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Department of Biochemistry  
and Molecular Medicine

## Welcome to the Biochemistry and Molecular Medicine Department Newsletter!

We are excited to launch our first issue of this Biochemistry and Molecular Medicine (BMM) newsletter, an initiative of the department's **I-DARE** (Inclusion, Diversity, **A**nti-Racism, and **E**quity) Taskforce. Each newsletter issue will serve to spotlight the contributions of BMM faculty, students, and staff to our university's mission of research, teaching, service, diversity, and equity. We will also feature news, events, seminars, publications, grants, and other highlights. Happy reading!

### BMM I-DARE Taskforce



Flora Tassone



Dave Segal



Adriane Joo



Lucas Solano



Cliff Tepper



Dennis Montoya



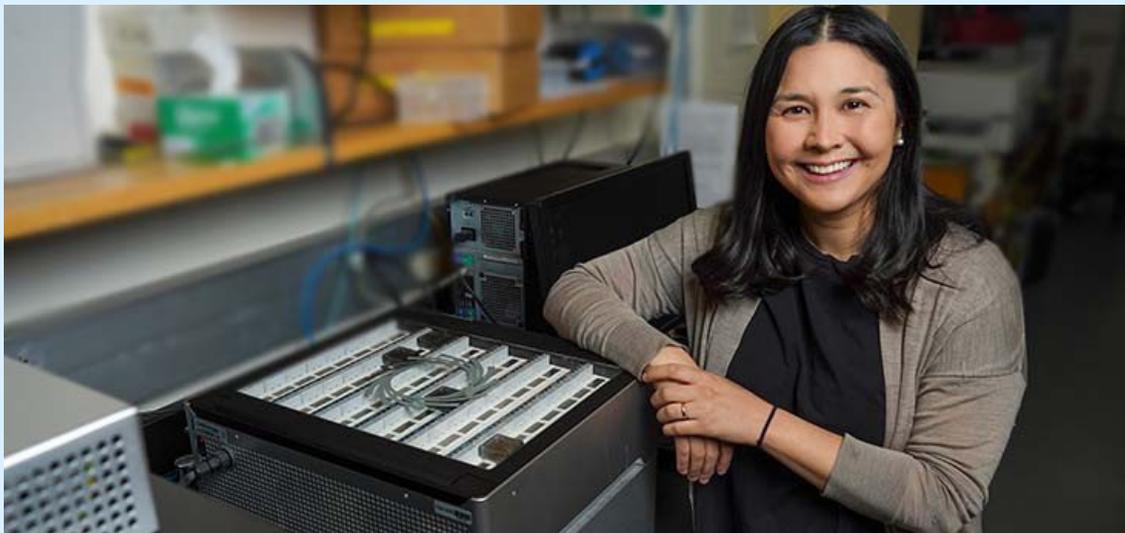


A group of EEOP undergraduate students.

## Department Retreat Coming This Fall!

This will be all-day event intended to foster department-wide discussion and action plans for future DEI work and promote networking and collaboration within the department. All students, staff, faculty, and other department members are invited to join us.

## Faculty Feature: Dr. Megan Dennis



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**“Science is not just about me. Everything we’ve done in the lab is a team effort.”**

**Megan Dennis**, assistant professor of biochemistry and molecular medicine, believes in the power of collaboration. And one of her lab’s most recent collaborations — working with the Telomere-to-Telomere (T2T) Consortium that presented a complete 3.055 billion–base pair sequence of a human genome last

month — has garnered significant attention. The landmark study, covered by [NBC News](#), [TIME Magazine](#), and other major outlets, addresses the remaining eight percent of the genome left out by prior scientific efforts. These previously excluded regions are important to sequence, and understanding them may herald future advances in the treatment of diseases and neurological disorders.

The main focus of the Dennis Lab is to characterize human-duplicated genes and their role in the evolution of the neocortex and disease. With technologies including CRISPR and long-range sequencing from PacBio and Oxford Nanopore, the lab identifies mutations and genes implicated in neurodevelopment and explores their functions using cell lines and zebrafish as a model. Dr. Dennis and lab members regularly collaborate with cell biology and neuroscience labs, and they are always open to collaborations to better characterize genes using novel tools and mouse models and to access clinical samples to understand the direct impact of individual variants in disease.

