



BiophysTO Lunchtime Seminar Series

Date

Tuesday, Oct 3, 2023
11:00 am – 12:00 pm

Location

MaRS Centre
West Tower
Room 1622

Special seminar

Dr. Thorsten Hoppe

Institute for Genetics & CECAD,
University of Cologne, Cologne, Germany

Proteostasis in Development and Aging

The maintenance of proteostasis in any cell type involves the repair and degradation of defective proteins, which is essential for organismal physiology and longevity. The central interest of my laboratory is to understand how protein quality control systems are mechanistically regulated to overcome age-associated protein damage. Our recent work has identified conserved disease mechanisms associated with mitochondrial pathologies, diabetes, obesity, progressive myopathy, and neurodegenerative diseases. Current projects address physiological aspects of protein turnover in the context of age-related processes such as muscle development and regeneration, genome stability, mitochondrial metabolism, and protein aggregation. We combine innovative *in vitro* and *in vivo* protein degradation assays, microscopic, optogenetic and chemosensory methods to identify and characterize conserved proteostasis mechanisms. In addition to intracellular proteostasis networks, we address cell non-autonomous proteostasis pathways regulated by paracrine signals. Our recent work has elucidated how food odor, sensed by a single pair of olfactory neurons, affects physiology and aging. We also aim to understand the functional role of protein degradation in the context of age-related diseases. Our long-term goal is to define the crosstalk between stress-induced proteostasis networks and aging, which will help to identify conserved disease mechanisms.

Host: Dr. Walid A. Houry



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