

**WAKE FOREST SCHOOL OF MEDICINE**  
**Curriculum Vitae**

NAME Shannon L. Macauley-Rambach, Ph.D.

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Wake Forest School of Medicine  
Medical Center Boulevard  
Winston-Salem, NC 27157  
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smacaule@wakehealth.edu

EDUCATION

1999 Middlebury College  
Middlebury, VT  
BA/ Biology and Psychology  
  
Research Advisor: Abel Bult-Ito, PhD  
Senior Project: The role of vasoactive intestinal polypeptide and arginine-  
vasopressin in the regulation of circadian rhythms in the suprachiasmatic nuclei  
of *mus domesticus*

2009 Washington University School of Medicine  
Saint Louis, MO  
PhD/Neuroscience  
  
Research Advisor: Mark S. Sands, PhD  
Thesis: The role of astrocyte activation in infantile neuronal ceroid lipofuscinosis

POSTDOCTORAL TRAINING

2010 – 2011 Postdoctoral Research Associate, Washington University, Internal Medicine  
Research Advisor: Mark S. Sands, Ph.D.  
Research Project: Combination therapy for treating infantile neuronal ceroid  
lipofuscinosis

2011 – 2015 Postdoctoral Research Scholar, Washington University, Neurology  
Research Advisor: David M. Holtzman, M.D.  
Research Project: Elucidating the link between type-2-diabetes and Alzheimer's  
disease

EMPLOYMENT

Academic Appointments

Washington University School of Medicine  
2015 – 2016 Instructor, Department of Neurology  
2016 – 2017 Assistant Professor, Department of Neurology

Wake Forest School of Medicine  
2017 – present Assistant Professor, Department of Gerontology & Geriatric Medicine  
2017 – present Member, Center for Diabetes, Obesity, and Metabolism  
2017 – present Member, Sticht Center for Healthy Aging and Alzheimer's Prevention

2018 – present	Graduate School Faculty
2018 – present	Member, Neuroscience Program
2018 – present	Member, Integrative Physiology & Pharmacology Program
2018 – present	Member, Center for Precision Medicine
2019 – present	Member, Molecular & Cellular Biology Program
2018 – present	Member, Cardiovascular Sciences Center
2019 – present	Assistant Professor, Department of Physiology & Pharmacology
2021 – present	Assistant Professor, Biomedical Engineering

### Professional Experience

1998 – 1999	Neurobiology Research Assistant, Middlebury College, Middlebury, VT Research Project: Established the relationship between circadian behavior and the neuroanatomy of the suprachiasmatic nucleus using animal models
1999	Research Assistant, Immunology, Genzyme Corporation, Framingham, MA Research Project: Developed novel approaches to induce tolerance to therapeutic agents for the treatment of Fabry Disease
1999 – 2003	Research Associate, Neurobiology, Genzyme Corporation, Framingham, MA Research Project: Identified cellular mechanisms underlying pathological changes and functional deficits in lysosomal storage disorders in order to determine therapeutic endpoints for use in novel cell, protein, and gene therapy trials targeting the CNS
2016 – 2020	Consultant, Denali Therapeutics, San Francisco, CA

### ADMINISTRATIVE SERVICE

#### Institutional Service

2003 - 2006	Neuroscience Retreat Committee, Washington University, St Louis, MO Organizer
2004 - 2006	Student Advisory Committee, Washington University, St Louis, MO Member
2005 – 2007	Neuroscience Works in Progress Seminar, Washington University, St Louis, MO Founder
2006	BioMED Rap, Washington University, St Louis, MO Participant
2015	Diabetes and the Brain mini-series, Washington University, St Louis, MO Organizer
2017 – present	Neuroscience Program, Wake Forest School of Medicine, Winston Salem, NC Admissions committee member
2017 – present	Neuroscience Research Day, Wake Forest School of Medicine, Winston Salem, NC Judge
2019 – present	Translational Imaging Shared Resource Advisory Committee, Wake Forest School of Medicine, Winston Salem, NC

Member

- 2020 – present Integrative Physiology & Pharmacology Program, Wake Forest School of Medicine, Winston Salem, NC  
Admissions committee member
- 2020 – present ARP Director Search, Wake Forest School of Medicine, Winston Salem, NC  
Interview Committee Member
- 2020 – present ENGAGED Program, Wake Forest School of Medicine, Winston Salem, NC  
Faculty Mentor
- 2021 – present Research Plan Work Group – Strategic Planning for Alzheimer’s Disease Growth, Wake Forest School of Medicine, Winston Salem, NC
- 2021 – present Neurosciences Research Building – Focus Area Leaders Team, Wake Forest School of Medicine, Winston Salem, NC
- 2021 – present Opportunity Fund Work Group – Strategic Growth in Sleep and Biological Rhythms with Drs. Ruth Benca and Sara Jones, Wake Forest School of Medicine, Winston Salem, NC
- 2022 – present Center for Precision Medicine Leadership Team, Wake Forest School of Medicine, Winston Salem, NC

Departmental Service

- 2017 – present BRAAIN seminar (BRain Aging and Alzheimer’s disease Interest group), Wake Forest School of Medicine, Winston Salem, NC  
Founding member & Organizer
- 2018 – 2019 Internal Medicine Resident Research Meet & Greet  
Delegate
- 2019 – present Research Education Core - Alzheimer’s Disease Research Center, Wake Forest School of Medicine, Winston Salem, NC  
Co-Leader
- 2019 – 2020 Women in Medicine and Science (WIMS), Wake Forest School of Medicine, Winston Salem, NC  
Section Liaison
- 2020 – 2021 Daily Huddle for COVID Task Force for Geriatric Clinical and Research Leaders, Wake Forest School of Medicine, Winston Salem, NC  
Member
- 2020 – present Maintains twitter account for the Wake Forest Alzheimer’ Disease Research Center, Wake Forest School of Medicine, Winston Salem, NC  
Organizer & Content Liaison
- 2021 Mitochondrial Biologist Search Committee, Wake Forest School of Medicine, Winston Salem, NC  
Member

## EXTRAMURAL APPOINTMENTS AND SERVICE

### Funding Agency Reviewer

Knight ADRC – Washington University, DIAN Biospecimen Committee (Reviewer, October 2017 and June 2020)

Knight ADRC – Washington University, Development Project Committee (Reviewer, November 2019)

NIH: Cellular and Molecular Neurodegeneration Study Section (Ad hoc member, March 2020)

Noah's Hope - Hope 4 Bridget Foundation Review Panel (Member, June 2020)

NIH: Cellular and Molecular Neurodegeneration Study Section (Ad hoc member, November 2020)

NIH: Molecular and Cellular Causal Aspects of Alzheimer's Disease - (ZRG1 MDCN P (56)) Study Section (Ad hoc member, March 2021)

North Carolina Diabetes Research Center, Pilot Grant Review Committee (Reviewer, November 2021)

Weston Family Foundation (Reviewer, December 2021)

NIH: Behavioral Neuroendocrinology, Neuroimmunology, Rhythms and Sleep (BNRS) Study Section (Ad hoc member, June 2022)

