CDB SEMINAR

Speaker: Tetsuya Takeda

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Title: "Organization of a sterol-rich membrane domain during cytokinesis in fission yeast"

Date: Thursday, April 7
Time: 16:00 ~ 17:00
Place: 7th floor Conference Room of Building A, CDB

Summary:

Cytokinesis requires numerous membrane reorganization process, such as membrane insertion, secretion, membrane fusion, and the assembly and anchoring of the contractile ring to the plasma membrane. There is mounting evidence that many membrane processes occur in lipid rafts, but very little is known about how these membrane domains are formed and positioned in the cell. In fission yeast *Schizosaccharomyces pombe* lipid rafts are clustered in distinct sterol-rich membrane domains at the sites of cell division and cell growth. Here, we sought to identify proteins involved in membrane organization at the cell division site by screening cytokinesis mutants with a fluorescent sterol-binding dye filipin. Formation of the sterol-rich membrane domain was independent of actin ring assembly, septation and the septins. However, one of the cytokinesis mutants, *cdc15*, exhibited membrane domains in the shape of spirals. Overexpression of cdc15p in interphase cells induced abnormal membrane domain formation in an actin-independent manner. Interestingly, a cdc15-binding protein, myo1p (type I myosin), was also required for membrane domain organization and localized with the sterol-rich membrane domains. Cdc15p and myo1p localized to the cleavage furrow and fractionated as a peripheral membrane protein associated with lipid rafts. We propose that Cdc15p functions to organize lipid rafts at the cleavage site for cytokinesis.

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