



**UCLA**

Molecular Biology Institute

# ANNUAL REPORT

2022-2023

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## **MOLECULAR BIOLOGY INSTITUTE**

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## **MBI Director's Report**

Dear Colleagues,

This past year, the MBI has sought to promote outstanding research at UCLA in the broad area of molecular biology. This includes supporting members of the MBI community at all levels. I appreciate the efforts of many members of our community who have contributed to the MBI and allowed us to pursue our research and educational missions.

We are proud of the many accomplishments of the MBI faculty in the past year. Professor Leonid Kruglyak was elected to the National Academy of Sciences. Professors Lena Parnas and D'Juan Farmer were named inaugural Freeman Hrabowski Scholars of the Howard Hughes Medical Institute. MBI member Mireille Kamariza was featured in Nature Medicine as one of 11 “up and coming” researchers. Heather Christofk, Kathrin Plath and Aparna Bhaduri received an award from the Chan-Zuckerberg Institute. Arjun Deb published a paper on fibroblasts in heart scar tissue in Science. Don Kohn and Gay Crooks published a paper in Cell on using CRISPR base editing to treat patients with severe combined immune deficiency. April Pyle published a paper in Nature Cell Biology on regeneration of human skeletal muscle. MBIDP student Geoff Pronovost and his mentor Elaine Hsiao published a paper on the maternal microbiome in placental development in Science Advances. MBI faculty members authored over 200 publications this year and we are delighted to recognize all of their accomplishments.

The MBI Thursday Seminar Series, which has been co-chaired in the last year by Jose Rodriguez and Elizabeth Tarling, brought outstanding scientists to our community including James Olzmann (UC Berkeley), Elizabeth Wright (UW-Madison), Eva Nogales (UC Berkeley), Cory Abate-Shen (Columbia), John Schoggins (UT\_Southwestern), Jonah Chan (UCSF), and Prachee Avasthi (Dartmouth). These weekly seminars continue to provide an important focal point for our discussions of the latest developments in molecular biology throughout the world. We thank the Seminar Series chairs and the entire seminar committee for their contributions. Thank you to the faculty who hosted speakers. I am also extremely grateful to Helen Houldsworth and Nadia Avila for their stewardship of the series and of the MBI as a whole.

We were delighted to host the 2023 Sigman Symposium this past year. The symposium represents an important opportunity to remember one of the founders of the MBI, David Sigman. The 2023 honoree, Dr. Russell DeBose-Boyd from UT Southwestern, gave a riveting seminar on his research on cholesterol synthesis. We are grateful to Cathy Clark, the chair of the Sigman committee and all of the members of the committee. We were also delighted to introduce Dr. DeBose-Boyd to the research within the MBI through a student-organized poster session.

The student-organized MBI Retreat at the Skirball Cultural Center, with Keynote speaker Elena Zuniga (UCSD), was another opportunity for the MBI community to come together and discuss the exciting and varied research in MBI laboratories. The career panels provided valuable insights into multiple different career paths taken by program alumni with Ph.D.'s in molecular biology.

I am grateful to outstanding Home Area Directors Tom Vallim, Elissa Hallem, Alvaro Sagasti, and Feng Guo for all of their efforts to ensure the students in the MB-IDP have the best possible training experience. I also greatly appreciate the efforts of First Year Curriculum Coordinator, Professor April Pyle. As a team,

we have been evaluating and revising our curriculum including adding a new quantitative class that is providing our students with skills in computer programming and statistics that will be valuable for them throughout their Ph.D. All of the faculty who teach within the MB-IDP curriculum work extremely hard to provide an outstanding educational experience for the students, and I thank them for their efforts.

During the 2022-2023 academic year, our program included 156 graduate students. 18 students completed their doctoral training. Many of our students have been recognized with internal and external fellowships and training grants. They have also been active participants at national and international conferences. Our students are our legacy and we are fully committed to improving their training and research experience. We are also eager to stay connected with our alumni and to the community of donors and supporters.

Through the generosity of Audree Fowler, the MBI was able to award five Audree Fowler Fellowships in Protein Science to Declan Evans (Houk lab), Ashley Julio (Backus lab), Alex Stevens (Zhou lab), Cody Gillman (Gonen lab), and Troy Lowe (S. Clarke lab). We were delighted to hear these outstanding students present their exciting research at the awards ceremony. The Parvin-Boyer post-doctoral recognition awards have continued to recognize our outstanding body of post-doctoral trainees. The 2022-2023 recipients were Daniel Gray (De Biase lab), Justin Langerman (Plath lab), and Baocheng Liu (Feigon lab). The recipients gave excellent presentations in which they shared their exciting research with our community and representatives from the Parvin Foundation.

We continue our strong relationship with the Educational Outreach team at Amgen. The recent Amgen X University Day was an opportunity for MBI students and postdocs to join with students from USC and UCSB for a day of lab tours, research presentations and panel discussions focused on careers in the biotech industry.

Last year's Annual Report included a Symposium to honor former MBI Director Arnold Berk and the launch of the Arnold J Berk fund to support graduate students and postdoctoral scholars. This year we are delighted to announce that this fund has reached the threshold for an endowment, representing a long-term source of support for our talented researchers. Thanks to all of our generous donors, including many of Arnie's former lab personnel and colleagues, for making this endowment possible! We look forward to announcing the first Berk award recipients in next year's report.

Thank you so much for your commitment to our community.

I look forward to seeing you at our events, symposia, and seminars!

Hilary Coller  
Professor, Molecular, Cell and Developmental Biology  
MBI Director

## **MBI COMMITTEES**

Thank you to the following people for their service on MBI committees during the 2022-2023 academic year:

### **Advisory Committee**

Jeff Long, Catherine Clarke, Alexander Hoffmann, Siavash Kurdistani, Todd Yeates, Rachelle Crosbie-Watson and Jerome Zack

### **Membership Committee**

Megan McEvoy (Chair), Reza Ardehali, Alice Soragni, Alison Frand, Xia Yang

### **Thursday Seminar Series Planning Committee**

Jose Rodriguez and Elizabeth Tarling (Co-Chairs), Douglas Black, Hilary Coller, Michael Teitell, Arjun Deb, Austin Nakano, Jie Zheng, Lin Jiang, Chao Peng, Ye Zhang, Valentia Alonso, Alberto Vazquez, Haripriya Vaidehi Narayanan., and Benancio Rodriguez.

### **Sigman Award Selection Committee**

Catherine Clarke (Chair), Steven Clarke, James Wohlschlegel, Hanna Mikkola, Brigitte Gomperts, James Zhen, Andrew Goring

### **Audree Fowler Fellows in Protein Science Review Committee**

Margot Quinlan and John Colicelli, Julian Whitelegge

### **Boyer/Parvin Postdoctoral Awards Review Committee**

Sonal Srikanth, Slavica Tudzarova, Hong Zhou

### **Diversity, Equity and Inclusion Committee**

Dana Franklin, Timmie Britton, Edgar Perez-Reyes, Yesica Mercado-Ayon, Salena Gallardo, Angelina Flores\*, Graham Read\*, Kelly Kennewick, Amara Thind, Raquel Aragon, Ralph Valentine Crisostomo\*, Carlos Galvan, Devin Gibbs, Manuel Mora, Chris Luthers, Gabriella Rubert, Matthew Romero, Daniel Velez-Ramirez, Aparna Bhaduri, Louis Bouchard\*, Jie Zheng, Jing Wen, Anthony Covarrubias, Siobhan Braybrook, Stephanie Correa, Claudio Villanueva, Elizabeth Tarling, Hilary Coller, Jocelyn Rodriguez, Bitta Kahangi, Ambre Bertholet, Sari Terrazas, Johnny Ji, Allison Schiffman, Sydney Campbell, Casey Shapiro\*  
*\*Mental Health Subcommittee Member*

### **Postdoctoral Researchers Committee**

Daniel Velez-Ramirez, Erica Pandolfi, Yasaman Jami, Roger Castells, Randilea Nichols Doyle, and Laurent Voisin

### **Whitcome Fellowship Review Committee**

Peter Tontonoz (Chair), Tamer Sallam, James Wohlschlegel, Claudio Scafoglio, Marlin Touma, Jing Huang, Louis Bouchard,

**Development Committee**

William Lowry, Peter Bradley, David Eisenberg, Patricia Johnson,  
Steve Clarke, April Pyle, Melissa Spencer, Brigitte Gomperts

**Dissertation Award Committee**

Valerie Arboleda, Luke Nikolov, Jeff Abramson

**Diversity, Equity and Inclusion Award Committee**

Stephanie Correa and Claudio Villanueva

**Teaching Excellence Award Reviewer**

Jeffrey Maloy

**Molecular Biology Interdepartmental Ph.D. Program (MB-IDP) Committee**

Hilary Collier (Chair)

Home Area Directors: Elissa Hallem (IMMP), Thomas Vallim (GREAT),  
Feng Guo (BBSB), Alvaro Sagasti (CDB)

**Annual Retreat Planning Committee**

Alejandro Torres (Chair), Dana Franklin, Ian Ford, Gregory Lum, Emily Peluso, Samuel DeMario,  
Jocelyn Rodriguez, Angela Sun, Qiao-Qiao Wang, Vivian Yang, Amy Yu, James Zhen

## **MBI PROGRAMS & EVENTS**

### **The Audree Fowler Fellows in Protein Science**



Dr. Audree V. Fowler has been a dedicated Bruin for more than 60 years. A strong supporter of the basic sciences, the performing arts, and medicine at UCLA, she demonstrated her devotion to the College of Letters and Science by establishing the Audree V. Fowler Graduate Fellowship in Protein Science, to be administered by the Molecular Biology Institute. To date, these fellowships have been awarded to more than thirty talented graduate students.

Audree received her B.S. in chemistry from UCLA in 1956 and went on to earn a Ph.D. in biochemistry in 1963, when that field was almost exclusively male. She served as a NIH postdoctoral fellow at the Albert Einstein College of Medicine in New York and in UCLA's Department of Biological Chemistry before becoming a research biological chemist in the David Geffen School of Medicine at UCLA. She built an eminent research career which includes over 80 publications. She also built strong connections with the Molecular Biology Institute, the Department of Biological Chemistry in the David Geffen School of Medicine, the UCLA Protein Microsequencing Facility—where she served as director for 15 years—and the Jonsson Comprehensive Cancer Center. She is one of five founding members of the Association of Biomolecular Resource Facilities (ABRF), which is now an international organization of 1,100 members. She was named the first lifetime member of the organization in 2008.

Although she retired from UCLA in 1999, Fowler is determined to remain active. She is an avid Bruin, maintaining her emeriti membership in the Molecular Biology Institute and serving on the board of directors of Women & Philanthropy. She also is on the executive board of Design for Sharing and the Iris Cantor UCLA Women's Health Center, and she volunteered at the Santa Monica Pier Aquarium—formerly the UCLA Ocean Discovery Center.

She expanded her involvement by giving tours of the Palisades Park hosted by the Santa Monica conservancy and then the conservancy was looking for docents for the Marion Davies Beach House. Audree has been a docent since it opened in 2009. It is only fitting since the Protein Facility was located very close to the Marion Davies Children's Clinic at UCLA (a note in passing the funding of the center was the most given to UCLA at that time).

The Audree V. Fowler Graduate Fellowships in Protein Science serves as a fitting testament to Fowler's commitment and dedication to her research and to UCLA. The fellowships are awarded to promising Ph.D. candidates working in protein science. The crucial resources provide by the award advance the education of the Fowler Fellows by enabling them to concentrate on their innovative research.

*"The sciences gave me a great life and now I want to help others to have the same opportunities I enjoyed."*

## 2022 Recipients

- Declan Evans (Houk Lab) "Computational Insights from Engineered Enzymes"
- Cody Gillman (Gonen Lab) "Structure and function of nerve agent palytoxin revealed by MicroED"
- Ashley Julio (Backus Lab) "Leveraging cysteine chemoproteomics to uncover the functional impact of targeting RNA-binding proteins"
- Troy Lowe (S. Clarke Lab) "Human protein arginine methyltransferases (PRMTs) can be optimally active under nonphysiological conditions"
- Alex Stevens (Zhou Lab) "Resolving the mysteries of assembly and transcription in dsRNA viruses with cryoEM"

More information about this year's recipients and their research can be found [www.mbi.ucla.edu/fowler-fellows](http://www.mbi.ucla.edu/fowler-fellows)

## Boyer/Parvin Postdoctoral Awards

MBI Founding Director Paul Boyer had a deep regard for postdoctoral researchers. He appreciated the dedication, intellect and skill they bring and the impact of their research on scientific progress. It was in this spirit that Dr. Boyer donated a portion of his 1997 Nobel Prize to establish the Postdoctoral Awards. Additional support from his longtime colleague James Peter, from Phyllis Parvin on behalf of the Parvin Foundation and from Amgen Inc. created an opportunity to recognize over 100 exceptional researchers in Chemistry, Biochemistry and Molecular Biology, for the past 16 years.

