions and during lunch. This is a great way for DEB students to form relationships with industry researchers who they would like to intern with. A win-win situation for both student and industry affiliate!

NIH/Biotech speakers included:

Rosanna Kwok (Mentor: Joanna Chiu)
Jasmine Corbin (Mentor: Karen McDonald)
Karan Agrawal (Mentor: John Newman)
Nicole Nozzi (Mentor: Shota Atsumi)
Anna Marie Tuazon (Mentor: Luis Carvajal-Carmona)
Sana Vaziri (Mentor: Sharon Aviran)
Daniel Lewis (Mentor: Cheemeng Tan)
Debika Mitra (Mentor: J. Kent Leach)
Sam Westreich (Mentor: Ian Korf)
Joshua Cohen (Mentor: Daniela Barile)

26th Biotech Training Retreat (Cont.)

Industry speakers included:

Dr. Juan Pedro Sanchez (DEB Graduate) – Monsanto Company

Dr. Elenor Castillo (DEB Graduate) – Sutro Biopharma, Inc.

Dr. Abigail Yu (DEB Graduate) – Sutro Biopharma, Inc.

Dr. Rene Meisner – OncoMed Pharmaceuticals

Dr. Sabina Gude – Novozymes, Inc.

Dr. Sara Gaucher – Amyris, Inc.

Dr. Kristin Bernick – Agilent Technologies

Welcome Message and Closing Comments from Dr. Karen McDonald (Co-Director, NIH Training Grant in Biomolecular Technology)

Morning Session chaired by Dr. Joanna Chiu (Co-Director on Renewal; NIH Training Grant in Biomolecular Technology)

Afternoon Session chaired by Dr. Luis Carvajal – Carmona (Co-Director, NIH Training Grant in Biomolecular Technology)

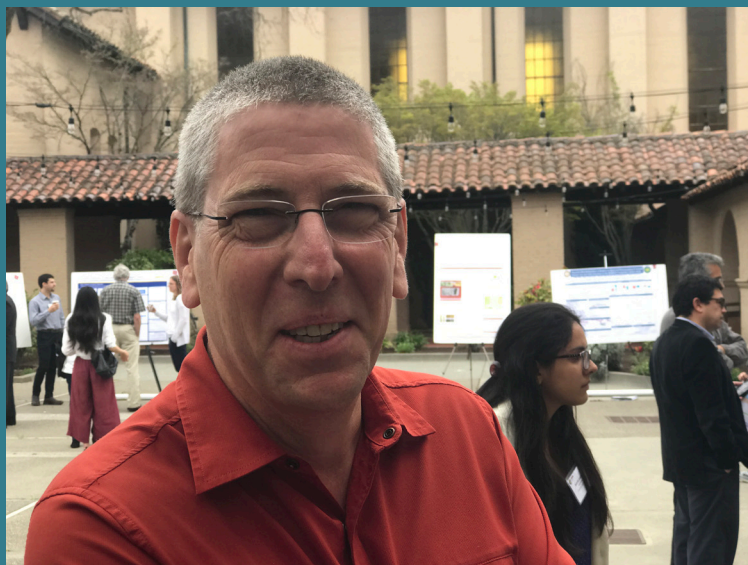
Ethics Discussion led by Dr. Denneal Jamison-McClung (Associate Director Biotechnology Program, Program Coordinator on Renewal; NIH Training Grant in Biomolecular Technology)

Poster Sessions included 26 posters from DEB students, invited students and post-docs from the campus.

Thank you to everyone who attended, you definitely made our 26th Retreat successful and memorable!

Special thanks to the College of Biological Sciences' Dean Mark Winey for his attendance and interest in the Biotechnology Program's event!

College of Biological Sciences, Dean Mark Winey



ADP

Advanced Degree Program for Corporate Employees

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

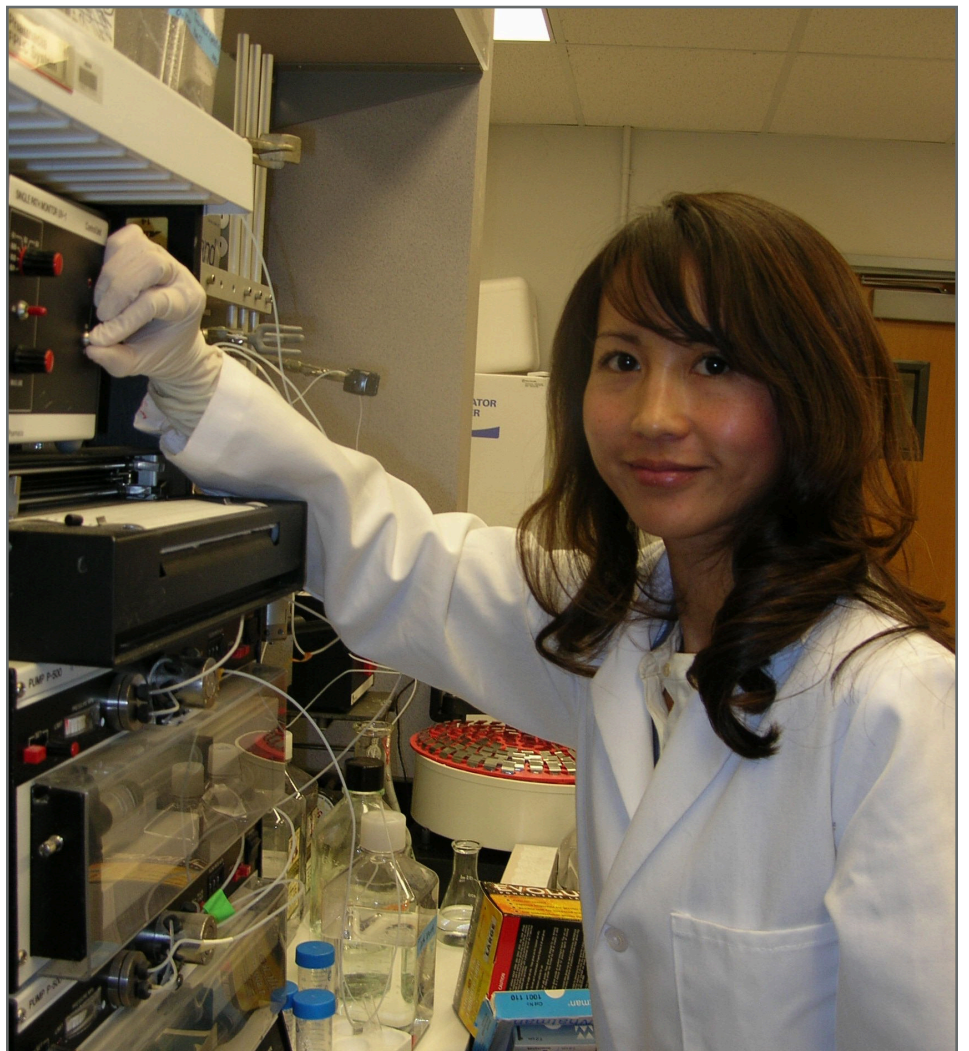
College of Agricultural & Environmental Sciences
Includes Pharmacology & Toxicology