### Editorial Boards

Guest Editor, Frontiers Aging Neuroscience, "Metabolic Signaling Dysregulation and Cognitive Impairments in Aging and Alzheimer's Disease," 2018-2019

Review Editor, Frontiers in Neuroscience, Frontiers in Neurology and Frontiers in Psychiatry (2020-Present)

Guest Editor, Frontiers Aging Neuroscience, "Metabolic Signaling Dysregulation and Cognitive Impairments in Aging and Alzheimer's Disease, Second Edition" 2021-2022

### Journal Reviewer

Nature Neuroscience  
Science Translational Medicine  
Journal of Experimental Medicine  
Brain  
Scientific Reports  
Glia  
PLoS One  
Proceedings of the National Academy of Science  
Experimental Neurology  
Neurobiology of Aging  
Journal of Alzheimer's Disease  
Science  
Neuron  
Journal of Clinical Investigation

Neurobiology of Disease  
Metabolism

Other

2016	Grant writer, American Neurological Association
2016	Abstract Reviewer, Alzheimer's Association International Conference
2017 – 2018	Adjunct Assistant Professor, Department of Neurology
2019	Faculty delegate, External Review for the Neuroscience Program, Wake Forest School of Medicine, Winston Salem, NC

PROFESSIONAL MEMBERSHIPS AND SERVICE

2000 – present	Society for Neuroscience Member
2003 – 2010	American Society of Gene & Cell Therapy Member
2014 – 2016	Association for Women in Science Member
2016 – present	American Diabetes Association Member
2021 – present	Charleston Conference on Alzheimer's Disease - Hawaii Organizing Committee, Member

HONORS AND AWARDS

2003	Vice President's Award, Genzyme Corporation, Framingham, MA
2004 – 2006	Fellow, Lucille P. Markey Special Emphasis Pathway in Human Pathobiology, Washington University, St Louis, MO
2009	J. Alfred Rider Memorial Research Award, Batten Disease Support & Research Association, Columbus, OH
2009	Travel Award, International Congress on Neuronal Ceroid Lipofuscinoses, Hamburg, Germany
2009	Invited Participant, National Graduate Student Research Festival, National Institute of Health, Bethesda, MD
2010	Travel Award, American Society of Gene & Cell Therapy Annual Meeting, Washington DC
2011	Hope Center Award for Translational Neuroscience, Washington University, St Louis, MO
2013	Travel Award, "Alzheimer's Disease – From Fundamental Insights to Light at the End of the Translational Tunnel," Keystone Symposia, Keystone, CO

2014	Hope Center Award for Translational Neuroscience, Washington University, St Louis, MO
2015	Charleston Conference on Alzheimer's Disease (CCAD) New Vision Award Winner, Charleston, SC
2019	Nominee, Outstanding Mentor Award, Neuroscience Program, Wake Forest School of Medicine, Winston Salem, NC
2019	Nominee, Outstanding Teacher Award, Neuroscience Program, Wake Forest School of Medicine, Winston Salem, NC
2020	Top 25 social media/twitter influencers for WFSM, Wake Forest School of Medicine, Winston Salem, NC
2021	Recipient, Outstanding Mentor Award, Neuroscience Program, Wake Forest School of Medicine, Winston Salem, NC

## GRANT FUNDING

### Currently Active Grants

R01 AG068330 (Macauley, PI) NIH/NIA Title: The metabolic interplay of sleep and Alzheimer's disease The goal of this project is to understand how changes in metabolism impact the relationship between sleep and Alzheimer's disease and whether metabolic dysfunction is a novel therapeutic target for treating Alzheimer's disease and sleep.	08/01/2020-07/31/25 \$477,889 /year direct cost
A20201775S (Macauley, PI) Bright Focus Foundation Title: K <sub>ATP</sub> channel inhibition as a modifier of tau pathology in Alzheimer's disease The goal of this grant is to demonstrate that low dose treatment with the K <sub>ATP</sub> channel antagonist, glyburide, reduces interstitial fluid (ISF) tau levels, tau related pathology, tau spreading, and neuritic plaque formation in models of with mixed A $\beta$ /tau pathology.	09/01/2020-08/31/2023 \$100,000 /year direct cost
K01AG050719 (Macauley, PI) NIA/NIH Title: Effects of Hyperglycemia on Neuronal Activity, Cerebral Metabolism, and A $\beta$ Levels The goal of this award is to understand how hyperglycemia affects brain health in the context of normal aging and amyloid-beta (A $\beta$ ) pathology. Furthermore, we will investigate whether brain K <sub>ATP</sub> channel modulation is necessary for hyperglycemia-dependent increases in A $\beta$ .	04/01/2016-03/31/2022 \$105,988 /year direct cost
WF-TARC Pilot Award (Macauley, PI, no salary requested) Wake Forest Translational Alcohol Research Center Title: Understanding the link between Alzheimer's disease and alcohol use disorder: the effects of acute ethanol on amyloid- $\beta$ and tau levels in the hippocampal interstitial fluid The goal of this pilot grant is to use in vivo microdialysis to assess how acute alcohol administration alters A $\beta$ and tau levels in mice with or without amyloid plaques and neurofibrillary tangles.	01/01/2020-12/31/2021 \$22,500/ year direct cost
ADRC Pilot Award (Macauley, PI, no salary requested) Wake Forest Alzheimer's Disease Research Center Title: Development of a rodent model for tau seeding and co-current tau/amyloid-beta pathology The goal of this grant is to create a rodent model of tau seeding and spread using tau aggregates	06/01/2020-05/31/2021 \$20,000/ year direct cost

isolated from human Alzheimer's disease brains to study its impact on AD-related pathology and function deficits.

R01AG061805 (Molina/ Deep, Co-PIs; Macauley, Col) 09/30/2018-04/30/2023  
NIA/NIH \$629,300 /year direct cost  
Title: Exosome Mediated Alterations in Cellular Metabolism in the Pathogenesis and Progression of Alzheimer's Disease  
The goal of this grant is to understand how circulating exosomes derived from AD patients affect systemic changes in cellular metabolism and whether these metabolic perturbations contribute to disease progression using mouse models of AD.

R01AG065839 (Solingapuram Sai, PI; Macauley, Col) 09/01/2019-08/31/2024  
NIA/NIH \$324,454 /year direct cost  
Title: Evaluating microtubule binding as a potential imaging biomarker for Alzheimer's disease  
The goal of this award is to create an innovative, clinically relevant AD targeting strategy using novel small molecule-based probes to image microtubule stability with positron emission tomography (PET) in rodent models of AD-related pathology.

R56AG069675 (Yadav, PI; Macauley, Col) 09/15/20-08/31/22  
NIH/NIA \$392,233  
Title: Gut microbiota-based biomarkers of Alzheimer's disease and its modulation by a ketogenic diet  
In this study, we proposed to 1) establish if the gut microbiota signature can predict MCI in humans, 2) determine whether gut microbiota signature can predict MMKD responders and nonresponders to ameliorate AD markers, and 3) assess whether gut microbiota mediates MMKD's beneficial effects to ameliorate AD pathology.

