WAKE FOREST SCHOOL OF MEDICINE
Curriculum Vitae

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

ADDRESS Department of Physiology & Pharmacology
Wake Forest School of Medicine
Medical Center Boulevard
Winston-Salem, NC 27157
Office: (336) 716-4628
Lab: (336) 716-8469
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
2017 – 2018 Adjunct Assistant Professor, Department of Neurology

Wake Forest School of Medicine

2017 – 2022	Assistant Professor, Department of Internal Medicine - Gerontology & Geriatric Medicine, primary appointment
2017 – present	Member, Center for Diabetes, Obesity, and Metabolism
2017 – present	Member, Sticht Center for Healthy Aging and Alzheimer's Prevention
2018 – present	Member, 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 – 2022	Assistant Professor, Department of Physiology & Pharmacology, secondary appointment
2021 – 2022	Assistant Professor, Biomedical Engineering, secondary appointment
2022 – present	Associate Professor with Tenure, Departments of Physiology & Pharmacology (primary), Internal Medicine - Gerontology & Geriatric Medicine (secondary), Biomedical Engineering (secondary)

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 – 2022 Translational Imaging Shared Resource Advisory Committee, Wake Forest School of Medicine, Winston Salem, NC
Member

2020 – 2022 Integrative Physiology & Pharmacology Program, Wake Forest School of Medicine, Winston Salem, NC
Admissions committee member

2020 – 2021 Animal Resource Program 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, Doug Kirsch, and Sara Jones, Wake Forest School of Medicine, Winston Salem, NC
**** Conceptualized, proposed, and awarded $2.5 million strategic investment to start a Sleep and Biological Rhythms Research Center at WFSM**

2022 – present Center for Precision Medicine Leadership Team, Wake Forest School of Medicine, Winston Salem, NC

2022 Neuroscience Department Merger - Working Group, Wake Forest School of Medicine, Winston Salem, NC

Departmental Service

2017 – 2023 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 – 2022 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 – 2022 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

2022 – present Alzheimer's Disease Faculty Recruitment Committee, Wake Forest School of Medicine, Winston Salem, NC
Member

2022 – present SLEEP Search Team, 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)

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

NIH: Behavioral Neuroendocrinology, Neuroimmunology, Rhythms and Sleep (BNRS) Study Section (Ad hoc member, February 2023)

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 (subset of total)

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
2022 – present	Charleston Conference on Alzheimer's Disease/New Vision Research Advisory Board, 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	Outstanding Mentor Award, Neuroscience Program, Wake Forest School of Medicine, Winston Salem, NC
2022-2023	Faculty Excellence Award, Wake Forest School of Medicine, Winston Salem, NC

GRANT FUNDING

Currently Active Grants

R01AG065839 (Solingapuram Sai, PI; Macauley, CoI) 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.

R01AG068330 (Macauley, PI) 08/01/2020-07/31/25
NIH/NIA $477,889 /year direct cost
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.

A20201775S (Macauley, PI) 09/01/2020-08/31/2023
Bright Focus Foundation $100,000 /year direct cost
Title: K_{ATP} 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_{ATP} channel antagonist, glyburide, reduces interstitial fluid (ISF) tau levels, tau related pathology, tau spreading, and neuritic plaque formation in models of with mixed Aβ/tau pathology.

CTSI Pilot Award (Hugenschmidt, PI; Macauley, CoI) 06/01/2020-05/31/2022
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 [^{11}C]UCB-J in the PET research center, validate it in a rodent model, and submit an RDRC application to approve human subjects use.

P30AG072947 (Craft, PI; Macauley, CoI) 07/01/2021-06/30/2026
NIH/NIA $2,009,681/year
Title: Alzheimer's Disease Research Center (ADRC)
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). Dr. Macauley serves as the coleader for the Research Education Core.

R24AG073199 (PI:Craft/Whitlow/Shively; Macauley, CoI) 07/01/2021-06/30/2025
NIH/NIA $826,443
Title: Development of an Innovative Vervet (Chlorocebus aethiops sabaeus) Model of Early Alzheimer's-like Neuropathology and Sympotomalogy
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.

