

Fresno State–UC Davis Bridges to Doctorate Program



This summer's Fresno State–UC Davis Bridges to Doctorate Program students.

This summer, three California State University, Fresno, students participated in research projects in UC Davis laboratories through the [Fresno State–UC Davis Bridges to Doctorate Program](#). The program — funded in 2020 by a NIH T32 training grant — was jointly developed by **Dr. Krish Krishnan** from Fresno State, and **Drs. Kit Lam** and **Luis Carvajal-Carmona**, both BMM faculty members.

Bridges to Doctorate assists underrepresented minority (URM) students from Fresno State with completing a master's program in the biomedical sciences before they continue on to a Ph.D. at UC Davis. The program builds on major research themes, activities, and facilities at the two institutions, including the [Research Infrastructure in Minority Institutions Program](#) at Fresno State, the [UC Davis Comprehensive Cancer Center](#), and the [Clinical and Translational Science Center](#) at UC Davis. Faculty members from the Fresno State [College of Science and Mathematics](#) and biomedical research-focused [graduate groups](#) at UC Davis have created a highly interactive training program for the students.

The program aims to increase the number of URM graduate students who enter and earn doctoral degrees in biomedical sciences. After funding three students in 2021, the program supported three additional students this summer, and two of them — Daniel Savala and Dennis Ashong — worked with BMM faculty.

- 1. UCD Mentor: [Dr. Kit Lam](#)**
Student: Daniel Savala
Fresno State Advisor: [Dr. Karine Gousset](#), Biology
- 2. UCD Mentor: [Dr. Yuanpei Li](#)**
Student: Dennis Ashong
Fresno State Advisor: [Dr. Qiao-Hong Chen](#), Chemistry & Biochemistry
- 3. UC Davis Mentor: [Dr. Mark Mascal](#)**
Student: Luis Luna Lara



(Left) Daniel Savala, mentored by Dr. Lam. (Right) Dennis Ashong, mentored by Dr. Li.

Mentoring Opportunity This Winter

Thanks to funding from the Office for Health Equity, Diversity, and Inclusion, **BMM will support 3 paid positions for undergraduate researchers** from the Biology Undergraduate Scholars Program (BUSP) to perform research with BMM faculty **this winter**. BUSP supports the success of biology students by providing a challenging, structured academic curriculum, advising, and, most importantly, early experience in research. Details about how to mentor an undergraduate in your lab will follow via email to the BMM listserv this month.



A group of Educational Enrichment & Outreach Program undergraduate students.

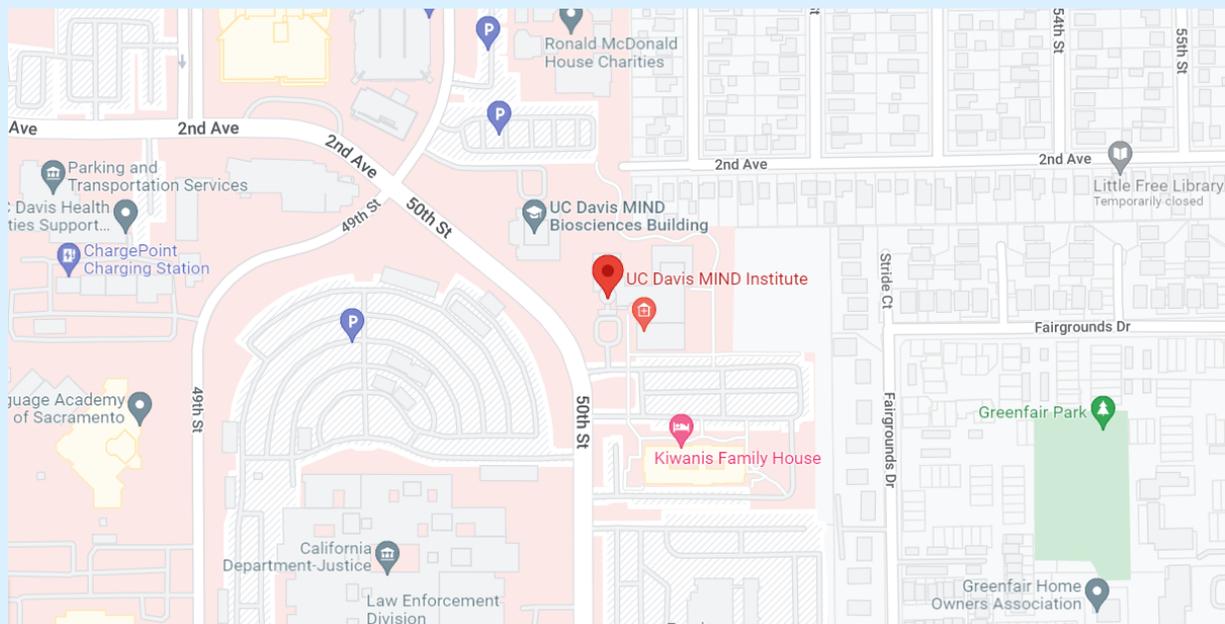
Upcoming Department Retreat

Save the date! Our BMM retreat — an all-day event intended to foster department-wide discussion and action plans for future DEI work and promote networking and collaboration within the department — is coming soon.