The Parvin Foundation has been a tireless supporter of molecular biology research since the gift of \$1 million made the Molecular Biology Building (now Paul D. Boyer Hall) possible. Foundation President Phyllis Parvin continues to be an avid supporter of the postdoctoral awards. Thanks to the Parvin Foundation, Amgen Inc and individual donors who believe in the value of postdoctoral research, we are able to continue the tradition of recognizing these exceptional scientists.

### Award Recipients:

**Daniel Gray, Ph.D.** (De Biase lab)

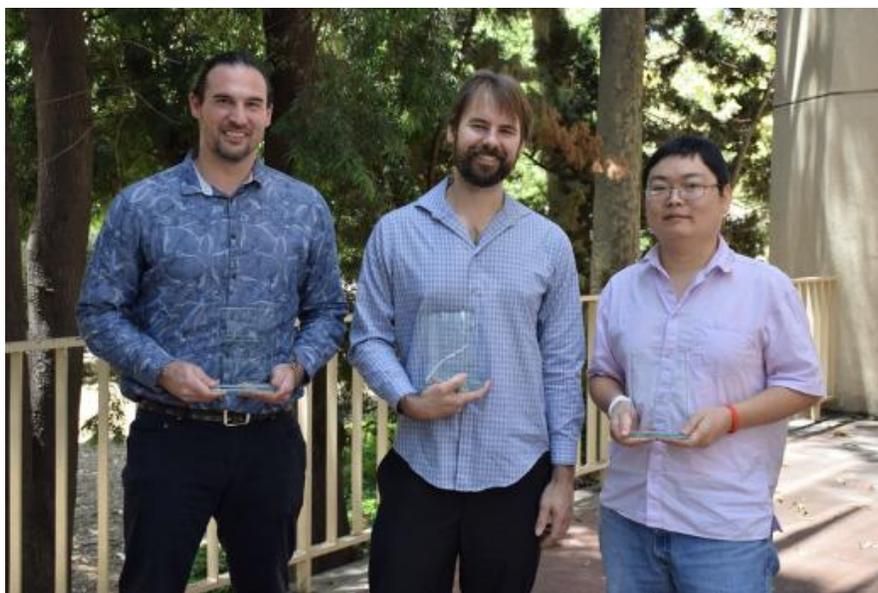
*"A remodeling of microglia-extracellular matrix interactions in the aged behaving brain"*

**Justin Langerman, Ph.D.** (Plath lab)

*"Developing single cell methods and analysis approaches to discover new facets of cell fate reprogramming, lung biology, and cellular secretion"*

**Baocheng Liu, Ph.D.** (Feigon lab)

*"Cryo-EM structure of human telomerase with shelterin protein TPP1"*



(L to R: Daniel Gray, Ph.D. (De Biase lab), Justin Langerman, Ph.D. (Plath lab), Baocheng Liu, Ph.D. (Feigon lab))

## Thursday Seminar Series

4:00 PM – Boyer Hall 159

This seminar series continues to be a focal point of MBI activities. The 2022-2023 schedule included national and internationally renowned speakers, invited and hosted by MBI Faculty and students from the MB-IDP program.

2022-2023 Academic Year				
MBI Thursday Seminar Series				
Date	Speaker	Institution	Title	Host
9/29/22	James Olzmann, Ph.D.	Associate Professor, Molecular & Cell Biology; Nutritional Sciences & Toxicology University of California, Berkeley Investigator, Chan Zuckerberg Biohub	"Mechanisms of lipid quality control and ferroptosis"	Claudio Villanueva
10/6/22	Elizabeth Wright, Ph.D.	Henry Lardy Professor, Biochemistry University of Wisconsin-Madison	"Structural studies of viruses by correlative cryo-electron microscopy"	Jose Rodriguez and Maria Flores
10/20/22	Eva Nogales, Ph.D.	Distinguished Professor, Molecular and Cell Biology University of California, Berkeley	"Molecular mechanisms in the regulation of the gene silencer PRC2"	MBI Students and Postdocs
10/27/22	Cory Abate-Shen, Ph.D.	Chair, Department of Molecular Pharmacology and Therapeutics Columbia University Irving Medical Center	"Of mice and men: Learning about human prostate cancer by studying mouse models"	Hilary Collier
11/3/22	John Schoggins, Ph.D.	Associate Professor of Microbiology Director of Molecular Microbiology Graduate Program UT Southwestern Medical Center	"Cell intrinsic control of viral infection"	Melody Li
11/10/22	Jonah Chan, Ph.D.	Rachleff Professor of Neurology UCSF Weill Institute for Neurosciences Division of Neuroimmunology and Glial Biology Multiple Sclerosis and Neuroinflammation Center Innovation Program for Remyelination and Repair University of California, San Francisco	"Myelin wraps up critical period plasticity in the visual cortex"	Ye Zhang
11/17/22	Prachee Avasthi, Ph.D.	Co-founder and CSO of Arcadia Science	"From models to non-models: exploring new	Alice Soragni

		Associate Professor of Biochemistry and Cell Biology Geisel School of Medicine at Dartmouth College	science and new ways to pursue it"	
1/12/23	Peter Adams, Ph.D.	Professor and Co-Director Aging, Cancer and Immunology Program Sanford Burnham Prebys Medical Discovery Institute	"The dynamic epigenome – challenges and opportunities for health aging and suppression of cancer"	Oliver Fregoso
1/19/23	Ruslan Afasizhev, Ph.D.	Professor, Molecular & Cell Biology Boston University Goldman School of Dental Medicine	"The ABC of RNA Editing in Trypanosomes	Hong Zhou
1/26/23	Jake Lusic, Ph.D.	Professor Medicine-Cardiology, Human Genetics, Microbiology, Immunology & Molecular Genetics University of California, Los Angeles	"Coagulation factor 11 mediates liver- heart crosstalk and protects against heart failure"	MBI Seminar Committee
2/2/23	Shawn Ferguson, Ph.D.	Associate Professor, Cell Biology and Neuroscience Yale University	"Pathways of Lysosome Dysfunction Across Neurodegenerative Diseases"	Lindsay De Biase
2/9/23	Danesh Moazed, Ph.D.	Professor, Cell Biology HHMI Investigator Harvard Medical School	"Chromatin-Associated RNA Decay in Epigenetic Gene Silencing"	Doug Black
2/16/23	Issam Ben-Sahra, Ph.D.	Assistant Professor, Biochemistry and Molecular Genetics Northwestern University Feinberg School of Medicine	"Signaling and Metabolic Control of Nucleotide Metabolism"	Anthony Covarrubias
2/23/23	Matthew Welch, Ph.D.	Professor, Molecular & Cell Biology University of California, Berkeley	"Mobilization of cell structures by microbial pathogens"	Kent Hill and Daniel Velez-Ramirez
3/2/23	Hui Zong, Ph.D.	Associate Professor, Microbiology, Immunology, and Cancer Biology University of Virginia	"Deep dive into glial biology through brain tumor research with MADM, a genetic mosaic system"	Ye Zhang

3/9/23	Rafi Ahmed, Ph.D.	Professor, Department of Microbiology and Immunology Eminent Scholar, Georgia Research Alliance Investigator, Emory Center for AIDS Research	"T Cell Lifestyle during Chronic Viral Infection and Cancer: Implications for Immunotherapy"	Bil Gelbart and Julia Gensheimer
3/16/23	Chris Bennett, M.D.	Assistant Professor, Psychiatry University of Pennsylvania	"Brain macrophage transplantation for research and therapy development"	Lindsay De Biase
4/6/23	Rong Fan, Ph.D.	Harold Hodgkinson Professor of Biomedical Engineering and of Pathology Yale School of Medicine	"Spatial Multi-Omics Driving the Next Wave of Biomedical Research Revolution"	Roy Wollman
4/13/23	Christiane Wobus, Ph.D.	Associate Professor, Microbiology and Immunology University of Michigan Medical School	"Studying enteric virus- host interactions in human intestinal organoids"	Benancio Rodriguez
4/20/23	Anthony Brown, Ph.D.	Professor, Neuroscience Ohio State University	"Cytoskeletal polymers as cargoes of intracellular transport: the remarkable dynamics of axonal neurofilaments"	Katie Ching and Alvaro Sagasti
4/27/23	Victor Torres, Ph.D.	C.V. Starr Professor of Microbiology Director, Antimicrobial-Resistant (AMR) Pathogens Program Department of Microbiology New York University Grossman School of Medicine	"Harnessing basic science to develop new approaches to combat Staphylococcus aureus infections"	Hung Ton- That
5/4/23	Dorothee Kern, Ph.D.	Professor, Biochemistry HHMI Investigator Chair of the Biochemistry Department Brandeis University	"Evolution of Energy Landscapes and its Exploitation for Drug and Enzyme Design"	Rob Clubb
5/11/23	Jason Shepherd, Ph.D.	Jon M. Huntsman Presidential Endowed Chair Chan Zuckerberg Initiative Ben Barres Investigator Associate Professor of Neurobiology, Biochemistry, and	"Virus-like intercellular signaling in the nervous system "	Roger Castells- Graells

		Ophthalmology & Visual Sciences University of Utah		
5/18/23	Clodagh O'Shea, Ph.D.	Professor and Wicklow Capital Endowed Chair Molecular and Cell Biology Laboratory The Salk Institute for Biological Studies	"Evolution of Energy Landscapes and its Exploitation for Drug and Enzyme Design"	Znala Williams
5/25/23	Andrew Ewald, Ph.D.	Virginia DeAcetis Professor of Basic Cancer Research Professor and Director of Cell Biology Director, Giovanis Institute for Translational Cell Biology The Johns Hopkins University School of Medicine	"Cellular strategies and molecular mechanisms driving breast cancer metastasis"	Luda Lin
6/1/23	Jing Chen, Ph.D.	Janet D. Rowley Distinguished Service Professor in Cancer Research Director of Basic and Translational Science, Section of Hem/Onc Associate Vice Chair for Translational Research Department of Medicine Director, Cancer Metabolomics Research Center Biological Sciences Division (BSD) The University of Chicago	"Nutrients, Metabolism and Cancer"	Heather Christofk
6/8/23	Hari Shroff, Ph.D.	Senior Group Leader Janelia Research Campus Howard Hughes Medical Institute	"Multiscale Biological Imaging at High Spatiotemporal Resolution"	Pavak Shah

## MBI Interdisciplinary Faculty Seminars

These informal presentations contribute to our scientific progress and enable our membership to keep up-to-date on current research developments by the MBI faculty.

2022-2023 Academic Year			
MBI Interdisciplinary Faculty Seminar Series			
Date	MBI Faculty Member	Department	Title
10/11/22	Tim O’Sullivan, Ph.D.	Microbiology, Immunology and Molecular Genetics	“Everything, Everywhere, All at Once”
11/8/23	D’Juan Farmer, Ph.D.	Molecular, Cell and Developmental Biology	“Resolving mechanisms of growth control at cranial sutures”
12/13/23	Orkun Akin, Ph.D.	Neurobiology	“Building a brain with developmental neuronal activity”
1/10/23	Pavak Shah, Ph.D.	Molecular, Cell, and Developmental Biology	“Quantitative embryology: New approaches to the measurement of cell lineages”
2/14/23	Amander Clark, Ph.D.	Molecular, Cell, and Developmental Biology	"Epigenetic Regulation of Human Germline Development"
3/14/23	Jeff Long, Ph.D.	Molecular, Cell, and Developmental Biology	"TOPLESS mediated repression in plants: new links to old friends"
4/11/23	Julia Mack, Ph.D.	Medicine-Cardiology	"Mechanosensitive Signaling Domains: Protectors Against Vascular Inflammation"
5/9/23	Lydia Daboussi, Ph.D.	Neurobiology	"Transcriptional Regulation of Nerve Regeneration After Injury and Chronic Disease"
6/13/23	Danielle Schmitt, Ph.D.	Chemistry and Biochemistry	"Illuminating Compartmentalized Regulation of AMPK activity"

## MBI Annual Retreat & Research Conference



***Keynote Speaker***  
***Elina Zuniga, Ph.D.***

The MBI Retreat is organized each year by student representatives from the Molecular Biology Interdepartmental Ph.D. Program, the Cellular & Molecular Biology Training Program and the Cell-Biology Interface Training Program. The program offers the opportunity for the MBI community; students, postdocs and faculty, to gather together to celebrate the diversity of intellectual pursuits that comprise modern molecular biology at UCLA.

The 44<sup>th</sup> MBI Annual retreat was held on September 6-7, 2023 via Zoom and in-person at UCLA and the Skirball Cultural Center. Over 200 people attended the retreat, including 148 graduate students and 52 faculty members. 48 students presented posters and 17 students gave oral presentations. One of the highlights of this year's retreat was the presentation by our Keynote Speaker, Dr. Elina Zuniga from the University of California, San Diego. The title of her talk was *"How and why a potent antiviral is suppressed during viral infection"*.

Another highlight of the retreat was the Career Panel, where professionals from industry, government, consulting and patent law outlined their career paths and gave professional development advice to the students.