The Dennis Lab also actively recruits graduate students from underserved communities and organizes a wide variety of outreach efforts and events, including Picnic Day booths and educational workshops at local Davis- and Sacramento-area schools.

“It’s motivating to teach others how to do science,” Dr. Dennis says, adding that widening young people’s perceptions of “what scientists look like” is a fulfilling, meaningful experience.

The lab’s latest outreach effort, an interactive PCR workshop with students at Sacramento Charter High School, is featured in this issue of the newsletter. Beyond her work in the lab, Dr. Dennis enjoys spending quality time with her family, hiking, and running.



# Faculty, Staff and Student Recognitions

## Teaching Recognition



**Colleen Sweeney**, professor and vice chair of education, is a recipient of the Best Basic Sciences Instructor award from the graduating class of 2022. **Congratulations, Dr. Sweeney!**

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## Awards and Grants

**Congratulations to Dr. Ana Estrada-Florez, a Carvajal-Carmona Lab postdoctoral fellow, whose research on the “identification of predisposition and progression gastric cancer biomarkers” was recognized with an American Association for Cancer Research (AACR) fellowship. Read more » [AACR Fellowship to Further Diversity, Equity, and Inclusion in Cancer Disparities Research.](#)**

**Congratulations to Professor [Lin Tian](#), BMM vice chair, who received a \$1 million grant from the W.M. Keck Foundation to develop and test near-infrared protein sensors for neurochemical neuron signals. Read more » [UC Davis wins two awards from the W. M. Keck Foundation.](#)**

**Congratulations to Professor [Yuanpei Li](#), who was elected to the American Institute for Medical and Biological Engineering 2022 College of Fellows for outstanding contributions to the development of intelligent nanomedicine platforms to improve drug delivery. Read more » [UC Davis nanomedicine scientist recognized as a top biomedical engineer in the U.S.](#)**

**Congratulations to Professor [Carlito Lebrilla](#), who received the American Chemical Society Frank H. Field and Joe L. Franklin Award for Outstanding Achievement in Mass Spectrometry for contributions to the development of glycomic and glycoproteomic methods in analytical chemistry. Read more » [2022 ACS National Award winners—Part IV.](#)**

**Congratulations to Assistant Professor Megan Dennis, who was awarded the National Science Foundation CAREER Award, providing five years of funding in support of research and mentoring. Read more » [Megan Dennis Recipient of NSF CAREER Award.](#)**

## ***New Members***



**Julie Chouinard** from the Okinawa Institute of Science and Technology is visiting Dr. Lin Tian's lab over the next two months. One of her projects aims to test and improve the expression of dopamine sensors in the brain. Julie brings a specialty in imaging and over 20 years of laboratory experience to this collaboration. In her free time, she enjoys reading, kayaking, and traveling. **Welcome Julie!**

**Youa Xiong** joins Dr. Flora Tassone's lab, where she will work on projects related to unraveling molecular mechanisms in neurodevelopmental disorders. Youa has 17 years of experience working in a laboratory. In her free time, she enjoys reading and sewing Hmong cultural clothing. Youa likes to spend summers at the beach with her husband and children. **Welcome Youa!**



**Lina Bukowski** joins Dr. Lin Tian's lab, where she will be conducting research over the next three months that aims to develop a novel genetically encoded dopamine sensor. Lina is a Ph.D. student from Denmark, where she is working on developing a novel technological platform to evaluate amphetamine's pharmacology. In her free time, she enjoys reading, outdoor activities, and trying out new coffee places. **Welcome Lina!**

## In the News

NemaLife Inc., a DEA-registered and innovation-driven tech-bio company, has partnered with David Olson's research group to characterize the *in vivo* effects of several of their novel psychoplastogens. Read more » [NemaLife and UC Davis enter into a research partnership to test the therapeutic potential of several novel psychoplastogens.](#)

