

Profilin-4 (S-13): sc-243866

BACKGROUND

Profilin-4, also known as Profilin IV or PFN4 (Profilin family, member 4), is a 129 amino acid protein that belongs to the Profilin family and localizes to cytoplasm and cytoskeleton. Profilin-4 binds to actin and plays a role in cytoskeleton structure. Encoded by a gene that maps to human chromosome 2p23.3, Profilin-4 is conserved in dog, cow, mouse, rat and chicken. Multiple Profilin isoforms exist in mammals, with four known to be expressed in mammalian testis: Profilin-1, Profilin-2, Profilin-3 and Profilin-4. Similar to Profilin-3, testis-specific Profilin-4 may have a specialized role in spermatogenic cells distinct from known functions fulfilled by the "somatic" Profilins, Profilin-1 and Profilin-2. Conversely, the actin-binding site of Profilin-3 is conserved and approximately half of the common poly-L-proline binding site is retained, while Profilin-4 has lost both polyproline and actin binding sites completely. Although Profilin-4 does not interact with actin or polyproline *in vitro*, it appears to be specialized for phospholipid binding and may provide cellular functions that are distinct from actin dynamics regulation.

REFERENCES

- Ramachandran, S., et al. 2000. Profilin plays a role in cell elongation, cell shape maintenance, and flowering in *Arabidopsis*. *Plant Physiol.* 124: 1637-1647.
- Sharma, A., et al. 2005. A role for complexes of survival of motor neurons (SMN) protein with gemins and profilin in neurite-like cytoplasmic extensions of cultured nerve cells. *Exp. Cell Res.* 309: 185-197.
- Obermann, H., et al. 2005. Novel testis-expressed profilin IV associated with acrosome biogenesis and spermatid elongation. *Mol. Hum. Reprod.* 11: 53-64.
- Polet, D., et al. 2007. On the origin and evolution of vertebrate and viral profilins. *FEBS Lett.* 581: 211-217.
- Jockusch, B.M., et al. 2007. The profile of profilins. *Rev. Physiol. Biochem. Pharmacol.* 159: 131-149.
- Birbach, A. 2008. Profilin, a multi-modal regulator of neuronal plasticity. *Bioessays* 30: 994-1002.
- Syriani, E., et al. 2008. Profilin induces lamellipodia by growth factor-independent mechanism. *FASEB J.* 22: 1581-1596.
- Behnen, M., et al. 2009. Testis-expressed profilins 3 and 4 show distinct functional characteristics and localize in the acroplaxome-manchette complex in spermatids. *BMC Cell Biol.* 10: 34.
- Sun, X., et al. 2010. The role of actin and myosin during spermatogenesis. *Mol. Biol. Rep.* 38: 3993-4001.

CHROMOSOMAL LOCATION

Genetic locus: PFN4 (human) mapping to 2p23.3.

SOURCE

Profilin-4 (S-13) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of Profilin-4 of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-243866 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

Profilin-4 (S-13) is recommended for detection of Profilin-4 of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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); non cross-reactive with Profilin-1, Profilin-2 or Profilin-3.

Suitable for use as control antibody for Profilin-4 siRNA (h): sc-94769, Profilin-4 shRNA Plasmid (h): sc-94769-SH and Profilin-4 shRNA (h) Lentiviral Particles: sc-94769-V.

Molecular Weight of Profilin-4: 14 kDa.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

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.

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.