

# MCB TRANSCRIPT

DEPARTMENT OF MOLECULAR & CELL BIOLOGY, UNIVERSITY OF CALIFORNIA, BERKELEY



## MCB celebrates 150 years of women at Berkeley

This year marks the 150<sup>th</sup> anniversary of the UC Regents' approval of a resolution to admit women to the university on the same terms as men. UC Berkeley is celebrating this important milestone all year long, and MCB is joining in the campus-wide "150 Years of Women at Berkeley" celebration by reflecting on the extraordinary accomplishments of women in our department over the years.

When MCB was established in 1989, 13 women were on the faculty, including Barbara Meyer who is still an MCB faculty member, HHMI Investigator, and scientist with an active lab. Giovanna Ferro-Luzzi Ames, Phyllis Blair, Beth Burnside, and Caroline Kane were also in that first cohort and are currently MCB emeritae professors. Over the years, women in MCB have made numerous groundbreaking contributions to science. Carol Greider and Elizabeth Blackburn were awarded the 2009 Nobel Prize in Physiology or Medicine for the discovery of the enzyme telomerase (which is involved in cancer and aging) in Blackburn's lab when Greider was a graduate student in MCB; professors Kathy Collins and Eva Nogales recently determined the structure of human telomerase; professors Rebecca Heald and Georjana Barnes made critical discoveries about how mitosis is regulated; and professor Jennifer Doudna was instrumental in the discovery of the gene-editing system CRISPR-Cas9 – just to name a few.

There are currently 35 women faculty in MCB, and we are excited by the recent addition of new faculty members Andrea Gomez, Samantha Lewis, Ellen Lumpkin, Dipti Nayak, and

Alanna Schepartz. We are also proud that over half of our undergraduates, graduate students, and postdocs are women, and of our alumnae's countless achievements in science, medicine, biotech, and other fields. This issue of the MCB Transcript highlights some of the many accomplishments of our female students, faculty, and alumnae – from cutting-edge research to mentoring the next generation of women scientists.

*Top portraits (left to right): Phyllis Blair, Andrea Gomez, Kathy Collins, Beth Burnside, Carol Greider, Jennifer Doudna, Barbara Meyer, Eva Nogales, Samantha Lewis, Elizabeth Blackburn, Georjana Barnes, Ellen Lumpkin, Caroline Kane, Alanna Schepartz, Rebecca Heald, Dipti Nayak, Giovanna Ferro-Luzzi Ames*

*Masthead image by Barbara J. Meyer: Perfect Daughters. Two-cell nematode embryo dividing into four cells. After replication, chromosomes (blue) undergo restructuring via condensin (red) to ensure each daughter cell receives an intact copy of the genome.*

*Photo credits: Blair (courtesy UCB Office of Gift Planning); Gomez, Meyer, Lewis, Kane, Schepartz, Nayak (provided by subject); Collins, Burnside, Nogales, Barnes, Heald (courtesy Mark Joseph Hanson Studio); Greider, Blackburn (@The Nobel Foundation, U. Montan); Doudna (courtesy Keegan Houser); Lumpkin (courtesy John Pinderhughes); Ferro-Luzzi Ames (courtesy Children's Hospital Foundation)*



To learn more about UC Berkeley's 150 Years of Women celebration, visit the website: <https://150w.berkeley.edu/>

## Elçin Ünal investigates what makes meiosis tick and how it can turn back the clock

From traveling internationally to launch her scientific career, to developing her own unique research program at the intersection of meiosis and aging, MCB Associate Professor Elçin Ünal relishes exploring new territory. Ünal seeks to understand how meiosis – the cell division process that produces gametes such as eggs and sperm – is regulated to produce healthy cells and how it can also restore old cells to a younger state.

Ünal grew up in Turkey and credits one of her high school teachers for inspiring her to study molecular biology. She earned her BS at Bilkent University in Ankara but had to look outside of Turkey to gain research experience, applying to around 100 summer internships across Europe and the US in her junior year. She got into only one, at Johns Hopkins University, and that internship was pivotal to her career.

