

Johns Hopkins University

Department of Biology Seminar Series

Thursdays, 4:00pm

For more information go to:

<https://bio.jhu.edu/events>

Mudd Room 100 - September 19th, 2024



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Growth & Development

Department of Obstetrics
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Wayne University, School
of Medicine

Host: John Kim

Cell Cycle Regulation of Membrane Trafficking in Oocyte Meiosis

The metaphase to anaphase transition is controlled by the spindle assembly checkpoint, which monitors chromosome alignment on the spindle and prevents premature anaphase entry. This pathway controls the activation of separase, a protease that is essential for chromosome separation at anaphase onset. We discovered an additional role for separase in promoting exocytosis during anaphase of meiosis I in *C. elegans*. Separase localizes to vesicles during anaphase and uses a proteolytic mechanism to promote exocytosis. Recently, we found that the checkpoint pathway regulates separase localization to vesicles in addition to its protease activity. In new unpublished work, we show that earlier steps in vesicle trafficking are regulated by outer kinetochore proteins, expanding the scope of chromosome segregation machinery involved in membrane trafficking. The dual regulation of chromosome segregation and membrane trafficking may be a generally conserved mechanism to ensure the coordination and fidelity of different events during cell division.