

Stephen Nicholas Floor

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AFFILIATIONS

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

- 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 Lennox, A. L., Jiang, R., Suit, L., Fregeau, B., Sheehan, C. J., Aldinger, K. A., ... Sherr, E. H. (2018). Pathogenic DDX3X mutations impair RNA metabolism and neurogenesis during fetal cortical development. *bioRxiv*, 317974.
- 2 Richardson, C. D., Kazane, K. R., Feng, S. J., Bray, N. L., Schaefer, A. J., **Floor, S. N.**, & Corn, J. (2017). CRISPR-Cas9 genome editing in human cells works via the fanconi anemia pathway. *bioRxiv*, 136028.

JOURNAL ARTICLES

- 1 Blair, J. D., Hockemeyer, D., Doudna, J. A., Bateup, H. S., & **Floor, S. N.** (2017). Widespread translational remodeling during human neuronal differentiation. *Cell Reports*, 21(7), 2005–2016.
✉ Bateup & Floor: co-corresponding authors
- 2 Staahl, B. T., Benekareddy, M., Coulon-Bainier, C., Banfal, A. A., **Floor, S. N.**, Sabo, J. K., ... Doudna, J. A. (2017). Efficient genome editing in the mouse brain by local delivery of engineered Cas9 ribonucleoprotein complexes. *Nature Biotechnology*, 35(5), 431–434.
- 3 **Floor, S. N.**, Barkovich, K. J., Condon, K. J., Shokat, K. M., & Doudna, J. A. (2016). Analog sensitive chemical inhibition of the DEAD-box protein DDX3. *Protein Science*, 25(3), 638–649.
👥 Floor & Barkovich: co-first authors
- 4 **Floor, S. N.**, Condon, K. J., Sharma, D., Jankowsky, E., & Doudna, J. A. (2016). Autoinhibitory interdomain interactions and subfamily-specific extensions redefine the catalytic core of the human DEAD-box protein DDX3. *Journal of Biological Chemistry*, 291(5), 2412–2421.
» Selected as a “Highlight of 2016” by the JBC editors

- 5 **Floor, S. N.** & Doudna, J. A. (2016). Tunable protein synthesis by transcript isoforms in human cells. *Elife*, 5, e10921.
✉ Floor & Doudna: co-corresponding authors
- 6 Iwasaki, S., **Floor, S. N.**, & Ingolia, N. T. (2016). Rocaglates convert DEAD-box protein eIF4A into a sequence-selective translational repressor. *Nature*, 534(7608), 558–561.
- 7 Oh, S., Flynn, R. A., **Floor, S. N.**, Purzner, J., Martin, L., Do, B. T., ... Li, Y. et al. (2016). Medulloblastoma-associated DDX3 variant selectively alters the translational response to stress. *Oncotarget*, 7(19), 28169.
👥 Oh & Flynn: co-first authors
- 8 Aglietti, R. A., **Floor, S. N.**, McClendon, C. L., Jacobson, M. P., & Gross, J. D. (2013). Active site conformational dynamics are coupled to catalysis in the mRNA decapping enzyme Dcp2. *Structure*, 21(9), 1571–1580.
👥 Aglietti & Floor: co-first authors
- 9 **Floor, S. N.**, Borja, M. S., & Gross, J. D. (2012). Interdomain dynamics and coactivation of the mRNA decapping enzyme Dcp2 are mediated by a gatekeeper tryptophan. *Proceedings of the National Academy of Sciences*, 109(8), 2872–2877.
- 10 **Floor, S. N.**, Jones, B. N., Hernandez, G. A., & Gross, J. D. (2010). A split active site couples cap recognition by Dcp2 to activation. *Nature structural & molecular biology*, 17(9), 1096–1101.
- 11 Deshmukh, M. V., Jones, B. N., Quang-Dang, D.-U., Flinders, J., **Floor, S. N.**, Kim, C., ... Gross, J. D. (2008). mRNA decapping is promoted by an RNA-binding channel in Dcp2. *Molecular cell*, 29(3), 324–336.
- 12 Lampe, J. N., **Floor, S. N.**, Gross, J. D., Nishida, C. R., Jiang, Y., Trnka, M. J., & Ortiz de Montellano, P. R. (2008). Ligand-induced conformational heterogeneity of cytochrome P450 CYP119 identified by 2D NMR spectroscopy with the unnatural amino acid 13c-p-methoxyphenylalanine. *Journal of the American Chemical Society*, 130(48), 16168–16169.
- 13 Neher, S. B., Bradshaw, N., **Floor, S. N.**, Gross, J. D., & Walter, P. (2008). SRP RNA controls a conformational switch regulating the SRP–SRP receptor interaction. *Nature structural & molecular biology*, 15(9), 916–923.
- 14 **Floor, S. N.**, Melott, A. L., & Motl, P. M. (2004). Simulated versus observed cluster eccentricity evolution. *The Astrophysical Journal*, 611(1), 153.
- 15 **Floor, S. N.**, Melott, A. L., Miller, C. J., & Bryan, G. L. (2003). Eccentricity evolution in simulated galaxy clusters. *The Astrophysical Journal*, 591(2), 741.
- 16 Clark, S., Hackman, G., Janssens, R., Clark, R., Fallon, P., **Floor, S. N.**, ... Sanders, S. et al. (2001). Empirical investigation of extreme single-particle behavior of nuclear quadrupole moments in highly collective A 150 superdeformed bands. *Physical review letters*, 87(17), 172503.

