Vitae
Keith B. Hengen, Ph.D.

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Education

Brandeis University, MA 2011-present
Postdoctoral Fellow
Turrigiano Laboratory

University of Wisconsin, Madison 2006-2010
Neuroscience Training Program
Ph.D. Neuroscience

Bates College, Lewiston, ME 2002-2006
B.A. Biological Psychology (with Honors)

Research Experience

Postdoctoral Fellow: Turrigiano Lab 2011-present
Brandeis University, Waltham, MA

- *In vivo neuronal homeostasis, impact of sleep and wake on plasticity mechanisms. Network self-organization, computational approaches to large datasets.*

Pre-Doctoral Fellow 2006-2010
Neuroscience Training Program, UW-Madison, Madison, WI
Major Professor: Mary Behan, PhD
Committee Members: Gordon Mitchell, PhD, Jerry Yin, PhD, Hannah Carey, PhD, Stephen Johnson, MD, PhD

- *Respiratory circuitry, hibernation, pregnancy, anesthesia and $GABA_A$ receptor function and pharmacology*.

Laboratory for sleep and subcortical visual studies 2005-2006
Department of Neuroscience, Bates College, Lewiston, ME
Major Professor: Roxanne Prichard, PhD

- *Visual system development in rats and sleep deprivation effects in humans.*

Applied Cognition Laboratory 2005
Department of Psychology, University of Utah, Salt Lake City, UT
Major Professor: David Strayer, PhD

- *Cognitive and physiological effects of concurrent driving and cell-phone usage.*

Cognition Laboratory 2003-2006
Department of Psychology, Bates College, Lewiston, ME
Major Professor: Todd Kahan, PhD

- *Studies of attention, memory, linguistics and perception. Statistical modeling and data analysis.*

Teaching Experience

2015: Lecturer and Teaching Assistant, Data Analysis and Statistics Workshop, Brandeis University

2013-2015: Research Ethics Lecturer and Coordinator, Brandeis University

2013-2014: Cellular Neuroscience Guest Lecturer, Brandeis University

2013-2015: Mentor for Neuroscience PhD program students and Neuroscience MS program students, Brandeis University

2011-2015: Psychology/Neuroscience Guest Lecturer, Phillips Exeter Academy

2009: Cold Spring Harbor Dolan DNA Learning Center Workshop participant, Educator Training, "Genes to Cognition Online", University of Wisconsin, Madison

2009: Veterinary Neuroanatomy and Physiology Teaching Assistant, School of Veterinary Medicine, University of Wisconsin, Madison

2008-2009: Guest Lecturer, Introduction to Neuroscience, 8th Grade Sciences, Madison Public Schools, Madison, WI

2008-2009: Guest Lecturer in Neurosciences, Wisconsin Dept. of Public Instruction, Continuing Education for Licensed Educators, Madison, WI

2005-2006: Cognitive Neuroscience, Writing Assistant and Teaching Assistant, Bates College, Lewiston, Maine

Research Support

2014-2015	NIH NINDS K99 1K99NS089800-01
2013-2014	NIH NINDS NRSA 1 F32 NS078859-01A1
2012-2013	NFS CELEST (GGT, Hosted by Boston University)
2011-2012	NIH T32 NS007292

Award and Honors

- K99/R00 career transition grant from the National Institute of Neurological Disorders and Stroke (2014).
- Recipient of Travel Award for Capitol Hill Day, an opportunity to advocate for science public policy through Congressional meetings. Organized by the Coalition for Life Sciences (2013).
- Recipient of Ruth L. Kirschstein National Research Service Award (NRSA) Individual Postdoctoral Fellowship from the National Institutes of Neurological Disorders and Stroke (2012).
- Hengen et al., PLoS ONE (2012) selected by Faculty of 1000 as part of the library of the top 2% of published articles in biology and medicine.
- 2011 Jerzy Rose Neuroscience Award recipient. The Jerzy Rose award is presented annually to the UW-Madison graduate student whose research in neurosciences is deemed most original and significant.
- Peer Mentor Award, Multicultural Graduate Network, University of Wisconsin Graduate School, 2008.
- Respiratory Neurobiology Training Grant (NIH T32 HL007654), 2008-2010.
- Vilas Travel Grant from the Graduate Student Collaborative for domestic or international travel to conference presentations or for research purposes, University of Wisconsin, Madison 2008.
- National Science Foundation (NSF) Graduate Research Fellowship Honorable Mention, 2007.
- Neuroscience Training Grant (NIH T32 GM007507), 2006-2008.
- Graduated with Honors, Bates College, 2006.
- Dean's List, Bates College, 2003-2006.
- Travel Award, Health Emotions Institute's "Genes, Brains and Behavior" symposium, University of Wisconsin, Madison, 2005.
- Ruggles Scholarship, Bates College to support research with Dr. David Strayer, University of Utah: Cell phone conversation and concurrent driving, 2004.

