

BiotechTimes

Marianne Hunter, Editor

FEATURES:

- Meet Biotech Program's Director, Dr. Jamison-McClung
- Internships
- Congrats DEB Graduates

The Biotechnology Program's Annual Magazine



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Biotech Times Magazine

2017 - 2019

Due to the change in leadership and resulting reorganization of the Biotechnology Program over the past year, this magazine includes statistics from both the 2017-18 and 2018-19 academic years. We are very pleased to announce that Dr. Jamison-McClung has accepted the permanent position as Director of the Biotechnology Program.

Messages from both the past (Dr. Judy Kjelstrom) and present director (Dr. Jamison-McClung) are included in this magazine.

SPECIAL ANNOUNCEMENT

If you are a current DEB student and would like to have a photo shoot session in your lab, you may request an appointment. Please **email Marianne Hunter** along with permission from your PI and the names of any DEB students who will be wanting their photos taken.

On the cover: "Beatriz Pereira, Nkechinyere Chidi-Ogbolu, Takeyah Campbell

Dear Biotech Community,

As newly appointed Biotechnology Program director, I am pleased to work with our amazing team,



including Marianne Hunter, Jacki Balderama and Kelly Meade, to share the biotech news, accolades, milestones and memories found within these pages. It has been a busy couple of years, as we have pursued large extramural

awards, maintained and expanded our educational offerings and completed a leadership transition. In this issue of the Biotech Magazine, you'll find a heartfelt message from our recently retired director emerita, Dr. Judy Kjelstrom, in addition to updates on current DEB doctoral students, industry internships and recent graduates. We also extend our thanks to the many DEB volunteers who have helped us increase public science literacy and inspire K-12 students along the STEM pipeline in our region.



Dr. Jamison McClung and Yaxin Wang



Dr. Jamison McClung and Dr. Judy Kjelstrom

As director, I am looking forward to continuing our longstanding relationships with biotech industry partners, campus colleagues and DEB faculty to develop strategic training opportunities for DEB graduates, ensuring their readiness for a broad range of professional STEM careers and boosting the entrepreneurial mindset that leads to innovations. One of our newest training efforts is the Biotech Leaders Advancing STEM Technologies (BLAST) program, which will extend professional development activities in social entrepreneurship, science policy and communication, and inclusive team science to DEB students, as well as inviting participation by early career scientists in affiliated campus labs.

Over the last few years, I've had the chance to work with many outstanding DEB faculty in pursuit of federal training grants to support biotechnology graduate education. The Biotech Program welcomes collaborators in this area, as we continue our relentless pursuit of graduate student support. We are also partnering with campus colleagues to increase the number of international internship experiences available to DEB trainees (see UCD article [HERE](#)).

DIRECTOR'S MESSAGE



developing new technical workshops to accelerate their research. If opportunities to collaborate appear, please don't hesitate to reach out. I'm looking forward to working with many of you in the coming year!

Warm regards,

Dr. Denneal Jamison-McClung
dsjamison@ucdavis.edu

DEB STUDENT ACCOLADES

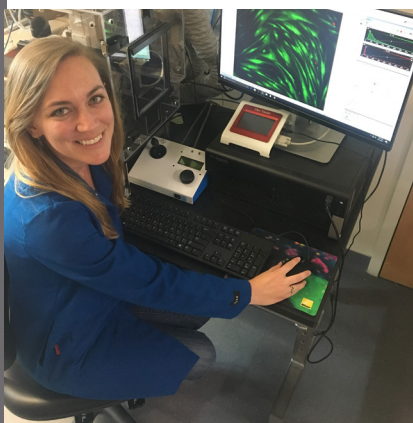
Four of five students selected as 2018 Anpac Bio-Medical Innovation & Entrepreneurship Scholars (ABIES) are DEB students and will attend the prestigious University of California Entrepreneurship Academy. These five ABIES were selected annually from among dozens of California graduates/undergraduates, postdoctoral research fellows, and life-sciences and/or biomedical engineering faculty to receive the Anpac Bio Scholar fellowship and attend the UC Entrepreneurship Academy - considered on of the UC's premier programs for commercializing science and engineering innovations. Congratulations DEB students/alum **Amir Bolandparvaz** (Biomedical Engineering in Jamal Lewis lab), **Adam Contreras** (Post doc-scholar in the Institute for Regenerative Cures), **Alireza Tafazzol** (Biomedical Engineering in Yong Duan lab), and **Marwa Zafarullah** (Integrative Genetics & Genomics in Flora Tassone lab).



Eric Stevens was awarded a NSF Graduate Research Fellowship. Eric is in the microbiology graduate group in Maria Marco's lab and will receive three years of support during a five-year fellowship period which includes a \$34,000 stipend and cost of education allowance of \$12,000 towards fees.



Congratulations to **Matt McNulty** for being awarded 2018 NASA Space Technology Research Fellowship. Matt's project title is "Biologically-derived Immunosorbent Nanoparticles for Deep Space Pharmacological Life Support Systems". He will receive \$75,000 in funding per year; 1 year award renewable up to 4 years which includes student stipend, tuition, faculty advisor allowance, and yearly visiting technologist experience to spend approximately 10 works working at a NASA center/R&D lab.



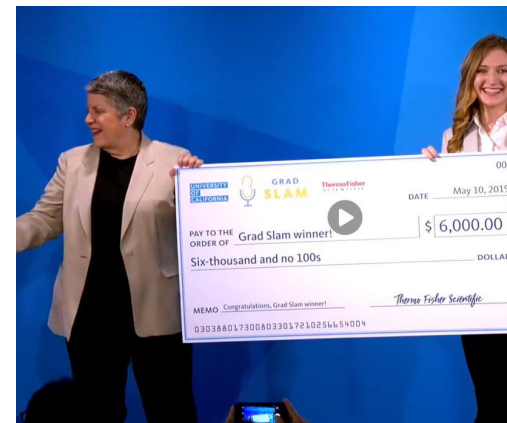
Jacklyn Whitehead was recently awarded an ARCS fellowship and a UC Davis Health Science Communication Fellowship. The ARC foundation is the Achievement Reward for College Scientists foundation.

DEB STUDENT ACCOLADES

Marwa Zafarullah was selected for the UC Davis competitive and prestigious Keller Pathway Fellowship. She is also listed on page 4 as one of the 2018 ABIES! Well done Marwa!