When: Friday, October 14, 2022, 8:30 a.m. — 5 p.m.

Where: Auditorium, UC Davis MIND Institute, 2825 50th St., Sacramento, CA 95817

All students, staff, faculty, and other department members are invited to join us. For directions to the MIND Institute, click the image below.



Faculty Feature: Dr. Luis Carvajal-Carmona



“We cannot achieve health equity if our clinicians, scientists, staff, and trainees do not reflect the racial, ethnic and socio-economic background of the patients and communities we serve.”

In a [recent story](#) by UC Davis Health, **[Luis Carvajal-Carmona](#)**, professor of biochemistry and molecular medicine and Auburn Community Cancer Endowed Chair in Basic Science, shared his valuable insights on health equity. As a founding director of the new Center for Advancing Cancer Health Equity, Dr. Carvajal-Carmona is at the forefront of UC Davis Health’s work to address cancer health disparities in our region. Launched by the [UC Davis Comprehensive Cancer Center](#), this new center will conduct community-focused research projects that grow our understanding of disparities in the health and treatment of cancer. Dr. Carvajal-Carmona brings his experience as leader of the Cancer Center’s [Latinos United for Cancer Health Advancement](#) initiative and co-director of the [Community Engagement Program](#) at the Clinical and Translational Science Center to this new role.

Ultimately, the center’s mission is to contribute to improved health outcomes for the underserved populations of northern and central California and to influence cancer policy-making at multiple levels of government. To do so, the center will focus on supporting career development for underrepresented groups at UC Davis.

The [Carvajal-Carmona Lab](#) applies a systems approach to their study of various cancers, including gastric, breast, colorectal, and thyroid cancers. Using linkage analysis, functional genomics, sequencing of tumors, and other technologies, the team identifies and investigates genetic variants that can cause cancer, increase

risk, or influence disease prognosis. The laboratory regularly collaborates with the Comprehensive Cancer Center and other research groups at UC Davis and beyond, including their sister lab at the University of Tolima, Ibaguè, in Colombia.

Dr. Carvajal-Carmona also co-developed the Fresno State–UC Davis Bridges to Doctorate Program, an effort to increase representation of underrepresented minority students in the biomedical sciences that is featured in this issue of the newsletter. Beyond his work in the laboratory, Dr. Carvajal-Carmona enjoys cycling, hiking, and other outdoor activities, as well as traveling and spending time with his young family.



Faculty, Staff & Student Recognitions

Teaching Recognition

Dr. Thomas Jue was awarded the **2022 Biophysics Graduate Group Advising and Mentorship Award**. Drs. Eleonora Grandi and Vladimir Yarov-Yarovoy thanked Dr. Jue for his “outstanding investment in mentoring BPH graduate students,” adding that his “efforts help exemplify outstanding



service to the rest of the BPH Graduate Group.” **Congratulations on this recognition, Dr. Jue!**

Awards & Grants

Congratulations to Dr. David Segal and his team, who received a 2022 Cultivating Team Science seed grant award from the UC Davis School of Medicine for their proposal: “An Academic Center for Interventional Genetics.” Read more » [School of Medicine announces 2022 Cultivating Team Science awards.](#)

Congratulations to Gavin Traber, a Yu Lab Ph.D. candidate, for receiving second-year funding of a NIH Predoctoral Training in Pharmacological Sciences T32 grant. The grant will continue to provide training and funding for Gavin’s project: “Novel bioengineered miR-7-5p prodrug for the treatment of Non-Small Cell Lung Cancer.” Read more » [Predoctoral Training Program in Pharmacological Sciences.](#)

Comings & Goings

Kevin Phelps joined the department as our new safety coordinator on June 13, 2022. Kevin comes to BMM from the Campus Environmental Health and Safety Office, and many faculty and staff will already know him from his work in hazardous waste collection in the UC Davis School of Medicine. He brings over 14 years of experience in hazardous materials and waste management to the role. We are thrilled to have him as part of the administrative team. Kevin is an avid golfer and enjoys riding motorcycles and spending time with his family. **Welcome Kevin!**



Happy trails! to three Carvajal-Carmona trainees who will start their post-

undergraduate journeys this year. **Alexa Morales Arana** will begin medical school at UC Davis, **Rasika Ventakesh** will begin her Ph.D. in computational biology at the University of Pennsylvania, and **April Vang** will begin her master's degree in biostatistics at UC Davis.

