Sydney Ragsdale

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EDUCATION & TRAINING

August 2024 – Present
Ph.D., Neuroscience (Advisor: Dr. Roberta Brinton)
Minor in Medical Pharmacology
University of Arizona (Tucson, AZ)

June 2020 – December 2023
B.S., Behavioral Neuroscience
Minors in Chemistry and Italian Studies
Florida State University (Tallahassee, FL)
Cumulative GPA: 3.692

HONORS, AWARDS, & FELLOWSHIPS

2025-2026 *Alzheimer's Translational Innovation Fellow:* Translational Research in Alzheimer's Disease and Related Dementias (AZ-TRADD) training grant
University of Arizona

2022-2023 Nu Rho Psi- National and Chapter Neuroscience Honor Society Member and Mentor
Florida State University

2020-2023 Garnet and Gold Honors Society Member
Florida State University

2020-2023 Dean's List
Florida State University

2020-2023 Bright Futures Medallion Scholar

RESEARCH EXPERIENCE

2025-Present **Doctoral Researcher Neuroscience GIDP** (Advisor: Dr. Roberta Diaz Brinton)
Center for Innovation in Brain Science (CIBS), University of Arizona, *Tucson, AZ*

Research Focus

- Investigation of women's brain health and Alzheimer's disease risk across the menopausal transition, with emphasis on endocrine aging and sex-specific mechanisms of neurodegeneration.
- Evaluation of timing- and formulation-dependent effects of menopausal hormone therapy in hAPP/APOE transgenic mouse models during perimenopause using clinically relevant hormone paradigms.
- Characterization of cellular and molecular mechanisms underlying hormone-dependent alterations in brain metabolism, synaptic integrity, neuroinflammation, and Alzheimer's disease–related pathology.

- Assessment of combination drug therapies to identify interactions between Alzheimer's disease–targeted therapeutics.
- Identification of cell-type–specific transcriptional responses to estrogen loss and replacement that contribute to neurodegenerative disease vulnerability.

Techniques

- Rodent surgical models: ovariectomy, estrogen pellet implantation, stereotaxic procedures.
- Reproductive staging: vaginal cytology collection, staging, and analysis to assess estrous cycle status and perimenopausal transition.
- Tissue processing: perfusion, brain extraction, cryoembedding, and cryostat sectioning.
- Molecular biology: RNA isolation and quantitative PCR (qPCR).
- Immunohistochemistry and quantitative imaging: multiplex immunolabeling with image analysis using ABBA, QuPath, and Fiji.
- Single-nucleus RNA sequencing (snRNA-seq): nuclei isolation and preparation, 10x Genomics library generation, and data visualization/analysis using Loupe Browser and R programming.
- Data analysis and statistics: GraphPad Prism and R Studio..

2023-2024 **Laboratory Technician/Research Scientist** (Advisor: Dr. Aaron Wilber)
Florida State University, *Tallahassee, FL*

- Full-time research technician supported by FLDOH and NIH R01 funding conducting Alzheimer's disease research.
- Led an independent project examining visuospatial navigation deficits and functional connectivity using behavioral assays integrated with resting-state fMRI and DTI in the TGF344 rat (National High Magnetic Field Laboratory).
- Contributed to project development and grant efforts investigating Dual Orexin Receptor Antagonist (DORA) effects on circadian sleep and glymphatic clearance in transgenic mouse models.
- Performed stereotaxic bilateral StimTrode surgeries targeting the medial forebrain bundle (MFB) in transgenic and WT mice for mesolimbic dopamine circuit stimulation.
- Independently conducted perfusions, brain extraction, tissue processing, sectioning, and immunohistochemistry (e.g., AT8/AT180, NeuN, 6E10, GFAP, IBA1, AQP4, Thioflavin S), with quantitative imaging using Zen Pro.
- Conducted behavioral and electrophysiological navigation assays assessing egocentric and allocentric memory; trained undergraduate researchers and performed data analyses using STAVIEW, SigmaPlot, GraphPad Prism, Excel, and Cheetah.