Erin Doherty received a NIH T32 Chemical Biology Training Program Fellowship

Katie Murphy (aka "The Corn Queen") - was named UC Davis Grad Slam champion in the 2019 UC Davis Grad Slam oratory competition. Her three-minute presentation was on "Call the Plant Doctor" and she received \$2,500 in prize money. With her victory, came the chance to present at the May 10th UC Systemwide Grad Slam event where she competed with other 1st Place Winners from UC campuses. Katie's three-minute presentation this time was on "Feeling sick: how corn makes its own medicine" where she again took 1st and received an additional \$5,000 in prize money. Katie is in the Plant Biology graduate group in Philipp Zerbe's lab which is where she received the moniker of "The Corn Queen" which seems very appropriate! Congratulations Katie!



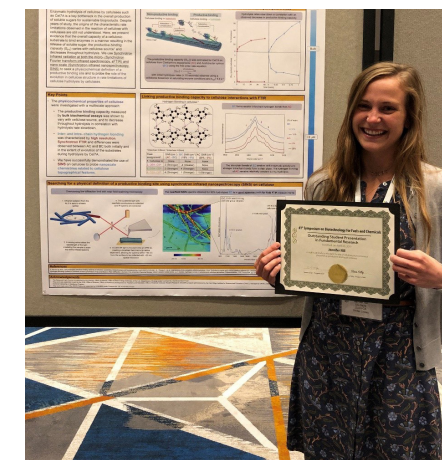
Katie's other accolades have included being inducted as a Leader for the Future, a Spring 2019 IIFH (Innovation Institute for Food & Health) Innovator Fellow award, the Dean's Mentorship Award, The Eric Conn Biochemistry Award, the iBiology Young Scientist Seminars Competition, winner and the Stocking Fellowship.



Noah Pacifici received a NSF Graduate Research Fellowship. Noah is in the Biomedical Engineering graduate group in Jamal Lewis' lab.



Jennifer Nill in Tina Jeoh's lab, and in the Biological and Agricultural Engineering graduate group, was awarded Outstanding Student Presentation in Fundamental Research. Her research was on a multi-scale study to elucidate the role of cellulose physicochemical properties in productive binding of cellulases.



DR. KJELSTROM

It's time to say farewell to my Biotech Family. As many of you know, I retired on July 1, 2018 after close to 20 years of service to the UC Davis Biotechnology Program. As Dickens stated in the opening page of a Tale of Two Cities, "It was the best of times; It was the worst of times." This is a bittersweet moment in my life. I have spent close to half of my life (32 years) affiliated with UC Davis, so it is difficult to retire. I am an Aggie through and through ... I bleed Blue and Gold! I loved serving as director, but it is time for another reinvention. I was delighted to be approved for emerita status by the Chancellor this summer, so I can stay connected to campus.

I am one lucky woman to have been surrounded by so many wonderful students, academic colleagues, industry partners and



community leaders. As Simon Sinek says "Together is Better". We should all celebrate that visionary, smart, passionate and compassionate people, working across disciplines were able to create transformational change in science education, training and research and equity in leadership and entrepreneurship.

I want to give my heartfelt thanks to the Office of Research for hosting a wonderful retirement celebration on June 8th. I want to give a big shout out to Nancy Bulger, Christine Parks, and Allison Chilcott for leading the effort, as well as our Biotech Team. There were close to 100 people in



attendance. The group picture includes family, administrators, faculty, staff, biotech industry leaders, community leaders and current and past students.

Here is a little history of my nonlinear professional journey. In 1973, I started in the Department of Pathology & Laboratory Medicine at UC Davis Medical Center as a Medical Technologist intern. I was immediately hired as a Chemistry Specialist at the end of the year-long training and board certification. After a couple of military tours in Hawaii and Illinois, we returned to Sacramento in 1985. During our time in Illinois, I worked as the assistant supervisor

of the Microbiology section of the clinical laboratory at Memorial Hospital in Belleville. In 1986, the age of 36, I pursued a PhD in Microbiology in Dr. Blaine Beaman's lab. I studied host-pathogen interactions with the soil bacteria, *Nocardia asteroides* and its possible association with Parkinson's Disease. After graduation, I spent five years teaching in regional community colleges and Sacramento State before returning to UC Davis in 1998 as a BIS 1A (now BIS 2A) lecturer for 500 undergraduates, then I found my "forever home" in the Biotechnology Program in 1999. As you can see, I like to reinvent myself.

RETIRED BIOTECH PROGRAM DIRECTOR



I owe Dr. Martina Newell McGloughlin so much. She recruited me to go on Mr. Toad's Wild Ride in the Biotechnology Program. It has been crazy at times, but never boring!! After all these years, I look back with great pride and gratitude for dear colleagues and students, who believed in our mission to promote public-private partnerships. I want to acknowledge our stellar Biotech Team -

Marianne, Denneal, Jacki, Lorella and Kelly for their dedicated service. I know they will maintain our excellent programs.

In addition to our current Biotech Team, I want to acknowledge past members, who were instrumental in creating this successful program - Gussie Curran, Cathy Miller, Carey Kopay Gardner, Julia Munsch and others. I am adding Dean Bunn to this group since he helped us so much with our IT issues, when he worked in the CBS dean's office.

A very special thanks goes out to Profs. Abhaya Dandekar, Karen McDonald, Ray Rodriguez and John Yoder... they are tireless faculty advocates and serve in critical positions.... chairing committees, directing training grants, instructing DEB courses, and "duties as assigned". They are more than professional colleagues.... they are dear friends.

I can hardly believe that the Biotechnology Program is 32 years old and the DEB graduate program just celebrated its 20th anniversary last year. This is a testament to visionary leadership at UC Davis. We have

achieved so much in the area graduate education which links the university to the biotechnology industry - the DEB, the ADP, the NIH T32 Biotech Training Program and Summer Short Courses.

I owe a big debt of thanks to our industry partners. We could not do what we do without them, they offer internships and careers for our students, participate in the ADP, present seminars, sponsor our outreach activities and serve on executive committees and program reviews.

I also appreciate our friends, working in the business side of campus: the GSM leadership team including the Institute of Innovation and Entrepreneurship, Venture Catalyst and Innovation Access. I am so honored to be asked to teach the Biotechnology Industry Immersion course at the GSM in the winter quarter. Bringing MBA students together with PhD students in STEM is a dream come true.

