Cherish Ardinger

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Education

2018 - present
Indianapolis, IN
Doctoral Student, Addiction Neuroscience
Indiana University-Purdue University Indianapolis (IUPUI)

2018 – 2020
Indianapolis, IN
Master of Science, Psychology
Indiana University-Purdue University Indianapolis (IUPUI)

2014 - 2016
Towson, MD
Master of Arts, Experimental Psychology
Towson University

2010 - 2014
Towson, MD
Bachelor of Science, Psychology
Towson University
Cum Laude, Psychology Departmental Honors
Minor in LGBT (Lesbian, Gay, Bisexual, Transgender) Studies

Grants

2022 – Present
NIH T32: Training Grant on Genetic Aspects of Alcoholism (AA007462), Dr. Cristine Czachowski (Principal Investigator), Drs. Nicholas Grahame and Christopher Lapish (supervisors / mentors).

Research Experience

2018 – Present
Indianapolis, IN
IUPUI
Addiction Neuroscience Doctoral Student
Mentors: Drs. Christopher Lapish and Nicholas Grahame
Master's Thesis Title: Determining the impact of repeated binge drinking on corticostriatal theta synchrony
Current Research Interests: I have a strong interest in understanding the physiological phenomena that underlie behavior. Specifically, I am interested in studying the neurobiological causes of and identifying novel treatments for addiction. My current research lies at the intersection of behavioral genetics, awake-behaving electrophysiology, and pharmacology - where I use rodent models to study the impact of alcohol on brain and behavior.

2015 – 2018
Edgewood, MD
Aberdeen Proving Ground
U.S. Army Medical Research Institute of Chemical Defense (USAMRICD)
Oak Ridge Institute for Science and Education (ORISE) Fellow
Mentor: John H. McDonough, PhD
Description: Dr. McDonough's research program primarily focuses on identifying novel treatments for nerve agent-induced seizures. Experiments considered how various factors such as age, sex, and genetic background impacted treatment success in rodent models. My ORISE fellowship provided training in surgical procedures and EEG data analysis, and significantly developed my laboratory management, mentorship, and scientific communication skills.

2012 – 2016
Towson, MD
Behavioral Neuroscience Laboratory, Towson University
Master's, and Undergraduate Honors Thesis Student
Mentor: Paul Pistell, PhD
Master's Thesis project: The use of 3-nitropropionic acid to create a model of aging in mice
Undergraduate Honors Thesis project: Creation of a peripheral lesion model to examine age-associated learning and memory deficits in mice

2009 – 2011
Frederick, MD
Laboratory of Molecular Immunoregulation, The National Cancer Institute
Student Intern

Fort Detrick — *Mentors:* Drs. Katie Stagliano and Arthur Hurwitz
Project: Validation of a prostate-specific STAT3C expression construct

2012 – 2014 — **Gender Identity and Sexuality Lab, Towson University**
Towson, MD — *Research Team Member*
Mentor: M. Paz Galupo, PhD

Laboratory Skills / Techniques

Through the experiences listed above, I have gained proficiency with many laboratory techniques:

Stereotaxic surgery: I am skilled in aseptic technique, subject surgical preparation, anesthesia regulation, suturing, and post-operative care. Surgical procedures that I can independently and successfully execute include implantation of EEG lead, cannula, optogenetic fibers, head-fix bar, awake-behaving electrophysiology probes (fixed-wire arrays and Cambridge shanks), and targeted viral injections. I am most comfortable performing these surgeries on adult rats and mice, but I also have experience working with guinea pigs and pediatric rats.

Animal Behavior: Operant head-fixed mouse behavior, attentional set shifting, drinking-in-the-dark (including use of volumetric drinking monitor equipment to assess intake pattern and AnyMaze software to assess locomotor behavior), two-bottle choice, Stone T-Maze, and rotarod.

Awake-behaving electrophysiology: Rig / equipment set up, design and manufacture of custom fixed-wire electrodes, data collection from multiple brain regions during anesthetized and awake-behaving neural recordings, OpenEphys software (for data collection), stereotaxic surgery (see above), and data analysis with expertise in analyzing local field potentials using techniques such as spectral decomposition (e.g. Fourier transforms, frequency filtering, wavelets) and assessment of synchrony in periodic signals (measures of coherence, phase-locking, etc.).

