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Product Information

Anti-Cofilin
produced in rabbit, IgG fraction of antiserum

Catalog Number **C8736**

Product Description

Anti-Cofilin is produced in rabbit using as immunogen a synthetic peptide corresponding to amino acids 154-166 of human cofilin with N-terminal cysteine added, conjugated to maleimide-activated keyhole limpet hemocyanin (KLH). The corresponding sequence is identical in pig and rat non-muscle cofilin and differs by three amino acids from that of human and chicken muscle cofilin. Whole antiserum is fractionated and further purified by ion-exchange chromatography to provide the IgG fraction of antiserum that is essentially free of other rabbit serum proteins.

Anti-Cofilin specifically recognizes human cofilin by immunoblotting (~19 kDa) and immunofluorescence. Staining of cofilin by immunoblotting is inhibited by the immunizing peptide. The product cross-reacts with rat, mouse and dog cofilin.

Cofilin is a small phosphoinositide-sensitive, actin-binding protein capable of depolymerizing actin-filaments *in vitro*. Under certain conditions, it fragments the filaments and accelerates actin subunit dissociation from their 'pointed' (minus) ends. Cofilin binds stoichiometrically to monomeric G-actin and to actin protomers in filaments in an apparent pH-dependent, Ca^{2+}-independent manner. Actin-ADP is preferentially bound.[1-6] Cofilin intercalates between longitudinally associated actin monomers within the filament and distorts its helical twist. Cofilin is very similar to destrin/ ADF (Actin Depolymerizing Factor), a related gelsolin-like actin filament-severing protein.

Mammalian cofilin has non-muscle (NM-CF, CF-L1) and muscle (M-CF, CF-L2) isoforms. Cofilin is ubiquitous in tissues of eukaryotes and is especially abundant in neuronal tissues. It can shuttle between the cytoplasm and the nucleus in response to various stresses or signals, and may translocate from the cytoplasm to the plasma membrane in various cells.[2,4,7] Cofilin is present together with destrin in 'Hirano bodies' in certain brain neurons of dementia patients.

Cofilin is essential for viability and is important for many cellular processes involving actin remodeling such as motility at the leading edge of cells, polarized cell growth, endocytosis, phagocytosis, cellular activation, cytokinesis, and pathogen intracellular motility. *In vivo* activity of vertebrate cofilin is regulated through reversible phosphorylation and dephosphorylation at the serine 3 residue.[8] The phosphorylated form is inactive and incapable of association with actin. Phosphorylation of cofilin is regulated in vertebrates by at least four protein kinases: LIM Kinase 1, LIM Kinase 2, Testicular Kinase 1, and Testicular Kinase 2, whereas its dephosphorylation in co-stimulated human lymphocytes is carried out by serine phosphatases PP1 and PP2A.[9,10]

Reagent

Supplied as a solution in 0.01 M phosphate buffered saline, pH 7.4, containing 15 mM sodium azide.

Antibody concentration: 9-12 mg/ml

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Storage/Stability

For continuous use, store at 2-8 °C for up to one month. For prolonged storage, freeze in working aliquots at –20 °C. Repeated freezing and thawing, or storage in frost-free freezers, is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilutions should be discarded if not used within 12 hours.

Product Profile

Immunoblotting: a minimum working antibody dilution of 1:10,000 is recommended using whole extracts of human A-431, rat PC-12, mouse NIH/3T3 and dog MDCK kidney cells

Immunofluorescence: a minimum working antibody dilution of 1:1,000 is recommended using mouse NIH/3T3 fibroblasts.

Note: In order to obtain the best results using different techniques and preparations, we recommend determining the optimal working dilutions by titration.

References

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