My colleagues surprised me in June by nominated me for the prestigious James H. Meyer Distinguished Achievement Award. Being selected is the "icing on the cake" as I transition to emerita status. I am truly humbled by their accolades.



DR. KJELSTROM/LUCAS MCKINNON

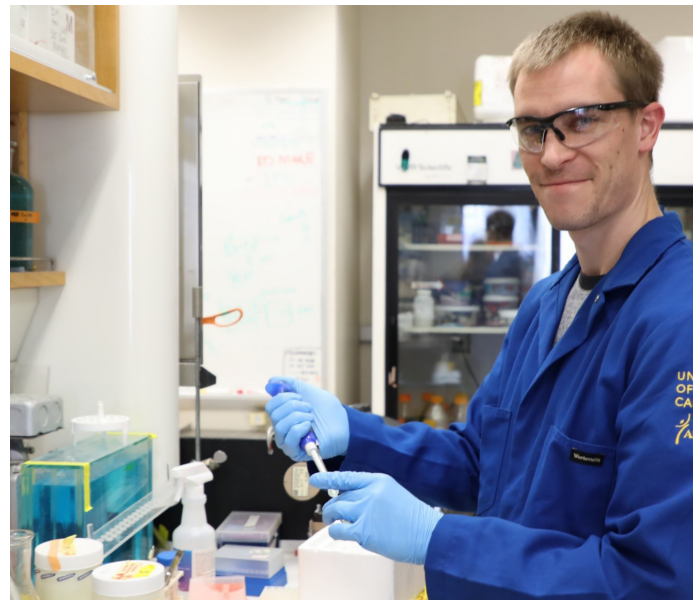
In closing, this is where my life has arrived. I look back with pride and joy. I gave the Biotechnology Program my very best effort..... I am closing this chapter of my professional career, but the Best is Yet to Come! Thank you being part of my life's journey.... Please Pay it Forward with CPC.

I am still in a GROWTH MINDSET and am looking forward to new adventures, in addition to expanding my involvement in others, they are:

- 1) Caring for our first grandchild, Tristan (born on June 7th, 2018)
- 2) Working diligently to open the doors of the Powerhouse Science Center on the Sacramento Riverfront in 2020
- 3) Continuing to promote equity in leadership through the new WomenUP Network and Leadership California (to move women from success to significance.) as well as innovation in the Region
- 4) Increased Service to my Rotary Club of Sacramento
- 5) Walking more Komen 3Day 60-mile walks for Cancer.....I will walking my 4th one on Nov 16th.
- 6) Staying involved with the campus through the emeriti association.

All my best,

“Dr. Judy”



LUCAS MCKINNON - THEG LAB PHOTO SHOOT

TheUCDavisDesignatedEmphasisinBiotechnology (DEB) program would like to thank DEB student Lucas McKinnon (Plant Biology graduate group) and his DEB mentor, Professor Steven Theg, for graciously agreeing to a photo shoot in their lab. See below for a description of Lucas' current research project.

“My research has been focused on understanding the function of disulfide bonds in proteins in a particular sub-compartment of chloroplasts called the thylakoid lumen which is the site of oxygen evolution during photosynthesis. Classically, disulfide bonds have been viewed as stabilizing the structure of proteins amidst changes in their molecular environment and hence are quite common in extracellular proteins. Disulfide bonds are also known to allosterically regulate the activity of enzymes or can be directly involved in the catalytic mechanism of an enzyme. A significant proportion of the proteins found in the thylakoid lumen possess disulfide bonds, but the specific role of these bonds is in most cases unknown. Furthermore, these disulfide bonds are in some cases found in homologous proteins across all known oxygenic photosynthetic organisms and are in other cases restricted to more specific groups of photosynthetic organisms. I have studied a specific thylakoid protein to (1) Understand the function of

ANITA RAJAMANI

its disulfide bond and (2) Gain some insight into why there is variability in the conservation of disulfide bonds in this compartment of chloroplasts.

When I am not doing research, I enjoy spending time with my wife and two young kids, hiking, watching movies, and playing guitar.”



ANITA RAJAMANI

Thank you Prof. Passerini and Anita Rajamani for allowing a photo shoot in their lab. Anita's bio/research is below.

“I am a biomedical engineering PhD candidate in Passerini lab. My research is in the interface of nutrition, lipid metabolism and vascular inflammation. Cardiovascular diseases are the leading cause of death and disability worldwide. Systematic mechanistic studies can identify novel therapeutic targets or biomarkers that can help reduce the incidence of cardiovascular diseases. My research has identified key types of fat and fat metabolites in circulating dietary lipoproteins that differentiates individuals' likelihood to develop atherosclerosis. Further, I investigate the mechanistic pathways that connect fat metabolism to endothelial inflammation. The interdisciplinary nature of this project yielded in collaboration with the nutrition and biochemistry labs and aided in combining metabolomics and bio-engineering approaches to solve the problem. The support of my lab members, undergraduate researchers and collaborators has made it possible to tackle such multifaceted complex problems.”

PICNIC DAY

by Dr. Denneal Jamison-McClung

Each spring you can find the Biotech Program in 148 Briggs Hall, Picnic Day home of strawberry DNA extraction, enzyme experiments, micropipetting practice and lots of fun. DEB volunteers sign up to help with reagent prep or conducting hands-on activities with hundreds of campus guests at the event. For Picnic Day 2018 and Picnic Day 2019, we had a great volunteer turn-out, including:

Krithi Bala (2018), Nitin Sai Beesabathuni (2019), Akhila Bettadapur (2018), Glory Bui (2019), Jasmine Corbin (ESTEME “Future Scientist” photo booth 2018), Elli Cryan (2019), Nicholas Ellinwood (2018), Michael Fong (2018), Sukriti Gakhar (2018), Deepshika Gilbale (2018 and 2019), Mona Gouran (2019), Naomi Hamada (2019), Shawn Higdon (2018), Tiffany Hong (2018), J e s s i c a Huang (2018), Kuei-Pin Huang (2018), Prema Karunanithi (2018), Hwoi Chan Kwon (2019), Hannah Ledford (2018), Sharon Lee (2018 and 2019) (See next page for more volunteers)



Picnic Day (Cont.)



