Nicole Stigler

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Dedicated scientist passionate about researching the neural mechanisms underlying psychiatric disorders with the goal of advancing more precise and effective treatments for mental illness.

EDUCATION

Bachelor of Science, Neurobiology December 2024
Bachelor of Science, Psychology
University of Wisconsin–Madison
(GPA 4.00)

RESEARCH EXPERIENCE

Systems Neuroscience Lab of Dr. Jason Tucciarone Aug 2025-Present
Department of Psychiatry and Behavioral Sciences, Stanford University School of Medicine

- Investigating activation patterns of dopamine neuron subtypes during distinct phases of remifentanil self-administration in mice: early addiction, late addiction, withdrawal, and cue-induced reinstatement.

Depression Research Clinic of Dr. Alan Schatzberg Aug 2025-Present
Department of Psychiatry and Behavioral Sciences, Stanford University School of Medicine

- Contributing to high-impact clinical trials aimed at identifying and improving treatments for depression.
- Supporting protocol development, patient engagement, and outcome interpretation in a translational research setting bridging neuroscience and psychiatry.

Wenthur Lab of Dr. Cody J. Wenthur Jan 2024-Dec 2024
School of Pharmacy, University of Wisconsin–Madison
Improving mental healthcare through the development of new therapeutic treatment approaches, specifically those that include opioids, dissociative-hypnotics, psychedelics, and cannabinoids to treat depression, anxiety, overdose, and suicide.
Project 1: Ketamine Self-Administration

- Independently run ketamine self-administration experiments in rats vaccinated against either ketamine or (*2R,6R*)-hydroxynorketamine (HNK) with the goal of examining the differential abuse potential of these molecules.
- Utilize the Daun02 ablation technique to determine ketamine and HNK neuronal ensemble activation in the ventral tegmental area and its influence on drug-seeking behavior.

Project 2: Enzyme-linked immunosorbent assay (ELISA) to evaluate binding affinity

- Perform indirect and competitive ELISAs using rat serum from (*2R,6R*)-HNK- and ketamine-vaccinated rats to quantify immune generated antibody binding affinities.
- Run a series of ELISAs using various HNK monoclonal antibodies with different heavy chain-light chain combinations to select the most specific HNK monoclonal antibody for mass development.

Additional Projects and Data Analysis: Forced swim test in mice given enantiomeric- or (*2R,6R*)-HNK vaccine, Open field test in mice treated with various psychedelics, Brain tissue slicing

Berridge Lab: Neural Bases of Behavior of Dr. Craig W. Berridge Aug 2022-Dec 2023
Department of Psychology, University of Wisconsin–Madison
Mapping frontostriatal circuitry in sustained attention with the goal of discovering translationally relevant core processes underlying prefrontal cortex dependent cognition and dysfunction such as in attention deficit hyperactivity disorder.
Project 1: Corticotropin-releasing factor (CRF) neurons and receptors in sustained attention

- Conduct signal detection experiments in male and female rats six days a week.
- Administer subcutaneous injections of clozapine N-oxide, selectively modulating CRF neurons in the medial prefrontal cortex via chemogenetic Designer Receptors Activated Only by Designer Drugs (DREADDs).
- Assist in intracranial CRF infusions into the mediodorsal thalamus by holding the animal during the two minute infusion and two minute diffusion period.
- Perform vaginal lavage and cytology on female rats to determine their stage in the estrous cycle by examining relative number of epithelial cells, cornified cells, and leukocytes in wet samples.

Cognitive Development and Communication Lab of Dr. Martha W. Alibali Sep 2021-Jun 2022
Department of Psychology, University of Wisconsin–Madison
Understanding of the mechanisms of knowledge change in children's cognitive development, with a specific focus on mathematical reasoning and problem solving.
Project 1: Cultivating Knowledge of Mathematical Equivalence

- Assign children's equal sign definitions as relational, substitutive, or operational to categorize their conceptualization of the equal sign.
- Present findings at weekly Undergraduate Research Scholars seminars and collaborate with my peers in interdisciplinary research across campus.

Project 2: The role of visual representations in children learning about biological variability

- Function as the primary experimenter by leading one on one sessions with children via Zoom.
- Explain the life cycle and ask questions to probe how knowledge acquisition and transfer is affected by perceptually rich vs perceptually bland life cycle diagrams.

