

# Stephen Nicholas Floor

Assistant Professor  
Department of Cell and Tissue Biology  
School of Dentistry  
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## AFFILIATIONS

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Pediatric Malignancies Program, Helen Diller Family Comprehensive Cancer Center  
Biophysics Graduate Program (part of iPQB)  
Biomedical Sciences Graduate Program  
Tetrad Graduate Program

## EDUCATION AND TRAINING

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2011 – 2017 **Postdoctoral Fellow, University of California, Berkeley**  
Advisor: Jennifer Doudna

2005 – 2011 **PhD, University of California, San Francisco** in Biophysics.  
Thesis title: *Conformational Control of Eukaryotic mRNA Decapping by Dcp2*  
Advisor: John D. Gross

1999 – 2005 **BS Computer Science, BS Physics, University of Kansas**

## FELLOWSHIPS, HONORS, AND AWARDS

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2021 Pew Scholar in the Biomedical Sciences

2018 NIH Director's New Innovator Award

2013 – 2016 Helen Hay Whitney Foundation HHMI Fellow

2011 Frank M. Goyan Award for Outstanding UCSF Physical Chemistry Thesis

2010 – 2011 Achievement Rewards for College Scientists Scholar

2009 Mel Jones Award for Scientific Achievement in UCSF Biophysics

2007 – 2008 Genentech-Sandler Graduate Research Opportunity Fellow  
Achievement Rewards for College Scientists Scholar

2007 Honorable Mention, NSF Graduate Fellowship

2006 Honorable Mention, NSF Graduate Fellowship

2004 – 2005 Barry M. Goldwater Scholar

2000 – 2005 Awarded 5 annual School of Engineering scholarships

2000 – 2004 Awarded 4 annual Department of Computer Science scholarships

## RESEARCH EXPERIENCE

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### Postdoctoral Research

2011 – 2017  
University of California, Berkeley  
Advisor: Dr. Jennifer Doudna

Revealed widespread regulation of human translation by transcript isoforms and studied the role of DEAD-box “RNA helicases” in translation and RNA biology.

## RESEARCH EXPERIENCE (CONTINUED)

### Ph. D. Dissertation

September 2005 - September 2011  
University of California, San Francisco  
Biophysics Graduate Group  
Advisor: Dr. John Gross

Determined the regulatory mechanism of the eukaryotic mRNA decapping enzyme using NMR, SAXS, kinetics, and X-ray crystallography.

### Undergraduate Research

June 2004 - August 2004  
University of Michigan, Ann Arbor, MI  
Physics Department  
Advisor: Dr. August Evrard

Developed a simulation of gravitational lensing by galaxy clusters to estimate errors in lensing mass estimates due to the matter density of the universe.

### Undergraduate Research

June 2002 - June 2004  
University of Kansas, Lawrence, KS  
Physics Department  
Advisor: Dr. Adrian Melott

Extended and applied a simulation of galaxy cluster evolution to place bounds on cosmological constants by fitting the observed matter density of the universe.

### Undergraduate Research

February 2000 - August 2001  
University of Kansas, Lawrence, KS  
Physics Department  
Advisor: Dr. Greg Hackman

Wrote algorithms to extract data from cyclotron experiments on atomic nuclei using gamma ray coincidence at multiple detectors as a gate.

## RESEARCH PUBLICATIONS (CLICK FOR GOOGLE SCHOLAR)

### PREPRINTS

- 1 Subramanian, Advait, Lan Wang, Tom Moss, Mark Voorhies, Smriti Sangwan, Erica Stevenson, Ernst H. Pulido, Samentha Kwok, Nevan J. Krogan, Danielle L. Swaney, **Stephen N Floor**, Anita Sil, Peter Walter, and Shaeri Mukherjee (2022). "A Legionella toxin mimics tRNA and glycosylates the translation machinery to trigger a ribotoxic stress response." In: *bioRxiv*. DOI: 10.1101/2022.06.10.495705.
- 2 Campbell, Amy E., Michael C. Dyle, Lorenzo Calviello, Tyler Matheny, Michael A. Cortazar, Thomas Forman, Rui Fu, Austin E. Gillen, **Stephen N Floor**, and Sujatha Jagannathan (2021). "The myopathic transcription factor DUX4 induces the production of truncated RNA-binding proteins in human muscle cells." In: *bioRxiv*. DOI: 10.1101/2021.06.28.450189.
- 3 Asundi, Aarati, Srivats Venkararamanan, Gina Caldas Cuellar, Atsushi Suzuki, **Stephen N Floor**, Andrei Goga, and Noelle L'Etoile (2018). "The nuclear RNAi factor, NRDE2, prevents the accumulation of DNA damage during mitosis in stressful growth conditions." In: *bioRxiv*. DOI: 10.1101/428250.

