

# Nathaniel J. Himmel

## Curriculum Vitae

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## 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	2011 - 2013
<b>AA</b>	<b>Biological Sciences</b> Santa Fe College	2008 - 2011

## RESEARCH POSITIONS

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<b>Graduate Research – Neuroscience</b> Georgia State University PI: Daniel N. Cox	2015 - Present
<b>Post-Bacc Research Technician – Physiology</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 mentee

8. **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 TRP-dependent chemosensation. *Philosophical Transactions of the Royal Society B* (in revision).
7. 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* (in revision).
6. **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. Preprint available in *BioRxiv*, June 2019. doi: [10.1101/663252](https://doi.org/10.1101/663252)
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. **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)
3. **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)
2. 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)
1. 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)

## AWARDS, HONORS, and FUNDING

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### Awards:

Meritorious Research Award, <i>American Physiological Society</i>	2016
Meritorious Research Award, <i>American Physiological Society</i>	2015

### Funded Fellowships:

Kenneth W. and Georganne F. Honeycutt Fellowship, <i>GSU</i>	2017 – Present
Brains & Behavior Fellowship, <i>GSU Brains &amp; Behavior Program</i>	2017 – Present

### Media Appearances:

Weiner S. "Do insects enjoy sex?" *Gizmodo*. June 2017. Web: <https://gizmodo.com/doinsects-enjoy-sex-1796376553>.

## TEACHING EXPERIENCE

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### Course Prep/Design:

#### **PERS2002 – Course-Based Undergraduate Research Experience**

Co-designers: Daniel N. Cox & Jamin M. Letcher

### Teaching Assistantships:

<b>PERS2002 - Course-Based Undergraduate Research Experience</b>	2017
Instructor: Daniel N. Cox	
<b>NEUR3010/4000 – Neuroscience Laboratory (x2)</b>	2016 & 2018
Instructor: Michael P. Black	

### Other Teaching:

<b>Writing Advisor - Writing Across the Curriculum Program</b>	2018 – Present
GSU, Center for Excellence in Teaching and Learning	

## Guest Lectures:

Georgia State University's Neuroscience School: <i>Neurological Diseases</i> .	2016
Atlanta Brain Bee Prep Course: <i>Senses, Perception, and Movement</i> .	2015
Emory University SUPERR Program: <i>Techniques in Renal Physiology</i> .	2015

## SERVICE, MENTORING, and MEMBERSHIP

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### Mentoring Positions:

<b>Mentor – Initiative for Maximizing Student Development (IMSD)</b> Georgia State University	2017-Present
<b>Mentor – NIH/NIDDK-funded Renal Research Program (SUPERR)</b> Emory University	2015
<b>Mentor –Undergraduate Research Programs (SURE &amp; SIRE)</b> Emory University	2013-2015
<b>Mentor – American Physiological Society, Frontiers in Physiology</b> Emory University	2014
<b>Mentor – NIH-funded Summer Research for Morehouse Students</b> Emory University	2013-2014

### 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

### Peer Review:

*Genes, Brains, and Behavior* [1]

## ABSTRACTS, PRESENTATIONS, and INVITED SYMPOSIA

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<sup>§</sup>undergraduate mentee; presenter underlined

### Posters & Conference Abstracts:

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. *Abstract forthcoming in BMC Neuroscience*.
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. *Conference abstract in 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>S</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>S</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>S</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>S</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>S</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>S</sup>, Wang Y<sup>S</sup>, Sun MA<sup>S</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)

#### Conference Oral Presentations:

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

#### Institutional Oral Presentations:

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:

2. Attended the Theo Murphy International Scientific Meeting on the evolution of mechanisms and behaviour important for pain, hosted by The Royal Society. February 2019. *Chicheley, Buckinghamshire, UK*.
1. Panelist for NIDDK/KUH Researcher Panel, Summer Student Symposium. July 2015. *Atlanta, GA*.

#### Presentations by mentees:

9. Gray TR<sup>§</sup>, Himmel NJ, Cox DN. Neuropeptides function in multimodal sensory neurons in order to drive stimulus-appropriate behavior selection. April 2019. *Oral presentation at the Annual National Council for Undergraduate Research Conference, Atlanta, GA*.
8. Benson MN<sup>§</sup>, Himmel NJ, Letcher JM, Gray TR<sup>§</sup>, Cox DN. The ancient origins of chemical sensing. April 2019. *Poster presented at the annual GSU Undergraduate Research Conference, Atlanta, GA*
7. Gray TR<sup>§</sup>, Himmel NJ, Letcher JM, Cox DN. Closely related drosophilid species differ in their behavioral response toward noxious cold. September 2018. *Poster presented at annual GSU IMSD poster session, Atlanta, GA*
6. Gray TR<sup>§</sup>, Himmel NJ, Letcher JM, Cox DN. The evolution of cold nocifensive behavior in drosophilid larvae. September 2018. *Poster presented at the Herty Medal Undergraduate Research Symposium, Lawrenceville, GA*

5. Gray TR<sup>§</sup>. Dissecting the Molecular and Neural Circuit Bases of Nociception. Oct 2017. *Course-based Undergraduate Research Experience Showcase*, Atlanta, GA.
4. Gray TR<sup>§</sup>, 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.
3. Wang Y<sup>§</sup>, Himmel NJ, Mallow GM, Sun MA<sup>§</sup>, Borchart MR<sup>§</sup>, Blount MA. Ablation of the renal urea transporters UT-A1 and UT-A3 replicated the benefits of a low-protein diet in attenuating diabetic nephropathy. *Abstract in The FASEB Journal*, 30(Suppl 1):968.21, April 2016. doi: [10.1096/fasebj.30.1\\_supplement.968.21](https://doi.org/10.1096/fasebj.30.1_supplement.968.21)
2. Mehran NA<sup>§</sup>, Mallow JF, Himmel NJ, Blount MA. Lithium modulates cilia length in renal collecting duct cells. *Abstract in The FASEB Journal*, 30(Suppl 1): 1219.4, April 2016. doi: [10.1096/fasebj.30.1\\_supplement.1219.4](https://doi.org/10.1096/fasebj.30.1_supplement.1219.4)
1. Borchart MR<sup>§</sup>, Pulous FE, Wang Y<sup>§</sup>, Sun MA<sup>§</sup>, Himmel NJ, Vanderford TH, Blount MA. Absence of PKC-alpha alters the renal immune response in Angiotensin II-dependent hypertension. *Abstract in The FASEB Journal*, 30(Suppl 1): 969.17, April 2016. doi: [10.1096/fasebj.30.1\\_supplement.969.17](https://doi.org/10.1096/fasebj.30.1_supplement.969.17)