HENRY L. HALLOCK, PH.D.

The Lieber Institute for Brain Development • The Johns Hopkins University School of Medicine
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EDUCATION/TRAINING

2016-Present **Postdoctoral Fellow**
The Lieber Institute for Brain Development, Johns Hopkins Medical Campus, Baltimore, MD
Advisor: Keri Martinowich, Ph.D.

2010-2016 **Graduate Student Researcher**
University of Delaware, Newark, DE
Advisor: Amy L. Griffin, Ph.D.
Dissertation Title: "Prefrontal-thalamo-hippocampal circuit contributions to spatial working memory"

2007-2010 **Undergraduate Researcher**
Millersville University of Pennsylvania, Millersville, PA
Advisors: Shaun P. Cook, Ph.D. & Shawn P. Gallagher, Ph.D.
BA in psychology: 2010
Magna cum laude

FUNDING

2019-Present NIH Ruth L. Kirschstein National Research Service Award (NRSA) for Individual Postdoctoral Fellows (F32), National Institute of Mental Health
'Regulation of fear expression by activity-dependent BDNF in direct hippocampal-to-prelimbic projections'

2018-2019 Mission Forward Award, Lieber Institute for Brain Development
'Molecular signatures of prefrontal-projecting hippocampal neurons'

AWARDS/HONORS

2019 Society for Biological Psychiatry "Rising Star"
2018 Gordon Research Seminar "Amydala" Meeting Poster Prize
2018 Johns Hopkins Postdoctoral Retreat Best Poster ($1,000 Travel Award)
2014 Society for Neuroscience, Delaware Chapter Best Poster (also in 2011)
2013 University of Delaware Graduate Student Travel Award (also in 2012 and 2011)
2013 University of Delaware Graduate Research Fellowship
2012 NSF Graduate Research Fellowship Honorable Mention
2009 Millersville University Intramural Grant for Undergraduate Research
2009 Psi Chi National Honor Society in Psychology

PUBLICATIONS

12. **Hallock, H.L.,** Quillian, H.M., Maynard, K.R., Mai, Y., Chen, H-Y., Hamersky, G.R., Shin, J.H., Maher, B.J., Jaffe, A.E., & Martinowich, K. (2019). Molecularly-defined hippocampal inputs regulate population dynamics in the prelimbic cortex to suppress context fear memory recall. *bioRxiv*, doi: http://dx.doi.org/10.1101/802967

11. Maynard, K.R., Kardian, A., Hill, J.L., Mai, Y., Barry, B., **Hallock, H.L.**, Jaffe, A.E., & Martinowich, K. (in press). TrkB signaling influences gene expression in cortistatin-expressing interneurons. *eNeuro*.

10. **Hallock, H.L.**, Quillian, H.M., Mai, Y., Maynard, K.R., & Martinowich, K. (2019). Manipulation of a genetically and spatially defined sub-population of BDNF-expressing neurons potentiates learned fear and decreases hippocampal-prefrontal synchrony in mice. *Neuropsychopharmacology,* **44:** 2239-2246

9. Hill, J.L., Jimenez, D.V., Mai, Y., Maynard, K.R., Hardy, N.F., **Hallock, H.L.**, Ren, M., Chen, H-Y., Yang, F., Maher, B.J., Schloesser, R.J., & Martinowich, K. (2018). Cortistatin interneurons require TrkB signaling to prevent brain hyper-excitability. *Brain Structure and Function,* **224:** 471-483

8. **Hallock, H.L.**, Garman, H.D., Cook, S.P., & Gallagher, S.P. (2017). Recognition without words: Using taste to explore survival processing. *The Journal of Undergraduate Neuroscience,* **15:** A1-A5

7. **Hallock, H.L.,** Wang, A., & Griffin, A.L. (2016). Ventral midline thalamus is critical for hippocampal-prefrontal synchrony and spatial working memory. *The Journal of Neuroscience,* **36:** 8372-8389 -- **featured article*

