

Nathaniel J. Himmel

Curriculum Vitae

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EDUCATION

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

RESEARCH POSITIONS

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

PUBLICATIONS

*co-first author; [†]co-corresponding author; [§]undergraduate co-author

Peer Reviewed:

- Himmel NJ[†]**, Gray TR[§], Cox DN[†]. Phylogenetics identifies two eumetazoan TRPM clades and an 8th family of TRP channel, TRP soromelastatin (TRPS). *Molecular Biology and Evolution* (in press). preprint in *bioRxiv*, doi: [10.1101/860445](https://doi.org/10.1101/860445)
- Himmel NJ[†]**, Letcher JM, Sakurai A, Gray TR[§], Benson MN[§], Cox DN[†]. *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)
- 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)
- Himmel NJ**, Rodriguez DA[§], Wang Y[§], Sun MA[§], 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)
- 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)
- 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)

3. Turner HN*, Armengol K*, Patel AA, **Himmel NJ**, Sullivan L, Iyer SC, Battacharya S, Iyer EPR, Landry C, Galko MJ[†], Cox DN[†]. 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)
2. 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)

Preprints:

1. **Himmel NJ**, Rogers RT, Redd SK, Wang Y[§], 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)

FUNDING, FELLOWSHIPS, AND AWARDS

Grants & Funding:

Ruth L. Kirschstein National Research Service Award (F31 NRSA) 2020 - Present
National Institute of Neurological Disease and Stroke
 Grant ID: F31NS117087

Kenneth W. and Georganne F. Honeycutt Fellowship 2017 – 2020

Brains & Behavior Fellowship 2017 – 2020
Georgia State University, Brains & Behavior Program

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

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 & 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: <i>Presenting Data in Different Forms</i> .	2019
GSU'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

MENTORING, SERVICE, AND OUTREACH

Daily research mentor for:

GSU, 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, <i>Proceedings of the Royal Society B</i>	2019-Present
Reviewer: <i>Genes, Brain and Behavior</i> <i>Journal of Economic Entomology</i>	

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/doinsects-enjoy-sex-1796376553>.

ABSTRACTS, PRESENTATIONS, AND INVITED SYMPOSIA

[§]undergraduate co-author; presenter underlined

Conference oral presentations:

2. **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 talk at Neurobiology of Drosophila Meeting, Cold Spring Harbor Lab, Cold Spring Harbor, NY*.
1. **Himmel NJ**, Rodriguez DA[§], Blount MA. Chronic lithium treatment induces β -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. *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. *Conference abstract in BMC Neuroscience*, 20:56, July 2019. doi: [10.1186/s12868-019-0538-0](https://doi.org/10.1186/s12868-019-0538-0)
15. **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.*
14. **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. *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[§], 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[§], 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[§], 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[§], 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[§], **Himmel NJ**, Cox DN. Cellular and molecular dissection of noxious cold nociception in *Drosophila*. March 2017. *Poster presented at the 58th 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[§], Wang Y[§], Sun MA[§], 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[§], 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[§], Cox DN. Multimodality in *Drosophila melanogaster* sensory neurons. February 2018. *GSU Neurogenomics Forum, Atlanta, GA.*
2. **Himmel NJ**, Gray TR[§], 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 β -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.*