### JOURNAL ARTICLES

- 1 Hoye, M. L., L. Calviello, A. J. Poff, N. E. Ejimogu, C. R. Newman, M. D. Montgomery, J. Ou, **Stephen N Floor**, and D. L. Silver (2022). "Aberrant cortical development is driven by impaired cell cycle and translational control in a DDX3X syndrome model." In: *Elife* 11, e70017. DOI: 10.7554/eLife.70017.
- 2 Tsai, K., V. Stojković, L. Noda-Garcia, I. D. Young, A. G. Myasnikov, J. Kleinman, A. Palla, **Stephen N Floor**, A. Frost, J. S. Fraser, D. S. Tawfik, and D. G. Fujimori (2022). "Directed evolution of the rRNA methylating enzyme Cfr reveals molecular basis of antibiotic resistance." In: *Elife* 11, e78203. DOI: 10.7554/eLife.78203.

- 3 Yu, T., O. Cazares, A. D. Tang, H. Y. Kim, T. Wald, A. Verma, Q. Liu, M. H. Barcellos-Hoff, **Stephen N Floor**, H. S. Jung, A. N. Brooks, and O. D. Klein (2022). “SRSF1 governs progenitor-specific alternative splicing to maintain adult epithelial tissue homeostasis and renewal.” In: *Dev Cell* 57.5, pp. 624–637. DOI: 10.1016/j.devcel.2022.01.011.
- 4 Calviello, Lorenzo, Srivats Venkataramanan, Karol J. Rogowski, Emanuel Wyler, Kevin Wilkins, Malvika Tejura, Bao Thai, Jacek Krol, Witold Filipowicz, Markus Landthaler, and **Stephen N Floor** (2021). “DDX3 depletion represses translation of mRNAs with complex 5' UTRs.” In: *Nucleic Acids Research*. DOI: 10.1093/nar/gkab287.  
 Calviello & Venkataramanan: co-first authors  
 Landthaler & Floor: co-corresponding authors
- 5 Jiang, Xuan, Amit Prabhakar, Stephanie M. Van der Voorn, Prajakta Ghatpande, Barbara Celona, Srivats Venkataramanan, Lorenzo Calviello, Chuwen Lin, Wanpeng Wang, Brian L. Black, **Stephen N Floor**, Giorgio Lagna, and Akiko Hata (2021). “Control of ribosomal protein synthesis by the Microprocessor complex.” In: *Science Signaling* 14.671. DOI: 10.1126/scisignal.abd2639.
- 6 Venkataramanan, Srivats, Margaret Gadek, Lorenzo Calviello, Kevin Wilkins, and **Stephen N Floor** (2021). “DDX3X and DDX3Y are redundant in protein synthesis.” In: *RNA*. DOI: 10.1261/rna.078926.121.
