

KRISTEN E. PLEIL, Ph.D.

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Education & Experience

- 2016 – **Assistant Professor**
Department of Pharmacology
Weill Cornell Medicine, Cornell University, New York, NY
- 2015 – 2016 **Research Associate**
Department of Pharmacology & Bowles Center for Alcohol Studies
UNC School of Medicine, Chapel Hill, NC
- 2010 – 2015 **Postdoctoral Research Fellow**
Department of Pharmacology & Bowles Center for Alcohol Studies
UNC School of Medicine, Chapel Hill, NC
Postdoctoral Advisor: Thomas L. Kash, Ph.D.
 - Neuropeptide signaling and synaptic plasticity in the extended amygdala underlying alcohol use disorders and anxiety behaviors
- 2005 – 2010 **Ph.D. in Behavioral Neuroscience**
Department of Psychology & Neuroscience
Duke University, Durham, NC
Doctoral Thesis Advisor: Christina L. Williams, Ph.D.
 - Effects of estradiol during development and adulthood on spatial navigation learning and plasticity in underlying neural circuits
- 2001 – 2005 **B.A. in Psychology, minor in Mathematics**
Research Assistant, Department of Neurology
Yerkes National Primate Research Center
Emory University, Atlanta, GA
Undergraduate Research Advisor: Vallabh Das, Ph.D.
 - Effects of early life strabismus on visual behavior and ensemble activity in V1 and V5 visual cortex in adulthood

External Research Support

Current

R00 AA023559 05/2017 – 04/2020
The role of excitatory inputs to BNST CRF neurons in alcohol drinking behavior

Kellen Junior Faculty Fellowship 12/2016 – 12/2017
Rapid estrogen modulation of a limbic circuit for binge drinking and affective behavior

Pending

NARSAD Young Investigator Award 01/2018 – 01/2020
A maladaptive synaptic switch driving alcohol abuse across neuropsychiatric diseases

Selected Honors, Awards & Positions

- 2017 Young Investigator Award, Alcoholism and Stress conference, Volterra, Italy
NARSAD Young Investigator Award, Brain & Behavior Research Foundation
NIDA-NIAA Early Career Investigator Showcase (ECIS) Award, SfN satellite conference
- 2016 Anna-Maria and Stephen Kellen Foundation Junior Faculty Fellowship
Elected Council Member, Young Investigator seat, Organization for the Study of Sex Differences
Co-organizer & Speaker, Symposium, Research Society on Alcoholism meeting
- 2015 NIH-NIAAA K99/R00 Pathway to Independence Award
Elizabeth Young New Investigator Award, Organization for the Study of Sex Differences meeting
- 2014 Organizer & Chair, Symposium, Research Society on Alcoholism meeting
Outstanding Poster Award, Gordon Research Conference on Alcohol and the Nervous System
Junior Investigator Travel Award, Research Society on Alcoholism meeting
- 2013 President's Young Investigator Award, Int'l Society for Biomedical Research on Alcoholism meeting
Junior Investigator Travel Award, Research Society on Alcoholism meeting
Travel Award, International Society for Biomedical Research on Alcoholism meeting
- 2012 NIH-NIAAA Individual Postdoctoral F32 NRSA
- 2011 Travel award, Alcoholism and Stress meeting
- 2009 Annie Laurie Aiken fellowship in Neuroscience, Duke University

