3050 Spruce Street, St. Louis, MO 63103 USA
Tel: (800) 521-8956 (314) 771-5765 Fax: (800) 325-5052 (314) 771-5757
email: techservice@sial.com sigma-aldrich.com

Product Information

Monoclonal Anti-Profilin 1, clone Profilin1-3
produced in mouse, purified immunoglobulin

Catalog Number **SAB4200357**

Product Description

Monoclonal Anti-Profilin 1 (mouse IgG1 isotype) is derived from the hybridoma Profilin1-3 produced by the fusion of mouse myeloma cells and splenocytes from BALB/c mice immunized with a synthetic peptide corresponding to a sequence located near the C-terminus of human profiling 1 (GeneID: 5216), conjugated to KLH. The corresponding sequence is identical in mouse and rat Profilin 1. The isotype is determined by ELISA using Mouse Monoclonal Antibody Isotyping Reagents, Catalog Number ISO2. The antibody is purified from culture supernatant of hybridoma cells grown in a bioreactor.

Monoclonal Anti-Profilin 1 recognizes human, rat, mouse, bovine and canine Profilin 1. The antibody may be used in various immunochemical techniques including immunoblotting (~15 kDa) and immunoprecipitation. 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 cytoplasmic proteins (12-15 kDa) 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]
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.[4,10,11]
Deletion of the *profilin 1* gene leads to an embryonic lethal phenotype.[5] Single allelic deletion of the profilin locus has been found to be associated with Miller-Dieker syndrome.[12]

Reagent

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

Antibody Concentration: ~ 1.0 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 at –20 °C 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 dilution samples 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 HeLa or NRK cells.

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

References

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