Other Laboratory Techniques: General animal handling, collection of retro-orbital sinus bloods, use of Analox to calculate blood ethanol concentrations, perfusions, brain extraction, euthanasia, injections (including drug preparation and dose calculations), mouse colony husbandry, mouse and rat pup weaning and sexing, cryosectioning, immunohistochemistry to identify electrode and virus placement.

Software Skills

Data Analysis and Presentation:
- MATLAB
- GraphPad Prism
- SPSS
- Python
- Adobe Photoshop

Data Collection Software:
- OpenEphys (awake-behaving ephys)
- AnyMaze
- Spike2 (EEG recording software)
- FIJI
- Nikon NIS Elements (fluorescent microscopy)

Publications

https://www.ncbi.nlm.nih.gov/myncbi/cherish.ardinger.1/bibliography/public/

1) **C. Ardinger,** G. Winkler, C. C. Lapish, and N. J. Grahame (2021). Effect of ketamine on binge drinking patterns in crossed high alcohol-preferring (cHAP) mice. *Alcohol*. PMID: 34547429

2) **C. Ardinger**, N. J. Grahame, C. C. Lapish, D. N. Linsenbardt (2020). High Alcohol Preferring Mice Show Reaction to Loss of Ethanol Reward Following Repeated Binge Drinking. *Alcoholism: Clinical and Experimental Research (ACER).* PMID: 32865852.
- ***Chosen by ACER as an Article of Public Interest! (link)***

3) H. S. McCarren, M. Eisen, D. Nguyen, P. Dubee, **C. Ardinger,** E. Dunn, K. Haines, A. Santoro, P. Bodner, C. Ondeck. C. Honnold, J. H. McDonough, P. Beske, P. McNutt. (2020). Characterization and

treatment of spontaneous recurrent seizures following nerve agent-induced status epilepticus in mice. *Epilepsy Research.* PMID: 32182542

4) E. Dunn, L. Matson, K. Haines, K. Whitten, R. B. Lee-Stubbs, K. Berger, H. S. McCarren, **C. Ardinger**, C. Jackson-Piercy, S. M. Miller-Smith, J. H. McDonough. (2020). Evaluation of fosphenytoin, levetiracetam and propofol as treatments for nerve agent-induced seizures in pediatric and adult rats. *Neurotoxicology.* PMID: 32220603

5) C. Jackson*, **C. Ardinger***, J. H. McDonough, H. S. McCarren (2019) Validating a model of nerve agent-induced status-epilepticus by evaluating the anticonvulsant and neuroprotective effects of scopolamine, memantine, and phenobarbital. *Journal of Pharmacological and Toxicological Methods.* PMID: 30790623 *contributed equally

6) L. Matson, E. Dunn, K. Haines, S. Miller-Smith, R. Lee-Stubbs, K. Whitten, **C. Ardinger**, H. McCarren, J. H. McDonough. (2019). Evaluation of first line anticonvulsants to treat nerve agent-induced seizures and prevent neuropathology in adult and pediatric rats. *Toxicology*. PMID: 31362008

7) H. S. McCarren, J. Arbutus, **C. Ardinger**, E. Dunn, C. Jackson, J. H. McDonough (2018) Dexmedetomidine stops nerve agent-induced status epilepticus. *Epilepsy Research.* PMID: 29414381

8) K. Haines, L. Matson, E. Dunn, **C. Ardinger**, D. Bibi, J. H. McDonough, M. Bialer (2018) Comparative efficacy of valnoctamide and sec-butylpropylacetamide (SPD) in terminating nerve agent-induced seizures in pediatric rats. *Epilepsia.* PMID: 30615805

9) L. Matson, R. B. Lee-Stubbs, L. Cadieux, J. A. Koenig, **C. Ardinger**, J. Chandler, E. A. Johnson, H. M. Hoard-Fruchey, T.M. Shih, J. H. McDonough (2018) Assessment of mouse strain differences in baseline esterase activities and toxic response to sarin. *Toxicology*. PMID: 30172647

Talks

1) **C. Ardinger.** High alcohol preferring mice may represent a rodent model of high intensity drinking (Mar 2021). Virtual presentation at the *IUPUI, Wake Forest, and Medical University of South Carolina Alcohol Research Center (ARC) Trainee Showcase.*

2) **C. Ardinger.** High alcohol-preferring mice show reaction to loss of ethanol reward following repeated binge drinking (Feb 2021). Virtual presentation of my manuscript at the *University of Texas Health Science Center at San Antonio Addiction Journal Club.*

Conference Presentations

1) S. D. Weir, **C. Ardinger,** & C. C. Lapish (Mar 2021). A machine learning algorithm to identify bouts of drinking in rodent voluntary consumption studies. Poster presented virtually at the *Greater Indiana Society for Neuroscience* Conference.

