

CURRICULUM VITAE

THOMAS ROSS GRAY

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LANGUAGES

English - Native Speaker

Spanish - Native Speaker

ACADEMIC HISTORY & TRAINING

Ph.D. Neuroscience

August 2020 – Present

B.S. Neuroscience

August 2016 – May 2020

Professional Course: The Genome Access Course at CSHL

November 2019

RESEARCH EXPERIENCE

Doctoral Candidate

August 2020 – Present

[NIH T32 Training Grant](#)

Thesis Advisors: Donald B. Katz

Thesis Title: Comparison of Retro- and Orthonasal Olfaction in Rat Cortical Networks

Rotation Mentor: Daniel Svedberg, Ph.D. Candidate

Rotations with Paul Garrity, Eve Marder, and Leslie Griffith

Brandeis University, Waltham, MA

Undergraduate Assistant Researcher

March 2017 – May 2020

[NIH IMSD R25 Fellow](#)

Principal Investigator: Daniel N. Cox, Ph.D.

Projects: Drosophilid Cold Responses, Menthol Sensitivity in Drosophila, and TRP Channel Phylogenetics

Daily Mentor: Nathaniel Himmel, Ph.D.

Georgia State University, Atlanta, GA

Undergraduate Assistant Researcher

June 2019 – September 2019

Principal Investigator: Manfred Schmidt, Ph.D.

Project: Identifying Thermoreceptors in the Crayfish Second Antennae

Georgia State University, Atlanta, GA

Epidemiology Assistant

July 2020 – September 2020

Supervisor: Amanda Seaman, MPH

Role: Translator for Spanish Speakers and Analyzed Efficiency of Contact Tracing Program

Georgia Department of Public Health, Decatur, GA

AWARDS, HONORS, AND FUNDING

SACNAS NDiSTEM Conference Travel Award	2022
Association for Chemoreception Sciences Conference Travel Award	2022
Volen Retreat Best Poster Prize (2nd)	2021
NIH T32 Predoctoral Training Grant	2020-Present
NIH R25 IMSD Fellowship, Initiative for Maximizing Student Development	2017-2020
HOPE Scholarship	2017-2020
The Symposium for Undergraduate Research Exploration at UT Austin Travel Award	2019

Admission to Honors College
Dean's List

2017
2016, 2018

SUBMITTED MANUSCRIPTS

1. Himmel NJ, Sakurai A, Letcher JM, Patel AA, Maggie N. Benson MN, Bhattacharjee S, **Gray TR**, Cymbalyuk GS, and Cox DN. (2022) Chloride-dependent mechanisms of multimodal sensory discrimination and neuropathic sensitization in (In Review)

PUBLICATIONS

1. Himmel NJ, Letcher JM, Sakurai A, **Gray TR**, Benson MN, Donaldson KJ, and Cox DN. (2021). Identification of a neural basis for cold acclimation in *Drosophila* larvae, *iScience* <https://doi.org/10.1016/j.isci.2021.102657>
2. Himmel NJ, **Gray TR**, Cox DN. (2020). Phylogenetics identifies two eumetazoan TRPM clades and an 8th TRP family, TRP soromelastatin (TRPS), *Molecular Biology and Evolution* 37, 7, (2034-2044), <https://doi.org/10.1093/molbev/msaa065>
3. Himmel NJ, Letcher JM, Sakurai A, **Gray TR**, Benson MN, and Cox DN. (2019). *Drosophila* menthol sensitivity and the Precambrian origins of transient receptor potential-dependent chemosensation. *Philosophical Transactions of the Royal Society B*. 374(1785):20190369, <https://doi.org/10.1098/rstb.2019.0369>

PREPRINTS

1. Himmel NJ, Sakurai A, Letcher JM, Patel A, Bhattacharjee S, Benson MN, **Gray TR**, Cymbalyuk GS, and Cox DN. Chloride-dependent mechanisms of multimodal sensory discrimination and neuropathic sensitization in *Drosophila*, *bioRxiv*. doi: <https://doi.org/10.1101/2021.12.10.472093>
2. Himmel NJ, Letcher JM, Sakurai A, **Gray TR**, Benson MN, Donaldson KJ, and Cox DN. The evolution of cold nociception in drosophilid larvae and identification of a neural basis for cold acclimation, *bioRxiv*. doi: doi.org/10.1101/2021.01.04.425280
3. Himmel NJ, **Gray TR**, and Cox DN. (2019). Phylogenetic inference identifies two eumetazoan TRPM clades and an 8th family of TRP channel, TRP soromelastatin (TRPS). *bioRxiv*. doi: [10.1101/860445](https://doi.org/10.1101/860445)
4. Himmel NJ, Letcher JM, Sakurai A, **Gray TR**, Benson MN, and Cox DN. (2019). *Drosophila* menthol sensitivity and the Precambrian origins of TRP-dependent chemosensation. *bioRxiv*. doi: [10.1101/690933](https://doi.org/10.1101/690933)

