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:

9. **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)

8. **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

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*, 374: November 2019. doi: 10.1098/rstb.2019.0282

6. **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

5. **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

4. **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

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

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

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

FUNDING, FELLOWSHIPS, AND AWARDS

Grants & Funding:

Ruth L. Kirschstein National Research Service Award (F31 NRSA) 2020 - Present
National Institute of Neurological Disease and Stroke
Awaiting funding (score: 8th percentile)

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

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

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: *Presenting Data in Different Forms.*	2019
GSU's Neuroscience School: *Neurological Diseases*.	2016
Atlanta Brain Bee Prep Course: *Senses, Perception, and Movement*.	2015
Emory University SUPERR Program: *Techniques in Renal Physiology*.	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, *Proceedings of the Royal Society B* 2019-Present

Reviewer: *Genes, Brain and Behavior*
Journal of Economic Entomology

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

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, Buckinghamashire, 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, Buckinghamashire, 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

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

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

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

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.*