

ANNA ISABELLA “IZZY” NEEL

Phone: (502) 507-0528 | Email: aneel@wakehealth.edu | Website: www.izzyneel.com

EDUCATION

- 2021 – Present **Wake Forest Graduate School of Arts and Sciences**, Winston-Salem, NC
Doctor of Philosophy, Integrative Physiology and Pharmacology
Dissertation Advisor: Rong Chen, PhD
- 2017 – 2020 **Centre College**, Danville, KY
Bachelor of Science, Behavioral Neuroscience
Research Advisor: Karin Gill, PhD

RESEARCH EXPERIENCE

- 2021 – Present **Graduate Research Assistant**, Wake Forest School of Medicine
Winston-Salem, NC
Laboratory of Rong Chen, PhD
Investigates the cellular and molecular mechanisms underlying substance use disorder, with a focus on lipid modulation of G protein-coupled receptors and monoamine transporters.
- 2018 – 2021 **Undergraduate Research Assistant**, Centre College
Danville, KY
Laboratory of Karin Gill, PhD
Investigated the modulation of sex hormones and G protein-coupled receptors on alcohol- and cocaine-seeking behaviors using Japanese quail as a model species.
- 2019 **Research Intern**, University of Kentucky Center on Drug and Alcohol Research
Lexington, KY
Administered cognitive and physiological assessments in human drug self-administration studies.
- 2019 **Research Intern**, Vanderbilt University Medical Center
Nashville, TN
Coordinated a clinical trial examining a novel stroke care design incorporating telemedicine into post-stroke care and a pilot study to link ambulance personnel with telehealth technology.

RESEARCH SUPPORT

- 2023 – 2026 **Graduate Research Fellowship Program (NSF GRFP)**, 2102417
National Science Foundation
September 1, 2023 – September 1, 2026
- 2022 – 2023 **Multidisciplinary Training in the Biology of Alcohol Addiction Program**, T32AA007565
National Institute of Alcohol Abuse and Alcoholism
July 1, 2022 – June 30, 2023

ACADEMIC PUBLICATIONS

- 2024 **Neel AI**, Wang Y, Liontis KE, McCormack MC, Sun H, Davenport A, Grant KA, Daunais JD, & Chen R (2024). Differential regulation of G protein-coupled receptor-associated proteins in the caudate and the putamen of cynomolgus macaques following chronic ethanol drinking. *Journal of Neurochemistry*. <https://doi.org/10.1111/jnc.16134>
*these authors contributed equally

- 2024 Walker NB, Tucker BR, Thomas LN, Tapp AE, Neel AI, Chen R, Jones SR, & Drenan R (2024). β 2* nAChR sensitivity modulates acquisition of cocaine self-administration in male rats. *Neuropharmacology*. <https://doi.org/10.1016/j.neuropharm.2024.109927>
- 2023 Paliarin F, Duplantis C, Jones A, Cucinello-Ragland J, Basavanhalli S, Blaze E, Dore E, **Neel AI**, Sun H, Chen R, Edwards S, Gilpin N, Messing R, & Maiya R (2023). A cre driver line for genetic targeting of kappa opioid receptor expressing cells in the brain. *eNeuro*. <https://doi.org/10.1523/ENEURO.0043-23.2023>
- 2023 Wang S*, **Neel AI***, Adams KL, Sun H, Jones SR, Howlett AC, & Chen R. (2023). Atorvastatin differentially regulates the interactions of cocaine and amphetamine with dopamine transporters. *Neuropharmacology*. <https://doi.org/10.1016/j.neuropharm.2022.109387>
*these authors contributed equally
- 2022 Gill KE, McGarrigle W, **Neel AI**, Tonto DWO, & Greenleaf K. (2022). D2 receptor antagonism enhances cocaine-induced behavioral sensitization in female Japanese quail. *Behavioural Pharmacology*. <https://doi.org/10.1097/FBP.0000000000000686>