“That was the main reason why I was able to go to graduate school,” Ünal says. She earned her PhD at Johns Hopkins in the lab of Doug Koshland, who is now also a faculty member in MCB. Her graduate work focused on how protein complexes called cohesins are involved in chromosome structure and DNA repair.

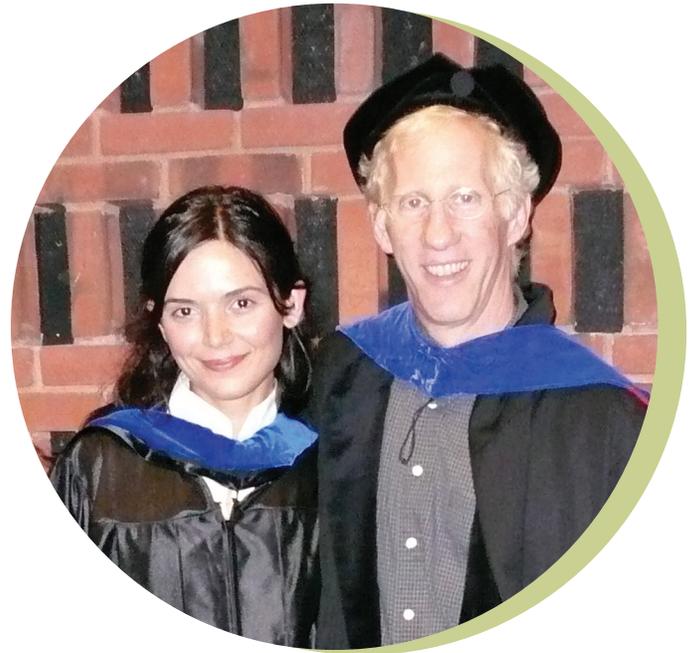
At Johns Hopkins, Ünal became intrigued by meiosis. “It’s a fundamentally very important process that makes the starting material for the next generation,” she says. She began studying meiosis as a postdoc in Angelika Amon’s lab at MIT, where she developed research questions that were quite different from what other scientists in the field were studying.

“I wanted to have my own niche,” Ünal explains. She studied quality control mechanisms in meiosis, which led her into the field of aging. “Many labs are interested in understanding how aging affects the efficiency of meiosis. But I wanted to answer the reverse question – how meiosis itself impacts cellular aging.”

Ünal brought her innovative research program to Berkeley when she joined the faculty in 2014. “I just fell in love with Berkeley at first sight,” she says, citing the diversity of research and people and the energy of the MCB community in her decision to choose Berkeley over other schools.

In her lab, Ünal studies how gene expression regulates meiosis, primarily in yeast; how healthy gametes are produced; and how old cells that undergo meiosis produce progeny that are “born young” – meaning they do not inherit their parent’s age-related cellular changes.

“The cool thing is that not only can we understand the biology of how this natural rejuvenation program works, but we may have a way of transplanting some of these components into otherwise non-meiotic cells to see some of these beneficial effects,” she says. One



such benefit could be to remove protein aggregates – a hallmark of some age-related diseases such as Alzheimer’s. Ünal stresses that any therapies are likely to be a long way off, but she is excited to launch a new collaboration with the Innovative Genomics Institute on campus to extend her work further into human cells.

In addition to the thrill of discovery, Ünal greatly enjoys teaching and mentoring because they bring her “excitement and joy” on a daily basis as she sees students suddenly understand concepts or come up with creative new ideas. Ünal was recently awarded tenure this spring.

**To learn more about Ünal’s research, visit her lab website at <http://www.unallab.org/>**

*Ünal (above) with her PhD mentor, Doug Koshland, at the John Hopkins commencement ceremony in 2007.*

*Fluorescent microscopy (top) showing coding (red) and non-coding (green) mRNA that control the expression of an essential chromosome protein. DNA is shown in blue.*

*Image by Jingxun Chen, Ünal lab.*

# PhD alumna Rachel Fraser makes plants taste meaty to protect the environment

When Rachel Fraser earned her PhD from MCB in 2011, she never imagined that in her next position, she'd be pipetting solutions into her mouth to rate how much they taste like meat. Fraser is a director of research at Impossible Foods, where she started working as a scientist in 2012, one year after the company launched in 2011. Impossible Foods makes the Impossible Burger™ and other plant-based products that replicate the taste of meat using heme – a molecule that gives meat its distinctive flavor. Their goal is to eliminate animal agriculture, and its destructive effects on the environment, by creating sustainable and delicious plant-based alternatives.