6. Layfield, D., Patel, M.M., **Hallock, H.L.,** & Griffin, A.L. (2015). Inactivation of the nucleus reuniens/rhomboid causes a delay-dependent impairment of spatial working memory. *Neurobiology of Learning and Memory,* **125:** 163-167

5. **Hallock, H.L.,** Wang, A., Shaw, C.L., & Griffin, A.L. (2013). Transient inactivation of the thalamic reuniens and rhomboid nuclei produces deficits of a working memory-dependent tactile-visual conditional discrimination T-maze task. *Behavioral Neuroscience,* **127:** 860-866

4. **Hallock, H.L.,** Arreola, A.C., Shaw, C.L., & Griffin, A.L. (2013). Dissociable roles of the dorsal striatum and dorsal hippocampus in conditional discrimination and spatial alternation T-maze tasks. *Neurobiology of Learning and Memory*, **100:** 108-116

3. Shaw, C.L., Watson, G.D.R., **Hallock, H.L.,** Cline, K.M., & Griffin, A.L. (2013). The role of the medial prefrontal cortex in the acquisition, retention, and reversal of a tactile visuospatial conditional discrimination task. *Behavioural Brain Research,* **236:** 94-101

2. **Hallock, H.L.,** & Griffin, A.L. (2013). Dynamic coding of dorsal hippocampal neurons between tasks that differ in structure and memory demand. *Hippocampus,* **23:** 169-186

1. Griffin, A.L., & **Hallock, H.L.** (2013). Hippocampal signatures of episodic memory: Evidence from single-unit recording studies. *Frontiers in Behavioral Neuroscience,* doi: https://doi.org/10.3389/fnbeh.2013.00054

TALKS/SEMINARS

2019 "Molecular targeting in a spatially-localized context fear memory circuit", Inscopix seminar, the National Institutes of Health (NIH), Bethesda, MD (**invited speaker**).

2019 "Molecular targeting in a spatially-localized context fear memory circuit", Baltimore Brain Series, University of Maryland Medical School, Baltimore, MD (**selected to present**).

2019 "Regulation of fear expression by activity-dependent BDNF in direct hippocampal-to-prelimbic projections", Society for Biological Psychiatry (SOBP) Rising Star Symposium, Chicago, IL (**selected to present**).

2017 "The molecular logic of fear extinction circuitry: Implications for psychiatry", PaPC conference, Millersville University, Millersville, PA (**invited speaker; keynote talk**)

2015 "Prefrontal-thalamo-hippocampal circuit contributions to spatial working memory", Harvey lab, Harvard University, Cambridge, MA (**invited speaker**)

2015 "Prefrontal-thalamo-hippocampal circuit contributions to spatial working memory", Gordon lab, Columbia University, New York City, NY (**invited speaker**)

2014 "Prefrontal-thalamo-hippocampal circuit contributions to spatial working memory", Jacobs lab, Drexel University, Philadelphia, PA (**invited speaker**)

2014 "Spatial working memory deficits accompany reductions in hippocampal-prefrontal synchrony following inactivation of the ventral midline thalamic reuniens and rhomboid nuclei", Nanosymposium, Society for Neuroscience, Washington, D.C. (**selected to present**)

2013 "Early life adversity and function of the medial prefrontal cortex throughout the lifespan", Development Seminar Series, University of Delaware, Newark, DE (**invited speaker**)

2012 "Memory demand and task structure differentially modulate spatial representations of hippocampal neurons in dorsal CA1", Data Blitz, Neurobiology of Learning and Memory Conference, Park City, UT

2011 "Charles Bonnet and the clinical significance of insight", History of Psychology Symposium, Eastern Psychological Association, Cambridge, MA

2011 "Attentional set shifting as an interspecies tool for probing prefrontal cortex function", Development Seminar Series, University of Delaware, Newark, DE (**invited speaker**)

TEACHING EXPERIENCE

2015 Instructor of Record, "Measurement and Statistics", University of Delaware

2013 Graduate Student, "Teaching Practicum" course – wrote syllabus/lesson plans/activities for "Research Methods" class, University of Delaware

