

Mechanisms of cell cortex organization

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The cell cortex - the plasma membrane and its associated cytoskeletal structures - is intimately involved in essential cellular processes such as cell division, signal transduction or cell morphogenesis. My lab uses a combination of genetic, molecular biology, biochemistry and quantitative live cell imaging approaches to identify fundamental molecular mechanisms for the self-organization and reorganization of the cell cortex.

In my presentation, I will discuss our recent results on cortical actin reorganization and lateral protein segregation in the plasma membrane (PM) of budding yeast. In particular, we have performed a systematic study on PM protein localization, which should lead to a novel perception of membrane organization. Our results indicate that weak interactions between lipids and integral membrane proteins drive self-organization of membranes into a large number of co-existing domains. Such a patchwork organization might be essential for the ability of the PM to simultaneously perform its many biological functions.