PREVIEWS AND COMMENTARIES

- 1 Thai, B. & **Floor, S. N.** (2018). Move over, genomes: here comes transcriptome engineering. *The CRISPR Journal*, 1(2), 126–127. 🔗 <https://doi.org/10.1089/crispr.2018.29010.stf>
- 2 Venkataramanan, S. & **Floor, S. N.** (2018). The traffic jam: polyamine prevalence pauses protein production. *Molecular Cell*, 70(2), 191–192. 🔗 <http://www.sciencedirect.com/science/article/pii/S1097276518302752>
- 3 **Floor, S. N.** & Doudna, J. A. (2015). Get in LINE: competition for newly minted retrotransposon proteins at the ribosome. *Molecular cell*, 60(5), 712–714.

- 4 Floor, S. N., Jones, B. N., & Gross, J. D. (2008). Control of mRNA decapping by Dcp2: an open and shut case? *RNA biology*, 5(4), 189–192.

SELECT ORAL PRESENTATIONS

- 2018 RNA 2018: 23rd Annual RNA Society Meeting
Stanford University Frontiers in Biology Seminar
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

SELECT POSTER PRESENTATIONS

- 2016 Gordon Conference: Post-Transcriptional Gene Regulation
- 2015 FASEB Helicases and Nucleic-Acid Based Machines
- 2014 Cell Symposia: Regulatory RNAs
Gordon Conference: Post-Transcriptional Gene Regulation
- 2013 Howard Hughes Medical Institute Science Meeting
- 2012 Cold Spring Harbor Lab Meeting on Translational Control
Experimental Biology (ASBMB) 2012
- 2009 RNA 2009: 14th Annual RNA Society Meeting
Experimental Nuclear Magnetic Resonance Conference #50
- 2008 Experimental Nuclear Magnetic Resonance Conference #49
- 2003 The American Astronomical Society Meeting #201

MENTORING

<u>Who</u>	<u>When</u>	<u>Position</u>	<u>Next position</u>
Katie Blackwell	2018 –	UCSF SRTP Student	still in lab
Srivats Venkataramanan	2018 –	Postdoc	still in lab
Kevin Wilkins	2018	BMS Graduate Student	still in lab
Irene Chen	2017	BMS Rotation Student	rotating
Malvika Tejura	2017 –	UC Berkeley Undergrad	still in lab
Eelco Meerdink	2016 – 2017	Masters Student (Utrecht University)	applying to PhD programs
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

TEACHING EXPERIENCE

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

SERVICE TO PROFESSIONAL PUBLICATIONS

Editorial Board Member, The CRISPR Journal

Affiliate, bioRxiv

Reviewer for: Cell, eLife, RNA, Nucleic Acids Research, Cell Reports, F1000Research, Scientific Reports, BBA Gene Regulatory Mechanisms

UNIVERSITY SERVICE

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

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)

PUBLIC SERVICE (CONTINUED)

- 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)