The scheduled panelists this year were:

- Angela Lek, Ph.D. (Muscular Dystrophy Association)
- Kinneret Rand-Yadin, Ph.D. (SeeTrue Technology)
- John Diaz-Decaro, Ph.D. (Moderna)
- Sue Tsui, Ph.D. (AbbVie)
- Bethan Clifford, Ph.D. (Amgen)
- Ernesto Chanona, Ph.D. (CSSi Life Sciences)
- Deborah Capes, Ph.D. (Covance)
- Brandon R. Anjuwon-Foster, Ph.D. (Food and Drug Administration)
- Amy Lin, Ph.D. (Lundbeck)

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# 2023 MBI RETREAT AGENDA

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## WEDNESDAY, SEPTEMBER 13 (UCLA)

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8:30-9:00am	Coffee/Snacks	Northwest Campus Auditorium
9:00am	Welcome by Hilary Collier, PhD	
9:15-10:45am	<b>Session 1 Talks: Mitochondria/Metabolism/Age-Related Diseases</b> <b>Session Chair: Andrew Goldstein, PhD</b>	
	9:15-9:30am	Tara TeSlaa, PhD
	9:30-9:45am	Jessica Carstens-Kass
	9:45-10:00am	Kelsey E. Jarrett, PhD
	10:00-10:15am	Jordan Tibbs
	10:15-10:30am	Grigor Varuzhanyan, PhD
	10:30-10:45am	Chao Peng, PhD
10:45-11:00am	Break	
11:00-12:00pm	<b>Session 2 Talks: Gene Regulation and Computational Biology</b> <b>Session Chair: Thomas Vondriska, PhD</b>	
	11:00-11:15am	Pavak Shah, PhD
	11:15-11:30am	Brandon Boone
	11:30-11:45am	Gabriella Rubert
	11:45-12:00pm	Mykel Barrett
12:15-1:00pm	<b>Lunch (RSVP Required)</b> <i>Pre-ordered t-shirts will be distributed during lunch.</i>	Boyer 159
1:00-2:30pm	<b>Equity Pathways: Navigating Intersectional Identities, Inclusion, and Collaboration in Academia</b>	Boyer 159
2:45-3:45pm	<b>Career Panels</b>	
	<b>Panel 1: Industry Focus</b> <i>Moderated by Gabriella Rubert</i>	Boyer 159
	<b>Panel 2: Alternative Careers</b> <i>Moderated by Allison Schiffman</i>	BSRB 154
4:00-6:00pm	<b>Poster Session</b>	Hershey Hall Hallway and South Courtyard
6:30pm	<b>Social Night</b>	Boyer 159

# LOCATIONS

## WEDNESDAY, SEPTEMBER 13 (UCLA)

### SESSION 1 AND 2 TALKS + WELCOME

9:00AM-NOON

NORTHWEST CAMPUS AUDITORIUM

350 DE NEVE DR, LOS ANGELES, CA 90024

PARKING AVAILABLE AT SUNSET VILLAGE (200 DE NEVE DR)

### CAREER PANEL 2: ALTERNATIVE CAREERS

2:45-3:45PM

BSRB 154

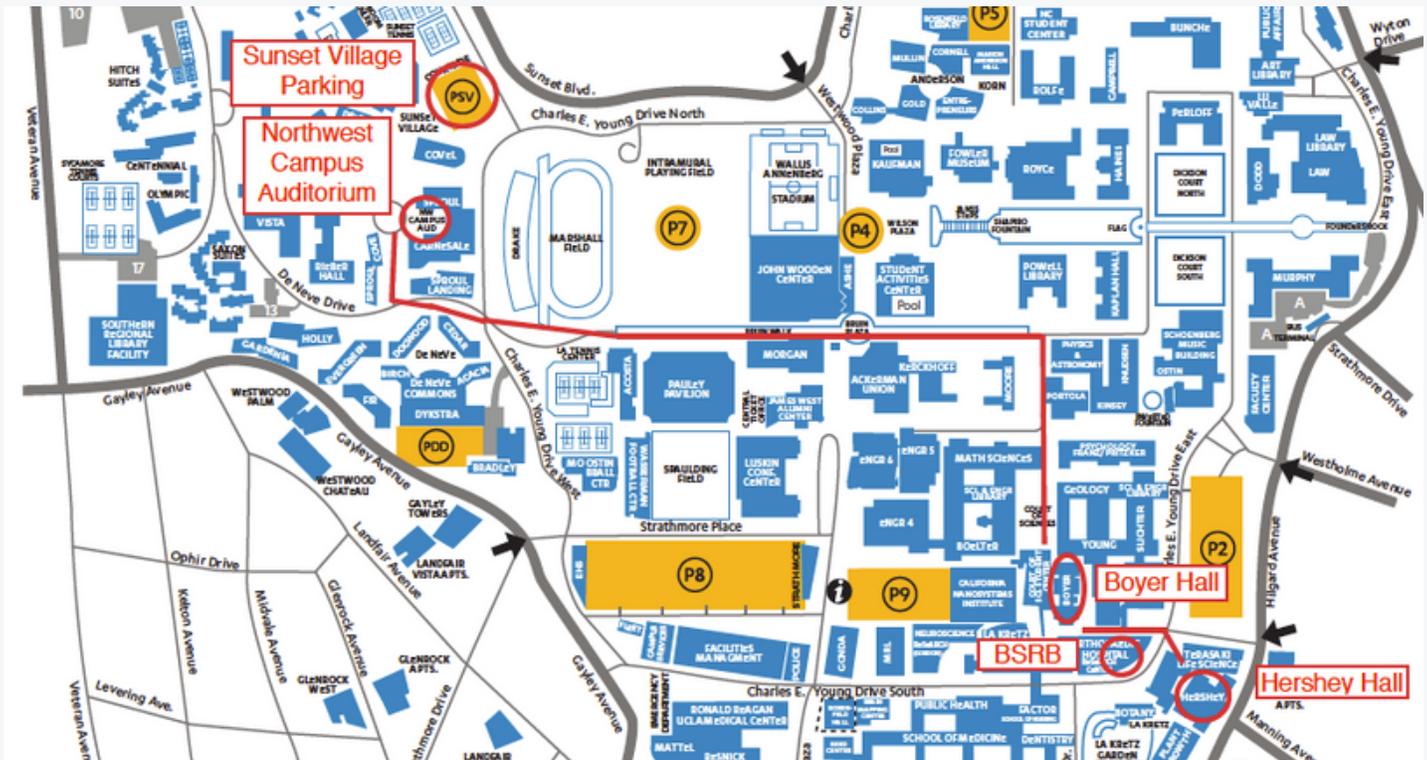
615 CHARLES E YOUNG DR S, LOS ANGELES, CA 90095

### POSTER SESSION

4:00-6:00PM

HERSHEY HALL HALLWAY/SOUTH COURTYARD

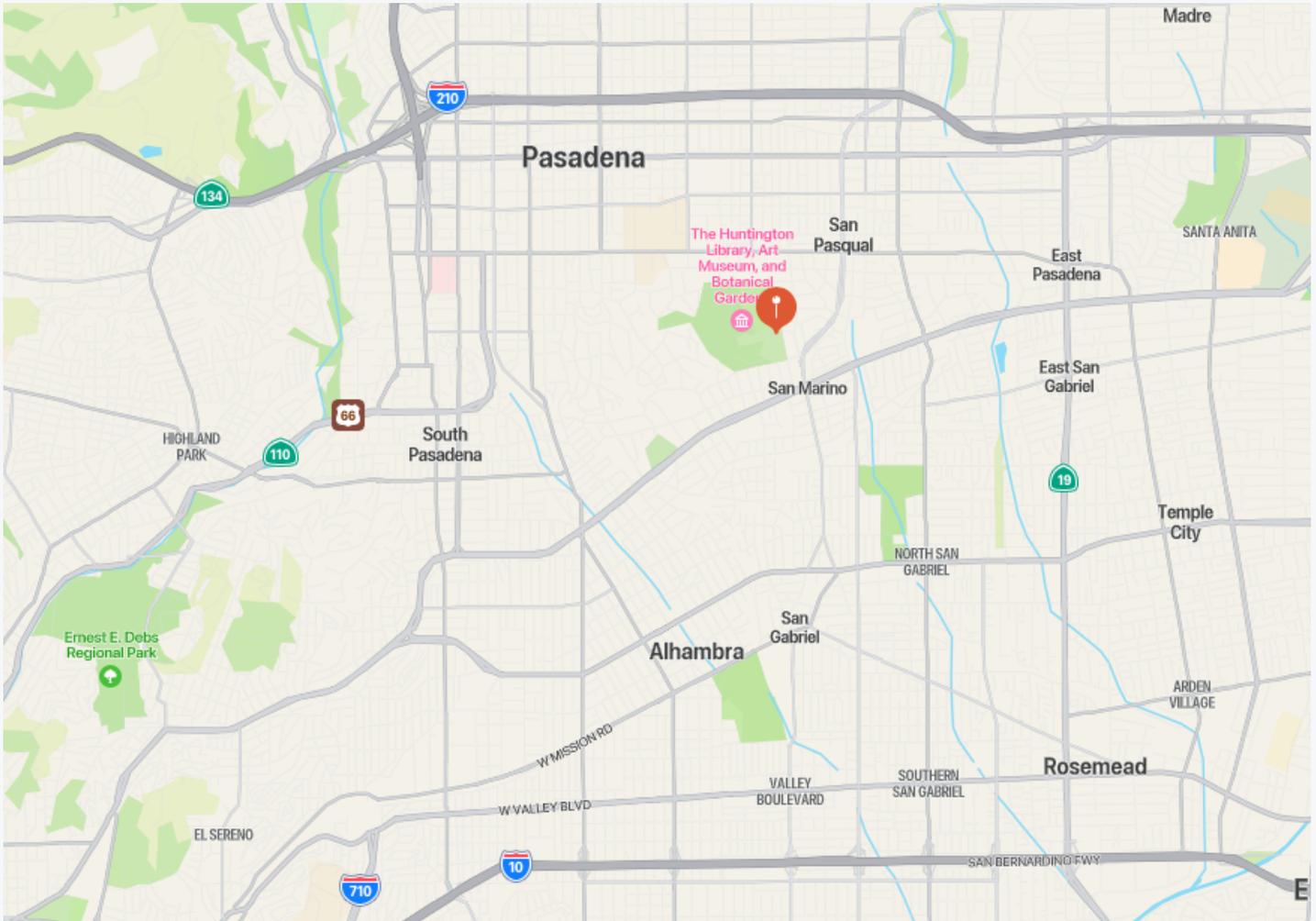
612 CHARLES E YOUNG DR E, LOS ANGELES, CA 90095



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**THURSDAY, SEPTEMBER 14 (THE HUNTINGTON, PASADENA)**  
**1151 OXFORD RD, SAN MARINO, CA 91108**  
**PARKING IS FREE**

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<b>7:00am</b>	<b>Meet Buses. Departure by 7:15am</b>	<b>Outside P. Lot 2</b>
<b>8:00-9:00am</b>	<b>Breakfast</b>	
<b>9:00-10:30am</b>	<b>Session 3 Talks: Immunity and Cell Development</b> <b>Session Chair: Anthony Covarrubias, PhD</b>	
	9:00-9:15am	Isaias Roberson
	9:15-9:30am	Jonathan DiRusso
	9:30-9:45am	Joey Li
	9:45-10:00am	Julia Gensheimer
	10:00-10:15am	Angela Sun
	10:15-10:30am	Grasiela Torres
<b>10:30-10:45am</b>	<b>Break</b>	

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## THURSDAY, SEPTEMBER 14 (THE HUNTINGTON, PASADENA)

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- 10:45-11:45am**     **Keynote Lecture**  
*Introduction by Jessica Carstens-Kass*  
**“Red Queen rules: genetic conflicts shape biology”**  
**Harmit Malik, PhD**  
Professor, Fred Hutchinson Cancer Research Center  
Howard Hughes Medical Investigator
- 12:00-1:20pm**     **Lunch & Garden Tour**
- 1:30-2:45pm**     **Session 4 Talks: Infectious Diseases and Microbes**  
**Session Chair: Hung Ton-That, PhD**  
1:30-1:45pm Damia Akimori  
1:45-2:00pm Breanna Walsh  
2:00-2:15pm Ivan Salladay-Perez  
2:15-2:30pm Karly Nisson  
2:30-2:45pm Vivian Yang
- 2:45-3:00pm**     **Break**
- 3:00-4:00pm**     **Session 5 Talks: Structure/Chem Bio**  
**Session Chair: Catherine Clarke, PhD**  
3:00-3:15pm     AJ Addae  
3:15-3:30pm     Alek Lotuzas  
3:30-3:45pm     Roger Castells Graells, PhD  
3:45-4:00pm     Jonathan Jih
- 4:00-4:15pm**     **Break**
- 4:15-5:00pm**     **Awards and Introduction of First Year Students**  
DEI Awards  
Poster Awards  
Best WQE Award  
Dissertation Award  
Faculty Teaching Awards  
Teaching Excellence Awards
- 5:00-6:30pm**     **Reception**
- 6:30pm**     **Buses Return to UCLA**

## **MBI Diversity Equity and Inclusion**

The MBI and the MB-IDP are committed to providing an inclusive environment that supports every member. This year, through the work of the DEI committee, we sought to grow our community, ensure accountability, and provide training and resources that will lead to a more inclusive environment.

