



QUANTITATIVE & SYSTEMS BIOLOGY COLLOQUIUM:

Functional flexibility of intrinsically disordered proteins in mediating tardigrade desiccation tolerance

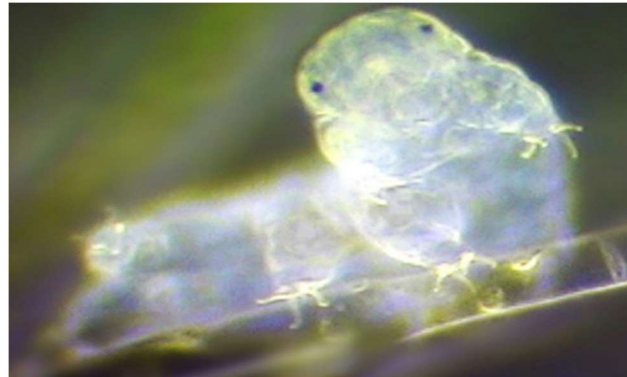
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About The Speaker:

Thomas Boothby is an assistant professor at the University of Wyoming's Department of Molecular Biology. He received his BS at Tulane University, before attending the University of Maryland where he received his Ph.D. working with Steve Wolniak on mechanisms utilized by organisms to stabilize their RNA during stasis. As a postdoc, Thomas worked with Bob Goldstein and Gary Pielak at the University of North Carolina where he pioneered the use of tardigrades as a model system for studying how animals survive extreme abiotic conditions.



Date:

11/4/2022

Time:

2:30 PM - 3:45 PM

Location:

COB2 140

Abstract:

Water is required for all metabolic processes and is therefore often considered essential for life. However, a number of organisms across all biological kingdoms challenge this assertion by losing all, or nearly all, of the bulk water inside their bodies and cells and yet somehow surviving. For this to occur, these specialized organisms enter a state of suspended animation known as anhydrobiosis (Greek for 'life without water'). Once in this anhydrobiotic state, dried organisms can persist for weeks, years, and in extreme cases centuries, and reactivate metabolism and resume life processes upon rehydration.

One such organism is the tardigrade, or water bear. These tiny creatures can survive a vast array of stresses including extremes in temperature, anoxia, exposure to intense ionizing radiation, extremes in pressure - including the vacuum of outer space, and of course extreme drying.

Here I describe our work investigating the role of intrinsically disordered proteins in mediating tardigrade desiccation tolerance.

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