Research In Progress Seminar

Tuesday, November 8, 2016
2:00PM

Location: The Fishbowl, 2120 Biological Sciences 3

Speaker:

Tatsuhisa Tsuboi,
Developmental & Cell Biology

Talk Title:

Quantitative image analysis of mRNA-mitochondrial distance alteration

Abstract:

To support mitochondrial function, thousands of nuclear-encoded proteins are imported into mitochondria from the cytoplasm. The fact that cytoplasmic mRNAs and ribosomes localize to the mitochondrial surface suggests a mechanism of co-translational protein import into mitochondria. However, we still do not know much about this mechanism. To elucidate this question, we investigated how mitochondria-localized mRNAs are moving on the surface of mitochondria during protein translation in Saccharomyces cerevisiae. We reconstructed and statistically analyzed the spatial relationship between the mRNAs and mitochondria using custom ImageJ routines and MitoGraph V2.0, which we previously developed to reconstruct 3D mitochondria. Our preliminary data indicate that some mRNA hovers near the mitochondrial surface for co-translational protein import. We are now modeling artificial mRNA movement in a cell and compared the data with experimental data for better understanding of mRNA regulatory mechanism.

Questions:

Please contact Naomi Carreon at: ncarreon@uci.edu or Kerrigan Blake at: kerrigab@uci.edu