Stanford

Onn Brandman

Associate Professor of Biochemistry and, by courtesy, of Chemical and Systems Biology

Curriculum Vitae available Online

Bio

ACADEMIC APPOINTMENTS

- Associate Professor, Biochemistry
- Associate Professor (By courtesy), Chemical and Systems Biology
- Member, Bio-X
- Member, Stanford Cancer Institute

PROFESSIONAL EDUCATION

- Ph.D., Stanford University , Chemical and Systems Biology (2008)
- M.S., Stanford University , Computer Science (2000)
- B.S., University of California, San Diego , Computer Science (1998)

LINKS

- http://web.stanford.edu/~onn/: http://web.stanford.edu/~onn/

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

The Brandman Lab studies how cells sense and respond to stress. We employ an integrated set of techniques including single cell analysis, mathematical modeling, genomics, structural studies, and in vitro assays.

Teaching

COURSES

2025-26

- Biochemistry Department Minicourse: BIOC 202 (Aut)

2024-25

- Biochemistry Department Minicourse: BIOC 202 (Aut)

2023-24

- Biochemistry Mini-Course: BIOC 202 (Aut)

2022-23

- Biochemistry Mini-Course: BIOC 202 (Aut)

STANFORD ADVISEES

Postdoctoral Faculty Sponsor

Eduardo Tassoni Tsuchida

Doctoral Dissertation Advisor (AC)

Kathy Le, Angel Madero Rincon, Ananya Vinayak

Doctoral Dissertation Co-Advisor (AC)

Jacob Schwartz

Doctoral (Program)

Angel Madero Rincon

GRADUATE AND FELLOWSHIP PROGRAM AFFILIATIONS

- Biochemistry (Phd Program)
- Biophysics (Phd Program)

Publications

PUBLICATIONS

- **Mechanical forces regulate the composition and fate of stalled nascent chains.** *Molecular cell*
  Khan, D., Vinayak, A. A., Sitron, C. S., Brandman, O.
  2025
- **CRISPR activation of the ribosome-associated quality control factor ASCC3 ameliorates fragile X syndrome phenotypes in mice.** *Science translational medicine*
  Geng, J., Wang, X., Pan, J., Khan, D., Pimcharoen, S., Zhang, Y., Mosammaparast, N., Hirose, S., Petrucelli, L., Brandman, O., Qi, L. S., Lu, B.
  2025; 17 (819): eadq3551
- **Mechanochemical forces regulate the composition and function of CAT tails.** *bioRxiv : the preprint server for biology*
  Khan, D., Vinayak, A. A., Sitron, C. S., Brandman, O.
  2024
- **Diffusive lensing as a mechanism of intracellular transport and compartmentalization.** *eLife*
  Raja Venkatesh, A., Le, K. H., Weld, D. M., Brandman, O.
  2024; 12
- **Stalled translation by mitochondrial stress upregulates a CNOT4-ZNF598 ribosomal quality control pathway important for tissue homeostasis.** *Nature communications*
  Geng, J., Li, S., Li, Y., Wu, Z., Bhurtel, S., Rimal, S., Khan, D., Ohja, R., Brandman, O., Lu, B.
  2024; 15 (1): 1637
- **Opi1-mediated transcriptional modulation orchestrates genotoxic stress response in budding yeast.** *Genetics*
  Panessa, G. M., Tassoni-Tsuchida, E., Pires, M. R., Felix, R. R., Jekabson, R., de Souza-Pinto, N. C., da Cunha, F. M., Brandman, O., Cussiol, J. R.
  2023
- **Oxaliplatin disrupts nucleolar function through biophysical disintegration.** *Cell reports*
  Schmidt, H. B., Jaafar, Z. A., Wulff, B. E., Rodencal, J. J., Hong, K., Aziz-Zanjani, M. O., Jackson, P. K., Leonetti, M. D., Dixon, S. J., Rohatgi, R., Brandman, O.
  2022; 41 (6): 111629
- **ReporterSeq reveals genome-wide dynamic modulators of the heat shock response across diverse stressors.** *eLife*
  Alford, B. D., Tassoni-Tsuchida, E., Khan, D., Work, J. J., Valiant, G., Brandman, O.
  2021; 10

