SANTA CRUZ BIOTECHNOLOGY, INC.

Profilin-1 (H-4): sc-137236

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Profilins regulate Actin polymerization by binding to and sequestering the Actin monomer. Profilins act as a nucleotide exchange factor that charges Actin with ATP after binding the Actin monomer through a 1:1 stoichiometric relationship. Human Profilin-1 and Profilin-2 are encoded by two separate genes mapping to chromosomes 17p13.2 and 3q25.1, respectively. Both Profilin-1 and Profilin-2 are abundantly expressed in kidney. Profilin-1 is highly expressed in lung, liver, placenta and kidney while Profilin-2 is highly expressed in brain and skeletal muscle. In axonal and dendritic processes of mouse brain, Profilins co-localize with dynamin I and synapsin. Profilin may play a role in mediating cell adhesion. The overexpression of Profilin in endothelial cells results in increased adhesion to Fibronectin. In food allergy, plant Profilin is considered a pan-allergen. Case studies indicate individuals with allergies to various foods including celery, carrots, zucchini and peanuts are actually sensitive to the Profilin proteins in these foods.

CHROMOSOMAL LOCATION

Genetic locus: PFN1 (human) mapping to 17p13.2; Pfn1 (mouse) mapping to 11 B3.

SOURCE

Profilin-1 (H-4) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 2-37 at the N-terminus of Profilin-1 of human origin.

PRODUCT

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

Blocking peptide available for competition studies, sc-137236 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

Profilin-1 (H-4) is recommended for detection of Profilin-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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Profilin-1 (H-4) is also recommended for detection of Profilin-1 in additional species, including equine, bovine and porcine.

Suitable for use as control antibody for Profilin-1 siRNA (h): sc-36316, Profilin-1 siRNA (m): sc-36317, Profilin-1 shRNA Plasmid (h): sc-36316-SH, Profilin-1 shRNA Plasmid (m): sc-36317-SH, Profilin-1 shRNA (h) Lentiviral Particles: sc-36316-V and Profilin-1 shRNA (m) Lentiviral Particles: sc-36317-V.

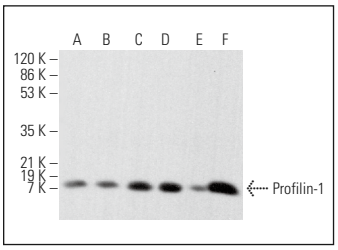
Molecular Weight of Profilin-1: 12-15 kDa.

Positive Controls: A549 cell lysate: sc-2413, Caki-1 cell lysate: sc-2224 or Jurkat whole cell lysate: sc-2204.

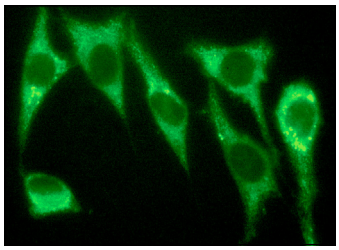
RECOMMENDED SUPPORT REAGENTS

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 L-Agarose: sc-2336 (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.

DATA



Profilin-1 (H-4): sc-137236. Western blot analysis of Profilin-1 expression in A549 (**A**), Caki-1 (**B**), WI-38 (**C**), SW480 (**D**), c4 (**E**) and Jurkat (**F**) whole cell lysates.



Profilin-1 (H-4): sc-137236. Immunofluorescence staining of methanol-fixed NIH/3T3 cells showing cytoplasmic localization.

SELECT PRODUCT CITATIONS

1. Menkhorst, E.M., et al. 2012. Decidual-secreted factors alter invasive trophoblast membrane and secreted proteins implying a role for decidual cell regulation of placentation. PLoS ONE 7: e31418.
2. Menkhorst, E.M., et al. 2017. Invasive trophoblast promote stromal fibroblast decidualization via Profilin-1 and ALOX5. Sci. Rep. 7: 8690.
3. Wang, H., et al. 2019. Pigment epithelial-derived factor deficiency accelerates atherosclerosis development via promoting endothelial fatty acid uptake in mice with hyperlipidemia. J. Am. Heart Assoc. 8: e013028.
4. Lu, E., et al. 2020. Profilin 1 knockdown prevents ischemic brain damage by promoting M2 microglial polarization associated with the RhoA/ROCK pathway. J. Neurosci. Res. 98: 1198-1212.
5. George, L., et al. 2020. Profilin-1 is dysregulated in endometroid (type I) endometrial cancer promoting cell proliferation and inhibiting pro-inflammatory cytokine production. Biochem. Biophys. Res. Commun. 531: 459-464.
6. Shimizu, M., et al. 2023. RGMa collapses the neuronal actin barrier against disease-implicated protein and exacerbates ALS. Sci. Adv. 9: eadg3193.

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.