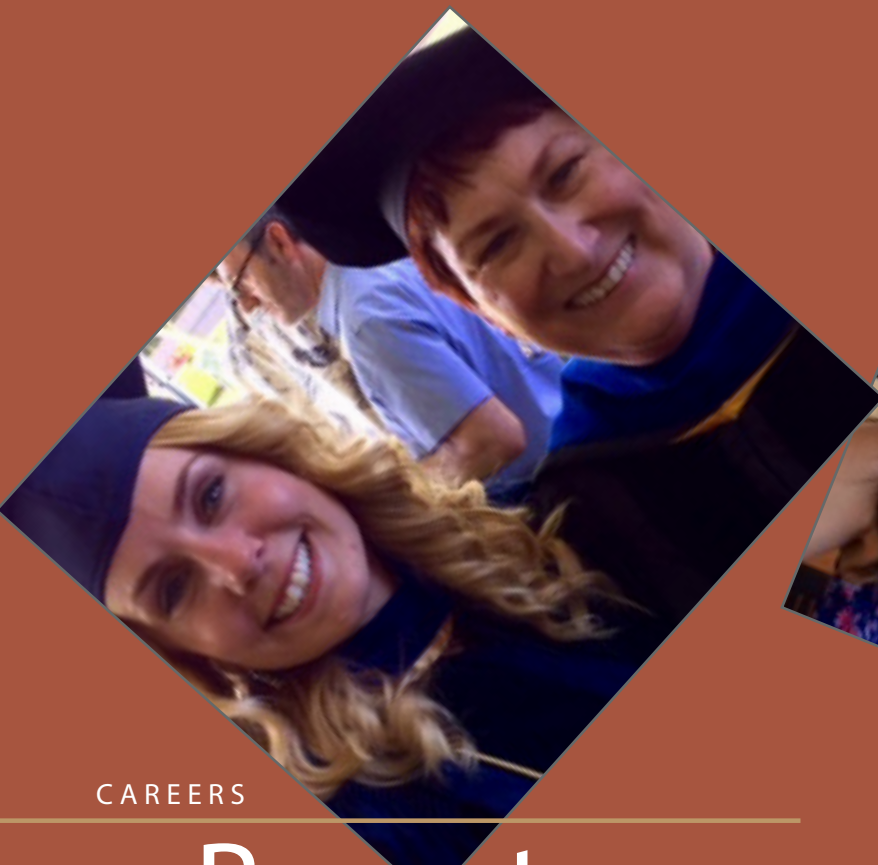
The ADP is coordinated by the Biotechnology Program in conjunction with Graduate Studies, the College of Biological Sciences, the College of Engineering, the

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

Below:
Katherine Tran,
past DEB student





CAREERS

Recent Graduates: CONGRATULATIONS!

During the 2016-2017 academic year there were 18 students who received their PhDs along with 9999a Designated Emphasis in Biotechnology. These exemplary students took the full DEB coursework, included the 3-6 months internship (DEB 282).

The Biotechnology Program is very proud of these students would like to recognize them in this magazine. They are:

Daniel Caddell - (PI: Pam Ronald) PhD in Plant Biology, now a Postdoc in the Coleman-Derr lab at UC Berkeley, CA.

Christopher Chapman - (PI: Erkin Seker) PhD in Biomedical Engineering, now a Research Associate in the Electrical Impedance Tomography Group at UCLA, CA.

Keith Dunaway – (PIs: Janine Lasalle/Ian Korf) PhD in Integrative Genetics & Genomics, now a Bioinformatician in the partner applications at Helix in Sacramento, CA.

Elizabeth Edmiston – (PI: Judy Van de Water) PhD in Immunology, now a Senior Associate at blueprint research group in Sacramento, CA.

Jonathan Flynn – (PI: Frank McNally) PhD in Biochemistry, Molecular, Cellular & Developmental Biology, now a Staff Scientist at Ariz Precision Medicine in San Diego, CA.

Jenna Gallegos – (PI: Alan Rose) PhD in Plant Biology, now a Postdoc Researcher in Fort Collins, Colorado.

Douglas Gettel – (PI: Atul Parikh) PhD in Chemical Engineering, now a Scientist, Fermentation/ Upstream Process Development at Sutro Biopharma, Inc, in Sacramento, CA.

Pui Yan Ho - (PI: Aiming Yu) PhD in Biochemistry, Molecular, Cellular & Developmental Biology, now a Postdoc Research Fellow at UC Davis' School of Medicine.

Stefanos Kalomoiris – (PI: Jan Nolta) PhD in Biochemistry, Molecular, Cellular & Developmental Biology, now in Commercial Regulatory Department at Genentech in South San Francisco.

Rosanna Kwok – (PI: Joanna Chiu) PhD in Entomology, now a Scientist at Fiveprime Therapeutics in South San Francisco, CA.

Debika Mitra – (PI: Kent Leach) PhD in Biomedical Engineering, now at Profusa as a Product and Regulatory Associate in South San Francisco, CA.

Angela Monterrubio – (PI: Veronica Martinez-Cerdeno) PhD in Biochemistry, Molecular, Cellular & Developmental Biology, just finished Internship at Genentech, South San Francisco in Regulatory Affairs.

Tin Ngo – (PIs: Elva Diaz/Kit Lam) PhD in Biochemistry, Molecular, Cellular & Developmental Biology, now a Scientist with Tecan in Mannedorf, ZH.