2013 Guest Lecturer, "Introduction to Neuroscience", *Multiple Memory Systems*, University of Delaware

2013 Guest Lecturer, "Spatial Cognition", *Grid Cells in Memory and Navigation*, University of Delaware

2013 Guest Lecturer, "Introduction to Neuroscience", *Structure and Function of the Nervous System*, University of Delaware

2013 Guest Lecturer, "Advanced Neurophysiology", *The Action Potential*, University of Delaware

2011 Guest Lecturer, "Brain and Behavior", *Multiple Memory Systems*, University of Delaware

2011 Guest Lecturer, "Introduction to Psychology", *Reinforcement Learning*, University of Delaware

2010-2013 Graduate Student Teaching Assistant, "Brain and Behavior", University of Delaware

(graded exams, prepared lectures, held review sessions, helped students during office hours)

TRAINEE MENTORSHIP

2016-Present	4 post-baccalaureate research assistants, 4 undergraduate research assistants, 3 graduate students, direct supervision of 1 undergraduate grant application/letter of recommendation (Johns Hopkins University)
2010-2016	2 masters students, 7 undergraduate research assistants, direct supervision of 2 undergraduate honors theses, 1 letter of recommendation for undergraduate research scholarship, 3 letters of recommendation for graduate school (University of Delaware)

SERVICE/OUTREACH

Ad hoc reviewer for *Cerebral Cortex, Neuroscience, Developmental Cognitive Neuroscience, Molecular Psychiatry, European Journal of Neuropharmacology*

2019	Mentor/letter writer, Letters to a Pre-Scientist
2016	University of Delaware Neuroscience Outreach Program (Project BrainLight)
2016	Organizer, Oscillations journal club, University of Delaware
2013-2016	Big Brother, Big Brothers/Big Sisters, Newark, DE
2011-2015	Graduate recruitment, University of Delaware

PROFESSIONAL MEMBERSHIPS

2010-Present	Society for Neuroscience
2010-2013	Eastern Psychological Association
2016-Present	Society for Biological Psychiatry

CONFERENCE ABSTRACTS (* DENOTES UNDERGRADUATE/POST-BAC MENTEE)

2019 Hallock, H.L., DeBrosse, A.C., Noback, M., *Quillian, H.M., Barrow, J.C., Carr, G.V., & Martinowich, K. *Involvement of a locus coeruleus-to-prefrontal (LC-mPFC) circuit in a touchscreen variant of the continuous performance test (CPT) in mice*. Society for Neuroscience, Chicago, IL.

2019 Hallock, H.L., *Quillian, H.M., *Mai, Y., Chen, H-Y., Hamersky, G.R., Maher, B.J., Jaffe, A.E., & Martinowich, K. *A molecularly and anatomically-defined hippocampal-prelimbic circuit for the regulation of context fear suppression.* GRC Amygdala, Easton, MA.

2019 Hallock, H.L., *Quillian, H.M., *Mai, Y., Chen, H-Y., Hamersky, G.R., Maher, B.J., Jaffe, A.E., & Martinowich, K. *Regulation of fear expression by activity-dependent BDNF in direct hippocampal-to-prelimbic projections.* Society for Biological Psychiatry, Chicago, IL.

2018 Hallock, H.L., *Mai, Y., Hill, J.L., Chen, H-Y., Hamersky, G.R., Maher, B.J., & Martinowich, K. *Regulation of fear expression by activity-dependent BDNF in direct hippocampal-to prelimbic projections.* American College of Neuropsychopharmacology, Hollywood, FL.

2018 *Quillian, H.M., Hallock, H.L., *Mai, Y., Hill, J.L., Maynard, K.R., & Martinowich, K. *Selective manipulation of Bdnf promoter IV-expressing cells in the hippocampus modulates fear expression and hippocampal-prefrontal synchrony in mice.* Society for Neuroscience, San Diego, CA.