PRESENTATIONS & POSTERS

Differentiating the Role of (*2R,6R*)-Hydroxynorketamine in Ketamine's Rewarding and Fast-Acting Antidepressant Effects
Wisconsin Symposium on Emotion
University of Wisconsin–Madison
Spring 2025

Differentiating the Role of (*2R,6R*)-Hydroxynorketamine in Ketamine's Rewarding Effects
Upper Midwest Chapter of the Society for Neuroscience/Midwest Regional Neuroscience Conference
Lightning Talk Speaker
University of Wisconsin–Green Bay
Fall 2024

Differentiating the Role of (*2R,6R*)-Hydroxynorketamine in Ketamine's Rewarding and Fast-Acting Antidepressant Effects
Neuroscience Training Program Symposium
School of Pharmacy, University of Wisconsin–Madison
Fall 2024

Development of Ketamine Self-Administration Paradigm to Assess Effects of Vaccination against Hydroxynorketamine
Independent Project, Biology 152 Undergraduate Research Poster Symposium
School of Pharmacy, University of Wisconsin–Madison
Spring 2024

Cultivating Equivalence
Undergraduate Symposium
Department of Psychology, University of Wisconsin–Madison
Spring 2022

ABSTRACTS

Differentiating the Role of (*2R,6R*)-Hydroxynorketamine in Ketamine's Rewarding and Fast-Acting Antidepressant Effects
Psychedelic Symposium
School of Pharmacy, University of Wisconsin–Madison
Fall 2024

Differentiating the Role of (*2R,6R*)-Hydroxynorketamine in Ketamine's Rewarding Effects
MIKIW Medicinal Chemistry Conference
School of Pharmacy, University of Wisconsin–Madison
Spring 2024

AWARDS AND HONORS

Stanford University ADVANCE Undergraduate Institute Scholar	2025
Psychology Undergraduate Community Impact Award	2024
Undergraduate Travel Award–Fall	2024
Best Lightning Talk Award	2024

William F. Vilas Scholarship	2024
Dean's List	2021, 2022, 2023, 2024
AbbVie Possibilities Scholarship	2021, 2022, 2024
Bertha Voit Weinland Scholarship	2022
Bryan's Aspiring Psychology Student Award	2022

INDUSTRY EXPERIENCE

Clinical Trial Operations Student Intern - Study Management — May 2024-Aug 2024
AbbVie, Research and Development

- Oversee HARBOR study Stage A dose escalation of ABBV-916 to treat Alzheimer's Disease
- Plan for Stage B proof of concept by communicating internally and externally with principal investigators and vendors.
- Manage ARIA events tracker and MRI and PET screening data to ensure equitable access.

Medical Payer Strategy Student Intern - Value and Access — Jun 2023-Aug 2023
AbbVie, Medical Affairs

- Independently create MediPulse Brief on Major Depressive Disorder to educate employers on the disease state.
- Collaborate cross functionally to expand access to VRAYLAR® in Major Depressive and Bipolar Disorder.
- Work to get ABBV-951 drug and device combination therapy for Parkinson's Disease onto market by creating medical functional plan for the following year and organizing drug specific studies into a reactive resource for medical science liaisons.

COMMUNITY ENGAGEMENT

Research Now — 2024-2025
Founder and Speaker

Tech Equity for All: STEMposium for High School Girls — 2024
Volunteer Speaker

Madison East High School Science Exposition Advice Session — 2024
Volunteer Speaker

Mental Health Services, University of Wisconsin–Madison Health Services — 2022-2023
Student Advisory Board Member

National Alliance on Mental Illness — 2021-2023
Active Member, University of Wisconsin–Madison

Psychology Club 2021-2023
Active Member, University of Wisconsin–Madison

Promoting Awareness, Victim Empowerment 2021-2022
Peer Educator, University of Wisconsin–Madison

TEACHING EXPERIENCE

Teaching Specialist: Psych 505, Cognitive Neuroscience 2025
Department of Psychology, University of Wisconsin–Madison

Psych 607: Introduction to Psychotherapy Grader 2025
Department of Psychology, University of Wisconsin–Madison

Chem 343: Organic Chemistry I Exam Grader 2024
Department of Chemistry, University of Wisconsin–Madison

Behavioral Neuroscience Peer Facilitator 2023
Peer Learning Association, University of Wisconsin–Madison

Applied Statistics for the Life Sciences Tutor 2022
Department of Statistics, University of Wisconsin–Madison

TECHNICAL SKILLS

Handing Rats: subcutaneous injections, assistance with intracerebral cannula infusions, vaginal lavage, signal detection task, self-administration, splenectomy, blood collections
Handling Mice: intraperitoneal injection
Other: Enzyme-linked immunosorbent assays (ELISA), cryostat brain tissue slicing

Familiar Methods: DISSECTIV: "Determining the Identity of Species Supporting Expression of CNS-activity Through Incremental Vaccination," Chemogenetic DREADDs: "Designer Receptors Activated Only by Designer Drugs," Prism GraphPad 9.0, stereotaxic surgery, vaginal cytology

CERTIFICATIONS

Research Animal Resources and Compliance: Anesthesia, Aseptic Technique, Controlled Substances, General Handling, Subcutaneous Injections, Euthanasia – CO_2, Rat Training, Mouse Training, Surgery Fundamentals

CITI Program: Informed Consent, Subject Selection/Vulnerable Populations