I am very grateful to our Diversity, Equity and Inclusion advisors Claudio Villanueva and Anthony Covarrubias. I am also grateful to the faculty, staff, postdoctoral fellows and students who are part of the Diversity, Equity and Inclusion Committee for their contributions to the MBI and their thoughtful input.

The DEI committee has been actively involved in improving the climate for all members of the community. One focus this year has been addressing the impact of the recently-implemented OneBill system, which has significantly affected student finances. The DEI committee and the MBI led information sessions with the OneBill team to identify the challenges created by the system and strategize possible solutions.

The DEI subcommittee on mental health developed and administered a survey to MBIDP students asking a range of questions about their mental and physical health. The committee is reviewing the responses and developing an action plan based on the feedback.

The MB-IDP is hosting Journey Talks that provided an opportunity for MBI faculty to share with students' information about their backgrounds. We thank Assistant Professor Harold Pimentel (Computational Medicine/Human Genetics) for being one of our inaugural speakers.

This past year, we were excited to host, in collaboration with IRACDA, Dr. Kirsten Turlo, who presented a seminar describing her experiences incorporating DEI material into STEM classes, The MBI also partnered with AMEBA to host a Demystifying the Oral Qualifying Exam event to help graduate students understand the expectations for this important milestone. We were delighted to partner with SEDS to host Eva Nogales who gave an extra seminar on her personal journey as a scientist in addition to her scientific seminar.

The MB-IDP has worked to ensure that incoming students have opportunities to learn about the organizations dedicated to inclusion within our community. Representatives from student groups are invited to interact with incoming students. In addition to a DEI-focused session held during Recruitment, the MBI Retreat also included DEI discussions for students and faculty.

The MBI is working to develop new activities that will promote student well-being and their sense of integration into our community. We thank the leaders of the MBI Running Club and the new MBI Climbing Club for their positive contributions to our environment. We also thank our Graduate Student representatives Edgar Perez Reyes and Chris Luthers for working with MBIDP leadership to improve the student experience.

The MBI recognizes excellence in Diversity, Equity and Inclusion at the MBI Retreat. Congratulations to the 2022-2023 DEI award winners: Samantha Butler (faculty awardee), Matthew Romero (postdoc awardee) and the IRACDA Team (Mike Carey, Claudio Villanueva, Lynn Talton and Rachel Kennison)

## **MBI FACULTY**

### **Newly Appointed MBI Members**

**Evan Dale Abel, M.D., Ph.D.**

**Department Chair and Professor, Medicine**

<https://profiles.ucla.edu/evan.abel>

The Abel laboratory is focused on understanding the molecular mechanisms that are responsible for cardiac dysfunction in obesity, type 2 diabetes and type 1 diabetes, and in elucidating the role of mitochondrial dysfunction in skeletal muscle, adipose tissue and platelets in the pathogenesis of insulin resistance, obesity and its cardiovascular complications. Our contributions have elucidated the contribution of oxidative stress in impairing mitochondrial bioenergetics in obesity and diabetes, the pleiotropic effects of insulin and growth factor signaling in cardiac hypertrophy, autophagy, mitochondrial dynamics and mitochondrial bioenergetics. We elucidated the contribution of hyperinsulinemia to cardiac pathology in diabetes and obesity, mechanisms linking lipotoxicity and mitochondrial dynamics and mechanisms linking altered myocardial glucose metabolism with heart failure.

**Yalda Afshar, M.D., Ph.D.**

**Assistant Professor, Obstetrics and Gynecology**

<https://www.theafsharlab.com/>

The Afshar lab is a translational laboratory integrating cutting edge prenatal maternal-fetal imaging, underlying genetic predispositions, and environmental clues to understand congenital heart disease and the placenta-cardiac axis. The laboratory seeks to understand the upstream and downstream signaling alterations in congenital heart disease and the placenta to define what we have termed the prenatal vascular phenotype.

**George Agak, Ph.D.**

**Assistant Professor-in-Residence, Medicine**

<https://www.uclahealth.org/departments/medicine/dermatology/research/george-agak-lab>

Dr. Agak is an expert in Immunology, Molecular biology and biochemistry at UCLA. Dr. Agak's laboratory focuses on the study of skin-related diseases, including acne and keloids. We are particularly interested in understanding how the immune system detects *Cutibacterium acnes*, and how it responds when there is dysbiosis within the skin microbiome. To dissect the mechanistic details of innate and adaptive immunity, we use all tools of modern research including high-throughput technologies to define the immune landscape of both healthy and diseased skin tissues as well as the metagenomic analysis of the skin microbiome. We also use high-affinity capture of macromolecular complexes (cellular interactomes) coupled with high-affinity mass spectrometry-based proteomics to characterize interactions between skin bacteria and immune cells.

**Mehdi Bouhaddou, Ph.D.**

**Assistant Professor, Microbiology, Immunology and Molecular Genetics**

<https://www.bouhaddoulab.org/>

The Bouhaddou lab is a Quantitative Systems Biology lab that seeks to understand the biological principles that govern the interplay between viruses and host signaling—from systems-level features to basic mechanisms. We systematically compare how different viruses manipulate, or are manipulated by, host phosphorylation signaling, using a combination of mass spectrometry [phospho]proteomics, experimental virology, and computational modeling. In addition to developing governing principles and discovering novel mechanisms of viral pathogenesis, we seek to identify and test multi-virus therapeutics. Conversely, we also use viruses to learn about ourselves, using them as tools to probe our own signaling circuitry, with applications to other disease areas such as cancer. The lab is half “wet” and half “dry”, cultivating an interactive exchange between experimental and computational workflows. Experimentally, we focus on global mass spectrometry proteomics, affinity purification mass spectrometry (APMS), cell culture-based virology, genetic perturbation screens, pharmacology, and molecular biology. Computationally, we specialize in bioinformatics, network modeling, and ordinary differential equation (ODE) modeling.

**Joseph Crompton, M.D., Ph.D.**

**Assistant Professor, Surgery**

<https://uclacromptonlab.com/>

We engage in laboratory and clinical investigations to elucidate mechanisms of immunological memory with the aim of developing novel immunotherapies for cancer patients. In particular, we study: (i) the induction and composition of intra-tumoral tertiary lymphoid structures, with a current focus on the role of B cells in antigen presentation and generation of a neoantigen specific humoral response; (ii) the ontogeny of activated CD8 T cells with the aim of elucidating key epigenetic, signal transduction, and metabolic features critical for the development of long-lived memory T cells, previously finding that inhibition of the serine/threonine kinase Akt results in the formation of long-lived T cells with potent anti-tumor activity.

**Lydia Daboussi, Ph.D.**

**Assistant Professor, Neurobiology**

<https://neurobio.ucla.edu/people/lydia-daboussi/>

A central challenge in neuroscience centers upon promoting nervous system regeneration. However, nervous system recovery after injury and during disease is often studied from a ‘neuron-centric’ perspective. This approach overlooks the interplay between neurons and glia, which facilitate neuronal function. Schwann cells, a type of peripheral glia, engage conserved cytoplasmic to nuclear signaling pathways to promote axonal myelination, and neural regeneration. The Daboussi lab integrates cell biology, protein biochemistry, and microscopy with mouse models human disease to understand how Schwann cells are affected by – and react to- peripheral nerve disease and injury.

**Mireille Kamariza, Ph.D.**  
**Assistant Professor, Bioengineering**  
<https://www.kamarizalab.com/>

My lab leverages concepts in chemistry, biochemistry, bioengineering, computational biology, and medicine, to develop diagnostic and therapeutic technologies against infectious diseases. We specifically focus on approaches to detect deadly infectious diseases in their native context. Previously, I have designed, studied, and developed novel fluorescent probes that permit the detection of species of the Corynebacterineae family - which includes Mycobacterium tuberculosis (Mtb), the causative agent of tuberculosis. This work permitted the invention of a novel method to detect live Mtb for applications in research and diagnostics. I also have expanded this chemical toolkit by developing trehalose probes in a broad spectrum of fluorescence wavelengths and continued to expand their utility to detect Mtb with great potential in medicine. The above-mentioned trehalose probes serve as the foundational technology for the proposed research. Lastly, my lab aims to engineer a variety of dyes, biomarkers, and tools (including RNA-based methods) to develop and study other deadly infections, such as Plasmodium falciparum (malaria).

**Jocelyn Kim, M.D., Ph.D., M.P.H.**  
**Assistant Clinical Professor, Medicine-Infectious Diseases**  
<https://profiles.ucla.edu/jocelyn.kim>

Millions of people continue to live with HIV/AIDS and are part of the global epidemic. Antiretroviral therapy (ART) can suppress but not cure HIV infection, mainly because of the persistence of infected cells. These cells arise from the ability of HIV to integrate its viral genome into the host cell's chromosomes and remain quiescent and elude the immune system. This reservoir of latently infected cells is the most formidable obstacle to curing HIV. Our research interests focus on developing approaches to eliminating latently infected cells. One approach is to use a "kick and kill" strategy, in which latent cells are induced to produce viral proteins by a latency reversing agent. However, latency reversing agents by themselves may not be able to eliminate the viral reservoir, thus we have also been developing effector immune cells supercharged to rapidly kill infected cells as they emerge from latency. We have extensive experience in developing humanized mouse models of HIV infection. In addition, we utilize virus barcoding technology in order to track and quantify viral and cellular clones of the viral reservoir by deep sequencing. Our overall goal is to deliver effective therapies for HIV eradication and advance toward clinical evaluation.

**Caroline Kuo, M.D.**  
**Assistant Professor-in-Residence, Pediatrics**  
<https://profiles.ucla.edu/caroline.kuo>

Gene Modification of Human Hematopoietic Stem Cells for the Treatment of Primary Immune Deficiencies Site-specific gene insertion of corrective DNA cassettes enabled by CRISPR/Cas9 in human hematopoietic stem cells (HSC) is becoming a realistic and promising approach for the treatment of many monogenic diseases of the blood system, including primary immune deficiencies and hemoglobinopathies. Targeted integration of an entire cDNA or mini-gene through homology-

directed repair (HDR) is particularly attractive for conditions in which diverse pathogenic mutations are distributed across the gene, and for which precise regulation of expression of the gene is needed and may be achieved using endogenous control elements. The Kuo Lab has been investigating this approach for several inborn errors of immunity and expanding this work to other gene editing technologies such as base editors and PRIME editing.

**Theodore Nowicki, M.D., Ph.D.**

**Assistant Professor-in-Residence, Pediatrics-Pediatric Hematology/Oncology, Microbiology, Immunology, and Molecular Genetics**

<https://www.mimg.ucla.edu/people/theodore-nowicki-ph-d-m-d/>

My area of interest is in T-cell-based cancer immunotherapy for sarcomas and other solid tumors, determining biological differences between responders and non-responders to these therapies, and using this information to further improve these cellular immunotherapeutics. The clinical paradigms with which I have been most interested previously are transgenic TCR adoptive cell therapy, immune checkpoint inhibition via blockade of CTLA-4, PD-1, and PD-L1, and the combination of both modalities to further optimize cellular therapies.

The methodologies which I utilize in my research include the characterization the evolution of transgenic cellular immunotherapeutics at the epigenomic, transcriptomic, phenotypic, and functional levels over time, and correlating these phenomena with clinical response or nonresponse.

Additionally, my laboratory is also focused on sarcoma-specific signaling networks which mediate resistance to T-cell-based immunotherapies. This work has the potential to impact the evolution of cellular immunotherapy for the treatment of the most aggressive bone and soft tissue tumors.

**Ketema Paul, Ph.D.**

**Professor, Integrative Biology & Physiology**

<https://uclapaulab.wixsite.com/ucla-paul-lab>

Dr. Paul studies the genetic, molecular, and neural underpinnings of sleep. His primary interests are comprised of uncovering the mechanisms responsible for the negative effects of sleep deprivation. He also probes the origins of gender/sex differences in the ability to recover from sleep loss in order to develop therapeutic targets for sleep disorders that disproportionately affect women. Dr. Paul's current research involves applying a forward genetics approach to uncover the core genes responsible for sleep-wake regulation and the impairing effects of sleep loss. Effective treatments for common sleep-wake disorders are elusive. Dr. Paul conducts a forward genetics approach to facilitate gene identification that takes advantage of natural variation occurring in sleep-replete and sleep-deprived mice. These studies are expected to identify novel sleep regulatory genes and lead to the development of new therapeutic targets and improved treatments for sleep disorders.

**Lena Pernas, Ph.D.**

**Assistant Professor, Microbiology, Immunology and Molecular Genetics**

<https://www.mimg.ucla.edu/people/lena-pernas-ph-d/>

An overarching goal of my research program is to understand how a cell actively rewires organellar function and metabolic processes to defend against microbes—which contrasts the traditional view that organelles are passive bystanders during infection that are exploited by microbes. To address this goal, we study the interaction between mitochondria, our cellular ‘powerhouses’, and the human parasite *Toxoplasma gondii* because we now know the molecules that mediate at least one aspect of their interaction.

