

Kelsey Tyssowski (she/her)

PhD, Biological and Biomedical Sciences

BRAIN Initiative K99/R00 Postdoctoral Fellow

Hoekstra Laboratory, Harvard University

Department of Organismic and Evolutionary Biology, Department of Molecular and Cellular Biology

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Education

Doctor of Philosophy

Boston, MA

2013-2019

Harvard University, Department of Medical Science

Biological and Biomedical Sciences

Certificate in Science Communication

NSF Graduate Research Fellow

Bachelor of Arts

Middletown, CT

2007-2011

Wesleyan University

Neuroscience and Behavior, Molecular Biology and Biochemistry

Phi Beta Kappa

Research Appointments

2023-present

Research Associate

2019-2023

Postdoctoral Fellow

Hoekstra Lab; Harvard University; Cambridge, MA

2014-2019

Graduate Research Fellow

Gray Lab; Harvard Medical School; Boston, MA

2011-2013

Research Assistant

Gotoh lab; University of Tokyo; Tokyo, Japan

2009-2011

Undergraduate Research Fellow

Olson Lab; Wesleyan University; Middletown, CT

Grants/Awards

2024 K99/R00 BRAIN Initiative Advanced Postdoctoral Career Transition Award

2020 Putnam Expedition Grant, Harvard Museum of Comparative Zoology

2020 Life Sciences Research Foundation Fellowship

2020 NIH National Institute of Neurological Disorders and Stroke NRSA F32 (*declined*)

2020 National Science Foundation Postdoctoral Research Fellowship in Biology (*declined*)

2014 National Science Foundation Graduate Research Fellowship Program

2011 Phi Beta Kappa

2011 George H. Acheson and Grass Foundation Prize in Neuroscience, Wesleyan University

2011 Hawk Prize for effective work in biochemistry, Wesleyan University

2011 William Firshein Prize for contributing to the interests and character of the Molecular Biology and Biochemistry Department, Wesleyan University

2010 Howard Hughes Summer Research Fellowship in Life Sciences, Wesleyan University
 2010 American Society for Biochemistry and Molecular Biology Undergraduate Research Award

Publications

Research

underline = mentees under my supervision

Tyssowski KM, Cohen JD, Guo J-Z, Richardson PR, Cortina KE, Smith IH, Ejiogu DC, Hantman AW, Hoekstra HE. 2025. Evolutionary expansion of the corticospinal system is linked to dexterity in *Peromyscus* mice. bioRxiv. doi: <https://doi.org/10.1101/2025.10.16.682851>

Tyssowski KM, Letai KC, Rendall SD, Nizhnik A, Gray JM. 2019. Firing rate homeostasis can occur in the absence of neuronal-activity-regulated transcription. *Journal of Neuroscience*, doi: <https://doi.org/10.1523/JNEUROSCI.1108-19.2019>.

Tyssowski KM, Gray JM. 2019. Blue light induces neuronal-activity-regulated genes in the absence of optogenetic proteins. *eNeuro*, doi: 10.1523/ENEURO.0085-19.2019.

Tyssowski KM*, DeStefino NR*, Cho JH, Dunn CJ, Poston RG, Carty CE, Jones RD, Chang SM, Romeo P, Wurzelmann MK, Ward JM, Andermann ML, Saha RN*, Dudek SM*, Gray JM*, 2018. Different neuronal activity patterns induce different gene expression programs. *Neuron*, 98:530–546.e11.

*co-first, *co-senior

Cover Story

Morimoto-Suzuki N, Hirabayashi Y, **Tyssowski K**, Shinga J, Vidal M, Koseki H, Gotoh Y. 2014. The polycomb component Ring1B regulates the timed termination of subcerebral projection neuron production during mouse neocortical development. *Development*, 141:4343-4353.

Reviews

Tyssowski KM, Gray JM. 2019. The neuronal stimulation-transcription coupling map. *Current Opinion in Neurobiology*, 59:87-94.

Tyssowski K, Kishi Y, Gotoh Y. 2014. Chromatin regulators of neural development. *Neuroscience*, 264: 4-16.

Itoh Y*, **Tyssowski K***, Gotoh Y. 2013. Transcriptional coupling of neuronal fate commitment and the onset of migration. *Current Opinion in Neurobiology*, 23:957-964.

*equal contribution

Presentations

Talks

2024 Cosyne Workshop. Lisbon, Portugal (*Invited*)
 2023 Harvard Molecular and Cellular Biology TGIF Seminar Series. Cambridge, MA
 2022 Society for Neuroscience Motor Neuroscience Pre-symposium. San Diego, CA
 2022 Harvard Brain Initiative Wild Brains Symposium. Cambridge, MA
 2022 Viruses and Transgenics: Novel Tools for More Species. Virtual Seminar Series (*Invited*)
 2020 Mechanistic Cognitive Neuroscience Workshop. Janelia Research Campus, Ashburn, VA
 2019 Neurolunch Symposium. Cambridge, MA
 2018 Program in Genetics and Genomics Seminar Series. Boston, MA

2018 Harvard Medical School Genetics Department Retreat. Boston, MA
 2017 GEARS Symposium. Cambridge, MA (*Invited*)
 2017 Molecular Biosystems Conference. Puerto Varas, Chile
 2016 Department of Genetics Lunch Seminar. Boston, MA

Posters (all first-author)

2024 Lake Conference: Comparative and Evolutionary Neurobiology. Seattle, WA
 2023 Neural Control of Movement Annual Meeting. Victoria, BC
 2022 Society for Neuroscience Annual Meeting. San Diego, CA
 2017 Society for Neuroscience Annual Meeting. Washington, DC
 2016 Society for Neuroscience Annual Meeting. San Diego, CA
 2016 Systems Biology: Global Regulation of Gene Expression. Cold Spring Harbor, NY
 2011 American Society for Molecular Biology and Biochemistry Annual Meeting. Washington, DC

