

# Nathaniel J. Himmel

## Curriculum Vitae

ORCID: [0000-0001-7876-6960](https://orcid.org/0000-0001-7876-6960)

email: [nhimmel1@student.gsu.edu](mailto:nhimmel1@student.gsu.edu)

website: [natehimmel.github.io](https://natehimmel.github.io)

## EDUCATION

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<b>PhD</b>	<b>Neuroscience</b> , Georgia State University	2015 - Present
<b>BS</b>	<b>Biology</b> , University of Florida	2013
<b>AA</b>	<b>Biological Sciences</b> , Santa Fe College	2011

## RESEARCH POSITIONS

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<b>Graduate Research</b> , Georgia State University (PI: Daniel N. Cox)	2015 - Present
<b>Research Technician</b> , Emory University (PI: Mitsi A. Blount)	2013 - 2015

## PUBLICATIONS

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\*co-first author; <sup>†</sup>co-corresponding author; <sup>§</sup>undergraduate co-author

### Articles in preprint:

9. **Himmel NJ**<sup>†</sup>, Gray TR<sup>§</sup>, Cox DN<sup>†</sup>. Phylogenetic inference identifies two eumetazoan TRPM clades and an 8<sup>th</sup> family of TRP channel, TRP soromelastatin (TRPS). *bioRxiv*, November 2019. doi: [10.1101/860445](https://doi.org/10.1101/860445)
8. **Himmel NJ**, Rogers RT, Redd SK, Wang Y<sup>§</sup>, Blount MA. Purinergic signaling is enhanced in the absence of UT-A1 and UT-A3. *bioRxiv*, June 2019. doi: [10.1101/663252](https://doi.org/10.1101/663252)

### Peer-reviewed research articles:

7. **Himmel NJ**<sup>†</sup>, Letcher JM, Sakurai A, Gray TR<sup>§</sup>, Benson MN<sup>§</sup>, Cox DN<sup>†</sup>. *Drosophila* menthol sensitivity and the Precambrian origins of transient receptor potential-dependent chemosensation. *Philosophical Transactions of the Royal Society B*, 374: November 2019. doi: [10.1098/rstb.2019.0369](https://doi.org/10.1098/rstb.2019.0369)
6. Lopez-Bellido R, **Himmel NJ**, Gutstein HB, Cox DN, Galko MJ. An assay for chemical nociception in *Drosophila* larvae. *Philosophical Transactions of the Royal Society B*, 374: November 2019. doi: [10.1098/rstb.2019.0282](https://doi.org/10.1098/rstb.2019.0282)
5. **Himmel NJ**, Rodriguez DA<sup>§</sup>, Wang Y<sup>§</sup>, Sun MA<sup>§</sup>, Blount MA. Chronic lithium treatment induces novel patterns of pendrin localization and expression. *American Journal of Physiology - Renal Physiology*, 315(2):313-322, April 2018. doi: [10.1152/ajprenal.00065.2018](https://doi.org/10.1152/ajprenal.00065.2018)

4. Turner HN\*, Armengol K\*, Patel AA, **Himmel NJ**, Sullivan L, Iyer SC, Battacharya S, Iyer EPR, Landry C, Galko MJ<sup>†</sup>, Cox DN<sup>†</sup>. The TRP channels Pkd2, NompC, and Trpm mediate unique aversive behaviors to noxious cold in *Drosophila*. 2016. *Current Biology*, 26(23): 3116-3128, December 2016. doi: [10.1016/j.cub.2016.09.038](https://doi.org/10.1016/j.cub.2016.09.038)
3. Sim JH, **Himmel NJ**, Redd SK, Pulous FE, Rogers RT, Black LN, Hong SM, von Bergen TN, Blount MA. Absence of PKC-alpha attenuates lithium-induced nephrogenic diabetes insipidus. *PLoS One*, 9(7): e101753, July 2014. doi: [10.1371/journal.pone.0101753](https://doi.org/10.1371/journal.pone.0101753)