Gulustan Ozturk – (PI: Glenn Young) PhD in Food Science & Technology, now a Postdoc in Prof German and Prof. Juliana Bell's lab at UC Davis.

Johnpatrick Rogers – (PI: Sheila David) PhD in Chemistry, now a Postdoc at Johnson and Johnson (Janssen Pharmaceuticals) within the Cardiovascular & Metabolism Chemistry group, Spring House, PA.

Guy Shani – (PI: David Mills) PhD in Microbiology, now Adjunct Instructor at Sierra College, Sacramento, CA.

Anna Marie Tuazon – (PI: Luis Carvajal-Carmona) PhD in Biochemistry, Molecular, Cellular & Developmental Biology, now a Senior Regulatory Affairs Associate at Gilead in Foster City, CA.

Xiaochen (Ellie) Yin – (PI: Maria Marco) PhD in Food Science & Technology, now a Postdoc Research Scholar in Plant Pathology at UC Davis.

BIOTECHNOLOGY INTERNSHIPS (DEB 282)

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 academic 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 DEB 282 (formerly 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 DEB (formerly 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.

For more in depth information regarding what you must do for the internship, read the information under "Internship – Instructions for Students" on our [website](#).

We wish to thank all of our industry partners who offered internships for our DEB students. See where our students interned during the 2016-17 academic year:



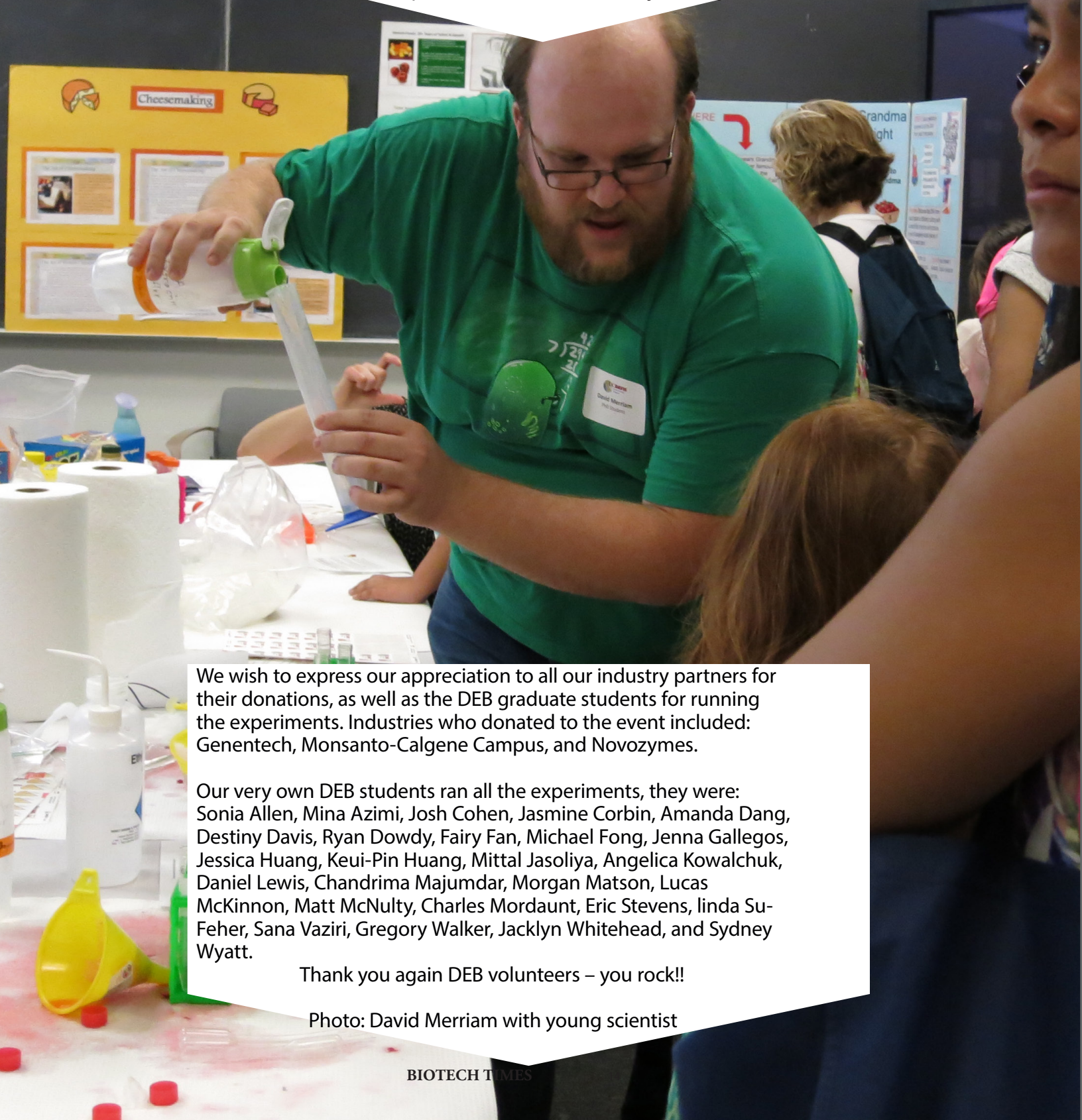


PHOTO: Dr. Chris Muriel (OncoMed), Dr. Gian Oddone (DEB Graudate, Marrone Bio Innovations)

Amyris Biotechnologies, Emeryville, CA – Amelia Manlove,
AstRoNa, Berkeley, CA – Marc Pollack
BASF, Tarrytown, NY – Scott Strobel
Bayer HealthCare, Berkeley, CA – Douglas Gettel
NIH Cancer Research, Bethesda, MD – Pui Yan Ho
Chr. Hansen, Hoersholm, Denmark – Xiaochen (Ellie) Yin
Desktop Genetics, London, UK – Keith Dunaway
Genentech, San Francisco, CA – Douglas Banda, Samantha Feng, Simon Lopez, Angela Monterrubio,
Juan Reyes, Kim Truong, Tiffany Tu
Gilead, Oceanside, CA – Nicole Nunez
GlaxoSmithKline, PA – Nicole Nozzi
HM Clause, Woodland, CA – Nicholas Thomas
IBM Almaden Research Center, San Jose, CA – Luiz Carlos Irber Jr., Samuel Westreich
Intrexon Corp, Davis, CA – Betsy Alford, Mark Lemos, Cintia Helena Duarte Sagawa, Yuxuan (Eric) Zheng
Lawrence Livermore National Laboratory, Livermore, CA – Maher Elsheikh
Monsanto, Woodland, CA – Jenna Gallegos
NASA Johnson Space Center, Houston, TX – Forrest Ryan Dowdy
Notable Labs, San Francisco, CA – Jordan Mancuso
OncoMed Pharmaceuticals, Sacramento CA – Malgorzata Liro
PinPoint Testing, Little Rock, AK – Karan Agrawal
REG Life Sciences, San Francisco – Shuchi Desai
Roche Molecular Diagnostics, Pleasanton, CA – Krishna Choudhary
Sac City College, Sacramento, CA – Andrew Burch
Starkey, Berkeley, CA – Britt Yazel
UC Davis Environmental Health & Safety – Brittany Anderson

