CURRICULUM VITAE

Miranda Arnold
Graduate Student
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EDUCATION

2019 – Present	Ph.D. program, University of Georgia, Athens, GA, Neuroscience Program, Physiology and Pharmacology Department
2017 - 2019	Master's degree, Kennesaw State University, Kennesaw, GA, Master of Integrative Biology
2013 - 2017	Bachelor's degree, Agnes Scott College, Decatur, GA, Biology Major

PROFESSIONAL EXPERIENCE

2020 – 2021	Teaching Assistant for Veterinary School for Neuroanatomy and Neurophysiology
2017 - 2019	Kennesaw State University Liaison for Emerging Leaders Network.
Fall 2017	Teaching Assistant for Biology 1107 Lab at Kennesaw State University
Fall 2016	Biology Tutor, Agnes Scott College. Advised and tutored students for Introductory Biology.
2014 - 2015	Lab Technician, Agnes Scott Biology department. Responsible for setting up the labs for all biology courses at Agnes Scott College.

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS

2015 - 2019	Society for Neuroscience Member
2017 - 2019	Georgia Bio and Emerging Leaders Network Member

TEACHING EXPERIENCE

Spring 2021	VPHY 5190 Veterinary Neuroanatomy. Role: Teaching Assistant. University of Georgia
Fall 2020	VPHY 5112 Veterinary Neurophysiology. Role: Teaching Assistant. University of Georgia
Spring 2017	BIOL 1107L Introductory Biology I Lab. Role: Teaching Assistant. Kennesaw State University

SCHOLARSHIPS

Summer 2021	Diversity MATTERS Scholar. University of Georgia. Leadership training and mentoring in research environment for NSURE undergraduate students.
Summer 2021	RSA Student Merit Award. National Institute on Alcohol Abuse and Alcoholism.

RESEARCH EXPERIENCE

Sex Difference in Aversion-Resistance Alcohol Intake
University of Georgia
Continuation of alcohol consumption despite negative consequences can be modeled mice using adulteration of alcohol solution with the bitter tastant quinine. Recently, there has been an increase in women have been diagnosed with AUD, suggesting the importance of including females in preclinical investigations. The neural mechanisms of aversion-resistance have been examined in male rodents, but neurocircuitry has not been assessed in females. Our aim was to characterize aversion-resistant ethanol intake in female mice compared to males during continuous access two-bottle choice and identify potential sex difference in neuronal activation.

Dissecting the thermosensory and chemosensory circuit in *C. elegans* ephrin mutants
Kennesaw State University (Funded by NIH grant 1R15NS100632-01)
I studied the role of EphR/ephrin function in neuronal circuit assembly. EphR and ephrin mutants lead to morphological defects in the AIY amphid interneurons. How this affects interneuron connectivity and sensory circuit function is not known. We used optogenetic approaches to assess cell-to-cell communication and corroborating this with confocal imaging of sensory neurons to observe other neurodevelopmental defects. We also performed high-resolution assays of worm food seeking behavior to see if behavioral changes correlate with neuronal morphology defects.

Behavioral and Motor Neuron Analysis of a Tauopathy Model in *C. elegans*
Kennesaw State University (Funded by a pharmaceutical company grant)
I performed baseline behavioral analysis in pro-aggregation and anti-aggregation Tau mutants to examine behavioral defects through a horizontal study. I also used confocal microscopy to image inhibitory motorneurons in these lines to observe the affect of Tau aggregations on neuron morphology through time.

Arf-GAP AGAP1 Modulates Endosomal Trafficking and Dendritic Spine Morphology
Emory University and Agnes Scott College
I performed quantitative confocal microscopy on 60-micron mouse brain sections, the used ImageJ to analyze the images for changes in dendritic spine morphology. I also performed co-localization assays to correlate AGAP1 activity with BLOC-1 subunits.

Dysbindin Deficiency Affects the Expression of GABA and Ion Permeation Transcripts
Emory University and Agnes Scott College
I performed quantitative PCR of hippocampal and cortical regions, then used ImageJ to analyze confocal images, immunoblots, and western blot analyses of protein levels in the mouse hippocampus.

LEADERSHIP EXPERIENCE

Neuroscience Graduate Student Board Member
Create associations between graduate students throughout the neuroscience community at University of Georgia. Identify and invite speakers to our Neuro Seminar Series. Provide outreach opportunities for our program.

Georgia Bio Emerging Leaders Kennesaw State University Liaison
Maintaining connection and communication between the Emerging Leaders Network and Kennesaw State students. Duties include organizing the ELN sector of the Georgia Bio Innovation Summit Conference and sending out social media information.