R01 (MPI: Cosford/Velicelebi/Gould; Macauley, CoI) 07/01/2022-06/30/2025
NIH/NIA $379,827/year direct cost
Title: Characterization, Optimization, and Development of dual mGlu2/3 Positive Allosteric Modulators for Opioid Use Disorder
The goal of this project is to use rodent models of opiate use disorder (OUD) and methamphetamine use disorder (MAD) including drug self-administration and reinstatement to evaluate therapeutic potential of mGlu2/3 PAMs for the treatment of multiple aspects of OUD.

Pending Grants

R01 AG068330 (PI: Nichols; Macauley, CoI) 03/01/2022-02/28/2024
NIH/NHLBI $396,331/year direct cost
Title: Role of vascular KATP channels in Alzheimer's neurodegeneration and dementia - Supplement
The proposed supplement aims to study the role of vascular KATP channels in Alzheimer's disease progression and the role of Kir6.1/SUR2 KATP channels in cerebral blood flow control.

R01 AG080621 (MPI: Macauley, Gould, Weiner) 12/01/2022-11/30/2027
NIH/NIA $499,039/year direct cost
Title: Sleep disruptions as a mediator for ethanol induced exacerbation of Alzheimer's disease
The study is to investigate how varying controlled concentrations of ethanol exposure, modeling moderate drinking and AUD, initiated at different times across the lifespan, impact sleep, hippocampal excitability, Aβ/tau pathology, and behavioral impairments in mouse models of Alzheimer's-related pathology

R01 AG080804 (MPI: Macauley-contact PI, Solingapuram Sai) 09/01/2022-08/31/2027
NIH/NIA $497,472/year direct cost
Title: [11c]Lactate as a biomarker of Alzheimer's Disease
The goal of this project is to develop a novel [11C]lactate tracer to determine if early changes in brain lactate metabolism reflect changes in microglia activation and can serve as a robust, promising biomarker for Alzheimer's disease prior to cognitive decline.

Supplement to R01 AG080804 (PI: Kiraly, CoI: Macauley) 09/01/2022-08/31/2023
NIDA/NIA $250,000/year direct cost
Title: Examining interactions of the host metabolome and chromatin structure in Alzheimer's disease
The goal of this project is to build on our ongoing studies examining metabolite and epigenome interactions in models of substance use disorder and apply the same principles to Alzheimer's disease to interrogate the effects of metabolite manipulations on chromatin structure, nuclear proteomics, and Alzheimer's-related pathology.

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) 1/01/10-12/31/11 ($40,000/yr)

NIH F32 NS080320, Effects of altered glucose utilization on Aβ 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_{ATP} 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, CoPI) 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)

NIA P50 ADRC Pilot Fund, Novel exosome surface markers to assess pathological changes in specific brain regions during AD (Macauley, CoI) 06/01/2019-05/31/2020 ($20,000)

NIH K01 AG050719, Effects of Hyperglycemia on Neuronal Activity, Cerebral Metabolism, and Aβ Levels (Macauley, PI) 04/01/2016-03/31/2022 ($105,988/year)

NIH P50 WF-TARC Pilot Award, Understanding the link between Alzheimer's disease and alcohol use disorder: the effects of acute ethanol on amyloid-β and tau levels in the hippocampal interstitial fluid (Macauley, PI) 01/01/2020-12/31/2021 ($22,500/year)

NIH R56 AG069675, Gut microbiota-based biomarkers of Alzheimer's disease and its modulation by a ketogenic diet (Macauley, CoI) 09/15/20-08/31/22 ($392,233/year)

ADRC Pilot Award, Development of a rodent model for tau seeding and co-current tau/amyloid-beta pathology (Macauley, PI, no salary requested), 06/01/2020-07/01/2022, ($20,000/year)

WF-TARC Supplement, Interactions between alcohol use disorders and Alzheimer's disease, (PI: Weiner, CoI: Macauley), 08/05/2020 – 11/30/2020 ($384,750/yr)

ADRC Pilot Award, Examining the relationship between ethanol-induced sleep disruptions and development of Alzheimer's Disease-related pathology in APP/PS1 mouse model of AD, (Gould, PI, Macauley, CoI), 06/01/2021-05/31/2023, ($50,000)