Riyao Li (2018 and 2019), Jonathan Lin (2019), Yixing Lu (2018), Korn Macharoen (2019), Lucas McKinnon (2018 and 2019), Matt McNulty (ESTEME "Future Scientist" photo booth 2018), Leanna Monteleone (2018 and 2019), Charles Mordaut (2018), SeHee Park (2018), Beatriz Pereira (2018 and 2019), Laura Margarita Perilla Henao (2018), Kevin Pham (2019), Anita Rajamani (2018), Guy Robinson (2019), Noah Siegel (2019), Sara Sukenik (2018), Gregory Walker (2018), Phoebe Yam (2019), and Tiffany Zhang (2018).



HIGH SCHOOL E-MENTORING

By Dr. Denneal Jamison-McClung

Through our BioTech SYSTEM K-14 STEM outreach consortium, we partner with regional high school biotechnology academies as advisory board members and for enrichment activities. A great way for DEB students to develop mentoring skills and share their hard-earned wisdom with high school mentees interested in STEM careers is via eight-week e-mentoring programs.

Mentors during winter quarter 2018 and 2019 included: Riley Allen, Sonia Allen, Sima Asadi, Glory Bui, Takeyah Campbell, Adam Contreras, Marcus Deloney, Shea Feeney, Deepshika Gilbile, Jake Gonzales, Eduardo Gonzalez, Noah Goshi,

Top photo: Leanna Monteleone
Bottom photo: Future Scientists
Right photo: Juan Reyes and his e-mentor

Naomi Hamada, Shawn Higdon, Allison Hsia, Jessica Huang, Ryan Kawakita, Hyunsoo Gloria Kim, Sharon Lee, Kasey Markel, Lucas McKinnon, Jessica Mizzi, Alan Nguyen, Beatriz Pereira, Peter Sariano, David Silberstein, Sara Sukenik, Rene Suleiman, Tina Truong, Sydney Wyatt, Phoebe Yam and Kelly Zacanti.



ELEMENTARY SCHOOL STEM FAIRS

Several community-minded DEB students volunteered to participate at school site STEM fairs, including the 2018 Peregrine School Women in Science Educational Fair in Davis (Hannah Ledford, Lauren Matelski and Leanna Monteleone), as well as leading hands-on experiments at both the 2019 and 2019 Smythe Academy of Arts and Sciences Community Science Night in Sacramento (Rachel Danielson, Hyunsoo Kim, Jonathan Lin, Fernanda Nakamura [non-DEB guest] Jordan Sayre and Alonna Wright). We appreciate the extra effort these volunteers made to engage with community members at off-campus locations and to bring their love of science to very young students who are just starting their educational journeys.

2017-19 DEB Volunteers for Public and K-14 STEM Outreach

Expanding Your Horizons 2017 and 2018

On an October Saturday each fall, we participate in the Expanding Your Horizons event held at Sacramento State University and sponsored by the Women of AT&T. The event is a one-day math and science conference aimed at 6th-8th grade girls. In 2017, DEB volunteers help collaborators from the Powerhouse Science Center host hands-on workshops. In both 2017 and 2018, our team interacted with ~200-300 girls via demos and Q/A at the biotech career booth.



Jessica, Allison and Leanna set up the biotech booth & demos

2017-2018 DEB Volunteers:
Allison Hsia, Jessica Huang, Hyunsoo Jin, Jessica Mizzi, Leanna Monteleone and Xiaoxiao Yang

2018-2019 DEB Volunteers:
Glory Bui, Claire Depew, Jessica Huang and Agya Karki.



Claire, Glory, Jessica

Teen Biotech Challenge 2018 and 2019

The Teen Biotech Challenge is a website design competition that reaches ~300 California high school students each year. After a round of school site judging, teachers submit their top entries for final judging... and we could not provide this opportunity without the commitment of DEB volunteers who serve as contest judges and awards event volunteers!

Helping out in 2018 and/or 2019 as TBC Website Judges were: Nitin Sai Beesabathuni, Glory Bui, Laney Casella, Angel Cobo, Jasmine Corbin, Marcus Deloney, Pam Denish, Deepshika Gilbile, Shawn Higdon, Jessica Huang, Ryan Kawakita, Hyunsoo Gloria Kim, Hannah Ledford, Sharon Lee, Jonathan Lin, Rachel Lombardi, Yixing Lu, Shiaki Minami, Jessica Mizzi, Laura Margarita Perilla Henao, Jamie Randol, Gabrielle Rossidivito, Eric Stevens, Sara Sukenik, Tina Truong, Lei Wei, Alonna Wright, Mary Xiong, Phoebe Yam, Bianca Yaghoobi, Cody Yothers and Tiffany Zhang.



Agya explaining basic biotech concepts

TEEN BIOTECH CHALLENGE (CONT.)

TBC Event help in 2018 and/or 2019 by the following individuals was greatly appreciated: Dera Alim, Rigoberto Arenas, Zach Bendiks, Hannah Brinkman, Tawni Bull, Glory Bui, Angel Cobo, Jasmine Corbin, Shiva Emami, Sukriti Gakhar, Anirudh Gaur, Agya Karki, Sharon Lee, Liz Lotsof, Kevin Pham, Jamie Randol, Gabrielle Rossidivito and Bianca Yaghoobi.

Special thanks to Amir Bolandparvaz (2018), Hannah Brinkman (2019) and Angel Cobo (2019) for giving STEM-Talk Keynotes at the TBC Awards Reception.

Last but not least, we could not put on the awards event or provide prizes for student contest winners without the on-going support of our biotech industry partners. Over the past two years, Novozymes, Inc., has been the primary TBC sponsor, with additional contributions by the UC Davis Innovation Institute for Food and Health, Valore Books and the UC Davis Biotechnology Program.



Sincere thanks to all of our DEB volunteers! In addition to building professional skills in project management, science communication and mentoring, their community service via BioTech SYSTEM K-14 outreach activities supports the STEM educational pipeline in our region and the California bioeconomy.

Top photo: Dr. Denneal Jamison-McClung addressing TBC contestants and audience
Bottom photo: TBC Winning students



28th ANNUAL BIOTECH TRAINING RETREAT

The UC Davis Biotechnology Program held their 28th annual Biotechnology Training Retreat on a Saturday and would like to thank all who attended and shared their presentations and posters with us! Despite the slightly rainy weather, the retreat was a huge success focused on students presenting 10 minute STEM talks about their research and many others presenting their biotech-related research posters. Our Director, Dr. Denneal Jamison-McClung, led a bioethics discussion with the topic, "Human Genome Editing Has Arrived".