BIOTECH EVENT AT PICNIC DAY

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: Sonia Allen, Mina Azimi, Josh Cohen, Jasmine Corbin, Amanda Dang, Destiny Davis, Ryan Dowdy, Fairy Fan, Michael Fong, Jenna Gallegos, Jessica Huang, Keui-Pin Huang, Mittal Jasoliya, Angelica Kowalchuk, Daniel Lewis, Chandrima Majumdar, Morgan Matson, Lucas McKinnon, Matt McNulty, Charles Mordaunt, Eric Stevens, Linda Su-Feher, Sana Vaziri, Gregory Walker, Jacklyn Whitehead, and Sydney Wyatt.

Thank you again DEB volunteers – you rock!!

Photo: David Merriam with young scientist

ACCOLADES

The **UC Davis Office of Research** has just published an article on our **Biotechnology Program**. We wish to thank AJ Cheline (Director of Marketing and Communications, Office of Research), Lisa Howard (Communication Specialist, Office of Research), and Amanda Dang (Biotech Fellow and DEB graduate student) for showcasing our department and our DEB (Designated Emphasis in Biotechnology) Program!

Other individuals who contributed and who we are grateful for their praise, are Dr. Eric Karrer, Director of Target Discovery at 23andMe; Sam Westreich, a DEB graduate student in the Genetics and Genomics Graduate Group; Ryan Dowdy, a DEB graduate student in the Department of Food Science and Technology; Dr. Debbie Yaver, Managing Director of Novozymes; and Dr. Kristen Beck, who received a Ph.D. in biochemistry and molecular biology and a recent DEB graduate.

The article can be found [HERE](#).

Jenna Harvestine (photo bottom right, credit AJ Cheline), a stellar biomedical engineering DEB graduate student in Prof. Kent Leach's lab has been featured on The Institute for Innovation and Entrepreneurship [website](#) showcasing her project in the Business Development Fellowship Program (also featured on their [Facebook page](#)).

Jenna's project uses precision medicine to fight cancer and to also improve patient care. As passionate as she is about her research, she is equally as passionate about helping others. If you've ever met Jenna, you quickly realize that she is very much a people person and is up for any challenge!

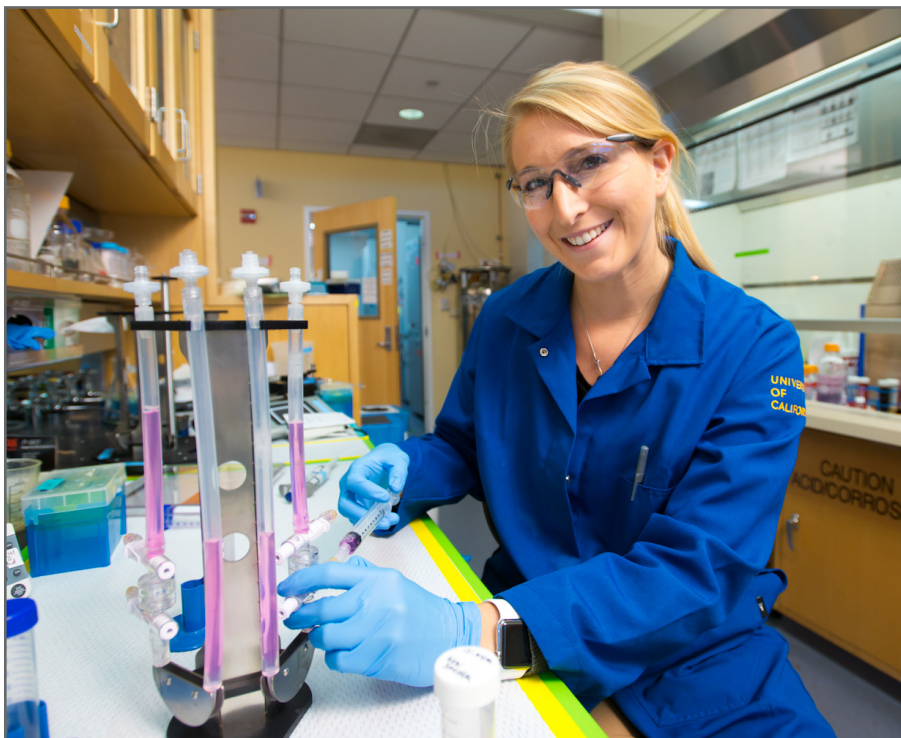
Jenna recently joined ARIZ Precision Medicine and will also be competing in the Big Bang! Business Competition with her new start-up along with her fel-