Using the mitochondria-*Toxoplasma* system, we will tackle 3 main areas of inquiry. The first concerns our efforts to understand the dramatic changes in mitochondrial behavior that occur after *Toxoplasma* infection. In the past we have found that after trafficking to and around *Toxoplasma*, mitochondria remodel their morphology and shed their outer membrane. We are now focused on elucidating the mechanisms underlying these events. Our previous study of mitochondrial behavioral changes led us to discover that these organelles compete with *Toxoplasma* for nutrients, thereby restricting their growth. However, the mechanisms that rewire metabolism during infection and the extent to which host metabolism regulates microbial growth remain open questions. Our second area of inquiry addresses these questions at the level of the cell, the organism and the community. The antagonistic interactions between the host and *Toxoplasma* that we have previously focused on are a hallmark of short time scale interactions. So, our third and newer area of inquiry explores the emergence of mutualistic host-pathogen symbioses during long time scale interactions.

**Danielle Schmitt, Ph.D.**

**Assistant Professor, Chemistry and Biochemistry**

<https://dlschmitt.chem.ucla.edu/>

The overarching theme of my research group is to understand how the cell spatiotemporally regulates metabolism, and how this regulation is perturbed in disease. Metabolism is an essential process to every organism and precise organization of metabolic flux is critical to survival. Organization of metabolic proteins, metabolites, and related signaling networks can be achieved through compartmentalization of cellular processes in molecular gradients, in or around organelles, and within protein complexes to provide specificity and finetuning of cell activities. However, how compartmentation of metabolic processes occurs in healthy cells and the impacts of disease on compartmentalized metabolism is not well understood. Towards this end, I have launched a research program to investigate how cellular metabolic processes are compartmentalized and how disease states alter the spatiotemporal regulation of metabolism. My approach is to develop molecular tools and techniques to (1) study kinase signaling networks which regulate metabolic process and (2) interrogate metabolite flux in real time in single cells. Work my group will take on in the next few years includes connecting spatial signaling events to downstream cellular function using multi-‘omics’ approaches, developing genetically encoded biosensors for kinases regulating metabolism to study the spatiotemporal regulation of metabolic signaling, and to develop biosensors for metabolites and small molecules to study how metabolism is spatiotemporally organized, and

how metabolic disease states perturb this organization. Ultimately, this work will result in a new toolset to study metabolic regulation, enabling single cell measurements with high spatiotemporal resolution of metabolic events, and connection of compartmentalized activity to cellular function. This work will result in an unparalleled view of cellular biology, which will be used to study metabolic regulation in health and disease states, including cancer and inborn errors of metabolism, with the long-term goal of illuminating new therapeutic treatments for metabolic diseases.

**Debora Sobreira, Ph.D.**

**Assistant Professor, Biological Chemistry and Human Genetics**

<https://profiles.ucla.edu/debora.rodriguessobreira>

Dr. Débora Sobreira's research focuses on studying the impact of genetic differences on various aspects of living organisms. Using techniques from genetics, molecular biology, and developmental biology, she investigates how changes in our DNA can influence traits at different levels, from molecules to cells and whole organisms. A significant aspect of Dr. Sobreira's work involves exploring the function of noncoding regions in our DNA, which play a crucial role in regulating gene activity. Her investigations have revealed that alterations in these regions can contribute to the development of diseases such as obesity and diabetes. Through the development of experimental methods, she identifies and examines these regulatory regions to better understand their impact on our health. In Dr. Débora Sobreira's lab, graduate students have exciting opportunities to participate in projects focused on genetic variation and its effects on complex traits. Students will engage in hands-on experiments using stem cell cultures, with a particular emphasis on adipocytes, neurons, and cardiomyocytes. The lab employs advanced techniques such as 3D DNA conformation analysis, DNA accessibility studies, and gene expression analysis. Through these approaches, students can investigate how alterations in DNA influence organismal development and overall health.

**Tanya Stoyanova, Ph.D.**

**Associate Professor, Urology**

<https://stoyanovalab.org/>

Stoyanova lab develops new early cancer detection approaches and therapeutic strategies for late stage cancers. The ultimate goals of the laboratory are to improve the early diagnosis and prognosis of clinically significant prostate and other cancers and guide the development of novel and effective therapeutic strategies for metastatic cancers. The current research areas of interest and potential rotation projects are: 1) Targeted cancer therapies. We utilize multiple approaches to develop new therapeutic strategies for latest age cancers including discovery and testing new therapeutic targets, new small molecule inhibitors and antibody-based therapies for advanced prostate and other metastatic epithelial cancers. We also construct antibody-drug conjugates as a therapeutic strategy to deliver toxic agents to the tumor sites. 2) Combination therapies for advanced prostate and other epithelial cancers. We are testing multiple experimental agents in combination with FDA-approved cancer therapies to enhance therapeutic responses. 3) Protein-based biomarkers for early cancer detection. We are interested in the discovery and development of new tissue, blood, and urine-based biomarkers for significant prostate cancer and other epithelial cancers. 4) Imaging modalities for cancer. We are interested in developing new positron emission tomography (PET)

imaging modalities for epithelial cancers to improve cancer early detection and monitor treatment responses.

**Tara TeSlaa, Ph.D.**

**Assistant Professor, Molecular and Medical Pharmacology**

<https://www.teslaalab.com/>

Our lab studies how organismal and tissue metabolism is altered in metabolic diseases and how these alterations lead to cell and tissue dysfunction. Using in vivo stable isotope tracing, we are able to trace how nutrients are used in the body. This methodology enables us to gain a deeper understanding of the metabolic mechanisms that drive diseases such as type 2 diabetes and nonalcoholic fatty liver disease (NAFLD). One focus of the lab follows up on previous work in which we found large differences in glucose metabolism in different types of muscle fiber- red muscle fibers (type I and IIA) exhibit large glycolytic fluxes in sedentary animals while white muscle fibers have low glycolytic flux except during exercise. Current and future work seeks to understand mechanistically what drives high glycolysis in the red muscle fibers with the goal of identifying novel ways activate glycolysis and overcome muscle insulin resistance in type 2 diabetes. Another focus of the lab is to understand the metabolic changes that occur during the progression of NAFLD/NASH. We aim to dissect the metabolic drivers of fibrosis in the liver with the goal of identifying novel therapeutic targets.

**Soban Umar, Ph.D.**

**Associate Professor, Anesthesiology and Perioperative Medicine**

<https://labs.dgsom.ucla.edu/umar/pages/>

The Umar Laboratory's research is focused on investigating the molecular mechanisms and pathophysiology of primary and secondary forms of pulmonary hypertension and associated right ventricular dysfunction. Our long-term goal is to devise novel regenerative therapies for these cardiopulmonary disorders. We are also interested in investigating novel strategies for perioperative cardiopulmonary organ protection. Pulmonary hypertension is a chronic pulmonary vascular disease without a definitive cure. We are using state-of-the-art in vivo mouse and rat models, in vitro cell culture systems, and human blood and tissue samples to investigate the molecular mechanisms of the development of primary and secondary pulmonary hypertension. We are also investigating adverse structural and electrical remodeling of the right ventricle secondary to pressure overload that often leads to arrhythmias and sudden cardiac death.

## MOLECULAR BIOLOGY INTERDEPARTMENTAL PH.D PROGRAM (MBIDP)

Stephanie Cuellar (SAO)

Since the program's initiation in 1966-67, more than 500 students have earned their Ph.D. degree in Molecular Biology. During the 2022-23 academic year, there were 156 students in the MBIDP, including 35 new students, and 18 students completing their degree requirements.

The 2022-23 faculty mentors in the Molecular Biology IDP have primary appointments in the departments of: Biological Chemistry; Cardiology; Chemical & Biomolecular Engineering; Chemistry & Biochemistry; Human Genetics; Integrative Biology & Physiology; Microbiology, Immunology & Molecular Genetics; Molecular & Medical Pharmacology; Molecular, Cell & Developmental Biology; Neurobiology; Neurology; Ophthalmology; Pathology & Laboratory Medicine; Pediatrics; Psychiatry & Behavioral Science; Radiation Oncology; and Surgery.

Home Areas promote in-depth educational programs while maintaining flexibility for students to explore beyond a single home area and faculty to contribute to multiple home areas according to their research interests. The Molecular Biology IDP consists of four home areas: Cell & Developmental Biology (CDB); Biochemistry, Biophysics, & Structure Biology (BBSB); Gene Regulation, Epigenomics and Transcriptomics (GREAT); and Immunity, Microbes, & Molecular Pathogenesis (IMMP). Each home area has a director that acts as the Graduate Adviser for that area's students.

<b>Hilary Collier</b>	MBIDP Chair
<b>Elissa Hallem</b>	Immunity, Microbes, & Molecular Pathogenesis Home Area Director
<b>Feng Guo</b>	Biochemistry, Biophysics, & Structural Biology Home Area Director
<b>Thomas Vallim</b>	Gene Regulation, Epigenomics & Transcriptomics Home Area Director
<b>Alvaro Sagasti</b>	Cell & Developmental Biology Home Area Director

### 2023 Recruitment Data

Home Area	Applications	Interviews Total	Offers	Enrolled
BBSB	76	23	12	8
CDB	213	35	22	12
GREAT	79	25	10	4
IMMP	292	27	12	11

### MB-IDP Students 2022-2023

Student Name	Mentor	Awards/Fellowships
<b>ABASCAL, JENSEN</b>	Dubinett, Steven	
<b>ALAM, MOHAMMAD</b>	Fregoso, Oliver	
<b>ALCARAZ JR., MARTIN</b>	Scafoglio, Claudio	
<b>ALEXANDER, NOAH</b>	Kruglyak, Leonid	

<b>ALONSO, VALENTINA</b>	Hoffmann, Alexander	
<b>ALVAREZ, PABLO</b>	Li, Melody	
<b>ALVAREZ, SANDY</b>	Butler, Samantha	Best Graduate Student Poster Presentation Honorable Mention: Society for Developmental Biology 82 <sup>nd</sup> Annual Meeting
<b>ARABPOUR, AURIANA</b>	Clark, Amander	Broad Stem Cell Research Center-Rick Hansen Foundation Training Program
<b>ARCE, DANIEL</b>	Black, Douglas	Cell and Molecular Biology Training Grant
<b>ARAGON, RAQUEL</b>	Spencer, Melissa	UCLA Muscle Cell Biology, Pathogenesis, and Therapeutics T32 Grant, Travel Award for 2023 Society for the Advancement for Biology Education Research (SABER) West
<b>ATAI, KAISER</b>	Coller, Hilary	
<b>ATOLIA, ETA</b>	Butte, Manish	
<b>BARTOLO, GLORIA</b>	Hallem, Elissa	Microbial Pathogenesis Training Grant
<b>BERNARD, MATTHEW</b>	Goldstein, Andrew	
<b>BHAKTA, SUHANI</b>	Ton-That, Hung	
<b>BOONE, BRANDON</b>	Jacobsen, Steve	
<b>BRITTON, TIMMIE</b>	Ton-That, Hung	T90 Oral Health Research Training Grant, Eugene V. Cota-Robles Fellowship
<b>BROWN, JAMES</b>	Yang, Lili	
<b>BUCKLEY, TYLER</b>	Jacobsen, Steven	George G. & Betsy H. Laties Graduate Fellowship
<b>BUSTILLOS, CHRISTIAN</b>	Su, Maureen	
<b>CANO, CLARA</b>	Plath, Kathrin	Dissertation Year Fellowship, Broad Stem Cell Research Center Training Grant
<b>CARSTENS-KASS, JESSICA</b>	Braybrook, Siobhan	NSF Research Traineeship - Innovations at the Nexus of Food, Energy, and Water Systems (NRT-INFEWS), George G. & Betsy H. Laties Graduate Fellowship
<b>CASTELLON, JOSE</b>	Backus, Keriann	
<b>CHEN, HOWARD</b>	Su, Maureen	
<b>CHENG, XINYI (CINDY)</b>	Eisenberg, David	
<b>CHEUNG, NICOLE</b>	Clubb, Robert	Cellular and Molecular Biology Training Grant, NSF Graduate Research Fellowships Program Honorable Mention
<b>CHIEN, PEGGIE</b>	Pyle, April	Molecular Biology Institute Elevator Pitch Third Place Winner, Ruth L. Kirschstein National Research Service Award (NRSA) Individual Predoctoral Fellowship
<b>CLARK, EVAN</b>	Kurdistani, Siavash	
<b>COLEMAN, NALANI</b>	Dubinett, Steven	Cota Robles Fellowship

