
Education	2009	PhD Molecular Biology The Rockefeller University, New York, NY, USA
	2002	BA Biology, <i>magna cum laude</i> University of Pennsylvania, Philadelphia, PA USA
	1998	Diploma, honors in biology Stuyvesant High School, New York, NY USA
Research positions	2016 - present	Assistant Professor, Department of Pharmacology Penn Epigenetics Institute The University of Pennsylvania. Philadelphia, PA
	2010-2015	Postdoctoral Fellow, Department of Neuroscience Icahn School of Medicine at Mount Sinai, New York, NY Advisor: Eric J Nestler MD PhD
	2003-2009	Doctoral Student, Laboratory of Molecular Biology The Rockefeller University, New York, NY Advisor: Nathaniel Heintz PhD
	1999-2002	Undergraduate Thesis Student, Department of Biology University of Pennsylvania, Philadelphia, PA Advisor: Ted Abel PhD
	2000	Summer Research Student, Center for Neural Science New York University, New York, NY Advisors: Joseph LeDoux PhD and Raphael Lamprecht PhD
	1994-1998	Westinghouse Research, Public Health Research Institute, New York, NY Advisor: Barry Kreiswirth PhD
	Awards & Honors	2017
2017		University Research Foundation Research Grant
2017		Kavli Scholar, Kavli Frontiers of Science Symposium
2016		Whitehall Foundation Research Grant
2016		Charles E Kaufman Foundation Early Investigator Grant
2016		NARSAD Young Investigator Award
2015		Robin Chemers Neustein Postdoctoral Fellowship
2014		Keystone Symposia Scholarship, Neuroepigenetics
2013		NIDA Director's Travel Award
2013		NIDA Individual National Research Service Award
2013		Icahn School of Medicine Postdoc Appreciation Award
2013		American College of Neuropsychopharm. Travel Award
2012		NIDA Institutional National Research Service Award
2003		Women & Science Fellowship, The Rockefeller University
2002	Phi Beta Kappa Honors Society Membership	

2001 Barry M Goldwater Scholarship nominee
1998 2nd Place, St. John's University Metro NY Science Fair
1998 Honorable mention, NYC Intl. Science and Engineering Fair

Publications

Hamilton PJ, Lim CJ, Nestler EJ, **Heller EA**. Neuroepigenetic editing. In: Rots MG & Jeltsch A, eds. *Methods in molecular biology: Epigenetic editing*. *Accepted*.

Hu Q, Kim Y, Feng J, Grant GG, **Heller EA**. Histone posttranslational modifications predict specific alternative exon subtypes in mammalian brain. *PLoS Computational Biology* 13(6): e1005602.

Hamilton PJ, Burek DD, Lombroso SI, Neve RL, Nestler, EJ, **Heller EA**. Cell-type specific epigenetic editing at the *Fosb* gene alters susceptibility to social defeat stress. *Neuropsychopharmacology* 22 May 2017.

Bagot RC, Cates HM, Purushothaman I, Vialou V, **Heller EA**, Yieh L, LaBonté B, Peña CJ, Wittenberg GM, Nestler EJ. Ketamine and imipramine reverse transcriptional signatures of susceptibility and induce resilience-specific gene expression profiles. *Biological Psychiatry* 18 June 2016.

Bagot RC, Cates HM, Purushothaman I, Lorsch ZS, Walker DM, Wang J, Huang X, Schlüter OM, Maze I, Peña CJ, **Heller EA**, et al, Geschwind D, Dong Y, Shen L, Zhang, B, Nestler, EJ. Circuit-wide transcriptional profiling reveals brain region-specific gene networks regulating depression susceptibility. *Neuron* 90(5):969-83 (2016).

Heller EA*, Hamilton PJ, Burek DD, Lombroso SI, Peña CJ, Neve RL, Nestler, EJ. Targeted epigenetic remodeling of the *Cdk5* gene in nucleus accumbens regulates cocaine- and stress-evoked behavior. *Journal of Neuroscience* 36(17): 4690-7 (2016).

*Corresponding author.

Featured article. Highlighted in 'Editor's Picks' and Journal Club.

Cahill ME, Bagot RC, Gancarz AM, Walker DM, Sun H, Wang ZJ, **Heller EA**, Feng J, Kennedy PJ, Koo JW, Cates HM, Neve RL, Shen L, Dietz DM, Nestler EJ. Bidirectional synaptic structural plasticity after chronic cocaine administration occurs through Rap1 small GTPase signaling. *Neuron* 89(3): 566-82 (2016).

Sun HS, Damez-Werno D, Scobie K, Shao N, Dias C, Koo J, Maze I, Peña C, Korb E, Bagot R, Cahill M, Mouzon E, **Heller EA**, Cates H, Neve R, Kennedy P, Dietz D, Allis CD, Varga-Weisz P, Tamminga C, Shen L, Nestler EJ. ACF chromatin remodeling complex mediates stress-induced depressive-like behavior through nucleosome repositioning and transcriptional regulation. *Nature Medicine* 21(10):1146-53 (2015).

Ferguson D, Shao N, **Heller E**, Feng J, Neve R, Kim H, Call T, Magazu S, Shen L, and Nestler E. SIRT1-FOXO3a regulate cocaine actions in the nucleus accumbens. *Journal of Neuroscience* 35(7), 3100-11 (2015).

Walker DM, Cates HM, **Heller EA**, Nestler EJ. Regulation of chromatin states by drugs of abuse. *Current Opinion in Neurobiology* 30, 112-121 (2015).

Heller EA, Cates HM, Peña CJ, Sun H, Shao N, et al, Han M, Russo SJ, Tamminga CS, Neve RL, Shen L, Zhang H, Zhang F, Nestler EJ. Locus-specific epigenetic remodeling controls addiction- and depression-related behaviors. *Nature Neuroscience* 17(21),

Publications 1720-7 (2014).

