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# ProductInformation

**Anti-Profilin 1 (N-terminal)**
produced in rabbit, affinity isolated antibody

Catalog Number **P7749**

## Product Description

Anti-Profilin 1 (N-terminal) is developed in rabbit using as immunogen a synthetic peptide corresponding to amino acid residues 2-17 of human profilin 1, conjugated to KLH. The corresponding rat and mouse sequence differs by one amino acid. This sequence is 70% similar to the corresponding sequence in Profilin 2. The antibody is affinity-purified using the immunizing peptide immobilized on agarose.

Anti-Profilin 1 (N-terminal) recognizes human, mouse, and rat profilin 1. Applications include immunoblotting (~15 kDa) and immunofluorescence. Detection of the profilin 1 band by immunoblotting is specifically inhibited by the immunizing peptide.

Profilin 1 is a ubiquitous actin monomer-binding protein involved in actin polymerization in response to extracellular signals.[1] Three profilin genes have been identified: profilin 1, 2, and 3. Profilin 1 is the most ubiquitous and abundant, and is highly expressed throughout development and adulthood in most tissues including brain. Profilin 2 is the neuronal specific isoform and profilin 3 is a testis specific isoform.[2, 3] Profilins of eukaryotic cells are small (12-15 kDa) cytoplasmic proteins that bind to actin monomers, polyphosphoinositides and polymers of L-proline.[1] Profilins were shown to be important for normal cell proliferation, differentiation and motility.[4] Deletion of profilin 1 gene leads to an embryonic lethal phenotype.[5]

Profilin 1 is a potent regulator of actin filament dynamics. Although profilin 1 prevents spontaneous actin polymerization by complexing with unpolymerized actin *in vivo*, actin-profilin complexes can be added to free barbed ends, thereby stimulating actin polymerization. When bound to actin, profilin functions as an ATP nucleotide exchange factor recharging ADP-actin with ATP.[6, 7] Dissociation of the profilin-actin complex is caused by binding of profilin to phosphatidylinositol 4,5-biphosphate ($PIP_2$), which liberates actin for polymerization.[8] Profilin binds with high affinity to poly-L-proline stretches found in many cellular proteins associated with the cytoskeleton.

Profilin is recruited to sites of active cytoskeletal assembly through its interaction with proteins such as N-WASP, the ARP2/3 complex, p140mDia, VASP and Mena.[7] The interactions of profilin 1 with actin, proline-rich proteins and $PIP_2$ influences neuronal differentiation of PC12 cells.[9] Profilin 1 was suggested to act as a tumor suppressor protein based on its reduced expression in several types of invasive cancers and its ability to suppress tumorigenicity when over-expressed in breast cancer cells.[4, 10] Deletion of profilin 1 is associated with Miller-Dieker syndrome.[11]

## Reagent

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

Antibody concentration: ~1 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 extended storage, freeze in working aliquots. 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 working concentration of 1-2 µg/mL is recommended using whole extracts of mouse NIH-3T3 and human HeLa cells, applying a chemiluminescent detection reagent.

Indirect immunofluorescence: a working concentration of 10-20 µg/mL is recommended using rat NRK cells.

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

**References**


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