PUBLICATIONS

Refereed Journal Articles:

Miranda Arnold, Rebecca Cross, Kaela Singleton, Christopher Chapleau, Ariana P. Mullin, Isaiah Rolle, Carlene Moore, Anne Theibert, Lucas Pozzo-Miller, Victor Faundez and Jennifer Larimore. (2018). The Endosome Localized Arf-GAP AGAP1 Modulates Dendritic Spine Morphology Downstream of the Neurodevelopmental Disorder Factor Dysbindin. Front. Cell. Neurosci. 10:218. DOI: 10.3389/fncel.2016.00218

Jennifer Larimore, Stephanie A. Zlatic, **Miranda Arnold**, Kaela Singleton, Rebecca Cross, Hannah Rudolph, Martha V. Bruegge, Andrea Sweetman, Cecilia Garza, Eli Whisnant, and Victor Faundez (2017). Dysbindin Deficiency Modifies the Expression of GABA Neuron and Ion Permeation Transcripts in the Developing Hippocampus. Front. Genet. Mar 10; 8:28.
DOI: 10.3389/fgene.2017.00028

Published Abstracts:

Mutations in the BLOC-1 subunit dysbindin and muted generate divergent and dosage-dependent phenotypes. **Miranda Arnold**, Rebecca Cross, Kaela Singleton, Jennifer Larimore Ph.D, and Victor Faundez M.D., Ph.D. Society for Neuroscience. Chicago, Illinois. October 2015.

Neural Development to Neurodegeneration Through the Mind of a Worm. **Miranda Arnold**, Christopher Cornelison Ph.D., Lisa Ganser Ph.D., Jared Taglialatela Ph.D., Martin Hudson Ph.D. Digital Commons. Kennesaw, Georgia. July 2019.

PRESENTATIONS

Thesis Defense

Neural Development to Neurodegeneration Through the Mind of a Worm. **Miranda Arnold**, Christopher Cornelison Ph.D., Lisa Ganser Ph.D., Jared Taglialatela Ph.D., and Martin Hudson Ph.D. Kennesaw, Georgia. July 2019.

Refereed Conference Presentations:

Sex Differences in Aversion-Resistant Alcohol Intake and Neuronal Activation. **Miranda Arnold**, Hannah Fulenwider, Kimberly Whiting, and Jesse Schank Ph.D. Present at Research Society of Alcoholism Conference. Athens, Georgia. June 2021.

The role of Eph/ephrin signaling in *C. elegans* mutants related to the thermosensory circuit. Kade Garrard, **Miranda Arnold**, Tyler Hill, Ashtyn Johnston, Ciara Hosea, and Martin Hudson. Presented at National Conference for Undergraduate Research, Kennesaw, Georgia. May 2019.

Validating a *C. elegans* model of tau neuropathy. Kerry McCardel, **Miranda Arnold**, Ciara Hosea, and Martin Hudson. Presented at National Conference for Undergraduate Research, Kennesaw, Georgia. May 2019.

EphR/ephrin impact on food-seeking behavior through genetic dissection of the thermosensory/chemosensory neuronal circuit. **Miranda Arnold**, Tyler Hill, Ashtyn Johnson, Kerry McCardel, and Martin Hudson. Presented at the *C. elegans* Neuroscience Conference, Madison, Wisconsin. June 2018.

The role of EphR/ephrin signaling in a food-seeking sensorimotor neural circuit. **Miranda Arnold**, Tyler Hill, Ashtyn Johnson, and Martin Hudson. Presented at the Atlanta Neuroscience Symposium, Georgia State University, March 2018.

AGAP1 Regulates Endosomal Trafficking and Spine Morphology Downstream of the Neurodevelopmental Disorder Factor Dysbindin. **Miranda Arnold**, Rebecca Cross, Kaela Singleton, Christopher Chapleau, Anne Theibert, Lucas Pozzo-Miller, Victor Faundez M.D., Ph.D, Jennifer Larimore Ph.D . Presented at a Nanosymposium, Society for Neuroscience annual Meeting, San Diego, California, November 2016.

AGAP1 Regulates Endosomal Trafficking and Spine Morphology Downstream of the Neurodevelopmental Disorder Factor Dysbindin. **Miranda Arnold**, Rebecca Cross, Kaela Singleton, Christopher Chapleau, Anne Theibert, Lucas Pozzo-Miller, Victor Faundez M.D., Ph.D, Jennifer Larimore Ph.D . Presented at SpARC, Agnes Scott College, Atlanta, GA, April 2016.

Non-Refereed Conference Presentations:

Aggression Rates Increase in Multiple Concussions. **Miranda Arnold** and Jennifer Larimore Ph.D. Presented at SpARC, Agnes Scott College, Atlanta, GA, April 2017.