- 7 Chen, Mingming, Miwako Asanuma, Mari Takahashi, Yuichi Shichino, Mari Mito, Koichi Fujiwara, Hironori Saito, **Stephen N Floor**, Nicholas T. Ingolia, Mikiko Sodeoka, Kosuke Dodo, Takuhiro Ito, and Shintaro Iwasaki (2020). “Dual targeting of DDX3 and eIF4A by the translation inhibitor rocaglamide A.” In: *Cell Chemical Biology*. DOI: 10.1016/j.chembiol.2020.11.008.
- 8 Gordon, David E. et al. (2020). “A SARS-CoV-2 protein interaction map reveals targets for drug repurposing.” In: *Nature* 583.7816, pp. 459–468. DOI: 10.1038/s41586-020-2286-9.
- 9 Lennox, Ashley L. et al. (2020). “Pathogenic DDX3X Mutations Impair RNA Metabolism and Neurogenesis during Fetal Cortical Development.” In: *Neuron* 106.3, 404–420.e8. DOI: <https://doi.org/10.1016/j.neuron.2020.01.042>.
- 10 Arake de Tacca, Luisa M., Mia C. Pulos-Holmes, **Stephen N Floor**, and Jamie H. D. Cate (2019). “PTBP1 mRNA isoforms and regulation of their translation.” *eng*. In: *RNA* 25, pp. 1324–1336. DOI: 10.1261/rna.070193.118.
- 11 Iwasaki, Shintaro, Wakana Iwasaki, Mari Takahashi, Ayako Sakamoto, Chiduru Watanabe, Yuichi Shichino, **Stephen N Floor**, Koichi Fujiwara, Mari Mito, Kosuke Dodo, Mikiko Sodeoka, Hiroaki Imataka, Teruki Honma, Kaori Fukuzawa, Takuhiro Ito, and Nicholas Ingolia (2018). “The Translation Inhibitor Rocaglamide Targets a Bimolecular Cavity between eIF4A and Polypurine RNA.” In: *Molecular Cell* 73.4, pp. 738–748. DOI: 10.1016/j.molcel.2018.11.026.
- 12 Richardson, Chris D., Katelynn R. Kazane, Sharon J. Feng, Elena Zelin, Nicholas L. Bray, Axel J. Schäfer, **Stephen N Floor**, and Jacob E. Corn (2018). “CRISPR–Cas9 genome editing in human cells occurs via the Fanconi anemia pathway.” In: *Nature Genetics* 50.8, pp. 1132–1139. DOI: 10.1038/s41588-018-0174-0.
- 13 Blair, John D, Dirk Hockemeyer, Jennifer A Doudna, Helen S Bateup, and **Stephen N Floor** (2017). “Widespread translational remodeling during human neuronal differentiation.” In: *Cell Reports* 21.7, pp. 2005–2016.  
 Bateup & Floor: co-corresponding authors
- 14 Staahl, Brett T, Madhurima Benekareddy, Claire Coulon-Bainier, Ashwin A Banfal, **Stephen N Floor**, Jennifer K Sabo, Cole Urnes, Gabriela Acevedo Munares, Anirvan Ghosh, and Jennifer A Doudna (2017). “Efficient genome editing in the mouse brain by local delivery of engineered Cas9 ribonucleoprotein complexes.” In: *Nature Biotechnology* 35.5, pp. 431–434.