In the News

Led by Dr. **John Voss**, the startup company **ParaMag Biosciences** is using paramagnetic molecules to target misfolded proteins that cause degenerative diseases, including Alzheimer's. These efforts are profiled in a recent UC Davis Health story by **Neelanjana Gautam**. Read more » [*Startup developing technology to combat degenerative diseases.*](#)

InterVenn Biosciences, a clinical technology company co-founded by Dr. **Carlito Lebrilla**, opened new locations in San Diego, the Philippines, Australia, and Malaysia to expand software development, clinical research, and technical support. Read more » [*InterVenn Expands Global Presence to Drive the Potential of Glycoproteomics to Improve Patient Outcomes.*](#)

An opinion piece in The New York Times Sunday Review highlighted the work of Dr. **David Olson**, whose research group is engineering non-hallucinogenic analogs of psychedelics to treat neuropsychiatric disorders and neurodegenerative diseases. Read more » [*Psychedelics for Depression: Can They Work Without Hallucinations?*](#)

EverGrain, a sustainable ingredient company, appointed Dr. **Justin Siegel** to an advisory board investigating the full potential of brewers spent grain (BSG), a beer-brewing byproduct, and its benefits to human health and environmental sustainability. Read more » [*Scientific board at EverGrain to examine potential of spent grains.*](#)

In UC Davis Magazine, **Andy Fell** reported on a unique collaboration between Drs. **Lin Tian** and **David Olson** to develop drugs for psychiatric treatment that decouple the hallucinogenic properties of psychedelics from their capabilities to repair damaged neural connections. Read more » [*Changing Minds | UC Davis Magazine.*](#)

At the 2022 **International Society for Autism Research** annual meeting, Dr. **Sierra Nishizaki**, a **Dennis Lab** postdoctoral researcher, presented on a novel gene linked to larger brain sizes in autistic people, reports **Laura Dattaro** of **Spectrum News**. Read more » [*Novel gene linked to brain size in autistic people.*](#)

A team of UC Davis researchers, including Drs. **Yoshihiro Izumiya** and **Clifford Tepper**, identified **CDH4**, a protein in cancer cell nuclei, as a regulating molecule that keeps Kaposi's sarcoma-associated herpesvirus

dormant and undetected. Read more » [Discovery of cell protein that keeps Kaposi's sarcoma herpesvirus dormant.](#)

Dr. [Megan Dennis](#) spoke to The California Aggie, UC Davis' student newspaper, about her laboratory's contributions to the [Telomere-to-Telomere \(T2T\) Consortium](#), an effort to generate the first complete assembly of a human genome. Read more » [New human reference genome is complete for the first time since 2001.](#)

Lauren Andrews, a biochemistry student who worked in Dr. [Thomas Jue's](#) laboratory, was profiled in a series on the graduating class of 2022. The [Jue Lab](#) researches "how to improve kidney disease through exercise" and "if there is a link between autism and diabetes." Read more » [Onward and Upward | UC Davis Magazine.](#)

Recent Publications

Tassanakijpanich N, Wright R, Tassone F, Shankar SP, Hagerman R. 2022. [Fragile X syndrome in a girl with variant Turner syndrome and an isodicentric X chromosome.](#) *BMJ Case Reports*.

AlOlaby RR, Zafarullah M, Barboza M, Peng G, Varian BJ, Erdman SE, Lebrilla C, Tassone F. 2022. [Differential Methylation Profile in Fragile X Syndrome-Prone Offspring Mice after in Utero Exposure to Lactobacillus Reuteri.](#) *Genes (Basel)*.

Hwang YH, Hayward BE, Zafarullah M, Kumar J, Johnson BD, Holmans P, Usdin K, Tassone F. 2022. [Both cis and trans-acting genetic factors drive somatic instability in female carriers of the FMR1 premutation.](#) *Scientific Reports*.

Yi C, Yu AM. 2022. [MicroRNAs in the Regulation of Solute Carrier Proteins Behind Xenobiotic and Nutrient Transport in Cells.](#) *Frontiers in Molecular Biosciences*.

Traber GM, Yu AM. 2022. [RNAi Based Therapeutics and Novel RNA Bioengineering Technologies.](#) *Journal of Pharmacology and Experimental Therapeutics*.