Best TED Talks & Biotech Poster Awardees

DEB Speakers Included:

Katie Beglinger (Mentor: Chris Fraser)
Noah Goshi, 2018-19 Biotech Fellow (Mentor: Erkin Seker)
Dan Lewis (Mentor: Cheemeng Tan)
Maika Malig (Mentor: Frédéric Chédin)
Morgan Matson (Mentor: Shota Atsumi)
Matt McNulty (Mentor: Karen McDonald)
Anita Rajamani (Mentor: Anthony Passerini)
Linda Su-Feher (Mentor: Alexander Nord)
Jackie Whitehead (Mentor: Kent Leach)
Mary Xiong (Mentor: Karen McDonald)

Special Welcome Message was from Dr. Prasant Mohapatra (Vice Chancellor of Research in the Office of Research) and the **Ethics Discussion** was led by Dr. Denneal Jamison-McClung (Director Biotechnology Program).

Poster Sessions included 22 posters from DEB students, invited students and post-docs from the campus.

Winners of the Biotechnology STEM Talks (some are on the [Biotech Program's YouTube Channel](#)) and **Poster Sessions** were:

1st Place STEM Talk – Morgan Matson (Chemistry, PI: Shota Atsumi), "Developing of a plant alkaloid in a microbial host"

2nd Place Tie STEM Talk – Anita Rajamani (Biomedical Engineering, PI: Anthony Passerini), "Dietary lipoprotein composition modulates endothelial expression of VCAM-1, an early marker of atherosclerosis"

2nd Place Tie STEM Talk – Jackie Whitehead (Biomedical Engineering, PI: Kent Leach), "Nanoparticle-mediated morphogen delivery to instruct mesenchymal stem cell spheroids"

Audience Favorite STEM Talk – Matt McNulty (Chemical Engineering, PI: Karen McDonald), "Re-thinking pharmacological life support for human habitation on Mars"

1st Place Poster – Amanda Dang (Materials Science & Engineering, PI: Tonya Kuhl), "Delivery of biomolecules into model membranes using nanolipoprotein particles"

2nd Place Poster – Angela Zhang (Chemistry, PI: Shota Atsumi), "Production of a plant alkaloid in a microbial host"

We would also like to thank our special guests who shared their day with us: Vice Chancellor for Research in the Office of Research, Prasant Mohapatra, PhD; Executive Director of Research Programs in the Office of Research, Nancy Bulger; Director Emerita of the Biotechnology Program, Judy Kjelstrom, PhD, Bayer Crop Science, Alberto Iandolo, PhD; and Principal of Technology Innovation Group, Tom Turpen, PhD.

DEB GRADUATES

The Biotechnology Program is very proud to acknowledge DEB graduates from both the 2017-18 and 2018-19 academic years. Congratulations DEB grads!

2017-2018 DEB Graduates

Hannah Aizad Ledford - (PI: Nipavan Chiamvimonvat) PhD in Molecular, Cellular & Integrative Physiology, now a postdoc researcher on campus.

Sonia (Reveco) Allen - (PI: Gino Cortopassi) PhD in Integrative Genetics & Genomics.

Brittany Anderson - (PI: Sheila David) PhD in Chemistry, now Safety Manager at Sacramento State College of Natural Sciences & Mathematics.

Brian Avanzino - (PI: Chris Fraser) PhD in Biochemistry, Molecular, Cellular & Developmental Biology, now a Research Scientist at Teneobio in San Francisco, CA.



Jenna Harvestine

Douglas Banda - (PI: Sheila David) PhD in Chemistry.

Timothy Butterfield - (PI: Abhaya Dandekar) PhD in Plant Biology, now a postdoc on campus.

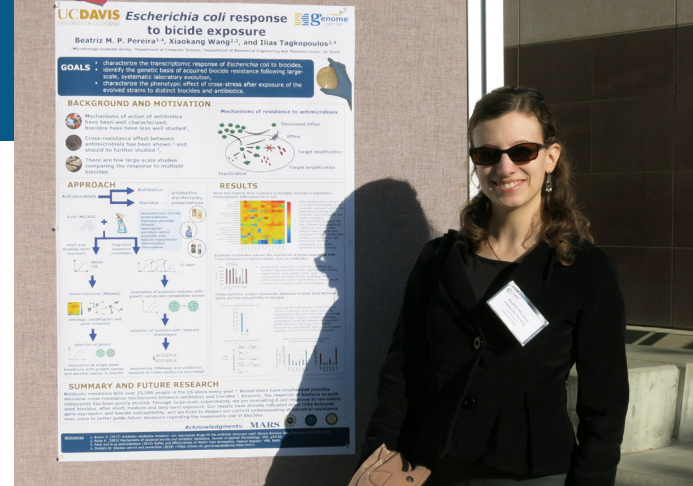
Joshua Cohen - (PI: Daniela Barile) PhD in Food Science.

Jasmine Corbin - (PI: Karen McDonald) PhD in Chemical

Engineering, now a scientist, cell culture process development at Apexigen Inc.

Forrest Ryan Dowdy - (PI: Chris Simmons) PhD in Food Science, now ISS Food System Manager at NASA, Houston, Texas.

Maher Elsheikh - (PI: Satya Dandekar) PhD in Immunology, now a biomedical research



Beatriz Pereira

scientist at Lawrence Livermore National Security, Livermore, CA.

Alex Gulevich - (PI: J. Clark Lagarias) PhD in Biochemistry, Molecular, Cellular & Developmental Biology.

Jonathan Hughes - (PI: Rebecca Parales) PhD in Microbiology, now Quality Assurance Lab Manager at Heretic Brewing Company in Fairfield, CA.

Mark Lemos - (PI: Karen McDonald) PhD in Plant Biology, finishing post doc at UC Riverside.

Ying Li - (PI: Joanna Chiu) PhD in Entomology.

Malgorzata Liro - (PI: Lesilee Rose) PhD in Biochemistry, Molecular, Cellular & Developmental Biology, now a postdoc in Lesilee Rose's lab.

Jordan Mancuso - (PI: William Ristenpart) PhD in Engineering, now an Automation Engineer at Notable Labs in Foster City, CA.