A UC Davis team led by David Olson and Lin Tian won second place in STAT Madness 2022, a popular tournament to find the best innovations in science and medicine. They created a biosensor that lit up when a drug bound to a receptor that is a hallmark of hallucinogenic drugs. Read more » [Research on mice that 'sweat out' fat wins STAT Madness for University of Pennsylvania.](#)

In a Q&A with UC Davis Health, Hongwu Chen, director of the Cancer Metabolism Initiative of the UC Davis Comprehensive Cancer Center, discussed how a special receptor protein known as ROR $\gamma$  impacts cancer growth and cholesterol synthesis. Read more » [Harnessing the power of ROR \$\gamma\$  in control of cancer and cholesterol metabolism.](#)

A complete sequence of the human genome has been published by the Telomere-to-Telomere (T2T) consortium, an international research collaboration. In this NBC News coverage by Evan Bush, Megan Dennis discusses her lab's contributions to the project. Read more » [A human genome has finally been fully decoded.](#)

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## Recent Publications

Jiraanont P, Manor E, Tabatadze N, Zafarullah M, Guadalupe Mendoza G, Melikishvili G, Tassone F. 2022. "**De novo large deletion leading to Fragile X Syndrome**". *Frontier in Genetics, Genetics of Common and Rare Diseases*.

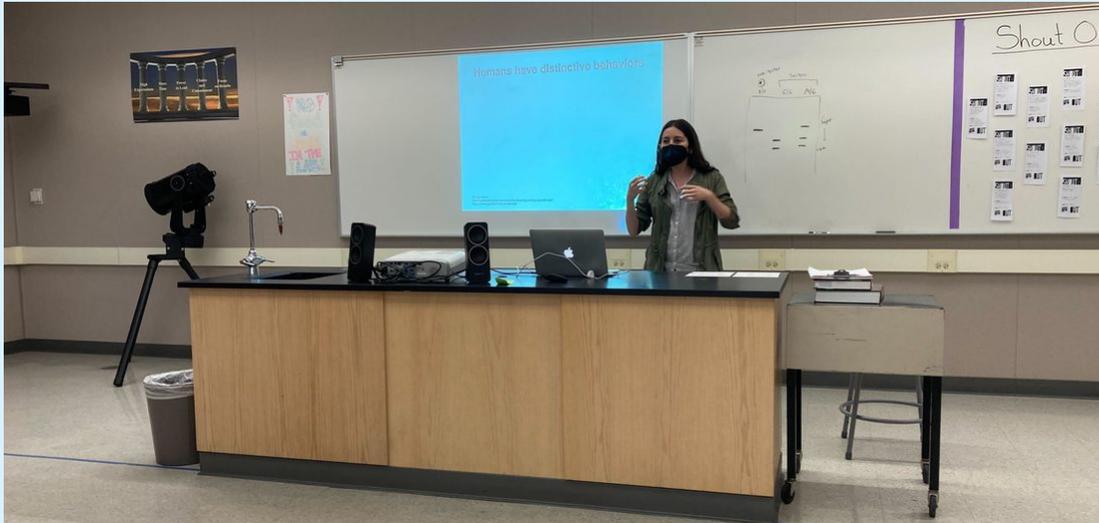
Chunyang Dong, Yu Zheng, Kiran Long-Iyer, Emily C. Wright, Yulong Li, Lin Tian. 2022. "**Fluorescence Imaging of Neural Activity, Neurochemical Dynamics, and Drug-Specific Receptor Conformation with Genetically Encoded Sensors**". *Annual Review of Neuroscience*.

Nicole B. Halmai, Luis G. Carvajal-Carmona. 2022. "**Diversifying preclinical research tools: expanding patient-derived models to address cancer health disparities**". *Trends in Cancer*.

Nikki Tjahjono, Yihan Jin, Alice Hsu, Michael Roukes, Lin Tian. 2021. "**Letting the little light of mind shine: Advances and future directions in neurochemical detection**". *Neuroscience Research*.