ORAL PRESENTATIONS

1. **Gray TR**, Himmel NJ, Cox DN. Phylogenetics identifies TRP soromelastatin (TRPS), an 8th TRP family. April 2020. *GSURC Research Conference*, Atlanta, GA.
2. **Gray TR**, Himmel NJ, Cox DN. The neuropeptide Ccap is required in multimodal sensory neurons in order to drive stimulus-appropriate behavior. November 2019. *Annual Symposium for Undergraduate Research Exploration at the University of Texas at Austin*, Austin, TX.
3. **Gray TR**, Himmel NJ, Cox DN. Neuropeptides function in multimodal sensory neurons in order to drive stimulus-appropriate behavior selection. April 2019. *Oral presentation at the National Council for Undergraduate Research*, Atlanta, GA.
4. **Gray TR**. Dissecting the molecular and neural circuit bases of nociception. October 2017. *Course-based Undergraduate Research Experience Showcase*, Atlanta, GA.

PRESENTATIONS AND PUBLISHED ABSTRACT

1. **Gray TR**, Goldstein I, Katz DB. Comparison of Retro- and Orthonasal Olfaction in Rat Cortical Networks. November 2022. *SFN Conference*, San Diego, CA
2. **Gray TR**, Goldstein I, Katz DB. The Multisensory Coding of Flavor in Freely Moving Rats. October 2022. *SACNAS NDiSTEM Conference*, San Juan, PR
3. **Gray TR**, Baas-Thomas N, Svedberg DA, Lin J, Katz DB. Simultaneous Recordings in Gustatory and Olfactory Cortex During Retronasal Olfaction. September 2021. *Volen Center for Complex Systems Retreat*, West Dennis, MA.
4. **Gray TR**, Himmel HJ, Letcher JM, Benson MN, Cox DN. Cold nocifensive behavior in various drosophilid species. November 2019. *oSTEM National Conference*, Detroit, MI.
5. **Gray TR**, Himmel NJ, Cox DN. The role of neuropeptides in *Drosophila melanogaster* multimodal sensory neurons in driving stimulus-appropriate behavior. October 2019. *Undergraduate STEM Research Society Seminar Series*, Atlanta, GA.
6. Himmel NJ, Letcher JM, Sakurai A, **Gray TR**, Benson MN, Cox DN. Menthol elicits *Trpm-* and *TrpA1-* dependent rolling in *Drosophila* larvae, suggesting Precambrian origins for TRP-dependent menthol sensing. October 2019. *Platform presentation at biennial Neurobiology of Drosophila meeting, Cold Spring Harbor Laboratories*, Cold Spring Harbor, NY.
7. **Gray TR**, Himmel HJ, Letcher JM, Benson MN, Cox DN. A characterization of cold nocifensive behavior in varied drosophilid species. August 2019. *Annual CASA Summer Research Symposium*, Atlanta, GA.
8. Himmel NJ, Letcher JM, **Gray TR**, Benson MN, Cox DN. TRP-dependent chemical sensing: the Precambrian hypothesis. May 2019. *Poster presented at Annual GSU Brains & Behavior Retreat*, Atlanta, GA.
9. Benson MN, Himmel NJ, Letcher JM, **Gray TR**, Cox DN. The ancient origins of chemosensation. April 2019. *Georgia State University Undergraduate Research Conference*, Atlanta, GA.
10. Himmel NJ, Letcher JM, **Gray TR**, Benson MN, Cox DN. Menthol elicits a *Trpm-* and *TrpA1-* dependent nocifensive response in *Drosophila melanogaster* larvae. February 2019. *Theo Murphy International Scientific Meeting on the evolution of mechanisms and behaviour important for pain, hosted by The Royal Society*, Chicheley, Buckinghamshire, UK.
11. **Gray TR**, Himmel NJ, Letcher JM, Cox DN. Closely related drosophilid species differ in their behavioral response toward noxious cold. September 2018. *GSU IMSD Poster Session*, Atlanta, GA.
12. **Gray TR**, Himmel NJ, Letcher JM, Cox DN. The evolution of cold nocifensive behavior in drosophilid larvae. September 2018. *Herty Medal Undergraduate Research Symposium*, Lawrenceville, GA.
13. Himmel NJ, Letcher JM, **Gray TR**, Cox DN. The evolution of cold nociception in drosophilid larvae. May 2018. *Annual GSU B&B/IMSD Summer Poster Session*, Atlanta, GA.

