SCHOOL OF BIOLOGICAL SCIENCES SEMINAR

Dr. Karen Kim Guisbert

University of Nebraska - Omaha

"Assay for the Afterglow: Visualizing Calcium Transients During Fertilization and Beyond"

Fertilization is a critical step in development, yet internal fertilization events are notoriously difficult to visualize. Taking advantage of the calcium response that is a hallmark of sperm-egg fusion, we have adapted the genetically encoded calcium indicator jGCaMP7s to visualize the moment of fertilization in C. elegans using fluorescence. We termed this tool the CaFE reporter for calcium during fertilization in C. elegans. The CaFE reporter produces a robust signal that recapitulates the previously reported, biphasic nature of the calcium wave and has no significant deleterious effects on worm physiology or fecundity. C. elegans has the unusual property of having a strictly ordered gonad where one and only one fertilization event takes place every ~23min in each gonad arm in a day1 adult. The strict, assembly-line design allows a "slice through time" of the entire oocyte-to-embryo transition. Furthermore, many key regulators of oogenesis and the oocyte-to-embryo transition are well-conserved, making C. elegans an excellent model to examine these issues. In this talk, I will describe our use of the CaFE reporter, along with other tools, to investigate the cell-cell communication/coordination that is required during the oocyte-to-embryo transition and how that communication is sensitive to environmental stress.

Hosted by

Michael Herman

Thursday, December 10th, 2026 at 3:30 p.m.
Hamilton Hall 112
Zoom Link: https://unl.zoom.us/j/94081044933
Password: sbsseminar

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