ADRC Pilot Award, Determining the Relationships of Sleep, CSF Biomarkers and Age in a Non-human Primate Model of Alzheimer's Disease, (Frye, PI, Macauley, CoI), 06/01/2021-05/31/2022, ($20,000)

NCDRC Alzheimer's Supplement Grant, Feeding the Diabetic Brain: Metabolic Risk for Alzheimer's disease in Diabetic Nonhuman Primates, (Kavanagh, PI, Macauley, CoI), 07/01/2021-06/30/2022 ($50,000/ year)

NIH R01AG061805, Exosome Mediated Alterations in Cellular Metabolism in the Pathogenesis and Progression of Alzheimer's Disease (Molina/Deep, Co-PIs; Macauley, CoI), 09/30/2018-04/30/23 ($629,300 /year)

BIBLIOGRAPHY (PEER REVIEWED)

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 lipofusciniosis. *J Neurosci.* 2011 Oct 26;31(43):15575-85.
14. Roberts MS*, **Macauley SL*,** Roberts MS, Wong A, Yilmas 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-β 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, Claasssen 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, Stoeckel 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).
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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.
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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 sabaeus*). American Journal of Primatology. 2021. In press.
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****In revision at *Journal of Clinical Investigation (impact factor = 14.81)***
36. 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 Aβ clearance and microglia response to amyloid plaques. MedRxiv. doi: https://doi.org/10.1101/2022.01.31.22270175 ***In revisions at *Science Translational Medicine (impact factor = 17.99)***
37. Day SM, Gironda SC, Clarke CW, Snipes JA, Nicol NI, Kamran H, Vaughan W, Weiner JL, **Macauley SL**. Ethanol exposure alters Alzheimer's-related pathology, behavior, and metabolism in APP/PS1 mice.

Neurobiol Dis. 2023 Feb;177:105967. doi: 10.1016/j.nbd.2022.105967. Epub 2022 Dec 16. PMID: 36535550.

38. Ma T, Chang RCC, **Macauley SL.** Editorial: Metabolic signaling dysregulation and cognitive impairments in aging and Alzheimer's disease. Front. Aging Neurosci. 2023 Feb 23; 15.

39. Grizzanti J, Moritz WR, Pait MC, Stanley M, Kaye SD, Carroll CM, ConstantinoNJ, Deitelzweig LJ, Snipes JA, Kellar D, Caesar EE, Pettit-Mee RJ, Day SM, Sens JP, Nicol NI, Dhillon J, Remedi MS, Kiraly DD, Karch CM, Nichols CG, Holtzman DM, **Macauley SL**. KATP channels are necessary for glucose-dependent increases inamyloid-β and Alzheimer's disease-related pathology. JCI Insight. 2023 May 2;8(10):e162454. doi: 10.1172/jci.insight.162454. PMID: 37129980; PMCID: PMC10386887.

40. Carroll CM, Stanley M, Raut RV, Constantino NJ, Irmen RE, Mitra A, Snipes JA, Raichle ME, Holtzman DM, Gould RW, Kishida KT, and **Macauley SL**. Acute hyper- and hypo-glycemia uncouples the metabolic cooperation between glucose and lactate to disrupt sleep. bioRxiv 2022.09.15.507967; doi: https://doi.org/10.1101/2022.09.15.507967 ****Under review at *J Neurosci***

41. Lee S, Williams HC, Gorman AA, Devanney NA, Harrison DA, Walsh AE, Goulding DS, Tuck T, Schwartz JL, Zajac DJ, **Macauley SL**, Estus S, TCW J, Johnson LA, Morganti JM. APOE4 drives transcriptional heterogeneity and maladaptive immunometabolic responses of astrocytes. bioRxiv 2023.02.06.527204; doi: https://doi.org/10.1101/2023.02.06.527204 ****Under external review at *Cell Reports***

42. Pait MC, Kaye SD, Su Y, Kumar A, Singh S, Gironda SC, Vincent S, Anwar M, Carroll CM, Snipes JA, Lee J, Furdui CM, Deep G, **Macauley SL**. Novel method for collecting hippocampal interstitial fluid extracellular vesicles (EV^{ISF}) reveals sex-dependent changes in microglial EV contents in response to Aβ pathology. bioRxiv, https://doi.org/10.1101/2023.03.10.532133 ****In revision at *Journal of Extracellular Vesicles (Impact Factor = 25.84).***

43. Ruggiero AD, Vemuri R, Blawas M, Long M, DeStephanis D, Williams AG, Chen H, Justice JN, **Macauley SL**, Day SM, Kavanagh K. Long-term dasatinib plus quercetin effects on aging outcomes and inflammation in nonhuman primates: implications for senolytic clinical trial design. Geroscience. 2023 Jun 1. doi: 10.1007/s11357-023-00830-5. Epub ahead of print. PMID: 37261678.

