

# Nathan Harris, PhD

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## Research Career

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<b>Assistant Professor</b> , Neuroscience Institute, Georgia State University	2024
<b>Postdoctoral Fellow</b> , Department of Biology, Brandeis University <b>Advisor: Dr. Piali Sengupta</b> <i>Encoding of stimuli in the transcriptome of a single thermosensory neuron links experience to plasticity</i>	2018-2024
<b>Graduate Student</b> , Neuroscience Program, University of California San Francisco <b>Advisor: Dr. Graeme Davis</b> <i>Innate immune signaling in homeostatic plasticity</i>	2011-2018
<b>Grass Fellow</b> , Woods Hole Marine Biological Laboratory <i>Temperature compensation in motor neurons</i>	2017

## Education

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<b>Ph.D. Neuroscience</b> , University of California San Francisco	2018
<b>B.A. Neuroscience</b> , Oberlin College	2011

## Awards & Honors

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Rosbash-Abovich Award for the most outstanding postdoc paper in Molecular and Cell Biology, Brandeis University	2022-2023
Ruth L. Kirschstein National Research Service Award (F32), NS112453 <i>Gene regulatory mechanisms underlying temperature-dependent neuronal plasticity</i>	2020-2022
Institutional Research Training Grant (T32) NS007292	2018-2020
Grass Fellowship <i>Temperature compensation in motor neurons</i>	2017
UCSF Graduate Research Mentorship Fellowship	2015
National Science Foundation Graduate Research Fellowship <i>Voltage mapping homeostasis</i>	2013-2015
NSF Graduate Research Fellowship Honorable Mention	2012
Nancy Robell Prize in Neuroscience, Oberlin College	2011
National Merit Scholarship	2007

## Presentations

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- June 2023 Temperature experience is encoded in the AFD gene expression profile to drive neuronal and behavioral plasticity. *Oral presentation – International C. elegans Conference, Glasgow, UK.*
- Feb. 2023 Temperature experience is encoded in the AFD gene expression profile to drive neuronal and behavioral plasticity. *Oral presentation – Brandeis University, Waltham, MA.*
- July 2022 Temperature-regulated gene expression changes drive plasticity in the AFD thermosensory neurons. *Poster presentation – CeNeuro2022, Vienna, Austria.*
- Jan. 2022 Temperature-regulated gene expression changes driving plasticity in the AFD thermosensory neurons. *Oral presentation – Boston Area Worm Meeting, Virtual.*
- June 2021 Temperature-regulated gene expression changes driving plasticity in the AFD thermosensory neurons. *Poster presentation – International C. elegans Conference, Virtual.*
- July 2020 Temperature-dependent gene expression changes in the AFD thermosensory neurons. *Oral presentation – Brandeis Postdoc Seminar Series, Waltham, MA.*
- June 2019 Molecular regulators of *C. elegans* thermotaxis and thermosensory plasticity. *Poster presentation – International C. elegans Conference, Los Angeles, CA.*
- Nov. 2017 Coordination of short and long-term homeostatic plasticity by an innate immune signaling pathway. *Poster presentation – Society for Neuroscience Meeting, Washington, DC.*
- Aug. 2016 Innate immune signaling controls presynaptic homeostatic plasticity. *Poster presentation – Gordon Research Conference on Synaptic Transmission, Waterville Valley, NH.*
- Oct. 2015 The innate immune receptor PGRP-LC controls presynaptic homeostatic plasticity. *Oral presentation – Society for Neuroscience Meeting, Chicago, IL.*

## Teaching

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- Guest Lecturer**, NBIO147A: Neurogenetics, Brandeis University 2022-2024
- Course Assistant**, NBIO157A: Project Laboratory in Neurobiology and Behavior, Brandeis University 2022
- Guest Lecturer**, NBIO140B: Principles of Neuroscience, Brandeis University 2022

## Service

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- Co-organizer**, Brandeis University Invited Postdoc Research Colloquium 2019-2021
- Team Member**, UCSF Differences Matter – Focus Area: Increase the diversity of discovery topics, clinical research, and the scientific workforce 2016-2017
- Member**, UCSF Science Policy Group 2015-2017
- Volunteer Teacher**, UCSF Science Education Partnership 2012-2013

## Mentorship

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Jamie Stonemetz, Ph.D. Student, Sengupta Lab. Coauthor on publication.	2022-present
Samuel Bates, Ph.D. Student, Sengupta Lab. Coauthor on publication.	2020-present
Matthew Bernstein, Undergraduate, Sengupta Lab. Coauthor on publication. Awarded the Reiss and Sowul Family Prize in Neuroscience and the Blavatnik Fellowship. Currently Master's student at Cambridge University.	2019-2022
Zihao Richard Zhuang, Master's Student, Sengupta Lab. Coauthor on publication. Currently Ph.D. student at University of Southern California.	2020-2021
Diana Davis, Rotation Student, Sengupta Lab.	2023
Melina Pérez Tores, Rotation Student, Sengupta Lab.	2019
Michael Schneider, Rotation Student, Sengupta Lab.	2018

## Publications

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**Harris, N.**, Bates, S.G., Zhuang, Z., Bernstein, M., Stonemetz, J.M., Hill, T.J., Yu, Y.V., Calarco, J.A., and Sengupta, P. (2023). Molecular encoding of stimulus features in a single sensory neuron type enables neuronal and behavioral plasticity. *Curr Biol* 33, 1487-1501.e7. [10.1016/j.cub.2023.02.073](https://doi.org/10.1016/j.cub.2023.02.073).

Servello, F.A., Fernandes, R., Eder, M., **Harris, N.**, Martin, O.M.F., Oswal, N., Lindberg, A., Derosiers, N., Sengupta, P., Stroustrup, N., et al. (2022). Neuronal temperature perception induces specific defenses that enable *C. elegans* to cope with the enhanced reactivity of hydrogen peroxide at high temperature. *eLife* 11, e78941. [10.7554/eLife.78941](https://doi.org/10.7554/eLife.78941).

Takeishi, A., Yeon, J., **Harris, N.**, Yang, W., and Sengupta, P. (2020). Feeding state functionally reconfigures a sensory circuit to drive thermosensory behavioral plasticity. *eLife* 9, e61167. [10.7554/eLife.61167](https://doi.org/10.7554/eLife.61167).

Wang, T., Morency, D.T., **Harris, N.**, and Davis, G.W. (2020). Epigenetic signaling in glia controls presynaptic homeostatic plasticity. *Neuron* 105, 491-505.e3. [10.1016/j.neuron.2019.10.041](https://doi.org/10.1016/j.neuron.2019.10.041).

**Harris, N.**, Fetter, R.D., Brasier, D.J., Tong, A., and Davis, G.W. (2018). Molecular interface of neuronal innate immunity, synaptic vesicle stabilization, and presynaptic homeostatic plasticity. *Neuron* 100, 1163-1179.e4. [10.1016/j.neuron.2018.09.048](https://doi.org/10.1016/j.neuron.2018.09.048).

**Harris, N.**, Braiser, D.J., Dickman, D.K., Fetter, R.D., Tong, A., and Davis, G.W. (2015). The innate immune receptor PGRP-LC controls presynaptic homeostatic plasticity. *Neuron* 88, 1157-1164. [10.1016/j.neuron.2015.10.049](https://doi.org/10.1016/j.neuron.2015.10.049).