

PROTEINS OF THE ADF/COFILIN FAMILY: REGULATION OF ACTIN FILAMENTS DYNAMICS

Summary

Many cellular events are directly related to the cytoskeleton's dynamics, which remain under control of the protein regulatory system. Proteins of the ADF/cofilin family have been shown to be active in depolymerizing F-actin, as well as severing actin filaments and creating free barbed ends. Their various functions are regulated, among others, by phosphorylation, pH, the state of the nucleotide bound

to actin or the presence of other proteins such as profilin, gelsolin, tropomyosin, AIP1 and the Arp 2/3 complex. In addition, the ability of ADF/cofilin to bind to actin appears to be modified by phalloidin. It has also been emphasized that these key actin dynamics' regulators are able to form intranuclear actin/cofilin rods and some of their activities are associated with apoptosis.