

Cell Motility: Actin Polymerization and Membrane Dynamics

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Branched actin networks at the leading edge of a crawling cell evolve via protein-regulated processes such as polymerization, depolymerization, capping, branching and severing. I shall discuss how the cell achieves fine-tuned control of both the morphology and dynamics of the cytoskeletal actin network by employing all the above processes in tandem. I shall also discuss how the polymerization activity leads to protrusive forces and how the coupling between motion of the receptors on the cell surface, actin polymerization activity and the dynamics of the membrane leads to distinct dynamical structures that form at the leading edge during motion.