Alice Martinic - (PI: Carolyn Slupsky)

PhD in Nutritional Biology, now Center Coordinator, Math Engineering Science Achievement (MESA) at American River College, Sacramento, CA.

Akshata Mudinoor - (PI: Tina Jeoh) PhD in Biological Systems Engineering, now Scientist at Nanomix in Emeryville, CA.

Nicole Nozzi - (PI: Shota Atsumi) PhD in Chemistry, now a bench scientist biologist with GlaxoSmithKline Pharma GmbH.

Nicole Nunez - (PI: Sheila David) PhD in Chemistry, now a research scientist at ARIZ Precision Medicine in Sacramento, CA.

Maria Peralta - (PI: Krishnan Nambiar) PhD in Chemistry.

Ali Rahimian Mashadi - (PI: Alex Revzin) PhD in Integrative Pathology

Natasha Shroff - (PI: Frank Sharp) PhD in Integrative Genetics & Genomics.

DEB GRADUATES (CONT.)



Amanda Dang

Integrative Genetics & Genomics, now a BioDirect Specialist at Bayer CropSciences, Davis, CA.

Samuel Westreich - (PI: Ian Korf) PhD in Integrative Genetics & Genomics, now a microbiome scientist at DNAnexus in San Francisco, CA.

Damion Whitfield - (PI: Mitch Singer) PhD in Microbiology, Computational Biologist/Bioinformatics Scientist/Microbiologist with Synlogic, Inc. in Cambridge, MA.

Yuxuan (Eric) Zheng - (PI: Peter Beal) PhD in Chemistry, now a postdoc researcher at Broad Institute of MIT and Harvard.

2018-2019 DEB Graduates

Leif Anderson - (PI: Scott Simon) PhD in Biomedical Engineering, now an Application Scientist at LUMICKS, in Boston.

Anna Case - (PI: Chemistry) PhD in Shota Atsumi, now a Scientist 1 at Synthetic Genomics, San Diego, CA.

Krishna Choudhary - (PI: Sharon Aviran) PhD in Biomedical Engineering, now Biostatistician - Bioinformatics Core, Gladstone Institutes, San Francisco, CA

Amanda Dang - (PI: Tonya Kuhl) PhD in Materials Science and Engineering, now Research Scientist I - Formulations and Process Development Group with Gilead, Foster City, CA.

Samantha Feng - (PI: Kit Lam) PhD in Pharmacology & Toxicology, now Consultant Navigator, SF CA

Scott Strobel - (PI: Tina Jeoh) PhD in Biological Systems Engineering, now a lecturer and postdoc at UCD.

Erica Vonasek - (PI: Nitin Nitin) PhD in Biological Systems Engineering, Regulatory Associate Program Manager at G&L Scientific, San Francisco, CA.

Donnelly West - (PI: Neelima Sinha) PhD in

Jenna Harvestine - (PI: Kent Leach) PhD in Biomedical Engineering, now Medical Science Liaison at Mallinckrodt Pharmaceuticals, Phoenix, AZ.

Dustin Heeney - (PI: Maria Marco) PhD in Microbiology.

Gena Hoffman Lurvey - (PI: Pamela Ronald) PhD in Plant Biology, now President of the UC Davis Science Communication Group (Science Says).

Sophie Kiss - (PI: Paramita Ghosh), PhD in Pharmacology & Toxicology,.

Mirko Ledda - (PI: Sharon Aviran), PhD in Integrative Genetics and Genomics, now

Jesse Lopez - (PI: David Segal/Janine LaSalle), PhD Integrative Genetics & Genomics, now Services Research Scientist at Active Motif in San Diego, CA.

Lauren Matelski - (PI: Judy Van de Water), PhD Immunology.

Chuong Nguyen - (PI: Rivkah Isseroff), PhD in Pharmacology & Toxicology, now Research Scientist at ARIZ Precision Medicine, Davis, CA

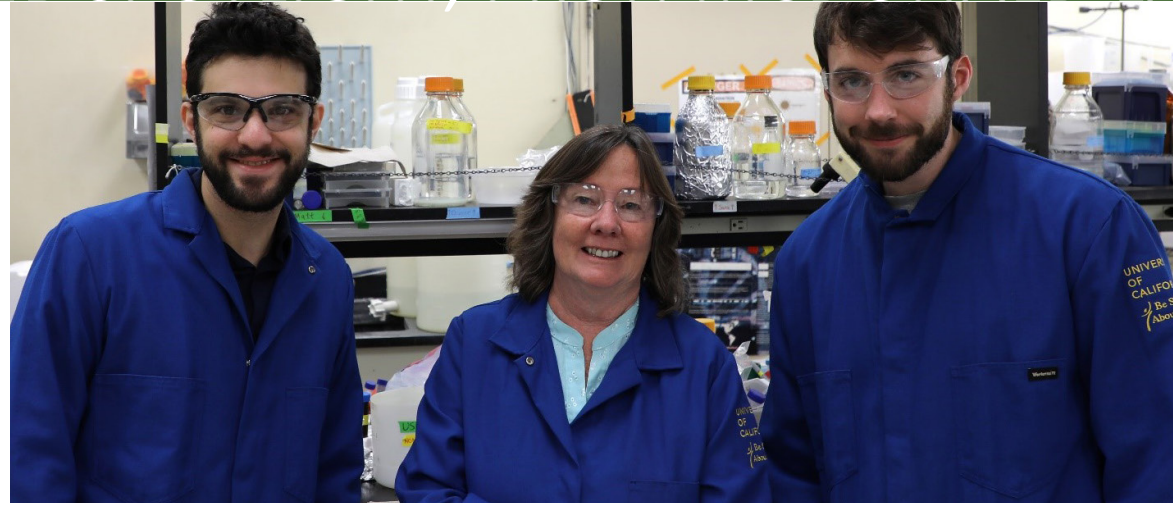
Sara Sukenik - (PI: Karen McDonald), PhD in Biomedical Engineering.

Kim Truong - (PI: Isaac Pessah), PhD in Pharmacology & Toxicology, now Associate Toxicologist with CA Environmental Protection Agency, Davis CA.

Kay Watt - (PI: Paul Gepts), PhD in Integrative Genetics & Genomics), now Strategic Business Analyst at HM.CLAUSE, Sacramento, CA.