- 15 **Floor, Stephen N**, Krister J Barkovich, Kendall J Condon, Kevan M Shokat, and Jennifer A Doudna (2016). “Analog sensitive chemical inhibition of the DEAD-box protein DDX3.” In: *Protein Science* 25.3, pp. 638–649.  
 Floor & Barkovich: co-first authors
- 16 **Floor, Stephen N**, Kendall J Condon, Deepak Sharma, Eckhard Jankowsky, and Jennifer A Doudna (2016). “Autoinhibitory interdomain interactions and subfamily-specific extensions redefine the catalytic core of the human DEAD-box protein DDX3.” In: *Journal of Biological Chemistry* 291.5, pp. 2412–2421.  
 » Selected as a “Highlight of 2016” by the JBC editors
- 17 **Floor, Stephen N** and Jennifer A Doudna (2016). “Tunable protein synthesis by transcript isoforms in human cells.” In: *Elife* 5, e10921.  
 Floor & Doudna: co-corresponding authors
- 18 Iwasaki, Shintaro, **Stephen N Floor**, and Nicholas T Ingolia (2016). “Rocaglates convert DEAD-box protein eIF4A into a sequence-selective translational repressor.” In: *Nature* 534.7608, pp. 558–561.
- 19 Oh, Sekyung, Ryan A Flynn, **Stephen N Floor**, James Purzner, Lance Martin, Brian T Do, Simone Schubert, Dedeepya Vaka, Sorana Morrissy, Yisu Li, et al. (2016). “Medulloblastoma-associated DDX3 variant selectively alters the translational response to stress.” In: *Oncotarget* 7.19, p. 28169.  
 Oh & Flynn: co-first authors
- 20 Aglietti, Robin A, **Stephen N Floor**, Chris L McClendon, Matthew P Jacobson, and John D Gross (2013). “Active site conformational dynamics are coupled to catalysis in the mRNA decapping enzyme Dcp2.” In: *Structure* 21.9, pp. 1571–1580.  
 Aglietti & Floor: co-first authors
- 21 **Floor, Stephen N**, Mark S Borja, and John D Gross (2012). “Interdomain dynamics and coactivation of the mRNA decapping enzyme Dcp2 are mediated by a gatekeeper tryptophan.” In: *Proceedings of the National Academy of Sciences* 109.8, pp. 2872–2877.
- 22 **Floor, Stephen N**, Brittnee N Jones, Gail A Hernandez, and John D Gross (2010). “A split active site couples cap recognition by Dcp2 to activation.” In: *Nature structural & molecular biology* 17.99, pp. 1096–1101.
- 23 Deshmukh, Mandar V, Brittnee N Jones, Duc-Uy Quang-Dang, Jeremy Flinders, **Stephen N Floor**, Candice Kim, Jacek Jemielity, Marcin Kalek, Edward Darzynkiewicz, and John D Gross (2008). “mRNA decapping is promoted by an RNA-binding channel in Dcp2.” In: *Molecular cell* 29.3, pp. 324–336.
- 24 Lampe, Jed N, **Stephen N Floor**, John D Gross, Clinton R Nishida, Yongying Jiang, Michael J Trnka, and Paul R Ortiz de Montellano (2008). “Ligand-induced conformational heterogeneity of cytochrome P450 CYP119 identified by 2D NMR spectroscopy with the unnatural amino acid 13C-p-methoxyphenylalanine.” In: *Journal of the American Chemical Society* 130.48, pp. 16168–16169.
- 25 Neher, Saskia B, Niels Bradshaw, **Stephen N Floor**, John D Gross, and Peter Walter (2008). “SRP RNA controls a conformational switch regulating the SRP–SRP receptor interaction.” In: *Nature structural & molecular biology* 15.9, pp. 916–923.
- 26 **Floor, Stephen N**, Adrian L Melott, and Patrick M Motl (2004). “Simulated versus observed cluster eccentricity evolution.” In: *The Astrophysical Journal* 611.1, p. 153.
- 27 **Floor, Stephen N**, Adrian L Melott, Christopher J Miller, and Greg L Bryan (2003). “Eccentricity evolution in simulated galaxy clusters.” In: *The Astrophysical Journal* 591.2, p. 741.
- 28 Clark, ST, Gene Hackman, RVF Janssens, RM Clark, P Fallon, **Stephen N Floor**, GJ Lane, AO Macchiavelli, J Norris, SJ Sanders, et al. (2001). “Empirical Investigation of Extreme Single-Particle Behavior of Nuclear Quadrupole Moments in Highly Collective A 150 Superdeformed Bands.” In: *Physical review letters* 87.17, p. 172503.