#### Other peer-reviewed articles:

2. **Himmel NJ**, Cox DN. Sensing the cold: TRP channels in thermal nociception. Commentary in *Channels*, 11(5): 370-372, September 2017. doi: [10.1080/19336950.2017.1336401](https://doi.org/10.1080/19336950.2017.1336401)
1. **Himmel NJ\***, Patel AA\*, Cox DN. Invertebrate Nociception. Review in *The Oxford Encyclopedia of Neuroscience*, Oxford University Press, March 2017. doi: [10.1093/acrefore/9780190264086.013.166](https://doi.org/10.1093/acrefore/9780190264086.013.166)

## FUNDING, FELLOWSHIPS, AND AWARDS

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#### Grants:

**Ruth L. Kirschstein National Research Service Award (F31 NRSA)** 2020-2022  
*National Institute of Neurological Disease and Stroke*  
 Grant number: F31NS117087  
 Award pending (score: 8<sup>th</sup> percentile)

#### Institutional fellowships:

**Kenneth W. and Georganne F. Honeycutt Fellowship** 2017 – Present  
**Brains & Behavior Fellowship, GSU Brains & Behavior Program** 2017 – Present

#### Other awards:

**Outstanding Graduate Student Mentoring Award, GSU** 2019  
**Meritorious Research Award, American Physiological Society** 2016  
**Meritorious Research Award, American Physiological Society** 2015

## TEACHING EXPERIENCE

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#### Course design:

**PERS2002 – Course-Based Undergraduate Research Experience**  
 Co-designers: Daniel N. Cox & Jamin M. Letcher

#### Teaching assistantships:

**PERS2002 - Course-Based Undergraduate Research Experience** 2017  
 Instructor: Daniel N. Cox

**NEUR3010/4000 – Neuroscience Laboratory (x2)**

2016 &amp; 2018

Instructor: Michael P. Black

**Other teaching:****Writing Advisor - Writing Across the Curriculum Program**

2018 – Present

GSU, Center for Excellence in Teaching and Learning

**Guest lectures:**GSU's Neuroscience School: *Presenting Data in Different Forms.* 2019GSU's Neuroscience School: *Neurological Diseases.* 2016Atlanta Brain Bee Prep Course: *Senses, Perception, and Movement.* 2015Emory University SUPERR Program: *Techniques in Renal Physiology.* 2015**MENTORING, SERVICE, AND OUTREACH**

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**Daily research mentor for:**

GSU, NIH R25 Initiative for Maximizing Student Development (IMSD) 2017-Present

Emory, Summer Undergrad Program in Emory Renal Research (SUPERR) 2015

Emory, American Physiological Society, Frontiers in Physiology 2014

Emory, Summer Undergraduate Research Experience (SURE) 2013-2015

Emory, Rotating MD Student Fellows 2013-2014

**Peer review:**Preprint Editorial Team, *Proceedings of the Royal Society B* 2019-PresentReviewer: *Genes, Brain and Behavior* [1]**Professional membership:**

Society for the Study of Evolution 2019-Present

Genetics Society of America 2017-Present

American Association for the Advancement of Science 2016-Present

American Physiological Society 2015-Present

**Media coverage:**Weiner S. "Do insects enjoy sex?" *Gizmodo*. June 2017. Web:<https://gizmodo.com/do-insects-enjoy-sex-1796376553>.**ABSTRACTS, PRESENTATIONS, AND INVITED SYMPOSIA**

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<sup>§</sup>undergraduate co-author; presenter underlined**Conference oral presentations:**

2. **Himmel NJ**, Letcher JM, Sakurai A, Gray TR<sup>§</sup>, Benson MN<sup>§</sup>, Cox DN. Menthol elicits *Trpm*- and *TrpA1*-dependent rolling in *Drosophila* larvae, suggesting Precambrian origins for TRP-dependent menthol sensing. October 2019. *Platform talk at Neurobiology of Drosophila Meeting, Cold Spring Harbor Lab, Cold Spring Harbor, NY.*

