

# Onn Brandman, PhD

Assistant Professor of Biochemistry  
Stanford University School of Medicine  
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## Academic History

1998                      B.S. Computer Science  
                                 University of California, San Diego

2000                      M.S. Computer Science, Artificial Intelligence Focus  
                                 Laboratory of Dr. Hector Garcia-Molina  
                                 Stanford University

2008                      Ph.D. Chemical and Systems Biology  
                                 Thesis: “Feedback loops shape cellular signals in space and time”  
                                 Laboratory of Dr. Tobias Meyer  
                                 Stanford University

## Residency and Fellowship

2008 – 2013              Postdoctoral Fellowship, Protein Quality Control  
                                 Laboratory of Dr. Jonathan Weissman  
                                 University of California, San Francisco

## Scholarships and Honors

1998                      Graduated with Honors, Magna Cum Laude, UC San Diego

2004                      Bauer Center Fellowship for MBL Cell Physiology Course

2004                      NSF Predoctoral Fellowship

2009                      Helen Hay Whitney Postdoctoral Fellowship

## Professional Appointments

1999 – 2002              Senior Software Engineer, Utopy Inc, San Francisco, CA

2013 – present          Assistant Professor of Biochemistry, Stanford University

2019 – present          Member, Stanford Cancer Institute

2020 – present          Member, Stanford Bio-X

## Teaching

2013 – present	<b>BIOC 202 Biochemistry Bootcamp</b> (core biochemistry course) Developed curriculum, lecturer, laboratory instructor <b>Course Director</b> (2016 – present)
2014 – present	<b>BIOC 224 Advanced Cell Biology</b> (core biochemistry course) Developed curriculum, lecturer, discussion section leader <b>Course Director</b> (2020 – present)
2015-2017	<b>BIOC 360 Developing an Original Research Proposal</b> (core biochemistry course) Developed curriculum, lecturer
2014	<b>BIOC 223 Open Problems in Biology</b> (elective) Conceived course, developed curriculum, lectured <b>Course Director</b>
2017 – 2018	<b>BIO 109 Human Genome and Disease</b> (elective) Lecturer
2019	<b>BIOS 287 Proteostasis: guarding the proteome in health &amp; disease</b> (elective) Lecturer and curriculum developer

## Bibliography

### Peer-reviewed journal articles (original research)

1. **Brandman O**, Cho J, Garcia-Molina H, Shivakumar. (2000) Crawler-friendly web servers. *ACM SIGMETRICS Performance Evaluation Review* 28, 9-14.
2. Davis JC\*, **Brandman O\***, Petrov DA. (2005) Protein evolution in the context of Drosophila development. *Journal of Molecular Evolution* 60:774-85. (\***co-first authors**)
3. **Brandman O\***, Ferrell JE Jr, Li R, Meyer T. (2005) Interlinked fast and slow positive feedback loops drive reliable cell decisions. *Science* 310:496-8. (\***corresponding author**)
4. **Brandman O**, Liou J, Park WS, Meyer T. STIM2 is a feedback regulator that stabilizes basal cytosolic and endoplasmic reticulum Ca<sup>2+</sup> levels. (2007) *Cell* 131:1327-39.