44. Carroll CM*, Irmen RE*, Constantino NJ, Snipes JA, Vincent S, McArdle C, Gould RW, **Macauley SL.** Differential impacts of amyloid beta and tau pathology on sleep and metabolic functioning**.** In preparation. *Co-First Authors

45. Carroll CM, Constantino NJ, Irmen RE, Snipes JA, Vincent S, McArdle C, Gould RW, **Macauley SL.** Peripheral metabolism bidirectionally modulates slow wave sleep in a model of Alzheimer's disease. In preparation.

46. Rhea EM, Leclerc M, Yassine HM, Capuano AW, Tong H, Petyuk VA, **Macauley SL**, Fioramonti X, Carmichael O, Calon F, and Arvanitakis Z. State of the Science on Brain Insulin Resistance and Cognitive Decline Due to Alzheimer's Disease**.** Aging and Disease. 2023. http://dx.doi.org/10.14336/AD.2023.0814

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-β 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 Orleands, LO, 2003.

7. Shihadbuddin 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, Zhoa 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 stereotype 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, El-banna 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 disase: 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-/- 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, Mortiz WR, Mahan TE, and Holtzman DE. Chronic treatment with sulfonylurea, glyburide, reduces amyloid-beta pathology in the APPswe/PSEN1dE9 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-β 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-β 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, Scneider N. **Macauley SL**, Craft S, Milligan C, Mann JJ, Mintz A, and Solignapuram Sai KK. In vivo evaluation of microtubule PET ligand [^{11}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 Angelos, 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. Deitelzweig 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-β in APP/PS1 mice. Alzheimer's Association International Conference, 2021.
40. Carroll CM, Stanley M, Irmen R, Mitra A, Constantino NJ, Snipes JA, Raichle ME, Holtzman DM, Gould1 RW, Kishida KT, **Macauley SL.** Glycemic variability disrupts sleep through KATP channel activity. Brain and Brain Pet, 2022.
41. Day SM, Gironda SG, Clarke CW, Snipes AJ, Nicol NI, Vaughan W, Weiner JL, **Macauley SL.** Acute ethanol alters amyloid-β and neuronal excitability/inhibitory phenotypes in APP/PS1 mice. Society for Neuroscience Annual Meeting, 2022.
42. Irmen RE, Carroll CM, Snipes JA, Sink SA, **Macauley SL.** Metabolic and sleep dysfunction relative to tau aggregation in P301S PS19 mice. Tau2022, 2022.
43. Grizzanti J, Pait MC, Snipes JA, Kaye SD, Carroll CM, **Macauley SL.** Chronic treatment with the sulfonylurea glyburide reduces interstitial fluid levels of tau in hippocampus of P301S tau mice. Tau 2022, 2022.
44. Pait MC, Kaye SD, Vincent S, Carroll CM, Anwar M, Su Y, Snipes JA, Lee J, Furdui C, Deep G, and **Macauley SL**. Hippocampal interstitial fluid extracellular vesicles (EVISF) reveal sex-dependent changes in microglial EV contents in the presence of microgliosis and Aβ pathology. Duke University Brain Sciences Institute's GliaCamp, 2022.
45. Irmen RE, Carroll CM, Snipes JA, Gould RW, **Macauley SL.** Alterations in metabolism linked to sleep disruption in P301S PS19 mice, a model of tauopathy. Society for Neuroscience, 2022.
46. Pait MC, Kaye SD, Carroll CM, Vincent S, Anwar M, Su Y, Snipes JA, Lee J, Furdui C, Deep G, and **Macauley SL.** Novel method of extracellular vesicle (EV) isolation from hippocampal interstitial fluid of a mouse model of Alzheimer's disease reveals sex-dependent changes in EVs. Gordon Research Conference, 2022.
47. Grizzanti J, Pait MC, Anwar M, Carroll CM, Irmen RE, Snipes JA, Kaye SD, and **Macauley SL**. KATP channel inhibition improves neurovascular coupling and reduces Alzheimer's disease pathology. Society for Neuroscience Annual Meeting, 2022.
48. Constantino NJ, Carroll CM, Irmen RE, Grizzanti J, Snipes JA, Gould RW, and **Macauley SL**. ATP-sensitive Kir6.2-KATP channels couple metabolism, excitability, and sleep/wake architecture. Society for Neuroscience Annual Meeting, 2022.
49. Irmen RE, Carroll CM, Snipes JA, Sink SA, **Macauley SL**. Increased glucose sensitivity is associated with tauopathy, sleep impairment, and altered biological rhythms in P301S mice. Jackson Laboratory Impacts of Sleep and Circadian Biology on Alzheimer's Disease and Aging, 2022, Bar Harbor, ME. 2022.
50. Irmen RE**,** Carroll CM, Snipes JA, Gould RW, **Macauley SL**. Alterations in metabolism linked to sleep disruption in P301S PS19 mice, a model of tauopathy. Society for Neuroscience, 2022.
51. Carroll CM, Stanley M, Raut RV, Constantino N, Irmen RE, Mitra A, Snipes JA, Raichle ME, Holtzman DM, Gould RW, Kishida KT, **Macauley SL**. Disrupted peripheral metabolism uncouples glucose and lactate to impair sleep. Impacts of sleep and circadian biology on Alzheimer's disease and aging. Jackson Laboratory Impacts of Sleep and Circadian Biology on Alzheimer's Disease and Aging, Bar Harbor, ME. 2022.

