Nathaniel J. Himmel

Curriculum Vitae

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EDUCATION

PhD	**Neuroscience** Georgia State University	2015 - Present
BS	**Biology** University of Florida	2011 - 2013
AA	**Biological Sciences** Santa Fe College	2008 - 2011

RESEARCH POSITIONS

Graduate Research – Neuroscience 2015 - Present
Georgia State University
PI: Daniel N. Cox

Post-Bacc Research Technician – Physiology 2013 - 2015
Emory University
PI: Mitsi A. Blount

PUBLICATIONS

*co-first author; †co-corresponding author; §undergraduate mentee

8. **Himmel NJ**†, Letcher JM, Sakurai A, Gray TR§, Benson MN§, Cox DN†. *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§, 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

5. **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

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

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

2. 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

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

AWARDS, HONORS, and FUNDING

Awards:

Meritorious Research Award, *American Physiological Society* 2016
Meritorious Research Award, *American Physiological Society* 2015

Funded Fellowships:

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

Media Appearances:

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

TEACHING EXPERIENCE

Course Prep/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:

Georgia State University'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

SERVICE, MENTORING, and MEMBERSHIP_____

Mentoring Positions:

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

Mentees:	**Current Position**
Maggie N. Benson, GSU (undergraduate RA, IMSD fellow)	Undergraduate
Thomas R. Gray, GSU (undergraduate RA, IMSD fellow)	Undergraduate
Grace Swaim, Emory (SIRE, SUPERR)	Undergraduate
Matthew R. Borchart, Emory/Luther College (SUPERR)	MD student
Michael A. Sun, Emory (undergraduate RA, SUPERR)	Blockchain Analyst
Yirong Wang, Emory (undergraduate RA, SURE)	PhD candidate
Daniel A. Rodriguez, Emory (SIRE)	Data Scientist
Nishant Sharma, Emory/Morehouse (MD student RA)	Resident, Surgery
John Ward, Emory/Atlanta Public Schools (APS fellow)	MD student
Nikki A. Mehran, Emory (honors thesis research)	MD student

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_____

§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. A*bstract forthcoming in BMC Neuroscience.*

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 Georga 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

Conference Oral Presentations:

1. **Himmel NJ,** Rodriguez DA[§], Blount MA. Chronic lithium treatment induces β-intercalated cell expression in the renal inner medulla. March 2015. *Experimental Biology, Boston, MA.*

Institutional Oral Presentations:

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:

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[§], 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[§], Himmel NJ, Letcher JM, Gray TR[§], Cox DN. The ancient origins of chemical sensing. April 2019. *Poster presented at the annual GSU Undergraduate Research Conference*, Atlanta, GA

7. Gray TR[§], 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[§], 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[§]. Dissecting the Molecular and Neural Circuit Bases of Nociception. Oct 2017. *Course-based Undergraduate Research Experience Showcase*, Atlanta, GA.

4. Gray TR[§], 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[§], Himmel NJ, Mallow GM, Sun MA[§], Borchart MR[§], 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

2. Mehran NA[§], 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

1. Borchart MR[§], Pulous FE, Wang Y[§], Sun MA[§], 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