Invited Presentations

"Rhythmic plasticity in the intact brain." Department of Biomedical Sciences seminar series, University of Washington, Spokane (August 2, 2016).

From circuitry to behavior: The role of sleep in memory consolidation. APSS annual Sleep Conference (June 11-15, 2016).

"Firing rate homeostasis is inhibited by sleep and promoted by active wake." Invited 8/2015* [selected by Society for Neuroscience for press conference: declined due to journal embargo on sharing data prior to publication]

"The Impact of Behavior on Plasticity: The Sleep/Wake Rules Governing Firing Rate Homeostasis." Special seminar, Center for Brain Science, Harvard University, July 14, 2015.

"Firing rate homeostasis in cortical networks."
Annual Volen Center for Complex Systems Retreat, 'Complex behavioral systems: *in silico* and *in vivo* dynamics', October 2013.

"Shared strategies for survival: A rare GABA receptor protects life during hibernation and pregnancy." Vollum Institute, Oregon Health & Science University, April 13, 2012.

"$GABA_A$ receptor subunit changes underlie ethanol insensitivity of respiratory neurons during hibernation." Sleep and Circadian Biology Data Blitz, Society for Neuroscience, 2009.

Peer Reviewed Publications

Hengen KB, Torrado Pacheco A, McGregor JN, Van Hooser SD, Turrigiano GG (2016). Neuronal firing rate homeostasis is inhibited by sleep and promoted by wake. *Cell*, 2016 Mar 24;165(1):180-91.

Hengen KB, Nelson NR, Stang KM, Johnson SM, Smith SM, Watters JJ, Mitchell GS, Behan M (2015). Daily isoflurane exposure increases barbiturate insensitivity in medullary respiratory and cortical neurons via expression of ε-subunit containing $GABA_A$Rs. *PLoS ONE*, 10(3):e0119351. doi: 10.1371/journal.pone.0119351.

Hengen KB, Lambo ME, Van Hooser SD, Katz DB, Turrigiano GG (2013). Firing rate homeostasis in visual cortex of freely behaving rodents. *Neuron 80(2)*:335-42. (Cover story).

Hengen KB, Nelson NR, Stang KM, Johnson SM, Crader SM, Watters JJ, Behan M (2012). Increased $GABA_A$ Receptor ε-Subunit Expression on Ventral Respiratory Column Neurons Protects Breathing during Pregnancy. *PLoS ONE 7*(1): e30608. doi:10.1371/journal.pone.0030608

Hengen KB, Gomez TM, Stang KM, Johnson SM, Behan M (2011). Changes in ventral respiratory column $GABA_A$ ε and δ subunits during hibernation mediate resistance to depression by ETOH and pentobarbital. *Am J Physiol Regul Integ Comp Physiol*. *300*:R272-R283.

Kahan TA, **Hengen KB**, Mathis KM (2010). An examination of orthographic and phonological processing using the task-choice procedure. *Language and Cognitive Processes,* 1464-0732*,* 12 May, 2010

Hengen KB, Behan M, Carey HV, Jones MV, Johnson SM (2009). Hibernation induces pentobarbital insensitivity in medulla but not cortex. *Am J Physiol Regul Integ Comp Physiol. 297*: R1028–R1036.

Professional activities

2007 - current	Member, the Society for Neuroscience
2014 - current	Reviewer for PLoS One