Sp21-007



Senior Biological Sciences

Faculty Mentor: Dr. Manel Leal, Biological Sciences; Dr. Chris Lorson, Molecular Microbiology and Immunology

Funding Source: MARC/IMSD - NIH-funded Maximizing Access to Research Careers/ Initiative for Maximizing Student Diversity

Sexual Dimorphism in Neuron Count and Density in Anolis cristatellus

Jessica Garcia, Levi Storks and Manuel Leal

The West Indian Anolis lizards have evolved independently across the Islands of the Greater Antilles, resulting in different ecomorphs within the habitats of each island. Between ecomorphs categories, adaptations to effectively exploit distinct microhabitats has impacted morphological and behavioral traits, resulting in phenotypic diversity across species. Within those different ecomorphs, varying degrees of sexual dimorphism have also evolved. While there are differences in physical attributes between female and male anoles, little is known about the sexual dimorphism in neuroanatomy. We hypothesized that males will have larger total cell numbers compared to females as they have larger territories, are bigger in size and are more likely to disperse. To test this hypothesis, the Anolis brain was sectioned off into three parts: the cerebellum, telencephalon, and the rest of brain. From there, isotropic fractionation was be used in order to count and estimate the total non-neuron and neuron composition of the brain. Preliminary results indicated that in Anolis cristatellus males on average had more total neurons in the brain when compared to females. For future studies, ecomorphs with varying degrees of sexual dimorphism can be compared in order to gain a better understanding of how sexual dimorphism impacts the neuroanatomy of Anolis brains.