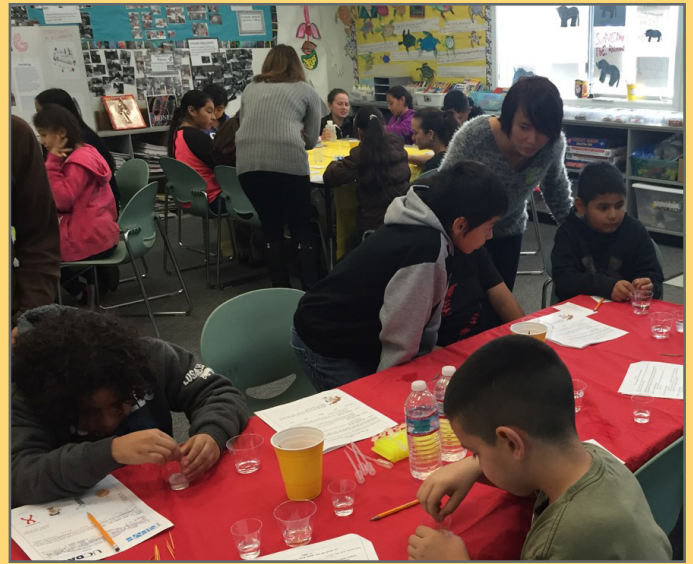
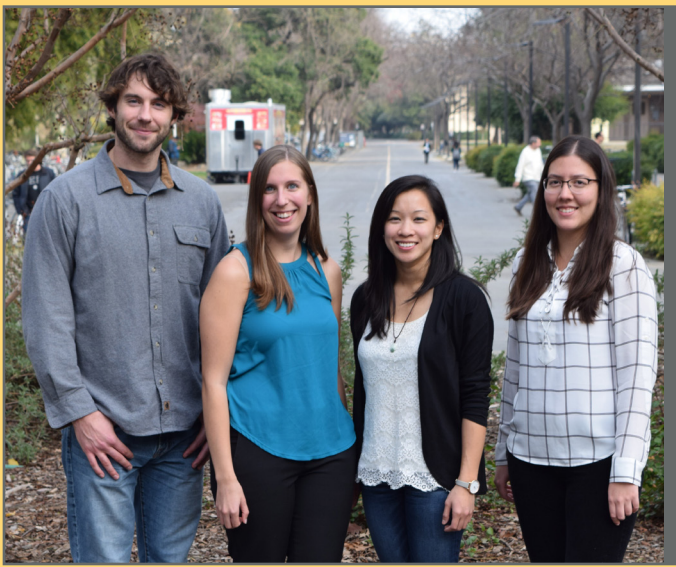
low co-founders, Anita Rajamani (DEB student) and Jennifer Price, who are also biomedical engineering PhD students.

Congratulations Jenna, we are very proud of you and all you've accomplished!

Dr. Judy Kjelstrom (pictured below left) may be retiring in June but that doesn't seem to slow her down! She now oversees a new course, "Biotechnology Industry Immersion" through the Graduate School of Management.

This course brings MBA students together with PhD students in STEM to analyze real case studies in biotechnology. The Graduate School of Management showcased Dr. Kjelstrom and her plans for the multidisciplinary course for which she secured speakers from leading experts from Genentech, Johnson & Johnson, IBM Research at Almaden, and others. Their short feature can be viewed [HERE](#).





ESTEME

Equity in Science, Technology, Engineering, Mathematics and Entrepreneurship (ESTEME)

Equity in Science, Technology, Engineering, Mathematics and Entrepreneurship (ESTEME) is a student-led initiative to promote equity, diversity, and inclusion in STEM, entrepreneurship, and leadership positions. Their mission is to eliminate social disparities in STEM professions by encouraging community engagement, empowering students, and generating critical conversation on diversity issues. Formed in 2013 as an outreach and training program by students with guidance from mentors in the Designated Emphasis in Biotechnology Program, ESTEME has since grown into a nonprofit organization with active members from a variety of graduate student groups at the University of California, Davis. Katie Beglinger, Linda Su-Feher, Matthew McNulty, Amanda Dang, and Jesse Lopez currently serve on the executive board.

Since its establishment, ESTEME has coordinated multiple community service events intended to encourage children and young adults from underserved communities to pursue careers in STEM. Past activities include S.T.E.A.M. Night at John Barrett Middle School and a campus tour for Holy Rosary Catholic School. ESTEME is also organizing science demonstrations and STEM career exposure days for students in a continuing partnership with Rominger Intermediate School in the Winters Unified School District.

This year, ESTEME began a new collaboration with the Graduate Diversity Orientation Program Extension (GDOPx) group to organize a new series of professional development workshops. In fall quarter, workshops addressed subjects such as imposter syndrome, microaggressions, and allyship. This winter quarter, workshops will focus on rethinking identity for inclusion and activism and building dialogue across divides. ESTEME will also present a special panel event, "Diversity in Industry with Genentech," on March 1st, 2018.

On April 20th, 2018, ESTEME will host its third annual Colloquium on Diversity and Innovation in STEM. The ESTEME Colloquium, which features speakers from both industry and academia, enables students to learn about the significance of diversity in different STEM professions through seminars, panel discussion, and networking opportunities. This year's keynote speaker is Dr. Anna Marie Tuazon, DEB alumni and Senior Regulatory Associate at Gilead Sciences.

For more information on ESTEME, how to become involved, and upcoming events, visit their [website](#).

LEFT Photo: ESTEME Leadership Team,

RIGHT Photo: ESTEME Outreach



DR. DENNEAL JAMISON-MCCLUNG

Associate Director,
Biotechnology Program

BIOTECH SYSTEM UPDATE

By Denneal Jamison-McClung, PhD

Once again, Biotech SYSTEM was able to engage hundreds of California K-14 students, teachers and community members in informal science learning thanks to the work of our program staff and the dedicated volunteerism of DEB students. Outreach activities in 2016-2017 included high school seminar days, e-mentoring, school science fairs, the Expanding Your Horizons regional career fair, the Teen Biotech Challenge web design competition and the CIRM SPARK summer research program in stem cell biology.

Teen Biotech Challenge 2017

In 2017, 254 Northern California students from 13 high schools registered to build 146 TBC websites, with 56 websites/86 students entered in the final judging round. At the TBC Awards Symposium, we celebrated contest winners, networked with biotech community professionals and educators, and enjoyed two short “STEM Talks” plant biology research presentations by Destiny Davis (DEB) and Dr. Jenna Gallegos (newly minted PhD and DEB alumna!). Heartfelt thanks to our Biotech Program staff, DEB volunteers (listed below) and TBC2017 community sponsors, Bayer CropScience and Novozymes, for making the contest possible!

