

Stephen Nicholas Floor

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Department of Cell and Tissue Biology
School of Dentistry
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🌐 <http://floorlab.org/>

AFFILIATIONS

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

- 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

- 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

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 Calviello, Lorenzo, Srivats Venkataramanan, Karol J. Rogowski, Emanuel Wyler, Malvika Tejura, Bao Thai, Jacek Krol, Witold Filipowicz, Markus Landthaler, and **Stephen N Floor** (2019). “DDX3 depletion selectively represses translation of structured mRNAs.” In: *bioRxiv*. DOI: 10.1101/589218.
 Calviello & Venkataramanan: co-first authors
 Landthaler & Floor: co-corresponding authors
- 2 Arake de Tacca, Luisa M., Mia C. Pulos, **Stephen N Floor**, and Jamie H. D. Cate (2018). “PTBPI mRNA isoforms and regulation of their translation.” In: *bioRxiv*. DOI: 10.1101/509174.
- 3 Asundi, Aarati, Srivats Venkataramanan, 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.
- 4 Lennox, Ashley L., Ruiji Jiang, Lindsey Suit, Brieana Fregeau, Charles J. Sheehan, Kimberly A. Aldinger, Ching Moey, Iryna Lobach, Ghayda Mirzaa, Alexandra Afenjar, Dusica Babovic-Vuksanovic, Stephane Bezieau, Patrick R. Blackburn, Jens Bunt, Lydie Burglen, Perrine Charles, Brian H.Y. Chung, Benjamin Cogne, Suzanne DeBrosse, Nataliya Di Donato, Laurence Faivre, Delphine Heron, A. Micheil Innes, Bertrand Isidor, Bethany L. Johnson-Kerner, Boris Keren, Amy Kimball, Eric W. Klee, Paul Kuentz, Sebastien Kury, Dominique Martin-Coignard, Cyril Mignot, Noriko Miyake, Caroline Nava, Mathilde Nizon, Diana Rodriguez, Lot Snijders Blok, Christel Thauvin, Julien Thevenon, Marie Vincent, Alban Ziegler, William Dobyns, Linda J. Richards, A. James Barkovich, **Stephen N Floor**, Debra L. Silver, and Elliott H. Sherr (2018). “Pathogenic DDX3X mutations impair RNA metabolism and neurogenesis during fetal cortical development.” In: *bioRxiv*. DOI: 10.1101/317974.

✉ Silver & Sherr: co-corresponding authors

JOURNAL ARTICLES

- 1 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.
- 2 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. ISSN: 1546-1718. DOI: 10.1038/s41588-018-0174-0.
- 3 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
- 4 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.
- 5 **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
- 6 **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
- 7 **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
- 8 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.
- 9 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
- 10 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
- 11 **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.

- 12 **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.
- 13 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.
- 14 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.
- 15 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.
- 16 **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.
- 17 **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.
- 18 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. ISSN: 1097-2765.
- 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

upcoming	Carnegie Institute Moderna University of Colorado, Denver University of Wisconsin, Madison
2019	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

ORAL PRESENTATIONS (CONTINUED)

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

UNIVERSITY SERVICE

- 2018 – UCSF School of Dentistry Technology Governance 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

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

- 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/>)

PUBLIC SERVICE (CONTINUED)

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)

TEACHING EXPERIENCE

2019	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>
Albert Xu	2019 –	MSTP Rotation Student	still in lab
Emily Ehsan	2019 –	Summer Undergrad (Cornell)	still in lab
Yizhu Lin	2018 –	Postdoc	still in lab
Jesslyn Park	2018	Tetrad Rotation Student	rotating
Niko Eng	2018	BMS Rotation Student	joined Hani Goodarzi's lab
Luisa Arake de Tacca	2018 –	Joint Grad Student with Jamie Cate	still in lab
Yewande Alabi	2018 –	BMS Rotation Student	joined Abby Buchwalter's lab
Lorenzo Calviello	2018 –	Postdoc	still in lab
Katie Blackwell	2018	UCSF SRTP Student	back to college
Srivats Venkataramanan	2018 –	Postdoc	still in lab
Kevin Wilkins	2018	BMS Graduate Student	still in lab
Irene Chen	2017	BMS Rotation Student	joined Melanie Ott's lab
Bao Thai	2017 –	Technician	MD/PhD program, U of Arizona
Malvika Tejura	2017 –	UC Berkeley Undergrad	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