During her PhD, Fraser studied yeast genetics in Jasper Rine's lab. As she was wrapping up her research, a chance encounter with MCB Professor Michael Eisen in the lab hallway changed the course of her career. Eisen mentioned he was a founding advisor for Impossible Foods and that they were looking to hire scientists. Fraser, who never intended to work in industry and was about to accept an academic postdoc position, became intrigued.

Eisen told her Impossible Foods was going to try to use biochemistry, genetics, and other common molecular biology research tools to build plant-based products that would replicate all the features of meat from animals. Fraser says she was excited about the idea of "taking the techniques that I'd learned, the scientific rigor, and the thought process, and applying it to a totally new problem." After a visit to the small startup, she says, "I knew that if I didn't take this opportunity, I would regret it for the rest of my life."

In her first week at Impossible Foods, Fraser was given the critical job of determining which heme protein to use to create the Impossible Burger's™ signature meaty flavor. Fraser and her team studied many different heme molecules to discover which one

would work best in terms of flavor and the ability to use it in products. The company ended up choosing a type of heme from soybeans, which they produce in large quantities using genetically engineered yeast because it is more sustainable than using the plants themselves.

Fraser became a director of research in 2018 and currently focuses on optimizing the heme manufacturing process. She says they are always prototyping new products and recently debuted one that mimics ground pork. "When you're in the lab, sometimes you'll see lots of people huddled around a bench, and there will be someone cooking on a little frying pan," she says. "It's always something really fun and exciting."

Fraser says her experience in the Rine lab helped her succeed, despite being completely new to the food startup world. "The nice thing about coming out of a lab like Jasper's is that you really learn how to design experiments and interpret results," she says. "It's really just about understanding the scientific process, and that skill translates to any problem."

She recommends that graduate students who are interested in working at a startup talk about it with faculty members because they are often involved in starting companies and "need people that are willing to take a risk and come in at the beginning and make it happen." Fraser is certainly glad she took that risk. "This job has been the experience of a lifetime," she says.

*Impossible Foods uses plant-based alternatives to create their Impossible™ Burger.*





## Jennifer Doudna rewrites DNA and the future of medicine

**J**ennifer Doudna's sheer curiosity about an unusual stretch of bacterial DNA led to an unexpected breakthrough that is transforming medicine – the CRISPR-Cas9 gene-editing system. Doudna is a professor of MCB and chemistry at UC Berkeley and was instrumental in the discovery and development of CRISPR as a tool to precisely remove and edit genes. This powerful technology may lead to new treatments, or even cures, for many diseases in the near future.

Doudna's passion for science began when she was growing up in Hawaii, where she became fascinated with the natural world. That same inquisitiveness fueled her career as a scientist, as she investigated the structure and biochemistry of RNA – molecules that help translate DNA code into proteins. She particularly sought to understand the lesser-known functions of RNA, such as how it can catalyze reactions.

Her curiosity about biochemistry led Doudna to become intrigued with mysterious regions of repetitive DNA sequences, called CRISPR, found in some bacterial genomes. Her team helped discover that these regions contain snippets of DNA stolen from invading viruses. The bacteria produce RNA from the CRISPR sequence, which then guides an enzyme called Cas9 to the same sequence within the viruses themselves. Cas9 cuts the viral DNA, protecting the bacteria from infection. Doudna and her colleagues quickly realized that the CRISPR-Cas9 system could be harnessed to selectively target, cut, and edit any gene, with profound implications for medicine, agriculture, and other biology-related fields. For example, a mutated gene that causes disease could potentially be deleted and replaced with a healthy gene.

"It is vital that we continue to fund and support basic science," Doudna says, reflecting on the discovery. "CRISPR technology was the outcome of a fundamental research project and now underpins the development of a new generation of advanced therapeutics that can improve the health and wellness of millions."