<b>CORAL, NICOLAS</b>	Zhou, Hong	Eugene Cota Robles Fellowship, Competitive Edge Summer Program, NIH Research Supplements to Promote Diversity in Health-Related Research
<b>CRISOSTOMO, RALPH</b>	Kohn, Donald	
<b>CULLIMORE, PETER</b>	Quinlan, Margot	
<b>DAY, SHANIA</b>	Ton-That, Hung	
<b>DEPAOLA, PETER</b>	Jiang, Lin	
<b>DESAI, HETA</b>	Backus, Keriann	UCLA Summer Mentored Research Fellowship
<b>DILSAVOR, CORINNE</b>	Zamudio, Jesse	
<b>DIMAPASOC, MELANIE</b>	Zack, Jerome	
<b>DIRUSSO, JONATHAN</b>	Clark, Amander	Ruth L. Kirschstein National Research Service Award (NRSA) Individual Predoctoral Fellowship
<b>DOLINSKY, JOSHUA</b>	Eisenberg, David	
<b>DUDLEY, LINDSEY</b>	Kornblum, Harley	
<b>EASTES, ANDREA</b>	Orian Shirihi	UCLA Summer Mentored Research Fellowship
<b>ELAHI, LUBAYNA</b>	Kornblum, Harley	
<b>EMAMI, MELISSA</b>	Sagasti, Alvaro	Cell and Molecular Biology Training Grant
<b>FLORES, ANGELINA</b>	Rowat, Amy	Jonsson Comprehensive Cancer Center Fellowship
<b>FORD, IAN</b>	Bensinger, Steve	
<b>FRANKLIN, DANA</b>	Ton-That, Hung	
<b>FRASER, ANNA</b>	Xiao, Grace	
<b>FREELAND, JACK</b>	Graeber, Jack	
<b>GALLARDO, SALENA</b>	Butler, Samantha	Genomic Analysis Training Program (GATP) T32 Fellowship, Whitcome Fellowship
<b>GALVAN, CARLOS</b>	Lowry, William	UCLA Broad Stem Cell Research Center Fellowship, 2023 UCLA Broad Stem Cell Research Center Trainee Elevator Speech Contest, Travel Award for the Society for Advancement of Chicanos and Native Americans in Science (SACNAS) Conference, Rose Hills Foundation's Science and Engineering Scholar
<b>GEHRED, NATALIE</b>	Vondrisk, Thomas	
<b>GENSHEIMER, JULIA</b>	Crooks, Gay	
<b>GEORGIU, THALIA</b>	Bouchard, Louis	NSF-UCLA AIF-Q Quantum Traineeship
<b>GIAFAGLIONE, JENNA</b>	Goldstein Andrew	
<b>GIBBS, DEVIN</b>	Pyle, April/Crosbie, Rachelle	

<b>GILLMAN, CODY</b>	Gonen, Tamir	American Crystallographic Association Margaret C. Etter Student Lecturer Award, Audree Fowler Fellowship in Protein Science, Muscle Cell Biology, Pathophysiology, and Therapeutics Training Program
<b>GONZALEZ AKIMORI, DAMIA</b>	Hallem, Elissa	Cell and Molecular Biology Training Grant
<b>GONZALEZ-DEWHITT, KRISTOFER</b>	Abramson, Jeff	
<b>GROMOVA, TATIANA</b>	Vondriska, Thomas	
<b>HALLIGAN, CAITLIN</b>	Seet, Christopher	
<b>HAN, JEE YUN</b>	Boutros, Paul	NIH T32 Medical Imaging Informatics Training Grant
<b>HEBNER, YUKI</b>	de la Torre-Ubieta, Luis	
<b>HONG, MEGAN</b>	Bitan, Gal, Loo, Joseph	
<b>HUANG, LIANG-WEI</b>	Plath, Kathrin	Summer Mentored Research Fellowship
<b>JACKSON, NICHOLAS</b>	Jones, Leanne	
<b>JI, JEONG HYUN</b>	O'Sullivan, Timothy	
<b>JIANG, YI XIAO (SEAN)</b>	Eisenberg, David	UCLA Dissertation Year Fellowship, University of Zurich (UZH) Foundation Brain Diseases Award
<b>JIH, JONATHAN</b>	Zhou, Hong	2022 Mitsuo Takasugi Award, 2023 Priscilla Schaffer Best Trainee Talk Award
<b>JIMENEZ, ROBERT</b>	Spencer, Melissa	American Society for Gene and Cell Therapy (ASGCT) Underrepresented Population Travel Award, T32 Muscle Cell Biology, Pathogenesis, and Therapeutics Training Program
<b>JUDA, MICHAL</b>	Lusis, Jake	
<b>KAHANGI, BITTA</b>	Dubinett, Steven	UCLA Jonsson Comprehensive Cancer Center Fellowship
<b>KAN, RYAN</b>	Bhaduri, Aparna	NIH T32 Cell and Molecular Biology Training Program, UCLA Jonsson Comprehensive Cancer Center Fellowship Award
<b>KANG, JOON SIK</b>	Zhou, Hong	
<b>KASAT, AADHISHRE</b>	Shafaat, Hannah	
<b>KENNEWICK, KELLY</b>	Bensinger, Steven	
<b>KIM, ALEXANDER</b>	Zipursky, Larry	
<b>KOSTY, MELISSA</b>	Long, Jeff	Laties Graduate Fellowship in Molecular Plant Biology
<b>KRYZA, JORDAN</b>	Jones, Leanne	
<b>LI, JOEY</b>	O'Sullivan, Timothy	Society for Natural Immunity NK2023 Travel Grant Award, UCLA Whitcome Pre-Doctoral

		Fellowship, UCLA Microbial Pathogenesis Training Grant, Ruth L. Kirschstein National Research Service Award, American Association of Immunologists Trainee Abstract Award
<b>LI, YAN</b>	Guo, Feng	UCLA Technology Development Group Tech Fellow
<b>LIN, LUDA</b>	Soragni, Alice	UCLA Jonsson Comprehensive Cancer Center 2023 May Fellowship Awards
<b>LING, CENDI</b>	Novitch, Ben	
<b>LOWE, SARINA</b>	Hoffmann, Alexander	
<b>LUND, ANDREW</b>	Gomperts, Brigitte	
<b>LUTHERS, CHRISTOPHER</b>	Kohn, Donald	
<b>MAKANANI, SARA</b>	Bouhaddou, Mehdi	
<b>MENDEZ, PATRICIA</b>	Hallem, Elissa	Howard Hughes Medical Institute Gilliam Fellowships for Advanced Study
<b>MERCADO-AYON, YESICA</b>	Butler, Samantha	
<b>MIL, JESSENYA</b>	Bhaduri, Aparna	Broad Stem Cell Research Center Predoctoral Training Fellowship
<b>MILLER, MATTHEW</b>	Butte, Manish	
<b>MORA, MANUEL</b>	Zheng, Jie	
<b>MORALES, ABRIL</b>	Lowry, William	
<b>MOSER, MATTHEW</b>	Hallem, Elissa	Cellular and Molecular Biology (CMB) Training Program
<b>MU, XUELANG</b>	Gonen, Tamir	
<b>NADRES, BRANDON</b>	Shackelford, David	R01 Diversity Supplement
<b>NAGARI, ROHITH</b>	Tontonoz, Peter	
<b>NAPIOR, ALEXANDER</b>	Shirihai, Orian	
<b>NGUYEN, BRIAN</b>	Guo, Feng	Cell and Molecular Biology Training Grant
<b>NGUYEN, HUYEN THI LAM</b>	Soragni, Alice	
<b>NGUYEN, LEANN</b>	Li, Melody	UCLA Mitsuo Takasugi Award, American Society for Virology Student Travel Award
<b>NISSON, KARLY</b>	Fregoso, Oliver	
<b>OCHOA, CHRISTOPHER</b>	Memarzadeh, Sanaz & Yang, Lili	Broad Stem Cell Research Center Pre-Doctoral Stem Cell Training Program
<b>OH, MICHAEL</b>	Dubinett, Steven	Tobacco-Related Disease Research Program Predoctoral Fellowship Award
<b>OKOBI, QUINCY</b>	Nathanson, David	
<b>OLAY, JAROD</b>	Lechner, Melissa	
<b>PAN, HOPE</b>	Eisenberg, David	
<b>PASQUARELLI, REBECCA</b>	Bradley, Peter	John-Eiserling-Lengyel Teaching Excellence Award, Best Talk Award, 16th Biennial

		International Congress on Toxoplasmosis, Whitcome Fellowship
<b>PEINADO, NEIL</b>	Shah, Pavak	Cell and Molecular Biology Training Grant
<b>PEREZ-REYES, EDGAR</b>	Dubinett, Steven	Tobacco Related Diseases Pre-Doctoral Fellowship (TRDRP)
<b>PEYDA, PARHAM</b>	Black, Douglas	
<b>PI, JUSTIN</b>	Guo, Feng	Muscle, Cell Biology, Pathophysiology and Therapeutics Training Program
<b>POHL, KATHERINE</b>	Yang, Xianjie	F31 Ruth L. Kirschstein National Research Service Award
<b>QIAO, CHLOE</b>	Bensinger, Steve	
<b>READ, GRAHAM</b>	Weidhaas, Joanne	Institutional Research and Academic Career Development Award (IRACDA) Postdoctoral Fellowship- Nonn Lab, University of Illinois, Chicago
<b>ROBERSON, ISAIAS</b>	Clark, Amander	Cell and Molecular Biology Training Grant Fellowship, 2023 Reproductive Health and Science Award
<b>RODRIGUEZ, BENANCIO</b>	Hoffmann, Alexander	Whitcome Fellowship, Microbial Pathogenesis Training Grant
<b>RODRIGUEZ, JOCELYN</b>	Shackelford, David	Jonsson Comprehensive Cancer Center Fellowship Award, 2023 Life Sciences Excellence in Promotion of Diversity & Inclusion Award
<b>ROE, ANNE</b>	Pyle, April	Muscle Cell Biology, Pathophysiology, and Therapeutics Training Program, Whitcome Fellowship
<b>RUBERT, GABRIELLA</b>	Vallim, Thomas	UCLA Grad Slam Semi-Finalist, UCLA Department of Medicine Research Day 3 <sup>rd</sup> Place Poster Winner
<b>RUVALCABA, MARTIN</b>	Li, Melody	Cell and Molecular Biology Training Grant
<b>SALLADAY-PEREZ, IVAN</b>	Covarrubias, Anthony	
<b>SANCHEZ, LUIS</b>	Zheng, Jie	
<b>SANDOVAL, RAFAEL</b>	Zamudio, Jesse	
<b>SCHIFFMAN, ALLISON</b>	Hoffmann, Alexander	
<b>SEGURA-GENSLER, EVA</b>	Kohn, Donald	
<b>SHIH, RYAN</b>	Chen, Yvonne	
<b>SINHA, ANIKETA</b>	Sallam, Tamer	Summer Mentored Research Fellowship
<b>SMITH, EMILY</b>	Vallim, Thomas and Tarling, Elizabeth	Whitcome Fellowship, Cell and Molecular Biology Fellowship, UCLA Graduate Division Merit Fellowship

<b>SMOCK, DYLAN</b>	Kohn, Donald	
<b>SOTO, JOSE</b>	Bhaduri, Aparna	
<b>STUBBERT, CLOVER</b>	Shah, Pavak	UCLA Summer Mentored Research Fellowship
<b>SUN, ANGELA</b>	Reed, Elaine	
<b>SUN, MIRANDA</b>	Farmer, D’Juan	
<b>TERRAZAS, SARI</b>	Xiao, Grace	Cell and Molecular Biology Training Grant, Ford Fellowship Honorable Mention 2023
<b>THIND, AMARA</b>	Bradley, Peter	UC Office of the President Dissertation Year Fellowship
<b>THURLOW, LAUREN</b>	Johnson, Tracy	
<b>TO, THAOTAM</b>	Agak, George	
<b>TORRES, ALEJANDRO</b>	Deng, Sophie	
<b>TORRES, GRASIELA</b>	Covarrubias, Anthony	
<b>UCHIYAMA, LAUREN</b>	Tontonoz, Peter	
<b>VAVILINA-HALSTEAD, ANASTASIA</b>	Mikkola, Hanna	
<b>VILLANUEVA, MIRANDA</b>	Backus, Keriann	
<b>WALSH, BREANNA</b>	Hallem, Elissa	
<b>WANG, SHUYA</b>	Jacobsen, Steve	
<b>WILKINSON, NICOLE</b>	Su, Maureen	
<b>WILLIAMS, ZNALA</b>	Kurdistani, Siavash	
<b>YANG, LYNN</b>	Sobreira, Debora	
<b>YANG, VIVIAN</b>	Fregoso, Oliver	
<b>YOO, ALEX</b>	Crooks, Gay	UCLA Broad Stem Cell Pre-doctoral Fellowship, Ruth L. Kirschstein Predoctoral NRSA Fellowship
<b>YOSHIMURA, KAILEE</b>	Sobreira, Debora	
<b>YOUNG, ARISSA</b>	Christofk, Heather	
<b>YU, AMY</b>	Teitell, Michael	
<b>YU, KRISTIE</b>	Hsiao, Elaine	
<b>ZHANG, TIANHAO</b>	Zack, Jerome	
<b>ZHEN, JAMES</b>	Zhou, Hong	International Herpesvirus Workshop Merit-Based Award
<b>ZHOU, KUANGYI</b>	Yang, Lili	