TBC2017 First Place Websites

- Agricultural Biotechnology Winner – Ayushi Mittal & Sanika Walimbe, “Livestock Cloning: The Future of Agriculture” (Vista del Lago HS)
- Computational & Systems Biology Winner – Jenny Chen, “The Human Microbiome: The Trillions

of You” (Sheldon HS)

- Drug Discovery & Biomanufacturing Winner – Monserath Mendoza, “HIV in Biotechnology” (Sheldon HS)
- Environmental Biotechnology Winner – Reinier Bautista, “Bioplastics” (Sheldon HS)
- Nanobiotechnology Winner – Emily Tran, “Nanotechnology: The Small Additions to a Big Future” (Sheldon HS)
- Personal Genomics & Human Health Winners (TIE) – Jonathan Nguyen, “Impacting Reproduction through Biotechnology” (Sheldon HS) and Valerie Chu, “Inspecting Inheritance: Genetic Testing and Analysis” (Davis Senior HS)
- Regenerative Medicine Winner – Yasmine Mahmoudieh, “Stem Cell Therapy: The Future of Modern Medicine” (St. Francis HS)

TBC2017 Awards Presenters: Gerhard Bauer (UC Davis Institute for Regenerative Cures), Dr. Feng Xu (Novozymes), Caitlin Rippner, MS (Bayer CropScience), and Dr. Judy Kjelstrom (UC Davis Biotechnology Program).

TBC2017 Judges: Riley Allen, Betsy Alford, Krithi Bala, Katie Beglinger, Josh Cohen, Jasmine Corbin, Krishna Choudhary, Amanda Dang, Marcus Deloney, Jenna Harvestine, Jessica Huang, Mittal Jasoliya, Hyunsoo Jin, Nelson Johansen, Shannon Joslin, Angelica Kowalchuk, Mirko Ledda, Hannah Ledford, Morgan Matson, Laura Perilla, Anita Rajamani, Natasha Shroff, Eric Stevens, Linda Su-Feher, Sam Westreich, Jacklyn Whitehead, and Phoebe Yam.

TBC2017 Event Hosts: Katie Beglinger, Josh Cohen, Keui-Pin Huang, Chandrima Majumdar, Lauren Matelski, David Merriam, Debika Mitra, Leanna Monteleone, Nicole Nunez, SeHee Park, Anita Rajamani, Aarthi Sekar, Erik Stevens, Linda Su-Feher and Eric Zheng.

BIOTECH SYSTEM (CONT.)



Expanding Your Horizons
– October 2016

High School Seminars

We partner with regional high schools to ensure that secondary students have a good understanding of the “state of the art” of biotech research and related STEM career options, including the process of research and discovery as a PhD scientist. Visiting high schools receive an overview of the latest biotech research trends followed by short (~5 minute) “TEDtalk-style” vignettes highlighting ~3-4 DEB volunteers’ doctoral research projects. The students and teachers are always impressed and ask great questions.

In 2016-2017, well over 200 Northern California high school students participated in High School Seminars and learned about life as a PhD student from the following DEB volunteers: Josh Cohen, Jordan Mancuso, Lucas McKinnon, David Merriam, Debika Mitra, Aarthi Sekar, Allison Stevens, Eric Stevens, Rene Sulieman, Gregory Walker and Eric Zheng. Visiting high schools last year included: American Canyon HS, Antelope HS, Colusa HS, James Enochs HS (Modesto), Piner HS (Santa Rosa) and Sheldon HS (Elk Grove).

E-Mentoring, Science Fairs & Career Fairs

Role models have a big impact on young people, in terms of their ability to imagine themselves pursuing various career paths. In other words, “if you can see it, you can be it”. We are fortunate to have a wonderfully diverse and creative group of graduate students within the DEB. Through e-mentoring for high school biotech academies, and participation in science and career fairs, DEB students are providing role models and practical information on STEM careers to hundreds of students and teachers each year.

In 2016-2017, the Expanding Your Horizons (EYH) STEM career fair and workshop for middle school girls was held at Sacramento State University on Saturday, October 8th. Assisting our Powerhouse Science Center collaborator, Andrea Martin, with hands-on workshops were Amanda Dang, Alexandria Igwe, Beatriz Pereira, Yaxin Wang and Kay Watt. Managing the Biotech Career Booth were Morgan Matson, Nicole Nozzi, and Jamie Leah Randol.

Expanding Your Horizons – October 2016

BioTech SYSTEM supported eight-week high school biotechnology academy e-mentoring programs at

BioTech System (Cont.)

Maya Tureez, Shaniya Singh and Gerhard Bauer (CIRM-SPARK PI) at the Institute for Regenerative Cures



Sheldon HS (Elk Grove) and Vallejo HS in the spring of 2017. Thanks to Dr. Judy Kjelstrom and these DEB volunteers for sharing their knowledge of STEM career pathways to graduate school: Sonia (Reveco) Allen, Brian Avanzino, Doug Banda, Krishna Choudhary, Brittany Blankenship, Shea Feeney, Charles Mordaunt, Natasha Shroff, Eric Stevens, Sara Sukenik, Eric Walters and Sydney Wyatt. A new opportunity to mentor 8th grade girls at Twelve Bridges Middle School (Lincoln, CA) arose in fall 2016 and DEB volunteers included: Shea Feeney, Jenna Gallegos, Britta Heiss, Allison Hsia, Hyunsoo Jin, Shannon Joslin, Lauren Matelski, Debika Mitra, Leanna Monteleone, Jessica Moore, Anita Rajamani, Rebecka Sepela, Megan Showalter, Kim Truong, Marisol Wolf, Elyse Wudeck and Annabelle Yu. Finally, we participated in the Smythe Academy of Arts and Sciences community science night, hosting a strawberry DNA extraction thanks to Pamela Denish and Lucas McKinnon

CIRM-SPARK Research Scholar Awards

Experiential learning in a research environment is a rare and valuable opportunity for high school students. Through the work of UC Davis Professors Jan Nolte and Gerhard Bauer, ten Research Scholar Awards were made available to TBC2017 participants via a competitive application process:

- Tracy Ly, Sheldon High School
- Yasmine Mahmoudieh, St. Francis High School
- Monserath Mendoza, Sheldon High School
- Jonathan Nguyen, Sheldon High School
- Shaniya Singh, Sheldon High School
- Giselle Toscano, Sheldon High School
- Maya Tureez, Middle College High School
- Anh Vo, Woodland High School
- Sanika Walimbe, Vista Del Lago High School
- Saja Zidan, Natomas Pacific Pathways Prep High School

Research Scholar Awards are funded by the California Institute of Regenerative Medicine Summer Program to Accelerate Regenerative Medicine Knowledge (SPARK) and provide an eight-week summer research experience in laboratories at the UCDMC Institute for Regenerative Cures. In addition to laboratory work, SPARK Research Scholars visit UC Davis Health System clinics, participate in research group meetings, blog about their experiences and present their research via poster and oral presentations. The 2017 SPARK Conference was held at the City of Hope campus in Duarte, California and highlighted the research experiences of high school students from across the state, including six other participating institutions (California Institute of Technology, Cedars Sinai, Children's Hospital Oakland Research Institute (CHORI),

BioTech System (Cont.)