2) G. A. Winkler, **C. Ardinger,** C. C. Lapish, N. J. Grahame (Jun 2021). Effect of ketamine on binge drinking patterns in crossed high alcohol preferring mice. Poster presented virtually at the *Research Society on Alcoholism* Conference.

3) **C. Ardinger,** C. C. Lapish, N. J. Grahame, & D. N. Linsenbardt (Jun 2020) Binge drinking ethanol is associated with changes in corticostriatal electrophysiology. Poster presented virtually at the *Research Society on Alcoholism* Conference.

4) **C. Ardinger**, C. C. Lapish & D. N. Linsenbardt (Oct 2019) Assessing the impact of excessive alcohol consumption on corticostriatal function in mice. Poster presented at the *Society for Neuroscience* Conference, Chicago, IL.

5) **C. Ardinger** & D. N. Linsenbardt (Jun 2019) Differences in the rate of binge drinking between replicate lines of high alcohol preferring (HAP) mice. Poster presented at the *Research Society on Alcoholism* Conference, Minneapolis, MN.

6) A. Ward, B.T. Freeman, **C. Ardinger**, and D.N. Linsenbardt (Mar 2019) cHAP mice are less sensitive to the motor depressing actions of alcohol compared to B6 mice. Poster presented at the *Greater Indiana Chapter Society for Neuroscience* Annual Meeting, Indianapolis, IN.

7) D. Nguyen, M. Eisen, **C. Ardinger**, E. Dunn, K. Haines, A. Santoro, P. Bodner, C. Ondeck, P. Dubee, H. McCarren, P. Beske, P. McNutt (Mar 2019) Evaluation of repurposed antiepileptic drugs to treat spontaneous recurrent seizures in instrumented male C57BL/6 mice following a sublethal soman exposure. Poster presented at *Society of Toxicology's* Annual Meeting, Baltimore, MD.

8) H. S. McCarren, **C. Ardinger,** P. Bodner, P. Dubee, E. Dunn, M. Eisen, K. Haines, D. Nguyen, A. Santoro, P. McNutt (Nov 2019) Optimizing a mouse model of severe nerve agent intoxication for long-term survivability incidence of neuropathology, and emergence of spontaneous recurrent seizures. Poster presented at *Society for Neuroscience's* Annual Meeting, San Diego, CA.

9) **C. Ardinger,** C. Jackson, J. H. McDonough, H. S. McCarren (May 2018) Validation of the CounterACT Neurotherapeutics Screening (CNS) program model. Poster presented at *Bioscience Review: Advances in Medical Chemical Defense*, Edgewood, MD.

10) H. S. McCarren, J. Arbutus, **C. Ardinger,** E. Dunn, C. Jackson, J. H. McDonough (May 2018) Dexmedetomidine as a countermeasure for nerve agent-induced status epilepticus. Talk given at *Bioscience Review: Advances in Medical Chemical Defense*, Edgewood, MD.

11) E. Dunn, **C. Ardinger,** M. Eisen, K. Haines, D. Nguyen, A. Santoro, H. S. McCarren, P. McNutt (May 2018) The development of a long-term survivable mouse model to treat spontaneous recurrent seizures following nerve agent exposure. Poster presented at *Bioscience Review: Advances in Medical Chemical Defense*, Edgewood, MD.

12) C. Jackson*, **C. Ardinger**, D. Ballough, H. Craigh, J. H. McDonough. H. S. McCarren (Nov 2017) Validating a nerve-agent induced seizure model by evaluating the anticonvulsant and neuroprotective effects of scopolamine, memantine, phenobarbital and ganaxolone. Poster presented at the *Society for Neuroscience* Conference, Washington, D. C. * Contributed equally

13) J. McCabe, B. Slusher, J. H. McDonough, **C. Ardinger,** A. Alqazzaz, J. Vaughan, C. Jackson, K. Winter, H. S. McCarren, H. Xi, J. Liu, R. Rais (Jun 2017) Amelioration of soman-induced neuropathology with NAAG-related compounds. Poster presented at *NIH Countermeasures against Chemical Threats (CounterACT) Meeting,* Boston, MA.

