Mitochondria are vital organelles that generate most of the ATP needed to power eukaryotic cells. Mitochondria in neurons also play roles in the development and function of synapses. Studies by Dr. Li and her lab show that the subcellular distribution and fission/fusion dynamics of mitochondria are influenced by neural activity. The subsequent alterations of mitochondria, in turn, have great impact on synaptic plasticity, neural synchronization, and anxiety-like behavior.