2018 Hallock, H.L., *Mai, Y., *Quillian, H.M., Hill, J.L., Chen, H-Y., Hamersky, G.R., Maher, B.J., & Martinowich, K. *Regulation of fear expression by activity-dependent BDNF in direct hippocampal-to prelimbic projections.* Society for Neuroscience, San Diego, CA.

2018 Hallock, H.L., *Mai, Y., Hill, J.L., Chen, H-Y., Hamersky, G.R., Maher, B.J., & Martinowich, K. *Regulation of fear expression by activity-dependent BDNF in direct hippocampal-to prelimbic projections.* Johns Hopkins Postdoctoral Retreat, Baltimore, MD.

2017 Hallock, H.L., *Mai, Y., Hill, J.L., & Martinowich, K. *Fear extinction deficits are associated with altered hippocampal-prefrontal function in mice with impaired activity-dependent BDNF signaling.* American College of Neuropsychopharmacology, Palm Springs, CA.

2015 Maisson, D.J., *Emanuel, B., Hallock, H.L., Gemzik, Z., Donahue, M., & Griffin, A.L. *Distinct contributions of hippocampal and prefrontal afferents to nucleus reuniens during spatial working memory.* Society for Neuroscience, San Diego, CA.

2014 Hallock, H.L., & Griffin, A.L. *Spatial working memory deficits accompany reductions in hippocampal-prefrontal synchrony following inactivation of the ventral midline thalamic reuniens and rhomboid nuclei.* Society for Neuroscience, Washington, D.C.

2014 Hallock, H.L., & Griffin, A.L. *Spatial working memory deficits accompany reductions in hippocampal-prefrontal synchrony following inactivation of the ventral midline thalamic reuniens and rhomboid nuclei.* Pavlovian Society, Seattle, WA.

2013 *Patel, M.M., Hallock, H.L., Wang, A., *Layfield, D.M., *Shaw, C.L., & Griffin, A.L. *Transient inactivation of the thalamic nucleus reuniens and rhomboid nucleus produces deficits of a working memory-dependent tactile-visual conditional discrimination task.* Society for Neuroscience, San Diego, CA.

2013 Hallock, H.L., & Griffin, A.L. *Different modes of communication in the hippocampal-prefrontal micro-circuit during memory-guided decision making.* Spring Hippocampus Conference, Taormina, Sicily.

2013 Hallock, H.L., & Griffin, A.L. *Working memory modulates hippocampal-prefrontal synchrony across mnemonically distinct T-maze tasks.* Neurobiology of Learning and Memory, Park City, UT.

2012 *Arreola, A.C., Hallock, H.L., *Shaw, C.L., *Patel, M.M., Amos, S.M., Chandrasekhar, V., *Watson, G.D.R., & Griffin, A.L. *Dissociable roles of the dorsal striatum and dorsal hippocampus in the performance of mnemonically distinct T-maze tasks.* Society for Neuroscience, New Orleans, LA.

2012 Hallock, H.L., & Griffin, A.L. *The effect of delay-dependent working memory demand on hippocampal-prefrontal synchrony during awake behavior and sleep.* Society for Neuroscience, New Orleans, LA.

2012 Hallock, H.L., & Griffin, A.L. *Memory demand and task structure differentially modulate spatial representations of hippocampal neurons in dorsal CA1.* Neurobiology of Learning and Memory, Park City, UT.

2011 Hallock, H.L., Cline, K.M., & Griffin, A.L. *Dynamic coding of dorsal hippocampal neurons between tasks that differ in structure and memory demand.* Society for Neuroscience, Washington, D.C.

2011 *Shaw, C.L., *Watson, G.D.R., Hallock, H.L., Cline, K.M., & Griffin, A.L. *Effects of mPFC inactivation on acquisition, performance, and reversal of a tactile visuospatial conditional discrimination task.* Society for Neuroscience, Washington, D.C.

2011 Cook, S.P., Gallagher, S.P., Hallock, H.L., & Garman, H. *Survival processing in flavor memory.* Eastern Psychological Association, Cambridge, MA.