14) L. Matson, E. Scholl, K. Haines, **C. Ardinger,** E. Dunn, P. Roper, N. Simon, E. Mattias, J. H. McDonough, E. Dudek (Jun 2017) Evaluation of anticonvulsants to treat nerve agent and pesticide-induced seizures and prevent brain damage in pediatric rats. Poster presented at *NIH Countermeasures against Chemical Threats (CounterACT) Meeting,* Boston, MA.

15) H. S. McCarren, P. Beske, M. Eisen, D. Nguyen, **C. Ardinger,** E. Dunn, J. H. McDonough, P. McNutt (Jun 2017) Therapeutic evaluation of clinically approved antiepileptic drugs to treat spontaneous recurrent seizures following nerve agent exposure. Poster presented at *NIH Countermeasures against Chemical Threats (CounterACT) Meeting,* Boston, MA.

16) H. Craig, J. Chandler, L. C. Cadieux, **C. Ardinger, J. Koenig,** H. S. McCarren, Z. Canter, H. Hoard-Fruchey, T-M, Shih, E. Johnson, D. Cerasoli, J. H. McDonough, L. Matson (Jun 2017) Evaluation of mouse strain differences in esterase and nerve agent-induced toxicity. Poster presented at *Military Health System Research Symposium,* Kissimmee, FL.

17) H. S. McCarren, J. Arbutus, **C. Ardinger,** E. Dunn, C. Jackson, J. H. McDonough (Mar 2017) Combined stimulation of α2-adrenoceptors and GABAA receptors abruptly terminates soman-induced

status epilepticus. Poster presented at *Gordon Research Conference: Chemical & Biological Terrorism Defense,* Ventura, CA.

18) **C. Ardinger,** H. S. McCarren, J. Liu, H. Xi, R. Rais, B. Slusher, J. McCabe, J. H. McDonough (Mar 2017). Assessing the neuroprotective potential of 2-PMPA in rats exposed to soman (GD). Poster presented at *Society of Toxicology's Annual Meeting,* Baltimore, MD.

19) K. Haines, L. Matson, **C. Ardinger,** E. Dunn, H. S. McCarren, S. M. Miller-Smith, J. H. McDonough (Mar 2017). Evaluation of midazolam and diazepam to treat nerve agent-induced seizures in pediatric and adult rats. Poster presented at *Society of Toxicology's Annual Meeting,* Baltimore, MD.

20) H. S. McCarren, **C. Ardinger,** E. Dunn, S. M. Miller-Smith, J. H. McDonough (Dec 2016) Evaluation of five anticonvulsants in a pediatric rat model of nerve agent-induced epilepticus. Poster presented at *American Epilepsy Society's Annual Meeting,* Houston, TX.

21) **C. Ardinger,** E. Dunn, K. Gyenai, H. S. McCarren, S. M. Miller-Smith, J. H. McDonough (Jun 2016) The ability of common anticonvulsants to treat nerve agent-induced seizures in pediatric rats. Poster presented at *Bioscience Review: Advances in Medical Chemical Defense,* Edgewood, MD.

22) **C. Ardinger,** K. Haines, P. Pistell (May 2016) A comparison of 3NP dosing schedules to create an accelerated aging model in mice. Poster presented at *Association for Psychological Science's (APS)* Conference, Chicago, IL.

23) K. Haines, **C. Ardinger,** P. Pistell (Apr 2015) The use of 3-Nitropropionic acid to create an aging model in mice. Poster presented at *The Student Research Expo, Towson University,* Towson, MD.

24) **C. Ardinger,** K. Haines, J. Barry, L. Hyang, S. Peters, P. Pistell (Mar 2014) Evaluation of 3NP as a model of memory impairment in the mouse Stone T-maze. Poster presented at *Hunter College Psychology Convention,* New York City, NY.

25) **C. Ardinger,** C. R. Boyer, K. R. V. Sekely, A. M. Hackl, M. P. Galupo (May 2013) Attractive eggs and strong sperm: Online presentation of egg and sperm donors. Poster presented at *Association for Psychological Science's (APS) Conference,* Washington, D. C.

26) **C. Ardinger,** K. R. Valliere, A. M. Hackl, C. R. Boyer, M. P. Galupo (Apr 2012) Beauty and passivity, now let's talk viability: Femininity and gendered presentation of egg donors. Poster presented at *The Student Research Expo, Towson University,* Towson, MD.

