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 mentee

2020

Himmel NJ*, Letcher JM*, and Cox DN (under review)
Dissecting the molecular and neural circuit bases of behavior as an introduction to discovery-driven research; a report on a Course-Based Undergraduate Research Experience

Himmel NJ, Mehran NA§, Kronk TA, Mallow JF, and Blount MA (under review)
Lithium treatment elongates renal cilia and attenuates the progression of polycystic kidney disease in rats

Himmel NJ†, Gray TR§, and Cox DN† *Molecular Biology and Evolution*
Phylogenetics identifies two eumetazoan TRPM clades and an eighth TRP family, TRP Soromelastatin (TRPS)

2019

Himmel NJ†, Letcher JM, Sakurai A, Gray TR§, Benson MN§, and Cox DN† *Philosophical Transactions of the Royal Society B*
Drosophila menthol sensitivity and the Precambrian origins of TRP-dependent chemosensation.

Lopez-Bellido R, **Himmel NJ**, Gutstein HB, Cox DN, and Galko MJ *Philosophical Transactions of the Royal Society B*
An assay for chemical nociception in *Drosophila* larvae

Himmel NJ, Rogers RT, Redd SK, Wang Y, and Blount MA Preprint in *bioRxiv*
Purinergic signaling is enhanced in the absence of UT-A1 and UT-A3

2018 | **Himmel NJ**, Rodriguez DA[§], Wang Y[§], Sun MA[§], and Blount MA
Chronic lithium treatment induces novel patterns of pendrin localization and expression
American Journal of Physiology – Renal Physiology

2017 | **Himmel NJ** and Cox DN
Sensing the cold: TRP channels in thermal nociception
Commentary in *Channels*

Himmel NJ[*], Patel AA[*], and Cox DN
Invertebrate Nociception
Review in *The Oxford Research Encyclopedia of Neuroscience*

2016 | Turner HN[*], Armengol K[*], Patel AA, **Himmel NJ**, Sullivan L, Iyer SC, Battacharya S, Iyer EPR, Landry C, Galko MJ[†], and Cox DN[†]
The TRP channels Pkd2, NompC, and Trpm mediate unique aversive behaviors to noxious cold in *Drosophila*
Current Biology

2014 | Sim JH, **Himmel NJ**, Redd SK, Pulous FE, Rogers RT, Black LN, Hong SM, von Bergen TN, and Blount MA
Absence of PKC-alpha attenuates lithium-induced nephrogenic diabetes insipidus
PLOS One

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
Georgia State University, Neuroscience Institute

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

Other Awards:

2020's Outstanding Doctoral Scholar, *Georgia State University* 2020
2019's Outstanding Graduate Student Mentor, *Georgia State University* 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 [x2]

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.*