Johns Hopkins University

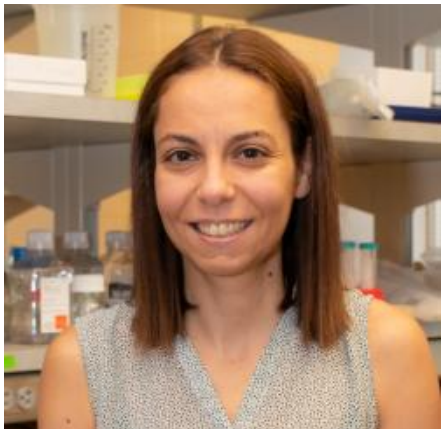
Department of Biology Seminar Series

Thursdays, 4:00pm

For more information go to: https://bio.jhu.edu/events

Zoom link: https://zoom.us/j/97925356454?pwd=bjNuTlY1dU9BcXcvRFdleis2TVNadz09

March 30th, 2023 - Mudd 100



Polyxeni Philippidou

Dept of Neuroscience

Case Western Reserve University School of Medicine

Host: Rejji Kuruvilla

"Development and assembly of respiratory circuits"

Breathing is the most fundamental motor behavior and it is absolutely critical for life. Decades of research have focused on identifying the anatomical substrates and defining the cellular mechanisms that generate the breathing rhythm, while considerably less attention has been focused on motor circuits downstream of rhythmogenic centers. In mammals, a major node of these motor circuits consists of the rostral Ventral Respiratory Group (rVRG) that transmits excitatory drive to phrenic motor neurons (MNs) in the spinal cord, which provide the only motor input to the diaphragm muscle. Diaphragm contraction is imperative for breathing, and degeneration of phrenic MNs is the leading cause of death in neurodegenerative diseases such as ALS. Despite being required for survival, the molecular mechanisms that control the development and connectivity of this core respiratory motor circuit are largely unknown. In this talk, I will describe our recent work that has identified transcriptional programs and a set of cell adhesion molecules that control the development and function of this essential circuit.