Teaching Experience

Fall 2020 — **IUPUI**
Graduate Teaching Assistant: Systems Neuroscience (Psychology 301)
Mentor: Charles Goodlett, PhD
Skill set: I assisted the instructor in successfully shifting the course from an in-person to hybrid format due to COVID-19. I graded written essay exams, prepared interactive activities for, and led twice-weekly lecture sessions.

Spring 2019 — **IUPUI**
Graduate Teaching Assistant: Service-Learning Capstone in Psychology (Psychology 456)
Mentor: Katherine Adams, PhD
Skill set: I engaged students in small group discussions relating lessons from their service work to course readings. I assisted student groups in gathering relevant literature and applying their findings to their specific client population to share a research project about their service-learning experience in the form of a poster presentation at the University's *Capstone Poster Day* at the end of the semester (held virtually due to COVID-19).

Fall 2018
Spring 2018
Fall 2019

IUPUI
Graduate Instructor: Research Methods Laboratory (Psychology 312)
Mentor: Robert Stewart, PhD
Skill set: I taught a laboratory designed to help students write their own APA-style research papers. I taught students the processes of literature review, creating survey measures, collecting and analyzing their own data (using SPSS), and drawing conclusions based upon their results. I was responsible for grading and providing feedback on weekly in-class exercises, drafts, presentations, and final papers. I taught students effective ways to present their findings in a seminar format. I also maintained the Canvas site, responded to student emails, and held office hours.

Fall 2019

IUPUI
Graduate Teaching Assistant: Research Methods Lecture (Psychology 311)
Mentor: Robert Stewart, PhD
Skill set: I was responsible for grading and providing feedback on weekly homework assignments for approximately 100 students. In addition, I responded to student emails and assisted the professor in the creation of assignments and maintenance of the Canvas site.

Fall 2017
Spring 2018

Towson University
Adjunct Professor: Behavioral Statistics (Psychology 212)
Skill set: I created a syllabus, coursework, and exams to teach students the foundational theory of statistics as well as common data analytic concepts such as measures of central tendency, *t*-tests, correlations, ANOVA, and ways to analyze categorical data. I also taught students the basic functions of SPSS and how to share their findings using APA format. Emphasis was placed on when it is appropriate to use each statistical test based upon the type of data that is being worked with.

Feb 2017 - Jul 2018

USAMRICD, within Dr. McDonough's laboratory
Surgery Trainer
Skill set: I became an expert in stereotaxic rat (adult and pup) and mouse EEG lead implantation surgery and was approved by the institute's veterinary team to train other laboratory members to perform these surgeries. I taught our team aseptic technique, subject surgical preparation, surgical techniques, ways to troubleshoot issues, anesthesia regulation, suturing, and post-operative care.

Spring 2016

Towson University
Graduate Teaching Assistant: Sex Differences (Psychology 447)
Mentor: M. Paz Galupo, PhD
Skill set: I graded weekly journals, facilitated classroom and small group discussions, prepared and graded exams, lead exam review sessions, held office hours, maintained the class website (BlackBoard), and responded to student emails.

Fall 2013

Towson University
Undergraduate Teaching Assistant: Introduction to Psychology (Psychology 101)
Mentors: Drs. David Earnest and Elizabeth Katz
Skill set: I kept attendance records, lead discussions, and graded weekly assignments.

Fall 2012

Towson University
Undergraduate Teaching Assistant: Introduction to LGBT Studies (LGBT 101)
Mentor: Loraine Hutchins, PhD
Skill set: I lectured, lead exam review sessions, assisted in the preparation of materials for class activities, and responded to student emails.

Selected Workshops

July 2020
Online

Neuromatch Academy
Interactive Track Student
I worked closely with a small group of other students from different institutions, guided by a teaching assistant, using open-source data to complete a computational modeling project over the three-week course. In addition to this collaborative project, the group and I worked closely together to work through tutorials to learn about various data analysis techniques, neural modelling, and deep learning (syllabus: https://github.com/NeuromatchAcademy/course-content). Certificate of completion available upon request.

Jul – Aug 2020
IUPUI

Psychology 595: Seminar in Teaching
Student
This optional, one-credit summer course serves as a workshop for students interested in developing teaching skills. As a student in this course, I learned about and discussed concepts such as Bloom's Taxonomy, backwards course design, and the 'Transparency in Learning and Teaching Format.' I implemented these and other pedagogical ideas through creating a rubric, an assignment, a syllabus, and teaching a sample lesson to the class.