Hilt S, Liu R, Maezawa I, Rojalin T, Aung HH, Budamagunta M, Slez R, Gong Q, Carney RP, Voss JC. 2022. [Novel Stilbene-Nitroxyl Hybrid Compounds Display Discrete Modulation of Amyloid Beta Toxicity and Structure.](#) *Frontiers in Chemistry*.

Chow JC, Hormozdiari F. 2022. [Prediction of Neurodevelopmental Disorders Based on De Novo Coding Variation.](#) *Journal of Autism and Developmental Disorders*.

Chow JC, Zhou R, Hormozdiari F. 2022. **MAGI-MS: multiple seed-centric module discovery**. *Bioinformatics Advances*.

Kumar A, Lyu Y, Yanagihashi Y, Chantarasrivong C, Majerciak V, Salemi M, Wang KH, Inagaki T, Chuang F, Davis RR, Tepper CG, Nakano K, Izumiya C, Shimoda M, Nakajima K, Merleev A, Zheng ZM, Campbell M, Izumiya Y. 2022. **KSHV episome tethering sites on host chromosomes and regulation of latency-lytic switch by CHD4**. *Cell Reports*.

Community Outreach

Sacramento Charter High School Research Program



This summer, eight Sacramento Charter High School (SCHS) students participated in the **BMM-SCHS Summer Research Program**. As part of this annual community outreach program, students were provided with hands-on opportunities to contribute to research projects in the laboratories of **Drs. Megan Dennis, Kit Lam, Yuanpei Li, David Segal, Flora Tassone, and Lin Tian**. At a virtual celebration on July 22, 2022, the SCHS students presented about the projects they had worked on and shared takeaways from their summer experience. Students said the program was a fantastic experience, and they appreciated opportunities to learn new laboratory techniques and to develop team skills. They also realized over the summer that experiments often progress in unexpected ways — a crucial part of the scientific process! This exposure to science has an impact on students' intent to major in STEM. And, for all mentors, it was a gift to share their love of science with these visiting students.

Conferences, Seminars & Workshops

Conference Presentations

Dr. [Flora Tassone](#) presented “A Double-Blind, Placebo-Controlled Trial of Metformin in Individuals with Fragile X Syndrome” at the 18th NFXF International Fragile X Conference. Read more » [18th NFXF International Fragile X Conference](#).

Dr. [Luis Carvajal-Carmona](#) was an instructor at the 2022 GMaP Career Development Workshop for early stage and new investigators, hosted by the Fred Hutchison Cancer Center in Seattle. Read more » [Geographic Management of Cancer Health Disparities Programs and Funding](#).

Drs. Nicole Halmai and Ana Estrada-Florez, [Carvajal-Carmona Lab](#) postdoctoral fellows, were accepted to attend the America Association for Cancer Research Integrative Molecular Epidemiology Workshop, held in Boston at the end of July. Read more » [Integrative Molecular Epidemiology Workshop: Bridging Cancer Biology and Precision Medicine](#).

Dr. [Flora Tassone](#) presented “Identification of Biomarkers Predictive of Medical and Psychiatric Risk in Chromosome 22q11.2 Deletion Syndrome” at the 12th Biennial International 22q11.2 Conference. Read more » [12th Biennial International 22q11.2 Conference](#).

Dr. [Luis Carvajal-Carmona](#) presented “The need to diversify DNA databases and precision medicine tools: Implications for advancing health equity” at the 2022 ADVANCE Award Symposium, organized by the UC Davis Office of Diversity, Equity, and Inclusion. Read more » [2022 ADVANCE Award Symposium: Inclusivity, Equity, and Ethics in Research and Data Science](#).

Dr. [Flora Tassone](#) presented “Metformin: Targeted Treatment for Fragile X Syndrome” at the Gordon Research Conference on Fragile X and Autism-Related Disorders. Read more » [2022 Fragile X and Autism-Related Disorders Conference GRC](#).

BMM Research in Progress Seminar Series

The BMM Research in Progress Seminar Series will host three BMM faculty — [Colleen Sweeney](#), Ph.D., [Luis Carvajal-Carmona](#), Ph.D., and [Hongwu Chen](#), Ph.D. — over the coming months. Dr. Sweeney will deliver the first of these on August 18, 2022. Further details can be found by visiting the seminar [calendar](#).

Open Positions

1. [Assistant/Associate Specialist — Yu Lab](#).
2. [Postdoctoral Fellow — Sweeney Lab](#).

3. Junior Specialist — Tian Lab.

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 **September 26, 2022**.

You can send questions, comments, and feedback to [Daniel](#) anytime as well. We'll be back in your inbox on October 3, 2022. Until then, take care!

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