Heller EA, Kaska S, Fallon B, Ferguson D, Kennedy PJ, Neve RL, Nestler EJ, Mazei-Robison MS. Morphine and cocaine increase serum- and glucocorticoid-inducible kinase 1 activity in the ventral tegmental area. *J Neurochem* 132(2):243-53 (2014).

Koo JW*, Lobo MK*, Chaudhury D, LaBonté B, Friedman AK, **Heller E**, Peña C, Han M-H, and Nestler EJ. Loss of BDNF signaling in D1R expressing NAc neurons enhances morphine reward by reducing GABA inhibition. *Neuropsychopharmacology* 39(11), 2646-53 (2014).

Walsh J, Friedman AK, Sun H, Ku S, **Heller EA**, Juarez B, Burnham V, Mazei-Robison M, Ferguson D, Golden S, Chaudhury D, Christoffel D, Pomeranz L, Gradinaru V, Friedman J, Russo S, Deisseroth K, Nestler EJ, Han MH. Stress and CRF gate neural activation of BDNF in the mesolimbic reward pathway. *Nature Neuroscience* 17, 27-29 (2014).

Ferguson D, Koo JW, Feng J, **Heller E**, Rabkin J, Heshmati J, Renthal W, Neve R, Sartorelli R, and Nestler EJ. Essential role of SIRT1 signaling in the nucleus accumbens in cocaine and morphine action. *Journal of Neuroscience* (33), 16323-16333 (2013).

Heller E, Zhang W, Selimi F, Slimak M, Santos-Torres J, Earnheart JC, Ibanez-Tallon I, Aoki C, Chait BT, and Heintz N. The biochemical anatomy of cortical inhibitory synapses. *PLoS One*, 7 (6) (2012).

Selimi F, Cristea IM, **Heller E**, Chait BT, and Heintz N. Proteomic studies of a single CNS synapse type: specific regulatory components of the parallel fiber/Purkinje cell synapse. *PLoS Biology*, 7(4):e83 (2009).

Graves LA, **Heller EA**, Pack AI, and Abel T. Sleep deprivation selectively impairs memory consolidation for contextual fear conditioning. *Learning and Memory*, 10(3):168-76 (2003).

Selected invited talks

- 2018 Forum for Neuroscience, Federation of European Neuroscience Societies
- 2018 FUSION Conference on Neuroepigenetics and Neuroepitranscriptomics
- 2017 International Conference on Epigenetics and Bioengineering, AIChE
- 2017 Keynote Speaker, Snowbird Symposium, University of Utah
- 2017 Gordon Research Conference, Neurobiology of Addiction
- 2017 Drexel University College of Medicine, Department of Physiology
- 2016 American College of Neuropsychopharmacology, Nanosymposium
- 2016 The Fels Institute, Temple University School of Medicine
- 2016 Brain Mind Institute, Ecole Polytechnique Federale de Lausanne
- 2016 Medical University of South Carolina, Neuroscience Seminar
- 2015 American College of Neuropsychopharmacology, Nanosymposium
- 2015 The University of Pennsylvania, Behavioral and Cognitive Neuro. Retreat
- 2015 Society for Neuroscience Annual Meeting, Nanosymposium
- 2015 Molecular and Cellular Cognition Society Annual Meeting
- 2014 Columbia University Medical Center, NYSPI Seminar Series
- 2014 Drexel University, Department of Neurobiology and Anatomy Seminar Series
- 2013 The University of Pennsylvania, Biology Seminar Series

	2013	American College of Neuropsychopharmacology, 'Hot Topics' Session
Teaching & Mentorship	2017	Participant, GLIA-organized lunch series, "Fuel for Successful Scientists."
	2017-2021	Mentorship committee member, 1 K99 HD091376-01 [Kathleen Morrison]
	2017	Summer Undergraduate Internship Program, UPenn [Talya Kramer]
	2017	Summer Undergraduate Research Fellowship advisor, UPenn [Brandon Santhumayor, Jason Li]
	2016	Neu Rho Sci Honors Society Mentor Participant
	2016-Current	Pharmacology graduate group thesis advisor [Marco Carpenter] Postdoctoral fellow advisor [Drs. Qiwen Hu, Ajinkya Sase, Songjun Xu]
	2016	Coordinator and lecturer. PHARM/NGG 510, Neuropharmacology. University of Pennsylvania, Philadelphia, PA
	2011-2013	Adjunct Assistant Professor. BIO22, Introductory Human Physiology; BIOL 373/685.4, Neurobiology. Queens College - City University of New York, Flushing, NY
	2013-2015	Research Mentor. Summer Undergraduate Research Fellowship, High School Outreach Program. Icahn School of Medicine at Mount Sinai, New York, NY
	2010	Visiting Assistant Professor. Molecular Biology. Bard Rockefeller Semester in Science Program, New York, NY
2006, 2009	Research Mentor. Summer High School Outreach Program. The Rockefeller University, New York, NY [Dr. Elaine Liu, PhD 2017]	
Professional & Academic service	2017	Admissions Committee, Pharmacology Graduate Group, University of Pennsylvania
	2016-2017	Rotation exam committee, Neuroscience Graduate Group, University of Pennsylvania
	2016	Candidacy exam committees, Biomedical Graduate Studies, University of Pennsylvania [Theresa Patten, Dylan Marchione, Aimee Juan]
	2016	Faculty search committee, Department of Systems Pharmacology and Translational Therapeutics, University of Pennsylvania
	2015-present	Ad-hoc peer reviewer [Nature Neuroscience, Nature Communications, The Journal of Neuroscience, Neurobiology of Disease, Behavioral Brain Research, Addiction Biology]