Mentoring/Teaching

Mentoring

2024-present Isobel Smith, Research Assistant, Hoekstra lab
 2023-2025 Deshawn Ejiogu, Harvard Undergraduate
 Next position: Physician's assistant, Sherber + Rad
 2023-2024 Olivia Johnson, Harvard Undergraduate
 Next position: Project Manager, EPIC
 2022-2024 Phoebe Richardson, Research Assistant, Hoekstra lab
 Next position: PhD Student, Princeton University
 2021-2022 Olivia Yoo, Harvard Undergraduate
 Next position: Computational Associate, McCaroll Lab, Broad Institute
 2020-2023 Sade McFadden, Research Assistant, Hoekstra lab
 Next Position: Engineering Technician, Form Energy
 2020-2023 Karen Cortina, Harvard Undergraduate (Thesis Student)
 Next position: Research Associate, Vir Biotechnology
 2017-2019 Kate Letai, Research Assistant, Gray lab
 Next position: MD/PhD student, Case Western University
 2017-2019 Anastasia Nzhnik, Research Assistant, Gray lab
 Next position: PhD student, Albert Einstein College of Medicine
 2016-2017 Sarah Chang, Research Assistant, Gray lab
 Next position: MD/PhD student, Harvard Medical School
 2015-2017 Sam Rendall, Northeastern Co-op Student, Research Assistant, Gray lab
 Next position: PhD student, University of Texas at Austin

Courses

2017/2018 Nanocourse Director, From Pipette to Pen
 Harvard Medical School, Boston, MA
 2017/2018 Instructor, Statistics in RNA-seq Analysis
 Harvard Medical School, Boston, MA
 2018 Tutor, Introductory Genetics for Graduate Students
 Harvard Medical School, Boston, MA

2016	Textbook Writer, The Secret of Life: RNA-seq and ChIP-seq sections The Broad Institute, Cambridge, MA
2014	Teaching Fellow, Introductory Genetics for Graduate Students Harvard Medical School, Boston, MA
2011	Ford Writing Tutor, Neuroscience Capstone Course Wesleyan University, Middletown, CT
2011	Teaching Assistant, Advanced Molecular Genetics Laboratory Wesleyan University, Middletown, CT
2010	Ford Writing Tutor, Introductory Environmental Science Wesleyan University, Middletown, CT

Outreach/Service

2022-present	Postdoc Working Group and Organizing Committee Member Harvard Academic Workers, Cambridge, MA
2020-2024	Board Member Harvard Faculty of Arts & Sciences Postdoctoral Association, Cambridge, MA
2021-2022, 2023-2024	President Harvard Faculty of Arts & Sciences Postdoctoral Association, Cambridge, MA
2020-2022	Advocacy Committee Chair Harvard Faculty of Arts & Sciences Postdoctoral Association, Cambridge, MA
2019-present	Ad hoc reviewer Scientific Reports, Science Advances, European Journal of Neuroscience
2017-2022	Organizer Professional Women's Nexus
2021	Anti-Bullying Policy Working Group Member Harvard University, Cambridge, MA
2016-2020	Member/ad-hoc editor, NPR Scicommers A Science Communication Collective
2019	Science Communication Certificate Harvard University, Department of Medical Science, Boston, MA
2015-2018	Editor-in-Chief, Science in the News (SITN) Blog (sitnboston.com) Harvard University, Boston, MA
2013-2015	Editor, Science in the News (SITN) Blog Harvard University, Boston, MA
2010-2011	Science Club Teacher at Middletown Public Schools Wesleyan University, Middletown, CT

Presentations/Publications

2025	Poster presenter. Science Fair of Things We'll Never Know. Washington, DC
2024	Presenter. Skype a Scientist. Byrd High School. Shreveport, LA
2023	Interviewee. Human Footprint Episode 4: The Replacements. PBS
2023	Presenter. Skype a Scientist. International School of Trieste. Trieste, Italy
2022	Presenter. Skype a Scientist. Osceola Magnet School. Vero Beach, FL
2020	Presenter. Skype a Scientist. The Academy of the Holy Cross. Kensington, MD
2020	Presenter. Skype a Scientist. The Walden School. Media, PA

- 2020 Presenter. Skype a Scientist. Henry Sibley High School. Mendota Heights, MN
- 2018 Brains keep temporary molecular records before making a lasting memory. Article. The Conversation, republished by Undark Magazine, Discover Magazine Blog, RealClearScience and more
- 2018 Storyteller for Story Collider. Talk. July 19, 2018 show: Molting. Oberon Theater, Cambridge, MA
- 2018 Pee is for Pregnant: The history and science of urine-based pregnancy tests. Article. SITN Blog.
- 2018 How to Give a Science Talk. Workshop. Science and Us, Conference for High School Students. Boston, MA
- 2018 Electricity, Epilepsy, and How Your Brain Stays Balanced. Seminar. Harvard SITN Spring Lecture Series. Cambridge, MA
- 2017 Genetic Engineering in the Fight Against Climate Change. Seminar. Harvard SITN DayCon. Cambridge, MA
- 2016 4 Reasons You Should Be Excited about the BRAIN Initiative: Updates and insight from a conversation with Josh Sanes. Article. SITN Blog
- 2016 How do brains think? Article. Cambridge Science Festival Blog
- 2016 Dear Mister/Madame President: Science Issues in 2016. Edited Collection of Articles. SITN Blog
- 2015 GMOs and Our Food. Edited Collection of Articles. SITN Blog