



Elizabeth Steinberg

Postdoctoral Research Fellow, Neurosciences

 Curriculum Vitae available Online

Bio

BIO

Elizabeth Steinberg is a postdoctoral fellow in Dr. Robert Malenka's lab in the Department of Psychiatry at Stanford University. Her research is focused on understanding how neural circuits for emotion, motivation and movement work together to control behavior in health and disease. At present, she is investigating the function and organization of connections between the amygdala and midbrain dopamine neurons. Elizabeth obtained her Ph.D. in Neuroscience in 2013 from the University of California at San Francisco, where she trained with Dr. Patricia Janak. Her doctoral research focused on identifying causal roles for dopamine neurons in reinforcement learning. Prior to her graduate training, Elizabeth studied Neuroscience and Philosophy at Columbia University.

HONORS AND AWARDS

- National Institutes of Health Pathway to Independence Award (K99/R00), NIMH (2018-2023)
- Postdoctoral Research Fellowship, A.P. Giannini Foundation (2015-2018)
- Poster Prize, Gordon Research Conference: Amygdala Function in Emotion, Cognition and Disease (2017)
- Trainee Professional Development Award, Society for Neuroscience (2017)
- Allison Doupe Travel Fellowship, McKnight Foundation (2016)
- Helena Anna Henzl-Gabor Postdoctoral Travel Grant, Stanford University (2015)
- Dean's Postdoctoral Fellowship, Stanford University (2014)
- Graduate Research Award, UCSF (2012)
- Earle C. Anthony Travel Award, UCSF (2011)
- Poster Prize, FENS-IBRO School "Causal Neuroscience: Interacting with Neural Circuits" (2011)
- Graduate Research Fellowship, National Science Foundation (2007-2010)
- Summa Cum Laude, Columbia University (2004)
- Honors in Biological Science, Columbia University (2004)
- Dean's List, Columbia University (2000-2004)

PROFESSIONAL EDUCATION

- Bachelor of Arts, Columbia University (2004)
- Doctor of Philosophy, University of California San Francisco (2013)

STANFORD ADVISORS

- Robert Malenka, Postdoctoral Faculty Sponsor

Publications

PUBLICATIONS

- **Learning what to approach.** *PLoS biology*
Eshel, N., Steinberg, E. E.
2018; 16 (10): e3000043
- **Structural foundations of optogenetics: Determinants of channelrhodopsin ion selectivity** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Berndt, A., Lee, S. Y., Wietek, J., Ramakrishnan, C., Steinberg, E. E., Rashid, A. J., Kim, H., Park, S., Santoro, A., Frankland, P. W., Iyer, S. M., Pak, S., Ahrlund-Richter, et al
2016; 113 (4): 822-829
- **Circuit Architecture of VTA Dopamine Neurons Revealed by Systematic Input-Output Mapping** *CELL*
Beier, K. T., Steinberg, E. E., DeLoach, K. E., Xie, S., Miyamichi, K., Schwarz, L., Gao, X. J., Kremer, E. J., Malenka, R. C., Luo, L.
2015; 162 (3): 622-634
- **Illuminating circuitry relevant to psychiatric disorders with optogenetics** *CURRENT OPINION IN NEUROBIOLOGY*
Steinberg, E. E., Christoffel, D. J., Deisseroth, K., Malenka, R. C.
2015; 30: 9-16
- **Diversity of transgenic mouse models for selective targeting of midbrain dopamine neurons.** *Neuron*
Lammel, S., Steinberg, E. E., Földy, C., Wall, N. R., Beier, K., Luo, L., Malenka, R. C.
2015; 85 (2): 429-438
- **Positive Reinforcement Mediated by Midbrain Dopamine Neurons Requires D1 and D2 Receptor Activation in the Nucleus Accumbens** *PLOS ONE*
Steinberg, E. E., Boivin, J. R., Saunders, B. T., Witten, I. B., Deisseroth, K., Janak, P. H.
2014; 9 (4)
- **A causal link between prediction errors, dopamine neurons and learning** *NATURE NEUROSCIENCE*
Steinberg, E. E., Keiflin, R., Boivin, J. R., Witten, I. B., Deisseroth, K., Janak, P. H.
2013; 16 (7): 966-U248
- **Establishing causality for dopamine in neural function and behavior with optogenetics** *BRAIN RESEARCH*
Steinberg, E. E., Janak, P. H.
2013; 1511: 46-64
- **Recombinase-Driver Rat Lines: Tools, Techniques, and Optogenetic Application to Dopamine-Mediated Reinforcement** *NEURON*
Witten, I. B., Steinberg, E. E., Lee, S. Y., Davidson, T. J., Zalocusky, K. A., Brodsky, M., Yizhar, O., Cho, S. L., Gong, S., Ramakrishnan, C., Stuber, G. D., Tye, K. M., Janak, et al
2011; 72 (5): 721-733
- **Perceptual learning directs auditory cortical map reorganization through top-down influences** *JOURNAL OF NEUROSCIENCE*
Polley, D. B., Steinberg, E. E., Merzenich, M. M.
2006; 26 (18): 4970-4982