

Cherish Ardinger, PhD

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Education

2018 - 2023 Indianapolis, IN	PhD, 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 <i>Cum Laude, Psychology Departmental Honors</i> Minor in LGBT (Lesbian, Gay, Bisexual, Transgender) Studies

Positions

2024 – Present Piscataway, NJ	Postdoctoral Fellow, Rutgers University WM Keck Center for Collaborative Neuroscience Department of Cell Biology and Neuroscience <i>Mentor:</i> Rafiq Huda, PhD <u><i>Current Research Interests:</i></u> I am broadly interested in studying the neurobiological causes of and identifying treatments for addiction. My current research focuses on how astrocyte modulation of cell specific striatum circuits contribute to alcohol-related behaviors.
2018 – 2023 Indianapolis, IN	Addiction Neuroscience Doctoral Student, Indiana University-Purdue University Indianapolis (IUPUI) <i>Mentors:</i> Drs. Christopher Lapish and Nicholas Grahame <u><i>Master's Thesis Title:</i></u> Determining the impact of repeated binge drinking on corticostriatal theta synchrony <u><i>Dissertation Title:</i></u> Leveraging whole brain imaging to identify brain regions involved in alcohol frontloading
2015 – 2018 Edgewood, MD <i>Aberdeen Proving Ground</i>	Oak Ridge Institute for Science and Education (ORISE) Fellow, U.S. Army Medical Research Institute of Chemical Defense (USAMRICD) <i>Mentor:</i> John H. McDonough, PhD <u><i>Description:</i></u> 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, EEG data analyses, and significantly developed my laboratory management, mentorship, and scientific communication skills.
2012 – 2016 Towson, MD	Master's and Undergraduate Honors Thesis Student, Towson University <i>Mentor:</i> Paul Pistell, PhD <u><i>Master's Thesis Title:</i></u> The use of 3-nitropropionic acid to create a model of aging in mice <u><i>Undergraduate Honors Thesis Title:</i></u> Creation of a peripheral lesion model to examine age-associated learning and memory deficits in mice

2009 – 2011 Frederick, MD Fort Detrick	Student Intern Laboratory of Molecular Immunoregulation, The National Cancer Institute <i>Mentors:</i> Drs. Katie Stagliano and Arthur Hurwitz <i>Project:</i> Validation of a prostate-specific STAT3C expression construct
2012 – 2014 Towson, MD	Research Team Member Gender Identity and Sexuality Lab, Towson University <i>Mentor:</i> M. Paz Galupo, PhD

Grants

2025 (Awarded)	NIAAA F32: Astrocyte modulation of striatal neuronal activity and behavioral sensitivity to alcohol (AA032173-01)
2024 – Present	NIDA T32: Rutgers Training in Addiction Research Program (DA055569) , Dr. Christopher Pierce (Principal Investigator), Dr. Rafiq Huda (supervisor / mentor).
2022 – 2023	NIAAA T32: Training Grant on Genetic Aspects of Alcoholism (AA007462) , Dr. Cristine Czachowski (Principal Investigator), Drs. Nicholas Grahame and Christopher Lapish (supervisors / mentors).

Publications

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

- 1) **C. Ardinger**, Y. Chen, A. Kimbrough, N. J. Grahame, C. C. Lapish. (2024). Sex Differences in Neural Networks Recruited by Frontloaded Binge Alcohol Drinking. *Addiction Biology*. doi: 10.1111/adb.13434
- 2) N. M. Timme, **C. Ardinger**, S. D. C. Weir, R. Zelaya-Escobar, R. Kruger, C. C. Lapish (2023). Non-consummatory behavior signals predict aversion-resistance in head-fixed mice. *Neuropharmacology*. PMID: 37871677
- 3) **C. Ardinger**, C. C. Lapish, C. L. Czachowski, N. J. Grahame (2022). A Critical Review of Front-loading: A Maladaptive Drinking Pattern Driven by Alcohol's Rewarding Effects. *Alcoholism: Clinical and Experimental Research (ACER)*. PMID: 36239713.
 - **Awarded the 2023 ACER Journal Award for Early Career Investigator Outstanding Paper**
 - **Chosen by ACER as an Article of Public Interest!** ([link](#))
- 4) **C. Ardinger**, G. Winkler, C. C. Lapish, N. J. Grahame (2021). Effect of ketamine on binge drinking patterns in crossed high alcohol-preferring (cHAP) mice. *Alcohol*. PMID: 34547429
- 5) **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](#))
- 6) H. S. McCarren, M. Eisen, D. Nguyen, P. Dubee, **C. Ardinger**, E. Dunn, K. Haines, A. Santoro, P. Bodner, C. Oudek, 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
- 7) 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
- 8) 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