2022 **Undergraduate Research Assistant** (Advisor: Dr. Aaron Wilber)
Florida State University, *Tallahassee, FL*

- Conducted behavioral assays comparing transgenic and WT rats, including Plus Maze spatial navigation, sequence learning, and electrophysiology-based tasks assessing egocentric and allocentric memory.
- Performed animal handling and initiated immunohistochemical staining of transgenic rat and mouse brain tissue across multiple Alzheimer's disease–related projects.

PUBLICATIONS

1. **Ragsdale SM**, Radovich JM, Coiduras II, McCall WV, Grant SC, Lee C, Wilber A. Dual orexin receptor antagonists as promising therapeutics for Alzheimer's disease. NPJ Biol Timing Sleep. 2025;2(1):11. doi: 10.1038/s44323-025-00025-5. Epub 2025 Mar 8. PMID: 40066297; PMCID: PMC11890173.
2. Zheng 征亦诚 Y, Zhou 周信羽 X, Moseley SC, **Ragsdale SM**, Alday LJ, Wu 吴畏 W, Wilber AA. A Hippocampal–Parietal Network for Reference Frame Coordination. J Neurosci. 2025 Apr 23;45(17):e1782242025. doi: 10.1523/JNEUROSCI.1782-24.2025. PMID: 39909564; PMCID: PMC12019118.
3. Georgina Torrandell-Haro, Ph.D., Hannah Van Rossum, Ph.D., Anna Kalina Parker, BS, Mikaila Ann Bantugan, BS, Yuang Shang, Ph.D., Francesca Vitali, Ph.D., **Sydney Ragsdale, BS**, Bar Naiberg, BS, Melissa Garza, BS, Roberta Diaz Brinton, Ph.D. Combination Therapy of Immune Modulators and Metabolic Regulators Mitigates Early Alzheimer's Disease Risk Phenotypes in *hAPP/hAPOE* Mice (In preparation).
4. **S. M. Ragsdale**, J. Ogg , J. Radovich, E. Escobar, S. Moseley , A. Wilber, S. Grant. Longitudinal characterization of resting state fMRI, DTI, and action-place spatial learning in the TgF344-AD rat reveals impaired action-place learning emerging at 5-months. (In preparation).
5. A. Brea Guerrero, G. Manno, L. Alday, **S. M. Ragsdale**, S. Moseley, A. Wilber. Impaired Spatial Reorientation in 12-month female 3xTg-AD mice. (In preparation).
6. Stimmell, A. C.*, Alday, L. J.*, Marquez Diaz, J., Moseley, S. C., Cushing, S. D., **Ragsdale,S. M.**, Wilber, A. A. Resting After Learning Facilitates Memory Consolidation and Reverses Orientation Impairments in 'New Surroundings' in 3xTg-AD Mice (In Preparation)

POSTERS / POSTER PRESENTATIONS

1. *E. Salvador, ***S. M. Ragsdale**, J. Ogg, S. D. Cushing, S. C. Moseley, J. Radovich, S. C. Grant, W. V. McCall, C. Lee, A. A. Wilber. (*Contributed Equally). Increased sleep and high theta during sleep/wake transitions in young 3xTg mice may offer insight into early risk markers for progression to Alzheimer's Disease. *American Association for Geriatric Psychiatry 2024*.
2. **S. M. Ragsdale**, J. Ogg , J. Radovich, S. Moseley , A. Wilber, S. Grant. (in preparation). Longitudinal characterization of resting state fMRI, DTI, and action-place spatial learning in the TgF344-AD rat reveals impaired action-place learning emerging at 5-months. *Florida Consortium on the Neurobiology of Cognition 2024.*
3. **S. M. Ragsdale**, K.T. Hardin, J.M. Radovich, J. Ogg, E. Escobar, S. Moseley, S.C. Grant, A. Wilber. Longitudinal characterization of resting state fMRI, DTI, and action-place spatial learning in the TgF344-AD rat reveals impaired action-place learning emerging at 5-months. *Society for Neuroscience 2024*.
4. E. Salvador, **S.M. Ragsdale**, J. Ogg, I. Coiduras, A.B. Guerrera, S.D. Cushing, S.C. Moseley, W.V. McCall, C. Lee, A.A. Wilber. Altered sleep and low delta during sleep in young 3xTg mice and TgF344 rats may offer insight into early risk markers for progression to Alzheimer's Disease. *Society for Neuroscience 2024*.