### **MB-IDP Students who Advanced-to-Candidacy**

<b>Student Name</b>	<b>Mentor</b>
Alvarez, Pablo	Li, Melody
Arabpour, Auriana	Clark, Amander

Arce, Daniel	Black, Douglas
Chen, Ho-chung	Su, Maureen
DePaola, Peter	Jiang, Lin
Freeland, Jack	Graeber, Thomas
Gensheimer, Julia	Crooks, Gay
Jih, Jonathan	Zhou, Hong
Jimenez, Robert	Spencer, Melissa
Kan, Ryan	Bhaduri, Aparna
Li, Joey	O'Sullivan, Timothy
Lin, Luda	Soragni, Alice
Luthers, Christopher	Kohn, Donald
Mendez, Patricia	Hallem, Elissa
Jessena Mil	Bhaduri, Aparna
Nagari, Rohith	Tontonoz, Peter
Oh, Michael	Dubinett, Steve
Rodriguez, Benancio	Hoffmann, Alexander
Rodriguez, Jocelyn	Shackelford, David
Rubert, Gabriella	Vallim, Thomas
Salladay-Perez, Ivan	Covarrubias, Anthony
Schiffman, Allison	Hoffmann, Alexander
Shih, Ryan	Chen, Yvonne
Smith, Emily	Tarling, Elizabeth/Vallim, Thomas
Torres, Grasiela	Covarrubias, Anthony
Villanueva, Miranda	Backus, Keriann
Walsh, Breanna	Hallem, Elissa
Yoo, Alex	Crooks, Gay

### MB-IDP Students Awarded Ph.Ds.

<b>Student</b>	<b>Mentor</b>	<b>Dissertation Title</b>
Atolia, Eta	Butte, Manish	"Empirical Reverse Engineering of Vaccine Neoantigens"
Chen, Xinyuan	Black, Douglas	"Understanding Splicing Regulation of MYC Dependent Exons in Prostate Cancer"
Cheng, Mandy	Su, Maureen	"Regulation of immune cell development and effector function mediated by X-linked epigenetic regulator UTX"
Crowell, Preston	Goldstein, Andrew	"Defining regulation of prostate cancer initiation, progression, and resistance to androgen receptor blockade"
Damodaren, Nivedita	Black, Douglas/Plath, Kathrin	"Elucidating the role of RNA-binding protein MATR3 in mouse embryonic stem cells"

Emami, Michael	Spencer, Melissa	<i>"Improving the safety and efficacy of CRISPR/Cas9-based therapies for Duchenne Muscular Dystrophy"</i>
Evans, Declan	Houk, Kendall	"Mechanistic Insight from Physical Models of Laboratory-Engineered Catalysts"
Hildreth, Andrew	O'Sullivan, Timothy	"Profiling the role of conventional type 1 dendritic cells during sterile inflammation"
Ichino, Lucia	Jacobsen, Steve	"Characterization of the role of Arabidopsis methyl-readers MBD5 and MBD6 in transcriptional silencing"
Kronenberg, Michael	Carey, Michael	"Deciphering and targeting transcription-replication coordination in cancer"
Lim, Han Young	Black, Douglas	"Chromatin Association of mRNAs Regulates Expression of Genes Important in mESC Biology"
Lin, Tasha	Rao, Dinesh	<i>"Targeting transcriptional and post-transcriptional gene regulation in MLL-AF4 leukemia"</i>
Lum, Gregory	Hsiao, Elaine	"Effects of clinical ketogenic diet therapy for pediatric epilepsy on the gut microbiota and seizure resistance"
Miller, Justin	Yeates, Todd	"Design and Functionalization of Natural and Synthetic Protein Nanocages"
Sandoval, Carina	Fregoso, Oliver	"HIV-1 Vpr and HIV-2 Vpr modulate the DNA damage response"
Tisnado, Jerrell	Gelbart, William	"New Strategies for Functionalizing In Vitro Reconstituted Virus-like Particles with Protein Ligands"
Zhang, Tianhao	Sun, Ren	"Quantifying Viral Replication with Fitness Profiling and Genetic Barcoding"
Zhou, Yang	Yang, Lili	"In vitro generation of large-scale CAR-iNKT cells from engineered human stem cells for off-the-shelf cancer immunotherapy"

### Whitcome Pre-doctoral Training Program

The Whitcome Pre-doctoral Training Program supports students in the MB-IDP and BMSB programs, in their 3<sup>rd</sup>, 4<sup>th</sup> or 5<sup>th</sup> year of graduate school. Trainees are eligible for one year of support with possibility for competitive renewal. There are no citizenship restrictions for this program; international students are welcome to apply. The program is competitive and merit based.

Congratulations to the following graduate students, who were selected for the Whitcome Training Program this year:

Awardee	Graduate Program	Thesis Advisor	Department
Cano, Clara	MBIDP	Kathrin Plath	Biological Chemistry

Smith, Emily	MBIDP	Thomas Vallim/Elizabeth Tarling	Medicine-Cardiology
Cheng, Cindy	MBIDP	David Eisenberg	Biological Chemistry
DiRusso, Jonathan	MBIDP	Amander Clark	Molecular, Cell, and Developmental Biology
Pasquarelli, Rebecca	MBIDP	Bradley, Peter	Microbiology, Immunology, and Molecular Genetics
Boone, Brandon	MBIDP	Steve Jacobsen	Molecular, Cell, and Developmental Biology
Cheng, Mandy	MBIDP	Maureen Su	Microbiology, Immunology, and Molecular Genetics
Rodriguez, Benancio	MBIDP	Alexander Hoffmann	Microbiology, Immunology, and Molecular Genetics
Shih, Ryan	MBIDP	Yvonne Chen	Microbiology, Immunology, and Molecular Genetics
Yu, Kristie	MBIDP	Elaine Hsiao	Integrative Biology & Physiology
Jiang, Sean	MBIDP	David Eisenberg	Biological Chemistry
Lum, Gregory	MBIDP	Elaine Hsiao	Integrative Biology & Physiology

### MB-IDP Graduate Student Seminars

Modeled after the MBI Interdisciplinary Faculty Seminars, these talks are presented by our graduate students in their third and fifth year within the program. Faculty are not present for the talks, which provides our students with an opportunity to present their research in a relaxed, collegial atmosphere over lunch, and allows for constructive discussion and critique. Some students use this forum as practice for their oral qualifying exam and/or dissertation defense. The seminar series has proven to be a great success due to the format and the enthusiasm of our graduate students. The seminar presentations during the 2022-2023 Academic Year were:

Date	1 <sup>st</sup> Speaker	2 <sup>nd</sup> Speaker
October 5 <sup>th</sup>	<b>Emily Peluso-Smith</b> "Friend or foe: Assembly and virulence mechanisms of fusobacterium nucleatum microcompartments"	<b>Benancio Rodriguez</b> "Determining ReIB's role as an epigenetic reprogrammer in dendritic cells"
October 19 <sup>th</sup>	<b>Joey Li</b> "Identification of MEF2C as a central regulator of human NK cell effector function and metabolism"	<b>Jonathan Jih</b> "Structures and configurations of the human cytomegalovirus portal-associated tegument complex"

<b>November 2<sup>nd</sup></b>	<b>Chris Luthers</b> “Hematopoietic Stem Cell Gene Therapy for X-linked Agammaglobulinemi”	
<b>January 11<sup>th</sup></b>	<b>Miranda Villanueva</b> “Chemoproteomic approaches to understand cholesterol extracellular and intracellular movement and interactions”	<b>Joon Kang</b> “Asymmetric reconstruction of mammalian reovirus reveals interactions among RNA, transcriptional factor, and capsid proteins”
<b>January 25<sup>th</sup></b>	<b>Patricia Mendez</b> “Elucidating the molecular and neural basis of salt chemosensation in parasitic skin-penetrating nematodes”	<b>Auriana Arabpour</b> “A Novel Self-Instructing System Generates Human Germ Cells from Pluripotent Stem Cells”
<b>February 8<sup>th</sup></b>	<b>Daniel Arce</b> “Architecture of RNA/Protein Complexes Regulating Pre-mRNA Splicing”	<b>Robert Jimenez</b> “Understanding the role of glucose metabolism in cell fate specification events during cortical development”
<b>February 22<sup>nd</sup></b>	<b>Ryan Shih</b> “Targeting membrane-bound and soluble tumor antigens with bispecific CAR-T cells in glioblastoma”	<b>Howard Chen</b> “UTX regulates the conversion of stem-like progenitor CD8 T cells in Type I diabetes”
<b>March 8<sup>th</sup></b>	<b>Pablo Alvarez</b> “Probing the virus-host interactions that modulate alphavirus neuroinvasion”	<b>Jack Freeland</b> “Investigating Genomic Instability in Lethal Neuroendocrine Cancer (NEPC)”
<b>March 22<sup>nd</sup></b>	<b>Breanna Walsh</b> “Elucidating the molecular and neural basis of oxygen sensation in <i>Strongyloides stercoralis</i> ”	<b>Peter DePaola IV</b> “Rational Computational Design of Super-Stable Inhibitors Targeting KrasG12D Guided by Phage Display”
<b>April 5<sup>th</sup></b>	<b>Jessenya Mil</b> “Understanding the role of glycolytic regulation in cell fate specification events during cortical development”	<b>Valentina Alonso</b> “Inflammation, NFkB, and metabolic exhaustion as determinants of B-cell production”
<b>April 19<sup>th</sup></b>	<b>Rohith Nagari</b> “Using chemical biology to decipher the role of cholesterol in fatty liver disease”	<b>Ryan Kan</b> “Elucidating the role of PTPRZ1 in driving Glioblastoma progression”

<b>May 3<sup>rd</sup></b>	<b>Jocelyn Rodriguez</b> “Investigating HSP75 Inhibition as a Therapeutic Target for Lung Squamous Carcinoma”	<b>Julia Gensheimer</b> “Effects of hematopoietic stem and progenitor cell aging on T cell development”
<b>May 17<sup>th</sup></b>	<b>Gabriella Rubert</b> “Identifying Transcription Factors Contributing to Nutrient-Dependent Transitions Between Feeding States in the Liver”	<b>Michael Oh</b> “Immunologic response to CCL21 dendritic cell vaccine in non-small cell lung cancer”
<b>May 24<sup>th</sup></b>	<b>Allison Schiffman</b> “The cis-regulatory logic of the interferon- $\beta$ enhancer”	<b>Luda Lin</b> “Toward a High-throughput and HighContent 3D Cancer Organoid Screening Platform Mimicking In Vivo Tumor Microenvironment”

## Conference Participation

### **Alexander, Noah**

- Yeast Genetics Meeting; Los Angeles, CA. August 17-21, 2022. Attended.

### **Alvarez, Pablo**

- Annual American Society for Virology; Athens, GA. June 22-28, 2023. Poster.

### **Alvarez, Sandy**

- Society for Developmental Biology 82nd Annual Meeting; Chicago, IL. July 20-23, 2023. Poster.

### **Arabpour, Auriana**

- Molecular, Cell and Developmental Biology Research Conference; Los Angeles, CA. January 13-14, 2023. Talk.
- UCLA Stem Cell Symposium; Los Angeles, CA. February 3, 2023. Poster.

### **Aragon, Raquel**

- 2022 New Directions in Biology and Disease of Skeletal Muscle Conference; Ft. Lauderdale, FL. June 20-23, 2022. Poster.
- 2023 Society for the Advancement for Biology Education Research (SABER) West; Irvine, CA. January 13-15, 2023. Attended.
- 2023 Amgen Scholars North America Symposium; Los Angeles, CA. July 7th, 2023. Attendee.
- 2022 Amgen Scholars North America Symposium; Los Angeles, CA. Attended.

### **Atai, Kaiser**

- Cold Spring Harbor Labs Epigenetics & Chromatin Conference; Cold Spring Harbor, NY. September 2022. Poster.
- UCLA Molecular, Cell and Developmental Biology Annual Retreat; Los Angeles, CA. January 13-14, 2023. Poster.

### **Boone, Brandon**

- Gordon Epigenetic Conference; Holderness, NH. August 6-11, 2023. Talk.

### **Britton, Timmie**

- Society for the Advancement of Chicanos/Hispanics & Native Americans in Science National Diversity in Stem Conference; San Juan, PR. October 27-29, 2022. Attended.
- Gordon Research Conference (GRC) on Microbial Adhesion and Signal Transduction (MAST); Newport, RI. July 15-21, 2023. Talk and Poster.

**Cano, Clara**

- Gordon Research Conference, Gordon Research Seminar – Stem Cells and Cancer; Luca, Italy. May 2023. Poster.

**Carstens-Cass, Jessica**

- Seaweed Identification Workshop; Bodega Bay, CA. April 2023. Workshop.

**Castellon, Jose**

- UC Drug Discovery Symposium; Santa Cruz, CA. March 24, 23. Poster.
- Gordon Research Conference High Throughput Chemistry and Chemical Biology; New London, NH. July 30-August 4, 2023. Poster.

**Coral, Nicolas**

- Texas State University Biomedical Symposium; San Marcos, TX. August 17, 2023. Talk.