## PREVIEWS AND COMMENTARIES

- 1 Thai, Bao and **Stephen N Floor** (2018). “Move Over, Genomes: Here Comes Transcriptome Engineering.” In: *The CRISPR Journal* 1.2, pp. 126–127.
- 2 Venkataramanan, Srivats and **Stephen N Floor** (2018). “The Traffic Jam: Polyamine Prevalence Pauses Protein Production.” In: *Molecular Cell* 70.2, pp. 191–192.
- 3 **Floor, Stephen N** and Jennifer A Doudna (2015). “Get in LINE: Competition for newly minted retrotransposon proteins at the ribosome.” In: *Molecular cell* 60.5, pp. 712–714.
- 4 **Floor, Stephen N**, Brittnee N Jones, and John D Gross (2008). “Control of mRNA decapping by Dcp2: An open and shut case?” In: *RNA biology* 5.4, pp. 189–192.

## ORAL PRESENTATIONS

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- 2022 University of Pennsylvania  
Boston Childrens Hospital
- 2021 NIAID DEAD/H-box Helicases Workshop  
RNA Collaborative Seminar Series  
Baylor College of Medicine  
University of California, Riverside
- 2019 Columbia University  
Carnegie Institute  
Moderna  
University of Wisconsin, Madison  
Engineering Biology for Medicine (Duke University/Nature Biomedical Engineering)  
Synthego Genome Engineering Summit  
UC Berkeley Haas Business School Executive Education Program
- 2018 BC2 Seminar Series, Biozentrum (Basel, Switzerland)  
Gordon Research Conference on Post-Transcriptional Gene Regulation  
RNA 2018: 23rd Annual RNA Society Meeting  
Stanford University Frontiers in Biology Seminar  
Molecular Medicine Tri-Conference  
Featured Young Investigator: UC Irvine RNA Symposium  
Innovative Genomics Institute, UC Berkeley
- 2017 Eukaryotic mRNA Processing (Cold Spring Harbor)  
Keystone Protein–RNA Interactions
- 2016 ASCB Post-Transcriptional Gene Regulation Session  
ASCB ASAPbio (Preprint Info Session; Subgroup K)  
Illumina Sequencing Seminar (Invited)  
ENCODE Users Meeting
- 2015 The Helen Hay Whitney Fellows Meeting  
Eukaryotic mRNA Processing (Cold Spring Harbor)  
NIGMS National Centers for Systems Biology Meeting
- 2010 UCSF BBC Joint Retreat (Selected Student for Biophysics Program)

## **ORAL PRESENTATIONS (CONTINUED)**

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- RNA 2010: 15th Annual RNA Society Meeting  
2003 Multiwavelength Cosmology, Mykonos, Greece  
Tartu Observatory, Tartu, Estonia  
Theoretical Astrophysics Center, Copenhagen, Denmark

## **UNIVERSITY SERVICE, PARTIAL LIST**

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- 2022 – Dept. of PRDS Chair Search Committee  
2021 – Co-chair, Tetrad Admissions Committee  
2020 Dept. of Cell and Tissue Biology Faculty Search Committee  
2019 – 2020 UCSF Electronic Lab Notebook Task Force  
Member, UCSF DP5 Internal Selection Committee  
2019 – 2021 Co-chair, UCSF Biomedical Sciences Retreat  
2018 – 2020 UCSF School of Dentistry Technology Governance Committee  
2018 – Member, Biomedical Sciences Admissions Committee  
2018 Faculty Presenter, UCSF Summer Research Training Program  
2008 – 2009 Student Representative, UCSF iPQB Admissions Committee  
2007 – 2009 Organizer, UCSF Biophysics Bootcamp  
2007 – 2010 Member, QB3 Student Seminar Series Organizing Committee  
2007 Member, UCSF Biophysics Curriculum Committee

## **SERVICE TO PROFESSIONAL PUBLICATIONS**

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Editorial Board Member, The CRISPR Journal

Affiliate, bioRxiv

Reviewer for: Cell, eLife, RNA, Nucleic Acids Research, Cell Reports, Cell Chemical Biology, Nature Methods, Genome Research, Developmental Cell, Molecular and Cellular Biology, F1000Research, Scientific Reports, many others

## **PUBLIC SERVICE**

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- 2017 – Ambassador, ASAPbio Preprint Initiative  
2015 – 2016 Remote Advisor, Science Fair Projects, Beaumont Middle School, Lexington, KY (Three students)  
Advisor, High School Senior Biotechnology Projects, Los Altos High School (Two students)  
2014 Contributing Editor, Science in the Classroom (<http://scienceintheclassroom.org/>)  
2010 – 2013 Docent, California Academy of Sciences  
2010 UCSF Science and Health Education Partnership (Gateway High School)  
2008 UCSF Science and Health Education Partnership (Academy of Art & Science High School.)  
2007 UCSF Science and Health Education Partnership (Galileo High School)  
2006 UCSF Science and Health Education Partnership (Edison Charter Elementary)

