Qinghua Wang, Biochem Anal Biochem 2016, 5:5(Suppl)
http://dx.doi.org/10.4172/2161-1009.C1.011

Molecular mechanisms of actin nucleation

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Actin is one of the most abundant and conserved eukaryotic proteins. Actin nucleation, defined as the formation of actin oligomers from G-actin monomers, is the rate-limiting step for *de novo* actin assembly in many fundamental cellular processes. In cells, actin nucleation is precisely and tightly regulated through a diverse set of actin nucleators. However, due to their fleeting nature, actin nuclei have long eluded structural investigation. Our lab has developed a novel double-mutant strategy, which allows the capture of actin nuclei in action. In the seminar, I will discuss the molecular mechanisms of actin nucleation based on the crystal structures and functional studies of multiple mammalian tandem-actin-binding nucleators.

Biography

Qinghua Wang has her expertise in Structural Biology with a focus on mechanistic studies of actin-mediated signal transduction. She has pioneered a novel double-mutant strategy that for the first time allowed the capture of stable actin nuclei for structural studies. By applying this novel strategy, she has elucidated the molecular mechanisms of mammalian tandem-actin-binding nucleators.

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