

## DATASHEET

### Cofilin

Non-muscle, recombinant, untagged  
(~96% purity)

For Research Use Only.  
Not for Use in Diagnostic Processes.

Quantity: 50µg  
Cat. #: 8419-01

### Product Description

Cofilin belongs to a family of actin binding proteins present in all eukaryotic cells investigated, including mice and humans. These proteins are usually small (18kDa, 166 AA for human cofilin) and monomeric. They have in common the so-called ADF homology domain, a single fold characterized by a central beta-sheet structure and a long alpha-helix which is involved in actin binding. In vitro cofilin exhibits a low but characteristic severing activity on actin filaments, that is, they bind laterally to a filament and induce a break at his position, creating 2 uncapped actin fragments. Cofilin is released as a complex with one actin monomer.

Since cofilin has a higher affinity for ADP-actin than for ATP-actin, it severs preferentially "matured" actin filaments which contain no or few ATP-actin monomers. If cofilin binds to F- actin in high stoichiometry (1:1) it apparently creates a twist in the actin helix. Cofilin is phosphorylated at ser3 by several kinases, and it binds PIP2, both reactions are discussed as possible mechanisms of regulation. Together with a pH-dependence and the nucleotide preference, the possible regulation of cofilin activity in vivo appears very complex. The proposed physiological function is the modulation of actin dynamics in regions of high motility like the leading edge of adherent cells or the contractile ring during cytokinesis where cofilin is preferentially localized.

The protein concentration of Cofilin was measured at OD<sub>280</sub> (0.1%=0.778) and the purity by scanning densitometry of Coomassie G-250 stained SDS-Gels. Lyophilized Cofilin contains 150mM NaCl, 20mM Hepes pH 7.4, 1mM DTT and 5% sucrose, when reconstituted with ultrapure H<sub>2</sub>O to a 1.0 mg/ml solution.

### Product Handling

#### Preparation of a working stock

Add 50µl H<sub>2</sub>O to the tube with Cofilin to obtain a 1mg/ml stock. Vortex mildly and allow the protein to rehydrate for 2min and vortex again. Quickly spin the tube up to ~3.000xg for seconds to collect the solution at the bottom. Depending on the purpose this stock solution is ready-to-use. For critical assays we recommend buffer exchange against 150mM NaCl, 20mM Hepes pH 7.4, 1mM DTT.

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## DATASHEET

### Cofilin

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### Product Storage and Stability

Store the product at -70° upon arrival, where it will be stable for at least 6 months. Once dissolved, Cofilin is kept on ice and should be used within 5 days. Avoid refreezing.

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