City of Hope, Stanford University School of Medicine and UC San Francisco). To read more about the experience through the eyes of participating students, check out the UC Davis CIRM SPARK [blogs](#).

Picnic Day & Hands-On Demonstrations

On Saturday, April 22, 2017, the Biotech Program and DEB volunteers turned out in force to teach basic biotech concepts to hundreds of community members, extract DNA from strawberries and conduct experiments with industrial biotech enzymes for cheesemaking and textile processing. DEB volunteers make Picnic Day possible! From pre-slicing and bagging strawberries, to media prep and hands-on teaching at the event, we could not have done it without: Sonia Allen, Mina Azimi, Josh Cohen, Jasmine Corbin, Amanda Dang, Destiny Davis, Ryan Dowdy, Fairy Fan, Michael Fong, Jenna Gallegos, Jessica Huang, Keui-Pin Huang, Mittal Jasoliya, Angelica Kowalchuk, Daniel Lewis, Chandrima Majumdar, Morgan Matson, Lucas McKinnon, Matt McNulty, Charles Mordaunt, Eric Stevens, Linda Su-Feher, Sana Vaziri, Gregory Walker, Jacklyn Whitehead and Sydney Wyatt.

Thanks again to all of our DEB volunteers! You are an inspiration to the hundreds of students, teachers and members of the general public that we reach each year through informal science education.

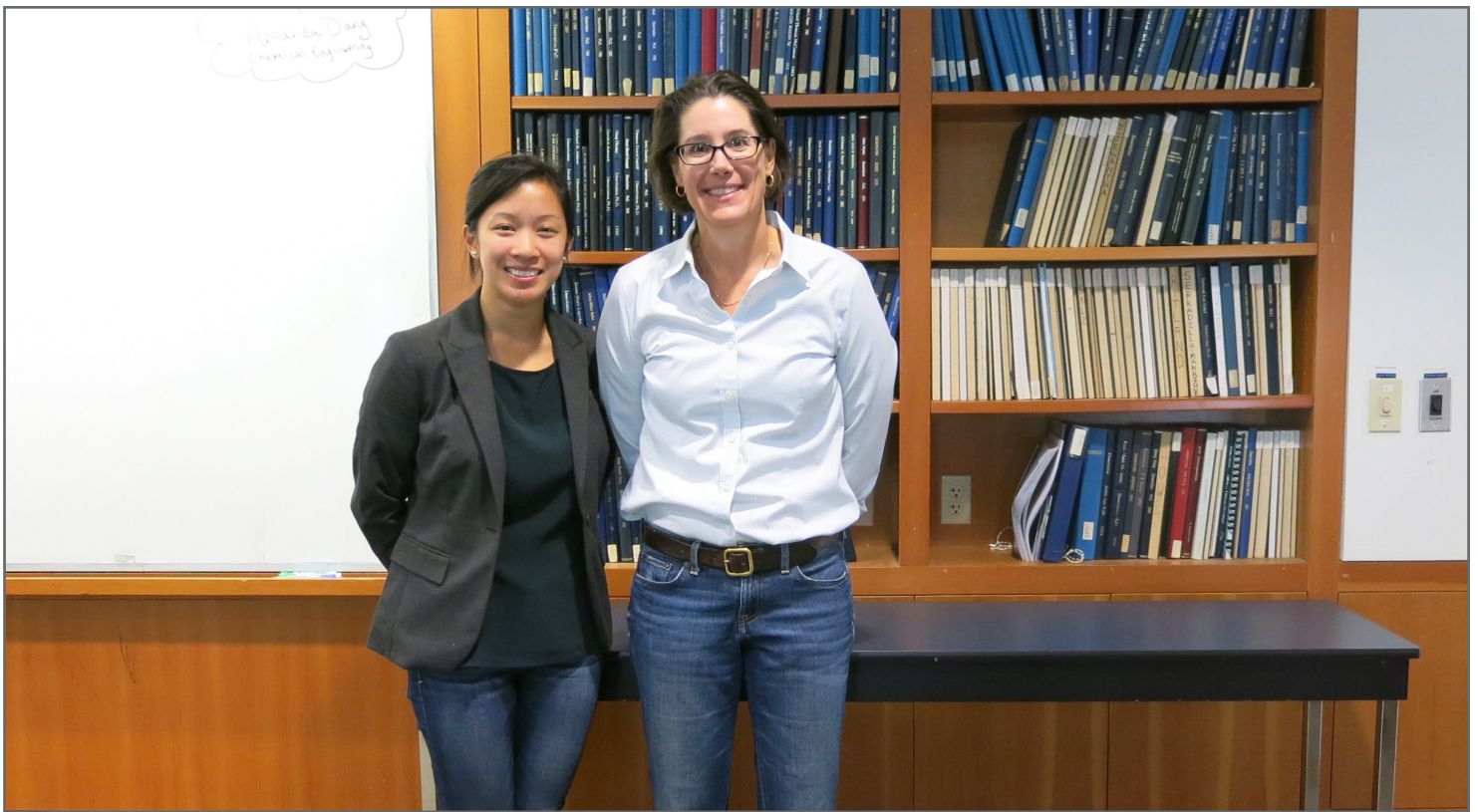
For more information on the BioTech SYSTEM, check out the latest happenings on our [website](#).