- **Protein products of nonstop mRNA disrupt nucleolar homeostasis.** *Cell stress & chaperones*
  Davis, Z. H., Mediani, L., Antoniani, F., Vinet, J., Li, S., Alberti, S., Lu, B., Holehouse, A. S., Carra, S., Brandman, O.
  2021
- **Primordial Protein Tails.** *Molecular cell*
  Brandman, O. n., Frost, A. n.
  2021; 81 (1): 6–7
- **Sis1 delivers the State of the Union.** *The Journal of cell biology*
  Khan, D. n., Brandman, O. n.
  2021; 220 (1)
- **Adaptability of the ubiquitin-proteasome system to proteolytic and folding stressors.** *The Journal of cell biology*
  Work, J. J., Brandman, O. n.
  2021; 220 (3)
- **Cellular Control of Viscosity Counters Changes in Temperature and Energy Availability.** *Cell*
  Persson, L. B., Ambati, V. S., Brandman, O.
  2020
- **Detection and Degradation of Stalled Nascent Chains via Ribosome-Associated Quality Control.** *Annual review of biochemistry*
  Sitron, C. S., Brandman, O.
  2020; 89: 417–42
- **CAT Tails Drive Degradation of Stalled Polypeptides on and off the Ribosome**
  Brandman, O.
  CELL PRESS.2020: 181A
- **Viscoadaptation Controls Diffusion and Intracellular Reaction Rates in Response to Heat and Energy Availability**
  Persson, L., Ambati, V., Brandman, O.
  CELL PRESS.2020: 134A
- **Aggregation of CAT tails blocks their degradation and causes proteotoxicity in S. cerevisiae.** *PloS one*
  Sitron, C. S., Park, J. H., Giafaglione, J. M., Brandman, O. n.
  2020; 15 (1): e0227841
- **MISTERMINATE Mechanistically Links Mitochondrial Dysfunction with Proteostasis Failure.** *Molecular cell*
  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, et al
  2019
- **CAT tails drive degradation of stalled polypeptides on and off the ribosome.** *Nature structural & molecular biology*
  Sitron, C. S., Brandman, O.
  2019
- **Finding the Right Finish Line in Eukaryotic Transcription.** *Biochemistry*
  Persson, L. n., Brandman, O. n.
  2019
- **Quantification of Hsp90 availability reveals differential coupling to the heat shock response** *JOURNAL OF CELL BIOLOGY*
  Alford, B. D., Brandman, O.
  2018; 217 (11): 3809-3816
- **Quantification of Hsp90 availability reveals differential coupling to the heat shock response.** *The Journal of cell biology*
  Alford, B. D., Brandman, O.
  2018
- **Asc1, Hel2, and Slh1 couple translation arrest to nascent chain degradation.** *RNA (New York, N.Y.)*
  Sitron, C. S., Park, J. H., Brandman, O.
  2017

- **Rqc2p and 60S ribosomal subunits mediate mRNA-independent elongation of nascent chains**
  Brandman, O.
  FEDERATION AMER SOC EXP BIOL.2016
- **Ribosome-associated protein quality control.** *Nature structural & molecular biology*
  Brandman, O., Hegde, R. S.
  2016; 23 (1): 7-15
- **Protein synthesis. Rqc2p and 60S ribosomal subunits mediate mRNA-independent elongation of nascent chains.** *Science*
  Shen, P. S., Park, J., Qin, Y., Li, X., Parsawar, K., Larson, M. H., Cox, J., Cheng, Y., Lambowitz, A. M., Weissman, J. S., Brandman, O., Frost, A.
  2015; 347 (6217): 75-78
- **A Ribosome-Bound Quality Control Complex Triggers Degradation of Nascent Peptides and Signals Translation Stress** *CELL*
  Brandman, O., Stewart-Ornstein, J., Wong, D., Larson, A., Williams, C. C., Li, G., Zhou, S., King, D., Shen, P. S., Weibezahn, J., Dunn, J. G., Rouskin, S., Inada, et al
  2012; 151 (5): 1042-1054
- **STIMulating Calcium Entry at ER-Plasma Membrane Junctions**
  Liou, J., Brandman, O., Meyer, T.
  CELL PRESS.2009: 193A
- **Feedback loops shape cellular signals in space and time** *SCIENCE*
  Brandman, O., Meyer, T.
  2008; 322 (5900): 390-395
- **STIM2 is a feedback regulator that stabilizes basal cytosolic and endoplasmic reticulum Ca2+ levels** *CELL*
  Brandman, O., Liou, J., Park, W. S., Meyer, T.
  2007; 131 (7): 1327-1339
- **Interlinked fast and slow positive feedback loops drive reliable cell decisions** *SCIENCE*
  Brandman, O., Ferrett, J. E., Li, R., Meyer, T.
  2005; 310 (5747): 496-498
- **Protein evolution in the context of Drosophila development** *JOURNAL OF MOLECULAR EVOLUTION*
  Davis, J. C., Brandman, O., Petrov, D. A.
  2005; 60 (6): 774-U42