Joshua Cohen



McDonald-Nandi Lab's Research Focus:

The McDonald-Nandi lab in Chemical Engineering at UC Davis is focused on synthetic biology in plants, including the development of novel plant viral expression systems, as well as bioprocess engineering technologies to produce and purify recombinant proteins (including human therapeutic proteins, bioscavengers for use as medical countermeasure protection agents biotreats, and biologics for space medicine) using whole plants, harvested plant tissues, or plant cells grown in vitro in bioreactors. The group has also developed and published techno-economic simulation models for a variety of plant-based biomanufacturing facilities. The goal of the research is to develop novel plant-based bioprocessing technologies with lower production costs, based on simpler methods that can be implemented in resource-limited environments and rapid enough to quickly respond to emerging and re-emerging infectious diseases and/or bioterrorist threats.

Matt McNulty's Bio/Research:

"I am a third year PhD candidate studying chemical engineering in the McDonald-Nandi lab. I explain my research to friends and family as similar to what you see Matt Damon do in the movie, The Martian -- growing potatoes on Mars. The key difference between Matt Damon's character and my lab is that we see plants like potato or lettuce not just as a source of food and oxygen, but also as a source of life-saving pharmaceuticals. Imagine if the potato you ate also supplied you with the medicine you needed to keep your bones from wearing down in microgravity. Viewing plants as a multi-use tool (think Swiss Army knife) is not just interesting, but essential for long-term human habitation in a severely limited resource environment like Mars. My research is attempting to take my group's vision one step further by now exploring plants as a pharmaceutical purification platform, for plant-made medicines that need high purity for delivery through intravenous injection. In addition to my research, I get a lot of fulfillment here at Davis volunteering with the grad student organization, ESTEME (Equity in STEM and Entrepreneurship). Teaching middle schoolers through ESTEME's STEM Squad program is a great buoy for me in the difficult weeks of research."

David Silberstein's Bio/Research

"I'm a fifth-year Chemical Engineering graduate student in the McDonald-Nandi research group. My work focuses on making a human protein to treat emphysema, alpha-1 antitrypsin. Like the rest of my group, I work with plants for my research, and there's a delightful irony in that I primarily use tobacco plants to produce a protein used for emphysema treatments. Alpha-1 antitrypsin has proven to be a challenging research subject, but provides a lot of insight into the ways that plants can be used for biopharmaceutical production and the challenges that are upcoming for the plant-made pharmaceutical industry. I have been an active participant in my department's graduate student organization and the Biotech program, being an e-mentor for high school students at Sheldon Biotech Academy. In my spare time, I've also started some biotech projects of my own at home with a passionate interest in bread-making and homebrewing."

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. Twenty-five DEB students have completed their internships during the 2017-18 academic year and 21 during the 2018-19 year. 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. Denneal Jamison-McClung (dsjamison@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, the internship, when you are on filing fee so plan carefully. You must enroll in DEB 282 to receive credit hours. A good plan of action is to attend DEB/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 [HERE](#).



Alex Gulevich



Mirko Ledda

Harvestine

We wish to thank all of our industry partners who offered internships for our DEB students. See where our students interned during the 2017-18 and 2018-19 academic years:

2017-18 Internships

- 23andMe**, Mountain View, CA – Mirko Ledda
- Agilent**, Santa Clara, CA – Mittal Jasoliya
- American River College** - MESA, Sacramento, CA – Alice Martinic
- Amgen**, Thousand Oaks, CA – Natasha Shroff
- ARIZ Precision Medicine**, Davis, CA - Nicole Coggins, Amanda Dang, Chuong Nguyen, Jenna



Jasmine Corbin



INTERNSHIPS (CONT.)



Kelly Zacanti

Genentech, San Francisco, CA – Ying Li, Anita Rajamani, Sara Sukenik

iBio CMO, Bryan, TX – Yongao (Mary) Xiong

IBM Almaden, San Jose, CA – Sam Westreich

Lawrence Livermore National Laboratory, Livermore, CA – Jennifer Nill

Mayo Clinic Center Regenerative Medicine, Minnesota – Ali Rahimian Mashadi

Monsanto, Woodland, CA – Donnelly West

Novici Biotech, Vacaville, CA – David Silberstein

Novozymes, Davis, CA – Joshua



Ali Rahimian Mashhadi

Cohen, Beatriz Merchel Piovesan Pereira

NSF Biophotonics Science and Technology, UC Davis, CA – Hannah Aiza Ledford

Profusa, San Francisco, CA – Debika Mitra

Second Genome, San Francisco – Sonia (Reveco) Allen, Alex Gulevich

Sutro



Biopharma, San Francisco – Jasmine Corbin

2018-19 Internships

Bayer Crop Science, Sacramento, CA – Jared Nigg

Prof. Weimer's Lab, Davis, CA – Shawn Higdon

Genentech, SF, CA – Chandrima Majumdar, Hannah Petrek, Sara Sukenik, Yihui Zhu

Gilead, Oceanside, CA – Kelly Zacanti

HM Clause, Davis, CA – Kaitlin Watt

iBio DMO, Bryan, TX – Kantharakorn Macharoen

IBM Research, Almaden, San Jose, CA – Sana Vaziri

Intrexon, Davis, CA – Yaxin Wang

Monsanto Data Science Internship – Lisa Johnson

Phase Genomics, Seattle, WA – Maika Malig

Sac State, Sac, CA – Lucas McKinnon

Second Genome, SF, CA – Michael Fong, Dustin Heeney

STEM Center Los Rios Community College, Sacramento, CA – Javier Garcia

Synthetic Genomics, San Diego, CA – Anna Case

Takeda, SF, CA – Jonathan Li

UCD Entomology, Bruce Hammock lab, Davis, CA – Sophie Kiss



Javier Garcia

BLAST

by Dr. Denneal Jamison-McClung

In fall 2018, we launched the **Biotech Leaders Advancing STEM Technologies (BLAST)** group for early career scientists and engineers in order to expand the impact of our professional development activities. BLAST will engage the campus research community, from post-baccalaureate and master's degree holders, to doctoral and postdoctoral scholars, promoting leadership, entrepreneurial and communication skills important for success in biotech career paths.

BLAST has three focus areas:

1) Inclusive Team Science – “Where Innovation is Born” – we will develop projects and activities that highlight the importance of diverse perspectives in problem-solving and innovation;

2) Social Entrepreneurship – “Tech for Global Good” – we will develop projects and activities that explore the need for out-of-the-box solutions to tackle global challenges, given resource constraints in different social-political-economic environments (e.g. developing nations); and, through engagement with non-specialists and policy makers.



