DEPARTMENT OF BIOLOGY | UNIVERSITY of WASHINGTON

Biology Seminar

By: Dr. Karen Oegema

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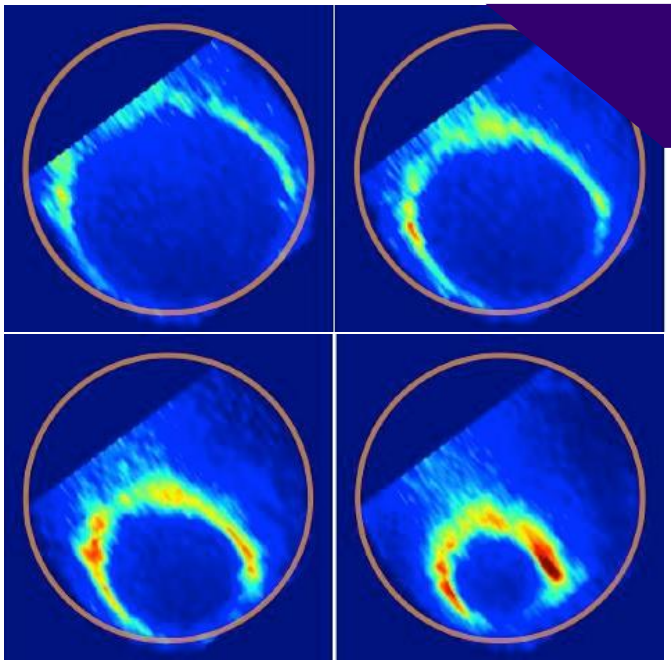
http://www.ludwigcancerresearch.org/location/san-diego-branch/karen-oegema-lab

Final Cut: Cortical Dynamics during Cytokinesis



Monday, May 01, 2017 | 12:00pm
HCK 132 Refreshments at 11:45am

During cytokinesis, a cortical contractile ring forms around the cell equator and constricts to partition the contents of the mother cell into the two daughter cells. Cytokinesis represents a paradigm for a temporally and spatially controlled cellular shape change that is achieved by regulation of the actomyosin cortex. I will present two new studies related to the mechanism of cytokinesis conducted in the one-cell *C. elegans* embryo. To initiate cytokinesis, the anaphase spindle sends a stimulatory signal to the cell equator that promotes cortical contractility. At the same time, centrosomal microtubule asters suppress cortical contractility at the cell poles. In the first part of my talk, I will present analysis of the mechanism by which contractility is suppressed at cell poles, performed using an assay we developed to specifically monitor this process. In the second part of my talk, I will address how the contractile ring maintains a relatively constant closure rate despite its progressively decreasing size, which is critical for rapid transformation of cell shape. To investigate this property, we generated a 4D map of cortical dynamics throughout cytokinesis, analysis of which has led us to develop a new positive feedback model, involving continuous interaction between the ring and the adjacent cortex, for ring closure.

Seminar Speaker Host: Clemens Cabernard