



NATHAN SHOCK CENTERS
OF EXCELLENCE IN THE
BASIC BIOLOGY OF AGING

PILOT AWARDEE SPOTLIGHT



Abbi Hernandez, PhD

Postdoctoral Trainee

Department of Medicine; Division of Gerontology, Geriatrics, and Palliative Care
University of Alabama at Birmingham

2021 University of Alabama at Birmingham NSC Pilot Award

Impact of Regional Microbiome Specificity on Age- and Alzheimer's Disease-Related Metabolic Impairment

How did you become interested in aging?

I first became interested in aging when I volunteered in a fly lab as an undergraduate that was investigating a fly model of aging. I then joined a rodent behavioral lab when getting my Master's Degree and knew that I wanted to merge the two and investigate aging and neuroscience in mammals.

Briefly describe your project in non-scientific terms. What questions are you trying to answer?

This goal of this project is to help understand how changes in the gut microbiome influence cognitive decline in Alzheimer's disease by using a rat model of Alzheimer's. Moreover, most work investigating the gut microbiome only focuses on fecal samples. However, we know that the small intestine and other regions of the gut have wildly different microbial makeups, so I want to see if we are missing big changes in other parts of the gut that can help explain the influence of gut microbiome disruption on cognitive outcomes.

What previous research or experience informed the development of this proposal?

My previous work demonstrating the strong influence of peripheral health on cognitive outcomes in the aged brain made me interested in how gut health influences the brain in older adults and individuals with Alzheimer's.

What's exciting about your project's potential impact?

The knowledge gained from this could allow us to investigate the potential of utilizing the gut as a target for AD treatment, rather than the brain, as the gut is much more accessible.

If your project is successful, what is the next step?

If successful, the next step would be to research what specific therapies, such as probiotics, can be utilized to reverse or prevent the changes we see in the gut of the Alzheimer's model and of aged individuals.

How has support from and collaboration with the NSCs helped further this project and/or your research overall?

The NSC has not only provided me with the funding to do these initial investigations, but meeting with NCS biostatisticians and other collaborators has helped me expand my expertise in ways that will help me move my projects forward and eventually translate these findings into humans to help fight against Alzheimer's Disease.