CTSI Pilot Award (Hugenschmidt, PI; Macauley, Col) 06/01/2020-05/31/2021  
Clinical & Translational Science Institute \$40,000/ year direct cost  
Title: Quantifying Synaptic Density in Human and Rodent Models Using a Novel PET Tracer  
The primary aim of this pilot proposal is to synthesize and validate [<sup>11</sup>C]UCB-J in the PET research center, validate it in a rodent model, and submit an RDRC application to approve human subjects use.

WF-TARC Supplement Col: Macauley (PI: Weiner) 08/05/2020 – 11/30/2020  
NIH/NIAAA \$384,750/direct costs  
*Supplement to existing P50 WF-TARC grant to study interaction between alcohol use disorders and Alzheimer's disease.* The goal of this administrative supplement is to determine whether excitatory synaptic function arising from ethanol exposure promotes the onset and progression of neuropathology and impairs in behavior and synaptic plasticity associated with AD.

ADRC Pilot Award (Gould, PI, Macauley, Col, no salary requested) 06/01/2021-05/31/2023  
Wake Forest Alzheimer's Disease Research Center \$50,000/ year  
Title: Examining the relationship between ethanol-induced sleep disruptions and development of Alzheimer's Disease-related pathology in APP/PS1 mouse model of AD

ADRC Pilot Award (Frye, PI, Macauley, Col, no salary requested) 06/01/2021-05/31/2022  
Wake Forest Alzheimer's Disease Research Center \$50,000/ year  
Title: Determining the Relationships of Sleep, CSF Biomarkers and Age in a Non-human Primate Model of Alzheimer's Disease

NCDRC Alzheimer's Supplement Grant (Kavanagh, PI, Macauley, Col) 07/01/2021-06/30/2022  
North Carolina Diabetics Research Center \$50,000/ year  
Title: Feeding the Diabetic Brain: Metabolic Risk for Alzheimer's Disease in Diabetic Nonhuman Primates

P30AG072947 (Craft, PI; Macauley, Col) 07/01/2021-06/30/2026

NIH/NIA \$2,009,681/year  
Alzheimer's Disease Research Center  
The Alzheimer's Disease Research Center (ADRC) was founded at Wake Forest School of Medicine (WFSM) in 2016 to provide a comprehensive infrastructure for research on the pathophysiology, prevention, and treatment of AD and related disorders (ADRD).

R24AG073199 (PI: Craft/Whitlow/Shively; Macauley, Col) 07/01/2021-06/30/2025  
NIH/NIA \$826,443  
Development of an Innovative Vervet (*Chlorocebus aethiops sabaues*) Model of Early Alzheimer's-like Neuropathology and Symptomatology  
The goal of this project is to establish a novel and promising model of late-onset sporadic Alzheimer's disease – the most common type – in vervet monkeys. Development of this novel animal model will yield insights into the causes and early neuropathology of Alzheimer's disease, and identify promising targets for early intervention that could alter the course of this devastating disease.

### Past Grant History

NIH F31 NS056718, Cellular pathology of Batten disease (Macauley, PI) 05/01/07 – 12/31/09 (\$28,097/year)

Batten Disease Support & Research Association Research Award, Activated astrocytes as therapeutic targets in INCL (Macauley, PI) 1/01/10 – 09/15/11 (\$40,000/yr)

NIH F32 NS080320, Effects of altered glucose utilization on A $\beta$  levels and functional connectivity (Macauley, PI) 04/01/2013 - 03/31/2016 (\$59,996/year)

Donor's Cure, Charleston Conference on Alzheimer's disease New Vision Award, Targeting the link between Alzheimer's disease and diabetes with K<sub>ATP</sub> channel modulators (Macauley, PI) 05/01/15-04/30/16 (\$50,000/yr)

McDonnell Center for Systems Neuroscience, Mapping glucose utilization in a mouse model of beta amyloidosis (Macauley/Bauer, Co-PIs) 07/01/2016-06/30/2019 (\$40,000/yr)

NC Diabetes Research Collaborative, Iron Overload in the Pathogenesis of Diabetes and Alzheimer's Disease: Untangling the web of nutritional interactions (Macauley/Jessica Han, Co-PI) 07/01/2018-06/30/2019 (\$25,000)

Harold and Mary Eagle Fund for Alzheimer's Research, ADRC Pilot Fund (Macauley, PI) 07/01/2018-06/30/2019 (\$10,000)

ADRC Pilot Fund, Novel exosome surface markers to assess pathological changes in specific brain regions during AD (Macauley, Co-I.; Gagan Deep, PI) 06/01/2019-05/31/2020 (\$20,000)

### BIBLIOGRAPHY

#### Peer-Reviewed Publications

1. **Macauley SL**, Horsch AD, Otterdoom M, Zheng MH, Stewart GR. The effects of transforming growth factor-beta-2 on dopaminergic graft survival. *Cell Transplant*. 2004;13(3):245-52.
2. Sleat DE, Wiseman JA, El-Banna M, Kim KH, Mao Q, Price S, **Macauley SL**, Sidman RL, Shen MM, Zhao Q, Passini MA, Davidson BL, Stewart GR, Lobel P. A mouse model of classical late-infantile neuronal ceroid lipofuscinosis based on targeted disruption of the CLN2 gene results in a loss of tripeptidyl-peptidase I activity and progressive neurodegeneration. *J Neurosci*. 2004 Oct 13;24(41):9117-26.