Publications

- Bath, K.G., Russo, S., **Pleil, K.E.**, Wohleb, E., Duman, R., & Radley, J.J. (2017). Circuit and synaptic mechanisms of repeated stress: a perspective from differing contexts, variability, and development. *Accepted, Neurobiology of Stress*.
- Rinker, J.A., Marshall, S.A., Mazzone, C.M., Lowery-Gionta, E.G., Gulati, V., **Pleil, K.E.**, Kash, T.L., Navarro, M., & Thiele, T.E. (2017). Extended amygdala to ventral tegmental area corticotropin-releasing factor circuit controls binge ethanol intake. *Biological Psychiatry* 81, 930-940.
- Radke, A.K., Jury, N.J., Kocharian, A., Marcinkiewz, C.A., Lowery-Gionta, E.G., **Pleil, K.E.**, McElligott, Z.A., McKlveen, J.M., Kash, T.L., & Holmes, A. (2017). Chronic EtOH effects of putative measures of compulsive behavior in mice. *Addiction Biology* 22, 423-434.
- Hardaway, J.A., Jensen, J., Kim, M., Mazzone, C.M., Sugam, J.A., DiBerto, J.F., Lowery-Gionta, E.G., Hwa, L.S., **Pleil, K.E.**, Bulik, C.M., & Kash, T.L. (2016). Nociceptin receptor antagonist SB612111 decreases high fat diet binge eating. *Behavioral Brain Research* 307, 25-34.
- Pleil, K.E.**, Helms, C.M., Sobus, J., Daunais, J.B., Grant, K.A. & Kash, T.L. (2016). Effects of chronic alcohol consumption on neuronal function in the non-human primate BNST. *Addiction Biology* 21, 1151-1167.
- Li, C., Sugam, J.A., Lowery-Gionta, E.G., McElligott, Z.A., McCall, N.M., Lopez, A.J., McKlveen, J.M., **Pleil, K.E.**, & Kash, T.L. (2016). Mu opioid receptor modulation of dopamine neurons in the periaqueductal gray/dorsal raphe: a role in regulation of pain. *Neuropsychopharmacology* 41, 2122-32.
- Pleil, K.E.**, Rinker, J.A., Lowery-Gionta, E.G., Mazzone, C.M., McCall, N.M., Kendra, A.M., Olson, D.P., Lowell, B.B., Grant, K.A., Thiele, T.E., & Kash, T.L. (2015). NPY signaling inhibits extended amygdala CRF neurons to suppress binge alcohol drinking. *Nature Neuroscience* 18, 545-52.
- Nature News & Views Article:* O'Connor, R.M. & Kenny, P.J. (2015). Neuroscience: Binge drinking and brain stress systems. *Nature* 520, 168-69.
- Science Signaling Editor's Choice Article:* Ferrarelli, L.K. (2015). Binge drinking for stress relief. *Science Sig* 8, ec81.
- Faculty of 1000 recommended with special significance:* <http://f1000.com/prime/725381777>.
- Selected international press coverage:* The Telegraph UK | Wired Germany | NIH News press release | The Independent UK | AAAS EurekAlert! | UNC Health Care News | ABC Spain | Science Daily | The Times of India