CRISPR-based therapies are already being tested in patients with sickle cell disease, eye disease, and cancer. Doudna says we are "on the cusp of curing" sickle cell disease with CRISPR treatments – which would be an astonishing breakthrough that would greatly improve and extend the lives of patients. She is excited by how the scientific community (including the Innovative Genomics Institute, where she is the executive director) is using CRISPR to target different genes involved in sickle cell disease. "This multi-pronged approach is what the landscape of CRISPR therapies will look like in the future," she says.

Doudna says she enjoys "guiding young scientists in the lab and encouraging them to move promising research into a company setting to help solve real-world problems." To accelerate the development of CRISPR-based therapies and other applications, she co-founded Caribou Biosciences with MCB PhD alumna Rachel Haurwitz and Mammoth Biosciences with MCB PhD alumni Janice Chen and Lucas Harrington.

Doudna is well aware of the ethical questions that gene-editing technology raises, and has been outspoken about the importance of considering the ethical implications of CRISPR applications. She is committed to developing CRISPR therapies in a responsible and equitable manner. "We must ensure that CRISPR-based therapies are safe, effective, fairly priced, and widely accessible," Doudna says.

In her lab at Berkeley, Doudna continues to study and "push the limit" of CRISPR-Cas9, as well as studying anti-CRISPRs that turn the system off once gene editing is complete. She is thrilled about the rapid advances in CRISPR technology that are occurring worldwide. "Within the next 10 years, CRISPR-based therapies can become the new standard of care for treating disease," she says.

*Since the writing of this article, Doudna has led the Innovative Genomics Institute in switching their work to COVID-19 research and testing.*

*For updates, visit: <https://innovativegenomics.org/covid-19/>*

*Doudna (top photo) with a model of CRISPR-Cas9.*

*Photo credit: © UC Regents, Stephen McNally/UC Berkeley*

*Doudna with original founding members of Mammoth Bio including MCB alumni Janice Chen (right) & Lucas Harrington (left).*

*Photo credit: Mammoth Biosciences*



# Girls join STEM role models at campus conference to discover the fun and possibilities of science

**M**CB PhD student Kurtresha Worden didn't have much exposure to science growing up, and that drives her to share her passion for science with girls as a volunteer at the Expanding Your Horizons (EYH) conference. The conference draws hundreds of fifth- through eighth-grade girls to the Berkeley campus each spring. Here they participate in fun, hands-on STEM activities – from modeling blood cells to designing bio-inspired robots – led by womxn (includes those who identify as transgender, non-binary, or genderqueer) scientists and engineers. The goal is to introduce girls (young womxn) to the wide range of careers in STEM and to inspire and encourage them through interactions with womxn role models.

"It's a really unique opportunity for the students to see just how diverse science can be – in the way of fields and topics, but also people," Worden says. "To be able to see that diversity is really impactful." She noticed that impact the first year she volunteered,

when girls said to her, "Wow, I didn't know that a scientist could look like you! Maybe I can also be a scientist."

Now in her third year of volunteering, Worden is chair of the recruitment, materials, and marketing committee. She gives presentations to students at local schools about EYH (which offers scholarships) to encourage girls to attend. She particularly enjoys visiting underresourced schools and helping girls gain access to STEM who otherwise might not have such an opportunity. Many MCB graduate students, undergraduates, and postdocs volunteer with EYH, and MCB is a sponsor of the conference, which was held on March 7<sup>th</sup> this year.

**To learn more about Expanding Your Horizons at Berkeley, visit: <https://www.ocf.berkeley.edu/~eyh/>**

*Girls experimenting at the EYH conference.*



## Exploring the breadth of healthcare: pre-meds to work with alumnus on diabetes technology

**A**fter graduating this spring, MCB seniors Jennifer Zhang (*photo top right*) and Trisha Shang (*photo bottom right*) will spend a year working at the Diabetes Technology Society (DTS) while applying to medical school. DTS is a nonprofit that promotes the development and use of technology to diagnose, treat, and prevent diabetes. The founder and president of DTS is Cal alumnus David C. Klonoff, MD (BS Genetics, 1972). Klonoff says he intended to only hire one person for the job but found the UC Berkeley students who applied to be "so intelligent and hard-working" that he hired both Zhang and Shang.