1. **Himmel NJ**, Rodriguez DA<sup>§</sup>, Blount MA. Chronic lithium treatment induces  $\beta$ -intercalated cell expression in the renal inner medulla. March 2015. *Oral presentation at Experimental Biology, Boston, MA.*

#### Posters (first-authored) & published abstracts:

18. **Maksymchuk N**, Sakurai A, Patel AA, **Himmel NJ**, Cox DN, Cymbalyuk G. Mechanisms of cold temperatures rate coding by *Drosophila* CIII neurons. October 2019. *Poster presented at the annual meeting of the Society for Neuroscience, San Diego, CA.* [Abstract online.](#)
17. **Letcher JM**, **Himmel NJ**, Sakurai A, Holgiun-Lopez M, Cox DN. TrpA1 mediates cold nociception in *Drosophila melanogaster* larvae. October 2019. *Neurobiology of Drosophila Meeting, Cold Spring Harbor Lab, Cold Spring Harbor, NY.*
16. **Maksymchuk N**, Sakurai A, Patel AA, **Himmel NJ**, Cox DN, Cymbalyuk G. Role of TRP channels in temperature rate coding by *Drosophila* noxious cold sensitive neurons. July 2019. *BMC Neuroscience* 20 (Suppl 1). [10.1186/s12868-019-0538-0](https://doi.org/10.1186/s12868-019-0538-0).
15. **Himmel NJ**, Letcher JM, Gray TR<sup>§</sup>, Benson MN<sup>§</sup>, Cox DN. TRP-dependent chemical sensing: the Precambrian hypothesis. May 2019. *Poster presented at Annual GSU Brains & Behavior Retreat.*
14. **Himmel NJ**, Letcher JM, Gray TR<sup>§</sup>, Benson MN<sup>§</sup>, Cox DN. Menthol elicits a *Trpm*- and *TrpA1*-dependent nocifensive response in *Drosophila melanogaster* larvae. February 2019. *Poster presented at the Theo Murphy International Scientific Meeting on the evolution of mechanisms and behaviour important for pain, hosted by The Royal Society, Chicheley, Buckinghamshire, UK.*
13. Patel AA, **Himmel NJ**, Cox DN. Calcium induced calcium release mechanisms in cold nociception. February 2019. *Poster presented at the Theo Murphy International Scientific Meeting on the evolution of mechanisms and behaviour important for pain, hosted by The Royal Society, Chicheley, Buckinghamshire, UK.*
12. Patel AA, **Himmel NJ**, Yang JJ, Cox DN. Cellular and behavioral requirements for calcium release mechanisms in cold nociception. October 2018. *Poster presented at the annual meeting of the Society for Neuroscience, San Diego, CA.* [Abstract online.](#)
11. **Maksymchuk N**, Patel AA, **Himmel NJ**, Cox DN, Cymbalyuk G. Modeling of TRP channel mediated noxious cold sensation in *Drosophila* sensory neurons. *BMC Neuroscience*, 19 (Suppl 2):64, July 2018. doi: [10.1186/s12868-018-0452-x](https://doi.org/10.1186/s12868-018-0452-x)
10. **Himmel NJ**, Letcher JM, Gray TR<sup>§</sup>, Cox DN. The evolution of cold nociception in drosophilid larvae. May 2018. *Poster presented at Annual GSU Brains & Behavior Retreat.*
9. **Himmel NJ**, Gray TR<sup>§</sup>, Cox DN. Anoctamins are required for cold nociception in *Drosophila*. April 2018. *Poster presented at the annual Georgia Collegiate Neuroscience Symposium, Athens, GA.*
8. **Himmel NJ**, Gray TR<sup>§</sup>, Cox DN. Calcium-activated chloride channels are required for distinguishing between noxious and innocuous stimuli in multimodal sensory neurons.