**Cheung, Nikki**

- Cheung N, Song M, Sue CK and Clubb RT. Quantifying the kinetics of pilus-specific sortase-catalyzed crosslinking using high-performance liquid chromatography. *Methods in Molecular Biology*. (In press)

**Desai, Heta**

- Human Proteome Organization (HUPO); Chicago, IL. March 4-6, 2023. Attended.

**DiRusso, Jonathan**

- International Society for Stem Cell Research 2023; Boston, MA. June 2023. Talk.
- Cold Springs Harbor Laboratory Epigenetics and Chromatic Meeting 2022. New York City, New York. September 2022. Poster.

**Dolinsky, Joshua**

- West Coast Structural Biology Workshop; Monterey, CA. March 19-22, 2023. Poster.

**Elsten-Brown, James**

- Cell Symposia: Hallmarks of Cancer 2022; San Diego, CA. October 30-November 1, 2022. Poster.
- LA Bioscience Ecosystem Summit Twenty23; Los Angeles, CA. May 25, 2023. Poster.
- 2023 Jonsson Comprehensive Cancer Center TII Retreat; Los Angeles, CA. June 13, 2023. Poster.
- ImmunologyLA 2023; Los Angeles, CA. June 23, 2023. Talk.

**Emami, Melissa**

- International Zebrafish Conference; Montreal, Canada. June 22-26, 2022. Attended.

- Society for Developmental Biology West Coast Regional Meeting; San Luis Obispo, CA. August 24-27, 2023. Poster.

#### **Ford, Ian**

- Deuel Conference on Lipids; Dana Pointe, CA. March 7-10, 2023. Poster

#### **Franklin, Dana**

- American Society for Microbiology Microbe 2023; Houston, TX. June 15-19, 2023. Poster.

#### **Gallardo, Salena**

- National Human Genome Research Institute (NHGRI) Annual Trainee Meeting; Salt Lake City, UT. April 2023. Poster.
- International Society for Stem Cell Research (ISSCR) Annual Meeting; Boston, MA. June 2023. Poster.

#### **Galvan, Carlos**

- Mechanisms and Models of Cancer; San Diego, CA. August 2023. Attended.
- UCLA Broad Stem Cell Research Center's 19th Annual Stem Cell Symposium; Los Angeles, CA. February 2023. Poster.
- UCLA Molecular, Cell, and Developmental Biology Departmental Retreat; Santa Monica, CA. January 2023. Talk.
- UCLA Undergraduate Research Scholars; Los Angeles, CA. January 2023. Talk.

#### **Georgiou, Thalia**

- Gordon Research Conference Electron Chirality Conference; Manchester, NH. July 30-August 4, 2023. Talk and Abstract.

#### **Gibbs, Devin**

- Collagen Gordon Research Conference; New London, NH. July 2022. Attended.

#### **Gillman, Cody**

- American Crystallographic Association Conference; Baltimore, MD. July 6-12, 2023. Talk.
- Lorne Proteins; Lorne, Australia. February 5-9, 2023. Attended.

#### **Gonzalez Akimori, Damia**

- Molecular Helminthology Symposium; Philadelphia, PA. November 18, 2022. Attended.

#### **Gromova, Tatiana**

- American Heart Association Basic Cardiovascular Sciences Conference; Chicago, Illinois. July 25-28, 2022. Poster.
- Department of Anesthesiology and Perioperative Medicine Scientific Evening; Los Angeles, CA. March 14, 2023. Poster.

**Han, Jee Yun**

- American Association for Cancer Research Annual Meeting; Orlando, FL. April 2023. Poster.
- American Society of Human Genetics; Los Angeles, CA. October 2022. Poster.

**Hebner, Yuki**

- Southern California Graduate Symposium; Los Angeles, CA. November 4, 2022. Attended.

**Jiang, Sean**

- West Coast Structural Biology Workshop; Asilomar, CA. March 19-22, 2023. Talk and Poster.
- Gordon Research Seminar and Conference: Three Dimensional Electron Microscopy; Castelldefels, Spain. June 18-24, 2022. Poster.
- LA Bioscience Ecosystem Summit Twenty22; Los Angeles, CA. May 26, 2022. Poster.

**Jih, Jonathan**

- 2023 International Herpesvirus Workshop; Missoula, MN. July 2023. Talk and Poster.
- 2023 Phage/Virus Assembly XXVIII; Macclesfield, UK. June 2023. Talk and Poster.
- 2022 SoCal CryoEM Symposium; Los Angeles, CA. December 2022. Poster
- 10th International Virus Assembly Symposium; Sesimbra, Portugal. October 2022. Talk and Poster.
- 2022 International Herpesvirus Workshop; Virtual. July 2022. Talk and Poster.

**Jimenez, Robert**

- American Society of Gene and Cell Therapy; Los Angeles, CA. May 16-20, 2023. Poster.

**Kahangi, Bitta**

- American Association for Cancer Research Annual Meeting; Orlando, FL. April 15-19, 2023. Poster.

**Li, Joey**

- The American Association of Immunologists; Washington DC. May 10-13, 2023. Talk and Poster Presentation.
- SoCal Metabolism Symposium; San Diego, CA. March 10, 2023. Poster Presentation.

**Lin, Luda**

- Society for Biomaterials Annual Meeting and Exposition 2023; San Diego, CA. April 19-22, 2023. Poster.
- 2023 Jonsson Comprehensive Cancer Center Retreat; Los Angeles, CA. May 2, 2023. Poster.

**Lund, Andrew**

- 2023 North American Cystic Fibrosis Conference; Renton, WA. June 26-30, 2022. Poster.

- Broad Stem Cell Research Center 19<sup>th</sup> Annual Stem Cell symposium. Back to Basics: Understanding Tissue Stem Cells.; Los Angeles, CA. February 3, 2023. Poster.

**Makanani, Sara**

- Annual American Society for Virology; Athens, GA. June 22-28, 2023. Attended.

**Mendez, Patricia**

- 24th International C. elegans Meeting; Virtual. June 24-28, 2023. Attended.

**Mil, Jessenya**

- UCLA Broad Stem Cell Research Center 19th Annual Stem Cell Symposium; Los Angeles, CA. February 3, 2023. Poster Presentation
- Society for Neuroscience; San Diego, California. November 12-16, 2022. Poster Presentation.

**Morales, Abril**

- International Rett Syndrome Scientific Meeting; Nashville, TN. June 5-7, 2023. Talk and Abstract.

**Mu, Xuelang**

- HHMI Science Meeting; Chevy Chase, MD September 9-15, 2023. Poster Presentation.
- The 73<sup>rd</sup> Annual Meeting of the American Crystallographic Association; Baltimore, MD. July 7-11, 2023. Plenary Seminar.

**Nadres, Brandon**

- SoCal Metabolic Symposium; San Diego, CA. March 10, 2023. Attended.

**Napior, Alexander**

- 2022 UCLA Cardiovascular Theme (CV) Annual Retreat; Los Angeles, CA. October 20-21, 2022. Attended.
- LA Bioscience Ecosystem Summit Twenty23; Los Angeles, CA. May 25, 2023.

**Nguyen, Huyen Thi Lam**

- American Association for Cancer Research Annual Meeting; Orlando, FL. April 14-19, 2023. Poster.

**Nguyen, LeAnn**

- American Society for Virology Conference; Athens, GA. June 23-28, 2023. Talk.

**Ochoa, Christopher**

- UCLA Annual Stem Cell Symposium; Los Angeles, CA. February 23, 2023. Talk.

**Oh, Michael**

- American Association for Cancer Research Annual Meeting; Orlando, FL. April 14-19, 2023. Poster.

**Olay, Jarod**

- PICI - Engineered Immunity; Lake Arrowhead, CA. September 2022. Poster.

**Pan, Hope**

- Federation of American Societies for Experimental Biology; Malahide Ireland. June 11-15, 2023. Poster.

**Pasquarelli, Rebecca**

- 33<sup>rd</sup> Annual Molecular Parasitology Meeting; Woods Hole, MA. September 2022. Talk.

**Pohl, Katherine**

- XXV Biennial Meeting of the International Society for Eye Research (ISER); Gold Coast, Aus. February 19-23, 2023. Talk.
- 26<sup>th</sup> American Society for Cell and Gene Therapy (ASGCT) Annual Meeting; Los Angeles, CA. May 16-19, 2023. Attended

**Roberson, Isaias**

- Society for the Study of Reproduction 56th Annual Meeting; Ottawa, ON, CAN. July 9-15, 2023. Talk.

**Rodriguez, Jocelyn**

- MITO 2022 The International Conference on Mitochondria: Past and Present - Evolution, Proteostasis; Ein Gedi, Israel & Weizmann Institute. November 13-17, 2022. Attended.
- Mechanisms & Models of Cancer; Salk Institute, San Diego CA. August 1-3, 2023. Attended.
- 7th Annual Biomedical Research Graduate Student Symposium; City of Hope Graduate School, Duarte, CA. August 25, 2023. Attended.

**Rubert, Gabriella**

- National Human Genome Research Institute; Salt Lake City, UT. April 2-4, 2023. Poster.
- American Society for Biochemistry and Molecular Biology Deuel Conference on Lipids; Dana Point, CA. March 2023. Attended.

**Smith, Emily**

- American Society for Biochemistry and Molecular Biology Deuel Conference on Lipids; Dana Point, CA. March 2023. Attended.

**Smock, Dylan**

- The American Society of Gene & Cell Therapy: Los Angeles, CA. May 16-20, 2023. Attended.

- Cold Spring Harbor Laboratory Genome Engineering: CRISPR Frontiers 2023; Virtual. August 16-20, 2023. Attended

**Stubbert, Clover**

- The Society for Developmental Biology West Coast Regional Meeting; San Luis Obispo, CA. August 24-27, 2023. Attended.

**Sun, Angela**

- American Transplant Congress; San Diego, CA. June 3-7, 2023. Poster and Talk.
- Federation of Clinical Immunology Societies; Boston, MA. June 20-23, 2023. Poster.

**Thind, Amara**

- International Toxoplasma Congress XVI; Riverside, CA. May 2022. Poster.

**Torres, Grasiela**

- Cardiovascular Theme Annual Retreat; Los Angeles, CA. October 20, 2022. Poster.

**Villanueva, Miranda**

- 2023 American Society for Mass Spectrometry Annual Conference; Houston, TX. August 2023. Poster.

**Yang, Vivian**

- West Coast Retrovirology; Palm Springs, CA. October 5-7, 2022. Attended.
- American Society for Virology; Athens, GA. June 23-29, 2023. Talk.

**Yoo, Alex**

- UCLA Molecular Biology Institute Annual Retreat; Los Angeles, CA. September 6-7, 2022. Poster.
- UCLA-Caltech MSTP Annual Research Conference; Los Angeles, CA. September 23, 2022. Poster.
- UCLA Stem Cell Symposium: Back to Basics: Understanding Tissue Stem Cells; Los Angeles, CA. February 3, 2023. Poster.
- American Society of Gene & Cell Therapy Annual Meeting 2023; Los Angeles, CA. May 16-20, 2023. Talk.

**Yoshimura, Kailee**

- Annual Stem Cell Symposium; Los Angeles, CA. February 3, 2023. Attended.

**Zhen, James**

- SoCal CryoEM Symposium; Los Angeles, CA. December 2023. Poster.
- International Herpesvirus Workshop; Missoula, MT. July 2023. Poster.

**Zhou, Kuangyi**

- American Society of Gene Cell Therapy Annual Meeting; Los Angeles, CA. May 16-20, 2023. Attended.
- Parker Institute for Cancer Immunotherapy Conference; Seattle, WA. August 1-2, 2023. Attended.

## Student Publications

### Alvarez, Sandy

- Sandy Alvarez, Sandeep Gupta, Kaitlyn Honeychurch, Yesica Mercado-Ayon, and Samantha J. Butler. Netrin patterns the dorsal spinal cord through modulation of BMP signaling. In preparation for Developmental Cell.

### Arabpour, Auriana

- Esfahani S.N\*, Zheng Y.\*, Arabpour A.\*, [...] Clark A.T., and Fu J. Derivation of Human Primordial Germ Cell-Like Cells in an Embryonic-Like Culture. Nature Communications. (Under Review) \*Co-First Authors
- Lara M.J.D., Wamaitha S.E., Arabpour A., Hennebolde J.D., Clark A.T., and Sosa E. Generation of a Rhesus Macaque induced Pluripotent Stem Cell Line (riPSC05) under Feeder-Free Conditions. Stem Cell Research (Under Review)

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- Kevin To(1)\*, Timmie Britton(2)\*, and Hung Ton-That1,2,3†. Visualization of a Cell Wall Hydrolase Inhibitor in *Fusobacterium nucleatum* by Immunofluorescence Microscopy. Article submitted to *Methods in Molecular Biology (MiMB)*. \*Equal contribution

## **Cano, Clara**

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- Tang, Anli; Afasizheva, Anna; Cano, Clara; Plath, Kathrin; Black, Douglas; Franco, Elisa. Optimization of RNA Pepper sensors for the detection of arbitrary RNA targets. (In review)

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