- Navarro, M., Olney, J.J., Burnham, N.W., Mazzone, C.M., Lowery-Gionta, E.G., **Pleil, K.E.**, Kash, T.L., & Thiele, T.E. (2015). Lateral hypothalamus GABAergic neurons modulate consummatory behaviors regardless of the caloric content of biological relevance of the consumed stimuli. *Neuropsychopharmacology* 41, 1505-12.
- Pleil, K.E.**, Lowery-Gionta, E.G., Crowley, N. E., Li, C., Marcinkiewicz, C.A., Rose, J.H., McCall, N.M., Maldonado-Devincci, A.M., Morrow, A.L., Jones, S.R., & Kash, T.L. (2015). Effects of chronic ethanol exposure on neuronal function in the prefrontal cortex and extended amygdala. *Neuropharmacology* 99, 735-49.
- Vardy, E.*, Robinson, E.J.*, Li, C.*, Olsen, R., DiBerto, J.F., Giguere, P.M., Sassano, F.M., Huang, X., Zhu, H., Urban, D.J., White, K.L., Rittiner, J.E., Crowley, N.A., **Pleil, K.E.**, Mazzone, C.M., Mosier, P.D., Song, J., Kash, T.L., Malanga, C.J., Krashes, M.J., & Roth, B.L. (2015). A new DREADD facilitates the multiplexed chemogenetic interrogation of behavior. *Neuron* 86, 936-46.
- Kash, T.L., **Pleil, K.E.**, Marcinkiewicz, C.A., Mazzone, C.M., Crowley, N. E., Lowery-Gionta, E.G., Sugam, J.A., Hardaway, J.A., McElligott, Z.A. (2015). Neuropeptide regulation of signaling and behavior in the BNST. *Molecules and Cells* 38, doi: 10.14348/molcells.2015.2261.
- Zhu, H., **Pleil, K.E.**, Urban, D.J., Moy, S.S., Kash, T.L., & Roth, B.L. (2014). Selective and reversible inactivation of ventral hippocampal glutamatergic neurons disrupts consolidation of contextual fear memory. *Neuropsychopharmacology* 39, 1880-92.
- Masneuf, S.F.*, Lowery-Gionta, E.G.*, Colacicco, G., **Pleil, K.E.**, Li, C., Crowley, N.E., Stamatakis, A., Flynn, S., Holmes, A., Kash, T. (2014). Glutamatergic mechanisms associated with stress-induced amygdala excitability and anxiety-related behavior. *Neuropharmacology* 85, 190-7.
- McCall, N.M., Sprow, G.M., Delpire, E., Thiele, T.E., Kash, T.L., & **Pleil, K.E.*** (2013). Effects of sex and deletion of neuropeptide Y2 receptors from GABAergic neurons on affective and alcohol drinking behaviors in mice. *Frontiers in Integrative Neuroscience* 7, 100, doi: 10.3389/fnint.2013.00100.
- * indicates corresponding author**
- Jennings, J.H., Sparta, D.R., Stamatakis, A.M., Ung, R.L., **Pleil, K.E.**, Kash, T.L., & Stuber, G.D. (2013). Distinct extended amygdala circuits for divergent motivational states. *Nature* 496, 224-28.
- Holmes, A., Fitzgerald, P.J., MacPherson, K.P., DeBrouse, L., Colacicco, G., Flynn, S.M., Masneuf, S., **Pleil, K.E.**, Li, C., Marcinkiewicz, C.A., Kash, T.L., Gunduz-Cinar, O., & Camp, M. (2012). Chronic alcohol remodels prefrontal neurons and disrupts NMDAR-mediated fear extinction encoding. *Nature Neuroscience* 15, 1359-61.
- Pleil, K.E.**, Lopez, A., McCall, N., Jijon, A.M., Pena, J., & Kash, T.L. (2012). Chronic stress alters neuropeptide Y signaling in the bed nucleus of the stria terminalis in DBA/2J but not C57Bl/6J mice. *Neuropharmacology* 62, 1777-86.
- Lowery-Gionta, E.G., Navarro, M., Li, C., **Pleil, K.E.**, Rinker, J.A., Cox, B.R., Sprow, G.M., Kash, T.L., & Thiele, T.E. (2012). Corticotropin releasing factor signaling in the central amygdala is recruited during binge-like ethanol consumption in C57Bl/6J mice. *Journal of Neuroscience* 32, 3405-13.
- Li, C*. **Pleil, K.E.***, Stamatakis, A.M., Busan, S., Vong, L., Lowell, B.B., Stuber, G.D., & Kash, T.L. (2012). Presynaptic inhibition of gamma-aminobutyric acid release in the bed nucleus of the stria terminalis by kappa opioid receptor signaling. *Biological Psychiatry* 71, 725-32. *** indicates co-first author**
- Sparrow, A.M., Lowery, E.G., **Pleil, K.E.**, Li, C., Sprow, G.M., Cox, B.R., Rinker, J.A., Jijon, A.M., Pena, J., Navarro, M., Kash, T.L., & Thiele, T.E. (2012). Central neuropeptide Y modulates binge-like ethanol drinking in C57BL/6J mice via Y1 and Y2 receptors. *Biological Psychiatry* 1, 1-13.
- Pleil, K.E.**, Cordes, S., Meck, W.H., & Williams, C.L. (2011). Rapid and acute effects of estrogen on time perception in male and female rats. *Frontiers in Integrative Neuroscience*. 5:63. doi: 10.3389/fnint.2011.00063.
- Pleil, K.E.**, Glenn, M.J., & Williams, C.L. (2011). Estradiol alters Fos-immunoreactivity in the hippocampus and dorsal striatum during place and response learning in middle-aged but not young adult female rats. *Endocrinology* 152, 946-56.

Pleil, K.E. & Williams, C.L. (2010). The development and stability of estrogen-modulated spatial navigation strategies in female rats. *Hormones and Behavior* 57, 360-7.

Williams, C.L. & **Pleil, K.E.** (2008). Toy story: why do monkey and human males prefer trucks? Comment on "Sex differences in rhesus monkey toy preferences parallel those of children" by Hassett, Siebert and Wallen. *Hormones and Behavior* 54, 355-8.

Manuscripts in preparation

Levine, O.L., DiBerto, J., Kendra, A.M., Shirke, A., Kash, T.L. & **Pleil, K.E.** A thalamo-limbic circuit driving excessive alcohol consumption. *In preparation*.

Pleil, K.E. & Kash, T.L.. Divergent effects of neuropeptide Y on neuronal function in distinct populations of CRF neurons in the central amygdala. *In preparation*.

Pleil, K.E., Helms, C.M., Daunais, J.B., Grant, K.A. & Kash, T.L. Sex-specific effects of excessive alcohol consumption and steroid hormones on neuronal function in the non-human primate BNST. *In preparation*.

