HANNAH WIRTSHAFTER

Curriculum vitae – updated August 18, 2021

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**EDUCATION & TRAINING**

**2019 – present NRSA Post-doctoral fellow**

**Northwestern University**, Chicago, IL

Supervisor: Dr. John Disterhoft

**2012 – 2019 PhD in Biology**

**Massachusetts Institute of Technology,** Cambridge, MA

Adviser: Dr. Matt Wilson

**2008 – 2012 BS** **in Biological Sciences,** Minor in Biomedical Engineering

**Carnegie Mellon University,** Pittsburgh, PA

Phi Beta Kappa

**DISSERTATION**

*2019* Adviser: Dr. Matt Wilson

*Dissertation title:* Neural correlates of locomotion, cues, and context in the interactions between hippocampus and lateral septum.

Thesis Committee: Dr. Troy Littleton, Dr. David Page, Dr. Bence Olveczky

**HONORS & AWARDS**

**2019** Society for Neuroscience ‘Hot Topic’

**2017** AAAS/*Science* Program for Excellence in Science

**2012** Phi Beta Kappa Honor Society

**2012** Phi Kappa Phi Honor Society

**2012** Graduated with College and University Honors

**2006** National Merit Scholarship

**FUNDING**

**2019 – present** NRSA Training Grant

**2014 – 2017** National Defense Science & Engineering Graduate Fellowship (NDSEG),

*Three year full graduate fellowship*

**2012** Howard Hughes Medical Institute (HHMI) Undergraduate Research Award

**2011** Howard Hughes Medical Institute (HHMI) Undergraduate Research Award

**2011** NSF Research Experience for Undergraduates (REU) Recipient

**2010** NSF Research Experience for Undergraduates (REU) Recipient

**2008 – 2012** Judith Resnik-Challenger Merit Scholarship

*Half tuition merit scholarship for women in STEM*

**MEMBERSHIPS**

American Association for the Advancement of Science (AAAS)

Society for Neuroscience

**PROFESSIONAL EXPERIENCE**

***Preprint editor***Open Biology

***Reviewer for*** Physiology and Behavior

Bio-protocol

Neuroscience and Biobehavioral Reviews

PLOS Computation Biology

**TEACHING EXPERIENCE**

**Spring 2017 9.24 Disorders & Diseases of the Nervous System, Teaching Assistant,** MIT. Faculty Instructor: Dr. Mriganka Sur

**Fall 2016 7.65/9.015 Molecular & Cell Neuroscience I, Teaching Assistant,** MIT. Faculty Instructor: Dr. Troy Littleton

**Summer 2014 Center for Brains, Minds, and Machines, Summer Course,** Marine Biological Laboratory, Woods Hole

**2014 "Deep Dive" Instructor,** MIT

Created in-depth supplemental neuroscience videos for undergraduate

classes

**Fall 2013 7.016 Introductory Biology Teaching Assistant,** MIT. Faculty Instructors: Dr. David Page, Dr. Angelika Amon, Dr. Barbara Imperiali

**Fall 2011 Genetics** **Teaching Assistant,** Carnegie Mellon University. Faculty Instructors: Dr. Aaron Mitchell, Dr. Javier Lopez

**ADDITIONAL RESEARCH EXPERIENCE**

**2009 – 2012 Howard Hughes Medical Institute (HHMI) Biology Research Assistant,** Dr. Alison Barth,Carnegie Mellon University, Pittsburgh, PA

*(Supported by Howard Hughes Medical Institute research award)*

**2011 Research Experience for Undergraduates (REU) Zoology Research Assistant,** Dr.Rüdiger Bieler, The Field Museum of Natural History, Chicago, IL

**2009 – 2010 Research Experience for Undergraduates (REU) Biomedical Engineering Research Assistant,** Dr. Michael Cho, University of IL at Chicago, Chicago, IL

**2008 – 2009 Howard Hughes Medical Institute (HHMI) Phage Genomics Research Program,** Carnegie Mellon University, Pittsburgh, PA

**2005 – 2006 Mesoscopic Physics Internship,** Northwestern University, Evanston, IL

**2005 Neuroscience/Biology Research Assistant,** University of IL at Chicago, Chicago, IL

**ACADEMIC MENTORING**

**2020 – present** Kent Park, Northwestern Biological Sciences Undergraduate Student

**2017– 2019** Molly Quan, Wellesley Neuroscience Undergraduate Student

*Currently a laboratory technician at Massachusetts General Hospital*

**2015– 2017** Israel Ridgley, MIT Course 6 Undergraduate Student

*Currently a PhD student at Northwestern University*

**2017** Nathan Huffman, MIT Course 2 Undergraduate Student

**2016** Yoon Ji Lee, Wellesley Neuroscience Undergraduate Student

**INVITED TALKS**

**July 2020 University of New South Wales Sydney,** Neuroscience Group Meeting

**April 2020 Tufts University,** Applied Math Class *(canceled because of Covid-19)*

**December 2018 University of Chicago,** Systems Neuroscience Group Meeting

**November 2018 Northwestern University,** Behavioral Neuroscience Group Meeting

**November 2018 MIT**,Molecular & Cellular Neuroscience Student Symposium

**February 2017 MIT**, Plastic Lunch Neuroscience Meeting

**POSTER PRESENTATIONS**

**Wirtshafter, H. S.** & Wilson M. A. “Differences in reward biased spatial representations in the lateral septum and hippocampus.” Poster, Society for Neuroscience Annual Meeting (2021).