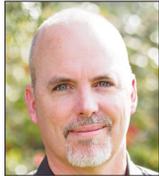
Zhang and Shang credit their upper division MCB courses, such as Cancer Biology, for helping to inspire and prepare them to pursue careers in medicine. Zhang says that taking courses with professors who are "so clearly passionate and excited about what they do . . . really helped me solidify that this is the field I want to be in." Shang says one of her favorite courses, Molecular Endocrinology, helped her "get into the mindset of thinking like a scientist," which she notes is an important skill for a physician.

At DTS, Zhang will be doing research on the environmental impact of diabetes products and Shang will be working on digital aspects of diabetes technology, such as cybersecurity. They will also be organizing major conferences and are looking forward to meeting and learning from the conference attendees, who will be experts from academia, medicine, industry, and government. "I like being able to expose myself to a bunch of different aspects of the career field that I'm interested in," Zhang explains. Shang adds, "I think being able to see the bigger picture of what's happening in the medical field and how to help in a public health sense will be really important for me to understand as a doctor in the future."



# NEW AND NOTEWORTHY

## Faculty



Gregory Barton



Stephen Brohawn



Kathleen Collins



Abby Dernburg



Jennifer Doudna



Marla Feller



Iswar Hariharan



James Hurley



Ehud Isacoff



Samantha Lewis



Sabeeha Merchant



Evan Miller



John Ngai



Michael Rape



Davis Schaffer



Matthew Welch

- Professor **Gregory Barton** - 2020 American Academy of Microbiology Fellow
- Assistant Professor **Stephen Brohawn** - Early-Career Investigator Award from the American Association for Anatomy and 2020 Sloan Research Fellow
- Professor **Kathleen Collins** - 2020 American Academy of Arts & Sciences Member
- Professor **Abby Dernburg** - Miller Professorship Award
- Professor **Jennifer Doudna** - 2020 Wolf Prize in Medicine, 2020 Vanderbilt Prize in Biomedical Science, and 2020 Guggenheim Fellowship
- Professor **Marla Feller** - 2020 UC Berkeley Distinguished Teaching Award
- Professor **Iswar Hariharan** - William Power Endowed Chair
- Professor **James Hurley** - 2020 Member of the National Academy of Sciences
- Professor **Ehud Isacoff** - 2020 Memory and Cognitive Disorders Award from the McKnight Endowment Fund for Neuroscience
- Assistant Professor **Samantha Lewis** - Shurl & Kay Curci Foundation Faculty Award, 2020 Winkler Scholar, and the National Institute of General Medical Sciences ROO Grant
- Professor **Sabeeha Merchant** - Moore Foundation Investigator Award
- Assistant Professor **Evan Miller** - 2020 Camille Dreyfus Teacher-Scholar
- Professor **John Ngai** - Named Director of NIH BRAIN Initiative. He retired from UC Berkeley as an emeritus professor and is now overseeing the long-term strategy and day-to-day operations of the initiative at NIH.
- Professor **Michael Rape** - Dr. K. Peter Hirth Endowed Chair in Cancer Research
- Professor **David Schaffer** - 2019 Fellow for the American Association for the Advancement of Science
- Professor **Matthew Welch** - 2020 Carol D. Soc Distinguished Graduate Student Mentoring Award



### IN MEMORIAM:

## Harry Rubin

1926-2020

Professor Rubin was a treasured part of the UC Berkeley community who joined the faculty in 1958 and served until he retired as an emeritus professor in 2001. He was a highly accomplished scientist who received the Lasker Award for his studies. He and his colleagues pioneered the discovery of defective retroviruses harboring transduced versions of the cellular genes we now know as Myc, Src, and Jun.

Among those trained by Professor Rubin were Howard Temin (Nobel prize), Peter Vogt, Hidesaburu Hanafusa, Steve Martin, and Peter Duesberg.