3. Shihabuddin LS, Numan S, Huff MR, Dodge JC, Clarke J, **Macauley SL**, Yang W, Taksir TV, Parsons G, Passini MA, Gage FH, Stewart GR. Intracerebral transplantation of adult mouse neural progenitor cells into the Niemann-Pick-A mouse leads to a marked decrease in lysosomal storage pathology. *J Neurosci*. 2004 Nov 24;24(47):10642-51.
4. Passini MA, **Macauley SL**, Huff MR, Taksir TV, Bu J, Wu IH, Piepenhagen PA, Dodge JC, Shihabuddin LS, O'Riordan CR, Schuchman EH, Stewart GR. AAV vector-mediated correction of brain pathology in a mouse model of Niemann-Pick A disease. *Mol Ther*. 2005 May;11(5):754-62.
5. Griffey M, **Macauley SL**, Ogilvie JM, Sands MS. AAV2-mediated ocular gene therapy for infantile neuronal ceroid lipofuscinosis. *Mol Ther*. 2005 Sep;12(3):413-21.
6. Lin D, Donsante A, **Macauley SL**, Levy B, Vogler C, Sands MS. CNS-directed AAV2/5-mediated gene therapy synergizes with myeloreductive BMT in the murine model of globoid-cell leukodystrophy. *Mol Ther*. 2007 Jan;15(1):44-52.
7. Kielar C., Maddox L, Bible E, Pontikis CC, **Macauley SL**, Griffey MA, Wong M, Sands MS, and Cooper JC. Neuron loss occurs in the thalamus before the cortex in a mouse model of infantile neuronal ceroid lipofuscinosis. *Neurobiol Dis*. 2007 Jan;25(1):150-62.
8. **Macauley SL\***, Sidman RL, Taksir TV, Schuchman EH, Stewart GR. Investigation of the structure-functional relationship in mouse model of Niemann-Pick A Disease. *Exp. Neurol*. 2008 Dec; 214(2):181-92. **\*Corresponding Author**
9. **Macauley SL** and Sands MS. Promising CNS-directed enzyme replacement therapy for lysosomal storage diseases. *Exp. Neurol*. 2009 Nov; 18(21).
10. **Macauley SL**, Wozniak D, Kielar C, Tang Y, Cooper JD, and Sands MS. Cerebellar pathology and motor deficits in the palmitoyl protein thioesterase 1 deficient mouse. *Exp. Neurol*. 2009 May;217(1):124-35.
11. Kielar C, Wishart TM, Palmer A, Dihanich S, **Macauley SL**, Sands MS, Pearce DA, Cooper JD, Gillingwater TH. Molecular correlates of axonal and synaptic pathology in mouse models of Batten disease. *Hum. Mol. Genet*. 2009 Nov 1;18(21):4066-80.
12. Reddy AS, Kim J, Hawkins-Salsbury J, **Macauley SL**, Tracy E, Vogler C, Han X, Song SK, Wozniak D, Fowler SC, Klein R, and Sands MS. Bone marrow transplantation augments the effect of brain- and spinal cord-directed AAV2/5 gene therapy by altering inflammation in the murine model of globoid-cell leukodystrophy *J Neurosci*. 2011 Jul 6;31(27):9945-57.
13. **Macauley SL**, Pekny M, Sands MS. The role of astrocyte activation in a mouse model of infantile neuronal ceroid lipofuscinosis. *J Neurosci*. 2011 Oct 26;31(43):15575-85.
14. Roberts MS\*, **Macauley SL\***, Roberts MS, Wong A, Yilmaz D, Hohm S, Cooper J, and Sands MS. Combination small molecule PPT1 mimetic and CNS-directed gene therapy as a treatment for infantile neuronal ceroid lipofuscinosis. *J Inherit Metab Dis*. 2012 Sep;35(5):847-57. **\*Co-first authors**
15. **Macauley SL**, Roberts MS, Wong A, Reddy AS, Cooper J, and Sands MS. Bone marrow transplantation dramatically increases the therapeutic benefit of CNS-directed AAV2/5 mediated gene therapy in infantile neuronal ceroid lipofuscinosis. *Ann Neurol*. 2012 Jun;71(6):797-804.
16. **Macauley SL**, Wong AMS, Shyng C, Augner DP, Dearborn JT, Pearse Y, Roberts MS, Fowler SC, Cooper JD, Watterson DM, and Sands MS. An anti-neuroinflammatory that targets dysregulated glia enhances the efficacy of CNS-directed gene therapy in murine infantile neuronal ceroid lipofuscinosis. *J Neurosci*. 2014 Sep 24;34(39):13077-82.
17. **Macauley SL** and Holtzman DM. Recent advances from the bench toward the bedside in Alzheimer's disease. *EBioMedicine*. 2015 Feb;2(2): 94-95.
18. **Macauley SL**, Stanley M, Caesar EE, Yamada SA, Raichle ME, Perez R, Mahan TE, Sutphen CL, Holtzman DM. Hyperglycemia modulates extracellular amyloid- $\beta$  concentrations and neuronal activity in vivo. *J Clin Invest*. 2015 Jun;125(6):2463-7.
19. Harris RA, Tindale L, Lone A, Singh O, **Macauley SL**, Stanley M, Holtzman DM, Bartha R, and Cumming RC. Aerobic glycolysis in the frontal cortex correlates with memory performance in wild-type mice but not the APP/PS1 mouse model of cerebral amyloidosis. *J. Neurosci*. 2016 Feb 10;36(6):1871-8.

20. **Macauley SL.** Combination Therapies for Lysosomal Storage Diseases: A Complex Answer to a Simple Problem. *Pediatr Endocrinol Rev.* 2016 Jun 13; 1:639-48.
21. Stanley M, **Macauley SL**, and Holtzman DM. Changes in insulin and insulin signaling in Alzheimer's disease: cause or consequence? *J Exp Med.* 2016 Jul 25;213(8):1375-85.
22. Stanley M, **Macauley SL**, Caesar EE, Koscal LJ, Moritz W, Robinson GO, Roh J, Keyser J, Jiang H, and Holtzman DM. The effects of peripheral and central high insulin on brain insulin signaling and amyloid-beta in young and old APP/PS1 mice. *J Neurosci.* 2016 Nov 16;36(46):11704-11715.
23. Shyng C, **Macauley SL**, Dearborn JT, and Sands MS. Widespread expression of a membrane-tethered version of the soluble lysosomal enzyme palmitoyl protein thioesterase-1. *JIMD Rep.* 2017 Feb 18.
24. Ju Y S, Ooms SJ, Sutphen C, **Macauley SL**, Zangrilli M, Jerome G, Fagan AM, Mignot E, Zempel JM, Claassen JAHR, and Holtzman DM. Slow wave sleep disruption increased cerebrospinal fluid amyloid-beta levels. *Brain.* 2017 Aug 1;140(8):2104-2111.
25. Arnold SE, Arvanitakis Z, **Macauley-Rambach SL**, Koenig AM, Wang HY, Ahima RS, Craft S, Gandy S, Buettner C, Stoekel LE, Holtzman DM, Nathan DM. Brain insulin resistance in type 2 diabetes and Alzheimer disease: concepts and conundrums. *Nat Rev Neurol.* 2018 Mar;14(3):168-181.
26. Day SE, Yang W, Stern J, Zhou X, **Macauley SL**, and Ma T. Glucagon-like peptide-1 cleavage product improves cognitive function in a mouse model of Down syndrome. *eNeuro.* 2019 Mar/Apr;6(2).
27. Bashore AC, Liu M, Key CC, Boudyguina E, Wang X, Carroll CM, Sawyer JK, Mullick AE, Lee RG, **Macauley SL**, Parks JS. Targeted Deletion of Hepatocyte Abca1 Increases Plasma HDL (High-Density Lipoprotein) Reverse Cholesterol Transport via the LDL (Low-Density Lipoprotein) Receptor. *Arterioscler Thromb Vasc Biol.* 2019 Jun 6;
28. Kavanagh K, Day SM, Pait MC, Mortiz WR, Newgard CB, Ilkayeva O, McClain DA, **Macauley SL.** Type-2-diabetes Alters CSF but not Plasma Metabolomic and AD Risk Profiles in Vervet Monkeys. *Front Neurosci.* 2019 Aug 28;13:843.
29. Carroll CM and **Macauley SL.** The interaction between sleep and metabolism in Alzheimer's disease: cause or consequence of disease? *Front Aging Neurosci.* 2019 Sep 20;11:258.
30. Damuka N, Czoty PW, Davis AT, Nader MA, Nader SH, Craft S, **Macauley SL**, Galbo LK, Epperly PM, Whitlow CT, Davenport AT, Martin TJ, Daunais JB, Mintz A, and Solingapuram Sai KK. PET imaging of [11C]MPC-6827, a microtubule-based radiotracer in non-human primate brains. *Molecules.* 2020 May 13;25(10):E2289.
31. Gibson EM, Bennet FC, Gillespie SM, Guler AD, Gutmann DH, Halpern CH, Kucenas SC, Kushida CA, Lemieux M, Liddelov S, **Macauley SL**, Li TQ, Quinn M, Roberts, LW, Saligrama N, Taylor K, Venkatesh H, Yalcin B, and Zuchero JB. How support of early career researchers can reset science in the post-COVID19 world. *Cell.* June 2020.
32. Frye BM, Craft S, Laitmer CS, Keene CD, Montine TJ, Register RC, Orr ME, Kavanagh K, **Macauley SL**, Shively CA. "Aging related Alzheimer's disease-like neuropathology and functional decline in captive vervet monkeys (*Chlorocebus aethiops sabaesus*). *American Journal of Primatology.* 2021. In press.
33. Damuka N, Orr M, Czoty PW, Weiner JL, Martin TJ, Nader MA, Bansode AH, Liyana Pathirannahel BS, Mintz A, **Macauley SL**, Craft S, Solingapuram Sai KK. Effect of ethanol and cocaine on [11C]MPC-6827 uptake in SH-SY5Y cells. *Mol Biol Rep.* 2021
34. **Macauley SL\***, Stanley M, Caesar EE, Mortiz WR, Bice AR, Cruz-Diaz N, Carrol CM, Day SM, Grizzanti J, Mahan TE, Snipes JA, Orr TC, Culver JP, Remedi MS, Nichols CG, Karch CM, Cox LA, Diz DI, Bauer AQ, Holtzman DM. Sulfonylureas target the neurovascular response to decrease Alzheimer's pathology. *BioRxiv.* doi: <https://doi.org/10.1101/2021.08.11.455969>  
**\*Corresponding Author**  
**\*\*Under revisions at *Journal of Clinical Investigation* (impact factor = 14.81)**
35. Rosene MJ, Hsu S, You SF, Brase L, Verbeck A, Martinez R, Wallace CE, Li A, Yan P, Drager NM, Sattler SM, Iyer AK, **Macauley SL**, Holtzman DM, Benitez BA, Kampmann M, Cruchaga C, Harari O, Cirrito JR, Lee JM, Goate AM, Karch CM. Phospholipase D3 contributes to Alzheimer's disease risk via disruption of A $\beta$  clearance and microglia response to amyloid plaques. *MedRxiv.* doi:

