Formation and Regulation of Lipid Microdomains in Cell Membrane

by

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ALL INTERESTED ARE WELCOME
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Abstract

The microstructure of cell membrane features lipid rafts, the liquid-ordered dynamic nanodomains, embedded in liquid-disordered matrices. Lipid rafts play an important role in transmembrane signal transduction, membrane trafficking, and viral budding. However, how the cell regulates the size, lifetime, and spatial localization of lipid rafts is still unclear. Over the years, experimental studies of lipid raft have lead to several phenomenological theories accounting for its formation. I investigated these theories by the continuum model and found that they can be differentiated by a combination of the spatial correlation and temporal fluctuation spectra of rafts. This result points the direction for the designing of experiments that will eventually lead to the correct paradigm of how cell regulates the microstructure of cell membranes.

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