Dirk Hockemeyer



Nicolas Ingolia



Elçin Ünal



Roberto Zoncu

## New MCB Associate Professors

Congratulations to **Dirk Hockemeyer**, **Nicolas Ingolia**, **Elçin Ünal**, and **Roberto Zoncu** on their promotions to MCB Associate Professors!



## Postdocs

### MCB Postdoc Award recipients

We are excited to announce the recipients of our annual MCB Outstanding Postdoctoral Fellow Awards! Each year, the department honors five postdocs (one in each division) for excellence in research, contributions to the division and department, mentoring, and outreach.

- **Basil Greber** (above with Eva Nogales, BBS/Nogales lab): Greber studies the mechanisms of DNA repair and transcription initiation. He has used cryo-electron microscopy to determine the three-dimensional structure of transcription factor IIH, an important molecular complex that plays key roles in both processes.
- **Melanie Worley** (CDB/Hariharan lab): Regeneration of damaged tissues is a complex process that requires the surviving cells to respond, proliferate, and repattern to replace what was lost. Worley investigates the molecular and cellular mechanisms that control tissue regeneration by using single-cell transcriptomics and genetic approaches in the model organism *Drosophila*.
- **David Booth** (GGD/King lab): Booth has pioneered the development of reverse genetic approaches in choanoflagellates, first by establishing a robust approach for transfection and more recently by establishing CRISPR-Cas9 mediated gene editing in the model choanoflagellate *Salpingoeca rosetta*. He recently started his own lab at UCSF, where he will use evolutionary and functional approaches to investigate the origin of animal cell types and cell differentiation.
- **Patrick Mitchell** (IMP/Vance lab): Mitchell studies how our cells distinguish between microbes that make us sick (pathogens) from those that do not. His work – in collaboration with his colleagues in the Vance lab – has revealed that host immune sensors can detect activities that are specific to pathogen infections, which is a new and exciting mechanism that is critical for mounting an effective and appropriate host defense.
- **Alexandre Tiriac** (NEU/Feller lab): Detecting the directions in which objects move is critical for an animal's everyday behavior. Tiriac's research aims to identify which factors – like visual experience, for example – are important for the development of the retinal circuits that detect the direction of motion.

- **Tess Branon** (Barton lab), **Stephen Crossley** (C. Chang & Nomura labs) & **Katy Ong** (Bilder lab) – nominated as Damon Runyon Cancer Research Foundation Fellows
- **Ryo Higuchi-Sanabria** (Dillin lab) – K99/ROO Pathway to Independence Award (NIH)
- **Rick Hooy** (Hurley lab) – Ruth L. Kirschstein F32 postdoctoral fellowship (NIH)

## Graduate students

- **Rose Hill** (right, Bautista lab) received a Weintraub Award for outstanding achievement in the biological sciences for graduate-level academics.
- **Tomar Langberg** (Feldman lab) received a Fulbright Postdoctoral Fellowship in Israel.
- **Erika M. Lopez-Alfonzo** (A. Martin lab) is a recipient of the Ford Foundation Pre-doctoral Fellowship, a competitive program administered by the National Academies of Sciences, Engineering, and Medicine.
- **Rafael Rivera-Lugo** (Portnoy lab) received the Gordon Research Conference (GRC) Carl Storm Underrepresented Minority Fellowship to support his participation in the 2020 GRC on Microbial Toxins and Pathogenicity.



### Congratulations to the Outstanding Graduate Student Instructor (OGSI) Award recipients:

**Emeric Charles** (Savage/Doudna labs), **Victoria Chevé** (Portnoy lab), **Maya Emmons-Bell** (Hariharan lab), **Miriam Hood** (Marqusee lab), **Erika López-Alfonzo** (A. Martin lab), **Naiya Phillips** (Savage lab), **Snigdha Poddar** (Cate lab), **Rafael Rivera-Lugo** (Portnoy lab), **Sue Sim** (Park lab), and **Lisa Strong** (Hurley lab)

### Congratulations to the recipients of NSF Graduate Research Fellowships:

**Joyner Cruz** (Hariharan lab), **Durga Kolla** (rotating), **Ashley Segura-Roman** (rotating), **Sue Sim** (Park lab), and **Elizabeth Turcotte** (Vance lab)

## Undergraduate students

- **Lisa Cha** (Lishko lab) received the Center for Research and Education on Aging 2019-2020 Support for Undergraduate Student Research in Aging.