<https://doi.org/10.1101/2022.01.31.22270175> \*Under review at *Science Translational Medicine* (impact factor = 17.99)

36. Grizzanti J, Moritz WR, Pait MC, Stanley M, Kaye SD, Carroll CM, Constantino NJ, Deitelzweig LJ, Nicol N, Snipes JA, Keller D, Caesar EE, Dhillon J, Remedi MS, Karch CM, Nichols CG, Holtzman DM, **Macauley SL**. Kir6.2-containing KATP channels are necessary for glucose dependent increases in amyloid-beta and Alzheimer's-related pathology. *bioRxiv* 2022.02.20.481215; doi: <https://doi.org/10.1101/2022.02.20.481215>
37. Gironda SC, Day SM, Clarke CW, Snipes JA, Nicol NI, Kamran H, Vaughan W, **Macauley SL\***, Jeff L Weiner JL\*. Ethanol exposure alters Alzheimer's-related pathology, behavior, and metabolism. *BioRxiv*. <https://doi.org/10.1101/2022.02.18.481066>  
**\*Co-Corresponding Authors**

#### PRESENTATIONS AT PROFESSIONAL MEETINGS

1. Numan S, Huff MR, **Macauley SL**, Ziegler R, Cheng S, Stewart GR. Optimizing viral vector-based gene therapy to the brain: a comparative study of intracranial delivery systems and approaches. Society for Neuroscience Meeting, New Orleans, LO, 2000.
2. **Macauley SL**, Otterdoom M, Horsch AD, Zheng M, Stewart GR. The effects of TGF- $\beta$  on dopaminergic graft survival. American Society for Neural Transplantation and Repair Meeting, Coldwater, FL, 2001.
3. **Macauley SL**, Shihabuddin LS, Schuchman, EH, Mervis RF, Taksir T, Stewart GR. Neuropathology of Niemann-Pick A (ASMKO) mouse. Society for Neuroscience Meeting, Orlando, FL, 2002.
4. Stewart GR, Schuchman, **Macauley SL**. Behavioral pathology of the Niemann-Pick A (ASMKO) mouse: structure-function studies on Purkinje cell degeneration. Society for Neuroscience Meeting, Orlando, FL, 2002.
5. Switzer III RC, **Macauley SL**, Schuchman EH, Griffey M, Sands M, Stewart GR. Comparative pathology of neurometabolic disease animal models using silver degeneration staining: Infantile Batten (PPT1), Krabbe (twitcher), and Niemann-Pick A (ASMKO). Society for Neuroscience Meeting, Orlando, FL, 2002.
6. Passini MA, **Macauley SL**, Huff MR, Taksir TV, Yew NS, O'Riordan CR, Schuchman EH, Stewart GR. Widespread gene delivery and reversal of pathology in the brains of Niemann-Pick A mice by retrograde axonal transport of a therapeutic AAV vector. Society for Neuroscience Meeting, New Orleans, LO, 2003.
7. Shihabuddin LS, Huff MR, **Macauley SL**, Clarke J, Parsons G, Taksir TV, Gage FH, Stewart GR. Intracerebral transplantation of adult mouse neural progenitor cells into Niemann-Pick A mouse leads to marked decrease in storage deposits. Society for Neuroscience Meeting, New Orleans, LO, 2003.
8. Bu J, Dodge JC, Zhao Q, Barbon CM, Song AN, Collins HA, Taksir TV, Griffiths DA, **Macauley SL**, O'Riordan CR, Stewart GR, Passini MA. Restoration of cerebellar motor function and global reduction of sphingomyelin storage in the Niemann-Pick A brain after intracranial injection of recombinant AAV stereotypic 1. Society for Neuroscience Meeting, San Diego, CA, 2004.
9. Stewart GR, **Macauley SL**, Mao Q, Davidson BL, Passini MA, Chang M, Sidman RL, Wiseman JA, Elbanna M, Kim K, Price S, Shen MM, Sleat DE, Lobel P. A mouse model of late infantile neuronal ceroid lipofuscinosis (LINCL) based on targeted disruption of the CLN2 gene. Society for Neuroscience Meeting, San Diego, CA, 2004.
10. Zhao Q, **Macauley SL**, Raben N, Mattaliano R, Stewart GR. Neuropathology in a muscle-wasting disease: observations from the 6neo/neo mouse model of Pompe Disease. Society for Neuroscience Meeting, San Diego, CA, 2004.
11. **Macauley SL**, Ness JK, Lee C, Snider BJ, Green SH, Sands MS, Goldberg MP. Lentiviral vector expression of GFP in cultured oligodendrocytes. Society for Neuroscience Meeting, San Diego, CA, 2004.