Shea Feeney, BLAST member

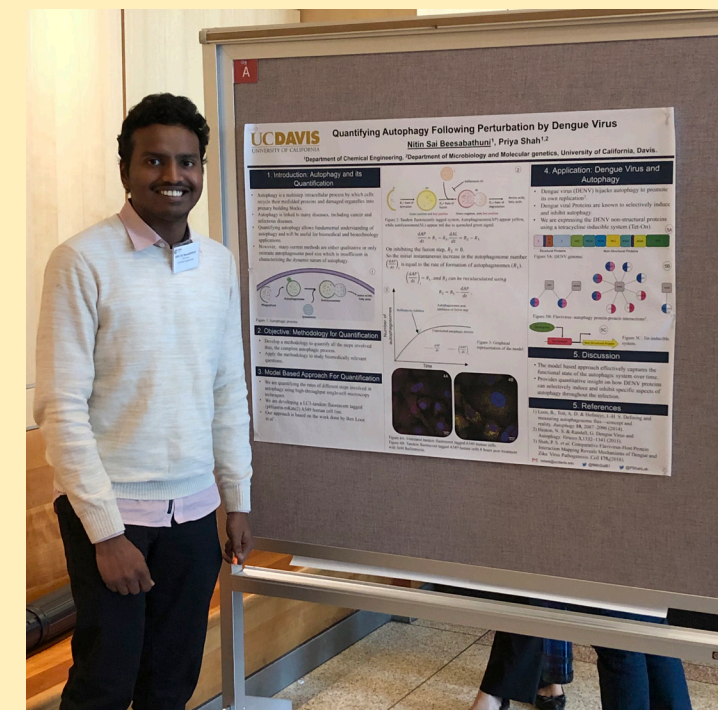
BLAST (Cont.)

Biotech Leaders Advancing STEM Technologies ...

3) Science Communication and Policy – “Facts as a Foundation” – we will develop projects and activities that empower STEM professionals to impact their communities and systems of governance through engagement with non-specialists and policy makers.

Currently, BLAST has about 30 members, including DEB doctoral students and alumni. We'll be hosting several workshops for DEB and BLAST members in 2019-2020, including “Introduction to R for Life Scientists and Engineers” and “Science Policy & Gene Editing”.

If interested in being added to the BLAST listserv, please contact our Biotech Program event manager, [Jacki Balderama](#).



Nitin Sai Beesabathuni, BLAST member

MARCUS & LANEY

Many thanks to DEB (Designated Emphasis in Biotechnology) students **Marcus Deloney** and **Alena Casella** for agreeing to participate in a lab photo shoot. Both Marcus and Laney are in the Biomedical Engineering graduate group. I would also like to thank their PI, Professor Alyssa Panitch (also a DEB faculty member), for allowing me access to her lab located in the Genome Center for the photos.

Marcus and Laney provided the following information below regarding their current research.



Marcus Deloney

Marcus Deloney:

"My lab focuses on biomimetic therapeutics for medical treatments. My project addresses the delivery of our biological therapeutics by using nanoparticles. Biomimetics are a classification of therapeutics that are derived from naturally occurring components of the human body, i.e. peptides and glycosaminoglycans. The issue with using peptide therapeutics is the body readily degrades too fast for them to be therapeutically relevant. To address this problem, I have developed a hollow, degradable, thermosensitive nanoparticle to deliver the peptides to the tissue of interest,



Marcus Deloney, Alena Casella

specifically osteoarthritic cartilage."

"My project is a small scale drug discovery trial from synthesis, testing, and eventually animal trials that combines my favorite aspects of being a scientist and interests: organic polymer chemistry, mass transport, and clinical applications."

Alena Casella:

"I am a second year graduate student in the biomedical engineering graduate group and I am co-advised by Dr. Kent Leach and Dr. Alyssa Panitch. My project, which is highly collaborative between the two labs, is focused on developing electrically conductive peptides that can be combined with natural materials to facilitate nerve regeneration. These findings are intended to lead towards the development of strategies to re-innervate engineered tissues--such as replacement bone and muscle for that which may be lost due to military, civilian, or medical trauma--and enhance their functionality."

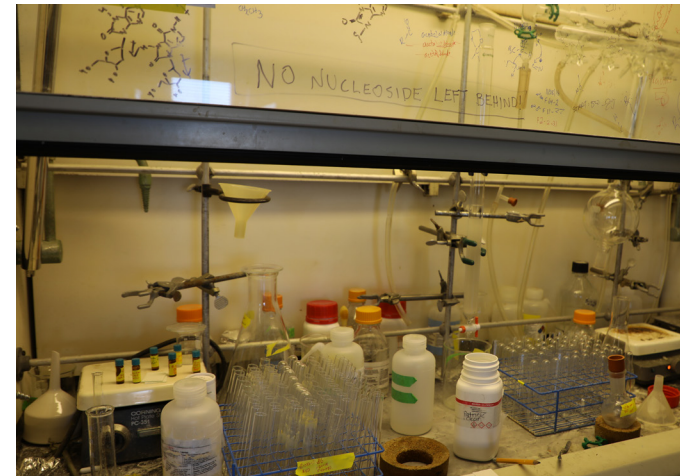


Alena Casella

LANEY (CONT.) & CINTIA

Alena Casella (cont.):

These findings are intended to lead towards the development of strategies to re-innervate engineered tissues--such as replacement bone and muscle for that which may be lost due to military, civilian, or medical trauma--and enhance their functionality."



Cintia Helena Duarte Sagawa

Cintia Duarte Sagawa

"I am a Ph.D. candidate in the Plant Biology Graduate Group in Dr. Abahaya Dandekar's lab. I am interested in biotech applications in the development of sustainable agriculture. My research is focused on understanding host-microbe interactions in plant bacterial infections using proteomics and molecular biology approaches. Differently, from most bacterial infections in humans, many diseases in plants are poorly understood. Successful cultivation of perennial plants like citrus, grapevines, walnuts, and olives, have been hampered by ineffective disease treatments. My research aims to contribute to the development of strategies to control and disrupt bacterial disease development. We want to help growers to protect their orchards with targeted and sustainable therapies."



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Biotech Gang - Past & Present