INVITED EXTRAMURAL PRESENTATIONS AND SEMINARS

1. 2009, The role of astrocyte activation in infantile neuronal ceroid lipofuscinosis. 12th 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, KATP 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 KATP 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

26. 2022, Metabolism, Excitability, and Alzheimer's disease: A translational approach to therapeutic development, University of Alabama – Birmingham, AL

27. 2022, Understanding the mechanistic link between type-2 diabetes and Alzheimer's disease, Rush University, Chicago, IL

28. 2022, The interaction between metabolism and sleep in Alzheimer's Disease: cause or consequence?, University of Kentucky, Lexington, KY

29. 2022, Metabolism, Sleep, and Alzheimer's disease: from molecular mechanisms to therapeutic targeting, University of Texas – San Antonio, San Antonio, TX

30. 2023, Metabolism, Sleep, and Alzheimer's disease: from molecular mechanisms to therapeutic targeting, Wake Forest Critical Care, Winston Salem, NC

31. 2023, Metabolism, Sleep, and Alzheimer's disease: from molecular mechanisms to therapeutic targeting, University of Virginia, Charlottesville, VA

32. 2023, The interaction between peripheral metabolism, brain metabolism, and sleep in Alzheimer's disease, 20023 Nathan A Shock Oklahoma Geroscience Symposium, Oklahoma City, OK

33. 2023, A female scientist's journey through academia, Middlebury College, Middlebury, VT

MENTORSHIP

High School Students

2019 – present	Lily Deitelzweig Authentic Science Research Program at Byram Hills High School Mentor
2021 – 2022	Warner Vaughan STEM Early College at NC A&T – Center for Precision Medicine Summer Internship Mentor
2022 – 2023	Gurnoor Grewal

	STEM Early College at NC A&T – Center for Precision Medicine Summer Internship Mentor
2023	Nick Pungwa The Early College at Guilford Mentor

Undergraduate Students

2009 – 2011	Elizabeth Qin Washington University Co-Mentor Current Position: MD/PhD & UCSF Psychiatry resident
2019 – 2023	Samantha Vincent Wake Forest University Biochemistry and Molecular Biology - Honors Thesis Mentor Current Position: Wake Forest Law School, focus Bioethics
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 Summer Internship Mentor
2022	Sashank Sabbineni NC State Center Precision Medicine Summer Internship Mentor
2022 – 2023	Luke Morton Wake Forest University ENGAGED Program - Summer 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 Lewis
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 – 2023 Morgan Pait
F31 Predoctoral Fellow
Physiology & Pharmacology, Wake Forest School of Medicine
PhD Mentor