April 2018. *Poster presented at the annual meeting of the Genetics Society of America, Philadelphia, PA.* [Abstract online.](#)

7. Maksymchuk N, Patel AA, **Himmel NJ**, Cox DN, Cymbalyuk G. Modeling cellular noxious cold sensation in *Drosophila* sensory neurons. October 2017. *Poster presented at the annual meeting of the Society for Neuroscience, Washington, DC.* [Abstract online.](#)
6. Kronk TA, **Himmel NJ**, Mehran NA<sup>§</sup>, Blount MA. Lithium administration can attenuate the progression of polycystic kidney disease. *Conference abstract in The FASEB Journal*, 31(Suppl 1):1032.4, April 2017. doi: [10.1096/fasebj.31.1\\_supplement.1032.4](https://doi.org/10.1096/fasebj.31.1_supplement.1032.4)
5. Patel AA, Moon D<sup>§</sup>, **Himmel NJ**, Cox DN. Cellular and molecular dissection of noxious cold nociception in *Drosophila*. March 2017. *Poster presented at the 58<sup>th</sup> Annual Drosophila Research Conference, San Diego, CA.* [Abstract.](#)
4. Patel AA, Turner HN, Armengol K, **Himmel NJ**, Galko MJ, Cox DN. Cellular and molecular dissection of noxious cold nociception in *Drosophila*. July 2016. *Poster presented at The Allied Genetics Conference, Orlando, FL.* [Abstract online.](#)
3. **Himmel NJ**, Rodriguez DA<sup>§</sup>, Wang Y<sup>§</sup>, Sun MA<sup>§</sup>, Blount MA. Chronic lithium treatment induces novel patterns of pendrin localization and expression in the kidney. *Conference abstract in The FASEB Journal*, 30(Suppl1):968.14, April 2016. doi: [10.1096/fasebj.30.1\\_supplement.968.14](https://doi.org/10.1096/fasebj.30.1_supplement.968.14)
2. **Himmel NJ**, Rogers RT, Redd SK, Blount MA. Purinergic signaling is enhanced in the absence of UT-A1 and UT-A3. October 2014. *Poster presented at the Emory Department of Medicine Research Day, Atlanta, GA.*
1. Rogers RT, **Himmel NJ**, Redd SK, Blount MA. Purinergic signaling is enhanced in the absence of UT-A1 and UT-A3. *Conference abstract in The FASEB Journal*, 38(Suppl 1): 969.17, April 2014. doi: [10.1096/fasebj.28.1\\_supplement.1137.10](https://doi.org/10.1096/fasebj.28.1_supplement.1137.10)

#### **Institutional oral presentations:**

4. **Himmel NJ**, Gray TR<sup>§</sup>, Cox DN. Insects and vertebrates are the odd ones out: Unexpected findings in the evolution of TRP channels. September 2019. *Neuroscience Institute Breakfast and Lecture Series, Atlanta, GA.*
3. **Himmel NJ**, Gray TR<sup>§</sup>, Cox DN. Multimodality in *Drosophila melanogaster* sensory neurons. February 2018. *GSU Neurogenomics Forum, Atlanta, GA.*
2. **Himmel NJ**, Gray TR<sup>§</sup>, Cox DN. Calcium-activated chloride channels play a role in the function of multimodal sensory neurons. August 2017. *Neuroscience Institute Breakfast and Lecture Series, Atlanta, GA.*
1. **Himmel NJ**, Blount MA. Chronic lithium treatment induces renal  $\beta$ -intercalated cell expression in the inner medulla. October 2014. *Emory TSWU Seminar, Atlanta, GA.*

#### **Invited symposia:**

1. Panelist for NIDDK/KUH Researcher Panel, Summer Student Symposium. July 2015. *Atlanta, GA.*