

Twinfilin-1 (C-12): sc-376418

BACKGROUND

Twinfilin is a highly conserved Actin monomer-binding protein that regulates cytoskeletal dynamics in organisms from yeast to mammals. Twinfilin is composed of two ADF-homology domains; it coordinates filament severing and monomer sequestering at sites of rapid Actin turnover, thus preventing assembly of the monomer into filaments. Twinfilin-1 is the mammalian homolog and is expressed in embryos and in most adult non-muscle cell types. Twinfilin-1 binds ADP-G-Actin and efficiently halts Actin filament assembly by inhibiting the nucleotide exchange on Actin monomers and directly interacting with the capping protein. Phosphatidylinositol (4,5)-bisphosphate inhibits the activity of Twinfilin-1, while two small GTPases, namely Rac1 and Cdc42, induce the redistribution of Twinfilin-1 to membrane ruffles and cell-cell contacts, respectively.

REFERENCES

- Goode, B.L., et al. 1998. Regulation of the cortical Actin cytoskeleton in budding yeast by twinfilin, a ubiquitous actin monomer-sequestering protein. *J. Cell Biol.* 142: 723-733.
- Vartiainen, M., et al. 2000. Mouse A6/twinfilin is an Actin monomer-binding protein that localizes to the regions of rapid actin dynamics. *Mol. Cell. Biol.* 20: 1772-1783.
- Palmgren, S., et al. 2001. Interactions with PIP2, ADP-Actin monomers, and capping protein regulate the activity and localization of yeast twinfilin. *J. Cell Biol.* 155: 251-260.
- Wahlström, G., et al. 2001. Twinfilin is required for Actin-dependent developmental processes in *Drosophila*. *J. Cell Biol.* 155: 787-796.
- Palmgren, S., et al. 2002. Twinfilin, a molecular mailman for Actin monomers. *J. Cell Sci.* 115: 881-886.
- Vartiainen, M.K., et al. 2003. Mammals have two twinfilin isoforms whose subcellular localizations and tissue distributions are differentially regulated. *J. Biol. Chem.* 278: 34347-34355.
- Falck, S., et al. 2004. Biological role and structural mechanism of twinfilin-capping protein interaction. *EMBO J.* 23: 3010-3019.

CHROMOSOMAL LOCATION

Genetic locus: TWF1 (human) mapping to 12q12; Twf1 (mouse) mapping to 15 E3.

SOURCE

Twinfilin-1 (C-12) is a mouse monoclonal antibody raised against amino acids 175-236 mapping near the C-terminus of Twinfilin-1 of human origin.

PRODUCT

Each vial contains 200 µg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

STORAGE

Store at 4° C, ****DO NOT FREEZE****. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

APPLICATIONS

Twinfilin-1 (C-12) is recommended for detection of Twinfilin-1 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for Twinfilin-1 siRNA (h): sc-61738, Twinfilin-1 siRNA (m): sc-61739, Twinfilin-1 shRNA Plasmid (h): sc-61738-SH, Twinfilin-1 shRNA Plasmid (m): sc-61739-SH, Twinfilin-1 shRNA (h) Lentiviral Particles: sc-61738-V and Twinfilin-1 shRNA (m) Lentiviral Particles: sc-61739-V.

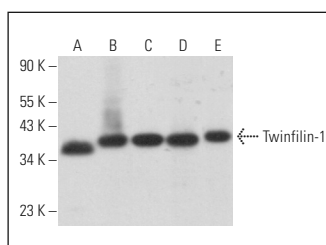
Molecular Weight of Twinfilin-1: 40 kDa.

Positive Controls: NIH/3T3 whole cell lysate: sc-2210, PC-12 cell lysate: sc-2250 or U-251-MG whole cell lysate: sc-364176.

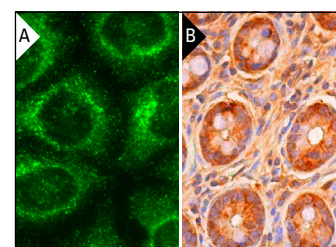
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850. 4) Immunohistochemistry: use m-IgGκ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

DATA



Twinfilin-1 (C-12): sc-376418. Western blot analysis of Twinfilin-1 expression in RT-4 (A), U-251-MG (B), NIH/3T3 (C) and PC-12 (D) whole cell lysates and rat brain tissue extract (E).



Twinfilin-1 (C-12): sc-376418. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic localization (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human colon tissue showing cytoplasmic and membrane staining of glandular cells and cytoplasmic staining of endothelial cells (B).

RESEARCH USE

For research use only, not for use in diagnostic procedures.