Rinker, J.A., **Pleil, K.E.**, Kash, T.L., & Thiele, T.E. A mechanism in the central amygdala for NPY modulation of binge alcohol drinking. *In preparation*.

Pleil, K.E., Penner, M.R., Yan, R., & Williams, C.L. Estradiol state modulates the reliability of *Arc* mRNA expression in the female rat hippocampus and dorsal striatum during spatial navigation. *In preparation*.

Selected Presentations

Pleil, K.E. (2017, June). Sex differences in a peptidergic circuit driving binge drinking and affective behavior. Symposium talk, annual meeting for the Research Society on Alcoholism, Denver, CO.

Pleil, K.E. (2017, May). Sex differences in a thalamo-limbic circuit regulating alcohol drinking and anxiety. Poster presentation, annual meeting for the Organization for the Study of Sex Differences, Montreal, Canada.

Pleil, K.E. (2017, May). A thalamo-limbic neuropeptide circuit driving binge drinking behavior. Young Investigator Award Symposium talk, Volterra Conference for Alcoholism and Stress, Volterra, Italy.

Pleil, K.E. (2016, November). Peptidergic mechanisms of addiction and mood disorders. Invited seminar, Department of Pharmacology, Weill Cornell Medicine.

Pleil, K.E. (2016, November). Neurophysiological assessment of chronic alcohol exposure. Invited lecture, Environmental Exposure Assessment seminar, School of Public Health, UNC.

Pleil, K.E. (2016, June). Modulation of binge alcohol drinking by a discrete thalamo-limbic circuit. Symposium talk, annual meeting for the Research Society on Alcoholism, New Orleans, LA.

Pleil, K.E. (2016, April). Stressing thalamo-limbic circuits with repeated binge drinking. Symposium talk, Neurobiology of Stress Workshop, Newport Beach, CA.

Pleil, K.E. (2015, June). Effects of chronic alcohol consumption on neuronal function in the non-human primate BNST. Poster presentation, annual meeting for the Research Society on Alcoholism, San Antonio, TX.

Pleil, K.E. (2015, April). Sex-specific effects of chronic alcohol consumption on limbic neuronal function in non-human primates. Symposium talk, New Investigator Award, annual meeting for the Organization for the Study of Sex Differences, Stanford, CA.

Pleil, K.E. (2015, January). NPY-CRF interactions in the amygdala regulate binge alcohol drinking. Panel talk, annual Winter Conference on Brain Research, Big Sky, MT.

Pleil, K.E., Kendra, A.M., & Kash, T.L. (2014, November). The role of glutamatergic inputs to BNST CRF neurons in alcohol drinking behavior. Poster presentation, annual meeting for Society for Neurosci, Washington, D.C.

