

## CURRICULUM VITAE

THOMAS ROSS GRAY

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### LANGUAGES

English - Native Speaker

Spanish - Native Speaker

### ACADEMIC HISTORY & TRAINING

#### **Ph.D. Neuroscience**

August 2020 – September 2026

Brandeis University

Waltham, MA

#### **B.S. Neuroscience**

August 2016 – May 2020

Georgia State University

Atlanta, GA

#### **Professional Courses:**

The Genome Access Course

November 2019

Cold Spring Harbor Laboratories

Cold Spring Harbor, NY

### RESEARCH EXPERIENCE

#### **Doctoral Candidate**

August 2020 – Present

#### **NIH T32 Training Grant**

Principal Investigator: Donald B. Katz

Rotation Mentor: Daniel Svedberg, Ph.D. Candidate

Brandeis University, Waltham, MA

#### **Undergraduate Assistant Researcher**

March 2017 – May 2020

#### **NIH IMSD R25 Fellow**

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

Daily Mentor: Nathaniel Himmel, Ph.D.

Georgia State University, Atlanta, GA

#### **Undergraduate Assistant Researcher**

June 2019 – September 2019

Principal Investigator: Manfred Schmidt, Ph.D.

Georgia State University, Atlanta, GA

#### **Epidemiology Assistant**

July 2020 – September 2020

Supervisor: Amanda Seaman, MPH

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    |
| The Symposium for Undergraduate Research Exploration at UT Austin Travel Award | 2019         |
| Admission to Honors College  | 2017         |
| HOPE Scholarship   | 2017         |
| Dean's List  | 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: <https://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

|  |             |
|--|-------------|
| <b>Teaching Assistant for Introduction to Psychology</b>             | Fall 2022   |
| Brandeis University  |             |
| Instructor: James Howard, Ph.D.                                      |             |
| (Invited to give lecture on Multisensory Integration)                |             |
| <b>Teaching Assistant for Introduction to Cognitive Neuroscience</b> | Spring 2022 |
| Brandeis University  |             |
| Instructor: Teresa Mitchell, Ph.D.                                   |             |

(Invited to give lecture on Chemosensory Systems)

**Teaching Assistant for General Biology Laboratory**

Fall 2021

Brandeis University

Instructor: Melissa Kosinski-Collins, Ph.D.

**Teaching Assistant for Crustacean Neuroscience Laboratory**

Spring 2020

Georgia State University

Instructor: Manfred Schmidt, Ph.D.

**Teaching Assistant for Fruit Fly Neurogenetics Laboratory**

Spring 2020

Georgia State University

Instructor: Sarah Clark, Ph.D.

**Teaching Assistant for Optogenetics Laboratory**

July 2019

*The Neuroscience School*, Georgia State University

Instructor: Sarah Clark, Ph.D.

**MENTORING EXPERIENCE**

**Graduate Student Mentor**

April 2022 – Present

Undergraduate Student at Brandeis University

Mentee: Isaac Goldstein

**Peer Graduate Student Mentor**

September 2021 – May 2022

First year graduate Student at Brandeis University

Mentee: Michael Vivien

***Nu Rho Psi* Graduate Student Mentor**

September 2020 – December 2021

Undergraduate Student at Georgia State University

Mentee: Jimena Pamela Castillo

**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

*Nu Rho Psi* - 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    |