12. **Macauley SL**, Griffey M, Bible E, Vogler C, Wong M, Rothman S, Wozniak D, Cooper J, Sands MS. Chronic inflammation and its contribution to neurodegeneration in Batten disease: Implications for therapy. Society for Neuroscience Meeting, Washington, DC, 2005.
13. **Macauley SL**, Vogler C, Wozniak D, and Sands MS. The relationship between cerebellar pathology and motor deficits in the PPT1<sup>-/-</sup> mouse model of INCL. International Council on Batten Disease, Rochester, NY 2007.
14. **Macauley SL**, Reddy AS, Pekny M, and Sands MS. The role of astrocyte activation in an inherited model of neurodegenerative disease. Glia in Health & Disease Meeting, Cold Spring Harbor, NY 2008.
15. **Macauley SL**, Reddy AS, Pekny M, and Sands MS. The role of astrocyte activation in infantile neuronal ceroid lipofuscinosis. 12th International Congress on NCL, Hamburg, Germany, 2009.
16. **Macauley SL**, Roberts MS, and Sands MS. Combination therapy for the treatment of infantile neuronal ceroid lipofuscinosis (INCL). American Society of Gene & Cell Therapy Meeting, Washington, DC, 2010.
17. **Macauley SL**, Roberts MS, Hohm SA, Reddy AS, Cooper JD, and Sands MS. Therapeutic approaches for the treatment of infantile neuronal ceroid lipofuscinosis. WORLD symposium, Las Vegas, NV. 2011.
18. **Macauley SL**, Roberts MS, Wong A, Reddy AS, Cooper JD, and Sands MS. AAV2/5-mediated gene therapy synergizes with bone marrow transplantation in the treatment of infantile neuronal ceroid lipofuscinosis. Society for Neuroscience, Washington, DC, 2011.
19. **Macauley SL**, Yamada SA, Stanley M, Perez R, Mahan TE, and Holtzman DM. The effects of systemic hyperglycemia on amyloid-beta levels within brain interstitial fluid. Keystone Conference, CO, 2014.
20. **Macauley SL**, Stanley M, Caesar EE, Yamada SA, Raichle ME, Perez R, Mahan TE, and Holtzman DM. Hyperglycemia modulates extracellular amyloid-beta levels and neuronal activity in vivo. AD/PD, Nice, France, 2015.
21. **Macauley SL**, Caesar EE, Stanley M, Moritz WR, Mahan TE, and Holtzman DE. Chronic treatment with sulfonylurea, glyburide, reduces amyloid-beta pathology in the APP<sup>swe</sup>/PSEN1<sup>dE9</sup> mouse model of Alzheimer's disease. American Diabetes Association Meeting, June 2016, New Orleans, LA.
22. **Macauley SL**, Bauer AQ, Moritz W, Caesar EE, Sasaki Y, Mahan TE, and Holtzman DM. Chronic treatment with the sulfonylurea, glyburide, decreases Alzheimer's disease pathology by altering neurovascular coupling, neuronal activity, CNS metabolism, and amyloid- $\beta$  production. Society for Neuroscience, Washington, DC, 2017.
23. **Macauley SL**, Moritz W, Caesar EE, Stanley M, Bauer AQ, and Holtzman DM. Chronic treatment with the sulfonylurea, glyburide, decreases Alzheimer's disease pathology by attenuating activity dependent hemodynamic responses and amyloid- $\beta$  production. World Molecular Imaging Congress, Seattle, WA, 2018.
24. Pait M, Moritz WR, Carroll CM, Stanley M, Winkey K, Hollingsworth C, Remedi MS, Yuede CM, Nichols C, Holtzman DM, and **Macauley SL**. In vivo deletion of Kir6.2 in a APP/PS1 mouse model abolishes hyperglycemic increase in interstitial fluid amyloid-beta but does not affect brain plaque burden. Society for Neuroscience, San Diego, CA, 2018.
25. Carroll CM, Stanley M, Pait M, Hollingsworth C, Holtzman DM, and **Macauley SL**. The effect of glycemic changes on brain metabolism and sleep/wake in vivo using biosensor technology. Society for Neuroscience, San Diego, CA, 2018.
26. Kumar JSD, Kim J, Castrillon J, Molotkov A, Dileep H, Duff K, Schneider N. **Macauley SL**, Craft S, Milligan C, Mann JJ, Mintz A, and Solignapuram Sai KK. In vivo evaluation of microtubule PET ligand [<sup>11</sup>C]MPC-6827 in animal models of neurodegenerative disorders. Society of Nuclear Medicine & Molecular Imaging, Anaheim, CA, 2019.
27. Carroll CM, Stanley M, Rubinow D, Golias C, Holtzman, DM, **Macauley SL**. Effect of glycemic extremes on sleep/wake and Alzheimer's disease pathophysiology. Sleep 2019, San Antonio, TX, 2019.
28. Solingapuram Sai KK, Whitlow CT, Kumar JSD, Craft S, Mintz A, **Macauley SL**. *In Vivo* Evaluations of

Microtubule-Based PET Radiotracer, [11c]MPC-6827 in Murine Models of Alzheimer's Disease. Alzheimer's Association International Conference, Los Angeles, CA, 2019.

29. Day SM, Pait M, Mortiz WR, Newgard C, Ilkayeva O, McClain D, Kavanagh K, **Macauley SL**. Type-2-diabetes Alters CSF but not plasma metabolomic and AD risk profiles in vervet Monkeys. Society for Neuroscience, Chicago, IL, 2019.
30. Rubinow DA, Sink S, Odelade A, Golias C, Snipes A, Day SM, McClain DA, Han J, **Macauley SL**. Genetic and Dietary Iron Overload in the Pathogenesis of Type-2-Diabetes and Alzheimer's Disease. Society for Neuroscience, Chicago, IL, 2019.
31. Cruz-Diaz, N, Snipes A, Diz D, Macauley SL. Glyburide treatment improves aortic arch pulse wave velocity in a murine model of Alzheimer's disease. American Heart Association virtual meeting, 2020.
32. Pait MC, Su Y, Snipes JA, Deep G, **Macauley SL**. Alzheimer's-related pathology modulates exosomes in the hippocampal interstitial fluid. Alzheimer's Association International Conference: Neuroscience Next, 2020.
33. Carroll CM, Stanley M, **Macauley SL**. The relationship between disrupted metabolism and sleep is altered by the presence of amyloid-beta pathology. Alzheimer's Association International Conference: Neuroscience Next, 2020.
34. Grizzanti J, Karch CM, Cox LA, Holtzman DM, **Macauley SL**. Systemic glyburide treatment normalizes aberrant gene expression in female APP/PS1 mice. Alzheimer's Association International Conference: Neuroscience Next, 2020.
35. Day SM, **Macauley SL**. Alcohol use disorder as a risk factor for Alzheimer's disease. Alzheimer's Association International Conference: Neuroscience Next, 2020.
36. Deitzelzweig LJ, Pait MC, Carroll CM, Yuede CM, Holtzman DM, **Macauley SL**. Elucidating the link between Alzheimer's Disease and Type 2 Diabetes: Kir6.2-/- APP/PS1 exhibit behavioral deficits without an increase in amyloid-beta plaque load. Alzheimer's Association International Conference: Neuroscience Next, 2020.
37. Pait MC, Kaye S, Su Y, Snipes JA, Lee J, Furdui C, Deep G, **Macauley SL**. Novel method for isolating extracellular vesicles from hippocampal interstitial fluid in Alzheimer's disease. International Society for Extracellular Vesicles Conference, Oral Presentation, 2021.
38. Carroll CM, Stanley M, McArdle C, Snipes A, Gould R, **Macauley SL**. Differential effects of acute hyperglycemia and amyloid-beta pathology on sleep and cerebral metabolism. Alzheimer's Association International Conference, 2021.
39. Day SM, Snipes JA, **Macauley SL**. Effects of an acute ethanol exposure on amyloid- $\beta$  in APP/PS1 mice. Alzheimer's Association International Conference, 2021.