- Pleil, K.E.,** Helms, C.M., Sobus, J., Daunais, J.B., Grant, K.A. & Kash, T.L. (2014, September). Molecular epidemiological assessment of neuronal function in the BNST of non-human primates after chronic voluntary alcohol consumption. Poster presentation, Symposium on Data Integration from the Monkey Model of Alcohol Drinking, Portland, OR.
- Pleil, K.E.** (2014, June). NPY signaling inhibits extended amygdala CRF neurons to suppress binge alcohol drinking. Symposium talk, annual meeting for the Research Society on Alcoholism, Bellevue, WA.
- Pleil, K.E.,** Lowery-Gionta, E.G., Rinker, J.A., Kendra, A.M., McCall, N.M., Mazzone, C.M., Sprow, G., Grant, K.A., Thiele, T.E., & Kash, T.L. (2014, February). NPY signaling inhibits extended amygdala CRF neurons to suppress binge alcohol drinking. Poster presentation, GRC on Alcohol and the Nervous System, Galveston, TX.
- Pleil, K.E.** (2013, November). Neurophysiological assessment of chronic exposure to alcohol and stress. Invited lecture, Environmental Exposure Assessment seminar, School of Public Health, UNC.
- Pleil, K.E.** (2013, June). Dissecting the relationship between neuropeptide Y signaling and binge alcohol drinking. Paper talk, annual meeting for the Research Society on Alcoholism, Orlando, FL.
- Pleil, K.E.** (2013, March). Chronic binge ethanol drinking dysregulates neuropeptide Y signaling in the extended amygdala. Invited talk, Pharmacology Department retreat, UNC School of Medicine, Chapel Hill, NC.
- Pleil, K.E.** (2013, March). Dissecting the role of neuropeptide Y signaling in alcohol drinking behavior. Invited seminar, Bowles Center for Alcohol Studies Seminar Series, UNC School of Medicine, Chapel Hill, NC.
- Pleil, K.E.,** McCall, N.M., Grant, K.A., & Kash, T.L. (2012, September). Effects of chronic alcohol exposure on neuronal function in the bed nucleus of the stria terminalis. . Poster presentation, meeting of the International Society for Biomedical Research on Alcoholism, Sapporo, Japan.
- Pleil, K.E.,** Lowery-Gionta, E.G., Li, C., Lopez, A., McCall, N.M., Thiele, T.E., & Kash, T.L. (2012, June). Receptor-specific effects of binge-like ethanol drinking on NPY modulation of synaptic transmission in the bed nucleus of the stria terminalis. Poster presentation, RSA annual meeting, San Francisco, CA.
- Pleil, K.E.,** Jijon, A.M., & Kash, T.L. (2011, May). Stress-mediated plasticity of neuropeptide Y signaling in the extended amygdala. Poster presentation, Alcoholism and Stress: A Framework for Future Treatment Strategies meeting, Volterra, Italy.
- Pleil, K.E.,** Penner, M.R., Glenn, M.J., & Williams, C. L. (2009, October). Expression of the immediate-early genes *c-Fos* and *Arc* reveal distinct mechanisms in the hippocampus and striatum of female rats during place and response navigation. Poster presentation, annual meeting for the Society for Neuroscience, Chicago, IL.
- Pleil, K.E.,** Myers, L.L., & Williams, C. L. (2007, June). The development of estrogenic modulation of spatial navigation strategy in female rats. Poster presentation, annual meeting for the Society for Behavioral Neuroendocrinology, Pacific Grove, CA.
- Pleil, K.E.,** Cheng, R.K., Williams, C.L., & Meck, W.H. (2006, October). Neuroendocrine mechanisms and the differential effects of cocaine on interval timing in male and female rats. Poster presentation, annual meeting for the Society for Neuroscience, Atlanta, GA.
- Pleil, K.E.,** Cordes, S., Meck, W.H., & Williams, C.L. (2006, March). Sex differences in interval timing: possible neuroendocrine mechanisms. Poster presentation, annual meeting for the Comparative Cognition Society, Melbourne, FL.

Teaching Positions

- 2016 – **Weill Cornell Medicine:** Lecturer, Genes, Drugs, and Behavior graduate course
Lecturer, Next-Gen Methods graduate course
Lecturer, Essential Principles of Pharmacology and Drug Development graduate course
Faculty Instructor, Frontiers in Biomedical Science MD/PhD course
Lecturer, Essential Principles of Medicine medical school course
Faculty Instructor, Brain and Behavior medical school course
- 2013 – 2016 **University of North Carolina:** Guest lecturer, Environmental Exposure Assessment seminar
- 2006 – 2008 **Duke University:** Instructional Assistant, Biological Basis of Behavior, PSY 91
Instructional Assistant, Fundamentals of Neuroscience, BIO 154/NBI 154
Instructional Assistant, Developmental Psychology, PSY 97
Instructional Assistant, Biological Basis of Behavior, PSY 91
Teaching Assistant, Hormones and Behavior seminar, PSY 150S

Mentoring and Outreach

- 2010 – 2016 Mentor, Undergraduate research assistants, technicians, and graduate students
- 2009 – 2010 Volunteer, The Science Lab at the Museum of Life and Science, Durham, NC
Mentor, Undergraduate Honors thesis student
- 2009 Graduate director, Mechanisms of Behavior summer REU program
Mentor, Mechanisms of Behavior summer REU program
- 2008 – 2010 Member, Department of Psychology & Neuroscience Colloquium committee
- 2008 Mentor, Mechanisms of Behavior summer REU program
- 2007 – 2008 Mentor, Undergraduate Honors Thesis student
- 2007 Graduate director, Mechanisms of Behavior summer REU program
Mentor, Mechanisms of Behavior summer REU program
- 2006 Mentor, Duke University Vertical Integration Program
Workshop leader, Females Excelling More in Math, Engineering, and Science
- 2005 – 2006 Mentor, Undergraduate independent study student

Professional Affiliations

- 2017 – American Society for Pharmacology and Experimental Therapeutics
- 2015 – Organization for the Study of Sex Differences
- 2010 – Research Society on Alcoholism
- 2008 – Society for Behavioral Neuroendocrinology
- 2005 – Society for Neuroscience