## DIVERSITY, EQUITY, AND INCLUSION SERVICE

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- 2021 – DEI Committee Chair, Dept of Cell and Tissue Biology
- 2020 – UCSF IMSD Program Faculty Mentor
- 2020 – 2021 BMS Graduate Program Diversity Lead
- 2020 UCSF Graduate Division Faculty–Dean’s Office DEI Task Force  
UCSF School of Dentistry DEI Communication Task Force
- 2019 QBC Retreat Diversity Session Organizer  
BMS Retreat Diversity Session Organizer
- 2018 – UCSF Scientists4Diversity Faculty Advisor
- 2018 QBC Retreat Diversity Session Organizer

## TEACHING EXPERIENCE

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- 2022 Tetrad Biological Regulatory Mechanisms (Biochemistry 201A)
- 2021 Tetrad Biological Regulatory Mechanisms (Biochemistry 201A)  
iPQB Macromolecular Interactions (Biophysics 204B)
- 2022 iPQB Macromolecular Interactions (Biophysics 204B)
- 2020 Tetrad Biological Regulatory Mechanisms (Biochemistry 201A)  
iPQB Macromolecular Interactions (Biophysics 204B)
- 2019 Tetrad Macromolecules Discussion Leader  
Tetrad Biological Regulatory Mechanisms (Biochemistry 201A)  
iPQB Macromolecular Interactions (Biophysics 204B)
- 2017 Journal Club Advisor, BMS 260
- 2010 Teaching Assistant, Chem241: Statistical Mechanics  
UCSF iPQB Bootcamp Lecturer
- 2009 UCSF iPQB Bootcamp Organizer and Lecturer
- 2008 UCSF iPQB Bootcamp Organizer and Lecturer
- 2007 UCSF Biophysics Bootcamp Mathematics Organizer and Lecturer  
Teaching Assistant, PC231: Principles of NMR Spectroscopy  
Teaching Assistant, BMI206: Principles, Theory & Computation
- 2006 UCSF Biophysics Bootcamp Mathematics Organizer and Lecturer

## MENTORING

<u>Who</u>	<u>When</u>	<u>Position</u>	<u>Next position</u>
Hervee Desai	2022	Summer Undergrad (UCSC)	still in lab
Margaret Gadek	2021 –	MSTP Graduate Student	still in lab
Angela Gao	2021 –	Technician	still in lab
Samentha Kwok	2021 –	Technician	still in lab
Jesslyn Park	2021 –	Tetrad Graduate Student	still in lab
Jess Sheu-Gruttadauria	2021 –	Postdoc (joint with Ron Vale)	still in lab
Ziad Jowhar	2020 –	MSTP Graduate Student	still in lab
Albert Xu	2020 –	MSTP Graduate Student	still in lab
Lesly Montaña Zolano	2020	Biotech Partners Intern	returned to high school
Peter Bowman-Davis	2019	Justin-Siena High School	returned to high school
José Liboy Lugo	2019 –	Tetrad Graduate Student	still in lab
Ann Deng	2019 – 2021	Technician	Graduate Student, Johns Hopkins
Emily Ehsan	2019 –	Summer Undergrad (Cornell)	back to college
Yizhu Lin	2019	Postdoc	still in lab
Luisa Arake de Tacca	2018 – 2020	Joint Grad Student with Jamie Cate	RA, Acrogen Biosciences
Lorenzo Calviello	2018 – 2019	Postdoc	Group Leader, Human Technopole
Katie Blackwell	2018 –	UCSF SRTP Student	back to college
Srivats Venkataramanan	2018	Postdoc	Senior Scientist, Circ Bio
Kevin Wilkins	2018 –	BMS Graduate Student	still in lab
Bao Thai	2017 – 2019	Technician	MD/PhD program, U of Arizona
Malvika Tejura	2017 – 2019	Technician	RA, Ultima Genomics
Eelco Meerdink	2016 – 2017	Masters Student (Utrecht University)	PhD student, BIMS Berlin
Axel Schäfer	2015 – 2016	Masters Student (LMU Munich)	PhD student, Uni Mainz
Hera Maryam	2013	UC Berkeley Undergrad	Med. Student, Wash. U., St. Louis
Kendall Condon	2012 – 2015	UC Berkeley Undergrad	PhD student, MIT
Gail Hernandez	2011	UCSF SRTP Student	PhD student, Univ. of Chicago
Anna Hurtle	2007	UCSF SRTP Student	PhD student, UW, Madison