BARBARA JEANINE HUNNICUTT (JEANNIE)

Oregon Health & Science University, Vollum Institute, Neuroscience Graduate Program

Degrees:

B.S. Cell Biology & Neuroscience, Montana State University, Bozeman

Scholar Donors:

Daisy and Ted Miller on behalf of the James & Lila Miller Charitable Trust

About the Scholar:

The goal of my research is to elucidate functional differences between multiple excitatory inputs to a part of the brain called the striatum. Understanding how the brain sorts this information is crucial for our understanding of how we make decisions when we are exposed to vast amounts of information. I am using a technique that allows me to turn on specific brain circuits using light and then record the activity produced by those circuits in the striatum. This will allow me to determine if there are different functional roles for different striatal inputs, and ultimately help us understand how information processing occurs in this brain area.

Benefits to Society:

The ability of the striatum to accurately sort the inputs I study is essential for functions ranging from movement initiation to motivation. Failure of this process to happen properly is the main cause of Parkinson's disease, Huntington's disease, Tourette's syndrome, and obsessive-compulsive disorder. The main hurdle we face in trying to find effective treatments for these disorders is that we have very poor understanding of how this brain area functions normally. I hope to gain a more complete understanding of how the straitum integrates information in the healthy brain, in order to better inform efforts to ameliorate problems that arise in these neurological disorders.

Awards and Honors:

National Science Foundation Graduate Research Fellowship (NSF-GRFP), 2012-2015.
Tartar Trust Fellowship, 2012.
NIH Multidisciplinary Training in Neuroscience Training Grant: 5T32NS7466-12, 2010-2012

Publications and Posters:

Hunnicutt, B.J., Chaverra, M., George, L., Lefcort, F. (2012) IKAP/Elp 1 is required for the genesis and survival of neurons in the dorsal root ganglia: Implications for familial disautonomia. PLoS ONE 7(2): e32050. doi:10.1371/journal.pone.0032050.
Hunnicutt, B.J., Long, B., Kusefoglu, D., Mao, T. Anatomical characterization of long-range thalamic projections to the neocortex and basal ganglia. OHSU Neuroscience Graduate Program Retreat, Poster: September, 2012.
Hunnicutt, B.J. & Lefcort, F. Imaging shows new interactions between nervous and vascular systems during chick development. Montana Neuroscience Retreat, Poster: August 2009.
Hunnicutt, B.J., Salazar, R., Gray, C.M. Determining the neural coding underlying visual working memory. HHMI Undergraduate Symposium, University of Washington, 2007 & Montana State Research Forum, Poster: 2007.