**Wirtshafter, H. S.** & Wilson M. A. “Neural correlates of locomotion, cues, and context in theinteractions between hippocampus and lateral septum.” Poster, Society for Neuroscience Annual Meeting, Chicago, IL. (2019).

*Selected as SfN ‘Hot Topic’*

**Wirtshafter, H. S.** & Wirtshafter, D. “Conditioning and sensitization ofdopamine antagonist effects on open field activity.” Poster, Society for Neuroscience Annual Meeting, Chicago, IL. (2015).

**Wirtshafter, H. S.** "Cortical Response to Cold and Menthol Stimulation in Mouse." Carnegie Mellon University. Pittsburgh, PA. (2012).

**Wirtshafter, H. S.** “Flexing our Mussels: Comparative Bivalve Gill Morphology.” The Field Museum of Natural History. Chicago, IL. (2011).

**Wirtshafter, H. S.** “Effect of Fabricated Microscale Features on Human Mesenchymal Stem Cell Behavior.” University of IL at Chicago. (2010).

**PUBLICATIONS**

***Tool and Library Development***

**Wirtshafter, H.S.** Electrophysiology Analysis Library. hsw28/data\_analysis: HSW Analysis code v1.0 Zenedo. http://doi.org/10.5281/zenodo.3597777 (2020).

Hale, G. & **Wirtshafter, H. S.** ARTE (Almost Real Time Electrophysiology) Hardware. hsw28/arte-hardware: Arte Hardware. Zenodo. http://doi.org/10.5281/zenodo.3596963 (2020).

Hale, G. & **Wirtshafter, H. S.** ARTE (Almost Real Time Electrophysiology) Backend Software. wilsonlab/arte-backend v1.0 Zenodo. http://doi.org/10.5281/zenodo.3262886 (2019).

***Other Contributions***

**Wirtshafter, H. S**. "Triplodon corrugatus Lamarck, 1819." Encyclopedia of Life. National Museum of Natural History, Smithsonian. (2011).

“Mycobacterium Phage Island 3 Complete Genome.” GenBank. Aug. 18 (2010).

***Peer-reviewed***

**Wirtshafter, H. S.** & Wilson, M. A. “Lateral Septum as a Nexus for Mood, Motivation, and Movement.” *Neuroscience & Biobehavioral Reviews*:Volume 126, 544-559, (2021).

**Wirtshafter, H. S.**, Quan, M., & Wilson, M. A. “Dissociating Behavior and Spatial Working Memory Demands Using an H Maze.” *Bio-protocol* 11(5): e3947, (2021).

Selected for cover image

**Wirtshafter, H. S.** & Wilson, M. A. “Differences in reward biased spatial representations in the lateral septum and hippocampus.” *Elife.* 9. E55252, (2020).

**Wirtshafter, H. S.** & Wilson, M. A. “Locomotor and Hippocampal Processing Converge in the Lateral Septum.” *Current biology: CB* 29, 3177-3192 e3173, (2019).

Pope, W. H., […] **Phage Hunters Integrating Research and Education** […], et al. “Whole

genome comparison of a large collection of mycobacteriophages reveals a continuum of phage genetic diversity.” Elife. 4, e06416 (2015). (**member of the Phage Hunters team**)

Pope, W. H., […] **Wirtshafter, H. S.** […], et al. “Expanding the Diversity of

Mycobacteriophages: Insights into Genome Architecture and Evolution.” PLoS One. 6 (1), e16329 (2011).

***Under review***  
**Wirtshafter, H. S.** & Disterhoft, J. F. In Vivo Multi-Day Calcium Imaging of CA1 Hippocampus in Freely Moving Rats Reveals a High Preponderance of Place Cells and No Detectable Photobleaching. *Preprint:* [*https://www.biorxiv.org/content/10.1101/2021.08.17.456533v1*](https://www.biorxiv.org/content/10.1101/2021.08.17.456533v1)

**Wirtshafter, H. S.** & Wilson, M. A. Bayesian Algorithmic Decoding of Acceleration and Speed Software (BADASS)

**MEDIA COVERAGE**

“Like a treasure map, brain region emphasizes reward location,” MIT News,

http://news.mit.edu/2020/treasure-map-brain-region-emphasizes-reward-location-0623

*picked up by multiple additional news outlets*

“Study finds hub linking movement and motivation in the brain,” MIT News,

http://news.mit.edu/2019/study-finds-hub-linking-movement-and-motivation-brain-0919

*also published on NeuroscienceNews.com, MedicalXpress.com, and more*

Profiled in the book *Why We Dream: The Transformative Power of Our Nightly*

*Journey* by Alice Robb, 2018