ACADEMIC PRESENTATIONS

- 2024 **Neel AI**, West AM, Holter KM, Dawes MH, Lontis KE, Gould RW, Jones SR, & Chen R (2024, May 18). Membrane cholesterol depletion alters striatal dopamine homeostasis and dopamine-associated behavior [Conference session]. *American Society for Pharmacology and Experimental Therapeutics*, Arlington, VA.
- 2024 **Neel AI**, West AM, Dawes MH, Jones SR, Chen R. (2024, March 1). Acute cholesterol depletion alters accumbal dopamine terminal dynamics [Conference session]. *Wake Forest Annual Research Day*, Winston-Salem, NC.
- 2023 **Neel AI**, West AM, Dawes MH, Jones SR, Chen R. (2023, November 7). Acute cholesterol depletion alters accumbal dopamine terminal dynamics [Conference session]. *Wake Forest Center for Addiction Research Annual Retreat*, Winston-Salem, NC.
- 2023 **Neel AI**, West AM, Dawes MH, Jones SR, Chen R. (2023, August 20). Acute cholesterol depletion alters accumbal dopamine terminal dynamics [Conference session]. *Gordon Research Conferences: Catecholamines*, Castelldefels, Spain.
- 2023 **Neel AI**, Miller JD, Wang S, Wang Y, Li M, Mayer JC, Sun H., McCool B, Chen R. (2023, May 19). Chronic intermittent ethanol exposure induces spatial changes in lipid raft localization of G-proteins and their interacting proteins in rat prefrontal cortex [Conference session]. *American Society for Pharmacology and Experimental Therapeutics*, St. Louis, MO.
- 2022 Roberts JB, Wang S, Medrano M, **Neel AI**, Sun H, Chen R. (2022, April 5). Atorvastatin modulates the function and trafficking of dopamine transporters [Conference session]. *Experimental Biology – ASPET Division*, Philadelphia, PA.
- 2021 **Neel AI**, Roberts B, Maddux Z, Stone E, & Gill KE. (2021, April 22). Hormonal control of alcohol-induced aggression in male Japanese Quail [Conference session]. *Midwestern Psychological Association Conference*, Chicago, IL. *Canceled due to COVID-19
- 2021 **Neel AI**, Greenleaf K, & Gill KE. (2021, April 22). D2 receptor antagonism affects cocaine-induced behavioral sensitization in female Japanese quail [Conference session]. *Midwestern Psychological Association Conference*, Chicago, IL. *Canceled due to COVID-19

- 2021 **Neel AI**, Roberts B, Cochran K, Haering K, & Gill KE. (2021, April 22). The role of the 5-HT_{2A} receptor in cocaine-induced locomotor sensitization in Japanese Quail [Conference session]. *Midwestern Psychological Association Conference*, Chicago, IL. *Canceled due to COVID-19
- 2020 **Neel AI**, Greenleaf K, Tonto DWO, & Gill KE. (2020, November 9). D2 receptor antagonism affects cocaine-induced behavioral sensitization in female Japanese quail [Conference session]. *Kentucky Academy of Science Annual Conference*, virtual event.
- 2019 Crawley R, **Neel AI**, McCarson C, & Bledsoe R. (2019, June 18). C3FIT (Coordinated, collaborative, comprehensive, family-based, integrative, and technology-enabled care): A pragmatic, randomized trial for stroke care delivery to improve patient, caregiver, and family care [Conference session]. *Strategy Share '19*, Vanderbilt University Medical Center, Nashville, TN.
- 2019 **Neel AI**, Greenleaf K, Tonto DWO, & Gill KE. (2019, April 25). The effects of sex and D2 receptor antagonism on cocaine-induced locomotor activity in Japanese quail [Conference session]. *Midwestern Psychological Association Conference*, Chicago, IL.

AWARDS & HONORS

- 2024 **Student Organization Support (SOS) Committee Travel Award**
Wake Forest University School of Medicine
- 2024 **Graduate Student Travel Award**
American Society of Pharmacology and Experimental Therapeutics
- 2023 **Research presentation first place award**, Wake Forest Center for Addiction Research Retreat
“Acute cholesterol depletion alters accumbal dopamine terminal dynamics”
- 2023 **Daniel T. O’Connor Young Investigator Award**
Catecholamine Society
- 2023 **Graduate Student Travel Award**
American Society of Pharmacology and Experimental Therapeutics
- 2023 **Alumni Travel Award**
Wake Forest Biomedical Graduate Programs Office
- 2023 **Student Organization Support (SOS) Committee Travel Award**
Wake Forest University School of Medicine
- 2021 **Neuroscience Program Scholar**, University of Cincinnati
Summer Undergraduate Research Fellowship Program
- 2020 **Research presentation first place award**, Kentucky Academy of Sciences
Biochemistry & Physiology Division
“D2 receptor antagonism affects cocaine-induced behavioral sensitization in Japanese quail”