#### INVITED EXTRAMURAL PRESENTATIONS AND SEMINARS

1. 2009, The role of astrocyte activation in infantile neuronal ceroid lipofuscinosis. 12<sup>th</sup> International Congress on NCL, Hamburg, Germany
2. 2009, Batten Disease Research and Support Association's Annual Family Meeting, St. Louis, MO
3. 2016, Exploring the link between Alzheimer's disease and diabetes Novo Nordisk, Copenhagen, Denmark
4. 2016, Understanding the link between Alzheimer's disease and diabetes: biological mechanisms to therapeutic intervention, Denali Therapeutics, San Francisco, CA
5. 2016, Third Biennial NRI Symposium entitled "Neurodegeneration: cellular concepts to clinical applications", Houston, TX

6. 2017, Understanding the role of  $K_{ATP}$  channels in Alzheimer's disease: the road from pathology to treatment, Charleston Conference on Alzheimer's Disease, Charleston, SC
7. 2017, Chan Zuckerberg Initiative Workshop on Neurodegeneration, San Francisco, CA
8. 2017, NIDDK's workshop on "Mechanisms of Insulin Resistance in the CNS and periphery", NYC, NY
9. 2018, Understanding the role of  $K_{ATP}$  channels in Alzheimer's disease and Type-2-Diabetes: the road from pathology to treatment, Gordon Research Conference – Neurobiology of Brain Disorders, Castelldefels, Spain
10. 2019, Understanding the relationship between Alzheimer's disease and diabetes: The role of  $K_{ATP}$  channel inhibition in pathology and treatment, National Institute on Aging - Biomedical Research Center, Bethesda, MD
11. 2019, Iron Overload in the Pathogenesis of Diabetes and Alzheimer's Disease: Untangling the web of nutritional interaction, NC Diabetes Regional Consortium Meeting, Greensboro, NC
12. 2019, Understanding the relationship between Alzheimer's disease and diabetes: The role of  $K_{ATP}$  channel inhibition in pathology and treatment, Mayo Clinic, Jacksonville, FL
13. 2019, Alzheimer's Disease and Diabetes: the metabolic interplay of two disparate diseases, Brain & Brain PET 2019, Yokohama, Japan
14. 2020, Understanding the link between type-2-diabetes and Alzheimer's disease, University of North Carolina, Charlotte, NC
15. 2020, Targeting vascular  $K_{ATP}$  channel activity in Alzheimer's Disease, Alzheimer's Afternoons, virtual seminar series on Alzheimer's disease
16. 2020, Panel Discussion on "How support of early career researchers can reset science in the post-COVID19 world", ATS Pulmonary Circulation Assembly
17. 2021, Metabolism, Excitability, and Alzheimer's disease, University of Florida, Gainesville, FL
18. 2021, The metabolic interplay between sleep and Alzheimer's disease, University of Kentucky, Lexington, KY
19. 2021, Metabolism, Excitability, and Alzheimer's disease, University of North Carolina – Charlotte, Charlotte, NC
20. 2022,  $K_{ATP}$  channel activity links type-2-diabetes and Alzheimer's disease, University of Virginia, Charlottesville, VA
21. 2022, Glycemic Variability, Sleep, and Alzheimer's disease, St Louis University, St Louis, MO
22. 2022, The metabolic interplay of sleep and Alzheimer's disease, University of North Carolina – Greensboro, Greensboro, NC
23. 2022, Metabolism, Excitability, and Alzheimer's disease, Kansas State, Manhattan, KS
24. 2022, Sulfonylureas modulate vascular  $K_{ATP}$  channel activity to restore neurovascular function and decrease Alzheimer's pathology, Charleston Conference on Alzheimer's Disease, Honolulu, Hawaii
25. 2022, Understanding the mechanistic link between type-2-diabetes and Alzheimer's disease, ISTAART Alzheimer's Association Nutrition, Metabolism, and Dementia PIA, virtual seminar

## MENTORING RELATIONSHIPS

High School Students

- 2019 – present  
Lily Deitelzweig  
Authentic Science Research Program at Byram Hills High School  
Mentor
- 2021 – present  
Warner Vaughan  
High Point Central High School – CPM Summer Internship  
Mentor

Undergraduate Students

- 2009 – 2011  
Elizabeth Qin  
Washington University  
Co-Mentor  
Current Position: MD/PhD & UCSF Psychiatry resident
- 2019 – Present  
Samantha Vincent  
Wake Forest University  
Mentor
- 2020 – 2021  
Matthew Parker  
Winston Salem State University – ENGAGED Program  
Mentor  
Current Position: Master's candidate in Education with a focus on  
Community & Social Change, University of Miami
- 2020 – 2021  
Destiny Saunders  
Winston Salem State University – ENGAGED Program  
Mentor
- 2021 – 2022  
Hana Kamran  
Davidson College  
Center Precision Medicine Internship  
Mentor

Graduate Students

- 2013 – 2017  
Molly Stanley  
Neuroscience, Washington University  
Co-Mentor & Thesis committee member  
Current Position: Tenure Track Faculty, University of Vermont
- 2015 – 2016  
Courtney Sobieski  
Neuroscience, Washington University  
PhD Thesis committee member
- 2016 – 2019  
Tyler Blazey  
Neuroscience, Washington University  
PhD Thesis committee member
- 2017 – 2018  
Xin Wang  
Neuroscience, Wake Forest School of Medicine

