



NATHAN SHOCK CENTERS
OF EXCELLENCE IN THE
BASIC BIOLOGY OF AGING

PILOT AWARDEE SPOTLIGHT



Constanza J. Cortes, PhD

Assistant Professor
University of Alabama at Birmingham

2021 USC-Buck NSC Pilot Award

Digital Profiling of Exercise-Associated Plasticity in the Aging Hippocampus

How did you become interested in aging?

My background is in neurodegenerative diseases, and I would constantly find myself crossing over into the field of brain aging and its potential contributions to the onset and development of these disorders. Through this, I learned about the concept of geroscience, and just fell in love.

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

Exercise is good for our brain, but we currently do not understand exactly why. In this project, we are trying to figure out how exercise can reprogram our brain at the cellular level, to begin to identify new targets for developing 'exercise in a bottle' therapies.

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

Work in our lab dissecting the role of skeletal muscle proteasome, a pathway highly activated during exercise, on the CNS benefits of exercise during healthy aging and neurodegenerative disease.

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

The potential to finally dissect the unique cell type-responses in the hippocampus after exercise, including neurons, astrocytes, microglia and neural stem cells.

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

A large R01 application using this work as preliminary data.

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

The community aspect of it, facilitating networking and meeting experts in the field. The seminar series have been essential, and the pilot awards have supported two separate R01-sized applications from my lab since 2019.