Mentoring and Community Outreach

Feb 2022

Indiana Science Communication Day Participant
Poster title: Hit me with another shot, mice further understanding of binge drinking-induced brain changes
I engaged lawmakers in conversations about my current research, providing vital scientific communication training through discussing data with non-scientists.

2019 - Present
Online

Skype-a-Scientist
Guest Lecturer
I typically engage with 2-3 K-12 classrooms per semester.

2019 – Present
Online

Tiger Mentor Network: Towson University (TU)
Mentor
I help current TU students interested in graduate school through providing feedback on personal statements, CVs, and conducting mock interviews. Through this program, I mentor 2-3 students per application season.

During my time at IUPUI, I have mentored (and continue to mentor) several undergraduate and IUPUI Post Baccalaureate Research Education Program (IPREP) fellows, all of whom have gained enough laboratory experience to present first-author posters showcasing their research at local conferences **(mentees in bold):**

1) **K. Echeumuna,** S. Derisse, C. Ardinger, and N. M. Timme (Oct 2021). Alcohol and Water Drinking Patterns in Mice. Talk presented virtually at the *Louis Stokes Midwest Regional Center of Excellence Conference*

-Mentee Kelechi Echeumuna's abstract was selected within the top 25

2) **S. D. Weir**, C. Ardinger**,** & C. C. Lapish (Apr 2021). A machine learning algorithm to identify bouts of drinking in rodent voluntary consumption studies. Poster presented virtually at the *Greater Indiana Society for Neuroscience* conference

-Mentee Seth Weir was awarded Best Undergraduate Poster

3) **R. Pittman,** C. Ardinger, & N. J. Grahame (Apr 2021). Differences in behavioral flexibility in HAP3 versus LAP3 mice. Poster presented virtually at the *IUPUI Engaged Learning Showcase.*

4) **A. Ward,** B. T. Freeman, C. Ardinger, & D. N. Linsenbardt (Apr 2019). cHAP mice are less sensitive to the motor depressing actions of alcohol compared to B6 mice. Poster presented at the *Greater Indiana Society for Neuroscience* conference, Indianapolis, IN.

Service / Leadership

August 2021 – Present
IUPUI
Graduate Student Diversity Committee (GSDC)
Member
The mission of the GSDC is to promote an academic environment that engages *all* students and faculty in discussions of diversity-related topics through education, dialogue, and advocacy.

June 2021 – Present
IUPUI
Graduate Out in Science, Technology, Engineering and Math (GoSTEM)
Undergraduate Liaison and Reservationist
GoSTEM seeks to encourage the success of LGBTQ+ students in STEM through both personal and professional development. We aim specifically at developing leadership skills through scientific outreach to the community, mentorship for at risk LGBTQ+ youth, and advocacy for creating policies and procedures in the IU School of Medicine and IUPUI that prevent discrimination against faculty, students and post-doctoral staff based on LGBTQ+ status.

May 2021 – Present
Supporting Truth About Animal Research (STAR) Committee
Research Society on Alcoholism Representative
STAR is a coalition of scientific societies that aim to educate and promote the ethical use of animals in research.

Dec 2020 – Present
Animal Research and Ethics Committee: Research Society on Alcoholism
Member
The mission of the Animal Research and Ethics Committee is to review and discuss topics related to the humane, ethical use of animals in biomedical research and to increase awareness among the RSA membership of the growing number of challenges that are being directed at investigators who study alcoholism and other addictive disorders. The committee also serves as a liaison between STAR (described above) and RSA members.

Feb 2020 – Present
Ad Hoc Peer-Review
Journal of Neuroscience, Addiction Biology and *Behavioural Processes*.

Honors and Awards

Oct 2019
School of Science Graduate Student Council Travel Grant (IUPUI)
Used to present data at the *Society for Neuroscience* meeting, Chicago, IL

May 2019
Research Society on Alcoholism (RSA) Student Merit Award
Used to present data at the *RSA* meeting, Minneapolis, MN

Dec 2012-Present
Psi Chi, International Honors Society in Psychology, member

May 2013
Undergraduate Student Travel Award (Towson University)
Used to present data at the *Association for Psychological Science's* meeting, Washington, D.C.

Jan 2013
Undergraduate Research Grant (Towson University)
Used for Honors Thesis Project: Creation of a peripheral lesion model to examine age-associated learning and memory deficits in mice