	Master's Thesis committee member
2017 – 2018	Khadijah Winkey Integrative Physiology & Pharmacology, Wake Forest School of Medicine Master's Mentor Current Position: Clinical Coordinator for the Wake Forest ADRC
2018 – 2019	David Rubinow Neuroscience, Wake Forest School of Medicine Master's Mentor Current Position: Research Scientist, Kallyope Inc.
2018 – present	Morgan Pait F31 Predoctoral Fellow Physiology & Pharmacology, Wake Forest School of Medicine PhD Mentor
2018 – present	Caitlin Carroll F31 Predoctoral Fellow Neuroscience, Wake Forest School of Medicine PhD Mentor
2018 – present	Allie Amick Neuroscience, Wake Forest School of Medicine PhD Thesis committee member
2019 – present	Nicole Kasica Neuroscience, Wake Forest School of Medicine PhD Thesis committee member
2019 – 2021	Hannah Jester Neuroscience, Wake Forest School of Medicine Master's Thesis committee member
2019 – present	Samuel Barth Neuroscience, Wake Forest School of Medicine Chair, PhD thesis committee member
2019 – present	Hailey Egidio-Betancourt Neuroscience, Wake Forest School of Medicine Chair, PhD thesis committee member
2019 – present	Ayse Uneri Neuroscience, Wake Forest School of Medicine PhD Thesis committee member
2019 – 2021	Derek Keller Physiology & Pharmacology, Wake Forest School of Medicine PhD Thesis committee member
2019 – present	Gracie Peck Neuroscience, Wake Forest School of Medicine Chair, PhD thesis committee member
2020 – present	Sarah Kaye Neuroscience, Wake Forest School of Medicine



	PhD Mentor
2020 – present	Stephen Gironda Neuroscience, Wake Forest School of Medicine PhD Thesis committee member
2022 – present	Colin McArdle Neuroscience, Wake Forest School of Medicine PhD Thesis committee member
2021 – present	Riley Irmen Neuroscience, Wake Forest School of Medicine Master's Mentor
2022 – present	Nicholas Constantino Neuroscience, Wake Forest School of Medicine PhD Mentor
2022 – present	Xiaodan Wang Neuroscience, Washington University School of Medicine PhD Thesis committee member
2022 – present	Abigail Cole Neuroscience, Wake Forest Master's Thesis committee, Chair

#### Postdoctoral Fellows

2019 – present	Stephen Day T32 Postdoctoral fellow Current position: Research Fellow, Wake Forest School of Medicine
2020 – present	John Grizzanti T32 Postdoctoral fellow Current position: Research Fellow, Wake Forest School of Medicine
2022 – present	Ryan Pettit-Mee Postdoctoral fellow Current position: Research Fellow, Wake Forest School of Medicine

#### Mentoring Grants

2018 – present	T35 Training Grant for the Medical Student Research Program (MSRP) Role: Preceptor, Mentor
2019 – present	T32 NIA Aging Research Training Grant Role: Preceptor, Mentor
2019 – present	T32 NIAAA Alcohol Research Training Grant Role: Preceptor, Mentor
2020 – present	Enhancing Undergraduate Education and Research in Aging to Eliminate Health Disparities (ENGAGED) NIA Training Grant Role: Preceptor, Mentor

## DIDACTIC/SYSTEMATIC INSTRUCTION

Washington University, Graduate School of Arts and Sciences  
Teaching Assistant, BIO 5663/Neurobiology of Disease  
2006

Wake Forest, Graduate School of Arts and Sciences  
Course Director, NEUR787-788/Memory, Cognition and Aging Journal Club  
2017-present

Wake Forest, Graduate School of Arts and Sciences  
Lecturer, IPP701, Principles of Pharmacology  
2021-present

Wake Forest, Graduate School of Arts and Sciences  
Guest Lecturer, ENGAGED Research Club  
2021-present

## MEDIA APPEARANCES & PUBLIC OUTREACH

- |            |   |
|------------|---|
| 05/05/2015 | Research featured in <i>Science Daily</i> , "New link between diabetes, Alzheimer's found"  |
| 05/07/2015 | Research featured in <i>Huffington Post</i> , <i>South China Morning Post</i> , <i>Daily Mail (UK)</i> , <i>The Telegraph (UK)</i> , <i>Daily Express (UK)</i> <i>Medical Daily</i> , <i>Medical News Today</i> , <i>The Health Site</i> , "Researchers find stronger links between diabetes and Alzheimer's" |
| 05/19/2015 | Research featured in <i>Diabetes News Journal</i> , "WUStL Scientists Find New Link Between Diabetes And Alzheimer's"   |
| 12/15/2018 | Video, New Vision Award Winner Video for Donors Cure Foundation website <a href="https://www.newvisionresearch.org/macaleyrambach">https://www.newvisionresearch.org/macaleyrambach</a>   |
| 03/14/2019 | Commentary for <i>Scientific American</i> entitled, "An Hour of Light and Sound a Day Might Keep Alzheimer's at Bay"  |
| 03/15/2019 | Commentary for <i>The Scientist</i> entitled, "Rapidly Flashing Lights and Sounds Reduces Alzheimer's in Mice"  |
| 03/17/2019 | Appearance on NPR's Science Friday, "On the Frontier of an Alzheimer's Cure" <a href="https://www.sciencefriday.com/segments/on-the-frontier-of-an-alzheimers-cure/">https://www.sciencefriday.com/segments/on-the-frontier-of-an-alzheimers-cure/</a>  |
| 10/20/2019 | Invited member of Society for Neuroscience's Press Conference on "Alzheimer's disease and metabolism"   |
| 10/21/2019 | Research highlighted on NPR's Morning Edition, "Low blood sugar levels may keep Alzheimer's at bay"   |
| 10/22/2019 | Research featured in <i>Science News</i> , "Alzheimer's may scramble metabolism's connection to sleep"  |
| 10/28/2019 | Research featured in <i>Forbes</i> , "Untangling The Link Between Alzheimer's Disease And Diabetes: What The Latest Science Tells Us"   |

- 09/14/2020 Appearance, American Heart Association Science News, "*Glyburide treatment, Hypertension, and Heart Disease*"  
<https://youtu.be/EJLuDQEzrBs>
- 04/09/2021 Appearance on NPR's Science Friday, "When is Alzheimer's like Diabetes?" <https://www.sciencefriday.com/segments/alzheimers-insulin/>
- 07/12/2021 Featured in *American Heart Association News*, "*Diabetes and dementia risk: Another good reason to keep blood sugar in check*"
- 07/21/2021 Featured in *US News and World Report*, *AHA News*: "*Diabetes and dementia risk: Another good reason to keep blood sugar in check*"

## COMMUNITY ACTIVITIES AND SERVICE

- 2008 Neuroscience Week at Saint Louis Science Center, St Louis, MO  
Presenter
- 2010 Hixson Middle School Career Fair, Webster Groves, MO  
Judge
- 2013 - present Alzheimer's Association "Longest Day" and "Walk to End Alzheimer's"  
events  
Participant
- 2018 - present Scientific Outreach, Sherwood Forest Elementary School, Winston  
Salem, NC  
Organizer
- 11/15/2019 Aging Well Series at Winston Salem Forsyth Public Library, Winston  
Salem, NC  
Speaker