



Seminar Announcement

Mechanoregulation of biomolecular condensation enables actin remodeling during signal transduction

Date: 21 August 2020, Friday

Time: 4pm

Venue: Classroom 1, SBS

Liquid-liquid phase separation (LLPS) is a universal strategy to form membraneless organelle in obtaining desired cellular activities on-demand, in space and time. During cell signaling, intrinsically disordered region (IDR) dynamically tunes the physicochemical properties of biomolecules that undergo LLPS in forming nano-/micro-droplets. Besides the interactive forces of macromolecules in maintaining dynamic assembly states, external mechanical constraints from scaffolding structures, such as extracellular matrix-plasma membrane-actin cytoskeleton continuum, modulate their phase behavior and physicochemical properties, and thereby the condensation-mediated signal transduction. Our studies in plant and fungal kingdoms deciphered a key actin remodeling mechanism by which macromolecular assembly and condensation remodel cellular actin assembly during cell signalings, such as stress adaptation and immune responses. In addition, we also discovered mechano-sensing mechanisms involve the regulation of LLPS for signal transductions.



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