ADDRESS SERVICE REQUESTED

Biochemistry, Biophysics & Structural Biology • Cell & Developmental Biology • Genetics, Genomics & Development • Immunology & Pathogenesis • Neurobiology

## CLASS NOTES

- **Margaux Bennett** (PhD 2014) is a director of Corporate Development at ACADIA Pharmaceuticals where she primarily works on sourcing and evaluating neuroscience assets as potential in-licensing opportunities.
- **Lynn Caporale** (PhD 1973) organized and chaired a session at the 2019 AAAS meeting entitled "Historic Contributions to STEM of Families of Refugees and Immigrants to the US", with a focus on the "wretched refuse" immigrants.
- **Diya Das** (PhD 2018) is a member of the data management team in the Development Sciences Informatics department at Genentech, which manages scientific data to enable early-stage pharmaceutical drug development.
- **Carmen Domingo** (PhD 1995) is the dean of the College of Science and Engineering at San Francisco State University. She is also currently co-PI of a NSF IT Catalyst grant examining the role of service and its impact on promotion and retention of women faculty in the sciences and social sciences.
- **Anjali Gupta** (BA 1995) works in business development for Axiom Space, a space startup that is building the first commercial space station in low Earth orbit, to enable access to the microgravity platform for life science innovations.
- **Adam Harvey** (BA 2008) has worked in an R&D role for multiple biotech startups in the cell therapy and cancer diagnostic space. He is currently leading next-generation sequencing assay development for a small liquid biopsy diagnostic company in San Francisco.
- **James Huang** (BA 2009) is a director at Snow Lake Capital, an investment management firm in Hong Kong.
- **Wendy Ingram** (PhD 2015) is finishing a postdoc fellowship in Psychiatric Epidemiology at Johns Hopkins School of Public Health in the Department of Mental Health.
- **Lilian Chiang Lee** (BA 2004) is a clinical research manager at Medtronic Vascular, a medical device company.
- **Chris Lew** (BA 2016) is a senior associate at DeciBio Consulting, where he leverages his scientific background to help biotech companies analyze new opportunities and develop strategies to solve their toughest problems.
- **Robert Lim** (BA 2009) is a full-stack engineer at Superconductive Health, an AI-enabled data integration firm.
- **Nidhi Navaratna** (BA 2019) is currently working as a staff researcher in the Department of Pediatric Rheumatology at UCSF, studying how epigenetic factors maintain immune tolerance. She is also involved in the SF community through volunteering at a music academy for children, as well as an elderly care center.
- **Tuan Samdin** (BA 2016) is a PhD candidate at UC Irvine (Nowick lab) where he studies the biophysical and biological properties of the beta-amyloid peptide in Alzheimer's disease.

Stay  
Connected!



[transcript@mcb.berkeley.edu](mailto:transcript@mcb.berkeley.edu)



[www.facebook.com/berkeleyMCB](http://www.facebook.com/berkeleyMCB)



LinkedIn:

- Berkeley MCB Postdocs
- UC Berkeley MCB Graduate Student and Alumni Association
- UC Berkeley MCB Undergraduate Alumni Group



[@berkeleyMCB](https://twitter.com/berkeleyMCB)

## MCB TRANSCRIPT

Send address changes to:

University Development  
and Alumni Relations  
2080 Addison St #4200  
Berkeley, CA 94720-4200

Or e-mail:  
[transcript@mcb.berkeley.edu](mailto:transcript@mcb.berkeley.edu)

Writing: Rachel Henderson

Design: Betsy Joyce

Managing Editors:  
Tanya Sullivan and  
Ann Trápaga

Editor:  
Katie Deets

Berkeley  
UNIVERSITY OF CALIFORNIA



### Your gift makes a difference!

Contribute to our teaching and research missions:  
<https://give.berkeley.edu/mcb>