5. R. Parmar, C.J. Stopera, **S.M. Ragsdale**, S.J. Sherman, T. Falk. Evaluating sex-specificity in the activity of subanesthetic ketamine to attenuate L-DOPA induced dyskenesia. *Society for Neuroscience 2024*.

ABSTRACTS

1. *E. Salvador, ***S. M. Ragsdale**, J. Ogg, S. D. Cushing, S. C. Moseley, J. Radovich, S. C. Grant, W. V. McCall, C. Lee, A. A. Wilber. (*Contributed Equally). Increased sleep and high theta during sleep/wake transitions in young 3xTg mice may offer insight into early risk markers for progression to Alzheimer's Disease. *American Association for Geriatric Psychiatry 2024*.
2. **S. M. Ragsdale**, K.T. Hardin, J.M. Radovich, J. Ogg, E. Escobar, S. Moseley, S.C. Grant, A. Wilber .Longitudinal characterization of resting state fMRI, DTI, and action-place spatial learning in the TgF344-AD rat reveals impaired action-place learning emerging at 5-months. *Society for Neuroscience 2024*.

3. E. Salvador, **S.M. Ragsdale**, J. Ogg, I. Coiduras, A.B. Guerrera, S.D. Cushing, S.C. Moseley, W.V. McCall, C. Lee, A.A. Wilber. Altered sleep and low delta during sleep in young 3xTg mice and TgF344 rats may offer insight into early risk markers for progression to Alzheimer's Disease. *Society for Neuroscience 2024*.

ADDITIONAL WORK EXPERIENCE

May 2022 – November 2022 **Server, Hangar 38**; *Tallahassee, FL*
Worked customer service, cash register, and food service in a privately owned restaurant.

May 2021 – August 2021 **Lead Store and Customer Service Representative, SeaWorld Orlando;** *Orlando, FL*
Worked closely with management and mass amounts of customers. By providing exemplary direction and aid, I was promoted to lead customer service representative in my department.

January 2021 – May 2021 **Librarian Assistant, FSU International Programs;** Florida State University, *Florence, Italy*
Aided students, faculty, and staff in the FSU Florence study center library. Additional duties included sorting through and uploading rare and historic book credentials into the University system.

TEACHING EXPERIENCE

2026 **Teaching Assistant**: University of Arizona
PSY342: *Dementias and Chronic Conditions in Older Adults*

2025 **Teaching Assistant**: University of Arizona
PSY342: *Dementias and Chronic Conditions in Older Adults*

2020 **Private Tutor**; *Orlando, FL*
Volunteered as a virtual tutor amidst the COVID-19 pandemic (Courses: Biology and Mathematics).

SERVICE

2022– 2023 **Mentor and Member, NuRhoPsi- Neuroscience Honors Society;** Florida State University, *Tallahassee, FL*
Served as a mentor and member of NuRhoPsi, a chapter of the National Neuroscience Honors Society. Tasks included being a mentor to underclassmen majoring in neuroscience by tutoring, giving research advice, scheduling meetings with professors and advisors, relaying deadlines, and attending various events and meetings such as the Brain Fair, Walk for Alzheimer's Disease, and professional workshops.

2021- 2023 **Volunteer and Foster, Smitten With Kittens**; *Tallahassee, FL*
Served hundreds of hours as a volunteer and foster for sick and orphaned kittens within the greater Tallahassee area. Tasks included administering medication orally and subcutaneously as needed, generally caring for kittens on a daily basis in my home, working with community members/volunteers, transporting kittens to veterinary clinics, and advertising to find kittens forever homes.

2021 **Graphic Design Editor, ItaliaNoles Magazine;** Florida State University, *Florence, Italy*
Worked as the main graphic design and layout editor for the ItaliaNoles magazine. Tasks included designing and formatting the school's magazine, initiating gatherings of service to support the community represented by the magazine production, and advertisement/publication.

CERTIFICATIONS

2022	CITI Training, Human Subjects Social and Behavioral Research
2022	IACUC Training Certification - Florida State University
2025	IACUC Training Certification - University of Arizona