9) 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

10) 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

11) 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

12) 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

Pre-Prints

1) **C. Ardinger**, C. C. Lapish, D. N. Linsenbardt. (2024). Repeated Binge Alcohol Drinking Leads to Reductions in Corticostriatal Theta Coherence in Female but not Male Mice. *BioRxiv*. [pre-print].

Honors and Awards

Apr 2024	Rutgers Brain Health Institute Trainee Travel Award
Apr 2023	Research Society on Alcohol (RSA) Student Merit Award
Mar 2023	ACER Journal Award for Early Career Investigator Outstanding Paper Awarded for publication: A Critical Review of Front-loading: A Maladaptive Drinking Pattern Driven by Alcohol's Rewarding Effects. PMID: 36239713.
Dec 2022	Paul J. McKinley Graduate Student Award for Outreach, Public Engagement, and Diversity Awarded to IUPUI Addiction Neuroscience graduate students who display a dedication to service in these areas.
Apr 2022	Research Society on Alcoholism (RSA) Student Merit Award
Apr 2022	Best Graduate Student Poster, Greater Indiana Society for Neuroscience
Oct 2019	School of Science Graduate Student Council Travel Grant (IUPUI)
May 2019	Research Society on Alcoholism (RSA) Student Merit Award
Dec 2012-Present	Psi Chi , International Honors Society in Psychology, member
May 2013	Undergraduate Student Travel Award (Towson University)
Jan 2013	Undergraduate Research Grant (Towson University)

Symposium Organized

1) Front-loading your way to an AUD: The relationship between drinking rate, intoxication, and motivation to experience the subjective effects of alcohol (Jun 2022). *Research Society on Alcoholism* Conference round-table session. Orlando, FL. Organizer: **C. Ardinger**; Co-organizer: N. J. Grahame.

Talks

* Indicates invited talk

- 1) Front-loading: Evidence that mice consume alcohol to experience its subjective rewarding effects (Jun 2022). Presented at the *Research Society on Alcoholism* Conference, Orlando, FL.
- 2) *Alcohol binge drinking results in sex-specific effects on corticostriatal activity (May 2022). *Oak Ridge Institute for Science and Education (ORISE) seminar series at the United States Army Medical Research Institute of Chemical Defense (USAMRICD)*, Edgewood, MD.
- 3) 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*.
- 4) 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) **C. Ardinger**, A. Kalelkar, M. Mahboob, W. Evans, M. Bocarsly, R. Huda (June 2024). Dorsal striatum astrocytes modulate alcohol-related behaviors. Poster presented at the *Research Society on Alcohol Conference*, Minneapolis, MN.
- 2) **C. Ardinger**, Y. Chen, A. Kimbrough, N. J. Grahame, & C. C. Lapish (Feb 2024). Frontloading, Binge-drinking mice show sex differences in neural networks recruited by alcohol. Poster presented at the *Alcohol and the Nervous System Gordon Research Seminar and Conference*, Galveston, TX.
- 3) **C. Ardinger**, Y. Chen, A. Kimbrough, N. J. Grahame, & C. C. Lapish (Jun 2023). Leveraging whole brain imaging to identify brain regions involved in alcohol front-loading. Poster presented at the *Research Society on Alcohol Conference*, Bellevue, WA.
- 4) **C. Ardinger**, C. C. Lapish, N. J. Grahame, & D. N. Linsenbardt (Apr, Jun & Oct 2022). Sex differences in corticostriatal activity following repeated binge drinking. Poster presented at the *Greater Indiana Society for Neuroscience Conference*, Indianapolis, IN, *Research Society on Alcoholism Conference*, Orlando, FL and at the *Alcohol and the Nervous System Gordon Research Seminar and Conference*, Oxnard, CA.
 - **Awarded best graduate student poster, Greater Indiana Society for Neuroscience**
- 5) C. Rangel-Barajas, **C. Ardinger**, N. J. Grahame, S. L. Boehm, M. L. Logrip (Jun 2022). Disrupted synaptic transmission in the dorsomedial striatum after chronic alcohol consumption in the selectively bred crossed high alcohol-preferring mice. Poster presented at the *Research Society on Alcoholism Conference*, Orlando, FL.
- 6) G. A. Winkler, **C. Ardinger**, C. C. Lapish, J. C. Crabbe, & N. J. Grahame (Jun 2022). Free choice drinking increases subsequent drinking in the dark in crossed high alcohol-preferring x high drinking in the dark (cHAPxHDID) mice. Poster presented at the *Research Society on Alcoholism Conference*, Orlando, FL.
- 7) N. M. Timme, **C. Ardinger**, R. Zelaya-Escobar, S. D. C. Weir, J. A. Stewart, and C. C. Lapish (Jun 2022). Assessing aversion-resistant alcohol consumption in head-fixed mice. Poster presented at the *Research Society on Alcoholism Conference*, Orlando, FL.
- 8) 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*.
- 9) 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*.