INVITED TALKS/PANELS

- 2023 **“Applying to External Fellowships”** – Invited Panel Discussion
Wake Forest University Graduate School of Arts and Sciences, Winston-Salem, NC
April 14, 2023
- 2021 **“The Neuroscience Behind Addiction”** – Invited Talk
Bethlehem High School, Bardstown, KY
March 17, 2021

SERVICE & OUTREACH

- 2023 – Present **Center for Addiction Research**, Wake Forest University School of Medicine
Executive Council Member
Helps attract and train new investigators, connect with regional communities, implement policy, and leverage resources for research on substance use disorder.
- 2023 – Present **Department of Translational Neuroscience**, Wake Forest University School of Medicine
Secretary, Student Committee
Responsible for maintaining accurate and organized records, facilitating communication among committee members, and providing administrative support to ensure the smooth operation of committee activities.
- 2022 – Present **Brain Awareness Council**, Wake Forest University School of Medicine
Member
Participates in monthly community outreach opportunities dedicated to educating elementary school students from low-income areas about topics related to neuroscience and the brain.
- 2022 – Present **Project SHORT**, remote position
Mentor
Participates in services such as personal statement feedback, school selection advice, mock interviews, and other components of the graduate school admissions process to students seeking enrollment to PhD programs.
- 2020 – 2021 **NIH HEALing Communities Initiative**, Boyle County, KY
Communications Champion
Responsible for preparing and disseminating informational material focused on harm reduction to the Boyle County area as a part of the NIH Helping End Addiction Long-Term initiative.

PROFESSIONAL AFFILIATIONS

- 2022 – Present **American Society for Pharmacology and Experimental Therapeutics (ASPET)**
Member
- 2022 – Present **The Catecholamine Society**
Communications Director
Manages social media presence by sharing announcements, events, and publications related to the Catecholamine Society.
- 2020 – Present **Nu Rho Psi**
The National Honor Society in Neuroscience
- 2020 – Present **Psi Chi**
The International Honor Society in Psychology
Served as Centre College chapter president.

TEACHING EXPERIENCE

- 2024 **GRAD 715: Career Planning in the Biomedical Sciences**
Teaching Assistant
- 2022 – 2024 **Biolympiads Advanced Neuroscience Instructional Camp**
Instructor
- 2020 – 2021 **Bethlehem High School**
Research Methods Teacher

MENTORSHIP

2024	Sarah Smith	UNC Chapel Hill	BS, Neuroscience
2023 – Present	Shannon Green	Wake Forest University	MS Thesis, Neuroscience
2023 – Present	Yutong Wang	Wake Forest University	BS, Biochemistry
2023 – Present	Katherine Liontis	Wake Forest University	BS, Biochemistry <i>*recipient of 2024 NIDA Summer Research Internship Program</i>
2023 – Present	Mary McCormack	Wake Forest University	BS, Biochemistry
2023 – Present	Corrine Li	Wake Forest University	BS, Biochemistry
2022 – Present	Caleb Mayer	Wake Forest University	MS Thesis, Biomedical Research
2022 – 2023	Leo Li	Wake Forest University	BS, Biochemistry
2022 – 2023	Reid Sudabby	Wake Forest University	BS Thesis, Biochemistry
2022 – 2023	Skye Chen	Wake Forest University	BS, Biochemistry
2022	Zee Kwong	Emory University	BS, Biochemistry
2022	Colin Gray	The Early College at Guilford	High School Student
2021 – 2023	Georgia Pitner	Wake Forest University	BS <i>Honors Thesis</i> , Biochemistry
2021 – 2023	PJ McPherson	Wake Forest University	BS, Biology
2021	Nick Karras	Wake Forest University	BS, Biochemistry
2020 – 2021	Kylie Cochran	Centre College	BS, Behavioral Neuroscience
2020 – 2021	Katy Haering	Centre College	BS, Behavioral Neuroscience
2020 – 2021	Lauren Chatfield	Centre College	BS, Behavioral Neuroscience
2019 – 2021	Brianna Roberts	Centre College	BS, Behavioral Neuroscience