CIRM Clean Room

Picnic Day Event





PIZZA CHALK TALKS
ALL Chalk Talks Time: 12:15 - 1:00 pm in LS 1022

DATE	STUDENT NAME	FACULTY NAME	STUDENT GRAD GROUP
Monday, Oct. 16	Lauren Matelski	Judy Van de Water	Immunology
Monday, Oct. 23	Austin Carroll	Shota Atsumi	Chemistry
Monday, Oct. 30	Doug Banda Sheila	David	Chemistry
Monday, Nov. 6	Amanda Dang	Tonya Kuhl	Chem Engineering
Monday, Nov. 13	Josh Cohen	Daniela Barile	Food Science
Monday, Dec. 4	Betsy Alford	Doug Cook	Plant Pathology
		SPRING 2018	
Wed, April 4	Lucas McKinnon	Steven Theg	Plant Biology
Wed, April 18	Linda Su-Feher	Alex Nord	Biochem, Molecular, & Cellular Biology
Wed, April 25	Amir Bolandparvaz	Jamal Lewis	Biomedical Engineering
Wed, May 2	Javier Garcia	Angela Gelli	Biochem, Molecular, & Cellular Biology
Wed, May 16	David Silberstein	Karen McDonald	Chemical Engineering

Top Photo: Amanda Dang w/ Prof. Tonya Kuhl

DEB/ECH 294 WINTER FRIDAY SEMINARS SCHEDULE

Seminars are open to the public

11:00 AM 1022 LS	Organizational Meeting Dr. Judy Kjelstrom (Biotechnology Program Director and DEB Program Coordinator), Prof. Karen McDonald (ECH) and Prof. Ray Rodriguez (MCB) - Instructors	January 12
11:00 AM 1022 LS	Bio-Based Fuels & Chemicals: Technology Development and Commercialization at JBEI (Joint BioEnergy Institute) Peter Matlock, PhD Director, Technology Commercialization JBEI: Joint BioEnergy Institute, Emeryville	January 19
11:00 AM 1022 LS	Converging trends in healthcare: Cross-sector skills for a changing marketplace Todd Meyerrose, PhD (UCD Alum) Vice President P4G Capital, San Francisco	January 26
11:00 AM 1022 LS	Next Generation Therapeutics: Designing in CQAs Vally Kommineni, PhD Senior Scientist iBio CMO, Bryan TX	February 2
11:00 AM 1022 LS	Antimicrobial Proteins Made in Plants as Novel Food Safety Interventions Daniel Tusé, PhD Owner and Managing Director DT/Consulting Group, Sacramento	February 9
11:00 AM 1022 LS	Advanced Microbial Selection (AMS): a unique discovery strategy for microbes that improve plant health and productivity Susan Turner, PhD Senior Vice President, Research & Discovery BioConsortia, Inc., Davis	February 16
11:00 AM 1022 LS	Title: TBA Alan Perlstein, PhD CEO MiracleX, Inc., San Francisco Bay Area	February 23
11:00 AM 1022 LS	Title: TBA Olga Botvinnik, PhD Bioinformatics Data Scientist Chan Zuckerberg Biohub, San Francisco Bay Area	March 2
11:00 AM 1022 LS	Protein-based Drug Discovery and Development at NGM Biopharmaceuticals Shelley Starck, PhD Senior Scientist NGM Biopharmaceuticals, San Francisco Bay Area	March 9
11:00 AM 1022 LS	Applying your PhD to Life Science Consulting Garrick Yuen, PhD (DEB Alum) Senior Associate BluePrint Research Group, SF Bay Area	March 16

Sponsored by BMCDB Grad Group

MIC 292 SCHEDULE

“From Discovery to Product: An Introduction to Biotechnology at the Industrial Level”

Section 002- CRN # 63229 (1 unit)

Winter Quarter 2018 (MONDAYS: 12:10-1 PM in LS 1022)

Instructor of Record:
Judith A. Kjelstrom, PhD (microbiology)
Director
Biotechnology Program
(530) 752-8228

Lead Instructor:
Debbie S. Yaver, PhD (Microbiology)
Managing Director
Novozymes, Inc

This course is designed to provide a unique opportunity to gain insight into basic and applied biotechnology at the industrial level. A Tour of the research facilities will be arranged in March. Lectures will be presented by senior scientists/engineers from [Novozymes, Inc.](#) in Davis California. Appropriate for graduate students in all areas of biology, engineering and agriculture, especially those in the [Designated Emphasis in Biotechnology Program](#). This course is an approved seminar elective for the DEB program.

**SCHEDULED TOUR IN EARLY MARCH
REPORTS ARE DUE BY 5PM ON FRIDAY, MARCH 23, 2018**

12:10-1:00 PM 1022 Life Sciences	<i>Organizational Meeting: Course Overview and Scientific Foundations of Industrial Enzymes (Kjelstrom, Yaver)</i>	Jan 8, 2018
	Holiday No class	Jan 15, 2018
12:10- 1:00 PM 1022 Life Sciences	<i>Discovery of enzymes from nature and improvement of enzymes by protein engineering (Aubrey Jones, Scientist)</i>	Jan 22, 2018
12:10- 1:00 PM 1022 Life Sciences	<i>Bacillus Expression Hosts (Bill Widner, PhD, Staff Scientist)</i>	Jan 29, 2018
12:10- 1:00 PM 1022 Life Sciences	<i>Fungal Expression Hosts and Yield Improvement (Sandy Merino, PhD., Staff Scientist)</i>	Feb 5, 2018
12:10- 1:00 PM 1022 Life Sciences	<i>Development of Bioprocessing Procedures (Audrey Diano, PhD, Group Leader)</i>	Feb 12, 2018
	Holiday No class	Feb 19, 2018
12:10- 1:00 PM 197 Briggs Hall	<i>Enzymology & Application Chemistry of Bioengineered Enzymes (Brian Scott, PhD, Research Manager)</i>	Feb 26, 2018
12:10- 1:00 PM 1022 Life Sciences	<i>Phylogenomics and synthetic biology as discovery tools in bioenergy and agricultural applications (Paul Harris, PhD, Senior Staff Scientist)</i>	March 5, 2018
12:10-1:00 PM 1022 Life Sciences Evaluations due	<i>Production of chemicals by microorganisms i.e. metabolic engineering (Steve Brown, PhD, Senior Staff Scientist)</i>	March 12, 2018
12:10-1:00 PM 1022 Life Sciences	<i>The Business of Enzyme Production & Future Developments (Debbie Yaver, PhD, Director)</i>	March 19, 2018

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/): <http://biotech.ucdavis.edu/>

DEB [Website](http://deb.ucdavis.edu/): <http://deb.ucdavis.edu/>

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

Teen Biotech Challenge [Website](http://teenbiotechchallenge.ucdavis.edu/): <http://teenbiotechchallenge.ucdavis.edu/>

BioTech SYSTEM [Website](http://biotechsystem.ucdavis.edu/): <http://biotechsystem.ucdavis.edu/>





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