

Twinfilin-1 (B-7): sc-376468

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)-biphosphate 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

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- 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.
- Rush, J., et al. 2005. Immunoaffinity profiling of tyrosine phosphorylation in cancer cells. *Nat. Biotechnol.* 23: 94-101.

CHROMOSOMAL LOCATION

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

SOURCE

Twinfilin-1 (B-7) 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 IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

Twinfilin-1 (B-7) 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.

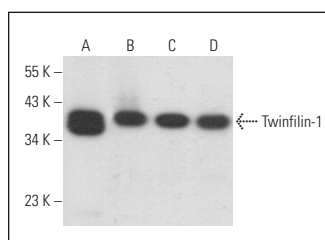
Molecular Weight of Twinfilin-1: 40 kDa.

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

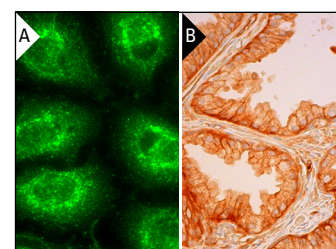
RECOMMENDED SUPPORT REAGENTS

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 (B-7): sc-376468. Western blot analysis of Twinfilin-1 expression in NCI-H1299 (A), U-251-MG (B), NIH/3T3 (C) and PC-12 (D) whole cell lysates.



Twinfilin-1 (B-7): sc-376468. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic localization (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human prostate tissue showing cytoplasmic and membrane staining of glandular cells (B).

STORAGE

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

RESEARCH USE

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