BiophysTO Lunchtime Seminar Series

Date
Wednesday, April 17 2019
2:30 – 3:30 pm

Location
MaRS Centre
West Tower
Room 1622

Dr. Martin L. Duennwald

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Chaperoning protein misfolding in ALS

Protein misfolding is a hallmark of many neurodegenerative diseases, including Parkinson's disease (PD), and ALS (amyotrophic lateral sclerosis). Cellular protein quality control, i.e. all mechanisms involved in protein synthesis, maintenance, and degradation, typically protects cells from the detrimental consequences of protein misfolding. Clearly, in neurodegenerative diseases, protein quality control fails thus allowing neuronal dysfunction and death to ensue. The central molecular chaperone Hsp90 and its co-chaperones control specific cellular functions and determine specific client protein interactions. Employing a complementary approach in yeast models, mammalian cells, and *in vitro* biochemistry, we elucidate the molecular and cellular mechanisms by which Hsp90 and its co-chaperones modulate the misfolding of ALS proteins, such as TDP-43, FUS1, and the PD protein alpha-synuclein. We find that the co-chaperone St1p uniquely recognizes misfolded proteins and reduces their toxicity.

Host: Dr. Walid A. Houry

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