2018 – 2023 Caitlin Carroll
F31 Predoctoral Fellow
Neuroscience, Wake Forest School of Medicine
PhD Mentor
Current Position: T32 scholar, Dr. Ruth Benca's lab, Wake Forest

2018 – 2022 Allie Amick
Neuroscience, Wake Forest School of Medicine
PhD Thesis committee member
Current Position: Associate Medical Writer, The Medicine Group

2019 – 2022 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
Current Position: Neuroscience PhD candidate at Wake Forest

2019 – present Samuel Barth
Neuroscience, Wake Forest School of Medicine
Chair, PhD thesis committee member

2019 – present Hailey Egido-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 Current Position: Consultant, Mirada Life Sciences
2019 – present	Gracie Peck Neuroscience, Wake Forest School of Medicine Chair, PhD thesis committee member
2020 – present	Stephen Gironda F31 & T32 Predoctoral Fellow Neuroscience, Wake Forest School of Medicine F31 Co-Mentor & PhD Thesis Committee Mentor
2021 – 2023	Riley Irmen Neuroscience, Wake Forest School of Medicine Master's Mentor
2021 – 2023	Riley Irmen Physiology, University of Kentucky PhD Mentor
2022 – present	Nicholas Constantino T32 Predoctoral Fellow Neuroscience, Wake Forest School of Medicine, University of Kentucky PhD Mentor
2022 – present	Kimberly Holter Neuroscience, Wake Forest School of Medicine PhD Thesis committee member
2022 – present	Xiaodan Wang Neuroscience, Washington University School of Medicine PhD Thesis committee member
2022 – present	Colin McArdle Neuroscience, Wake Forest School of Medicine PhD Thesis committee member
2022 – 2023	Abigail Cole Neuroscience, Wake Forest Master's Thesis committee, Chair
2021 – 2022	Nicole Mitchell Neuroscience, Wake Forest Master's Thesis committee member
2022 – present	Melody Iacino Neuroscience, Wake Forest PhD Thesis committee member
2022 – 2023	Zhen Lin Biomedical Engineering, Wake Forest PhD Mentor

Postdoctoral Fellows

2019 – 2022	Stephen Day T32 Postdoctoral fellow Current position: Research Assistant Professor, SUNY - Binghamtom
2020 – 2023	John Grizzanti T32 Postdoctoral fellow
2022 – 2023	Ryan Pettit-Mee Postdoctoral fellow Current position: Research Fellow, Wake Forest School of Medicine

Mentoring Grants

2018 – 2023	T35 Training Grant for the Medical Student Research Program (MSRP) Role: Preceptor, Mentor
2019 – 2023	T32 NIA Aging Research Training Grant Role: Preceptor, Mentor
2019 – 2023	T32 NIAAA Alcohol Research Training Grant Role: Preceptor, Mentor
2020 – 2023	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 *Science Daily,* “New link between diabetes, Alzheimer’s found”
05/07/2015	Research featured in *Huffington Post, South China Morning Post, Daily*

	Mail (UK), The Telegraph (UK), Daily Express (UK) Medical Daily, Medical News Today, The Health Site, "Researchers find stronger links between diabetes and Alzheimer's"
05/19/2015	Research featured in *Diabetes News Journal, "*WUStL Scientists Find New Link Between Diabetes And Alzheimer's"
12/15/2018	Video, New Vision Award Winner Video for Donors Cure Foundation website https://www.newvisionresearch.org/macauleyrambach
03/14/2019	Commentary for *Scientific American* entitled, "An Hour of Light and Sound a Day Might Keep Alzheimer's at Bay"
03/15/2019	Commentary for *The Scientist* 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" https://www.sciencefriday.com/segments/on-the-frontier-of-an-alzheimers-cure/
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 *Science News, "Alzheimer's may scramble metabolism's connection to sleep"*
10/28/2019	Research featured in *Forbes, "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*"
03/22/2023	Featured in *US News and World Report*, *Neuroscience News, EurekaAlert!, New Food Magazine:* "*Alcohol consumption linked to Acceleration of Alzheimer's Disease"*

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