- 10) **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.
- 11) **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.
- 12) **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.
- 13) 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.

Laboratory Skills / 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, Cambridge shanks, and neuropixels 1.0), 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: MedPC (data collection and code), 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 and basic microscopy to identify electrode and virus placement, iDISCO whole brain clearing and immunohistochemistry, light sheet microscopy.

Software Skills

Data Analysis and Presentation:

- MATLAB ([link to my Github](#))
- GraphPad Prism
- Python
- Adobe Photoshop
- SPSS
- Inkscape

Data Collection Software:

- OpenEphys (awake-behaving ephys)
- AnyMaze
- Spike2 (EEG recording software)
- FIJI
- Nikon NIS Elements (fluorescent microscopy)
- Inspector Pro (light sheet microscopy)

Service / Leadership

Dec 2020 – Present

Animal Research and Ethics Committee: Research Society on Alcohol
Member

Feb 2020 – Present	Ad Hoc Peer-Review <i>Journal of Neuroscience, Addiction Biology and Behavioural Processes.</i>
Aug 2021 – May 2023 IUPUI	Psychology Graduate Student Diversity Committee (GSDC) <i>Co-Chair</i>
Jun 2021 – May 2023 IUPUI	Graduate Out in Science, Technology, Engineering and Math (GoSTEM) <i>Secretary</i>
Aug 2021 – Aug 2022 IUPUI	Psychology Graduate Student Diversity Committee (GSDC) <i>Representative – Addiction Neuroscience</i>
May 2021 – May 2022	Supporting Truth About Animal Research (STAR) Committee <i>Research Society on Alcoholism Representative</i>

Mentoring and Community Outreach

June 2022	National Research Mentoring Network (NRMN) Level 1 Training: Entering Mentoring Training
Feb 2022	Indiana Science Communication Day Participant <u>Poster title:</u> Hit me with another shot, mice further understanding of binge drinking-induced brain changes
2019 - Present	Skype-a-Scientist <i>Guest Lecturer</i>

Teaching Experience

Fall 2020	IUPUI <i>Graduate Teaching Assistant: Systems Neuroscience (Psychology 301)</i> <i>Mentor: Charles Goodlett, PhD</i>
Spring 2019	IUPUI <i>Graduate Teaching Assistant: Service-Learning Capstone in Psychology (Psychology 456)</i> <i>Mentor: Katherine Adams, PhD</i>
Fall 2018 Spring 2018 Fall 2019	IUPUI <i>Graduate Instructor: Research Methods Laboratory (Psychology 312)</i> <i>Mentor: Robert Stewart, PhD</i>
Fall 2019	IUPUI <i>Graduate Teaching Assistant: Research Methods Lecture (Psychology 311)</i> <i>Mentor: Robert Stewart, PhD</i>
Fall 2017 Spring 2018	Towson University <i>Adjunct Professor: Behavioral Statistics (Psychology 212)</i>
Feb 2017 - Jul 2018	USAMRICD , within Dr. McDonough's laboratory <i>Surgery Trainer</i>
Spring 2016	Towson University <i>Graduate Teaching Assistant: Sex Differences (Psychology 447)</i> <i>Mentor: M. Paz Galupo, PhD</i>