Summary

I am applying for the University of New Mexico Biology Graduate Student Association (BGSA) Graduate Research Allocation Committee (GRAC) Travel Grant to assist with Registration fee expenses associated with my attendance at the 12th Molecular Mechanisms of Neuronal Connectivity (virtual) meeting from 8th. to 11th September 2020 co-organized by Cold Spring Harbor Laboratory, Cold Spring Harbor, NY, National Institute of Neurological Disorders and the International Brain Research Organization. The Biennial meeting is the most important gathering of neuroscientists from all around the world who work with different aspects of nervous system across different organisms. I had submitted an abstract to this year's meeting to present results from my graduate research, in which I examined the cellular and molecular programs regulating the fate specification sleep promoting neurons using *Drosophila melanogaster* as model organism. While sleep behavior has been extensively studied, nothing is known about the developmental programs that regulate the formation and function of sleep circuit.

During my graduate studies, I will be focusing on the newly identified *Drosophila melanogaster* central complex sleep circuit, which is composed of dorsal fan shaped body(dFB) of neurons, helicon cells and ring neurons. Understanding the developmental genetic programs that governs the formation and function of sleep circuits is of foundational interest, as sleep is a conserved behavior and necessary for survival in almost all the animals. In our studies, we discovered that dFB neurons are born from a dorsolateral type II neural stem cells, known as DL1. Using genetic birth dating we showed that dFB neurons are born from neural stem cells late in their lineage. The neural stem cells express E93 in type II lineages as well. We also show that dFB neurons are born from young Intermediate neural progenitors, that express temporal transcription factor Dichaete and Odd paired. Here, we show the mechanism through which the ecdysone-induced gene E93 in combination with Dichaete and Odd paired regulates the development and function of sleep-wake circuit. The Molecular Mechanisms of Neuronal Connectivity Meeting is an ideal venue for disseminating and gathering feedback on my own research to be submitted for publication. Moreover, my success as a scientist depends on conference attendance to be inspired by and keep current of cutting-edge research, network with colleagues, and to establish new connections and opportunities

This was my first conference as a graduate student and my first foray into forging acquaintances with potential future collaborators. Conference attendance is a critical to my growth as an independent scientist. Peer review is critical to the growth and development of ideas, I was able to network with scientists working with Circuit wiring, Synapse targeting etc. This helped refine future directions of my research and encouraged me to add a new component to my research which will incorporate the role of Glia in Neuronal Circuitry.

I have not received any money from the BGSA since I started my PhD one and half years ago.

Budget

Item	Cost	Funding Source
Conference Registration Fee	175.00	Personal funds

It is important to mention here that this year's Molecular Mechanisms of Neuronal Connectivity meeting was held virtually, so I didn't have to pay any Transportation, lodging or meal charges. I hope to cover the $150.00 travel grant from the Biology Graduate Student Association grants (Graduate Research Allocation Committee Travel Grant).