14. Himmel NJ, Gray TR, Cox DN. Calcium-activated chloride channels are required for distinguishing between noxious and innocuous stimuli in multimodal sensory neurons. April 2018. *Annual meeting of the Genetics Society of America*. Abstract.
15. Gray TR, Himmel NJ, Cox DN. The role of the crustacean cardioactive peptide gene in the regulation of the cold nociceptive response in *Drosophila melanogaster*. July 2017. *Annual GSU B&B/IMSD Summer Poster Session*, Atlanta, GA.

PROFESSIONAL SOCIETIES

Society for Neuroscience	2021 - Present
Diverse Brandeis Scholars	2020 - Present
Undergraduate STEM Research Society	2019 - 2020
Society for Advancement of Chicanos/Hispanics and Native Americans in Science	2019 - Present
oSTEM	2019 - 2020
<i>Nu Rho Psi</i> Neuroscience Honor Society	2017 – Present

RESEARCH SKILLS

Optogenetics	Fly Husbandry
Behavioral Screens	Rat Husbandry
Drosophila Neurogenetics	RNA Extraction
Electrophysiology	qPCR
SolidWorks - Beginner	LaTeX - Beginner
Python - Beginner	Docker - Beginner
3D Printing	MATLAB - Beginner
Stereotaxic Surgery	

TEACHING EXPERIENCE

Teaching Assistant for Introduction to Psychology Brandeis University Instructor: James Howard, Ph.D. (Invited to give lecture on Multisensory Integration)	Fall 2022
Teaching Assistant for Introduction to Cognitive Neuroscience Brandeis University Instructor: Teresa Mitchell, Ph.D. (Invited to give lecture on Chemosensory Systems)	Spring 2022
Teaching Assistant for General Biology Laboratory Brandeis University Instructor: Melissa Kosinski-Collins, Ph.D.	Fall 2021
Teaching Assistant for Crustacean Neuroscience Laboratory Georgia State University Instructor: Manfred Schmidt, Ph.D.	Spring 2020
Teaching Assistant for Fruit Fly Neurogenetics Laboratory Georgia State University Instructor: Sarah Clark, Ph.D.	Spring 2020
Teaching Assistant for Optogenetics Laboratory <i>The Neuroscience School</i> , Georgia State University Instructor: Sarah Clark, Ph.D.	July 2019

MENTORING EXPERIENCE

Galaxy Program Mentor Undergraduate Student Cohort at Brandeis University Mentees:	June 2022 – Present
Graduate Student Mentor Undergraduate Student at Brandeis University Mentee: Isaac Goldstein	April 2022 – Present
Peer Graduate Student Mentor First year graduate Student at Brandeis University Mentee: Michael Vivien	September 2021 – May 2022
<i>Nu Rho Psi</i> Graduate Student Mentor Undergraduate Student at Georgia State University Mentee: Jimena Pamela Castillo	September 2020 – December 2021

LEADERSHIP POSITIONS

Graduate Student Social Club - President	2021 - Present
Diverse Brandeis Scholars - Public Relations Chair	2020 - Present
Georgia State University Rowing Club - President	2018 - 2020
<i>Nu Rho Psi</i> - Public Relations Director	2019 - 2020
Out in STEM - Vice President	2019 - 2020
Georgia Senior Classical League - Historian	2016 - 2017

SCIENCE COMMUNITY ENGAGEMENT

Furman University Invited Career Panel Member	July 2022
Lead Host for Invited Speaker Graeme Davis, Ph.D.	May 2022
GSU Cox Lab Alumni Panel Member	March 2022
El Hora de Saber Talk at El Bosque Universidad, Bogota, Colombia (Zoom)	March 2022
Invited Speaker for Science Pizza Talk at Waltham High School	March 2022
“How Your Brain Processes Tastes and Smells” Talk - High Meadows School (4th Grade)	September 2021
SACNAS 2021 Brandeis University Grad Student Representative	October 2021
Going the Distance 2021 Internship Panel Member	June 2021
ABRCMS 2020 Brandeis University Grad Student Representative	November 2020
SACNAS 2020 Brandeis University Grad Student Representative	October 2020
<i>Nu Rho Psi</i> Graduate Student Panel	October 2020
Collegiate Neuroscience Society Career Panel	September 2020
Atlanta Regional Brain Bee Optogenetics Demo Booth	February 2020
CNS Touch a Brain Event at Fernbank Museum of Natural History	February 2020
Science Night “Build-a-Brain” Activity at Ashford Park Elementary	October 2019
oSTEM CV and Resume Workshop Leader	October 2019
<i>Nu Rho Psi</i> Touch a Brain Science Event	August 2019
Center for Advancement of Students and Alumni Panel Member	May 2019
Atlanta Science Festival Station Leader	March 2018
S-Stem Scholars Application Panel Member	August 2017
NCR Scholars Application Panel Member	August 2017