5. Xie Z, Zhang Y, Zou K, **Brandman O**, Luo C, Ouyang Q, Li H. Molecular phenotyping of aging in single yeast cells using a novel microfluidic device. (2012) *Aging Cell* 11:599-606. *Non-senior author contribution: Aided design of experimental system*
6. Frost A, Elgort MG, **Brandman O**, Ives C, Collins SR, Miller-Vedam L, Weibezahn J, Hein MY, Poser I, Mann M, Hyman AA, Weissman JS. Functional repurposing revealed by comparing *S. pombe* and *S. cerevisiae* genetic interactions. (2012) *Cell* 149:1339-52. *Non-senior author contribution: Aided in analysis and interpretation of data*
7. Zhang Y, Luo C, Zou K, Xie Z, **Brandman O**, Ouyang Q, Li H. Single cell analysis of yeast replicative aging using a new generation of microfluidic device. (2012) *PLoS One* 7:e48275. *Non-senior author contribution: Aided design of experimental system*
8. **Brandman O**, Stewart-Ornstein J, Wong D, Larson A, Williams CC, Li GW, Zhou S, King D, Shen PS, Weibezahn J, Dunn JG, Rouskin S, Inada T, Frost A, Weissman JS. A ribosome-bound quality control complex triggers degradation of nascent peptides and signals translation stress. (2012) *Cell* 151:1042-54.
9. Gilbert LA, Larson MH, Morsut L, Liu Z, Brar GA, Torres SE, Stern-Ginossar N, **Brandman O**, Whitehead EH, Doudna JA, Lim WA, Weissman JS, Qi LS. CRISPR-mediated modular RNA-guided regulation of transcription in eukaryotes. (2013) *Cell* 154:442-51. *Non-senior author contribution: Aided in analysis and interpretation of data*
10. Shen PS, Park J, Qin Y, Li X, Parsawar K, Larson MH, Cox J, Cheng Y, Lambowitz AM, Weissman JS\*, **Brandman O\***, Frost A\*. Rqc2p and 60S ribosomal subunits mediate mRNA-independent elongation of nascent chains. (2015) *Science* 347:75-8.  
**(\*co-corresponding authors)**
11. Sitron CS, Park JH, **Brandman O**. Asc1, Hel2, and Slh1 couple translation arrest to nascent chain degradation. (2017) *RNA* 23:798-810.
12. Alford BD, **Brandman O**. Quantification of Hsp90 availability reveals differential coupling to the heat shock response. (2018) *Journal of Cell Biology* 217:3809-3816.
13. Igarria A, Merksamer PI, Trusina A, Tilahun F, Johnson JR, **Brandman O**, Krogan NJ, Weissman JS, Papa FR. Chaperone-mediated reflux of secretory proteins to the cytosol during endoplasmic reticulum stress. (2019) *Proceedings of the National Academy of Science USA* 116:11291-11298. *Non-senior author contribution: Aided in analysis and interpretation of data and design of experiments*

14. Sitron CS, **Brandman O**. CAT tails drive degradation of stalled polypeptides on and off the ribosome. (2019) *Nature Structural and Molecular Biology* 26:450-459.
15. Wu Z, Tantray I, Lim J, Chen S, Li Y, Davis Z, Sitron C, Dong J, Gispert S, Auburger G, **Brandman O**, Bi X, Snyder M, Lu B. (2019) MISTERMINATE mechanistically links mitochondrial dysfunction with proteostasis failure. *Molecular Cell* 22:835-848.  
*Non-senior author contribution: Aided in analysis and interpretation of data and design of experiments*
16. Sitron CS, Park JH, Giafaglione JM, **Brandman O**. Aggregation of CAT tails blocks their degradation and causes proteotoxicity in *S. cerevisiae*. (2020)  
<https://doi.org/10.1101/687319>. *PLoS One*, in press

Preprints, manuscripts currently under review or revision (original research)

17. Persson L, Ambati VS, **Brandman O**. (2019) Viscoadaptation controls intracellular reaction rates in response to heat and energy availability. bioRxiv  
<https://doi.org/10.1101/709717>. *Cell*, under revision [CELL-D-19-02335. Available at SSRN: <https://ssrn.com/abstract=3443602> or <http://dx.doi.org/10.2139/ssrn.3443602>]
18. Davis ZH, Mediani L, Vinet J, Alberti S, Holehouse AS, Carra S\*, **Brandman O\***. Protein products of non-stop mRNA disrupt nucleolar homeostasis. bioRxiv doi:  
<https://doi.org/10.1101/851741>. (\*co-corresponding authors)
19. Work JJ, **Brandman O**. Quantitative analysis of the ubiquitin-proteasome system under proteolytic and folding stressors. bioRxiv <https://doi.org/10.1101/780676>. *Journal of Cell Biology*, under revision

Peer-reviewed publications other (i.e., reviews and editorials)

20. **Brandman O\***, Meyer T\*. Feedback loops shape cellular signals in space and time. (2008) Review. *Science* 322:390-5. (\*co-corresponding authors)
21. **Brandman O\***, Hegde RS\*. Ribosome-associated protein quality control. (2016) Review. *Nature Structural Molecular Biology* 23:7-15. (\*co-corresponding authors)
22. Persson L and **Brandman O**. Finding the right finish line in eukaryotic transcription. (2019) Viewpoint. *Biochemistry* 58:4335-4336.
23. Sitron CS and **Brandman O**. Detection and Degradation of Stalled Nascent Chains via Ribosome-associated Quality Control. (2020) Review. *Annual Review of Biochemistry*, in press

## Patents

24. Regulator of Basal Cellular Calcium Concentration and Methods of Use

Publication number: 20090074750

Filed: September 15, 2008, publication date: March 19, 2009

Inventors: **Onn Brandman**, Tobias Meyer

25. Pooled Method for High Throughput Screening of Trans Factors Affecting Rna Levels

Publication number: 20160362684

Filed: June 7, 2016, publication date: December 15, 2016

Inventors: **Onn Brandman**, Jonathan Weissman, Calvin H. Jan, Luke A. Gilbert