3/6/2017
Summer
Department/Lab/Center: Koch Institute for Integrative Cancer Research
Faculty Supervisor: Phillip Sharp

Project Title: Novel functions of imprinted non-coding RNAs in the brain

Project Description: Epigenetic regulation of imprinted genes modulates brain function, both in health and disease. Compared to imprinted protein-coding genes, the functions of imprinted non-coding RNAs are poorly understood. For example, deletion of a genomic region containing imprinted small non-coding RNAs is a major contributor to the neurodevelopmental disorder Prader-Willi Syndrome. The function of these small non-coding RNAs is currently unknown. In this project, we aim to understand how imprinted small and long non-coding RNAs affect gene expression and ultimately the activity of neurons. To accomplish these goals, we will use CRISPR/Cas9 to delete non-coding RNAs in embryonic stem cells. Following differentiation of the genetically modified cells to neurons in vitro, we will use a variety of molecular methods, cellular assays, and high-throughput techniques to uncover novel functions of imprinted non-coding RNAs.

Term/Compensation: This UROP position is for a compensated, full-time position during the summer. There may be an opportunity to continue the research project in the fall semester for credit.

Prerequisites: We are seeking a candidate with a strong work ethic, good record keeping skills, and a commitment to scientific research. Previous laboratory experience in basic molecular biology techniques is preferred.

Contact: Interested candidates should send a brief statement of your interest and resume/CV to Amanda Whipple (ajwhipple@mit.edu).