# Community Outreach

## Sacramento Charter High School Program



This ongoing annual community outreach program — initiated by Drs. Kit Lam and Megan Dennis — features a lecture series, an interactive workshop, and a summer internship opportunity for local high school students. This year's lecture series took place from February 2-23, 2022 and featured weekly presentations from Dr. Flora Tassone, Dr. David Segal, Savannah Free, Michelle Hu, Dr. Yuanpei Li, Olga Chechneva, Emily Wright, and Dr. Megan Dennis. Approximately 30-40 students attended each week.

On April 5, 2022, Dr. Megan Dennis led an interactive "Murder Mystery PCR Lab" workshop with 120 students from Tamra Doty's integrated science classes. Students learned the basics of genetics and applied their knowledge to determine the identity of DNA evidence at a crime scene. This program generated interest from 12 students, who applied for the summer research program, and 7-8 students were selected to participate in a 7-week hands-on summer research program from June 6, 2022 to July 22, 2022 in various BMM labs.

Please reach out to [Megan](#) and [Kit](#) if you are interested in participating in future program events.

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## Supporting Educational Excellence in Diversity (SEED) Training for Faculty

As part of a university-wide initiative, all BMM faculty will attend SEED training to provide faculty with tools to apply cultural humility to empower their teaching, to identify the key elements of curricular content that contribute to the cultural microaggressions that impede learning, and to develop self-management and communications skills to navigate difficult interactions that impact cultural safety. Many thanks to our faculty for devoting their time to make BMM a more inclusive educational environment for their students and trainees. **SEED Training will be held on June 7, 2022 and June 14, 2022, from 8 — 10 a.m.** More information will follow by email.

## Conferences, Seminars and Workshops

### Conference Presentations

**Dr. Nicole Halmai, a Carvajal-Carmona Lab postdoctoral fellow, presented twice on her research at the AACR annual meeting.** Read more » [Dr. Nicole Halmai AACR 2022 Presentations](#).

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### BMM Research in Progress Seminar

**Luis Carvajal-Carmona**, Ph.D., Professor and Auburn Community Cancer Endowed Chair in Basic Science, Department of Biochemistry and Molecular Medicine, will present on Thursday, June 16, 2022, from 12 — 1 p.m. Further details can be found by visiting the BMM seminar [calendar](#).

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### MIND Institute Research Seminar Series

The MIND Institute Research Seminar Series is held 9 — 10 a.m. via Zoom on the first and third Fridays of the month. Further details can be found by visiting the series [calendar](#).

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### Human Genomics Seminar Series

The Human Genomics Seminar Series will feature upcoming seminars on the first Wednesdays of May and June from 12 — 1 p.m. via Webex. Further details can be found by visiting the series [calendar](#).

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## Distinguished Lecture Series in Physiology

The Distinguished Lecture Series in Physiology welcomes Dr. Antentor Hinton, Jr., today, Monday, May 2, 2022, from 12 — 1 p.m. via Zoom and in-person at the Genome and Biomedical Sciences Facility Auditorium. Full details can be found on the series [webpage](#).

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## Frontiers in Pharmacology Seminar Series

The Frontiers in Pharmacology Speaker Series welcomes upcoming speakers in mid-May and early June. Full details can be found on the series [webpage](#).

## Open Positions

1. **Assistant Project Scientist — Chen Lab.**
2. **Assistant Project Scientist — Lo Lab.**
3. **Chair of Biochemistry and Molecular Medicine.**
4. **Open Rank Faculty Position in Medicine, Medical Sciences, and Public Health.**

## Contribute to the next issue!

**Please send submissions of announcements**, including new members, seminars, conferences, workshops, events, publications, grants, outreach, news, and more, for the next issue of this newsletter to [Daniel Erenstein](#) **by June 20, 2022**.

You can send questions, comments, and feedback to [Daniel](#) anytime as well. We'll be back in your inbox on July 1, 2022. Until then, take care!

**UCDAVIS**  
**HEALTH**

Department of Biochemistry  
and Molecular Medicine



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