Mechanical Regulation of Actin Networks

D. Fletcher
UC Berkeley, Bioengineering & Biophysics
QB3 Institute, Berkeley, CA 94720-3220, fletch@berkeley.edu

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Abstract

Actin networks generate forces and resist compression during cell movements and shape change. While the biochemistry of actin networks has been extensively studied and is well known for some parts of the actin cytoskeleton, the mechanochemistry of actin networks is only beginning to be understood. In particular, forces and mechanical constraints on actin networks have been revealed to play a regulatory role, altering their collective activity and architecture. This talk will describe recent experiments combining force microscopy and optical microscopy to investigate the mechanochemistry of branched actin networks reconstituted from purified proteins and their implications for whole cell behavior under mechanical constraints.