

Profilin-2 (4K-6): sc-100955

BACKGROUND

Profilins (Profilin-1, Profilin-2 and Profilin-3) act as nucleotide exchange factors that use ATP to charge Actin, a process that regulates Actin polymerization by subsequently sequestering the Actin monomer. Profilin-2, also known as PFN2 or PFL, is a 140 amino acid protein that is ubiquitously expressed with highest expression in kidney, brain and skeletal muscle. Like other members of the Profilin family, Profilin-2 functions as an Actin monomer-binding protein that influences the structure of the cytoskeleton by regulating Actin polymerization in response to extracellular signals. High levels of Profilin-2 inhibit Actin polymerization, while lower levels enhance Actin polymerization, suggesting that the expression of Profilin-2 is regulated by the need for polymerization within the cell. Two isoforms of Profilin-2 exist due to alternative splicing events.

REFERENCES

1. Honoré, B., et al. 1993. Cloning and expression of a novel human Profilin variant, Profilin II. *FEBS Lett.* 330: 151-155.
2. Gieselmann, R., et al. 1995. Distinct biochemical characteristics of the two human Profilin isoforms. *Eur. J. Biochem.* 229: 621-628.
3. Nodelman, I.M., et al. 1999. X-ray structure determination of human Profilin II: a comparative structural analysis of human profilins. *J. Mol. Biol.* 294: 1271-1285.

CHROMOSOMAL LOCATION

Genetic locus: PFN2 (human) mapping to 3q25.1; Pfn2 (mouse) mapping to 3 D.

SOURCE

Profilin-2 (4K-6) is a mouse monoclonal antibody raised against partial recombinant protein mapping within amino acids 41-140 of Profilin-2 of human origin.

PRODUCT

Each vial contains 100 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

Profilin-2 (4K-6) is recommended for detection of Profilin-2 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)] and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for Profilin-2 siRNA (h): sc-78482, Profilin-2 siRNA (m): sc-152477, Profilin-2 shRNA Plasmid (h): sc-78482-SH, Profilin-2 shRNA Plasmid (m): sc-152477-SH, Profilin-2 shRNA (h) Lentiviral Particles: sc-78482-V and Profilin-2 shRNA (m) Lentiviral Particles: sc-152477-V.

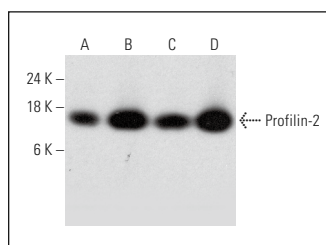
Molecular Weight of Profilin-2: 15 kDa.

Positive Controls: Hep G2 cell lysate: sc-2227, Profilin-2 (m): 293T Lysate: sc-122786 or A-431 whole cell lysate: sc-2201.

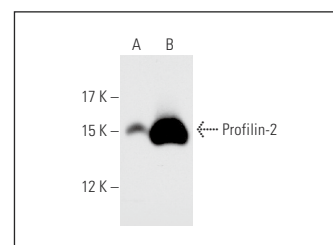
RECOMMENDED SUPPORT REAGENTS

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).

DATA



Profilin-2 (4K-6): sc-100955. Western blot analysis of Profilin-2 expression in Hep G2 (A), A-431 (B) and NIH/3T3 (C) whole cell lysates and mouse brain tissue extract (D).



Profilin-2 (4K-6): sc-100955. Western blot analysis of Profilin-2 expression in non-transfected: sc-117752 (A) and mouse Profilin-2 transfected: sc-122786 (B) 293T whole cell lysates.

SELECT PRODUCT CITATIONS

1. Joy, M., et al. 2017. The myocardin-related transcription factor MKL co-regulates the cellular levels of two Profilin isoforms. *J. Biol. Chem.* 292: 11777-11791.
2. Nejedla, M., et al. 2017. A fluorophore fusion construct of human Profilin I with non-compromised poly(L-proline) binding capacity suitable for imaging. *J. Mol. Biol.* 429: 964-976.
3. Funk, J., et al. 2019. Profilin and formin constitute a pacemaker system for robust Actin filament growth. *Elife* 8: e50963.
4. Ergin, V., et al. 2020. Putative coiled-coil domain-dependent autoinhibition and alternative splicing determine SHTN1's Actin-binding activity. *J. Mol. Biol.* 432: 4154-4166.
5. He, Y., et al. 2021. A noncanonical AR addiction drives enzalutamide resistance in prostate cancer. *Nat. Commun.* 12: 1521.
6. Ying, Y., et al. 2024. Thymosin β4 regulates the differentiation of thymocytes by controlling the cytoskeletal rearrangement and mitochondrial transfer of thymus epithelial cells. *Int. J. Mol. Sci.* 25: 1088.

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.